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1 Introduction

Welcome to the online version of the documentation for Stimulsoft Reports. This part of documentation describes basic approaches to working with the GUI. Here you can find the answers to all your questions, find out about main abilities, master the skills of working with the report designer, viewer and other utilities. Also you will learn how to use the components for designing reports, formatting, filtering, and creating styles for reports.

➤ Welcome to **Stimulsoft**:

- [Technical Support](#)
- [Trial License Limitations](#)
- [Information in Web and References](#)
- [Evaluate Demo Version](#)
- [Features - Stimulsoft Reports Product Line](#)

➤ Report Designer:

- [Creating Reports in Designer](#)
- [Keyboard Shortcuts](#)
- [Previewing Reports](#)
- [More...](#)

➤ Learn more about the basic tools and reporting components:

- [Data Band](#)
- [Expressions](#)
- [Groups](#)
- [Creating Lists](#)
- [Appearance](#)
- [More...](#)

➤ Viewer

- [Report Viewer](#)
- [Dot-matrix Viewer](#)
- [Special Viewing Options in Web](#)
- [Dashboard Viewer](#)

➤ Read the basics of creating reports:

- [Simple List Report](#)
- [Master-Detail Report](#)
- [Report with Chart](#)
- [Report with Cross-Tab](#)
- [Anchors in Report](#)
- [Invoice Report](#)
- [More...](#)

➤ Right to Left Mode:

- [Text Component](#)
- [Columns on Page](#)
- [Cross Table Component](#)
- [Columns in Data Band](#)
- [More...](#)

➤ Work with Data:

➤ Reports:

- [i Control Panel](#)
- [i Data Source](#)
- [i Relation](#)
- [i Variables](#)
- [i More...](#)
- [i Import](#)
- [i Publish](#)

➤ Export Reports:

- [i Available File Formats](#)
- [i Common Export Settings](#)
- [i Formats with Fixed Page Layout](#)
- [i Spreadsheets](#)
- [i Data](#)
- [i How to Create Report for Export?](#)
- [i More...](#)

The second part of the manual contains the description of non-visual parts of products Stimulsoft.

1.1 Activation

Trial version

The free trial of Stimulsoft software is a full-featured version. It has a few limitations, which are as follows:

- The evaluation period is limited to 30 days which starts from the date of the account registration;
- The Trial watermark is printed on each report page or the dashboard panel.

Information

It is impossible to run the designer without logging into the user account. You can create a free account to start the report creation.

This chapter will cover the following:

- [Registering a user account on the website;](#)
- [Report Designer Activation;](#)
- [Logging in to the account using a proxy server;](#)

➤ [Contacts](#).

Registering a user account on the website

Step 1: Go to the **Stimulsoft** website at <https://stimulsoft.com>.

Step 2: Find the **Sign Up** button on top of the start page and click it;

Step 3: Fill in the required fields - first name, last name, email address, and account password.

Step 4: Confirm "I'm not a robot";

Step 5: Read the license agreement. Check the box that you have read and accepted the license agreement.

Step 6: Click the **Sign Up** button, if you agree and accept the [privacy policy](#) and [terms of use](#).

SIGN UP

STIMULSOFT
CLOUD

First Name

 John

Last Name

 Doe

User Name (Email)

 JD@stimulsoft.com

Password

 ●●●●●●●●●●

 I'm not a robot


reCAPTCHA
Privacy - Terms

☒ I read and accept the Privacy and Terms

Sign Up



Already have account

Information

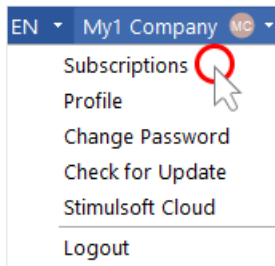
You can [register a user account from the report designer](#). In addition, you can [log in using your Google account](#).

Report Designer Activation

The report designer will be activated when you log in to a user account with a subscription. If, after authentication, the Trial watermark is present on the report pages and dashboards, you probably do not have a subscription for this product.

Purchasing or renewing a report designer

Step 1: Click on the **Account** menu in the upper right corner of the report designer and select the **Subscription** item;



Step 2: In the **Subscriptions** dialog, hover over the subscription you want to renew and click the **Renew** button;

Step 3: After that, you will be redirected to the [Online store](#);

Step 4: Select the subscription option you need and click the **Request Quote** button;

Step 5: Fill in the required fields and click the **Get Quote** button;

Step 6: Click the **Purchase** button in the PDF file you get;

Step 7: Make the payment.

Purchasing a new subscription or updating it from the personal account

Step 1: Log in to your personal account and click the **Purchase** button for a specific product;

Step 2: After that, you will be redirected to the [Online store](#);

Step 3: Select the subscription type you need and click the **Request Quote** button;

Step 4: Fill in the required fields and click the **Get Quote** button;

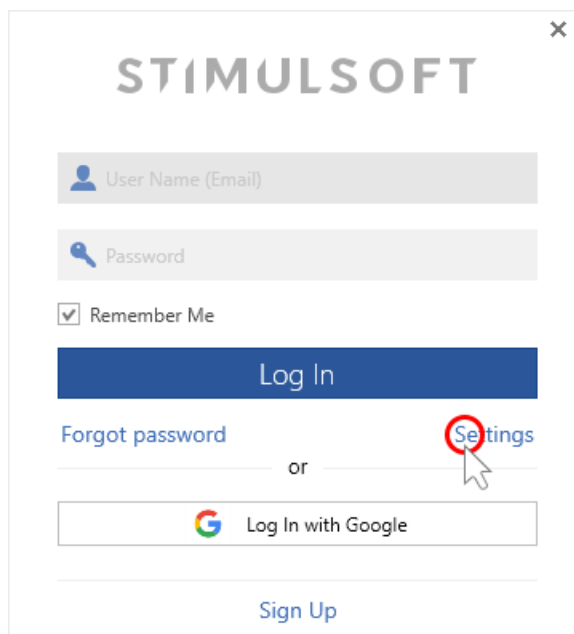
Step 5: click the **Purchase** button in the PDF file you get;

Step 6: Make the payment.

Logging in to the account using a proxy server

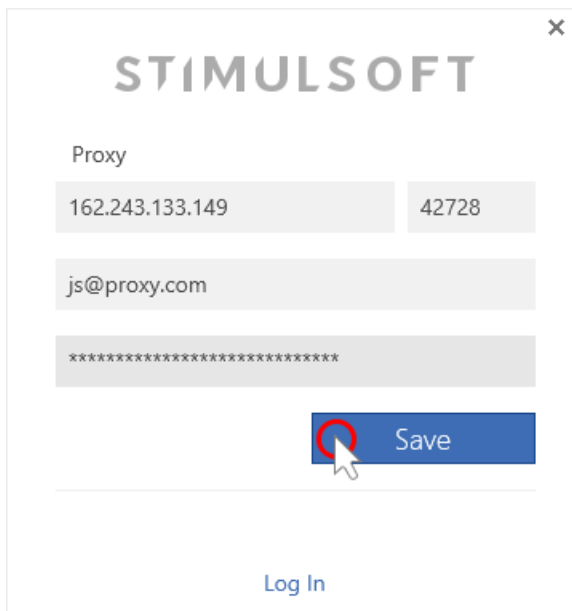
Step 1: Run the report designer;

Step 2: Click the **Settings** button in the login window;

A screenshot of the Stimulsoft login window. The window has a title bar with a close button (X). The main content area features the 'STIMULSOFT' logo at the top. Below the logo are two input fields: 'User Name (Email)' and 'Password'. A 'Remember Me' checkbox is located below the password field. A large blue 'Log In' button is positioned below the checkbox. To the left of the 'Log In' button are the links 'Forgot password' and 'Settings'. A mouse cursor is pointing at the 'Settings' link, which is circled in red. Below the 'Log In' button is a 'Log In with Google' button featuring the Google logo. At the bottom of the window is a 'Sign Up' link.

Step 3: Enter the proxy server address, port, username and password in the appropriate fields;

Step 4: Click the **Save** button;

A screenshot of the Stimulsoft Proxy configuration dialog box. The dialog has a title bar with the Stimulsoft logo and a close button (X). Inside, there's a 'Proxy' section with two input fields: one for the IP address '162.243.133.149' and one for the port '42728'. Below these is an email field containing 'js@proxy.com'. A password field is shown with asterisks. At the bottom, there's a blue 'Save' button with a red circular icon and a mouse cursor pointing at it, and a 'Log In' link below it.

Step 5: Log in to the designer using your account credentials.

In case of any other situation or if you have any questions, please contact us.

➤ **Phone:**

+1-209-734-0001
+48-690-104-472

➤ **Email:**

info@stimulsoft.com
sales@stimulsoft.com
support@stimulsoft.com

➤ **Telegram:**

t.me/stimulsoft

➤ **Teams:**

stimulsoft@gmail.com

1.2 Technical Support

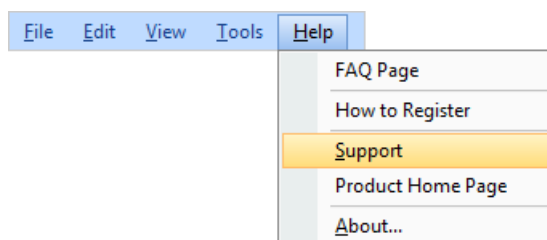
Users with active subscription and users who are evaluating the software (pre-sale) may get technical support.



For technical questions, please send requests to support@stimulsoft.com
For subscription, payment questions, send your questions sales@stimulsoft.com
For other inquiries, please use the e-mail address: info@stimulsoft.com

If you have issues with our products, you may contact us through our feedback form at <http://www.stimulsoft.com/support.aspx>

It is possible to send questions from the standard UI of the report designer. To do this, select the Help menu -> Support.



If you are an user with active subscription and you contact us for technical support, use the same email address you used when you purchased our product. Otherwise, it

won't be easy to identify you as a client. This can slow down our response. Please let us know when your email address changes.

To solve your problem quickly, we need the following information:

- Product name and its version;
- A detailed description of the problem and how to reproduce it;
- Your operating system (98, ME, 2000, XP, Vista, Window 7, etc.), its version, and the localization of established service packs;
- The version of Microsoft .NET Framework or other development environment and installed service packs;
- A name of your development environment and its version;
- Additional information that can help us solve the problem.

1.3 Web Links and Online Resources

This section describes how to get information about the latest news and announcements of software products, as well as information about known issues and questions that users are interested in.

- The official website of the company is available at <https://stimulsoft.com>
 - ❏ Description of products can be found at <https://stimulsoft.com/en/products>
 - ❏ The latest downloads of the product you may find at <https://www.stimulsoft.com/en/downloads/reports>
 - ❏ You can read the latest news about the company at <https://stimulsoft.com/en/blog/news>
- Besides, you can download packages of Stimulsoft products from other resources:
 - ❏ Reports.Web, Reports.Blazor, Reports.Angular, Reports.Net, Reports.Wpf, Reports.Web.NetCore, Dashboards.Blazor, Dashboards.Win, Dashboards.Web, Dashboards.Web.NetCore from NuGet at <https://www.nuget.org/profiles/Stimulsoft>
 - ❏ Reports.Java from Maven at <https://repo1.maven.org/maven2/com/stimulsoft>
 - ❏ Reports.JS and Dashboards.JS from npm at <https://www.npmjs.com/search?q=stimulsoft>
 - ❏ Reports.PHP and Dashboards.PHP from composer at <https://packagist.org/?query=stimulsoft>
- You can evaluate our reporting and dashboard tools online - <https://demo.stimulsoft.com>

- To create, store and then deploy reports in your applications, use the cloud service of Stimulsoft <https://cloud.stimulsoft.com>
- A vast number of video lessons are available:
 - i on our YouTube channel <https://www.youtube.com/user/StimulsoftVideos>
 - i on our website <https://www.stimulsoft.com/en/videos>
- You can use samples for various platforms:
 - i on GitHub at <https://github.com/stimulsoft>
 - i on our website at <https://www.stimulsoft.com/en/samples>
- Find us in social networks and messengers:

X:<https://x.com/stimulsoft>**Linked in:**<https://www.linkedin.com/company/stimulsoft>**Facebook:**<https://www.facebook.com/Stimulsoft>**RSS:**<https://www.stimulsoft.com/en/rss>**GitHub:**<https://github.com/stimulsoft>**YouTube:**<https://www.youtube.com/user/StimulsoftVideos>**Telegram:**<https://t.me/stimulsoft>**Teams:**[Teams - stimulsoft](#)**WhatsApp:**[WhatsApp - Stimulsoft](#)**Instagram:**<https://www.instagram.com/stimulsoft/>

Also, visit our community to communicate with other users of Stimulsoft tools - <https://forum.stimulsoft.com/>

Here you can read and discuss various topics related to tools for creating reports and dashboards. For more information about the product on other Internet resources, please use the search engines.

2 Features: Stimulsoft Reports

This section describes the basic features of the **Stimulsoft** product line. The product line includes the following tools:

Stimulsoft Ultimate
Stimulsoft Dashboards.WIN
Stimulsoft Dashboards.WEB
Stimulsoft Dashboards.JS

Stimulsoft Reports.Web
Stimulsoft Reports.NET
Stimulsoft Reports.ANGULAR
Stimulsoft Reports.BLAZOR
Stimulsoft Reports.JS
Stimulsoft Reports.WPF
Stimulsoft Reports.PHP
Stimulsoft Reports.JAVA

This section is split into topics that show the basic options along with every category of features ([Designers](#), [Viewers](#), [Products](#)). The lists of features are rough, not complete, and continuously updated, so concerning the availability of these or those features, please contact technical support managers.

Information

Stimulsoft has utilities for importing reports from the following formats:

- Active Reports;
- Component One Reports;
- Crystal Reports;
- DevExpress XtraReports;
- Fast Reports;
- Microsoft Reporting Service;
- Report Sharp-Shooter;
- Rich Text (RTF);
- Telerik Reporting;
- Visual FoxPro.

All utilities, except Crystal Reports and DevExpress XtraReports, are built into the WinForms report designer. Crystal Reports and DevExpress XtraReports import utilities are presented as separate projects:

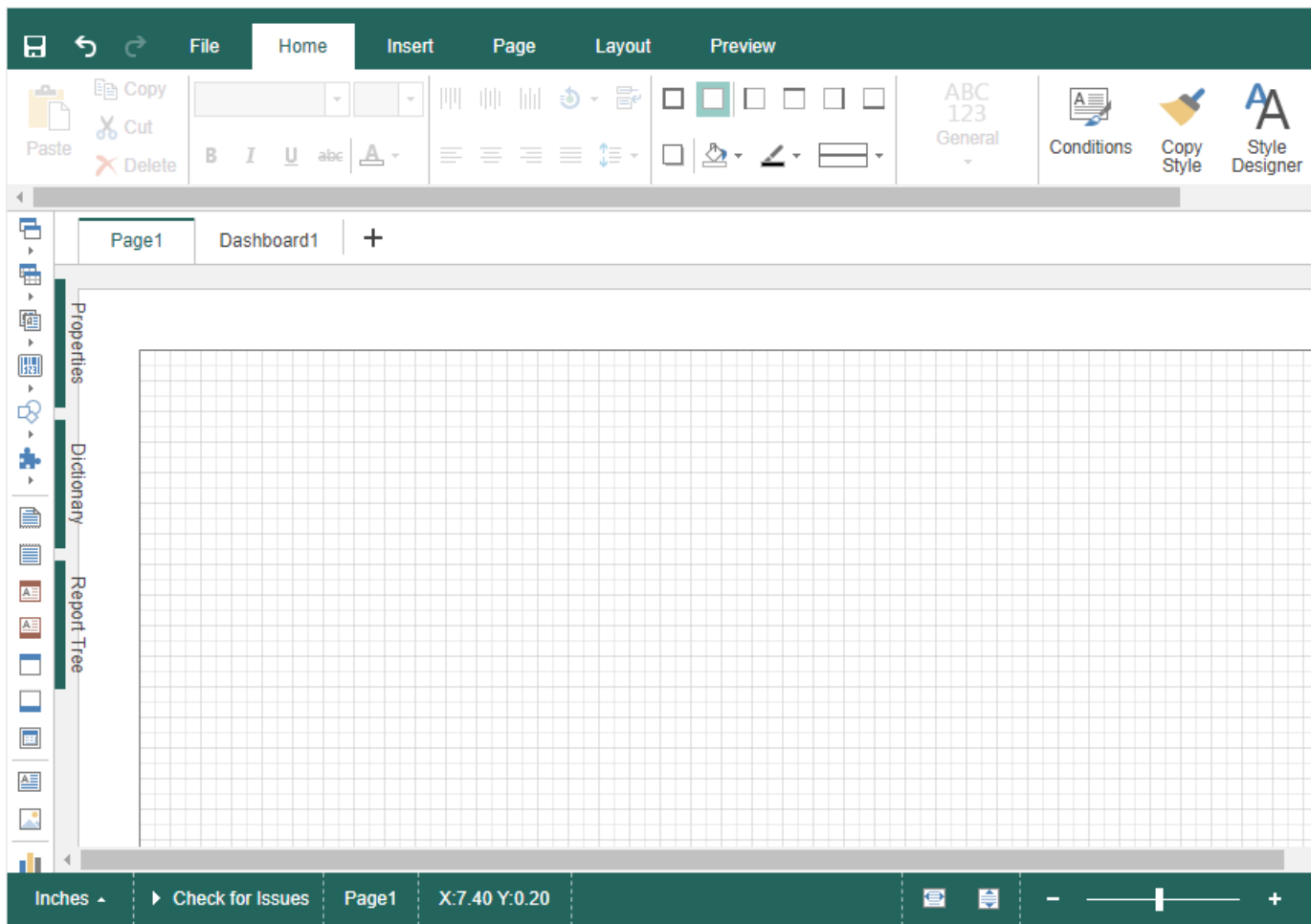
- You can download the WinForms Report Designer at <https://www.stimulsoft.com/en/downloads/reports>

› You can download the import utility package, which contains Crystal Reports and DevExpress XtraReports utilities, at <https://github.com/stimulsoft/Importing.Tools>

2.1 Designers

Report Designer is a separate application that is part of the Stimulsoft products. This application is designed to create, modify, publish reports and dashboards. In this section, you can find:

- › [Key features and tools](#) in report designers;
- › [Components](#) using which you can create reports and dashboards;
- › [Wizards for creating reports and dashboards](#) that are supported in report designers.
- › [Skill Level](#).



2.1.1 Features

This list represents functionality and tools in report designers.

Features	WinForms	HTML5 (ASP.NET, ASP.NET MVC, .NET)	HTML5 (JavaScript, PHP)	HTML5 (Java)	WPF
Creating Reports	+	+	+	+	+
Creating Dashboards	+	+	+ ^[2]		
Watermark	+	+	+	+	+
Stimulsoft Cloud ^[1] (Saving and Opening)	+		+		+
Publish ^[1]	+		+		+
Share ^[1]	+		+		+
Importing Tools ^[1]	+				
Style Designer	+	+	+	+	+
Conditions Editor	+	+	+	+	+
Interaction Editor	+	+	+	+	+
Dictionary	+	+	+	+	+
Report Tree	+	+	+	+	+
Report Checker	+	+	+	+	+
Functions	+	+	+	+	+
System Variables	+	+	+	+	+
Stimul AI	+				
Using CSharp scripts	+	+	+	+	
Blockly	+	+	+	+	

Information

- ① These features are available only for the standalone report designers.
- ② In the HTML5 report designer for PHP, you should connect the dashboards.js library to design dashboards.

2.1.2 Components

Components in Stimulsoft Reports are divided into 3 groups. See the table below with the components supported.

Components	WinForms	HTML5 (ASP.NET, ASP.NET MVC, .NET)	HTML5 (JavaScript, PHP)	HTML5 (Java)	WPF
Dashboard Elements					
Table	+	+	+		
Chart	+	+	+		
Cards	+	+	+		
Gauge	+	+	+		
Pivot	+	+	+		
Indicator	+	+	+		
Progress	+	+	+		
Region Map	+	+	+		
Online Map	+	+	+		
Combo Box	+	+	+		
Date Picker	+	+	+		
List Box	+	+	+		
Tree View Box	+	+	+		
Tree View	+	+	+		
Number Box					
Web Content	+	+	+		
Image	+	+	+		
Panel	+	+	+		
Button	+	+	+		
Text	+	+	+		

Shape	+	+	+		
Bands					
Report Title	+	+	+	+	+
Report Summary	+	+	+	+	+
Page Header	+	+	+	+	+
Page Footer	+	+	+	+	+
Group Header	+	+	+	+	+
Group Footer	+	+	+	+	+
Header	+	+	+	+	+
Footer	+	+	+	+	+
Column Header	+	+	+	+	+
Column Footer	+	+	+	+	+
Data	+	+	+	+	+
Hierarchical	+	+	+	+	+
Child	+	+	+	+	+
Empty	+	+	+	+	+
Overlay	+	+	+	+	+
Table of Contents	+	+	+		+
Cross-Bands					
Cross-Group	+	+	+	+	+
Cross-Footer	+	+	+	+	+
Cross-Header	+	+	+	+	+
Cross-Footer	+	+	+	+	+
Cross-Data	+	+	+	+	+
Components					
Text	+	+	+	+	+

Text in Cells	+	+	+		+
Rich text	+				+
Image	+	+	+	+	+
Panel	+	+	+	+	+
Clone	+	+	+	+	+
Check Box	+	+	+	+	+
Sub-Reports	+	+	+	+	+
Zip Code	+	+		+	+
Table	+	+	+	+	+
Cross-Tab	+	+	+	+	+
Sparkline	+	+	+		+
Math Formula	+	+			+
Other Components					
Bar Codes	+	+	+	+	+
Shape	+	+	+	+	+
Charts	+	+	+	+	+
Region and Online Map	+	+	+	+	+
Gauges	+	+	+	+	+
Electronic Signature	+	+	+	+	+
PDF Digital Signature	+	+	+		+
PDF Element	+	+			+

2.1.3 Report Wizards

The list below shows which report wizards are supported.

Wizards	WinForms	HTML5 (ASP.NET, ASP.NET MVC, .NET)	HTML5 (JavaScript, PHP)	HTML5 (Java)	WPF
Standard Report	+		+	+	+
AI Wizard	+				

Master-Detail Report	+	+	+	+	+
Invoice	+	+			+
Business Invoice	+				+
Labels	+	+			+
Quotation	+	+			+
Order	+	+			+
Purchase Order	+				+
Various Dashboards	+	+	+		
Various PDF Forms	+	+			

2.1.4 Console Commands

You can launch the Stimulsoft Designer using commands in the console. Begin by navigating to the application folder. For Stimulsoft BI Designer, the path will be "c:\Program Files (x86)\Stimulsoft Designer %version%\". Below is a table of console commands and their parameters.

Command	Description
start Designer.exe	To launch the report designer.
start Designer.exe -startscreen="false"	To launch the report designer with Welcome Screen mode, if the startscreen parameter is set to true, or without Welcome Screen mode if this parameter is set to false.

start Designer.exe -runwizard=""

To launch the report designer with a wizard. The "-runwizard" parameter can be assigned the following values:

- blank - launches the report designer with a blank report page;
- blankdashbo
ard - initiates the report designer with a blank dashboard;
- standard - starts the report designer with a simple list using the report wizard;
- masterdetail - begins the report designer with the Master-Detail wizard;

	• label - opens the report designer with the wizard for creating a report with labels; • crosstab - activates the report designer with the wizard for creating a Cross-tab report; • chart - accesses the report designer with the wizard for creating a report with a chart.
start Designer.exe d:\Report.mrt	To launch the report designer by loading a report template into it. After calling the designer with the command, specify the path to the

	.mrt/.mrz/.mrx files.
start Designer.exe -cloudreport="Access key"	To load a report from the Stimulsoft Cloud service, utilize the "-cloudreport" parameter, assigning the report access key as its value. The Access Key for a report can be obtained from Stimulsoft Cloud by selecting the report and choosing the Access Key command from the More menu.
start Designer.exe -data=d:\MyData	To launch the report designer with binding to XML data sources. The value for the data parameter is the path to the folder containing

	XML data files.
start Designer.exe d:\Report.mrt -run	To launch the report viewer with a report template *.mrt, *.mrz, or *.mrz, or a generated report *.mdc, *.mdz, or *.mdx.
start Designer.exe -schedule scheduleName	To launch the scheduler where the scheduler's name is passed as its value. All created schedulers can be found in the path "c:\Users\%USERNAME%\AppData\Local\Stimulsoft\Scheduler".

2.1.5 Skill Level

Information

Please see [how to change the Skill level in the report designer](#).

The **Skill level** in our reporting system is a set of report components, elements and their settings, additional tools and commands in the report designer. Below is a list

with the names of options, components, and properties that will be available, depending on the skill level selected in the report designer.

This chapter will cover the following:

- › [Tools Table](#);
- › [Table of the components and their groups](#);
- › [Table of Components Common Properties](#);
- › [Table of Bands Properties](#);
- › [Table of Cross Bands Properties](#);
- › [Table of report items properties in the Components group](#);
- › [Table of Barcode Properties](#);
- › [Table of Shapes Properties](#);
- › [Table of Chart Properties](#);
- › [Table of Gauge Properties](#);
- › [Table of Map Properties](#);
- › [Table of dashboard elements Properties](#).

Tools Table.

This is a list of the report designer tools that are available depending on the selected skill level.

Name	Basic	Standard	Professional
Publish			+
Actions			+

Information

All other options are displayed in the report designer, regardless of the selected skill level.

Table of the components and their groups.

This is a list of report components and their groups that are available depending on the selected skill level.

Name	Basic	Standard	Professional
Bands:	+	+	+
Report Title	+	+	+
Report Summary	+	+	+
Page Header	+	+	+
Page Footer	+	+	+
Group Header	+	+	+
Group Footer	+	+	+
Header	+	+	+
Footer	+	+	+
Column Header		+	+
Column Footer		+	+
Data	+	+	+
Hierarchical Data		+	+
Child		+	+
Empty Data		+	+
Overlay		+	+
Cross	+	+	+
Components:	+	+	+
Text	+	+	+
Text in Cells		+	+
Rich Text	+	+	+
Image	+	+	+
Panel	+	+	+
Clone		+	+
Check Box	+	+	+
Sub-Report		+	+
ZIP Code	+	+	+
Table		+	+

Cross-tab	+	+	+
Sparkline	+	+	+
Barcode	+	+	+
Shapes	+	+	+
Chart	+	+	+
Gauge		+	+
Map		+	+

Information

All dashboard elements are displayed in the report designer regardless of the selected skill level.

Table of Components Common Properties.

This is a list of general properties of report components that are available depending on the selected skill level. All of the properties listed below are present in any report component.

Name	Basic	Standard	Professional
Common Properties:			
Alias		+	+
Restrictions			+
Locked			+
Linked			+

Table of Bands Properties.

This is a list of **Bands** properties that are available depending on the selected skill level.

Name	Basic	Standard	Professional
------	-------	----------	--------------

Common Bands Properties:			
Max Height		+	+
Min Height		+	+
Use Parent Styles		+	+
Interaction		+	+
Reset Page Number		+	+
Report Title:			
Print if Empty		+	+
Report Summary:			
Skip First		+	+
Keep Report Summary		+	+
Print at Bottom		+	+
Print if Empty		+	+
Page Header:			
Print on Even Odd Pages		+	+
Page Footer:			
Print On		+	+
Print on Even Odd Pages		+	+
Group Header:			
Summary Sort Direction		+	+
Summary Expression		+	+
Summary Type		+	+
Break if less than			+
Skip First		+	+
Print on		+	+
Keep Group Header Together		+	+
Keep Group Together		+	+
Print on All Pages		+	+
Group Footer:			

Break if less than			+
Skip First		+	+
Keep Group Footer Together		+	+
Print at Bottom		+	+
Print on		+	+
Header:			
Break if less than			+
Skip First		+	+
Keep Header Together		+	+
Print at Bottom		+	+
Print if Empty		+	+
Print on		+	+
Print on All Pages		+	+
Print on Even Odd Pages		+	+
Footer:			
Break if less than			+
Skip First		+	+
Keep Footer Together		+	+
Print at Bottom		+	+
Print if Empty		+	+
Print on		+	+
Column Header:			
Break if less than			+
Skip First		+	+
Keep Header Together		+	+
Print at Bottom		+	+
Print if Empty		+	+
Print on		+	+
Print on All Pages		+	+

Print on Even Odd Pages		+	+
Column Footer:			
Break if less than			+
Skip First		+	+
Keep Footer Together		+	+
Print at Bottom		+	+
Print if Empty		+	+
Print on		+	+
Print on All Pages		+	+
Print on Even Odd Pages		+	+
Data:			
Data Relation			+
Master Component			+
Count Data			+
Filter On			+
Filters			+
Filter Engine			+
Filters Operation			+
Sort			+
Break if less than			+
Skip First		+	+
Limit Rows			+
Min Rows in Column		+	+
Calc Invisible			+
Keep Details		+	+
Print at Bottom		+	+
Print if Detail Empty		+	+
Print On		+	+
Print on Even Odd Pages		+	+

Hierarchical Data:			
Key Data Column		+	+
Master Key Data Column		+	+
Parent Value		+	+
Ident		+	+
Headers		+	+
Footers		+	+
Data Relation			+
Master Component			+
Count Data			+
Filter On			+
Filters			+
Filter Engine			+
Filters Operation			+
Sort			+
Break if less than			+
Skip First		+	+
Limit Rows			+
Min Rows in Column		+	+
Calc Invisible			+
Keep Details		+	+
Print at Bottom		+	+
Print if Detail Empty		+	+
Print On		+	+
Print on Even Odd Pages		+	+
Child:			
Break if less than			+
Skip First		+	+
Keep Child Together		+	+

Print at Bottom		+	+
Print if Parent Disabled		+	+
Print On		+	+
Empty Data:			
Print On		+	+
Size Mode		+	+
Overlay:			
Vertical Alignment		+	+
Print On		+	+

Table of Cross Bands Properties.

This is a list of **Cross** bands properties that are available depending on the selected skill level.

Name	Basic	Standard	Professional
Common Cross Properties:			
Min Width		+	+
Max Width		+	+
Use Parent Styles		+	+
Interaction		+	+
Cross-Group Header:			
Summary Sort Direction		+	+
Summary Expression		+	+
Summary Type		+	+
Keep Group Header Together		+	+
Keep Group Together		+	+
Can Break			+
Print On		+	+
Cross-Group Footer:			

Keep Group Footer Together		+	+
Can Break			+
Print On		+	+
Cross-Header:			
Keep Header Together		+	+
Can Break			+
Print On		+	+
Cross-Footer:			
Keep Footer Together		+	+
Can Break			+
Print On		+	+
Cross-Data:			
Data Relation			+
Master Component			+
Count Data			+
Filter On			+
Filters			+
Filter Engine			+
Filters Operation			+
Sort			+
Limit Rows			+
Can Break			+
Calc Invisible			+
Keep Details		+	+
Print if Detail Empty		+	+

Table of report items properties in the Components group.

This is a list of properties of report items in the **Components** group that are available depending on the selected skill level.

Name	Basic	Standard	Professional
Common Components Properties:			
Use Parent Styles		+	+
Min Size ^[1]		+	+
Max Size ^[1]		+	+
Anchor		+	+
Dock Style		+	+
Interaction		+	+
Printable			+
Print On ^[2]		+	+
Shift Mode ^[2]		+	+
Text:			
Allow HTML Tags		+	+
Editable		+	+
Lines of Underline		+	+
Margins		+	+
Max Numbers of Lines		+	+
Only Text		+	+
Process at			+
Processing Duplicates		+	+
Render to			+
Shrink Font to Fit			+
Shrink Font to Fit Minimum Size			+
Text Quality		+	+
Text Options			+
Globalized Name			+
Excel Value			+
Export as Image			+

Text in Cells:			
Cell Width		+	+
Cell Height		+	+
Horizontal Spacing		+	+
Vertical Spacing		+	+
Editable		+	+
Margins		+	+
Only Text		+	+
Process at			+
Globalized Name			+
Export as Image			+
Rich text:			
Data Column		+	+
Data URL		+	+
Detect URLs		+	+
Editable		+	+
Full Convert Expression			+
Margins		+	+
Back Color		+	+
Only Text		+	+
Process at			+
Right to Left		+	+
Word Wrap		+	+
Wysiwyg			+
Image:			
Image Data			+
Multiple Factor		+	+
Margins		+	+
Image Rotation		+	+

Processing Duplicates		+	+
Smoothing			+
(Globalized)			+
Panel:			
Can Break		+	+
Check Box:			
Check Style for True		+	+
Check Style for False		+	+
Values		+	+
Size		+	+
Contour Color		+	+
Editable		+	+
Excel Value		+	+
Sub-Report:			
Keep Sub-Report Together		+	+
Zip code:			
Space Ratio		+	+
Table:			
Data Relation			+
Master Component			+
Count Data			+
Filter On			+
Filters			+
Filter Engine			+
Filters Operation			+
Sort			+
Break if less than			+
Skip First		+	+
Limit Rows			+

Calc Invisible			+
Keep Details		+	+
Print at Bottom		+	+
Print if Detail Empty		+	+
Print on All Pages		+	+
Reset Page Number		+	+
Cross-Tab:			
Data Relation			+
Filter On			+
Filters			+
Filter Engine			+
Filters Operation			+
Sort			+
Sparkline:			
Data Relation			+

Information

^[1] Properties that are not present in the **Table** component.

^[2] Properties that are not present in the **Table** and **Cross-tab** components.

Table of Barcode Properties.

This is a list of **Barcode** properties that are available depending on the selected skill level.

Name	Basic	Standard	Professional
Horizontal Alignment		+	+
Vertical Alignment		+	+
Auto Scale		+	+

Font		+	+
Show Label Text		+	+
Show Quiet Zones			+
Min Size		+	+
Max Size		+	+
Anchor		+	+
Dock Style		+	+
Use Parent Style		+	+
Interaction		+	+
Printable			+
Print On		+	+
Shift Mode		+	+

Table of Shapes Properties.

This is a list of **Shapes** properties that are available depending on the selected skill level.

Name	Basic	Standard	Professional
Min Size		+	+
Max Size		+	+
Anchor		+	+
Dock Style		+	+
Use Parent Style		+	+
Interaction		+	+
Printable			+
Print On		+	+
Shift Mode		+	+

Table of Chart Properties.

This is a list of **Chart** properties that are available depending on the selected skill level.

Name	Basic	Standard	Professional
Area		+	+
Labels		+	+
Legend		+	+
Table		+	+
Title		+	+
Allow Apply Style		+	+
Horizontal Spacing			+
Process at End			+
Rotation		+	+
Vertical Spacing			+
Data Relation			+
Master Component			+
Count Data			+
Filter On			+
Filters			+
Sort			+
Min Size		+	+
Max Size		+	+
Use Parent Style		+	+
Anchor		+	+
Dock Style		+	+
Interaction		+	+
Printable			+
Print On		+	+
Shift Mode		+	+

Table of Gauge Properties.

This is a list of **Gauge** properties that are available depending on the selected skill level.

Name	Basic	Standard	Professional
Min Size		+	+
Max Size		+	+
Anchor		+	+
Dock Style		+	+
Use Parent Style		+	+
Interaction		+	+
Printable			+
Print On		+	+
Shift Mode		+	+
Value Format		+	+

Table of Map Properties.

This is a list of **Map** properties that are available depending on the selected skill level.

Name	Basic	Standard	Professional
Min Size		+	+
Max Size		+	+
Anchor		+	+
Dock Style		+	+
Use Parent Style		+	+
Interaction		+	+
Printable			+
Print On		+	+

Shift Mode		+	+
------------	--	---	---

Table of Dashboard Elements.

This is a list of dashboard elements properties that are available depending on the selected skill level.

Name	Basic	Standard	Professional
Common Properties:		+	+
Data Transformation		+	+
Group		+	+
Interaction		+	+
Alias		+	+
Restriction			+
Locked			+
Linked			+
Chart:			
Area		+	+
Constant Lines		+	+
Labels		+	+
Legend		+	+
Marker		+	+
Trend Lines		+	+
Conditions		+	+
Argument Format		+	+
Value Format		+	+
Gauge:			
Labels		+	+
Value Format		+	+
Indicator:			

Icon Alignment		+	+
Target Mode		+	+
Conditions		+	+
Font Size Mode		+	+
Text Format		+	+
Progress:			
Conditions		+	+
Text Format		+	+
Region Map:			
Short Value		+	+
Online Map:			
GIS Settings		+	+
Filters:			
Text Format		+	+

2.2 Viewers

A report viewer is a tool that is used to view, print, export reports and dashboards. In this section, you can find:

- With the [viewer functionality](#);
- With the list of [export formats in the viewer](#).

Simple Group - Viewer

Print Open Save

Simple Group

- A
- B
- C
- D
- E
- F
- G
- H
- I
- K
- L
- M
- N
- O
- P
- Q
- R
- S
- T
- V
- W

F

Company	Address	Phone	Contact
1. Familia Arquibaldo	Rua Orós, 92	(11) 555-9857	Marketing Assistant
2. FISSA Fabrica Inter. Salchichas S.A.	C/ Moralarzal, 86	(91) 555 94 44	Accounting Manager

DashboardChristmas - Viewer

Christmas

Year

- ☒ 1977
- ☒ 1987
- ☒ 1997
- ☒ 2007

Categories

- ☒ (All)
- ☒ Average Gift Check,...
- ☒ Fake Tree, in pieces
- ☒ Holiday retail sales,...

Expenses for Christmas

Year	Expenses
1977	119%
1987	130%
1997	141%
2007	152%

Amount of Sales

Year	Amount of Sales
1977	50%
1987	37%
1997	25%
2007	12%

Where People Buy Christmas

Beforehand Xmas eve E-commerce

People Meet Christmas

Family Alone At Work

Page 2 of 4

Year	Name	Amount
1977	Average Gift Check, in dollars USA	
1987	Average Gift Check, in dollars USA	
1997	Average Gift Check, in dollars USA	
2007	Average Gift Check, in dollars USA	

2.2.1 Features

The table below identifies which viewers are supported in Stimulsoft products.

Viewer Features for Dashboards	WinForms	HTML5 (ASP.NET, ASP.NET MVC, .NET)	HTML5 (JavaScript)
Refresh Dashboard	+	+	+
Open Report File	+	+	+
Edit Dashboard	+	+	+

Full-Screen Dashboard	+	+	+
More Options Menu	+	+	+
Preview Settings	+	+	+
Relationship of Elements	+	+	+
Drill-Down	+	+	+
Show Dashboard	+	+	+

Viewer Features for Reports	WinForms	HTML5 (ASP.NET, ASP.NET MVC, .NET)	HTML5 (JavaScript, PHP)	HTML5 (Java)	JavaViewer	WPF
Add new page	+				+	+
Automatic page scrolling / resizing	+				+	+
Create reports dynamically	+	+	+	+	+	+
Bookmarks	+	+	+	+	+	+
Drill-Down	+	+	+	+	+	+
Navigation bar	+	+	+	+	+	+
Page navigation	+	+	+	+	+	+
Page View Modes						
Single Page	+	+	+	+	+	+
Continuous	+	+	+	+	+	+
Multiple Pages	+	+	+	+	+	+

Full Screen	+	+	+	+	+	+
Page Width	+	+	+	+	+	+
Print/ Preview	+	+	+	+	+	+
Edit Report Page	+	+	+	+	+	+
Send Email	+	+	+	+	+	+
Report viewer customization	+	+	+	+	+	+
Report caching	+	+	+	+	+	
Search Panel	+	+	+	+	+	+
Thumbnails panel	+				+	+
ToolTips	+	+	+	+	+	+
Web report caching	+	+	+	+	+	
Zooming	+	+	+	+	+	+

2.2.2 Exports

The list contains export options supported for the [dashboards](#) and [reports](#) in Stimulsoft viewers.

Table of Dashboard Exports

Name	WinForms	HTML5 (ASP.NET, ASP.NET MVC, .NET)	HTML5 (JavaScript)
Report Snapshot	+	+	
PDF	+	+	+

Microsoft Excel	+	+	+
Image:			
BMP	+	+	
GIF	+	+	
JPEG	+	+	
PCX	+	+	
PNG	+	+	
TIFF	+	+	
EMF	+	+	
SVG	+	+	
SVGZ	+	+	
Data:			
CSV[1]	+	+	+
DBF[1]	+	+	
XML[1]	+	+	
JSON[1]	+	+	
DIF[1]	+	+	
SYLK[1]	+	+	

Information

1 The types of data file exports are available only for the **Table** element of the dashboard.

Table of Report Exports

Name	WinForms	HTML 5	HTML 5	HTML 5	JavaViewer	WPF
------	----------	--------	--------	--------	------------	-----

		(ASP.NET, ASP.NET MVC, .NET)	(JavaScript, PHP)	(Java)		
Internal Formats:						
MDC	+	+	+	+	+	+
MDZ	+	+	+	+		+
MDX	+	+	+	+		+
Formats with fixed page layout:						
PDF	+	+	+	+	+	+
Exporting Images	+	+	+	+	+	+
Embedded fonts	+	+	+	+	+	+
Digital signature	+			+		+
Encryption	+	+	+	+		+
Microsoft XPS	+	+				+
Exporting Images	+	+				+
Microsoft PowerPoint	+	+				+
Web documents:						
HTML	+	+	+	+	+	+
HTML5	+	+	+	+	+	+
MHT	+	+				+
Text:						
Text	+	+		+	+	+
RTF	+	+		+	+	+
Microsoft Word 2007/2010	+	+	+	+	+	+
OpenDocument Text	+	+		+		+
Spreadsheets:						

Microsoft Excel	+	+		+	+	+
Microsoft Excel XML	+	+		+	+	+
Microsoft Excel 2007/2010	+	+	+	+	+	+
OpenDocument Calc	+	+		+		+
Data:						
CSV	+	+	+	+	+	+
DBF	+	+				+
XML	+	+		+	+	+
DIF	+	+				+
SYLK	+	+		+	+	+
JSON	+	+	+			
Images:						
BMP	+	+		+	+	+
GIF	+	+				+
JPEG	+	+		+	+	+
PCX	+	+		+	+	+
PNG	+	+		+	+	+
TIFF	+	+				+
Vector images:						
EMF	+	+				+
SVG	+	+	+	+	+	+
Compressed SVG	+	+		+	+	+

2.3 Products

This section contains the comparison lists of functionality across Stimulsoft products. We grouped the lists into categories according to software features.

- [System Requirements](#);
- [Reports](#);

- > [Product Comparison](#);
- > [Database Packs](#);
- > [Reporting Features](#);
- > [Tools](#);
- > [User Interface](#);
- > [Localizations](#);
- > [Internal Formats](#).

Information

We always improve our products and expand functionality. So, if you have not found any specific feature, please [contact us](#). We are probably working on it right now.

2.3.1 System Requirements

The table helps you to check which system parameters are necessary for using Stimulsoft Reports.

Syst em Req uire men ts	Sti mul soft Ulti mat e	Das hbo ard s.W EB	Das hbo ard s.W IN	Das hbo ard s.JS	Das hbo ard s.P HP	Rep orts .NE T	Rep orts .WE B*	Rep orts .AN GUL AR	Rep orts .BL AZ OR	Rep orts .WP F	Repo rts.JS	Repo rts.JA VA	Repo rts.P HP
.NET Fram ewor k 1.1 (versi on 2008 .1)	+					+	(ver sion 2008 .1)						
.NET Fram ewor k 2.0	+					+	(up to vers ion	+	(up to vers ion				

						201 4.1)	201 4.1)						
.NET Fram ewor k 3.0	+					+ (up to vers ion 201 4.1)	+ (up to vers ion 201 4.1)						
.NET Fram ewor k 3.5	+					+ (up to vers ion 201 4.1)	+ (up to vers ion 201 4.1)			+ (up to versi on 201 4.1)			
.NET Fram ewor k 4.0	+	+ (up to vers ion 201 9.3)	+ (up to vers ion 201 9.3)			+ (up to vers ion 201 9.3)	+ (up to vers ion 201 9.3)			+			
.NET Fram ewor k 4.5	+	+ (up to vers ion 202 1.3)	+ (up to vers ion 202 1.3)			+ (up to vers ion 202 1.3)	+ (up to vers ion 202 1.3)	+ (up to vers ion 202 1.3)		+ (up to versi on 202 1.3)			
.NET Fram ewor k 4.5.2		+	+			+	+	+		+			
.NET Stan		+					+	+					

dard 2.0													
.NET Standard 2.1		+					+	+					
.NET Core 2.1		+					+	+					
.NET Core 3.1		+	+			+	+	+		+			
.NET 5.0		+	+			+	+	+		+			
.NET 8.0	+	+	+			+	+	+	+	+			
.NET 10.0	+	+(since version 202 6.1)	+(since version 202 6.1)			+(since version 202 6.1)	+(since version 202 6.1)	+(since version 202 6.1)	+(since version 202 6.1)	+(since version 202 6.1)			
Microsoft Visual Studio 2005	+					+	+						
Microsoft Visual Studio	+					+	+			+			

2008													
Micr rosoft Visu al Studi o 2010	+					+	+			+			
Micr rosoft Visu al Studi o 2012	+					+	+			+			
Micr rosoft Visu al Studi o 2013	+			+		+	+			+	+		
Micr rosoft Visu al Studi o 2015	+			+		+	+			+	+		
Micr rosoft Visu al Studi o 2017	+	+	+	+		+	+			+	+		
Micr	+	+	+	+		+	+			+	+		

Microsoft Visual Studio 2019													
Microsoft Expression Blend	+												
Product Architecture													
x86	+	+	+	+		+	+			+	+	+	+
x64	+	+	+	+		+	+			+	+	+	+
ARM	+												
Component Type													
ASP.NET	+	+	+			+	+						
ASP.NET MVC	+	+					+	+					
ASP.NET Core	+	+					+	+					
ASP.NET Core Razor	+								+				
WinForms	+		+			+							

WP F	+									+			
PH P	+												+
Jav a SE 1.8 +	+											+	
Jav aSc ript	+			+							+		
Supported OS													
Wi ndo ws 7	+	+	+	+		+	+			+	+	+	+
Wi ndo ws 8	+					+	+				+	+	+
Wi ndo ws 8 AR M	+										+	+	+
Wi ndo ws 10	+	+	+	+		+	+			+	+	+	+
Wi ndo ws 11	+	+	+	+	+	+	+	+	+	+	+	+	+
Lin ux	+			+	+						+		+
Ma c OS X*	+	+	+	+		+	+			+	+	+	+

Information

* - HTML5 components of the product support all web browsers. If we are saying of the Internet Explorer, then versions 9 and higher are supported.

* - For any Stimulsoft product, we offer a tool to design reports and dashboards for

Mac OS.

2.3.2 Reports

See the list of standard reports you can create with the reporting tools and dashboards. No doubt, you may generate a report of any complexity according to your needs.

Rep orts	Sti mul soft Ulti mat e	Das hbo ard s.W EB	Das hbo ard s.W IN	Das hbo ard s.JS	Das hbo ard s.P HP	Rep orts .NE T	Rep orts .WE B	Rep orts .AN GUL AR	Rep orts .BL AZ OR	Rep orts .WP F	Repo rts.JS	Repo rts.JA VA	Repo rts.P HP
Dash boar ds	+	+	+	+	+	+	+				+		
Basic repo rts	+	+	+	+	+	+	+	+	+	+	+	+	+
Repo rts with Colu mns	+	+	+	+	+	+	+	+	+	+	+	+	+
Mast er- Detai l Repo rts	+	+	+	+	+	+	+	+	+	+	+	+	+
Repo rts with Grou ps	+	+	+	+	+	+	+	+	+	+	+	+	+
Hiera	+	+	+	+	+	+	+	+	+	+	+	+	+

rchic al Repo rts													
Repo rt with Busi ness Obje ct	+	+	+	+	+	+	+	+	+	+			
Inter activ e Repo rts	+	+	+	+	+	+	+	+	+	+	+	+	+
Invoi ce	+	+	+	+	+	+	+	+	+	+	+	+	+
Tabl es	+	+	+	+	+	+	+	+	+	+	+	+	+
Repo rt with Char t	+	+	+	+	+	+	+	+	+	+	+	+	+
Repo rt with Map	+	+	+	+	+	+	+	+			+		
Repo rt with Onli ne Map	+	+	+	+	+	+	+	+			+		
Repo	+	+	+	+	+	+	+	+			+		

rt with Gaug e													
Cros s- Tab Repo rts	+	+	+	+	+	+	+	+	+	+	+	+	+
Repo rts with Empt y Band s	+	+	+	+	+	+	+	+		+	+	+	+
Repo rts with Cont ainer s	+	+	+	+	+	+	+	+		+	+	+	+
Sub- repo rts	+	+	+	+	+	+	+	+		+	+	+	+
Repo rts with Dialo gs	+					+				+			
Repo rts with Page s Seg ment	+					+	+			+	+	+	+

s														
---	--	--	--	--	--	--	--	--	--	--	--	--	--	--

2.3.3 Product Comparison

See the table below to find which components are part of Stimulsoft products.

Product Comparison	Engine	Stimulsoft Ultimate	Dashboards.WEB	Dashboards.WIN	Dashboards.JS	Dashboards.PH	Reports.NET	Reports.WEB	Reports.ANGULAR	Reports.BLAZOR	Reports.JS	Reports.WPF	Reports.JAVA	Reports.PHP
Report Viewers:														
HTML5														
StiWeb Viewer (ASP.NET)	.NET Framework	+	+				+	+						
StiMvc Viewer (ASP.NET MVC)	.NET Framework	+	+					+						
StiNetCore Viewer (.NET Core)	.NET Core	+	+					+						
StiViewer (JavaScript)	JavaScript	+			+	+					+			+
StiWeb Viewer (Java)	Java	+											+	
StiBlazor Viewer	.NET Blazor	+								+				
StiAngular	.NET	+							+					

ularVie wer	Fra me wor k .NET Cor e .NET														
WinForms															
StiView er StiRibbonView erContr ol StiDot MatrixV iewerC ontrol StiDash boardV iewerC ontrol	.NET Fra me wor k .NET Cor e .NET	+		+			+								
WPF															
StiWpf Viewer StiWpf Ribbon Viewer Control StiWpf DotMat rixView erContr ol	.NET Fra me wor k .NET Cor e .NET	+											+		
Java															
JavaVie wer	Java	+												+	
Report Designers:															
HTML5															

StiWeb Designer (ASP.NET)	.NET Framework	+	+					+						
StiMvc Designer (ASP.NET MVC)	.NET Framework	+	+					+						
StiNetCoreDesigner (.NET Core)	.NET Core .NET	+	+					+						
StiDesigner (JavaScript)	JavaScript	+			+	+					+			+
StiWeb Designer (Java)	Java	+											+	
StiBlazorDesigner	.NET Blazor	+								+				
StiAngularDesigner	.NET Framework .NET Core .NET	+							+					
WinForms														
StiDesigner	.NET Framework .NET Core	+		+			+							

	.NET													
WPF														
StiWpf Designer	.NET Frame work .NET Core .NET	+										+		
Standalone														
WinFor ms	.NET Frame work	+	+	+	+		+	+			+	+		
Wpf (V1)	.NET Frame work	+										+		
Wpf (V2)	.NET Frame work	+										+		
JS	Java Scri pt	+			+						+			
Engines:														
.NET Framewo rk		+	+	+			+	+	+			+		
.NET Core		+	+	+			+	+	+			+		
.NET		+	+	+			+	+	+	+		+		
JavaScrip		+			+	+					+			+

t														
Java		+										+		

2.3.4 Database Packs

The table shows the list of supported database adapters. The loading of adapters in the desktop Designer is carried out automatically. For runtime components, you need to add the appropriate [NuGet adapter packages](#) to the project.

Data base Pack s	Stim ulso ft Ulti mat e	Das hbo ards .WE B	Das hbo ards .WI N	Das hbo ards .JS	Das hbo ards .PH P	Rep orts .NE T	Rep orts. WEB	Rep orts. ANG ULA R	Rep orts. BLA ZOR	Rep orts. WPF	Rep orts .JS	Rep orts .JA VA	Rep orts .PH P
SQL:													
MS SQL	+	+	+	+	+	+	+	+	+	+	+	+	+
MySQL^[1]	+	+	+	+	+	+	+	+	+	+	+	+	+
ODB C	+	+	+			+	+	+		+			
OLE DB	+	+	+			+	+	+		+			
Oracle^[2]	+	+	+	+	+	+	+	+	+	+	+	+	+
MS Acces s	+	+	+			+	+	+		+			
PostgreSQL^[3]	+	+	+	+	+	+	+	+	+	+	+	+	+
Firebi rd	+	+	+	+	+	+	+	+	+	+	+		+

SQL CE	+	+	+			+	+	+		+			
SQLite	+	+	+			+	+	+	+	+			
DB2	+	+	+			+	+	+		+			
Informix	+	+	+			+	+	+		+			
Sybase	+	+	+			+	+	+		+			
Sybase ADS	+	+	+			+	+	+		+			
Sybase ASE	+	+	+			+	+	+		+			
Teradata	+	+	+			+	+	+		+			
Vista DB	+	+	+			+	+	+		+			
dot Connect Universal	+	+	+			+	+	+		+			
NoSQL:													
MongoDB	+	+	+			+	+	+	+	+			
Azure:													
Azure SQL	+		+			+		+		+			
Azure Table Storage	+	+	+			+	+	+	+	+			

Azure Blob Storage	+		+			+		+	+	+			
Cosmos DB	+	+	+			+	+	+	+	+			
Google:													
Firestore	+	+	+			+	+	+	+	+			
BigQuery	+	+	+			+	+	+		+			
Online Service:													
Data. World	+	+	+	+	+	+	+	+		+	+		+
QuickBooks	+	+	+	+	+	+	+	+		+	+		+
File:													
CSV	+	+	+	+	+	+	+	+	+	+	+		+
Database	+	+	+			+	+	+	+	+			
Excel	+	+	+	+	+	+	+	+	+	+	+		+
Google Sheets	+	+	+			+	+	+	+	+			
JSON	+	+	+	+	+	+	+	+	+	+	+	+	+
XML	+	+	+	+	+	+	+	+	+	+	+	+	+
GIS	+		+			+		+	+	+			

REST:													
ODat a	+	+	+	+	+	+	+	+	+	+	+		+
Other:													
Busin ess Obj ects	+	+	+			+	+			+			
JDBC	+											+	
EffiPr oz	+	+	+			+	+			+			
IBM Db2	+	+	+			+	+			+			
Uni Direc t	+	+	+			+	+			+			

Information

- ❶ The following MySQL adapters are available for .NET products:
 - MySQL ConnectorNet;
- ❷ The following Oracle adapters are available for .NET products:
 - Oracle Data Provider for .NET;
- ❸ The following PostgreSQL adapters are available for .NET products:
 - Npgsql;

2.3.5 Reporting Features

Important

Scripts can be a security risk, so they are disabled in the [Interpretation mode](#). However, if you are confident in the safety of your scripts, you can use them in the

[Compilation mode.](#)

Stimulsoft Reports supports a great many features for dashboards and reports. Here is the list of them.

Dashboard Features	Stimulsoft Ultimate	Dashboards .WEB	Dashboards .WIN	Dashboards .JS	Dashboards .PHP
Table (list, data bars, indicators, color scale, sparklines)	+	+	+	+	+
Charts	+	+	+	+	+
Gauge (full circular, half-circular, linear)	+	+	+	+	+
Pivot	+	+	+	+	+
Indicator	+	+	+	+	+
Progress (circle, pie, data bars)	+	+	+	+	+
Region Maps	+	+	+	+	+
Online Map (by latitude and longitude, by location)	+	+	+	+	+
Filter Elements (date picker, lists, tree view)	+	+	+	+	+
Data Transformation	+	+	+	+	+

Filter Tool	+	+	+	+	+
Top N	+	+	+	+	+
Parameters (with using variables)	+	+	+	+	+
Images	+	+	+	+	+
Text	+	+	+	+	+
Shapes	+	+	+	+	+
Groups	+	+	+	+	+
Chart Drill- Down	+	+	+	+	+
Show Dashboard	+	+	+	+	+
Show Report	+		+	+	+
Pivot Drill- Down	+	+	+	+	+
Element Tooltips	+	+	+	+	+
Hyperlinks (open hyperlink, show hyperlink)	+	+	+	+	+
Conditions	+		+	+	+
Text Format (number, currency, percentage, date, time, general, Boolean)	+	+	+	+	+
Appearance Dashboard and Styles	+	+	+	+	+
Publish	+	+	+	+	+

Share	+	+	+	+	+
Stimulsoft Cloud	+	+	+	+	+
Export (pdf, excel, images, data)	+	+	+	+	+
Report Snapshot	+	+	+	+	+

Reporting Features	Stimulsoft Ultimate	Reports.NET	Reports.WEB	Reports.ANGULAR	Reports.BLAZOR	Reports.WPF	Reports.JS	Reports.JAVA	Reports.PHP
Alpha blending	+	+	+	+	+	+	+	+	+
Data aggregation	+	+	+	+	+	+	+	+	+
Data filtering	+	+	+	+	+	+	+	+	+
Data grouping	+	+	+	+	+	+	+	+	+
ToolTips	+	+	+	+	+	+	+	+	+
Data sorting	+	+	+	+	+	+	+	+	+
Dynamic sorting	+	+	+	+	+	+	+	+	+
Different page sizes	+	+	+	+	+	+	+	+	+
Drag &	+	+	+	+	+	+	+	+	+

Drop									
Query Builder	+	+				+			
Expressions									
Text Expressions	+	+	+	+	+	+	+	+	+
Calculating Values In Expressions	+	+	+	+	+	+	+	+	+
Multi-line Expressions	+	+	+	+	+	+	+	+	+
Conditional Expressions	+	+	+	+	+	+	+	+	+
Aliases In Expressions	+	+	+	+	+	+	+	+	+
Appearance									
Borders	+	+	+	+	+	+	+	+	+
Horizontal Alignment	+	+	+	+	+	+	+	+	+
Vertical Alignment	+	+	+	+	+	+	+	+	+
Styles	+	+	+	+	+	+	+	+	+
Alternate Row Styles	+	+	+	+	+	+	+	+	+
Conditional formatting									
Value Condition	+	+	+	+	+	+	+	+	+
Operators	+	+	+	+	+	+	+	+	+
Expression	+	+	+	+	+	+	+	+	+

Condition									
Multi Part Conditions	+	+	+	+	+	+	+	+	+
Data Bar Condition	+	+	+	+	+	+	+		+
Color Scale Condition	+	+	+	+	+	+	+		+
Icon Set Condition	+	+	+	+	+	+	+		+

Output text parameters

Multiline text	+	+	+	+	+	+	+	+	+
Trimming at the end of the text line	+	+	+	+	+	+	+	+	+
Prevent showing incompletely visible lines	+	+	+	+	+	+	+	+	+
Lines of underlining	+	+	+	+	+	+			
Text rotation	+	+	+	+	+	+			
Processing Duplicates	+	+	+	+	+	+	+	+	+

Text formatting

General	+	+	+	+	+	+	+	+	+
Numerical	+	+	+	+	+	+	+	+	+
Currency	+	+	+	+	+	+	+	+	+
Date	+	+	+	+	+	+	+	+	+
Time	+	+	+	+	+	+	+	+	+

Percent age	+	+	+	+	+	+	+	+	+
Boolean	+	+	+	+	+	+	+	+	+
Custom	+	+	+	+	+	+	+	+	+
Formatt ing in text	+	+	+	+	+	+		+	
HTML tags	+	+	+	+	+	+	+	+	+
Special Symbol s	+	+	+	+		+	+	+	+
Rich Text	+	+	+	+		+			
Images									
Loading image from file	+	+	+	+	+	+	+	+	+
Loading image from reports resourc e	+	+	+	+	+	+	+		+
Loading image from report code	+	+	+	+	+	+	+	+	+
Loading image from the data field	+	+	+	+	+	+	+	+	
Autosize									
Can Grow	+	+	+	+	+	+	+		+
Can Shrink	+	+	+	+	+	+	+	+	+
Automa tically resizing text	+	+	+	+	+	+	+	+	+
Automa tically	+	+	+	+	+	+	+	+	+

resizing panels									
Automatically Resizing Bands	+	+	+	+	+	+	+	+	+
Primitives									
Arrow	+	+	+	+	+	+	+	+	+
Diagonal Line Down	+	+	+	+	+	+	+	+	+
Diagonal Line Up	+	+	+	+	+	+	+	+	+
Horizontal Line	+	+	+	+	+	+	+	+	+
Left and Right Line	+	+	+	+	+	+	+	+	+
Oval	+	+	+	+	+	+	+	+	+
Rounded Rectangle	+	+	+	+	+	+	+	+	+
Top and Bottom Line	+	+	+	+	+	+	+	+	+
Triangle	+	+	+	+	+	+	+	+	+
Vertical Line	+	+	+	+	+	+	+	+	+
Complex Arrow	+	+	+	+	+	+	+	+	+
Bent Arrow	+	+	+	+	+	+	+	+	+
Chevron	+	+	+	+	+	+	+	+	+
Division	+	+	+	+	+	+	+	+	+
Equal	+	+	+	+	+	+	+	+	+
Flowchart: Card	+	+	+	+	+	+	+	+	+
Flowchart: Collate	+	+	+	+	+	+	+	+	+
Flowchart: Decision	+	+	+	+	+	+	+	+	+

Flowchart: Manual Input	+	+	+	+	+	+	+	+	+
Flowchart: Off Page Connector	+	+	+	+	+	+	+	+	+
Flowchart: Preparation	+	+	+	+	+	+	+	+	+
Flowchart: Sort	+	+	+	+	+	+	+	+	+
Frame	+	+	+	+	+	+	+	+	+
Minus	+	+	+	+	+	+	+	+	+
Multiply	+	+	+	+	+	+	+	+	+
Parallel ogram	+	+	+	+	+	+	+	+	+
Plus	+	+	+	+	+	+	+	+	+
Regular: Pentagon	+	+	+	+	+	+	+	+	+
Trapezoid	+	+	+	+	+	+	+	+	+
Snip Same Side Corner Rectangle	+	+	+	+	+	+	+	+	+
Snip Diagonal Side Corner Rectangle	+	+	+	+	+	+	+	+	+
Scripts	+	+	+	+	+	+			
Watermark									
Text	+	+	+	+	+	+	+	+	+
Image	+	+	+	+	+	+	+	+	+
Pagination	+	+	+	+	+	+	+	+	+

Report Globalization	+	+	+	+	+	+	+	+	+
Navigation bar	+	+	+	+	+	+	+	+	+
Formatted text	+	+	+	+	+	+	+	+	+
Gradient fills	+	+	+	+	+	+	+	+	+
Hierarchical reports	+	+	+	+	+	+	+	+	+
Hyperlink embedding	+	+	+	+	+	+	+	+	+
Multiple reporting bands on a page	+	+	+	+	+	+	+	+	+
Page overlays	+	+	+	+	+	+	+	+	+
Parameterized Reports	+	+	+	+	+	+	+	+	+
Pivot tables	+	+	+	+	+	+	+	+	+
Segmented pages	+	+	+	+	+	+			
Report style sheet	+	+	+	+	+	+	+	+	+

Page manager	+	+				+		+	
Right-To-Left									
Text component	+	+	+	+	+	+			
Text In Cells component	+	+	+	+		+			
Cross Table component	+	+	+	+	+	+			
Columns on page	+	+	+	+	+	+			
Chart Component	+	+	+	+	+	+			
Columns in Data Band	+	+	+	+	+	+			
WinForms report viewer	+	+				+			
Unicode , internationalization support	+	+	+	+		+	+	+	+
Publish	+	+	+			+	+	+	+
Share	+	+	+			+	+	+	+
Stimulsoft Cloud	+	+	+	+	+	+	+	+	+

2.3.6 Tools

Tools are used to improve and do faster work with the reporting tool. See the list of them.

Tools	Stimulsoft Ultimate	Dashboard.WEB	Dashboard.WEB IN	Dashboard.JS	Dashboard.PHP	Reports.NET	Reports.WEB	Reports.AN.GUL	Reports.BL.AZ	Reports.WP.F	Reports.JS	Reports.JAVA	Reports.PHP
Configurator	+		+			+							
Installer	+		+	+	+	+				+	+	+	+
Designer	+	+	+	+	+	+	+	+	+	+	+	+	+
Viewer	+	+	+	+	+	+	+	+	+	+	+	+	+
Report Browser	+	+	+			+				+			
Report Checker	+	+	+	+	+	+	+	+	+	+	+		
Style Designer	+	+	+	+	+	+	+	+	+	+	+	+	+
Report Comparer	+		+			+							

2.3.7 User Interface

The table shows which user interfaces and their themes are supported.

User Interface	Stimulsoft Ultimate	Dashboards.WEB	Dashboards.WIN	Dashboards.JS	Dashboards.PHP	Reports.NET	Reports.WEB	Reports.AN	Reports.BLAZOR	Reports.WP	Reports.JS	Reports.JS	Reports.AV	Reports.PH
Office 2000	+	+	+ (up to version 2019.3)			+ (up to version 2019.3.3)	+			+				
Office XP	+	+	+ (up to version 2019.3)			+ (up to version 2019.3.3)	+			+				
Standard (Microsoft Office 2003)														
Blue	+	+	+ (up to version 2019.3.3)			+ (up to version 2019.3.3)	+			+				
Silver	+	+	+ (up to version 2019.3.3)			+ (up to version 2019.3.3)	+			+				
Black	+	+	+ (up to			+ (up to	+			+				

			versi on 2019. 3.3)			versi on 2019. 3.3)							
Ribbon (Microsoft Office 2007)													
Blue	+	+	+ (up to versi on 2019. 3.3)			+ (up to versi on 2019. 3.3)	+			+			
Silver	+		+ (up to versi on 2019. 3.3)			+ (up to versi on 2019. 3.3)				+			
Black	+		+ (up to versi on 2019. 3.3)			+ (up to versi on 2019. 3.3)				+			
Ribbon (Microsoft Office 2010)													
Blue	+	+	+ (up to versi on 2019. 3.3)			+ (up to versi on 2019. 3.3)	+			+			
Silver	+		+ (up to versi on 2019. 3.3)			+ (up to versi on 2019. 3.3)				+			

Black	+		+ (up to version 2019.3.3)			+ (up to version 2019.3.3)				+			
Ribbon (Microsoft Office 2013)													
White	+	+	+	+	+	+	+	+	+	+	+	+	+
LightGray				+	+						+		
DarkGray				+	+						+		
Black										+			
Windows 7	+	+	+ (up to version 2019.3.3)			+ (up to version 2019.3.3)	+			+			
Windows 11	+									+			
Vista	+		+ (up to version 2019.3.3)			+ (up to version 2019.3.3)							
MacOS [1]	+	+	+	+	+	+	+	+	+	+	+	+	+

Information

📌 For any Stimulsoft product, we offer a tool to design reports and dashboards for Mac OS.

2.3.8 Localizations

The list of UI localizations is shown below.

Local izati ons	Sti mul soft Ulti mat e	Das hbo ards .WE B	Das hbo ards .WI N	Das hbo ards .JS	Das hbo ards .PH P	Rep orts .NE T	Rep orts. WEB	Rep orts. AN GUL AR	Rep orts. BLA ZOR	Rep orts. WPF	Rep orts. JS	Rep orts. JAV A	Rep orts. PHP
Arabi c	+	+	+	+	+	+	+	+	+	+	+	+	+
Belar usian	+	+	+	+	+	+	+	+	+	+	+	+	+
Bulg arian	+	+	+	+	+	+	+	+	+	+	+	+	+
Chin ese (Sim plifie d)	+	+	+	+	+	+	+	+	+	+	+	+	+
Chin ese (Trad ition al)	+	+	+	+	+	+	+	+	+	+	+	+	+
Croat ian	+	+	+	+	+	+	+	+	+	+	+	+	+
Czec h	+	+	+	+	+	+	+	+	+	+	+	+	+
Dutc h	+	+	+	+	+	+	+	+	+	+	+	+	+
Engli sh	+	+	+	+	+	+	+	+	+	+	+	+	+
Farsi	+	+	+	+	+	+	+	+	+	+	+	+	+
Frenc	+	+	+	+	+	+	+	+	+	+	+	+	+

h													
Georgian	+	+	+	+	+	+	+	+	+	+	+	+	+
German	+	+	+	+	+	+	+	+	+	+	+	+	+
Hungarian	+	+	+	+	+	+	+	+	+	+	+	+	+
Italian	+	+	+	+	+	+	+	+	+	+	+	+	+
Lithuanian	+	+	+	+	+	+	+	+	+	+	+	+	+
Polish	+	+	+	+	+	+	+	+	+	+	+	+	+
Portuguese (Brazil)	+	+	+	+	+	+	+	+	+	+	+	+	+
Romanian	+	+	+	+	+	+	+	+	+	+	+	+	+
Russian	+	+	+	+	+	+	+	+	+	+	+	+	+
Serbian	+	+	+	+	+	+	+	+	+	+	+	+	+
Slovak	+	+	+	+	+	+	+	+	+	+	+	+	+
Spanish	+	+	+	+	+	+	+	+	+	+	+	+	+
Swedish	+	+	+	+	+	+	+	+	+	+	+	+	+
Turkish	+	+	+	+	+	+	+	+	+	+	+	+	+
Ukrainian	+	+	+	+	+	+	+	+	+	+	+	+	+

Catalan	+	+	+	+	+	+	+	+	+	+	+	+	+
Euskara	+	+	+	+	+	+	+	+	+	+	+	+	+
Galician	+	+	+	+	+	+	+	+	+	+	+	+	+
Ελληνικά	+	+	+	+	+	+	+	+	+	+	+	+	+

2.3.9 Internal Formats

Stimulsoft file formats to which you can save reports.

Form ats/ Com pone nts	Sti mul soft Ulti mat e	Das hbo ard s.W EB	Das hbo ard s.W IN	Das hbo ard s.JS	Das hbo ard s.P HP	Rep orts .NE T	Rep orts .WE B	Rep orts. AN GUL AR	Rep orts .BLA ZOR	Rep orts. WPF	Repo rts.JS	Rep orts. JAV A	Rep orts .PH P
MRT (XML)	+	+	+			+	+	+	+	+		+	
MRT (JSO N)	+	+	+	+	+	+	+			+	+	+	+
MRT (Rep ort Snap shot)	+	+	+	+	+								
MDC (XML)	+					+	+	+	+	+		+	
MDC (JSO N)	+			+	+	+				+	+	+	+
MDZ	+					+	+	+	+	+	+	+	+

MDX	+					+	+	+	+	+	+	+	+
MRX	+	+	+	+	+	+	+	+	+	+	+	+	+
MRZ	+	+	+	+	+	+	+	+		+	+	+	+

The list of native file types you may open with Stimulsoft software.

Form ats/ Com pone nts	Sti mul soft Ulti mat e	Das hbo ard s.W EB	Das hbo ard s.W IN	Das hbo ard s.JS	Das hbo ard s.P HP	Rep orts .NE T	Rep orts .WE B	Rep orts. AN GUL AR	Rep orts .BLA ZOR	Rep orts. WPF	Repo rts.JS	Rep orts. JAV A	Rep orts .PH P
MRT (XML)	+	+	+	+	+	+	+	+	+	+	+	+	+
MRT (JSO N)	+	+	+	+	+	+	+	+	+	+	+	+	+
MRT (Rep ort Snap shot)	+	+	+	+	+								
MDC (XML)	+	+	+	+	+	+	+	+	+	+	+	+	+
MDC (JSO N)	+	+	+	+	+	+	+	+	+	+	+	+	+
MDZ	+	+	+	+	+	+	+	+	+	+	+	+	+
MDX	+		+			+	+	+	+	+	+	+	+
MRX	+	+	+	+	+	+	+	+	+	+	+	+	+
MRZ	+	+	+	+	+	+	+	+	+	+	+	+	+

Information

*.mrt - a report or dashboard template file;
 *.mrz - a packed report or dashboard template file;
 *.mrx - an encrypted report template or dashboard file;
 *.mdc - a file of the rendered report;
 *.mdz - a packed file of the rendered report;
 *.mdx - an encrypted file of the rendered report.

2.3.10 Stimulsoft Cloud

Please see the clear and transparent list of the main differences across [Stimulsoft Cloud subscriptions](#). All resources available in subscriptions are calculated on a monthly basis. From your account, you can view the remaining amount of resources. Upon reaching one of the limits, the corresponding functionality will be unavailable, all other functionality will be available in accordance with their limits. You may switch between subscriptions and upgrade or downgrade your monthly plan.

* Our trial subscription is valid for 30 days and, similar to a trial account, not intended for commercial use.

** The subscription is included with our developer products. If needed, feel free to switch to an alternative Stimulsoft Cloud tariff plan.

Name	Trial*	Developer* *	Single	Team	Enterprise	D e s c r i p t i o n
Creators	1 (For Review)	1	1	4	15	A c

						r e a t o r i s a p e r s o n w h o h a s a n a c c o u n t o n t h e s e r v
--	--	--	--	--	--	---

						e r , h a s a c c e s s f r o n t h e c l i e n t - s i d e , r e g i s t e r
--	--	--	--	--	--	---

						e d a s a n e d i t o r , a n d u s e s t h e p r o d u c t t o w o r k w i t
--	--	--	--	--	--	---

						h r e p o r t t e m p l a t e s a n d d a s h b o a r d s - c r e a t e , e d
--	--	--	--	--	--	---

						it , view , delete , etc.
Items	20	Unlim	Unlim	Unlim	Unlim	An i t e n i s a n y f i l e u p l o a d

						d e d o r c r e a t e d i n a w o r k s p a c e o f y o u r a c c o u n t — t
--	--	--	--	--	--	---

						h e s e a r e r e p o r t a n d d a s h b o a r d t e m p l a t e s , r e n d
--	--	--	--	--	--	---

						e r e d o c u n e n t s , f i l e d a t a , e x p o r t e d o c u n e n t
--	--	--	--	--	--	---

						s , i n a g e s , e t c .
Sharing	+	+	+	+	+	A b i l i t y t o p r o v i d e g e n e r a l a c c

						e s s v i a h y p e r l i n k t o v i e w t h e r e p o r t o r d a s h b o a
--	--	--	--	--	--	---

						r d . A c c e s s c a n b e e i t h e r f u l l y o p e n o r p r o t e c t e
--	--	--	--	--	--	--

						d b y a p a s s w o r d .
File Data	+	+	+	+	+	P e r n i s s i o n t o u s e f i l e d a t a i n r

						e p o r t s a n d d a s h b o a r d s .Y o u n a y u s e X M L , J S C M , C
--	--	--	--	--	--	---

						S V , a n d E x c e l d a t a f i l e s .
Databases	-	+	+	+	+	P e r n i s s i o n t o u s e v a r

						i o u s d a t a b a s e s i n r e p o r t s a n d d a s h b o a r d s - M S S
--	--	--	--	--	--	---

						C L , C r a c l e , F i r e b i r d , M y S C L , P o s t g r e S C L , a n d
--	--	--	--	--	--	---

others. Then a maximum size of a single file allowed

						e d f o r u p l o a d t o c l o u d s t o r a g e . T h i s r e s t r i c t i
--	--	--	--	--	--	--

						o n i s i n p o s e d o n a n y f i l e s - t e m p l a t e s , f i l e d a t
--	--	--	--	--	--	---

						a , b u i l t a n d e x p o r t e d d o c u m e n t s .
Report Pages	20	50	100	200	500	T h e n a x i m u m

						u n b e r o f p a g e s a l l o v e d i n o n e r e n d e r e d r e p o r t .
--	--	--	--	--	--	---

						U p o n r e a c h i n g t h e l i n i t , t h e r e p o r t r e n d e r i n g
--	--	--	--	--	--	---

						w i l l i n t e r r u p t o n t h e l a s t a v a i l a b l e p a g e .
Data Rows	5 000	10 000	20 000	50 000	100 000	T h e

						n a x i m u n n u n b e r o f d a t a r o w s i n c o n n e c t a b l e , o r t h e
--	--	--	--	--	--	--

						t o t a l n u m b e r o f d a t a r o w s u s e d t o r e n d e r o n e r e p
--	--	--	--	--	--	---

						o r t o r d a s h b o a r d , o r t h e n a x i n u n n u n b e r o f l i n e
--	--	--	--	--	--	---

						s i n o n e d a t a c a c h e . T h e r e a r e n o r e s t r i c t i o n s
--	--	--	--	--	--	---

						n t h e n u n b e r o f c o l u n n s i n t h e d a t a r o w .
Refreshes	500	1 000	3 000	10 000	30 000	T h e n u n b

						e r o f r e f r e s h e s f o r a l l d a s h b o a r d s , r e p o r t s , a
--	--	--	--	--	--	---

						n d d a t a i n g e n e r a l · C n e r e f r e s h n e a n s v i e w i n g a
--	--	--	--	--	--	---

						d a s h b o a r d , r e n d e r i n g a r e p o r t , d a t a u p d a t e .
Resource	2 Mb	5 Mb	5 Mb	10 Mb	10 Mb	T

Size						h e n a x i n u n t o t a l s i z e o f r e s o u r c e s a l l o v e d t o b
------	--	--	--	--	--	---

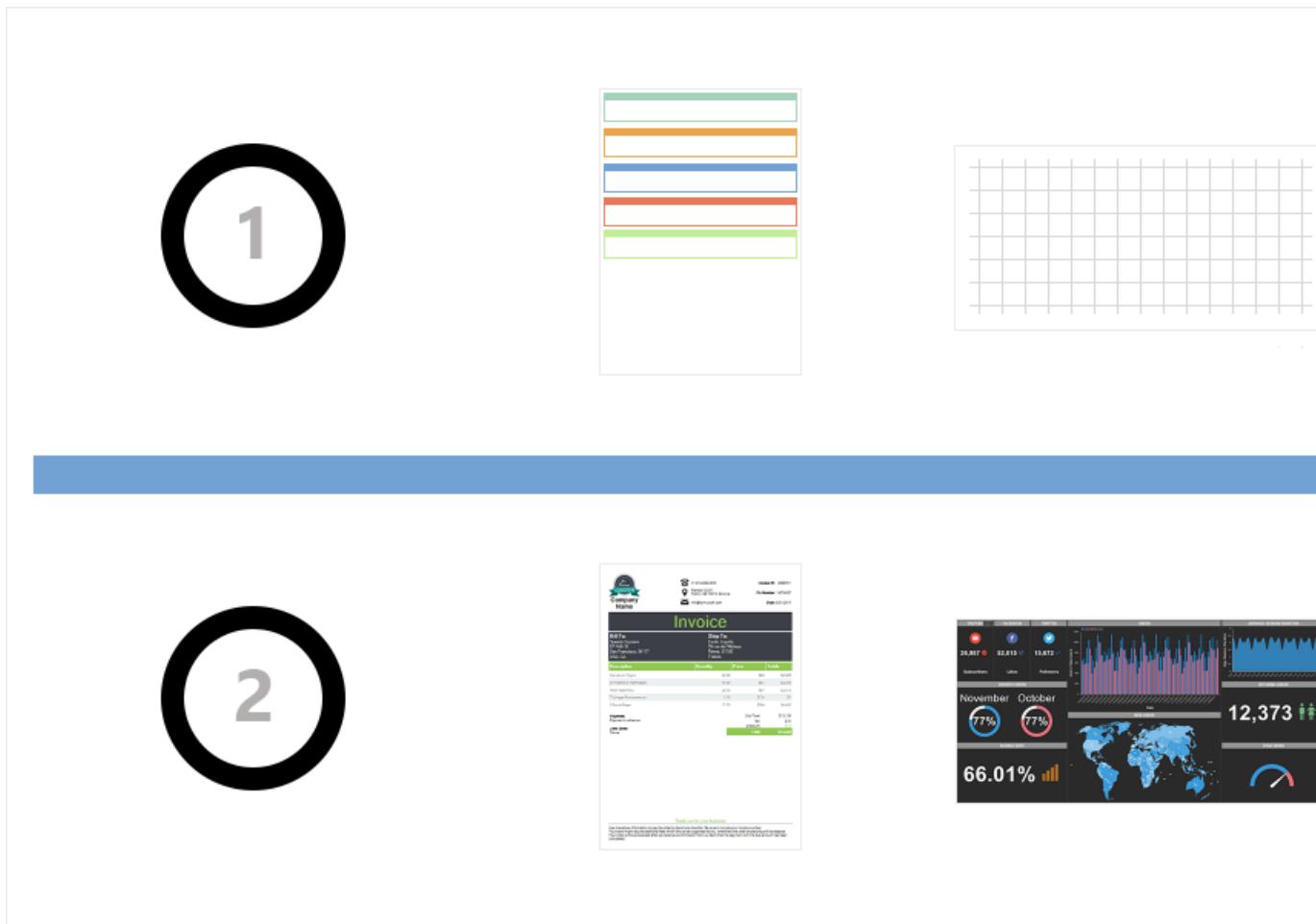
						e s t o r e d w i t h i n c o n t e n p l a t e . A s t e n p l a t e r e s c
--	--	--	--	--	--	---

						ur c e s , y o u c a n u s e d a t a f i l e s , i n a g e s , a n d o t h e
--	--	--	--	--	--	---

						r a v a i l a b l e f o r n a t s .
--	--	--	--	--	--	--

3 Getting Started

This section describes step-by-step approaches in designing reports and dashboards.



Creating a report or dashboard ready for printing consists of the following steps:

- Creating a [report](#) or [dashboard](#) template (structure) in the report designer;
- Viewing the [report](#) or [dashboard](#) template in the report viewer or on the Preview tab.

3.1 Installation and first run

Important

Scripts can be a security risk, so they are disabled in the [Interpretation mode](#). However, if you are confident in the safety of your scripts, you can use them in the [Compilation mode](#).

To start creating reports and dashboards, you need to install the Stimulsoft report designer:

- › [Installing the report designer from our website](#);
- › [Register a new account](#);
- › [Log In with Google](#);
- › [Sign Up with Google](#);
- › [Downloading packages for developers from our website](#);
- › [Skill Level](#);
- › [Overview of the report designer](#);
- › [Installing other applications and packages from the report designer](#).
- › [Account registration and activation](#).

Installing from Stimulsoft website

Step 1: Go to the download page at <https://www.stimulsoft.com/en/downloads>;

Step 2: Click the **Download for Windows** button on the site page;

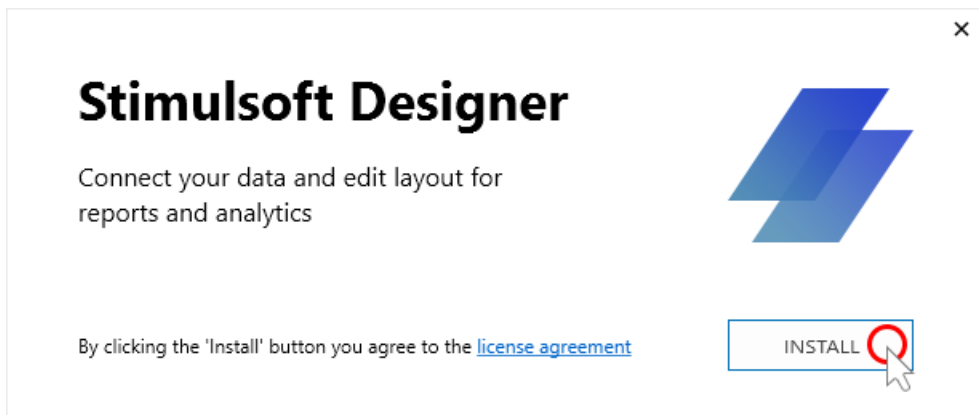
Information

When you go to the download page from a device running **macOS**, you will be asked to download the report designer for **macOS**. If you logged in from a device running **Windows**, and you need to download the version for **macOS**, then click the **More Apps** button under the **Download for Windows** button.

Also, in this submenu you can download other applications:

- › **Stimulsoft Designer.JS** is a universal application for working with reports and dashboards. The designer is designed using NW.js, HTML5, and JavaScript technologies. The main feature is the use of the JS core in design. The documents created with it will have the same look and functionality on any operating system.
- › **Stimulsoft Demo** is a demo application for exploring the main features and benefits of a report writer and dashboards. The application contains lots of predesigned reports and dashboards, grouped by functionality.

Step 3: Run the installer.

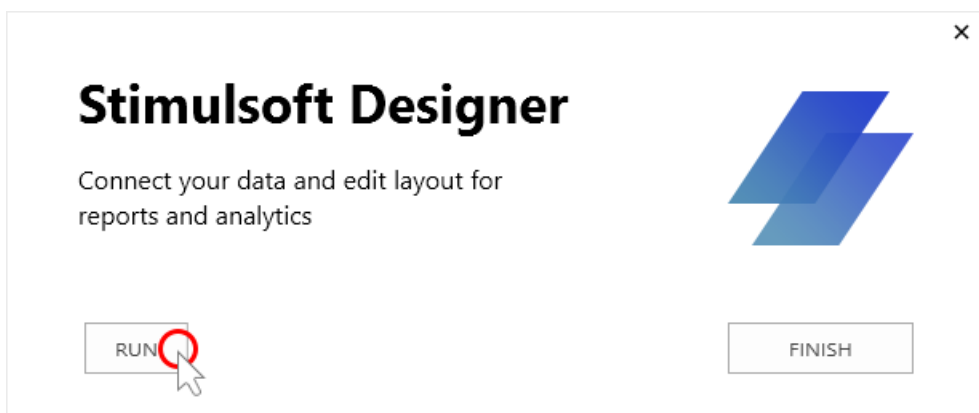


Step 4: Click the **Install** button after you read and accept the terms of the license agreement.

Information

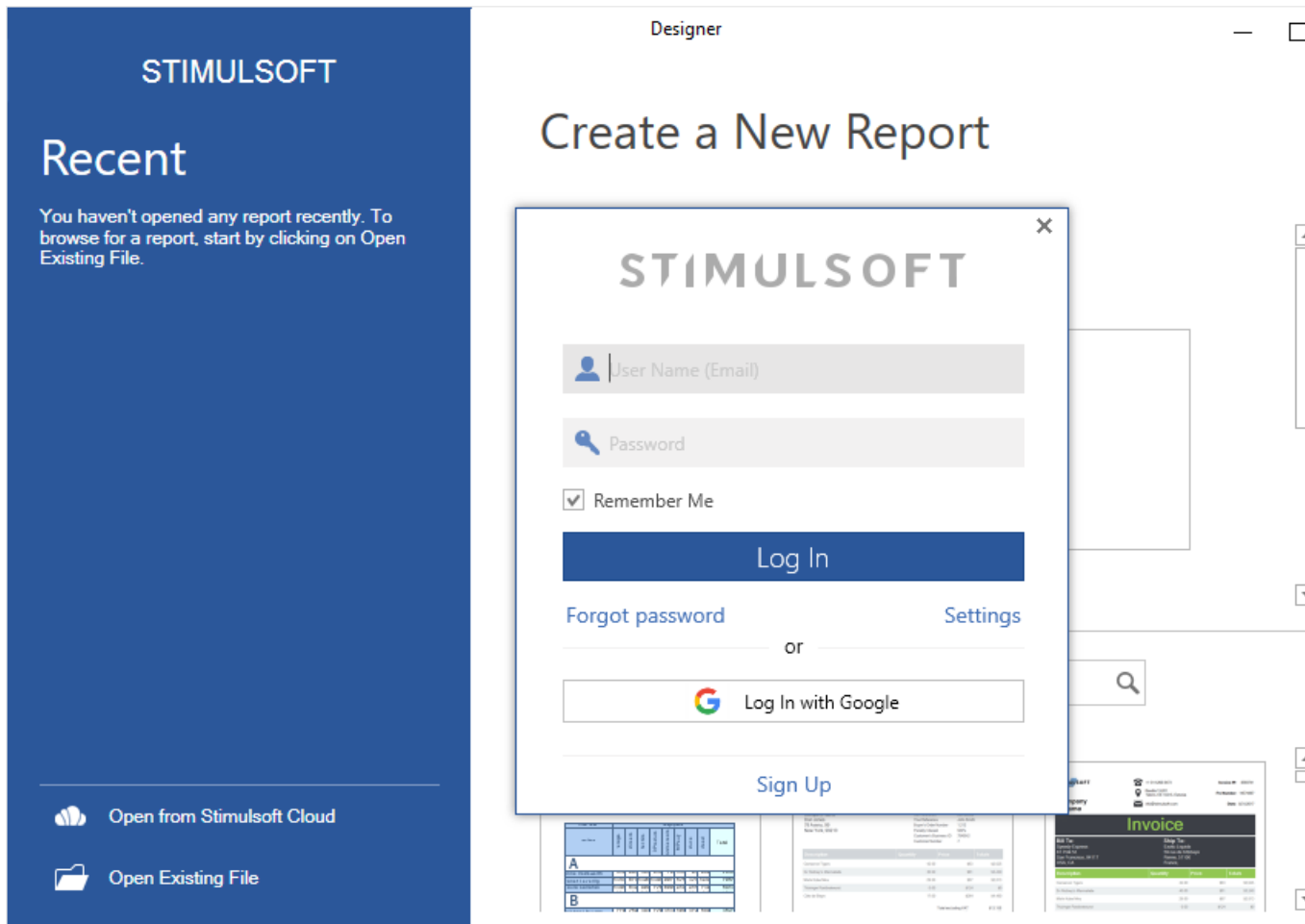
Installing a report designer, like any other product, means that you have read and accepted the terms of the license agreement.

Step 5: The installation process of the report designer will be completed. At the end of the installation, a window will be displayed.



Step 7: Click the Run button to start the report designer, or the Finish button to close the installer window if you wish to run the designer later.

Step 8: You must log in to the user account after the first run of the report designer. Enter Email in the **User Name** field, the password for the account in the **Password** field, and click the **Log In** button in the login window. You must [register a new account](#), if the account is missing. Also, you can [log in](#) or [sign up](#) with your Google account.

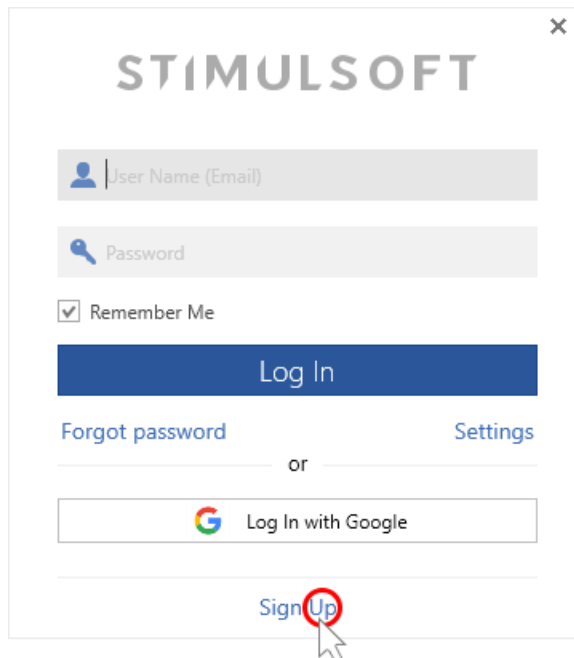


After installation:

- The report designer will be installed by the following path: **c:\Program Files (x86)\Stimulsoft Designer% version%**. To run the report designer, you need to open this local storage and double-click on the **Designer.exe** file.
- All installed data adapters are located in the following path: **c:\Users\% username %\AppData\Local\Stimulsoft\DataAdapters**

Sign Up from designer

Step 1: Click the **Sign Up** button in the **Log In** window of the report designer;

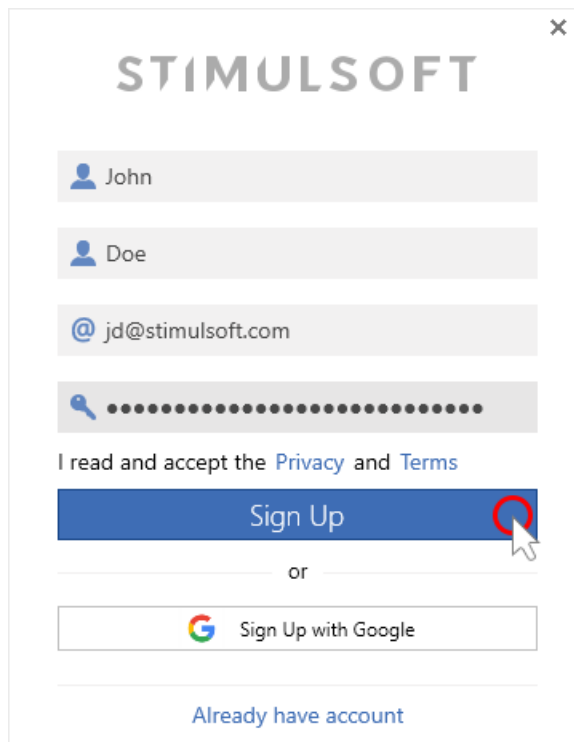


The image shows a 'Log In' window for STIMULSOFT. At the top is the 'STIMULSOFT' logo and a close button (X). Below the logo are two input fields: 'User Name (Email)' and 'Password'. There is a 'Remember Me' checkbox. A large blue 'Log In' button is present. Below it are links for 'Forgot password' and 'Settings'. A horizontal line with the word 'or' in the center separates the login section from the social login section. The social login section has a 'Log In with Google' button. At the bottom, the 'Sign Up' link is highlighted with a red circle and a mouse cursor pointing at it.

Step 2: Fill in the required fields - First Name, Last Name, User Name (Email) and Password;

Step 3: Acquainted with [Privacy Policy](#) and [Terms of Use](#);

Step 4: By clicking the **Sign Up** button, you agree to the [Privacy Policy](#) and [Terms of Use](#).

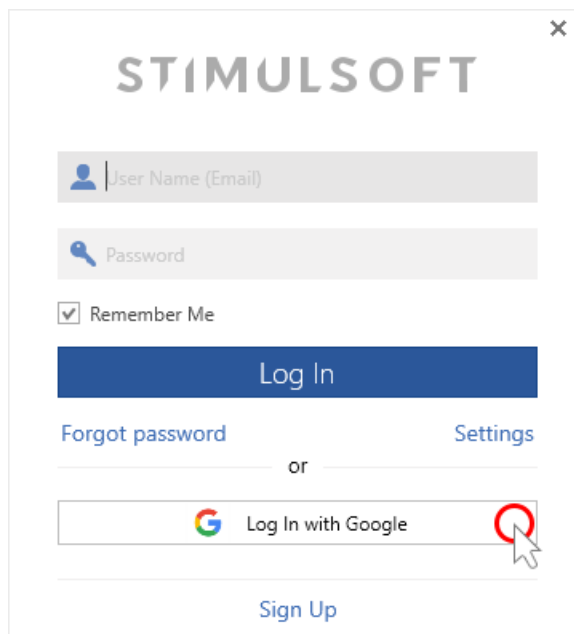
A registration form for Stimulsoft. At the top is the 'STIMULSOFT' logo and a close button (X). Below are four input fields: a first name field with 'John', a last name field with 'Doe', an email field with 'jd@stimulsoft.com', and a password field with a key icon and a series of dots. Below the password field is a checkbox labeled 'I read and accept the Privacy and Terms'. There is a blue 'Sign Up' button with a red circle and a mouse cursor icon over it. Below the button is the word 'or'. Below that is a 'Sign Up with Google' button with the Google logo. At the bottom is a link that says 'Already have account'.

After successful registration of the user account, you will be logged into the report designer.

Log In with Google

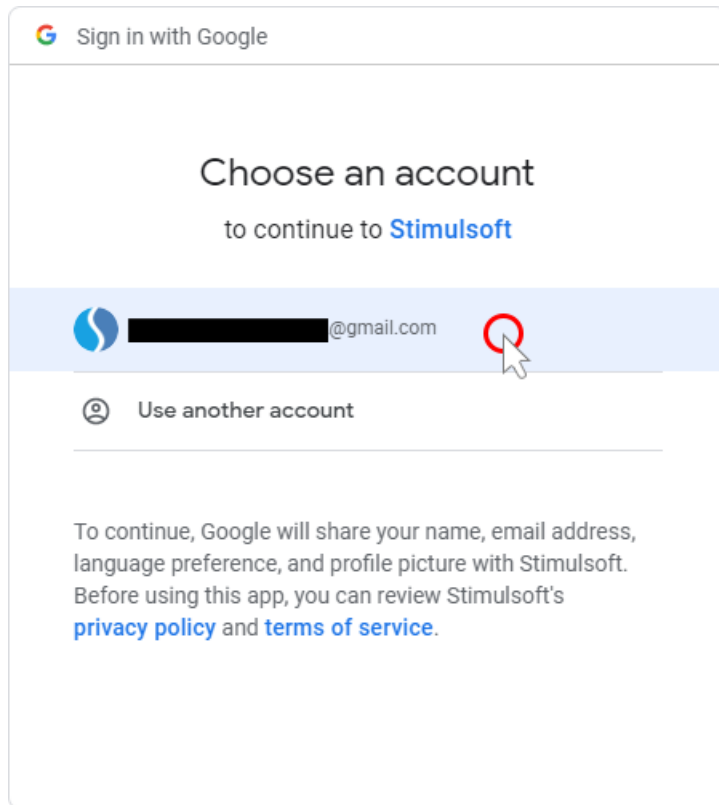
For authorization in the report design, you can use a Google account.

Step 1: Click the **Log In with Google** button in **Log In** window of the report designer;

A screenshot of the Stimulsoft login interface. At the top is the 'STIMULSOFT' logo. Below it are two input fields: 'User Name (Email)' with a person icon and 'Password' with a key icon. A 'Remember Me' checkbox is checked. A blue 'Log In' button is below the password field. Underneath are links for 'Forgot password' and 'Settings'. A horizontal separator with the word 'or' is in the middle. Below that is a 'Log In with Google' button featuring the Google logo. A red circle with a white mouse cursor icon is drawn around the 'Log In with Google' button. At the bottom is a 'Sign Up' link.

Step 2: After that, the default browser will be called up with the Google page of authorization.

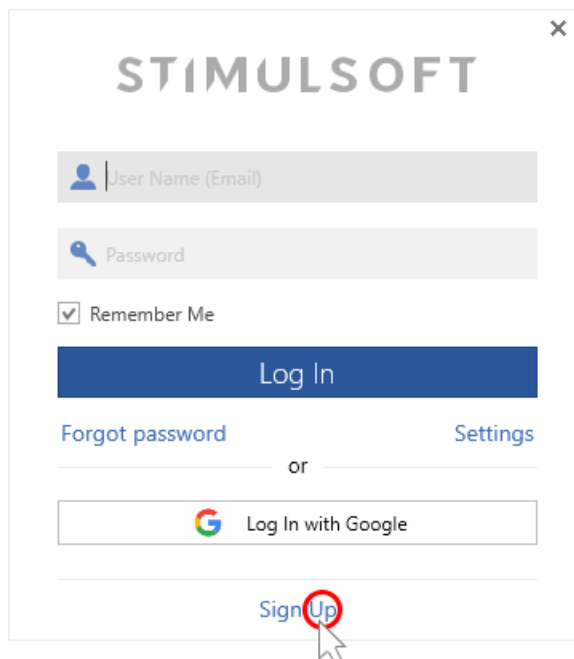
Step 3: You should choose the account that will be used for authorization in the report designer if you accept the [privacy policy](#) and [terms of use](#). You will need to sign in to your Google Account if you are not signed in to Google Accounts.



Step 4: You must return to the report designer, after successfully logging in to your Google account. The authorization will happen automatically in the report designer.

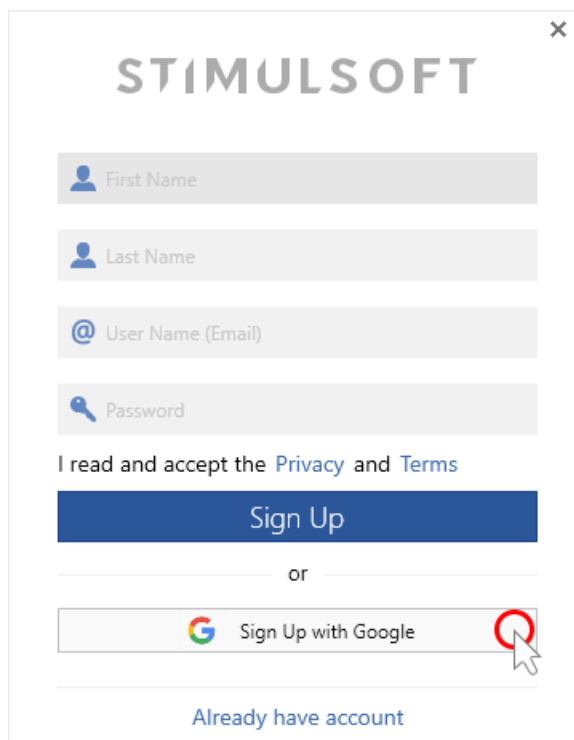
Sign Up with Google

Step 1: Click the **Sign Up** button in **Log In** window of the report designer;



A login window titled "STIMULSOFT" with a close button (X) in the top right corner. It contains a "User Name (Email)" field, a "Password" field, and a checked "Remember Me" checkbox. Below these is a blue "Log In" button. Underneath the button are links for "Forgot password" and "Settings", separated by an "or" label. At the bottom, there is a "Log In with Google" button and a "Sign Up" link. A red circle highlights the "Sign Up" link, and a mouse cursor is pointing at it.

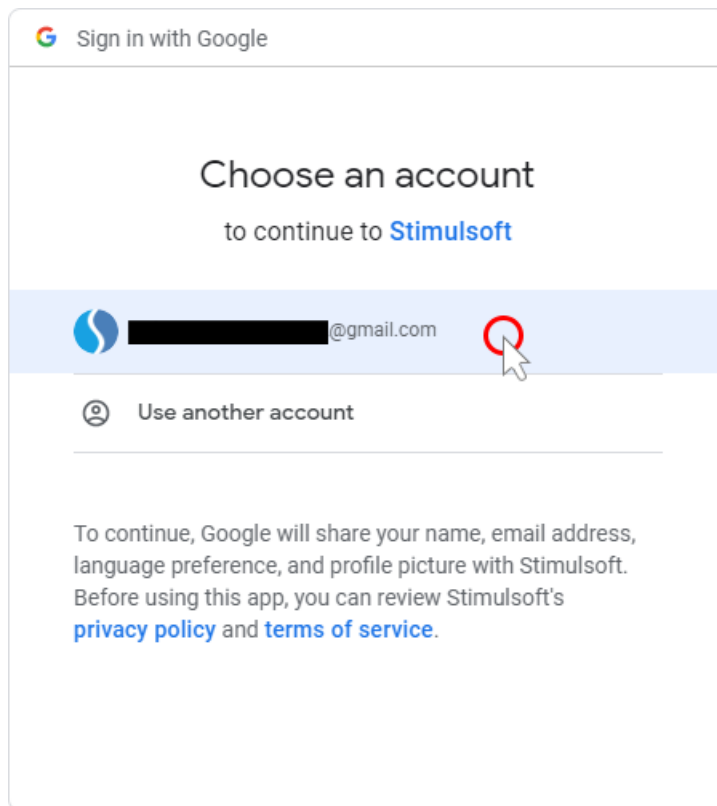
Step 2: Click the **Sign Up with Google** button in the **Sign Up** window of the report designer;



A sign up window titled "STIMULSOFT" with a close button (X) in the top right corner. It contains four input fields: "First Name", "Last Name", "User Name (Email)", and "Password". Below these fields is a checkbox labeled "I read and accept the Privacy and Terms". A blue "Sign Up" button is positioned below the checkbox. Underneath the button is an "or" label. At the bottom, there is a "Sign Up with Google" button and a link that says "Already have account". A red circle highlights the "Sign Up with Google" button, and a mouse cursor is pointing at it.

Step 3: After that, the default browser will be called up with the Google page of authorization.

Step 4: You should choose the account that will be used for authorization in the report designer if you accept the [privacy policy](#) and [terms of use](#). You will need to sign in to your Google Account if you are not signed in to Google Accounts.



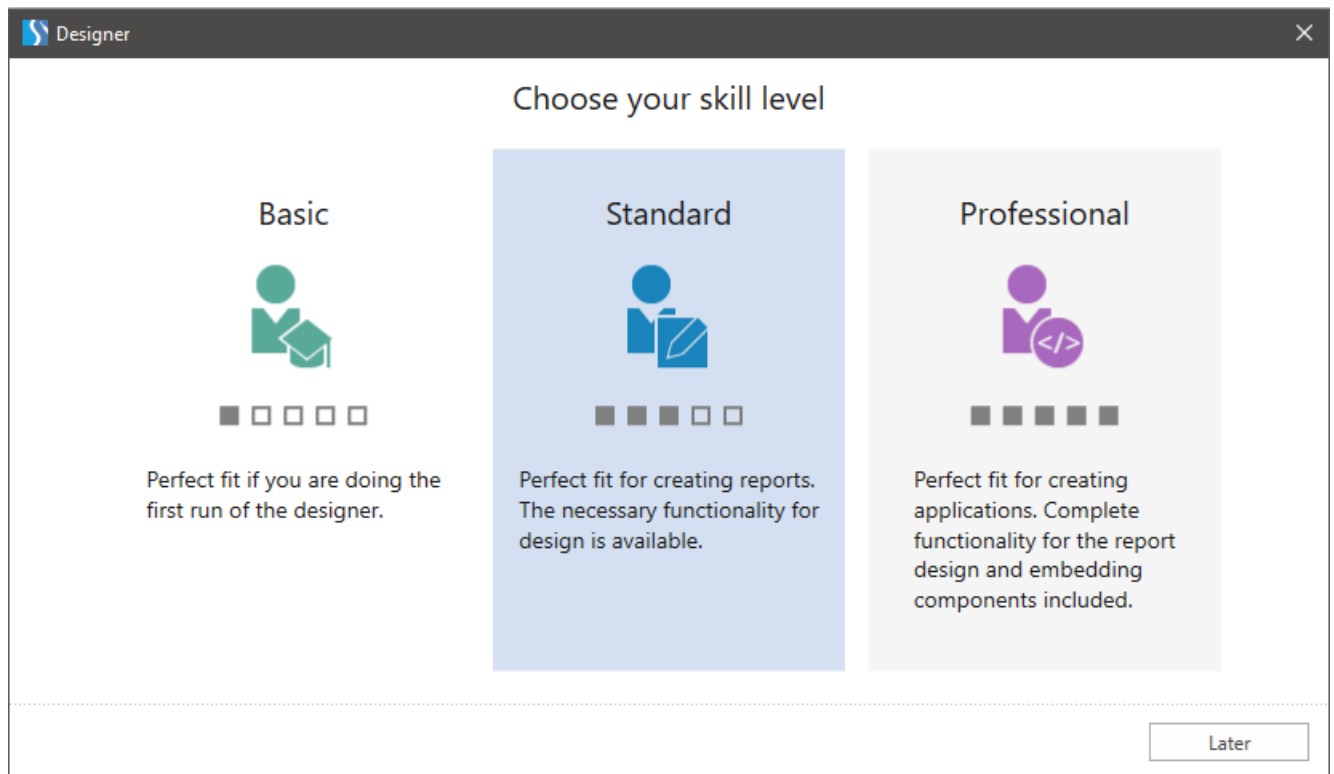
Step 5: You must return to the report designer, after successfully logging in to your Google account. The authorization will happen automatically in the report designer.

Skill Level

After logging into the report designer, you will be prompted to select the report designer's skill level. Depending on the chosen level, the number of properties, options, and settings of elements and tools in the report designer, may vary. Full functionality of options, settings, and tools is available when you choose the **Professional** level. However, we recommend starting with the **Basic** level when you run the designer for the first time.

Information

[Please see the list of report designer tools, components and their properties that are available depending on the selected skill level.](#)



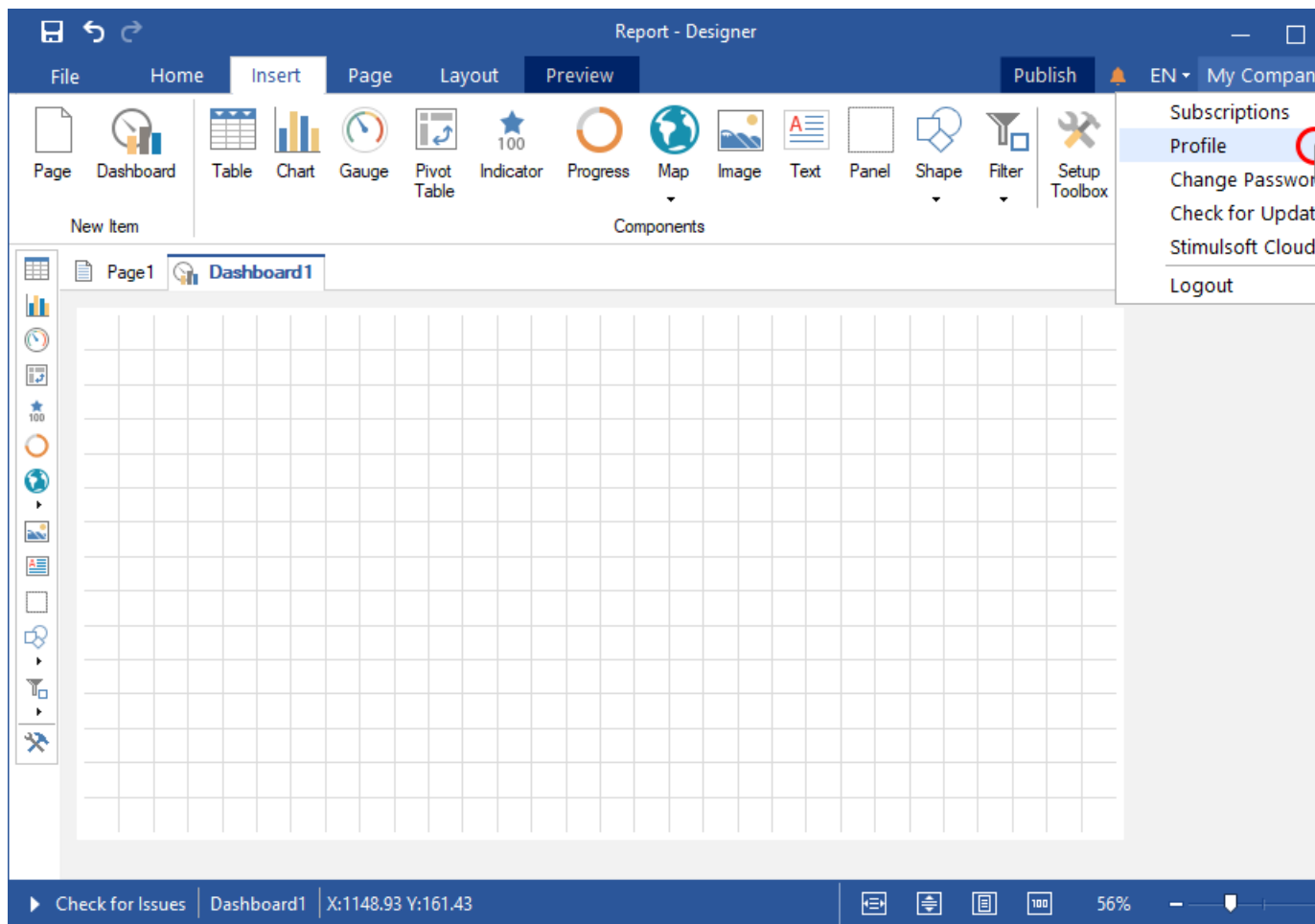
While creating reports in the report designer, you may change the skill level. To do this, you should:

Step 1: Run the report designer and log in;

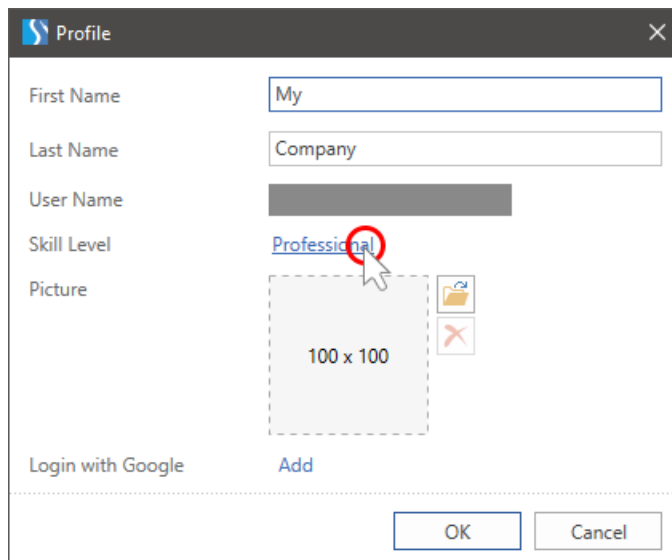
Step 2: Switch from the welcome window to the report or dashboard editing mode;

Step 3: Open the account menu in the upper right corner by left click on the account name;

Step 4: Select **Profile**;

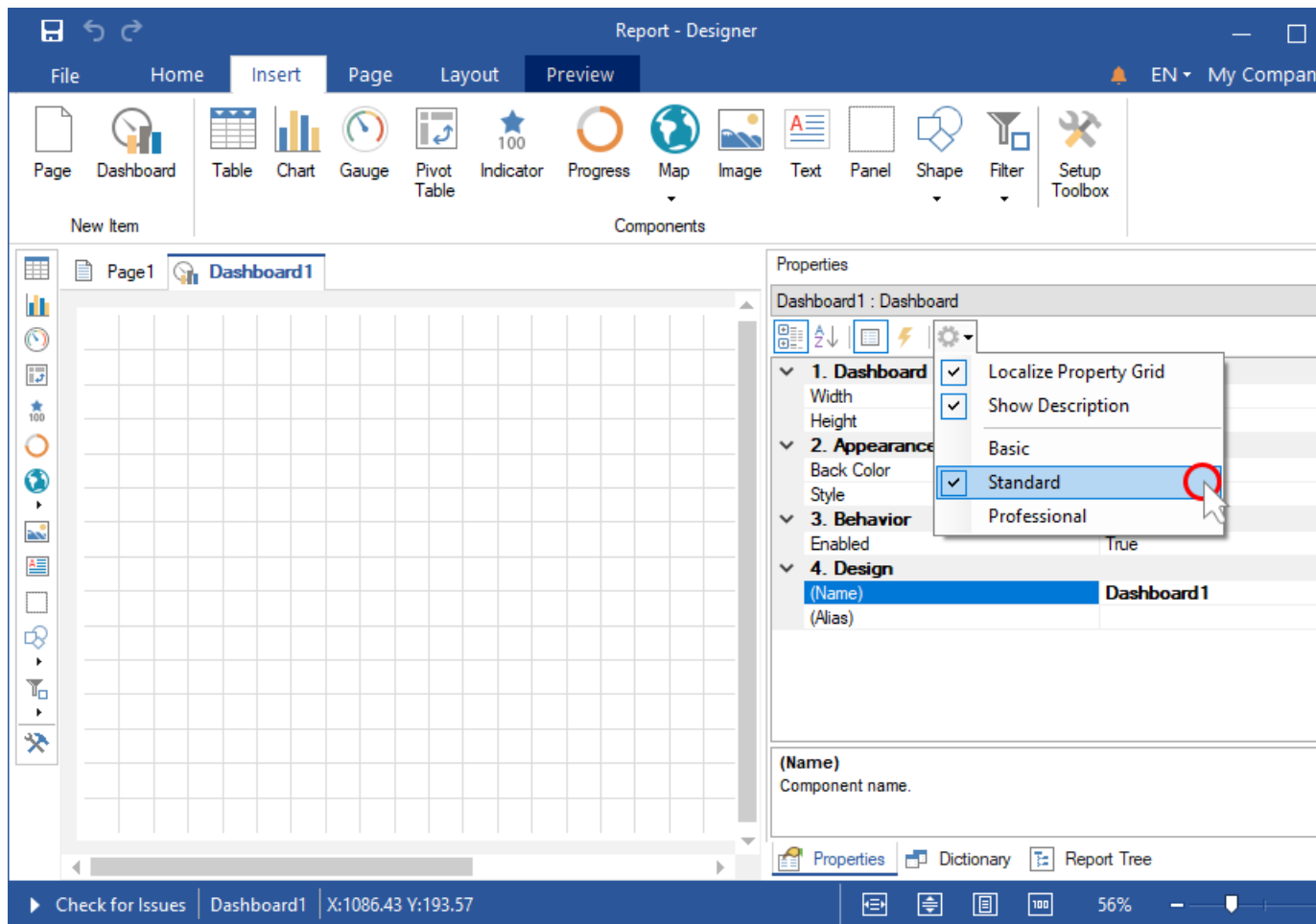


Step 5: In the profile menu, click on the value of the **Skill Level** parameter;



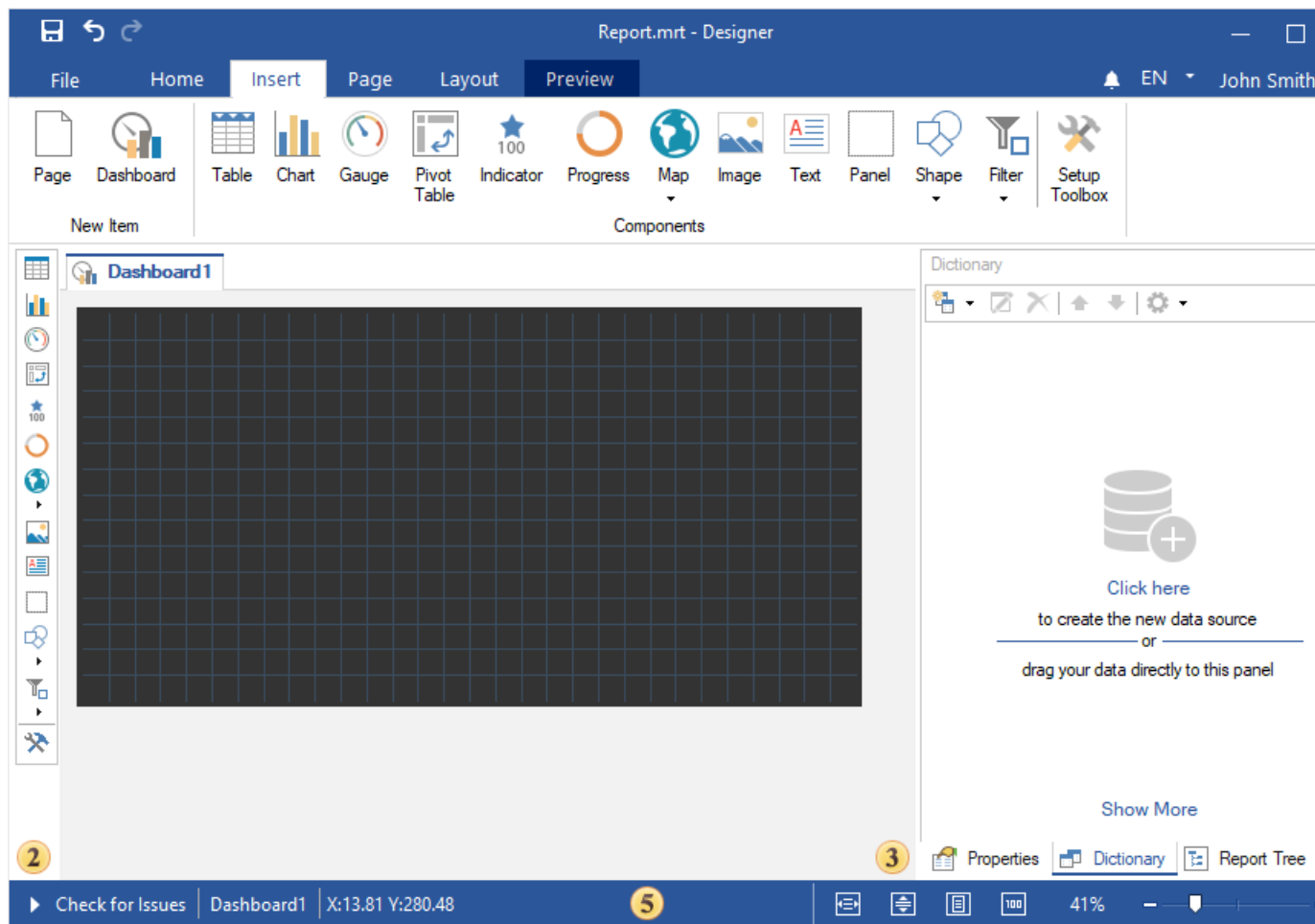
Step 6: Select the appropriate value.

You can also change the skill level in the properties panel settings or select it from the context menu of this panel.



Report Designer Overview

The report designer is a tool for creating and editing reports and dashboards.



- ❶ The Ribbon panel consists of several tabs on which you can find commands for creating report elements and dashboards, File, notification, localizations and account menus.
- ❷ The toolbox contains commands for creating report elements and is similar to the Insert tab in the Ribbon panel.
- ❸ The workspace of the report designer - the [report template](#). In this area, reports and dashboards are being designed.
- ❹ The Bookmarks bar in the report designer contains the Property Panel, Data Dictionary, and Report Tree tabs.
- ❺ The Status bar of the report designer contains the zoom controls, the report verification commands, and additional information while designing reports and dashboards.

Loading developer packages from Stimulsoft

Step 1: Go to the download page at <https://www.stimulsoft.com/en/downloads>;

Step 2: Scroll down until you reach the section **Packages for developers**;

Step 3: Select the required package;

Step 4: Click the **Download** button. After that, the zip archive with libraries and Stimulsoft scripts will be downloaded.

Step 5: Unzip the zip archive. Use Stimulsoft libraries and scripts to develop your application.

Information

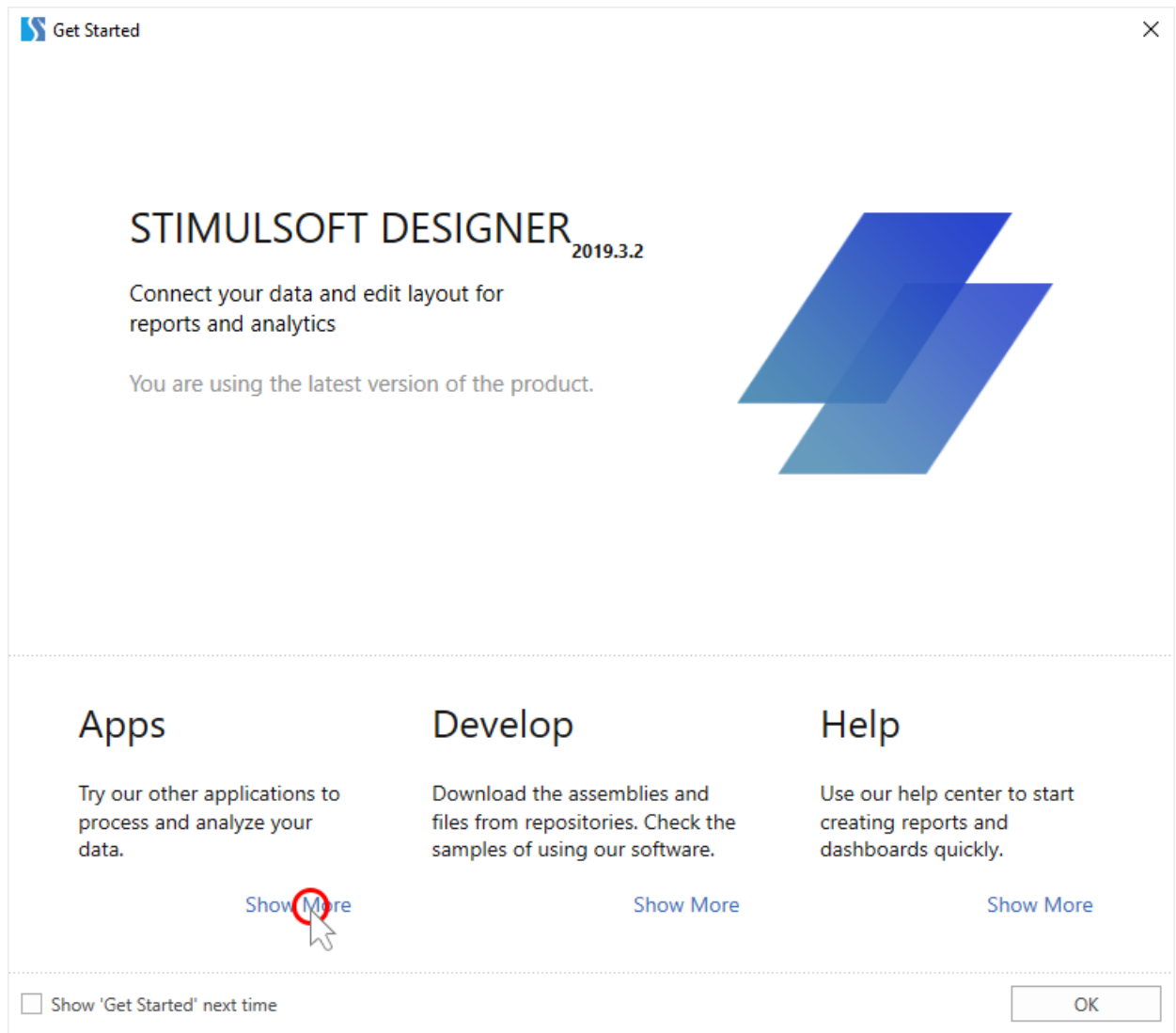
When developing applications, developer packages can also be installed from [NuGet](#), [npm](#), [Maven](#).

Download other applications and packages from Report Designer

When starting the report designer, the **Get Started** window will be displayed. From this window you can:

- Install the demo application and the js report designer;
- Download developer packages;
- Go to help resources or contact technical support.

Depending on the required action, click the **Show more** button under the corresponding item.



Information

If, when you start the report designer, the **Get started** window does not appear, then you have disabled the **Show 'Get Started' next time** option. To call this window from the report designer, you should:

Step 1: Click the **File menu** button in the report designer;

Step 2: Select **Get Started**.

3.2 Data connection

Data connection is carried out in the report data dictionary and includes the following steps: creating a connection and creating data sources. Depending on the type of a data source, the creation process may vary.

This chapter will cover the following:

- › [Creating SQL data sources](#);
- › [Creating OData data sources](#);
- › [Retrieving data from files](#);
- › [Move the data file to the report resources when creating the data source](#);
- › [Embed a data file and create a data source based on it](#).

Information

When you design a report, you can embed all created data sources in a report file. Each type of connection will be converted to a separate XML file and embedded into the report file as a resource. In this case, the connection of data sources will be redefined on this resource. However, in this case, you should know that:

- › The size of the report file can increase significantly;
- › This is an irreversible action. Therefore, before performing this step, you should back up the report file or use Stimulsoft Cloud to store reports.

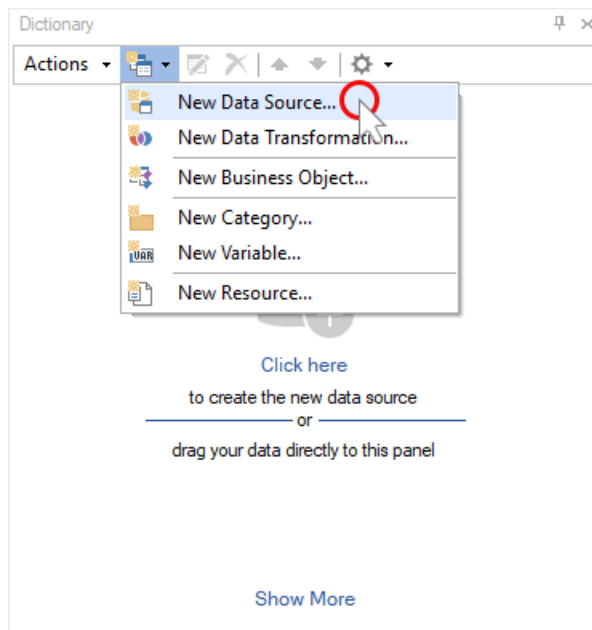
To embed all data in a report file, select the **Embed all data to resources** command from the **Actions** menu of the data dictionary.

Creating SQL Data Sources

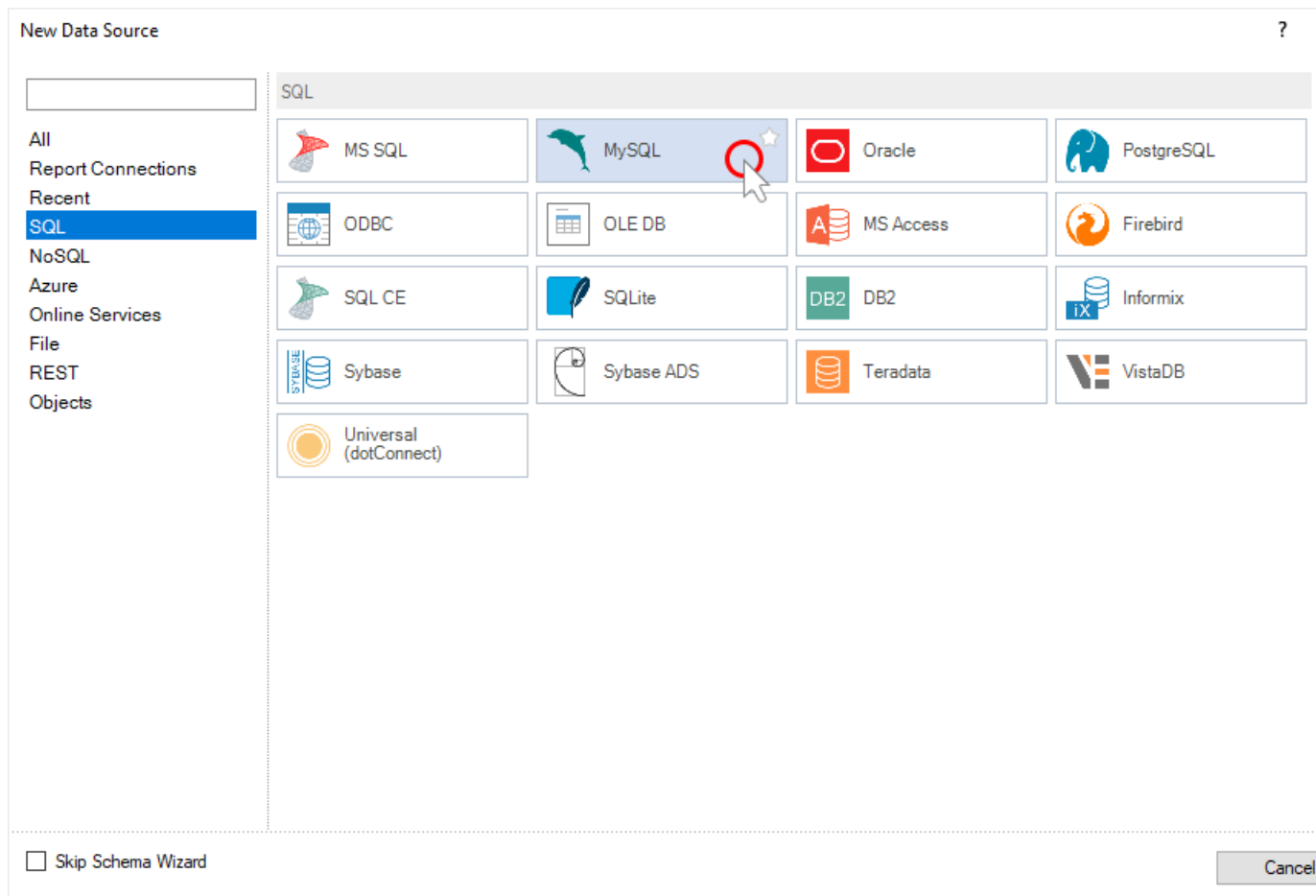
Step 1: [Run the report designer](#);

Step 2: [Go to the data dictionary](#);

Step 3: Click the **New Item** button and select the **New Data Source** command;



Step 4: Select the type of a data source. In the current example, we have selected MySQL;

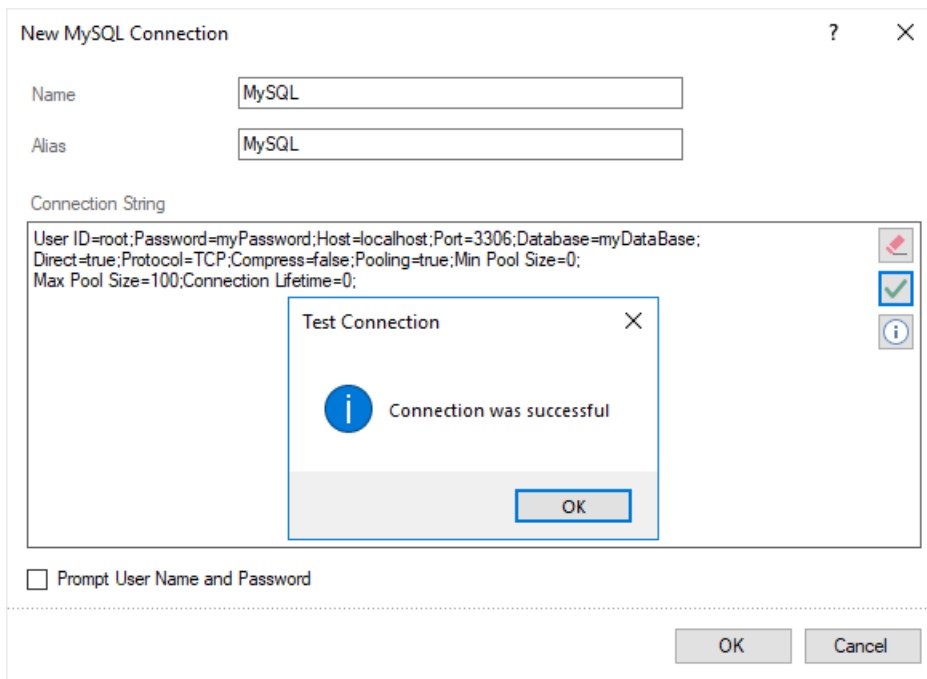


Step 5: The report engine will check for installed adapters in the following path: **c:\Users\% username%\AppData\Local\Stimulsoft\DataAdapters**. If there is no current adapter, it will be offered to download it.

Step 6: Click the **Download** button, the report generator will download and install the necessary adapter;

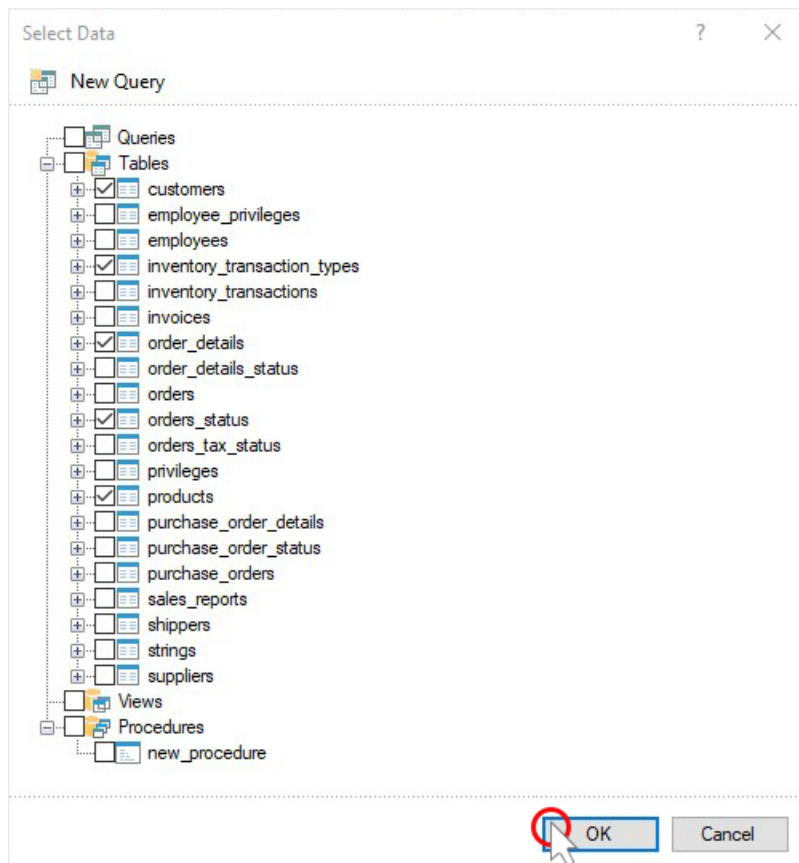
Step 7: After successful installation of the data adapter, a window for creating a connection to the data storage will open.

Step 8: Click the **Test** button to test the connection. At the end of the test process, a message will be displayed. If the connection is successful, click **OK** in the **New connection** window.



Step 9: After that, the **Select Data** dialog will be displayed. In this window, you should select the data tables that will be the data sources in the report dictionary.

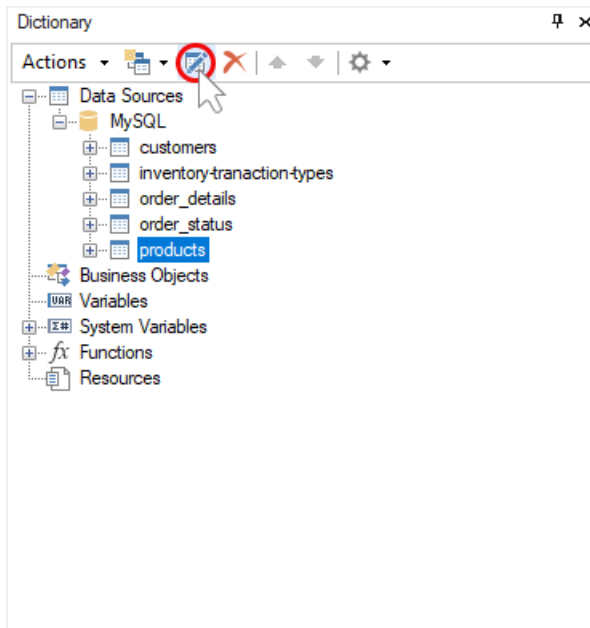
Step 10: Click **OK** in the **Select Data** window.



Now, based on these data sources, you can design reports or dashboards. Also, you can edit created sources. For example, you may change the request.

Step 1: Select the data source in the report dictionary;

Step 2: Click the **Edit** button on the toolbar of the data dictionary;



Step 3: Specify a request for data selection in the **Edit Data Source** dialog. For example, select * from products;

Step 4: Run the request by clicking the **Run** button;

Step 5: Click the **Retrieve Columns** button to retrieve all columns from the storage as requested;

Step 6: Click **OK** in the data source editing window.

Edit Data Source

Name in Source: MySQL

Name: products

Alias: products

Query

SQL Run Query Builder

```
select * from products
```

Type: Query

Query Timeout: 30

Columns & Parameters

Retrieve Columns

Columns

- supplier_ids
- id
- product_code
- product_name
- description
- standard_cost
- list_price
- reorder_level
- target_level
- quantity_per_unit
- discontinued
- minimum_reorder_quantity
- category
- attachments

Parameters

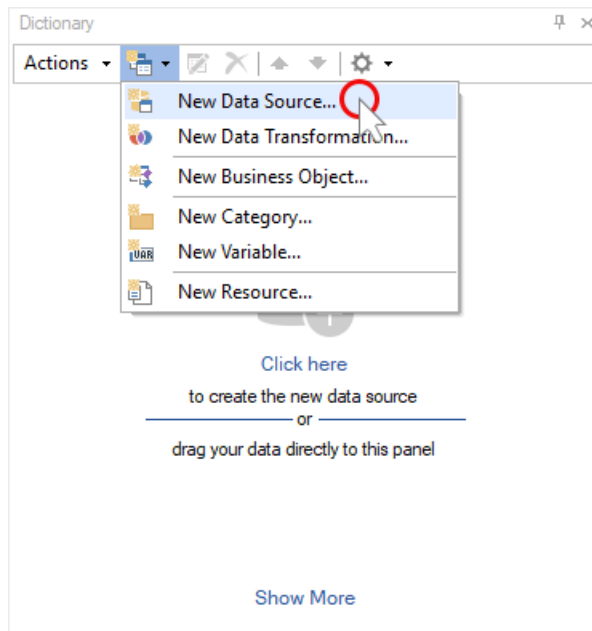
Save a Copy OK Cancel

Creating an OData Data Source

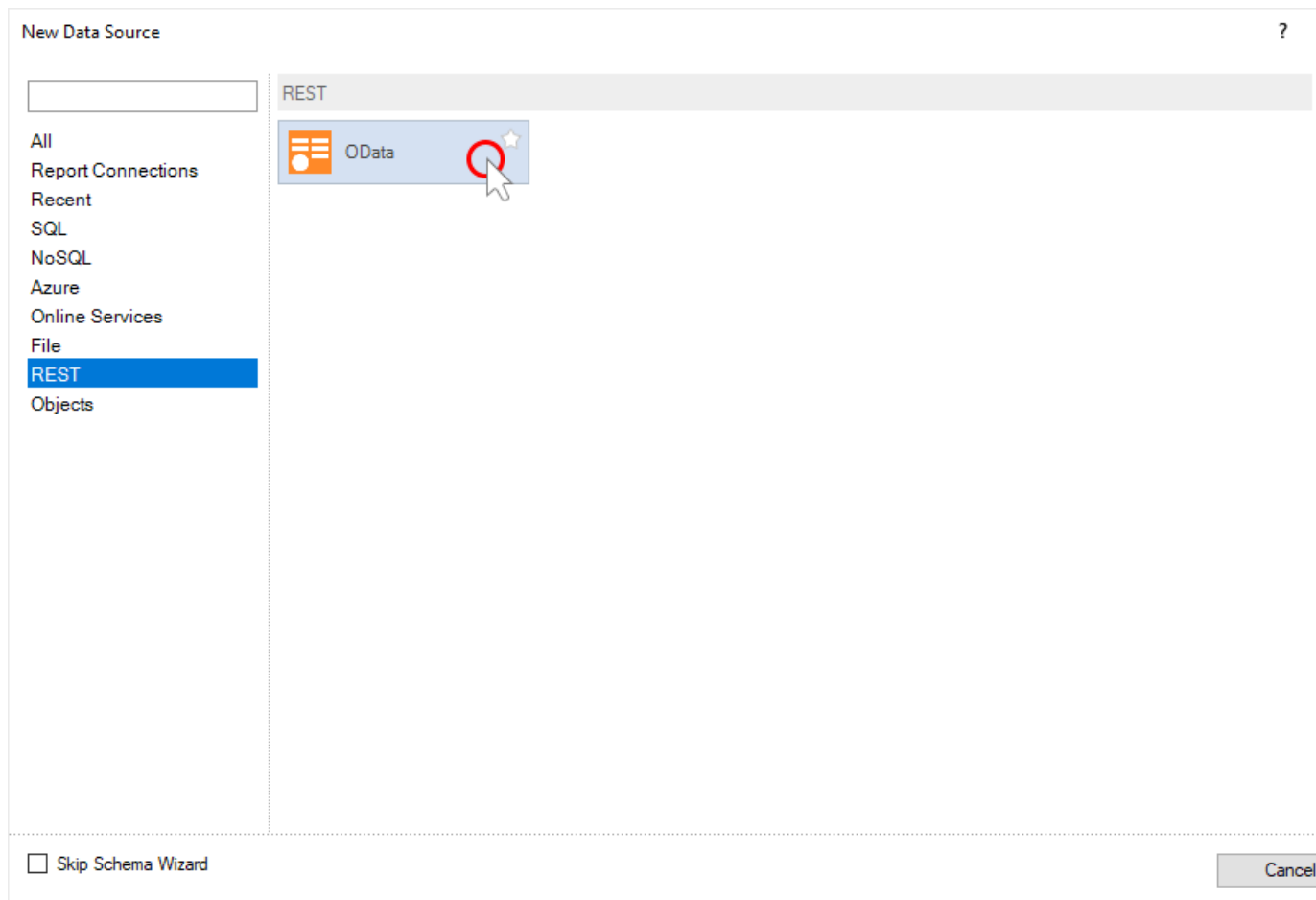
Step 1: [Run the report designer;](#)

Step 2: [Go to the data dictionary;](#)

Step 3: Click the **New Item** button and select the **New Data Source** command;

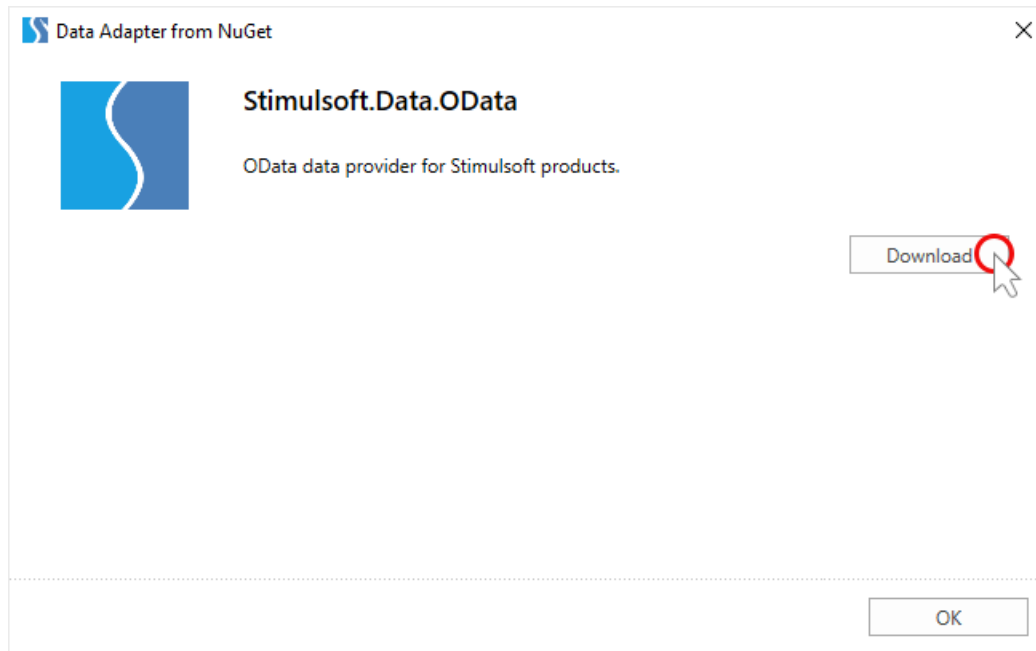


Step 4: Select the type of data source. In the current example, **OData**;



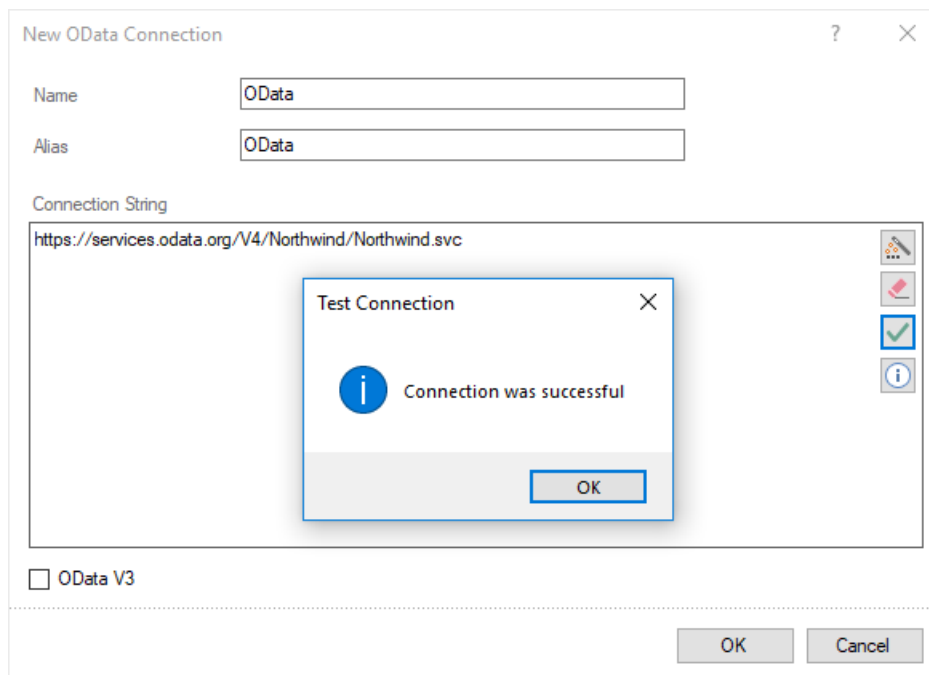
Step 5: The report engine will check for the presence of installed adapters in the following path: **c:\Users\%username%\AppData\Local\Stimulsoft\DataAdapters**. If there is no current adapter, it will be offered to download it.

Step 6: Click the **Download** button, the report engine will download and install the necessary adapter;



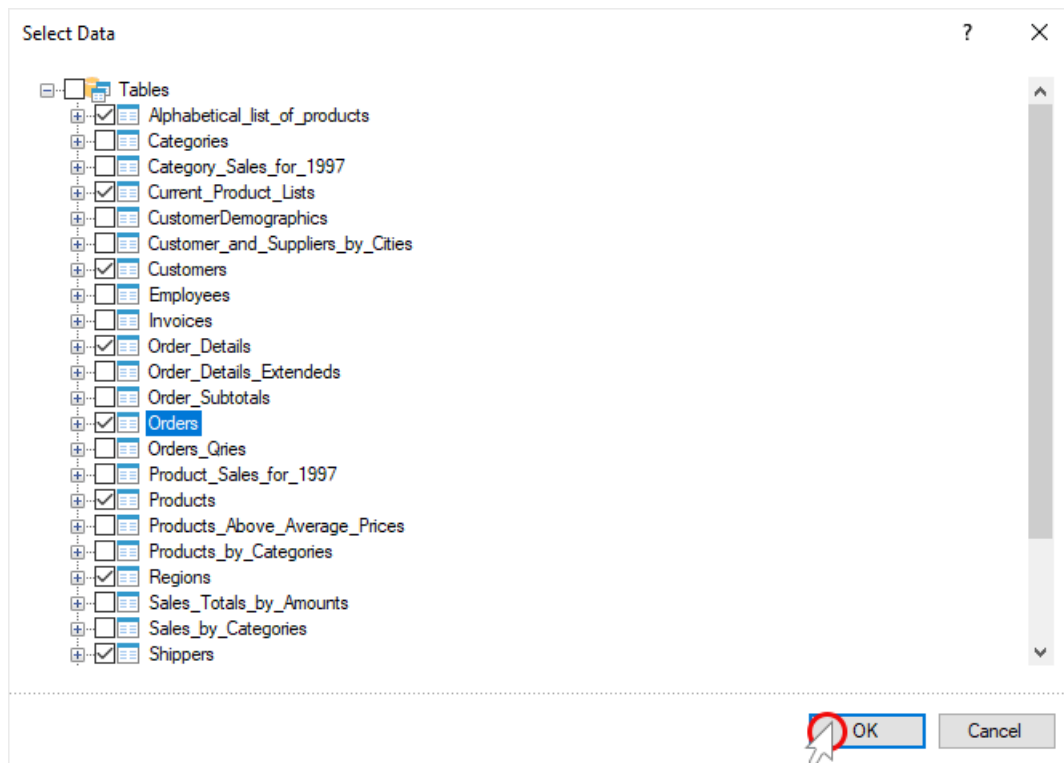
Step 7: After successful installation of the data adapter, a window for creating a connection to the data storage will open. In the case of the OData data storage, the data path should be specified.

Step 8: Click the **Test** button to test the connection. At the end of the test connection process, a message will be displayed. If the connection is successful, click **OK** in the **New Connection** window.



Step 9: After that, the **Select Data** window will be displayed. In this window, you should select the data tables that will be the data sources in the report dictionary.

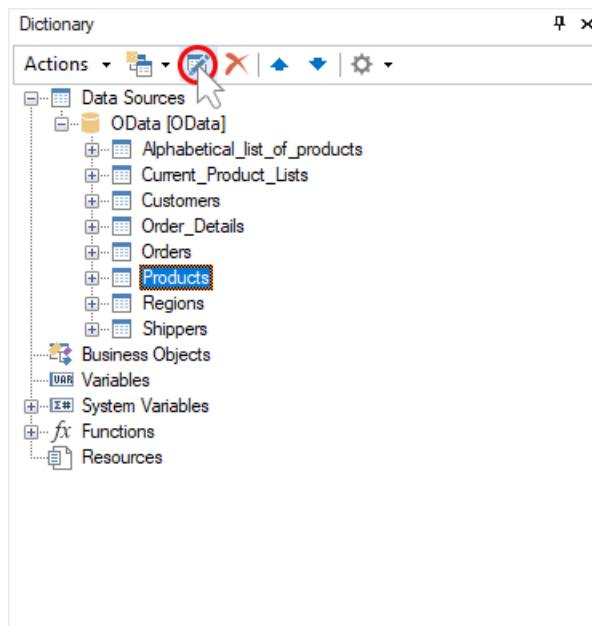
Step 10: After selecting the data tables, click the **OK** button in the **Select Data** window.



Now, based on these tables, you can create reports and dashboards. Also, you can edit the created data sources. For example, you may create a request for data sampling. To do this:

Step 1: Select the data source in the report dictionary;

Step 2: Click the **Edit** button on the toolbar of the data dictionary;



Step 3: Specify the data filtering request in the **Edit Data Source** window. For example, `Products?$filter=ProductID le 10` and click OK in the current window.

Edit Data Source ? X

Name in Source: OData ...

Name: Products

Alias: Products

Query

Products?\$filter=ProductID le 10

Query Timeout: 30

Columns

Columns

- ProductID
- ProductName
- SupplierID
- CategoryID
- QuantityPerUnit
- UnitPrice

Retrieve Columns

Save a Copy OK Cancel

Now, when rendering a report using the current data source, only filtered data will be obtained from the storage.

Creating a file data source

When you design reports, you can get data from CSV, Excel, JSON, XML, and DBF files. The main advantage of data files is that you can embed them in a report template. However, the size of the report file will be increased by the size of the data file.

Information

The report designer supports dragging data files. When dragging a data file into a

dictionary, you have two options for adding this file:

- **New Data Source**, a connection will be created to this file and data tables will be obtained from it, but this file will not be embedded in the report.
- **New Resource**, the data file will be [embedded in the report as a resource](#). Based on this resource, you can create a data source.

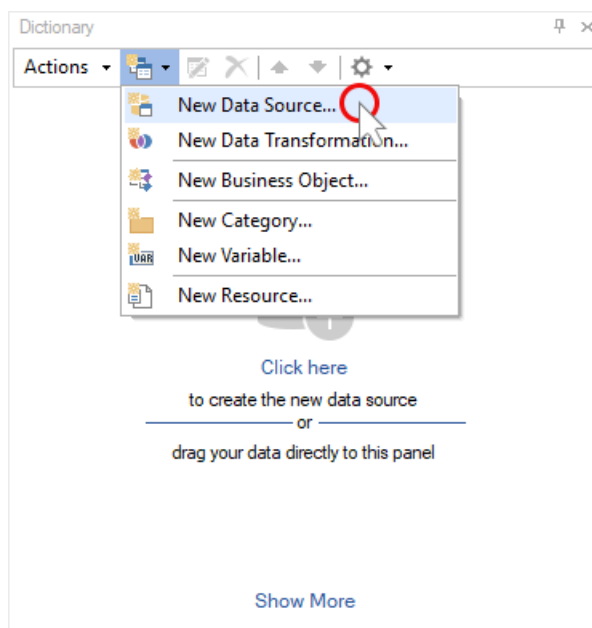
When you drag the data file to any other area of the report designer, it will be added as a resource, embedded in the report.

Consider connecting to an external data file, which is not embedded in the report template.

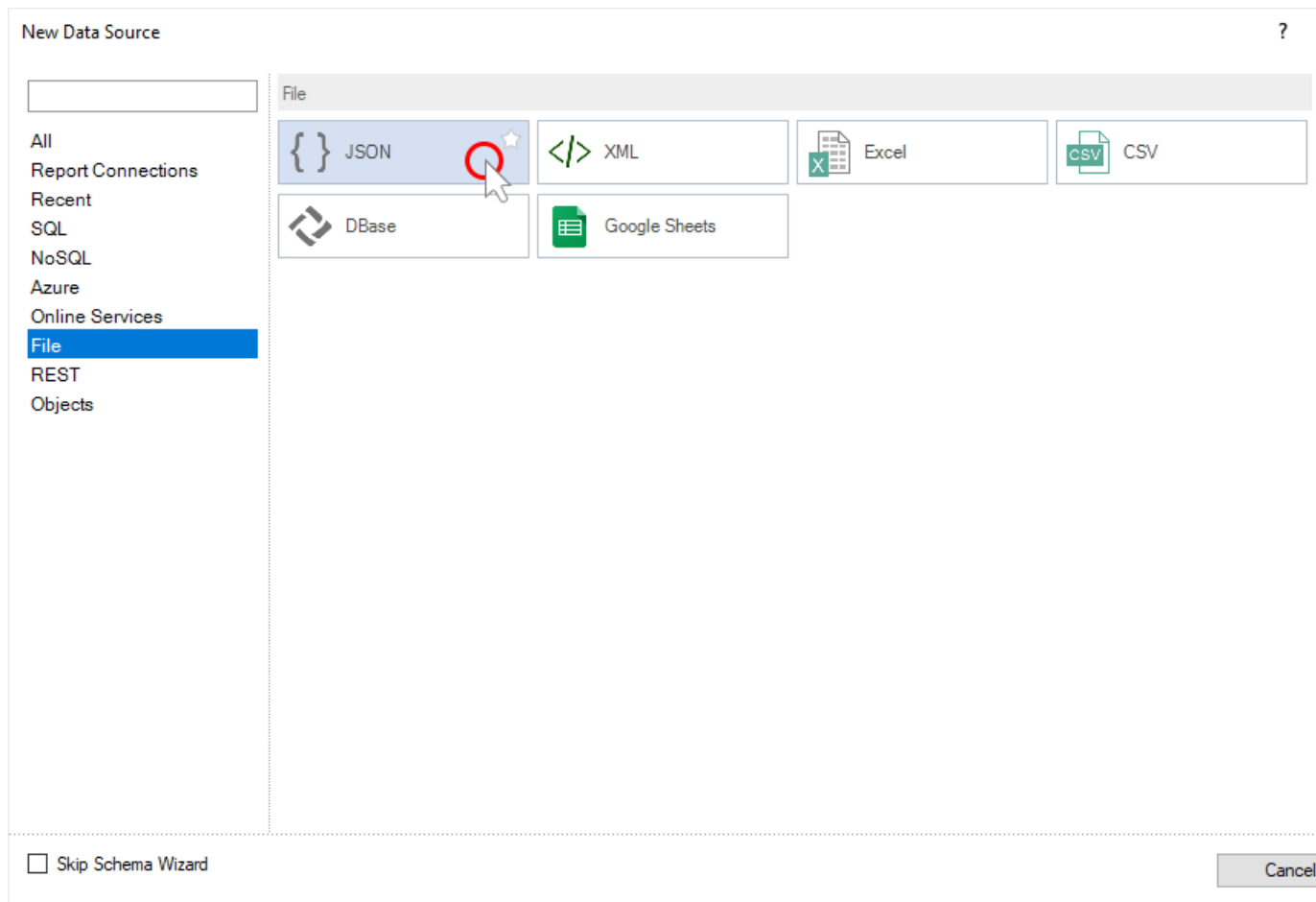
Step 1: [Run the report designer](#);

Step 2: [Go to the data dictionary](#);

Step 3: Click the **New Item** button and select the **New Data Source** command;



Step 4: Select the type of data source. For example, JSON;



Step 5: In the **New JSON Data** window, select the local JSON data file using the Browse button. Also, you can specify the URL path to the JSON file.

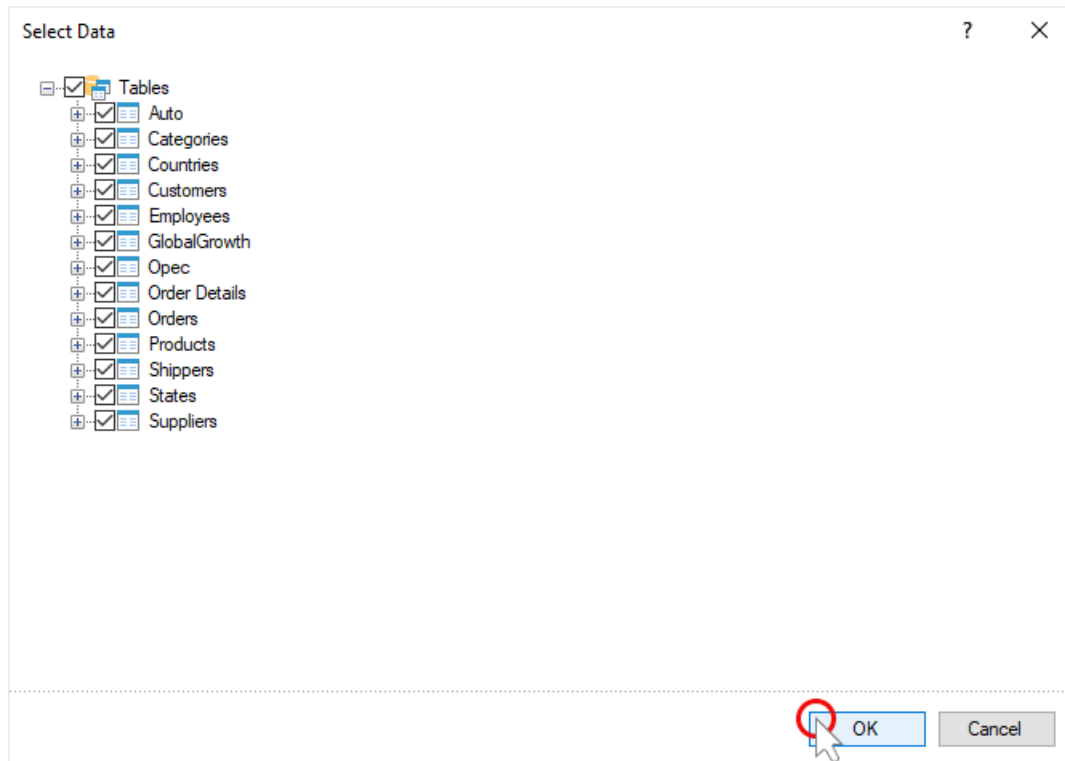
Step 6: Click **OK** in the **New JSON Data** window;



Step 7: The **Select Data** window will pop up. You should select data tables there.

Each data table will represent a separate data source in the report data dictionary.

Step 8: Click **OK** in the **Select Data** window.



Now, based on these data sources, you can create reports or dashboards.

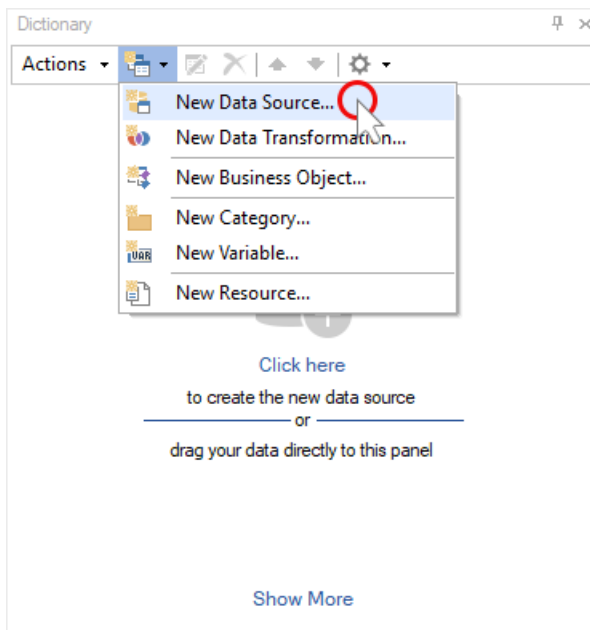
Move to Resource

Consider an example of dragging a data file to report resources.

Step 1: [Run the report designer](#);

Step 2: [Go to the data dictionary](#);

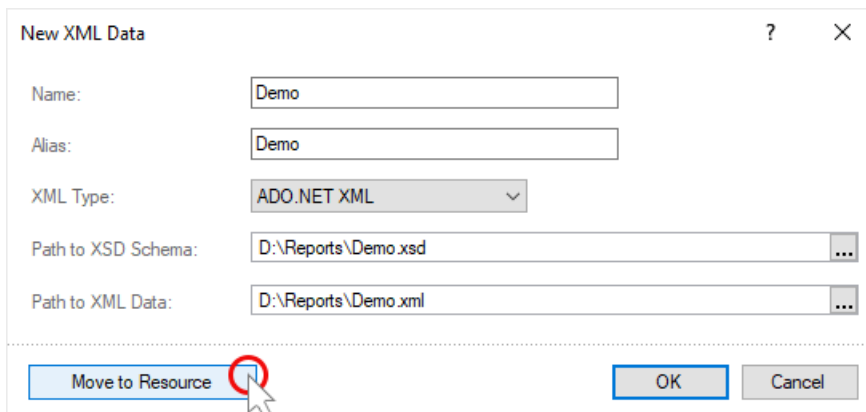
Step 3: Click the **New Item** button and select the **New Data Source** command;



Step 4: Select the type of data source, for example, XML;

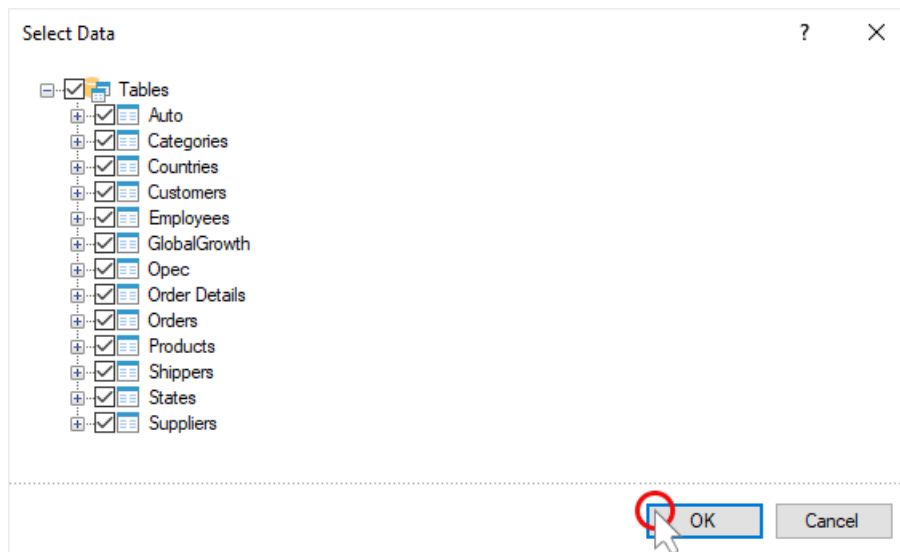
Step 5: In the **New XML Data** window, select XML and XSD files using the Browse button.

Step 6: Click the **Move to Resource** button.



Step 7: The **New XML Data** window will be closed, and the Select Data window will pop up. You should select the data tables there. Each data table will represent a separate data source in the report data dictionary.

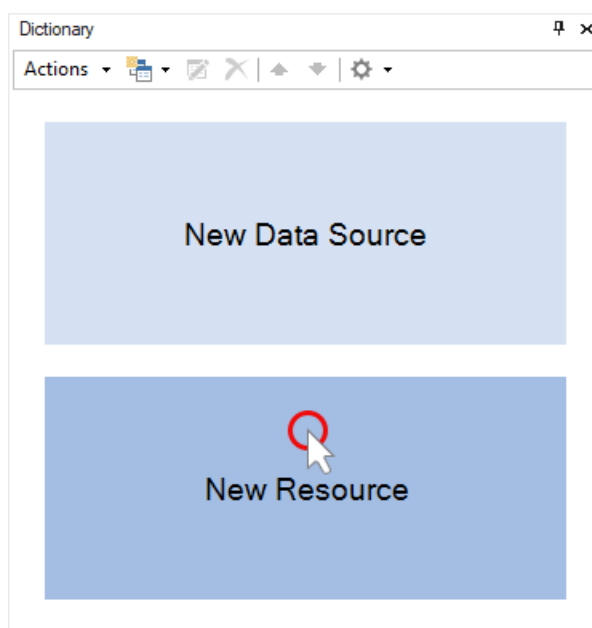
Step 8: Click **OK** in the **Select Data** window.



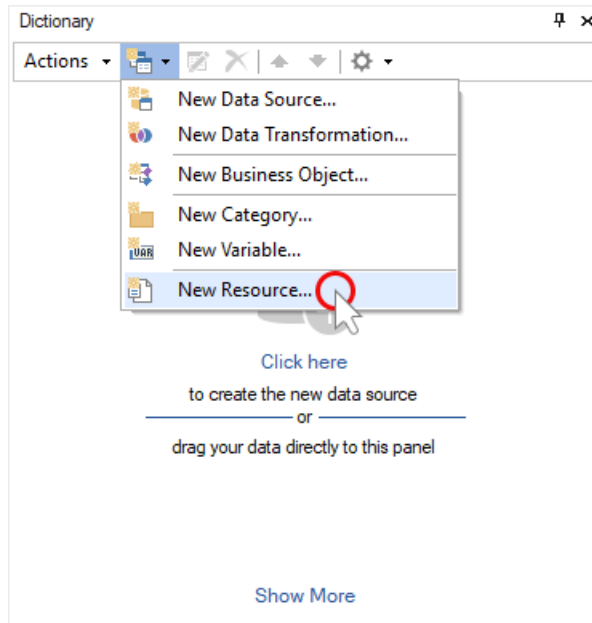
Now, based on these data sources, you can create reports or dashboards.

Also, you can first add the data file as a resource to the report, and then create a data source based on this resource.

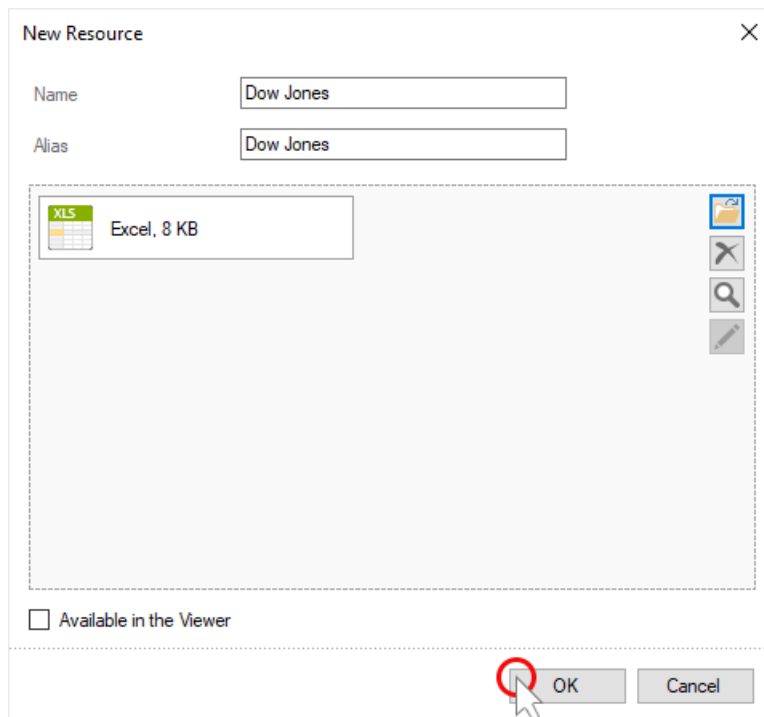
Step 1: Drag the data file to the bottom of the report data dictionary.



Or, click the **New Item** button in the data dictionary and select the **New Resource** command.

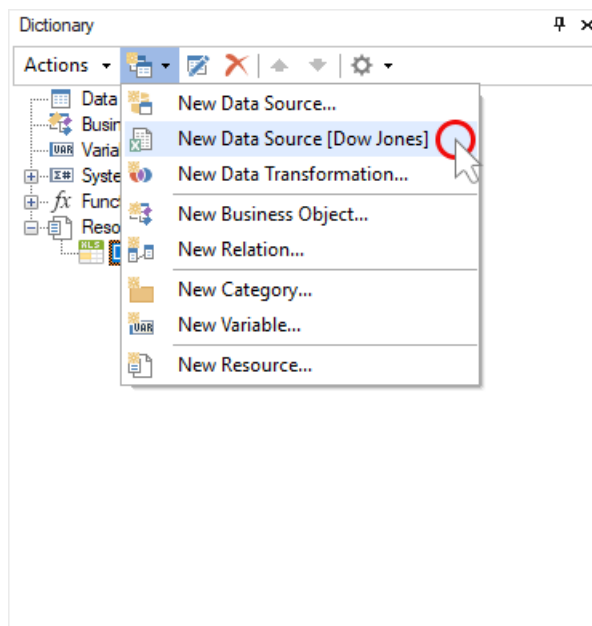


In the **New Resource** window that pops up, click the **Open** button to select a data file. Then, click **OK** in the **New Resource** window.

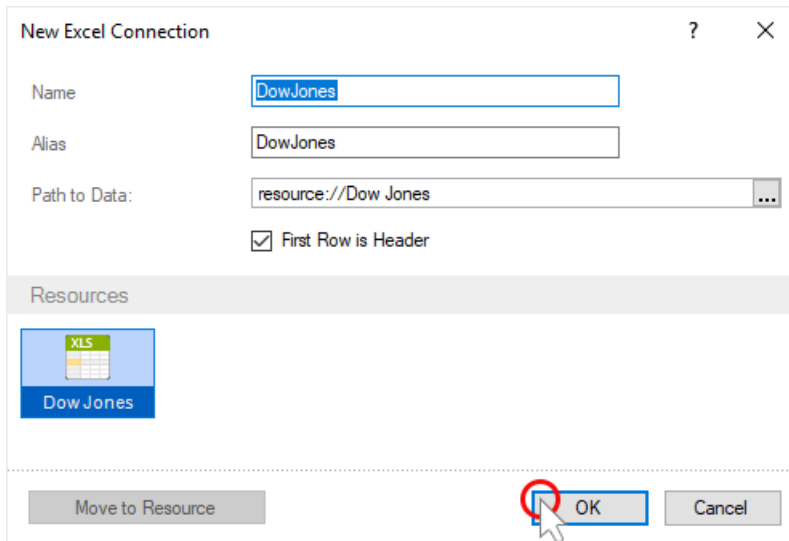


Step 2: Select the resource in the data dictionary;

Step 3: Click the **New item** button in the data dictionary and select the **New Data Source [resource name]** command;

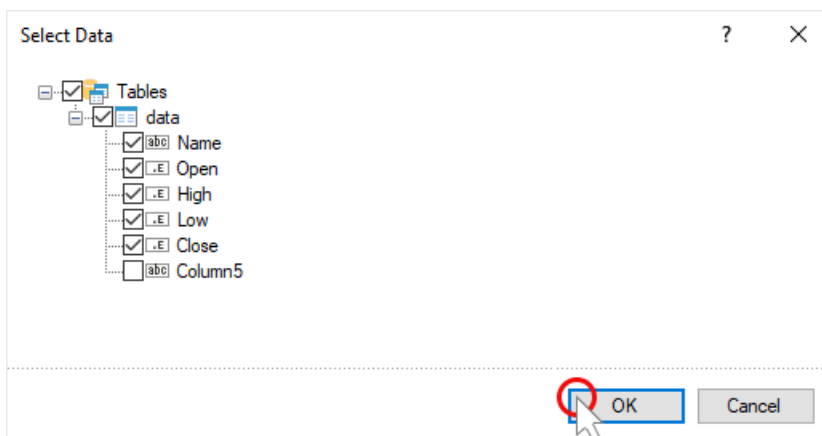


Step 4: Click **OK** in the **New Excel Connection** window;



Step 5: Select the data tables in the **Select Data** window. Each data table will represent a separate data source in the report data dictionary.

Step 6: Click **OK** in the **Select Data** window.



Now, based on these data sources, you can design reports or dashboards.

3.3 Creating Relation

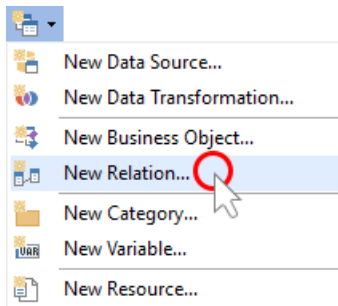
Connection between data sources is arranged for the correct comparison of values from various data sources. You should follow these steps to create a relation:

Step 1: [Run the report designer](#);

Step 2: [Go to the data dictionary](#);

Step 3: [Connect data](#);

Step 4: Click the **New Item** button and select the **New Relation** command;



Step 5: Using the drop-down lists, identify the master and detail data sources;

Information

The selected data sources (master and detail) must be of the same type, connection types must be the same. If the connection types are different, then you can use the **CashAllData** property.

Step 6: Select the data columns using which the relation between the sources will be arranged. Hold down the Ctrl button to select multiple columns.

New Relation

Name in Source: Relation

Name: Name

Alias: Name

Settings

Parent: Categories

Child: Products

Parent Fields:

- CategoryID: 1
- CategoryName
- Description: 2
- Picture

Child Fields:

- ProductID: 2
- Product Name: 1
- SupplierID
- CategoryID: 1
- QuantityPerUnit
- UnitPrice
- UnitsInStock
- UnitsOnOrder
- ReorderLevel
- Discontinued

☐ Active Relation

OK Cancel

Information

When creating a connection, you should know that the key columns must comply with all the rules for creating a connection in ADO.NET:

- Their number should be the same;
- Their types must match, if the master key column is the string type, then the detail key column must be the string type;
- Keys must be specified, keyless relation is impossible.

Step 7: Select the **Active Relation**. If the data source has several relations with other sources, then an active relation will be used to map the data.

New Relation ? X

Name in Source:

Name:

Alias:

Settings

Parent: Child:

Parent	Child
CategoryID 1	ProductID
CategoryName	ProductName 2
Description 2	SupplierID
Picture	CategoryID 1
	QuantityPerUnit
	UnitPrice
	UnitsInStock
	UnitsOnOrder
	ReorderLevel
	Discontinued

☒ Active Relation

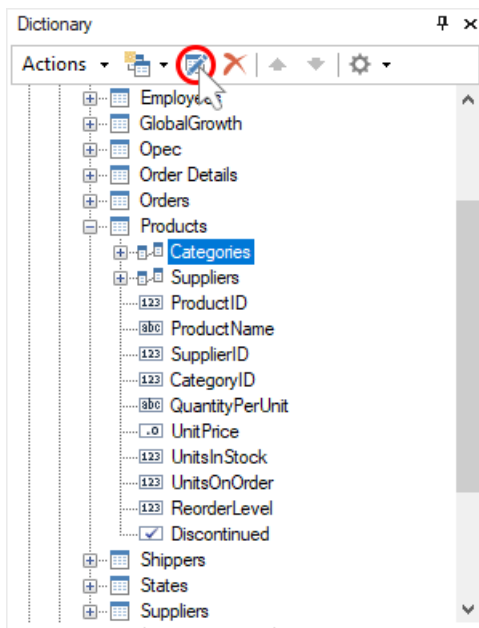
OK Cancel

Step 8: Click **OK** in the link editor.

A link will now appear in the detail data source. Also, you can edit any relation:

Step 1: Select the relation in the data dictionary;

Step 2: Click the **Edit** button on the toolbar of the data dictionary;



Step 3: Change the relation settings;

Step 4: Click **OK** in the relation editor.

3.4 Data transformation

After creating data sources in the report dictionary, you can convert these sources: join tables, group data, apply to function values, filter, sort data, replace values, calculate a running total, display a percentage of the value, skip and set row limits.

This chapter will cover issues such as:

- [Create a new data transformation;](#)
- [Edit data transformation.](#)

Creating a new data transformation

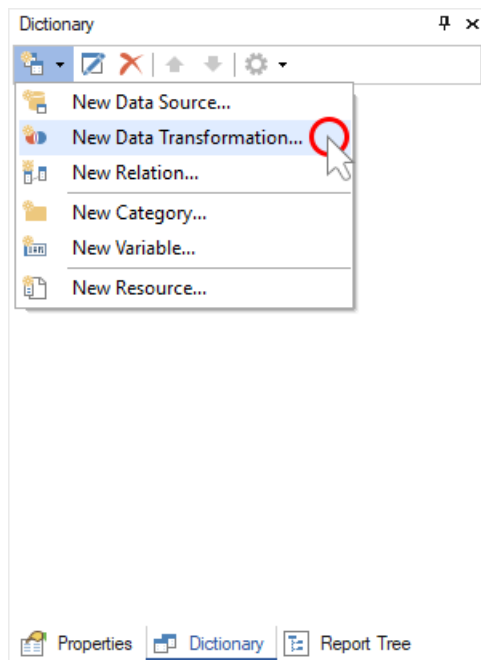
Step 1: [Run the report designer;](#)

Step 2: [Go to the data dictionary;](#)

Step 3: [Connect data;](#)

Step 4: Click the **New Item** button and select the **New Data Transformation**

command;



Step 5: Drag the data columns from the sources to the data transformation editor.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

Name	Amount	Target Amount
Average Gift Check, in dollars USA	2727	1756
Fake Tree, in pieces	58387000	56032390
Holiday retail sales, in billions	1570	977
Real Tree, in pieces	144300000	135292000

Mode: ☐ ☒

Expression: List.Name

Type: string

Ok Cancel

Dictionary

- Actions
- Data Sources
- Christmas [Excel]
 - Charts
 - List
 - Amount
 - Growth - Loss
 - Increase over a Decade
 - Name
 - Target Amount
 - Year
- Business Objects
- Variables
- System Variables
- Functions
- Resources

Information

When adding data columns from various sources for data relation, a [relationship must be set between these sources](#).

Step 6: Set up data columns - change the type of values, group the data, apply functions to the values, filter, sort the data, replace the values, calculate the running total, display the percentage of the value, skip and set the row limit.

New Data Transformation [X]

Name in Source:

Name:

Alias:

Data Setup

Name

Σ Target Amount

Σ Amount

↓

Sort A to Z

✓ Sort Z to A

No Sorting

Actions ▶

String Filters ▶

Custom Filter...

Remove Filter

(Select All)

✓ Average Gift Check, in dollars USA

Fake Tree, in pieces

✓ Holiday retail sales, in billions

✓ Real Tree, in pieces

Name	Target Amount	Amount
	135292000	144300000
	977	1570
	1756	2727

Mode

Expression

Type

Ok

Cancel

Step 7: Click **OK** in the **New Data Transformation** window.

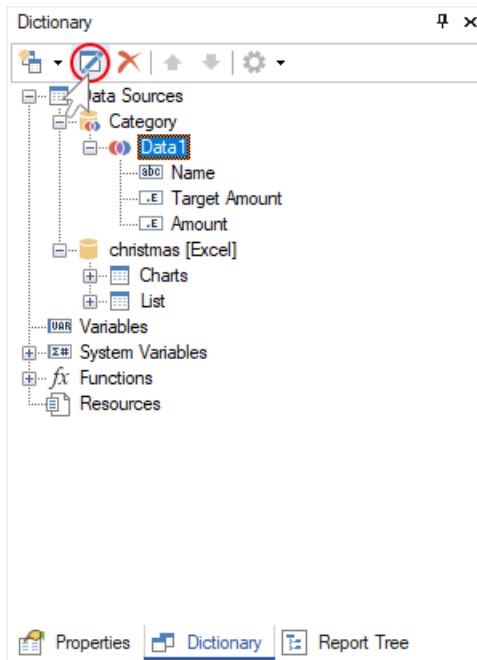
Now, based on this data transformation, you can create reports or dashboards.

Editing Data Transformation

Also, you can edit the created data transformation.

Step 1: Select the existing data transformation in the report dictionary;

Step 2: Click the **Edit** button on the toolbar of the data dictionary;



Step 3: Edit data transformation;

Step 4: Click OK in the **Edit Data Transformation** window.

3.5 Creating a dashboard

The [Dashboard](#) is a dimensionless area where you can place data analysis elements.

This chapter will cover issues such as:

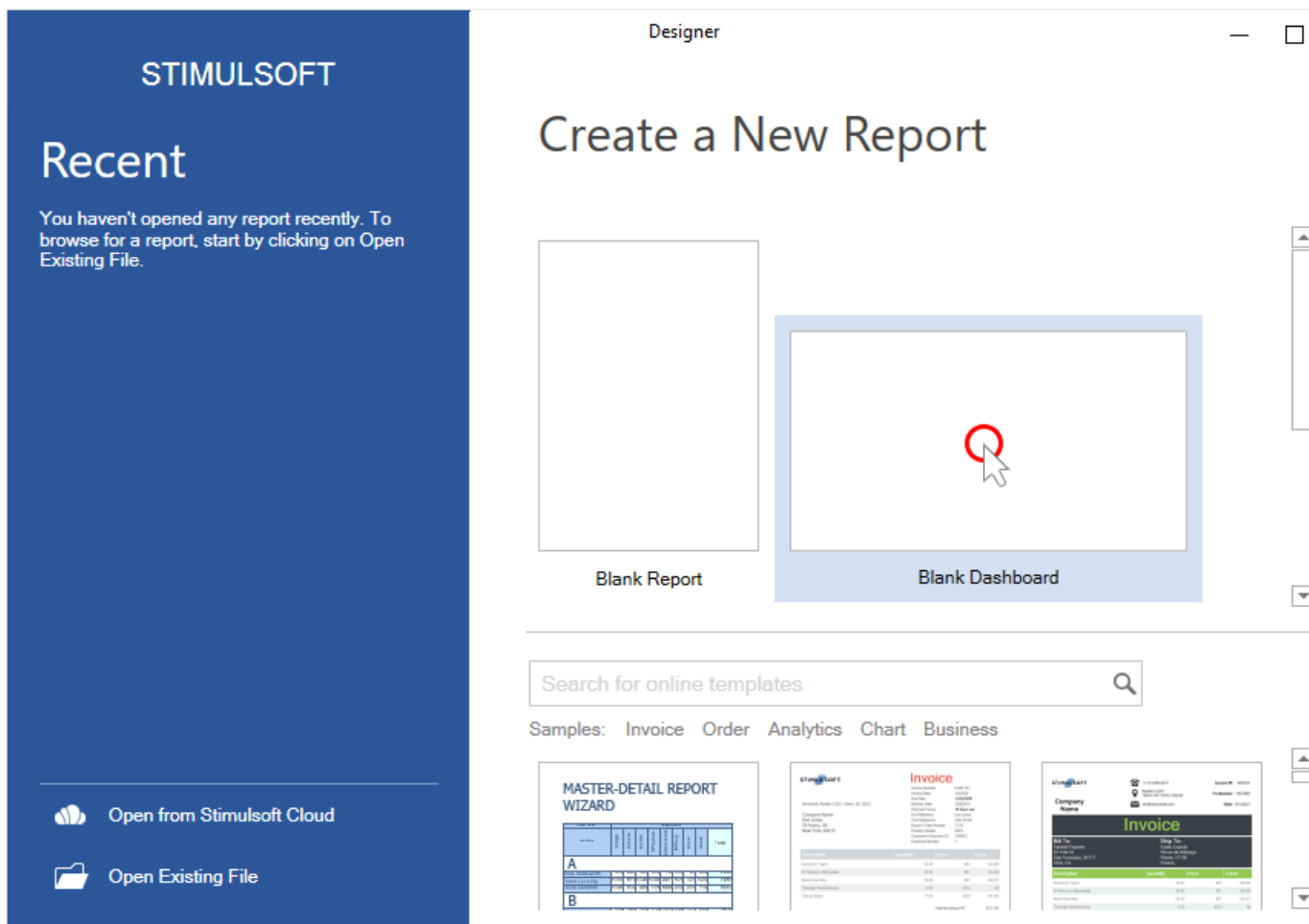
- [Creating a dashboard on the first run](#);
- [Creating a new dashboard from the File menu](#);
- [Adding a dashboard to the current report](#).

Creating a dashboard on first run

To create a dashboard panel at the first start of the report designer, you should:

Step 1: [Run the report designer](#);

Step 2: Select **Blank Dashboard** on the welcome screen.



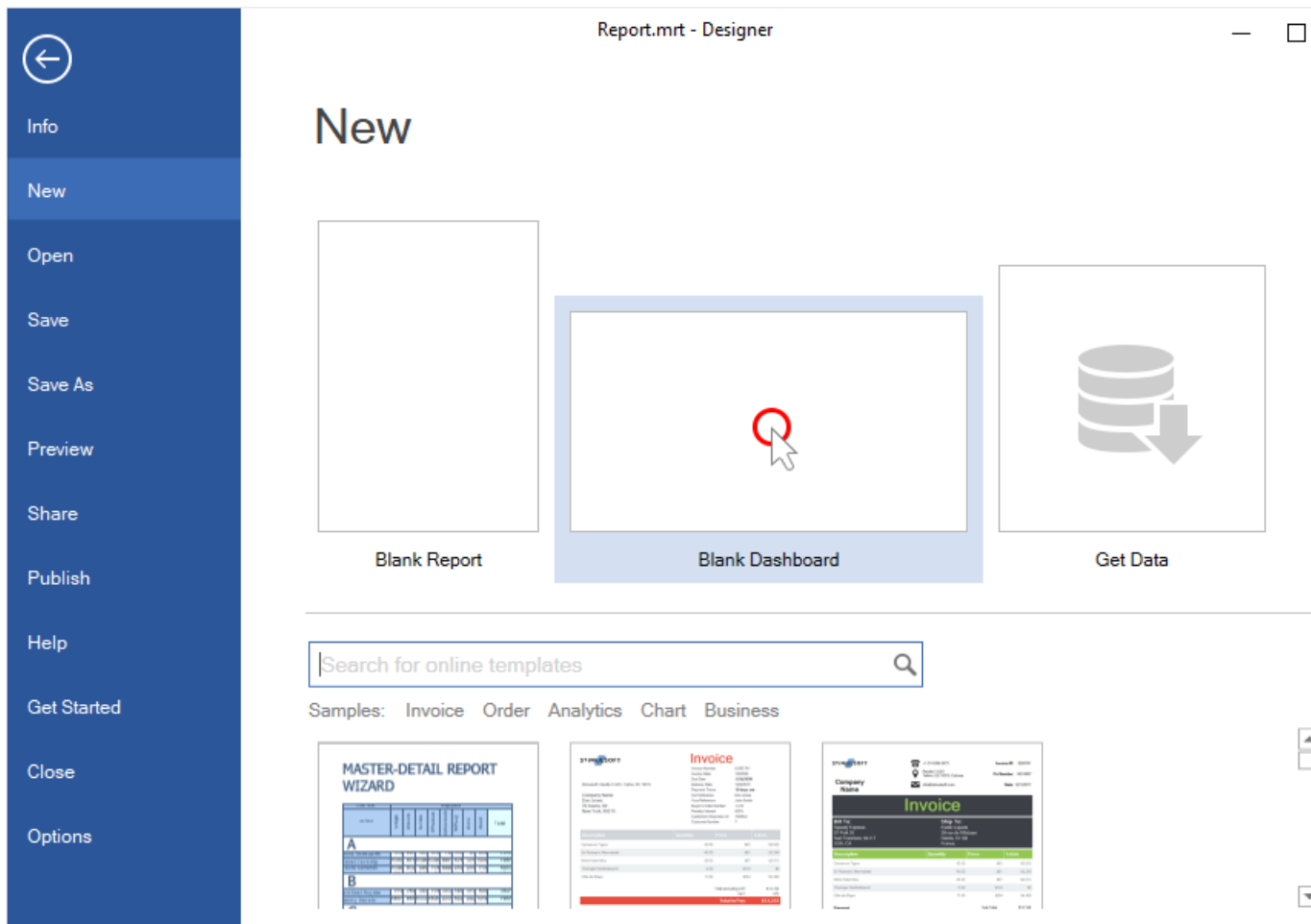
After that, the grid of the dashboard panel will be displayed in the report designer. You may place the analysis elements on it.

From the File menu

Also, you can create a new analytical panel from the report designer.

Step 1: Click the **File** tab on the Ribbon panel of the report designer;

Step 2: Select the **Blank dashboard** item from the **New item** in the **File** menu.

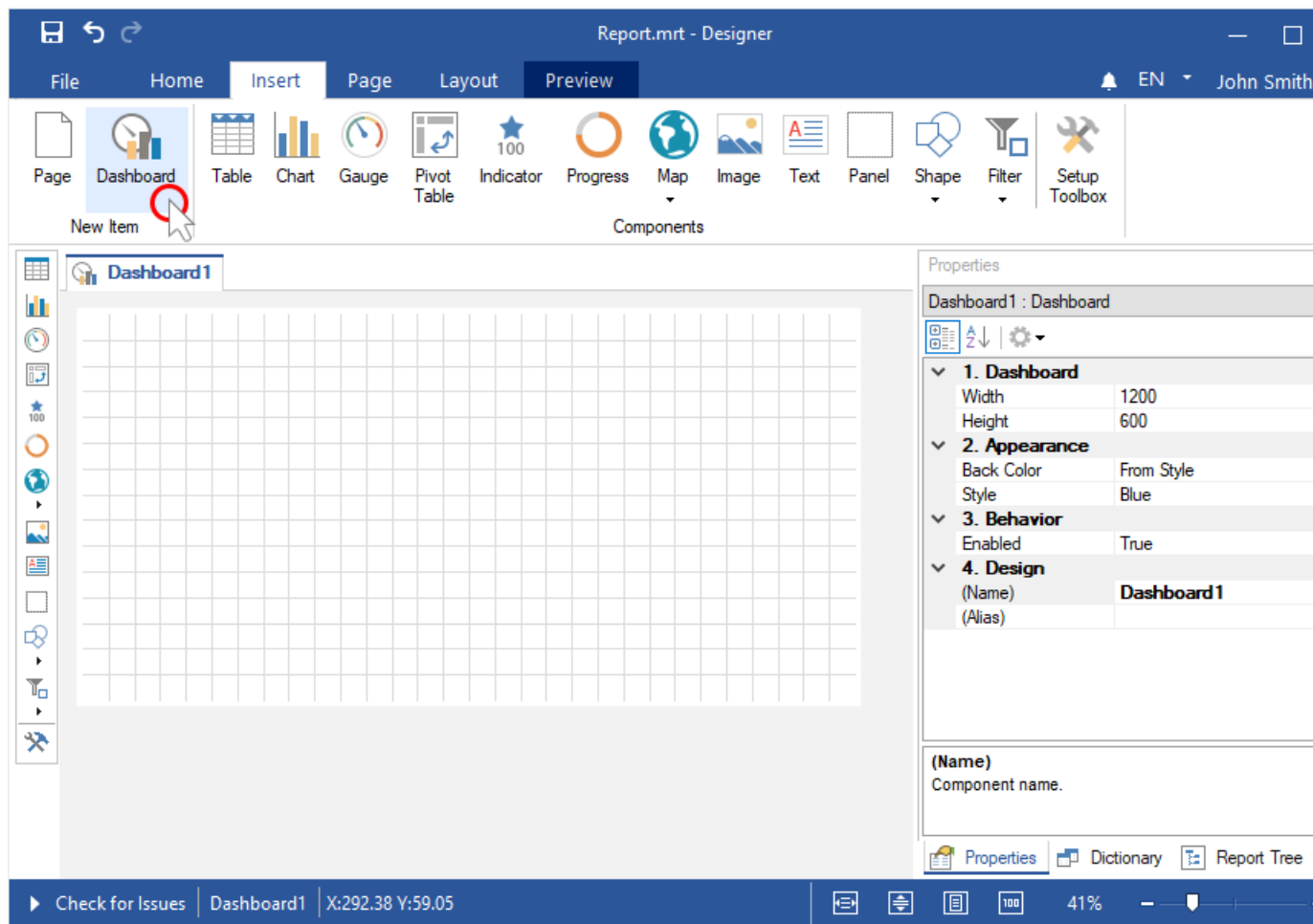


Adding a dashboard to the current report

The above examples demonstrate how to create a new dashboard. At the same time, the current report in the report designer will be closed. To add a dashboard panel to the current report, you should:

Step 1: Go to the **Insert** tab in the report designer;

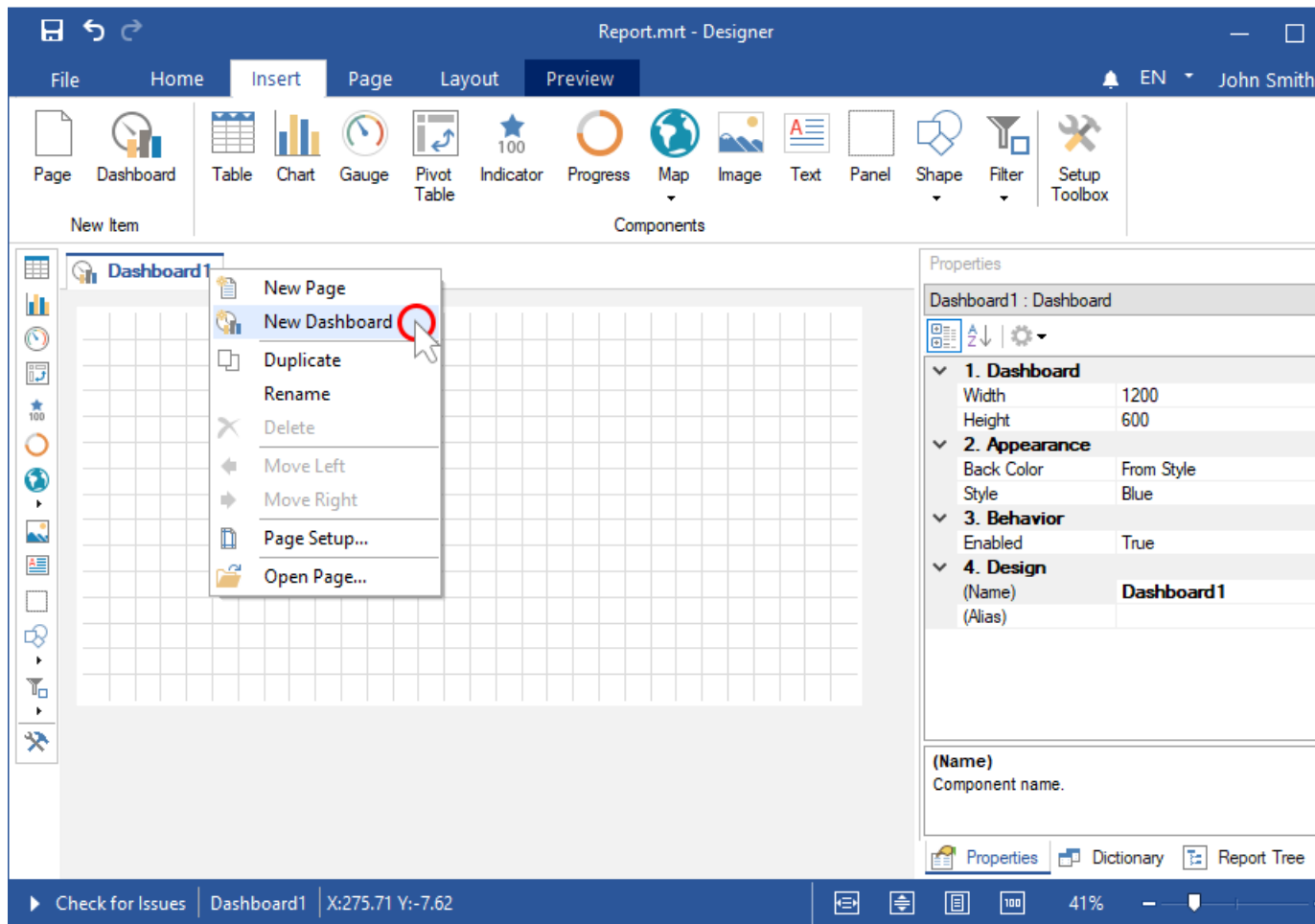
Step 2: Click the **Dashboard** button.



You can also add a dashboard to the current report from the context menu of the page header or dashboard:

Step 1: Hover over the page title or dashboard;

Step 2: Select the **New Dashboard** command.



3.6 Dashboard with Table

This chapter will cover the following:

- [Adding a Table element;](#)
- [Disabling data fields in the Table;](#)
- [Hyperlinks in the Table element;](#)
- [Stretching columns along the width of the Table element;](#)
- [Data Bars, Color scale, Indicator, Sparklines in the Table;](#)
- [Calculation of totals in the Table element.](#)

Adding a Table Item

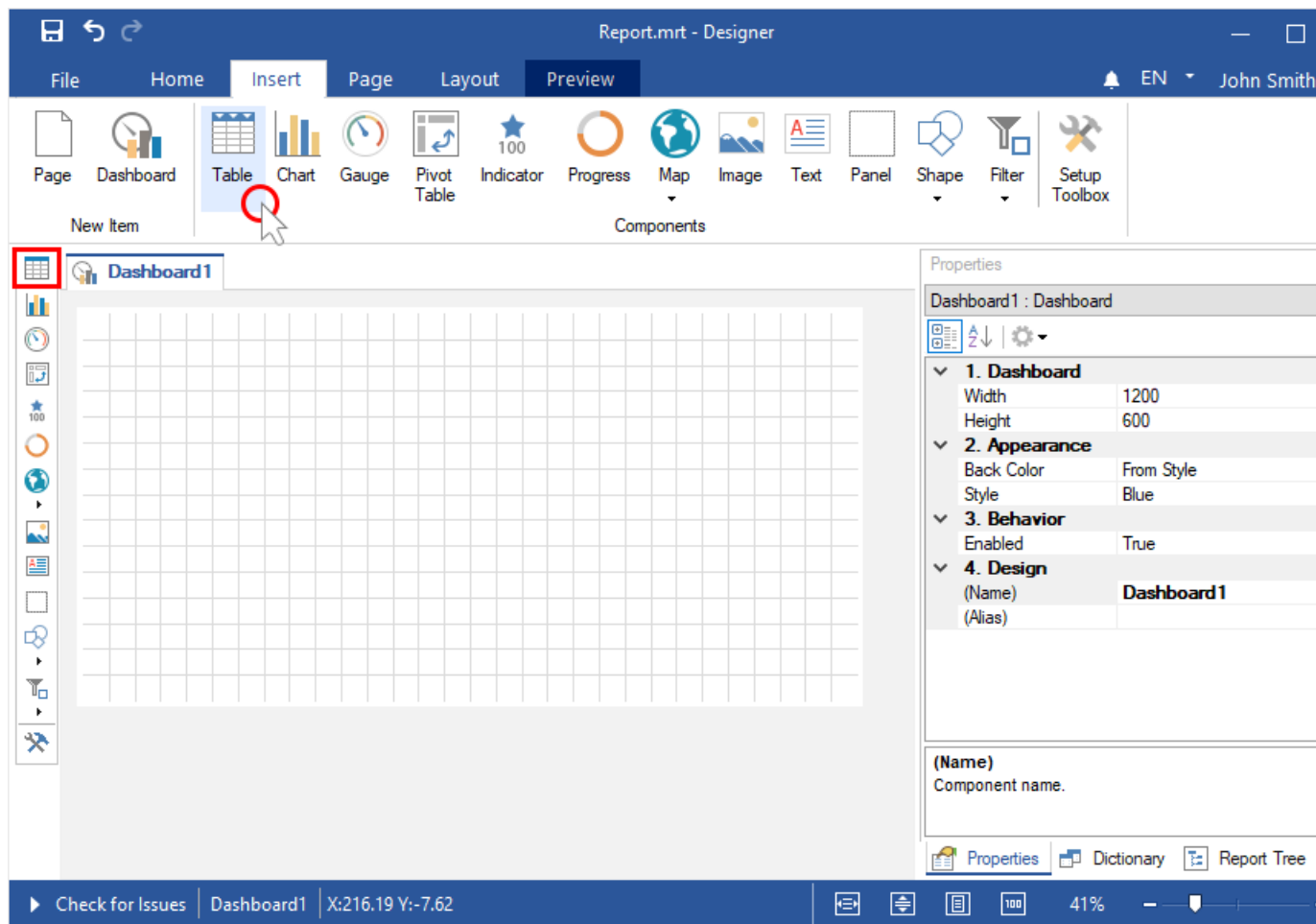
To create a dashboard panel with the Table element, you should do the following steps:

Step 1: [Run the report designer;](#)

Step 2: [Create a dashboard](#) or [add it to a current report](#);

Step 3: [Connect data](#);

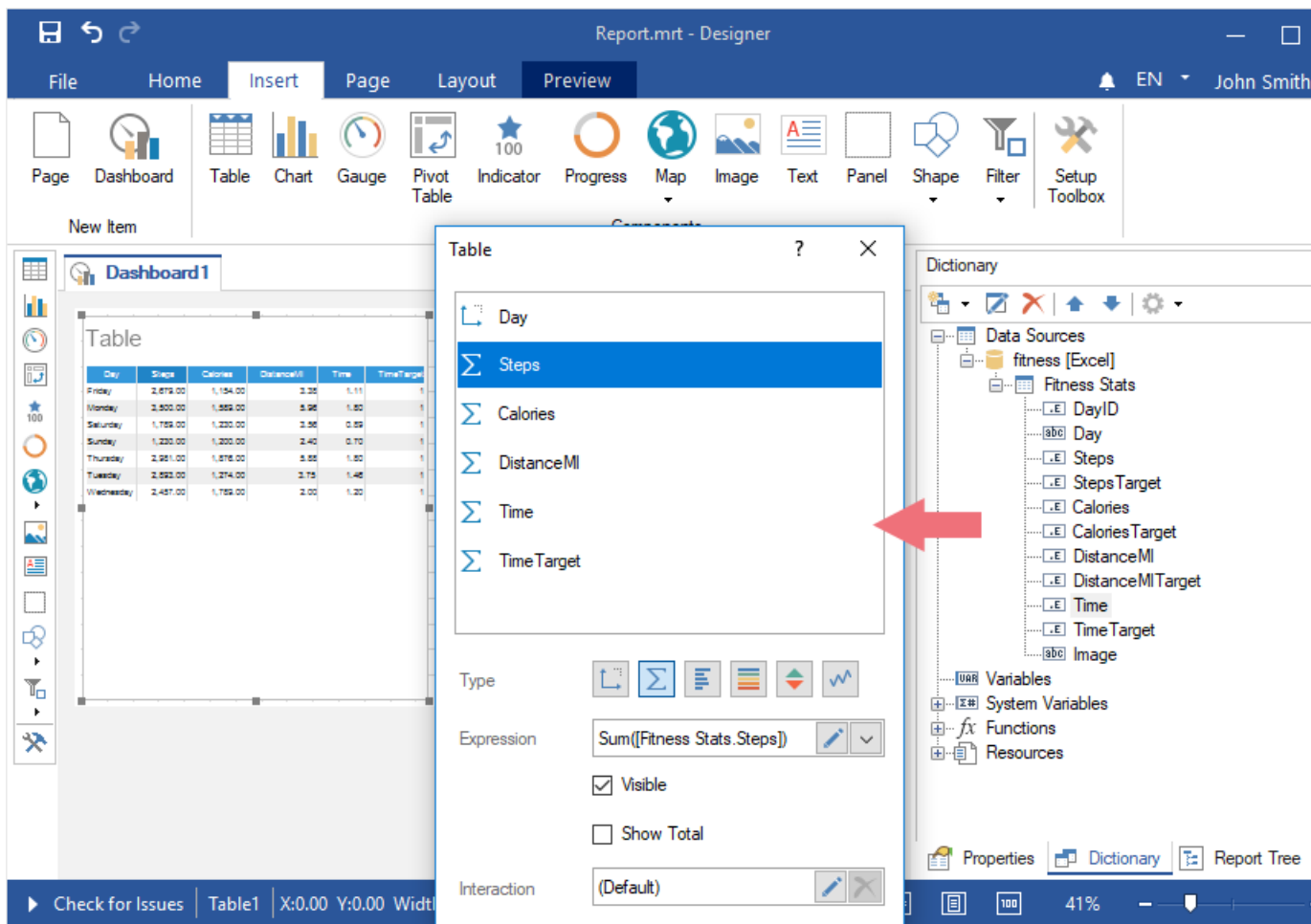
Step 4: Select the **Table** element on the tools of the report designer or on the **Insert** tab;



Step 5: Place the item on the dashboard panel;

Step 6: If the item editor did not open, double-click on the table;

Step 7: Drag the required data columns from the data dictionary;

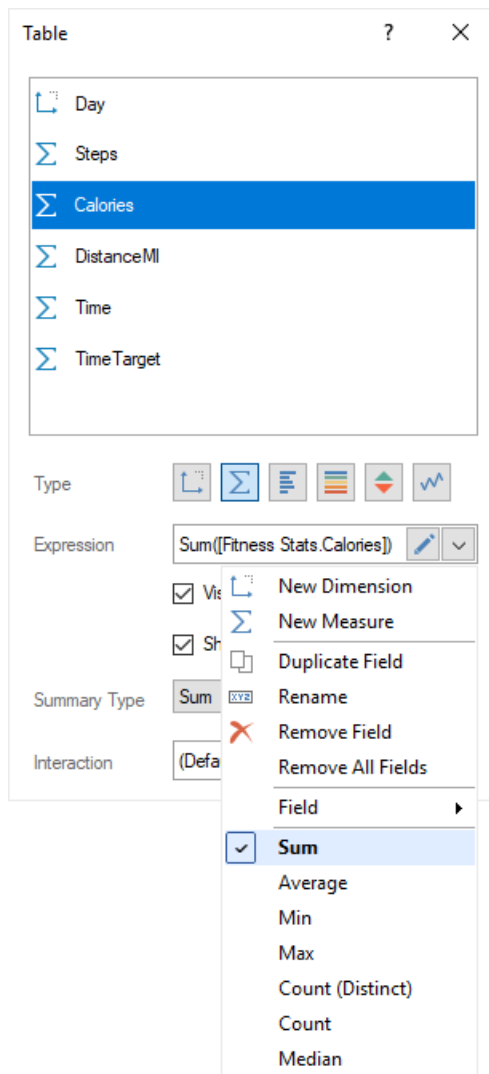


Information

You can drag data columns directly into the **Table** element. You can also drag the entire data source.

Step 8: Select the data field;

Step 9: Click the **Browse** button in the **Expression** field and select the function of aggregating values, if necessary. By default, the **Sum()** function is used, which sums the values from the specified data column.

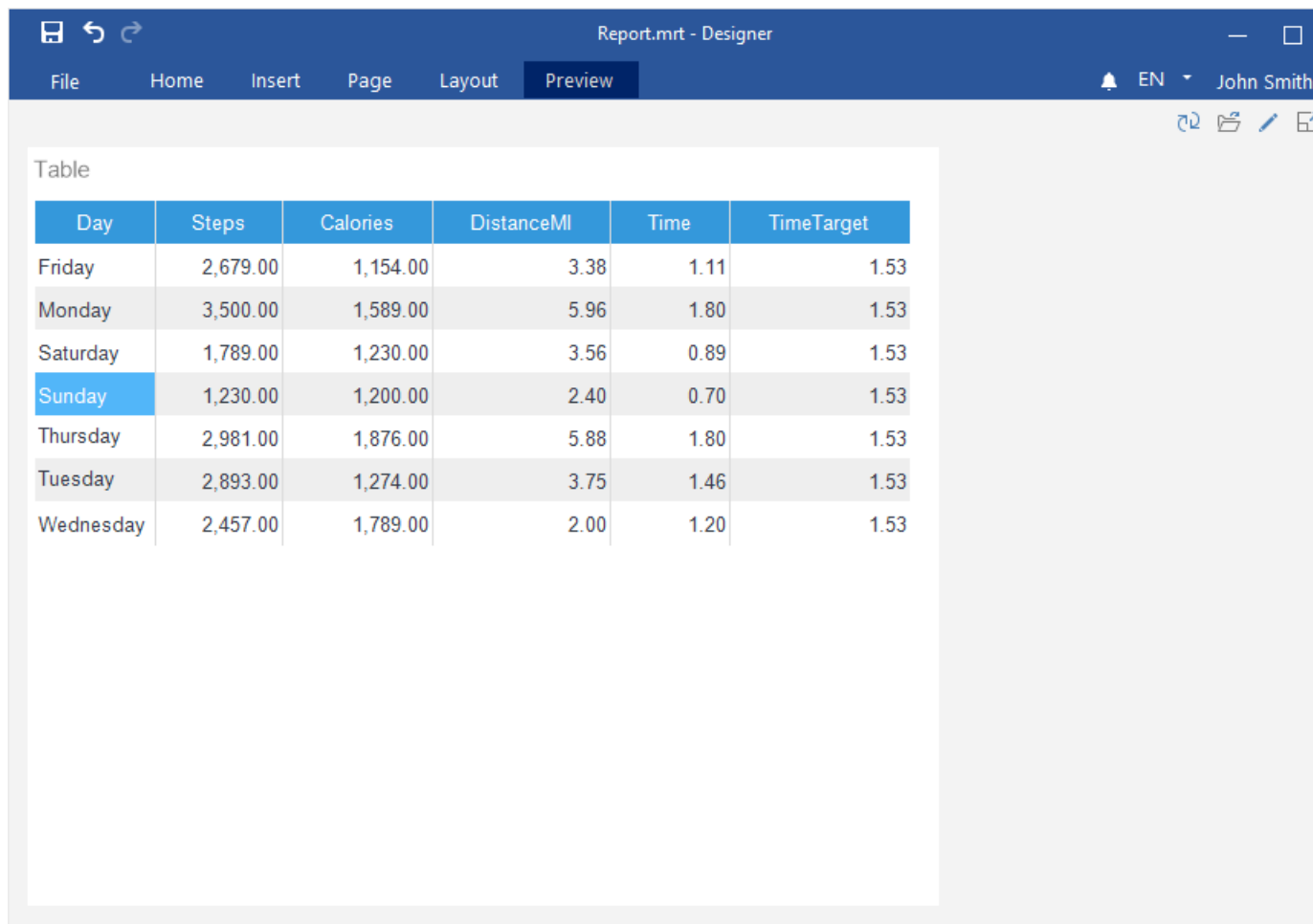


Information

The aggregation functions are not applied for data fields of the **Dimension** type. To apply a function to a specific field, you should set its type as **Measure**.

Step 10: Close the editor of the **Table** element;

Step 11: Go to the preview tab.



Report.mrt - Designer

File Home Insert Page Layout Preview

EN John Smith

Table

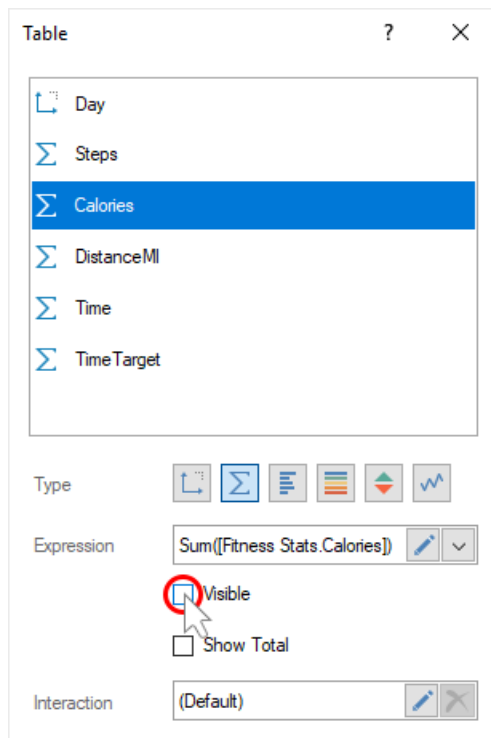
Day	Steps	Calories	DistanceMI	Time	TimeTarget
Friday	2,679.00	1,154.00	3.38	1.11	1.53
Monday	3,500.00	1,589.00	5.96	1.80	1.53
Saturday	1,789.00	1,230.00	3.56	0.89	1.53
Sunday	1,230.00	1,200.00	2.40	0.70	1.53
Thursday	2,981.00	1,876.00	5.88	1.80	1.53
Tuesday	2,893.00	1,274.00	3.75	1.46	1.53
Wednesday	2,457.00	1,789.00	2.00	1.20	1.53

Disabling the data field in the Table

Step 1: Double-click on the **Table** element to call the editor of this element;

Step 2: Select the data field;

Step 3: Uncheck the **Visible** option.



The data field will be present in the list of element fields, but will not be displayed.

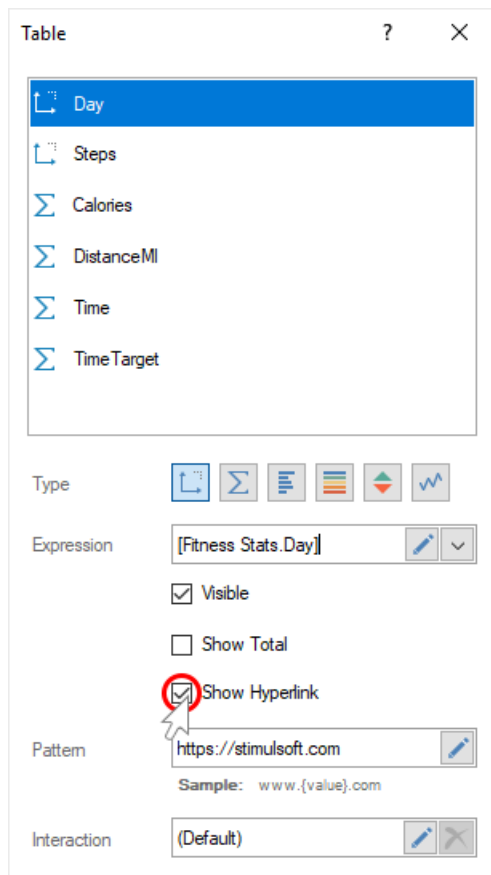
Hyperlinks in the Table Element

Step 1: Double-click on the **Table** element to call the editor of this element;

Step 2: Select the data field of the **Dimension** type;

Step 3: Check the box next to **Hyperlink**;

Step 4: Specify the link in the **Pattern** field.



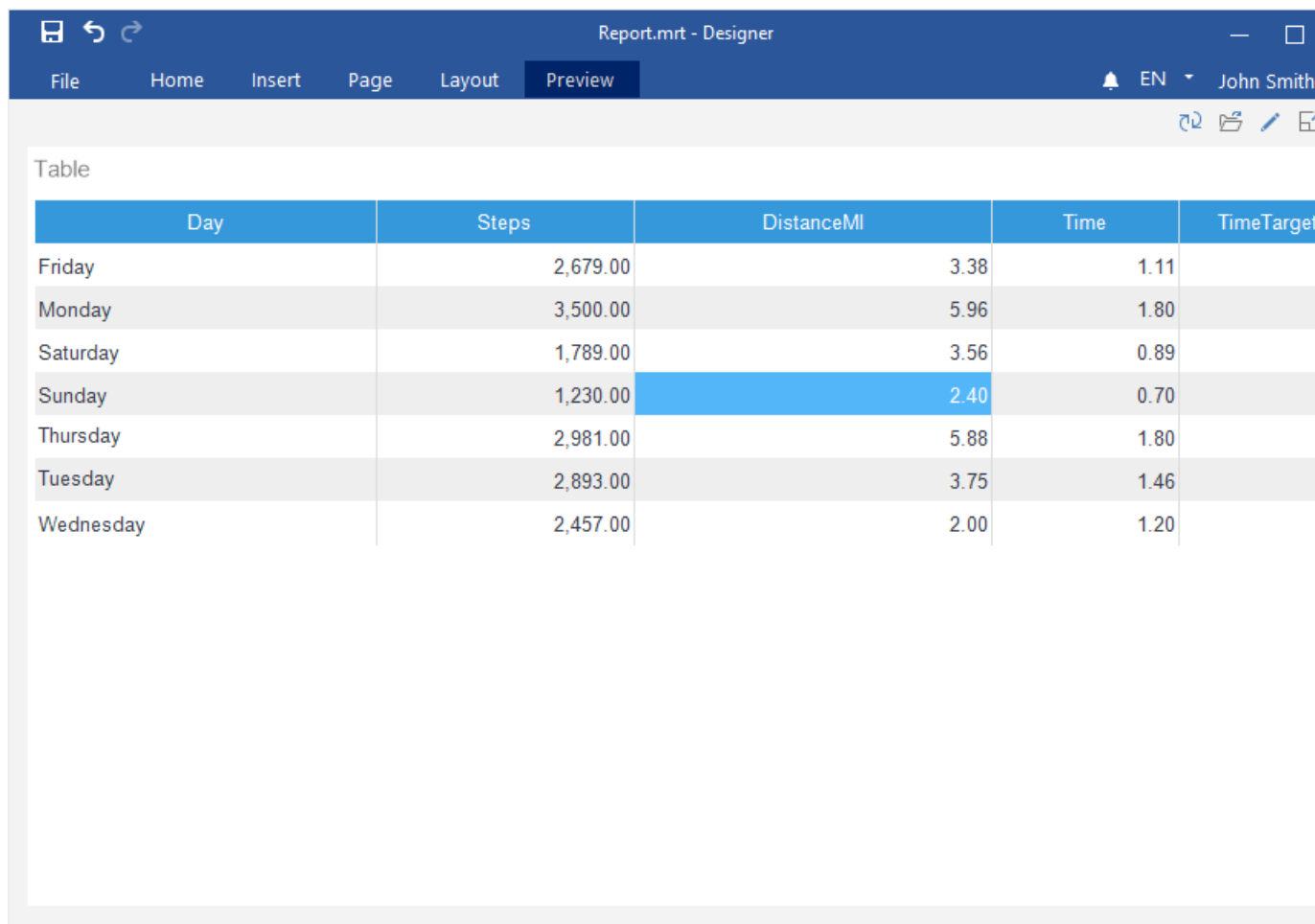
Now, when you click on the value of the current data field, a transition will be carried out on a given hyperlink.

Stretching table columns by the width

By default, the column width is set automatically, depending on the content. However, you may stretch all columns by the width of the element. For this, you should do the following:

Step 1: Select the **Table** element in the dashboard;

Step 2: Set the **Fit** value for the **Size Mode** property.



Report.mrt - Designer

File Home Insert Page Layout Preview

EN John Smith

Table

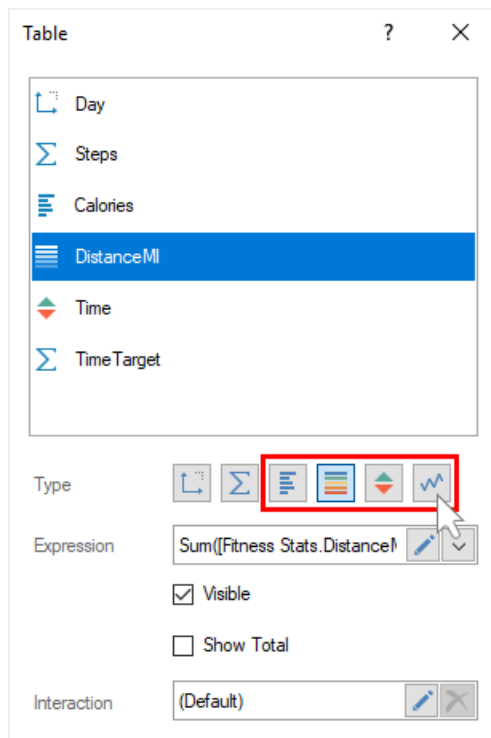
Day	Steps	DistanceMI	Time	TimeTarget
Friday	2,679.00	3.38	1.11	
Monday	3,500.00	5.96	1.80	
Saturday	1,789.00	3.56	0.89	
Sunday	1,230.00	2.40	0.70	
Thursday	2,981.00	5.88	1.80	
Tuesday	2,893.00	3.75	1.46	
Wednesday	2,457.00	2.00	1.20	

Data Bars, Indicator, Color scale, Sparklines in the Table

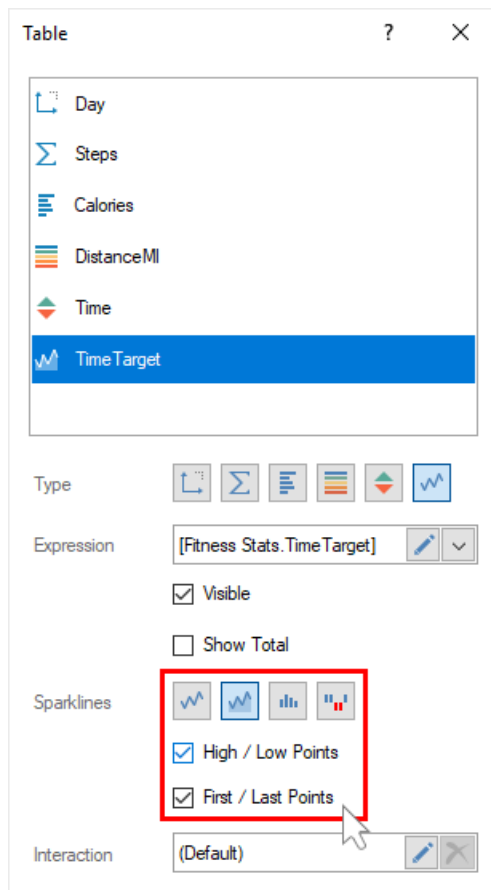
Step 1: Double-click on the **Table** element to call the editor of this element;

Step 2: Select the data field;

Step 3: Using the controls, specify the type for the current data field;



Step 4: For **Sparklines**, specify the parameters of the sparklines and its type.



Calculation of totals in the Table

Step 1: Double-click on the **Table** element to call the editor of this element;

Step 2: Select the data field for which you want to calculate the total;

Step 3: Select the **Show Totals** check box;

Table ? X

Day

Σ Steps

Σ Calories

Σ DistanceMI X

Σ Time

Σ TimeTarget

Type      

Expression Sum([Fitness Stats.DistanceMI]  

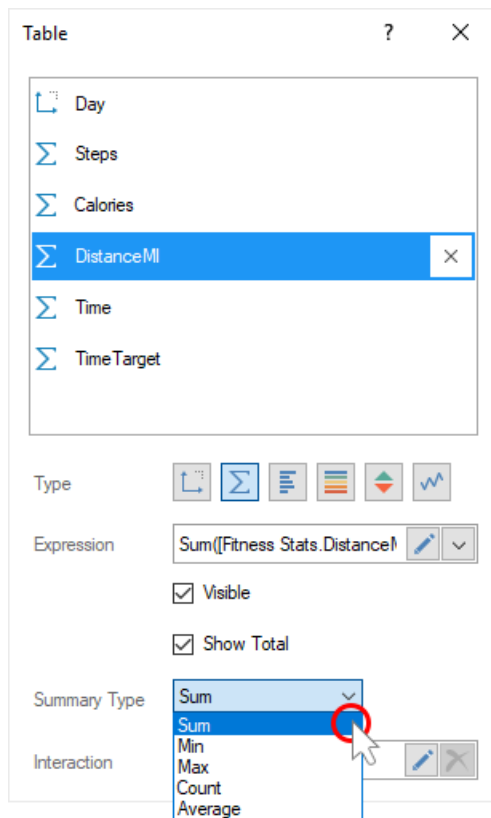
☒ Visible

☒ Show Total

Summary Type Sum 

Interaction (Default)  

Step 4: Specify a function for calculating the total.



3.7 Dashboard with Chart

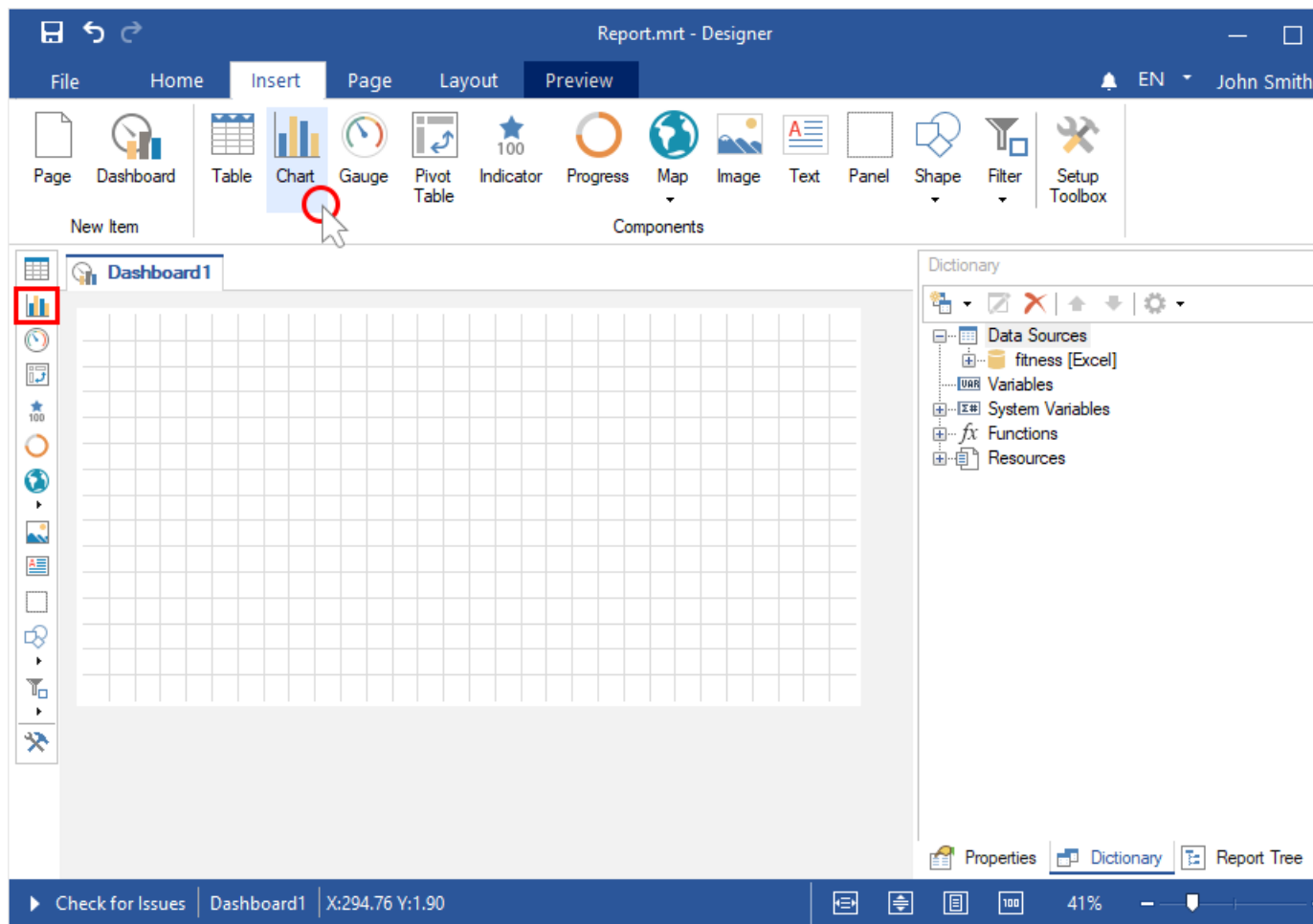
To create a dashboard with a [Chart](#) element, you should do the following steps:

Step 1: [Run the report designer](#);

Step 2: [Create a dashboard](#) or [add it to a current report](#);

Step 3: [Connect data](#);

Step 4: Select the **Chart** element in the toolbox of the report designer or on the **Insert** tab;

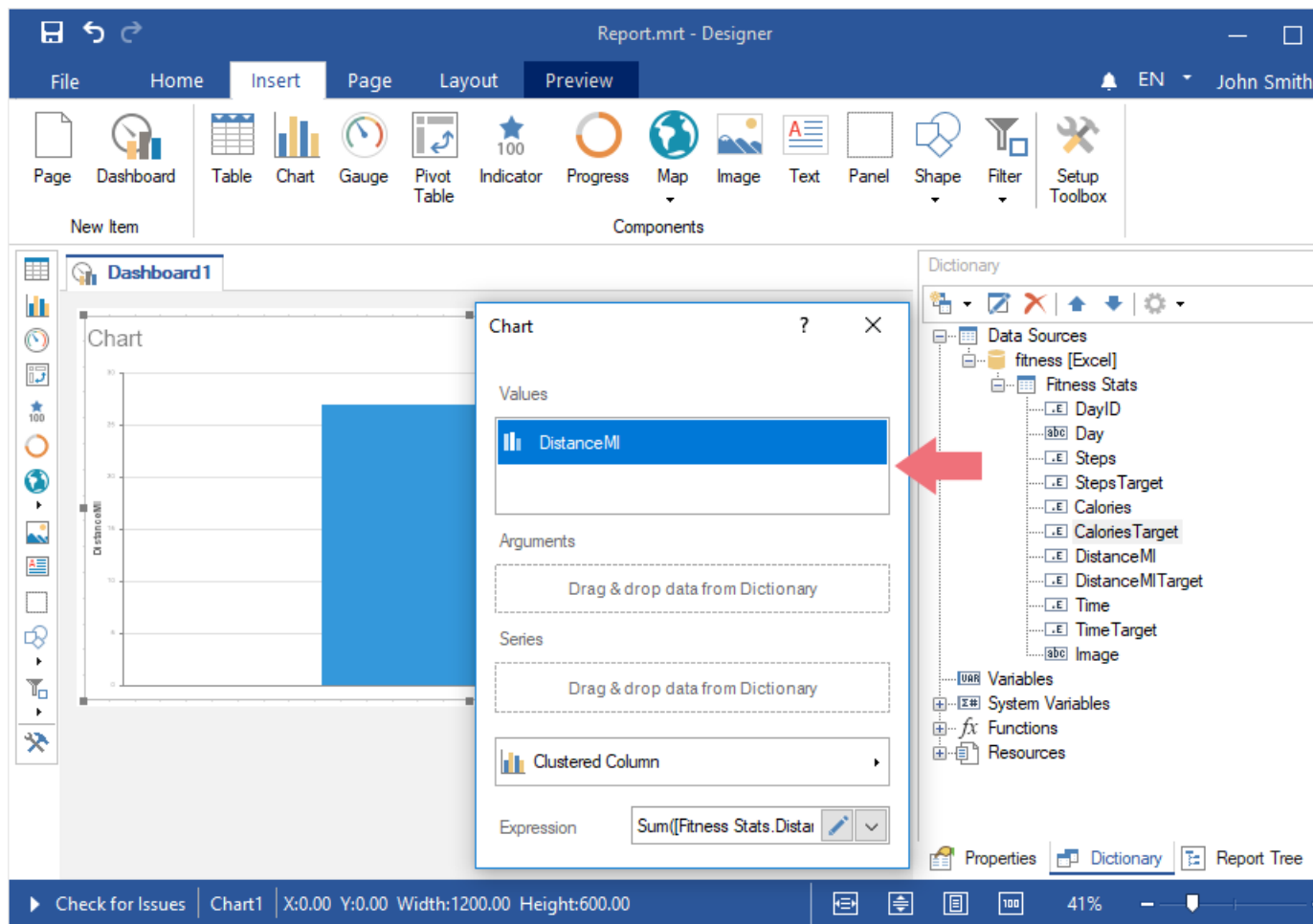


Step 5: Put the item on the dashboard panel;

Step 6: If the item editor did not open, double-click on the chart;

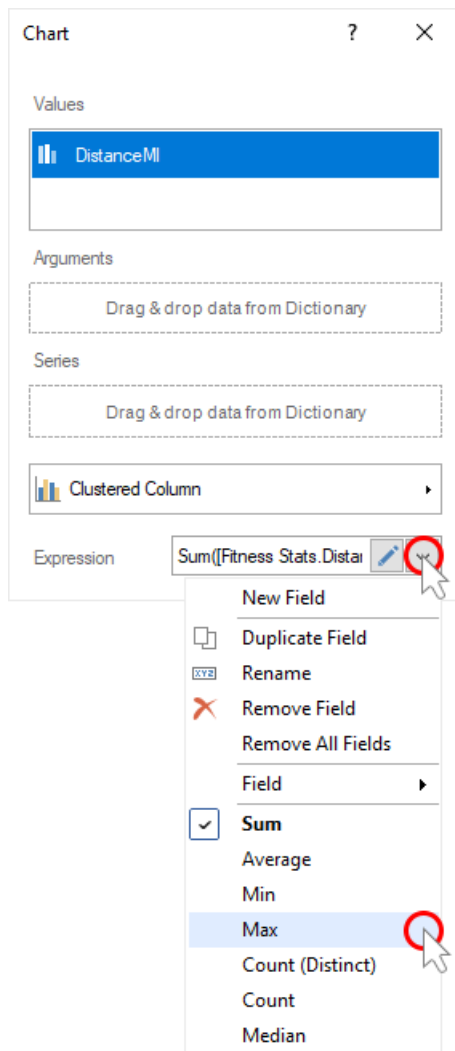
Step 7: Drag the required data columns from the data dictionary;

Step 8: By default, columns will be added to the **Values** field of the chart;

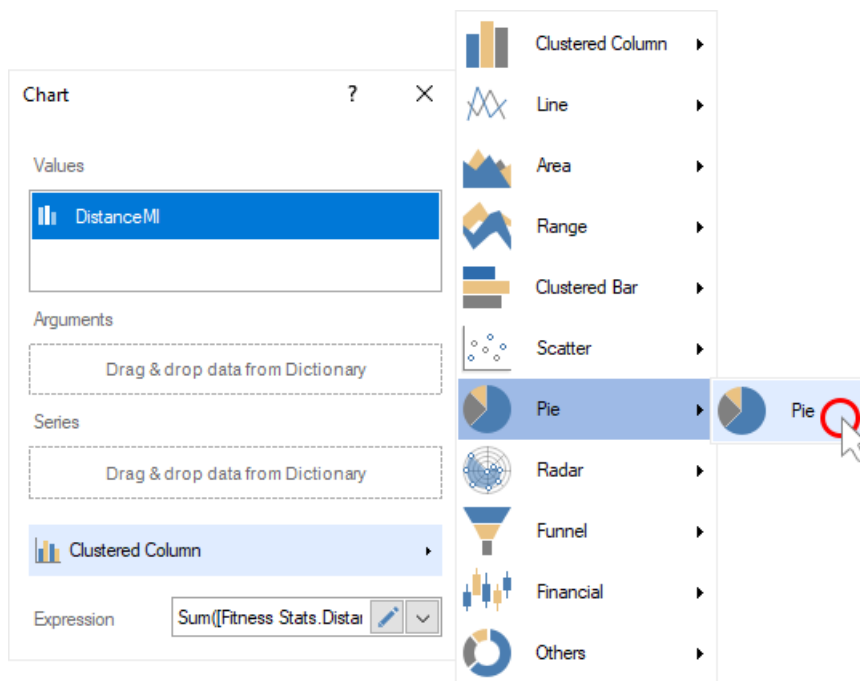


Step 9: Select the field of values;

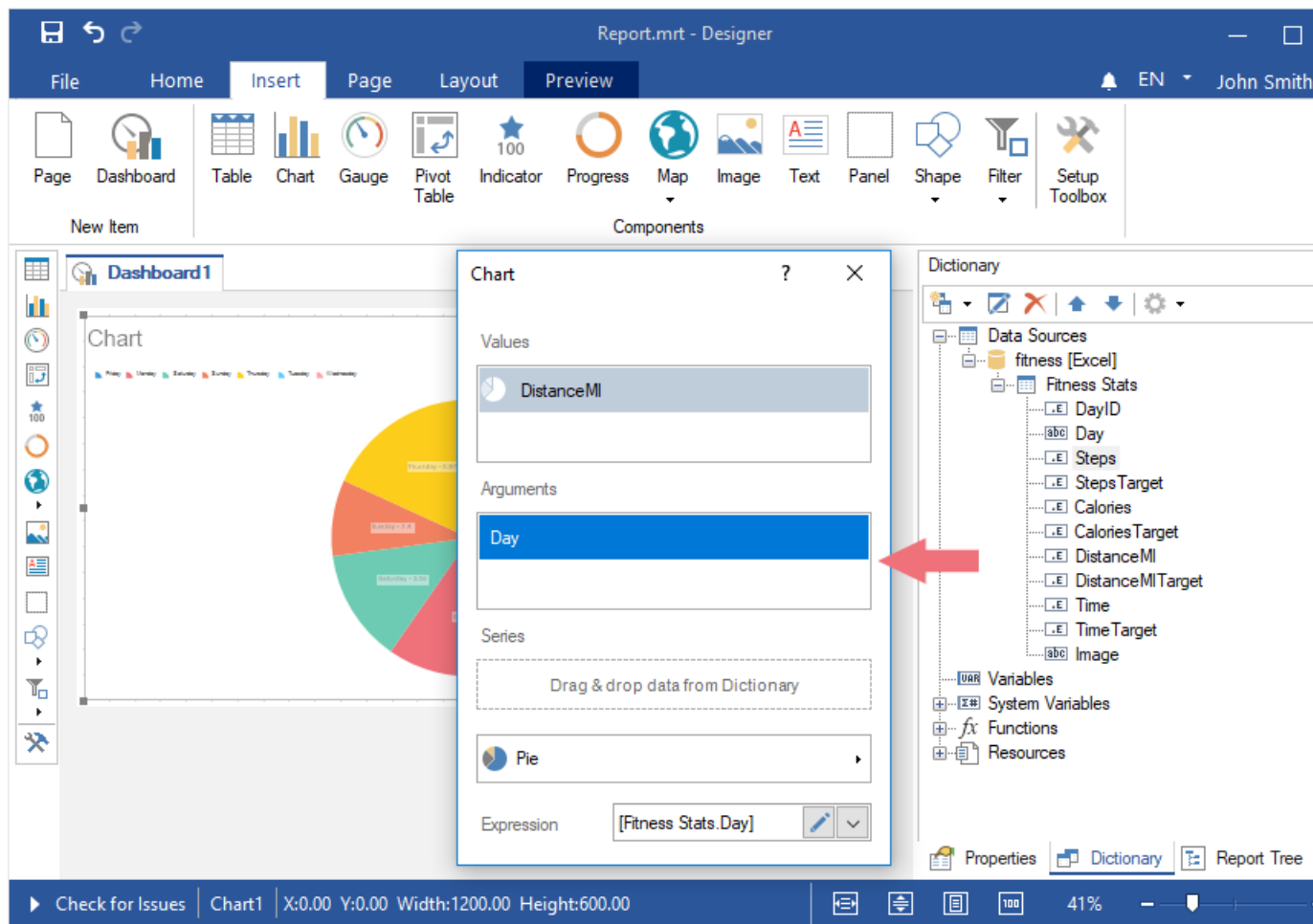
Step 10: Click the **Browse** button in the Expression field and select the function of aggregating values, if necessary. By default, the **Sum()** function is used, which sums the values from the specified data column.



Step 11: Change the type of a chart, if necessary;



Step 12: Drag the data columns into the **Arguments** and **Series** fields, if necessary;

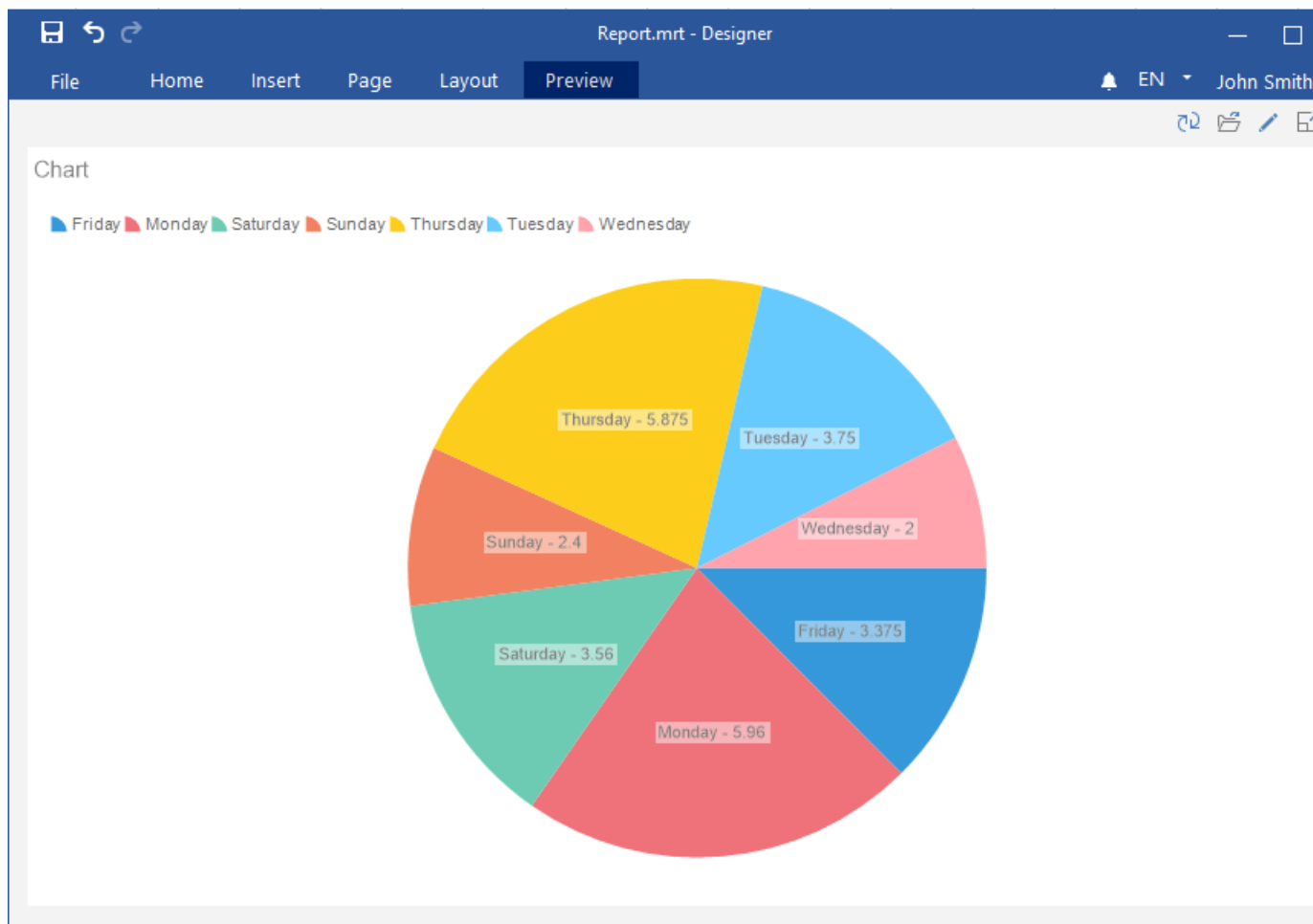


Information

For some types of charts, you should specify columns of values in several fields. For example, for financial charts, you should add data columns to the fields Open Values, Close Values, Maximum Values, and Minimum Values.

Step 13: Close the editor of the **Chart** element;

Step 14: Go to the preview tab.



3.8 Dashboard with Gauge

This chapter will cover issues such as:

- [Adding a gauge](#);
- [Custom range of values](#);
- [Color Range](#).

Adding a gauge

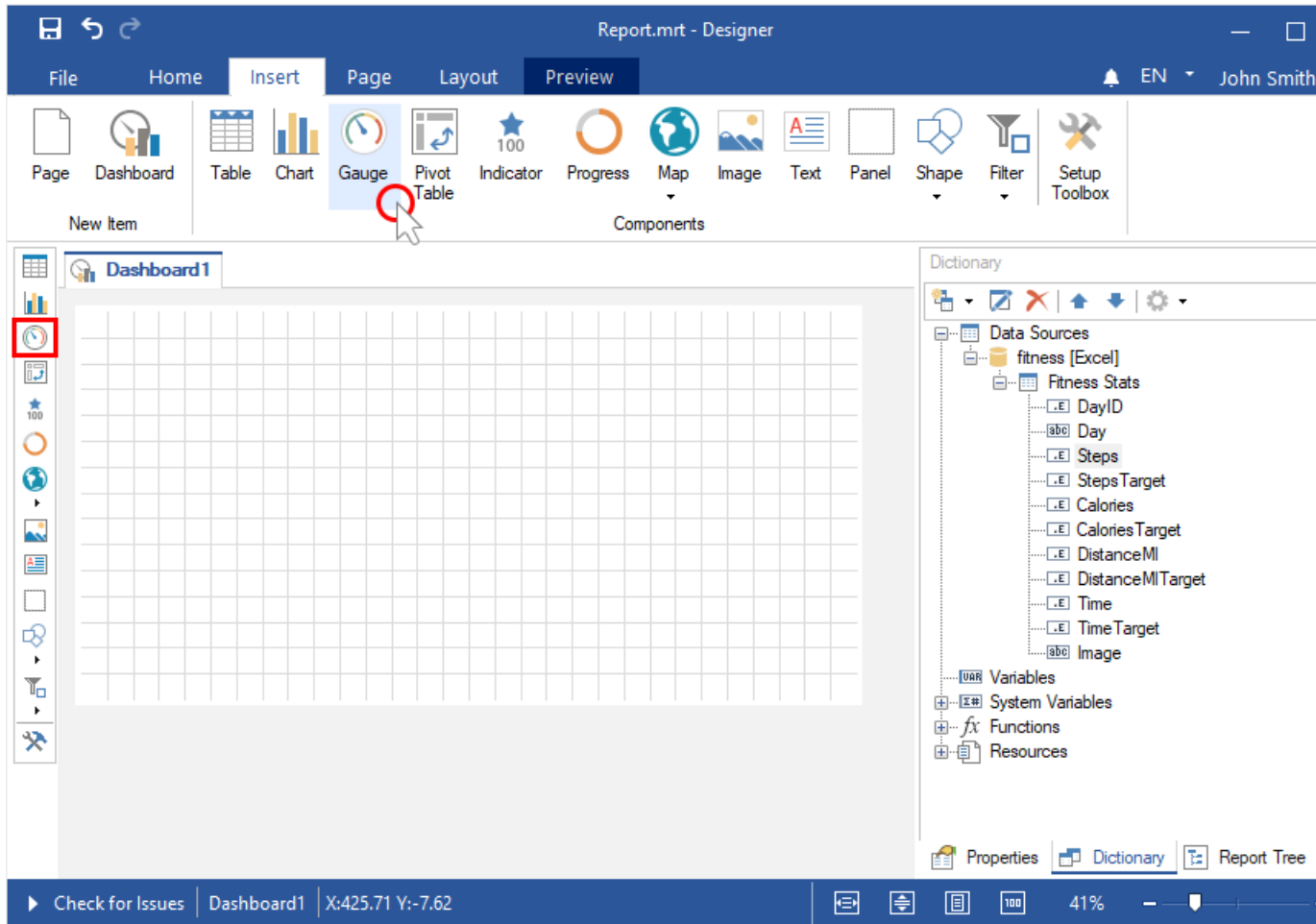
To create an dashboard panel with the [Gauge](#) element, you should do the following steps:

Step 1: [Run the report designer](#);

Step 2: [Create a dashboard](#) or [add it to a current report](#);

Step 3: [Connect data](#);

Step 4: Select the **Gauge** element in the toolbox of the report designer or on the **Insert** tab;

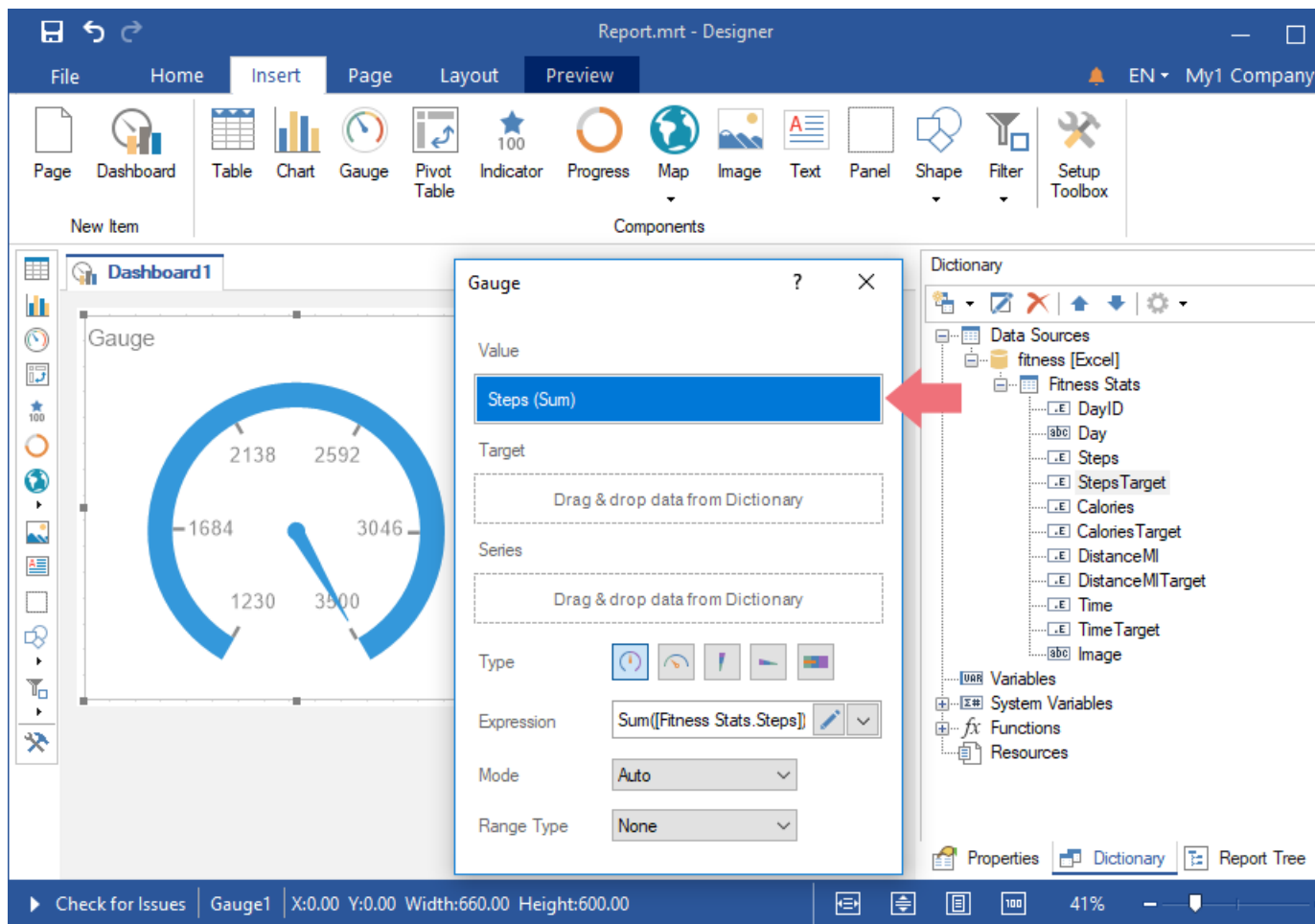


Step 5: Put the item on the dashboard panel;

Step 6: If the item editor did not open, double-click on the gauge;

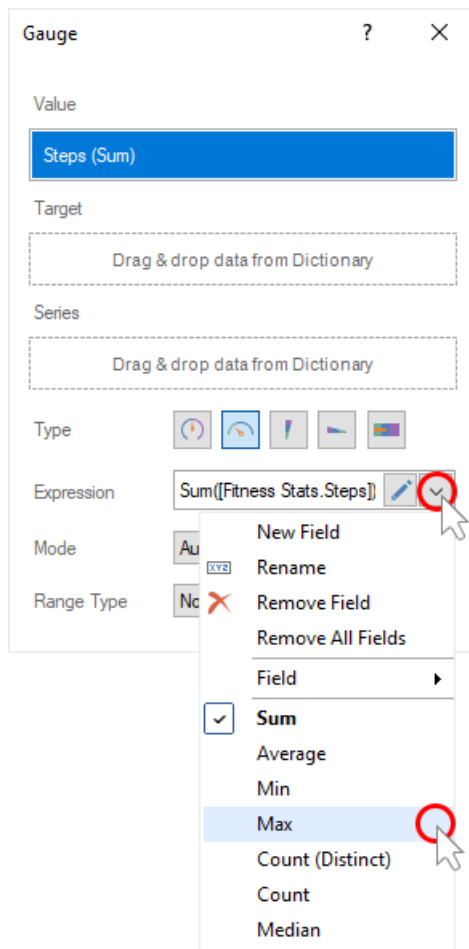
Step 7: Drag the required data columns from the data dictionary;

Step 8: By default, columns will be added to the **Values** field of the gauge;

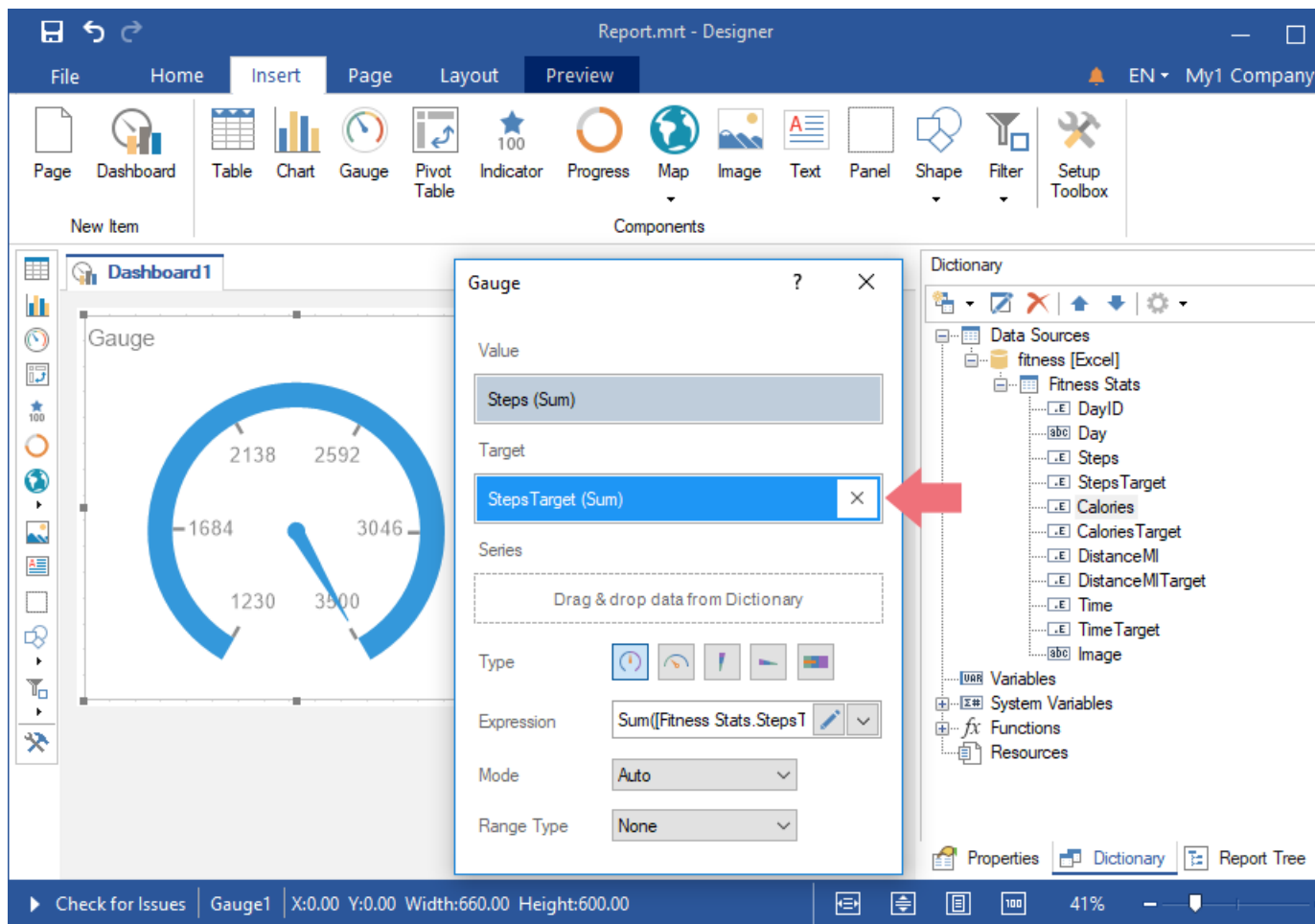


Step 9: Select the data field;

Step 10: Click the **Browse** button in the **Expression** field and select the function of aggregating values, if necessary. By default, the **Sum()** function is used, which sums the values from the specified data column.



Step 11: Add a data column to the **Target** field. The target value will be displayed as a tick on the gauge scale.



Step 12: Click the **Browse** button in the **Expression** field and select the function of aggregating values, if necessary. By default, the **Sum()** function is used, which sums the values from the specified data column.

Step 13: Drag the data column into the Series field, if it is necessary to display a gauge for each value of the series;

Step 14: Change the type of the gauge;

Gauge ? X

Value
Steps (Sum)

Target
StepsTarget (Sum)

Series
Drag & drop data from Dictionary

Type
    

Expression
Sum([Fitness Stats.Steps])  

Mode
Custom

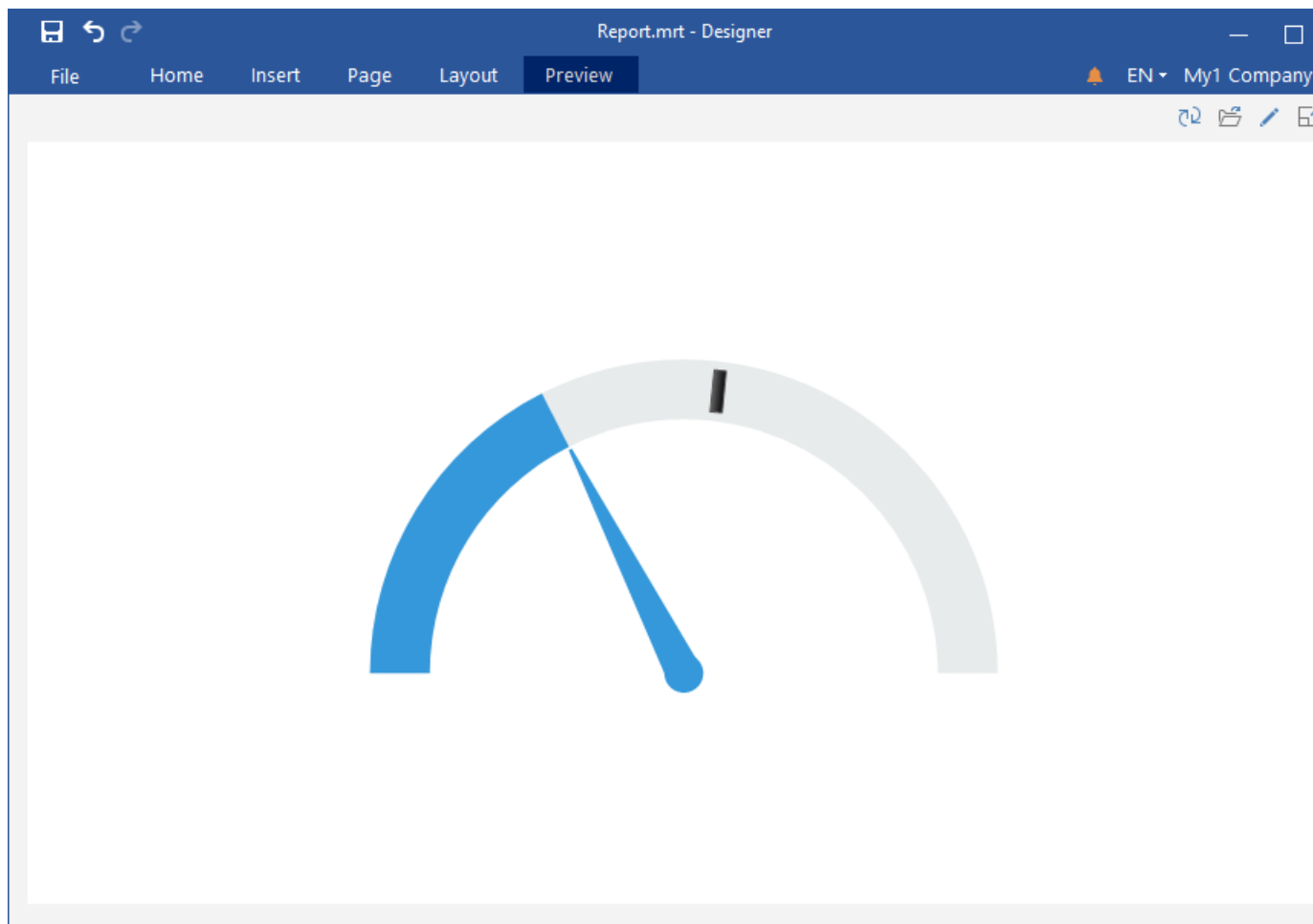
Minimum
0.00

Maximum
50000.0

Range Type
None

Step 15: Close the **Gauge** editor;

Step 16: Go to Preview.



Custom range of values

Do the following to set a custom range of values:

Step 1: Call the editor of the gauge;

Step 2: Select the **Custom** value for the **Mode** parameter;

The Gauge editor window is titled "Gauge" and contains the following fields:

- Value:** A blue button labeled "Steps (Sum)".
- Target:** A dashed box with the text "Drag & drop data from Dictionary".
- Series:** A dashed box with the text "Drag & drop data from Dictionary".
- Type:** Five icons representing different gauge styles.
- Expression:** A text box containing "Sum([Fitness Stats.Steps])" with a blue edit icon and a dropdown arrow.
- Mode:** A dropdown menu with "Auto" selected.
- Range Type:** A dropdown menu with "Auto" and "Custom" options. A red circle highlights the "Custom" option, and a mouse cursor is clicking it.

Step 3: Set the minimum and maximum value of the range of values;

The Gauge editor window is titled "Gauge" and contains the following fields:

- Value:** A blue button labeled "Steps (Sum)".
- Target:** A dashed box with the text "Drag & drop data from Dictionary".
- Series:** A dashed box with the text "Drag & drop data from Dictionary".
- Type:** Five icons representing different gauge styles.
- Expression:** A text box containing "Sum([Fitness Stats.Steps])" with a blue edit icon and a dropdown arrow.
- Mode:** A dropdown menu with "Custom" selected.
- Range Type:** A dropdown menu with "None" selected.
- Range Values:** A red box highlights the "Minimum" and "Maximum" fields. The "Minimum" field contains "14.00" and the "Maximum" field contains "75.00".

Step 4: Close the Gauge editor.

Color Range

To enable the color scale of a range of values, you should do the following:

Step 1: Call the **Gauge** editor;

Step 2: Set the **Color** value for the **Range Type** parameter;

Step 3: Choose the option for calculating the color range - **Percentage** or **Value**;

The screenshot shows the 'Gauge' editor window. The 'Value' field is set to 'Steps (Sum)'. The 'Target' field is empty with a placeholder 'Drag & drop data from Dictionary'. The 'Series' field is also empty with the same placeholder. The 'Type' field has five icons, with the first one (a gauge) selected. The 'Expression' field contains 'Sum([Fitness Stats.Steps])'. The 'Mode' field is set to 'Custom'. The 'Minimum' field is '14.00' and the 'Maximum' field is '75.00'. The 'Range Type' field is set to 'Color'. Below this, a dropdown menu is open, showing 'Percentage' and 'Value' options. The 'Value' option is selected and highlighted with a red circle and a mouse cursor. Below the dropdown, there are three color-coded ranges: a red bar for '0 - 33', a yellow bar for '33 - 66', and a blue bar for '66 - 100'. At the bottom, there are input fields for '66' and '100' with a minus sign between them, and a red color swatch below.

Step 4: Add the required number of color ranges;

Step 5: Select the color range in the list;

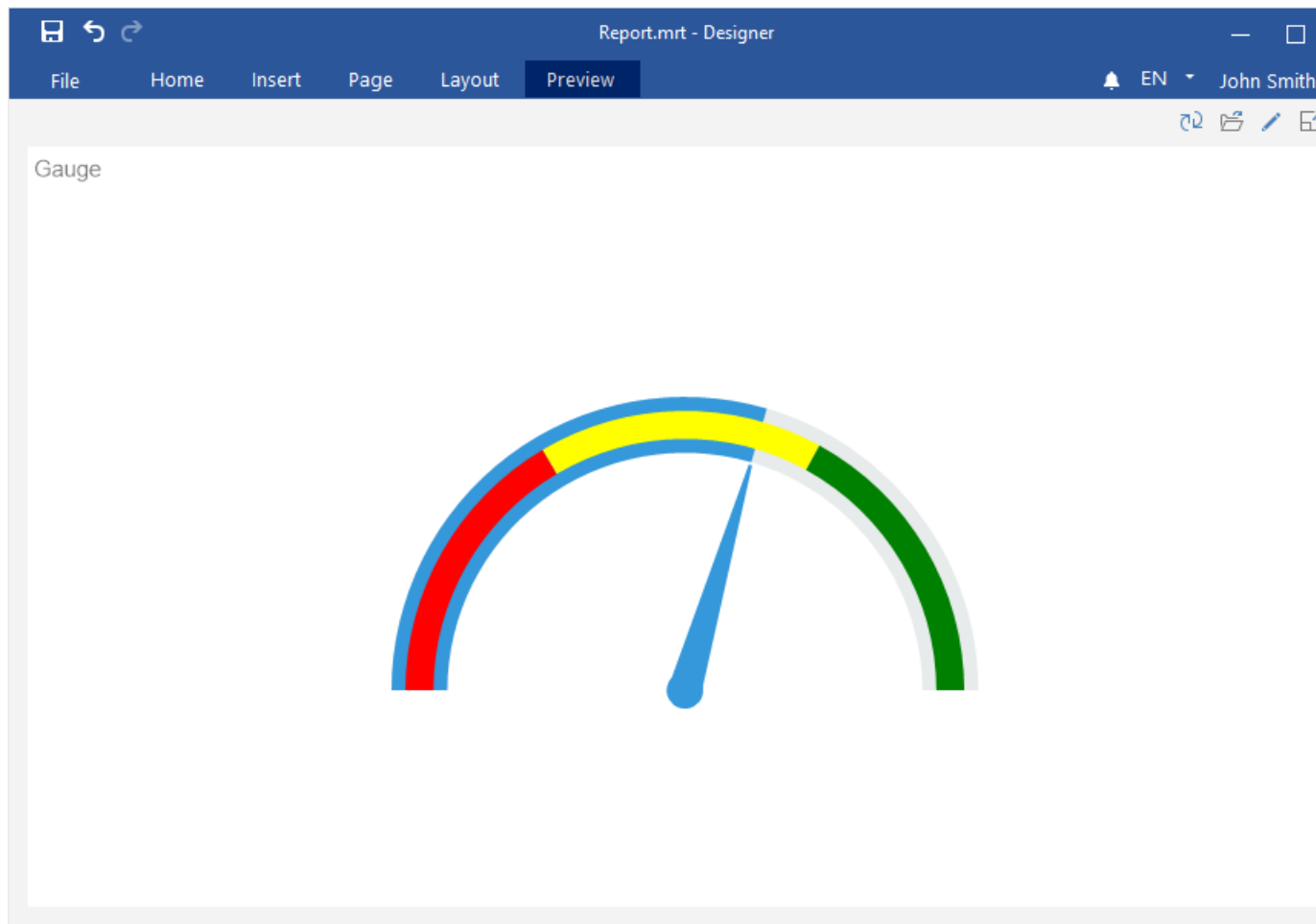
Step 6: Set the start and end values of the current color range;

Step 7: Choose a color for the current range;

Step 8: Repeating steps 5-7, adjust all color ranges;

Step 9: Close the **Gauge** editor;

Step 10: Go to Preview.



3.9 Dashboard with Pivot Table

This chapter will cover the following:

- [Create a Pivot Table](#);
- [Drill-down in a Pivot Table](#).

Create a Pivot Table

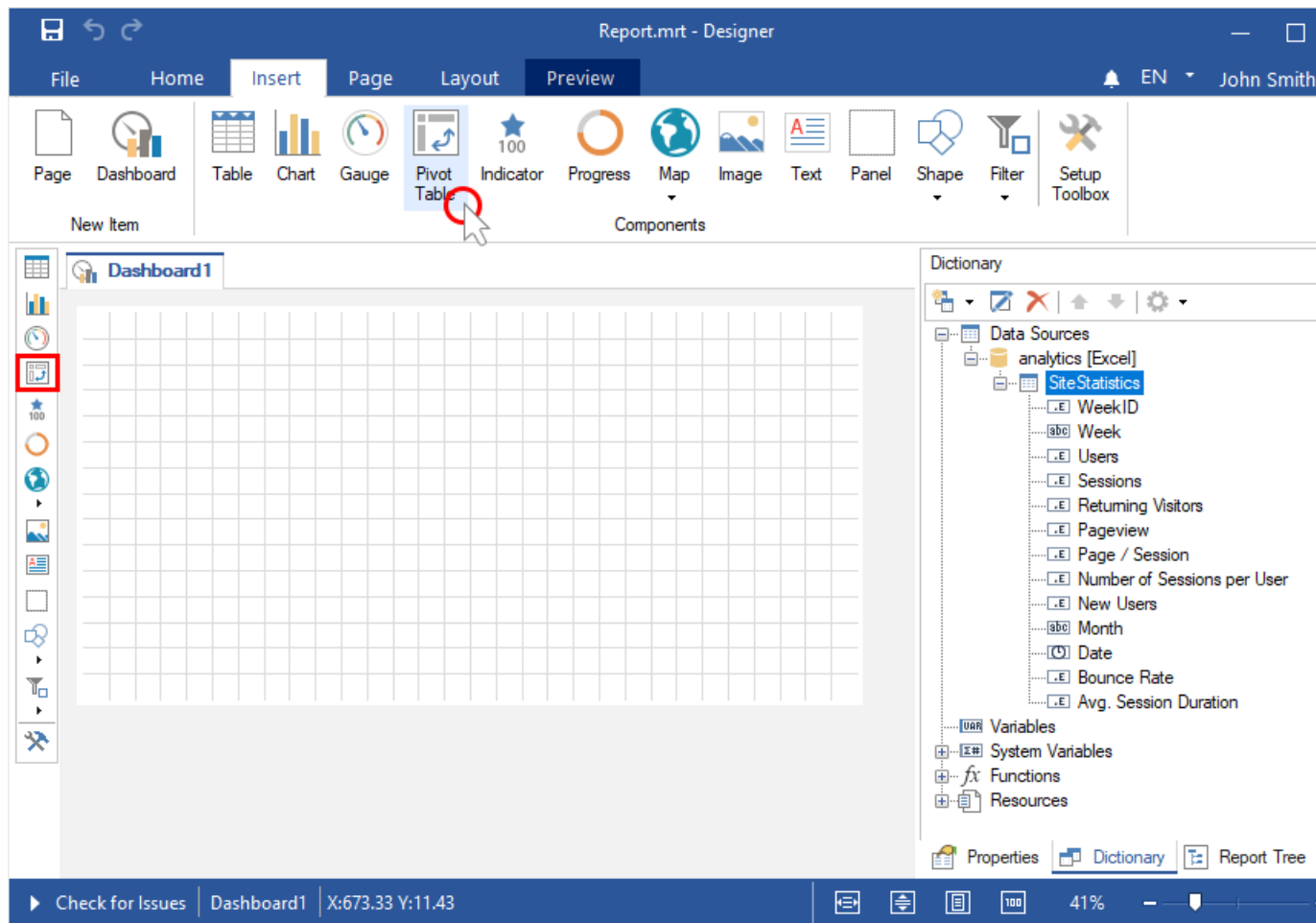
To create a dashboard panel with the [Pivot Table](#) element, you should do the following steps:

Step 1: [Run the report designer](#);

Step 2: [Create a dashboard](#) or [add it to a current report](#);

Step 3: [Connect data](#);

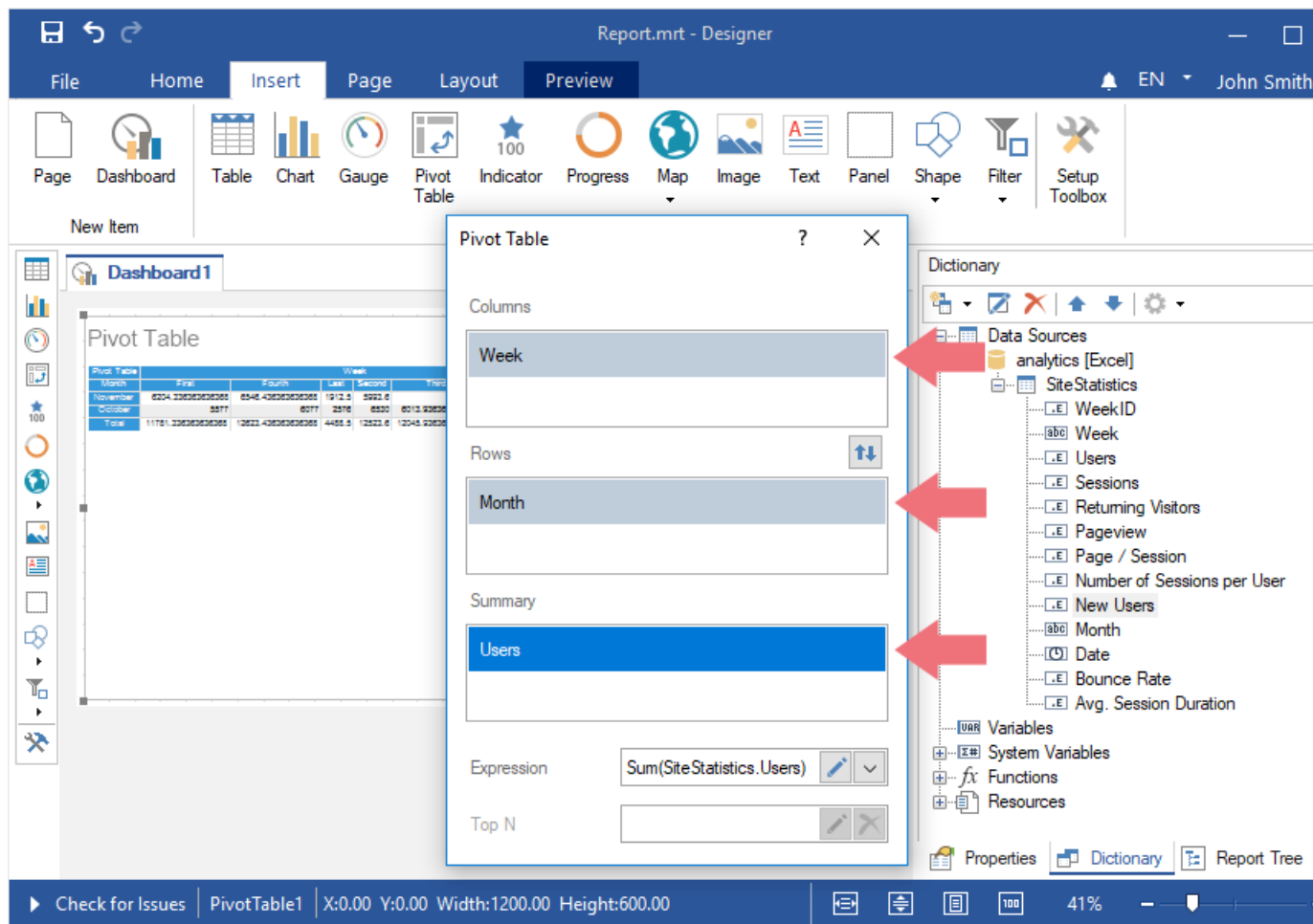
Step 4: Select the **Pivot Table** element in the toolbox of the report designer or on the **Insert** tab;



Step 5: Place the element on the dashboard panel;

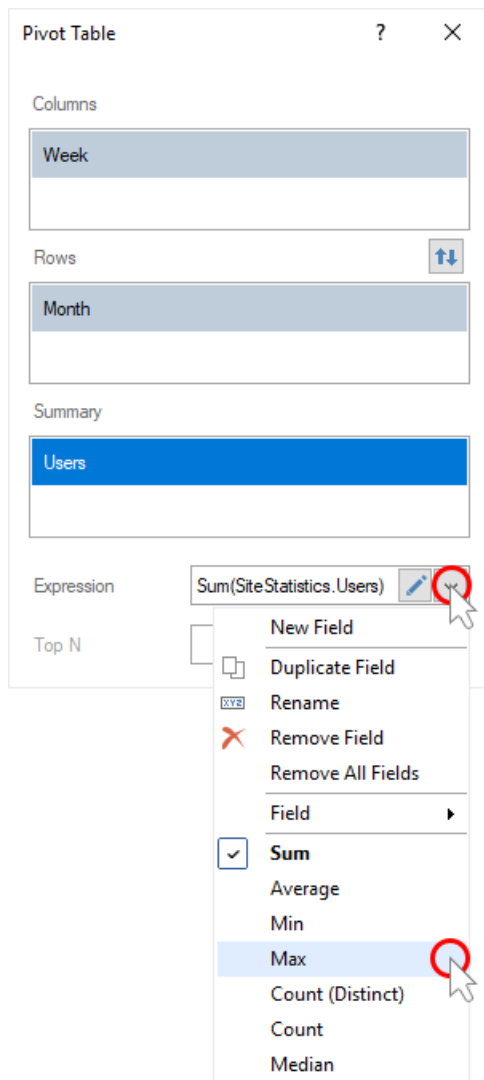
Step 6: If the item editor does not open, double-click on the **Pivot Table**;

Step 7: Drag the necessary data columns from the data dictionary into the **Rows**, **Columns**, and **Summary** fields;



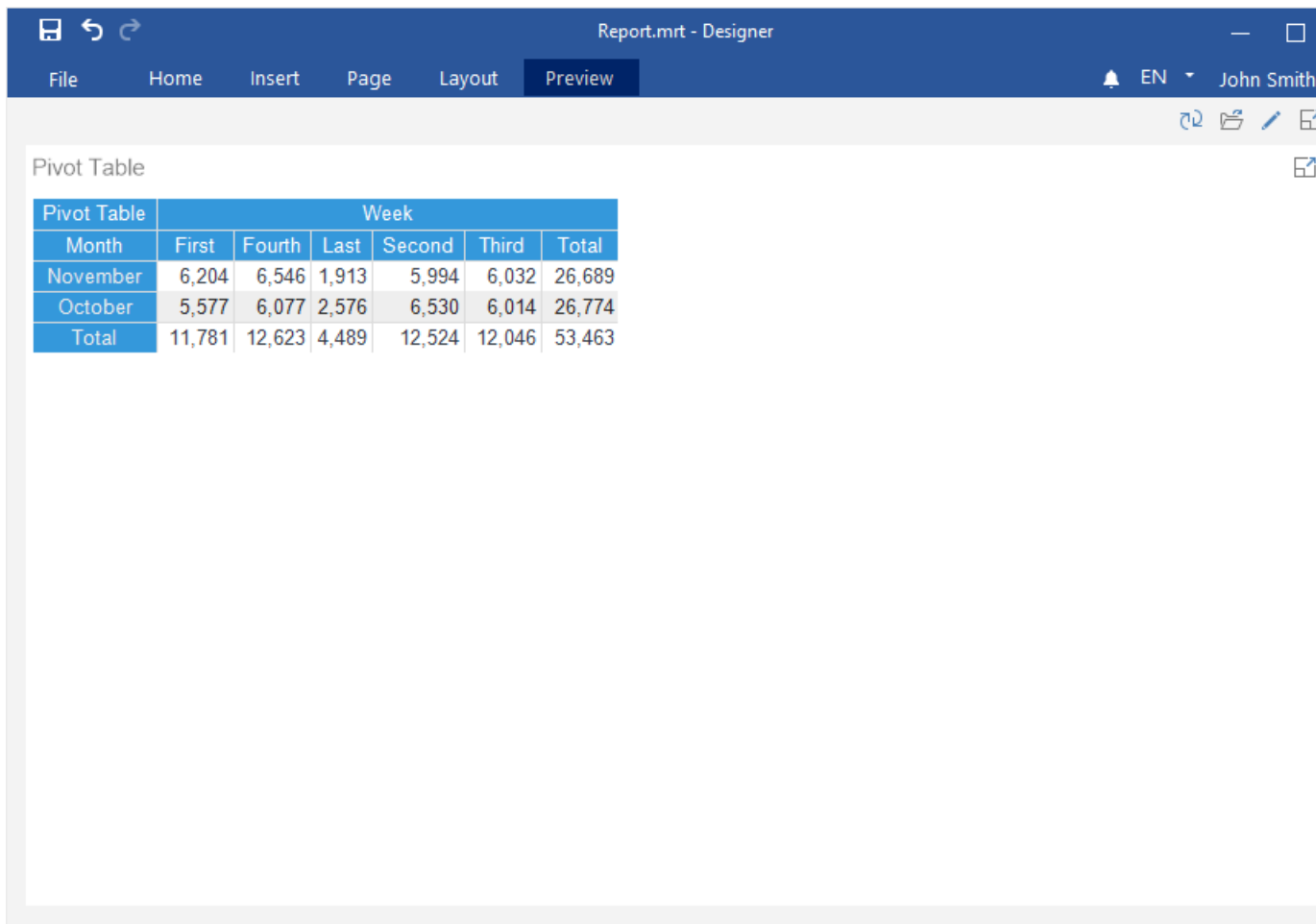
Step 8: Select the data field in the **Summary** field;

Step 9: Click the **Browse** button in the **Expression** field and select the function of aggregating values, if necessary. By default, the **Sum()** function is used, which sums the values from the specified data column.



Step 10: Close the **Pivot** editor;

Step 11: Go to **Preview**.



The screenshot shows the 'Report.mrt - Designer' application window. The top menu bar includes 'File', 'Home', 'Insert', 'Page', 'Layout', and 'Preview'. The 'Preview' tab is active. The main area displays a Pivot Table titled 'Pivot Table'. The table has a blue header with 'Pivot Table' in the first column and 'Week' spanning the next six columns. The rows are 'Month', 'November', 'October', and 'Total'. The columns under 'Week' are 'First', 'Fourth', 'Last', 'Second', 'Third', and 'Total'. The data values are as follows:

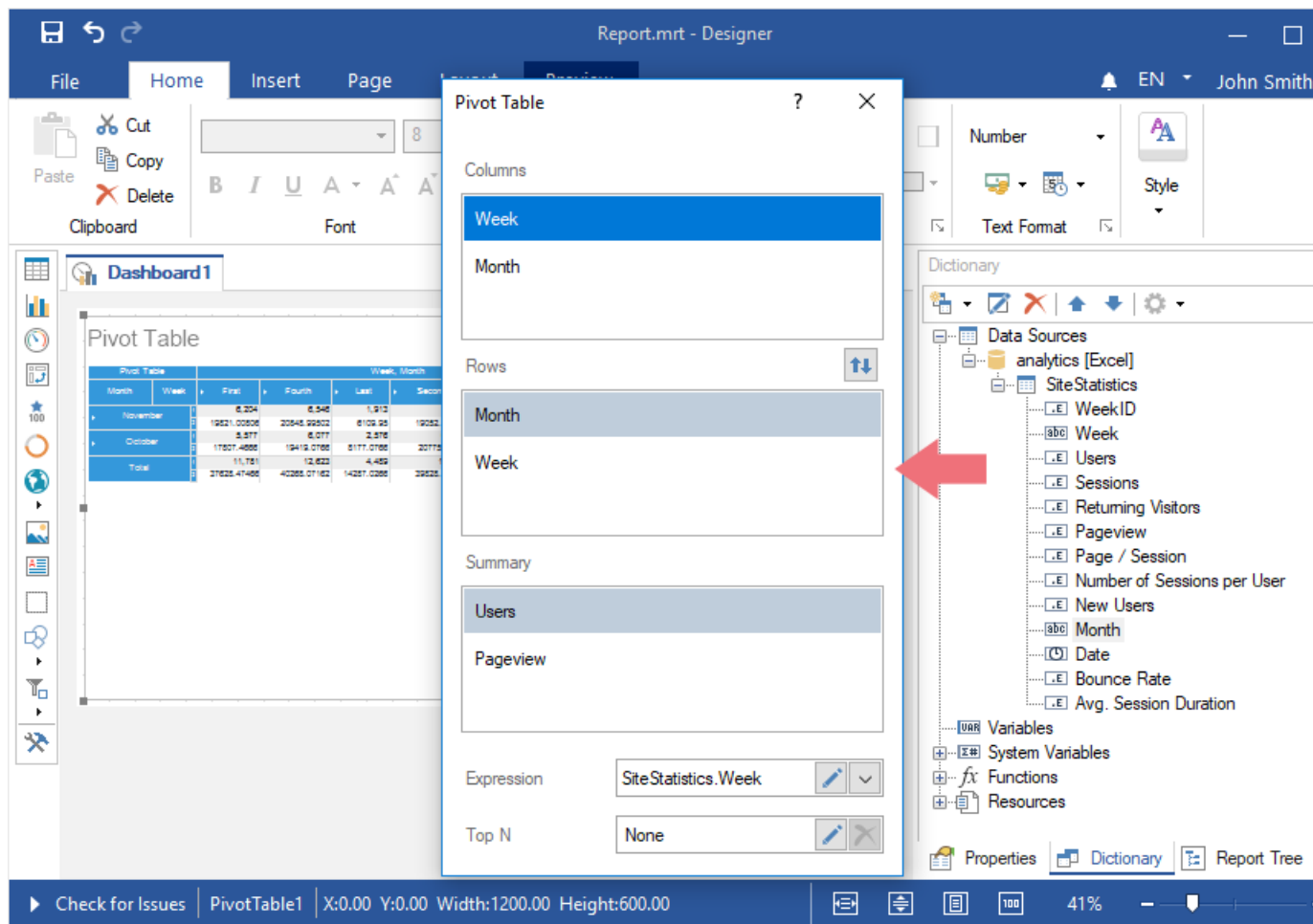
Pivot Table	Week					
Month	First	Fourth	Last	Second	Third	Total
November	6,204	6,546	1,913	5,994	6,032	26,689
October	5,577	6,077	2,576	6,530	6,014	26,774
Total	11,781	12,623	4,489	12,524	12,046	53,463

Drill-down in the Pivot Table

In this element, you can create a data hierarchy for rows or columns. To do this:

Step 1: Double-click on the element;

Step 2: Add several data columns to the **Columns** or **Rows** fields, depending on where you want to create a hierarchy;



Information

Please note that the first (upper) data column in the column list of the **Columns** or **Rows** fields is the main level for drill-down. The second column from the top is the second level, the third is the third one, etc.

To change the level, move the data column up or down in the list of columns in a specific field.

Step 3: Close the **Pivot** editor;

Step 4: Go to the **Preview**;

Step 5: Click on a row or column cell to see the details;

Report.mrt - Designer

File

Home

Insert

Page

Layout

Preview

EN

John Smith

Pivot Table

Pivot Table			Week, Month							
Month	Week		First	Fourth	Last	Second	Third			Total
							November	October	Total	
November		1	6,204	6,546	1,913	5,994	6,032		6,032	26,6
		2	19821.00806	20848.99502	6109.95	19052.79376	19197.5168		19197.5168	85030.263
October	First	1	5,577							5,5
		2	17807.4666							17807.46
	Fourth	1		6,077						6,0
		2		19419.0766						19419.07
	Last	1			2,576					2,5
		2			8177.0766					8177.07
	Second	1				6,530				6,5
		2				20775.4624				20775.46
	Third	1						6,014	6,014	6,0
		2						19200.34802	19200.34802	19200.348
	Total	1	5,577	6,077	2,576	6,530		6,014	6,014	26,7
		2	17807.4666	19419.0766	8177.0766	20775.4624		19200.34802	19200.34802	85379.430
	Total	1	11,781	12,623	4,489	12,524	6,032	6,014	12,046	53,4
		2	37628.47466	40268.07162	14287.0266	39828.25616	19197.5168	19200.34802	38397.86482	170409.693

3.10 Dashboard with Indicator

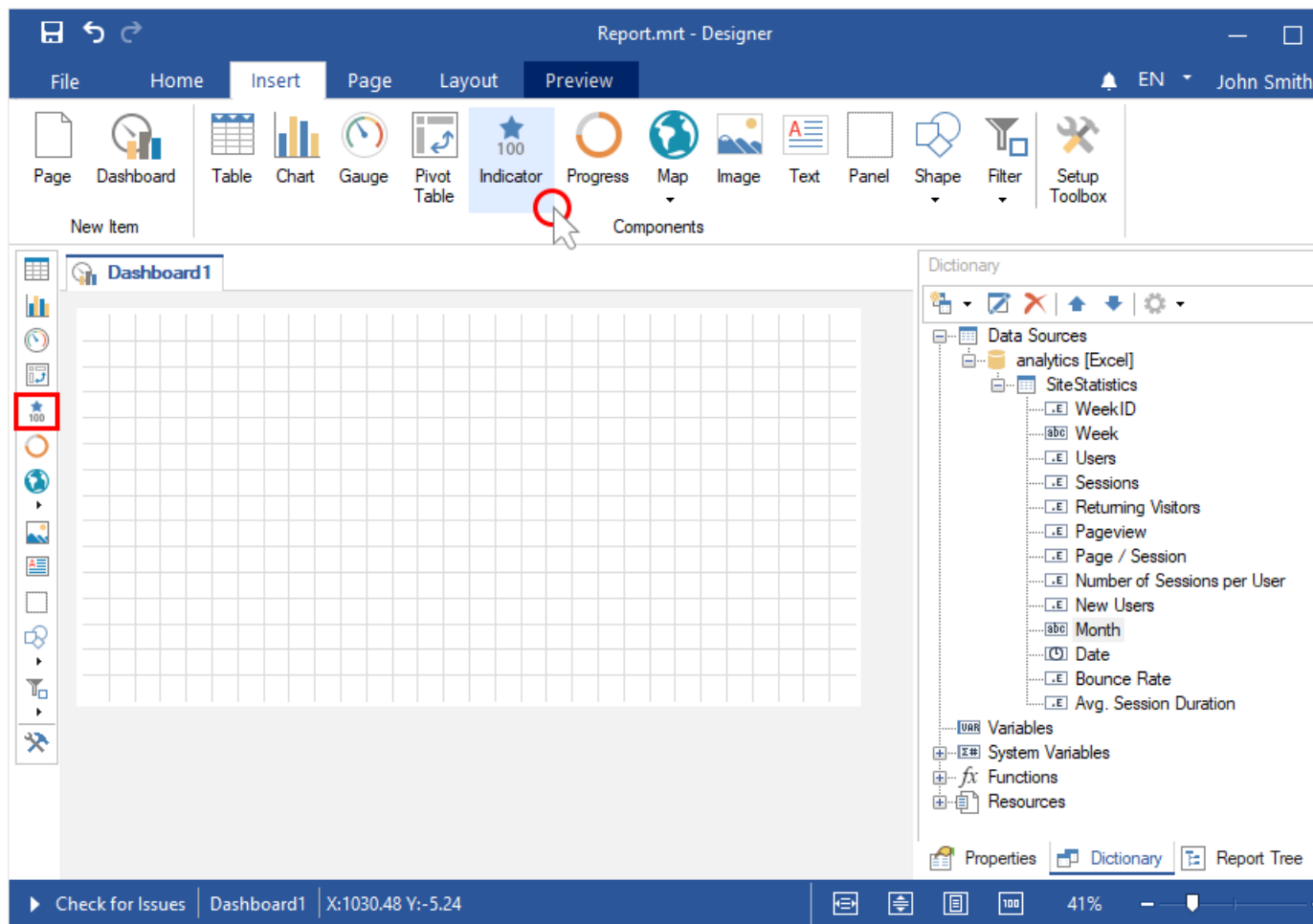
To create a dashboard panel with the [Indicator](#) element, you should do the following:

Step 1: [Run the report designer](#);

Step 2: [Create a dashboard](#) or [add it to a current report](#);

Step 3: [Connect data](#);

Step 4: Select the **Indicator** element in the toolbox of the report designer or on the **Insert** tab;

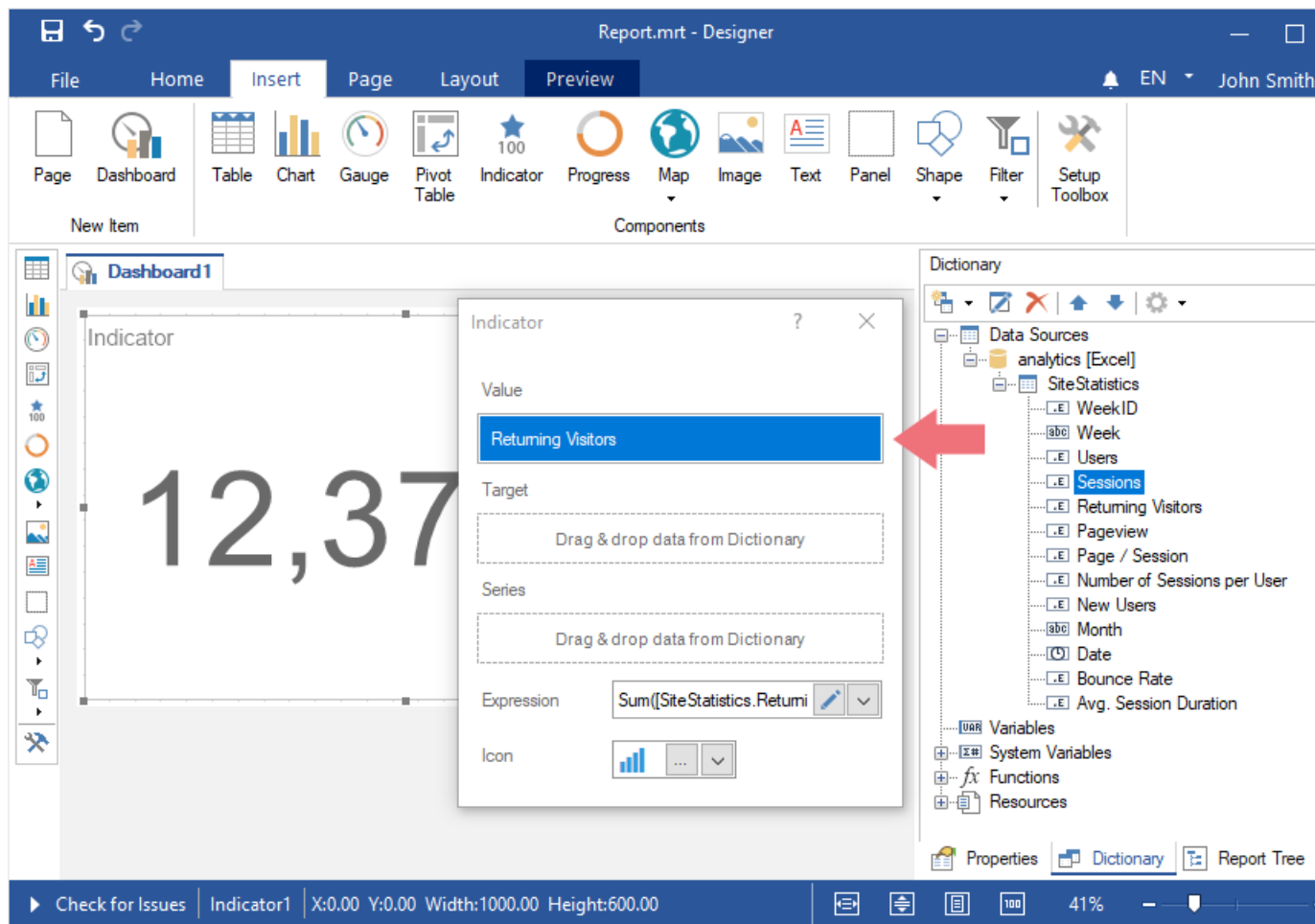


Step 5: Put the item on the dashboard panel;

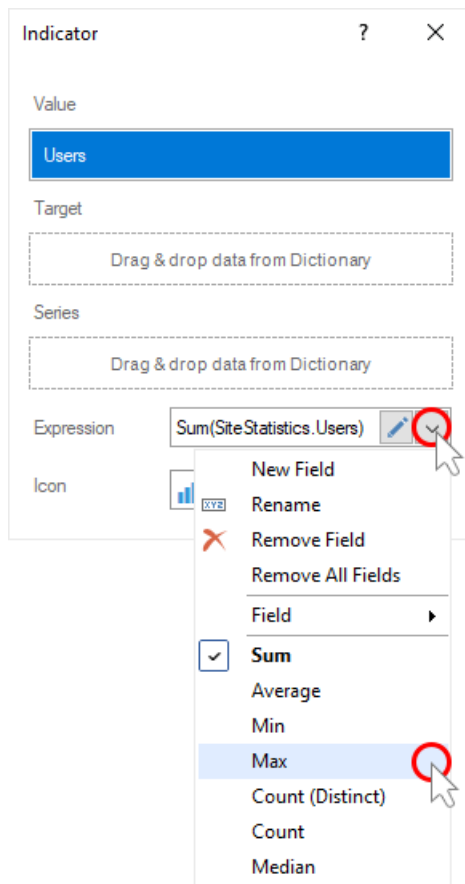
Step 6: If the item editor did not open, double-click on the indicator;

Step 7: Drag the required data columns from the data dictionary;

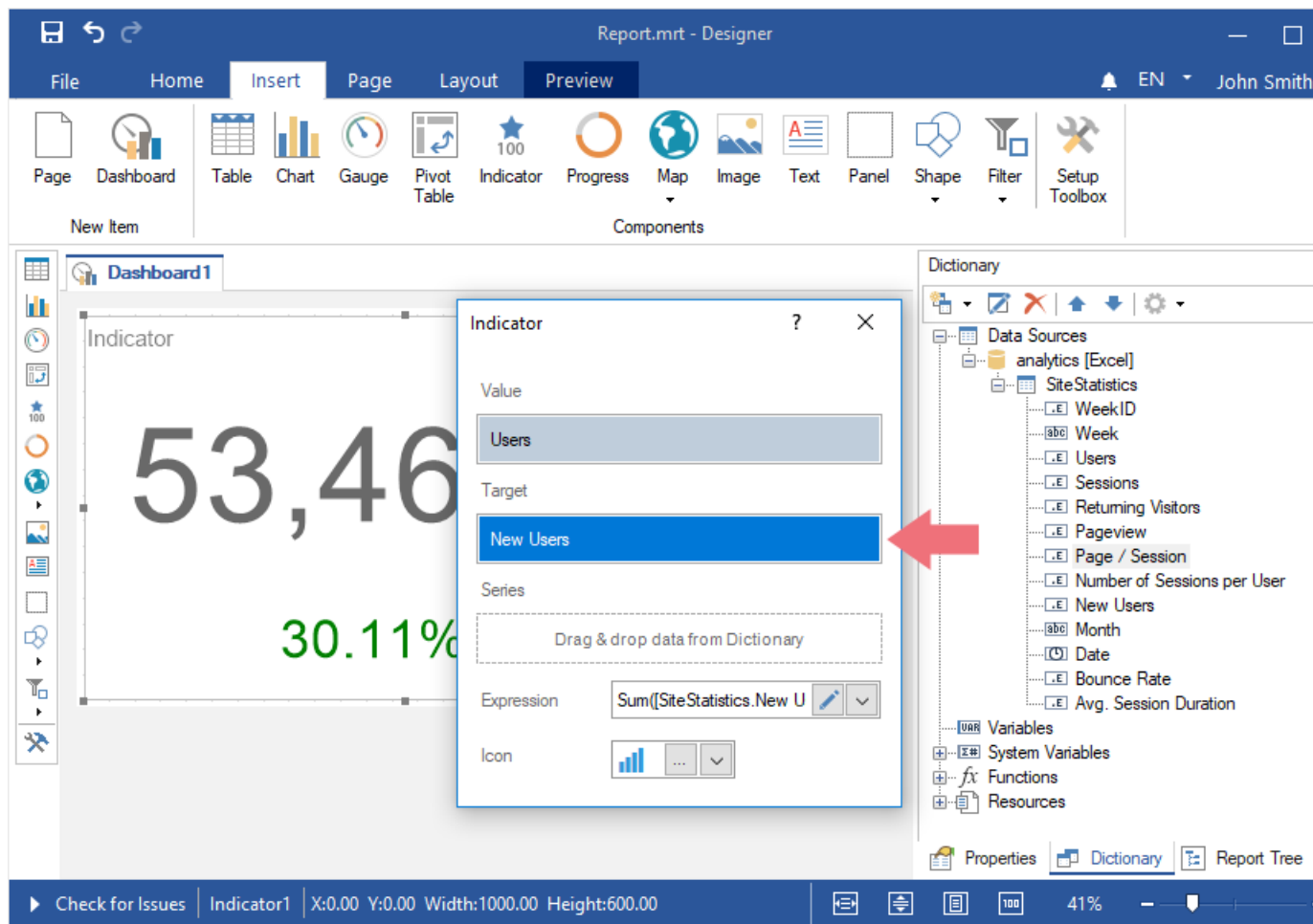
Step 8: By default, columns will be added to the **Values** field of the indicator;



Step 9: Click the **Browse** button in the **Expression** field and select the function of aggregating values, if necessary. By default, the **Sum()** function is used. It sums the values from the specified data column.

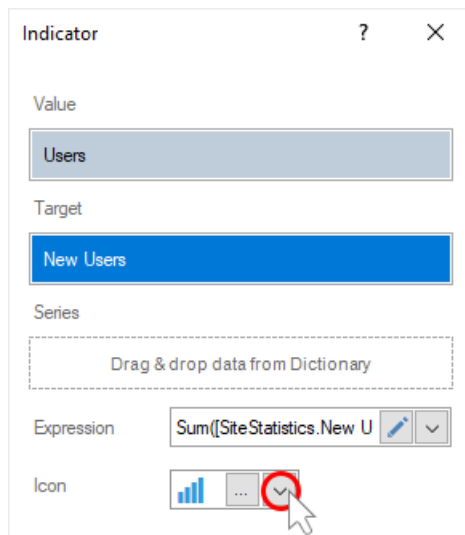


Step 10: Add a column to the **Target** field, if, in addition to the indicator value, it is necessary to calculate and display the deviation value in the current element;



Step 11: Click the **Browse** button in the **Expression** field and select the function of aggregating values, if necessary. By default, the **Sum()** function is used, which sums the values from the specified data column.

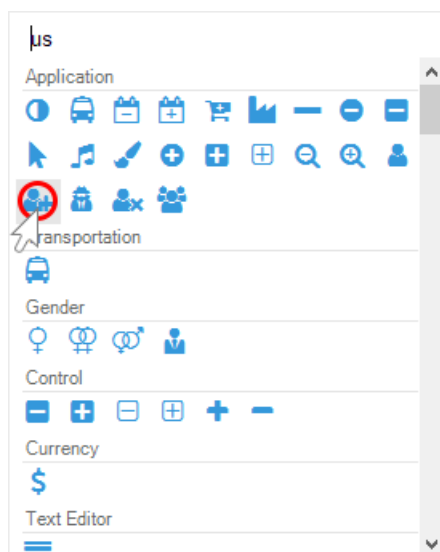
Step 12: Click the **Browse** button in the Icon field;



The 'Indicator' dialog box contains the following fields:

- Value:** A text box containing 'Users'.
- Target:** A dropdown menu showing 'New Users'.
- Series:** A dashed box with the text 'Drag & drop data from Dictionary'.
- Expression:** A text box containing 'Sum([SiteStatistics.New U' with a dropdown arrow.
- Icon:** A row of icons including a bar chart, a line graph, and a red circle with a white checkmark, which is being clicked by a mouse cursor.

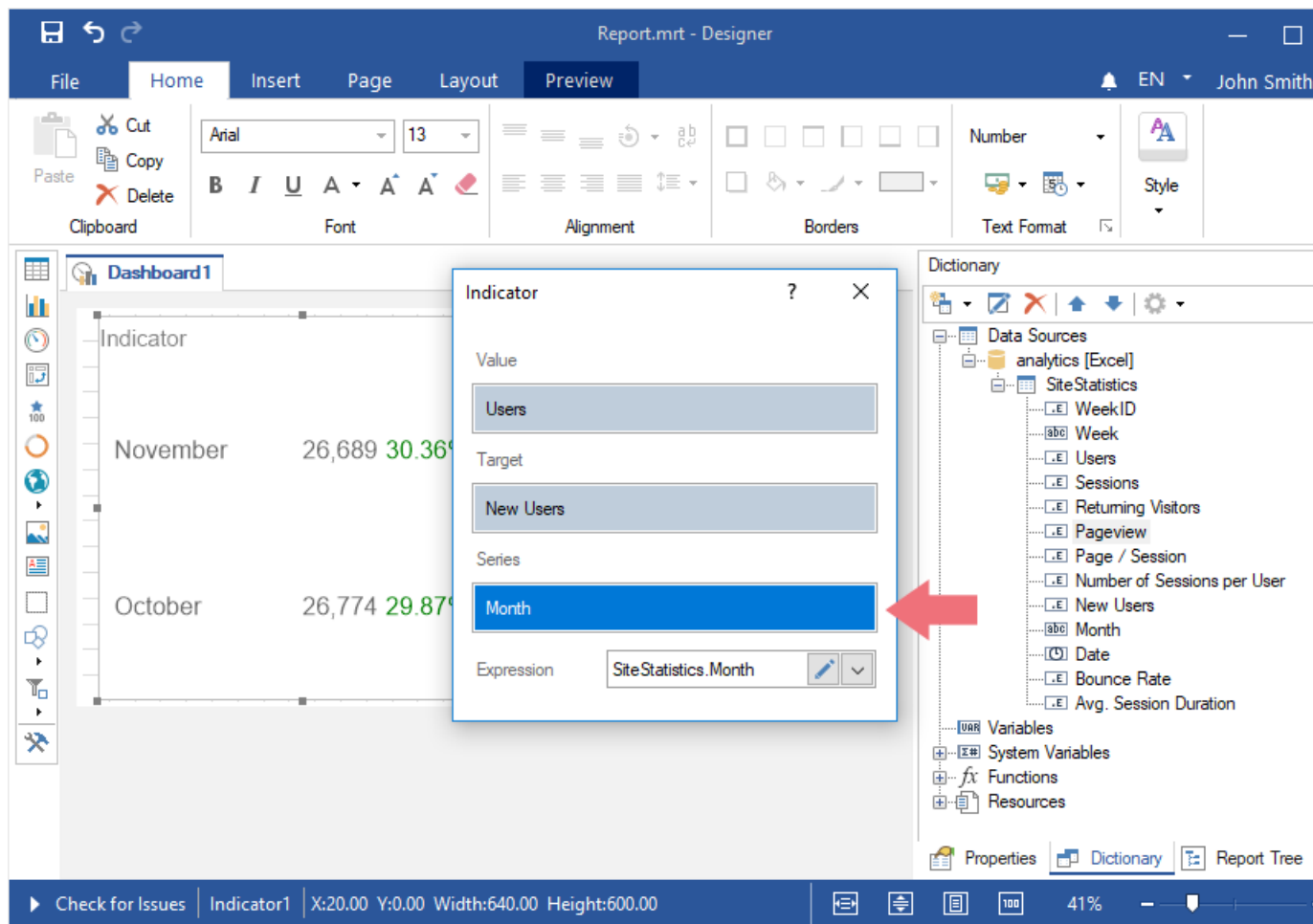
Step 13: Select an image for the indicator value;



The icon selection panel shows a list of categories with their respective icons:

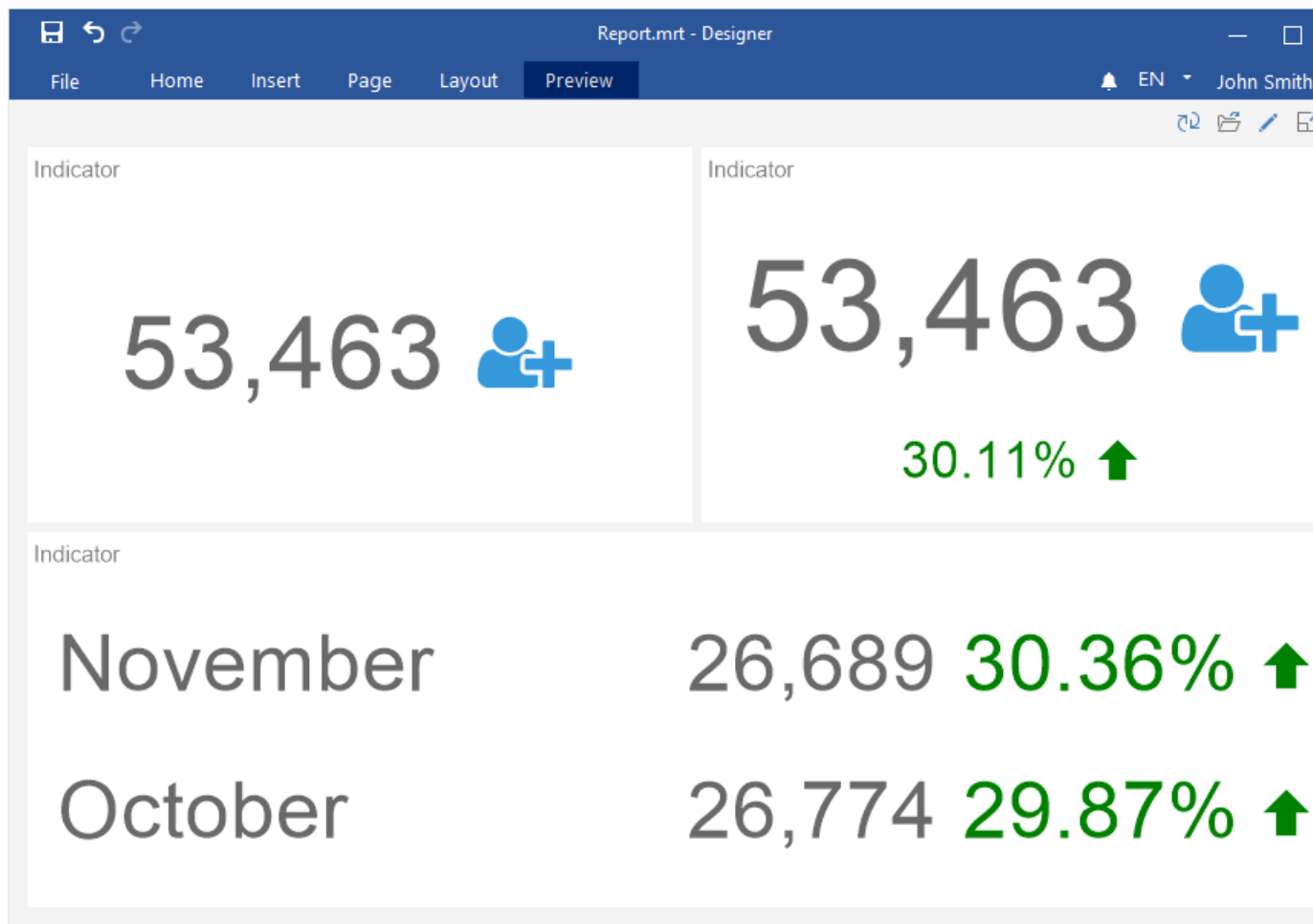
- Application:** A row of 12 icons representing various applications.
- Transportation:** A row of 3 icons representing different modes of transport.
- Gender:** A row of 4 icons representing different gender categories.
- Control:** A row of 5 icons representing different control elements.
- Currency:** A row of 1 icon representing a dollar sign.
- Text Editor:** A row of 3 icons representing different text editor styles.

Step 14: Drag the data column into the **Series** field, if it is necessary to display an indicator for each value of the series;



Step 15: Close the editor of the **Indicator** element;

Step 16: Go to the **Preview**.



3.11 Dashboard with Progress

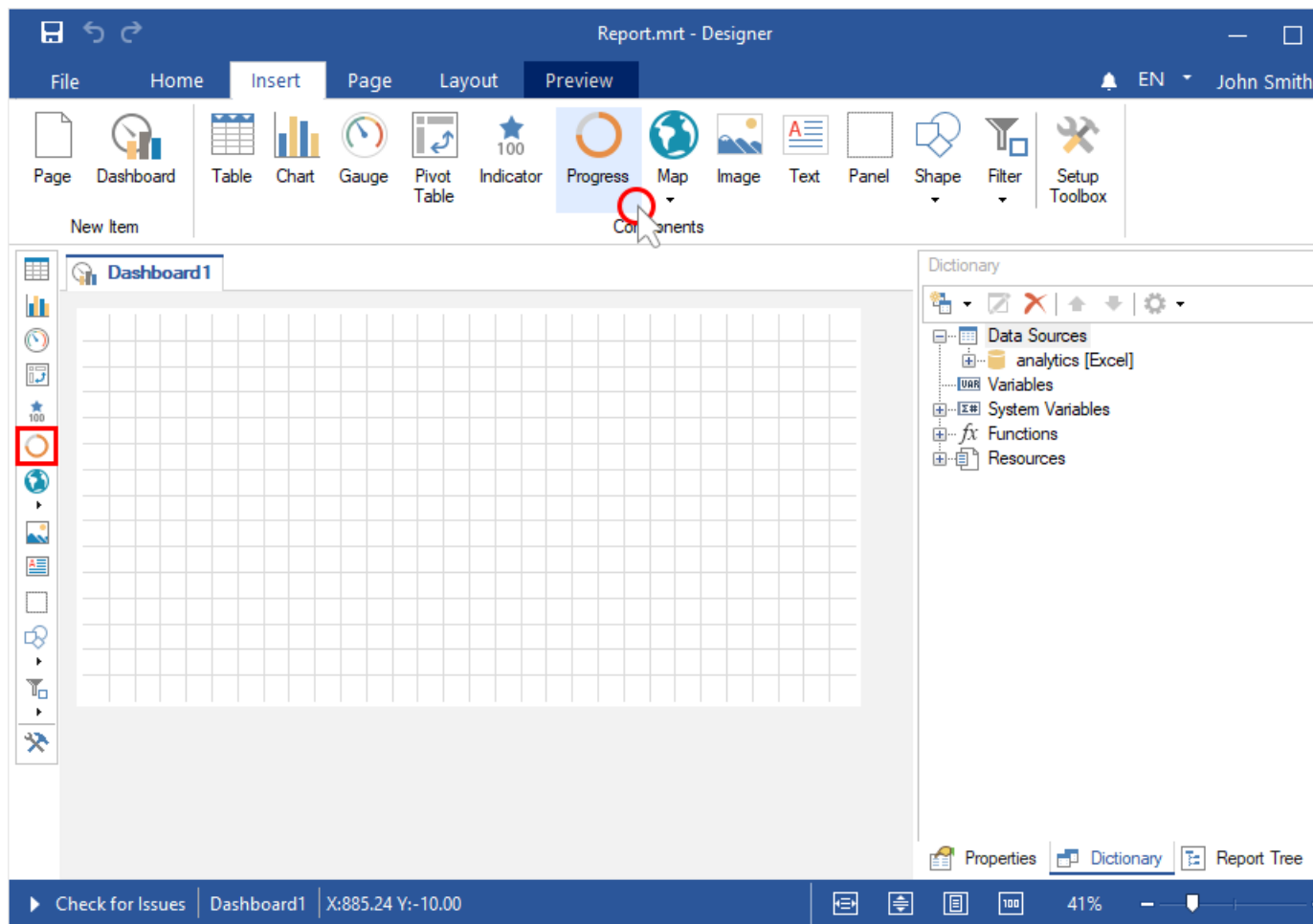
To create a dashboard with the [Progress](#) element, you should do the following:

Step 1: [Run the report designer](#);

Step 2: [Create a dashboard](#) or [add it to a current report](#);

Step 3: [Connect data](#);

Step 4: Select the **Indicator** element in the toolbox of the report designer or on the **Insert** tab;

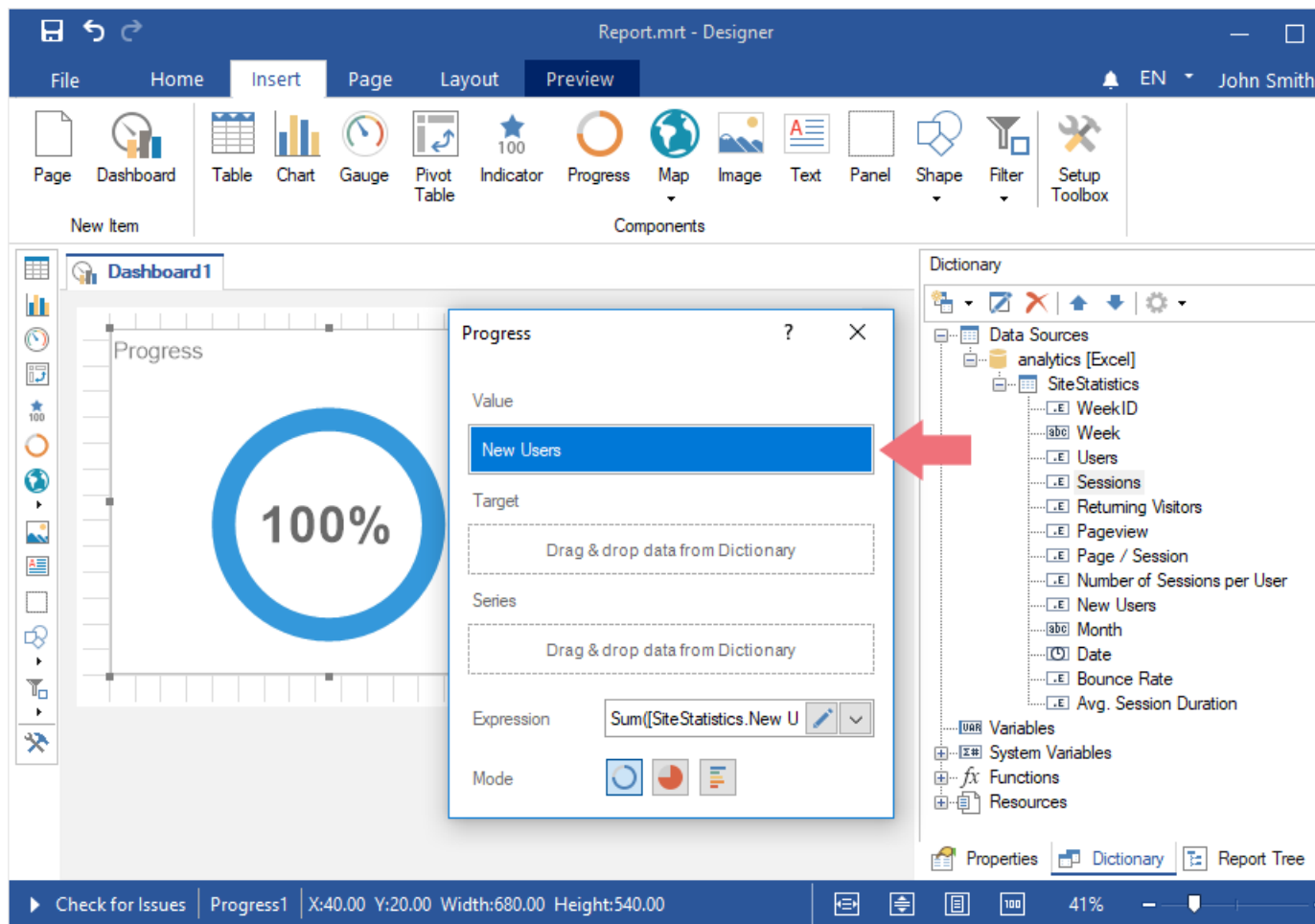


Step 5: Put the item on the dashboard panel;

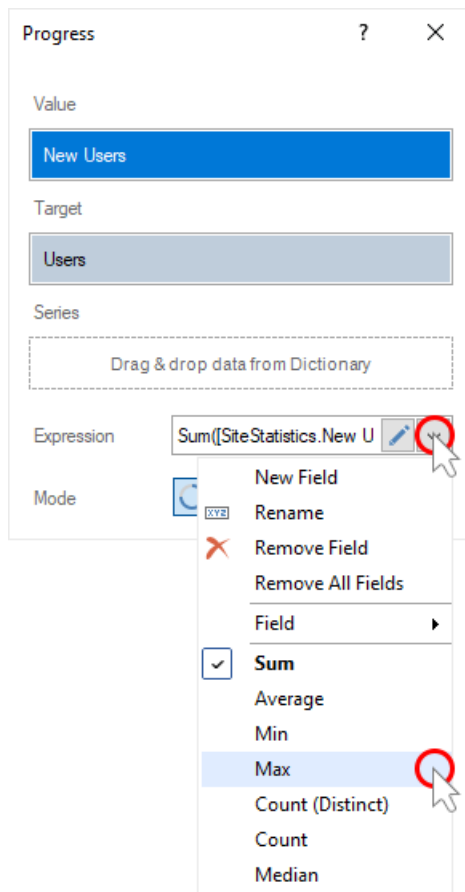
Step 6: If the item editor did not open, double-click on the progress;

Step 7: Drag the required data columns from the data dictionary;

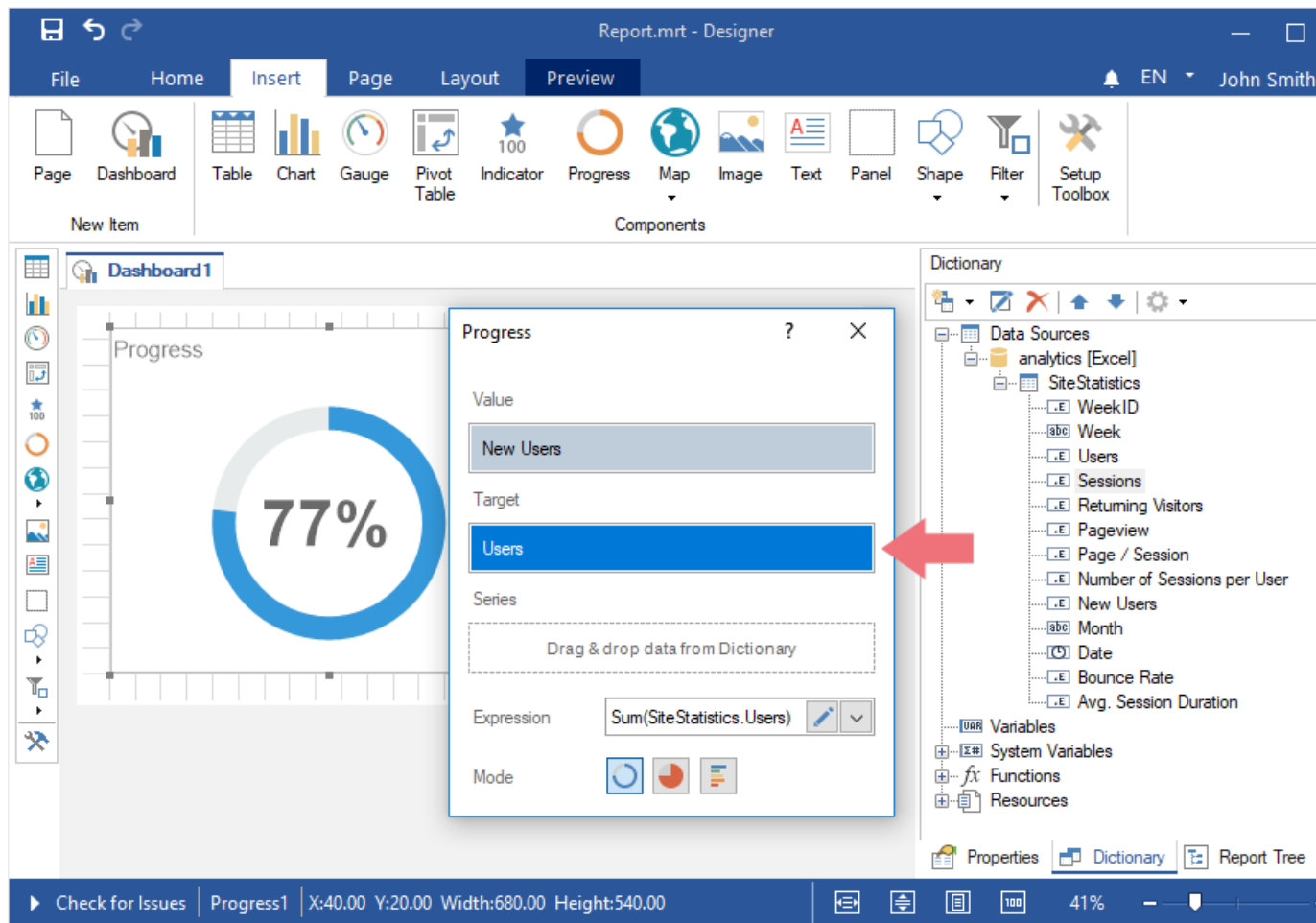
Step 8: By default, columns will be added to the **Values** field of the progress;



Step 9: Click the **Browse** button in the **Expression** field and select the function of aggregating values, if necessary. By default, the **Sum()** function is used. It sums the values from the specified data column.

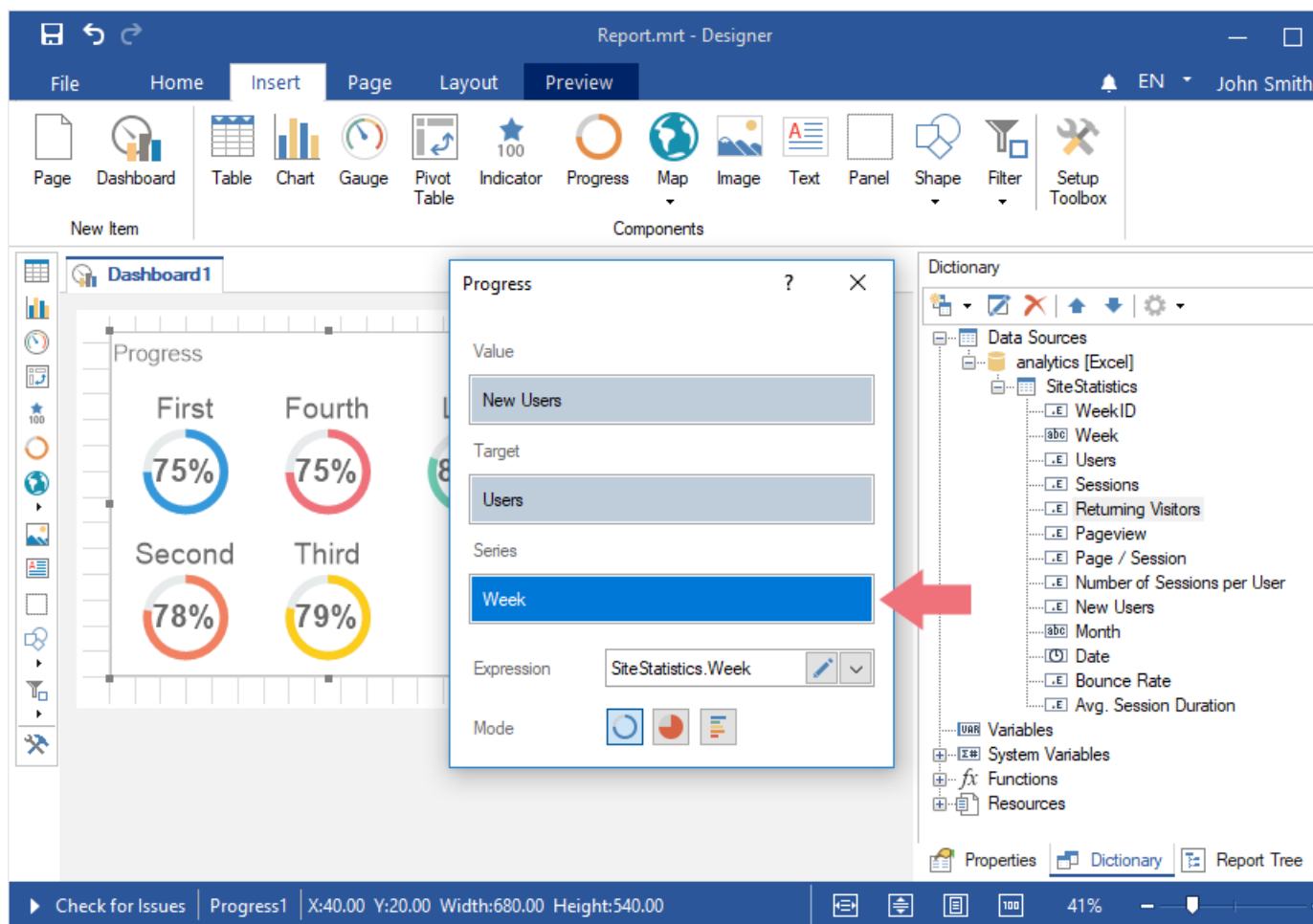


Step 10: Add a column to the **Target** field to calculate the value of the current element;

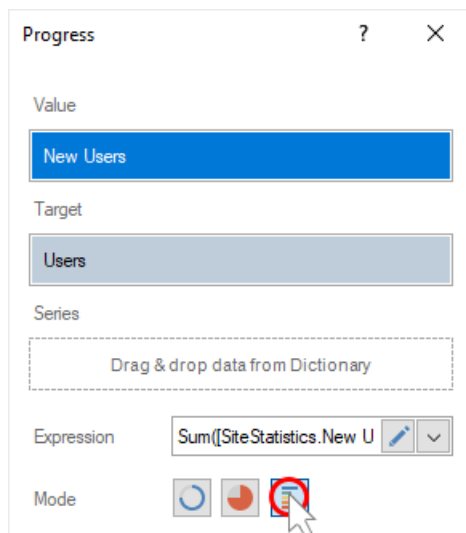


Step 11: Click the **Browse** button in the **Expression** field and select the function of aggregating values, if necessary. By default, the **Sum()** function is used, which sums the values from the specified data column.

Step 12: Drag the data column into the **Series** field if it is necessary to display the progress for each value of the series;

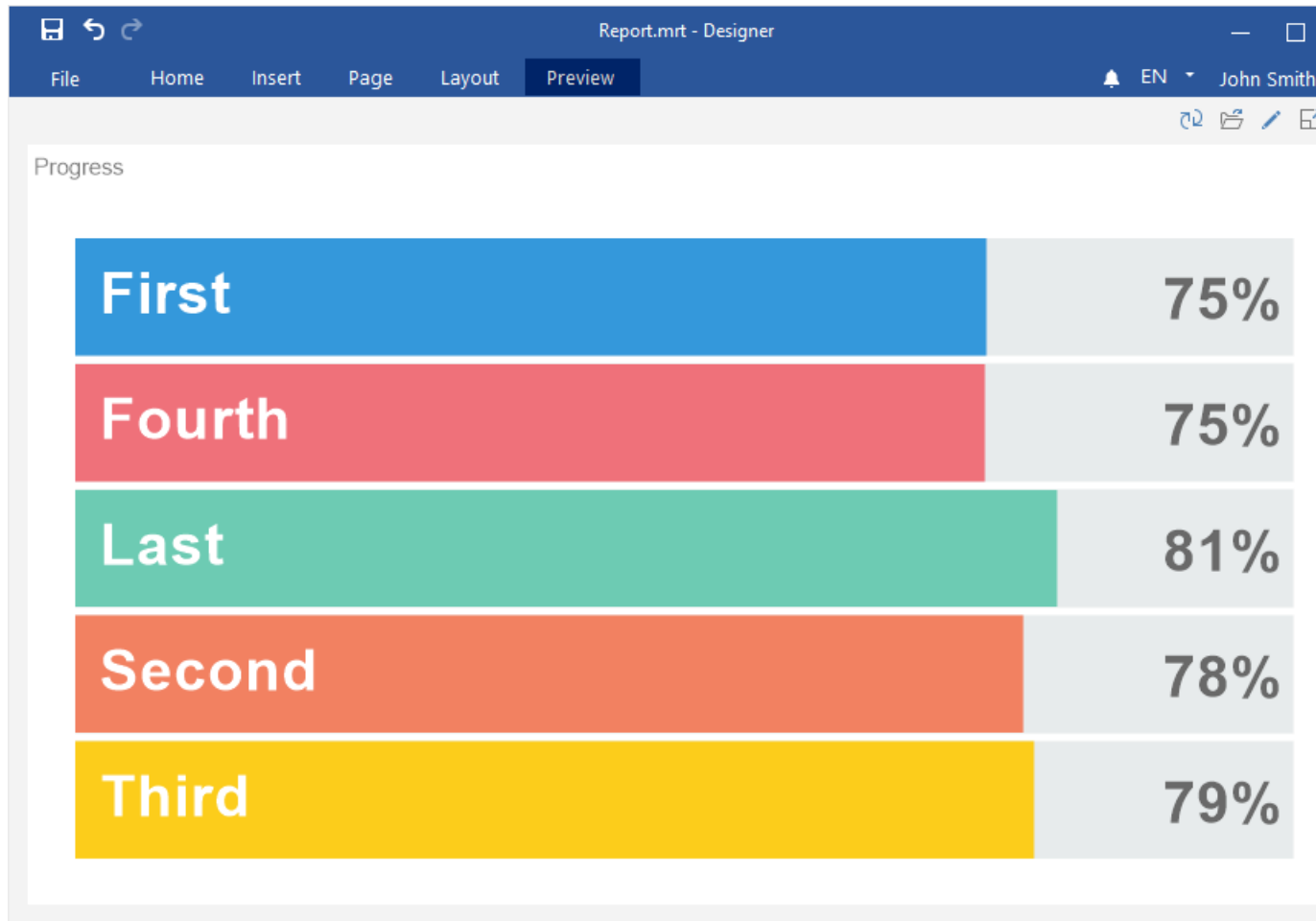


Step 13: Change the type of **Progress** using the controls;



Step 14: Close the **Progress** editor;

Step 15: Go to the **Preview**.



3.12 Dashboard with Region Map

This chapter will cover issues such as:

- › [Creating a Region Map](#);
- › [Enabling short signatures](#);
- › [Disabling values](#);
- › [Color each](#);
- › [Heatmap](#);
- › [Map with a group](#);
- › [Heatmap with a group](#).

Creating a Region Map

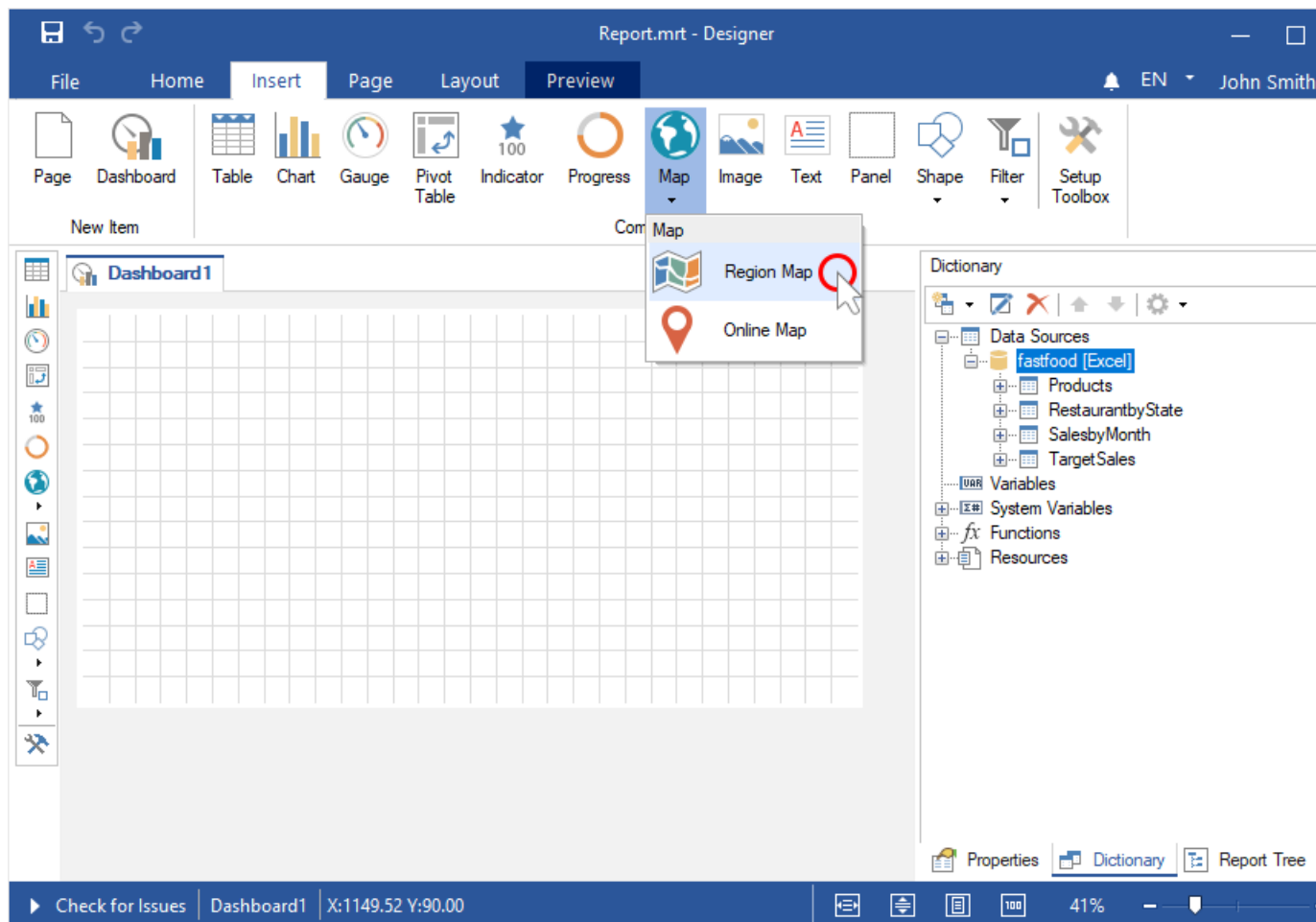
To create a dashboard panel with the [Region Map](#) element, you should do the following:

Step 1: [Run the report designer](#);

Step 2: [Create a dashboard](#) or [add it to a current report](#);

Step 3: [Connect data](#);

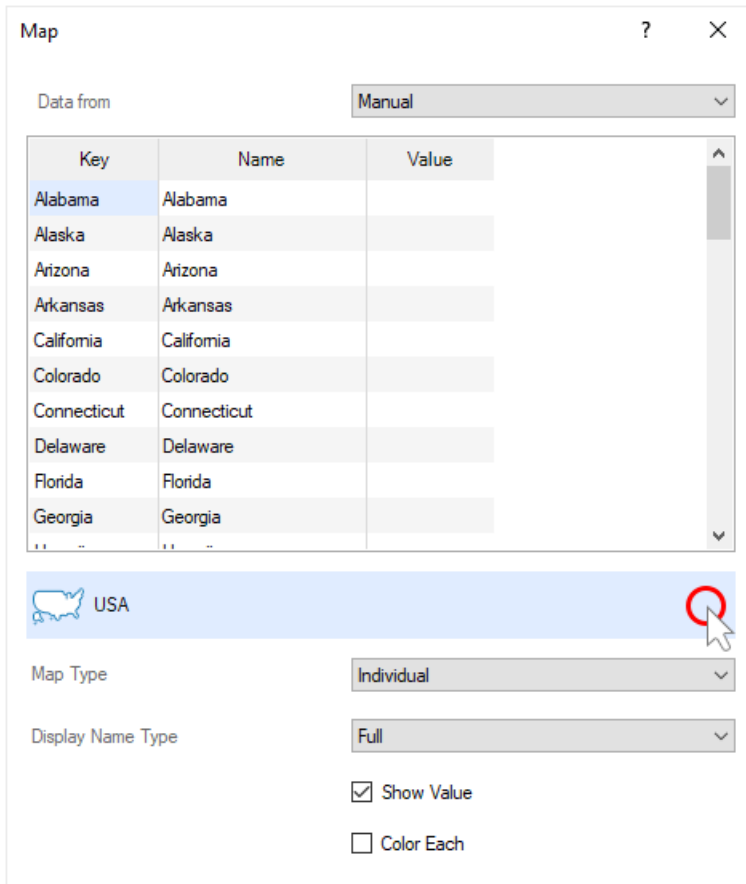
Step 4: Select the **Region Map** element in the toolbox of the report designer or on the **Insert** tab;



Step 5: Put the item on the dashboard panel;

Step 6: If the item editor did not open, double-click on the region map;

Step 7: Click the control to open the menu with a list of maps;



Key	Name	Value
Alabama	Alabama	
Alaska	Alaska	
Arizona	Arizona	
Arkansas	Arkansas	
California	California	
Colorado	Colorado	
Connecticut	Connecticut	
Delaware	Delaware	
Florida	Florida	
Georgia	Georgia	

USA

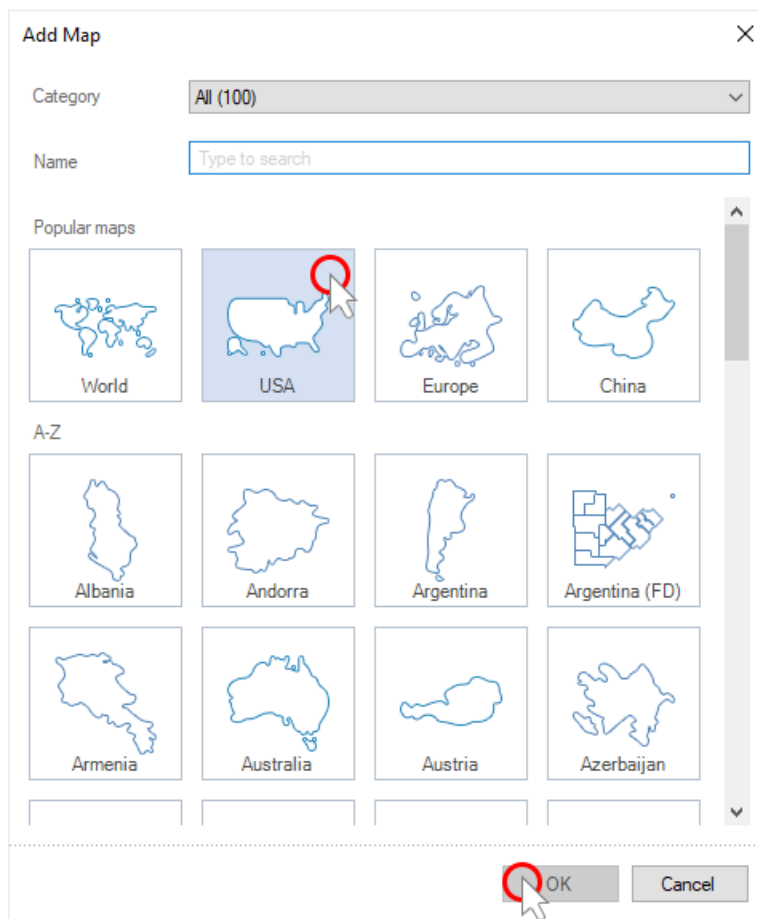
Map Type: Individual

Display Name Type: Full

☒ Show Value

☐ Color Each

Step 8: Select the required map and click the **OK** button in this menu;



Step 9: Enter manually the values for the geographic objects of the map;

Map ? X

Data from Manual

Key	Name	Value
Alabama	Alabama	5
Alaska	Alaska	12
Arizona	Arizona	78
Arkansas	Arkansas	96
California	California	5
Colorado	Colorado	4565
Connecticut	Connecticut	445
Delaware	Delaware	122
Florida	Florida	133
Georgia	Georgia	155

USA

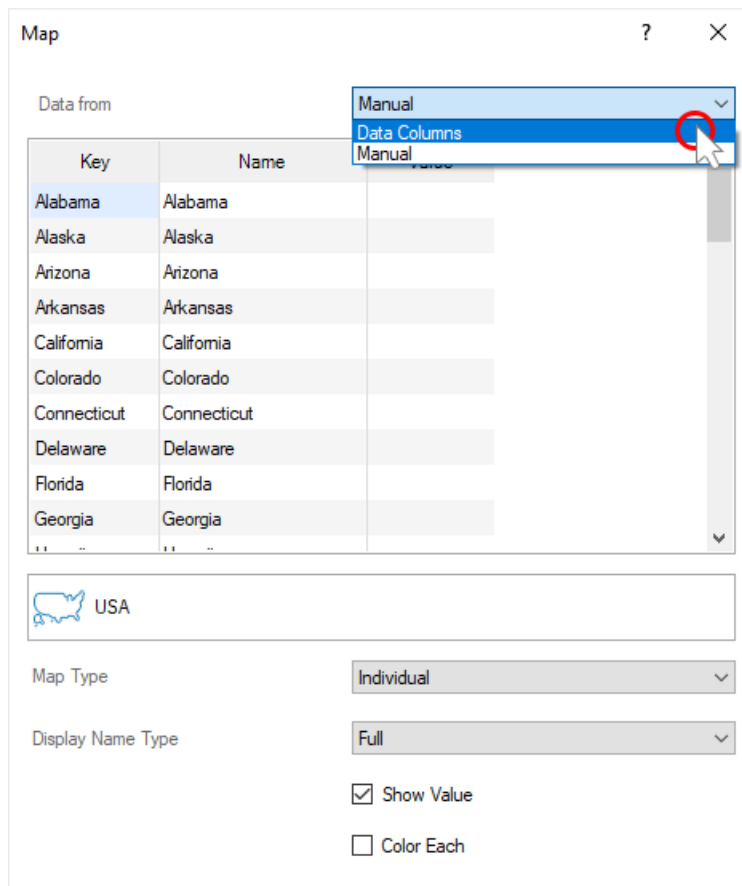
Map Type Individual

Display Name Type Full

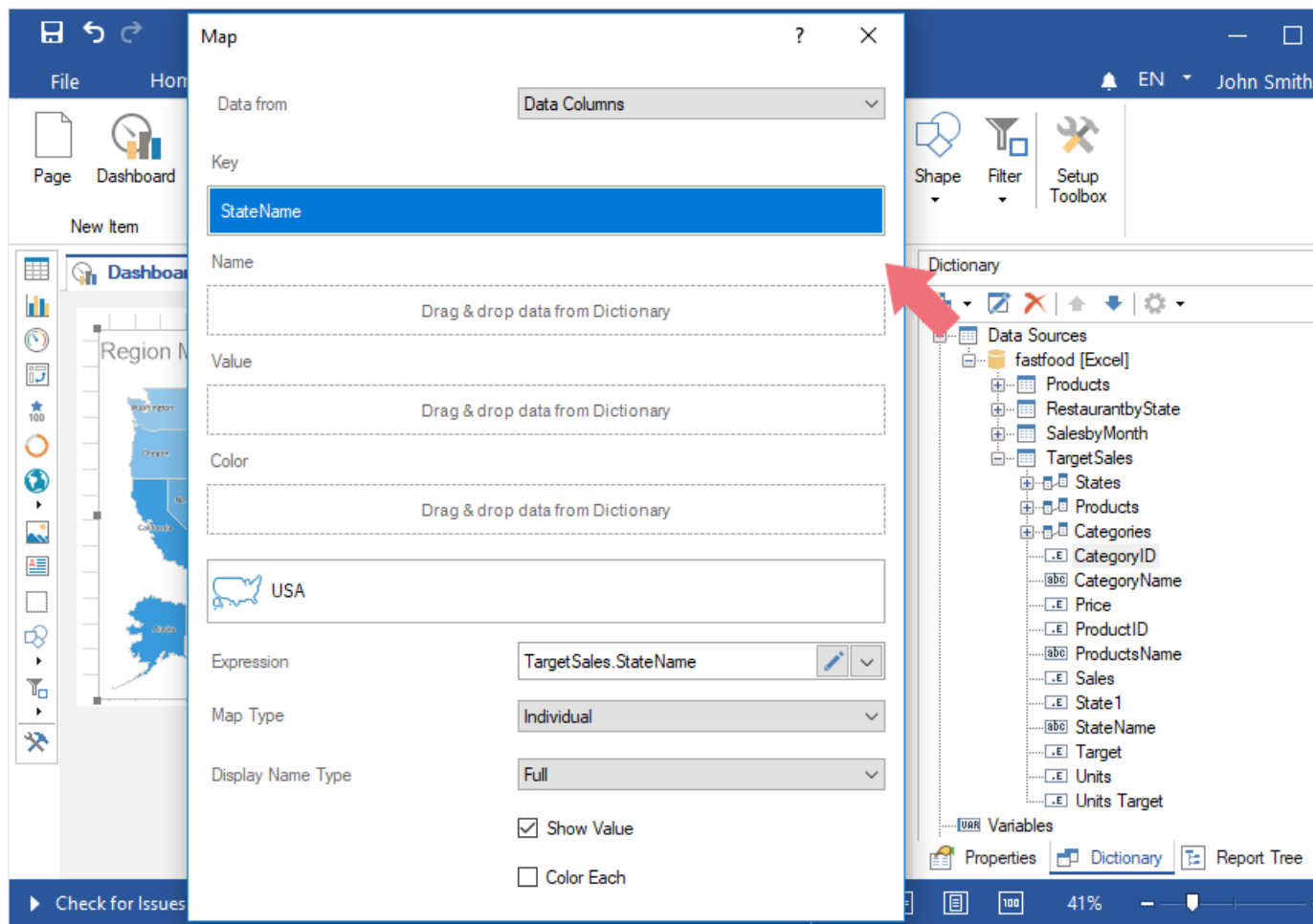
☒ Show Value

☐ Color Each

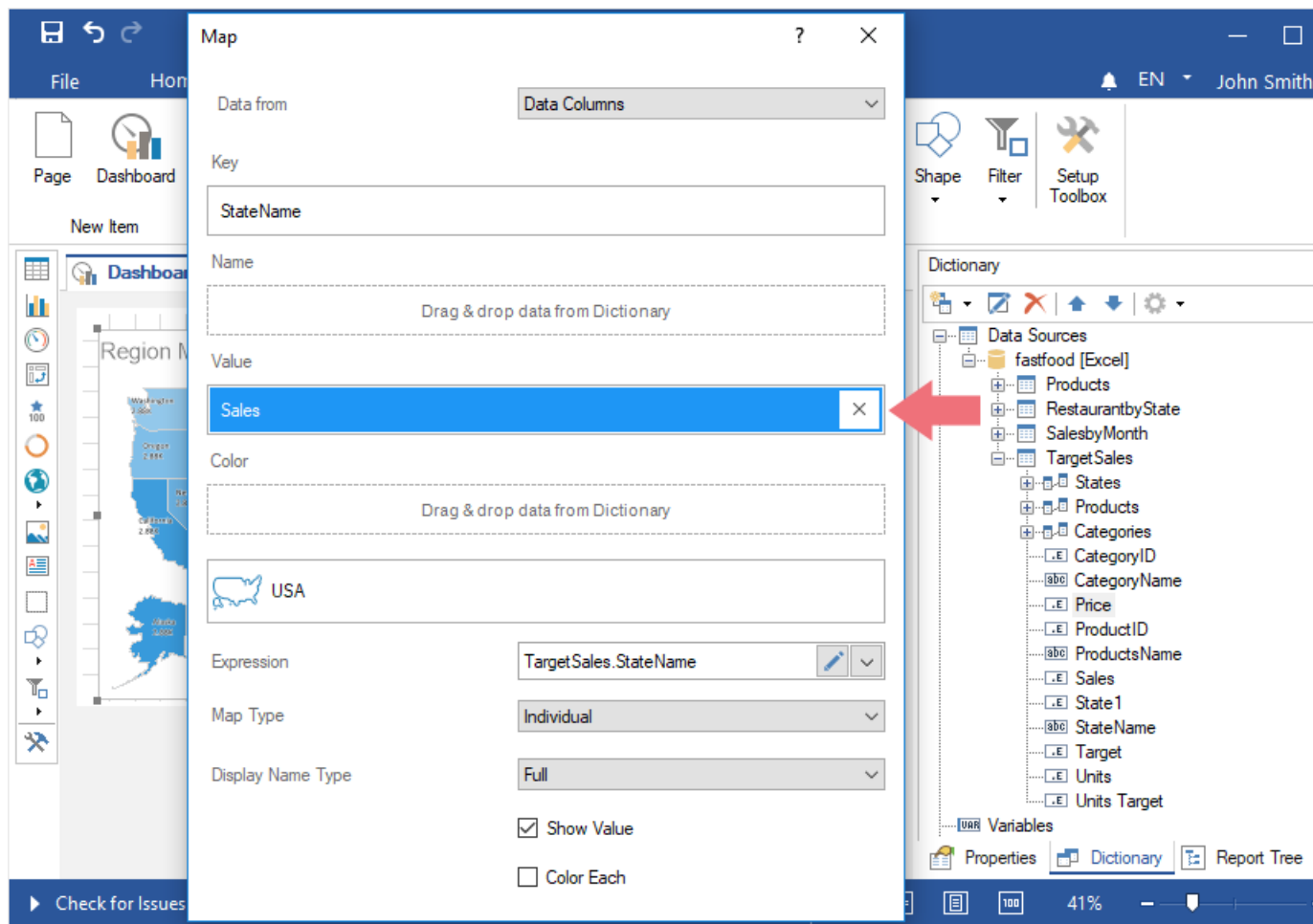
Step 10: Or set the **Data from** parameter to the **Data Columns** values;



Step 11: Drag the data column with the keys of geographic objects in the **Key** field;



Step 12: Drag the data column with the values in the **Value** field;

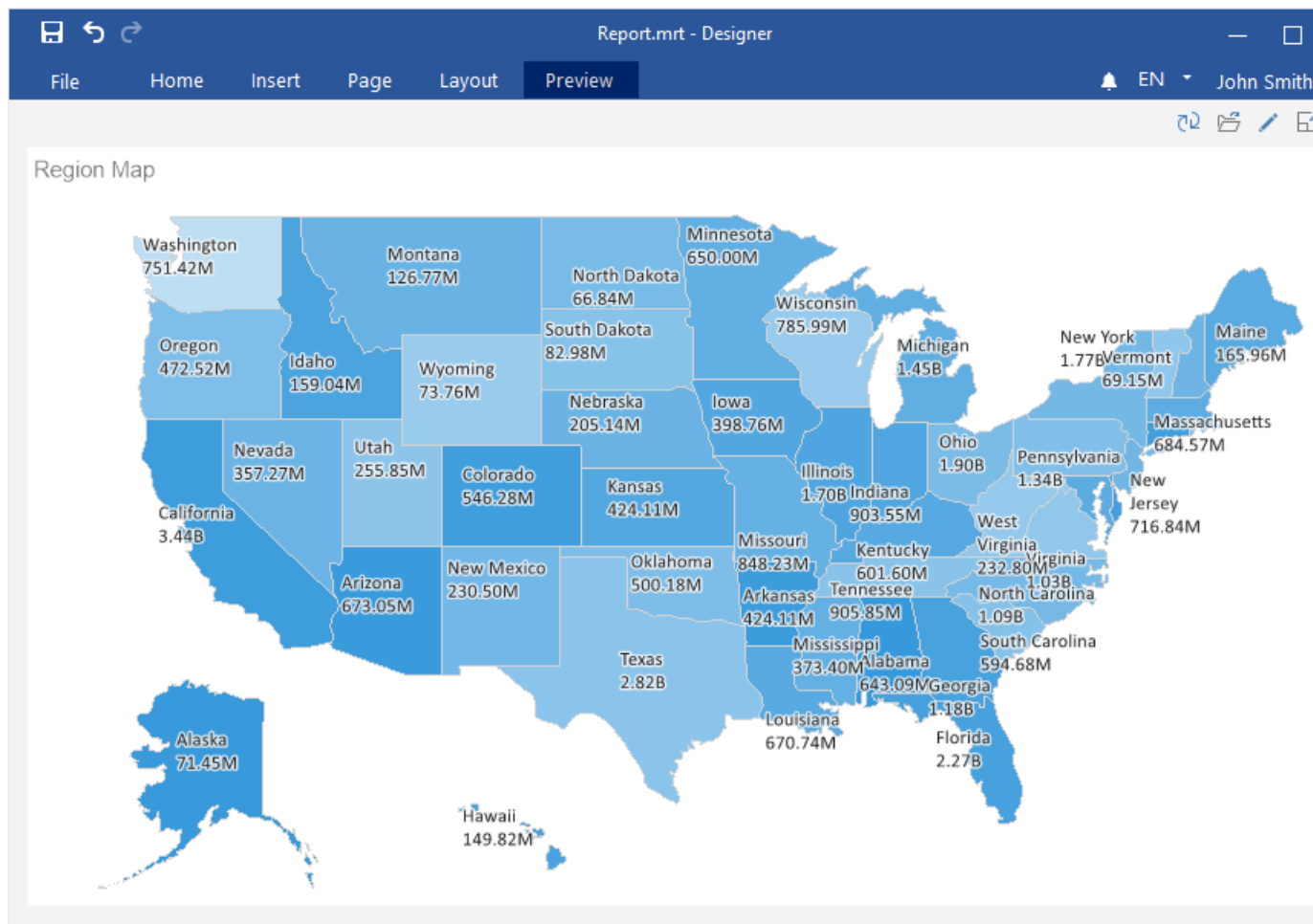


Step 13: You can also specify a data column with the names of geographic objects. If this data column is not specified, then the names of the geographic objects will be their keys.

Step 14: You can specify a data column with colors for geographic objects. If this data column is not specified, then geographic objects use color from the style. When you set a data column with colors of geographic objects, you should also enable the [Color Each](#) option.

Step 15: Close the map editor;

Step 16: Go to the **Preview**.



Short signatures

You can display or hide the names of geographic objects in a short form (ISO2). Do the following to achieve this:

Step 1: In the report designer, double-click on the **Region map** element to call the editor;

Step 2: For the **Display Name Type** parameter, set the value to **None** if you want to disable displaying signatures, or **Short** if you want to display short names of geographic objects.

Map

Data from: Data Columns

Key: State

Name: Drag & drop data from Dictionary

Value: McDonald's

Color: Drag & drop data from Dictionary

USA

Expression: Sum([SalesbyMonth.McDonald's])

Map Type: Individual

Display Name Type: Short (selected), None, Full, Short

☐ Color Each

Disabling values

To disable the display of values on the geographic objects of the map, you should:

Step 1: In the report designer, double-click on the **Region Map** element to call the editor;

Step 2: Uncheck the **Show Values** option.

Map

Data from: Data Columns

Key: State

Name: Drag & drop data from Dictionary

Value: McDonald's

Color: Drag & drop data from Dictionary

USA

Expression: Sum([SalesbyMonth.McDonald's])

Map Type: Individual

Display Name Type: Short

☒ Show Value

☐ Color Each

Color each

Each geographic object on the map can have an individual shade. Do the following to achieve this:

Step 1: In the report designer, double-click on the **Region Map** element to call the editor;

Step 2: Enable the **Color Each** option;

Map ? X

Data from Data Columns

Key

State

Name

Drag & drop data from Dictionary

Value

McDonald's

Color

Drag & drop data from Dictionary

USA

Expression Sum([SalesbyMonth.McDonald's])

Map Type Individual

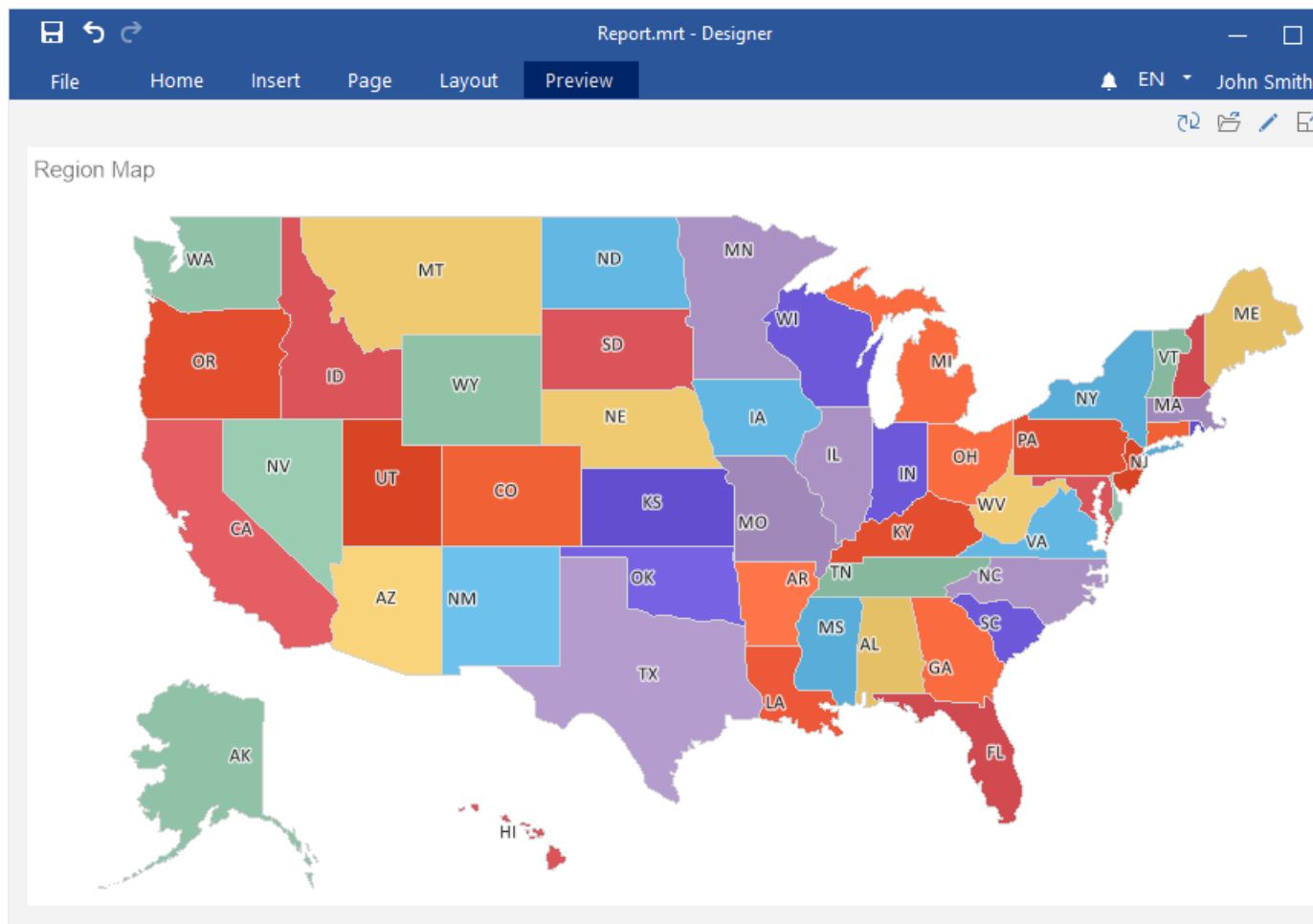
Display Name Type Short

☐ Show Value

☒ Color Each

Step 3: Close the map editor;

Step 4: Go to the **Preview**.



Information

Also, this parameter should be enabled if a data column with the colors of geographic objects in the **Color** field is specified.

Heatmap

To change the type of a regional map from individual to heatmap, you should:

Step 1: In the report designer, double-click on the **Region Map** element to call the editor;

Step 2: Set the **Heatmap** value for the **Map Type** parameter;

Map ? X

Data from: Data Columns

Key: State

Name: Drag & drop data from Dictionary

Value: Sales

Color: Drag & drop data from Dictionary

USA

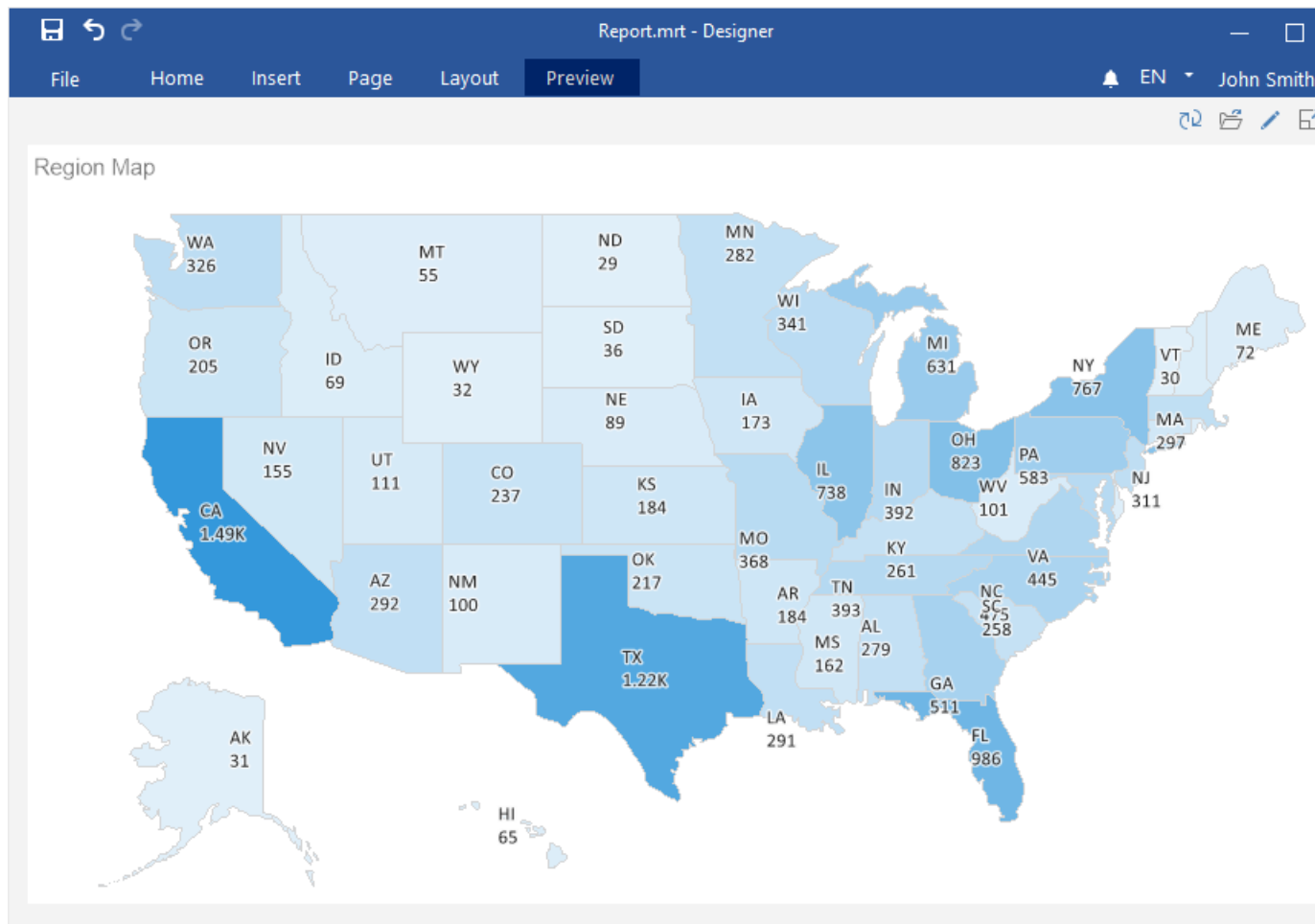
Expression: Sum(TargetSales.Sales)

Map Type: Individual, Individual, Group, Heatmap, Heatmap With Group

Display Name Type: ☒ Show Value, ☐ Color Each

Step 3: Close the Map editor;

Step 4: Go to the **Preview**.



Information

To create a heatmap, the values of geographic objects should be specified manually or from data columns.

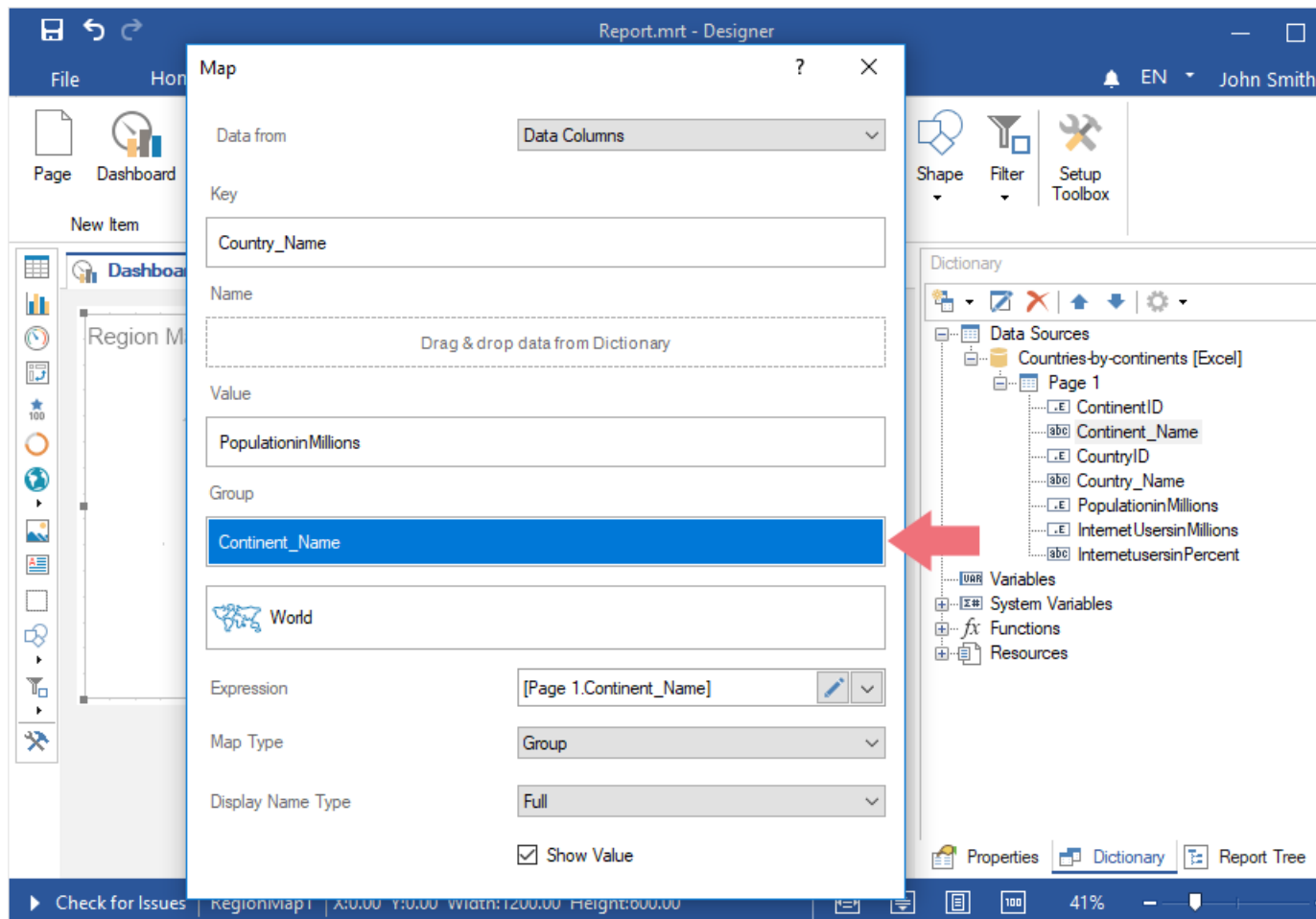
A map with a group

Geographic objects can be grouped on the map for any value. To do this:

Step 1: In the report designer, double-click on the **Region map** element to call the editor;

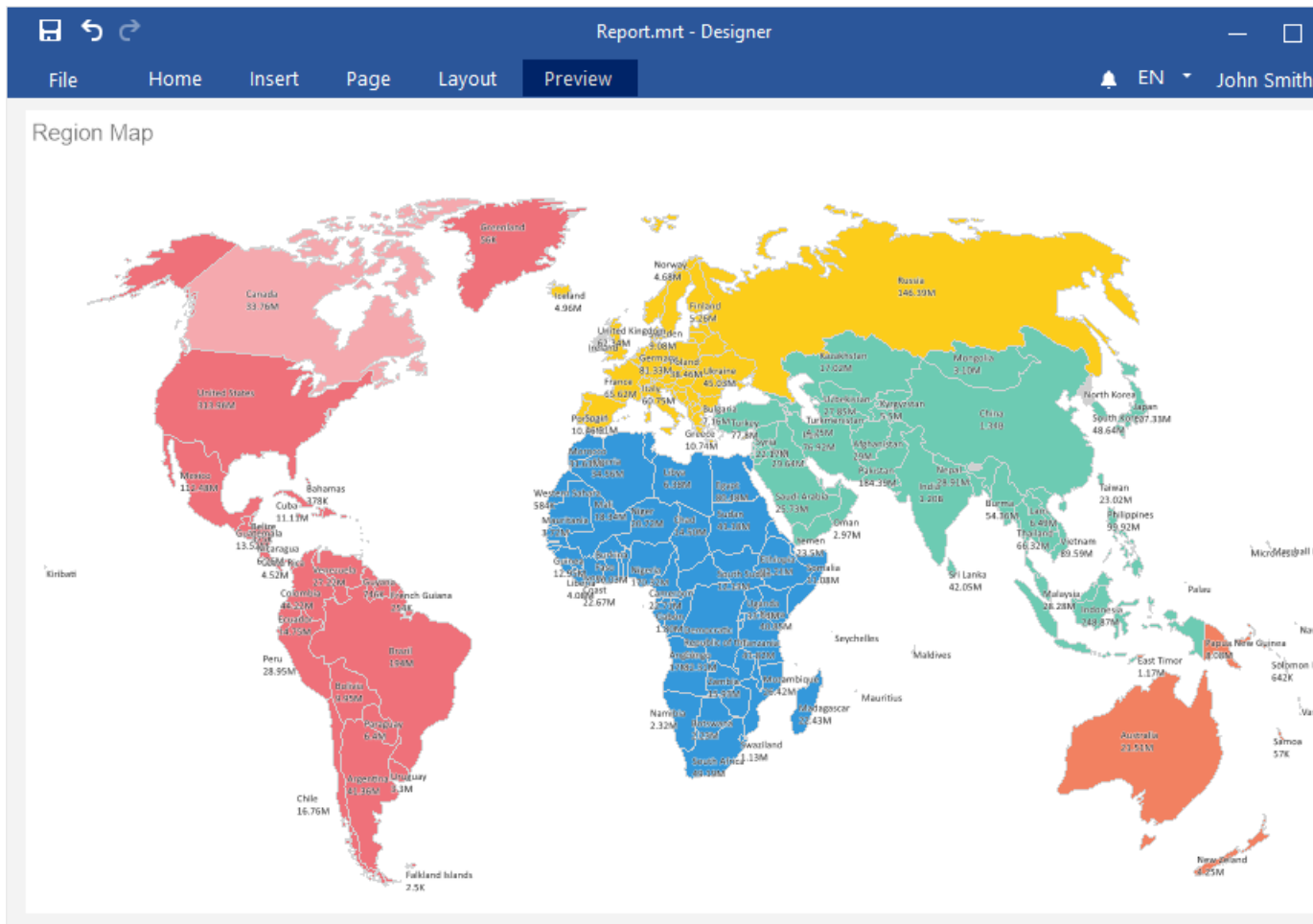
Step 2: Set the **Group** value of the **Map Type** parameter;

Step 3: Set the data column by the values of which geographic objects will be grouped in the **Group** field;



Step 4: Close the Map editor;

Step 5: Go to the **Preview**.



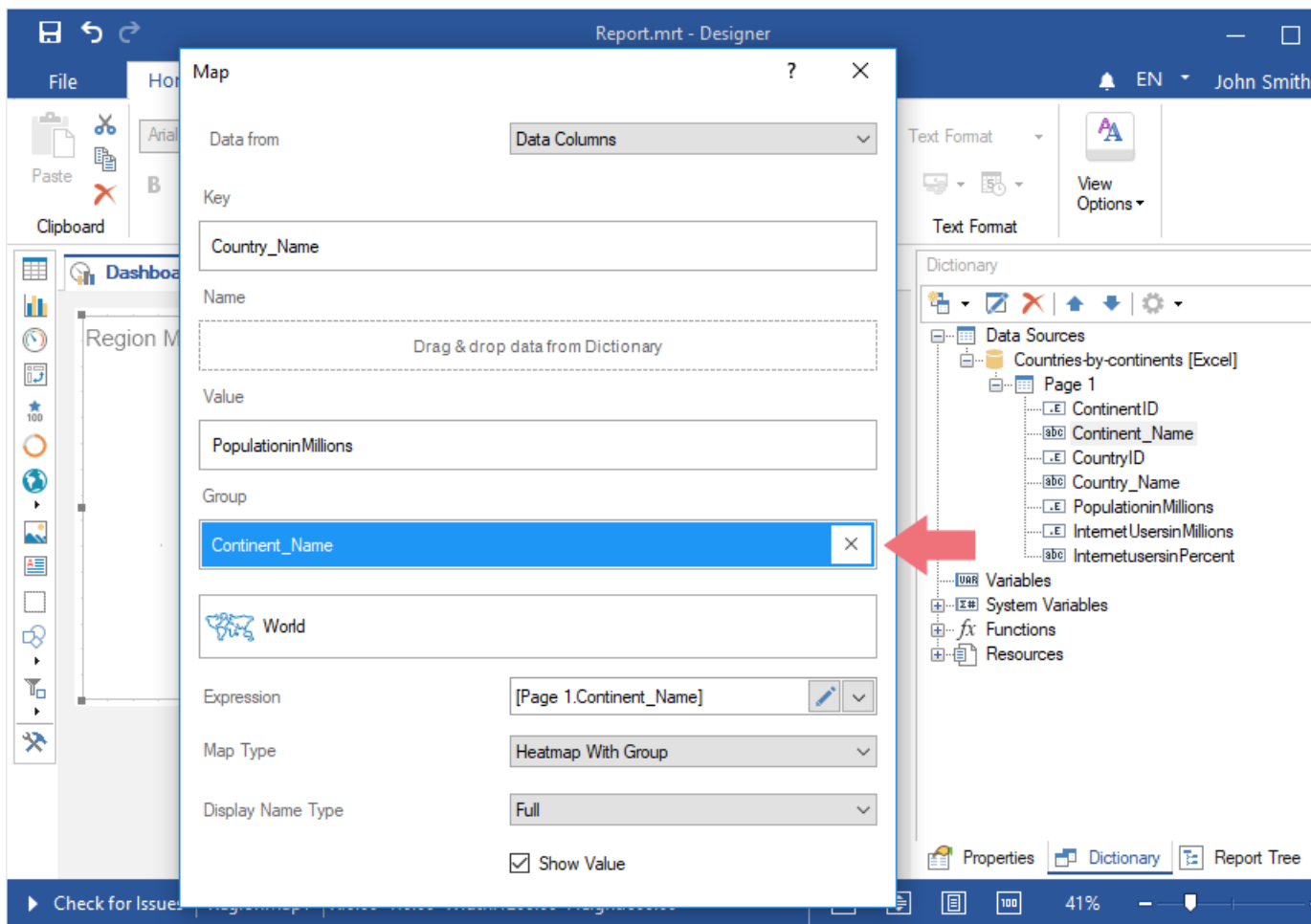
Heatmap with grouping

The geographic objects of the heatmap can be combined on the map for any value. To do this:

Step 1: Double-click on the **Region map** element in the report designer and call the editor;

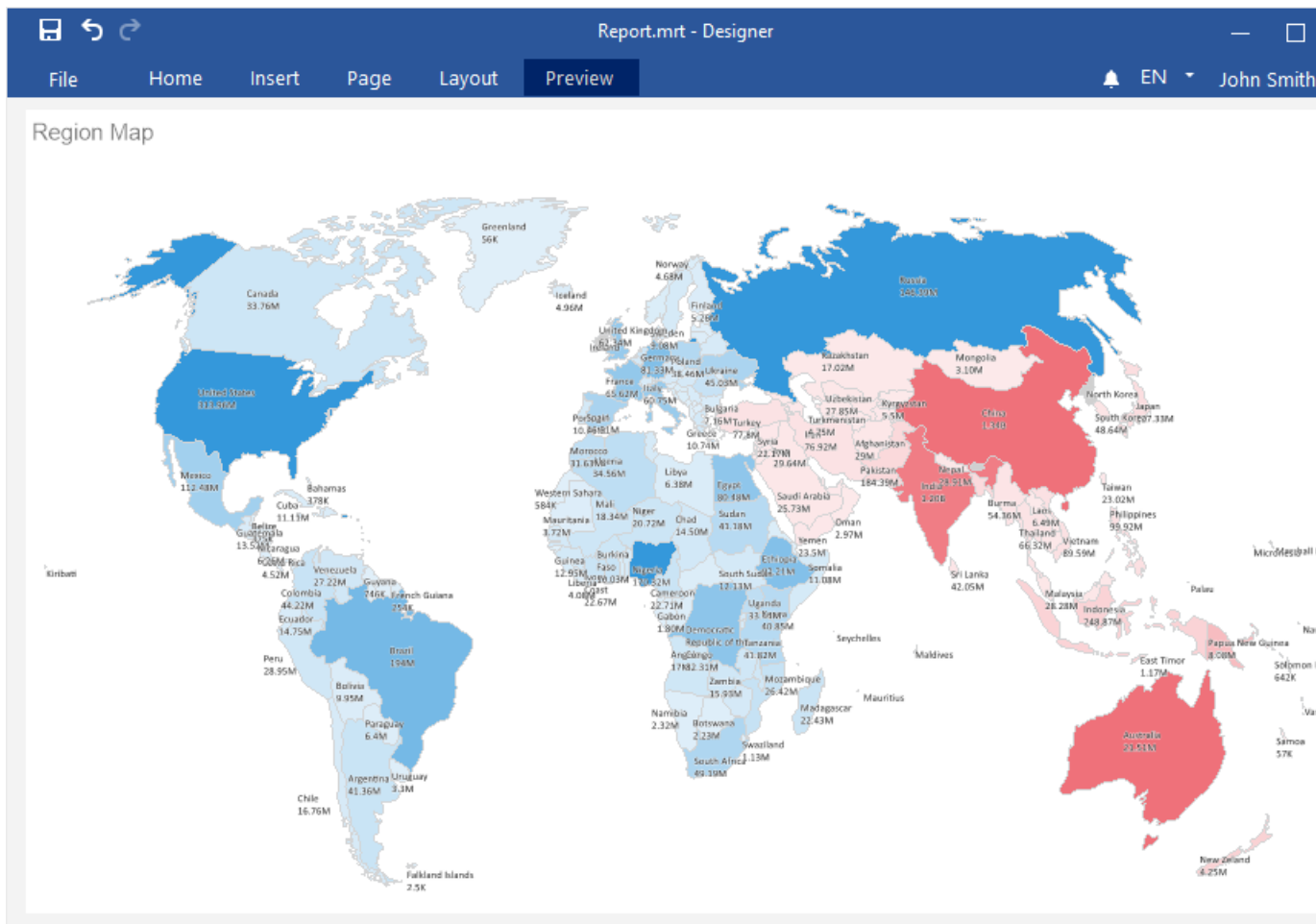
Step 2: Set the **Heatmap with Group** value for the **Map Type** parameter;

Step 3: Specify the data column by the values of which geographic objects will be grouped in the **Group** field;



Step 4: Close the Map editor;

Step 5: Go to the **Preview**.



3.13 Dashboard with Custom Region Map

In this chapter, you will find the following:

- [Adding a custom map;](#)
- [Custom map customization.](#)

Adding a custom map

When you create a dashboard, you can use [custom maps in the Region Map](#) element. Consider the example of adding a Haiti map to the list of regional maps. To achieve this, you should do the next steps:

Step 1: You should find the source of the map, which you need to integrate into the list of maps. For example, **Haiti.svg**.

Step 2: Open this file using the editor. In our case, using VSCode.

Step 3: Create a text file named **Haiti.txt** and open it in VSCode;

Information

Since the map file is created in the [JSON format](#), you should check the rules of its formatting.

Step 4: In the **Haiti.txt** file, add the **Name**, **Width**, and **Height** fields with the values. In the current example, the values are "Name": "Haiti", "Width": 700, "Height": 700.

```
"Name": "Haiti",  
"Width": 700,  
"Height": 700
```

Step 5: In the **Haiti.txt** file, add the Paths array and go to the creation of geographic map objects. To create a geographic object, you should specify the **Key**, **EnglishName**, **Data**, **ISOCode** fields with values. Values for these fields can be taken from the source file **Haiti.svg**.

Step 6: Create the **Key** field in the **Haiti.txt** file and copy the value from the source file there. In the current source file Haiti.svg, you need to copy the value from the title field.

Information

Please note that the **Key** field cannot contain spaces, dashes, special characters, etc. The **Key** field can contain only Latin letters. So, if the source file contains invalid characters, then when copying the values, they must be deleted.

All values in the **Key** field must be unique. It is not allowed to use the same values in several geographic objects. Each geographic object must have its own value in the **Key** field.

Step 7: Create the **EnglishName** field in the **Haiti.txt** file and copy the value from the source file there. This is the name of the geographic objects that will be displayed. Unlike the **Key** field, the value of this field can contain various characters.

Step 8: Create the **Data** field in the **Haiti.txt** file and copy the value from the source file there. Copy the value from the id field in the current **Haiti.svg** source file.

Step 9: Create the **ISOCode** field in the **Haiti.txt** file and copy the value from the source file there. Copy the value from the id field in the current **Haiti.svg** source file.

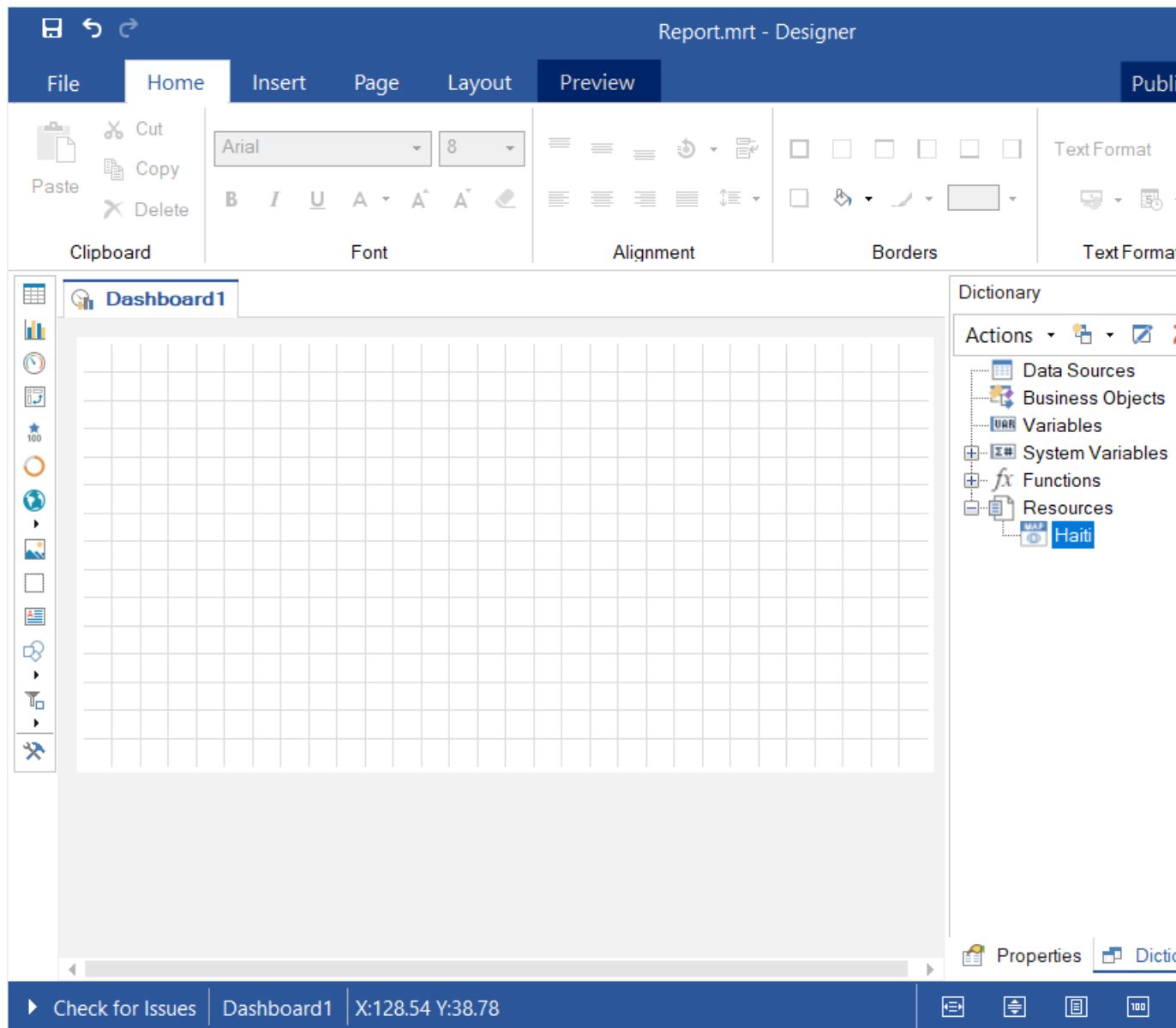
```
{
  "Name": "Haiti",
  "Width": 700,
  "Height": 700,
  "Paths": [
    {
      "Key": "Ouest",
      "EnglishName": "Ouest",
      "Data": "M411.1,359.5 L408.5,360.6 L406.7,359.0 L404.5,354.4 L402.4,352.6 L394.9,351.8 L372.9,347.2
L365.4,346.7 L357.5,344.8 L335.6,331.1 L313.6,325.4 L307.7,321.6 L302.6,314.6 L298.0,311.4
L294.9,308.1 L292.4,302.6 L293.2,299.7 L296.3,296.3 L300.5,293.4 L305.5,291.3 L310.8,290.6
L316.7,291.2 L351.0,305.1 L367.9,310.4 L386.8,319.7 L404.4,326.8 L411.7,335.5 L413.6,341.1
L414.6,347.8 L414.0,354.3 Z M627.0,400.2 L636.1,409.2 L631.3,406.2 L627.1,400.3 Z M664.9,360.8
L661.0,365.0 L656.1,373.8 L652.9,377.3 L643.4,380.7 L624.8,377.6 L615.7,379.7 L612.4,382.2
L611.4,372.2 L608.3,368.0 L601.2,374.5 L598.2,382.4 L599.4,391.2 L605.3,400.2 L609.2,402.5
L614.4,404.1 L618.9,406.6 L621.0,411.6 L623.2,413.8 L628.3,413.6 L637.1,410.6 L638.8,415.9
L635.7,418.4 L634.8,421.3 L636.4,426.0 L640.1,428.0 L649.8,430.3 L651.9,432.1 L657.8,439.8
L667.2,445.8 L680.6,450.6 L687.0,455.6 L684.2,460.6 L662.4,464.8 L649.5,457.1 L632.8,456.1
L612.0,456.7 L590.5,452.2 L569.0,448.1 L548.0,449.8 L527.5,448.8 L521.0,441.0 L513.8,441.7
L502.5,436.2 L493.6,435.8 L485.5,439.7 L479.5,447.1 L477.0,449.1 L474.0,449.2 L468.0,451.9
L459.0,453.1 L456.2,455.5 L446.7,456.5 L441.2,461.5 L436.9,461.0 L433.0,458.9 L431.1,465.9
L444.3,421.4 L449.1,413.4 L453.1,404.2 L459.0,396.8 L466.8,394.9 L508.0,398.0 L510.5,395.0
L512.9,394.7 L520.2,402.0 L522.5,403.3 L526.9,402.1 L528.8,397.7 L529.3,391.7 L528.6,375.9
L529.0,373.0 L533.4,365.4 L532.0,362.3 L529.8,360.8 L518.5,355.4 L509.4,354.9 L506.5,354.0
L501.4,349.8 L496.9,344.5 L492.1,340.8 L486.1,341.6 L477.6,336.6 L475.5,334.3 L473.3,329.4
L460.4,310.0 L451.9,302.5 L446.7,299.3 L438.5,296.1 L441.9,291.7 L446.0,288.6 L461.7,289.0
L486.1,291.9 L492.2,291.6 L497.5,299.2 L510.2,304.3 L516.9,309.0 L522.8,314.9 L529.3,323.4
L537.5,328.3 L545.9,330.3 L553.4,335.3 L568.4,349.7 L587.3,355.8 L606.8,349.2 L626.6,345.2
L643.4,350.8 L653.7,353.3 L663.2,358.7 Z",
      "ISOCode": "HT-OU"
    }
  ]
}
```

Step 10: Add the required number of geographic objects of the map;

Step 11: After adding all the geographic objects, you should save the changes to the **Haiti.txt** file;

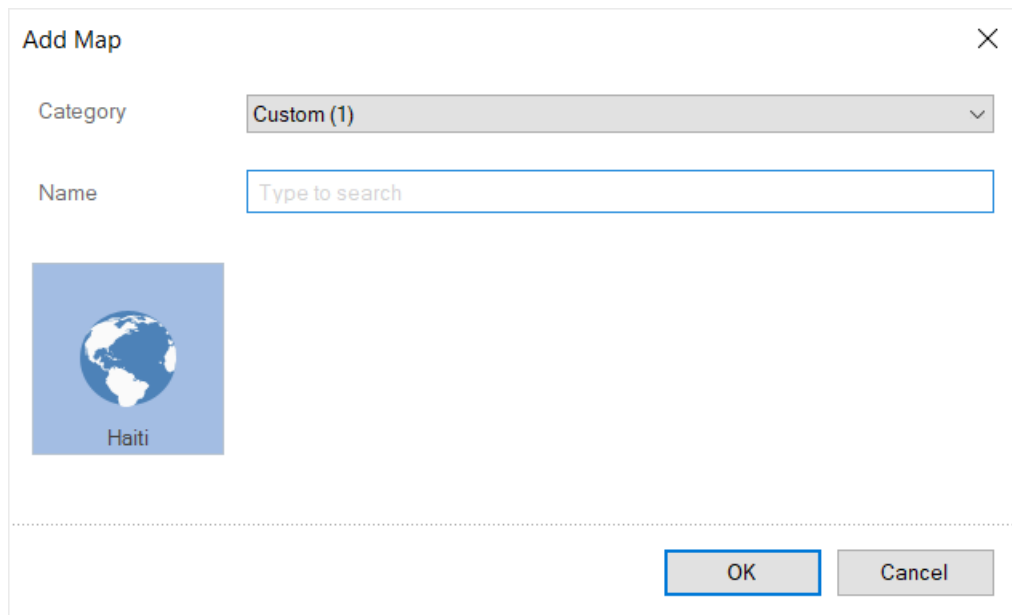
Step 12: Rename **Haiti.txt** to **Haiti.map**;

Step 13: Run the report designer and drag the **Haiti.map** file into the data dictionary;



Step 14: [Add the Region map element to the dashboard panel;](#)

Step 15: Click the **Custom** category in the map editor, select **Haiti** and click **OK**;

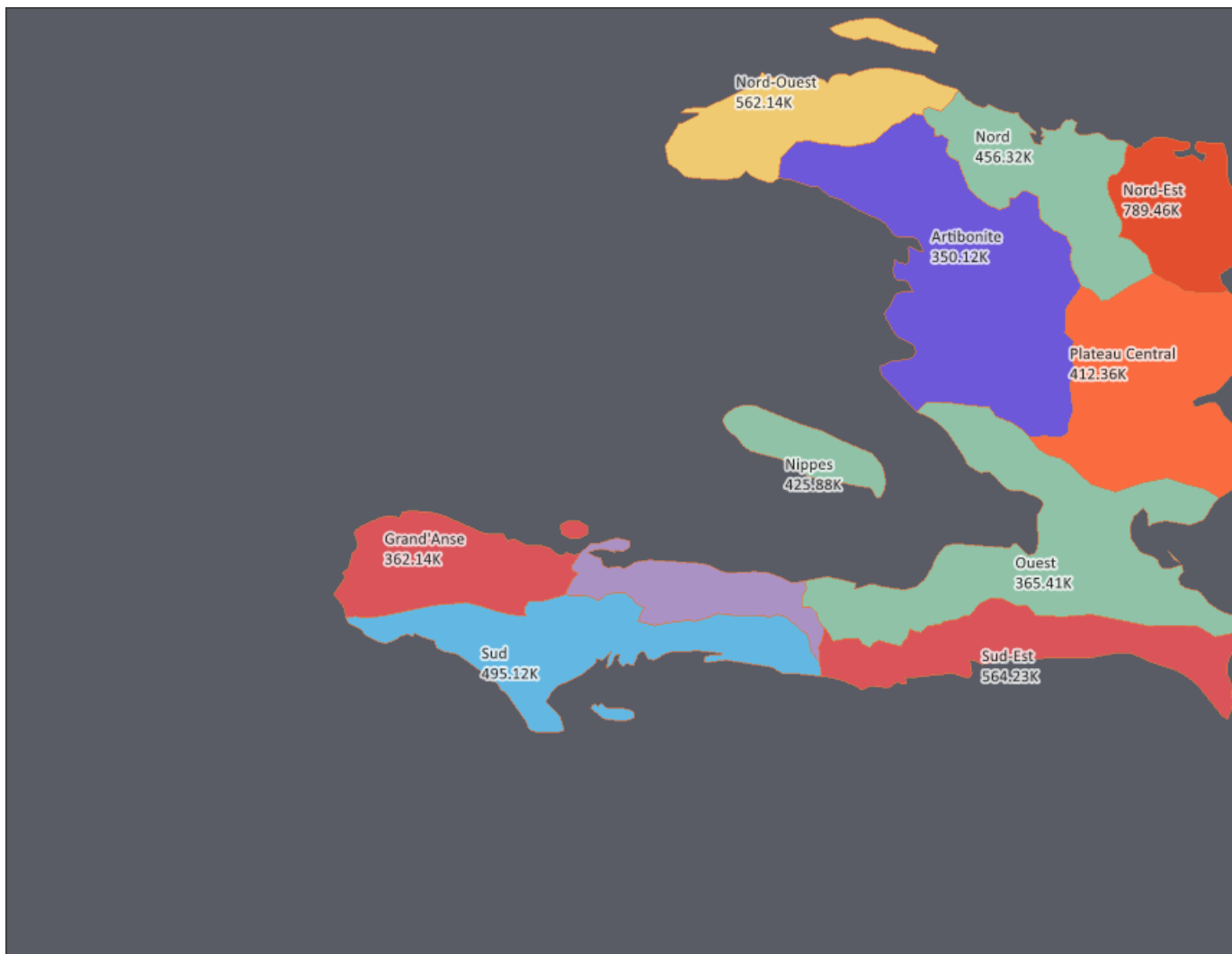


The image shows a dialog box titled "Add Map" with a close button (X) in the top right corner. It contains two input fields: "Category" with a dropdown menu showing "Custom (1)" and a downward arrow, and "Name" with a text input field containing the placeholder "Type to search". Below these fields is a preview of a map of Haiti, which is a blue square with a globe icon and the word "Haiti" underneath. At the bottom right of the dialog are two buttons: "OK" and "Cancel".

Step 16: Set the values of geographic objects and [set the parameters of the Region Map element](#);

Step 17: Close the **Region Map** editor.

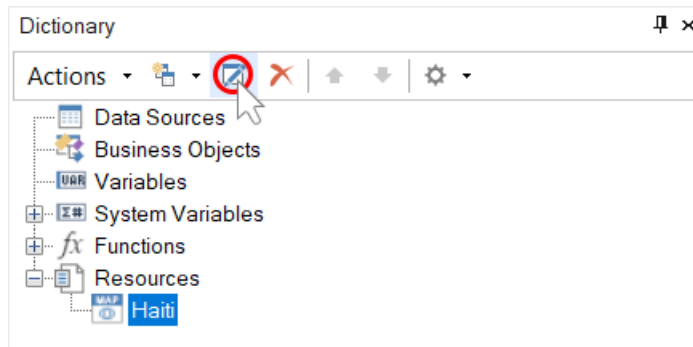
Now, you can create dashboards using this map.



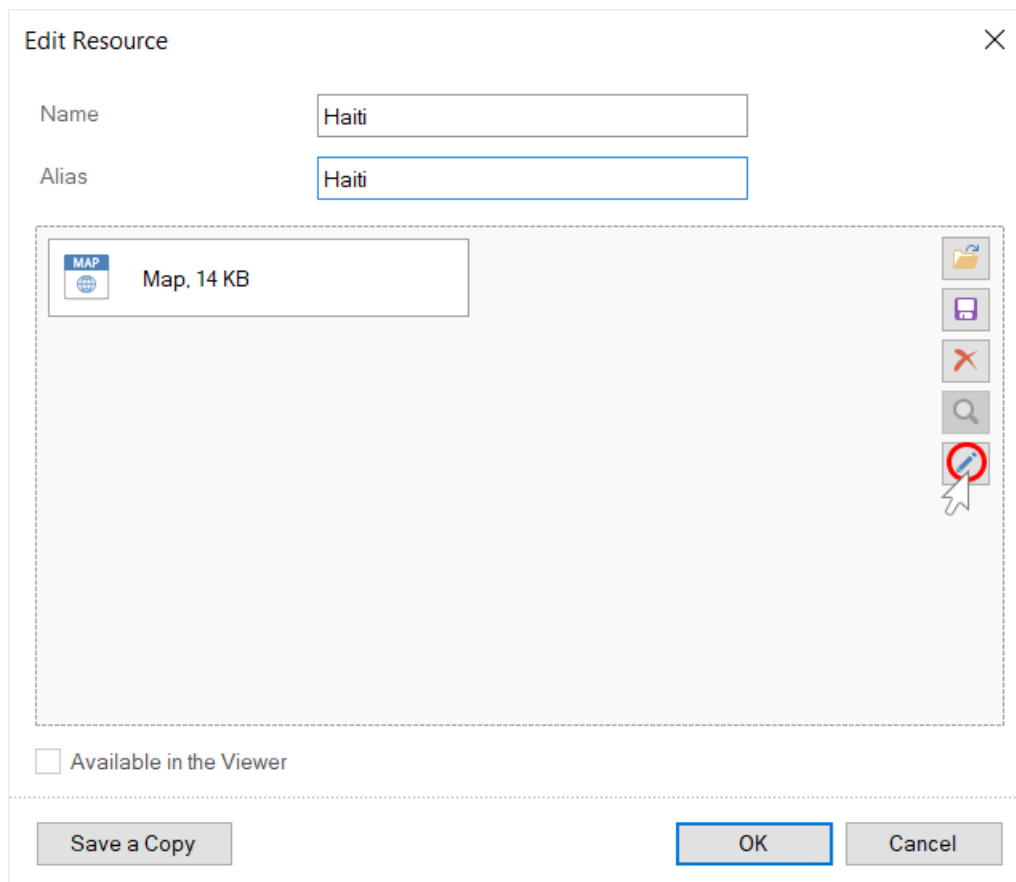
Custom map setup

Also, you can customize the map you added. Follow the steps below to achieve this:

Step 1: Select the **Haiti** resource in the data dictionary and click the **Edit** button in the data dictionary;

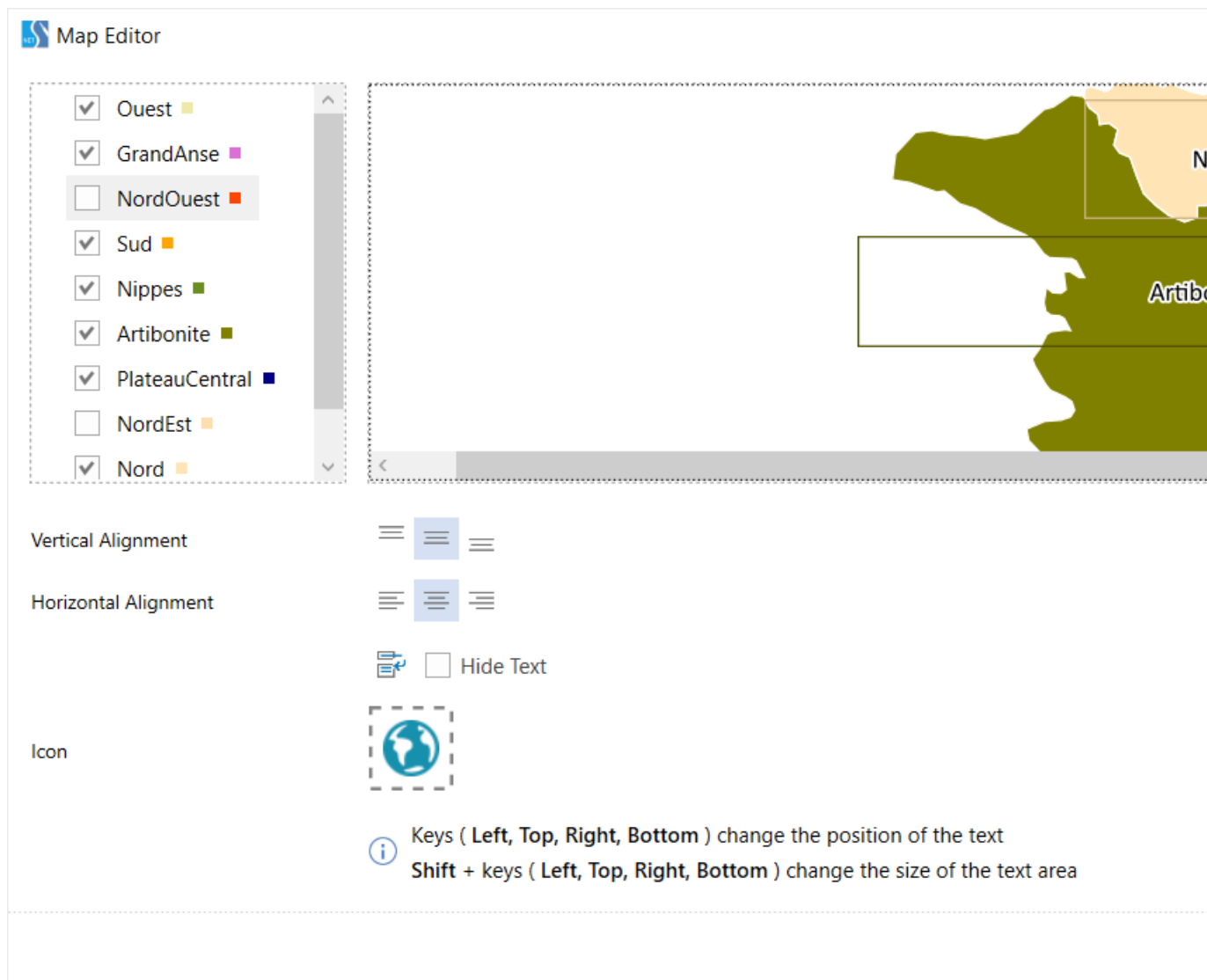


Step 2: Click the **Edit** button in the **Edit resource** dialog;



Step 3: The Map editor will be called;

Step 4: Uncheck the check boxes of geographic objects if you want to disable displaying them when working in the current editor;



Step 5: Select a geographic object in the list and change the location of the title area using the cursor keys (left, right, top, bottom);

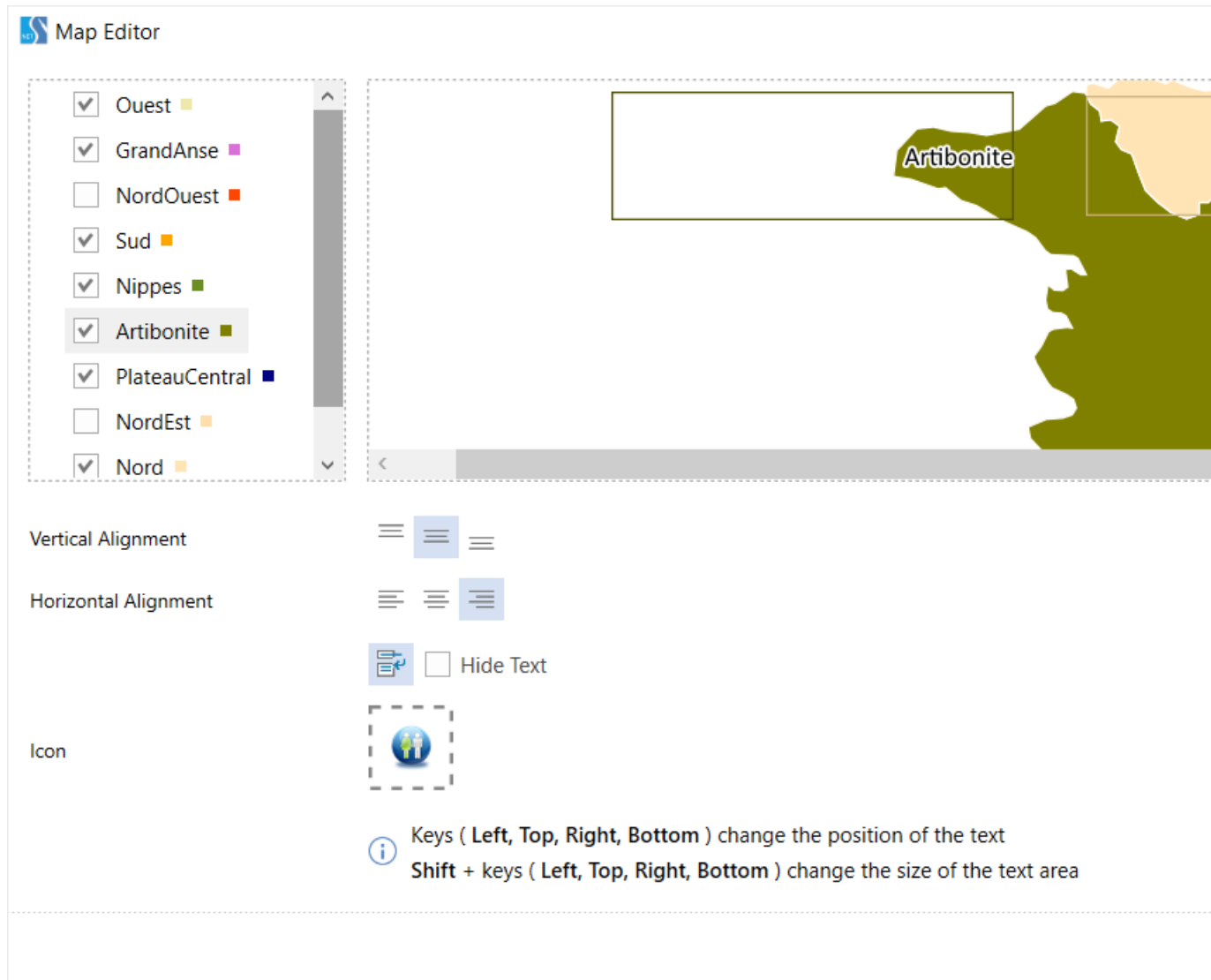
Step 6: Hold down the **Shift** key and use the keys (left, right, top, bottom) to resize the title area;

Step 7: Using the alignment commands (horizontal, vertical), set the location of the title text in its area;

Step 8: Enable text wrapping if you need to wrap the title text to the next line;

Step 9: Select the **Hide Text** checkbox if you do not want to display the title text;

Step 10: Click on the **Icon** parameter, if you want to load a custom icon for the current map;



Step 11: Click the **OK** button in the **Map** editor;

Step 12: Click the **OK** button in the **Resource** editor.

Changes will be applied to the map of this type.

3.14 Dashboard with Online Map

This chapter will cover the following:

- › [Adding an Online Map element to the dashboard](#);
- › [Online map by location](#);
- › [Online map by coordinates](#);
- › [Chart on an online map](#);
- › [Value on the online map](#);
- › [Icon on an online map](#);
- › [The color of geographic objects](#);
- › [Color each](#);
- › [Group color](#);
- › [Color value](#);
- › [Map culture](#).

Adding an online map

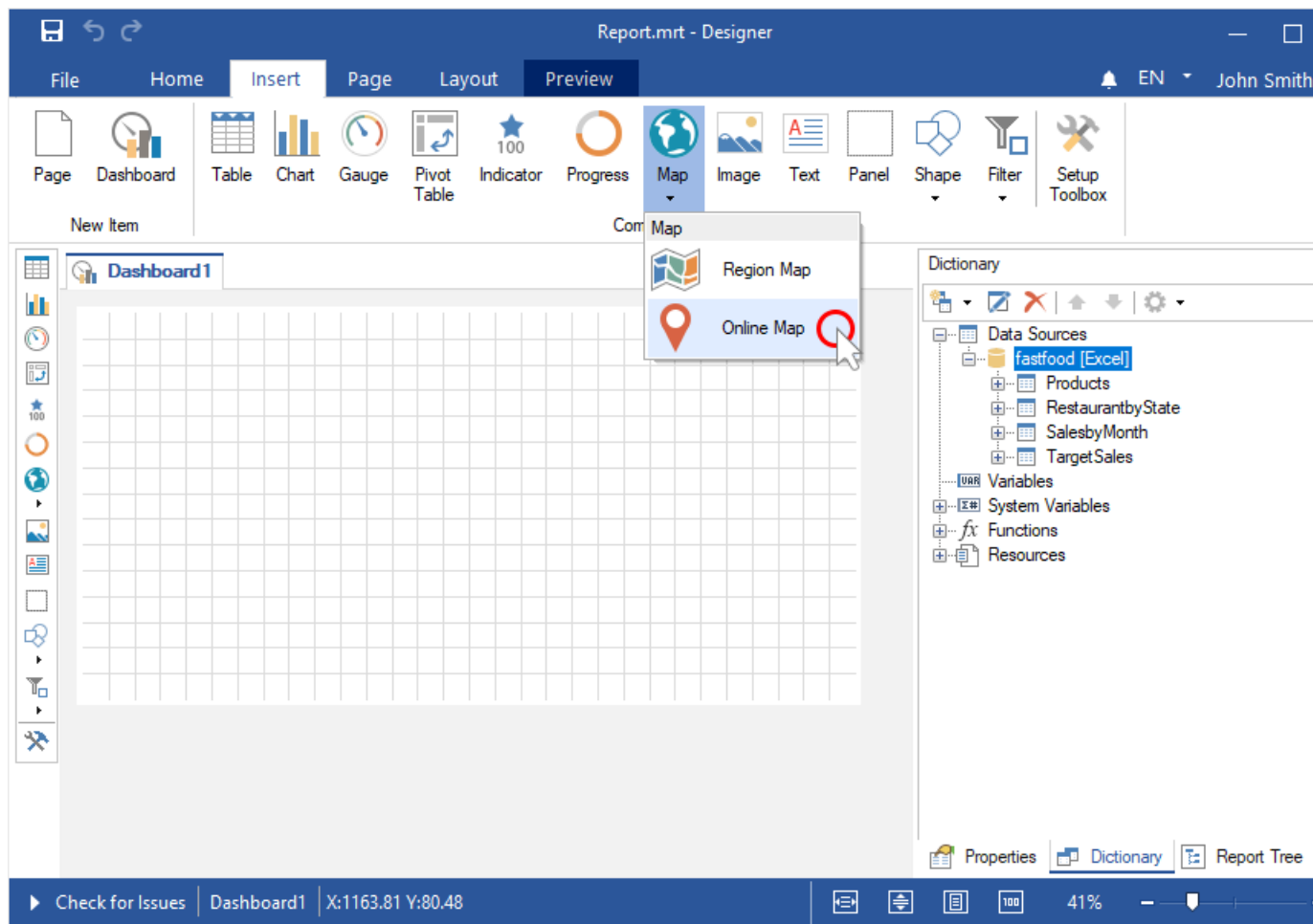
To add the **Online Map** to the dashboard panel, you should do the following steps:

Step 1: [Run the report designer](#);

Step 2: [Create a dashboard](#) or [add it to a current report](#);

Step 3: [Connect data](#);

Step 4: Select the **Online Map** element in the toolbox of the report designer or on the **Insert** tab;



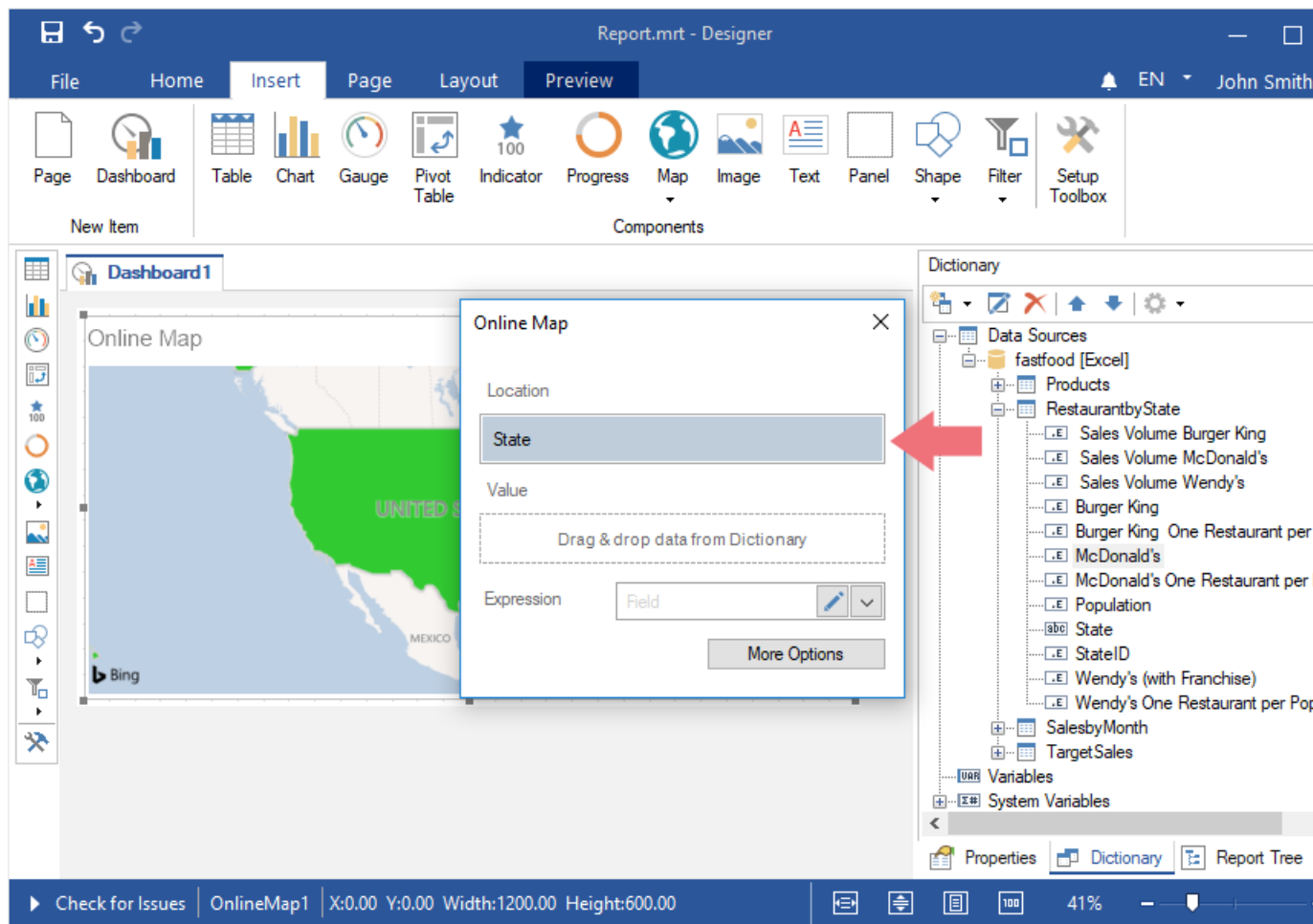
Step 5: Put the item on the analytical panel;

Step 6: If the item editor does not open, double-click on the online map.

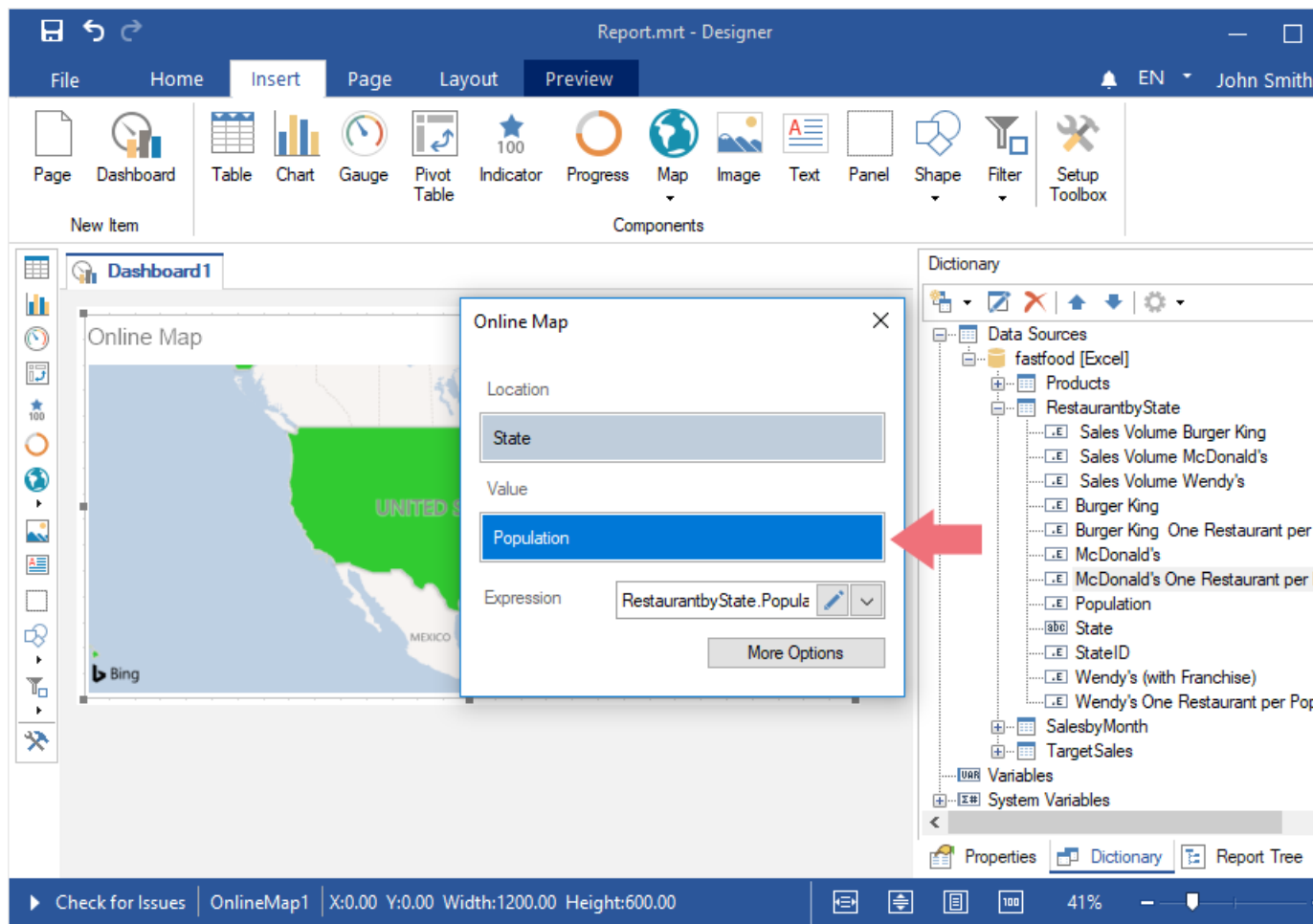
Step 7: Add a data column with the [location of geographic elements](#) or a [data columns with their coordinates](#).

Online map by location

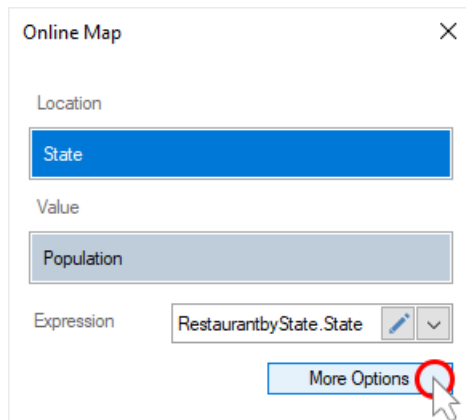
Step 1: Add a data column with the locations of geographic objects in the **Location** field;



Step 2: Add a data column with the values of geographic objects in the **Value** field;

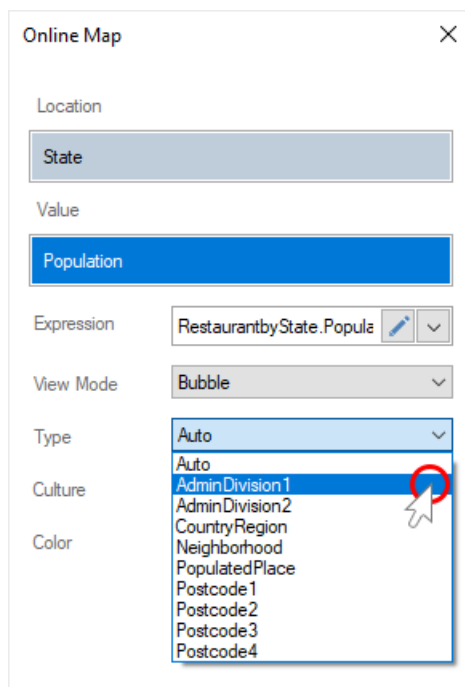


Step 3: Click the **More Options** button;



Step 4: Select a method for initializing geographic objects using the **Type**

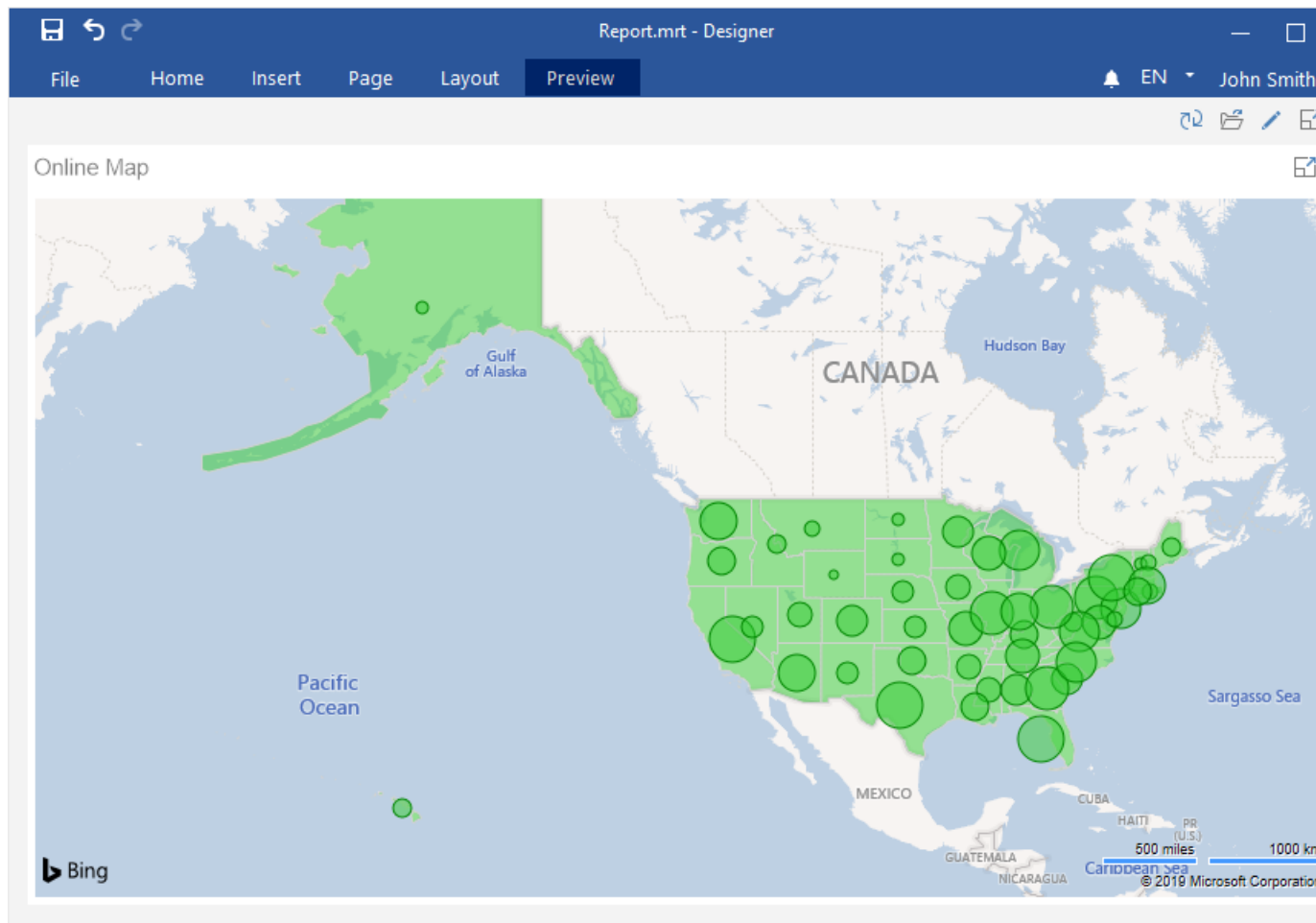
parameter;



The screenshot shows the 'Online Map' editor window. It has a title bar with a close button (X). The interface includes several sections: 'Location' with a text box containing 'State'; 'Value' with a blue button labeled 'Population'; 'Expression' with a text box containing 'RestaurantbyState.Popula' and a dropdown arrow; 'View Mode' with a dropdown menu set to 'Bubble'; 'Type' with a dropdown menu set to 'Auto'; 'Culture' with a dropdown menu; and 'Color' with a dropdown menu. The 'Type' dropdown menu is open, showing a list of options: 'Auto', 'AdminDivision1', 'AdminDivision2', 'CountryRegion', 'Neighborhood', 'PopulatedPlace', 'Postcode1', 'Postcode2', 'Postcode3', and 'Postcode4'. A red circle highlights the 'AdminDivision1' option, and a mouse cursor is pointing at it.

Step 5: Close the **Online Map** editor;

Step 6: Go to the **Preview**.



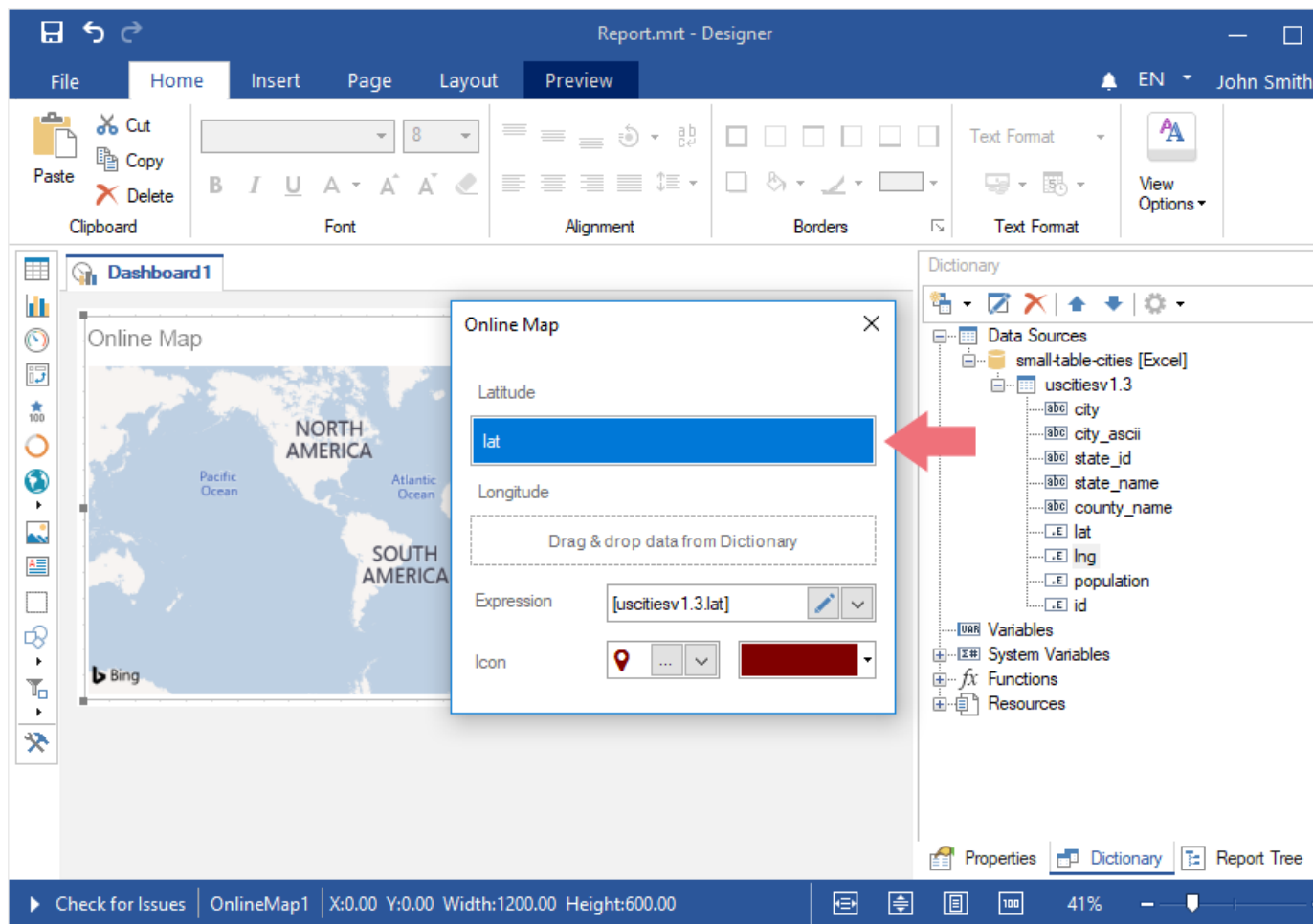
Information

By default, geographic objects are displayed on the map as bubbles. They can also be displayed as a [pie chart](#), [values](#), [values with an icon](#).

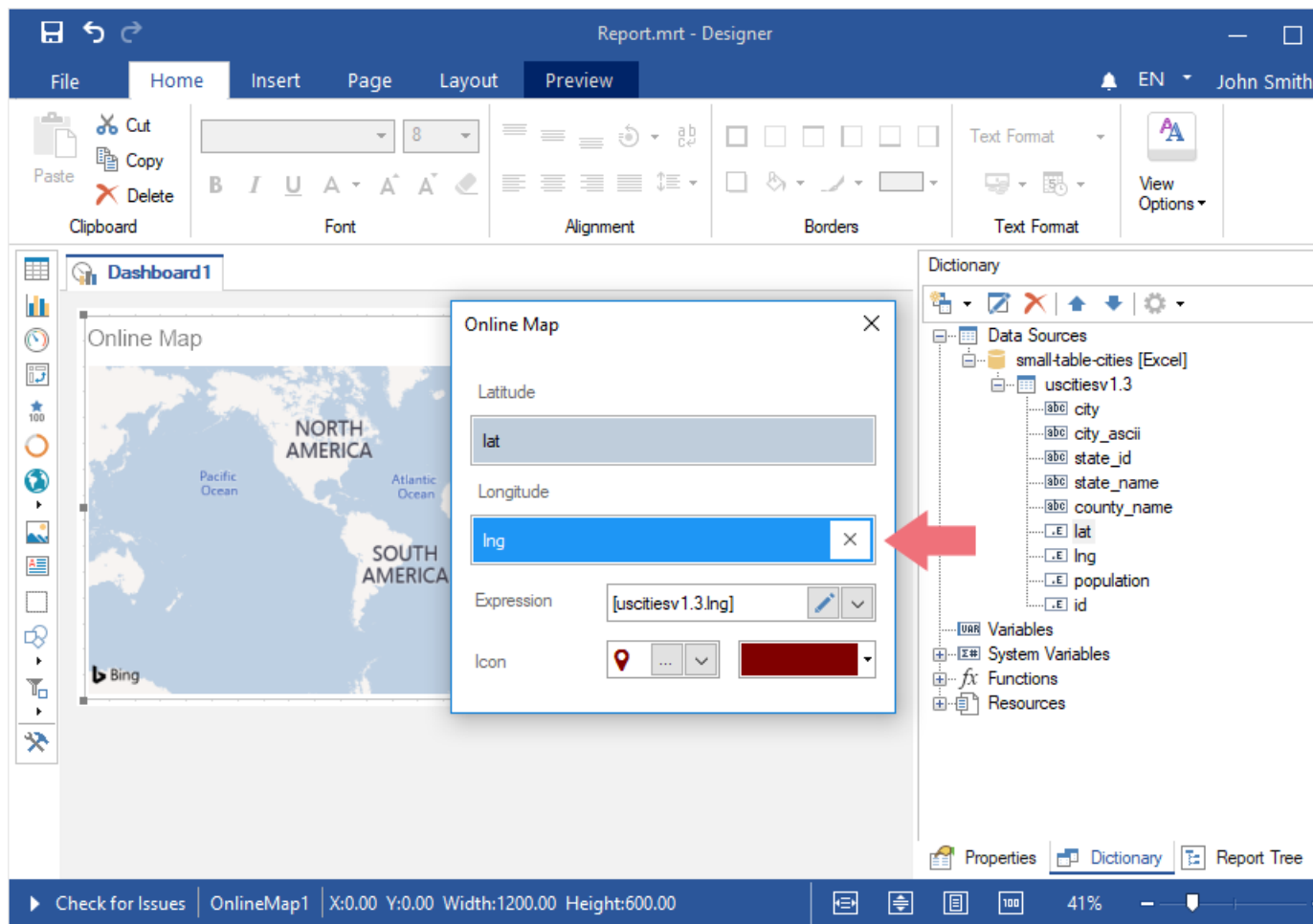
Online map by coordinates

An online map by coordinates is used to display geographic objects and mark them with an icon. To display geographic objects by coordinates, you should do the following:

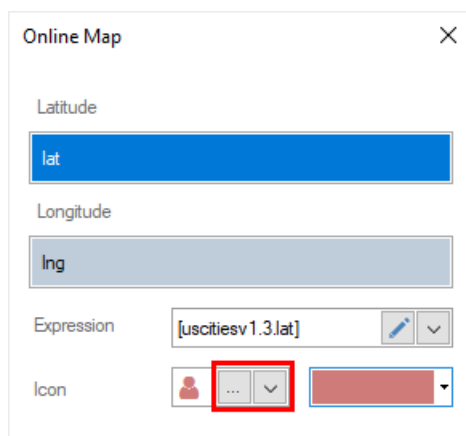
Step 1: Add a data column with the latitude of geographic objects in the **Latitude** field;



Step 2: Add a data column with the longitude of geographic objects in the **Longitude** field;



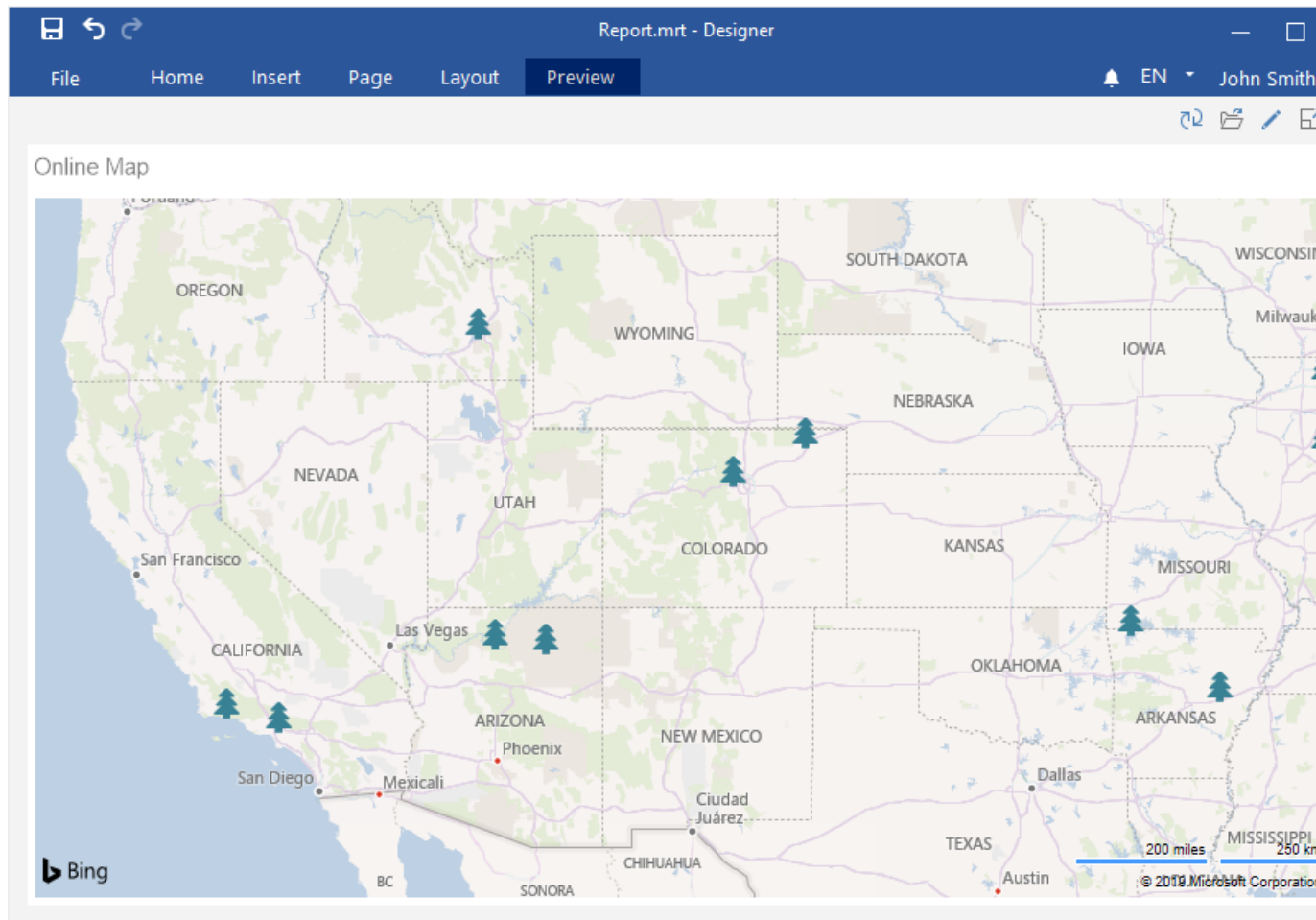
Step 3: In the **Icon** parameter field, click the **Browse** button on the local storage to load the user icon, or **Browse** to open the built-in list of icons;



Step 4: If the icon is selected from the predefined list, then using the color palette control, you can change the color of the symbol;

Step 5: Close the element editor;

Step 6: Go to the **Preview**.

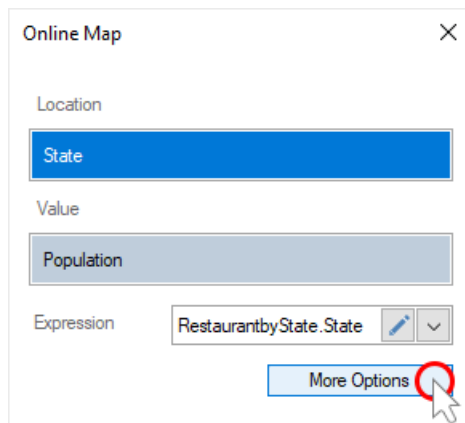


A chart on the Online map

This functionality is available only for [online map by location](#). To display a chart of values on an online map, you should do the following:

Step 1: Double-click on the **Online Map** to call the editor;

Step 2: Click the **More Options** button;



Online Map

Location

State

Value

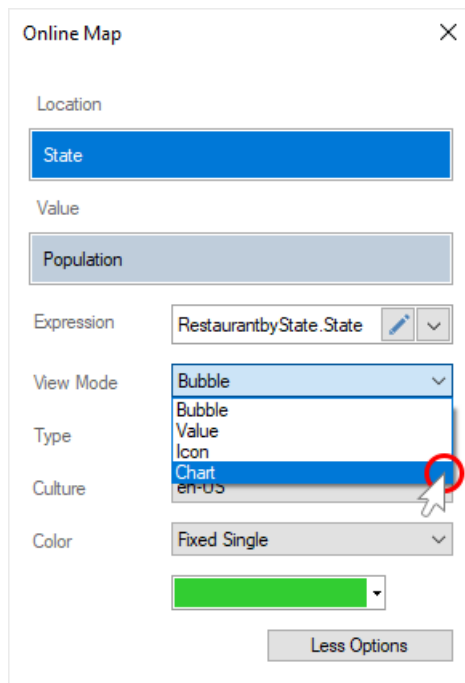
Population

Expression

RestaurantbyState.State

More Options

Step 3: Select the **Chart** value for the **View Mode** parameter;



Online Map

Location

State

Value

Population

Expression

RestaurantbyState.State

View Mode

Bubble

Bubble

Value

Icon

Chart

en-US

Type

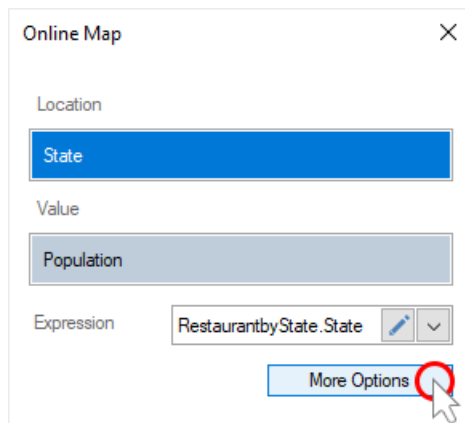
Culture

Color

Fixed Single

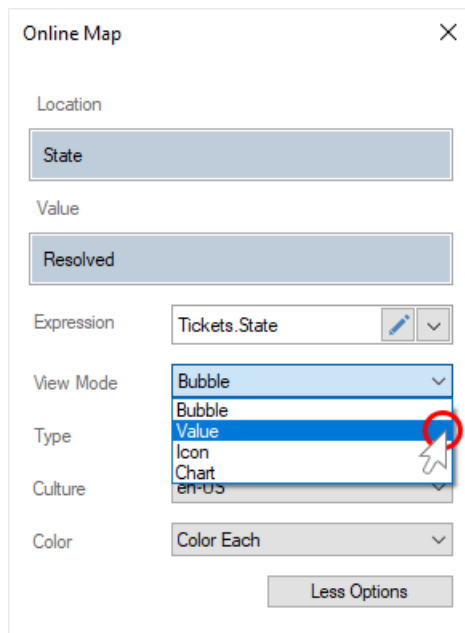
Less Options

Step 4: Specify a data column with arguments for the chart in the **Argument** field;



The screenshot shows the 'Online Map' editor window. It has a title bar with a close button (X). The 'Location' field is set to 'State'. The 'Value' field is set to 'Population'. The 'Expression' field is set to 'RestaurantbyState.State'. There is a 'More Options' button at the bottom right, which is circled in red with a mouse cursor pointing to it.

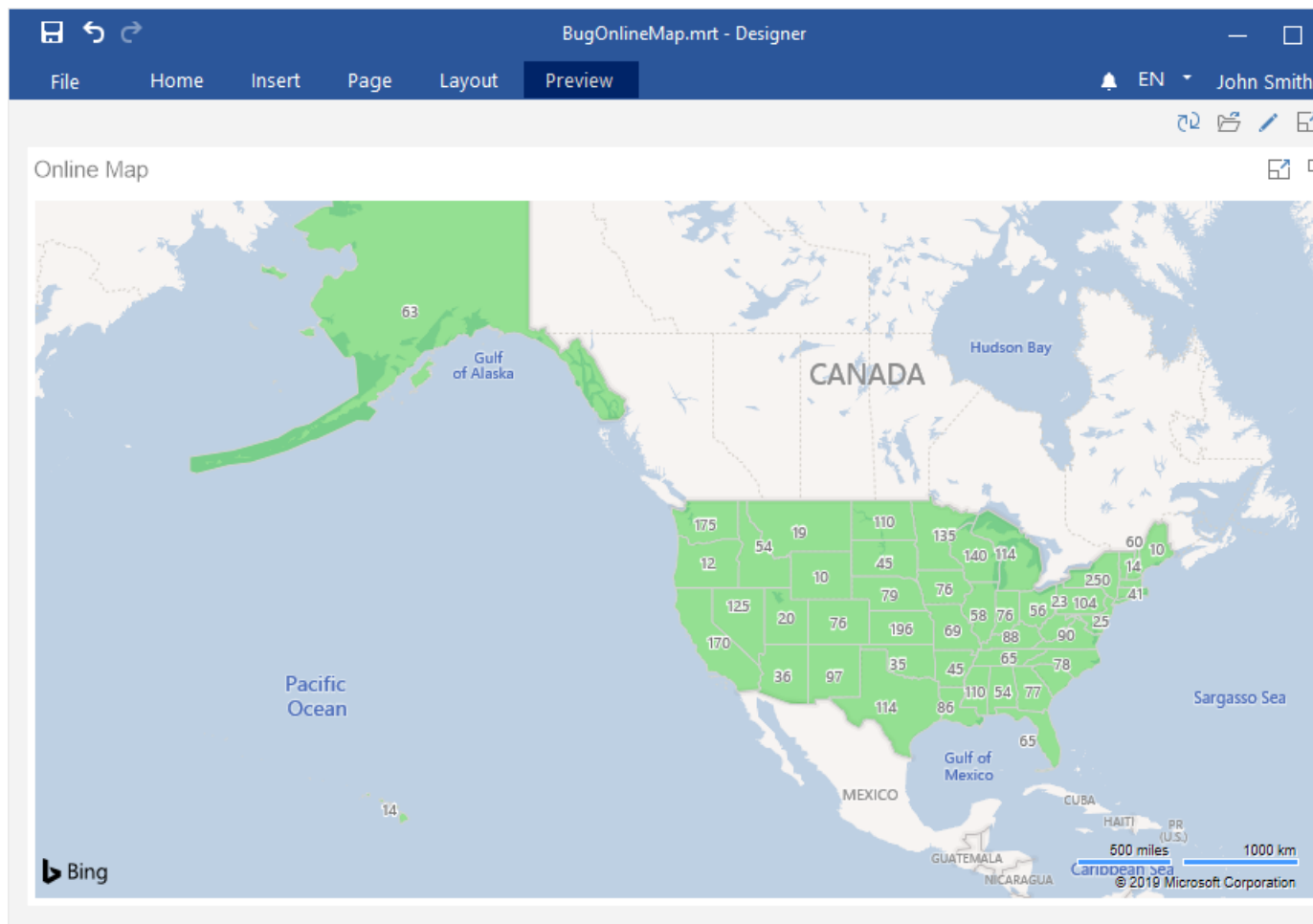
Step 3: Select **Value** for the **View Mode** parameter;



The screenshot shows the 'Online Map' editor window with the 'View Mode' dropdown menu open. The 'Location' field is set to 'State'. The 'Value' field is set to 'Resolved'. The 'Expression' field is set to 'Tickets.State'. The 'View Mode' dropdown menu is open, showing options: 'Bubble', 'Value', 'Icon', 'Chart', and 'en-US'. The 'Value' option is highlighted in blue and circled in red with a mouse cursor pointing to it. The 'Type' field is set to 'en-US'. The 'Color' field is set to 'Color Each'. There is a 'Less Options' button at the bottom right.

Step 4: Close the **Online Map** editor;

Step 5: Go to the **Preview**.

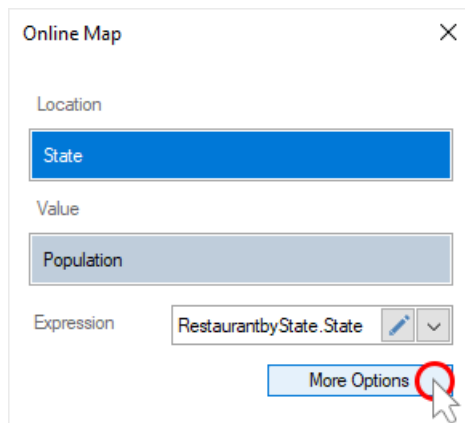


The Online map icon

An icon can be displayed along with the value of the geographic object. To do this, you should do the following:

Step 1: Double-click on the **Online Map** element to call the editor;

Step 2: Click the **More Options** button;



Online Map

Location

State

Value

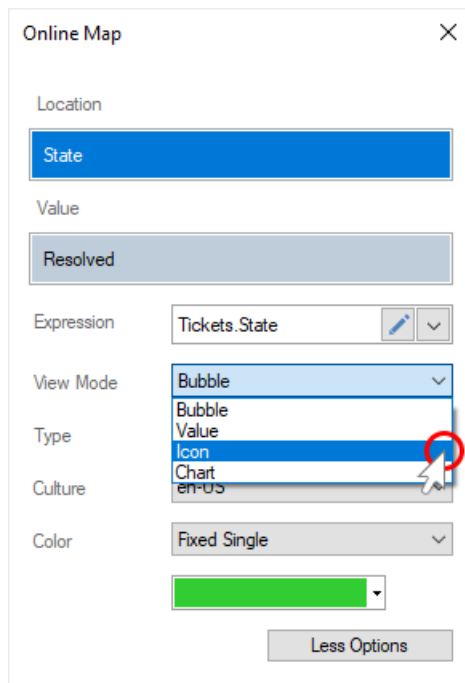
Population

Expression

RestaurantbyState.State

More Options

Step 3: Select the **Icon** value for the **View Mode** parameter;



Online Map

Location

State

Value

Resolved

Expression

Tickets.State

View Mode

Bubble

Bubble

Value

Icon

Chart

en-US

Type

Culture

Color

Fixed Single

Less Options

Step 4: In the **Icon** parameter field, click the **Browse** button of the local storage to load the user icon, or **Browse** to open the built-in list of icons;

Online Map

Location

State

Value

Resolved

Expression

Tickets.State

View Mode

Icon

Icon

Type

AdminDivision1

Culture

en-US

Color

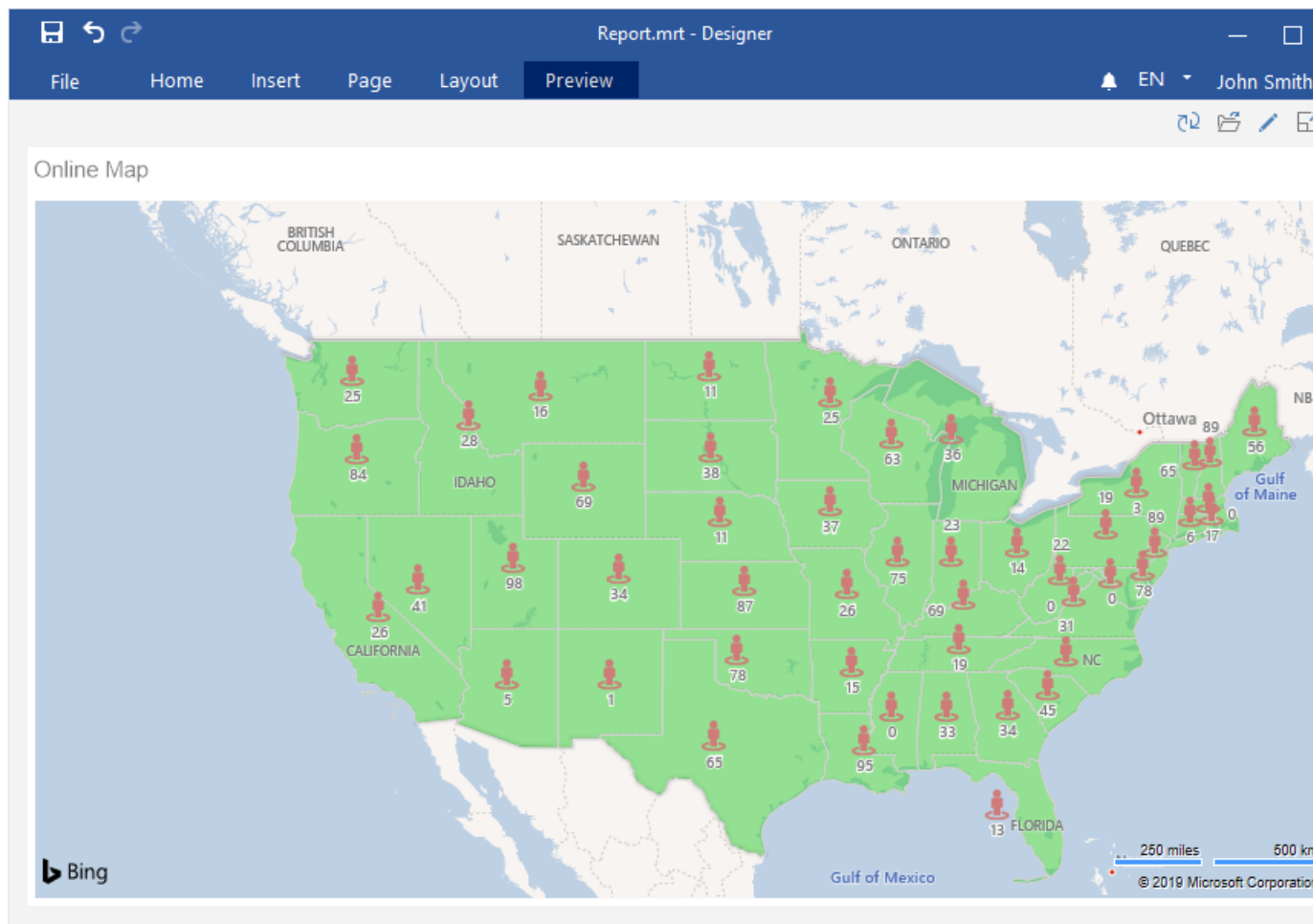
Fixed Single

Less Options

Step 5: If the icon is selected from the predefined list, then using the color palette control, you can change the color of the icon;

Step 6: Close the element editor;

Step 7: Go to the **Preview**.

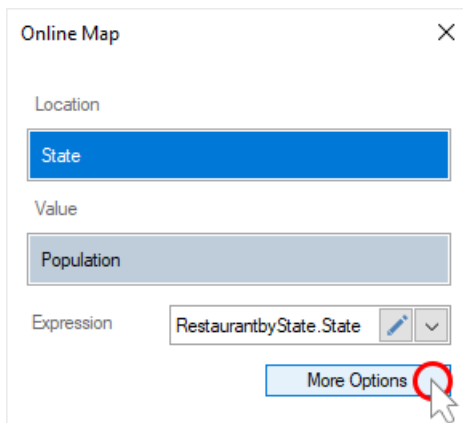


A color of geographic objects

This functionality is available only for [online map by location](#). By default, geographic objects on the online map are colored green. To change the color of geographic objects, you should do the following:

Step 1: Double-click on the **Online Map** element to call the editor;

Step 2: Click the **More Options** button;



Online Map

Location

State

Value

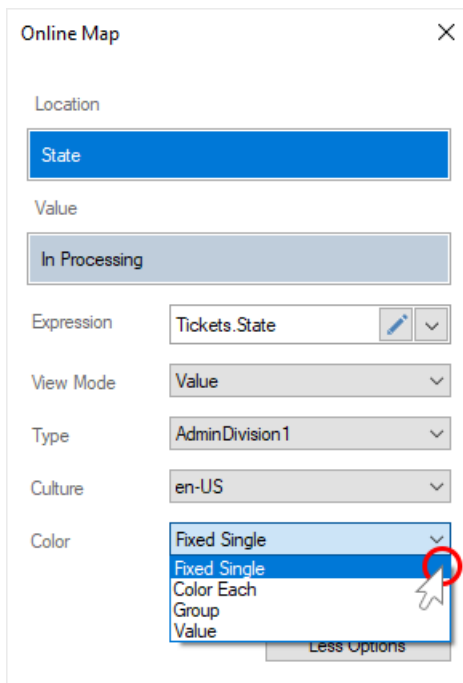
Population

Expression

RestaurantbyState.State

More Options

Step 3: Set the **Fixed Single** value for the **Color** parameter;



Online Map

Location

State

Value

In Processing

Expression

Tickets.State

View Mode

Value

Type

AdminDivision1

Culture

en-US

Color

Fixed Single

Fixed Single

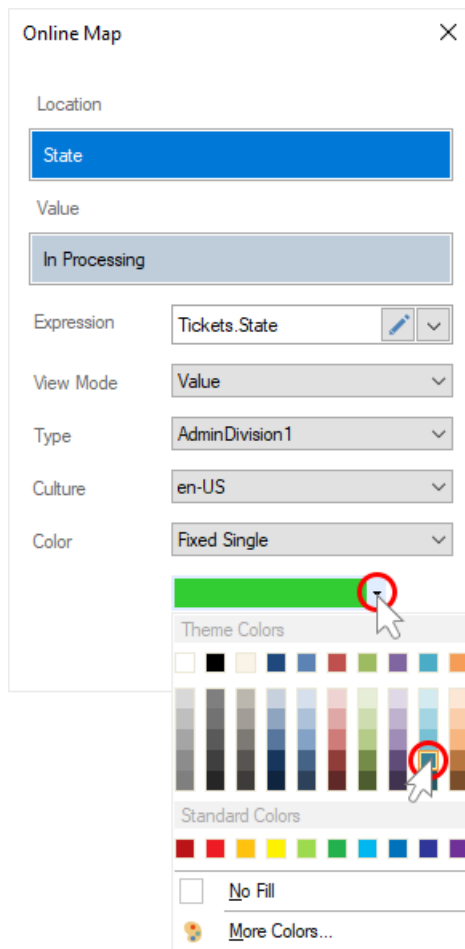
Color Each

Group

Value

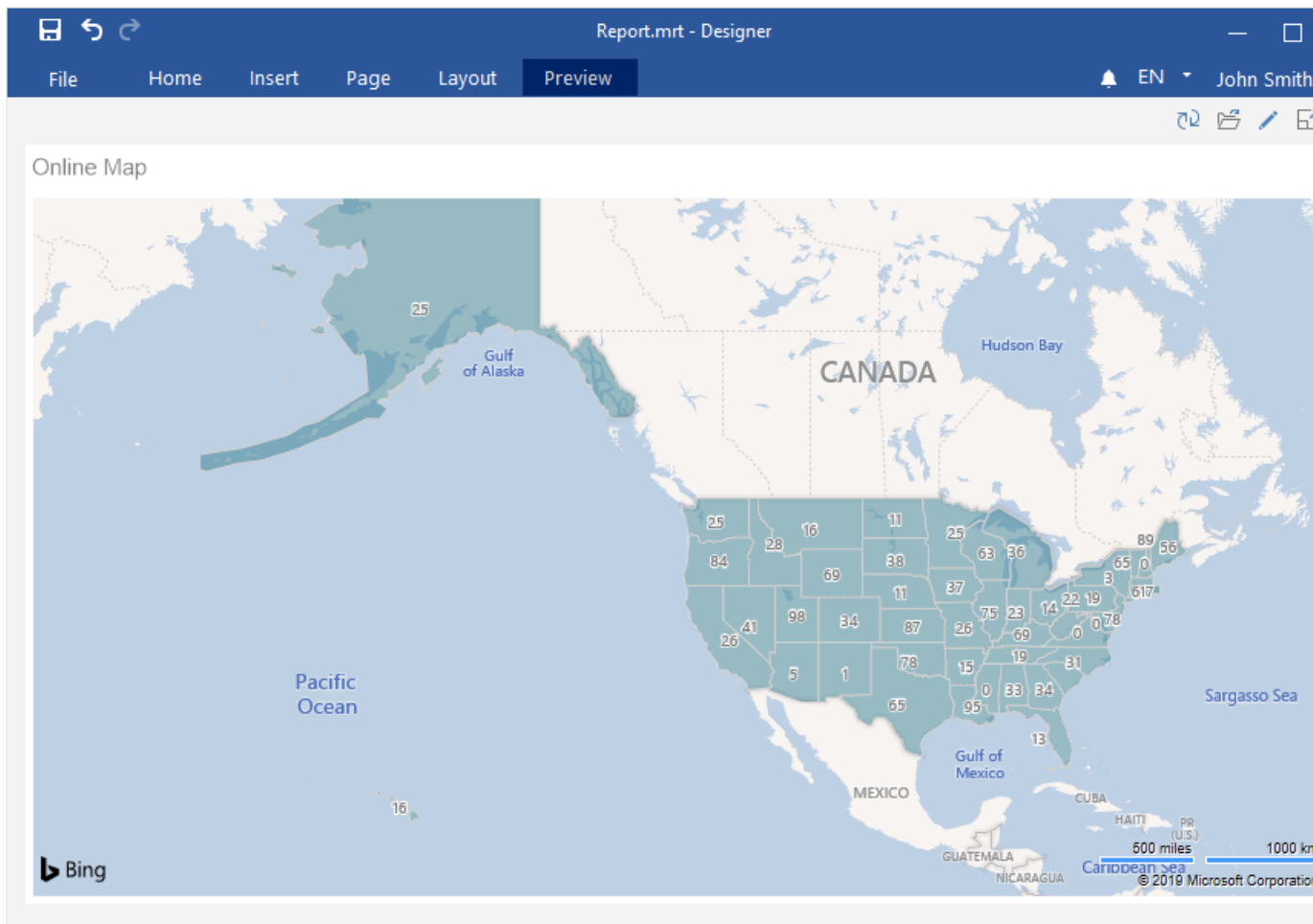
Less Options

Step 4: Click the **Browse** button on the color palette control, and select a color for geographic objects;



Step 5: Close the element editor;

Step 6: Go to the Preview.

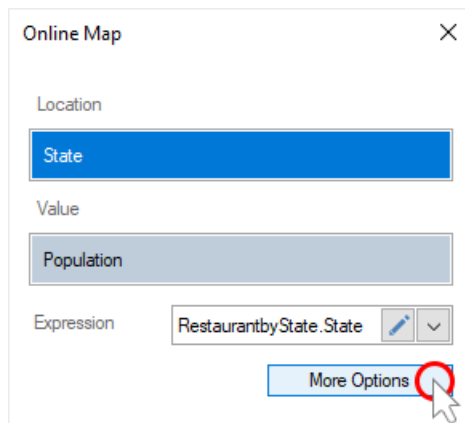


Color each

This functionality is available only for [online map by location](#). On the online map, you can display geographic objects with an individual color. To do this, you should do the following:

Step 1: Double-click on the **Online Map** item to call the editor;

Step 2: Click the **More Options** button;



Online Map

Location

State

Value

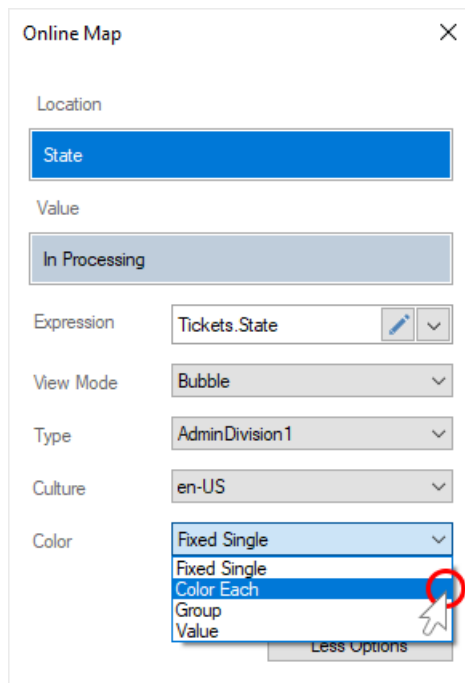
Population

Expression

RestaurantbyState.State

More Options

Step 3: Set the **Color Each** value for the **Color** parameter;



Online Map

Location

State

Value

In Processing

Expression

Tickets.State

View Mode

Bubble

Type

AdminDivision1

Culture

en-US

Color

Fixed Single

Fixed Single

Color Each

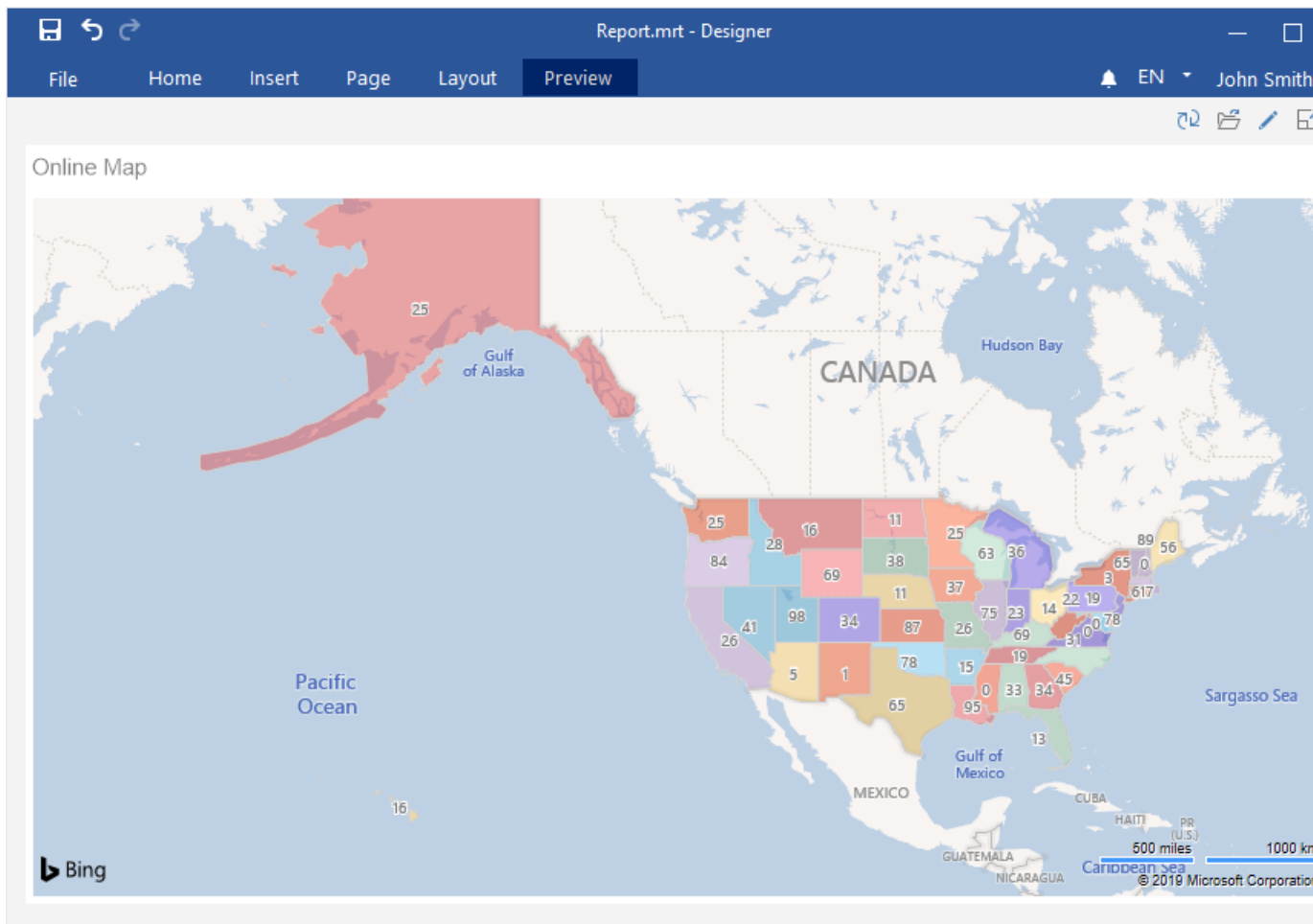
Group

Value

Less Options

Step 4: Close the element editor;

Step 5: Go to the **Preview**.

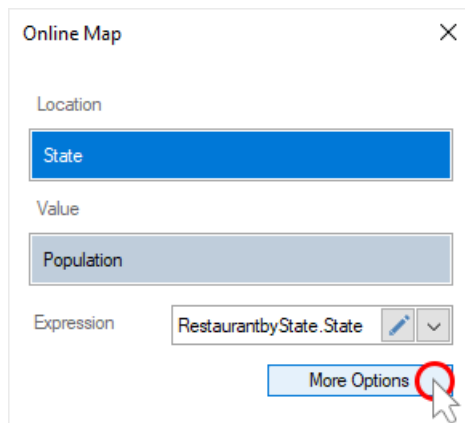


Group color

This feature is available only for [online map by location](#). All geographic locations can be grouped by value, and a specific color will be applied to each group. To do this, you should do the following:

Step 1: Double-click on the **Online Map** item to call the editor;

Step 2: Click the **More Options** button;



Online Map

Location

State

Value

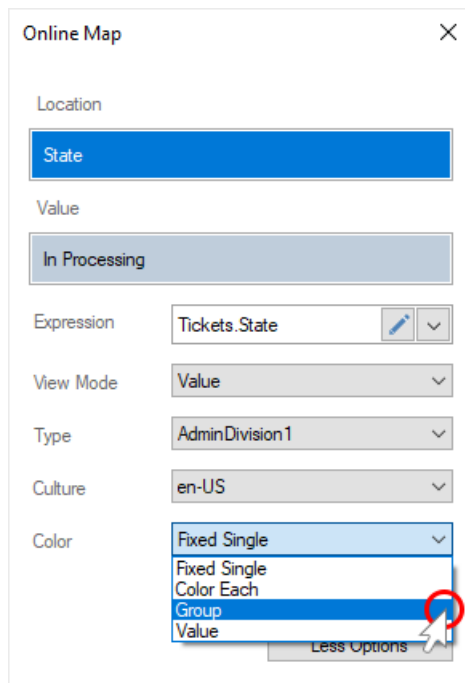
Population

Expression

RestaurantbyState.State

More Options

Step 3: Set the **Group** value for the **Color** parameter;



Online Map

Location

State

Value

In Processing

Expression

Tickets.State

View Mode

Value

Type

AdminDivision1

Culture

en-US

Color

Fixed Single

Fixed Single

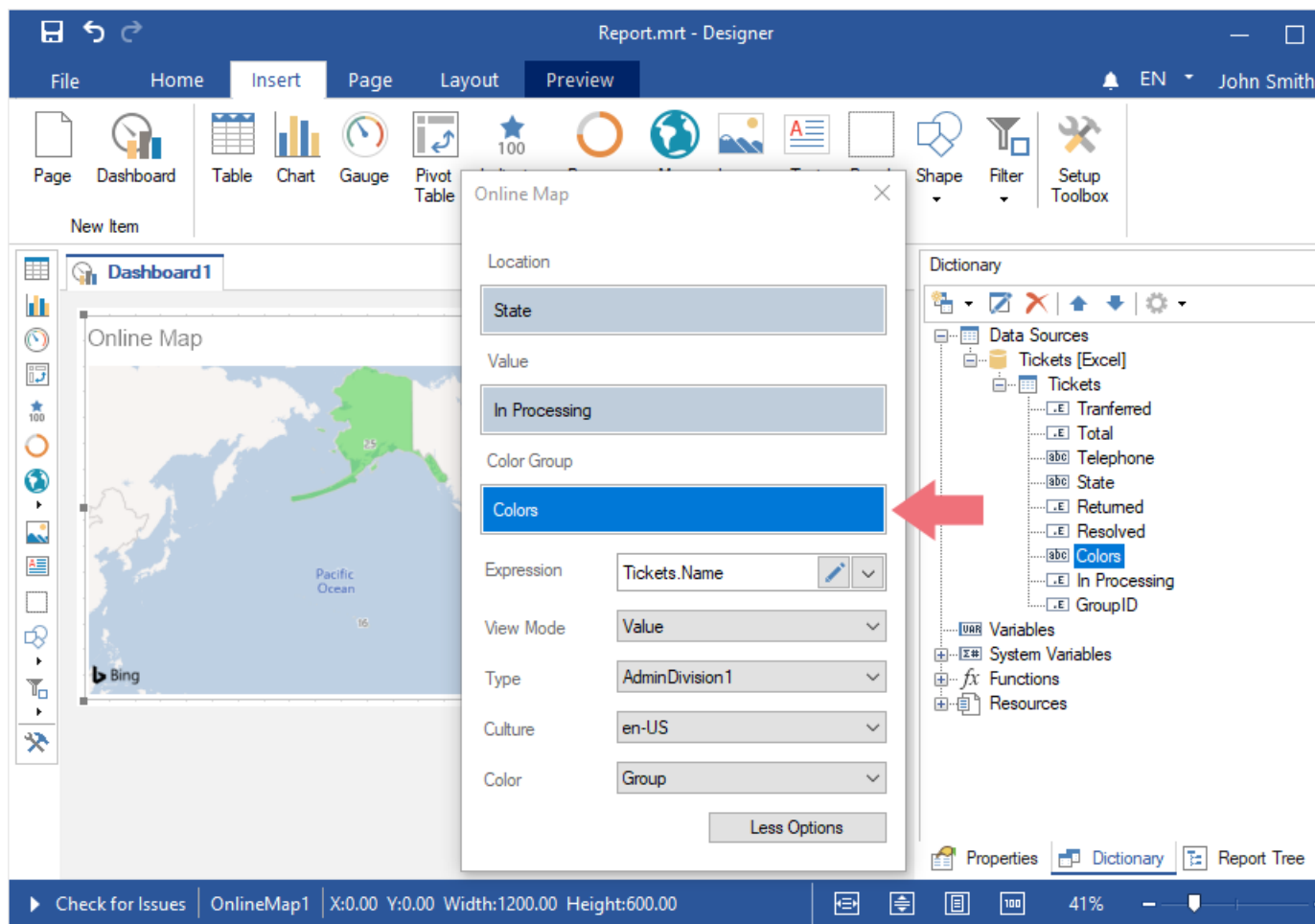
Color Each

Group

Value

Less Options

Step 4: Specify the data column with a list of colors for the groups in the **Color Group** field;



Step 5: Close the element editor;

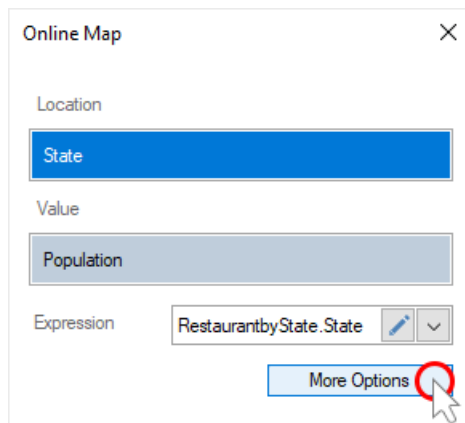
Step 6: Go to the **Preview**.

Value color

This option is available only for [online map by location](#). You can set a color for each geographic object. To do this, you should do the following:

Step 1: Double-click on the **Online Map** item to call the editor;

Step 2: Click the **More Options** button;



Online Map

Location

State

Value

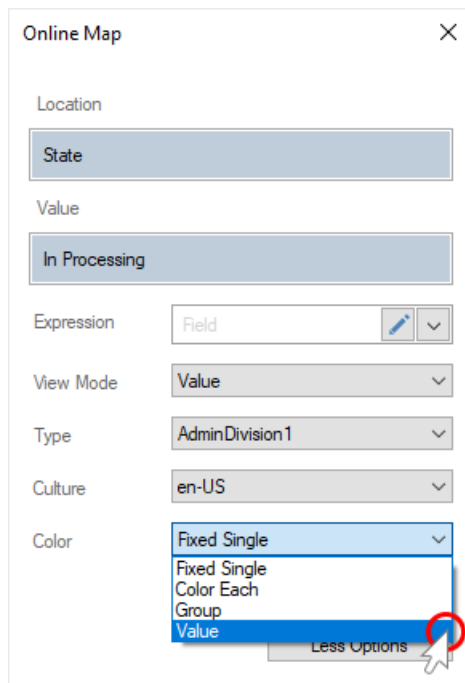
Population

Expression

RestaurantbyState.State

More Options

Step 3: Set **Value** for the **Color** parameter;



Online Map

Location

State

Value

In Processing

Expression

Field

View Mode

Value

Type

AdminDivision1

Culture

en-US

Color

Fixed Single

Fixed Single

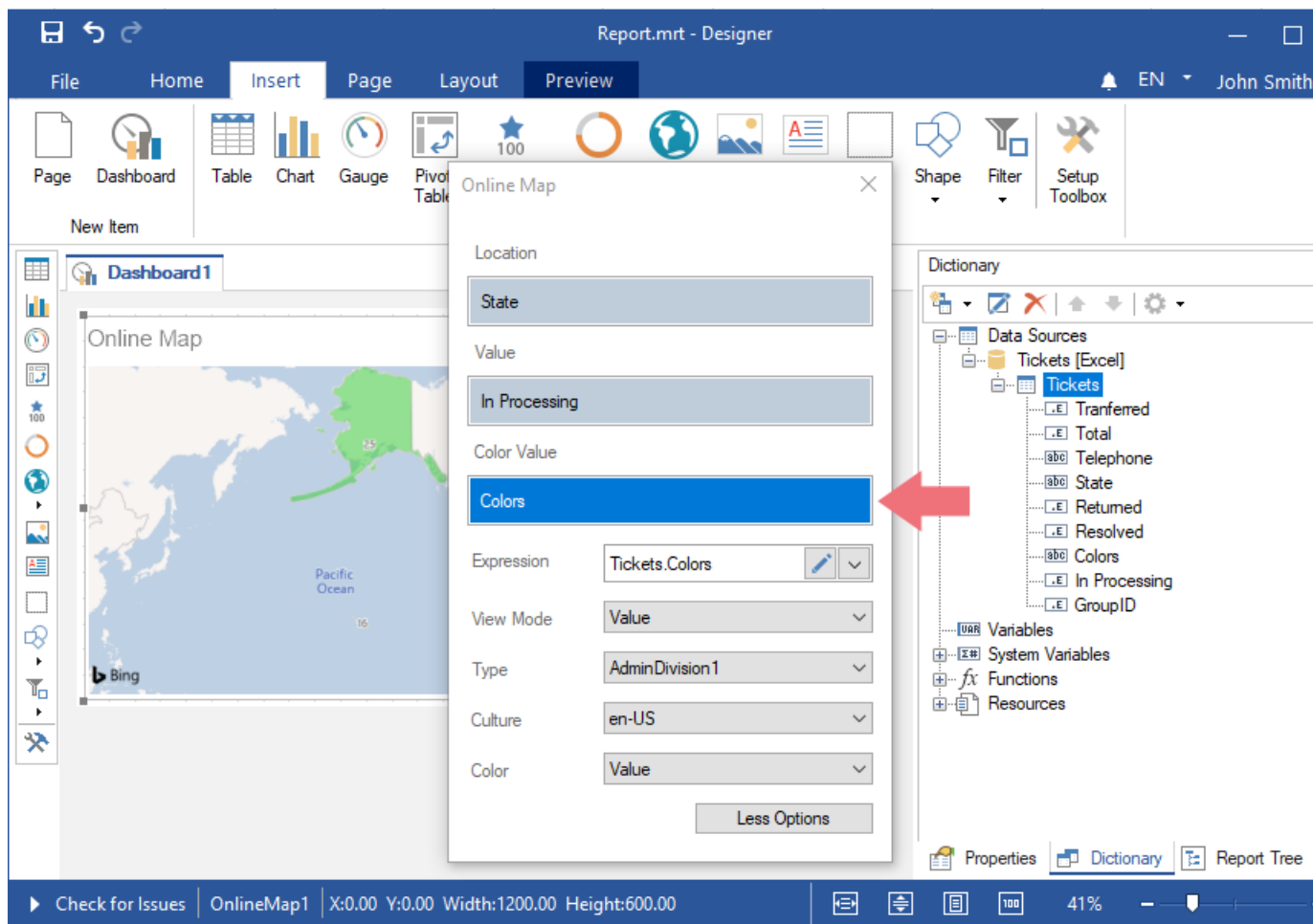
Color Each

Group

Value

Less Options

Step 4: Specify a data column with a list of colors for each geographic object in the **Color Value** field;



Step 5: Close the item editor;

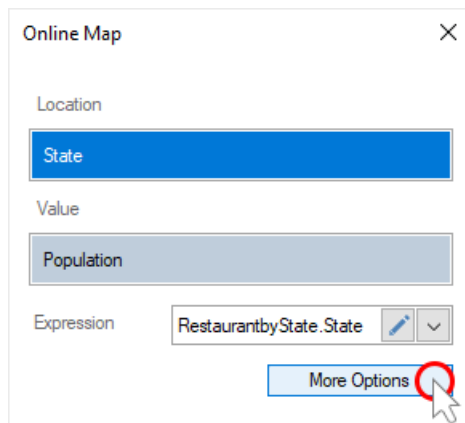
Step 6: Go to the **Preview**.

Map culture

This option is available only for [online map by location](#). To change the culture of the map, you should do the following:

Step 1: Double-click on the **Online Map** item to call the editor;

Step 2: Click the **More Options** button;



Online Map

Location

State

Value

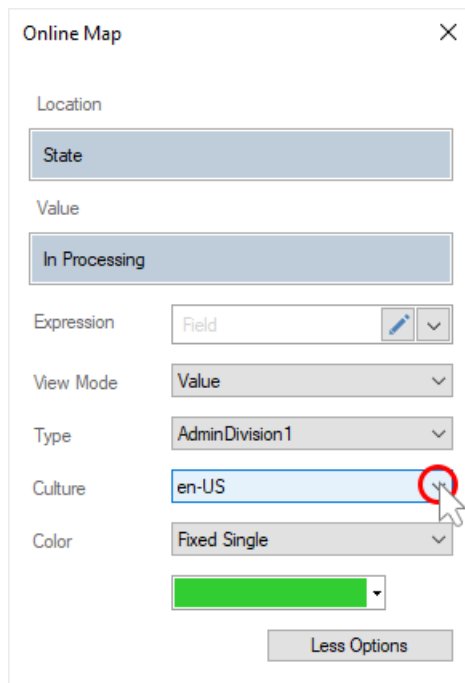
Population

Expression

RestaurantbyState.State

More Options

Step 3: Select the necessary culture as the value of the **Culture** parameter;



Online Map

Location

State

Value

In Processing

Expression

Field

View Mode

Value

Type

AdminDivision1

Culture

en-US

Color

Fixed Single

Less Options

Step 4: Close the element editor;

Step 5: Go to the **Preview**.

3.15 Dashboard with Images

This chapter will cover the following:

- [Adding an Image element to the dashboard;](#)
- [Download image from a local storage;](#)

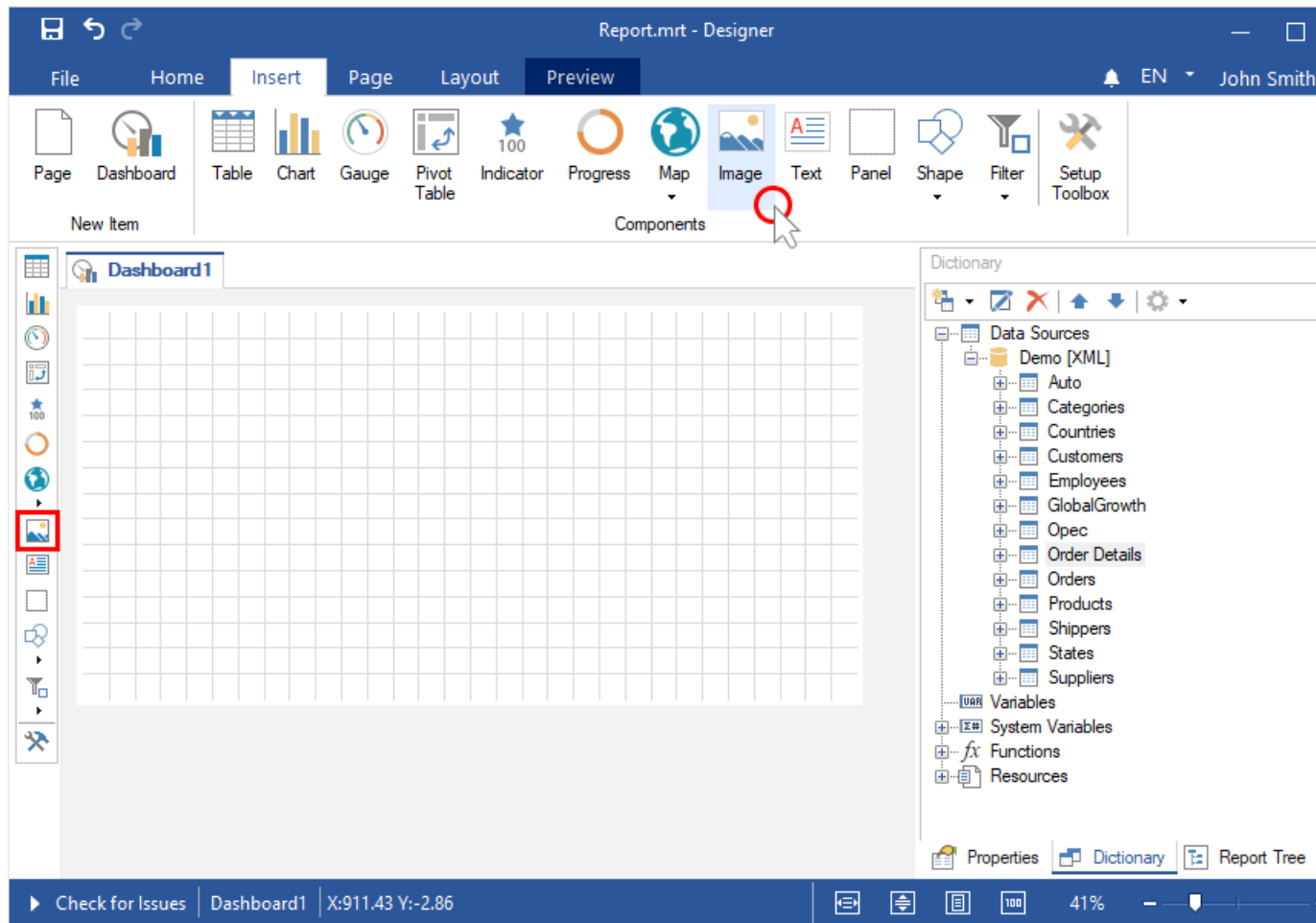
- [Using the icon in the Image element;](#)
- [Download image via hyperlink;](#)
- [Disabling aspect ratio.](#)

Adding Image

Step 1: [Run the report designer;](#)

Step 2: [Create a dashboard](#) or [add it to a current report;](#)

Step 3: Select the **Image** element in the toolbox of the report designer or on the **Insert** tab;



Step 4: Place the item on the dashboard panel;

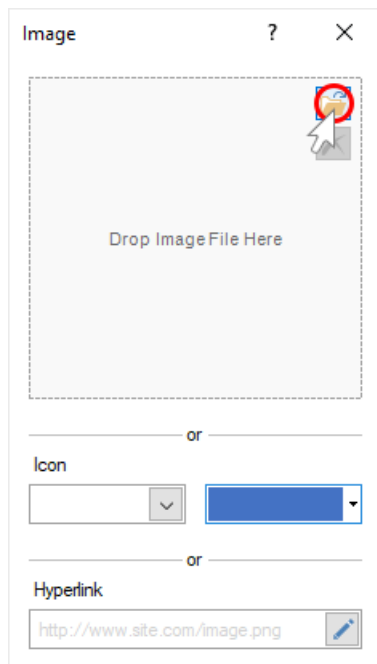
Step 5: If the element editor does not open, double-click on the image;

Step 6: Download the image from the [local storage](#), select the [icon](#) or specify a [hyperlink](#) to the image.

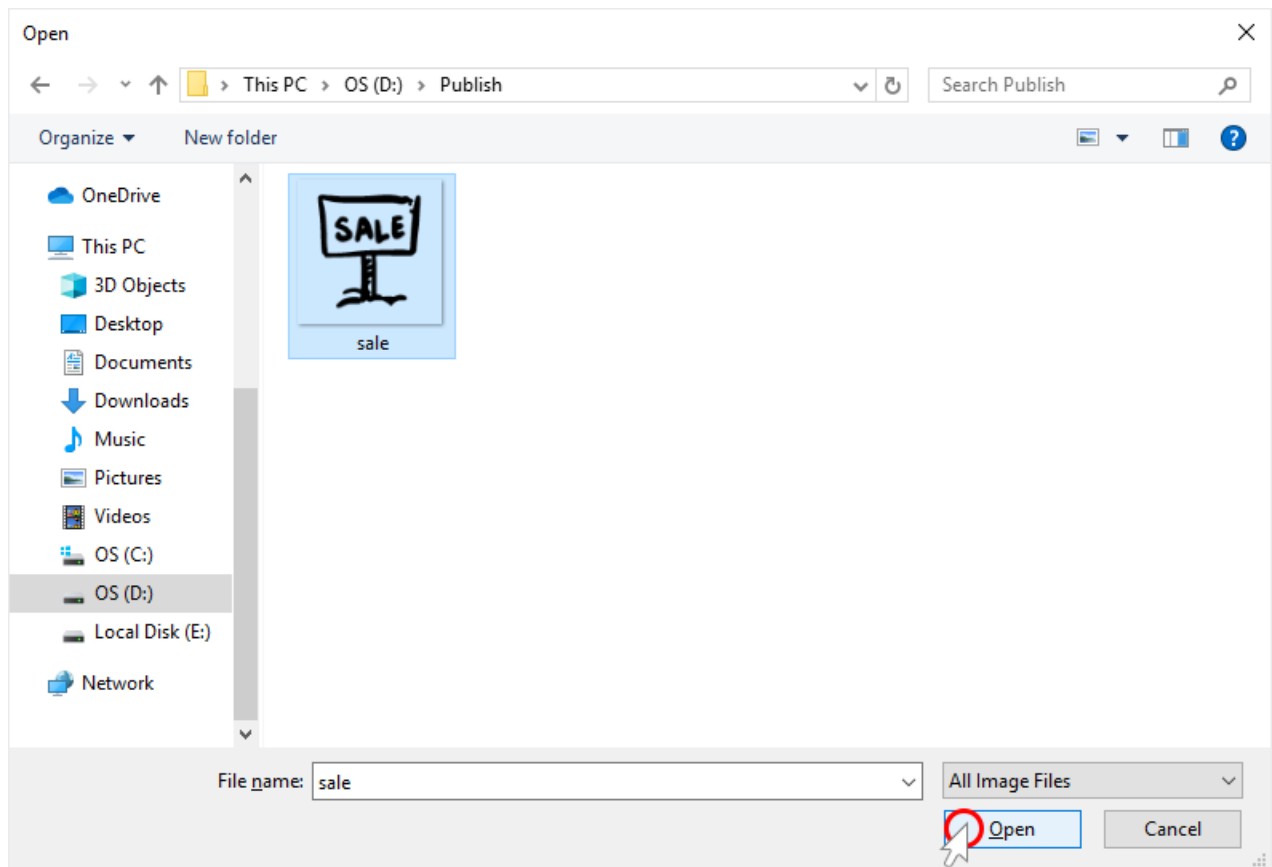
Loading an image from a local storage

Step 1: Double-click on the **Image** element to call the editor;

Step 2: Click the **Open** button;

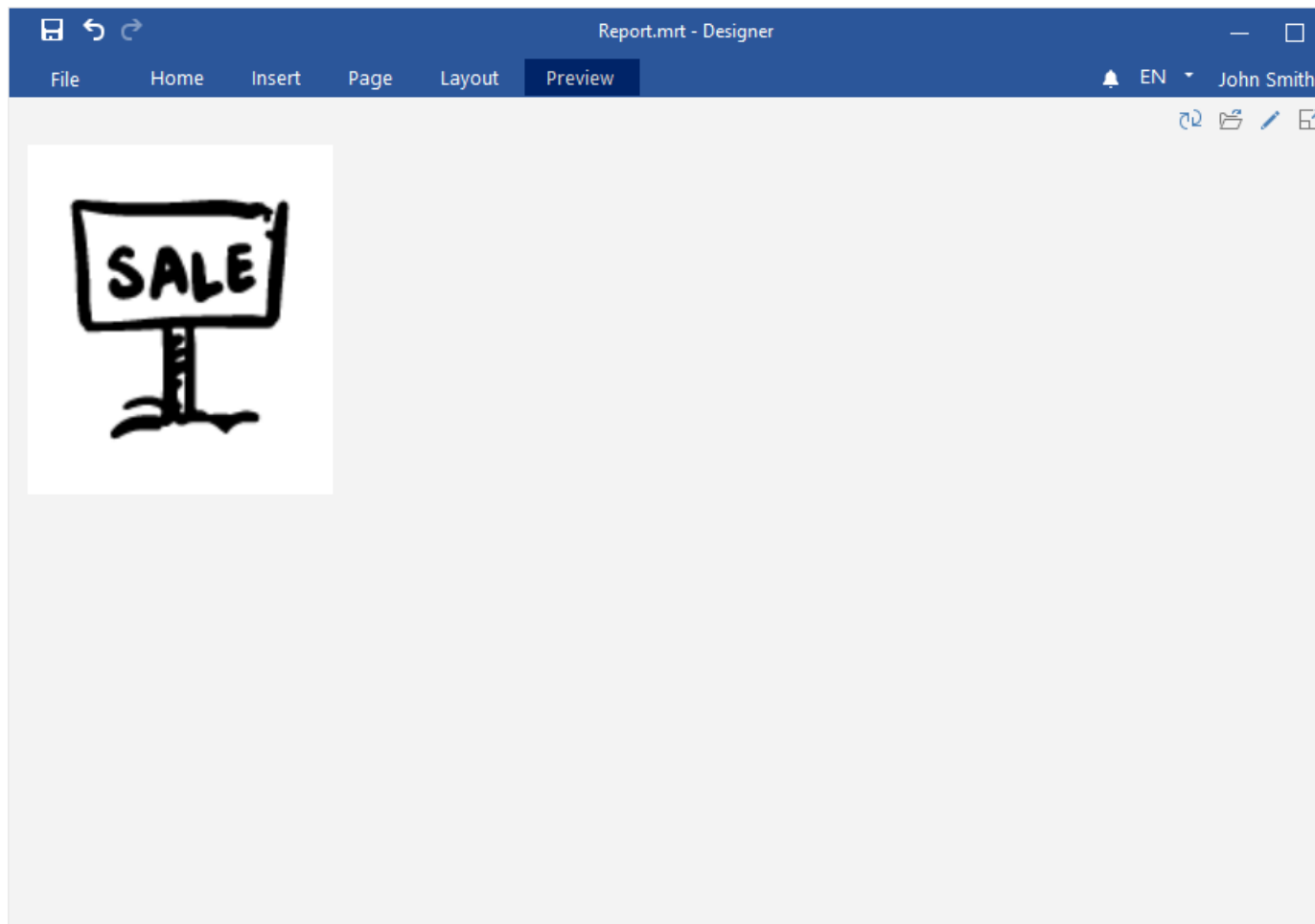


Step 3: Select an image from the local storage, and click the **Open** button in the dialog box;



Step 4: Close the element editor;

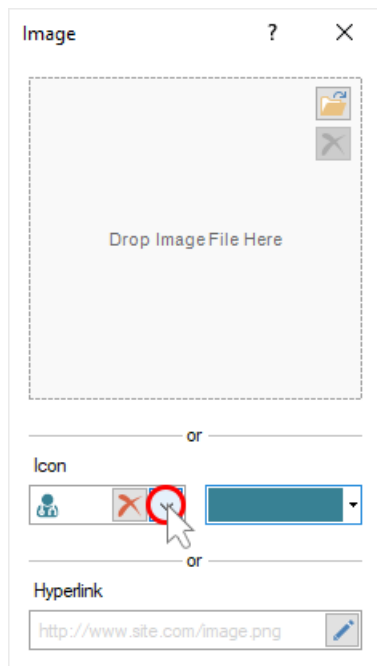
Step 5: Go to the **Preview**.



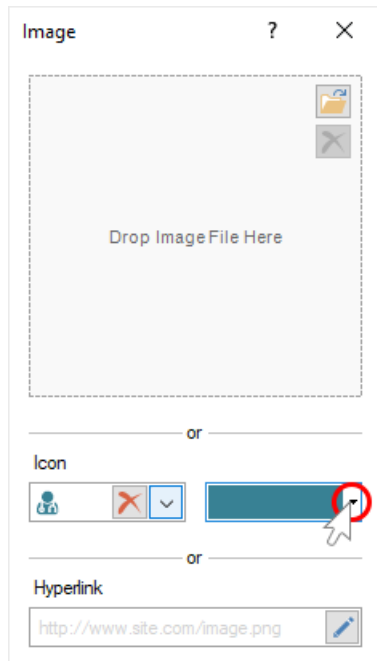
An icon in the Image element

Step 1: Double-click on the Image element to call the editor;

Step 2: Click the **Browse** button in the Icon field, and select the icon in the drop-down list;

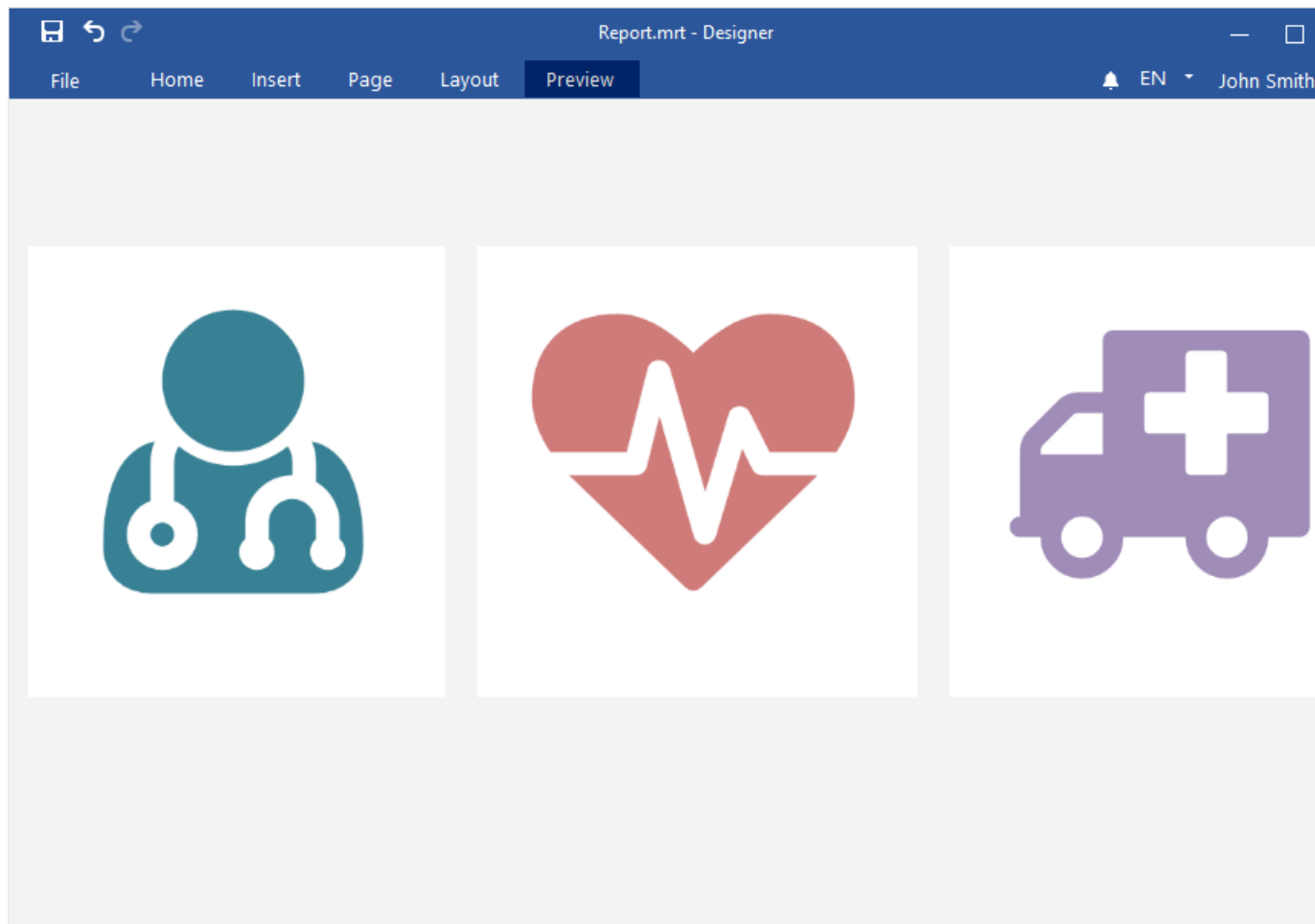


Step 3: Using the color palette element, you can change the color of the icon;



Step 4: Close the element editor;

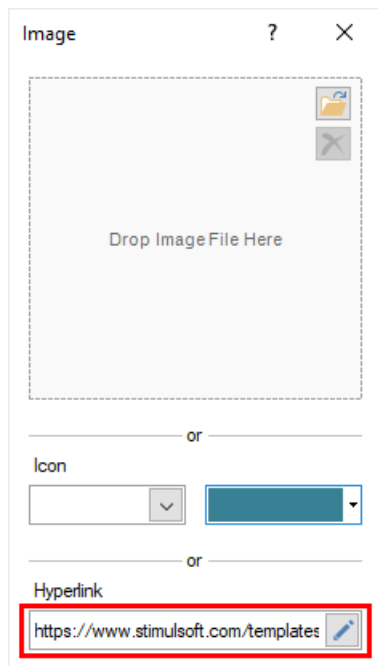
Step 5: Go to the **Preview**.



An image by a hyperlink

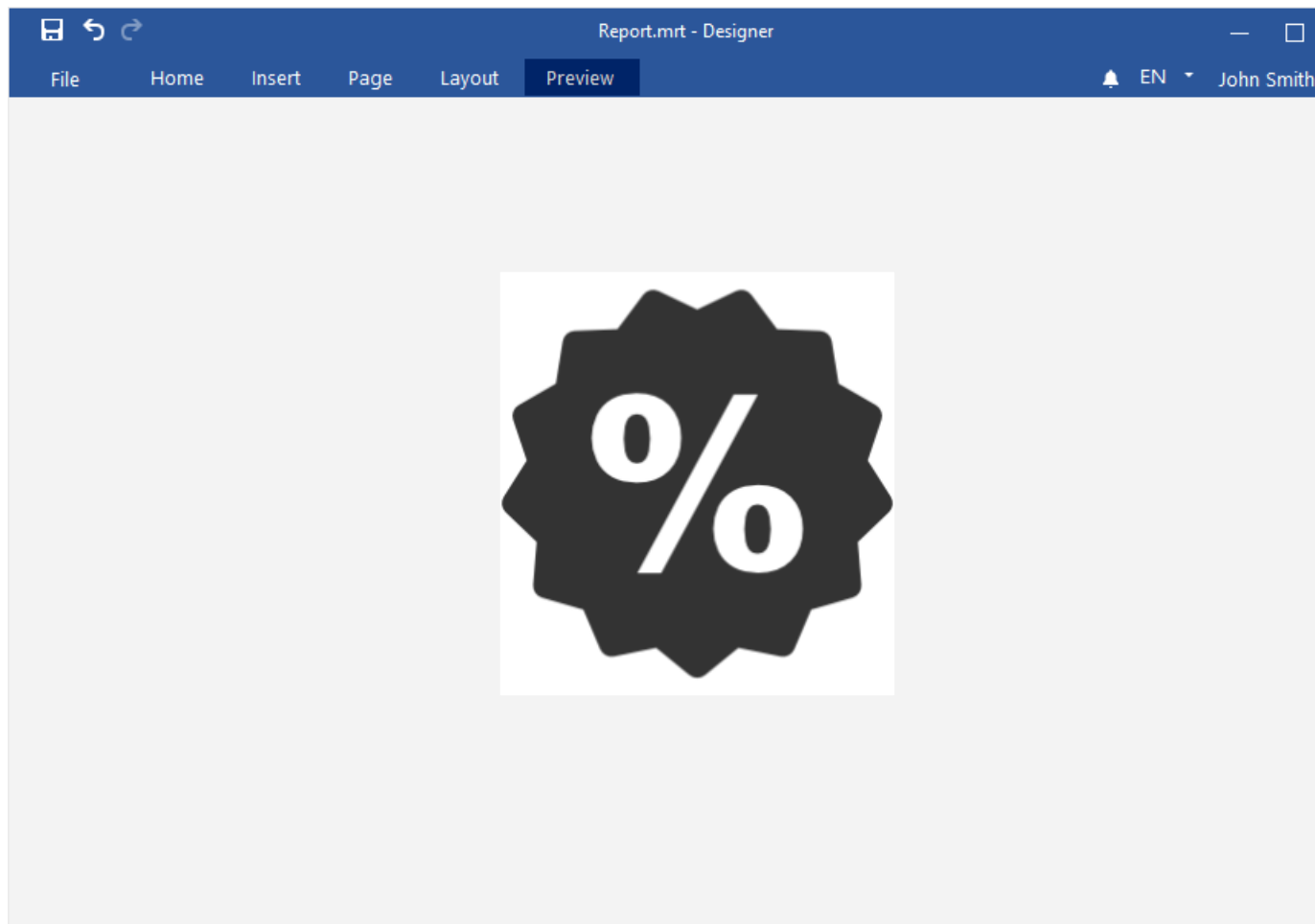
Step 1: Double-click on the Image element to call the editor;

Step 2: Specify a link to the image in the **Hyperlink** field;



Step 4: Close the element editor;

Step 5: Go to the **Preview**.

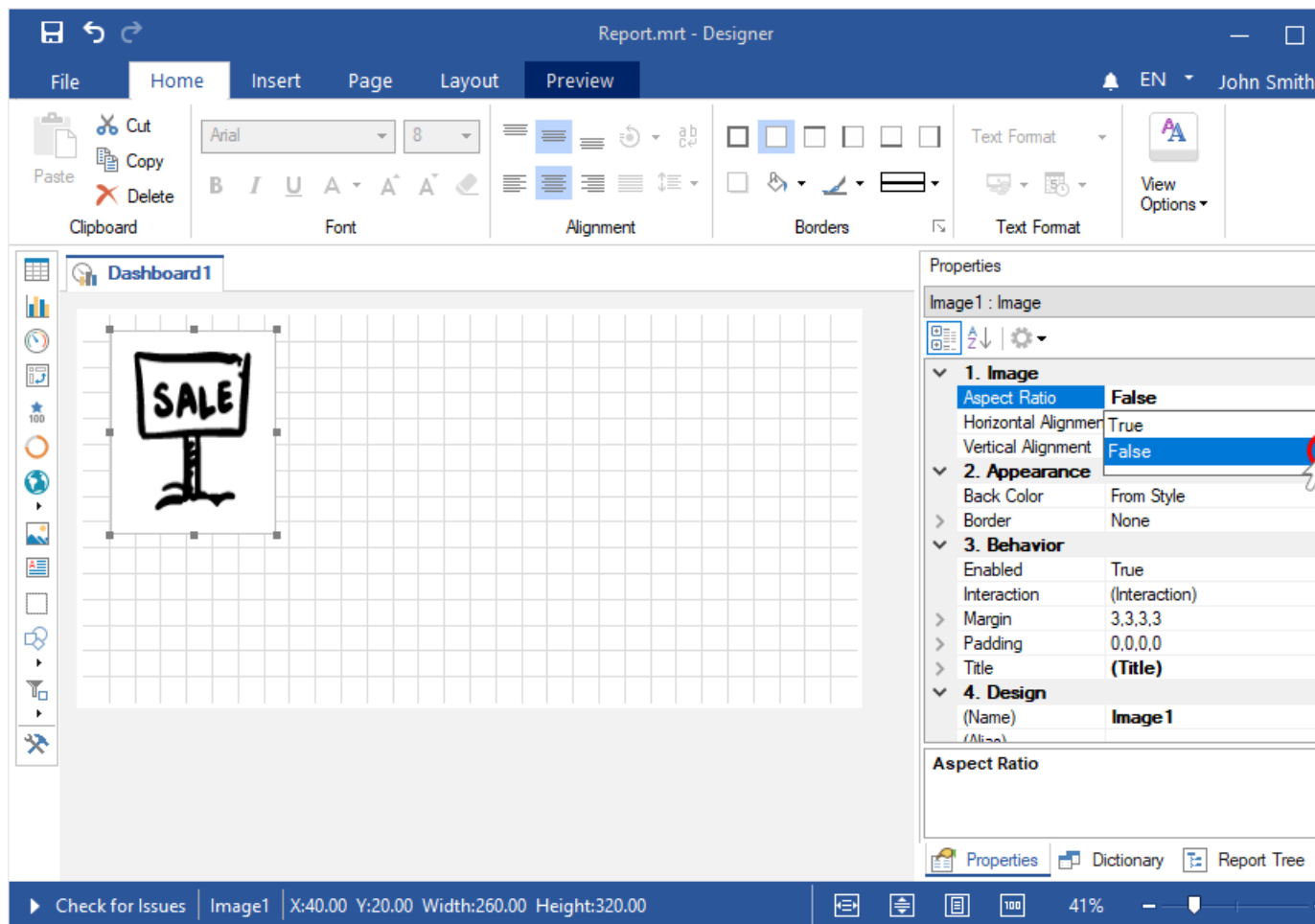


Aspect ratio

By default, aspect ratio is enabled when loading an image. To disable the aspect ratio, you should do the following:

Step 1: Select the Image element;

Step 2: Set the value to **False** for the **Aspect Ratio** property.



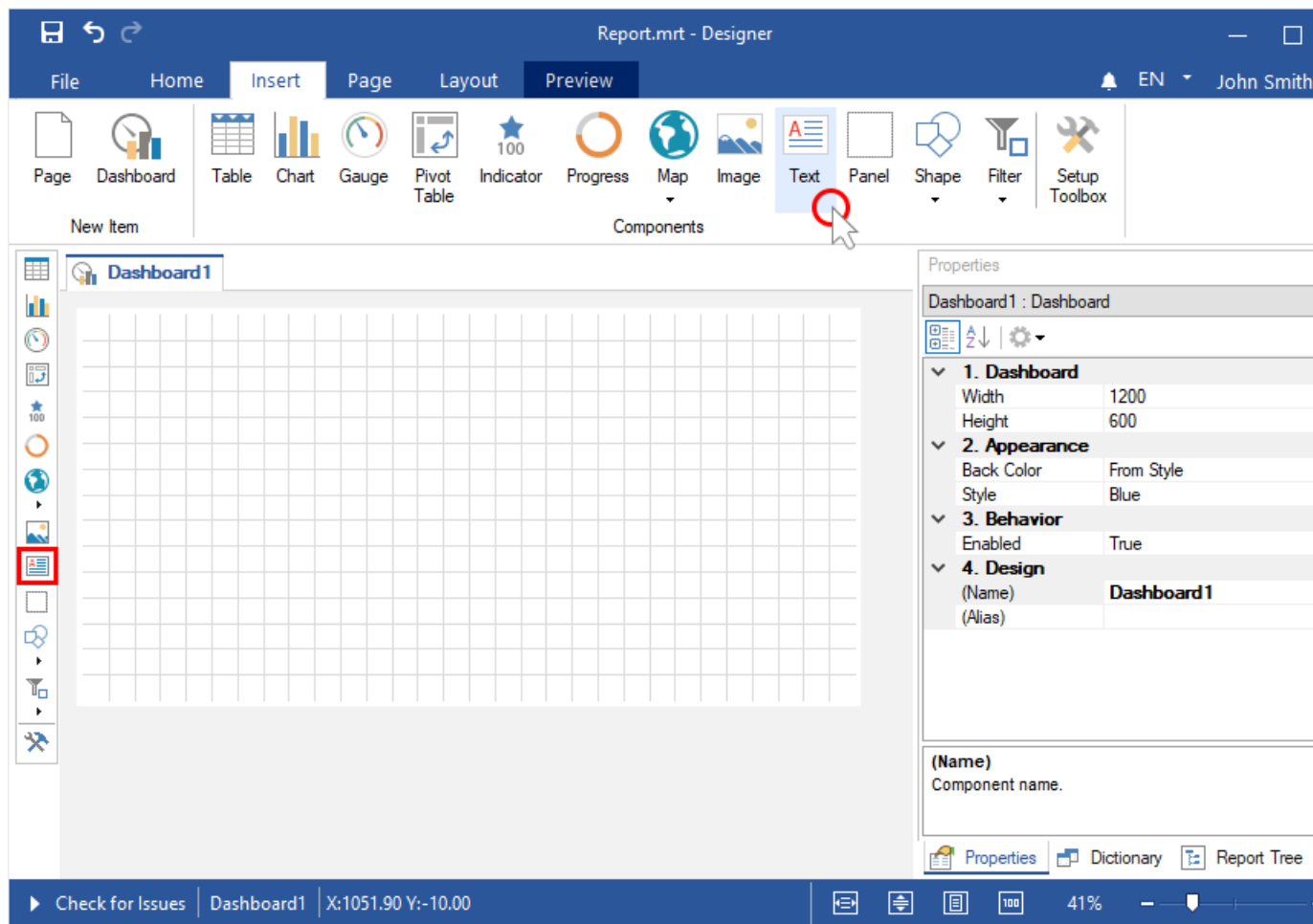
3.16 Dashboard with Text

To create a dashboard with the [Text](#) element, you should do the following:

Step 1: [Run the report designer](#);

Step 2: [Create a dashboard](#) or [add it to a current report](#);

Step 3: Select the **Text** element in the toolbox of the report designer or on the **Insert** tab;

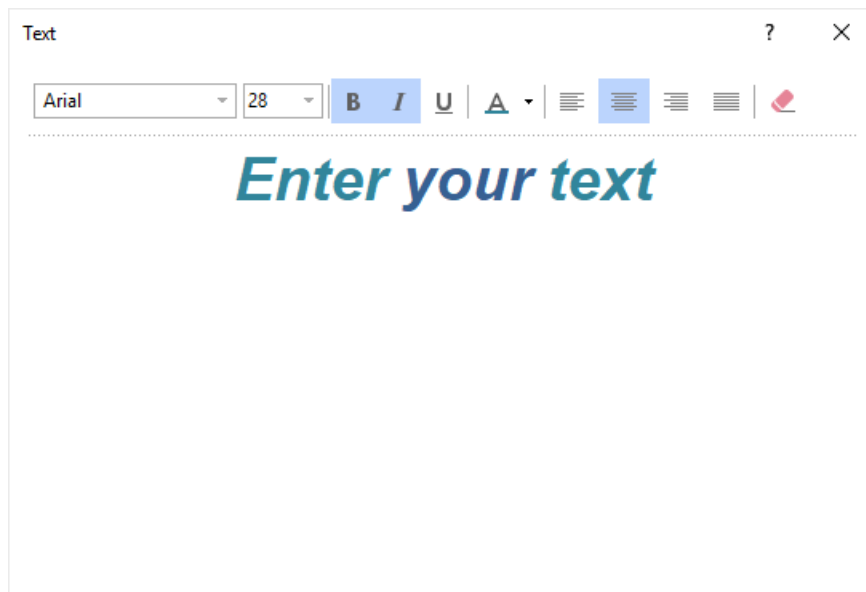


Step 4: Put the item on the dashboard panel;

Step 5: If the item editor does not open, double-click on the text;

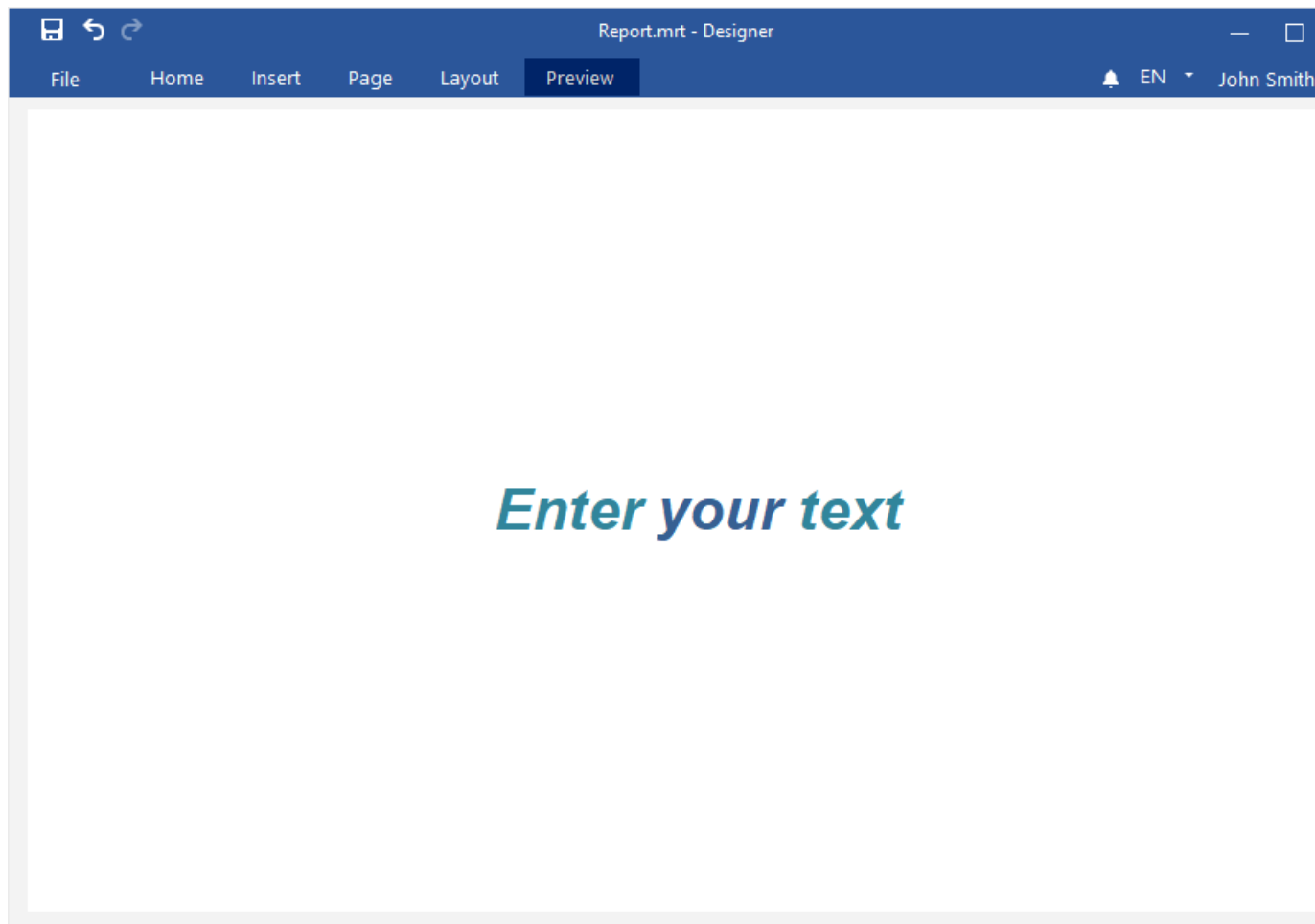
Step 6: Enter the text;

Step 7: Configure the text using the controls;



Step 8: Close the element editor;

Step 9: Go to the **Preview**.



3.17 Dashboards with Shapes

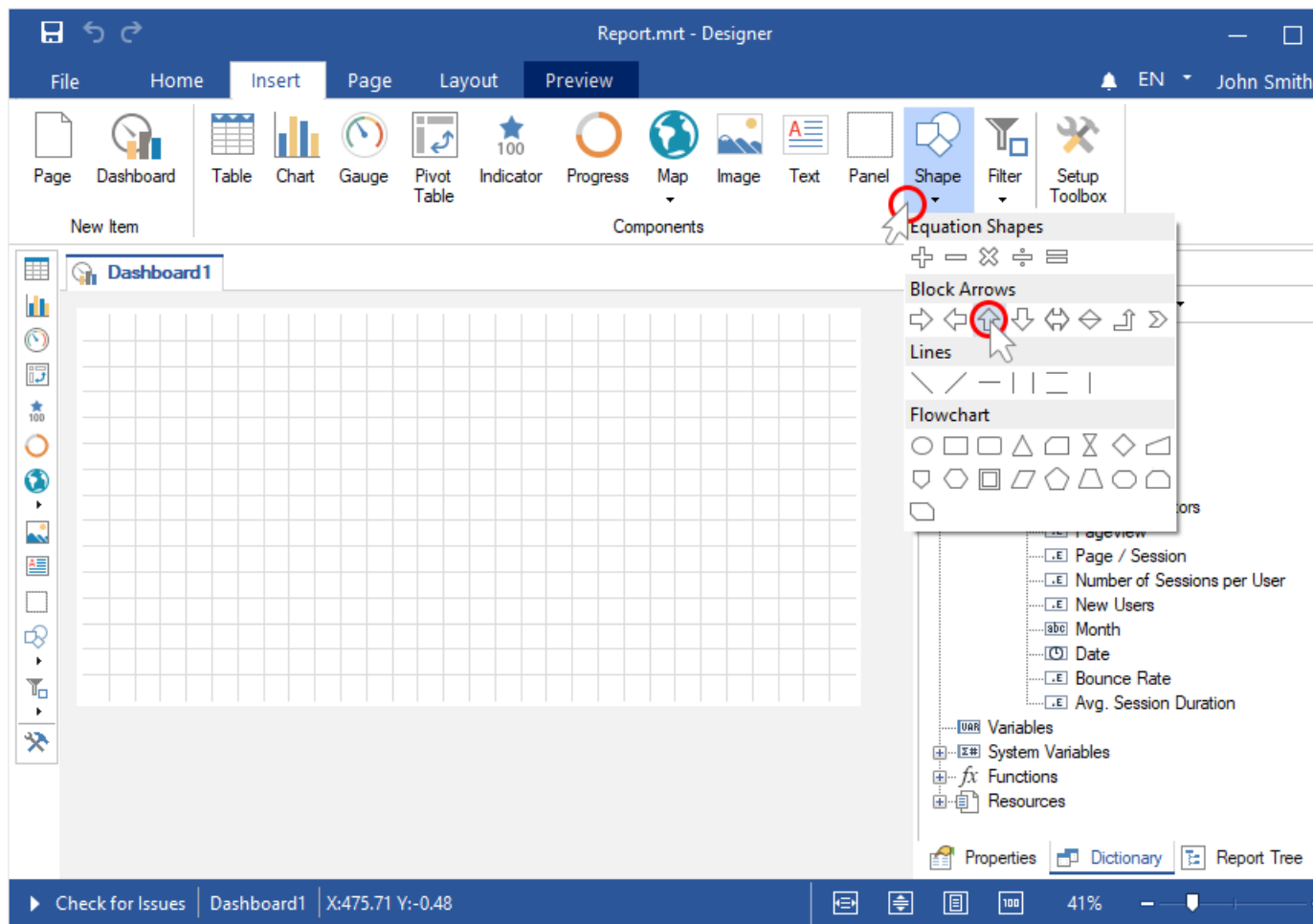
To create a dashboard with the [Shape element](#), you should make the following actions:

Step 1: [Launch the report designer](#);

Step 2: [Create a dashboard](#) or [add it to an existing report](#);

Step 3: Click on the **Shape** element in the **Toolbox** of the report designer or on the **Insert** tab;

Step 4: Select the type of the Shape;

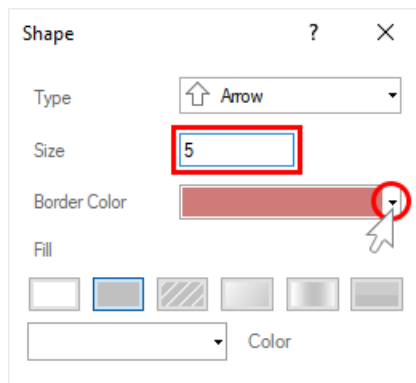


Step 5: Place an element on the dashboard;

Step 6: If the element editor is not displayed, you should double click on the text;

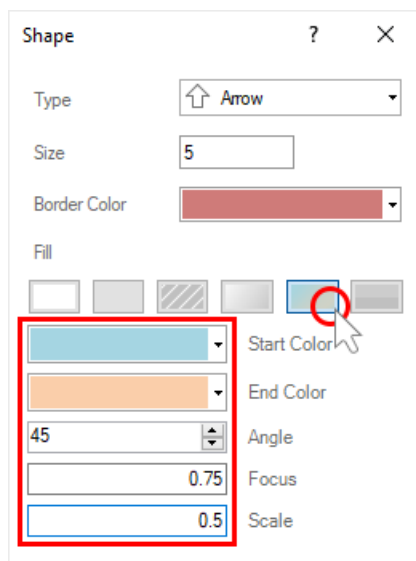
Step 7: Specify stroke size of the current shape;

Step 8: Select stroke color with the help of the color palette element;



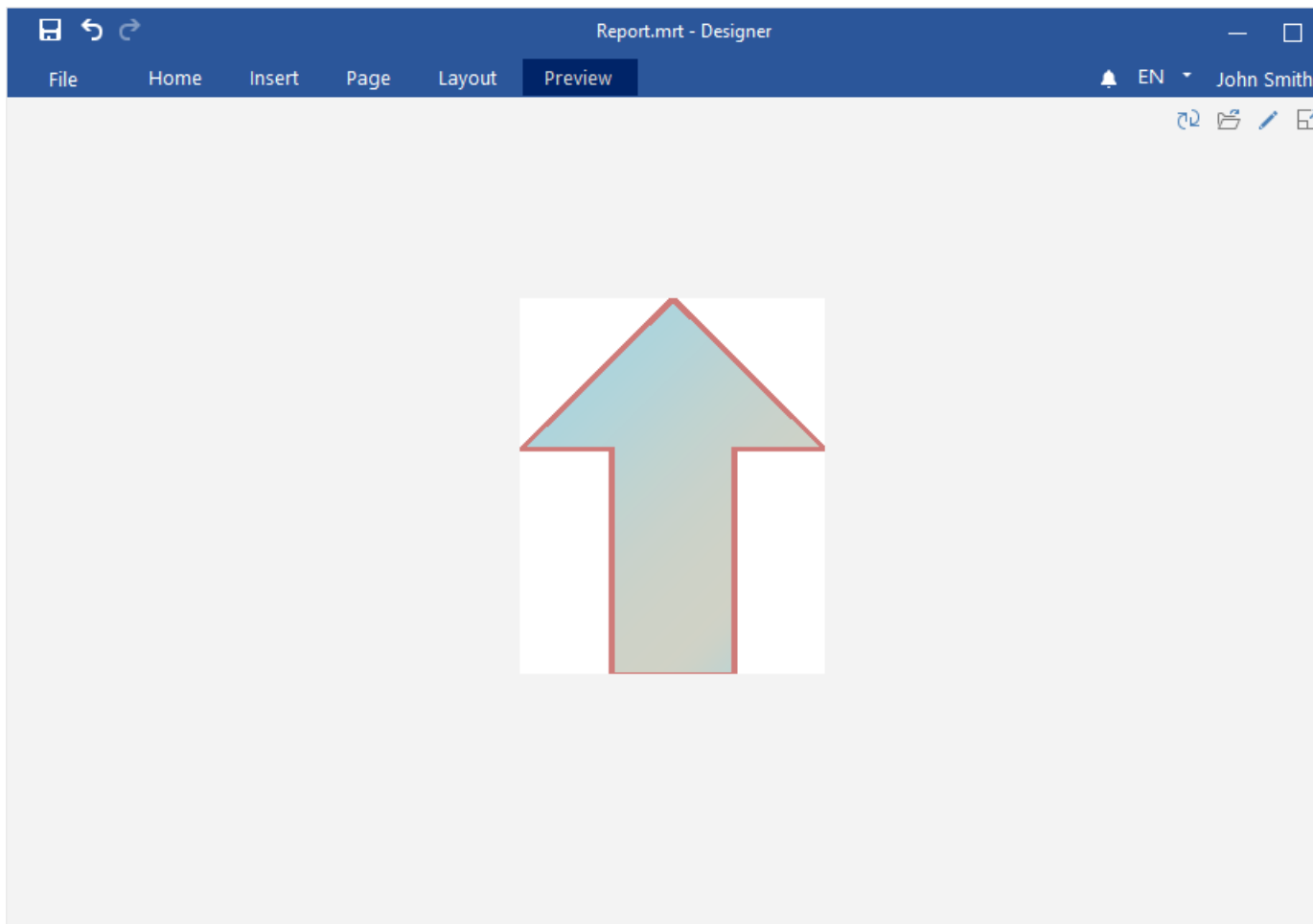
Step 9: Select the type of fill brush of the current shape;

Step 10: Depending on the type of brush you select, you should set the fill of the current shape with the help of parameters and controls;



Step 11: Close the element editor;

Step 12: Go to the Preview tab.



3.18 Dashboards with List Box

To create a dashboard with the [List Box element](#), you should make the following actions:

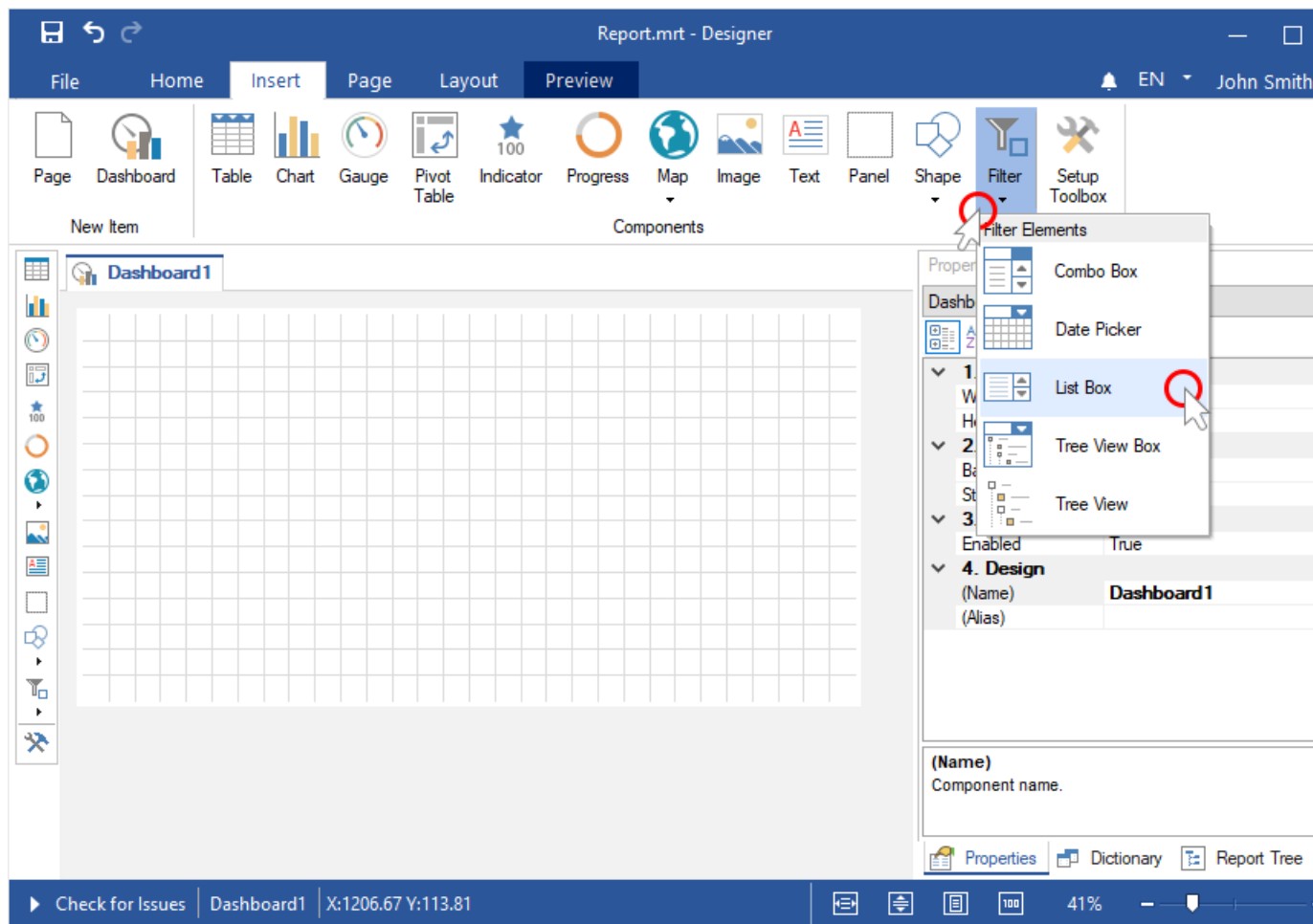
Step 1: [Launch the report designer](#);

Step 2: [Create a dashboard or open it](#);

Step 3: [Connect data](#);

Step 4: Click on the **Filters** category in the **Toolbox** of the report designer or on the **Insert** tab;

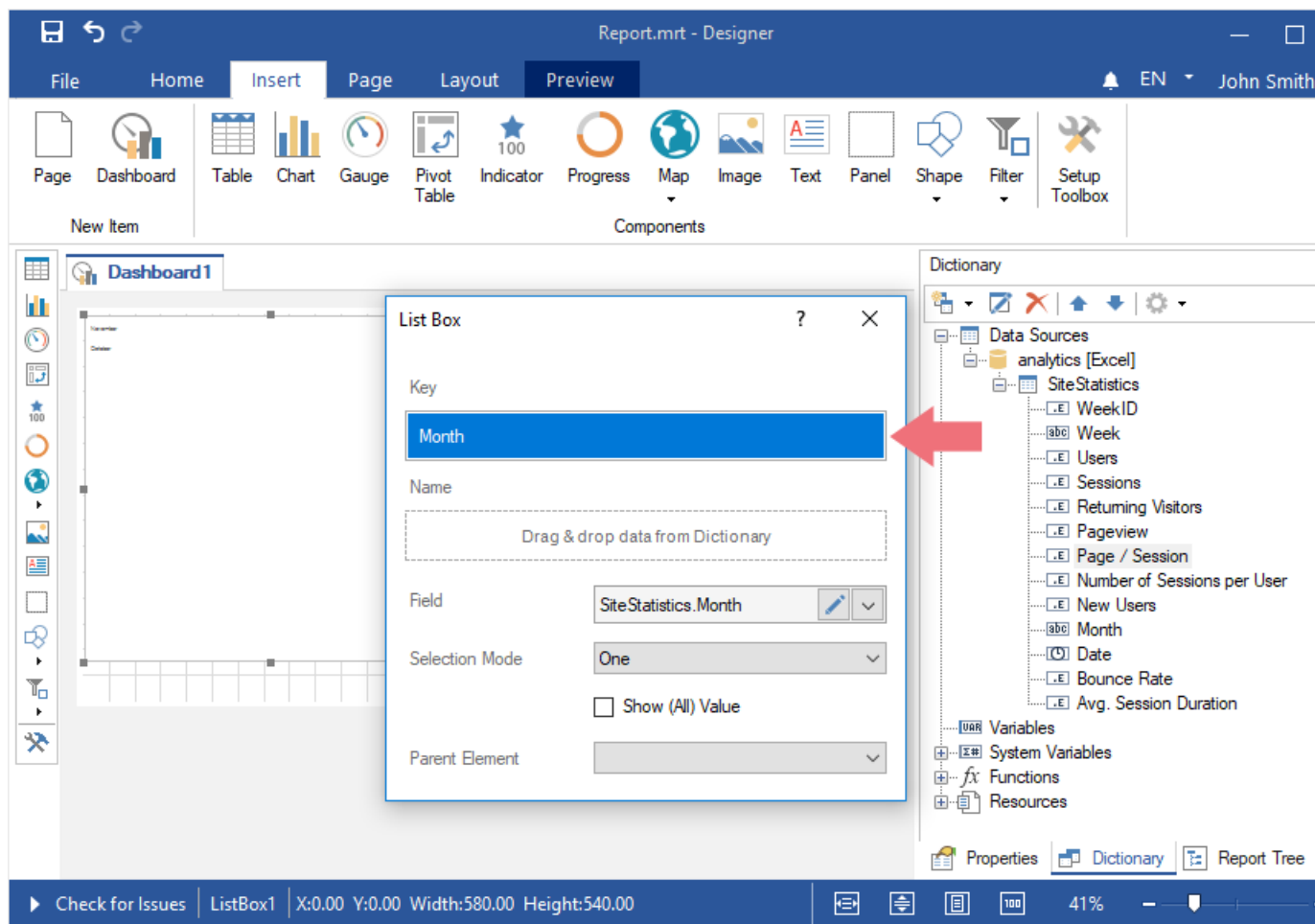
Step 5: Select the **List Box** element;



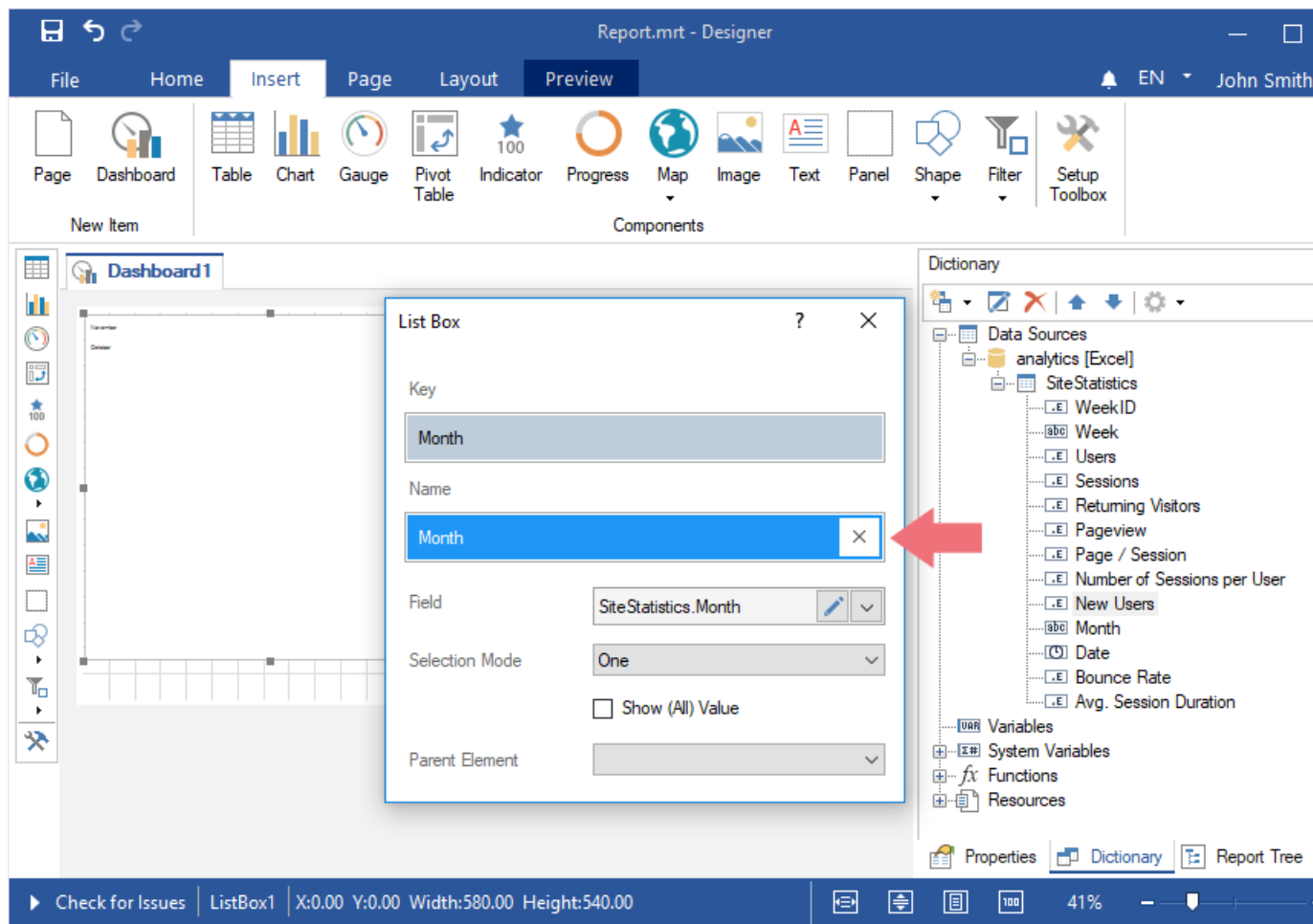
Step 6: Place the element on the dashboard;

Step 7: If the element editor is not displayed, you should double click on the element;

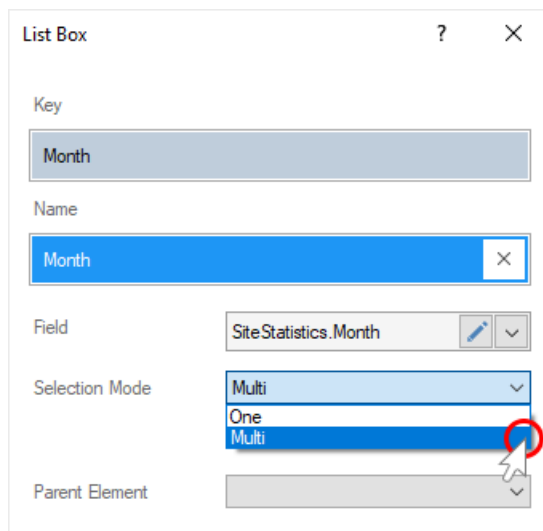
Step 8: Drag a data column from data dictionary. By default, the data column will be added to the **Key** field;



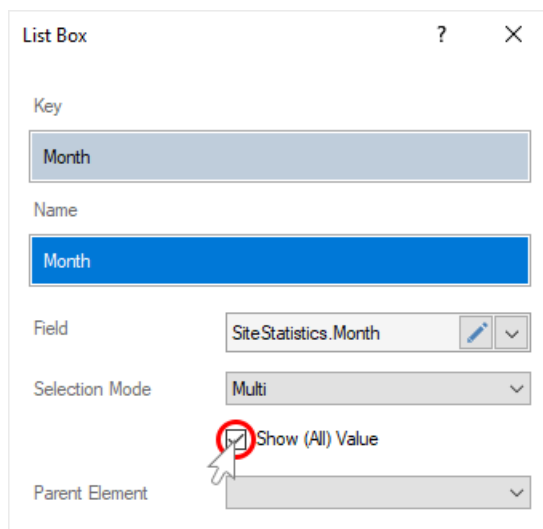
Step 9: Drag the data column into the **Name** field;



Step 10: If you need to permit to select only one value of the current element, you should set the **One** value for the **Selection Mode** parameter. Set the **Multi** value for the **Selection Mode** parameter, if you need to permit to select several values of the current element.



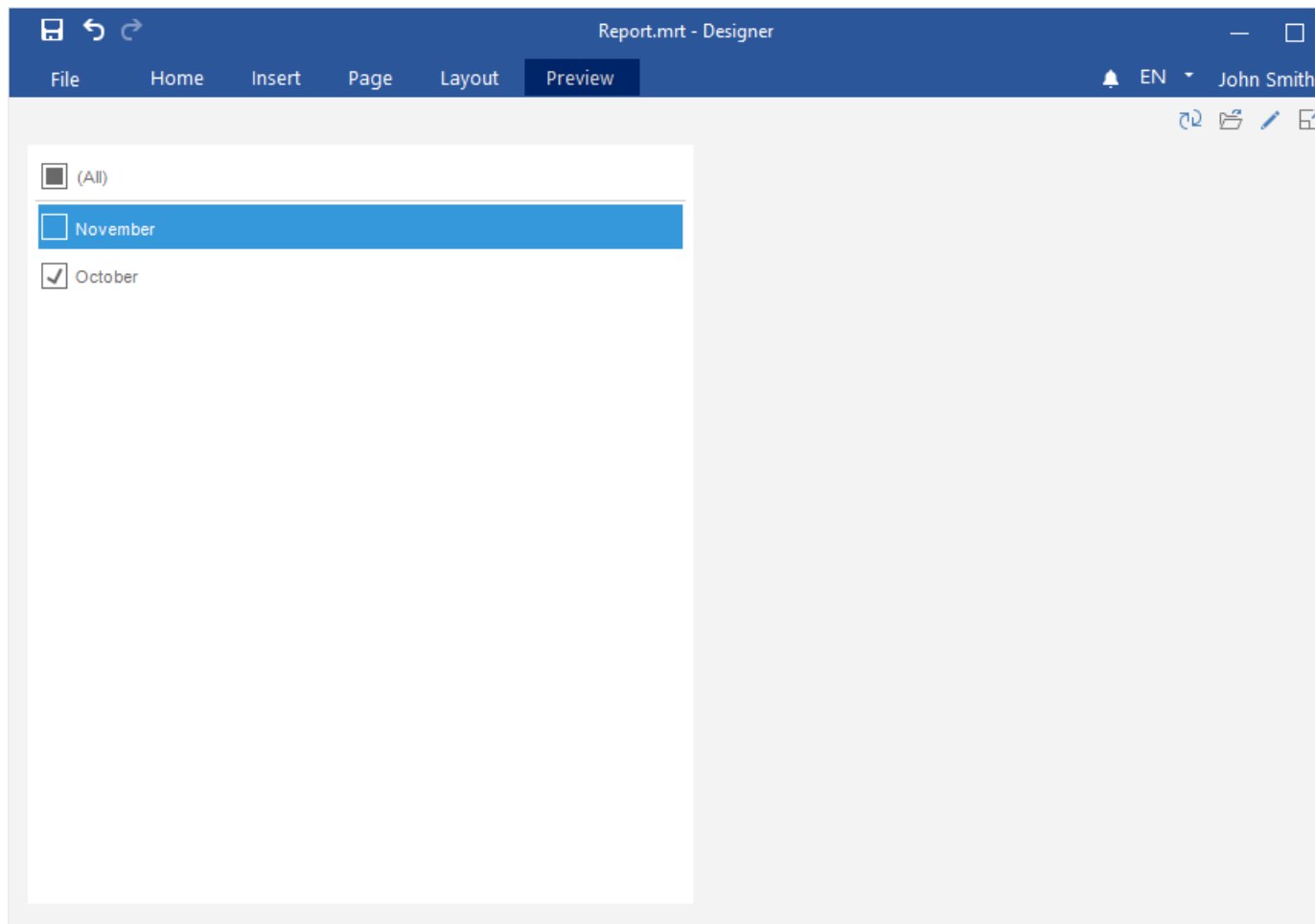
Step 11: If you need the list of values contain the **All** value, you should set a checkbox next to the **Show (All) Value** parameter.



Step 12: If you need the list of values to be depended on the selected value of the **Parent Element** parameter, you should select another item of filtration as the value of the **Parent Element** parameter.

Step 13: Close the element editor;

Step 14: Go to the **Preview** tab.



3.19 Dashboards with Combo Box

To create a dashboard with the [Combo Box element](#), you should make the following actions:

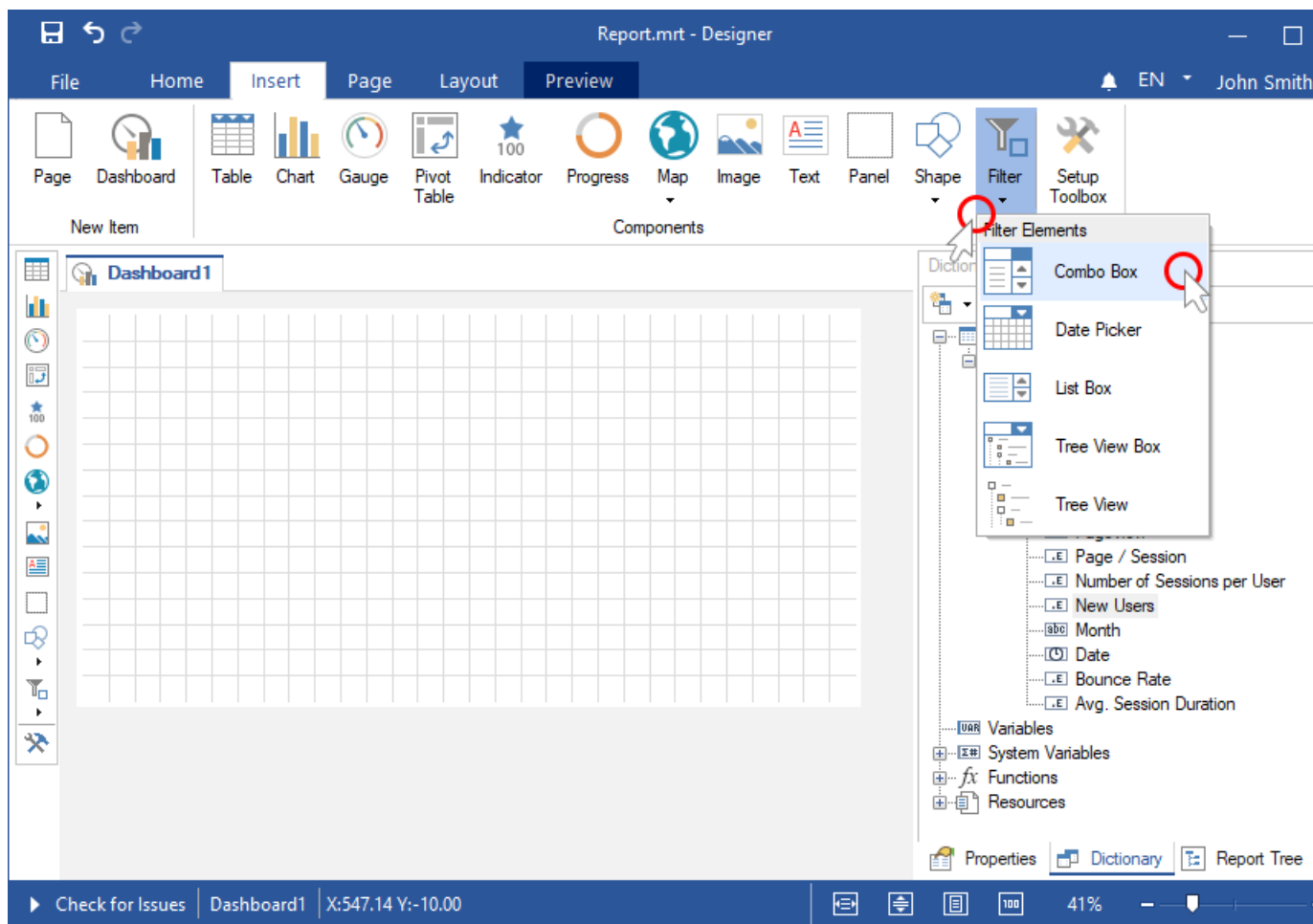
Step 1: [Launch the report designer](#);

Step 2: [Create a dashboard or open it](#);

Step 3: [Connect data](#);

Step 4: Click on the **Filters** category in the **Toolbox** of the report designer or on the **Insert** tab;

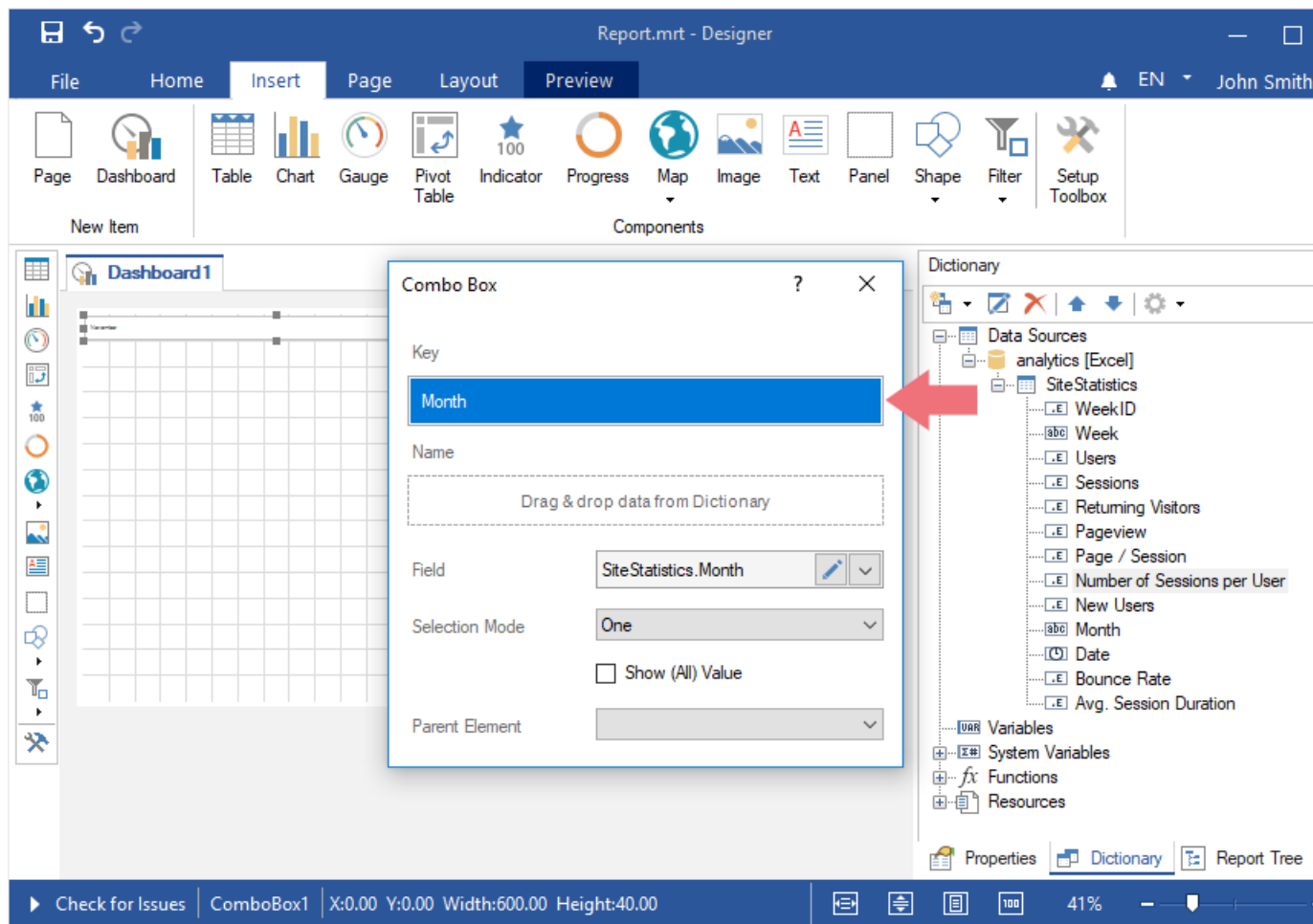
Step 5: Select the **Combo Box** element;



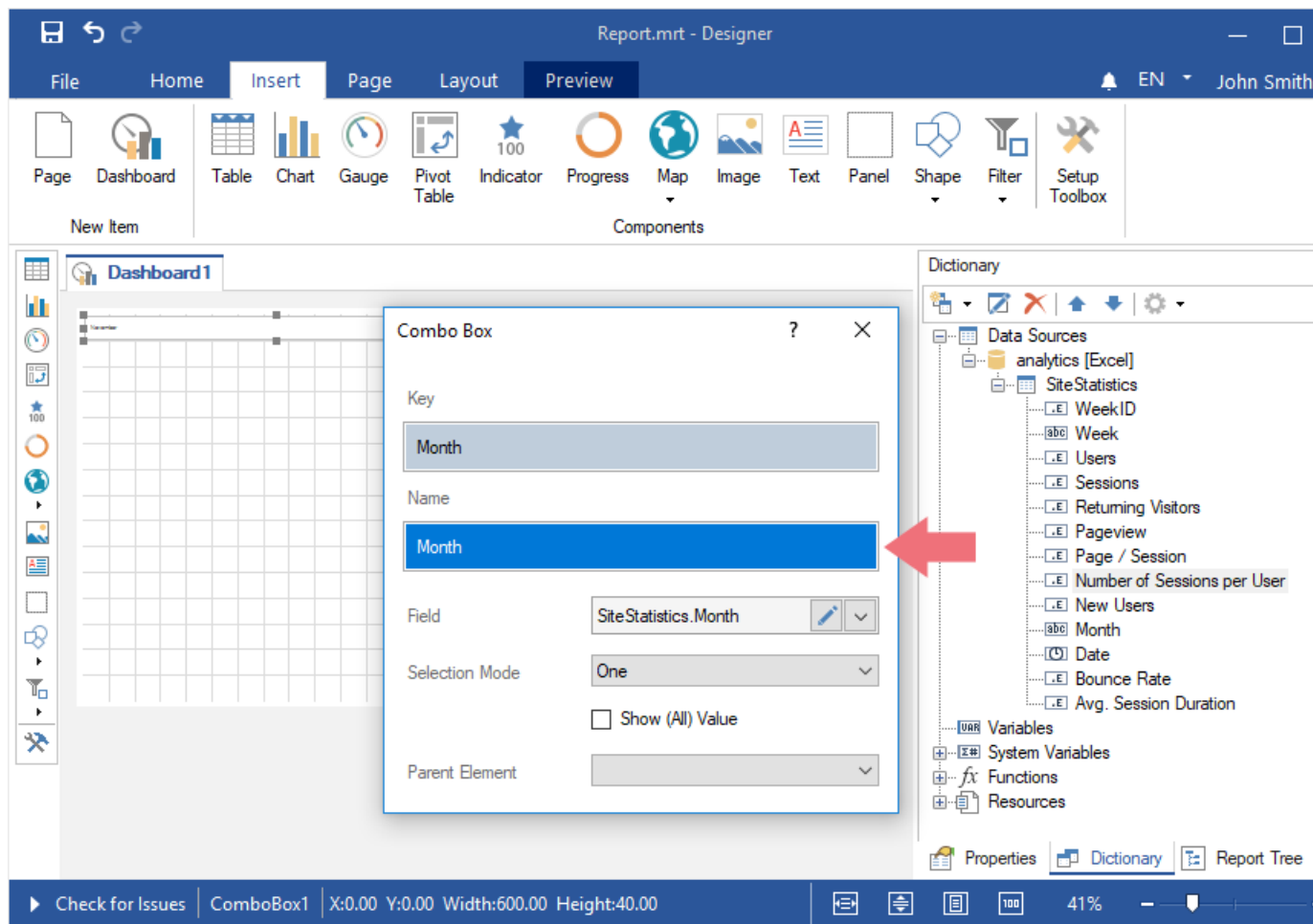
Step 6: Place the element on the dashboard;

Step 7: If the element editor is not displayed, you should double click on the element;

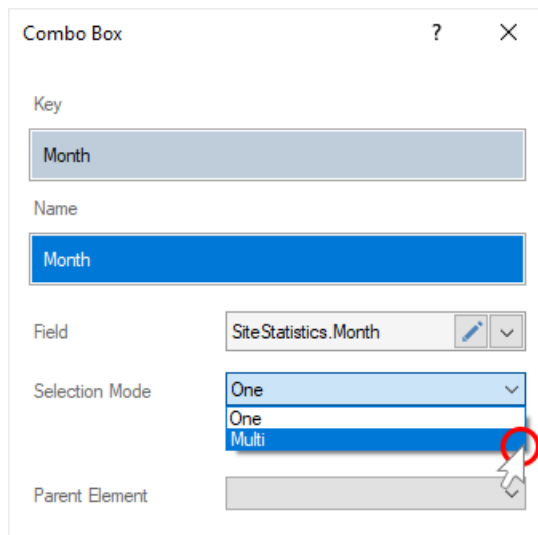
Step 8: Drag a data column from data dictionary. By default, the data column will be added to the **Key** field;



Step 9: Drag the data column into the **Name** field;



Step 10: If you need to permit to select only one value of the current element, you should set the **One** value for the **Selection Mode** parameter. Set the **Multi** value for the **Selection Mode** parameter, if you need to permit to select several values of the current element.



Combo Box

Key

Month

Name

Month

Field

SiteStatistics.Month

Selection Mode

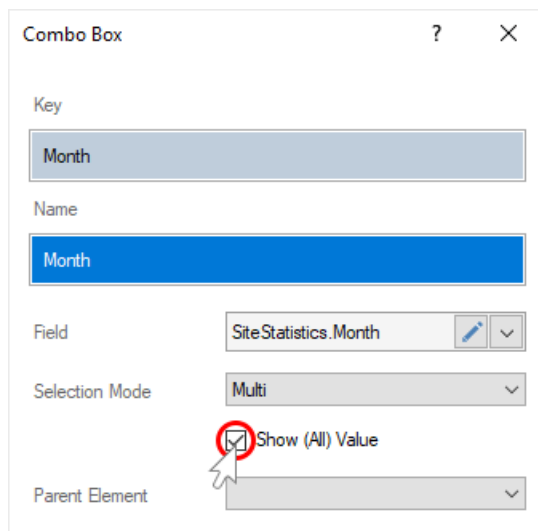
One

One

Multi

Parent Element

Step 11: If you need the list of values contain the **All** value, you should set a checkbox next to the **Show (All) Value** parameter.



Combo Box

Key

Month

Name

Month

Field

SiteStatistics.Month

Selection Mode

Multi

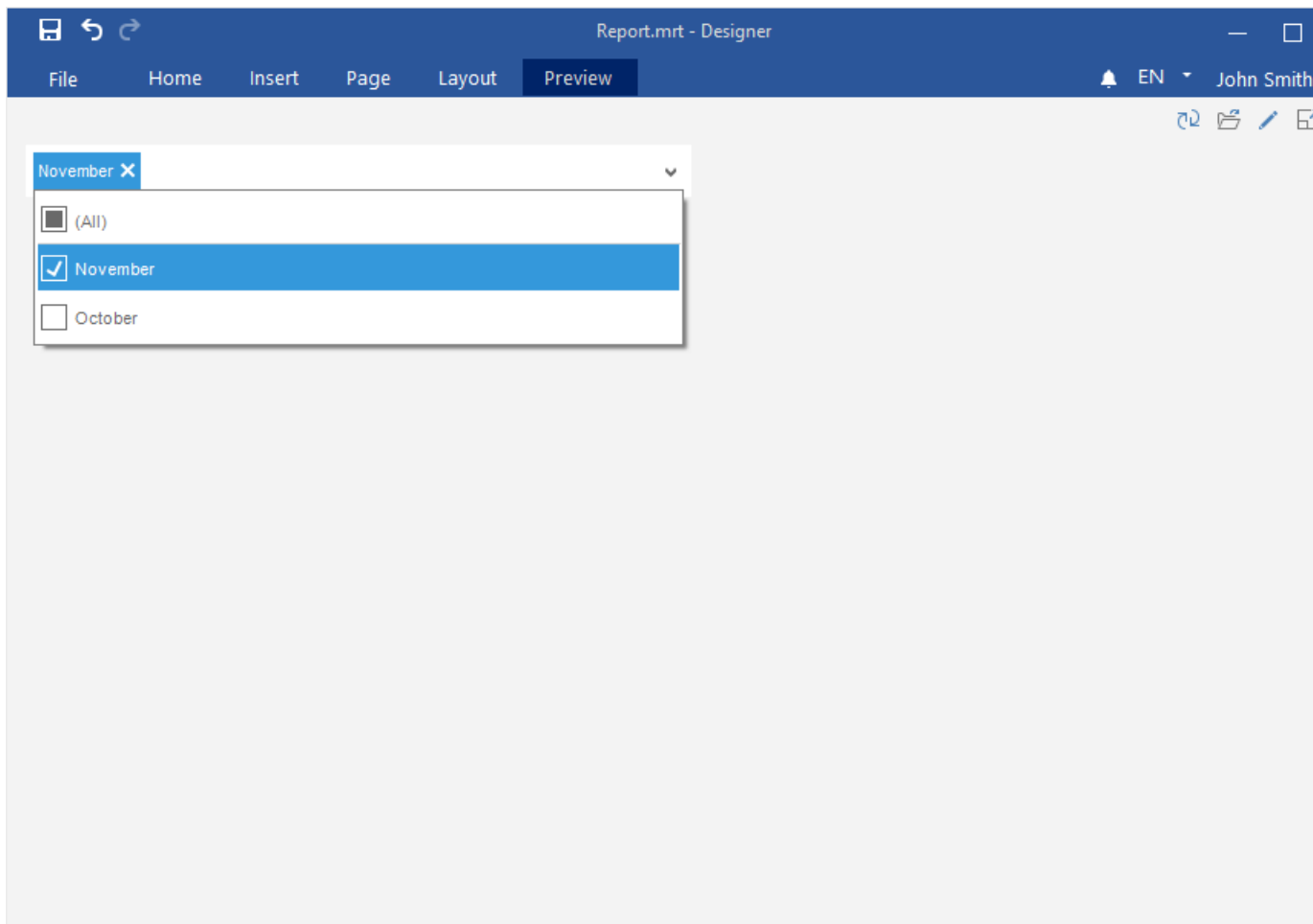
☒ Show (All) Value

Parent Element

Step 12: If you need the list of values to be depended on the selected value of the **Parent Element** parameter, you should select another item of filtration as the value of the **Parent Element** parameter.

Step 13: Close the element editor.

Step 14: Go to the **Preview** tab.



3.20 Dashboards with Tree View

To create a dashboard with the **Tree View** item, you should make the following actions:

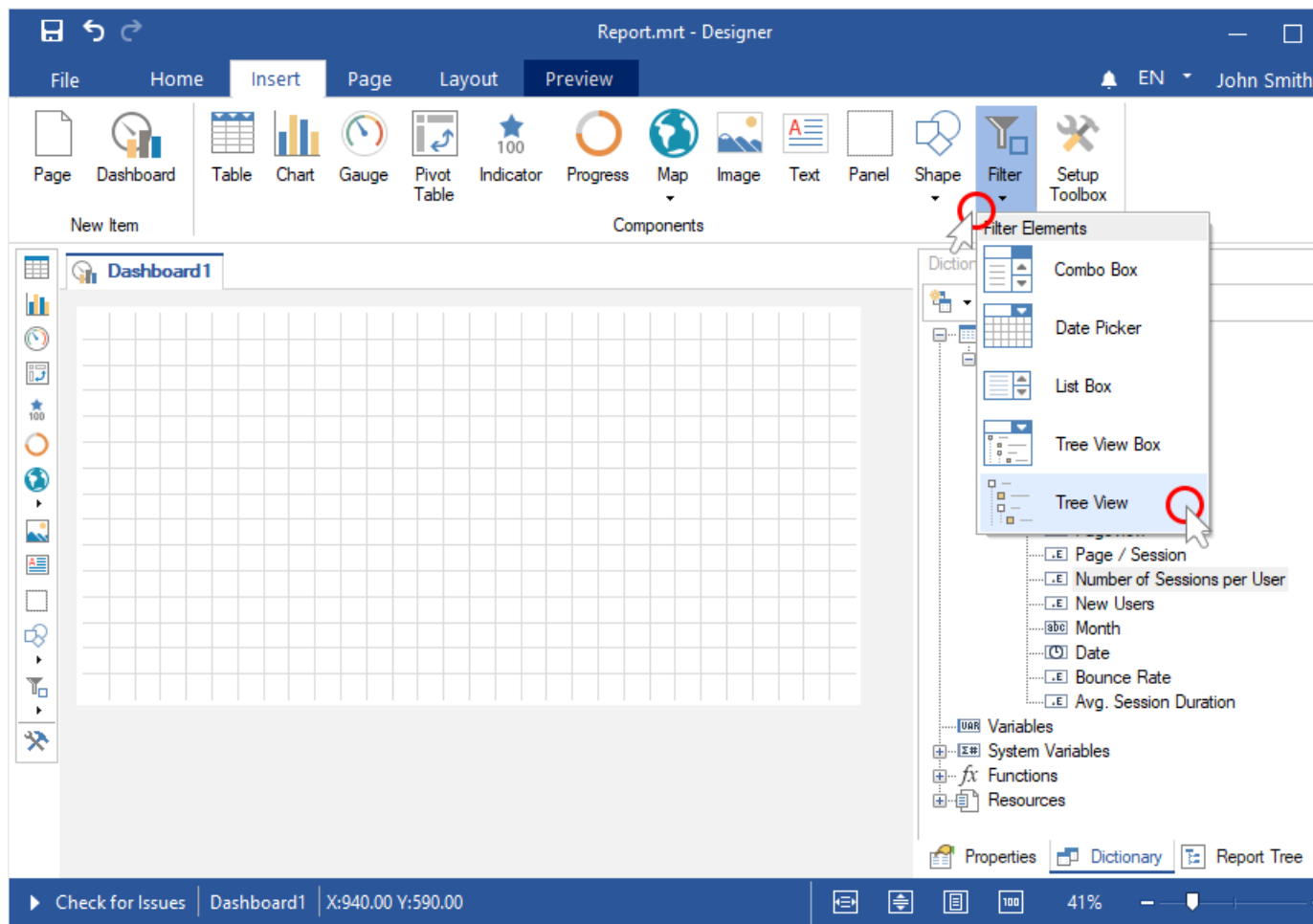
Step 1: [Launch the report designer](#);

Step 2: [Create a dashboard or open it](#);

Step 3: [Connect data](#);

Step 4: Click on the **Filters** category in the **Toolbox** of the report designer or on the **Insert** tab;

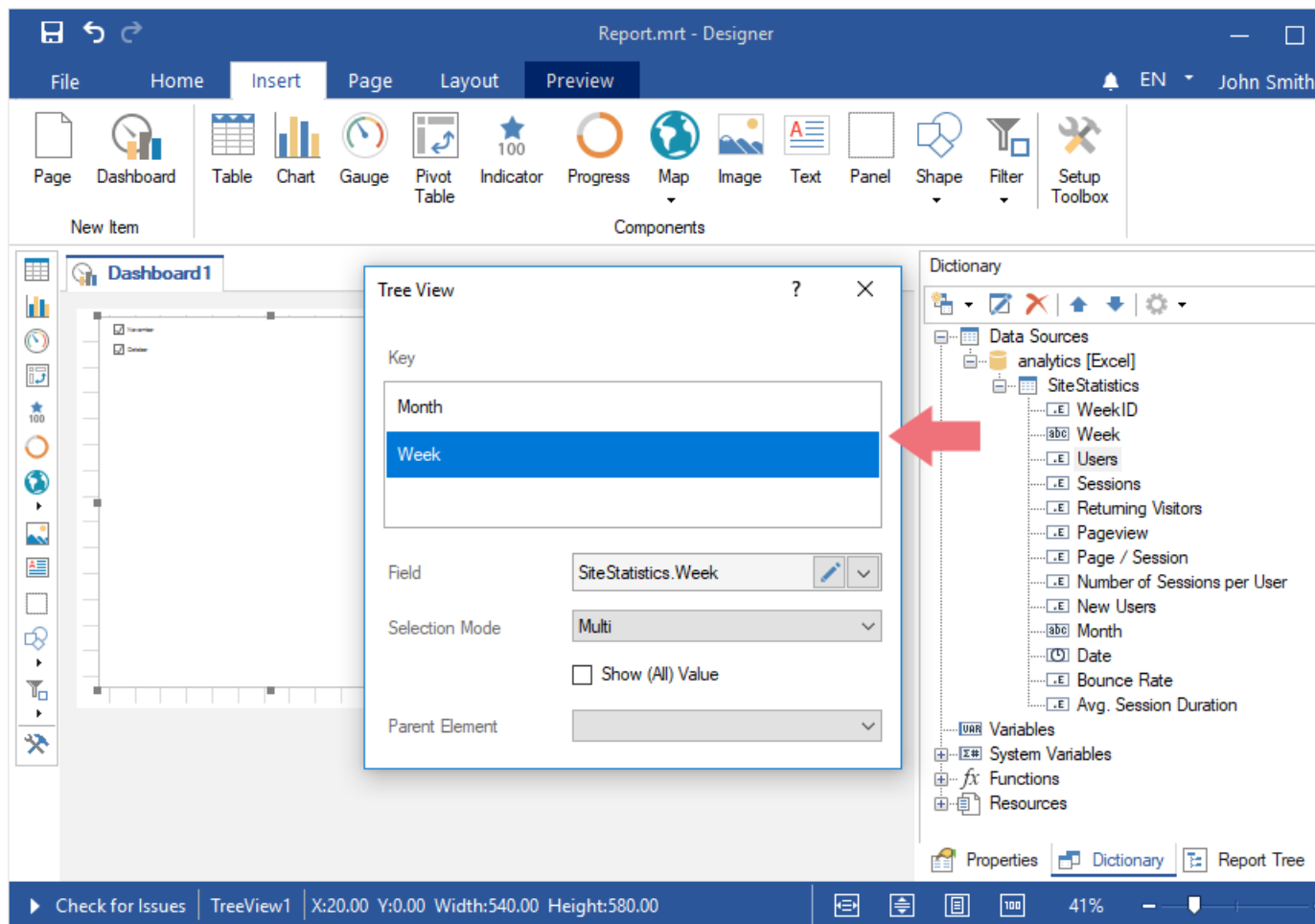
Step 5: Select the **Tree View** element;



Step 6: Place the element on the dashboard;

Step 7: If the element editor is not displayed, you should double click on the element;

Step 8: Drag data columns from data dictionary into the **Key** field. The values from these data columns will form the hierarchy of the current element. The values from the upper column will be the values of the upper hierarchy level, the values from the second data column upper will be the values of the second level.



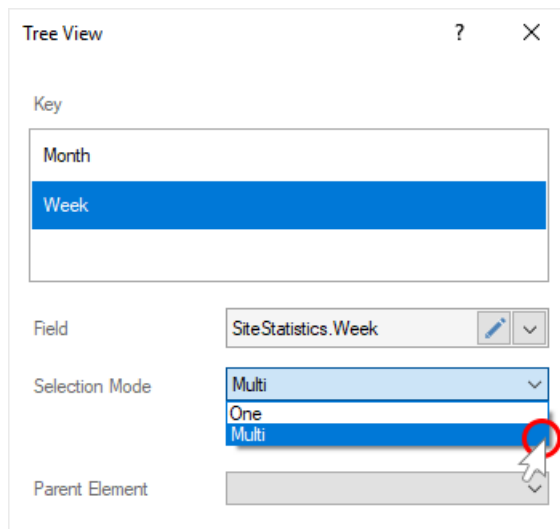
Information

The hierarchy of data values depends on the location of data columns in the **Key** field. The values of the data column, which is located in the current field upper than the others will be parent (initial) values in the hierarchical list of the values of the current element.

The values of the bottom data column in the **Key** field will be nested in relation to the values of each upper data column.

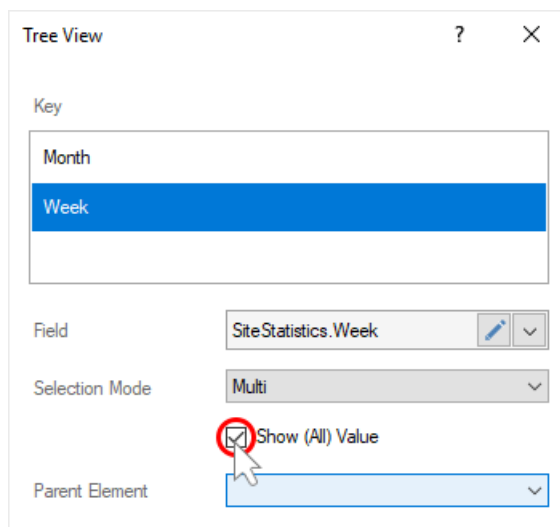
Step 9: If you need to permit to select only one value of the current element, you should set the **One** element for the **Selection Mode** parameter. If you need to permit to select several values of the current element, you should set the **Multi**

element for the **Selection Mode** parameter.



The screenshot shows a 'Tree View' dialog box with a 'Key' list containing 'Month' and 'Week' (selected). Below, the 'Field' is set to 'SiteStatistics.Week'. The 'Selection Mode' dropdown is open, showing 'Multi' (selected), 'One', and 'Multi'. A red circle highlights the 'Multi' option at the bottom of the dropdown. The 'Parent Element' field is empty.

Step 10: If you need the list of values contain the **All** value, you should set a checkbox next to the **Show (All) Value** parameter.

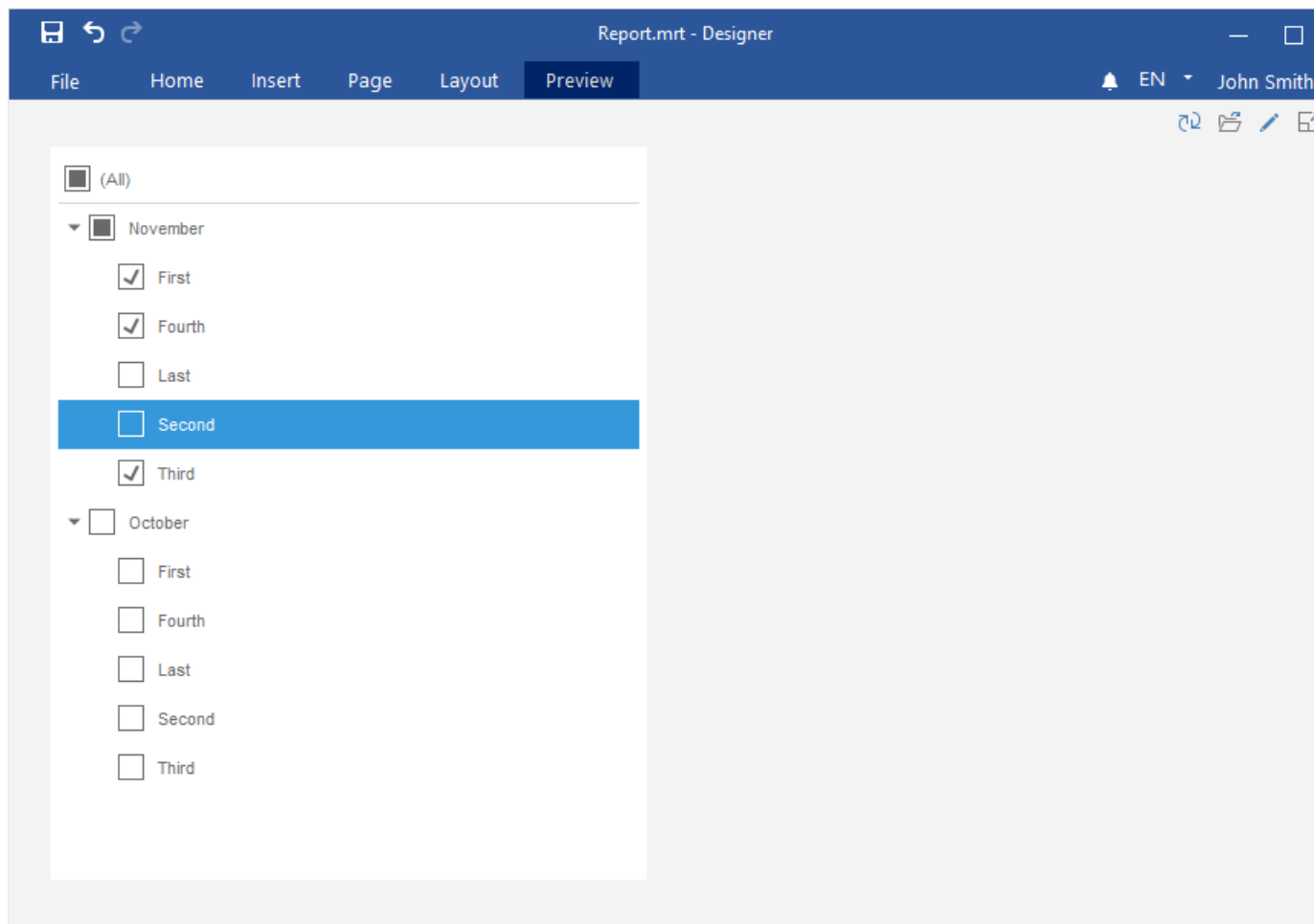


The screenshot shows the same 'Tree View' dialog box. The 'Selection Mode' is now set to 'Multi'. A red circle highlights a checked checkbox next to the text 'Show (All) Value'. The 'Parent Element' field is still empty.

Step 11: If you need the list of values of the current element to be depended on the selected value of the **Parent Element**, you should select another filtration element as the value of the Parent Element parameter.

Step 12: Close the element editor;

Step 13: Go to the **Preview** tab.



3.21 Dashboards with Tree View Box

To create a dashboard with the [Tree View Box element](#), you should make the following actions:

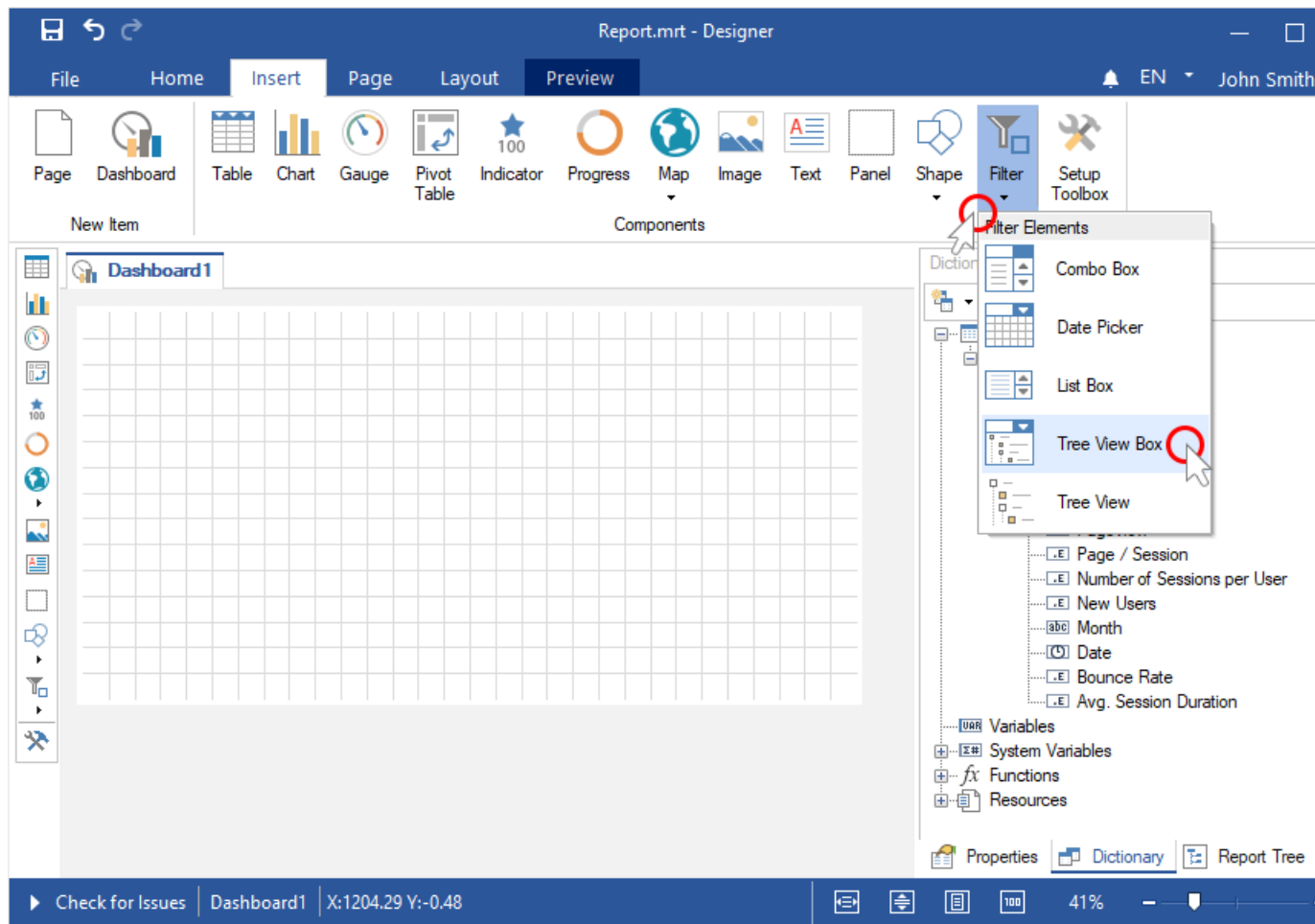
Step 1: [Launch the report designer](#);

Step 2: [Create a dashboard or open it](#);

Step 3: [Connect data](#);

Step 4: Click on the **Filters** category in the **Toolbox** of the report designer or on the **Insert** tab;

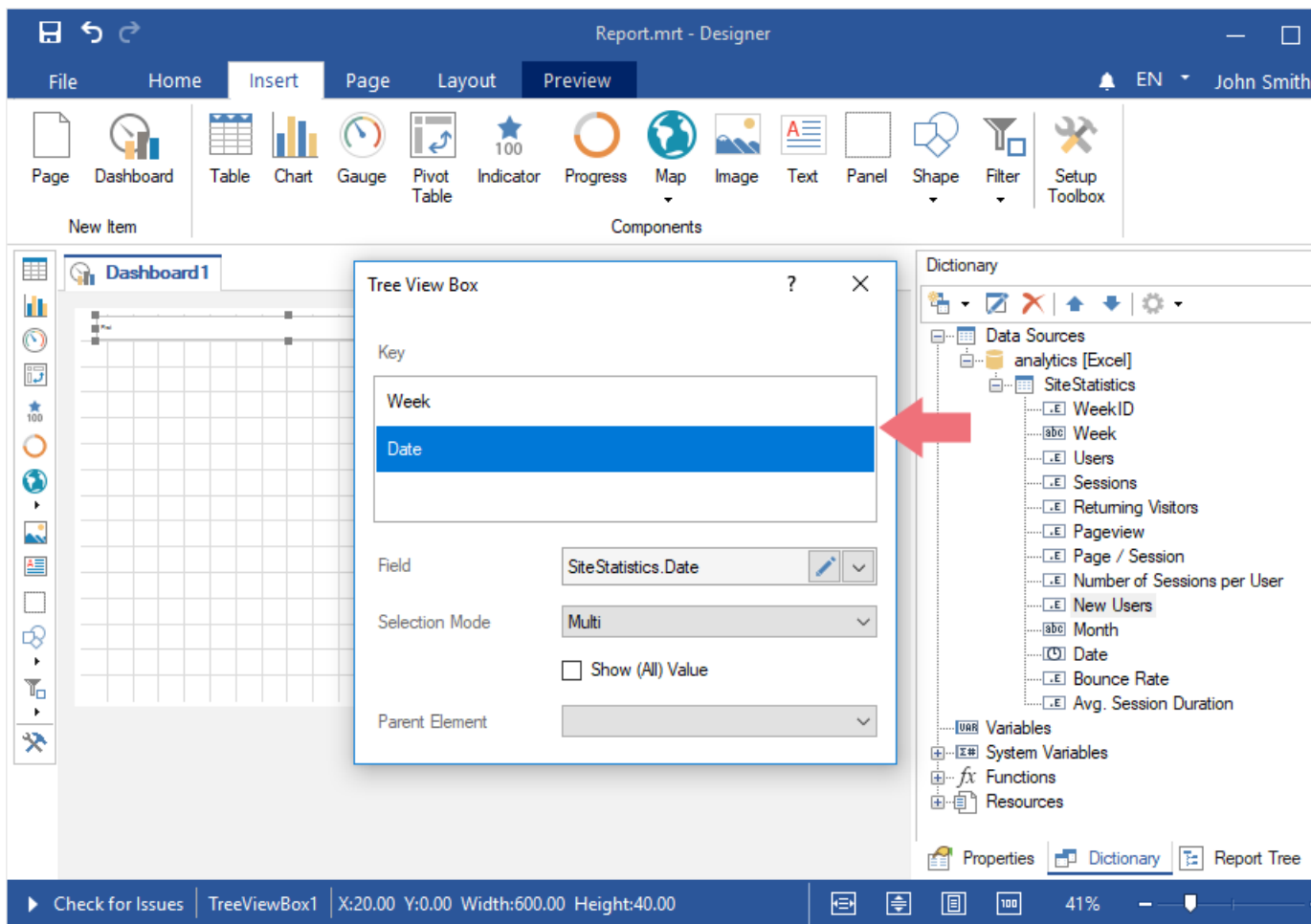
Step 5: Select the **Tree View Box** element;



Step 6: Place the element on the dashboard;

Step 7: If the element editor is not displayed, you should double click on the element;

Step 8: Drag data columns from data dictionary into the **Key** field. The values from these data columns will form the hierarchy of the current element. The values from the upper column will be the values of the upper hierarchy level, the values from the second data column upper will be the values of the second level.



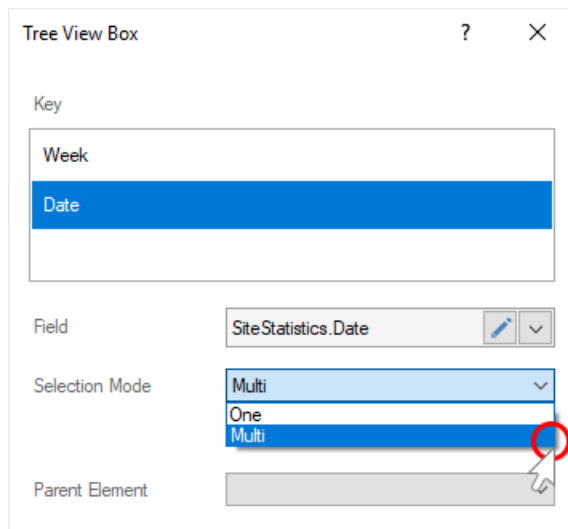
Information

The hierarchy of data values depends on the location of data columns in the **Key** field. The values of the data column, which is located in the current field upper than the others will be parent (initial) values in the hierarchical list of the values of the current element.

The values of the bottom data column in the **Key** field will be nested in relation to the values of each upper data column.

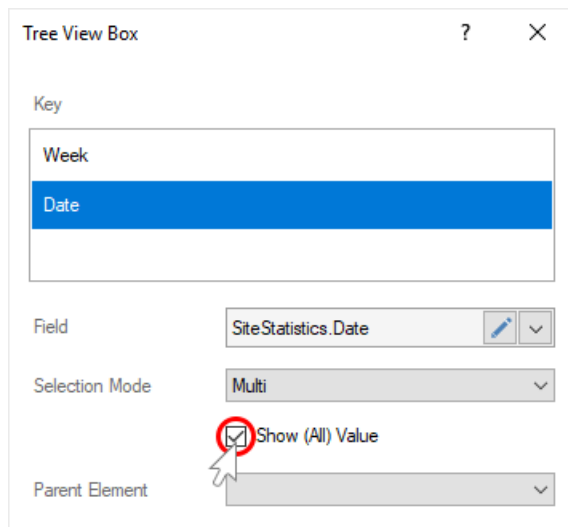
Step 9: If you need to permit to select only one value of the current element, you should set the **One** element for the **Selection Mode** parameter. If you need to permit to select several values of the current element, you should set the **Multi**

element for the **Selection Mode** parameter.



The screenshot shows a dialog box titled "Tree View Box" with a close button (X) and a help button (?). It contains several fields: "Key" with a list box showing "Week" and "Date" (selected); "Field" with a text box containing "SiteStatistics.Date" and a dropdown arrow; "Selection Mode" with a dropdown menu open showing "Multi", "One", and "Multi" (selected); and "Parent Element" with an empty text box. A red circle highlights the "Multi" option in the "Selection Mode" dropdown.

Step 10: If you need the list of values contain the **All** value, you should set a checkbox next to the **Show (All) Value** parameter.

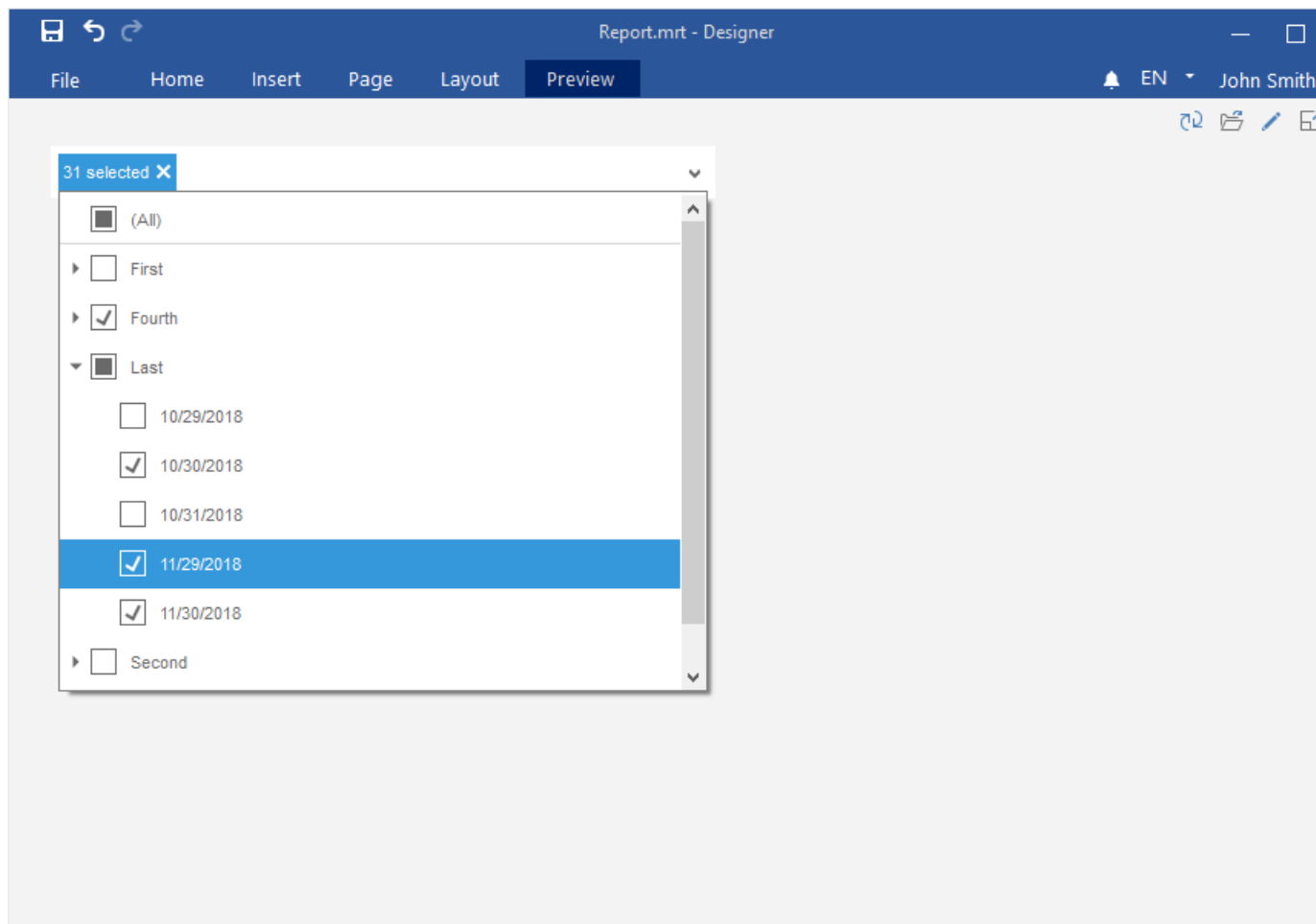


The screenshot shows the same "Tree View Box" dialog. The "Selection Mode" dropdown is now closed and shows "Multi". A red circle highlights a checkbox labeled "Show (All) Value" which is checked. The "Parent Element" field is still empty.

Step 11: If you need the list of values of the current element to be depended on the selected value of the **Parent Element**, you should select another filtration element as the value of the Parent Element parameter.

Step 12: Close the element editor;

Step 13: Go to the **Preview** tab.



3.22 Dashboards with Date Picker

In this chapter, the following questions will be considered:

- > [Adding the Date Picker](#);
- > [Single mode](#);
- > [Range mode](#);
- > [Autorange mode](#).

Adding the Date Picker

To create a dashboard with the [Date Picker element](#), you should make the following actions:

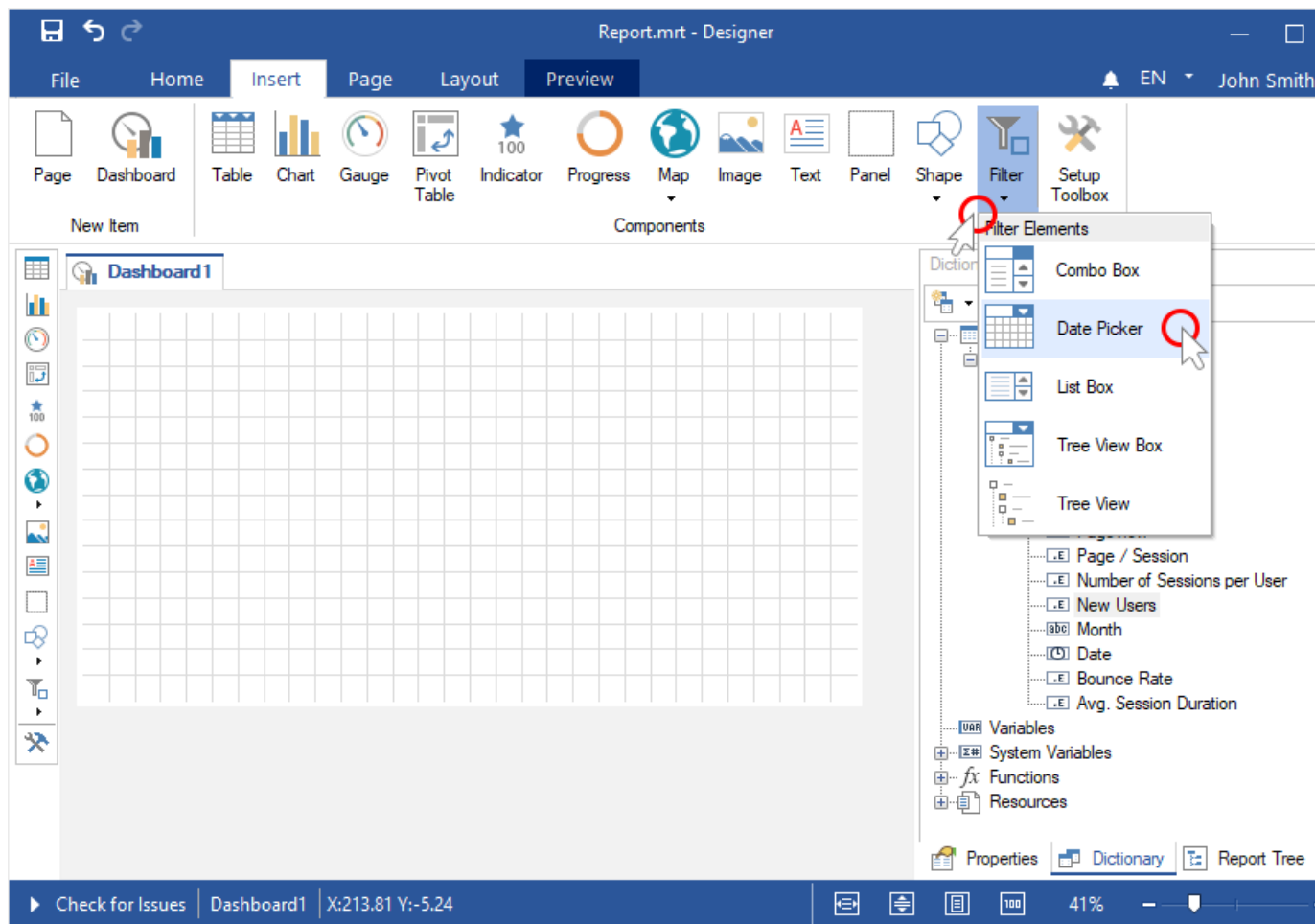
Step 1: [Launch the report designer](#);

Step 2: [Create a dashboard or open it](#);

Step 3: [Connect data](#);

Step 4: Click on the **Filters** category in the **Toolbox** of the report designer or on the **Insert** tab;

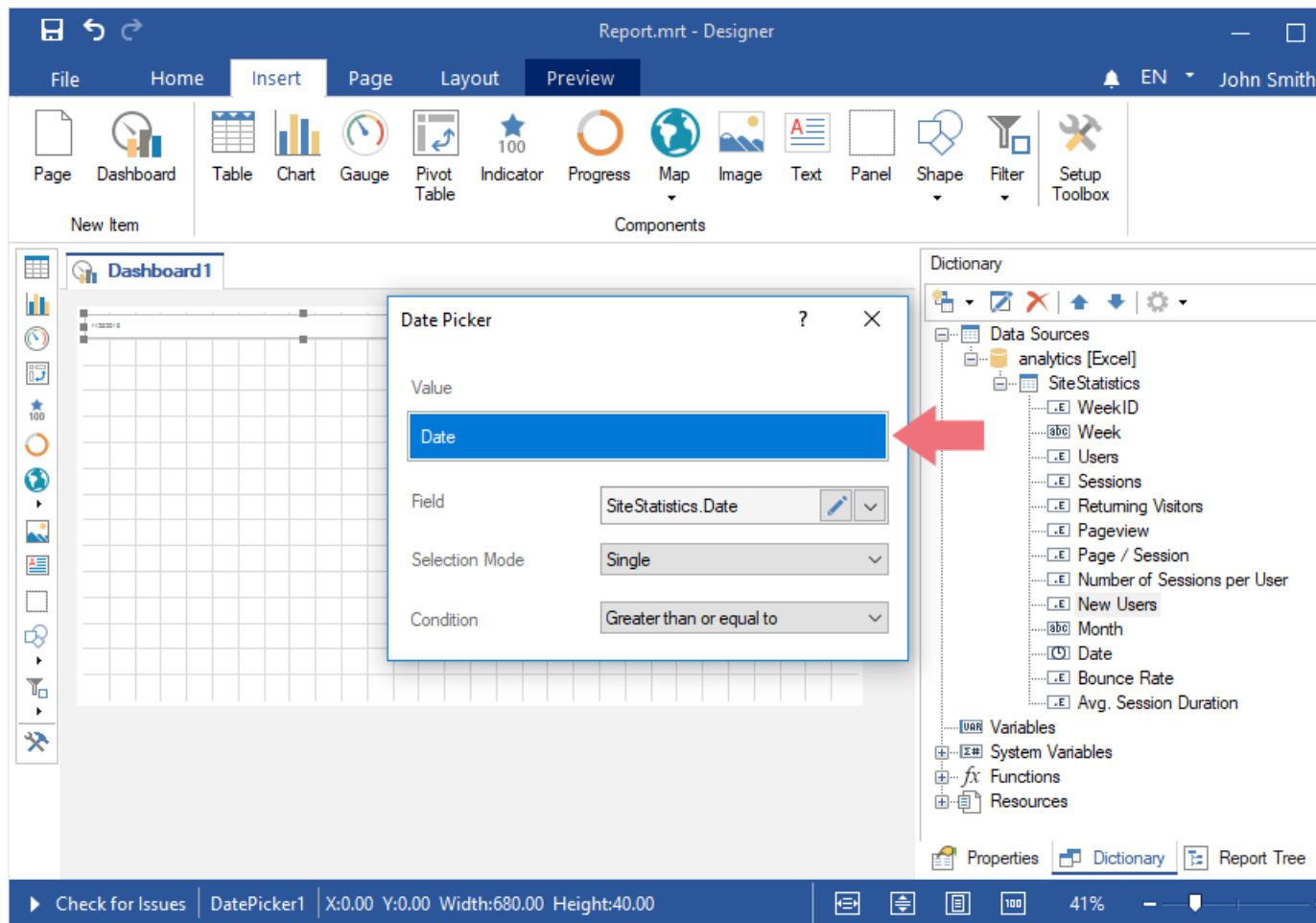
Step 5: Select the **Date Picker** element;



Step 6: Place the element on the dashboard;

Step 7: If the element editor is not displayed, you should double click on the element;

Step 8: Drag data columns from data dictionary into the **Value** field.



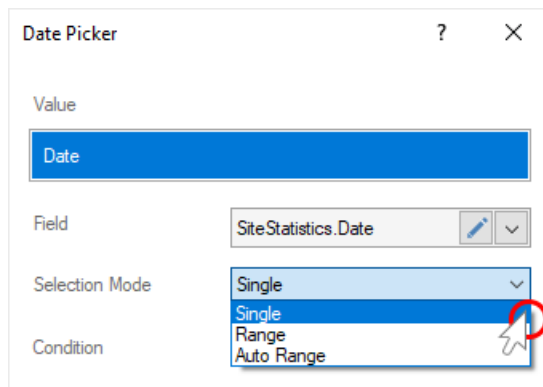
Step 9: Define the type of work of the **Date Picker** element by setting the [Single mode](#) value, [Range](#), [Auto Range](#) for the **Selection Mode** parameter.

Single Mode

Single mode gives the ability to display the time range from the selected date. The original date is the current operating system date, by default. Next, the time range is calculated depending on the logical operation of the condition.

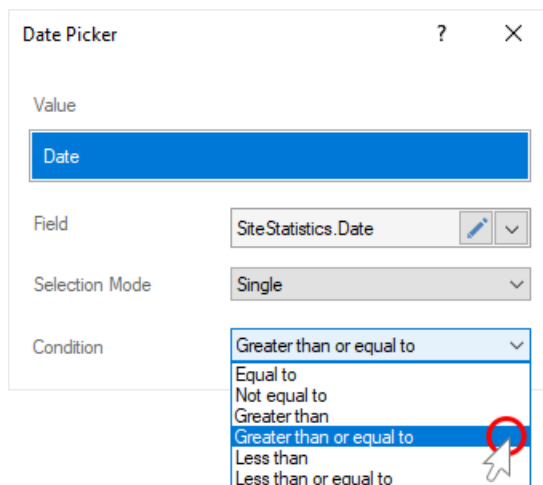
Step 1: If the element editor is not displayed, you should double click on the element;

Step 2: Set the selection mode parameter in the **Single** value;



The screenshot shows the 'Date Picker' dialog box. The 'Value' field is set to 'Date'. The 'Field' is set to 'SiteStatistics.Date'. The 'Selection Mode' dropdown menu is open, showing options: 'Single', 'Range', and 'Auto Range'. A red circle highlights the 'Range' option, which is being selected by a mouse cursor.

Step 3: Select the logical operation of the time range calculation and set it as the value of the **Condition** parameter.



The screenshot shows the 'Date Picker' dialog box. The 'Value' field is set to 'Date'. The 'Field' is set to 'SiteStatistics.Date'. The 'Selection Mode' is set to 'Single'. The 'Condition' dropdown menu is open, showing options: 'Greater than or equal to', 'Equal to', 'Not equal to', 'Greater than', 'Greater than or equal to', 'Less than', and 'Less than or equal to'. A red circle highlights the 'Greater than or equal to' option, which is being selected by a mouse cursor.

Step 4: Close the element editor;

Step 5: Go to the **Preview** tab.

When viewing a dashboard, you can change date in the **Date Picker** element, by shifting the time range of data filtration. The calculation logical operation will remain unchanged.

12/25/2020

December 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

Today: 12/25/2020

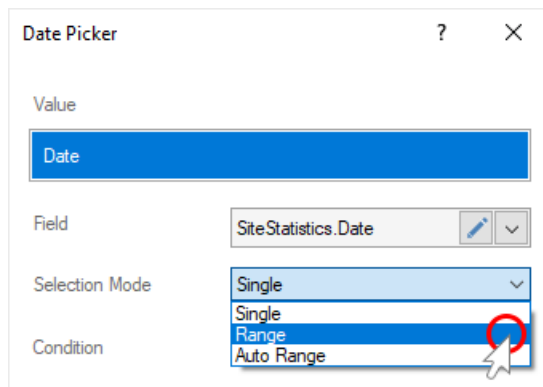
Shipped Date	Ship City	Required Date	Ship Via	Freight
8/10/2008	Münster	9/16/2008	1	11.6
8/11/2008	Charleroi	9/6/2008	2	51.30
8/12/2008	Rio de Janeiro	9/5/2008	2	65.83
8/15/2008	Genève	9/9/2008	3	148.33
8/15/2008	Lyon	9/5/2008	1	41.34
8/16/2008	Reims	9/1/2008	3	32.38
8/16/2008	Rio de Janeiro	8/24/2008	2	58.17
8/17/2008	Resende	9/12/2008	2	13.97
8/22/2008	San Cristóbal	9/13/2008	3	81.91
8/23/2008	Bern	9/8/2008	2	22.98
8/23/2008	Graz	9/14/2008	1	140.51
8/25/2008	Albuquerque	9/19/2008	3	48.29
8/25/2008	México D.F.	9/15/2008	3	3.25
8/29/2008	Köln	9/16/2008	1	55.09
8/30/2008	Rio de Janeiro	9/16/2008	2	3.05
8/31/2008	Graz	9/20/2008	3	146.06
8/31/2008	Oulu	10/7/2008	3	25.73
9/2/2008	Caracas	9/27/2008	3	66.29

Range Mode

Range mode gives the ability to define the time range from one date to another. The range is equal to the current date of the operating system, i.e the beginning and the end of the range is similar to the current date of operating system.

Step 1: If the element editor is not displayed, you should double click on the element;

Step 2: Set the selection mode parameter in the **Range** value;



Step 3: Close the element editor;

Step 4: Go to the Preview tab.

If there are no data for the current date, dashboard elements will be empty.
Therefore, you can manually define the beginning and the end of the range.

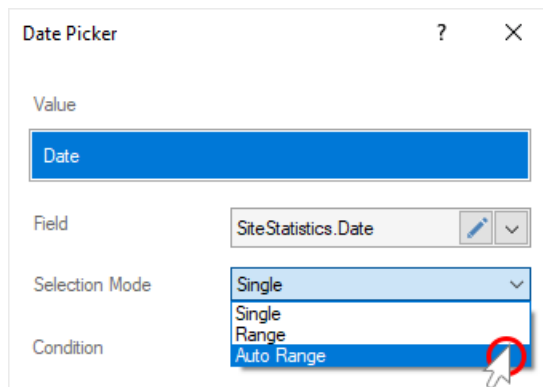
Shipped Date	Ship City	Required Date	Ship Via	Freight
8/17/2008	Resende	9/12/2008	2	11.6
8/22/2008	San Cristóbal	9/13/2008	3	51.30
8/23/2008	Bern	9/8/2008	2	65.83
8/23/2008	Graz	9/14/2008	1	148.33
8/25/2008	Albuquerque	9/19/2008	3	41.34
8/25/2008	México D.F.	9/15/2008	3	32.38
8/29/2008	Köln	9/16/2008	1	58.17
8/30/2008	Rio de Janeiro	9/16/2008	2	13.97
8/31/2008	Graz	9/20/2008	3	81.91
8/31/2008	Oulu	10/7/2008	2	22.98
9/2/2008	Caracas	9/27/2008	3	140.51
9/2/2008	Caracas	9/27/2008	3	48.29
9/2/2008	Caracas	9/27/2008	3	3.25
9/2/2008	Caracas	9/27/2008	3	55.09
9/2/2008	Caracas	9/27/2008	3	3.05
9/2/2008	Caracas	9/27/2008	3	146.06
9/2/2008	Caracas	9/27/2008	3	25.73
9/2/2008	Caracas	9/27/2008	3	66.29
9/2/2008	Caracas	9/27/2008	3	122.51

Auto Range mode

The **Auto Range** mode gives the ability to set the time range of the **Date Picker** element based on the values of the column data you specify.

Step 1: If the element editor is not displayed, you should double click on the element;

Step 2: Set the selection mode parameter in the **Auto Range** value;



Step 3: Close the element editor;

Step 4: Go to the **Preview** tab.

Change the beginning and the end of the time range in the viewer or on the **Preview** tab in the **Date Picker** element.

The screenshot shows a report designer interface. At the top, there is a date range selector set to "8/10/2008 - 6/5/2010". Below this, a table is displayed with columns: "Shipped Date", "Ship City", "Required Date", "Ship Via", and "Freight". A date selection calendar is open, showing two months: August 2008 and June 2010. The calendar has tabs for "From" and "To". The "From" tab is active, showing August 2008. The "To" tab is also visible, showing June 2010. The calendar includes navigation buttons like "Tomorrow", "Today", "Yesterday", "Next Week", "Current Week", "Previous Week", "Next Month", "Current Month", "Previous Month", "Next Quarter", and "Current Quarter". The "Today" button is highlighted, and the date "11/6/2018" is displayed below the calendar.

Shipped Date	Ship City	Required Date	Ship Via	Freight
8/22/2008	San Cristóbal	9/13/2008	2	51.3
8/23/2008	Bern	9/8/2008	2	65.83
8/23/2008	Graz	9/14/2008	3	148.33
8/25/2008	Albuquerque	9/19/2008	1	41.34
8/25/2008	México D.F.	9/15/2008	3	32.38
8/29/2008	Köln	9/16/2008	2	58.17
8/30/2008	Rio de Janeiro	9/16/2008	2	13.97
8/31/2008	Graz	9/20/2008	3	81.91
8/31/2008	Oulu	10/7/2008	2	22.98
9/2/2008	Caracas	9/27/2008	1	140.51
9/2/2008	Oulu	9/29/2008	3	48.29
9/2/2008	Oulu	9/29/2008	3	3.25
9/2/2008	Oulu	9/29/2008	1	55.09
9/2/2008	Oulu	9/29/2008	2	3.05
9/2/2008	Oulu	9/29/2008	3	146.06
9/2/2008	Oulu	9/29/2008	3	25.73
9/2/2008	Oulu	9/29/2008	3	66.29
9/2/2008	Oulu	9/29/2008	1	136.54

3.23 Dashboard Design

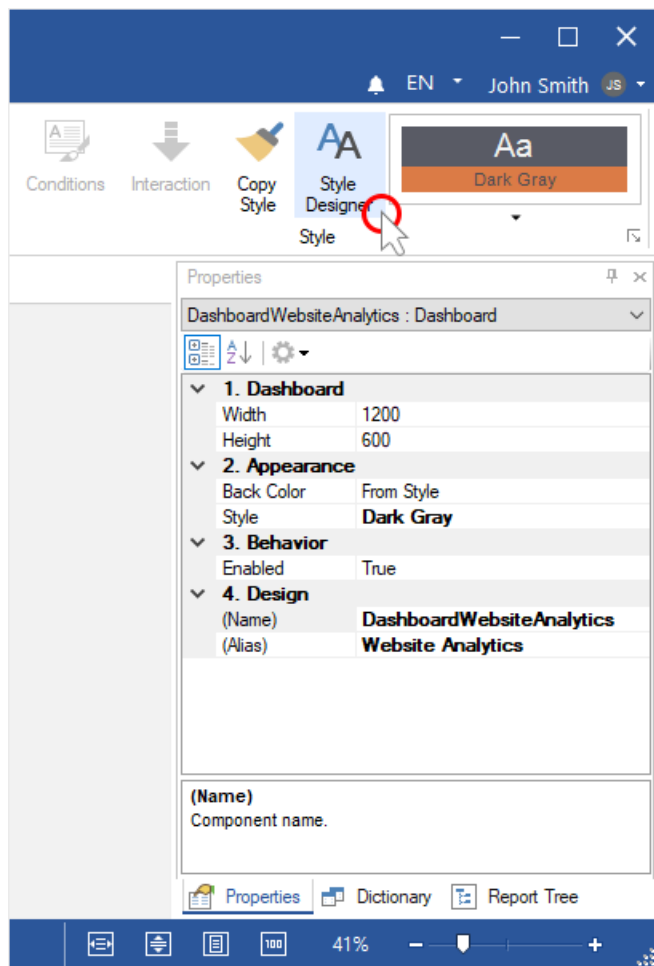
The following questions will be considered in this chapter:

- [Element style creation](#);
- [Style creation based on the used style](#);
- [Dashboard appearance](#);
- [Elements appearance](#);
- [Element style copying](#).

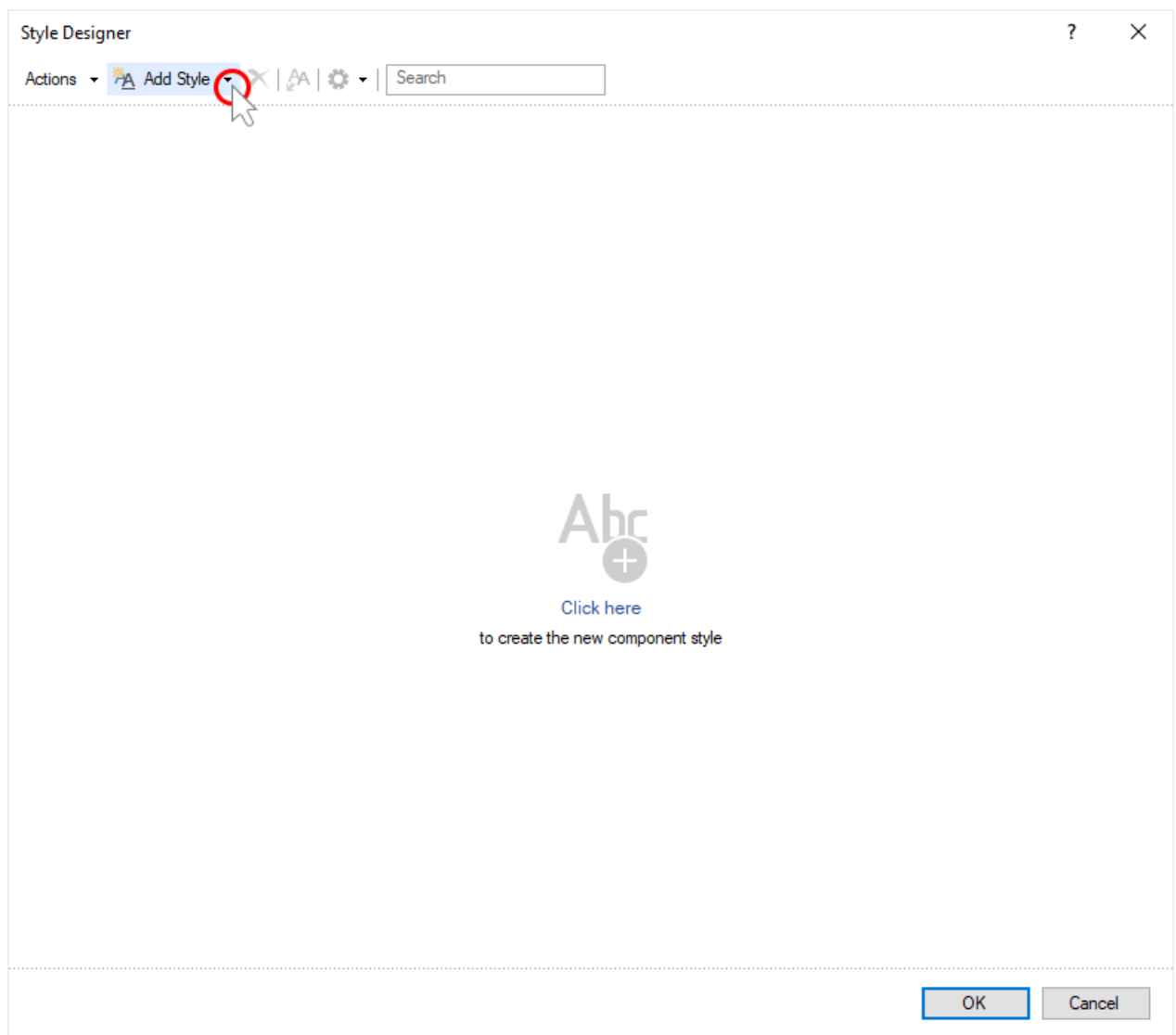
Element style creation

Step 1: [Launch the report designer](#);

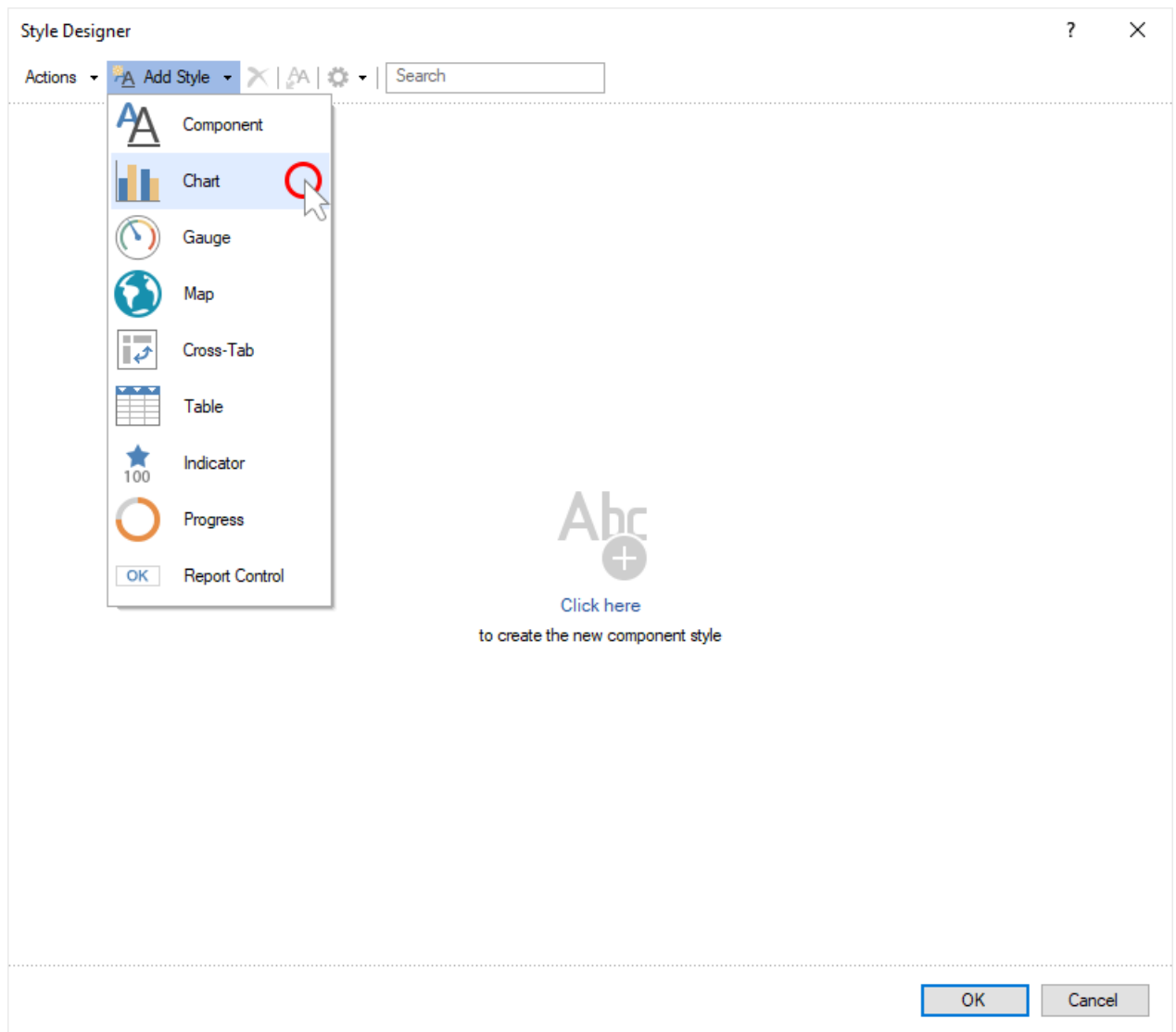
Step 2: Click the **Style Designer** on the **Home** tab in the report designer;



Step 3: Click the **Add Style** button;



Step 4: Select the style you want to create;



Step 5: You can set this style with the help of the properties and controls;

Step 6: Click **Ok** in the style editor;

Step 7: Assign a style for a dashboard.

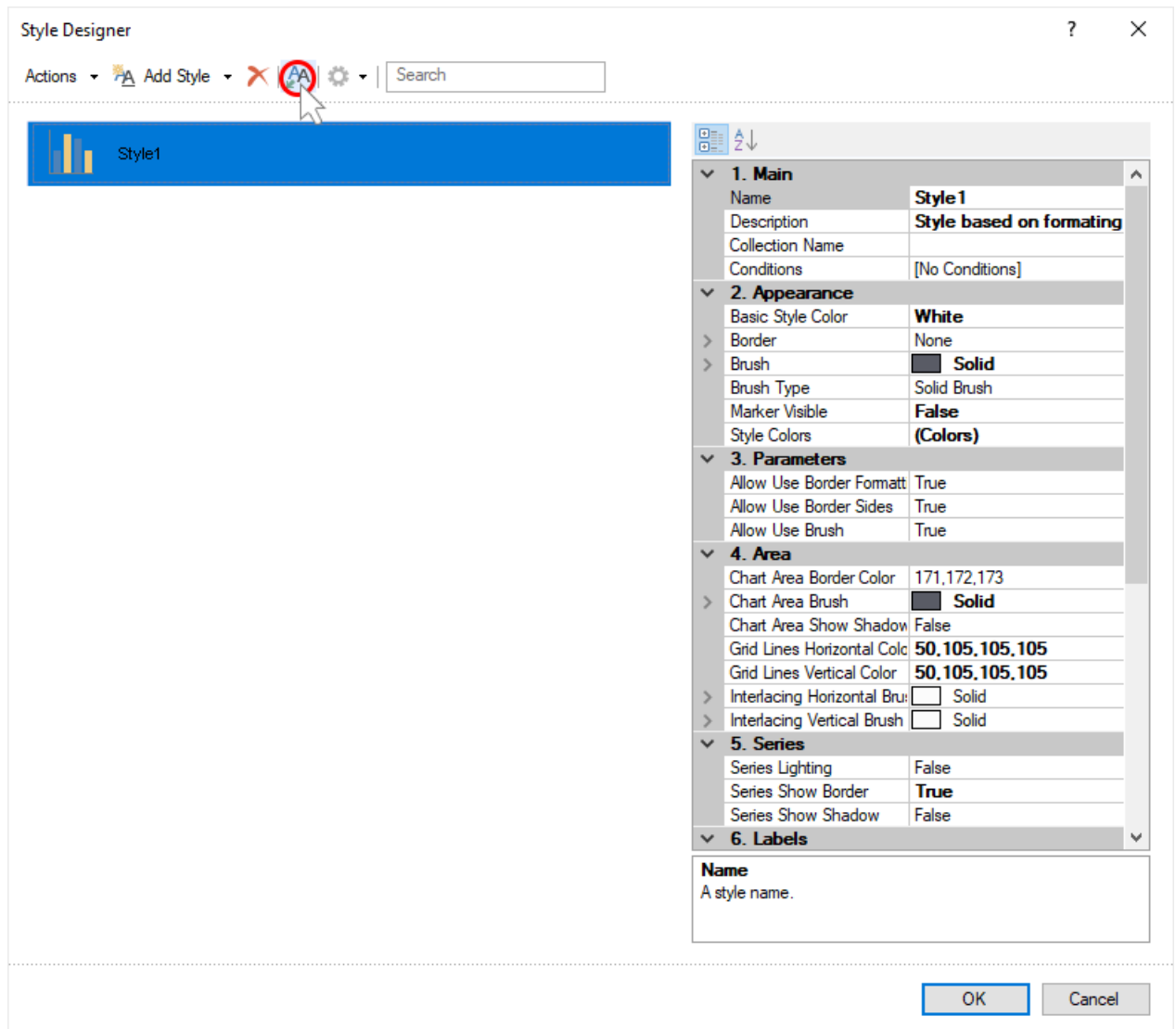
Style creation based on the used style

Step 1: Add a dashboard;

Step 2: Select the element the style that needs to be changed;

Step 3: Click **Style Designer** button on the **Home** tab;

Step 4: Click **Get Style from Selected Components** button in the **Style editor**;



Step 5: You can set a given style with the help of the properties and controls;

Step 6: Click **Ok** button in the style designer;

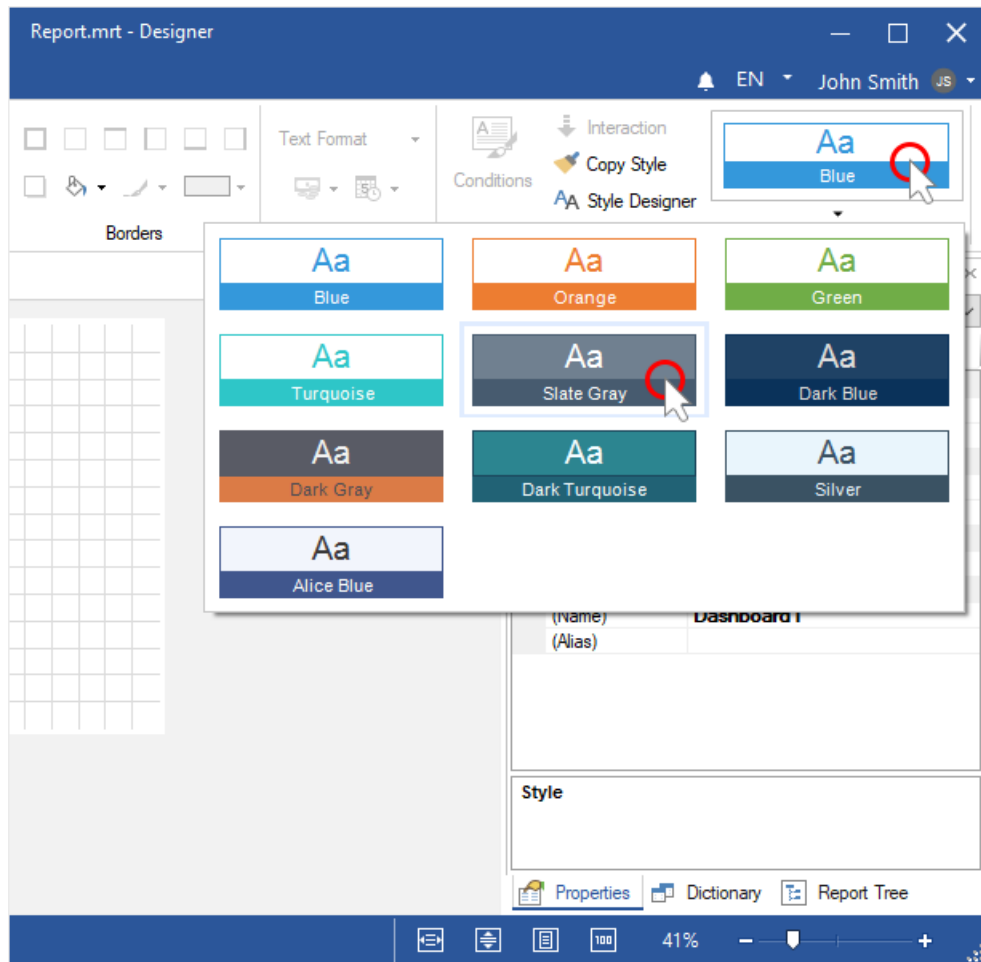
Step 7: Assign a style for a dashboard elements.

Dashboard design

Step 1: Select a dashboard;

Step 2: Click the select style on the **Home** tab in the report designer;

Step 3: Select a style for your dashboard.

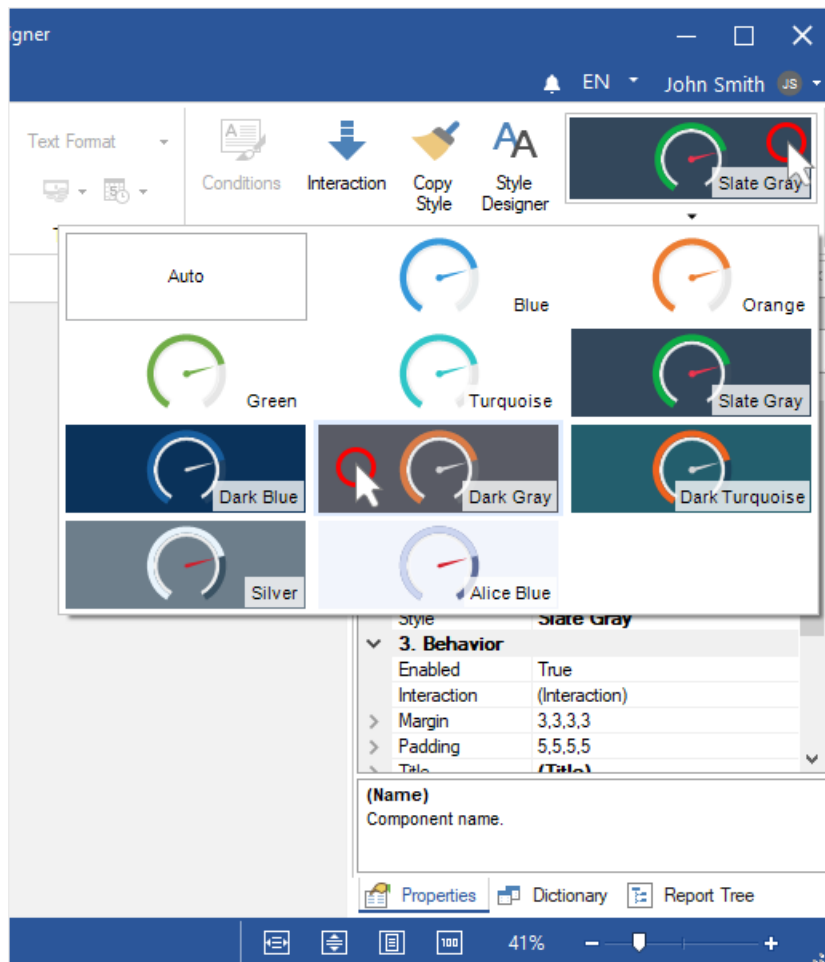


Dashboard elements design

Step 1: Select a dashboard element;

Step 2: Click the select style on the **Home** tab in the report designer;

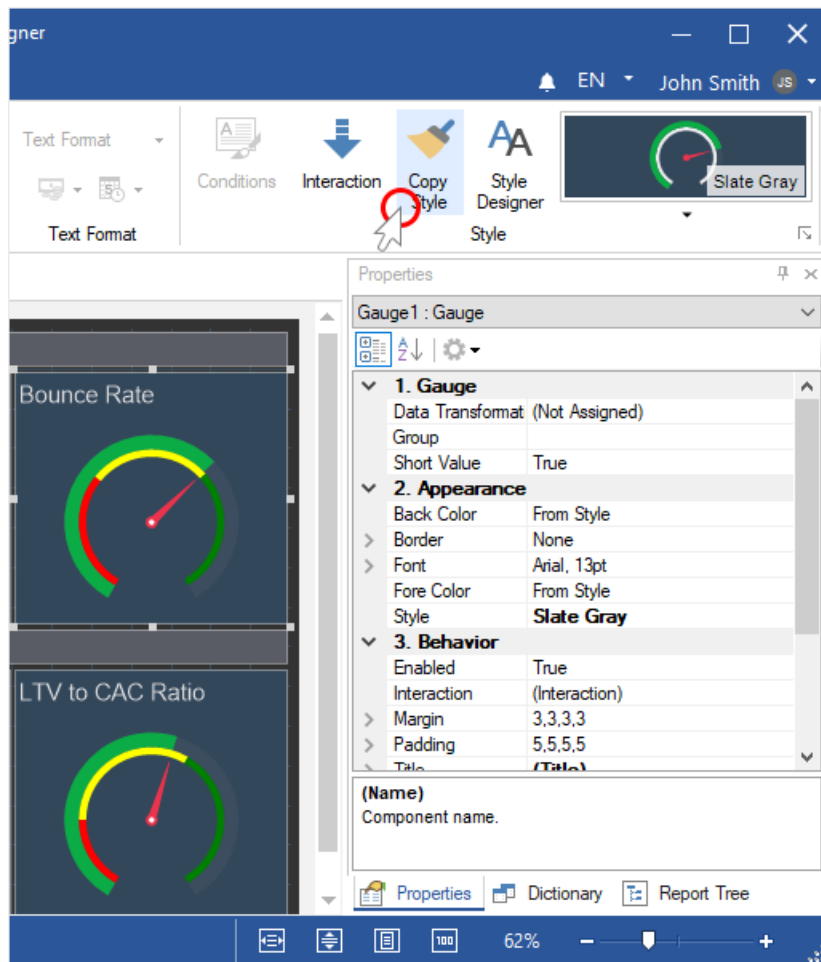
Step 3: Choose a style for the dashboard element.



Copy Style for dashboard elements

Step 1: Highlight the dashboard element from which you want to copy a style;

Step 2: Click the **Copy** on the **Home** tab;



Step 3: Hover the cursor for the element, into which you want to copy a style;

Step 4: Click on the element once;

Step 5: Click the Copy on the Home tab to disable the copy mode.

3.24 Grouping elements on Dashboard

When developing a dashboard, you can divide its [elements into groups](#).

The following questions will be considered in this chapter:

- [The group of elements creation](#);
- [Changing a group for an element](#);
- [Deleting an element from a group](#).

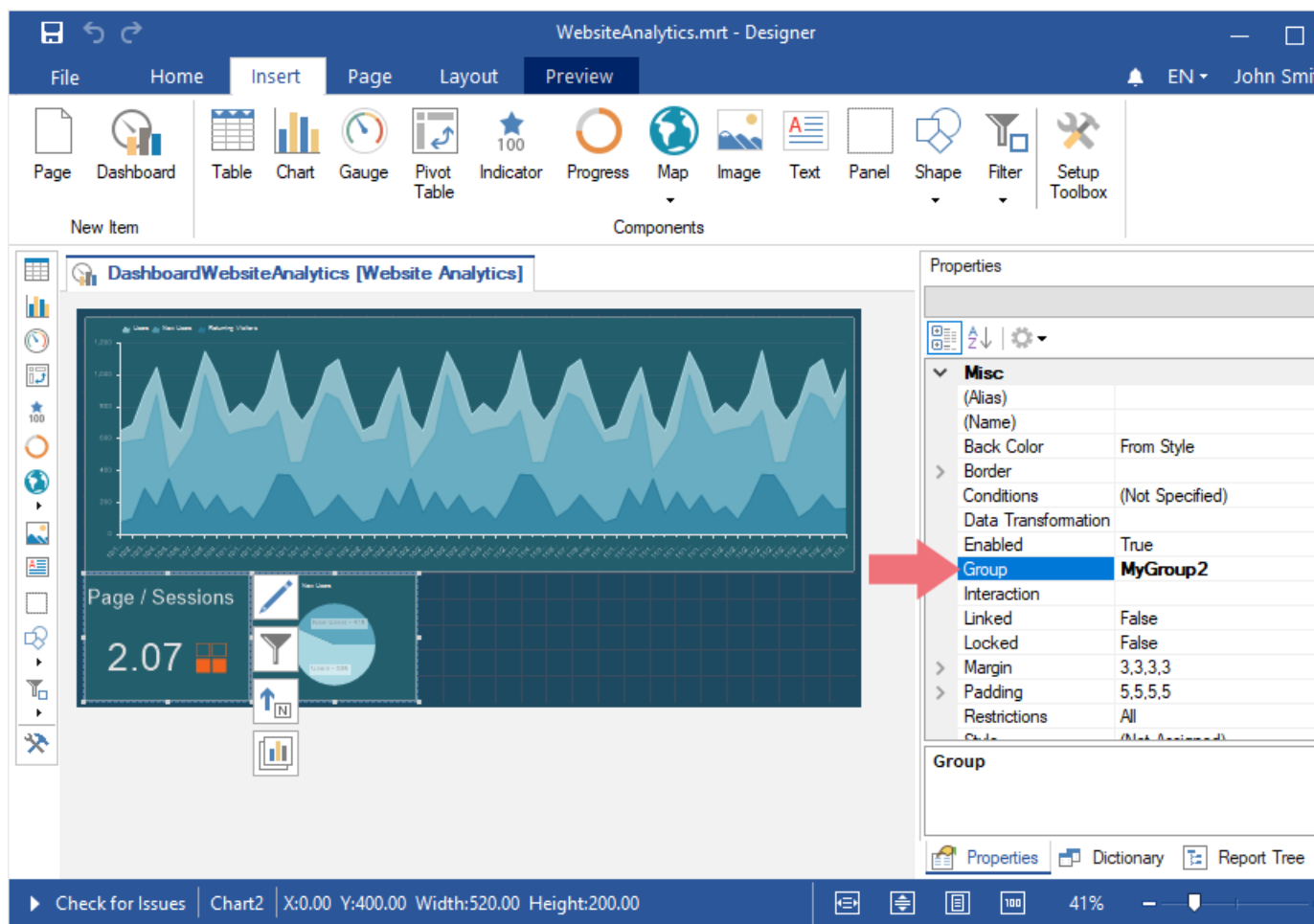
Elements group creation

To do it you should make the following actions:

Step 1: Create or open a dashboard;

Step 2: Select the dashboard elements. To select several elements, you should hold down the **Ctrl** and click the left mouse button on the input pointer;

Step 3: Assign the name of a group in the **Group** field in the properties panel in the report designer.

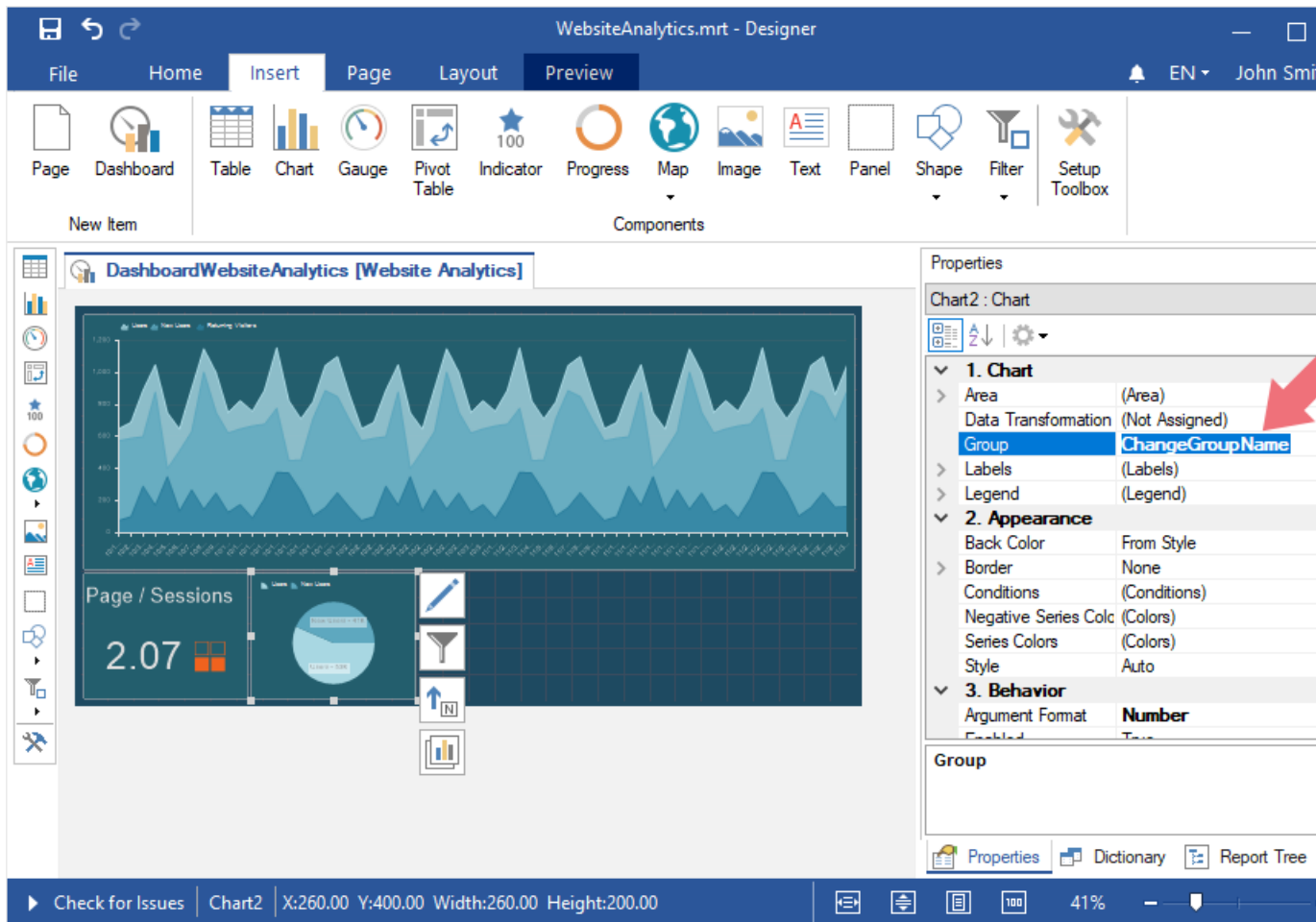


Changing group for an element

To do it you should make the following actions:

Step 1: Select an element;

Step 2: Change the value, by specifying the name of a new group in the field of the **Group** property.

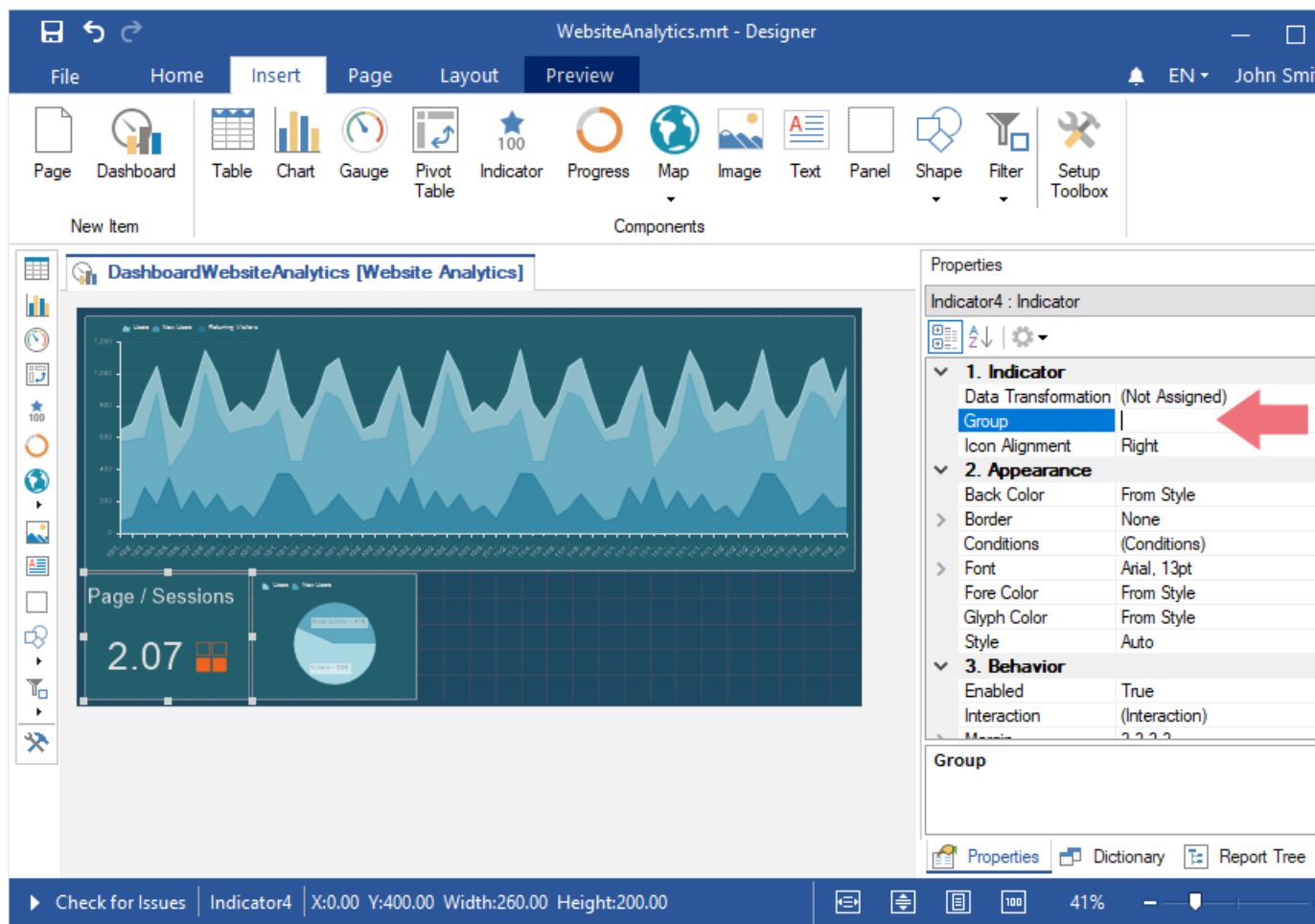


Deleting element from the group

To do it you should make the following actions:

Step 1: Select an element on a dashboard;

Step 2: Delete a value in the field of the **Group** property.



3.25 Dashboard with Top N

When creating reports you can apply the **TopN** filter to the following elements:
[Chart](#), [Indicator](#), [Progress](#), [Pivot table](#).

The following questions will be considered in this chapter:

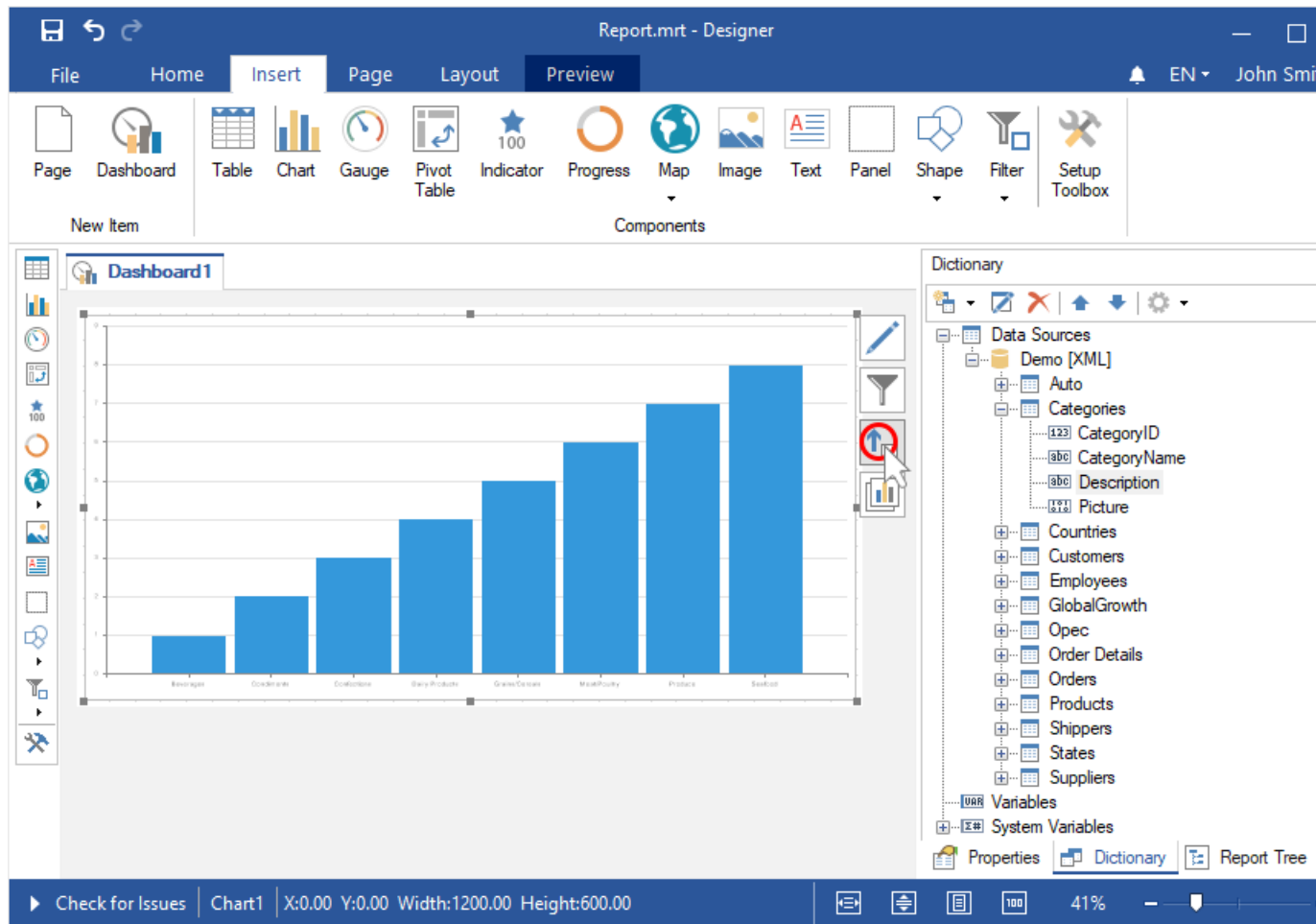
- > [The TopN in the Chart](#);
- > [The TopN in the Indicator](#);
- > [The TopN in the Progress](#);
- > [The TopN in the Pivot table](#).

Chart

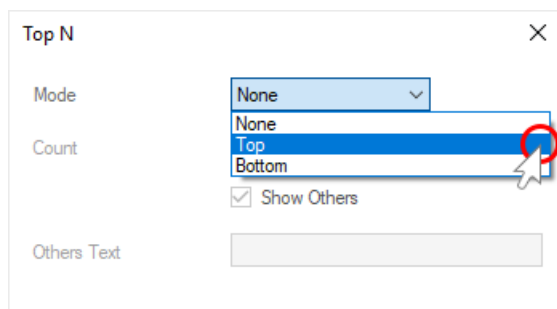
Step 1: [Create a dashboard with the Chart element](#);

Step 2: Select the element;

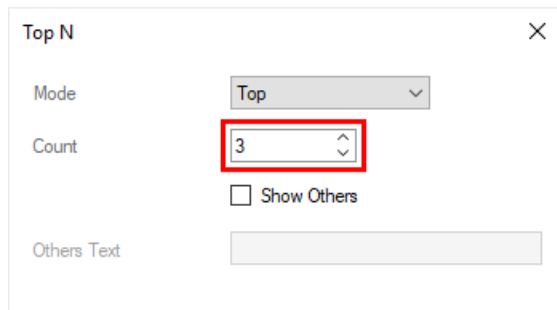
Step 3: Click the **TopN** button of the current element;



Step 4: Select **Top** or **Bottom** mode in the TopN editor;



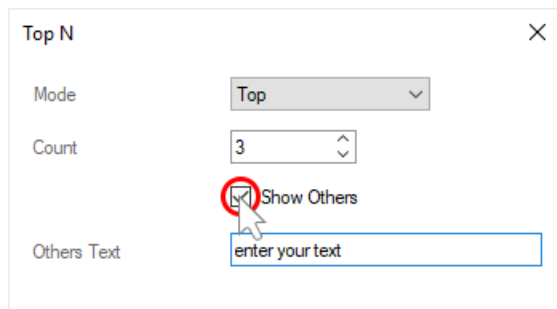
Step 5: Set the number of the TopN with the help of the **Count** parameter;



The screenshot shows the 'Top N' dialog box. The 'Mode' dropdown is set to 'Top'. The 'Count' field, which is a spinner box containing the number '3', is highlighted with a red rectangle. Below it, the 'Show Others' checkbox is unchecked. The 'Others Text' field is empty.

Step 6: Set a checkbox for the **Show Other** parameter, if you need to sum all values, which will not be included in the list of the TopN and display them as one value;

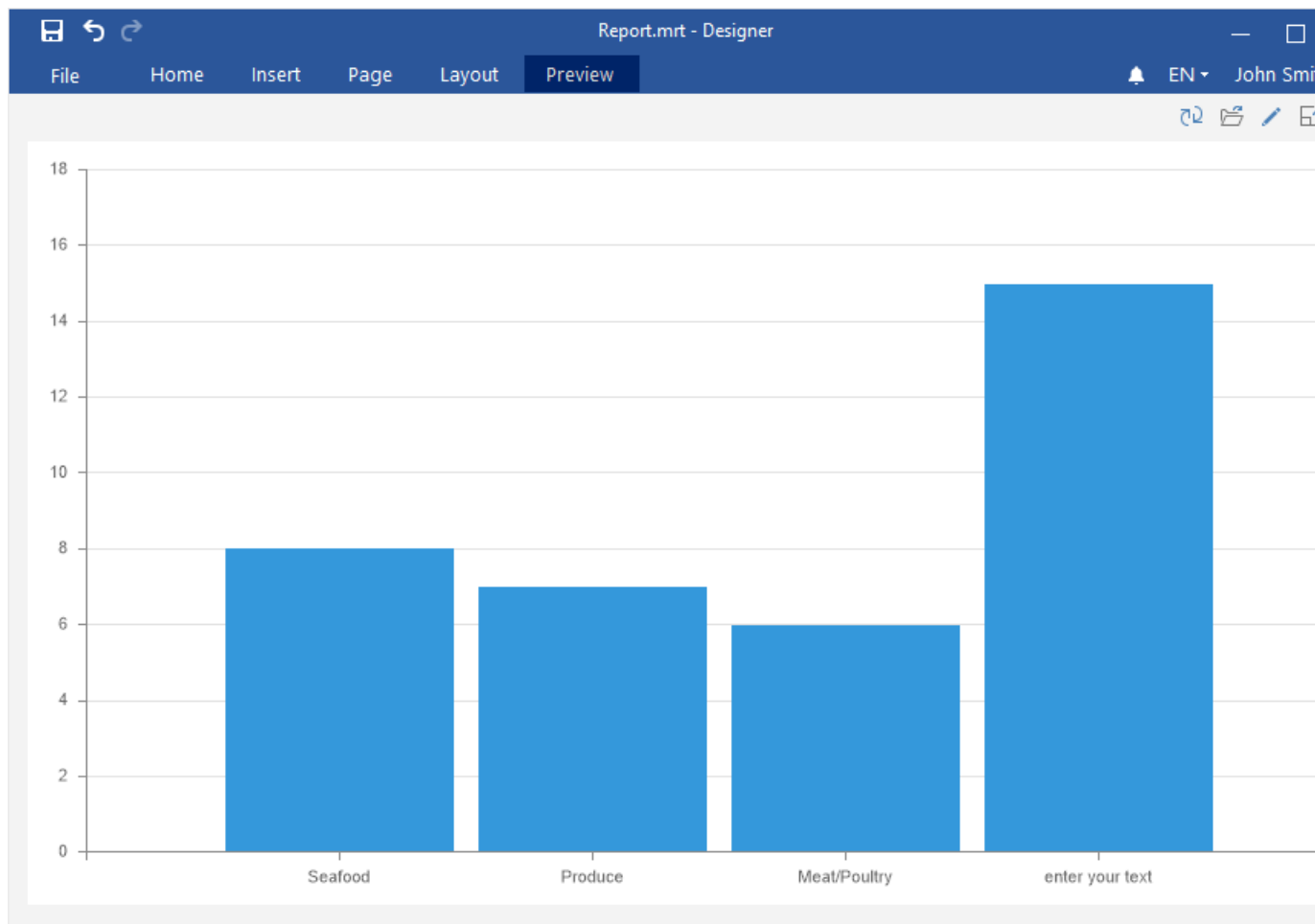
Step 7: Specify a header for other values in the **Other** text field, if it's needed.



The screenshot shows the 'Top N' dialog box. The 'Mode' dropdown is set to 'Top'. The 'Count' field is a spinner box containing the number '3'. The 'Show Others' checkbox is now checked, and a red circle highlights this checkbox. A mouse cursor is pointing at the checkbox. The 'Others Text' field now contains the text 'enter your text'.

Step 8: Close the editor of the TopN;

Step 9: Go to the Preview.

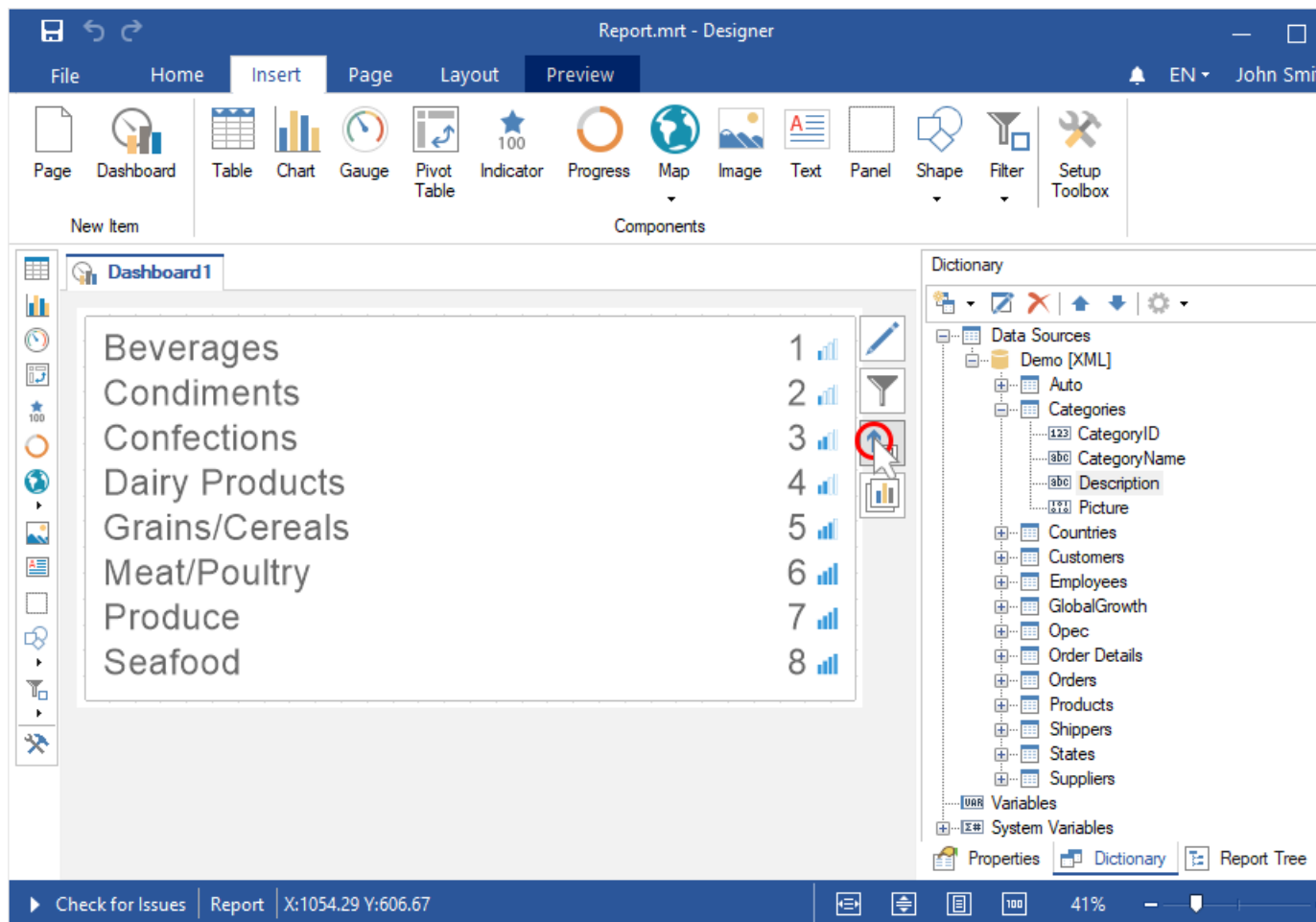


Indicator

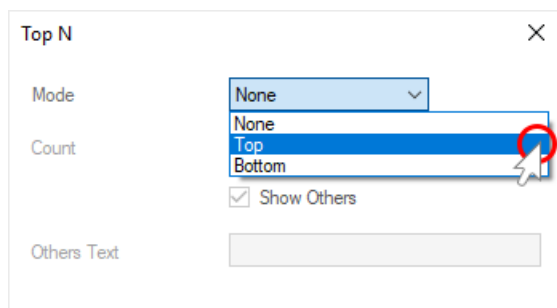
Step 1: [Create a dashboard with the Indicator element and its rows;](#)

Step 2: Select the element;

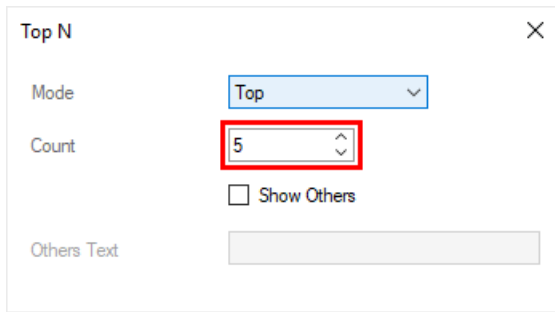
Step 3: Click the **TopN** button of the current element;



Step 4: Select **Top** or **Bottom** mode in the TopN editor;



Step 5: Set the number of the TopN with the help of the **Count** parameter;



Top N

Mode: Top

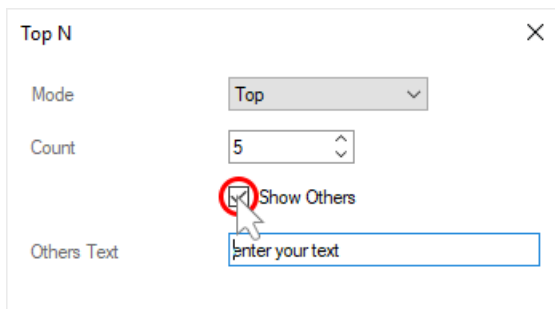
Count: 5

☐ Show Others

Others Text:

Step 6: Set a checkbox for the **Show Other** parameter if you need to sum all values, which will not be included in the list of the TopN and display them as one value;

Step 7: Specify a header for other values in the **Other text** field, if it's needed. The Other header is applied to them by default.



Top N

Mode: Top

Count: 5

☒ Show Others

Others Text: enter your text

Step 8: Close the TopN editor;

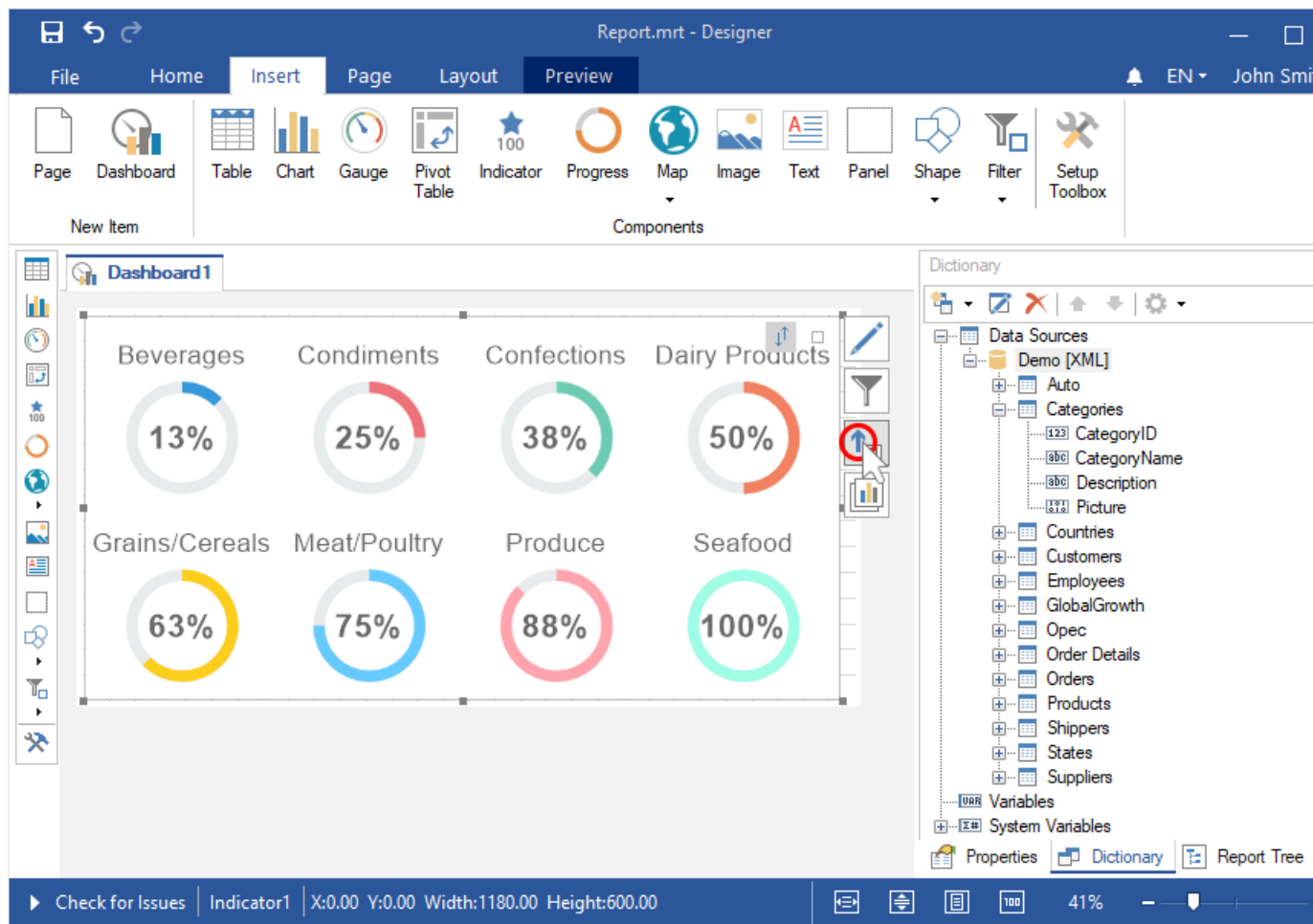
Step 9: Go to the Preview tab.

Progress

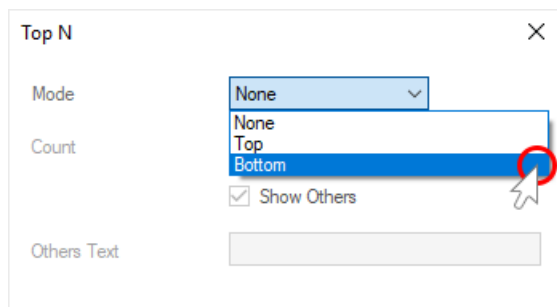
Step 1: [Create a dashboard with the Progress element and its rows;](#)

Step 2: Select the element;

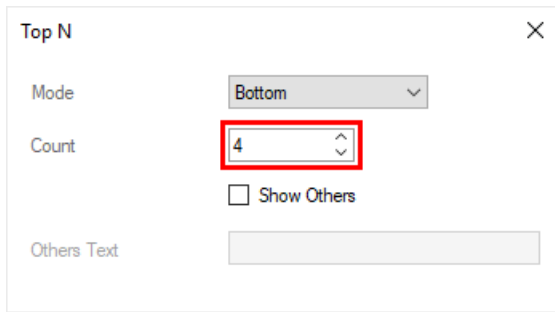
Step 3: Click the **TopN** button of the current element;



Step 4: Select **Top** and **Bottom** mode in the TopN editor;



Step 5: Set the number of the TopN with the help of the **Count** parameter;



Top N

Mode: Bottom

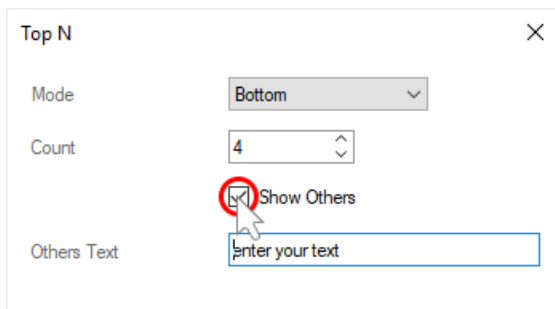
Count: 4

☐ Show Others

Others Text:

Step 6: Set a checkbox for the **Show Other** parameter if you need to sum all values, which will not be included in the list of the TopN and display them as one value;

Step 7: Specify a header for other values in the **Other** text field, if it's needed. The Other header is applied for them, by default.



Top N

Mode: Bottom

Count: 4

☒ Show Others

Others Text: enter your text

Step 8: Close the TopN editor;

Step 9: Go to the Preview tab.

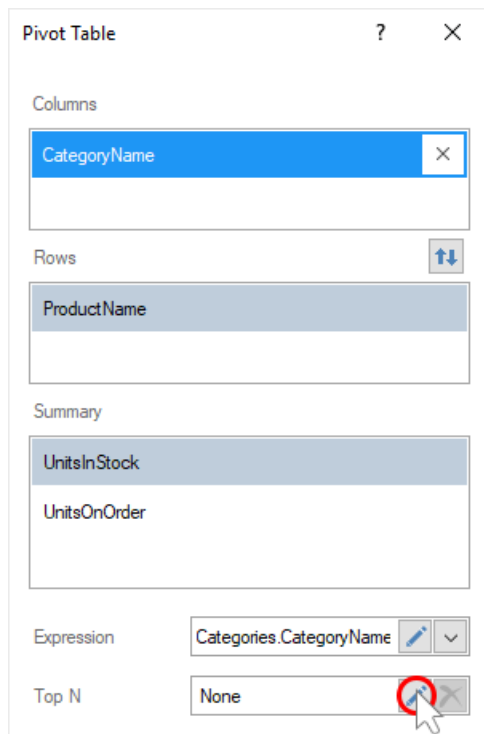
Pivot

Step 1: [Create a dashboard with the Pivot table element](#);

Step 2: If the editor element is not displayed, you should double click on the **Pivot** table;

Step 3: Select the data columns for which you need to display the TopN in the **Rows** or **Columns** field;

Step 4: Click the **TopN** of the current element;



Pivot Table

Columns

CategoryName

Rows

ProductName

Summary

UnitsInStock

UnitsOnOrder

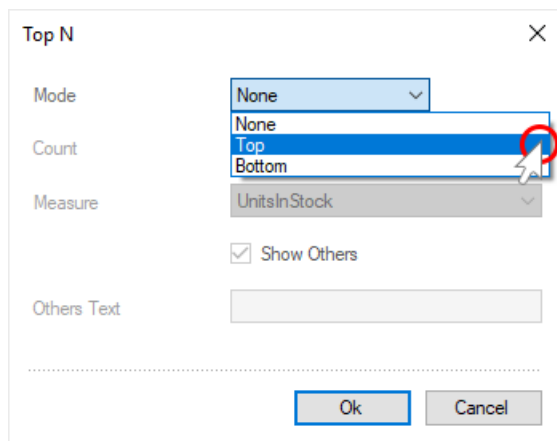
Expression

Categories.CategoryName

Top N

None

Step 5: Select **Top** or **Bottom** mode in the TopN editor;



Top N

Mode

None

Count

None

Top

Bottom

Measure

UnitsInStock

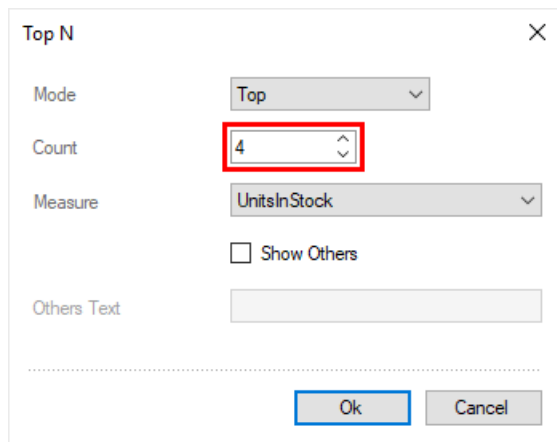
☒ Show Others

Others Text

Ok

Cancel

Step 6: Set the number of the TopN with the help of the **Count** parameter;



Top N

Mode: Top

Count: 4

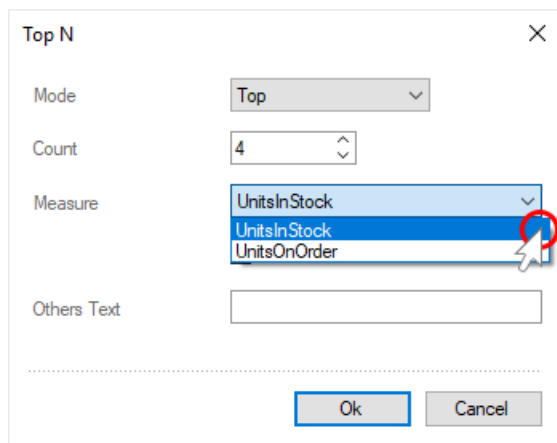
Measure: UnitsInStock

☐ Show Others

Others Text:

Ok Cancel

Step 7: Select the summary field, which values will be analyzed in the field of the **Measure** parameter;



Top N

Mode: Top

Count: 4

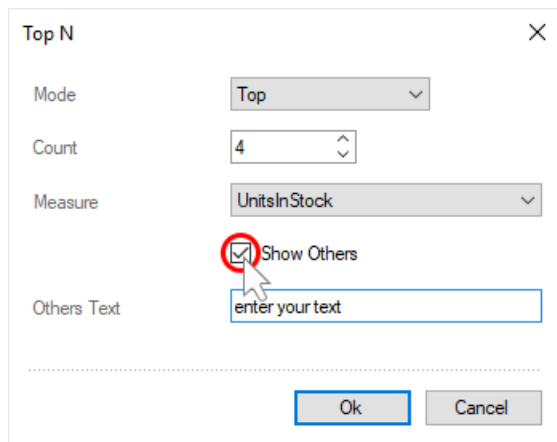
Measure: UnitsInStock

Others Text:

Ok Cancel

Step 8: Set a checkbox for the **Show Other** parameter, if you need to sum all values, which will not be in the list of the TopN and display them as one value;

Step 9: Specify a header for other values in the **Other** text field, if it's needed. The **Other** header is applied for them, by default.



Top N

Mode: Top

Count: 4

Measure: UnitsInStock

☒ Show Others

Others Text: enter your text

Ok Cancel

Step 10: Close the TopN editor.

Step 11: Close the Pivot table editor;

Step 12: Go to the Preview tab.

Report.mrt - Designer

File Home Insert Page Layout Preview

Pivot Table

Pivot Table		CategoryName					
ProductName		Beverages	Condiments	Dairy Products	Seafood	enter your text	Total
Gustaf's Knäckebröd	1					104	104
	2						
NuNuCa Nuß-Nougat-Creme	1					76	76
	2						
Pâté chinois	1					115	115
	2						
Valkoinen suklaa	1					65	65
	2						
enter your text	1	559	507	393	701	599	2759
	2	60	170	140	120	290	780
Total	1	559	507	393	701	959	3119
	2	60	170	140	120	290	780

3.26 Sorting on a dashboard

The following questions will be considered in this chapter:

- › [Sorting element data in the designer](#);
- › [Sorting element data when viewing dashboards](#);
- › [Disable or enable the sort button when viewing](#);
- › [Sorting data in a table](#);
- › [Disable or enable sorting in a table](#).

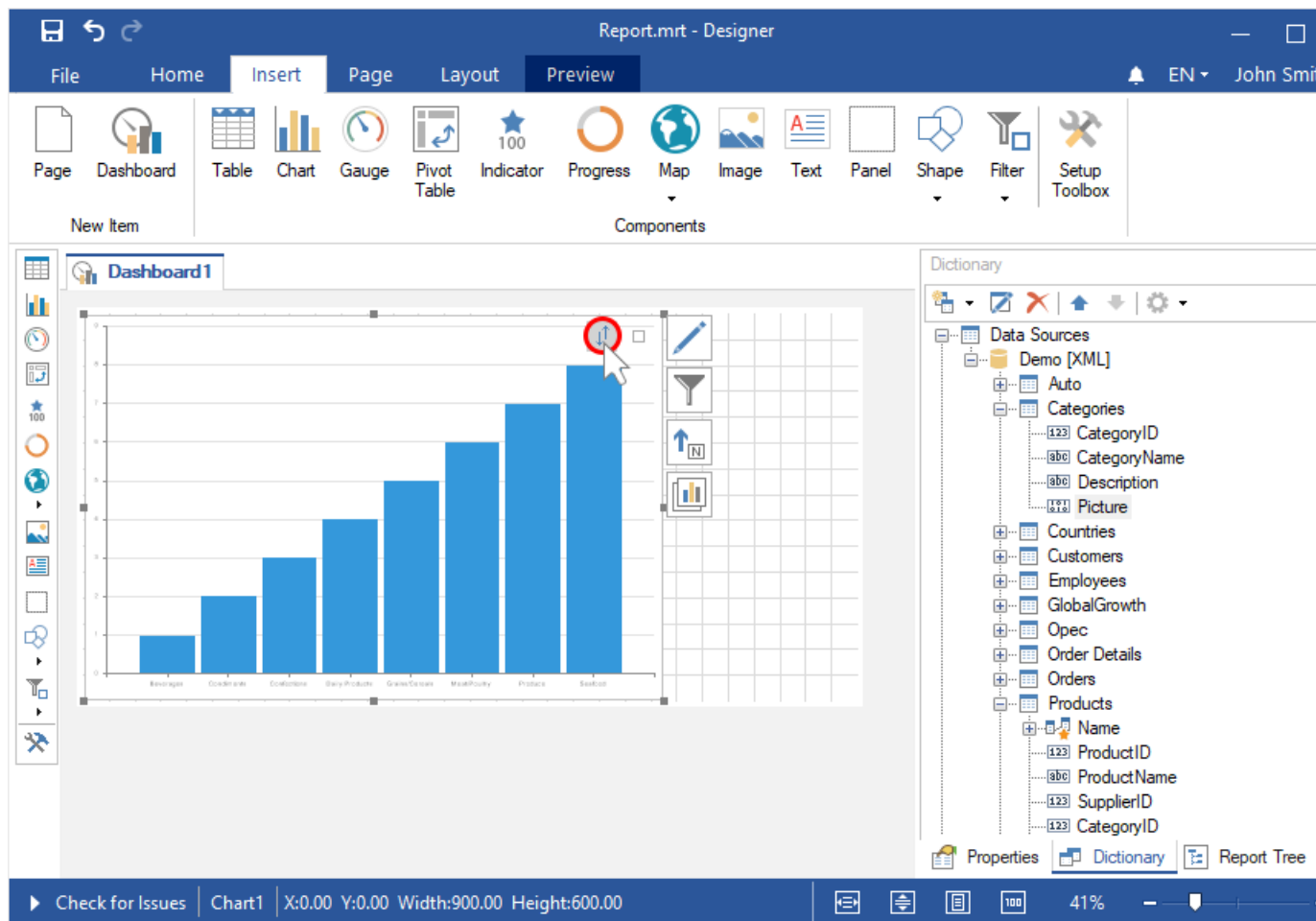
Sorting element data in the designer

To set element sorting you should make the following actions:

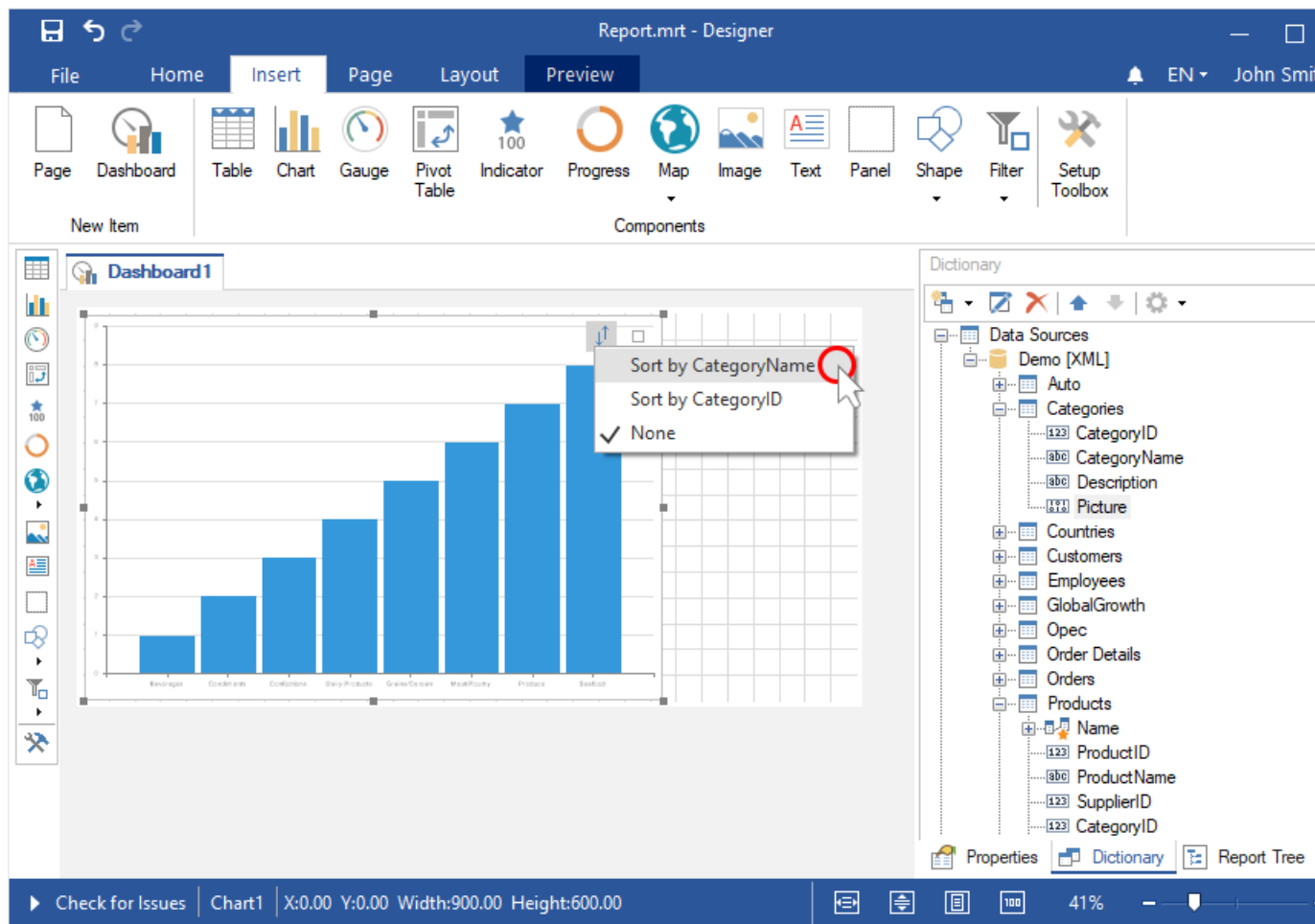
Step 1: Create or open a dashboard with [chart](#), [gauge](#), [indicator](#), [progress](#);

Step 2: Select an element;

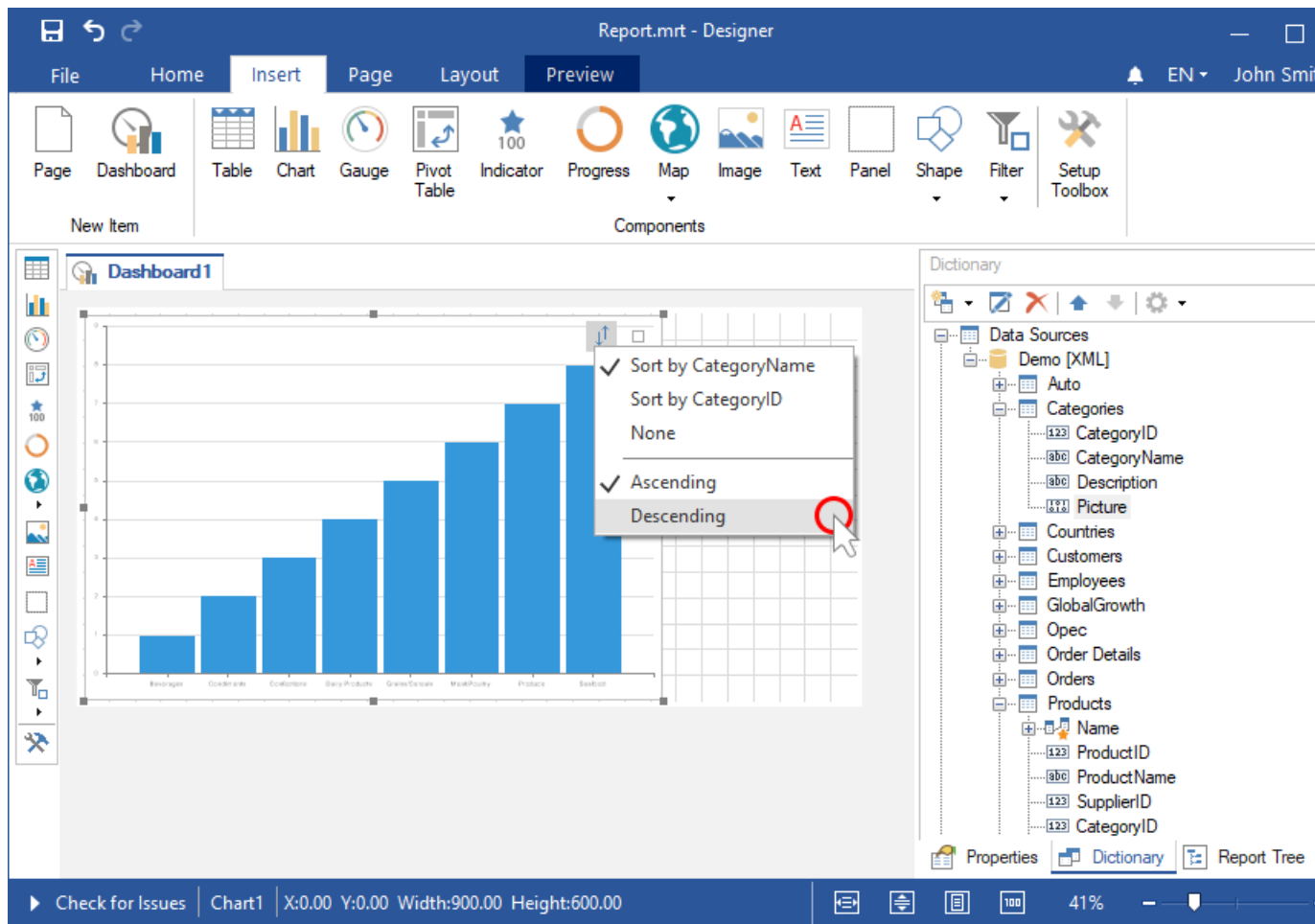
Step 3: Move the cursor over this element and click the sort button;



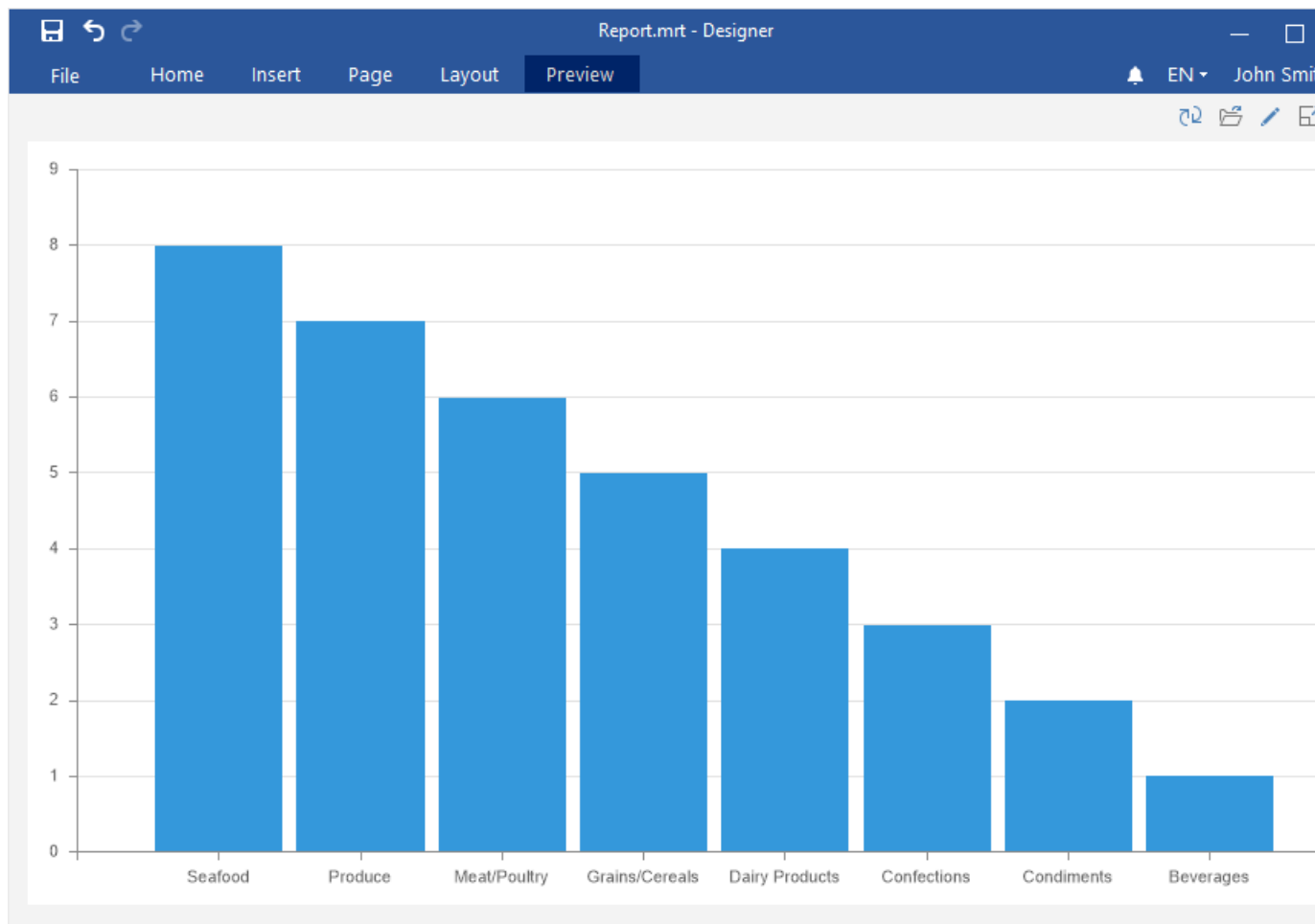
Step 4: Select the data field where you need to sort values;



Step 5: Click the sort button and change the sort direction;



Step 6: Go to the Preview tab.

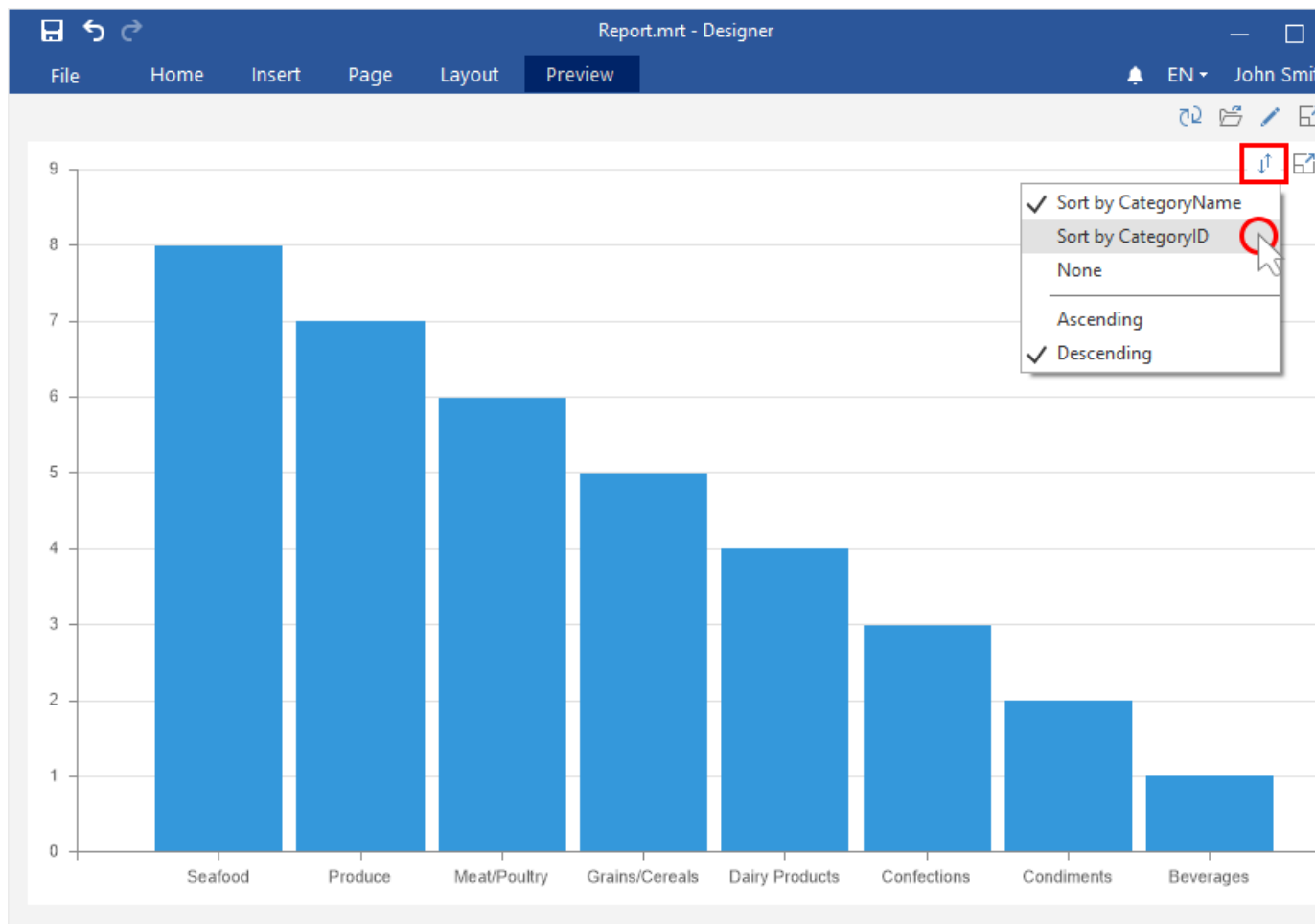


Sorting element data when viewing

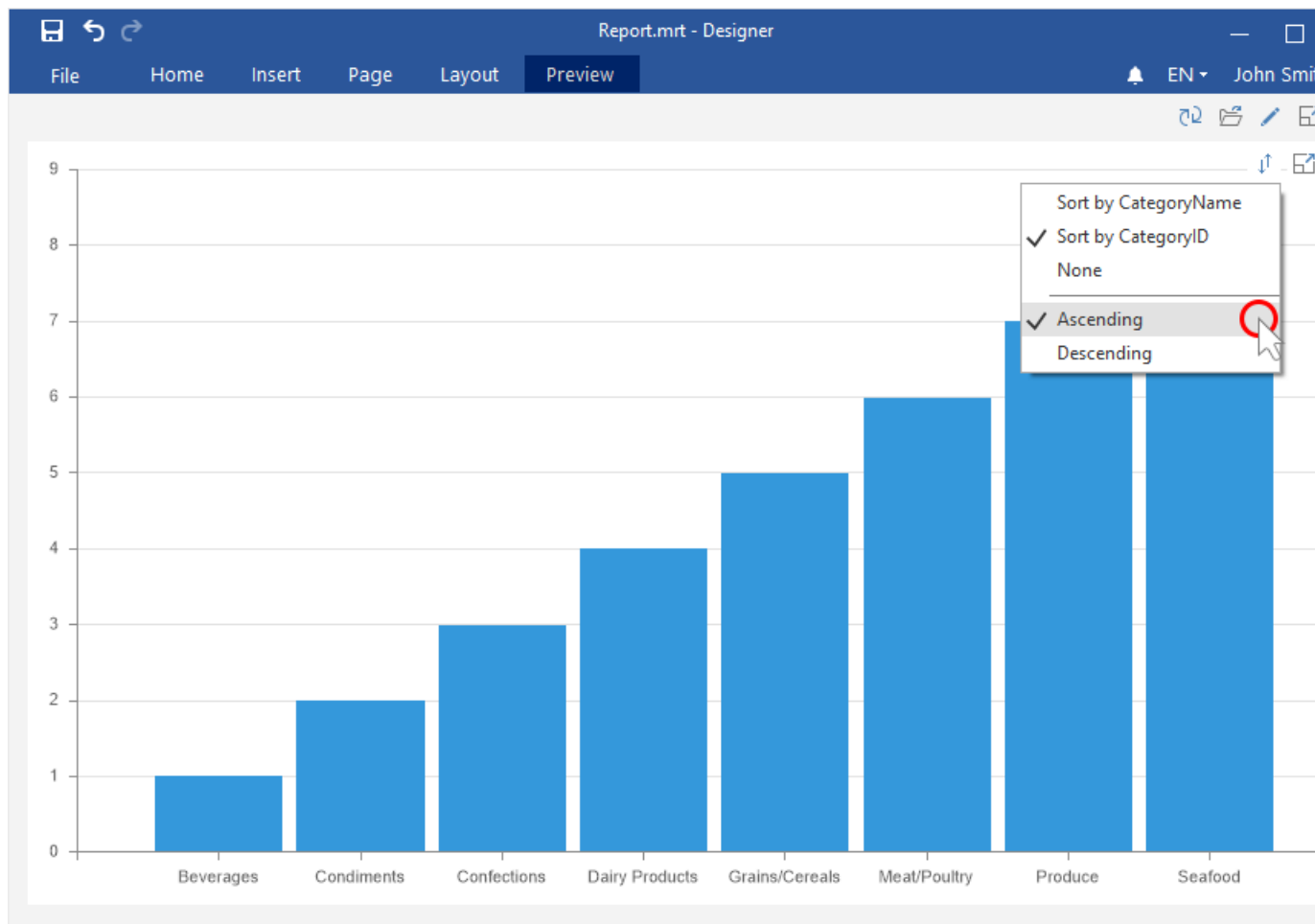
To change sorting for a chart, gauge, indicator, progress when viewing a dashboard, you should make the following actions:

Step 1: Hover the cursor over this element and click the sort button;

Step 2: Select the data field where you need to sort values;



Step 3: Click the sort button and change the sort direction.

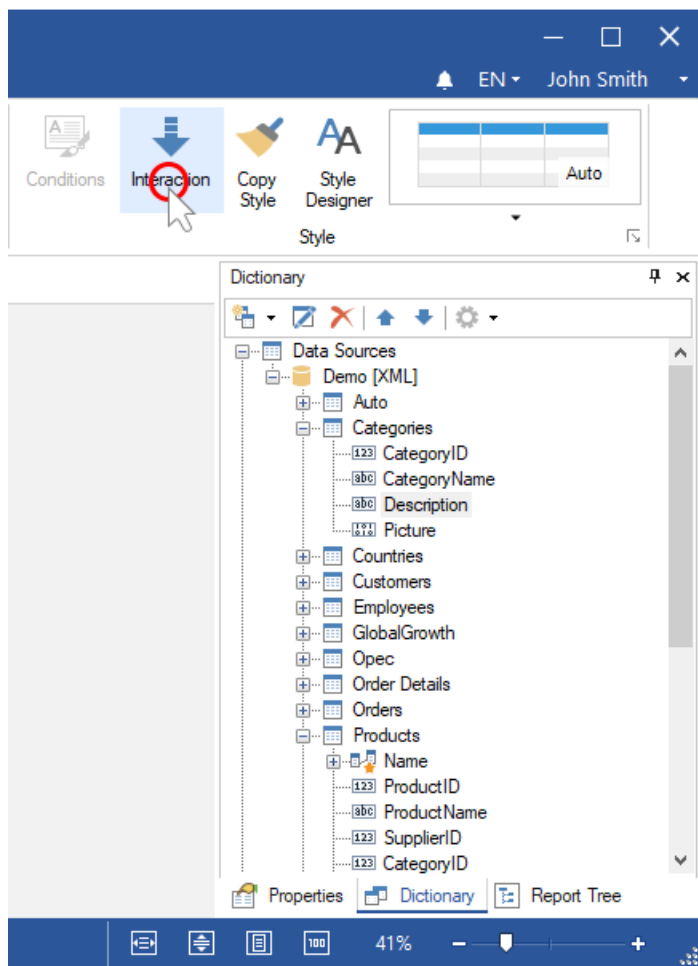


Disable or enable the sort button in the viewer

To disable or enable the element sort button when viewing a dashboard, you should make the following actions:

Step 1: Select an element in the report designer;

Step 2: Click the **Interaction** on the **Home** tab of the report designer;



Step 3: Uncheck the **Allow User Sorting** parameter if you need to disable the sort button for the current element, or set a checkbox next to this parameter if you want to enable the element sorting button;

Interaction ? X

On Hover

Mode Show Tool Tip

Tool Tip (Not Specified)

On Click

Mode Apply Filter

On Data Manipulation

☒ Allow User Sorting

☐ Allow User Drill-Down

Layout

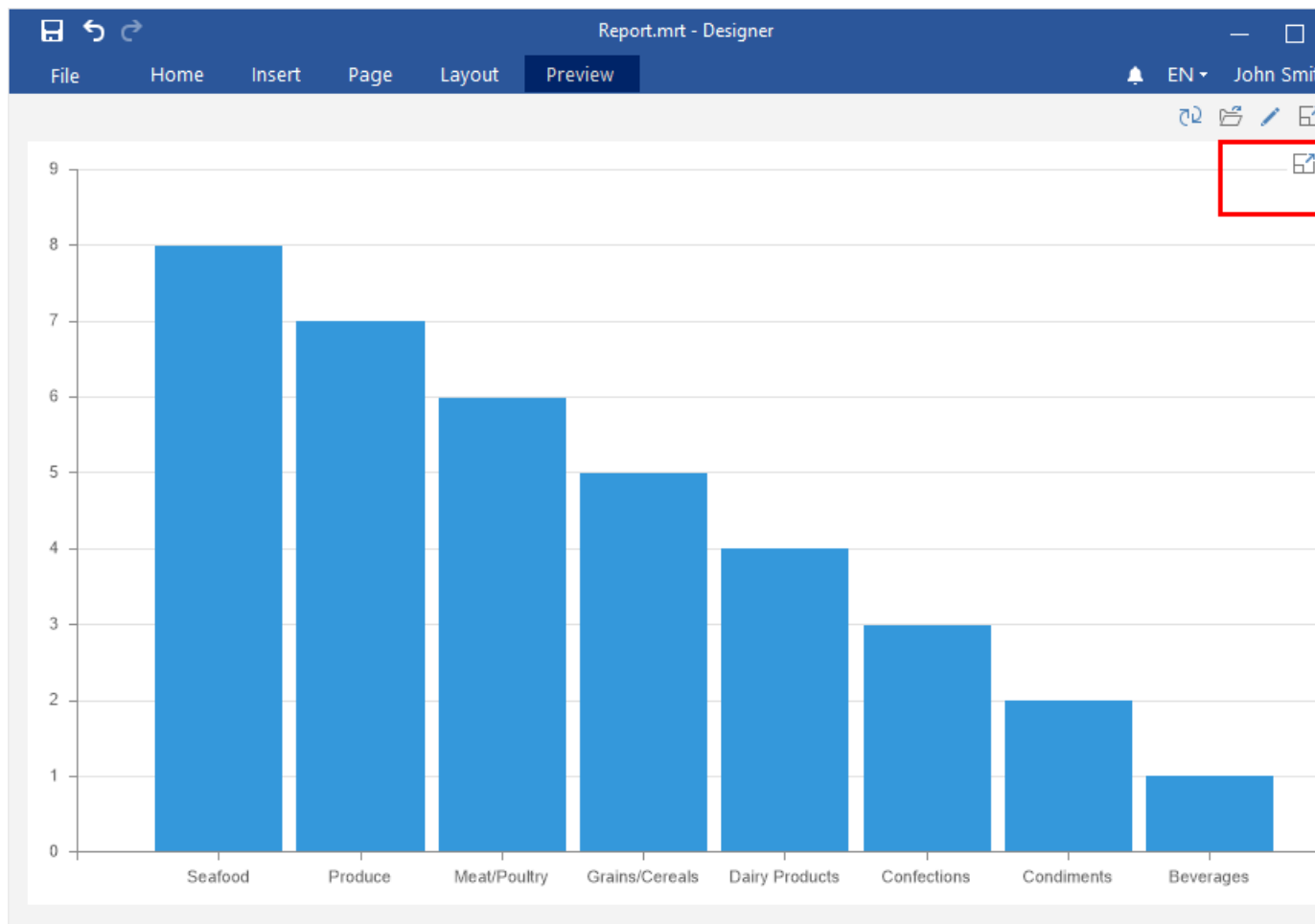
☒ Show "Full Screen"

☒ Show "Save"

OK Cancel

Step 4: Close the Interaction editor;

Step 5: Go to the Preview tab.



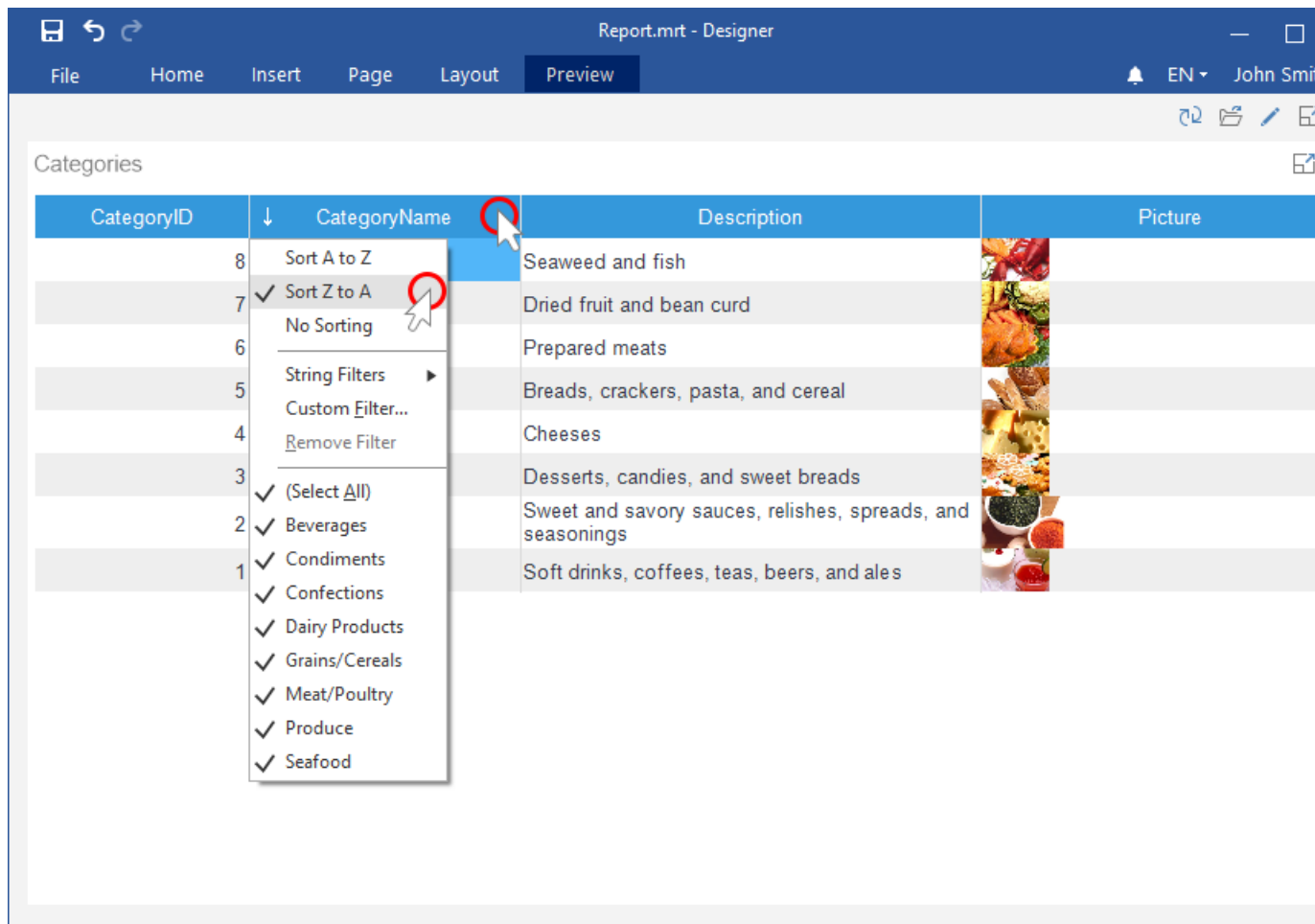
Sorting data in the Table component

Sorting in the Table is set in the same way both in the report designer and when viewing a dashboard.

Step 1: [Create or open a dashboard with the Table element;](#)

Step 2: Click on the column header by value of which the sorting will be carried out;

Step 3: Select the sort direction.



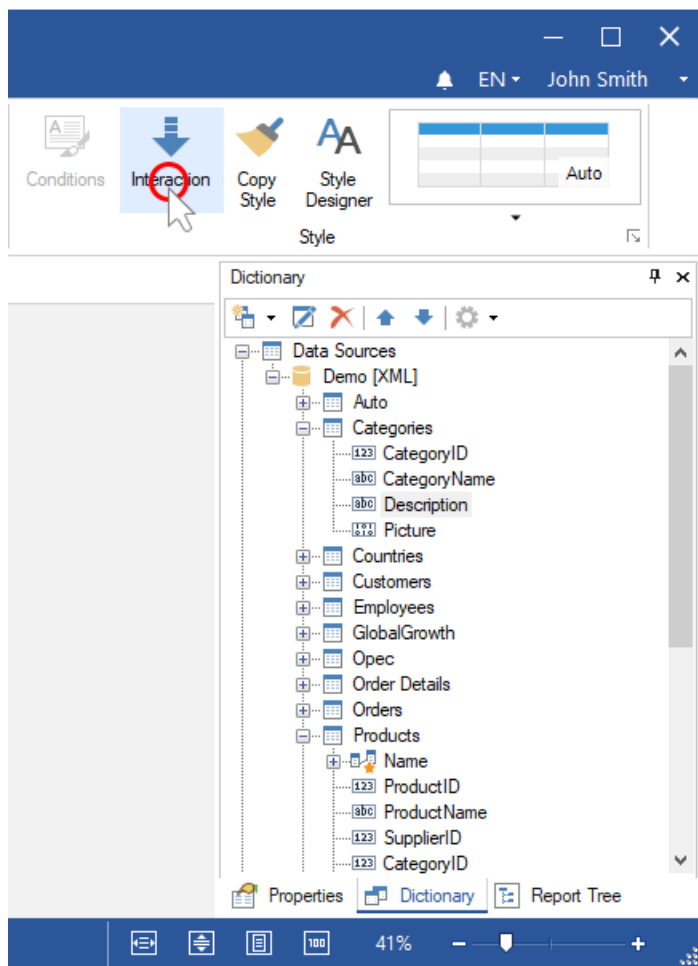
Information

You can specify sorting for several columns in the **Table** element. Firstly, the data will be sorted for the first column, then for the second, etc.

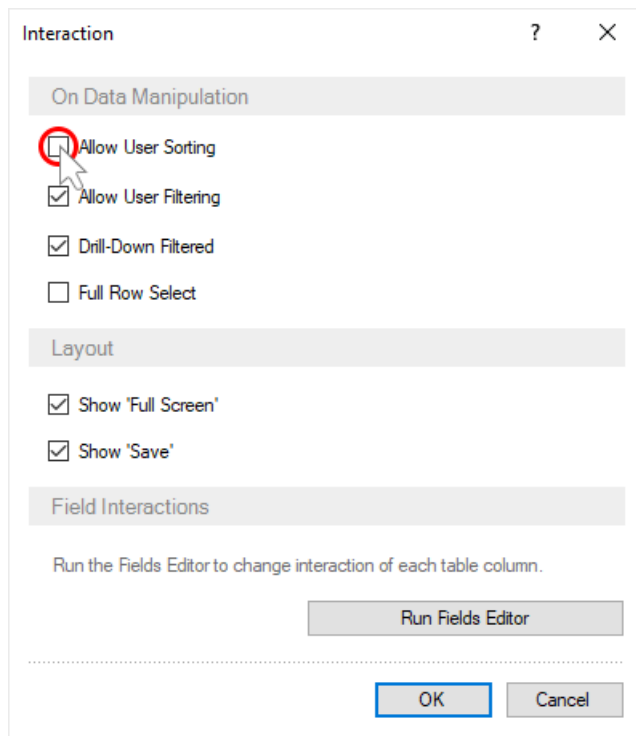
Disable sorting in the Table

Step 1: Select the Table element;

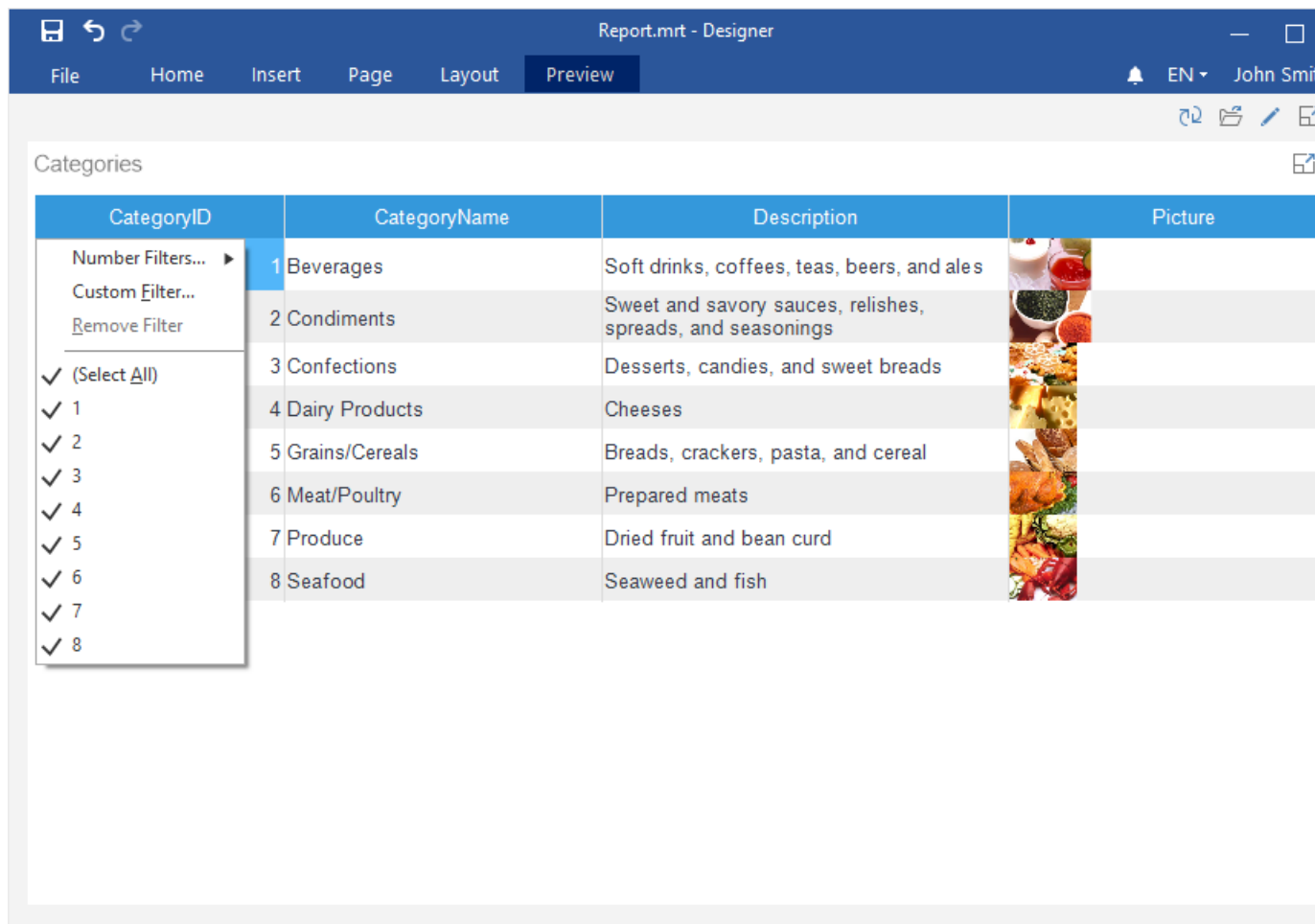
Step 2: Click the **Interaction** on the **Home** tab of the report designer;



Step 3: Uncheck a box next to the **Allow User Sorting** parameter if you need to disable the sorting direction commands for the current element, or set a checkbox next to this parameter if you want to enable the element sorting commands;

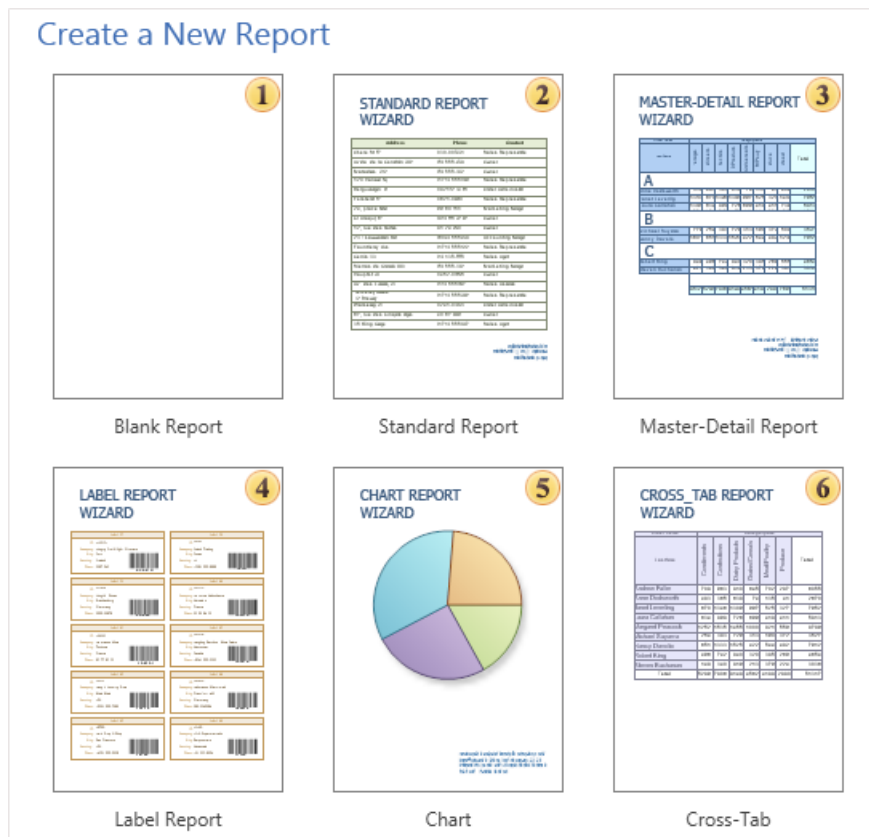


Step 4: Go to the Preview tab.



3.27 Creating report using Wizards

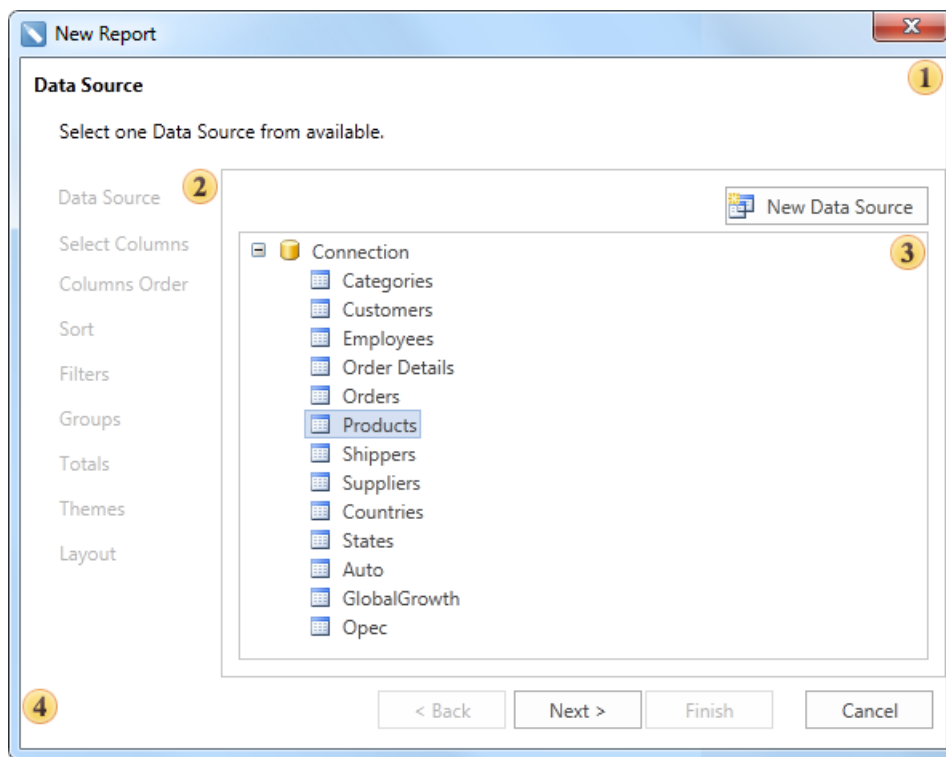
When creating a new report in the **New Report** dialog you should choose a way to create a report. The picture below shows the **Create a New Report** dialog:



As can be seen from the picture above, there are several ways of creating a report: select a **Blank Report**, and manually create a report template, or create a report using the report wizards.

- The **Blank Report** icon can be used to create a blank report and the user should put components manually.
- The **Standard Report** wizard is used to create reports as a list.
- The **Master-Detail Report** wizard is used to create a **Master-Detail** reports.
- The **Label Report** wizard is used to create Label reports.
- The **Chart** wizard is used to create reports with charts.
- The **Cross-Tab** wizard is used to create Cross-Tab reports.

Any **Report Wizard** has the following panels: **Description Panel**, **Steps Panel**, **Selection Parameters Panel**, **Control Panel**. The picture below shows the **Standard Report** wizard:



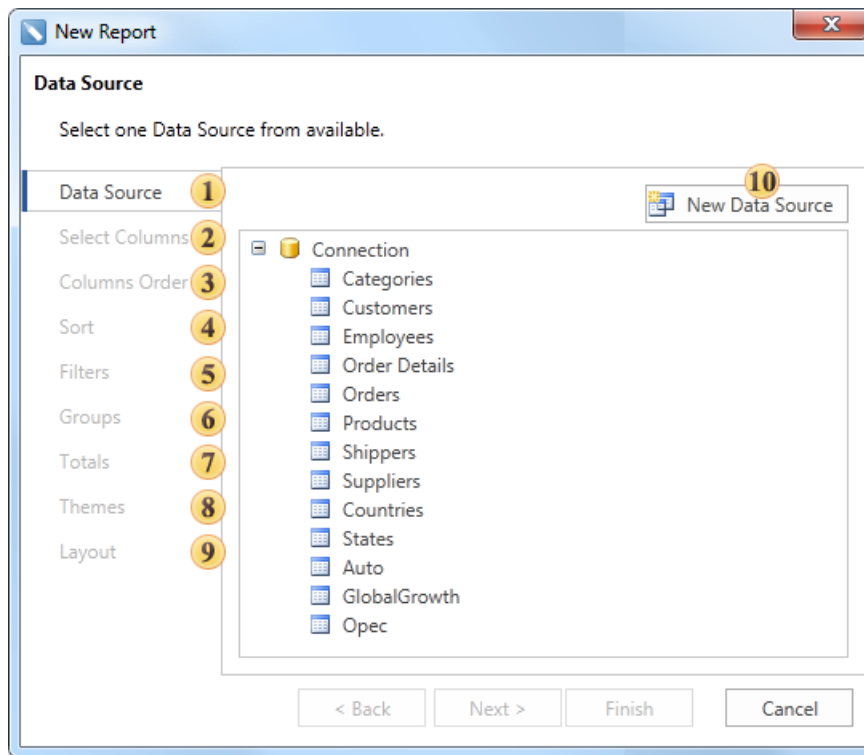
- ❶ The **Description Panel**. This panel shows description of each steps to be done.
- ❷ The **Steps Panel**. Shows steps of creating reports using a report wizard.
- ❸ The **Selection Parameters Panel**. This panel shows report parameters. On each step of report creation its own options are available.
- ❹ The **Control Panel**. Contains buttons to control the **Report Wizard**.

3.27.1 Standard Report

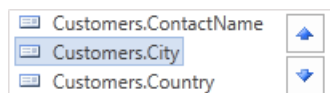
Important

Scripts can be a security risk, so they are disabled in the [Interpretation mode](#). However, if you are confident in the safety of your scripts, you can use them in the [Compilation mode](#).

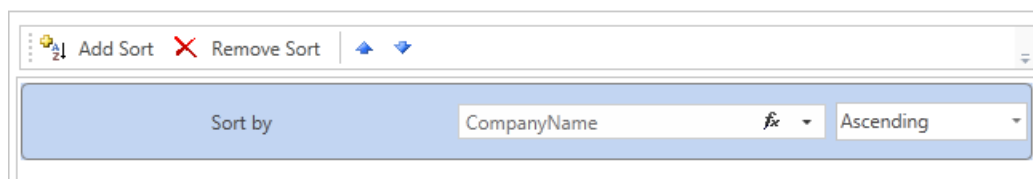
When creating a report using the **Standard Report** wizard, this report will contain one **DataBand** or one data **Table** (depends on what is selected). The picture below shows a window of the **Standard Report** wizard:



- ❶ **Data Source.** On this step the data source is defined. This step is obligatory.
- ❷ **Select Columns.** On this step columns of a data source are selected. This step is obligatory.
- ❸ **Columns Order.** This step defines position of columns in the **DataBand**. Data columns selected in the second stage will be shown as a list on the **Selection Parameters Panel**. The top-down order of columns shown in the panel corresponds to their left-to-right position in a report. It is possible to change the position of data columns by dragging them or by clicking the buttons on the control panel of this step. The picture below shows the order of columns on the **Selection Parameters Panel**:



- ❹ **Sort.** On this step, it is possible to specify elements and sorting direction. The picture below shows a sample of the **Selection Parameters Panel** of sorting:



5 **Filters.** On this step, it is possible to set the conditions of filtering. The picture below shows a sample of selection filtering parameters:

The screenshot shows the Selection Filtering Parameters Panel. At the top, there are buttons for 'Add Filter' (with a plus icon), 'Remove Filter' (with a minus icon), and arrows for moving filters. Below these are radio buttons for 'And' (selected) and 'Or', and a checked checkbox for 'Filter On'. The panel contains two identical filter rules. Each rule has three columns: 'Field Is', 'Data Type', and 'Column'. The first rule has 'Value' in the 'Field Is' column, 'String' in the 'Data Type' column, and '[No]' in the 'Column' column. Below these columns is a dropdown menu set to 'equal to' and an empty input field with a small '...' button to its right. The second rule is identical.

6 **Groups.** This step defines the condition of grouping. It is necessary to select a data column by what conditions of grouping will be created.

7 **Totals.** On this step, it is possible to select a function for calculating totals by any data source column. For each data column its own function of aggregation can be set.

8 **Themes.** This step defines the report style.

9 **Layout.** On this step, the basic report options are set. Among them are: page **Orientation**, script **Language**, a **Component** that will be used for report rendering (DataBand or Table), report **Units**. The picture below shows a sample of the **Selection Parameters Panel** layout:

The screenshot shows the Selection Parameters Panel with four sections. The 'Orientation' section has radio buttons for 'Portrait' (selected) and 'Landscape'. The 'Language' section has radio buttons for 'C#' (selected) and 'VB.Net'. The 'Unit' section has radio buttons for 'Inches' (selected), 'Hundredths of Inch', 'Centimeters', and 'Millimeters'. The 'Components' section has radio buttons for 'Data' (selected) and 'Table'.

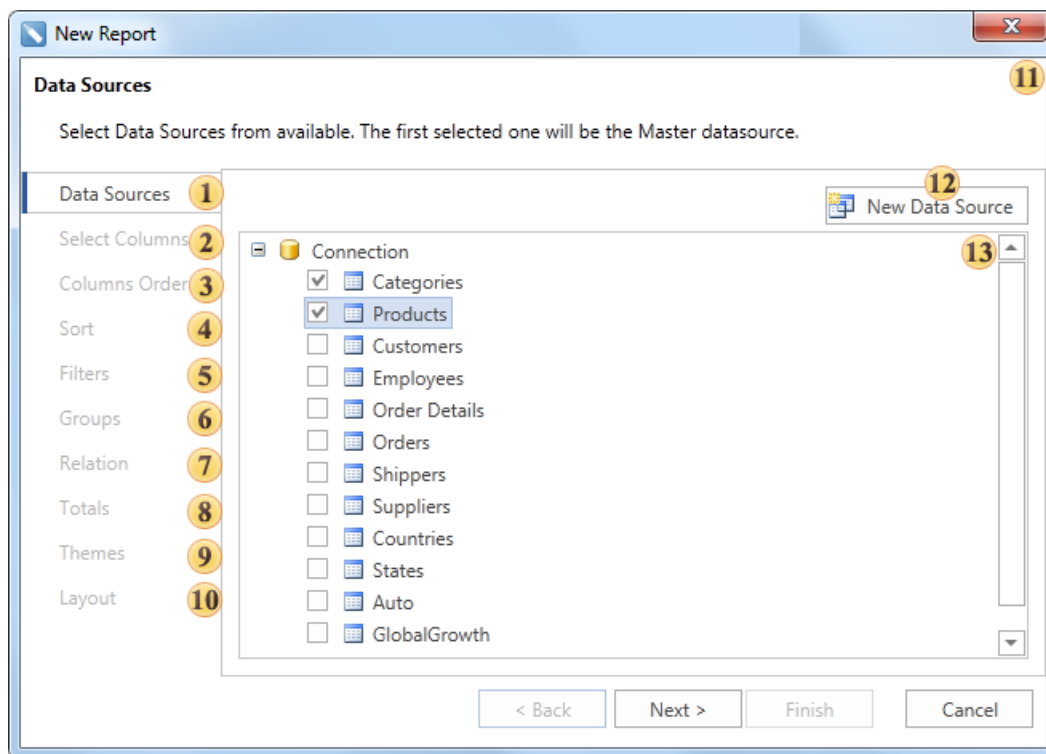
10 The **New Data Source** button is used to create a new data source.

3.27.2 Master-Detail Report

Important

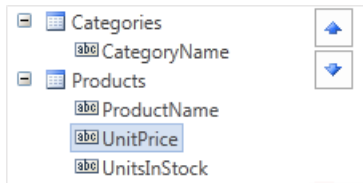
Scripts can be a security risk, so they are disabled in the [Interpretation mode](#). However, if you are confident in the safety of your scripts, you can use them in the [Compilation mode](#).

The **Master-Detail** report can be created using the **Master-Detail Report** report wizard. The picture below shows a window of the **Master-Detail Report** wizard:



- 1 **Data Source.** On this step the data source is defined. This step is obligatory. For creating the **Master-Detail Report**, the report template should have no less than one **Master** band and one **Detail** band.
- 2 **Select Columns.** On this step columns of a data source are selected. This step is obligatory.
- 3 **Columns Order.** This step defines the order of columns. Data columns selected in

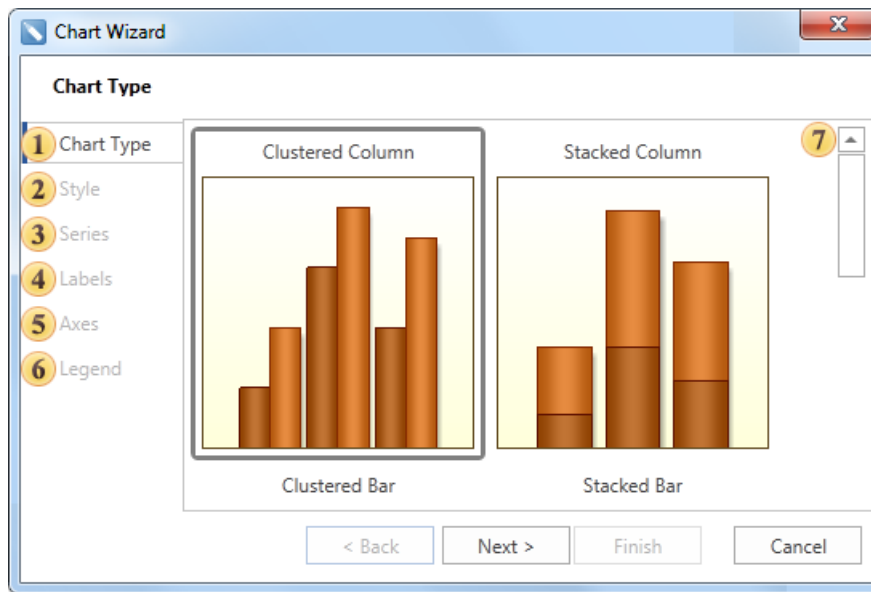
the second stage will be shown as a list on the **Selection Parameters Panel**. The top-down order of columns shown in the panel corresponds to their left-to-right position in a report. It is possible to change the position of data columns by dragging them or by clicking the buttons on the control panel of this step. The picture below shows the order of columns on the **Selection Parameters Panel**:



- 6 **Groups**. This step defines the condition of grouping. It is necessary to select a data column by what conditions of grouping will be created.
- 7 **Relation**. defines the relation between **Master** and **Detail** bands. The relation is used for selecting detail data only for the specified **Master** band row. If a relation will not be specified then all **Details** data rows will be output for each row of the **Master** band. Selection is done between relations which are created between **Master** and **Detail** data sources, and where a **Detail** data source is a detail data source. More than one relation can be. So it is necessary to select the correct relation.
- 8 **Totals**. On this step, it is possible to select a function for calculating totals by any data source column. For each data column its own function of aggregation can be set.
- 9 **Themes**. This step defines the report style.
- 10 **Layout**. On this step, the basic report options are set. Among them are: page **Orientation**, script **Language**, a **Component** that will be used for report rendering (DataBand or Table), report **Units**.
- 11 The **Description Panel**. Shows description for the current step.
- 12 The **New Data Source** button is used to create a new data source.
- 13 The **Selection Parameters Panel** shows options, actions, settings available on this step.

3.27.3 Chart

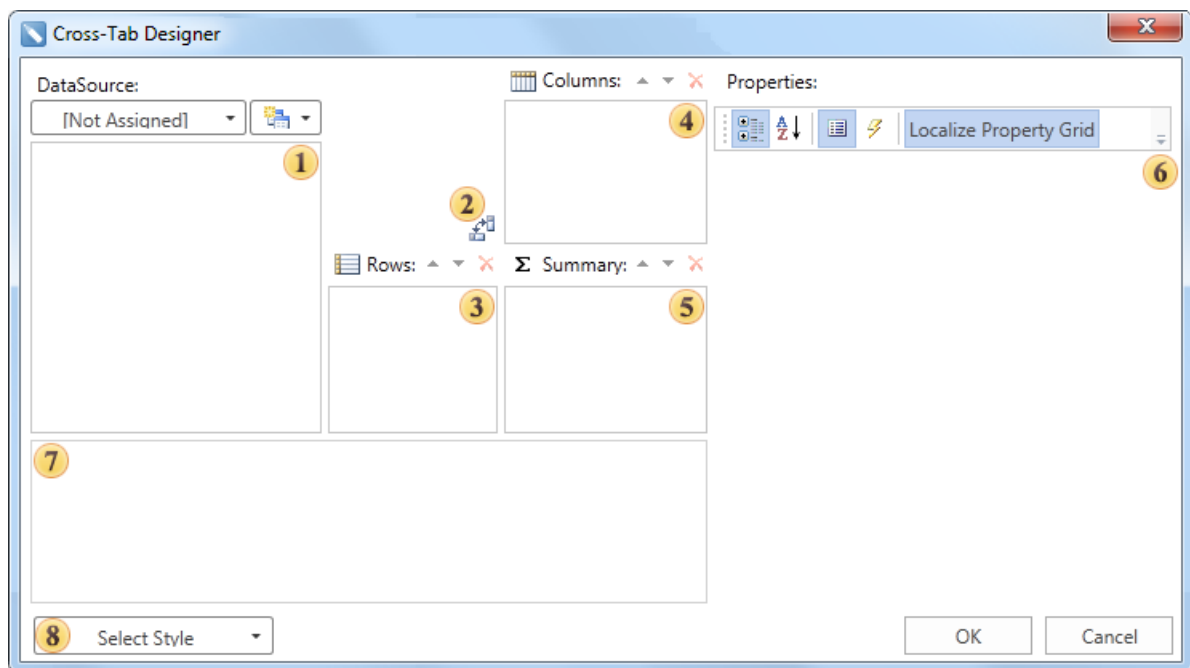
The **Chart** wizard is used to create reports with charts. The picture below shows a window of the **Chart** wizard.



- 1 **Chart Type.** Select the chart type.
- 2 **Style.** Select the chart style from multiple templates.
- 3 **Series.** Add series using the series editor. Also, it is possible to specify the column of values and arguments for the data source.
- 4 **Labels.** The following parameters are defined on this step: series position, **Value Type** of series, **Text before/after** the series, and a rotation **Angle**.
- 5 **Axes.** This step is available only if selected chart type is in **Axes Area**. The following options are set on this step: axis **Title** and its **Alignment**, **Ticks** length and their **Visibility**, **Grid Lines** and its **Interlaced**, **Labels** and their **Visible** property. Also, a chart can be shown vertically or horizontally. The Reverse property for X or Y axis should be applied for this.
- 6 **Legend.** On this step legend parameters and charts such as **Title**, legend **Alignment** horizontally and vertically, **Direction** of rows in legend, **Visible** and **Size** of a marker, **Spacing**, **Visible** of the legend.
- 7 The **Description Panel.** Shows description for the current step.

3.27.4 Cross-Tab

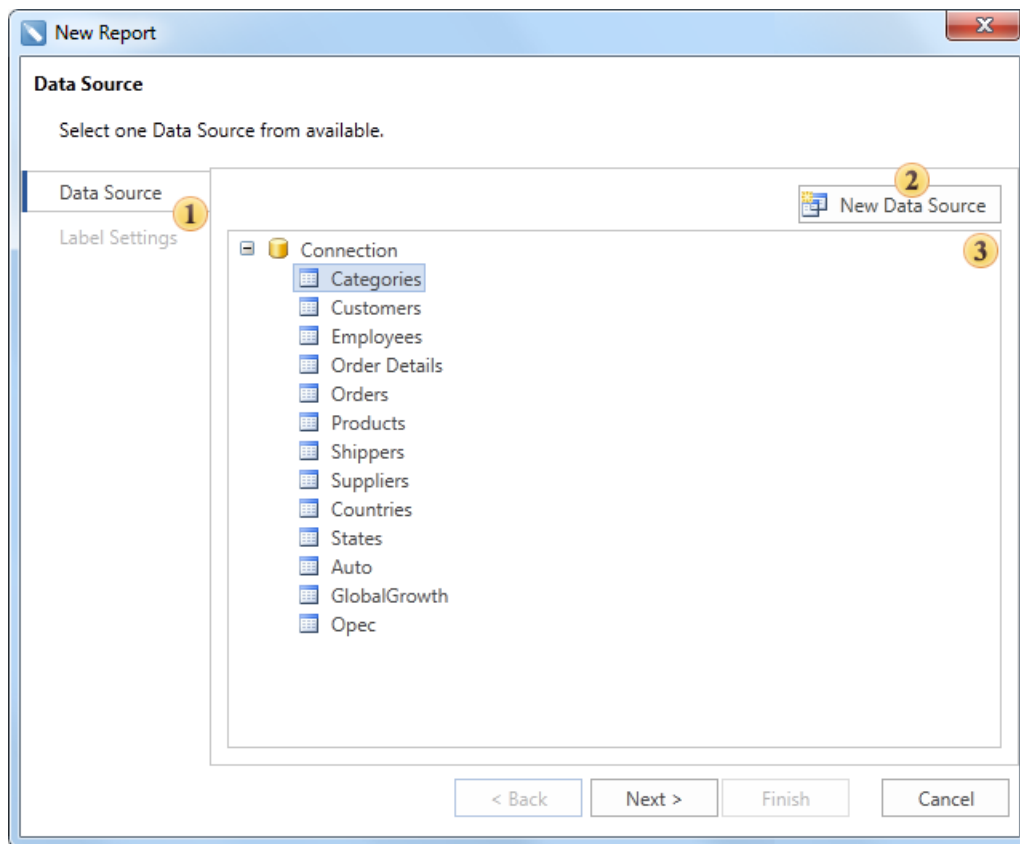
The **Cross-Tab** wizard is used to create reports with cross-tab. The picture below shows the window of the **Cross-Tab** wizard.



- 1 **Data Source Panel.** In the **Data Source** field it is necessary to select the data source. Then data source columns will be shown on the panel of the data source.
- 2 The **Swap Rows/Columns** button is used to change data between columns, which are placed on the **Rows** and **Columns** panels.
- 3 The **Rows** panel shows data source columns, which are rows of a cross table.
- 4 The **Columns** panels shows data source columns, which are columns of a cross table.
- 5 The **Summary** shows data source columns, which are the key column and row in the cross table. Key column and row generate a summary cell.
- 6 The **Properties** panel shows a table of properties of selected column of the data source.
- 7 The **Preview Panel** is used to preview the template of a cross table.
- 8 The **Select Style** button is used to select style of the cross table appearance.

3.27.5 Label Report

The **Label Report** wizard is used to create reports which have labels. The picture below shows a window of the **Label Report** wizard:



- 1 The **Description Panel**. Shows description for the current step.
- 2 The **Steps Panel** shows step of report creation.
- 3 The **Selection Parameters Panel** shows options, actions, settings available on this step.

A **Label Report** is created in two steps. The **Data Source** is defined on the first step, **Label Settings** are defined on the second step. The picture below shows the **Selection Parameters Panel** on the second step of the **Label Settings**.

The screenshot shows the 'Label Settings' dialog box. It is divided into several sections:

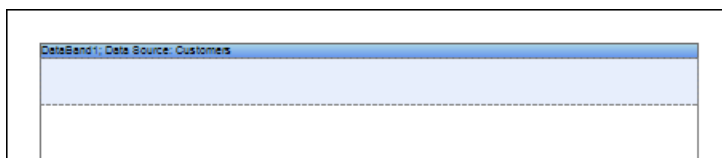
- Label Type Panel (1):** Includes a dropdown for 'Label Type' (set to '119002 Multi-Usage (10.5x3.9)') and a dropdown for units (set to 'Centimeters').
- Size Label Panel (2):** Includes input fields for 'Width' (10.5 cm), 'Height' (3.9 cm), 'Horizontal Gap' (0 cm), and 'Vertical Gap' (0 cm).
- Size Pages Panel (3):** Includes a dropdown for 'Size' (set to 'Custom') and input fields for 'Page Width' (21 cm), 'Page Height' (29.7 cm), 'Left Margin' (0 cm), and 'Top Margin' (1.2 cm).
- Configuration Label Panel (4):** Includes input fields for 'Number of Columns' (2) and 'Number of Rows' (7), and a dropdown for 'Direction' (set to 'Across Then Down').
- Preview Panel (5):** A 'Preview' button and a grid showing 14 numbered boxes (1-14) arranged in two columns and seven rows.

- ❶ The **Type Panel** is used to select the **Label Type** and units.
- ❷ The **Size Label Panel** is used to change the label size.
- ❸ The **Size Pages Panel** is used to select the page size or manually set width and height and margins of a page.
- ❹ The **Configuration Label Panel** is used to set a number of rows, columns and direction of labels.
- ❺ The **Preview Panel** is used to preview how labels are placed on a page.

3.28 Simple List Report

Do the following steps to create a simple list report:

1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Put a **DataBand** on a page of a report template.



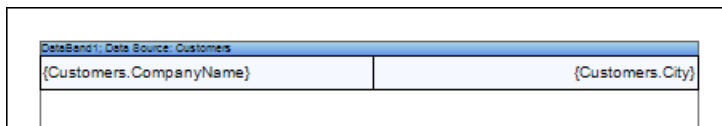
4. Edit **DataBand**:

- 4.1. Align the **DataBand** by height;
 - 4.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
 - 4.3. Change the **DataBand** background;
 - 4.4. Enable **Borders** for the **DataBand**, if required;
 - 4.5. Change the border color.
5. Define the data source for the **DataBand** using the **Data Source** property:



6. Put text components with expressions in the **DataBand**. Where expression is a reference to the data field. For example, put two text components with expressions: **{Customers.CompanyName}** and **{Customers.City}**;
7. Edit **Text** and **TextBox** component:
- 7.1. Drag and drop the text component in the **DataBand**;
 - 7.2. Change parameters of the text font: size, type, color;
 - 7.3. Align the text component by width and height;
 - 7.4. Change the background of the text component;
 - 7.5. Align text in the text component;
 - 7.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
 - 7.7. Enable **Borders** for the text component, if required.
 - 7.8. Change the border color.

The picture below shows a report template with the list:



8. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a simple list report:

Alfreds Futterkiste	Berlin
Ana Trujillo Emparedados y helados	México D.F.
Antonio Moreno Taquería	México D.F.
Around the Horn	London
Berglunds snabbköp	Luleå
Blauer See Delikatessen	Mannheim
Blondesddsl père et fils	Strasbourg
Bólido Comidas preparadas	Madrid
Bon app'	Marseille
Bottom-Dollar Markets	Tsawassen

9. Go back to the report template;
10. If needed, add other bands to the report template, for example, **ReportTitleBand** and **ReportSummaryBand**;
11. Edit these bands:
 - 11.1. Align them by height;
 - 11.2. Change values of properties, if required;
 - 11.3. Change the background of bands;
 - 11.4. Enable **Borders**, if required;
 - 11.5. Set the border color.

The picture below shows a simple list report template with **ReportTitleBand** and **ReportSummaryBand**:

ReportTitleBand1	
DataBand1: Data Source: Customers	
{Customers.CompanyName}	{Customers.City}
ReportSummaryBand1	

12. Put text components with expressions in the these bands. The expression in the text component is a title in the **ReportTitleBand**, and a summary in the **ReportSummaryBand**.
13. Edit text and text components:
 - 13.1. Drag and drop the text component in the band;
 - 13.2. Change font options: size, type, color;
 - 13.3. Align text component by height and width;
 - 13.4. Change the background of the text component;
 - 13.5. Align text in the text component;
 - 13.6. Change values of text component properties, if required;

13.7. Enable **Borders** of the text component, if required;

13.8. Set the border color.

The picture below shows a sample of the simple list report template:

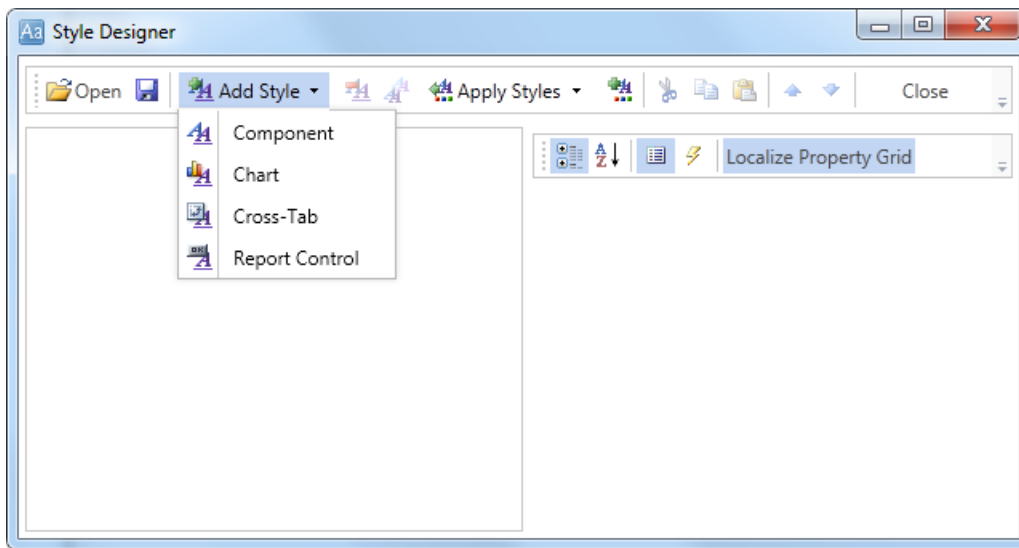
ReportTitleBand1	
Stimulsoft Reports	
DataBand1: Data Source: Customers	
{Customers.CompanyName}	{Customers.City}
ReportSummaryBand1	
Count:{Count()}}	

14. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a simple list report with the title and summary:

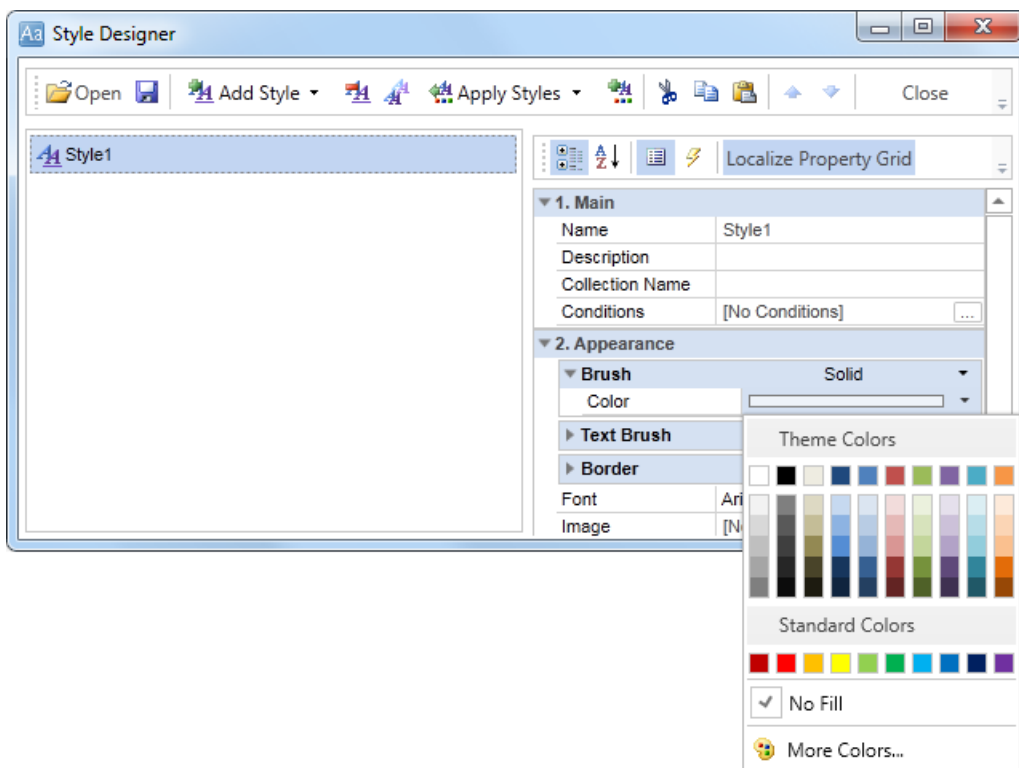
Stimulsoft Reports	
Alfreds Futterkiste	Berlin
Ana Trujillo Emparedados y helados	México D.F.
Antonio Moreno Taquería	México D.F.
Around the Horn	London
Berglunds snabbköp	Luleå
Blauer See Delikatessen	Mannheim
Blondesddsl père et fils	Strasbourg
Bóldo Comidas preparadas	Madrid
Bon app'	Marseille
Bottom-Dollar Markets	Tsawassen
B's Beverages	London
Cactus Comidas para llevar	Buenos Aires
Centro comercial Moctezuma	México D.F.
Chop-suey Chinese	Bern
Tradição Hipermercados	Sao Paulo
Trail's Head Gourmet Provisioners	Kirkland
Vaffeljemet	Århus
Victuailles en stock	Lyon
Vins et alcools Chevalier	Reims
Die Wandernde Kuh	Stuttgart
Wartian Herkku	Oulu
Wellington Importadora	Resende
White Clover Markets	Seattle
Wilman Kala	Helsinki
Wolski Zajazd	Warszawa
Count:91	

Adding styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a sample of a rendered simple list report with alternative color of rows:

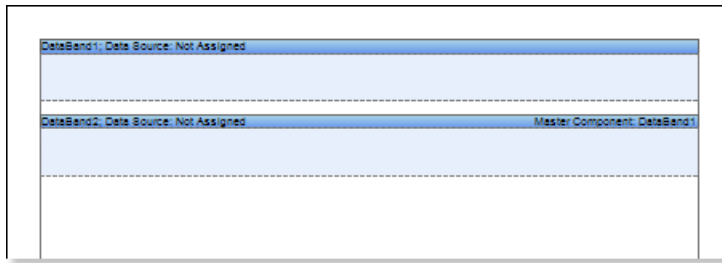
Stimulsoft Reports		
Alfreds Futterkiste		Berlin
Ana Trujillo Emparedados y helados		México D.F.
Antonio Moreno Taquería		México D.F.
Around the Horn		London
Berglunds snabbköp		Luleå
Blauer See Delikatessen		Mannheim
Blondel's père et fils		Strasbourg
Bólido Comidas preparadas		Madrid
Bon app'		Marseille
Bottom-Dollar Markets		Tsawassen
B's Beverages		London
Cactus Comidas para llevar		Buenos Aires
Centro comercial Moctezuma		México D.F.
Chop-suey Chinese		Bern
Comércio Mineiro		Sao Paulo
Consolidated Holdings		London
Drachenblut Delikatessen		Aachen
Du monde entier		Nantes
Eastern Connection		London
Ernst Handel		Graz
Tradição Hipermercados		Sao Paulo
Trail's Head Gourmet Provisioners		Kirkland
Vaffeljernet		Århus
Victualies en stock		Lyon
Vine et alcools Chevalier		Reims
Die Wandernde Kuh		Stuttgart
Wartian Herkku		Oulu
Wellington Importadora		Resende
White Clover Markets		Seattle
Wilmann Kalra		Helsinki
Wolski Zajazd		Warszawa

Count: 91

3.29 Master-Detail Report

Do the following steps to create a master-detail report:

1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Create **Relation** between data sources. If the relation will not be created and/or the **Relation** property of the **Detail** data source will not be filled, then, for **Master** entry, all **Detail** entries will be output;
4. Put two **DataBands** on a page of a report template.



5. Edit **DataBand1** and **DataBand2**:

5.1. Align them by height;

5.2. Change values of required properties. For example, if to set the **PrintIfDetailEmpty** property of the **DataBand1** that is the **Master** component in the **Master-Detail** report to **true**, if it is necessary all **Master** entries be printed in any case, even if **Detail** entries not present. And set the **CanShrink** property of the **DataBand2** that is the **Detail** component in the **Master-Detail** report to **true**, if it is necessary to shrink this band;

5.3. Change the background color of the **DataBand**;

5.4. Enable **Borders** of the band, if required;

6. Define data sources for **DataBands**, a define the **Master** component. In our tutorial, the **Master** component is the **DataBand1**. This means that in the **Data Setup** window of the lower **DataBand2**, the **DataBand1** will be specified as the Master component in the **Master Component** tab;

7. Fill the **Data Relation** property of the **DataBand**, that is the **Detail** components. In our case this **DataBand2**:



8. Put text components with expressions on **DataBands**. Where expression is a reference to the data field. For example, put a text component with the expression **{Customers.CompanyName}** on the **DataBand1**. Put a text component with **{Products.ProductName}** and **{Products.UnitPrice}** expressions in the **DataBand2**;

9. Edit **Text** and **TextBox** component:

9.1. Drag and drop the text component in **DataBands**;

9.2. Change parameters of the text font: size, type, color;

9.3. Align the text component by width and height;

9.4. Change the background of the text component;

9.5. Align text in the text component;

9.6. Change the value of properties of the text component. For example, set the

Word Wrap property to **true**, if you need a text to be wrapped;

9.7. Enable **Borders** for the text component, if required.

9.8. Change the border color.

The picture below shows the master-detail report template.

DataBand1: Data Source: Categories	
{Categories.CategoryName}	
DataBand2: Data Source: Products	
Master Component: DataBand1	
{Products.ProductName}	{Products.UnitPrice}

10. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of the master-detail report:

Beverages	
Chai	18
Chang	19
Guaraná Fantástica	4,5
Sasquatch Ale	14
Steeleye Stout	18
Côte de Blaye	263,5
Chartreuse verte	18
Ipoh Coffee	46
Laughing Lumberjack Lager	14
Outback Lager	15
Röhnbräu Klosterbier	7,75
Lekkalikööri	18

11. Go back to the report template;

12. If needed, add other bands to the report template, for example, **HeaderBand** and **FooterBand**;

13. Edit these bands:

13.1. Align them by height;

13.2. Change values of properties, if required;

13.3. Change the background of bands;

13.4. Enable **Borders**, if required;

13.5. Set the border color.

The picture below shows a simple list report template with **HeaderBand** and **FooterBand**:

DataBand1: Data Source: Categories	
{Categories.CategoryName}	
HeaderBand1	
DataBand2: Data Source: Products	
Master Component: DataBand1	
{Products.ProductName}	{Products.UnitPrice}
FooterBand1	

14. Put text components with expressions in the these bands. The expression in the text component is a header in the **HeaderBand**, and a footer in the **FooterBand**.

15. Edit text and text components:

- 15.1. Drag and drop the text component in the band;
- 15.2. Change font options: size, type, color;
- 15.3. Align text component by height and width;
- 15.4. Change the background of the text component;
- 15.5. Align text in the text component;
- 15.6. Change values of text component properties, if required;
- 15.7. Enable **Borders** of the text component, if required;
- 15.8. Set the border color.

The picture below shows a sample of the master-detail report template:

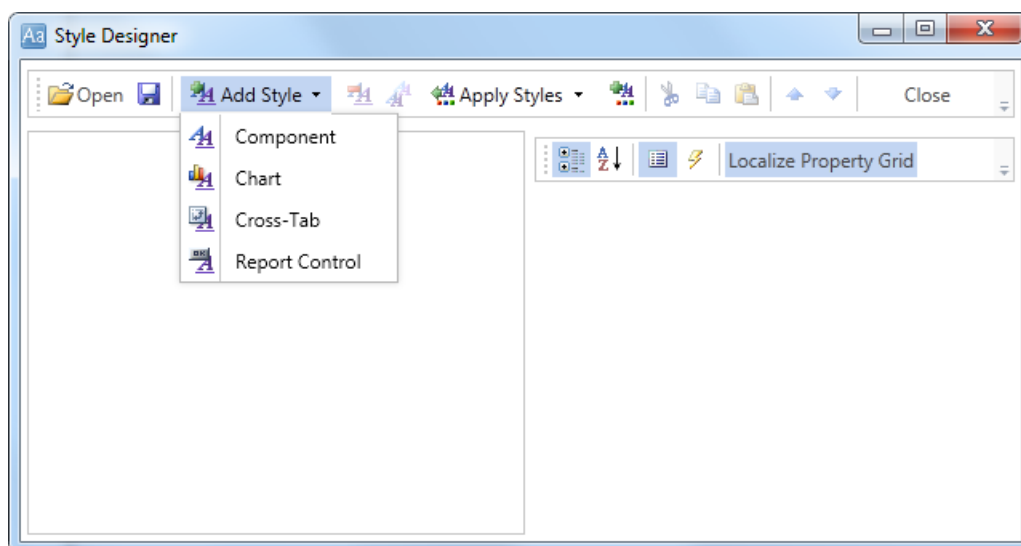
DataBand1: Data Source: Categories	
{Categories.CategoryName}	
HeaderBand1	
ProductName	UnitPrice
DataBand2: Data Source: Products	
Master Component: DataBand1	
{Products.ProductName}	{Products.UnitPrice}
FooterBand1	
Count:{Count()}	

16. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of the master-detail report with header and footer:

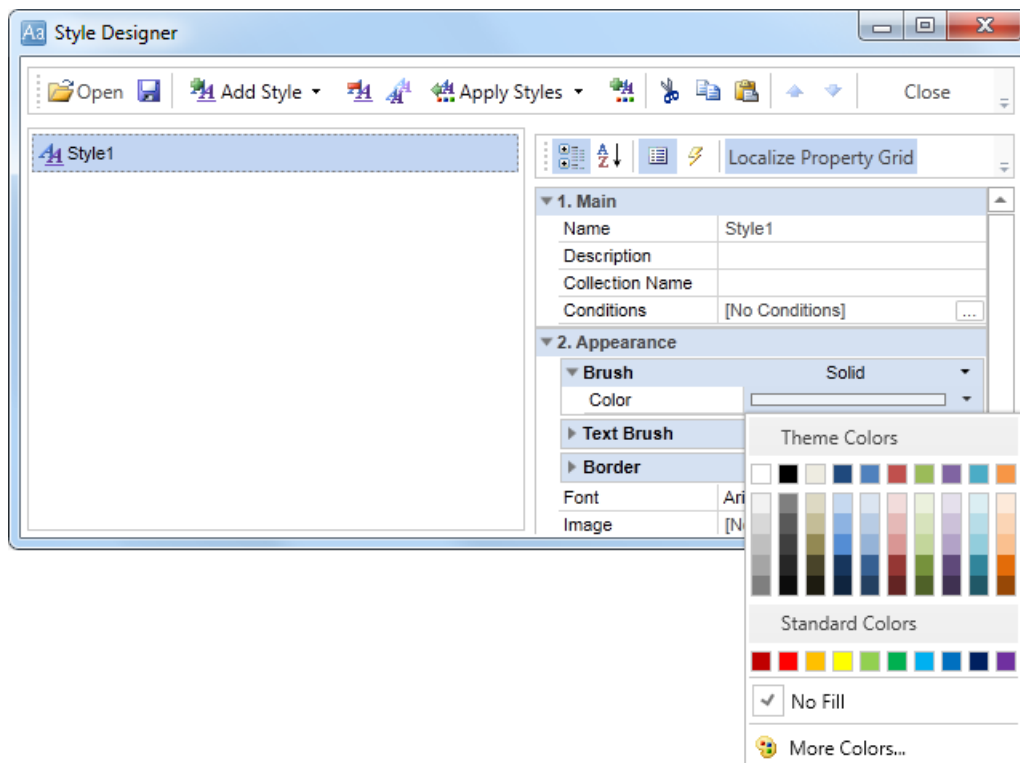
Beverages	
ProductName	UnitPrice
Chai	18
Chang	19
Guaraná Fantástica	4,5
Sasquatch Ale	14
Steeleye Stout	18
Côte de Blaye	263,5
Chartreuse verte	18
Ippoh Coffee	46
Laughing Lumberjack Lager	14
Outback Lager	15
Rhönbräu Klosterbier	7,75
Lakkaikööri	18
Count: 12	

Adding styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then in the list of **Even style** and **Odd style** properties a new value (a style of a list of odd and even rows).

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a sample of a rendered master-detail report with alternative color of rows:

Beverages	
ProductName	UnitPrice
Chai	18
Chang	19
Guaraná Fantástica	4,5
Sasquatch Ale	14
Steeleye Stout	18
Côte de Blaye	263,5
Chartreuse verte	18
Ipoh Coffee	46
Laughing Lumberjack Lager	14
Outback Lager	15
Rhönbräu Klosterbier	7,75
Lakkalikööri	18
Count:12	

If to select the **DataBand1**, that is the **Master** component in the **Master-Detail** report, then it is possible to change values of **Even style** and **Odd style** properties. In such a case, alternative row color will be applied only for **Master** entries.

3.30 Report with Groups

Do the following steps to create a report with grouping:

1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Create a report or open already created one. For example, we can take a simple list report created in the chapter "Simple List Report".

DataBand1: Data Source: Customers	
{Customers.CompanyName}	{Customers.City}

4. Add **GroupHeaderBand** and **GroupFooterBand** to the report template. The **GroupHeaderBand** should be placed higher than the **DataBand** to what it is related to. The **GroupFooterBand** is placed under the **Data** to what **GroupHeader** is related. Each **GroupFooter** corresponds to a specified

GroupHeader. The **GroupFooter** band will not output without **GroupHeader**. The picture below shows a report template with added **GroupHeaderBand** and **GroupFooterBand**.

GroupHeaderBand1: Condition:	
DataBand1: Data Source: Customers	
{Customers.CompanyName}	{Customers.City}
GroupFooterBand1	

5. Edit **GroupHeaderBand** and **GroupFooterBand**:
 - 5.1. Align them by height;
 - 5.2. Change values of properties according to requirements. For example, set the **KeepGroupHeaderTogether** property for the **GroupHeaderBand** to **true**, it is necessary to keep the group header with the group. And for the **GroupFooterBand** set the **KeepFooterTogether** to **true**, if it is required to keep the footer with the group;
 - 5.3. Set the background of the **GroupHeaderBand**;
 - 5.4. Enable **Borders** of the **DataBand**, if required;
6. Set the condition data grouping in the report using the **Condition** property of the **GroupHeader** band. Condition of grouping can be set by setting the expression or by selecting the data column from the data source. In our tutorial, define the **{Customers.ContactTitle}** expression in the condition of grouping.
7. Put a text component in the **GroupHeaderBand** and put the expression **{Customers.ContactTitle}** into this text component. Put a text component in the **GroupFooterBand** and put the expression **{Count()}** into this text component. The **{Count()}** function will count summary by the amount of entries in each group. The picture below shows a report template with the condition of grouping set, and text components placed in **GroupHeaderBand** and **GroupFooterBand**:

GroupHeaderBand1: Condition: {Customers.ContactTitle}	
{Customers.ContactTitle}	
DataBand1: Data Source: Customers	
{Customers.CompanyName}	{Customers.City}
GroupFooterBand1	
Count:{Count()}	

8. Edit expressions and text components:

8.1. Drag and drop the text component in **GroupHeaderBand** and **GroupFooterBand**;

8.2. Change parameters of the text font: size, type, color;

8.3.. Align the text component by width and height;

8.4. Change the background of the text component;

8.5. Align text in the text component;

8.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;

8.7. Enable **Borders** for the text component, if required.

8.8. Change the border color.

The picture below shows a sample of the edited report template with grouping:

GroupHeaderBand1: Condition: {Customers.ContactTitle}	
{Customers.ContactTitle}	
DataBand1: Data Source: Customers	
{Customers.CompanyName}	{Customers.City}
GroupFooterBand1	
Count:{Count()}	

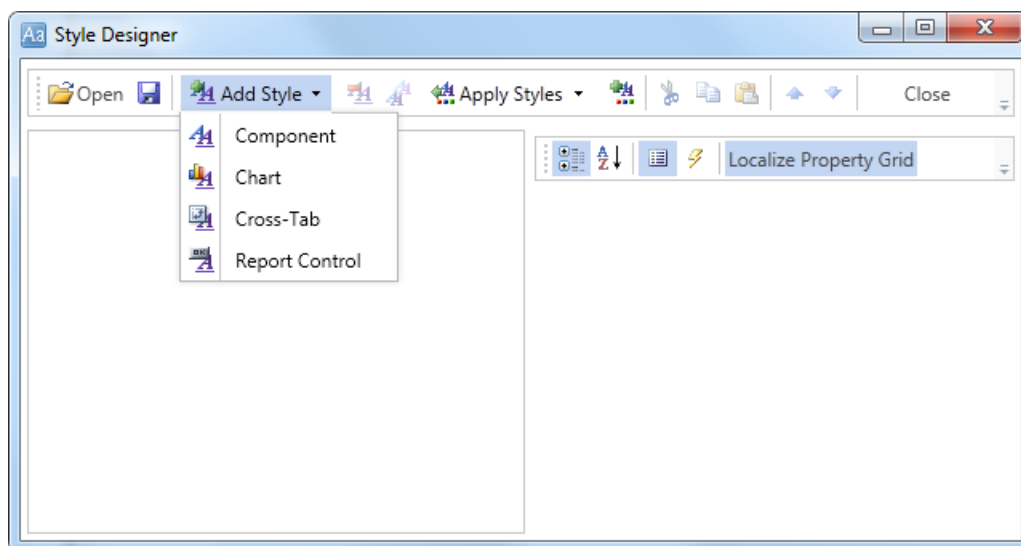
9. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of the report with grouping:

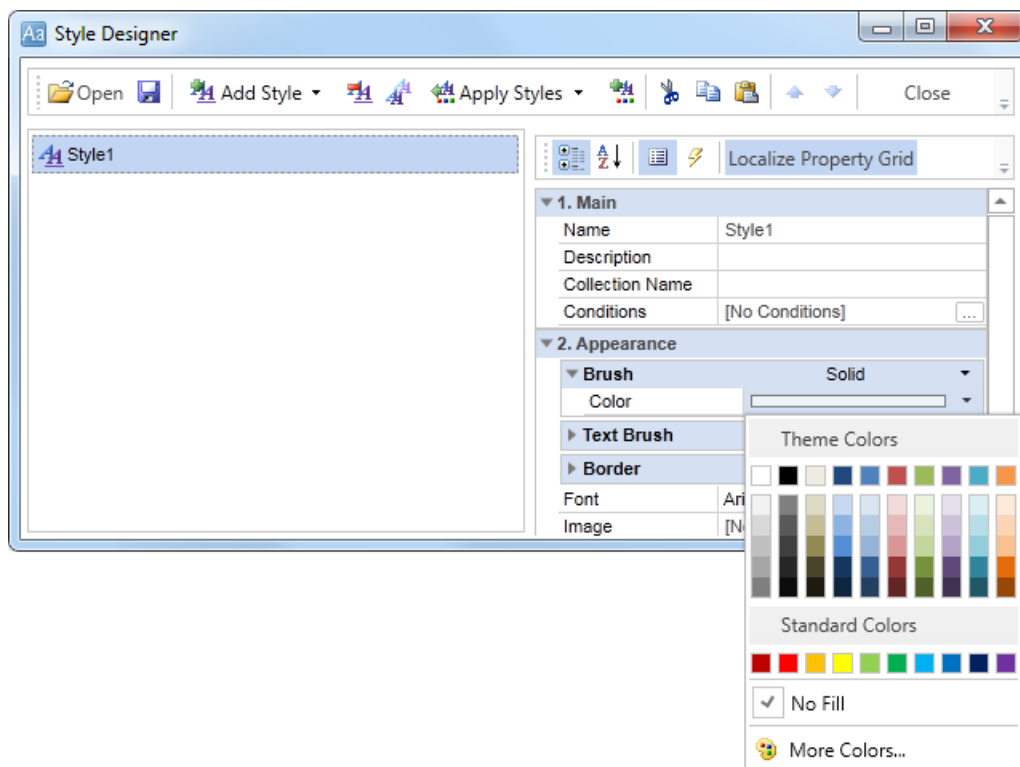
Accounting Manager	
Bottom-Dollar Markets	Tsawassen
Romero y tomillo	Madrid
Que Delícia	Rio de Janeiro
FISSA Fabrica Inter. Salchichas S.A.	Madrid
Suprêmes délices	Charleroi
QUICK-Stop	Cunewalde
LILA-Supermercado	Barquisimeto
Wartian Herku	Oulu
Hanari Carnes	Rio de Janeiro
Vins et alcools Chevalier	Reims
Count:10	

Adding styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then in the list of **Even style** and **Odd style** properties a new value (a style of a list of odd and even rows).

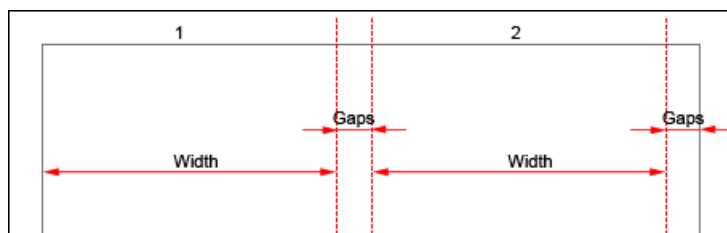
4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a sample of a rendered report with grouping and alternative color of rows:

Accounting Manager	
Bottom-Dollar Markets	Tsawassen
Romero y tomillo	Madrid
Que Delicia	Rio de Janeiro
FISSA Fabrica Inter. Salchichas S.A.	Madrid
Suprêmes délices	Charleroi
QUICK-Stop	Cunewalde
LILA-Supermercado	Barquisimeto
Wartian Herkku	Oulu
Hanari Carnes	Rio de Janeiro
Vins et alcools Chevalier	Reims
Count:10	

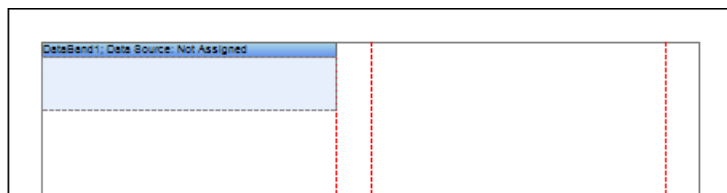
3.31 Report with Columns on Page

Do the following steps to create a report with columns on a page:

1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Set column options: the number of columns, column width, and column gap. For example, set the number of columns equal to **2**, with the gap equal to **1**. The column width is created automatically. The picture below shows a sample of the report template with two columns:



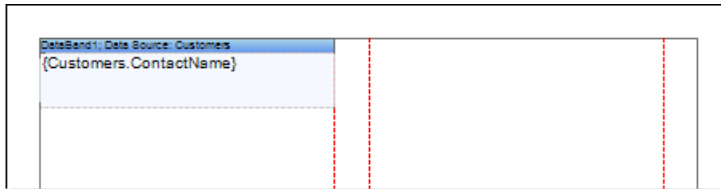
4. Put **DataBand** on a page.



5. Edit **DataBand**:
 - 5.1. Align the **DataBand** by height;
 - 5.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
 - 5.3. Change the **DataBand** background;
 - 5.4. Enable **Borders** for the **DataBand**, if required;
 - 5.5. Change the border color.
6. Define the data source for the **DataBand** using the **Data Source** property:



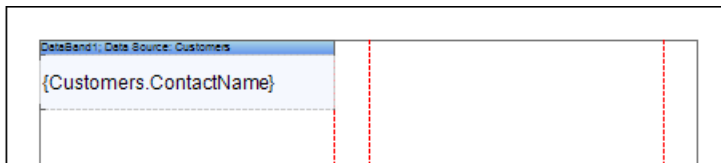
7. Put text components with expressions on the **DataBand**. Where expression is a reference to the data field. For example, put two text components with expressions: **{Customers.ContactName}**.



8. Edit expressions and text components:

- 8.1. Drag and drop the text component in **DataBand**;
- 8.2. Change parameters of the text font: size, type, color;
- 8.3. Align the text component by width and height;
- 8.4. Change the background of the text component;
- 8.5. Align text in the text component;
- 8.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
- 8.7. Enable **Borders** for the text component, if required.
- 8.8. Change the border color.

The picture below shows a report template with edited text component:



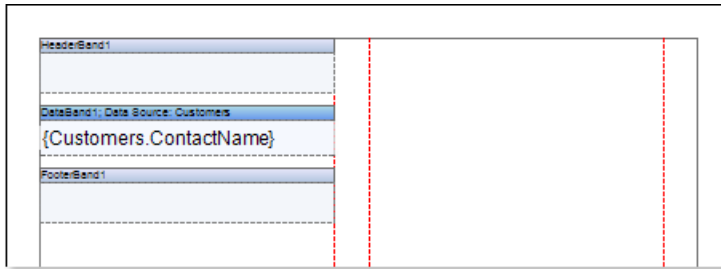
9. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of the report with two columns on a page:

Alejandra Camino	Elizabeth Lincoln
Alexander Feuer	Felipe Izquierdo
Ana Trujillo	Yvonne Moncada
Anabela Domingues	Zbyszek Piastzeniewicz
André Fonseca	

Step **3** and **4** can be changed in sequence of doing. So you may put **DataBand** first and then set the column options on page.

10. Go back to the report template;

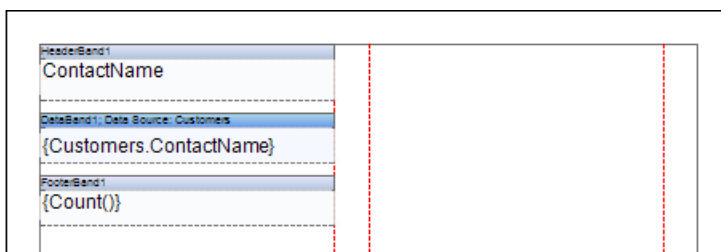
11. If needed, add other bands to the report template, for example, **HeaderBand** and **FooterBand**;



12. Edit these bands:

- 12.1. Align them by height;
- 12.2. Change values of properties, if required;
- 12.3. Change the background of bands;
- 12.4. Enable **Borders**, if required;
- 12.5. Set the border color.

13. Put text components with expressions in the these bands. The expression in the text component is a header in the **HeaderBand**, and a footer in the **FooterBand**.



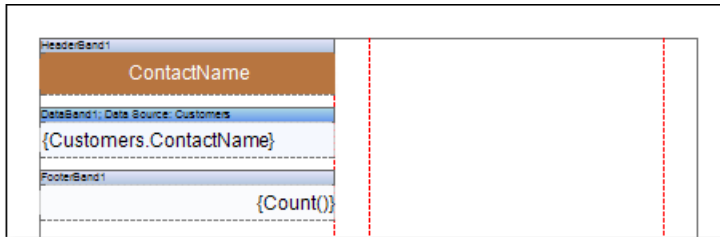
14. Edit text and text components:

- 14.1. Drag and drop the text component in the band;
- 14.2. Change font options: size, type, color;
- 14.3. Align text component by height and width;
- 14.4. Change the background of the text component;
- 14.5. Align text in the text component;
- 14.6. Change values of text component properties, if required;

14.7. Enable **Borders** of the text component, if required;

14.8. Set the border color.

The picture below shows a sample of the report with two columns on a page:

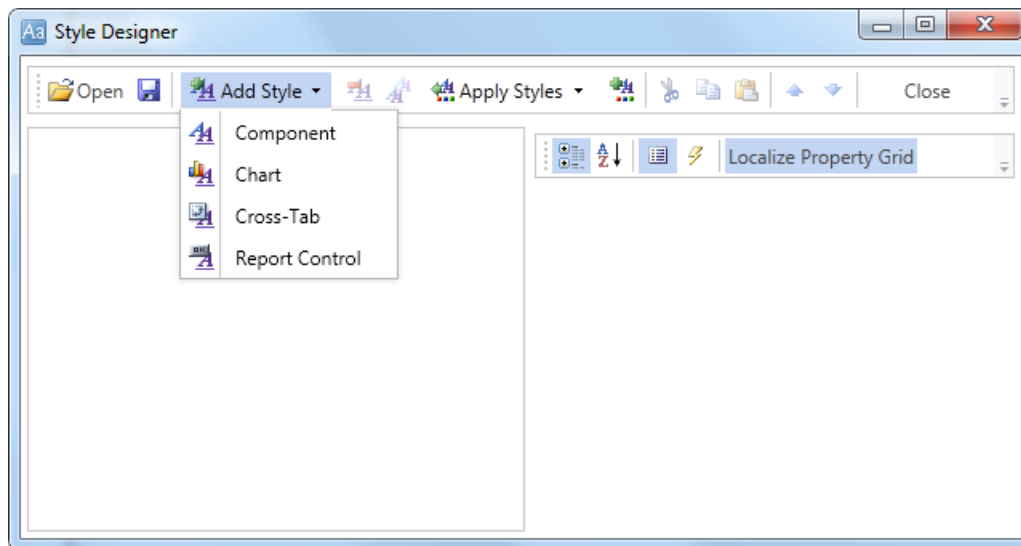


15. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of the report with a header and a footer:

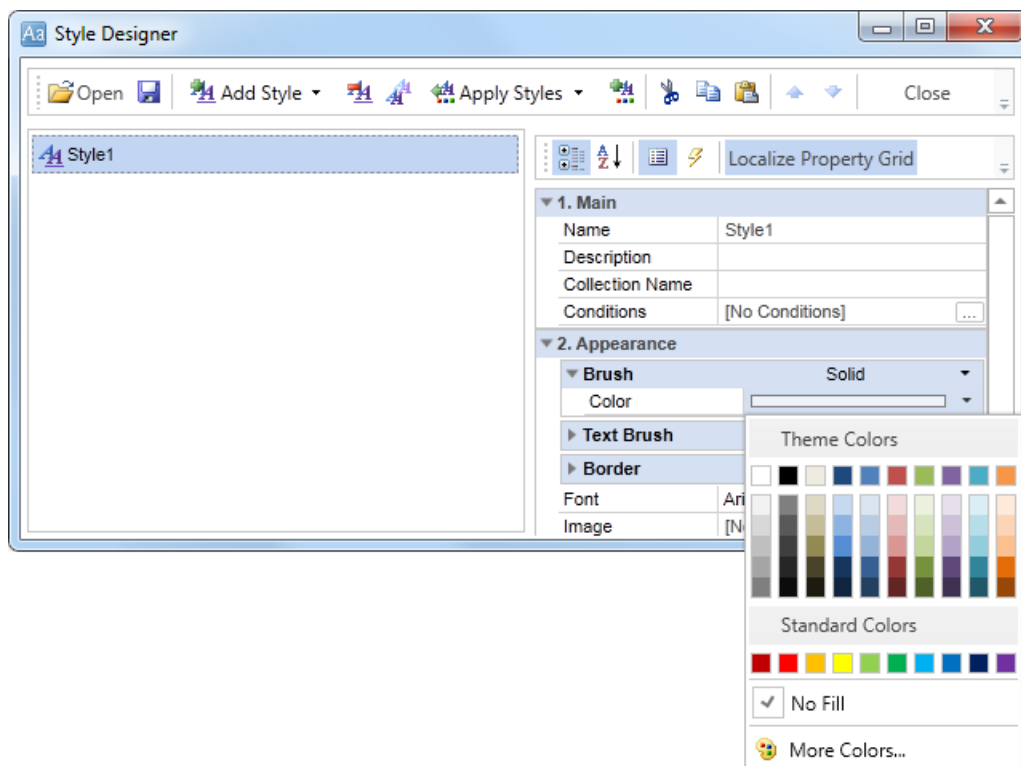
ContactName	ContactName
Alejandra Camino	Elizabeth Lincoln
Alexander Feuer	Felipe Izquierdo
Ana Trujillo	Yvonne Moncada
Anabela Domingues	Zbyszek Piestrzeniewicz
André Fonseca	Count:91

Adding styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then in the list of **Even style** and **Odd style** properties a new value (a style of a list of odd and even rows).

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a sample of a rendered report with columns on a page and alternative color of rows:



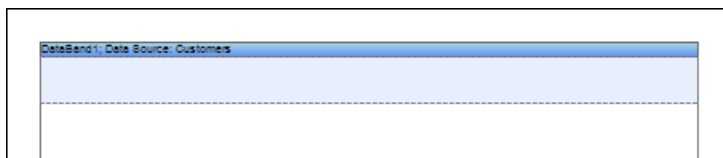
ContactName	ContactName
Alejandra Camino	Elizabeth Lincoln
Alexander Feuer	Felipe Izquierdo
Ana Trujillo	Yvonne Moncada
Anabela Domingues	Zbyszek Piastreniewicz
André Fonseca	

Count:91

3.32 Report with Columns in Data Band

Do the following steps to create a report with columns in DataBand:

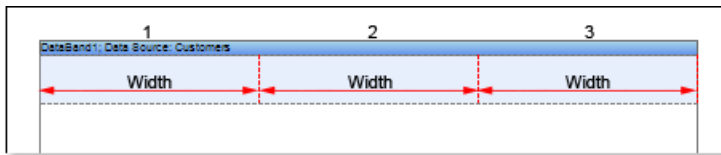
1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Put a **DataBand** on a page of a report template.



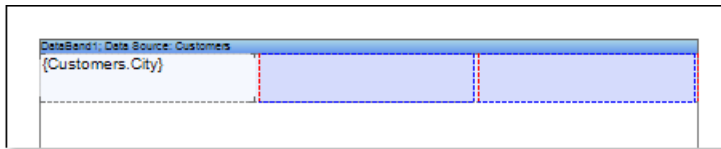
4. Define the data source for the **DataBand** using, for example, the **Data Source** property:



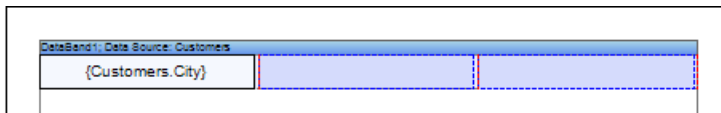
5. Set column options: the number of columns, column width, and column gap. For example, set the number of columns equal to **3**, with the gap equal to **0**. The column width is created automatically. The picture below shows a sample of the report template with two columns, placed in the **DataBand**:



6. Put a text component with expressions on the **DataBand**. Where expression is a reference to the data field. For example, put one text component with the **{Customers.City}** expression.



7. Edit expressions and text components:
 - 7.1. Drag and drop the text component in **DataBand**;
 - 7.2. Change parameters of the text font: size, type, color;
 - 7.3. Align the text component by width and height;
 - 7.4. Change the background of the text component;
 - 7.5. Align text in the text component;
 - 7.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
 - 7.7. Enable **Borders** for the text component, if required.
 - 7.8. Change the border color.



8. Set the columns direction of data output using the **Column Direction** property. Read about this property in section Report Internals -> Columns.
9. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows samples of reports with columns rendered using different values of the **Column Direction** property.

Down Then Across

1.Aachen	24.Eglin	47.Madrid
2.Albuquerque	25.Eugene	48.Madrid
3.Anchorage	26.Frankfurt a.M.	49.Madrid
4.Århus	27.Genève	50.Mannheim
5.Barcelona	28.Graz	51.Marseille
6.Barquisimeto	29.Helsinki	52.México D.F.
7.Bergamo	30.I. de Margarita	53.México D.F.
8.Berlin	31.Kirkland	54.México D.F.
9.Bern	32.Kobenhavn	55.México D.F.
10.Boise	33.Köln	56.México D.F.
11.Brücke	34.Lander	57.Montréal
12.Brandenburg	35.Leipzig	58.München
13.Bruxelles	36.Lille	59.Münster
14.Buenos Aires	37.Lisboa	60.Nantes
15.Buenos Aires	38.Lisboa	61.Nantes
16.Buenos Aires	39.London	62.Oulu
17.Butte	40.London	63.Paris
18.Campinas	41.London	64.Paris
19.Caracas	42.London	65.Portland
20.Charleroi	43.London	66.Portland
21.Cork	44.London	67.Reggio Emilia
22.Cowes	45.Luleå	68.Reims
23.Cunewalde	46.Lyon	69.Resende

Across Then Down

1.Aachen	2.Albuquerque	3.Anchorage
4.Århus	5.Barcelona	6.Barquisimeto
7.Bergamo	8.Berlin	9.Bern
10.Boise	11.Bracke	12.Brandenburg
13.Bruxelles	14.Buenos Aires	15.Buenos Aires
16.Buenos Aires	17.Butte	18.Campinas
19.Caracas	20.Charleroi	21.Cork
22.Cowes	23.Cunewalde	24.Églin
25.Eugene	26.Frankfurt a.M.	27.Genève
28.Graz	29.Helsinki	30.I. de Margarita
31.Kirkland	32.Kobenhavn	33.Köln
34.Lander	35.Lepzig	36.Lille
37.Lisboa	38.Lisboa	39.London
40.London	41.London	42.London
43.London	44.London	45.Luleå
46.Lyon	47.Madrid	48.Madrid
49.Madrid	50.Mannheim	51.Marseille
52.México D.F.	53.México D.F.	54.México D.F.
55.México D.F.	56.México D.F.	57.Montréal
58.München	59.Münster	60.Nantes
61.Nantes	62.Oulu	63.Paris
64.Paris	65.Portland	66.Portland
67.Reggio Emilia	68.Reims	69.Resende

10. Go back to the report template;

11. If needed, add other bands to the report template, for example, **ColumnHeaderBand** and **ColumnFooterBand**.

ColumnHeaderBand1		
DataBand1: Data Source: Customers		
{Customers.City}		
ColumnFooterBand1		

12. Edit these bands:

- 12.1. Align them by height;
- 12.2. Change values of properties, if required;
- 12.3. Change the background of bands;
- 12.4. Enable **Borders**, if required;

12.5. Set the border color.

13. Put text components with expressions in the these bands. Where expression of the text component in the **ColumnHeaderBand** is the column name and the expression of the text component in the **ColumnFooterBand** is the data footer.

ColumnHeaderBand		
City		
ColumnFooterBand		
Count:{Count()}}		

14. Edit **Text** and **TextBox** component:

14.1. Drag and drop the text component in **ColumnHeaderBand** and **ColumnFooterBand**;

14.2. Change parameters of the text font: size, type, color;

14.3. Align the text component by width and height;

14.4. Change the background of the text component;

14.5. Align text in the text component;

14.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;

14.7. Enable **Borders** for the text component, if required.

14.8. Change the border color.

ColumnHeaderBand		
City		
ColumnFooterBand		
		Count:{Count()}}

15. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows samples of reports with column headers.

Down Then Across

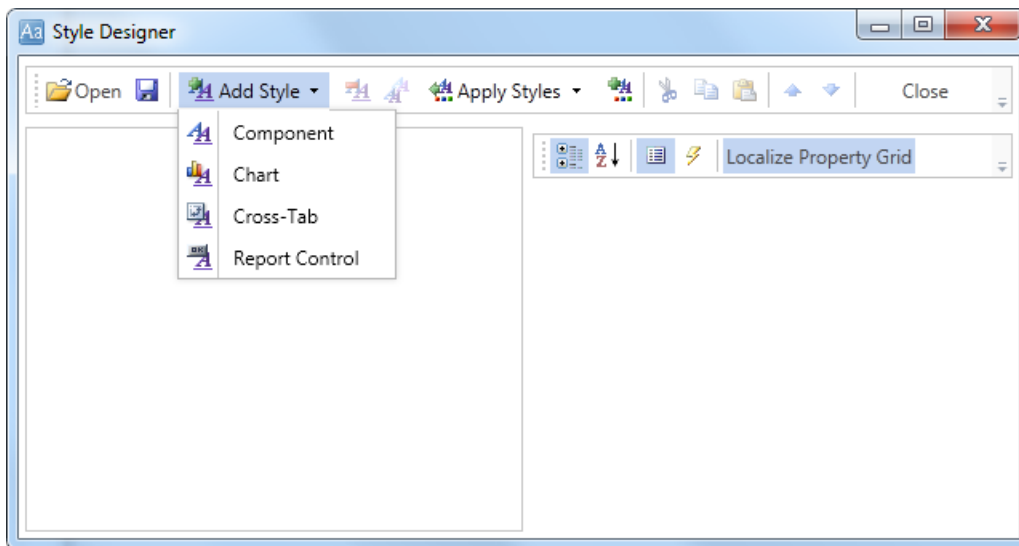
City	City	City
1.Aachen	22.Cowes	43.London
2.Albuquerque	23.Cunewalde	44.London
3.Anchorage	24.Egin	45.Luleå
4.Århus	25.Eugene	46.Lyon
5.Barcelona	26.Frankfurt a.M.	47.Madrid
6.Barquisimeto	27.Genève	48.Madrid
7.Bergamo	28.Graz	49.Madrid
8.Berlin	29.Helsinki	50.Mannheim
9.Bern	30.I. de Margarita	51.Marseille
10.Boise	31.Kirkland	52.México D.F.
11.Bräcke	32.Kobenhavn	53.México D.F.
12.Brandenburg	33.Köln	54.México D.F.
13.Bruxelles	34.Lander	55.México D.F.
14.Buenos Aires	35.Leipzig	56.México D.F.
15.Buenos Aires	36.Lille	57.Montréal
16.Buenos Aires	37.Lisboa	58.München
17.Butte	38.Lisboa	59.Münster
18.Campinas	39.London	60.Nantes
19.Caracas	40.London	61.Nantes
20.Charleroi	41.London	62.Oulu
21.Cork	42.London	63.Paris

Across Then Down

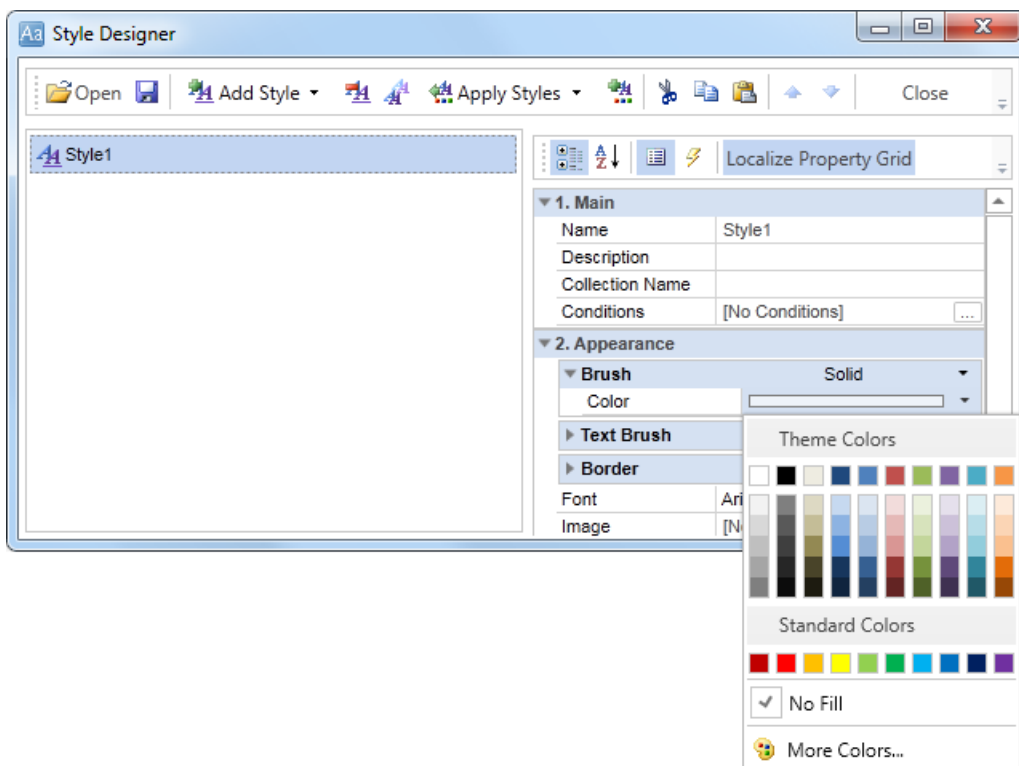
City	City	City
1.Aachen	2.Albuquerque	3.Anchorage
4.Århus	5.Barcelona	6.Barquisimeto
7.Bergamo	8.Berlin	9.Bern
10.Boise	11.Bracke	12.Brandenburg
13.Bruxelles	14.Buenos Aires	15.Buenos Aires
16.Buenos Aires	17.Butte	18.Campinas
19.Caracas	20.Charleroi	21.Cork
22.Cowes	23.Cunewalde	24.Églin
25.Eugene	26.Frankfurt a.M.	27.Genève
28.Graz	29.Helsinki	30.I. de Margarita
31.Kirkland	32.Kobenhavn	33.Köln
34.Lander	35.Leipzig	36.Lille
37.Lisboa	38.Lisboa	39.London
40.London	41.London	42.London
43.London	44.London	45.Luleå
46.Lyon	47.Madrid	48.Madrid
49.Madrid	50.Mannheim	51.Marseille
52.México D.F.	53.México D.F.	54.México D.F.
55.México D.F.	56.México D.F.	57.Montréal
58.München	59.Münster	60.Nantes
61.Nantes	62.Oulu	63.Paris

Adding styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then in the list of **Even style** and **Odd style** properties a new value (a style of a list of odd and even rows).

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a sample of a rendered report with columns on a page and alternative color of rows:

Down Then Across

City	City	City
1.Aachen	22.Cowes	43.London
2.Albuquerque	23.Cunewalde	44.London
3.Anchorage	24.Eglin	45.Luleå
4.Århus	25.Eugene	46.Lyon
5.Barcelona	26.Frankfurt a.M.	47.Madrid
6.Barquelimeto	27.Genève	48.Madrid
7.Bergamo	28.Graz	49.Madrid
8.Berlin	29.Helsinki	50.Mannheim
9.Bern	30.I. de Margarita	51.Marseille
10.Boise	31.Kirkland	52.México D.F.
11.Bräcke	32.Kobenhavn	53.México D.F.
12.Brandenburg	33.Köln	54.México D.F.
13.Bruxelles	34.Lander	55.México D.F.
14.Buenos Aires	35.Leipzig	56.México D.F.
15.Buenos Aires	36.Lille	57.Montréal
16.Buenos Aires	37.Lisboa	58.München
17.Butte	38.Lisboa	59.Münster
18.Campinas	39.London	60.Nantes
19.Caracas	40.London	61.Nantes
20.Charleroi	41.London	62.Oulu
21.Cork	42.London	63.Paris

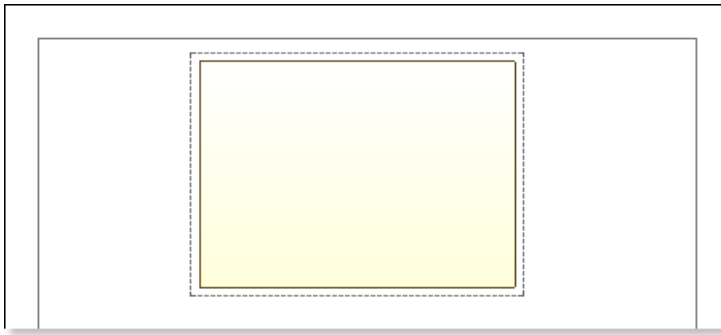
Across Then Down

City	City	City
1.Aachen	2.Albuquerque	3.Anchorage
4.Århus	5.Barcelona	6.Barquisimeto
7.Bergamo	8.Berlin	9.Bern
10.Boise	11.Bracke	12.Brandenburg
13.Bruxelles	14.Buenos Aires	15.Buenos Aires
16.Buenos Aires	17.Butte	18.Campinas
19.Caracas	20.Charleroi	21.Cork
22.Cowes	23.Cunewalde	24.Églin
25.Eugene	26.Frankfurt a.M.	27.Genève
28.Graz	29.Helsinki	30.I. de Margarita
31.Kirkland	32.Kobenhavn	33.Köln
34.Lander	35.Leipzig	36.Lille
37.Lisboa	38.Lisboa	39.London
40.London	41.London	42.London
43.London	44.London	45.Luleå
46.Lyon	47.Madrid	48.Madrid
49.Madrid	50.Mannheim	51.Marseille
52.México D.F.	53.México D.F.	54.México D.F.
55.México D.F.	56.México D.F.	57.Montreal
58.München	59.Münster	60.Nantes
61.Nantes	62.Oulu	63.Paris

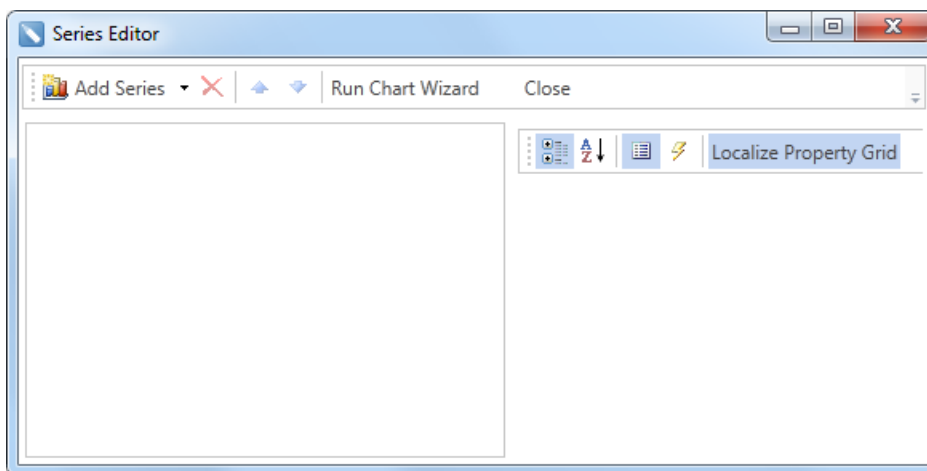
3.33 Report with Chart on Page

Do the following steps to create a report with charts:

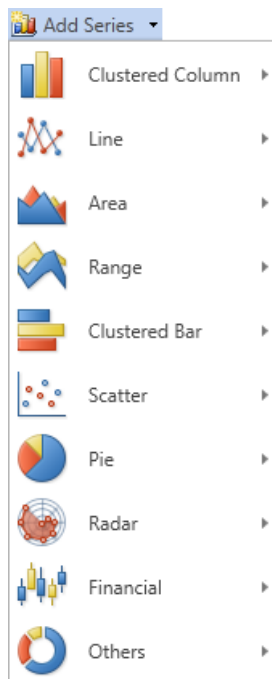
1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Put the **Chart** component on a page as seen on a picture below.



4. Edit the **Chart** component:
 - 4.1. Align it by width;
 - 4.2. Change properties of the **Chart** component. For example, set the **GrowToHeight** property to **true**, if it is required the Chart component be grown by height;
 - 4.3. Set **Borders**, if required, for the **Chart** component;
 - 4.4. Change the border color.
 - 4.5. Edit the chart area. For example, change the **Area.Brush.Color** property, if it is required to change the color of a chart area.
5. Change the type of a chart using the **Chart Type** property. For example, set it to **Clustered Column**:
6. Add series. Invoke the **Series Editor**, for example, by double-clicking the **Chart**.



Click the **Add Series** button to add a series and select the type of series in the menu. The picture below shows the menu of the **Add Series** button:



It should be noted that the type of number should match the type of chart; if the **Clustered Column** chart type, then the series must be of the **Clustered Column** type.

7. Setup chart series:

7.1. Get the data for **Value** and for the **Argument** of series. There are three ways to get data for the series: set the column data from the dictionary, or specify an expression, or manually specify values for the series as a list, through the ',' separator. For example, create two rows, and manually define the values for these series as a list, with the ';' delimiter: arguments for **Series 1 - A; B**, the values - **1; 1.25**; for arguments **Series 2 - A; B**, the value - **2, 0.75**.

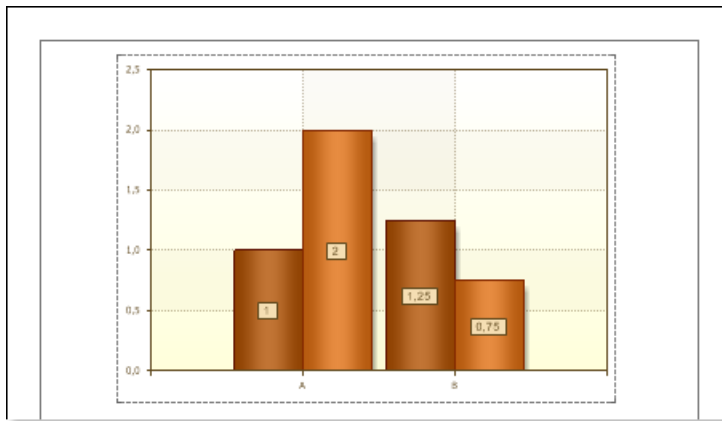
7.2. Change the values of the series properties. For example, set the **Show Zeros** property to **false**, if it is necessary to hide zero values;

7.3. Enable or disable **Series Labels**;

7.4. Edit headers of rows: align, change the style, font, type of value, etc.;

7.5. Change the design of series, by setting values of the following properties: **Border Color, Brush, Show Shadow**.

The picture below shows an example of a report template with the chart:



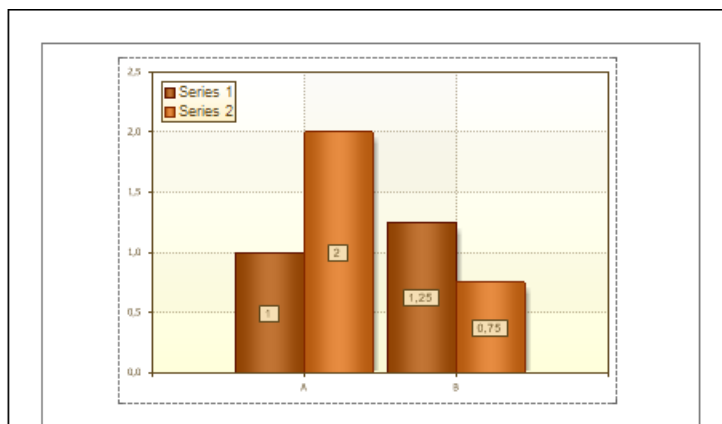
8. Edit **Legend**:

8.1. Enable or disable the visibility of **Legends**. You can do it by setting the value of the **Legend.Visible** property to **true** or **false**, respectively;

8.2. Align the legend horizontally and vertically;

8.3. Change the legends design, etc.

The picture below shows an example of a report template with the chart displaying the legend:

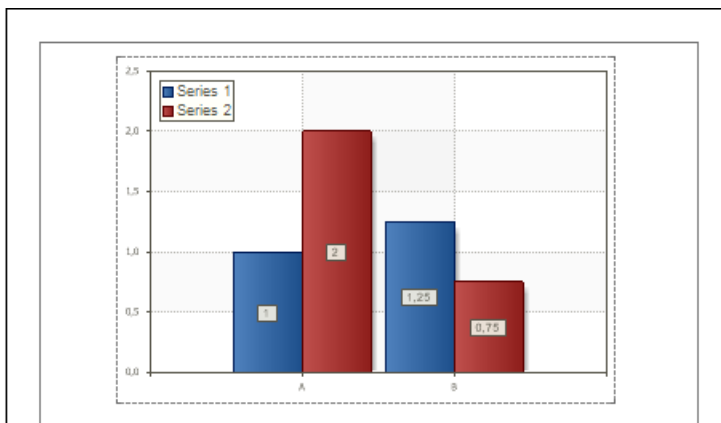


9. Change the style of the chart, completely change the appearance of the chart:

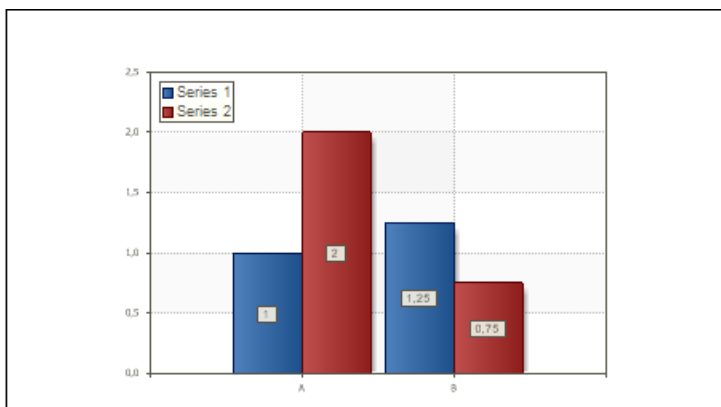
9.1. Change the **Style** property. Where the value of the property is a chart style;

9.2. Set the **AllowApplyStyle** to the **true**. If the **AllowApplyStyle** property is set to **false**, then the report generator, when rendering, will take into account the values of the appearance of the series.

The picture below shows an example of a report template of the chart with a changed style:



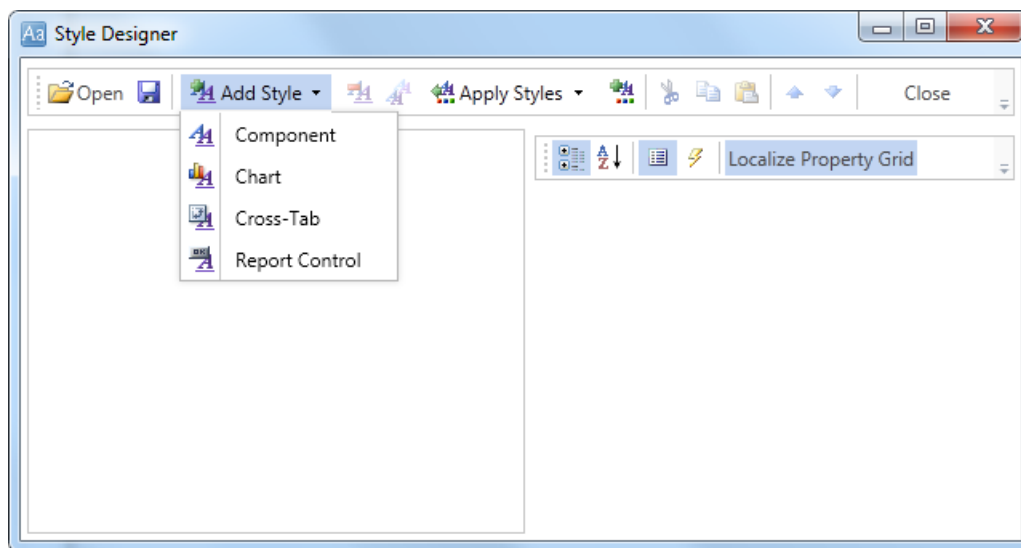
10. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows samples of reports with the chart:



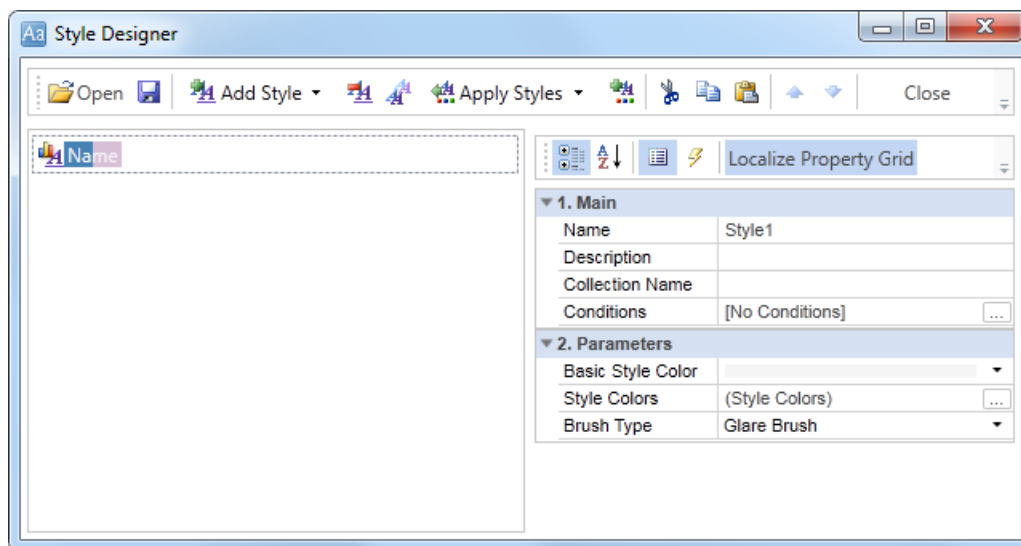
Adding styles

1. Go back to the report template;
2. Call the **Style Designer**;

The picture below shows the **Style Designer**:

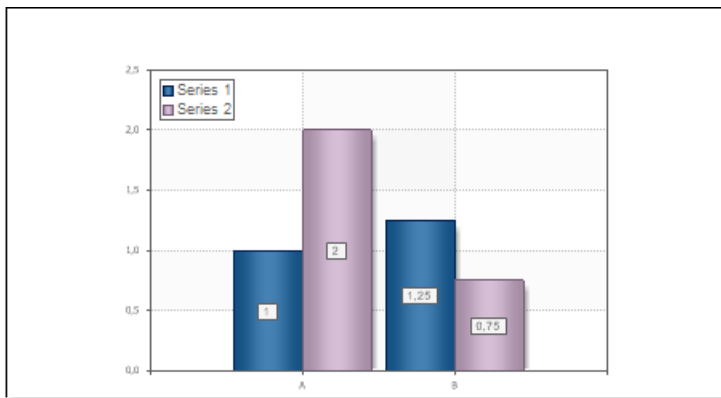


Click the **Add Style** button to start creating a style. Select **Chart** from the drop down list. Set the style using **Basic Color Style**, **Brush Type** and **Style Colors** group of properties.



Click **Close**. In the list of values of the **Style** property of the chart component a custom style will be displayed. In our case, the value is **Style for Chart**. Select this value;

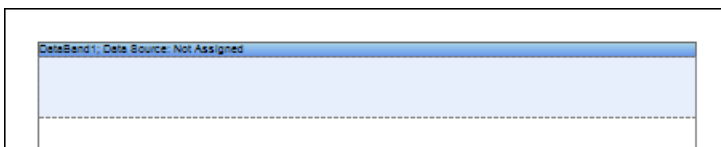
3. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows samples of reports with the chart with a style applied:



3.34 Report with Chart in Data Band

Suppose a **Chart** component is placed on the page of the report, then, for a report, this component will be rendered as a page item. If the **Chart** component is placed in the **DataBand**, then, when rendering a report, this component will be rendered as part of the **DataBand**. Since the **Chart** component placed in the **DataBand**, is rendered as a part of the **DataBand**, and will be printed as many times as the **DataBand** will be output. An example of designing a report with a chart in the **DataBand** will be described below. In this example, the chart will graphically display the detailed data of the data source in the **DataBand**. Follow the steps below to render a report with the **Chart** in the **DataBand**:

1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Create a **Relation** between data sources. In this case, the **Parent Data Source** is the **Categories** data source, and the **Child Data Source** is the **Products** data source;
4. Put the **DataBand** on a report template page:



5. Edit **DataBand**:
 - 5.1. Align the **DataBand** by height;
 - 5.2. Change values of band properties. For example, set the **Can Break** property

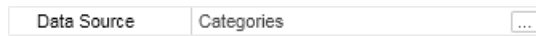
to **true**, if you wish the data band to be broken;

5.3. Change the **DataBand** background;

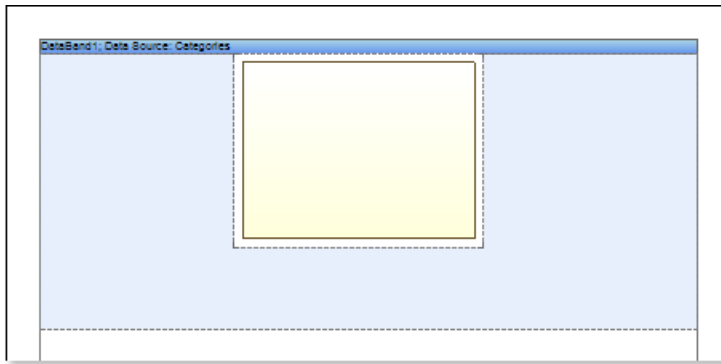
5.4. Enable **Borders** for the **DataBand**, if required;

5.5. Change the border color.

6. Define the data source for the **DataBand** using the **Data Source** property:



7. Put the **Chart** component in the **DataBand** as seen on a picture below:



8. Edit the **Chart** component:

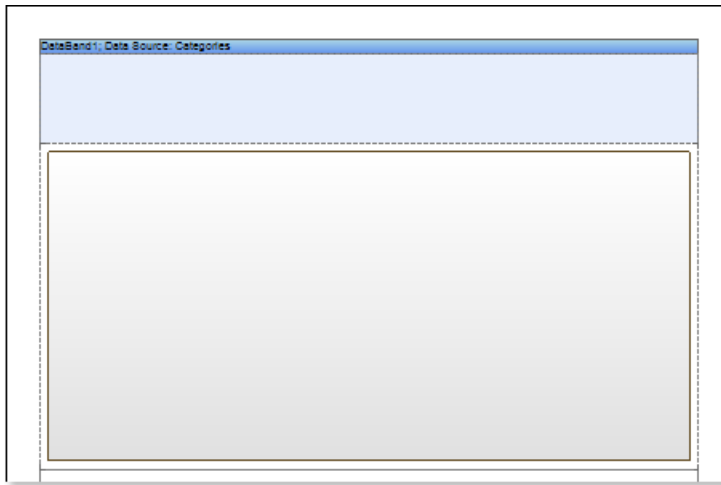
8.1. Align it by width;

8.2. Change properties of the **Chart** component. For example, set the **GrowToHeight** property to **true**, if it is required the Chart component be grown by height;

8.3. Set **Borders**, if required, for the **Chart** component;

8.4. Change the border color.

8.5. Edit the chart area. For example, change the **Area.Brush.Color** property, if it is required to change the color of a chart area.



9. Change the type of a chart using the **Chart Type** property. For example, set it to **Clustered Column**:

10. Define the data source for the **Chart** component using the **Data Source** property



11. Define the relation between data sources, using the **DataRelation** property of the **Chart** component:



12. Add series. Invoke the **Series Editor**, for example, by double-clicking the **Chart**:

13. Setup chart series:

13.1. Get the data for **Value** and for the **Argument** of series. There are three ways to get data for the series: set the column data from the dictionary, or specify an expression, or manually specify values for the series as a list, through the ',' separator. For example, create a series and specify columns from the dictionary: define the **Products.ProductName** for the **Argument** and **Products.UnitPrice** for the **Value**;

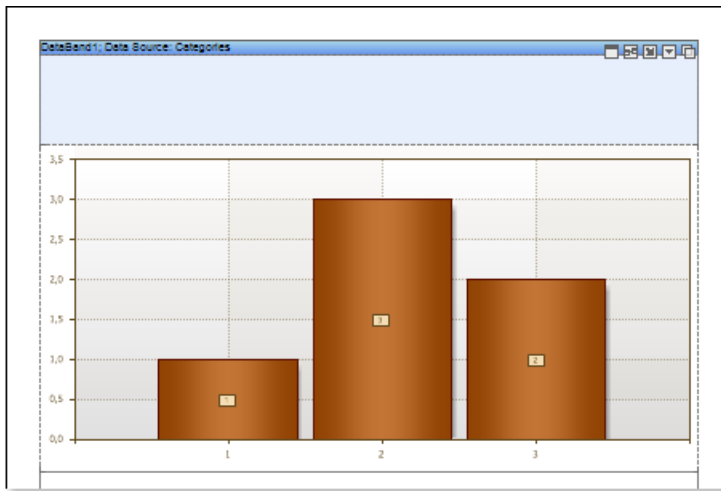
13.2. Change the values of the series properties. For example, set the **Show Zeros** property to **false**, if it is necessary to hide zero values;

13.3. Enable or disable **Series Labels**;

13.4. Edit headers of rows: align, change the style, font, type of value, etc.;

13.5. Change the design of series, by setting values of the following properties: **Border Color**, **Brush**, **Show Shadow**.

The picture below shows an example of a report template with the chart:



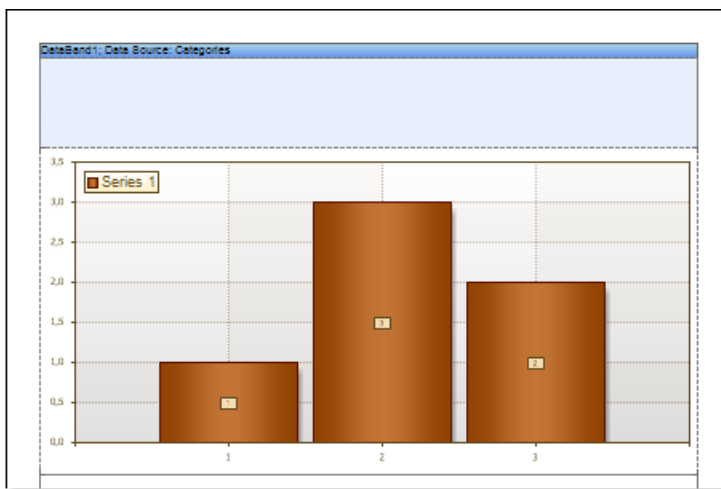
14. Edit **Legend**:

14.1. Enable or disable the visibility of **Legends**. You can do it by setting the value of the **Legend.Visible** property to **true** or **false**, respectively;

14.2. Align the legend horizontally and vertically;

14.3. Change the legends design, etc.

The picture below shows an example of a report template with the chart displaying the legend:

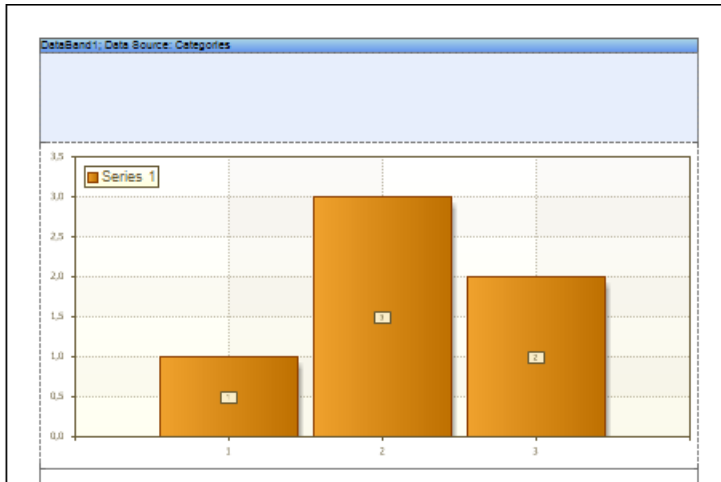


15. Change the style of the chart, completely change the appearance of the chart:

15.1. Change the **Style** property. Where the value of the property is a chart style;

15.2. Set the **AllowApplyStyle** to the **true**. If the **AllowApplyStyle** property is set to **false**, then the report generator, when rendering, will take into account the values of the appearance of the series.

The picture below shows an example of a report template of the chart with a changed style:



16. Put text components with an expression in the **DataBand**. Where the expression is a reference to the data field. For example, put a text component with the expression: **{Categories.CategoryName};**

17. Edit **Text** and **TextBox** component:

17.1. Drag and drop the text component in the **DataBand**;

17.2. Change parameters of the text font: size, type, color;

17.3. Align the text component by width and height;

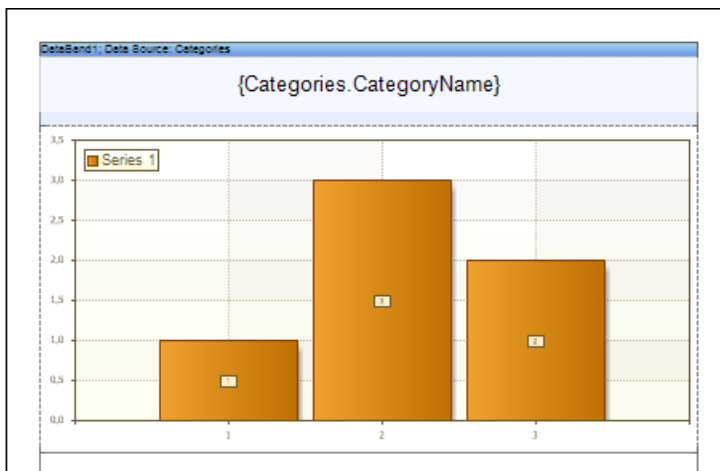
17.4. Change the background of the text component;

17.5. Align text in the text component;

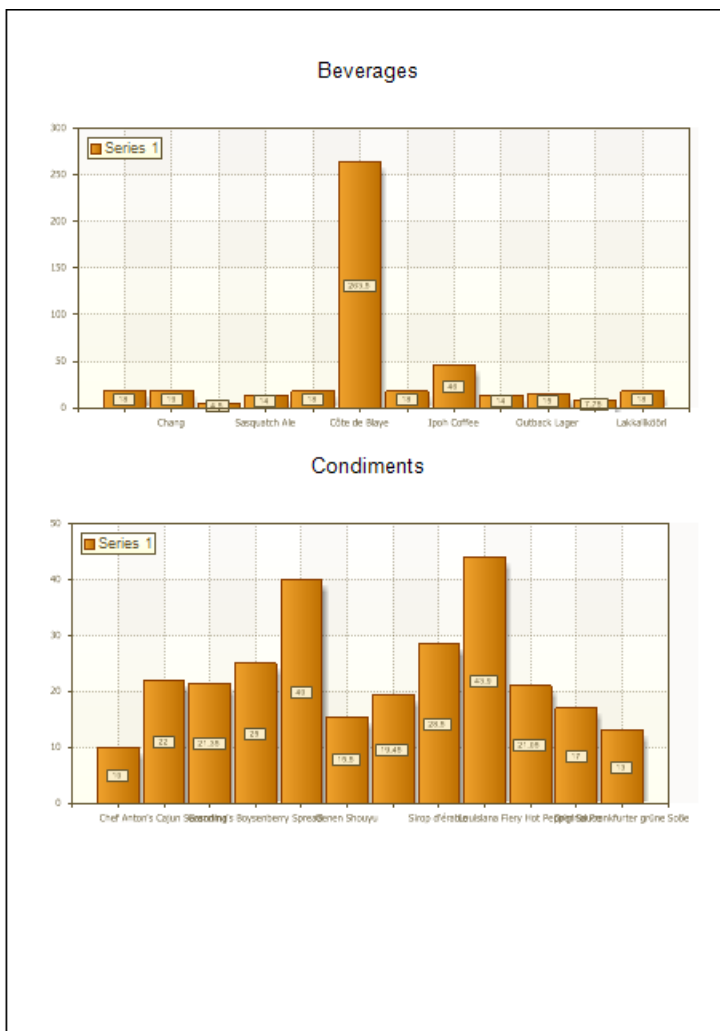
17.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;

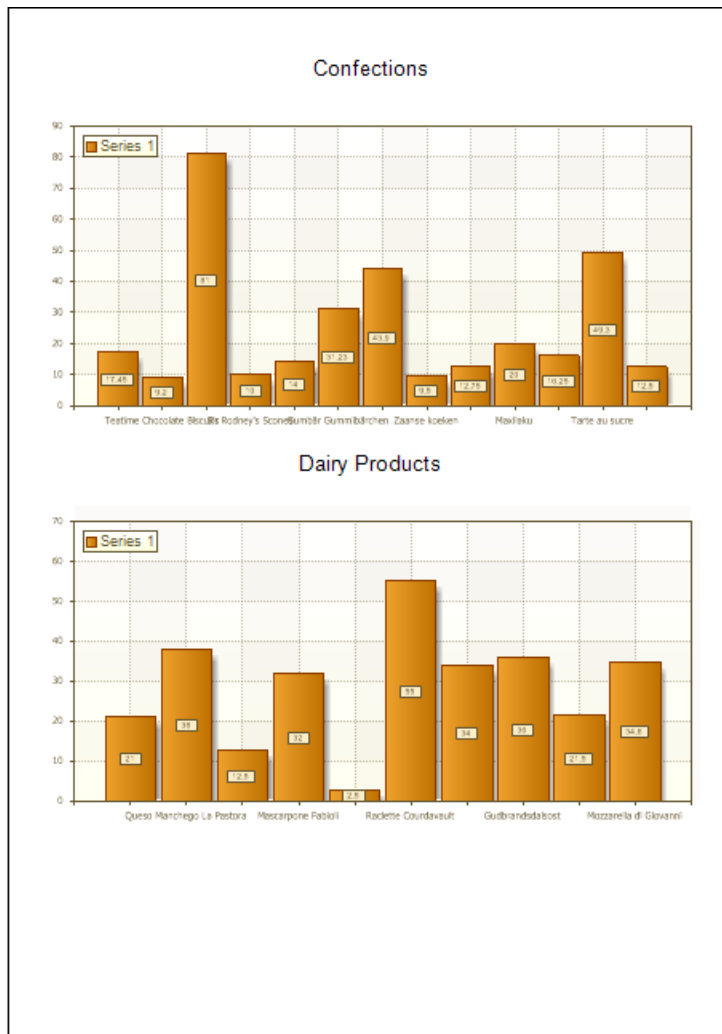
17.7. Enable **Borders** for the text component, if required.

17.8. Change the border color.



18. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a sample of the report with the chart in the **DataBand**:

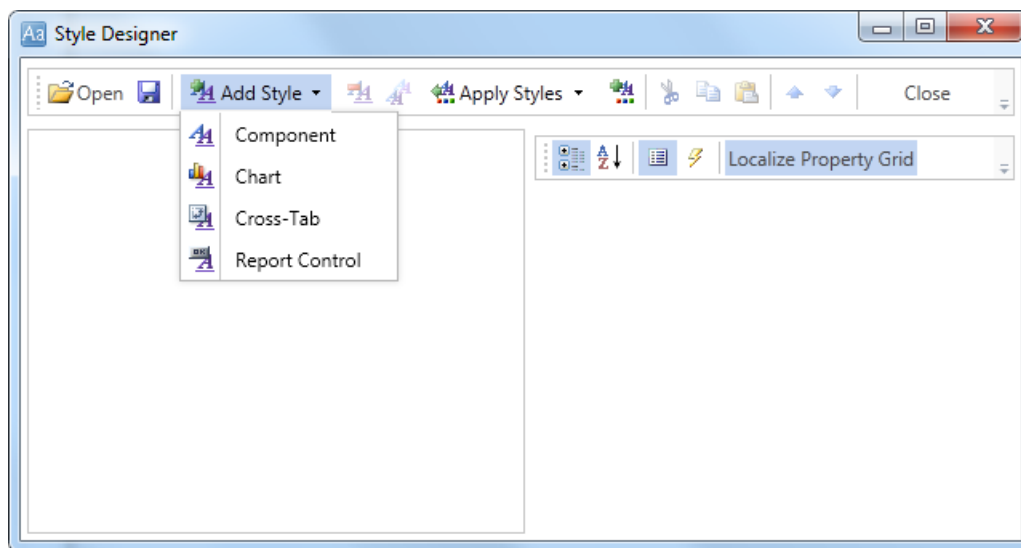




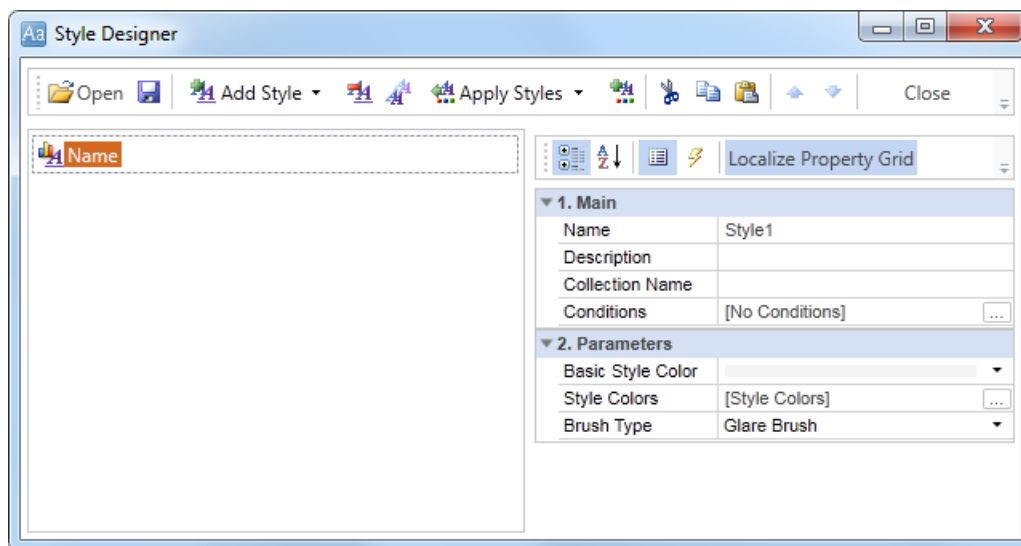
Adding styles

1. Go back to the report template;
2. Call the **Style Designer**;

The picture below shows the **Style Designer**:

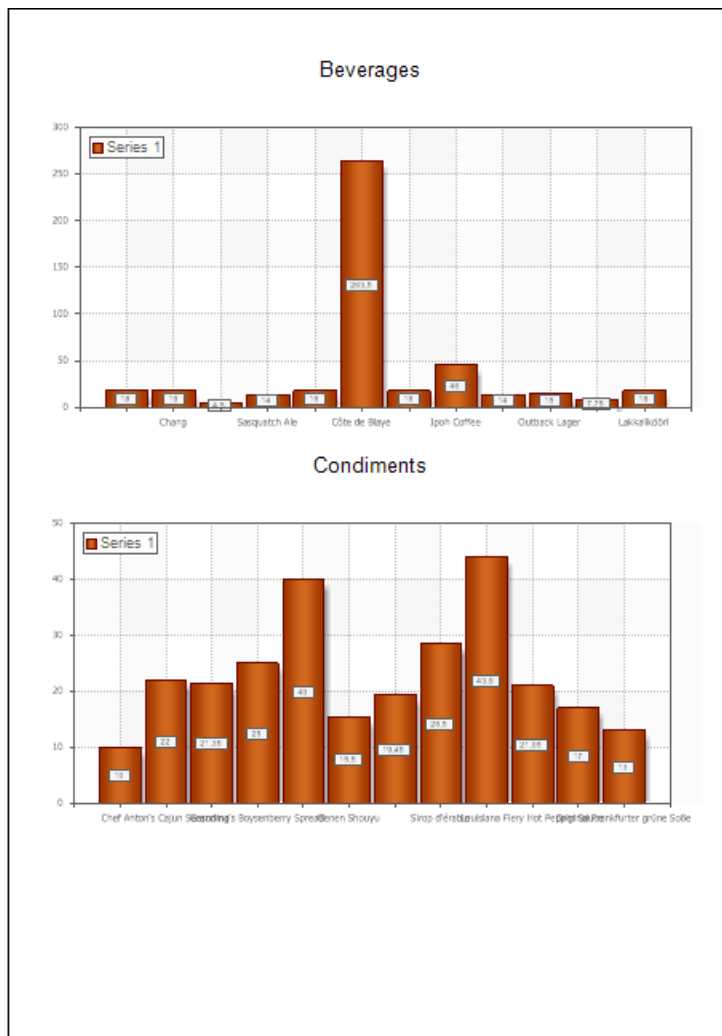


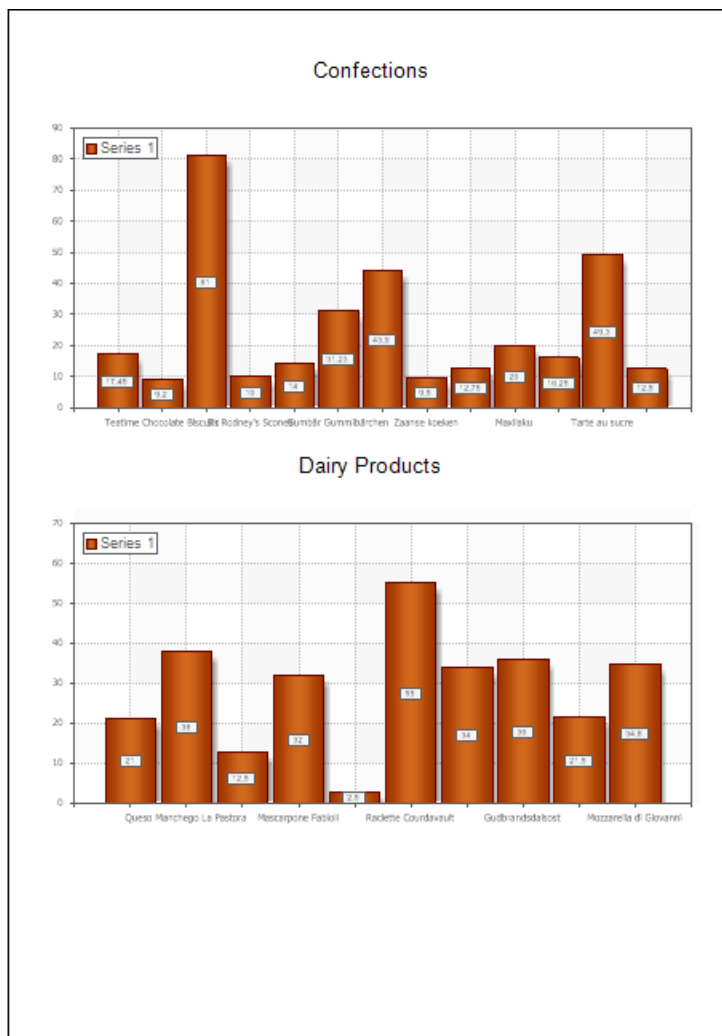
Click the **Add Style** button to start creating a style. Select **Chart** from the drop down list. Set the style using **Basic Color Style**, **Brush Type** and **Style Colors** group of properties.



Click **Close**. In the list of values of the **Style** property of the chart component a custom style will be displayed. In our case, the value is **Style for Chart**. Select this value;

3. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows samples of reports with the chart with a style applied:

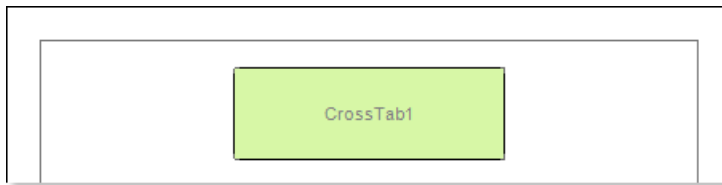




3.35 Report with Cross-Tab on Page

Do the following steps to create a report with the cross table:

1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Put the **Cross-Tab** component on a page of the report template.



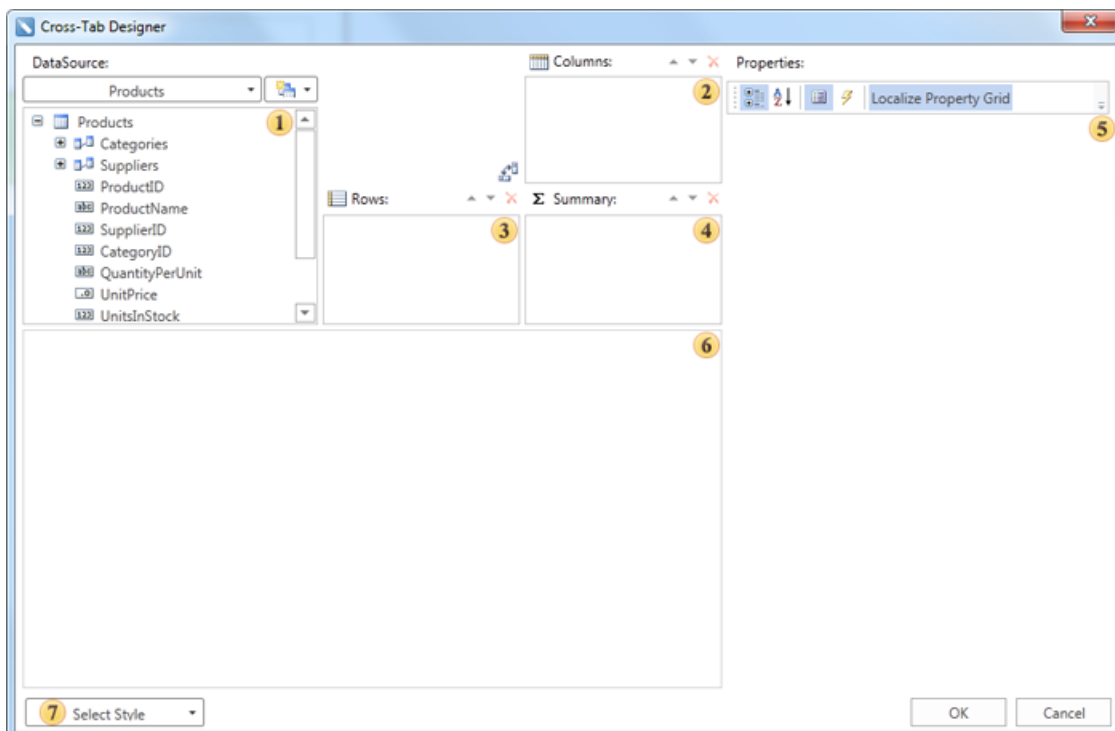
4. Edit the **Cross-Tab** component:

4.1. For example, set the **GrowToHeight** property to **true**, to allow the **Cross-Tab** component to grow by height;

5. Define the data source for the **Cross-Tab** component of the band, for example, using the **Data Source** property:



6. Invoke the **Cross-Tab Designer**, for example, clicking the **Design...** item of the context menu of the cross table component. The picture below shows the **Cross-Tab Designer** window:



1 The **DataSource** field shows the data columns of the selected data source;

2 The **Columns** field shows a list of columns of the data source by what the columns in the cross table will be created;

- 3 The **Rows** field shows a list of rows of the data source by what the rows in the cross table will be created;
- 4 The **Summary** field shows a list of columns of the data source by what the summary in the cross table will be created;
- 5 The **Properties** field shows the properties of the selected item of the cross table;
- 6 The **Cross-Tab Cells** field shows cells of the cross table;
- 7 The **Select Style** button. When clicking the drop down list of styles for the cross table appear.

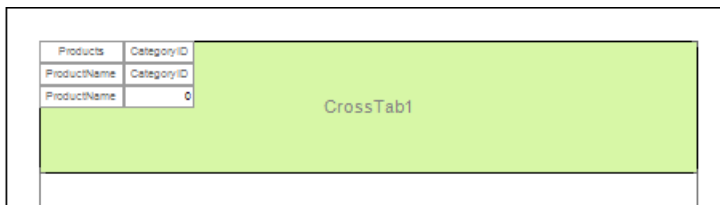
7. Do the following steps in the **Cross-Tab Designer**:

7.1. Add the data column from the 1 **DataSource** to the 2 **Columns** field of the cross-tab. For example, add the **CategoryID** data column to the **Columns** field of the cross-tab. Hence one entry from this data column will correspond to one column in the rendered cross-table, the number of entries in this data column will be equal to the number of columns in the cross-table;

7.2. Add a column of the data source from 1 the **DataSource** field to 3 the **Rows** of the cross-table. For example, add the **ProductName** data column to the **Rows** field of the cross-table, and then one entry from this data column will correspond to one row in the rendered cross-table, the number of entries in this data column will be equal to the number of rows in the cross-table;

7.3. Add a data column from 1 the **DataSource** field to the 4 **Summary** field of the cross-table. For example, add the **UnitInStock** data column to the **Summary** field of the cross-table, all entries in this data column will be summary entries in the cross-table;

8. Press the **OK** button to save your changes and go back to the report template with cross-table.



Products	CategoryID
ProductName	CategoryID
ProductName	0

CrossTab1

9. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a rendered cross-tab report:

Products	CategoryID							
ProductName	1	2	3	4	5	6	7	8
Alice Mutton								
Aniseed Syrup		13						
Boston Crab Meat								123
Camembert Pierrot			19					
Carnarvon Tigers								42
Chai	39							
Chang	17							
Chartreuse verte	69							
Chef Anton's Cajun Seasoning		53						
Chef Anton's Gumbo Mix								
Chocolade			15					
Côte de Blaye	17							
Escargots de Bourgogne								62

10. Go back to the report template;
11. Edit cells in the report template:
 - 11.1. Set the font settings: type, style, size;
 - 11.2. Set the background of cells;
 - 11.3. Set the **Word Wrap** property to **true** if it is necessary to wrap text;
 - 11.4. Switch on/off **Borders**;
 - 11.5. Set the border color;
 - 11.6. Set the background of cells etc.

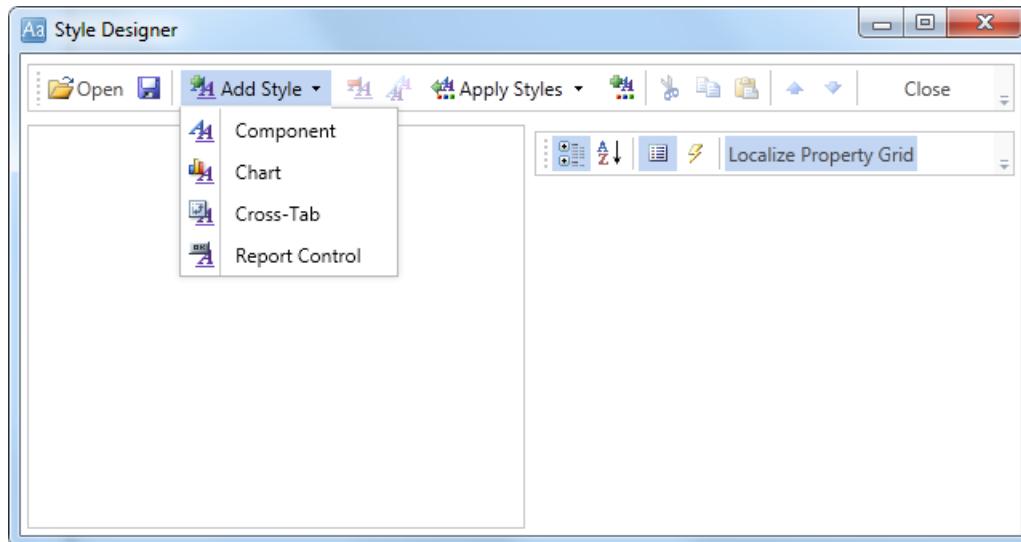
Products	CategoryID										
ProductName	CategoryID	Total	CrossTab1								
ProductName	0										
Total											

12. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a report of the rendered report with the cross table after editing report template cells:

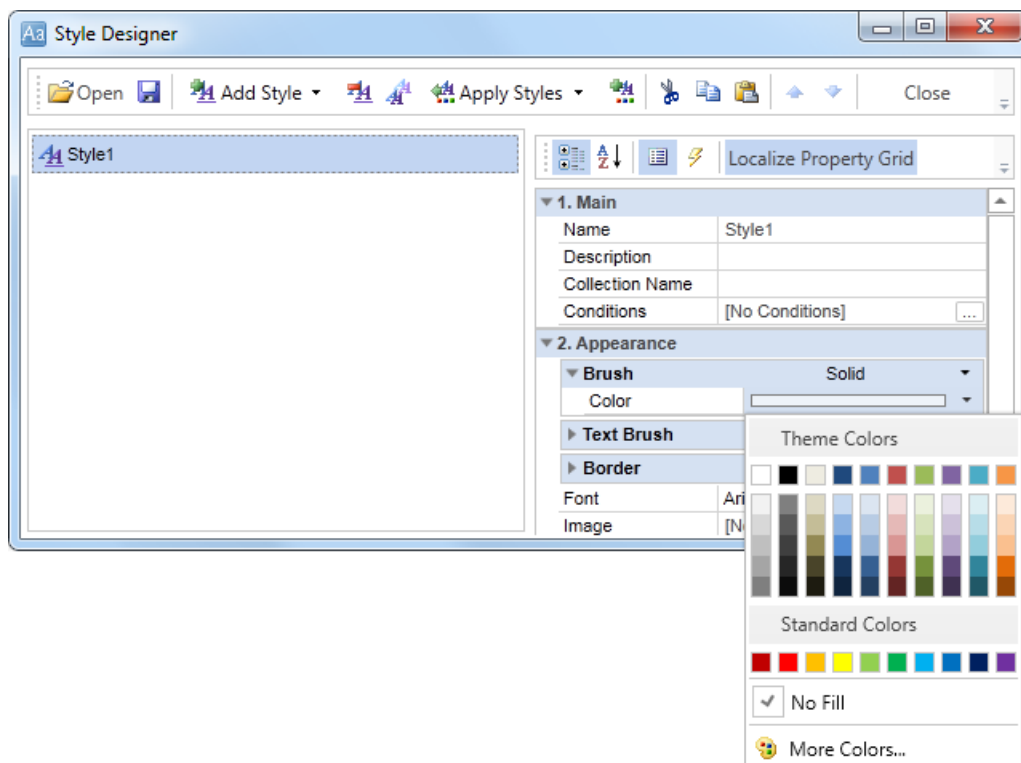
Products	CategoryID							
ProductName	1	2	3	4	5	6	7	8
Alice Mutton								
Aniseed Syrup		13						
Boston Crab Meat								123
Camembert Pierrot			19					
Carnarvon Tigers								42
Chai	39							
Chang	17							
Chartreuse verte	69							
Chef Anton's Cajun Seasoning		53						
Chef Anton's Gumbo Mix								
Chocolade			15					
Côte de Blaye	17							
Escargots de Bourgogne								62

Adding styles

1. Go back to the report template;
 2. Call the **Style Designer**;
- The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Cross-Tab** from the drop down list. To create the custom style, set the **Color** property. The picture below shows a sample of the **Style Designer** with created custom style:



Click **Close**. In the list of values of the **Select Style** button in the cross-table editor, a custom style will be displayed. In our case, the name is **Style for Cross-Tab**. Select this value;

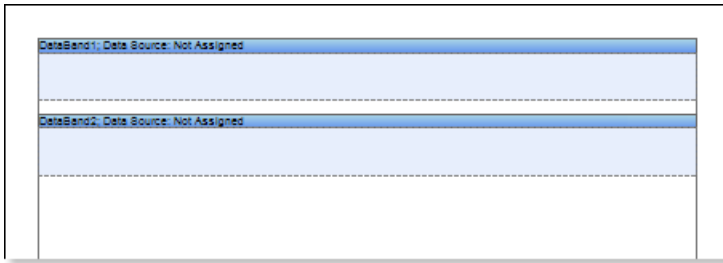
3. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a sample of the rendered cross-table report using the custom style:

Products	CategoryID							
ProductName	1	2	3	4	5	6	7	8
Alice Mutton								
Aniseed Syrup		13						
Boston Crab Meat								123
Camembert Pierrot			19					
Cananvon Tigers								42
Chai	39							
Chang	17							
Chartrouse verte	69							
Chef Antoin's Cajun Seasoning		53						
Chef Antoin's Gumbo Mix								
Chocolade			15					
Côte de Blaye	17							
Escargots de Bourgogne								62

3.36 Cross-Tab Report in Data Band

If the **Cross-Tab** component is placed in the **DataBand**, then when designing a report, this component will be constructed as part of the **DataBand**. Because the **Cross-Tab** component placed in the **DataBand** is designed as an element of the **DataBand**, then, when designing a report, this component will be printed as many times as the **DataBand**. Consider an example of building a report with the **Cross-Tab** in the **DataBand**. In this example, **Cross-Tab** will display the detailed entries in the **Master-Detail** report. Do the following steps to build a report with the **Cross-Tab** in the **DataBand**:

1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Create the **Relation** between data sources. If the **Relation** is not created and/or the **Relation** property will be not filled for the **Detail** data source, then, for each **Master** entries, all **Detail** entries will not be output;
4. Put two **DataBands** on a page of a report template;



5. Edit **DataBand1** and **DataBand2**:

5.1 Align the **DataBands** vertically;

5.2 Change the value of the required properties. For example, for the **DataBand1**, which is a **Master** component in the **Master-Detail** report, set the **Print If Detail Empty** property to **true**, if you want the **Master** entries be printed in any case, even if the **Detail** entries are not available. And for the **DataBand2**, which is a **Detail** component in the **Master-Detail** report, set the **CanShrink** property to **true**, if it is necessary for this band to be shrunk;

5.3 Change the background color of the **DataBand**;

5.4 If necessary, set **Borders** of the **DataBand**;

6. Specify data sources for **DataBands**, as well as assign the **Master** component. In our example, the **Master** component is the upper **DataBand1**, and hence indicate the **DataBand1** in the **Master Component** tab of the **Data Setup** dialog box of the lower **DataBand2** as the **Master** component;

7. Fill in the **Data Relation** property of the **DataBand**, which is the **Detail** component, in our case, this is the **DataBand2**:



8. Put the text component with an expression. Where the expression is a reference to the data field. For example: the **DataBand1**, that is the **Master** component, put the text component with the **{Categories.CategoryName}** expression;

9. Edit text and text components located in the **DataBand**:

9.1. Drag the text component to the required place in the **DataBand**;

9.2. Align the text in a text component;

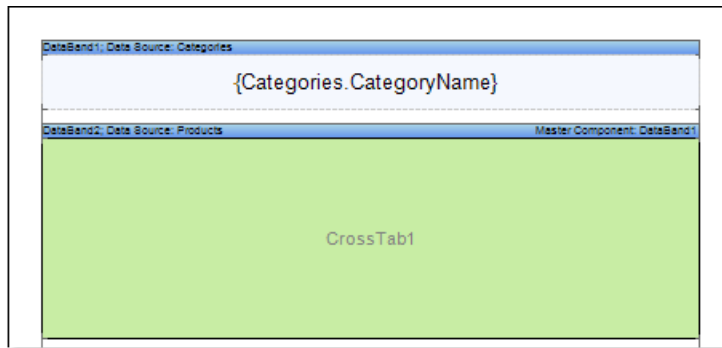
9.3. Change the value of the required properties. For example to set the **Word Wrap** property to **true**, if you want the text be wrapped;

9.4. Set **Borders** of a text component, if required.

9.5. Change the border color.

10. Put the **Cross-Tab** component in the **DataBand**. In this case, the **Cross-Tab** component will be located on the **DataBand2**, that is the **Detail** component of the

report.



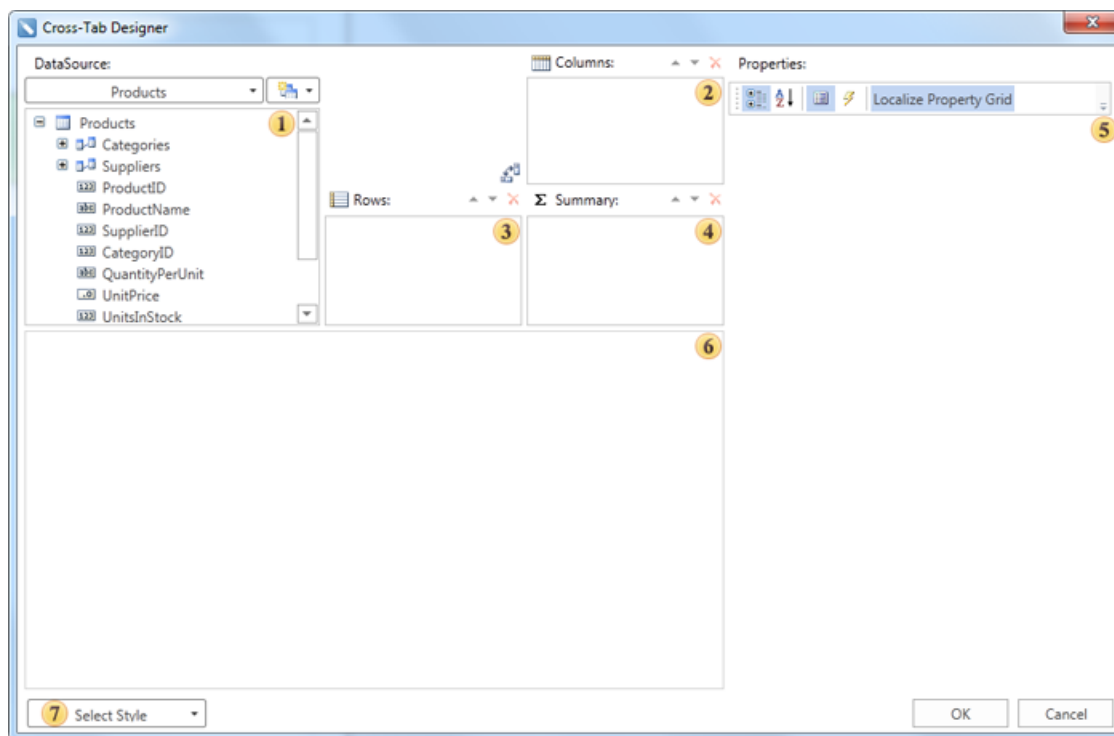
11. Edit the **Cross-Tab** component:

11.1 Change values of the **Cross-Tab** properties. For example, set the **Can Shrink** property to **true**, if you want the **Cross-Tab** component be shrunk;

12. Specify the data source for the band of the **Cross-Tab** component, for example, using the **Data Source**:



13. Call the **Cross-Tab Designer**, for example, by selecting **Edit .. (Design..)** of the context menu of the cross-table component.



- 1 The **DataSource** field. This field displays data columns of the selected data source;
- 2 The **Columns** field. This field displays a list of columns of the data source for the entries by which columns in the cross-table will be formed;
- 3 The **Rows** field. This field displays a list of columns of the data source for the entries by which lines in the cross-table will be formed;
- 4 The **Summary** field. This field displays a list of columns of the data source for the entries by which summaries in the cross-table will be formed;
- 5 The **Properties** field. This field displays the properties of the selected element of cross-table;
- 6 The **Cross-Tab Cells** field. This field displays cells of the cross-table;
- 7 The **Description** field. This field displays a short description of the selected properties of the cross-table item;
- 8 The **Select Style** button. When you click, the drop-down list of styles appears for the cross-table.

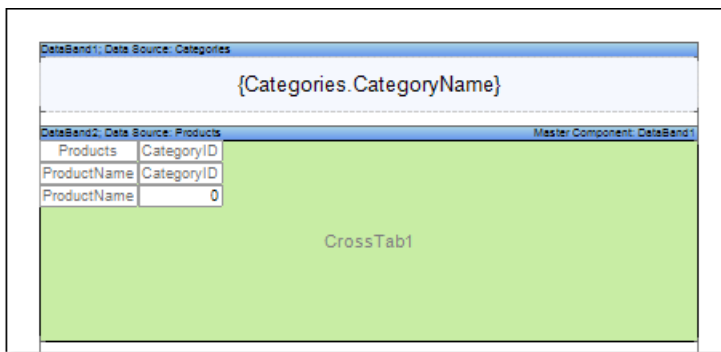
14. Do the following in the **Cross-Tab Designer** editor:

- 14.1. Add a data column from the 1 **DataSource** field to the 2 **Columns** field of the cross-table. Add a data column from the **DataSource** field to the **Columns** field of the cross-table. For example, add the **CategoryID** data column of data to the **Columns** field of the cross-table, and then one entry from this data column will correspond to one column in the rendered cross-table;

14.2. Add a data column of the data source from the **1 DataSource** field to the **3 Rows** field of the cross-table. For example, add the **ProductName** data column to the **Rows** field of the cross-table, and then one entry from this data column will correspond to one row in the rendered cross-table, the number of entries in this data column will be equal to the number of rows in the cross-table;

14.3. Add a data column from the **1 DataSource** field to the **4 Summary** field of the cross-table. For example, add the **UnitInStock** data column to the **Summary** field of the cross-table, entries in this data column will be summary entries in the cross-table;

15. Press the **OK** button to save your changes and go back to the report template with the cross-table.



16. Render a report. Click the **Preview** button or call the **Viewer** by selecting the **Preview** of the menu item. The picture below shows an example of the cross-table report:

Beverages

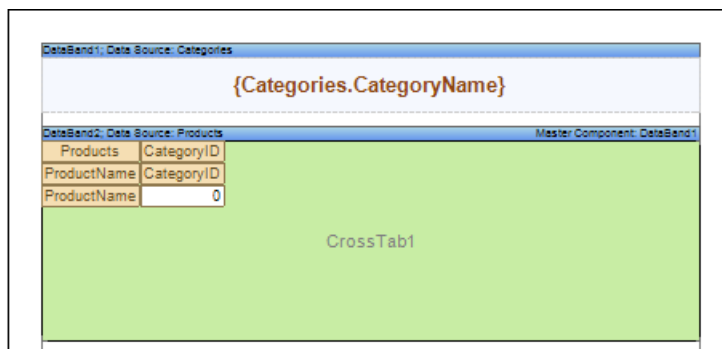
Products	CategoryID							
ProductName	1	2	3	4	5	6	7	8
Alice Mutton								
Aniseed Syrup		13						
Boston Crab Meat								123
Camembert Pierrot				19				
Carnarvon Tigers								42
Chai	39							
Chang	17							
Chartreuse verte	69							
Chef Anton's Cajun Seasoning		53						
Chef Anton's Gumbo Mix								
Chocolade			15					
Côte de Blaye	17							
Escargots de Bourgogne								62
Filo Mix					38			
Flotemysost				26				
Geitost				112				
Genen Shouyu		39						
Gnocchi di nonna Alice					21			
Gorgonzola Telino								
Grandma's Boysenberry Spread		120						
Gravad lax								11
Guaraná Fantástica	20							
Gudbrandsdalsost				26				
Gula Malacca		27						
Gumbär GummiBärchen			15					
Gustaf's Knäckebröd					104			
Ikura								31
Inlagd Sill								112
Ipoh Coffee	17							
Jack's New England Clam Chowder								85
Konbu								24
Lakkalikööri	57							
Laughing Lumberjack Lager	52							
Longlife Tofu							4	
Louisiana Fiery Hot Pepper Sauce		76						
Louisiana Hot Spiced Okra		4						
Manjimup Dried Apples							20	
Mascarpone Fabioli				9				
Maxilaku			10					
Mishi Kobe Niku						29		
Mozzarella di Giovanni				14				

Products	CategoryID							
ProductName	1	2	3	4	5	6	7	8
Nord-Ost Matjeshering								10
Northwoods Cranberry Sauce		6						
NuNuCa Nuß-Nougat-Creme			76					
Original Frankfurter grüne Soße		32						
Outback Lager	15							
Pâté chinois						115		
Pavlova			29					
Perth Pasties								
Queso Cabrales				22				
Queso Manchego La Pastora				86				
Raclette Courdavault				79				
Ravioli Angelo					36			
Rhönbräu Klosterbier	125							
Röd Kaviar								101
Rogede sild								5
Rössle Sauerkraut							26	
Sasquatch Ale	111							
Schoggi Schokolade			49					
Scottish Longbreads			6					
Singaporean Hokkien Fried Mee					26			
Sir Rodney's Marmalade			40					
Sir Rodney's Scones			3					
Sirop d'érable		113						
Spegesild								95
Steeleye Stout	20							
Tarte au sucre			17					
Teatime Chocolate Biscuits			25					
Thüringer Rostbratwurst								
Tofu							35	
Tourtière						21		
Tunnbröd				61				
Uncle Bob's Organic Dried Pears							15	
Valkoinen suklaa			65					
Veggie-spread		24						
Wimmers gute Semmelknödel					22			
Zaanse koeken			36					

Condiments

Products	CategoryID							
ProductName	1	2	3	4	5	6	7	8
Alice Mutton								
Aniseed Syrup		13						
Boston Crab Meat								123

17. Go back to the report template;
18. If necessary, edit the text component in the **DataBand**:
 - 18.1. Change the background color of the text component;
 - 18.2. Change the style, color, and text type.
19. Edit cells in the report template:
 - 19.1. Change the font settings: type, style, size;
 - 19.2. Change the background color of a cell;
 - 19.3. Set the **Word Wrap** property to **true**, if you want the text to be wrapped;
 - 19.4. Set **Borders** if necessary;
 - 19.5. Change the border color.
 - 19.6. Change the background color of cells, etc.



20. Render a report. Click the **Preview** button or call the **Viewer** by clicking the **Preview** menu item. The picture below shows an example of the cross-table report after editing cells of the report template:

Beverages								
Products	CategoryID							
Product Name	1	2	3	4	5	6	7	8
Alice Mutton								
Aniseed Syrup		13						
Boston Crab Meat								123
Camembert Pierrot				19				
Carnarvon Tigers								42
Chai	39							
Chang	17							
Chartreuse verte	69							
Chef Anton's Cajun Seasoning		53						
Chef Anton's Gumbo Mix								
Chocolate			15					
Côte de Blaye	17							
Escargots de Bourgogne								62
Filo Mix					38			
Flotemysost				26				
Geitost				112				
Genen Shouyu		39						
Gnocchi di nonna Alice					21			
Gorgonzola Telino								
Grandma's Boysenberry Spread		120						
Gravad lax								11
Guaraná Fantástica	20							
Gudbrandsdalsost				26				
Gula Malacca		27						
Gumbär GummiBärchen			15					
Gustaf's Knäckebröd					104			
Ikura								31
Inlagd Sill								112
Ipoh Coffee	17							
Jack's New England Clam Chowder								85
Konbu								24
Lakkalikööri	57							
Laughing Lumberjack Lager	52							
Longlife Tofu							4	
Louisiana Fiery Hot Pepper Sauce		76						
Louisiana Hot Spiced Okra		4						
Manjimup Dried Apples							20	
Mascarpone Fabioli				9				
Maxilaku			10					
Mishi Kobe Niku							29	
Mozzarella di Giovanni				14				

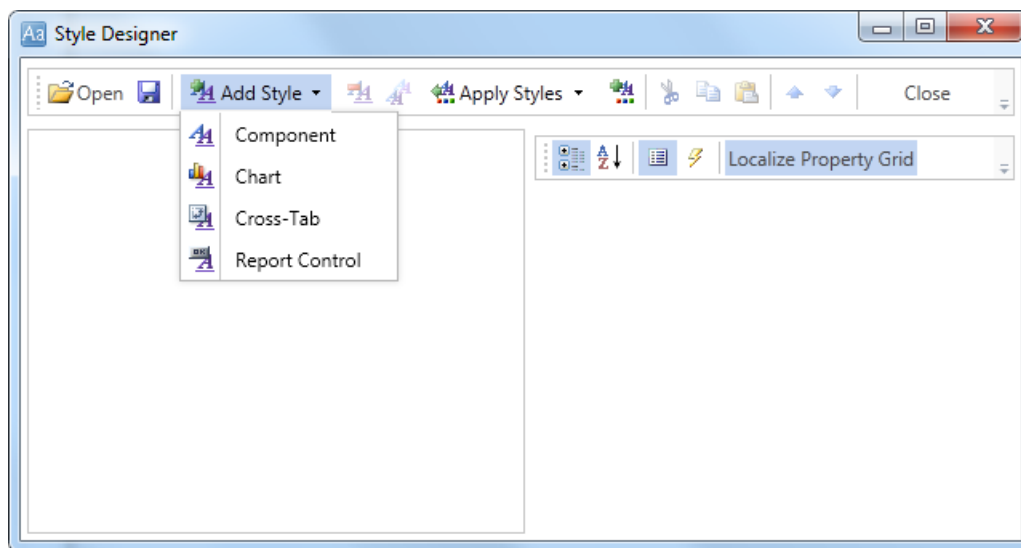
Products	CategoryID							
ProductName	1	2	3	4	5	6	7	8
Nord-Ost Matjeshering								10
Northwoods Cranberry Sauce		6						
NuNuCa Nuß-Nougat-Creme			76					
Original Frankfurter grüne Soße		32						
Outback Lager	15							
Pâté chinois						115		
Pavlova			29					
Perth Pasties								
Queso Cabrales				22				
Queso Manchego La Pastora				86				
Raclette Courdavault				79				
Ravioli Angelo					36			
Rhönbräu Klosterbier	125							
Röd Kaviar								101
Rogede sild								5
Rössle Sauerkraut							26	
Sasquatch Ale	111							
Schoggi Schokolade			49					
Scottish Longbreads			6					
Singaporean Hokkien Fried Mee					26			
Sir Rodney's Marmalade			40					
Sir Rodney's Scones			3					
Sirop d'érable		113						
Spegesild								95
Steeleye Stout	20							
Tarte au sucre			17					
Teatime Chocolate Biscuits			25					
Thüringer Rostbratwurst								
Tofu							35	
Tourtière						21		
Tunnbröd				61				
Uncle Bob's Organic Dried Pears							15	
Valkoinen suklaa			65					
Vegie-spread		24						
Wimmers gute Semmelknödel					22			
Zaanse koeken			36					

Condiments

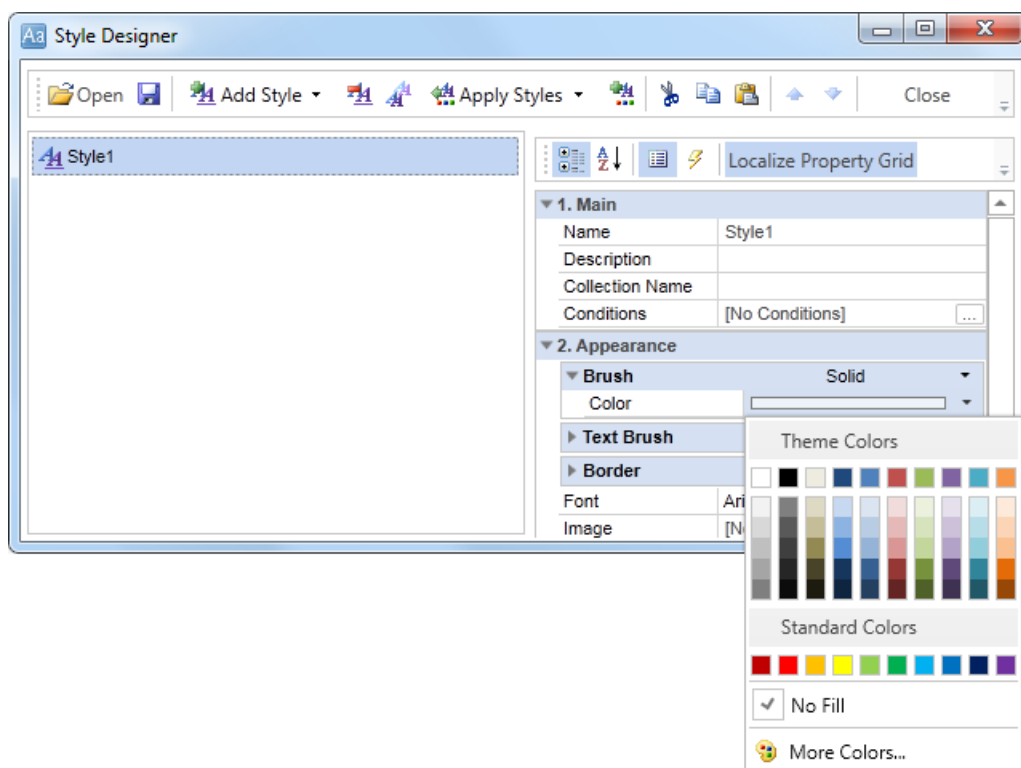
Products	CategoryID							
ProductName	1	2	3	4	5	6	7	8
Alice Mutton								
Aniseed Syrup		13						
Boston Crab Meat								123

Adding styles

1. Go back to the report template;
2. Invoke the **Style Designer**;



Click the **Add Style** button to start creating a style. Select **Cross-Tab** from the drop down list. Call the new style as **Style for Cross-Tab**. To create a custom style it is necessary to change the **Color** property, where the value of this property and is a color scheme.



After the style is created, press the **Close** button. In the list of values of the **Select Style** button in the editor of the cross-table, a custom style will be displayed. In our

case, this is the **Style for Cross-Tab**. Select this value;

3. Render a report. Click the **Preview** button or call the **Viewer** by selecting the **Preview** menu item. Now you can see the result of the rendered report:

Beverages								
Products	CategoryID							
ProductName	1	2	3	4	5	6	7	8
Alice Mutton								
Aniseed Syrup		13						
Boston Crab Meat								123
Camembert Pierrot				19				
Carnarvon Tigers								42
Chai	39							
Chang	17							
Chartreuse verte	69							
Chef Anton's Cajun Seasoning		53						
Chef Anton's Gumbo Mix								
Chocolate			15					
Côte de Blaye	17							
Escargots de Bourgogne								62
Filo Mix					38			
Flotemysost				26				
Geitost				112				
Genen Shouyu		39						
Gnocchi di nonna Alice					21			
Gorgonzola Telino								
Grandma's Boysenberry Spread		120						
Gravad lax								11
Guaraná Fantástica	20							
Gudbrandsdalsost				26				
Gula Malacca		27						
Gumbär Gummibärchen			15					
Gustaf's Knäckebröd					104			
Ikura								31
Inlagd Sill								112
Ipoh Coffee	17							
Jack's New England Clam Chowder								85
Konbu								24
Lakkalikööri	57							
Laughing Lumberjack Lager	52							
Longlife Tofu								4
Louisiana Fiery Hot Pepper Sauce		76						
Louisiana Hot Spiced Okra		4						
Manjimup Dried Apples							20	
Mascarpone Fabioli				9				
Maxilaku			10					
Mishi Kobe Niku						29		
Mozzarella di Giovanni				14				

Products	CategoryID							
ProductName	1	2	3	4	5	6	7	8
Nord-Ost Matjeshering								10
Northwoods Cranberry Sauce		6						
NuNuCa Nuß-Nougat-Creme			76					
Original Frankfurter grüne Soße		32						
Outback Lager	15							
Pâté chinois						115		
Pavlova			29					
Perth Pasties								
Queso Cabrales				22				
Queso Manchego La Pastora				86				
Raclette Courdavault				79				
Ravioli Angelo					36			
Rhönbräu Klosterbier	125							
Röd Kaviar								101
Rogede sild								5
Rössle Sauerkraut							26	
Sasquatch Ale	111							
Schoggi Schokolade			49					
Scottish Longbreads			6					
Singaporean Hokkien Fried Mee					26			
Sir Rodney's Marmalade			40					
Sir Rodney's Scones			3					
Sirop d'érable		113						
Spegesild								95
Steeleye Stout	20							
Tarte au sucre			17					
Teatime Chocolate Biscuits			25					
Thüringer Rostbratwurst								
Tofu							35	
Tourtière						21		
Tunnbröd				61				
Uncle Bob's Organic Dried Pears							15	
Valkoinen suklaa			65					
Vegie-spread		24						
Wimmers gute Semmelknödel					22			
Zaanse koeken			36					

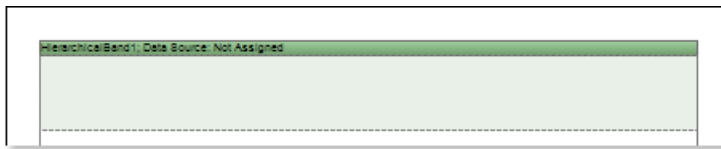
Condiments

Products	CategoryID							
ProductName	1	2	3	4	5	6	7	8
Alice Mutton								
Aniseed Syrup		13						
Boston Crab Meat								123

3.37 Hierarchical Report

Do the following steps to create a hierarchical report:

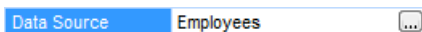
1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Put the **HierarchicalBand** on a page of the report template.



4. Edit the **HierarchicalBand**:

- 4.1. Align the **HierarchicalBand** by height;
- 4.2. Set the properties of the **HierarchicalBand**. For example, set the **Can Break** property to **true**, if it is necessary for the **HierarchicalBand** to be broken;
- 4.3. Set the background of the **HierarchicalBand**;
- 4.4. Set the **Borders** of the **HierarchicalBand**;
- 4.5. Set the border color.

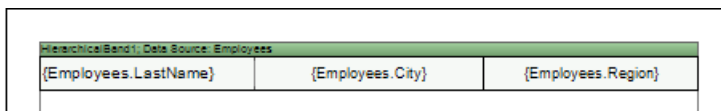
5. Set the data source of the **HierarchicalBand** using the **Data Source** property:



6. Put text components with expressions in the **HierarchicalBand**. Where the expression is a reference to the data field. For example, put three text component with expressions: **{Employees.LastName}**, **{Employees.City}**, and **{Employees.Region}**;

7. Edit text (**Text**) and text components (**TextBox**):

- 7.1. Drag the text component to the required place in the **HierarchicalBand**;
- 7.2. Set the font of the text: the size, style, color;
- 7.3. Align the text component vertically and horizontally;
- 7.4. Set the background color of the text component;
- 7.5. Align text in the text component;
- 7.6. Set values of the properties of a text component. For example, set the **Word Wrap** property to **true**, if you want the text to be wrapped;
- 7.7. Set **Borders** of a text component.
- 7.8. Set the border color.



8. Set the **KeyDataColumn** property, select a data column on which an identification number of the data row will be assigned. In this case, select the **EmployeeID** data column:



9. Set the **MasterKeyDataColumn** property, select a data column on which the reference to the table's primary key of the parent entry will be specified. In this case, select the **ReportsTo** data column:

Master Key Data Column **ReportsTo** ▼

10. Set the **Indent** property, set an offset of the detail entry in relation to the parent one. In this example, the **Indent** property will be 20 units in the report (centimeters, inches, hundredths of inches, pixels);

Indent

11. Set the **ParentValue** property, indicate the entry, which will be a parent for all rows. If this property is not specified, the default value is used. By default, the **Parent Value** property is set to **null**. In this case, the value of the **ParentValue** property is not specified, so the default value is used:

Parent Value

12. Click the **Preview** button or call **Viewer**, using the **Preview** menu item. After rendering a report, all references to data sources will be replaced with data from these sources. Data will be taken sequentially from the data source, which has been specified for this band. Number of copies of the **DataBand** in the report is equal to the number of rows in the data source.

Fuller	Tacoma	WA
Buchanan	London	
Dodsworth	London	
King	London	
Suyama	London	
Callahan	Seattle	WA
Peacock	Redmond	WA
Devolio	Seattle	WA
Leverling	Kirkland	WA

13. Go back to the report template;

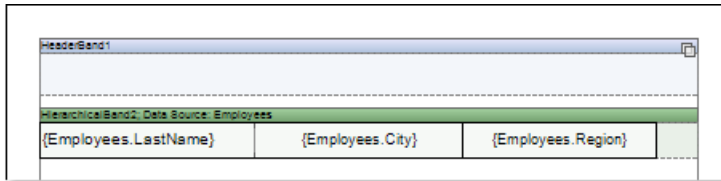
14. If necessary, add other bands into the report template, for example, **HeaderBand**;

15. Edit this band:

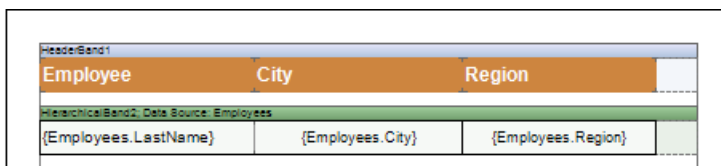
15.1. Align the **HeaderBand** vertically;

15.2. Set properties of the **HeaderBand**, if necessary;

- 15.3. Set the background color of the **HeaderBand**;
- 15.4. If necessary, set the **Borders**;
- 15.5. Change the border color.



16. Put text components with the expressions. Where expressions in text components in the **HeaderBand** will be the data headers;
17. Edit text and text components:
 - 17.1. Drag the text component to the required place in the band;
 - 17.2. Set the font settings: size, style, color;
 - 17.3. Align the text component vertically and horizontally;
 - 17.4. Set the background color of the text component;
 - 17.5. Align the text in a text component;
 - 17.6. Set the value of properties of a text component, if necessary;
 - 17.7. If necessary, set **Borders** of a text component;
 - 17.8. Set the border color.

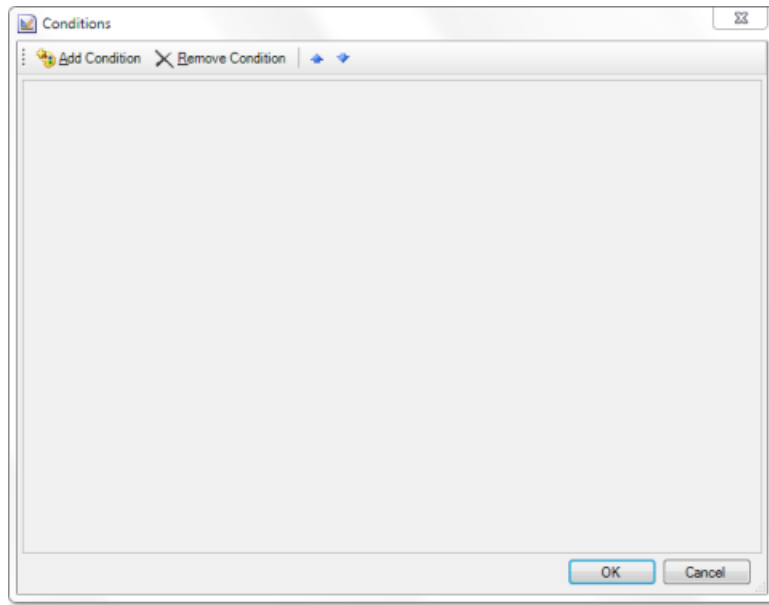


18. Click the **Preview** button or call **Viewer**, using the **Preview** menu item. After rendering a report, all references to data sources will be replaced with data from these sources:

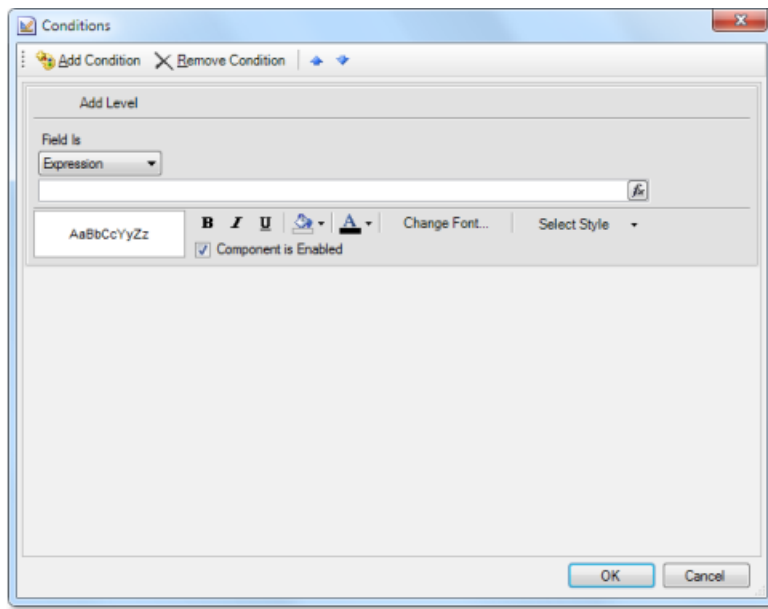
Employee	City	Region
Fuller	Tacoma	WA
Buchanan	London	
Dodsworth	London	
King	London	
Suyama	London	
Callahan	Seattle	WA
Peacock	Redmond	WA
Devolio	Seattle	WA
Leverling	Kirkland	WA

Adding styles

1. Go back to the report template;
1. Select component. In our case this is the text component;
2. Invoke the **Conditions** dialog box. For example, click the **Conditions** button on the control panel.



3. To get started, you must click the **Add Condition** button and in the **Conditions** dialog box the condition and formatting options will be displayed. The condition can be of two types: **Value** and **Expression**. In this case, consider an example of a condition, such as **Expression**. The picture below shows an example of **Conditions** dialog box with options and conditions of formatting:



4. Specify the options of conditional formatting. In this case, to specify the condition means to specify the expression. For example, **Line% 2 == 1**, and set the formatting means to change the background, for example, by pressing the **Back Color** button and selecting the drop-down list of values of the background color.
5. Click **OK**. It should also be noted that to odd and even rows have different styles, it is necessary to make a conditional formatting of each text component;
6. Render a report by clicking on the **Preview** tab or call the **Viewer** clicking the **Preview** menu item.

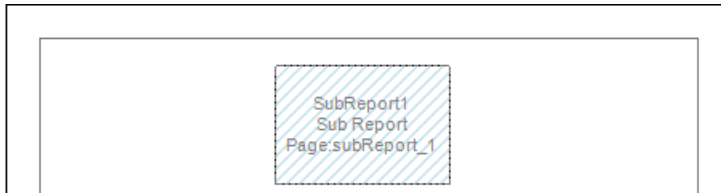
Employee	City	Region
Fuller	Tacoma	WA
Buchanan	London	
Dodsworth	London	
King	London	
Suyama	London	
Callahan	Seattle	WA
Peacock	Redmond	WA
Devolio	Seattle	WA
Leverling	Kirkland	WA

3.38 Report with Sub-Report

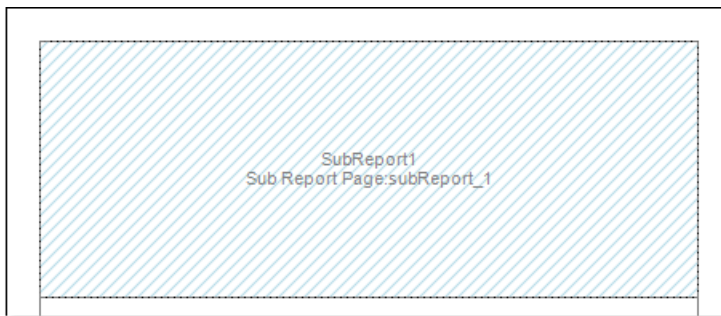
Do the following steps to create a sub-report:

1. Run the designer;

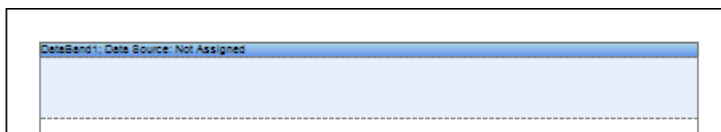
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Add the **Sub-Report** component to a report on a page of the report template:



4. Edit the **Sub-Report** component:
 - 4.1. Stretch the **Sub-Report** component as seen on the picture below;
 - 4.2. Change the value of properties of **Sub-Report**. For example, set the **Keep Sub-Report Together** property to **true**, if you want the sub-report to be kept together;;
 - 4.3. Change the background color of the component.



5. Go to the sub-report page;
6. Add to the **DataBand** to the sub-report page;

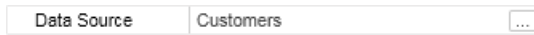


7. Edit the **DataBand**:
 - 7.1. Align the **DataBand** vertically;
 - 7.2. Change values of properties of the **DataBand**. For example, set the **CanBreak** property to **true**, if you want this band to be broken;
 - 7.3. Change background color of the band;

7.4. Set **Borders**, if necessary;

7.5. Change the border color.

8. Specify the data source for the **DataBand** using the **Data Source** property:



9. Put text components with expressions in the **DataBand**. Where an expression is a reference to a data field. For example, put the following expressions to two text components: **{Customers.CompanyName}** and **{Customers.City}**;

10. Edit **Text** and **TextBoxes**:

10.1. Drag the text component to the required place in the **DataBand**;

10.2. Set the text font: size, style, color;

10.3. Align text component vertically and horizontally;

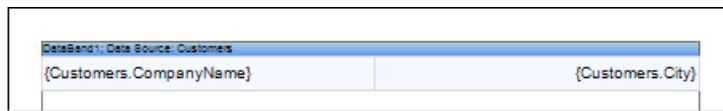
10.4. Set the background color of the text component;

10.5. Align text in the component;

10.6. Set values of the properties of text components. For example to set the **Word Wrap** property to **true**, if you want the text to be wrapped;

10.7. Set **Borders** of a text component.

10.8. Set the border color.



11. Click the **Preview** button or call **Viewer**, using the **Preview** menu item to see how the report will look like.

Alfreds Futterkiste	Berlin
Ana Trujillo Emparedados y helados	México D.F.
Antonio Moreno Taquería	México D.F.
Around the Horn	London
Berglunds snabbköp	Luleå
Blauer See Delikatessen	Mannheim

Alfreds Futterkiste	Berlin
Ana Trujillo Emparedados y helados	México D.F.
Antonio Moreno Taquería	México D.F.
Around the Horn	London
Berglunds snabbköp	Luleå
Blauer See Delikatessen	Mannheim

As can be seen from the picture above, the report generator rendered the report, which was located in the nested page and placed it on the report page but not in the Sub-Report component.

12. Go back to the report template;

13. If necessary, add some bands to the report template, for example, the

PageHeaderBand;

14. Edit this band:

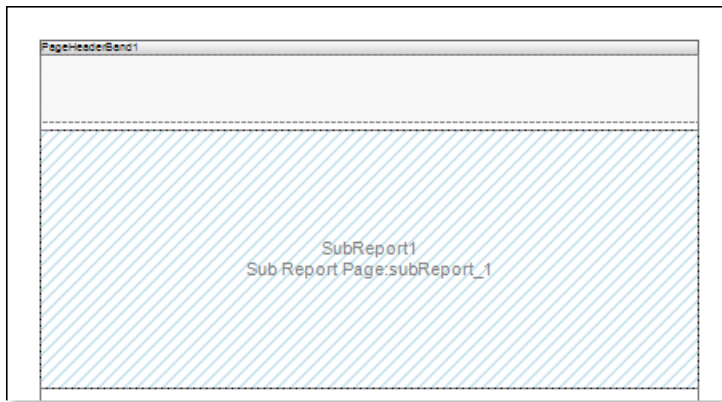
14.1. Align vertically this band;

14.2. Set values of the properties of the **PageHeaderBand**, if necessary;

14.3. Set the background color;

14.4. Set **Borders** of a text component.

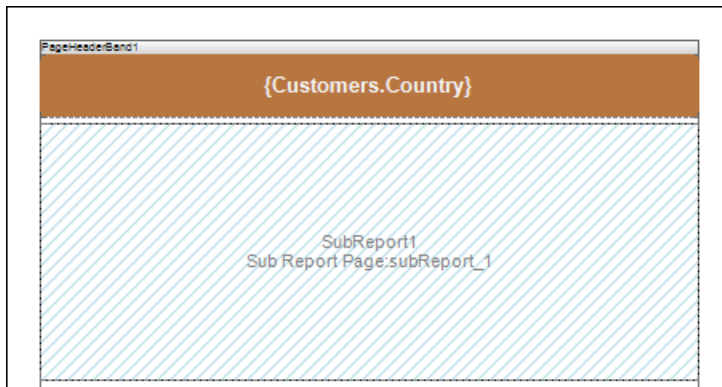
14.5. Set the border color.



15. Put a text component with expression where the expression of the text component in the **PageHeaderBand** will be the page title.

16. Edit the text component:

- 16.1. Drag the text component to the required place in the band;
- 16.2. Set the text font: size, style, color;
- 16.3. Align text component vertically and horizontally;
- 16.4. Set the background color of the text component;
- 16.5. Align text in the component;
- 16.6. Set values of the properties of text components;
- 16.7. Set **Borders** of a text component.
- 16.8. Set the border color.



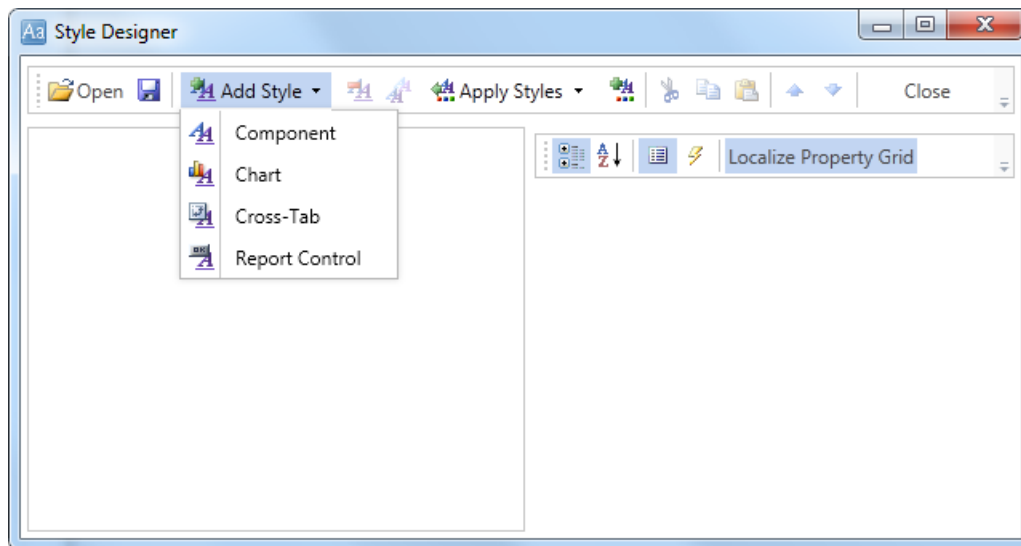
17. Click the **Preview** button or call **Viewer**, using the **Preview** menu item to see how the report will look like.

Germany	
Alfreds Rutekiste	Berlin
Ana Thujillo Empanadados y helados	México D.F.
Antonio Moreno Taquería	México D.F.
Around the Horn	London
Berglunds smaskodo	Luleå
Blaug/Bee Delikatessen	Mannheim

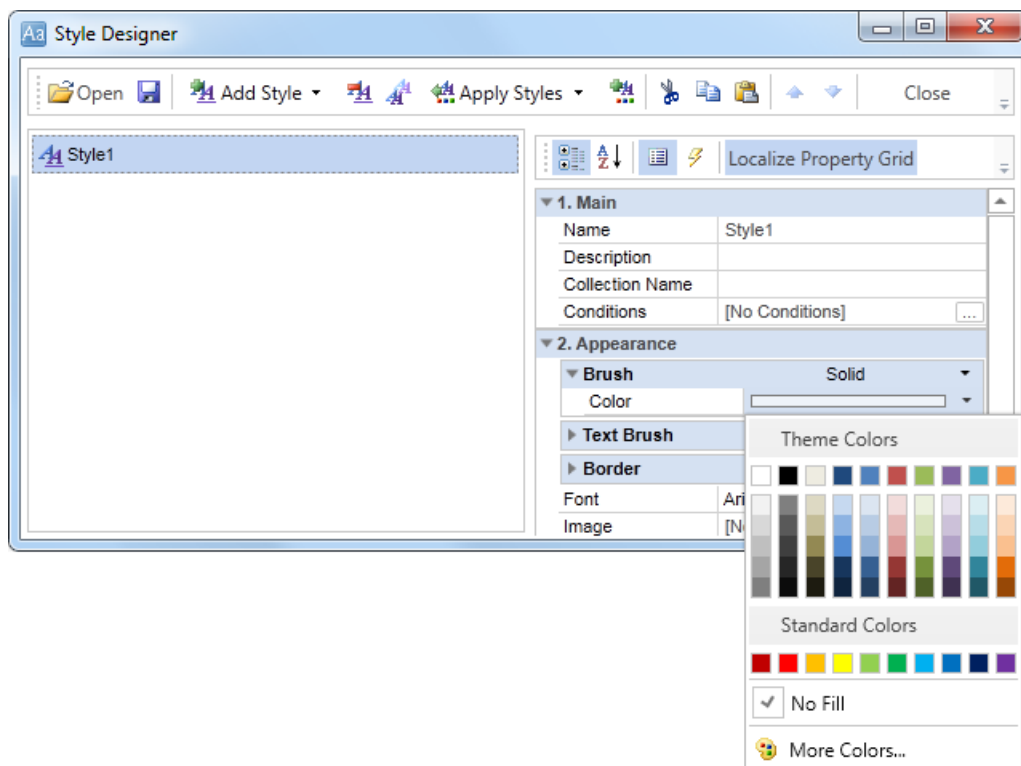
Poland	
Blondessdals päre etfs	Strasbourg
Bólido Comidas preparadas	Madrid
Bon app'	Marseille
Bottom-DollarMarkets	Taiwassen
B's Beverages	London
Cactus Comidas para llevar	Buenos Aires

Adding styles

1. Go back to the report template;
2. Select the sub-report;
3. Select the **DataBand**;
4. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

5. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a sample of a rendered sub-report with alternative color of rows:

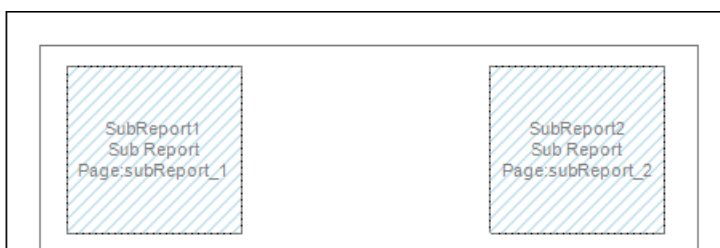
Germany	
Alfreds Futterkiste	Berlin
Ana Trujillo Emparedados y helados	México D.F.
Antonio Moreno Taquería	México D.F.
Around the Horn	London
Berglunds snabbköp	Luleå
Blauser Bee Delikatessen	Mannheim

Poland	
Blondiesdsi pere ette	Strasbourg
Bólido Comidas preparadas	Madrid
Bon app'	Marseille
Bottom-Dollar Markets	Tsawassen
B's Beverages	London
Cactus Comidas para llevar	Buenos Aires

3.39 Side-by-Side Report

The **Side-by-side** report is a type of independent data lists, located side by side. Do the following steps to create such a report:

1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Add **Sub-Report** components to a report on a page of the report template:



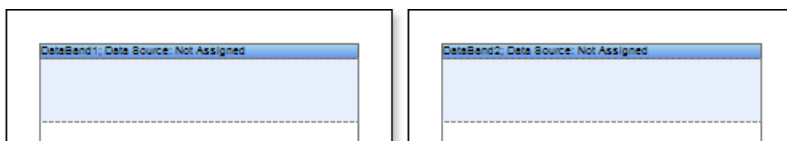
4. Edit **Sub-Report** components:

- 4.1. Stretch **Sub-Report** components as seen on the picture below;
- 4.2. Change the value of properties of **Sub-Report**. For example, set the **Keep Sub-Report Together** property to **true**, if you want the sub-report to be kept together;
- 4.3. Change the background color of the component.



5. Go to the sub-report page;

6. Add two **DataBands** to the sub-report page. Add **DataBand1** to the **Sub Report1** and **DataBand2** to the **Sub Report2**;



7. Edit the **DataBands**:

- 7.1. Align the **DataBands** vertically;
- 7.2. Change values of properties of the **DataBands**.
- 7.3. Change background color of the band;
- 7.4. Set **Borders**, if necessary;
- 7.5. Change the border color.

8. Specify the data source for the **DataBand** using the **Data Source** property. For example, set the **Customers** data source for the **DataBand1**, and the **Products** data

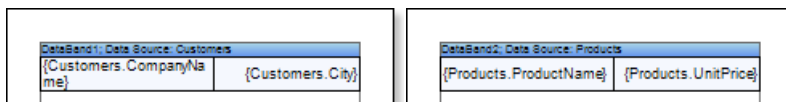
source for the **DataBand2**:



9. Put text components with expressions in the **DataBands**. Where an expression is a reference to a data field. For example, put the following expressions to the **DataBand1**: **{Customers.CompanyName}** and **{Customers.City}**. put the following expressions to the **DataBand2**: **{Products.ProductName}** and **{Products.UnitPrice}**;

10. Edit **Text** and **TextBoxes**:

- 10.1. Drag the text component to the required place in the **DataBand**;
- 10.2. Set the text font: size, style, color;
- 10.3. Align text component vertically and horizontally;
- 10.4. Set the background color of the text component;
- 10.5. Align text in the component;
- 10.6. Set values of the properties of text components. For example to set the **Word Wrap** property to **true**, if you want the text to be wrapped;
- 10.7. Set **Borders** of a text component.
- 10.8. Set the border color.



11. Click the **Preview** button or call **Viewer**, using the **Preview** menu item to see how the report will look like:

Alfreds Futterkiste	Berlin	Chai	18
Ana Trujillo Emparedados y helados	México D.F.	Chang	19
Antonio Moreno Taquería	México D.F.	Aniseed Syrup	10
Around the Horn	London	Chef Anton's Cajun Seasoning	22
Berglunds snabbköp	Luleå	Chef Anton's Gumbo Mix	21,35
Blauer See Delikatessen	Mannheim	Grandma's Boysenberry Spread	25
Blondesddsl père et fils	Strasbourg	Uncle Bob's Organic Dried Pears	30
Bóldo Comidas preparadas	Madrid	Northwoods Cranberry Sauce	40
Bon app'	Marseille	Mishi Kobe Niku	97
Bottom-Dollar Markets	Tsawassen	Ikura	31
B's Beverages	London	Queso Cabrales	21
Cactus Comidas para llevar	Buenos Aires	Queso Manchego La Pastora	38
Centro comercial Moctezuma	México D.F.	Konbu	6
Chop-suey Chinese	Bern	Tofu	23,25
Comércio Mineiro	Sao Paulo	Genen Shouyu	15,5

As can be seen from the picture above, the report generator rendered the report, which was located in the nested page and placed it on the report page but not in the Sub-Report component.

12. Go back to the report template;

13. If necessary, add some bands to the report template, for example, the **HeaderBand**;

14. Edit this band:

14.1. Align vertically this band;

14.2. Set values of the properties of the **HeaderBand**, if necessary;

14.3. Set the background color;

14.4. Set **Borders** of a text component.

14.5. Set the border color.

HeaderBand1	HeaderBand2
DataBand1: Data Source: Customers	DataBand2: Data Source: Products
{Customers.CompanyName}	{Products.ProductName}
{Customers.City}	{Products.UnitPrice}

15. Put a text component with expression where the expression of the text component in the **HeaderBand** will be the page title.

16. Edit the text component:

16.1. Drag the text component to the required place in the band;

16.2. Set the text font: size, style, color;

16.3. Align text component vertically and horizontally;

- 16.4. Set the background color of the text component;
- 16.5. Align text in the component;
- 16.6. Set values of the properties of text components;
- 16.7. Set **Borders** of a text component.
- 16.8. Set the border color.

HeaderBand1	
CompanyName	City
DataBand1: Data Source: Customers	
{Customers.CompanyName}	{Customers.City}

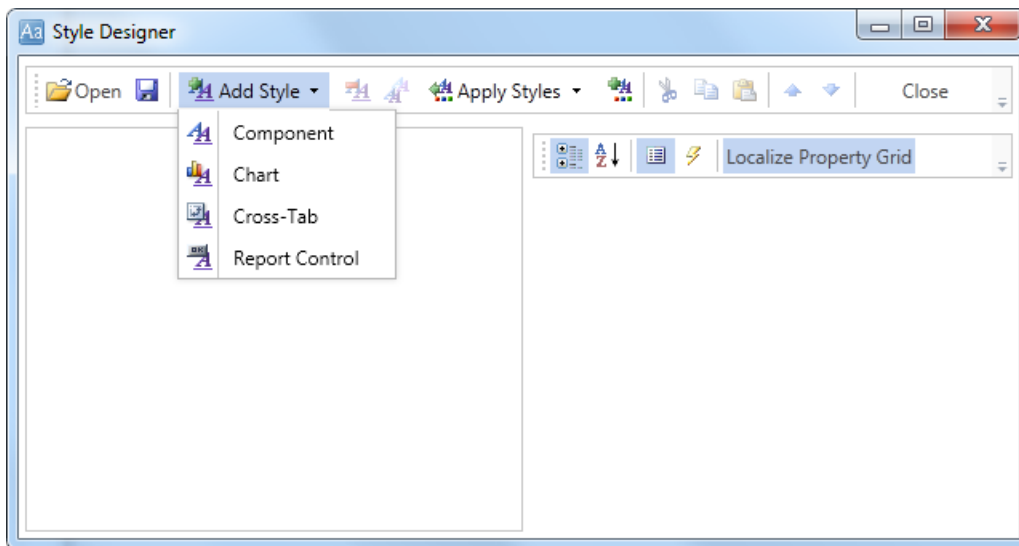
HeaderBand2	
ProductName	UnitPrice
DataBand2: Data Source: Products	
{Products.ProductName}	{Products.UnitPrice}

17. Click the **Preview** button or call **Viewer**, using the **Preview** menu item to see how the report will look like:

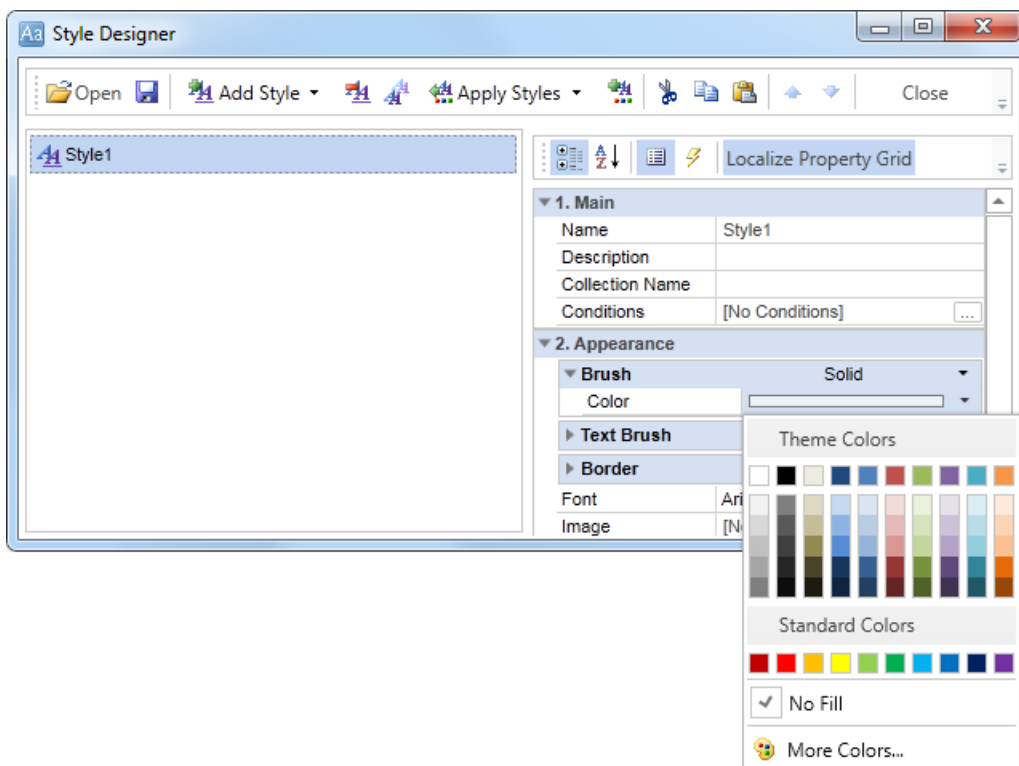
CompanyName	City	ProductName	UnitPrice
Alfreds Futterkiste	Berlin	Chai	18
Ana Trujillo Emparedados y helados	México D.F.	Chang	19
Antonio Moreno Taquería	México D.F.	Aniseed Syrup	10
Around the Horn	London	Chef Anton's Cajun Seasoning	22
Berglunds snabbköp	Luleå	Chef Anton's Gumbo Mix	21,35
Blauer See Delikatessen	Mannheim	Grandma's Boysenberry Spread	25
Blondesddsl père et fils	Strasbourg	Uncle Bob's Organic Dried Pears	30
Bólido Comidas preparadas	Madrid	Northwoods Cranberry Sauce	40
Bon app'	Marseille	Mishi Kobe Niku	97
Bottom-Dollar Markets	Tsawassen	Ikura	31
B's Beverages	London	Queso Cabrales	21
Cactus Comidas para llevar	Buenos Aires	Queso Manchego La Pastora	38
Centro comercial Moctezuma	México D.F.	Konbu	6
Chop-suey Chinese	Bern	Tofu	23,25

Adding styles

1. Go back to the report template;
2. Select the sub-report;
3. Select the **DataBand**;
4. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**.



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

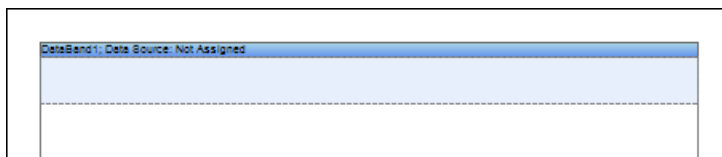
5. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a sample of a rendered side-by-side report with alternative color of rows:

CompanyName	City	ProductName	UnitPrice
Alfreds Futterkiste	Berlin	Chai	18
Ana Trujillo Emparedados y helados	México D.F.	Chang	19
Antonio Moreno Taquería	México D.F.	Aniseed Syrup	10
Around the Horn	London	Chef Anton's Cajun Seasoning	22
Berglunds snabbköp	Luleå	Chef Anton's Gumbo Mix	21,35
Blauer See Delikatessen	Mannheim	Grandma's Boysenberry Spread	25
Blondesddsl père et fils	Strasbourg	Uncle Bob's Organic Dried Pears	30
Bólido Comidas preparadas	Madrid	Northwoods Cranberry Sauce	40
Bon app'	Marseille	Mishi Kobe Niku	97
Bottom-Dollar Markets	Tsawassen	Ikura	31
B's Beverages	London	Queso Cabrales	21
Cactus Comidas para llevar	Buenos Aires	Queso Manchego La Pastora	38
Centro comercial Moctezuma	México D.F.	Konbu	6
Chop-suey Chinese	Bern	Tofu	23,25

3.40 Report with Sub-Reports in Data Band

Do the following steps to create a simple list report:

1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Put the **DataBand** on a page of a report template.



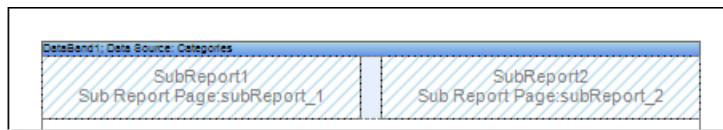
4. Edit **DataBand**:
 - 4.1. Align the **DataBand** by height;
 - 4.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;

- 4.3. Change the **DataBand** background color;
- 4.4. Enable **Borders** for the **DataBand**, if required;
- 4.5. Change the border color.

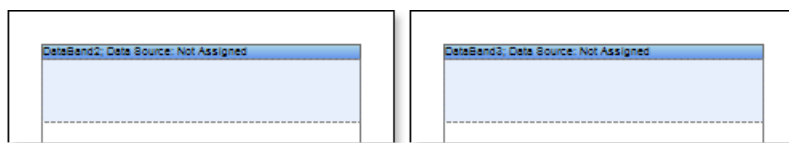
5. Define the data source for the **DataBand** using the **Data Source** property. For example, define the **Categories** data source for the **DataBand**:



6. Put **Sub-Report** components in the **DataBand**;
7. Edit the **Sub-Report** components:
 - 7.1. Stretch the **Sub-Report** components as seen on the picture below;
 - 7.2. Change the value of properties of **Sub-Reports**. For example, set the **Keep Sub-Report Together** property to **true**, if you want the sub-report to be kept together;;
 - 7.3. Change the background color of the components.



8. Go to the sub-report page;
9. Add two **DataBands** to the sub-report page. Add **DataBand1** to the **Sub Report1** and **DataBand2** to the **Sub Report2**;



10. Edit the **DataBands**:
 - 10.1. Align the **DataBands** vertically;
 - 10.2. Change values of properties of the **DataBands**.
 - 10.3. Change background color of the band;
 - 10.4. Set **Borders**, if necessary;
 - 10.5. Change the border color.

11. Specify the data source for the **DataBand** using the **Data Source** property. For example, set the **Customers** data source for the **DataBand1**, and the **Products** data source for the **DataBand2**:



12. Put text components with expressions in the **DataBands**. Where an expression is a reference to a data field. For example, put the following expressions to the **DataBand1**: **{Customers.CompanyName}** and **{Customers.City}**. put the following expressions to the **DataBand2**: **{Products.ProductName}** and **{Products.UnitPrice}**;

13. Edit **Text** and **TextBoxes**:

- 13.1. Drag the text component to the required place in the **DataBand**;
- 13.2. Set the text font: size, style, color;
- 13.3. Align text component vertically and horizontally;
- 13.4. Set the background color of the text component;
- 13.5. Align text in the component;
- 13.6. Set values of the properties of text components. For example to set the **Word Wrap** property to **true**, if you want the text to be wrapped;
- 13.7. Set **Borders** of a text component.
- 13.8. Set the border color.



14. Click the **Preview** button or call **Viewer**, using the **Preview** menu item to see how the report will look like:

Alfreds Futterkiste	Berlin	Chai	18
Ana Trujillo Emparedados y helados	México D.F.	Chang	19
Antonio Moreno Taquería	México D.F.	Aniseed Syrup	10
Around the Horn	London	Chef Anton's Cajun Seasoning	22
Berglunds snabbköp	Luleå	Chef Anton's Gumbo Mix	21,35
Blauer See Delikatessen	Mannheim	Grandma's Boysenberry Spread	25
Blondesddsl père et fils	Strasbourg	Uncle Bob's Organic Dried Pears	30
Bóldo Comidas preparadas	Madrid	Northwoods Cranberry Sauce	40
Bon app'	Marseille	Mishi Kobe Niku	97
Bottom-Dollar Markets	Tsawassen	Ikura	31
B's Beverages	London	Queso Cabrales	21
Cactus Comidas para llevar	Buenos Aires	Queso Manchego La Pastora	38
Centro comercial Moctezuma	México D.F.	Konbu	6
Chop-suey Chinese	Bern	Tofu	23,25
Comércio Mineiro	Sao Paulo	Genen Shouyu	15,5
Consolidated Holdings	London	Pavlova	17,45
Drachenblut Delikatessen	Aachen	Alice Mutton	39
Du monde entier	Nantes	Carnarvon Tigers	62,5
Eastern Connection	London	Teatime Chocolate Biscuits	9,2
Ernst Handel	Graz	Sir Rodney's Marmalade	81
Familia Arquibaldo	Sao Paulo	Sir Rodney's Scones	10
FISSA Fabrica Inter. Salchichas S.A.	Madrid	Gustaf's Knäckebröd	21
Folies gourmandes	Lille	Tunnbröd	9
Folk och få HB	Bräcke	Guaraná Fantástica	4,5
Frankenversand	München	NuNuCaNuß-Nougat-Creme	14
France restauration	Nantes	Gumbär Gummibärchen	31,23
Franchi S.p.A.	Torino	Schoggi Schokolade	43,9

15. Go back to the report template;

16. If necessary, add some bands to the report template, for example, the **HeaderBand**;

17. Edit this band:

17.1. Align vertically this band;

17.2. Set values of the properties of the **HeaderBand**, if necessary;

17.3. Set the background color;

17.4. Set **Borders** of a text component.

17.5. Set the border color.

HeaderBand1	HeaderBand2
DataBand2, Data Source: Customers	DataBand3, Data Source: Products
{Customers.CompanyName}	{Products.ProductName}
{Customers.City}	{Products.UnitPrice}

18. Put a text component with expression where the expression of the text component in the **HeaderBand** will be the page title.

19. Edit the text component:

19.1. Drag the text component to the required place in the band;

19.2. Set the text font: size, style, color;

19.3. Align text component vertically and horizontally;

19.4. Set the background color of the text component;

19.5. Align text in the component;

19.6. Set values of the properties of text components;

19.7. Set **Borders** of a text component.

19.8. Set the border color.

HeaderBand1	
CompanyName	City
DataBand2, Data Source: Customers	
{Customers.CompanyName}	{Customers.City}

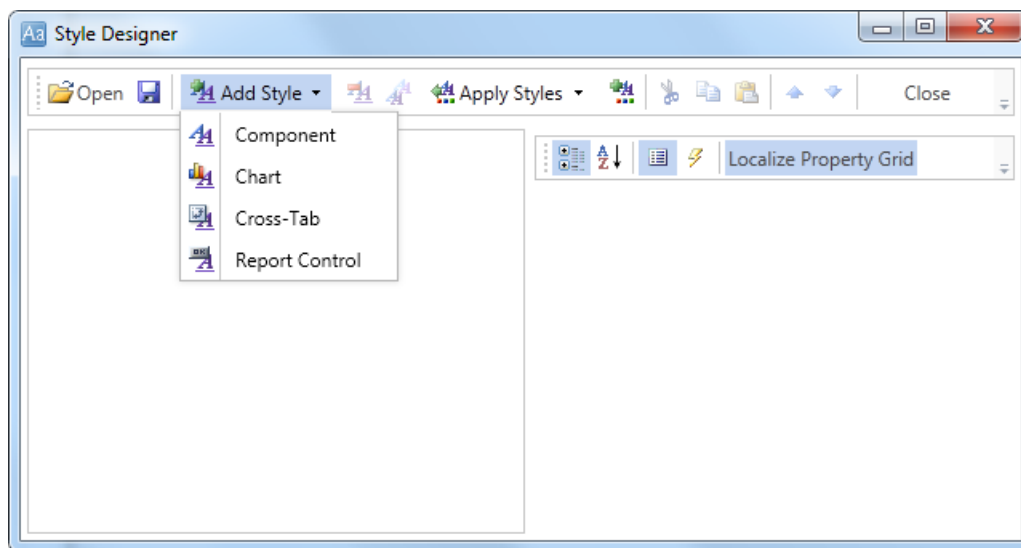
HeaderBand2	
ProductName	UnitPrice
DataBand3, Data Source: Products	
{Products.ProductName}	{Products.UnitPrice}

20. Click the **Preview** button or call **Viewer**, using the **Preview** menu item to see how the report will look like:

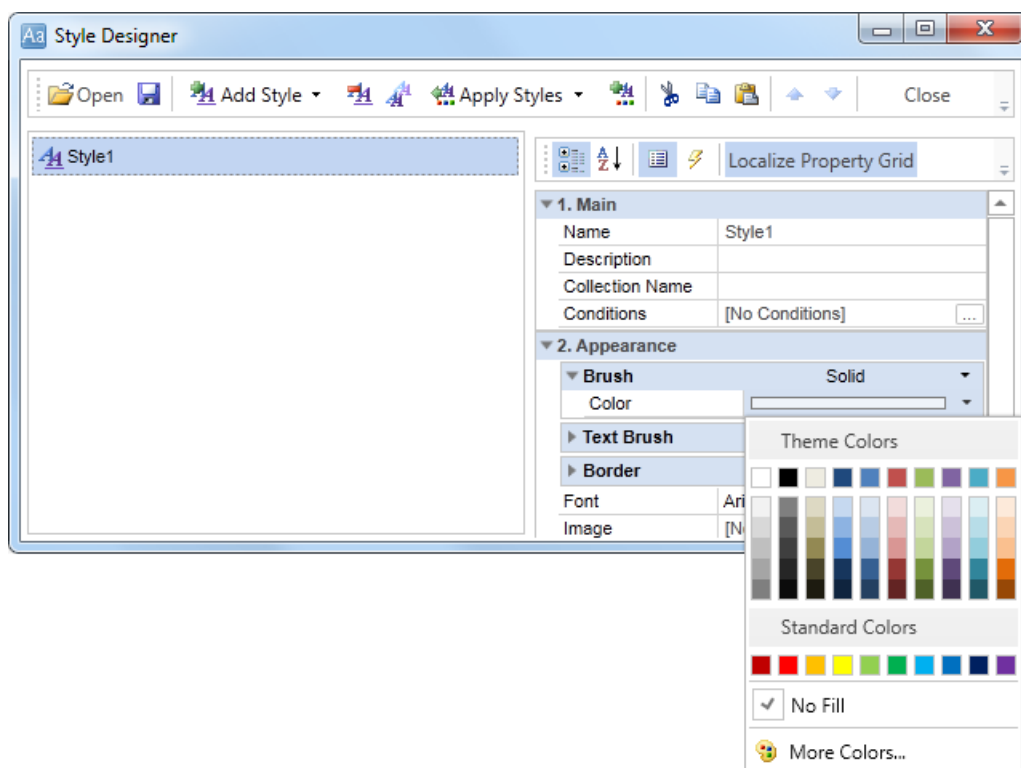
CompanyName	City	ProductName	UnitPrice
Alfreds Futterkiste	Berlin	Chai	18
Ana Trujillo Emparedados y helados	México D.F.	Chang	19
Antonio Moreno Taquería	México D.F.	Aniseed Syrup	10
Around the Horn	London	Chef Anton's Cajun Seasoning	22
Berglunds snabbköp	Luleå	Chef Anton's Gumbo Mix	21,35
Blauer See Delikatessen	Mannheim	Grandma's Boysenberry Spread	25
Blondesddsl père et fils	Strasbourg	Uncle Bob's Organic Dried Pears	30
Bólido Comidas preparadas	Madrid	Northwoods Cranberry Sauce	40
Bon app'	Marseille	Mishi Kobe Niku	97
Bottom-Dollar Markets	Tsawassen	Ikura	31
B's Beverages	London	Queso Cabrales	21
Cactus Comidas para llevar	Buenos Aires	Queso Manchego La Pastora	38
Centro comercial Moctezuma	México D.F.	Konbu	6
Chop-suey Chinese	Bern	Tofu	23,25
Comércio Mineiro	Sao Paulo	Genen Shouyu	15,5
Consolidated Holdings	London	Pavlova	17,45
Drachenblut Delikatessen	Aachen	Alice Mutton	39
Du monde entier	Nantes	Carnarvon Tigers	62,5
Eastern Connection	London	Teatime Chocolate Biscuits	9,2
Ernst Handel	Graz	Sir Rodney's Marmalade	81
Familia Arquibaldo	Sao Paulo	Sir Rodney's Scones	10
FISSA Fabrica Inter. Salchichas S.A.	Madrid	Gustaf's Knäckebröd	21
Folies gourmandes	Lille	Tunnbröd	9
Folk och få HB	Bräcke	Guaraná Fantástica	4,5
Frankenversand	München	NuNuCaNuß-Nougat-Creme	14

Adding styles

1. Go back to the report template;
2. Select the sub-report;
3. Select the **DataBand**;
4. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**.



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

5. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a sample of a rendered report with sub-report and alternative color of rows:

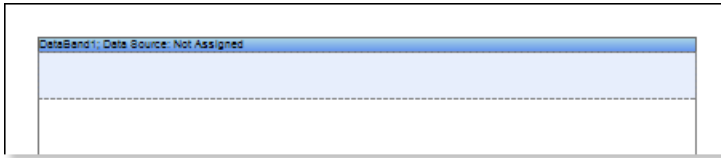
CompanyName	City	ProductName	UnitPrice
Alfreds Futterkiste	Berlin	Chai	18
Ana Trujillo Emparedados y helados	México D.F.	Chang	19
Antonio Moreno Taquería	México D.F.	Aniseed Syrup	10
Around the Horn	London	Chef Anton's Cajun Seasoning	22
Berglunds snabbköp	Luleå	Chef Anton's Gumbo Mix	21,35
Blauer See Delikatessen	Mannheim	Grandma's Boysenberry Spread	25
Blondesddsl père et fils	Strasbourg	Uncle Bob's Organic Dried Pears	30
Bólido Comidas preparadas	Madrid	Northwoods Cranberry Sauce	40
Bon app'	Marseille	Mishi Kobe Niku	97
Bottom-Dollar Markets	Tsawassen	Ikura	31
B's Beverages	London	Queso Cabrales	21
Cactus Comidas para llevar	Buenos Aires	Queso Manchego La Pastora	38
Centro comercial Moctezuma	México D.F.	Konbu	6
Chop-suey Chinese	Bern	Tofu	23,25
Comércio Mineiro	Sao Paulo	Genen Shouyu	15,5
Consolidated Holdings	London	Pavlova	17,45
Drachenblut Delikatessen	Aachen	Alice Mutton	39
Du monde entier	Nantes	Carnarvon Tigers	62,5
Eastern Connection	London	Teatime Chocolate Biscuits	9,2
Ernst Handel	Graz	Sir Rodney's Marmalade	81
Familia Arquibaldo	Sao Paulo	Sir Rodney's Scones	10
FISSA Fabrica Inter. Salchichas S.A.	Madrid	Gustaf's Knäckebröd	21
Folies gourmandes	Lille	Tunnbröd	9
Folk och få HB	Bräcke	Guaraná Fantástica	4,5
Frankenversand	München	NuNuCaNuß-Nougat-Creme	14

3.41 Master-Detail Report and Sub-Reports

Do the following steps to create a **Master-Detail** report with sub-reports:

1. Run the designer;
2. Connect data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;

3. Create **Relation** between data sources. If the relation will not be created and/or the **Relation** property of the **Detail** data source will not be filled, then, for **Master** entry, all **Detail** entries will be output;
4. Put the **DataBand1** on a page of a report template:

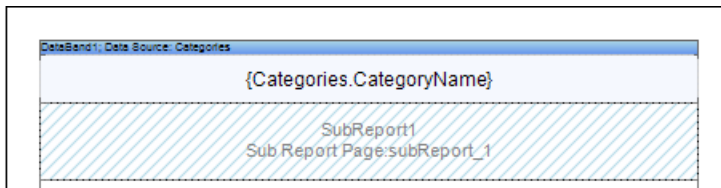


5. Edit **DataBand1**:
 - 5.1. Align the **DataBand1** by height;
 - 5.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
 - 5.3. Change the **DataBand1** background color;
 - 5.4. Enable **Borders** for the **DataBand1**, if required;
 - 5.5. Change the border color.
6. Define the data source for the **DataBand1** using the **Data Source** property. For example, define the **Categories** data source for the **DataBand2**:

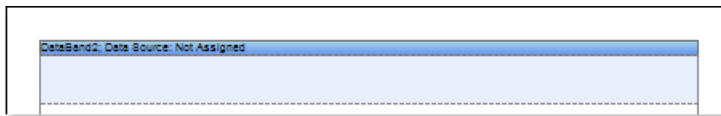


7. Put text components with expressions in the **DataBand1**. Where an expression is a reference to a data field. For example, put the text component with the following expression in the **DataBand1** (**Master** component): **{Categories.CategoryName}**;
8. Edit **Text** and **TextBoxes**:
 - 8.1. Drag the text component to the required place in the **DataBand1**;
 - 8.2. Set the text font: size, style, color;
 - 8.3. Align text component vertically and horizontally;
 - 8.4. Set the background color of the text component;
 - 8.5. Align text in the component;
 - 8.6. Set values of the properties of text components. For example to set the **Word Wrap** property to **true**, if you want the text to be wrapped;
 - 8.7. Set **Borders** of a text component.
 - 8.8. Set the border color.
9. Put a **Sub-Report** component in the **DataBand1**;

10. Edit the **Sub-Report** components:
 - 10.1. Stretch the **Sub-Report** components as seen on the picture below;
 - 10.2. Change the value of properties of **Sub-Reports**. For example, set the **Keep Sub-Report Together** property to **true**, if you want the sub-report to be kept together;;
 - 10.3. Change the background color of the components.



11. Go to the sub-report page;
12. Add to the **DataBand2** to the sub-report page.



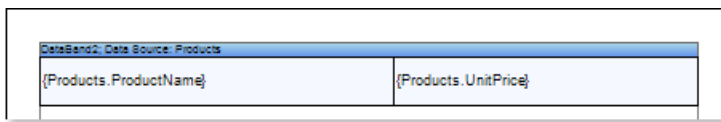
13. Edit **DataBand2**:
 - 13.1. Align the **DataBand2** by height;
 - 13.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
 - 13.3. Change the **DataBand2** background color;
 - 13.4. Enable **Borders** for the **DataBand2**, if required;
 - 13.5. Change the border color.
14. Define the data source for the **DataBand1** using the **Data Source** property. For example, define the **Products** data source for the **DataBand2**:



15. Define the **Master** component in a report. In our case set the **DataBand1** as a **Master** component for the **DataBand2**;
16. Fill the **Data Relation** property of the **DataBand**, that is the **Detail** component, in this case for the **DataBand2**;
17. Put text components with expressions in the **DataBand1**. Where an expression is a reference to a data field. For example, put the text component with the following expression in the **DataBand2**: **{Products.ProductName}** and **{Products.UnitPrice}**;

18. Edit **Text** and **TextBoxes**:

- 18.1. Drag the text component to the required place in the **DataBand2**;
- 18.2. Set the text font: size, style, color;
- 18.3. Align text component vertically and horizontally;
- 18.4. Set the background color of the text component;
- 18.5. Align text in the component;
- 18.6. Set values of the properties of text components. For example to set the **Word Wrap** property to **true**, if you want the text to be wrapped;
- 18.7. Set **Borders** of a text component.
- 18.8. Set the border color.



The screenshot shows a report table with a blue header and a white body. The header row is labeled 'DataBand2: Data Source: Products'. The table has two columns: the first column is labeled '{Products.ProductName}' and the second column is labeled '{Products.UnitPrice}'.

DataBand2: Data Source: Products	
{Products.ProductName}	{Products.UnitPrice}

19. Click the **Preview** button or call **Viewer**, using the **Preview** menu item to see how the report will look like:

Beverages	
Chai	18
Chang	19
Guaraná Fantástica	4,5
Sasquatch Ale	14
Steeleye Stout	18
Côte de Blaye	263,5
Chartreuse verte	18
Ipoh Coffee	46
Laughing Lumberjack Lager	14
Outback Lager	15
Rhönbräu Klosterbier	7,75
Lakkaikööri	18
Condiments	
Aniseed Syrup	10
Chef Anton's Cajun Seasoning	22
Chef Anton's Gumbo Mix	21,35
Grandma's Boysenberry Spread	25
Northwoods Cranberry Sauce	40
Genen Shouyu	15,5
Gula Malacca	19,45

20. Go back to the report template;
21. If necessary, add some bands to the report template, for example, the **HeaderBand**;
22. Edit this band:
 - 22.1. Align vertically this band;
 - 22.2. Set values of the properties of the **HeaderBand**, if necessary;
 - 22.3. Set the background color;
 - 22.4. Set **Borders** of a text component.
 - 22.5. Set the border color.

HeaderBand1	
DataBand2: Data Source: Products	
{Products.ProductName}	{Products.UnitPrice}

23. Put a text component with expression where the expression of the text component in the **HeaderBand** will be the page title.

24. Edit the text component:

24.1. Drag the text component to the required place in the band;

24.2. Set the text font: size, style, color;

24.3. Align text component vertically and horizontally;

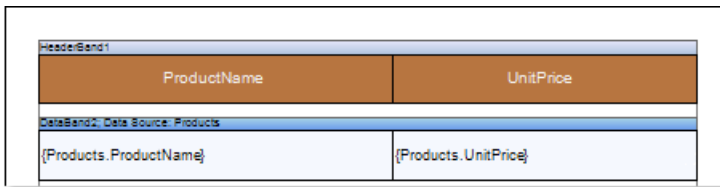
24.4. Set the background color of the text component;

24.5. Align text in the component;

24.6. Set values of the properties of text components;

24.7. Set **Borders** of a text component.

24.8. Set the border color.



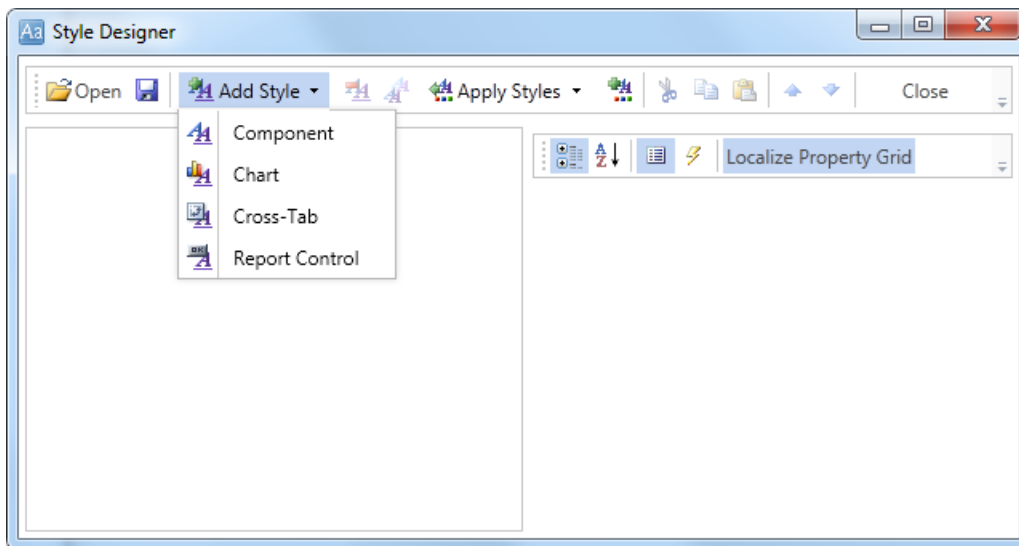
HeaderBand1	
ProductName	UnitPrice
DataBand2: Data Source: Products	
{Products.ProductName}	{Products.UnitPrice}

25. Click the **Preview** button or call **Viewer**, using an **F5** hot key or the **Preview** menu item to see how the report will look like:

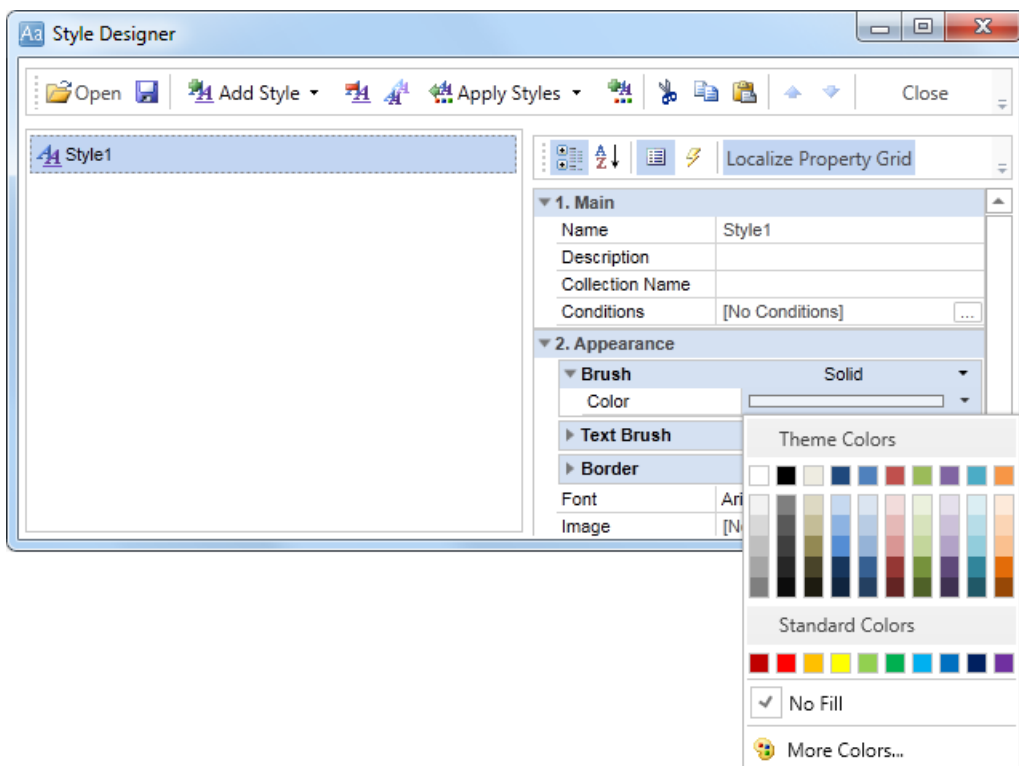
Beverages	
ProductName	UnitPrice
Chai	18
Chang	19
Guaraná Fantástica	4,5
Sasquatch Ale	14
Steeleye Stout	18
Côte de Blaye	263,5
Chartreuse verte	18
Ipoh Coffee	46
Laughing Lumberjack Lager	14
Outback Lager	15
Rhönbräu Klosterbier	7,75
Lakkalikööri	18
Condiments	
ProductName	UnitPrice
Aniseed Syrup	10
Chef Anton's Cajun Seasoning	22
Chef Anton's Gumbo Mix	21,35
Grandma's Boysenberry Spread	25
Northwoods Cranberry Sauce	40
Genen Shouyu	15,5
Gula Malacca	19,45

Adding styles

1. Go back to the report template;
2. Select the sub-report;
3. Select the **DataBand**;
4. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**.



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

5. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a sample of a rendered "**master-detail report with sub-report**" with alternative color of rows:

Beverages	
ProductName	UnitPrice
Chai	18
Chang	19
Guaraná Fantástica	4,5
Sasquatch Ale	14
Steeleye Stout	18
Côte de Blaye	263,5
Chartreuse verte	18
Ipoh Coffee	46
Laughing Lumberjack Lager	14
Outback Lager	15
Rhönbräu Klosterbier	7,75
Lakkalikööri	18
Condiments	
ProductName	UnitPrice
Aniseed Syrup	10
Chef Anton's Cajun Seasoning	22
Chef Anton's Gumbo Mix	21,35
Grandma's Boysenberry Spread	25
Northwoods Cranberry Sauce	40
Genen Shouyu	15,5
Gula Malacca	19,45

3.42 Report with Empty Band

The **EmptyBand** is used to fill free space at the bottom of a page. This tutorial describes how to create a report with the **EmptyBand**:

1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;

3. Design a report or load a previously saved one. Consider creating a report with the **EmptyBand** on the base of the **Master-Detail** report. Suppose there is a **Master-Detail** report in which data is printed on half of a page, then to fill the empty space you can use the **EmptyBand**. The picture below shows the rendered **Master-Detail** report:

Beverages	
ProductName	UnitPrice
1 Chai	18
2 Chang	19
3 Guaraná Fantástica	4,5
4 Sasquatch Ale	14
5 Steeleye Stout	18
6 Côte de Blaye	263,5
7 Chartreuse verte	18
8 Ippon Coffee	46
9 Laughing Lumberjack Lager	14
10 Outback Lager	15
11 Rhönbräu Klosterbräu	7,75
12 Lakkalikööri	18

4. Go back to the **Master-Detail** report template.

DataBand1: Data Source: Categories	
{Categories.CategoryName}	
HeaderBand1	
ProductName	UnitPrice
DataBand2: Data Source: Products	
Master Component: DataBand1	
{Line} {Products.ProductName}	{Products.UnitPrice}

5. Add the **EmptyBand** in the report template;

6. Edit the **EmptyBand**:

6.1. Align it by height;

- 6.2. Change the value of required properties. For example, set the **CanGrow** property to **true**, if you want the band be grown;
 - 6.3. Set the background color of the **EmptyBand**;
 - 6.4. If necessary, set **Borders** of the EmptyBand);
7. Put text components with an expression in the **EmptyBand**. Where the expression is a reference to the data field. For example, put a text component with the expression: **{Line}**;
 8. Edit **Text** and **TextBox** component:
 - 8.1. Drag and drop the text component in the **EmptyBand**;
 - 8.2. Change parameters of the text font: size, type, color;
 - 8.3. Align the text component by width and height;
 - 8.4. Change the background of the text component;
 - 8.5. Align text in the text component;
 - 8.6. Change the value of properties of the text component. For example, set the **WordWrap** property to **true**, if you need a text to be wrapped;
 - 8.7. Enable **Borders** for the text component, if required.
 - 8.8. Change the border color.

The screenshot shows a report design interface with the following structure:

DataBand1: Data Source: Categories	
{Categories.CategoryName}	
HeaderBand1	
ProductName	UnitPrice
DataBand2: Data Source: Products	
Master Component: DataBand1	
{Line} {Products.ProductName}	{Products.UnitPrice}
EmptyBand1	
{Line}	

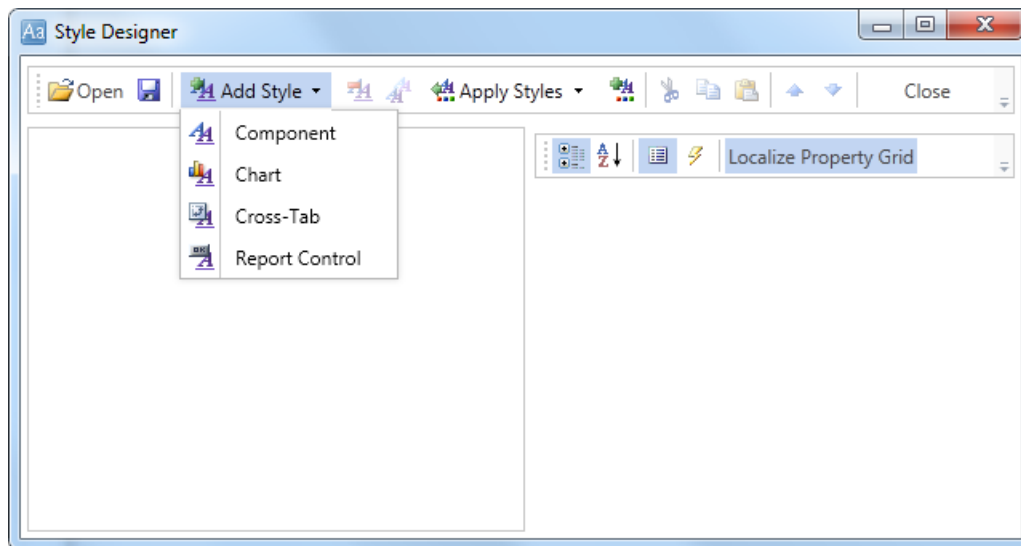
9. Click the **Preview** button or invoke the **Viewer**, pressing the **Preview** menu item. The picture below shows a sample of the report:

Beverages	
ProductName	UnitPrice
1 Chai	18
2 Chang	19
3 Guarani Fantástica	4,5
4 Sasquatch Ale	14
5 Steeleye Stout	18
6 Côte de Blaye	263,5
7 Chartreuse verte	18
8 Ipoh Coffee	46
9 Laughing Lumberjack Lager	14
10 Outback Lager	15
11 Rhönbräu Klosterbier	7,75
12 Lakkalikööri	18
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	

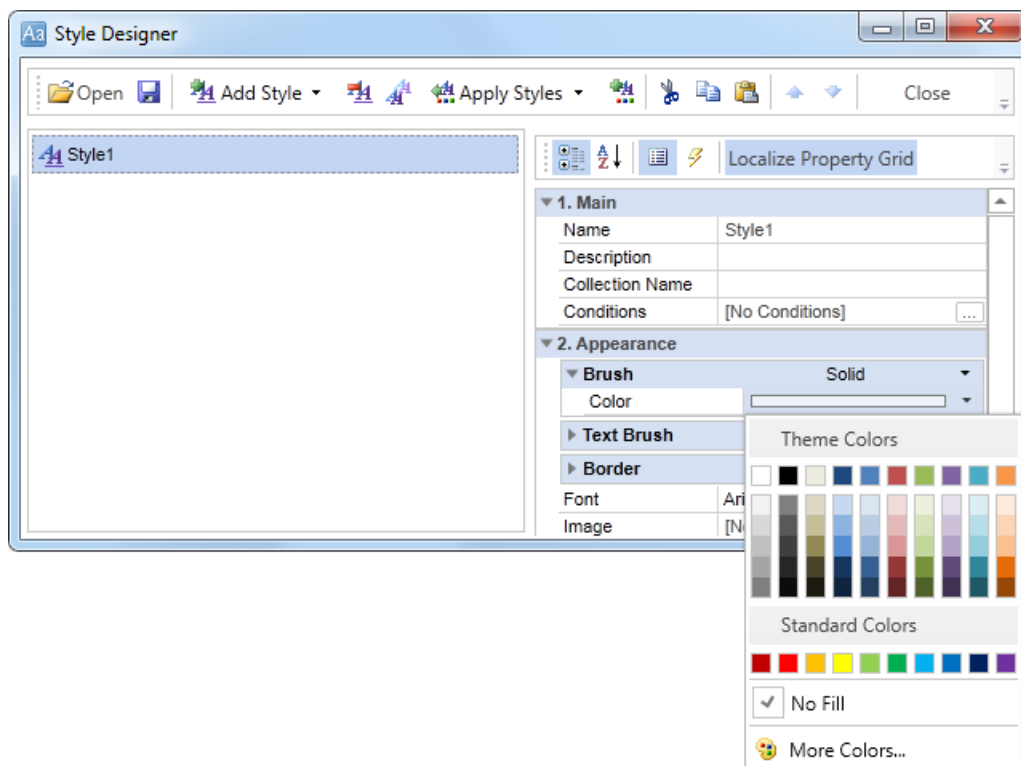
As can be seen in the picture above blank lines will be numbered and output in the report.

Adding styles

1. Go back to the report template;
2. Select the **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**.



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

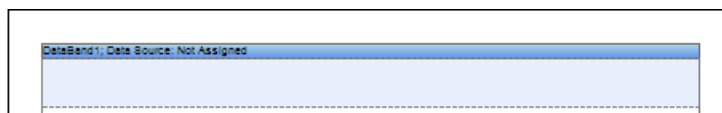
5. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. The picture below shows a sample of a rendered report:

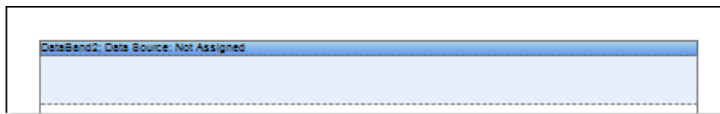
Accounting Manager	
Bottom-Dollar Markets	Tsawassen
Romero y tomillo	Madrid
Que Delicia	Rio de Janeiro
FISSA, Fabrica Inter. Salchichas S.A.	Madrid
Suprêmes délices	Charleroi
QUICK-Stop	Cunewalde
LILA-Supermercado	Barquisimeto
Wartian Herkku	Oulu
Hanari Carnes	Rio de Janeiro
Vins et alcools Chevalier	Reims
Count:10	

3.43 Drill-Down Report Using Page in Report

The **Drill-Down** report using the pages in the report is an interactive report in what detailed data are placed on the page of a report and the relation between master and detailed data in the report is organized with the help of the **Interaction.Drill-Down Page** property. This type of report must contain at least two pages: a one with master data, and a second with detailed ones. Follow the steps below to design the report:

1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Put the **DataBand1** on the **Page1** and **DataBand2** on **Page2** of a report. In this case, the master data will be located on the first page, and detailed - on the second page.

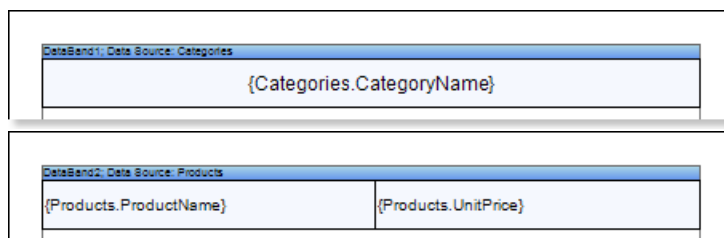




4. Edit **DataBand1** and **DataBand2**:
 - 4.1. Align the **DataBands** vertically;
 - 4.2. Change the value of the required properties;
 - 4.3. Change the background color of the **DataBand**;
 - 4.4. If necessary, set **Borders** of the **DataBand**;
5. Define a data source for **DataBands** using the **Data Source** property:

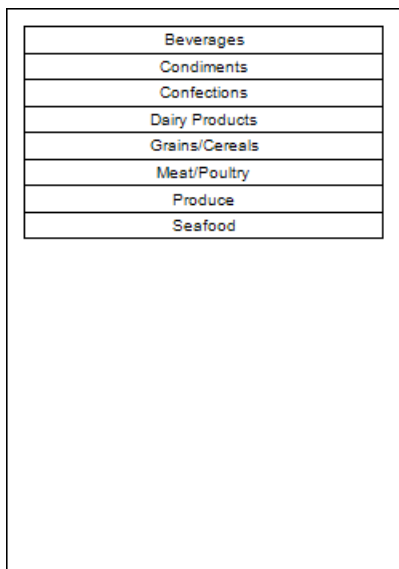


6. Put the text components with expressions. Where the expression is a reference to the data field. For example: put the text component with the **{Categories.CategoryName}** expression in the **DataBand1**, and put two text components with the **{Products.ProductName}** and **{Products.UnitPrice}** expressions in the **DataBand2**;
7. Edit text and text components located in the **DataBands**:
 - 7.1. Drag the text component to the required place in the **DataBands**;
 - 7.2. Align the text in a text component;
 - 7.3. Change the value of the required properties. For example to set the **Word Wrap** property to **true**, if you want the text be wrapped;
 - 7.4. Set **Borders** of a text component, if required.
 - 7.5. Change the border color.



8. Select a text component in the **DataBand1**;
9. Set the **Interaction.Drill-Down Enabled** to **true**;
10. Set the **Interaction.Drill-Down Page** to **Page2**;
11. Edit **Drill-Down Parameter 1** for the text component of the **DataBand 1**:
 - 11.1. The **Name** property should be set to **CategoryID**;
 - 11.2. The **Expression** property should be set to **Categories.CategoryID**;

12. Set filter in the **DataBand2**, in this case, we specify the **(int) this ["CategoryID"] == Products.CategoryID** expression;
13. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a report:



Beverages
Condiments
Confections
Dairy Products
Grains/Cereals
Meat/Poultry
Produce
Seafood

When you click the **Beverages**, the user will see the detailed data that correspond to filtering conditions and parameters of detailing. The picture below shows a page of a rendered report with detailed data of the **Beverages** entry:

Chai	18
Chang	19
Guaraná Fantástica	4,5
Sasquatch Ale	14
Steeleye Stout	18
Côte de Blaye	263,5
Chartreuse verte	18
Ippoh Coffee	46
Laughing Lumberjack Lager	14
Outback Lager	15
Rhönbräu Klosterbier	7,75
Lakkalikööri	18

14. Go back to the report template;
15. Add other bands to a report template, for example, add the **HeaderBand** to the **Page2** of a report;
16. Edit the band:
 - 16.1. Align it by height;
 - 16.2. Change values of properties, if required;
 - 16.3. Change the background of the band;
 - 16.4. Enable **Borders**, if required;
 - 16.5. Set the border color.

HeaderBand1	
DataBand2: Data Source: Products	
{Products.ProductName}	{Products.UnitPrice}

17. Put a text component with an expression in this band. The expression in the text component is a header in the **HeaderBand**.
18. Edit text and text components:
 - 18.1. Drag and drop the text component in the band;
 - 18.2. Change font options: size, type, color;
 - 18.3. Align text component by height and width;
 - 18.4. Change the background of the text component;
 - 18.5. Align text in the text component;
 - 18.6. Change values of text component properties, if required;
 - 18.7. Enable **Borders** of the text component, if required;

18.8. Set the border color.

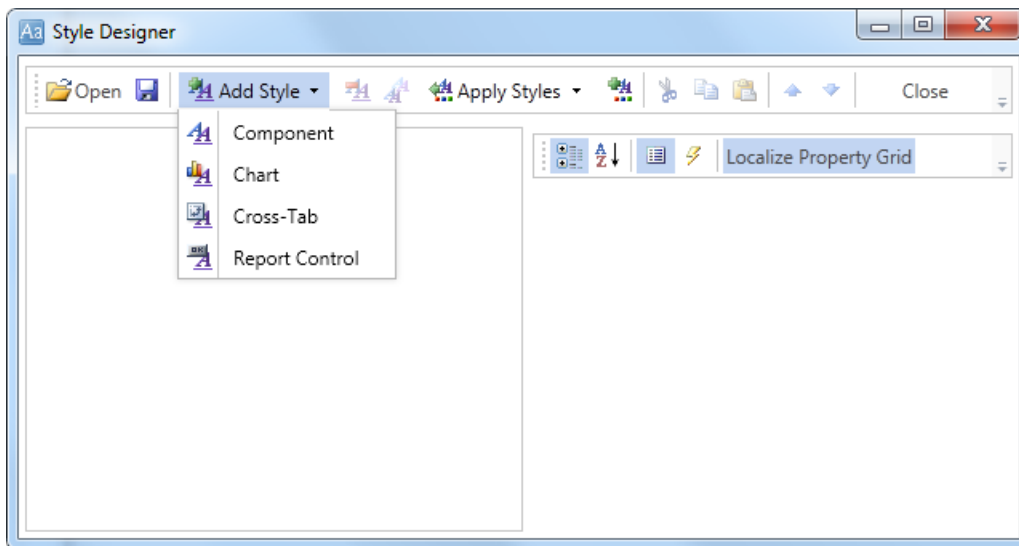
HeaderBand1	
ProductName	UnitPrice
DataBand2: Data Source: Products	
{Products.ProductName}	{Products.UnitPrice}

19. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows the structure of a report, shows the ratio of detailed data to the master **Condiments** entry:

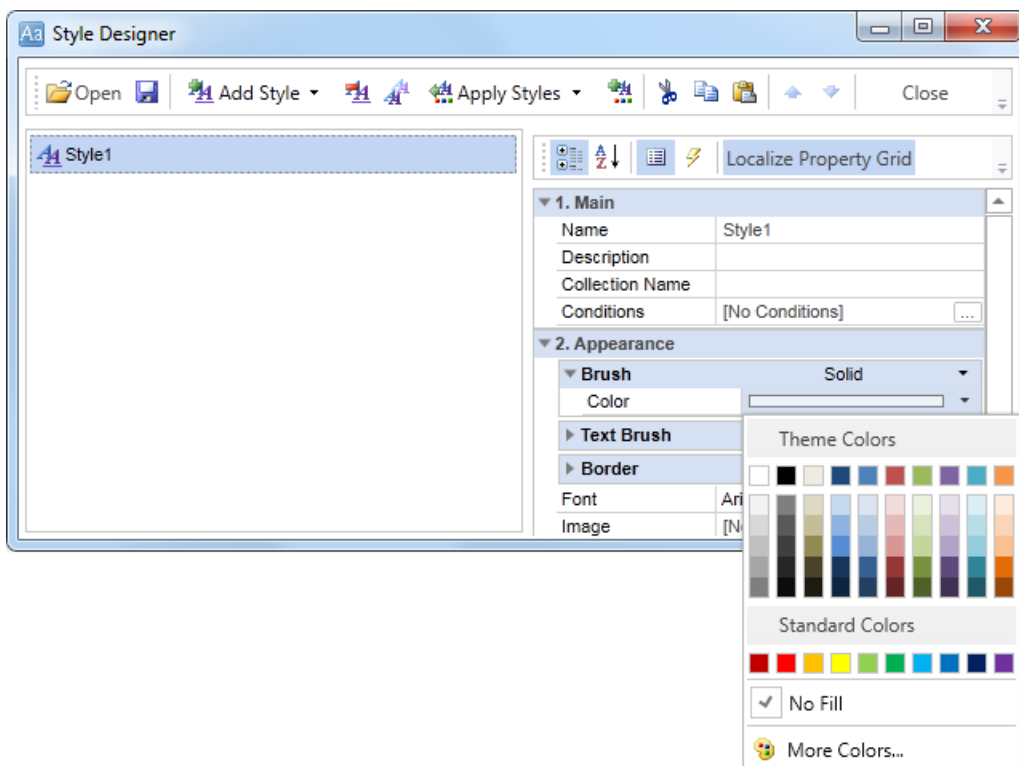
Page		Page 2 (Drill-Down Page)	
Beverages		ProductName	
Condiments		UnitPrice	
Confections		Aniseed Syrup	10
Dairy Products		Chef Anton's Cajun Seasoning	22
Grains/Cereals		Chef Anton's Gumbo Mix	21,35
Meat/Poultry		Grandma's Boysenberry Spread	25
Produce		Northwoods Cranberry Sauce	40
Seafood		Genen Shouyu	15,5
		Gula Malacca	19,45
		Sirop d'érable	28,5
		Vegie-spread	43,9
		Louisiana Fiery Hot Pepper Sauce	21,05
		Louisiana Hot Spiced Okra	17
		Original Frankfurter grüne Soße	13

Adding styles

1. Go back to the report template;
2. Select the **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**.



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

5. The picture below shows the structure of a report, shows the ratio of detailed data to the **Confections** master entry with different styles even/odd rows of the **DataBand**:

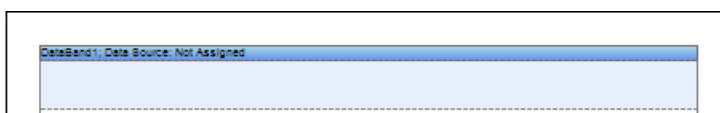
Page		Page 2 (Drill-Down Page)	
Beverages		ProductName	UnitPrice
Condiments		Pavlova	17,45
Confections		Teatime Chocolate Biscuits	9,2
Dairy Products		Sir Rodney's Marmalade	81
Grains/Cereals		Sir Rodney's Scones	10
Meat/Poultry		NuNuCaNuU-Nougat-Creme	14
Produce		Gumbär Gummibärchen	31,23
Seafood		Schoggi Schokolade	43,9
		Zaanse keuken	9,5
		Chocolade	12,75
		Maxilaaku	20
		Valkoinen suklaa	16,25
		Tarte au sucre	49,3
		Scottish Longbreads	12,5

3.44 Drill-Down Report Using External Report

Drill-Down report using external report is an interactive report in what detailed data are placed in an external report and the relationship between master and detailed data in reports is organized using the **Interaction.Drill-Down Report** property. Follow the steps below to design the report:

Creating a report with detailed data

1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Put the **DataBand** on a report page:



4. Edit the **DataBand**:

- 4.1. Align the **DataBand**;
- 4.2. Change the values of properties;
- 4.3. Set the background color of the **DataBand**;
- 4.4. Set **Borders**, if required;
- 4.5. Set the border color.

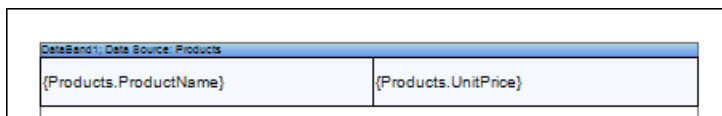
5. Specify the data source in **DataBand** using the **Data Source** property:



6. Put text components with expressions in the **DataBand**. Where the expression is a reference to the data field. For example: put two text components with the **{Products.ProductName}** and **{Products.UnitePrice}** expressions in the **DataBand**;

7. Edit text and text components located in the **DataBand**:

- 7.1. Drag the text component to the required place in the **DataBand**;
- 7.2. Align the text in a text component;
- 7.3. Change the value of the required properties. For example to set the **Word Wrap** property to **true**, if you want the text be wrapped;
- 7.4. Set **Borders** of a text component, if required;
- 7.5. Change the border color.



8. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a report:

Chai	18
Chang	19
Aniseed Syrup	10
Chef Anton's Cajun Seasoning	22
Chef Anton's Gumbo Mix	21,35
Grandma's Boysenberry Spread	25
Uncle Bob's Organic Dried Pears	30
Northwoods Cranberry Sauce	40
Mishi Kobe Niku	97
Ikura	31
Queso Cabrales	21
Queso Manchego La Pastora	38
Konbu	5
Tofu	23,25
Genen Shoyu	15,5
Pavlova	17,45
Alice Mutton	39
Carnarvon Tigers	62,5
Treatime Chocolate Biscuits	9,2
Sir Rodney's Marmalade	51
Sir Rodney's Scones	10
Gustaf's Knäckebröd	21
Tunnbröd	9

9. Go back to the report template;
10. Add other bands to a report template, for example, add the **HeaderBand** to the report page;
11. Edit the band:
 - 11.1. Align it by height;
 - 11.2. Change values of properties, if required;
 - 11.3. Change the background of the band;
 - 11.4. Enable **Borders**, if required;
 - 11.5. Set the border color.

HeaderBand1	
DataBand1: Data Source: Products	
{Products.ProductName}	{Products.UnitPrice}

12. Put a text component with an expression in this band. The expression in the text component is a header in the **HeaderBand**.
13. Edit text and text components:
 - 13.1. Drag and drop the text component in the band;
 - 13.2. Change font options: size, type, color;

- 13.3. Align text component by height and width;
- 13.4. Change the background of the text component;
- 13.5. Align text in the text component;
- 13.6. Change values of text component properties, if required;
- 13.7. Enable **Borders** of the text component, if required;
- 13.8. Set the border color.

HeaderBand1	
ProductName	UnitPrice
DataBand1: Data Source: Products	
{Products.ProductName}	{Products.UnitPrice}

14. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a report:

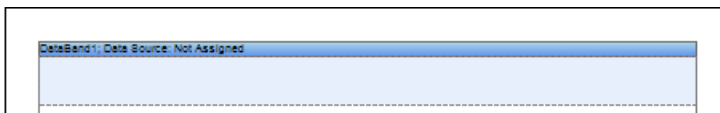
ProductName	UnitPrice
Chai	18
Chang	19
Aniseed Syrup	10
Chef Anton's Cajun Seasoning	22
Chef Anton's Gumbo Mix	21,35
Grandma's Boysenberry Spread	25
Uncle Bob's Organic Dried Pears	30
Northwoods Cranberry Sauce	40
Mishi Kobe Niku	97
Ikura	31
Queso Cabrales	21
Queso Manchego La Pastora	38
Konbu	6
Tofu	23,25
Genen Shouyu	15,5
Pavlova	17,45
Alice Mutton	39
Carnarvon Tigers	62,5
Teatime Chocolate Biscuits	9,2
Sir Rodney's Marmalade	81
Sir Rodney's Scones	10
Gustaf's Knäckebröd	21

15. Go back to the report template;;

16. Set filtering in the **DataBand**. For example, set the following expression:
CategoryID == Products.CategoryID;
17. Save the report. For example, save the report with detailed data on a local disk in the root directory D:\, with the **Drill-Down Report** name, full path to the file will be **D:\ Drill-Down Report.mrt**.

Creating a report with master data

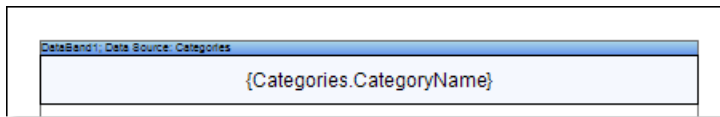
1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Put the **DataBand** on a report page:



4. Edit the **DataBand**:
 - 4.1. Align the **DataBand**;
 - 4.2. Change the values of properties;
 - 4.3. Set the background color of the **DataBand**;
 - 4.4. Set **Borders**, if required;
 - 4.5. Set the border color.
5. Specify the data source in **DataBand** using the **Data Source** property:



6. Put a text component with expressions in the **DataBand**. Where the expression is a reference to the data field. For example: put the text component with the **{Categories.CategoryName}** expression in the **DataBand**;
7. Edit text and text components located in the **DataBand**:
 - 7.1. Drag the text component to the required place in the **DataBand**;
 - 7.2. Align the text in a text component;
 - 7.3. Change the value of the required properties. For example to set the **Word Wrap** property to **true**, if you want the text be wrapped;
 - 7.4. Set **Borders** of a text component, if required;
 - 7.5. Change the border color.



8. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a report:

Beverages
Condiments
Confections
Dairy Products
Grains/Cereals
Meat/Poultry
Produce
Seafood

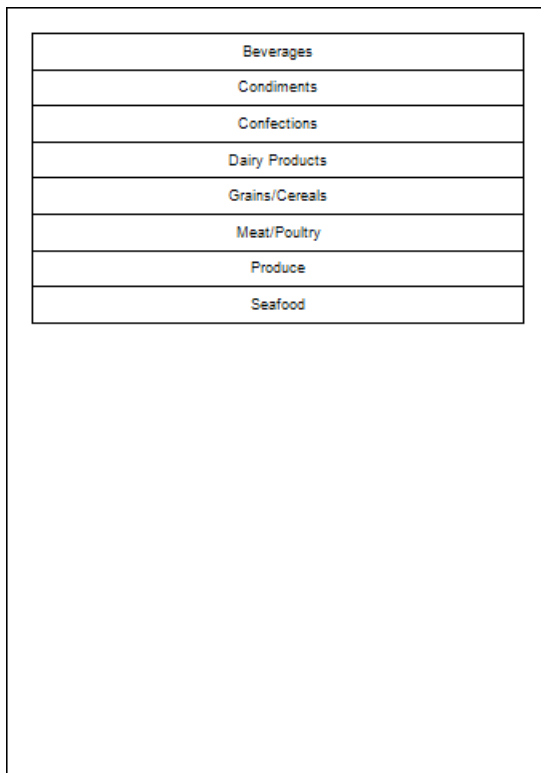
Creating an interactive report

1. Go back to the report template with the master data;
2. Select a text component in the **DataBand**;
3. Set the **Interaction.Drill-Down Enabled** property to **true**;
4. Set the **Interaction.Drill-Down Report** property. Where the value of this property is the full path to the report with detailed data. In our tutorial, the **Interaction.Drill-Down Report** property will be set to **D:\\Drill-Down Report.mrt**;
5. Edit **Drill-Down Parameter 1**:

5.1. The **Name** property should be set to **CategoryID**;

5.2. The **Expression** property should be set to **Categories.CategoryID**;

6. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database. The picture below shows a sample of a report:



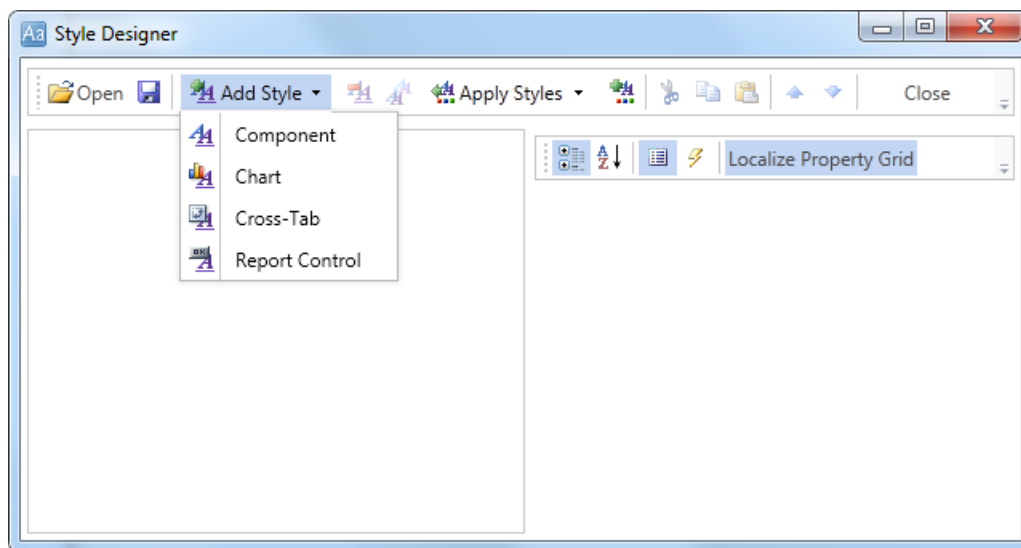
Beverages
Condiments
Confections
Dairy Products
Grains/Cereals
Meat/Poultry
Produce
Seafood

When you click the **Beverages**, the user will see the detailed data that correspond to filtering conditions and parameters of detailing. The picture below shows a page of a rendered report with detailed data of the **Beverages** entry:

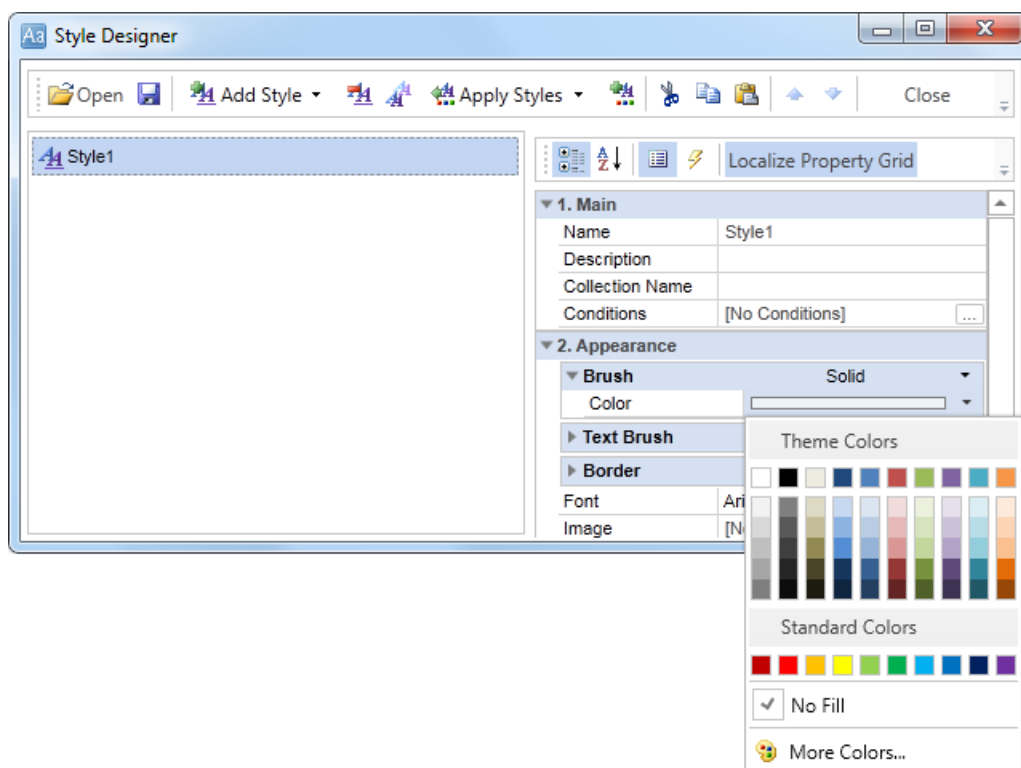
ProductName	UnitPrice
Chai	18
Chang	19
Guaraná Fantástica	4,5
Sasquatch Ale	14
Steeleye Stout	18
Côte de Blaye	263,5
Chartreuse verte	18
Ippoh Coffee	46
Laughing Lumberjack Lager	14
Outback Lager	15
Rhinobrau Klosterbier	7,75
Lakkalikööri	18

Adding styles

1. Go back to the report template;
2. Select the **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**.



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

1. Save changes in the detailed report by clicking the **Save** button;
 2. Open the report with master data in the designer;
 3. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.
- The picture below shows the structure of the report, shows the ratio of the detailed data to the **Meat/Poultry** master entries with different styles of even/odd rows of the **DataBand** in the detailing report:

Beverages
Condiments
Confections
Dairy Products
Grains/Cereals
Meat/Poultry
Produce
Seafood

ProductName	UnitPrice
Mishi Kobe Niku	97
Alice Mutton	39
Thüringer Rostbratwurst	123,79
Perth Pasties	32,8
Tourtière	7,45
Pâté chinois	24

3.45 Report without Bands

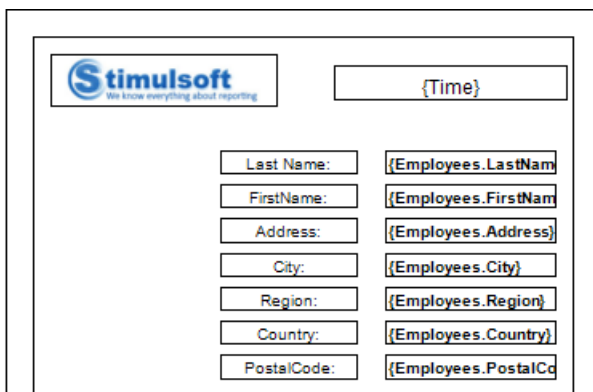
If it is necessary to display data from only one entry of the data source or data from variables or other data sources that are not lists, the report can be created without the bands. In this case, components are placed directly on a report page.

1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Put the **Image** component with the image on a page;
4. Edit the **Image** component and an image:
 - 4.1. Drag and drop the **Image** component on the report page;
 - 4.2. Align the **Image** component by height and width;
 - 4.3. Set the background color of the **Image** component;

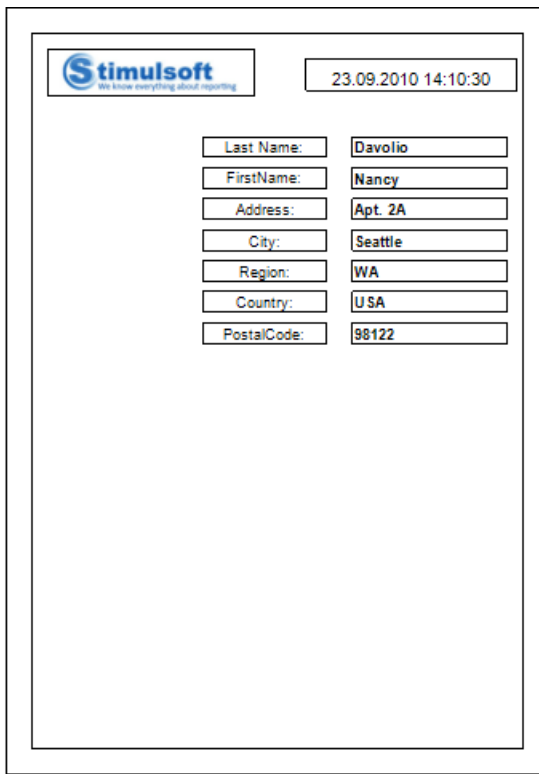
- 4.4. Align the image in the component;
- 4.5. Change values of the properties of the **Image** component. For example to set the **Print** property to **true**, if you want this component to be printed;
- 4.6. If necessary, set **Borders** of the **Image** component;
- 4.7. Set the border color.



5. Put **TextBoxes** with the text on a page. In this report, put 15 Text components. The **TextBox1** contains the **{Time}** system variable, which will display the current time and date. **2-8 TextBoxes** contain the row names in the address box, and **9-15 TextBoxes** will include links to data sources;
6. Edit text and text components:
 - 6.1. Drag and drop the text component in the band;
 - 6.2. Change font options: size, type, color;
 - 6.3. Align text component by height and width;
 - 6.4. Change the background of the text component;
 - 6.5. Align text in the text component;
 - 6.6. Change values of text component properties, if required;
 - 6.7. Enable **Borders** of the text component, if required;
 - 6.8. Set the border color.

The image displays a report preview within a window. At the top left is the Stimulsoft logo. To its right is a text box containing the system variable '{Time}'. Below these, there is a vertical list of eight text boxes, each with a label on the left and a data source link on the right. The labels are 'Last Name:', 'FirstName:', 'Address:', 'City:', 'Region:', 'Country:', and 'PostalCode:'. The corresponding data source links are '{Employees.LastNam}', '{Employees.FirstNam}', '{Employees.Address}', '{Employees.City}', '{Employees.Region}', '{Employees.Country}', and '{Employees.PostalCd}'. The text boxes are arranged in a single column, with the labels on the left and the data source links on the right.

7. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item:

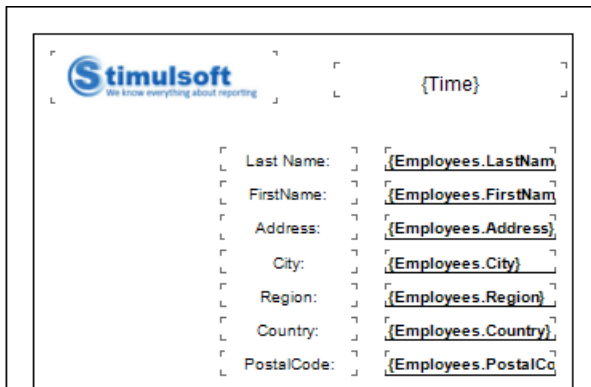


Stimulsoft
We know everything about reporting

23.09.2010 14:10:30

Last Name:	Davolio
FirstName:	Nancy
Address:	Apt. 2A
City:	Seattle
Region:	WA
Country:	USA
PostalCode:	98122

8. Go back to the report template;
9. Disable **Borders** of all components. Enable bottom borders for **9-15 TextBoxes**:

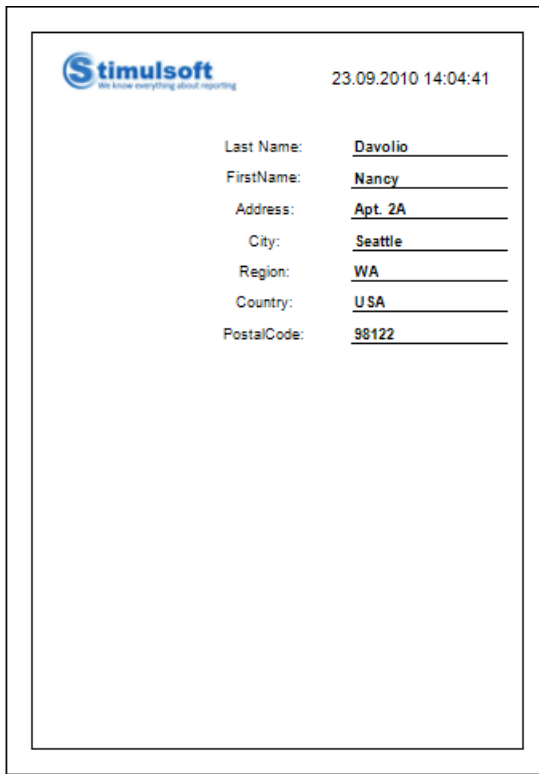


Stimulsoft
We know everything about reporting

{Time}

Last Name:	{Employees.LastNam
FirstName:	{Employees.FirstNam
Address:	{Employees.Address}
City:	{Employees.City}
Region:	{Employees.Region}
Country:	{Employees.Country}
PostalCode:	{Employees.PostalCo

10. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.



The screenshot shows a report template from Stimulsoft. At the top left is the Stimulsoft logo with the tagline "we know everything about reporting". To the right of the logo is the date and time "23.09.2010 14:04:41". Below this, there is a form with the following fields and values:

Last Name:	Davolio
FirstName:	Nancy
Address:	Apt. 2A
City:	Seattle
Region:	WA
Country:	USA
PostalCode:	98122

3.46 Report with Multiple Pages in Template

If you want to design a report, for example, with the cover page, the report template will consist of minimum two pages: the cover page and page with data. Creating a report with several pages in the template includes the following steps:

Creating a cover page

1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Put an Image component on a report page;
4. Edit the Image component:
 - 4.1. Drag the **Image** component to the desired location on the report page;
 - 4.2. Align the **Image** component by height and width;
 - 4.3. Set the background color of the component;
 - 4.4. Align the image in the Image component;
 - 4.5. Set properties of the **Image** component. For example, set the **Print** property

to **true**, if you want this component be printed;

4.6. Set **Borders** of the component, if required;

4.7. Set the border color.



5. On the report page Text components should be placed. We put 9 text components on this page. **TextBox1** will contain the **Report on Employees** text, which is the title of the report. **TextBoxes 2-5** will contain names in the address box, and **TextBoxes 6-9** will contain references to the source data;

6. Edit text and text components:

6.1. Drag and drop the text component in the band;

6.2. Change font options: size, type, color;

6.3. Align text component by height and width;

6.4. Change the background of the text component;

6.5. Align text in the text component;

6.6. Change values of text component properties, if required;

6.7. Enable **Borders** of the text component, if required;

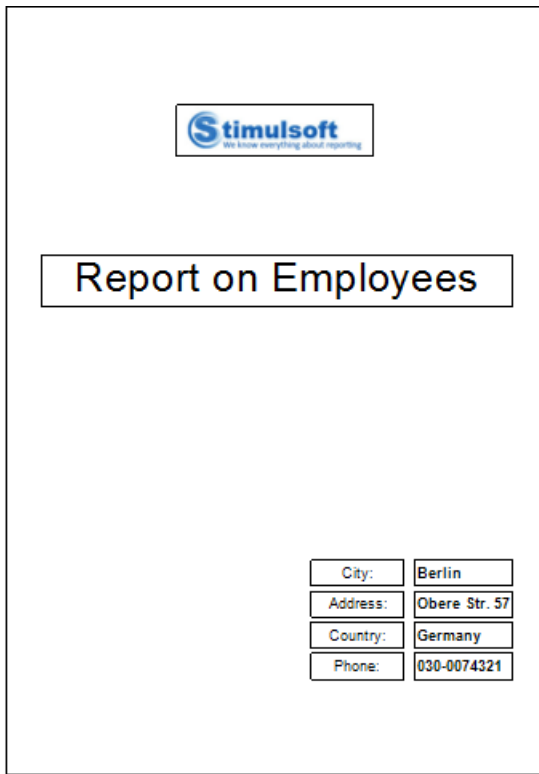
6.8. Set the border color.



The image shows a report form template titled "Report on Employees". At the top left is the Stimulsoft logo with the tagline "We know everything about reporting". The title "Report on Employees" is centered in a large box. At the bottom right, there are four input fields for customer information, each with a label and a data binding placeholder.

City:	{Customers.C
Address:	{Customers.A
Country:	{Customers.C
Phone:	{Customers.P

7. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item:



The image shows a report template titled "Report on Employees". At the top center is the Stimulsoft logo with the tagline "we know everything about reporting". Below the logo is a large rectangular box containing the title "Report on Employees". At the bottom right of the template is a form with four rows of labels and values:

City:	Berlin
Address:	Obere Str. 57
Country:	Germany
Phone:	030-0074321

8. Go back to the report template;

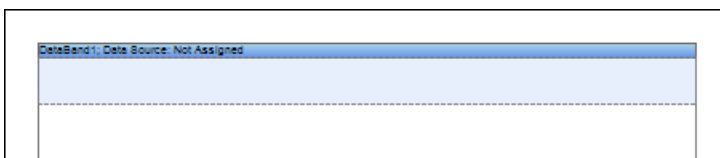
9. Disable **Borders** for all components. Enable only the bottom borders in **TextBoxes 6-9**. The figure below shows the revised report template:



10. Create a second page in a report template and start editing it;

Creating a page with data

1. Put the **DataBand** page on the report template.



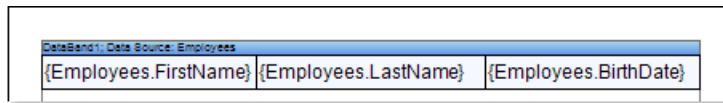
2. Edit **DataBand**:

- 2.1. Align the **DataBand** by height;
- 2.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
- 2.3. Change the **DataBand** background;
- 2.4. Enable **Borders** for the **DataBand**, if required;
- 2.5. Change the border color.

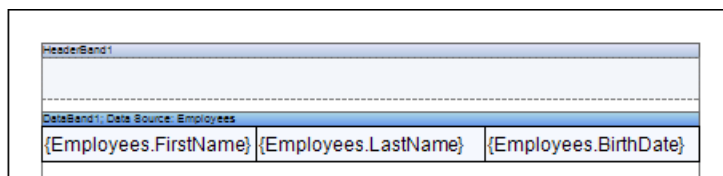
3. Specify the data source in the **DataBand** using the **Data Source** property:



4. Put text components with expressions on **DataBands**. Where expression is a reference to the data field. For example, put two text components with the following expressions: **{Employees.FirstName}**, **{Employees.LastName}** and **{Employees.BirthDate}**;
5. Edit **Text** and **TextBox** component:
 - 5.1. Drag and drop the text component in **DataBands**;
 - 5.2. Change parameters of the text font: size, type, color;
 - 5.3. Align the text component by width and height;
 - 5.4. Change the background of the text component;
 - 5.5. Align text in the text component;
 - 5.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
 - 5.7. Enable **Borders** for the text component, if required.
 - 5.8. Change the border color.



6. Add other bands to the report template, for example, the **HeaderBand**;
7. Edit this bands:
 - 7.1. Align it by height;
 - 7.2. Change values of properties, if required;
 - 7.3. Change the background of bands;
 - 7.4. Enable **Borders**, if required;
 - 7.5. Set the border color.



8. Put text components with expressions in the band. The expression in the text component is a header in the **HeaderBand**.
9. Edit text and text component:
 - 9.1. Drag and drop the text component in the band;
 - 9.2. Change font options: size, type, color;

- 9.3. Align text component by height and width;
- 9.4. Change the background of the text component;
- 9.5. Align text in the text component;
- 9.6. Change values of text component properties, if required;
- 9.7. Enable **Borders** of the text component, if required;
- 9.8. Set the border color.

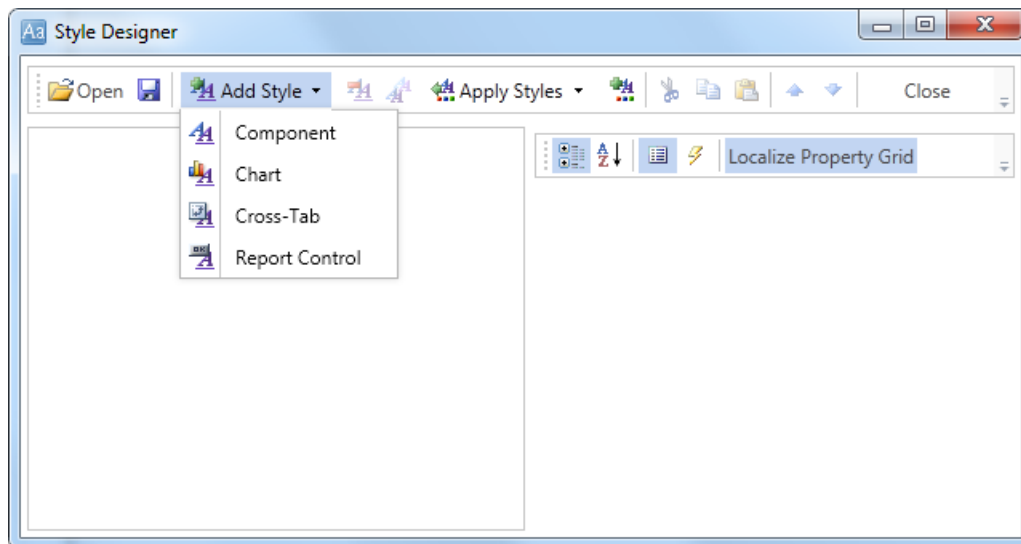
HeaderBand1		
FirstName	LastName	BirthDate
DataBand1: Data Source: Employees		
{Employees.FirstName}	{Employees.LastName}	{Employees.BirthDate}

9. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

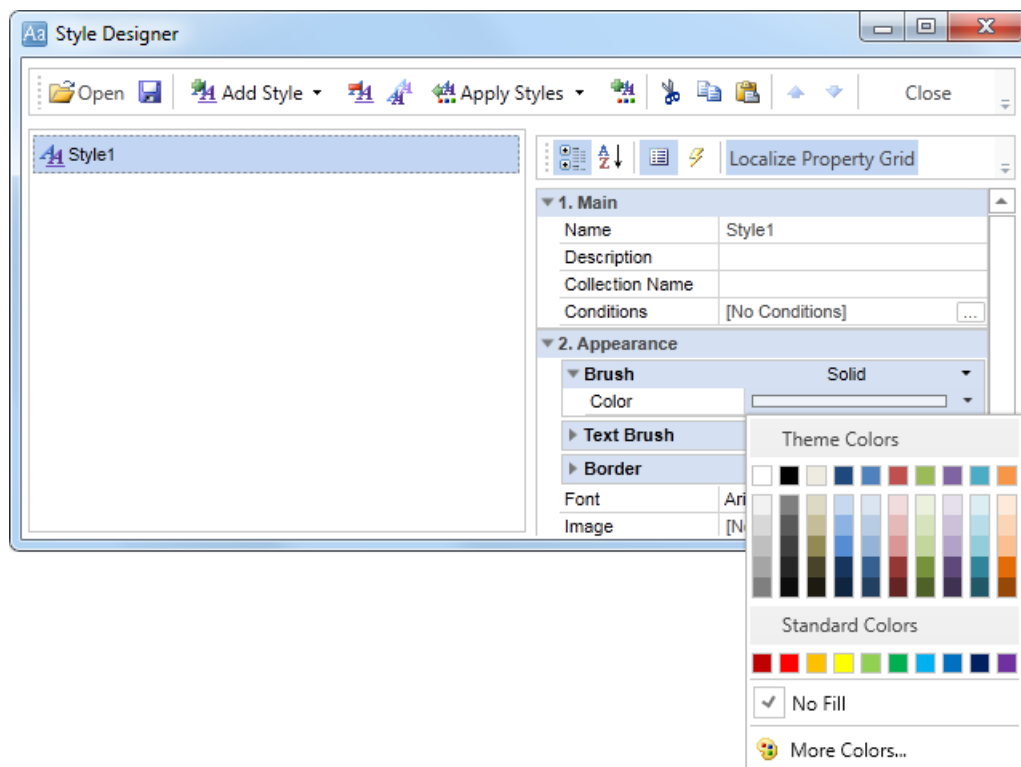
 Report on Employees City: <u>Berlin</u> Address: <u>Obere Str. 57</u> Country: <u>Germany</u> Phone: <u>030-0074321</u>	<table border="1"> <thead> <tr> <th>FirstName</th><th>LastName</th><th>BirthDate</th></tr> </thead> <tbody> <tr><td>Nancy</td><td>Davolio</td><td>08.12.1948 0:00:00</td></tr> <tr><td>Andrew</td><td>Fuller</td><td>19.02.1952 0:00:00</td></tr> <tr><td>Janet</td><td>Leverling</td><td>30.08.1963 0:00:00</td></tr> <tr><td>Margaret</td><td>Peacock</td><td>19.09.1937 0:00:00</td></tr> <tr><td>Steven</td><td>Buchanan</td><td>04.03.1955 0:00:00</td></tr> <tr><td>Michael</td><td>Suyama</td><td>02.07.1963 0:00:00</td></tr> <tr><td>Robert</td><td>King</td><td>29.05.1960 0:00:00</td></tr> <tr><td>Laura</td><td>Callahan</td><td>09.01.1958 0:00:00</td></tr> <tr><td>Anne</td><td>Dodsworth</td><td>27.01.1966 0:00:00</td></tr> </tbody> </table>	FirstName	LastName	BirthDate	Nancy	Davolio	08.12.1948 0:00:00	Andrew	Fuller	19.02.1952 0:00:00	Janet	Leverling	30.08.1963 0:00:00	Margaret	Peacock	19.09.1937 0:00:00	Steven	Buchanan	04.03.1955 0:00:00	Michael	Suyama	02.07.1963 0:00:00	Robert	King	29.05.1960 0:00:00	Laura	Callahan	09.01.1958 0:00:00	Anne	Dodsworth	27.01.1966 0:00:00
FirstName	LastName	BirthDate																													
Nancy	Davolio	08.12.1948 0:00:00																													
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Robert	King	29.05.1960 0:00:00																													
Laura	Callahan	09.01.1958 0:00:00																													
Anne	Dodsworth	27.01.1966 0:00:00																													

Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.



Report on Employees

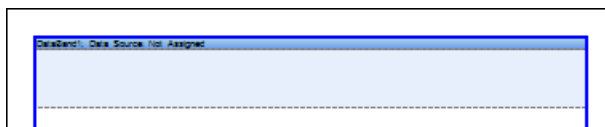
City: Berlin
Address: Obere Str. 57
Country: Germany
Phone: 030-0074321

FirstName	LastName	BirthDate
Nancy	Davolio	08.12.1948 0:00:00
Andrew	Fuller	19.02.1952 0:00:00
Janet	Leverling	30.08.1963 0:00:00
Margaret	Peacock	19.09.1937 0:00:00
Steven	Buchanan	04.03.1955 0:00:00
Michael	Suyama	02.07.1963 0:00:00
Robert	King	29.05.1960 0:00:00
Laura	Callahan	09.01.1958 0:00:00
Anne	Dodsworth	27.01.1966 0:00:00

3.47 Report with Segmented Pages

If data in a report should be placed on a single page by width or height, and a page size is small, you can add the required number of segments by width and/or height. In this case, one segment is a whole page and summary page consists of several segments across by width or height. To design a report with segmented pages, follow the steps below:

1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Define the number of segments by height and/or width. For example, set the **Segment per Height** property to **2**, i.e. the number of segments by height is **2**.
4. Put the **DataBand** on a segment of the report template.



5. Edit **DataBand**:

- 5.1. Align the **DataBand** by height;
- 5.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
- 5.3. Change the **DataBand** background;
- 5.4. Enable **Borders** for the **DataBand**, if required;
- 5.5. Change the border color.

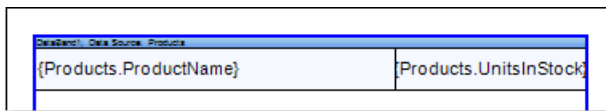
6. Specify the data source in the **DataBand** using the **Data Source** property:



7. Put text components with expressions on **DataBands**. Where expression is a reference to the data field. For example, put two text components with the following expressions: **{Products.ProductName}** and **{Products.UnitsInStock}**;

8. Edit **Text** and **TextBox** component:

- 8.1. Drag and drop the text component in **DataBands**;
- 8.2. Change parameters of the text font: size, type, color;
- 8.3. Align the text component by width and height;
- 8.4. Change the background of the text component;
- 8.5. Align text in the text component;
- 8.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
- 8.7. Enable **Borders** for the text component, if required.
- 8.8. Change the border color.



9. Click the **Preview** button or invoke the **Viewer**, pressing **F5** or clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

Chai	39
Chang	17
Aniseed Syrup	13
Chef Anton's Cajun Seasoning	53
Chef Anton's Gumbo Mix	0
Grandma's Boysenberry Spread	120
Uncle Bob's Organic Dried Pears	15
Northwoods Cranberry Sauce	6
Mishi Kobe Niku	29
Kura	31
Queso Cabrales	22
Queso Manchego La Pastora	86
Konbu	24
Tofu	35
Genen Shouyu	39
Pavlova	29
Alice Mutton	0
Carnarvon Tigers	42
Teatime Chocolate Biscuits	25
Sir Rodney's Marmalade	40
Sir Rodney's Scones	3
Gustaf's Knäckebröd	104
Tunnbröd	61
Guaraná Fantástica	20
NuNuCa Nuß-Nougat-Creme	76
Gumbär Gummlärchen	15
Schoggi Schokolade	49
Rössle Sauerkraut	26
Thüringer Rostbratwurst	0
Nord-Ost Matjeshering	10
Gorgonzola Telino	0
Mascarpone Fabioli	9
Gelato	112
Sasquatch Ale	111
Steeleye Stout	20
Inlag'd Sill	112
Gravad lax	11
Côte de Blaye	17
Chantrelle verte	69

10. Add other bands to the report template, for example, the **HeaderBand**;

11. Edit this bands:

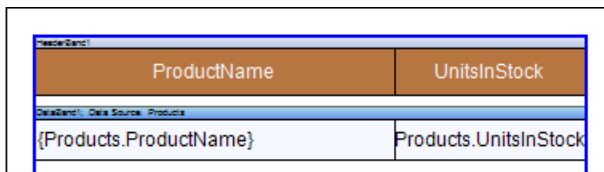
- 11.1. Align it by height;
- 11.2. Change values of properties, if required;
- 11.3. Change the background of bands;
- 11.4. Enable **Borders**, if required;
- 11.5. Set the border color.

HeaderBand	
DetailBand: Data Source: Products	
{Products.ProductName}	Products.UnitsInStock

12. Put text components with expressions in the band. The expression in the text component is a header in the **HeaderBand**.

13. Edit text and text component:

- 13.1. Drag and drop the text component in the band;
- 13.2. Change font options: size, type, color;
- 13.3. Align text component by height and width;
- 13.4. Change the background of the text component;
- 13.5. Align text in the text component;
- 13.6. Change values of text component properties, if required;
- 13.7. Enable **Borders** of the text component, if required;
- 13.8. Set the border color.



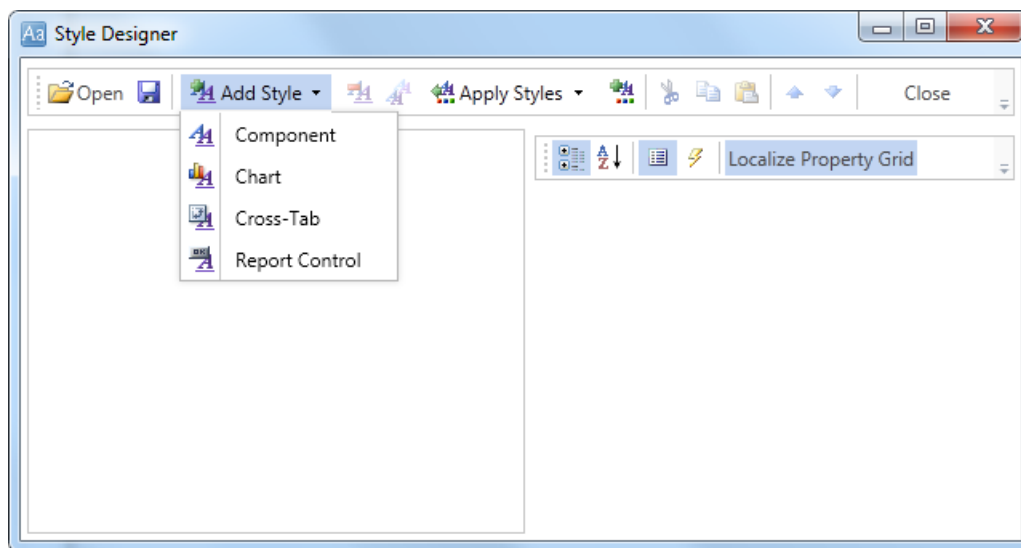
HeaderBand	
ProductName	UnitsInStock
DataBand: Data Source: Products	
{Products.ProductName}	Products.UnitsInStock

14. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

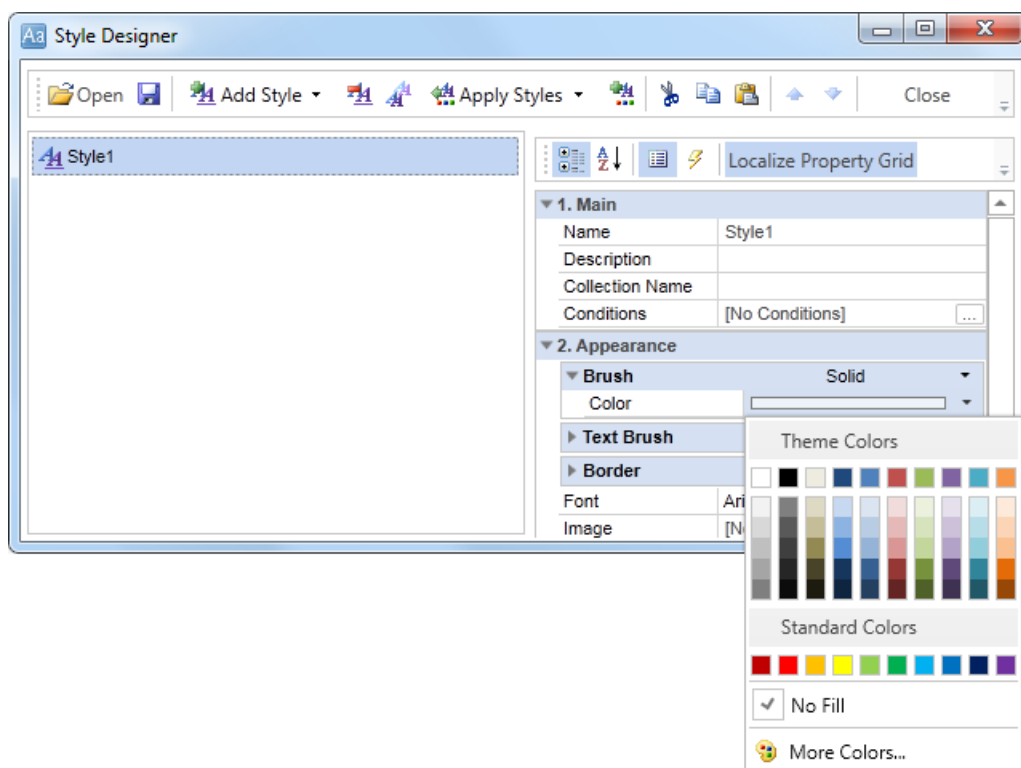
ProductName	UnitsInStock
Chai	39
Chang	17
Aniseed Syrup	13
Chef Anton's Cajun Seasoning	53
Chef Anton's Gumbo Mix	0
Grandma's Boysenberry Spread	120
Uncle Bob's Organic Dried Pears	15
Northwoods Cranberry Sauce	6
Mishi Kobe Niku	29
Ikura	31
Queso Cabrales	22
Queso Manchego La Pastora	86
Konbu	24
Tofu	35
Genen Shouyu	39
Pavlova	29
Alice Mutton	0
Carnarvon Tigers	42
Teatime Chocolate Biscuits	25
Sir Rodney's Marmalade	40
Sir Rodney's Scones	3
Gustaf's Knäckebröd	104
Tunnbröd	61
Guaraná Fantástica	20
NuNuCa Nuß-Nougat-Creme	76
Gumbär Gummibärchen	15
Schoggi Schokolade	49
Rössle Sauerkraut	26
Türtinger Roastbratwurst	0
Nord-Ost Matjeshering	10
Gorgonzola Telino	0
Mascarpone Fabioli	9
Gelato	112
Sasquatch Ale	111
Steeleye Stout	20
Inlag'd Sill	112
Gravad lax	11
Côte de Blaye	17

Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

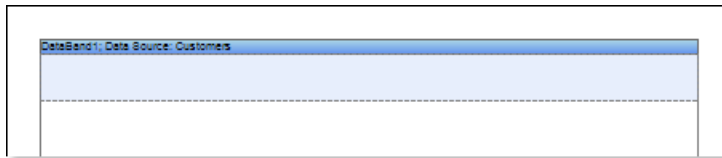
ProductName	UnitsInStock
Chai	39
Chang	17
Aniseed Syrup	13
Chef Anton's Cajun Seasoning	53
Chef Anton's Gumbo Mix	0
Grandma's Boysenberry Spread	120
Uncle Bob's Organic Dried Pears	15
Northwoods Cranberry Sauce	6
Mishi Kobe Niku	29
Ikura	31
Queso Cabrales	22
Queso Manchego La Pastora	86
Konbu	24
Tofu	35
Garden of Eatin'	39
Pavlova	29
Alice Mutton	0
Carnarvon Tigers	42
Treatise on Chocolate	25
Sir Rodney's Marmalade	40
Sir Rodney's Scones	3
Gustaf's Knäckebröd	104
Turniproot	61
Guaraná Fantástica	20
NuNuCa Nui-Nougat-Creme	76
Gumbär GummiBärchen	15
Schoggi Schokolade	49
Rössle Sauerkraut	26
Thüringer Rostbratwurst	0
Nord-Ost Matjeshering	10
Gorgonzola Telino	0
Mascarpone Fabioli	9
Gelbstost	112
Sasquatch Ale	111
Steeleye Stout	20
Imag d Sill	112
Gravad lax	11
Côte de Blaye	17

3.48 Report with Primitives on Page

Primitives are: **Horizontal Line**, **Vertical Line**, **Rectangle** and **Rounded Rectangle**. Besides, you may use the **Shape** component. When placing a primitive on a page, the primitive will be rendered as a page item. To design a report with primitives on a page, follow the steps below:

1. Run the designer;
2. Connect the data:

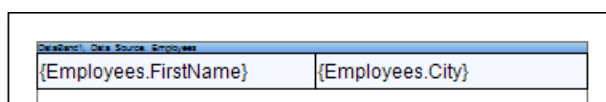
- 2.1. Create a **New Connection**;
- 2.2. Create a **New Data Source**;
3. Put the **DataBand** on a page of a report template.



4. Edit **DataBand**:
 - 4.1. Align the **DataBand** by height;
 - 4.2. Change values of band properties. For example, set the **Can Shrink** property to **true**, if you wish the data band to be broken;
 - 4.3. Change the **DataBand** background;
 - 4.4. Enable **Borders** for the **DataBand**, if required;
 - 4.5. Change the border color.
5. Define the data source for the **DataBand** using the **Data Source** property:



6. Put text components with expressions on the **DataBand**. Where expression is a reference to the data field. For example, put two text components with expressions: **{Employees.FirstName}** and **{Employees.City}**;
7. Edit **Text** and **TextBox** component:
 - 7.1. Drag and drop the text component in the **DataBand**;
 - 7.2. Change parameters of the text font: size, type, color;
 - 7.3. Align the text component by width and height;
 - 7.4. Change the background of the text component;
 - 7.5. Align text in the text component;
 - 7.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
 - 7.7. Enable **Borders** for the text component, if required.
 - 7.8. Change the border color.



8. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

Nancy	Seattle
Andrew	Tacoma
Janet	Kirkland
Margaret	Redmond
Steven	London
Michael	London
Robert	London
Laura	Seattle
Anne	London

9. Go back to the report template.

10. Add the **Shape** component to a report template and edit it:

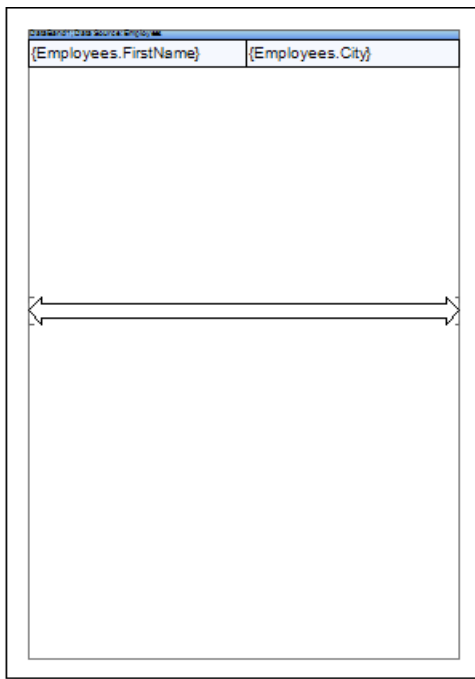
10.1. Drag and drop the **Shape** component on the page;

10.2. Change the type of a shape using the **Shape Type** property. Set the **Shape Type** property to **Complex Arrow**;

10.3. Stretch the **Shape** component horizontally and vertically;

10.4. Change the value of other properties. For example, set the **Grow to Height** property to **true**.

The picture below shows a report template with the **Shape** component placed on the report page:



11. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

The image shows the report preview window. It displays a table with the following data:

Nancy	Seattle
Andrew	Tacoma
Janet	Kirkland
Margaret	Redmond
Steven	London
Michael	London
Robert	London
Laura	Seattle
Anne	London

Below the table, there is a double-headed arrow indicating the width of the table.

12. Go back to the report template.

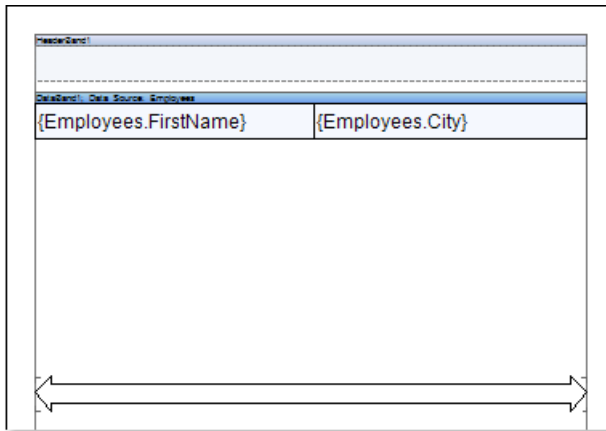
13. If needed, add other bands to the report template, for example, **HeaderBand**;

14. Edit this bands:

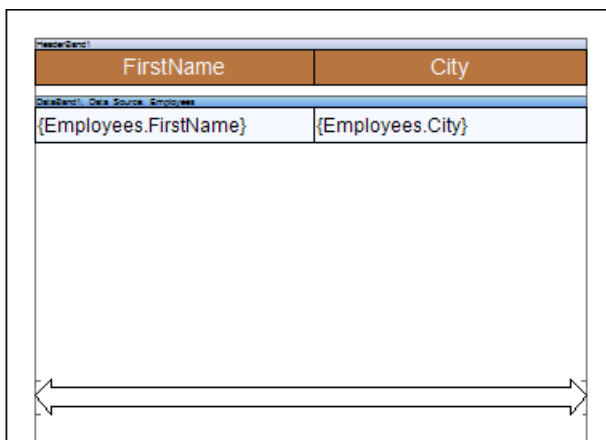
14.1. Align it by height;

- 14.2. Change values of properties, if required;
- 14.3. Change the background color of the band;
- 14.4. Enable **Borders**, if required;
- 14.5. Set the border color.

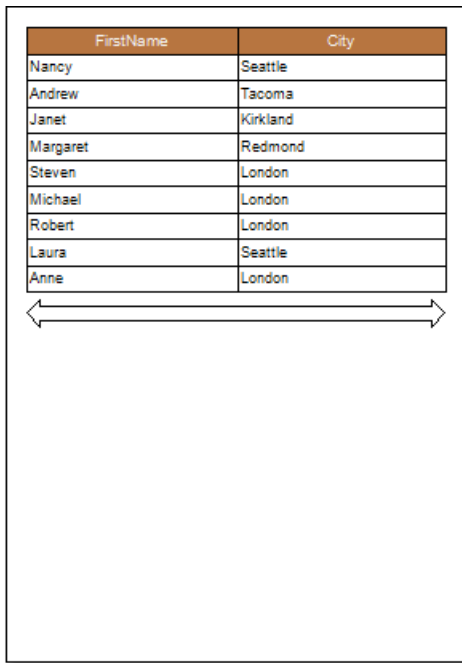
The picture below shows a report template with a **HeaderBand**:



15. Put text components with expressions in the this band. The expression in the text component is a header in the **HeaderBand**.
16. Edit text and text components:
 - 16.1. Drag and drop the text component in the band;
 - 16.2. Change font options: size, type, color;
 - 16.3. Align text component by height and width;
 - 16.4. Change the background of the text component;
 - 16.5. Align text in the text component;
 - 16.6. Change values of text component properties, if required;
 - 16.7. Enable **Borders** of the text component, if required;
 - 16.8. Set the border color.



17. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

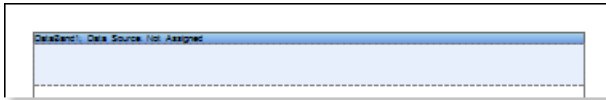


FirstName	City
Nancy	Seattle
Andrew	Tacoma
Janet	Kirkland
Margaret	Redmond
Steven	London
Michael	London
Robert	London
Laura	Seattle
Anne	London

3.49 Report with Primitives in Band

Primitives are: **Horizontal Line**, **Vertical Line**, **Rectangle** and **Rounded Rectangle**. Besides, you may use the **Shape** component. When placing a primitive on a band, the primitive will be rendered on a page as many times as the band will be printed. To design a report with primitives on a band, follow the steps below:

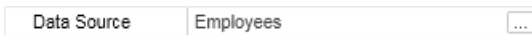
1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Put the **DataBand** on a page of a report template.



4. Edit **DataBand**:

- 4.1. Align the **DataBand** by height;
- 4.2. Change values of band properties. For example, set the **Can Shrink** property to **true**, if you wish the data band to be broken;
- 4.3. Change the **DataBand** background;
- 4.4. Enable **Borders** for the **DataBand**, if required;
- 4.5. Change the border color.

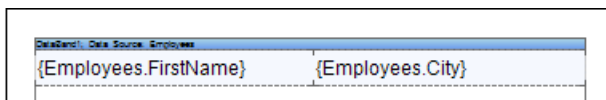
5. Define the data source for the **DataBand** using the **Data Source** property:



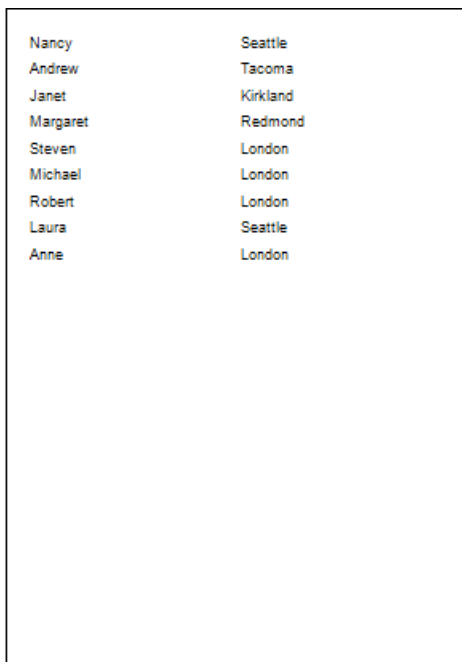
6. Put text components with expressions on the **DataBand**. Where expression is a reference to the data field. For example, put two text components with expressions: **{Employees.FirstName}** and **{Employees.City}**;

7. Edit **Text** and **TextBox** component:

- 7.1. Drag and drop the text component in the **DataBand**;
- 7.2. Change parameters of the text font: size, type, color;
- 7.3. Align the text component by width and height;
- 7.4. Change the background of the text component;
- 7.5. Align text in the text component;
- 7.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
- 7.7. Enable **Borders** for the text component, if required.
- 7.8. Change the border color.



8. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.



Nancy	Seattle
Andrew	Tacoma
Janet	Kirkland
Margaret	Redmond
Steven	London
Michael	London
Robert	London
Laura	Seattle
Anne	London

9. Go back to the report template.

10. Add the **Shape** component to a report template in the **DataBand** and edit it:

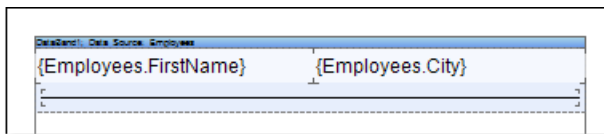
10.1. Drag and drop the **Shape** component on the page;

10.2. Change the type of a shape using the **Shape Type** property. Set the **Shape Type** property to **Complex Arrow**;

10.3. Stretch the **Shape** component horizontally and vertically;

10.4. Change the value of other properties. For example, set the **Grow to Height** property to **true**.

The picture below shows a report template with the **Shape** component placed on the report page:

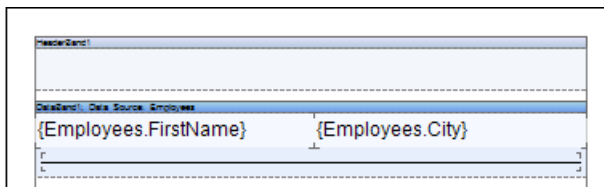


11. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

Nancy	Seattle
Andrew	Tacoma
Janet	Kirkland
Margaret	Redmond
Steven	London
Michael	London
Robert	London
Louis	Seattle
Anne	London

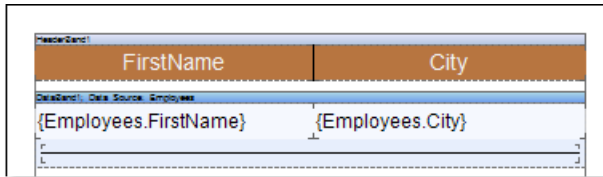
12. Go back to the report template.
13. If needed, add other bands to the report template, for example, **HeaderBand**;
14. Edit this bands:
 - 14.1. Align it by height;
 - 14.2. Change values of properties, if required;
 - 14.3. Change the background color of the band;
 - 14.4. Enable **Borders**, if required;
 - 14.5. Set the border color.

The picture below shows a report template with a **HeaderBand**:



15. Put text components with expressions in the this band. The expression in the text component is a header in the **HeaderBand**.
16. Edit text and text components:
 - 16.1. Drag and drop the text component in the band;

- 16.2. Change font options: size, type, color;
- 16.3. Align text component by height and width;
- 16.4. Change the background of the text component;
- 16.5. Align text in the text component;
- 16.6. Change values of text component properties, if required;
- 16.7. Enable **Borders** of the text component, if required;
- 16.8. Set the border color.

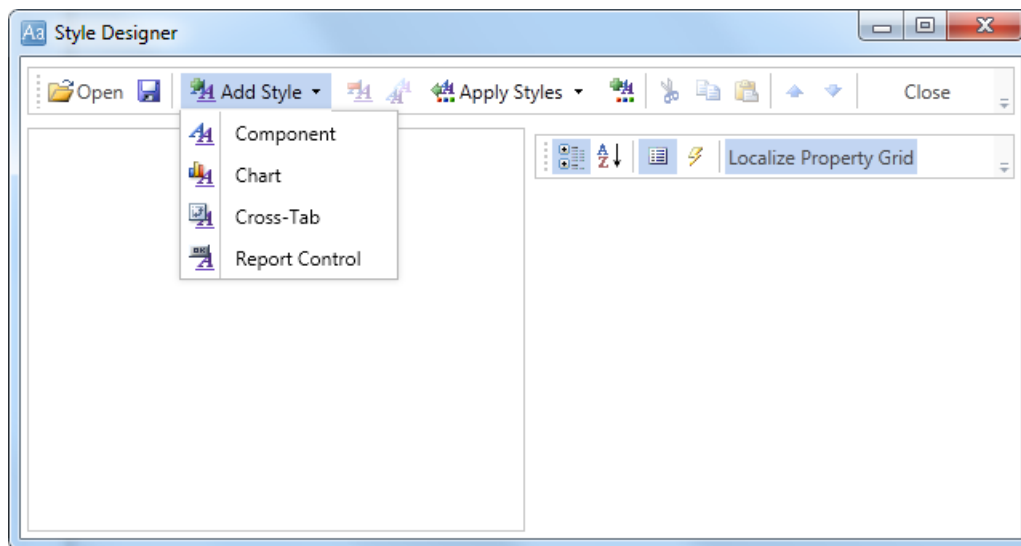


17. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

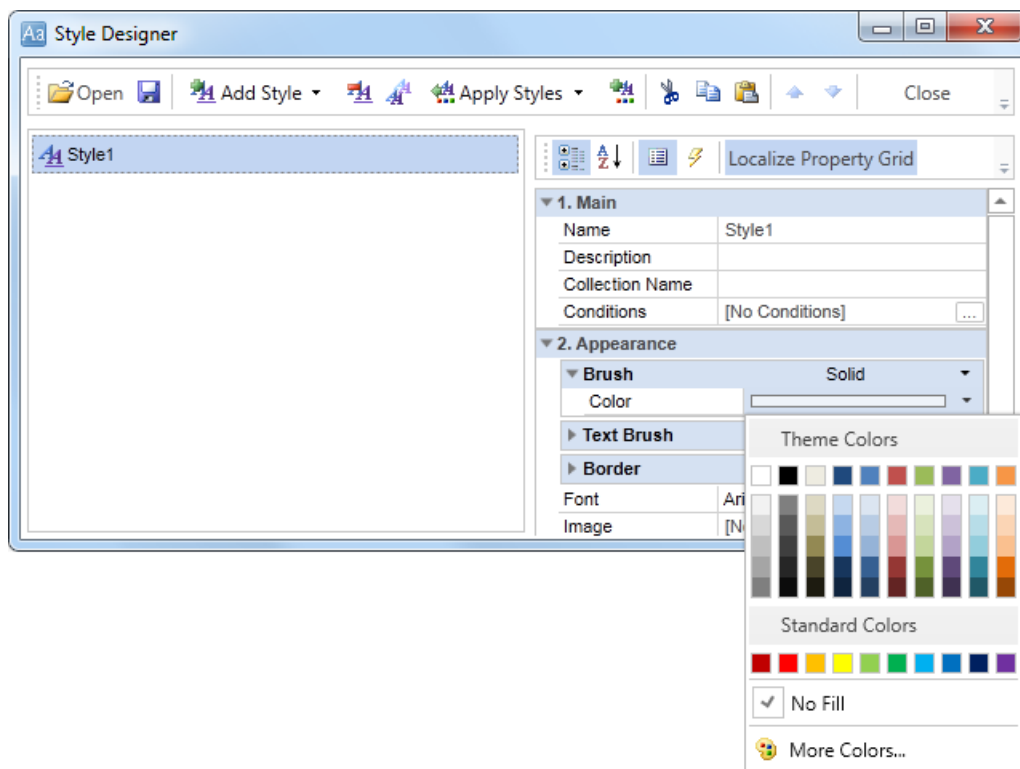
FirstName	City
Nancy	Seattle
Andrew	Tacoma
Janet	Kirkland
Margaret	Redmond
Steven	London
Michael	London
Robert	London
Louis	Seattle
Anne	London

Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

FirstName	City
Nancy	Seattle
Andrew	Tacoma
Janet	Kirkland
Margaret	Redmond
Steven	London
Michael	London
Robert	London
Laura	Seattle
Anne	London

3.50 Report with Cross-Primitives

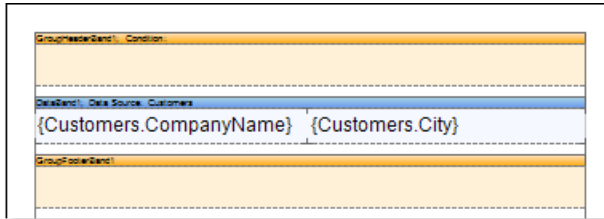
Cross-primitives include: **Vertical Line**, **Rectangle** and **Rounded Rectangle**. The start and end points of cross-primitives can be placed on different components of a report. To design a report with cross-primitives, follow the steps below:

1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Create a report or load previously saved one. For our example we take a Simple List Report, described in **Simple List Report** article.

DataBand: Data Source: Customers	
{Customers.CompanyName}	{Customers.City}

4. Add **GroupHeaderBand** and **GroupFooterBand** to a report template. The **GroupHeaderBand** should be placed above the **DataBand** to which it applies. The

GroupFooterBand should be placed below the **DataBand**. And it is meant exactly the **DataBand**, that is associated with the **GroupHeaderBand**. Each **GroupFooterBand**, refers to a certain **GroupHeaderBand**. The **GroupFooterBand** will not be output without the **GroupHeaderBand**.



5. Edit the **GroupHeaderBand** and the **GroupFooterBand**:

5.1. Align them by height;

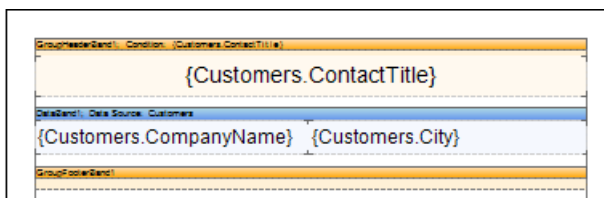
5.2. Change the values of the required properties. For example, set the **KeepGroupHeaderTogether** property for the **GroupHeaderBand** to **true**, if you want the **GroupHeaderBand** be kept with the group. And set the **KeepGroupFooterTogether** property for the **GroupFooterBand** to **true**, if you want this band be kept with the group;

5.3. Set the background color for the **GroupHeaderBand**;

5.4. If necessary, set the **Borders** for the **DataBand**;

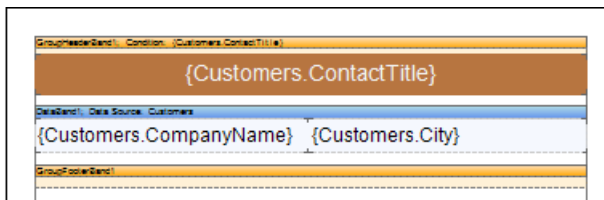
6. Set the condition of data grouping in the report using the **Condition** property of the **GroupHeaderBand**. Condition for the grouping can be set by specifying an expression or by selecting a column from a data source. In this example, we specify the **{Customers.ContactTitle}** expression of the grouping condition, so, when rendering the report, a list of companies will be grouped by the **ContactTitle** column data.

7. Put a text component in the **GroupHeaderBand** with the following expression: **{Customers.ContactTitle}**. So when rendering the report, as a group header, the entries from the **ContactTitle** data column will be output. Put a text component in the **GroupFooterBand** with the following expression: **{Count ()}**. The **{Count ()}** function will count the number of entries in each group.



8. Edit expressions, and text components:

- 8.1. Drag and drop text components in the **GroupHeaderBand** and **GroupFooterBand**;
- 8.2. Set the font settings: size, style, color;
- 8.3. Align text components by height and width;
- 8.4. Set background color of text components;
- 8.5. Set the expression in the text components;
- 8.6. Set the value of the required properties;
- 8.7. Set **Borders** of text components, if required;
- 8.8. Set the border color.

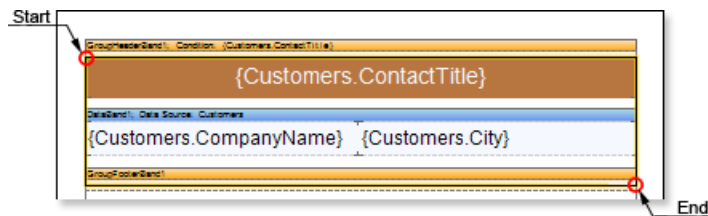


9. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering a report all references to data fields will be changed on data from specified fields.

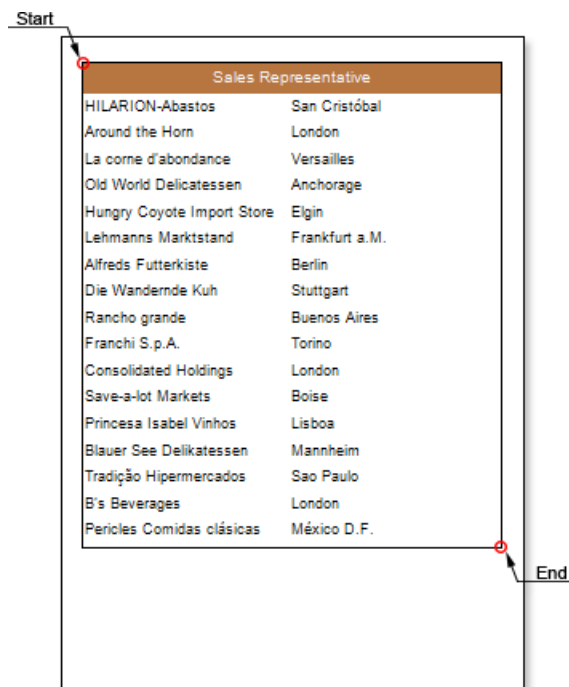
Accounting Manager	
Bottom-Dollar Markets	Tsawassen
Romero y tomillo	Madrid
Que Delicia	Rio de Janeiro
FISSA Fabrica Inter.	Madrid
Salchichas S.A.	
Suprêmes délices	Charleroi
QUICK-Stop	Cunewalde
LILA-Supermercado	Barquisimeto
Wartian Herkku	Oulu
Hanari Carnes	Rio de Janeiro
Vins et alcools Chevalier	Reims
Assistant Sales Agent	
Folies gourmandes	Lille
Ricardo Adocicados	Rio de Janeiro
Assistant Sales Representative	
Rattlesnake Canyon Grocery	Albuquerque

10. Go back to the report template;
11. Add the **Rectangle** cross-primitive to the report template. Starting points of the rectangle will lie in the **GroupHeaderBand**, and the end point will lie in the

GroupFooterBand.

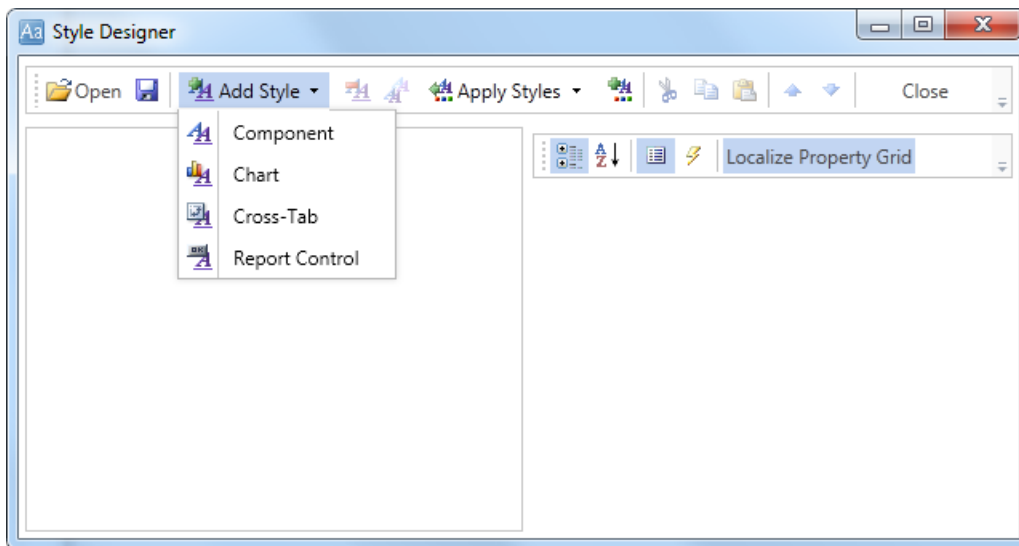


12. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering a report all references to data fields will be changed on data from specified fields. The picture below shows a rendered report page with grouping and the rendered **Rectangle** cross-primitive:

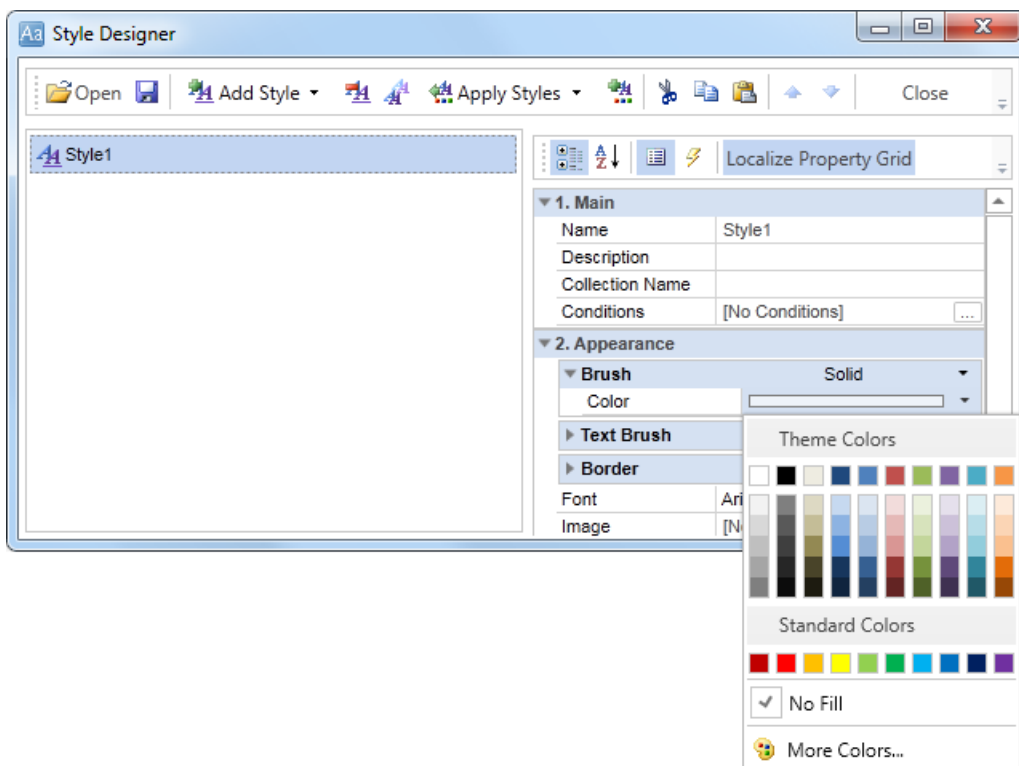


Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

Sales Representative	
HILARION-Abastos	San Cristóbal
Around the Horn	London
La corne d'abondance	Versailles
Old World Delicatessen	Anchorage
Hungry Coyote Import Store	Elgin
Lehmanns Marktstand	Frankfurt a.M.
Alfreds Futterkiste	Berlin
Die Wandernde Kuh	Stuttgart
Rancho grande	Buenos Aires
Franchi S.p.A.	Torino
Consolidated Holdings	London
Save-a-lot Markets	Boise
Princesa Isabel Vinhos	Lisboa
Blauer See Delikatessen	Mannheim
Tradição Hipermercados	Sao Paulo
B's Beverages	London
Pericles Comidas clásicas	México D.F.

3.51 Drill-Down Report

A Drill-Down report is an interactive report in what blocks can collapse/expand its content by clicking on the block title. Follow the steps below to create a report with dynamic folding in the preview window:

1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Design a report or load already created one. For example, take a group report, which was reviewed in the "**Report with Grouping**". The picture below shows a report template with groups:

GroupHeaderBand1: Condition: {Customers.ContactTitle}	
{Customers.ContactTitle}	
DataBand1: Data Source: Customers	
{Customers.CompanyName}	{Customers.City}
GroupFooterBand1	
Count:{Count()}}	

4. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering a report all references to data fields will be changed on data from specified fields.

Accounting Manager	
Bottom-Dollar Markets	Tsawassen
Romero y tomillo	Madrid
Que Delicia	Rio de Janeiro
FISSA Fabrica Inter. Saichichas S.A.	Madrid
Suprêmes délices	Charleroi
QUICK-Stop	Cunewalde
LILA-Supermercado	Barquisimeto
Wartian Herkuu	Oulu
Hanari Carnes	Rio de Janeiro
Vins et alcools Chevalier	Reims
Count:10	
Assistant Sales Agent	
Folies gourmandes	Lille
Ricardo Adocicados	Rio de Janeiro
Count:2	
Assistant Sales Representative	
Rattlesnake Canyon Grocery	Albuquerque
Count:1	
Marketing Assistant	
Queen Cozinha	Sao Paulo
Familia Arquibaldo	Sao Paulo
Morgenstern Gesundkost	Leipzig
Mère Poularde	Montréal

- Go back to the report template.
- Select the **GroupHeaderBand**.
- Set the **Interaction.Collapsing Enabled** property to **true**.
- Change the value of the **Interaction.Collapsed** property. In our case, set the **Interaction.Collapsed** property to **{GroupLine! = 1}**. So, when rendering a report all the groups except the first one will be collapsed.
- Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering a report all references to data fields will be changed on data from specified fields.

Accounting Manager	
Bottom-Dollar Markets	Tsawassen
Romero y tomillo	Madrid
Que Delicia	Rio de Janeiro
FISSA Fabrica Inter. Salchichas S.A.	Madrid
Suprêmes délices	Charleroi
QUICK-Stop	Cunewalde
LILA-Supermercado	Barquisimeto
Wartian Herkuu	Oulu
Hanari Carnes	Rio de Janeiro
Vins et alcools Chevalier	Reims
Count:10	
Assistant Sales Agent	
Count:2	
Assistant Sales Representative	
Count:1	
Marketing Assistant	
Count:6	
Marketing Manager	
Count:12	
Order Administrator	
Count:2	

To expand or collapse a group you should click on the **GroupHeaderBand** in the rendered report. If it is necessary for the group be collapsed together with the group summary, the **Interaction.CollapseGroupFooter** property should be set to **true**. The picture below shows the report page rendered with the collapsed report:

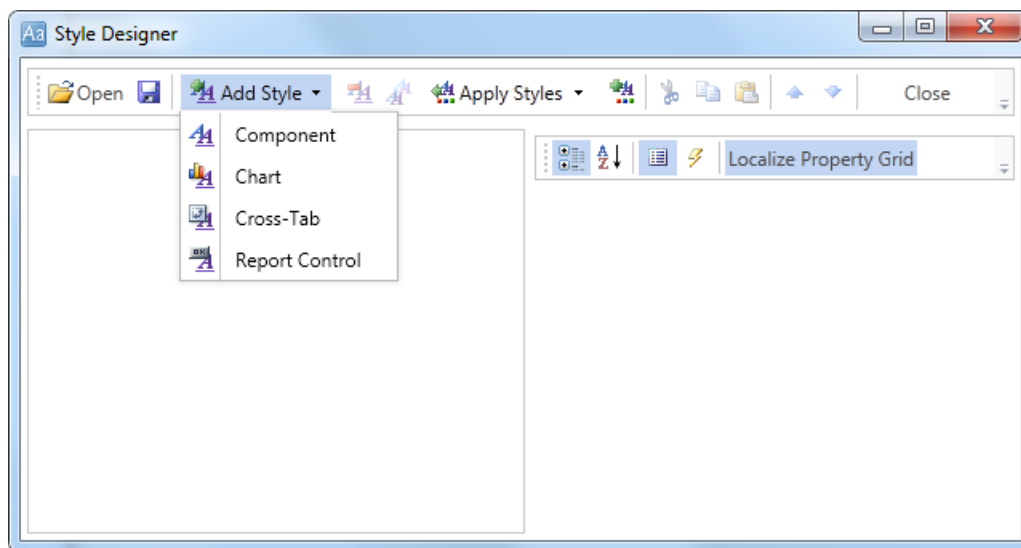
Accounting Manager	
Bottom-Dollar Markets	Tsawassen
Romero y tomillo	Madrid
Que Delicia	Rio de Janeiro
FISSA Fabrica Inter. Salchichas S.A.	Madrid
Suprêmes délices	Charleroi
QUICK-Stop	Cunewalde
LILA-Supermercado	Barquisimeto
Wartian Herkku	Oulu
Hanari Carnes	Rio de Janeiro
Vins et alcools Chevalier	Reims

Count: 10

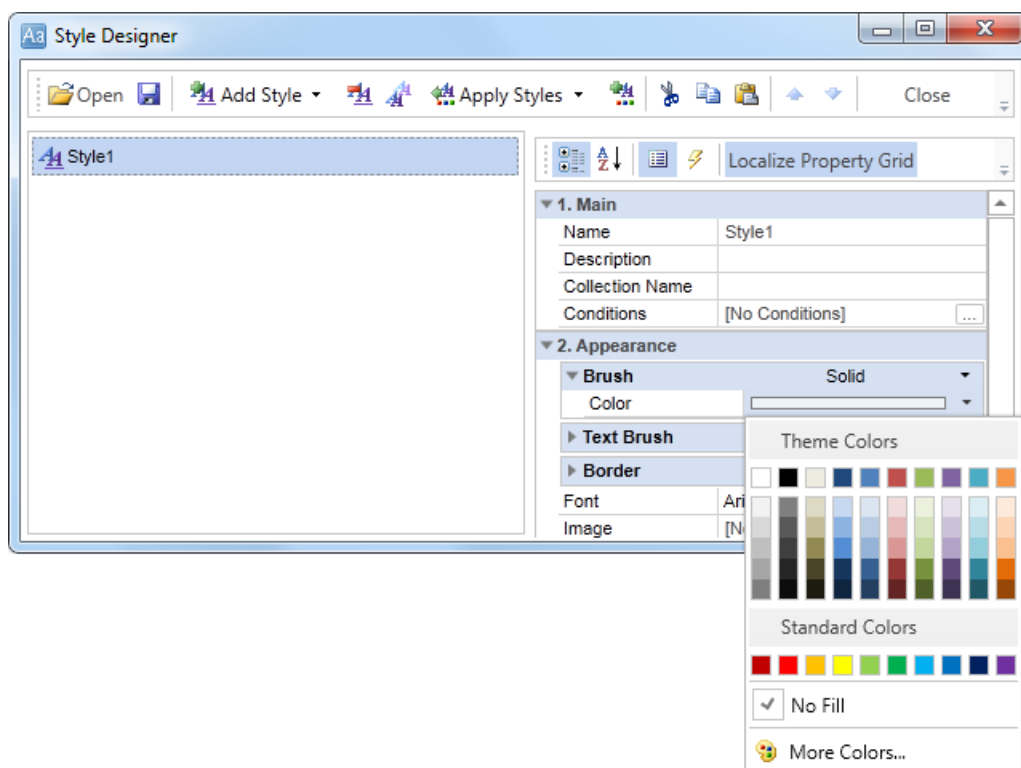
Assistant Sales Agent
Assistant Sales Representative
Marketing Assistant
Marketing Manager
Order Administrator
Owner
Owner/Marketing Assistant
Sales Agent
Sales Associate
Sales Manager

Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

Accounting Manager	
Bottom-Dollar Markets	Tsawassen
Romero y tomillo	Madrid
Que Delicia	Rio de Janeiro
FISSA Fabrica Inter, Salchichas S.A.	Madrid
Suprêmes délices	Charleroi
QUICK-Stop	Cunewalde
LILA-Supermercado	Barquisimeto
Wartian Heroku	Oulu
Hanari Carnes	Rio de Janeiro
Vins et alcools Chevalier	Reims

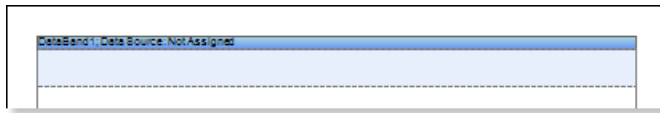
Count:10

Assistant Sales Agent
Assistant Sales Representative
Marketing Assistant
Marketing Manager
Order Administrator
Owner
Owner/Marketing Assistant
Sales Agent
Sales Associate
Sales Manager

3.52 Report with Dynamic Data Sorting in Preview

When designing a report, data used in a report are not always sorted in the order that is needed. In this case, the sorting can be done by means of the report generator. One way to sort the data is dynamic sorting. A report with dynamic data sorting in the preview window is an interactive report in which changing of dynamic data sorting is done by clicking the component, which dynamic sorting is enabled. Follow the steps below to render a report with dynamic data sorting in the preview window:

1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Put a **DataBand** on a page of a report template.



4. Edit **DataBand**:

- 4.1. Align the **DataBand** by height;
- 4.2. Change values of band properties. For example, set the **Can Break** property to **true**, if you wish the data band to be broken;
- 4.3. Change the **DataBand** background;
- 4.4. Enable **Borders** for the **DataBand**, if required;
- 4.5. Change the border color.

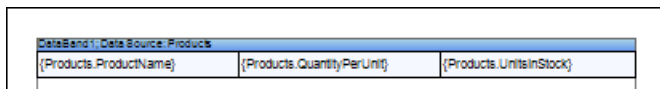
5. Set the data source for the **DataBand** using the **Data Source** property:



6. Put text components with expressions in the **DataBand**. Where expression is a reference to the data field. For example, put three text components with expressions: **{Products.ProductName}**, **{Products.QuantityPerUnit}**, and **{Products.UnitsInStock}**;

7. Edit **Text** and **TextBox** component:

- 7.1. Drag and drop the text component in the **DataBand**;
- 7.2. Change parameters of the text font: size, type, color;
- 7.3. Align the text component by width and height;
- 7.4. Change the background of the text component;
- 7.5. Align text in the text component;
- 7.6. Change the value of properties of the text component. For example, set the **Word Wrap** property to **true**, if you need a text to be wrapped;
- 7.7. Enable **Borders** for the text component, if required.
- 7.8. Change the border color.



8. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be

the same as the amount of data rows in the database.

Chai	10 boxes x 20 bags	39
Chang	24 - 12 oz bottles	17
Aniseed Syrup	12 - 550 ml bottles	13
Chef Anton's Cajun Seasoning	48 - 6 oz jars	53
Chef Anton's Gumbo Mix	36 boxes	0
Grandma's Boysenberry Spread	12 - 8 oz jars	120
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	15
Northwoods Cranberry Sauce	12 - 12 oz jars	6
Mishi Kobe Niku	18 - 500 g pkgs.	29
Ikura	12 - 200 ml jars	31
Queso Cabrales	1 kg pkg.	22

9. Go back to the report template;

10. If needed, add other bands to the report template, for example, **ReportTitleBand** and **ReportSummaryBand**;

11. Edit these bands:

- 11.1. Align them by height;
- 11.2. Change values of properties, if required;
- 11.3. Change the background of bands;
- 11.4. Enable **Borders**, if required;
- 11.5. Set the border color.

HeaderBand1		
DataBand1: Data Source: Products		
{Products.ProductName}	{Products.QuantityPerUnit}	{Products.UnitsInStock}

12. Put text components with expressions in the these bands. The expression in the text component is a title in the **ReportTitleBand**, and a summary in the **ReportSummaryBand**.

13. Edit text and text components:

- 13.1. Drag and drop the text component in the band;
- 13.2. Change font options: size, type, color;
- 13.3. Align text component by height and width;
- 13.4. Change the background of the text component;
- 13.5. Align text in the text component;
- 13.6. Change values of text component properties, if required;
- 13.7. Enable **Borders** of the text component, if required;
- 13.8. Set the border color.

HeaderBand1		
ProductName	QuantityPerUnit	UnitsInStock
DataBand1: Data Source: Products		
{Products.ProductName}	{Products.QuantityPerUnit}	{Products.UnitsInStock}

14. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

ProductName	QuantityPerUnit	UnitsInStock
Chai	10 boxes x 20 bags	39
Chang	24 - 12 oz bottles	17
Aniseed Syrup	12 - 550 ml bottles	13
Chef Anton's Cajun Seasoning	48 - 6 oz jars	53
Chef Anton's Gumbo Mix	36 boxes	0
Grandma's Boysenberry Spread	12 - 8 oz jars	120
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	15
Northwoods Cranberry Sauce	12 - 12 oz jars	6
Mishi Kobe Niku	18 - 500 g pkgs.	29
Ikura	12 - 200 ml jars	31
Queso Cabrales	1 kg pkg.	22
Queso Manchego La Pastora	10 - 500 g pkgs.	86
Konbu	2 kg box	24
Tofu	40 - 100 g pkgs.	35
Genen Shouyu	24 - 250 ml bottles	39
Pavlova	32 - 500 g boxes	29
Alice Mutton	20 - 1 kg tins	0
Carnarvon Tigers	16 kg pkg.	42
Teatime Chocolate Biscuits	10 boxes x 12 pieces	25
Sir Rodney's Marmalade	30 gift boxes	40
Sir Rodney's Scones	24 pkgs. x 4 pieces	3
Gustaf's Knäckebröd	24 - 500 g pkgs.	104
Tumbröd	12 - 250 g pkgs.	61
Guaraná Fantástica	12 - 355 ml cans	20
NuNuCa Nui-Nougat-Creme	20 - 450 g glasses	76
Gumbär GummiBärchen	100 - 250 g bags	15
Schoggi Schokolade	100 - 100 g pieces	49
Rössle Sauerkraut	25 - 825 g cans	26
Thüringer Rostbratwurst	50 bags x 30 sausgs.	0
Nord-Ost Matjeshering	10 - 200 g glasses	10
Gorgonzola Telino	12 - 100 g pkgs	0
Mascarpone Fabioli	24 - 200 g pkgs.	9
Gelbst	500 g	112

15. Go back to the report template;

16. Select a text component or any other component, on what one clicks and in the rendered report sorting will be done. In this case, select the **TextBox4** component in the **HeaderBand** with the **ProductName** text;

17. Change the value of the **Interaction.Sorting Column** property. The value of this property will be a column of the data source by what sorting will be done. Set the **Interaction.Sorting Column** property to **DataBand1.ProductName**;

18. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

ProductName	QuantityPerUnit	UnitsInStock
Chai	10 boxes x 20 bags	39
Chang	24 - 12 oz bottles	17
Aniseed Syrup	12 - 550 ml bottles	13
Chef Anton's Cajun Seasoning	48 - 6 oz jars	53
Chef Anton's Gumbo Mix	36 boxes	0
Grandma's Boysenberry Spread	12 - 8 oz jars	120
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	15
Northwoods Cranberry Sauce	12 - 12 oz jars	6
Mishi Kobe Niku	18 - 500 g pkgs.	29
Ikura	12 - 200 ml jars	31
Queso Cabrales	1 kg pkg.	22
Queso Manchego La Pastora	10 - 500 g pkgs.	86
Konbu	2 kg box	24
Tofu	40 - 100 g pkgs.	35
Genen Shouyu	24 - 250 ml bottles	39
Pavlova	32 - 500 g boxes	29
Alice Mutton	20 - 1 kg tins	0
Carnarvon Tigers	16 kg pkg.	42
Teatime Chocolate Biscuits	10 boxes x 12 pieces	25
Sir Rodney's Marmalade	30 gift boxes	40
Sir Rodney's Scones	24 pkgs. x 4 pieces	3
Gustaf's Knäckebröd	24 - 500 g pkgs.	104
Tunmbrodd	12 - 250 g pkgs.	61
Guaraná Fantástica	12 - 355 ml cans	20
NuNuCa Nuts-Nougat-Creme	20 - 450 g glasses	76
Gumbär GummiBärchen	100 - 250 g bags	15
Schoggi Schokolade	100 - 100 g pieces	49
Rössle Sauerkraut	25 - 825 g cans	26
Thüringer Rostbratwurst	50 bags x 30 sausgs.	0
Nord-Ost Matjeshering	10 - 200 g glasses	10
Gorgonzola Telino	12 - 100 g pkgs	0
Mascarpone Fabioli	24 - 200 g pkgs.	9
Gelbst	500 g	112

19. To enable sorting of data by the specified data column, you should click a report component which the **Interaction.Sorting Column** property was set earlier. In our example, you should click the **TextBox4**. After clicking the text component, data will be sorted in **Ascending** direction. To change the sorting direction from **Ascending** to **Descending**, you need to click the text component again, each time after clicking the text component sorting direction will be changed. The picture below shows the first page of the report rendered with different sorting directions:

Ascending

ProductName	QuantityPerUnit	UnitsInStock
Alice Mutton	20 - 1 kg tins	0
Aniseed Syrup	12 - 550 ml bottles	13
Boston Crab Meat	24 - 4 oz tins	123
Camembert Pierrot	15 - 300 g rounds	19
Carnarvon Tigers	16 kg pkg.	42
Chai	10 boxes x 20 bags	39
Chang	24 - 12 oz bottles	17
Chantreuse verte	750 cc per bottle	69
Chef Anton's Cajun Seasoning	48 - 6 oz jars	53
Chef Anton's Gumbo Mix	36 boxes	0
Chocolade	10 pkgs.	15
Côte de Blaye	12 - 75 cl bottles	17
Escargots de Bourgogne	24 pieces	62
Filo Mix	16 - 2 kg boxes	38
Flotemysost	10 - 500 g pkgs.	26
Gelöst	500 g	112
Genen Shouyu	24 - 250 ml bottles	39
Gnocchi di nonna Alice	24 - 250 g pkgs.	21
Gorgonzola Telino	12 - 100 g pkgs	0
Grandma's Boysenberry Spread	12 - 8 oz jars	120
Gravad lax	12 - 500 g pkgs.	11
Guaraná Fantástica	12 - 355 ml cans	20
Gudbrandsdalsost	10 kg pkg.	26
Gula Malacca	20 - 2 kg bags	27
Gumbär Gummitärlchen	100 - 250 g bags	15
Gustaf's Knäckebröd	24 - 500 g pkgs.	104
Ikura	12 - 200 ml jars	31
Inlagd Sill	24 - 250 g jars	112
Ipon Coffee	16 - 500 g tins	17
Jack's New England Clam Chowder	12 - 12 oz cans	85
Konbu	2 kg box	24
Lakkalikööri	500 ml	57
Laughing Lumberjack Lager	24 - 12 oz bottles	52

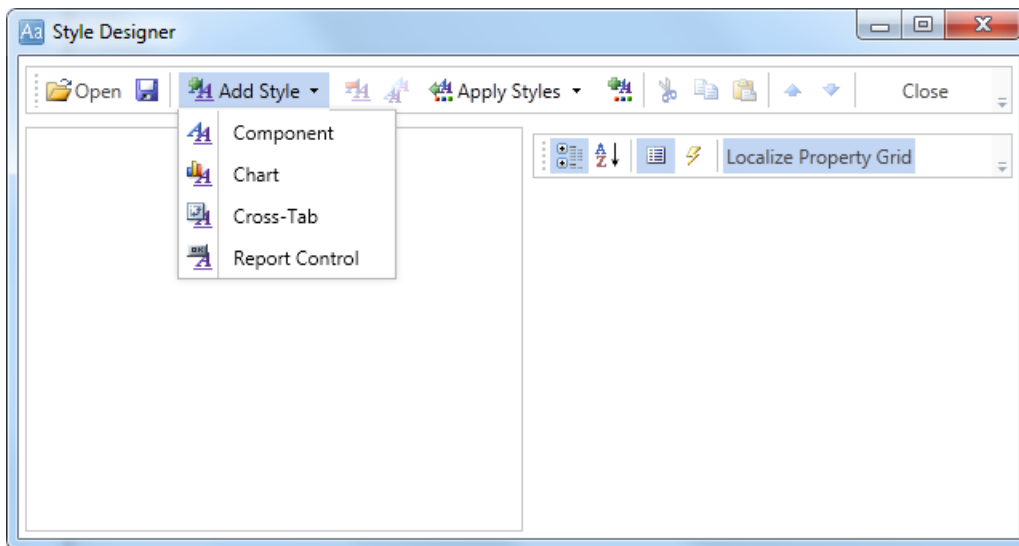
Descending

ProductName	QuantityPerUnit	UnitsInStock
Zaanse koeken	10 - 4 oz boxes	36
Wimmers gute Semmelknödel	20 bags x 4 pieces	22
Veggie-spread	15 - 625 g jars	24
Valkoinen sukkaa	12 - 100 g bars	66
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	15
Tunbrödt	12 - 250 g pkgs.	61
Tourtiera	16 pies	21
Tofu	40 - 100 g pkgs.	35
Thüringer Rostbratwurst	50 bags x 30 sausgs.	0
Teatime Chocolate Biscuits	10 boxes x 12 pieces	25
Tarte au sucre	48 pies	17
Steeleye Stout	24 - 12 oz bottles	20
Spegeelid	4 - 450 g glasses	96
Sirup d'érable	24 - 500 ml bottles	113
Sir Rodney's Scones	24 pkgs. x 4 pieces	3
Sir Rodney's Marmalade	30 gift boxes	40
Singaporean Hokkien Fried Mee	32 - 1 kg pkgs.	26
Scottish Longbreads	10 boxes x 8 pieces	6
Schoggi Schokolade	100 - 100 g pieces	49
Sasquatch Ale	24 - 12 oz bottles	111
Rössle Sauerkraut	25 - 825 g cans	26
Rogede slid	1k pkg.	5
Röd Kaviar	24 - 150 g jars	101
Rindbräu Klosterbräu	24 - 0.5 l bottles	125
Ravioli Angelo	24 - 250 g pkgs.	36
Raclette Courdavault	5 kg pkg.	79
Queso Manchego La Pastora	10 - 500 g pkgs.	86
Queso Cabrales	1 kg pkg.	22
Perth Pasties	48 pieces	0
Pavlova	32 - 500 g boxes	29
Pâté chinois	24 boxes x 2 pies	115
Outback Lager	24 - 355 ml bottles	15
Original Frankfurter grüne Soße	12 boxes	32

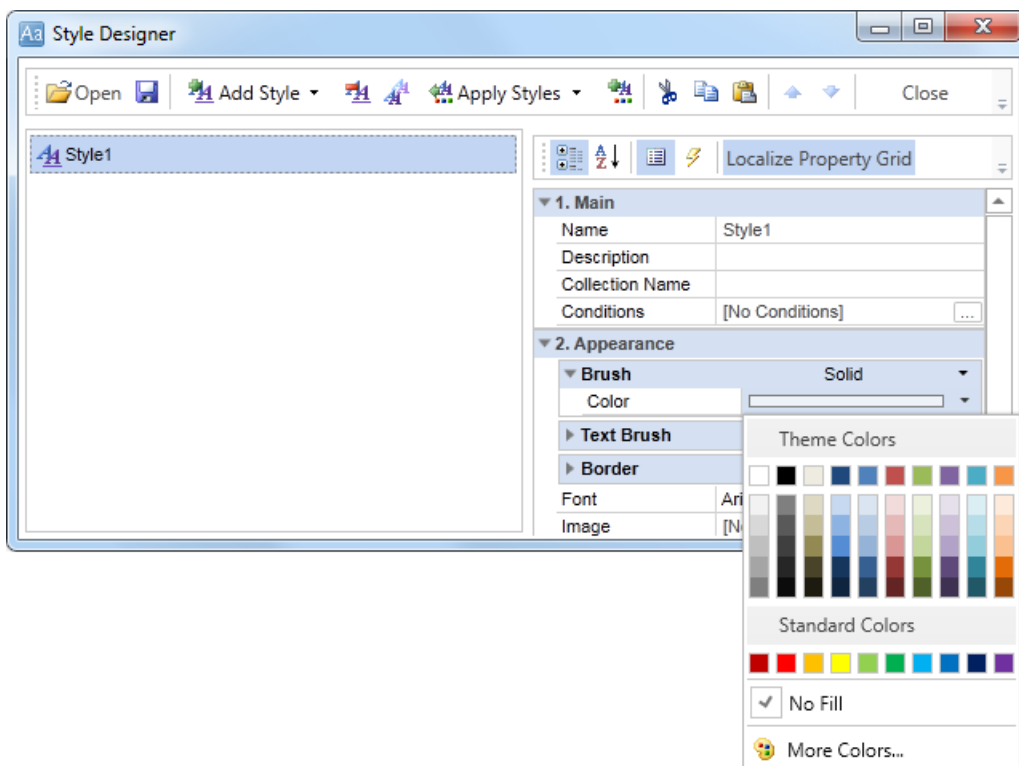
Sorting direction displays the "arrow" icon.

Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

Ascending

ProductName	QuantityPerUnit	UnitsInStock
Alice Mutton	20 - 1 kg tins	0
Aniseed Syrup	12 - 550 ml bottles	13
Boston Crab Meat	24 - 4 oz tins	123
Camembert Pierrot	15 - 300 g rounds	19
Camaron Tigres	15 kg pkg.	42
Chai	10 boxes x 20 bags	39
Chang	24 - 12 oz bottles	17
Chartreuse verte	750 cc per bottle	69
Chef Anton's Cajun Seasoning	48 - 6 oz jars	53
Chef Anton's Gumbo Mix	36 boxes	0
Chocolate	10 pkgs.	15
Côte de Blaye	12 - 75 cl bottles	17
Escargots de Bourgogne	24 pieces	62
Filo Mix	16 - 2 kg boxes	38
Flotemysost	10 - 500 g pkgs.	26
Geltoet	500 g	112
Genen Shouyu	24 - 250 ml bottles	39
Gnocchi di nonna Alice	24 - 250 g pkgs.	21
Gorgonzola Telino	12 - 100 g pkgs	0
Grandma's Boysenberry Spread	12 - 8 oz jars	120
Gravad lax	12 - 500 g pkgs.	11
Guaraná Fantástica	12 - 355 ml cans	20
Gudbrandsdalsost	10 kg pkg.	26
Gula Malacca	20 - 2 kg bags	27
Gumbär Gummitärchen	100 - 250 g bags	15
Gustaf's Knäckebröd	24 - 500 g pkgs.	104
Ikura	12 - 200 ml jars	31
Inlagd Sill	24 - 250 g jars	112
Ipon Coffee	16 - 500 g tins	17
Jack's New England Clam Chowder	12 - 12 oz cans	85
Konbu	2 kg box	24
Lakkalikööri	500 ml	57
Laughing Lumberjack Lager	24 - 12 oz bottles	52

Descending

ProductName	QuantityPerUnit	UnitsIn Stock
Zaanse koeken	10 - 4 oz boxes	38
Wimmers gute Semmelknödel	20 bags x 4 pieces	22
Veggie-spread	15 - 825 g jars	24
Vaivoinen suklaa	12 - 100 g bars	65
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	15
Turnbröd	12 - 250 g pkgs.	61
Tourtèrre	16 pies	21
Tofu	40 - 100 g pkgs.	35
Thüringer Rostbratwurst	50 bags x 30 sausgs.	0
Teatime Chocolate Biscuits	10 boxes x 12 pieces	25
Tarte au sucre	48 pies	17
SteelEye Stout	24 - 12 oz bottles	20
Spegesild	4 - 450 g glasses	95
Sirup d'érable	24 - 500 ml bottles	113
Sir Rodney's Scones	24 pkgs. x 4 pieces	3
Sir Rodney's Marmalade	30 gift boxes	40
Singaporean Hokkien Fried Mee	32 - 1 kg pkgs.	26
Scottish Longbreads	10 boxes x 8 pieces	5
Schoggi Schokolade	100 - 100 g pieces	49
Sasquatch Ale	24 - 12 oz bottles	111
Rössle Sauerkraut	25 - 825 g cans	26
Rogede sild	1k pkg.	5
Röd Kaviar	24 - 150 g jars	101
Rinduräu Klostertier	24 - 0.5 l bottles	125
Ravioli Angelo	24 - 250 g pkgs.	36
Raclette Courdavault	5 kg pkg.	79
Queso Manchego La Pastora	10 - 500 g pkgs.	86
Queso Cabrales	1 kg pkg.	22
Perth Pasties	48 pieces	0
Pavlova	32 - 500 g boxes	29
Pâté châtinais	24 boxes x 2 pies	115
Outback Lager	24 - 355 ml bottles	15
Original Frankfurter grüne Soße	12 boxes	32

3.53 Report With Dynamic Collapsing in Preview

The report with dynamic collapsing is an interactive report in what items can collapse/expand its contents by clicking the title of the block. To create a report with dynamic folding in the preview window, you should do the following:

Run the designer;

Connect the data:

2.1. Create a **New Connection**;

2.2. Create a **New Data Source**;

3. Create a report or open a previously designed one. For example, open a report with grouping, which was reviewed in the chapter "Report from the groups." The picture below shows a report template with groups:

{Customers.ContactTitle}	
{Customers.CompanyName}	
{Customers.City}	
Count:{Count()}}	

4. Render your report. Click on the **Preview** tab or invoke the report viewer clicking the Preview in the menu. After rendering a report, all references to the data field will be replaced with data from these fields. The picture below shows a report page with the grouping:

Accounting Manager	
Bottom-Dollar Markets	Tsawassen
Romero y tomillo	Madrid
Que Delicia	Rio de Janeiro
FISSA Fabrica Inter. Salchichas S.A.	Madrid
Suprêmes délices	Charleroi
QUICK-Stop	Cunewalde
LILA-Supermercado	Barquisimeto
Wartian Heriku	Oulu
Hanari Carnes	Rio de Janeiro
Vins et alcools Chevalier	Reims
Count:10	
Assistant Sales Agent	
Folles gourmandes	Lille
Ricardo Adolicados	Rio de Janeiro
Count:2	
Assistant Sales Representative	
Rattlesnake Canyon Grocery	Albuquerque
Count:1	
Marketing Assistant	
Queen Cozinha	Sao Paulo
Familia Arquibaldo	Sao Paulo
Morgenstern Gesundkost	Leipzig
Mère Poularde	Montréal

5. Go back to the report template;
6. Select the GroupHeaderBand;
7. Set the **Interaction.Collapsing Enabled** property to **true**:

Collapsing Enabled **True**

8. Change the value of the **Interaction.Collapsed**. In this case, set this property to **{GroupLine!=1}**, all the groups except the first one will be collapsed:

Collapsed  {GroupLine!=1} 

9. Render the report. Click on the **Preview** tab or invoke the report viewer clicking the Preview in the menu. After rendering a report, all references to the data field will be replaced with data from these fields. The picture below shows the rendered page of the report:

Accounting Manager	
Bottom-Dollar Markets	Tsawassen
Romero y tomillo	Madrid
Que Delicia	Rio de Janeiro
FISSA Fabrica Inter. Salchichas S.A.	Madrid
Suprêmes délices	Charleroi
QUICK-Stop	Cunewalde
LILA-Supermercado	Barquisimeto
Wartian Heroku	Oulu
Hanari Carnes	Rio de Janeiro
Vins et alcools Chevalier	Reims
Count:10	
Assistant Sales Agent	
Count:2	
Assistant Sales Representative	
Count:1	
Marketing Assistant	
Count:6	
Marketing Manager	
Count:12	
Order Administrator	
Count:2	

To expand or collapse the group, select the **GroupHeaderBand** in the rendered report. If you want to collapse the group together with the group footer you should set the **Interaction.Collapse Group Footer** property set to **true**. The picture below shows a rendered report page with the collapsed items:

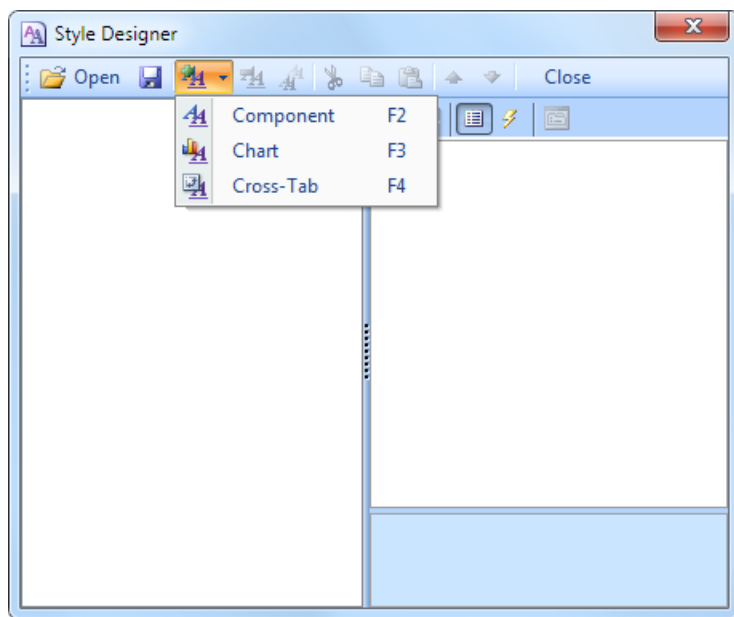
Accounting Manager	
Bottom-Dollar Markets	Tsawassen
Romero y tomillo	Madrid
Que Delicia	Rio de Janeiro
FISSA Fabrica Inter. Salchichas S.A.	Madrid
Suprêmes délices	Charleroi
QUICK-Stop	Cunewalde
LILA-Supermercado	Barquisimeto
Wartian Herkku	Oulu
Hanari Carnes	Rio de Janeiro
Vins et alcools Chevalier	Reims

Count: 10

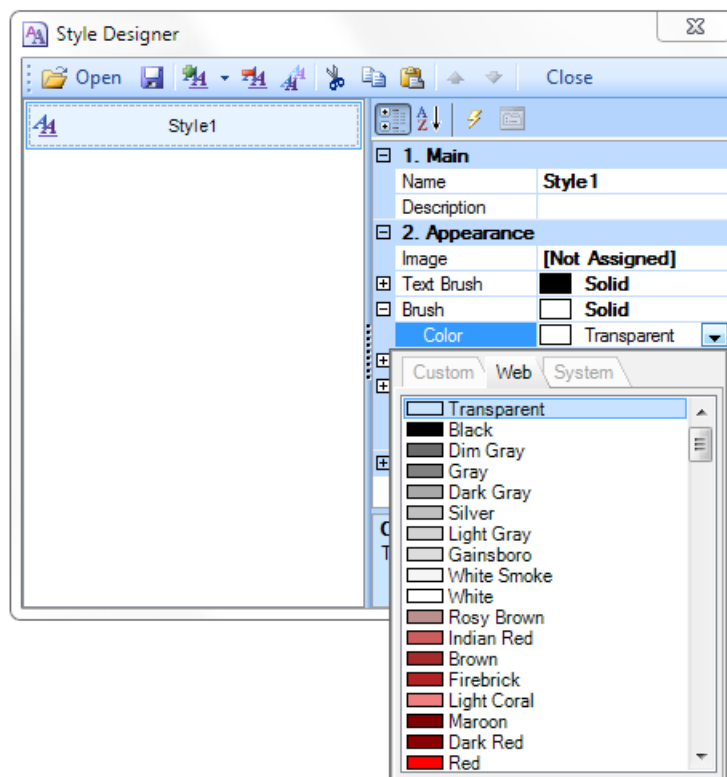
Assistant Sales Agent
Assistant Sales Representative
Marketing Assistant
Marketing Manager
Order Administrator
Owner
Owner/Marketing Assistant
Sales Agent
Sales Associate
Sales Manager

Adding Styles

1. Go back to the report template;
2. Select **DataBand**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

Accounting Manager	
Bottom-Dollar Markets	Tsawassen
Romero y tomillo	Madrid
Que Delicia	Rio de Janeiro
FISSA Fabrica Inter. Salchichas S.A.	Madrid
Suprêmes délices	Charleroi
QUICK-Stop	Cunewalde
LILA-Supermercado	Barquisimeto
Wartian Herkku	Oulu
Hanari Carnes	Rio de Janeiro
Vins et alcools Chevalier	Reims

Count:10

Assistant Sales Agent
Assistant Sales Representative
Marketing Assistant
Marketing Manager
Order Administrator
Owner
Owner/Marketing Assistant
Sales Agent
Sales Associate
Sales Manager

3.54 Report with Table Component

Do the following steps to design a report with the **Table** component:

1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Put a **Table** component on a page of a report template.

Table1: Data Source: Not Assigned				

4. Edit the **Table** component:

- 4.1. Set the amount of columns and rows using, for example, the **RowCount** and **ColumnCount** properties. Set these properties to 5 and 3 respectively;
- 4.2. Set the number of headers and footers in the table using, for example, the **HeaderRowCount** and **FooterRowCount** properties. Set the **HeaderRowCount** property to 1;
- 4.3. Align the **Table** component by height;
- 4.4. Change values of the component. For example, set the **CanBreak** property to **true**, if it is required for the **Table** component be broken;

5. Set the data source of the **Table** component using the **Data Source** property:

Data Source	Customers	...
-------------	-----------	-----

6. Put some text and expressions in the table cells. For example, cells of the first and third rows will contain only text, that will be a data header. Cells of the second and fourth rows will contain expressions, references to data source;

7. Edit text and cells:

- 7.1. Set font parameters of text: size, style, color;
- 7.2. Set color of table cells;
- 7.3. Align text in cells;
- 7.4. Change values of cells. For example, set the **WordWrap** property to **true**, if it is necessary for the text to be wrapped.

Table1: Data Source: Customers		
CompanyName	City	Country
{Customers.CompanyName}	{Customers.City}	{Customers.Country}
	ContactName: {Customers.ContactName}	
	Phone: {Customers.Phone}	
	Fax: {Customers.Fax}	

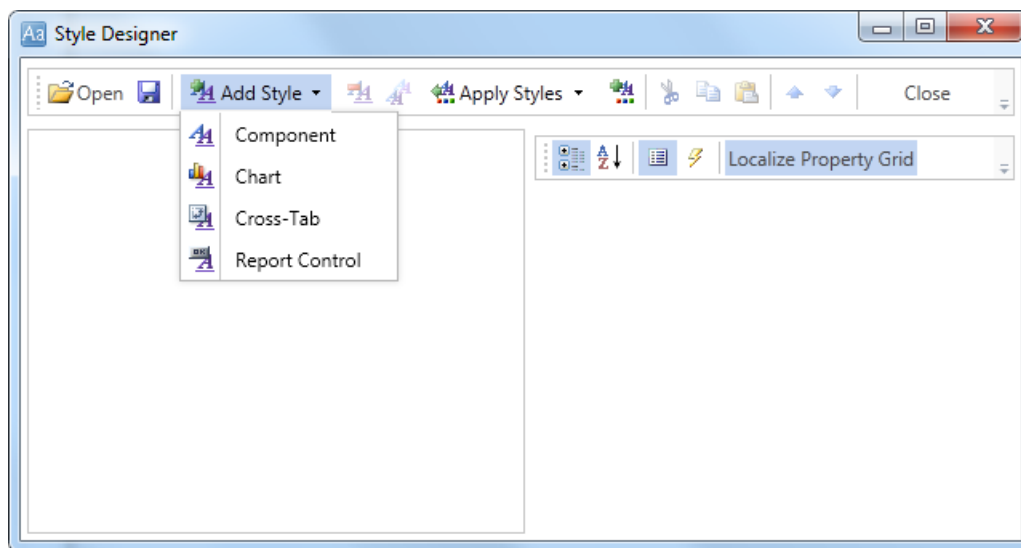
8. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **Table** in the rendered report will be the

same as the amount of data rows in the database.

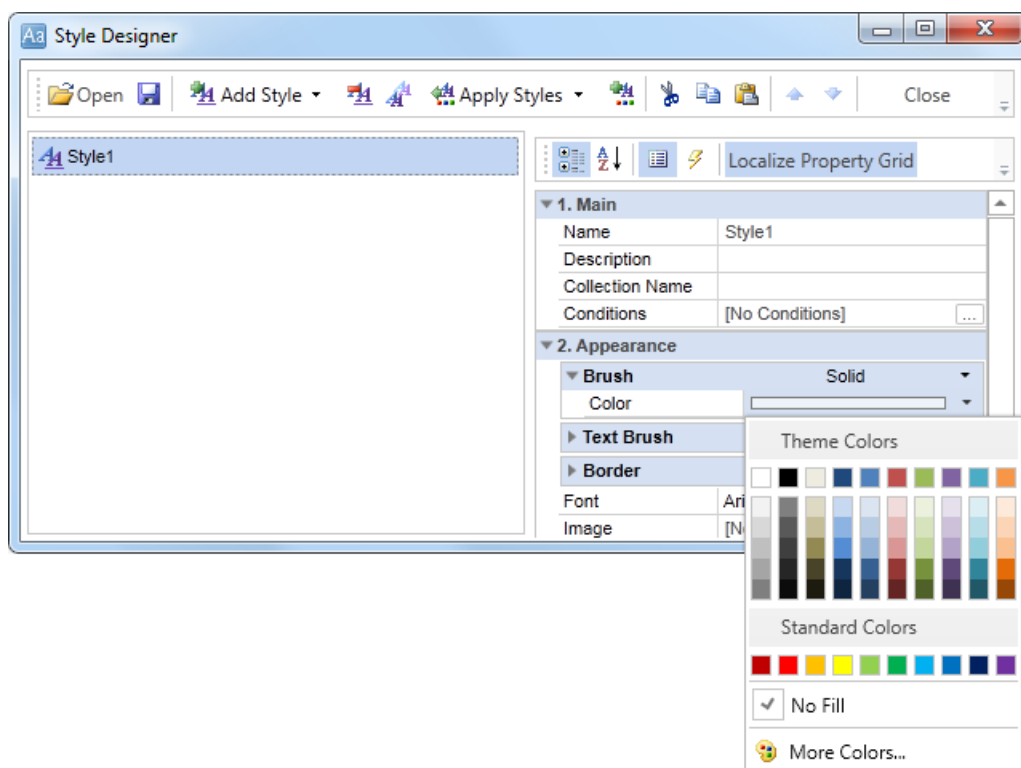
CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
	ContactName: Maria Anders	
	Phone: 030-0074321	
	Fax: 030-0076545	
Ana Trujillo Emparedados y helados	México D.F.	México
	ContactName: Ana Trujillo	
	Phone: (5) 555-4729	
	Fax: (5) 555-3745	
Antonio Moreno Taquería	México D.F.	México
	ContactName: Antonio Moreno	
	Phone: (5) 555-3932	
	Fax:	
Around the Horn	London	UK
	ContactName: Thomas Hardy	
	Phone: (171) 555-7788	
	Fax: (171) 555-6780	
Berglunds snabbköp	Luleå	Sweden
	ContactName: Christina Berglund	
	Phone: 0921-12 34 55	
	Fax: 0921-12 34 57	
Blauer See Delikatessen	Mannheim	Germany
	ContactName: Hanna Moos	
	Phone: 0621-08450	
	Fax: 0621-08924	
Blondel père et fils	Strasbourg	France
	ContactName: Frédéric Citeaux	
	Phone: 88.80.15.31	
	Fax: 88.80.15.32	
Bólido Comidas preparadas	Madrid	Spain
	ContactName: Martín Sommer	
	Phone: (91) 555 22 82	
	Fax: (91) 555 91 99	

Adding Styles

1. Go back to the report template;
2. Select the **Table** component;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
	ContactName: Maria Anders	
	Phone: 030-0074321	
	Fax: 030-0076545	
Ana Trujillo Emparedados y helados	México D.F.	Mexico
	ContactName: Ana Trujillo	
	Phone: (5) 555-4729	
	Fax: (5) 555-3745	
Antonio Moreno Taquería	México D.F.	Mexico
	ContactName: Antonio Moreno	
	Phone: (5) 555-2832	
	Fax:	
Around the Horn	London	UK
	ContactName: Thomas Hardy	
	Phone: (171) 555-7788	
	Fax: (171) 555-6750	
Berglunds snabbköp	Luleå	Sweden
	ContactName: Christina Berglund	
	Phone: 0821-12 34 55	
	Fax: 0821-12 34 57	
Blauser See Delikatessen	Mannheim	Germany
	ContactName: Hanna Moos	
	Phone: 0821-08480	
	Fax: 0821-08924	
Blondel père et fils	Strasbourg	France
	ContactName: Frédéric Citeaux	
	Phone: 88.80.15.31	
	Fax: 88.80.15.32	
Bólido Comidas preparadas	Madrid	Spain
	ContactName: Martín Sommer	
	Phone: (91) 555 22 32	
	Fax: (91) 555 91 99	

3.55 Master-Detail Report with Table

Do the following steps to design a **Master-Detail** report with the **Table** component:

1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Create **Relation** between data sources. If the relation will not be created and/or the **Relation** property of the **Detail** data source will not be filled, then, for **Master** entry, all **Detail** entries will be output.
4. Put two **Table** components on a page of a report template.

5. Edit **Table** components:

5.1. Change the number of rows and columns in the **Table** component. For example, using the **RowCount** and **ColumnCount** properties. Set the **RowCount** and **ColumnCount** properties of the **Table1** component to **3** and **1** respectively. And for the **Table2** component - values of **3** and **3**;

5.2. Set the number of headers and footers in the table using, for example, the **HeaderRowCount** and **FooterRowCount** properties. Set the **FooterRowCount** property of the **Table1** to **1**. Set the **HeaderRowCount** and **FooterRowCount** property of the **Table2** to **1** and **1** respectively;

5.3. Align the **Table** component by height;

5.4. Set the height of rows in the table. To do this, select the **Table** component and, dragging the horizontal border line, edit the row height. In addition, if you want to change the row height, leaving the height of the **Table** component unchanged, it is necessary to hold down the **Ctrl** button before editing the row height;

5.5. Change columns width in the table. To do this, select the **Table** component, and change width by dragging the vertical border of a column;

5.6. Change values of properties. For example, set the **Print if Detail Empty** property of the **Table** component, which is the **Master** component in the **Master-Detail** report, to **true**, if you want the **Master** entries be printed in any case, even if the **Detail** entries are not available. Set the **CanShrink** property of the **Table** component, which is the **Detail** component in the **Master-Detail** report to **true**, if you want this component be shrunk;

5.7. Set color of table cells;

5.8. Set **Borders** of cells of the **Table** component, if necessary;

6. Specify data sources for the **Table** components, as well as set the **Master** component. In our case, the **Master** component is the **Table1**. This means that in the **Data Setup** window of the **Table2** component on the tab of the **Master Component**, specify **Table1** as the **Master** component;

7. Fill in the DataRelation property of the **Table2** component, which is the **Detail** entry in this report:

Data Relation	Categories	...
---------------	------------	-----

8. Set expressions in table cells. Where an expression is a reference to a data source. For example: the **Table1** component, which is the **Master** component, set the following expressions for the first and second rows: **{Categories.CategoryName}** and **{Categories.Description}**, respectively. The third row of the **Table1** is a total row, and in this case, it is blank. The first row of the **Table2** is the header row of data, so the expression in cells of the first row will be the data header. In the cells of the second row we specify references to data sources. The third row in the **Table2** is the total row, so the expression in this line will be a total. Set the Count function for the third row;

9. Edit text boxes and cells:

9.1. Set the font options: size, style, color;

9.2. Set the background color of cells;

9.3. Align the text in cells;

9.4. Set the value of properties of cells. For example, set the **Word Wrap** property to **true**, if you want the text be wrapped;

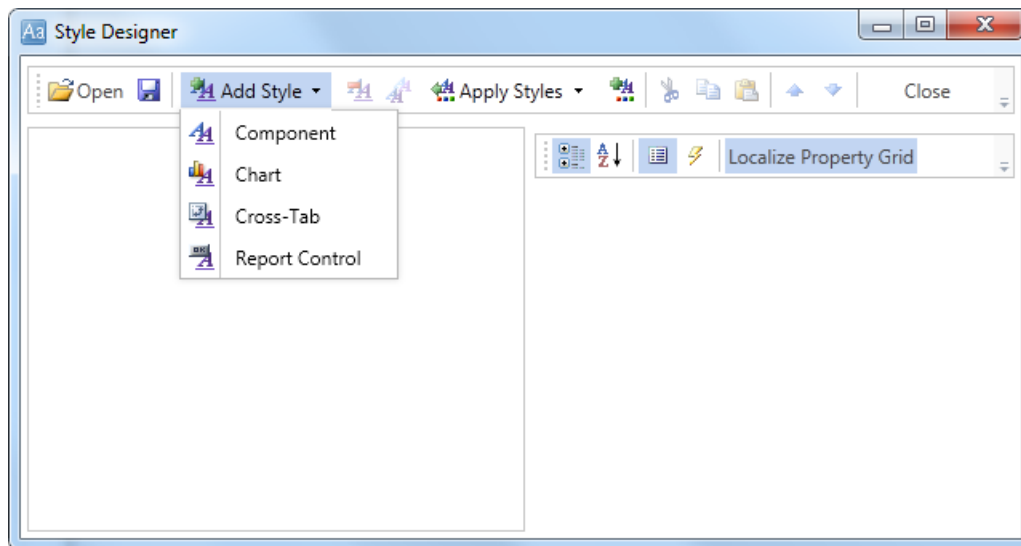
Table1: Data Source: Categories		
{Categories.CategoryName}		
{Categories.Description}		
Table2: Data Source: Products		
		MasterComponent: Table1
ProductName	QuantityPerUnit	UnitPrice
{Products.ProductName}	{Products.QuantityPerUnit}	{Products.UnitPrice}
		Count: {Count(Table2)}

10. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields.

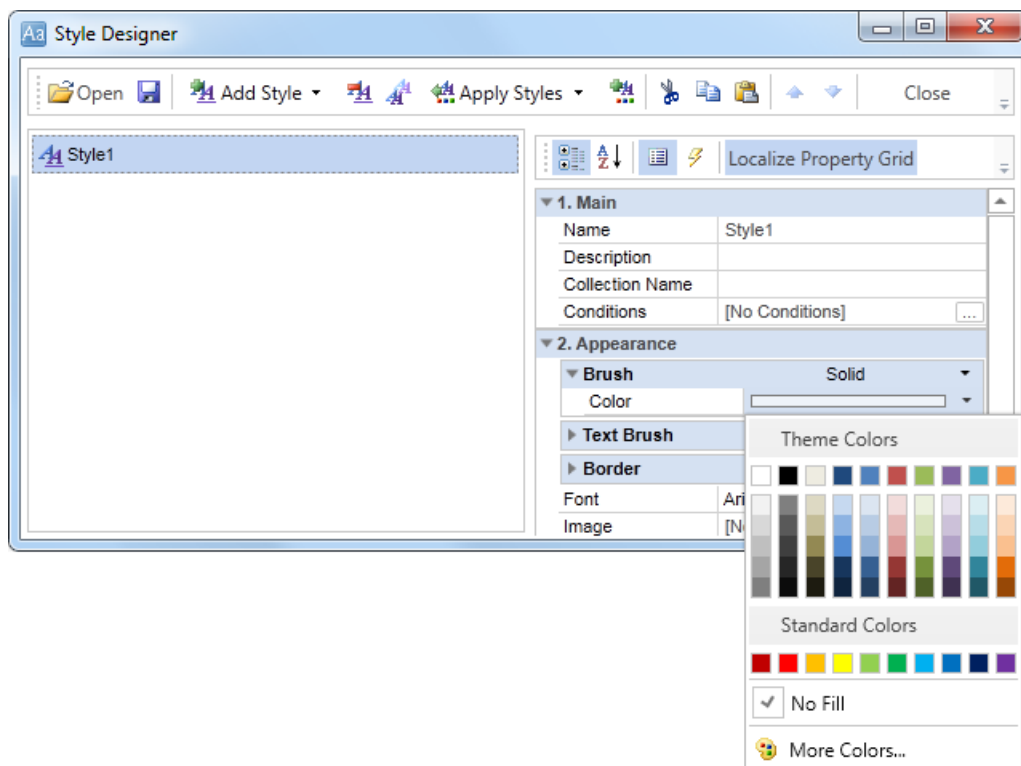
Beverages		
Soft drinks, coffees, teas, beers, and ales		
ProductName	QuantityPerUnit	UnitPrice
Chai	10 boxes x 20 bags	18
Chang	24 - 12 oz bottles	19
Guinness Fentésvica	12 - 355 ml cans	4.5
Besquatch Ale	24 - 12 oz bottles	14
Steelye Stout	24 - 12 oz bottles	18
Côte de Blaye	12 - 75 cl bottles	263.5
Chateause verte	750 cc per bottle	18
Ipoh Coffee	16 - 500 g tins	48
Laughing Lumberjack Lager	24 - 12 oz bottles	14
Outback Lager	24 - 355 ml bottles	15
Rhinobitu Klosterbier	24 - 0.5 l bottles	7.75
Lekkalkiból	500 ml	18
		Count: 12
Condiments		
Sweet and savory sauces, relishes, spreads, and seasonings		
ProductName	QuantityPerUnit	UnitPrice
Aniseed Syrup	12 - 550 ml bottles	10
Chef Anton's Cajun Seasoning	48 - 8 oz jars	22
Chef Anton's Gumbo Mix	36 boxes	21.35
Grandma's Boysenberry Spread	12 - 8 oz jars	25
Northwoods Cranberry Sauce	12 - 12 oz jars	40
Genen Shoyu	24 - 250 ml bottles	15.5
Gula Malecice	20 - 2 kg bags	19.45
Sirup d'érable	24 - 500 ml bottles	28.5
Vegiespread	15 - 825 g jars	43.9
Louisiana Fiery Hot Pepper Sauce	32 - 8 oz bottles	21.05
Louisiana Hot Spiced Okra	24 - 8 oz jars	17
Original Frankfurter grüne Soße	12 boxes	13
		Count: 12

Adding Styles

1. Go back to the report template;
2. Select the **Table** component. In this case the **Table2** component;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

Beverages		
Soft drinks, coffees, teas, beers, and ales		
ProductName	QuantityPerUnit	UnitPrice
Chai	10 boxes x 20 bags	18
Chang	24 - 12 oz bottles	19
Guaraná Fantástica	12 - 355 ml cans	4.5
Busch's Ale	24 - 12 oz bottles	14
Stout	24 - 12 oz bottles	18
Côte de Blaye	12 - 75 cl bottles	263.5
Chartreuse verte	750 cc per bottle	18
Ipoh Coffee	16 - 500 g tins	46
Laughing Lumberjack Lager	24 - 12 oz bottles	14
Outback Lager	24 - 355 ml bottles	15
Rhinobird Klosterbräu	24 - 0.5 l bottles	7.75
Lakkaikooli	500 ml	18
		Count: 12
Condiments		
Sweet and savory sauces, relishes, spreads, and seasonings		
ProductName	QuantityPerUnit	UnitPrice
Aniseed Syrup	12 - 550 ml bottles	10
Chef Anton's Cajun Seasoning	48 - 6 oz jars	22
Chef Anton's Gumbo Mix	36 boxes	21.35
Grandma's Boysenberry Spread	12 - 8 oz jars	25
Northwoods Cranberry Sauce	12 - 12 oz jars	40
Genen Shoyu	24 - 250 ml bottles	15.5
Gula Melacca	20 - 2 kg bags	19.45
Sirup d'érable	24 - 500 ml bottles	28.5
Veggie-spread	15 - 825 g jars	43.9
Louisiana Fiery Hot Pepper Sauce	32 - 8 oz bottles	21.05
Louisiana Hot Spiced Okra	24 - 8 oz jars	17
Original Frankfurter grüne Bole	12 boxes	13
		Count: 12

3.56 Anchors in Report

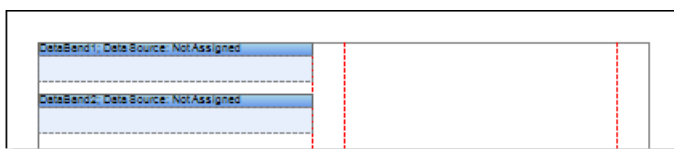
Important

Scripts can be a security risk, so they are disabled in the [Interpretation mode](#). However, if you are confident in the safety of your scripts, you can use them in the [Compilation mode](#).

A report with anchors is a report in what there is a page of contents and links (called anchors) to other pages in the report. Follow the steps below to design a report with the anchors.

Creating a page of contents

1. Run the designer;
2. Connect the data:
 - 2.1. Create a **New Connection**;
 - 2.2. Create a **New Data Source**;
3. Create **Relation** between data sources. If the relation will not be created and/or the **Relation** property of the **Detail** data source will not be filled, then, for **Master** entry, all **Detail** entries will be output;
4. Change the number of columns on a page. For example, set the **Columns** property to **2**, and the **ColumnGaps** property to **1**;
5. Put two **DataBands** on a page of the report template



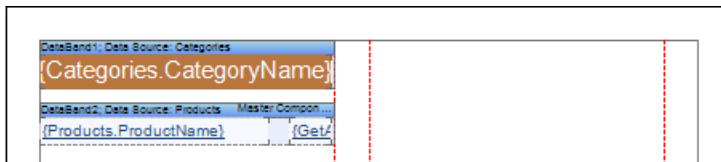
6. Edit **DataBand1** and **DataBand2**:
 - 6.1. Align them by height;
 - 6.2. Change values of required properties. For example, if to set the **PrintIfDetailEmpty** property of the **DataBand1** that is the **Master** component in the **Master-Detail** report to **true**, if it is necessary all **Master** entries be printed in any case, even if **Detail** entries not present. And set the **CanShrink** property of the **DataBand2** that is the **Detail** component in the **Master-Detail** report to **true**, if it is necessary to shrink this band;
 - 6.3. Change the background color of the **DataBands**;
 - 6.4. Enable **Borders** of the band, if required;
7. Specify the data sources for **DataBands**, as well as assign the **Master** component. In this case, the **Master** component is the upper **DataBand1**, and hence in the **DataSetup** window the lower **DataBand2** on the **Wizard** tab in the **Master Component** should indicate **DataBand1** as a **Master** component. Indicate the data sources for **DataBands** using the **Data Source** property:



8. Fill the **DataRelation** property of the **DataBand2**, which is the **Detail** component:

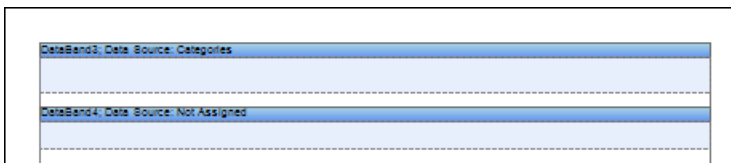


9. Put text components with expressions on **DataBands**. For example: on the **DataBand1**, which is the **Master** component, we put the text component with the following expression: **{Categories.CategoryName}**, and on the **DataBand2**, which is the **Detail** component we put two text components with expressions: **{Products.ProductName}** and **{GetAnchorPageNumber (sender.TagValue)}**;
10. Edit texts and text components of **DataBands**:
 - 10.1. Drag and drop a text component in the **DataBand**;
 - 10.2. Set the font settings: size, style, color;
 - 10.3. Align the text component by height and width;
 - 10.4. Set the background color of the text component;
 - 10.5. Align the text in the component;
 - 10.6. Change the values of the required properties. For example set **WordWrap** property to **true**, if you want the text be wrapped;
 - 10.7. If necessary, set **Borders** for the text component;
 - 10.8. Set the border color.
 - 10.9. Change the value of the **Hyperlink** property for the text component with the **{Products.ProductName}** expression. In this case, set the **Hyperlink** property to the **#{Products.ProductName}** value;
 - 10.10. Change the value of the **Hyperlink** and **Tag** properties for the text component with the **{GetAnchorPageNumber(sender.TagValue)}**. The **Hyperlink** property should be set to **#{Products.ProductName}**, and the **Tag** property to **{Products.ProductName}**.



Creating a master list

11. Create a second page in the report template;
12. Put two **DataBands** on the page of the report template.



13. Edit **DataBand3** and **DataBand4**:
 - 13.1. Align the **DataBand** by height;

13.2. Change the values of the required properties. For example set the **Print if Detail Empty** property of the **DataBand3**, which is the **Master** component in the Master-Detail report to **true**, if you want the Master records be printed in any case, even if the **Detail** entries are not present. Set the **CanShrink** property of the **DataBand4**, which is the **Detail** component in the Master-Detail report to **true**, if it is necessary for this band be shrunk;

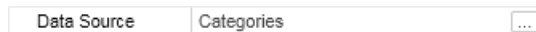
13.3. Set background color of the **DataBand**;

13.4. If it is necessary, set **Borders** for the **DataBand**;

14. Specify the data sources for DataBands, as well as assign the **Master** component. In this case, the **Master** component is the upper **DataBand3**, and hence in the **DataSetup** window the lower **DataBand4** on the **Wizard** tab in the **Master Component** should indicate **DataBand3** as a **Master** component. Indicate the data sources for **DataBands** using the **Data Source** property:



15. Fill the **DataRelation** property of the **DataBand4**, which is the **Detail** component:



16. Put text components with expressions on **DataBands**. For example: on the **DataBand3**, which is the **Master** component, we put the text component with the following expression: **{Categories.CategoryName}**, and on the **DataBand4**, which is the **Detail** component we put two text components with expressions: **{Products.ProductName}**, **{Products.QuantityPerUnit}**, and **{Products.UnitPrice}**;

17. Edit texts and text components of **DataBands**:

17.1. Drag and drop a text component in the **DataBand**;

17.2. Set the font settings: size, style, color;

17.3. Align the text component by height and width;

17.4. Set the background color of the text component;

17.5. Align the text in the component;

17.6. Change the values of the required properties. For example set **WordWrap** property to **true**, if you want the text be wrapped;

17.7. If necessary, set **Borders** for the text component;

17.8. Set the border color.

DataBand3, Data Source: Categories		
{Categories.CategoryName}		

DataBand4, Data Source: Products		
Master Component: DataBand3		
{Products.ProductName}	{Products.QuantityPerUnit}	{Products.UnitPrice}

18. Select the **DataBand**, which is the **Master** data source. In our case, this is the **DataBand3**:

18.1. Set the **Interaction.Bookmark** property of the **DataBand3** to **{Categories.CategoryName}**;

19. Select the **DataBand**, which is the Detail data source. In our case, this is the **DataBand4**:

19.1. Set the **Interaction.Bookmark** property to **{Products.ProductName}**;

19.2. Subscribe to the event. Set the **RenderingEvent** to **{AddAnchor (Products.ProductName)};**

Report rendering

20. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering a report all references to data fields will be changed on data from specified fields.

Beverages		Beverages	
Chai	3	Chai	10 boxes x 20 bags
Chang	3	Chang	24 - 12 oz bottles
Guaraná Fantástica	3	Guaraná Fantástica	12 - 355 ml cans
Sasquatch Ale	3	Sasquatch Ale	24 - 12 oz bottles
Steeleye Stout	3	Steeleye Stout	24 - 12 oz bottles
Côte de Blaye	3	Côte de Blaye	12 - 75 cl bottles
Chartreuse verte	3	Chartreuse verte	750 cc per bottle
Ippoh Coffee	3	Ippoh Coffee	16 - 500 g tins
Laughing Lumberjack Lager	3	Laughing Lumberjack Lager	24 - 12 oz bottles
Outback Lager	3	Outback Lager	24 - 355 ml bottles
Rhinobrau Klosterbier	3	Rhinobrau Klosterbier	24 - 0.5 l bottles
Lakkaikööri	3	Lakkaikööri	500 ml
Condiments		Condiments	
Aniseed Syrup	3	Aniseed Syrup	12 - 550 ml bottles
Chef Anton's Cajun Seasoning	3	Chef Anton's Cajun Seasoning	48 - 6 oz jars
Chef Anton's Gumbo Mix	3	Chef Anton's Gumbo Mix	36 boxes
Grandma's Boysenberry Spread	3	Grandma's Boysenberry Spread	12 - 8 oz jars
Northwoods Cranberry Sauce	3	Northwoods Cranberry Sauce	12 - 12 oz jars
Genen Shoyu	3	Genen Shoyu	24 - 250 ml bottles
Gula Malacca	3	Gula Malacca	20 - 2 kg bags
Siroop d'érable	3	Siroop d'érable	24 - 500 ml bottles
Veggie-spread	3	Veggie-spread	15 - 625 g jars
Louisiana Fiery Hot Pepper Sau	3	Louisiana Fiery Hot Pepper Sauce	32 - 8 oz bottles
Louisiana Hot Spiced Okra	3	Louisiana Hot Spiced Okra	24 - 8 oz jars
Original Frankfurt grüne Soße	3	Original Frankfurt grüne Soße	12 boxes
Confections		Confections	
Pavlova	3	Pavlova	12 boxes
Teatime Chocolate Biscuits	3	Teatime Chocolate Biscuits	12 boxes
Sir Rodney's Marmalade	3	Sir Rodney's Marmalade	12 boxes
Sir Rodney's Scones	3	Sir Rodney's Scones	12 boxes
NuNuCa Nuß-Nougat-Creme	3	NuNuCa Nuß-Nougat-Creme	12 boxes
Gumbär Gummitäbchen	3	Gumbär Gummitäbchen	12 boxes
Dairy Products		Dairy Products	
ChocoQl Schokolade	4	ChocoQl Schokolade	4
Zaanse koekken	4	Zaanse koekken	4
Chocolade	4	Chocolade	4
Maxilaku	4	Maxilaku	4
Valkoinen suklaa	4	Valkoinen suklaa	4
Tarttuau suola	4	Tarttuau suola	4
Scottish Longbreads	4	Scottish Longbreads	4
Grains/Cereals		Grains/Cereals	
Queso Cabrales	4	Queso Cabrales	4
Queso Manchego La Pastora	4	Queso Manchego La Pastora	4
Gorgonzola Telling	4	Gorgonzola Telling	4
Mascarpone Fabioli	4	Mascarpone Fabioli	4
Gelato	4	Gelato	4
Raclette Courdavault	4	Raclette Courdavault	4
Camembert Pierrot	4	Camembert Pierrot	4
Gudbrandsdalsost	4	Gudbrandsdalsost	4
Pilemyssost	4	Pilemyssost	4
Mozzarella di Giovanni	4	Mozzarella di Giovanni	4
Meat/Poultry		Meat/Poultry	
Mishi Kobe Niku	5	Mishi Kobe Niku	5
Alice Mutton	5	Alice Mutton	5
Thüringer Rostbratwurst	5	Thüringer Rostbratwurst	5
Perth Pasties	5	Perth Pasties	5
Toutfêre	5	Toutfêre	5
Pâté chinois	5	Pâté chinois	5

In the rendered report, when clicking an entry in the table of contents the transition to this entry in the report will be done.

21. Go back to the report template;
22. If needed, add other bands to the report template, for example, **HeaderBand**;
23. Edit this band:
 - 23.1. Align it by height;
 - 23.2. Change values of properties, if required;
 - 23.3. Change the background of the band;
 - 23.4. Set **Borders**, if required;
 - 23.5. Set the border color.

DataBand3: Data Source: Categories		
{Categories.CategoryName}		
HeaderBand1		
DataBand4: Data Source: Products		
{Products.ProductName}	{Products.QuantityPerUnit}	{Products.UnitPrice}

24. Put text components with expressions in this band. The expression in the text

component is a header in the **HeaderBand**.

25. Edit text and text components:

- 25.1. Drag and drop the text component in the band;
- 25.2. Change font options: size, type, color;
- 25.3. Align text component by height and width;
- 25.4. Change the background of the text component;
- 25.5. Align text in the text component;
- 25.6. Change values of text component properties, if required;
- 25.7. Enable **Borders** of the text component, if required;
- 25.8. Set the border color.

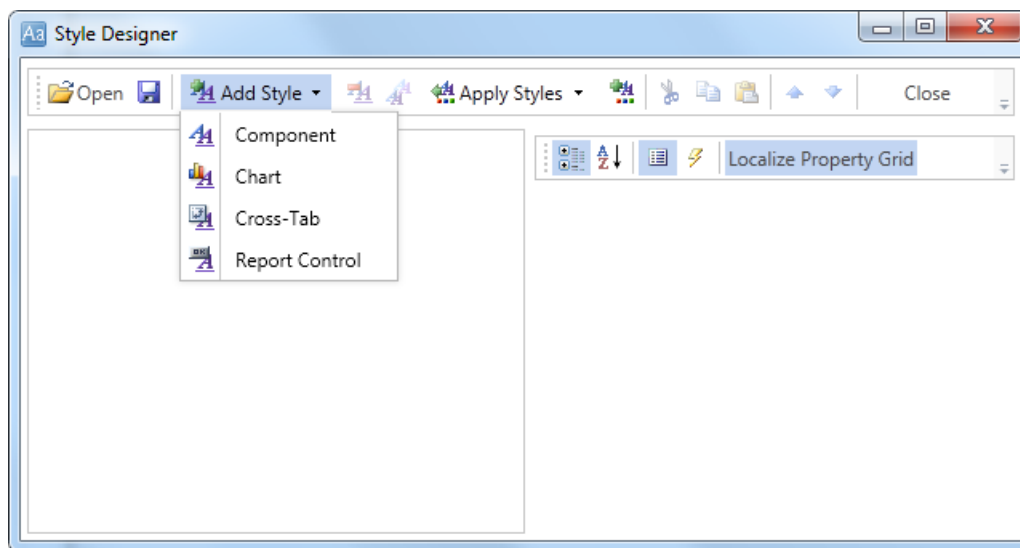
DataBand3: Data Source: Categories		
{Categories.CategoryName}		
HeaderBand1		
ProductName	QuantityPerUnit	UnitPrice
DataBand4: Data Source: Products		
Master Component: DataBand3		
{Products.ProductName}	{Products.QuantityPerUnit}	{Products.UnitPrice}

26. Click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item. After rendering all references to data fields will be changed on data form specified fields. Data will be output in consecutive order from the database that was defined for this report. The amount of copies of the **DataBand** in the rendered report will be the same as the amount of data rows in the database.

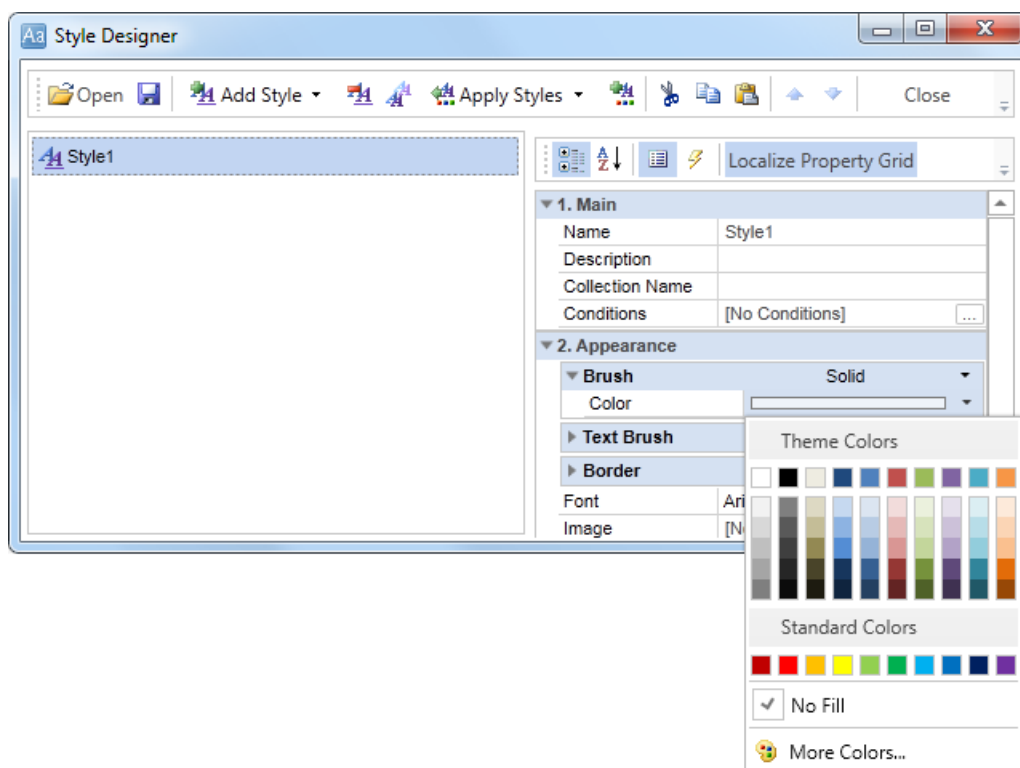
Beverages			Beverages		
Chai	3		ProductName	QuantityPerUnit	UnitPrice
Chang	3		Chai	10 boxes x 20 bags	18
Guaraná Fantástica	3		Chang	24 - 12 oz bottles	19
Sasquatch Ale	3		Guaraná Fantástica	12 - 355 ml cans	4.5
Steelye Stout	3		Besquatch Ale	24 - 12 oz bottles	14
Côte de Blaye	3		Steelye Stout	24 - 12 oz bottles	18
Chartreuse verte	3		Côte de Blaye	12 - 75 cl bottles	263.5
Ippoh Coffee	3		Chartreuse verte	750 cc per bottle	18
Laughing Lumberjack Lager	3		Ippoh Coffee	16 - 500 g tins	48
Outback Lager	3		Laughing Lumberjack Lager	24 - 12 oz bottles	14
Rhinorbru Klosterbier	3		Outback Lager	24 - 355 ml bottles	15
Lakkalikööri	3		Rhinorbru Klosterbier	24 - 0.5 l bottles	7.75
Condiments			Lakkalikööri	500 ml	18
Aniseed Syrup	3		Condiments		
Chef Anton's Cajun Seasoning	3		ProductName	QuantityPerUnit	UnitPrice
Chef Anton's Gumbo Mix	3		Aniseed Syrup	12 - 550 ml bottles	10
Grandma's Boysenberry Spread	3		Chef Anton's Cajun Seasoning	48 - 6 oz jars	22
Northwoods Cranberry Sauce	3		Chef Anton's Gumbo Mix	36 boxes	21.35
Genen Shouyu	3		Grandma's Boysenberry Spread	12 - 8 oz jars	25
Gula Malacca	3		Northwoods Cranberry Sauce	12 - 12 oz jars	40
Siroop d'érable	3		Genen Shouyu	24 - 250 ml bottles	15.5
Veggie-spread	3		Gula Malacca	20 - 2 kg bags	19.45
Louisiana Fiery Hot Pepper Sau	3		Siroop d'érable	24 - 500 ml bottles	28.5
Louisiana Hot Spiced Okra	3		Veggie-spread	15 - 625 g jars	43.9
Original Frankfurter grüne Soße	3		Louisiana Fiery Hot Pepper Sauce	32 - 8 oz bottles	21.05
Confections			Louisiana Hot Spiced Okra	24 - 8 oz jars	17
Pavlova	3		Original Frankfurter grüne Soße	12 boxes	13
Teatime Chocolate Biscuits	3		Meat/Poultry		
Sir Rodney's Marmalade	3		Mishi Kobe Niku	5	5
Sir Rodney's Scones	4		Alice Mutton	5	5
NuNuCa Nuß-Nougat-Creme	4		Thüringer Rostbratwurst	5	5
Gumbär Gummitärcchen	4		Perth Pasties	5	5
			Tourtière	5	5
			Pâté chinois	5	5

Adding Styles

1. Go back to the report template;
2. Select the **DataBand**. In our case, select the **DataBand4**;
3. Change values of **Even style** and **Odd style** properties. If values of these properties are not set, then select the **Edit Styles** in the list of values of these properties and, using **Style Designer**, create a new style. The picture below shows the **Style Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property:



Click **Close**. Then a new value in the list of **Even style** and **Odd style** properties (a style of a list of odd and even rows) will appear.

4. To render the report, click the **Preview** button or invoke the **Viewer**, clicking the **Preview** menu item.

Beverages		Dairy Products	
Chai	3	Queso Cabrales	4
Chang	3	Queso Manchego La Pastora	4
Guaraná Fantástica	3	Gorgonzola Telino	4
Sasquatch Ale	3	Mascarpone Fabioli	4
Steeleye Stout	3	Gellot	4
Côte de Blaye	3	Raclette Courdavault	4
Chartreuse verte	3	Camembert Pierrot	4
Ippoh Coffee	3	Gudbrandsdalsost	4
Laughing Lumberjack Lager	3	Piñon de Chihuahua	4
Outback Lager	3	Mozzarella di Giovanni	4
Rhinoblu Klostertier	3		
Lakkalikööri	3		
Condiments		Grains/Cereals	
Aniseed Syrup	3	Gustaf's Knäckebröd	4
Chef Anton's Cajun Seasoning	3	Tunbröd	4
Chef Anton's Gumbo Mix	3	Singaporean Hokkien Fried Mee	4
Grandma's Boysenberry Spread	3	Filo Mix	4
Northwoods Cranberry Sauce	3	Gnocchi di nonna Alice	5
Genen Shoyu	3	Ravioli Angelo	5
Gula Malacca	3	Wimmers gute Semmelknödel	5
Sirup d'érable	3		
Veggie-spread	3		
Louisiana Fiery Hot Pepper Sauce	3		
Louisiana Hot Spiced Okra	3		
Original Frankfurt Grüne Soße	3		
Confections		Meat/Poultry	
Paella	3	Mishi Kobe Niku	5
Teatime Chocolate Biscuits	3	Alice Mutton	5
Sir Rodney's Marmalade	3	Thüringer Rostbratwurst	5
Sir Rodney's Scones	4	Perth Pasties	5
NuNuCa Nuß-Nougat-Creme	4	Tourtière	5
Gumbär Gummibärchen	4	Pâté châtinais	5

Beverages		
ProductName	QuantityPerUnit	UnitPrice
Chai	10 boxes x 20 bags	18
Chang	24 - 12 oz bottles	19
Guaraná Fantástica	12 - 355 ml cans	4.5
Sasquatch Ale	24 - 12 oz bottles	14
Steeleye Stout	24 - 12 oz bottles	18
Côte de Blaye	12 - 75 cl bottles	269.5
Chartreuse verte	750 cc per bottle	18
Ippoh Coffee	16 - 500 g tins	48
Laughing Lumberjack Lager	24 - 12 oz bottles	14
Outback Lager	24 - 355 ml bottles	15
Rhinoblu Klostertier	24 - 0.5 l bottles	7.75
Lakkalikööri	500 ml	18

Condiments		
ProductName	QuantityPerUnit	UnitPrice
Aniseed Syrup	12 - 550 ml bottles	10
Chef Anton's Cajun Seasoning	48 - 8 oz jars	22
Chef Anton's Gumbo Mix	36 boxes	21.35
Grandma's Boysenberry Spread	12 - 8 oz jars	26
Northwoods Cranberry Sauce	12 - 12 oz jars	40
Genen Shoyu	24 - 250 ml bottles	15.5
Gula Malacca	20 - 2 kg bags	19.45
Sirup d'érable	24 - 500 ml bottles	28.5
Veggie-spread	15 - 625 g jars	43.9
Louisiana Fiery Hot Pepper Sauce	32 - 8 oz bottles	21.05
Louisiana Hot Spiced Okra	24 - 8 oz jars	17
Original Frankfurt Grüne Soße	12 boxes	13

3.57 Invoice Report

The invoice is most often used in accounting for the tax (customs) control or in the international supply of goods. This document usually includes the cost of transportation, shipping operations, insurance, payment of export duties, as well as various taxes (fees), and more. If your activity requires constant creation of invoices, for optimization, time and cost savings, it is logical to assume that it is easier to create a document template. Using it, you change only the data, saving yourself from routine work to create the structure of the invoice and its design.

You can create templates and tools in many ways, but I want to help you save time in finding these resources. In this tutorial you will learn how to quickly create an invoice template, decorate it and get the finished document. This will take you some time. I will try as much as possible to describe in detail the process of creating such a report.

The product which is used in this tutorial is Stimulsoft Reports.NET which trial can be

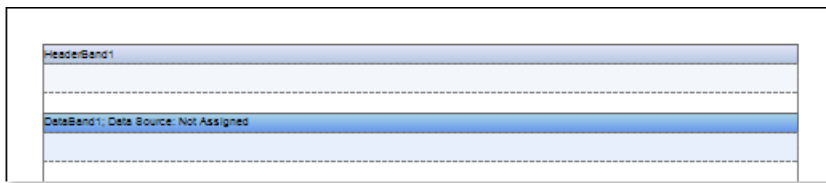
downloaded at http://www.stimulsoft.com/Downloads/StimulsoftReports.Net_2012.1_Trial.zip.

The database to this tutorial is delivered with the product installation. I also attached the video file which shows how to create a report.

The ready invoice.mrt file is also attached to this article.

To create an invoice, you should do the following steps:

1. Run the designer;
2. Connect the data:
 - 2.1. Create **New Connection**;
 - 2.2. Create **New Data Source**;
3. Put the **DataBand** on the page of the report template;
4. Put the **HeaderBand** above the **DataBand**. The picture below shows an example of the report template with the bands on the page:



Edit the bands **DataBand** and **HeaderBand**:

- 5.1. Align them by height;
- 5.2. Set the properties of the **DataBand**. For example, set the **Can Break** property to **true**, if you want the band be broken;
- 5.3. Set the background color for the bands;
- 5.4. If necessary, set **Borders**;
- 5.5. Set the border color.

6. Specify the data source for the **DataBand** using the **Data Source** property from the object inspector:



7. Put text components in the **HeaderBand** with texts **Unit Name**, **Description**, **Qty**, **Item Price**, **Total**;
8. Put text components in the **DataBand** with expressions. Where the expression is a

reference to the data field. Put text components with the expressions: **{Products.ProductName}**, **{Products.QuantityPerUnit}**, **{Products.UnitsInStock}**, **{Products.UnitPrice}**, and **{Products.UnitsInStock * Products.UnitPrice}**;

9. Edit **Text** and **TextBox**:

9.1. Drag the text components on the **DataBand** and **HeaderBand** to the appropriate places;

9.2. Set the font parameters: size, style and color;

9.3. Align text components by height and width;

9.4. Set the background of text components;

9.5. Align text in text components;

9.6. Set the properties of text components. For example to set the **Word Wrap** property to **true**;

9.7. If necessary, include **Borders** of text components;

9.8. Set the border color.

The picture below shows the report template:

HeaderBand1				
Unit Name	Description	Qty	Item Price	Total
DataBand1, Data Source: Products				
{Products.ProductName}	{Products.QuantityPerUnit}	{Products.UnitsInStock}	{Products.UnitPrice}	{Products.UnitsInStock * Products.UnitPrice}

10. Click on the **Preview** button or invoke the report viewer, using the **Preview** item. After rendering a report, all references to the data fields will be replaced with data from the specified fields. That data will be taken sequentially from the data source that was specified for the given band. The number of copies of the **DataBand** in the rendered report will be equal to the number of rows in the data source. The picture below shows the rendered report:

Unit Name	Description	Qty	Item Price	Total
Chai	10 boxes x 20 bags	39	18	702
Chang	24 - 12 oz bottles	17	19	323
Aniseed Syrup	12 - 550 ml bottles	13	10	130
Chef Anton's Cajun Seasoning	48 - 6 oz jars	53	22	1166
Chef Anton's Gumbo Mix	36 boxes	0	21.35	0.00
Grandma's Boysenberry Spread	12 - 6 oz jars	120	25	3000
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	15	30	450
Northwoods Cranberry Sauce	12 - 12 oz jars	6	40	240
Mishi Kobe Niku	18 - 500 g pkgs.	29	97	2813
Ikura	12 - 200 ml jars	31	31	961

11. Go back to the report template;

12. Add the **FooterBand** on the report page and edit it;
13. Put text components in the band with the expression **Items per page: {cCount (DataBand1)}** and edit this text component;
14. Add **Rectangle**, so that the upper points are located on the **HeaderBand**, and the lower ones on the **FooterBand**;
15. Add cross-primitives, which start points are located at the top of the **HeaderBand**, and the end ones - on **FooterBand**. The picture below shows the report template with the **FooterBand**, rectangle and primitives:

Unit Name	Description	Qty	Item Price	Total
DataBand1: Data Source: Products				
{Products.ProductName}	{Products.QuantityPerUnit}	{Products.UnitsInStock}	{Products.UnitPrice}	{Products.UnitsInStock * Products.UnitPrice}
FooterBand1				
Items per page: {cCount(DataBand1)}				

16. Add the **ReportTitleBand** to the report template and **FooterBand** and edit them;
 17. Put a text component in the **FooterBand** with the expression **Total: {Sum (Products.UnitsInStock * Products.UnitPrice)}**;
 18. Put a text components in the **ReportTitleBand** with expressions:
 - 18.1. The first text component has the text **BILL TO**;
 - 18.2. The second one indicates **Name Street Address Address 2 City, ST ZIP Code**;
 - 18.3. The third component with the text **SHIP TO**;
 - 18.4. In the fourth component the text is the same as in the second one **Name Street Address Address 2 City, ST ZIP Code**;
 - 18.5. Put the text **Invoice # 123456** in the next component;
 - 18.6. Put the expression **Invoice date {Today.ToString ("d")}** in the sixth component in this band;
 - 18.7. And in the last component put **Customer ID 123**;
- The picture below shows a report template:

ReportTitle				
BILL TO	Name Street Address Address 2 City, ST ZIP Code	SHIP TO	Name Street Address Address 2 City, ST ZIP Code	Invoice #123456 Invoice date {Today.ToString("d")} Customer ID 123
HeaderBand1				
Unit Name	Description	Qty	Item Price	Total
DataBand1: Data Source: Products				
{Products.ProductName}	{Products.QuantityPerUnit}	{Products.UnitsInStock}	{Products.UnitPrice}	{Products.UnitsInStock * Products.UnitPrice}
FooterBand1				
Items per page: {cCount(DataBand1)}				
Footer1				
Total: {Sum(Products.UnitsInStock * Products.UnitPrice)}				

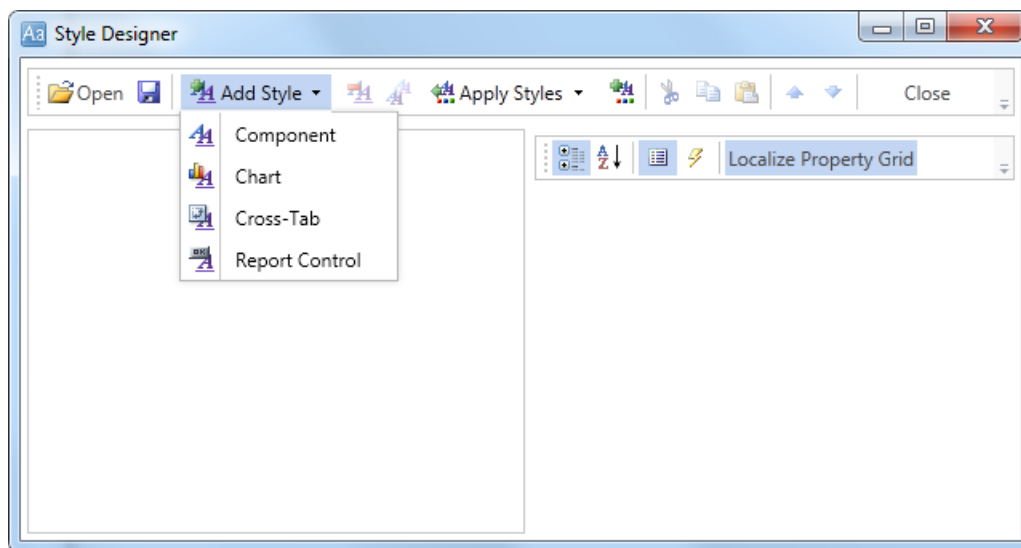
19. Click on the **Preview** button or invoke the report viewer, using the **Preview** item. After rendering a report, all references to the data fields will be replaced with data from the specified fields. That data will be taken sequentially from the data source that was specified for the given band. The number of copies of the **DataBand** in the rendered report will be equal to the number of rows in the data source. The picture shows a report with the report header and footer:

BILL TO	Name Street Address Address 2 City, ST ZIP Code	SHIP TO	Name Street Address Address 2 City, ST ZIP Code	Invoice #123456 Invoice date 5/22/2012 Customer ID 123
Unit Name	Description	Qty	Item Price	Total
Chai	10 boxes x 20 bags	39	18	702
Chang	24 - 12 oz bottles	17	19	323
Aniseed Syrup	12 - 550 ml bottles	13	10	130
Chef Anton's Cajun Seasoning	48 - 6 oz jars	53	22	1166
Chef Anton's Gumbo Mix	36 boxes	0	21.35	0.00
Grandma's Boysenberry Spread	12 - 8 oz jars	120	25	3000
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	15	30	450
Northwoods Cranberry Sauce	12 - 12 oz jars	6	40	240
Mishi Kobe Niku	18 - 500 g pkgs.	29	97	2813
Ikura	12 - 200 ml jars	31	31	961

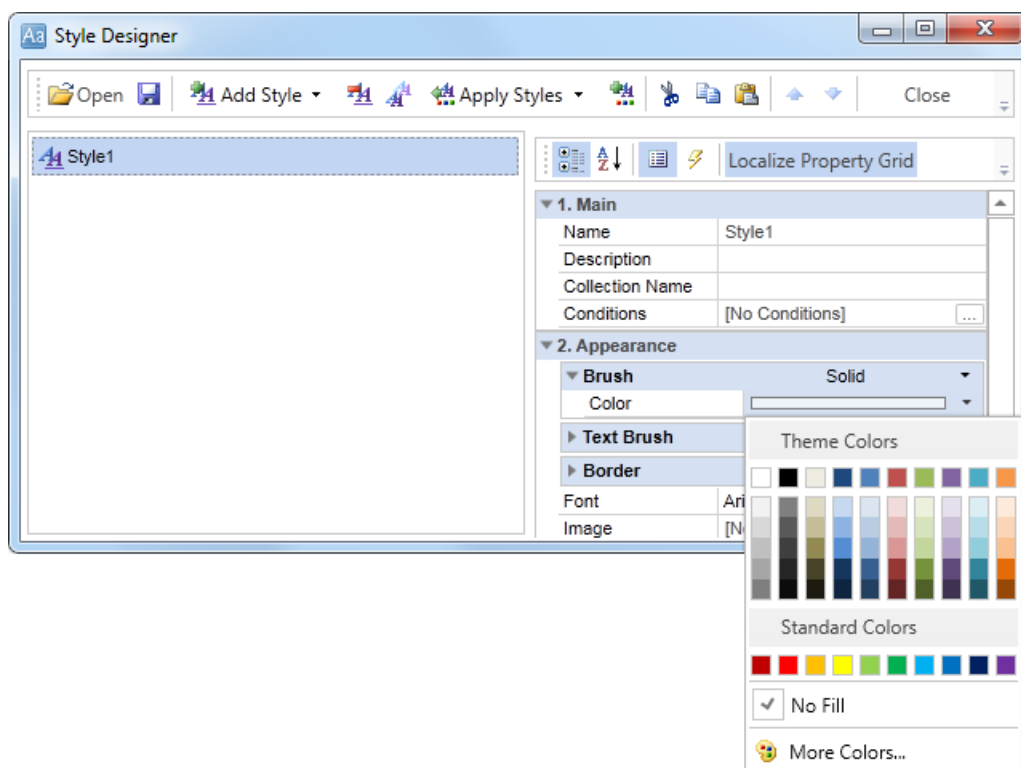
Adding styles

1. Go back to the report template;
2. Call the **Style Designer**;

The picture below shows the dialog **Styles Designer**:



Click the **Add Style** button to start creating a style. Select **Component** from the drop down list. Set the **Brush.Color** property to change the background color of a row. The picture below shows a sample of the **Style Designer** with the list of values of the **Brush.Color** property



Press the **Close** button when the property is set. After that, in the list of values of properties **Even style** and **Odd style** the new values will appear, the new style of

even/odd lines, respectively.

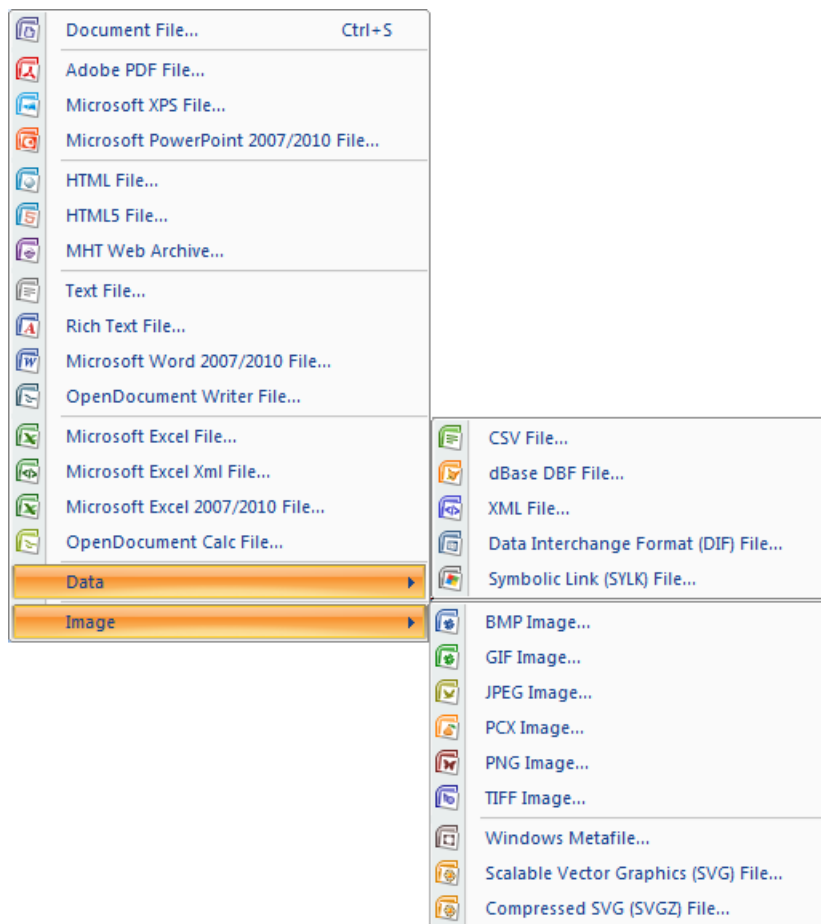
4. Render a report by clicking on the **Preview** tab or call the report **Viewer** using the **Preview** menu item. The picture below shows the rendered report with the invoice:

BILL TO	Name Street Address Address 2 City, ST ZIP Code	SHIP TO	Name Street Address Address 2 City, ST ZIP Code	Invoice #120458
				Invoice date 6/22/2012 Customer ID 123
Unit Name	Description	Qty	Item Price	Total
Chai	10 boxes x 20 bags	39	18	702
Chang	24 - 12 oz bottles	17	19	323
Aniseed Syrup	12 - 550 ml bottles	13	10	130
Chef Antoni's Cajun Seasoning	48 - 6 oz jars	53	22	1166
Chef Antoni's Gumbo Mix	36 boxes	0	21.35	0.00
Grandma's Boysenberry Spread	12 - 8 oz jars	120	25	3000
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	15	30	450
Northwoods Cranberry Sauce	12 - 12 oz jars	6	40	240
Mishi Kobe Niku	18 - 500 g pkgs.	29	97	2813
Ikura	12 - 200 ml jars	31	31	961
Queso Cabrales	1 kg pkg.	22	21	462
Queso Manchego La Pastora	10 - 500 g pkgs.	86	38	3268

5. Go back to the report template;

6. Save the report template, for example, as **Invoice.mrt**.

The invoice, can be printed, saved to any of the available file formats, or sent via Email. The picture below shows a list of file formats available for saving or sending reports via Email:



3.58 Creating Reports in Designer

A report in the designer can be created using the tools for creating reports and report components. Also, you can create a report using [Report Wizards: Standard Report, Master-Detail Report and Label Report](#).

3.59 Invoice Report With Parameters

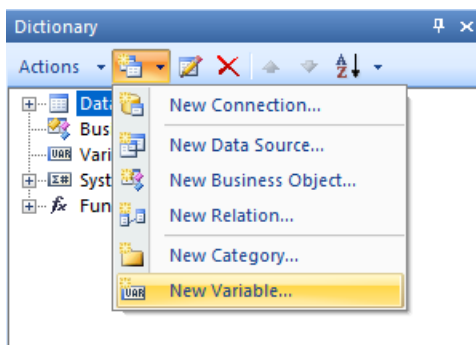
Do the following steps to create an invoice with parameters:

1. Run the report designer;
2. Open the saved report template and render a report. The picture below shows the rendered report with the invoice:

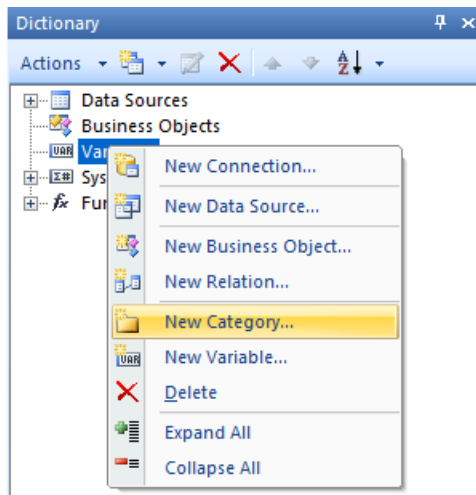
BILL TO		Name Street Address Address 2 City, ST ZIP Code	SHIP TO		Name Street Address Address 2 City, ST ZIP Code	Invoice #123456 Invoice date 6/26/2012 Customer ID 123
Unit Name	Description	Qty	Item Price	Total		
Chai	10 boxes x 20 bags	39	18	702		
Chang	24 - 12 oz bottles	17	19	323		
Aniseed Syrup	12 - 550 ml bottles	13	10	130		
Chef Antoni's Cajun Seasoning	48 - 6 oz jars	53	22	1166		
Chef Antoni's Gumbo Mix	36 boxes	0	21.35	0.00		
Grandma's Boysenberry Spread	12 - 8 oz jars	120	25	3000		
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	15	30	450		
Northwoods Cranberry Sauce	12 - 12 oz jars	6	40	240		
Mishi Kobe Niku	18 - 500 g pkgs.	29	97	2813		
Ikura	12 - 200 ml jars	31	31	961		

Pay attention to the report header. As can be seen from the picture above, information about payments and delivery are not specified. How to make it so you can easily specify these details? The constant editing of text components in the report template is not an option, but using the parameters in the report is quick and easy. Especially if there are more recipients of your invoices. So, to add parameters to the report, follow these steps:

3. Go back to the report template;
4. Add parameters to the report template. The parameters in the report are implemented using variables (a variable may have different values). To add a variable, in the tab Dictionary -> the menu item New Item -> select New Variable... The picture below shows the New Item:



Details BILL TO and SHIP TO, by definition of fields (name, street, city, zipcode) are the same, so when you create variables, there could be confusion. To avoid this, the variables can be created in different subcategories. So, to avoid this, create a subcategory of variables, which are called BILL TO and SHIP TO. For this purpose, in the context menu of the category Variables, click New Category...:



Then, in the box of the New Category you should specify a name for the category (BILL TO and SHIP TO). After that, we will create the variables in the category BILL TO. In principle, there is no difference where to create a variable, because it is always possible to move it to the appropriate subcategory. Yet, to save time, get used immediately to create the correct location. So, select a subcategory created by BILL TO command and call the new variable (New Variable) from the context menu or menu item New (New Item). The picture below presents a window to create a new variable:

The 'New Variable' dialog box contains the following fields and options:

- Name:** BILLTO_Name
- Alias:** BILLTO - Name
- Description:** (empty text box)
- Type:** string (dropdown menu)
- Value:** Value (dropdown menu)
- Init by:** Value (dropdown menu)
- Value:** Name (text box)
- Sample:** 123; My text; 567f; 456.23f; Test String; A
- ☐ Read Only
- ☒ Request from User
- ☒ Allow User Values
- Data Source:** Items (dropdown menu)
- Items:** [Not Assigned] (text box)
- Format Mask:** (empty text box)
- Buttons:** OK, Cancel

Define the parameters created by the variable:

- 5.1. Change the name (Name) and Nick (Alias) variable, specify the description (Description), if necessary;
- 5.2. Choose the type of stored value (in this case string) and the type of the variable (we will approach the variable type value (Value)). Here is a very important step, which we have determined that our variable will store a single value (rather than a list of values or Range), and this value will be stored in a string type.
- 5.3. Set the default value. In our example, set the value of Name;
- 5.4. Get the answer options are installing from a user (Request from User), and use user values (Allow User Values). In this step, we allow the user to participate, as well as change the value stored in variable;
- 5.5. Press Ok.

To use this variable in the report, you must provide a link to it - {variable name}. In this case, we indicate in the text component {BILLTO_Name}. The picture below predstalen invoice template with a variable:

ReportTitle1				
BILL TO	Name: (BILLTO_Name) Street Address Address 2 City, ST ZIP Code	SHIP TO	Name Street Address Address 2 City, ST ZIP Code	Invoice #123456 Invoice date (Today.ToString("d")) Customer ID 123
HeaderBand1				
Unit Name	Description	Qty	Item Price	Total
DataBand1: Источник данных: Products				
{Products.ProductName}	{Products.QuantityPerUnit}	{Products.UnitsInStock}	{Products.UnitPrice}	{Products.UnitsInStock * Products.UnitPrice}
FooterBand1				
Items per page: {cCount(DataBand1)}				
Footer1				
Total: {Sum(Products.UnitsInStock * Products.UnitPrice)}				

Render a report to check how works the newly created key in the final report. Click on the Preview button or bring up the Viewer, using the shortcut key F5 or the menu Preview. After building a report, all references to data sources will be replaced with data from these fields. With that data will be taken sequentially from a data source that was specified for a given band. The number of copies of the band Data in the rendered report will be equal to the number of rows in the data source. The picture below before your report with a parameter:

Report - Viewer

Preview

Print Open Save Send E-Mail File

New Page Delete Page Page Size Edit Page Edit

Bookmarks Parameters Thumbnails Panels

Find View Tools

BILLTO - Name Name Parameter

Reset Submit

Value of Parameter

BILL TO	Name: Name Street Address Address 2 City, ST ZIP Code	SHIP TO	Name Street Address Address 2 City, ST ZIP Code	Invoice #123456 Invoice date 6/28/2012 Customer ID 123
Unit Name	Description	Qty	Item Price	Total
Chai	10 boxes x 20 bags	39	18	702
Chang	24 - 12 oz bottles	17	19	323
Aniseed Syrup	12 - 550 ml bottles	13	10	130
Chef Anton's Cajun Seasoning	48 - 6 oz jars	53	22	1166
Chef Anton's Gumbo Mix	36 boxes	0	21.35	0.00
Grandma's Boysenberry Spread	12 - 8 oz jars	120	25	3000
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	15	30	450
Northwoods Cranberry Sauce	12 - 12 oz jars	6	40	240
Mishi Kobe Niku	18 - 500 g pkgs.	29	97	2813

Page 1 of 3 61%

As can be seen from the picture, the report shows the specified field values of the parameter (in this case, Name). Note that in the first set of values stored in the variable value by default. Now change the value and click the Apply button (Submit). In the picture below a report with the modified parameter value:

The screenshot shows the 'Report - Viewer' window. At the top is a 'Preview' toolbar with buttons for Print, Open, Save, Send E-Mail, New Page, Delete Page, Edit Page, Bookmarks, Parameters, Thumbnails, Find, and View. Below the toolbar is a parameter input section labeled 'BILLTO - Name' with a text box containing 'Invoice Company'. A red arrow points to the text box with the label 'Parameter'. Below the text box are 'Reset' and 'Submit' buttons. The main area of the viewer displays a report titled 'Value of Parameter'. The report contains a table with columns: Unit Name, Description, Qty, Item Price, and Total. The data rows are as follows:

Unit Name	Description	Qty	Item Price	Total
Chai	10 boxes x 20 bags	39	18	702
Chang	24 - 12 oz bottles	17	19	323
Aniseed Syrup	12 - 550 ml bottles	13	10	130
Chef Anton's Cajun Seasoning	48 - 6 oz jars	53	22	1166
Chef Anton's Gumbo Mix	36 boxes	0	21.35	0.00
Grandma's Boysenberry Spread	12 - 8 oz jars	120	25	3000
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	15	30	450
Northwoods Cranberry Sauce	12 - 12 oz jars	6	40	240
Mishi Kobe Niku	18 - 500 g pkgs.	29	97	2813

At the bottom of the viewer, there is a page navigation bar showing 'Page 1 of 3' and a zoom level of '61%'.

Add options for other fields. To do this:

Back to the template;

Create a similar variables in the sub-BILLTO named BILLTO_Street_Address, BILLTO_Address_2, BILLTO_City-ST-ZIP_Code;

In a similar sub-SHIPTO variables, with the names of SHIPTO_Name, SHIPTO_Street_Address, SHIPTO_Address_2, SHIPTO_City-ST-ZIP_Code;

Use these variables to the report, ie They point to the links in the template;

We construct a report to check how the newly created key in the final report. Click on the Preview button or bring up the Viewer, using the shortcut key F5 or the menu Preview. After building a report, all references to data sources will be replaced with data from these fields. With that data will be taken sequentially from a data source that was specified for a given band. The number of copies of band Data in

the constructed report will be equal to the number of rows in the data source. The picture below before the report prepared with the following parameters:

The screenshot shows the 'Report - Viewer' application window. It features a 'Preview' tab and a toolbar with icons for Print, Open, Save, Send E-Mail, New Page, Delete Page, Edit Page, Bookmarks, Parameters, Thumbnails, Find, and View. Below the toolbar, there are input fields for parameters, organized into two columns: BILLTO and SHIPTO. Each column has fields for Name, Street Address, Address 2, and City, ST, ZIP-Code. Below these fields are 'Reset' and 'Submit' buttons. The main area displays a preview of the report, which includes a header section with fields for BILL TO, SHIP TO, and Invoice details (Invoice #123456, Invoice date 6/23/2012, Customer ID 123). Below the header is a table with the following data:

Unit Name	Description	Qty	Item Price	Total
Chai	10 boxes x 20 bags	39	18	702
Chang	24 - 12 oz bottles	17	19	323
Aniseed Syrup	12 - 550 ml bottles	13	10	130
Chef Antonio's Cajun Seasoning	48 - 6 oz jars	53	22	1166
Chef Antonio's Gumbo Mix	36 boxes	0	21.35	0.00

At the bottom of the window, there is a status bar showing 'Page 1 of 3' and a zoom level of 61%.

Now, to prepare an invoice with the required details and BILLTO SHIPTO, no need to alter permanently a template. Enough to simply specify the details and click the Apply button (Submit). Reset Button (Reset) resets the values stored in a variable and sets the value stored by default. In these two articles, I showed you how to use report generator Stimulsoft can facilitate their work in creating invoices. And also learned how to use this tool in a few steps and get a hard-structured, well-designed, dynamic report. I would like to add that this is only a small part of the potential reporting tool Stimulsoft. Stimulsoft Start learning today and you'll wonder how you can quickly and easily create reports. And I'll be sure to write articles to help you solve your questions.

4 Report Internals

This section describes the internal components and features of Stimulsoft Reports, including Expressions, Appearance, Text Formatting, Barcodes, Watermarks, and more.

4.1 Expressions

Expressions are a crucial part of Stimulsoft Reports - without them, it would not be possible to produce any reports at all. An expression is a combination of one or more of the following:

- Text;
- Mathematical and Logical operators;
- Constants;
- Functions;
- Field names;
- Controls;
- Properties.

Stimulsoft Reports processes the expressions defined in a report to calculate the value to be displayed or printed for each one. This value is saved and can be used in further calculations when generating the report output.

The most common expressions used in the report generator are text expressions. These expressions are used to define any text displayed or printed in the report that is not the subject of any calculation, such as a text heading. Text expressions are always converted into strings.

4.1.1 Text Expressions

The simplest expressions are Text expressions. For example:

```
MyText
```

```
12345
```

```
Test
```

All three expressions above consist of one string, and there are no calculations - the expression will be printed in the report exactly as it has been defined. Such expressions are typically used to indicate simple string constants, column names, reports, links, etc.

4.1.2 Calculating Values in Expressions

An expression can contain many different types of variables as well as functions and field values from databases. These various parts can be combined to calculate a value to be printed or displayed within a report.

Using Code in an Expression

When calculating a value within an expression, you may also include code written in the programming language of a report. Curly braces (the "{" and "}" symbols) are used to separate the code item from other text. The opening brace symbol "{" indicates the beginning of a calculation. The closing brace symbol "}" indicates the end of a calculation. The code between symbols is calculated, and the value is included in the result of the calculation. In text expressions, the result of the calculation is automatically converted into a string. For example, if you enter the following expression:

```
Value = {1+2}
```

then after calculation, the result appearing in the report will be:

```
Value = 3
```

Multiple Code Insertions

When using calculations, an unlimited number of code insertions are allowed in any one expression. For example, if you enter the following expression:

```
ValueA = {1 + 2}, ValueB = {2 + 3}
```

then after calculation the result appearing in the report will be:

```
ValueA = 3, ValueB = 5
```

Nested Code Insertions

When you perform calculations in an expression, the nesting of code sections is not allowed. For example, the following expression is not correct and will cause the calculation to fail:

```
ValueA = {1 + 2} + {2 + 3}
```

Important

Code nesting is not allowed when making calculations in expressions.

4.1.3 Multi-line Expressions

It is possible for a single expression to output multiple lines of text within a report. To create a multi-line expression, insert a line feed before any new line. You can do this by simply pressing the Enter key at the appropriate place in the code editor. There is no limit to the number of lines that can be included in an expression. For example, if you enter the following expression:

Value:

```
{1+2}
```

```
{1+2}
```

then after calculation, the result appearing in the report will be:

Value:

```
3
```

```
7
```

In other words, the text output will contain two lines.

Information

An expression may contain any number of lines.

Using Code in Multi-line Expressions

Multi-line expressions do not have limitations on using code to calculate values other than those for Single-line expressions.

4.1.4 Using Dictionary Variables

You can create variables in the designer data dictionary, which can then be used in expressions. When you specify the name of a variable in the expression, the value of the variable will be included in the report. The syntax is simply the name of the variable surrounded by curly braces. For example, if you set the value of the variable to 5 and you enter the following expression:

```
Value = {MyVariable}
```

then after calculation, the result appearing in the report will be:

```
Value = 5
```

Calculating with Variables

Variables can also be used in calculations. For example, if the value of **MyVariable** is 15, and you enter the following expression:

```
Value = {MyVariable + 10}
```

then after calculation, the result appearing in the report will be:

```
Value = 25
```

Important

If the report language is **C#**, then variable names are case sensitive. If the report language is **VB.Net**, then variable names are not case sensitive.

4.1.5 Using Data Fields

Values from data sources can be used in expressions. To reference a field from the data source you must provide a string representation of the field. The syntax of the reference is simple - you give the name of the data source and the field name separated by a decimal point or full-stop character, surrounded by curly braces:

```
{DataSource.Column}
```

For example, if you have an entry in the customers table with the company name field set to "The Big Company" and you enter the following expression:

```
Company Name: {Customers.CompanyName}
```

then after calculation, the result appearing in the report will be:

```
Company Name: The Big Company
```

Information

To avoid having to create this sort of expression manually, you can use drag and drop from the data dictionary directly to the page of a report or within the expression editor to insert the necessary information automatically and with the correct syntax.

Parent Relationships

If the data source has a **parent** relationship with other data sources you can directly reference fields from the **parent** data source. The syntax of the reference is similar to the examples already given - you give the name of the data source, then the relation name, and then the field name each separated by a decimal point or full-stop character, and the whole thing surrounded by curly braces. For example:

```
{Datasource.Relation.Field}
```

Assuming that you have a set of information like this:

- **Products** is the name of a data source;
- **ParentCategories** is the name of the relation, with what two data sources are related. In this case, two data sources are related:
- **Products** is a list of products, and **Categories** is a list of categories of these products.
- **CategoryName** is a column name in the **Categories** data source.

if you enter the following expression:

```
{Products.ParentCategories.CategoryName}
```

then after calculation, the result appearing in the report will be the name of a category for a product.

There are no limits on the number of relationships you can use in Stimulsoft Reports. Therefore a column can be called through two or three or even more relationships. For example, assuming that you have a set of information like this:

- **OrderDetails** is the name of a data source;
- **ParentProducts** is the name of the relations between **OrdersDetails** and

Products data sources;

- **ParentCategories**. is the name of the relation between **Products** and **Categories** data sources;
- **CategoryName** is a field in the **Categories** data source.

if you enter the following expression:

```
{OrderDetails.ParentProducts.ParentCategories.CategoryName}
```

then after calculation, the result appearing in the report will still be the name of a category for a product, but the value of the **CategoryName** field has been obtained using relationships and bypassing the **OrderDetails** data source to get to the **Categories** data source. No direct call to the **Categories** data source has been used.

Important

If the report language is **C#**, then names are case sensitive. If the report language is **VB.Net**, then names are not case sensitive.

It should be remembered that all the values in data sources are typed. This means that all data items are dynamically converted to the type that is specified in the options column, which helps to accelerate the development of reports. However, if you need to get data from a column without conversion, you will need to specify the data source directly. For example, in C#:

```
{Products["ProductName"]}
```

This expression will return data from the **Products** data source "as is" without conversion. The example below shows the same expression for **VB.Net**:

```
{Products.Item("ProductName")}
```

4.1.6 Using Component Properties

When creating expressions, you can use the properties of any component contained within a report.

Syntax

The syntax is the same whether the report language is **C#** or **VB.NET**. You enter the name of the component and the property name separated by a decimal point or full-stop character, surrounded by curly braces:

```
{Component.Property}
```

Important

If the report language is **C#**, then names are case sensitive. If the report language is **VB.NET**, then names are not case sensitive.

For example, to display the name of a component called **MyComponent**, you would enter the expression:

```
{MyComponent.Name}
```

If you wish to access a calculated value from within a component, you should use the property that contains the result you require. For example, if the component has a hyperlink value which calculates a hyperlink from the other component properties, you would access it by entering the expression:

```
{MyComponent.HyperlinkValue}
```

You can use component properties in calculations should this be necessary. For

example, the following would display the area taken up by the component:

```
{MyComponent.Width*MyComponent.Height}
```

4.1.7 Using Functions in Expressions

Built-In Functions

Stimulsoft Reports has a large number of built-in functions available for you to use. You can access these functions directly from the data dictionary and within the Expression Editor. Examples of built-in functions and their usage would be:

```
{Trim(MyString) }
```

or

```
{Trim(MyDataSource, MyDataColumn) }
```

In each case, the use of the **Trim** function removes leading and trailing spaces from the result shown in the report.

.NET Framework Methods

In addition to the built-in functions, you can use any available .Net Framework methods. For string expressions, you could use any of the following examples:

```
{MyString.Trim()} // Removes leading and trailing spaces
```

```
{"Test".ToUpper()} // Converts the value to upper case "TEST"
```

```
{MyString.Length} // Returns the length of the string - if the value of  
MyString is "Test" then the method will return 4
```

For numerical expressions, you could use any of the following examples:

```
{Math.Round(MyValue, 2)} // Rounds the value to two decimal places
```

```
{Math.Sqrt(MyValue)} // Returns the square root of MyValue
```

```
{MyValue.ToString() + " times"} // Converts the number to a string and  
adds the word "times" -  
// if MyValue is 5 this  
returns "5 times"
```

There are no limits to the number of Framework methods you can access - if they are available within **.NET** for the type you are using in a report, you can use them without restriction.

4.1.8 Conditional Expressions

Conditional Expressions are not allowed in Stimulsoft Reports by default. However, there are two ways to force conditional behavior should you find it necessary to do so:

The IIF Function

Firstly, you can use the built-in **IIF** function which you can insert from the data dictionary. The function uses the following syntax:

```
{IIF(Condition, Value1, Value2)}
```

This evaluates **Condition**, and if the **Condition** returns **true**, then the expression will return **Value1**. If it returns **false**, then it will return **Value2**. For example, if you enter the following expression:

```
Number of Stores: {Store.Count > 0, Store.Count, "None"}
```

then if the value of Store.Count is 10 after calculation the result appearing in the

report will be:

```
Number of Stores: 10
```

If the value of `Store.Count` is 0 after calculation the result appearing in the report will be:

```
Number of Stores: None
```

The C# Ternary Operator

If you are using **C#** as your report language, it is also possible to use the ternary operator. The syntax for the ternary operator is as follows:

```
{Condition ? Value : Value2}
```

In the same way as the IIF function, if **Condition** evaluates to **true**, then the expression will return **Value1**. If **false**, then it will return **Value2**.

4.1.9 Using Aliases in Expressions

To make it easier to understand expressions in a report, you can use aliases instead of explicitly specifying the variable or data source and column details. For example, if you have a variable in the data dictionary called "MyVariable" and you have set its alias to "my best variable" you can reference that variable directly by Name or by Alias.

To use the variable by the name, you would create an expression like this:

```
{MyVariable}
```

To use the variable by the alias, you would create an expression like this:

```
{[my best variable]}
```

Syntax - Variables

If you use spaces, punctuation, or characters within an alias that are not permitted under C# or VB.Net, then you **MUST** enclose the string representation of the alias in square brackets []. If no such characters are used then the square brackets are optional.

For example, if the alias was "**MyBestVariable**", then the expression can be written without brackets:

```
{MyBestVariable}
```

Otherwise, you **MUST** enclose the variable in square brackets. Examples of valid alias usage:

```
{Variable1}
```

```
{VariableAndValue}
```

```
{[Variable and Value]}
```

```
{[Variable and Value]}
```

```
{[Variable&Values]}
```

```
{[Variable-First]}
```

Just for extra clarification, examples of some **INVALID** alias usage

```
{Variable and Value} // spaces in the name cause this to fail
```

```
{Variable&Values} // reserved character causes this to fail
```

Syntax - Data

The same rule is used and when creating the names of data sources and columns. But there is one exception. When referring to the data column, only a part with incorrect characters for identifiers should be bracketed. For example:

```
{DataSource.[Data Column]}
```

```
{[Data-Source].DataColumn}
```

```
{ [Data=Source] . [Data=Column] }
```

4.2 Appearance

YouTube

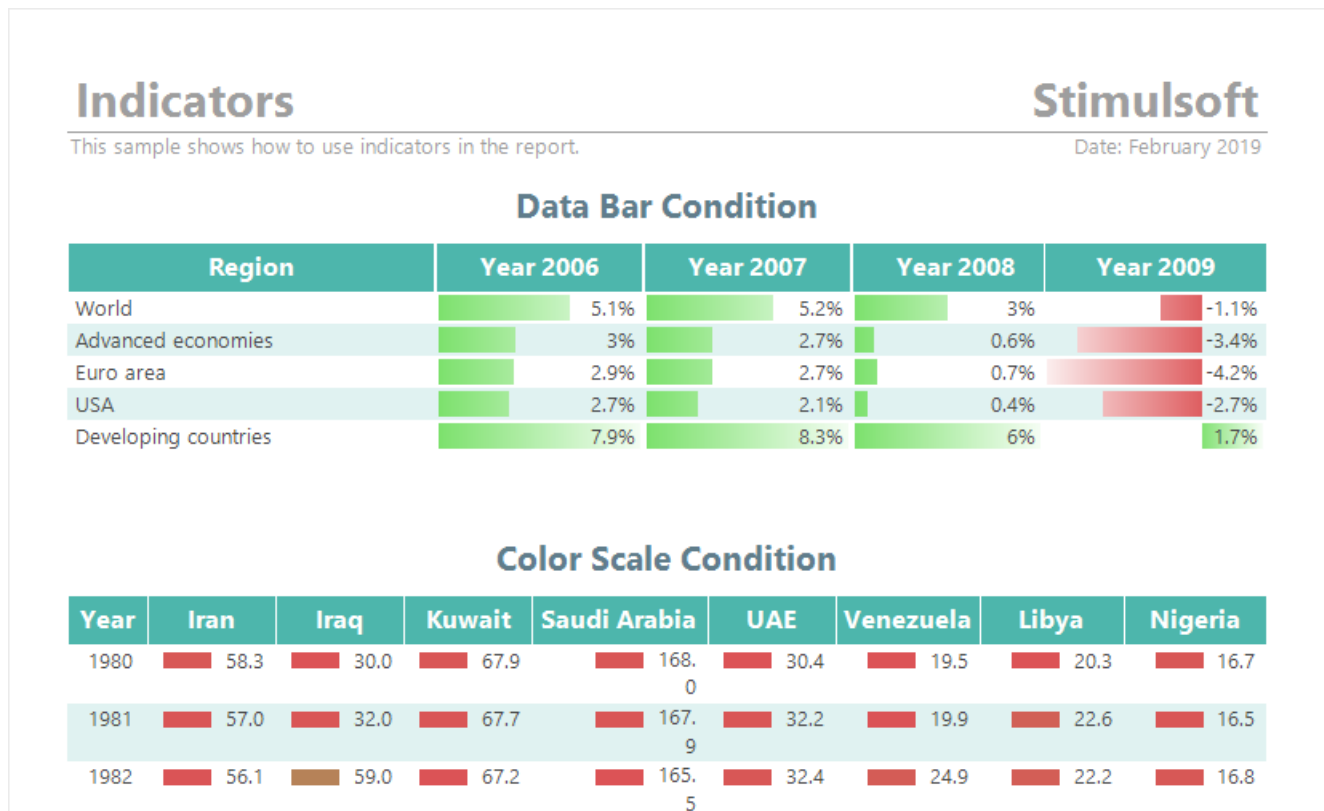
Watch our video lessons about [report appearance](#). Subscribe to the [Stimulsoft channel](#) and be the first to know about new video lessons. Leave questions and offers in the comments to the video.

Stimulsoft Reports offers you various ways of report appearance.

- Manually, i.e report components design settings are defined manually by a user with the help of component properties;
- Using their styles and collections.

Information

Before applying collections of styles for reports, you should set the [conditions of applying styles](#).



Basic settings of design can be called:

- › [Text brush and component background fill](#);
- › [Text font](#);
- › [Borders](#);
- › [Horizontal](#) and [Vertical](#) alignment of component content.

4.2.1 Brush

To fill background and text drawing you can use various brushes. Each **Brush** is a separate facture, which can be filled both with one color and several.

To change a brush you should:

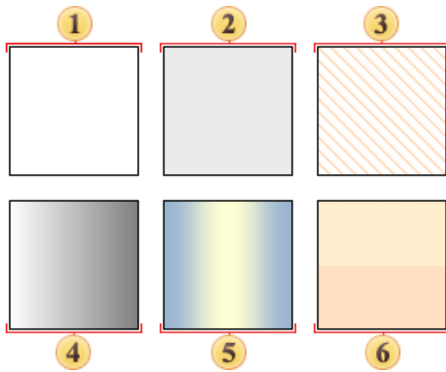
- › Select a component in a report or a style in the designer of styles;
- › Click the Browse button of the Brush property in the property panel;
- › Select a definite brush in the drop-down menu.

When setting design of components, the following brushes are available:

- › **Empty**;
- › **Solid**;

- **Hatch;**
- **Gradient;**
- **Glare;**
- **Glass.**

Below you can see examples of the **Brush**.



❶ Empty

Component background is not filled and remains transparent.

❷ Solid

Component background is filled with the color you specify.

❸ Hatch

Component background is filled with hatch. In addition, hatch background color and hatch color are specified.

❹ Gradient

Background is filled with gradient color transition. Gradient beginning is specified, the color of gradient ending and gradient angle.

❺ Glare

Background is filled using the «Glare» effect.

❻ Glass

Background is filled using the «Glass» effect.

4.2.2 Font

Basic tool of transferring information in reports is text. There are two components in the Stimulsoft Reports which are able to set and output some text using various kinds of font, they are **Text** and **Rich Text**. **Font** for typing text is set using the Font property. You can type some text using various font types. A font type is specified using the **Font.Name** property. You can see three types of font in the image below.

AaBbCcDd
AaBbCcDd
AaBbCcDd

Information

The list of fonts, which is available in the report designer is formed from fonts, set to current operating system. For web products, it is formed from set fonts of the server operating system.

You can output some text using a font of different size. Sizes are specified using the **Font.Size** property. For example:

AaBbCcDd
AaBbCcDd
AaBbCcDd
AaBbCcDd
AaBbCcDd

Also, when outputting you can use various text styles. Generally, five styles are available: regular, bold, underline and strikeout. Styles are controlled with the help of the following properties: **Font.Bold**, **Font.Italic**, **Font.Underline**, **Font.Strikeout**. Below you can see the examples of text outputting with the help of different styles:

AaBbCcDd
AaBbCcDd
AaBbCcDd
AaBbCcDd
~~AaBbCcDd~~

Five kinds of brushes are available for text drawing: **Solid**, **Hatch**, **Gradient**, **Glare**, and **Glass**. The brush text is controlled using the **Text Brush** property. The example of using various brushes:



AaBbCcDd
AaBbCcDd
AaBbCcDd
AaBbCcDd
AaBbCcDd

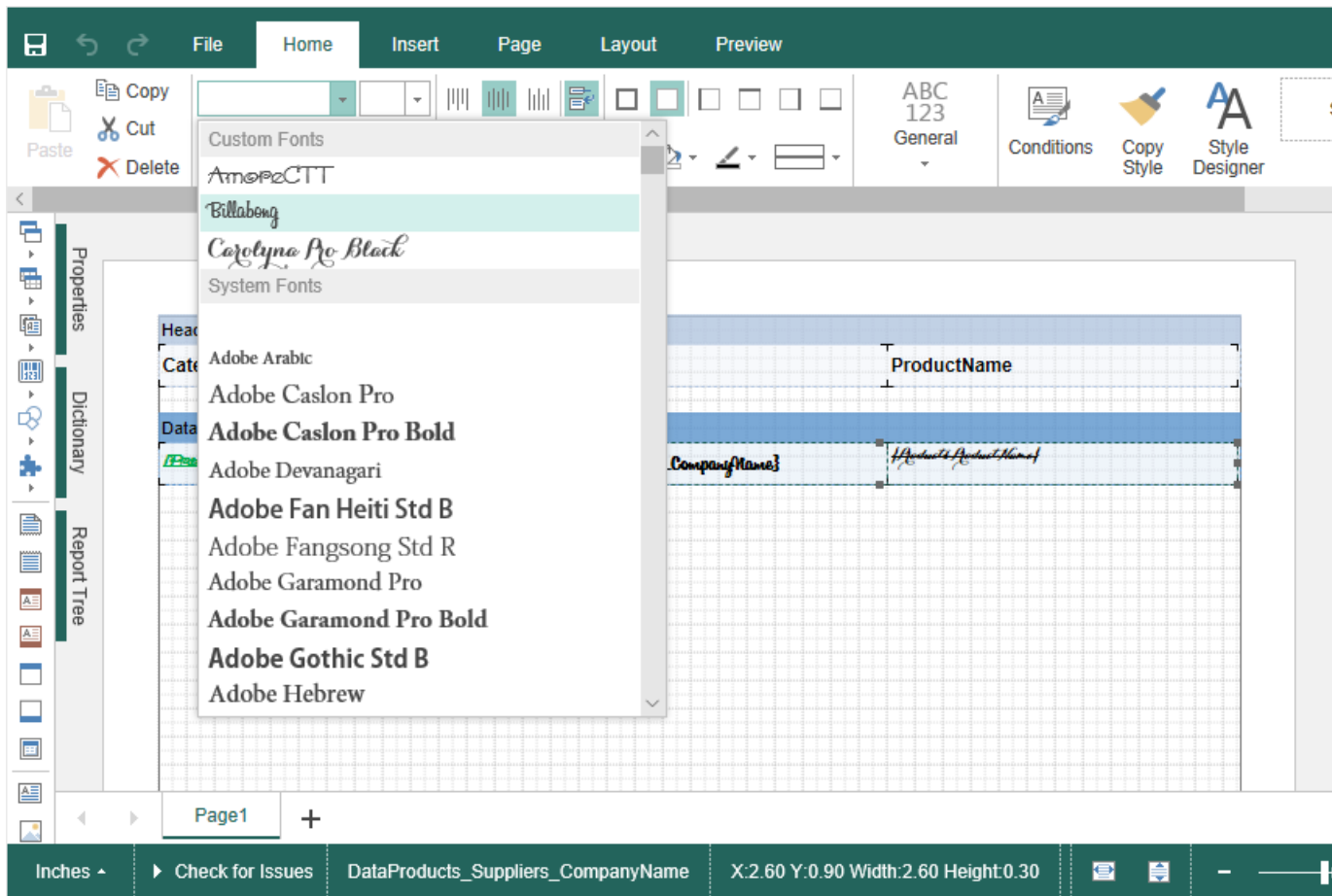
Custom fonts

When creating reports you can use custom fonts, which are absent in the list of fonts, i.e. they are not set to operating system by default. To do that, you should add font files (*.ttf, *.otf) to report sources. In this case, a font will be embedded to a report and can be used:

➤ When directly assigning a font to a text component. To do that you should make the following steps:

Step 1: Select a text component or several components;

Step 2: Select an added font on the **Home** tab of the ribbon report designer panel in the drop down menu



The font you select will be applied to all selected components.

➤ When conditional formatting of a component. To do that you should make the following steps:

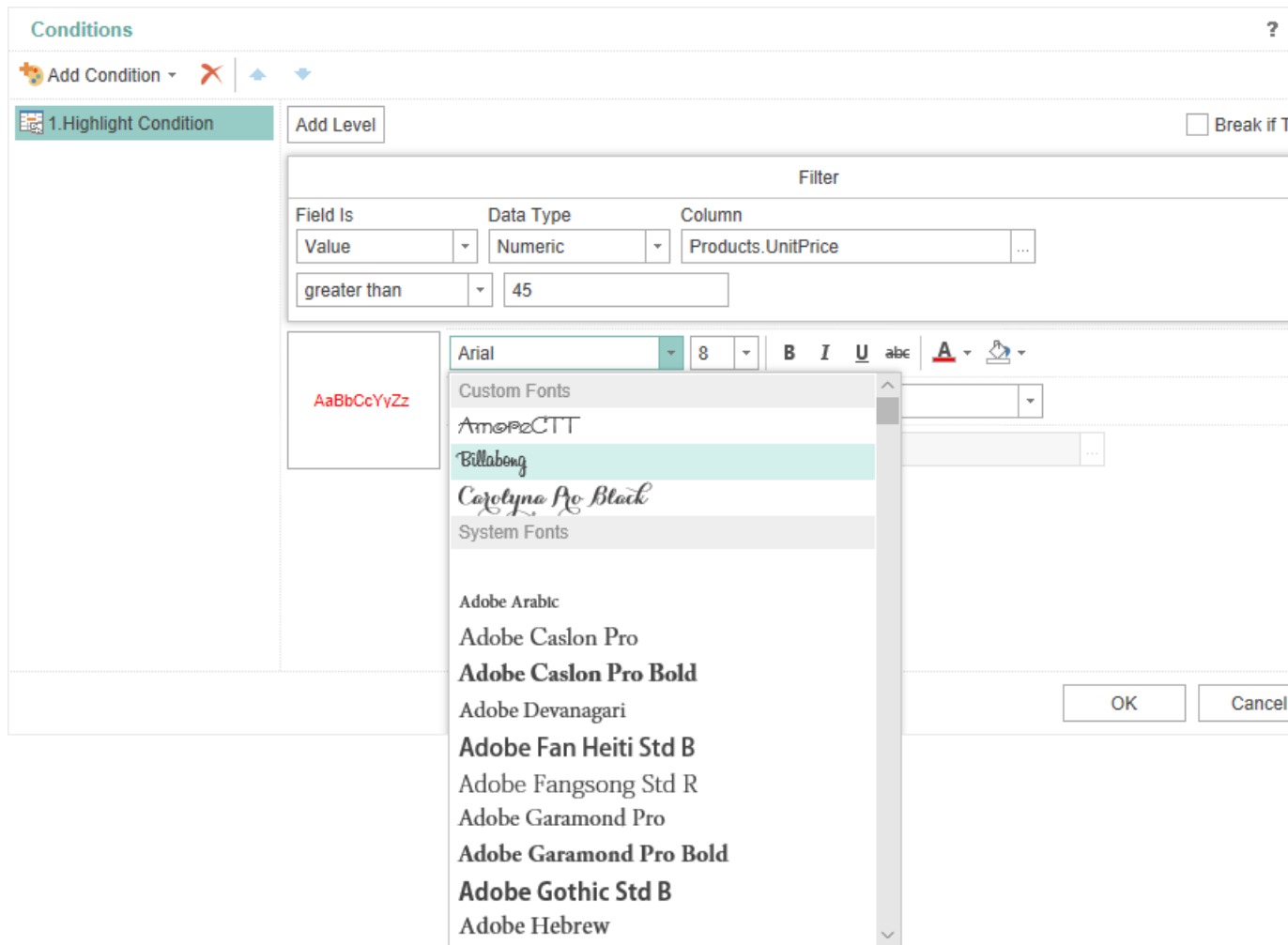
Step 1: Select a text component;

Step 2: Click the **Condition** button on the Home tab of the ribbon report designer panel;

Step 3: Add a condition of the **Highlight condition** type;

Step 4: Define logical conditions of applying design settings;

Step 5: Click the **Change Font** button and select a custom font. Custom fonts are displayed in the top of the font list.



Step 6: Click the **Ok** button in the **Font** option, then click the button in the condition editor.

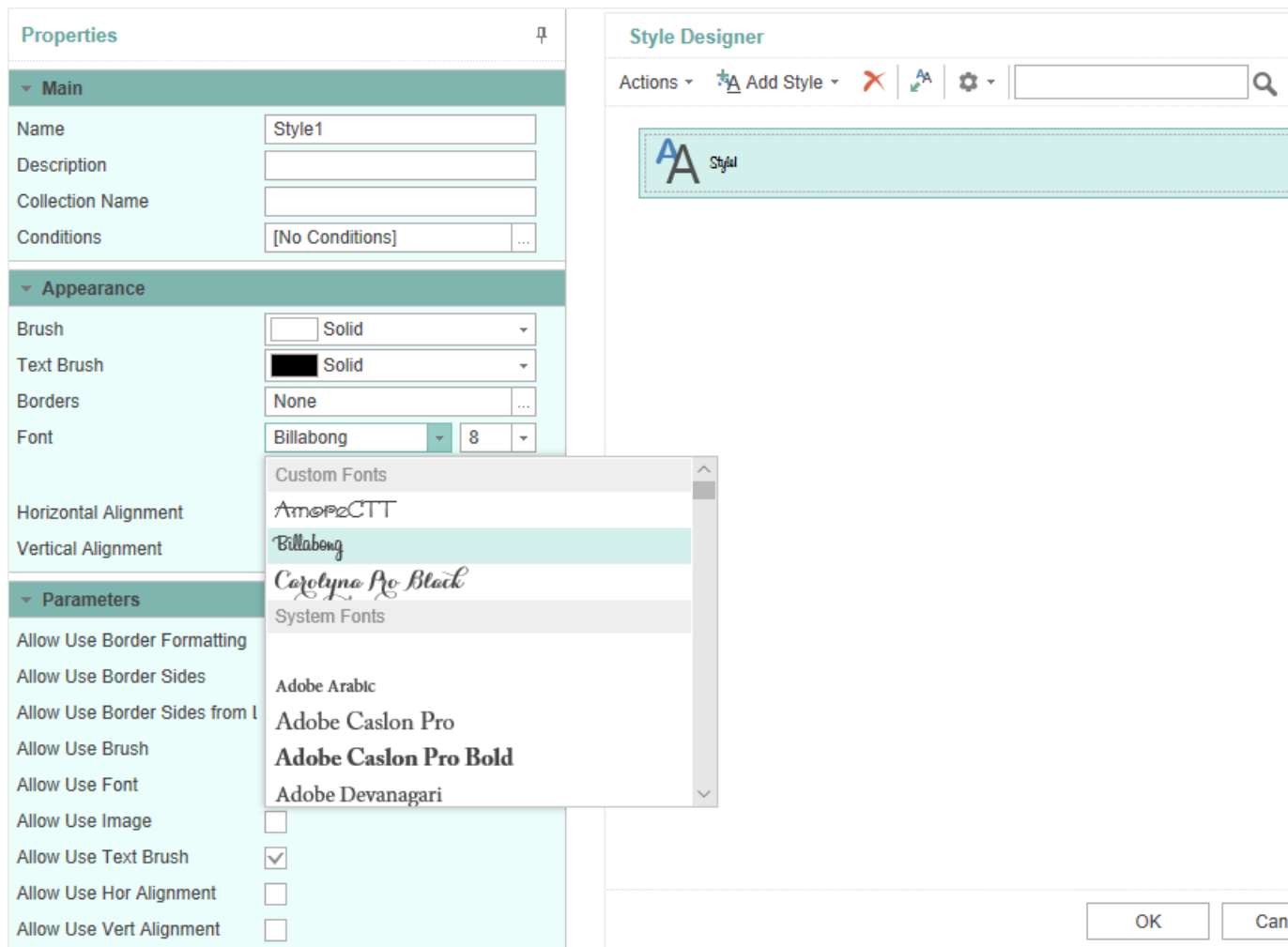
Now, when performing a logical condition, the custom font will be applied to the component.

➤ In report styles. To do that, you should make the following steps:

Step 1: Click the **Style Designer** on the Home ribbon of the report designer panel.

Step 2: Select a style and create a new one in the condition editor.

Step 3: Select a custom font for the Font property in the property panel. Custom fonts are displayed in the top of the font list.

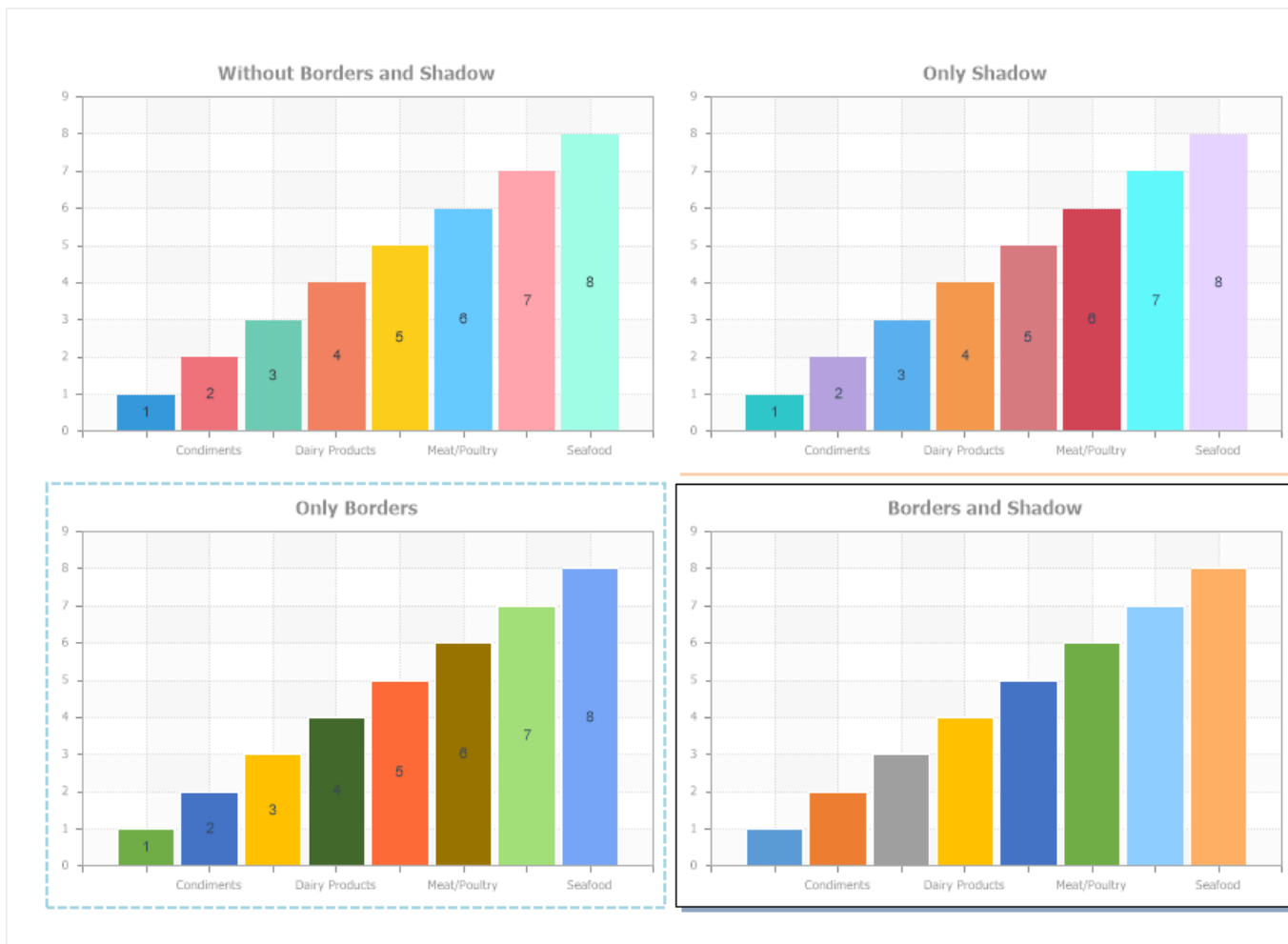


Step 4: Click the **Ok** button in the condition editor.

The font will be changed for all components, for which this style is assigned, if another one is not defined with style settings or highlight condition.

4.2.3 Borders

Each component has borders. Since all components in a report are a rectangular area on the page, each component has top, bottom, left and right border. When creating reports, component borders can be displayed or not displayed in a rendered report. Besides, you can display component shadows.



Component borders are set:

- Using component properties from the **Borders** group in the property panel;
- Using commands on the Home tab of the Ribbon panel in the report designer;
- In the border editor and component shadows.

Component shadow is set:

- Using component properties from the **Borders** group in the property panel;
- In the Border editor and component shadow.

Information

If the **Style** is assigned for a component, border settings and component shadows can be taken from this style.

To call the border editor and component shadows, you should:

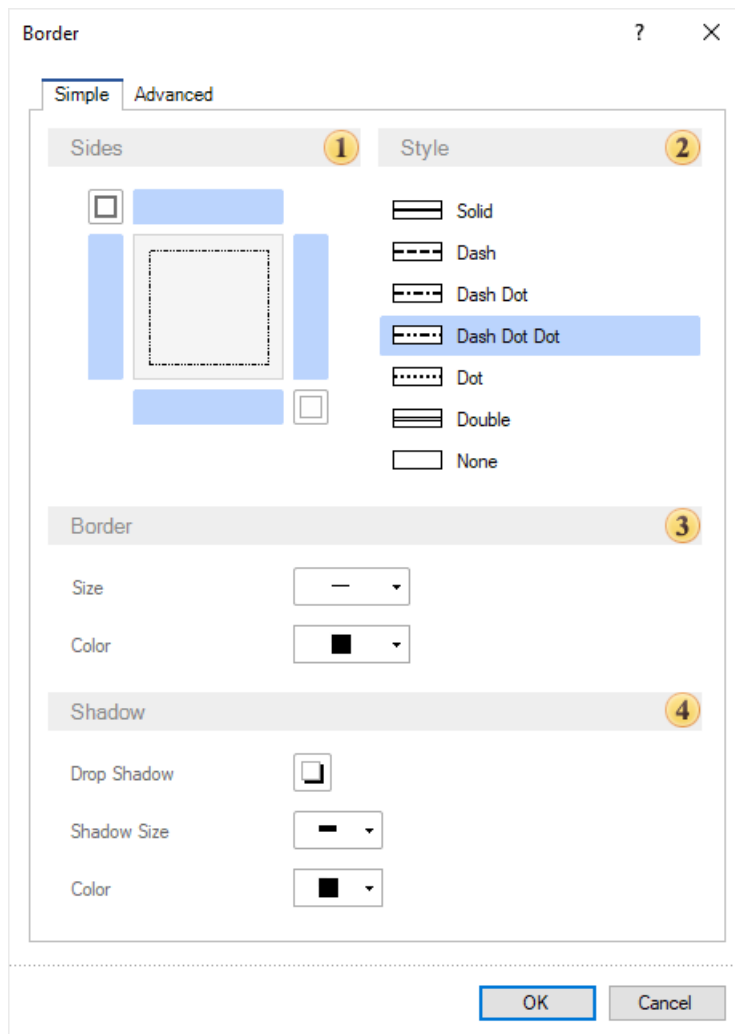
- Select a component in a report template;
- Click the **Browse** button on the **Home** Ribbon tab of the report designer panel in the **Borders** settings group.
- Or click the **Browse** button for the header of the Borders group in the property panel.

Borders and component shadow editor

This editor contains the parameters, which allow you to set borders and component shadows of a report. Also, the border and shadow editor contains two tabs:

- The **Simple**, i.e. settings of style, color, and size will be the same for all enabled component borders;
- The **Advanced**, i.e. you can define style, color and size for each component border.

You can define a uniform style, color, size for all component borders on the **Simple** tab.



- ❶ You can enable or disable the display of a definite component border in the **Sides** field using controls. Also, there is the button, which allows you to enable all borders and the button for disabling all borders.
- ❷ You can change the style of enabled component borders in the **Styles** field.
- ❸ The **Border** field contains several parameters:
 - The **Size** parameter allows you to change border width;
 - The **Color** parameter allows you to change component borders color.
- ❹ The **Shadow** field contains the parameters of component shadow settings:
 - The **Drop Shadow** parameter allows you to enable or disable the display of component shadow.
 - The **Shadow Size** parameter allows you to change component shadow width;
 - The **Color** parameter allows you to change component shadow color.

Information

Border size is ignored, if border style is defined as the **Double**.

Examples of component sides borders:



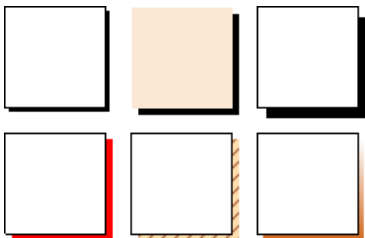
Examples of different sizes of component borders:



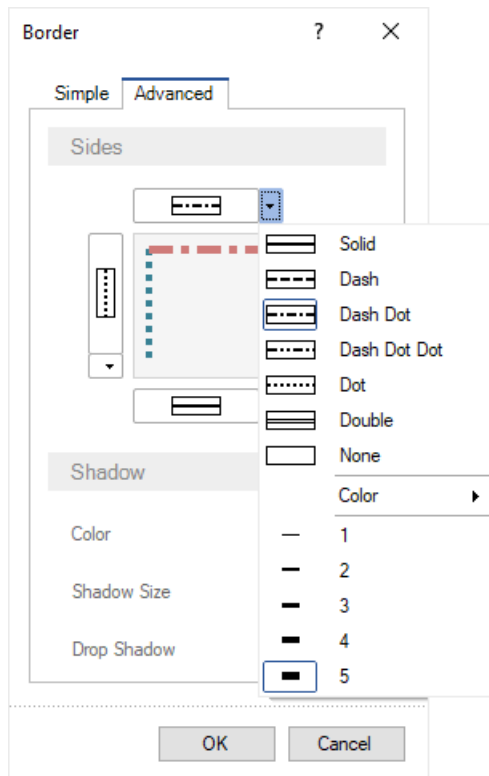
Examples of different border colors:



Examples component shadow:

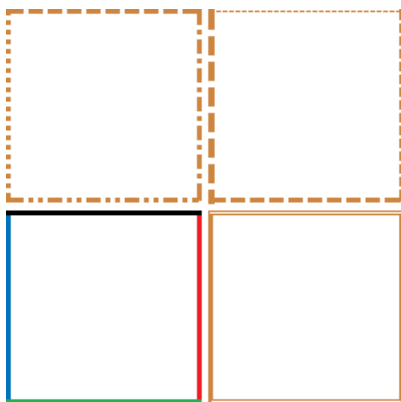


There is the **Browse** button on the **Advanced** tab of the border and component shadow editor, near the control for enabling and disabling the display of component borders. If you click this button, the drop down menu will be displayed, where you can change style, color, size only for the current border.



Also, there are parameters of component shadow setting on this tab.

The example of advanced setting of borders.



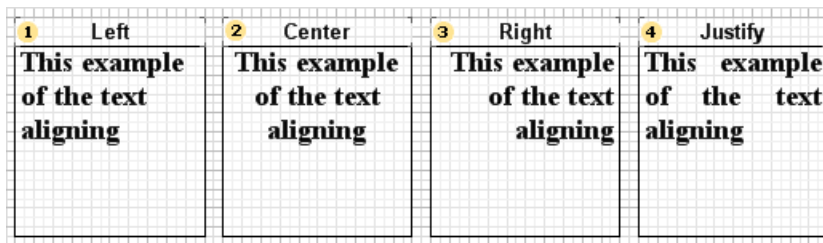
4.2.4 Horizontal Alignment

Some components allow you to set alignment of their content in relation to their sizes horizontally. For example, the **Text**, the **Image** components. Horizontal alignment defines the design of content and can be carried out by the left edge, the

right edge, in the center or width (only for some text). To change alignment you can use the **Horizontal Alignment** component property.

Horizontal alignment of text

Most of all, some text is aligned by the left edge. If you align by width, some text is aligned both by the left edge and the right edge at the same time. Text alignment by width allows you to get smooth text edges by sides. Below you can see the image with examples of all four kinds of alignment.



1 Left

The text is aligned in relation to the left border of a component.

2 Center

The text is aligned in the center in relation to the left and right border of a component.

3 Right

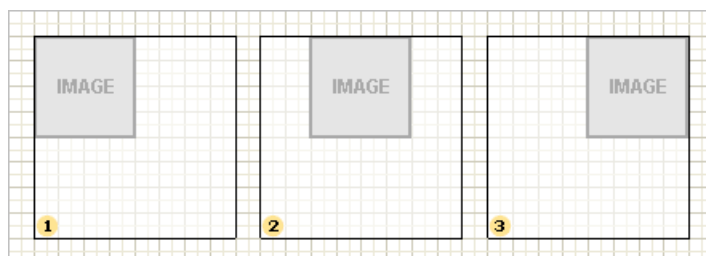
The text is aligned in relation to the right border of a component.

3 Justify

The text is justified evenly across the width of a component to get smooth edges of text on both sides.

Horizontal alignment of an image

To control alignment horizontally for the Image component you should use the property you use for the Text component – **Horizontal Alignment**. An image is aligned only if the **Stretch** property is set to true. Otherwise, alignment parameters will be ignored.



1 Left

The image is aligned relatively to the left component border.

2 Center

The image is aligned in the center relatively to the left and right component border.

3 Right

The image is aligned relatively to the right component border.

Line spacing

Line spacing is a vertical distance between text rows.

Line Spacing = 1	Line Spacing = 1.5	Line Spacing = 2
Stimulsoft Ultimate is a comprehensive solution for the .NET Framework platform, JavaScript, PHP, and Java to render reports and dashboards. The product includes a complete set of tools to build reports under WinForms, ASP.NET, .NET Core, WPF, JavaScript etc environments.	Stimulsoft Ultimate is a comprehensive solution for the .NET Framework platform, JavaScript, PHP, and Java to render reports and dashboards. The product includes a complete set of tools to build reports under WinForms, ASP.NET, .NET Core, WPF, JavaScript etc environments.	Stimulsoft Ultimate is a comprehensive solution for the .NET Framework platform, JavaScript, PHP, and Java to render reports and dashboards. The product includes a complete set of tools to build reports under WinForms, ASP.NET, .NET Core, WPF, JavaScript etc environments.

To change line distance you should:

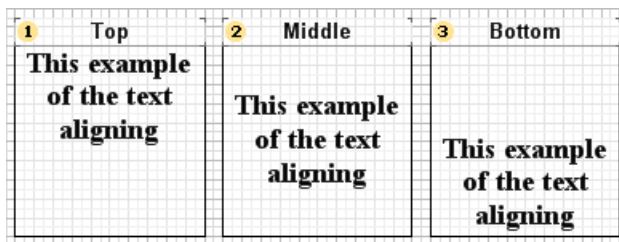
- Select a text component in a report;
- Using a control on the **Home** Ribbon tab in the report designer, select a value of line spacing;
- Or set a value of spacing for the **Line Spacing** property in the property panel in the report designer.

4.2.5 Vertical Alignment

Alignment vertically defines the position of content relatively to the top and bottom component border. Vertical alignment can be set by the top edge, in the center and by the bottom edge. To change vertical alignment you should use the **Vertical Alignment** property.

Vertical alignment of text

By default, a text is aligned relatively to the top side. However, if needed you can set the alignment you need and if alignment is set by the bottom side and some text doesn't fit vertically in component borders, it will be cut by the top side. If alignment is set to center, in case if some text doesn't fit, it will be cut at the same time by the top and bottom side.



1 Top

The text is aligned relatively to the top component border.

2 Center

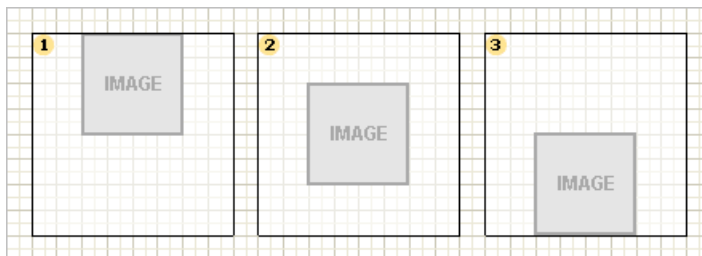
The text is aligned in the center relatively to the top and bottom component border.

3 Bottom

The text is aligned relatively to the bottom component border.

Vertical alignment of an image

To control alignment vertically for the **Image** component you should use the property that you use for the Text component too. An image is aligned only if the **Stretch** property is set to false. Otherwise, alignment parameters will be ignored.



1 Top

The image is aligned relatively to the top component border.

2 Center

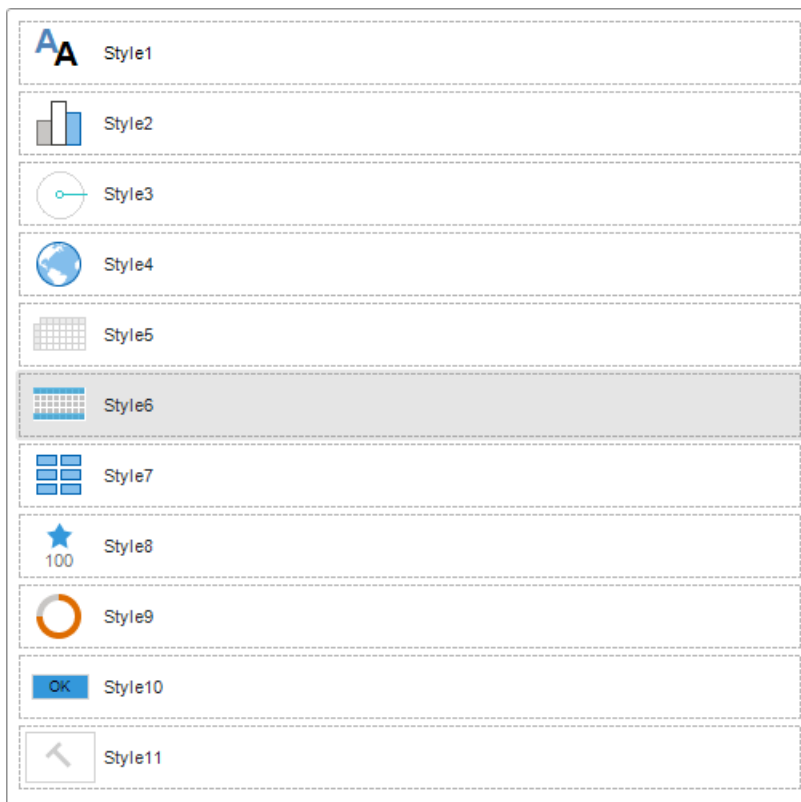
The image is aligned by the center relatively to the top and bottom component border.

3 Bottom

The component image is aligned relatively to the bottom component border.

4.2.6 Styles

The **Style** is a named combination of various design settings. You can create styles and their collections in the designer of styles. A created style can be applied to any component in a report or to an element of a dashboard. If after you create a report it's needed to change design settings of some components or elements, you should change design settings of an assigned style.



To assign a style to report component or dashboard element, you should:

- Select a component or an element in the report designer;
- Click the **Select Style** button on the **Home** Ribbon tab of the report designer panel and select the style you need in the drop down menu.
- Otherwise, click the **Browse** button for the **Style** property for elements or the **Component Style** property for components.
- Drag and drop style from Style Designer to report or dashboard components.
- Watermark Style is applied using the **Watermark Style** property of report pages, dashboards and Panel components on the dashboards.

Also, it's worth noting, that if styles joined into style collection, when applying style collection, styles by conditions will be applied to report components.

Information

It's worth taking into account, that each component has its own design settings. For example, the **Panel** component doesn't have design settings of the **Font**. In this case, when using a style this parameter will be ignored. In other words, a component will use only the settings of style design, which it supports.

Odd Style and Even Style

You can apply separate styles for even and odd rows for the **Data** band component.

Simple List		Stimulsoft	
This sample demonstrates how to create a simple list report.		Date: February 2019	
Company	Address	Phone	Contact
1 Alfreds Futterkiste	Obere Str. 57	030-0074321	Sales Representative
2 Ana Trujillo Emparedados y helados	Avda. de la Constitución 2222	(5) 555-4729	Owner
3 Antonio Moreno Taquería	Mataderos 2312	(5) 555-3932	Owner
4 Around the Horn	120 Hanover Sq.	(171) 555-7788	Sales Representative
5 Berglunds snabbköp	Berguvsvägen 8	0921-12 34 65	Order Administrator
6 Blauer See Delikatessen	Forsterstr. 57	0621-08460	Sales Representative
7 Blondel père et fils	24, place Kléber	88.60.15.31	Marketing Manager
8 Bólido Comidas preparadas	C/ Araquil, 67	(91) 555 22 82	Owner
9 Bon app'	12, rue des Bouchers	91.24.45.40	Owner
10 Bottom-Dollar Markets	23 Tsawwassen Blvd.	(604) 555-4729	Accounting Manager
11 B's Beverages	Fauntleroy Circus	(171) 555-1212	Sales Representative
12 Cactus Comidas para llevar	Cerrito 333	(1) 135-5555	Sales Agent
13 Centro comercial Moctezuma	Sierras de Granada 9993	(5) 555-3392	Marketing Manager
14 Chop-suey Chinese	Hauptstr. 29	0452-076545	Owner
15 Comércio Mineiro	Av. dos Lusíadas, 23	(11) 555-7647	Sales Associate

To do that you should:

- Select the **Data** band in the report designer;
- Define a style for the **Odd Style** and **Even Style** properties in the property panel.

By default, these properties are not used. But if you specify appropriate styles in them, when creating a report, the report generator will use specified styles for even

and odd rows.

Information

You can apply a style via a row for other components too. It's easy to do that using conditional formatting of components. To do that you should:

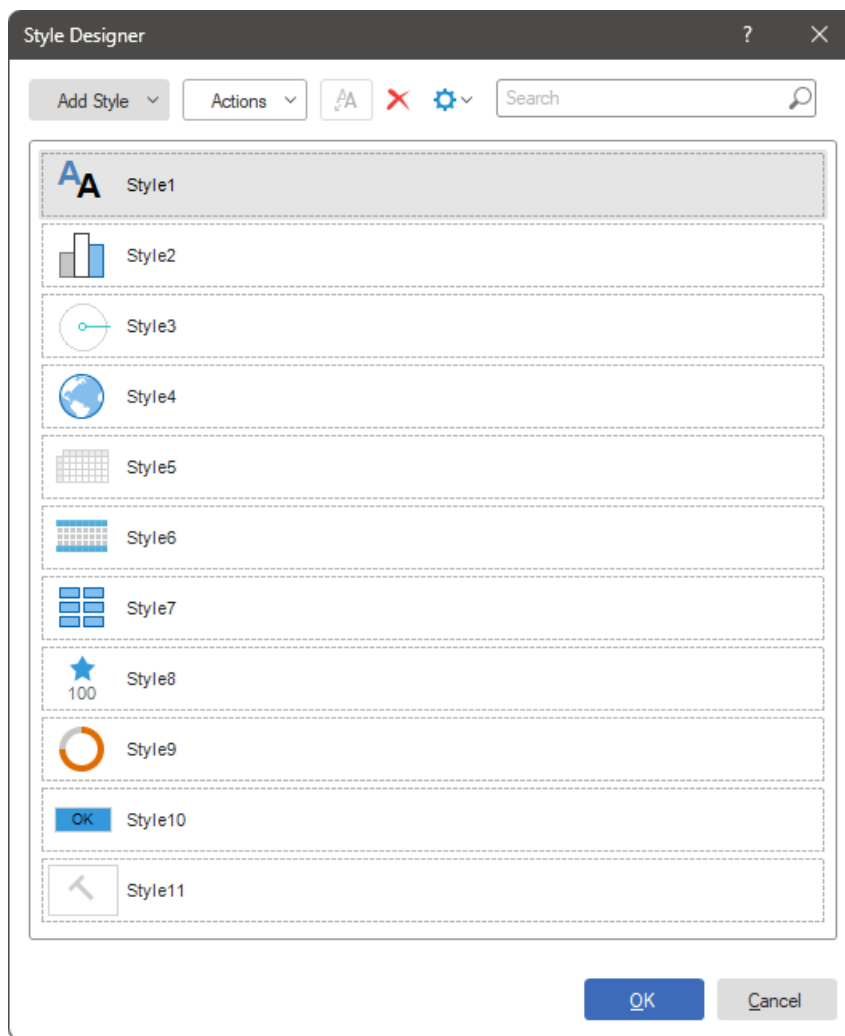
- Select a component in a report;
- Add conditional formatting;
- Specify the (Line & 1) == 0 expression as an expression of formatting applying;
- Select a necessary style as formatting settings.

Use Parent Styles

Apart from the Style property, each report component has an additional property of style control – Use Parent Styles. This property allows you to use component style, where it is located. If this property is set to true value, the component style, where it is placed will be applied to the component. If this property is set to False value, an assigned style will be applied to the current component.

4.2.6.1 Style Designer

The style designer is a tool designed for creating and editing styles for report components and dashboard elements. Styles can be grouped into collections, and all created styles and their collections can be saved to a file. Using styles and their collections, the visual formatting of the report is achieved.



In order to open the **Style Designer**, you should:

- Click on the **Style Designer** button on the **Home** ribbon tab in the report designer.
- Select **Edit Styles** from the **Style** property value list of the selected report component or dashboard element.

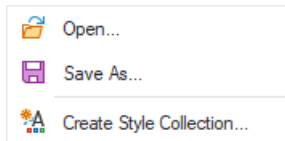
The **Style Designer** consists of:

- Toolbar, which contains menus and commands for managing styles.
- List of styles and collections.

Style customization is performed using its properties on the panel in the report designer.

Actions Menu

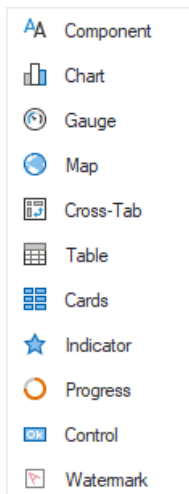
This menu contains the main commands for managing styles and style collections.



- 1 The **Open...** command allows you to open a previously saved *.sts file containing styles and their collections.
- 2 The **Save As...** command allows you to save the current list of styles and collections to a *.sts file.
- 3 The **Create Style Collection...** command allows you to create a style collection automatically.

Add Style Menu

This menu contains commands for creating new styles.



- 1 The [Component](#) Style type is applied to almost all report components that have the ability to select a style, with the exception of maps, charts, gauges, tables, cross-tabs, and controls. It is not applied to dashboard elements.
- 2 The [Chart](#) Style type is applied to any type of chart in the report and on the dashboard.
- 3 The [Gauge](#) Style type is applied to the Gauge component and element in the report and on the dashboard.

- 4 The [Map](#) Style type is applied to the Map component in the report and to the Regional Map element on the dashboard.
- 5 The [Cross-Tab](#) Style type is applied to the Cross-Tab component in the report and to the Pivot Table element on the dashboard.
- 6 The [Table](#) Style type is only applied to the Table component and element in the report and on the dashboard.
- 7 The [Cards](#) Style type is only applied to the Cards element on the dashboard.
- 8 The [Indicator](#) Style type is only applied to the Indicator element on the dashboard.
- 9 The [Progress](#) Style type is only applied to the Progress element on the dashboard.
- 10 The [Report Control](#) Style type is applied to forms and their elements, as well as to filtering elements on the dashboard.
- 11 The [Watermark](#) Style type is applied to the report template page, dashboard, and to the Panel element on the dashboard.

Get Style from Selected Components Command

The **Get Style from Selected Components** command allows creating a style with formatting settings of a selected report component (or multiple components) or a dashboard element (or multiple elements). To do this, follow these steps:

- Select a report component or a dashboard element.
- Open the style designer.
- Click the **Get Style from Selected Components** button on the toolbar of the style designer.

After that, a style of a specific type with formatting settings of the selected component or element will be created.

Filtering and sorting of styles

While working in the style designer, you have the option to disable the display of styles belonging to specific types. To do this, follow these steps:

- Click on the Settings button in the style designer.
- In the opened menu, check the types of styles that need to be displayed.

The reset of the display filters will occur:

- When creating a style which type is disabled;
- When restarting the style designer;
- If you go back to the settings menu and check a specific type of style.

In the settings menu, you can also define the sorting mode for styles and

collections:

- Ascending, from A to Z.
- Descending, from Z to A.
- Sorting is disabled. In this case, styles and collections are not sorted, and they can be dragged and dropped in the list, changing the order.

Search Styles

The style designer has a search feature that allows you to search for styles. To do this, enter the name of the style or a part of its name in the Search field, and the list of styles will be automatically filtered.

Context Menu

The context menu contains duplicate commands from the toolbar, commands for working with the clipboard, and others. Depending on the selected object - style or collection, the commands in the context menu may differ. For example, the **Style** context menu in the style designer contains commands for creating styles of different types, a command for automatically creating a style collection, commands for working with the clipboard, as well as a command for creating a copy of the style.

Information

The **Duplicate Style** command allows you to create a copy of a style with its formatting settings. The copy of the style will be created in the same style collection as the original style. The name of the copied style will be created with the name of the original style + the suffix "Copy" and the ordinal number of the copy.

Color Collection Editor

When creating styles for charts, maps, progress bars, and gauges, it is necessary to define a collection of colors for the style. The colors in this collection will be applied to the graphical objects of the report components or dashboard elements. To open the color editor, you should click on the Browse button in the field value of the corresponding property.

- 1 The **Add** button allows you to add a new color to the color list.

- 2 The **Remove** button allows you to delete the selected color from the list.
- 3 The buttons for moving the selected color in the color list determine the order in which the colors are applied to the graphical objects of the component or element. The color that is higher in the list will be applied first.
- 4 The current style's color list can be modified by clicking the Browse button next to the color and selecting a new color from the drop-down list.

Style Collections

All created styles in the style designer can be grouped into collections. Whether a style belongs to a collection is determined using the **Collection Name** style property. Each unique value specified as the value of this property forms a new style collection. Therefore, all styles with the same value of the **Collection Name** property belong to the same style collection.

[Learn more about style collections.](#)

4.2.6.2 Component Style

The **Component** Style is applied to all report components that do not have a specific style. For example, for bands, text components, panels, images, etc. To create a component style, do the following:

- Click the **Add Style** button in the **Style Designer** and select the **Component** style.
- Configure the formatting settings using the style properties.
- Apply the style to [report components](#) or [dashboard elements](#).

Simple List		Stimulsoft	
This sample demonstrates how to create a simple list report.		Date: February 2019	
Company	Address	Phone	Contact
1 Alfreds Futterkiste	Obere Str. 57	030-0074321	Sales Representative
2 Ana Trujillo Emparedados y helados	Avda. de la Constitución 2222	(5) 555-4729	Owner
3 Antonio Moreno Taquería	Mataderos 2312	(5) 555-3932	Owner
4 Around the Horn	120 Hanover Sq.	(171) 555-7788	Sales Representative
5 Berglunds snabbköp	Berguvsvägen 8	0921-12 34 65	Order Administrator
6 Blauer See Delikatessen	Forsterstr. 57	0621-08460	Sales Representative
7 Blondel père et fils	24, place Kléber	88.60.15.31	Marketing Manager
8 Bólido Comidas preparadas	C/ Araquil, 67	(91) 555 22 82	Owner
9 Bon app'	12, rue des Bouchers	91.24.45.40	Owner
10 Bottom-Dollar Markets	23 Tsawwassen Blvd.	(604) 555-4729	Accounting Manager
11 B's Beverages	Fauntleroy Circus	(171) 555-1212	Sales Representative
12 Cactus Comidas para llevar	Cerrito 333	(1) 135-5555	Sales Agent
13 Centro comercial Moctezuma	Sierras de Granada 9993	(5) 555-3392	Marketing Manager
14 Chop-suey Chinese	Hauptstr. 29	0452-076545	Owner
15 Comércio Mineiro	Av. dos Lusíadas, 23	(11) 555-7647	Sales Associate
16 Consolidated Holdings	Berkeley Gardens	(171) 555-2282	Sales Representative
17 Drachenblut Delikatessen	Walsenweg 21	0241-039123	Order Administrator
18 Du monde entier	67, rue des Cinquante Otages	40.67.88.88	Owner
19 Eastern Connection	35 King George	(171) 555-0297	Sales Agent

Below is a table of properties that are used to set the style of the component.

Information

To apply the appearance settings, you should consider the values of the **Allow Use...** properties.

Name	Description
Name	Sets the name of the current style.
Description	Specifies a description for the current style.
Collection Name	Adds an existing style to the style collection or create a new style collection.
Conditions	Sets the conditions for conditions for applying the current style if it is included in the styles collection.
Border	A group of properties that can be used to

	set the borders of a component , their style, color, size, as well as enable or disable the shadow display. In addition, the group header has a Browse button, when clicked, the border editor will be called.
Brush	A group of properties that allows you to select the brush type and fill color for the component's background.
Font	A group of properties that allows you to select a font, define its style and size , for the text of a component.
Horizontal Alignment	Selects the horizontal alignment of the text: Left, Center, Right, Width.
Image	Loads an image into the style. To do this, click the Browse button in the current property value field. After that, the image editor will be called. Load the image there. Then, when applying the current style to the Image component, the loaded image will be passed to it.
Line Spacing	Specifies line spacing for text. The default value is 1.
Negative Text Brush	A group of properties that is used to select the brush type and text color of negative values.
Text Brush	A group of properties that is used to select the brush type and text color of a value.
Text Format	Changes format of component values. When you click the Browse button in the value field of the current property, the value format editor will be called.
Vertical Alignment	Selects the vertical alignment of the text: Top, Center, Bottom.
Allow Use Border Formatting	Allows applying border formatting from

	the assigned style or from the properties of a component. If the property is set to True, then the component's border formatting settings will be taken from the current style. If the current property is set to False, then the border formatting settings will be determined by the properties of the component.
Allow Use Border Sides	Allows enabling borders from the assigned style or from the properties of the component. If the property is set to True, then the settings for including the component's borders will be obtained from the current style. If the current property is set to False, then the settings for enabling borders will be determined by the properties of the component.
Allow Use Border Sides from Location	Allows the ability to take the component's position relative to the parent container into account when enabling borders. If the property is set to True , the following algorithm is used: if the component touches the edge of the parent container on any side, a border is applied on that side, regardless of whether the parent has a border on that side. If the property is set to False , enabling borders will not take the Location style condition into account.
Allow Use Brush	Allows applying the brush and the background color from the assigned style or from the properties of the component. If the property is set to True , then the component's background fill settings will be obtained from the current style. If the current property is set to False , then the background fill settings will be determined by the properties of the component.
Allow Use Font	Allows applying the text font from the

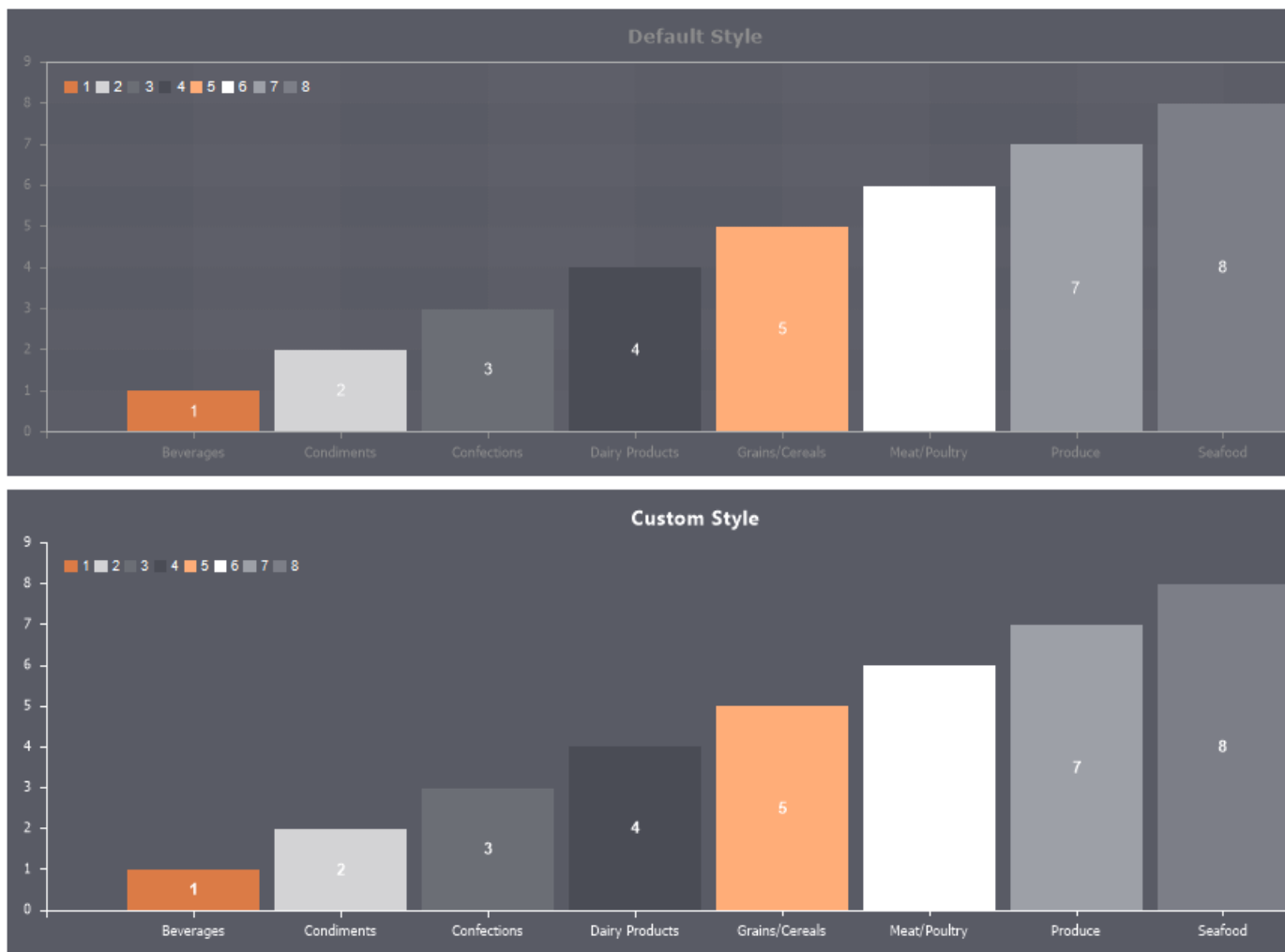
	assigned style or from the properties of the component. If the property is set to True, then the font settings for the component's text will be obtained from the current style. If the current property is set to False, then the font settings for the component's text will be determined by the properties of this component.
Allow Use Horl Alignment	Allows applying horizontal alignment from the assigned style or from the component's properties. If the property is set to True, then the horizontal alignment settings for the component's content will be obtained from the current style. If the current property is set to False, then the horizontal alignment settings for the component's content will be determined by the component's properties.
Allow Use Image	Allows applying an image from the assigned style or from the component's sources. If the property is set to True, then the image for the Image component will be obtained from the current style. If the current property is set to False, then the image for the Image component will be obtained from its sources.
Allow Use Negative Text Brush	Enables the brush and text color to be applied to negative ones from the assigned style. If the property is set to True, then negative values will use the color of negative values from the current style. If the current property is set to False, then negative values will use the text color or another color defined by the component's properties.
Allow Use Text Brush	Enables the brush and text color to be applied from the assigned style or from the component's properties. If the

	property is set to True , then the brush settings and the component's text color will be obtained from the current style. If the current property is set to False , then the brush and text color settings will be determined by the properties of the component.
Allow Use Text Format	Enables value formatting to be applied from the assigned style or from the component's properties. If the property is set to True , then the component value formatting settings will be taken from the current style. If the current property is set to False , then the value formatting settings will be determined by the properties of the component.
Allow Use Vert Alignment	Enables vertical alignment to be applied from the assigned style or from the component's properties. If the property is set to True , then the vertical alignment settings of the component's content will be obtained from the current style. If the current property is set to False , then the vertical alignment settings of the component's content will be determined by the properties of the component.

4.2.6.3 Chart Style

The **Chart** Style type is applied to the [Chart component](#) in the report and to the [Chart element](#) on the dashboard. To create a chart style, follow these steps:

- In the style designer, click the **Add Style** button and select the **Chart** style.
- Use the style properties to customize the formatting.
- Apply the style to the [report components](#) or [dashboard elements](#).



Information

It is not possible to edit the preset **Chart** Styles. However, it is possible to create a custom style based on the preset style and adjust it. To do this, please follow these steps:

- Assign the preset style to the **Chart** component or element and select that component.
- Call up the Style Designer and click the [Get Style from Selected Components](#) button.
- Adjust the obtained style using its properties.
- Assign this custom style to the **Chart** component or element.

Below is a list of the properties used to configure the style of the chart.

Information

To apply formatting settings, it is necessary to consider the values of the **Allow Use...** properties.

Name	Description
Name	Sets the name of the current style.
Description	Specifies a description for the current style.
Collection Name	Adds an existing style to the style collection or create a new style collection.
Conditions	Sets the conditions for conditions for applying the current style if it is included in the styles collection.
Axis Labels Color	Sets the color of the X and Y axis labels.
Axis Line Color	Sets the line color of the X and Y axis.
Axis Title Color	Sets the color of the X and Y axis titles.
Basic Style Color	Specifies the main color of the chart. This color will be used in chart elements that do not have color settings in the style.
Border	Changes the color, style, type, size of the borders of the Chart component. You can also enable the display of component border shadows.
Brush	Specifies the brush type and fill color for the area of the Chart component.
Brush Type	Specifies the brush type of the graphic elements of the chart.
Chart Area Border Color	Sets the border color of the chart area.
Chart Area Brush	Specifies the type of brush and sets the color of the chart area.

Chart Area Show Shadow	Enables/disables the chart area shadows. If the property is set to True , then chart area shadows will be displayed. If the property is set to False , then the shadows of the chart area will not be displayed.
Grid Lines Horizontal Color	Sets the color of the horizontal grid lines in the chart area. In order for the lines not to be displayed, select a color identical to the color of the area or select a transparent color.
Grid Lines Vertical Color	Sets the color of the vertical grid lines in the chart area. In order for the lines not to be displayed, select a color identical to the color of the area or select a transparent color.
Interlacing Horizontal Brush	Specifies the brush type and sets the horizontal interlacing color. To disable the horizontal striping, set the Interlacing Horizontal Brush property to None .
Interlacing Vertical Brush	Specifies the brush type and sets the vertical interlacing color. To disable the vertical striping, set the Interlacing Vertical Brush property to None .
Legend Border Color	Sets the color of the legend borders. In order to disable the border of the legend, select a transparent color.
Legend Brush	Specifies the brush type and fill color of the chart legend.
Legend Labels Color	Sets the color of the legend labels.
Legend Title Color	Sets the color of the legend title. By default, the legend title is empty, disabled.
Marker Visible	Enables or disables markers on the chart.
Series Border Thickness	Specifies the border thickness of the graphic element in pixels. By default, it is set to 1.

Series Corner Radius	Defines the rounding radius of the series graphic elements. You can round off each corner of the row graphic element separately: Top - Left , Top - Right , Bottom - Right , Bottom - Left . The property can be set to a value from 0 to 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius.
Series Labels Border Color	Sets the series labels border color.
Series Labels Brush	Defines the brush type and sets the fill color for series titles or chart value labels.
Series Labels Color	Sets the color of series labels or chart value labels.
Series Labels Line Color	Sets the color of the line from graphic elements to series labels or chart value labels.
Series Lighting	Enables/disables highlighting the border of a circular or a row. If the property is set to True, then row illumination will be enabled. If the property is set to False, then row illumination will be disabled.
Show Series Border	Shows the border of the graphical elements of the series or. If the property is set to True, then the border of the graphic elements of the series will be enabled. If the property is set to False, then the border of the series graphic elements will be disabled.
Series Show Shadow	Enables or disables the display of series shadows. If the property is set to True, then the shadows of the series graphical elements will be enabled. If the property is set to False, then the shadows of the series graphical elements will be disabled.
Style Colors	Creates a collection of style colors . These

	colors are applied sequentially to the graphics objects in the series. If the Color Each parameter is enabled for rows, then colors from the collection will be applied to graphic elements first. Then, shades for other graphic elements will be obtained by lightening these colors.
Trend Line Color	Sets the color of the trend line. This property is relevant if the chart uses a trend line.
Trend Line Show Shadow	Enables/disables the display of the trend line shadow. If the property is set to True, then the shadow of the trend line will be enabled. If the property is set to False, then the shadow of the trend line will be disabled.
Allow Use Border Format	Specifies whether border formatting is applied from the assigned style or from the properties of a component. If the property is set to True, then the component's border formatting settings will be taken from the current style. If the current property is set to False, then the border formatting settings will be determined by the properties of the component.
Allow Use Border Sides	Allows using borders from an assigned style or from component properties. If the property is set to True, then the settings for including the component's borders will be obtained from the current style. If the current property is set to False, then the settings for including borders will be determined by the properties of the component.
Allow Use Brush	Allows the brush and background color to

be applied from the assigned style or from the component's properties. If the property is set to True, then the component's background fill settings will be taken from the current style. If the current property is set to False, then the settings for filling the background will be determined by the properties of the component.

4.2.6.4 Gauge Style

The **Gauge Style** is applied to the gauge component and element in the report and on the dashboard panel. To create a gauge style, follow these steps:

- In the style designer, click the **Add Style** button and select the **Gauge** style.
- Use the style properties to customize the formatting.
- Apply the style to the [report components](#) or [dashboard elements](#).



Information

It is not possible to edit the preset **Gauge** styles. However, it is possible to create a custom style based on the preset style and adjust it. To do this, please follow these steps:

- Assign the preset style to the **Gauge** component or element and select that component.
- Call up the Style Designer and click the [Get Style from Selected Components](#) button.
- Adjust the obtained style using its properties.
- Assign this custom style to the **Gauge** component or element.

Below is a list of the properties used to configure the style of the chart.

Name	Description
Name	Sets the name of the current style.
Description	Specifies a description for the current style.
Collection Name	Adds an existing style to the style collection or create a new style collection.
Conditions	Sets the conditions for conditions for applying the current style if it is included in the styles collection.
Border Color	Changes the border color of a component or element.
Border Width	Sets the width of borders of elements.
Brush	Changes the brush and fill color of the background of a component or element.
Fore Color	Specifies the text color for the titles of an element row.
Linear Bar Border Brush	A group of properties that changes the brush and stroke color of the linear scale. Actual if the value of the Border Width property is enabled.

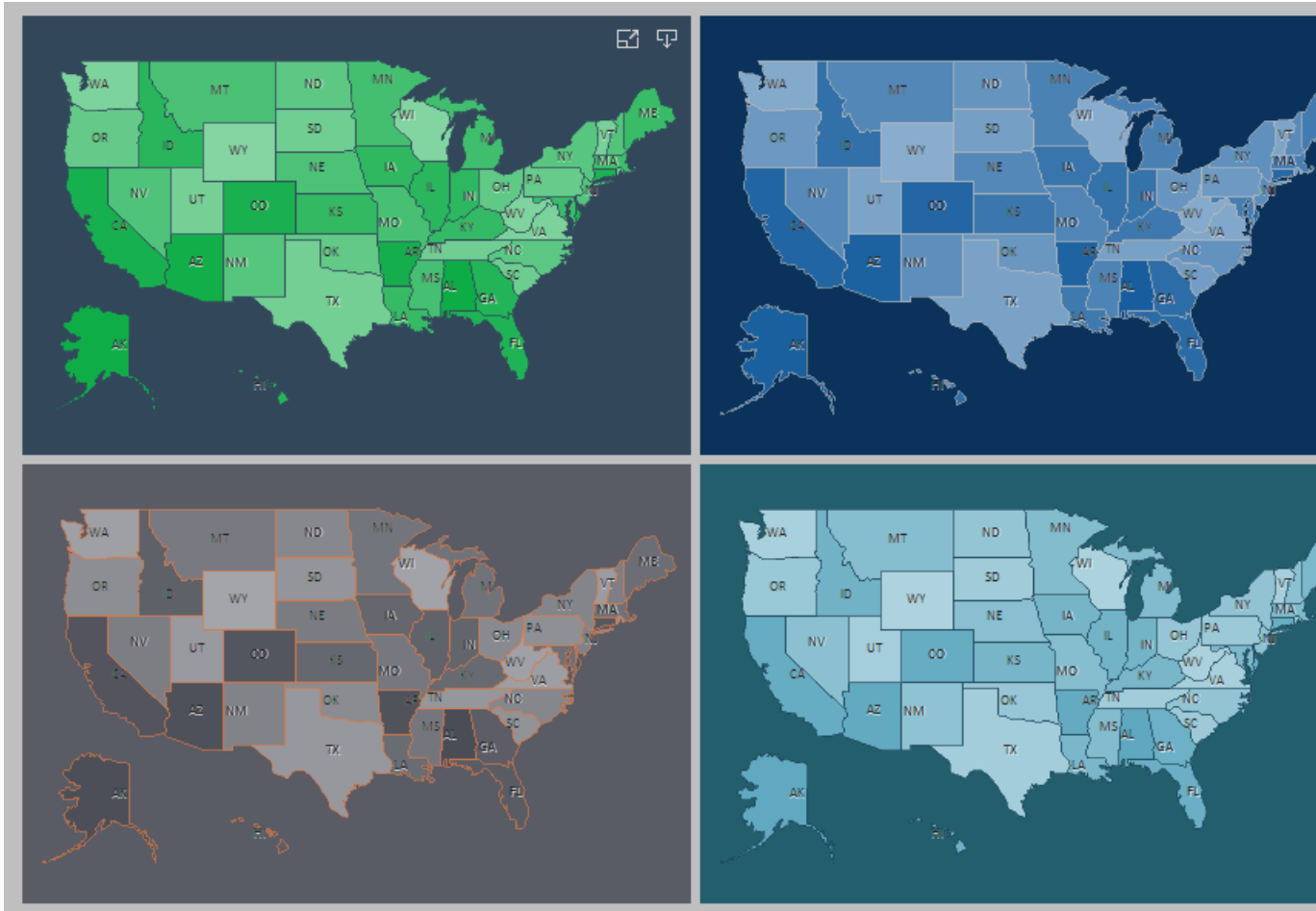
Linear Bar Brush	A group of properties that changes the brush and fill color of the linear scale background for the Bullet type.
Linear Bar Empty Border Brush	A group of properties that changes the brush and stroke color of the unfilled area of the linear scale. Actual if the value of the Border Width property is enabled.
Linear Bar Empty Brush	A group of properties that changes the brush and background fill color of the unfilled area of a linear scale.
Linear Scale Brush	A group of properties that change the brush and fill color of the linear scale.
Marker Brush	A group of properties that change the brush and fill color of the marker on a linear scale.
Needle Border Brush	A group of properties that change the brush and fill color of the needle border.
Needle Border Width	A group of properties that change the border width of the needle.
Needle Brush	A group of properties that change the brush and background fill color of the needle.
Needle Cap Border Brush	A group of properties that change the brush and fill color of the needle cap.
Needle Cap Brush	A group of properties that change the brush and background fill color of the needle cap.
Radial Bar Border Brush	A group of properties that change the brush and fill color of the radial bar.
Radial Bar Brush	A group of properties that change the brush and fill color of the background of the radial scale.
Radial Bar Empty Border Brush	A group of properties that change the brush and stroke color of the unfilled area of the radial scale.

Radial Bar Empty Brush	A group of properties that change the brush and background fill color of the unfilled area of the radial scale.
Target Color	Changes the display color of the label and label for the element target value.
Tick Label Major Font	A group of properties that change the font, its size and style, for the labels of the major values of the meter scale.
Tick Label Major Text Brush	A group of properties that change the brush and color of the labels of the meter scale major values.
Tick Label Minor Font	A group of properties that change the font, font size and style for the labels of the minor values of the meter scale.
Tick Label Minor Text Brush	A group of properties that change the brush and color of the meter's tick minor value captions.
Tick Mark Major Border	A group of properties that change the brush and stroke color of major tick marks.
Tick Mark Major Border Width	Changes the border thickness of the main tick mark on the gauge scale.
Tick Mark Major Brush	A group of properties that change the brush and background fill color of the major tick marks.
Tick Mark Minor Border	A group of properties that change the brush and stroke color of minor tick marks.
Tick Mark Minor Border Width	Changes the border thickness of the minor tick mark on the gauge scale.
Tick Mark Minor Brush	A group of properties that change the brush and background fill color of the minor tick marks.

4.2.6.5 Map Style

The **Map** style type is applied to the [Map component](#) and [Regional Map](#) element. To create a map style, follow these steps:

- In the style designer, click the **Add Style** button and select the **Map** style.
- Use the style properties to customize the formatting.
- Apply the style to the [report components](#) or [dashboard elements](#).



Information

It is not possible to edit the preset **Map** styles. However, it is possible to create a custom style based on the preset style and adjust it. To do this, please follow these steps:

- Assign the preset style to the **Map** component or element and select that component.
- Call up the Style Designer and click the [Get Style from Selected Components](#) button.
- Adjust the obtained style using its properties.
- Assign this custom style to the **Map** component or **Regional Map** element.

Below is a list of properties used to configure the Map style.

Name	Description
Name	Sets the name of the current style.
Description	Specifies a description for the current style.
Collection Name	Adds an existing style to the style collection or create a new style collection.
Conditions	Sets the conditions for conditions for applying the current style if it is included in the styles collection.
Back Color	Changes the background color of a component or element.
Border Color	Changes the border color of the map segments.
Border Size	Changes the border thickness of the map segments.
Bubble Back Color	Changes the color of the value bubbles on the map.
Bubble Border Color	Changes the border color of value bubbles on the map.
Colors	Customizes the list of colors for maps. Clicking the Browse button will open the color collection editor.
Default Color	Changes the default color. For example, this color will be used in maps with a group, and will be applied to map segments that are not part of any group.
Heatmap Color	A group of properties used to set up a list of colors for a heat map. You can define the color of the maximum value and the

	color of zero, as well as the dimming or brightening mode of the thermal indication.
Heatmap with Group	A group of properties used to set up a list of colors for a grouped heatmap. You can define the colors of the maximum values and the color of the zero, as well as the dimming or brightening mode of the heat indication.
Individual Color	Sets the color of individual map segments.
Label Foreground	Changes the color of text on map segments.
Label Shadow Foreground	Changes the text shadow color on map segments. In order for the shadow not to be displayed, you should select the Transparent color.

4.2.6.6 Cross-Tab Style

The **Cross-Tab** style is applied to the [Cross-Tab](#) component and [Pivot Table](#) element. To create a cross-tab style you should do the following:

- In the style designer, click the **Add Style** button and select the **Cross-Tab** style.
- Use the style properties to customize the formatting.
- Apply the style to the [report components](#) or [dashboard elements](#).

Pivot Table	CategoryName				Pivot Table	CategoryName	
ProductsName	Burger King	McDonald's	Wendy's	Total	ProductsName	Burger King	McDonald's
Baconator			\$26.95K	\$26.95K	Baconator		
Big Mac		\$19.95K		\$19.95K	Big Mac		\$19.95K
French Fries		\$16.10K		\$16.10K	French Fries		\$16.10K
Frosty			\$8.45K	\$8.45K	Frosty		
Original Chicken Sandwich	\$28.20K			\$28.20K	Original Chicken Sandwich	\$28.20K	
Snack Wrap		\$7.15K		\$7.15K	Snack Wrap		\$7.15K
Spicy Chicken Sandwich			\$3.45K	\$3.45K	Spicy Chicken Sandwich		
Ultimate Bacon Cheeseburger	\$17.80K			\$17.80K	Ultimate Bacon Cheeseburger	\$17.80K	
Whopper	\$15.95K			\$15.95K	Whopper	\$15.95K	
Total	\$61.95K	\$43.20K	\$38.85K	\$144.00K	Total	\$61.95K	\$43.20K

ProductsName							
Baconator	Big Mac	French Fries	Frosty	Original Chicken Sandwich	Snack Wrap	Spicy Chicken Sandwich	Ultimate Bacon Cheeseburger
				\$28.20K			\$17.80K
	\$19.95K	\$16.10K			\$7.15K		
\$26.95K			\$8.45K			\$3.45K	
\$26.95K	\$19.95K	\$16.10K	\$8.45K	\$28.20K	\$7.15K	\$3.45K	\$17.80K

Information

It is not possible to edit the preset **Cross-Tab** styles. However, it is possible to create a custom style based on the preset style and adjust it. To do this, please follow these steps:

- Assign the preset style to the **Cross-Tab** component or element and select that component.
- Call up the Style Designer and click the [Get Style from Selected Components](#) button.
- Adjust the obtained style using its properties.
- Assign this custom style to the **Cross-Tab** component or **Pivot Table** element.

Below is a table of properties that are used to customize the crosstab style.

Name	Description
Name	Sets the name of the current style.
Description	Specifies a description for the current style.
Collection Name	Adds an existing style to the style collection or create a new style collection.
Conditions	Sets the conditions for conditions for applying the current style if it is included in the styles collection.
Alternating Cell Back Color	Changes the background color of odd cells in a component or element.
Alternating Cell Fore Color	Changes the text color of odd cells in a component or element.
Back Color	Changes the background color of a component or element.
Cell Back Color	Changes the background color of cells.
Cell Fore Color	Changes the text color in cells.
Column Header Back Color	Changes the background color of the column headers.
Column Header Fore Color	Changes the color of the text in the column headers.
Hot Column Header Back Color	Selects the background color of the column headers when hovering over.
Hot Row Header Back Color	Selects the background color of row headers when hovering over.
Line Color	Selects the color of the grid lines.
Row Header Back Color	Changes the background color of row headers.
Row Header Fore Color	Changes the text color of row headers.
Selected Cell Back Color	Selects the background color of cells when they are selected in a rendered report or on the dashboard.

Selected Cell Fore Color	Selects the text color of cells when they are selected in a rendered report or on the dashboard.
Total Cell Column Back Color	Changes the background color of the resulting (total) cells for the columns of a component or element.
Total Cell Column Fore Color	Changes the color of the text in the resulting (total) cells of the columns of a component or element.
Total Cell Row Back Color	Changes the background color of the result (total) cells for component or element rows.
Total Cell Row Fore Color	Changes the text color in the resulting (total) cells of the rows of a component or element.

4.2.6.7 Table Style

The **Table** style applies to the [Table](#) component and [Table](#) element. You should do the following to create a table style:

- In the style designer, click the **Add Style** button and select the **Table** style.
- Use the style properties to customize the formatting.
- Apply the style to the [report components](#) or [dashboard elements](#).

ProductsName	Units	Units Target	Category Name	ProductsName
Baconator	4,500.00	4,266.59	Burger King	Original Chicken Sandwich
Big Mac	5,000.00	4,559.67	Burger King	Ultimate Bacon Cheeseburger
French Fries	9,000.00	8,421.20	Burger King	Whopper
Frosty	4,250.00	4,127.96	McDonald's	Big Mac
Original Chicken Sandwich	4,350.00	4,176.14	McDonald's	French Fries
Snack Wrap	4,250.00	4,588.76	McDonald's	Snack Wrap
Spicy Chicken Sandwich	3,500.00	4,037.66	Wendy's	Baconator
Ultimate Bacon Cheeseburger	3,500.00	3,489.74	Wendy's	Frosty
Whopper	4,000.00	4,083.54	Wendy's	Spicy Chicken Sandwich

ProductsName	Target	Units Target	Category Name	ProductsName	Sales
Baconator	25,556.89	4,266.59	Burger King	Original Chicken Sandv	\$28.20K
Big Mac	18,193.07	4,559.67	Burger King	Ultimate Bacon Cheese	\$17.80K
French Fries	15,073.95	8,421.20	Burger King	Whopper	\$15.95K
Frosty	8,214.65	4,127.96	McDonald's	Big Mac	\$19.95K
Original Chicken Sandwich	27,103.16	4,176.14	McDonald's	French Fries	\$16.10K
Snack Wrap	7,755.01	4,588.76	McDonald's	Snack Wrap	\$7.15K
Spicy Chicken Sandwich	3,997.29	4,037.66	Wendy's	Baconator	\$26.95K
Ultimate Bacon Cheeseburger	17,762.79	3,489.74	Wendy's	Frosty	\$8.45K
Whopper	16,293.32	4,083.54	Wendy's	Spicy Chicken Sandwic	\$3.45K

Information

It is not possible to edit the preset **Table** styles. However, it is possible to create a custom style based on the preset style and adjust it. To do this, please follow these steps:

- Assign the preset style to the **Table** component or element and select that component.
- Call up the Style Designer and click the [Get Style from Selected Components](#) button.
- Adjust the obtained style using its properties.
- Assign this custom style to the **Table** component or element.

Below is a list of properties that are used to customize the table style.

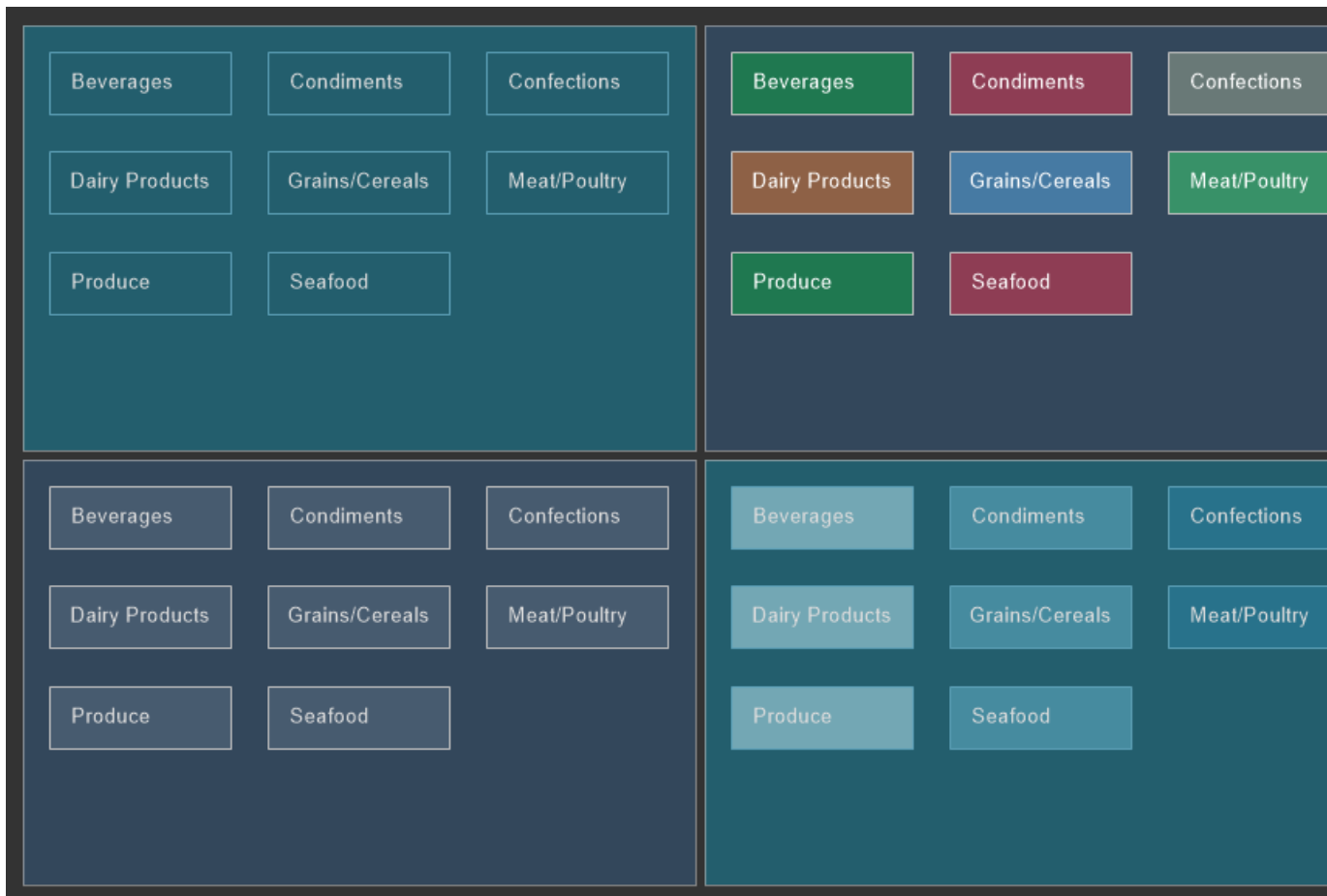
Name	Description
Name	Sets the name of the current style.
Description	Specifies a description for the current style.
Collection Name	Adds an existing style to the style collection or create a new style collection.
Conditions	Sets the conditions for conditions for applying the current style if it is included in the styles collection.
Alternating Data Color	Changes the background color of the odd rows of a component or element.
Alternating Data Foreground	Changes the text color of the odd lines of a component or element.
Back Color	Changes the background color of a component or element.
Data Color	Changes the background color of table cells.
Data Foreground	Changes the text color in cells.
Footer Color	Changes the background color of the footer cells.
Footer Foreground	Changes the text color in footer cells.
Grid Color	Changes the color of grid lines in a table.
Header Color	Changes the background color of table headers.
Header Foreground	Changes the color of text in table headers.
Hot Header Color	Changes the background color of the table headers when hovering over.
Selected Data Color	Changes the background color of value cells when they are selected in a rendered report or on the dashboard.
Selected Data Foreground	Changes the text color of values when they are selected in a rendered report or

on the dashboard.

4.2.6.8 Cards Style

The **Cards** style is applied to the [Cards](#) element. Do the next steps to create a table style:

- In the style designer, click the **Add Style** button and select the **Cards** style.
- Use the style properties to customize the formatting.
- Apply the style to the [report components](#) or [dashboard elements](#).



Information

It is not possible to edit the preset **Cards** styles. However, it is possible to create a custom style based on the preset style and adjust it. To do this, please follow these steps:

- Assign the preset style to the **Cards** component or element and select that

component.

- Call up the Style Designer and click the [Get Style from Selected Components](#) button.
- Adjust the obtained style using its properties.
- Assign this custom style to the **Cards** component or element.

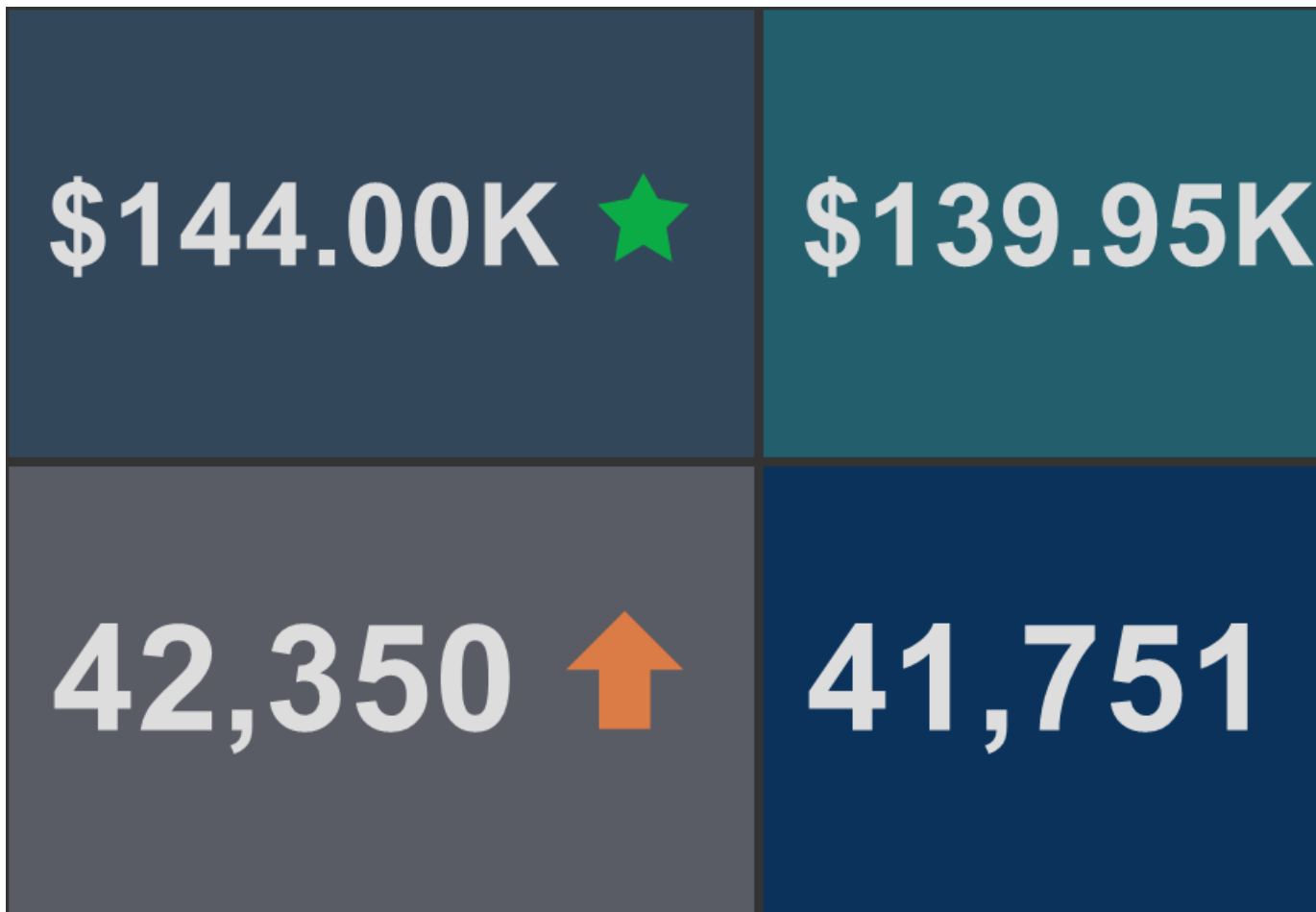
Below is a list of properties that are used to customize the style of cards.

Name	Description
Name	Sets the name of the current style.
Description	Specifies a description for the current style.
Collection Name	Adds an existing style to the style collection or create a new style collection.
Conditions	Sets the conditions for conditions for applying the current style if it is included in the styles collection.
Back Color	changes the background color of an element and the background color of cards.
Fore Color	Changes the text color of values in cards.
Line Color	Changes the border color of cards in an element.
Series Colors	Creates a collection of colors that will be used as the background of cards when the Color Each mode is enabled.

4.2.6.9 Indicator Style

The **Indicator** style is applied to the [Indicator](#) element. To create an indicator style, you should do the following:

- In the style designer, click the **Add Style** button and select the **Indicator** style.
- Use the style properties to customize the formatting.
- Apply the style to the [report components](#) or [dashboard elements](#).



Information

It is not possible to edit the preset **Indicator** styles. However, it is possible to create a custom style based on the preset style and adjust it. To do this, please follow these steps:

- Assign the preset style to the **Indicator** component or element and select that component.
- Call up the Style Designer and click the [Get Style from Selected Components](#) button.
- Adjust the obtained style using its properties.
- Assign this custom style to the **Indicator** component or element.

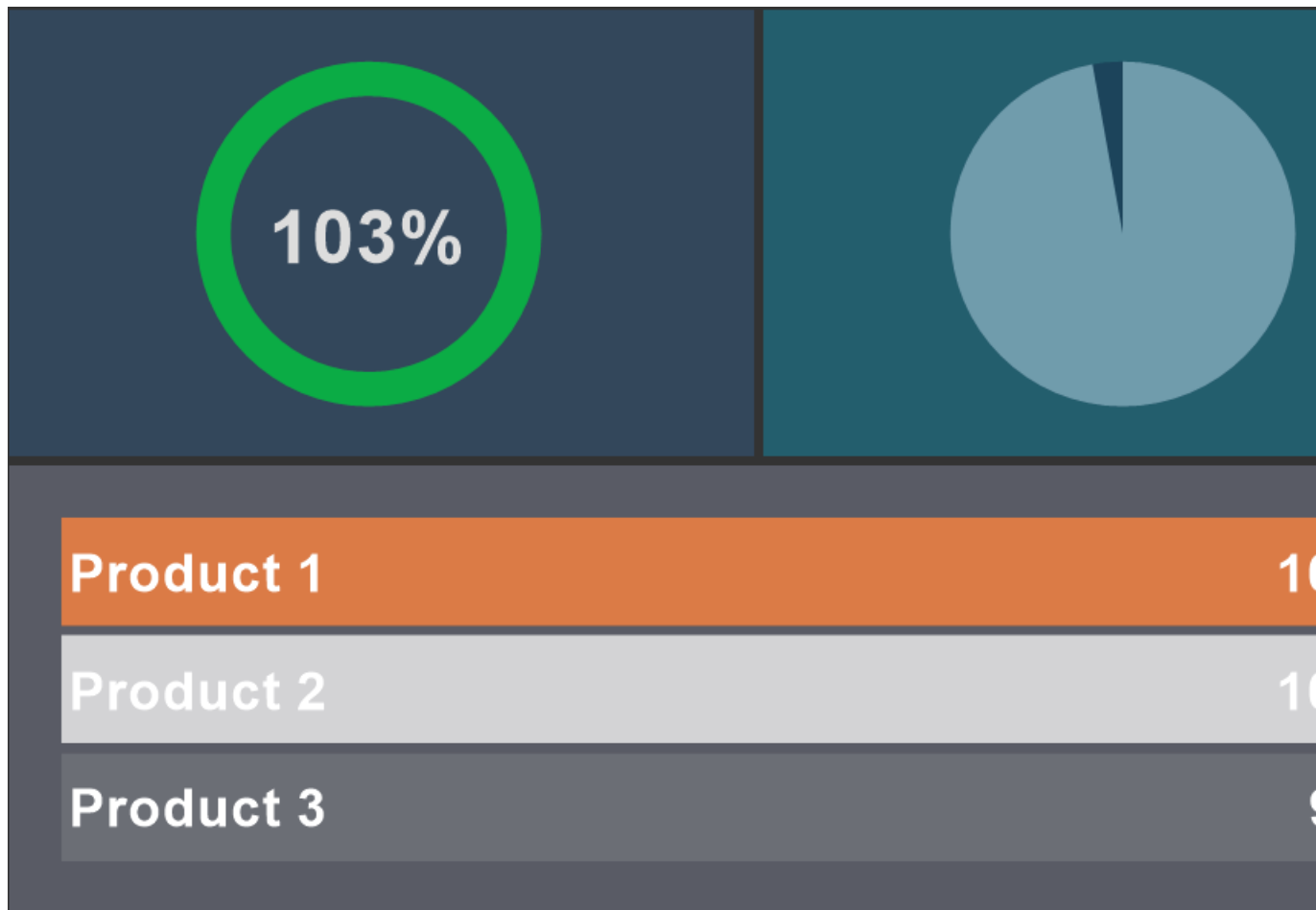
Below is a list of properties that are used to set the indicator style.

Name	Description
Name	Sets the name of the current style.
Description	Specifies a description for the current style.
Collection Name	Adds an existing style to the style collection or create a new style collection.
Conditions	Sets the conditions for conditions for applying the current style if it is included in the styles collection.
Back Color	Changes the background color of an element.
Fore Color	Changes the text color of an element.
Glyph Color	Changes the background color of a glyph of the element.
Hot Back Color	Changes the background color of an element when hovering over the element in the viewer.
Negative Color	Changes the text color for a negative deviation value in the current element.
Positive Color	Changes the text color for a positive deviation value in the current element.

4.2.6.10 Progress Style

The **Progress** style is applied to the [Progress](#) element. In order to create a progress style, you should:

- In the style designer, click the **Add Style** button and select the **Progress** style.
- Use the style properties to customize the formatting.
- Apply the style to the [report components](#) or [dashboard elements](#).



Information

It is not possible to edit the preset **Indicator** styles. However, it is possible to create a custom style based on the preset style and adjust it. To do this, please follow these steps:

- Assign the preset style to the **Indicator** component or element and select that component.
- Call up the Style Designer and click the [Get Style from Selected Components](#) button.
- Adjust the obtained style using its properties.
- Assign this custom style to the **Indicator** component or element.

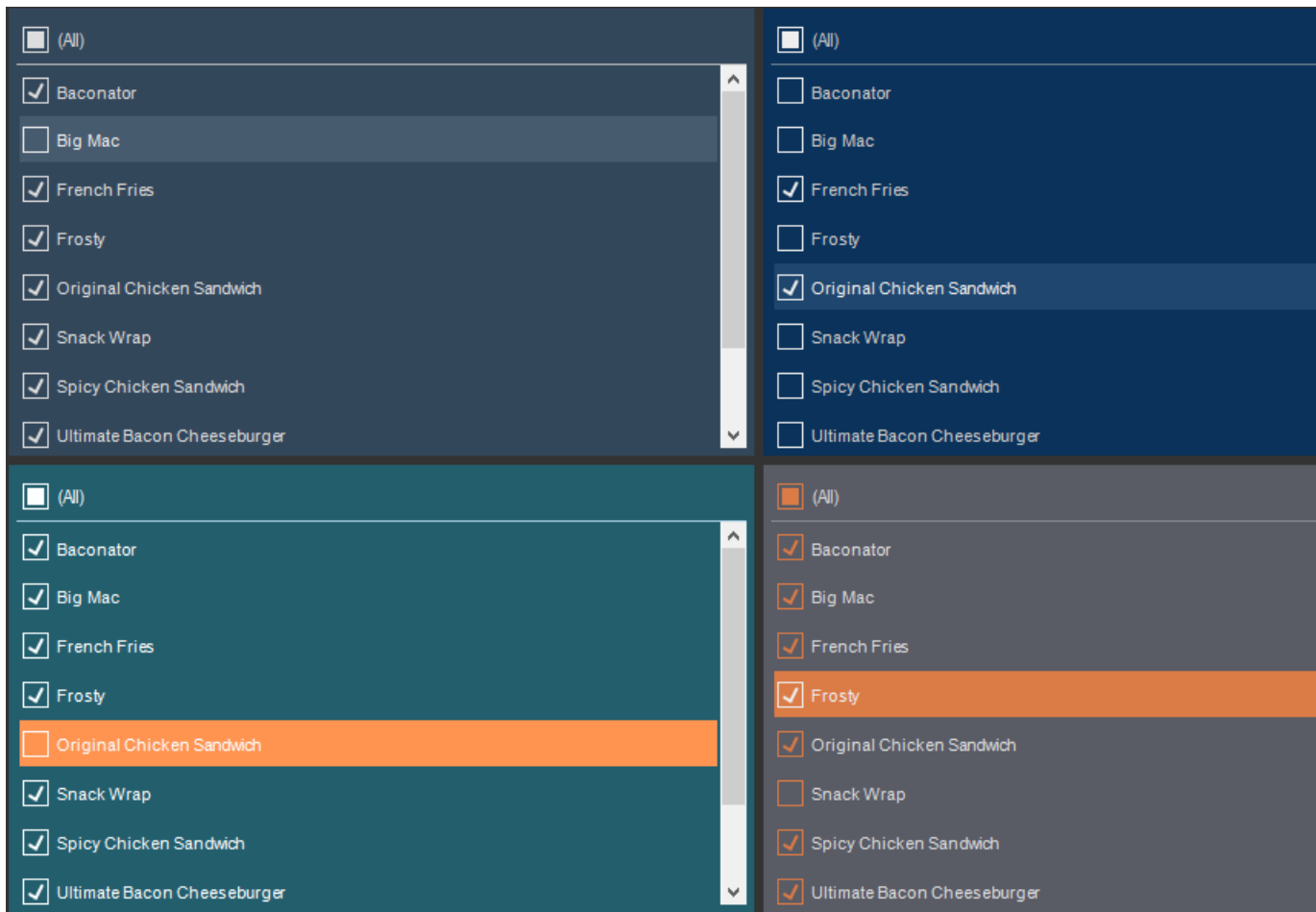
Below is a list of properties that are used to set the progress style.

Name	Description
Name	Sets the name of the current style.
Description	Specifies a description for the current style.
Collection Name	Adds an existing style to the style collection or create a new style collection.
Conditions	Sets the conditions for conditions for applying the current style if it is included in the styles collection.
Back Color	Changes the background color of an element.
Band Color	Changes the background color of the filled area of a graphical object of an element.
Fore Color	Changes the text color of an element.
Series Color	Creates a collection of colors that will be used as the background of cards when the Color Each mode is enabled.
Track Color	Changes the background color of an empty area of a widget of the element.

4.2.6.11 Report Control Style

The **Report Control** style applies to forms and controls in a report, as well as to [filter elements](#) and the [Button](#) element in the dashboard. To create a style for a control, you should do the following:

- In the style designer, click the **Add Style** button and select the **Report Control** style.
- Use the style properties to customize the formatting.
- Apply the style to the [report components](#) or [dashboard elements](#).



Information

It is not possible to edit the preset **Report Control** styles. However, it is possible to create a custom style based on the preset style and adjust it. To do this, please follow these steps:

- Assign the preset style to the **Report Control** component or element and select that component.
- Call up the Style Designer and click the [Get Style from Selected Components](#) button.
- Adjust the obtained style using its properties.
- Assign this custom style to the **Report Control** component or element.

Below is a list of properties that are used to set the report control style.

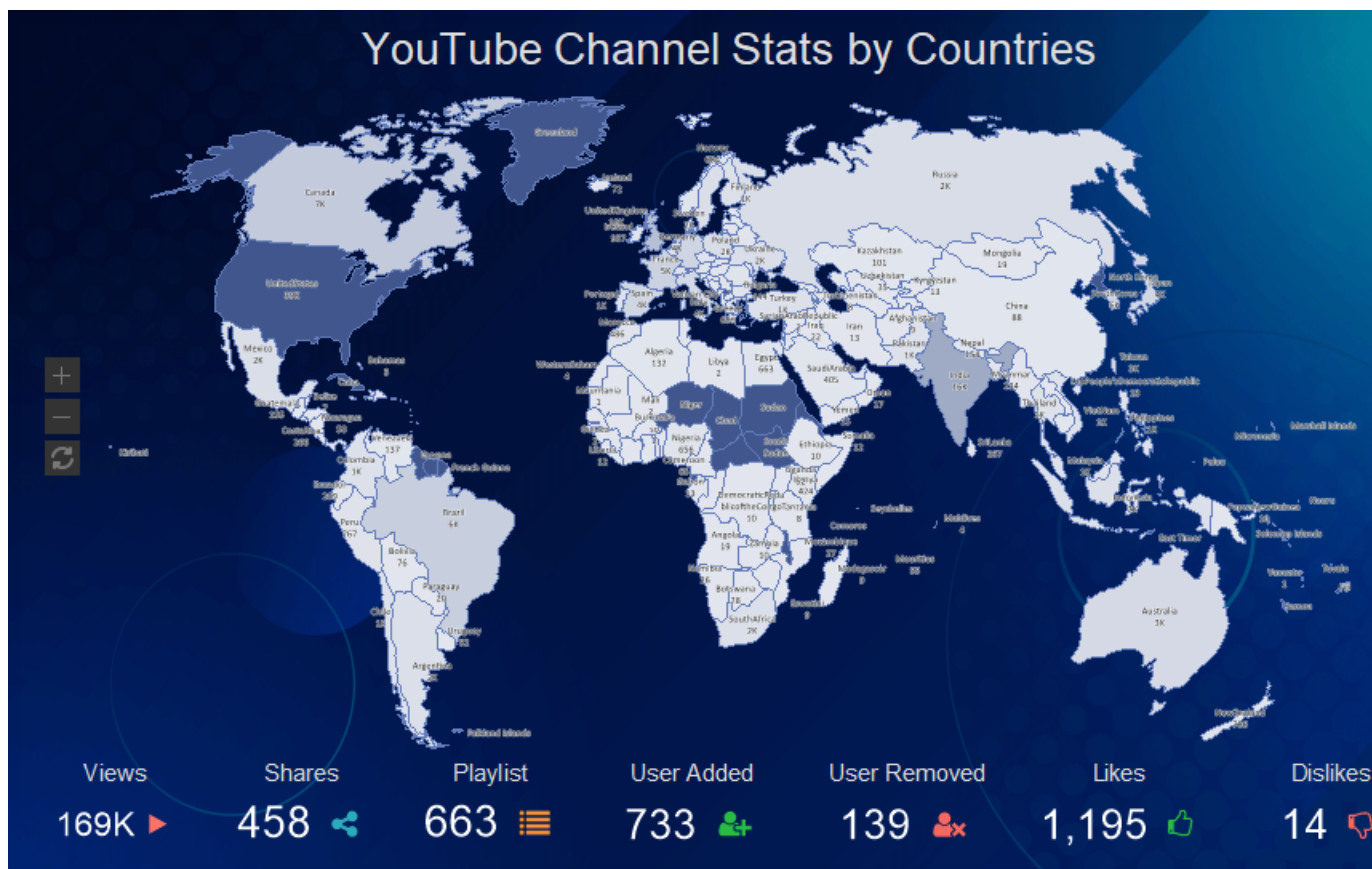
Name	Description
Name	Sets the name of the current style.
Description	Specifies a description for the current style.
Collection Name	Adds an existing style to the style collection or create a new style collection.
Conditions	Sets the conditions for conditions for applying the current style if it is included in the styles collection.
Back Color	Changes the background color of an element.
Font	A group of properties that is used to change the font, its size, and style for the text of controls or filter elements.
Fore Color	Changes the text color of the values.
Glyph Color	Changes the color of value icons.
Hot Back Color	Changes the background color of element values when hovering over in the viewer.
Hot Fore Color	Changes the text color of the values of the element when the cursor is hovered over the element in the viewer.
Hot Glyph Color	Changes the color of the element value icon when the cursor is hovered over the element in the viewer.
Hot Selected Back Color	Changes the background color of the element values when this value is selected in the viewer.
Hot Selected Fore Color	Changes the text color of the element values when this value is selected in the viewer.
Hot Selected Glyph Color	Changes the color of an element value icon when the value is selected in the viewer.

Selected Back Color	Changes the background color of an element selected value.
Selected Fore Color	Changes the text color of an element selected value.
Selected Glyph Color	Changes the icon color of an element highlighted value.
Separator Color	Changes the color of an element value separator.
Allow Use Back Color	Determines permission to apply a background color from an assigned style or from element properties. If the property is set to True , then the element background fill settings will be derived from the current style. If the current property is set to False , then the background fill settings will be determined by the properties of the element.
Allow Use Font	Determines permission to apply a text font from an assigned style or from an element properties. If the property is set to True , then the font settings for the element text will be obtained from the current style. If the current property is set to False , then the font settings for the element text will be determined by the properties of this element.
Allow Use Fore Color	Determines permission to apply text color from an assigned style or from an element properties. If the property is set to True , then the element text color settings will be derived from the current style. If the current property is set to False , then the text color settings will be determined by the properties of the element.

4.2.6.12 Watermark Style

The **Watermark** style is applied to report template pages, dashboards, and also to the [Panel](#) element. Do the next steps to create a component style:

- In the style designer, click the **Add Style** button and select the **Watermark** style.
- Use the style properties to customize the formatting.
- Apply the style by setting it as the value of the **Watermark Style** property for the template pages, dashboard, or **Panel** element on the dashboard.



Below is a list of properties that are used to set the watermark style.

Information

To apply the appearance settings, you should consider values of the **Allow Use...** properties.

Name	Description
Name	Sets the name of the current style.
Description	Specifies a description for the current style.
Collection Name	Adds an existing style to the style collection or create a new style collection.
Conditions	Sets the conditions for conditions for applying the current style if it is included in the styles collection.
Text	Defines the watermark text.
Text Angle	Defines the rotation angle of the watermark text.
Text Brush	A group of properties that is used to select the brush type and text color of a value.
Text Enabled	Displays text for the watermark.
Text Font	A group of properties that allows you to select a font, define its style and size , for the watermark text.
Text Right to Left	Enables the Right-to-Left mode for watermark text.
Show Text Behind	Displays text in a watermark in the foreground or background.
Image	Adds an image for the watermark.
Image Alignment	Defines the alignment of an image on a page, dashboard, or panel.
Image Aspect Ratio	Enables the mode to save the proportions of the width to the height of the image.
Image Enabled	Enables or disables the image in the watermark.
Image Multiple Factor	Changes the scale of the image.
Show Image Behind	Displays an image in the foreground or background of the watermark.

Image Stretch	Stretches an image to fit the entire page, dashboard, or panel on a dashboard.
Image Tiling	Enables the mode to fill the entire page, dashboard or panel with repeated images.
Image Transparency	Sets the coefficient (between 0 and 1) for the transparency of an image, where 0 is an opaque image and 1 is a completely transparent one.
The following style properties are only relevant for the dashboard and the Panel element on the dashboard panel. They do not apply to report pages.	
Weave Angle	Defines the rotation angle of weave icons.
Weave Distance	Defines the spacing between weave icons.
Weave Enabled	Enables or disables weave in the watermark.
Weave Major Color	Defines the color of basic weave icons.
Weave Major Icon	Defines an icon for basic weaves.
Weave Major Size	Defines the size of basic weave icons.
Weave Minor Color	Defines the color of additional weave icons.
Weave Minor Icon	Defines an icon for additional weaves.
Weave Minor Size	Defines the size of additional weave icons.

4.2.6.13 Collections

A style collection is a group of styles that have the same value in the **Collection Name** property. Each collection must contain at least one style. For instance, if multiple styles are used in a report, they can be combined into a collection. It's important to note that a report can have multiple style collections.

You can create a style collection in the following ways:

- Manually, by assigning the same value to the **Collection Name** property of the required styles.
- By selecting the **Create Style Collection...** command from the **Actions** menu, defining the settings for the new collection, and clicking the Ok button. In this case, the collection will be generated automatically.

It's worth noting that a report can contain both manually created style collections and automatically generated ones. Additionally, if needed, the styles within a generated collection can be edited along with the collection itself.

You can apply styles from collections in the following ways:

- Manually assign a style to each report or report component. You can select from the drop-down menu of quick style selections or from the drop-down list of values for the **Style** property.
- Select the style collection from the quick style select menu on the **Home** tab of the Ribbon panel in the style designer.

Information

It's worth noting that when selecting a style collection, all styles within that collection will be applied according to their conditions. If conditions are not set, then all styles from the collection will be applied to all report components in sequence. As a result, the last style in the collection will be applied to the report components.

It's also important to note that only one style collection can be applied to report components at a time. However, in some cases, you can manually assign a different style to specific report components while applying a collection of styles to the rest of the report. Let's take a look at some examples of creating style collections.

Creating a Style Collection Manually

Creating a style collection manually involves filling in the **Collection Name** property or dragging a style into the collection.

Step 1: Launch the style designer.

Step 2: Create styles or open a previously saved style file.

Step 3: To create a style collection, fill in the **Collection Name** property for the required styles. The name of the future collection is specified as the value of this property. Each unique value specified in this property creates a new collection. For example, if you specify the name Black for five styles, then the Black collection will be formed in the list of elements of the style designer, containing these five styles.

When working with style collections, keep in mind:

- When dragging a style from one collection to another, the value of the **Collection Name** property will change accordingly.
- If you rename a style collection, all styles within that collection will have their **Collection Name** property value changed as well.
- To remove a style from any collection, delete the value of the **Collection Name** property by leaving the value field of this property blank.

Step 4: Set up style conditions. Without conditions, when applying a collection of styles to a report, the styles will be applied sequentially from top to bottom. As a result, the last style from the collection will be applied to the report. However, you can also change the style of a report component by selecting it in the report template and choosing the appropriate style from the style menu on the **Home** tab of the report designer.

Step 5: Define the style's appearance options, such as brush, color, border, alignment, etc.

Step 6: Click the **Ok** button in the style designer to save the new style or the modifications to the existing one.

Creating a generated style collection

Creating a generated style collection involves creating a collection of styles automatically.

Step 1: Run the style designer.

Step 2: Select the **New Style Collection...** command from the **Actions** menu of the style designer;

Step 3: Define the parameters of the future style collection:

Create Style Collection

Collection Name:

Color:

Nested Level:

Nested Factor:

☒ Borders

☒ Remove Existing Styles

☒ Group Header ☒ Report Title

☒ Group Footer ☒ Report Summary

☒ Header ☒ Page Header

☒ Data ☒ Page Footer

☒ Footer

Collection Styles

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Stimulsoft

Unit Name	Description	Qty	Item Price	Total
Haglddmgpag	Idemvsof	\$77	\$16	\$96
Haglddmgpag	Kfaym	\$16	\$21	\$96
Bakkkhagph	Gfqudm	\$21	\$47	\$96
Idemvsof	Ffhw	\$47	\$46	\$96
Gfaycde	Hvold	\$46	\$26	\$72
Wfpaekvke	Bukq	\$26	\$26	\$92
Dfymhvsh	Wuhv	\$26	\$49	\$96
Furpm	Lvke	\$49	\$72	\$12
Rvfkpogof	Hmody	\$72	\$22	\$11
Item per page: 9				
Total: \$202.0				

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- 1 The **Collection Name** field specifies the name of the collection.
- 2 The **Color** parameter is used to select the primary color for the style collection.
- 3 The **Nested Level** is used to select a value corresponding to the nesting level in the report. More details will be discussed below.
- 4 The **Nested Factor** parameter is used to define a nesting factor that affects the lightness of colors in a given style collection.
- 5 An option is used to enable or disable **Borders** for the styles in the collection.
- 6 The **Remove Existing Styles** option. If this option is enabled, then when creating a collection, existing styles and collections in the style designer will be deleted. If this option is disabled (the checkbox is unchecked), then the new style collection will be added to the already existing styles and collections.
- 7 The **Components** panel. Report bands are marked on this panel. If a certain band is checked, then a style will be created that will be applied to the report components located on this band. If no band is checked, then the style collection will not be created.
- 8 The **Preview** panel. This panel displays an example of a report with the styles collection being created applied to it.

Step 4: Click the Ok button in the **Create Style Collection** dialog.

Step 5: Edit the styles from the collection and click the **Ok** button in the style designer.

Applying a style collection to a report

After the style collections are created, you can select one of these collections in the report.

- To do this, click on the style quick selection menu in the report designer on the **Home** tab.
- The drop-down list will display all collections of reports and a list of styles.
- After selecting a collection, a message will be displayed asking you to confirm or cancel this action.

If confirmed, the styles from the collection will be applied to the report components depending on the specified [conditions](#) in these styles.

4.2.6.14 Conditions

Styles are applied to report components:

- Manually. To do this, select a report component, select a style from the quick style selection menu on the **Home** tab, or select the desired style in the **Style** property of the component or element.
- Apply the collection to the report. In this case, the styles from the collection will be applied automatically, according to the specified conditions. If the styles in the collection do not have application conditions defined, then all styles from this collection will be applied to all components sequentially. As a result, the components will be assigned the latest style from the collection.

Information

To automatically apply a collection of styles to report components correctly, you need to define application conditions for each style in the collection.

To apply a collection of styles to report components automatically, it is necessary to define application conditions for each style in the collection. Otherwise, you can assign a style to components manually by selecting a report component or dashboard element and choosing a style from the list of **Style** property values or the quick style selection menu on the Ribbon panel of the report designer.

If you wish to use style application conditions, you can access the **Conditions** editor by following these steps:

- Select a style in the style designer.
- Click the **Browse** button next to the **Conditions** property on the property panel of the style designer.

Information

When creating a style collection in automatic mode using the **Create Style Collection...** command, the conditions in the styles will be included in the collection upon creation. In this case, the conditions for applying styles are determined by the settings specified during the creation of the collection.

Condition editor

Adding and setting conditions for applying a style from the collection is done in the **Conditions** editor. To add a block of conditions, click the **Add Condition** button. The condition block contains various logical conditions. These conditions can be set all together or separately. There may also be various combinations of conditions. To enable a logical condition, check the box next to its name. In order to ignore the logical condition, the checkbox must be unchecked.

Furthermore, you can add multiple condition blocks, which are processed sequentially from top to bottom. The first block that is processed is the one located above the others. If you want to change the sequence in which the condition blocks are processed, you can follow these steps:

- Select a block of conditions in the editor.
- Move the condition block up or down the list.

To delete a block of conditions, you need to follow these steps:

- Select a block of conditions in the editor.
- Click on the **Remove Condition** button.

The screenshot shows a 'Conditions' dialog box with the following structure:

- Add Condition** button
- Condition 1: ☒ **Placement** and
- Condition 2: ☒ **Nested Level** and
- Condition 3: ☒ **Component Type** and
- Condition 4: ☒ **Location** and
- Condition 5: ☒ **Component Name**
- OK** and **Cancel** buttons at the bottom right.

1 The **Placement** view condition is used to apply a style to a component depending on its position. Containers (bands, panel, table, page) are selected in the list of values.

- If the **equal to** operation is selected, then the style will be applied to the components placed on the selected containers.
- If the operation **not equal to** is selected, then the style will be applied to components placed on any containers, except for the values selected in the field.

2 Condition of the **Nested Level** type. With this type of condition, you can apply a style to components depending on the level of nesting of containers at which the component is located. The value field specifies the nesting level of the container (maximum is 100). This condition type has the following operations:

- **equal to** - the style will be applied when the nesting level of the containers is equal to the level specified in the value field.
- **not equal to** - the style will be applied to all components in containers whose nesting level is not equal to the specified level in the values field.
- **greater than** - the style to be applied to components in containers whose nesting level is greater than the level specified in the value field.
- **greater than or equal to** - the style will be applied to components in containers whose nesting level is equal to or greater than the specified level in the value field.

➤ **less than** - the style will be applied to components in containers, the nesting level of which will be less than the level specified in the value field.

➤ **less than or equal to** - the style will be applied to components in containers whose nesting level will be equal to or less than the specified level in the value field.

3 The **Component Type** view condition is used to apply a style only to components of a particular type. In the value field of this condition, you can simultaneously select several types of components. Under this condition, the following operations are available:

➤ **equal to** - the style will be applied to the components specified in the value field.

➤ **not equal to** - the style will be applied to all components, except for the values selected in the field.

4 The **Location** view condition is used to apply a style to a component, depending on its location on the container. In the value field, the desired location of the component is selected. Operations available under this condition are:

➤ **equal to** - the style will be applied to all components, the location of which corresponds to the one selected in the value field.

➤ **not equal to** - the style will be applied to all components whose location is different than the one selected in the values field. Also note that you can select multiple locations at the same time in the value field.

5 The **Component Name** type condition provides the ability to apply a style to a component with a specific name or part of it. In the value field, enter the name or part of the name of the component. When using this type of condition, the following types of operations are available:

➤ **equal to** - the style will be applied to a component with a name identical to that specified in the value field;

➤ **not equal to** - the style will be applied to all components, except for the one whose name matches the one specified in the value field;

➤ **containing** - the style will be applied to all components that contain the name or part of the name specified in the value field in their name.

➤ **not containing** - the style will be applied to all components that do not contain the name or part of the name specified in the value field in their name.

➤ **beginning with** - the style will be applied to all components whose name begins with the name specified in the value field.

➤ **ending with** - the style will be applied to all components whose name ends with the name specified in the value field.

Nesting levels

Nesting levels are commonly used in styling conditions. For example, you can specify that a style should only be applied to components that are at the third level of nesting, or to all components except for those at the second level of nesting. Additionally, when automatically generating collections of styles, it is important to have a clear understanding of nesting levels.

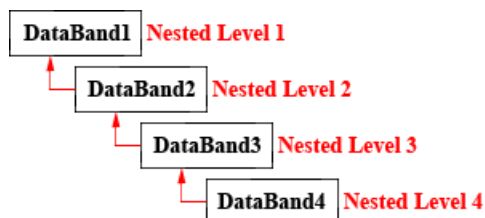
The level of nesting refers to the degree of subordination of one component to another component of the same type. The first level of nesting is established when a component is added to the report template. If you add a component and it has no subordination, it will be considered a component at the first nesting level.

Information

For instance, if a report contains two **Data** bands, with one being subordinate to the other, then the subordinate Data band will be considered a component of the second nesting level, while the other **Data** band will be a component of the first nesting level. Similarly, if the report has three **Data** bands, where the third is subordinate to the second and the second to the first, then they will respectively be components of the third, second, and first levels of nesting.

It is important to note that there can be multiple components at the same nesting level. For example, several **Data** bands can be subordinate to a single parent **Data** band. However, it's not possible to create a nesting level between a **Data** band and a **Report Title** band, as these belong to different types of bands.

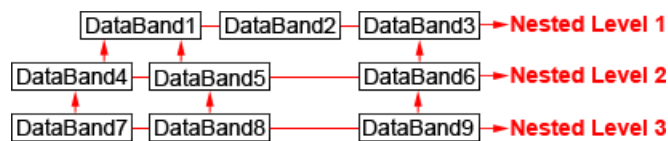
The example below illustrates the nesting levels of **Data** bands.



Nesting levels of the Data band and bands related to it

As mentioned earlier, when a component is added to a report template, it's automatically assigned to the first nesting level. However, you can change its nesting level by using the Master Component property. To do this, select the component and in the Master Component property field, choose the Data band to which it should be subordinate.

The nesting level of a subordinate band is determined by the nesting level of its parent Data band. For instance, if you choose a Data band that is at the third nesting level, the subordinate band will be assigned to the fourth nesting level. Moreover, it's important to note that multiple bands can be subordinate to a single parent Data band, in which case, they will all have the same nesting level. The example below illustrates a report organization scheme with three levels of nesting.



Information

It's worth noting that when creating a style collection in the **Create Style Collection** dialog, you can only specify a maximum nesting level of ten. However, by using a **Condition**, you can increase it up to the 100th nesting level.

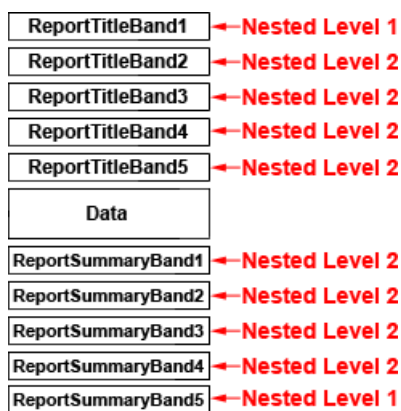
The **Header**, **Footer**, **Group Header**, and **Group Footer** bands are directly related to the **Data** band, so their nesting level is determined by the nesting level of the DataBand to which they belong. It is essential to note that the nesting level of the Data band and its associated bands is independent of their position in the report.

Nesting level of other bands

For the **Report Title** and **Report Summary** bands, you can only create a collection of styles for the first and second levels of nesting. It is impossible to create a style collection for the third and subsequent levels of nesting for these bands. Unlike the **Data** band, subordination in this case is determined by the location of the bands on the report page, rather than by their nesting level.

- For the **Report Title** band, the nesting level is determined in the following way - the first (top) band is assigned the first nesting level, and all subsequent (lower) bands are assigned the second nesting level.
- For the **Report Summary** band, the order is slightly different - all bands, except for the last (low) one, are assigned the second level of nesting, while the last (low) band is assigned the first level.

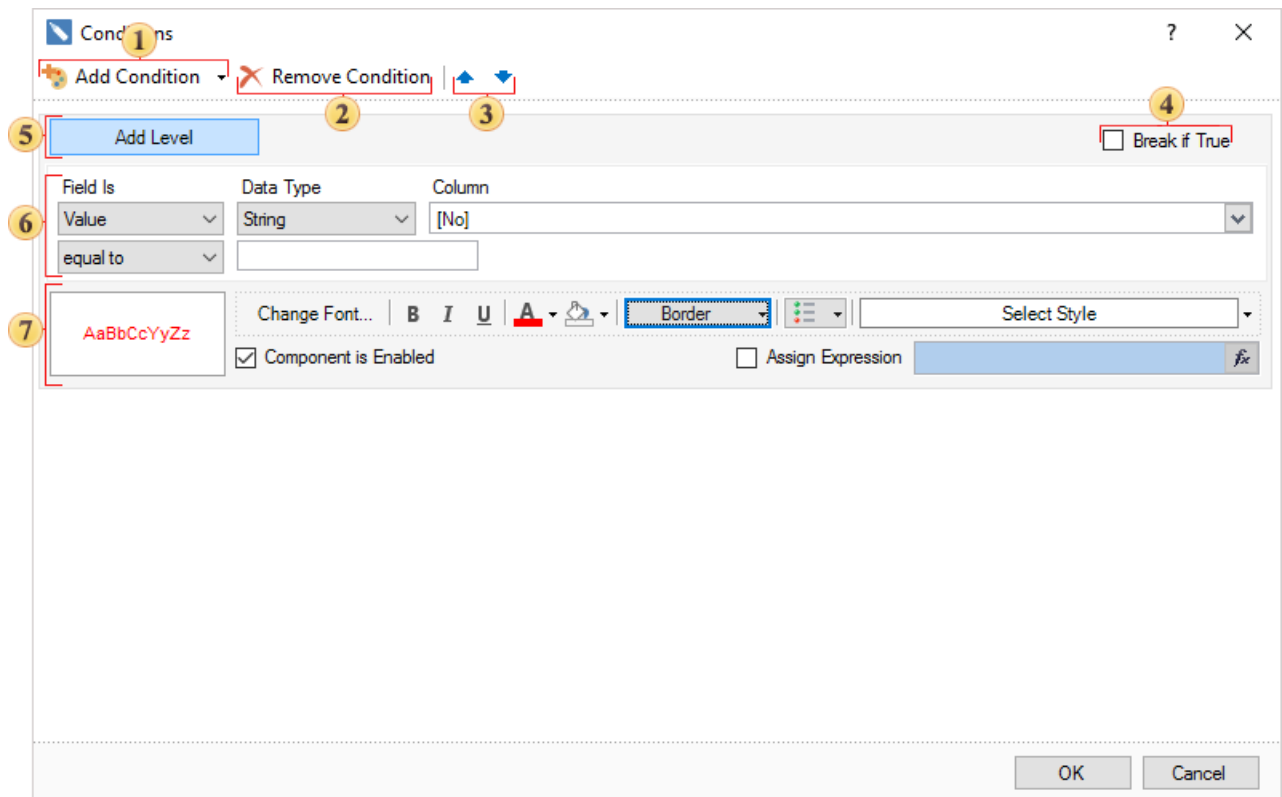
The image below illustrates the nesting level distribution for the **Report Title** and **Report Summary** bands.



For the **Page Header** and **Page Footer** bands, you can create a collection of styles of only the first level of nesting.

4.3 Conditional Formatting

Conditional formatting allows you to change the design of components, depending on certain conditions. For each component in the record, you can set the conditions that define its formatting, such as font style, text color and background color. You can also hide or disable the component. For a component, you can set several conditions, i.e. appearance of the component may change in different ways depending on the conditions. Setting up conditional formatting is done using the properties of conditions (Conditions). Using this property is called the editor environment. The picture below shows the main elements of the editor of conditions:



1 Add condition

This button adds a new conditional formatting to component conditions.

2 Remove condition

This button removes a new conditional formatting from component conditions. It is necessary to select the conditional formatting.

3 The buttons are used to move the selected level of conditions in the list. The higher the level is in the list, the higher is the priority of processing.

4 Break if True

By default, all the conditions of the levels are processed sequentially from top to bottom. Depending on the result, these or those format settings are applied. If you want to stop the processing of conditions so that the processing of the condition stopped when returning true, you should check this setting. In this case, the levels will be processed sequentially until returning the value **true**. Thereafter, subsequent processing of conditions (levels below) will be terminated.

5 Add level

This button adds one level of the condition parameter.

6 Parameters of a condition

Specify parameters of condition on this panel.

7 Format settings

Specify parameters of the appearance of the component on this panel.

There are two types of conditions - **Value** and **Expression**. How to set a condition is reviewed in the next topics.

4.3.1 Value Condition

If you use a Value condition you will need to set the condition using a special format which consists of three elements:

1. The column in the data source

The column in the data source from which the first value is taken for comparison with the second value of the condition.

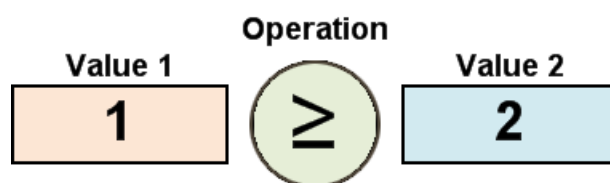
2. Operator

The selected operator lets the reporting tool know how to process the first and second values to obtain the result. For example, the comparison operator tells to the reporting tool to compare the first and the second values to produce the result.

3. The value to calculate a condition

This is the second value used to calculate the condition (the first is taken from the data source). The value can be either a constant (for all types of data except for the Expression type), or an expression (for the Expression type).

If you were writing a value condition in code, it would look like this:



For some types of operations, the condition uses three values. These are operations that check whether a value belongs to a specified range. The range is defined by two values. In addition to the elements described above, the condition also includes the data type. The data type helps the report generator determine the type of the second condition value and the list of available condition operation types. The figure below shows the condition configuration panel:

The image shows a configuration window for a condition. It has five main sections, each with a numbered callout:

- 1 Field Is:** A dropdown menu currently showing 'Value'.
- 2 Data Type:** A dropdown menu currently showing 'String'.
- 3 Column:** A dropdown menu currently showing '[No]'.
- 4 Operator:** A dropdown menu currently showing 'equal to'.
- 5 Value:** An input field currently empty, with a placeholder '...'.

1 Field Is combo.

This is used to select the type of condition.

2 Data Type combo

This field specifies the type of data with which a condition will work. There are five types of data: String, Numeric, DateTime, Boolean, and Expression. The data type affects how the reporting tool processes the condition. For example, if the data type is a string, then the methods that work with strings are used. In addition, depending on the type of data the list of available operators is automatically changed. For example, the Contains operator is available only for the String data type. The Expression data type provides the ability to specify an expression instead of the second value. In this case the reporting tool will not check the compatibility of the first and the second values of the condition. Therefore, the user should ensure that the expression entered is valid to prevent runtime errors.

3 Column combo

This is used to specify the column of the data source. The value of the column will be used as the first value of the condition.

4 Operator combo

This is used to specify the type of operator to be used when calculating the value of the condition.

5 Value box

This is used to specify the comparison value to be used when calculating the value of a condition. For some operations you may need to specify three values.

4.3.2 Operators

Operators enable you to define the circumstances in which a condition is deemed to be true. The operators available depend on the data type being operated upon, so only the appropriate operators will be available. For example, a logical condition can only be true or false, so it cannot be greater than anything making the greater than operator inappropriate for that data type.

The table below shows a list of operators and the data with which they can be used:

Operator	Types of data					Description
	String	Numerical	Date	Logic	Expression	
equal to						If the first value is equal to the second, then the condition is true.
not equal to						If the first value is not equal to the second, then the condition is true.
between						If the first value is in the range, then the condition is true.
not between						If the first value is not in the range, then the condition is true.
greater than						If the first value is greater than the second value, then the condition is true.
greater than or equal to						If the first value is greater than the second value or equal to the second value, then the condition is true.
less than						If the first value is less than the second value, then the condition is true.

less then or equal to					If the first value is less than the second value or equal to the second value, then the condition is true.
containing					If the first value contains the second value, then the condition is true. This operator is used only for strings.
not containing					If the first value does not contain the second value, then the condition is true. This operator is used only for strings.
beginning with					If the first value starts with the second value, then the condition is true. This operator is used only for strings.
ending with					If the first value ends with the second value, then the condition is true. This operator is used only for strings.

4.3.3 Expression Condition

When you choose to use an Expression condition you define a text expression that returns a boolean value. The value returned determines whether or not the formatting is applied. The configuration panel is shown below:

Field Is

Expression

❶ **Field Is.** Field is used to select the type of conditions.

❷ **Expression.** This field is used to define an expression that should return a boolean value.

For example, a suitable expression in **C#**:

```
Customers.CustomerName == "MyCustomer"
```

If the expression cannot return a boolean value then the report generator will not be able to render the conditional formatting.

❗ **Important:** The expression **MUST** return a boolean value or the conditional formatting will fail.

4.3.4 Multi Part Conditions

In some cases, one comparison operation may not be sufficient to define the condition. To allow for this situation Stimulsoft Reports allows you to specify a multi part condition. The picture below shows the condition editor for a two level multi part condition:

Field Is

Expression

Field Is	Data Type	Column
Value	String	[No]
equal to		

Remove

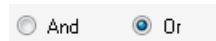
❶ The first part of the condition.

❷ The second part of the condition.

If you were to write this condition in code as a logical expression, it would look like this:

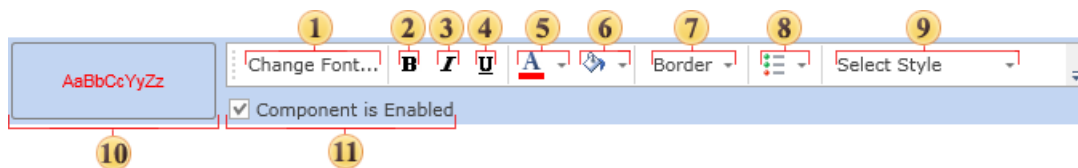
`(Categories.CategoryID) = 1 or (Categories.CategoryID = 2)`

It is possible to select the type of logical addition of the various parts of a multi part condition: the **logical AND** or the **Boolean OR**. To define this simply select the appropriate radio button



4.3.5 Defining Formatting

If the condition returns true when evaluated by the report engine the formatting of the component will be changed according to the design settings. Setting is carried out using the formatting panel. The picture below shows the components of the control panel:



- 1 **Font.** Used to select the font.
- 2 **Bold button.** Used to define the bold font style.
- 3 **Italic button.** Used to define the italic font style.
- 4 **Underlined button.** Used to define the underlined font style.
- 5 **Font Color Selector.** Used to define the text color.
- 6 **Background Color Selector.** Used to define the background color.
- 7 **Border.** Used to set borders.
- 8 **Control Menu.** Enables/Disables the components of the control panel.
- 9 **Style button.** This button is used to select a style to be applied.
- 10 **Pattern.** This shows a preview of how the control will look with the conditional formatting applied.
- 11 **Component is Enabled check box.** This control lets you control how the result of a condition would affect the Enabled property of the component.

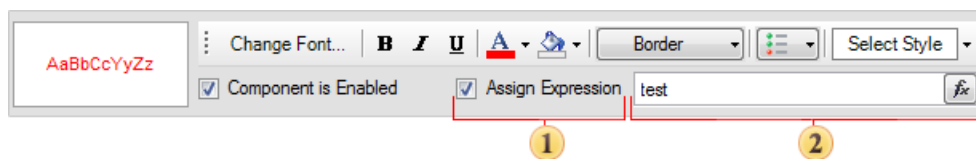
You can enable or disable the accessibility of the component in a report. For example, you can remove a page from a rendered report by setting a condition.

If the condition evaluates to true, then the component appearance will change according to settings made in this panel. If the component does not support the specified appearance (for example, because it has no Font property), the appearance will be automatically deleted.

In addition, you can control the availability of the control within the report using the Component is Enabled check box.

4.3.6 Conditional Formatting and Text Components

The conditions editor of text components has differences from other components. It has additional ability to assign text expression, if the condition is true. On the picture below the panel to edit conditions of the text component is shown.



1 Assign expression. This flag controls whether or not a text expression is used in the condition. If it is disabled then the expression is not used.

2 Text expression. The text expression that will be assigned to a text component if the condition is true.

4.3.7 Conditional Formatting and Cross-Tables

The Cross Table condition editor has several differences from the standard condition editor. In particular there are significant differences when writing expressions within conditions, as it adds some special variables such as: **value**, **tag**, **tooltip**, and **hyperlink**.

The **value** variable contains the value of the cross table cell and can be used to calculate a condition:

`tag > 50`

In other words, if the value of the cell of a cross table is greater than 50, then the condition is true and formatting that was set to condition will be applied to the cell.

The **tag**, **tooltip**, and **hyperlink** variables contain the calculated values of the **Tag**, **Tooltip**, and **Hyperlink** properties. For example, you may specify the name of a product in the **Tag** property of the cross table cell:

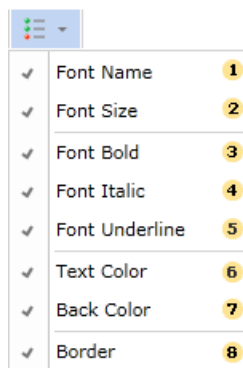
```
{Products.ProductName}
```

Suppose we wanted to highlight in red the cell of the cross table in which the Coffee product is described. This can be achieved by setting the formatting and using the following condition:

```
tag == "Coffee"
```

4.3.8 Visual Styles Menu

It is possible to enable/disable visual styles of a component using the conditional formatting. Enabling/disabling visual styles can be done in the visual styles menu. This menu provides the ability to make choice of those visual styles of the component, which will be applied to it for triggering the condition. The picture below shows the menu of visual styles:



- 1 The **Font Name** menu item. Enabling/Disabling this item provides an opportunity to change/not change the font in the components that match the condition;
- 2 The **Font Size** menu item. Enabling/Disabling this item provides an opportunity to change/not change the font size for components that match the condition;

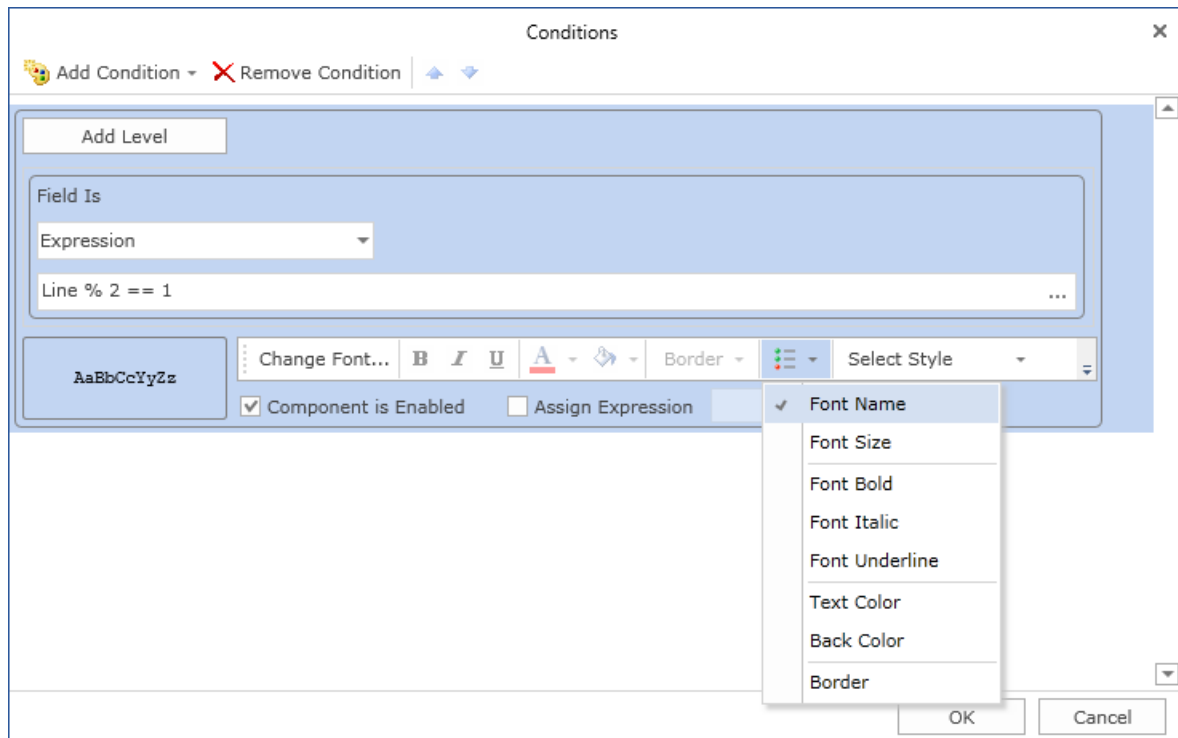
- 3 The **Font Bold** menu item. Enabling this item provides an opportunity to use bold font for the components that match the condition;
- 4 The **Font Italic** menu item. Enabling this item provides an opportunity to use italic font for the components that match the condition;
- 5 The **Font Underline** menu item. Enabling this item provides an opportunity to use the underlined font for components that match the condition;
- 6 The **Text Color** menu. Enabling this item provides an opportunity to apply the text color for the components which correspond to the condition;
- 7 The **Back Color** menu item. Enabling this item provides an opportunity to apply the background color for the components that match the condition;
- 8 The **Border menu** item. Enabling this item provides an opportunity to change the borders of components.

4.3.8.1 Font Name

Using conditional formatting it is possible to change the font of a text component. The picture below shows a report page:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

For example, you can use different fonts to display the contents of a text component in the odd and even rows. To do this, select a text component, for example a text component with the **{Customers.CompanyName}** expression, in the **DataBand** and call the **Conditions** editor. Then, you must specify the condition, for example: **Line % 2 == 1**. Change the formatting options, in this case, the Font Name. The picture below shows the **Conditions** editor dialog box:



After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the font of the selected text component will be changed, depending on the condition. The picture below shows the page of the rendered report with conditional formatting:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

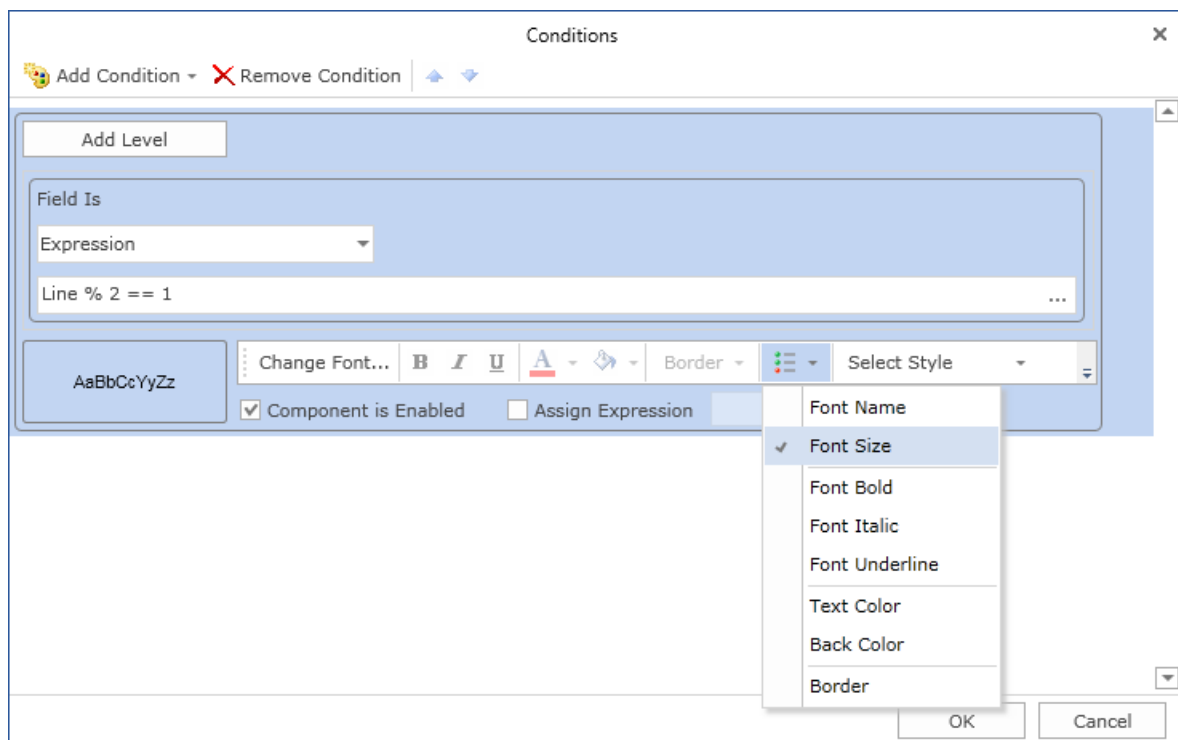
As can be seen in the picture above, the text components of the **CompanyName** column, located in the even and odd lines, use different fonts.

4.3.8.2 Font Size

Using conditional formatting it is possible to change the font size of a text component. Let us consider in more detail changing the font size of the contents of a text component. The picture below shows a report page:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

For example, you can use different font sizes to display the contents of a text component in the odd and even rows. To do this, select a text component, for example a text component with the **{Customers.Country}** expression, in the **DataBand** and call the **Conditions** editor. Then, you must specify the condition, for example: **Line % 2 == 1**. Change the formatting options, in this case, the Font Size. The picture below shows the **Conditions** editor dialog box:



After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the font size of the selected text component will be changed, depending on the condition. The picture below shows the page of the rendered report with conditional formatting:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados y helados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

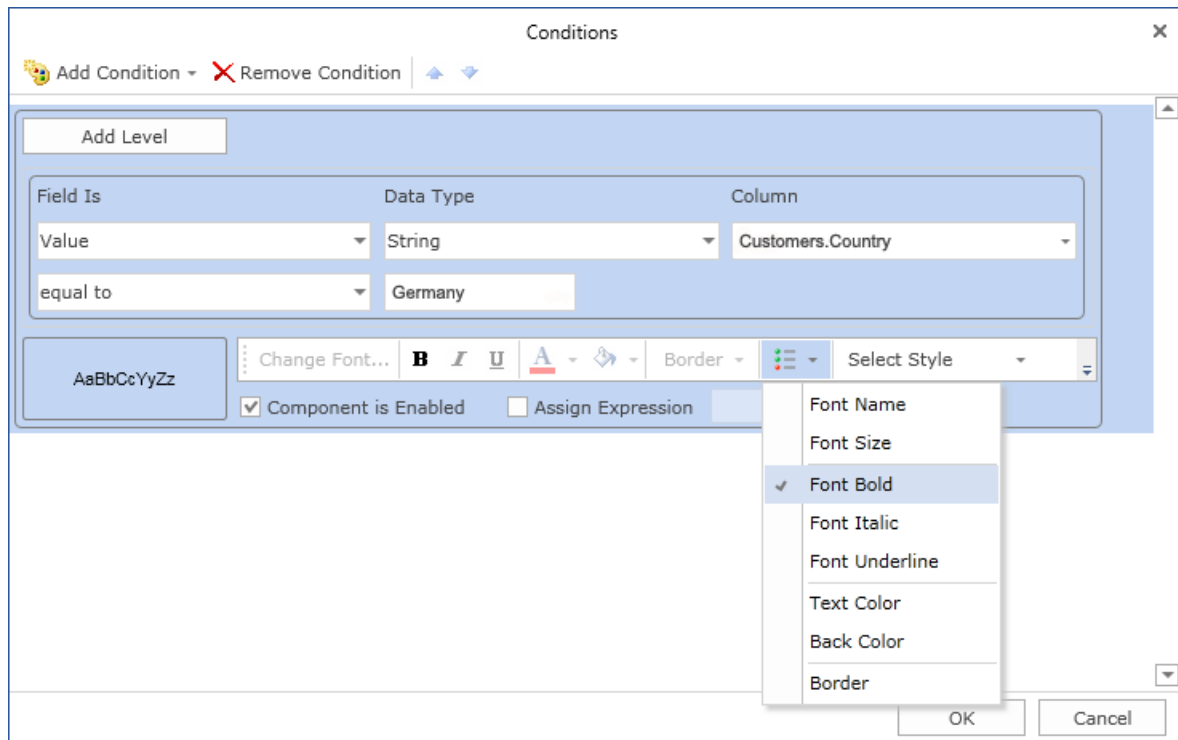
As can be seen in the picture above, the text components of the **Country** column, located in the even and odd lines, use different font sizes.

4.3.8.3 Font Bold

Using conditional formatting it is possible to apply the bold font for the text component. The picture below shows a report page:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

For example, you can make text bold for components that contain the **Germany** word in the **Country** column. Select a text component with the **{Customers.Country}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.Country** data column, as the first value, and indicate the **Germany** word, as a second value. Also set the **Operation comparison** to the **Containing** value. Change the formatting parameters, in this case, set the font style to bold. The picture below shows the **Conditions** editor dialog box:



After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the bold font will be applied for the content of text components that match the specified condition. The picture below shows a page of the rendered report with conditional formatting:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

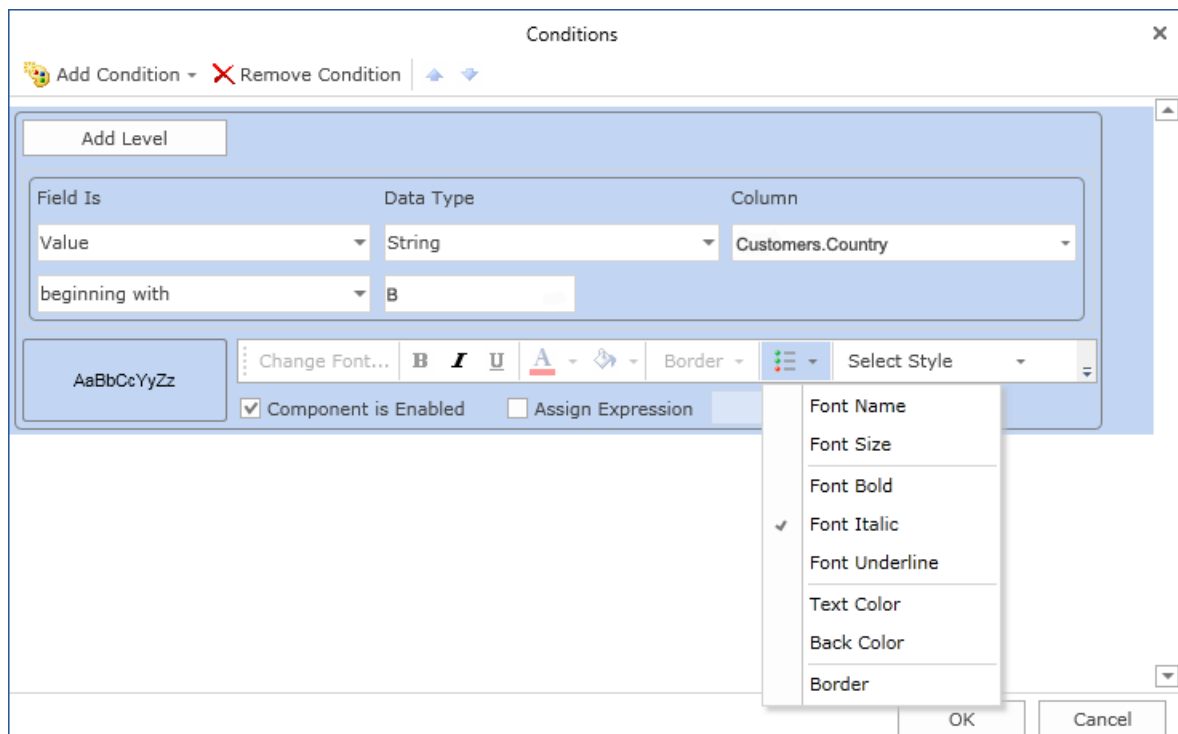
As can be seen in the picture above, lines of text components of the **Country** column which contain a **Germany** word are bold.

4.3.8.4 Font Italic

Using conditional formatting it is possible to apply the italic font for the text component. The picture below shows a report page:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

For example, you can make text italic for components that contain a **B** letter in the **CompanyName** column. Select a text component with the **{Customers.CompanyName}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.CompanyName** data column, as the first value, and indicate the **B** letter, as a second value. Also set the **Operation comparison** to the **Beginning with** value. Change the formatting parameters, in this case, set the font style to italic. The picture below shows the **Conditions** editor dialog box:



After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the italic font will be applied for the content of text components that match the specified condition. The picture below shows a page of the rendered report with conditional formatting:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondel's père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

As can be seen in the picture above, lines of text components of the **CompanyName** column which starts with a **B** letter are italic.

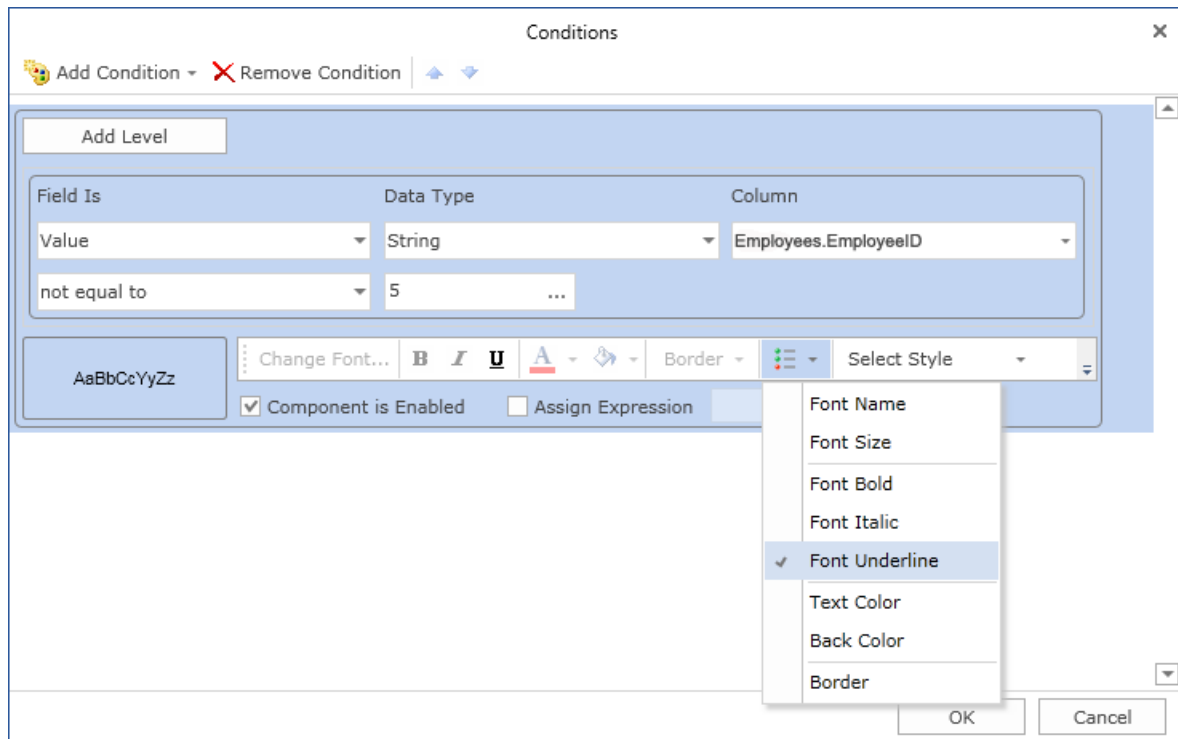
4.3.8.5 Font Underlined

Using conditional formatting it is possible to apply the underlined font for the text component. The picture below shows a report page:

EmployeeID	LastName	FirstName	Country
1	Davolio	Nancy	USA
2	Fuller	Andrew	USA
3	Leverling	Janet	USA
4	Pescock	Margaret	USA
5	Buchanan	Steven	UK
6	Suyama	Michael	UK
7	King	Robert	UK
8	Callahan	Laurs	USA
9	Dodsworth	Anne	UK

For example, you can make text underlined for components that contain a **Nancy** word in the **FirstName** column. Select a text component with the **{Employees.LastName}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Employees.FirstName** data column, as the first value, and indicate the **Nancy** letter, as a second value. Also set the **Operation comparison** to the **not equal to** value. Change the formatting

parameters, in this case, set the font style to underlined. The picture below shows the **Conditions** editor dialog box:



After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the underlined font will be applied for the content of text components that match the specified condition. The picture below shows a page of the rendered report with conditional formatting:

EmployeeID	LastName	FirstName	Country
1	<u>Devolio</u>	Nancy	USA
2	<u>Fuller</u>	Andrew	USA
3	<u>Leverling</u>	Janet	USA
4	<u>Peacock</u>	Margaret	USA
5	Buchanan	Steven	UK
6	<u>Suyama</u>	Michael	UK
7	<u>King</u>	Robert	UK
8	<u>Callahan</u>	Laura	USA
9	<u>Dodsworth</u>	Anne	UK

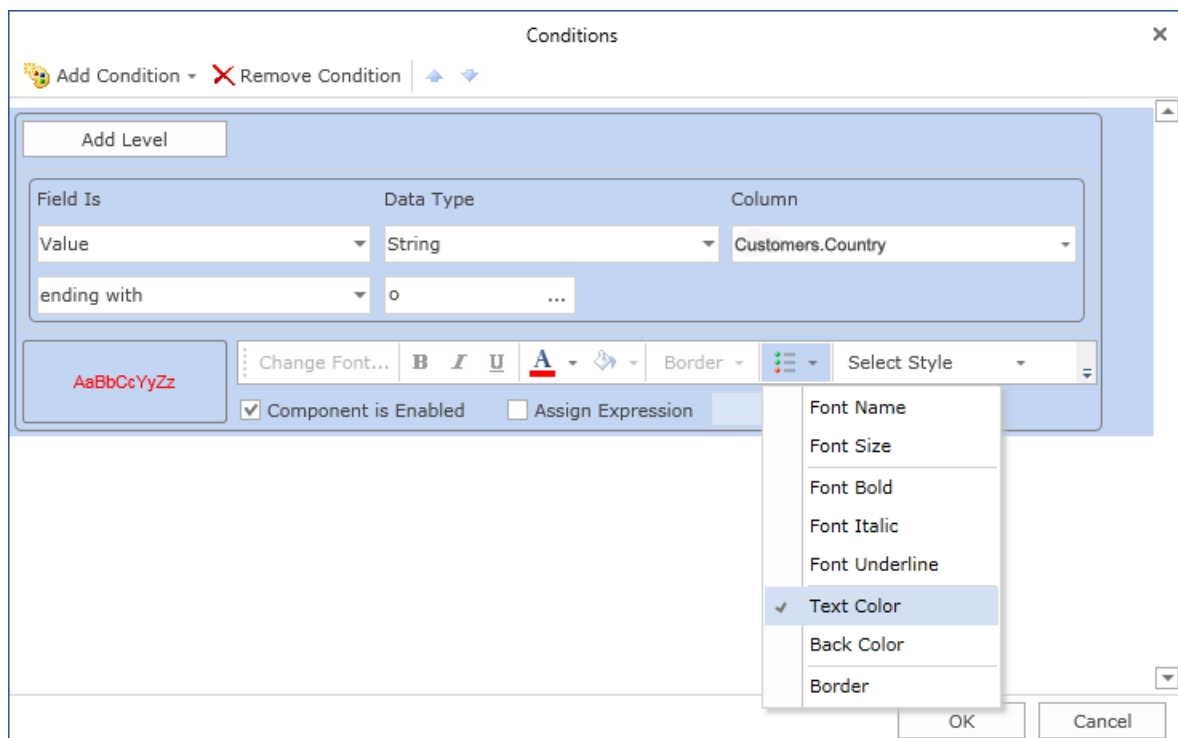
As can be seen in the picture above, lines of text components of the **FirstName** column which starts with the **Nancy** word are underlined.

4.3.8.6 Text Color

Using conditional formatting it is possible to apply the color for the text component. The picture below shows a report page:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

For example, you can change a text color of entries which end with an **o** letter in the **Country** column. Select a text component with the **{Customers.Country}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.Country** data column, as the first value, and indicate the **o** letter, as a second value. Also set the **Operation comparison** to the **ending with** value. Change the formatting parameters, in this case, change the text color. The picture below shows the **Conditions** editor dialog box:



After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the text color will be applied for the content of text components that match the specified condition. The picture below shows a page of the rendered report with conditional formatting:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

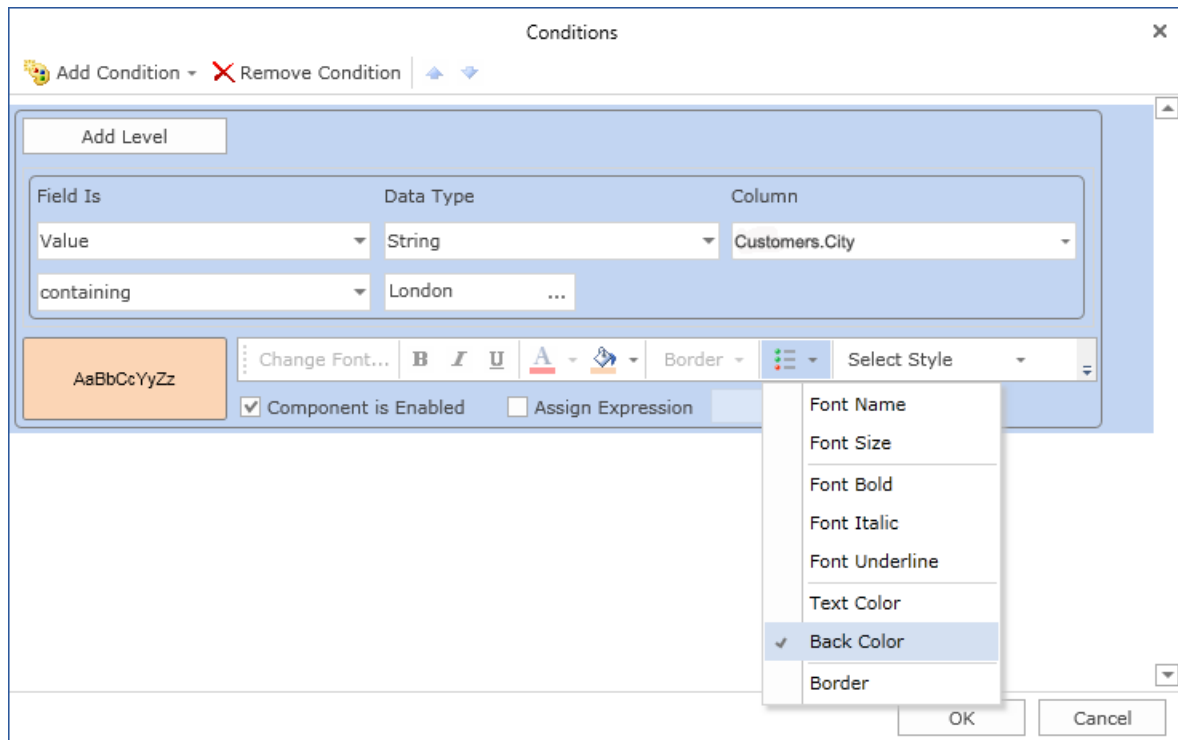
As can be seen in the picture above, lines of text components of the **Country** column which ends with the **o** letter are red.

4.3.8.7 Back Color

Using conditional formatting it is possible to apply the background color for the text component. The picture below shows a report page:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

For example, you can change the background color of text components which contain a **London** word in the **City** column. Select a text component with the **{Customers.City}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.City** data column, as the first value, and indicate the **London** word, as a second value. Also set the **Operation comparison** to the **containing** value. Change the formatting parameters, in this case, change the background color. The picture below shows the **Conditions** editor dialog box:



After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the background color will be applied for the content of text components that match the specified condition. The picture below shows a page of the rendered report with conditional formatting:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

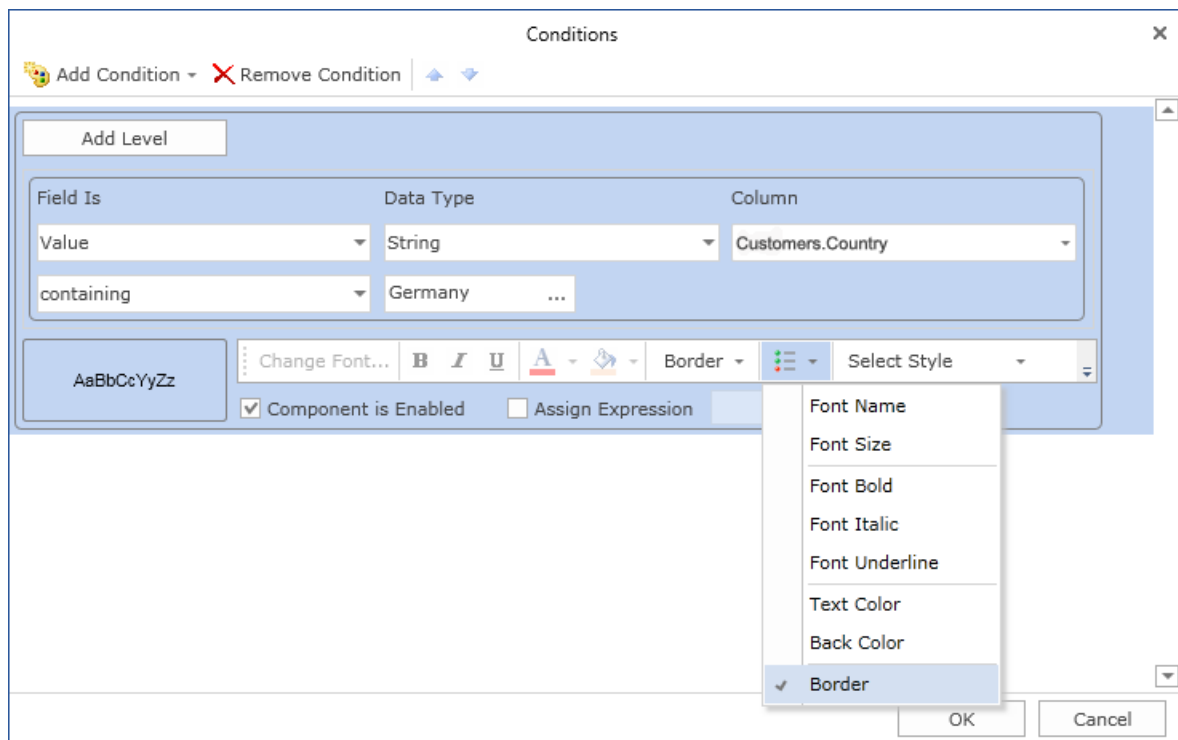
As can be seen in the picture above, background color of text components of the **City** column which contain the **London** word, will be changed.

4.3.8.8 Borders

Using conditional formatting it is possible to apply borders for the text component. The picture below shows a report page:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

For example, you can set borders of text components which contain a **Germany** word in the **Country** column. Select a text component with the **{Customers.Country}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.Country** data column, as the first value, and indicate the **Germany** word, as a second value. Also set the **Operation comparison** to the **containing** value. Change the formatting parameters, in this case, set borders. It is possible to configure showing borders. The following options are available: **All** (show all borders), **None** (Do not show borders), **Top** (show a top border), **Left** (show a left border), **Bottom** (show a bottom border), **Right** (show a right border). The picture below shows the **Conditions** editor dialog box:



After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the borders will be set for the text components that match the specified condition. The picture below shows a page of the rendered report with conditional formatting:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

As can be seen in the picture above, borders of text components of the **Country** column which contain the **Germany** word, will be set.

4.3.8.9 Enabling Component

Using conditional formatting it is possible to show/hide the text component. The picture below shows a report page:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	Sweden
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	Spain
Bon app'	Marseille	France

For example, you can hide the text components which contain a **S** letter in the **Country** column. Select a text component with the **{Customers.Country}** expression, in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.Country** data column, as the first value, and indicate the **S** letter, as a second value. Also set the **Operation comparison** to the **Beginning with** value. Change the formatting parameters, in this case, uncheck the **Component Is Enabled** check box. The picture below shows the **Conditions** editor dialog box:

The screenshot shows the 'Conditions' dialog box with the following configuration:

- Field Is:** Value
- Data Type:** String
- Column:** Customers.Country
- Operation:** beginning with
- Value:** S
- Formatting:** AaBbCcYyZz
- Component Is Enabled:** ☐ (unchecked)
- Assign Expression:** ☐ (unchecked)

After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In

this case, the borders of the text components that match the specified condition will be hidden. The picture below shows a page of the rendered report with conditional formatting:

CompanyName	City	Country
Alfreds Futterkiste	Berlin	Germany
Ana Trujillo Emparedados	México D.F.	Mexico
Antonio Moreno Taquería	México D.F.	Mexico
Around the Horn	London	UK
Berglunds snabbköp	Luleå	
Blauer See Delikatessen	Mannheim	Germany
Blondesddsl père et fils	Strasbourg	France
Bólido Comidas preparadas	Madrid	
Bon app'	Marseille	France

As can be seen in the picture above, the text components of the **Country** column which lines start with the **S** letter are changed.

4.3.8.10 Assigning Expression

Using conditional formatting it is possible, in a text component, to change the text, replace its textual expression on a text expression, specified in the condition. The picture below shows a report page:

ContactName	Phone	Fax
Maria Anders	030-0074321	030-0076545
Ana Trujillo	(5) 555-4729	(5) 555-3745
Antonio Moreno	(5) 555-3932	
Thomas Hardy	(171) 555-7788	(171) 555-6750
Christina Berglund	0921-12 34 65	0921-12 34 67
Hanna Moos	0621-08460	0621-08924
Frédérique Citeaux	88.60.15.31	88.60.15.32
Martin Sommer	(91) 555 22 82	(91) 555 91 99
Laurence Leblan	91.24.45.40	91.24.45.41
Elizabeth Lincoln	(604) 555-4729	(604) 555-3745

For example, it is necessary to assign an expression to all text components, which entries in the **Phone** column will start with the **(5)** characters. Select a text component with the **{Customers.Phone}** expression in the **DataBand** and call the **Conditions** editor. Then, you should set a condition: select the **Customers.Phone** column data, as the first value, and specify the **(5)** character, as a second value. Also set the **Operation comparison** to the **Beginning with** value. Change the formatting options, in this case, enable the **Assign Expression** and specify an expression to which it will be replaced on. For example, specify the "Mexico"

expression. The picture below shows the **Conditions** editor dialog box:

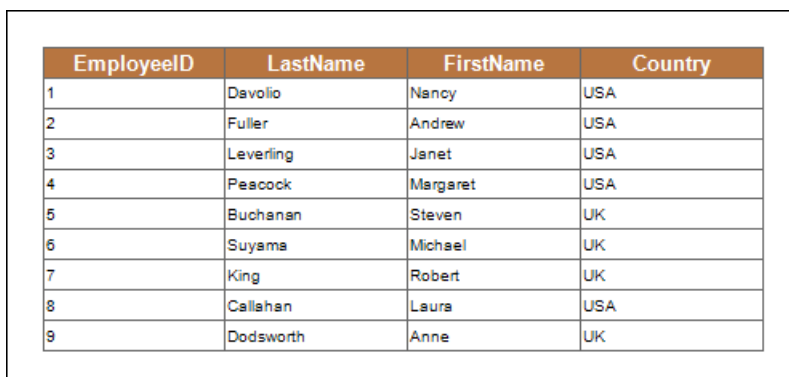
After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, assigning of the text expression in the text components that match the specified condition will be done. The picture below shows a page of the rendered report with conditional formatting:

ContactName	Phone	Fax
Maria Anders	030-0074321	030-0076646
Ana Trujillo	Mexico	(5) 555-3745
Antonio Moreno	Mexico	
Thomas Hardy	(171) 555-7788	(171) 555-6750
Christina Berglund	0921-12 34 65	0921-12 34 67
Hanna Moos	0621-08460	0621-08924
Frédérique Citeaux	88.60.15.31	88.60.15.32
Martin Sommer	(91) 555 22 82	(91) 555 91 99
Laurence Leblanc	91.24.45.40	91.24.45.41
Elizabeth Lincoln	(604) 555-4729	(604) 555-3745

As can be seen in the picture above, assigning of expressions in the text components of the **Phone** column which entries start with the **(5)** character will be done.

4.3.9 Data Bar Condition

The **Data Bar** condition provides an opportunity to visually display the dynamics of changing values of a data column. The **Data Bar** condition works following principles described below. All the values in the selected data column are analyzed, the minimum and maximum values are determined. Minimum corresponds to 0 percent, maximum - 100 percent. When drawing each component, to which this condition is applied, a value from the selected data column will be specified. Then, the percentage of this value is calculated from the minimum to maximum range. Depending on the percentage, the **Data Bar** is rendered. If the value is close to the maximum, the greater length a data bar would be. If the value is close to or equal to a minimum value, the data bar will be almost unfilled. The picture below shows a report page:



EmployeeID	LastName	FirstName	Country
1	Davolio	Nancy	USA
2	Fuller	Andrew	USA
3	Leverling	Janet	USA
4	Peacock	Margaret	USA
5	Buchanan	Steven	UK
6	Suyama	Michael	UK
7	King	Robert	UK
8	Callahan	Laura	USA
9	Dodsworth	Anne	UK

Add the **Data Bar** condition. To do this, select a text component, for example a text component with the **{Employees.EmployeeID}** expression. Add the **Data Bar** expression. Change parameters of the condition. The picture below shows the **Conditions** dialog box:

1 The **Column field**. This field indicates the data column from which values will be taken for drawing the Data Bar.

2 The **Type field** is used to change the type of a minimum value. The following types are available:

- **Auto** defines the minimum value in the selected data column, and if it is greater than zero, then reset to zero. Thus, if the data column has 25 as the minimum number and 100 as the maximum. In the component with a minimum number, the histogram will be rendered by 25 per cent. With this type, the extreme range of the value is 0.

- **Percentage** is used to specify a minimum value as a percentage;

- **Value** provides an opportunity to specify a minimum value as a numerical value,

- **Minimum** defines the minimum value in the selected data column and does not reset it to null. Thus, if the data column has 25 as the minimum number and 100 as the maximum. In the component with a minimum number, the histogram will not be rendered because 25 is the extreme value of the range.

CategoryName	Type Auto	Type Minimum
Beverages	 25	 25
Condiments	 50	 50
Confections	 75	 75
Dairy Products	 100	 100

3 The **Type** field is used to change the type of a maximum value. The following types are available:

- **Auto** defines the minimum value in the selected data column, and if it is less than zero, then reset to zero. Thus, if the data column has -25 as the maximum number and -100 as the minimum. In the component with a maximum number, the histogram will be rendered by 25 per cent. With this type, the extreme range of the value is 0;
- **Percentage** is used to specify a maximum value as a percentage;
- **Value** provides an opportunity to specify a maximum value as a numerical value;
- **Maximum** defines the maximum value in the selected data column and resets it to null. Thus, if the data column has -25 as the maximum number and -100 as the minimum. In the component with a maximum number, the histogram will not be rendered because -25 is the extreme value of the range.

CategoryName	Type Auto	Type Maximum
Beverages	 -25	 -25
Condiments	 -50	 -50
Confections	 -75	 -75
Dairy Products	 -100	 -100

Important

The difference between the **Auto** from the **Maximum** and **Minimum** may be noticeable only in a certain range of numbers.

- 4 The **Value field** for a minimum value.
- 5 The **Value field** for a maximum value.
- 6 The **Direction field** is used to change the direction of drawing the Data Bar. The following directions are available: Left to Right, Right to Left, Default defines the

direction of the Data Bar, depending on the Right to Left property of the text component.

7 The **Data Bar** parameters include: the Brush Type is used to choose the brush type (gradient or solid); the Positive field is used to change the color a Data Bar for positive values; the Negative field is used to change the color a Data Bar for negative values.

8 The **Borders** parameter include: the Borders field is used to choose the type of a border (none or solid); the Positive field is used to change the border color a Data Bar for positive values; the Negative field is used to change the border color a Data Bar for negative values.

9 The **Sample field** shows an example of a Data Bar.

After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. The picture below shows a page of the rendered report with conditional formatting:

EmployeeID	LastName	FirstName	Country
1	Davolio	Nancy	USA
2	Fuller	Andrew	USA
3	Leverling	Janet	USA
4	Peacock	Margaret	USA
5	Buchanan	Steven	UK
6	Suyama	Michael	UK
7	King	Robert	UK
8	Callahan	Laura	USA
9	Dodsworth	Anne	UK

As can be seen from the picture above, the EmployeeID value includes the numbers from 1 to 9, where 1 is the minimum value, and 9 is the maximum one. And according to the changing dynamics of values a data bar will be drawn.

Negative values

In the data column from which values are taken when displaying the histogram may be found both positive and negative values. In this case, analysis of all the values in the selected column of data is determined by the minimum and maximum values. The minimum value is 0 per cent, maximum is 100 per cent. Next, we determine a zero, ie beginning from which a histogram of negative and positive values. For example, the minimum value is -1, while the maximum is three, ie percentage of negative values in the absolute values of band reception is 25 percent and 75 percent positive. Hence the beginning, from which will be constructed histogram is 25 per cent of the length of the component from its left border and 75 percent of

the length of the component from its right boundary (at the direction of the histogram from left to right). Histogram of negative values will be rendered in a color that is selected in the Negative, and the histogram of positive values of a color that is selected in the Positive. The picture below shows an example of a rendered report with negative and positive values:

ProductName	QuantityPerUnit	UnitPrice	
Geitost	2,5	62	
Guaraná Fantástica	4,5	-30	
Konbu	6	-26	
Filo Mix	7	-12	
Tourtière	7,45	-29	
Rhönbräu Klosterbier	7,75	75	
Tunnbröd	9	11	
Testime Chocolate Biscuits	9,2	-25	
Zaanse koeken	9,5	-14	
Rogede sild	9,5	-45	
Jack's New England Clam Chowder	9,65	35	

The picture below shows an example of a rendered report with negative and positive values:

ProductName	QuantityPerUnit	UnitPrice	
Geitost	2,5	62	
Guaraná Fantástica	4,5	-30	
Konbu	6	-26	
Filo Mix	7	-12	
Tourtière	7,45	-29	
Rhönbräu Klosterbier	7,75	75	
Tunnbröd	9	11	
Testime Chocolate Biscuits	9,2	-25	
Zaanse koeken	9,5	-14	
Rogede sild	9,5	-45	
Jack's New England Clam Chowder	9,65	35	

As can be seen in the picture above, the background color depending on the value in a color scale is changed in text components.

4.3.10 Color Scale Condition

The **Color Scale Condition** allows selecting a component with a color in the rendered report, to which this condition corresponds. The **Color Scale Condition** is working according to the following principle: if the color scale consists of 2 colors

(minimum and maximum), then the minimum and maximum values for selected data columns are specified. Values that correspond to the maximum and minimum values are indicated with colors. For other values, which are taken from selected data columns, the location in the color scale is calculated. Depending on location in color scale, the color is assigned to this value, so the color is assigned to the component. If the minimum value is equal to or less than the specified minimum in the condition, that means it will be a boundary minimum value and will use the color, chosen for the minimum value. If the maximum value in the data column is equal to or greater than the specified maximum in the condition, then it will be a maximum boundary value, and will use the color selected for a maximum value. If the value is in the middle between the minimum and maximum value, then the background color of a component with this value will be an interpolated color for minimum and maximum values. If the color scale consists of 3 values (low, medium, high), then the minimum, medium and maximum values are defined. For each value, which is taken from the selected data column, the position in the color scale is calculated depending on the location of the value and the color is assigned. So the color of the component is changed. The color scale represents a smooth transition between the three colors: the color from minimum to medium, and the color from medium to maximum. The background color of a component with a value that is strictly in the middle between the minimum and average value will be an interpolated color of minimum and medium values. The background color of a component with a value that is strictly in the middle between the average and maximum value will be an interpolated color of medium to maximum values. The picture shows a report page:

EmployeeID	LastName	FirstName	Country
1	Davolio	Nancy	USA
2	Fuller	Andrew	USA
3	Leverling	Janet	USA
4	Peacock	Margaret	USA
5	Buchanan	Steven	UK
6	Suyama	Michael	UK
7	King	Robert	UK
8	Callahan	Laura	USA
9	Dodsworth	Anne	UK

Add the **Color Scale Condition**. To do this, select a text component, for example a component with the **{Employees.EmployeeID}** expression. Add a **Color Scale Condition**. Change the parameters of the condition. The picture below shows the

Conditions dialog:

- 1 The **Column** field. This field indicates the data column from which the value for the condition will be taken;
- 2 The **Color Scale Type** field provides an opportunity to choose the type of color scheme: 2-color scales, or 3-color scales. The picture below shows the menu to select the type of a color scale:

- 3 The **Type** field provides an opportunity to change the type of a value that will be specified in the Value field for a minimum color scale. The picture below shows the menu to select the type of a value:

- 4 The **Value** field. Used for a minimum color scale;

- 5 The **Color** field. Used for a minimum color scale;
- 6 The **Sample** field. Shows a color scale in the report how it will look like from minimum to medium and from medium to maximum. If you select the color scale 2-color scales, then in this field a color gradient from minimum to maximum will be displayed;
- 7 A group of parameters (Type, Value, Color) of the medium color scale;
- 8 A group of parameters (Type, Value, Color) with a maximum color scale.

After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, depending on the value of the component, the background of a text component will be changed. The picture below shows a rendered page of the report with conditional formatting:

EmployeeID	LastName	FirstName	Country
1	Davolio	Nancy	USA
2	Fuller	Andrew	USA
3	Leverling	Janet	USA
4	Peacock	Margaret	USA
5	Buchanan	Steven	UK
6	Suyama	Michael	UK
7	King	Robert	UK
8	Callahan	Laura	USA
9	Dodsworth	Anne	UK

As can be seen in the picture above, the background color depending on the value in a color scale is changed in text components.

4.3.11 Icon Set Condition

The **Icon Set** condition is used to identify the component with an icon to which a condition is applied. The **Icon Set** works the following way. The minimum and maximum values for all values in the selected data column are defined first. All calculated values are in the range from 0 to 100 percent. A group of icons is selected. Then, the condition and boundary values (for example 33 per cent and 67 per cent) for each icon are set. If, for example, a group of three icons is selected, each of these selected icons have a subrange. In this case, each of the icons has subrange in 33 percent (from 0 to 33, from 33 to 67, from 67 to 100). This allows you to mark a component with an appropriate icon depending on the value. The picture below shows a report page:

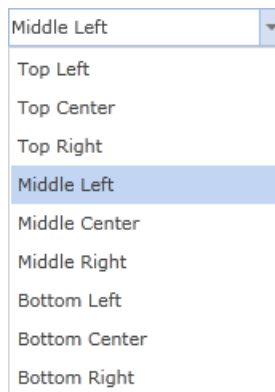
EmployeeID	LastName	FirstName	Country
1	Davolio	Nancy	USA
2	Fuller	Andrew	USA
3	Levering	Janet	USA
4	Pescok	Margaret	USA
5	Buchanan	Steven	UK
6	Suyama	Michael	UK
7	King	Robert	UK
8	Callahan	Laura	USA
9	Dodsworth	Anne	UK

Add an **Icon Set** condition. To do this, select a text component, for example a component with the **{Employees.Country}** expression. Add the **Icon Set** condition. Change the parameters of the condition. The picture below shows the **Conditions** dialog:

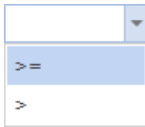
- ❶ The **Column** field. This field is used to choose a data column from which values for the condition will be taken. For example, choose the **{Employees.EmployeeID}** data column;
- ❷ A menu used for selecting a group of icons. The picture below shows the menu of selecting icons:



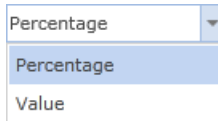
- 3 The **Reverse** button is used to change the location of icons in reverse order. The order of the icons is displayed in the 5 Icon field.
- 4 The **Alignment** field is used to align icons in text components. The picture below shows the Alignment menu options:



- 5 The **Icon** field shows the order of icons, and provides an opportunity to change the icon for each value in the report;
- 6 A sub-condition, includes: the Operation, Type, and Value fields. In this case, this is the first sub-condition. The Operation field is used to change the type of operation of the first sub-condition. The picture below shows the operations menu:



The Type field is used to change the type of a value of the first sub-condition. There are two values: Percentage and Value. The picture below shows the menu to select the type of a value:



In the Value field the value of a sub-condition is indicated.

7 A **sub-condition** includes: the Operation, Type, and Value fields. In this case, it is the second sub-condition.

After making changes in the report template, the report engine will perform conditional formatting of text components, according to the specified parameters. In this case, the appropriate icon for a text component will be applied. The picture below shows a page of the rendered report with conditional formatting:

EmployeeID	LastName	FirstName	Country
1	Devolio	Nancy	USA
2	Fuller	Andrew	USA
3	Leverling	Janet	USA
4	Pescocock	Margaret	USA
5	Buchanan	Steven	UK
6	Suyama	Michael	UK
7	King	Robert	UK
8	Callahan	Laura	USA
9	Dodsworth	Anne	UK

As can be seen in the picture above, the icon depending on the value of a condition will be applied to each text component.

4.4 Output Text Parameters

Stimulsoft Reports has a number of ways for handling, processing and showing a text.

The following components are used to display the text:

- ✓ **Text** is the basic component to output text in the report. The component supports a large number of different settings, processing and displaying text;
- ✓ **RichText** is a component used to output an RTF text;
- ✓ **Text in Cells** is a special component to output a text in a cell.

Information

Please note that horizontal alignment of the content for the **Text in cells** component is applied only when the **Continuous Text** property is set as the **False** value. By default, the **Continuous Text** property is set as the **True** value, i.e. some text in the **Text in cells** component is always aligned to the left edge.

The text component can contain a simple text, or an expression. Whether it is a calculation of an expression, or just a reference to a data column. Text components can be placed on other components, or directly on the report page. But no other components can be put into the text component.

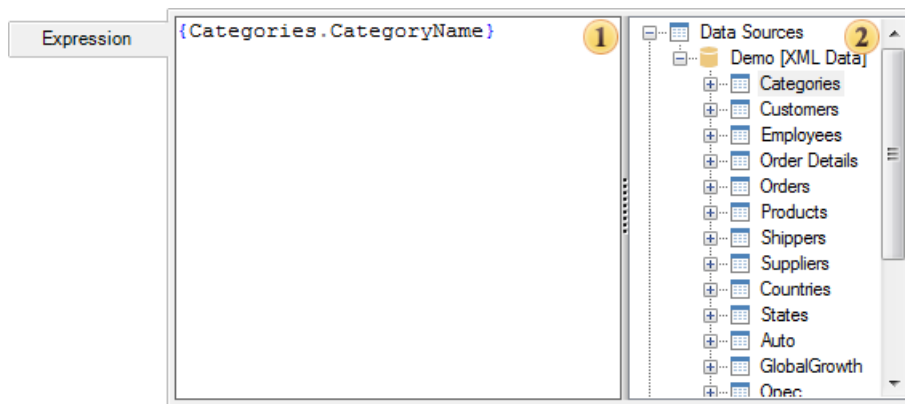
The **Text** component abilities will be reviewed in the next articles.

4.4.1 Text Editor

Editing text components can be done in the **Text Editor**. This editor contains several tabs in which you can change an expression of the text component, select a column, system variable, specify the calculation results.

➤ The tab **Expression**

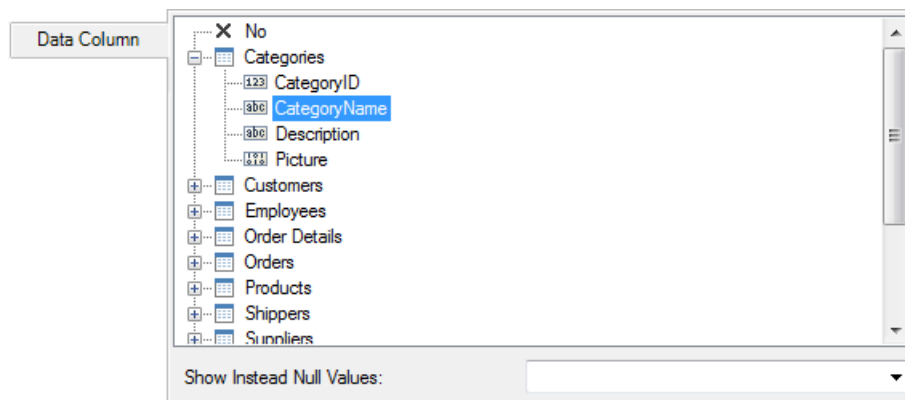
In the tab **Expression**, you can specify a text, expression, reference to any item in the data dictionary:



This tab has the following panels:

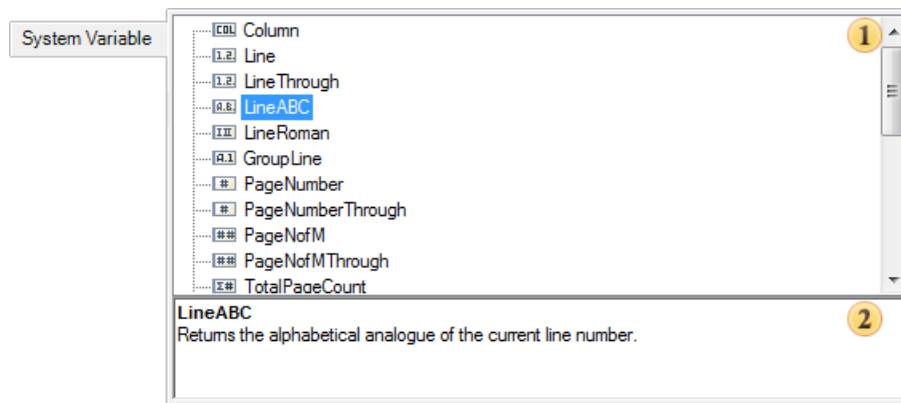
- ① The panel **Text** where you can directly specify a text of the expression, reference to an item in the data dictionary.
- ② The panel **Data Dictionary** contains items of a report data dictionary. It also supports **Drag and Drop** of items from the panel ② to the panel ①. At the same time, a reference will be automatically generated on the data dictionary item. In the picture above you see that the expression **{Categories.CategoryName}** is a reference to the description of the data columns **CategoryName** (data source **Categories**) in the report data dictionary.

➤ The tab **Data Column**



This tab is represented by a single panel, which displays only the data columns from the **Dictionary**. When you select a column, an expression will be formed. This expression is a reference to the description of this column in the report data dictionary. Also on this tab you may find parameter **Show Instead Null Values**, using which you can specify the characters to be displayed instead of the zero values of selected data columns.

➤ The tab **System Variable**

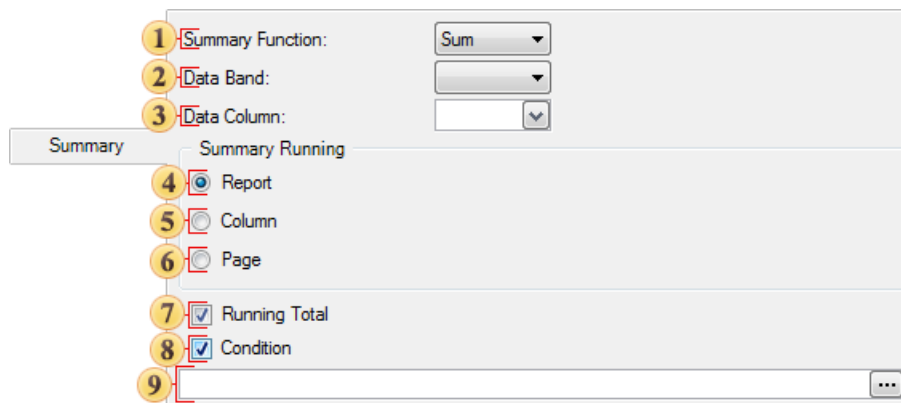


This tab has the following panels:

- ➊ The panel **System Variable**. This panel displays all the system variables of the data dictionary. A system variable is selected here, which will form the reference in the text component.
- ➋ The panel **Descriptions**. This panel displays a description of the selected variable.

➤ The tab **Summary**

On this tab, you can create an expression that calculates summary. The result of it will be displayed in this text component:

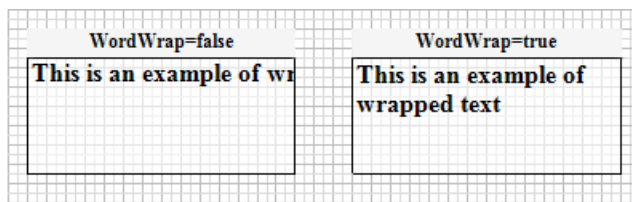


- ➊ In this drop-down list you may determine the type of an aggregate function (operation) to calculate the summary.
- ➋ In this drop-down list you can select the data band by which the summary will be calculated.
- ➌ This list defines the data column, the values of which will be calculated totals.

- 4 This radio button sets the calculation function for the entire report. The value of the function in the any place of the report will be the same.
- 5 This radio button sets the calculation of the functions of the data column.
- 6 This radio button sets the calculation of the function by a report page. On each report page the total value will be calculated only on the page.
- 7 The checkbox sets the calculation mode with the running total. Each subsequent result includes all the previous ones.
- 8 The checkbox Condition allows you, when calculating totals, to take into account the value only when executing a certain condition.
- 9 The field is used for the condition expressions. Available when the checkbox Condition is enabled.

4.4.2 Multiline Text

If the text cannot be put on one line it will be trimmed by default. If it is required to put a text on some lines, then you should set the word wrap. You should set the **TextOptions.WordWrap** property of the **Text** component to **true**. When the text is wrapped on a new line, vertical and horizontal alignments are used.



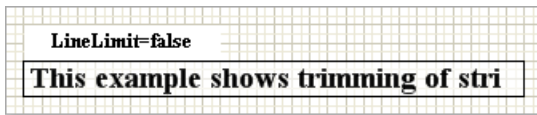
4.4.3 Trimming in the End of Text Line

If there is not enough space to put whole text line in the text component, then, using the **TextOptions.Trimming** property, it is possible to customize text trimming. It has the following values:

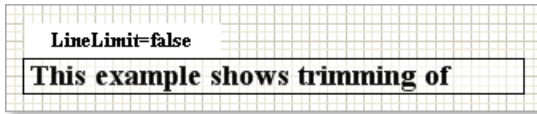
None - the text is trimmed strictly by the edge of a text component or, if it is a multiline text, by the last visible word;



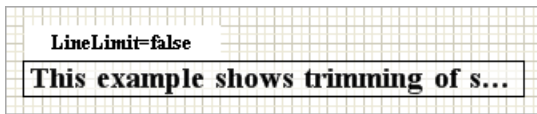
Character - the line is trimmed after the last visible character;



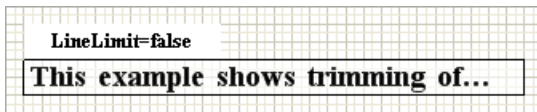
Word - the line is trimmed by the last visible word;



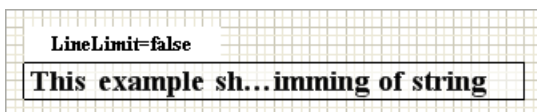
Ellipsis Character – last characters of a word are changed to omission points;



Ellipsis Word - omission points are added after the last visible word;

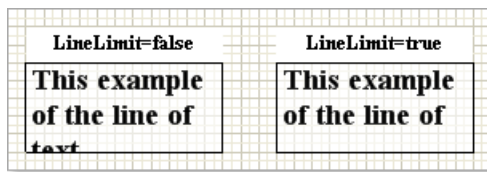


Ellipsis Path - the middle of a line is changed to dots so that the beginning and the end of a text line can be visible.



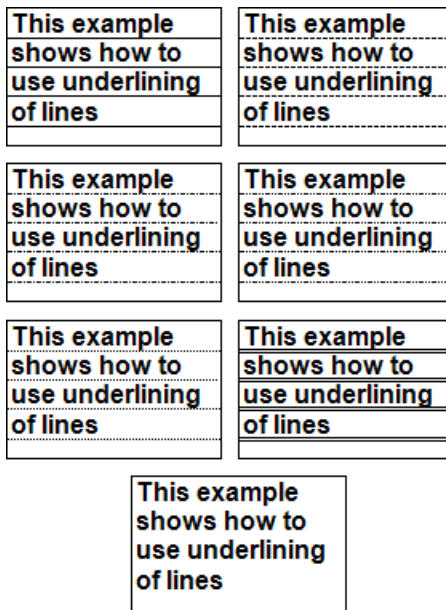
4.4.4 Prevent Showing Incompletely Visible Lines

Often it is necessary to output text and do not show vertically trimmed lines on the bottom of a component. If to set the **LineLimit** property to **true**, then only full lines will be output. Absence of additional line may change the word wrap.



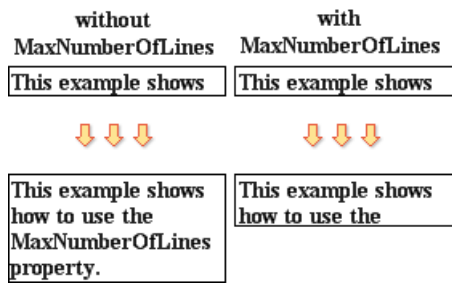
4.4.5 Lines of Underlining

If it is necessary to underline the **Text** component with horizontal lines, then it is possible to use the **LinesOfUnderline** property of the text component. Using this property it is possible to select style of underlining. If to select the **None** style, then there will not be any underlining.



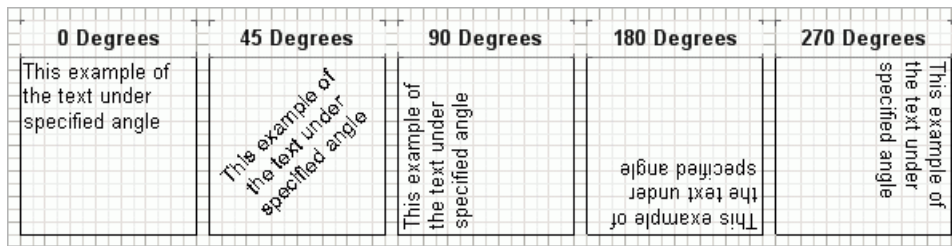
4.4.6 Maximal Number of Lines

How to make the **Text** component, when increasing the vertical size, increase it on the maximal number of horizontal lines? Use the **MaxNumberOfLines** property. By default, this property is equal in zero and the component will be increased vertically. The component increasing is limited in page size. If you set the value of this property in 5, then, when increasing the vertical size, it will be increased in 5 horizontal lines.



4.4.7 Text Rotation

Set the angle of the text rotation using the **Angle** property of the **Text** component. The angle of the text is given in degrees anticlockwise.



4.4.8 Processing Duplicates

In many reports, it is necessary to process duplicate values. For example, multiple instances of the **Text** component can be merged into a single one if they contain identical values. To achieve this, use the **Processing Duplicates** property of the Text component.

Main Property Modes

The table below describes the primary modes available for duplicate processing.

Name	Description
None	No duplicate processing is performed. All elements are displayed in the report unchanged, even if they contain identical data.
Merge	Combines adjacent elements with identical content into a single block.
Hide	Leaves the first occurrence

	unchanged and hides all subsequent adjacent elements with duplicate content.
Remove Text	Leaves the first occurrence unchanged and removes the text from all subsequent adjacent elements with duplicate content.

An example of duplicate text value processing is shown below

None	Merge	Hide	Remove text
Item	Item	Item	Item
Item			
Item			

In most cases, these basic modes are sufficient. Additional (advanced) modes are typically required only for more complex report structures or when specific duplicate-processing requirements need to be met.

Additional (Advanced) Property Modes

The advanced processing modes include the modifiers Global and/or BasedOnXXX in their names. Let's review these modes one by one.

Global Modes

By default, duplicate values are processed separately for each component. Only instances of the same component (identified by name) are compared. For example, if two text boxes with identical text values are placed one below the other but belong to different components, they will not be merged. However, in reports with more complex structures, it may be necessary to bypass this limitation. In such cases, use the modes whose names contain the word Global: **Global Merge**, **Global Hide**, and **Global Remove Text**. These modes work exactly like their standard counterparts described above, but component names are ignored during duplicate detection.

Based On Tag Modes

Situations often arise where duplicate values should not all be merged together, but only within a specific context or according to certain criteria. For example, in the table below, sales of items are shown for several days, and identical items should be merged only within the same day. Standard modes merge all consecutive duplicates based solely on the text box content, without taking any other factors into account. In such cases, modes whose names contain the word **BasedOnTag** should be used. These modes perform duplicate processing based not on the text box content, but exclusively on the value of its **Tag** property. The **Tag** property can contain a complex expression that takes multiple criteria into account, allowing duplicate processing to be customized for specific scenarios.

Date	Items	Expected	Merge Based on Tag	Merge
1.05.2026	Item 1	Item 1	Item 1	Item 1
	Item 2	Item 2	Item 2	Item 2
	Item 2			
2.05.2026	Item 2	Item 2	Item 2	
	Item 1	Item 1	Item 1	Item 1
	Item 1			
3.05.2026	Item 1	Item 1	Item 1	
	Item 1			

For example, suppose the second column displays an item name using the expression `{dataSource.ItemName}`, while the first column displays a date using `{dataSource.Date}`. If the date should be used as the grouping criterion, the following expression should be assigned to the **Tag** property of the text component: `{dataSource.ItemName}{dataSource.Date}`. In other words, the expression displayed in the component is combined with expressions representing the grouping criteria from preceding columns. As a result, duplicate values are merged only within the specified criteria.

Based On Value And Tag Modes

Now let's discuss the most complex part - the modes whose names include the **BasedOnValueAndTag** modifiers. First, it is important to understand that all other

modes operate only during the report post-processing stage. In other words, the report is generated in its entirety first, and only then does the engine iterate through the report pages, search for duplicate values, and process them. As a result, after duplicate processing is completed, the positions and sizes of components remain unchanged.

For example, in the illustration below, the third column contains category descriptions. Some descriptions are long and occupy three lines of text. After a standard cell merge operation, the cell sizes remain unchanged. Each text row still occupies the same amount of space, and the merged cell retains a large overall height.

<i>Processing duplicates None</i>			<i>Processing duplicates Merge</i>			<i>Processing duplicates Merge based on Value and Tag</i>			
Chai	Beverages	Soft drinks, coffees, teas, beers, and ales	Chai			Chai			Chai
Chang	Beverages	Soft drinks, coffees, teas, beers, and ales	Chang			Chang			Chang
Chartreuse verte	Beverages	Soft drinks, coffees, teas, beers, and ales	Chartreuse verte			Chartreuse verte			Chartreuse verte
Côte de Blaye	Beverages	Soft drinks, coffees, teas, beers, and ales	Côte de Blaye			Côte de Blaye			Côte de Blaye
Guaraná Fantástica	Beverages	Soft drinks, coffees, teas, beers, and ales	Guaraná Fantástica			Guaraná Fantástica			Guaraná Fantástica
Ipon Coffee	Beverages	Soft drinks, coffees, teas, beers, and ales	Ipon Coffee			Ipon Coffee	Beverages	Soft drinks, coffees, teas, beers, and ales	Ipon Coffee
Lakkaikodon	Beverages	Soft drinks, coffees, teas, beers, and ales	Lakkaikodon			Lakkaikodon			Lakkaikodon
Laughing Lumberjack Lager	Beverages	Soft drinks, coffees, teas, beers, and ales	Laughing Lumberjack Lager			Laughing Lumberjack Lager			Laughing Lumberjack
						Outback Lager			Outback Lager
						Rindorodu Kiosterbier			Rindorodu Kiosterbier
						Sasquatch Ale			Sasquatch Ale
						Steeleye Stout			Steeleye Stout
									Amseed Syrup

Therefore, modes have been added that process text components in two stages. The first stage is an additional step performed during the calculation of the text component value (in the **OnGetValue** event). At this stage, when a duplicate is detected, the content of the text component is immediately cleared, reducing its height to the minimum. This directly affects the size of the text component and, consequently, the height of the row. The second stage, as in the other modes, processes the components after the entire report has been rendered. At both stages, the text component value and the value of its **Tag** property are used.

Information

The first occurrence of a duplicate value always retains its content and therefore keeps its full height. Only subsequent duplicate components are reduced in height. This is a limitation of the reporting engine and cannot be changed. If the height of the first row must also be reduced, consider alternative approaches, such as

redesigning the report structure and using a master-detail relationship.

The table below provides a complete list of duplicate-processing modes.

Name	Description
None	No duplicate processing is performed. All elements are displayed in the report unchanged, even if they contain identical data.
Merge	Merges adjacent elements with identical content into a single block.
Hide	Leaves the first occurrence unchanged and hides all subsequent adjacent elements with duplicate content.
Remove Text	Leaves the first occurrence unchanged and removes the text from all subsequent adjacent elements with duplicate content.
Merge based on Tag	Merges adjacent elements that have the same Tag property value.
Hide based on Tag	Leaves the first occurrence unchanged and hides all subsequent adjacent elements that have the same Tag property value.
Remove Text based on Tag	Leaves the first occurrence unchanged and removes the text from all subsequent adjacent elements that have the same Tag property value.
Global Merge	Merges duplicate elements even when they belong to different components.

Global Hide	Hides duplicate elements even when they belong to different components.
Global Remove Text	Removes text from duplicate elements even when they belong to different components.
Remove based on Value Text	Leaves the first occurrence unchanged and removes the text from all subsequent adjacent elements with duplicate content.
Merge based on Value and Tag	Merges adjacent elements that have both identical content and the same Tag property value.
Hide based on Value and Tag	Leaves the first occurrence unchanged and hides all subsequent adjacent elements that have both identical content and the same Tag property value.
Global Remove based on Value Text	Clears text in duplicate elements based on the Tag value, even when the elements belong to different components.
Global Merge based on Value and Tag	Merges adjacent elements that have the same Tag property value, even when they belong to different components.
Global Hide based on Value and Tag	Leaves the first occurrence unchanged and hides all subsequent adjacent elements that have the same Tag property value, even when they belong to different components.

4.4.9 Ignoring Null Values

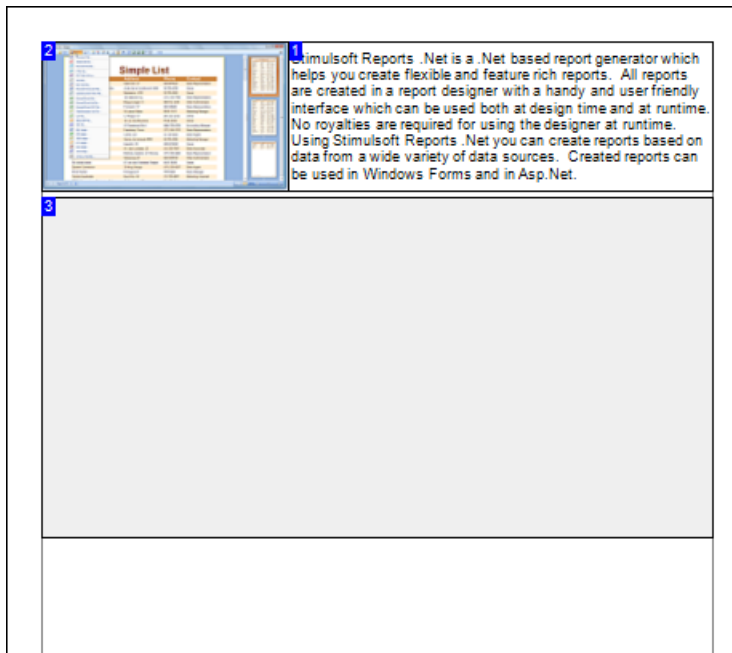
Often, when the numerical information is printed then it is required to ignore the zero values. In other words it is necessary do not show print them at all. The **HideZeros** property is used for this. It is necessary to set this property to **true**, and

the **Text** component will not print zero values. The picture below shows an example without using this property (**left picture**) and using the property (**right picture**).

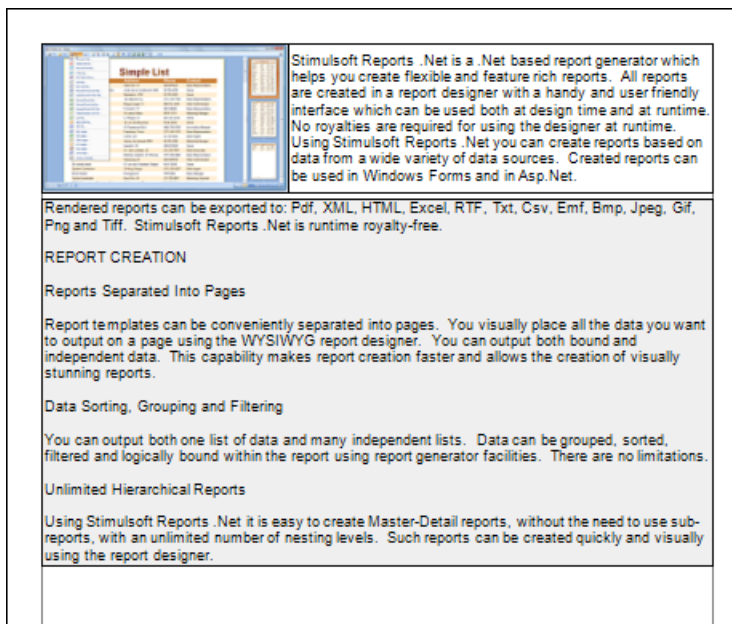
HideZeros = false		HideZeros = true	
9,00\$	61,00	9,00\$	61,00
33,25\$	22,00	33,25\$	22,00
39,00\$	0,00	39,00\$	
97,00\$	29,00	97,00\$	29,00
24,00\$	115,00	24,00\$	115,00
32,80\$	0,00	32,80\$	
123,79\$	0,00	123,79\$	

4.4.10 ReportTo Property

The **ReportTo** property of the **Text** component is used for synchronous output of a message in two text components. The message is specified in the first text component. Then, in this text component, in the **ReportTo** property, the second text component, on which message output will be continued, is specified. If the space in the first component is not enough for the message output, then this message will be continuing to output in the second component. You should consider, that in the first component, whole number of vertical visible lines will be output. In the second component the message will be continuing to output starting with the end of the message of the first component. You should know that for the correct work of this function you have to create the first component and then the second one. If there was another order of creation of components you may use commands of components order.



The result can be seen on the picture below.



The **ReportTo** property makes it possible to work only with components that are located on one level - such as bands.

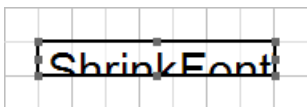
4.4.11 Shrink Font To Fit Property

The **Shrink Font To Fit** property of a text component is used when it is necessary to adjust the height of the text to the size of the text component. This property can be found on the Properties Panel.

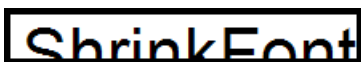
1. Text	
Text	 ShrinkFontToFit Shri
Text Brush	 Solid
Font	Arial; 8pt
Horizontal Alignment	Left
Vertical Alignment	Top
Text Format	General
2. Text Additional	
Allow Html Tags	False
Angle	0
Editable	False
Hide Zeros	False
Lines of Underline	☐ None
Margins	0;0;0;0
Max Number of Lines	0
Only Text	False
Process at	None
Processing Duplicates	None
Render to	
Shrink Font to Fit	True 
Shrink Font to Fit Minimum Size	1
Text Quality	Standard
Text Options	HotkeyPrefix=None; LineL
Word Wrap	False

The property can take two values: **true** and **false**, respectively, that means the property is enabled or disabled. By default, the property is set to false.

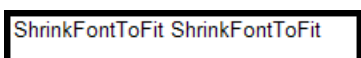
The picture below shows a component with the text, which is clearly larger than the size of the component.



When the **Shrink Font To Fit** property is set to **false**, the text in the viewer will look like on the picture below

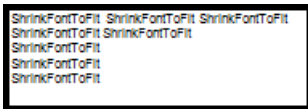


When the **Shrink Font To Fit** property is set to **true**, the text in the viewer will look like on the picture below



🚨 **Notice:** The Shrink Font To Fit is a post-processing property and this should be taken into account when adjusting the text component. If you enabled CanBreak and CanShrink properties, then, when rendering a report, the text component will take a size corresponding to the height of the text on the basis of preset font size.

CanBreak and **CanShrink** properties are disabled, but **Shrink Font To Fit** is set to **true**



CanBreak and **CanShrink** properties are enabled, but **Shrink Font To Fit** is set to **true**



4.4.12 Shrink Font to Fit Minimum Size Property

The **Shrink Font to Fit Minimum Size** property of the text component is used to adjust the minimum size of the font to which the text should be reduced. This property can be found on the Properties Panel.

1. Text	
Text	 ShrinkFontToFit Shri
Text Brush	 Solid
Font	Arial; 8pt
Horizontal Alignment	Left
Vertical Alignment	Top
Text Format	General
2. Text Additional	
Allow Html Tags	False
Angle	0
Editable	False
Hide Zeros	False
Lines of Underline	☐ None
Margins	0;0;0;0
Max Number of Lines	0
Only Text	False
Process at	None
Processing Duplicates	None
Render to	
Shrink Font to Fit	True
Shrink Font to Fit Minimum Size	1
Text Quality	Standard
Text Options	HotkeyPrefix=None; LineL
Word Wrap	False

Images below show how this property works

The **Shrink Font to Fit Minimum Size** property is set to **1**. The font **Arial**, size **8pt**

ShrinkFontToFitMinimumSize
ShrinkFontToFitMinimumSize

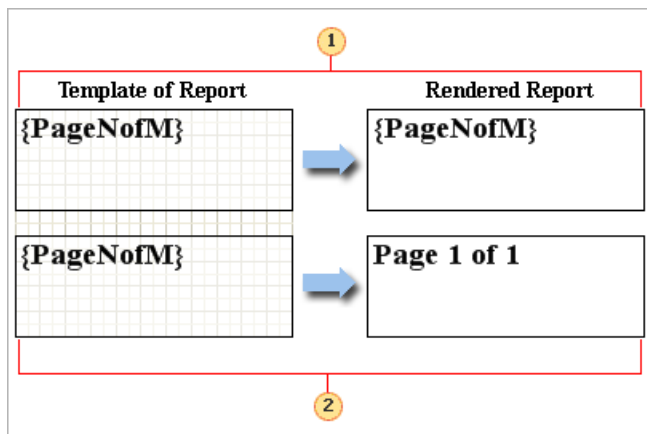
The **Shrink Font to Fit Minimum Size** property is set to **4**. The font **Arial**, size **8pt**

ShrinkFontToFitMir
ShrinkFontToFitMir

🚨 **Notice:** Works in association with the **Shrink Font To Fit** property set to **true**.

4.4.13 Output Text Only without Taking Expressions into Consideration

How to get an expression to be output "as is", without code processing? Set the **TextOnly** property to **true**, and all the expressions will be output as a text. No calculations will be made.



- ❶ The **TextOnly** property is set to **true**. The text is output "as is", without processing of expressions.
- ❷ The **TextOnly** property is set to **false**. The text is output with processing of expressions.

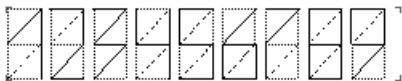
4.4.14 Expression Processing in the End of Report Rendering

By default, the report generator immediately processes all expressions which are found in the text. But sometimes it is necessary to process expressions after the report rendering. For example, while the report is being rendered, the calculation of a variable is in progress. The result of calculation will be known right after the report rendering, and the result of calculation is to be output on every page of a report. To do this, set the value of the **Process At** property of the **Text** component to **true**.

❗ **Important:** When the content of the text component is processed at the end of the report rendering, the report generator cannot define the true size of the component when it is output. Therefore, auto change of the component size will fail.

4.4.15 Zip code

Zip code is used for mailing, to facilitate sorting. Stimulsoft Reports has a special component to display this code. It is called the Zip Code component. It can be placed on components, bands and pages. Setting the values of this component is possible by means of the Code property. This value of the property can be any character, but the Zip Code component can only display numbers. The picture below shows a zip code with numbers "123456789":



To increase the font size, change the value of the Size property, specifying the size with numbers, the higher the value is, the thicker is the width of the elements. The picture below shows a zip code with an increased width:



4.4.16 Text Quality

The StiText component and components, inherited from it, have the **TextQuality** property. This property allows selecting/displaying the quality of the text. The property may have one of three values:

- **Standard.**
- **Typographic.**
- **Wysiwyg.**

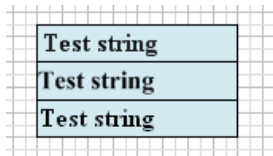
In the **Standard** and **Typographic** modes, text displaying is performed using a **GDI +** system library. The difference between these modes is that in the **Typographic** mode, a text is output with antialiasing and looks fine, but the rendering is slow. In the **Wysiwyg** mode a text is displaying using the GDI system library. The text in this mode may not look as beautiful as in the other two modes.

Why do we need GDI, if GDI + exists and it is more beautiful and easy to use? To answer this question, let's turn to the definition of the **WYSIWYG**.

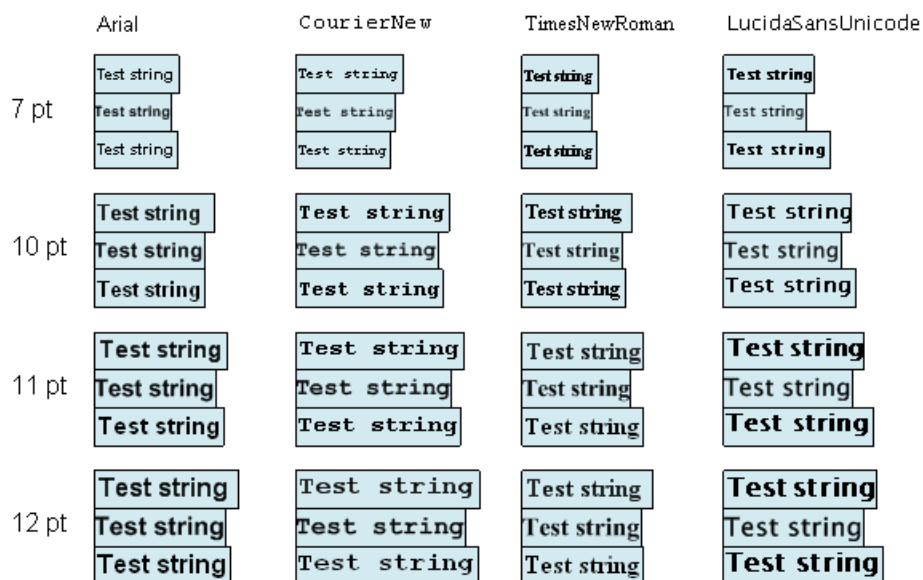
WYSIWYG (acronym for "What You See Is What You Get") is a way of editing, in which the content in the process of editing looks very similar to the final output. With regard to the reporting tool, this means that the report should look the same when editing a template, and viewing the finished report printed on paper. However, in practice, it is not so simple. Many methods can display a text in different ways on different monitors and in different ways to print it on different printers. This is particularly evident in a large text: when viewing in the preview with different zoom modes and printing, line breaks can be located in different places. This occurs due to many reasons. In the GDI + system library, most of these problems have been solved, but not all, and sometimes inaccurate displaying still occur. To solve the remaining problems one needs full control of the text output. GDI + does not provide such control. Therefore, the **Wysiwyg** mode was added. In this mode a text is output using the GDI. GDI methods allow you to control the output of each character of a text. This can eliminate almost all the problems. Thus, the **Wysiwyg** mode displays the text not as pretty as the other two methods, but more accurately.

There is another difference between these two modes: as a text in each mode is

displayed in different ways, then the measurement of length of a line is done in different ways. For example, we have three text boxes with the "Test string" text; set the **TextQuality** to **Standard** for the first text box, to **Typographic** for the second one, and to **Wysiwyg** for the third. Set the **AutoWidth** property to true for all the text boxes. In the design mode of the report we get the following:



By sight the difference between these lines is not visible. However, after rendering, the width of the text boxed will be calculated depending on the width of the text, and we will immediately see the difference between the modes:



In the above picture it is clearly seen that for different types and sizes of fonts completely different results are obtained. This must be taken into account, for example, if you are going to use the Cross-Tab component. In this component the table columns widths are fit depending on text, and, in different modes, the width of the table can be changed.

In the above picture clearly shows that for different types and sizes of fonts are obtained completely different results. This must be taken into account, for example,

if you're going to use the component `CrossTab`: this component width of the table columns to fit text, and different modes the width of the table can pretty much change.

Also, as practice shows, WYSIWYG in these applications is often not working properly. For example, your report in EXCEL in edit mode and in print preview may look different. Even more differences you will see if in edit mode will begin to change the page scale from 50% to 200%: at 100% scale text can be placed in a cell at 50% did not reach the cell edge, and at 200% the last word can be transferred to the next line. Another example - a multi-line text: with different scale is not always correct calculated line spacing, and height of text in a cell can vary. At one level in the cell can not fit all the text strings, ie truncate the text. At another level the same text can be compressed, and the bottom of the cell will remain blank. Even a team of Excel "Autofit row height" may give unpredictable results, especially in small fonts.

Therefore, when you export reports in MS-Office, we recommend using some of the techniques described below. Recommendations can be divided into two parts: general guidelines for preparing reports and recommendations for each export.

General recommendations on export reports in MS-Office are to design a report template:

Try whenever possible to keep the gap between the end of the line and the edge of the textbox, in which case the problem should not arise;

It follows from the preceding paragraph: Do not use the `AutoWidth` property unnecessarily, as the size of the textbox in this case is calculated without a gap; pick a value for the text `TextQuality`, to a line of text to receive the most long and this will increase the likelihood that the text after export will appear normally.

Recommendations for the export of reports in MS-Word

When exporting to MS-Word Use the following trick: for each line of text font is installed seal. The value of the density of the font is measured in units of twips and stored in a static property `StiOptions.Export.Rtf.SpaceBetweenCharacters` (`StiOptions.Export.Word2007.SpaceBetweenCharacters`). By default, the property is set to -2. On the eye, this quantity of text compression is not noticeable, but in most cases it is enough. If necessary, this value can be changed. Zero value of the property corresponds to the normal font, positive values correspond to the sparse font.

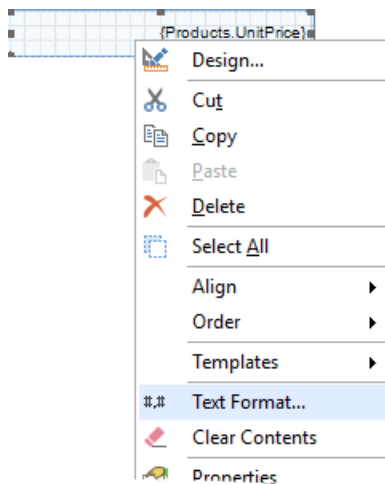
Recommendations for exporting reports to MS-Excel

When exporting to MS-Excel use the following trick: for all the problem textbox is

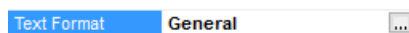
recommended to set the right / or left border of textbox. Table cells in Excel do not have borders, so the border will be considered only when rendering the textbox as a guaranteed gap. Border textbox sets the Margins, the value specified in hundredths of an inch. For most cases it is sufficient to establish the right boundary is equal to 1 one hundredth inch (written in the property 0, 1, 0, 0).

4.5 Text Formatting

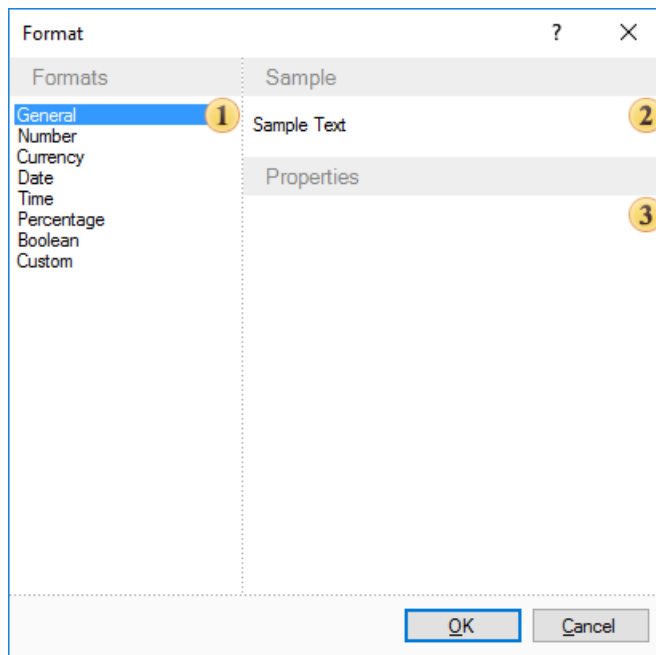
The Text format is a representation of information in the special form (grouping and data output, to the specified pattern). Stimulsoft Report contains all necessary instruments required for formatting of all information that will be output. The **Text Format** is the basic tool for formatting a text before output. This tool is a dialog box, which allows setting parameters of format. Text format dialog box is called from the context menu, that appears when right-clicked on the text components, which supports formatting.



Also, using **TextFormat** properties, the dialog box can be called.



The Format window is divided into three parts.



❶ A section where the formatting type can be chosen.

There are some types of showing a text:

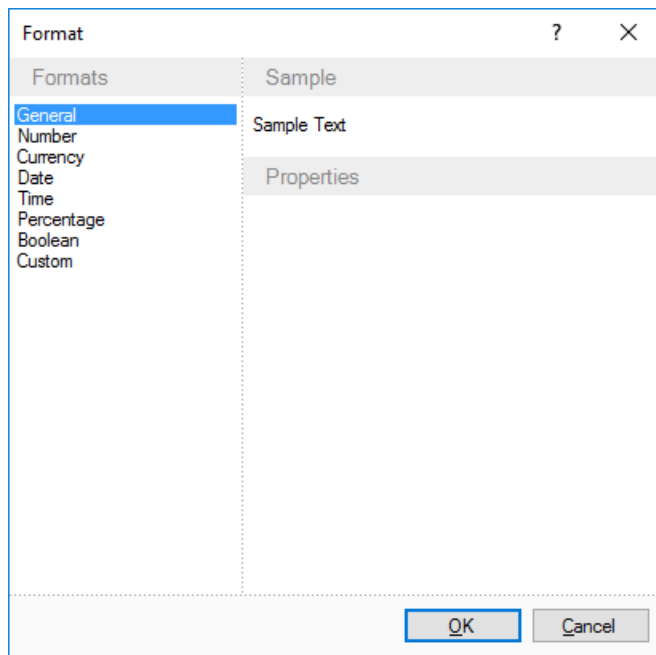
- **Standard** - output data without specific number format;
- **Number** — this format is used for general display of numbers;
- **Currency** — this format is used for general monetary values;
- **Date** — this format is used to display date values;
- **Time** — this format is used to display time values;
- **Percent** — this format is used to display a result in percent symbol;
- **Boolean** — this format is used to display Boolean values;
- **Custom** — custom data formatting.

❷ Shows how the formatted text will look like;

❸ Shows the format settings.

4.5.1 Standard Formatting

The **Standard** format is used to show text and numerical values of any type. No formatting is done in this case.



4.5.2 Numerical Formatting

To display numeric values, it is recommended to use a numeric format. Below is a report with a list of products, their price, as well as key product and category. By default, all text components use a text format General without any formatting.

ProductName	ProductID	CategoryID	UnitPrice
Chai	1	1	18
Chang	2	1	19
Aniseed Syrup	3	2	10
Chef Anton's Cajun Seasoning	4	2	22
Chef Anton's Gumbo Mix	5	2	21.35
Grandma's Boysenberry Spread	6	2	25
Uncle Bob's Organic Dried Pears	7	7	30
Northwoods Cranberry Sauce	8	2	40
Mishi Kobe Niku	9	6	97
Ikura	10	8	31
Queso Cabrales	11	4	21
Queso Manchego La Pastora	12	4	38

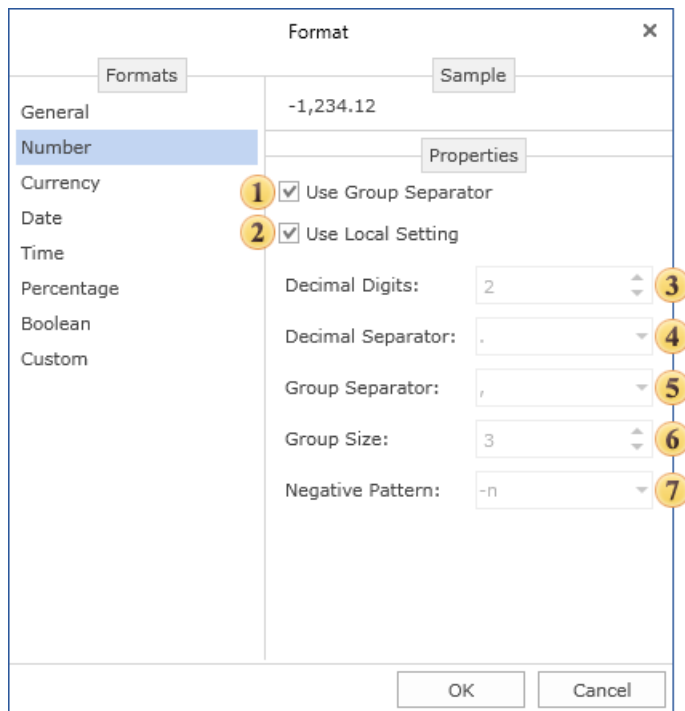
Set the numeric format for the values **ProductID**, **CategoryID**, **UnitPrice**. For this you should select the text components which contain references to the relevant data columns and click the  button of the **Text Format** property. In the **Format** dialog box you should go to the **Number** tab and define the settings.

ProductName	ProductID	CategoryID	UnitPrice
Chai	1.00	1.00	18.00
Chang	2.00	1.00	19.00
Aniseed Syrup	3.00	2.00	10.00
Chef Anton's Cajun Seasoning	4.00	2.00	22.00
Chef Anton's Gumbo Mix	5.00	2.00	21.35
Grandma's Boysenberry Spread	6.00	2.00	25.00
Uncle Bob's Organic Dried Pears	7.00	7.00	30.00
Northwoods Cranberry Sauce	8.00	2.00	40.00
Mishi Kobe Niku	9.00	6.00	97.00
Ikura	10.00	8.00	31.00
Queso Cabrales	11.00	4.00	21.00
Queso Manchego La Pastora	12.00	4.00	38.00

It should be noted that there were two ways available to determine the format mask:

- Use local settings. The text is formatted according to the current settings of the operating system.
- Each parameter is defined by the format mask manually.

Sometimes there were some disadvantages in both cases. For example, when using local settings to change the format parameters you should edit formats of the operating system. In the second case, when it is needed to change one parameter you should adjust others as well. Considering disadvantages of these methods, there is a third way to determine the format. Using the local settings you can change any parameter format. To do this, set the flag next to the parameter and set its value.



1 Group separator

When the Group Separator is used then number will be separated into number positions.

2 Local setting

When using the Local settings, numerical values are formatted according to the current OS installations.

3 Decimal digits

Number of decimal digits, which are used to format numerical values.

4 Decimal separator

Used as a decimal separator to separate numerical values in formatting.

5 Group separator

Used as a group separator when numerical values formatting.

6 Group size

The number of digits in each group in currency values formatting.

7 Negative pattern

This pattern is used to format negative values.

Thus, for columns ProductID, CategoryID we change only the number of digits in the fractional part.

ProductName	ProductID	CategoryID	UnitPrice
Chai	1.0	1.0	18.00
Chang	2.0	1.0	19.00
Aniseed Syrup	3.0	2.0	10.00
Chef Anton's Cajun Seasoning	4.0	2.0	22.00
Chef Anton's Gumbo Mix	5.0	2.0	21.35
Grandma's Boysenberry Spread	6.0	2.0	25.00
Uncle Bob's Organic Dried Pears	7.0	7.0	30.00
Northwoods Cranberry Sauce	8.0	2.0	40.00
Mishi Kobe Niku	9.0	6.0	97.00
Ikura	10.0	8.0	31.00
Queso Cabrales	11.0	4.0	21.00
Queso Manchego La Pastora	12.0	4.0	38.00

Important

To display currency values you should use the Currency format. In the example above, for the **UnitPrice** column you should set the Currency format.

4.5.3 Currency Formatting

To display numeric values as a currency you should use the Currency format. This format is designed specifically to output monetary values.

ProductName	ProductID	CategoryID	UnitPrice
Chai	1.0	1.0	18.00
Chang	2.0	1.0	19.00
Aniseed Syrup	3.0	2.0	10.00
Chef Anton's Cajun Seasoning	4.0	2.0	22.00
Chef Anton's Gumbo Mix	5.0	2.0	21.35
Grandma's Boysenberry Spread	6.0	2.0	25.00
Uncle Bob's Organic Dried Pears	7.0	7.0	30.00
Northwoods Cranberry Sauce	8.0	2.0	40.00
Mishi Kobe Niku	9.0	6.0	97.00
Ikura	10.0	8.0	31.00
Queso Cabrales	11.0	4.0	21.00
Queso Manchego La Pastora	12.0	4.0	38.00

Set the currency format for the UnitPrice column.

Information

It is understood that when setting the currency format, the important point is the selection of the required currency. The same value can be either the US, European Union, China currency and the currency of any other country.

For example, the prices are in US dollars. Then, select the appropriate currency sign, and determine the parameters of the format.

ProductName	ProductID	CategoryID	UnitPrice
Chai	1.0	1.0	\$ 18.00
Chang	2.0	1.0	\$ 19.00
Aniseed Syrup	3.0	2.0	\$ 10.00
Chef Anton's Cajun Seasoning	4.0	2.0	\$ 22.00
Chef Anton's Gumbo Mix	5.0	2.0	\$ 21.35
Grandma's Boysenberry Spread	6.0	2.0	\$ 25.00
Uncle Bob's Organic Dried Pears	7.0	7.0	\$ 30.00
Northwoods Cranberry Sauce	8.0	2.0	\$ 40.00
Mishi Kobe Niku	9.0	6.0	\$ 97.00
Ikura	10.0	8.0	\$ 31.00
Queso Cabrales	11.0	4.0	\$ 21.00
Queso Manchego La Pastora	12.0	4.0	\$ 38.00

It should be noted that previously there were two ways to determine the format mask:

- Use local settings, the text is formatted according to the current settings of the operating system.
- Each parameter is defined by the format mask manually.

Sometimes there were some disadvantages in both cases. For example, when using local settings to change the format parameters you should edit formats of the operating system. In the second case, when it is needed to change one parameter you should adjust others as well. Considering disadvantages of these methods, there is a third way to determine the format. Using the local settings you can change any parameter format. To do this, set the flag next to the parameter and set its value.

1 Group separator

When the Group Separator is used then currency values will be separated into number positions.

2 Local setting

When using the Local settings, currency values are formatted according to the current OS installations.

3 Decimal digits

Number of decimal digits, which are used to format currency values.

4 Decimal separator

Used as a decimal separator to separate currency values in formatting.

5 Group separator

Used as a group separator when currency values formatting.

6 Group size

The number of digits in each group in currency values formatting.

7 Positive pattern

This pattern is used to format positive values.

8 Negative pattern

This pattern is used to format negative values.

9 Currency symbol

This symbol is used to define the currency name.

Let's go back to the example described above. Change the values only for the

Positive Pattern and Currency Symbol parameters. Other parameters will be determined by local settings.

ProductName	ProductID	CategoryID	UnitPrice
Chai	1.0	1.0	€18.00
Chang	2.0	1.0	€19.00
Aniseed Syrup	3.0	2.0	€10.00
Chef Anton's Cajun Seasoning	4.0	2.0	€22.00
Chef Anton's Gumbo Mix	5.0	2.0	€21.35
Grandma's Boysenberry Spread	6.0	2.0	€25.00
Uncle Bob's Organic Dried Pears	7.0	7.0	€30.00
Northwoods Cranberry Sauce	8.0	2.0	€40.00
Mishi Kobe Niku	9.0	6.0	€97.00
Ikura	10.0	8.0	€31.00
Queso Cabrales	11.0	4.0	€21.00
Queso Manchego La Pastora	12.0	4.0	€38.00

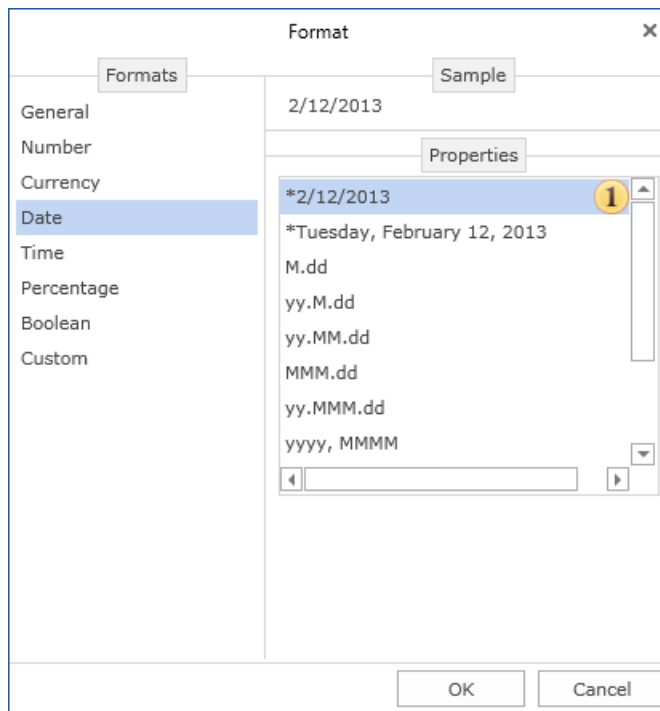
4.5.4 Date Formatting

If the report contains text components which output date in the rendered report then the Date formatting can be applied to this text component. The date format is selected from a set of specified formats - short format, long format, etc. In the applied format, except the ones with an asterisk (*), the order of elements does not change. For example, the report contains the list of products and OrderDate, RequiredDate, ShippedDate.

ProductName	OrderDate	RequiredDate	ShippedDate
Queso Cabrales	8/3/2008 11:00:00 PM	8/31/2008 11:00:00 PM	8/15/2008 11:00:00 PM
Singaporean Hokkien Fried Mee	8/3/2008 11:00:00 PM	8/31/2008 11:00:00 PM	8/15/2008 11:00:00 PM
Mozzarella di Giovanni	8/3/2008 11:00:00 PM	8/31/2008 11:00:00 PM	8/15/2008 11:00:00 PM
Tofu	8/4/2008 11:00:00 PM	9/15/2008 11:00:00 PM	8/9/2008 11:00:00 PM
Manjimup Dried Apples	8/4/2008 11:00:00 PM	9/15/2008 11:00:00 PM	8/9/2008 11:00:00 PM
Jack's New England Clam Chowder	8/7/2008 11:00:00 PM	9/4/2008 11:00:00 PM	8/11/2008 11:00:00 PM
Manjimup Dried Apples	8/7/2008 11:00:00 PM	9/4/2008 11:00:00 PM	8/11/2008 11:00:00 PM
Louisiana Fiery Hot Pepper Sauce	8/7/2008 11:00:00 PM	9/4/2008 11:00:00 PM	8/11/2008 11:00:00 PM
Gustaf's Knäckebröd	8/7/2008 11:00:00 PM	9/4/2008 11:00:00 PM	8/14/2008 11:00:00 PM
Ravioli Angelo	8/7/2008 11:00:00 PM	9/4/2008 11:00:00 PM	8/14/2008 11:00:00 PM
Louisiana Fiery Hot Pepper Sauce	8/7/2008 11:00:00 PM	9/4/2008 11:00:00 PM	8/14/2008 11:00:00 PM
Sir Rodney's Marmalade	8/8/2008 11:00:00 PM	9/5/2008 11:00:00 PM	8/10/2008 11:00:00 PM
Geitost	8/8/2008 11:00:00 PM	9/5/2008 11:00:00 PM	8/10/2008 11:00:00 PM

By default, it displays the date and time. Set dates for the various formats. To do this, select the text component, call the **Format** dialog, go to the **Date** tab, and select the

appropriate type.



1 Date format

The list of formatting types.

And then, the dates in the report will be displayed with certain formats.

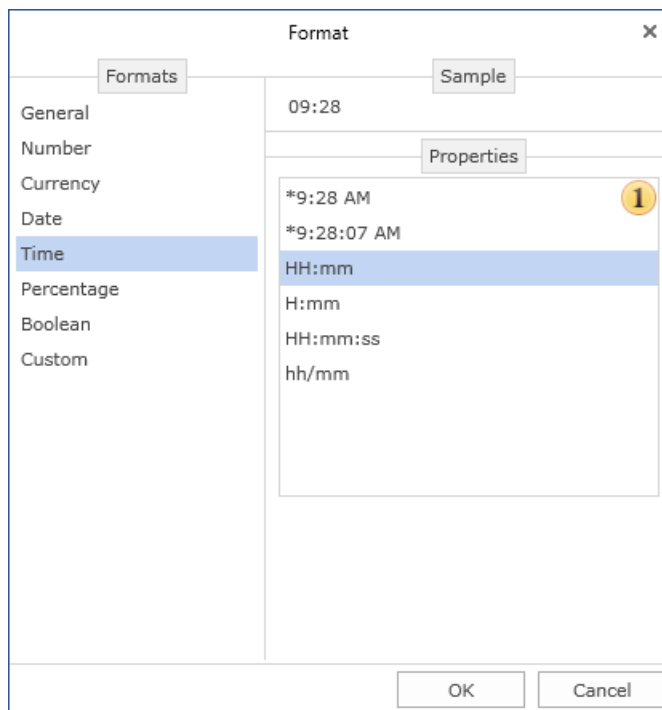
ProductName	OrderDate	RequiredDate	ShippedDate
Queso Cabrales	8/3/2008	Sunday, August 31, 2008	15/08/2008
Singaporean Hokkien Fried Mee	8/3/2008	Sunday, August 31, 2008	15/08/2008
Mozzarella di Giovanni	8/3/2008	Sunday, August 31, 2008	15/08/2008
Tofu	8/4/2008	Monday, September 15, 2008	09/08/2008
Manjimup Dried Apples	8/4/2008	Monday, September 15, 2008	09/08/2008
Jack's New England Clam Chowder	8/7/2008	Thursday, September 4, 2008	11/08/2008
Manjimup Dried Apples	8/7/2008	Thursday, September 4, 2008	11/08/2008
Louisiana Fiery Hot Pepper Sauce	8/7/2008	Thursday, September 4, 2008	11/08/2008
Gustaf's Knäckebröd	8/7/2008	Thursday, September 4, 2008	14/08/2008
Ravioli Angelo	8/7/2008	Thursday, September 4, 2008	14/08/2008
Louisiana Fiery Hot Pepper Sauce	8/7/2008	Thursday, September 4, 2008	14/08/2008
Sir Rodney's Marmalade	8/8/2008	Friday, September 5, 2008	10/08/2008
Geitost	8/8/2008	Friday, September 5, 2008	10/08/2008

Important

In addition to the formats on the **Date** tab, you can create a format on the **Custom** tab.

4.5.5 Time Formatting

The **Time** format is used to show time. The **Time** format is selected from the set of formats: short date format and extended date format (with seconds).



Time format

- 1 The list of formatting types

Below is an example of the report with the Time output and applied format to text components.

Report Rendered: 21/11/2015 10:40:39 PM

Report Created: 18/11/2015 20:33:14

ProductName	Unit Price	Units In Stock
Chai	\$18.00	39.00
Chang	\$19.00	17.00
Aniseed Syrup	\$10.00	13.00
Chef Anton's Cajun Seasoning	\$22.00	53.00
Chef Anton's Gumbo Mix	\$21.35	0.00
Grandma's Boysenberry Spread	\$25.00	120.00
Uncle Bob's Organic Dried Pears	\$30.00	15.00
Northwoods Cranberry Sauce	\$40.00	6.00
Mishi Kobe Niku	\$97.00	29.00
Ikura	\$31.00	31.00
Queso Cabrales	\$21.00	22.00
Queso Manchego La Pastora	\$38.00	86.00

4.5.6 Percentage Data Formatting

If the report uses the relative values, the current data can be output as a percentage text format. Consider the example of a report with relative values. Let's have a report that contains a list of products (standard format), their price (currency format) and the profitability index (number format).

ProductName	UnitPrice	Profitability Index
Chai	\$ 18.00	0.01
Chang	\$ 19.00	0.01
Aniseed Syrup	\$ 10.00	0.00
Chef Anton's Cajun Seasoning	\$ 22.00	0.01
Chef Anton's Gumbo Mix	\$ 21.35	0.01
Grandma's Boysenberry Spread	\$ 25.00	0.02
Uncle Bob's Organic Dried Pears	\$ 30.00	0.02
Northwoods Cranberry Sauce	\$ 40.00	0.03
Mishi Kobe Niku	\$ 97.00	0.09
Ikura	\$ 31.00	0.02
Queso Cabrales	\$ 21.00	0.01
Queso Manchego La Pastora	\$ 38.00	0.03

Now let's add a column with profitability. In this case, the profitability is the ratio as a percentage value. To do this, add the text component on the right with the reference to the Products.ProfitabilityIndex column and set the format as percent for this text component. The header of this column will be Profitability.

ProductName	UnitPrice	Profitability Index	Profitability
Chai	\$ 18.00	0.01	0.84 %
Chang	\$ 19.00	0.01	0.95 %
Aniseed Syrup	\$ 10.00	0.00	0.00 %
Chef Anton's Cajun Seasoning	\$ 22.00	0.01	1.26 %
Chef Anton's Gumbo Mix	\$ 21.35	0.01	1.19 %
Grandma's Boysenberry Spread	\$ 25.00	0.02	1.58 %
Uncle Bob's Organic Dried Pears	\$ 30.00	0.02	2.11 %
Northwoods Cranberry Sauce	\$ 40.00	0.03	3.16 %
Mishi Kobe Niku	\$ 97.00	0.09	9.16 %
Ikura	\$ 31.00	0.02	2.21 %
Queso Cabrales	\$ 21.00	0.01	1.16 %
Queso Manchego La Pastora	\$ 38.00	0.03	2.95 %

It should be noted that previously there were two ways to determine the format mask:

- Use local settings, the text is formatted according to the current settings of the operating system.
- Each parameter is defined by the format mask manually.

Sometimes there were some disadvantages in both cases. For example, when using local settings to change the format parameters you should edit formats of the operating system. In the second case, when it is needed to change one parameter you should adjust others as well. Considering disadvantages of these methods, there is a third way to determine the format. Using the local settings you can change any parameter format. To do this, set the flag next to the parameter and set its value.

1 Group separator

When the Group Separator is used then currency values will be separated into number positions.

2 Use local setting

When using the Local settings, numerical values are formatted according to the current OS installations.

3 Decimal digits

Number of decimal digits, which are used to format numerical values.

4 Decimal separator

Used as a decimal separator to separate numerical values in formatting.

5 Group separator

Used as a group separator when numerical values formatting.

6 Group size

The number of digits in each group in currency values formatting.

7 Positive pattern

This pattern is used to format positive values.

8 Negative pattern

This pattern is used to format negative values.

9 Percentage symbol

The symbol will be used as a percent sign.

4.5.7 Boolean Values Formatting

This format is used to format values of the boolean type.

The screenshot shows the 'Format' dialog box with the 'Boolean' format selected in the left sidebar. The 'Sample' tab is active, showing the 'False' and 'True' sections. The 'Properties' section for 'False' has two dropdowns: 'Value' (labeled 1) and 'Display' (labeled 2), both set to 'False'. The 'Properties' section for 'True' has two dropdowns: 'Value' (labeled 3) and 'Display' (labeled 4), both set to 'True'. The 'OK' and 'Cancel' buttons are at the bottom.

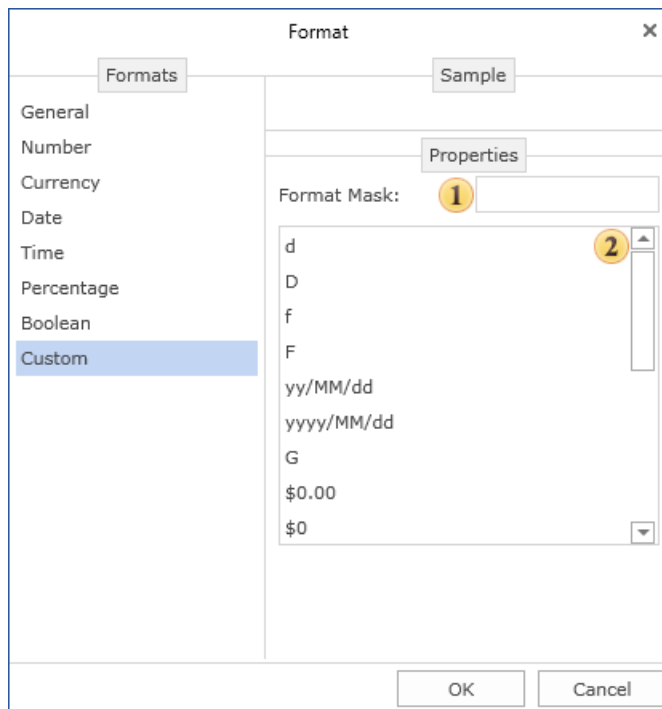
- ❶ The string value to identify boolean values as **false**;
- ❷ The string value to represent boolean value as **false**;
- ❸ The string value to represent boolean value as **true**;
- ❹ The string value to represent the boolean value as **true**.

4.5.8 Custom Formatting

If, for some reason there are no predefined formats appropriate for you, then you can customize the format according to your needs. For example you have a report with a list of products, Order Date, Shipped Date, and the price of the product. Let's apply to them predefined date formats and local settings for the price.

Product Name	Order Date	Shipped Date	Unit Price
Queso Cabrales	03/08/2008	15/08/2008	\$14.00
Singaporean Hokkien Fried Mee	03/08/2008	15/08/2008	\$9.80
Mozzarella di Giovanni	03/08/2008	15/08/2008	\$34.80
Tofu	04/08/2008	09/08/2008	\$18.60
Manjimup Dried Apples	04/08/2008	09/08/2008	\$42.40
Jack's New England Clam Chowder	07/08/2008	11/08/2008	\$7.70
Manjimup Dried Apples	07/08/2008	11/08/2008	\$42.40
Louisiana Fiery Hot Pepper Sauce	07/08/2008	11/08/2008	\$16.80
Gustaf's Knäckebröd	07/08/2008	14/08/2008	\$16.80
Ravioli Angelo	07/08/2008	14/08/2008	\$15.60
Louisiana Fiery Hot Pepper Sauce	07/08/2008	14/08/2008	\$16.80
Sir Rodney's Marmalade	08/08/2008	10/08/2008	\$64.80

Now let's set the format mask for each text component. To do this, select the text component, call the **Format** dialog, go to the Custom tab and create a mask.



1 Mask

A string or an expression that sets a formatting mask.

2 Predefined values

The list of predefined values to format a string.

For the Order Date the mask has the form **yyyy-MM-dd**, Shipped Date - **MM-dd-**

yyyy. For the price of a product the mask is **0.00 dollars of USA**. The data in the rendered report will be formatted as in the picture below.

Product Name	Order Date	Shipped Date	Unit Price
Queso Cabrales	2008-08-03	08-15-2008	14.00 dollars of USA
Singaporean Hokkien Fried Mee	2008-08-03	08-15-2008	9.80 dollars of USA
Mozzarella di Giovanni	2008-08-03	08-15-2008	34.80 dollars of USA
Tofu	2008-08-04	08-09-2008	18.60 dollars of USA
Manjimup Dried Apples	2008-08-04	08-09-2008	42.40 dollars of USA
Jack's New England Clam Chowder	2008-08-07	08-11-2008	7.70 dollars of USA
Manjimup Dried Apples	2008-08-07	08-11-2008	42.40 dollars of USA
Louisiana Fiery Hot Pepper Sauce	2008-08-07	08-11-2008	16.80 dollars of USA
Gustaf's Knäckebröd	2008-08-07	08-14-2008	16.80 dollars of USA
Ravioli Angelo	2008-08-07	08-14-2008	15.60 dollars of USA
Louisiana Fiery Hot Pepper Sauce	2008-08-07	08-14-2008	16.80 dollars of USA
Sir Rodney's Marmalade	2008-08-08	08-10-2008	64.80 dollars of USA

Thus, you can create masks of different formats.

4.5.9 Formatting in Text

The **Text Format** tool allows values formatting using a lot of parameters and options. But this tool has one weak point. Formatting is applied on the whole text object. For example, if the text component is used to output data, then it is easy to format. But what to do if it is required to format only one value from an expression? Or what to do if it is required to format two or more values of an expression? In this case it is recommended to use the **string.Format** method. This method is used to make almost the same kind of formatting as if you use the **Text Format** tool. But the **string.Format** method is more flexible. For example, to format the value as a **currency** the **C** specifier is used:

```
Currency values: {string.Format("{0:C}", Value) }
```

if **Value** is 123.12, then after formatting the line will be:

```
Currency values: $123.12
```

The **string.Format** method may have more than one parameter of formatting, for example:

```
Currency values: {string.Format("value1 - {0:C}, value2 - {0:1}", Value1, Value2) }
```

Please read MSDN to get more information about **string.Format**.

4.6 HTML Tags

Stimulsoft Reports has the ability to format text using standard HTML formatting tags. Sometimes it is necessary to make part of a text expression look Bold, Italic, or Underlined. For example you may wish to achieve something like this:

The fifth word is **bold**

HTML tags can help achieve this. The output shown above could be generated using the following expression:

The fifth word is `<b>bold</b>`

It is possible to get a similar result without using HTML by using the Rich text component, but there are some difficulties and the Rich text component works very slowly, so using HTML tags is often the best way to achieve the desired result.

HTML tags can be included only in the text part of an expression, in other words their use is possible only in the **Text** property of the **Text** component.

Information

HTML tags can be included only in the text part of an expression.

For example, the following expressions are correct:

This is a simple `<i>expression {1+2}</i>`

This is a simple `<i>expression</i> {1+2}`

This is a simple expression `<i>{1+2}</i>`

These expressions however are incorrect:

The is a simple `<i>expression {1</i>+2}`

The is a simple `<i>expression {1+2</i>}`

The is a simple expression `{<i>1+2}</i>`

In the examples above the HTML tags are placed within the body of an expression that will be calculated by C# or VB.Net, shown by the curly braces, so they are impossible to process.

Information

Do NOT place HTML tags inside the curly braces of any expression or the expression will fail.

Available Tags

There are few limitations - most valid HTML style tags can be inserted, with the exception of ordered list and unordered list tags. If you need to generate such lists you can use the Rich Text control or create the layout manually.

Information

You cannot use Ordered and Unordered List tags within expressions.

HTML tags can be nested to an unlimited depth. For example:

This is a `<b>simple <i>expression {1+2}</i></b>`

If a tag is not closed, then the tag works to the end of the text line.

If HTML tags are used in a text expression then any line breaks in that expression are ignored. If you need to enforce a line break in your text, use the `<br>` tag.

Information

Use the `<br>` tag to break a line when using HTML tags.

Activating HTML Tags

It is important to know that by default HTML tags in expressions are simply ignored. To allow the use of HTML tags it is necessary to set the **AllowHtmlTags** property of the Text component to true.

Information

Set the AllowHtmlTags property to true to allow the use of HTML tags in the text expression.

The list of HTML tags, which are supported in the Stimulsoft software

Name	Description
Font tags:	
<code> </code>	Defines the color, font and size of a text. Learn More.
<code><font-face="FontName"> </font-face></code>	Defines the font of a text. Learn More.
<code><font-name="FontName"> </font-name></code>	Defines the font of a text. Learn More.
<code><font-family="FontName"> </font-family></code>	Defines the font of a text. Learn More.
<code><font-size="1..n"> </font-size></code>	Defines the size of a text. Learn More.

<code><font-color="#rrggbb"> </font-color></code>	Defines the color of a text. Learn More.
Font style tags:	
<code> </code>	Makes a text bold. Learn More.
<code><i> </i></code>	Makes a text italicized. Learn More.
<code><u> </u></code>	Underlines a text. Learn More.
<code><s> </s></code>	Displays an underlined text. It is a shorthand note of the <code><strike></code> tag. Learn More.
<code><sub> </sub></code>	Displays a text as a subscript. The text will be located below the base text line and its size will be reduced. Learn More.
<code><sup> </sup></code>	Displays a text as a superscript. The text will be located above the base text line and its size will be reduced. Learn More.
<code> </code>	Accentuates a text, i.e. determines the importance of the text and makes it bold in the browser. Learn More.
<code> </code>	Accentuates a text, in other words determines the importance of the text, and highlights it in a browser in the italic font style. Learn More.
<code><strike> </strike></code>	Displays an underlined text, it's analogous to the <code><s></code> tag. Learn More.
Spacing tags:	
<code><letter-spacing="0"> </letter-spacing></code>	Defines a spacing between symbols within an element, in units of a font height. Learn More.

<code><word-spacing="0"> </word-spacing></code>	Sets a spacing between words, in units of a font height. Learn More.
<code><line-height="1"> </line-height></code>	Sets a line spacing of a text. Learn More.
<code><text-align="left"> </text-align></code>	Changes the horizontal alignment of a text - left , right , center and justify . Learn More.
Paragraph tags:	
<code>
 ,
</code>	Inserts a line break. Unlike the <code><p></code> tag, it doesn't add a blank indent before a line. Learn More.
<code><p> </p></code>	Defines a text paragraph. The tag is a block element, a blank line is always added before it, and paragraphs of a text following each other are separated by vertical space. Learn More.
Tags of lists:	
<code> </code>	Sets a bulleted list. Each element of the list should start with the <code></code> tag. Learn More.
<code> </code>	Sets a numbered list. Each element of the list should start with the <code></code> tag. Learn More.
<code> </code>	Defines a separate item of a bulleted or a numbered list.
URL tags:	
<code>...</code>	Sets a URL address to insert, when clicking on a text which is enclosed between opening and closing tags.
Color and background tags:	

<code><color="#rrggbb"> </color></code>	Defines the color of a text.
<code><background-color="#rrggbb"> </background-color></code>	Defines the color of a text background.
Style attributes:	
<code>color</code>	Defines the color of a text in an element.
<code>background-color</code>	Defines the color of an element background.
<code>text-decoration: underline, line-through, none</code>	Sets the kind of text decoration: > underline - underline text; > line-through - cross out text; > none - cancels all effects, including effects for links.
<code>font-weight: bold, normal</code>	Defines a font weight – bold or normal.
<code>font-style: normal, italic</code>	Defines font style – normal or italic.
<code>font-size</code>	Defines font size.
<code>font-face, font-family, font-name</code>	Defines a font.
<code>vertical-align: baseline, sub, super</code>	Defines the vertical alignment: > baseline is analogous to the <code></sub></code> or the <code></super></code> tags. > sub. An element is displayed as a subscript. And font size won't be changed. It is analogous to the <code><sup></code> tag. > super. An element is displayed as superscript. This will not change the font size. Similar to the <code><sup></code> tag.
<code>letter-spacing: normal, x.x</code>	Defines a spacing between symbols within an element: > normal is a value by default; > x.x is a custom value in font height units.
<code>word-spacing: normal, x.x</code>	Defines a spacing between words

	within an element: ➤ normal is a value by default; ➤ x.x is a custom value in font height units.
<code>line-height: normal, x.x</code>	Sets a line spacing: ➤ normal is a value by default; ➤ x.x is a custom value in font height units.
<code>text-align: left, center, right, justify</code>	Defines the horizontal alignment: ➤ left - align an element to the left; ➤ center - align an element to the center; ➤ right - align an element to the right; ➤ justify - align an element to the width
<code>margin-top, margin-bottom</code>	Sets the amount of an indent from the top and the bottom edge of an element. It is relevant only for the <p> tag.
<code>margin</code>	Sets the amount of an indent from the top and the bottom edge of an element. It is relevant only for the <p> tag.
Color formats:	
<code>#rrggbb</code>	Defines a color in the RGB format as a HEX code.
<code>#rgb</code>	Defines a color in the RGB format as a HEX code in a short form.
<code>rgb(r,g,b)</code>	Defines a color in the RGB format with the help of decimal values.
Special characters (more than 200). Below is a list of the most frequently used:	
<code>&amp;</code>	Displays the ampersand - &. Learn More.

<code>&lt;</code>	Displays the sign less than - <. Learn More.
<code>&gt;</code>	Displays the sign greater than - >. Learn More.
<code>&quot;</code>	It gives the ability to display the double quote - ". Learn More.
<code>&apos;</code>	It gives the ability to display the quote - '. Learn More.
<code>&nbsp;</code>	Displays the no-break space. Learn More.
<code>&#xxxx;</code>	The template of symbol entry in the ASCII encryption. Learn More.
Font format:	
Font name formats: name name1,name2	Specifies several fonts.

4.6.1 HTML Tag

The tag is used to add style, size, and color to a text expression. If there is no closing tag then all changed font characteristics will be applied from the beginning of the tag to the end of the text.

Syntax:

```
<font face="FontName" color="#rrggb" size="n"> </font>
```

Parameters:

color	Defines the color of the text.
face	Defines the font of the text.
size	Defines the size of the text.

Not all of these attributes have to be used. The default value is set within the attributes of the text component, so if the font size of the text component is 8 points and the **size** parameter is not used in the tag, then the text will be output at 8 points. The same rule works for the other attributes.

Example:

If you enter the following expression:

```
Test <font color="red" face="Courier" size="18">Test</font> Test
```

then after calculation the result appearing in the report will be:

Test **Test** Test

4.6.1.1 Color Attribute

The color parameter defines the color of the text in the font element. The color can be set in two ways:

By Name

You can define the color by name - a collection of 147 color names is supported. If the report generator is not able to identify the color set, then it ignores the **color** attribute. For example:

```
<font color="red" ...>
```

```
<font color="black" ...>
```

```
<font color="white" ...>
```

By Hex Value

You can also specify the color using a hex (hexadecimal) value like "#ff0000". It is very important to add the hash symbol '#' before the hexadecimal notation.

The color is a combination of Red, Green and Blue values (#rrggbb). Each of the three colors may have hex values from 00 through to FF. The first two **rr** symbols indicate the red part of the color, **gg** symbols indicate the green part of the color, and **bb** symbols indicate the blue part. A color can be set in a short form using one symbol for each color. For example:

```
<font color="#FF0000" ...>
```

```
<font color="#F00" ...>
```

```
<font color="#FF0000" ...>
```

```
<font color="#998877" ...>
```

```
<font color="#FF00FF" ...>
```

Information

If the color value set is not recognized or is invalid, then the color specified in the Text component or in the tag is used.

Alternative Tags

The tag or the tag can also be used to define the text color. For example:

```
<font-color="red">
```

```
<color="red">
```

4.6.1.2 Face Attribute

The face attribute defines the name of the font of the text within the font element. To use this attribute you must specify the font name. If the font is not found, then the font of the text component or the previous font specified in the tag is used.

The sample below shows how to use the **face** attribute:

```
<font face="Arial" ...>
```

Alternative Attributes

Instead of the "**face**" attribute the attributes "**name**" and "**family**" can be used. All these attributes are identical. For example:

```
<font face="Courier" ...>
```

```
<font name="Courier" ...>
```

```
<font family="Courier" ...>
```

All the text expressions above specify the same font.

Alternative Tags

The `<font-face>` tag is the same as the `<font>` tag with the **face** attribute. For example:

```
<font-face="Arial">
```

4.6.1.3 Size Attribute

The size attribute defines the size of the text in the font element in points. For example:

```
<font size="14" ...>
```

If the expression is incorrectly formulated then the attribute is ignored.

Alternative Tags

The font size can also be defined separately using the tag. For example:

```
<font-size="14">
```

4.6.2 HTML Tags to Change Font Style

The report generator supports nine tags for changing a font style: `<b>`, `<i>`, `<u>`, `<s>`, `<sup>`, `<sub>`, `<strong>`, `<p>`, `<br>`. These HTML tags are called formatting tags. These formatting tags can make text bold, italic, sub/superscripted, and more.

The example below shows how the `<b>` tag works in a text expression. If you enter the following expression:

This `<b>text</b>` is bold.

then after calculation the result appearing in the report will be:

This **text** is bold.

Information

Note that the word 'text' is enclosed within the opening and closing `<b>` and `</b>` tags.

Formatting tags can be used in combination with other formatting tags to change the text style. For example, if you enter the following expression:

This `<i><b>text</b></i>` is bold italic.

then after calculation the result appearing in the report will be:

This **text** is bold italic.

Style intersection is not allowed, formatting tags may not be nested partly inside and partly outside another formatting tag. For example:

`<b>This <i>text</b> is bold</i> italic. // This will fail`

The available formatting tags are discussed in detail in the following topics.

4.6.2.1 HTML `<b>` Tag

The `<b>` tag is used to define bold text. The tag can be used in combination with other tags to change the text style. For example, if you enter the following expression:

Test `<b>Test</b>` Test

then after calculation the result appearing in the report will be:

Test **Test** Test

If a tag is not closed then the formatting is applied from the opening tag to the end of the text expression.

4.6.2.2 HTML `<i>` Tag

The `<i>` tag is used to define italic text. The tag can be used in combination with other tags to change the text style. For example, if you enter the following expression:

Test `<i>Test</i>` Test

then after calculation the result appearing in the report will be:

Test *Test* Test

If a tag is not closed then the formatting is applied from the opening tag to the end of the text expression.

4.6.2.3 HTML `<em>` Tag

The `<em>` tag is used for indicating emphasis. The text inside this tag is more important than flat text. The text displayed using the `<em>` tag looks italic. The example below shows how the `<em>` tag works:

Emphasis `<em>`Emphasis`</em>` Emphasis

then after calculation the result appearing in the report will be:

Emphasis *Emphasis* Emphasis

If a tag is not closed then the formatting is applied from the opening tag to the end of the text expression.

4.6.2.4 HTML `<u>` Tag

The `<u>` tag is used to define underlined text. The tag can be used in combination with other tags to change the text style. For example, if you enter the following expression:

Test `<u>`Test`</u>` Test

then after calculation the result appearing in the report will be:

Test Test Test

If a tag is not closed then the formatting is applied from the opening tag to the end of the text expression.

4.6.2.5 HTML `<s>` Tag

The `<s>` tag is used to define strikethrough text, that is text with a horizontal line through the center. The tag can be used in combination with other tags to change the text style. For example, if you enter the following expression:

Test `<s>`Test`</s>` Test

then after calculation the result appearing in the report will be:

Test ~~Test~~ Test

If a tag is not closed then the formatting is applied from the opening tag to the end of the text expression.

4.6.2.6 HTML <sup> Tag

The **<sup>** tag is used to define a superscripted text. Superscript text appears half a character above the baseline. The tag can be used in combination with other tags to change the text style. For example, if you enter the following expression:

Test ^{Test} Test

then after calculation the result appearing in the report will be:

Test ^{Test} Test

If a tag is not closed then the formatting is applied from the opening tag to the end of the text expression.

4.6.2.7 HTML <sub> Tag

The **<sub>** tag defines subscripted text. Subscripted text appears half a character below the baseline. The example below shows how the **<sub>** tag works:

Test _{Test} Test

The result of output:

Test _{Test} Test

4.6.2.8 HTML Tag

The **** tag indicates strong emphasis. It has an end tag. Text within this tag is more important than flat text. It is usually rendered in bold font style. The example below shows how the **** tag works:

Text Text Text

The result of output:

Text **Text** Text

4.6.2.9 HTML <p> Tag

The <p> tag defines a paragraph. It has an end tag. The example below shows how the <p> tag works:

```
<p>This is a text in a paragraph.</p>This is a text after the paragraph.
```

The result of output:

This is a text in a paragraph.

This is a text after the paragraph.

4.6.2.10 HTML
 Tag

The
 tag inserts a single line break. It has no end tag. The example below shows how the
 tag works:

```
How it<br> works.
```

The result of output:

How it
works.

4.6.2.11 HTML Tag

The tag inserts an ordered list, which is a block level element consisting of a sequence of numbered items, usually displayed with a number on the left margin.

```
<p>How it works!</p>  
<ol>  
<li>How</li>  
<li>it</li>  
<li>works.</li>  
</ol>
```

The result of output:

How it works!

1. How
2. it
3. works.

For the **** tag, you can specify the initial value using the **start** attribute.

```
<p>How it works!</p>
<ol start="100">
<li>How</li>
<li>it</li>
<li>works.</li>
</ol>
```

The result of output:

How it works!

100. How
101. it
102. works.

4.6.2.12 HTML Tag

The **** tag inserts an unordered list, which is a block level element consisting of a sequence of items, usually displayed with a bullet on the left margin.

```
<p>How it works!</p>
<ul>
<li>How</li>
<li>it</li>
<li>works.</li>
</ul>
```

The result of output:

How it works!

- How
- it
- works.

4.6.3 HTML `<background-color>` Tag

The tag `<background-color>` is used to change the background color of text. The color value is specified in the same way as the `color` parameter of the `<font>` tag. If the report generator does not find a closing tag, the text background will remain changed until the end of the output text or until it is changed by another tag. An example of a text expression using the `<background-color>` tag:

```
Test <background-color="red">Test</background-color> Test
```

You can also specify an RGB or HEX value:

```
Test <background-color="rgb(255, 0, 0)">Test</background-color> Test
Test <background-color="#FF0000">Test</background-color> Test
```

In this case, the output text will be as follows:

Test Test Test

4.6.4 HTML `<text-align>` Tag

The `<text-align>` tag specifies the horizontal alignment of an element with respect to the surrounding context in the text component. The tag supports four modes of alignment: **left**, **right**, **center**, and **justify**. For example, if you enter the following expression:

```
Test<br>
<text-align="right">Test</text-align> <br>
Test<br>
```

then after calculation the result appearing in the report will be:

Test	Test
Test	

4.6.5 HTML <letter-spacing> Tag

The <letter-spacing> tag is used to define the space between letters. The value of this tag can be set in any units, and the value can be negative, so it is very important to make sure that the text is readable after applying this tag. By default the value of this tag is 0.

For example, if you enter the following expression:

```
Test<br><letter-spacing="0.5">Test</letter-spacing>
```

then after calculation the result appearing in the report will be:

```
Test
T e s t
```

4.6.6 HTML <word-spacing> Tag

Using the <word-spacing> tag it is possible to define the space between each word. If the <text-align> tag with the "justify" value is used, then the <word-spacing> tag is ignored. This happens because the interval between words is already specified and a line of a text is aligned on both left and right sides. The example below shows how the <word-spacing> tag works:

```
Test <word-spacing="2"> Test </word-spacing>Test
```

The result of output:

```
Test Test   Test
```

4.6.7 HTML <line-height> Tag

The <line-height> tag sets the height of the text line. The tag is set as the multiplier for the basic line height. By default the value of the <line-height> tag is 1. The example below shows how this tag works:

```
Test<line-height="1.5"> <br></line-height>Test<line-height="0.7"> <br></line-height>Test
```

The result of output:

```
Test
Test
Test
```

4.6.8 Special Characters

Sometimes it is necessary to use a phrase, for example, in French or German on the website page or to display an example of HTML code on the page. For this purpose, the braces characters, opening "<" and closing ">" are used. They define the first and last character of the tag. For example, to display the "greater-than" sign or the opening "<" brace, the "<" character is used. Each character has its **&-ASCII** code, which has a specific **&#****** format, where **** is a numeric character. Pointing a **&-ASCII** code, the appropriate symbol will be output on the page. Also, some characters have **&-Name** codes, which have the **&****** formats where **** is an alphabetic names of characters. Below are the tables with the most frequently used characters:

Special Characters

Common Name	ISO Latin-1 Numeric Entity	&-ASCII	&-Name
Quotation mark	"	"	"
Ampersand	&	&	&
Non-breaking space		 	
Inverted exclamation point	¡	¡	&ixcl;
Cent	¢	¢	¢
Pound sterling	£	£	£
General currency	¤	¤	¤
Yen sign	¥	¥	¥
Broken vertical bar		¦	¦
Section sign	§	§	§
Dieresis	¨	¨	¨
Copyright	©	©	©
Feminine ordinal	ª	ª	ª
Left guillemot	«	«	«
Not sig	¬	¬	¬
Soft hyphen	-	­	­

Registered trademark	®	®	®
Macron	—	¯	¯
Degree sign	°	°	°
Plus or minus	±	±	±
Superscript 2	²	²	²
Superscript 3	³	³	³
Acute accent	´	´	´
Mu	μ	µ	µ
Pilcrow	¶	¶	¶
Middle dot	·	·	·
Cedilla	¸	¸	¸
Superscript 1	¹	¹	¹
Masculine ordinal	º	º	º
Right guillemot	»	»	»
Fraction one-fourth	¼	¼	¼
Fraction one-half	½	½	½
Fraction three-fourths	¾	¾	¾
Inverted question mark	¿	¿	¿

UPPERCASE LATIN-1 CHARACTERS

Name	Character	&-ASCII	&-Name
Capital A, grave accent	À	À	À
Capital A, acute accent	Á	Á	Á
Capital A, circumflex accent	Â	Â	Â
Capital A, tilde	Ã	Ã	Ã
Capital A, dieresis	Ä	Ä	Ä
Capital A, ring	Å	Å	Å

Capital AE diphthong	Æ	Æ	Æ
Capital C, cedilla	Ç	Ç	Ç
Capital E, grave accent	È	È	È
Capital E, acute accent	É	É	É
Capital E, circumflex accent	Ê	Ê	Ê
Capital E, dieresis	Ë	Ë	Ë
Capital I, grave accent	Ì	Ì	Ì
Capital I, acute accent	Í	Í	Í
Capital I, circumflex accent	Î	Î	Î
Capital I, dieresis	Ï	Ï	Ï
Capital Eth	Ð	Ð	Ð
Capital N, tilde	Ñ	Ñ	Ñ
Capital O, grave accent	Ò	Ò	Ò
Capital O, acute accent	Ó	Ó	Ó
Capital O, circumflex accent	Ô	Ô	Ô
Capital O, tilde	Õ	Õ	Õ
Capital O, dieresis	Ö	Ö	Ö
Multiply sign	×	×	×
Capital O, slash	Ø	Ø	Ø
Capital U, grave accent	Ù	Ù	Ù
Capital U, acute accent	Ú	Ú	Ú
Capital U, circumflex accent	Û	Û	Û
Capital U, dieresis	Ü	Ü	Ü
Capital Y, acute accent	Ý	Ý	Ý
Capital Thorn	Þ	Þ	Þ
German sz ligature	ß	ß	ß

LOWERCASE LATIN-1 CHARACTERS

Name	Character	&-ASCII	&-Name
Lowercase a, grave accent	à	à	à
Lowercase a, acute accent	á	á	á
Lowercase a, circumflex accent	â	â	â
Lowercase a, tilde	ã	ã	ã
Lowercase a, dieresis	ä	ä	ä
Lowercase a, ring	å	å	å
Lowercase ae ligature	æ	æ	æ
Lowercase c, cedilla	ç	ç	ç
Lowercase e, grave accent	è	è	è
Lowercase e, acute accent	é	é	é
Lowercase e, circumflex accent	ê	ê	ê
Lowercase e, dieresis	ë	ë	ë
Lowercase i, grave accent	ì	ì	ì
Lowercase i, acute accent	í	í	í
Lowercase i, circumflex accent	î	î	î
Lowercase i, dieresis	ï	ï	ï
Lowercase eth	ð	ð	ð
Lowercase n, tilde	ñ	ñ	ñ
Lowercase o, grave accent	ò	ò	ò
Lowercase o, acute accent	ó	ó	ó
Lowercase o, circumflex accent	ô	ô	ô
Lowercase o, tilde	õ	õ	õ
Lowercase o, dieresis	ö	ö	ö
Division sign	÷	÷	÷
Lowercase o, slash	ø	ø	ø

Lowercase u, grave accent	ù	ù	ù
Lowercase u, acute accent	ú	ú	ú
Lowercase u, circumflex accent	û	û	û
Lowercase u, dieresis	ü	ü	ü
Lowercase y, acute accent	ý	ý	ý
Lowercase thorn	þ	þ	þ
Lowercase y, dieresis	ÿ	ÿ	ÿ

4.7 Markdown

Markdown is a lightweight markup language that lets you format text using simple, intuitive symbols directly within plain text. A dedicated component for creating text with Markdown markup has been added to Stimulsoft reports. The component fully supports the official [CommonMark 0.31.2](#) specification. The component is configured in its editor.

To add a **Markdown** component to the report, do the following:

- Select the Markdown component on the **Toolbox** or on the **Insert** tab in the **Components** group;
- Place this component on the report page or anywhere in the report.

Markdown settings can be found in the component editor and using the component properties. To call the editor:

- Double-click the **Markdown** component;
- Or select the Markdown component and choose the Design command from the context menu.

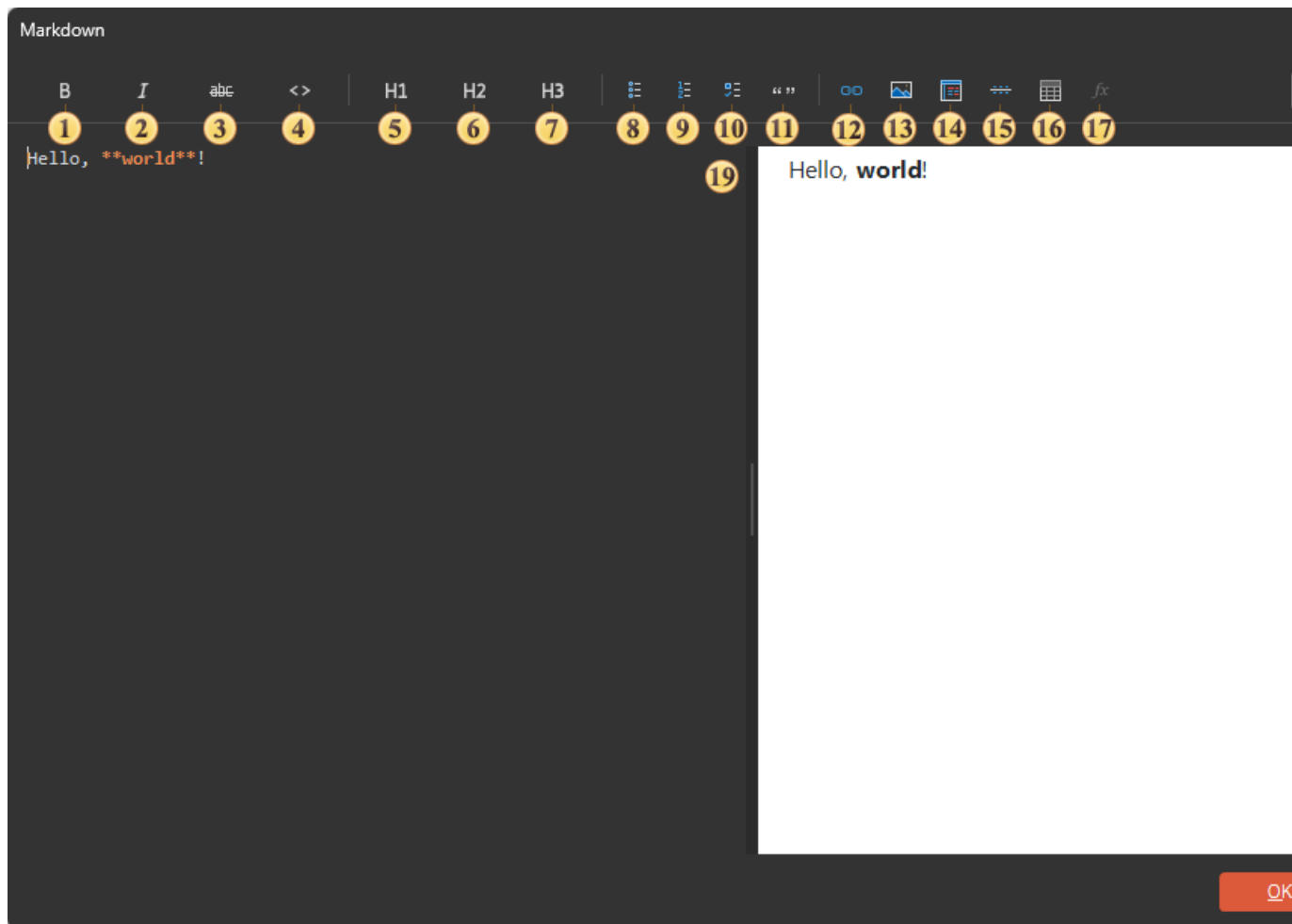
Information

For examples of text formatting with Markdown markup, [see the corresponding chapter](#).

Markdown Editor

The Markdown component editor provides text formatting commands via controls.

This lets you format text quickly and easily, including inserting tables, hyperlinks, lists, and so on. The editor also has a preview panel that displays the formatted text.



- ❶ The **Bold** button. Wraps the selected text in `**` to make it bold.
- ❷ The **Italic** button. Wraps the selected text in `*` to make it italic.
- ❸ The **Strikeout** button. Wraps the selected text in `~~` to cross it out.
- ❹ The **Code** button. Formats the selected text as inline code with ```, or as a fenced code block with ````` for a multi-line selection.
- ❺ The **Heading 1** button. Turns the current line into a first-level heading (`#`).
- ❻ The **Heading 2** button. Turns the current line into a second-level heading (`##`).
- ❼ The **Heading 3** button. Turns the current line into a third-level heading (`###`).
- ❽ The **Bullets** button. Converts the selected lines into an unordered list (`-`).
- ❾ The **Ordered List** button. Converts the selected lines into an ordered list (`1.`, `2.` ...).
- ❿ The **Task List** button. Converts the selected lines into a checklist (`- [ ]`).

- 11 The **Blockquote** button. Marks the current line as a blockquote (>).
- 12 The **Insert Link** button. Inserts a hyperlink in the `[text] (url)` format.
- 13 The **Insert Image** button. Inserts an image in the `![alt] (url)` format.
- 14 The **Code Block** button. Inserts a callout block - `> [!NOTE]`, `> [!TIP]`, `> [!IMPORTANT]`, `> [!WARNING]`, or `> [!CAUTION]`.
- 15 The **Horizontal Line** button. Inserts a thematic break (---) on a new line.
- 16 The **Table** button. Inserts a table template with a header row and a separator row.
- 17 The **Expression** button. Inserts an expression (a data column or a variable) into the text.
- 18 The **Theme** field. Provides the ability to change the theme of the preview panel (for example, GitHub Light). It affects the preview only, not the way the text is output in the report.
- 19 The **editor panel** on the left. Type or paste the Markdown source here.
- 20 The **preview panel** on the right. Shows the formatted text as it will appear when the report is viewed.

Table of properties

See below a list of properties of the Markdown component.

Name	Description
Text	Specifies the content of the Markdown component - the source text with Markdown markup.
Colors	A group of properties for customizing the appearance of the rendered text. By default, the built-in themes are used, but this group of properties lets you configure custom themes for text styling and formatting.
Editable	Specifies whether the component can be edited when viewing the report.
Only Text	Lets you turn off Markdown formatting. In this case, the special characters are rendered as plain text.
Left	Defines the left padding of the component of the report page borders.

	The value is defined in the units of the report.
Top	Defines the indent of the component from the top of the report page borders. The value is defined in the units of the report.
Width	Defines the width of a component in a report. The value is defined in the units of the report.
Height	Defines the height of a component in a report. The value is defined in the units of the report.
Min Size	A group of properties that defines the minimum width and height of a component in a report. The value is defined in the units of the report.
Max Size	Defines the maximum width and height of a component in a report. The value is defined in the units of the report.
Border	A group of properties that allows you to customize the borders of the element - color, sides, size, and style.
Brush	Defines the brush type, color, and other brush options for the background of a component in a report.
Margins	A group of properties used to specify the offsets of the content from the borders of this component.
Conditions	Calls the conditional formatting editor of reports.
Component Style	Selects the style that will be applied to the component in the report.
Use Parent Styles	Uses the style of the report component to which the current component belongs.
Anchor	Specifies how the current component's position will snap to the parent

	component's dimensions.
Can Break	This property determines whether the component can break content across multiple pages.
Can Grow	Automatically increases the height of a component.
Can Shrink	Automatically reduces the height of a component.
Dock Style	Sets the docking mode of the current component with others.
Enabled	Enables or disables processing of the current component when rendering a report.
Grow to Height	Automatically changes the height of the current component, depending on the height of the parent component.
Interaction	Defines interaction settings for the current component when viewing a report.
Printable	Defines the behavior of the component when printing - whether to print it or not.
Print On	Determines the print mode of a component.
Shift Mode	Determines the offset mode of a component, depending on the behavior of the above component.
Name	Changes the name of the current component.
Alias	Changes the alias of the current component.
Restrictions	Configures the permissions for using the current component: ➤ The Allow Change option enables or disables changes of the component. If checked, the current item can be changed.

	➤ The Allow Delete option enables or disables the deletion of a component. ➤ The Allow Move option allows or prohibits moving a component. ➤ The Allow Resize option enables or disables resizing of a component. ➤ The Allow Select option enables or disables the component selection.
Locked	Enables or disables resizing and moving the current component. If the property is set to True , then the current component cannot be moved or resized. If this property is set to False , then this component can be moved and resized.
Linked	Binds the current location to a report page or other component. If the property is set to True , then the current component is linked to the current location. If this property is set to False , then this component is not linked to the current location.

4.7.1 Markdown Examples

This chapter describes text formatting examples for the Markdown component.

Supported standard and extensions

The base syntax is the full official specification [CommonMark 0.31.2](#). A brief overview of the supported formatting follows; the extensions on top of CommonMark are enabled by default. The name of each item is a link to the official description of its syntax.

- [Code formatting](#) - inline code ``code``, a fenced block of ````` (a language tag can be given) and an indented block of 4 spaces.
- [GitHub Flavored Markdown \(GFM\)](#) - tables, task list items, strikethrough, autolinks.
- [Footnotes](#) - references like `[^id]` with a definition later in the text.
- [Definition lists](#) - a term and a definition indented under it.
- [Highlight, superscript and subscript](#) - `==text==`, `x^2^`, `H~2~O`.
- [SmartyPants](#) - typographic quotes, dashes and ellipsis.

- [Obsidian-style callouts](#) - > [!NOTE], > [!TIP], > [!IMPORTANT], > [!WARNING], > [!CAUTION].

Each item is covered in detail with examples below.

What you get from CommonMark

- **Headings** - # H1 / ## H2 / ### H3 / #### H4 / ##### H5 / ##### H6.
- **Setext headings** - a line of text with === (level 1) or --- (level 2) underneath it.
- **Paragraphs** - blank line separates paragraphs. Hard break: two trailing spaces or \ at line end.
- **Emphasis** - *italic* → *italic*, **bold** → **bold**, ***both*** → ***both***.
- **Code formatting** - inline ``code`` → `code`; a fenced block of ````` or `~~~` (the language tag is preserved as text); an indented block - start every line with 4 spaces or a tab.
- **Bulleted list** - - item, * item or + item; indent for nesting.
- **Ordered list** - 1. item, 2. item ...; numbers don't have to be sequential.
- **Links** - [text] (https://example.com) → [text](https://example.com), with optional "title".
- **Reference links** - [text][id] in the text and [id]: https://example.com on a line of its own.
- **Images** - ![alt] (https://example.com/pic.png) on a line of its own.
- **Blockquotes** - > quoted line; nest with >> deeper.
- **Thematic break** - ---, *** or _ on a line of its own.
- **HTML entities** - © → ©, — → -, & → &.
- **Raw HTML** - HTML blocks and inline tags are output as-is in a monospaced font; HTML markup is not interpreted.
- **Backslash escapes** - *, \#, _ ... for literal punctuation.

CommonMark - fenced code block

Fence a block with three backticks (or three tildes); an optional language tag is remembered but doesn't affect rendering. Example:

```
```csharp
public override string ToString()
{
 return "hello";
}
```
```

```
public override string ToString()
{
    return "hello";
}
```

GFM extensions

On top of CommonMark the component enables the [GitHub Flavored Markdown \(GFM\)](#) extensions:

- **Tables** - pipe-delimited, header separated by `| --- | --- |`.
- **Task list items** - `- [x] done`, `- [ ] todo`.
- **Strikethrough** - `~~text~~` → ~~text~~.
- **Autolinks** - bare `https://...` URLs become clickable, and `<https://...>` works too.

GFM - tables

Pipe-delimited cells. The header row is required, separated from the body by a row of dashes. Trailing pipes are optional. Alignment markers in the separator row (`:---`, `---:`, `---:`) are recognized but have no effect in the current version - cell content is left-aligned. Example:

```
Column A	Column B	Column C
A1	B1	C1
A2	B2	C2
```

| Column A | Column B | Column C |
|----------|----------|----------|
| A1 | B1 | C1 |
| A2 | B2 | C2 |

GFM - task list

A bulleted item that starts with `[ ]` or `[x]` is rendered with a checkbox. Example:

- [x] Done
- [] To do
- [] Also to do

- ☒ Done
- ☐ To do
- ☐ Also to do

Additional extensions

Beyond CommonMark and GFM the following extensions are enabled by default:

- **Footnotes** - `text[^1]` with `[^1]: definition later.`
- **Definition lists** - a term, then `:` definition indented under it.
- **Highlight** - `==marker==` → `marker`.
- **Superscript** - `x^2^` or `x^(2)` → x^2 .
- **Subscript** - `H~2~O` → H_2O .
- **SmartyPants** - `"text"` → `"text"`, `--` → `-`, `---` → `-`, `...` → `....`
- **Obsidian-style callouts** - `> [!NOTE]`, `> [!TIP]`, `> [!IMPORTANT]`, `> [!WARNING]`, `> [!CAUTION]`.

Extension - Obsidian-style callouts

A blockquote that starts with `[!TYPE]` is rendered as a coloured box for that type. The five types and how they look:

```
> [!NOTE] Side information you don't want to miss.
> [!TIP] Pro tip - make your reports better.
> [!IMPORTANT] Important context the reader has to know.
> [!WARNING] Something that needs the reader's attention.
> [!CAUTION] Risk of negative consequences.
```

NOTE

Side information you don't want to miss.

TIP

Pro tip - make your reports better.

IMPORTANT

Important context the reader has to know.

WARNING

Something that needs the reader's attention.

CAUTION

Risk of negative consequences.

Extension - footnotes

Drop `[^id]` anywhere in the text to add a reference, then define it later with `[^id]: text`. The id can be any word. Example:

```
Here is a footnote reference[^1] and another[^longnote].
```

```
[^1]: First footnote.
```

```
[^longnote]: Second footnote with more detail.
```

Here is a footnote reference^[1] and another^[2].

The footnotes themselves are collected at the bottom of the component under a horizontal rule:

[1] First footnote.

[2] Second footnote with more detail.

Extension - definition list

Put the term on its own line, then indent the definition with `:` followed by spaces. Blank line separates entries. Example:

```
Term
:  Definition of the term.

Another term
:  Definition of the other term.
```

In the report the colon itself is not shown: the term is displayed in bold, the definition is indented under it, and entries are separated by a blank line.

```
Term
  Definition of the term.

Another term
  Definition of the other term.
```

Tips

- The editor and preview scroll in sync - click in either pane to navigate.
- Drag the central splitter to resize the editor and preview.
- Use the toolbar above for quick formatting shortcuts.
- Press **Ctrl+F** to open the Find / Replace dialog.
- Pick a theme from the top-right combo to change preview colors.

4.8 Rich Text

Stimulsoft Reports allows users to include **Rich Text** formatted (**RTF**) text in reports, without any limitations.

The **RichText** component is designed for working with rich text, and can automatically change its size depending on the size of the **RTF** text within it. It can process expressions, and supports a wide variety of styles, processing at the end of report rendering, etc.

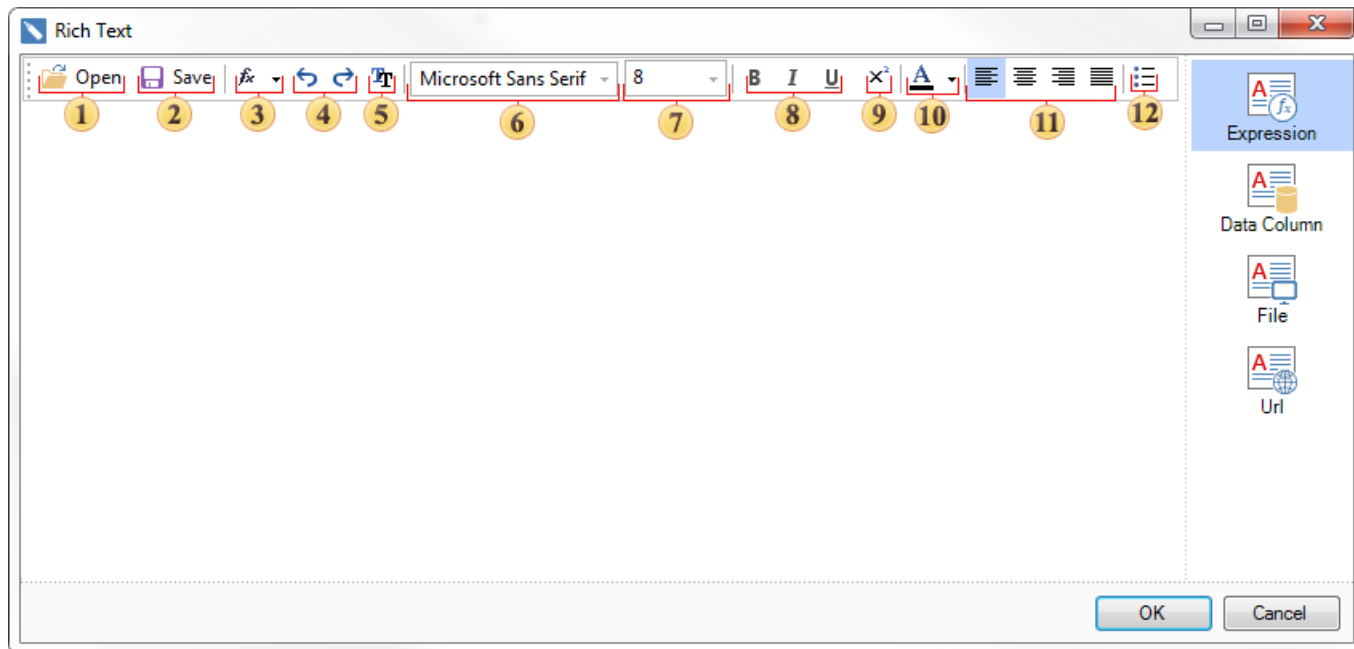


4.8.1 Rich Text Editor

The **RichText** component has a special editor. This editor can load and save the **RTF** text, change the font, size, color, paste expressions etc. With this editor you can edit the RTF text without using third-party editors. The editor is called by double-clicking on the RichText component. This editor contains the following tabs:

- **Expression.** Specify here some text. You can edit the text here using a set of special tools.
- **Data Column.** Specify the data column that contains the Rich text.
- **File.** Load a file that contains the Rich text.
- **Url.** Specify the URL the source with the Rich text.

The picture below shows the **Rich** text editor with **Expression** tab open:



- ❶ The **Open** button. Opens the dialog to load the saved *.rtf file.
- ❷ The **Save** button. Opens the dialog to save the text as *.rtf.
- ❸ The **Insert** button. Shows the data dictionary tree.
- ❹ The **Undo** and **Redo** buttons.
- ❺ The **Font** button. Calls the window to setup the font.
- ❻ Font face field. This field displays the current type of the font name. Also, this field contains a drop-down list of values that provides the ability to change the font type without calling the font settings dialog box.
- ❼ Font size field. This field displays the font size value. Also, this field contains a drop-down list of values that provides the ability to change the font size without calling the font settings window.
- ❽ **Bold, Italic, Underline** buttons.
- ❾ The **Superscript** button. It provides the ability to place text on top with respect to the previous one. For example, the exponents.
- ❿ The **Color** button. Calls the menu to change the text color.
- ⓫ Alignment of text: **Align Left, Align Center, Align Right, Justify**.
- ⓬ The **Bullets** button. Enables bullets in text.

4.8.2 Expressions in Rich Text

The RTF text is an expression in the **RichText** component. There are no significant differences between working with expressions in the **RichText** component and other text components.

The syntax and use of expressions is similar to the syntax and use of expressions in

text components, but there is one particular issue to consider - any applied formatting must be applied to the full code insertion and not just part of it.

Suppose that you want the calculated value in the RTF text to be a specific color. It is vital that the color attribute is applied to the full expression from the opening brace "{" to the closing brace "}" including those symbols. For example:

```
Category: {Categories.CategoryName}
```

› Formatting is fully applied to the expression. This expression will work correctly.

```
Category: {Categories.CategoryName}
```

› Formatting is applied to only part of the expression. This expression will not work.

```
Category: {Categories.CategoryName}
```

› Formatting is fully applied to the expression, but the braces are not included. This expression will not work.

```
Category: {Categories.CategoryName}
```

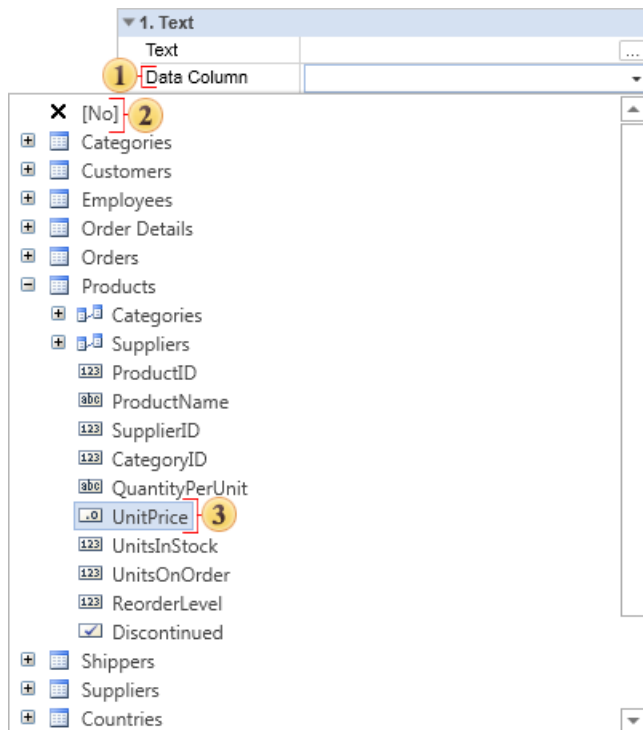
› Formatting does not include the opening brace. This expression will not work.

You should know that in the expressions of the RichText component only plain text can be inserted this way (without formatting commands). So it is not possible to insert the RTF text. You can only assign all of its properties with help of the DataColumn.

› The property **Full Convert Expression** provides the ability to handle expressions in the RTF component in different ways. If this property is set to **false**, then the expression will be processed quickly, simply and consistently. If this property is set to **true**, then processing of expressions in the RTF component will be more thorough. This method slows report rendering, but allows converting expressions more thoroughly. Especially if the expression uses characters other than the numbers and Latin alphabet.

4.8.3 Loading Rich Text From Data Field

The **RichText** component can load the RTF text from the data field using the **DataColumn** property. To load the RTF text simply select a field from the data dictionary tree. When rendering, the report generator will automatically load the RTF text for you.



- 1 The **DataColumn** property. This property is used to indicate from which data field the RTF text should be loaded. Click the button beside to select the relevant column.
- 2 **Null node**. Selecting this node means that the RTF text is not loaded from a data field.
- 3 **Selected** field. The Data field from which the RTF text will be loaded.

4.9 Autosize

Automatic resizing of components is controlled by two properties available in report components: **CanGrow** and **CanShrink**.

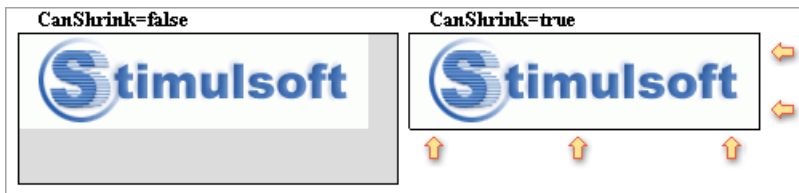
Can Grow

If the **CanGrow** property is set to true the component can automatically increase its size if the information contained within it does not fit in the space available. If it is set to false the information will be cropped to the component size, as in the examples below:



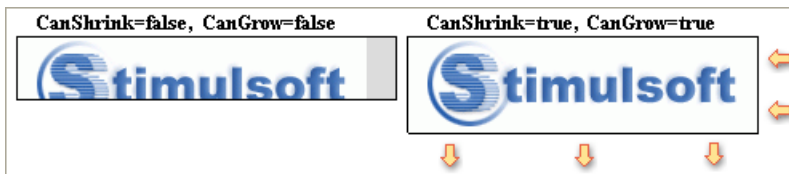
Can Shrink

If the **CanShrink** property is set to true the component can automatically reduce its size so that it fits exactly to the size of the text or image being displayed. If it is set to false the component remains the same size leaving unused space around the information it contains, as in the examples below.



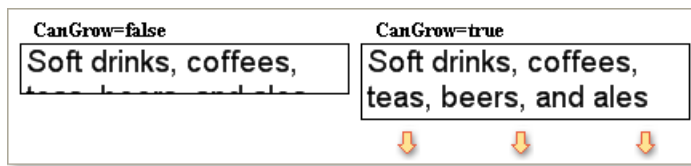
Using this property will help you to prevent wasted space on report pages

The report generator allows you to set both **CanGrow** and **CanShrink** properties. If you set both properties to true the component will automatically increase or decrease in size whenever appropriate. The example below shows an image component that is not large enough to support the height of the image but is too wide for the image width. By setting the **CanGrow** and **CanShrink** properties to true the size of the component changes automatically and exactly matches the size of the image.

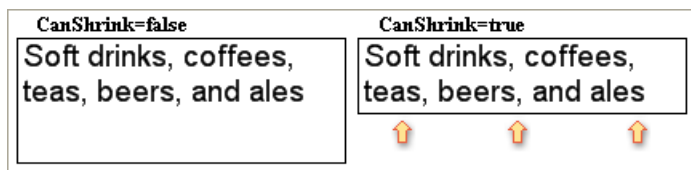


4.9.1 Automatically Resizing Text Component

The automatic resizing of text components behaves differently from other components. The **CanGrow** and **CanShrink** properties affect only the height of a text component and not the width. The example below shows an example of the **CanGrow** property causing the text height to change:



The **CanShrink** property works in the opposite way, so if it is set to true and there is more space than is needed for the text the report generator will automatically decrease the height of the text component.



As with other components it is possible to set both properties to true. In this case, the height will automatically increase or decrease depending on the size of a text.

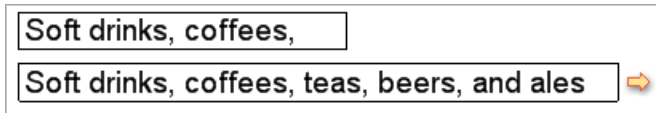
WordWrap Property

The **WordWrap** property controls whether or not the text in the control automatically wraps when it becomes too long to fit in a single line. If the **WordWrap** property is set to false then the text is cropped at the border of the component, but when set to true new lines are created until all the text is displayed on multiple lines.

When automatically resizing a text component with the **WordWrap** property set to false the report generator will calculate the new size based on the height of a single line only. If you want the report generator to increase the height of the component based on all the text lines then the value of the **WordWrap** property should be set to true so that the text automatically wraps and the calculation can be based on the combined height of all the text lines.

AutoWidth Property

In addition to the **CanGrow** and **CanShrink** properties the **AutoWidth** property can affect the way a text component changes size. If the **AutoWidth** property is set to true then the text component will automatically change its width to match the width of the text. The **CanGrow**, **CanShrink**, and **AutoWidth** properties can be used simultaneously.



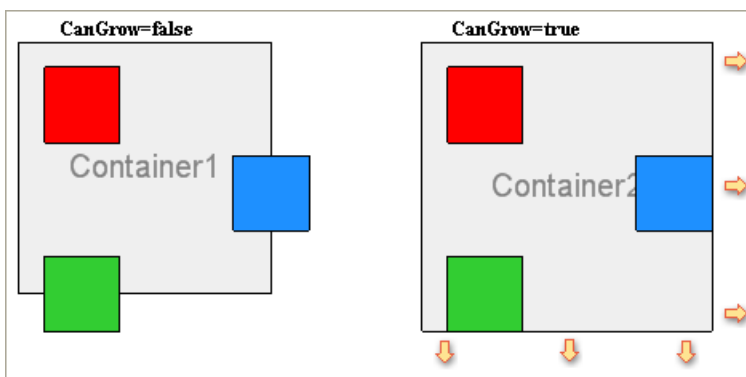
If the **AutoWidth** property is set to false, then the height of the text depends on settings of the **CanGrow** and **CanShrink** properties. If the **AutoWidth** property is set to true, then the width will be automatically changed.

! **Note:** If the **AutoWidth** property is set to false then the height of the text depends on the **CanGrow** and **CanShrink** properties. If the **AutoWidth** property is set to false then it will change the width of the text.

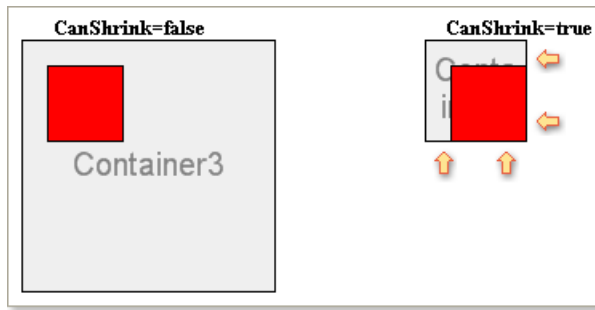
4.9.2 Automatically Resizing Panels

Because **Panels** are only containers and output no visual information in the report it may seem that the **CanGrow** and **CanShrink** properties have no relevance, but this is not the case.

Panel components may contain other components which have specified sizes and positions. If some of the component positions mean that their boundaries cross the border of the panel then setting the **CanGrow** property to true will cause the panel container to be automatically resized so that the child components are wholly enclosed within it. The picture below shows how the **CanGrow** property works:



If the **CanShrink** property is set to true and the bounds of the combination of all the components contained within it are less than the bounds of the panel, the panel size will automatically reduce to match the overall size of all components.

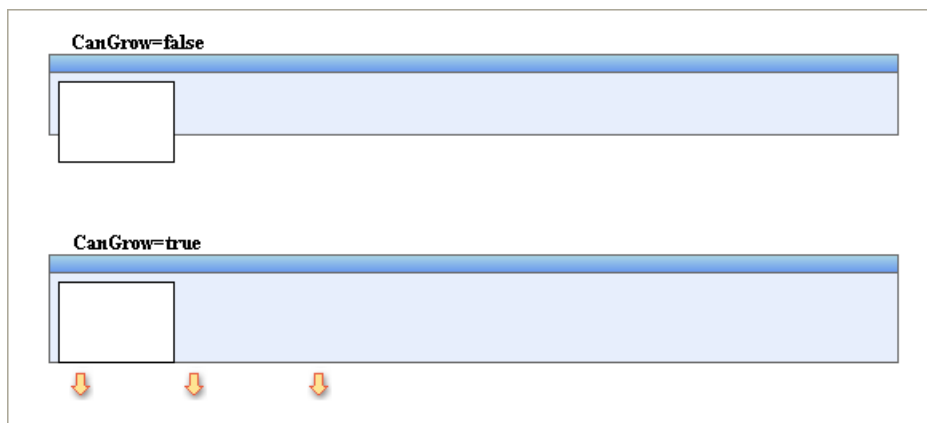


4.9.3 Automatically Resizing Bands

Because bands are inherited from **Panels**, they change their size in the same way. The size of the **Band** can be automatically changed depending on the size of components positioned on the band.

CanGrow Property

It should be noted that most types of band can only automatically change their height - the exception is cross-bands which change their width. For example, if there is a component on the band which crosses the lower boundary and you set the **CanGrow** property of the band to true, the band height will be automatically increased until the entire component is contained within the band:



CanShrink Property

Similarly if there is free space between the boundary of a band and the lower border of the tallest component that it contains and you set the **CanShrink** property to true, the height of the band will automatically be reduced until it matches the lowest point of the lowest contained component:



4.9.4 Binding Bottom Border of Component

Typically there will be more than one component on a band, as in the example shown below:

| DataBand1: Источник данных: Categories | | | |
|--|--------------------------|---------------------------|--|
| {Categories.Category} | {Categories.Description} | {Categories.CategoryName} | |
| | | | |

When rendering a report the height of some of the components may be changed automatically to suit the size of their contents which can result in unwanted breaks in the layout as shown below:

| | | |
|---|--|----------------|
| 1 | Soft drinks, coffees, teas, beers, and ales | Beverages |
| 2 | Sweet and savory sauces, relishes, spreads, and seasonings | Condiments |
| 3 | Desserts, candies, and sweet breads | Confections |
| 4 | Cheeses | Dairy Products |
| 5 | Breads, crackers, pasta, and cereal | Grains/Cereals |
| 6 | Prepared meats | Meat/Poultry |
| 7 | Dried fruit and bean curd | Produce |
| 8 | Seaweed and fish | Seafood |

To prevent this occurring you can bind the bottom border of a component to the

lower border of the container in which the component is placed. This binding is done using the **GrowToHeight** property.

GrowToHeight Property

If you set the **GrowToHeight** property to true all components that do not change their size will have their bottom borders bound to the bottom border of the container.

❗ **Note:** The **GrowToHeight** property binds the bottom border of the component to that of its container whether that container is a **Band** or a **Panel** component.

This will give a consistent and much better looking result as shown below:

| | | |
|---|--|----------------|
| 1 | Soft drinks, coffees, teas, beers, and ales | Beverages |
| 2 | Sweet and savory sauces, relishes, spreads, and seasonings | Condiments |
| 3 | Desserts, candies, and sweet breads | Confections |
| 4 | Cheeses | Dairy Products |
| 5 | Breads, crackers, pasta, and cereal | Grains/Cereals |
| 6 | Prepared meats | Meat/Poultry |
| 7 | Dried fruit and bean curd | Produce |
| 8 | Seaweed and fish | Seafood |

By default, the **GrowToHeight** property is set to false.

Handling Multiple Components

If there are multiple components on one band that can automatically change their size it is possible set the **GrowToHeight** property for all these components to true. This will cause the height of these components to be automatically adjusted based on the height of the tallest component.

❗ **Note:** The **GrowToHeight** property can be set for components which automatically change their size as well as those that do not. In this case, if the bottom border is not matched to the bottom border of its container the size of this component will be automatically adjusted to suit.

4.9.5 Automatically Shifting Components

Automatically changing the size of components can lead to a problem when rendering reports - what happens when a change in the size of one component has an adverse effect on another component in the report? For example, if the height of the first component is increased it could overlap a component placed below it.

To prevent this problem the **ShiftMode** property is used.

ShiftMode Property

The **ShiftMode** property allows all components with top borders situated below the top border of an automatically modified component to be automatically shifted down the report so that they maintain the same relative position.

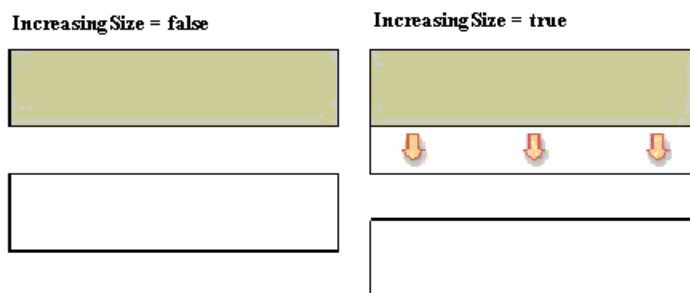
The property has three flag values each of which can be set to **True** or **False**:

- ✓ **IncreasingSize**
- ✓ **DecreasingSize**
- ✓ **OnlyInWidthOfComponent.**

These work as follows:

IncreasingSize

If this flag is set to true then any increase in the height of the components located above the specified component causes the component to shift down vertically by the same amount. If the flag is set to false then any increase in the height of the higher components is simply ignored, as shown in the example below:



By default this flag is set to true.

DecreasingSize

If this flag is set to true then any decrease in the height of the components located above the specified component causes the component to shift up vertically by the

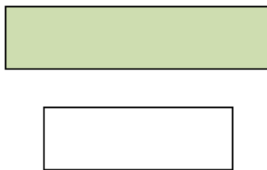
same amount. If the flag is set to false then any decrease in the height of the higher components is simply ignored, as shown in the example below:



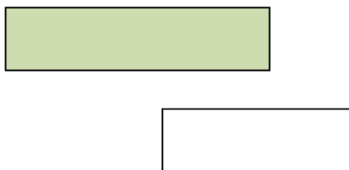
By default, this flag is set to false.

OnlyInWidthOfComponent

If the flag is set to true, it takes into account changes only to those components that have their left boundary less than the left border of the specified component, and the right border more than the left border of this component as in the examples below:



Or:



If this flag is disabled, the location of the left border of this component is ignored. For example:



By default this flag is disabled.

4.10 Barcodes

A barcode is an optical machine-readable representation of data typically made up of parallel bars, varying in width, spacing, or height, which are read by barcode readers. In some cases, a line of digits can be placed under a barcode, which represents in human-readable form the data contained in the barcode. There are different ways to encode information, called bar code encoding or symbolics. Linear and two-dimensional symbolics are distinguished.

1D Barcodes

Most commonly, barcodes represent their data in the widths and spacings of printed parallel lines and spacings between them. This is why they are called linear or 1D (one-dimensional) barcodes or symbolics. Linear barcodes are read in one direction (horizontally). The following linear barcodes are commonly used:

- EAN;
- UPC;
- Code39;
- Code128;
- Codabar;
- Interleaved 2 of 5.

Linear symbolics allow coding of small amounts of information content (a maximum of 20-30 digits or symbols, usually they are digits), and the devices that read them are considered to be simple scanners.

2D Barcodes

2D (two-dimensional) barcodes or symbolics are used for coding large amounts of information in a bar code, potentially up to several pages worth. They consist of square cells, dots, hexagons, and other geometrical figures, images, and they are called two-dimensional or **2D** matrix codes or symbolics. In spite of the absence of bar codes, they are bar codes too. Bar code scanners are required to read the barcodes which decode in two dimensions (horizontal and vertical) and allow you to quickly and accurately type a large amount of information. Such code is decoded in two measures (horizontally, vertically). The following 2D barcodes are the most common:

- **PDF417;**
- **Datamatrix.**

Setting Barcode Data

The Code property of the Barcode component is used to specify the code of the

barcode.

The screenshot shows a configuration panel for a 'Bar Code' component. It is organized into sections: '1. Bar Code' (expanded), '2. Bar Code Additional', '3. Position', '4. Appearance', '5. Behavior', and '6. Design'. Under '1. Bar Code', there is a 'Code' text box containing '1234567890123' and a 'Bar Code Type' dropdown menu. Below this are 'Horizontal Alignment' and 'Vertical Alignment' dropdown menus, both set to 'Left' and 'Top' respectively.

This property is an expression, so it can be defined as either a literal string or a code calculation that can generate the barcode based on the content of a data field or any other calculation that may be applicable. For example, the code below is set as a string:

1234567890123

The Code read from a data field:

{Items.Code}

Information

When using the expression in the **Code** property in the design mode, the expression will be displayed. When viewing the report, it will be replaced by the necessary value.

Using Barcode Components

When using the Barcode components, you should remember that changing the sizes of those components within the designer does not lead to a change in the printed or displayed size of the barcodes. All barcodes have to meet a specified standard, or it would not be possible to read their data. In many barcodes changing the size of

the code is either not allowed or has some limitations. For this reason, the size of a barcode is set using special properties. All these properties can be found in the Properties panel of the barcode. For example, in the picture below, the **Properties** panel of the EAN-128a barcode is shown. This particular barcode allows the user to set the **BarcodeHeight** and **BarCodeModules**.

▼ 1. Bar Code

Code 1234567890123

▼ Bar Code Type

1 EAN13

Height 1

Module 13

2 Show Quiet Zone ☒

Supplement Code

Supplement Type None

Horizontal Alignment Left

Vertical Alignment Top

- 1 The barcode type.
- 2 The barcode properties.

4.10.1 Barcode Editor

When you add the Barcode component in the report template, the bar code editor is called.

Information

If in the designer settings, the **Edit After Insert** option is disabled (unchecked), then you need to double-click the component to call the editor.

The Barcode editor consists of two tabs:

- The **Bar Code** tab. Select the bar code you need to use in the report. For example, the [QR Code](#):

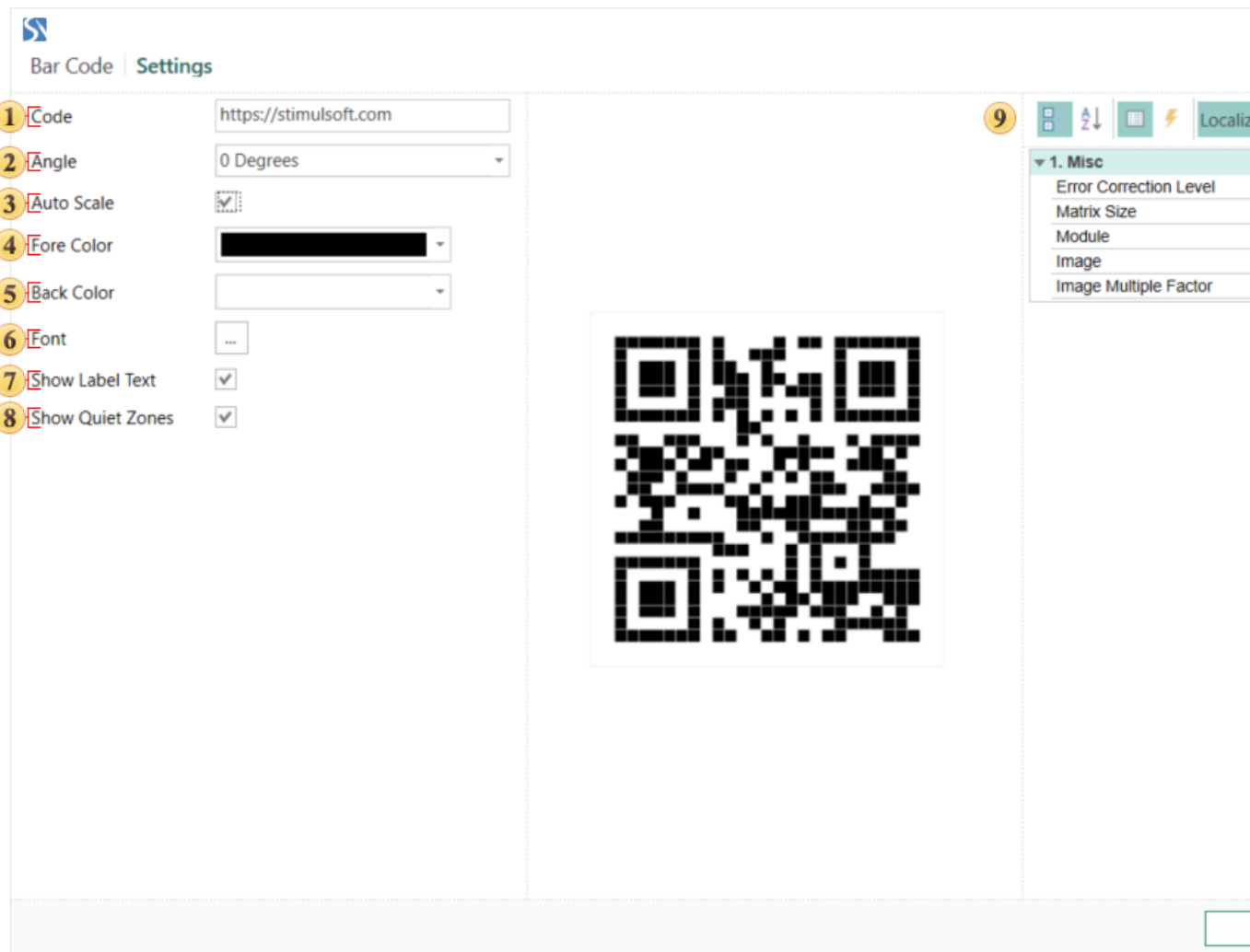


➤ Then you should go to the **Settings** tab, and set up the barcode. Set up the barcode. The tabs have three panels: barcode parameters, preview, barcode properties.

Information

In the web report designer, editing the barcode goes using the parameters and properties that are located on the properties panel. They are entirely identical to those described below. In the web report designer, you should select a component, go to the properties panel, and set the component settings. When you double-click the component, you will call a menu in which you need to specify values for the barcode (custom value, data column, variable, etc.).

Consider the barcode parameters in detail:



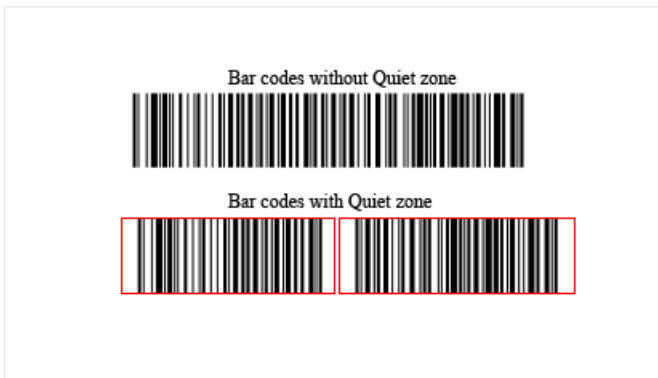
- ❶ The **Code** field. Specifies a value that bar code will have. For example, you can determine a custom value. For the QR Code, it may be some text and numeric value. Also in this field, you can specify an expression. Then, the result of this expression will be the value of the barcode.
- ❷ The **Angle** parameter. It provides an opportunity to rotate the graphical barcode information on 90, 180, and 270 degrees.
- ❸ The **Auto Scale** parameter. It provides the ability to determine the optimal scale of the bar code, taking into account the volume of information. You should know that the larger is the amount of information in a bar code, the more graphical elements are in it. So, if the bar code contains a large volume of data and, at the same time, you minimize the component size, the barcode reader could misread it. Therefore, the size of the component in the report should always be defined, taking into account the amount of information that the barcode contains.
- ❹ The **Fore Color** parameter specifies the color of the graphical elements in the

barcode

- 5 The **Back Color** parameter specifies the color of a background in the barcode.
- 6 The **Font** parameter specifies a type and style of the font for the barcode.
- 7 The **Show Label Text** parameter allows showing/hiding the label text of the barcode. This is applicable not for all barcodes but only for those who have a labels. The label shows the value of the barcode. For example, the picture below shows two Code128 barcodes - one with a label, the other without it.



- 8 The **Quiet zone** parameter. It provides the ability to display or hide a quiet zone of a barcode. The Quiet zone is an empty space on the left and right side of the barcode. It is a conditional border of the beginning and end of the barcode for barcode readers. One example of the use of the Quiet zone is the case when there are several barcodes. If the Quiet zone is disabled, then the barcodes can be misread. Below is an example of two barcodes with enabled and disabled Quiet zones.



- 9 The preview panel.
- 10 The Barcode property panel. Depending on the barcode type, the number of properties and their names may vary.

4.10.2 Barcode Size

Units

Mil (thousandth of an inch) is commonly used to express barcode density in the imperial measurement system. This is convenient, firstly because the values are

expressed as whole numbers, and secondly because barcode density can be more easily related to the resolution of printing devices, which is usually expressed in dots per inch (dpi). The dimensions of a barcode are very important for successful scanning. Each barcode type is defined using the following size parameters:

Module

Module parameter ("Module", sometimes referred to as the "X dimension") indicates the narrowest bar of a barcode. This parameter is connected with the printing resolution of a barcode and the barcode density. For example, if the narrowest bar is 10 mils it is said that the barcode is printed with 10 mil resolution or that the density of the barcode is 10 mil.

Density

There are two elements of density - the graphics density and information density of a barcode. A mil is used to specify the barcode density.

1 mil = 1/1000 inch

Information Density

The information density is the number of characters that can be encoded per inch given a certain X value. The smaller the value of X, the more characters can be encoded in an inch and, thus, the density rises. The information density of a barcode depends on the character encoding. The less the number of bars and spaces required to encode one symbol the higher the information density of the barcode.

Graphics Density

The graphics density of the barcode is connected with the barcode size. For example, for linear barcodes, the thinner the stroke, the higher the density (and therefore the less space the barcode takes). The classification of graphic linear barcodes is shown in the table below:

| Graphics density | Printing resolution |
|-------------------|---------------------|
| Very high density | < 4 mils |
| High density | 4 mils .. 6 mils |
| Medium density | 7 mils .. 13 mils |
| Low density | 14 mils .. 20 mils |
| Very low density | > 20 mils |

The above classification is approximate and depends on the type of barcode. For example, a PDF417 10 mils barcode may be considered a high-density barcode; however, a 10 mils line code can be recognized as a medium density barcode.

Information Density

The information density is the number of characters that can be encoded per inch given a certain X value. The smaller the value of X, the more characters can be encoded in an inch and, thus, the density rises. The information density of a barcode depends on the character encoding. The less the number of bars and spaces required to encode one symbol the higher the information density of the barcode.

Width

The barcode width depends on the graphic and information density. The density is limited by the resolution of the printer and scanner, but the barcode width depends on the information density of selected symbolic. With the same image density, the width of the barcode for different symbols may differ 2-3 times. The higher the print density of the barcode, the closer it should be to the scanner when reading. Therefore, for scanning from a long distance (for example, more than half a meter), the barcode must be of very low density, and accordingly the width of the barcode will be large.

Height

For linear barcodes, the vertical direction contains no information and the height of the code is determined only by the ease of scanning. A barcode that is too low is difficult for the scanner to read (it is difficult to aim the scanner so that its scan line intersects all the barcode lines). At the same time, too high a barcode height leads to an increase in the cost of labels (since the label is taller). Usually, for the majority of linear symbols, the ratio of proportions is considered the best, at which the height of the barcode is 15..20% of its width. Barcode height is also important for applications using multi-beam scanners. For example, symbols such as UPC and EAN are commonly used in trade and are often read by multi-beam scanners. For this reason, for such symbologies, the height of the barcode is made higher than recommended.

For 2D barcodes, the character height is determined by the selected print resolution, the amount of data to be encoded, and other barcode parameters.

Spaces

This is a very important attribute, especially for linear barcodes. Spacing is the light

areas at the start and the end of the barcode. They are required for the scanner to identify the barcode borders. It's much better if these areas will be the same color as the barcode background. For most two-dimensional matrix symbologies, the requirements for the presence of free zones are less stringent or absent. Most modern scanners contain more powerful controllers and "intelligent" decoding algorithms to read barcodes printed without blank areas.

4.10.3 Linear Barcodes

There are a great many linear barcode specifications available, including many that are based on the EAN/UPC specification.

4.10.3.1 EAN/UPC Barcodes

There are a lot of linear barcode specifications available, including many that are based on the EAN/UPC specification.

UPC

Initially, UCC developed a 12-digit ID and the **UPC** (Uniform Product Code) barcode. The first **UPC** code was scanned in 1974.

EAN

After successful implementation of the **UPC** system in 1977 the European Article Numbering Association format was created as a superset of the UCC system and uses 13-digit identification numbers but the same data structures as UPC barcodes.

Today global compatibility is reached by using the 14-digit GTIN format. This provides unique identification of goods all over the world.

In this section details of the **UPC-A, UPC-E, EAN-8, EAN-13, EAN-128, ITF-14** barcodes of "General EAN.UCC Specifications" and based on those the **JAN-8, JAN-13, ISBN-10, ISBN-13** barcodes are displayed.

4.10.3.1.1 What is EAN.UCC System?

EAN/UPC barcodes are based on the EAN.UCC system which was created in the USA in 1973 by the Uniform Product Code Council company, now known as Uniform Code Council, Inc. (UCC). First of all, the UCC developed a 12-digit identification number and its corresponding UPC (Uniform Product Code) barcode. The first UPC barcode in commerce was scanned in 1974. Following the success of the UPC system, the European Article Numbering Association, now known as EAN

International, was formed in 1977 to develop an interoperable system for use outside of North America. The EAN system was developed as a superset of the UCC system and uses 13-digit identification numbers, but the same data structures and barcodes. Thus, the EAN.UCC system has been expanded. Currently, full global compatibility is achieved through the use of the 14-digit GTIN format, which ensures the uniqueness of the trade identification number around the world.

This section discusses barcodes that are defined in the "General EAN.UCC Specifications" (**UPC-A**, **UPC-E**, **EAN-8**, **EAN-13**, **EAN-128**, **ITF-14**) and the barcodes based on them (**JAN-8**, **JAN-13**, **ISBN-10**, **ISBN-13**).

4.10.3.1.2 UPC-A

UPC-A was the first barcode, created by Uniform Code Council, Inc. in 1973. The **UPC-A** barcode is an unbroken code with a fixed length and high density. It is used for tracking trade items in stores, and otherwise marking goods. It is used primarily in trade, for labeling goods that will be sold through retail.

| | |
|-----------------------|-----------------------------|
| Valid symbols: | 0123456789 |
| Length: | fixed, 12 characters |
| Check digit: | one, modulo-10
algorithm |

Each barcode symbol consists of two bars and two spaces, which can be from one to four modules wide. In addition, the barcode contains three pairs of elongated strokes: the border marks on the left and right of the barcode and the center separator mark. For self-checking the barcode when encoding characters, two combinations of codes are used: the left part of the barcode (six characters) is encoded by the first combination with an odd number of dark units of strokes (odd parity); the right-hand side is coded by the second combination of codes with an even number of dark units of strokes (even parity). The check digit is calculated automatically regardless of the input data.

A barcode contains the following data:

- 1 digit - system number.
- 5 digits - manufacturer code.
- 5 digits - product code.
- 1 digit - check digit.

This way a barcode does not contain any information about characteristics of a

product, but only a unique number relating to an entry in the International data base where all information about the particular product is stored. An example barcode in **UPC-A** format:



UPC-A Barcode

Information

The 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "123456789012" is the number encoded in the barcode.

4.10.3.1.3 UPC-E

A **UPC-E** is a smaller seven digit UPC symbology for number system 0. For **UPC-E** barcodes, normally 6 digits are specified and the barcode calculates the seventh check digit. It can only be used to write a 12-digit identification code that starts with zero and contains a sequence of four or five zeros at specific positions (see General EAN.UCC Specifications for details). In accordance with the rules from the specification, a 12-digit code is converted into an 8-digit one, which is written into the barcode. In Stimulsoft Reports, this place is simplified - an 8-digit code must be submitted as data, and the check digit is not checked.

| | |
|-----------------------|-----------------------------|
| Valid symbols: | 0123456789 |
| Length: | fixed, 8 characters |
| Check digit: | one, modulo-10
algorithm |

Before the Middle guard bars, a binary 1 is indicated by a bar, while a 0 is indicated by a space. After the Middle guard bars, however, the patterns are optically inverted. In other words, a 1 is now indicated by a space, and a 0 is now indicated by a bar. It has the same basic structure as the **UPC-A** barcode.



A "UPC-E" barcode.

Information

The 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "1234567" is the number encoded in the barcode.

4.10.3.1.4 EAN-13

The **EAN-13** barcode was created based on the UPC-A barcode as an extension of the EAN.UCC system used outside the USA. EAN-13 is the European version of UPC-A. The EAN-13 is a high density, fixed length continuous code. It is used primarily in trade, for labeling goods that will be sold through retail.

| | |
|-----------------------|-----------------------------|
| Valid symbols: | 0123456789 |
| Length: | fixed, 13 characters |
| Check digit: | one, modulo-10
algorithm |

The structure of EAN-13 barcode is the same as UPC-A. Each barcode character consists of 2 bars and 2 spaces, which may have a width from 1 to 4 modules. The first digit is always placed outside the symbol, additionally the right quiet zone indicator (>) is used to indicate the Quiet Zones that are necessary for barcode scanners to work properly. In addition, the barcode contains three pairs of elongated strokes: the border marks on the left and right of the barcode and the center separator mark. Three combinations of codes are used to self-check the barcode when encoding characters: the left part of the barcode is encoded by the first and second combinations with variable parity, depending on the thirteenth digit; the right part is coded by the third combination with even parity. The check digit is calculated automatically regardless of the input data.

The barcode contains the following data:

- ✓ 2 (3) digits - country code.
- ✓ 5 (4) digits - manufacturer code.
- ✓ 5 digits - product code.
- ✓ 1 digit - check digit.

This way a barcode does not contain any information about characteristics of a product, but only a unique number relating to an entry in the International data base where all information about the particular product is stored. An example barcode in EAN-13 format:



An "EAN-13" barcode.

Information

The 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "123456789012" is the number encoded in the barcode.

4.10.3.1.5 EAN-8

The **EAN-8** barcode was developed for use on small packages. It is used in the place of the EAN-13 barcode if the nominal size EAN-13 barcode covers more than 25% of the printed surface of the package, for example, on the packets of gum.

| | |
|-----------------------|-----------------------------|
| Valid symbols: | 0123456789 |
| Length: | fixed, 8 characters |
| Check digit: | one, modulo-10
algorithm |

The structure of the **EAN-8** barcode is in the same as the structure of the **EAN-13** barcode. The check digit is calculated automatically irrespective of input data.

The barcode contains the following data:

- ✓ 3 digits - a prefix of the national organization.
- ✓ 4 digits - product code.
- ✓ 1 digit - check digit.

This barcode does not contain the code of the producer and has only 4 digits. As a result there can only be 10000 specimen products per organization, so the **EAN-8** barcode is provided only to those organizations which really need it.



An "EAN-8" barcode.

Information

The 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "12345670" is the number encoded in the barcode.

4.10.3.1.6 Add-On Symbols

Add-on Symbols (barcodes) can be used in some applications together with the EAN-13, UPC-A, and UPC-E barcodes. Add-on Symbols may contain 2 or 5 additional digits and are usually placed to the right of the main barcode.

| | |
|-----------------------|--------------------------|
| Valid symbols: | 0123456789 |
| Length: | fixed, 2 or 5 characters |
| Check digit: | no |

Additional characters contain a left margin character and barcode characters separated by a delineator character. Additional characters do not contain the right margin character and check digit. For self-checking of the barcode, the numbers are encoded with variable parity according to special rules.



The "UPC-E" barcode with the "02" Add-On Symbols



The "EAN-13" barcode with the "00321" Add-on Symbols

4.10.3.1.7 EAN-128

The **EAN-128** barcode is a subset of the Code128 barcode. It is a variable length, continuous bidirectional checkable code. It can display 128 ASCII characters and is especially efficient for numbers. Information can be encoded using three character sets, but four types of barcodes are distinguished: EAN-128a, EAN-128b, EAN-128c and EAN-128auto (automatically switches between barcodes **EAN-128a**, **EAN-128b**, **EAN- 128c** for encoding ASCII values). A distinctive feature of the "c" character set is the ability to encode one hundred pairs of numbers, which makes it possible to double the recording density when encoding digital data.

Valid symbols:

EAN128a: ASCII character 0
to 95

EAN128b: ASCII character 32
to 127

EAN128c: pairs of digits
from 00 to 99

Length:

Variable

Check digit:

one, modulo-103 algorithm

The structure of the **EAN-128** barcode is the same as for the **Code128** barcode. Elements of the barcode consist of three bars and three spaces. Bars and spaces

have module construction and their width consists of either one or four modules. The width of an element consists of eleven modules. An exception is the Stop sign, which consists of thirteen modules and has four dashes and three spaces. The check digit is calculated automatically and is not shown in the barcode signature.

To differ the **EAN-128** barcode and the **Code128** barcode is that the FNC1 should be placed after the start character. This character is reserved for the EAN.UCC system.



An "EAN-128c" barcode.

Information

The 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "0123456789012345" is the number encoded in the barcode.

4.10.3.1.8 ITF-14

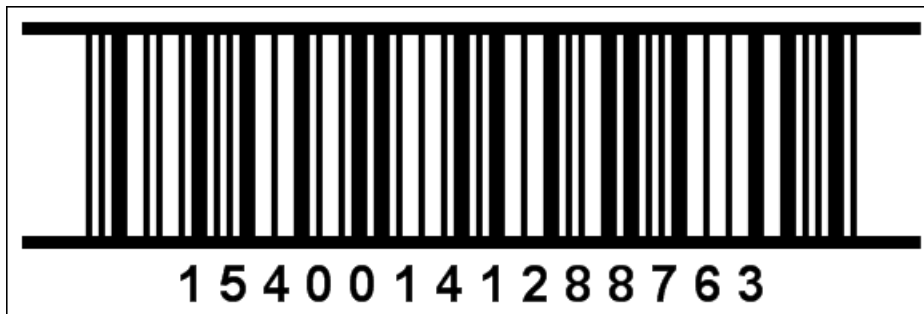
The **ITF-14** barcode was developed to encode a Global Trade Item Number. In comparison with the EAN/UPC barcodes, the ITF barcode has the nominal size of (152*44mm) and lower requirements for the printing surface. Therefore, it can be printed not only on a label but directly onto a packing carton.

| | |
|-----------------------|-----------------------------|
| Valid symbols: | 0123456789 |
| Length: | fixed, 14 characters |
| Check digit: | one, modulo-10
algorithm |

Each barcode character is encoded with the help of two broad and three narrow bars/spaces. The ITF-14 will always encode 14 digits. Barcode characters are encoded in pairs of two, respectively, the first character of the pair is encoded with bars, and the second character of the pair is encoded with spaces. Hence the name of the barcode "2 of 5 alternating".

The barcode contains the following data:

- ✓ 1 digit - logic.
- ✓ 3 digits - Global Trade prefix.
- ✓ 6 digits - Producer code.
- ✓ 3 digits - Product code.
- ✓ 1 digit - Check digit.



An "ITF-14" barcode.

Information

The 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "15400141288763" is the number encoded in the barcode.

4.10.3.1.9 JAN-13

A **JAN-13** barcode is another name for an EAN-13 barcode dedicated for use only in Japan. The first two digits should be 45 or 49 which indicate Japan.



A "JAN-13" barcode.

Information

The 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "4901234567894" is the number encoded in the barcode.

4.10.3.1.10 JAN-8

A **JAN-8** barcode is another name for an EAN-8 barcode dedicated for use only in Japan. The first two digits of the barcode should be 45 or 49 to indicate Japan.



A "JAN-8" barcode.

Information

The 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "49123456" is a number encoded in the barcode.

4.10.3.1.11 ISBN-10

ISBN stands for International Standard Book Number, i.e. International Standard Book Number. **ISBN** is a unique, machine-readable identification number that uniquely identifies a book. The book number began to be used from 1966, first as a 9-digit book code (SBN) published in Britain, and from 1970 it was extended to 10 digits and became international.

| | |
|-----------------------|--------------------------|
| Valid symbols: | 0123456789 |
| Length: | Not variable, 10 symbols |
| Check digit: | One |

The **ISBN**, assigned to books until 2006 contained 10 digits length and consist of four fields of variable length:

- ✓ For a 13 digit ISBN, a GS1 prefix: 978 or 979.

- ✓ The group identifier, (language-sharing country group).
- ✓ The publisher code.
- ✓ The item number.
- ✓ A checksum character or check digit.



An "ISBN-10" barcode.

Information

The 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "80-902734-1-6" is the number encoded in the barcode.

4.10.3.1.12 ISBN-13

On January 1, 2007, a new **ISBN** standard came into force, adding a fifth group of digits and once again extending the number, now to 13 digits. The change was required in order for the ISBN to be directly used as a standard product barcode. For this, the digits 978 or 979 were added to the beginning of the ISBN, and the checksum calculation algorithm was changed. All previously assigned ISBNs are unambiguously converted to new ones (978 + first 9 digits of the old ISBN + check digit calculated according to EAN-13).

| | |
|-----------------------|-----------------------------|
| Valid symbols: | 0123456789 |
| Length: | fixed, 13 symbols |
| Check digit: | one, algorithm
modulo-10 |

The **ISBN** assigned to books after 2006 contained 13 digits length and consist of four fields of variable length:

- ✓ prefix: 978 or 979.
- ✓ The group identifier, (language-sharing country group).

- ✓ The publisher code.
- ✓ The item number.
- ✓ A checksum character or check digit.



A "ISBN-13" barcode.

Information

The 'human readable' digits at the foot which can be used by operators if the label becomes damaged or will not scan for some reason - "978-0-306-40615-7" is a number encoded in the barcode.

4.10.3.2 Other Barcodes

4.10.3.2.1 Pharmacode

A **Pharmacode** barcode is used in the pharmaceutical industry as a packing control system. The Pharmacode barcode is most commonly found on the packaging of pharmaceutical products, usually on the hinged lid of the box.

Valid symbols: A whole number from 3 to 131070
Length: Variable, 1..6 characters of a digit
Check digit: No

A **Pharmacode** barcode can represent only a single integer from 3 to 131070. All digits in the specified range make correct barcodes, but some of these barcodes can be unreadable because all barcodes are identical. So, the following digits should not be used:

3, 6, 7, 14, 15, 30, 31, 62, 63, 126, 127, 254, 255, 510, 511, 1022, 1023, 2046, 2047, 4094, 4095, 8190, 8191, 16382, 16383, 32766, 32767, 65534, 65535, and 131070.



A "Pharmacode" barcode. "12345" is a number encoded in the barcode.

4.10.3.2.2 Plessey

A **Plessey** barcode was created by **Plessey** company in England on March 1971 with formal specification. The Plessey barcode was widely used in libraries, supermarkets, and production environments. A variant of the barcode known as Anker Code and appropriate scanners were provided by the ADS company.

Encoding technology of the **Plessey** barcode was used by MSE Data Corporation. This company used it to create an MSI barcode that sometimes is called 'modified Plessey'.

This barcode is now obsolete and new scanners cannot read it.

| | |
|-----------------------|----------------------------------|
| Valid symbols: | 0123456789ABCDEF |
| Length: | Variable |
| | No, one or two; |
| Check digit: | Algorithm modulo-10 or modulo-11 |

Plessey is a variable length, numeric-only symbology. It allows you to output digits 0..9 and letters A, B, C, D, E, F but more frequently only digits are used. Check digits calculated using the modulo-10 or modulo-11 algorithm can be used. Each character of the barcode consists of 4 elements. An element consists of a bar and a space and has 3 modules width. If the element is the binary 0 then the barcode has 1 module width and a space has 2 modules. If the element is the binary 1 the bar has 2 module width and a space has 1 module. So, each character has 12 modules length. Therefore, this barcode has very low data density.



A "Plessey" barcode. "1234567890" is a number encoded in the barcode.

4.10.3.2.3 Msi

The **Msi** barcode was developed by the MSI Data Corporation. It is based on the original Plessey symbology. That's why sometimes the **Msi** barcode is called the **Modified Plessey**. The basic implementation of the **Msi** barcode is used for warehouse shelves and inventory.

| | |
|-----------------------|-------------------------------------|
| Valid symbols: | 0123456789 |
| Length: | Variable |
| | none, one or two; |
| Check digit: | algorithm modulo-10 or
modulo-11 |

Msi is a variable length continuous code and allows you to display digits 0..9. One or two check digits calculated by the modulo-10 or modulo-11 algorithm can be used for control. Each barcode symbol has four elements. An element consists of a stroke and a gap and is 3 units wide. If an element represents binary 0, then the stroke has a width of 1 module, the gap is 2 modules. If an element represents binary 1, on the contrary, the stroke has a width of 2 modules, the gap is 1 module. Thus, each character is 12 modules wide. Therefore, this barcode has a very low data density.



A "Msi" barcode. "1234567890" is a number encoded in the barcode.

4.10.3.2.4 2of5

The **2of5** barcode was developed 40 years ago. This is a low density variable length numeric. This barcode is used in manufacture and is known as Code 25, Code 25 Standard or Code 25 Industrial. It is very seldom used these days.

| | |
|-----------------------|------------|
| Valid symbols: | 0123456789 |
| Length: | Variable |

Check digit: no



A "2of5 Standard" barcode. "1234567890" is a number encoded in the barcode.

The 2of5 Interleaved barcode is a high density variable length barcode developed from the 2of5 Standard barcode. It is used in many fields to encode digital data and is the international standard code for the marking and packaging of shipping units.

Valid symbols: 0123456789
Length: Variable, even
Check digit: No

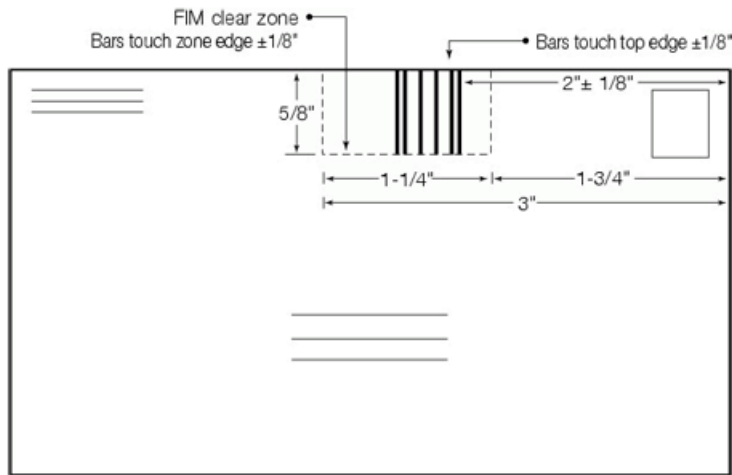
Characters are coded in pairs. The first character of a pair is encoded with the width of the strokes, the second character of the pair is encoded with the width of the spaces that separate these strokes. Therefore, the barcode is called interleaved and has a higher density than 2of5 Standard. If the number of characters is odd, "0" is automatically added in front.



A "2of5 Interleaved" barcode. "1234567890" is a number encoded in the barcode.

4.10.3.2.5 FIM

Facing Identification Mark (**FIM**) is a type of postal bar code developed and used in automated mail processing by the U.S. Postal Service. FIM is a set of vertical bars. FIM patterns are placed in the upper right corner along the top edge and two inches in from the right edge of letters and cards, to the left of the location of a postage stamp or equivalent. FIM is intended for usage primarily on branded envelopes and postcards and is used by the envelope or postcard company and not by the Postal Service.



The FIM barcode on a card

The table below shows basic parameters of the **FIM** barcode.

| | |
|-----------------------|-----------------|
| Valid symbols: | ABCD |
| Length: | Fixed, 1 symbol |
| Check digit: | No |

The **FIM** barcode consists of nine elements. Each element can be 1 (vertical bar) or 0 (space). Four barcodes are used:

FIM A: 110010011
 FIM B: 101101101
 FIM C: 110101011
 FIM D: 111010111

So the data row should contain 1 of 4 available characters: A, B, C, D.



A "FIM C" barcode

4.10.3.2.6 Codabar

The **Codabar** is a simple linear barcode symbology developed in 1972. It can be called NW-7, USD-4, Code 2 of 7 (2 values of a bar length, 7 elements). It is frequently used in medicine (for example, blood bank forms).

Valid symbols:

0123456789 - \$: / . +

ABCD (only as start/stop symbols)

Length:

Variable

Check digit:

no

Four bars and three spaces are used for encoding. The characters are separated by a space the width of which is a narrow stroke. The barcode has four different sets of start/stop characters: A, B, C, D. These characters are used only as start/stop characters and should not appear in the barcode.



A "Codabar" barcode. "A12345678A" is a number encoded in the barcode.

4.10.3.2.7 Postnet

The **POSTNET** (POSTal Numeric Encoding Technique) barcode was developed by the United States Postal Service to encode ZIP-codes in letters for quick and reliable sorting with the help of the BCSs. It can encode ZIP, ZIP+4, and ZIP+4+2 postal codes.

Valid symbols:

0123456789

Length:

Fixed, 5, 9 or 11 characters

Check digit:

One, algorithm modulo-10

The Postnet barcode can encode 0-9 digits. The barcode consists of short and long bars. Each symbol of data is encoded using five bars. This barcode always contains only one check symbol, that is calculated by the modulo-10 algorithm.



A "Postnet" barcode. "11387975204" is a number encoded in the barcode.

4.10.3.2.8 Australia Post 4-state

The **Australia Post 4-State** barcode is used in Australia for the purposes of sorting and directing letters.

| | |
|-----------------------|-----------------------------|
| Valid symbols: | 0123456789 |
| | FCC - fixed, 2 characters, |
| Length: | DPID - fixed, 8 characters, |
| | CustomerInfo variable |
| Check digit: | Four, ReedSolomon algorithm |

The barcode consists of 4 elements (4 conditions), each has its own name, value and display. Each element consists of two bars and two spaces. Each barcode contains 4 check symbols, calculated by the ReedSolomon algorithm. The value of these symbols is usually printed after the text of the barcode.

The string may contain the following parts:

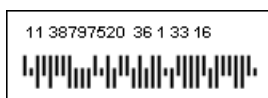
- ✓ FCC ("Format Control Code"), 2 digits. May have the following values 11, 45, 87, 92, 59, 62, 44.
- ✓ DPID ("Delivery Point Identifier" or "Sorting Code"), 8 digits.
- ✓ CustomerInfo may contain 0-9, A-Z, a-z, # symbols and space. The maximal length depends on FCC:

Notes:

If FCC = 11, 45, 87, 92 then the CustomerInfo is ignored.

If FCC = 59 then the CustomerInfo may contain 8 digits or 5 letters/digits.

If FCC = 62, 44 then the CustomerInfo may contain 15 digits or 10 letters/digits.



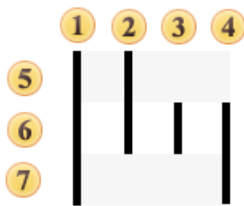
A "Australia Post 4-state" barcode. "1138797520" is a number encoded in the barcode.

4.10.3.2.9 Royal TPG Post KIX 4-State

This symbology is used by Royal Dutch TPG Post (Netherlands) for Postal code and automatic mail sorting. It provides information about the address of the receiver. This symbology encodes alpha-numeric characters (0-9, A-Z). The barcode is also known as Royal TNT Post Kix, Dutch KIX 4-State Barcode, Kix Barcode, TPG KIX, Klantenindex Barcode, TPGPOST KIX.

| | |
|-----------------------|---|
| Valid symbols: | 0123456789
ABCDEFGHIJKLMNOPQRSTUVWXYZ
VWXYZ |
| Length: | Variable |
| Check digit: | none |

The barcode consists of four types of bars and divided into 3 regions: ascender, tracker and descender. The Barcode structure is shown in the picture below:



- 1 Full bar;
- 2 Ascender;
- 3 Tracker;
- 4 Descender;
- 5 Ascending Region;
- 6 Tracking Region;
- 7 Descending Region.



A Royal TPG Post KIX 4-State Barcode. "1234567890123" is a number encoded in the barcode.

4.10.3.2.10 Royal Mail 4-state

The **Royal Mail 4-state** barcode is used for the automated mail sorting process. Encoding is carried out in alphanumeric format (0-9, A-Z). There are 38 valid characters in the entire character set:

| | |
|-----------------------|---|
| Valid symbols: | numeric characters 0-9;
alpha characters A-Z |
| Length: | Variable |
| Check digit: | none |

A barcode consists of four bars and divided into 3 regions, two of them are ascenders and two descenders. The tracking region is present in all bars. The picture below shows the structure of the **Royal Mail 4-state** barcode:



- 1 Ascending Region;
- 2 Tracking Region;
- 3 Descending Region.



A Royal Mail 4-state Barcode. "1234567890123" is a number encoded in the barcode.

4.10.3.2.11 Code11

The **Code 11** barcode was developed by **Intermec** in 1977. It is used in telecommunications.

| | |
|-----------------------|-----------------------------------|
| Valid symbols: | 0123456789 - |
| Length: | Variable |
| Check digit: | None, one or
two;
modulo-10 |

algorithm

This barcode has high density and can encode any length string consisting of the digits 0-9 and the dash character. The **Code 11** uses one or two check digits and two check symbols. Usually, if the length of the string is less than 10 symbols then only one check symbol is used. If the length of the string is 10 symbols and more then 2 check symbols are used. The value of the check symbol is calculated by the modulo-10 algorithm.



A "Code 11" barcode. "12345-6789" is a number encoded in the barcode.

4.10.3.2.12 Code39

Code 39 is a variable length symbology that can encode 44 characters. Code 39 is the most popular symbology in the non-retail world and is used extensively in manufacturing, military, and medicine applications. In addition, this code is used by most car manufacturers as a code to mark a car model and its parts.

| | |
|-----------------------|------------------------------|
| | 0123456789 |
| | ABCDEFGHIJKLMNQRSTU |
| | VWXYZ |
| | -.\$/+ % space |
| Valid symbols: | |
| | Variable |
| Length: | No, according to the |
| | specification; |
| Check digit: | In practice - one, modulo-43 |
| | algorithm |

The **Code 39** barcode can encode capital letters (A to Z), numbers (0 to 9) and a group of special characters. Each Code 39 bar code has a start/stop character represented by an asterisk (*). The barcode code does not contain the check character but can be added programmatically. Each character starts and stops with a 'dark bar' that consists of 5 dark and 4 bright bars. The ratio between narrow and wide bars may range from 2.2:1 to 3:1.

Perhaps the main disadvantage of the **Code 39** barcode is its low data density. It requires more free space than **Code 128**, but the **Code 39** barcode is still widely used and can be identified by any barcode scanner.



A "Code 39" barcode. "ABC-123" is a number encoded in the barcode.

Code 39 extended is the version of the **Code 39** barcode which also supports the ASCII set of characters. The 0-9, A-Z, "." and "-" characters are encoded the same as the **Code 39** barcode. Small Latin letters, additional punctuation, and control characters are represented as sequences of two **Code 39** characters.



A "Code 39 extended" barcode. "Abc+" is a number encoded in the barcode.

Information

Barcode scanners cannot differentiate between the Code 39 and the Code 39 extended barcodes. It is necessary to select the correct barcode either by setting a property on the scanner or programmatically.

4.10.3.2.13 Code93

The **Code 93** is a variable length symbology that can encode the complete 128 ASCII character set. This barcode was developed as an enhanced version of the Code 39 barcode. It has a higher density than either the Code 39 or the Code 128 barcode.

Valid symbols:

0123456789
ABCDEFGHIJKLMNQRSTU
VWXYZ

| | |
|---------------------|--------------------------|
| | -.\$/+% space |
| Length: | Variable |
| Check digit: | Two, algorithm modulo-47 |

The Code 93 barcode may encode Latin letters (from A to Z), digits (from 0 to 9) and a group of special characters. The barcode always contains two check characters. Each characters consist of nine modules which are joined in 3 groups (hence the name - Code 93). Each group has one black bar and one white bar.



A "Code 93" barcode. "ABC-123" is a number encoded in the barcode.

Code 93 extended is a version of the **Code 93** barcode that supports a set of ASCII characters. All additional symbols are encoded as a sequence of two **Code 93** characters. The first character is always one of four special characters. Therefore, scanners can always identify the different versions of the barcode.



A "Code 93 extended" barcode. "Abc+" is a number encoded in the barcode.

4.10.3.2.14 Code128

The **Code128** barcode was developed in 1981. It is a variable length, high density, alphanumeric symbology. It allows to display the 128 characters of ASCII and it is effective for digits. Information can be encoded using three sets of symbols, respectively, four types of bar codes are distinguished: **Code128a**, **Code128b**, **Code128c**, and **Code128auto** (automatically switches between **Code128a**, **Code128b**, **Code128c** barcodes to encode ASCII values). A distinctive feature of the "c" character set is the ability to encode one hundred pairs of numbers, which allows twice the recording density when encoding digital data.

| | |
|-----------------------|-----------------------------|
| Valid symbols: | Code128a: ASCII character 0 |
|-----------------------|-----------------------------|

| | |
|---------------------|---------------------------|
| | to 95 |
| | Code128b: ASCII character |
| | 32 to 127 |
| | Code128c: pairs of digits |
| | from 00 to 99 |
| Length: | Variable |
| Check digit: | One, algorithm modulo-103 |

The barcode elements consist of three bars and three spaces. Bars and spaces have module construction and their width consist of one or four modules. The width of an element consist of eleven modules. The "Stop" sign, which consists of 13 modules and has four bars and three spaces. The check sum is calculated automatically and is not shown in the barcode signature.



A "Code128c" barcode. "0123456789012345" is a number encoded in the barcode.

4.10.3.3 Barcode Comparison Table

The table below shows the list of linear barcodes supported by Stimulsoft Reports.

| Type | Length | Check symbols | Checksum algorithm | 0-9 | A-Z | a-z | other symbols |
|----------|--------|---------------|--------------------|-----|-----|---------|---------------|
| UPC-A | 12 | 1 | modulo-10 | + | | | |
| UPC-E | 8 | 1 | modulo-10 | + | | | |
| EAN-13 | 13 | 1 | modulo-10 | + | | | |
| EAN-8 | 8 | 1 | modulo-10 | + | | | |
| EAN-128a | var | 1 | modulo- | + | + | ASCII 0 | |

| | | | | | | | |
|------------------|----------|--------|--------------|---------------|----------------|-------|-----------------|
| | | | 103 | | | to 95 | |
| EAN-128b | var | 1 | modulo-103 | + | + | + | ASCII 32 to 127 |
| EAN-128c | var | 1 | modulo-103 | + | | | |
| ITF-14 | 14 | 1 | modulo-10 | + | | | |
| JAN-13 | 13 | 1 | modulo-10 | + | | | |
| JAN-8 | 8 | 1 | modulo-10 | + | | | |
| ISBN-10 | 10 | 1 | modulo-10 | + | | | |
| ISBN-13 | 13 | 1 | modulo-10 | + | | | |
| Pharmacode | 1..6 | - | - | int 3..131070 | | | |
| Plessey | var | 0-2 | modulo-10/11 | + | A B C D
E F | | |
| Msi | var | 0-2 | modulo-10/11 | + | | | |
| 2of5 Standard | var | - | - | + | | | |
| 2of5 Interleaved | var | - | - | + | | | |
| FIM | 1 | - | - | A B C D | | | |
| Codabar | var | - | - | + | - \$: / . + | | |
| Postnet | 5, 9, 11 | 1 | modulo-10 | + | | | |
| Australia Post | 10[+var] | 4 | ReedSolomon | + | | | |
| Code 11 | var | 0-2, A | modulo- | + | - | | |

| | | | | | | | |
|-------------|-----|-----|------------|---|---|-----------------------|-----------------|
| | | | 11 | | | | |
| Code 39 | var | 0-1 | modulo-43 | + | + | - . \$ / +
% space | |
| Code 39 ext | var | 0-1 | modulo-43 | + | + | + | full ASCII |
| Code 93 | var | 2 | modulo-47 | + | + | -.\$/+
% space | |
| Code 93 ext | var | 2 | modulo-47 | + | + | + | full ASCII |
| Code128a | var | 1 | modulo-103 | + | + | ASCII 0 to 95 | |
| Code128b | var | 1 | modulo-103 | + | + | + | ASCII 32 to 127 |
| Code128c | var | 1 | modulo-103 | + | | | |

Explanation:

- ✓ "Length" - is the data length, it is the number of characters, which can the barcode can encode; "var" means the variable length.
- ✓ "Check symbols" - possible number of check digits; "A" means that number of check digits can be chosen automatically.
- ✓ "Checksum algorithm" - the algorithm for calculating check digits. The information is provided for general information only.
- ✓ "0-9", "A-Z", "a-z" - ranges of symbols; + means that the barcode can encode characters of this range.
- ✓ "other symbols" - this column indicates other characters that can be encoded by the barcode, and which are not included in the previous three ranges.

Barcode Sizes

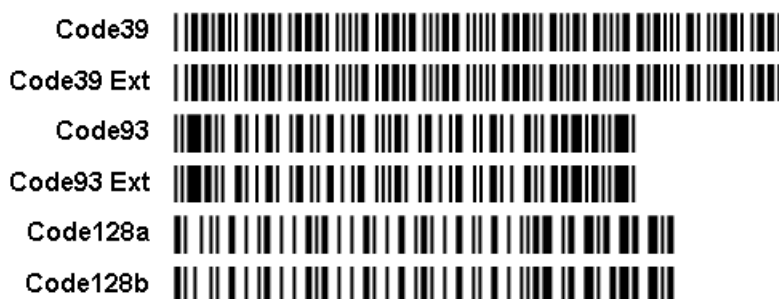
Below is a comparison of barcodes of variable length, which can encode the numbers from 0 to 9. All barcodes have the same input data - the row of numbers "0123456789" ("ABCDEFGHJK"), and the same module 20, other parameters set by default.



The image shows: if you need to select a barcode with the minimum size, then when encoding only numbers, 2of5Interleaved and Code128 barcodes are more suitable.

Coding English Uppercase Letters

Below is a comparison of the barcodes of variable length which can encode uppercase English letters. All barcodes have the same input data - the row has "ABCDEFGHIJK", and the same module 20, other parameters set by default. The image shows: if you need to select a barcode with the minimum size, then when encoding numbers and capital English letters, Code 93 and Code128a / Code128b barcodes are more suitable.



Coding English Lowercase Letters

Below is a comparison of the barcodes of variable length, which can encode lowercase English letters. All barcodes have the same input data - the row has "abcdefghijk", and the same module 20, other parameters set by default.



The image shows: if you need to select a barcode with the minimum size, then when encoding numbers and upper and lower English letters, the Code128b barcode is more suitable.

4.10.4 2D Barcodes

For many years, barcodes have been used as machine-readable identifiers for items. The main idea of the specialists was as follows: each label contains a unique serial number, encoded in the form of black and white stripes; this number serves as a key to the database, which contains detailed information. But many users needed to encode more information. They needed a barcode to act as a portable database, not a key to it.

The idea of creating a portable database began in 1984 when the Automotive Industry Action Group (AIAG) published a standard for marking goods and parts containing four "stacked" Code 39. These codes contained the part number (identifier), quantity, sender, and serial number. The first truly two-dimensional code was introduced by Intermec Corporation in 1988 when Code 49 was announced.

Today, several names are used to describe this new class of symbology: Bidirectional code (or two-dimensional - Two-dimensional code) or 2-D code. The names stacked symbology or multi-row code more closely reflect the nature of a series of linear (unidirectional) barcodes. The data is encoded as multiple lines of dashes and spaces of variable width. The name matrix code (matrix code) is used to refer to two-dimensional codes based on the arrangement of black spots (elements) within the matrix. Each black element is sized and the position of the element encodes the data.

A common barcode has "vertical redundancy", which means that the same information is repeated vertically. This allows the barcode to remain readable despite print defects. The height of the strokes can be reduced without loss of information. The two-dimensional code contains information both horizontally and vertically, and there is no vertical redundancy. To prevent errors in readability and speed of reading two-dimensional codes, special checksums are used to check the reliability of the information entered.

Many different 2D barcode symbols have been developed today. Stimulsoft Reports implements two of the most popular codes: **PDF417**, **Datamatrix**, **QR Code**.

4.10.4.1 PDF417

The **PDF417** barcode was developed by Symbol Technologies in 1991. The name of the barcode consists of 2 parts. The PDF comes from Portable Data File. The 417 number comes from the structure of the barcode: each barcode character consists of 17 modules, each of which consists of 4 bars and 1 space.

PDF417 is a high density 2 dimensional bar code symbology that consists of a stacked set of smaller bar codes. Any ASCII characters can be encoded in this barcode. The length of data depends on the encoding mode and can reach 1100 bytes, or 1800 text characters, or 2600 digits (although in practice many scanners do not read more than a thousand characters). Due to the long data length, all necessary information can be stored directly in the barcode, which is why it is called "Portable Data File".

The barcode contains from 3 to 90 rows each of which is like a small linear bar code. Each row has:

- A quiet zone.
- A start pattern which identifies the type of symbol as PDF417.
- A "row left" codeword containing information about the row.
- A "row right" codeword with more information about the row.
- A stop pattern.
- A quiet zone.

The string consists of elementary barcode symbols - patterns. Each line contains 4 service patterns (2 on the left and 2 on the right) and data patterns (from 1 to 30). Each pattern consists of 4 strokes and 4 spaces, with a total width of 17 modules. The pattern can take values from 0 to 928, which are called "codewords" in the specification.

The barcode may have any number of rows and columns (patterns in the data row), although the total number of patterns should not be greater than 928. The number of rows and columns can be set using the `DataRows` and `DataColumns` properties. If the `AutoDataRows` and `AutoDataColumns` properties are set to false, then the barcode size will be fixed. If one of these properties is set to true, then the barcode size can be increased and decreased in this direction depending on data. If both of

these properties are set to true, then the size of the barcode is set automatically, considering the "AspectRatio" parameters (the ratio of the barcode width to the barcode height) and RatioY (the height of the code word in modules, from 2 to 5).

It is possible to select one of three modes of data encoding depending on the type of encoded information. Each mode allows to encode has its own set of characters and its own rate of compression.

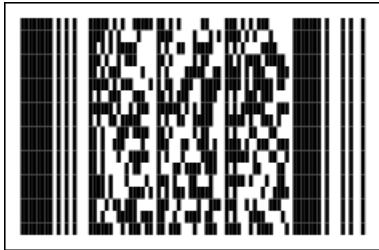
| Encoding mode | Valid symbols | Compression |
|---------------|------------------------|-----------------------|
| Byte | ASCII 0 to 255 | 1,2 bytes per word |
| Text | ASCII 9,10,13 & 32-127 | 2 characters per word |
| Numeric | 0123456789 | 2,9 digits per word |

The barcode contains the codes of error correction: even if the barcode is damaged, it will be read. There are 9 levels of error correction from 0 (low) to 8 (high) shown in the table below:

| Level of Error Correction | Number of Codewords |
|---------------------------|---------------------|
| 0 | 2 |
| 1 | 4 |
| 2 | 8 |
| 3 | 16 |
| 4 | 32 |
| 5 | 64 |
| 6 | 128 |
| 7 | 256 |
| 8 | 512 |

The higher the error correction level, the more correction codes are added to the barcode. The number of correction codes does not depend on the amount of data. Therefore, with a small amount of data, it is not recommended to set large levels of error correction (the number of correction codes will be ten times greater than the

amount of data, i.e., too redundant). To set the level of correction the **ErrorsCorrectionLevel** property can be used. This property can be set to "Auto", in which case the level will be set automatically.



A "PDF417" barcode.

4.10.4.2 Datamatrix

The **DataMatrix** barcode was created by the CiMatrix company to accommodate large amounts of information in a limited surface area. The allowed length depends on the selected barcode size (number of rows and columns). The physical dimensions of a barcode can vary widely: the barcode modulus value can vary from 1 mil to 14 inches (14,000 mil). The most popular applications for the Datamatrix are marking small items such as electronic components and printed circuit boards of electronic devices. Every **DataMatrix** is composed of two solid adjacent borders in an "L" shape (called the "finder pattern") and two other borders consisting of alternating dark and light "cells" or modules (called the "timing pattern"). Symbol sizes vary from 8×8 to 144×144. The **DataMatrix** is used to mark small products.

For compatibility of the **DataMatrix barcode with GS1**, you should do the following:

- Set the **Process Tilde** property to **true**;
- Add the prefix **~FNC1** in the **Code** field. For example, the expression will be like this: **~FNC1{your_datasource.field_name}**.

Data Matrix symbols are rectangular in shape and usually square, they are made of cells: little elements that represent individual bits.

The barcode contains error correction codes so the barcode can be read even if it is partially damaged. There are two main versions of this barcode: the first version is called ECC-000 or ECC-140. The second version is described as ECC-200 version, and uses the Reed-Solomon method for error correction. In Stimulsoft Reports the second version of this barcode is used. Only the second version of the barcode is implemented in Stimulsoft Reports, further description is given only for this version.

The barcode contains error correction codes: even if the barcode is partially damaged, it can still be read. There are two main versions of this barcode. The first uses convolutional coding for error correction; these are the first versions of the Datamatrix code, these versions are described as ECC-000.. ECC-140. The second version of the barcode is described as ECC-200, uses Reed-Solomon error correction, and always contains an even number of elements on each side. Only the second version of the barcode is implemented in Stimulsoft Reports, further description is given only for this version. The barcode consists of black and white square elements, which are joined into square or rectangular regions. Each region has rulers that appear as a solid line along one edge of the symbol (left and bottom) and evenly spaced squares along the other edge (top and right). These rulers are used to determine the orientation and density of the code. If the data does not fit into one region, then several regions are used, which are added vertically and horizontally. Total barcode size can be from 8×8 to 144×144. All available combinations of sizes is shown on the table below:

| Barcode size | Length, bites | Barcode size | Length, bites |
|--------------|---------------|--------------|---------------|
| 10 × 10 | 3 | 32 × 32 | 62 |
| 12 × 12 | 5 | 36 × 36 | 86 |
| 8 × 18 | 5 | 40 × 40 | 114 |
| 14 × 14 | 8 | 44 × 44 | 144 |
| 8 × 32 | 10 | 48 × 48 | 174 |
| 16 × 16 | 12 | 52 × 52 | 204 |
| 12 × 26 | 16 | 64 × 64 | 280 |
| 18 × 18 | 18 | 72 × 72 | 368 |
| 20 × 20 | 22 | 80 × 80 | 456 |
| 12 × 36 | 22 | 88 × 88 | 576 |
| 22 × 22 | 30 | 96 × 96 | 696 |
| 16 × 36 | 32 | 104 × 104 | 816 |
| 24 × 24 | 36 | 120 × 120 | 1050 |
| 26 × 26 | 44 | 132 × 132 | 1304 |
| 16 × 48 | 49 | 144 × 144 | 1558 |

The barcode size can be set using the **MatrixSize** property. If this property is used to specify the specific size of the barcode, then the barcode will be of that fixed size. If this property is set to **Automatic** (by default), then the minimal size that is necessary to encode the data will be selected from the list. There are 6 types of the sizes of rectangular barcode. If it is required to get a square barcode in the **Automatic** mode, then the **UseRectangularSymbols** property should be set to **false** (by default). If the property is set to true, then square and rectangular forms are used.

There are several modes of data encoding, which are used depending on the type of the encoded information. Each mode allows encoding of its own set of characters and its own rate of compression.

| Encoding mode | Valid symbols | Bits per symbol |
|---------------|------------------------------------|-----------------|
| ASCII | ASCII character 0 to 127 | 8 |
| | ASCII character 128 to 255 | 16 |
| | ASCII numeric | 4 |
| C40 | Upper-case alphanumeric | 5,33 |
| | Lower-case letters and punctuation | 10,66 |
| TEXT | Lower-case alphanumeric | 5,33 |
| | Upper-case letters and punctuation | 10,66 |
| X12 | ANSI X12 | 5,33 |
| EDIFACT | ASCII character 32 to 94 | 6 |
| BASE 256 | ASCII character 0 to 255 | 8 |

The ASCII is the universal mode of data encoding (by default). It allows encoding of any characters, but pairs of digits are compressed better and the ASCII values (128-255) are compressed worse. For Upper-case alphanumeric encoding, the C40, X12, Edifact modes are best suited, for Lower-case alphanumeric encoding - Text. Base mode allows you to encode any bytes with the same compression ratio.



A "DataMatrix" barcode.

4.10.4.3 QR Code

A **QR Code** (QR is the abbreviation for Quick Response) is a two-dimensional code, readable by QR scanners, mobile phones with a camera, and smartphones. It was created by Toyota subsidiary Denso-Wave in 1994.

QR Code is capable of handling all types of data (look at the table below):

| | | |
|--|---|-------------------------|
| Numeric mode: | 0123456789 | Maximum 7089 characters |
| Alphanumeric mode: | ABCDEFGHIJKLMNOPQRSTUVWXYZ
0123456789 \$ % * + - . / : space | Maximum 4296 characters |
| Binary mode (8 bits byte data): | JIS 8-bit (Latin and Kana) | Maximum 2953 bytes |
| Kanji mode: | Shift JIS (8140H-9FFCH and E040H-EBBFH) | Maximum 1817 characters |

The **QR Code** characteristics:

The barcode size (not including quiet zone): Versions from 1 to 40 (21*21 modules to 177*177 modules, increasing in steps of 4 modules per side)

Four levels of error correction allowing recovery of:

| Correction Level | Percentage of the recovered information | Error correction level |
|------------------|---|------------------------|
| L | 7% | Level1 |
| M | 15% | Level2 |
| Q | 25% | Level3 |
| H | 30% | Level4 |

The higher the level of error correction, the bigger percentage of information of the corrupted barcode can be recovered, but less information can be encoded in the barcode of the same size. The image below shows an example of a QR code:



A "QR Code" barcode.

4.10.4.4 Support for GS1 standard

The GS1 barcode standard is an international system for identifying products, services, and objects, enabling their unique labeling worldwide.

Key points:

- The GS1 organization manages the standards, ensuring consistency of codes across different countries.
- Each code is based on a unique identifier (GTIN), which links the product to its information in databases.
- Different barcode formats are used: linear (EAN-13, UPC, ITF-14) and two-dimensional (QR, DataMatrix, GS1 Digital Link).

On the surface, GS1 barcodes may look like ordinary EAN-13, Code 128, or DataMatrix codes, but internally they encode information according to strict rules that distinguish them from "regular" uses of the same formats.

Main differences in data encoding inside the code:

Structure and identifiers

In GS1, there are Application Identifiers (AI)—service prefixes that indicate what exactly is encoded (for example, 01 = GTIN, 17 = expiration date, 10 = batch number).

In regular barcodes, the data is stored "as is" without such identifiers.

Global uniqueness

GTIN and other codes follow the principle: country prefix → manufacturer code → product code → check digit.

In regular barcodes, the structure can be arbitrary, and uniqueness is maintained only within a local database.

Support for multiple fields in one code

GS1-128 or GS1 DataMatrix can store GTIN, date, batch, serial number, etc., all in one code. To separate fields of variable length, the FNC1 character (or special markers) is

used.

Standard barcodes usually encode only a single data string.

Interpretation in software

Scanners that recognize GS1 automatically detect AIs and map the data into structured fields (GTIN, expiration date, etc.).

Regular barcodes simply transmit a string of characters without understanding its structure.

In simple terms:

GS1 takes familiar “boxes” (barcode formats) and standardizes how and in what order the content is placed inside them—so that any scanner worldwide can understand what it is and where it comes from.

Supported Barcode Types in Our Product

EAN-13 — the most common barcode in retail, based on GTIN-13;

EAN-8 — a shorter version for small packages;

UPC-A — the U.S. equivalent of EAN-13 (GTIN-12);

UPC-E — a compressed version of UPC-A;

ITF-14 — used for transport packaging (GTIN-14);

GS1-128 — a version of Code 128 with AI fields (GTIN, expiration date, batch, serial numbers, etc.);

SSCC (Serial Shipping Container Code) — used to label logistic units such as pallets, containers, and boxes, rather than individual products;

GS1 DataMatrix — widely used in medicine, pharmaceuticals, and industrial product marking;

GS1 QR Code — a QR code with AI support (including GS1 Digital Link for direct access to product-related web pages);

4.10.4.5 PDF417 Macro

PDF417 Macro is an extension of the standard PDF417 format that allows encoding very large data sets by splitting them into multiple symbol segments. Each segment is represented by a separate PDF417 barcode, and together they form one logical message.

This mechanism makes PDF417 Macro especially useful for encoding documents, long texts, or records that exceed the data capacity of a single PDF417 symbol.

Key Features of PDF417 Macro

➤ Segmentation of large data

Data is divided into chunks (segments), each encoded into a separate PDF417 symbol.

➤ Message identification

Each barcode contains metadata identifying the sequence of the message:

File ID — a unique identifier of the entire data set.

Segment Index — the position of the current segment within the sequence

Segment Count — the total number of segments.

Checksum — optional, for data integrity validation.

➤ Automatic reconstruction

Scanners and decoding software that support PDF417 Macro automatically recognize multiple barcodes with the same File ID, arrange them in the correct order using segment indices, and reconstruct the original full data set.

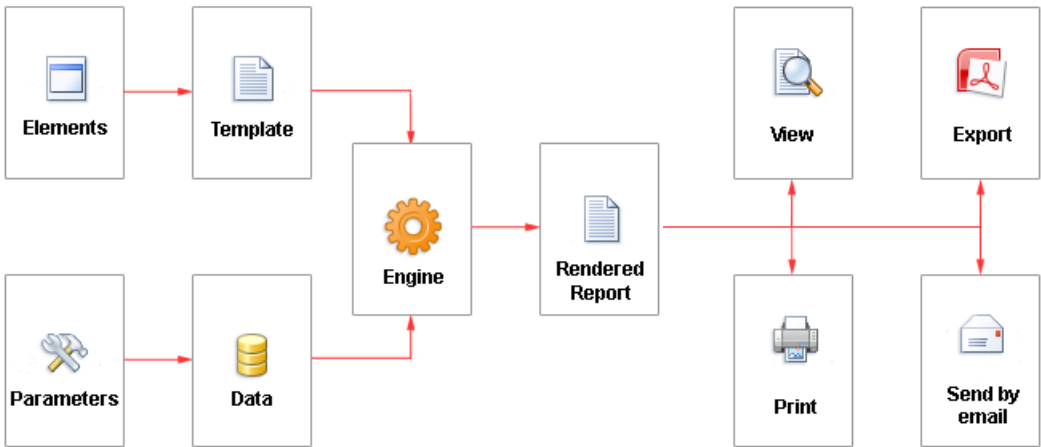
Differences Between Standard PDF417 and PDF417 Macro

| Feature | PDF417 | PDF417 Macro |
|-------------------------------|---|--|
| Data capacity | Limited to the maximum size of a single symbol (approx. 1.1 KB). | Virtually unlimited, by splitting data into multiple symbols. |
| Segmentation | Not supported. Each symbol is independent. | Supported. The large data is divided into multiple segments. |
| Message identification | No support for linking multiple symbols. | Includes File ID, segment indices, and other metadata to link symbols. |
| Use cases | Boarding passes, ID cards, transport labels, smaller data payloads. | Electronic documents, medical records, legal/financial documents, datasets exceeding single-symbol capacity. |

| | | |
|-----------------|-------------------------------------|--|
| Decoding | Scanner reads one symbol at a time. | Scanner/software can automatically assemble multiple symbols into one dataset. |
|-----------------|-------------------------------------|--|

4.11 Report

The report is a way of representing data in printed form and in a user-defined format. Any report, before rendering, serves as a report template. The report template is an element created by the report writer, following the rules set to the designer for building a report. Elements refer to objects in the designer, while parameters are settings within the report designer. The picture below depicts a diagram illustrating the construction of the report.



4.12 Pages

A page refers to either side of a sheet of paper. In a reporting tool, the page serves as the primary component and acts as the workspace for the designer. Within the report designer, the page functions as a container where other components of the reporting tool can be placed. However, a page cannot be inserted into any other component.

4.12.1 Print On Previous Page Property

The pages of a report template are processed and printed sequentially. The first page of the template is processed first, followed by the second page, and so on. The processing order of pages can be found on the **Report Tree** tab, where the higher the page is in the tree, the higher its processing priority. In the case of page copies,

the original page is processed and printed first, followed by its copies. It is important to note that the construction of a report template page begins on a new page in the rendered report. For example, if the first page of the report template extends to 14 and a half pages, the construction of the second page of the report template will start from the 15th page in the rendered report.



As shown in the picture, after processing the data from the first page of the template, there is excessive free space on the output page. The data from the second page of the report template is printed on a new page. To ensure that the data from the second page of the report template is printed immediately after the content of the first page, you need to set the **Print On Previous Page** property of

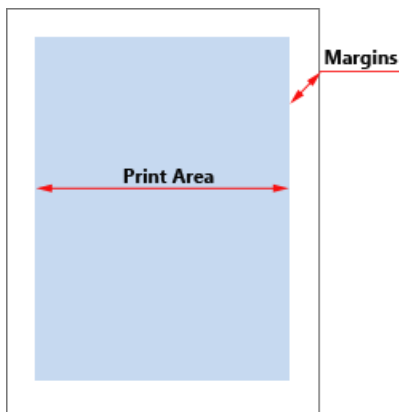
the second page in the template to **true**.

| First Page of Report Template | | |
|--------------------------------|----------|----------------|
| 1 | | Beverages |
| 2 | | Condiments |
| 3 | | Confections |
| 4 | | Dairy Products |
| 5 | | Grains/Cereals |
| 6 | | Meat/Poultry |
| 7 | | Produce |
| 8 | | Seafood |
| Second Page of Report Template | | |
| Davolio | Nancy | Ms. |
| Fuller | Andrew | Dr. |
| Leverling | Janet | Ms. |
| Pescock | Margaret | Mrs. |
| Buchanan | Steven | Mr. |
| Suyama | Michael | Mr. |
| King | Robert | Mr. |
| Callahan | Laura | Ms. |
| Dodsworth | Anne | Ms. |

By default, the **Print On Previous Page** property is set to **false**.

4.12.2 Margins

When you print a report, it is common to encounter situations where the printer is unable to print to the edges of the paper, resulting in a loss of information. In other words, the page may have maximum text content, but due to the technical limitations of the printer, some information at the edges will not be printed. To avoid such issues, you should set report margins. Margins help divide the printable area and the remaining empty space around the edges of the page, known as fields.



Information

Borders in the created report are not displayed. The page consists of the print area and margins.

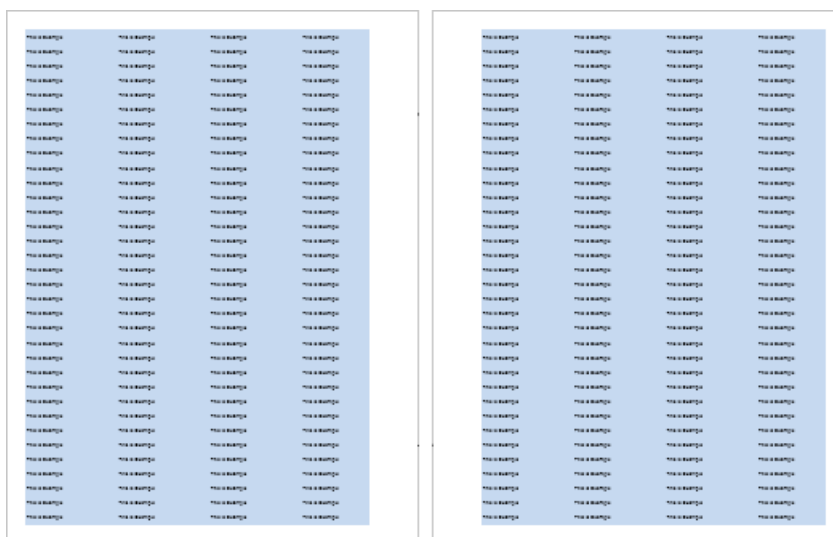
Generally, text and other report elements are placed in the print area. However, you can also place elements on the margins. For instance, you can use the text component to display the page number. The size of the fields can be adjusted by selecting one of the preset options or by setting them according to your preferences. You can choose preset field options by navigating to the **Page** tab -> **Margins** menu. Alternatively, custom fields can be defined using the **Margins** report property.

Margins 1;2;3;0

Important

The units of the fields correspond to the units of the report, such as centimeters, millimeters, inches, or hundredths of inches.

Sometimes, when creating a report to be stapled in a book, you may need to have a wider margin on one side of the page.

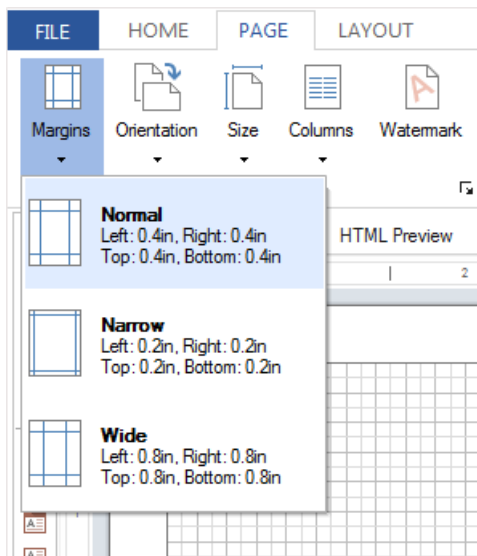


As seen in the picture, the right margin of the left page is wider than the left margin, while the left margin of the right page is wider than the right margin. This arrangement allows for pages to be stapled in a book. The placement of fields in consecutive pages, as shown above, is referred to as a mirror arrangement of margins. To activate the mirror margins, you need to set the **Mirror Margins** property to **true**.

Information

If the margins have the same values (right margin is equal to the left), their mirrored margins will be the same.

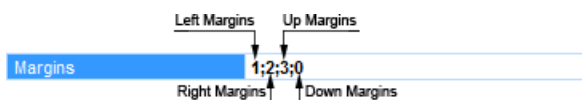
Now consider the example of setting margins. Predefined fields can be changed on the **Page** tab with help of the **Margins** command.



Information

In some types of interfaces, the Page tab may be missing. In such cases, only one default margin size is set, and no other preset fields are available.

The customization of fields is done through the property panel. Depending on the type of interface, there may be a single **Margins** property. In this case, the values of the properties will consist of four numeric values, starting from 0 or greater, separated by a semicolon (;).



In some types of interfaces, the **Margin** group of properties will be located, where each margin is treated as a separate property.

| ▼ Margins | |
|-----------|---|
| Left | 1 |
| Right | 2 |
| Top | 3 |
| Bottom | 0 |

To activate the mirror fields, you should set the **Mirror Margins** property to **true**.

Mirror Margins

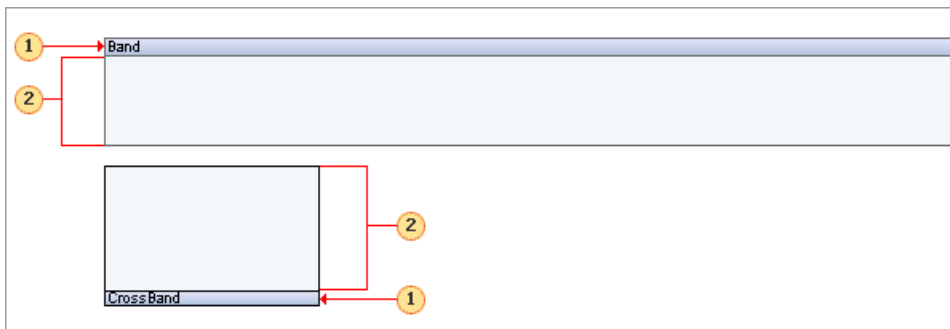


Important

The minimum size of margins depends on the printer used, the printer driver, and the paper size. For information regarding the minimum size of margins, please refer to the user manual of your printer.

4.13 Bands

Stimulsoft Reports constructs its reports using bands (also referred to as sections in other products). A band consists of two parts: the band header and the working area. The band header displays the name of the band, along with other information and controls that can be shown. Each band serves as a container and can contain other components.



- 1 The band header;
- 2 The band working area.

Bands do not appear in the rendered report; only the calculated content of the bands is displayed. The properties of the band control only determine its position within the rendered report.

Typically, a report will consist of multiple bands with text and images. When a report is rendered, bands are duplicated as needed to complete the report. For instance, the Header band is displayed once before the data, while the Data band is displayed once for each record.

4.13.1 Band Types

There are many bands in Stimulsoft Reports, each with its own unique capabilities. All bands can be categorized into one of two types: standard bands and cross bands.

Standard Bands

Standard bands are rendered from top to bottom. They are typically placed directly on a page or can be placed on a panel.

Cross Bands

Cross bands are rendered from left to right. They are usually placed on standard bands. There is one special category of band called the Child band, which, although it is a standard band, is commonly used to extend a Data band.

4.13.1.1 Standard Bands

Standard bands are the fundamental elements of any report. Please refer to the list below to see all the standard bands.

Important

This article lists the bands that are used to create reports. To familiarize yourself with how they are processed during the report rendering, please read the article [Rendering Order of Bands](#).

| Icon | Band Name | Description |
|---|----------------|---|
|  | Report Title | This band is printed in the beginning of a report |
|  | Report Summary | This band is printed in the end of a report |
|  | Page Header | This band is printed on the top of each page |
|  | Page Footer | This band is printed on the bottom of each page |
|  | Group Header | This band is printed in the beginning of a group |
|  | Group Footer | This band is printed in the end of a group |
|  | Header | This band is printed before data |

| | | |
|---|-------------------|--|
|  | Footer | This band is printed after data |
|  | Column Header | This band is printed before a column is output |
|  | Column Footer | This band is printed after a column is output |
|  | Data | This band is printed as many times as there are rows in the data source |
|  | Hierarchical Data | This band is printed as many times as there are rows in the data source. Data items are output as a tree |
|  | Child | This band is printed only once, after the band beneath which it is placed |
|  | Empty Data | Fills the free space at the bottom of a page |
|  | Overlay | This band is printed on the background of a page. It does not affect other bands. |

To enhance the clarity and improve the understanding of report structures, each type of band is assigned a specific color in the report template.



4.13.1.2 Cross-bands

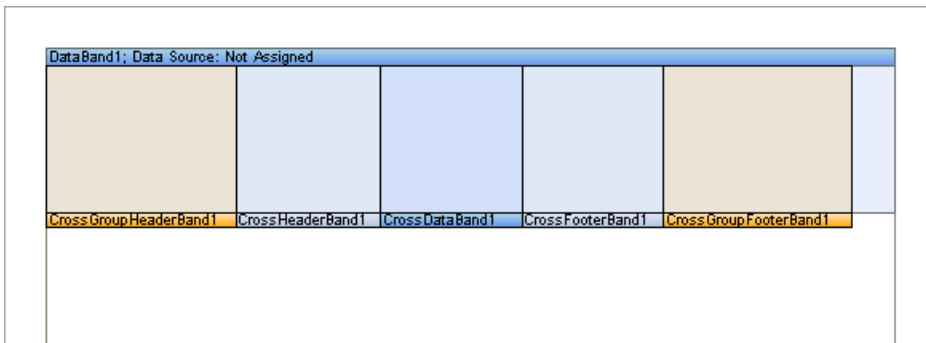
Cross-bands must be placed on a standard band, and thus cannot be directly placed on a page or a container. They are used to enable the rendering of complex cross-reports.

❗ **Note:** Cross bands occupy the full height of their parent component, so it is not recommended to place them directly on the page. If the band does not fit on one page, it is not wrapped, but a new page segment is added.

Please refer to the list below to see all the cross-bands available in Stimulsoft Reports.

| Icon | Name | Description |
|---|--------------------|---|
|  | Cross-Group Header | This band is printed in the beginning of a group |
|  | Cross-Group Footer | This band is printed in the end of a group |
|  | Cross-Header | This band is printed before data |
|  | Cross-Footer | This band is printed after data |
|  | Cross-Data | This band is printed as many times as there are rows in the data source |

Unlike simple bands, the cross-bands header is displayed at the bottom of a band.



| DataBand1; Data Source: Not Assigned | | | | | |
|--------------------------------------|------------------|----------------|------------------|-----------------------|--|
| | | | | | |
| CrossGroupHeaderBand1 | CrossHeaderBand1 | CrossDataBand1 | CrossFooterBand1 | CrossGroupFooterBand1 | |

4.13.2 Rendering Order of Bands

In this article, let's review the process of rendering report bands and define their relationships within the first level of nesting. By the first level of nesting, we mean that the report will not have a hierarchy, but rather consist of simple lists, groups, etc. All bands can be categorized into the following types.

- **Page Header** and **Page Footer, Overlay** are page bands. These bands are related to the report pages, and are displayed on each page of the report;
- **Report Title** and **Report Summary** are report bands. As evident from their group name, these bands are interconnected with the report and are used to display the title and summary in reports. They are displayed only once;
- **Data Band, Hierarchical Band** are list bands. In the following text, when referring to the Data Band, we also imply that it can be used as a substitute for the

Hierarchical Band;

➤ Bands associated with the **Data Band** are **Header Band**, **Footer Band**, **Group Header Band**, **Group Footer Band**, **Column Header Band**, **Column Footer Band**, **Empty Band**;

➤ The **Child Band**.

✖ The order of bands in the report template

All bands are displayed in the strict order. This is due to the fact that each band has a specific function in the report. And it is very important in which order bands are printed.

| Order | Band name | Description |
|-------|----------------------------------|---|
| 1 | Page Header | On each page. Output on the first page is optional. |
| 2 | Report Title | Once at the beginning of a report. The Report Title band can be output before the Page Header band if the Title Before Header property of the page on which both bands are placed is set to true. |
| 3 | Header,
Column Header | Once before data output (for the Column Header - once for every column. Output on each new page is optional. |
| 4 | Group Header | At the beginning of each group. Output on each new page is optional. |
| 5 | Data | Once for every row of data. |
| 6 | Empty Band | For each empty row on every page of the report. |
| 7 | Group Footer | At the end of each group. |
| 8 | Footer,
Column Footer | After all data has been output (for the Column Footer - once for every column). Output on |

| | | |
|----|-----------------------|--|
| | | each new page is optional. |
| 9 | Report Summary | Once at the end of a report. |
| 10 | Overlay | Once on every page of the report. |
| 11 | Page Footer | On every page. Output on the first page is optional. |

Information

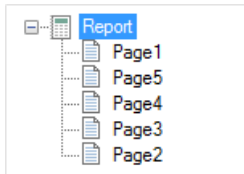
Components placed directly on the page (not on any band) are printed first, followed by the bands.

The **Child Band** can be placed on any band except the **Page Header, Report Summary, Page Footer**. The picture below shows the report page template with the location of bands.



Rendering Order

When rendering a report, the report template pages are processed sequentially. The order of page processing is determined by the position of the page in the report tree. The higher the page is in the report tree, the higher is its priority (the sequence) of processing.



For the report tree shown in the picture above, the processing order of the pages will be as follows: the first will be processed **Page1**, then **Page5**, **Page4**, **Page3**, and finally **Page2**. Suppose that all the bands are placed on **Page1** (see an example of the report template page with the location of bands above). In this case, the bands are processed in several steps:

➤ On the first stage go the preliminary analysis of all the bands and the location of the next page bands **PageHeaderBand1**, **PageFooterBand1**, and **OverlayBand1**. These bands will always be primarily processed and added to each new page in the rendering of the report. Also, on the first page of the rendered report the **ReportTitleBand1** will be added.

Important

If the **Title Before Header** property is set to true, then the **ReportTitleBand1** will be processed and added to the first page first, and then **PageHeaderBand1**.

➤ In the second stage goes the analysis of other bands.

Information

It should be understood that other bands are in the relationship with the **Data Band**, and their rendering depends on it. So the **Data Band** is found and analyzed first, and then the other bands.

After the analysis, the report rendering will start. The **ReportSummaryBand1** will be processed last.

Relationships of bands

As mentioned above, all bands (except **PageHeaderBand1**, **PageFooterBand1**, **OverlayBand1**, **ReportTitleBand1**, **ReportSummaryBand1**) in the report rendering depends on the **DataBand1**. Consider these relationships in more detail and start with a simple example. The **Data Band** is placed on the template page.

| |
|---------------------------|
| DataBand2; Data Source: 5 |
| 3 |
| |

The number of records in the data source is five, and this means that the Data Band is printed 5 times.

| |
|---|
| 3 |
| 3 |
| 3 |
| 3 |
| 3 |

Almost all of the bands can be divided into two categories: **Headers** and **Footers**, for each header corresponds to the same type of Footers.

Important

If there is an equal number of headers and footers, each header corresponds to its own footer. "Header - Footer" correspondence is considered not from top to bottom of the page but from the data band. Let's say there is one data band, two headers and two footers.

| |
|---------------------------|
| HeaderBand3 |
| 1 |
| HeaderBand2 |
| 2 |
| DataBand2; Data Source: 5 |
| 3 |
| FooterBand3 |
| 2 |
| FooterBand2 |
| 1 |

The order of the bands on the page from top to bottom.

| Order | Band name |
|-------|--------------------|
| 1 | HeaderBand3 |
| 2 | HeaderBand2 |
| 3 | DataBand2 |
| 4 | FooterBand3 |
| 5 | FooterBand2 |

In this case, the **HeaderBand3** corresponds to **FooterBand2**, and **HeaderBand2** corresponds to **FooterBand3**. In other words, the first header of the data band corresponds to the footer of the first data band. Here is an example of a rendered report.

| |
|---|
| 1 |
| 2 |
| 3 |
| 3 |
| 3 |
| 3 |
| 3 |
| 2 |
| 1 |

It often happens that the number of headers and footers of a particular type is different. For example, let's change the example above, adding **HeaderBand4**

between **HeaderBand2** and **DataBand2**. Now HeaderBand4 corresponds to **FooterBand3** (color - yellow), **HeaderBand2 - FooterBand2** (color - turquoise), but the band **HeaderBand3** (color blue) has no footer.

| | |
|---------------------------|--|
| HeaderBand3 | |
| 1 | |
| HeaderBand2 | |
| 2 | |
| HeaderBand4 | |
| 3 | |
| DataBand2; Data Source: 5 | |
| 3 | |
| FooterBand3 | |
| 3 | |
| FooterBand2 | |
| 2 | |

Important

Just headers/footers are output only once before/after the data band and the number of them is not affected by anything. Headers and footers are displayed for each group and each group header strictly corresponds to the footer of the group. In complex reports with a different number of headers and footers in the group, there may be an erroneous relation between headers and footers. Therefore, we recommend having the same number of bands, headers and footers of the groups in the report template.

Information

In order the band present in the report template but do not appear in a report you should set it height to zero.

For the example above, let's equalize the number of data headers and footers.

| | | |
|------------------------------------|----------------------|--------------------------|
| DataBand1; Data Source: Categories | | |
| {Categories.CategoryName} | | {Categories.Description} |
| DataBand2; Data Source: Products | | |
| {Products.ProductName} | {Products.UnitPrice} | {Products.UnitsIn Stock} |

These bands have no connection with each other. Therefore, they are processed sequentially. At first, **DataBand1** (category list) will be processed, and then - **DataBand2** (list of products).

| | | | |
|---------------------------------|---------------------------------|--|-----|
| DataBand1
List of Categories | Beverages | Soft drinks, coffees, teas, beers, and ales | |
| | Condiments | Sweet and savory sauces, relishes, spreads, and seasonings | |
| | Confections | Desserts, candies, and sweet breads | |
| | Dairy Products | Cheeses | |
| | Grains/Cereals | Breads, crackers, pasta, and cereal | |
| | Meat/Poultry | Prepared meats | |
| | Produce | Dried fruit and bean curd | |
| | Seafood | Seaweed and fish | |
| | Chai | 18 | 39 |
| DataBand2
List of Products | Chang | 19 | 17 |
| | Aniseed Syrup | 10 | 13 |
| | Chef Anton's Cajun Seasoning | 22 | 53 |
| | Chef Anton's Gumbo Mix | 21.35 | 0 |
| | Grandma's Boysenberry Spread | 25 | 120 |
| | Uncle Bob's Organic Dried Pears | 30 | 15 |
| | Northwoods Cranberry Sauce | 40 | 6 |
| | Mishi Kobe Niku | 97 | 29 |
| | Ikura | 31 | 31 |
| | Queso Cabrales | 21 | 22 |
| | Queso Manchego La Pastora | 38 | 86 |
| | Konbu | 6 | 24 |
| | Tofu | 23.25 | 35 |
| | Genen Shouyu | 15.5 | 39 |
| | Pavlova | 17.45 | 29 |
| | Alice Mutton | 39 | 0 |
| | Carnarvon Tigers | 62.5 | 42 |
| | Teatime Chocolate Biscuits | 9.2 | 25 |
| | Sir Rodney's Marmalade | 81 | 40 |
| | Sir Rodney's Scones | 10 | 3 |
| | Gustaf's Knäckebröd | 21 | 104 |
| | Tunnbröd | 9 | 61 |
| | Guaraná Fantástica | 4.5 | 20 |
| | NuNuCa Nuß-Nougat-Creme | 14 | 76 |

Now add the **Header Band** to the report template. The **Header Band** will refer to the **Data Band** above what it is located. In order the **HeaderBand1** corresponds

to **DataBand1** (list of categories), it must be placed above this data band.

| HeaderBand1 | | |
|------------------------------------|--------------------------|--------------------------|
| Category | Description | |
| DataBand1, Data Source: Categories | | |
| {Categories.CategoryName} | {Categories.Description} | |
| DataBand2, Data Source: Products | | |
| {Products.ProductName} | {Products.UnitPrice} | {Products.UnitsIn Stock} |

In order **HeaderBand2** be related to **DataBand2** (list of products), it should be placed directly above this **Data Band**.

| HeaderBand1 | | |
|------------------------------------|--------------------------|--------------------------|
| Category | Description | |
| DataBand1, Data Source: Categories | | |
| {Categories.CategoryName} | {Categories.Description} | |
| HeaderBand2 | | |
| ProductName | UnitPrice | UnitsIn Stock |
| DataBand2, Data Source: Products | | |
| {Products.ProductName} | {Products.UnitPrice} | {Products.UnitsIn Stock} |

And then the first page of the report will look the following.

| | | | |
|---------------------------------|---------------------------------|-----------|--|
| Header1 | Category | | Description |
| | Beverages | | Soft drinks, coffees, teas, beers, and ales |
| | Condiments | | Sweet and savory sauces, relishes, spreads, and seasonings |
| | Confections | | Desserts, candies, and sweet breads |
| | Dairy Products | | Cheeses |
| | Grains/Cereals | | Breads, crackers, pasta, and cereal |
| | Meat/Poultry | | Prepared meats |
| | Produce | | Dried fruit and bean curd |
| | Seafood | | Seaweed and fish |
| DataBand1
List of Categories | Header2 | | |
| | ProductName | UnitPrice | UnitsIn Stock |
| | Chai | 18 | 39 |
| | Chang | 19 | 17 |
| | Aniseed Syrup | 10 | 13 |
| | Chef Anton's Cajun Seasoning | 22 | 53 |
| | Chef Anton's Gumbo Mix | 21.35 | 0 |
| | Grandma's Boysenberry Spread | 25 | 120 |
| | Uncle Bob's Organic Dried Pears | 30 | 15 |
| | Northwoods Cranberry Sauce | 40 | 6 |
| | Mishi Kobe Niku | 97 | 29 |
| | Ikura | 31 | 31 |
| | Queso Cabrales | 21 | 22 |
| | Queso Manchego La Pastora | 38 | 86 |
| | Konbu | 6 | 24 |
| | Tofu | 23.25 | 35 |
| | Genen Shouyu | 15.5 | 39 |
| | Pavlova | 17.45 | 29 |
| | Alice Mutton | 39 | 0 |
| | Carnarvon Tigers | 62.5 | 42 |
| | Teatime Chocolate Biscuits | 9.2 | 25 |
| | Sir Rodney's Marmalade | 81 | 40 |
| | Sir Rodney's Scones | 10 | 3 |
| | Gustaf's Knäckebröd | 21 | 104 |
| | Tunnbröd | 9 | 61 |
| DataBand2
List of Products | | | |
| | | | |
| | | | |
| | | | |
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Now consider the relationships of footers and multiple data bands. As mentioned above, footers in the report template refers to this data band and only below of which they are directly positioned. At the same time the **Footer Band** is a closing one to the **Header Band**. Suppose you want to display the total by the number of categories. In this case **FooterBand1** must be placed below the data band with a list of categories but above **HeaderBand2** for a list of products.

| | | |
|------------------------------------|--------------------------|--------------------------|
| HeaderBand1 | | |
| Category | Description | |
| DataBand1; Data Source: Categories | | |
| {Categories.CategoryName} | {Categories.Description} | |
| FooterBand1 | | |
| Count: {Count()}} | | |
| HeaderBand2 | | |
| ProductName | UnitPrice | UnitsIn Stock |
| DataBand2; Data Source: Products | | |
| {Products.ProductName} | {Products.UnitPrice} | {Products.UnitsIn Stock} |

The report page will look the following way.

Header1

| Category | Description |
|----------------|--|
| Beverages | Soft drinks, coffees, teas, beers, and ales |
| Condiments | Sweet and savory sauces, relishes, spreads, and seasonings |
| Confections | Desserts, candies, and sweet breads |
| Dairy Products | Cheeses |
| Grains/Cereals | Breads, crackers, pasta, and cereal |
| Meat/Poultry | Prepared meats |
| Produce | Dried fruit and bean curd |
| Seafood | Seaweed and fish |

Footer1

DataBand1
List of Categories

| ProductName | UnitPrice | UnitsInStock |
|---------------------------------|-----------|--------------|
| Chai | 18 | 39 |
| Chang | 19 | 17 |
| Aniseed Syrup | 10 | 13 |
| Chef Anton's Cajun Seasoning | 22 | 53 |
| Chef Anton's Gumbo Mix | 21.35 | 0 |
| Grandma's Boysenberry Spread | 25 | 120 |
| Uncle Bob's Organic Dried Pears | 30 | 15 |
| Northwoods Cranberry Sauce | 40 | 6 |
| Mishi Kobe Niku | 97 | 29 |
| Ikura | 31 | 31 |
| Queso Cabrales | 21 | 22 |
| Queso Manchego La Pastora | 38 | 86 |
| Konbu | 6 | 24 |
| Tofu | 23.25 | 35 |
| Genen Shouyu | 15.5 | 39 |
| Pavlova | 17.45 | 29 |
| Alice Mutton | 39 | 0 |
| Carnarvon Tigers | 62.5 | 42 |
| Teatime Chocolate Biscuits | 9.2 | 25 |
| Sir Rodney's Marmalade | 81 | 40 |
| Sir Rodney's Scones | 10 | 3 |
| Gustaf's Knäckebröd | 21 | 104 |

DataBand2
List of Products

Count: 8

To display the total by the data band with a list of products, **FooterBand2** must be placed below **DataBand2**. For this example, let's calculate the total cost of all the products using the Sum function. The result will be displayed on each page of the report (set the **Print on All Pages** property to true). Below is a page template with the footer by the data band and the list of products.

| HeaderBand1 | | |
|--------------------------------------|----------------------|--------------------------|
| Category | | Description |
| DataBand1; Data Source: Categories | | |
| {Categories.CategoryName} | | {Categories.Description} |
| FooterBand1 | | |
| Count: {Count()}} | | |
| HeaderBand2 | | |
| ProductName | UnitPrice | UnitsIn Stock |
| DataBand2; Data Source: Products | | |
| {Products.ProductName} | {Products.UnitPrice} | {Products.UnitsIn Stock} |
| FooterBand2 | | |
| Sum Total: {Sum(Products.UnitPrice)} | | |

And then the first page of the report will look the following way.

Header1

| Category | Description |
|----------------|--|
| Beverages | Soft drinks, coffees, teas, beers, and ales |
| Condiments | Sweet and savory sauces, relishes, spreads, and seasonings |
| Confections | Desserts, candies, and sweet breads |
| Dairy Products | Cheeses |
| Grains/Cereals | Breads, crackers, pasta, and cereal |
| Meat/Poultry | Prepared meats |
| Produce | Dried fruit and bean curd |
| Seafood | Seaweed and fish |

DataBand1

List of Categories

Footer1

Header2

Count: 8

| ProductName | UnitPrice | UnitsInStock |
|---------------------------------|-----------|--------------|
| Chai | 18 | 39 |
| Chang | 19 | 17 |
| Aniseed Syrup | 10 | 13 |
| Chef Anton's Cajun Seasoning | 22 | 53 |
| Chef Anton's Gumbo Mix | 21.35 | 0 |
| Grandma's Boysenberry Spread | 25 | 120 |
| Uncle Bob's Organic Dried Pears | 30 | 15 |
| Northwoods Cranberry Sauce | 40 | 6 |
| Mishi Kobe Niku | 97 | 29 |
| Ikura | 31 | 31 |
| Queso Cabrales | 21 | 22 |
| Queso Manchego La Pastora | 38 | 86 |
| Konbu | 6 | 24 |
| Tofu | 23.25 | 35 |
| Genen Shouyu | 15.5 | 39 |
| Pavlova | 17.45 | 29 |
| Alice Mutton | 39 | 0 |
| Carnarvon Tigers | 62.5 | 42 |
| Teatime Chocolate Biscuits | 9.2 | 25 |
| Sir Rodney's Marmalade | 81 | 40 |
| Sir Rodney's Scones | 10 | 3 |

DataBand2

List of Products

Footer2

Sum Total: 2222.71

Notice

Important

For the example described above, the placement of the **FooterBand1** under the **HeaderBand2** is not quite correct.

| | | |
|--------------------------------------|--------------------------|--------------------------|
| HeaderBand1 | | |
| Category | Description | |
| DataBand1; Data Source: Categories | | |
| {Categories.CategoryName} | {Categories.Description} | |
| HeaderBand2 | | |
| ProductName | UnitPrice | UnitsIn Stock |
| FooterBand1 | | |
| Count: {Count()}} | | |
| DataBand2; Data Source: Products | | |
| {Products.ProductName} | {Products.UnitPrice} | {Products.UnitsIn Stock} |
| FooterBand2 | | |
| Sum Total: {Sum(Products.UnitPrice)} | | |

In this case, **FooterBand1** and **HeaderBand2** do not refer to any **Data Band**. When rendering a report, all data bands will be defined first. Then, for each data band, headers which relate to this band are defined, all headers located above some footer band or another data band. Footers that relate to this data band are defined next, these are the footers which are placed below the next header or another data band. Therefore, **DataBand1** in the rendered report will be without a footer, **DataBand2** - without a header, and **HeaderBand2** and **FooterBand1** will not be displayed because they do not belong to any of the data bands.

| | | |
|---------------------------|---------------------------------|--|
| Header1 | Category | Description |
| | Beverages | Soft drinks, coffees, teas, beers, and ales |
| | Condiments | Sweet and savory sauces, relishes, spreads, and seasonings |
| | Confections | Desserts, candies, and sweet breads |
| | Dairy Products | Cheeses |
| DataBand1 | Grains/Cereals | Breads, crackers, pasta, and cereal |
| List of Categories | Meat/Poultry | Prepared meats |
| | Produce | Dried fruit and bean curd |
| | Seafood | Seaweed and fish |
| | Chai | 18 39 |
| | Chang | 19 17 |
| | Aniseed Syrup | 10 13 |
| | Chef Anton's Cajun Seasoning | 22 53 |
| | Chef Anton's Gumbo Mix | 21.35 0 |
| | Grandma's Boysenberry Spread | 25 120 |
| | Uncle Bob's Organic Dried Pears | 30 15 |
| | Northwoods Cranberry Sauce | 40 6 |
| | Mishi Kobe Niku | 97 29 |
| | Ikura | 31 31 |
| | Queso Cabrales | 21 22 |
| DataBand2 | Queso Manchego La Pastora | 38 86 |
| List of Products | Konbu | 6 24 |
| | Tofu | 23.25 35 |
| | Genen Shouyu | 15.5 39 |
| | Pavlova | 17.45 29 |
| | Alice Mutton | 39 0 |
| | Carnarvon Tigers | 62.5 42 |
| | Teatime Chocolate Biscuits | 9.2 25 |
| | Sir Rodney's Marmalade | 81 40 |
| | Sir Rodney's Scones | 10 3 |
| | Gustaf's Knäckebröd | 21 104 |
| | Tunnbröd | 9 61 |
| Footer2 | Sum Total: 2222.71 | |

The same principle of correspondence applies to **Group Header Band**, **Group Footer Band**, **Column Header Band**, and **Column Footer Band**.

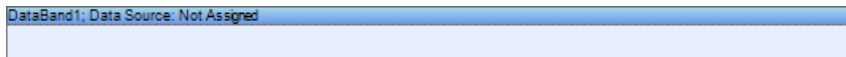
- Headers are placed above the Data Band to which they relate and Footers are placed below. Headers and Footers cannot be printed themselves because they must refer to the specific data band.
- Always check the number of headers and footers, particularly in the report with groups. Sometimes it is easier to add a specific band (header or footer) to equalize their number and clearly trace the line. Set zero height for the band in the report template if you want to hide it in the rendered report.

4.14 Creating Lists

Lists in a report can be output using three bands: **Header** , **Footer** , and **Data** . Data are output using these bands. The basic band is the **Data** band. A data source is specified to each **Data** band. The data source is a table. Each data source has data fields. It is possible to output a table by placing text components with references to these fields. One data source can specify previously unknown number of rows with data. The **Data** band is output as many times as there are rows in the specified data source. For example, if there are 100 rows in the data source, then the **Data** band will be output 100 times. If it is not enough space on one page, the second page will be generated and printing will be continued. Using the **Header** band, headers will be added to the table that is output using the **Data** band. Correspondingly, the **Footer** band is used to output different totals by the output table.

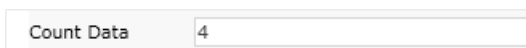
4.14.1 Data Band

The basic band is the **Data** band. A data source is specified to each **Data** band. The data source is a table. Each data source has data fields. It is possible to output a table by placing text components with references to these fields. One data source can specify previously unknown number of rows with data. The **Data** band is output as many times as there are rows in the specified data source. For example, if there are 100 rows in the data source, then the **Data** band will be output 100 times. If it is not enough space on one page, the second page will be generated and printing will be continued:

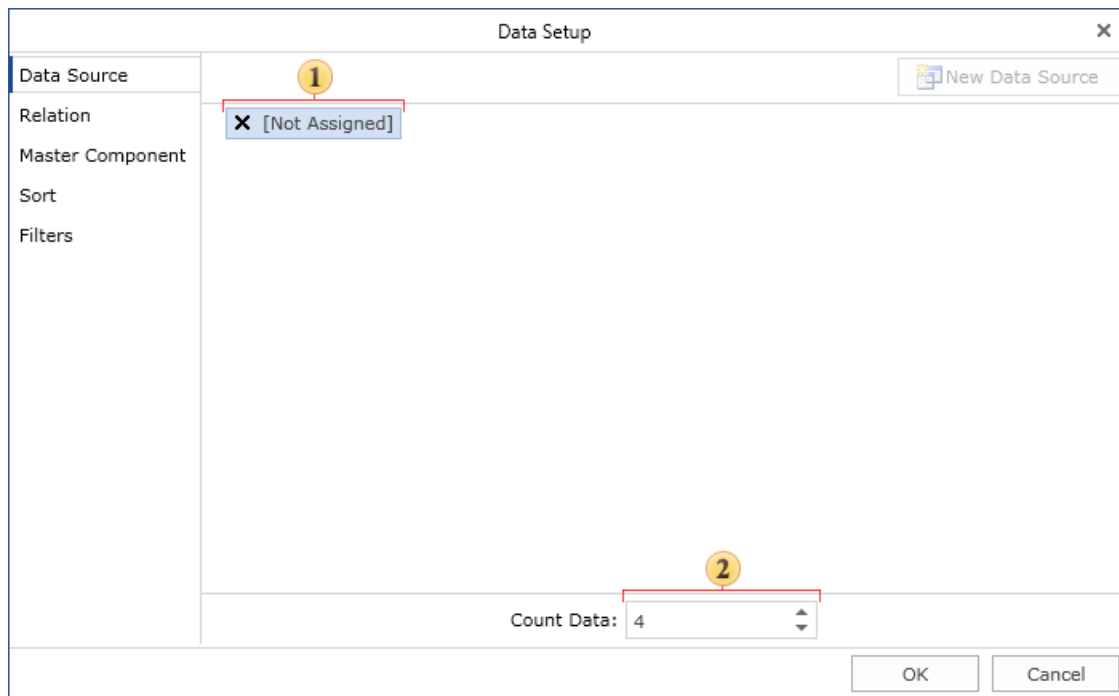


Virtual Data Band

Sometimes it is necessary to print a **Data** band several times without specifying a data source. The **CountData** property is used for this purpose.



It is possible to specify number of elements in the **Data** band editor. On the picture below the **Data** editor is shown.

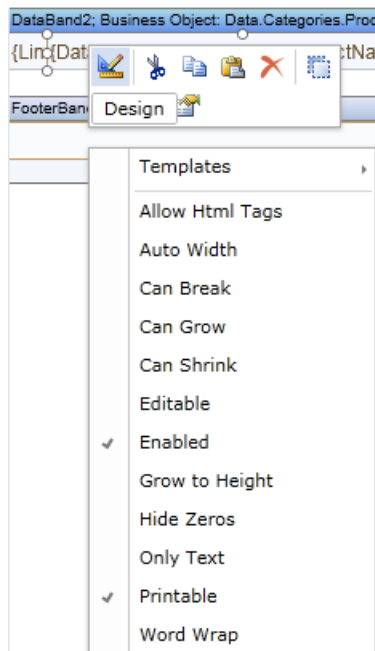


- ❶ The field in what number of elements for the **Data** band can be specified.
- ❷ A data source is not specified.

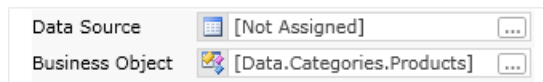
By default the **CountData** property is 0. But if to set it to 4, then the **Data** band will be printed 4 times. This can be used to print empty columns. It is important to remember that in this case data source is not specified.

4.14.2 Data Source of Data Band

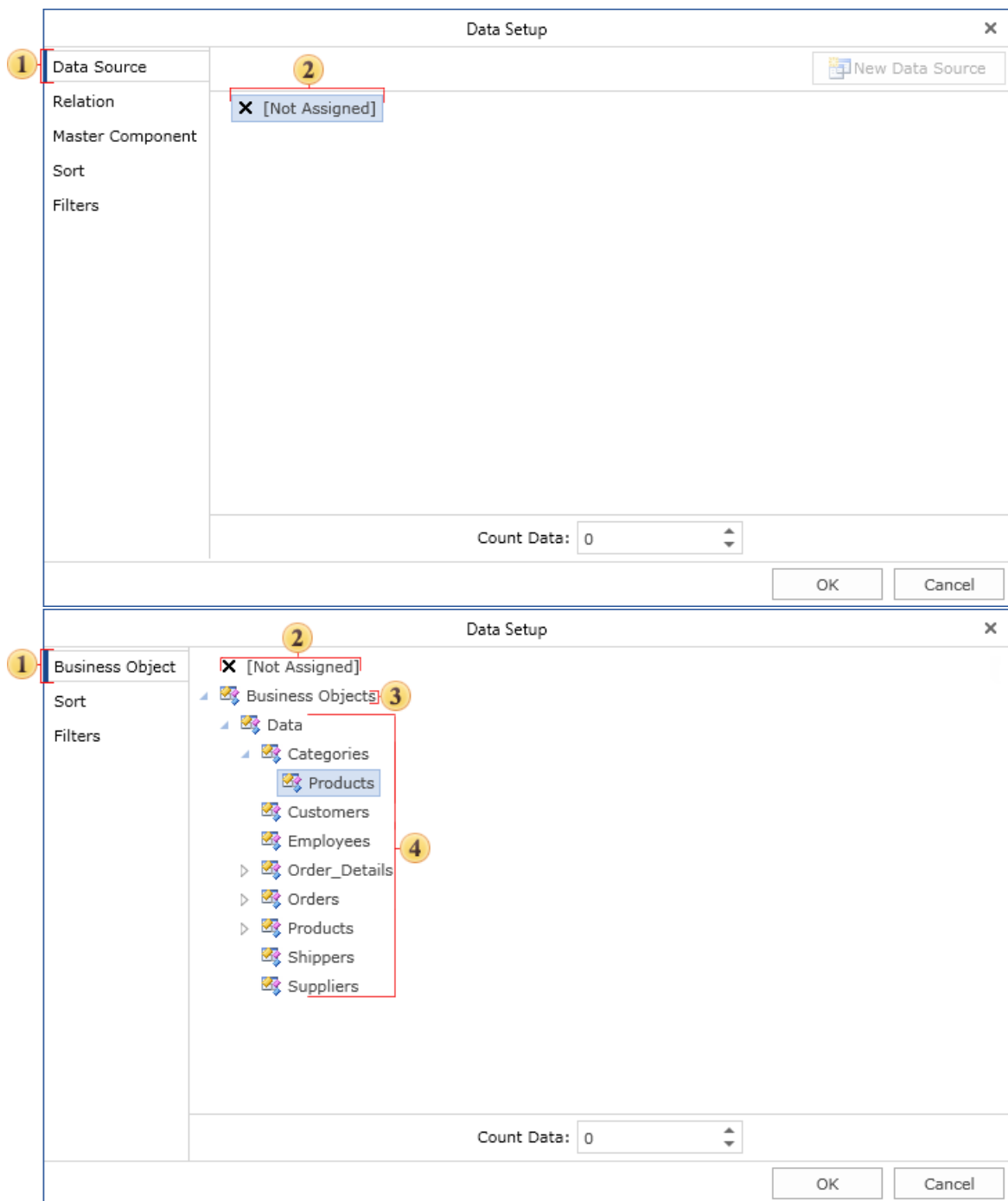
It is necessary to specify what data source will be used when you output lists in the **Data** band. It is important because report generator should know how many times the **Data** band must be printed. Therefore, the reference to the **Data** band is specified. This can be done with several ways. First, it is possible to use the **Data** band editor. To call the editor it is enough double-click on the **Data** band. Also it is possible to call the editor from the context menu. See below an example of this menu.



Also the editor can be called using the **DataSource** property of the **Data** band.



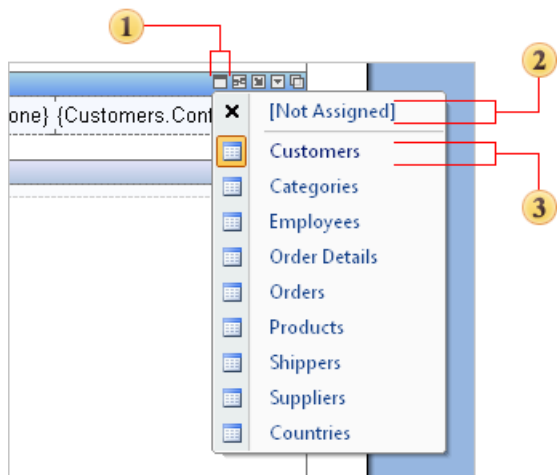
Data band editor allows quickly selecting data source. Data source is selected on the first bookmark of the **Data** band editor. All data sources are grouped in categories. Each category is one data connection with data in the Dictionary of Data. The picture below shows data in the **Data** band editor.



- 1 Select data source bookmark of the **Data** band.
- 2 Select this node if there is no need to specify any data source.
- 3 The "Demo" category of data.
- 4 The "Demo" category of data source.

Second, it is possible to use quick button on the **Data** band and select data source

from menu. Basic elements of menu are represented on the picture below.



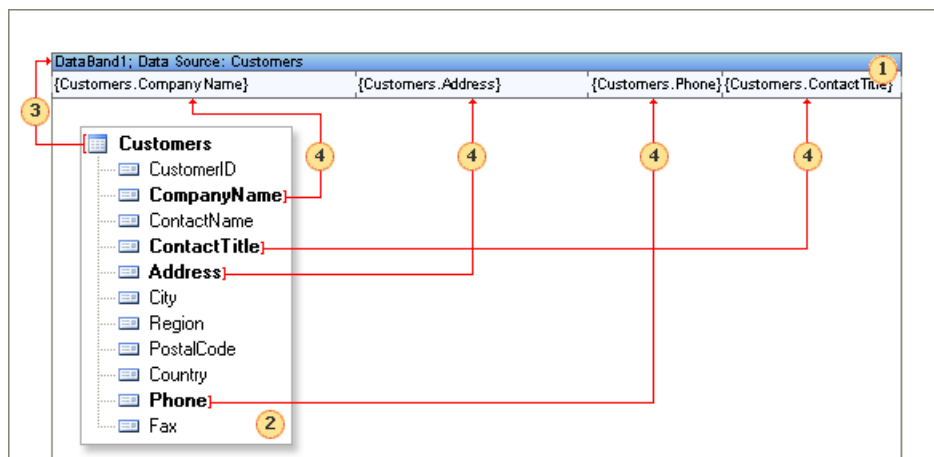
- ❶ Quick button the select data source.
- ❷ This menu item is used to reset data source selection.
- ❸ The **Customers** data source is selected.

4.14.3 List Output

Render a report that prints a list. Put one **Data** band on a page. Using the **DataSource** property assign a data source to the band. Put **Text** components on the band. Make a reference to data fields in each component. For example:

```
{Customers.CompanyName}
```

The report template will have the following view.



- ❶ **Data** band that outputs a table.
- ❷ The data source that is used to get data rows.
- ❸ Reference to the data source. It is necessary to specify data source to the **Data** band.
- ❹ Reference to the data source. **Text** components are placed on the **Data** band. References to data sources fields are created. When rendering, all references will be changed on data.

After report rendering all references to data fields will be changed with data from specified fields. Data will be taken from the data source, that was specified for this band. Number of copies of the **Data** band in the rendered report will be equal to the number of rows in the data source. As a result, all fields were output as a list. The picture below shows a rendered report.

| | | | |
|------------------------------------|-------------------------------|----------------|----------------------|
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 | Sales Representative |
| Berglunds snabbköp | Berguvsvägen 8 | 0921-12 34 65 | Order Administrator |
| Blauer See Delikatessen | Forsterstr. 57 | 0621-08480 | Sales Representative |
| Blondesddsl père et fils | 24, place Kléber | 88.60.15.31 | Marketing Manager |
| Bólido Comidas preparadas | C/ Araquil, 67 | (91) 555 22 82 | Owner |
| Bon app' | 12, rue des Bouchers | 91.24.45.40 | Owner |
| Bottom-Dollar Markets | 23 Tsawassen Blvd. | (804) 555-4729 | Accounting Manager |
| B's Beverages | Fauntleroy Circus | (171) 555-1212 | Sales Representative |
| Cactus Comidas para llevar | Cerrito 333 | (1) 135-5555 | Sales Agent |
| Centro comercial Moctezuma | Sierras de Granada 9993 | (5) 555-3392 | Marketing Manager |
| Chop-suey Chinese | Hauptstr. 29 | 0452-076545 | Owner |
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7647 | Sales Associate |
| Consolidated Holdings | Berkeley Gardens 12 Brewery | (171) 555-2282 | Sales Representative |
| Drachenblut Delikatessen | Walsenweg 21 | 0241-039123 | Order Administrator |
| Du monde entier | 67, rue des Cinquante Otages | 40.67.88.88 | Owner |

If all lists cannot be placed on one page, then the report generator will add additional pages.

4.14.4 List with Header

Usually, a name of a column is output over each column. To output data name or other information before data the special **Header** band is used. It is placed on a page before the **Data** band. There should not be any headers between the **Data** band and the **Header** band. On the picture below a sample of a report with one **Header** band and one **Data** band is shown.

| HeaderBand1 | | | |
|-----------------------------------|---------------------|-------------------|--------------------------|
| Company Name | Address | Phone | Contact Title |
| DataBand1; Data Source: Customers | | | |
| {Customers.CompanyName} | {Customers.Address} | {Customers.Phone} | {Customers.ContactTitle} |

Create a new report. Put a data band on a page. Add the **Header** band to a report. Put text components on a band. Specify data name, which are output on the **Data** band, in these text components. Increase the font size, make it bold. Change the text components background on the **Header** band. Render a report. The picture below shows the result of report rendering.

| Company Name | Address | Phone | Contact Title |
|------------------------------------|-------------------------------|----------------|----------------------|
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 | Sales Representative |
| Berglunds snabbköp | Berguvsvägen 8 | 0921-12 34 65 | Order Administrator |
| Blauer See Delikatessen | Forsterstr. 57 | 0621-08460 | Sales Representative |
| Blondesd's père et fils | 24, place Kléber | 88.60.15.31 | Marketing Manager |
| Bólido Comidas preparadas | C/ Araquil, 67 | (91) 555 22 82 | Owner |
| Bon app' | 12, rue des Bouchers | 91.24.45.40 | Owner |
| Bottom-Dollar Markets | 23 Tsawassen Blvd. | (604) 555-4729 | Accounting Manager |
| B's Beverages | Fauntleroy Circus | (171) 555-1212 | Sales Representative |
| Cactus Comidas para llevar | Cenito 333 | (1) 135-5555 | Sales Agent |
| Centro comercial Motezuma | Sierras de Granada 9993 | (5) 555-3392 | Marketing Manager |
| Chop-suey Chinese | Hauptstr. 29 | 0452-076545 | Owner |
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7647 | Sales Associate |
| Consolidated Holdings | Berkeley Gardens 12 Brewery | (171) 555-2282 | Sales Representative |
| Drachenblut Delikatessen | Walsenweg 21 | 0241-039123 | Order Administrator |
| Du monde entier | 67, rue des Cinquante Otages | 40.67.88.88 | Owner |

When report rendering for one **Data** band, it is possible to create more than one **Header** band. For example, one **Header** band can be output only in the beginning of data. And the second one can be output in the beginning of data and on other pages of a report. **Header** bands are output in the same order as they are placed on a page.

❗ **Note:** For one Data band unlimited number of Header bands can be created.

4.14.5 List with Footer

Besides **Data** bands and **Headers** bands, **Footer** bands can be used. These bands are used to output total of data. The **Footer** band is placed after data are output. Different information is output in the band. For example, totals of a list, data, additional information. On the picture below a report template with the **Footer** band is shown.

| HeaderBand1 | | | |
|-----------------------------------|---------------------|-------------------|--------------------------|
| Company Name | Address | Phone | Contact Title |
| DataBand1; Data Source: Customers | | | |
| {Customers.CompanyName} | {Customers.Address} | {Customers.Phone} | {Customers.ContactTitle} |
| FooterBand1 | | | |
| | | | Count: {Count()} |

As a result of report rendering with the **Footer** band, the report generator will output total after all data will be output. For example:

| Company Name | Address | Phone | Contact Title |
|------------------------|-----------------------------|----------------|---------------------------|
| Wartian Herkku | Torikatu 38 | 981-443655 | Accounting Manager |
| Wellington Importadora | Rua do Mercado, 12 | (14) 555-8122 | Sales Manager |
| White Clover Markets | 305 - 14th Ave. S. Suite 3B | (206) 555-4112 | Owner |
| Wilman Kala | Keskuskatu 45 | 90-224 8858 | Owner/Marketing Assistant |
| Wolski Zajazd | ul. Filtrowa 68 | (26) 642-7012 | Owner |
| | | | Count: 91 |

The **Data** band may have an unlimited number of bands. Bands of totals will be output in the same order as they are placed on a page.

❗ **Note:** For one Data band unlimited number of Footer bands can be created.

4.14.6 KeepHeaderTogether Property

Sometimes, when printing lists, a header will be printed on one page, and the first row of data on another. To avoid this visual gap of data the **KeepHeaderTogether** property of the **Header** band can be used. If the property is **true**, then headers will be printed together with data. In other words as minimum one row with data will be output. If there is not enough free space for a header with data row, then they will be carried over on the next page. See a sample of a rendered report with the **KeepHeaderTogether** property set to **false**.

| Company | Address | Phone | Contact |
|------------------------------------|---------------------------------|--------------|----------------------|
| Alfreds Fretterhite | Obero Str. 57 | 030-007 4321 | Sales Representative |
| Ava Trujillo Emparedados y helados | Avenida de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |

As the same report with keeping header together with the first data row.

| Company | Address | Phone | Contact |
|------------------------------------|---------------------------------|--------------|----------------------|
| Alfreds Fritterkiste | Osborne Str. 57 | 030-007 4321 | Sales Representative |
| Ava Trujillo Emparedados y Helados | Avenida de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |

By default, the **KeepHeaderTogether** property is set to **true**. So headers will be kept together with the first row of data.

4.14.7 KeepFooterTogether Property

The **KeepFooterTogether** property is used to print a list so as to output data row together with totals of data. If the property is **true**, then totals will be printed with the last row of data. If total cannot be placed after the last page printing, then it is output on the current page. If there is not enough free space to output totals, then it is carried over on the next page. On the picture below a sample of a report with the **KeepFooterTogether** property set to **false** is shown.

| | | | | |
|--------------|--------------|-------------------|-------|-------|
| Seabod | Rogede s lid | 1k pkg. | 9,50 | 5,00 |
| Seabod | Speges lid | 4 - 450 g glasses | 12,00 | 95,00 |
| Total : 3119 | | | | |

And the same report with keeping footer together with the last row of data.

| | | | | |
|--------------|--------------|-------------------|-------|-------|
| Seabod | Rogede s lid | 1k pkg. | 9,50 | 5,00 |
| Seabod | Speges lid | 4 - 450 g glasses | 12,00 | 95,00 |
| Total : 3119 | | | | |

By default, the **KeepFooterTogether** property is set to **true**, so totals of data will be kept together with the last row of data.

4.14.8 Enumeration in Lists

Sometimes it is necessary to number lists. It is more convenient to work with an enumerated list. On the picture below an enumerated list is shown.

| | | | |
|-----|---------------------------|---------------------|--------|
| 1. | Chai | 10 boxes x 20 bags | 39,00 |
| 2. | Chang | 24 - 12 oz bottles | 17,00 |
| 3. | Chartreuse verte | 750 cc per bottle | 69,00 |
| 4. | Côte de Blaye | 12 - 75 cl bottles | 17,00 |
| 5. | Guaraná Fantástica | 12 - 355 ml cans | 20,00 |
| 6. | Iphoh Coffee | 16 - 500 g tins | 17,00 |
| 7. | Lakkalikööri | 500 ml | 57,00 |
| 8. | Laughing Lumberjack Lager | 24 - 12 oz bottles | 52,00 |
| 9. | Outback Lager | 24 - 355 ml bottles | 15,00 |
| 10. | Rhönbräu Klosterbier | 24 - 0.5 l bottles | 125,00 |
| 11. | Sasquatch Ale | 24 - 12 oz bottles | 111,00 |
| 12. | Steeleye Stout | 24 - 12 oz bottles | 20,00 |

To add a number of a row into an expression it is possible to use the **Line** system variable. For example, the following expression can be used to get the result as is shown on the picture above:

```
{Line}. {Products.ProductName}
```

The **Line** system variable returns the number of the current row. Numeration starts with 1. In other words the system variable returns 1 for the first row, 2 for the second one and etc. This system variable has the **Int64** type. The **Line** system variable may also be used in arithmetic expressions. If you need to start numeration from 0, it is necessary to use the following expression:

```
{Line - 1}. {Products.ProductName}
```

In addition to the **Line**, **LineABC** and **LineRoman** system variables can also be used for the list enumeration. The **LineABC** system variable returns the alphabetical index instead of a number of a row. The **LineRoman** system variable returns Roman numerals of a number of a row. For example, a report where the **LineABC** system variable is used is shown on the picture below:

| | | |
|-------------------------------------|---------------------|--------|
| A. Chai | 10 boxes x 20 bags | 39,00 |
| B. Chang | 24 - 12 oz bottles | 17,00 |
| C. Chartreuse verte | 750 cc per bottle | 69,00 |
| D. Côte de Blaye | 12 - 75 cl bottles | 17,00 |
| E. Guaraná Fantástica | 12 - 355 ml cans | 20,00 |
| F. Ipoh Coffee | 16 - 500 g tins | 17,00 |
| G. Lakkalikööri | 500 ml | 57,00 |
| H. Laughing Lumberjack Lager | 24 - 12 oz bottles | 52,00 |
| I. Outback Lager | 24 - 355 ml bottles | 15,00 |
| J. Rhönbräu Klosterbier | 24 - 0.5 l bottles | 125,00 |
| K. Sasquatch Ale | 24 - 12 oz bottles | 111,00 |
| L. Steeleye Stout | 24 - 12 oz bottles | 20,00 |

A report where the **LineRoman** system variable is used is shown on the picture below:

| | | |
|--|---------------------|--------|
| I. Chai | 10 boxes x 20 bags | 39,00 |
| II. Chang | 24 - 12 oz bottles | 17,00 |
| III. Chartreuse verte | 750 cc per bottle | 69,00 |
| IV. Côte de Blaye | 12 - 75 cl bottles | 17,00 |
| V. Guaraná Fantástica | 12 - 355 ml cans | 20,00 |
| VI. Ipoh Coffee | 16 - 500 g tins | 17,00 |
| VII. Lakkalikööri | 500 ml | 57,00 |
| VIII. Laughing Lumberjack Lager | 24 - 12 oz bottles | 52,00 |
| IX. Outback Lager | 24 - 355 ml bottles | 15,00 |
| X. Rhönbräu Klosterbier | 24 - 0.5 l bottles | 125,00 |
| XI. Sasquatch Ale | 24 - 12 oz bottles | 111,00 |
| XII. Steeleye Stout | 24 - 12 oz bottles | 20,00 |

LineABC and **LineRoman** system variables, unlike the **Line** system variable, return numbers as strings. For example, to enumerate a list with letters in the lower case, it is possible to use the following expression:

```
{Line.ToLower()}. {Products.ProductName}
```

4.14.9 Selecting Rows One After Another

To make a report look better and for much convenient work with rows it is recommended to alternate rows filled with different colors. This will make your report look professional. There are two ways in the report generator to make such filling: 1. using highlight conditions; 2. using special properties of the **Data** band

styles.

The first way - using the **Data** band highlight condition. Open a report that has a list. An example of such a report is shown on the picture below.



| Company | Address | Phone | Contact |
|------------------------------------|---------------------------------|----------------|----------------------|
| Alfredo Fritteriste | Obero Str. 57 | 030-007 4321 | Sales Representative |
| Axa Trujillo Emparedados y helados | Avenida de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Matadero 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hancock Sq. | (171) 555-7788 | Sales Representative |
| Berglund's BookShop | Berglundsgate 8 | 0621-12 34 65 | Order Administrator |
| Blauer See Delikatessen | Forststr. 57 | 0621-08460 | Sales Representative |

All rows have the same background color. Add highlight condition to the Data band. The **Conditions** property of the band is used for this. Add a new condition in the editor, change background color on another color to fill odd rows, change text color (it is red by default) and set the highlight condition. The **Line** system variable is used to specify whether this row is odd or even. For example:

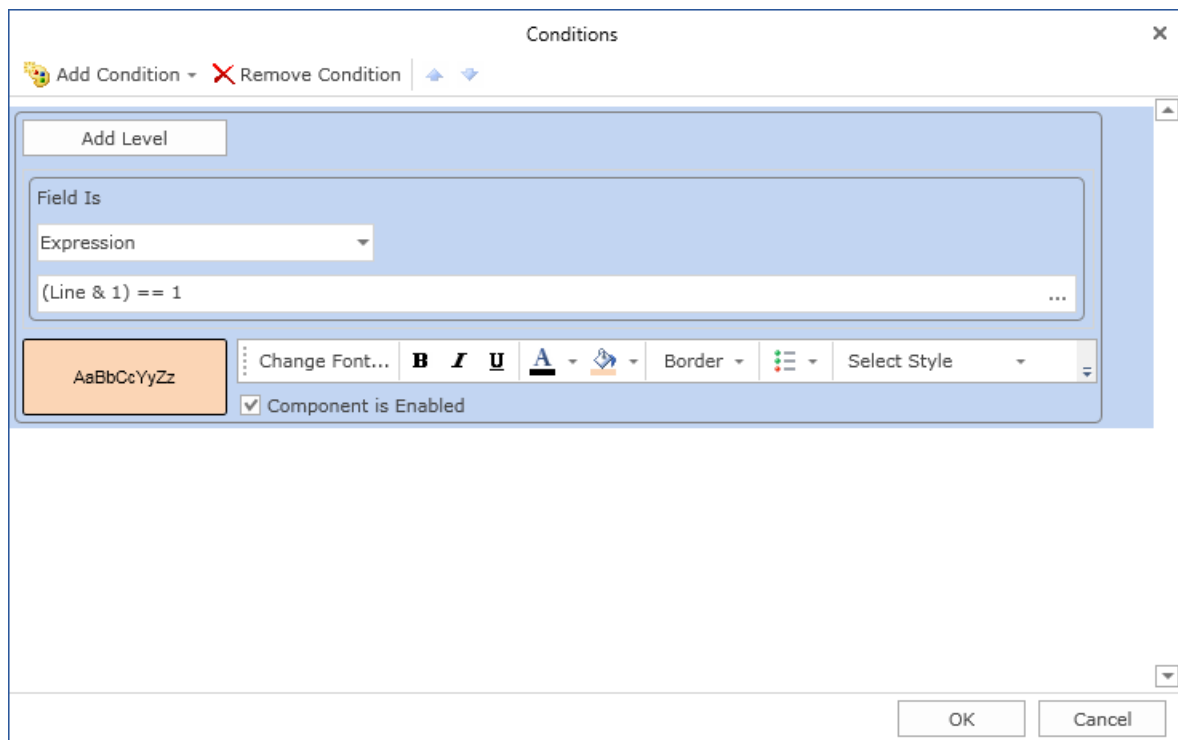
C#:

```
(Line & 1) == 1
```

VB.NET

```
(Line And 1) = 1
```

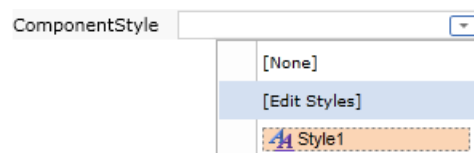
In other words for odd rows this condition is true. On the picture below the Conditions editor is shown.



After adding a condition to the data band a report will look as it shown on the picture below.

| Simple List | | | |
|-----------------------------------|-------------------------------|----------------|----------------------|
| Company | Address | Phone | Contact |
| Alfreds Frukthite | Obero Str. 57 | 030-007 4321 | Sales Representative |
| Axa Trøjllø Emparedados y helados | Auda, de la Constitución 2222 | (555) 555-4729 | Owner |
| Antonio Moreno Taquería | Maradeiros 2312 | (555) 555-3932 | Owner |
| Arround the Horn | 120 Hancover Sq. | (171) 555-7788 | Sales Representative |
| Berglunds snabbköp | Bergslagsvägen 8 | 0621-12 34 65 | Order Administrator |
| Blauer See Delikatessen | Forsenstr. 57 | 0621-08 460 | Sales Representative |

The second way - using properties of styles. The **Data** band has two special properties - **OddStyle** and **EvenStyle**. To add highlight condition to rows it is enough to specify a style in one of these properties. For example, the collection of styles has **OddStyle**. Select this style in the **OddStyle** property.



The report looks the same as the one where the first way was used.

4.14.10 Events and Data Band

Important

Scripts can be a security risk, so they are disabled in the [Interpretation mode](#). However, if you are confident in the safety of your scripts, you can use them in the [Compilation mode](#).

In addition to the events available for all components, the **Data** band provides three special events: **BeginRenderEvent**, **EndRenderEvent**, and **RenderingEvent**. These events are available because the **Data** band is rendered once for each data row in the specified data source. For example, if the data source contains 10 rows, the **Data** band is rendered 10 times. The **BeginRenderEvent** event occurs before the **Data** band begins rendering, before any data rows have been printed. You can use this event to initialize data or variables and perform other required actions. The **EndRenderEvent** event occurs after the **Data** band has finished rendering, when all data rows have been printed. It is typically used to process data and calculation results. Finally, the **RenderingEvent** event occurs when an individual data row is being rendered. It is triggered before the **Data** band is printed. If the data source contains 10 rows, the **RenderingEvent** event is triggered 10 times. To calculate the number of items in the data source, add the following code to the **BeginRenderEvent** event:

Calculate a number of elements in the data source. Write the following code in the **BeginRenderEvent**:

```
myvariable = 0;
```

Also it is necessary to create the **myvariable** variable in the data dictionary. Write the following code in the **RenderingEvent**:

```
myvariable = myvariable + 1;
```

And the **EndRenderEvent** is not used in this case. As a result of calculation the **myvariable** will store the value that is equal to the number of elements in the data source. To output this value in the **Text** component the following expression will be

used:

```
{myvariable}
```

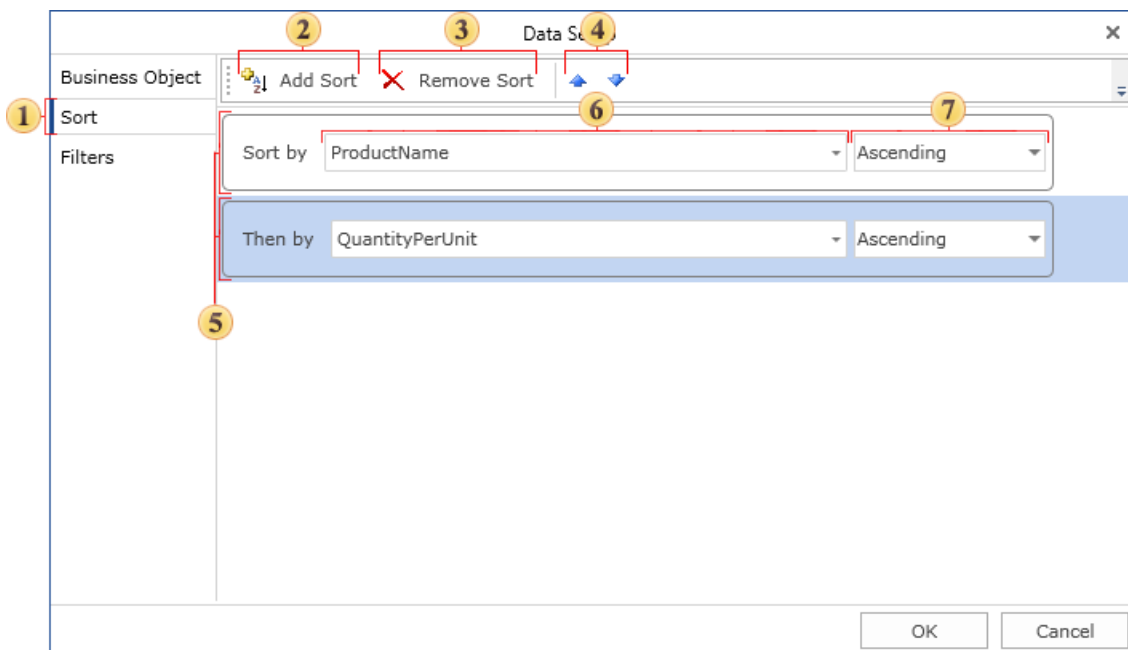
Also it is necessary to set the **ProcessAtEnd** property of the **Text** component to **true**. It is necessary to output the calculated value in the **myvariable**.

4.14.11 Data Sorting

Frequently data, which are used for the report rendering, are sorted in order that does not meet your requirements. In this case, it is possible to sort data using the abilities of Stimulsoft Reports. Sorting can be set for each **Data** band separately. To set sorting it is necessary to use the **Sort** property of the **Data** band. Using this property it is possible to call the editor of the **Data** band.

Sort [Sort] ...

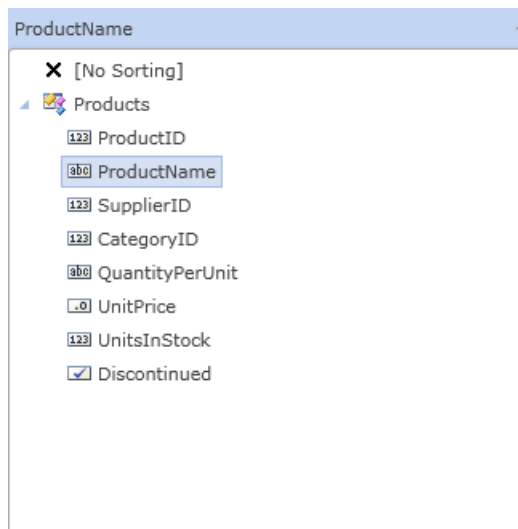
Also it is possible to call the editor by double-click on the band. The **Sort** bookmark is responsible for sorting in the band editor. The picture below shows structure of the bookmark of sorting.



- 1 The Sort bookmark;
- 2 The button to add a new level of sorting;

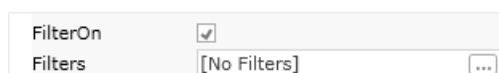
- 3 The button to remove the selected level of sorting;
- 4 Move the selected level of sorting upwards;
- 5 Move the selected level of sorting downwards;
- 6 Level of sorting;
- 7 The column or expression which are used for sorting;
- 8 The button to add or edit expressions of the sorting level;
- 9 The button the select a column for sorting;
- 10 Direction of sorting.

Each sorting consists of several levels. For example, the first list can be sorted by one column, then by the second column, then by the third column. On the picture above bookmark sorting, sorting levels are marked with figure 6. Number of levels of sorting is unlimited. Each level of sorting has the sort order. It is possible to sort in ascending order and in descending order. By default, sorting is set in ascending order. In addition to the sort order in each level of sorting the column (figure 9 on the picture above) is set or expression (figure 8 on the picture above) is set, which is used to obtain the values by which sorting will be done.

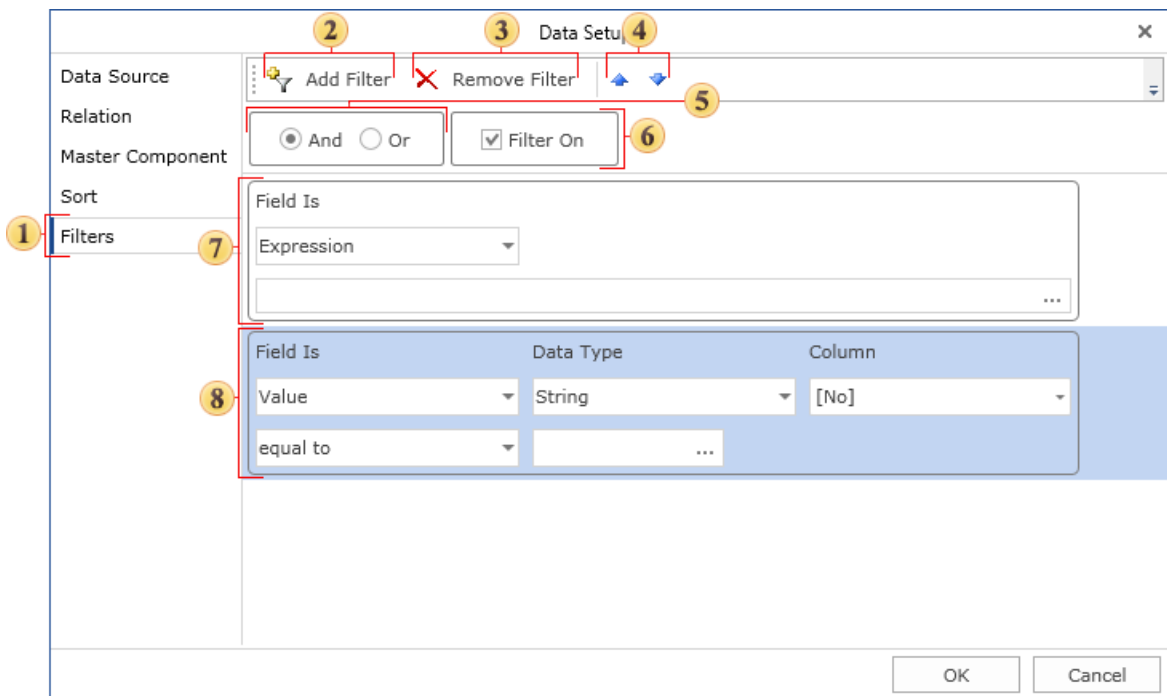


4.14.12 Data Filtering

When rendering a report, sometimes it is necessary to print rows of the data source which correspond to the definite condition. To select the necessary rows the data filtering is used. Data filtering is set using the **Filters** property of the **Data** band. In addition to the **Filters** property the **FilterOn** property can also be used. This property controls filter activity.



How does the filter work? In each filter the condition is set. If the condition is set to **true**, this means that the result of its calculation is **true**, then this data row will be output. If the result of calculation is set to **false**, then this row will be ignored. Each band may contain more than one filter. For example it is necessary to check one of columns of the data source on the equality to the string constant and simultaneously the value of this column should start with the definite character. The filtering is setup in the window of the **Data** band setup (the Filters bookmark). On the picture below such a window is shown.



- 1 The **Filters** bookmark;
- 2 Filter panels. Each **Data** band may contain one or more filters;
- 3 The button to select a new filter;
- 4 The button to delete the selected filter;
- 5 The type of logical operation, according to what filters will be formed. This field is available if the **Data** band contains more than one filter. There are two options: a logical **And** and logical **Or**. If you select the logical **And**, then data row will be output, if all filters are set to **true**. If you select the logical **Or**, then the data row will be output, if at least one of the filters is set to **true**;
- 6 The **Filter On** flag is used to enable/disable filters of the data band.

Each filter is a condition for data row processing. There are two ways to set a

condition:

- ✓ **Value.** The condition is set using the wizard;
- ✓ **Expression.** The condition is set as an expression.

On the picture below, the figure 1 is the field in what the way of calculating condition is indicated.

How to set a condition using the wizard

On the picture below the panel of setting a condition using the wizard is shown.

- 1 The way of selecting a condition;
- 2 This field specifies the type of data with what the condition will work. There are five types of data: **String**, **Numeric**, **DateTime**, **Boolean**, **Expression**. Data type has an effect on how the reporting tool processes a condition. For example, if the data type is a string, then the method of work with strings is used. In addition, depending on the data type the list of available operations of conditions is changed. For example, only for the **String** data type is **Containing** operation is available;
- 3 The column of the data source is specified in the field. The value from this column will be used as the first value of a condition;
- 4 The type of operation, using what the calculation of the value of a condition is done. All available types of operation are grouped in the table and shown on the picture below;

equal to

equal to
not equal to
containing
not containing
beginning with
ending with

5 The second value of a condition of a filter. It is required to specify two values for some operations. For example, for the **between** operation it is required to specify two values.

| Field Is | Data Type | Column |
|----------|------------|----------------|
| Value | DateTime | [No] |
| between | 04.02.2012 | And 04.02.2013 |

The table below shows operations and their description for each data type.

| Name of operation | Types of data | | | | | Description |
|-------------------|---------------|---------|------|-------|------------|--|
| | String | Numeric | Date | Logic | Expression | |
| equal to | | | | | | If the first value is equal to the second value, then the condition is true. |
| not equal to | | | | | | If the first value is not equal to the second value, then the condition is true. |
| between | | | | | | If the first value is in the range, then the condition is true. |
| not between | | | | | | If the first value is not in the range, then the condition is true. |

| | | | | | | |
|--------------------------|---|---|---|--|---|--|
| greater than | |  |  | |  | If the first value is greater than the second value, then the condition is true. |
| greater than or equal to | |  |  | |  | If the first value is greater than or equal to the second value, then the condition is true. |
| less than | |  |  | |  | If the first value is less than the second value, then the condition is true. |
| less than or equal to | |  |  | |  | If the first value is less than or equal to the second value, then the condition is true. |
| containing |  | | | | | If the first value contains the second value, then the condition is true. This operation can be applied only to strings. |
| not containing |  | | | | | If the first value does not contain the second value, then the condition is true. This operation can be applied only to strings. |
| beginning with |  | | | | | If the first value begins with the second value, then the condition is true. This operation can be applied only to strings. |

| | | | | | | |
|-------------|---|--|--|--|--|---|
| ending with |  | | | | | If the first value ends with the second value, then the condition is true. This operation can be applied only to strings. |
|-------------|---|--|--|--|--|---|

How to set a condition as an expression

When using the **Expression** type of a condition, the condition is set as a text expression, that should return the Boolean value. The picture below shows parameters of settings:

Field Is

Expression 1

2

- 1 The way to select an expression;
- 2 The expression is specified in this field. It should return the Boolean value. For example, the expression in C#:

```
Customers.ID == 53447
```

If the expression will return the value of not a Boolean type, then the reporting tool will not be able to render an expression of this type.

4.14.13 Lists One After Another

Often it is necessary to output some lists one after another in a report. Stimulsoft Reports has no restrictions on it. All you have to do to render such a report is to place two **Data** bands with header and footer bands. For example.

Put two **Data** bands on a page, specify them with different data sources. In addition create a header and a footer for the **Data** band. For this, place two **Header** bands and two **Footer** bands. How do you know which header and footer bands belong to

the **Data** band? It's very simple. The **Header** band should be placed over the **Data** band. The **Footer** band should be placed under the **Data** band. Thus, the **Header** band or the **Footer** band are considered to belong to this **Data** band, if there are no other **Data** bands between them. For example, two bands of each type are placed on a page. The **HeaderBand1** band is placed over the **DataBand1** and there are no other **Data** bands between them. So it belongs to the **DataBand1**. But if we take the **DataBand2**, then between this band and the **HeaderBand1** band the **DataBand1** is placed. Therefore, the **HeaderBand1** does not belong to the **DataBand2**. The **FooterBand1** is placed under the **DataBand1** band and there are no other **Data** bands between them. So it belongs to the **DataBand1**. But the **FooterBand2** band is placed under the **DataBand1**, and the **DataBand2**. But there is the **DataBand2** is placed between the **DataBand1** and the **FooterBand2**. Therefore, the **FooterBand2** belongs to the **DataBand2**. Here is an example of a report template, which outputs several lists one after another.

| | | | |
|-----------------------------------|--|-------------------|--------------------------|
| HeaderBand1 | | | |
| Company | Address | Phone | Contact |
| DataBand1; Data Source: Customers | | | |
| {Customers.CompanyName} | {Customers.Address} | {Customers.Phone} | {Customers.ContactTitle} |
| FooterBand1 | | | |
| | | | {Count()} |
| HeaderBand2 | | | |
| Product | Category | Price | |
| DataBand2; Data Source: Products | | | |
| {Products.ProductName} | {Products.ParentCategories.CategoryName} | | {Products.UnitPrice} |
| FooterBand2 | | | |
| | | | {Count()} |

The first **Data** band will output the first list. When the list will be output the second list will be output. The second band will output on the second list. The number of lists is unlimited. The picture below shows the sample of how to output a report with two lists.

| Company | Address | Phone | Contact |
|-----------------------------------|-----------------------------|----------------|---------------------------|
| The Cracker Box | 55 Grizzly Peak Rd. | (406) 555-5834 | Marketing Assistant |
| Toms Spezialitäten | Luisenstr. 48 | 0251-031259 | Marketing Manager |
| Tortuga Restaurante | Avda. Azteca 123 | (5) 555-2933 | Owner |
| Tradição Hipermarcados | Av. Inês de Castro, 414 | (11) 555-2167 | Sales Representative |
| Trail's Head Gourmet Provisioners | 722 DaVinci Blvd. | (206) 555-8257 | Sales Associate |
| Vaffeljernet | Smagsloget 45 | 86 21 32 43 | Sales Manager |
| Victualles en stock | 2, rue du Commerce | 78.32.54.86 | Sales Agent |
| Vins et alcools Chevalier | 59 rue de l'Abbaye | 26.47.15.10 | Accounting Manager |
| Wartian Herkku | Torikatu 38 | 981-443655 | Accounting Manager |
| Wellington Importadora | Rua do Mercado, 12 | (14) 555-8122 | Sales Manager |
| White Clover Markets | 305 - 14th Ave. S. Suite 3B | (206) 555-4112 | Owner |
| Wilman Kala | Keskuskatu 45 | 90-224 8858 | Owner/Marketing Assistant |
| Wolski Zajazd | ul. Filtrowa 68 | (26) 642-7012 | Owner |
| | | | 91 |
| Product | Category | Price | |
| Alice Mutton | Meat/Poultry | 39 | |
| Aniseed Syrup | Condiments | 10 | |
| Boston Crab Meat | Seafood | 18,4 | |
| Camembert Pierrot | Dairy Products | 34 | |
| Camarvon Tigers | Seafood | 62,5 | |
| Chai | Beverages | 18 | |

4.14.14 PrintOn Property

All components, including HeaderBand and FooterBand, have the PrintOn property. This property is used to display a component on report pages according to the value of this property. If the property is set to **All pages**, then components will be shown as usual. If the property is set to any other value then the component will not be shown on the first/last page of a report or on the contrary will be shown on all pages except the first/last ones.

The **PrintOn** property has the following values:

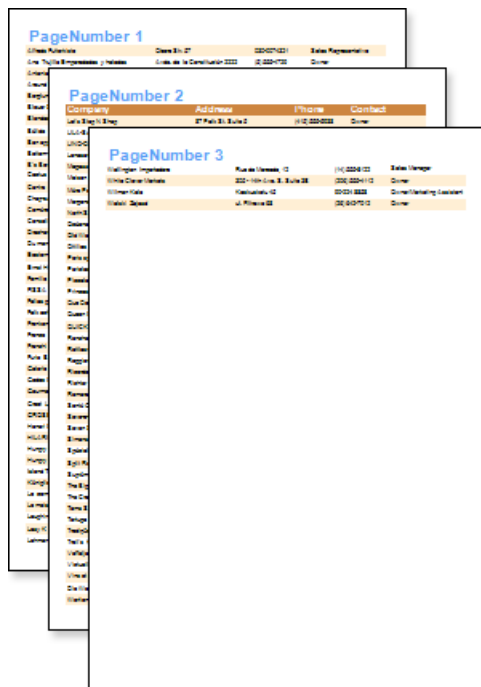
- ✓ **All pages;**
- ✓ **ExceptFirstPage;**
- ✓ **ExceptLastPage;**
- ✓ **ExceptFirstAndLastPages;**
- ✓ **OnlyFirstPage;**
- ✓ **OnlyLastPage;**
- ✓ **OnlyFirstAndLastPages.**

The picture below shows a report sample with the **PrintOn** property of the **HeaderBand** set to **OnlyFirstPage**.

[illegible]

The **PrintOnEvenOddPages** property is used to print headers and footers on even/odd pages, for **HeaderBands** and **FooterBands**.

[illegible]



The picture above shows a sample of a report with the **PrintOnEvenOddPages** property of the **HeaderBand** set to **EvenPage**.

Three values are available for this property:

- ✓ **Ignore**. Headers and footers are printed on all pages;
- ✓ **PrintOnEvenPages**. Headers and footers are printed on even pages;
- ✓ **PrintOnOddPage**. Headers and footers are printed on odd pages.

4.14.16 PrintOnAllPages Property

HeaderBand, **FooterBand**, **ColumnHeaderBand**, **ColumnFooterBand**, **GroupHeaderBand** have the **PrintOnAllPages** property, which may have one of the following two values: **true** and **false**. If the property is set to **false**, then bands are printed one time in a report before/after the DataBand to which they are related. If the property is set to **true**, then these bands are printed only on report pages where a Data Band to which they are related is printed. The bands mentioned above are printed before/after their Data Band. By default the **PrintOnAllPages** property is set to **true** for **HeaderBand** and **ColumnHeaderBand**. For other bands this property is set to **false**.

4.14.17 PrintAtBottom Property

HeaderBand and **FooterBand** have the **PrintAtBottom** property.

Sometimes data take a third part of a page and the data footer will be output right after the data ends.

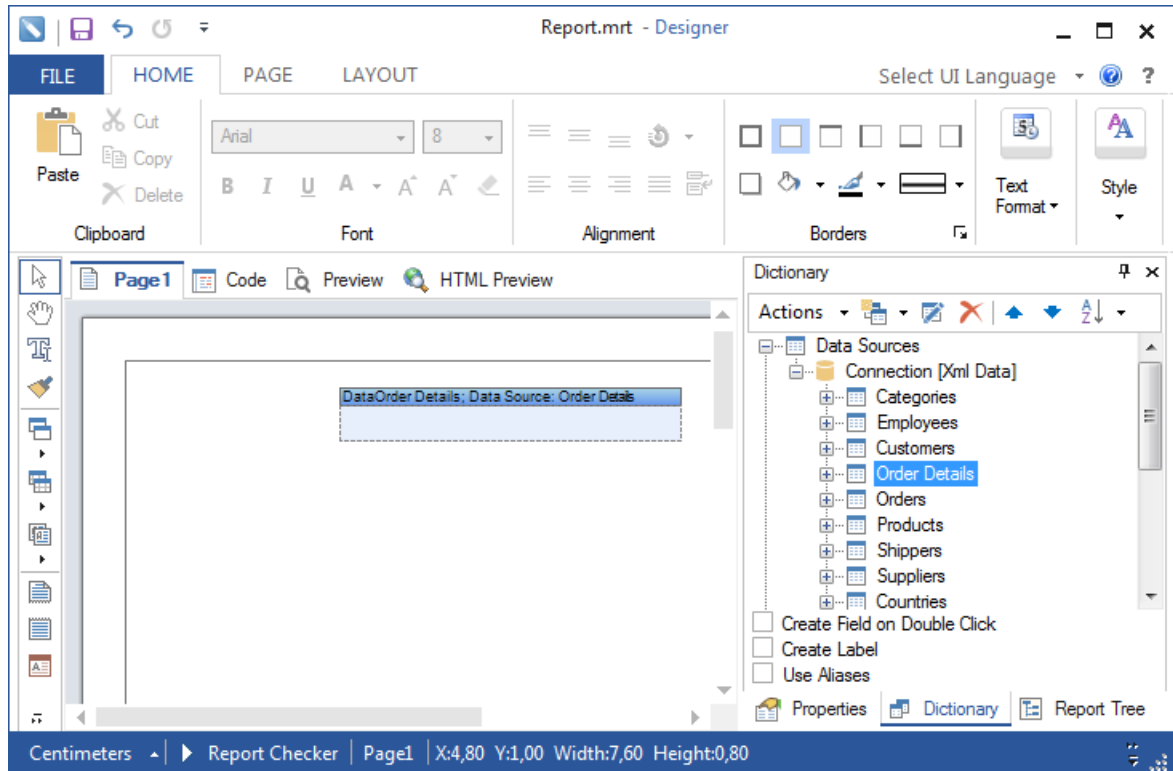
If you want to output the footer on the bottom of the page, then set the **PrintAtBottom** property for the FooterBand to **true**.

The data footer will be displayed at the bottom of the page.

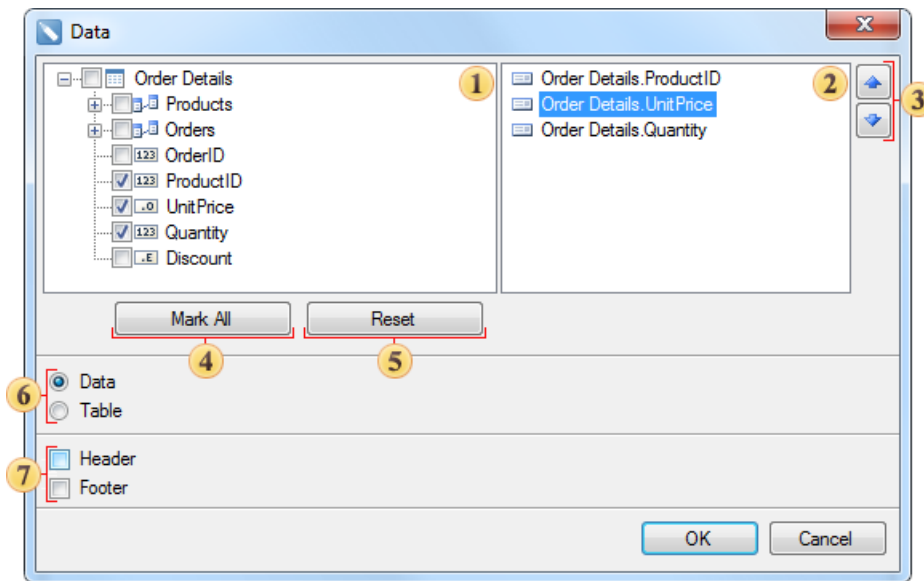
The default value of the property is set to **false**.

4.14.18 Drag and Drop From Dictionary

The report designer supports a way of dragging components, including the data dictionary. You can drag and drop data sources, columns, variables, functions, and more. You can create a list simply by dragging the data source from the dictionary in the report template. The picture below shows an example of dragging the data source Order Details from the Dictionary on the report page.



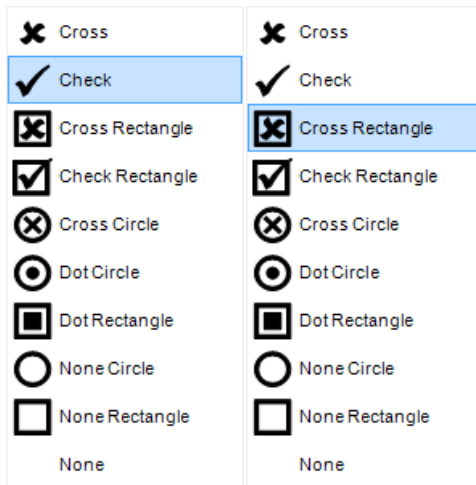
After you release the left mouse button, you will see a dialog box Data, in which you should set the parameters of a new report template. Below is a Data dialog:



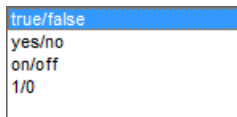
- ❶ This panel displays the columns which contain the data source and the connection between sources. If you need to select the column, references which will be present in the text components on the data band.
- ❷ This panel displays the selected data columns and their order. The order (top-down) on this panel is the order of arrangement of text components on the data band from left to right.
- ❸ These buttons are used to move the selected columns on the panel ❷, thus changing the order of text components on the data band.
- ❹ The button **Mark All**. When clicking it, all columns (a checkbox is set to true) on the panel are selected.
- ❺ The button **Reset**. When clicking, it sets the selection parameters by default (checkbox is set to false), no column are selected.
- ❻ Selects a container for data: data band and a table.
- ❼ If you want to add bands Header and/or Footer into the report template, you should set the appropriate option.

4.14.19 Check Box

For displaying Boolean values, you can use the **Check Box** component. Various styles can be applied to it. The picture below shows the available styles of check boxes:



You can set a checkbox style to each Boolean value. To do this, select values of the Style property for True (Check style for **True**) and style values for False (Check style for **False**). You can also change the type of values:



by selecting the required type in the **Values** property field.

4.15 Creating Master-Detail Lists

Information

You should consider the value of the **Multiple Initialization** property when creating sub-lists. It enables the data source to be initialized for each container and detail section. For example, Filters will be applied for each detail section even if Relation is not assigned.

The previous topic describes how to create a report using data as a table. And data are not connected to each other. Three bands were used: **Data**, **Header**, and **Footer**. But sometimes it is required to create reports and output data which are organized in some levels and connected to each other. For example, invoice and a list of goods, clients and goods delivery to them etc. In this case **Master-Detail** reports are used. These are reports in which the output value of the Master data source, corresponds to the number of values (from 0 and greater) from the Detail data

source. On the picture below the example of the Master-Detail report is shown:

| | |
|------------------------------------|--------------------|
| Beverages | |
| 1.Chai | 10 boxesx 20 bags |
| 2.Chang | 24- 12 oz bottles |
| 3.Chartreuse verte | 750 cc per bottle |
| 4.Côte de Blaye | 12- 75 cl bottles |
| 5.Guaraná Fantástica | 12- 355 ml cans |
| 6.Ipoh Coffee | 16- 500 g tins |
| 7.Lakkaikööri | 500 ml |
| 8.Laughing Lumberjack Lager | 24- 12 oz bottles |
| 9.Outback Lager | 24- 355 ml bottles |
| 10.Rhönbräu Klosterbier | 24- 0.5 l bottles |
| 11.Sasquatch Ale | 24- 12 oz bottles |
| 12.Steeleye Stout | 24- 12 oz bottles |
| 12 | |
| Condiments | |
| 1.Aniseed Syrup | 12- 550 ml bottles |
| 2.Chef Anton's Cajun Seasoning | 48- 6 oz jars |
| 3.Chef Anton's Gumbo Mix | 36 boxes |
| 4.Genen Shoyu | 24- 250 ml bottles |
| 5.Grandma's Boysenberry Spread | 12- 8 oz jars |
| 6.Gula Malacca | 20- 2 kg bags |
| 7.Louisiana Fiery Hot Pepper Sauce | 32- 8 oz bottles |
| 8.Louisiana Hot Spiced Okra | 24- 8 oz jars |
| 9.Northwoods Cranberry Sauce | 12- 12 oz jars |
| 10.Original Frankfurter grüne Soße | 12 boxes |
| 11.Sirop d'érable | 24- 500 ml bottles |
| 12.Veggie-spread | 15- 625 g jars |
| 12 | |

As one can see on the picture, each category of products corresponds to the list of products from this category. An example of the Master-Detail report template is shown on the picture below:

| | |
|---|----------------------------------|
| MasterDataBand; Data Source: Categories | |
| {Categories.CategoryName} | |
| DetailDataBand; Data Source: Products | Master Component: MasterDataBand |
| {Line},{Products.ProductName} | {Products.UnitsInStock} |

Data that are output in the Detail part of the Master-Detail report are nested data. These data are as if nested into one data row of the Master data source. And the number of nesting is called the level of nesting. For example, if in the report the Master-Detail report two lists are output and the second list is connected with the first list, then this report will have two levels of nesting (the first is the Master, and the second is the Detail). And if this detailed list will have an additional list which will detail this list, then this report will have three levels of nesting (the first is the Master, the second is the Detail, and the third is the SubDetail). The number of

nesting is unlimited. Usually, the number of nesting is no more than 3-4 levels.

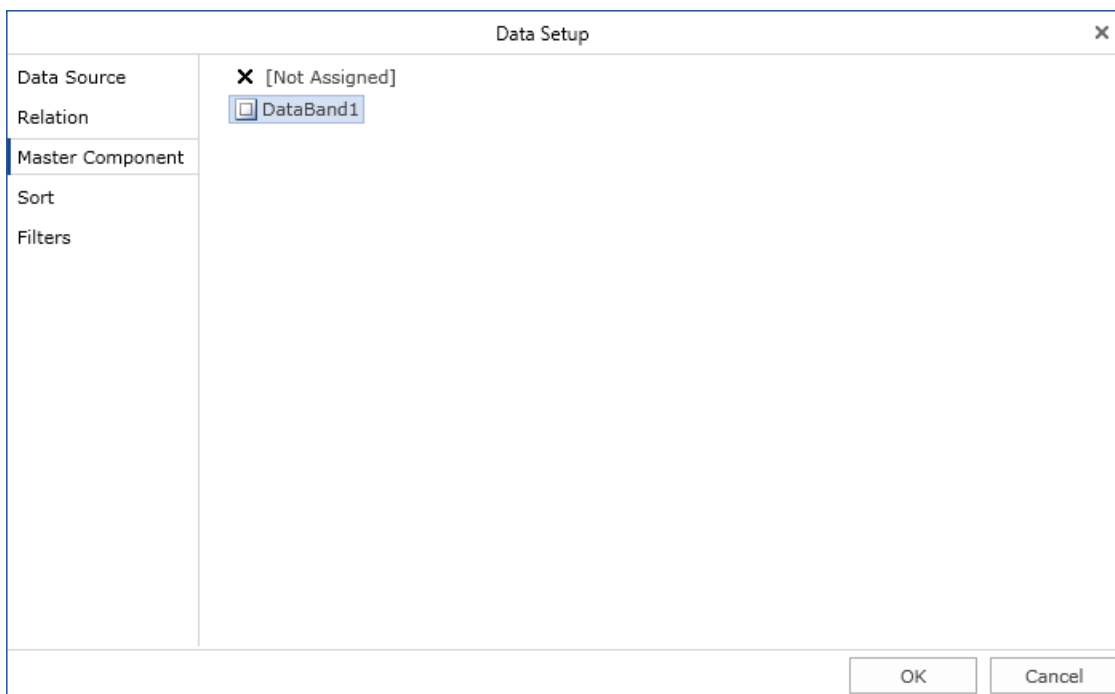
4.15.1 MasterComponent Property

Put two **Data** bands on a page to start creating the Master-Detail report. Specify the Master data source to the first band (this is the Master band). Specify the Detail data source to the second band (this is the Detail). Then, it is necessary to bind these bands using the **MasterComponent** property of the second band. The Master band should be selected.



Master Componen [DataBand1] ...

The selection can be made in the **Data** band editor window.



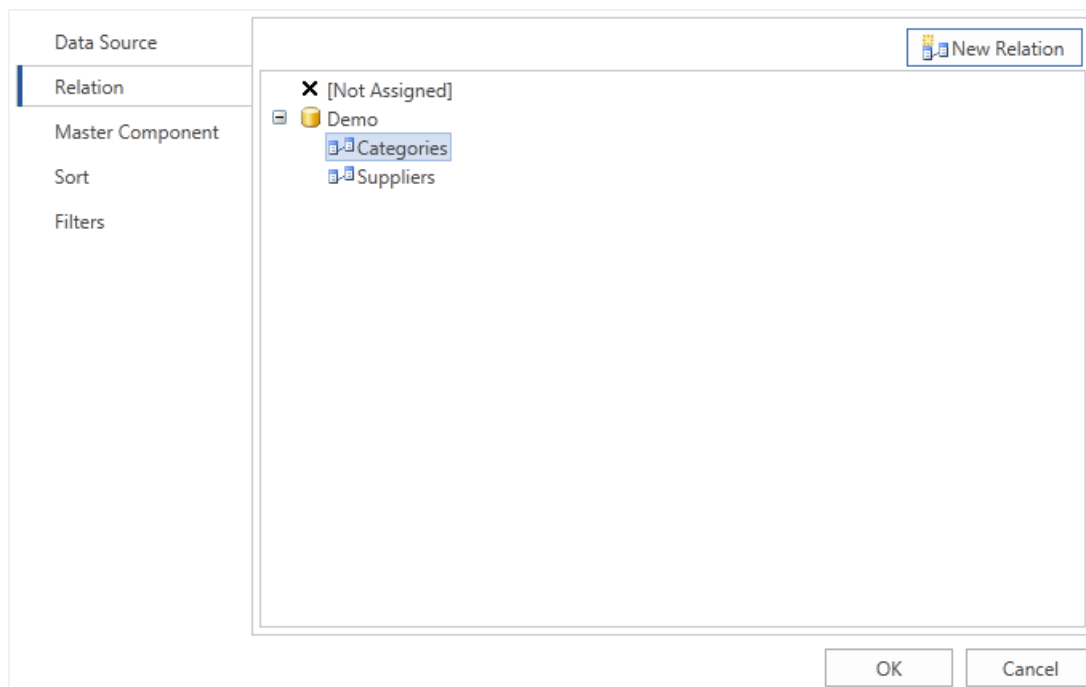
After filling the **MasterComponent** property two bands will be bound to each other. When printing one row of the Master band, all rows of the Detail band will be output. The Detail band will not be printed itself but only in relation to the Master band.

4.15.2 DataRelation Property

After filling the **MasterComponent** property it is necessary to fill the **DataRelation** property of the Detail band. This relation is used to select detailed data only for the specific Master band row. If the relation is not specified, then all Detail band rows will be output for each rows of the Master band.

Data Relation Categories ...

Selection of relation occurs using the **Data** band editor, as well as in case with the **MasterComponent** property.



Selection is done between relations which were created between Master and Detail data sources, and in which the Detail data source is subordinate data source. There can be more than one relation (for example, as seen on the picture above). Therefore, it is important to select the correct relation.

4.15.2.1 Relation

If the **Relation** is not specified in the **Master-Detail** report, then, for each **Master** record, all **Detail** records will be printed. To build a **Master-Detail** report, which will print only those **Detail** records that are associated with this **Master** record, you should create a **Relation** between data sources. The **Relation** describes the relationship between data sources such as "master-detail". For example, in the table of the **Categories** data source in the **CategoriesID** data column, may be one record with a unique name **1**, and in the table of the **Products** data source in the **CategoriesID** column data may be many records with the same unique name **1**. The picture below shows an example of data source tables:

Categories

| | CategoryID | CategoryName | Description |
|---|------------|----------------|----------------------------------|
| ▶ | 1 | Beverages | Soft drinks, coffees, teas, beer |
| ⊞ | 2 | Condiments | Sweet and savory sauces |
| ⊞ | 3 | Confections | Desserts, candies, and sweet |
| ⊞ | 4 | Dairy Products | Cheeses |
| ⊞ | 5 | Grains/Cereals | Breads, crackers, pasta, and |
| ⊞ | 6 | Meat/Poultry | Prepared meats |
| ⊞ | 7 | Produce | Dried fruit and bean curd |
| ⊞ | 8 | Seafood | Seaweed and fish |

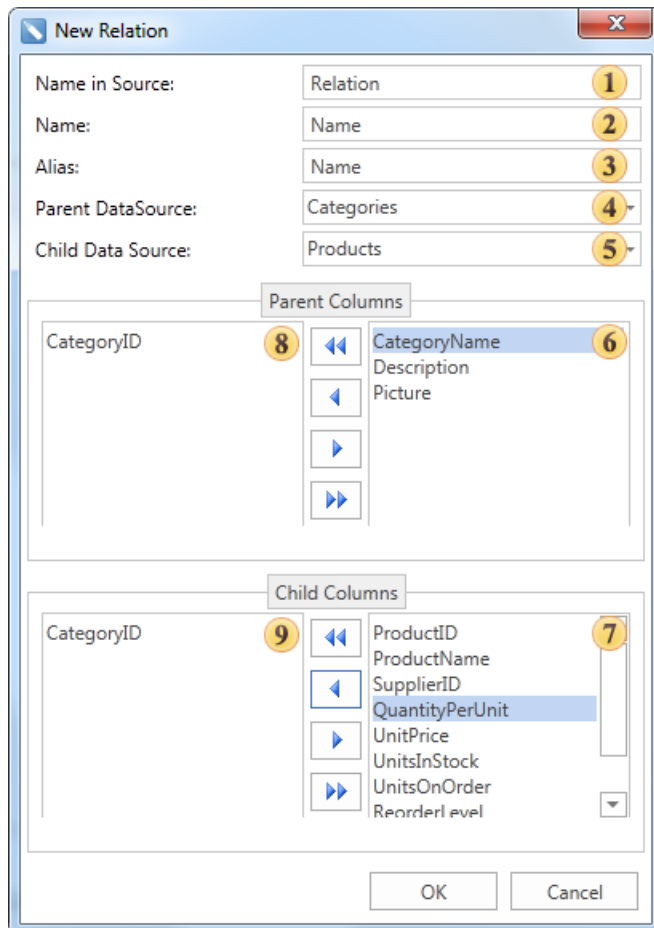
Products

| | ProductID | ProductName | SupplierID | CategoryID |
|---|-----------|--------------|------------|------------|
| ▶ | 1 | Chai | 1 | 1 |
| ⊞ | 2 | Chang | 1 | 1 |
| ⊞ | 24 | Guaraná Fant | 10 | 1 |
| ⊞ | 34 | Sasquatch Al | 16 | 1 |
| ⊞ | 35 | Steeleye Sto | 16 | 1 |
| ⊞ | 38 | Côte de Blay | 18 | 1 |
| ⊞ | 39 | Chartreuse v | 18 | 1 |
| ⊞ | 43 | Ipoh Coffee | 20 | 1 |
| ⊞ | 67 | Laughing Lu | 16 | 1 |
| ⊞ | 70 | Outback Lag | 7 | 1 |
| ⊞ | 75 | Rhönbräu Klo | 12 | 1 |
| ⊞ | 76 | Lakkalikööri | 23 | 1 |
| ⊞ | 3 | Aniseed Syru | 1 | 2 |
| ⊞ | 4 | Chef Anton's | 2 | 2 |

As can be seen from the picture above, one record with the name **1** in the table of the **Categories** data source corresponds to 12 records in the table of the **Products** data source. In other words, if you create a **Relation** by the **CategoriesID** column data between **Categories** and **Products** data tables, then when creating the **Master-Detail** report, the first **Master** record will correspond to **Detail** 12 entries. The picture below shows an example of the rendered **Master-Detail** report by **CategoryName** and **ProductName** columns, where the **Relation** is arranged between the **Product** and **Category** data sources by columns of **CategoryID** data:

| Beverages | |
|---------------------------|--|
| Chai | |
| Chang | |
| Guaraná Fantástica | |
| Sasquatch Ale | |
| Steeleye Stout | |
| Côte de Blaye | |
| Chartreuse verte | |
| Ipoh Coffee | |
| Laughing Lumberjack Lager | |
| Outback Lager | |
| Rhönbräu Klosterbier | |
| Lakkalikööri | |
| Count: 12 | |

The parameters of relations are specified in the **New Relation** window. To invoke this window, choose the **New Relation** item from the context menu of the data source or click the **New Relation** button from the **Data Setup** window in the **Relation** tab. The picture below shows an example of the **New Relation** window:



As can be seen on the picture above, nine fields, which define the relation parameters:

- ❶ The **Name in Source** field provides an opportunity to change the name of the data source (not in the report), the name in the original data source, for example, in a database;
- ❷ The **Name** field provides an opportunity to change the name of the relation that is displayed to a user;
- ❸ The **Alias** field provides an opportunity to change the alias of the relation;
- ❹ The **Parent DataSource** field provides an opportunity to change the main data source, the data source which entries are **Master** entries in the **Master-Detail** report is selected;

5 The **Child Data Source** provides an opportunity to change the child data source, the data source which entries are **Detail** entries in the **Master-Detail** report is selected;

6 This field displays the column-keys of the master data source;

7 This field displays the column-keys of the child data source;

8 - 9 fields shows the master and child data column-keys, which set the **Relation** between data sources. Column-keys should comply with all rules of creation relations in ADO.NET:

1 It should be the same number of them;

2 Their types should match, if the master column-key of the **String** type, then the child column-key should be of the **String** type;

3 And so on;

Control panel of data columns in the **New Relation** dialog box is represented by 4 buttons.



1 The button to move all data columns from the field 6 or 7 in the field 8 or 9, respectively;

2 The button to move the selected data column from the field 6 or 7 in the field 8 or 9, respectively;

3 The button to move the selected data column from the field 8 or 9 in the field 6 or 7, respectively;

4 The button to move all the data columns from the field 8 or 9 in the field 6 or 7, respectively.

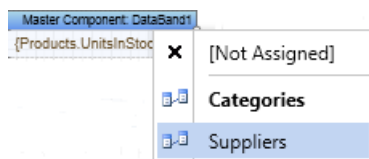
4.15.3 Multilevel Nesting

The logic of building Master-Detail reports with more than 2 nesting levels is the same as the logic of building simple Master-Detail reports. For each Detail band the **MasterComponent** and **DataRelation** properties are set. For example, it is necessary to render a report in what there are four nesting levels. The first level is **countries**, the second - **regions**, the third - **cities**, the fourth - **quarters**. In this case one should place **Data** bands one on another on a page for each data source. Set the **MasterComponent** of the second band on the band **countries**. This property for the third band will indicate the **regions** band. For the last band **quarters** - will

indicate on the **cities** band.



After that, you need to select the relations for the three bands so that the report generator can retrieve the correct data for each detail band.



Then this report will be ready for rendering. One **Master** band may have more than one **Detail** band. In other words two, three or four **Detail** bands may refer to it. And each of them may have their own Detail bands. There are no limitations on the number of nesting levels in the **Master-Detail** reports.

❗ **Note:** The number of nesting levels in the Master-Detail reports is unlimited.

4.15.4 KeepDetails Property

Sometimes, when creating **Master-Detail** reports, a part of Details (subordinate entries) of the **Master-Detail** band will be on one page, while another part will be moved to the next page. This may happen due to the fact that all the detailed records will not fit one page. In this case, if it is still necessary to output the **Master** along with its details on one page, you can use the **KeepDetails** property. By default, this property is set to **false**.

| Master |
|--------|
| Detail |
| Detail |
| Detail |
| Detail |
| Detail |
| Detail |
| Detail |
| Master |
| Detail |
| Detail |

| |
|--------|
| Detail |
| Detail |
| Detail |
| Detail |

The picture above shows a report in what a part of Details is located on one page, while the other part of details has been moved to the next page. If property is set to **true**, then the report generator will try to place the **Master** and **Detail** records on one page. If the report generator cannot do it, the **Master** and **Details** together will be moved to the next page.

| Master |
|--------|
| Detail |
| Detail |
| Detail |
| Detail |
| Detail |
| Detail |
| Detail |

| Master |
|--------|
| Detail |
| Detail |
| Detail |
| Detail |
| Detail |
| Detail |
| Detail |

The picture above shows an example of a report with the **KeepDetails** property of the **Master** set to **true**. If it is not possible to put them together, then the data will

be forcibly broken and displayed on different pages. In this case, if the **Master** component has many **Detail** records and takes a significant part on the page, and the **KeepDetails** property is set to **true**, then there may be a large empty space at the bottom of each page.

4.15.5 Rows Numbering in Master-Detail Reports

Rows numbering in the Master-Detail reports works the same as in ordinary lists. But there is one difference. If numbering is used in the Detail of the **Data** band, then for each sublist there will be their own numbering. For example, on the picture below the Master-Detail report is shown.

| | |
|------------------------------------|---------------------|
| 1.Beverages | |
| 1.Chai | 10 boxes x 20 bags |
| 2.Chang | 24 - 12 oz bottles |
| 3.Chartreuse verte | 750 cc per bottle |
| 4.Côte de Blaye | 12 - 75 cl bottles |
| 5.Guaraná Fantástica | 12 - 355 ml cans |
| 6.Ipoh Coffee | 16 - 500 g tins |
| 7.Lakkalikööri | 500 ml |
| 8.Laughing Lumberjack Lager | 24 - 12 oz bottles |
| 9.Outback Lager | 24 - 355 ml bottles |
| 10.Rhönbräu Klosterbier | 24 - 0.5 l bottles |
| 11.Sasquatch Ale | 24 - 12 oz bottles |
| 12.Steeleye Stout | 24 - 12 oz bottles |
| 2.Condiments | |
| 1.Aniseed Syrup | 12 - 550 ml bottles |
| 2.Chef Anton's Cajun Seasoning | 48 - 6 oz jars |
| 3.Chef Anton's Gumbo Mix | 36 boxes |
| 4.Genen Shouyu | 24 - 250 ml bottles |
| 5.Grandm's Boysenberry Spread | 12 - 8 oz jars |
| 6.Gula Malacca | 20 - 2 kg bags |
| 7.Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles |
| 8.Louisiana Hot Spiced Okra | 24 - 8 oz jars |
| 9.Northwoods Cranberry Sauce | 12 - 12 oz jars |
| 10.Original Frankfurter grüne Soße | 12 boxes |
| 11.Sirop d'érable | 24 - 500 ml bottles |
| 12.Vegie-spread | 15 - 625 g jars |

Numbering in the Master list is indicated with the red color. Numbering in the Detail list is indicated with green color. As you can see on the picture, the numbering in the Detail list starts every time after the row from the Master list is output.

Besides using system variables numbering can be done using the **Line** property of the **Data** band. In this case the expression will be as follow:

```
{DetailDataBand1.Line}.{Customers.CompanyName}
```


Why is it necessary? Why not to use the **Line** system variable? The system variable has the visibility zone. For example, you use the **Line** system variable on the Master band. In this case numbering will be output for the Master band. If you use the **Line** system variable on the Detail band, then, in this case, numbering will be output for the Detail band. But what to do if it is necessary to output numbering of two different **Data** bands in one expression? In this case the **Line** property of the **Data** band is used. For example, see the following expression on the Detail band:

```
{DataBand1.Line}.{Line}.{Products.ProductName}
```

this will lead to the following result in a report:

| | |
|--------------------------------------|---------------------|
| 1.Beverages | |
| 1.1.Chai | 10 boxes x 20 bags |
| 1.2.Chang | 24 - 12 oz bottles |
| 1.3.Chartreuse verte | 750 cc per bottle |
| 1.4.Côte de Blaye | 12 - 75 cl bottles |
| 1.5.Guaraná Fantástica | 12 - 355 ml cans |
| 1.6.Ipoh Coffee | 16 - 500 g tins |
| 1.7.Lakkalikööri | 500 ml |
| 1.8.Laughing Lumberjack Lager | 24 - 12 oz bottles |
| 1.9.Outback Lager | 24 - 355 ml bottles |
| 1.10.Rhönbräu Klosterbier | 24 - 0.5 l bottles |
| 1.11.Sasquatch Ale | 24 - 12 oz bottles |
| 1.12.Steeleye Stout | 24 - 12 oz bottles |
| 2.Condiments | |
| 2.1.Aniseed Syrup | 12 - 550 ml bottles |
| 2.2.Chef Anton's Cajun Seasoning | 48 - 6 oz jars |
| 2.3.Chef Anton's Gumbo Mix | 36 boxes |
| 2.4.Genen Shouyu | 24 - 250 ml bottles |
| 2.5.Grandma's Boysenberry Spread | 12 - 8 oz jars |
| 2.6.Gula Malacca | 20 - 2 kg bags |
| 2.7.Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles |
| 2.8.Louisiana Hot Spiced Okra | 24 - 8 oz jars |
| 2.9.Northwoods Cranberry Sauce | 12 - 12 oz jars |
| 2.10.Original Frankfurter grüne Soße | 12 boxes |
| 2.11.Sirop d'érable | 24 - 500 ml bottles |
| 2.12.Végie-spread | 15 - 625 g jars |

4.15.6 Through Lines Numbering in Master-Detail Reports

Besides the **Line** system variable, there is also an additional **LineThrough** system variable for numbering the **Master-Detail** lists. What is the difference? The **LineThrough** system variable is used to output numbers using the continuous numbering. On the picture below the same report with continuous numbering is shown.

| | |
|--------------------------------------|---------------------|
| 1. Beverages | |
| 1. Chai | 10 boxes x 20 bags |
| 2. Chang | 24 - 12 oz bottles |
| 3. Chartreuse verte | 750 cc per bottle |
| 4. Côte de Blaye | 12 - 75 cl bottles |
| 5. Guaraná Fantástica | 12 - 355 ml cans |
| 6. Ipoh Coffee | 16 - 500 g tins |
| 7. Lakkalikööri | 500 ml |
| 8. Laughing Lumberjack Lager | 24 - 12 oz bottles |
| 9. Outback Lager | 24 - 355 ml bottles |
| 10. Rhönbräu Klosterbier | 24 - 0.5 l bottles |
| 11. Sasquatch Ale | 24 - 12 oz bottles |
| 12. Steeleye Stout | 24 - 12 oz bottles |
| 2. Condiments | |
| 13. Aniseed Syrup | 12 - 550 ml bottles |
| 14. Chef Anton's Cajun Seasoning | 48 - 6 oz jars |
| 15. Chef Anton's Gumbo Mix | 36 boxes |
| 16. Genen Shouyu | 24 - 250 ml bottles |
| 17. Grandma's Boysenberry Spread | 12 - 8 oz jars |
| 18. Gula Malacca | 20 - 2 kg bags |
| 19. Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles |
| 20. Louisiana Hot Spiced Okra | 24 - 8 oz jars |
| 21. Northwoods Cranberry Sauce | 12 - 12 oz jars |
| 22. Original Frankfurter grüne Soße | 12 boxes |
| 23. Sirop d'érable | 24 - 500 ml bottles |
| 24. Veggie-spread | 15 - 625 g jars |

In this case the numbering of the Detail list starts not after the row of the Master list is output but before the first row of the Detail list is output. The system variable starts numbering with 1.

4.15.7 Headers, Footers and Master-Detail Reports

The principle of using **HeaderBands** and **FooterBands** in **Master-Detail** reports is the same as in simple lists. All **HeaderBand1** bands, which are placed above the **DataBand1** bands, up to the next **DataBand2** band, belong to this **DataBand1** band. The **HeaderBand** is placed on the page above the **DataBand**, which outputs data rows. The **HeaderBand** always refers to any particular **DataBand**. Typically, this band is the first **DataBand**, which is located below the **HeaderBand**.

The **FooterBand** is placed below the **DataBand**. And it is meant that the **DataBand**, with what the **HeaderBand** is bound. Each **FooterBand** refers to any specific **HeaderBand**. Without the **HeaderBand**, the **FooterBand** is not output.



The picture above shows a structure of a **Master-Detail** report with two **DataBand** bands.

4.15.8 PrintIfDetailEmpty Property

The **PrintIfDetailEmpty** property of the **DataBand** band is used in building **Master-Detail** reports. The picture below shows a template of a **Master-Detail** report.

| DataCategories, Data Source: Categories | | |
|---|---------------------------|--------------------------|
| {Categories.CategoryID} | {Categories.CategoryName} | {Categories.Description} |
| DataProducts, Data Source: Products | | |
| {Products.ProductID} | {Products.ProductName} | {Products.UnitPrice} |

For example, not all **Master** entries have **Detail** records. Then, if the **PrintIfDetailEmpty** property is set to **false**, then the result shown below is obtained:

| | | |
|----|---------------|--|
| 2 | Condiments | Sweet and savory sauces, relishes, spreads, and seasonings |
| 3 | Aniseed Syrup | 10 |
| 6 | Meat/Poultry | Prepared meats |
| 17 | Alice Mutton | 39 |

Only a part of Master records (in the picture above they are marked with numbers 2 and 6) will be output and the remaining Master records (which have no Detail records) will not be output. To print all Master records, regardless whether they have Detail records, it is necessary to set the **PrintIfDetailEmpty** property of the Master band to **true**. An example of a report for this case is shown below:

| | | |
|----|----------------|--|
| 1 | Beverages | Soft drinks, coffees, teas, beers, and ales |
| 2 | Condiments | Sweet and savory sauces, relishes, spreads, and seasonings |
| 3 | Aniseed Syrup | 10 |
| 3 | Confections | Desserts, candies, and sweet breads |
| 4 | Dairy Products | Cheeses |
| 5 | Grains/Cereals | Breads, crackers, pasta, and cereal |
| 6 | Meat/Poultry | Prepared meats |
| 17 | Alice Mutton | 39 |
| 7 | Produce | Dried fruit and bean curd |
| 8 | Seafood | Seaweed and fish |

As seen on the picture Master records were output (see numbers 1,3,4,5,7,8) all Master records. Moreover, they are output without Detail records. By default, the property is set to **false**.

4.16 Groups

One of the main tasks when rendering reports is grouping the data. Grouping can be used both for the logical separation of data rows and to make a report look better. Two bands are used to create grouped reports: the **GroupHeader** band and the **GroupFooter** band.

The **GroupHeader** band is output in the beginning of each group. The **GroupFooter** band is output in the end of each group. The picture below shows how a report with grouping may look:

| | | | |
|------------------------------------|-------------------------------|----------------|----------------------|
| A | | | |
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 | Sales Representative |
| Count: 4 | | | |
| B | | | |
| Berglunds snabbköp | Berguvsvägen 8 | 0921-12 34 65 | Order Administrator |
| Blauer See Delikatessen | Forsterstr. 57 | 0621-08460 | Sales Representative |
| Blondies père et fils | 24, place Kléber | 88.60.15.31 | Marketing Manager |
| Bólido Comidas preparadas | C/ Araquil, 67 | (91) 555 22 82 | Owner |
| Bon app' | 12, rue des Bouchers | 91.24.45.40 | Owner |
| Bottom-Dollar Markets | 23 Tsawassen Blvd. | (604) 555-4729 | Accounting Manager |
| B's Beverages | Fauntleroy Circus | (171) 555-1212 | Sales Representative |
| Count: 7 | | | |
| C | | | |
| Cactus Comidas para llevar | Cerrito 333 | (1) 135-5555 | Sales Agent |
| Centro comercial Motezuma | Sierras de Granada 9993 | (5) 555-3392 | Marketing Manager |
| Chop-suey Chinese | Hauptstr. 29 | 0452-076545 | Owner |
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7647 | Sales Associate |
| Consolidated Holdings | Bekeley Gardens 12 Brewery | (171) 555-2282 | Sales Representative |
| Count: 5 | | | |

4.16.1 Grouping Conditions

To create a report with grouping it is necessary to define a condition by which the records can be grouped. This condition will be used to divide the data rows into suitable groups, and is set using the Condition property of the Group Header band.

❗ **Note:** You MUST define a condition for every group, otherwise no grouping will take place in the rendered report.

For example, if you create a report that generates a list of companies the results could be grouped in alphabetical order by the first letter of the company name. Companies with names starting with A would be in the first group, companies with names starting with B would be in the second group and so on, as in the example below:

| | | | |
|------------------------------------|---|----------|------------------------------------|
| Alfreds Futterkiste | | A | Alfreds Futterkiste |
| Ana Trujillo Emparedados y helados | → | | Ana Trujillo Emparedados y helados |
| Antonio Moreno Taquería | | | Antonio Moreno Taquería |
| Around the Horn | | | Around the Horn |
| Berglunds snabbköp | | B | Berglunds snabbköp |
| Blauer See Delikatessen | → | | Blauer See Delikatessen |
| Blondesddsl père et fils | | | Blondesddsl père et fils |
| Bólido Comidas preparadas | | | Bólido Comidas preparadas |
| Bon app' | | | Bon app' |
| Bottom-Dollar Markets | | | Bottom-Dollar Markets |
| B's Beverages | → | | B's Beverages |
| Cactus Comidas para llevar | | C | Cactus Comidas para llevar |
| Centro comercial Moctezuma | | | Centro comercial Moctezuma |
| Chop-suey Chinese | → | | Chop-suey Chinese |
| Comércio Mineiro | | | Comércio Mineiro |
| Consolidated Holdings | | | Consolidated Holdings |
| Die Wandernde Kuh | | | |
| Drachenblut Delikatessen | → | | |
| Du monde entier | | | |

The grouping condition you use can be any valid value. For example, if you wanted the companies to be grouped according to their location you could set the condition to group on a column from the database that contains the necessary location data.

4.16.2 Group Header band

The Group header is created using the **Group Header** band, the basic band for rendering reports that use grouping. It is impossible to generate grouped reports without using a **Group Header** band.

The **Group Header** band is output once at the beginning of each group and typically contains components that display header information such as a group name, date, grouping condition, etc.

To create groups within a report you must specify a grouping condition using the **Group Header** band designer or the **Condition** property of the band.

❗ **Note:** The Header band is always output before the **Group Header** band, regardless of where bands may be positioned on a page in the designer.

| |
|------------------------------------|
| GroupHeaderBand1; Condition: |
| |
| DataBand1; Data Source: Categories |
| |

When rendering a report the report generator binds the group header to the specified Data band. The **Group Header** band is positioned on a page before the **Data** band that outputs data rows. The **Group Header** band always belongs to a specific **Data** band, usually the first **Data** band positioned under the **Group Header** band.

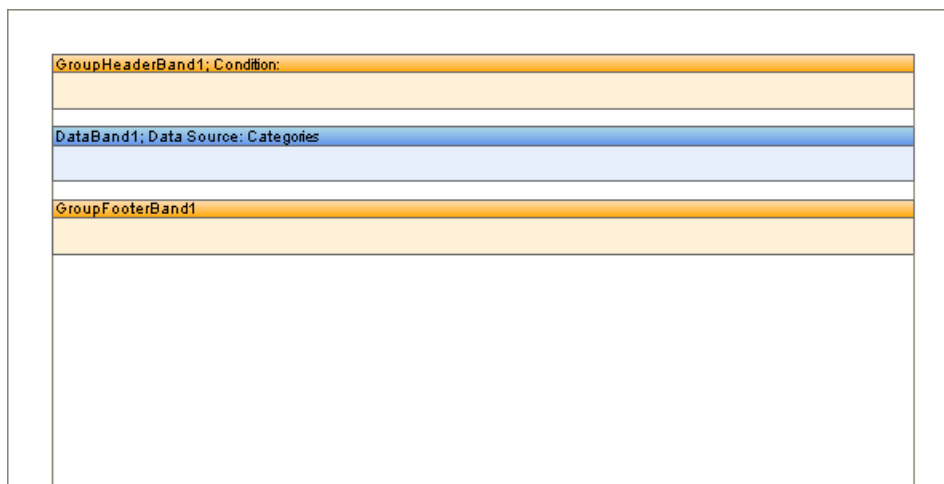
You must have a **Data** band to be able to render grouped reports because data rows are output using this band and because those data rows are the basis of the grouping in the report. In addition you can specify the sorting of rows in the **Data** band which will affect the order in which the groups are rendered.

❗ **Note:** To render reports with grouping you MUST use a Data band.

4.16.3 Group Footer band

The **Group Footer** band is commonly used to generate a group footer which is placed after the **Data** band bound to the group and typically contains components that output summary information relating to the group content. Every **Group Footer** band belongs to the **Group Header** band associated with it, and will not be output if there is no associated **Group Header** band.

❗ **Note:** The **Group Footer** band is always output before the Footer band regardless of where bands may be positioned on a page.



The **Group Footer** band is used to output information specific to each group. For example, if you want to output the number of rows in a group, it is enough to put a text component on the **Group Footer** band and assign it the following expression:

```
{Count()}
```

4.16.4 Data Sorting in Group

When creating reports, you can sort both the data in a group and the groups themselves.

Information

It is important to note that the report writer automatically sorts rows of data before grouping. The default sorting is in ascending order (from A to Z).

Sort data in a group

In order to sort data in a group, you should define the condition and sorting direction of the Data Band in this group. Further information on sorting in the Data Band you may find in [this chapter](#).

Group sorting

Groups can be sorted by:

- The values of the expression that is used as a [grouping condition](#);
- The values of the total expression, which are the values of the expression that calculation functions are applied to.

Sorting can be performed in the following directions:

- **None** - the data will be displayed in the order they appear in the data source.

Information

If the data is already grouped and sorted before being transferred to the report, then there is no need to further group and sort it based on the [grouping condition](#). Setting the sort direction to **None**, in this case, can reduce the time it takes to generate the report when dealing with large amounts of data.

➤ **Ascending** - the data is displayed in ascending order, from smallest to largest for numeric values and in alphabetical order from A to Z for text values.

| Top Sales | | | | | Stimulsoft |
|---|---------------------|--------|------------|------------|--------------------|
| This sample demonstrates how to sort group by its totals. | | | | | Date: August 2018 |
| 1. Beverages | | | | | Total: \$12,480.25 |
| Unit Name | Description | Qty | Item Price | Total | |
| Chai | 10 boxes x 20 bags | 39.00 | \$18.00 | \$702.00 | |
| Chang | 24 - 12 oz bottles | 17.00 | \$19.00 | \$323.00 | |
| Chartreuse verte | 750 cc per bottle | 69.00 | \$18.00 | \$1,242.00 | |
| Côte de Blaye | 12 - 75 cl bottles | 17.00 | \$263.50 | \$4,479.50 | |
| Guaraná Fantástica | 12 - 355 ml cans | 20.00 | \$4.50 | \$90.00 | |
| Ipioh Coffee | 16 - 500 g tins | 17.00 | \$46.00 | \$782.00 | |
| Laikkikoodi | 500 ml | 57.00 | \$18.00 | \$1,026.00 | |
| Laughing Lumberjack Lager | 24 - 12 oz bottles | 52.00 | \$14.00 | \$728.00 | |
| Outback Lager | 24 - 355 ml bottles | 15.00 | \$15.00 | \$225.00 | |
| Rhinbrau Klosterbier | 24 - 0.5 l bottles | 125.00 | \$7.75 | \$968.75 | |
| Sasquatch Ale | 24 - 12 oz bottles | 111.00 | \$14.00 | \$1,554.00 | |
| Steeleye Stout | 24 - 12 oz bottles | 20.00 | \$18.00 | \$360.00 | |
| | | | | | Count: 12 |
| 2. Condiments | | | | | Total: \$12,023.55 |
| Unit Name | Description | Qty | Item Price | Total | |
| Anisad Syrup | 12 - 550 ml bottles | 13.00 | \$10.00 | \$130.00 | |
| Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 53.00 | \$22.00 | \$1,166.00 | |
| Chef Anton's Gumbo Mix | 36 boxes | 0.00 | \$21.35 | \$0.00 | |
| Genen Shouyu | 24 - 250 ml bottles | 39.00 | \$15.50 | \$604.50 | |
| Grandma's Boysenberry Spread | 12 - 8 oz jars | 120.00 | \$25.00 | \$3,000.00 | |
| Gula Malleca | 20 - 2 kg bags | 27.00 | \$19.45 | \$525.15 | |
| Louisiana Fiery Hot Pepper Sauce | 32 - 8 oz bottles | 76.00 | \$21.05 | \$1,599.80 | |
| Louisiana Hot Spiced Okra | 24 - 8 oz jars | 4.00 | \$17.00 | \$68.00 | |
| Northwoods Cranberry Sauce | 12 - 12 oz jars | 6.00 | \$40.00 | \$240.00 | |
| Original Frankfurter grüne Soße | 12 boxes | 32.00 | \$13.00 | \$416.00 | |
| Sirup d'érable | 24 - 500 ml bottles | 113.00 | \$28.50 | \$3,220.50 | |
| Veggie-spread | 15 - 625 g jars | 24.00 | \$43.90 | \$1,053.60 | |
| | | | | | Count: 12 |

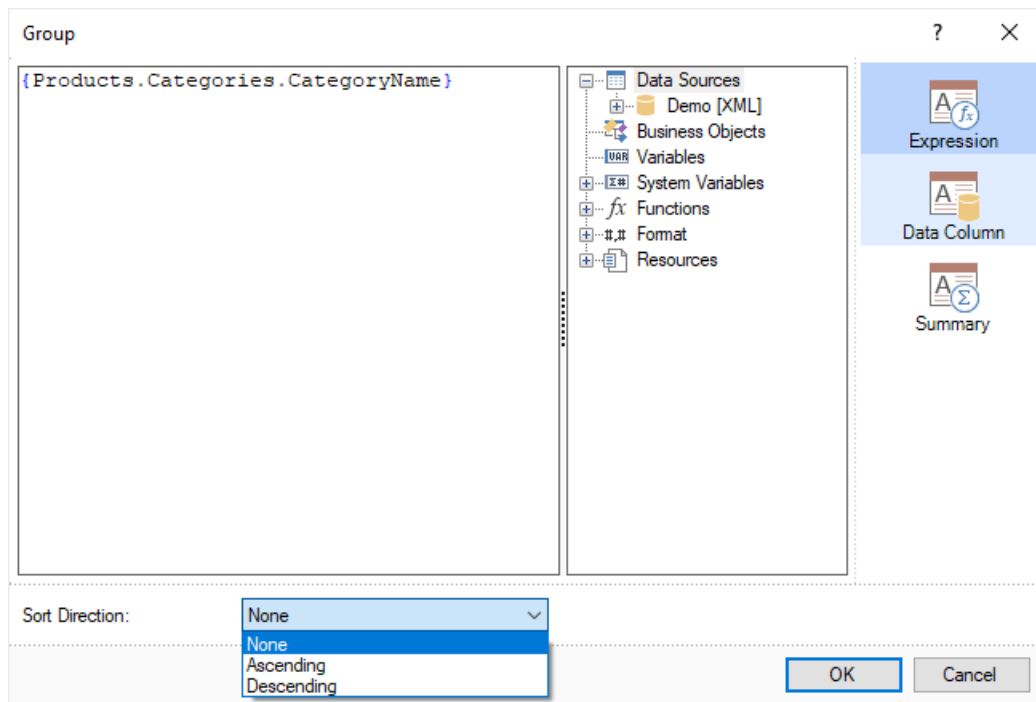
➤ **Descending** - the data is displayed in descending order, from largest to smallest for numeric values and in reverse alphabetical order from Z to A for text values.

| Top Sales | | | | Stimulsoft | |
|---|--------------------|--------|------------|--------------------|--|
| This sample demonstrates how to sort group by its totals. | | | | Date: August 2018 | |
| 1. Seafood | | | | Total: \$13,010.35 | |
| Unit Name | Description | Qty | Item Price | Total | |
| Boston Crab Meat | 24 - 4 oz tins | 123.00 | \$18.40 | \$2,263.20 | |
| Carnarvon Tigers | 16 kg pkg. | 42.00 | \$62.50 | \$2,625.00 | |
| Escargots de Bourgogne | 24 pieces | 62.00 | \$13.25 | \$821.50 | |
| Gravad lax | 12 - 500 g pkgs. | 11.00 | \$26.00 | \$286.00 | |
| Ikura | 12 - 200 ml jars | 31.00 | \$31.00 | \$961.00 | |
| Inlagd Sill | 24 - 250 g jars | 112.00 | \$19.00 | \$2,128.00 | |
| Jack's New England Clam Chowder | 12 - 12 oz cans | 85.00 | \$9.65 | \$820.25 | |
| Konbu | 2 kg box | 24.00 | \$6.00 | \$144.00 | |
| Nord-Ost Matjeshering | 10 - 200 g glasses | 10.00 | \$25.89 | \$258.90 | |
| Red Kaviar | 24 - 150 g jars | 101.00 | \$15.00 | \$1,515.00 | |
| Ragede sill | 1k pkg. | 5.00 | \$9.50 | \$47.50 | |
| Spegeasid | 4 - 450 g glasses | 95.00 | \$12.00 | \$1,140.00 | |
| | | | | Count: 12 | |
| 2. Produce | | | | Total: \$3,549.35 | |
| Unit Name | Description | Qty | Item Price | Total | |
| Longlife Tofu | 5 kg pkg. | 4.00 | \$10.00 | \$40.00 | |
| Manjimup Dried Apples | 50 - 300 g pkgs. | 20.00 | \$53.00 | \$1,060.00 | |
| Rosale Sauerkraut | 25 - 825 g cans | 26.00 | \$45.60 | \$1,185.60 | |
| Tofu | 40 - 100 g pkgs. | 35.00 | \$23.25 | \$813.75 | |
| Uncle Bob's Organic Dried Pears | 12 - 1 lb pkgs. | 15.00 | \$30.00 | \$450.00 | |
| | | | | Count: 5 | |

Sorting groups based on grouping condition values

By default, all groups in the report are sorted based on the values of the expression used as the [grouping condition](#), in ascending order. To change the sort direction, you should:

- Select the **Group Header** band and alter the value of the **Sort Direction** property in the properties panel;
- In the **Group Header** band editor, select a value for the **Sort Direction** parameter in the Expression or Data Column tabs.



Sorting groups based on total expression values

Very often, in a report with groups, it calculates the total for each of these groups. Often, you need to sort these groups based on the calculated total. To do this, you should do the following:

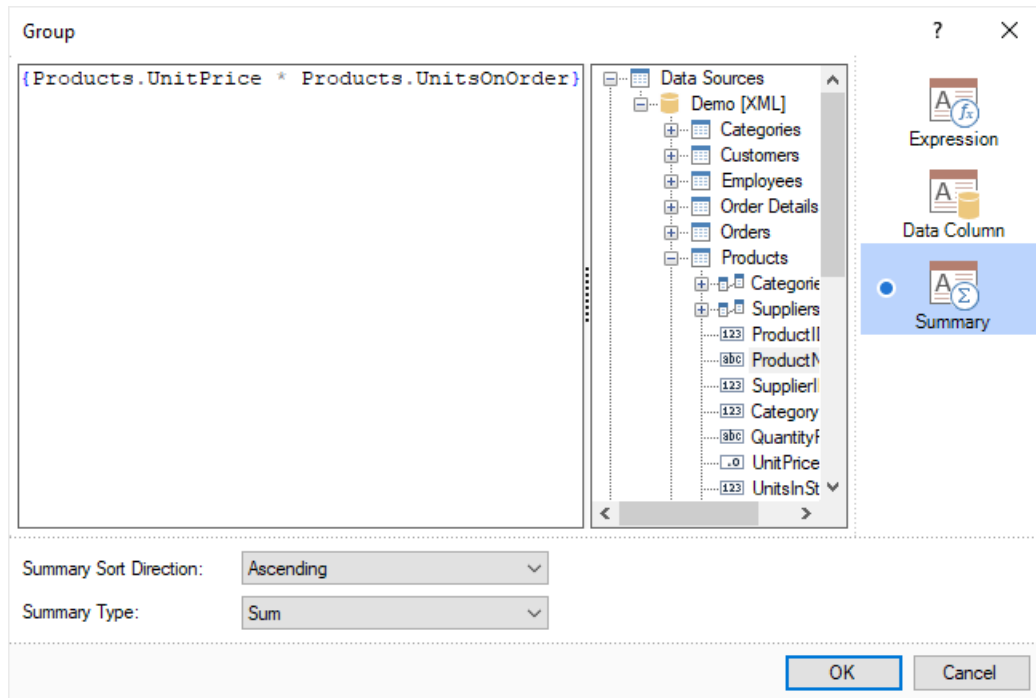
- Go to the Summary tab in the **Group Header** band editor.
- Specify a calculation expression for the total, such as a revenue expression. Note that sorting by total values is automatically enabled as soon as an expression is defined on the Summary tab. If the expression on this tab is deleted, sorting by total values will be disabled.

Information

If sorting by the values of the total expression is enabled, then sorting by the values of the grouping condition expression will not be performed.

- Select the calculation function for the **Summary Type** parameter. For example, you can choose the sum or average calculation function.
- Select the sort direction for the **Summary Sort Direction** parameter. For example,

you can choose ascending order, which means groups will be sorted from the lowest to highest revenue.



Additionally, you can configure the sorting settings by the total expression values using similar properties on the properties panel.

To do this, follow these steps:

- Select the **Data Header** band;
- Set the total calculation expression as the value of the **Summary Expression** property;
- Select the total calculation function as the value of the **Summary Type** property;
- Select the sort direction as the value of the **Summary Sort Direction** property.

The following is an example of a report where the groups are sorted by the total expression values in ascending order.

Top Sales

Stimulsoft

This sample demonstrates how to sort group by its total.

Date: August 2018

1. Produce

Total: \$3,549.35

| Unit Name | Description | Qty | Item Price | Total |
|--------------------------------|------------------|-------|------------|------------|
| Longlife Tofu | 5 kg pkg | 4.00 | \$10.00 | \$40.00 |
| Marymud Dried Apples | 50 - 200 g pkgs. | 20.00 | \$55.00 | \$1,100.00 |
| Rossie Seaweedout | 25 - 825 g cans | 28.00 | \$45.60 | \$1,185.60 |
| Tofu | 40 - 100 g pkgs. | 25.00 | \$28.25 | \$691.75 |
| Unice Bob's Organic Dried Peas | 12 - 1 lb pkgs. | 15.00 | \$40.00 | \$450.00 |

Count: 5

2. Grains/Cereals

Total: \$5,594.50

| Unit Name | Description | Qty | Item Price | Total |
|----------------------------------|--------------------|--------|------------|------------|
| Pila Mix | 16 - 2 kg boxes | 28.00 | \$7.00 | \$266.00 |
| Gnocchi di nonna Alice | 24 - 250 g pkgs. | 21.00 | \$28.00 | \$798.00 |
| Guarini's Macaroni | 24 - 500 g pkgs. | 100.00 | \$21.00 | \$2,100.00 |
| Ravelli Angelo | 24 - 250 g pkgs. | 26.00 | \$19.50 | \$702.00 |
| Singaporean Hokkien Fried Noodle | 22 - 1 kg pkgs. | 26.00 | \$16.00 | \$466.00 |
| Tumblers | 12 - 250 g pkgs. | 81.00 | \$9.00 | \$594.00 |
| Wimmers gute Semmelknodel | 20 bags x 6 pieces | 22.00 | \$38.25 | \$791.50 |

Count: 7

3. Meat/Poultry

Total: \$5,729.45

| Unit Name | Description | Qty | Item Price | Total |
|---------------------------|-----------------------|--------|------------|------------|
| Alice Mutton | 20 - 1 kg tins | 0.00 | \$39.00 | \$0.00 |
| Miami Kebab Fillet | 18 - 500 g pkgs. | 29.00 | \$97.00 | \$2,813.00 |
| Pink chicken | 24 boxes x 2 pigs | 115.00 | \$24.00 | \$2,760.00 |
| Pork Pasties | 65 pieces | 0.00 | \$22.80 | \$0.00 |
| Thuringer Roastbratenurst | 50 bags x 20 sausages | 0.00 | \$122.79 | \$0.00 |
| Toulouse | 16 pigs | 21.00 | \$7.65 | \$156.45 |

Count: 6

| 4. Confections | | | | | Total:\$10,392.20 |
|-------------------------------|----------------------|--------|------------|------------|-------------------|
| Unit Name | Description | Qty | Item Price | Total | |
| Chocolate | 10 pkg | 15.00 | \$12.75 | \$191.25 | |
| Gummi Gummibärchen | 100 - 250 g bags | 15.00 | \$27.33 | \$409.95 | |
| Milkies | 24 - 50 g pkgs | 10.00 | \$20.00 | \$200.00 | |
| Milkies Nut-Flavored-Creme | 20 - 650 g glasses | 76.00 | \$14.00 | \$1,064.00 | |
| Revolvs | 22 - 500 g boxes | 29.00 | \$17.45 | \$506.05 | |
| Schoggi Schokolade | 100 - 100 g pieces | 49.00 | \$43.90 | \$2,151.10 | |
| Scottish Longbread | 10 boxes x 8 pieces | 6.00 | \$12.50 | \$75.00 | |
| Sir Rodney's Marmalade | 20 g/lt boxes | 40.00 | \$21.00 | \$840.00 | |
| Sir Rodney's Scones | 24 pkgs x 4 pieces | 3.00 | \$10.00 | \$30.00 | |
| Tarte au sucre | 48 pies | 17.00 | \$49.30 | \$838.10 | |
| Teatime Chocolate Biscuits | 10 boxes x 12 pieces | 25.00 | \$9.20 | \$230.00 | |
| Valrhon's Jolies | 12 - 100 g bars | 65.00 | \$16.25 | \$1,056.25 | |
| Valrhon's Iceberg | 10 - 400 boxes | 25.00 | \$9.50 | \$237.50 | |
| | | | | | Count: 13 |
| 5. Dairy Products | | | | | Total:\$11,271.20 |
| Unit Name | Description | Qty | Item Price | Total | |
| Camembert Fromage | 15 - 200 g rounds | 19.00 | \$34.00 | \$646.00 | |
| Cheddar | 10 - 500 g pkgs | 26.00 | \$21.50 | \$559.00 | |
| Cheddar | 500 g | 112.00 | \$3.50 | \$392.00 | |
| Cheddar Cheese | 12 - 100 g pkgs | 0.00 | \$12.50 | \$0.00 | |
| Cheddar Cheese | 10 kg pkg | 25.00 | \$36.00 | \$900.00 | |
| Cheddar Cheese | 24 - 200 g pkgs | 9.00 | \$22.00 | \$198.00 | |
| Cheddar Cheese | 24 - 200 g pkgs | 14.00 | \$24.80 | \$347.20 | |
| Cheddar Cheese | 1 kg pkg | 22.00 | \$21.00 | \$462.00 | |
| Cheddar Cheese | 10 - 500 g pkgs | 35.00 | \$36.00 | \$1,260.00 | |
| Cheddar Cheese | 5 kg pkg | 19.00 | \$55.00 | \$1,045.00 | |
| | | | | | Count: 10 |
| 6. Condiments | | | | | Total:\$12,023.55 |
| Unit Name | Description | Qty | Item Price | Total | |
| Amesley Syrup | 12 - 500 ml bottles | 12.00 | \$10.00 | \$120.00 | |
| Chief Antonio Cajun Seasoning | 48 - 6 oz jars | 52.00 | \$22.00 | \$1,144.00 | |
| Chief Antonio Gumbo Mix | 25 boxes | 0.00 | \$21.25 | \$0.00 | |
| Chief Antonio Syrup | 24 - 250 ml bottles | 29.00 | \$15.50 | \$449.50 | |
| Chief Antonio Soybean Sauce | 12 - 8 oz jars | 120.00 | \$25.00 | \$3,000.00 | |
| Chief Antonio | 20 - 2 kg bags | 27.00 | \$19.45 | \$525.15 | |
| Chief Antonio | 22 - 8 oz bottles | 76.00 | \$21.00 | \$1,596.00 | |
| Chief Antonio | 24 - 8 oz jars | 4.00 | \$17.50 | \$70.00 | |
| Chief Antonio | 12 - 12 oz jars | 6.00 | \$40.00 | \$240.00 | |
| Chief Antonio | 12 boxes | 32.00 | \$15.00 | \$480.00 | |
| Chief Antonio | 24 - 500 ml bottles | 112.00 | \$20.50 | \$2,296.00 | |
| Chief Antonio | 15 - 625 g jars | 24.00 | \$45.90 | \$1,095.60 | |
| | | | | | Count: 12 |

Page 2 of 2

4.16.5 GroupFooter

It is enough to place a text component with an aggregate function in a **Group Footer** to output footer by group. Also, the footer of a group may be placed in a **Group Header** band. For example, to count the number of rows in each group in a **Text** component the following expression can be used:

```
{Count()}
```

A component is placed in the **Group Footer** band.

| GroupFooterBand1 | | |
|------------------|------------------|--|
| | Count: {Count()} | |

After rendering, it is possible to see that in the footer of each group a calculation of the number of rows is performed.

| Simple Group | | | |
|------------------------------------|---------------------------------|----------------|----------------------|
| A | | | |
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avenida de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-9932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 | Sales Representative |
| Count: 4 | | | |
| B | | | |
| Belgische Snoekbode | Bergvlietweg 8 | 0921-12 34 65 | Order Administrator |
| Blaeuwzee Delikatessen | Poststr. 57 | 0621-08460 | Sales Representative |
| Blondie's Deli | 24, place Kléber | 88.60.15.31 | Marketing Manager |
| Bólido Comidas preparadas | C/ Araquil, 67 | (91) 555 22 82 | Owner |
| Bon app' | 12, rue des Bouchers | 91.24.45.40 | Owner |
| Bottom-Dollar Markets | 23 Tsewessen Blvd. | (604) 555-4729 | Accounting Manager |
| B's Beverages | Paukertoy Circus | (171) 555-1212 | Sales Representative |
| Count: 7 | | | |

4.16.6 KeepGroupTogether Property

When rendering a report with grouping, a group may not fit to one page. Several lines of group will be output on one page and other part on the next page.

| | | | |
|--------------------------------|----------------------------------|----------------|-----------------------|
| E | | | |
| Eastern Connection | 35 King George | (171) 555-0297 | Sales Agent |
| Ernst Handel | Kirchgasse 8 | 7876-3425 | Sales Manager |
| F | | | |
| Familia Arquibaldo | Rua Orós, 92 | (11) 555-8857 | Marketing Assistant |
| Filippi's Fabric Inter. | Salothias 8.A.CI Moralzarzal, 98 | (91) 555 94 44 | Accounting Manager |
| Folies gourmandes | 184, chaussée de Tournai | 20.18.10.18 | Assistant Sales Agent |
| Folk och fä HB | Åkergetan 24 | 0895-34 87 21 | Owner |
| France restauration | 64, rue Royale | 40.32.21.21 | Marketing Manager |
| G | | | |
| Grahl's S.p.A. | Via Monte Bianco 34 | 011-4882280 | Sales Representative |
| Frankenversand | Berliner Platz 43 | 089-0877510 | Marketing Manager |
| Furia Bacalhau e Frutos do Mar | Jardim das rosas n. 32 | (1) 354-2634 | Sales Manager |
| Galeria del gastrónomo | Rambla de Catalunya, 28 | (93) 200 4680 | Marketing Manager |
| Godos Cocina Tipica | C/ Romero, 53 | (95) 556 92 92 | Sales Manager |
| Gourmet Lanchonettes | Av. Brasil, 442 | (11) 556-8482 | Sales Associate |
| Great Lakes Food Market | 2732 Baker Blvd. | (603) 555-7555 | Marketing Manager |

This can be avoided using the **KeepGroupTogether** property of the **Group Header** band. If to set this property to **true**, then, if a group cannot be placed on one page, the whole group is moved to the next page. If it is impossible to print a group on the next page then the group will be forcibly broken and output on multiple pages.

| | | | |
|--------------------|----------------|----------------|---------------|
| E | | | |
| Eastern Connection | 35 King George | (171) 666-0287 | Sales Agent |
| Ernst Handel | Kirchgasse 8 | 7876-3426 | Sales Manager |

| | | | |
|-------------------------------|--------------------------|----------------|-----------------------|
| F | | | |
| Familia Arquibaldo | Rua Orós, 92 | (11) 666-8967 | Marketing Assistant |
| FIBSA Fabricos Inter. S.A.CI | Moralzarzal, 98 | (91) 666 84 44 | Accounting Manager |
| Folies gourmandes | 184, chaussée de Tournai | 20.18.10.18 | Assistant Sales Agent |
| Folk och HB | Åkerstaden 24 | 0896-34 87 21 | Owner |
| France restauration | 64, rue Royale | 40.32.21.21 | Marketing Manager |
| Franchi S.p.A. | Via Monte Bianco 34 | 011-4882280 | Sales Representative |
| Frankenversand | Berliner Platz 43 | 039-0377310 | Marketing Manager |
| Furia Bealhou e Frutos do Mar | Jardim das rosas n. 92 | (1) 354-2634 | Sales Manager |

Work with this property may lead to empty space on page, if groups contain a large number of rows.

4.16.7 KeepGroupHeaderTogether Property

The **Group Header** band has the **KeepHeaderGroupTogether** property. If the property is set to **false**, then the group header can be displayed on one page, and data of a group can be moved to another page. So data will be separated from its header. The picture below shows that the header is on one page, and the data were moved to another.

| | | | |
|----------|--|--|--|
| G | | | |
|----------|--|--|--|

| | | | |
|-------------------------|-------------------------------|----------------|-------------------|
| Galeria del gastrónomo | Rambla de Catalunya, 23 | (93) 203 4680 | Marketing Manager |
| Godos Cocina Tipica | C/ Romero, 33 | (96) 666 32 32 | Sales Manager |
| Gourmet Lanchonetes | Av. Brasil, 442 | (11) 666-8482 | Sales Associate |
| Great Lakes Food Market | 2732 Baker Blvd. | (603) 666-7666 | Marketing Manager |
| GROBELLA-Restaurant | 6ª Ave. Los Palos Grandes (2) | 283-2961 | Owner |

If the property is set to **true**, then the group header will be displayed with at least one row of a group. The picture below shows how a group will be output if the **KeepHeaderGroupTogether** property is set to true.

| | | | |
|----------|--|--|--|
| G | | | |
|----------|--|--|--|

| | | | |
|-------------------------|-------------------------------|----------------|-------------------|
| Galeria del gastrónomo | Rambla de Catalunya, 23 | (93) 203 4680 | Marketing Manager |
| Godos Cocina Tipica | C/ Romero, 33 | (96) 666 32 32 | Sales Manager |
| Gourmet Lanchonetes | Av. Brasil, 442 | (11) 666-8482 | Sales Associate |
| Great Lakes Food Market | 2732 Baker Blvd. | (603) 666-7666 | Marketing Manager |
| GROBELLA-Restaurant | 6ª Ave. Los Palos Grandes (2) | 283-2961 | Owner |

By default the **KeepHeaderGroupTogether** property is set to **true**.

4.16.8 KeepGroupFooterTogether Property

The **Group Footer** Band has the **KeepGroupFooterTogether** property. If the property is set to **false**, then the data can be placed on one page and the footer of a group on another, and data of groups will be separated from its footer:

| | | | |
|---|--|--|--|
| I
Island Trading Garden House Crowther Wt(198) 666-8888 Marketing Manager | | | |
| Count:1 | | | |
| K
Königlich Essen Maubelstr. 90 0666-09878 Sales Associate | | | |
| Count:1 | | | |

If the property is set to **true**, then at least one line of data will be together with the footer of a group:

| | | | |
|---|--|--|--|
| K
Königlich Essen Maubelstr. 90 0666-09878 Sales Associate | | | |
| Count:1 | | | |

By default this property is set to **true**.

4.16.9 Events and Group Header band

Important

Scripts can be a security risk, so they are disabled in the [Interpretation mode](#). However, if you are confident in the safety of your scripts, you can use them in the [Compilation mode](#).

Like the **Data** band, the **Group Header** band has three specific events:

- > **BeginRenderEvent**,
- > **EndRenderEvent** and
- > **RenderingEvent**.

BeginRenderEvent

The **BeginRenderEvent** is called before a group is rendered, in other words whenever a new group is output. This event can be used for the initialization of data or variables, or for calling certain actions.

EndRenderEvent

The **EndRenderEvent** is called after the group is output. Usually in the handler for this event data processing and the calculation of totals are done.

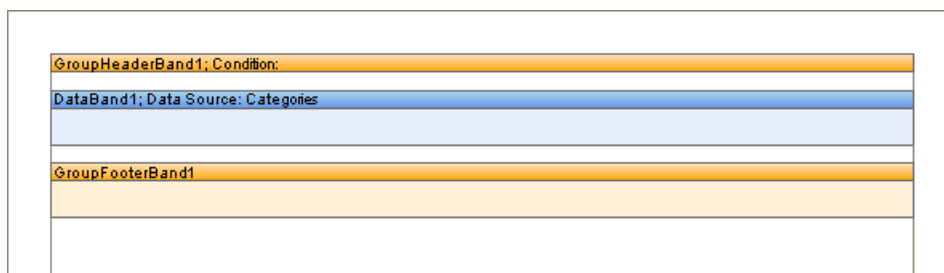
RenderingEvent

The **RenderingEvent** is called when the engine is rendering one data row from a group.

4.16.10 Group Without Group Header

In grouped reports it is usual to display both a group header and a group footer. However, what if you need to output only group footers without group headers?

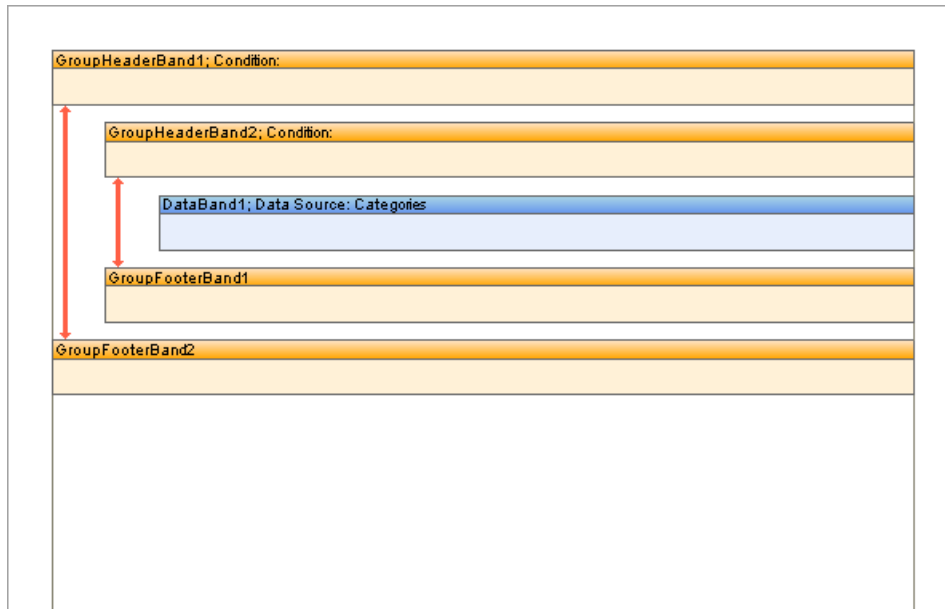
When creating grouped reports you must use a **Group Header** band, but if you do not want it to be displayed, it can be hidden by setting the height of the **Group Header** band to **0** which will cause the report to be rendered successfully but the **Group Header** band will not appear in the output.



4.16.11 Nested Groups

When rendering grouped reports you may use more than one grouping to achieve the desired output, known as 'nesting'. For example, you might group Customers by location and then sub group them alphabetically. To achieve this style of report you

should put the required number of **Group Header** bands before the **Data** band and ideally the same number of **Group Footer** bands immediately after it:



Although it is possible to leave out unwanted **Group Footers** it is recommended that you always place equal numbers of **Group Header** and **Group Footer** bands on a report to avoid unexpected results. If the number of **Group Footer** bands is greater than the number of **Group Header** bands then the outer ones will be used and the inner bands ignored. If the number of **Group Footer** bands is less than the number of **Group Header** bands, then the **Group Header** bands placed closer to the **Data** band will be output without footers.

❗ **Note:** It is recommended to have an equal number of GroupHeader and GroupFooter bands in a report.

In each **Group Header** band you must specify the grouping criteria. When rendering the report the **Group Header** bands are processed in the order in which they appear on a page working from the top down, the topmost band is processed first, then the one that is placed directly underneath it and so on. When placing **Group Footer** bands on a report page it is important to remember that the last **Group Footer** band is always associated with the first **Group Header** band.

4.16.12 Groups Without Group Footer

In grouped reports it is usual to display both a group header and a group footer. However, what if you need to output only group headers without group footers?

It is possible to simply not include a **Group Footer**, but this is **NOT** recommended as it can lead to unexpected results particularly if you are working with **Nested** groups. It is, therefore, recommended that you **ALWAYS** use **Group Headers** and **Group Footers** in pairs.

❗ **Note:** To render reports with grouping you should always use Group Headers and Group Footers in pairs to avoid the possibility of unexpected results.

If you do not want the **Group Footer** to be displayed it can be hidden by setting its height to **0** which will cause the report to be rendered successfully but the band will not appear in the output.

4.16.13 LineThrough System Variable

One of the tasks of line numbering is through numbering in a group. The numbering starts with number 1. Through numbering of lines in a group is defined by the **LineThrough** system variable.

| Line Number | Company | Address | Contact |
|-------------|--------------------------------------|--------------------------|-----------------------|
| F | | | |
| 22 | Familia Arquibaldo | Rua Ords, 92 | Marketing Assistant |
| 23 | FIBSA Fabrica Inter. Belchichas S.A. | C/ Morelazarzi, 88 | Accounting Manager |
| 24 | Folies gourmandes | 184, chaussée de Tournai | Assistant Sales Agent |
| 25 | Folk och fr HB | Åkerigatan 24 | Owner |
| 26 | France restauration | 54, rue Royale | Marketing Manager |
| 27 | Franchi S.p.A. | Via Monte Bianco 34 | Sales Representative |
| 28 | Frankenversand | Berliner Platz 43 | Marketing Manager |
| 29 | Furtis Becalheu e Filhos do Mar | Jardim das rosas n. 92 | Sales Manager |
| Count: 8 | | | |

In other words, when using the **LineThrough** system variable, all rows in the rendered list have an index number and start of printing a new group header does not affect the numbering (numbering does not reset to its initial state equal to 1).

4.16.14 Numbering Rows in Group

If you wish to display line numbers within a group you should use the **Line** system variable. The reference to this variable should be specified in the expression assigned to a text component placed on the group Data band.

For example, put a text component on the **Data** band and write the following expression in it:

```
{Line}
```

After the report has been rendered there will be a numbered list of rows in each group, the numbers starting at 1.

In each new group within a report the numbering starts all over again at 1. If you want the numbers to continue from one group into the next group (known as 'through-numbering') you should use the **LineThrough** system variable instead. For example, write the following expression in the text component:

```
{LineThrough()}
```

As a result the row numbers in the subsequent group will continue from the numbers in the preceding group.

4.16.15 GroupLine System Variable

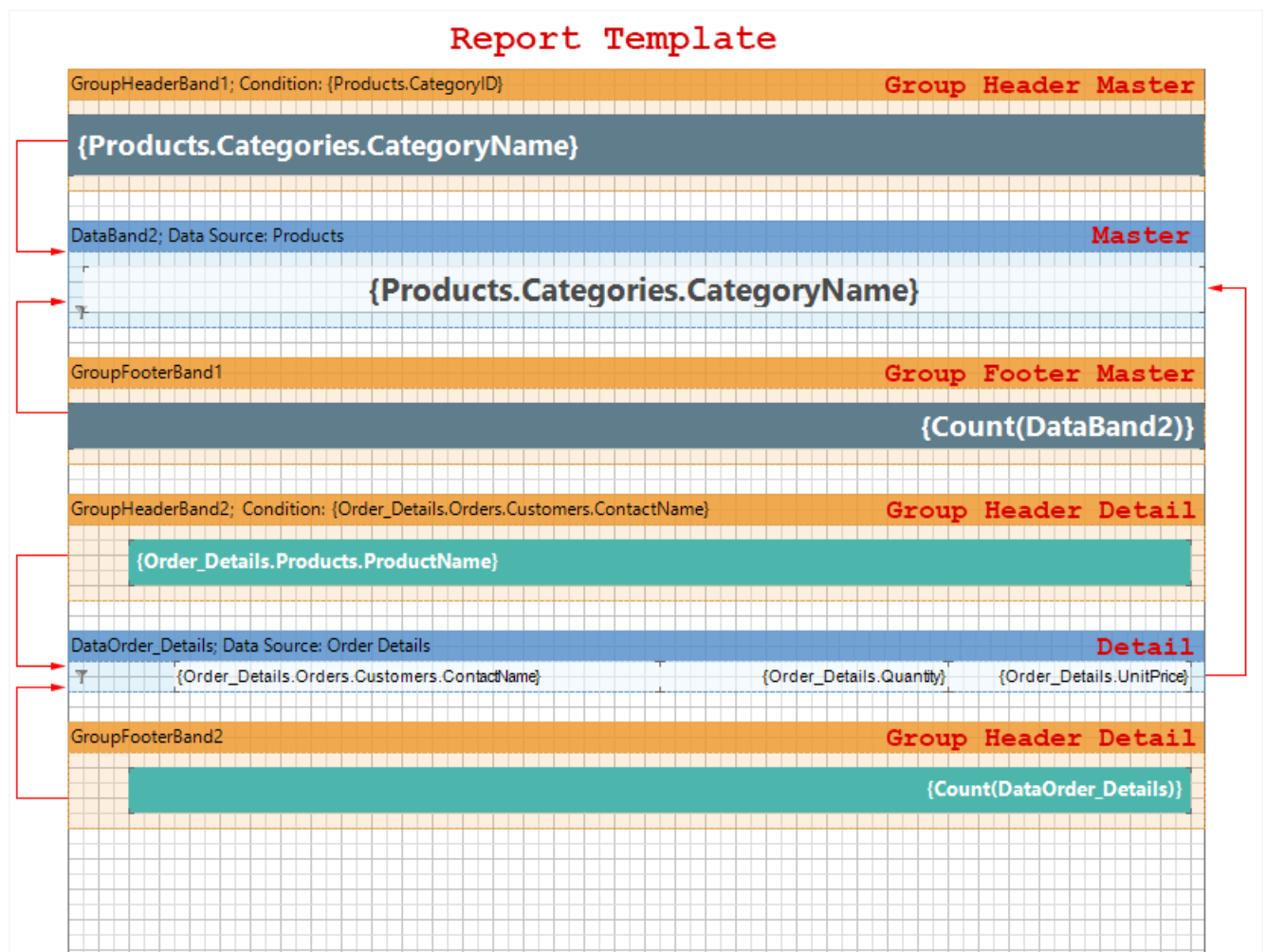
Numbering of groups in the report generator is defined by the **GroupLine** system variable. Group numbering starts with 1. The picture below shows an example of a report with numbering of groups:

| Simple Group | | | |
|------------------------------------|------------------------------|----------------|-----------------------|
| Company | Address | Phone | Contact |
| 1 | | | |
| Uffade Pasterizas | Cobena St. 27 | 030-0070301 | Sales Representative |
| Una Trojilla Empanadas y helados | Avda de la Constitución 1020 | (2) 222-4729 | Owner |
| Unipol Moreno Tapuena | Montevideo 2312 | (2) 222-2922 | Owner |
| Urondine Horn | 120 Manserv St. | (171) 222-7766 | Sales Representative |
| Count: 4 | | | |
| 2 | | | |
| Berglund's snabbidg | Berglundsgatan 4 | 0621-12 91 65 | Order Administrator |
| Bauer & Dehnbassen | Forsman St. | 0621-06460 | Sales Representative |
| Bondadoso/paquetes | 24, plaza Haber | 66 40 12 31 | Marketing Manager |
| Bolito Comidas preparadas | C. Uruguay 47 | (91) 222 22 60 | Owner |
| Bonappi | 15, rue des Bouchers | (91) 22 42 60 | Owner |
| Boston-Dollar-Markas | 55 Tannecker Blvd. | (604) 222-4729 | Accounting Manager |
| St. Beverages | Fountain City Circuit | (171) 222-1212 | Sales Representative |
| Count: 7 | | | |
| 3 | | | |
| Casos Comidas para llevar | Cerro 222 | (1) 122-2222 | Sales Agent |
| Centro comercial Nocazuma | Siemas de Granada 6992 | (2) 222-2222 | Marketing Manager |
| Chop-suey Chinese | Haugen St. | 0422-07642 | Owner |
| Comércio Mineiro | Av. dos Lucidos, 22 | (11) 222-7647 | Sales Associate |
| Consolidated Holdings | Seaford Gardens 12 Brewery | (171) 222-2262 | Sales Representative |
| Count: 5 | | | |
| 4 | | | |
| Die Wandende Kuh | Johannstraße 900 | 0711-020561 | Sales Representative |
| Drachenhof Dehnbassen | Waldemar St. | 0621-064122 | Order Administrator |
| Du monde entier | 47, rue des Champs Orages | 42 47 66 66 | Owner |
| Count: 3 | | | |
| 5 | | | |
| Eastern Connection | 25 King George | (171) 222-0267 | Sales Agent |
| Emakhandel | Kirchgasse 6 | 7679-2422 | Sales Manager |
| Count: 2 | | | |
| 6 | | | |
| Familia Argubaldo | Rue Orde, 92 | (11) 222-9627 | Marketing Assistant |
| F&B Fabrica Inm. Salchichas S.R.L. | C. Moratzenal 66 | (91) 222 94 66 | Accounting Manager |
| Folkes gourmetes | 164, chaussée de Tournai | 20 16 10 16 | Assistant Sales Agent |
| Folk och Hög | Öbergsgatan 24 | 0662-94 67 21 | Owner |

A text component with the GroupLine system variable can be placed in the Group Header band, and in the Group Footer band.

4.16.16 Combining Groups and Master-Detail Reports

In **Master-Detail** reports it is possible to group both **Master** and **Detail** components. When creating a report, the report generator binds a group header and the **Data** band. The **Group Header** is placed on a page above the **Data** band, which outputs data rows. The **Group Header** band always refers to a specific **Data** band. Typically, the band is the first **Data** band, which is placed below the **Group Header** band. To render a report with the grouping, the **Data** band is required. The **Group Footer** band is placed below the **Data** band. It is meant that every **Data** band, with what the **Group Header** band is bound. Each **Group Footer** band, refers to a certain **Group Header** band. The **Group Footer** band will not be output if there is no **Group Header** band.



Rendered Report

| Confections | | Group Header Master | | |
|-------------------------|--------|-----------------------|---------|--|
| Master | | Confections | | |
| NuNuCa Nuß-Nougat-Creme | | Group Header Detail | | |
| Paula Parente | Detail | 15.00 | \$14.00 | |
| | | Group Footer Detail 1 | | |
| NuNuCa Nuß-Nougat-Creme | | Group Header Detail | | |
| Paula Wilson | Detail | 35.00 | \$14.00 | |
| | | Group Footer Detail 1 | | |
| NuNuCa Nuß-Nougat-Creme | | Group Header Detail | | |
| Philip Cramer | Detail | 4.00 | \$11.20 | |
| Philip Cramer | | 18.00 | \$14.00 | |
| | | Group Footer Detail 2 | | |
| Group Footer Master 1 | | | | |

The picture above shows a combination of **Group Header** band and **Group Footer** band bands with **Data bands** in a **Master-Detail** report.

4.17 Page Bands

Page bands are printed at the top or bottom of a page. Usually they are used to output things like page numbering, copyright notices, company address and contact information etc. Stimulsoft Reports supports three types of page bands: **Page Header**, **Page Footer**, and **Empty Data**.

4.17.1 Page Header Band

The Page Header band is used to output information such as page numbers, dates, and company information at the top of a page. The Page Header band is output at the top of every page of the report. An unlimited number of Page Header bands

can be placed on a page.

❗ **Note:** The number of Page Header bands that can be placed on a page is effectively unlimited other than by available space.

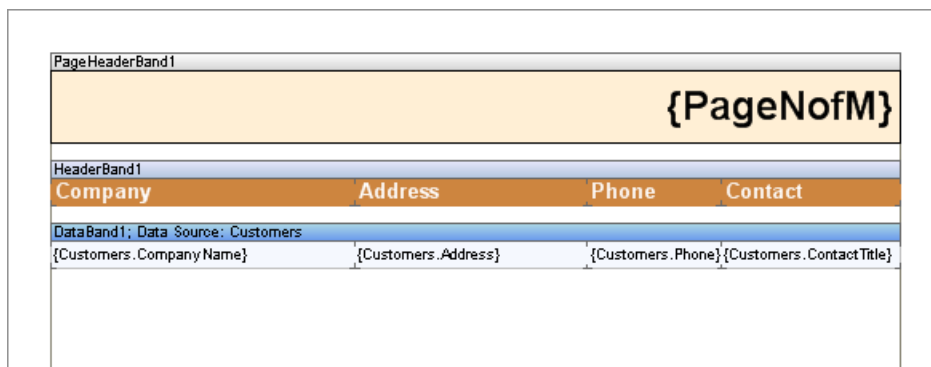
Example

Create a new report and drop three bands on a page: a Page Header band for the current page number and number of pages in the report, a Data band to output data and a Header band to output data column headers. Drop a text component on the Page Header band and enter the following expression in the Text Property Editor:

```
{PageNofM}
```

❗ **Note:** If you prefer, instead of typing the expression, it is possible to select it from the System Variables in the Expression Editor.

The result should look something like this:



The screenshot shows a report preview with three distinct bands. The top band, labeled 'PageHeaderBand1', is orange and contains the expression '{PageNofM}' on the right side. The second band, labeled 'HeaderBand1', is blue and contains four column headers: 'Company', 'Address', 'Phone', and 'Contact'. The third band, labeled 'DataBand1; Data Source: Customers', is white and contains four data fields corresponding to the headers: '{Customers.CompanyName}', '{Customers.Address}', '{Customers.Phone}', and '{Customers.ContactTitle}'.

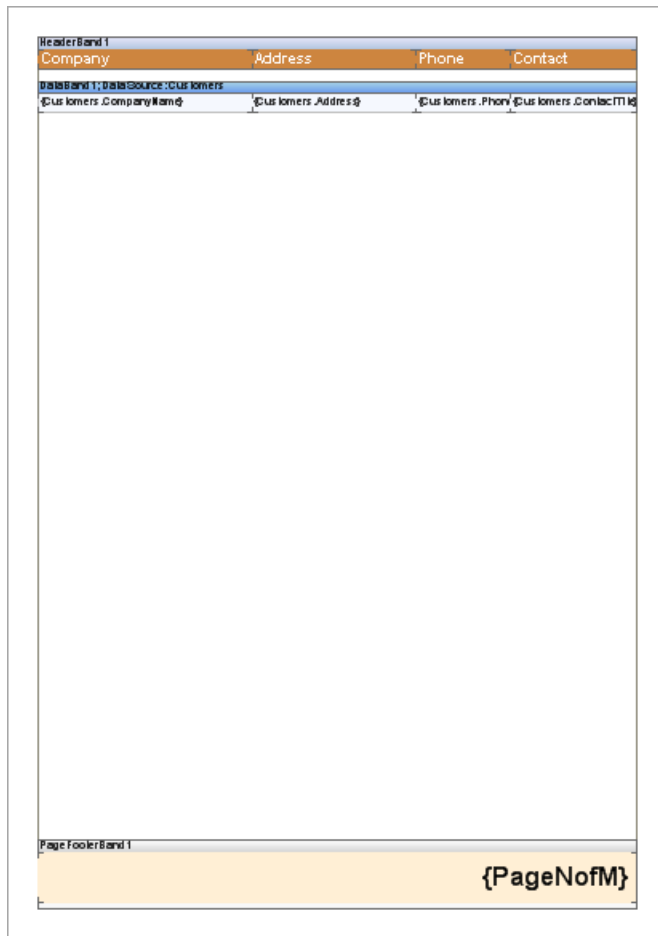
| PageHeaderBand1 | | | |
|-----------------------------------|---------------------|-------------------|--------------------------|
| {PageNofM} | | | |
| HeaderBand1 | | | |
| Company | Address | Phone | Contact |
| DataBand1; Data Source: Customers | | | |
| {Customers.CompanyName} | {Customers.Address} | {Customers.Phone} | {Customers.ContactTitle} |

Now run the report, and you will see that the page number is printed at the top of each page.

{PageNofM}

❗ **Note:** If you prefer, instead of typing the expression, it is possible to select it from the System Variables in the Expression Editor.

The result should look something like this:



The screenshot shows a report preview with a table and a footer. The table has four columns: Company, Address, Phone, and Contact. The data source is Customers. The footer displays the page number {PageNofM}.

| Company | Address | Phone | Contact |
|-----------------------|-------------------|-----------------|-------------------|
| Customers CompanyName | Customers Address | Customers Phone | Customers Contact |

Page Footer Band 1

{PageNofM}

Now run the report, and you will see that the page number is printed at the bottom of each page.

The picture above shows a sample of a report with the **PrintOnEvenOddPages** property of the **Page Header** band set to **EvenPage**.

| Company | Address | Phone | Contact |
|------------------|-----------------|----------------|---------------|
| Acme Corp | 123 Main St | (555) 123-4567 | John Doe |
| Alpha Industries | 456 Oak Ave | (555) 234-5678 | Jane Smith |
| Beta Systems | 789 Pine Rd | (555) 345-6789 | Bob Johnson |
| Gamma Tech | 101 Elm St | (555) 456-7890 | Alice Brown |
| Delta Corp | 202 Maple Ave | (555) 567-8901 | Charlie Davis |
| Epsilon Inc | 303 Cedar St | (555) 678-9012 | Diana Prince |
| Feta Solutions | 404 Birch Rd | (555) 789-0123 | Frank Miller |
| Geta Corp | 505 Walnut St | (555) 890-1234 | Grace Lee |
| Heta Industries | 606 Cherry Ave | (555) 901-2345 | Henry King |
| Ieta Systems | 707 Peach Rd | (555) 012-3456 | Ivy White |
| Jeta Tech | 808 Apple St | (555) 123-4567 | Jack Black |
| Keta Corp | 909 Orange Ave | (555) 234-5678 | Karen Green |
| Leta Inc | 1010 Grape Rd | (555) 345-6789 | Liam Brown |
| Meta Solutions | 1111 Lemon St | (555) 456-7890 | Mia White |
| Neta Corp | 1212 Lime Ave | (555) 567-8901 | Noah Black |
| Oeta Industries | 1313 Kiwi Rd | (555) 678-9012 | Olivia Green |
| Peta Systems | 1414 Mango St | (555) 789-0123 | Peter White |
| Qeta Corp | 1515 Peach Ave | (555) 890-1234 | Quinn Black |
| Reta Inc | 1616 Plum Rd | (555) 901-2345 | Rachel Green |
| Seta Solutions | 1717 Apple St | (555) 012-3456 | Sam White |
| Teta Corp | 1818 Cherry Ave | (555) 123-4567 | Tina Black |
| Ueta Industries | 1919 Orange Rd | (555) 234-5678 | Uma Green |
| Veta Tech | 2020 Grape St | (555) 345-6789 | Victor White |
| Weta Corp | 2121 Lemon Ave | (555) 456-7890 | Wendy Black |
| Xeta Systems | 2222 Lime Rd | (555) 567-8901 | Xavier Green |
| Yeta Inc | 2323 Kiwi St | (555) 678-9012 | Yara White |
| Zeta Solutions | 2424 Mango Ave | (555) 789-0123 | Zoe Black |

The picture above shows a sample of a report with the **PrintOnEvenOddPages** property of the **Page Header** band set to **OddPage**.

Three values are available for this property:

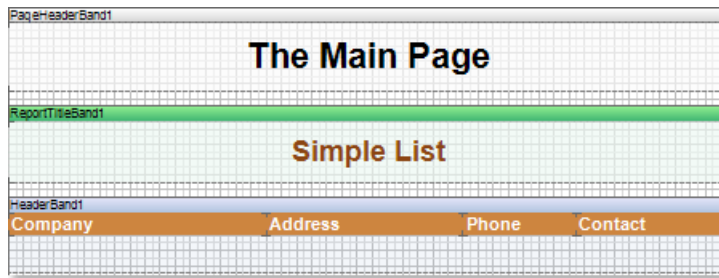
- ✓ **Ignore**. Bands are printed on all pages;
- ✓ **PrintOnEvenPages**. Bands are printed on even pages;
- ✓ **PrintOnOddPage**. Bands are printed on odd pages.

4.18 Report Bands

There are two report bands in Stimulsoft Reports: the **Report Title** and the **Reports Summary** bands. The Report Title band is output at the beginning of a report and the Report Summary band is output at the end of a report. The number of **Report Title** and **Report Summary** bands on a page is unlimited. The **Report Title** and the **Report Summary** bands can be output more than one time and can be used on each page.

4.18.1 Report Title band

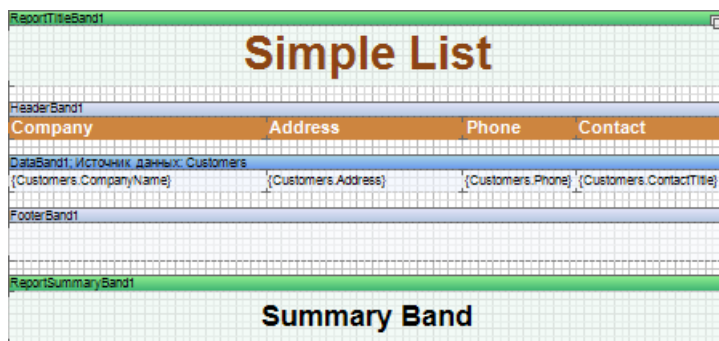
One of the ways to display the report header is the way of using the **Report Title** band. The report header will be output only once in the beginning of a report. The **Report Title** band is placed after the **Page Header** band, and before the **Header** band. The number of **Report Title** bands on a page is unlimited.



On the picture above shows how bands can be placed on a page. Here one can see top-down the **Page Header**, **Report Title**, and **Header** bands.

4.18.2 Report Summary band

The report summary can be shown using the **ReportSummary** band. There are no limits on how many **ReportSummary** bands can be placed on a template page. If the report template has multiple pages, the **ReportSummary** band can be placed on each page. In that case, it will appear after each completed template page.



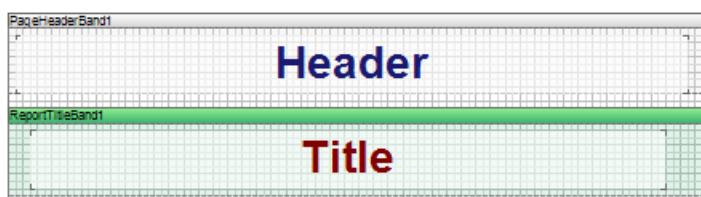
This band is used to output report summary.

The picture above shows how bands can be placed on a page. Here one can see the top-down order of bands:

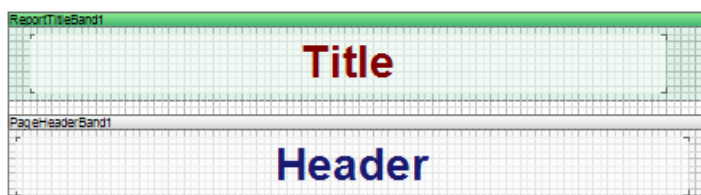
- ✓ The **Report Title** band;
- ✓ The **Header** band;
- ✓ The **Data** band;
- ✓ The **Footer** band;
- ✓ The **Report Summary** band.

4.18.3 ReportTitleBand Property

By default, the **Page Header** band is placed above the **Report Title** band:



but it is also possible to output the **Report Title** band before the **Page Header** band:



By default this property is set to **false**. Set the **TitleBeforeHeader** property to **true** and the **Report Title** band will be output before the **Page Header** band.

4.18.4 KeepReportSummaryTogether Property

When printing, sometimes the last data row will be on one page and the report summary on the next one. The report will not look good.

| | | | |
|------------------------|-----------------------------|----------------|---------------------------|
| W | | | |
| Walter Henrique | Torrelau 35 | 951-443855 | Accounting Manager |
| Wellington Importadora | Rua do Mercado, 12 | (14) 555-5122 | Sales Manager |
| White Clover Markers | 305 - 14th Ave. S. Suite 30 | (206) 555-4112 | Owner |
| Wilman Kala | Kesikukulu 45 | 90-224 5555 | Owner/Marketing Assistant |
| Wolcott, Zeped | U. Fitorea 85 | (28) 642-7012 | Owner |
| Count: 5 | | | |
| <u>Report Summary</u> | | | |

To avoid such unpleasant incidents the **Report Summary** band has the **KeepReportSummaryTogether** property.

If the **KeepReportSummaryTogether** property is set to **true**, then minimum one data row will be printed with the report summary. Thus it is necessary to take into account that after the data row is transferred free space may remain on a first page. Therefore, one should take this into account when working with this property.

| Company | Address | Phone | Contact |
|-----------------------|----------------|---------------|---------|
| Volcan Zapad | U. Filisola 85 | (28) 842-7012 | Owner |
| Count: 5 | | | |
| Report Summary | | | |

The default value of the property is set to **true**.

4.18.5 Print At Bottom Property

Suppose there is a report in which data covers only one-third of the last page. The report summary is displayed after the data.

| Company | Address | Phone | Contact |
|--------------------------------|-----------------------------|----------------|---------------------------|
| T | | | |
| The Big Cheese | 55 Jefferson Way Suite 2 | (503) 555-2812 | Marketing Manager |
| The Crocker Box | 55 Grizzly Peak Rd. | (408) 555-5534 | Marketing Assistant |
| Toma Spezialitäten | Luzernstr. 45 | 0281-031259 | Marketing Manager |
| Tortuga Restaurante | Avenida Azteca 123 | (5) 555-2923 | Owner |
| Tradigo Supermercados | Av. Inés de Castro, 414 | (11) 555-2107 | Sales Representative |
| Troika Food Gourmet Provisions | 722 DelVino Blvd. | (208) 555-5257 | Sales Associate |
| Count: 6 | | | |
| V | | | |
| Vafelmeis | Smagorzel 45 | 55 21 32 43 | Sales Manager |
| Volucres en stock | 2, rue du Commerce | 75 33 34 35 | Sales Agent |
| Vins et alcools Chevalier | 55 rue de l'Abbaye | 33 47 15 10 | Accounting Manager |
| Count: 3 | | | |
| W | | | |
| Warten Market | Torkelvi 35 | 901-442855 | Accounting Manager |
| Wellington Importadora | Rua do Mercado, 12 | (14) 555-8122 | Sales Manager |
| White Cover Markets | 205 - 14th Ave. S. Suite 30 | (206) 555-4112 | Owner |
| Winnemata | Keshukatu 45 | 90-224 5555 | Owner/Marketing Assistant |
| Volcan Zapad | U. Filisola 85 | (28) 842-7012 | Owner |
| Count: 5 | | | |
| Report Summary | | | |

But it is necessary that the report summary should be placed on the bottom of the page. The **Report Summary** band has the **PrintAtBottom** property. By default, the property is set to **false**.

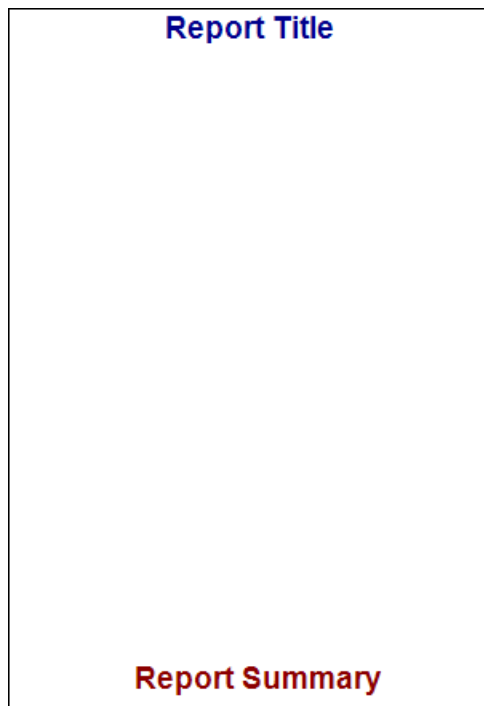
If the **PrintAtBottom** property is set to **true**, then summary will be output on the bottom of the page.

| Company | Address | Phone | Contact |
|-------------------------------|-----------------------------|----------------|---------------------------|
| T | | | |
| The Big Cheese | 55 Jefferson Way Suite 2 | (502) 555-3812 | Marketing Manager |
| The Cracker Box | 55 Grizzly Peak Rd. | (406) 555-5534 | Marketing Assistant |
| Toma Spezialitäten | Luisenstr. 45 | 0391-031259 | Marketing Manager |
| Tortuga Restaurant | Avenida Azteca 123 | (5) 555-3222 | Owner |
| Tradiplo Hipermercados | Av. Inés de Castro, 414 | (11) 555-2187 | Sales Representative |
| Trois Heut Gourmet Provisions | 722 DelVino Blvd. | (206) 555-5257 | Sales Associate |
| Count: 6 | | | |
| V | | | |
| VetFarnet | Smagelgel 45 | 55 21 22 42 | Sales Manager |
| Victualles en stock | 2, rue du Commerce | 75 22 54 88 | Sales Agent |
| Vins et alcools Chevalier | 59 rue de l'Abbaye | 33 47 15 10 | Accounting Manager |
| Count: 3 | | | |
| W | | | |
| Wartian Markku | Torkkeli 35 | 051-442855 | Accounting Manager |
| Wellington Importadora | Rua do Mercado, 12 | (14) 555-0122 | Sales Manager |
| White Clover Markets | 205 - 14th Ave. S. Suite 20 | (206) 555-4112 | Owner |
| Winnem Kala | Keskitalu 45 | 90-224 5555 | Owner/Marketing Assistant |
| Wolski Zapiad | U. Pitkova 85 | (26) 642-7012 | Owner |
| Count: 5 | | | |

[Report Summary](#)

4.18.6 Print If Empty Property

There is a property in a report generator that allows you to display a report header and/or report footer when the DataBand is not on a page, or there is no data in the report. This is the **Print If Empty** property, which is available on both the **Report Title** band, and the **Report Summary** band.



By default, this property is enabled. If you disable this property for two bands, you get a blank page.

! **Note:** that in this example, in addition to the Print If Empty property, the Print At Bottom property of the Report Summary band is also set.

4.19 Columns

Stimulsoft Reports has the ability to group data in columns. Data output in columns can improve the appearance of a report, and also allows more efficient use of page space. Two types of columns are supported: columns on a Page and columns on a Data band. Columns on a Data band support two modes: Across Then Down and Down Then Across. Stimulsoft Reports has a full set of tools to allow reports to be rendered with columns.

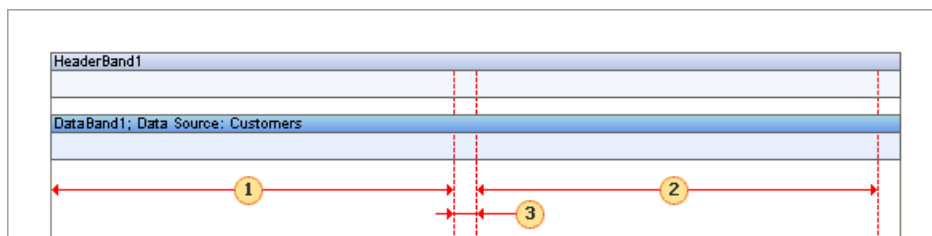
4.19.1 Columns on Page

It is possible to output data on a page in columns using the **Columns** property. By default this property is set to 0. Setting the value to 2 or more will cause the data to be output in columns. You will also need to set the **ColumnWidth** and **ColumnGaps** properties.

| | |
|---------------|--------------------------|
| ▼ 3. Columns | |
| Columns | 2 |
| Column Width | 9.5 |
| Column Gaps | 0 |
| Right to Left | ☐ |

The **ColumnWidth** property is used to set the column width and is applied to all columns which will be output on the page. The **ColumnGaps** property is used to set the space between the columns.

! **Note:** Three page properties have to be set to output columns on a page. The Columns property is used to define the number of columns, the **ColumnWidth** property is used to set the width of each column, and the **ColumnGaps** property is used to set the space between the columns.



- 1 The first column width
- 2 The second column width
- 3 The space between columns

In columnar output mode the page is separated vertically and the report is logically output in the first column, then in the second etc.

! **Note:** The number of columns on a page is unlimited.

Example

Suppose that you need a report with two columns. Set the **Columns** property to 2 (this means that two columns will be output on each page). Set the **ColumnWidth** to a suitable width for one column and in the **ColumnGaps** property set the space between columns. Put two bands on a page: a Header band and a Data band. The data headers will be output on the Header band and data itself will be output on the Data band.

❗ **Note:** Column borders are indicated by the red line.

| HeaderBand1 | |
|-----------------------------------|-------------------|
| Company | Phone |
| DataBand1; Data Source: Customers | |
| {Line}. {Customers.Company Name} | {Customers.Phone} |

Run the report. There are two columns on each page and all lines are numbered.

| Company | Phone | Company | Phone |
|---------------------------------------|----------------|----------------------------------|-----------------|
| 1. Alfreds Futterkiste | 030-0074321 | 46. Let's Stop N Shop | (415) 555-5938 |
| 2. Ana Trujillo Emparedados y helados | (5) 555-4729 | 47. LILA Supermercado | (9) 331-8954 |
| 3. Antonio Moreno Taquería | (5) 555-3932 | 48. LINO-Delicatessen | (8) 34-56-12 |
| 4. Around the Horn | (171) 555-7788 | 49. Lonesome Pine Restaurant | (503) 555-9573 |
| 5. Berglunds snabbköp | 0921-12 34 65 | 50. Magazzini Alimentari Riuniti | 035-840230 |
| 6. Blauer See Delikatessen | 0621-08460 | 51. Maison Dewey | (02) 201 24 67 |
| 7. Blondesddsl père et fils | 88.80.15.31 | 52. Mère Paillarde | (514) 555-8054 |
| 8. Bólido Comidas preparadas | (91) 555 22 82 | 53. Morgenstern Gesundkost | 0342-023176 |
| 9. Bon app' | 91.24.46.40 | 54. North/South | (171) 555-7733 |
| 10. Bottom-Dollar Markets | (804) 555-4729 | 55. Océano Atlántico Ltda. | (1) 135-5333 |
| 11. B's Beverages | (171) 555-1212 | 56. Old World Delicatessen | (907) 555-7584 |
| 12. Cactus Comidas para llevar | (1) 135-5555 | 57. Otilies Käseladen | 0221-0644327 |
| 13. Centro comercial Moctezuma | (5) 555-3392 | 58. Paris spécialités | (1) 42.34.22.86 |
| 14. Chop-suey Chinese | 0452-076545 | 59. Pericles Comidas clásicas | (5) 552-3745 |
| 15. Comércio Mineiro | (11) 555-7647 | 60. Piccolo und mehr | 6562-9722 |
| 16. Consolidated Holdings | (171) 555-2282 | 61. Princesa Isabel Vinhos | (1) 356-5634 |
| 17. Die Wandende Kuh | 0711-020361 | 62. Que Delícia | (21) 555-4252 |
| 18. Drachenblut Delikatessen | 0241-039123 | 63. Queen Cozinha | (11) 555-1189 |
| 19. Du monde entier | 40.67.88.88 | 64. QUICK-Stop | 0372-035188 |
| 20. Eastern Connection | (171) 555-0297 | 65. Rancho grande | (1) 123-5555 |

The columns are generated automatically - Stimulsoft Reports prints bands until there is no free space left on a page. Then, instead of creating a new page, a new column is added and data is output in a new column until again there is no free space. This is repeated until the required number of columns has been generated, at which point if there is still data to be output a new page is created and the process starts all over again.

Multi Column List

| Company | Phone | Company | Phone |
|--|----------------|----------------------------------|--------------------|
| 1. Alredes Pasterkian | (555) 0074321 | 42. La maison d'Arde | (61) 77 61 10 |
| 2. Ana Trujillo Corpomercado y Helados | (5) 555-4739 | 43. Laughing Goshua Wine Cellars | (604) 555-3362 |
| 3. Antonio Moreno Taquerias | (5) 555-3602 | 44. Lacy K Country Store | (506) 555-7969 |
| 4. Around the Horn | (111) 555-7788 | 45. Lathesona Markets and | (656) 624 5864 |
| 5. Berglund's Knishbriep | (662) 12 34 65 | 46. Lutz's Step'n Shop | (415) 555-5656 |
| 6. Besser Sea Delicacies | (662) 46460 | 47. LULA Supermercado | (80) 74 6854 |
| 7. Biondes deli pasterkian | (88) 66 15 31 | 48. LVO Delicatessen | (80) 56-12 |
| 8. Bordo's Conditio p | (91) 555 22 62 | 49. Lorraine Pine Restaurant | (204) 555-6673 |
| 9. Bono app' | (91) 24 45 40 | 50. Magazzini Alimentari Rurali | (035) 810250 |
| 10. Borden-Dollar Market | (604) 555-4739 | 51. Mainline Grocery | (052) 31 24 67 |
| 11. B's Beverages | (111) 555-1212 | 52. Main's Pastry | (51) 555-4454 |
| 12. Cactus Conditio | (11) 135-5555 | 53. Margherita's Gelateria | (604) 325 716 |
| 13. Cactus Conditio | (5) 555-3362 | 54. Martini's Deli | (111) 555-7753 |
| 14. Chop-Party Chees | (645) 470545 | 55. Occasio Alimentari | (11) 5-5555 |
| 15. Comercio Mince | (111) 555-7647 | 56. Old World Delicatessen | (984) 555-7564 |
| 16. Concedores de In | (111) 555-2262 | 57. Orlino's Deli | (622) 3644 327 |
| 17. Die Wunderschön | (071) 420361 | 58. Patisserie L'Alaine | (11) 34 22 66 |
| 18. Drachenkonditio | (0241) 459123 | 59. Patisserie Conditio classica | (05) 3-3745 |
| 19. Du monde en mie | (40) 67 88 88 | 60. Patisserie L'Alaine | (656) 3722 |
| 20. Du monde en mie | (111) 555-4267 | 61. Patisserie L'Alaine | (11) 3-5634 |
| 21. Ezer's Handel | (703) 54 25 | 62. Patisserie L'Alaine | (121) 55-4252 |
| 22. Fama's Argentin | (111) 555-6673 | 63. Queen's Conditio | (111) 55-1189 |
| 23. FAMA Fabrica de | (91) 555-64 | 64. Quich's Deli | (603) 305 188 |
| 24. Fama's Conditio | (20) 16 10 | 65. Ranche grande | (11) 3-5555 |
| 25. Fama's Conditio | (666) 167 21 | 66. Ranche grande | (556) 555-5656 |
| 26. Fama's Conditio | (40) 121 21 | 67. Rappaport's Conditio | (052) 556721 |
| 27. Fama's Conditio | (11) 4988260 | 68. Riccardo's Conditio | (121) 55-3412 |
| 28. Fama's Conditio | (666) 167 21 | 69. Richter's Supermarket | (686) 334 214 |
| 29. Fama's Conditio | (11) 354-2534 | 70. Rione's Conditio | (91) 85 6200 |
| 30. Fama's Conditio | (90) 203 4560 | 71. Rione's Conditio | (67) 92 35 |
| 31. Fama's Conditio | (90) 555 62 62 | 72. Rione's Conditio | (134) 555-4967 |
| 32. Fama's Conditio | (111) 555-4462 | 73. Rione's Conditio | (111) 555-1113 |
| 33. Fama's Conditio | (500) 555-7555 | 74. Rione's Conditio | (11) 34 56 |
| 34. Fama's Conditio | (2) 263-2951 | 75. Rione's Conditio | (134) 555-4967 |
| 35. Fama's Conditio | (21) 555-0091 | 76. Rione's Conditio | (134) 555-4967 |
| 36. Fama's Conditio | (5) 555-1340 | 77. Rione's Conditio | (1071) 23 67 22 20 |
| 37. Fama's Conditio | (500) 555-4674 | 78. Rione's Conditio | (500) 555-3612 |
| 38. Fama's Conditio | (267) 542 | 79. Rione's Conditio | (406) 555-5654 |
| 39. Fama's Conditio | (196) 555-4666 | 80. Rione's Conditio | (0251) 401 259 |
| 40. Fama's Conditio | (555) 46676 | 81. Rione's Conditio | (5) 555-2603 |
| 41. Fama's Conditio | (30) 59 64 10 | 82. Rione's Conditio | (111) 555-2167 |

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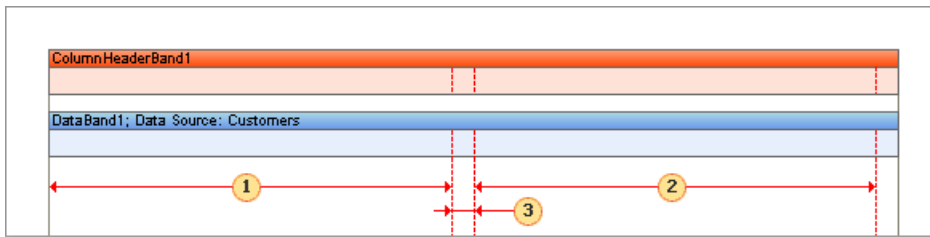
4.19.2 Columns on Data Band

Columns have one disadvantage, which is that there may be situations where the available data is sufficient to fill only one column leaving other columns empty and that part of a page will stay unused. To get around this problem it is possible to output columns using the Data band.

The **Columns** property of the Data band is used to enable the output of data in columns. Set this property to 2 or more to cause the data to be output in a columnar format.

It will also be necessary to set the **ColumnWidth** and **ColumnGaps** properties. The **ColumnWidth** property is used to set the column width and is applied to all columns on the Data band. The **ColumnGaps** property is used to set the space between two columns.

❗ **Note:** Three data band properties have to be set to output columns on a band. The **Columns** property is used to define the number of columns, the **ColumnWidth** property is used to set the width of each column, and the **ColumnGaps** property is used to set the space between the columns.



- ❶ The first column width
- ❷ The second column width
- ❸ The space between columns

❗ **Note:** The number of columns on a Data band is unlimited.

There are two output modes for columns on the Data band: **AcrossThenDown** and **DownThenAcross**.

4.19.2.1 AcrossThenDown Mode

This mode is used to output strings logically from left to right on the Data band. Strings are output one string to one column. When all columns on the Data band have been generated a new Data band will be formed and again all strings in columns will be output. The data will take up as much space in the report as is necessary.

Multi Column Bands Across then Down

| Company | Company | Company |
|--------------------------------|---------------------------------------|--------------------------------|
| 1. Alfreds FullerKis le | 2. Ana Trullio Emparedados y helado | 3. Antonio Moreno Taqueria |
| 4. Around the Horn | 5. Berglund's snabbköp | 6. Blauer Bee DeliKaleesen |
| 7. Blondes ddsi ptre e lls | 8. Bolido Comidas preparadas | 9. Bon app' |
| 10. Bottom-Dollar Marke Is | 11. B's Beverages | 12. Cactus Comidas para llevar |
| 13. Centro comercial Moezuma | 14. Chop-suey Chinese | 15. Comercio Mineiro |
| 16. Consolidated Holdings | 17. Die Wandermde Kuh | 18. Drachenbui DeliKaleesen |
| 19. Du monde entier | 20. Eastem Connection | 21. Eins i Handel |
| 22. Familia Arquibaldo | 23. FBSA Fabrica Inter. Salchichas E | 24. Folies gourmandes |
| 25. Folk och H B | 26. France res lauraton | 27. Franchi S.p.A. |
| 28. Frankenmaier | 29. Fruta Sacanade Frutas totias | 30. Garennergas Tronno |
| 31. Gostos Cocina Tipica | 32. Goume i Lanchone Is | 33. Gourmet Food Market I |
| 34. GROSSELLA-Resaurante | 35. Hanari Cakes | 36. HILARIO M-Abras |
| 37. Hungry Coyote Import Store | 38. Hungry Owl Gourmet Grocers | 39. Island Trailing |
| 40. K6niglich Essen | 41. La Comedistance | 42. Lamalsond'Aste |
| 43. Laughing Bacchus Delis | 44. Lazy K Country Store | 45. Lehmanns Marktland |
| 46. Le fs Shop II Shop | 47. LILA-Supermercado | 48. LIND-Delicateses |
| 49. Lonesome Pine Restaurant | 50. Mexicali Alimentat Rundl | 51. Melcon Desees |
| 52. Mère Poularde | 53. Morgens Item Gesundkos I | 54. MorihSouh |
| 55. Octiano Atlantico Lda | 56. Old World Delicatessen | 57. O'Shea's K&E Laden |
| 58. Paris specialites | 59. Pericles Comidas clasic | 60. Piccolound mehr |
| 61. Princesa Isabel Vinhos | 62. Que Pasa | 63. Queen Cozinha |
| 64. Q U K-Klopp | 65. Rancho grande | 66. Rattlesnake Canyon Grocery |
| 67. Reggiani Casei | 68. Ricardo Adiccados | 69. Richter Supermarkt |
| 70. Romero y Romillo | 71. SanM Goume i | 72. Sauerbrat Market Is |
| 73. Seven Seas | 74. Serrano's Deli | 75. Serrano's Deli |
| 76. Spill Rall Beer & Ale | 77. Suprêmes délices | 78. The Big Cheese |
| 79. The Cracker Box | 80. Toms Spezialitäten | 81. Toriuga Resaurante |
| 82. Tradição Hipermarcados | 83. Trail's Head Goume i Provisioners | 84. VeriteHemel |
| 85. Vidualles enskok | 86. Vine ealcools Cheveler | 87. Vorkari Herkuu |
| 88. Whettington Importados | 89. Whole Cider Market Is | 90. Wiltman Kala |
| 91. Wolski Zajazd | | |

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❗ **Note:** The number of columns on a Data band is unlimited.

Example

In this example we will build a report with three columns on the Data band. Put two bands on a page: A **ColumnHeader** band and a **Data** band. On the **Data** band set the Column property to 3 (this will create three columns). Set the column width using the **ColumnWidth** property, and the space between columns using the **ColumnGaps** property. Set the **ColumnDirection** property of the Data band to **AcrossThenDown** mode.

Place text components on the **ColumnHeader** band to represent the Column titles.

❗ **Note:** Column edges are indicated with red vertical lines. All components which are placed on the first column will be automatically repeated in the other columns.

| ColumnHeaderBand1 | | |
|-----------------------------------|--|--|
| Company | | |
| DataBand1; Data Source: Customers | | |
| {Line}. {Customers.CompanyName} | | |

Now run the report. It is very easy to see the direction of data output.

| Company | Company | Company |
|-----------------------------------|---|--------------------------------|
| 1. Alfreds Futterkiste | 2. Ana Trujillo Emparedados y helados | 3. Antonio Moreno Taquería |
| 4. Around the Horn | 5. Berglunds snabbköp | 6. Blauer See Delikatessen |
| 7. Bluesddsl père et fils | 8. Bóldo Comidas preparadas | 9. Bon app' |
| 10. Bottom-Dollar Markets | 11. B's Beverages | 12. Cactus Comidas para llevar |
| 13. Centro comercial Moctezuma | 14. Chop-suey Chinese | 15. Comércio Mineiro |
| 16. Consolidated Holdings | 17. Die Wandemde Kuh | 18. Drachenblut Delikatessen |
| 19. Du monde entier | 20. Eastern Connection | 21. Ernst Handel |
| 22. Familia Arquibaldo | 23. FISSA Fabrica Inter. Salchichas S.A | 24. Folies gourmandes |
| 25. Folk och få HB | 26. France restauration | 27. Franchi S.p.A. |
| 28. Frankenversand | 29. Furia Bacalhau e Frutos do Mar | 30. Galería del gastrónomo |
| 31. Godos Cocina Típica | 32. Gourmet Lanchonetes | 33. Great Lakes Food Market |
| 34. GROSELLA-Restaurante | 35. Hanari Carnes | 36. HILARION-Abastos |
| 37. Hungry Coyote Import Store | 38. Hungry Owl All-Night Grocers | 39. Island Trading |
| 40. Königlich Essen | 41. La come d'abondance | 42. La maison d'Asie |
| 43. Laughing Bacchus Wine Cellars | 44. Lazy K Kountry Store | 45. Lehmanns Marktstand |
| 46. Let's Stop N Shop | 47. LILA-Supermercado | 48. LINO-Delicateses |
| 49. Lonesome Pine Restaurant | 50. Magazzini Alimentari Riuniti | 51. Maison Dewey |
| 52. Mère Paillarde | 53. Morgenstern Gesundkost | 54. North/South |
| 55. Océano Atlántico Ltda. | 56. Old World Delicatessen | 57. Ottillies Käseladen |
| 58. Paris spécialités | 59. Pericles Comidas clásicas | 60. Piccolo und mehr |
| 61. Princesa Isabel Vinhos | 62. Que Delícia | 63. Queen Cozinha |

4.19.2.2 DownThenAcross Mode

The **AcrossThenDown** mode has a weakness in that it is not always easy to read information on the page because the content is output from left to right and then down. It is often easier to read when columns are output using the DownThenAcross mode. In this mode the data is displayed in the first column and only when that is full is data shown in the second, and so on.

Multi Column Bands Down then Across

| Company | Company | Company |
|---------------------------------------|------------------------------------|------------------------------------|
| 1. Alfreds Fuller's | 32. Goumei Lunchables | 63. Queen Cozinha |
| 2. Ana Trujillo Emparedados y helados | 33. Green Lakes Food Market | 64. UUC K-Slop |
| 3. Antonio Moreno Taqueria | 34. GROSSELLA Restaurant | 65. Rancho grande |
| 4. Around the Horn | 35. Harari Games | 66. Rattlesnake Canyon Grocery |
| 5. Berglunds snabbkop | 36. HILARIO M-Articulos | 67. Reggiani Casafel |
| 6. Blauer See Delikatessen | 37. Hungry for More Import Store | 68. Ricardo's Cocacolas |
| 7. Bonedesdelsipien Hills | 38. Hungry for More High Grocers | 69. Richies Supermarket |
| 8. Bolido Comidas preparadas | 39. Island Trading | 70. Romo y Romo |
| 9. Bon app' | 40. Koniglich Essen | 71. Sauer Goumeis |
| 10. Bottom-Dollar Market | 41. La Pâtisserie d'Elance | 72. Seershol Market |
| 11. B's Beverages | 42. L'Espresso d'Alce | 73. Seven Seas Sports |
| 12. Cactus Comidas para llevar | 43. Laughing Back Aus Wine Cellars | 74. Simons bislerie |
| 13. Centro comercial Moccasin | 44. Lazy K Kountry Store | 75. Spécialités du monde |
| 14. Chop-suey Chinese | 45. Lehmanns Marketland | 76. Split Rail Beer & Ale |
| 15. Comerciul Minel | 46. Let's Shop Market | 77. Supremes delicacies |
| 16. Consolidated Holdings | 47. LILA Supermarket | 78. The Big Cheese |
| 17. Die Wandermühle | 48. LINO-Delicatessen | 79. The Cracker Box |
| 18. Drachenklub Delikatessen | 49. Lonesome Pine Restaurant | 80. Toms Spezialitäten |
| 19. Du monde entier | 50. Magazzini Alimentari Riuniti | 81. Tongas Restaurant |
| 20. Eastem Connection | 51. Madison Dewey | 82. Tradiglo Hipomercados |
| 21. Emis Handel | 52. Métre Pallante | 83. Trail's Head Canned Provisions |
| 22. Familia Arquibaco | 53. Morgens Item London | 84. Varellemer |
| 23. F&B Fabricaciones Benichas S | 54. NorthSouth | 85. Michael's Chocolat |
| 24. Fettes gourmantes | 55. Octavo Alimentario Ltd. | 86. Vins et alcools Chevalier |
| 25. Folk och Häls | 56. Old World Delicatessen | 87. Vianthi Herbs |
| 26. France restauration | 57. O'Nilles Käsehaus | 88. Wellington Importados |
| 27. Franchi S.p.A. | 58. Paris spécialité | 89. White Clover Market |
| 28. Frankenversand | 59. Pericles Comidas clásicas | 90. Wilman Kala |
| 29. Furia Bacalhau e Frutos do Mar | 60. Piccolo und mehr | 91. Wolski Zajazd |
| 30. Galletas del gas trónico | 61. Princess Isabel Vinhos | |
| 31. Gostos Cocina Tipica | 62. Que Pasa | |

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When using the **DownThenAcross** mode, the report generator tries to distribute data rows evenly across the columns. When all data rows have distributed between the columns the first column is output. Because the data is evenly distributed the first column may not reach the bottom of a page - the data will take as much space on a page as is required, and it will be represented in convenient readable form (unlike the AcrossThenDown mode).

❗ **Note:** The number of columns on a Data band is unlimited.

Example

In this example we will build a report with columns in **DownThenAcross** mode. Put two bands on a page: A **ColumnHeader** band and a **Data** band. On the **Data** band set the Column property to 3 (this will create three columns). Set the column width using the **ColumnWidth** property, and the space between columns using the **ColumnGaps** property. Set the **ColumnDirection** property of the Data band to **DownThenAcross** mode.

Place text components on the **ColumnHeader** band to represent the Column titles.

❗ **Note:** Column edges are indicated with red vertical lines. All components which are placed on the first column will be automatically repeated in the other columns.



The diagram illustrates the layout of a report band. It consists of two main horizontal bands. The top band is labeled 'ColumnHeaderBand1' and contains a single column header 'Company'. The bottom band is labeled 'DataBand1; Data Source: Customers' and contains a single data row with the value '{Line}. {Customers.Company Name}'. Red vertical lines indicate the column edges. The diagram shows that the 'Company' header is repeated across all three columns, and the data row is also repeated across all three columns.

| ColumnHeaderBand1 | | |
|-----------------------------------|--|--|
| Company | | |
| DataBand1; Data Source: Customers | | |
| {Line}. {Customers.Company Name} | | |

Now run the report. The report generator tried to distribute evenly all data rows between all three columns - using our sample data there are 31 rows in the first column, 31 in the second one, and 29 in the third. All information is readable top-down and from left to right.

| Company | Company | Company |
|--|-----------------------------------|---------------------------------------|
| 1. Alfreds Futterkiste | 32. Gourmet Lanchonetes | 63. Queen Cozinha |
| 2. Ana Trujillo Emparedados y helados | 33. Great Lakes Food Market | 64. QUICK-Stop |
| 3. Antonio Moreno Taquería | 34. GROSELLA-Restaurante | 65. Rancho grande |
| 4. Around the Horn | 35. Hanari Cakes | 66. Rattlesnake Canyon Grocery |
| 5. Berglunds snabbköp | 36. HILARION-Abastos | 67. Reggiani Caseifici |
| 6. Blauer See Delikatessen | 37. Hungry Coyote Import Store | 68. Ricardo Adocicados |
| 7. Blondesdddsl père et fils | 38. Hungry Owl All-Night Grocers | 69. Richter Supermarket |
| 8. Bóldo Comidas preparadas | 39. Island Trading | 70. Romero y tomillo |
| 9. Bon app' | 40. Königlich Essen | 71. Santé Gourmet |
| 10. Bottom-Dollar Markets | 41. La come d'abondance | 72. Save-a-lot Markets |
| 11. B's Beverages | 42. La maison d'Asie | 73. Seven Seas Imports |
| 12. Cactus Comidas para llevar | 43. Laughing Bacchus Wine Cellars | 74. Simons bistro |
| 13. Centro comercial Motezuma | 44. Lazy K Kountry Store | 75. Spécialités du monde |
| 14. Chop-suey Chinese | 45. Lehmanns Marktstand | 76. Split Rail Beer & Ale |
| 15. Comércio Mineiro | 46. Let's Stop N Shop | 77. Suprêmes délices |
| 16. Consolidated Holdings | 47. LILA-Supermercado | 78. The Big Cheese |
| 17. Die Wandemde Kuh | 48. LIND-Delicatessen | 79. The Cracker Box |
| 18. Drachenblut Delikatessen | 49. Lonesome Pine Restaurant | 80. Toms Spezialitäten |
| 19. Du monde entier | 50. Magazzini Alimentari Riuniti | 81. Tortuga Restaurante |
| 20. Eastern Connection | 51. Maison Dewey | 82. Tradição Hipermercados |
| 21. Ernst Handel | 52. Mère Paillarde | 83. Trail's Head Gourmet Provisioners |
| 22. Familia Arquibaldo | 53. Morgenstern Gesundkost | 84. Vaffeljernet |
| 23. FISSA Fabrica Inter. Salchichas S.A. | 54. North/South | 85. Votualles en stock |
| 24. Folies gourmandes | 55. Océano Atlântico Ltda. | 86. Vins et alcools Chevalier |
| 25. Folk och få HB | 56. Old World Delicatessen | 87. Vartian Herkku |
| 26. France restauration | 57. Ottilies Käseladen | 88. Wellington Importadora |
| 27. Franchi S.p.A. | 58. Paris spécialités | 89. White Clover Markets |
| 28. Frankenversand | 59. Pericles Comidas clásicas | 90. Wilman Kala |
| 29. Furia Bacalhau e Frutos do Mar | 60. Piccolo und mehr | 91. Wolski Zajazd |
| 30. Galeña del gastrónomo | 61. Princesa Isabel Vinhos | |
| 31. Godos Cocina Típica | 62. Que Delícia | |

4.19.2.3 Minimal Number of Rows in Column

When using the Down Then Across column mode a situation could arise where there are too few rows available to output evenly in a report. In some cases it may be necessary not to distribute data rows equally across all columns for better visualization.

| Name | Name |
|--------------------------|------------------------------------|
| 1. Alice Mutton | 4. Perth Pasties |
| 2. Mishi Kobe Niku | 5. Thüringer Rostbratwurst |
| 3. Pâté chinois | 6. Tourtière |
| Name | Name |
| 1. Longlife Tofu | 4. Tofu |
| 2. Manjimup Dried Apples | 5. Uncle Bob's Organic Dried Pears |
| 3. Rössle Sauerkraut | |

The **MinRowsInColumn** property of the Data band can be used to define the minimum permitted number of rows in the first column. By default the value of this property is set to 0 which means that there is no minimum number of data rows. If the value of this property is higher than 0 then no less than the specified number of rows will be output in the first column. In the example below the **MinRowsInColumn** property has been set to 5:

| Name | Name |
|------------------------------------|--------------|
| 1. Alice Mutton | 6. Tourtière |
| 2. Mishi Kobe Niku | |
| 3. Pâté chinois | |
| 4. Perth Pasties | |
| 5. Thüringer Rostbratwurst | |
| Name | Name |
| 1. Longlife Tofu | |
| 2. Manjimup Dried Apples | |
| 3. Rössle Sauerkraut | |
| 4. Tofu | |
| 5. Uncle Bob's Organic Dried Pears | |

4.19.2.4 Column Header Band

The Header band is normally used to output data headers, but there is also a special **Column Header** band. The Header band is output once before the Data band and contains only one set of data. The **Column Header** band is also output only once, but the components on this band are repeated above every column. It is used only for the columns positioned on the Data band.

🚩 **Notice:** The **Column Header** band is used for columns placed on the Data band. The Header band for page columns has the same functionality.

Example

In this example we will build a report using a **Column Header** band. Put two bands on a page: A **Column Header** band and a **Data** band. On the Data band set the Column property to 3 (this will create three columns). Set the column width using the **ColumnWidth** property, and the space between columns using the **ColumnGaps** property. Set the **ColumnDirection** property of the Data band to the **DownThenAcross** mode.

Place a text component on the **Column Header** band with the text 'Header'. Then put a text component on the **Data** band with the text 'DATA'. Do not forget that the red lines are the column edges.

The diagram shows a report structure with three bands: **ColumnHeaderBand1** (orange), **Header** (yellow), and **DataBand1; Data Source: Customers** (blue). The **Header** band is shown as a single row that spans across multiple columns, illustrating how a single header can be repeated for each column.

Now run the report and you will see that the word "Header" is shown over every column. You need only create a single column header and it will be automatically printed on each column.

The screenshot shows a report with three columns. Each column has a yellow header row labeled "Header" followed by ten rows labeled "Data". This illustrates the result of having a single header band repeated across all columns.

| Header | Header | Header |
|--------|--------|--------|
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |

4.19.2.4.1 PrintIfEmpty Property

Ugly output can result if the number of data rows is less than the number of columns resulting in gaps on the page because the same number of column headers will be output as the number of columns. If there is data sufficient for two columns then only two headers will be output.

The screenshot shows a report with two columns. Each column has a yellow header row labeled "Header" followed by a row labeled "Data". This illustrates the result of having a single header band repeated across all columns.

| Header | Header |
|--------|--------|
| Data | Data |

If you want to ensure that the same number of column headers are shown as the number of columns on a page without considering the number of strings available you can use the **PrintIfEmpty** property of the **Column Header** band. If you set this property to true, then one header will be output for each column regardless of the amount of available data.

❗ **Important:** It is important to remember that when the **MinRowsInColumn**

property of the **DownThenAcross** mode is used, the report generator is not able to indicate the exact number of rows. Therefore, when using the **MinRowsInColumn** property, set the **PrintIfEmpty** property to true.

4.19.2.5 Column Footer Band

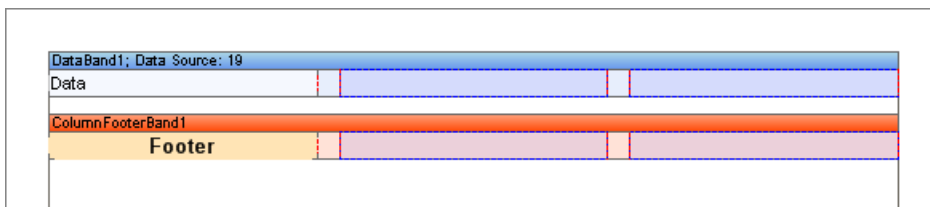
The Footer band is normally used to output data footers, but there is also a special **Column Footer** band. The Footer band is output once after the Data band and contains only one set of data. The **Column Footer** band is also output only once, but the components on this band are repeated beneath every column. It is used only for the columns positioned on the Data band.

🚩 **Notice:** The ColumnFooter band is used for columns placed on the Data band. The Footer band for page columns has the same functionality.

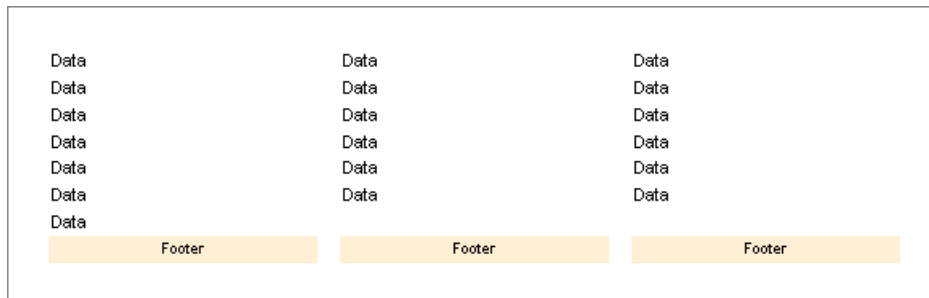
Example

In this example we will build a report using a **Column Footer** band. Put two bands on a page: A **Column Footer** band and a **Data** band. On the Data band set the Column property to 3 (this will create three columns). Set the column width using the **ColumnWidth** property, and the space between columns using the **ColumnGaps** property. Set the **ColumnDirection** property of the Data band to the **DownThenAcross** mode.

Place a text component on the **Column Footer** band with the text 'Footer'. Then put a text component on the Data band with the text 'DATA'. Do not forget that the red lines are the column edges.



Now run the report and you will see that the word "Footer" is shown under every column. You need only create a single column footer and it will be automatically printed on each column.



| | | |
|--------|--------|--------|
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Data | Data | Data |
| Footer | Footer | Footer |

4.19.2.5.1 PrintIfEmpty Property

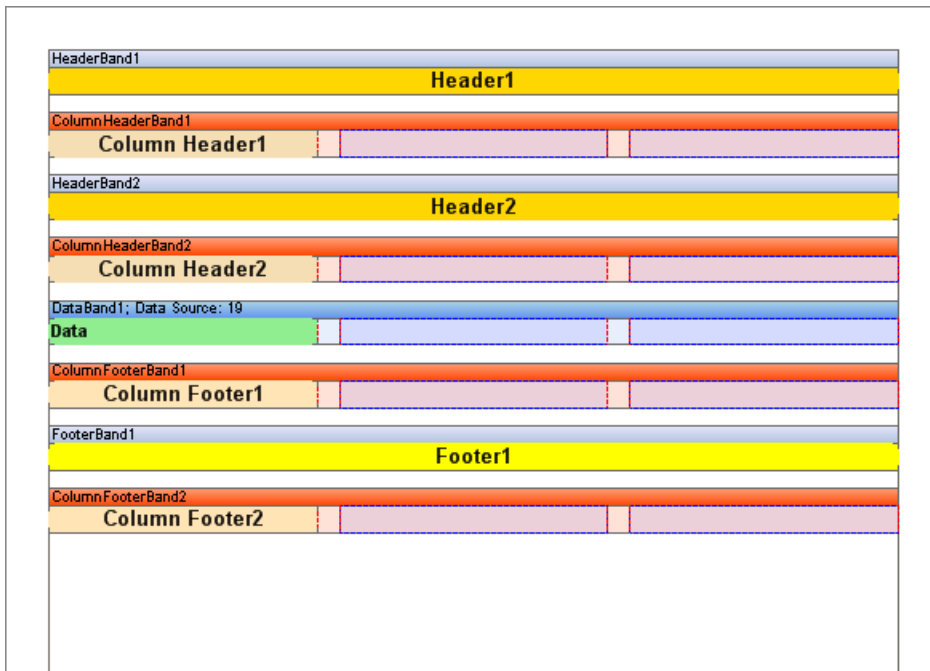
If you want to ensure that the same number of column footers are shown as the number of columns on a page without considering the number of strings available you can use the **PrintIfEmpty** property of the **Column Footer** band. If you set this property to true, then one footer will be output for each column regardless of the amount of available data.

❗ **Note:** It is important to remember that when the **MinRowsInColumn** property of the **DownThenAcross** mode is used, the report generator is not able to indicate the exact number of rows. Therefore, when using the **MinRowsInColumn** property, set the **PrintIfEmpty** property to true.

4.19.2.6 Header and Footer Combinations

When outputting headers and footers for columns on a page it is very important to consider the order in which the bands will be output on the page.

To see this in action create a report using multiple Header bands, Footer bands, **Column Header** bands, **Column Footer** bands and just one **Data** band in a random order.



There are two modes used to output columns which will affect the output, and these will be reviewed in the following topics.

4.19.2.6.1 AcrossThenDown Column Mode

In the **AcrossThenDown** mode all header bands are output in order of their position in the report template. In our example as shown below the Header1 band will be output first, then the ColumnHeader1 band will be output three times, over every column. Next the Header2 band is output, and then the ColumnHeader2 band is output over every column. Bands are output in order of their position on a page. This allows you to combine both types of header band to get the result you want. Footer bands are output differently. The Column Footers are output first. Then the Footer bands are output after all data rows. However, if the **PrintOnAllPages** property of the Footer bands is set to true, then the bands will be output in order of their position on a page. It is important to remember that if the **PrintOnAllPages** property of the Footer band is set to false, then this band will be output only after all data rows.

| Header1 | | |
|----------------|----------------|----------------|
| Column Header1 | Column Header1 | Column Header1 |
| Header2 | | |
| Column Header2 | Column Header2 | Column Header2 |
| 1.Data | 2.Data | 3.Data |
| 4.Data | 5.Data | 6.Data |
| 7.Data | 8.Data | 9.Data |
| 10.Data | 11.Data | 12.Data |
| 13.Data | 14.Data | 15.Data |
| 16.Data | 17.Data | 18.Data |
| 19.Data | | |
| Column Footer1 | Column Footer1 | Column Footer1 |
| Column Footer2 | Column Footer2 | Column Footer2 |
| Footer1 | | |

4.19.2.6.2 DownThenAcross Column Mode

This mode is similar to the **AcrossThenDown** mode. All bands are output in the same order as they are placed on a page. However, if the **PrintOnAllPages** property of the Footer band is set to true, then all Footer bands are output in the same order as they are placed on a page. If the **PrintOnAllPages** property of the Footer band is set to false, then only Column Footer bands are output and the Footer bands are ignored.

| Header1 | | |
|----------------|----------------|----------------|
| Column Header1 | Column Header1 | Column Header1 |
| Header2 | | |
| Column Header2 | Column Header2 | Column Header2 |
| 1.Data | 8.Data | 15.Data |
| 2.Data | 9.Data | 16.Data |
| 3.Data | 10.Data | 17.Data |
| 4.Data | 11.Data | 18.Data |
| 5.Data | 12.Data | 19.Data |
| 6.Data | 13.Data | |
| 7.Data | 14.Data | |
| Column Footer1 | Column Footer1 | Column Footer1 |
| Column Footer2 | Column Footer2 | Column Footer2 |

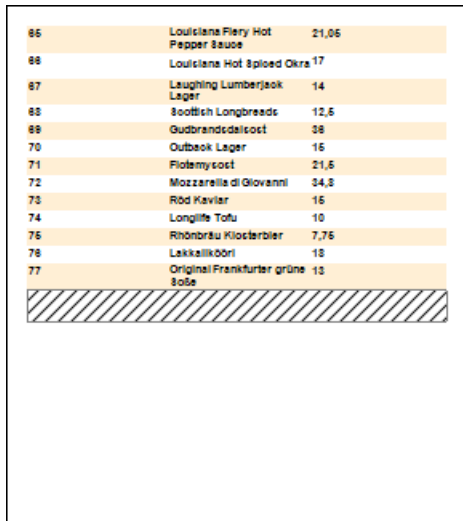
4.20 Page and Column Break

Sometimes it is necessary at some moment to start rendering a report on a new page. This phenomenon in Stimulsoft Reports is called **page break**. Page break can be performed using the following properties: **NewPageBefore**, **NewPageAfter**, **NewColumnBefore**, **NewColumnAfter**. These features provide the ability to generate a new page/column before or after a certain band. This feature is similar to the page break in Microsoft Word.

4.20.1 Page Break

NewPageBefore property

To break and insert a new page before a certain band you can use the **NewPageBefore** property. If the property is set to **false** for the band, then the report generator reaching this band will output it after the previous band without generating a new page. The picture below shows the **Footer** band that is output immediately after the **DataBand**:



The screenshot shows a report with a list of items, each with an ID, name, and price. The items are listed in a table with alternating light orange and white rows. Below the list is a footer band with a diagonal hatched pattern. The footer band is positioned immediately after the last data row, indicating that the NewPageBefore property is set to false for the footer band.

| | | |
|----|----------------------------------|-------|
| 86 | Louisiana Fiery Hot Pepper Sauce | 21,06 |
| 88 | Louisiana Hot Spiced Okra | 17 |
| 87 | Laughing Lumberjack Lager | 14 |
| 86 | Scottish Longbreads | 12,6 |
| 88 | Gudbrandtselost | 38 |
| 70 | Outback Lager | 16 |
| 71 | Fløtemysost | 21,6 |
| 72 | Mozzarella di Giovanni | 34,8 |
| 73 | Rød Kaviar | 16 |
| 74 | Longlife Tofu | 10 |
| 76 | Rhönbräu Klosterbier | 7,76 |
| 78 | Lakkalikööri | 18 |
| 77 | Original Frankfurter grüne Soße | 13 |

If the **NewPageBefore** property is set to **true**, then the report generator at the time of rendering a certain band, will make a gap (so that the band will be output on a new page), and on the previous page data output will be finished, despite the availability of free space on the page. The picture below shows the **Footer** band which the **NewPageBefore** property is set to **true**:

| | | |
|----|----------------------------------|-------|
| 66 | Louisiana Fiery Hot Pepper Sauce | 21,06 |
| 68 | Louisiana Hot Spiced Okra | 17 |
| 67 | Laughing Lumberjack Lager | 14 |
| 68 | Scottish Longbreads | 12,6 |
| 69 | Gudbrandsdalssost | 38 |
| 70 | Outback Lager | 16 |
| 71 | Flotemysost | 21,6 |
| 72 | Mozzarella di Giovanni | 34,8 |
| 73 | Rød Kaviar | 16 |
| 74 | Longlife Tofu | 10 |
| 76 | Rhönbräu Klosterbier | 7,76 |
| 78 | Lakkalikööri | 18 |
| 77 | Original Frankfurter grüne Soße | 13 |

Break Line

It is necessary to consider that the new page first displays all service bands (Page Header Band, Page Footer Band, Header Band). Also, when rendering a new page, the report generator will take into account the value of the following properties:

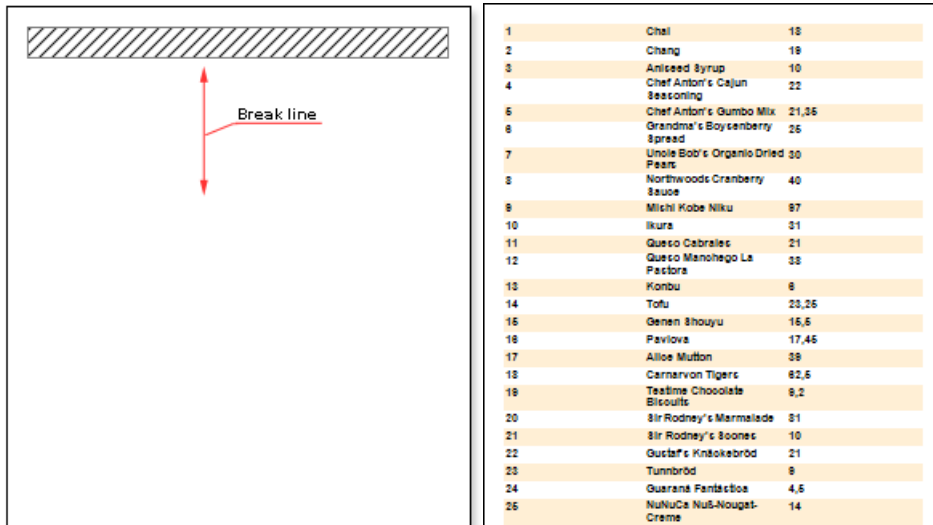
Break if Less Than and **Skip First**.

NewPageAfter property

Also, you can create a break and insert a page after a certain band. This can be done with the **NewPageAfter** property. If this property is set to **false** for the band, then the report generator, when it comes to render it, will not do the gap, and immediately after it the other bands will be built. The picture below shows the Header band that is output before the Data band:

| | | |
|----|---------------------------------|-------|
| 1 | Chai | 18 |
| 2 | Chang | 19 |
| 3 | Aniseed Syrup | 10 |
| 4 | Chef Anton's Cajun Seasoning | 22 |
| 6 | Chef Anton's Gumbo Mix | 21,36 |
| 8 | Grandma's Boysenberry Spread | 26 |
| 7 | Uncle Bob's Organic Dried Pears | 30 |
| 3 | Northwoods Cranberry Sauce | 40 |
| 9 | Mishi Kobe Niku | 97 |
| 10 | Ikura | 31 |
| 11 | Queso Cabrales | 21 |
| 12 | Queso Manchego La Pastora | 38 |
| 13 | Konbu | 8 |
| 14 | Tofu | 23,26 |
| 16 | Genen Shouyu | 16,6 |
| 18 | Pavlova | 17,46 |
| 17 | Alloe Mutton | 38 |
| 19 | Carnarvon Tigers | 82,6 |
| 19 | Teatime Chocolate Biscuits | 9,2 |
| 20 | Mr Rodney's Marmalade | 31 |
| 21 | Mr Rodney's Boonies | 10 |
| 22 | Gustaf's Knäckebröd | 21 |
| 23 | Tunnbröd | 9 |

If the **NewPageAfter** property is set to **true**, then the report generator will render the band, which property will generate the new page. The next band will be output on a new page. The picture below shows the Header band which the **NewPageAfter** property is set to **true**:



The diagram shows a report band with a hatched header area. A red double-headed arrow labeled "Break line" indicates a break in the band. To the right of the break line is a list of items, each with a number, a name, and a value.

| | | |
|----|-----------------------------------|-------|
| 1 | Chai | 18 |
| 2 | Chang | 18 |
| 3 | Aniseed Syrup | 10 |
| 4 | Chef Anton's Cajun Seasoning | 22 |
| 6 | Chef Anton's Gumbo Mix | 21,35 |
| 8 | Grandma's Boysenberry Spread | 26 |
| 7 | Uncle Bob's Organic Dried 30 Peas | |
| 8 | Northwoods Cranberry Sauce | 40 |
| 9 | Michi Kobe Niku | 87 |
| 10 | Ikura | 31 |
| 11 | Queso Cabrales | 21 |
| 12 | Queso Manchego La Pastora | 38 |
| 13 | Konbu | 8 |
| 14 | Tofu | 23,25 |
| 16 | Genen Shoyu | 16,6 |
| 18 | Pavlova | 17,45 |
| 17 | Allou Mutton | 38 |
| 19 | Carnarvon Tigers | 82,6 |
| 19 | Teatime Chocolate Biscuits | 9,2 |
| 20 | Sir Rodney's Marmalade | 31 |
| 21 | Sir Rodney's Scones | 10 |
| 22 | Gustaf's Kinkkebrot | 21 |
| 23 | Tunnbrød | 9 |
| 24 | Guaraná Fantástica | 4,6 |
| 26 | NuNuCa Nuß-Nougat-Creme | 14 |

4.20.2 Column Break

At the time of break one can only insert not only new pages but new columns. This can be done using the **NewColumnBefore** and **New Column After** properties. The logic of inserting new columns is the same as for the pages.

NewColumnBefore

To break and insert a column before a certain band you can use the **NewColumnBefore** property. If the property is set to **false** for the band, then the report generator reaching this band will output it after the previous band without generating a new column.

| | |
|---------------------------------|-------------------------------|
| Chai | Chang |
| Aniseed Syrup | Chef Anton's Cajun Seasoning |
| Chef Anton's Gumbo Mix | Grandma's Boysenberry Spread |
| Uncle Bob's Organic Dried Pears | Northwoods Cranberry Sauce |
| Mishi Kobe Niku | Ikura |
| Queso Cabrales | Queso Manchego La Pastora |
| Konbu | Tofu |
| Genen Shouyu | Pavlova |
| Alloue Mutton | Carnarvon Tigers |
| Testime Chocolate Biscuits | Sir Rodney's Marmalade |
| Sir Rodney's Soones | Gustaf's Knökebröd |
| Tunnbröd | Guaraná Fantástico |
| NuNuCa Nuß-Nougat-Creme | Gumbär Gummitbrosen |
| Bohoggi Bohokolade | Rössle Sauerkraut |
| Thüringer Rostbratwurst | Nord-Ost Matjeshering |
| Gorgonzola Telino | Mascarpone Fabioli |
| Gettoit | Bacqueton Ale |
| Steelaye Stout | Inlagd Bill |
| Gravad lax | Côte de Blaye |
| Chartreuse verte | Boston Crab Meat |
| Jack's New England Clam Chowder | Singaporean Hokkien Fried Mee |
| Ipon Coffee | Gula Melacca |
| Rogede cild | Spegecild |
| Zaanse koeken | Chocolade |
| Maxilasku | Valkoinen suklaa |
| Manjimup Dried Apples | Filo Mix |
| Perth Pacific | Tourtière |
| Pâté chinois | Gnocchi di nonna Alice |

To make the break, set the **NewColumnBefore** property to **true**. In this case, the report generator at the time of rendering the band, will output a new column and add it before this band. The picture below shows the **Data** band with the **NewColumnBefore** property set to **true**.

| | |
|--|-------------------------------|
| | Chang |
| | Chef Anton's Cajun Seasoning |
| | Grandma's Boysenberry Spread |
| | Northwoods Cranberry Sauce |
| | Ikura |
| | Queso Manchego La Pastora |
| | Tofu |
| | Pavlova |
| | Carnarvon Tigers |
| | Sir Rodney's Marmalade |
| | Gustaf's Knökebröd |
| | Guaraná Fantástico |
| | Gumbär Gummitbrosen |
| | Rössle Sauerkraut |
| | Nord-Ost Matjeshering |
| | Mascarpone Fabioli |
| | Bacqueton Ale |
| | Inlagd Bill |
| | Côte de Blaye |
| | Boston Crab Meat |
| | Singaporean Hokkien Fried Mee |
| | Gula Melacca |
| | Spegecild |
| | Chocolade |
| | Valkoinen suklaa |
| | Filo Mix |
| | Tourtière |
| | Gnocchi di nonna Alice |

In this case, it is necessary to consider that the new first column displays all service bands (Page Header Band, Page Footer Band, Header Band). Also, the construction of a new column, the report generator will take into account the value of the following properties: **Break if Less Than** and **Skip First**.

NewColumnAfter property

Also, you may need to make a break and insert a new column after a certain band. This can be done with the **New Column After** property. If the **NewColumnAfter** property is set to **false**, then all the bands will be displayed one after another.

| Chai | Chang |
|---------------------------------|-------------------------------|
| Aniseed Syrup | Chef Anton's Cajun Seasoning |
| Chef Anton's Gumbo Mix | Grandma's Boysenberry Spread |
| Uncle Bob's Organic Dried Pears | Northwood's Cranberry Sauce |
| Mishi Kobe Niku | Ikura |
| Queso Cabrales | Queso Manohago Le Pastora |
| Konbu | Tofu |
| Genen Shouyu | Pavlova |
| Allies Mutton | Carnarvon Tigers |
| Teatime Chocolate Biscuits | Sir Rodney's Marmalade |
| Sir Rodney's Boones | Gustaf's Kinkoebrod |
| Tunnbröd | Guaraná Fantástico |
| NuNuCa Nuß-Nougat-Creme | Gumbär Gummitbröhen |
| Bohoggi Bohokolade | Rössle Saucerkraut |
| Thüringer Rostbratwurst | Nord-Ost Matjeshering |
| Gorgonzola Telino | Mascarpone Fabioli |
| Gelbst | Bacqueton Ale |
| Steelaye Stout | Inlagd Bill |
| Gravad lax | Côte de Blaye |
| Charbreuce verte | Boston Crab Meat |
| Jack's New England Clam Chowder | Singaporean Hokkien Fried Mee |
| Ipon Coffee | Gula Melasoa |
| Rogede sild | Spegesild |
| Zaance koeken | Chocolade |
| Maxilaku | Valkolnen suklaa |
| Manjimup Dried Apples | Filo Mix |
| Perth Pasties | Tourtière |
| Pâte ohinois | Gnoochi di nonna Allie |

To insert a new column the **NewColumnAfter** property should be set to **true**, after rendering the band, the report generator output a new column after this band. The picture below shows the Data band with the **NewColumnAfter** property set to **true**.

| Chai | |
|---------------------------------|--|
| Aniseed Syrup | |
| Chef Anton's Gumbo Mix | |
| Uncle Bob's Organic Dried Pears | |
| Mishi Kobe Niku | |
| Queso Cabrales | |
| Konbu | |
| Genen Shouyu | |
| Allies Mutton | |
| Teatime Chocolate Biscuits | |
| Sir Rodney's Boones | |
| Tunnbröd | |
| NuNuCa Nuß-Nougat-Creme | |
| Bohoggi Bohokolade | |
| Thüringer Rostbratwurst | |
| Gorgonzola Telino | |
| Gelbst | |
| Steelaye Stout | |
| Gravad lax | |
| Charbreuce verte | |
| Jack's New England Clam Chowder | |
| Ipon Coffee | |
| Rogede sild | |
| Zaance koeken | |
| Maxilaku | |
| Manjimup Dried Apples | |
| Perth Pasties | |
| Pâte ohinois | |

4.20.3 Break if Less Than Property

The **Break if Less Than** property can be any number value from 0 to 100. The value of this property affects where it will generate a new page or column. At the time of the report creation, the report generator measures the amount of free space on the page as a percentage. If the entire page is empty, it is equivalent to 100 per cent, if the page is full - 0 percent. It should be considered that by default the **Break if Less Than** property is set to 0, which means that this option is disabled. Therefore, if the value of this property is 0, the report writer compares the percentage of free space on the page with the specified property value. As a result, the report generator will generate a new page or column, if the free space on the page is less than a predetermined value. The property value is a key value, i.e., the **Break if Less Than** property cannot be empty; it must take a value.

4.20.4 Skip First Property

The **Skip First** property works only with the **NewPageBefore** and **NewColumnBefore** properties. With this property, the first entry from the database will be output on the page and then the page break will be executed; the first item will be skipped. For this, the **Skip First** property should be set to **true**. If it is set to **false**, a blank page (column) will be generated right before the band.

4.21 Pagination

Sometimes it is necessary to number pages. Page numbering is applied using system variables. Page numbering is set by adding system variables into an expression.

{PageNumber}

{PageNofM}

{TotalPageCount}

4.21.1 Page Number

Let's see page numbering using the **PageNumber** system variable. When using this variable, the page number will be displayed on each page. Place where the page number is shown depends on which band is the text component, in expressions of what the system variable is used.

PageNumber 1
Simple List

| Company | Address | Phone | Contact |
|------------------------------------|-------------------------------|----------------|----------------------|
| Alfreds Futterkiste | Oberstr. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 | Sales Representative |

On the picture above the **PageNumber** system variable was used on the **Page Header** band. System variable can be used in any text component. The text component can be placed on any page band.

4.21.2 Total Page Count

The **TotalPageCount** system variable is used to output the total number of pages.

TotalPageCount 3
Simple List

| Company | Address | Phone | Contact |
|------------------------------------|-------------------------------|----------------|----------------------|
| Alfreds Futterkiste | Oberstr. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 | Sales Representative |
| Belgische Snoekboord | Beiguysvægen 8 | 0921-12 34 55 | Order Administrator |
| Blaug/See Delikatessen | Forstestr. 57 | 0621-08460 | Sales Representative |
| Blondiesdsdsj pñre et fñ | 24, place Kléber | 88.60.15.31 | Marketing Manager |
| Bólido Comidas preparadas | C/ Araquil, 67 | (91) 555 22 82 | Owner |

On the picture above you can see how total number of pages is output. The **TotalPageCount** system variable is used with the **PageNumber** system variable. Usually it looks like this: **{PageNumber} Of {TotalPageCount}**. For example, **5 of 10**.

4.21.3 Page NoFM

To show the page number of the total number of pages in the report generator the **PageNoFM** system variable is used. This variable is a combination of system variables, such as the **PageNumber** and the **TotalPageCount**, it will print the page number on the total number of pages.

TotalPageCount 3
Simple List

| Company | Address | Phone | Contact |
|------------------------------------|-------------------------------|----------------|----------------------|
| Alfreds Futterkiste | Oberstr. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 | Sales Representative |
| Belgische Snoekboord | Beiguysvægen 8 | 0921-12 34 55 | Order Administrator |
| Blaug/See Delikatessen | Forstestr. 57 | 0621-08460 | Sales Representative |
| Blondiesdsdsj pñre et fñ | 24, place Kléber | 88.60.15.31 | Marketing Manager |
| Bólido Comidas preparadas | C/ Araquil, 67 | (91) 555 22 82 | Owner |

On the picture above the "**Page 1 of 3**" shows that the first page of three pages is available. The **PageNoFM** depends on localization so it should be used very carefully.

4.21.4 ResetPageNumber Property

The numbering of the pages of the report begins with the number 1 and is defined consistently for each page built by the report.

| | | | |
|---------------------------------------|---------------------|-------------------|--------------------------|
| PageHeaderBand1 | | | |
| PageNumber {PageNumber} | | | |
| ReportTitleBand2 | | | |
| Simple List | | | |
| HeaderBand1 | | | |
| Company | Address | Phone | Contact |
| DataBand1: Microsoft Access Customers | | | |
| {Customers.CompanyName} | {Customers.Address} | {Customers.Phone} | {Customers.ContactTitle} |
| FooterBand1 | | | |

On the picture above the first page of a template is represented.

| | | |
|---|------------------------|---------------------|
| PageHeaderBand2 | | |
| PageNumber {PageNumber} | | |
| ReportTitleBand1 | | |
| Two Simple List | | |
| HeaderBand2 | | |
| Fax | PostalCode | Country |
| DataCustomers: Microsoft Access Customers | | |
| {Customers.Fax} | {Customers.PostalCode} | {Customers.Country} |
| FooterBand2 | | |

On the picture above the second page of a template is represented.

If, when report rendering, the **ResetPageNumber** is set to **false**, then numeration will look like on the picture below:

Simple List 1

| Company | Address | Phone | Contact |
|-----------|--------------|----------------|----------|
| Company A | 123 Main St | (123) 456-7890 | John Doe |
| Company B | 456 Main St | (123) 456-7890 | John Doe |
| Company C | 789 Main St | (123) 456-7890 | John Doe |
| Company D | 101 Main St | (123) 456-7890 | John Doe |
| Company E | 202 Main St | (123) 456-7890 | John Doe |
| Company F | 303 Main St | (123) 456-7890 | John Doe |
| Company G | 404 Main St | (123) 456-7890 | John Doe |
| Company H | 505 Main St | (123) 456-7890 | John Doe |
| Company I | 606 Main St | (123) 456-7890 | John Doe |
| Company J | 707 Main St | (123) 456-7890 | John Doe |
| Company K | 808 Main St | (123) 456-7890 | John Doe |
| Company L | 909 Main St | (123) 456-7890 | John Doe |
| Company M | 1010 Main St | (123) 456-7890 | John Doe |
| Company N | 1111 Main St | (123) 456-7890 | John Doe |
| Company O | 1212 Main St | (123) 456-7890 | John Doe |
| Company P | 1313 Main St | (123) 456-7890 | John Doe |
| Company Q | 1414 Main St | (123) 456-7890 | John Doe |
| Company R | 1515 Main St | (123) 456-7890 | John Doe |
| Company S | 1616 Main St | (123) 456-7890 | John Doe |
| Company T | 1717 Main St | (123) 456-7890 | John Doe |
| Company U | 1818 Main St | (123) 456-7890 | John Doe |
| Company V | 1919 Main St | (123) 456-7890 | John Doe |
| Company W | 2020 Main St | (123) 456-7890 | John Doe |
| Company X | 2121 Main St | (123) 456-7890 | John Doe |
| Company Y | 2222 Main St | (123) 456-7890 | John Doe |
| Company Z | 2323 Main St | (123) 456-7890 | John Doe |

Two Simple List 2

| Page | Company | Address | Phone | Contact |
|------|-----------|--------------|----------------|----------|
| 1 | Company A | 123 Main St | (123) 456-7890 | John Doe |
| 2 | Company B | 456 Main St | (123) 456-7890 | John Doe |
| 3 | Company C | 789 Main St | (123) 456-7890 | John Doe |
| 4 | Company D | 101 Main St | (123) 456-7890 | John Doe |
| 5 | Company E | 202 Main St | (123) 456-7890 | John Doe |
| 6 | Company F | 303 Main St | (123) 456-7890 | John Doe |
| 7 | Company G | 404 Main St | (123) 456-7890 | John Doe |
| 8 | Company H | 505 Main St | (123) 456-7890 | John Doe |
| 9 | Company I | 606 Main St | (123) 456-7890 | John Doe |
| 10 | Company J | 707 Main St | (123) 456-7890 | John Doe |
| 11 | Company K | 808 Main St | (123) 456-7890 | John Doe |
| 12 | Company L | 909 Main St | (123) 456-7890 | John Doe |
| 13 | Company M | 1010 Main St | (123) 456-7890 | John Doe |
| 14 | Company N | 1111 Main St | (123) 456-7890 | John Doe |
| 15 | Company O | 1212 Main St | (123) 456-7890 | John Doe |
| 16 | Company P | 1313 Main St | (123) 456-7890 | John Doe |
| 17 | Company Q | 1414 Main St | (123) 456-7890 | John Doe |
| 18 | Company R | 1515 Main St | (123) 456-7890 | John Doe |
| 19 | Company S | 1616 Main St | (123) 456-7890 | John Doe |
| 20 | Company T | 1717 Main St | (123) 456-7890 | John Doe |
| 21 | Company U | 1818 Main St | (123) 456-7890 | John Doe |
| 22 | Company V | 1919 Main St | (123) 456-7890 | John Doe |
| 23 | Company W | 2020 Main St | (123) 456-7890 | John Doe |
| 24 | Company X | 2121 Main St | (123) 456-7890 | John Doe |
| 25 | Company Y | 2222 Main St | (123) 456-7890 | John Doe |
| 26 | Company Z | 2323 Main St | (123) 456-7890 | John Doe |

Two Simple List 3

| Page | Company | Address | Phone | Contact |
|------|-----------|--------------|----------------|----------|
| 1 | Company A | 123 Main St | (123) 456-7890 | John Doe |
| 2 | Company B | 456 Main St | (123) 456-7890 | John Doe |
| 3 | Company C | 789 Main St | (123) 456-7890 | John Doe |
| 4 | Company D | 101 Main St | (123) 456-7890 | John Doe |
| 5 | Company E | 202 Main St | (123) 456-7890 | John Doe |
| 6 | Company F | 303 Main St | (123) 456-7890 | John Doe |
| 7 | Company G | 404 Main St | (123) 456-7890 | John Doe |
| 8 | Company H | 505 Main St | (123) 456-7890 | John Doe |
| 9 | Company I | 606 Main St | (123) 456-7890 | John Doe |
| 10 | Company J | 707 Main St | (123) 456-7890 | John Doe |
| 11 | Company K | 808 Main St | (123) 456-7890 | John Doe |
| 12 | Company L | 909 Main St | (123) 456-7890 | John Doe |
| 13 | Company M | 1010 Main St | (123) 456-7890 | John Doe |
| 14 | Company N | 1111 Main St | (123) 456-7890 | John Doe |
| 15 | Company O | 1212 Main St | (123) 456-7890 | John Doe |
| 16 | Company P | 1313 Main St | (123) 456-7890 | John Doe |
| 17 | Company Q | 1414 Main St | (123) 456-7890 | John Doe |
| 18 | Company R | 1515 Main St | (123) 456-7890 | John Doe |
| 19 | Company S | 1616 Main St | (123) 456-7890 | John Doe |
| 20 | Company T | 1717 Main St | (123) 456-7890 | John Doe |
| 21 | Company U | 1818 Main St | (123) 456-7890 | John Doe |
| 22 | Company V | 1919 Main St | (123) 456-7890 | John Doe |
| 23 | Company W | 2020 Main St | (123) 456-7890 | John Doe |
| 24 | Company X | 2121 Main St | (123) 456-7890 | John Doe |
| 25 | Company Y | 2222 Main St | (123) 456-7890 | John Doe |
| 26 | Company Z | 2323 Main St | (123) 456-7890 | John Doe |

If the set the **ResetPageNumber** page property to **true**, then numeration for each page of a template will start from 1:

[illegible]

🚨 **Note:** The **ResetPageNumber** property works with the following variables: **PageNumber**, **PageNofM**, **TotalPageCount**. With system variables: **PageNumberThrough**, **PageNofMThrough**, **TotalPageCountThrough** - this property does not work.

By default the property is set to **false**.

4.21.5 Sequentially Numbered Pages

Sequential numbering (numbering without taking into account the

ResetPageNumber property) set the **SystemVariables**:

- {PageNumberThrough} - **PageNumberThrough**, displays the page number;
- {TotalPageCountThrough} - **TotalPageCountThrough**, displays the total number of pages of the rendered report;
- {PageNofMThrough} - **PageNofM**, is a combination of **PageNumberThrough** and **TotalPageCountThrough**, and displays the page number in relation to the total number of pages in the rendered report.

| PageNumberThrough {PageNumberThrough} | | | |
|---------------------------------------|-------------------|-----------------|-----------------------|
| ReportTitleBand2 | | | |
| Simple List | | | |
| HeaderBand1 | | | |
| Company | Address | Phone | Contact |
| DataBand1: {CustomerName} Customers | | | |
| {CustomerName} | {CustomerAddress} | {CustomerPhone} | {CustomerContactName} |
| FooterBand1 | | | |

The picture above shows the first page of the report template.

| PageNumberThrough {PageNumberThrough} | | |
|---|----------------------|-------------------|
| ReportTitleBand1 | | |
| Two Simple List | | |
| HeaderBand2 | | |
| Fax | PostalCode | Country |
| DataCustomers: {CustomerName} Customers | | |
| {CustomerFax} | {CustomerPostalCode} | {CustomerCountry} |
| FooterBand2 | | |

The picture above shows the second page of the report template.

After rendering a report, even if the **ResetPageNumber** property of the page is set to **true**, the numbering of pages of the rendered report is to be consistent.

| Simple List | | | |
|-------------------------------------|-------------------|-----------------|-----------------------|
| HeaderBand1 | | | |
| Company | Address | Phone | Contact |
| DataBand1: {CustomerName} Customers | | | |
| {CustomerName} | {CustomerAddress} | {CustomerPhone} | {CustomerContactName} |
| FooterBand1 | | | |

| Two Simple List | | |
|---|----------------------|-------------------|
| HeaderBand2 | | |
| Fax | PostalCode | Country |
| DataCustomers: {CustomerName} Customers | | |
| {CustomerFax} | {CustomerPostalCode} | {CustomerCountry} |
| FooterBand2 | | |

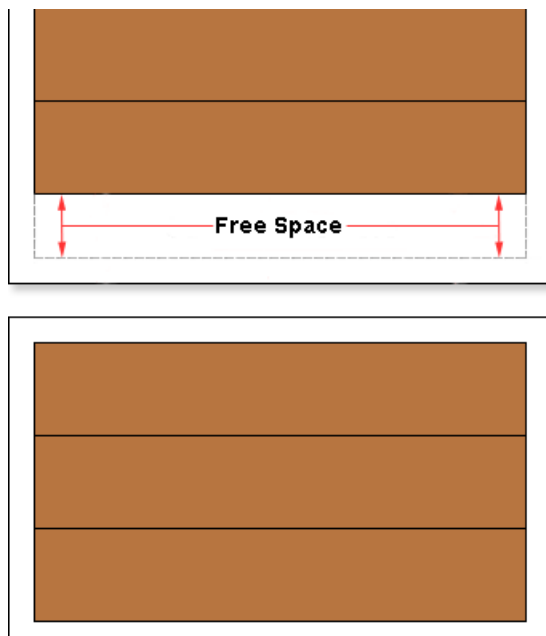
In other words, if the **ResetPageNumber** property is set to **true**, then, when using the system variables, mentioned above, the numeration will not be reset. So it will continue to be consistent for each page of the rendered report.

4.22 Breaking Component

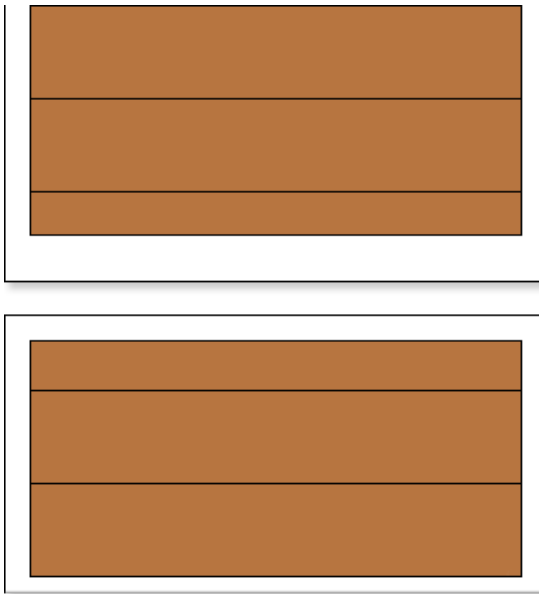
If, when rendering a report, the component will not fit the entire page, it will be carried to the next page. In addition, there are cases where the component has a size larger than the page size and cannot be output entirely on a page. In this case, you can use the **CanBreak** property. Components for which this property is set to **true**, can be "broken" with the Report Engine. The first part of a component will be printed on one page, and the second one on the next page. For example, a **Text** component has 10 lines, on the first page 7 lines will be output, and 3 lines on the next page.

4.22.1 Breaking Bands

How to use the **CanBreak** property of bands. The picture below shows two pages of a rendered report, which has 5 bands. The picture shows: the first and the second bands are output on the first page. The third band could not fit the bottom of the first page, so it was moved to the next page, along with the fourth and fifth bands.



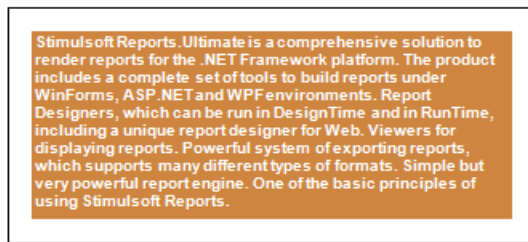
In this case, free space available remained on the first page of the report, because the band could not fit entirely and was moved by the report engine to the next page. If to set the **CanBreak** property to **true**, then this will be "broken". The picture below shows how the third band is broken.



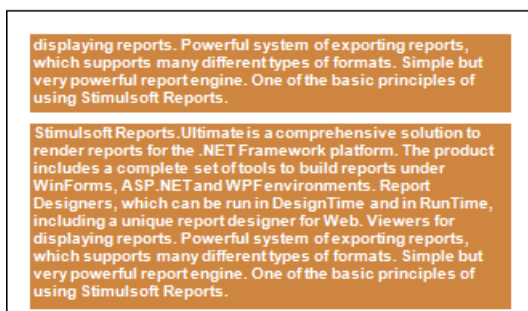
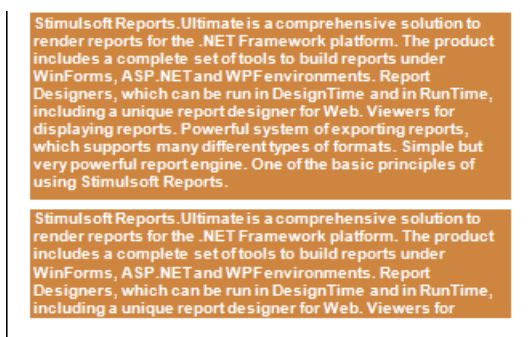
In this case we see that the third band could not fit, so it was broken: one part was left on the first page, and the second was moved to the next page, respectively. So all the space of the page was used. It should also take into account that the band may not fit within a single page. If the **CanBreak** is set to **false**, then it will be moved to the next page. If, on the next page, the band does not fit completely, it will be forcibly broken. You should know that special bands are displayed on the first page, and the remaining space of the page will be used to output the broken band. It is worth noting that the band may be output on more than one page. There are no limitations on the number of pages in which parts of the broken band can be output. By default, the **CanBreak** property is set to **false**.

4.22.2 Breaking Text

By default, the **CanBreak** property of the **Text** component is set to **false**. Such a Text component will not be broken if it is not enough space to print on one page, and would be moved to the next page.



As seen on the picture above, free space left at the bottom of the first page. To avoid this, set the **CanBreak** property to **true**. And then, a **Text** component is broken, for example, as shown on a picture below:

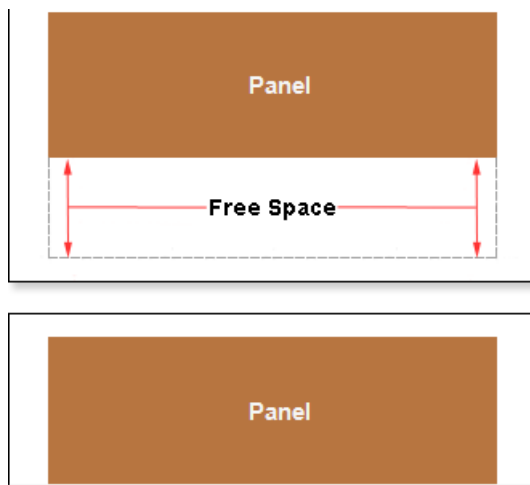


In this case, a **Text** component could not fit entirely on the bottom of a page, so it was broken. A part of the component remains on the same page, and another part was moved to the next one. Note that the text component is broken by row. Small

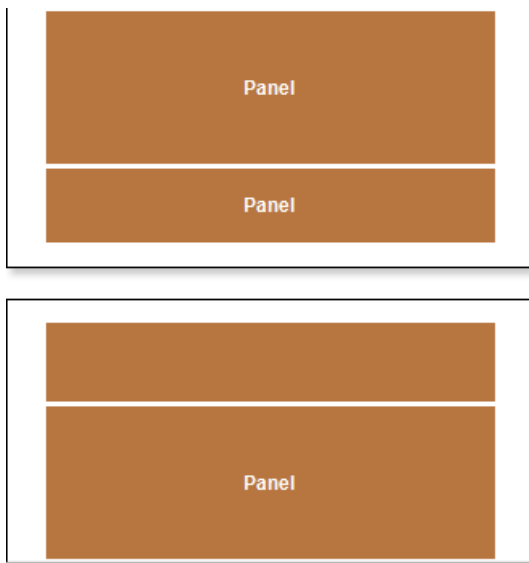
amount of free space remains, as report generator must output the full height of a row and the text remains readable. Also note that the break of the text component will not work if the **CanBreak** property in a container, which has a text component, is set to **false**. Because the container would be moved to the next page completely. Accordingly, together with it, a text component will be transferred and the break will not work. So, if you need a break, then set the **CanBreak** property to **true** for the Text component and container to what the text component is placed.

4.22.3 Breaking Panels

Sometimes, in a report template, where the **Panel** is used, all data cannot fit one page. If the **CanBreak** property is set to **false**, then a report, may look like on the picture below.



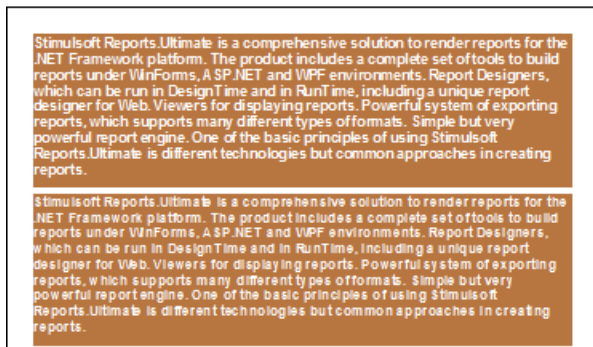
As shown in the picture above, the **Panel** was moved to another page, and free blank space remained on the previous page. If the **CanBreak** property is set to **true**, then the report may look like on the picture below:



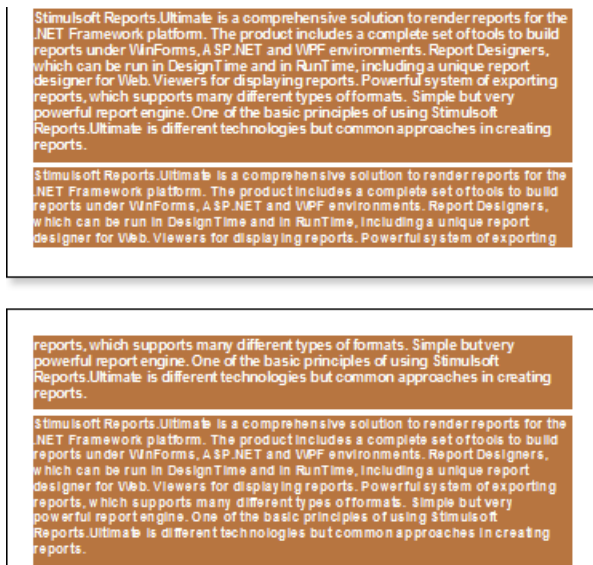
As shown in the picture above, the **Panel** was broken, a part of it remained on the first page, and the other was moved to the next page. It should also take into account that the panel may not fit a single page. If to set the **CanBreak** property to **false**, then it will be moved to the next page. If on the next page the panel does not fit completely, it will be forcibly broken. You should know that special bands are displayed on the first page, and the remaining space of the page will be used to output the broken panel. It is worth noting that the panel may be output on more than one page. There are no limitations on the number of pages in which parts of the broken panel can be output. By default, the **CanBreak** property is set to **false**.

4.22.4 Breaking RichText

By default, the **CanBreak** property of the **RichText** component is set to **false**. Such a text component will not be broken, if it is not enough space to print it on one page, and would be moved to the next page.



As you can see on the picture above, on the free space remained at the bottom of the first page. To avoid this, set the **CanBreak** property to **true**. And then, a component of the **RichText** will be broken (see the picture below):

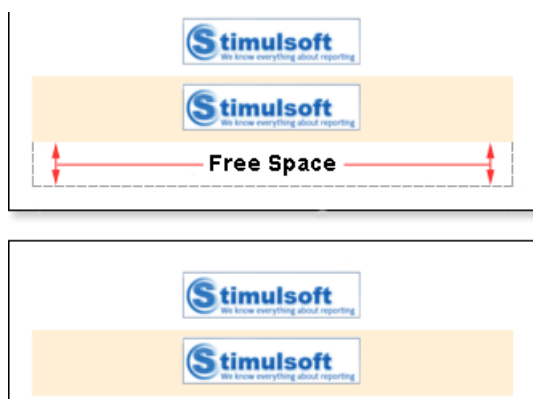


As shown in the picture above, the **RichText** was broken, a part of it remained on the first page, and the other was moved to the next page. It should also take into account that the component may not fit a single page. You should know that the

text component is broken rowwise. Also note that the breaking of the text component will not work if the **CanBreak** property of the band, in what the text component is placed, is set to **false**, because the band will be moved entirely to the next page. So the text component will be moved together with the band. So, if you need the text component to be broken, then values of **CanBreak** properties for the text component and the band should be set to **true**.

4.22.5 Breaking Images

In some cases the **Image** does not fit on one page. So the image will be moved to the next page.



As you can see on the picture above, free space remained on the first page. To avoid this, set the **CanBreak** property to **true**. And then, the **Image** component will be broken, as seen on the picture below:



As shown in the picture above, the **Image** component was broken, a part of it remained on the first page, and the other was moved to the next page. Also note that the breaking of the **Image** component will not work if the **CanBreak** property of the band, in what the **Image** component is placed, is set to **false**, because the band will be moved entirely to the next page. So the **Image** component will be moved together with the band. So, if you need the Image to be broken, then values of **CanBreak** properties for the Image and the band should be set to **true**.

4.22.6 Auto-break

If a component of the report template is more than a page, then, when rendering a report, the component does not fit a page. If the **CanBreak** property is set to **true**, then the component will be broken into parts. If the **CanBreak** property is set to **false**, and the component is larger than the page of a report, then the report engine tries to move it to the second page. If the data do not fit the second page, they will be forcibly broken, regardless of the value set for the **CanBreak** property and the availability of this property for the component of the report template. Moreover, when forced breaking, a blank page is output before the component. The first page of the report is empty, and each time data output begins with a new page. In this case, also all special bands are output on the page.

4.22.7 Breaking and Page Bands

There is no possibility for the **Page Header** and **PageFooter** bands to change the value of the **CanBreak** property, because it is always set to one value. By default, the **CanBreak** property is set to **true**. This means that, when designing a report, if sizes of page bands are more than a page size, then bands will be broken. You should also take into account the value of the property of the component, located on the band page. If the **CanBreak** property of a component placed on the band page is set to **false**, then in that case, there will be auto-break. If the **CanBreak** property of a component placed on the band page is set to **true**, then the break will be executed, depending on the type of a component (text, panel, picture, Rich Text).

4.23 Hierarchical Band

The **Hierarchical** band is used to display report data as a tree. The picture below shows an example of a hierarchical report:

| Hierarchical report | | | |
|---------------------|----------------|----------|--------|
| Employee | Phone | City | Region |
| Andrew Fuller | (206) 555-3482 | Tacoma | WA |
| Steven Buchanan | (71) 555-4848 | London | |
| Anne Dodsworth | (71) 555-4444 | London | |
| Robert King | (71) 555-5588 | London | |
| Michael Suyama | (71) 555-7773 | London | |
| Laura Callahan | (206) 555-1185 | Seattle | WA |
| Margaret Peacock | (206) 555-8122 | Redmond | WA |
| Nancy Davolio | (206) 555-9857 | Seattle | WA |
| Janet Leverling | (206) 555-3412 | Kirkland | WA |

4.23.1 Data Output

To obtain a structured list in a report as a tree, you must follow these steps:

- ✓ Specify the **DataSource** for the **Hierarchical** band using, for example, the **DataSource** property:

Data Source [Data.Employees] ...

- ✓ Set the **KeyDataColumn**, select the data column by what an identification number of data rows will be assigned. For example, a **EmployeeID** data column;
- ✓ Set the **MasterKeyDataColumn**, select the data column by which a reference to the primary table key of the parent entry will be specified. For example, a **ReportsTo** data column;
- ✓ Set the **Indent**, specify the indent distance of the child entry relative to the parent entry. For example, the **Indent** value will be equal to **20** units of a report (centimeters, inches, one hundredth inches, pixels);
- ✓ Set the **ParentValue**, specify an entry that will be a parent for all rows. For example, set the **ParentValue** property to **2**.

The picture below shows an example of a rendered hierarchical report:

| | | | |
|------------------|----------------|----------|----|
| Steven Buchanan | (71) 555-4848 | London | |
| Anne Dodsworth | (71) 555-4444 | London | |
| Robert King | (71) 555-5555 | London | |
| Michael Suyama | (71) 555-7773 | London | |
| Leire Callahan | (206) 555-1189 | Seattle | WA |
| Margaret Peacock | (206) 555-6122 | Redmond | WA |
| Nancy Devolio | (206) 555-6857 | Seattle | WA |
| Janet Leverling | (206) 555-3412 | Kirkland | WA |

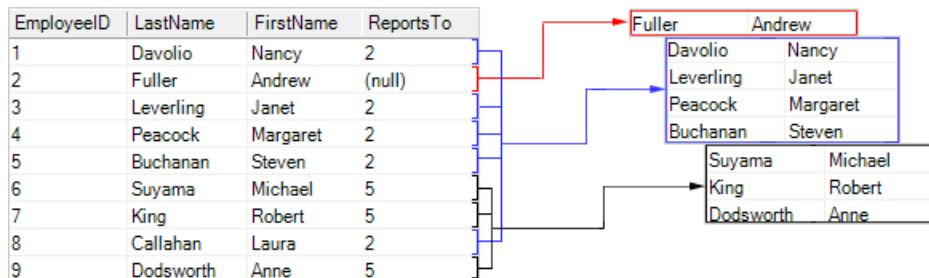
4.23.2 KeyDataColumn Property

The **Hierarchical** band has the **KeyDataColumn** property. This property is required for filling. If the **KeyDataColumn** is not specified, the report generator will not be able to render a report. The value of this property can be any data column from the selected **Hierarchical** band of the data source, whose entries will be keys for creating a report. For example, if the **Employees** data source is specified to the **Hierarchical** band, then the value of the **KeyDataColumn** property is the **EmployeesID** data column, because the entry of this column is the key and contains unique codes of employees.

4.23.3 MasterKeyDataColumn Property

To represent a hierarchy in the report, you must specify the value of the **MasterKeyDataColumn** property. This property is required for filling. If the value of the **MasterKeyDataColumn** is not specified, the report generator cannot determine the hierarchy in the report. The value of this property will be a data column from the selected **Hierarchical** band of the data source, whose entries are the master key for creating a hierarchy in the report. For example, if the **Employees** data source is specified for the **Hierarchical** band, then the **MasterKeyDataColumn** property is

the **ReportsTo** column data. The values of this data column are used to specify to what this element in the table is subordinated. Usually, this column indicates the keys in the data column, which is a value of the **KeyDataColumn** property. The picture below shows the scheme of a hierarchy of the **ReportsTo** data column:



4.23.4 ParentValue Property

The **ParentValue** property is used to identify entries which will be the parent rows for the remaining rows in a report. Parent rows are rows which are placed on the top level of hierarchy and in which all other elements are included. The report must have at least one parent line, if the parent line is missing, the report cannot be rendered. The **ParentValue** property can take any value, which is an entry in the data column, which is listed as the **MasterKeyDataColumn**. For example, if the **MasterKeyDataColumn** property is the **ReportsTo** data column, then the value of the **ParentValue** property will be entries in this column. The picture below shows an example of the **EmployeeID**, **LastName**, **City**, **Region**, **ReportsTo** data columns of the **Employees** data source:

| EmployeeID | LastName | City | Region | ReportsTo |
|------------|-----------|----------|--------|-----------|
| 1 | Davolio | Seattle | WA | 2 |
| 2 | Fuller | Tacoma | WA | (null) |
| 3 | Leverling | Kirkland | WA | 2 |
| 4 | Peacock | Redmond | WA | 2 |
| 5 | Buchanan | London | (null) | 2 |
| 6 | Suyama | London | (null) | 5 |
| 7 | King | London | (null) | 5 |
| 8 | Callahan | Seattle | WA | 2 |
| 9 | Dodsworth | London | (null) | 5 |

As can be seen in the **ReportsTo** data column the following entries are: **(null)**, **2** and **5**, any of these entries may be the value of the **Parent Value** property. If the value of this property is not specified, or is specified as a "space", then the default value is used. By default, the value of the **Parent Value** property is set to null, the parent row for all rows will be a line where there is a **(null)** entry in the **ReportsTo** data column. In this case, this is a row with the **ID 2**. The picture below shows an example of a rendered report:

| Employee | City | Region |
|-----------|----------|--------|
| Fuller | Tacoma | WA |
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Devolio | Seattle | WA |
| Leverling | Kirkland | WA |

If the value of the **Parent Value** property is set to **2**, then the parent row for all rows will be a row where there is a **2** entry in the **ReportsTo** column data. In this case, these are rows with **ID 1,3,4,5,8**. The picture below shows an example of a report, where the value of the **Parent Value** property is set to the **2** value:

| Employee | City | Region |
|-----------|----------|--------|
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Devolio | Seattle | WA |
| Leverling | Kirkland | WA |

4.23.5 Indent Property

To visualize the hierarchy of a report you need to change a value of the **Indent** property. The value of the **Indent** property is the distance at which an entry in the hierarchy, relative to the previous level of the tree, will be moved. If the **Indent** property is set to 0, then the indent will not be performed. The picture below shows an example of a rendered hierarchical report with the indent of 0:

| Employee | City | Region |
|-----------|----------|--------|
| Fuller | Tacoma | WA |
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Devolio | Seattle | WA |
| Leverling | Kirkland | WA |

If the **Indent** property is set to any value greater than 0, for example 10, the shifting will be on 10 units of a report (centimeters, inches, one hundredth of inch, pixels). The picture below shows an example of a rendered hierarchical report with the indent of 10 units in the report:

| Employee | City | Region |
|-----------|----------|--------|
| Fuller | Tacoma | WA |
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Devolio | Seattle | WA |
| Leverling | Kirkland | WA |

If you want a text component, which is located in the **Hierarchical** band, do not move, you should change the value of the **Locked** property of this text component. If the **Locked** property is set to **true**, then the text component will not be shifted. If the **Locked** property is set to **false**, then the text component will be shifted. The picture below shows an example of a rendered hierarchical report:

| Employee | City | Region |
|-----------|----------|--------|
| Fuller | Tacoma | WA |
| Buchanan | London | |
| Dodsworth | London | |
| King | London | |
| Suyama | London | |
| Callahan | Seattle | WA |
| Peacock | Redmond | WA |
| Davolio | Seattle | WA |
| Leverling | Kirkland | WA |

As can be seen on the picture above, the **Locked** property of the **Employee** text component is set to **false**, so the entries were shifted. And for the **City** and **Region** text components, this property is set to **true**, so the entries were not shifted.

❗ **Note:** The parent entry is not shifted. Only subordinate entries are shifted: the lower the priority is, the further is shifting, relative to the parent entry.

4.24 Child Band

The **Child** band can be used in tandem with other bands. It can be placed after any band on a page, including after the Header band or the Group Header band. It allows the parent band to be effectively extended whilst the child can behave differently, for example having a different background color.

❗ **Note:** The **Child** band can be used in combination with any other bands placed on a page.

Using The Child Band With Data Bands

The Child band allows you to output two bands on one data row. To use the child band in this way you would create a new report, put a Data band on the page, and then put a Child band after the Data band.

| | | |
|-----------------------------------|---------------------|-------------------|
| DataBand1; Data Source: Customers | | |
| {Customers.CompanyName} | {Customers.Address} | {Customers.Phone} |
| ChildBand1 | | |
| Child | | |
| | | |

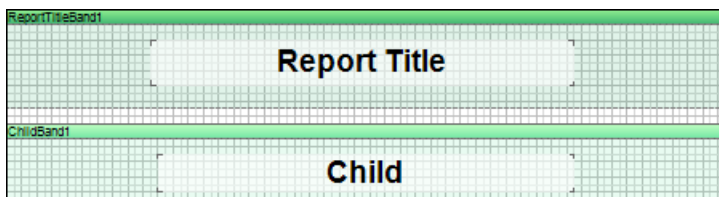
When you run the report the Child band will be printed as many times as the Data

band. In other words the **Child** band acts as a continuation of the Data band but is still a band in its own right possessing all properties available with other bands.

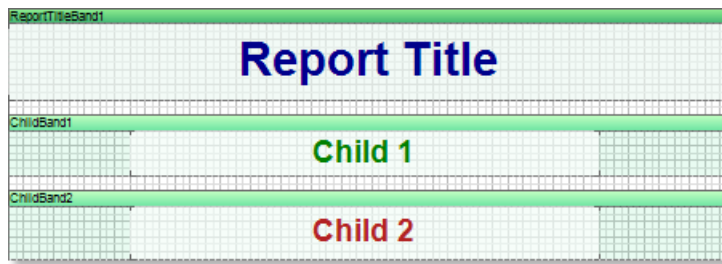
| | | |
|------------------------------------|-----------------------------|----------------|
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 |
| Child | | |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 22 | (5) 555-4729 |
| Child | | |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 |
| Child | | |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 |
| Child | | |
| Berglunds snabbköp | Berguvsvägen 8 | 0921-12 34 65 |
| Child | | |
| Blauer See Delikatessen | Forsterstr. 57 | 0621-08460 |
| Child | | |
| Blondesddsl père et fils | 24, place Kléber | 88.60.15.31 |
| Child | | |
| Bóldo Comidas preparadas | C/ Araquil, 67 | (91) 555 22 82 |
| Child | | |
| Bon app' | 12, rue des Bouchers | 91.24.45.40 |
| Child | | |
| Bottom-Dollar Markets | 23 Tsawassen Blvd. | (604) 555-4729 |
| Child | | |
| B's Beverages | Fauntleroy Circus | (171) 555-1212 |
| Child | | |
| Cactus Comidas para llevar | Cerrito 333 | (1) 135-5555 |
| Child | | |
| Centro comercial Moctezuma | Sierras de Granada 9993 | (5) 555-3392 |
| Child | | |
| Chop-suey Chinese | Hauptstr. 29 | 0452-076545 |
| Child | | |
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7647 |

4.24.1 Multi Line Header

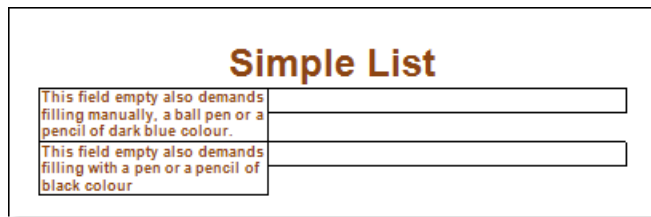
The **Child** band is a band that is a continuation of the band, after which it is placed.



The picture above shows the **Child** band is placed after the **Report Title** band, respectively, it is a continuation of this **Report Title** band. There are no limitations on the number of **Child** bands placed on a page.



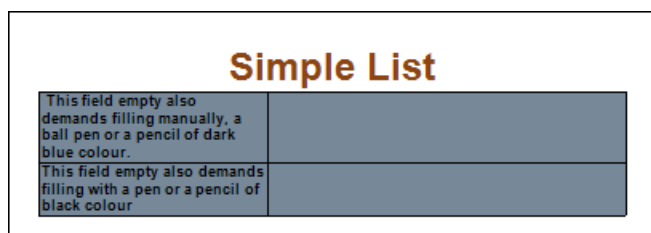
The picture above shows two **Child** band, which are a continuation of the **Report Title** band. Suppose there is a report with the report title that consists of a few lines. If the text is placed on the **Report Title** band, then visually it may look not entirely correct:



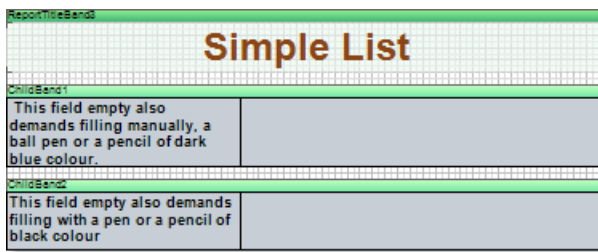
Even when using the **GrowToHeight** property, then visually it cannot be convenient:



Therefore, in some cases, the title of the report is better represented with the **Child** band:

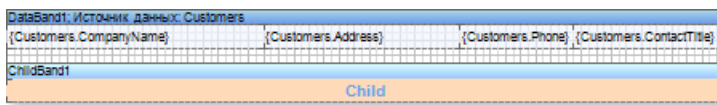


The picture below shows the report title located in the **ReportTitle** band and two **Child** band.



4.24.2 Child Band and Data

How to output two bands on one data row? You can use the **Child** band. Create a new report. Put the **Data** band on a page. Put the **Child** band under the **Data** band.



Run a report for execution. As you can see, the **Child** band was printed as many times as the **Data** band. The **Child** band is a continuation of the **Data** band. But at the same time it remained to be a band, with all its properties.

| Company | Address | Phone | Contact |
|--------------------------------------|--------------------------|----------------|-----------------------|
| FIBBA Fabrics Inter. Belchichas S.A. | O/ Morelazarri, 36 | (91) 555 94 44 | Accounting Manager |
| | Child | | |
| Polles gourmandes | 184, chaussée de Tournai | 20.16.10.16 | Assistant Sales Agent |
| | Child | | |
| Folk ochts HB | Åkegatan 24 | 0699-34 67 21 | Owner |
| | Child | | |
| Frankenveissand | Berliner Platz 43 | 089-0877310 | Marketing Manager |
| | Child | | |
| France restauration | 54, rue Royale | 40 32 21 21 | Marketing Manager |
| | Child | | |
| Finchi S.p.A. | Via Monte Bianco 34 | 011-4988260 | Sales Representative |
| | Child | | |

The **Child** band can be used not only with the **Data** band. It can be placed after any band on a page. For example, after the **Header** band or after the **Group Header** band.

❗ **Note:** The **Child** band can be used in association with any band.

4.24.3 KeepChildTogether Property

For example, add the **Child** band to the **Data** band, as the result a data row and an empty row (**Child** band row) is output, visually it looks like a high line.

| Company | Address | Phone | Contact |
|--------------------------|------------------------------|----------------|----------------------|
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7847 | Sales Associate |
| Consolidated Holdings | Berkeley Gardens 12 Brewery | (171) 555-0282 | Sales Representative |
| Drechenblut Delikatessen | Weissenweg 21 | 0241-039123 | Order Administrator |
| Du monde entier | 87, rue des Cinquante Otages | 40.87.88.88 | Owner |
| Eastern Connection | 35 King George | (171) 555-0297 | Sales Agent |

Add data to the **Child** band, for example **Country**.

The picture below shows that instead of empty space, the country name will be output.

| | | | |
|----------------------------|------------------------|---------------|-------------------|
| Centro comercial Moctezuma | Barras de Granada 9993 | (5) 555-0392 | Marketing Manager |
| Mexico | | | |
| Chop-suey Chinese | Hauptstr. 29 | 0452-076545 | Owner |
| Switzerland | | | |
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7847 | Sales Associate |

| Company | Address | Phone | Contact |
|--------------------------|-----------------------------|----------------|----------------------|
| Brazil | | | |
| Consolidated Holdings | Berkeley Gardens 12 Brewery | (171) 555-0282 | Sales Representative |
| UK | | | |
| Drechenblut Delikatessen | Weissenweg 21 | 0241-039123 | Order Administrator |
| Germany | | | |

So as to avoid breaking data, meaning when **Company**, **Address**, **Phone**, **Contact** remained on one page, and the second part (in our case, **Country**) was moved to another page, the **Child** band has the **KeepChildTogether** property.

| Company | Address | Phone | Contact |
|--------------------------|-----------------------------|----------------|----------------------|
| Comércio Mineiro | Av. dos Lusíadas, 23 | (11) 555-7847 | Sales Associate |
| Brazil | | | |
| Consolidated Holdings | Berkeley Gardens 12 Brewery | (171) 555-0282 | Sales Representative |
| UK | | | |
| Drechenblut Delikatessen | Weissenweg 21 | 0241-039123 | Order Administrator |
| Germany | | | |

By default the property is set to **true**.

4.25 Empty Band

The **Empty Data** band is used to fill free space on the bottom of a page with additional empty data rows formatted to match the displayed data. This example

shows a page without an **Empty Data** band:

| | | | |
|---|-----------------|-------------------------|----------------|
| 19 Nord-Ost-Fisch Handelsgesellschaft mbH | Sven Petersen | Coordinator Foreign M | (04721) 81713 |
| 20 Norika Meiner | Stefan Vloed | Marketing Manager | (024253010 |
| 21 Pasta Butters r.l | Giovanni Guadio | Order Administrator | (085) 6547995 |
| 22 Pavlova, Ltd. | Ian Clavling | Marketing Manager | (023) 444-2343 |
| 23 PFS Produktzentrall AS | Lars Petersen | Sales Agent | (031-687 85 43 |
| 24 Putzer Lebensmittelgroßmärkte AG | Martin Blau | International Marketing | (089) 562755 |
| 25 Refrescos Americanos LTDA | Carlos Diaz | Marketing Manager | (11) 555 4940 |
| 26 Specialty Biscuits, Ltd. | Peter Wilson | Sales Representatives | (181) 555-4448 |
| 27 Svensk Spröda AB | Michael Björn | Sales Representatives | 08-123 45 67 |
| 28 Tokyo Traders | Yoshi Nagase | Marketing Manager | (03) 3888-0011 |
| 29 Zaanen Group/Finch | Dirk Lachke | Accounting Manager | (12345) 1212 |

Count: 28

Adding an **Empty Data** band to the same page changes the look of the empty part of the page to match the formatting of the rest of the data.

Example

Create a new report with borders around the text items on the data band. Then drop an Empty Data band after the Data band. If there is more than one **Data** band on the page then you should place the **Empty Data** band after the last **Data** band, but before any footer bands.

❗ **Note:** To output Footer bands on the bottom of a page set the **PrintAtBottom** property of each **Footer** band to **true**.

Then add text objects to the empty band to match those on the Data band. The result should look something like this:

| Company Name | Contact Name |
|------------------------------------|-------------------------|
| DataBand1; Data Source: Suppliers | |
| {counter}. {Suppliers.CompanyName} | {Suppliers.ContactName} |
| EmptyBand1 | |
| {counter}. | |
| FooterBand1 | |

If you then run the report you will see that the empty space is replaced with formatted empty data rows:

| | | | |
|--|-----------------|-------------------------|----------------|
| 19 Nord-Ost-Fach Handelsgesellschaft mbH | Sven Petersen | Coordinator Foreign M | (04721) 8713 |
| 20 Noreks Meier | Beate Vloed | Marketing Manager | (052-683010 |
| 21 Pietra Butters r.l. | Giovanni Gaudio | Order Administrator | (080) 6947885 |
| 22 Pielova, Ltd. | Ian Doving | Marketing Manager | (033) 444-2343 |
| 23 PS Knackebrod AS | Lars Pettersen | Sales Agent | 031-587 85 43 |
| 24 Pulzar Lebensmittelgroßmärkte AG | Martin Ben | International Marketing | (089) 362765 |
| 25 Refresco Americas LTDA | Carlos Diaz | Marketing Manager | (11) 555 4940 |
| 26 Specialty Biscuits, Ltd. | Patric Wilson | Sales Representative | (181) 555-4448 |
| 27 Svensk Spårda AB | Michael Björn | Sales Representative | 08-123 45 67 |
| 28 Tokyo Traders | Yoshi Nagase | Marketing Manager | (03) 3855-9011 |
| 29 Zwiesel Spezialglas | Dirk Luchte | Accounting Manager | (12345) 1212 |
| 30 | | | |
| 31 | | | |
| 32 | | | |
| 33 | | | |
| 34 | | | |
| 35 | | | |
| 36 | | | |
| 37 | | | |
| 38 | | | |
| 39 | | | |
| Count: 28 | | | |

❗ **Note:** This band is not working on the Panel and Sub-Report.

4.25.1 Empty Band Modes

The **Empty** band has only one special property - **SizeMode**. This property indicates the behavior of the Empty Band on the bottom of a page. There are 4 values of the property: **IncreaseLastRow**, **DecreaseLastRow**, **AlignFooterToBottom**, **AlignFooterToTop**.

➤ The **IncreaseLastRow** indicates that if, when filling the page by an Empty band, there is a free space to partially output an Empty Band, then it is possible to increase the last row. The picture below shows this.

| | | | |
|--|-----------------|-------------------------|----------------|
| 17 New England Seafood Company | Robb Merchant | Wholesale Account Ag | (817) 555-3267 |
| 18 New Orleans Cajun Delights | Shelley Burke | Order Administrator | (180) 555-4822 |
| 19 Nord-Ost-Fach Handelsgesellschaft mbH | Sven Petersen | Coordinator Foreign M | (04721) 8713 |
| 20 Noreks Meier | Beate Vloed | Marketing Manager | (052-683010 |
| 21 Pietra Butters r.l. | Giovanni Gaudio | Order Administrator | (080) 6947885 |
| 22 Pielova, Ltd. | Ian Doving | Marketing Manager | (033) 444-2343 |
| 23 PS Knackebrod AS | Lars Pettersen | Sales Agent | 031-587 85 43 |
| 24 Pulzar Lebensmittelgroßmärkte AG | Martin Ben | International Marketing | (089) 362765 |
| 25 Refresco Americas LTDA | Carlos Diaz | Marketing Manager | (11) 555 4940 |
| 26 Specialty Biscuits, Ltd. | Patric Wilson | Sales Representative | (181) 555-4448 |
| 27 Svensk Spårda AB | Michael Björn | Sales Representative | 08-123 45 67 |
| 28 Tokyo Traders | Yoshi Nagase | Marketing Manager | (03) 3855-9011 |
| 29 Zwiesel Spezialglas | Dirk Luchte | Accounting Manager | (12345) 1212 |
| 30 | | | |
| 31 | | | |
| 32 | | | |
| 33 | | | |
| 34 | | | |
| 35 | | | |
| 36 | | | |
| 37 | | | |
| 38 | | | |
| Count: 28 | | | |

➤ **DecreaseLastRow**. The last row of the **Empty Band** will be decreased by height. The picture below shows this.

| | | | | |
|----|--|-----------------|-------------------------|-----------------|
| 17 | New England Seafood Company | Robb Merchant | Wholesale Account Ag | (617) 555-3267 |
| 18 | New Orleans Cajun Delights | Shelley Burke | Order Administrator | (504) 555-4022 |
| 19 | Nord-Ost-Fisch Handelsgesellschaft mbH | Sven Petersen | Coordinator Foreign M | (04721) 8713 |
| 20 | Norfolk Meats | Beate Vloed | Marketing Manager | (012-953010 |
| 21 | Pasta Butters r.L. | Giovanni Guadio | Order Administrator | (085) 6547665 |
| 22 | Pavlov, Ltd. | Ian Deding | Marketing Manager | (031) 444-2343 |
| 23 | PS Knackström AB | Lars Pettersen | Sales Agent | (031-587 65 43 |
| 24 | Putzer Lebensmittelmarkt AG | Martin Ben | International Marketing | (095) 562755 |
| 25 | Refresco Amersfoort LTDA | Carlos Diaz | Marketing Manager | (11) 555-4940 |
| 26 | Specialty Biscuits, Ltd. | Peter Wilson | Sales Representative | (781) 555-4448 |
| 27 | Svensk Spisida AB | Michael Spim | Sales Representative | 08-123 45 67 |
| 28 | Tokyo Traders | Yoshi Nagase | Marketing Manager | (031) 3555-9011 |
| 29 | Zweiser Schnitzerei | Dirk Luchte | Accounting Manager | (12345) 1212 |
| 30 | | | | |
| 31 | | | | |
| 32 | | | | |
| 33 | | | | |
| 34 | | | | |
| 35 | | | | |
| 36 | | | | |
| 37 | | | | |
| 38 | | | | |
| 39 | | | | |
| | | | | Count: 28 |

➤ **AlignFooterToBottom.** If there is no free space for the **Empty** band then this band is not output. The picture below shows this.

| | | | | |
|----|--|-----------------|-------------------------|-----------------|
| 17 | New England Seafood Company | Robb Merchant | Wholesale Account Ag | (617) 555-3267 |
| 18 | New Orleans Cajun Delights | Shelley Burke | Order Administrator | (504) 555-4022 |
| 19 | Nord-Ost-Fisch Handelsgesellschaft mbH | Sven Petersen | Coordinator Foreign M | (04721) 8713 |
| 20 | Norfolk Meats | Beate Vloed | Marketing Manager | (012-953010 |
| 21 | Pasta Butters r.L. | Giovanni Guadio | Order Administrator | (085) 6547665 |
| 22 | Pavlov, Ltd. | Ian Deding | Marketing Manager | (031) 444-2343 |
| 23 | PS Knackström AB | Lars Pettersen | Sales Agent | (031-587 65 43 |
| 24 | Putzer Lebensmittelmarkt AG | Martin Ben | International Marketing | (095) 562755 |
| 25 | Refresco Amersfoort LTDA | Carlos Diaz | Marketing Manager | (11) 555-4940 |
| 26 | Specialty Biscuits, Ltd. | Peter Wilson | Sales Representative | (781) 555-4448 |
| 27 | Svensk Spisida AB | Michael Spim | Sales Representative | 08-123 45 67 |
| 28 | Tokyo Traders | Yoshi Nagase | Marketing Manager | (031) 3555-9011 |
| 29 | Zweiser Schnitzerei | Dirk Luchte | Accounting Manager | (12345) 1212 |
| 30 | | | | |
| 31 | | | | |
| 32 | | | | |
| 33 | | | | |
| 34 | | | | |
| 35 | | | | |
| 36 | | | | |
| 37 | | | | |
| 38 | | | | |
| | | | | Count: 28 |

➤ **AlignFooterToTop.** (this is the default value of the **SizeMode** property). The Footer Bands will be output on the bottom (the **PrintAtBottom** = true) and moved to top to fill the free space of the Empty Band. The picture below shows this.

| | | | | |
|----|--|-----------------|-------------------------|-----------------|
| 17 | New England Seafood Company | Robb Merchant | Wholesale Account Ag | (617) 555-3267 |
| 18 | New Orleans Cajun Delights | Shelley Burke | Order Administrator | (504) 555-4022 |
| 19 | Nord-Ost-Fisch Handelsgesellschaft mbH | Sven Petersen | Coordinator Foreign M | (04721) 8713 |
| 20 | Norfolk Meats | Beate Vloed | Marketing Manager | (012-953010 |
| 21 | Pasta Butters r.L. | Giovanni Guadio | Order Administrator | (085) 6547665 |
| 22 | Pavlov, Ltd. | Ian Deding | Marketing Manager | (031) 444-2343 |
| 23 | PS Knackström AB | Lars Pettersen | Sales Agent | (031-587 65 43 |
| 24 | Putzer Lebensmittelmarkt AG | Martin Ben | International Marketing | (095) 562755 |
| 25 | Refresco Amersfoort LTDA | Carlos Diaz | Marketing Manager | (11) 555-4940 |
| 26 | Specialty Biscuits, Ltd. | Peter Wilson | Sales Representative | (781) 555-4448 |
| 27 | Svensk Spisida AB | Michael Spim | Sales Representative | 08-123 45 67 |
| 28 | Tokyo Traders | Yoshi Nagase | Marketing Manager | (031) 3555-9011 |
| 29 | Zweiser Schnitzerei | Dirk Luchte | Accounting Manager | (12345) 1212 |
| 30 | | | | |
| 31 | | | | |
| 32 | | | | |
| 33 | | | | |
| 34 | | | | |
| 35 | | | | |
| 36 | | | | |
| 37 | | | | |
| 38 | | | | |
| | | | | Count: 28 |

4.26 Watermarks

Sometimes it is required to output a watermark on a page. A watermark is an inscription or an image that is placed under or over elements of a page. Stimulsoft Reports has three modes to output watermarks: the **Watermark** of a page, the **Overlay** band and direct placing on a page.

4.26.1 Watermark Property

The **Watermark** property allows a user to output one image and one inscription on the background or foreground. The **Watermark** property has sub-properties to output watermarks.

On the table below Text properties for watermark are described.

| Properties | Description |
|-------------------|---|
| Text | A text that is used to output a watermark |
| Text Brush | A brush to output a watermark |
| Font | A font that is used to output a watermark |

| | |
|-------------------|--|
| Angle | An angle to rotate a watermark |
| ShowBehind | Show text of a watermark on the background or foreground |

An example how properties can be used is shown on the picture below.



On the table below Image properties for watermark are described.

| Properties | Description |
|----------------------------|--|
| Image | An image to output |
| ImageAlignment | This property is used to align an image on a page |
| ImageMultipleFactor | A multiplier that is used to change image size |
| AspectRatio | Saves proportions of an image |
| ImageTiling | If this property is set to true , then it will be tiled throughout a page |
| ImageTransparency | This property is used to set image transparency |
| ImageStretch | Stretches an image on a page |
| ShowImageBehind | Shows an image of a watermark on the background or foreground |

Also there is another **Enabled** property. This property enables or disables watermark output.

4.26.2 Overlay Band

Important

Scripts can be a security risk, so they are disabled in the [Interpretation mode](#). However, if you are confident in the safety of your scripts, you can use them in the [Compilation mode](#).

The **Overlay** band is used to output text, images, primitives and other data.



The **Overlay** band is placed on the top of all other bands. The **Watermark**, for example, is placed in the foreground or in the background. The advantage of the **Overlay** band over **Watermark** is that it is not a page element but a band which has properties of bands.

Watermark is either printed on all pages or not printed. The **Overlay** band allows selecting 7 ways of printing. In **Watermark**, for the same operation script should be printed.

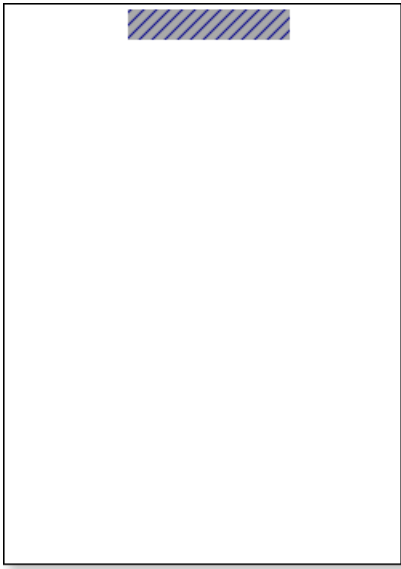
The **PrintOn** property has 7 values:

- ✓ **All page;**
- ✓ **ExceptFirstPage;**
- ✓ **ExceptLastPage;**
- ✓ **ExceptFirstAndLastPage;**
- ✓ **OnlyFirstPage;**
- ✓ **OnlyLastPage;**
- ✓ **OnlyFirstAndLastPage.**

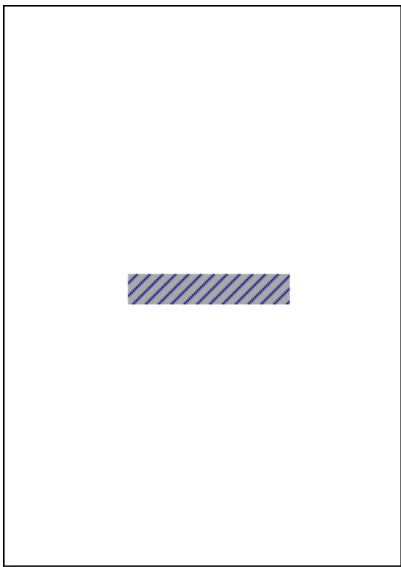
4.26.2.1 Vertical Alignment Property

The **VerticalAlignment** property is used to define the place of the "watermark" inscription which is output using the **Overlay** band. This property may have three values:

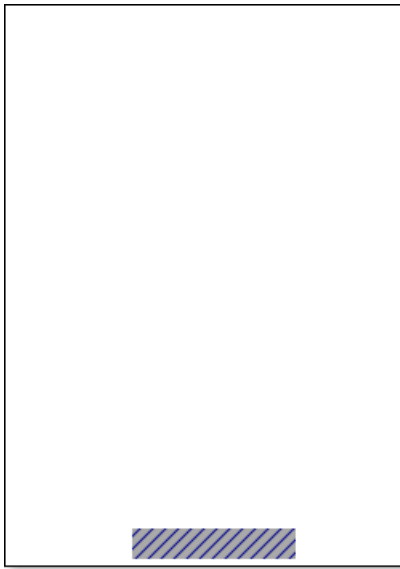
➤ **Top.** The **Overlay** band will be output on the top of a rendered report before the page header and the page header.



➤ **Center.** The **Overlay** band will be output on the center of a rendered report and in front of data placed on the page.

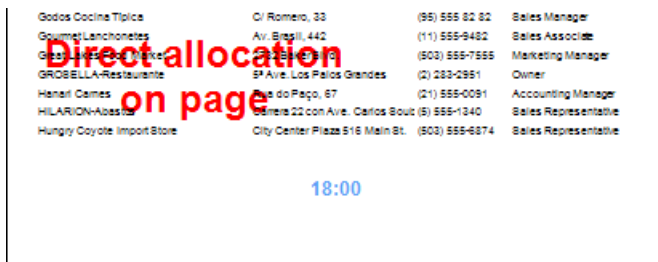


➤ **Bottom.** The **Overlay** band will be output on the bottom of a page of a report and after the page footer.



4.26.3 Direct Allocation on Page

One of the options for placement of the "watermark" inscription is a direct placement on the page. This means that the direct placement of any component, which will be the "watermark" inscription on a page of a report template.



The picture above shows the "watermark" by means of the direct placement a text component on a template of a page.

Direct placement on a page allows showing an inscription on the background but at any of the working space.

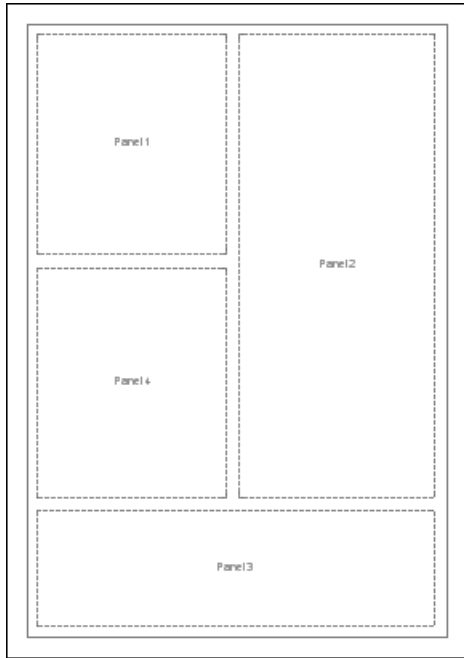
There is the **Linked** property. This **Linked** property may have two values: **true** and **false**.

If the property is set to **false**, then the relation with "owner" is not fixed. In other words the "owner" is the report template item on which the **TextBox** component is placed.

If the property is set to **true**, then the relation with "owner" is fixed. In other words the **TextBox** component may change the position but it will be referred to the item on what it is fixed.

4.27 Panels

Panel is a rectangular region that may contain other components including bands. If you move a panel, then all components in it are moved too. The panel can be placed both on a band and on a page. This gives unique abilities in report creation.



4.27.1 Placing Bands on Panel

A panel can be placed on a page, on a band, and on another panel. Almost all components of a report can be placed on a panel. But not all bands can be placed on a panel. A table below shows which bands can be placed.

| Band name | It is possible to place a band on a panel |
|----------------|---|
| Report Title | No |
| Report Summary | No |
| Page Header | No |
| Page Footer | No |
| Group Header | Yes |
| Group Footer | Yes |
| Data | Yes |

| | |
|-------------------|-----|
| Hierarchical Data | Yes |
| Child | Yes |
| Header | Yes |
| Footer | Yes |

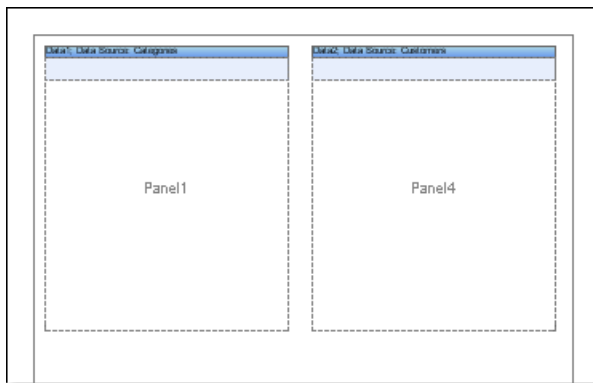
As seen, report bands and page bands cannot be placed on a panel. All other bands can be placed on a panel.

4.27.2 Placing Panels

There are three ways of placing panels: on a page, on a band and in another panel. The below topics describe all these variants.

4.27.2.1 Placing Panels on Page

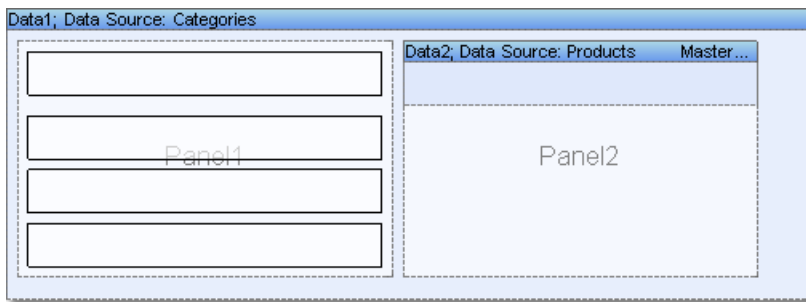
This is the first approach. It is primarily used to organize independent print streams. Panels can be placed anywhere on a page, and each panel functions as a small page. This makes it possible to place several small pages, each containing bands and components, on a single page. As a result, you can render a wide range of complex reports.



❗ **Note:** The number of panels on one page is unlimited.

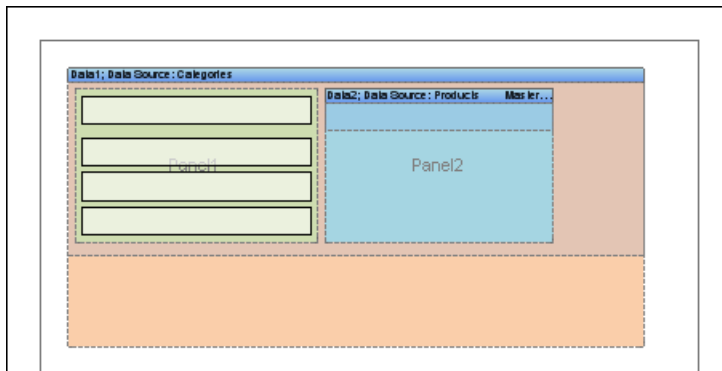
4.27.2.2 Placing Panels on Band

The second option is when the panel is placed on a band. This approach can be used both to group simple components on a panel and to place bands on another band. This makes it possible to create very complex reports. However, you should use panels this way with caution, as the report template can become difficult to "read."



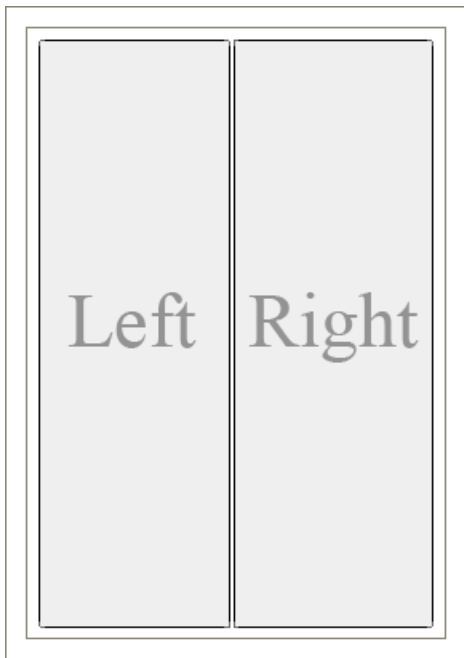
4.27.2.3 Placing Panels on Panel

The third way – when a panel is placed on another panel. This variant is a combination of the two previous ones. It is very important to know that panel insertion should be used very carefully. The number of insertions is unlimited, but such a report will not have a good look.



4.27.3 Side-by-Side Reports

A Side-by-side report is a report in which containers can help to speed up report creation. Two lists of rows are output simultaneously in this report. Both lists are independent from each other. Usually it is necessary to use the **Sub report** component to create such a report. But it is much easier to create a report with panels.



How to build a **Side-by-Side** report. Put two containers on a page. Set the **DockStyle** property of one component to **Left**. Set the **DockStyle** property of the second component to **Right**. Docking component is necessary to take all space on a page by the height. In cases it should not be done. Leave some space between lists to separate them. Put two bands on the first panel: the **Header** band and the **Data** band. The first list will be output using these bands. Do the same in the second container. As a result two lists will be output on one page simultaneously.

| Companies | | Products | |
|--------------------------------|-----------------|----------------------------------|---------|
| Company | Phone | Product | Price |
| Harmony One-All-Right Goods | 20437542 | Josh Coffee | 40.00p. |
| Island Trading | (1940) 555-8888 | Jack's New England Clam Chowder | 50.00p. |
| Kingsfish Cavern | (555) 555-0686 | Kimbis | 6.00p. |
| La Crosse Haberdash | 305984 10 | Lukkalids | 18.00p. |
| La Maison d'Art | 61 77 61 10 | Laughing Lumberjack Lager | 14.00p. |
| Laughing Gypsy Wine Cellar | (604) 555-2342 | Longish Tolu | 10.00p. |
| Lucky Kountry Store | (556) 555-7699 | Louisiana Flery Hot Pepper Sauce | 21.00p. |
| Lutheana Market | 068-6247584 | Louisiana Hot Spiced Oen | 17.00p. |
| Lutz's Super Shop | (415) 555-5688 | Mangrup Orind Apples | 55.00p. |
| LUX-Supermarket | (80) 331-4808 | Miscellaneous Fruits | 32.00p. |
| LUX-Online.com | (80) 34-5642 | Musikku | 20.00p. |
| Luxurious Royal Restaurant | (500) 555-4000 | Mushrooms | 97.00p. |
| Magnificent Moments Restaurant | (335) 443020 | Mozzarella di Cervati | 34.00p. |
| Melkon Dairy | (102) 201 28 07 | North On Mergelberg | 25.00p. |
| Mine Railroad | (514) 555-8008 | Northwoods Cranberry Sauce | 40.00p. |
| Morganston Generalist | (542) 62306 | PolkaCafe's HouseCarm | 14.00p. |
| Northfield | (171) 555-7000 | Original Frankfurter grüne Soße | 13.00p. |
| Occasion Addition Ltd. | (15) 555-6000 | Outback Lager | 15.00p. |
| Old World Confectionery | (907) 555-7004 | Pale Chutney | 24.00p. |
| Online Kiosk | (521) 664627 | Pavlova | 17.45p. |
| Paris Specialties | (1) 42-34 3285 | Peach Pies | 32.00p. |
| Peterson's Confectionery | (5) 552-3865 | Queen's Cakes | 21.00p. |
| Pizzazz and more | (554) 4000 | Queen's Monarchy La Patis | 38.00p. |
| Pizzeria Italiana Vetro | (15) 555-9004 | Raclette Courdroux | 55.00p. |
| Que Delicia | (215) 555-4000 | Ravind Angeli | 19.50p. |
| Queen's Cakes | (115) 555-1989 | Rhineland-Kloster | 7.75p. |
| QUICK-Stop | (632) 60088 | RiskMaker | 15.00p. |
| Ranch's Grand | (15) 525-0000 | Ringside | 9.50p. |
| Rathbun's Canyon Grocery | (504) 555-5688 | Riviera Soufflé | 45.00p. |
| Ruggieri's Confectionery | (552) 555-0000 | Savory Soufflé | 14.00p. |
| Ricardo's Adornment | (215) 555-3452 | Schoggi Schokolade | 43.00p. |
| Richard's Supermarket | (688) 60404 | | |
| Romero's Market | (915) 745 6200 | | |
| Saint Gourmet | (818) 460 625 | | |
| Sevenson Market | (200) 555-4000 | | |
| Sevenson's Market | (171) 555-9000 | | |
| Simone's Market | 31 1234 56 | | |
| Specialties du monde | (15) 475 6000 | | |
| Splish Splash & Ale | (307) 555-4000 | | |
| Supermarket d'Art | (815) 555-7000 | | |
| The Big Cheese | (500) 555-3000 | | |
| The Cracker Box | (400) 555-5004 | | |

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4.27.4 Multiple Tables on One Page

Sometimes it is required to output multiple tables on a page and, what is very important, to output them on different parts of a page. Such a report can be rendered using the **Sub-Report**. But it is much easier to do this using panels. All that is required is to place panels and put bands on them. On the picture below a sample of such a report is shown.

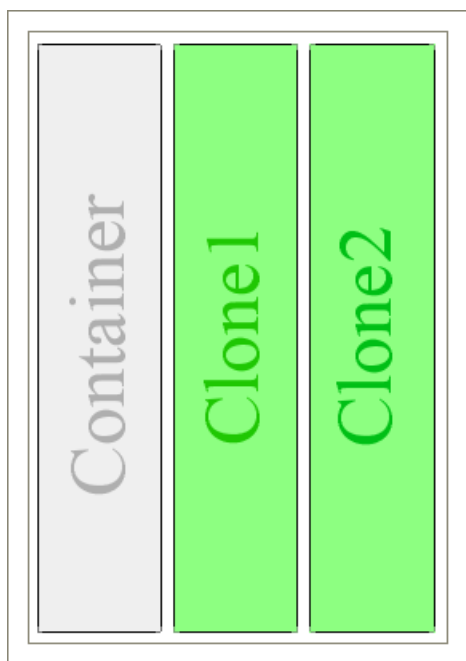
| Table1 | Table4 |
|--------|--------|
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| | 9 |
| Table2 | 10 |
| 1 | 11 |
| 2 | 12 |
| 3 | 13 |
| 4 | 14 |
| 5 | 15 |
| 6 | 16 |
| 7 | |
| Table3 | Table5 |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| | 6 |

4.27.5 Cloning

The unique Clone component is included in Stimulsoft Reports. This component is used to clone parts of a report into a required part of a report. Cloning can be used only in panels.

❗ **Note:** The Clone component can work with the Panel component.

How it works? Put a panel on a page. Put bands to output lists. Place a panel on the left part of a page. Place a **Clone** component on the right side of a page. Then, in the **Clone** component designer, indicate the panel that should be cloned. In our case it is the panel that was created on a page.



Run a report. The panel will be rendered first. The list will be output on the left side of a page. Then the list will continue to be output at the place where the **Clone** component is placed. The **Clone** component clones all bands of the panel. Using the **Clone** component it is possible to render complex reports with columns. The first column is output using the panel and other columns - using the **Clone** component. It is important to consider the order of placing Clone components on a page.

❗ **Note:** Panel components and their clones will be output in order of placing components on a page.

4.28 Cross-Tab

The **Cross table** is a special component that is used to process, group and summarize data from the data source. The result is represented as a table. The **Cross table** can be placed both directly on a page or on a **Data** band. If a table that is created as a result of a **cross table** rendering does not fit on one page, then it can be printed on several pages. The component has many properties and settings.

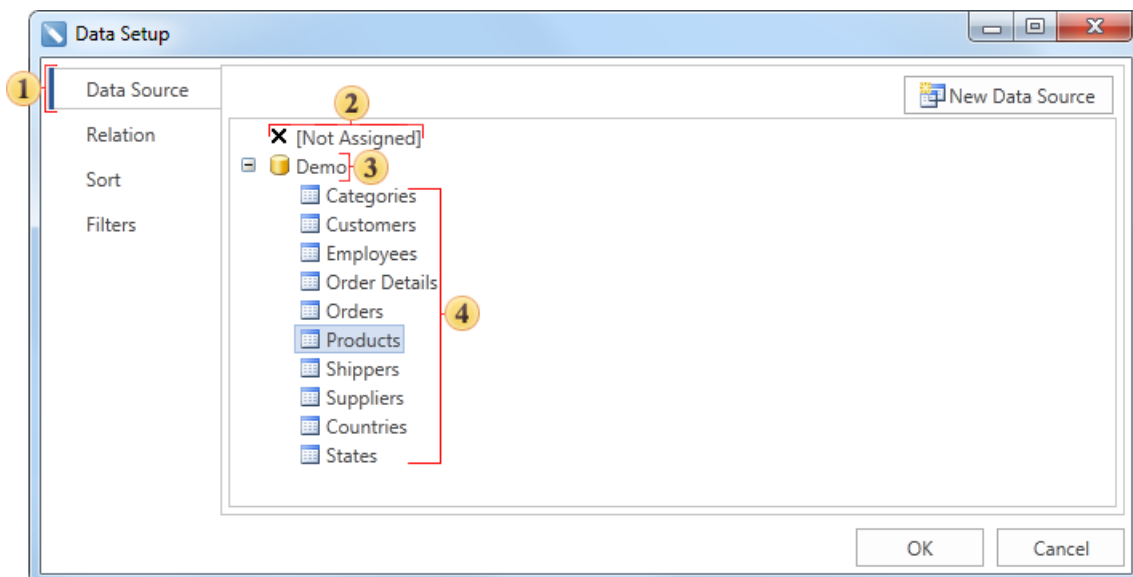
4.28.1 Data Source Property

Data are the base for cross table rendering. So the cross table rendering should be started from selecting the data source. The data source can be selected using the Data source.

It is necessary to specify the data source that will be used. There are several ways how to do this. The first way. You may use either the **DataSource** property or the Table editor.

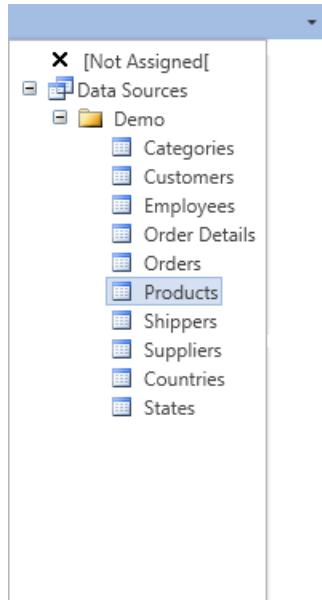


A data source can be selected by clicking the first tab of the Data band editor. All data sources are grouped in categories. Each category corresponds to one connection with data in the report data dictionary.



- 1 The tab to select the data source;
- 2 Select this node if you do not need to specify the data source;
- 3 The "Demo" data category;
- 4 The "Demo" data source category.

The second way. The data source can be selected using the cross table editor. It can be called by double click on the cross table.



4.28.2 Cross Table Items

After selecting the data source, you need to specify the following items: columns, rows, and cells for summation.

4.28.2.1 Columns

On a picture below you may see how the columns are positioned on a table.

Columns

| Products | CategoryName | | | | | | | | |
|-------------|--------------|------------|-------------|----------------|----------------|--------------|---------|---------|-------|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 | 168 |
| Brazil | 20 | | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | | 266 |
| Denmark | | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | | 132 |
| France | 86 | | | 98 | | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 55 | 162 |
| Netherlands | | | 51 | | | | | | 51 |
| Norway | | | | 164 | | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | | 70 |
| Spain | | | | 108 | | | | | 108 |
| Sweden | | | | | 165 | | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | | 143 |
| USA | 183 | 259 | | | | | 15 | 208 | 665 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 100 | 701 | 3119 |

It is allowed to specify one or several columns at once. For example, in cross table only one column is specified:

Columns: ▲ ▼ ✕

CategoryName

As a result we get grouping by values of this column:

| CategoryName | | | | | | | | |
|--------------|------------|-------------|----------------|----------------|--------------|---------|---------|-------|
| Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |

If more than one column is specified:

Columns: ▲ ▼ ✕

CategoryName
 ProductName

Grouping is output by values of two columns. Values of the first column are output

first. Then the value from the second column is output:

| CategoryName, ProductName | |
|---------------------------|---------------------------------|
| Beverages | Condiments |
| Chai | Almond Syrup |
| ChaiG | Chef Au Bon's Cajun Seasoning |
| Charlotte's wife | Chef Au Bon's Gumbo Mix |
| Cofe de Elaje | Genoa Slicer |
| Guaraná Fantástica | Grandma's Boysenberry Spread |
| Ipoi Confe | Gula Malacca |
| Lakalalooi | Louisiana Fire Hot Pepper Sauce |
| Larguing Lumberjack Lager | Louisiana Hot Speed Oil |
| O'zbek Lager | Northwoods Cranberry Sauce |
| Riviera Hot Sauce | Original Frankfurt Grine Soles |
| Sacchari Ale | Silop de table |
| Shakey Shit | Veggie-spread |
| Total | Total |

4.28.2.2 Rows

On a picture below you may see how the rows are positioned on a table.

| Products | CategoryName | | | | | | | |
|-------------|--------------|------------|-------------|----------------|----------------|--------------|---------|---------|
| | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood |
| Country | | | | | | | | Total |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 168 |
| Brazil | 20 | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | 266 |
| Denmark | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | 132 |
| France | 86 | | | 98 | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 162 |
| Netherlands | | | 51 | | | | | 51 |
| Norway | | | | 164 | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | 70 |
| Spain | | | | 108 | | | | 108 |
| Sweden | | | | | 165 | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | 143 |
| USA | 183 | 259 | | | | 15 | 208 | 665 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 701 | 3119 |

Grouping is done only by its values for one row:

Rows: ▲ ▼ ✕

Country

Get the result shown on a picture below. All values of the specified row are represented in one level.

| Country |
|-------------|
| Australia |
| Brazil |
| Canada |
| Denmark |
| Finland |
| France |
| Germany |
| Italy |
| Japan |
| Netherlands |
| Norway |
| Singapore |
| Spain |
| Sweden |
| UK |
| USA |
| Total |

Specify two rows:

| |
|---------|
| Rows: |
| Country |
| City |

A cross table is grouped in two levels vertically:

| Country | City |
|-----------|--------------|
| Australia | Melbourne |
| | Sydney |
| | Total |
| Brazil | Sao Paulo |
| | Total |
| | Total |
| Canada | Montréal |
| | St-Hyacinthe |
| | Total |

In a cross table you may not specify columns or rows. For example, if columns are not specified, then grouping will be done by rows. For some reports this property is very important for a cross table. The picture below shows one those reports:

| CategoryName | CompanyName | UnitsInStock |
|--------------|-----------------------------------|---------------|
| Beverages | Aux joyeux ecclésiastiques | 281,5 |
| | Bigfoot Breweries | 46 |
| | Exotic Liquids | 37 |
| | Karkki Oy | 18 |
| | Leka Trading | 46 |
| | Pavlova, Ltd. | 15 |
| | Plutzer Lebensmittelgroßmärkte AG | 7,75 |
| | Refrescos Americanas LTDA | 4,5 |
| | Total | 455,75 |
| Condiments | Exotic Liquids | 10 |
| | Forêts d'érables | 28,5 |
| | Grandma Kelly's Homestead | 65 |
| | Leka Trading | 19,45 |
| | Mayumi's | 15,5 |
| | New Orleans Cajun Delights | 81,40 |
| | Pavlova, Ltd. | 43,9 |
| | Plutzer Lebensmittelgroßmärkte AG | 13 |
| | Total | 276,75 |

4.28.2.3 Summary Cells

Summary cells are the elements of a cross table, which set rules for cells formatting on intersection of columns and rows of a summary cell. On a picture below the structure of a simplest cross table is represented.

| Products | | CategoryName | | | | | | | |
|-------------|-----------|--------------|-------------|----------------|----------------|--------------|---------|---------|-------|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 | 168 |
| Brazil | 20 | | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | | 266 |
| Denmark | | | | | | | 100 | | 100 |
| Finland | 57 | | 75 | | | | | | 132 |
| France | 86 | | | 98 | | | 62 | | 246 |
| Germany | 125 | 32 | 140 | | 22 | | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 55 | 162 |
| Netherlands | | | 51 | | | | | | 51 |
| Norway | | | | 164 | | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | | 70 |
| Spain | | | | 108 | | | | | 108 |
| Sweden | | | | | 165 | | 224 | | 389 |
| UK | 56 | 13 | 74 | | | | | | 143 |
| USA | 183 | 259 | | | | | 15 | 208 | 665 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 100 | 701 | 3119 |

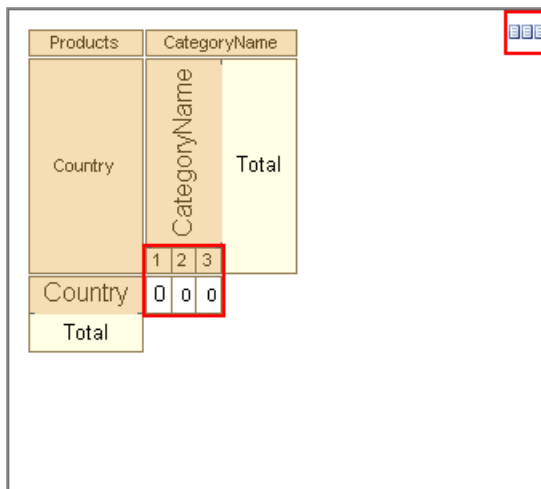
In a summary cell all values from the data source which are suitable for a particular condition are grouped. The condition is the coincidence of the value of the column and the row from a data source with the value of the column and row of a cross-

table. The value of a cross table column and a row is indicated by intersection where the summary cell is placed. For example, see a simple cross table on a picture below:

| Products | | | CategoryName | | | | | | |
|-------------|-----------|------------|--------------|----------------|----------------|--------------|---------|---------|-------|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood | Total |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 | 168 |
| Brazil | 20 | | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | | 266 |
| Denmark | | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | | 132 |
| France | 86 | | | 98 | | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 55 | 162 |
| Netherlands | | | 51 | | | | | | 51 |
| Norway | | | | 164 | | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | | 70 |
| Spain | | | | 108 | | | | | 108 |
| Sweden | | | | | 165 | | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | | 143 |
| USA | 183 | 259 | | | | | 15 | 208 | 665 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 100 | 701 | 3119 |

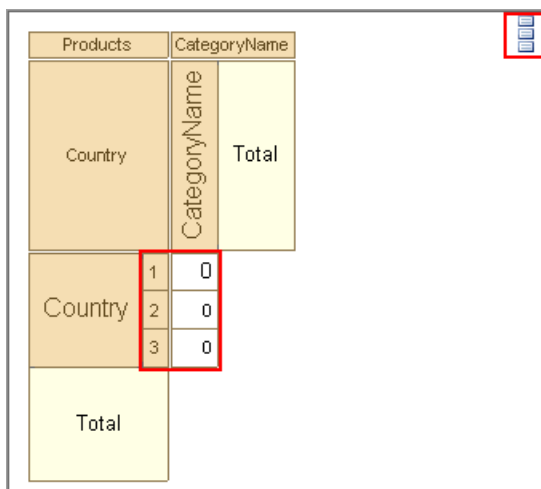
The red rectangle indicates the summary cell with the 140 values and also a column and a row of this cell. In this cell all values from the data source which CategoryName column is equal to Confection and Country row is equal to Germany were grouped. The rules of grouping are set using the **Summary** property of a summary cell.

If more than one summary cell is set in a Cross table then it is possible to define the direction of placing of these cells. The reporting tool can place them horizontally from left to right or vertically from top to bottom. On a picture below a table with horizontally placed summary cells is shown.



| Products | CategoryName | Total |
|----------|--------------|-------|
| Country | 1 | 0 |
| | 2 | 0 |
| | 3 | 0 |
| Total | | |

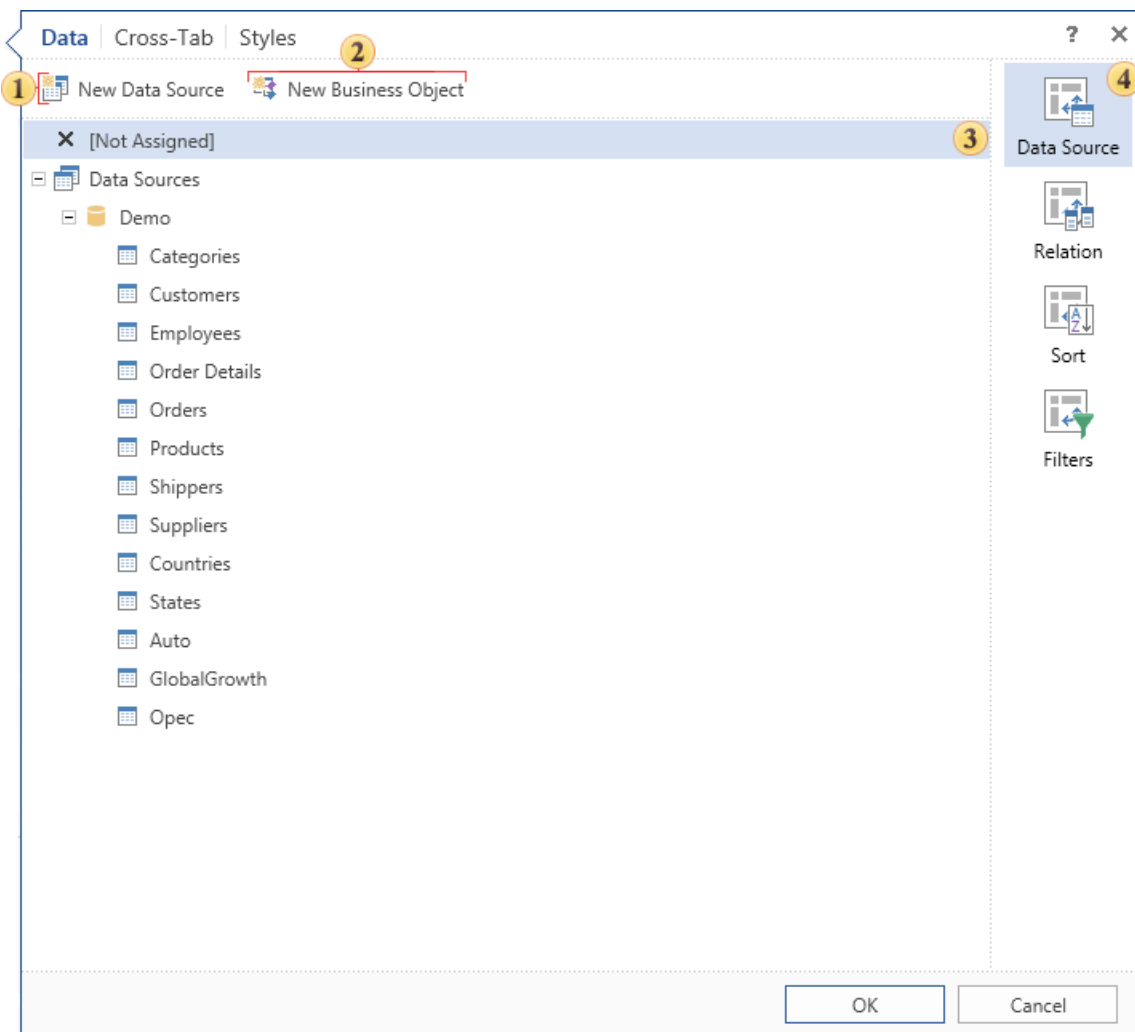
On a picture below a table with vertically placed summary cells is shown.



| Products | CategoryName | Total |
|----------|--------------|-------|
| Country | 1 | 0 |
| | 2 | 0 |
| | 3 | 0 |
| Total | | |

4.28.3 Cross-Tab Editor

When you create or edit the **Cross-Tab** component, a special editor will be called when editing the component. The editor tabs - **Data**, **Cross-Tab**, **Styles** - contain the configuration settings of the Cross-Tab component. In addition, the settings and parameters are grouped on each tab.



- ❶ The **New Data Source** button. Calls the window to create a new data source.
- ❷ The **New Business Object** button. Calls the window to create a new Business Object.
- ❸ In this field you can find settings and parameters. The picture above shows the selected group **Data Source**. The field shows all available data sources. Select the data source that will be used when creating the cross-tab.
- ❹ The list of parameters and settings for the active tab.

As seen from the picture above, in the Data tab, and all settings are divided into the following groups:

➤ **Data Source**

In this group, you can select the data source for the cross-tab. In addition, there are buttons to create a new data source and new Business Object.

➤ Relation

In this group, you can set the relation between the selected sources. There is also a new button **New Relation**, when clicked, it calls the create new relation window.

➤ Sort

In this group, you can set the sorting parameters. You need to set the data column by which sorting will be done and the direction of sorting.

➤ Filters

In this group, filtering parameters are determined. A new filter is added and filtering criteria through the expression or value is specified.

4.28.4 Data Summary Types

When rendering a cross-table, the report generator should know how the values in the summary cells will be summarized. The summation function is set using the Summary property of a summary cell. For each summary cell its own function can be specified. A Cross Table works with the following functions:

| Function | Description |
|----------------------|--|
| None | Do not summarize the cell values |
| Sum | Returns the sum of values that are contained in the cell |
| Average | Returns the average of values that are contained in the cell |
| Min | Returns the minimum of the values that are contained in the cell |
| Max | Returns the maximum of the values that are contained in the cell |
| Count | Returns the number of values that are contained in the cell |
| CountDistinct | Returns the number of distinct values that are contained in the cell |
| Image | A cross table will show the first value as an image |

In addition to the Summary property, there is another property that affects the summary. This is the Summary Values property. This property identifies and

processes the 0 and null values when calculating totals.

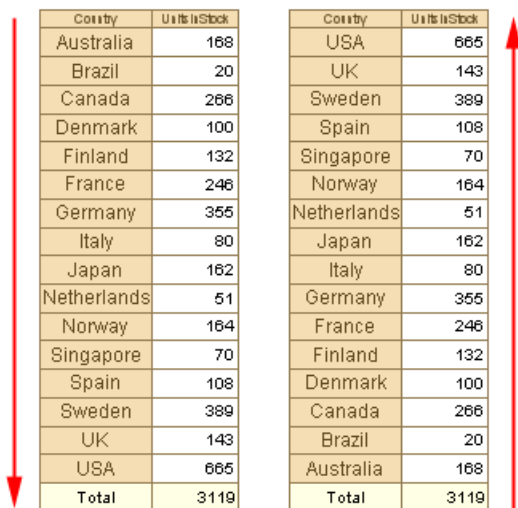
4.28.5 Sort Direction

The values of the source data that are used to group rows and columns are always re-sorted with the component of a cross-table. Resorting is necessary in order that, when showing a cross-table, rows and columns do not contain duplicates. But this behavior can be changed. The type sorting is specified using two properties:

SortDirection and **SortType**. These properties are available for columns and rows of a cross-table.

| | |
|---------------|----------------|
| SortDirection | Asc |
| SortType | ByDisplayValue |

Using the **SortDirection** property it is possible to set the direction of sorting. Sorting can be in ascending order, descending, or no sorting. The **SortType** property sets the source of values for sorting: by value or by the displayed value. The picture below shows a table, sorted in two different directions.



| Country | Units in Stock |
|-------------|----------------|
| Australia | 168 |
| Brazil | 20 |
| Canada | 266 |
| Denmark | 100 |
| Finland | 132 |
| France | 246 |
| Germany | 355 |
| Italy | 80 |
| Japan | 162 |
| Netherlands | 51 |
| Norway | 164 |
| Singapore | 70 |
| Spain | 108 |
| Sweden | 389 |
| UK | 143 |
| USA | 665 |
| Total | 3119 |

| Country | Units in Stock |
|-------------|----------------|
| USA | 665 |
| UK | 143 |
| Sweden | 389 |
| Spain | 108 |
| Singapore | 70 |
| Norway | 164 |
| Netherlands | 51 |
| Japan | 162 |
| Italy | 80 |
| Germany | 355 |
| France | 246 |
| Finland | 132 |
| Denmark | 100 |
| Canada | 266 |
| Brazil | 20 |
| Australia | 168 |
| Total | 3119 |

4.28.6 Conditions

Often, when rendering a cross table, it is necessary that, according to certain conditions, the appearance of a cell will be changed. To achieve this, you can use the Conditions property of columns, rows and, summary cells.

Conditions

To specify the condition, it is necessary to select a component for what this condition will be executed and call the Conditions editor from the properties panel or from the toolbars.

For example, we need to mark summary cells which values are less than 20. Add a new conditional formatting for the cell. Make three changes in the condition (see picture below).

Field Is

Expression

value < 20

AaBbCcYyZz

Change Font... **B** *I* U A

☒ Component is Enabled

Change the value of the Field Is field on the Expression (marked with blue). Specify the required expression (marked with red):

value <20

The value variable contains the total value of the summary cell. And change the text color of cells to red (marked with green). An example of report rendering is shown on the picture below.

| Products | CategoryName | | | | | | | |
|-------------|--------------|------------|-------------|----------------|----------------|--------------|---------|---------|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 |
| Brazil | 20 | | | | | | | |
| Canada | | 113 | 17 | | | 136 | | |
| Denmark | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | |
| France | 86 | | | 98 | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | | 26 | 10 |
| Italy | | | | 23 | 57 | | | |
| Japan | | 39 | | | | 29 | 39 | 55 |
| Netherlands | | | 51 | | | | | |
| Norway | | | | 164 | | | | |
| Singapore | 17 | 27 | | | 26 | | | |
| Spain | | | | 108 | | | | |
| Sweden | | | | | 165 | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | |
| USA | 183 | 259 | | | | | 15 | 208 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 100 | 701 |

4.28.7 Showing Totals

Rows and **Columns** of a cross-table have the **ShowTotal** property, which allows you to show or hide totals by rows and columns. If this property for **Rows** and **Columns** is set to **true**, then the totals by rows and columns are visually displayed. The picture below shows an example of a cross-table with visually displayed results:

| Products | | Category/Name | | | | | | |
|-------------|-----------|---------------|-------------|----------------|----------------|--------------|---------|---------|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 |
| Brazil | 20 | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | 266 |
| Denmark | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | 132 |
| France | 86 | | | 98 | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 55 |
| Netherlands | | | 51 | | | | | 51 |
| Norway | | | | 164 | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | 70 |
| Spain | | | | 108 | | | | 108 |
| Sweden | | | | | 165 | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | 143 |
| USA | 183 | 259 | | | | | 15 | 208 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 100 | 3119 |

If, for example, the **ShowTotal** property is set to **false** for rows, then the total by rows will not be displayed. The picture below shows an example of a cross-table, where the **ShowTotal** property of rows is set to **false**:

| Products | | Category/Name | | | | | | |
|-------------|-----------|---------------|-------------|----------------|----------------|--------------|---------|---------|
| Country | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce | Seafood |
| Australia | 15 | 24 | 29 | | 38 | | 20 | 42 |
| Brazil | 20 | | | | | | | 20 |
| Canada | | 113 | 17 | | | 136 | | 266 |
| Denmark | | | | | | | 100 | 100 |
| Finland | 57 | | 75 | | | | | 132 |
| France | 86 | | | 98 | | | 62 | 246 |
| Germany | 125 | 32 | 140 | | 22 | 26 | 10 | 355 |
| Italy | | | | 23 | 57 | | | 80 |
| Japan | | 39 | | | | 29 | 39 | 55 |
| Netherlands | | | 51 | | | | | 51 |
| Norway | | | | 164 | | | | 164 |
| Singapore | 17 | 27 | | | 26 | | | 70 |
| Spain | | | | 108 | | | | 108 |
| Sweden | | | | | 165 | | 224 | 389 |
| UK | 56 | 13 | 74 | | | | | 143 |
| USA | 183 | 259 | | | | | 15 | 208 |

If, for example, the **ShowTotal** property for columns is set to **false**, then total by columns will not be displayed. The picture below shows an example of a cross-table, where the **ShowTotal** property of columns is set to **false**:

| Country | Category/Item | | | | | | |
|-------------|---------------|------------|-------------|----------------|----------------|--------------|---------|
| | Beverages | Condiments | Confections | Dairy Products | Grains/Cereals | Meat/Poultry | Produce |
| Australia | 15 | 24 | 29 | | 38 | | 42 |
| Brazil | 20 | | | | | | |
| Canada | | 113 | 17 | | | 136 | |
| Denmark | | | | | | | 100 |
| Finland | 57 | | 75 | | | | |
| France | 86 | | | 98 | | | 62 |
| Germany | 125 | 32 | 140 | | 22 | 26 | 10 |
| Italy | | | | 23 | 57 | | |
| Japan | | 39 | | | | 29 | 39 |
| Netherlands | | | 51 | | | | |
| Norway | | | | 164 | | | |
| Singapore | 17 | 27 | | | 26 | | |
| Spain | | | | 108 | | | |
| Sweden | | | | | 165 | | 224 |
| UK | 56 | 13 | 74 | | | | |
| USA | 183 | 259 | | | | | 15 |
| Total | 559 | 507 | 386 | 393 | 308 | 165 | 701 |

By default, the **ShowTotal** property for rows and columns is set to **true**, totals by rows and columns are displayed.

4.28.8 Processing Values for Summary

The **Cross-Tab** has the **SummaryValues** property, which allows you to display the total number of values of the cross-table, considering or not considering 0 and/or null values. The **SummaryValues** property can take one of three values; depending on the value of the property, a different number of values will be displayed as a result. Values of the **SummaryValues** property and their description are described in the table below:

| Function | Description |
|--------------------------|---|
| AllValues | All values, contained in a cell |
| SkipZerosAndNulls | Skip 0 and null values, contained in a cell |
| SkipNulls | Skip null values, contained in a cell |

4.28.9 Word Wrap

Each component of the cross-table has the **WordWrap** property, which lets you wrap text from one line to another. If the **WordWrap** property is set to **false**, then the text is in one line, and if it does not fit in one line it will be cut. The picture below shows an example of a cross-table with the **WordWrap** property set to **false**:

| | |
|-------------------------|-------------------|
| CategoryName | Beverages |
| UnitsInStock, UnitPrice | 455,75
37,98p. |

If the **WordWrap** property is set to **true**, then text wrapping goes automatically. When wrapping a text on the new line the vertical and horizontal alignment are taken into the account. The picture below shows an example of a cross-table that has the **WordWrap** property set to **true**:

| | |
|-------------------------|-------------------|
| CategoryName | Beverages |
| UnitsInStock, UnitPrice | 455,75
37,98p. |

By default, the **WordWrap** property of cross-table components is set to **false**.

4.29 Charts

YouTube

Check out our [video tutorials on creating reports with charts](#). Subscribe to the [Stimulsoft](#) channel to be the first to know about new tutorials. Leave your questions and suggestions in the video comments.

Chart is a data visualization tool used in a report. With this tool, data is processed, and the results are displayed using graphical elements.

The type of chart depends on the type of chart series. A single series represents the values of one data column, except in cases where multiple values are required to display graphical elements. For example, financial charts require four values to render a single graphical element.

Thus, a single **Chart** component can display multiple chart series. In this case, the series types are the same, but the data differs. However, some series types are compatible with others. For instance, a Histogram and a Line can be displayed within the same **Chart** component.

Information

The following series types are compatible with each other:

- Histogram, Line, Spline, Step Line, Area, Spline Area, Step Area.
- Stacked Histogram, Stacked Line, Stacked Spline, Stacked Area, Stacked Spline Area.
- Normalized Histogram, Normalized Line, Normalized Spline, Normalized Area, Normalized Spline Area.

Chart series data can be:

- Obtained from data sources;
- Entered manually.

To add a **Chart** component to a report, follow these steps:

- In the **Infographics** menu on the toolbox or the **Insert** tab of the designer's Ribbon panel, select a chart type.
- Click the desired location in the report with the left mouse button.

Next, resize the **Chart** component and configure it in the component editor. To open the **Chart** component editor:

- Double-click the **Chart** component in the report;
- Open the context menu of the **Chart** component and select the **Design** command.

Chart Editor

The chart and its elements are configured in the editor using properties. All properties are grouped on specific tabs based on the chart element they belong to. Additionally, properties within each tab are grouped by purpose, with each group represented as a separate section.

Each tab in the editor includes:

- A chart preview panel with property groups;
- A properties panel;
- Additionally, some tabs may display extra panels when selected.

All tabs and their property groups will be covered in the following sections:

- Chart;
- Series;
- Area;
- Labels;
- Styles.

The table below lists chart series types with brief descriptions.

| Series | Description |
|---|--|
| Clustered Column:
 | Clustered Column
Displays values for a specific argument. In histograms, graphical elements are arranged along the horizontal axis, while values are plotted on the vertical axis. |
|  | Stacked Column
Shows the proportion of values from different series for a specific argument. Each value represents a segment of the graphical element. |
|  | Full-Stacked Column
Displays the relative share of each value as a percentage of the total for a given argument. |
|  | 3D Clustered Column
A three-dimensional version of a standard histogram with data represented as 3D columns, highlighting categories on an additional axis. |
|  | 3D Stacked Column
Similar to a 3D Clustered Column but includes segments representing each category's contribution to the total. |
|  | 3D Full-Stacked Column
A stacked column normalized to 100%, showing proportions between categories. |

Line:

**Line**

Line and line with markers are used to indicate individual data values, line charts are useful to show trends over time or ordered categories, especially when there are many data points and the order in which they are presented is important.

**Stacked Line**

Displayed with or without markers to indicate individual data values, stacked line charts are useful to show the trend of the contribution of each value over time or ordered categories. If there are many categories or the values are approximate, you should use a stacked line chart without markers.

**Full-Stacked Line**

This is a kind of the Line series by which you can compare the relative proportion of each value of the series among the total aggregate value of specific arguments. Lines without markers are recommended in the approximation of the set of value arguments.

**Spline**

This type of series is used to display a smooth line, the points of which are the values of the series. Each point has its coordinates depending on the value and argument of the chart series. After all points are specified, a spline will be drawn. Points on the chart can be displayed using markers. Spline without markers is recommended in the approximation of the set of value arguments.

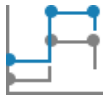
**Stacked Spline**

This type of series is used to display a smooth line, the points of which are the values of the series. Each point has its coordinates depending on the value and argument of the chart series. The points of the next row of the chart are located above the smooth line of the previous row of the chart. After all points are specified, a stacked spline will be drawn. Points on the chart can be displayed using markers. Smooth lines without markers are recommended for the approximation of the set of value arguments.



Full-Stacked Spline

This is a variety of Spline series, with which you can compare the relative proportion of each value of a series in the total aggregate value of specific arguments. Smooth lines without markers are recommended in the approximation of the set of value arguments.



Stepped Line

This is a variation of the Line series, which will be displayed using only vertical and horizontal lines.



3D Line

A three-dimensional linear chart to analyze changes across three axes (X, Y, Z).

Pie:



Pie

Pie charts display the contribution of each value to a total. It is possible to manually pull out the slices of a pie chart to emphasize them.



3D Pie

A 3D version of the pie chart displaying shares or percentages of data.



Doughnut

A doughnut chart is functionally similar to a pie chart, with the exception of a blank center and the ability to support multiple statistics as one.

Clustered Bar:



Clustered Bar

Clustered bar charts compare values across categories. In a clustered bar chart, the categories are typically organized along the vertical axis, and the values along the horizontal axis.



Stacked Bar

Shows proportions of values from different series for a specific argument.



Full-Stacked Bar

Displays the relative share of each value as a percentage of the total for an argument.



Gantt

Displays the duration of values over time.

Area:



Area

A variation of a line chart where the area under the line is filled.



Stacked Area

Displays proportions of areas for different series.



Full-Stacked Area

Shows relative proportions of areas as percentages.



Spline Area

A smooth line version of the area chart with a filled region.



Stacked Spline Area

Similar to Spline Area, with stacked regions for different series.



Full-Stacked Spline Area

Displays the relative share of smooth area series in a total.



Stepped Area

This is a type of linear series. In the chart area, points are marked by coordinates - the value and argument of the series. Then, strictly vertical and horizontal lines pass through these points. The area between the line and the axis of the arguments is filled with color.



3D Area

Displays three-dimensional data as a three-dimensional surface, allowing you to visualize values and their changes along two coordinate axes.

Range:



Range

The chart type Range can be used to display the interval of values per unit of time or period of time. To build such a diagram you should have start and end values.



Spline Range

The series of this type displays the interval of change of values by strictly vertical lines and the time interval by



any smooth straight lines.

Stepped Range

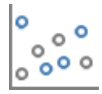
A row of this type displays the interval of changing values by strictly vertical lines and a time interval by strictly horizontal lines.



Range Bar

This type of series is used to display a range of values as columns for each argument. Also, if the chart has more than one row, it shows the ratio of the values of different rows for the current argument.

Scatter:



Scatter

Displays data as individual points on a coordinate plane, showing the relationship between two variables.



Scatter Line

Adds lines connecting the points, enabling the visualization of trends or data sequences.



Scatter Spline

This type of chart can be displayed with or without a smooth curve connecting the data points. These lines can be displayed with or without markers. Use the scatter chart without markers if there are many data points.



Bubble

A series type is used to display three-dimensional data in two-dimensional space. In addition to the coordinates for each bubble, the value of its width or weight is indicated.

Radar:



Radar Point

This series is used to display three-dimensional data in two-dimensional space using points on a circular area.



Radar Line

This series is used to display three-dimensional data in two-dimensional space, using points and lines between them, on a circular area.



Radar Area

This series is used to display three-dimensional data in



two-dimensional space, using points and lines that form a region, on a circular region.

Polar

Displays data in a polar coordinate system, using points and lines to visualize values and relationships between them.



Polar Stacked

Displays multiple data series in a polar coordinate system with stacked values, allowing you to compare the overall contribution of individual categories and their changes.

Funnel:



Funnel

This type of series is used to display statistical data, for example, sales stats and attendance of an online store. Depending on the value, the width of the parts of the graphic element will change.



Funnel Weighted Slices

This type of series is used to display statistical data, for example, stats by sales and attendance of an online store. The graphic element will always be displayed as a funnel, where every part is a separate value. Depending on the value, the height of the parts of the graphic element will change.

Financial:



Candlestick

The financial series, using which you can display stock indicators of stocks, currencies, precious metals, etc.



Stock

Another series for the financial chart, which displays market trends.

Treemap:



Treemap

A series is used to display a hierarchy of values. The chart area is the sum of all major values. This area will be split proportionally for each value of the first row. In turn, each part will be divided into proportional parts



for each value of the second row, etc.

Heatmap

Uses a color gradient to represent values in a table format. Useful for density or distribution analysis.

Histogram:



Histogram

Displays data distribution with vertical bars representing value frequency.

Pareto

Applies Pareto's principle to values.

Ribbon

Represents data with horizontal ribbons for easy comparison.

Pictorial:



Pictorial

A series type that is used to display data as special set of icons.



Pictorial Stacked

Icons show total values with stacking for categories.

Other:



Sunburst

A hierarchical circular chart with nested data.



Box and Whisker

Displays data distribution with quartiles, median, and outliers.



Waterfall

Shows cumulative totals by adding or subtracting values.

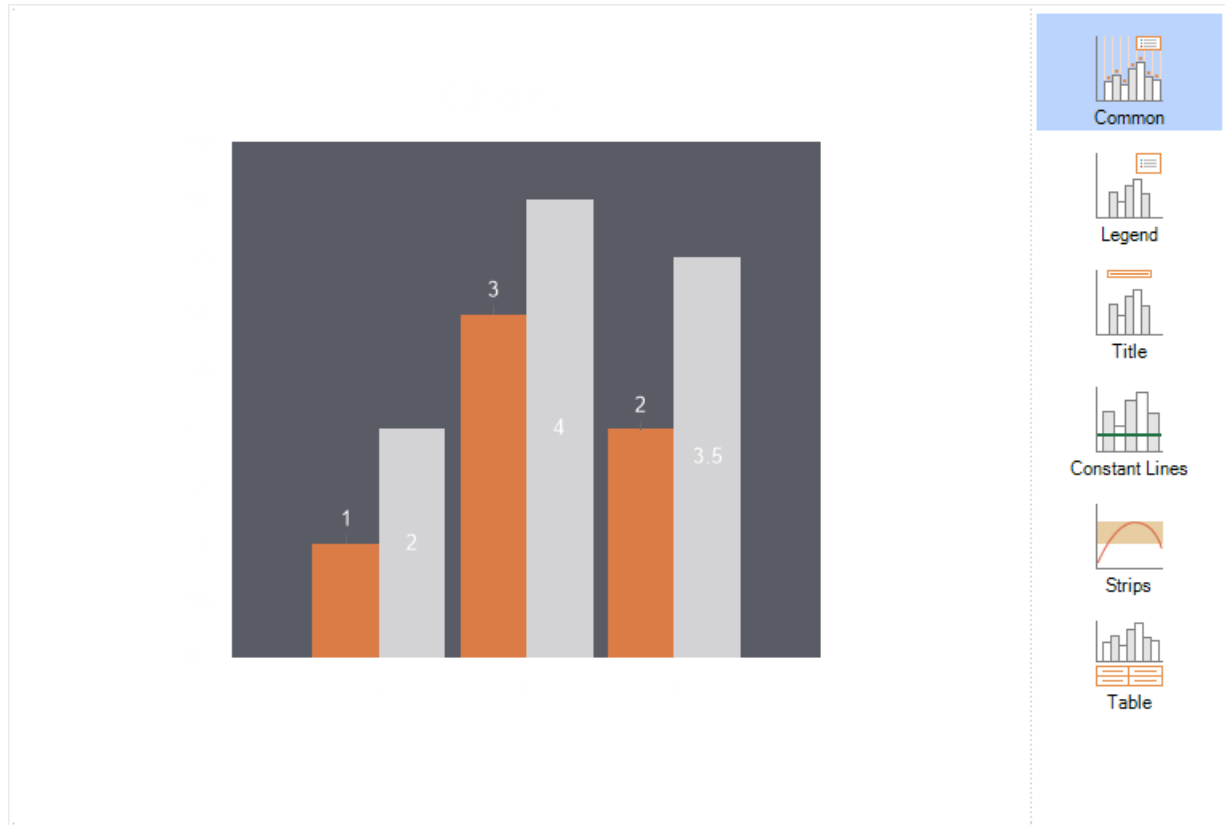


Wireframe Surface

Displays three-dimensional data as a wireframe surface composed of lines that show the shape and relationship between values along two coordinate axes.

4.29.1 Chart

The **Chart** tab is used to configure the chart's elements. These settings are divided into groups, each represented by a separate sub-tab.

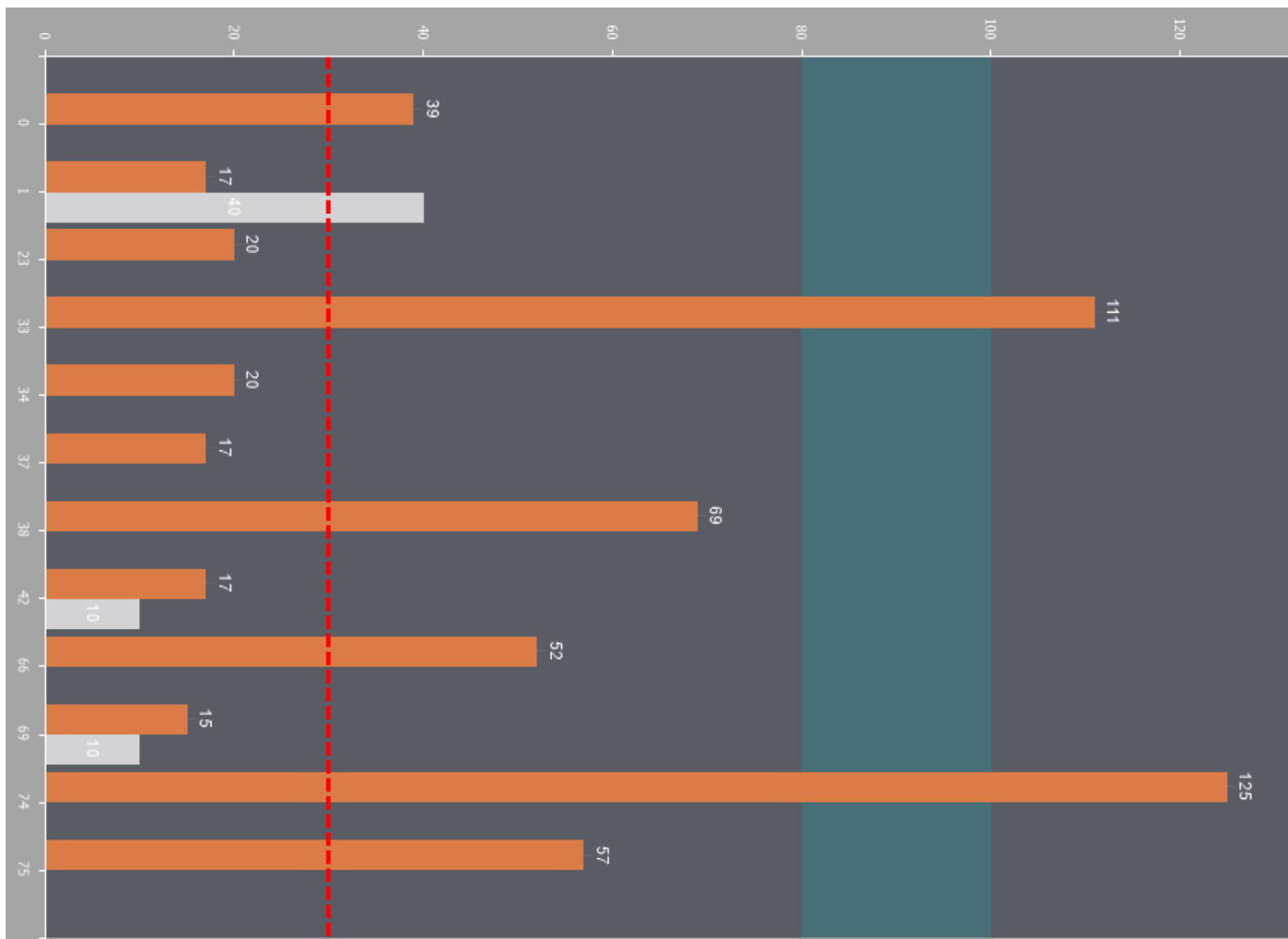


The **Chart** tab includes a preview panel and several settings sub-tabs:

- Common contains properties of the **Chart** component;
- Legend contains settings for the chart's legend;
- Title contains settings for the chart's title;
- Constant Lines contains settings for constant lines in the chart;
- Strips contains settings for chart strips;
- Table contains settings for the chart's data table.

4.29.1.1 Common

The **Common** sub-tab includes settings related to the **Chart** component.



All settings for the **Chart** component are represented as properties. These properties are also duplicated in the **Properties Panel** in the report designer. You can adjust the chart's general settings either:

- In the component editor, under the **Chart** tab on the **Common** sub-tab;
- Select the **Chart** component in the report template and changing property values in the **Properties Panel** of the report designer.

Below is a table of properties used to configure the **Chart** component:

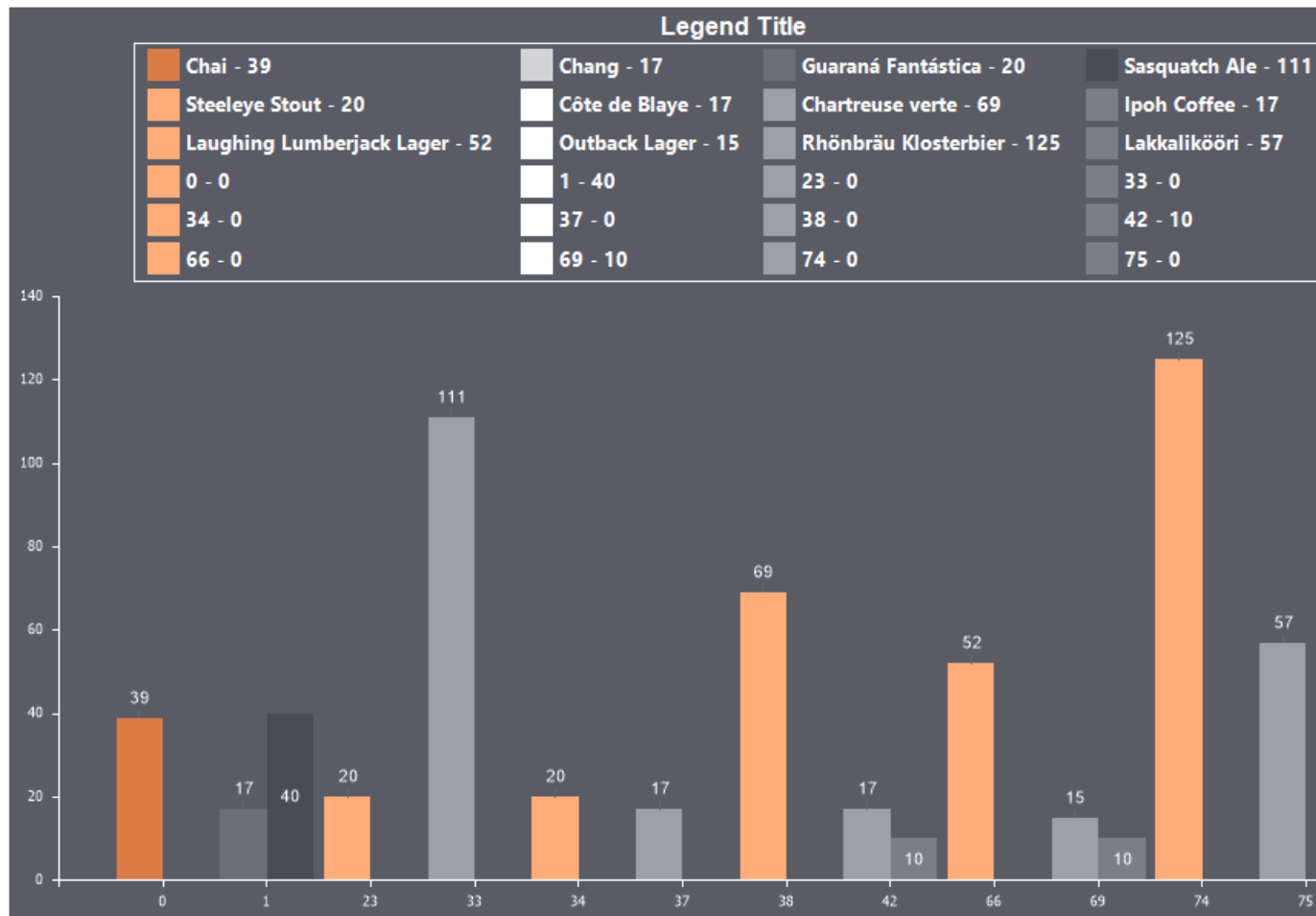
| Name | Description |
|-------------------|---|
| Allow Apply Style | Enables applying chart design settings from a style. If set to True , the chart's design settings will be inherited from the |

| | |
|--------------------|---|
| | selected chart style. If set to False , design settings will be taken from the chart's elements. |
| Process At End | Allows configuring the processing mode for the chart. If set to True , the chart will be processed after all other report components. If set to False , the chart will be processed sequentially. |
| Rotation | Allows rotating the chart by 90 or 180 degrees or flipping it vertically or horizontally. |
| Horizontal Spacing | Defines internal horizontal spacing from the component's borders to the chart area. |
| Vertical Spacing | Defines internal vertical spacing from the component's borders to the chart area. |
| Data Source | Assigns the chart's data source. If the chart in the report is used for detailing specific data, for example, and is located on the Data Band, the data source should be specified. |
| Data Relation | Specifies the relationship between the chart's data source and the main data source in the report. |
| Master Component | Allows assigning a master component to the chart for creating master-detail reports, where the chart represents detailed data. |
| Count Data | Sets the number of rows in the virtual data source. |
| Filter On | Enables or disables the application of chart filters. If set to True , the collection from the Filters property will be applied. If set to False , the collection will not be applied. |
| Filters | Allows specifying a collection of filters for columns in the assigned data source. |
| Sort | Allows setting data sorting for columns in |

the assigned data source.

4.29.1.2 Legend

The **Legend** is the area where the legend items for different data series in the chart are displayed. The legend can be placed in various parts of the chart: either within the chart area or outside of it.



The legend settings can be configured:

- In the **Chart** tab, under the **Legend** sub-tab, using properties.
- However, the type and format of the values are defined in the Labels tab, under the Common sub-tab.

Below is a table of properties used to configure the chart legend:

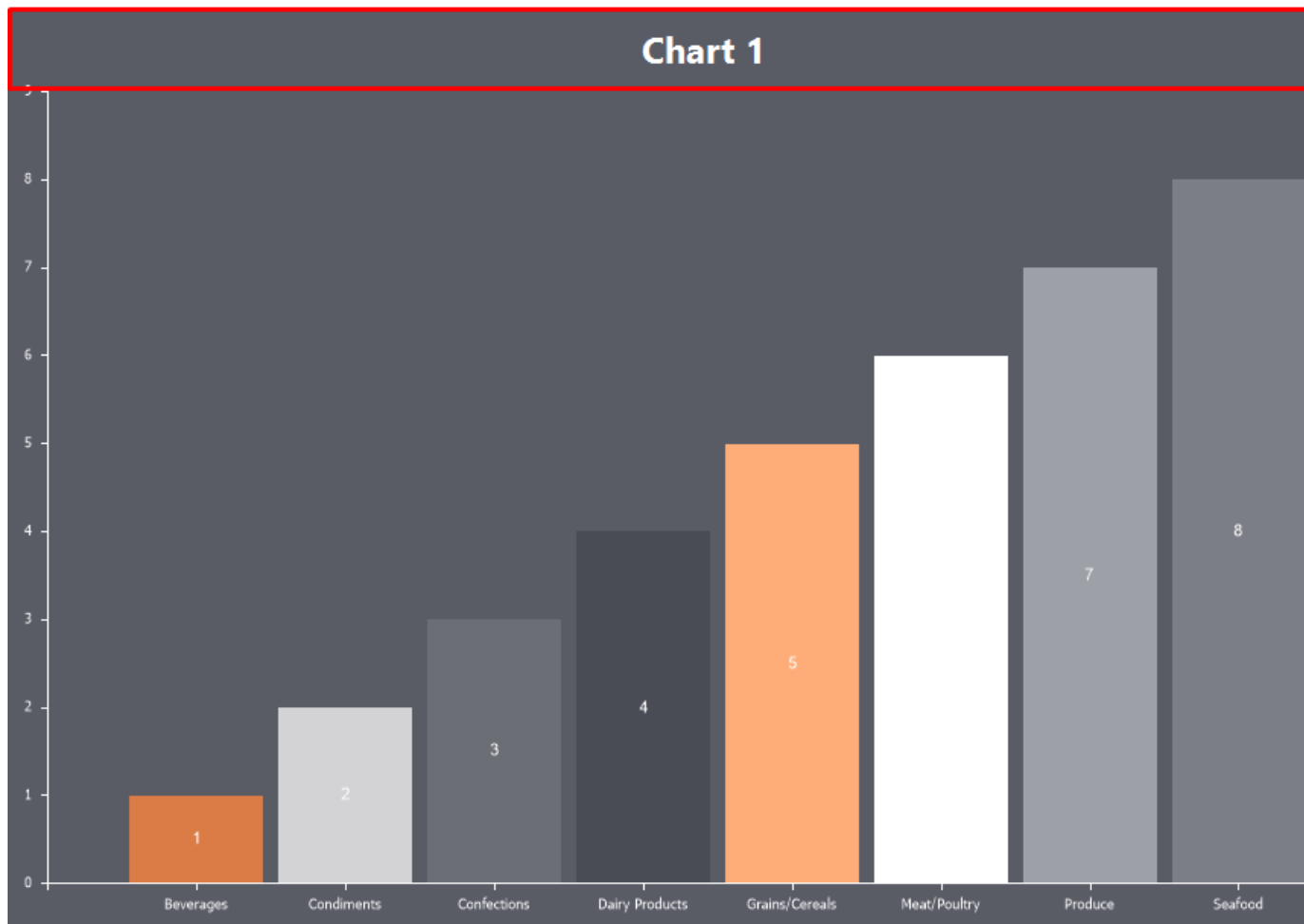
| Name | Description |
|------|-------------|
|------|-------------|

| | |
|------------------------------|--|
| Allow Apply Style | Enables applying legend styling from a chart style. If set to True , the legend's design settings will be inherited from the selected chart style. If set to False , additional properties for customizing the legend will become available, such as border color, font, brush and background color, title font and color, and shadow display. |
| Columns | Specifies the number of columns for legend values. |
| Direction | Defines the direction of how the columns in the legend are filled with values. |
| Hide Series with Empty Title | Toggles the display of series without a title in the legend. If set to True , series without a title will not be shown. If set to False , all series will be displayed. |
| Horizontal Alignment | Specifies the horizontal position of the legend within the chart component. The legend can be placed inside or outside the chart area. |
| Horizontal Spacing | Defines the horizontal spacing between the legend elements. |
| Marker Alignment | Specifies the position of the marker within the legend. |
| Marker Border | Toggles the display of a border around the marker. If set to True , the marker border will be visible. If set to False , the marker border will not be shown. |
| Marker Size | Specifies the size of the marker in pixels for both width and height. |
| Marker Visible | Toggles the visibility of the marker in the legend. If set to True , the marker will be displayed. If set to False , it will not be shown. |

| | |
|--------------------|---|
| Size | Sets the width and height of the legend in report units. By default, the size properties are set to 0, which enables the auto-sizing mode, allowing the legend to adjust its size to fit all legend values. |
| Title | Specifies the title of the legend. By default, the value is empty, meaning the legend has no title. |
| Vertical Alignment | Specifies the vertical position of the legend within the chart component. The legend can be placed inside or outside the chart area. |
| Vertical Spacing | Defines the vertical spacing between the legend elements. |
| Visible | Toggles the visibility of the legend on the chart. If set to True , the legend will be displayed. If set to False , the legend will not be shown. |

4.29.1.3 Title

The **Title** is text that represents the name of the chart or provides an explanation for it.



To configure the title, go to the **Chart** tab in the component editor and select the **Title** sub-tab. Then, use the properties to define and customize the title.

Information

You can also create component titles when designing reports using text components. For example, you can place a **TextBox** component on the **Chart** component, enabling the **Link** and **Lock** properties.

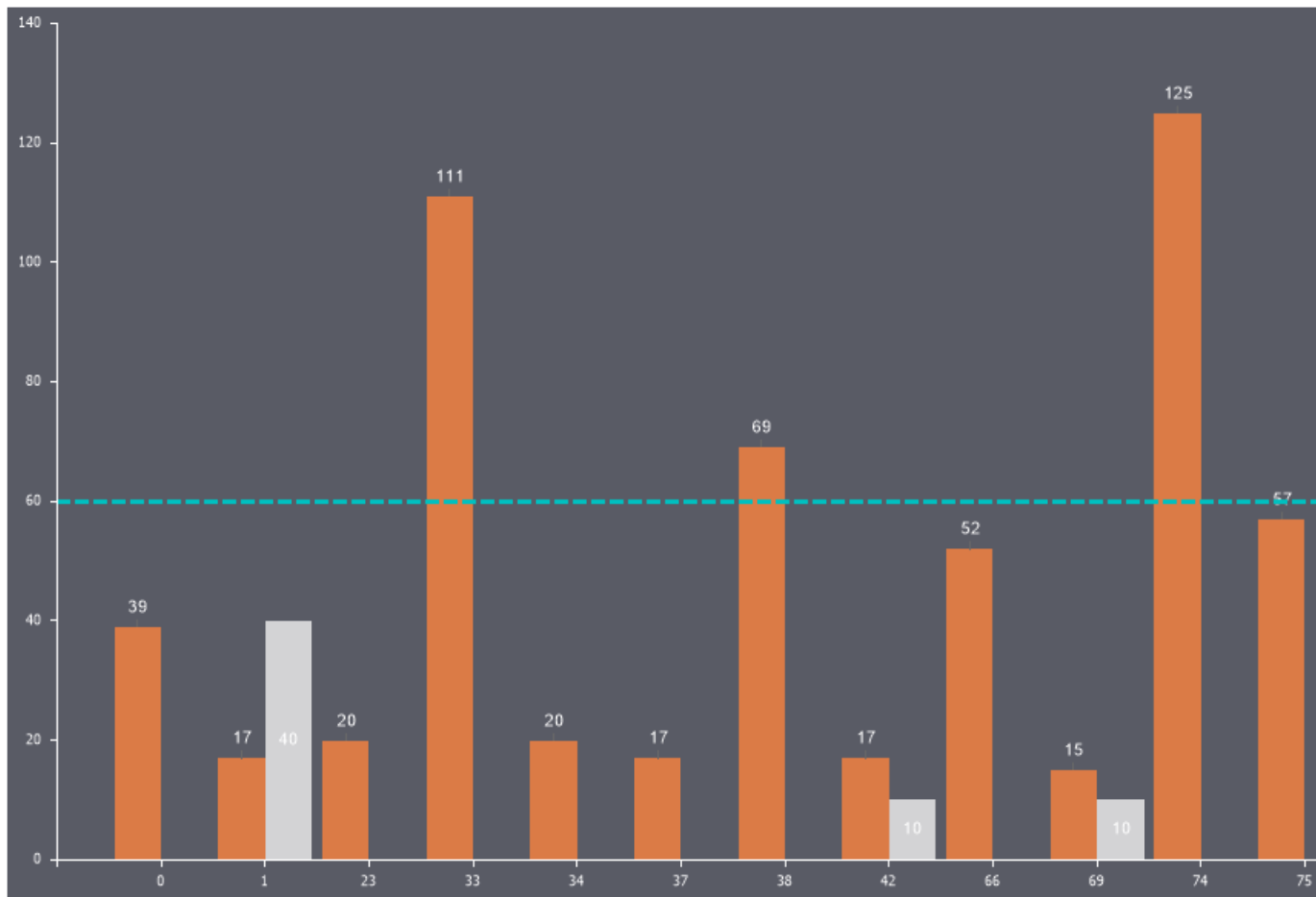
Below is a table of properties used to configure the chart title:

| Name | Description |
|------|-------------|
|------|-------------|

| | |
|-------------------|---|
| Allow Apply Style | Enables applying title design settings from the chart style. If set to True , the title design settings will be inherited from the selected chart style. If set to False , additional properties will be available to customize the title's appearance, such as smoothing, brush and text color, font type, size, and family. |
| Alignment | Allows you to define the title alignment: Far , Center , or Near . |
| Dock | Specifies the type of docking for the title relative to the chart: Top , Right , Bottom , or Left . |
| Spacing | Defines the internal padding between the title and the outer boundary of the chart component and the chart area. |
| Text | Allows you to specify the title text. Any text entered in this field will appear as the chart title. By default, the field is empty, meaning no title is set. |
| Visible | Toggles the visibility of the title. If set to True , the chart title will be displayed. If set to False , the chart title will not be shown. |

4.29.1.4 Constant Lines

Constant Lines are horizontal or vertical lines on a chart that represent a specific value on the axis.



To add a constant line:

- In the component editor, go to the **Chart** tab and select the **Constant Lines** sub-tab;
- Click the **Add Constant Line** button;
- Configure the line using the available properties.

Information

The number of constant lines on a chart is unlimited.

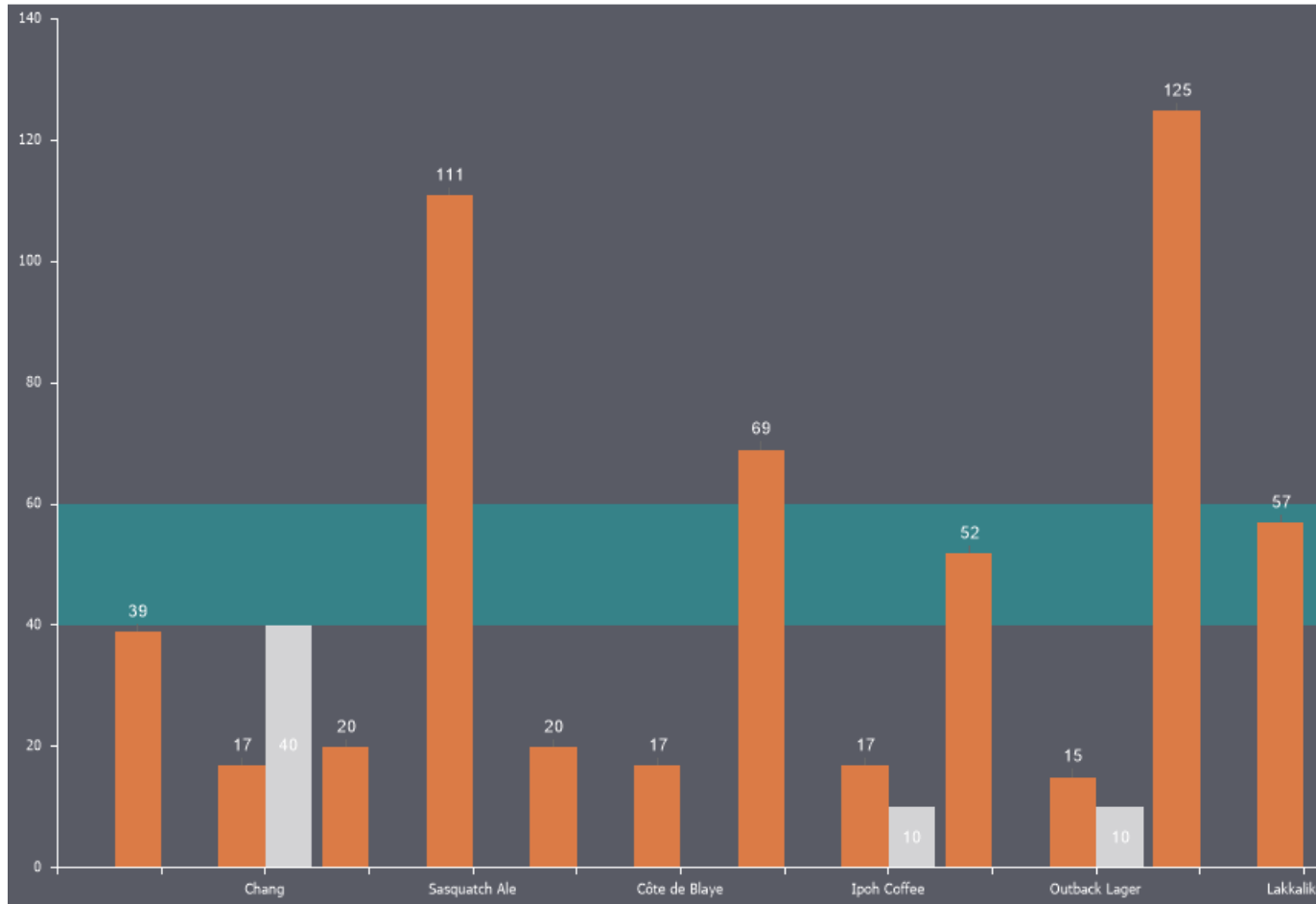
Below is a table of properties for configuring constant lines:

| Name | Description |
|------|-------------|
|------|-------------|

| | |
|-------------------|---|
| Allow Apply Style | Enables applying design settings for the constant line from the chart style. If set to True , the line design will inherit the selected chart style. If set to False , additional properties will appear for customizing the line's appearance, such as line color, smoothing, font type, size, and family. |
| Axis Value | Specifies the axis value through which the line is drawn. |
| Line Style | Allows changing the style of the constant line. |
| Line Width | Defines the width of the constant line in pixels. |
| Orientation | Allows selecting the line's orientation: Horizontal , Vertical , or Horizontal Right . |
| Position | Specifies the position of the constant line's text. |
| Show Behind | Determines whether the constant line is displayed behind or in front of the chart's graphic elements. If set to True , the line will appear behind the elements. If set to False , it will appear on top of the graphic elements. |
| Text | Allows defining the text for the constant line. |
| Title Visible | Toggles the visibility of the constant line's text. If set to True , the text will be displayed. If set to False , the text will not appear. |
| Visible | Toggles the visibility of the constant line. If set to True , the constant line will be displayed on the chart. If set to False , it will not appear. |

4.29.1.5 Strips

Strips are horizontal or vertical ranges of values highlighted with a specific color.



To add a strip:

- In the component editor, go to the **Chart** tab and select the **Strips** sub-tab;
- Click the **Add Strip** button;
- Configure the strip using the available properties.

Information

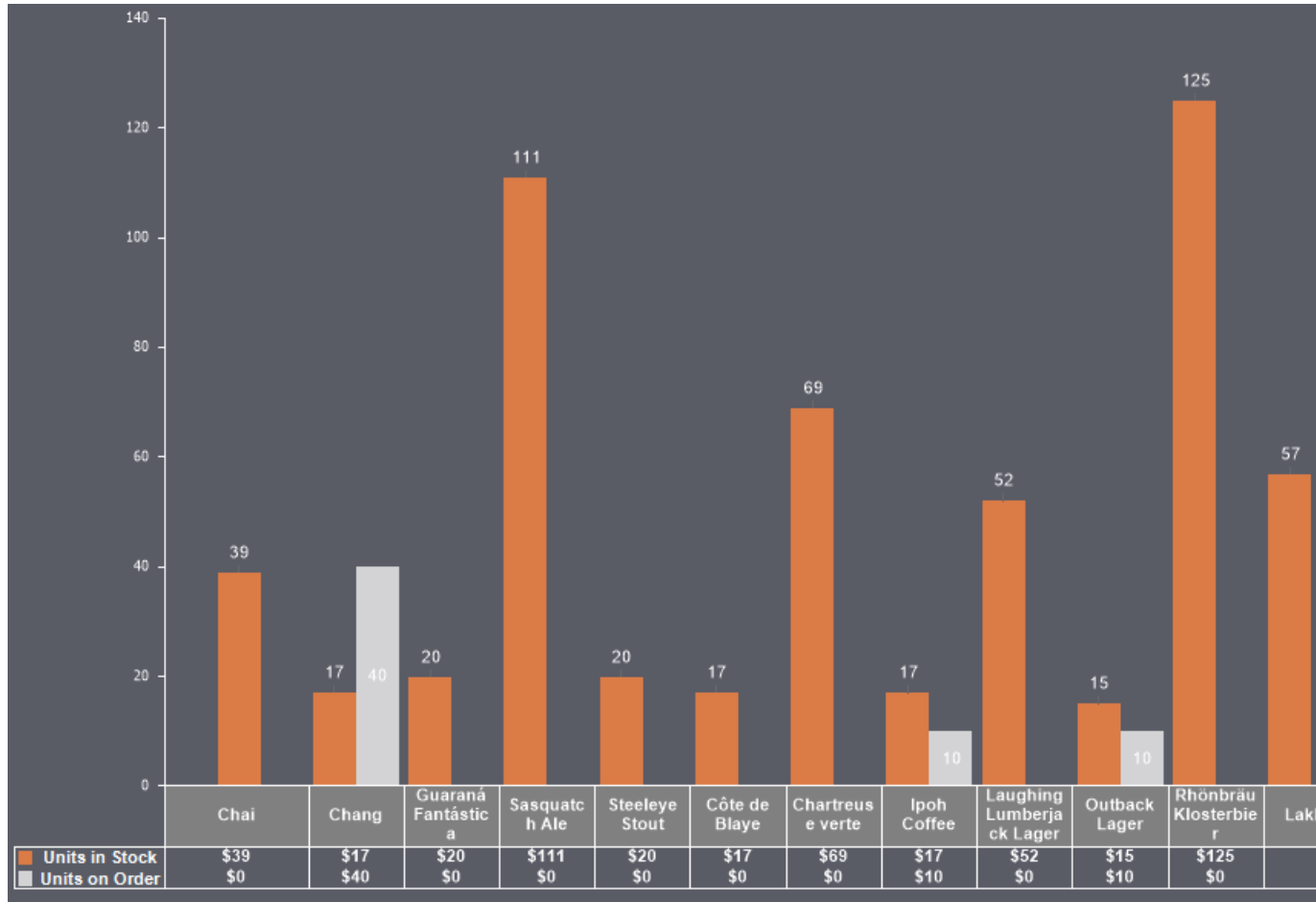
The number of strips on a chart is unlimited.

Below is a table of properties for configuring strips:

| Name | Description |
|-------------------|--|
| Allow Apply Style | Enables applying design settings for the strip from the chart style. If set to True , the strip design will inherit the selected chart style. If set to False , additional properties will appear for customizing the strip's appearance, such as the brush, strip color, smoothing, and title font type, size, family, and color. |
| Max Value | Allows defining the maximum value of the strip, i.e., the value up to which the area will be filled with the strip's color. |
| Min Value | Allows defining the minimum value of the strip, i.e., the value from which the area will be filled with the strip's color. |
| Orientation | Allows selecting the strip's orientation: Horizontal, Vertical, or Horizontal Right. |
| Show Behind | Determines whether the strip is displayed behind or in front of the chart's graphic elements. If set to True , the strip will appear behind the elements. If set to False , it will appear on top of the graphic elements. |
| Text | Allows defining the title text for the strip. |
| Title Visible | Toggles the visibility of the strip's title text. If set to True , the title text will be displayed. If set to False , the title text will not appear. |
| Visible | Toggles the visibility of the strip. If set to True , the strip will be displayed on the chart. If set to False , it will not appear. |

4.29.1.6 Table

A **Table** on the chart is a list of values of graphical elements in a series in relation to their arguments.



To enable the chart's value table:

- In the component editor, go to the **Chart** tab and select the **Table** sub-tab;
- Set the **Visible** property to **True**;
- Configure the table using the available properties.

Information

The table is displayed below the argument axis and can be positioned at the bottom, top, left, or right, depending on the argument's placement. Rows (in horizontal layout) or columns (in vertical layout) will display series and their values.

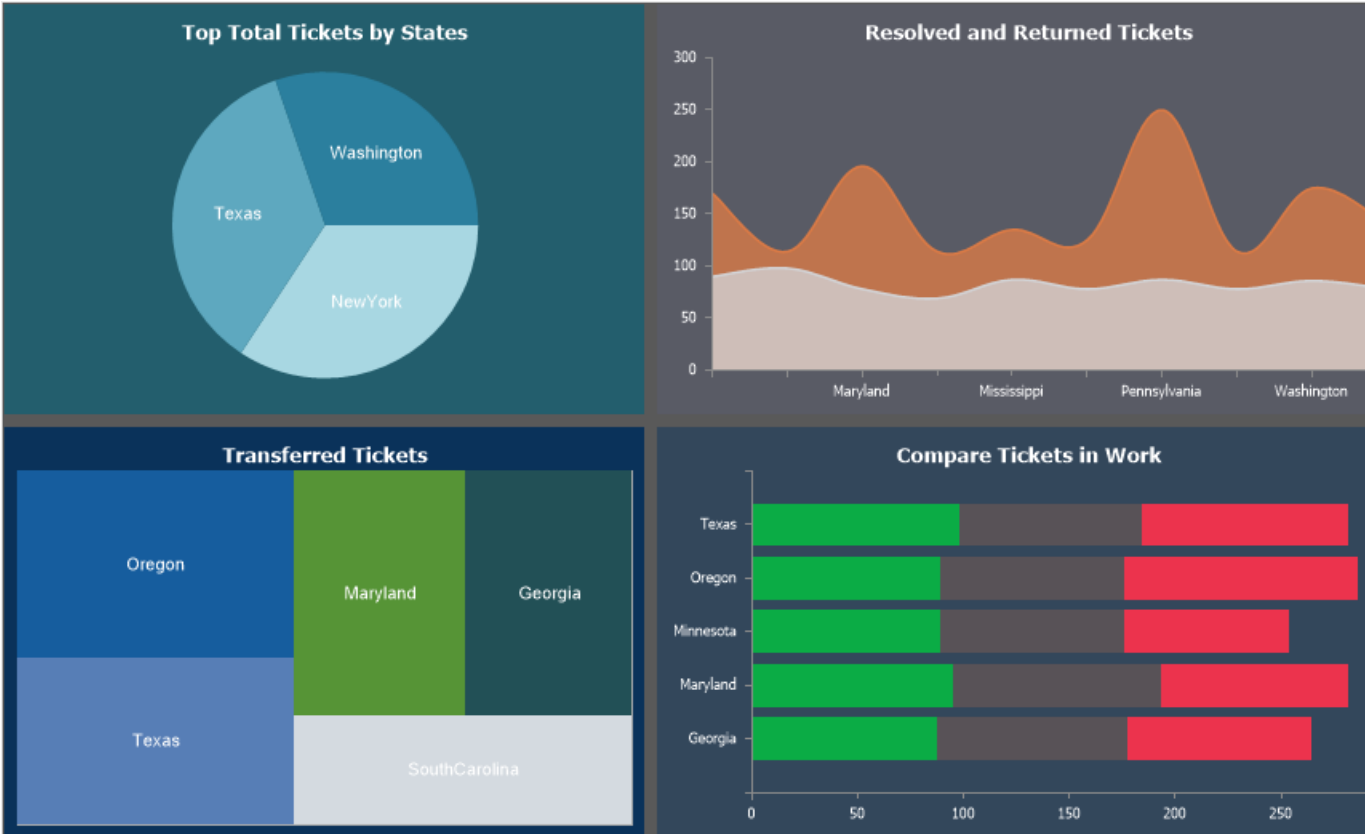
Below is a table of properties for configuring the chart's value table:

| Name | Description |
|-----------------------|--|
| Allow Apply Style | Enables applying table design settings from the chart style. If set to True , the table's design will inherit the selected chart style. If set to False , additional properties for customizing the grid line color will become available. |
| Data Cells | A group of properties for configuring the data cells (i.e., the series values). You can set the text color and adjust the font type, size, and family. Additionally, you can specify the minimum font size and enable cell compression to fit the minimum font size. |
| Format | Allows selecting the value format mask in the table. |
| Grid Lines Horizontal | Enables or disables the display of horizontal grid lines in the table. If set to True , horizontal lines will be displayed. If set to False , they will not appear. |
| Grid Lines Vertical | Enables or disables the display of vertical grid lines in the table. If set to True , vertical lines will be displayed. If set to False , they will not appear. |
| Grid Outline | Enables or disables the display of the table's border outline. If set to True , the table's border outline will be displayed. If set to False , it will not appear. |
| Header | A group of properties for configuring the table's header, which consists of the X-axis labels (i.e., chart arguments). You can add text suffixes, change text color, background color, font type, size, and |

| | |
|----------------|---|
| | <p>family, and enable word wrapping. If the Word Wrap property is set to True, headers will wrap, and header cells may increase in height.</p> <p>If set to False, headers will not wrap, and text will be truncated at the right edge of the header cell.</p> |
| Marker Visible | Enables or disables the display of series markers. If set to True , series markers will be displayed. If set to False , they will not appear. |
| Visible | Enables or disables the display of the value table. If set to True , the value table will be displayed on the chart. If set to False , it will not appear. |

4.29.2 Series

Series is a visual representation of data using graphical elements of a specific type.



To create a chart element, you need to create a **Series** of a specific type. When selecting a chart in the toolbox or on the **Insert** tab, a component will be created with a series of the chosen type. Additionally, series can be added manually:

- In the **Component Editor**, go to the **Series** tab, then the **Common** section.
- Click the **Add Series** button and select the required type.

Information

When designing charts in reports, automatic series creation can also be used.

After creating a **series**, you need to specify data for it. For some series types, only a value is required, while others require values and arguments, or even multiple values along with arguments, etc. Series configuration, like chart configuration, is done in the component editor. Data columns (for values and arguments) can be specified as follows:

- In the component editor, go to the **Series** tab and select the **Main** section;
- Select the series and click the **Browse** button next to the **Value Data Column** and **Argument Data Column** properties;
- Choose the data columns for values and arguments.

To define expressions for series values and arguments:

- In the component editor, go to the **Series** tab and select the **General** section;
- Select the series and enter expressions for Value and Argument properties.

To define a single value or a list of values and arguments:

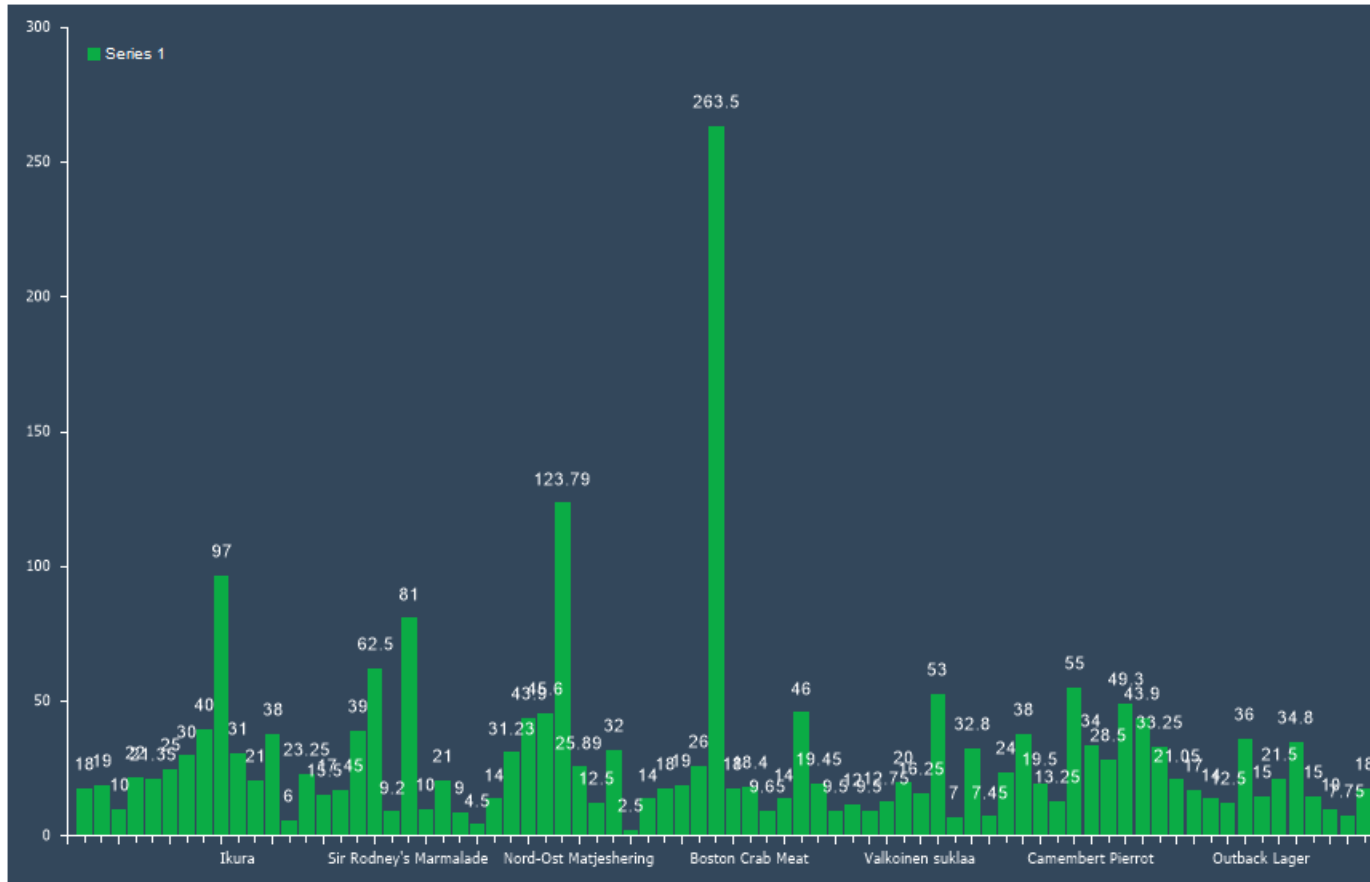
- In the component editor, go to the Series tab and select the General section.
- Select the series and enter a single value or a list of values in the **List of Values** and **List of Arguments** fields, separating them with a semicolon ";".

Information

When manually entering lists of values and arguments, the ordinal number of a **value** in the list corresponds to the ordinal number of the **argument** in the argument list.

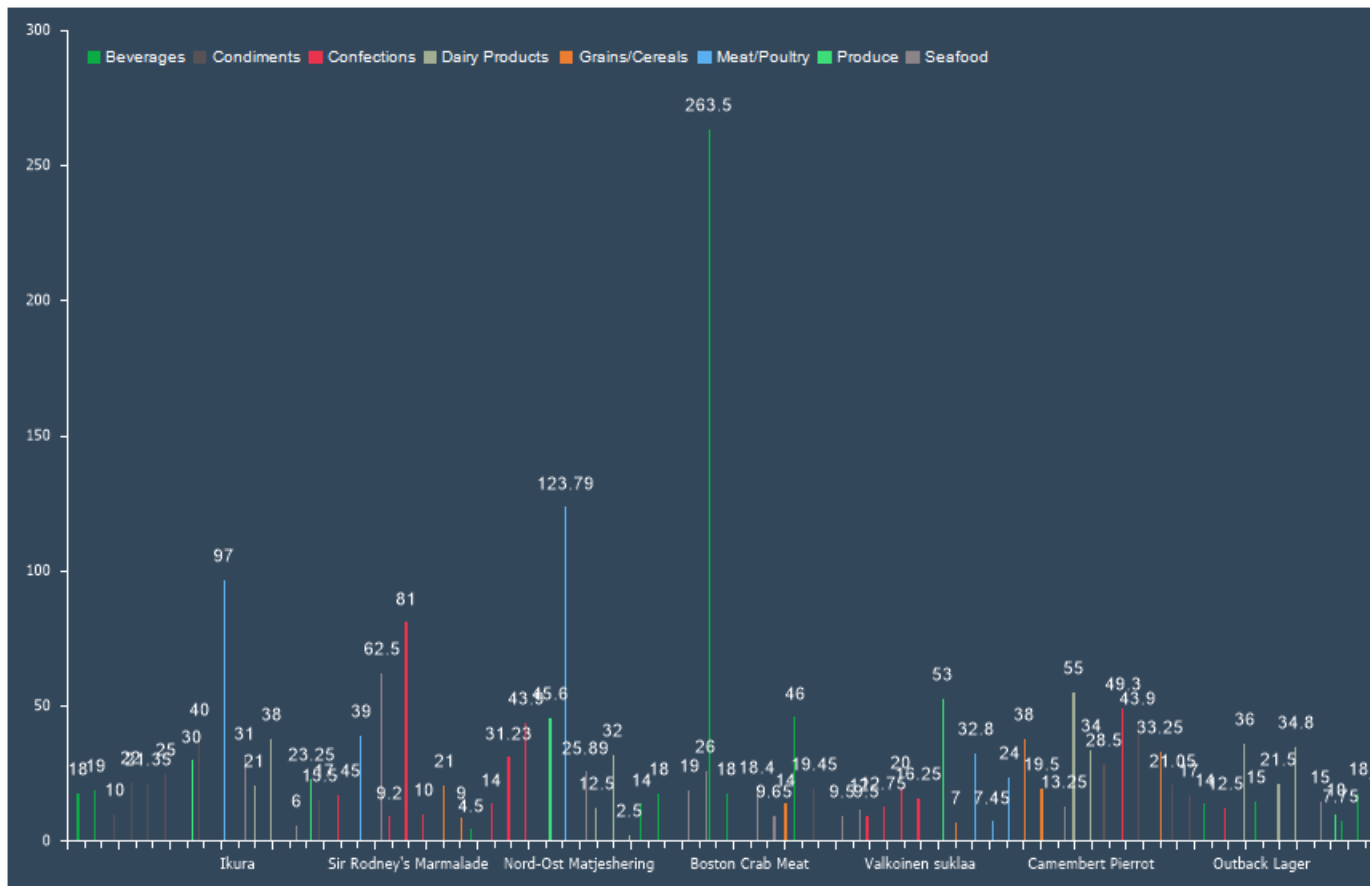
Automatic Series Creation

When designing charts, series can be created automatically. In this case, a series will be generated for each unique value from the selected data column.



To create series automatically:

- In the Component Editor, go to the **Series** tab, then the **Common** section;
- Click **Add Series** and select the series type;
- Click **Browse** next to the **Auto Series Key Data Column** property and select a data column. Now, a series will be created for each unique value in this column.

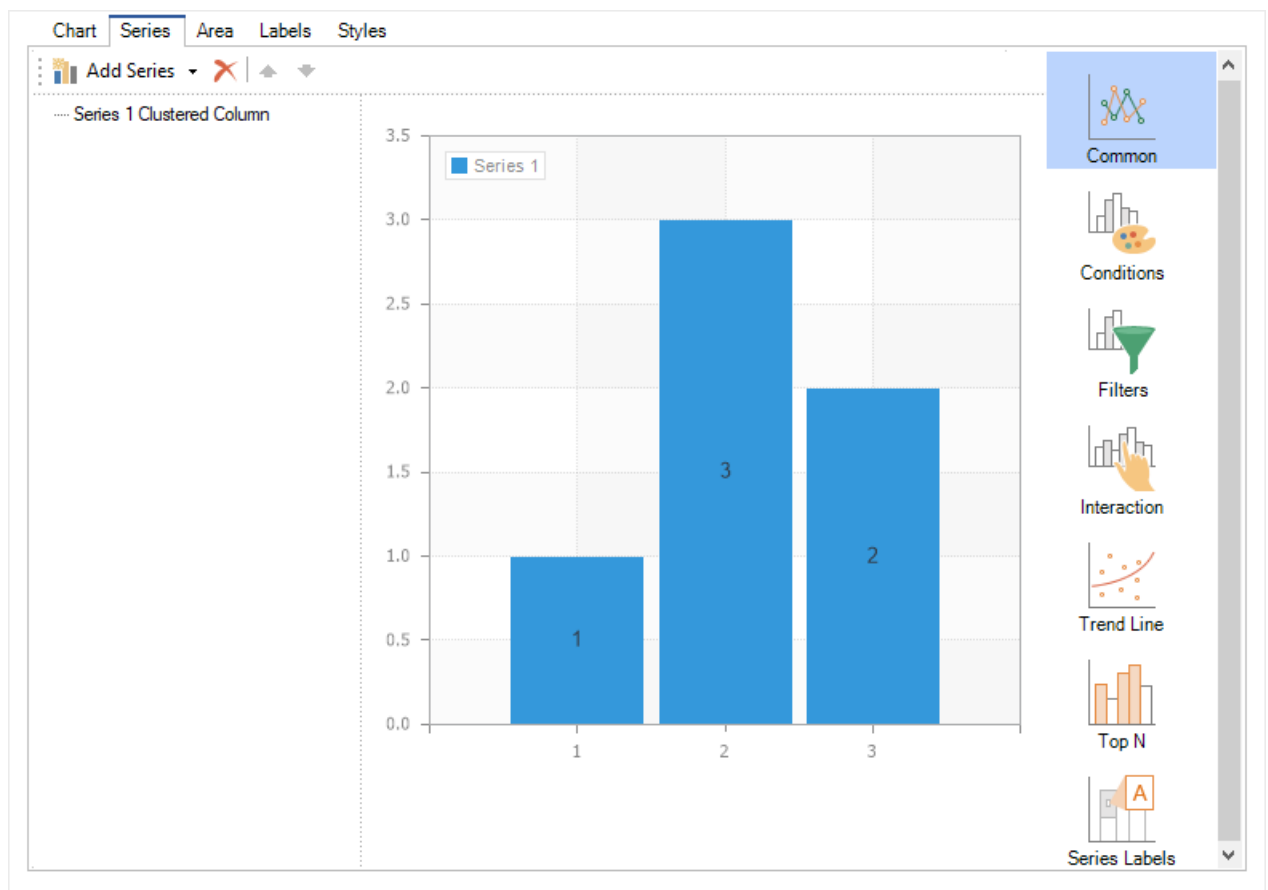


Additionally, when creating series automatically, you can:

- Set series titles. Select a data column as the **Auto Series Title Data Column** property. Values from this column will be used as series titles. The title for a particular series is taken from the value associated with the unique value of the column specified in **Auto Series Key Data Column**;
- Define series colors. Select a data column as the **Auto Series Color Data Column** property. The color should be stored in the data source in #FFFFFF format. The color for a particular series is taken from the value associated with the unique value of the column specified in **Auto Series Key Data Column**.

4.29.2.1 Common

Common series settings are properties available in the Chart component editor under the Series tab, in the Main section.



Information

Depending on the series type, the available properties may vary.

Below is a table of the main series properties and their descriptions:

| Name | Description |
|-------------------|---|
| Value Data Column | Specifies the column from the data source whose values will be used as the series values. |
| Value | Defines an expression whose result will be used as the value of the current series. |
| List of Values | Allows entering a single value or a list of values for the current series, separated by |

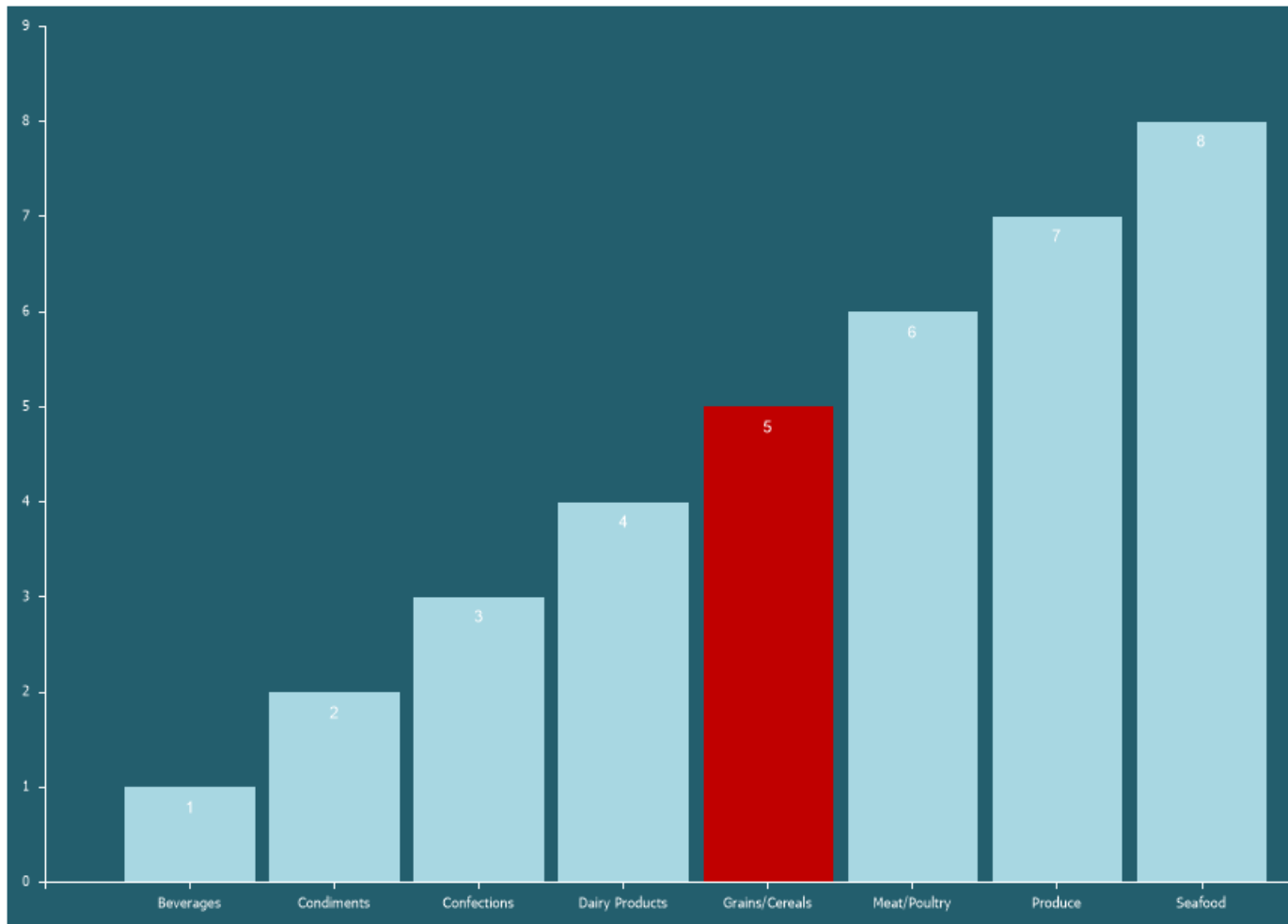
| | |
|----------------------------|--|
| | a semicolon ";". |
| Argument Data Column | Specifies the column from the data source whose values will be used as the series arguments. |
| Argument | Defines an expression whose result will be used as the argument of the current series. |
| List of Arguments | Allows entering a single argument or a list of arguments for the current series, separated by a semicolon ";". |
| Allow Apply Brush Negative | Enables applying a specific color (set to Brush Negative property) to negative values in the series. If True, all negative values will be displayed in the defined color. If False, negative values will use the series color. |
| Allow Apply Style | Enables using the series styling settings from the chart style. If True, the series appearance will be taken from the selected chart style. If False, additional styling properties such as color, border color, and brush settings will be available for customization. |
| Brush Negative | Specifies the color for negative values in the series. The Allow Apply Brush Negative property must be set to True for this setting to take effect. |
| Show in Legend | Enables or disables the display of the current series in the chart legend. If True, the series will appear in the legend. If False, it will not be shown. |
| Show Series Labels | Determines how series labels are configured—either from the chart settings or from the series itself. Detailed label settings are covered in the Series Labels section. |
| Show Zeros | Enables or disables the display of zero |

| | |
|-------------------------------|--|
| | <p>values in the chart. If True, zero values will be shown. If False, they will be hidden.</p> <p>It is important to note that for auto series, enabling or disabling null values is controlled by the Show Nulls property.</p> |
| Title | Allows you to change the series title. |
| Width | Allows you to adjust the width of graphical elements. This property can be set to values from 0 to 1, where 0 represents the minimum width and 1 represents the maximum width. |
| Y Axis | <p>Allows you to enable either the left or right Y-axis.</p> <ul style="list-style-type: none"> - If set to Left Y Axis, the left Y-axis will be displayed on the chart. - If set to Right Y Axis, the right Y-axis will be displayed. |
| Format | Allows you to select a format mask for the series values. |
| Sort by | Determines the criteria for sorting graphical elements in the chart—either by values or by arguments. If set to None, no sorting is applied, and graphical elements will be displayed in the order they appear in the data source. |
| Sort Direction | Allows defining the sorting direction Ascending or Descending. |
| Auto Series Key Data Column | Allows specifying the data column whose unique values will be used to create the chart series. |
| Auto Series Color Data Column | Allows specifying the data column containing color values for the series that will be created automatically. |
| Auto Series Title Data Column | Allows specifying the data column whose values will be used as names for the series |

that will be created automatically.

4.29.2.2 Conditions

Conditional formatting for a series value involves applying a specific color to a graphical element within the current series.



To configure conditional formatting for series values, follow these steps:

- In the **Component Editor**, go to the **Series** tab, then the **Conditions** section;
- Click **Add Condition**;
- Configure the conditional formatting using the condition editor.

Condition Editor

The condition editor defines the color that will be applied to the graphical element

and the condition for applying that color.

The image shows a configuration interface for a report filter. It consists of five numbered callouts pointing to different parts of the interface:

- 1** Field Is: A dropdown menu with 'Argument' selected.
- 2** Data Type: A dropdown menu with 'String' selected.
- 3** Condition: A dropdown menu with 'equal to' selected.
- 4** Value: A text input field.
- 5** Color: A color picker showing 'White'.

1 Field Is determines the field from which the source values will be taken—either from the series values or arguments.

2 Data Type defines the type of values used in the condition. This parameter affects how the report generator processes the condition and determines the list of available operations.

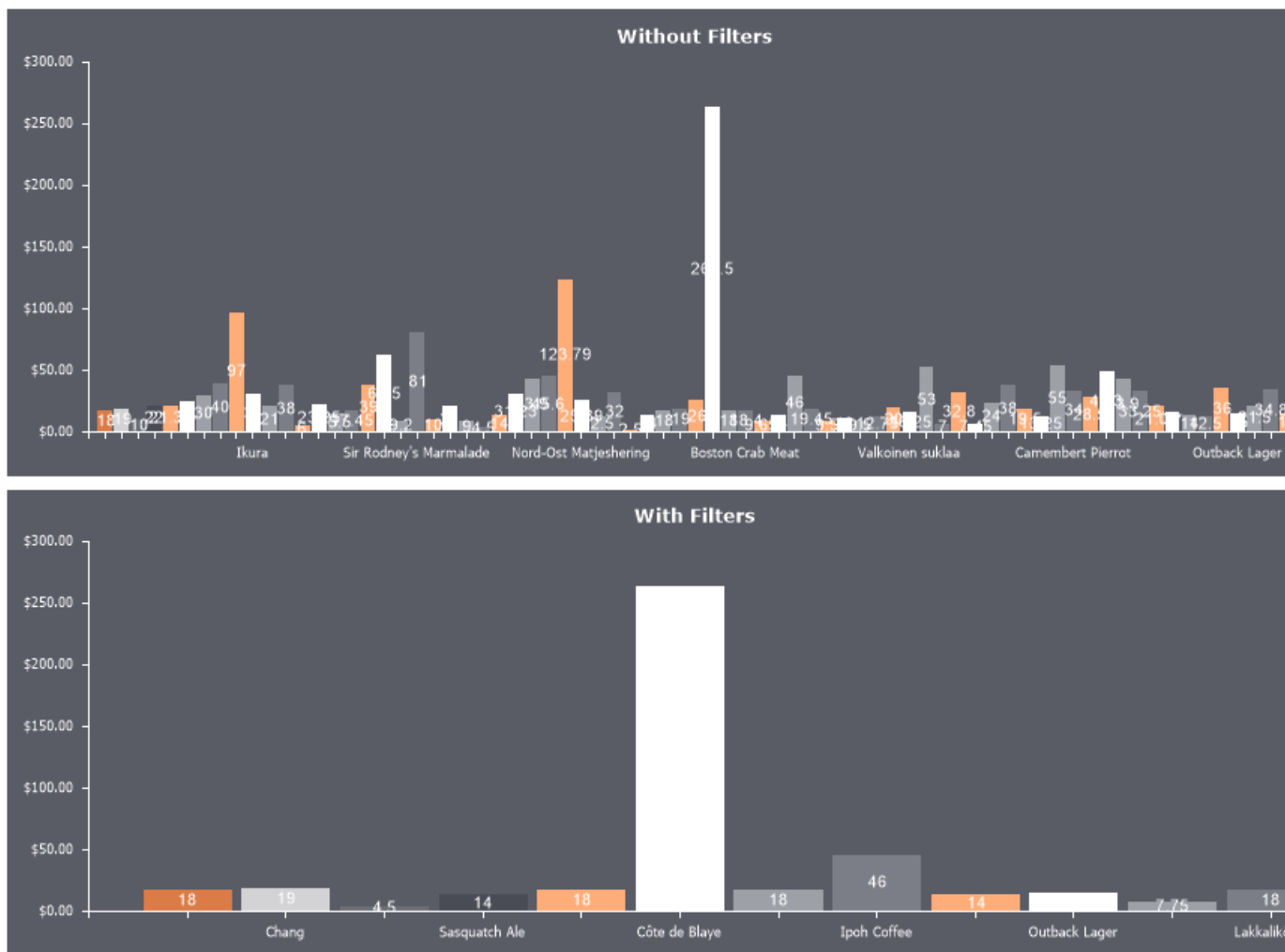
3 Condition specifies the logical comparison operation between the series value and the condition value.

4 Value defines the specific condition value.

5 Color specifies the color that will be applied to the graphical element when the condition is met.

4.29.2.3 Filters

Filtering series values involves selecting values based on a specific condition.



To apply filters to series values, follow these steps:

- In the component editor, go to the **Series** tab and select the **Filters** section;
- Click **Add Filter**;
- Configure the filtering condition using the filter editor.

Filter Editor

The filter editor defines the selection criteria for series values.

| Field Is | Data Type | Condition | Value |
|----------------------|------------------------|-------------------------|-------------------|
| Value 1 | Numeric 2 | equal to 3 | 12 4 |

- 1 Field Is** determines the source of the values: **Values**, **Arguments**, or an **Expression**;

- 2 **Data Type** defines the data type of both the source value and the filtering value;
- 3 **Condition** specifies the filtering operation (see the table below);
- 4 **Value** specifies the filtering value, i.e., the value for which the filter condition will be true.

Information

For some operations, multiple filtering values may be required. For example, if using the **between** operation, both a starting and ending value must be specified to define a range.

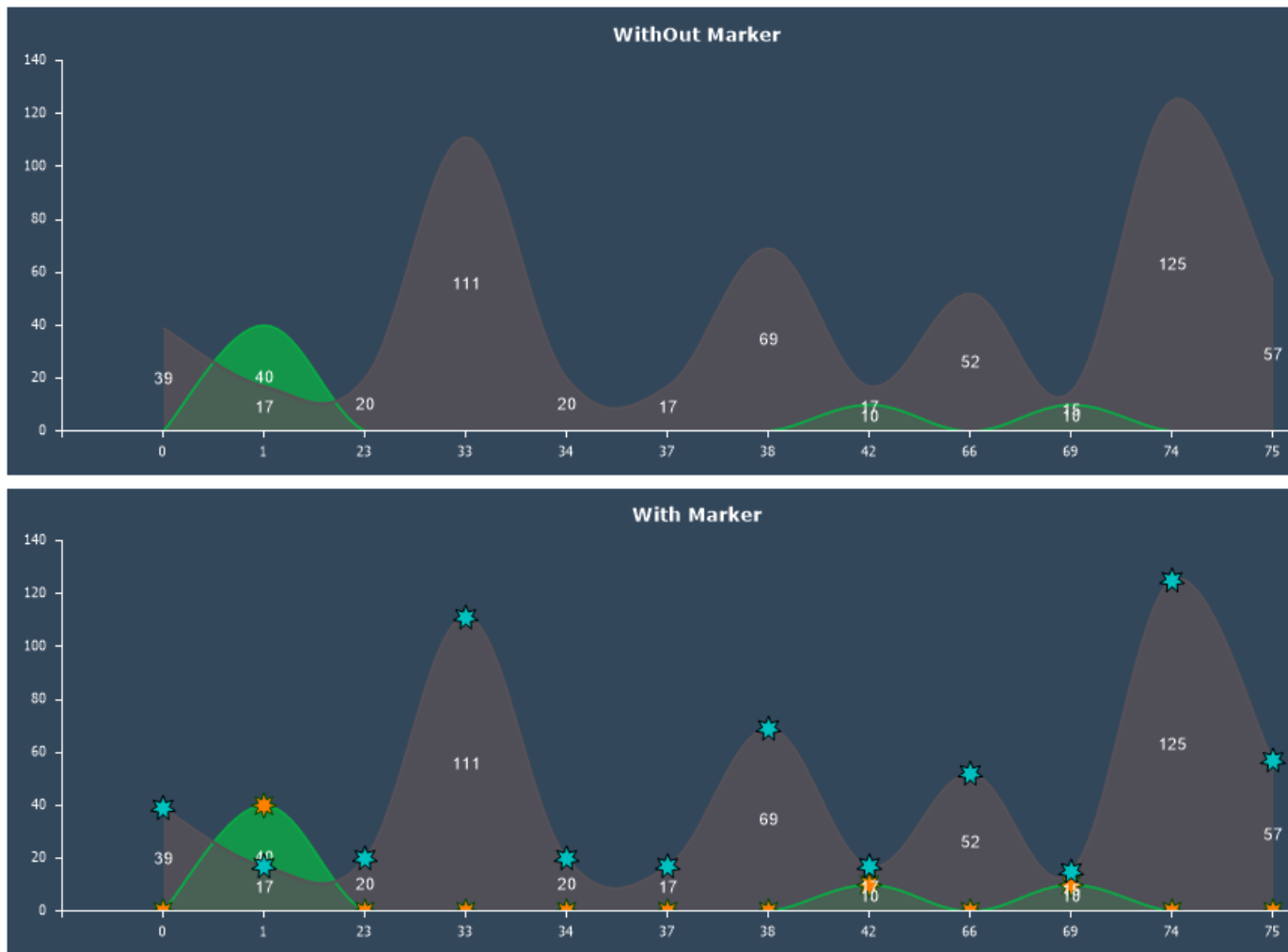
The list of available operations depends on the data type. Each operation defines a logical condition between the source value and the filtering value.

| Operation | Data Type | | | | Description |
|--------------------------|-----------|---------|------|---------|--|
| | String | Numeric | Date | Boolean | |
| equal to | + | + | + | + | The condition is true if the source value equals the filtering value. |
| not equal to | + | + | + | + | The condition is true if the source value does not equal the filtering value. |
| between | | + | + | | The condition is true if the source value is within the specified range. |
| not between | | + | + | | The condition is true if the source value is outside the specified range. |
| greater than | | + | + | | The condition is true if the source value is greater than the filtering value. |
| greater than or equal to | | + | + | | The condition is true if the source value is greater than or equal to the |

| | | | | | |
|-----------------------|---|---|---|--|---|
| | | | | | filtering value. |
| less than | | + | + | | The condition is true if the source value is less than the filtering value. |
| less then or equal to | | + | + | | The condition is true if the source value is less than or equal to the filtering value. |
| containing | + | | | | The condition is true if the source value contains the filtering value. This operation applies only to strings. |
| not containing | + | | | | The condition is true if the source value does not contain the filtering value. This operation applies only to strings. |
| beginning with | + | | | | The condition is true if the source value starts with the filtering value. This operation applies only to strings. |
| ending with | + | | | | The condition is true if the source value ends with the filtering value. This operation applies only to strings. |

4.29.2.4 Marker

A **Marker** is a graphical symbol used to display series values on a chart. Markers are available only for line-based charts, including Line, Area, Range, Scatter, Radar, and their variations.



To apply a marker to a chart series, follow these steps:

- In the component editor, go to the **Series** tab and open the **Marker** section;
- Configure the marker's appearance using its properties.

Information

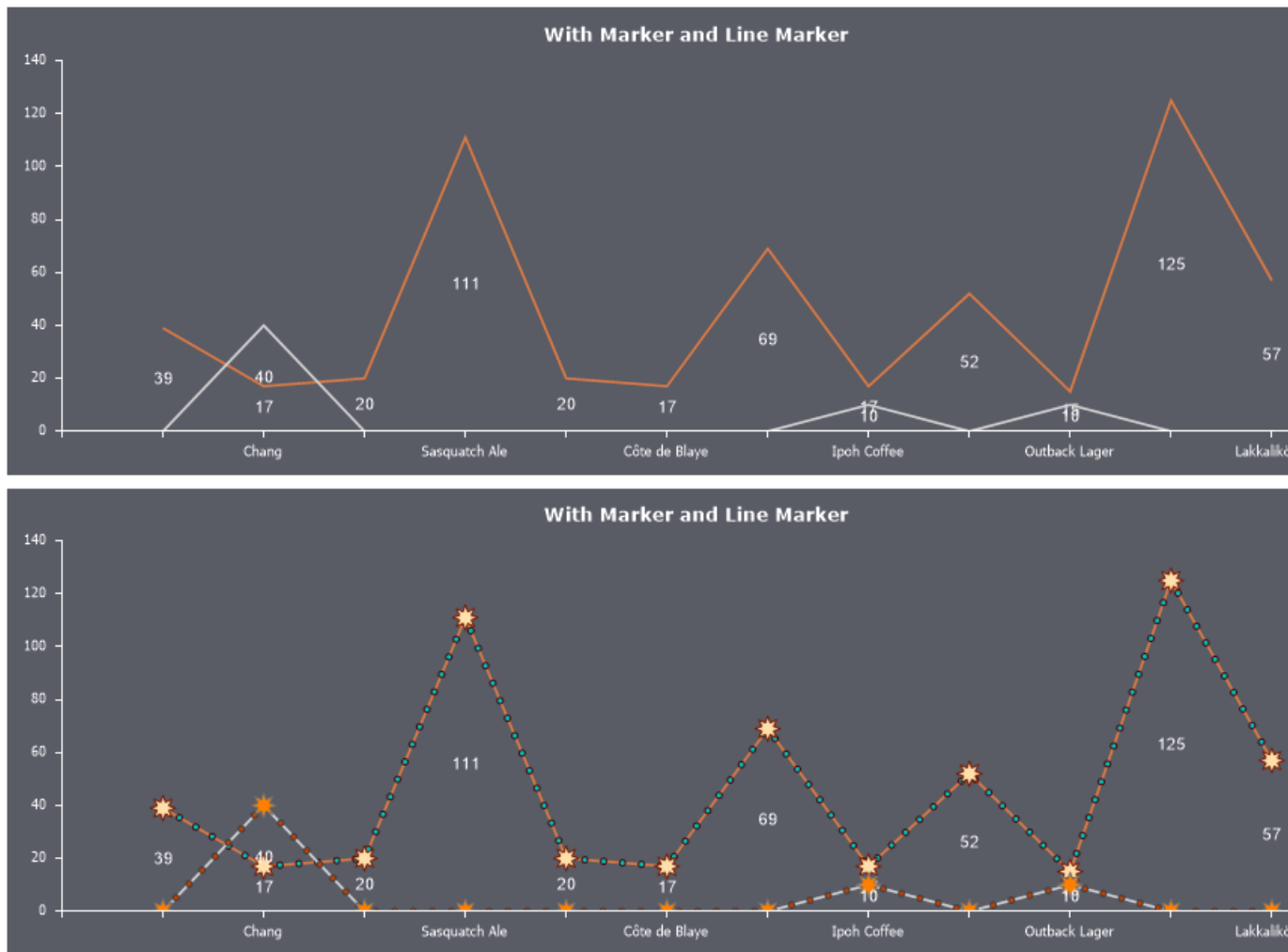
If a style is applied to the chart, the marker's appearance settings will be inherited from that style. Before customizing the marker in the Marker tab, set the **Allow Apply Style** property to **False** in the Common tab.

Below is a table of properties that are used to configure the marker.

| Name | Description |
|--------------|--|
| Border Color | Allows you to change the marker's border color. |
| Brush | Allows you to change the brush type and the fill color of the marker. |
| Angle | Allows you to rotate the marker by a specific angle. The value can be positive or negative, representing the rotation angle in degrees. A positive value rotates the marker to the right, while a negative value rotates it to the left. |
| Size | Defines the marker's size in pixels. |
| Type | Allows you to select the marker's geometric shape: rectangle, triangle, circle, star, hexagon. |
| Visible | Enables or disables the display of the marker on the chart. If set to True , the marker will be visible. If set to False , the marker will not be displayed. |

4.29.2.5 Line Marker

A **Line Marker** is a graphical symbol used to display intermediate values along a line between the nearest series values. Line markers are available only for line-based charts, including Line, Area, Range, and their variations.



To apply line markers to a chart series, follow these steps:

- In the component editor, go to the **Series** tab and open the **Line Marker** section;
- Configure the line marker's appearance using its properties.

Information

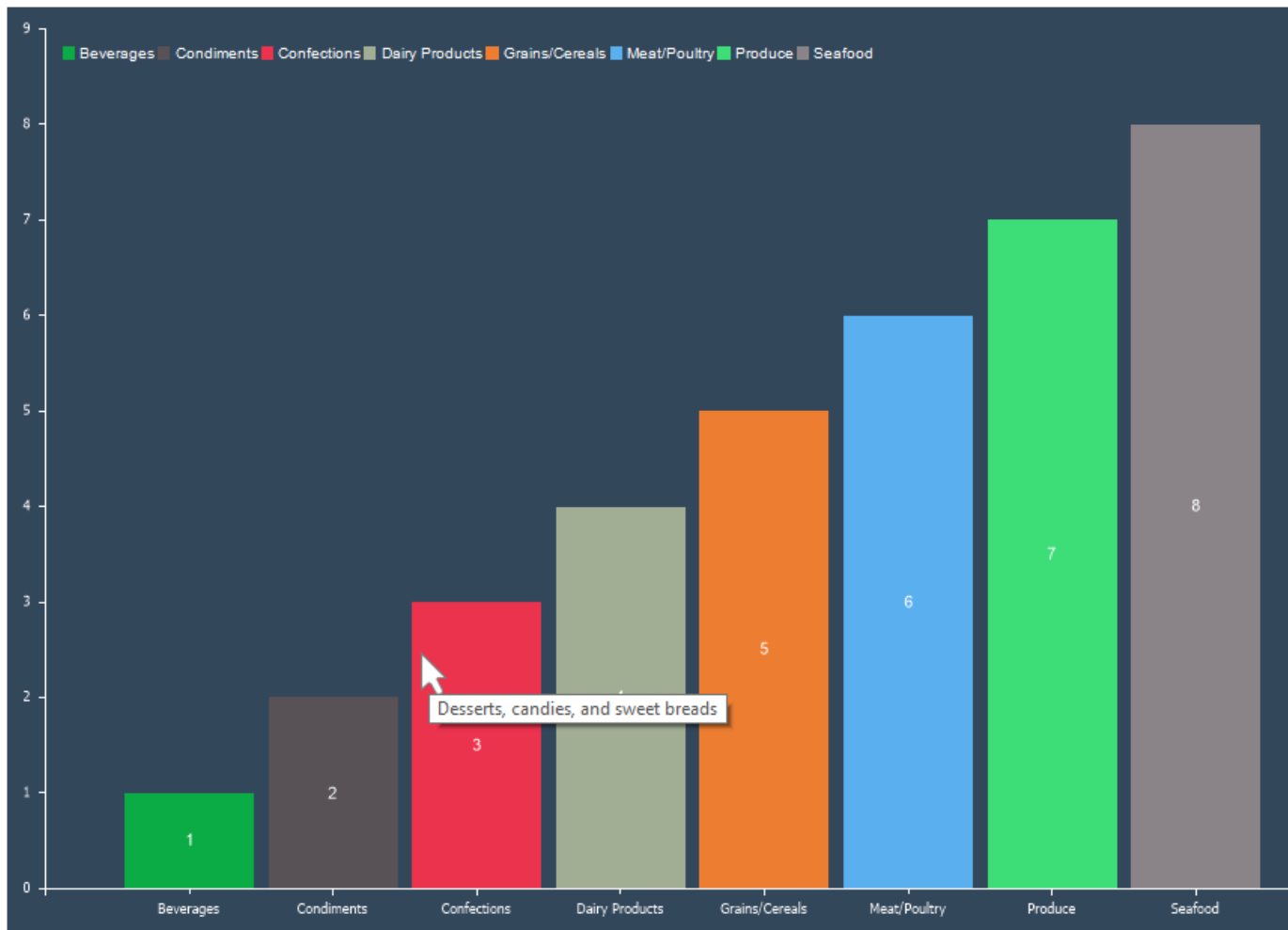
If a style is applied to the chart, the line marker's appearance settings will be inherited from that style. Before customizing the line marker in the Line Marker tab, set the **Allow Apply Style** property to **False** in the Common tab.

Below is a table of properties that are used to configure the line marker.

| Name | Description |
|--------------|---|
| Border Color | Allows you to change the line marker's border color. |
| Brush | Allows you to change the brush type and the fill color of the line marker. |
| Angle | Allows you to rotate the line marker by a specific angle. The value can be positive or negative, representing the rotation angle in degrees. A positive value rotates the marker to the right, while a negative value rotates it to the left. |
| Size | Defines the size of the line marker. |
| Step | Defines the interval at which the line marker is displayed, i.e., the number of pixels between each marker along the line. |
| Type | Allows you to select the geometric shape of the line marker. |
| Visible | Enables or disables the display of the line marker on the chart. If set to True , the line marker will be visible. If set to False , it will not be displayed. |

4.29.2.6 Interaction

Interaction refers to specific actions performed on a series' graphical elements when viewing a report.



To set up interaction for a chart series, you need:

- In the component editor, go to the **Series** tab and open the **Interaction** section;
- Configure the interaction settings using the available properties.

Interactions that can be customized:

- Drill-down on series elements or entire series;
- Hyperlinks for series values;
- Tags for series values;
- Tooltips for series values.

Below is a table with a list of properties that are used to customize the interaction.

| Name | Description |
|------|-------------|
|------|-------------|

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|-----------------------|---|
| Allow Series | Enables or disables drill-down for the entire series rather than individual values. If set to True , drill-down for the whole series is allowed. If set to False , drill-down for the entire series is disabled. This is only applicable if Drill-Down Enabled is set to True . |
| Allow Series Elements | Enables or disables drill-down for individual series elements. If set to True , each graphical element can be drilled down separately. If set to False , drill-down for individual elements is disabled. This is only applicable if Drill-Down Enabled is set to True . |
| Drill-Down Enabled | Enables or disables drill-down mode. If set to True , drill-down is enabled, and the series elements are interactive in the viewer. If set to False , drill-down is disabled, and series elements are non-interactive. |
| Drill-Down Page | Specifies the report template page containing the drill-down data. |
| Drill-Down Report | Specifies an external report containing the drill-down data. |
| Hyperlink Data Column | Specifies the data column containing hyperlinks for the series' graphical elements. |
| Hyperlink | Defines an expression that evaluates to a hyperlink for the series' graphical elements. |
| List of Hyperlink | Specifies a hyperlink or a list of hyperlinks for the series' graphical elements. Hyperlinks should be separated by ";". The order of hyperlinks corresponds to the order of series values. |
| Tag Data Column | Specifies the data column containing tags |

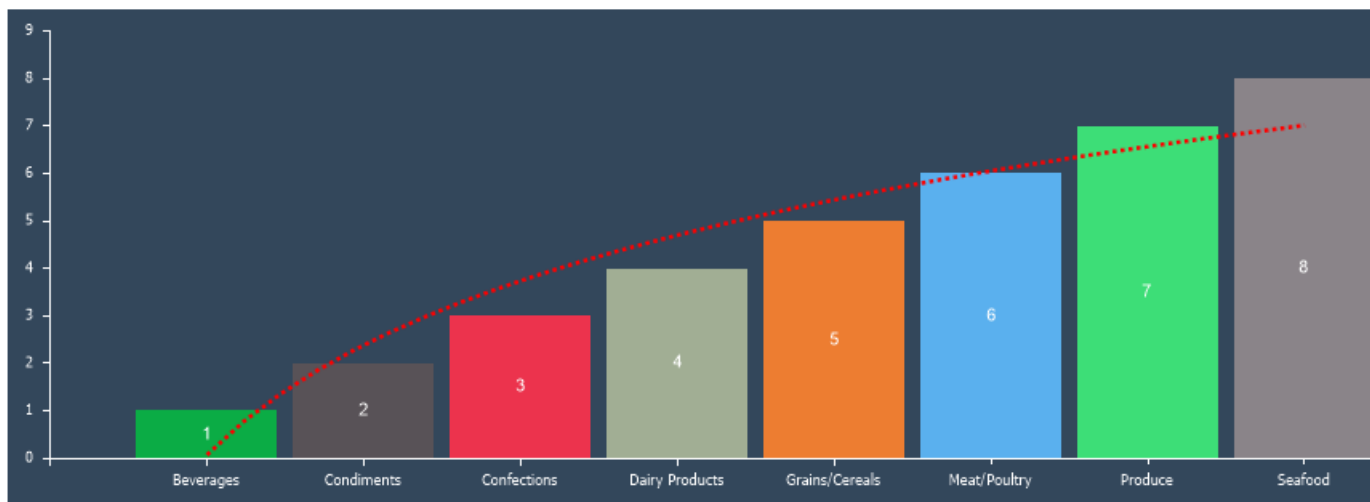
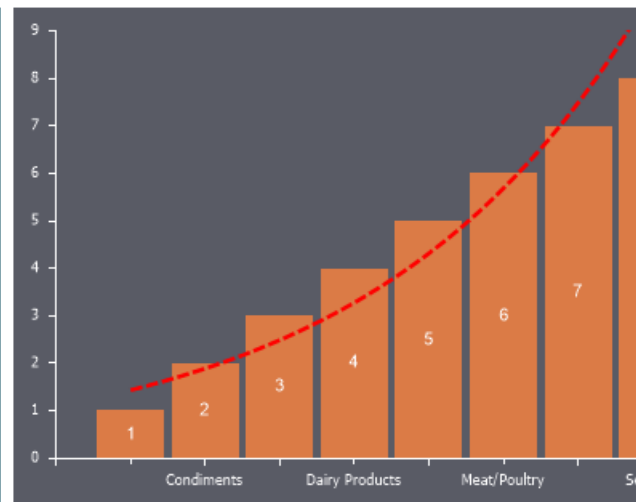
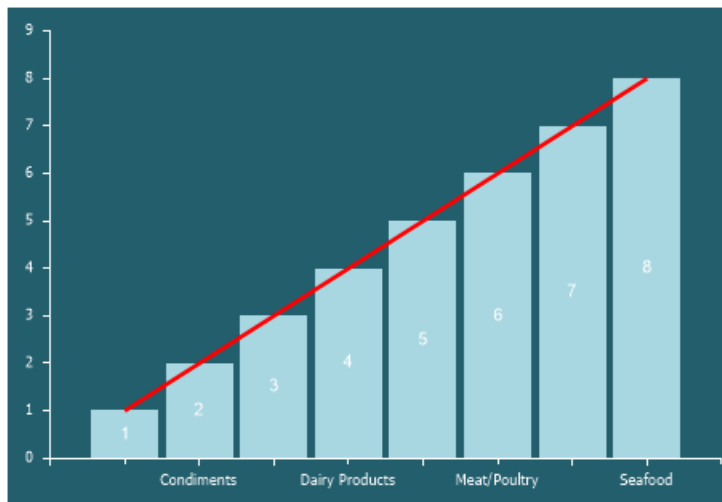
| | |
|----------------------|---|
| | for the series' graphical elements. |
| Tag | Defines an expression that evaluates to a tag for the series' graphical elements. |
| List of Tags | Specifies a tag or a list of tags for the series' graphical elements. Tags should be separated by ";". The order of tags corresponds to the order of series values. |
| Tool Tip Data Column | Specifies the data column containing tooltips for the series' graphical elements. |
| Tool Tip | Defines an expression that evaluates to a tooltip for the series' graphical elements. |
| List of Tool Tips | Specifies a tooltip or a list of tooltips for the series' graphical elements. Tooltips should be separated by ";". The order of tooltips corresponds to the order of series values. |

Information

Drill-down in charts does not support passing parameters. However, to filter drill-down data correctly, you can pass a tag of the graphical element or series.

4.29.2.7 Trend Line

One of the options for data analysis and forecasting is the ability to overlay a trendline on a chart. Depending on the type, the trendline allows displaying the dependence of the series values on its arguments. A trendline can be applied to non-accumulating series, bar charts, histograms, scatter plots, and bubble charts.



To add a trend line to a chart, you need:

- › In the component editor, go to the **Series** tab and select the **Trend Line** section;
- › Choose the type of trend line and configure its settings using the available properties.

The type of trend line defines the relationship between values and arguments. The following types of trend lines are available:

- › **Linear.**
- › **Exponential.**
- › **Logarithmic.**

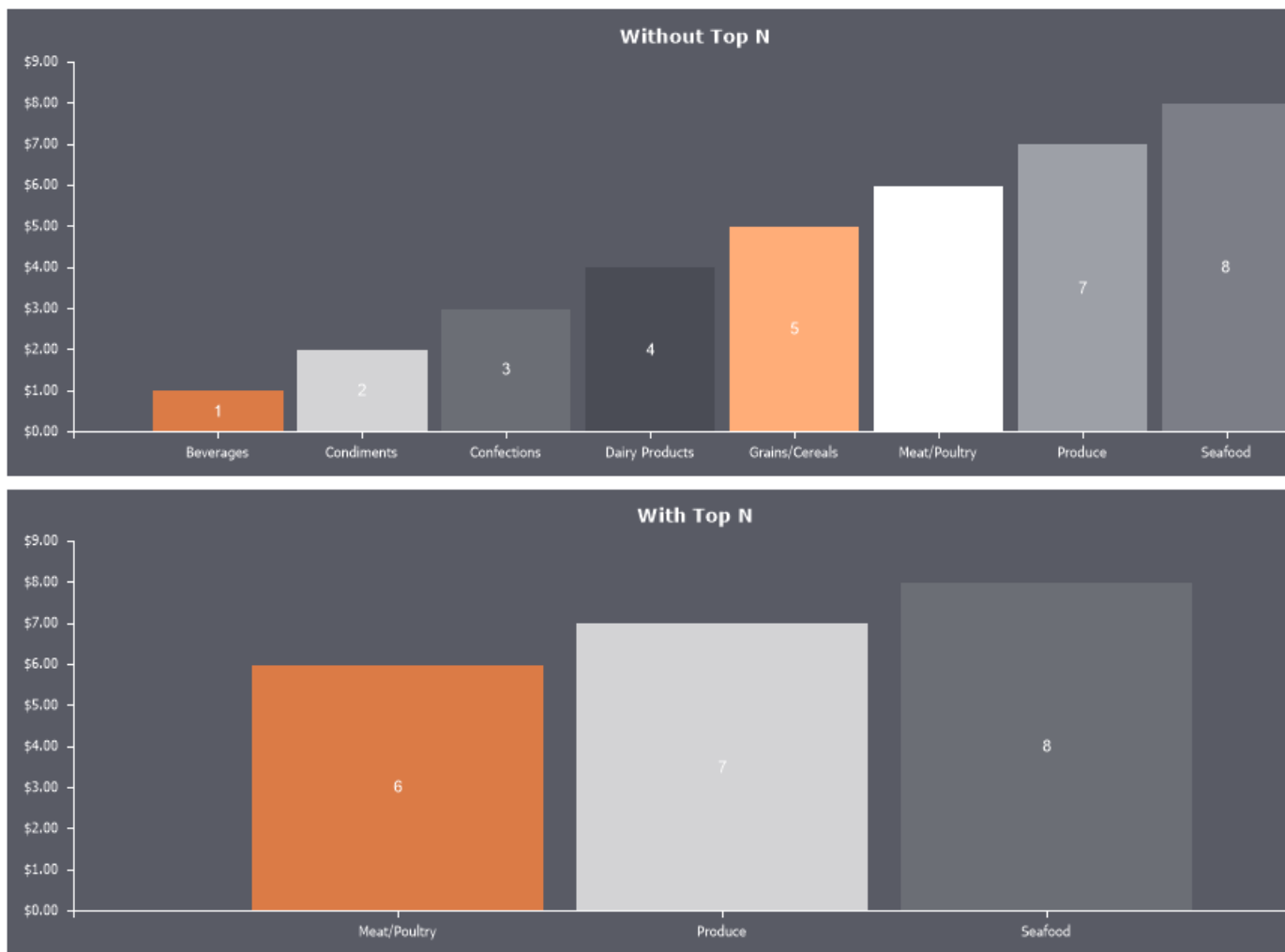
Below is a table of properties that configure the selected trendline type.

| Name | Description |
|------|-------------|
|------|-------------|

| | |
|-------------------|---|
| Allow Apply Style | Enables the use of trendline styling settings from the chart style. If set to True , the trendline will adopt the style settings of the chart. If set to False , properties for customizing the trendline's appearance (such as line color and shadow) will be displayed. |
| Line Style | Allows changing the line style: Solid , Dash , Dash Dot , Dash Dot Dot , Dot , Double . If None is selected, the trendline will not be displayed on the chart. |
| Line Width | Allows adjusting the trendline thickness. By default, the line width is set to 1 pixel. |

4.29.2.8 Top N

One of the options for filtering, analyzing, and grouping data series is the ability to display the top values on a chart.



To configure the top values of a series, follow these steps:

- In the component editor, go to the **Series** tab and select the **Top N** tab;
- Use the available properties to configure the display of top values.

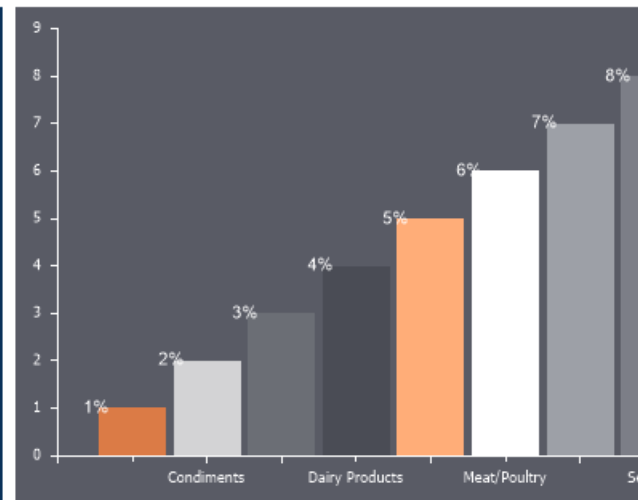
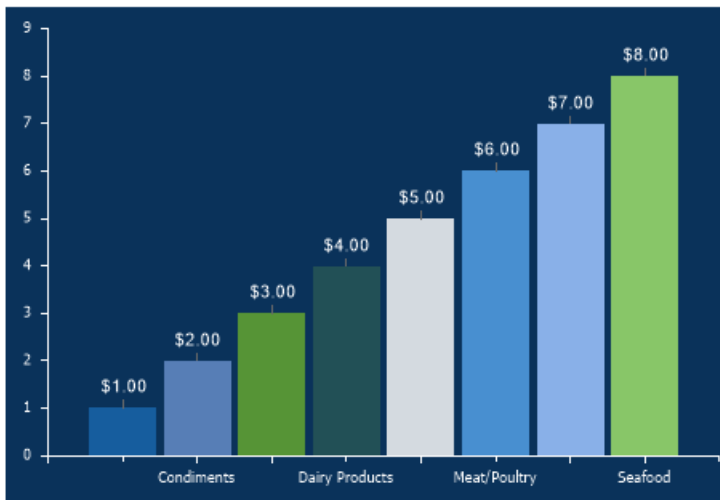
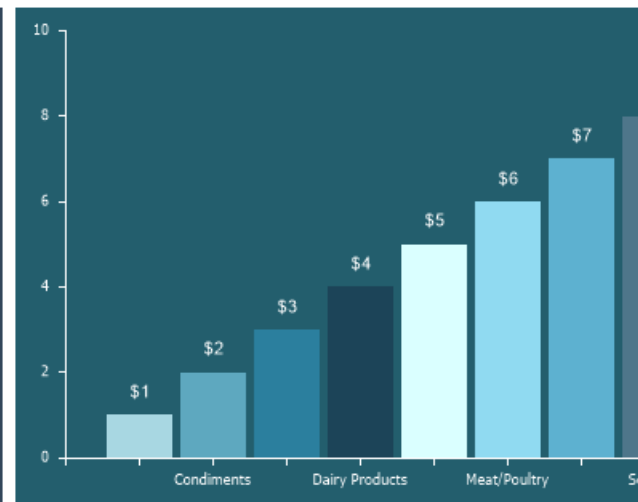
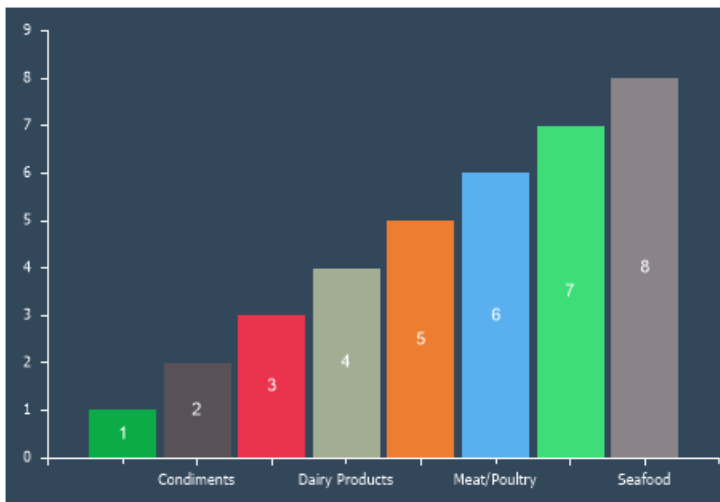
Below is a table of properties and their descriptions used to configure the top values.

| Name | Description |
|-------|---|
| Count | Defines the number of top values to display. |
| Mode | Determines the mode of values. If set to Top , the highest values will be displayed. |

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| | If set to Bottom , the lowest values will be displayed. If set to None , top values will not be displayed. |
| Others Text | Specifies the label for the sum of other values, i.e., the series values that do not fall into the top values list. |
| Show Others | Enables or disables the display of the sum of other values as a separate graphical element. If set to True , other values will be summed and displayed as a separate series element. If set to False , the sum of other values will not be displayed, meaning only the top values will be shown. |

4.29.2.9 Labels

Series Labels are a visual representation of values, arguments, tags, series names, and their combinations on or near graphical elements of series.



Series label settings can be obtained from:

- Chart label settings.
- Settings for the current series.

To configure the labels for the current series:

- In the component editor, go to the **Series** tab and find the **Series Labels** group;
- Set the **Show Series Labels** parameter to **From Series**;
- Select the placement type for the labels;
- Adjust the label settings using the available properties.

Information

Depending on the chart series, the type and number of labels may vary. If labels

are not required, select the **None** option.

Below is a table of properties and their descriptions used to configure series labels.

| Name | Description |
|-------------------|--|
| Allow Apply Style | Allows defining whether the label formatting settings will be taken from the chart style. If the property is set to True , the label formatting settings will be applied from the chart style. If the property is set to False , properties for manual label formatting will be displayed. |
| Angle | Allows rotating labels at a specific angle. The value is set as a positive or negative number and represents the rotation angle in degrees. A positive value rotates the label to the right, while a negative value rotates it to the left. |
| Draw Border | Allows displaying or hiding the label border. If the property is set to True , the border will be displayed. If set to False , the border will not be displayed. Note that if label formatting settings are taken from the chart style, this property will not be relevant. |
| Format | Allows selecting a format mask (numeric, currency, percentage, etc.). |
| Legend Value Type | Allows defining the value displayed in the legend. The following values can be selected: Argument , Weight , Series Title , Tag , Series Value , or their combinations. |
| Marker Alignment | Allows aligning the marker relative to the label. The marker can be positioned to the left, right, or center of the label. This property is relevant if marker display is |

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| | enabled. |
| Marker Size | Allows changing the marker size in pixels. This property is relevant if marker display is enabled. |
| Marker Visible | Allows displaying or hiding the label marker. If the property is set to True , the label marker will be displayed. If set to False , the label marker will not be displayed. |
| Prevent Intersection | Allows avoiding label overlap. If the property is set to True , labels will avoid overlapping. If set to False , labels may overlap. |
| Show in percent | Allows applying a percentage format mask P2 to label values. |
| Show Nulls | Allows displaying or hiding labels for null values. If the property is set to True , labels for null values will be displayed. If set to False , labels for null values will not be displayed. |
| Show Zeros | Allows enabling or disabling the display of titles for zero values. If set to True , titles for zero values will be displayed. If set to False , titles for zero values will not be displayed. |
| Step | Defines the step for displaying titles. For example, if set to 2, titles will be displayed only for every second graphical element. |
| Text After | Specifies the text to be added after the title. |
| Text Before | Specifies the text to be added before the title. |
| Use Series Color | Allows setting the title color to match the series color. If set to True , the series color (from the chart style or the Main tab) will |

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| | be used. If set to False , the title color will be taken from the title style or the Color property. |
| Value Type | Defines the value displayed in the title of a graphical element. The following options can be selected: Argument , Weight , Series Title , Tag , Series Value , or their combinations. |
| Value Type Separator | Allows setting a separator if a mixed title type is used. For example, if the title displays Value and Argument , a separator like "-" can be used. In this case, the title will be displayed as "Value-Argument". |
| Visible | Enables or disables title display. If set to True , the title will be displayed. If set to False , the title will not be displayed. |
| Width | Specifies the title width. The default value is 0, meaning the title width is limited by the chart area. |
| Word Wrap | Enables text wrapping for titles when the maximum width is reached. If set to True , text wrapping will be applied. If set to False , text wrapping will not be applied. This parameter is relevant only if the Width property is greater than zero. |

4.29.3 Area

The **Area** is the space within a chart component where graphical elements of the chart are displayed. The settings for the area elements are grouped, with each group represented by a separate tab.



Depending on the chart type, the area type can be:

- With axes – when the area includes X and Y axes. Examples: histogram, line chart, radar chart, etc.
- Without axes – when the area does not contain X and Y axes. Examples: tree map, pie chart, donut chart, etc.

Information

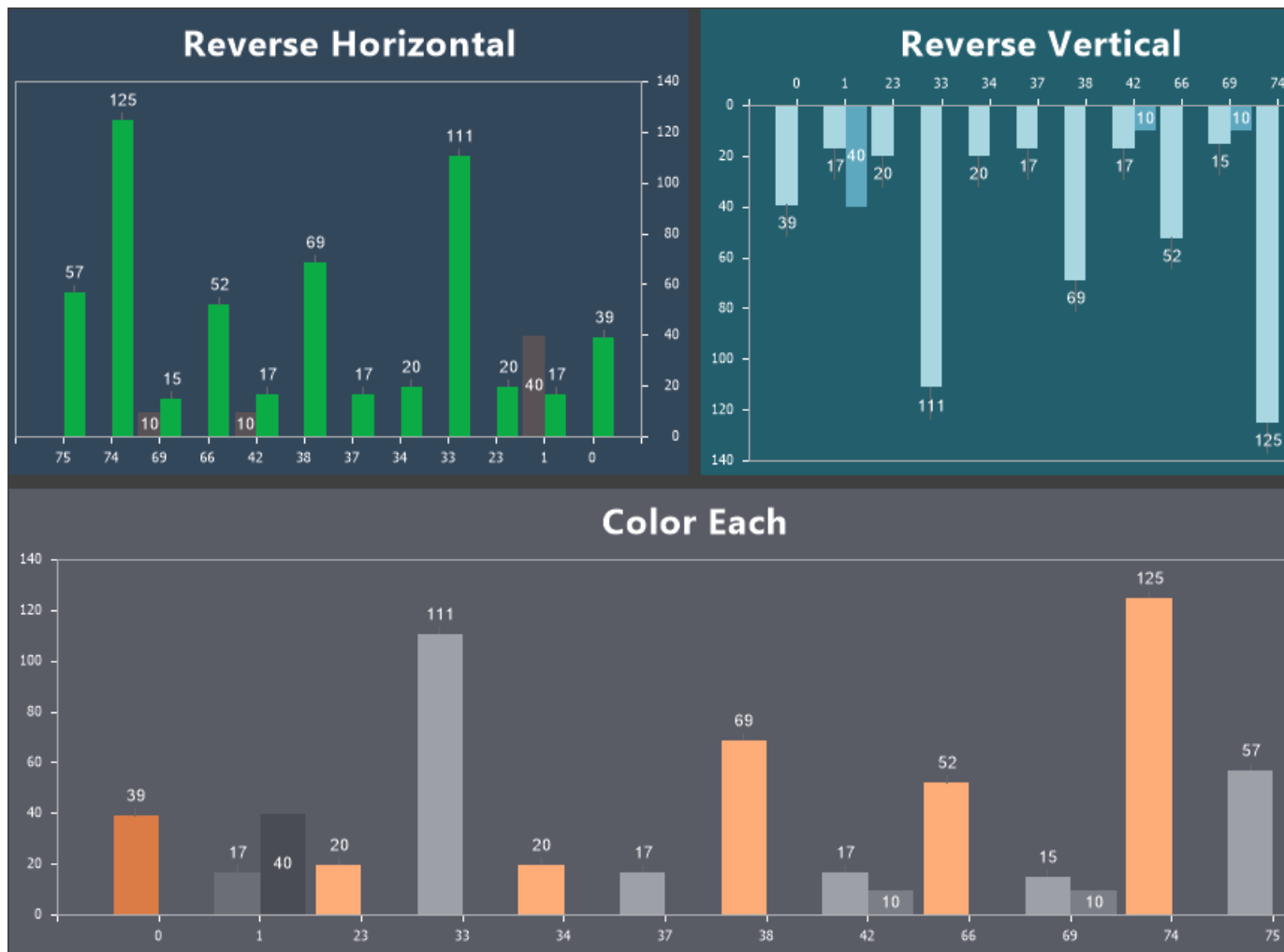
Depending on whether the area has axes or not, the number of setting tabs in the **Area** tab may vary.

The **Area** tab contains a preview panel and may include the following setting tabs:

- Common provides general settings for the chart area;
- X-Axis contains settings for the argument axis in the chart area;
- Y-Axis contains settings for the value axis in the chart area;
- Top X-Axis contains settings for the upper argument axis in the chart area;
- Right Y-Axis contains settings for the right value axis in the chart area;
- Horizontal Grid Lines contains settings for the horizontal grid lines in the chart area;
- Vertical Grid Lines contains settings for the vertical grid lines in the chart area;
- Right Horizontal Grid Lines contains settings for the right horizontal grid lines in the chart area;
- Horizontal Alternation contains settings for horizontal alternation in the chart area;
- Vertical Alternation contains settings for vertical alternation in the chart area.

4.29.3.1 Common

The Common tab contains settings related to the chart area.



To configure the chart area, you need:

- Open the component editor and go to the **Area** tab, then select the **Common** tab;
- Set the desired property values.

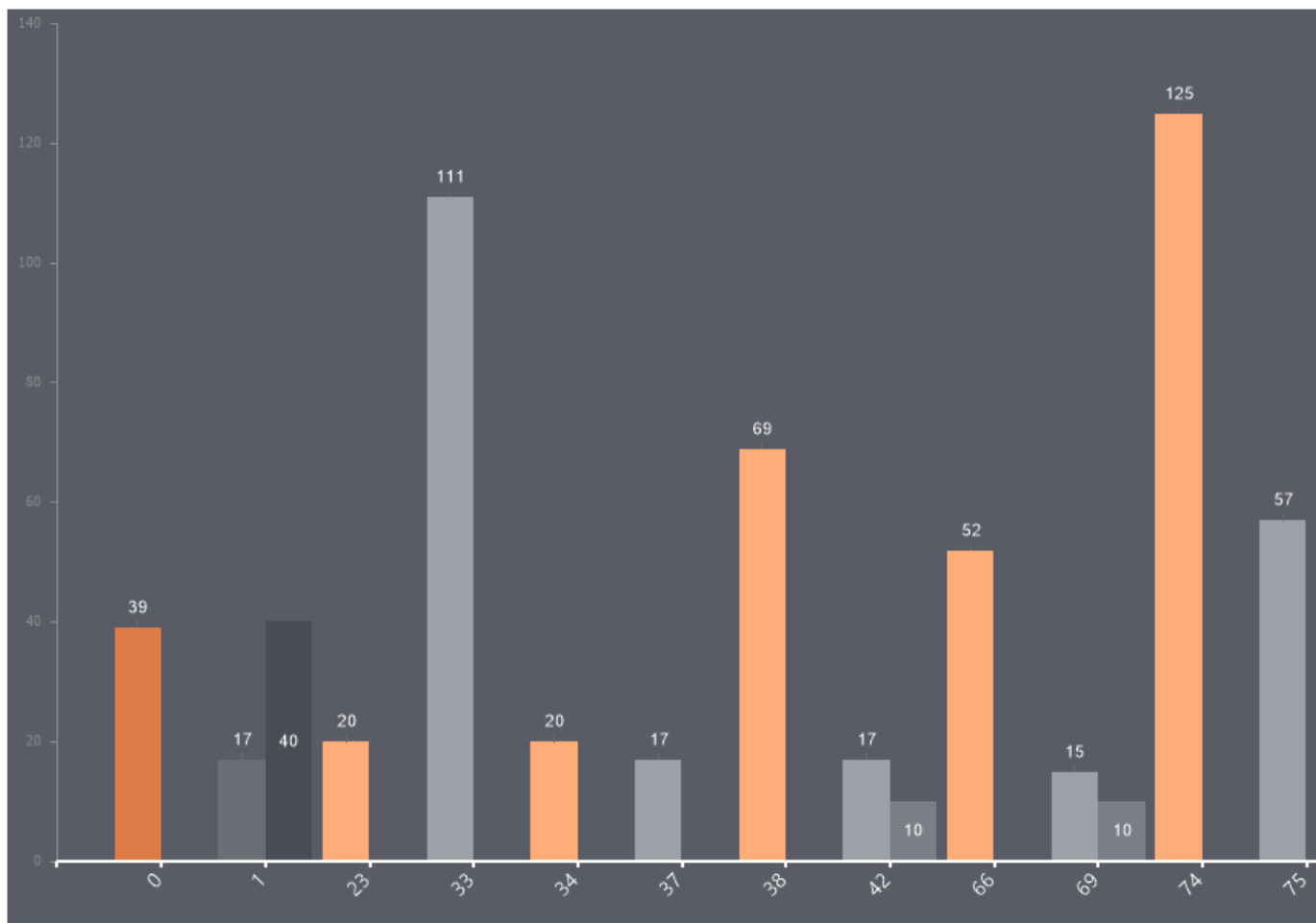
Below is a table of properties used to configure the chart area.

| Name | Description |
|-------------------|--|
| Allow Apply Style | Enables the use of chart style settings for the area design. If set to True , the area styling will be inherited from the selected chart style. If set to False , additional properties become available, allowing |

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| | customization of the area's appearance, such as border color, brush type, background color, and shadow display. |
| Color Each | Allows assigning a unique shade to each graphical element of the chart. If set to True , colors from the style collection will be applied to graphical elements individually. Once all colors in the collection are used, the remaining elements will be assigned lighter variations of these colors. This ensures each graphical element has a distinct shade. If set to False , all graphical elements in the same series will share a single color from the style collection. |
| Reverse Horizontal | Enables horizontal mirroring of the chart area. If set to True , the area will be displayed in a reversed horizontal orientation. If set to False , the chart will be displayed in its default orientation. |
| Reverse Vertical | Enables vertical mirroring of the chart area. If set to True , the area will be displayed in a reversed vertical orientation. If set to False , the chart will be displayed in its default orientation. Enables vertical mirroring of the chart area. If set to True , the area will be displayed in a reversed vertical orientation. If set to False , the chart will be displayed in its default orientation. |

4.29.3.2 X Axis

The **X Axis** tab contains settings for the argument axis and its labels.



To configure the X Axis of the chart, you need:

- Open the component editor and go to the **Area** tab, then select the **X Axis** tab;
- Set the desired property values.

Below is a table of properties used to configure the **X Axis**.

| Name | Description |
|-------------------|--|
| Allow Apply Style | Enables the use of chart style settings for the X axis. If set to True , the X axis styling will be inherited from the selected chart style. If set to False , additional properties become available, allowing customization of the X axis appearance, such as line |

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| | color. |
| Arrow Style | Allows selecting the style of the axis arrow: Triangle , Lines , Circle , Arc , Arc and Circle . If set to None , no arrow style is applied. |
| Date Time Step | <p>A group of properties for configuring time steps on the X axis:</p> <ul style="list-style-type: none"> ➤ The Interpolation property enables interpolation of series values. ➤ The Number of Values property defines the number of values to display in each time step. ➤ The Step property determines the time step interval. By default, it is set to 1, meaning every time step is displayed. For example, if set to 3, only every third time step will be shown. |
| Interaction | <p>A group of properties for configuring interaction with the X axis:</p> <ul style="list-style-type: none"> ➤ The Range Scroll Enabled property allows enabling scrolling for the X axis labels. If set to True, the X axis length will accommodate all labels, but the visible range will be limited by the component size. Users can scroll to view the full range. If set to False, the X axis will be constrained by the component size, and labels will be selectively displayed. ➤ The Show Scroll Bar property enables or disables the display of the scrollbar. If set to True, the scrollbar will be shown. If set to False, it will be hidden. |
| Labels | <p>The Labels property group allows configuring the titles (labels) of the X axis.</p> <ul style="list-style-type: none"> ➤ The Allow Apply Style property enables |

applying label styling (color, font) from the chart style or manually configuring them using individual properties.

- The **Antialiasing** property enables or disables antialiasing for X axis labels.
- The **Color** property allows selecting the color of the X axis labels if **Allow Apply Style** is set to **False**.
- The **Font** property a group of properties that defines the font family, size, and style for X axis labels if **Allow Apply Style** is set to **False**.
- The **Angle** property rotates the X axis labels by a specified angle in degrees.
- The **Format** property allows selecting a format mask for the X axis labels.
- The **Placement** property determines the arrangement of X axis labels (single line, two lines, or hidden).
- The **Step** property sets the interval for displaying labels, e.g., every second, third argument, etc.
- The **Text After** property specifies text to be added after the labels.
- The **Text Alignment** property sets the text alignment of the labels: left, right, or center.
- The **Text Before** property specifies text to be added before the labels.
- The **Width** property sets the width of the X axis labels in pixels. By default, it is 0, meaning auto-width is enabled.
- The **Word Wrap** property enables word wrapping for labels. If set to **True**, text wraps to the next line when reaching the maximum width, increasing the label height. If set to **False**, text will be truncated at the boundary.

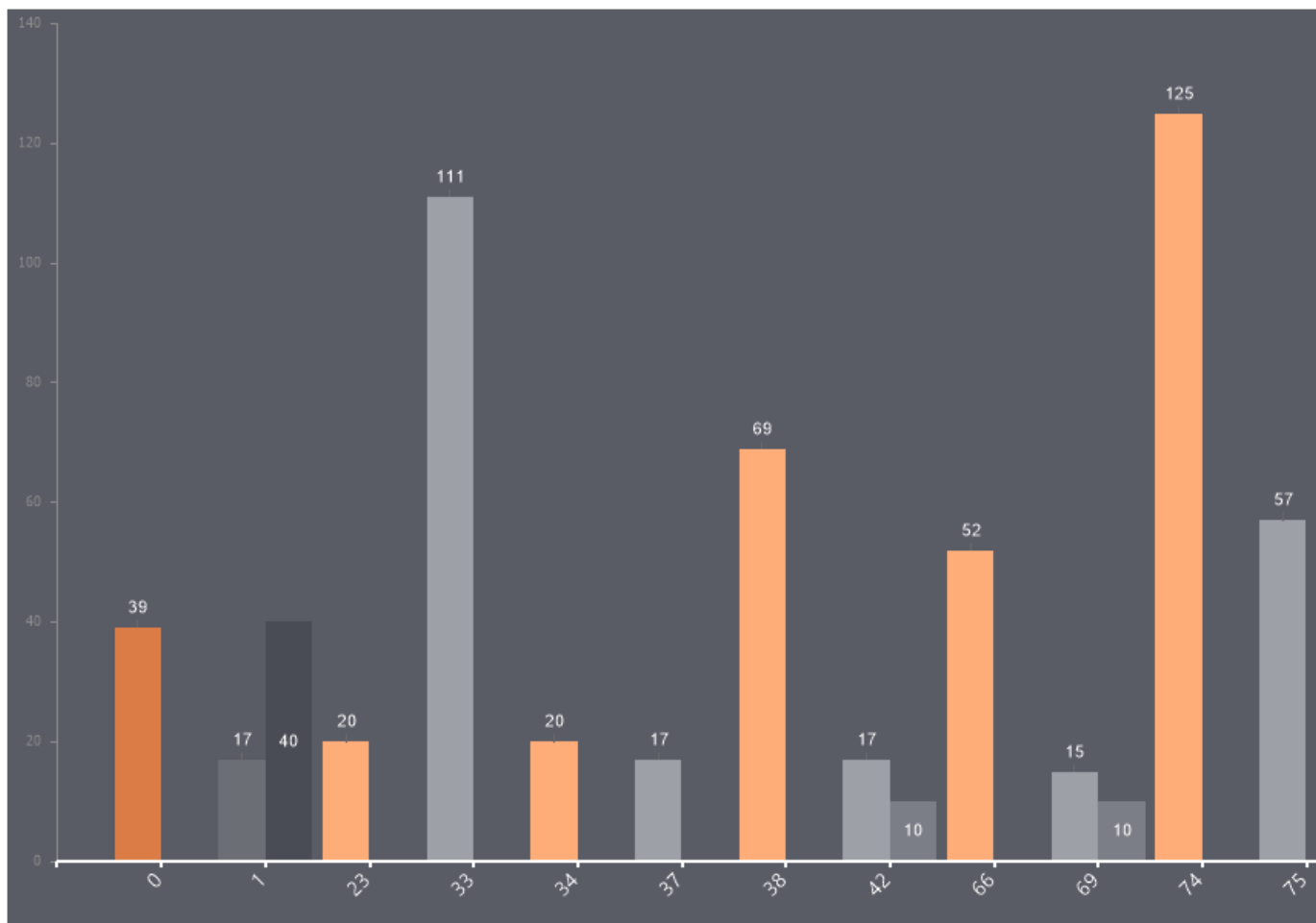
| | |
|-------------------|---|
| Line Style | Allows selecting the X axis line style: Solid , Dash , Dash Dot , Dash Dot Dot , Dot , Double . |
| Line Width | Sets the thickness of the X axis line, measured in pixels. |
| Logarithmic Scale | Allows enabling or disabling the display of a logarithmic scale on the X axis. If set to True , the logarithmic scale will be displayed. If set to False , the logarithmic scale will not be displayed. |
| Range | <p>A property group that allows configuring the range of values on the X axis.</p> <ul style="list-style-type: none">➤ The Auto property enables or disables automatic range calculation for the X axis. If set to True, the range is calculated automatically. If set to False, the range is not calculated automatically, and the Minimum and Maximum values must be manually specified.➤ The Minimum property value defines the starting value in the X axis range.➤ The Maximum property value defines the ending value in the X axis range. |
| Show Edge Values | Allows enabling or disabling the forced display of edge values on the X axis. If set to True , edge values will always be displayed. If set to False , edge values may not be displayed. |
| Show X Axis | Allows selecting the display mode for the X axis: Bottom , Center , Both . |
| Start From Zero | Allows setting zero as the starting point of the X axis. If set to True , X axis values will start from 0. If set to False , the first value in the series will be the starting point of the X axis. |
| Ticks | A property group that allows configuring |

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| | <p>the tick marks on the X axis.</p> <ul style="list-style-type: none">➤ The Length property sets the length of major tick marks in pixels.➤ The Length under Labels property sets the length of intermediate lines under the X axis labels.➤ The Minor Count property sets the number of minor tick marks between major tick marks. The space between major tick marks will be divided accordingly, ensuring evenly spaced minor ticks.➤ The Minor Length property sets the length of minor tick marks in pixels.➤ The Minor Visible property allows enabling or disabling the display of minor grid lines. If set to True, minor grid lines will be displayed. If set to False, minor grid lines will not be displayed.➤ The Step property allows setting the interval for displaying major tick marks.➤ The Visible property allows enabling or disabling the display of tick marks (both major and minor). If set to True, tick marks will be displayed. If set to False, tick marks will not be displayed. |
| Title | <p>A property group that allows configuring the X axis title.</p> <ul style="list-style-type: none">➤ The Allow Apply Style property allows applying title styling (color, font) from the chart style or manually configuring them using individual properties.➤ The Antialiasing property enables or disables antialiasing for the X axis title text.➤ The Color property allows selecting the color of the X axis title if Allow Apply Style is set to False.➤ The Font a group of properties that |

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| | <p>defines the font family, size, and style of the X axis title if Allow Apply Style is set to False.</p> <ul style="list-style-type: none">➤ The Alignment property sets the title alignment: Far, Near, Center.➤ The Direction property sets the text direction of the axis title: Left to Right, Right to Left, Top to Bottom, Bottom to Top.➤ The Position property allows selecting the position of the X-axis title: Inside or Outside the chart area.➤ The Text property allows setting the text that will be used as the X-axis title. |
| Visible | Allows enabling or disabling the display of the X-axis. If set to True, the X-axis will be displayed. If set to False, the X-axis will not be displayed. |

4.29.3.3 Y Axis

The **Y Axis** tab contains settings for the argument axis and its labels.



To configure the Y Axis of the chart, you need:

- Open the component editor and go to the **Area** tab, then select the **Y Axis** tab;
- Set the desired property values.

Below is a table of properties used to configure the **Y Axis**.

| Name | Description |
|-------------------|--|
| Allow Apply Style | Enables the use of chart style settings for the Y axis. If set to True , the Y axis styling will be inherited from the selected chart style. If set to False , additional properties become available, allowing customization of the Y axis appearance, such as line |

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| | color.. |
| Arrow Style | Allows selecting the style of the axis arrow: Triangle , Lines , Circle , Arc , Arc and Circle . If set to None , no arrow style is applied. |
| Interaction | <p>A group of properties for configuring interaction with the Y axis:</p> <ul style="list-style-type: none"> ➤ The Range Scroll Enabled property allows enabling scrolling for the Y axis labels. If set to True, the Y axis length will accommodate all labels, but the visible range will be limited by the component size. Users can scroll to view the full range. If set to False, the Y axis will be constrained by the component size, and labels will be selectively displayed. ➤ The Show Scroll Bar property enables or disables the display of the scrollbar. If set to True, the scrollbar will be shown. If set to False, it will be hidden.. |
| Labels | <p>The Labels property group allows configuring the titles (labels) of the Y axis.</p> <ul style="list-style-type: none"> ➤ The Allow Apply Style property enables applying label styling (color, font) from the chart style or manually configuring them using individual properties. ➤ The Antialiasing property enables or disables antialiasing for Y axis labels. ➤ The Color property allows selecting the color of the Y axis labels if Allow Apply Style is set to False. ➤ The Font property a group of properties that defines the font family, size, and style for Y axis labels if Allow Apply Style is set to False. ➤ The Angle property rotates the Y axis |

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| | <p>labels by a specified angle in degrees.</p> <ul style="list-style-type: none">➤ The Format property allows selecting a format mask for the Y axis labels.➤ The Placement property determines the arrangement of Y axis labels (single line, two lines, or hidden).➤ The Step property sets the interval for displaying labels, e.g., every second, third argument, etc.➤ The Text After property specifies text to be added after the labels.➤ The Text Alignment property sets the text alignment of the labels: left, right, or center.➤ The Text Before property specifies text to be added before the labels.➤ The Width property sets the width of the Y axis labels in pixels. By default, it is 0, meaning auto-width is enabled.➤ The Word Wrap property enables word wrapping for labels. If set to True, text wraps to the next line when reaching the maximum width, increasing the label height. If set to False, text will be truncated at the boundary. |
| Line Style | Allows selecting the Y axis line style: Solid, Dash, Dash Dot, Dash Dot Dot, Dot, Double |
| Line Width | Sets the thickness of the Y axis line, measured in pixels.. |
| Logarithmic Scale | Allows enabling or disabling the display of a logarithmic scale on the Y axis. If set to True , the logarithmic scale will be displayed. If set to False , the logarithmic scale will not be displayed. |
| Range | A property group that allows configuring the range of values on the Y axis. |

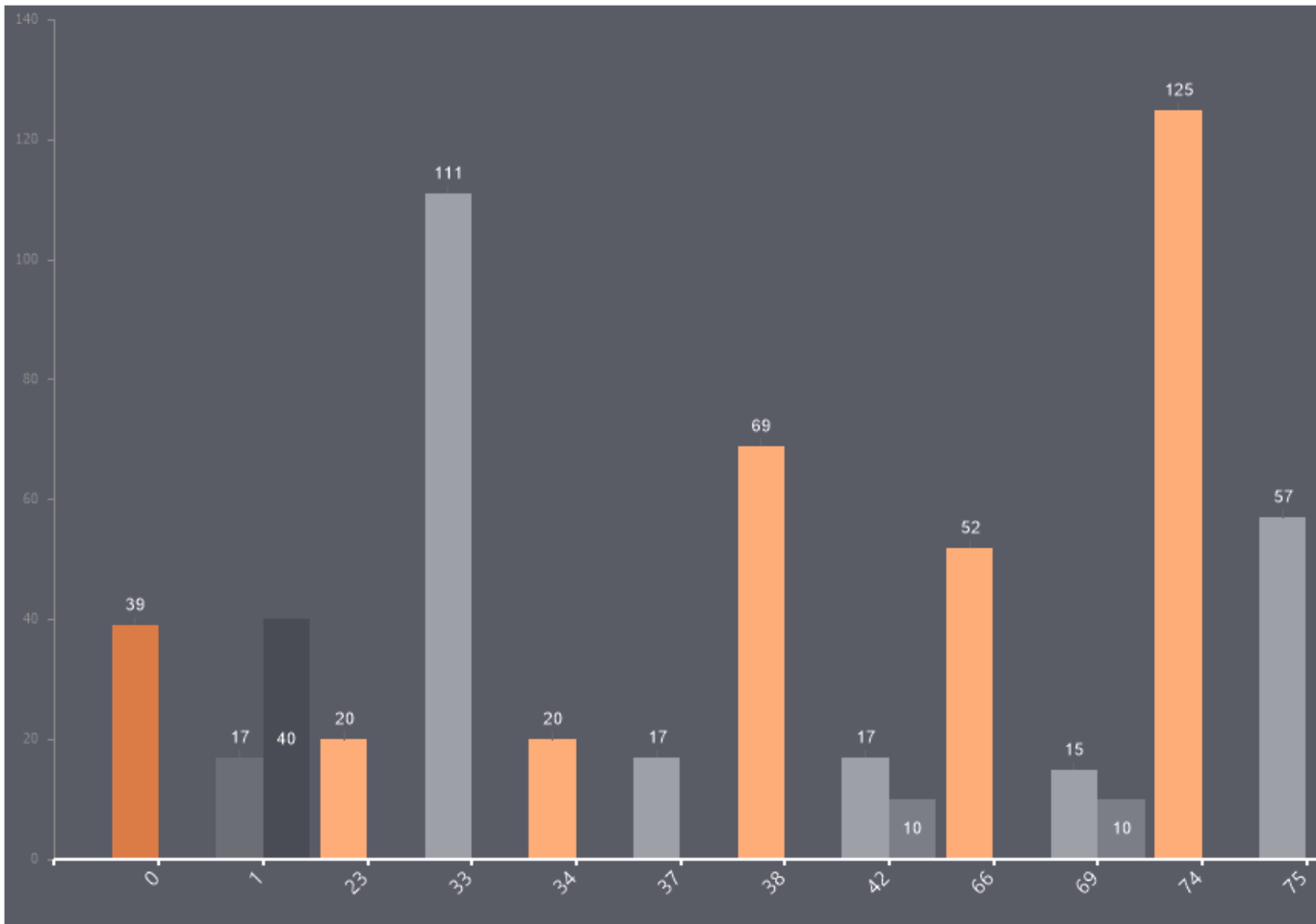
| | |
|-----------------|--|
| | <ul style="list-style-type: none"> ➤ The Auto property enables or disables automatic range calculation for the Y axis. If set to True, the range is calculated automatically. If set to False, the range is not calculated automatically, and the Minimum and Maximum values must be manually specified. ➤ The Minimum property value defines the starting value in the Y axis range. ➤ The Maximum property value defines the ending value in the Y axis range. |
| Show Y Axis | Allows selecting the display mode for the Y axis: Bottom , Center , Both . |
| Start From Zero | Allows setting zero as the starting point of the Y axis. If set to True , Y axis values will start from 0. If set to False , the first value in the series will be the starting point of the Y axis. |
| Ticks | <p>A property group that allows configuring the tick marks on the Y axis.</p> <ul style="list-style-type: none"> ➤ The Length property sets the length of major tick marks in pixels. ➤ The Length under Labels property sets the length of intermediate lines under the Y axis labels. ➤ The Minor Count property sets the number of minor tick marks between major tick marks. The space between major tick marks will be divided accordingly, ensuring evenly spaced minor ticks. ➤ The Minor Length property sets the length of minor tick marks in pixels. ➤ The Minor Visible property allows enabling or disabling the display of minor grid lines. If set to True, minor grid lines will be displayed. If set to False, minor grid |

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| | <p>lines will not be displayed.</p> <ul style="list-style-type: none">➤ The Step property allows setting the interval for displaying major tick marks.➤ The Visible property allows enabling or disabling the display of tick marks (both major and minor). If set to True, tick marks will be displayed. If set to False, tick marks will not be displayed. |
| Title | <p>A property group that allows configuring the Y axis title.</p> <ul style="list-style-type: none">➤ The Allow Apply Style property allows applying title styling (color, font) from the chart style or manually configuring them using individual properties.➤ The Antialiasing property enables or disables antialiasing for the Y axis title text.➤ The Color property allows selecting the color of the Y axis title if Allow Apply Style is set to False.➤ The Font a group of properties that defines the font family, size, and style of the Y axis title if Allow Apply Style is set to False.➤ The Alignment property sets the title alignment: Far, Near, Center.➤ The Direction property sets the text direction of the axis title: Left to Right, Right to Left, Top to Bottom, Bottom to Top.➤ The Position property allows selecting the position of the Y-axis title: Inside or Outside the chart area.➤ The Text property allows setting the text that will be used as the Y-axis title. |
| Visible | <p>Allows enabling or disabling the display of the Y-axis. If set to True, the Y-axis will be</p> |

displayed. If set to False, the Y-axis will not be displayed.

4.29.3.4 X Top Axis

The **X Top Axis** tab contains settings for the argument axis and its labels.



To configure the X Top Axis of the chart, you need:

- Open the component editor and go to the **Area** tab, then select the **X Top Axis** tab;
- Set the desired property values.

Below is a table of properties used to configure the **X Top Axis**.

| Name | Description |
|------|-------------|
|------|-------------|

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|-------------------|---|
| Allow Apply Style | Enables the use of chart style settings for the X Top axis. If set to True , the X axis styling will be inherited from the selected chart style. If set to False , additional properties become available, allowing customization of the X axis appearance, such as line color.. |
| Arrow Style | Allows selecting the style of the axis arrow: Triangle , Lines , Circle , Arc , Arc and Circle . If set to None , no arrow style is applied. |
| Interaction | <p>A group of properties for configuring interaction with the X Top axis:</p> <ul style="list-style-type: none">➤ The Range Scroll Enabled property allows enabling scrolling for the Y axis labels. If set to True, the X Top axis length will accommodate all labels, but the visible range will be limited by the component size. Users can scroll to view the full range. If set to False, the X Top axis will be constrained by the component size, and labels will be selectively displayed.➤ The Show Scroll Bar property enables or disables the display of the scrollbar. If set to True, the scrollbar will be shown. If set to False, it will be hidden.. |
| Labels | <p>The Labels property group allows configuring the titles (labels) of the X Top axis.</p> <ul style="list-style-type: none">➤ The Allow Apply Style property enables applying label styling (color, font) from the chart style or manually configuring them using individual properties.➤ The Antialiasing property enables or disables antialiasing for X Top axis labels.➤ The Color property allows selecting the color of the X Top axis labels if Allow |

| | |
|-------------------|---|
| | <p>Apply Style is set to False.</p> <ul style="list-style-type: none"> ➤ The Font property a group of properties that defines the font family, size, and style for X Top axis labels if Allow Apply Style is set to False. ➤ The Angle property rotates the X Top axis labels by a specified angle in degrees. ➤ The Format property allows selecting a format mask for the X Top axis labels. ➤ The Placement property determines the arrangement of X Top axis labels (single line, two lines, or hidden). ➤ The Step property sets the interval for displaying labels, e.g., every second, third argument, etc. ➤ The Text After property specifies text to be added after the labels. ➤ The Text Alignment property sets the text alignment of the labels: left, right, or center. ➤ The Text Before property specifies text to be added before the labels. ➤ The Width property sets the width of the X axis labels in pixels. By default, it is 0, meaning auto-width is enabled. ➤ The Word Wrap property enables word wrapping for labels. If set to True, text wraps to the next line when reaching the maximum width, increasing the label height. If set to False, text will be truncated at the boundary. |
| Line Style | Allows selecting the X Top axis line style: Solid, Dash, Dash Dot, Dash Dot Dot, Dot, Double |
| Line Width | Sets the thickness of the X Top axis line, measured in pixels.. |
| Logarithmic Scale | Allows enabling or disabling the display of |

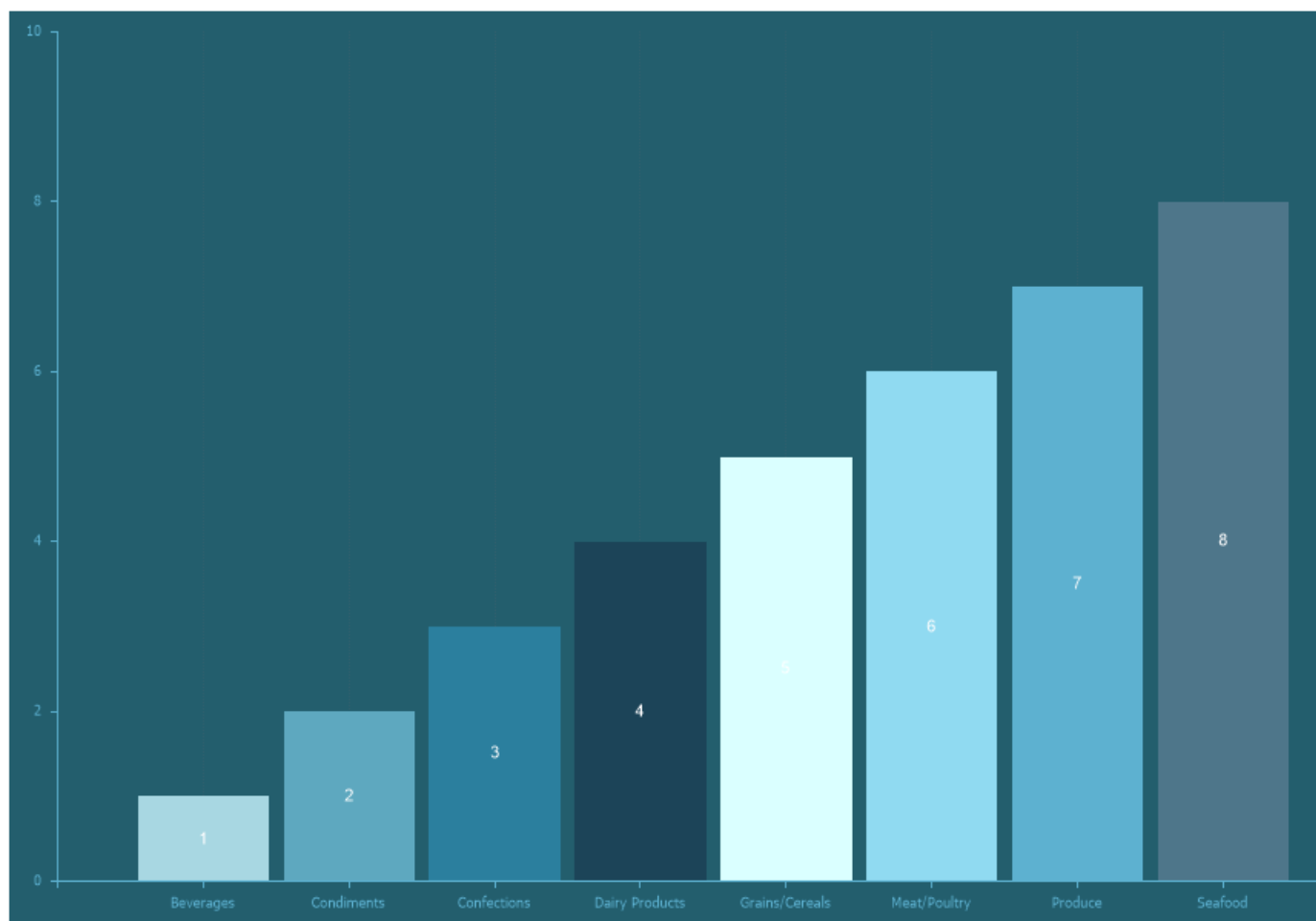
| | |
|-----------------|---|
| | <p>a logarithmic scale on the X Top axis. If set to True, the logarithmic scale will be displayed. If set to False, the logarithmic scale will not be displayed.</p> |
| Range | <p>A property group that allows configuring the range of values on the X Top axis.</p> <ul style="list-style-type: none">➤ The Auto property enables or disables automatic range calculation for the X Top axis. If set to True, the range is calculated automatically. If set to False, the range is not calculated automatically, and the Minimum and Maximum values must be manually specified.➤ The Minimum property value defines the starting value in the X Top axis range.➤ The Maximum property value defines the ending value in the X Top axis range. |
| Show X Top Axis | <p>Allows selecting the display mode for the X Top axis: Bottom, Center, Both.</p> |
| Start From Zero | <p>Allows setting zero as the starting point of the X Top axis. If set to True, Y axis values will start from 0. If set to False, the first value in the series will be the starting point of the X Top axis.</p> |
| Ticks | <p>A property group that allows configuring the tick marks on the X Top axis.</p> <ul style="list-style-type: none">➤ The Length property sets the length of major tick marks in pixels.➤ The Length under Labels property sets the length of intermediate lines under the X Top axis labels.➤ The Minor Count property sets the number of minor tick marks between major tick marks. The space between major tick marks will be divided accordingly, ensuring evenly spaced minor ticks. |

| | |
|-------|---|
| | <ul style="list-style-type: none"> ➤ The Minor Length property sets the length of minor tick marks in pixels. ➤ The Minor Visible property allows enabling or disabling the display of minor grid lines. If set to True, minor grid lines will be displayed. If set to False, minor grid lines will not be displayed. ➤ The Step property allows setting the interval for displaying major tick marks. ➤ The Visible property allows enabling or disabling the display of tick marks (both major and minor). If set to True, tick marks will be displayed. If set to False, tick marks will not be displayed. |
| Title | <p>A property group that allows configuring the X Top axis title.</p> <ul style="list-style-type: none"> ➤ The Allow Apply Style property allows applying title styling (color, font) from the chart style or manually configuring them using individual properties. ➤ The Antialiasing property enables or disables antialiasing for the X Top axis title text. ➤ The Color property allows selecting the color of the Y axis title if Allow Apply Style is set to False. ➤ The Font a group of properties that defines the font family, size, and style of the X Top axis title if Allow Apply Style is set to False. ➤ The Alignment property sets the title alignment: Far, Near, Center. ➤ The Direction property sets the text direction of the axis title: Left to Right, Right to Left, Top to Bottom, Bottom to Top. ➤ The Position property allows selecting the position of the X Top axis title: Inside |

| | |
|---------|--|
| | or Outside the chart area.
➤ The Text property allows setting the text that will be used as the X Top axis title. |
| Visible | Allows enabling or disabling the display of the X Top axis. If set to True , the X Top axis will be displayed. If set to False , the X Top axis will not be displayed. |

4.29.3.5 Y Right Axis

The **Y Right Axis** tab contains settings for the argument axis and its labels.



To configure the Y Axis of the chart, you need:

- Open the component editor and go to the **Area** tab, then select the **Y Right Axis** tab;

- Set the desired property values.

Below is a table of properties used to configure the **Y Right Axis**.

| Name | Description |
|-------------------|--|
| Allow Apply Style | Enables the use of chart style settings for the Y Right axis. If set to True , the Y Right axis styling will be inherited from the selected chart style. If set to False , additional properties become available, allowing customization of the Y Right axis appearance, such as line color.. |
| Arrow Style | Allows selecting the style of the axis arrow: Triangle , Lines , Circle , Arc , Arc and Circle . If set to None , no arrow style is applied. |
| Interaction | <p>A group of properties for configuring interaction with the Y Right axis:</p> <ul style="list-style-type: none"> ➤ The Range Scroll Enabled property allows enabling scrolling for the Y Right axis labels. If set to True, the Y Right axis length will accommodate all labels, but the visible range will be limited by the component size. Users can scroll to view the full range. If set to False, the Y Right axis will be constrained by the component size, and labels will be selectively displayed. ➤ The Show Scroll Bar property enables or disables the display of the scrollbar. If set to True, the scrollbar will be shown. If set to False, it will be hidden.. |
| Labels | <p>The Labels property group allows configuring the titles (labels) of the Y Right axis.</p> <ul style="list-style-type: none"> ➤ The Allow Apply Style property enables |

applying label styling (color, font) from the chart style or manually configuring them using individual properties.

- The **Antialiasing** property enables or disables antialiasing for Y Right axis labels.
- The **Color** property allows selecting the color of the Y Right axis labels if **Allow Apply Style** is set to **False**.
- The **Font** property a group of properties that defines the font family, size, and style for Y Right axis labels if **Allow Apply Style** is set to **False**.
- The **Angle** property rotates the Y Right axis labels by a specified angle in degrees.
- The **Format** property allows selecting a format mask for the Y Right axis labels.
- The **Placement** property determines the arrangement of Y Right axis labels (single line, two lines, or hidden).
- The **Step** property sets the interval for displaying labels, e.g., every second, third argument, etc.
- The **Text After** property specifies text to be added after the labels.
- The **Text Alignment** property sets the text alignment of the labels: left, right, or center.
- The **Text Before** property specifies text to be added before the labels.
- The **Width** property sets the width of the Y Right axis labels in pixels. By default, it is 0, meaning auto-width is enabled.
- The **Word Wrap** property enables word wrapping for labels. If set to **True**, text wraps to the next line when reaching the maximum width, increasing the label height. If set to **False**, text will be truncated at the boundary.

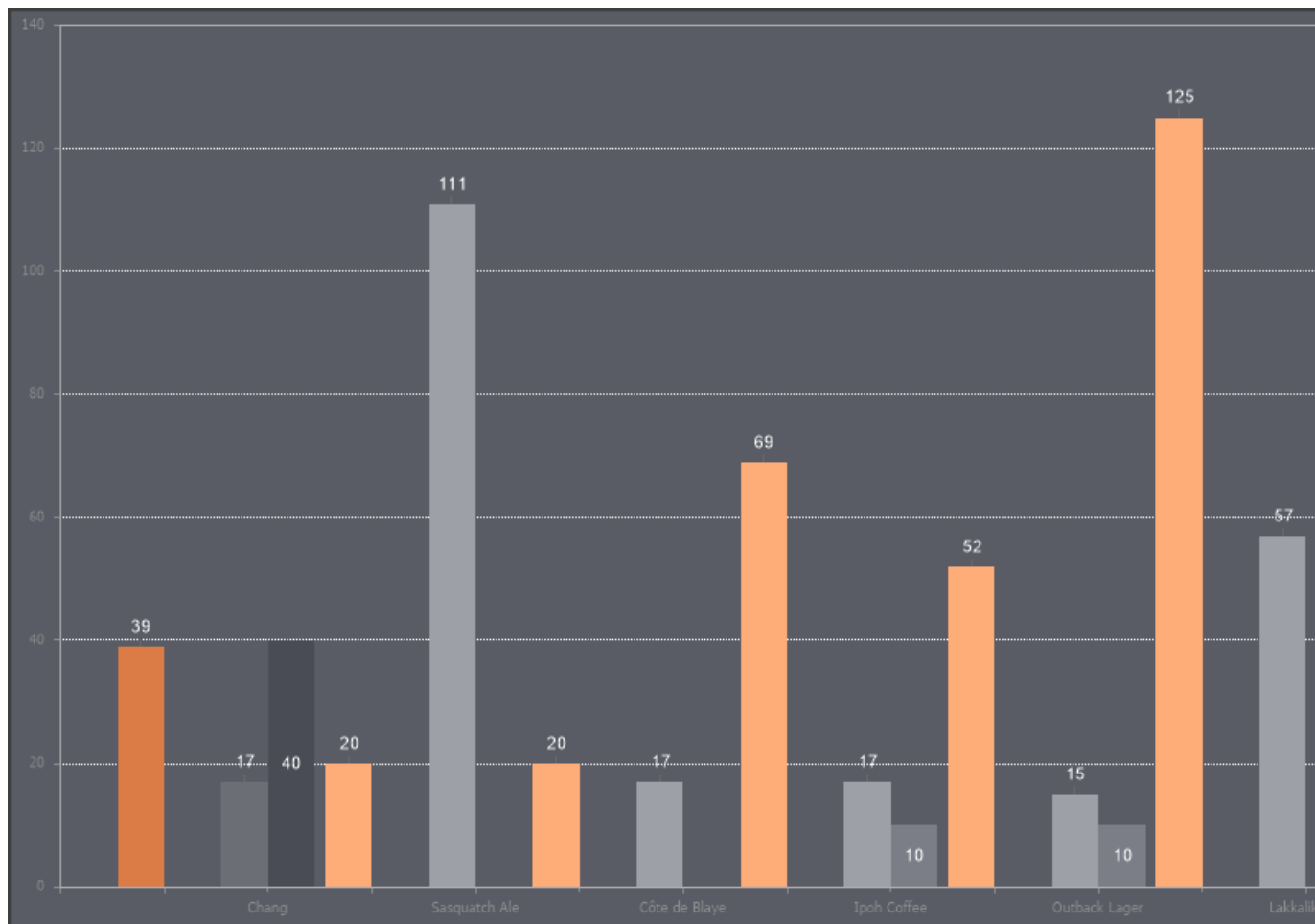
| | |
|-------------------|---|
| Line Style | Allows selecting the Y Right axis line style: Solid, Dash, Dash Dot, Dash Dot Dot, Dot, Double |
| Line Width | Sets the thickness of the Y Right axis line, measured in pixels.. |
| Logarithmic Scale | Allows enabling or disabling the display of a logarithmic scale on the Y Right axis. If set to True , the logarithmic scale will be displayed. If set to False , the logarithmic scale will not be displayed. |
| Range | <p>A property group that allows configuring the range of values on the Y Right axis.</p> <ul style="list-style-type: none"> ➤ The Auto property enables or disables automatic range calculation for the Y Right axis. If set to True, the range is calculated automatically. If set to False, the range is not calculated automatically, and the Minimum and Maximum values must be manually specified. ➤ The Minimum property value defines the starting value in the Y Right axis range. ➤ The Maximum property value defines the ending value in the Y Right axis range. |
| Show Y Axis | Allows selecting the display mode for the Y Right axis: Bottom, Center, Both . |
| Start From Zero | Allows setting zero as the starting point of the Y Right axis. If set to True , Y axis values will start from 0. If set to False , the first value in the series will be the starting point of the Y Right axis. |
| Ticks | <p>A property group that allows configuring the tick marks on the Y Right axis.</p> <ul style="list-style-type: none"> ➤ The Length property sets the length of major tick marks in pixels. ➤ The Length under Labels property sets |

| | |
|-------|---|
| | <p>the length of intermediate lines under the Y Right axis labels.</p> <ul style="list-style-type: none">➤ The Minor Count property sets the number of minor tick marks between major tick marks. The space between major tick marks will be divided accordingly, ensuring evenly spaced minor ticks.➤ The Minor Length property sets the length of minor tick marks in pixels.➤ The Minor Visible property allows enabling or disabling the display of minor grid lines. If set to True, minor grid lines will be displayed. If set to False, minor grid lines will not be displayed.➤ The Step property allows setting the interval for displaying major tick marks.➤ The Visible property allows enabling or disabling the display of tick marks (both major and minor). If set to True, tick marks will be displayed. If set to False, tick marks will not be displayed. |
| Title | <p>A property group that allows configuring the Y Right axis title.</p> <ul style="list-style-type: none">➤ The Allow Apply Style property allows applying title styling (color, font) from the chart style or manually configuring them using individual properties.➤ The Antialiasing property enables or disables antialiasing for the Y Right axis title text.➤ The Color property allows selecting the color of the Y Right axis title if Allow Apply Style is set to False.➤ The Font a group of properties that defines the font family, size, and style of the Y Right axis title if Allow Apply Style is set to False. |

| | |
|---------|--|
| | <ul style="list-style-type: none">➤ The Alignment property sets the title alignment: Far, Near, Center.➤ The Direction property sets the text direction of the axis title: Left to Right, Right to Left, Top to Bottom, Bottom to Top.➤ The Position property allows selecting the position of the Y Right axis title: Inside or Outside the chart area.➤ The Text property allows setting the text that will be used as the Y Right axis title. |
| Visible | Allows enabling or disabling the display of the Y Right axis. If set to True , the Y Right axis will be displayed. If set to False , the Y Right axis will not be displayed. |

4.29.3.6 Grid Lines Horizontal

Grid Lines Horizontal are lines in the chart area corresponding to each Y-axis value, running parallel to the X-axis. In other words, a line of a specific style and color will extend from each Y-axis value to the opposite edge of the chart area, parallel to the X-axis.



To set up horizontal grid lines in the chart area, you need:

- In the component editor, navigate to the **Area** tab and select the **Grid Lines Horizontal** section;
- Set the required property values.

Information

The chart area can also display minor horizontal grid lines.

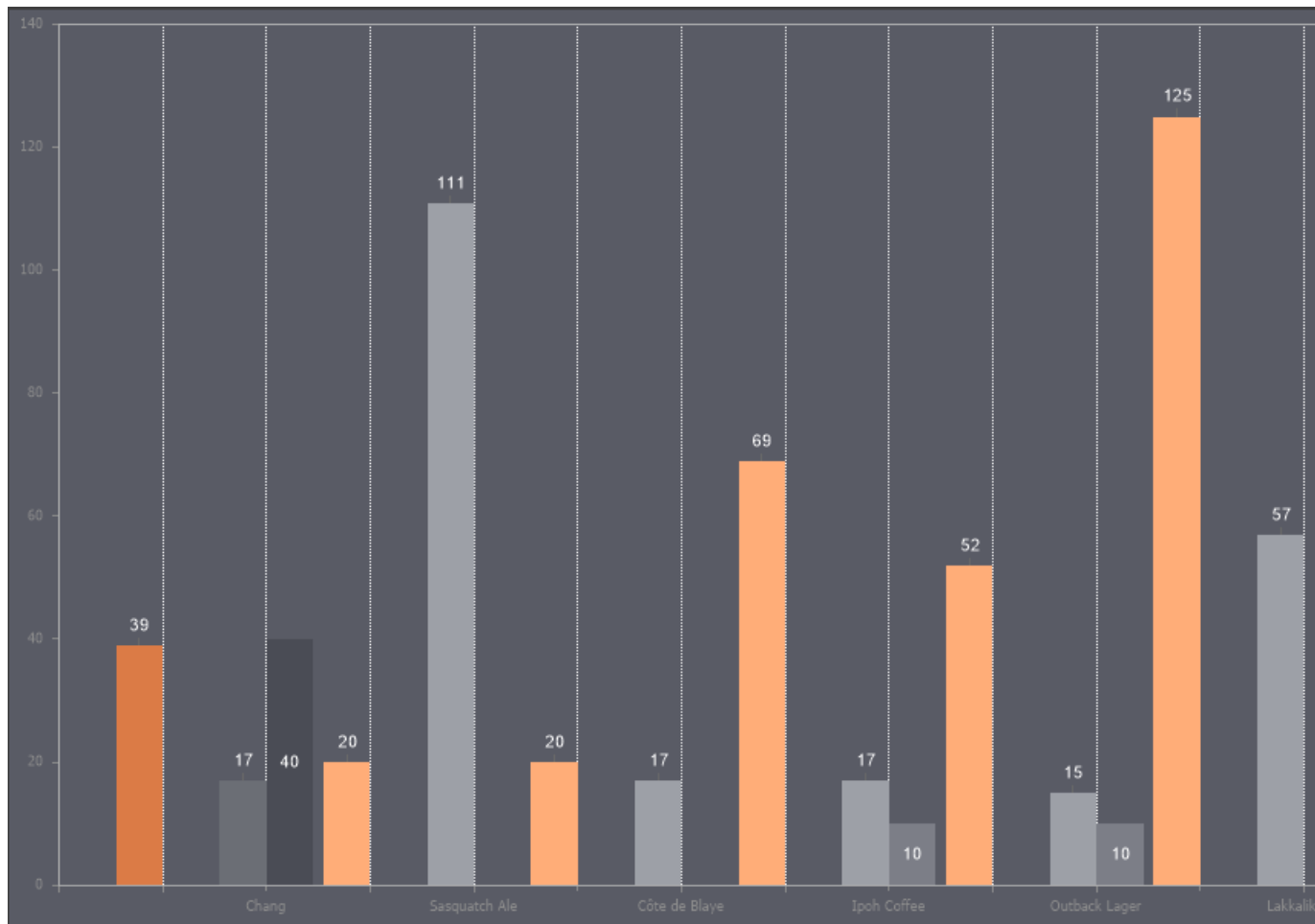
Below is a table of properties used to configure horizontal grid lines.

| Name | Description |
|------|-------------|
|------|-------------|

| | |
|-------------------|---|
| Allow Apply Style | Enables the use of horizontal grid line styling settings from the chart style. If this property is set to True , the styling settings for horizontal grid lines will be taken from the selected chart style. If set to False , additional properties will be displayed, allowing customization of the main and minor grid line styles and colors. |
| Color | Allows selecting the color of the main horizontal grid lines. |
| Minor Color | Allows selecting the color of the minor horizontal grid lines. |
| Minor Count | Sets the number of minor horizontal grid lines. Minor lines are displayed between the main grid lines at equal intervals. |
| Minor Style | Defines the style of minor grid lines: Solid, Dash, Dash Dot, Dash Dot Dot, Dot, Double . If set to None , minor grid lines will not be displayed. |
| Minor Visible | Enables or disables the display of minor grid lines. If set to True , minor grid lines will be shown. If set to False , they will be hidden. |
| Style | Defines the style of the main grid lines: Solid, Dash, Dash Dot, Dash Dot Dot, Dot, Double . If set to None , neither main nor minor grid lines will be displayed. |
| Visible | Enables or disables the display of the main grid lines. If set to True , the main lines will be displayed. If set to False , they will be hidden. |

4.29.3.7 Grid Lines Vertical

Grid Lines Vertical are lines in the chart area corresponding to each X-axis value, running parallel to the Y-axis. In other words, a line of a specific style and color will extend from each X-axis value to the opposite edge of the chart area, parallel to the Y-axis.



To set up vertical grid lines in the chart area, you need:

- In the component editor, navigate to the Area tab and select the **Grid Lines Vertical** section;
- Set the required property values.

Information

The chart area can also display minor vertical grid lines.

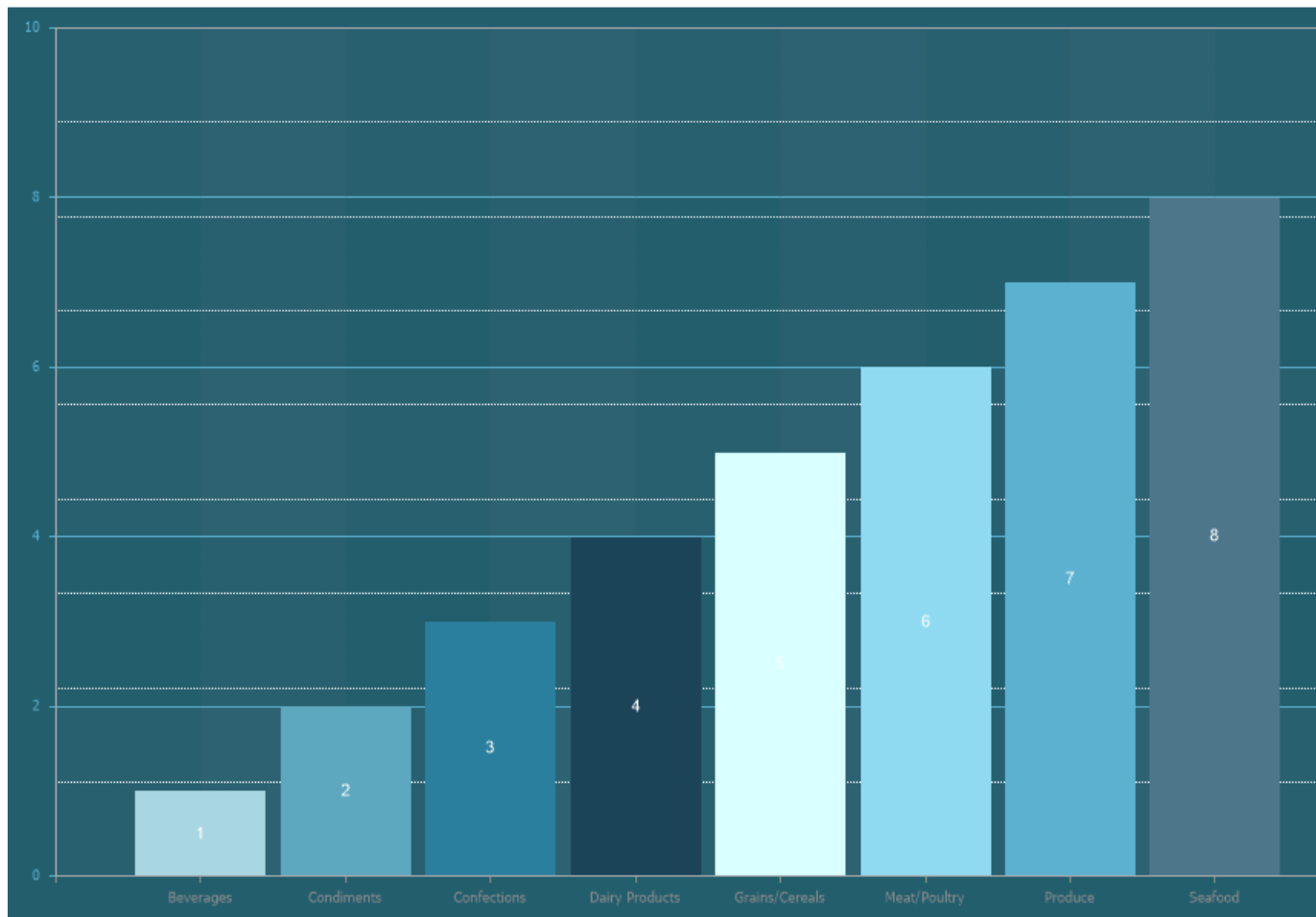
Below is a table of properties used to configure vertical grid lines.

| Name | Description |
|-------------------|---|
| Allow Apply Style | Enables the use of vertical grid line styling settings from the chart style. If this property is set to True , the styling settings for vertical grid lines will be taken from the selected chart style. If set to False , additional properties will be displayed, allowing customization of the main and minor grid line styles and colors. |
| Color | Allows selecting the color of the main vertical grid lines. |
| Minor Color | Allows selecting the color of the minor vertical grid lines. |
| Minor Count | Sets the number of minor vertical grid lines. Minor lines are displayed between the main grid lines at equal intervals. |
| Minor Style | Defines the style of minor grid lines: Solid, Dash, Dash Dot, Dash Dot Dot, Dot, Double . If set to None , minor grid lines will not be displayed. |
| Minor Visible | Enables or disables the display of minor grid lines. If set to True , minor grid lines will be shown. If set to False , they will be hidden. |
| Style | Defines the style of the main grid lines: Solid, Dash, Dash Dot, Dash Dot Dot, Dot, Double . If set to None , neither main nor minor grid lines will be displayed. |
| Visible | Enables or disables the display of the main grid lines. If set to True , the main lines will be displayed. If set to False , they will be hidden. |

4.29.3.8 Grid Lines Right Horizontal

Grid Lines Horizontal Right are lines in the chart area corresponding to each value of the right Y-axis, running parallel to the X-axis. In other words, a line of a specific

style and color will extend from each value of the right Y-axis to the opposite edge of the chart area, parallel to the X-axis.



To set up right horizontal grid lines in the chart area, you need:

- In the component editor, navigate to the **Area** tab and select the **Grid Lines Horizontal Right** section;
- Set the required property values.

Information

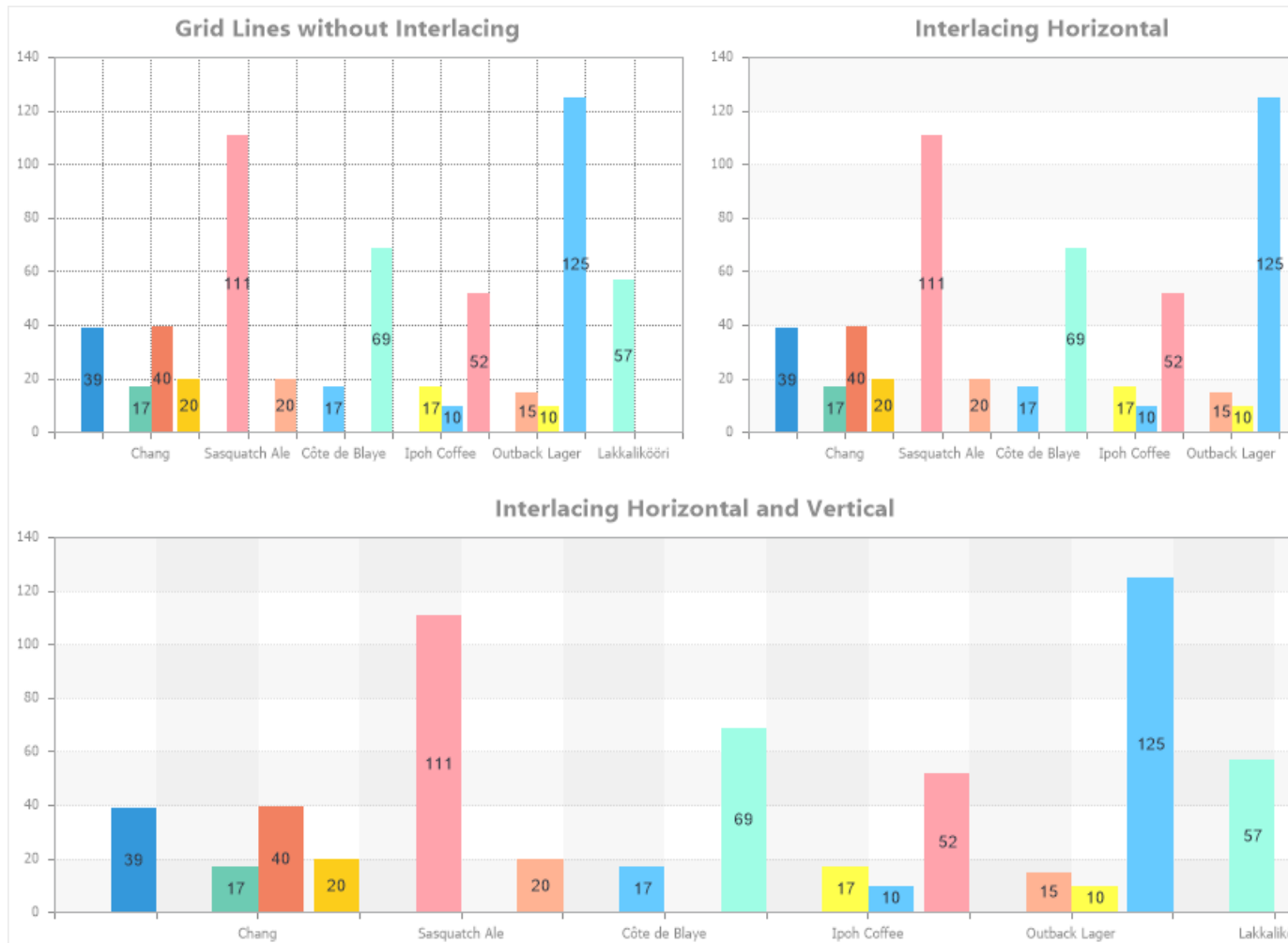
The chart area can also display minor right horizontal grid lines.

Below is a table of properties used to configure right horizontal grid lines.

| Name | Description |
|-------------------|---|
| Allow Apply Style | Enables the use of right horizontal grid line styling settings from the chart style. If this property is set to True , the styling settings for right horizontal grid lines will be taken from the selected chart style. If set to False , additional properties will be displayed, allowing customization of the main and minor grid line styles and colors. |
| Color | Allows selecting the color of the main right horizontal grid lines. |
| Minor Color | Allows selecting the color of the minor right horizontal grid lines. |
| Minor Count | Sets the number of minor right horizontal grid lines. Minor lines are displayed between the main grid lines at equal intervals. |
| Minor Style | Defines the style of minor right grid lines: Solid, Dash, Dash Dot, Dash Dot Dot, Dot, Double . If set to None , minor grid lines will not be displayed. |
| Minor Visible | Enables or disables the display of minor right grid lines. If set to True , minor grid lines will be shown. If set to False , they will be hidden. |
| Style | Defines the style of the main right grid lines: Solid, Dash, Dash Dot, Dash Dot Dot, Dot, Double . If set to None , neither main nor minor grid lines will be displayed. |
| Visible | Enables or disables the display of the main right grid lines. If set to True , the main lines will be displayed. If set to False , they will be hidden. |

4.29.3.9 Interlacing Horizontal

Interlacing Horizontal is the process of filling every second horizontal gap between the Y-axis values across the entire chart area. Horizontal filling can alternate with vertical filling.



To configure interlacing horizontal in the chart area, you need:

- In the component editor, navigate to the Area tab and select the Interlacing Horizontal section;
- Set the required property values.

Below is a table of properties used to configure interlacing horizontal.

| Name | Description |
|------|-------------|
|------|-------------|

| | |
|-------------------|--|
| Allow Apply Style | Enables the use of interlacing horizontal styling settings from the chart style. If this property is set to True , the styling settings for interlacing horizontal will be taken from the selected chart style. If set to False , additional properties will be displayed, allowing you to customize interlacing horizontal appearance, such as brush type and colors. |
| Interlaced Brush | A group of properties that allows configuring the brush type and fill colors for horizontal gaps. This group is visible only when Allow Apply Style is set to False . |
| Visible | Enables or disables filling horizontal gaps with color. If set to True , the horizontal gaps will be filled with a specified color. If set to False , the horizontal gaps will not be filled. |

4.29.3.10 Interlacing Vertical

Interlacing Vertical is the process of filling every second vertical gap between the X-axis values across the entire chart area. Vertical filling can alternate with horizontal filling.



To configure interlacing vertical in the chart area, you need:

- In the component editor, navigate to the **Area** tab and select the **Interlacing Vertical** section;
- Set the required property values.

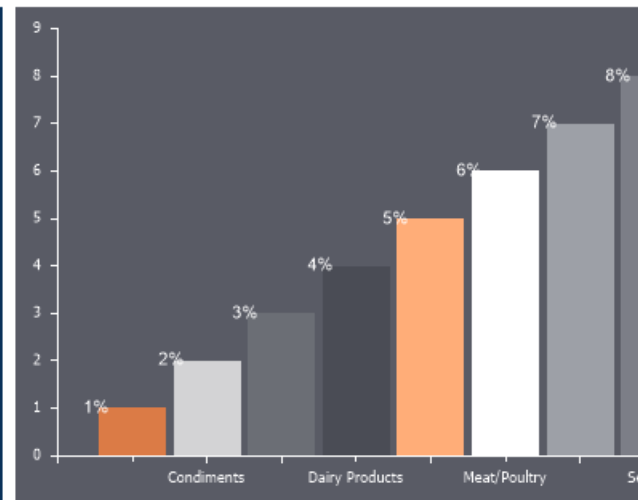
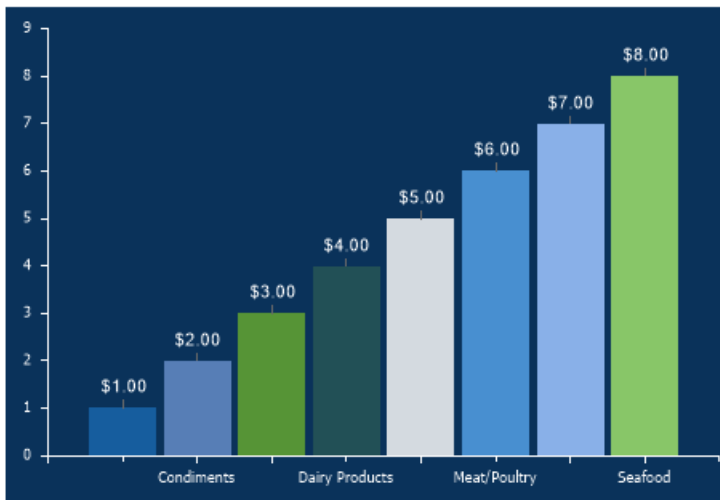
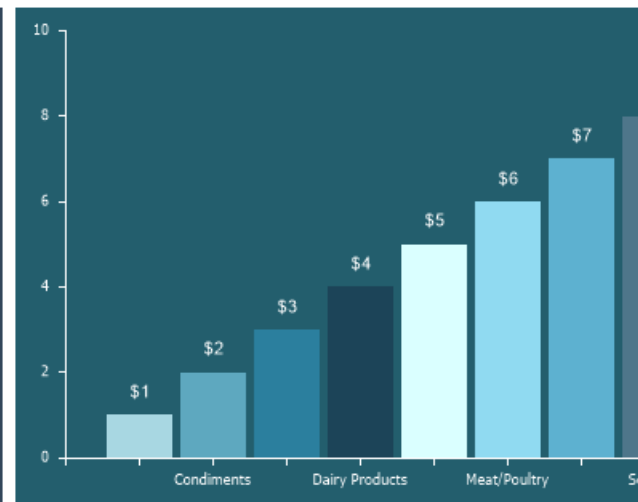
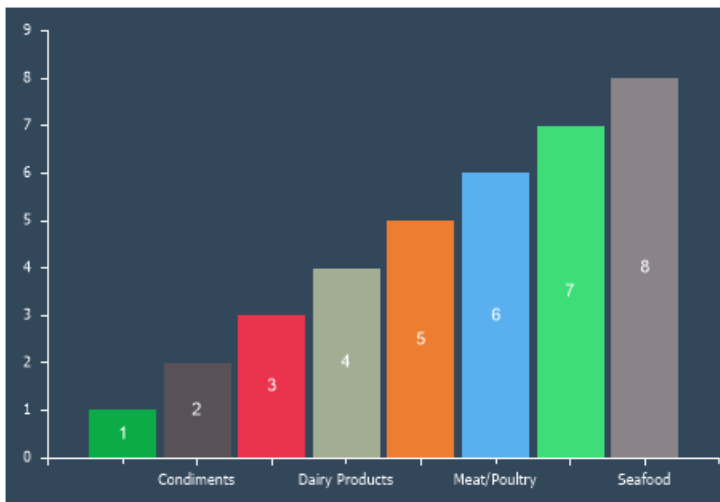
Below is a table of properties used to configure interlacing vertical.

| Name | Description |
|-------------------|---|
| Allow Apply Style | Enables the use of interlacing vertical styling settings from the chart style. If this property is set to True , the styling settings for interlacing vertical will be taken from the selected chart style. If set to False , |

| | |
|------------------|---|
| | additional properties will be displayed, allowing you to customize interlacing vertical appearance, such as brush type and colors. |
| Interlaced Brush | A group of properties that allows configuring the brush type and fill colors for vertical gaps. This group is visible only when Allow Apply Style is set to False. |
| Visible | Enables or disables filling vertical gaps with color. If set to True , the vertical gaps will be filled with a specified color. If set to False , the vertical gaps will not be filled. |

4.29.4 Labels

Labels are a visual representation of values, arguments, tags, series names, and their combinations on or near the graphical elements of series. Labels are similar to series titles but can be applied to all series in a chart, not just the current one.



To configure chart labels, follow these steps:

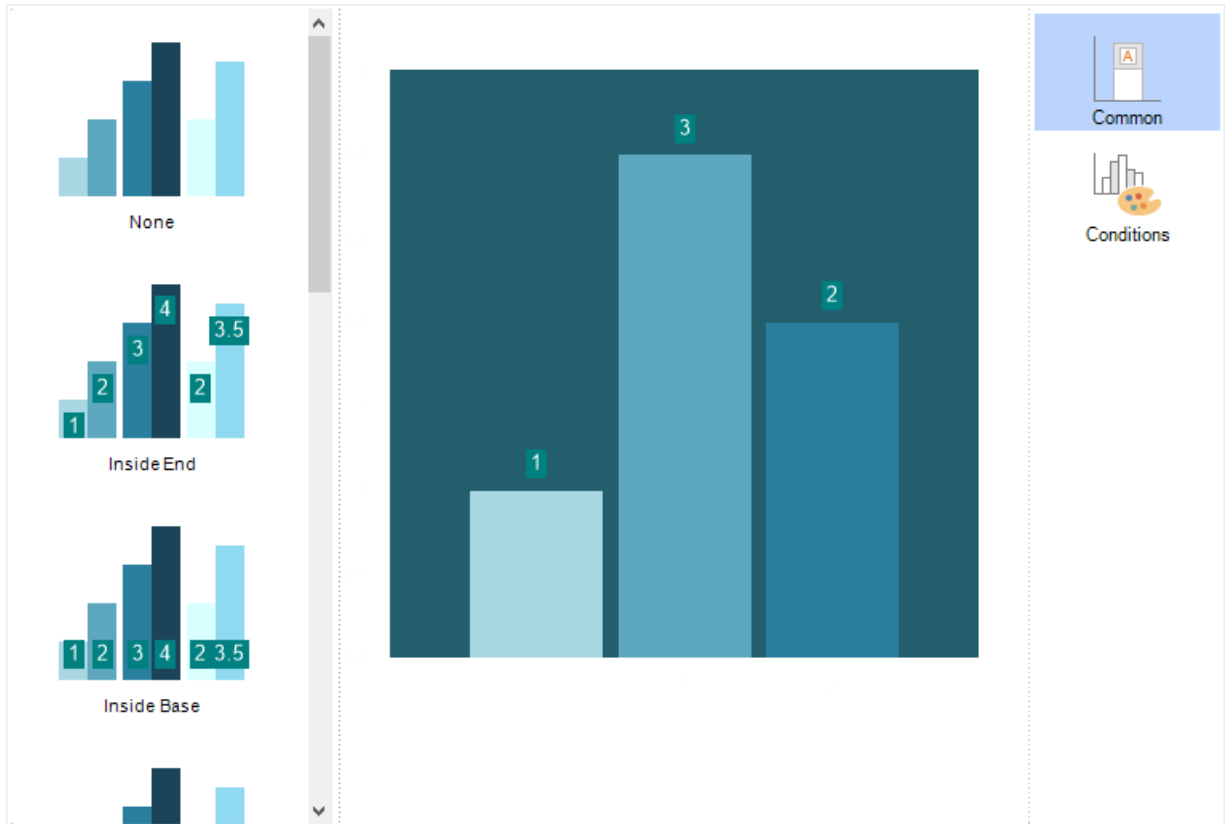
- In the component editor, go to the Labels tab in the Common group;
- Select the label placement type;
- Use the available properties to customize the labels. Conditional formatting can also be applied to labels.

Information

Depending on the chart series, the type and number of labels may vary. Additionally, if labels are not needed, select the **None** type.

4.29.4.1 Common

On the **Common** tab, the type of chart labels is defined, and their configuration is performed using various properties.



Information

Depending on the chart series, the type and number of labels may vary. Additionally, if labels are not needed, select the None type.

Labels will be applied to the values of all chart series where the Show Series Labels parameter is set to From Chart. This property can be modified on the Series tab, under the Series Labels section.

Below is a table of properties and their descriptions, which are used to configure series labels.

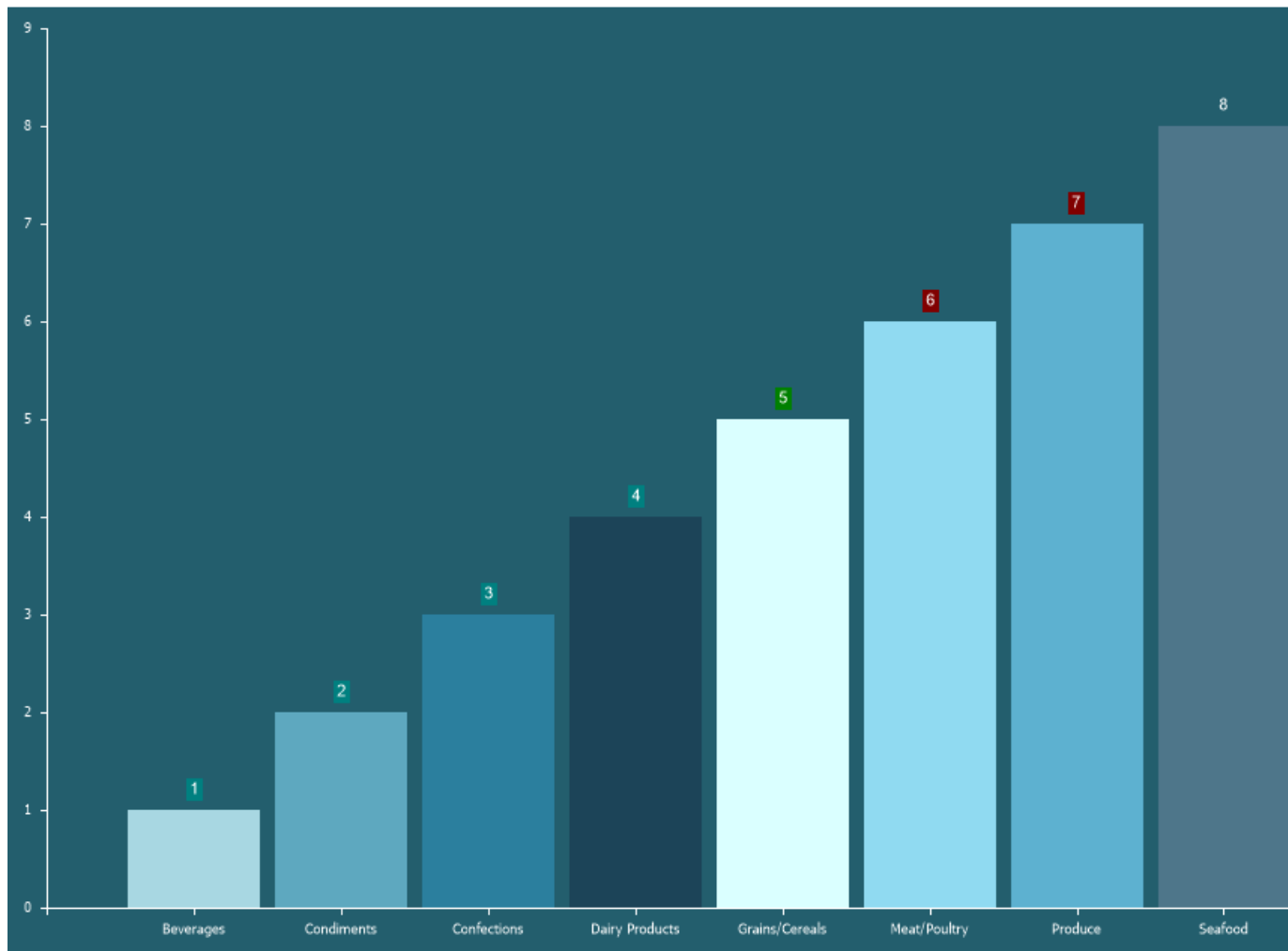
| Name | Description |
|----------------------|--|
| Allow Apply Style | Allows defining whether the title formatting settings will be used from the chart style. If the property is set to True , the title formatting will be taken from the chart style. If set to False , properties for manual title formatting will be displayed. |
| Angle | Allows rotating titles by a specified angle. The value can be positive or negative and represents the rotation angle in degrees. A positive value rotates the title to the right, while a negative value rotates it to the left. |
| Draw Border | Allows enabling or disabling the title border. If set to True , the border will be displayed. If set to False , the border will not be shown. Note that if the title formatting settings are taken from the chart style, this property will be irrelevant. |
| Format | Allows selecting a format mask (numeric, currency, percentage, etc.). |
| Legend Value Type | Allows defining the value to be displayed in the legend. The available options include Argument , Weight , Series Title , Tag , Series Value , or their combination. |
| Marker Alignment | Allows aligning the marker relative to the title. The marker can be positioned left, right, or centered. This property is relevant only if the marker display is enabled. |
| Marker Size | Allows changing the marker size in pixels. This property is relevant only if the marker display is enabled. |
| Marker Visible | Allows enabling or disabling the title marker. If set to True , the title marker will be displayed. If set to False , the title marker will not be shown. |
| Prevent Intersection | Allows avoiding title overlap. If set to True , |

| | |
|----------------------|---|
| | titles will be arranged to prevent overlapping. If set to False , titles will be displayed even if they overlap. |
| Show in percent | Allows applying a P2 percentage format mask to title values. |
| Show Nulls | Allows enabling or disabling titles for null values. If set to True , titles for null values will be displayed. If set to False , they will not be shown. |
| Show Zeros | Allows enabling or disabling titles for zero values. If set to True , titles for zero values will be displayed. If set to False , they will not be shown. |
| Step | Allows defining the display step for titles. For example, if set to 2, titles will be displayed only for every second graphical element. |
| Text After | Allows specifying text after the title. |
| Text Before | Allows specifying text before the title. |
| Use Series Color | Allows setting the title color to match the series color. If set to True , the series color will be used (from the chart style or the Common tab). If set to False , the title color will be taken from the title style or the Color property. |
| Value Type | Allows defining the value to be displayed in the graphical element title. The available options include Argument , Weight , Series Title , Tag , Series Value , or their combination. |
| Value Type Separator | Allows setting a separator if a mixed title type is used. For example, if both Value and Argument are displayed in the title, a separator like "-" can be used. In this case, the title will be displayed in the format |

| | "Value-Argument." |
|-----------|--|
| Visible | Allows enabling or disabling the title display. If set to True , the title will be shown. If set to False , the title will not be displayed. |
| Width | Allows specifying the title width. By default, the value is set to 0, meaning the title width is limited by the chart area. |
| Word Wrap | Allows enabling word wrapping for the title when the maximum width is reached. If set to True , the title text will wrap automatically. If set to False , text wrapping will not occur. This parameter is relevant only if the Width property is greater than zero. |

4.29.4.2 Conditions

Conditional Formatting of Labels allows changing the background of labels when a specific condition is met.



To apply conditional formatting to labels, you need:

- In the component editor, go to the **Labels** tab and open the **Conditions** section;
- Click the **Add Condition** button;
- Configure the conditional formatting using the Condition Editor.

Condition Editor

In the Condition Editor, you can define the color that will be applied to the label background and specify the condition for applying this color.

| | | | |
|------------|-----------|------------|-------|
| Field Is | Data Type | Condition | Value |
| Argument 1 | String 2 | equal to 3 | |
| Color | | | |
| White 5 | | | |

1 **Field Is** determines the field from which the original values will be taken—either from the series values or arguments.

2 **Data Type** defines the data type of the condition value. This parameter affects how the report generator processes the condition and determines the list of available condition operations.

3 **Condition** specifies the logical comparison operation between the series value and the condition value.

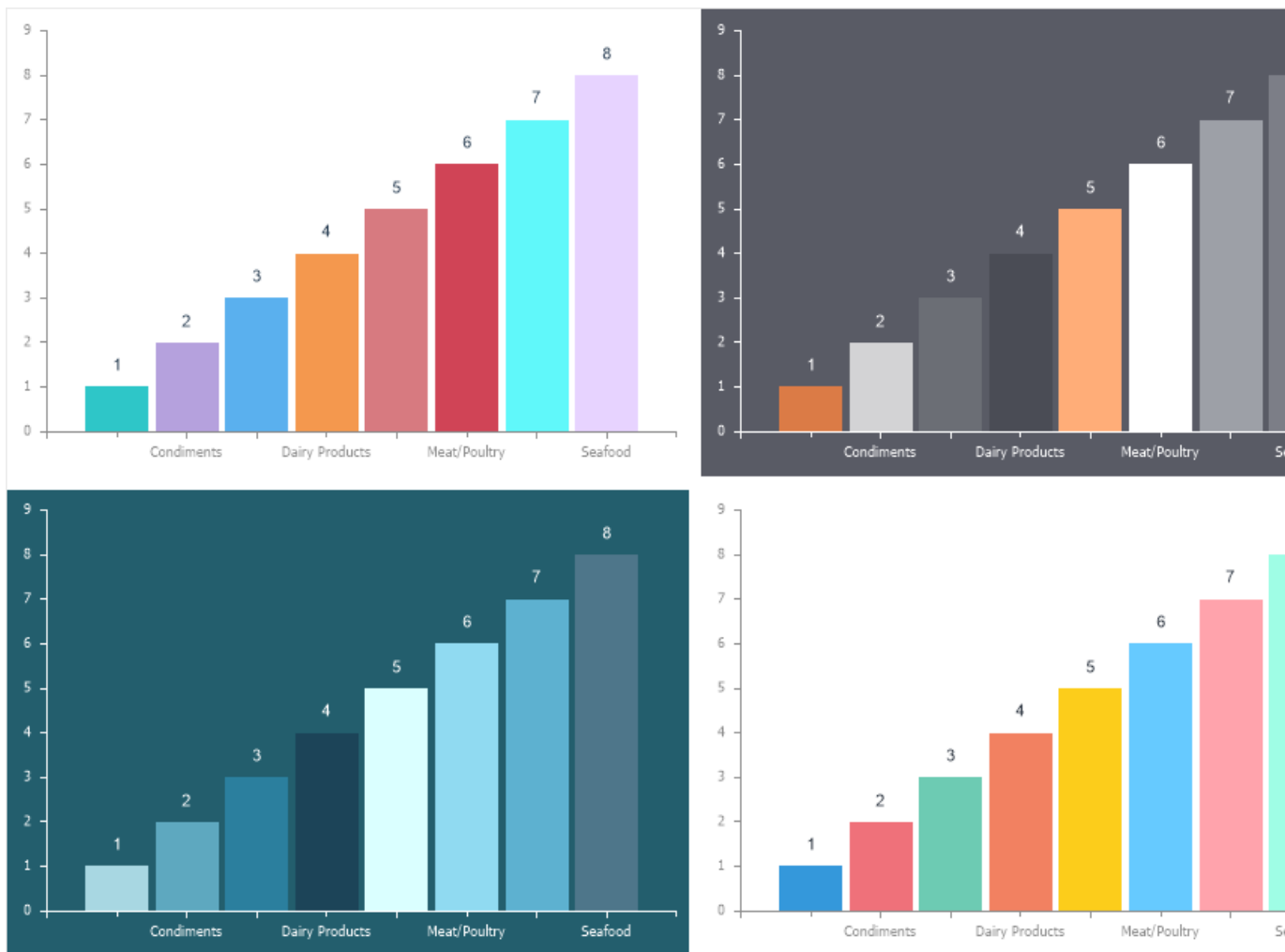
The type of operation by which the value of a condition is calculated.

4 **Value** sets the specific value for the condition.

5 **Color** defines the color to be applied to the label background when the condition is met.

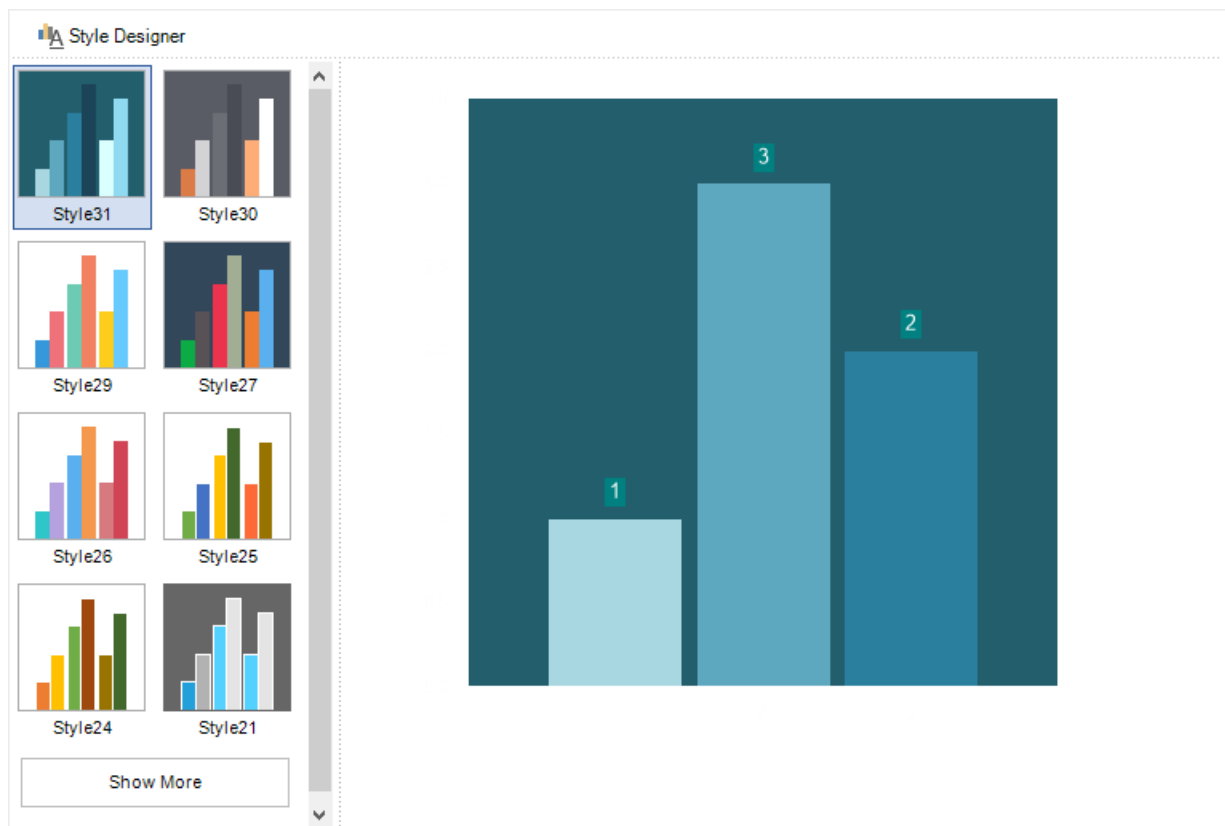
4.29.5 Style

A chart style is a collection of formatting settings for various elements of the chart component. At any given time, only one style can be applied to a chart. However, for certain chart elements, individual formatting can be customized by disabling the style application.



When designing reports with charts, more than 30 built-in styles are available for this component. You can change the **Chart** component style by:

- Selecting the component in the report template and choosing a style using the quick style selection menu on the **Home** tab of the report designer's Ribbon panel;
- Opening the component editor, navigating to the **Styles** tab, and selecting the desired style from the list.



For the **Chart** component, the following can be used:

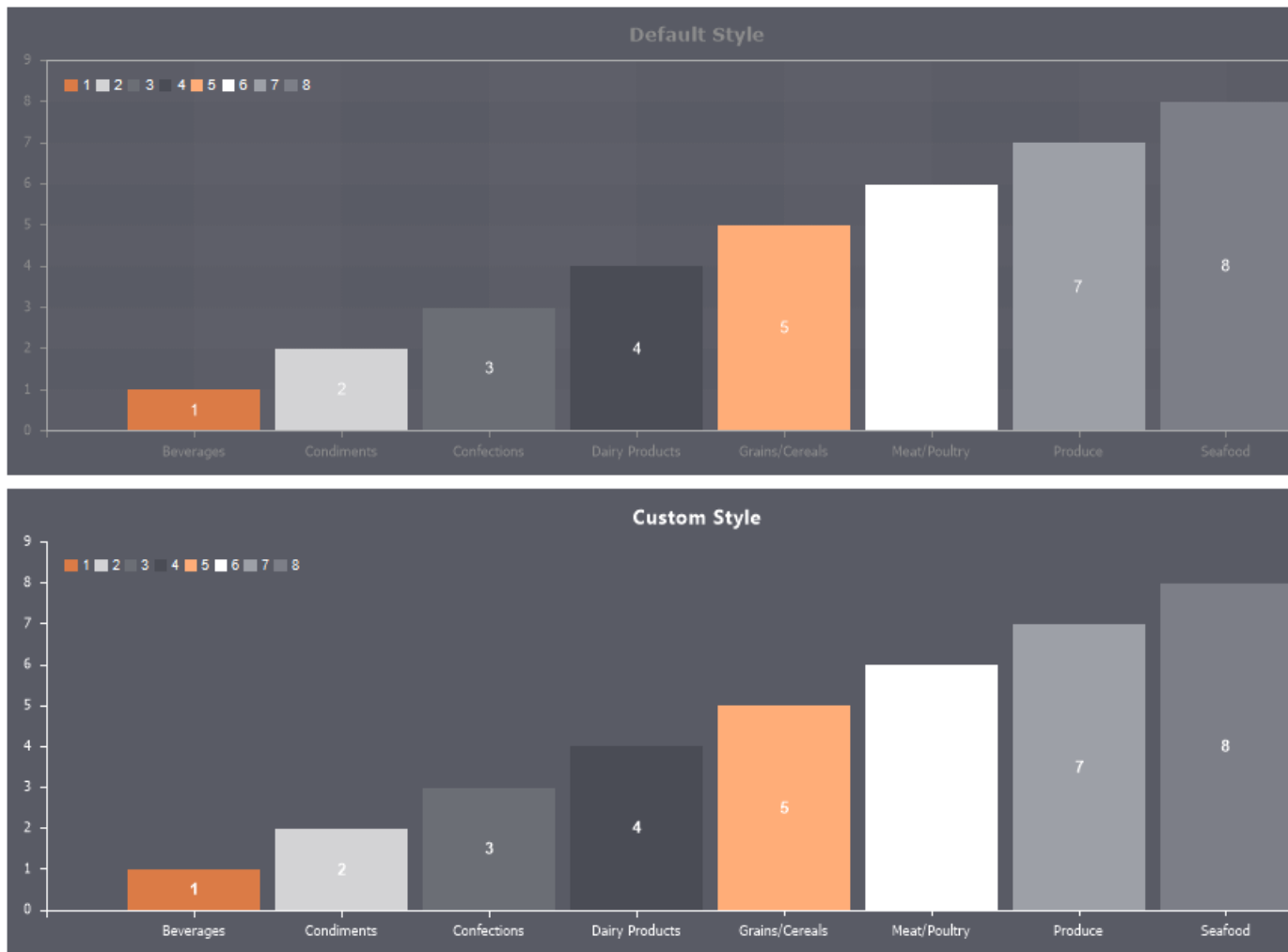
- A predefined style;
- A custom style, created in the style designer;
- A combined style, where a predefined style is applied first, and then specific elements are customized manually in the **Chart** component editor.

Information

The key property that determines where the formatting settings for chart elements are taken from is **Allow Apply Style**. If set to **True**, the chart element settings will be taken from the assigned style. If set to **False**, the formatting must be manually defined using properties in the Chart component editor.

4.29.5.1 Creating Custom Style

A custom chart style is created in the Style Designer.



To create a chart style, you need:

- Open the Style Designer by clicking the corresponding button in the **Styles** tab of the **Chart** component editor or on the **Home** tab of the report designer's Ribbon panel;
- Create a new Chart style by clicking **Add Style** in the **Style Designer** and selecting **Chart**;
- Configure the formatting using the style properties.

Information

Predefined chart styles can't be edited. However, a custom style can be created based on a predefined one and then customized. To do this:

- Assign a predefined style to the **Chart** component and select the component;

- › Open the Style Designer and click **Get Style from Selected Components**;
- › Customize the retrieved style using its properties;
- › Assign the newly created custom style to the **Chart** component.

Below is a table of properties used to configure the chart style.

| Name | Description |
|-----------------------------|---|
| Axis Labels Color | Allows setting the color of X-axis and Y-axis labels. |
| Axis Line Color | Allows setting the color of the X-axis and Y-axis lines. |
| Axis Title Color | Allows setting the color of X-axis and Y-axis titles. |
| Basic Style Color | Allows defining the primary color of the chart. This color is used for chart elements that do not have color settings in the style, such as bars. |
| Border | Allows modifying the color, style, type, and size of the Chart component borders, as well as enabling border shadows. |
| Brush | Allows setting the brush type and fill color for the Chart component area. |
| Brush Type | Allows setting the brush type for chart graphic elements. |
| Chart Area Border Color | Allows setting the color of the chart area border. |
| Chart Area Brush | Allows defining the brush type and fill color for the chart area. |
| Chart Area Show Shadow | Allows enabling or disabling chart area shadows. If set to True , shadows will be displayed; if False , they will not. |
| Grid Lines Horizontal Color | Allows setting the color of horizontal grid lines in the chart area. To hide the lines, |

| | |
|------------------------------|---|
| | select a color identical to the background or choose a transparent color. |
| Grid Lines Vertical Color | Allows setting the color of vertical grid lines in the chart area. To hide the lines, select a color identical to the background or choose a transparent color. |
| Interlacing Horizontal Brush | Allows defining the brush type and color for horizontal striping. To disable horizontal striping, set the Horizontal Brush property to None . |
| Interlacing Vertical Brush | Allows defining the brush type and color for vertical striping. To disable vertical striping, set the Vertical Brush property to None . |
| Legend Border Color | Allows setting the legend border color. To remove the border, choose a transparent color. |
| Legend Brush | Allows defining the brush type and fill color for the chart legend. |
| Legend Labels Color | Allows setting the legend labels color. |
| Legend Title Color | Allows setting the legend title color. By default, the legend title is empty (disabled). |
| Marker Visible | Allows enabling or disabling markers on the chart. |
| Series Labels Border Color | Allows setting the border color for series titles or value labels in the chart. |
| Series Labels Brush | Allows defining the brush type and fill color for series titles or value labels in the chart. |
| Series Labels Color | Allows setting the color of series titles or value labels in the chart. |
| Labels Line Color | Allows defining the line color connecting graphic elements to series titles or value labels. |

| | |
|------------------------|--|
| Series Lighting | Allows enabling or disabling border highlighting for pie or donut series. If set to True , highlighting is enabled; if False , it is disabled. |
| Series Show Shadow | Allows enabling or disabling shadows for chart series elements. If set to True , shadows are enabled; if False , they are disabled. |
| Style Colors | <p>Allows creating a color collection for the style. These colors are applied sequentially to series elements: the first color is used for the first series, the second for the second series, and so on.</p> <p>If the Color Each parameter is enabled for series, the colors from the collection will be applied to the graphic elements first. Then, shades for the remaining graphic elements will be generated by lightening these colors.</p> |
| Trend Line Color | Allows setting the trendline color. This property is relevant if a trendline is applied to the chart. |
| Trend Line Show Shadow | Allows enabling or disabling the trendline shadow. If set to True , the shadow will be enabled; if False , it will be disabled. |

4.29.6 Charts Properties

Main Properties

1. Chart

| Property name | Description |
|-------------------|--------------------------------|
| Chart Type | Chart Type |
| Area | Properties of the current area |

| | |
|----------------------|--------------------------------|
| Legend | Properties of the chart legend |
| Series | A collection of chart series |
| Series Labels | Properties of series labels |
| Style | Sets a Chart style |

2. Chart Additional

| Property name | Description |
|---------------------------|---|
| Constant Lines | Sets a collection of constant lines of chart |
| Process at End | Sets that a chart is processed at the end of the report execution |
| Rotation | Sets a rotation angle of a chart |
| Horizontal Spacing | Sets horizontal spacing between the chart area and axis area |
| Vertical Spacing | Sets vertical spacing between the chart area and axis area |
| Strips | Sets a collection of chart strips |
| Title | Sets chart title properties |

3. Data

| Property name | Description |
|-------------------------|---|
| Data Source | Get data source that is used for getting data |
| Data Relation | Get the link that is used for master-detail reports rendering |
| Master Component | Gets or sets the master component |
| Count Data | Gets or sets the count of rows for virtual data |
| Filter On | Gets or sets value indicates, that the filter is on |
| Filters | Gets or sets a collection of filters of chart data |
| Sort | Gets or sets the array of strings that describes rules of sorting |

4. Position

| Property name | Description |
|-----------------|---|
| Left | Gets or sets the distance between the left edge of the component and the left edge of its container's client area |
| Top | Gets or sets top position of the component |
| Width | Gets or sets width of the component |
| Height | Gets or sets height of the component |
| Min Size | Gets or sets minimal size |
| Max Size | Gets or sets maximal size |

5. Appearance

| Property name | Description |
|--------------------------|--|
| Brush | Gets or sets a brush to fill a component |
| Border | Gets or sets frame of the component |
| Conditions | Gets or sets a component condition |
| Use Parent Styles | Gets or sets a value which indicates that this component must use styles from parent component |

6. Behavior

| Property name | Description |
|-----------------------|---|
| Grow to Height | Gets or sets value which indicates that the height of this component increases/decreases to the bottom of a container |
| Dock Style | Gets or sets a type of the component docking |
| Enabled | Gets or sets a value which indicates will this component be available |
| Interaction | |
| Printable | Gets or sets value which indicates whether a component is printable |
| Print on | Gets or sets value which indicates on which pages |

| | |
|-------------------|--|
| | component will be printed |
| Shift Mode | Gets or sets value which indicates the shift mode of a component |

7. Design

| Property name | Description |
|---------------------|---|
| Name | Gets or sets a component name |
| Alias | Gets or sets a text that will be shown instead of a component name. If the text is not indicated then the name is shown |
| Restrictions | Gets or sets value which indicates the restrictions of a component |
| Locked | Gets or sets a value which indicates that moving is locked |
| Linked | Gets or sets value, indicates that the object snap to the container is turned on |

Axis Area Properties

| Property name | Description |
|------------------------------------|--|
| Brush | Gets or sets a brush to fill area |
| Border Color | Gets or sets border color of area |
| Color Each | Gets or sets value which indicates that each series is drawn by its own color |
| Grid Lines Horizontal | Gets or sets horizontal grid lines on left axis |
| Grid Lines Horizontal Right | Gets or sets horizontal grid lines on right axis |
| Grid Lines Vertical | Gets or sets grid lines on vertical axis |
| Interlacing Horizontal | Gets or sets interlacing settings on horizontal axis |
| Interlacing Vertical | Gets or sets interlacing settings on vertical axis |
| Reverse Horizontal | Gets or sets value which indicates that all values on horizontal axis are reversed |

| | |
|-------------------------|--|
| Reverse Vertical | Gets or sets value which indicates that all values on vertical axis are reversed |
| Show Shadow | Gets or sets value which indicates whether it is necessary to draw shadow |
| X Axis | Gets or sets settings of XAxis |
| X Top Axis | Gets or sets settings of XTopAxis |
| Y Axis | Gets or sets settings of YAxis |
| Y Right Axis | Gets or sets settings of YRightAxis |

Pie Area Properties

| Property name | Description |
|---------------------|---|
| Brush | Gets or sets a brush to fill area |
| Border Color | Gets or sets border color of area |
| Show Shadow | Gets or sets value which indicates whether it is necessary to draw shadow |

Doughnut Area Properties

| Property name | Description |
|---------------------|---|
| Brush | Gets or sets a brush to fill area |
| Border Color | Gets or sets border color of area |
| Color Each | Gets or sets value which indicates that each series is drawn by its own color |
| Show Shadow | Gets or sets value which indicates whether it is necessary to draw shadow |

Legend Properties

| Property name | Description |
|-----------------------------|--|
| Brush | Gets or sets a brush to fill a legend |
| Direction | Gets or sets direction of a legend |
| Horizontal Alignment | Gets or sets the text horizontal alignment of a legend |

| | |
|---------------------------|---|
| Vertical Alignment | Gets or sets the vertical alignment of a legend |
| Marker Alignment | Gets or sets the marker alignment |
| Border Color | Gets or sets a border color of a legend |
| Columns | Gets or sets a columns count of a legend |
| Font | Gets or sets a font of a legend |
| Horizontal Spacing | Gets or sets horizontal spacing from a legend border |
| Labels Color | Gets or sets a color of a legend text |
| Marker Size | Gets or sets marker size |
| Marker Visible | Gets or sets visibility of marker |
| Show Shadow | Gets or sets value which indicates whether it is necessary to draw shadow |
| Size | Gets or sets legend size |
| Title | Gets or sets legend title |
| Title Color | Gets or sets legend color |
| Title Font | Gets or sets legend font |
| Vertical Spacing | Gets or sets vertical spacing from a legend border |
| Visible | Gets or sets whether a legend should be visible |

Title Properties

| Property name | Description |
|---------------------|---|
| Alignment | Gets or sets horizontal alignment of a title |
| Antialiasing | Gets or sets anti aliasing of a title text |
| Brush | Gets or sets a brush to fill a title |
| Dock | Gets or sets a side to which a title will be docked |
| Font | Gets or sets a font of a title |
| Spacing | Gets or sets spacing from a title |
| Text | Gets or sets a title text |
| Visible | Gets or sets whether a title should be visible |

Series Labels Properties

| Property Name | Description |
|-----------------------------|---|
| Brush | Gets or sets a brush to fill a series labels |
| Font | Gets or sets a font of a series labels |
| Marker Alignment | Gets or sets marker alignment |
| Angle | Gets or sets angle of a text rotation |
| Antialiasing | Gets or sets anti aliasing of text titles |
| Border Color | Gets or sets a border color of a series labels |
| Draw Border | Gets or sets a value that indicates whether the border for Series Labels is drawn |
| Format | Gets or sets a text format |
| Label Color | Gets or sets label color |
| Legend Value Type | Gets or sets legend type value |
| Marker Size | Gets or sets marker size |
| Marker Visible | Gets or sets a value that indicates whether a marker is visible |
| Prevent Intersection | Gets or sets a value that includes algorithm of preventing intersection with the X axis |
| Show on Zero Values | Gets or sets forcibly showing zero values |
| Step | Gets or sets a step of showing series labels |
| Text After | Gets or sets a text that is shown after series |
| Text Before | Gets or sets a text that is shown before series |
| Use Series Color | Gets or sets a value that indicates whether colors are set for series are used |
| Value Type | Gets or sets a type of parameter that will be used in a series label |
| Visible | Gets or sets a value that indicates visibility of series labels |

Series Labels (None) Properties

| Property Name | Description |
|---------------|-------------|
|---------------|-------------|

| | |
|----------------------------|--|
| Marker Alignment | Gets or sets marker alignment |
| Angle | Gets or sets angle of a text rotation |
| Draw Border | Gets or sets a value that indicates whether border for series labels should be drawn |
| Format | Gets or sets text formatting |
| Legend Value Type | Gets or sets legend value type |
| Marker Size | Gets or sets marker size |
| Marker Visible | Gets or sets whether a marker should be visible |
| Show on Zero Values | Gets or sets force showing zero values |
| Step | Gets or sets a step of showing series labels |
| Text After | Gets or sets a text that is shown after series |
| Text Before | Gets or sets a text that is shown before series |
| Use Series Color | Gets or sets a value that indicates whether colors are set for series are used |
| Value Type | Gets or sets a type of parameter that will be used in a series label |

Series Labels (Outside) Properties

| Property Name | Description |
|--------------------------|--|
| Brush | Gets or sets a brush to fill a series labels |
| Font | Gets or sets a font of a series labels |
| Marker Alignment | Gets or sets marker alignment |
| Angle | Gets or sets angle of a text rotation |
| Antialiasing | Gets or sets anti aliasing of Series Labels |
| Border Color | Gets or sets a border color of series labels |
| Draw Border | Gets or sets a value that indicates whether border for series labels should be drawn |
| Format | Gets or sets text formatting |
| Label Color | Gets or sets label color |
| Legend Value Type | Gets or sets legend value type |

| | |
|----------------------------|--|
| Line Length | Gets or sets length of a connecting line of a series label |
| Marker Size | Gets or sets marker size |
| Marker Visible | Gets or sets whether a marker should be visible |
| Show on Zero Values | Gets or sets force showing zero values |
| Step | Gets or sets a step of showing series labels |
| Text After | Gets or sets a text that is shown after series |
| Text Before | Gets or sets a text that is shown before series |
| Use Series Color | Gets or sets a value that indicates whether colors are set for series are used |
| Value Type | Gets or sets a type of parameter that will be used in a series label |
| Visible | Gets or sets a value that indicates visibility of series labels |

Axis Properties

| Property Name | Description |
|-------------------------|---|
| Arrow Style | Gets or sets arrow style |
| Labels | Gets or sets labels |
| Line Color | Gets or sets line color |
| Line Style | Gets or sets line style |
| Line Width | Gets or sets line width |
| Range | Gets or sets range |
| Show Edge Values | Gets or sets show edge values |
| Start From Zero | Gets or sets a value that indicates how a chart should be shown on the chart area |
| Step | Gets or sets step |
| Ticks | Gets or sets ticks |
| Title | Gets or sets a title |
| Visible | Gets or sets a value that indicates visibility of axis |

Grid Lines Properties

| Property Name | Description |
|----------------------|-------------------------------------|
| Color | Gets or sets color |
| Minor Color | Gets or sets minor ticks color |
| Minor Count | Gets or sets minor ticks count |
| Minor Style | Gets or sets minor ticks style |
| Minor Visible | Gets or sets minor ticks visibility |
| Style | Gets or sets style |
| Visible | Gets or sets visibility |

Interlacing Properties

| Property Name | Description |
|-------------------------|-------------------------------|
| Interlaced Brush | Gets or sets Interlaced Brush |
| Visible | Gets or sets visibility |

Clustered Column, Clustered Bar, Stacked Column, Full-Stacked Column, Stacked Bar Series Properties

1. Data

| Property Name | Description |
|--------------------------------------|---|
| Conditions | Gets or sets a collection of conditions |
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets sort direction |
| Auto Series Key Data Column | Gets or sets a data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| Auto Series Title Data | Gets or sets a data column name that defines a title of |

| | |
|---------------|------------------------------|
| Column | automatically created series |
|---------------|------------------------------|

2. Appearance

| Property Name | Description |
|---------------------|-----------------------------|
| Border Color | Gets or sets a border color |
| Brush | Gets or sets a series brush |
| Show Shadow | Gets or sets a shadow |

3. Behavior

| Property Name | Description |
|---------------------------|---|
| Show Zeros | Gets or sets a value that visualizes zero values of series |
| Width | Gets or sets a series column width |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |

4. Argument

| Property Name | Description |
|-----------------------------|---|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |

| | |
|-----------------------|--|
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

Line, Scatter Line Series Properties

1. Data

| Property Name | Description |
|--------------------------------------|---|
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets a direction of sorting |
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |

2. Appearance

| Property Name | Description |
|----------------------|--|
| Labels Offset | Gets or sets vertical offset of labels in relation to its first position |
| Lighting | Gets or sets line lighting |
| Line Color | Gets or sets line color |
| Line Style | Gets or sets line style |
| Line Width | Gets or sets line width |
| Marker Color | Gets or sets marker color |
| Marker Size | Gets or sets marker size |

| | |
|--------------------|----------------------------|
| Marker Type | Gets or sets marker type |
| Show Shadow | Gets or sets series shadow |

3. Behavior

| Property Name | Description |
|---------------------------|---|
| Show Marker | Gets or sets marker showing |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets series title |

4. Argument

| Property Name | Description |
|-----------------------------|---|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

Stepped Line Series Properties

1. Data

| Property Name | Description |
|--------------------------------------|---|
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets direction of sorting |
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |

2. Appearance

| Property Name | Description |
|----------------------|--|
| Labels Offset | Gets or sets vertical offset of labels in relation to its first position |
| Lighting | Gets or sets line lighting |
| Line Color | Gets or sets line color |
| Line Style | Gets or sets line style |
| Line Width | Gets or sets line width |
| Marker Color | Gets or sets marker color |
| Marker Size | Gets or sets marker size |
| Marker Type | Gets or sets marker type |
| Show Shadow | Gets or sets whether a shadow must be shown |

3. Behavior

| Property Name | Description |
|---------------|-------------|
|---------------|-------------|

| | |
|---------------------------|---|
| Point at Center | Gets or sets showing a value by the center of a line |
| Show Marker | Gets or sets marker showing |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |

4. Argument

| Property Name | Description |
|-----------------------------|---|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

Spline, Scatter Spline Series Properties

1. Data

| Property Name | Description |
|----------------|--------------------------------------|
| Filters | Gets or sets a collection of filters |

| | |
|--------------------------------------|---|
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets direction of sorting |
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |

2. Appearance

| Property Name | Description |
|----------------------|--|
| Labels Offset | Gets or sets vertical offset of labels in relation to its first position |
| Lighting | Gets or sets line lighting |
| Line Color | Gets or sets line color |
| Line Style | Gets or sets line style |
| Line Width | Gets or sets line width |
| Marker Color | Gets or sets marker color |
| Marker Size | Gets or sets marker size |
| Marker Type | Gets or sets marker type |
| Show Shadow | Gets or sets whether a shadow must be shown |

3. Behavior

| Property Name | Description |
|----------------------|--|
| Show Marker | Gets or sets marker showing |
| Tension | Gets or sets tension of a line |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |

| | |
|---------------------------|---|
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |

4. Argument

| Property Name | Description |
|-----------------------------|---|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

Area Series Properties

1. Data

| Property Name | Description |
|-----------------------|---|
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets direction of sorting |

| | |
|--------------------------------------|---|
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |

2. Appearance

| Property Name | Description |
|----------------------|--|
| Brush | Gets or sets a brush |
| Labels Offset | Gets or sets vertical offset of labels in relation to its first position |
| Lighting | Gets or sets line lighting |
| Line Color | Gets or sets line color |
| Line Style | Gets or sets line style |
| Line Width | Gets or sets line width |
| Marker Color | Gets or sets marker color |
| Marker Size | Gets or sets marker size |
| Marker Type | Gets or sets marker type |
| Show Shadow | Gets or sets whether a shadow must be shown |

3. Behavior

| Property Name | Description |
|---------------------------|---|
| Show Marker | Gets or sets marker showing |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |

4. Argument

| Property Name | Description |
|-----------------------------|---|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

Stepped Area Series Properties

1. Data

| Property Name | Description |
|--------------------------------------|---|
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets direction of sorting |
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |

| | |
|--------------------------------------|--|
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |
|--------------------------------------|--|

2. Appearance

| Property Name | Description |
|----------------------|--|
| Brush | Gets or sets a brush |
| Labels Offset | Gets or sets vertical offset of labels in relation to its first position |
| Lighting | Gets or sets line lighting |
| Line Color | Gets or sets line color |
| Line Style | Gets or sets line style |
| Line Width | Gets or sets line width |
| Marker Color | Gets or sets marker color |
| Marker Size | Gets or sets marker size |
| Marker Type | Gets or sets marker type |
| Show Shadow | Gets or sets whether a shadow must be shown |

3. Behavior

| Property Name | Description |
|---------------------------|---|
| Point at Center | Gets or sets showing a value by the center of a line |
| Show Marker | Gets or sets marker showing |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |

4. Argument

| Property Name | Description |
|---------------|-------------|
|---------------|-------------|

| | |
|-----------------------------|---|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

Spline Area Series Properties

1. Data

| Property Name | Description |
|--------------------------------------|---|
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets direction of sorting |
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |

2. Appearance

| Property Name | Description |
|----------------------|--|
| Brush | Gets or sets a brush |
| Labels Offset | Gets or sets vertical offset of labels in relation to its first position |
| Lighting | Gets or sets line lighting |
| Line Color | Gets or sets line color |
| Line Style | Gets or sets line style |
| Line Width | Gets or sets line width |
| Marker Color | Gets or sets marker color |
| Marker Size | Gets or sets marker size |
| Marker Type | Gets or sets marker type |
| Show Shadow | Gets or sets whether a shadow must be shown |

3. Behavior

| Property Name | Description |
|---------------------------|---|
| Show Marker | Gets or sets marker showing |
| Tension | Gets or sets tension of a line |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |

4. Argument

| Property Name | Description |
|-----------------------------|--|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |

| | |
|--------------------------|---|
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |
|--------------------------|---|

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

Stacked Line, Full-Stacked Line Series Properties

1. Data

| Property Name | Description |
|--------------------------------------|---|
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets direction of sorting |
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |

2. Appearance

| Property Name | Description |
|-------------------|----------------------------|
| Lighting | Gets or sets line lighting |
| Line Color | Gets or sets line color |

| | |
|---------------------|---|
| Line Style | Gets or sets line style |
| Line Width | Gets or sets line width |
| Marker Color | Gets or sets marker color |
| Marker Size | Gets or sets marker size |
| Marker Type | Gets or sets marker type |
| Show Shadow | Gets or sets whether a shadow must be shown |

3. Behavior

| Property Name | Description |
|---------------------------|---|
| Show Marker | Gets or sets marker showing |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |

4. Argument

| Property Name | Description |
|-----------------------------|---|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: |

| | |
|-----------------------|---|
| | {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values.
For example: 1;2;3 |

Stacked Spline, Full-Stacked Spline Series Properties

1. Data

| Property Name | Description |
|--------------------------------------|---|
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets direction of sorting |
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |

2. Appearance

| Property Name | Description |
|---------------------|---|
| Lighting | Gets or sets line lighting |
| Line Color | Gets or sets line color |
| Line Style | Gets or sets line style |
| Line Width | Gets or sets line width |
| Marker Color | Gets or sets marker color |
| Marker Size | Gets or sets marker size |
| Marker Type | Gets or sets marker type |
| Show Shadow | Gets or sets whether a shadow must be shown |

3. Behavior

| Property Name | Description |
|---------------------------|---|
| Show Marker | Gets or sets marker showing |
| Tension | Gets or sets tension of a line |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |

4. Argument

| Property Name | Description |
|-----------------------------|---|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

Stacked Area, Full-Stacked Area Series Properties**1. Data**

| Property Name | Description |
|---------------|-------------|
|---------------|-------------|

| | |
|--------------------------------------|---|
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets direction of sorting |
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |

2. Appearance

| Property Name | Description |
|---------------------|---|
| Brush | Gets or sets a brush |
| Lighting | Gets or sets line lighting |
| Line Color | Gets or sets line color |
| Line Style | Gets or sets line style |
| Line Width | Gets or sets line width |
| Marker Color | Gets or sets marker color |
| Marker Size | Gets or sets marker size |
| Marker Type | Gets or sets marker type |
| Show Shadow | Gets or sets whether a shadow must be shown |

3. Behavior

| Property Name | Description |
|----------------------|--|
| Show Marker | Gets or sets marker showing |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |

| | |
|---------------------------|---|
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |

4. Argument

| Property Name | Description |
|-----------------------------|---|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

Stacked Spline Area, Full-Stacked Spline Area Series Properties

1. Data

| Property Name | Description |
|-----------------------|---|
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets direction of sorting |

| | |
|--------------------------------------|---|
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |

2. Appearance

| Property Name | Description |
|---------------------|---|
| Brush | Gets or sets a brush |
| Lighting | Gets or sets line lighting |
| Line Color | Gets or sets line color |
| Line Style | Gets or sets line style |
| Line Width | Gets or sets line width |
| Marker Color | Gets or sets marker color |
| Marker Size | Gets or sets marker size |
| Marker Type | Gets or sets marker type |
| Show Shadow | Gets or sets whether a shadow must be shown |

3. Behavior

| Property Name | Description |
|---------------------------|---|
| Show Marker | Gets or sets marker showing |
| Tension | Gets or sets tension of a line |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |

4. Argument

| Property Name | Description |
|-----------------------------|---|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

Pie, Doughnut Series Properties

1. Data

| Property Name | Description |
|--------------------------------------|---|
| Conditions | Gets or sets a collection of conditions |
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets direction of sorting |
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |

| | |
|--------------------------------------|--|
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |
|--------------------------------------|--|

2. Appearance

| Property Name | Description |
|---------------------|---|
| Border Color | Gets or sets series border color |
| Brush | Gets or sets a brush |
| Diameter | Gets or sets static diameter of a chart. If the value is zero, then the diameter will be calculated automatically |
| Lighting | Gets or sets line lighting |
| Show Shadow | Gets or sets whether a shadow must be shown |

3. Behavior

| Property Name | Description |
|---------------------------|---|
| Start Angle | Gets or sets the start angle of chart drawing |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |
| Distance | Gets or sets a distance to pull out a chart slice |
| Cut Pie List | Gets or sets a list of pulled out slices |

4. Argument

| Property Name | Description |
|-----------------------------|--|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of |

arguments. For example: 1;2;3

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

Gantt Series Properties

1. Data

| Property Name | Description |
|--------------------------------------|---|
| Conditions | Gets or sets a collection of conditions |
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets direction of sorting |
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |

2. Appearance

| Property Name | Description |
|---------------------|-----------------------------|
| Border Color | Gets or sets a border color |
| Brush | Gets or sets a brush |

| | |
|--------------------|---|
| Show Shadow | Gets or sets whether a shadow must be shown |
|--------------------|---|

3. Behavior

| Property Name | Description |
|---------------------------|---|
| Show Zeros | Gets or sets a value that visualizes zero values of series |
| Width | Gets or sets a series column width |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |

4. Argument

| Property Name | Description |
|-----------------------------|---|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

5. Value

| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

6. Value End

| Property Name | Description |
|------------------------------|--|
| Value Data Column End | Gets or sets a data column name that indicates a value of data |
| Value End | Gets or sets an expression of the end value. For example: {Order.Value} |
| List of Values End | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

Scatter Series Properties

1. Data

| Property Name | Description |
|--------------------------------------|---|
| Filters | Gets or sets a collection of filters |
| Format | Gets or sets a data format in what series labels will be shown |
| Sort by | Gets or sets a selection of data sorting by values, arguments, or without sorting |
| Sort Direction | Gets or sets direction of sorting |
| Auto Series Key Data Column | Gets or sets data column name with the key-value that is used to create series automatically |
| Auto Series Color Data Column | Gets or sets a data column name that defines color of automatically created series. The color should be represented as a string |
| Auto Series Title Data Column | Gets or sets a data column name that defines a title of automatically created series |

2. Appearance

| Property Name | Description |
|----------------------|--|
| Labels Offset | Gets or sets vertical offset of labels in relation to its first position |
| Marker Color | Gets or sets marker color |
| Marker Size | Gets or sets marker size |
| Marker Type | Gets or sets marker type |

| | |
|--------------------|---|
| Show Shadow | Gets or sets whether a shadow must be shown |
|--------------------|---|

3. Behavior

| Property Name | Description |
|---------------------------|---|
| Show Marker | Gets or sets marker showing |
| Y Axis | Gets or sets axis to what a series is assigned |
| Series Labels | Gets or sets series labels for this series |
| Show in Legend | Gets or sets value that allows showing series label in a legend |
| Show Series Labels | Gets or sets which type of series labels will be used: from chart settings or from settings from the series |
| Title | Gets or sets a series title |

4. Argument

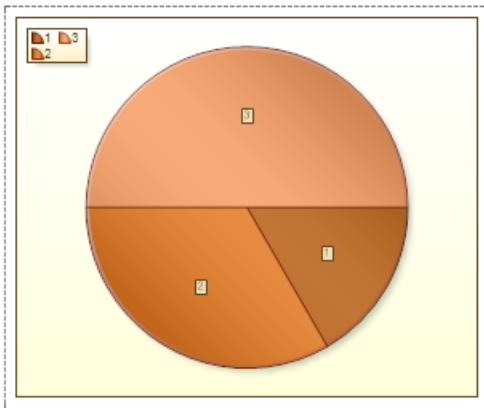
| Property Name | Description |
|-----------------------------|---|
| Argument Data Column | Gets or sets a data column name that indicates a value of an argument |
| Argument | Gets or sets an expression of an argument. For example: {Order.Argument} |
| List of Arguments | Gets or sets an expression that indicates a list of arguments. For example: 1;2;3 |

5. Value

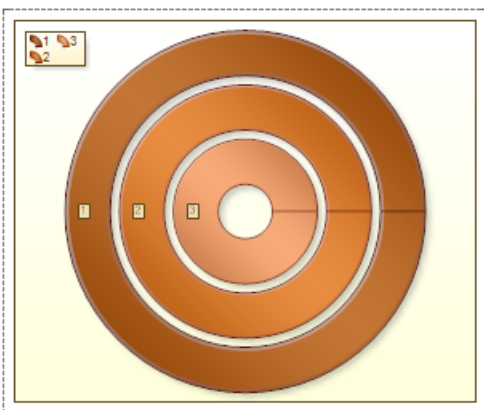
| Property Name | Description |
|--------------------------|--|
| Value Data Column | Gets or sets a data column name that indicates a value of data |
| Value | Gets or sets an expression of a value. For example: {Order.Value} |
| List of Values | Gets or sets an expression that indicates a list of values. For example: 1;2;3 |

4.29.6.1 Area

Circular area or area without axes is a space where charts can be placed without axes. A circular area includes the main elements of the chart: series, chart title and a legend. In the area without axes the following chart types may be placed: **Pie** and **Doughnut**. The difference between these types of charts is that, for Pie type of a chart, rows are arranged in series. And for the Doughnut chart - rings. The picture below shows an example of a Pie chart, with three series:

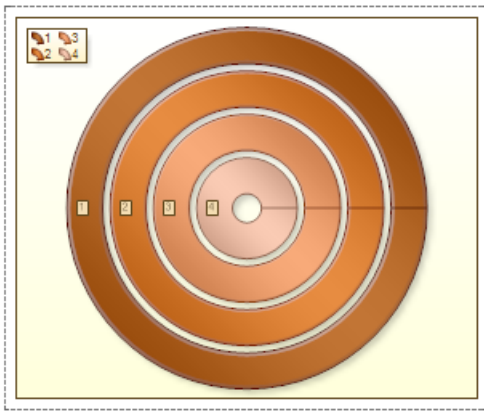


As can be seen from the picture, the series are arranged consecutively in a clockwise direction. In the Doughnut chart, the number of rows will match the number of rings. The picture below shows an example of a chart that has three rows:



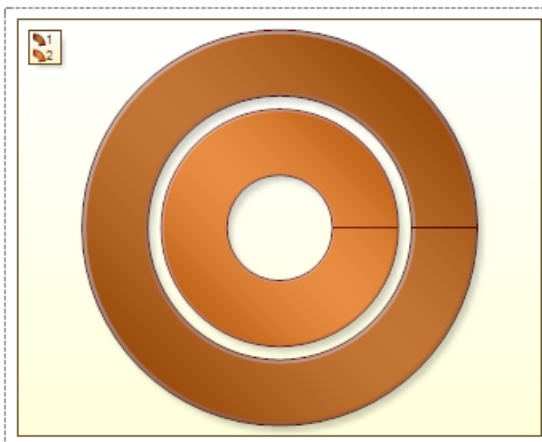
4.29.6.1.1 Doughnut

The **Doughnut** chart is circular chart divided into sectors. It has a blank center and the ability to support multiple statistics as one. Doughnut illustrates proportion. On the picture below the doughnut chart sample is represented:

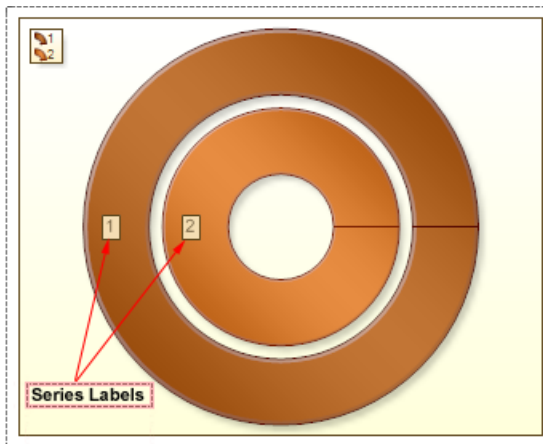


4.29.6.1.1.1 Series Labels

Series Labels can only be placed in the center on the doughnut chart. The **Series Labels** may have two values: **None** and **Center**. If the **Series Labels** property is set to **None**, then labels are not shown. The picture below shows the doughnut with no labels:

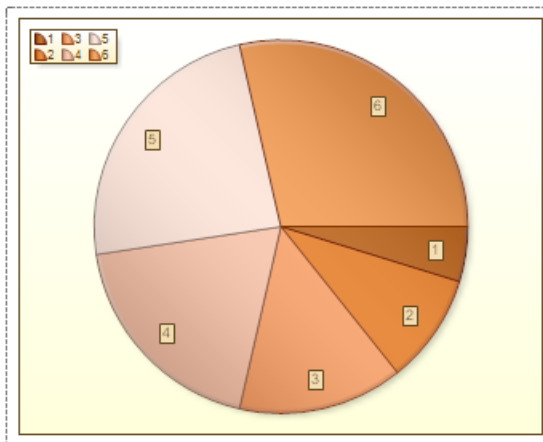


If the **Series Labels** property is set to **Center**, then labels are shown in the center of the chart ring. The picture below shows the doughnut with labels:



4.29.6.1.2 Pie

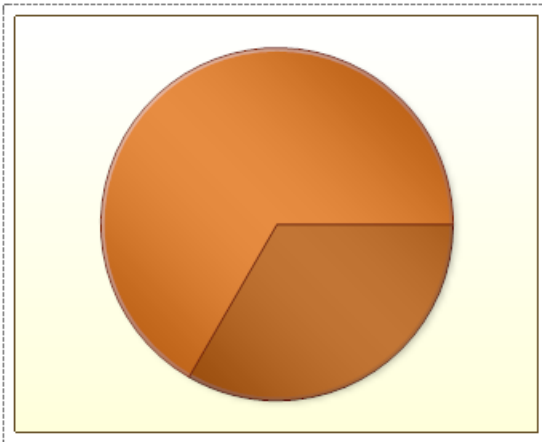
The **Pie** chart (or a circle graph) is a circular chart divided into sectors, illustrating proportion. Each Series is a part of a chart. In a pie chart, each sector is proportional to the quantity it represents. Together, the sectors create a full disk.



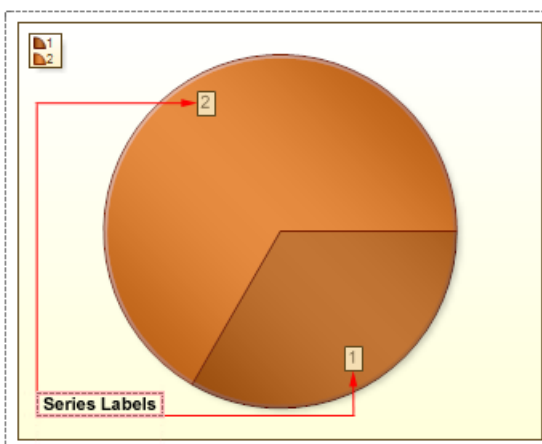
4.29.6.1.2.1 Series Labels

The location series labels, in the pie chart, depends on the value of the **SeriesLabels** property. This property may take the following values: None, Inside End, Center, Outside, Two Columns.

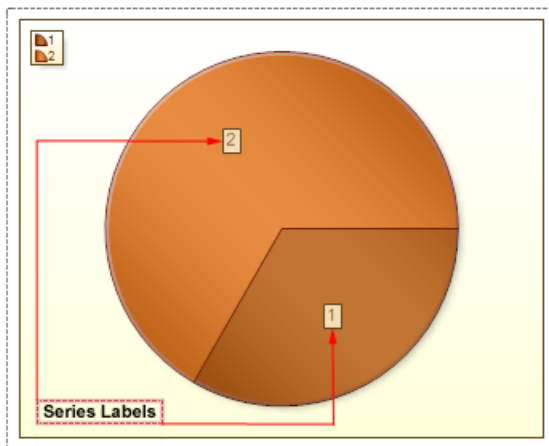
➤ **None.** Series Labels are not shown. The picture below shows an example of a Pie chart with the **Series Labels** set to **None**:



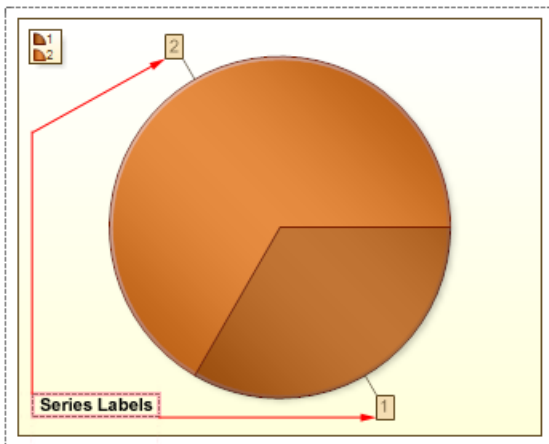
➤ **Inside End.** Series Labels are displayed inside the slice and far from the center. The picture below shows an example of a Pie chart with the **Series Labels** set to **Inside End**:



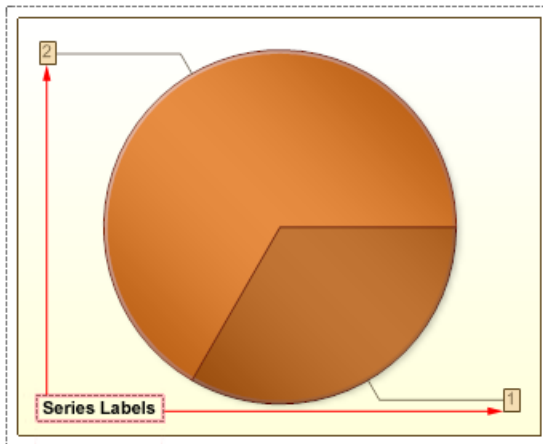
➤ **Center.** Series Labels are displayed in the center of the slice. The picture below shows an example of a Pie chart with the **Series Labels** set to **Center**:



➤ **Outside.** Series Labels are displayed outside the chart, but in a Pie area. The picture below shows an example of a Pie chart with the **Series Labels** set to **Outside**:

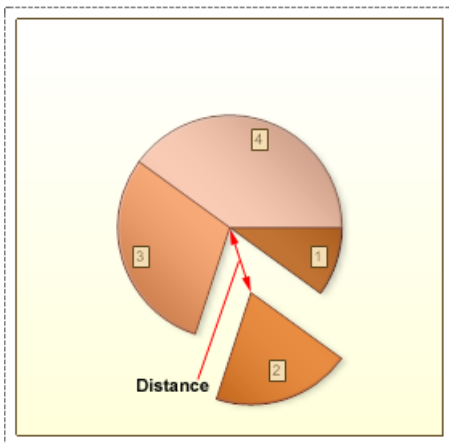


➤ **Two Columns.** Series Labels are displayed outside the chart in two columns: on the left and right of the chart. The picture below shows an example of a Pie chart with the **Series Labels** set to **Two Columns**:



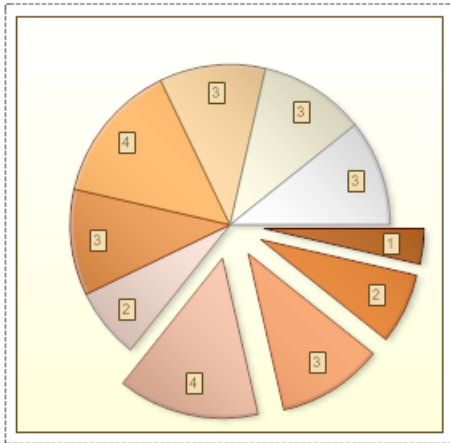
4.29.6.1.2.2 CutPieList Property

The Pie chart represents an opportunity to display the contribution of each value to a total while emphasizing individual values. To select a segment in a pie chart and pull it out, it is necessary, in the **Series Editor**, to specify values for the **Distance** and **CutPieList** properties of a series. The **Distance** property indicates the distance from the center of the chart to the nearest point of the pull out segment. The **CutPieList** property has a list of series to be pulled out, separated with ';'. The picture below shows an example of a pie chart, with the second slice of the first series pulled out. The distance is 60-hundredths of inches:



If the field of the **CutPieList** property is filled, and the field of the **Distance** property is not filled, then the segments will not be pulled out. If the field of the **Distance** property is filled, and the field **CutPieList** property is not filled, then all segments of this series will be pulled out to the distance, which corresponds to the value of the **Distance** property. The picture below shows an example of a chart with all segments of the series 1 being pulled out, because the field of the **CutPieList** property was

not filled, and the **Distance** property is set to 30-hundredths of an inch:

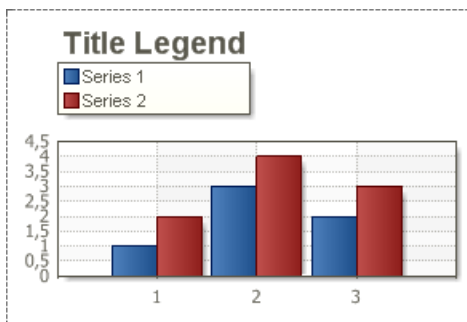


4.29.6.2 Legend

The chart may include a legend. A legend contains a list of the variables appearing in the chart and an example of their appearance. This information allows the data from each variable to be identified in the chart. The legend can be placed at any part of the chart.

4.29.6.2.1 Title Property

The **Title** property of the Legend allows setting the Legend title. The full path to this property is **Legend.Title**. If the field of the **Title** property is not filled then the Legend title is not shown. The **Title** is shown over the Legend. The picture below shows a sample of the Chart with Legend where the "Title Legend" is the Legend title:



The **Title** property has the following properties:

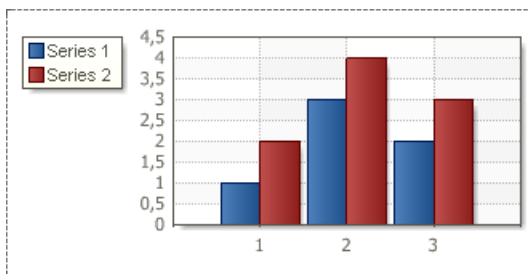
- ✓ **TitleColor** - sets the Title color;
- ✓ **TitleFont** - sets the Title font size and font style.

4.29.6.2.2 HorizontalAlignment Property

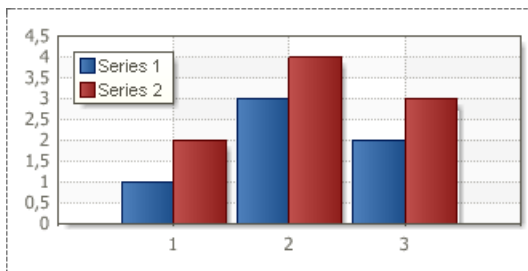
The **HorizontalAlignment** property of the Legend allows aligning the Legend position horizontally. The full path to this property is **Legend.HorizontalAlignment**. The property has the following values: **Left Out Side**, **Left**, **Center**, **Right**, **Right Out Side**.

Description of values:

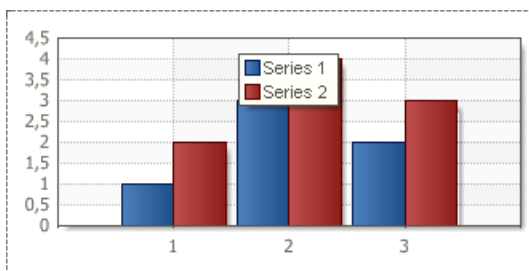
➤ **Left Out Side**. The legend will be placed outside the Chart area on the left. The picture below shows where the Legend will be placed if the **HorizontalAlignment** property is set to **Left Out Side**:



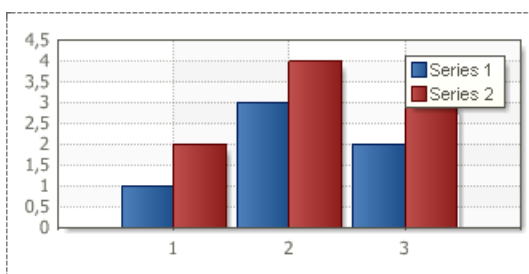
➤ **Left**. The legend will be placed inside the Chart area on the left. The picture below shows where the Legend will be placed if the **HorizontalAlignment** property is set to **Left**:



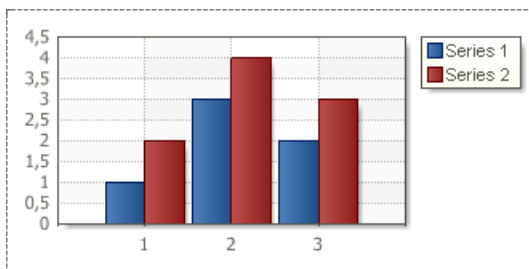
➤ **Center**. The legend will be placed inside the Chart area in the center. The picture below shows where the Legend will be placed if the **HorizontalAlignment** property is set to **Center**:



➤ **Right.** The legend will be placed inside the Chart area on the right. The picture below shows where the Legend will be placed if the **Horizontal Alignment** property is set to **Right**:



➤ **Right Out Side.** The legend will be placed outside the Chart area on the right. The picture below shows where the Legend will be placed if the **Horizontal Alignment** property is set to **Right Out Side**:



By default the **HorizontalAlignment** property is set to **Left**.

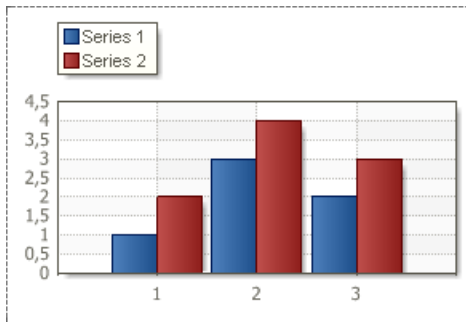
4.29.6.2.3 VerticalAlignment Property

The **Vertical Alignment** property of the Legend allows aligning the Legend position vertically. The full path to this property is **Legend.VerticalAlignment**. The property has the following values: **Top Out Side**, **Top**, **Center**, **Bottom**, **Bottom Out Side**.

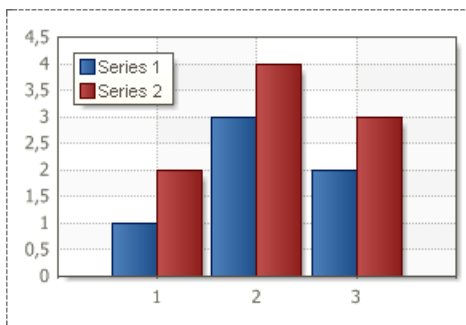
Description of values:

➤ **Top Out Side.** The legend will be placed above and outside the Chart area. The picture below shows where the Legend will be placed if the **Vertical Alignment**

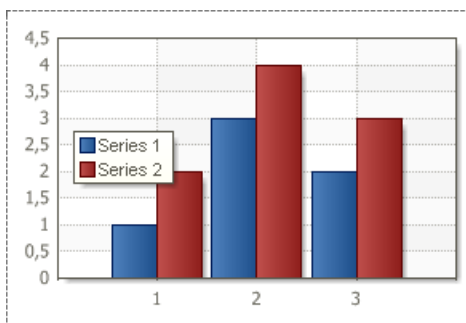
property is set to **Top Out Side**:



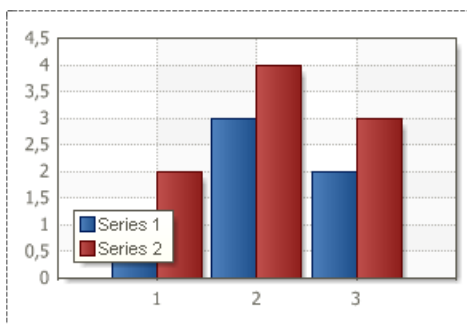
➤ **Top.** The legend will be placed inside the Chart area on the top. The picture below shows where the Legend will be placed if the **Vertical Alignment** property is set to **Top**:



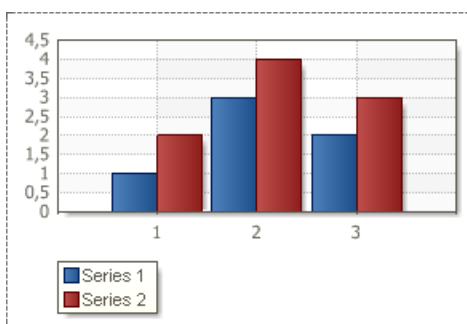
➤ **Center.** The legend will be placed inside the Chart area and vertically in the center. The picture below shows where the Legend will be placed if the **Vertical Alignment** property is set to **Center**:



➤ **Bottom.** The legend will be placed inside the Chart area on the bottom. The picture below shows where the Legend will be placed if the **Vertical Alignment** property is set to **Bottom**:



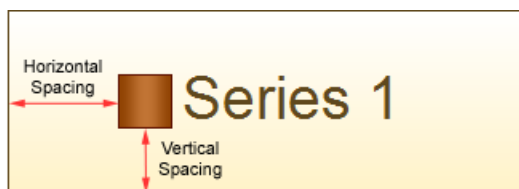
➤ **Bottom Out Side.** The legend will be placed under and outside the Chart area. The picture below shows where the Legend will be placed if the **Vertical Alignment** property is set to **Bottom Out Side**:



By default the **Vertical Alignment** property is set to **Top**.

4.29.6.2.4 Horizontal Spacing and Vertical Spacing Properties

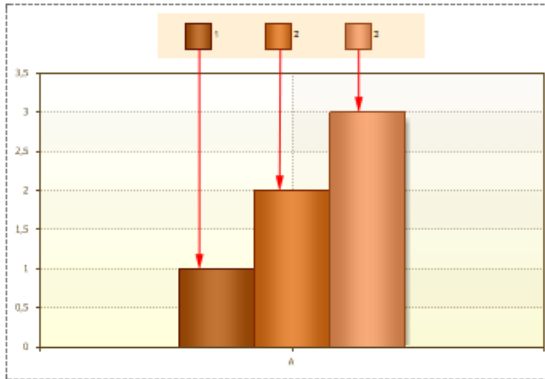
The **Horizontal Spacing** and **Vertical Spacing** properties allow setting the spacing (horizontal and vertical, respectively) between the Legend edge and the information on series. The full paths to these properties is **Legend.HorizontalSpacing** and **Legend.VerticalSpacing**. The picture below shows in arrows the horizontal and vertical spacing between the Legend edge and the Series 1:



These properties can take numeric values, and are required for filling. If values of the **Horizontal Spacing** and **Vertical Spacing** properties are negative, then the legend can be unreadable. The minimum value of these properties is 0.

4.29.6.2.5 Marker

The **Marker** is an icon that indicates the chart row. The number of markers correspond to the number of rows. On the picture below a sample of chart with three rows and markers for them is shown:



4.29.6.2.5.1 Direction Property

The **Direction** allows selecting the order of showing markers. The full path to this property is **Legend.Direction**. The property has the following values: **Top to Bottom**, **Bottom to Top**, **Left to Right**, **Right to Left**.

Description of values:

➤ **Top to Bottom**. Markers are shown in the "from top to bottom" order. The picture below shows a sample of the Legend which the **Direction** property is set to **Top to Bottom**:



➤ **Bottom to Top**. Markers are shown in the "from bottom to top" order. The picture below shows a sample of the Legend which the **Direction** property is set to **Bottom to Top**:



➤ **Left to Right**. Markers are shown in the "from left to right" order. The picture below shows a sample of the Legend which the **Direction** property is set to **Left to Right**:



➤ **Right to Left.** Markers are shown in the "from right to left" order. The picture below shows a sample of the Legend which the **Direction** property is set to **Right to Left**:



By default the **Direction** property is set to **Top to Bottom**.

4.29.6.2.5.2 Columns Property

The **Columns** property allows changing the number of columns vertically or horizontally depending on the value of the **Direction** property. The full path to this property is **Legend.Columns**. The picture below shows a sample of the Legend which markers are split into two horizontal columns (the **Direction** property is set to **Top to Bottom**):



If you set the **Columns** property to **2**, and set the **Direction** property to **Left to Right**, then markers will be split into two vertical columns. The picture below shows a sample of the Legend which markers are split into two vertical columns (the **Direction** property is set to **Left to Right**):



The **Columns** property may have any value greater than **0**. This property must be set. It cannot be left empty.

4.29.6.2.5.3 Marker Alignment Property

The **Marker Alignment** property allows aligning markers either left or right from the "**Series**" name. The full path to this property is **Legend.Marker Alignment**. If the **Marker Alignment** property is set to **Left**, then the marker will be placed on the left

from the "**series**" name. The picture below shows a sample of the Legend which the **Marker Alignment** property is set to **Left**:



If the **Marker Alignment** property is set to **Right**, then the marker will be placed on the right from the "**series**" name. The picture below shows a sample of the Legend which the **Marker Alignment** property is set to **Right**:



By default the **Marker Alignment** property is set to **Left**.

4.29.6.2.5.4 MarkerVisible Property

The **MarkerVisible** property allows showing/hiding the legend markers. The full path to this property is **Legend.MarkerVisible**. If the **MarkerVisible** property is set to **true**, then markers are shown. The picture below shows a sample of the Legend which the **MarkerVisible** property is set to **true**:



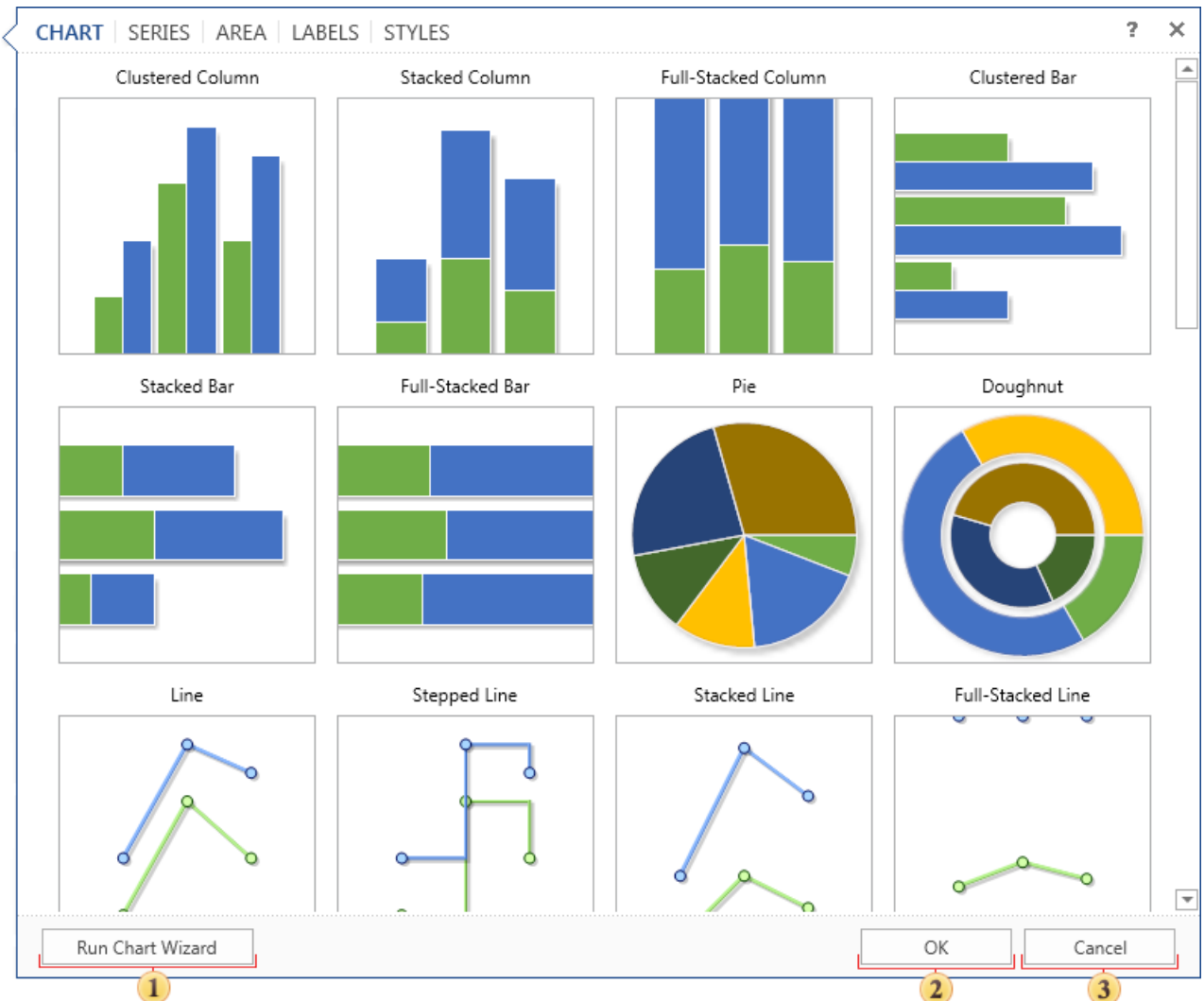
If the **MarkerVisible** property is set to **false**, then the Legend markers are hidden. The picture below shows a sample of the Legend which the **MarkerVisible** property is set to **false**:



By default the **MarkerVisible** is set to **true**.

4.29.7 Charts Editor

When you add the component Chart in the report template, the chart editor is called. This editor is used to create the chart: defining the types of rows, data sources, styles, and other settings. A chart can be created using the wizard or manually. Below is a diagram editor.



- ❶ The button **Run Chart Wizard**.
- ❷ When you press this button, a chart of a certain type with the specified parameters is created.
- ❸ Pressing this button cancels the creation of a chart but the component remains is the report template.

As can be seen from the picture above, the chart editor contains the following tabs:

- **Chart**. Defined the Chart type;
- **Series**. Defines the parameters of the series;
- **Area**. Sets areas with axes;
- **Labels**. Sets chart labels;
- **Styles**. Sets the style for the chart.

4.29.7.1 Tab Chart

The tab **Chart** defines the parameters relating to the diagrams. These parameters are grouped depending on the selected group on the property panel.

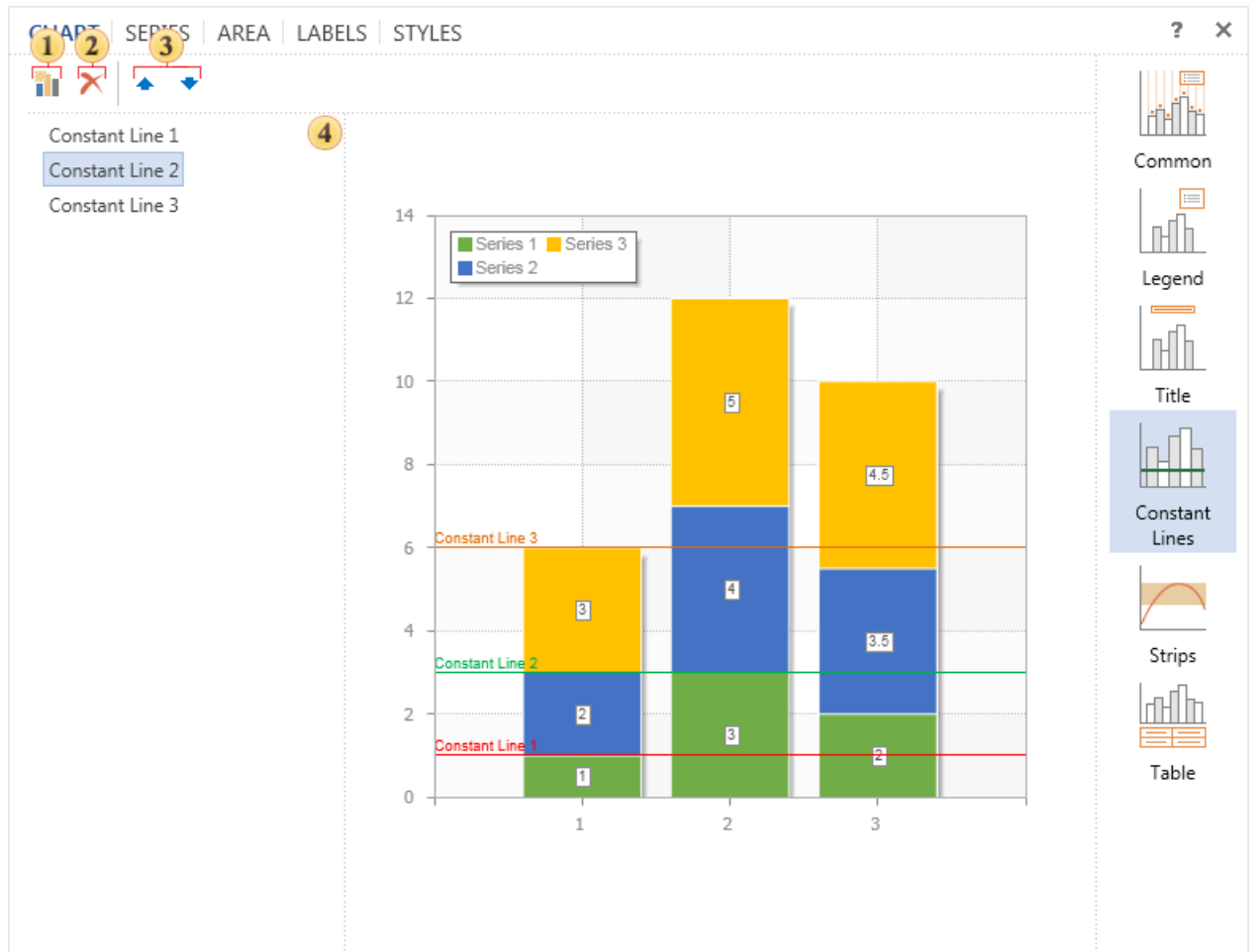


- ❶ The **Preview window**. This panel displays the chart and immediately previews changes made in real time.
- ❷ All chart parameters are grouped. A list of these groups is represented on this panel. When a group is selected, the Properties panel will display the parameters of the selected group:
 - The group **Common**. Contains common settings such as a data source for the chart, the vertical/horizontal alignment, rotation angle and others.
 - The group **Legend**. Contains settings for the legend such as enabling/disabling it, alignment options, direction, etc.
 - The group **Title**. Contains settings for the title of the chart such as text, alignment options, etc.
 - The group **Constant Line**. Contains settings for constant lines. Moreover, in this

parameter group involves adding a constant line in the chart.

- The group **Strips**. Contains settings to control strips in charts. You can add a new strip here.
- The group **Table**. Contains settings to display values as a table.

It should be noted that in some groups you can add elements to the chart. In this tab, this note concerns groups Constant Lines and Strips.



- ➊ The button is used to add the constant line.
- ➋ The button is used to erase the selected line.
- ➌ The buttons move the selected item in the list on the panel ➍.
- ➍ The panel with the list of items.

4.29.7.2 Tab Series

Series of the chart component are the main element of the diagram. Series are important to visualize data. It should be understood that construction is not possible without series of the diagram.



1 The toolbar contains the basic commands to control the chart series: adding series, deleting the selected one, moving the selected series in the list.

Note: If the chart type is defined on the **Chart** tab, in the menu of adding rows, only series of this type will only be available, and those that can interact with the type of a chart. If the chart type is not specified, the type of a chart will depend on the selected series.

2 The list of chart series. As can be seen from the picture, this chart contains three rows.

3 The preview panel. This panel displays the chart and immediately previews

changes made in real time.

④ The list of group of parameters of the tab Series:

- The group **Common**. You can find settings for the selected series. Among them are data source, data, etc.
- The group **Conditions**. Here you can set parameters for the selected series.
- The group **Filter**. Parameters of filtering of the selected series can be set here.
- The group **Interaction**. Here you can setup interaction of the series.
- The group **TopN**. In this group you can set maximum or minimum values.
- The group **Series Labels**. This group of parameters are used to define position, rotation for series labels etc.

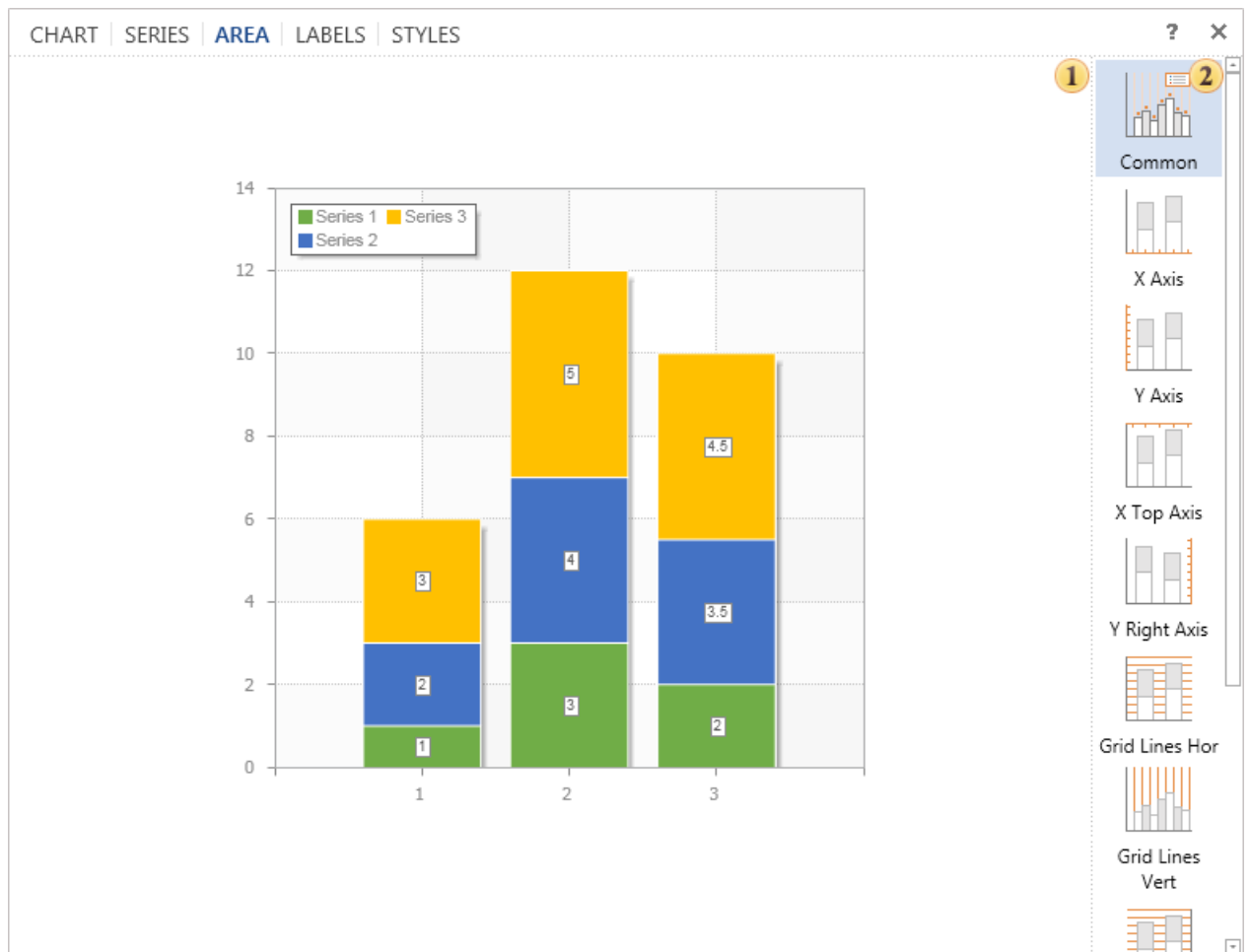
Information

Various displaying modes of series labels can be applied in the chart series - Show Series Labels: From Series and Show Series Labels: From Chart. The mode is defined in the tab Labels in the group of properties Series Labels.

- If the mode Show Series Labels: From Series is enabled, then on the tab Series, the group Series Labels you should define the type of labels. In this mode, you can specify a particular type of labels for each series.
- If the mode Show Series Labels: From Chart is enabled then the type of series labels will be the same as selected in the tab Labels. For example, you have a chart with 10 series in it and labels should have the same style, which means the same type. In this case, on the tab Labels, you can define the type and in settings of each series you can specify the mode Labels From Chart.

4.29.7.3 Tab Area

The **Area** is a space that includes the basic chart items: rendered data series, axes, chart title and legend. The management of this space is carried out on the tab **Area**, in the editor **Diagram**.



- ❶ The panel **Preview**. This panel displays the chart and immediately previews changes made in real time.
- ❷ The list of parameters groups in the tab Area:
 - The group **Common**. The group contains settings such as rotation, horizontal, vertical display, border color etc.
 - The group **X Axis**. The group contains settings for the X axis.
 - The group **Y Axis**. The group contains settings for the Y axis.
 - The group **X Top Axis**. The group contains settings for the X top axis.
 - The group **Right Y-Axis**. The group contains settings for the right Y axis.
 - The group **Grid Lines Hor**. The group contains settings for horizontal lines.
 - The group **Grid Lines Vert**. The group contains settings for vertical lines.
 - The group **Grid Lines Hor Right**. The group contains settings for right horizontal lines.
 - The group **Interlacing Hor**. The group contains settings of alternation of horizontal cells in the chart area.
 - The group **Interlacing Vert**. The group contains settings of alternation of

vertical cells in the chart area.

4.29.7.4 Tab Labels

On this tab you can set the type of labels in the chart. The selected appearance of the title will be applied to all rows that have the mode **Show Series Labels: From Series disabled**.

Information

You can use a variety of modes of display labels. - Headlines from the series or title of the chart.

- If the mode **Show Series Labels: From Series** is enabled, then on the tab Series, the group Series Labels you should define the type of labels. In this mode, you can specify a particular type of labels for each series.
- If the mode **Show Series Labels: From Chart** is enabled then the type of series labels will be the same as selected in the tab Labels. For example, you have a chart with 10 series in it and labels should have the same style, which means the same type. In this case, on the tab Labels, you can define the type and in settings of each series you can specify the mode Labels From Chart.

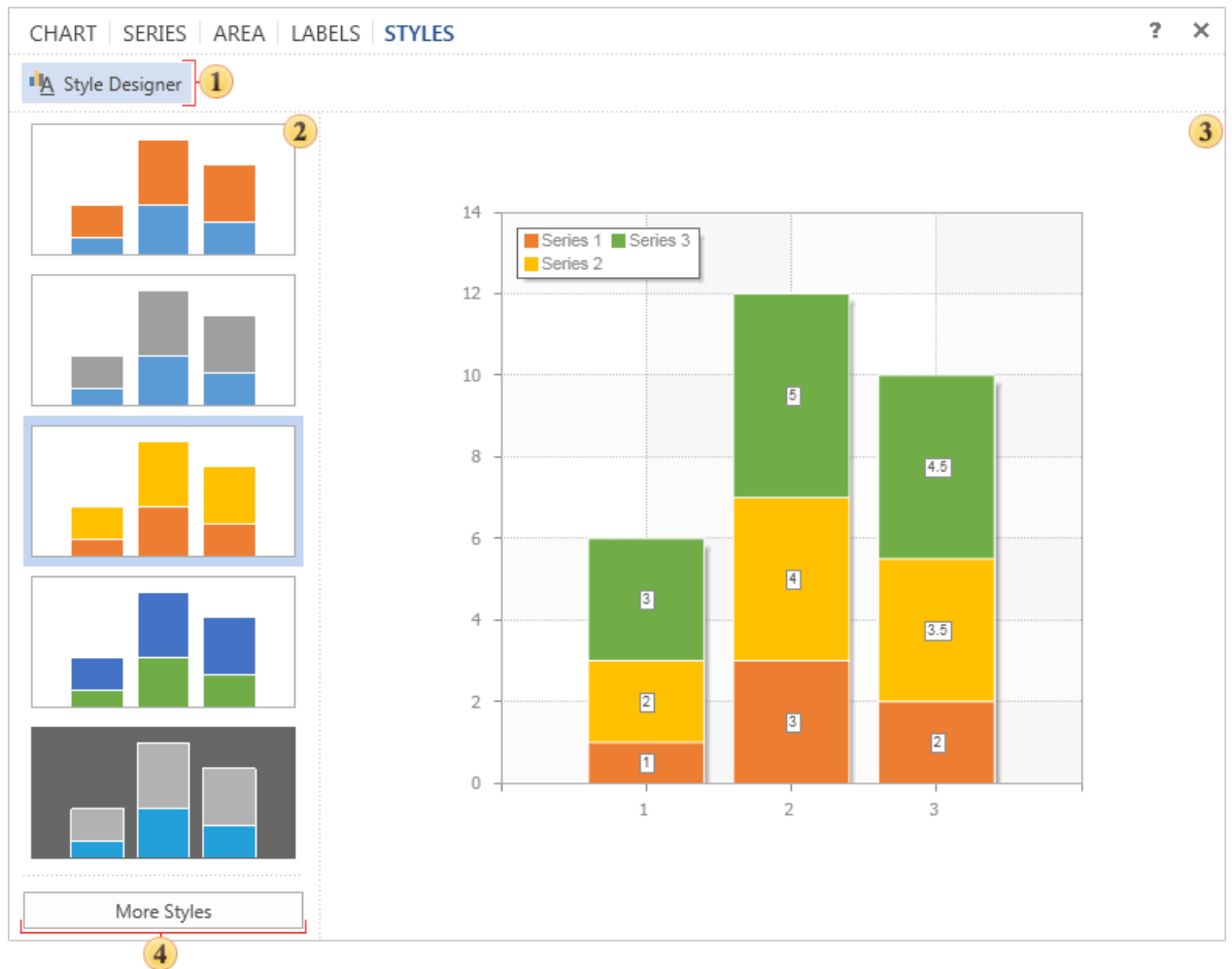
The picture below shows the tab Labels.



- ❶ This panel displays a list of different types of labels.
- ❷ The preview panel. This panel displays the chart and immediately previews changes made in real time.
- ❸ The list of groups of parameters:
 - The group **Common**. You can find settings such as Text before, text after, rotation etc.
 - The group **Conditions**. Here you can set parameters for the selected series.

4.29.7.5 Tab Styles

You can completely change the design of charts, ranging from basic colors and ending with shadows, borders, and so on. You can do this in the tab **Styles**.



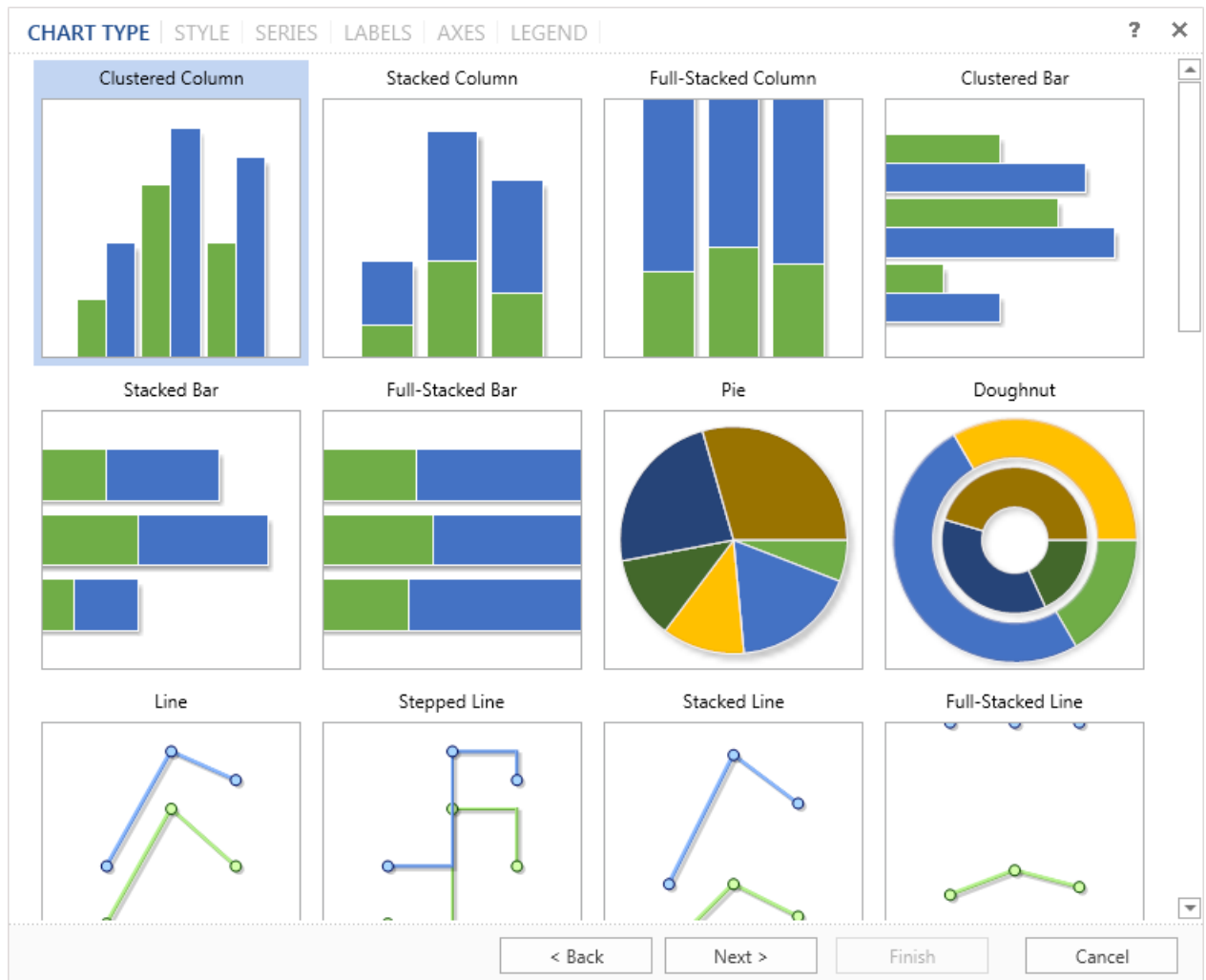
- ❶ The button is used to call the style designer. In the designer, you can create a style for the chart and the collection of styles for other components.
- ❷ In this panel you can see the list of styles that are available by default.
- ❸ The panel **Preview**. This panel displays the chart and immediately previews changes made in real time.
- ❹ The button **More Styles**. When you click it you will see the list of styles available by default.

Information

If the AllowApplyStyle is enabled then the style will be applied. If you disable the AllowApplyStyle then the parameters of series will be considered.

4.29.7.6 Wizard

The Chart wizard provides an opportunity to create a chart in a few simple steps. To start the wizard, you should click the button Chart Wizard in the chart editor. The wizard provides a step-by-step procedure to create a chart. By default, the first type (Clustered Column) is selected in the list.



Information

To proceed to the next step, press the button **Next**. You should remember that you can always return to the previous step by clicking the button **Back**.

The chart component contains a collection of preset styles for the chart. Select one

of them to create a chart. By default, the first style in the list is selected.



In the next step, you need to create a series of charts and specify their values.

CHART TYPE | STYLE | **SERIES** | LABELS | AXES | LEGEND

1 2 3

Series 1
Series 2
Series 3

4 Series Name: Unit Price

Data Columns List of Values

Argument Data Column: Products.ProductName 6

Value Data Column: Products.UnitPrice

< Back Next > Finish Cancel

- ❶ Clicking on this button a list of series opens. Depending on the particular type of chart, the list will have different types of series. To add a series to a chart you should select it in the list.
- ❷ Deletes the selected series of a chart.
- ❸ The buttons are used to move the selected number of series in the list of charts.
- ❹ This panel displays a list of chart series.
- ❺ In the field of this option you can change the name of the series. By default, all series have the name as Series+"number".
- ❻ In this panel you can set chart arguments and values. This panel has two tabs:
 - The tab **Data Columns** you must specify the data columns for arguments and values. For example, the column of arguments contains entries A, B, C. The values column will contain entries: 23, 43, 56. In this case, the argument A will match the value 23, the argument B will match the value 43, and the argument C - the value 56.
 - Besides data columns you can manually set the arguments and values. You can

do this in the tab **List of Values**.

1 Add 2 Remove

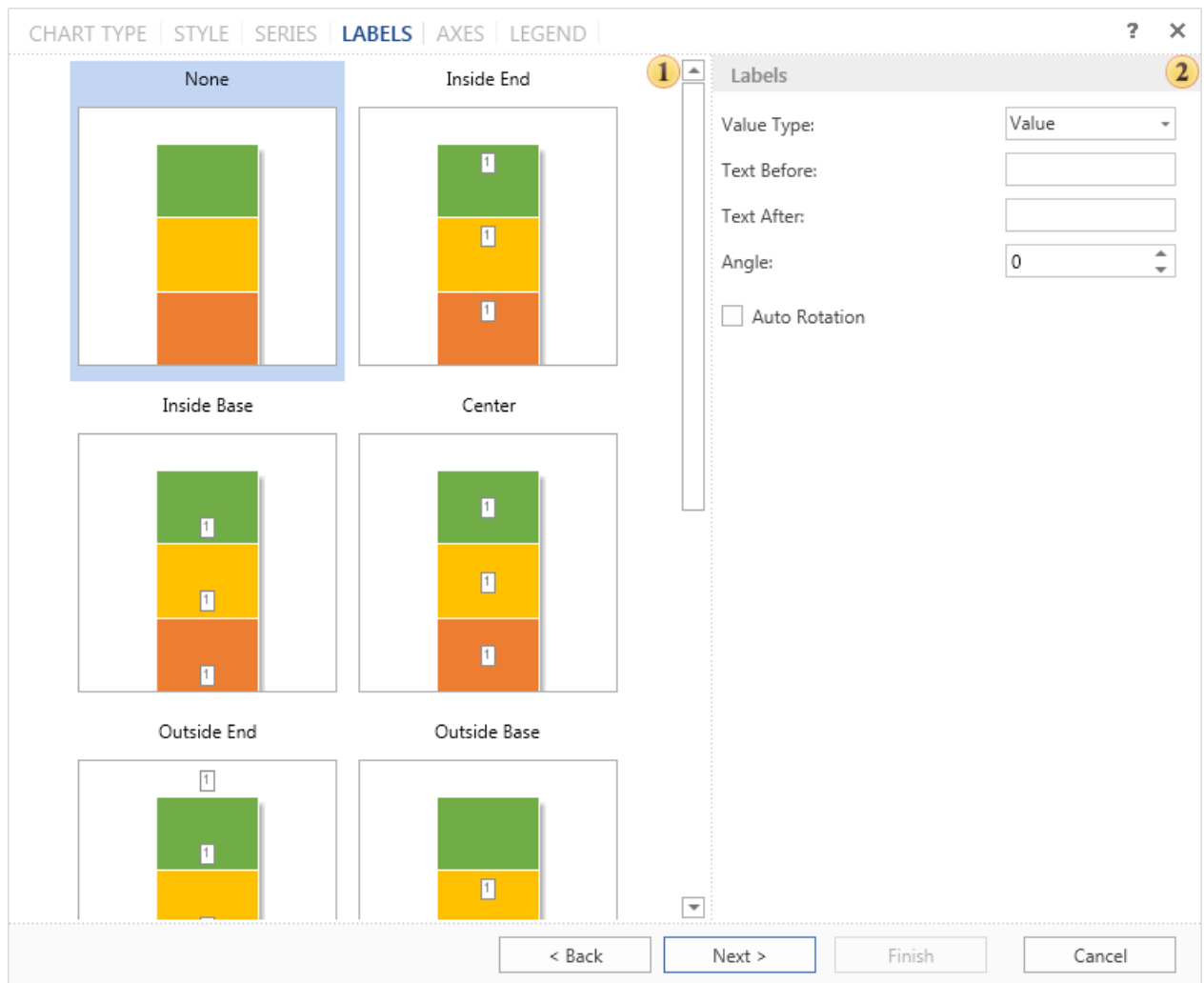
| Argument: | Value: |
|-----------|--------|
| A | 1 |
| B | 2 |
| C | 3 |
| D | 4 |

- 1 Add new block that consists of fields Argument and Value. You should know that in the added block the specified value will correspond to the argument in this block.
- 2 Remove the last inserted block of fields Value and Argument.
- 3 The list of arguments fields, in these fields arguments of a chart are specified. For example, the arguments A, B, C, D.
- 4 The list of values fields, in these fields the values of the chart are shown. For example, the values 1, 2, 3, 4.

Information

It should be noted that for rendering the chart there must be at least one value, the value is required to be specified. Arguments, if they are not specified, they will be automatically created.

On the next step, it is necessary to define the look of labels in the chart. By default, labels are disabled.

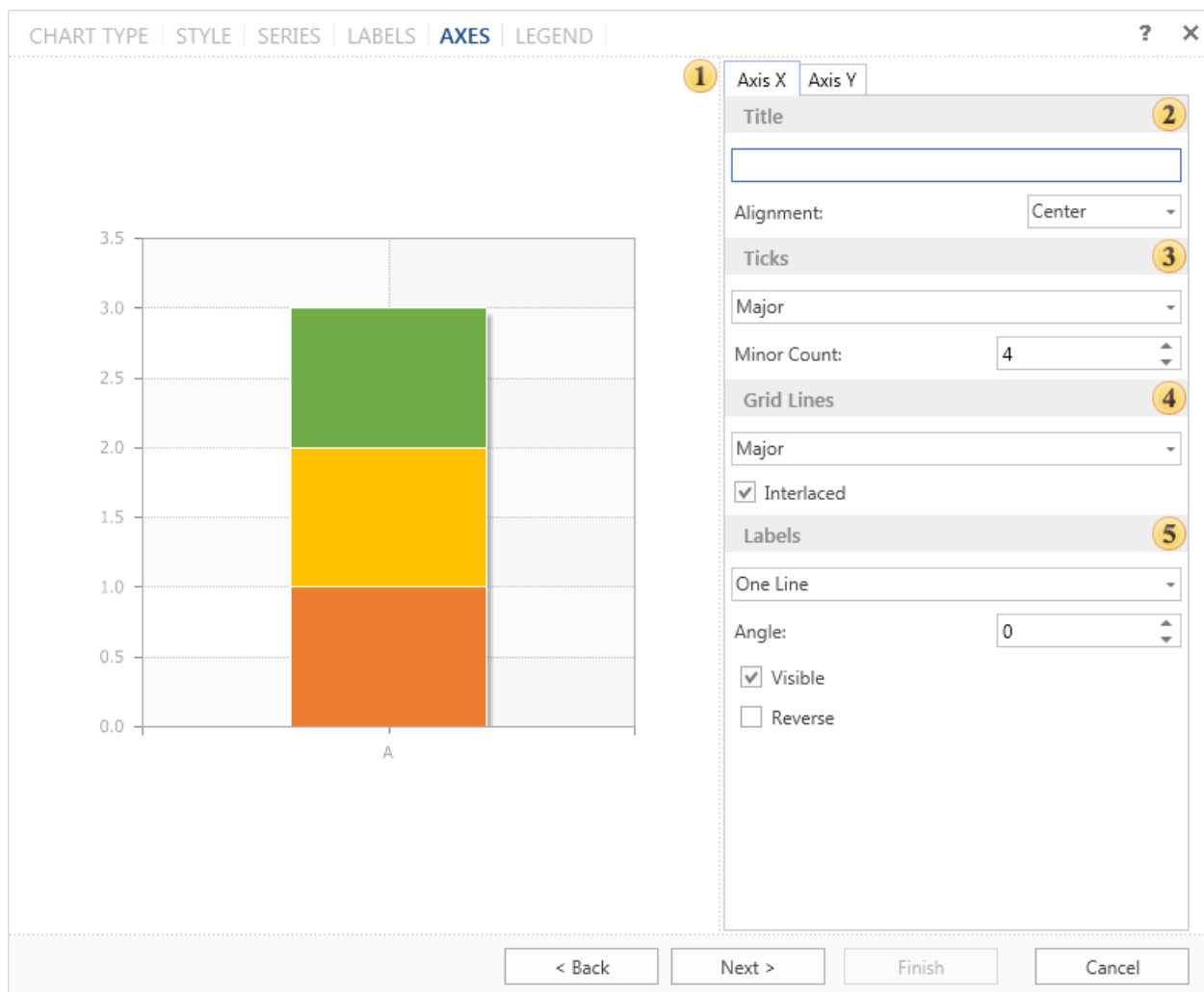


- ❶ The list of labels for the chart, with examples of their placing on this type of a chart.
- ❷ Parameters of labels, their angle, the text before the header text after the header, etc.

Information

You should know that when you create a chart manually, without using the wizard, you can specify label look as the entire chart and its our look for each row of the label. When you create a chart using the wizard, you can only define the general form of signatures for the whole diagram, one type for all series of the chart.

On the next step, it is necessary to define axes settings.



1 The panel **Preview**.

The most important settings are displayed on the axes. Moreover, this panel has tabs axis X and axis Y.

2 The parameter **Title**. This group of settings specifies the text of the axis title and its alignment.

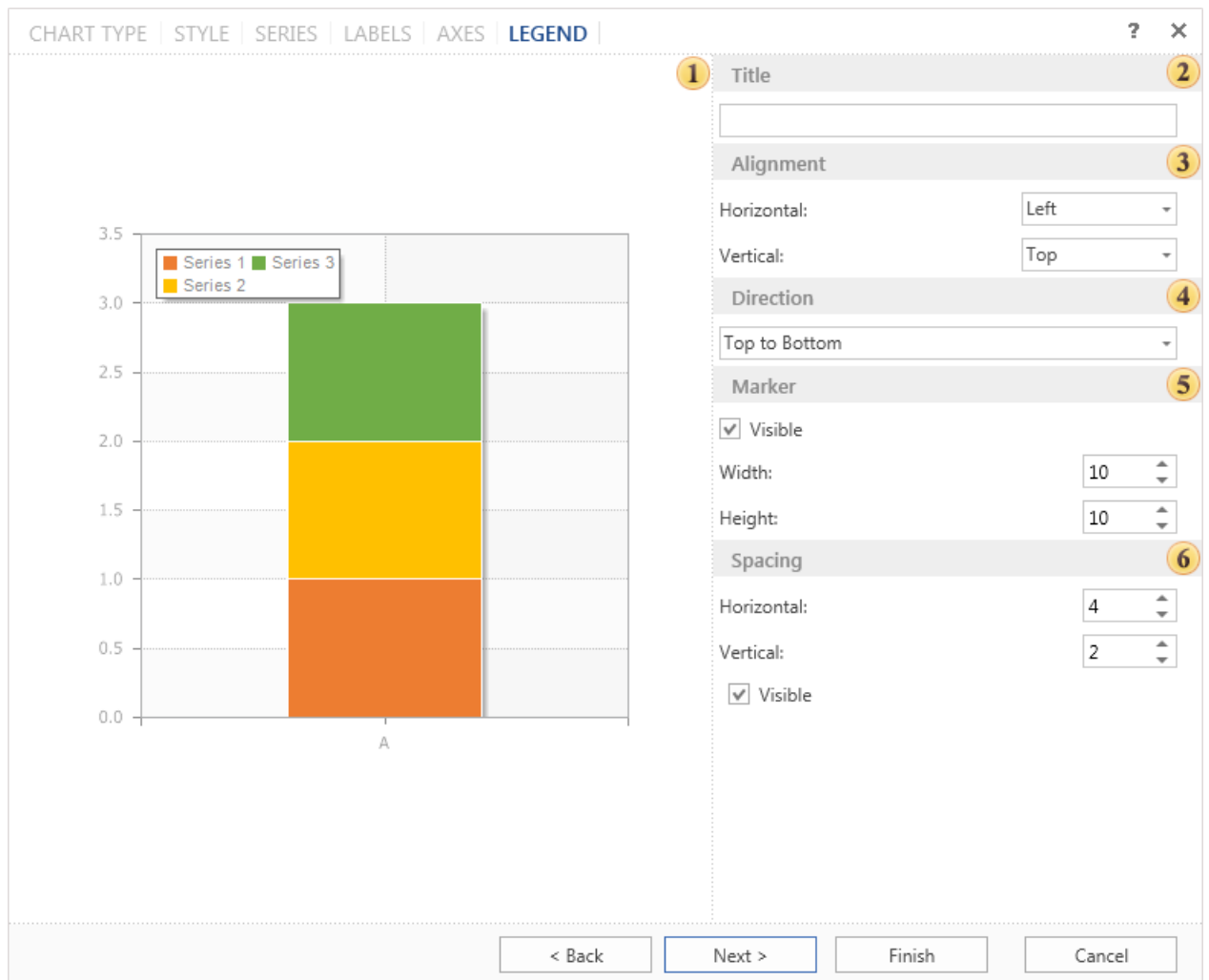
3 The parameter **Ticks**. It is determined by the number of intermediate ticks and display mode - without labels, only the main, and all labels.

4 The group **Grid Lines**. This group defines the parameters of the grid line.

5 The group **Labels**. In this group you can specify the parameters of axis titles such as on/off, reverse, etc.

In the last step you need to define parameters of the chart legend. Legend is an area

that displays the symbols of different data series in the chart.



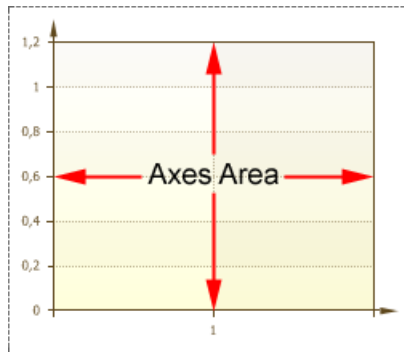
- 1 The panel **Preview**.
- 2 The group **Title**. Here you can specify the title for the legend.
- 3 The group **Alignment**. Legend can be located in different places in the chart. In this group you can setup the vertical and horizontal alignment of the legend in the chart.
- 4 The group **Direction**. Entries in the legend can be placed in different directions. Here you can indicate the direction in the legend in this group.
- 5 The group **Marker**. The marker is an icon that helps you to visually recognize a series of charts. The number of markers corresponds to the number of rows. Setting markers is performed in this group of parameters.
- 6 The group **Spacing**. Increasing or decreasing the vertical and horizontal indentation in the legend is carried out with the help of these parameters. Also, in this group there is a parameter Visible. If this option is enabled the legend is

displayed. If not - the legend is not displayed.

Click the button **Finish** and the chart will be created.

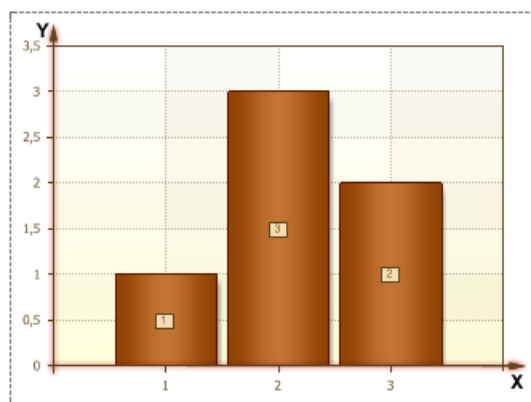
4.29.8 Axes Area

The **Axes Area** is a space which includes all chart items such as data rows, axes, chart title, and legend. On the picture below the **Axes Area** is shown:

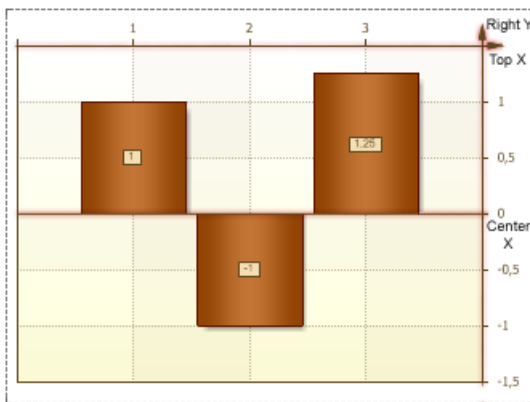


4.29.8.1 Axes

Axes Area has **X** and **Y** axes. The X axis, as a rule, is the axis of arguments, and the Y axis, is the axis of values.

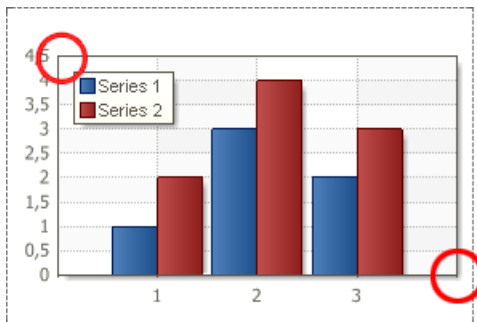


Besides, the **Axes Area** can contain top and central **X** axis, and right **Y** axis.

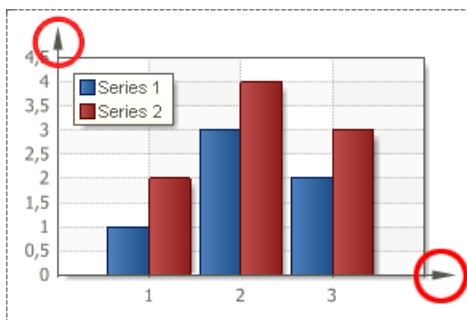


4.29.8.1.1 ArrowStyle Property

Each axis has its own direction. The direction is identified with marker (usually it is an arrow). To change the arrow style, use the **Arrow Style** property of an axis. The path to this property is **Area.Axes.ArrowStyle**. On the picture below the sample of a rendered chart with the **ArrowStyle** property set to the **None** default value:

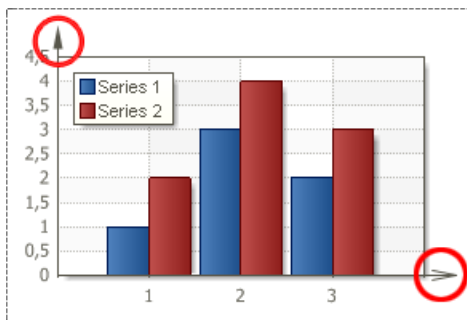


As you can see, if the **ArrowStyle** property is set to **None**, then **X Y** axes do not have style. The **ArrowStyle** property can be set to **Triangle**. In this case the arrow style will look like on the picture below:



The **ArrowStyle** property can be set for each axis. Each axis may have its own values of the **Arrow Style** property. On the picture below different values of the

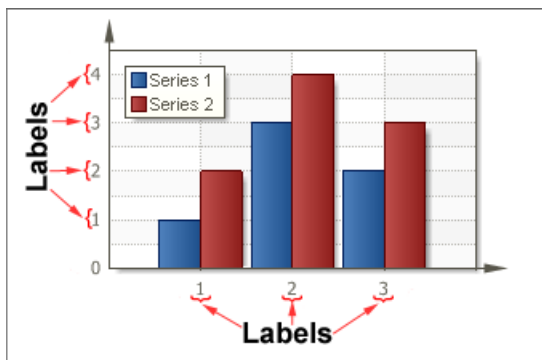
ArrowStyle property of **X** and **Y** axes:



As seen from the picture above, the **ArrowStyle** property, of the **Y** axis is set to **Triangle**. And the **ArrowStyle** property, of the **X** axis is set to **Lines**.

4.29.8.1.2 Labels

Labels are titles of X axis (the axis of the arguments) and Y (the axis values). Labels can take any string value. Any string value is transformed according to the selected format. If the report generator failed to convert a value to the selected format, then a direct string value is output. The picture below shows an example of a chart with arguments of Labels. The Format property is set to N:

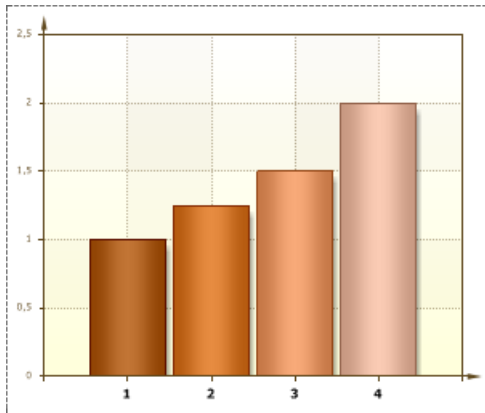


Also, Labels have a number of properties such as:

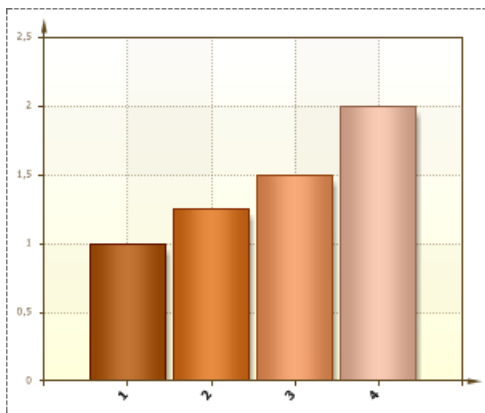
- ✓ **Angle** - sets an angle of inclination of labels;
- ✓ **Antialiasing** - sets smooth-edged type of labels;
- ✓ **Color** - sets the labels color;
- ✓ **Font** - sets the font type of labels;
- ✓ **Format** - changes the label format (numeric, percentage etc);
- ✓ **Placement** - changes the position of showing Labels;
- ✓ **Text before/Text after** - shows a text before/after Labels;
- ✓ **Text Alignment** - used for **Y** axis, aligns Labels;
- ✓ **Width** - changes the width of Label.

4.29.8.1.2.1 Angle Property

The **Angle** property is used to change the inclination of **Labels**. Specifies the angle, in degrees. The **Angle** property is set separately for each axis. The full path to this property is **Area.Axis.Labels.Angle**. By default, the value of the **Angle** property is set to **0**. So **Labels** are placed as it is shown on the picture below:



The value of this property can be negative and positive. If the value of the property is negative then Label is inclined clockwise. If the value of the property is positive then Label is inclined anticlockwise. The picture below shows the chart sample, which Angle property by the **X** axis is set to **50**:

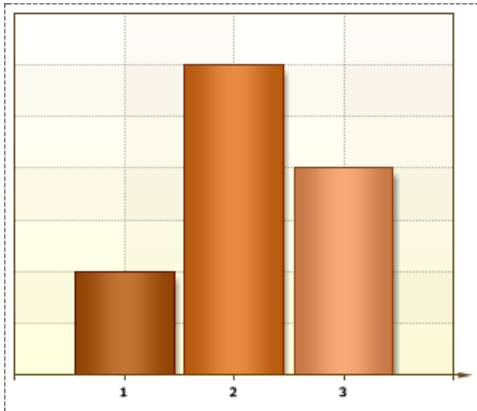


4.29.8.1.2.2 Format Property

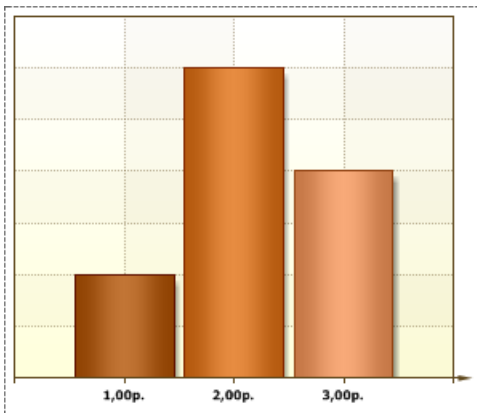
The **Format** property is used to format the contents of Labels. The full path to this property is **Area.Axis.Labels.Format**. This property has multiple values.

➤ **Number.** The **N** value of the **Format** property is used for the general display of numbers. When filling the **Format**, after the **N** value, it is possible to specify the number of decimal places that you want to use. If no numbers are specified after **N**

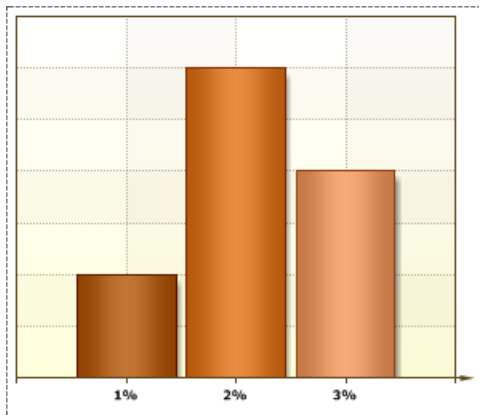
then decimal places will be shown only if they are present as a result of calculation. The picture below shows a chart with the **Format** property of Series Labels set to **N**:



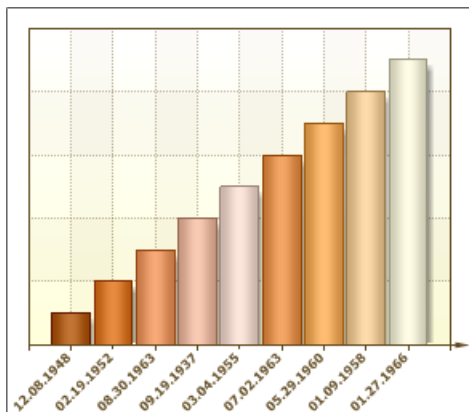
➤ **Currency.** The **C** value of the **Format** property is used to display Labels with a currency symbol. With the **C** value, it is possible to specify the number of decimal places that you want to use. The picture below shows a chart with the **Format** property of Series Labels set to **C**:



➤ **Percentage.** The **P** value of the **Format** property is used to display Labels with percent symbol. After the **P** value, it is possible to specify the number of decimal places that you want to use. The picture below shows a chart with the **Format** property of Series Labels set to **P**:



➤ Date formatting. The **MM/dd/yyyy**, **MMMM dd, yyyy** **MMMM** values of the **Format** property convert values of arguments to date. **MM/dd/yyyy** - the date is shown like "01.20.2010", **MMMM dd** - the date is shown like "September 29", **yyyy** **MMMM** - the date is shown like "2010 March". The picture below shows a chart and its **Format** property is set to **MM/dd/yyyy**:

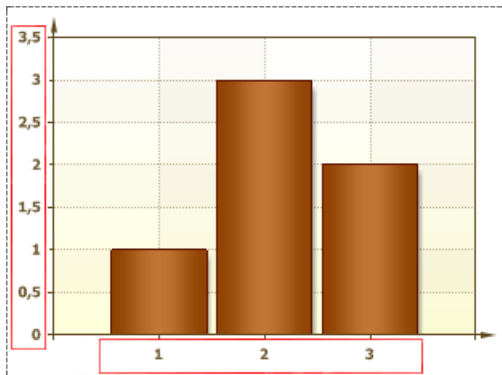


To reset the **Format** property of selected cells, and return to the default format, clear the Format by selecting empty field.

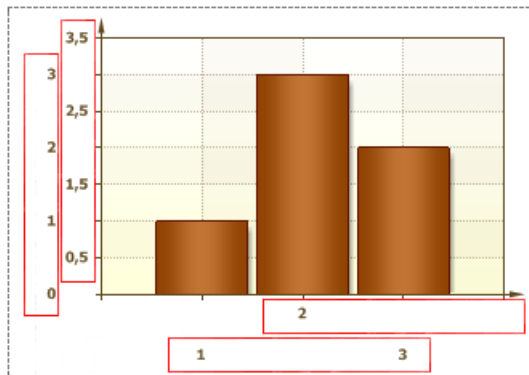
4.29.8.1.2.3 Placement Property

The **Placement** property is used to change position of labels. The full path to this property is **Area.Axis.Labels.Placement**. This property has three values: **One Line**, **Two Lines**, **None**.

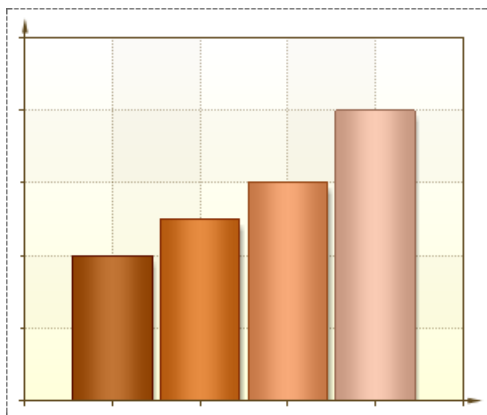
➤ **One Line**. In this case, labels are placed in a line horizontally or vertically, depending on the X or Y axis, respectively. The picture below shows an example of a chart, with the **Placement** property set to **One Line** for of X and Y axes:



➤ **Two Lines.** In this case, labels are placed in two lines horizontally or vertically, depending on the X or Y axis, respectively. The picture below shows an example of a chart, with the **Placement** property set to **Two Lines** for of X and Y axes:



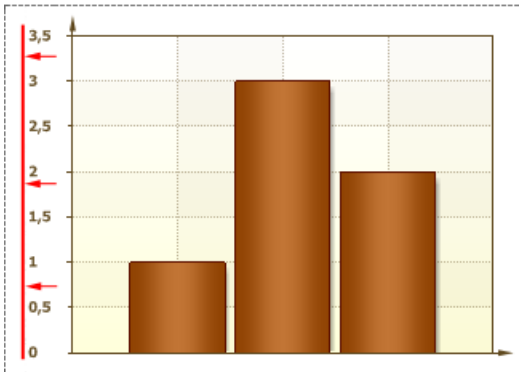
➤ **None.** In the case labels are not shown. The picture below shows an example of a chart, with the **Placement** property set to **None** for of X and Y axes:



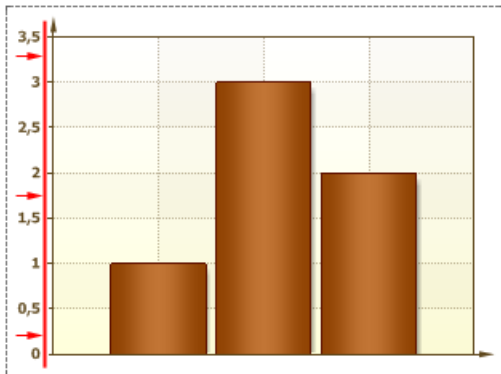
By default, the **Placement** property is set to **One Line**.

4.29.8.1.2.4 TextAlignment Property

The **TextAlignment** property is used to align labels on the chart or by Y axis. The full path to this property is **Area.Axis.Labels.TextAlignment**. If the **TextAlignment** property set to **Left**, then labels are aligned by the chart edge. The picture below shows an example of a chart with the **TextAlignment** property set to **Left**:



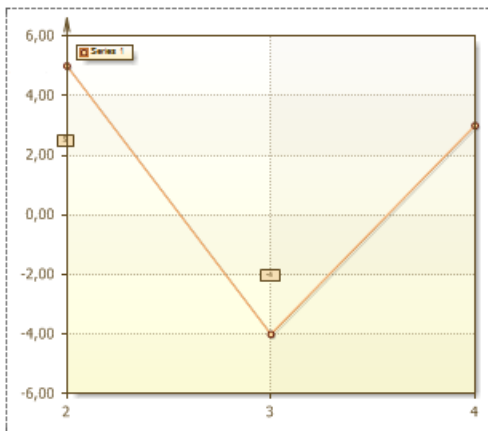
If the **TextAlignment** property set to **Right**, then the labels are aligned by the Y axis. The picture below shows an example of a chart with the **TextAlignment** property set to **Right**:



By default, the **TextAlignment** property is set to **Right**.

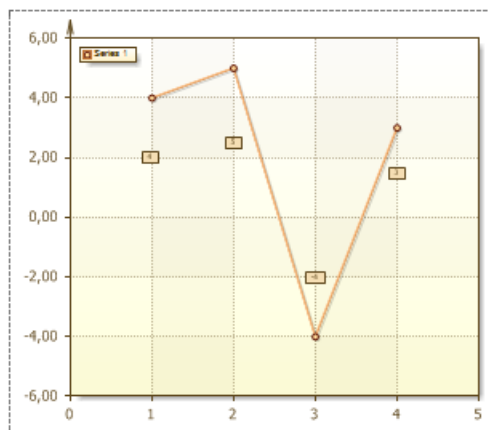
4.29.8.1.3 Range Property

The **Range** property is used to display the specified section of a chart. So a part of the chart within the specified values will be shown. The picture below shows a chart with the Range property set to the X-axis from 2 to 4:



The Range consists of the values of three fields:

➤ **Auto**. If the Auto field is set to true, then a chart is shown entirely, the range of values will be calculated automatically. The picture below shows an example of it:



If the **Auto** field is set to **false**, then all values of the range which are specified in the **Minimum** and **Maximum** fields are considered. If the **Auto** field is set to **false**, and the values of the **Minimum** and **Maximum** fields are set to 0, then the chart will be shown entirely.

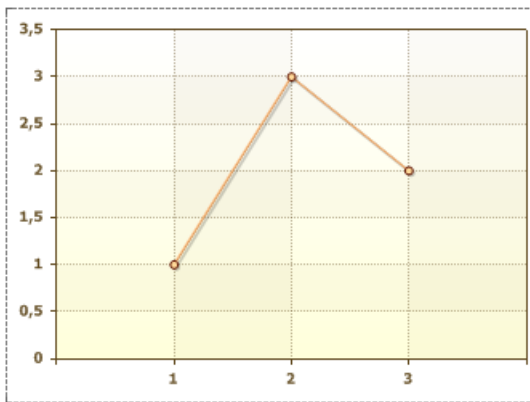
➤ **Minimum** - sets the beginning of the range.

➤ **Maximum** - sets the end of the range.

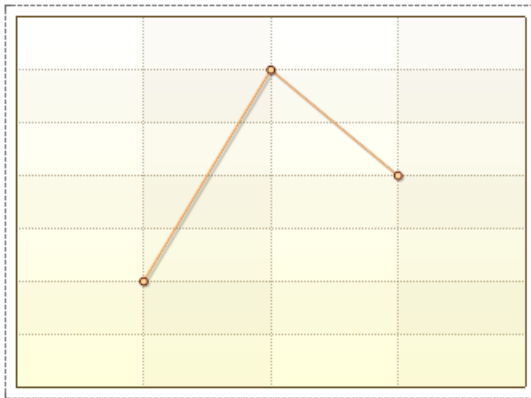
If the **Maximum** value is less than the **Minimum** value, then the chart will be displayed entirely.

4.29.8.1.4 Visible Property

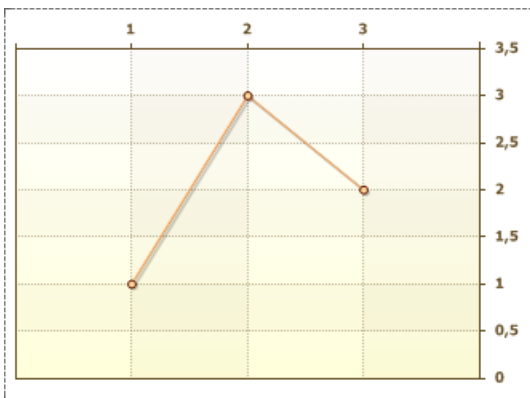
The **Visible** property is used to show X and Y axes. The picture below shows a chart with the **Visible** property set to **true** (axes are visible):



If the **Visible** property is set to **false**, then X and Y axes will not be shown. The picture below shows this:



The **Visible** property has the X axis and the Y axis. It is possible to hide/show axes separately. Also, this property is used to display the top X axis and right Y axis. By default, for the axes, the property is set to **false**. The picture below shows an example of a chart, to display the top X axis and the right Y axis:



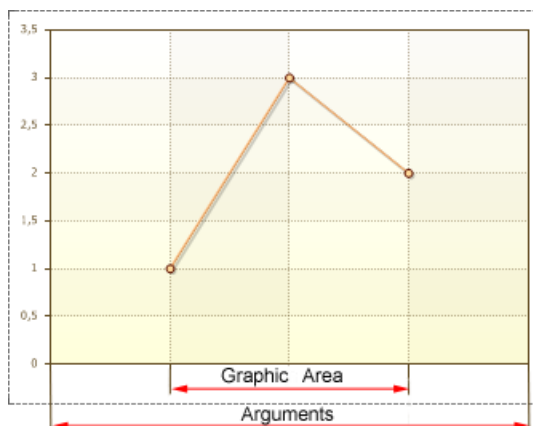
The **Visible** property has the top X axis and the right Y axis. It is possible to have any

combination, for example, the top X axis and the left Y axis, or the X axis and right Y axis, or any other combination.

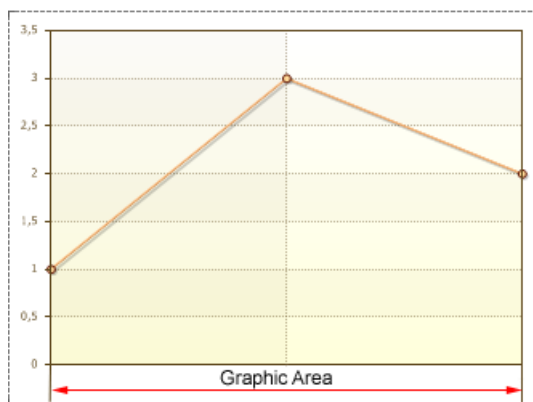
By default the **Visible** property is set to **true**.

4.29.8.1.5 StartFromZero Property

By default, the **Start from Zero** property is set to **true**. Arguments are shown from the start to the end, regardless of the location of the chart. The picture below shows an example of a chart with the **Start from Zero** property set to **true** for the X and Y axes:

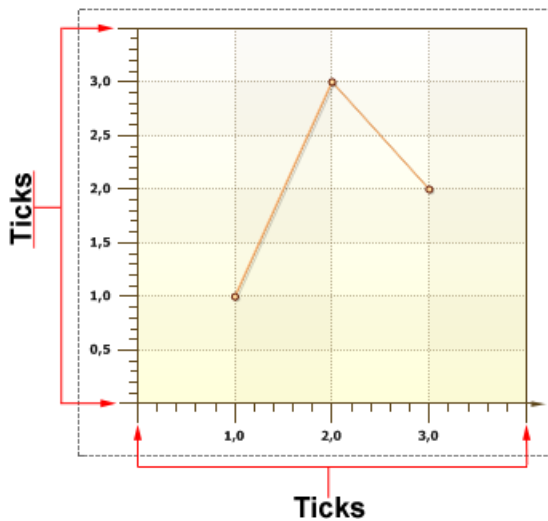


If the **Start from Zero** property is set to **false**, then the Range of the chart area will be shown. The picture below shows an example of a chart with the **Start from Zero** property set to **false** for the X axis:



4.29.8.1.6 Ticks

Ticks are horizontal (for the Y axis) and vertical (for the X axis) lines, which visually show the unit interval and the proportion of segments. Under the **Ticks** labels are displayed. The picture below shows a chart with ticks:



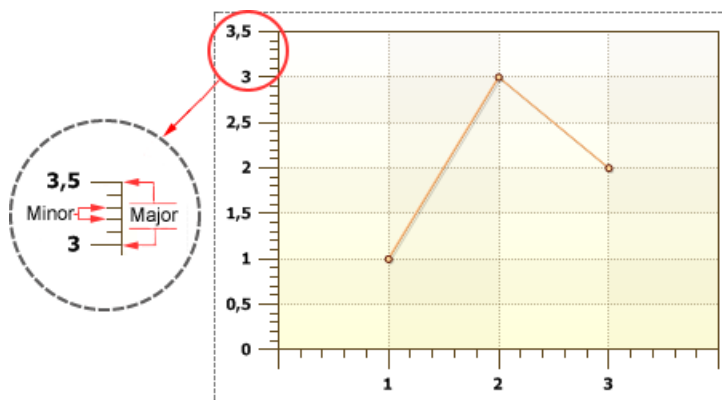
Ticks have the following properties:

- ✓ **Length** is the length of ticks, under which Labels are placed;
- ✓ **Minor Count** allows changing the number of intermediate lines (Minor ticks);
- ✓ **Minor Length** is the length of the intermediate lines (Minor ticks);
- ✓ **Minor Visible** is used to show/hide the intermediate lines (Minor ticks);
- ✓ **Step** controls the step of the unit interval, the distance between ticks;
- ✓ **Visible** is used to show/hide **Ticks**, both basic and intermediate.

4.29.8.1.6.1 Minor

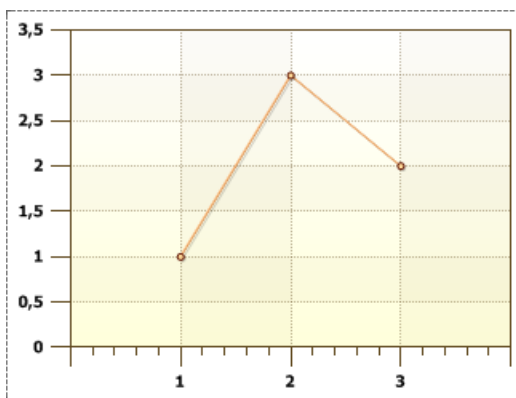
Minor ticks show the proportion of a single axis segment. **Minors ticks** have the following properties: **MinorCount**, **MinorLength**, **MinorVisible**.

➤ **Minor Count** is used to change the number of Minor ticks. The value of this property can be any positive number or 0. The distance between two nearest Major ticks is divided into the number of Minor ticks into equal parts. The picture below shows an example of a chart, with the **Minor Count** property set to 4 for X and Y axes:



➤ **Minor Length** is used to change the length of Minor ticks. The value of this property can be any positive number greater than 0. The field of this property can not be left blank. The length of Minor ticks can be longer than the length of Major ticks.

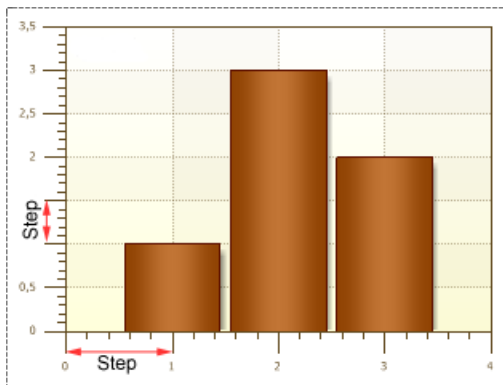
➤ **Minor Visible** is used to show/hide Minor ticks on axes. If the **Minor Visible** property is set to **false**, then the Minor ticks are hidden. If the value of this property is set to **true**, then the Minor ticks are shown. The picture below shows an example of a chart, with the **Minor Visible** property set to **true** for X axis, and set to **false** for Y axis:



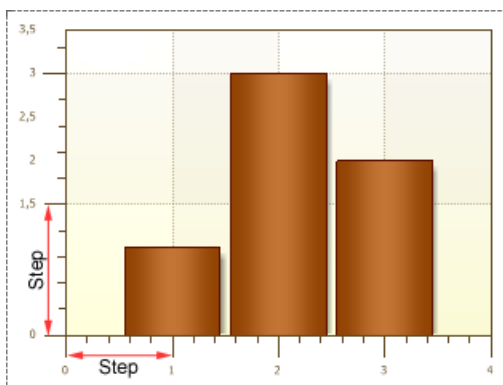
By default, the **Minor Visible** property is set to **false**.

4.29.8.1.6.2 Step Property

The **Step** property is used to change the step between Ticks, the distance between neighbor Major ticks. By default, the value of the **Step** property is set to 0. The picture below shows an example of a chart with the Step is installed to the 0 default value.

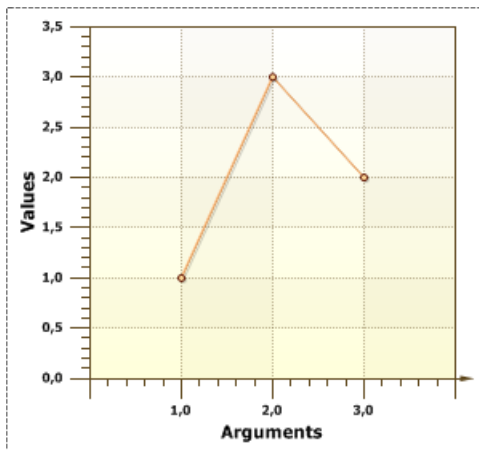


As one can see, if the value is 0, then the distance between two neighbor Major ticks by the Y axis is **0.5**, and **1** by the X-axis. If the Step property is set to **Z** value, then the report generator will multiply **Z** value by the value of the unit interval. The result obtained is the distance between two neighbor Major ticks. The picture below shows an example of a chart, with the step on the Y axis set to **1.5**, and the X axis value set to **1**:



4.29.8.1.7 Title Property

The **Title** property is a title of axis. This property is used to display an axis title. Moreover, the **Title** property for each axis is given separately. The picture below shows a chart where the **X** axis is called the "**Arguments**", and the axis **Y** is called "**Values**":



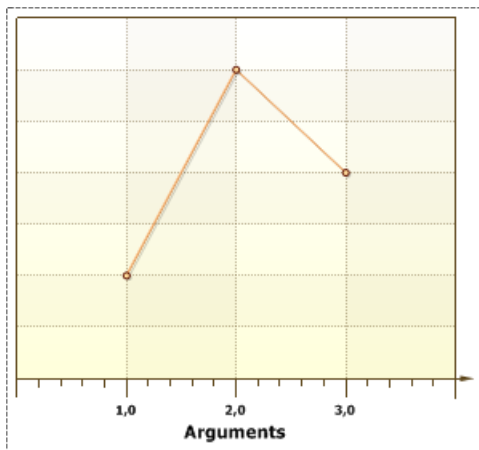
Also, the **Title** property has the following properties:

- ✓ **Alignment** is used to align the **Title**. It has the following values **Center** (align center), **Far** (align from the beginning of an axis), **Near** (align to the beginning of an axis);
- ✓ **Antialiasing** is used to produce smooth-edged **Titles**;
- ✓ **Color** is used to change a title text of an axis;
- ✓ **Font** is used to change the size, font style of a title text of an axis;
- ✓ **Text** is a field to type a title text of an axis. If the field is empty then the title of an axis is not displayed.

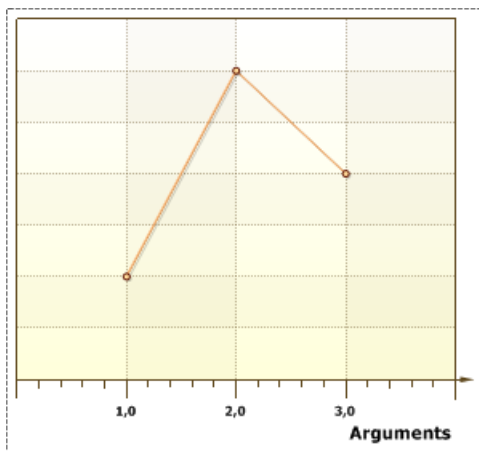
4.29.8.1.7.1 Alignment Property

The **Alignment** property is used to align a title of an axis. The full path to this property is **Area.Axes.Title.Alignment**. This property has the following values: **Center**, **Far**, **Near**.

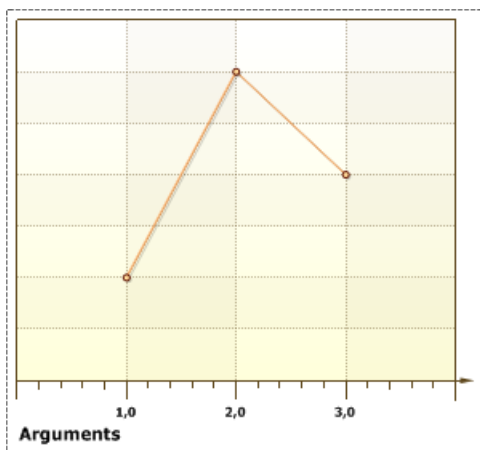
➤ **Center**. Aligns the title of the axis by center by the axis. The picture below shows an example of a chart, with the **Alignment** property of a title of the X axis set to **Center**:



➤ **Far.** Aligns the title of the axis on the opposite side from origin of coordinates. The picture below shows an example of a chart, with the **Alignment** property of a title of the X axis set to **Far**:



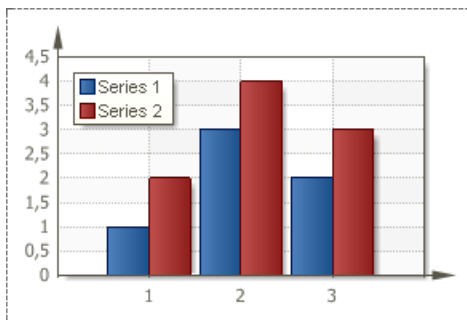
➤ **Near.** Aligns the title of the axis on the near the origin of coordinates. The picture below shows an example of a chart, with the **Alignment** property of a title of the X axis set to **Near**:



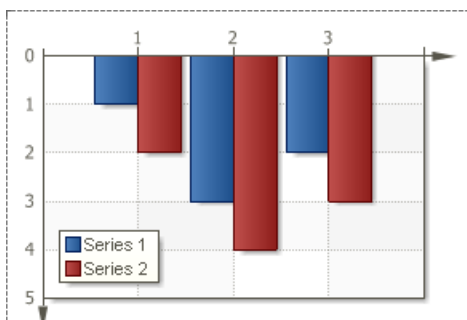
By default, the **Alignment** property of series is set to **Center**.

4.29.8.2 ReverseVertical Property

The **Reverse Vertical** property is used to flip a chart vertically. The picture below shows an example of a chart, with the **Reverse Vertical** property set to **false** (As one can see, the values of the x-axis have normal direction.):



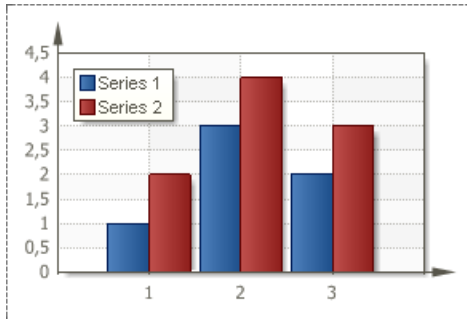
If the **Reverse Vertical** property is set to **true**, then the chart will appear in the opposite direction vertically. The picture below shows an example of a chart, with the **Reverse Vertical** property is set to **true** (As one can see, the values of the x-axis have downright direction.):



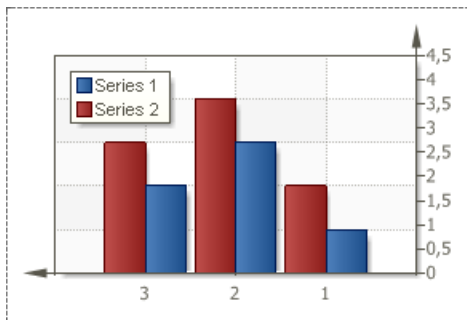
By default, the **Reverse Vertical** property is set to **false**.

4.29.8.3 ReverseHorizontal Property

The **Reverse Horizontal** property is used to flip a chart horizontally. The picture below shows an example of a chart, with the Reverse Horizontal property set to false (As one can see, the values of the x-axis have left to right direction.):



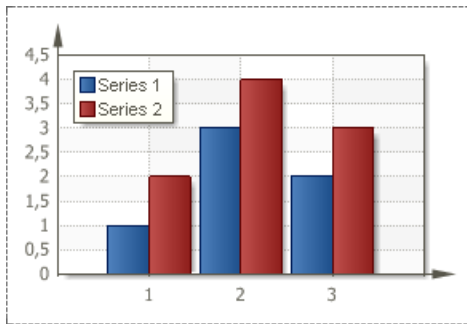
If the **Reverse Horizontal** property is set to **true**, then the chart will appear in the opposite direction horizontally. The picture below shows an example of a chart, with the Reverse Horizontal property is set to true (As one can see, the values of the x-axis have right to left direction.):



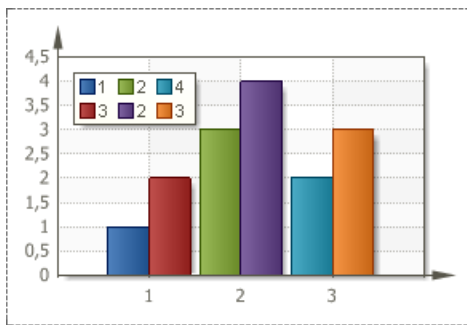
By default, the **Reverse Horizontal** property is set to **false**.

4.29.8.4 ColorEach Property

The **Color Each** property is used (depends on the selected style) to set color for each value of a series. By default, the **Color Each** property is set to **false**, columns of one row have the same color. The picture below shows an example of a chart with the **Color Each** property set to **false** for two series:



If the **Color Each** property is set to true, then each value of X axis has its own color. The picture below shows an example of a chart with the **Color Each** property set to **true** for two series:



4.29.9 Series

The **Series** type depends on the chart type. They are divided into series, placed on doughnut charts, and placed in the axis area.

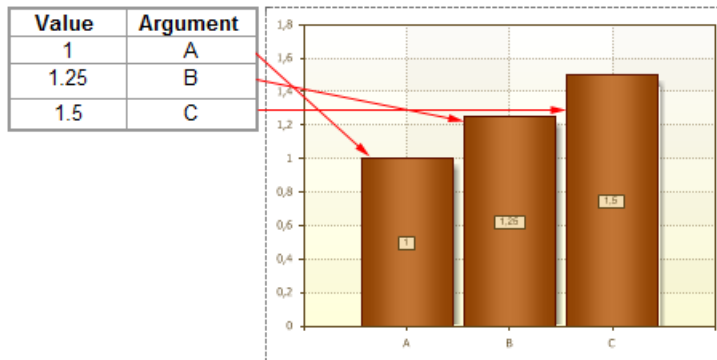
4.29.9.1 Data Connection

One of the main settings of the series is specifying the way of obtaining data. There are three ways to obtain data for the series:

- To set the column data from the dictionary;
- To specify an expression;
- Manually specify values for the series as a list, through the ';' separator.

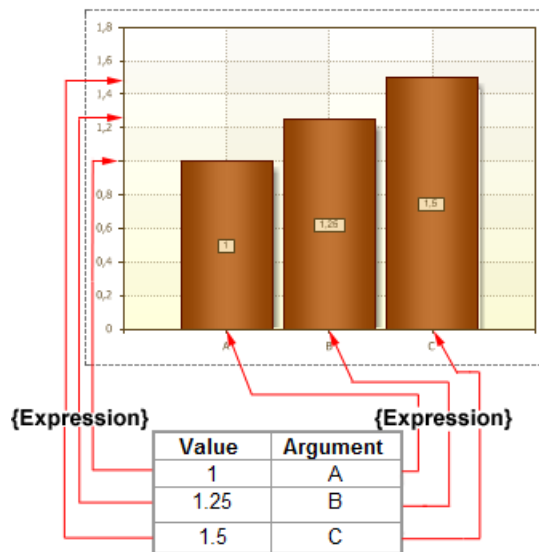
4.29.9.1.1 Data Column

The **Value Data Column** and **Argument Data Column** properties are used to connect a series by specifying a data column from the dictionary. The reporting tool renders series of charts by values and arguments of the column selected in the fields of the **Value Data Column** and **Argument Data Column** properties. For example, if the selected column of data from the data source contains 1000 values, then all the 1000 values will be used in constructing the chart. The picture below shows an example of the chart with the values from the selected data source column:



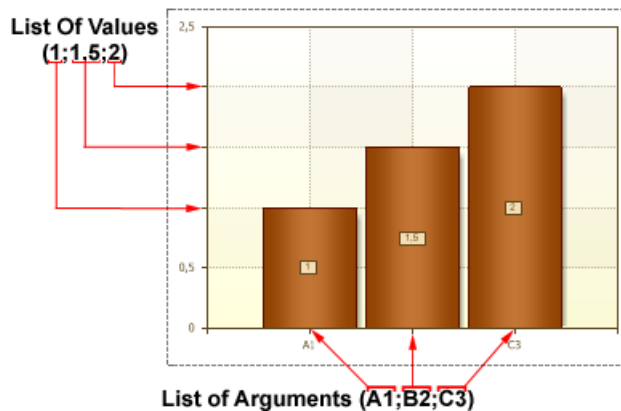
4.29.9.1.2 Expressions

To connect a series of data using the expression, you should use the **Value** and **Argument** properties. The values of these properties are expressions, the result of their calculation is used to obtain a single value of data and argument of data. If you use the Value and Argument properties, then, for this chart, it is necessary to select a data source (the Data Source property), because expressions specified in the fields of these properties are not lists of data and return only one value when calculating. Moreover, the **Value** property returns the value in Number format, but the **Argument** property allows any type of data. To make the report generator know which list should be used for the report, it is necessary to indicate the data source. Once the data source is specified, the report generator runs through all the records of the data source and calculates all the values and arguments according to expressions given in the fields of the **Value** and **Argument** properties. The result of the calculation is used to create a chart. Also, for the data in the data source, you can specify sorting and filtering. The picture below shows an example of a chart, rendered on the basis of results of values and arguments calculations of the selected column of the data source:



4.29.9.1.3 List of Values Property

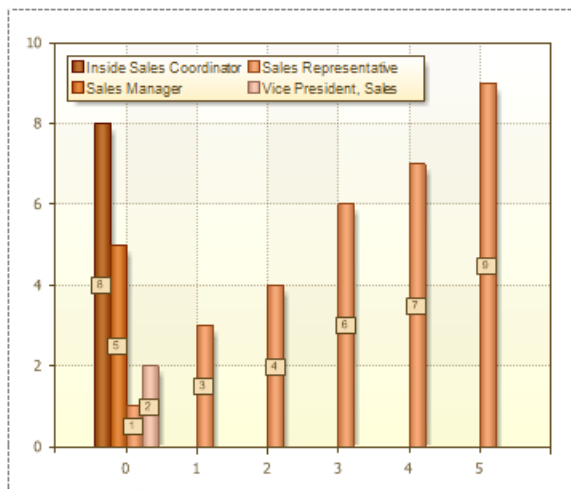
If it is necessary to build a chart by the given values and arguments, then one should use the **List of Values** and the **List of Arguments** properties. The **List of Values** indicates values for creating series (values must be entered through the ';' separator). The **List of Arguments** property indicates arguments for creating series (values must be entered through the ';' separator). The order number of the **List of Values** property values corresponds to the order number of the **List of Arguments** property values. The picture below shows an example of a chart, designed by the list of values and arguments:



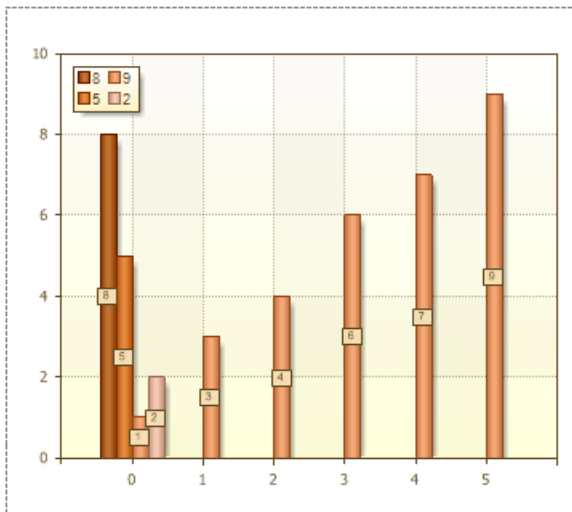
4.29.9.2 AutoSeries

Stimulsoft Reports can automatically create a series. Use the **Auto Series Key Data Column**, **Auto Series Color Data Column**, and **Auto Series Title Data Column** properties. A column from which values are taken to build the series is selected in the **Auto Series Key Data Column** property. A series is created for each unique value. The picture below shows an example of a chart with the **Auto Series Key**

Data Column property set to **Employees.Title**:



There are 4 rows on the picture above. The 1st, 2nd, 4th series have one value, and the 3rd series has 6 values. This means that the **Employees** data source in the **Title** column contains **9** lines, and 6 lines have identical values (records), and the remaining three are different. Values (records) of rows in the data source are shown in a rendered chart in the legend, as well as the name of the series, if the field of the **Auto Series Title Data Column** property is empty. The **Auto Series Color Data Column** property is used to specify the color range, each series will have its own color. This property is subsidiary, and is not required to fill in the automatic creation of the series. Also, the subsidiary property and the **Auto Series Title Data Column** property, using what it is possible to change the title of the series. The picture below shows an example of a chart, with the **Auto Series Key Data Column** property set to **Employees.Title**, and the **Auto Series Title Data Column** property set to **Employees.EmployeeID**:



As seen from the picture above, the series labels are changed. As the series labels, string values are taken from the columns of the data source that is listed in the **Auto Series Title Data Column** property, in this case, this is the **EmployeeID** column.

4.29.9.3 Filters

Sometimes, in creating reports, it is necessary to print, not all values from the data source, but only those that meet specific criteria. To select the required settings, data filtering is used. Filtering is set using the **Filters** property in the **Series Editor**. A condition is specified in each filter. If the condition is **true**, the result of its calculation is **true**. This means that this value will be used when chart rendering. If the result of calculation of the filter condition is **false**, then this value will be ignored. Each filter represents a condition for processing the data values. The picture below shows an example the filter panel:

| Field Is | Data Type | Condition | Value |
|----------------|------------------|-------------------|------------|
| Value 1 | Numeric 2 | equal to 3 | 9 4 |

- 1** The method of choosing the conditions by what filtering (Value or Argument) is done.
- 2** This field specifies the type of data with what condition will be working. Five types of data are available: **String**, **Numeric**, **DateTime**, **Boolean**, **Expression**. The data type affects how the report generator processes the condition. For example, if the data type is a string, then the method of work with strings is used. In addition, depending on the type of data the list of available condition operations is changed. For example, only for the **String** data type the **Containing** operation is available. The **Expression** data type is used to set the expression instead of the second value.
- 3** The type of operation with what it is possible to calculate a value of a condition.

All available types of operations are available in the table below.

④ Values of the filter condition.

A list of available operations depends on the type of data. Below is a table of operations for each type of data with their descriptions.

| Operation | Types of data | | | | Description |
|---------------------------------|--|---|---|--|---|
| | String | Numerical | DateTime | Boolean | |
| equal to |  |  |  |  | If the first value is equal to the second, then the condition is true. |
| not equal to |  |  |  |  | If the first value is not equal to the second, then the condition is true. |
| between | |  |  | | If the first value is in the range, then the condition is true. |
| not between | |  |  | | If the first value is not in the range, then the condition is true. |
| greater than | |  |  | | If the first value is greater than the second value, then the condition is true. |
| greater than or equal to | |  |  | | If the first value is greater than the second value or equal to the second value, then the condition is true. |

| | | | | | |
|------------------------------|---|---|---|--|--|
| less than | |  |  | | If the first value is less than the second value, then the condition is true. |
| less then or equal to | |  |  | | If the first value is less than the second value or equal to the second value, then the condition is true. |
| containin g |  | | | | If the first value contains the second value, then the condition is true. This operation is used only for strings. |
| not containin g |  | | | | If the first value does not contain the second value, then the condition is true. This operation is used only for strings. |
| beginnin g with |  | | | | If the first value starts with the second value, then the condition is true. This operation is used only for strings. |
| ending with |  | | | | If the first value ends with the second value, then the condition is true. This operation is used only for strings. |

4.29.9.4 Conditions

If it is necessary to set the color of values in a chart, one can specify the condition. The **Conditions** property in the **Series Editor** is used to set up conditional formatting. The editor of conditions is called using this property. The picture below

shows the main elements of the editor of conditions:

The screenshot shows a condition editor interface with the following elements:

- Field Is:** A dropdown menu with 'Value' selected, marked with a yellow circle and the number 1.
- Data Type:** A dropdown menu with 'Numeric' selected, marked with a yellow circle and the number 2.
- Condition:** A dropdown menu with 'greater than' selected, marked with a yellow circle and the number 3.
- Value:** An empty text input field, marked with a yellow circle and the number 4.
- Color:** A color selection area showing a red square and the text 'Red', marked with a yellow circle and the number 5.

1 Field Is

This is used to select the type of conditions.

2 Data Type

This field specifies the type of data with what a condition will work. There are five types of data: **String**, **Numeric**, **DateTime**, **Boolean**, **Expression**. Data type affects how the reporting tool processes a condition. For example, if the data type is a string, then the methods of work with strings are used. In addition, depending on the type of data the list of available operations of conditions is changed. For example, only for the **String** data type the **Containing** operation is available. The **Expression** data type provides the ability to specify an expression instead of the second value. In this case the reporting tool will not check the compatibility of the first and the second values of the condition. Therefore, the user should care about the correctness of the expression.

3 Condition

A type of operation using what the calculation of values will be done.

4 Value

The first value of a condition.

5 Color

Select a color to mark values which corresponds to condition.

4.29.9.5 Series Editor

Setting the series includes a number of properties in the **Series Editor**, which is used to visually arrange the rows and change the advanced settings.

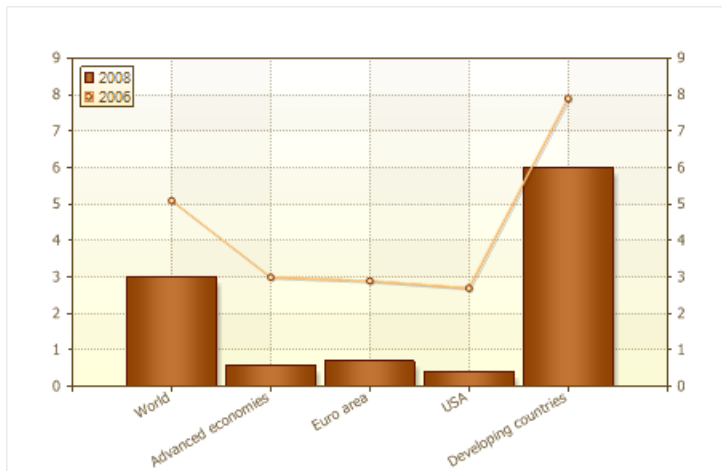
- The **Border Color** property is used to change the border color of each series of a chart, each border of series has its own color.
- The **Brush** property is used to change the type of filling and series color.
- Depending on the value of the **Show Shadow** property, the shadow for series may be shown/hidden. If the **Show Shadow** property is set to **true**, then shadows are shown. If the **Show Shadow** property is set to **false**, then shadows are not shown.
- The **Show Zeros** property can take two values, depending on what zero values in a chart will be shown/hidden. If the **Show Zeros** property is set to **true**, then zero values are displayed on a chart. If the **Show Zeros** property is set to **false**,

then zero values will not be displayed on a chart.

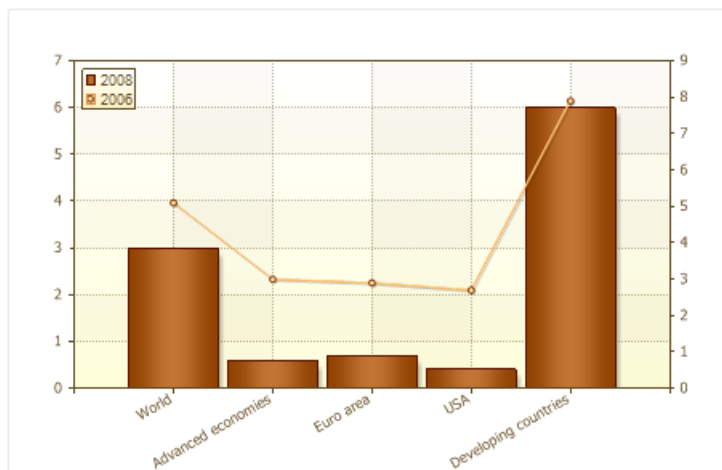
- Using the **Width** property it is possible to change the width of the created values. The default value is 0, meaning the title width is limited by the chart area.
- The **Axis Y** property affects the location of the Y axis. If the **Axis Y** property is set to **Left Y Axis**, then the Y axis will be located on the left. If the **Axis Y** property is set to **Right Y Axis**, then the Y axis will be located on the right.
- Using the **Show in Legend** property will change the display mode in a legend. If the **Show in Legend** property is set to **true**, then series are shown in a legend. If the **Show in Legend** property is set to **false**, then series are not shown in a legend.
- The **Show Series Labels** property can take three values, according to which titles series will be shown/hidden. If the **Show Series Labels** property is set to **None**, then series labels not displayed. If the **Show Series Labels** property is set to **fromCharts**, then series labels are displayed according to parameters set to **Series Labels** property of a chart. If the **Show Series Labels** property is set to **fromSeries**, then in the **Series Editor** the **Series Labels** property will appear. This property can be configured by setting the parameters, and Series Labels in a chart will be displayed in accordance with these parameters.
- With help of the **Title** property it is possible to change the series labels. Any characters entered in the field of this property will be labels.

4.29.9.6 Axis Y

For each series, you can choose the left or right Y-axis to bind it to. The axis a series is attached to depends on the value of its Axis Y property: if this property is set to Left Y Axis, the series is bound to the left axis, and if it is set to Right Y Axis, the series is bound to the right axis. This feature is typically used when you want to display a chart with different types of series. Let's look at this in more detail with an example. We will build a chart containing data on global economic growth for 2006 and 2008. The data for 2008 is displayed as a bar chart, and the data for 2006 as a line. In this example, we leave the Axis Y property at its default value, i.e. the left Y-axis. The figure below shows the resulting chart:

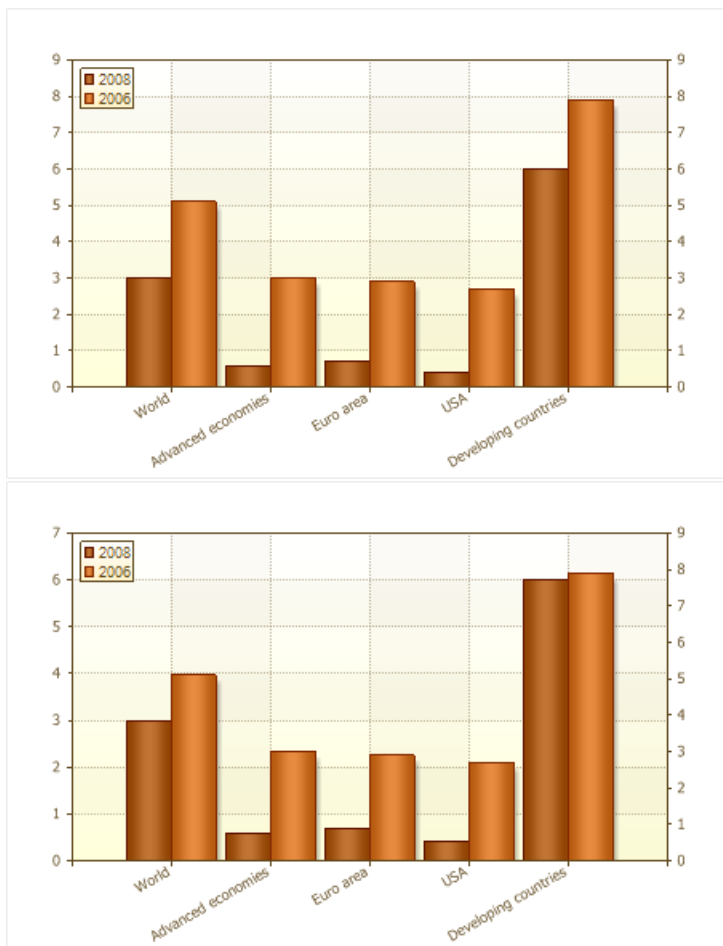


As you can see from the picture, global economic growth by region was, overall, higher in 2006 than in 2008. In this case, the report engine builds the left Y-axis by taking the maximum value among the series bound to it - that is, from both the bar chart and the line series data - and then plots both series against that axis. If the right Y-axis is not used, its values simply duplicate the left Y-axis. Now let's change the example slightly: we bind the Line series to the right Y-axis instead and rebuild the chart. The picture below shows a chart where different series are bound to the right and left Y-axes:



As you can see from the picture, the values and dynamics of global economic growth have not changed, but the scales of the left and right Y-axes are no longer identical. In this case, the report engine builds the left Y-axis using the maximum value of the series bound to it - i.e., the maximum value from the bar chart - and the right Y-axis using the maximum value of the line series. It is also worth noting that you can bind series to different axes even when they are of the same type. The picture below shows two charts (on the left, both series are bound to the left Y-axis;

on the right, the first series is bound to the left axis and the second to the right axis):



As you can see, in the chart where both series are bound to a single axis, the dynamics of growth (or decline) are more clearly visible. However, if the values of one series are much larger than the other, it is better to bind the series to different axes - this makes it possible to visualize even the smallest values. It is also worth noting that binding stacked series to different Y-axes is incorrect, since this contradicts the way accumulation is charted.

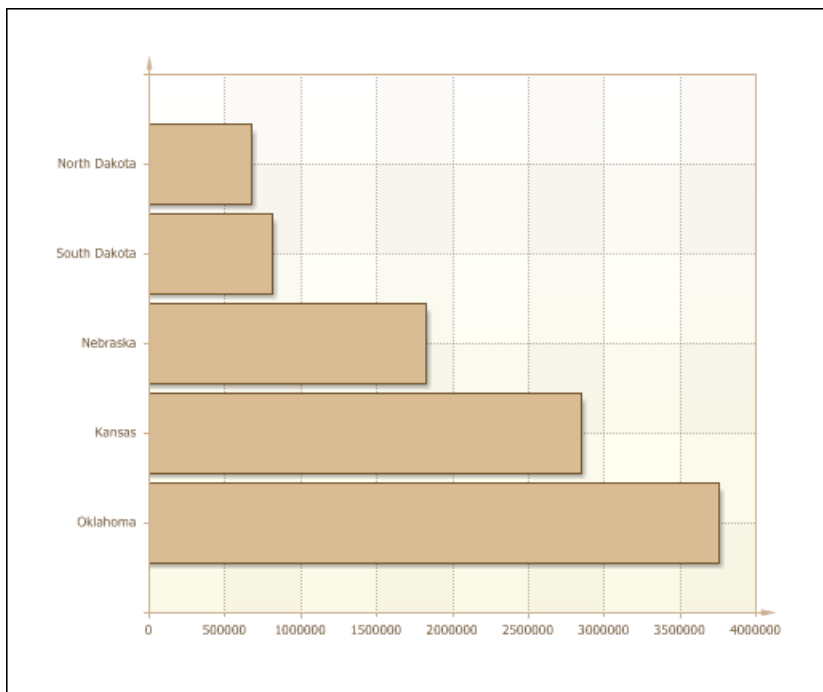
4.29.9.7 Top N

Using the group of properties Top N you may highlight the maximum or minimum values in the chart, and the rest one group into a single value. Grouped value is a sum of all values that were not identified. Features offered by the group of properties Top N, can be applied in different cases: when the chart has many values but it is needed to allocate a certain amount of the maximum (minimum) ones or, for example, if you want the chart to display the difference between the maximum (minimum) values and set other values. Let's consider the properties of Top N in

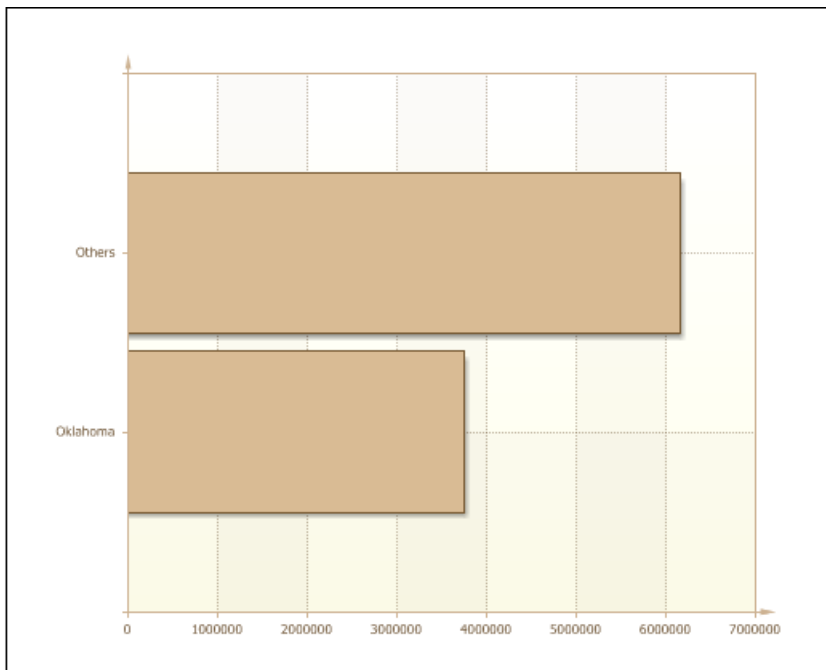
more detail.

1. The **Count** property provides the ability to determine the number of values that will be displayed and will not be subject of grouping. If this property is set to 2, then it means that the two maximum (minimum) values will be displayed, and the rest are grouped into a single value.
2. Depending on the value of **Mode** property will be allocated the maximum or minimum values. If the **Mode** property mode is set to **Top**, the maximum values will be highlighted, and if the property is set to **Bottom** - the minimum ones will be selected. If the **Mode** property is set to **None**, then all the values in the fields of the properties **List of Value**, or **Value Data Column** will be displayed.
3. Specify the signature of the argument values grouped, you can use the properties of the **Other Text**. If the field is empty for this property, the signature of the argument have grouped the values will be absent.
4. Displaying or not hiding the grouped property value provides an opportunity to **Show Other**. If this property is set to true (true), then this value is shown in the diagram, and if the value lies in the (false) - a group the values are not displayed.

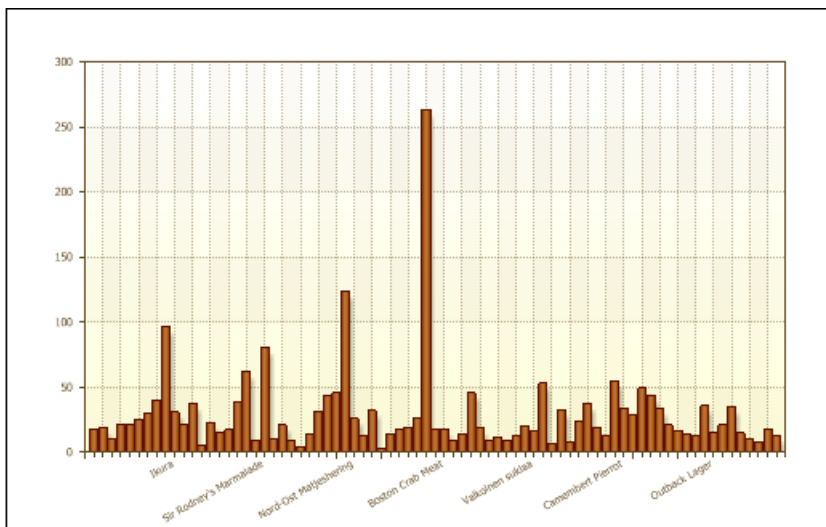
Consider the possibilities offered by a group of Top N properties as an example. There is a report that plotted on the population in some states of America. The picture below shows this diagram:



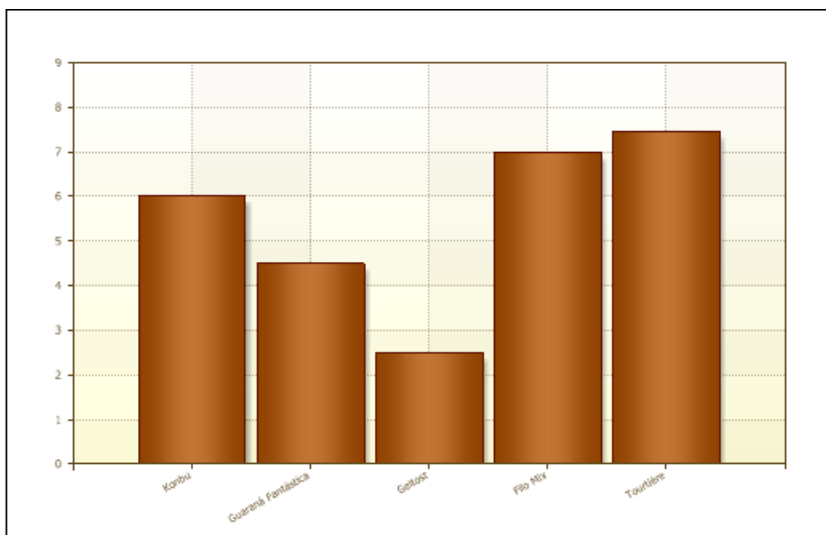
As you can see from the picture, the population of Oklahoma is the largest in the diagram. For example, to visually display the differences in the population of Oklahoma and the total population of other states in this diagram. Define the property values of Top N. Since it is necessary to allocate a single maximum value (population of Oklahoma), the number of property (Count) should be set to 1, and the **Mode** property - is set to Top. If you want you can add a signature argument of the aggregate value. In this example, the property Other Text define to be the Other. Show Other property also must be set to true (true), as in this example, the goal is to visually display the differences between populations in Oklahoma and other states in this diagram. The picture below shows a diagram with the properties of the applied group Top N:



As can be seen from the picture, the other values were grouped into a single value with the signature of an argument Other. Out of the diagram shows that the total population exceeds the population of the four states of Oklahoma. Consider another example. There is a chart with a set of values, in this case the products and their prices. The picture below shows a diagram:



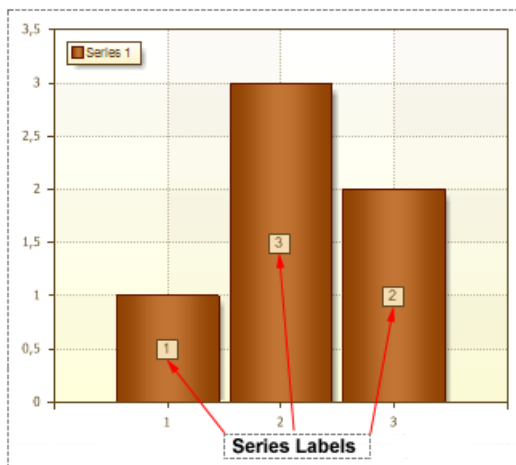
As the picture shows, visually, this picture is seen with difficulty, and select the maximum (minimum) value is problematic. In this example, we select 5 products to the most minimal prices. To do this, set the **Count** property in the value 5, the **Mode** property - is set to Bottom, Other Text property field is left blank, because the property is set to Show Other value **false**. The picture below shows a diagram with the properties of the applied group Top N:



As can be seen from the picture, a kind of filtering is performed, i.e., Report Generator has identified five minimum values, and the rest grouped into a single value. Because the property found in the Show Other value lies (false), then grouped the value does not appear on this chart.

4.29.10 Series Labels

Series Labels is an information block which displays the value of each series. The picture below shows an example of a chart, with Series Labels:



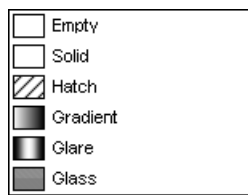
The **Series Labels** property is used to indicate position of series labels. The list of available options for this property depends on the type of chart. Also, the **Series Labels** property has some options that are used to change settings of Series Labels.

4.29.10.1 Series Labels Appearance

The following group of properties allows you to visually change the appearance of Series Labels: change the background color, titles, borders, font type, antialiasing.

4.29.10.1.1 Brush Property

The **Brush** property is used to fill a background type and color in Series Labels. To change the background color and appearance of a Series Label use the **Brush** property within the Object Inspector.



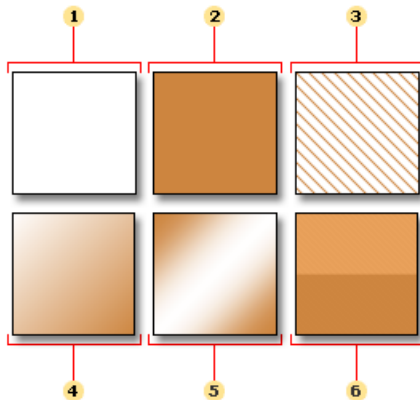
Six types of Brushes are available within Stimulsoft Reports:

- ✓ **Empty**
- ✓ **Solid**
- ✓ **Hatch**
- ✓ **Gradient**

✓ **Glare**

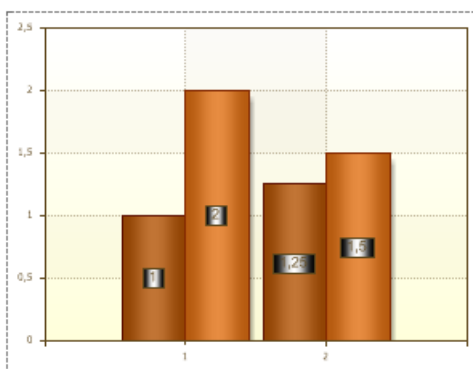
✓ **Glass**

Below are representations of the results of all six Brush types:



- 1 **Empty.** The background of a Series Label is transparent.
- 2 **Solid.** The background of a Series Label is filled with the color you specify.
- 3 **Hatch.** The background of a Series Label is filled with a texture. The background and foreground colors of the selected texture can be specified individually.
- 4 **Gradient.** The background of a Series Label is filled with gradient. A Start color, an End color, and a Gradient angle can be specified.
- 5 **Glare.** The background of a Series Label is filled using the Glare effect.
- 6 **Glass.** The background of a Series Label is filled using the Glass effect.

The **Brush.Color** property is used to change the Series Labels color. The picture below shows a sample of a chart with the Brush property set to **Glare**:



4.29.10.1.2 Font Property

The font for Series Labels can be set using the **Font** property within the Object Inspector.

Selecting font

Series Labels within a report can be output using different fonts. Three examples fonts are shown below:

AaBbCcDd

AaBbCcDd

AaBbCcDd

Any font that is installed on your machine can be used in Series Labels. However, when choosing a font try to select one that will also be present on a user machine or a report may not render as you would wish at runtime.

Font Size

The font size can be changed using the **Font.Size** property. For example:

AaBbCcDd

AaBbCcDd

AaBbCcDd

AaBbCcDd

AaBbCcDd

Font Styles

Different styles can be applied to the font. A font may include one or more styles such as regular, bold, semibold, italic, underlined, and strikeout. Examples of font styles are shown below:

AaBbCcDd

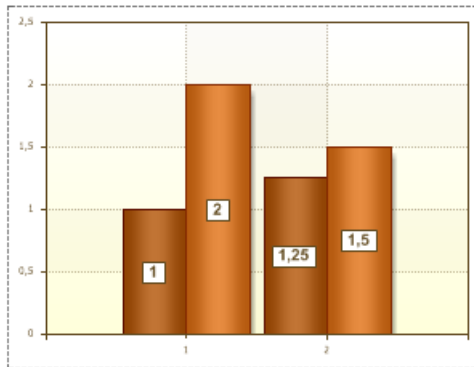
AaBbCcDd

AaBbCcDd

AaBbCcDd

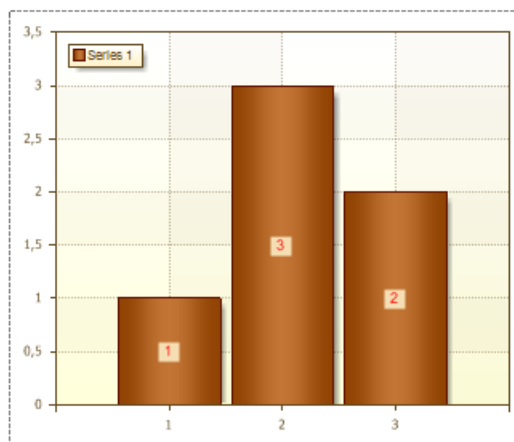
~~AaBbCcDd~~

The picture below shows a chart with text set to **Arial, Bold** style, font size - **12**:



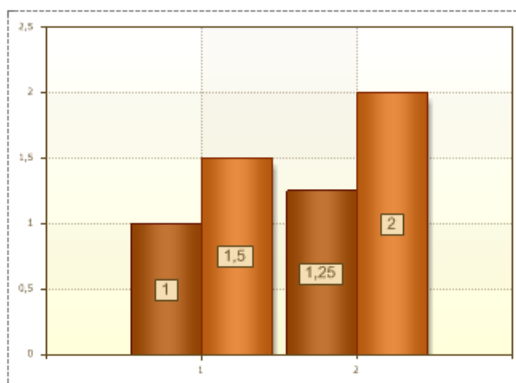
4.29.10.1.3 LabelColor Property

The **Label Color** property within the Object Inspector is used to change the color of Series Labels. The picture below shows a chart with the **Label Color** property set to **red**:

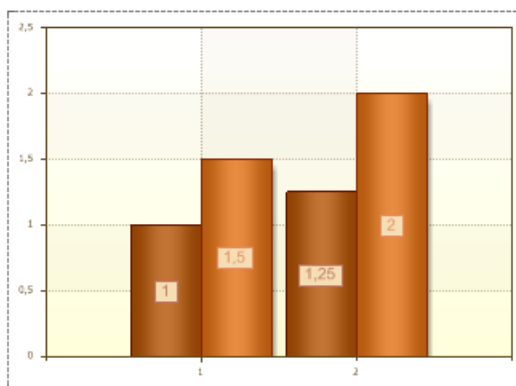


4.29.10.1.4 UseSeriesColor Property

The **UseSeriesColor** property is used to make the border color and the series label color match to the color of the series. If the **UseSeriesColor** property is set to **false**, then the border color and the color of series labels will correspond to the selected values of the **Border Color** and **Label Color** properties. The picture below shows an example of a chart, with the **UseSeriesColor** property set to **false**:

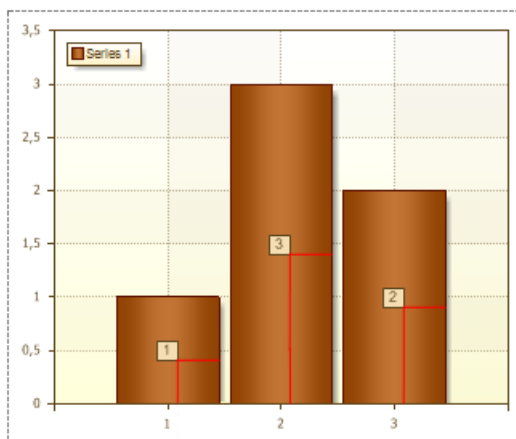


If the **UseSeriesColor** property is set to **true**, then the border color and series labels color will match to the color of series. The picture below shows an example of a chart, with the **UseSeriesColor** property set to **true**:

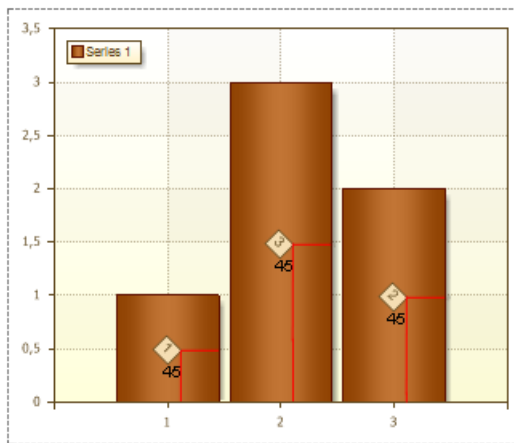


4.29.10.1.5 Angle Property

The **Angle** property allows changing the inclination angle of Series Labels. By default, this property is set to **0** (Series Labels is not inclined). The picture below shows the situation when the **Angle** property is set to **0**:

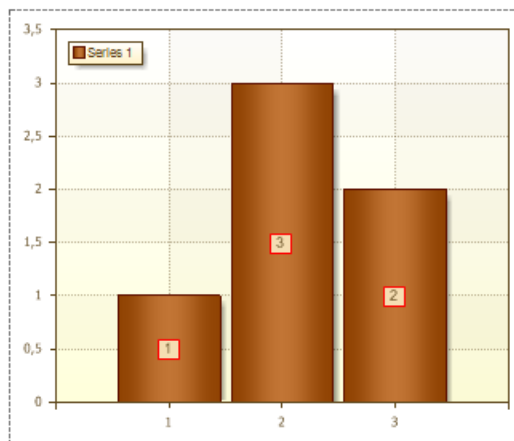


The value of the property can be negative and positive. If a value of the property is negative then Series Label is inclined anticlockwise. If the value of the property is positive then Label is inclined clockwise. The picture below shows a chart sample, which the **Angle** property for Series Labels is set to **45**:

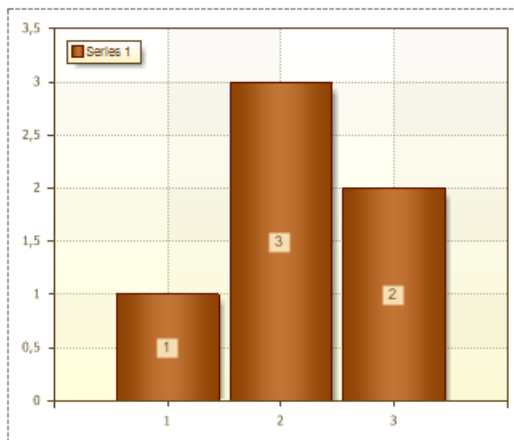


4.29.10.1.6 DrawBorder Property

The **DrawBorder** property allows showing/hiding a border of Series Labels. It has two values: **true** and **false**. If the **DrawBorder** is set to **true**, then the border is shown. The picture below shows a chart with borders around Series Labels (the borders are red):

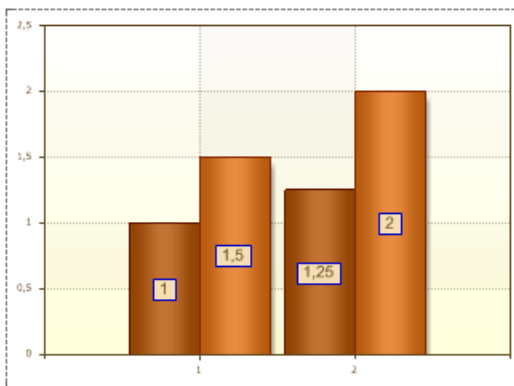


If the **DrawBorder** is set to **false**, then the border is hidden. The picture below shows a chart without borders around Series Labels:



4.29.10.1.7 BorderColor Property

The **BorderColor** property is used to change the border color of Series Labels. The picture below shows a chart which Series Labels borders are blue:



4.29.10.1.8 Antialiasing Property

The **Antialiasing** property allows you to produce smooth-edged Series Labels by partially filling the edge pixels. As a result, the edges of Series Labels blend into the background. The picture below shows a chart with the **Antialiasing** property set to **true**:



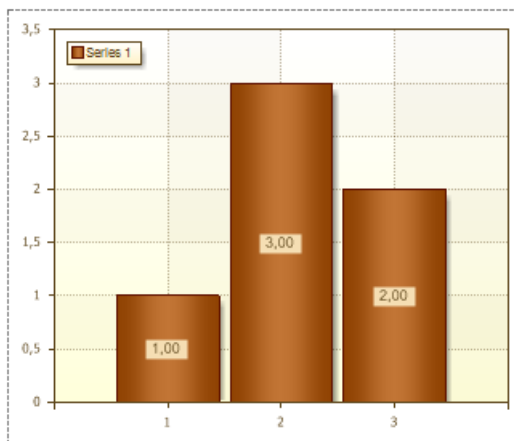
The picture below shows a chart with the **Antialiasing** property set to **false**:



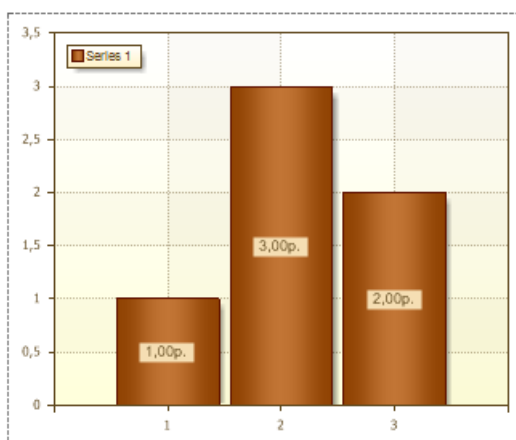
4.29.10.2 Format Property

The **Format** property is used to format the contents of Series Labels. This property has multiple values.

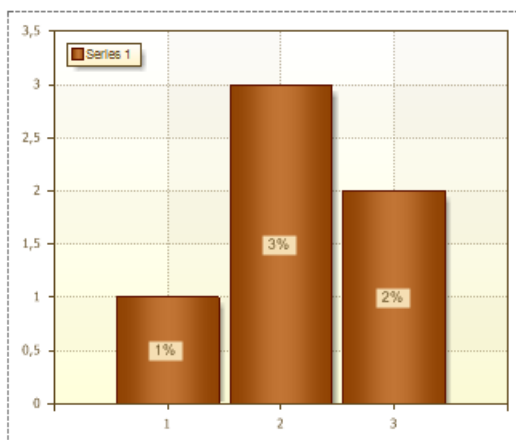
➤ **Number.** The **N** value of the **Format** property is used for the general display of numbers. When filling the **Format**, after the **N** value, it is possible to specify the number of decimal places that you want to use. If no numbers are specified after **N** then decimal places will be shown only if they are present as a result of calculation. The picture below shows a chart with the **Format** property of Series Labels set to **N**:



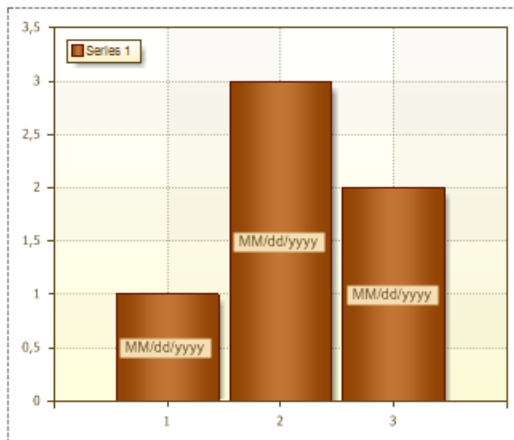
➤ **Currency.** The **C** value of the **Format** property is used to display Series Labels with a currency symbol. After the **C** value, it is possible to specify the number of decimal places that you want to use. The picture below shows a chart with the **Format** property of Series Labels set to **C**:



➤ **Percentage.** The **P** value of the **Format** property is used to display Series Labels with percent symbol. After the **P** value, it is possible to specify the number of decimal places that you want to use. The picture below shows a chart with the **Format** property of Series Labels set to **P**:



➤ **Date.** The **MM/dd/yyyy**, **MMMM dd**, **yyyy MMMM** values of the **Format** property convert values of arguments to date. **MM/dd/yyyy** - the date is shown like "01.20.2010", **MMMM dd** - the date is shown like "September 29", **yyyy MMMM** - the date is shown like "2010 March". The picture below shows a chart with the **Format** property set to **MM/dd/yyyy**

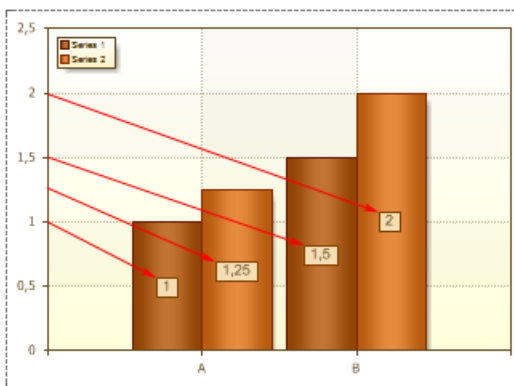


To reset the **Format** property of selected cells, and return to the default format, clear the Format by selecting empty field.

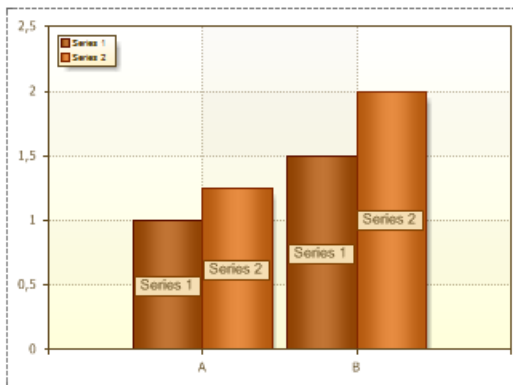
4.29.10.3 Value Type Property

The **ValueType** property is used to specify the type of a value that appears in the series labels. This property may take the following values: **Value**, **Series Title**, **Argument**, **Value - Argument**, **Argument - Value**, **Series Title - Value**, **Series Title - Argument**.

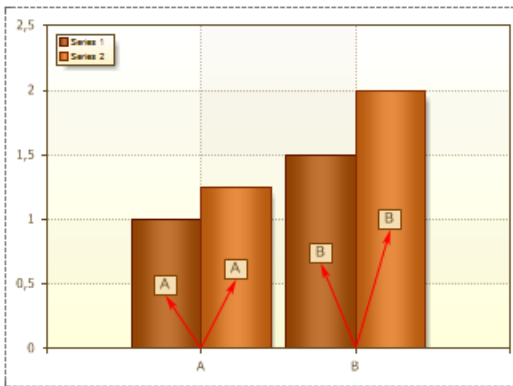
➤ **Value.** The Series Labels are series values. The picture below shows an example of a chart with the **Value Type** property set to **Value**:



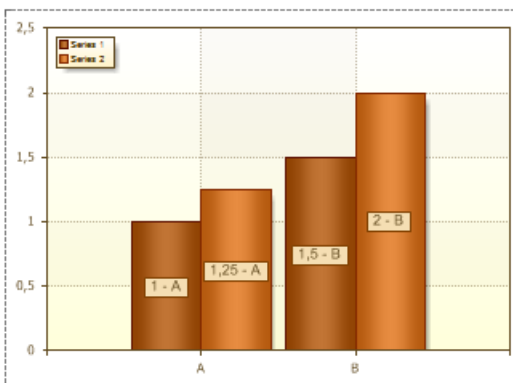
➤ **Series Title.** The Series Labels are records in the **Title** field in the **Series Editor**. The picture below shows an example of a chart with the **Value Type** property set to **Series Title**:



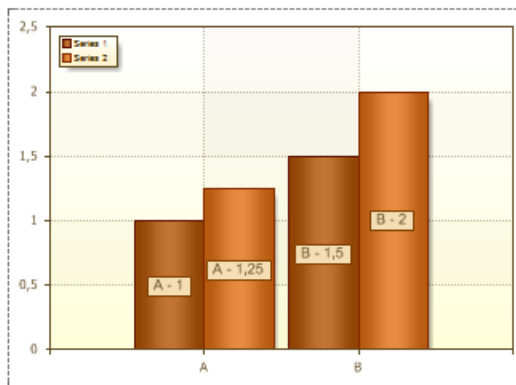
➤ **Argument.** The Series Labels are the arguments. The picture below shows an example of a chart with the **Value Type** property set to **Argument**:



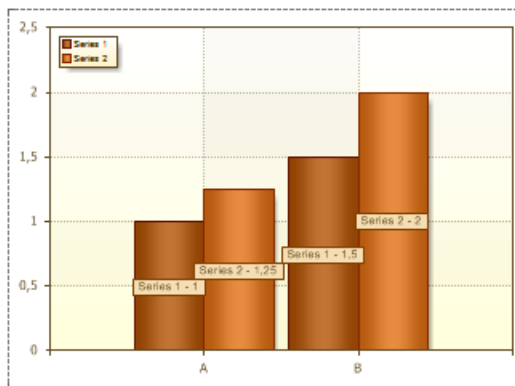
➤ **Value - Argument.** The Series Labels are **Values** and **Arguments** of series. The picture below shows an example of a chart with the **Value Type** property set to **Value - Argument**:



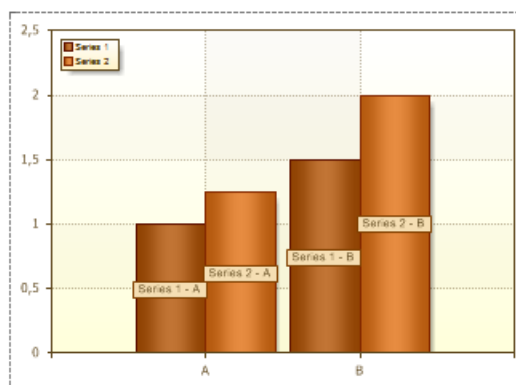
➤ **Argument - Value.** The Series Labels are **Arguments** and **Values** of series. The picture below shows an example of a chart with the **Value Type** property set to **Argument - Value**:



➤ **Series Title - Value.** The Series Labels are **Series Titles** and **Values**. The picture below shows an example of a chart with the **Value Type** property set to **Series Title - Value**:



➤ **Series Title - Argument.** The Series Labels are **Series Titles** and **Arguments**. The picture below shows an example of a chart with the **Value Type** property set to **Series Title - Argument**:

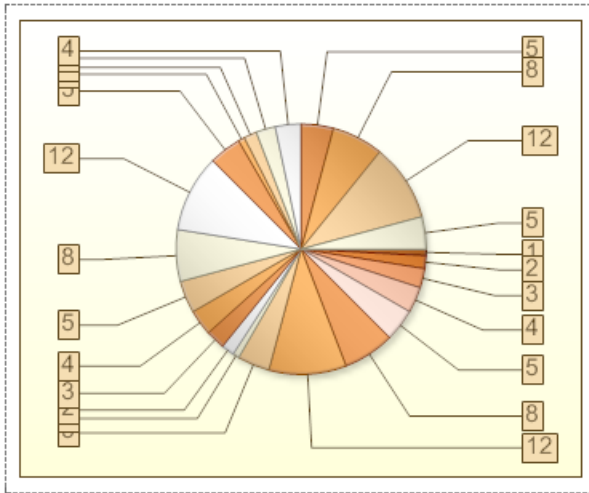


4.29.10.4 Value Type Separator

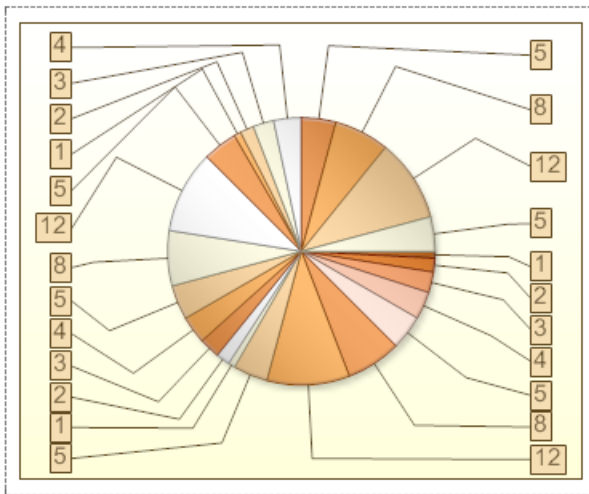
The **ValueTypeSeparator** property is used to change the type of the values separator in the series labels. By default, the **ValueTypeSeparator** property is set to '-'. Any character or group of characters typed in the field of the **ValueTypeSeparator** property will be the delimiter (including the 'space'). If the field is unfilled, then the separator is a 'space'.

4.29.10.5 PreventIntersection Property

The **PreventIntersection** property is used to avoid overlapping between series labels and with the borders of rendered values and axes. By default, the **PreventIntersection** property is set to **false** and series labels may overlap, what makes them look bad or unreadable. The picture below shows an example of a chart, with the **PreventIntersection** property set to **false**:

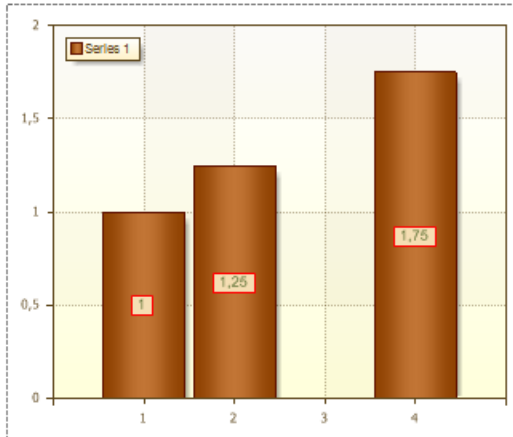


If the **PreventIntersection** property is set to **true**, then the series labels will not overlap. The picture below shows an example of a chart, with the **PreventIntersection** property set to **true**:

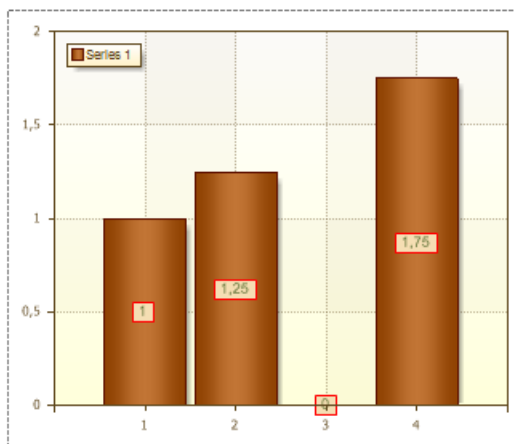


4.29.10.6 ShowOnZeroValues Property

Sometimes, when designing charts, 0 values of series can be met. Series labels of zero values can be displayed. The **ShowOnZeroValues** property is used to show/hide these series labels. If the **ShowOnZeroValues** property is set to **false**, then series labels of zero values will be hidden. The picture below shows an example of a chart with a zero value and the **ShowOnZeroValues** property is set to **false**:



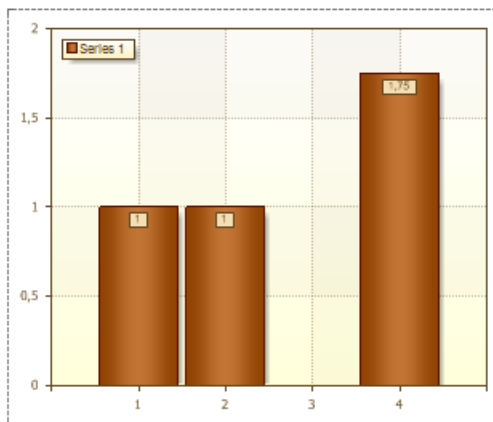
In this chart the 3rd argument is 0, and the series labels are not displayed. If the **ShowOnZeroValues** property is set to **true**, then series labels of zero values will be shown. The picture below shows an example of a chart with a zero value and the **ShowOnZeroValues** property is set to **true**:



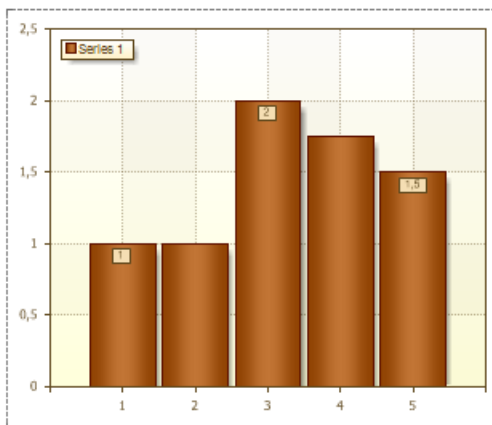
As can be seen from this picture, the 3rd argument is 0, and its title was shown.

4.29.10.7 Step Property

The **Step** property allows changing the step through what the Series Labels will be shown. By default, the **Step** property is set to **0**, so Series Labels will be shown on each Series. The picture below shows a chart with the **Step** property of Series Labels set to **0**:



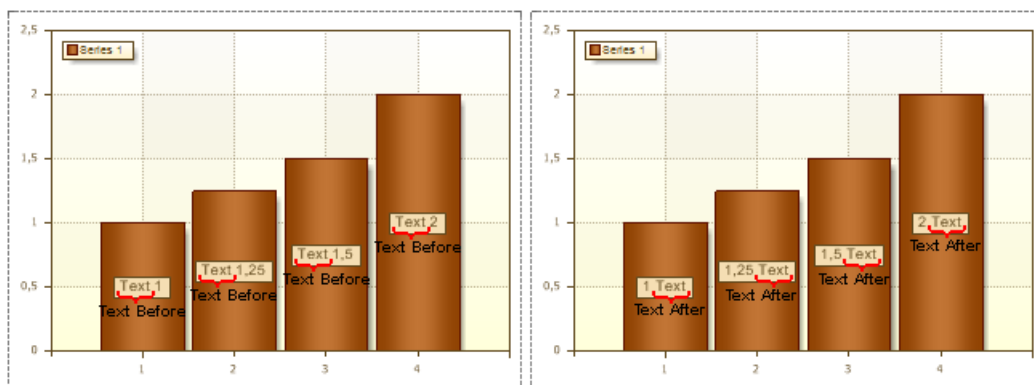
If the **Step** property is set to **2**, then Series Labels will be shown as it is shown on the picture below:



The value **1** of the **Step** property indicates that Series Labels will be shown for each value of Series.

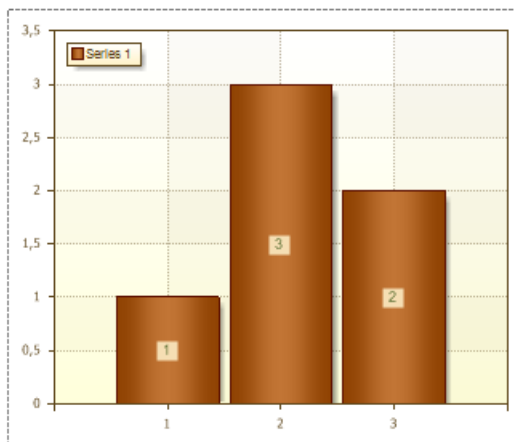
4.29.10.8 TextBefore and TextAfter Properties

The **TextBefore** and **TextAfter** properties allow showing text before and after Series Labels. It is not necessary to use these properties. The pictures below show chart samples with a text before Series Labels (left) and a text after Series Labels (right):

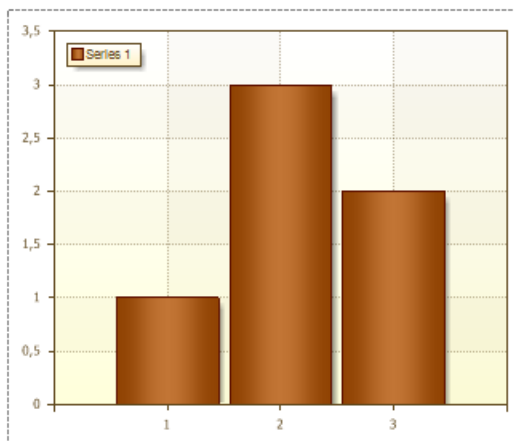


4.29.10.9 Visible Property

The **Visible** property is used to show/hide Series Labels, depending on the selected value. If the **Visible** property is set to **true**, then Series Labels are shown. The picture below shows a chart with Series Labels:



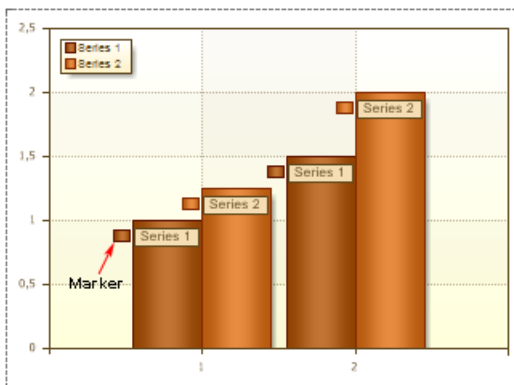
If the **Visible** property is set to **false**, then Series Labels are not displayed. The picture below shows a chart with hidden Series Labels:



By default, the **Visible** property is set to **true**.

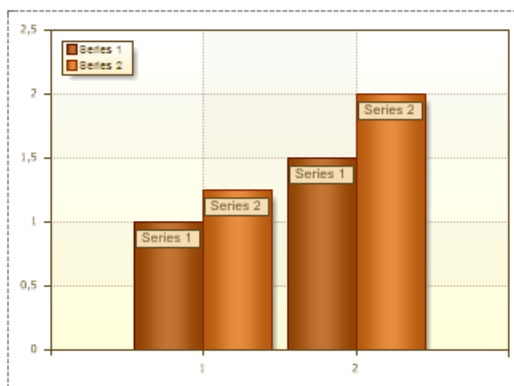
4.29.10.1 Marker

The **Marker** is an icon that is shown near the Series Labels. It is possible to change height and width of the **Marker**. The **Marker** takes the color of Series. The picture below shows a chart with **Markers**:

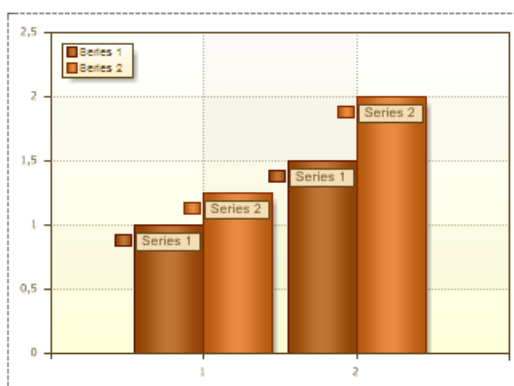


4.29.10.10.1 MarkerVisible Property

If the **MarkerVisible** property is set to true, then the **Marker** is shown. By default, the **MarkerVisible** property is set to **false** and Markers are not visible. The picture below shows a chart with the **MarkerVisible** property set to **false**:



The picture below shows a chart with the **MarkerVisible** property set to **true**:



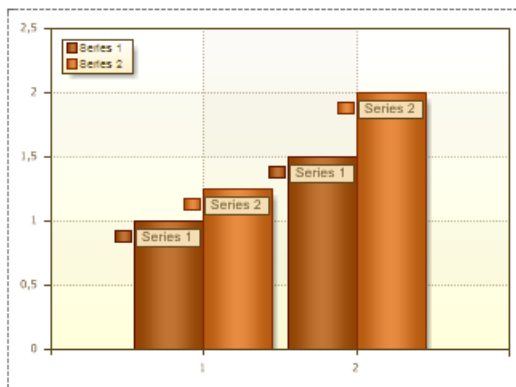
4.29.10.10.2 MarkerSize Property

It is possible to change the height and width of a **Marker**. The **MarkerSize** property is used for this. It is possible to change **Height** and **Width** of a Marker. Marker

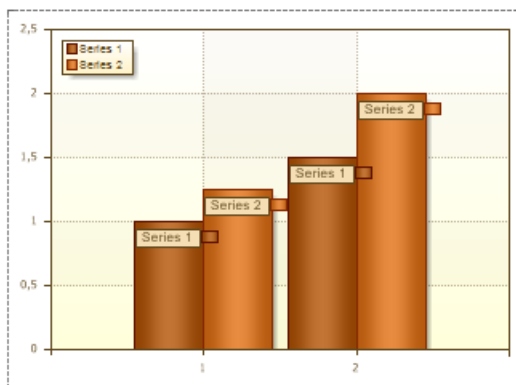
Height and Width are set in pixels. If both values are more than **0**, then the Marker is shown.

4.29.10.10.3 MarkerAlignment Property

The **MarkerAlignment** property allows aligning a marker on the left or right of Series Labels. If the **MarkerAlignment** property is set to **Right**, then the marker is aligned to the left of Series Labels. The picture below shows the Markers aligned left:



If the **MarkerAlignment** property is set to **Right**, then the marker is aligned to the right of Series Labels. The picture below shows the Markers aligned right:

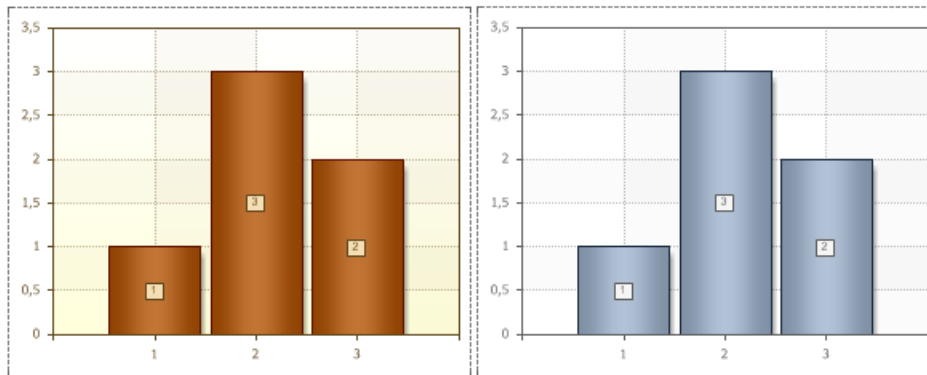


By default, the **MarkerAlignment** property is set to **Left**.

4.29.11 Style

A style is a combination of various design attributes which can be applied to charts. The **Style** property is used to change the appearance of charts. The value of this property will be one of the chosen style diagrams. Adding custom styles to the list of the chart styles can be done using the **Style Designer**. Also, it is possible to apply a style to each series. When working with chart styles, it is necessary to take into

account the value of the **AllowApplyStyle** property. The picture below shows an example of two charts with different styles:



4.29.11.1 AllowApplyStyle Property

The **AllowApplyStyle** property is used to determine whether to apply a selected style in the field of the **Style** property. If the **AllowApplyStyle** property is set to **true**, then the report generator, when rendering, will take into account the value of the **Style** property. If the **AllowApplyStyle** property is set to **false**, then the report generator, when rendering, will take into account the values of appearance of series.

4.30 Table

The **Table** component is used to output data in a report. This component is similar to spreadsheets. The table consist of rows and columns in what data can be placed. See on a picture below a Table component with 5 columns and 5 rows.

| Table1; Data Source: Categories | | | | |
|---------------------------------|--|--|--|--|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Note. This component is designed to simplify the work in the designer. When the report is rendered, the table is converted into a set of bands and text components. If you need more flexibility, we recommend you avoid the use of tables in favor of bands, text and other components.

4.30.1 Columns

The **ColumnCount** property of the Table component is used to define the number of columns in a table. On the picture below the table with 3 columns is shown.

| Table2: Data Source: Not Assigned | | |
|-----------------------------------|--|--|
| | | |
| | | |
| | | |

On the picture below the table with 5 columns is shown.

| Table2: Data Source: Not Assigned | | | | |
|-----------------------------------|--|--|--|--|
| | | | | |
| | | | | |
| | | | | |

4.30.2 Rows

The **RowCount** property of the Table component is used to define the number of rows in a table. On the picture below the table with 3 rows is shown.

| Table2: Data Source: Not Assigned | | |
|-----------------------------------|--|--|
| | | |
| | | |
| | | |

On the picture below the table with 5 rows is shown.

| Table2: Data Source: Not Assigned | | |
|-----------------------------------|--|--|
| | | |
| | | |
| | | |
| | | |
| | | |

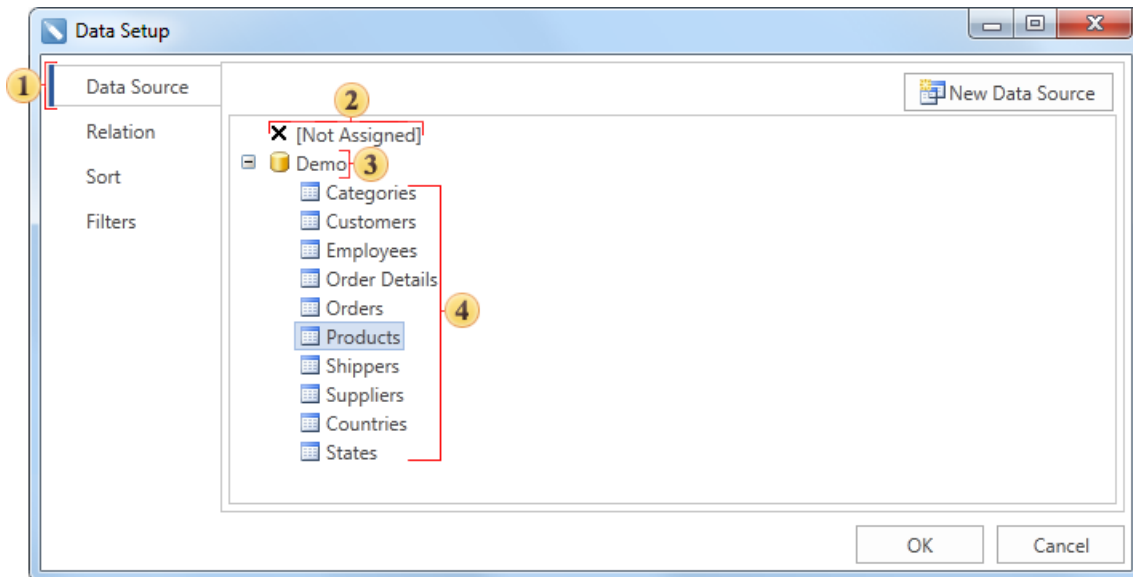
4.30.3 DataSource Property

It is necessary to define the data source to output data in the **Table** component. The reporting tool should know how many times cells must be printed in a table. Therefore, the **Table** component should have the reference to the data source. There are several ways how to do this. You may use the Table editor. Double click on the Table header to call the editor. Also the Table editor can be called using the **DataSource** property of a Table.

| | | |
|-------------|-----------|-----|
| Data Source | Customers | ... |
|-------------|-----------|-----|

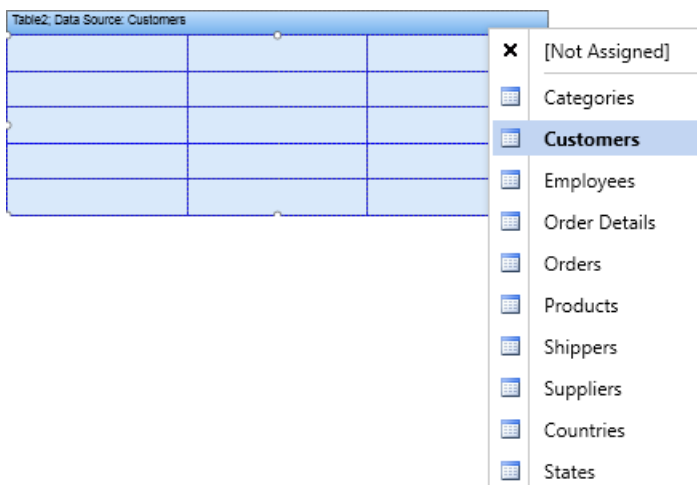
The Table editor allows selecting data source.

A data source can be selected by clicking the first tab of the editor. All data sources are grouped in categories. Each category corresponds to one connection with data in the report data dictionary. The picture below shows the Table editor.



- 1 The tab to select the data source;
- 2 Select this node if you do not need to specify the data source;
- 3 The "Demo" data category;
- 4 The "Demo" data source category.

The data source can be also selected using the quick access buttons.



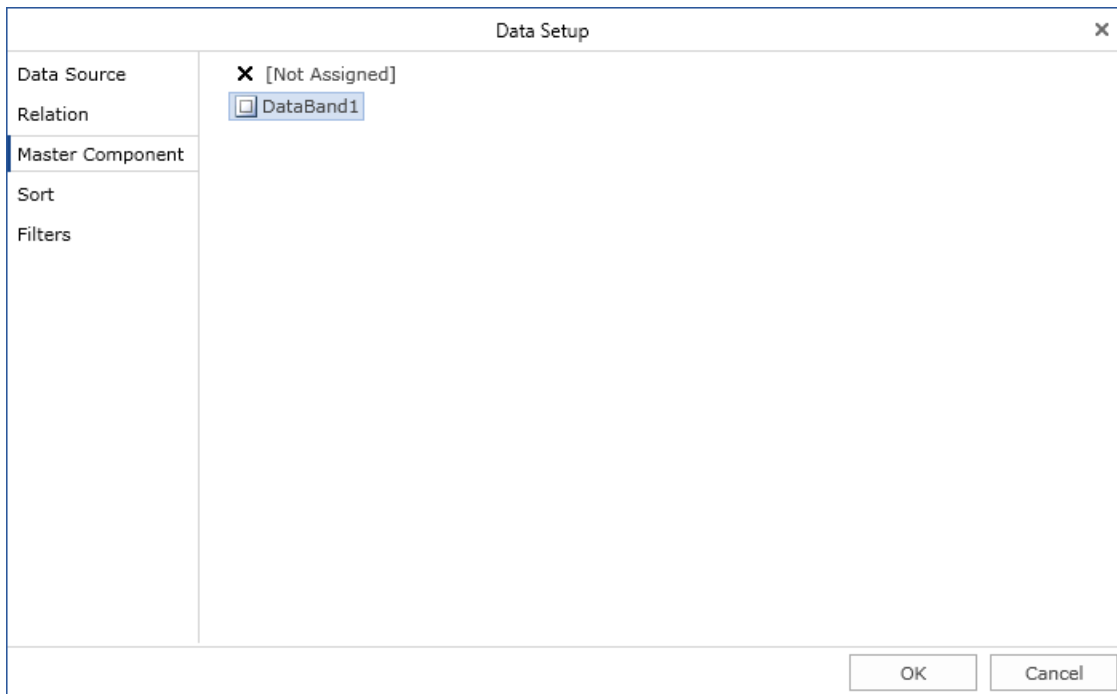
4.30.4 MasterComponent Property

It is necessary to put two tables on a page for creating the Master-Detail using the Table component. Specify Master data source for the first table (this table is the Master table). Specify Detail data source to the second table (this table is the Detail table). Then you should bind these two tables using the **MasterComponent**

property of a second table. There are several ways to set the Master table. The first way - you may set the Master table in the property grid.

Master Component [DataBand1] ...

The second way is to set the Master table in the Table designer.



After filling the **MasterComponent** component two tables will be related to each other. When printing one data row from the Master data source (and, correspondingly, printing the Master table), the printing of appropriate rows from the Detail data source occurs (and, correspondingly, printing the Detail table). The Detail band will not be printed separately, only in relation to the Master band. On a picture below two related tables are represented.

| | | | |
|--|-----------------------------------|----------------------|-------------------------|
| TableCategories; Data Source: Categories | | | |
| {Categories.CategoryName} | | | |
| {Categories.Description} | | | |
| TableProducts; Data Source: Products | Master Component: TableCategories | | |
| {Products.ProductName} | {Products.QuantityPerUnit} | {Products.UnitPrice} | {Products.UnitsInStock} |

The picture below shows the result of two tables rendering.

Beverages

Soft drinks, coffees, teas, beers, and ales

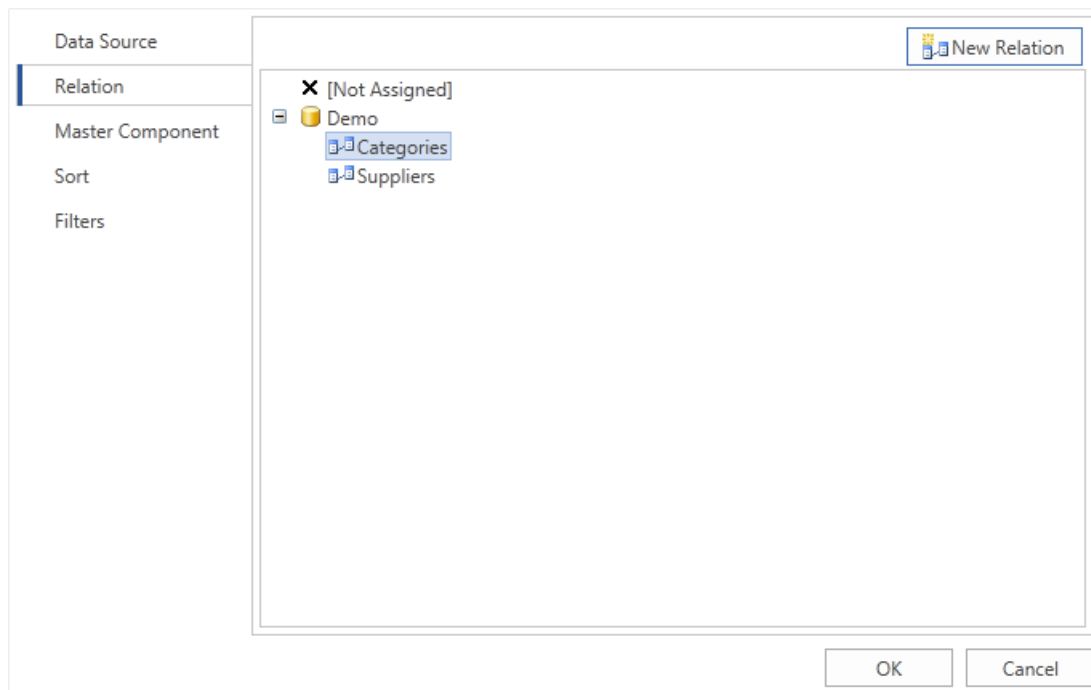
| | | | |
|---------------------|--------------------|-------|-----|
| Chai | 10 boxes x 20 bags | 18 | 39 |
| Chang | 24 - 12 oz bottles | 19 | 17 |
| Guaraná Fantástica | 12 - 355 ml cans | 4,5 | 20 |
| Sasquatch Ale | 24 - 12 oz bottles | 14 | 111 |
| Steeleye Stout | 24 - 12 oz bottles | 18 | 20 |
| Côte de Blaye | 12 - 75 cl bottles | 263,5 | 17 |
| Chartreuse verte | 750 cc per bottle | 18 | 69 |
| Ipoh Coffee | 16 - 500 g tins | 46 | 17 |
| Laughing Lumberjack | 24 - 12 oz bottles | 14 | 52 |

4.30.5 Relation Property

Besides filling the **MasterComponent** property it is necessary to fill the **DataRelation** property of the Detail table. The relation is used for selecting the detailed data only for the specific row of the Master table. If the relation will not be specified then all records of the Detail data source of the Detail table will be output for each row of the Master data source of the Master table.

Data Relation ...

The relation can be selected using the **Data** table editor.



The selection is done between relations which are created between Master and Detail data sources and in what the Detail data source is the child data source.

4.30.6 Tables and Bands in Master-Detail Lists

It is allowed to bind bands and tables when rendering the Master-Detail reports. For example, the master component can be a band and the Detail component can be a table. The template of such a report is shown on a picture below.

| | | | |
|--|----------------------------|----------------------|-------------------------|
| DataCategories; Data Source: Categories | | | |
| {Categories.CategoryName} | | | |
| TableProducts; Data Source: Products Master Component: DataCategories | | | |
| {Products.ProductName} | {Products.QuantityPerUnit} | {Products.UnitPrice} | {Products.UnitsInStock} |

The number of **Data** bands and **Tables** which interact between each other is unlimited.

4.30.7 Tables and Grouping

It is easy to add grouping to a report with a table. For this you should put the **GroupHeader** band before the **Table** component and the **GroupFooter** band after the Table. The condition of grouping is specified for the **GroupHeader** component. The text component that outputs the condition of grouping is placed in the **GroupHeader** band. It is enough to group a table by the specified condition. On a picture below the table of grouping is shown.

| | | | |
|---|----------------------|-----------------------|-----------------------|
| GroupHeaderBand1; Condition: {Products.Categories.CategoryName} | | | |
| {Products.Categories.CategoryName} | | | |
| TableProducts; Data Source: Products | | | |
| {Products.ProductName} | | | {Products.ProductID} |
| {Products.QuantityPe | {Products.UnitPrice} | {Products.UnitsInStor | {Products.SupplierID} |

See the picture below that demonstrates the report with grouping and a table.

| Beverages | | | |
|--------------------|-------|----|----|
| Côte de Blaye | | | 38 |
| 12 - 75 cl bottles | 263,5 | 17 | 18 |
| Chartreuse verte | | | 39 |
| 750 cc per bottle | 18 | 69 | 18 |
| Steeleye Stout | | | 35 |
| 24 - 12 oz bottles | 18 | 20 | 16 |
| Guaraná Fantástica | | | 24 |
| 12 - 355 ml cans | 4,5 | 20 | 10 |

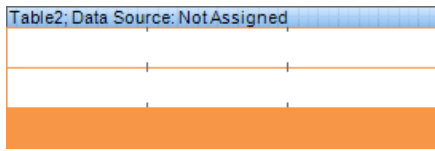
4.30.8 Table Header

Rows in a Table component can be specified as a header. In other words these rows will always be output in the beginning of a table. The **HeaderRowCount** property is used to indicate how many rows will be shown as headers. By default this property is set to 0. The number of header rows cannot be more than the number of rows in a table.

| | | | |
|----------------------------------|--|--|--|
| Table2; Data Source: NotAssigned | | | |
| | | | |
| | | | |
| | | | |

4.30.9 Table Footer

A table may include footer rows. These rows are output on the bottom of a table. The **FooterRowCount** property is used to indicate how many rows will be used as footers. By default this property is set to 0. The number of footer rows cannot be more than the number of rows in a table.



| Table2; Data Source: NotAssigned | | |
|----------------------------------|--|--|
| | | |
| | | |
| | | |

4.30.10 Cells Width Autochange

When a report is rendered using the **Table** component, the width of some cells can change. As a result this may lead to the change of a table size. There are two properties of the Table component which are used to adjust cell size: the **AutoWidthType** property and the **AutoWidth** property.

4.30.10.1 AutoWidth Property

The **AutoWidth** property of a **Table** component indicates whether the reporting tool will fix the cells size after the report rendering.

- The **AutoWidth** property is set to **None**. Column size is not changed. In this case setting the **AutoWidthType** property of a table and the **FixedWidth** property of cells will not affect a table.
- The **AutoWidth** property is set to **Page**. If a rendered table is placed on several pages then columns will have different width on different pages. It depends on data.
- The **AutoWidth** property is set to **Report**. If a rendered table is placed on several pages then columns will have the same width in a report.

4.30.10.2 AutoWidthType Property

The **AutoWidthType** property of a table indicates how the reporting tool will fix cells width after report rendering.

➤ None

Columns width is set depending on the cells contents of all table (the longest line by column is taken). If the **FixedWidth** property is set to true, then the column size is not changed.

| | | | |
|--------------------------------|------------------------|----------------|----------------------|
| Franchi S.p.A. | Via Monte Bianco 34 | 011-4988260 | Sales Representative |
| Furia Bacalhau e Frutos do Mar | Jardim das rosas n. 32 | (1) 354-2534 | Sales Manager |
| Galería del gastrónomo | Rambla de Cataluña, 23 | (93) 203 4560 | Marketing Manager |
| Godos Cocina Típica | C/ Romero, 33 | (95) 555 82 82 | Sales Manager |

(c) 2003-2009 Stimulsoft

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| CompanyName | Address | Phone | ContactTitle |
|-------------------------|---------------------------|----------------|-------------------|
| Gourmet Lanchonetes | Av. Brasil, 442 | (11) 555-9482 | Sales Associate |
| Great Lakes Food Market | 2732 Baker Blvd. | (503) 555-7555 | Marketing Manager |
| GROSELLA-Restaurante | 5* Ave. Los Palos Grandes | (2) 283-2951 | Owner |

► FullTable

Column width is set depending on the table width. In other words the width of all column cells is checked first (the column width is set by the longest line). If there is free space then it is equally distributed between all columns. If there is not enough space to output the longest lines, then the width of columns is decreased in equal parts between all columns.

| | | | |
|--------------------------------|------------------------|----------------|----------------------|
| Franchi S.p.A. | Via Monte Bianco 34 | 011-4988260 | Sales Representative |
| Furia Bacalhau e Frutos do Mar | Jardim das rosas n. 32 | (1) 354-2534 | Sales Manager |
| Galería del gastrónomo | Rambla de Cataluña, 23 | (93) 203 4560 | Marketing Manager |
| Godos Cocina Típica | C/ Romero, 33 | (95) 555 82 82 | Sales Manager |

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| CompanyName | Address | Phone | ContactTitle |
|-------------------------|---------------------------|----------------|-------------------|
| Gourmet Lanchonetes | Av. Brasil, 442 | (11) 555-9482 | Sales Associate |
| Great Lakes Food Market | 2732 Baker Blvd. | (503) 555-7555 | Marketing Manager |
| GROSELLA-Restaurante | 5* Ave. Los Palos Grandes | (2) 283-2951 | Owner |

► LastColumns

Column width is set depending on the table width. In other words the width of all column cells is checked first (the column width is set by the longest line). If there is free space then it is distributed to the last column whose **FixedWidth** property is set to **false**. If there is not enough space to output the longest lines, then the width of the last columns is decreased and distributed between all columns whose **FixedWidth** properties are set to **false**.

| | | | |
|-------------------------------|------------------------|----------------|----------------------|
| La corne d'abondance | 67, avenue de l'Europe | 30.59.84.10 | Sales Representative |
| La maison d'Asie | 1 rue Alsace-Lorraine | 61.77.61.10 | Sales Manager |
| Laughing Bacchus Wine Cellars | 1900 Oak St. | (604) 555-3392 | Marketing Assistant |
| Lazy K Kountry Store | 12 Orchestra Terrace | (509) 555-7969 | Marketing Manager |

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| CompanyName | Address | Phone | ContactTitle |
|---------------------|--|----------------|----------------------|
| Lehmanns Marktstand | Magazinweg 7 | 069-0245984 | Sales Representative |
| Let's Stop N Shop | 87 Polk St. Suite 5 | (415) 555-5938 | Owner |
| LILA-Supermercado | Carrera 52 con Ave. Bolívar #65-98 Llano Largo | (9) 331-6954 | Accounting Manager |

4.30.11 FixedWidth Property

The **FixedWidth** property is used together with the **AutoWidth** property of a **Table** component. If a table changes the column size (depending on the **AutoWidth** property) then the **FixedWidth** property that is set to **true** does not allow these changes. The pictures below show samples of using this property. On the first picture the **FixedWidth** property is not used.

| Company | Address | Phone | Contact |
|------------------------------------|-------------------------------|----------------|----------------------|
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-7788 | Sales Representative |
| Berglunds snabbköp | Berguvsvägen 8 | 0921-12 34 65 | Order Administrator |
| Blauer See Delikatessen | Forsterstr. 57 | 0621-08460 | Sales Representative |
| Blondesddsl père et fils | 24, place Kléber | 88.60.15.31 | Marketing Manager |

On the second picture the **FixedWidth** property of the Phone column is set to **true**.

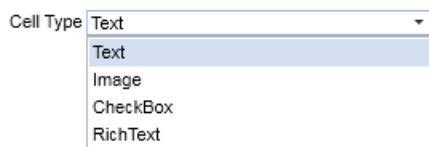
| Company | Address | Phone | Contact |
|------------------------------------|-------------------------------|--------------|----------------------|
| Alfreds Futterkiste | Obere Str. 57 | 030-0074321 | Sales Representative |
| Ana Trujillo Emparedados y helados | Avda. de la Constitución 2222 | (5) 555-4729 | Owner |
| Antonio Moreno Taquería | Mataderos 2312 | (5) 555-3932 | Owner |
| Around the Horn | 120 Hanover Sq. | (171) 555-77 | Sales Representative |
| Berglunds snabbköp | Berguvsvägen 8 | 0921-12 34 6 | Order Administrator |
| Blauer See Delikatessen | Forsterstr. 57 | 0621-08460 | Sales Representative |
| Blondesddsl père et fils | 24, place Kléber | 88.60.15.31 | Marketing Manager |

4.30.12 CellType Property

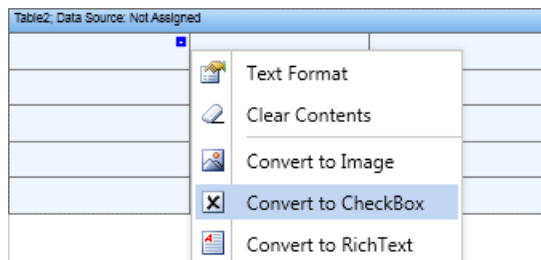
There are different types of cells can be placed In the Table component. They are a text, an image, a check, and a rich text.

- ✓ Text is a cell that will be output as a text. Cell settings are the same as the settings of a Text component;
- ✓ Image is a cell that will be output as an image. Cell settings are the same as the settings of an Image component;
- ✓ Check is a cell that will be output as a check for Boolean types of data. Cell settings are the same as the settings of a Check component;
- ✓ Rich text is a cell that will be output as a rich text. Cell settings are the same as the settings of a Rich Text component.

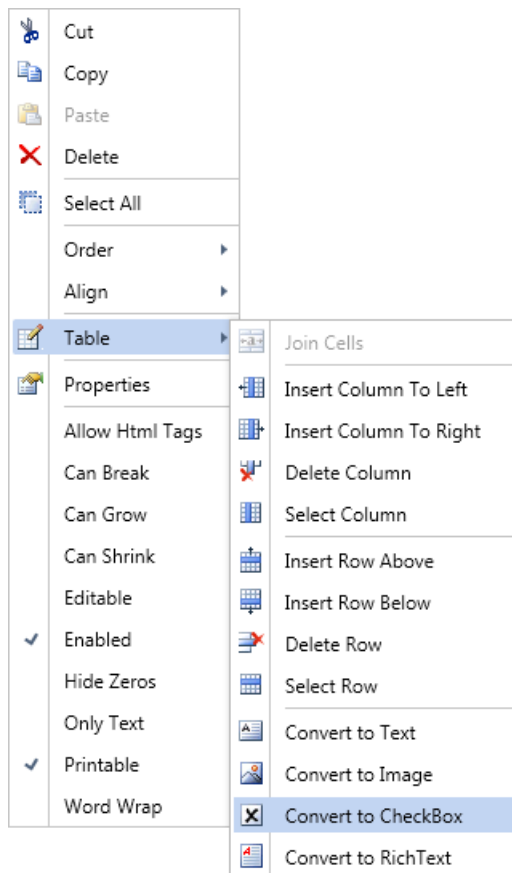
The **CellType** property is used to indicate a cell type.



Also it is possible to indicate a cell style by clicking the quick access button of a cell.

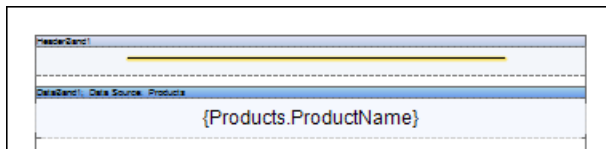


Or the context menu of a cell.

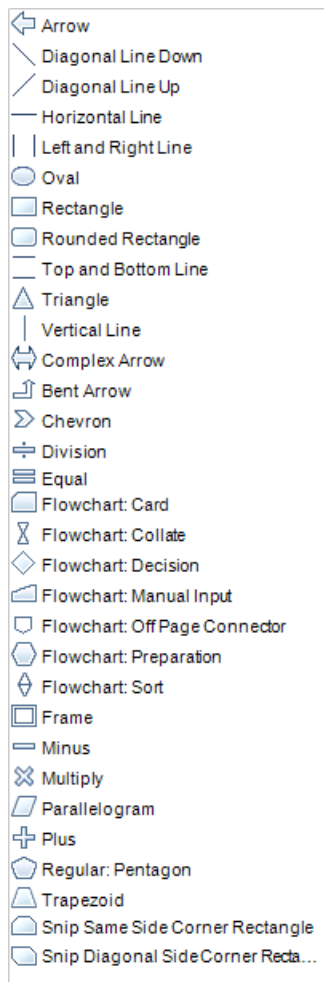


4.31 Primitives

Primitives include: **Horizontal Line** and **Shape**. Cross-primitives include: **Vertical Line**, **Rectangle** and **Rounded Rectangle**. **Horizontal line** is a line in the horizontal plane, whose start and end points are located on the same component in a report. The picture below shows a report template with a list in which a **Horizontal Line** is located in the **HeaderBand**:

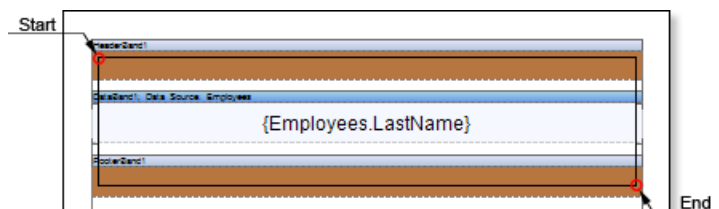


The **Shape** is a report component, which, depending on the type, shows this or that primitive. The **ShapeType** property is used to specify a primitive type. The picture below shows a list of values of the **ShapeType** property:



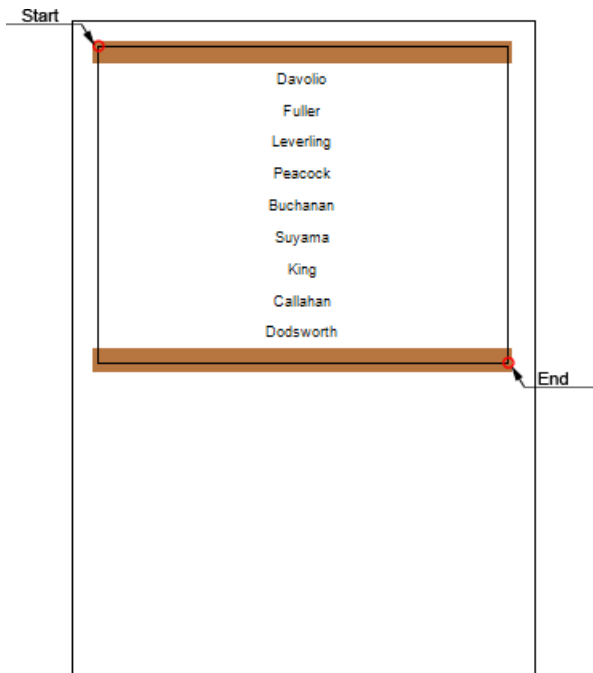
4.31.1 Cross-Primitives

Cross-primitives include: **Vertical Line**, **Rectangle** and **Rounded Rectangle**. The start and end points of cross-primitives can be placed on different components of a report. When designing a report with cross-primitives the report generator renders start and end points of a vertical line, and then, between two points, it renders a vertical line. The picture below shows an example of a report template with a rectangle:



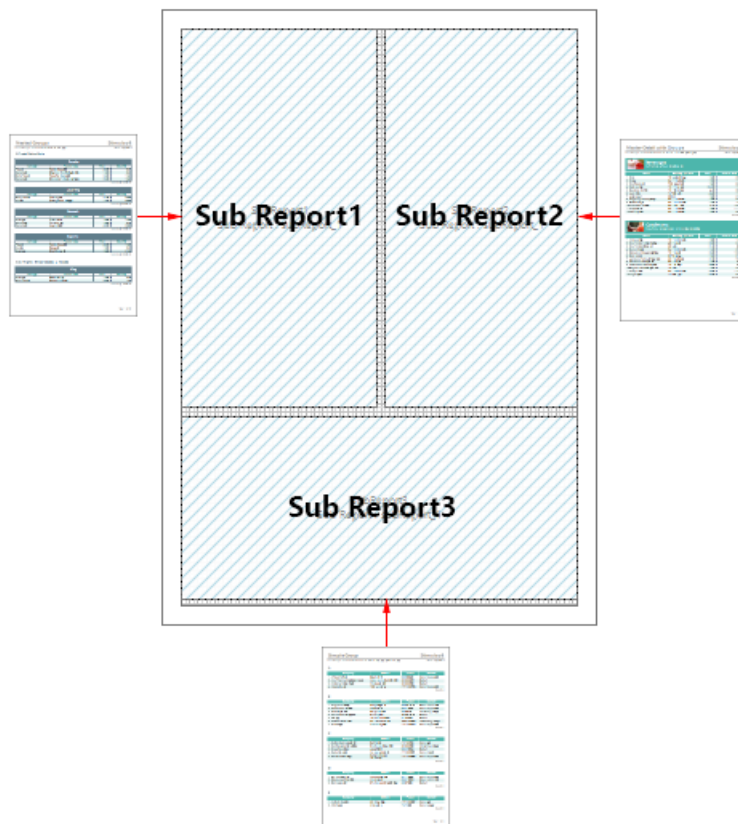
As can be seen in the picture, the start and end points of the **Rectangle** component are located on different bands: the start point is located in the **HeaderBand**, and the

end point is in the **FooterBand**. When rendering the report, the report generator will render start and end points of the rectangle, and then it will render rectangle sides. The picture below shows an example of the rendered report pages with the **Rectangle** cross-primitive:



4.32 Sub-Reports

The **Sub-Report** component is used to display another report in the current report. In this case, the sub-report will be displayed in the current report only within the **Sub-Report** component. In other words, when you render a report with **Sub-Report** components, the report engine will build all the nested reports and place them in these components.



You can place sub-reports on:

- [Bands](#);
- [Pages](#);
- Panels;
- Any other components of the report that can be containers for sub-reports.

A report that will be displayed in the rendered report using the **Sub-Report** component can be obtained:

- From another page in the report template;
- From the file (*.mrt, *.mrz, *.mdc, *.mdz);
- By the hyperlink (*.mrt, *.mrz, *.mdc, *.mdz);
- From the report resources (*.mrt, *.mrz, *.mdc, *.mdz).

Information

You may place the **Sub-Report** component on another sub-report. So, the number of levels of nested reports is unlimited.

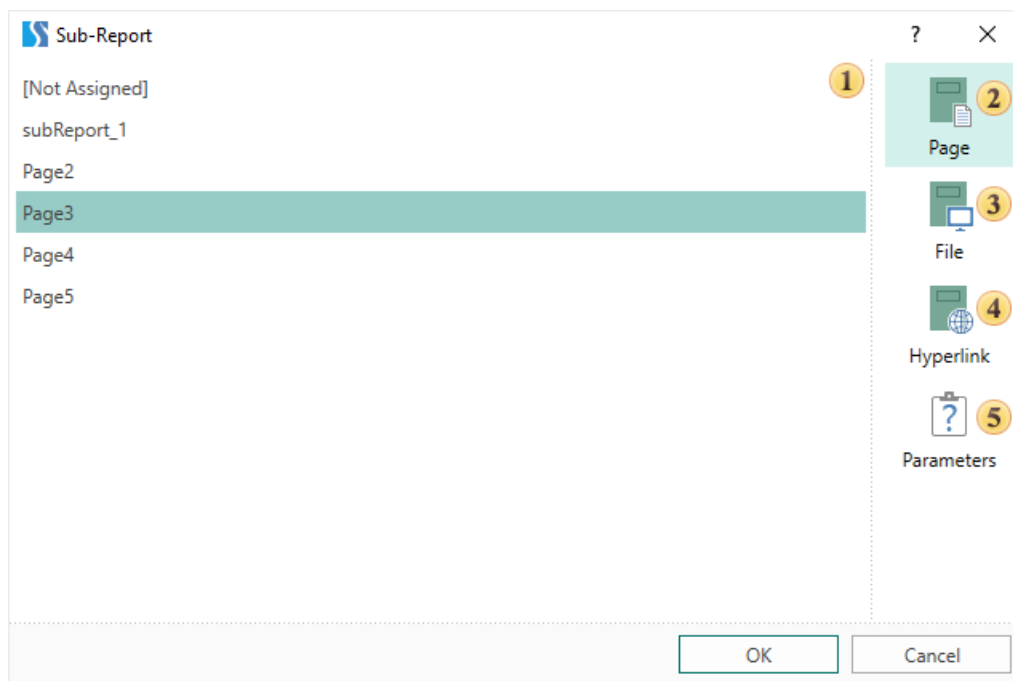
You can add sub-reports by:

- Selecting this component in the **Components** group in the **Toolbox** or in the **Insert** tab. In this case, a new page which is associated with this component will be automatically created in the report.
- Dragging the report from the resources to the report. In this case, a new page will not be created, and in the **Sub-Report** component, a link to the resource will be generated.

4.32.1 Editor

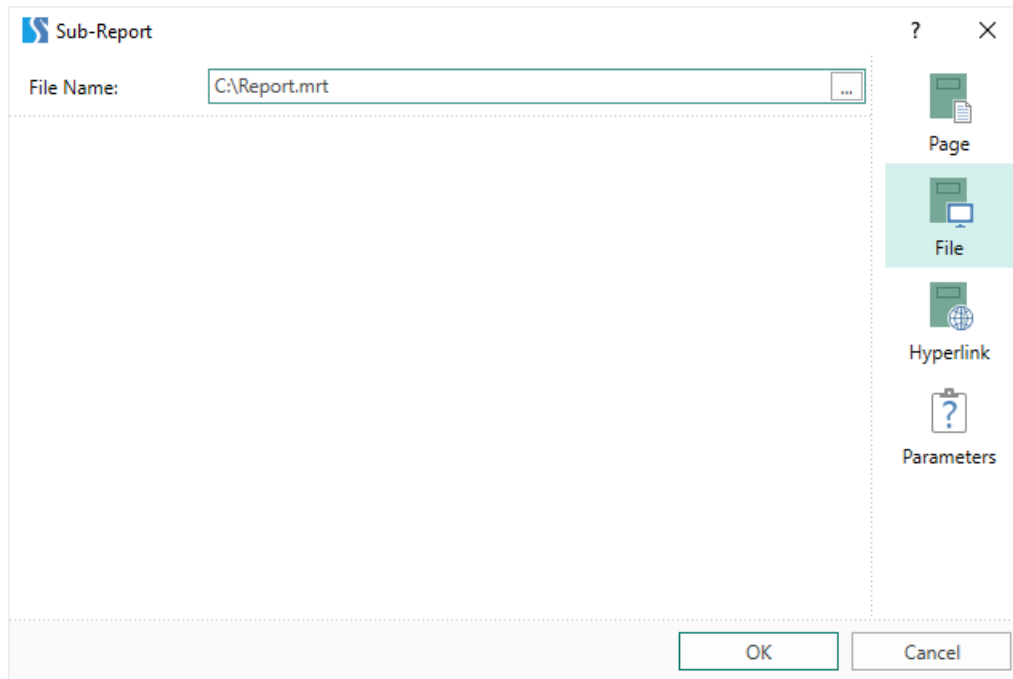
In the editor, you can specify the resource for the **Sub-Report** component and configure the settings.

To call the editor, double-click the **Sub-Report** component on the report page:

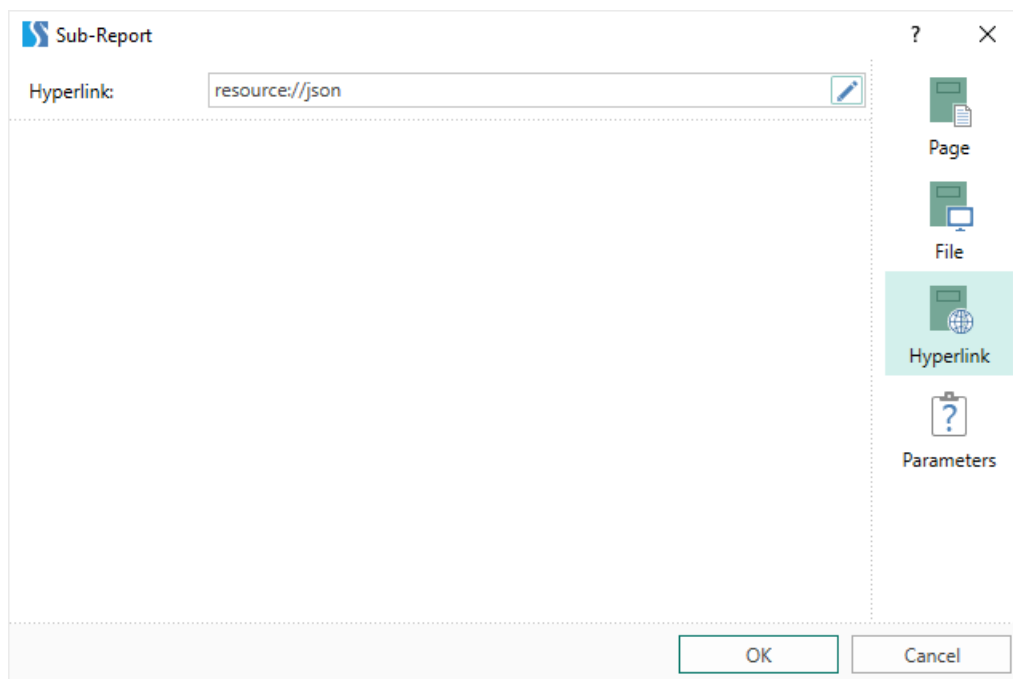


- ➊ Settings panel. If the **Page** tab is selected, the list of report template pages will be displayed on this panel. Any of these pages can be a resource for the component and, when rendering the report, it will be displayed on this component.
- ➋ The **Page** tab. In this tab, you can select the report template page that will be the resource for the **Sub-Report** component.

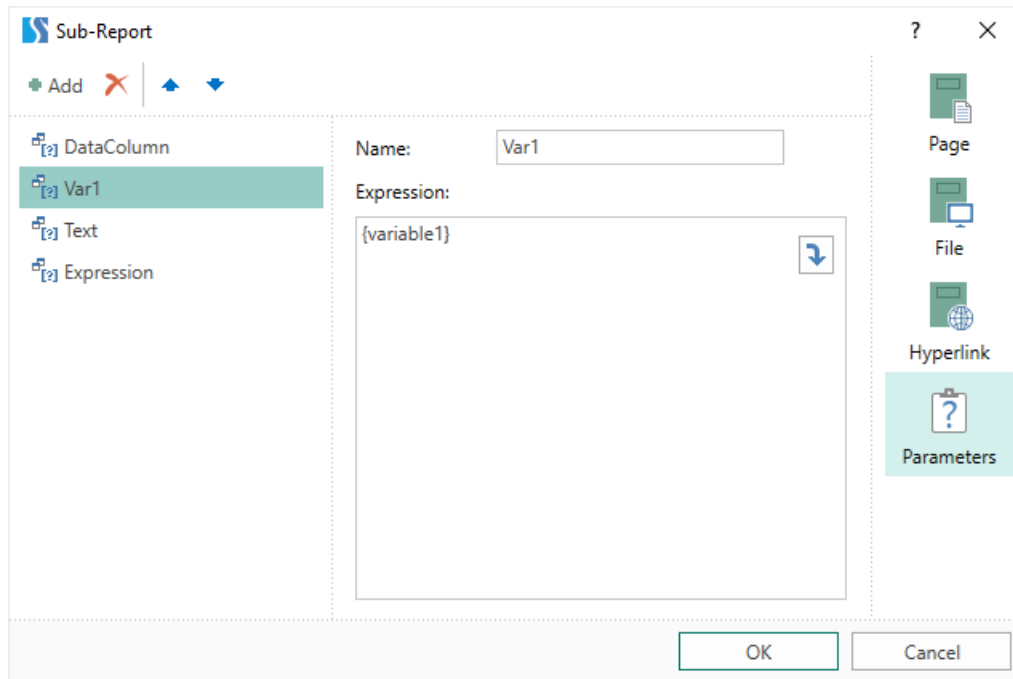
- 3 The **File** tab. In this tab, you can specify a path to the file (external report) that will be the resource for the **Sub-Report** component.



- 4 The **Hyperlink** tab. In this tab, you can specify a link to the external report or to the resource that will be the resource for the **Sub-Report** component.



5 The **Parameters** tab. In this tab you can add and configure the settings that will be passed to the sub-report.



Parameters are usually used to filter data or transfer information from the main report to a sub-report. To add a parameter, you should:

- Call the editor of the sub-report;
- Go to the **Parameters** tab;
- Click the **Add** button;
- Specify the name of the parameter and its expression.

In the parameter expression, you can specify:

- The data column;
- Variable;
- Any other expression.

After that, you should go to the resource of the **Sub-Report** component (a page or another report) and specify this parameter, for example, in the filter expression.

4.32.2 Report sample with parameters

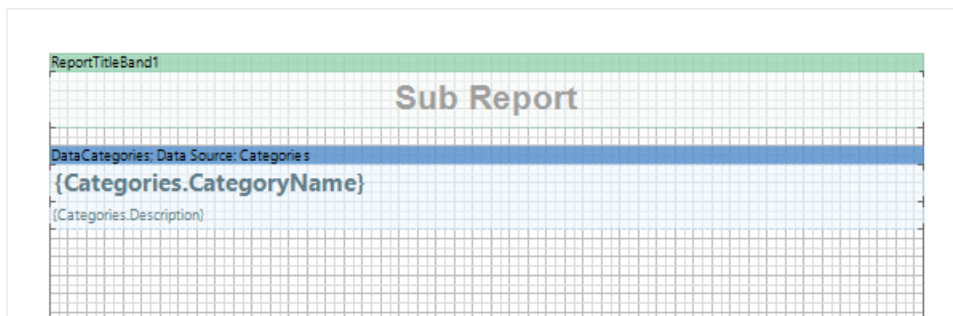
Let's create a report with products by category. The list of categories will be located in the main report, and the list of products will be located in the sub-report (on another page in the same report template).

Step 1: Open the report designer;

Step 2: Connect the data;

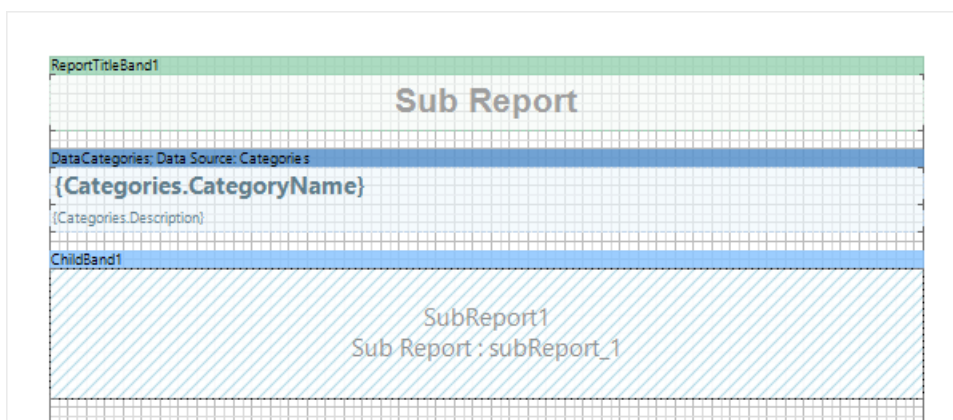
Step 3: Add the **ReportTitleBand**, if required;

Step 4: Add a **Data** Band with a list of categories;



Step 5: Add the **Child** band;

Step 6: Place the **Sub-Report** component on this band. At the same time, the new page **subReport_1** will be added to the report template;



Step 7: Go to the new page of the report template and place a band with the list of products, titles and totals, if required;

| HeaderProducts | | |
|-------------------------------------|----------------------|-------------------------|
| Product Name | Unit Price | Units In Stock |
| DataProducts: Data Source: Products | | |
| {Products.ProductName} | {Products.UnitPrice} | {Products.UnitsInStock} |
| FooterProducts | | |
| Count: {Count()} | | |

Information

If you go to the **Preview**, then, for each category, the entire list of products will be displayed without considering to which category the products belong to. To display only products which belong to the category, you should add a parameter with category keys and transfer them to the sub-report.

Step 8: Go back to the page with the list of categories;

Step 9: Call the editor of the sub-report and go to the **Parameters** tab;

Step 10: Add a new parameter, specify a name and column **Categories.CategoryID** as an expression;

Sub-Report

Add X Up Down

CategoryID

Name: CategoryID

Expression: Categories.CategoryID fx

Page

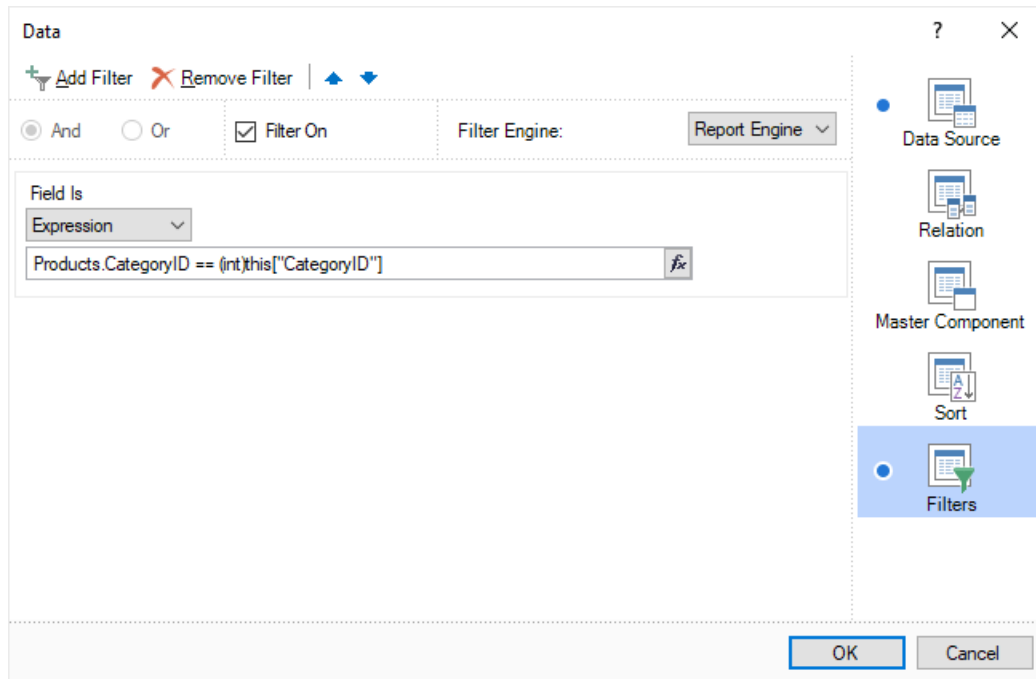
File

Hyperlink

Parameters

OK Cancel

Step 11: Go back to the products page and specify the filter expression using this parameter **Products.CategoryID == (int)this["CategoryID"]**;

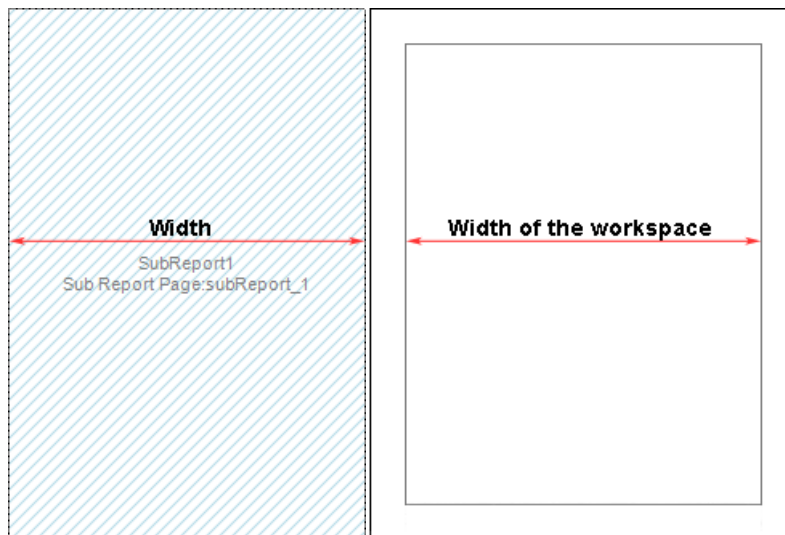


Step 12: Go to the Preview. A list of products will be displayed by categories.

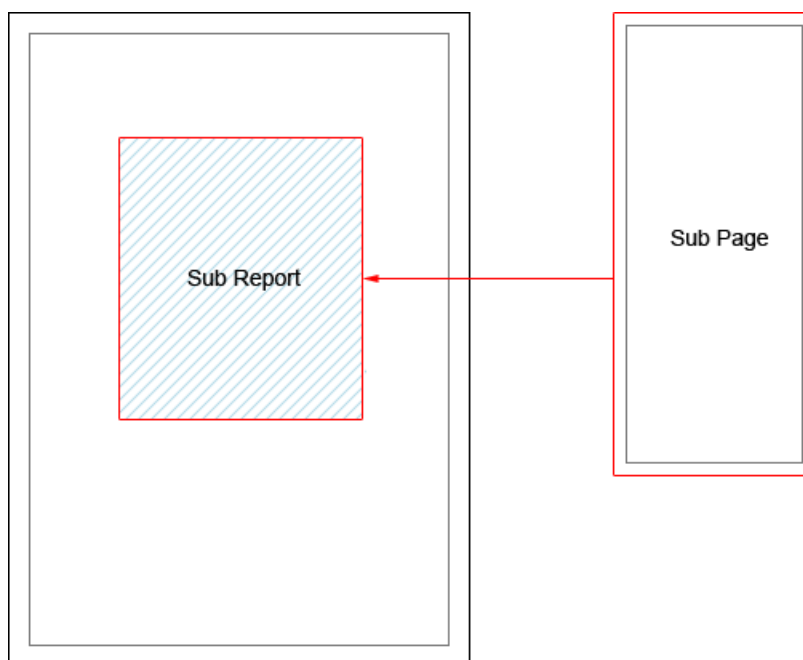
| Sub Report | | |
|--|------------|----------------|
| Beverages | | |
| Soft drinks, coffees, teas, beers, and ales | | |
| Product Name | Unit Price | Units In Stock |
| Onel | \$18.00 | 39 |
| Cheng | \$19.00 | 17 |
| Guarané Fantástica | \$4.50 | 20 |
| Basquatch Ale | \$14.00 | 111 |
| Steeleye Stout | \$18.00 | 20 |
| Côte de Blaye | \$263.50 | 17 |
| Cheriseuse Verte | \$18.00 | 69 |
| Ippoh Coffee | \$46.00 | 17 |
| Laughing Lumberjack Lager | \$14.00 | 52 |
| Outback Lager | \$15.00 | 16 |
| Rhinobird Klosterbier | \$7.75 | 125 |
| Lekkallikööri | \$18.00 | 57 |
| Count: 12 | | |
| Condiments | | |
| Sweet and savory sauces, relishes, spreads, and seasonings | | |
| Product Name | Unit Price | Units In Stock |
| Aniseed Syrup | \$10.00 | 13 |
| Chef Anton's Cajun Seasoning | \$22.00 | 53 |
| Chef Anton's Gumbo Mix | \$21.35 | 0 |
| Grandma's Boysenberry Spread | \$25.00 | 120 |
| Northwoods Cranberry Sauce | \$40.00 | 6 |
| Genen Shoyu | \$15.50 | 39 |
| Gula Moleccas | \$19.45 | 27 |
| Siroop d'érable | \$28.50 | 113 |
| Vegiespread | \$43.90 | 24 |
| Louisiana Fiery Hot Pepper Sauce | \$21.05 | 76 |
| Louisiana Hot Spiced Okra | \$17.00 | 4 |
| Original Frankfurtergrüne Bole | \$13.00 | 32 |
| Count: 12 | | |

4.32.3 Sub-Reports on Page

The **Sub-Report** component can be placed on any part of a page. The width of the nested page depends on the width of the **Sub-Report** component. The picture below shows a sample of the **Sub-Report** component and nested page:

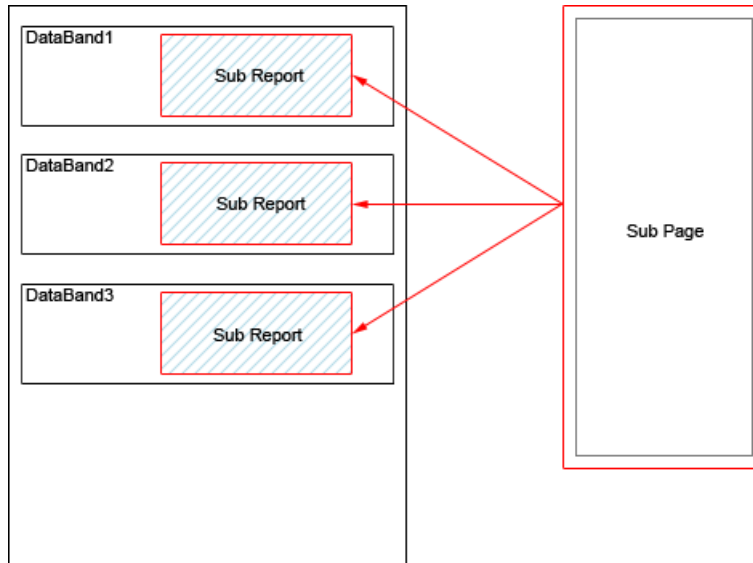


The **CanGrow** property of the **Sub-Report** component is always set to **true** but, when placing this component, it cannot be grown by height. So you should take into account the height of the component on the nested page: it should not be higher than the **Sub-Report** component. When rendering a report, the **Sub-Report** component, placed on the report template, will be rendered as the report page item. When rendering a report, the reporting tool will render all sub-reports and place them in the container of the **Sub-Report** component. The picture below shows a sample of placing the nested page in a report:



4.32.4 Sub-Reports on Data Band

The **Sub-Report** component can be placed on the **DataBand**. When rendering a report, the **Sub-Report** will be rendered as the item of the **DataBand**, so this component will be printed in each **DataBand**. The picture below shows the scheme of rendering of the sub-report when placing the **Sub-Report** component in the **DataBand**:



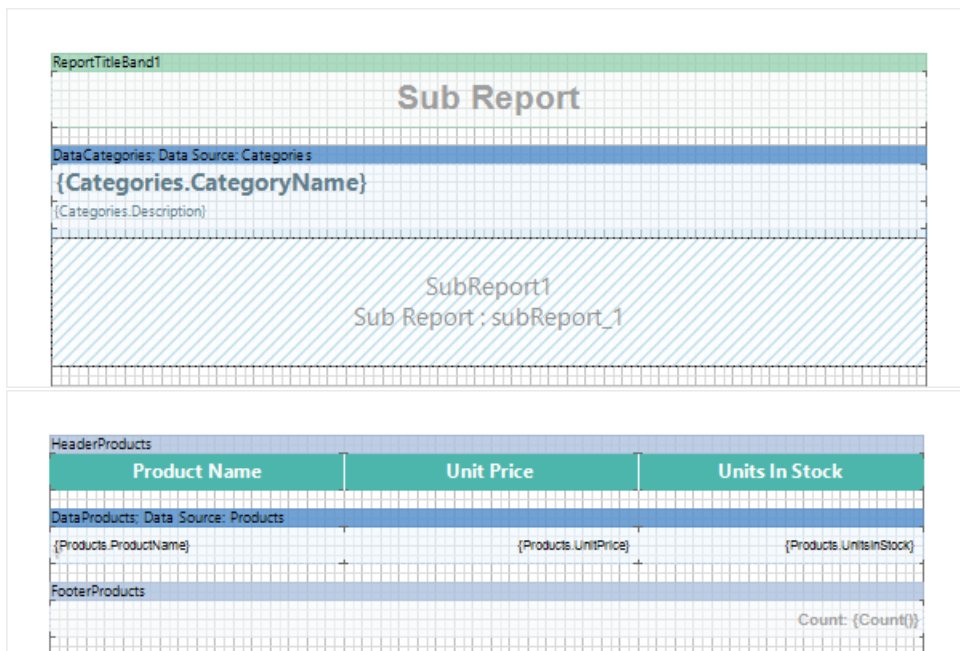
In this case the height of the component on the sub-report page of a report will be higher than the height of the **Sub-Report** component. So the **Sub Report** component is placed in the **DataBand** and rendered as the item of the **DataBand**, and, in this case, the **CanGrow** property works and the component can grow by height.

4.32.5 Master-Detail Reports and Sub-Reports

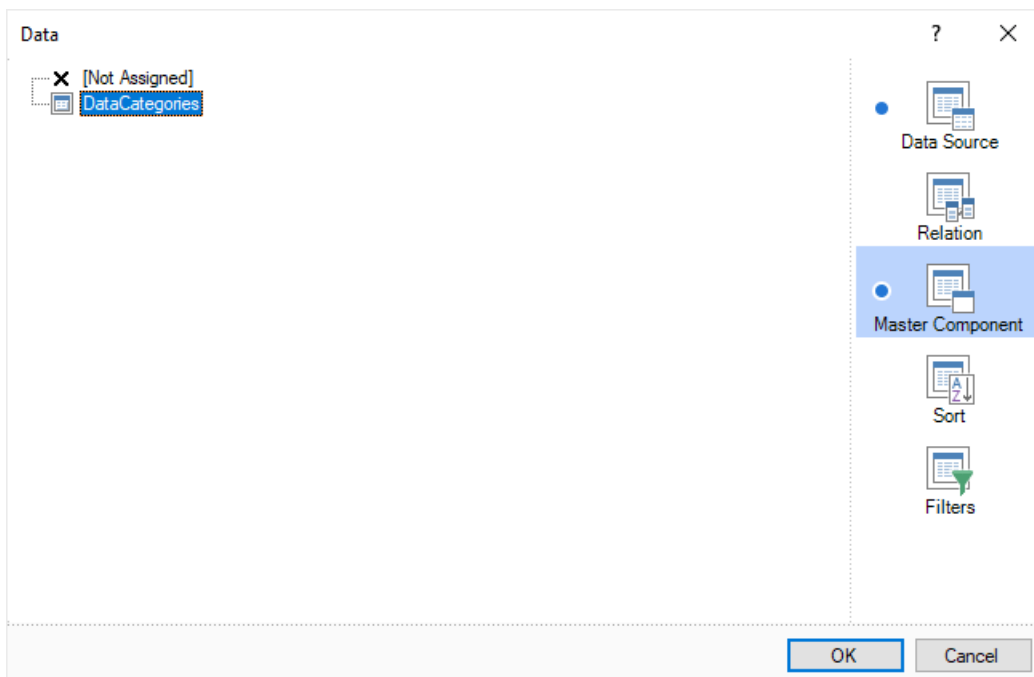
You can build a Master-Detail report using the Sub-Report component in several ways:

- [Pass parameters](#) from Master entries to Detail by filtering data;
- Using the Master Component property in the Data band.

It is possible to design the **Master-Detail** report using the **Sub-Report** component. Put **DataBand1** on a page of a report template. Insert **Sub-Report** component into this band. Put **DataBand2** on the sub-report page. The picture below shows the report template:



In this example the **DataBand1** can be defined as the **Master** for the **DataBand2** that is placed in the sub-report page of a report. For this you need to choose the **Master** component in the data settings. The picture below shows the sample of the **Data Setup** window:

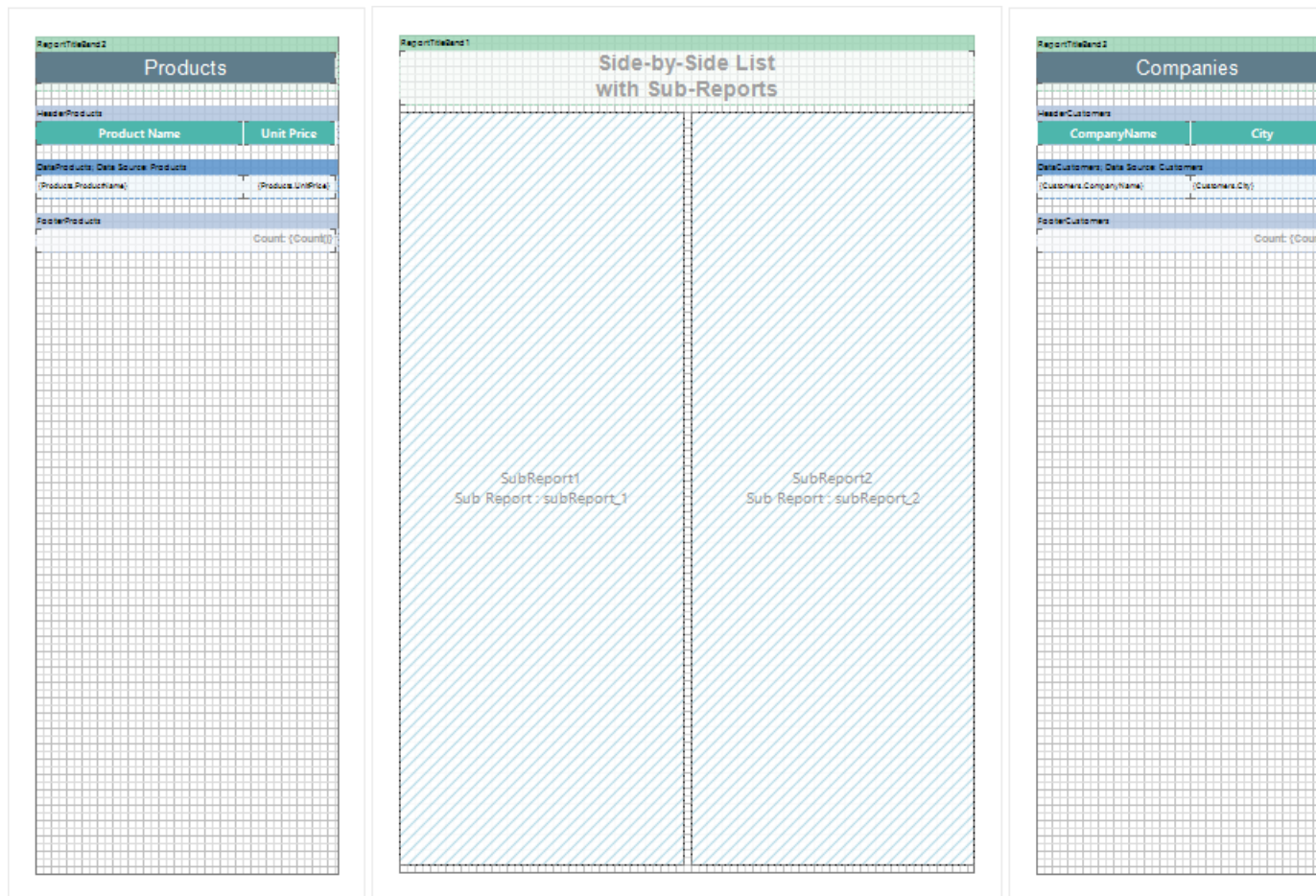


As you can see, the **DataBand1**, that is placed on the report page, is the **Master** in the **Master-Detail** report. If several **DataBands** are placed on the sub-report page

then, when creating the **Master-Detail** report, the **Master** is either the **DataBand** in what the **Sub-Report** is placed or any other **DataBand**, placed in the sub-report page.

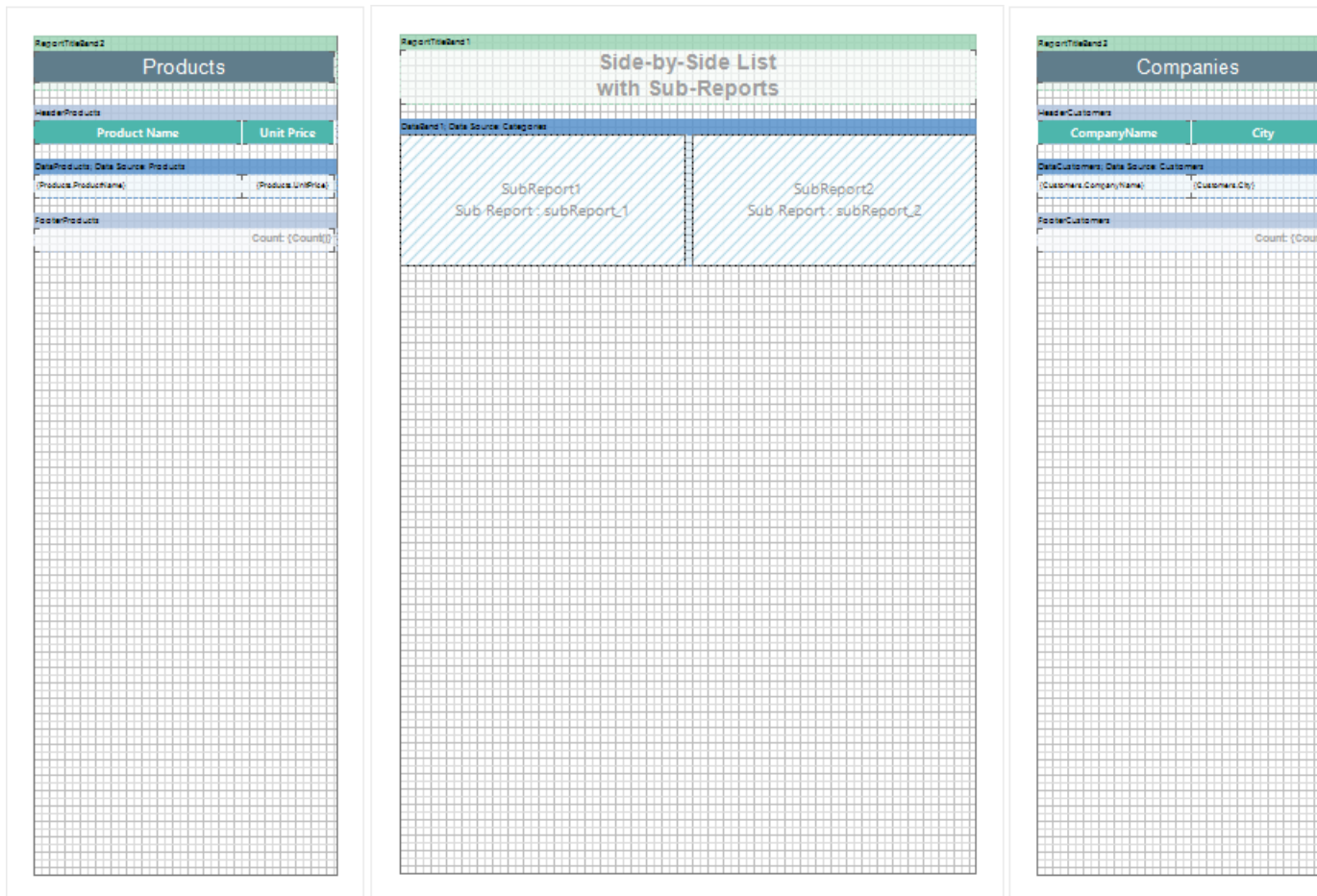
4.32.6 Side-by-Side Reports and Sub-Reports

You can use the **Sub-Report** component to create the **Side-by-side** report. The **Side-by-side** report consists of independent lists of data, located side by side. The picture below shows an example of a **Side-by-side** report template with the location of the **Sub-Report** component on a page of the report template:



As you can see on the picture above, when rendering a report, independent data lists will be displayed, two **Side-by-side** sub-reports will be built. Thus it is possible to build more complex reports: for example, put three **Sub-Report** components together side by side, and then, when rendering a report, three independent data lists, three **Side-by-side** sub-reports will be output.

You should also remember that the **Sub-Report** can be placed in the **DataBand**. Accordingly, put two or more **Sub-Report** components to build **Side-by-side** reports in one **DataBand**. The picture below shows an example of the **Side-by-side** report templates with the location of the **Sub-Report** component in the **DataBand**:



4.33 Functions

The data dictionary has the **Functions** category. This category contains the elements using which you can calculate a specific total or return the desired value. All elements of the Function category are divided into groups. The table below shows a list of functions and their brief description and examples.

Information

Please note that when processing number values in reports, a data type of the result depends on a data type of arguments. In dashboards, all arguments are

converted to the highest possible type. As a rule, it's either double or decimal. Accordingly, the result of function calculation will mostly have decimal or double data type.

View the Functions:

| Function | Description | Sample |
|----------------------|---|---|
| Date Time: | | |
| {AddDays(,)} | <p>Adds the specified number of days to a given date.</p> <p>➤ In arguments specify:</p> <ul style="list-style-type: none"> ➊ Date (the DateTime type); ➋ Number of days to add (double; can be positive or negative). <p>➤ Returns a DateTime value.</p> | {AddDays(DateTime(2022, 1, 1), 10)} - the result is: 11.01.2022 00:00:00, i.e., that means 10 days are added. |
| {AddHours(,)} | <p>Adds the specified number of hours to a given date.</p> <p>➤ In arguments specify:</p> <ul style="list-style-type: none"> ➊ Date (the DateTime type); ➋ Number of hours to add (double; can be positive or negative). <p>➤ Returns a DateTime value.</p> | {AddHours(DateTime(2022, 1, 1), 5)} - the result is: 01.01.2022 05:00:00, that means 5 hours are added. |
| {AddMilliseconds(,)} | <p>Adds the specified number of milliseconds to a given date.</p> | {AddMilliseconds(DateTime(2022, 1, 1), 500)} - the result is: 01.01.2022 12:00:00, that means 500 |

| | | |
|-----------------|---|---|
| | <p>➤ In arguments specify:</p> <ul style="list-style-type: none"> ❶ Date (the DateTime type); ❷ Number of milliseconds to add (double; can be positive or negative). <p>➤ Returns a DateTime value.</p> | milliseconds are added. |
| {AddMinutes(,)} | <p>Adds the specified number of minutes to a given date.</p> <p>➤ In arguments specify:</p> <ul style="list-style-type: none"> ❶ Date (the DateTime type); ❷ Number of minutes to add (double; can be positive or negative). <p>➤ Returns a DateTime value.</p> | {AddMinutes(DateTime(2022,1,1), 30)} - the result is: 01.01.2022 00:30:00, that means 30 minutes are added. |
| {AddMonths(,)} | <p>Adds the specified number of months to a given date.</p> <p>➤ In arguments specify:</p> <ul style="list-style-type: none"> ❶ Date (the DateTime type); ❷ Number of months to add (int; can be positive or negative). <p>➤ Returns a DateTime value.</p> | {AddMonths(DateTime(2022,1,1), 2)} - the result is: 01.03.2022 00:00:00, that means 2 months are added. |
| {AddSeconds(,)} | <p>Adds the specified number of seconds to a given date.</p> <p>➤ In arguments specify:</p> <ul style="list-style-type: none"> ❶ Date (the DateTime | {AddSeconds(DateTime(2022,1,1), 30)} - the result is: 01.01.2022 00:00:45, that means 30 seconds are added. |

| | | |
|------------------|---|---|
| | <p>type);</p> <p>➊ Number of seconds to add (double; can be positive or negative).</p> <p>➤ Returns a DateTime value.</p> | |
| {AddYears(,)} | <p>Adds the specified number of years to a given date.</p> <p>➤ In arguments specify:</p> <p>➊ Date (the DateTime type);</p> <p>➋ Number of years to add (int; can be positive or negative).</p> <p>➤ Returns a DateTime value.</p> | <p>{AddYears(DateSerial(2022,1,1), 1)} - the result is: 01.01.2023 00:00:00, that means 1 year is added.</p> |
| {DateDiff(,)} | <p>Calculates the distance between the specified dates.</p> <p>➤ Arguments should be of the DateTime type;</p> <p>➤ Returns the TimeSpan value.</p> | <p>{DateDiff(DateSerial(2022,1,30),DateSerial(2022,1,1))} - the result is 29.00:00:00, that means 29 days.</p> <p>{DateDiff(DataSource.Column1,DataSource.Column2)} - the result will be calculated for each value in Column1</p> |
| {DateSerial(,,)} | <p>Specifies date.</p> <p>➤ Arguments should be year, month, day;</p> <p>➤ Returns the DateTime value.</p> | <p>{DateSerial(2022,1,30)} - the result is 1/30/2022 12:00:00 AM</p> <p>The function returns the DateTime value, but if you want to display only the date, you should apply text formatting to the text</p> |

| | | |
|---------------|---|---|
| | | component. |
| {Day()} | <p>Shows a day from the specified date.</p> <ul style="list-style-type: none"> ➤ Arguments should be of the DateTime type; ➤ Returns the long value. | <p>{Day(DateTime(2022,1,30))} - the result is 30, since in arguments the January 30 2016 is specified.</p> <p>{Day(DataSource.Column)} - the result will be calculated for each Column value.</p> |
| {DayOfWeek()} | <p>Display a day of the week from a specified date in text form.</p> <ul style="list-style-type: none"> ➤ In arguments specify: <ul style="list-style-type: none"> 1 Date (the DateTime type); 2 Culture (the string type); 3 The value true or false (the bool type), to display the result with a capital letter or with a lowercase; 4 The value true or false (the bool type), depending on which the system culture or designer localization will be used. ➤ Returns the string type. | <p>{DayOfWeek(DateTime(2022,1,30))} - the result is Sunday.</p> <p>{DayOfWeek(DataSource.Column)} - for each value a day of the week will be calculated.</p> <p>{DayOfWeek(DateTime(2022,1,30),"de")} - the result will be Samstag, because the de culture is set.</p> <p>{DayOfWeek(DataSource.Column,"de")} - all results will correspond to the de culture.</p> <p>{DayOfWeek(DateTime(2022,1,30),"en", false)} - the day of the week will start from the lower-case letter, i.e. sunday.</p> <p>{DayOfWeek(DataSource.Column,"de", true)} - the days of the week will start with the capital letter, for example Samstag.</p> |

| | | |
|-----------------|---|--|
| | | <p>{DayOfWeek(DateSerial(2022,1,30), false))} - the day of the week will be displayed on the culture that is used by the system.</p> <p>{DayOfWeek(DataSource.Column, true))} - the day of the week will be displayed in the culture that is used in the report designer.</p> |
| {DayOfYear()} | <p>Displays a day of the year .</p> <ul style="list-style-type: none"> ➤ Specifies the date in the argument (the DateTime type); ➤ Returns the long value. | <p>{DayOfYear(DateSerial(2022,2,14))} - the result is 45, since February 14 is the 45th day of a year.</p> <p>{DayOfYear(DataSource.Column))} - for each value of the Column the data of a year will be calculated.</p> |
| {DaysInMonth()} | <p>Displays the number of days in the month.</p> <ul style="list-style-type: none"> ➤ In arguments specify: <ul style="list-style-type: none"> 1 Date (the DateTime type); 2 Year and month (the long type). ➤ Returns the long value. | <p>{DaysInMonth(DateSerial(2024,2,1))} - the result will be 29, because 2024 is a leap year and there are 29 days in February.</p> <p>{DaysInMonth(DataSource.Column))} - for each value the number of days in a month will be calculated.</p> <p>{DaysInMonth(2022,3)} - the result will be 31, since there are 31 days in March.</p> |
| {DaysInYear()} | <p>Displays the number of days in a year.</p> <ul style="list-style-type: none"> ➤ Specifies the date in arguments (the DateTime type) or a year (the long type); ➤ Returns the long value. | <p>{DaysInYear(2024)} - the result will be 366 days, since 2024 is a leap year.</p> <p>{DaysInYear(DataSource.Column))} - for each value of the Column the number of days in a year will be calculated.</p> |

| | | |
|--------------------|--|--|
| {FromOADate()} | <p>Converts an OLE Automation Date value to DateTime.</p> <ul style="list-style-type: none"> ➤ In the arguments, the value (double) is specified; ➤ Returns a DateTime value. | <p>{FromOADate(45200)} - the result in this case will be 10.01.2023 12:00:00, that means the numeric value will be converted into a date.</p> |
| {Hour()} | <p>Displays an hour.</p> <ul style="list-style-type: none"> ➤ Specifies time in arguments (the DateTime type); ➤ Returns the long value. | <p>{Hour(DataSource.Column)} - an hour will be displayed from each value. For example, if time is 16:22:36, then the result is 16.</p> |
| {LocalTimeToUtc()} | <p>Provides the ability to convert local time to UTC:</p> <ul style="list-style-type: none"> ➤ A local time value is specified in the arguments; ➤ Returns a DateTime value in UTC format. | <p>{LocalTimeToUtc(ParseDateTime("2025-05-20 15:00:00"))} - in this case, the local time will be converted to UTC.
{LocalTimeToUtc(DataSource.Column1)} - in this case, the value of Column1 will be converted from local time to UTC.</p> |
| {Minute()} | <p>Displays minutes.</p> <ul style="list-style-type: none"> ➤ Specifies time in arguments (the DateTime type); ➤ Returns the long value. | <p>{Minute(DataSource.Column)} - minutes will be displayed from each value. For example, if time is 16:22:36, then the result is 22.</p> |
| {Month()} | <p>Displays months.</p> <ul style="list-style-type: none"> ➤ Specifies time in arguments (the DateTime type); ➤ Returns the long value. | <p>{Month(DateSerial(2022,12,1))} - the result will be 12, as the date is set on December 1, 2022.
{Month(DataSource.Column)} - for each value of the Column a month will be</p> |

| | | |
|----------------|--|--|
| | | displayed. |
| {MonthIdent()} | <p>Allows you to get the name or identifier of a month based on a date.</p> <ul style="list-style-type: none"> ➤ The argument is the date; ➤ Returns the month corresponding to the given date. | {MonthIdent(DataSource.DocumentDate)} - returns the month corresponding to the document date. |
| {MonthName()} | <p>Displays the month name of the specified date.</p> <ul style="list-style-type: none"> ➤ Specifies in arguments: <ul style="list-style-type: none"> ❶ Date (the DateTime type) and culture (the string type); ❷ Culture (the string type); ❸ The true or false value (the bool type), to display the result with a capital letter or with a small letter; ❹ The true or false value (the bool type), depending on which the system culture or designer localization will be used. ➤ Returns the string value. | <p>{MonthName(DateSerial(2022,1,1))} - the result is January, because the 1 of January 2022 is set.</p> <p>{MonthName(DataSource.Column)} - the result is the name of the month for each Column value.</p> <p>{MonthName(DateSerial(2022,2,1),"de")} - the result will correspond to the de culture, i.e. Februar.</p> <p>{MonthName(DataSource.Column,"en")} - all the names of months will correspond to the en culture.</p> <p>{MonthName(DateSerial(2022,1,1), false)} - the name of the month will be in lower case.</p> <p>{MonthName(DataSource.Column, true)} - the name of the months will start with a capital letter.</p> |

| | | |
|--------------------------|--|---|
| | | <p>{MonthName(DateSerial(2022,1,1), false))} - the name of the month will correspond to the culture used by the system.</p> <p>{MonthName(DataSource.Column, true))} - the names of months will correspond to the culture that corresponds to the culture of the report designer.</p> |
| {Second()} | <p>Displays seconds.</p> <ul style="list-style-type: none"> ➤ Specifies time in arguments (the DateTime type); ➤ Returns the long value. | <p>{Second(DataSource.Column))} - seconds will be displayed from each value. For example, if time is 16:22:36, then the result is 36.</p> |
| {TimeSerial(,,)} | <p>Displays time.</p> <ul style="list-style-type: none"> ➤ Specifies hours, minutes, seconds in arguments (the long type); ➤ Returns the TimeSpan value. | <p>{TimeSerial(1,14,20)} - the result is 01:14: 20, 1 hour, 14 minutes, 20 seconds.</p> |
| {ToJapaneseDateString()} | <p>Returns a date converted to a string in the Japanese calendar.</p> <ul style="list-style-type: none"> ➤ In the arguments, the date (DateTime) and the Japanese calendar date format (string) are specified; ➤ Returns a date value. | <p>{ToJapaneseDateString(DataSource.Date)} - returns the date in Japanese format.</p> |
| {ToOADate()} | <p>Converts DateTime to OLE Automation Date format.</p> <ul style="list-style-type: none"> ➤ In the arguments, the value (double) is specified; ➤ Returns a double value. | <p>{ToOADate(DataSource.Date)} - returns a number corresponding to the date.</p> |

| | | |
|--------------------|--|---|
| {UtcToLocalTime()} | Provides the ability to convert UTC time to local time:
➤ A UTC time value is specified in the arguments;
➤ Returns a local DateTime value. | {UtcToLocalTime(ParseDateTime("2025-05-20 12:00:00"))} - in this case, the UTC time will be converted to local time.
{UtcToLocalTime(DataSource.Column1)} - in this case, the value of Column1 will be converted from UTC to local time. |
| {WeekOfMonth()} | Returns the week number of the month for the specified date.
➤ In the arguments, the following are specified:
① Date (type DateTime);
② Enumeration value.
➤ Returns a long value. | {WeekOfMonth(DataSource.SaleDate)} - returns the week number in the month. |
| {WeekOfYear()} | Returns the week number of the year for the specified date.
➤ In the arguments, the following are specified:
① Date (type DateTime);
② Enumeration value.
➤ Returns a long value. | {WeekOfYear(DataSource.SaleDate)} - returns the week number in the year. |
| {Year()} | Displays year.
➤ Specifies date in arguments (the DateTime type);
➤ Returns the long value. | {Year(DateSerial(2022,1,2))}
- the result will be 2022, since the date is January 2, 2022.
{Year(DataSource.Column)}
- the years from each Column value will be displayed. |
| Math: | | |
| {Abs()} | Displays the absolute | {Abs(-42)} - the result is 42 |

| | | |
|-------------|---|---|
| | <p>number.</p> <ul style="list-style-type: none"> ➤ Specifies the number is arguments (the double, decimal, long type); ➤ Returns respectively double, decimal, long. | <p>{Abs(DataSource.Column1)}</p> <p>- the result will be absolute numbers from the values of Column1, i.e. without considering the number.</p> |
| {Acos()} | <p>Displays the angle value in radians.</p> <ul style="list-style-type: none"> ➤ The cos values in arguments (the double type); ➤ Returns the angle value in radians of the double type. | <p>{Acos(-1)}</p> <p>- the angle in radians will be calculated for the value cos = -1, i.e. the angle will be ~ 3.14.</p> <p>{Acos(DataSource.Column1)}</p> <p>- for all cos values, the angle in radians will be calculated.</p> |
| {Asin()} | <p>Displays the angle value in radians.</p> <ul style="list-style-type: none"> ➤ The sin value in arguments (the double type); ➤ Returns the value of the angle in radians of the double type. | <p>{Asin(0)}</p> <p>- the angle in radians will be calculated for the value sin = 0, i.e. the angle is 0</p> <p>{Asin(DataSource.Column1)}</p> <p>- for all sin values, the angle will be calculated in radians.</p> |
| {Atan()} | <p>Displays the angle value in radians.</p> <ul style="list-style-type: none"> ➤ The tan value in arguments (the double type); ➤ Returns the value of the angle in radians of the double type. | <p>{Atan(-1)}</p> <p>- the angle in radians will be calculated for the value tan = -1, i.e. the angle will be ~ -0.79</p> <p>{Atan(DataSource.Column1)}</p> <p>- for all tan values the angle in radians will be calculated</p> |
| {Ceiling()} | <p>Displays the maximum integer value for a specified number.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments (the double, decimal type); ➤ Returns the value of the angle in radians of the | <p>{Ceiling(25.124)}</p> <p>- It is worth noting that when this function is used, the number is not rounded.</p> <p>{Ceiling(25.9)}</p> <p>- the result is 26</p> <p>{Ceiling(DataSource.Column)}</p> <p>- for all Column values,</p> |

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| | double and decimal type. | the nearest maximal integers will be found and displayed. |
| {Clamp(,,)} | <p>Provides the ability to limit a value to the specified range.</p> <p>The arguments specify:</p> <ul style="list-style-type: none"> ➤ The value to check; ➤ The minimum range value; ➤ The maximum range value. <p>Returns a value within the specified range.</p> | <p>{Clamp(15, 0, 10)} - in this case, the result will be 10 because the value exceeds the maximum limit.</p> <p>{Clamp(-5, 0, 100)} - in this case, the result will be 0 because the value is less than the minimum limit.</p> |
| {Cos()} | <p>Calculates and displays the cos value:</p> <ul style="list-style-type: none"> ➤ The value of the angle in radians is specified in arguments (the double type); ➤ Returns double, decimal values. | <p>{Cos(0)} - the result is 1.</p> <p>{Cos(DataSource.Column1)} - for all values, the cos of the angle will be calculated.</p> |
| {Div()} | <p>Displays the result of the division of one argument to another.</p> <ul style="list-style-type: none"> ➤ In arguments, the following is specified: <ul style="list-style-type: none"> ❶ The dividend and divisor (the double, decimal, long type); ❷ The dividend and divisor and value that is the result, if the divisor is equal to 0. ➤ Returns the value of the double, decimal, and long types. | <p>{Div(2,1)} - the result is 2, because $2 / 1 = 2$</p> <p>{Div(2,0,4)} - the result is 4, because the divisor is 0 and the third argument will be displayed</p> <p>{Div(DataSource.Column1, DataSource.Column2, DataSource.Column3)} - the results of dividing the Column1 values by the values of Column2 will be displayed. In this case, if Column2 contains zero values, then, instead of the</p> |

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| | | result of the division, in this line, the values from Column3 will be displayed. |
| {Exp()} | <p>Displays the result of rising to the specified degree the number:</p> <ul style="list-style-type: none"> ➤ The arguments indicate the degree to which the number e must rise (the long type); ➤ Returns the value of the double type. | <p>{Exp(4)} - the number e will be raised to the 4th degree.</p> <p>{Exp(DataSource.Column1)} - each value from Column1 will be the degree to which the number e will be raised.</p> |
| {Floor()} | <p>Displays the minimum integer value to the specified number.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments (the double, decimal type); ➤ Returns the value of the double, decimal types. | <p>{Floor(123.59)} - the result will be 123 because this is the nearest minimum integer. It should be noted that this function does not round numbers.</p> <p>Floor(101.99)} - the result is 101</p> <p>{Floor(DataSource.Column 1)} - for all Column1 values, the nearest minimum integers will be found and displayed.</p> |
| {Frac()} | <p>Provides the ability to get the fractional part of a number.</p> <ul style="list-style-type: none"> ➤The arguments specify a numeric value; ➤Returns the fractional part of the number. | <p>{Frac(10.75)} - in this case, the result will be 0.75.</p> <p>{Frac(3.1415)} - in this case, the result will be 0.1415.</p> |
| {Log()} | <p>Calculates the natural logarithm.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments (the double type); | <p>{Log(x)}, where x is a number or an expression, the result is a calculation of the natural logarithm.</p> |

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| | <p>➤ Returns the value of the double type.</p> | |
| {Maximum(,)} | <p>Compares the two values and displays the maximum.</p> <p>➤ Two values are specified in arguments (the long, decimal, double type);</p> <p>➤ Returns the value of the long, decimal, double types.</p> | <p>{Maximum(5,9)} - the result is 9.</p> <p>{Maximum(DataSource.Column1,DataSource.Column2)} - all the Column1 values are equal to the Column2 values. The report will display the maximum numbers.</p> |
| {Minimum(,)} | <p>Compares the two values and displays the minimum.</p> <p>➤ Two values are specified in arguments (the long, decimal, double type);</p> <p>➤ Returns the value of the long, decimal, double types.</p> | <p>{Minimum(5,9)} - the result is 5.</p> <p>{Minimum(DataSource.Column1,DataSource.Column2)} - all the Column1 values are equal to the Column2 values. The report will display the minimum numbers.</p> |
| {Round()} | <p>Rounds up the value to an integer or up to the certain number of decimal.</p> <p>➤ In arguments, the following is specified:</p> <ol style="list-style-type: none"> ➊ The value (the decimal, double types); ➋ Number of characters to which the fractional part should be rounded (the int type). <p>➤ Returns the value of the decimal, double types.</p> | <p>{Round(7.56)} - the result is 8</p> <p>{Round(DataSource.Column1)} - all Column1 values will be rounded according to the mathematical rounding rules.</p> <p>{Round(5.7896541897,3)} - the result is 5.789</p> <p>{Round(DataSource.Column1,2)} - all values from the data column will be rounded up to two decimal places in the fractional part, according to the</p> |

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| | | mathematical rounding rules. |
| {Sign()} | <p>Displays an indicator. For positive numbers 1, 0 - for all zero values, -1 - for negative values.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments (the long, decimal, double types); ➤ Returns the value of the long type. | <p>{Sign(256)} - the result is 1.
 {Sign(0)} - the result is 0.
 {Sign(-157)} - the result is -1.
 {Sign(DataSource.Column1)} - to each value from Column1, depending on the sign of the number, an indicator will be assigned.</p> |
| {Sin(0)} | <p>Calculates sin of an angle.</p> <ul style="list-style-type: none"> ➤ The value of an angle in radians is specified in arguments (the double type); ➤ Returns the value of the long type. | <p>{Sin(0)} - the result is 0.
 {Sin(DataSource.Column1)} - for all values, the sin angle is calculated.</p> |
| {Sqrt()} | <p>Calculates the square root of the number.</p> <ul style="list-style-type: none"> ➤ The number is specified in arguments (the double type); ➤ Returns the value of the double type. | <p>{Sqrt(4)} - the result will be 2 because the square root of 4 is 2.
 {Sqrt(DataSource.Column1)} - for all Column1 values, the square root will be calculated.</p> |
| {Tan()} | <p>Calculates tg of an angle.</p> <ul style="list-style-type: none"> ➤ The value of an angle in radians is specified in arguments (the double type); ➤ Returns the value of the long type. | <p>{Tan(90)} - the result is ~ -1.995
 {Tan(DataSource.Column1)} - for all values, the tan of the angle will be calculated.</p> |
| {Truncate()} | <p>Displays only the integer part without rounding.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments (the double, decimal types); | <p>{Truncate(Sqrt(5))} - the result will be number 2 because the square root of 5 is ~ 2.236. The whole part in this number is 2.</p> |

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| | <ul style="list-style-type: none"> ➤ Returns the value of the double, decimal types. | {Truncate(DataSource.Column1)} - only the integer part of all Column1 values will be displayed. |
| Data: | | |
| {Coalesce()} | <p>Provides the ability to return the first value that is not null from a list of values.
If all values are null, the result will be null.</p> <ul style="list-style-type: none"> ➤ The arguments specify a list of values to check. ➤ Returns the first non-null value. | <p>{Coalesce(null, 10, 20)} - in this case, the result will be 10 because the first value is null.</p> <p>{Coalesce(DataSource.Column1, 0)} - in this case, if the value of Column1 is null, 0 will be returned.</p> |
| {CoalesceStr()} | <p>Provides the ability to return the first non-empty string from a list of values.
If all values are null or empty strings, the result will be null.</p> <ul style="list-style-type: none"> ➤ The arguments specify a list of string values; ➤ Returns the first non-empty string. | <p>{CoalesceStr("", "Text", "Value")} - in this case, the result will be "Text" because the first value is empty.</p> <p>{CoalesceStr(DataSource.Column1, "No Data")} - in this case, if the value of Column1 is empty or null, "No Data" will be displayed.</p> |
| {GetCrossTabColumnValue()} | <p>Provides the ability to retrieve the value of the Cross-Tab column associated with the current summary cell.</p> <ul style="list-style-type: none"> ➤ The arguments specify the current Cross-Tab summary cell object; ➤ Returns the column value of the string type. | <p>{GetCrossTabColumnValue(0)} - in this case, the value of the first Cross-Tab column will be retrieved.</p> <p>{GetCrossTabColumnValue("Year")} - in this case, the value of the Cross-Tab column named "Year" will be retrieved.</p> |

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| <code>{GetCrossTabRowValue()}</code> | <p>Provides the ability to retrieve the value of the Cross-Tab row associated with the current summary cell.</p> <ul style="list-style-type: none"> ➤ The arguments specify the current Cross-Tab summary cell object; ➤ Returns the row value of the string type. | <p><code>{GetCrossTabRowValue(0)}</code> - in this case, the value of the first Cross-Tab row will be retrieved.</p> <p><code>{GetCrossTabRowValue("Category")}</code> - in this case, the value of the Cross-Tab row named "Category" will be retrieved.</p> |
| <code>{GetRealPageNumber()}</code> | <p>Provides the ability to retrieve the actual page number for a component on a segmented page.</p> <ul style="list-style-type: none"> ➤ The arguments specify a component instance; ➤ Returns the page number of the int type. | <code>{GetRealPageNumber()}</code> - in this case, the actual number of the current report page will be displayed. |
| <code>{IsAllDataRowNullOrEmpty(.,)}</code> | <p>Provides the ability to check whether all values in the specified columns are null or empty strings.</p> <ul style="list-style-type: none"> ➤ The arguments specify: <ul style="list-style-type: none"> 1 A data source (object type); 2 A data column name (string type). ➤ Returns a value of the bool type. | <p><code>{IsAllDataRowNullOrEmpty(DataSource.Column1, DataSource.Column2)}</code> - in this case, the result will be true if the values of Column1 and Column2 are empty or null.</p> <p><code>{IsAllDataRowNullOrEmpty("", null)}</code> - in this case, the result will be true.</p> |
| <code>{IsDataEmpty()}</code> | <p>Provides the ability to determine whether a data source contains rows.</p> <ul style="list-style-type: none"> ➤ The arguments specify a data source (object type); ➤ Returns a value of the bool type. | <code>{IsDataEmpty()}</code> - in this case, the result will be true if the data source contains no records. |
| <code>{IsNull(.,)}</code> | Identifies null values in the specified data column. If | <code>{IsNull(DataSource.Column)}</code> - in the rendered report, |

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| | <p>there is a null value, the result is true, otherwise - false.</p> <p>➤ In arguments, the following is specified:</p> <ul style="list-style-type: none"> ❶ The data source (the object type); ❷ The column name (the string type). <p>➤ Returns the value of the bool type.</p> | <p>instead of null values, the true values will be output, and instead of other values, false values will be shown.</p> |
| <code>{IsNullOrEmpty(.,)}</code> | <p>Provides the ability to check whether a string value is null or empty.</p> <p>➤ The arguments specify:</p> <ul style="list-style-type: none"> ❶ A data source (object type); ❷ A data column name (string type); <p>➤ Returns a value of the bool type.</p> | <p><code>{IsNullOrEmpty("")}</code> - in this case, the result will be true because the string is empty.</p> <p><code>{IsNullOrEmpty(DataSource.Column1)}</code> - in this case, the value of Column1 will be checked for null or an empty string.</p> |
| <code>{IsNullOrWhiteSpace(.,)}</code> | <p>Provides the ability to check whether a value is null, an empty string, or contains only whitespace characters.</p> <p>➤ The arguments specify:</p> <ul style="list-style-type: none"> ❶ A data source (object type); ❷ A data column name (string type). <p>➤ Returns a value of the bool type.</p> | <p><code>{IsNullOrWhiteSpace(" ")}</code> - in this case, the result will be true because the string contains only whitespace characters.</p> <p><code>{IsNullOrWhiteSpace(DataSource.Column1)}</code> - in this case, the value of Column1 will be checked for null, an empty string, or whitespace characters.</p> |
| <code>{IsNumeric()}</code> | <p>Provides the ability to determine whether a value is numeric.</p> <p>➤ The arguments specify the value to check;</p> | <p><code>{IsNumeric("123")}</code> - in this case, the result will be true because the value is numeric.</p> |

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| | <p>➤ Returns a value of the bool type.</p> | <p>{IsNumeric(DataSource.Column1)} - in this case, the value of Column1 will be checked for a numeric type.</p> |
| {JoinColumnContent(,,)} | <p>Provides the ability to combine all values of a data source column into a single string using a separator.</p> <p>➤ The arguments specify:</p> <ul style="list-style-type: none"> ➊ A data source (object type); ➋ A data column name (string type); ➌ A separator (string type). <p>➤ Returns a string value.</p> | <p>{JoinColumnContent(DataSource, "Column1", ", ")} - in this case, the values of the Column1 column will be combined using ", ".</p> <p>{JoinColumnContent(DataSource, "Name", " ")} - in this case, the values of the Name column will be combined using " ".</p> |
| {Next(,)} | <p>Displays the value from the next line. If the value of the next line is null, the result is 0.</p> <p>➤ The data source is specified in arguments (the object type) and a column name (the string type);</p> <p>➤ Returns the value of the object type.</p> | <p>For example, the Column column contains values 2, 5, 9. Then, using the function {Next(DataSource, "Column")}, the first value will be 5, the second 9, and the third will be null.</p> |
| {NextIsNull(,)} | <p>Compares the value of the string with the value of the next line. If the value of the next line is 0 or null, the result is true, otherwise - false.</p> <p>➤ In arguments, the following is specified:</p> <ul style="list-style-type: none"> ➊ The data source (the object type); ➋ The column name (the | <p>For example, the Column data column contains the values 2, 0, 9. Then, using the function {NextIsNull(DataSource, "Column")}, the first value is true; the second is false; the third is true.</p> |

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| | <p>string type).</p> <p>➤ Returns the value of the bool type.</p> | |
| <code>{Previous(,)}</code> | <p>Displays the value from the previous line. If the value of the next line is null, the result is 0.</p> <p>➤ In arguments, the following is specified:</p> <ol style="list-style-type: none"> ➊ The data source (the object type); ➋ The column name (the string type). <p>➤ Returns the value of the object type.</p> | <p>For example, the Column column contains values 2, 5, 9. Then, using the function <code>{Previous(DataSource, "Column")}</code>, the first value will be null, the second value will be 2, the third value will be 5.</p> |
| <code>{PreviousIsNull(,)}</code> | <p>Compares the value of the string with the value of the previous row. If the value of the previous line is 0 or null, the result is true, otherwise - false.</p> <p>➤ In arguments, the following is specified:</p> <ol style="list-style-type: none"> ➊ The data source (the object type); ➋ The column name (the string type). <p>➤ Returns the value of the bool type.</p> | <p>For example, the Column data column contains the values 2, 9, 0. Then, using the function <code>{PreviousIsNull(DataSource, "Column")}</code>, the first value is true; the second is false; the third is false.</p> |
| <code>{ToQueryString(,,)}</code> | <p>Provides the ability to convert a list of values into a query string.</p> <p>➤ The arguments specify:</p> <ol style="list-style-type: none"> ➊ A list of values; ➋ A quotation mark character; ➌ A date format. | <p><code>{ToQueryString("id", 15, "name", "John")}</code> - in this case, the result will be <code>"id=15&name=John"</code>.
 <code>{ToQueryString("page", 1, "sort", "asc")}</code> - in this case, the result will be <code>"page=1&sort=asc"</code>.</p> |

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| | <p>➤ Returns a string value.</p> | |
| <code>{VLookup(,,,)}</code> | <p>Provides the ability to find a value in one column and return a related value from another column in the same row.</p> <p>➤ In the arguments specify:</p> <ul style="list-style-type: none"> ➊ A lookup value; ➋ A data source (object type); ➌ A lookup column (string type); ➍ A return column (string type). <p>➤ Returns the found value.</p> | <p><code>{VLookup(DataSource, 1001, "Id", "Name")}</code> - in this case, the value in the Name column will be found for the row where Id = 1001.</p> <p><code>{VLookup(DataSource, "A01", "Code", "Price")}</code> - in this case, the value of the Price column will be returned for the row with the code "A01".</p> |
| <code>{VLookupStr(,,,,)}</code> | <p>Provides the ability to search for a string value in a column and return a related value from another column.</p> <p>➤ In the arguments specify:</p> <ul style="list-style-type: none"> ➊ A lookup value; ➋ A data source (object type); ➌ A lookup column (string type); ➍ A return column (string type); ➎ An exact match flag (bool type). <p>➤ Returns the found value.</p> | <p><code>{VLookupStr(DataSource, 1001, "Id", "Name", "Unknown")}</code> - in this case, the value in the Name column will be found for the row where Id = 1001. If the value is not found, "Unknown" will be returned.</p> <p><code>{VLookupStr(DataSource, "A01", "Code", "Category", "Not Found")}</code> - in this case, the value of the Category column will be returned for the row with the code "A01". If no match is found, "Not Found" will be returned.</p> |
| Drawing: | | |
| <code>{ARGB(,,,)}</code> | <p>Provides the ability to create a color based on ARGB components (alpha, red, green, blue).</p> | <p><code>{ARGB(255, 255, 0, 0)}</code> - in this case, an opaque red color will be created.</p> <p><code>{ARGB(128, 0, 0, 255)}</code> - in</p> |

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| | <p>➤ In the arguments specify:</p> <ul style="list-style-type: none"> ➊ Alpha transparency value from 0 to 255; ➋ Red color value from 0 to 255; ➌ Green color value from 0 to 255; ➍ Blue color value from 0 to 255. <p>➤ Returns a value of the Color type.</p> | <p>this case, a semi-transparent blue color will be created.</p> |
| {ColorFade(,)} | <p>Provides the ability to make a color darker or lighter by the specified value.</p> <p>➤ In the arguments specify:</p> <ul style="list-style-type: none"> ➊ A color; ➋ A brightness adjustment value from -1 to 1. <p>➤ Returns a value of the Color type.</p> | <p>{{ColorFade("Red", "Blue")}</p> <p>- in this case, a transition from red to blue will be created.</p> <p>{ColorFade(RGB(0,255,0), RGB(0,0,0))}</p> <p>- in this case, a transition from green to black will be created.</p> |
| {ColorValue()} | <p>Provides the ability to convert a string representation of a color into a Color object.</p> <p>➤ In the arguments specify a string color value;</p> <p>➤ Returns a value of the Color type.</p> | <p>{ColorValue("Red")}</p> <p>- in this case, the red color will be retrieved.</p> <p>{ColorValue("#00FF00")}</p> <p>- in this case, the green color will be retrieved.</p> |
| {FontValue(,)} | <p>Provides the ability to create a font with the specified name, size, and style.</p> <p>➤ In the arguments specify:</p> <ul style="list-style-type: none"> ➊ A font name; ➋ A font size; ➌ A font style. <p>➤ Returns a value of the</p> | <p>{FontValue("Arial", 12)}</p> <p>- in this case, an Arial font with size 12 will be created.</p> <p>{FontValue("Times New Roman", 14)}</p> <p>- in this case, a Times New Roman font with size 14 will be created.</p> |

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| {GlareBrushValue(,,,,)} | <p>Provides the ability to create a brush with a glare effect.</p> <p>➤ In the arguments specify:</p> <ul style="list-style-type: none"> ➊ A starting gradient color; ➋ An ending gradient color; ➌ A gradient angle; ➍ A gradient center; ➎ A color transition speed. <p>➤ Returns a value of the GlareBrush type.</p> | <p>{GlareBrushValue("Red", 45, 0.5, 1, "Horizontal")}</p> - in this case, a red glare effect brush will be created.
<p>{GlareBrushValue("Blue", 90, 0.3, 2, "Vertical")}</p> - in this case, a blue glare effect brush will be created. |
| {GlassBrushValue(,,)} | <p>Provides the ability to create a brush with a glass effect.</p> <p>➤ In the arguments specify:</p> <ul style="list-style-type: none"> ➊ A brush color; ➋ A hatch visibility flag; ➌ A blending factor. <p>➤ Returns a value of the GlassBrush type.</p> | <p>{GlassBrushValue("White", 0.7, 0.5)}</p> - in this case, a white glass effect brush will be created.
<p>{GlassBrushValue("Blue", 1, 0.3)}</p> - in this case, a blue glass effect brush will be created. |
| {GradientBrushValue(,,)} | <p>Provides the ability to create a gradient brush.</p> <p>➤ In the arguments specify:</p> <ul style="list-style-type: none"> ➊ A starting gradient color; ➋ An ending gradient color; ➌ A gradient angle. <p>➤ Returns a value of the GradientBrush type.</p> | <p>{GradientBrushValue("Red", "Yellow", 45)}</p> - in this case, a gradient brush from red to yellow at a 45 degree angle will be created.
<p>{GradientBrushValue(0,0,255, RGB(255,255,255), 90)}</p> - in this case, a gradient brush from blue to white will be created. |
| {HatchBrushValue(,,)} | <p>Provides the ability to create a hatch brush.</p> <p>➤ In the arguments specify:</p> <ul style="list-style-type: none"> ➊ A hatch style; ➋ A hatch color; ➌ A background color. | <p>{HatchBrushValue("DiagonalCross", "Black", "White")}</p> - in this case, a hatch brush with a diagonal cross pattern will be created.
<p>{HatchBrushValue("Horizon</p> |

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| | <ul style="list-style-type: none"> ➤ Returns a value of the HatchBrush type. | tal", "Blue", "LightBlue")) - in this case, a horizontal hatch brush will be created. |
| {RGB(,,)} | <p>Provides the ability to create a color based on RGB components.</p> <ul style="list-style-type: none"> ➤ In the arguments specify: <ul style="list-style-type: none"> 1 Red color value from 0 to 255; 2 Green color value from 0 to 255; 3 Blue color value from 0 to 255. ➤ Returns a value of the Color type. | <p>{RGB(255, 0, 0)} - in this case, a red color will be created.</p> <p>{RGB(0, 255, 0)} - in this case, a green color will be created.</p> |
| {SolidBrushValue()} | <p>Provides the ability to create a solid brush of the specified color. In the arguments specify:</p> <ul style="list-style-type: none"> ➤ A brush color; ➤ Returns a value of the SolidBrush type. | <p>{SolidBrushValue("Red")} - in this case, a solid red brush will be created.</p> <p>{SolidBrushValue(RGB(0,0,255))} - in this case, a solid blue brush will be created.</p> |
| Programming: | | |
| {Choose()} | <p>Displays the value by index.</p> <ul style="list-style-type: none"> ➤ The arguments specify the index and values; ➤ Returns values by index. | <p>All product groups are grouped by category: expensive goods, medium price goods, cheap goods. An index is assigned to each group: expensive - index 1, average - index 2, cheap - index 3. The report should be displayed instead of their index - category. In this case, you can use the Choose function.</p> |

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| | | <p>{Choose(DataSource.Column1, "expensive", "average", "cheap")} - instead of index 1, the value expensive will be displayed, instead of index 2 - average, instead of index 3 - cheap.</p> |
| {Eval()} | <p>Allows you to evaluate an expression provided as a string.</p> <ul style="list-style-type: none"> ➤ In the arguments, a string with the expression is specified; ➤ Returns the result of the expression evaluation. | <p>In a report, it may be necessary to dynamically calculate a value based on a string, for example, a formula obtained from data. In this case, the Eval function can be used.</p> <p>{Eval("10 + 5 * 2")} - the result will be 20.</p> |
| {IIF(,,)} | <p>Used to display a particular value, depending on the condition.</p> <ul style="list-style-type: none"> ➤ In arguments, the condition is specified, the value if the condition is true (true) and the value if the condition is false (false); ➤ Returns the value of the object type. | <p>In the inventory report, you need to track the number of items. The logistician's task is that, when the quantity of goods is coming to 0 (less than 6), it is necessary to order these goods. To highlight critical positions in the report visually, you can use the function {IIF(,,)}</p> <p>{IIF(DataSource.Column1 > 6,"Minimum","Normal")}, where
DataSource.Column1 - the column with the values of the quantity of goods, 6 - the extreme quantity of</p> |

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| | | goods, Minimum - the value that will be displayed if the stock of goods is less than 6, Normal - the value to be displayed if the stock of goods is 6 or more. |
| {Rand()} | <p>Returns a random number.</p> <ul style="list-style-type: none"> ➤ Does not require arguments; ➤ Returns a random value (usually from 0 to 1). | <p>In a report, it may be necessary to generate a random value, for example for test data or random sampling. In this case, the Rand function can be used.</p> <p>{Rand()} - returns a random number, for example 0.7345.</p> |
| {Runtime()} | <p>Returns the current report execution time.</p> <ul style="list-style-type: none"> ➤ Does not require arguments; ➤ Returns the date and time value at the moment of execution. | <p>In a report, it may be necessary to display the report generation time. In this case, the Runtime function can be used.</p> <p>{Runtime()} — displays the current date and time of report execution.</p> |
| {RuntimeIdentifier()} | <p>Returns a unique runtime environment identifier.</p> <ul style="list-style-type: none"> ➤ Does not require arguments; ➤ Returns a string value identifying the runtime. | <p>In a report, it may be necessary to determine the environment in which the system is running (for example, for diagnostics or logging).</p> <p>{RuntimeIdentifier()} — returns a string with the runtime identifier, for example:</p> <ul style="list-style-type: none"> ➤ NET472 ➤ NET8 |

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| | | <ul style="list-style-type: none"> ➤ NET10 ➤ NODE18 ➤ CHROME145 ➤ UNKNOWN |
| {RuntimeName()} | <p>Returns the name of the runtime environment.</p> <ul style="list-style-type: none"> ➤ Does not require arguments; ➤ Returns a string with the runtime name. | <p>In a report, it may be necessary to display information about the platform on which the report is running.</p> <p>{RuntimeName()} — returns the runtime name, for example:</p> <ul style="list-style-type: none"> ➤ .NET Framework ➤ .NET ➤ Chrome / Firefox / Opera / Edge ➤ Node.js ➤ Java ➤ Unknown |
| {RuntimeOS()} | <p>Returns information about the operating system.</p> <ul style="list-style-type: none"> ➤ Does not require arguments; ➤ Returns a string with the OS name. | <p>In a report, it may be necessary to display the operating system of the server or client.</p> <p>{RuntimeOS()} — returns the operating system name, for example:</p> <ul style="list-style-type: none"> ➤ Windows ➤ Linux ➤ MacOS ➤ iOS ➤ Android ➤ Unknown |
| {RuntimeType()} | <p>Returns the type of the runtime environment.</p> <ul style="list-style-type: none"> ➤ Does not require arguments; | <p>In a report, it may be necessary to determine the environment type (for example, server-side,</p> |

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| | <ul style="list-style-type: none"> › Returns a string with the runtime type. | <p>client-side, or other).</p> <p>{RuntimeType()} — returns the runtime type, for example:</p> <ul style="list-style-type: none"> › DotNet › Node › Browser › Java › Unknown |
| {RuntimeVersion()} | <p>Returns the version of the runtime environment.</p> <ul style="list-style-type: none"> › Does not require arguments; › Returns a string with the runtime version. | <p>In a report, it may be necessary to display the version of the platform used for diagnostics or auditing.</p> <p>{RuntimeVersion()} — returns the runtime version, for example:</p> <ul style="list-style-type: none"> › 4.7.2 › 8.0.101 › 145 › Unknown |
| {Switch()} | <p>Assigns the specified value when the specified condition is complete.</p> <ul style="list-style-type: none"> › In arguments, specify the condition and the value that will be assigned, if the condition is complete. Such condition-value pairs can be specified; › Returns the value of the object type. | <p>For example, a list of employees is displayed in the report, and you need to display their position: Nancy is the lead project manager, Andrew is the chief developer, the remaining employees (6 people) are Juniors. In this case, the Switch function will have three pairs of "condition-value" arguments:</p> <p>{Switch(Employees.FirstName == "Nancy",</p> |

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| | | "Manager",
Employees.FirstName ==
"Andrew", "Developer",
Employees.FirstName! = "",
"Junior")} |
| Strings: | | |
| {Arabic()} | Converts these numbers to Arabic numerals.
➤ The value is specified in arguments (the string or int types);
➤ Returns the value of the string type. | {Arabic(2)} - the number 2 will have an Arabic spelling.

{Arabic(DataSource.Column 1)} - all the numbers from Column1 will have an Arabic spelling. |
| {Compare(,)} | Provides the ability to compare two strings and determine their position in sort order.
➤ The arguments specify:
① The first string;
② The second string.
➤ Returns a value of the int type:
① Less than 0 if the first string is less than the second string;
② 0 if the strings are equal;
③ Greater than 0 if the first string is greater than the second string. | {Compare(10, 20)} - in this case, the result will be -1 because 10 is less than 20.
{Compare("ABC", "ABC")} - in this case, the result will be 0 because the values are equal. |
| {ConvertToBase64String()} | Provides the ability to convert a string or a byte array into Base64 format:
➤ A string value or a byte array is specified in the arguments;
➤ Returns a value of the | {ConvertToBase64String("Hello")} - in this case, the result will be "SGVsbG8=".
{ConvertToBase64String(DataSource.Column1)} - in this case, the value of Column1 will be converted |

| | string type. | to a Base64 string. |
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| {DateToStr()} | <p>Converts date to text value.</p> <p>➤ In arguments, the following is specified:</p> <ul style="list-style-type: none"> ❶ Date (the DateTime type); ❷ Boolean values (true or false) for displaying the header that starts with a capital letter or with a lowercase letter. <p>➤ Returns the value of the string type.</p> | <p>{DateToStr(DataSource.Column1)} - all dates from Column1 will be displayed in text form.</p> <p>{DateToStrPl(DataSource.Column1,true)} - dates will be displayed in text form, in Polish and the first character is a capital letter.</p> <p>{DateToStrPl(DataSource.Column1,false)} - dates will be displayed in text form, in Polish and the first character is a lowercase letter.</p> <p>{DateToStrPtBr(DataSource.Column1)} - the dates will be displayed in text form in the Brazilian language.</p> |
| {Insert(,,)} | <p>Inserts a value after a certain character into another value.</p> <p>➤ In arguments, the following is specified:</p> <ul style="list-style-type: none"> ❶ The value in which to insert text (the string type); ❷ The number of a character, after which the value is inserted (the int type); ❸ The value for insertion (the string type). <p>➤ Returns the value of the</p> | <p>{Insert("25",2," dollars")} - in the value 25, after the second symbol, the value dollars will be inserted, i.e. the result will be 25 dollars.</p> <p>{Insert(DataSource.Column1,2,DataSource.Column2)} - in the Column1 value, after the second character, Column2 values will be inserted. For example, Column1 - contains the</p> |

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| | string type. | value of Category, Column2 - Products, then the result will be CaProductstegory. |
| {Left()} | <p>Displays the specified number of characters from the left side of the value.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments of the string type string and the number of characters to be displayed (the int type); ➤ Returns the value of the string type. | <p>{Left("Beverages", 4)} - only four characters from the Beverages value will be displayed, the result will be Beve.</p> <p>{Left(dataSource.Column1, 2)} - only the first two characters for each Column1 value will be displayed.</p> |
| {Length()} | <p>Displays the number of characters for the specified value.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments (the string type); ➤ Returns the value of the int type. | <p>{Length("Beverages")}</p> - the result will be number 9 because the value Beverages consists of nine characters.
<p>{Length(dataSource.Column1)}</p> - for each Column1 value, the number of characters will be calculated, and this result will be displayed. |
| {Mid()} | <p>Displays characters from a value. In this case, you can set the reference position.</p> <ul style="list-style-type: none"> ➤ In arguments, the following is specified: <ul style="list-style-type: none"> ❶ The value (the string type); ❷ Index of the reference position (the int type); | <p>{Mid("Beverages",2,3)}</p> - three symbols will be displayed after the first two, the result will be ver. <p>Mid(dataSource.Column1,3,2)}</p> - 2 characters will be displayed after the first three for all values. |

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| | <p>③ Number of characters to display (the int type).</p> <p>➤ Returns the value of the int type.</p> | |
| <pre>{ParseDateTime()} {ParseDecimal()} {ParseDouble()} {ParseLong()}</pre> | <p>Provides the ability to convert a string representation of a value into the corresponding numeric or date type.</p> <p>➤ In arguments specify a string value to convert;</p> <p>➤ Returns a value of the corresponding type:</p> <p>① ParseDateTime() - a value of the DateTime type;</p> <p>② ParseDecimal() - a value of the Decimal type;</p> <p>③ ParseDouble() - a value of the Double type;</p> <p>④ ParseLong() - a value of the Long type.</p> | <p><code>{ParseDateTime("2025-05-20")}</code> - in this case, the string value will be converted to the date 20 May 2025.</p> <p><code>{ParseDateTime(DataSource.Column1)}</code> - in this case, the value of Column1 will be converted to the DateTime type.</p> <p><code>{ParseDecimal("15.75")}</code> - in this case, the result will be 15.75.</p> <p><code>{ParseDecimal(DataSource.Column1)}</code> - in this case, the value of Column1 will be converted to the decimal type.</p> <p><code>{ParseDouble("3.1415")}</code> - in this case, the result will be 3.1415.</p> <p><code>{ParseDouble(DataSource.Column1)}</code> - in this case, the value of Column1 will be converted to the double type.</p> <p><code>{ParseLong("1500")}</code> - in this case, the result will be 1500.</p> <p><code>{ParseLong(DataSource.Column1)}</code> - in this case, the value of Column1 will be</p> |

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| | | converted to the long type. |
| {Persian()} | <p>Converts specified numbers to numbers in Persian.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments of the string or int types; ➤ Returns the value of the string type. | <p>{Persian(5)} - number 2 will have Persian spelling.</p> <p>{Persian(dataSource.Column1)} - all the numbers from Column1 will have Persian spelling.</p> |
| {Remove()} | <p>Deletes the specified number of characters from the index of a specific position.</p> <ul style="list-style-type: none"> ➤ In arguments, the following is specified: <ul style="list-style-type: none"> ❶ The value (the string type); ❷ Index of the reference position (the int type); ❸ Number of characters to delete (the int type). ➤ Returns the value of the int type. | <p>{Remove("Beverages",2,3)} - after the second character, three characters will be deleted, the result is Beages.</p> <p>{Remove(dataSource.Column1,3,2)} - for all values from Column1, two characters will be deleted after the first three.</p> |
| {Replace(,,)} | <p>Replaces certain characters or their combination with other characters.</p> <ul style="list-style-type: none"> ➤ In arguments, the following is specified: <ul style="list-style-type: none"> ❶ The value (the string type) in which the replacement will be made; ❷ Characters to be replaced (the string type); ❸ Characters to be inserted (the string type). ➤ Returns the value of the | <p>{Replace("Beverages","ver","NEW")} - in the value Beverages, the ver characters will be replaced by the characters NEW, the result is BeNEWages.</p> <p>{Replace(dataSource.Column1, "rex","sum")} - for Column1 values, in which the combination of rex characters occurs, rex will be replaced by sum. In</p> |

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| | string type. | values where there is no combination of rex, a replacement will not be done. |
| {Right()} | <p>Displays the specified number of characters from the right side of the value.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments of the string type and the number of characters which should be displayed (the int type); ➤ Returns the value of the string type. | <p>{Right("Beverages",3)} - three characters from the right side of the value will be displayed, ges.</p> <p>{Right(DataSource.Column1,4)} - for each Column1 value, four characters will be displayed from the right side.</p> |
| {Roman()} | <p>Converts Arabic numerals to Roman numerals.</p> <ul style="list-style-type: none"> ➤ In the arguments, specify the number (the int type); ➤ Returns the value of the string type. | <p>{Roman(4)} - the number 4 will have a Roman spelling.</p> <p>{Roman(DataSource.Column1)} - all the numbers from Column1 will have a Roman spelling.</p> |
| {Substring()} | <p>Displays a certain number of characters from the specified position.</p> <ul style="list-style-type: none"> ➤ In arguments, the following is specified: <ul style="list-style-type: none"> ❶ The value (the string type) from which the characters will be displayed; ❷ The index of position (the int type), how many characters are skipped; ❸ Number of characters to display (the int type). ➤ Returns the value of the string type. | <p>{Substring("Beverages",6,3)} - the first six characters are skipped and three characters will be displayed, the result is ges.</p> <p>{Substring("Beverages",0,2)} - two characters will be displayed starting with zero, the result will be Be.</p> <p>{Substring(DataSource.Column1,1,4)} - the first character is skipped, and four are counted starting from the second one. This is the result for each</p> |

| | | Column1 value, which is displayed in the report. |
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| <code>{ToCurrencyWords()}</code> | <p>Displays the currency value as the text.</p> <p>➤ You can pass to the function:</p> <ul style="list-style-type: none"> ➊ Argument as numeric value (double, decimal, long) which will be converted to text; ➋ Argument (true or false) to display text with a capital letter; ➌ Argument (true or false) to display cents; ➍ Single and plural formats for currency and cents (the string type); ➎ You can also specify a base unit for the integer part and a fractional. <p>In addition, various combinations of arguments are possible. There are also some types of this function that support different cultures. Pay attention to you can specify the currencies ISO code (the string type).</p> <p>➤ Returns the value of the string type.</p> | <p><code>{ToCurrencyWords(100)}</code> - the used currency is dollars of the USA, so that the result will be: "One hundred dollars and zero cents.</p> <p><code>{ToCurrencyWords(100, false)}</code> - the result will be displayed without displaying cents (since it is set to true), the result will be: "One hundred dollars".</p> <p><code>{ToCurrencyWords(100, false, true)}</code> - the result will be displayed with the first lowercase letter (since it is set to false) and with displaying cents (since it is set to true), the result will be: "one hundred dollars and zero cents".</p> <p><code>{ToCurrencyWords(125.9, true, true, "currency", "cent name")}</code> - in this case, the result will be displayed with the first uppercase letter (since it is set to true) and with displaying cents (since it is set to true). Also, we defined the basic unit as "currency", and the fractional unit as "cent name". The result will be: "One hundred and</p> |

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| | | <p>twenty-five currency and ninety cent name".</p> <p>{ToCurrencyWordsEnGb(1.25,"EUR",2)} - the ISO code EUR will be applied, and the result will be one euro and twenty-five cents.</p> <p>{ToCurrencyWordsEnIn("dollars","cents",1.25M,0,true)} - the base unit for the integer part as dollars will be specified, the fractional part - cents, the number for conversion 1.25, then the number of decimal signs to convert and the value true means that the entry will start with the capital letter.</p> |
| {ToLowerCase()} | <p>Displays the value in lowercase.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments (the string type); ➤ Returns the value of the string type, | <p>{ToLowerCase("EURO")} - the result is euro.</p> <p>{ToLowerCase(DataSource.Column1)} - all values of this column will be displayed in lowercase.</p> |
| {ToOrdinal()} | <p>Converts numerals to ordinal.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments (the long type); ➤ Returns the value of the string type. | <p>{ToOrdinal(25)} - the result is 25th.</p> <p>{ToOrdinal(DataSource.Column1)} - all the values of this column will be converted to ordinal numerals.</p> |
| {ToProperCase()} | <p>Converts the text to the format - the first character is capital, the rest</p> | <p>{ToProperCase("dOllars")} - the result is Dollars.</p> <p>{ToProperCase("dollars")} -</p> |

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| | <p>characters are in lowercase.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments (the string type); ➤ Returns the value of the string type. | <p>the result is Dollars.</p> <p>{ToProperCase("dOLLARS")}</p> <p>- the result is Dollars.</p> <p>{ToProperCase(DataSource.Column1)}</p> <p>- all values from this column will be with the first capital letter and the rest ones in lowercase.</p> |
| {ToString()} | <p>Provides the ability to convert a value into a string type:</p> <ul style="list-style-type: none"> ➤ A value of any type is specified in the arguments; ➤ Returns a value of the string type. | <p>{ToString(12345)}</p> <p>- in this case, the result will be "12345".</p> <p>{ToString(DataSource.Column1)}</p> <p>- in this case, the value of Column1 will be converted to a string.</p> |
| {ToUpperCase()} | <p>Displays the value in uppercase.</p> <ul style="list-style-type: none"> ➤ The value is specified in arguments (the string type); ➤ Returns the value of the string type. | <p>{ToUpperCase("dollars")}</p> <p>- the result is DOLLARS.</p> <p>{ToUpperCase("dOllars")}</p> <p>- the result is DOLLARS.</p> <p>{ToUpperCase("dOLLARS")}</p> <p>- the result is DOLLARS.</p> <p>{ToProperCase(DataSource.Column1)}</p> <p>- all values will be written in uppercase.</p> |
| {ToWords()} | <p>Displays the numerals as text.</p> <ul style="list-style-type: none"> ➤ In arguments, the following is specified: <ul style="list-style-type: none"> ❶ A numeric value that will be converted to text (decimal, double, long); ❷ True or false values whether to display the first character with a capital letter; ❸ True or false values to return null and empty values; | <p>{ToWords(100)}</p> <p>- the result is one hundred.</p> <p>{ToWords(100, true)}</p> <p>- the result is One hundred.</p> <p>{ToWordsEnIn(0, false)}</p> <p>- the result is Zero.</p> <p>{ToWordsEnIn(0, true)}</p> <p>- there will be no results.</p> <p>{ToWordsEs(100, true, true)}</p> <p>- the result starts with a capital letter and in feminine form, Cien</p> <p>{ToProperCase(DataSource.Column1)}</p> <p>- all values will</p> |

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| | <p>4 It is also possible to specify true or false values to provide the feminine form for the result.</p> <p>➤ Returns the value of the string type.</p> | be displayed in text. |
| {Trim()} | <p>Trims the spaces at the beginning or end of the line.</p> <p>➤ The value is specified in arguments (the string type);</p> <p>➤ Returns the value of the string type.</p> | <p>{Trim(" <1 dollars> ")} - the result in this case is <1 dollars>".</p> <p>{Trim(DataSource.Column1)} - the spaces before each value and after each value will be truncated.</p> |
| {TryParseDecimal()}
{TryParseDouble()}
{TryParseLong()} | <p>Checks the value for conversion to decimal, double, long.</p> <p>➤ The value is specified in arguments (the string type);</p> <p>➤ Returns a value of the bool type. If true, then the conversion will be successful, otherwise it will be false.</p> | <p>{TryParseLong("100")} - The value can be converted to long.</p> <p>{TryParseLong(" { 100")} - the result is false. The value cannot be converted to long.</p> <p>{TryParseLong(DataSource.Column1)} - each value will be checked on possibility to be converted to long.</p> |
| Totals in-depth | | |

4.33.1 Totals

In the report, besides the list of data and its title, totals are present. This can be the amount, quantity, minimum, average, maximum value for a particular source, band or page. Depending on the desired result, you should select the type of the total function. All results of the functions can be divided conditionally into two types:

- Associated with bands. In this case, the results are calculated at the time of the report creation process. Every time an operation is performed with the Data band, a single value is calculated. Appropriately, the text component with the total should be placed on any band which associates directly with any band that is

associated with the Data band.

➤ Not associated with bands. In this case, the calculation of totals is not associated with the operation of rendering the Data band. Consequently, the text component with the total functions can be located anywhere in the report. It is worth noting that all functions have the Totals prefix. The format is: {Totals.Functions ()}.

4.33.1.1 Totals Associated with Bands

Important

Scripts can be a security risk, so they are disabled in the [Interpretation mode](#). However, if you are confident in the safety of your scripts, you can use them in the [Compilation mode](#).

To calculate and display the total, you should place a text component in the report, call the editor and go to the Summary tab.

- ➊ The **Expression** field. This field specifies an expression of calculating totals. The expression can be specified manually, or it will be generated automatically, depending on the type of other parameters.
- ➋ The **Summary Function** field. In this field, the function of calculating totals is selected.
- ➌ In this field, you can specify the **Data band** by which the total will be calculated.
- ➍ In this field, you can specify by the data column which values will be used to calculate the total.
- ➎ Using the radio buttons, you can set the object for calculating totals:
 - **Report**. The total will be calculated for the entire report.
 - **Column**. Totals will be calculated by every column in the report.
 - **Page**. Totals will be calculated by every page of the rendered report.
- ➏ The Running Total parameter. If the flag is checked, then the total will be calculated as running. If unchecked, then the total will be calculated only by the project (report, column, page).
- ➐ The Conditions parameter. If the flag is checked, then the condition will be considered when calculating the totals. If unchecked, then the total will be calculated without considering conditions.
- ➑ The field specifies an expression of a condition.

The type of the total function result

By default, the function for calculating totals returns the Decimal type (except for the functions - Count and CountDistinct). However, you can also make calculations using two other data types - Double, and Int64. For the function returns the result of the calculation using the Double data type, add the Latin letter D in the upper register to the name of the function. For calculations using the Int64 type, you should add the Latin letter I in the upper register. This separation will allow avoiding losses in the calculation of totals.

| Function | Type of returned value |
|----------|------------------------|
| Sum() | Decimal |
| SumD() | Double |
| SumI() | Int64 |

Information

The letters I, D can be added to any function except Count and CountDistinct. These functions always return the Int64 type.

Some words about the function syntax

When using the C# programming language, all the functions should be written strictly in compliance with the register.

- Sum (expression) - the sum is calculated by the automatically identified object.
- Sum (band, expression) - the sum is calculated by the particular object.
- SumIf (band, expression, condition) - the sum is calculated by the object with the condition.
- expression - the expression for calculation;
- band - the name of the band to execute calculation;
- condition - the condition of including the calculation into the expression.

In the case with calculations by a page or a container, the syntax is the same except for the addition of the Latin letter c as the prefix to the function name:

- cSum (expression) - calculation of the sum by the page or container;
- cSum(band, expression) - calculation of the sum by the page or container and object on it;
- cSumIf (band, expression, condition) - calculation of the sum by the page or container and object on it, under certain conditions.

To calculate totals by the column, add the col prefix to the function name:

- colSum (expression) - the sum is calculated by the column;
- colSum (band, expression) - the sum is calculated by the column and an object in it;
- colSumIf (band, expression, condition) - the sum is calculated by the column and objects in it, under certain conditions.

The Count function differs from the rest of the functions that it has no expressions for calculation. The syntax for this function is shown below.

- Count() - calculates the number of rows;
- CountIf(condition) - calculates the number of rows by the condition;
- Count(band) - calculates the number of rows by the object;
- CountIf(band, condition) - calculates the number of rows by the object and condition;
- cCount() - calculates the number of rows by the page and container;
- cCount (band) - calculates the number of rows by the page (container) and an object on it;
- cCountIf(band, condition) - calculates the number of rows by the page (container) and an object on it under certain condition;
- colCount() - calculates the number of rows by the column;
- colCount (band) - calculates the number of rows by the column and the object in this column;
- colCountIf(band, condition) - calculates the number of rows by the column and the object in the column under certain conditions.

Showing totals in any place

Typically, the components, in the text expression of which the function call is specified, are placed on the footer band on the Data band. There are several types of footer bands:

- ReportSummaryBand - the band is used to display totals for the entire report;

- PageFooterBand - the band is used to display totals by the page;
- FooterBand - the band is used to display totals by the list;
- GroupFooterBand - the band is used to display totals by the group.
- ColumnFooterBand - the band is used to display totals by the column.

The position of components with functions in any of the bands mentioned above allows the report generator to determine exactly to what data band this function is applicable. Also, a component with the functions can be placed on the Data band. In this case, on each data row, the result of the function calculation by all rows will be displayed.

If you want to display the total, for example, on the Header band, then this is done using a script. However, in Stimulsoft Reports, the component with the function may be in any band of the report.

Information

The components with functions can be placed anywhere in the report.

It is also allowed to place a component with the function on a page and other pages of the report template. For example, it is possible to calculate the sum of values by the list and output it in the header list. Another example, calculate the number of rows in the list and output the value at the beginning of the page. At the same time, there is a limitation: you must specify the Data band, in which the result will be calculated:

- {Sum (DataBand1, Products.UnitsInStock)}. In this case, the total will be calculated for the Products.UnitsInStock column values for each row of DataBand1.
- {Count (DataBand1)}. In this case, the number of rows of DataBand1 will be calculated.

Expressions with functions

To calculate the totals, it is possible not to specify additional arguments in the expression. For example, for the Count function, it is optional, or only one argument can be set for the Sum function - an expression that should be calculated. All this is

possible if the report generator can determine to which Data band those functions are related.

Information

The report generator can determine the relationship between functions and specific Data band if the component with this function is located on a band related to that Data band. In other words, the component with the function is located on the Header and Footer bands that relate to this Data band.

Otherwise, in the arguments, you should specify the data source or a Data band on which it is necessary to calculate the total. The following can be specified in expressions:

- The object which values will be calculated - {Sum (DataSource.Column)}
- The object and various mathematical operations with them - {100 + Sum (DataSource.Column) * 2}

Calculation of totals by the page

To calculate the total by the page or panel, you should add the Latin letter "c" in lower case as a prefix to the name of the function:

- {AcCount (DataBand1)} - the report engine calculates the number of lines on one page or a panel.

Information

The calculation of totals by the page has the same principle as for the panel.

When calculating totals by the panel or page, it is desirable to specify the Data band by which goes the calculation of the aggregate function. It is necessary because there may be more than one Data band on one page.

On one page or panel, you can use any number of aggregate functions. Stimulsoft

software does not have any restrictions on this. It is allowed to combine the totals by the page with the condition. For example:

➤ {CountIf(DataBand1, Products.UnitsInStock = 0)} - the report engine calculates the number of items on this page which are equal to zero.

Calculation of totals by column

To calculate the total by a column, you must add the prefix col (from the word column) in the lowercase to the name of the function. For example:

➤ {ColCount ()} - the report engine calculates the number of rows in each column.

Information

The calculation of totals by a column in Stimulsoft Reports has one limitation. Totals can be calculated only by the columns on the page. Calculation of totals by the columns on the Data band is not allowed.

When calculating totals by the column, it is desirable to place text components with functions on ColumnHeader, ColumnFooter, Header, or Footer bands. You can calculate an unlimited number of totals by the column. There are no restrictions on this. It is also allowed to combine the footers by the column with the condition:

➤ {ColCountIf(DataBand1, Products.UnitsInStock = 0)} - the report engine calculates the number of rows in each column, where the condition will be executed.

Calculating totals in the event code

Using Stimulsoft software, you can calculate functions in the code of the report event. It provides the ability to calculate the more complex functions. Also, in this case, you can refer to the calculated value from the code in the process of calculation and influence this process. To make this calculation, you should create a variable in the data dictionary, which will store the value of the function.

Information

Do not use variables declared in the code to store the result of the calculation of functions. You must use the variables from the data dictionary.

When creating a variable, the data type of the variable is indicated. For example, Decimal, and the initial value, for example, 0. Then, in the Data band, indicate an expression to increment a variable in the Rendering event. For example, if you want to calculate the sum of the values by the field Products.UnitPrice, the expression will be the following:

➤ Variable + = Products.ItemsInStock;

To display the result of calculation, you should place the text component with the expression:

➤ {Variable}

Also, you must have a text component with the expression {Variable}, set the Process At property to the End of Report value. It is necessary that the report generator calculates the value of the variable after processing the remaining components.

Calculation of totals with condition

Sometimes, when calculating totals, it is necessary to consider certain values. In this case, the condition is set to function of calculating the totals. For example, it is necessary to sum the values that are greater than zero. To add a condition to the function of calculating the totals, you should add a suffix If (the Latin alphabet) to the function name, and add an additional argument with the condition:

- {SumIf (Products.UnitsInStock, Products.UnitsInStock > 1)}. In this case, the amount of Products.UnitsInStock values will be calculated, which is greater than 1.
- {CountIf (Products.UnitsInStock == 0)}. In this case, the number of rows with a zero value in the UnitsInStock column is calculated.

Information

If you want to make a calculation using a Double or Int64, you must first add the Latin letter D or I, and then the word If. For example:
{SumDIIf(Products.UnitsInStock,Products.UnitsInStock > 0)}.

Totals and automatic changing the size of the component

Information

When rendering a report, at the moment, when the size of the component is determined, the result of the calculation of the total function is still unknown. This should be considered when installing the automatic resizing for the components in which the calculation of totals is done. Otherwise, an issue may arise when the size of the component is not correct in relation to the result of the calculation of the total function.

Totals with the disabled Data band

The Data band can be disabled in a variety of ways. For example, it can be disabled by a certain condition, or it may have a zero height. By default, when rendering a report, the report engine does not take into account disabled data bands and will not process them. However, if it is necessary to calculate totals by the disabled Data band, then you should set the `CalcInvisible` property for this band to true. In this case, the report will still only display the included Data bands, but the calculation of totals will be executed considering the disabled Data band as well.

Calculating totals in Master-Detail reports

When calculating totals in hierarchical reports, there are some issues in calculating the result. Consider an example based on the Master-Detail Report. Suppose the report shows a list of product categories. Categories, in this case, are master entries, and products are detail entries:

Suppose you want to count the number of products to be displayed in the report. If you add the Footer band with the function `Count()` to the band with a list of products (detail records), then, by each category (a master record), totals will be calculated:

Master Detail

Stimulsoft

The sample demonstrates how to create a Master-Detail report.

Date: July 2016



Beverages

Soft drinks, coffees, teas, beers, and ales

| Name | Quantity per unit | Price | Units in stock |
|-----------------------------|---------------------|----------|----------------|
| 1 Chai | 10 boxes x 20 bags | \$18.00 | 39.00 |
| 2 Chang | 24 - 12 oz bottles | \$19.00 | 17.00 |
| 3 Chartreuse verte | 750 cc per bottle | \$18.00 | 69.00 |
| 4 Côte de Blaye | 12 - 75 cl bottles | \$263.50 | 17.00 |
| 5 Guaraná Fantástica | 12 - 355 ml cans | \$4.50 | 20.00 ✓ |
| 6 Ipoh Coffee | 16 - 500 g tins | \$46.00 | 17.00 |
| 7 Lakkalikööri | 500 ml | \$18.00 | 57.00 |
| 8 Laughing Lumberjack Lager | 24 - 12 oz bottles | \$14.00 | 52.00 |
| 9 Outback Lager | 24 - 355 ml bottles | \$15.00 | 15.00 |
| 10 Rhönbräu Klosterbier | 24 - 0.5 l bottles | \$7.75 | 125.00 |
| 11 Sasquatch Ale | 24 - 12 oz bottles | \$14.00 | 111.00 |
| 12 Steeleye Stout | 24 - 12 oz bottles | \$18.00 | 20.00 |

Count: 12

If you add the Footer band with the function Count() to the band with the categories, the result is the number of master entries in the report, the number of categories. However, in the Master-Detail report, you can calculate the totals immediately for all detail records. In this case, you must specify the names of both (master and detail) bands as a function with a colon: Count(MasterBand:DetailBand).

Master Detail

Stimulsoft

The sample demonstrates how to create a Master-Detail report.

Date: July 2016



Beverages

Soft drinks, coffees, teas, beers, and ales

| Name | Quantity per unit | Price | Units in stock |
|-----------------------------|---------------------|----------|----------------|
| 1 Chai | 10 boxes x 20 bags | \$18.00 | 39.00 |
| 2 Chang | 24 - 12 oz bottles | \$19.00 | 17.00 |
| 3 Chartreuse verte | 750 cc per bottle | \$18.00 | 69.00 |
| 4 Côte de Blaye | 12 - 75 cl bottles | \$263.50 | 17.00 |
| 5 Guaraná Fantástica | 12 - 355 ml cans | \$4.50 | 20.00 ✓ |
| 6 Ipoh Coffee | 16 - 500 g tins | \$46.00 | 17.00 |
| 7 Lakkalikööri | 500 ml | \$18.00 | 57.00 |
| 8 Laughing Lumberjack Lager | 24 - 12 oz bottles | \$14.00 | 52.00 |
| 9 Outback Lager | 24 - 355 ml bottles | \$15.00 | 15.00 |
| 10 Rhönbräu Klosterbier | 24 - 0.5 l bottles | \$7.75 | 125.00 |
| 11 Sasquatch Ale | 24 - 12 oz bottles | \$14.00 | 111.00 |
| 12 Steeleye Stout | 24 - 12 oz bottles | \$18.00 | 20.00 |

77

The result of the Count(MasterBand:DetailBand) function is the number of products in all categories.

4.33.1.2 Totals not Related to Bands

The calculation of totals in reports can be made by specifying an expression, for example, {Sum(DataBand1)}. At the same time, the totals are calculated when rendering the report: each time when an operation with DataBand is carried out, a single value is calculated. Then, all calculated values are added together and the total value will be displayed. In this case, totals are associated with bands. The calculation of totals in Stimulsoft Reports can be made in another way - instantly. In other words, calculate the total not associated with bands. To do this, use the special prefix Totals before the function with the separator ".", For example, {Totals.Sum(DataBand1)}. Calculation of functions with the prefix Totals occurs where the function was called, as opposed to the totals associated with bands, the calculation of which is performed during rendering the report.

Totals Functions:

| Function | Description | Sample |
|-------------|---|--|
| {Avg()}when | <p>Calculates the arithmetic mean:</p> <ul style="list-style-type: none"> ➤ In arguments, specify an object or two objects ➤ Returns values of different types (double, decimal, long, DateTime, TimeSpan), depending on the function selected. | <p>{Avg(DataSource.Column1)} - the arithmetic mean of the Column1 column will be calculated.</p> <p>{AvgDate(DataSource.ColumnDate)} - the average of the date on the ColumnDate column will be calculated.</p> <p>{AvgTime(DataSource.ColumnTime)} - the average time by the ColumnTime column will be calculated.</p> <p>All functions can have two arguments. For example, the report uses several Data bands. It is necessary to calculate the arithmetic mean for the first Data band. In this case, the first argument is the band, the second is the object for calculation - {Avg(DataBand1,DataSource.Column2)}. As a result, the arithmetic mean of Column2 will be calculated, but only for the DataBand1 values.</p> |
| {Count()} | Calculates the number of values or | {Count()} - the result is the number of entries in the data source. |

| | | |
|-----------|---|---|
| | <p>the number of unique values:</p> <ul style="list-style-type: none"> ➤ In arguments, specify a value, object or two objects ➤ Returns the values of various long types | <p>{Count(DataBand1, DataSource.Column1)} - the result is the number of entries in Column1 column for DataBand1.</p> <p>{CountDistinct(DataSource.Column1)} - the result is the number of unique entries in DataSource.Column1.</p> <p>{CountDistinct(DataBand2, DataSource.Column2)} - the result is the number of unique entries in Column2 column for DataBand2.</p> |
| {First()} | <p>Displays the first value from the specified object:</p> <ul style="list-style-type: none"> ➤ In arguments, specify an object or two objects ➤ Returns the values of various object types | <p>{First(DataSource1.Column1)} - the result is the first value of Column1 from the DataSource1.</p> <p>{First(DataBand2, DataSource.Column2)} - the result is the first value of Column2 of the DataBand2 band.</p> |
| {Last()} | <p>Displays the last value from the specified object:</p> <ul style="list-style-type: none"> ➤ In arguments, specify an object or two objects ➤ Returns the values of various object types | <p>{Last(DataSource1.Column1)} - the result is the last value of Column1 from the DataSource1.</p> <p>{Last(DataBand2, DataSource.Column2)} - the result is the last value of Column2 of the DataBand2.</p> |
| {Max()} | <p>Displays the maximum value from the specified object:</p> <ul style="list-style-type: none"> ➤ In arguments, specify an object or two objects ➤ Returns the values | <p>{Max(DataSource1.Column1)} - the result is the maximum value from Column1 of DataSource1.</p> <p>{MaxDate(DataSource1.ColumnDate)} - the result is the maximum date from the ColumnDate of the DataSource1.</p> |

| | | |
|------------|--|--|
| | of various double, decimal, long, DateTime, TimeSpan, string types depending on the function selected. | <p>{MaxTime(DataSource1.ColumnTime)} - the result is the maximum time from the ColumnTime of the DataSource1.</p> <p>{MaxStr(DataSource1.Column1)} - all values will be sorted alphabetically. The result is the last value.</p> <p>{Max(DataBand2, DataSource.Column2)} - the result will be the maximum value of Column2 of the DataBand2 band.</p> |
| {Median()} | <p>Displays the mean (non-arithmetic) value from the list:</p> <ul style="list-style-type: none"> ➤ In arguments, specify an object or two objects ➤ Returns the values of various double, decimal, long types, depending on the function selected. | <p>Suppose, Column1 contains 5 values: 2, 5, 6, 1, 7. The {Median(DataSource1.Column1)} function displays the average value from this list, i.e. the result is 5.</p> <p>{Median(DataBand2, DataSource.Column2)} - the result is the average value of Column2 of the DataBand2.</p> |
| {Min()} | <p>Displays the maximum value from the specified object:</p> <ul style="list-style-type: none"> ➤ In arguments, specify an object or two objects ➤ Returns the values of various double, decimal, long, DateTime, TimeSpan, string types depending on the function selected. | <p>{Min(DataSource1.Column1)} - the result is the minimum value from Column1 of DataSource1.</p> <p>{MinDate(DataSource1.ColumnDate)} - the result is the minimum date from the ColumnDate of the DataSource1.</p> <p>{MinTime(DataSource1.ColumnTime)} - the result is the minimum time from the ColumnTime of the DataSource1.</p> <p>{MinStr(DataSource1.Column1)} - all values will be sorted alphabetically. The result is the first value.</p> |

| | | |
|------------------------|---|---|
| | | <code>{Min(DataBand2, DataSource.Column2)}</code> - the result is the minimum value of Column2 of the DataBand2 band. |
| <code>{Mode()}</code> | <p>Displays the value that is most common in the list of values:</p> <ul style="list-style-type: none"> ➤ In arguments, specify an object or two objects ➤ Returns the values of various double, decimal, long types depending on the function selected. | <p><code>{Mode(DataSource1.Column1)}</code>. Suppose, Column1 contains a list of values: 2, 2, 6, 7, 7, 8, 7, 6, 5, 9, 4. In this case, the result is 7, because it is most often repeated in the list of values.</p> <p><code>{Mode(DataBand2, DataSource.Column2)}</code> - the result will be the value from Column2 of the DataBand2, which is the most common.</p> |
| <code>{Rank(,)}</code> | <p>Display the rank of the value. The prefix Totals is mandatory:</p> <ul style="list-style-type: none"> ➤ Specify in arguments: <ul style="list-style-type: none"> ❶ Objects for processing and assigning rank (the object type) ❷ The value (true or false) for assigning a tight or not tight rank ❸ Sorting direction of values. ➤ Returns the values of various long types | <p><code>{Totals.Rank(DataBand1,DataSource.Column1)}</code>. Suppose, Column1 contains a list of values: 44, 9, 36, 55, 71. In this case, the values will be sorted in ascending order, i.e. 9, 36, 44, 55, 71 and to each of them a rank will be assigned. The number 9 will receive rank 1; 36 - rank 2; 44 - rank 3; 55 - rank 4; 71 - rank 5. By default, calculates a tight rank and sorts the values for assigning rank by ascending order</p> <p><code>{Totals.Rank(DataBand1,DataSource.Column1, true, StiRankOrder.Dess)}</code> - in this case, there will be a tight rank since it is set to true. When the rank is assigned, the values will be sorted in descending order since StiRankOrder is set to Desc. For sorting in ascending order (used by default), you should set to Asc (StiRankOrder.Asc).</p> <p>An example of a not tight rank is <code>{Totals.Rank(DataBand1, DataSource.Column1, false, StiRankOrder.Asc)}</code>. Assume Column1 contains a list of values: 44, 9, 44, 9, 31, 64,68,</p> |

| | | |
|-----------|---|--|
| | | <p>71. The values are assigned in ascending order, i.e. 9, 9, 31, 44, 44, 64, 68, 71. In this case, the ranks will be as follows: 9 - rank 1, 9 - rank 1, 31 - rank 3, 44 - rank 4, 44 - rank 4, 64 - rank 6, 68 - rank 7, 71 - rank 8. In other words, when assigning a rank to a number, the rank of the previous value and the number of values with this rank are taken into account.</p> |
| {StDev()} | <p>Provides the ability to calculate the standard deviation for a sample:</p> <ul style="list-style-type: none"> ➤ The arguments specify a data source and an expression ➤ Returns a value of type double | <p>{Totals.StDev(DataSource1, DataSource1.Column1)} - in this case, the result will be the standard deviation of the values in Column1 (sample).</p> <p>{Totals.StDevP(DataSource1, DataSource1.Column1)} - in this case, the result will be the standard deviation of the values in Column1 for the entire population.</p> |
| {Sum()} | <p>Displays the result of the sum of the values:</p> <ul style="list-style-type: none"> ➤ Specify in arguments: <ul style="list-style-type: none"> ❶ Objects for processing and assigning rank (type object) ❷ Condition ❸ Summation expression ➤ Returns the values of various long, decimal, double, TimeSpan types | <p>{Sum(DataSource1.Column1)} - the result is the sum of all Column1 values in the DataSource1.</p> <p>{SumDistinct(DataSource1.Column1)} - the result is the sum of all the unique Column1 values in the DataSource1.</p> <p>SumTime(DataSource1.Column1) - the result is the sum of the time from Column1 in the DataSource1.</p> <p>{Sum(DataBand2,DataSource2.Column2)} - the result is the sum of the values from Column2 of the DataBand2.</p> <p>{SumDistinct(DataBand1,DataSource.Column1, DataSource.Column2)} - the result is the sum of the Column2 values that correspond to the unique values from Column1 of the</p> |

DataBand1.

Samples to calculate totals not associated with bands.

For example, there is a Master-Detail Report, which is a list of products by categories:

Master Detail

Stimulsoft

The sample demonstrates how to create a Master-Detail report.

Date: July 2018



Beverages

Soft drinks, coffees, teas, beers, and ales

| Name | Quantity per unit | Price | Units in stock |
|-----------------------------|---------------------|----------|----------------|
| 1 Chai | 10 boxes x 20 bags | \$18.00 | 39.00 |
| 2 Chang | 24 - 12 oz bottles | \$19.00 | 17.00 |
| 3 Chartreuse verte | 750 cc per bottle | \$18.00 | 69.00 |
| 4 Côte de Blaye | 12 - 75 cl bottles | \$263.50 | 17.00 |
| 5 Guaraná Fantástica | 12 - 355 ml cans | \$4.50 | 20.00 |
| 6 Ipoh Coffee | 16 - 500 g tins | \$46.00 | 17.00 |
| 7 Lakkalikööri | 500 ml | \$18.00 | 57.00 |
| 8 Laughing Lumberjack Lager | 24 - 12 oz bottles | \$14.00 | 52.00 |
| 9 Outback Lager | 24 - 355 ml bottles | \$15.00 | 15.00 |
| 10 Rhönbräu Klosterbier | 24 - 0.5 l bottles | \$7.75 | 125.00 |
| 11 Sasquatch Ale | 24 - 12 oz bottles | \$14.00 | 111.00 |
| 12 Steeleye Stout | 24 - 12 oz bottles | \$18.00 | 20.00 |

In this report, the result can be calculated for each category for the entire report. It is also possible to calculate the proportion of each category of the total. To begin, let's calculate the amount of product in a category. To do this, add the Footer band in the report template, put a text component with an expression of calculating totals {Sum(DataBand2,Products.UnitPrice)}. For the summation of values, the Sum function is used, its arguments specify the object by which the totals and data column will be calculated, the values of which will be summarized. Since it is necessary to calculate the amount of product by each category, the object for calculating totals will be the detailed Data band, i.e. DataBand2. Values in the UnitPrice column indicate the price of each product. Therefore, the sum of these values will be the total for the category:

Master Detail

Stimulsoft

The sample demonstrates how to create a Master-Detail report.

Date: July 2016



Beverages

Soft drinks, coffees, teas, beers, and ales

| Name | Quantity per unit | Price | Units in stock |
|-----------------------------|---------------------|------------------------------|----------------|
| 1 Chai | 10 boxes x 20 bags | \$18.00 | 39.00 |
| 2 Chang | 24 - 12 oz bottles | \$19.00 | 17.00 |
| 3 Chartreuse verte | 750 cc per bottle | \$18.00 | 69.00 |
| 4 Côte de Blaye | 12 - 75 cl bottles | \$283.50 | 17.00 |
| 5 Guaraná Fantástica | 12 - 355 ml cans | \$4.50 | 20.00 |
| 6 Ipoh Coffee | 16 - 500 g tins | \$46.00 | 17.00 |
| 7 Lakkalikööri | 500 ml | \$18.00 | 57.00 |
| 8 Laughing Lumberjack Lager | 24 - 12 oz bottles | \$14.00 | 52.00 |
| 9 Outback Lager | 24 - 355 ml bottles | \$15.00 | 15.00 |
| 10 Rhönbräu Klosterbier | 24 - 0.5 l bottles | \$7.75 | 125.00 |
| 11 Sasquatch Ale | 24 - 12 oz bottles | \$14.00 | 111.00 |
| 12 Steeleye Stout | 24 - 12 oz bottles | \$18.00 | 20.00 |
| | | Total by Beverages: \$455.75 | |

In this case, the result is associated with the Data band. To calculate the total by the report, use the functions which are not associated with bands. For this, add a prefix Totals to the function, through the "." separator. As an object, you should specify the data source. The expression for calculating totals in the report, will be {Totals.Sum(Products, Products.UnitPrice)}. The result is displayed on the master band.

| Master Detail | | Stimulsoft | |
|---|---------------------|------------------------------|----------------|
| The sample demonstrates how to create a Master-Detail report. | | Date: July 2016 | |
|  Beverages
Soft drinks, coffees, teas, beers, and ales | | Total by Report: \$2,222.71 | |
| Name | Quantity per unit | Price | Units in stock |
| 1 Chai | 10 boxes x 20 bags | \$18.00 | 39.00 |
| 2 Chang | 24 - 12 oz bottles | \$19.00 | 17.00 |
| 3 Chartreuse verte | 750 cc per bottle | \$18.00 | 69.00 |
| 4 Côte de Blaye | 12 - 75 cl bottles | \$283.50 | 17.00 |
| 5 Guaraná Fantástica | 12 - 355 ml cans | \$4.50 | 20.00 |
| 6 Ipoh Coffee | 16 - 500 g tins | \$46.00 | 17.00 |
| 7 Lakkalikööri | 500 ml | \$18.00 | 57.00 |
| 8 Laughing Lumberjack Lager | 24 - 12 oz bottles | \$14.00 | 52.00 |
| 9 Outback Lager | 24 - 355 ml bottles | \$15.00 | 15.00 |
| 10 Rhönbräu Klosterbier | 24 - 0.5 l bottles | \$7.75 | 125.00 |
| 11 Sasquatch Ale | 24 - 12 oz bottles | \$14.00 | 111.00 |
| 12 Steeleye Stout | 24 - 12 oz bottles | \$18.00 | 20.00 |
| | | Total by Beverages: \$455.75 | |

Each time, when the master band is printed in the report, the total by the report will be shown. Using the results of calculations, it is possible to calculate the share of each category of the grand total. The result is displayed as a percentage. To calculate the proportion, you should divide the total by the category on the total by the report - $\{(Sum(DataBand2, Products.UnitsInStock) / Totals.Sum(Products, Products.UnitsInStock))\}$. For the text component, in which the share is displayed, set the percentage format. The result is displayed on the master band.

| Master Detail | | Stimulsoft | |
|---|---------------------|--|----------------|
| The sample demonstrates how to create a Master-Detail report. | | Date: July 2016 | |
|  Beverages
Soft drinks, coffees, teas, beers, and ales | | Total by Report: \$2,222.71
Percent: 17.92 % | |
| Name | Quantity per unit | Price | Units in stock |
| 1 Chai | 10 boxes x 20 bags | \$18.00 | 39.00 |
| 2 Chang | 24 - 12 oz bottles | \$19.00 | 17.00 |
| 3 Chartreuse verte | 750 cc per bottle | \$18.00 | 69.00 |
| 4 Côte de Blaye | 12 - 75 cl bottles | \$283.50 | 17.00 |
| 5 Guaraná Fantástica | 12 - 355 ml cans | \$4.50 | 20.00 |
| 6 Ipoh Coffee | 16 - 500 g tins | \$46.00 | 17.00 |
| 7 Lakkalikööri | 500 ml | \$18.00 | 57.00 |
| 8 Laughing Lumberjack Lager | 24 - 12 oz bottles | \$14.00 | 52.00 |
| 9 Outback Lager | 24 - 355 ml bottles | \$15.00 | 15.00 |
| 10 Rhönbräu Klosterbier | 24 - 0.5 l bottles | \$7.75 | 125.00 |
| 11 Sasquatch Ale | 24 - 12 oz bottles | \$14.00 | 111.00 |
| 12 Steeleye Stout | 24 - 12 oz bottles | \$18.00 | 20.00 |
| | | Total by Beverages: \$455.75 | |

Thus, you can calculate any total in the report. To calculate the total not associated with bands you should use the prefix Totals to the name of the function, and use the "." separator.

4.34 Interaction

Stimulsoft Reports has a set of features to render interactive reports. They are bookmarks, hyperlinks, Drill-Down links, dynamic sorting, dynamic collapsing, editing reports in the preview window. All these features are described in the chapters below.

4.34.1 Bookmarks

Bookmarks are used to show the structure of a report. Also, bookmarks are used to mark the component to refer to it using hyperlinks. All components have the **Interaction.Bookmark** property. The expression, specified in this property, is set to **BookmarkValue** property. Setting occurs when the report is rendering. This property is invisible in the **Properties** panel, but it can be called from the report code or refer to it from the expression. Before showing a report in the window of preview, Stimulsoft Reports views all components of a rendered report and logs a tree of bookmarks.

Simple Group

- A
- B
- C
- D
- E
- F
- G
- H
- I
- K
- L
- M
- N
- O
- P
- Q
- R
- S
- T
- V
- W

1

2

L

| Company | Address | Phone | Contact |
|----------------------------------|------------------------------------|----------------|----------------------|
| 1. La come d'abondance | 67, avenue de l'Europe | 55 55 84 10 | Sales Representative |
| 2. La maison d'Idée | 1 rue Alsace-Lorraine | 61 77 81 10 | Sales Manager |
| 3. Laughing Bacchus Wine Cellars | 1800 Oak St. | (800) 555-5580 | Marketing Assistant |
| 4. Lazy K Country Store | 13 Onchaste Terrace | (505) 555-7668 | Marketing Manager |
| 5. Lehmanns Hardware | Magetwag 7 | 069-2042864 | Sales Representative |
| 6. Let's Stop N' Shop | 67 Park St. Suite 5 | (617) 555-8936 | Owner |
| 7. LLO-Supermercado | Carretera 52 con Av. Sellar 555-66 | (8) 551-6854 | Accounting Manager |
| 8. LINO-Cellarware | Av. S de Mayo Portomar | (8) 55-55-12 | Owner |
| 9. Lonesome Pine Restaurant | 66 Chlarsuro Rd. | (502) 555-6273 | Sales Manager |

Count: 9

M

| Company | Address | Phone | Contact |
|---------------------------------|-------------------------|----------------|---------------------|
| 1. Magazzini Alimentari Fiorini | Via Ludovico il Moro 22 | 035-460390 | Marketing Manager |
| 2. Makon Deway | Rue Joseph-Beno 552 | (50) 551 51 47 | Sales Agent |
| 3. Miles Pallade | 43 rue St. Laurent | (514) 555-6556 | Marketing Assistant |
| 4. Morgenstern Gesundkost | Hauptstr. 22 | 0942-029176 | Marketing Assistant |

Count: 4

N

| Company | Address | Phone | Contact |
|---------------|-----------------------------|----------------|-----------------|
| 1. NorthSouth | South House 900 Queenbridge | (416) 555-7739 | Sales Associate |

Count: 1

O

| Company | Address | Phone | Contact |
|---------------------------|------------------------------------|----------------|----------------------|
| 1. Orlano Jolimito Ltda. | Ing. Gustavo Moncada 6555 Pto 25-3 | (1) 555-5355 | Sales Agent |
| 2. Old World Delicatessen | 2710 Spring St. | (807) 555-7564 | Sales Representative |
| 3. Orlano Jolimito Ltda. | Mahthelmerstr. 369 | 0221-0644227 | Owner |

Count: 3

P

| Company | Address | Phone | Contact |
|------------------------------|--------------------------|-----------------|----------------------|
| 1. Park Appliances | 262, boulevard Charonne | (1) 43-34-33-89 | Owner |
| 2. Perlees Comida's cilecias | Calle Dr. Jorge Cash 521 | (2) 555-0745 | Sales Representative |
| 3. Pilsol und mehr | Gelschwag 14 | 6960-4732 | Sales Manager |
| 4. Pinassa Isabel Vinhos | Donada da escola n. 28 | (1) 559-5834 | Sales Representative |

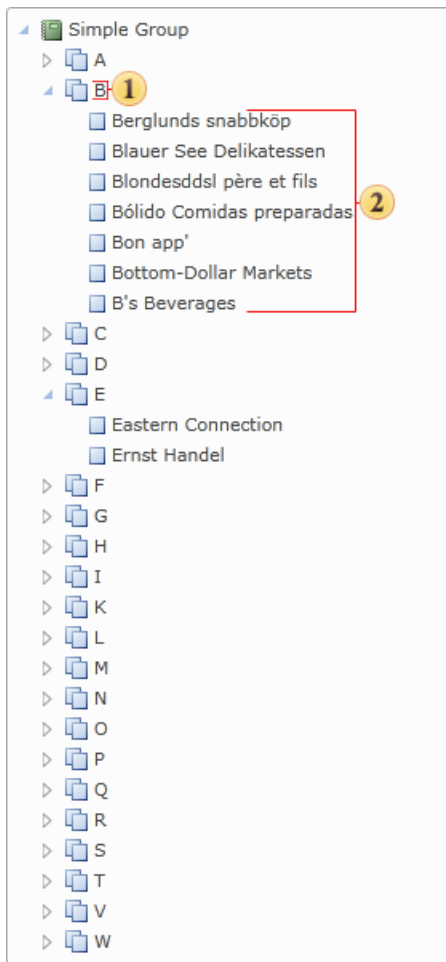
Count: 4

Page 3 of 5

40%

4.34.1.1 Tree of Bookmarks

The tree of Bookmarks allows viewing the hierarchical structure of a report. For example, two bookmarks were specified: one on the **Master** band and the second on the **Detail** band. In this case, each element of the **Master** band bookmark fits a node of the bookmarks tree. All elements of bookmarks from the **Detail** bands will be added to the proper node of the **Master** band.

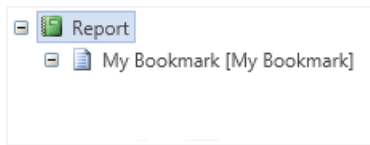


4.34.1.2 Bookmarking Using Code

Using the **Interaction.Bookmark** property very complicated structure of bookmarks in a report can be formed. But sometimes it is not enough of this property. For example, it is necessary to add nodes to the tree of bookmarks without using the **Interaction.Bookmark** property. Or the bookmark should be placed on another level of nesting. The **Interaction.Bookmark** property of Stimulsoft Reports can be used. This is an invisible property, and it is available only from the code. It is very simple to use this property. For example, to add the bookmark of the first level of nesting the following code can be used:

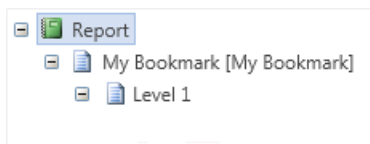
```
Bookmark.Add("My Bookmark");
```

This code will create this bookmark in the tree of bookmarks:



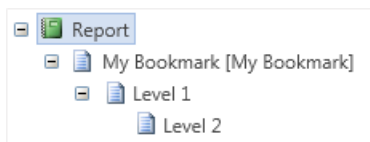
To add a bookmark of the second level to the tree, it is necessary to write the following code:

```
Bookmark["My Bookmark"].Add("Bookmark Level2");
```



...and for the third level:

```
Bookmark["My Bookmark"]["Level2"].Add("Bookmark Level3");
```



To create all three bookmarks, the code sample shown above can be used. Stimulsoft Reports automatically checks the presence of each bookmark in a tree and will add ones which should be added. Sometimes it is required to organize navigation using bookmarks. If it is necessary to find components, the **Interaction.Bookmark** property of these components should be logged. The value of the **Interaction.Bookmark** property should be the same with the name of the created bookmark. For example, add the bookmark:

```
Bookmark.Add(Customers.CompanyName);
```

So the values of the **Interaction.Bookmark** property should be as follow:

```
{Customers.CompanyName}
```

As a result, all components will be marked with a bookmark with the company name. The same company name will be added to the report tree. And, when clicking on the bookmark node of the report tree, all components will be found.

4.34.1.3 Creating Bookmarks Using Expression

Using the expression, it is possible to form a rather complex structure of bookmarks in a report. Even a flat report (containing no subordinate entries) can be represented as a hierarchy of bookmarks. The general view of the expression with which one can submit any report as a hierarchy of bookmarks is as follows:

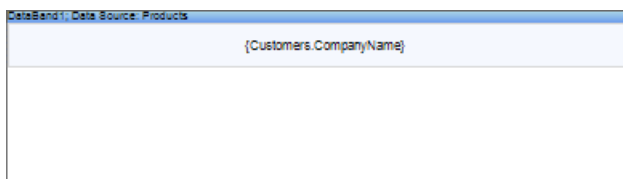
`%\name1\name2...\nameN`

where **name1** is the name of the highest level bookmark;
nameN is the name of the lowest level bookmark.

The picture below shows the expression hierarchy of a common type:



In the name of the bookmark, the following things can be specified: function, expression, data source column, system variables, random names, aliases, and more. To make a flat report with the hierarchy of bookmarks, create a single **Data** band, place the band on a text component with the **Company Name** data source column. The picture below shows an example of a report template:



When rendering the report, a list of companies will be built, but the tree of bookmarks will not be shown. To show the hierarchy of bookmarks, you should

specify an expression (see an example below):

```
%\{Customers.Country}\{Customers.CompanyName}\{Customers.Phone}
```

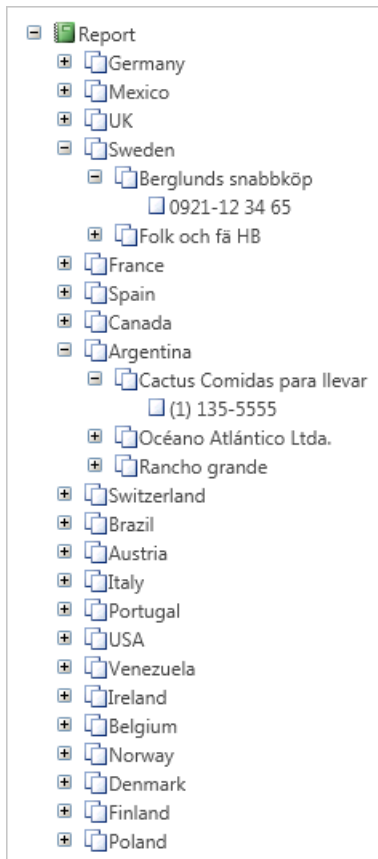
As seen from the expression, the hierarchy of bookmarks will be represented in three levels:

The highest level will be represented as bookmarks that correspond to the name of the country.

The middle level will be represented as bookmarks that correspond to the name of the company.

The lowest level will be represented as bookmarks that correspond to the phone number of the company.

The picture below shows an example hierarchy of tabs:



4.34.1.4 Bookmark Nesting

Nesting depends on which components generated bookmarks. For example, the page bookmark will always be one level higher than other bookmarks. The bookmark, created with the **Group Header** band, is one level higher than the bookmark, created by the **Data** band, in this group. In the Master-Detail relation the Master bookmark will enable all Detail bookmarks. For example, we have a report with a group.

Group

- Data 1
- Data 2
- Data 3

Group

- Data 1
- Data 2
- Data 3

In this report groups include data. And bookmarks from the group will include bookmarks from data. As a result we get the same structure in the tree of bookmark. For example:

Group 1

- Group 2**
 - Data 1
 - Data 2
 - Data 3

Group 1

- Group 2**
 - Data 1
 - Data 2
 - Data 3

In the tree of bookmarks two nodes will be created. They are **Group 1, Group 1**. Each of these nodes will include the **Group 2** node. The **Group 2** nodes will include the **data** nodes. For example, the Master-Detail report:

Master-Data

- Data 1

--Data 2

--Data 3

Master-Data

--Data 1

--Data 2

--Data 3

In this example the nodes of the Master band form the Master-Data nodes. Each of these nodes will include nodes formed with the Detail band.

4.34.2 Hyperlinks

Hyperlinks are used in report navigation. Also it is possible to use the **Interaction.Bookmark** and **Interaction.Tag** properties for this. A hyperlink is set using the **Interaction.Hyperlink** property. During report rendering, the expression, specified in this property, is set to the **Interaction.HyperlinkValue** property. This setting occurs during report rendering. There are three ways of specifying hyperlinks. It is possible to use one of them.

4.34.2.1 Hyperlink to Another Component in Report Using **Interaction.Bookmark**

In this way you should put the # symbol before the hyperlink text. This makes the report generator understand that this is a reference inside of a document. If, in the window of preview, a user clicks on this component then the report generator will start to search all bookmarks of this report. If the bookmark name matches the hyperlink name (the # symbol is skipped) then this component will be displayed in the window of preview. It is important to remember that a bookmark is shown in the tree of bookmarks.

❗ **Note:** The **Interaction.Bookmark** property contains the text marker by which this component will be found during hyperlink processing.

4.34.2.2 Hyperlink to Another Component in Report Using **Interaction.Tag**

In this case it is necessary to add two # symbols before a hyperlink. In this case the search is executed using the **Interaction.Tag** property of components (two # symbols in the text of a hyperlink are skipped). **Interaction.Tag** properties are not shown in the structure of a report. If one wants to make navigation without bookmarks showing in the structure of a report then one should use this way.

❗ **Note:** When using the **Interaction.Tag** property, one should not use the hyperlink to another component in a report in **ASP.NET**. In **ASP.NET**, when creating a report,

it is impossible to use a hyperlink to another component in a report, created using the **Interaction.Tag** property.

4.34.2.3 Hyperlink to External Documents

In this way any symbols to a hyperlink should not be added. The string of a hyperlink is directly sent to the OS for processing. For example, to start Notepad just write the following code:

```
notepad.exe
```

For jumping to the address on the Internet:

```
http://www.site.com
```

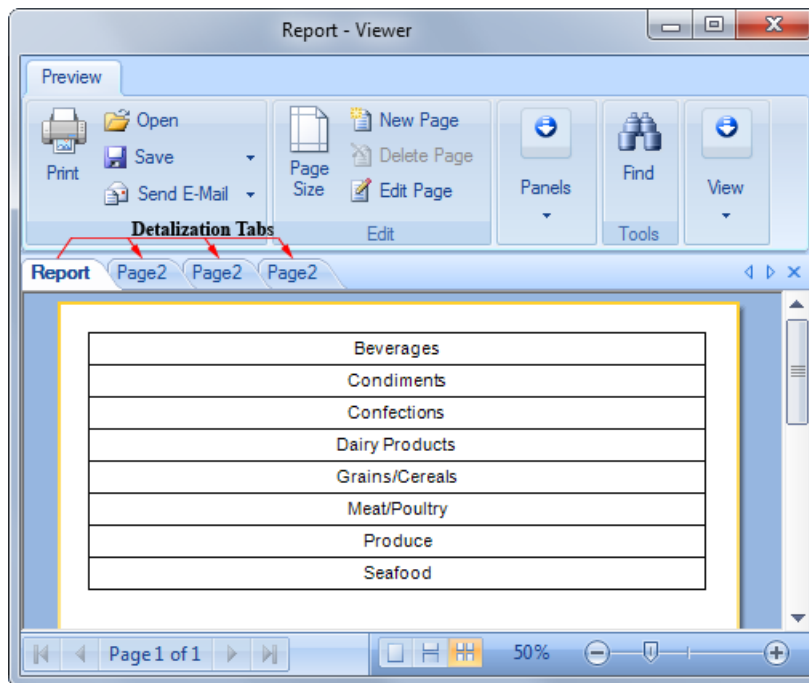
For an Email hyperlink:

```
mailto: mail@domain.com
```

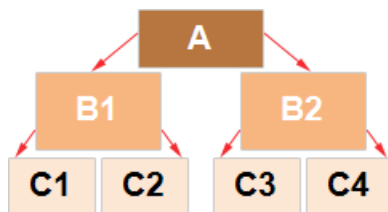
🚩 **Note:** When rendering Web reports, bookmarks can be put only on visible fields. For example, on a text, on an image. Otherwise this hyperlink will be ignored. This principle is to be considered when exporting reports to other formats

4.34.3 Drill-Down Reports

In Stimulsoft Reports it is possible to create an interactive report with detailing. The report detailing refers to additional interpretation of data in the report. Usually interpretation is done when you click on any item. After that, there occurs a detailed report rendering in a new tab in the viewer. The picture below shows the viewer window with detailed tabs:



It should also be noted that the specification can be multi-level. In other words, detailing can also be interpreted, i.e. an hierarchy of detailing can be built. For example, a report with the names of categories will have details of products within a specific category. A report with products will have detailing by producers, for a particular product, etc. The picture below schematically shows the levels of detailing:

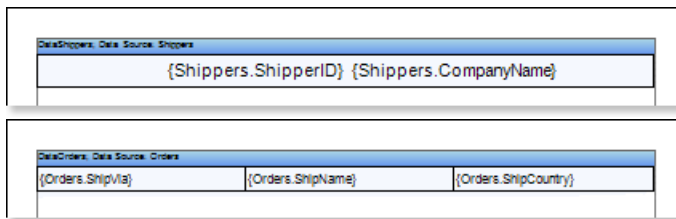


As can be seen from the picture above, a report can be interpreted as reports **B1** and **B2**. This is the first level of detailing. Reports **B1** and **B2**, in turn, have detailing as reports **C1**, **C2**, **C3** and **C4**. This is a detailing of the second level. Consider the creation of drill-down reports in more detail.

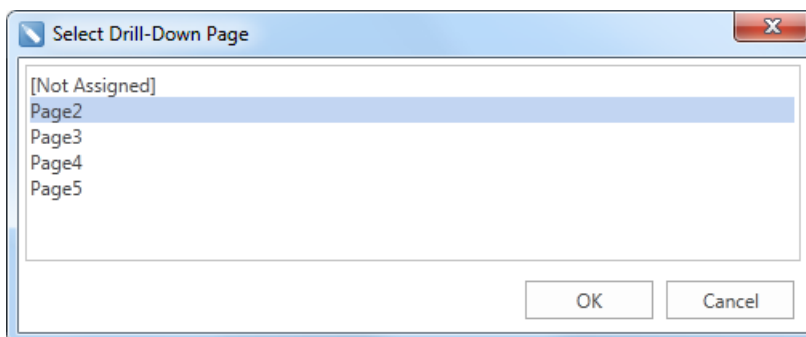
4.34.3.1 Drill-Down Report Using Report Pages

The drill-down report using a report page means an interactive report in which detailing goes using a different page of this report template. To create this report, you should set the value of the **Interaction.Drill-Down Page** property for a component, which should be detailed. The value specifies a page with detailed

information. Consider the example of a **Drill-Down Report** using the page. The **Data Band** and a text component in it should be placed in the first page of the report template. Specify the data source **Shippers** for the band. In the text component indicate the expression **{Shippers.ShipperID}** and **{Shippers.CompanyName}**. On the second page of the report put a **Data Band** and a text components in it, select the data source **Orders** for this band. Insert the expressions in the text components: **{Orders.ShipVia}**, **{Orders.ShipName}** and **{Orders.ShipCountry}**, respectively. The picture below shows two pages of the report template:



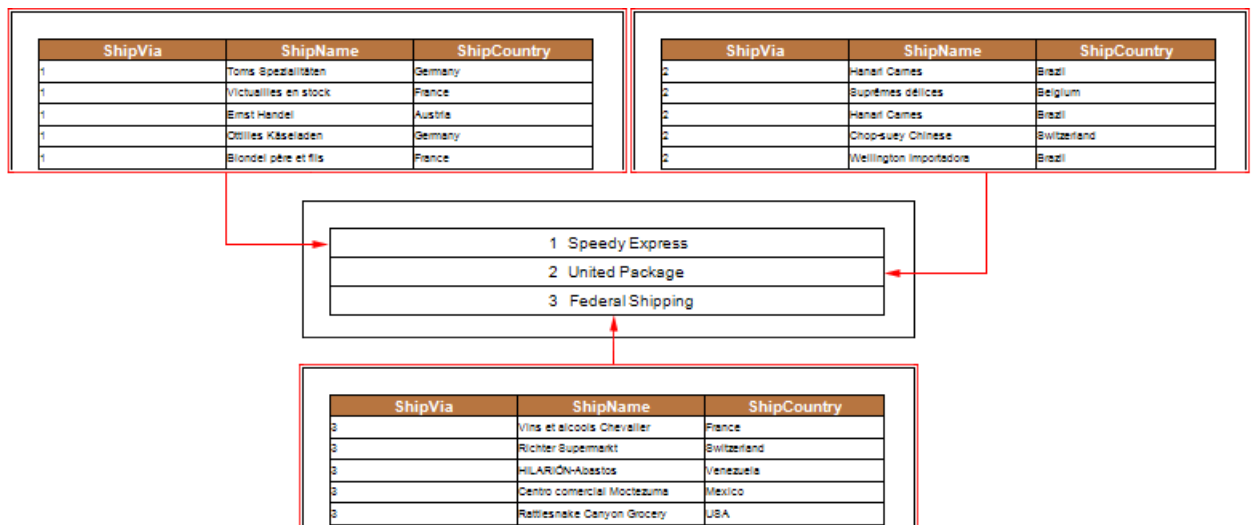
Also, add the **Header Band** on a page with detailed data. Then, select the text component with expressions **{Shippers.ShipperID}** and **{Shippers.CompanyName}** and change the values of some properties. The **Interaction.Drill-Down Enabled** property must be set to **true**. Then, set the value of the **Interaction.Drill-Down Page** property to the page on which the detailed data are placed. In this case, it is the **Page2**. The picture below shows a window for selecting detailing pages:



Also, specify the **Drill-Down Parameters**, if necessary. In each setting you should change the following properties: **Name** and **Expression**. In this case, define a detailed parameter with the name **ShipperID** and the expression **Shippers.ShipperID**. Set data filtering in the **Data Band**, which will contain detailed data. To do this, add a filter and specify a filtering expression: **(int)this["ShipperID"] == Orders.ShipVia**. After that, you should render a report. The picture below shows a rendered page of the report:

| | |
|---|------------------|
| 1 | Speedy Express |
| 2 | United Package |
| 3 | Federal Shipping |

As can be seen from the picture above the page with the main data is rendered. To display detailed information, you should click the rendered text component. Then, the report generator, considering the **Drill-Down Options** and filtering data on the **Data Band**, renders the second page of the report template. The picture below shows a schematic detailing of the report:



4.34.3.2 Drill-Down Reports Using External Report

The drill-down report with another (external) report means an interactive report in which the main and detailed data are located in different reports. It is possible to create such a report using the **Interaction.Drill-Down Report** property. Consider the example of a Drill-Down Report using an external report. First, create a report with detailed data. This report will contain a list of products and their prices. Put the **Data Band** in the page of the report template with text components which contain expressions: **Products.ProductID**, **Products.ProductName** and **Products.UnitPrice**. For this band, you should select the data source **Products**. Also add the **Header Band**. The picture below shows a page template with detailed information:

| HeaderProducts | | |
|-------------------------------------|------------------------|----------------------|
| ProductID | ProductName | UnitPrice |
| DataProducts: Data Source: Products | | |
| {Products.ProductID} | {Products.ProductName} | {Products.UnitPrice} |

Add a filter with the expression **(int)this["CategoryID"] == Products.CategoryID** in the **Data Band**. After that, you must save the report template. For example save the report to: **D:\Products.mrt**. Now create a report that will contain the main data in this example, the category names. Put the **Data Band** with a text component in the page template. The text component will contain the expression **Categories.CategoryName**. For this band, you should select the data source **Categories**. The picture below shows a page of the report template with the main data.

| | |
|---|--|
| DataCategories: Data Source: Categories | |
| {Categories.CategoryName} | |

Then, select the text component and change the values of some properties. The **Interaction.Drill-Down Enabled** property must be set to **true**. Then, set the value of the **Interaction.Drill-Down Report** property to the full path to the report with detailed data.

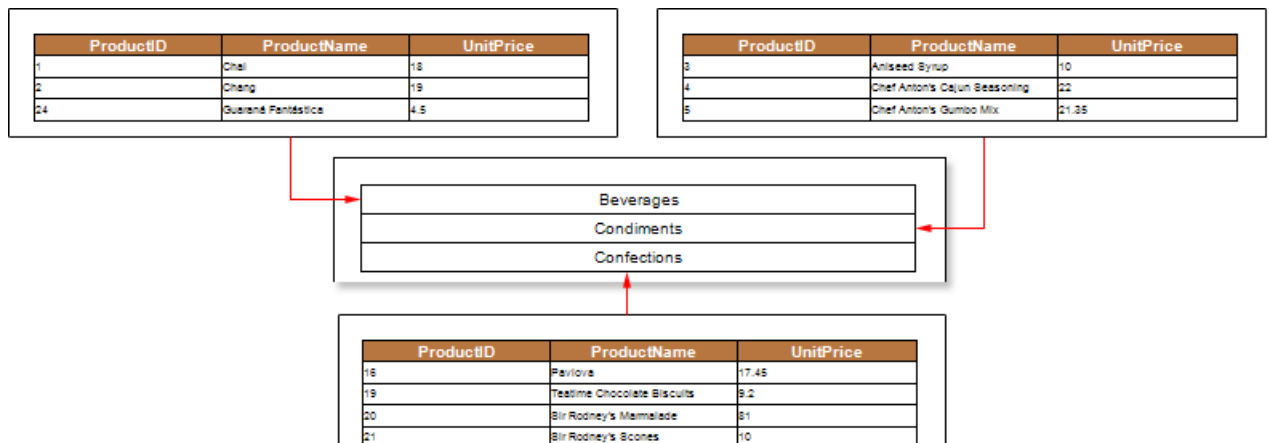
Drill-Down Report D:\Products.mrt

Also, specify the **Drill-Down Parameters**. In each parameter you must change the following properties: **Name** and **Expression**. In this case, define a detailed parameter with the name **CategoryID** and the expression **Categories.CategoryID**. Then render a report. The picture below shows a page of the rendered report:

| |
|----------------|
| Beverages |
| Condiments |
| Confections |
| Dairy Products |
| Grains/Cereals |
| Meat/Poultry |
| Produce |
| Seafood |

As can be seen from the picture above, the template page will be rendered with the main data. To display the detailed data, click the rendered text component. The report generator will run the report and render it, considering the parameters of the

detailing and filtering. The picture below shows schematically the report:



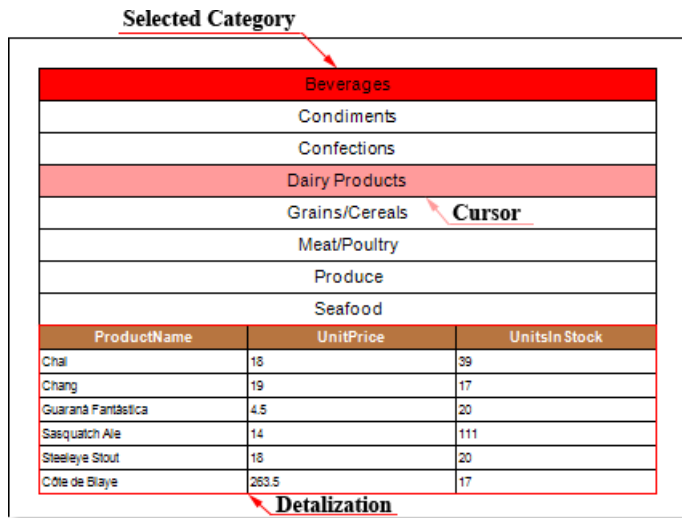
4.34.3.3 Interactive Selection

One of the drill-down types is the interactive selection. The Interactive Selection can be used to produce data detailing on the same page, on which the main data are placed. Creating a report with the interactive selection is possible using the **Interaction.Selection Enabled** property. Only a **Data Band** has this property. Consider the example of a report using the interactive selection. Open a report with the list of categories and products related to these categories. The picture shows a report template:

| | | |
|---|----------------------|-------------------------|
| DataCategories: Data Source: Categories | | |
| {Categories.CategoryName} | | |
| HeaderProducts | | |
| ProductName | UnitPrice | UnitsInStock |
| DataProducts: Data Source: Products | | |
| {Products.ProductName} | {Products.UnitPrice} | {Products.UnitsInStock} |

Select the **Data Band** to enable interactive selection. In this case, the band that contains the names of categories (the band which has a text component with the expression **Categories.CategoryName**) will be selected. Set the **Interaction.Selection Enabled** property of this selected band to **true**. After that, add a filter to the detailed band, if necessary. In this example, the filter will be added to the Data Band that contains information about products. Set a filtering expression, in this case it is **DataCategories.SelectedLine == Products.CategoryID**. Then, render a report. The picture below shows a page of the rendered report with interactive selection:

Selected Category



| |
|----------------|
| Beverages |
| Condiments |
| Confections |
| Dairy Products |
| Grains/Cereals |
| Meat/Poultry |
| Produce |
| Seafood |

| ProductName | UnitPrice | UnitsIn Stock |
|--------------------|-----------|---------------|
| Chai | 18 | 39 |
| Chang | 19 | 17 |
| Guaraná Fantástica | 4.5 | 20 |
| Sasquatch Ale | 14 | 111 |
| Steeleye Stout | 18 | 20 |
| Côte de Blaye | 263.5 | 17 |

Detailization

As can be seen from the picture above, the category **Beverages** was selected. This category has been detailed and displayed showing products in this category. Also, in this picture you can the category **Dairy Products** highlighted when the cursor is hovered. In addition, it should be noted that in the interactive selection the multi-level nesting may also be present.

4.34.3.4 Drill-Down Parameters

When you create an interactive report using **Drill-Down** relations, there is a possibility in the report generator to specify the parameters to be passed from the main report to the detailed one. For example, you can pass a parameter to be used for filtering data in a detailed report. Also, you can initialize properties (**Report Alias**, **Report Title**, **Report Description**) of the detailing a report by specifying them in the parameters of the detailed report. Suppose there is an interactive report that contains the category names and details of products related to these categories. Let's make each detailed tab have the category name by which it is opened. To do this, change the values of properties for the group **Drill-Down Parameter**:

| ▼ Drill-Down Parameter 2 | |
|--------------------------|-------------------------------|
| Expression | Categories.CategoryName 1 ... |
| Name | ReportAlias 2 |

- ❶ Specify the name of the parameter in the field of the **Name** property. To initialize a report property, you must specify its name in the name of the detailed parameter. In this case, you must specify the **ReportAlias**.
- ❷ In the field of the **Expression** property specify an expression that is evaluated each time you pass a parameter to the report. In this case, you must specify the expression **Categories.CategoryName**.

Now, in the rendered report, a tab with the detailed data will have the category name, which has been interpreted. The picture below shows a report that was built with the tabs of detail:

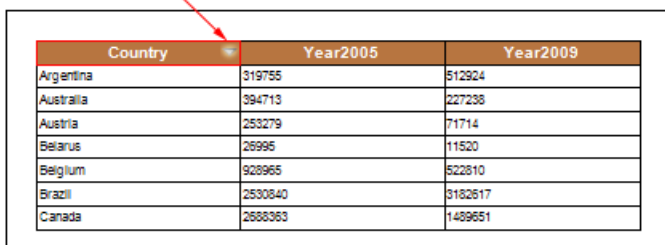
As can be seen from the picture above, the categories **Beverages**, **Confections**, **Grains/Cereals**, **Produce** were detailed. And the tab, which is located on the detail of these categories has names of categories, respectively.

Detailed description of using parameters can be found at [Drill-Down Report Using Page in Report](#) and [Drill-Down Report Using External Report](#).

4.34.4 Dynamic Sorting

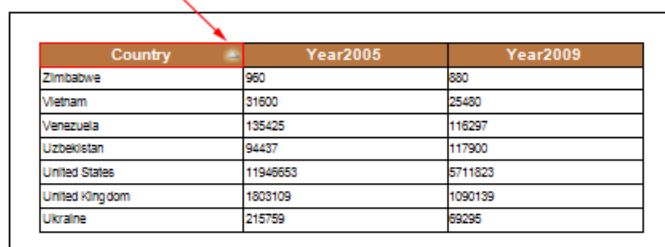
In **Stimulsoft Reports** it is possible to use dynamic sorting. Dynamic sorting provides the ability to change the sorting direction in the report. Sorting the data can be performed both on a single data column as well as in several ones. Set the **Interaction.Sorting Enabled** property of the component, by clicking on which the dynamic sorting by one column will be enabled, to **true** and change the value of the **Interaction.Sorting Column** property. The value of this property is the data column, by which dynamic sorting will be done. It should be noted you can specify only one data column for one component. Then, select the component to which dynamic sorting was set. Dynamic sorting is carried out in the following directions: **Ascending** and **Descending**. Each time you click the component, the direction is reversed. The picture below shows a report page with dynamic sorting:

Click this component



| Country | Year2005 | Year2009 |
|-----------|----------|----------|
| Argentina | 319755 | 512924 |
| Australia | 394713 | 227238 |
| Austria | 253279 | 71714 |
| Belarus | 26995 | 11520 |
| Belgium | 928965 | 522810 |
| Brazil | 2530840 | 3182617 |
| Canada | 2683363 | 1409651 |

Click this component



| Country | Year2005 | Year2009 |
|----------------|----------|----------|
| Zimbabwe | 960 | 680 |
| Vietnam | 31600 | 25480 |
| Venezuela | 135425 | 116297 |
| Uzbekistan | 94437 | 117900 |
| United States | 11946653 | 5711823 |
| United Kingdom | 1803109 | 1090139 |
| Ukraine | 215759 | 69295 |

If you need to sort by multiple columns simultaneously, it can be done by pressing

the Control button. Consider the following example. Suppose there is a report that contains the names of categories and a list of products. The picture below shows the report template:

| HeaderProducts | |
|-------------------------------------|------------------------|
| CategoryName | ProductName |
| DataProducts: Data Source: Products | |
| {Products.Categories.CategoryName} | {Products.ProductName} |

When rendering the report without sorting, data are taken from the data source sequentially. To enable dynamic sorting you need to select the component when clicking it the sort direction will be changed. In this example, select text components in the **Header Band**. Then set the **Interaction.Sorting Enabled** properties for both components to **true**. In the fields of the **Interaction.Sorting Column** properties specify the data column to be used for sorting data. In this case, specify the column **{Products.Categories.CategoryName}** for the text component with the expression **CategoryName**, and for the text component with the expression **ProductName** specify the column **{Products.ProductName}**. Render a report. To sort data by multiple columns, you must click the components holding the **Control** button and change the sorting direction. The picture below shows a report page rendered with dynamic sorting by multiple columns:

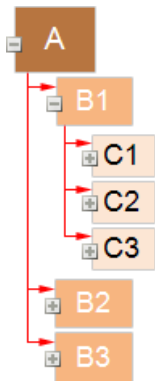
| CategoryName 1 | ProductName 2 |
|----------------|---------------------------------|
| Beverages | Steeleye Stout |
| Beverages | Sasquatch Ale |
| Beverages | Rhönbräu Klosterbier |
| Beverages | Outback Lager |
| Beverages | Laughing Lumberjack Lager |
| Beverages | Lakkalikööri |
| Beverages | Ipoh Coffee |
| Beverages | Guaraná Fantástica |
| Beverages | Côte de Blaye |
| Beverages | Chartreuse verte |
| Beverages | Chang |
| Beverages | Chai |
| Condiments | Veggie-spread |
| Condiments | Sirop d'érable |
| Condiments | Original Frankfurter grüne Soße |
| Condiments | Northwoods Cranberry Sauce |

As can be seen from the picture above, when sorting by multiple columns, the data are sorted first by the first column. In this case, the categories are sorted in the **Ascending** direction. Then, data are sorted by the second column. In this case, the products are sorted in the **Descending** direction, but within each category. In other

words, in the products category **Beverages** is ordered in the direction from **Z** to **A**, in the category **Condiments**, too, from **Z** to **A**, etc. To disable sorting by multiple columns, you must release the **Control** key and click the component with dynamic sorting.

4.34.5 Dynamic Collapsing

Sometimes you need to show a report in a compact form. In Stimulsoft Reports you can find the ability to dynamically collapse information in the preview window. A report with dynamic collapsing is an interactive report, in which collapsing blocks can expand/collapse its contents clicking the block title. Dynamic collapsing is usually used in reports with grouping, Master-Detail, hierarchical reports. Dynamic collapsing can be multilevel. Consider an example of using dynamic collapsing in the report. Let's have a report that contains a list of products that are grouped by category. The picture below schematically showed the report with a multilevel collapsing:



As can be seen from the picture, the collapsing unit **A** contains a collapsible blocks **B1**, **B2**, **B3**. This is dynamic collapsing of the first level. In turn, the block **B1** contains a collapsible blocks **C1**, **C2**, **C3**. This is dynamic collapsing of the second level, etc. Consider the example of a dynamic collapsing of the report with the group. Let's have a report that contains a list of products that are grouped by category. Below is a picture with a report with grouping:

| Beverages | | |
|---------------------------------|-------|-----|
| Côte de Blaye | 263.5 | 17 |
| Chartreuse verte | 18 | 69 |
| Steeleye Stout | 18 | 20 |
| Guaraná Fantástica | 4.5 | 20 |
| Sasquatch Ale | 14 | 111 |
| Rindoraiu Klosterbier | 7.75 | 125 |
| Lakkaikööri | 18 | 57 |
| Outback Lager | 15 | 15 |
| Ipon Coffee | 46 | 17 |
| Laughing Lumberjack Lager | 14 | 52 |
| Chang | 19 | 17 |
| Chai | 18 | 39 |
| Count: 12 | | |
| Condiments | | |
| Original Frankfurter grüne Soße | 13 | 32 |
| Sirup d'érable | 28.5 | 113 |
| Chef Anton's Gumbo Mix | 21.35 | 0 |
| Northwoods Cranberry Sauce | 40 | 6 |

Enable dynamic collapsing, where the title of the collapsing unit will be group titles, i.e. in this case, the category names. To do this, return to the report template (see the picture).

| GroupHeaderBand: Condition: (Products.Categories.CategoryName) | | |
|--|----------------------|-------------------------|
| (Products.Categories.CategoryName) | | |
| DataProducts: Data Source: Products | | |
| {Products.ProductName} | {Products.UnitPrice} | {Products.UnitsInStock} |
| GroupFooterBand: | | |
| | | Count: {Count()} |

Select the component that will be a title of the collapsing block, i.e. in this example, the **Group Header** band. Then, set the **Interaction.Collapsed Enabled** property to **true**. In the field of the **Interaction.Collapsed** property specify an expression **{GroupLine! = 1}**. Render a report. The picture below shows a report page rendered with dynamic collapsing:

| Beverages | | |
|---------------------------|-------|-----------|
| Côte de Blaye | 263.5 | 17 |
| Chartreuse verte | 18 | 69 |
| Steeleye Stout | 18 | 20 |
| Guaraná Fantástica | 4.5 | 20 |
| Sasquatch Ale | 14 | 111 |
| Rindorbru Klosterbier | 7.75 | 125 |
| Lakkaikööri | 18 | 57 |
| Outback Lager | 15 | 15 |
| Ipon Coffee | 46 | 17 |
| Laughing Lumberjack Lager | 14 | 52 |
| Chang | 19 | 17 |
| Chai | 18 | 39 |
| | | Count: 12 |
| Condiments | | |
| | | Count: 12 |
| Confections | | |
| | | Count: 13 |
| Dairy Products | | |
| | | Count: 10 |

Now, when rendering a report, the group will have a look as expanding/collapsing blocks. To expand/collapse the block, you should click the title block. In this case, the group header. On the component for which the dynamic collapsing is enabled, is displayed if the block is collapsed the icon  is displayed and the icon  is displayed if the block is expanded. Note that you can collapse blocks with the group footer. To do this, set the **Interaction.Collapse Group Footer** property to **true**.

4.34.6 Editing

In our reporting we have the ability to edit some of the components of a rendered report in the viewer, or in the preview tab. As a rule, it must be made before printing or exporting. The components that can be changed are:

- Text;
- Text in Cells;
- Rich text;
- Checkbox.

To make it possible to edit the report components, you should set the Editable property of these components to Yes. Then, you can modify these components in the viewer using the tool Editor. In text components editing means changing the text, and in the checkbox editing means changing the value (true or false).

For PDF and Word documents:

By default, when you export a PDF document you can edit it. But it is possible to include the mode in which after exporting editing will be available only for the report components with the Editable property enabled. If No is set, then you can edit all components, unless it is not limited by safety parameters. If you select Yes then you can only edit components with the Editable property enabled. The Word

document can also be editable. However, with the parameter Restrict Editing it is possible to allow editing only the components that have the Editable property set to Yes. For this set Restrict Editing to Except Editable Fields.

4.35 Table of Contents

When designing reports, sometimes it is necessary to create a table of contents in reports. In Stimulsoft reports you can use one of the following methods:

- [Using scripts and anchors in reports](#). Relevant only when the report calculation mode is Compilation;
- Using a special component [Table of Contents](#).

4.35.1 Anchors

Sometimes it is necessary to create a report with contents. In this case you should create the report structure first and then create the report on the whole. But there is a question. How to output page numbers, because at the moment, when contents rendering, numbers of pages, which elements of contents refer to, are unknown. Use the anchor in this case. The **AddAnchor** method is used for creating an anchor. When creating an anchor, the report generator saves the current page and compares it with the specified anchor. For example:

```
AddAnchor("MyAnchorName")
```

➤ in this line of the code a new anchor with "**MyAnchorName**" will be created. To get the anchor value it is necessary to use the **GetAnchorPageNumber** method. This method returns the number of a page according to the anchor name. If there is no anchor with such a name, 0 is returned.

For example:

```
{GetAnchorPageNumber("MyAnchorName")}
```

➤ this text expression will return the number of a page according to "**MyAnchorName**". So having an anchor name you will know the number of a page on which this anchor was created. Using these two methods a contents building is organized. The contents is built first. Instead of numbers of pages hyperlinks to anchors are pasted. For all components which call a function for getting a page number via anchor you should set the **ProcessAtEnd** property to **true**. It is necessary to do because these components are to be processed at the end of report

rendering when all numbers of pages are known.

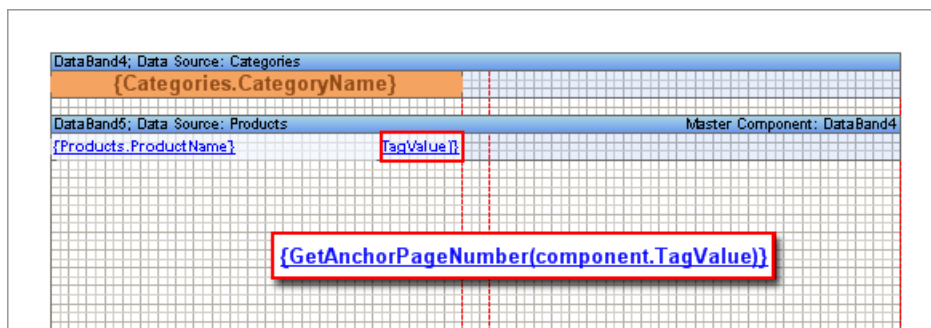
After the contents has been created the whole report rendering takes place. Anchors are created while report building. After the report has been rendered, instead of hyperlinks, the real page numbers are put on anchors in the content. Let's see the anchor usage in a template. Create the **Master-Detail-Detail** report that shows the list of products that is split with categories. For building of such a report you should have two pages. The first page for the contents and the second for the report. On the page of the contents we put two bands. Between them we set the **Master-Detail** link. Then, on the **Detail** band, we put the text component. This **ProcessAtEnd** text components property should be set to **true**.

❗ **Note:** You should enable the **ProcessAtEnd** property of the text component, which expression returns the number of a page. This property is used for the values of these text components to be processed after report rendering (when numbers of pages are known).

Specify the following text expression of the **Text** property:

```
{GetAnchorPageNumber(component.TagValue)}
```

➤ this text expression will return the number of a page using the anchor.



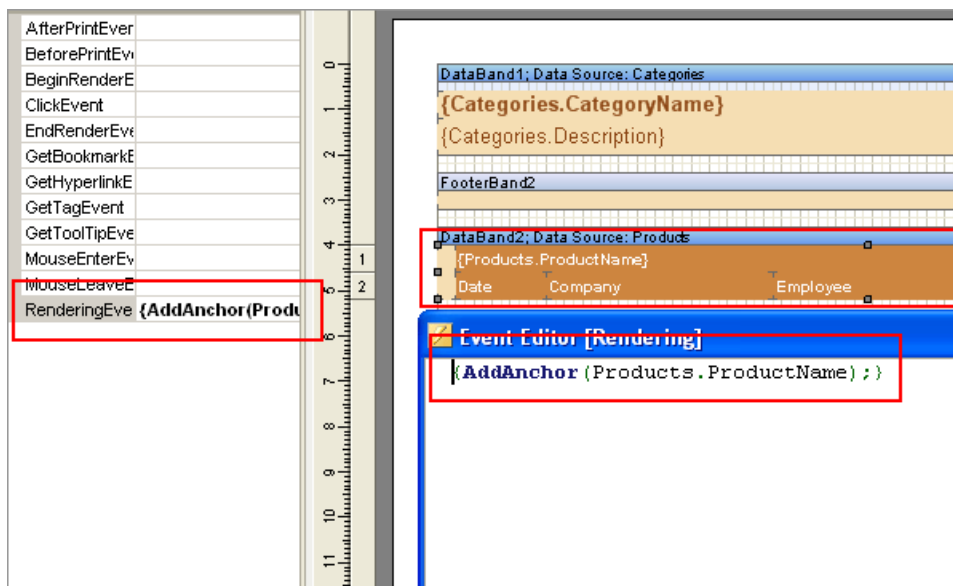
As an anchor name the value of the **Tag** property is used. For filling the **Tag** property the following expression is used:

```
{Products.ProductName}
```

➤ in this expression the name of a product is used. Therefore, it is impossible to use the expression below:

```
{GetAnchorPageNumber(Products.ProductName)}
```

The component that contains an expression will be processed at the end of report building. So the value of the **Products.ProductName** field will be equal for all strings – the last in a list. That is why it is necessary to remember the value of the **Products.ProductName** field for every string when the content is being built. For this use the **Tag** property. On the second page the report is built. In the **Rendering** property of the **DataBand** component (used for the content building) the **AddAnchor** method is called. This method will return the current page at the moment it is called.



The anchor name is the value of the **Products.ProductName** field. As a result, the page number is rendered first. Then the second page is rendered and numbers of pages are saved. After the report rendering the report generator engine returns to the first page and numbers all pages.

Table of Contents

| | |
|----------------------------------|----------|
| Beverages | 3 |
| Chai | 3 |
| Chang | 3 |
| Chartreuse verte | 3 |
| Côte de Blaye | 3 |
| Guaraná Fantástica | 3 |
| Ipoh Coffee | 3 |
| Lakkaiköör | 3 |
| Laughing Lumberjack Lager | 3 |
| Outback Lager | 3 |
| Rhönbräu Klosterbier | 3 |
| Sasquatch Ale | 3 |
| Steeleye Stout | 3 |
| Condiments | 3 |
| Aniseed Syrup | 3 |
| Chef Anton's Cajun Seasoning | 3 |
| Chef Anton's Gumbo Mix | 3 |
| Genen Shouyu | 3 |
| Grandma's Boysenberry Spread | 3 |
| Gula Malacca | 3 |
| Louisiana Fiery Hot Pepper Sauce | 3 |
| Louisiana Hot Spiced Okra | 3 |
| Northwoods Cranberry Sauce | 3 |
| Original Frankfurter grüne Soße | 3 |
| Sirop d'érable | 3 |
| Veggie-spread | 3 |

Set up the table of contents using:

- The [component editor](#), in which you select components to form table of contents levels;
- [A list of properties for this component](#).

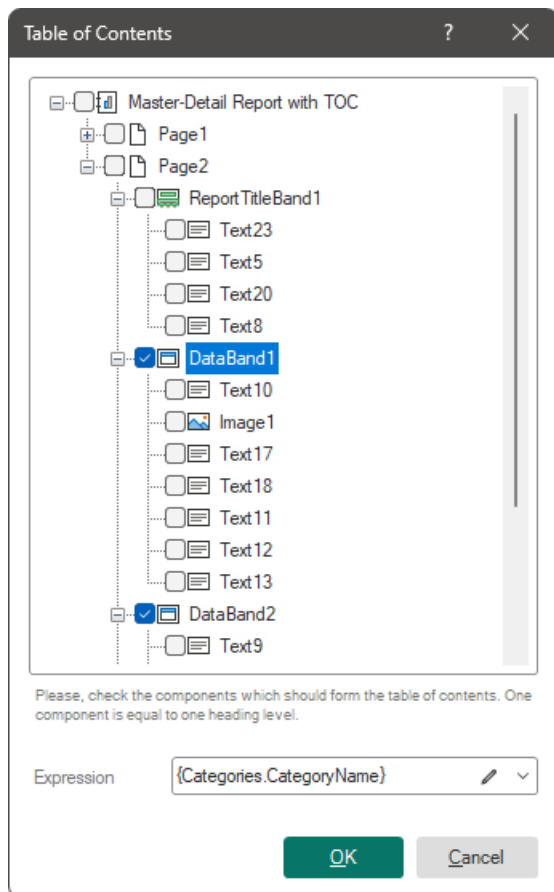
To call the editor:

- Double-click on the **Table of Contents** element;
- Select the **Table of Contents** element and select the **Design** command in the context menu;

Component Editor

In the table of contents editor, the hierarchy of the arrangement of report components is presented. A table of contents will be created for the selected components, taking into account the logical hierarchy. For example, if the second selected component is a second-level component in relation to the first, then it will

be a second-level heading in the table of contents.



- The report tree field represents the hierarchy of the components' locations in the report;
- The Expression field specifies a data column or other expression, the results of which will be the values for the table of contents in the report.

Creating a table of contents

Here is an example of creating a table of contents for a Master-Detail report. First, decide whether the table of contents will be at the beginning, the end, or any other place in the report. Accordingly, the **Table of Contents** component should be placed in the template before or after the report components that form the report. In this example, the table of contents will be at the beginning of the report. The **Table of Contents** component can be added to the same template page where the main components are located. However, it is preferable to add a separate page in the template and place the **Table of Contents** component on it.

The Master-Detail list is created using the DataBand1 and DataBand2 bands, where DataBand1 is the master and DataBand2 is the detail. In terms of the location of components in the report, these bands are on the same level. However, in the logical hierarchy of reporting, DataBand2 is subordinate to DataBand1. Accordingly, when creating a table of contents, entries from DataBand1 will be at the first level, and entries from DataBand2 will be at the second level.

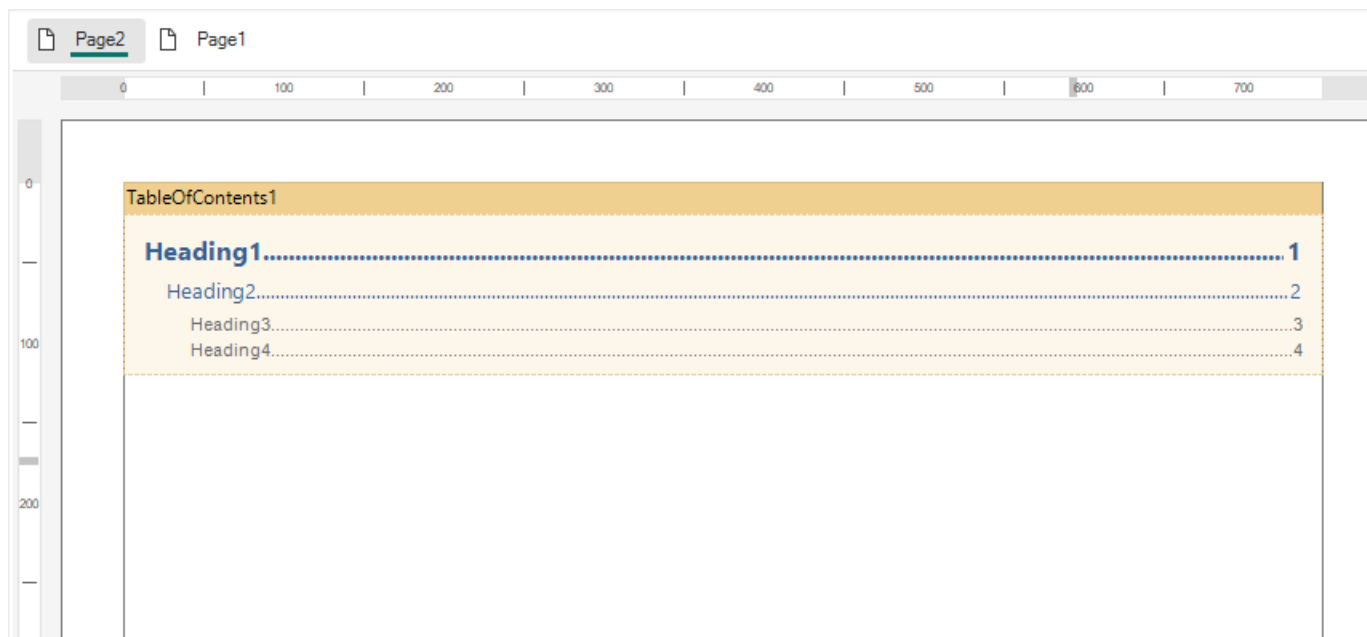
Thus, if you select DataBand1 and DataBand2 in the **Table of Contents** component editor, a two-level table of contents will be generated in the rendered report

Now let's look at an example of adding a table of contents step by step:

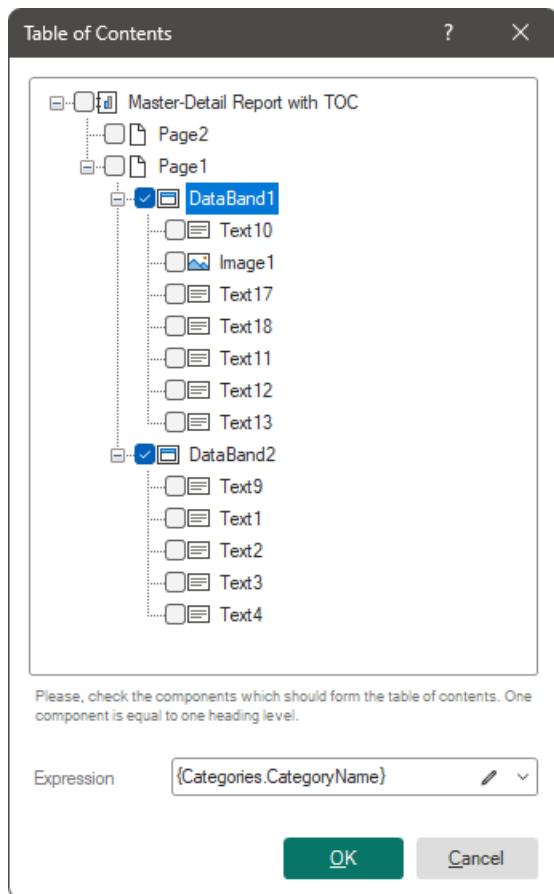
Step 1: Open a report, for example Master-Detail;

Step 2: In the report template let's add page **Page2** before the main report page;

Step 3: Add a **Table of Contents** component to this page;



Step 4: Call the component editor and select the components for which you want to create a table of contents. For example, DataBand1 and DataBand2;



Step 5: Change the expression. This step is optional. Default values can be used;

Step 6: Click **OK** in the **Table of Contents** component editor.

After that, open the report for viewing. The table of contents for the report will be generated automatically.

Table of Properties

The list shows the name and description of the properties of the **Table of Contents** component.

| Name | Description |
|--------|---|
| Indent | Specifies the indent for a nested level, in relation to the previous one, in the hierarchy of table of contents values. |

| | |
|-----------------|--|
| Margins | A group of properties is used to specify the offsets of values from the borders of this component. |
| New Page Before | Inserts a blank page in the generated report before the report table of contents page. If the property is set to True , then a new page will be added before the Table of Contents component. If the property is set to False , then the new page will not be added. |
| New Page After | Inserts a blank page in the generated report after the last page of the table of contents. If the property is set to True , then when the report is built, a new page will be added after the Table of Contents component. If the property is set to False , then the new page will not be added. |
| Right to Left | Enables Right to Left mode for the Table of Contents component. If the property is set to True , then when building a report, the right to left mode will be set for the Table of Contents component. If the property is set to False , then the left to right mode will be used. |
| Style | Customizes appearance styles for values at each hierarchy level in the table of contents. |
| Word wrap | Enables line wrapping mode for table of contents. If the property is set to True , then a long table of contents will be carried over to the next line. If the property is set to False , then long table of contents values will not be transferred. |
| Height | Changes the height of a component in the mode of editing reports. However, when building a report, the height of the component may grow to display the entire |

| | |
|-------------------|---|
| | list of table of contents values for the report. |
| Max Height | Sets the maximum height of a component in report editing mode. The default is set to 0, i.e. the maximum height is not limited. |
| Min Height | Sets the minimum height of a component in report editing mode. The default is set to 0, i.e. the minimum height is not limited. |
| Borders | A group of properties is used to enable and customize the appearance of the component's borders. |
| Conditions | Calls the Conditions editor. |
| Component Style | Sets a component style. |
| Use Parent Styles | Uses owner styles, i.e. component to which this component is subordinate. If the property is set to True , the owner's style will be applied when building the Table of Contents component. If the property is set to False , then the owner style will not be applied. |
| Enabled | Enables or disables component processing when generating a report. If the property is set to True , then when the report is built, the Table of Contents component will be processed and displayed in the report. If the property is set to False , then the Table of Contents component will not be built. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current element. |
| Restrictions | Configures the permissions to use the current component:
➤ The Allow Change option enables or |

| | |
|--------|--|
| | <p>disables changes of the component. If checked, the current component can be changed. If unchecked, the component can't be changed.</p> <p>➤ The Allow Delete option enables or disables the deletion of a component. If checked, the current component can be deleted. If unchecked, the component can't be deleted.</p> <p>➤ The Allow Move option allows or prohibits moving a component. If checked, the current component can be moved. If unchecked, the component can't be moved.</p> <p>➤ The Allow Resize option enables or disables resizing of a component. If checked, the current component can be changed. If unchecked, the component can't be changed.</p> <p>➤ The Allow Select option enables or disables the component selection. If checked, the current component can be selected. If unchecked, the component can't be selected.</p> |
| Locked | <p>Allows resizing and moving the current element. If the property is set to True, then the current element cannot be moved or resized. If this property is set to False, then it can be moved and resized.</p> |
| Linked | <p>Links the current location to a dashboard or other element. If the property is set to True, then the current element is bound to the current location. If this property is set to False, then this element is not bound to the current location.</p> |

4.36 Signature

When designing reports, one of the ways to verify them is the ability to sign the report. You can do this using the next components:

- [Electronic signature](#) allows signing a report graphically during its editing or viewing. During export, it is converted into a static image.
- [PDF Digital signature](#) - is a placeholder component. During export to a PDF file, an interactive "Unsigned Signature Field" appears in place of this component, allowing the PDF file to be signed in Adobe Acrobat.
- [PDF Element](#) – is a placeholder component. During export to a PDF file, it is replaced with a standard digital signature of the PDF document.

4.36.1 Electronic Signature

This component is used to graphically sign a report. The following can be used as an electronic signature:

- Drawing initials and full name with different styles;
- Signature style, text, image, or their combinations.

Electronic signature settings can be found in the component editor and using the [component properties](#). To call the editor:

- Double click on the **Electronic Signature** component;
- Select the Signature component and select the **Design** command from the context menu.

The general algorithm for adding a signature is as follows:

- Call the editor;
- Define the signature parameters in the [Type](#) or [Draw](#) tab;
- Click the **Save** button in the component editor. The **Sign** command will be instead of the **Save** command if the report will be signing in the viewer.

Sign of the report

When adding the **Electronic Signature** component to a report, you can change the signature when viewing the report. To do this, go to the viewer, load a report with a signature and select the **Sign** command on the viewer toolbar. If the report uses several **Electronic Signature** components, they should be edited separately. To do this, call the component editor using the **Sign** command and use the **Next** and **Back** buttons to move between the signed components.

Information

Please note that if the **Sign** command is not displayed on the viewer toolbar, then it should be enabled in the report template [preview settings](#).

The **Sign** command will become unavailable on the toolbar after a report has been signed in the viewer. The report can only be verified once.

Report re-sign in the viewer

You can set the **Allow Clear Signature** property of the component to **True** in the report designer if you would like to have the ability for removing report signature in the viewer. After that, you can remove report signature in the viewer using **Clear Signature** command from the context menu.

Component Editor

Each electronic signature mode is presented on a separate tab and contains specific settings. In addition, the component editor has control elements - save signature and list of signatures.

Signature

1 2

Type Draw

3 4

Full Name John Smith

Initials JS

Change Style

John Smith JS

Save Cancel

1 Signature in the **Type** mode provides the ability to specify the full name and initials that will be displayed in the component, as well as specify the style of their

outline.

- ② Signature in the **Draw** mode provides the ability to use an image, text, signature style, or their combinations.
- ③ The **Save** command provides the ability to add a signature to the list of saved signatures.
- ④ A menu that contains a list of previously saved signatures. When hovering over an item in the list of saved labels, the Delete control will also be displayed clicking on which, the signature will be removed from the list.

Electronic signature parameters of the Type mode

In this mode, you can specify the full spelling of the name and initials, and then determine the writing style.

The screenshot shows a 'Signature' dialog box with a title bar containing a question mark and a close button. It has two tabs: 'Type' (active) and 'Draw'. In the 'Type' tab, there are two input fields: 'Full Name' with the text 'John Smith' and 'Initials' with the text 'JS'. To the right of these fields is a 'Change Style' dropdown menu. Below these fields is a large dashed rectangular area containing a preview of the signature 'John Smith JS' in a cursive font. Four numbered yellow circles with red brackets point to the following elements: 1. Full Name field, 2. Initials field, 3. Change Style dropdown, and 4. Signature preview area. At the bottom of the dialog are 'Save' and 'Cancel' buttons.

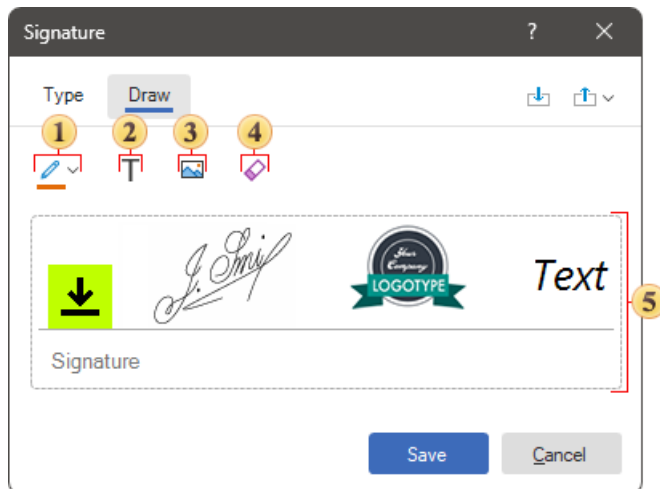
- ① A field in which you can specify the full name.
- ② A field in which you can specify initials.
- ③ A menu that contains a list of styles for displaying the signature.
- ④ The field in which the thumbnail of the signature is displayed.

In order to draw a signature, you should do the following in the component editor in the **Type** tab:

- Enter a value in the Full Name and/or Initials fields;
- Click the **Change** style;
- Select a font for drawing the signature.

Electronic signature parameters in the Draw mode

In this mode, you can draw a signature, specify its text, image, or combine these methods.



- ❶ The **Use Brush** command provides the ability to select a brush to draw the signature.
- ❷ The **Insert Text** command provides the ability to insert formatted text into a signature.
- ❸ The **Insert Image** command provides the ability to upload an image for the signature background.
- ❹ Signature cleanup command.
- ❺ The field in which the thumbnail of the signature is displayed.

Information

Please note that the signature sketch field contains a horizontal line as a separator. Everything above this line is the signature area. Everything below is the description area, which can be changed using the **Description** properties. Also, an icon is displayed in the signature area. It displays the state of the signature. If the icon is displayed, the final signing of the report has not been completed when viewing it. To determine the status of the icon display, as well as its configuration, you may use the properties of the component.

Adding a signature in the Draw mode

Do the next steps to draw a signature, in the component editor, in the **Draw** tab:

- Select a brush color by clicking the down arrow control next to **Use Brush**;
- Click on **Use Brush**;
- In the area of the signature thumbnail, hold down the left button of the mouse;
- Draw a signature keeping the button pressed.
- After that, if necessary, add an image and text to the signature.

Table of properties

See below a list of properties of the Electronic Signature component.

| Name | Description |
|-----------------------|---|
| Allow Clean Signature | Allows clearing a signature in the viewer. |
| Mode | Changes the component mode - Type or Draw . |
| Type | <p>A group of properties available only in the Type signature mode, which allows you to change the following settings:</p> <ul style="list-style-type: none">➤ The Full Name property changes the text of the full name in the signature;➤ The Initials property changes the text of the initials in the signature;➤ The Style property changes the style to display the full name and initials in the signature. |
| Draw | <p>A group of properties available only in the Draw signature mode and allows you to change the following settings:</p> <ul style="list-style-type: none">➤ The Aspect Ratio property maintains the proportions of the drawn signature when it is stretched, in cases where the size of the component in the report is changed;➤ The Horizontal Alignment property changes the alignment of the drawn signature area in the component horizontally;➤ The Vertical Alignment property changes the alignment of the drawn |

| | |
|-------|--|
| | <p>signature area in the component vertically;</p> <ul style="list-style-type: none">➤ The Stretch property stretches the area of the drawn signature to the area of the component in the report. |
| Image | <p>A group of properties available only in the Draw signature mode, which allows you to change the following image settings:</p> <ul style="list-style-type: none">➤ The Image property calls the editor with which you can upload an image for a signature;➤ The Aspect Ratio property maintains the aspect ratio of the image when it is stretched, in cases where the component is resized in the report;➤ The Horizontal Alignment changes the horizontal alignment of the signature image in the component;➤ The Vertical Alignment property changes the vertical alignment of the signature image in the component;➤ The Stretch property stretches the signature image over the component area in the report. |
| Text | <p>A group of properties available only in the Draw signature mode, which allows you to change the following text settings:</p> <ul style="list-style-type: none">➤ The Text changes the text for the signature;➤ The Horizontal Alignment property changes the horizontal alignment of the signature text in the component;➤ The Font property group changes the font settings, such as font family, size, style, etc., for the signature text;➤ The Color property changes the color for the signature text. |
| Icon | <p>A group of properties for setting signature icon.</p> |

| | |
|-------------------|--|
| Description | A group of properties for setting signature description. |
| Left | Defines the left padding of the component of the report page borders. The value is defined in the units of the report. |
| Top | Defines the indent of the component from the top of the report page borders. The value is defined in the units of the report. |
| Width | Defines the width of a component in a report. The value is defined in the units of the report. |
| Height | Defines the height of a component in a report. The value is defined in the units of the report. |
| Min Size | A group of properties that defines the minimum width and height of a component in a report. The value is defined in the units of the report. |
| Max Size | Defines the maximum width and height of a component in a report. The value is defined in the units of the report. |
| Margins | A group of properties used to specify the offsets of the content from the borders of this component. |
| Brush | Defines the brush type, color, and other brush options for the background of a component in a report. |
| Conditions | Calls the conditional formatting editor of reports. |
| Component Style | Selects the style that will be applied to the component in the report. |
| Use Parent Styles | Uses the style of the report component to which the current component belongs. |
| Anchor | Specifies how the current component's |

| | |
|----------------|---|
| | position will snap to the parent component's dimensions. |
| Can Grow | Automatically increases the height of a component. |
| Can Shrink | Automatically reduces the height of a component. |
| Dock Style | Sets the docking mode of the current component with others. |
| Enabled | Enables or disables processing of the current component when rendering a report. |
| Grow to Height | Automatically changes the height of the current component, depending on the height of the parent component. |
| Interaction | Defines interaction settings for the current component when viewing a report. |
| Printable | Defines the behavior of the component when printing - whether to print it or not. |
| Print On | Determines the print mode of a component. |
| Shift Mode | Determines the offset mode of a component, depending on the behavior of the above component. |
| Name | Changes the name of the current component. |
| Alias | Changes the alias of the current component. |
| Restrictions | <p>Configures the permissions for using the current component:</p> <ul style="list-style-type: none"> ➤ The Allow Change option enables or disables changes of the component. If checked, the current item can be changed. ➤ The Allow Delete option enables or disables the deletion of a component. ➤ The Allow Move option allows or |

| | |
|--------|---|
| | <p>prohibits moving a component.</p> <ul style="list-style-type: none">➤ The Allow Resize option enables or disables resizing of a component.➤ The Allow Select option enables or disables the component selection. |
| Locked | <p>Enables or disables resizing and moving the current component. If the property is set to True, then the current component cannot be moved or resized. If this property is set to False, then this component can be moved and resized.</p> |
| Linked | <p>Binds the current location to a report page or other component. If the property is set to True, then the current component is linked to the current location. If this property is set to False, then this component is not linked to the current location.</p> |

4.36.2 PDF Digital Signature

The **PDF Digital Signature** component is an area in a report where, after the report has been converted to PDF, a digital signature can be placed. This component can be placed anywhere. After exporting the report to PDF, in Acrobat Reader, click on this component and follow the instructions - create or load a certificate to sign the document.

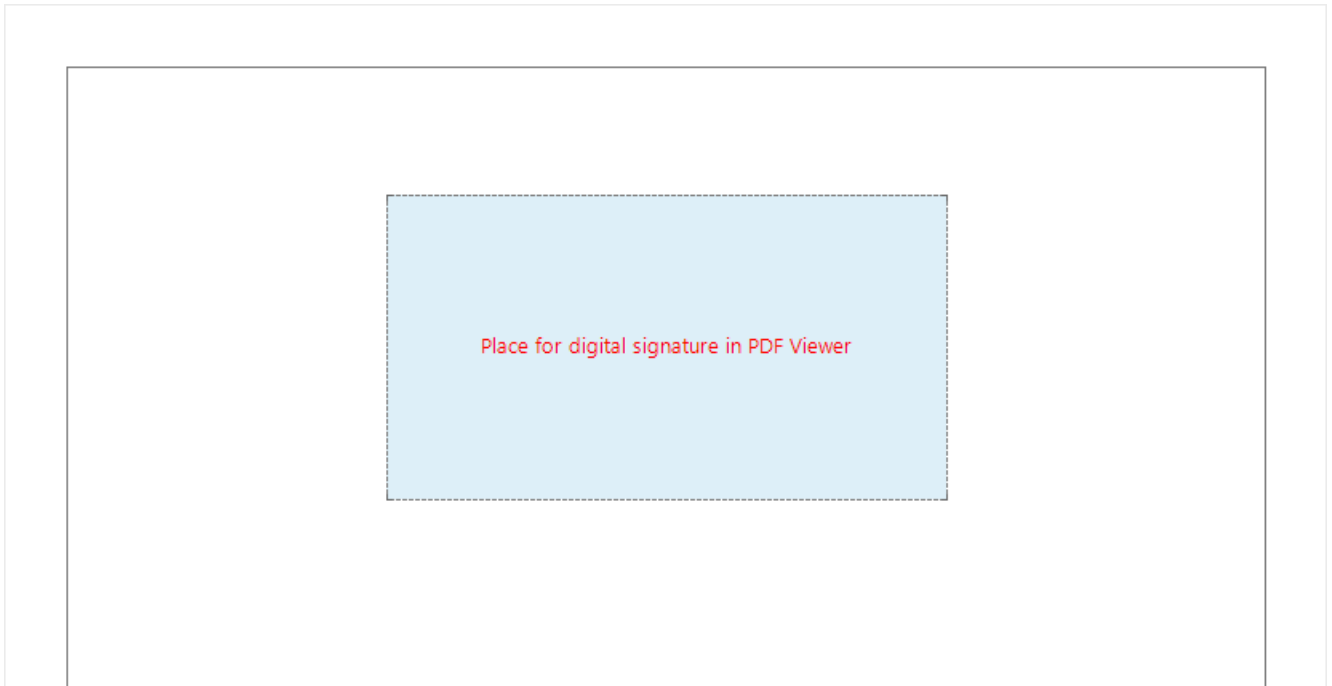


Table of Properties

See below the list of properties of the **PDF Digital Signature** component.

| Name | Description |
|-------------|---|
| Placeholder | Defines a placeholder for the PDF Digital Signature component. |
| Left | Defines the left padding of the component of the report page borders. The value is defined in the units of the report. |
| Top | Defines the indent of the component from the top of the report page borders. The value is defined in the units of the report. |
| Width | Defines the width of a component in a report. The value is defined in the units of the report. |
| Height | Defines the height of a component in a report. The value is defined in the units of the report. |

| | |
|-------------------|--|
| Min Size | A group of properties that defines the minimum width and height of a component in a report. The value is defined in the units of the report. |
| Max Size | Defines the maximum width and height of a component in a report. The value is defined in the units of the report. |
| Margins | A group of properties used to specify the offsets of the content from the borders of this component. |
| Brush | Defines the brush type, color, and other brush options for the background of a component in a report. |
| Conditions | Calls the conditional formatting editor of reports. |
| Component Style | Selects the style that will be applied to the component in the report. |
| Use Parent Styles | Uses the style of the report component to which the current component belongs. |
| Anchor | Specifies how the current component's position will snap to the parent component's dimensions. |
| Can Grow | Automatically increases the height of a component. |
| Can Shrink | Automatically reduces the height of a component. |
| Dock Style | Sets the docking mode of the current component with others. |
| Enabled | Enables or disables processing of the current component when rendering a report. |
| Grow to Height | Automatically changes the height of the current component, depending on the height of the parent component. |

| | |
|--------------|---|
| Interaction | Defines interaction settings for the current component when viewing a report. |
| Printable | Defines the behavior of the component when printing - whether to print it or not. |
| Print On | Determines the print mode of a component. |
| Shift Mode | Determines the offset mode of a component, depending on the behavior of the above component. |
| Name | Changes the name of the current component. |
| Alias | Changes the alias of the current component. |
| Restrictions | <p>Configures the permissions for using the current component:</p> <ul style="list-style-type: none"> ➤ The Allow Change option enables or disables changes of the component. If checked, the current item can be changed. ➤ The Allow Delete option enables or disables the deletion of a component. ➤ The Allow Move option allows or prohibits moving a component. ➤ The Allow Resize option enables or disables resizing of a component. ➤ The Allow Select option enables or disables the component selection. |
| Locked | Enables or disables resizing and moving the current component. If the property is set to True , then the current component cannot be moved or resized. If this property is set to False , then this component can be moved and resized. |
| Linked | Binds the current location to a report page or other component. If the property is set to True , then the current component is |

linked to the current location. If this property is set to **False**, then this component is not linked to the current location.

4.36.3 PDF Element

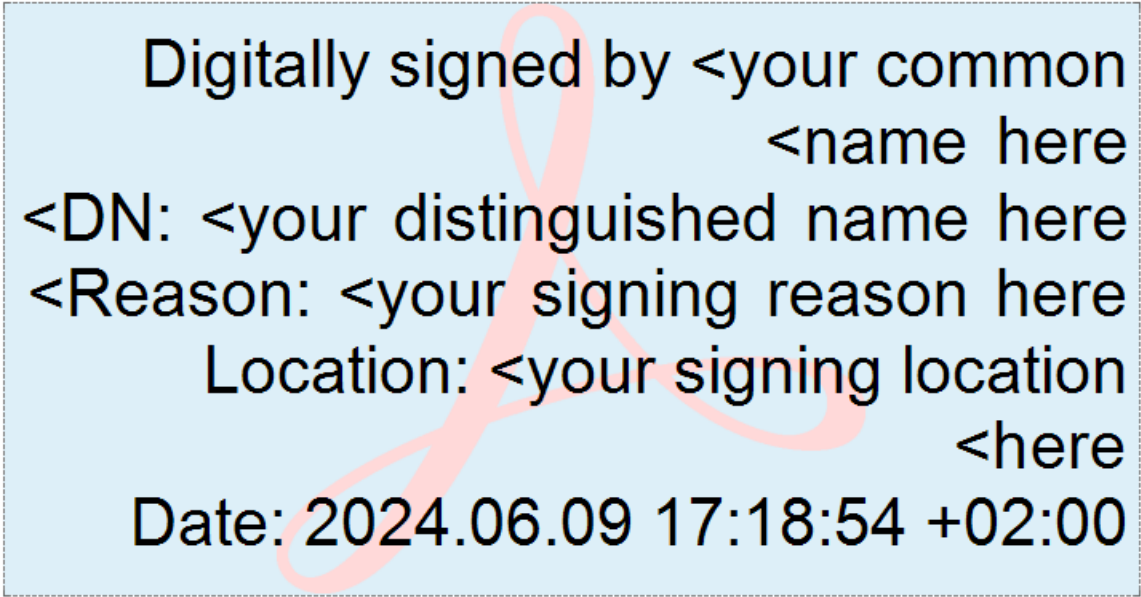
The **PDF Element** is a component that, when exporting a report to a PDF file, places a standard digital signature for the PDF document at its location. The signature is applied using a certificate, which must be selected in the export settings.

Information

In the export settings menu, the certificate can only be selected from the Windows certificate store using the system UI. When exporting via code, you can still use the UI, but it's also possible to search for a certificate by its **SubjectNameString** or pass the certificate directly to the export process as a byte array using `StiPdfExportSettings`.

If no certificate is specified, the component functions as a PDF Digital Signature, adding an interactive element for signing with Adobe Acrobat tools.

Stimulsoft's export to the PDF format supports signing a document with only one certificate. Therefore, if the report contains more than one PDF Element component, only the first one will be considered the signature field for the certificate. All other components will function as PDF Digital Signature, providing an interactive signing element for Adobe Acrobat.



Digitally signed by <your common
<name here
<DN: <your distinguished name here
<Reason: <your signing reason here
Location: <your signing location
<here
Date: 2024.06.09 17:18:54 +02:00

Configuration of the **PDF Element** is performed through:

- The component editor, where the type of signature and its parameters can be selected;
- The properties list of this component.

To open the editor:

- Double-click on the **PDF Element** component;
- Select the **PDF Element** component and choose the **Design** command from the context menu.

Component Editor

The editor contains the signature type selector **Type** and a group of **Labels** parameters, which determine what information from the certificate will be added to the PDF document's digital signature. Additionally, depending on the type of signature, an optional **Objects** field may be available.

PDF Element

Select the objects that you want to display in the signature on the PDF file.

Type: Image

Objects

Drop Image File Here

Labels

- ☒ Name
- ☒ Date
- ☒ Logo
- ☒ Reason
- ☒ Distinguished Name
- ☒ Location
- ☒ Labels
- ☒ Right to Left

Save Cancel

- The **Objects** field is available only if the signature type is set to **Image** or **Draw**.
- If the type is **Image**, the **Objects** field allows you to upload an image using the **Open** control or delete it using the **Remove** command.
- If the type is **Draw**, the **Objects** field lets you draw a signature. To draw, press and hold the left mouse button and create the graphical signature.
- The **Labels** group contains parameters that determine what information from the certificate will be added to the digital signature. If a parameter checkbox is selected, the corresponding information from the certificate will be added to the digital signature. If no parameters are selected, no textual information will be added to the signature.

Properties Table

The table provides a list of the components properties.

| Name | Description |
|------------|--|
| Appearance | Provides the ability to set the type of the element: None , Text , Draw , or Image . |

| | |
|---------------|---|
| Right to Left | Allows enabling the Right-to-Left mode for the component. If the property is set to True , the Right-to-Left mode will be applied to this component when building the report. If set to False , the Left-to-Right mode will be used. |
| Left | Enables specifying the left margin of the component from the report page boundaries. The value is defined in the report's measurement units. |
| Top | Enables specifying the top margin of the component from the report page boundaries. The value is defined in the report's measurement units. |
| Width | Allows defining the width of the component in the report. The value is defined in the report's measurement units. |
| Height | Allows defining the height of the component in the report. The value is defined in the report's measurement units. |
| Min Size | A property group that allows setting the minimum width and height of the component in the report. The value is defined in the report's measurement units. |
| Max Size | A property group that allows setting the maximum width and height of the component in the report. The value is defined in the report's measurement units. |
| Border | A property group that allows configuring the borders of the component, including specifying which sides are displayed, the border color, thickness, style, and shadow. |
| Brush | A property group that allows defining the brush type, color, and other brush parameters for the component's background in the report. |

| | |
|-------------------|--|
| Conditions | Provides access to the conditional formatting editor for the report. |
| Component Style | Allows selecting a style to be applied to the component in the report. |
| Use Parent Styles | Enables using the report component's style that the current component belongs to. |
| Anchor | Allows defining the anchoring mode of the current component to the dimensions of its parent component. |
| Can Grow | Allows automatically increasing the height of the component. |
| Can Shrink | Allows automatically decreasing the height of the component. |
| Dock Style | Enables setting the docking mode for the current component relative to others. |
| Enabled | Allows enabling or disabling the processing of the current component during report building. |
| Grow to Height | Allows automatically changing the height of the current component based on the height of its parent component. |
| Interaction | Enables defining interactive settings for the current component when viewing the report. |
| Printable | Allows specifying whether the component will be printed or not. |
| Print On | Provides the ability to define the printing mode of the component. |
| Shift Mode | Allows setting the component's offset mode based on the behavior of the component above it. |
| Name | Enables changing the name of the current component. |

| | |
|--------------|--|
| Alias | Allows changing the alias of the current component. |
| Restrictions | <p>Provides the ability to configure the usage permissions for the current component:</p> <ul style="list-style-type: none">➤ The Allow Change parameter allows enabling or disabling the ability to modify the component. If checked, the component can be changed. If unchecked, it can't be modified.➤ The Allow Delete parameter allows enabling or disabling the ability to delete the component. If checked, the component can be deleted. If unchecked, it can't be deleted.➤ The Allow Move parameter allows enabling or disabling the ability to move the component. If checked, the component can be moved. If unchecked, it can't be moved.➤ The Allow Resize parameter allows enabling or disabling the ability to resize the component. If the checkbox is selected, the size of the current component can be changed. If it isn't selected, the size of the component can't be modified.➤ The Allow Select parameter allows enabling or disabling the ability to select the component. If the checkbox is selected, the current component can be chosen. If it isn't selected, the component can't be selected. |
| Locked | <p>Provides the ability to prohibit or allow resizing and moving the current component. If the property is set to True, the component can't be moved or resized. If set to False, the component can be moved and resized.</p> |

| | |
|--------|--|
| Linked | Provides the ability to bind the current location to the report page or another component. If the property is set to True , the component is locked to its current location. If set to False , the component isn't locked to its current location. |
|--------|--|

4.37 Components

This chapter contains descriptions of the various report components such as:

- > [Image](#);
- > [Sparkline](#).

4.37.1 Image

To enhance visual expressiveness and information perception, images are often included in reports. These images may consist of product visuals, employee photos, company logos, etc. In Stimulsoft Reports, the Image component is used to display these images. This component supports the following image types: BMP, PNG, JPEG, TIFF, GIF, ICO, EMF, SVG, and WMF. The Image component must be placed where the image needs to appear (e.g., report page, data band, header, footer, etc.).



To add a image to a report, follow these steps:

- Select the **Image** component from the Toolbox or the **Insert** tab in the **Components** group.
- Place this component on the report page or within the report band.

The Image component can be configured using:

- The [component editor](#), where the image source is selected.

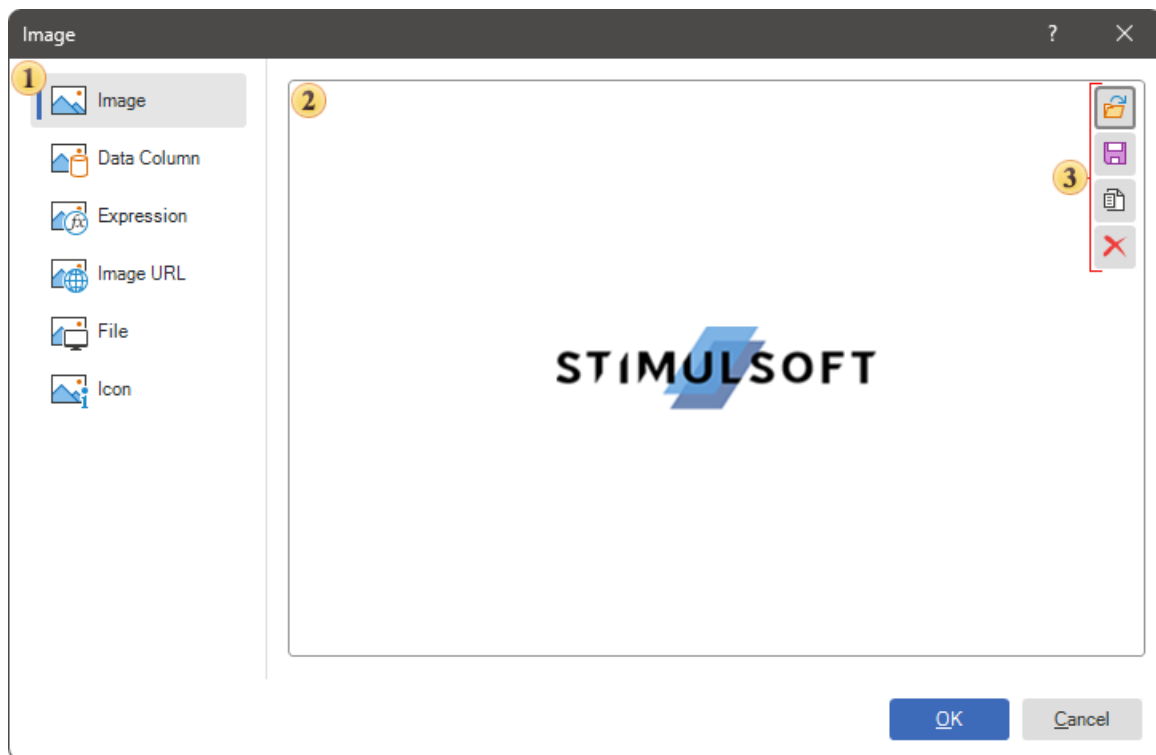
- The [properties](#) associated with this component.

To open the editor, you should:

- Double-click the **Image** component.
- Select the **Image** component and choose the **Design** command from the context menu.

Image Editor

After opening the **Image** component editor, you need to define the source for the image. Below is an overview of the **Image** component editor:



❶ List of sources for the component. Each image source option is presented on a separate tab in the editor:

- **Image** source. Allows you to drag or open an image from local storage.
- **Data Column** source. Allows you to select a data column from which images for this component will be obtained.
- **Expression** source. Allows you to specify an expression that results in an image for this component. For example, an image can be obtained from a variable like **{Variable1}**. You can also use an expression to retrieve an image from a file by using the FromFile method of the Image component, e.g., **{Image.FromFile("c:**

`\Image.png"))}`.

➤ **Image URL** source. Allows you to retrieve an image via a URL. You can also specify a link to report resources, such as **resource://image**, to load an image named "**image**" from the report resources.

➤ **File** source. Allows you to load an image from a file by specifying the file path, e.g., **d:\image.png**.

➤ **Icon** source. Allows you to select an icon from a set and define its color.

2 Thumbnail area displays a sample image. This feature is not available for the **Data Column** and **Expression** sources.

3 Controls:

➤ **Image** source. Controls available include **Open**, **Save**, **Move to Resource**, and **Remove**.

➤ **Icon** source. Includes a menu for selecting an icon and its color.

➤ **Expression** and **Image URL** sources. Provides access to the text editor command.

➤ **File** source. Offers the **Browse** command, which opens the local storage explorer.

➤ **Data Column** source. Displays a tree of data sources and columns for selection.

Information

Please note that you can configure settings for different image sources. However, when generating a report, only the source with the highest priority will be used. The priority of sources is determined from top to bottom, meaning the **Image** source has the highest priority, while the **Icon** source has the lowest.

Additional panels

Additional panels can be displayed in the **Image** editor:

➤ **Gallery** panel. Displays a list of images as thumbnails from variables and resources. This panel is available only for the **Image** source.

➤ **History** panel. Shows a list of the most recently loaded images. This panel is available only for the **File** and **Image URL** sources.

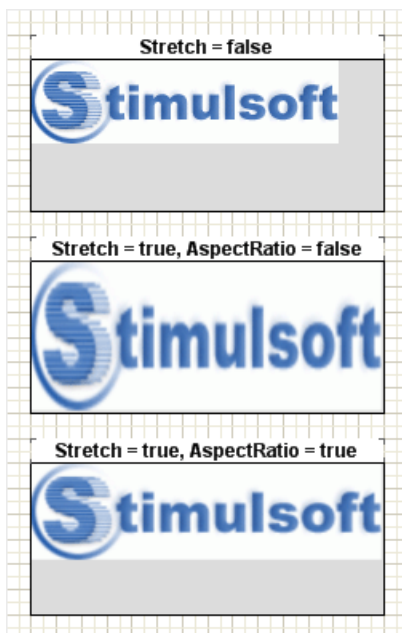
Stretching images

When displaying images, the image dimensions often do not match the component dimensions. This can result in empty space left unfilled by the image. There are also

instances where the image dimensions are larger than the component dimensions. In such cases, you can enable the mode to stretch the image to fit the component dimensions by setting the **Stretch** property to **True**.



After enabling the image stretch mode, the image dimensions will always match the component dimensions. However, this may distort the image proportions. To stretch the image while maintaining its original proportions, set the **Aspect Ratio** property to **True**. This ensures that the Image component will preserve the image proportions.



Information

The **Aspect Ratio** property only functions when the image stretch mode is enabled.

List of properties

Below is a list of properties for the component.

| Name | Description |
|----------------------|---|
| Image | This property opens the component editor in the Image source tab. |
| Data Column | This property selects a Data Column for the component source. |
| File | This property opens the component editor in the File source tab. |
| Icon | This property selects an Icon for the component source. |
| Expression | This property opens the component editor in the Expression source tab. |
| Image URL | This property opens the component editor in the Image URL source tab. |
| Aspect Ratio | This property enables or disables the aspect ratio mode for the image. It is only relevant if the stretch mode is enabled. When set to True , the aspect ratio of the image within the component will be preserved. If set to False , the aspect ratio will not be maintained, and the image will be stretched without proportionality. |
| Horizontal Alignment | This property changes the horizontal alignment of the image in the current component. |
| Vertical Alignment | This property changes the vertical alignment of the image in the current component. |
| Image Rotation | This property rotates the image in the current component. |
| Margins | This group of properties is used to define the image boundaries relative to the component boundaries: Left , Right , Top , and Bottom . |
| Multiple Factor | This property sets the value to multiply by the image size. |

| | |
|-----------------------|---|
| Processing Duplicates | This property defines the mode of processing duplicates of the current image. |
| Smoothing | This property enables/disables anti-aliasing mode for images. |
| Stretch | This property enables or disables image stretching mode in the component. When stretching mode is enabled, you can choose whether to preserve the image proportions using the Aspect Ratio property. If set to True , the image will be stretched to fit the component. If set to False , the image will not be stretched. |
| Left | The indent of the current component from the left border of the page. The value is specified in report units. |
| Top | The indent of the current component from the top border of the page. The value is specified in report units. |
| Width | The width of the current component, specified in report units. |
| Height | The height of the current component, specified in report units. |
| Min Size | This group of properties is used to specify the minimum width and height for the current component. |
| Max Size | This group of properties is used to specify the maximum width and height for the current component. |
| Border | This group of properties is used to customize the display of the component's borders. You can define which sides of the border will be shown, as well as adjust the border color, thickness, and style. Additionally, you can configure the component's shadow. |
| Brush | This property changes the brush type and its |

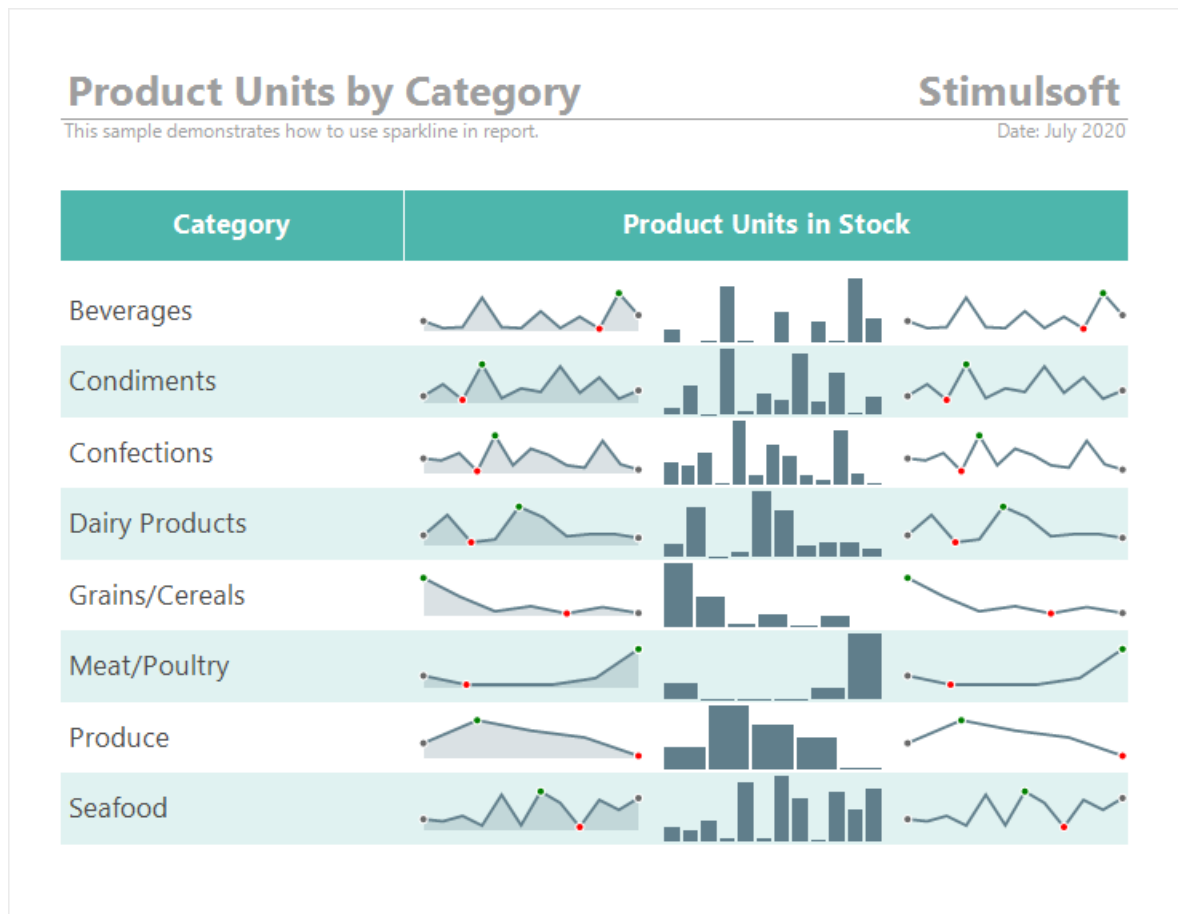
| | |
|------------------|---|
| | settings for the current component. |
| Conditions | It is used to call the condition editor for the current component. To do this, click the Browse button in the value field of the current property. |
| Component Style | It is used to select a style for the current component. Also, in the list of values for this property, there is a command Edit Styles , which you may use to call the Style Designer . |
| Icon Color | This property selects a color for the icon. Relevant if the icon is defined as a source for the Image component. |
| Use Parent Style | It is used to apply a style to the current component. This style is applicable to the owner component. If the current property is set to True , the style of the owner component will be applied to the component. If the current property is set to False , the assigned style will be applied to the component. |
| Anchor | It is used to select the binding mode of the current component to the owner component. |
| Can Break | This property determines whether the component can break content across multiple pages. |
| Can Grow | Automatically increases the height of a component. |
| Can Shrink | Automatically reduces the height of a component. |
| Dock Style | It is used to select the mode of docking of the current component with the owner component. |
| Enabled | It processes the current component when rendering a report. If the current property is set to True , the component will be processed when the report is rendered. If the current property is set to False , then the component will not be processed when rendering the report. |

| | |
|----------------|--|
| Grow to Height | Increases or decreases the height of a component when rendering a report. If the current property is set to True , the component will stretch to the height of the owner component. If the current property is set to False , then the component will not stretch to the height of the owner component. |
| Interaction | Calls the interaction editor for the current component. click the Browse button in the value field of the current property. |
| Printable | Shows or hides the current component in the rendered report. If the current property is set to True , the component will be displayed in the rendered report. If the current property is set to False , then the component will not be displayed in the generated report. |
| Print On | It is used to specify the display mode of the current component in the rendered report. |
| Shift Mode | It is used to offset a component that sits below another component at the same level in the report component hierarchy. |
| Name | It is used to change the name of the current component in the report. |
| Alias | It is used to change the alias of the current component in the report. |
| Restrictions | <p>Configures the rights to use the current component:</p> <ul style="list-style-type: none">➤ The Allow Change parameter enables or disables the changes of the component.➤ The Allow Delete parameter is used to enable or disable the deletion of the component.➤ The Allow Move parameter is used to enable or disable moving of the component.➤ The Allow Resize option is used to enable or disable resizing of the component.➤ The Allow Select parameter is used to |

| | |
|--------|---|
| | enable or disable selecting of the component. |
| Locked | Prevents or allows resizing and moving the current component. If the property is set to True , then the current component cannot be moved or resized. If this property is set to False , then this component can be moved and resized. |
| Linked | It is used to bind the current location to a report page or other component. If the property is set to True , then the current component is bound to the current location. If this property is set to False , then this component is not bound to the current location. |

4.37.2 Sparkline

The **Sparkline** component is a visual tool to display data. Unlike charts, a sparkline does not contain data values, axis labels, legend, and other elements.



To add a sparkline to the report, you should do the following:

- Select the **Sparkline** component on the **Toolbox** or the **Insert** tab in the **Components** group;
- Place this component on the report page or the **Data** band.

Information

When placing the **Sparkline** component on the **Data** band, you should specify the relationship between their data sources. You can do this using the **Data Relation** property of the **Sparkline** component.

A sparkline in reports can be of the following type:

- **Line** - the values of the specified data column will be displayed as a line graph;
- **Area** - the values of the specified data column will be displayed as an area;
- **Column** - the values of the specified data column will be displayed as a column chart;
- **Win/Loss** - the values of the specified data column will be displayed as positive and negative blocks.

You may configure the **Sparkline** component the following way:

- [In the component editor](#) (double-click on the current component in the report).
- Using the [properties of the component](#). Select the component in the report and change the required values on the **Property** panel.

The Sparkline editor

In the editor of the current component, the component is visually configured.

The screenshot shows a 'Sparkline' dialog box with the following fields and annotations:

- 1 Value:** A text field containing 'Products.UnitsInStock'.
- 2 Field:** A dropdown menu showing 'Products.UnitsInStock'.
- 3 Type:** Four icons representing different sparkline types: Line, Area, Column, and Win/Loss.
- 4 High / Low Points:** A checkbox that is checked.
- 5 First / Last Points:** A checkbox that is checked.
- 6 Color:** A color selection dropdown showing a dark blue color.

At the bottom of the dialog are 'OK' and 'Cancel' buttons.

- ❶ The **Value** field specifies the data column, based on the values of which the sparkline is created.
- ❷ In the current field, you can change the data column for the sparkline values.
- ❸ The **Type** field contains controls that you can use to change the type of sparkline.
- ❹ The **High/Low Points** parameter is used to display the maximum and minimum value markers on a **Line** or **Area** sparkline.
- ❺ The **First/Last Points** parameter is used to display the first and last value markers on a sparkline of the **Line** or **Area** type.
- ❻ The **Color** parameter is used to change the color of the sparkline. You can specify the color of positive and negative values for a sparkline of **Column** or **Win/Loss** types.

The list of properties

See the list below which shows the properties of the current component.

| Name | Description |
|-------------------|--|
| Value Data Column | It is used to change the data column by the values of which the sparkline is created. |
| Data Relation | It is used to select a relation between data sources of the Data band and Sparkline components. If there is no relation between these data sources, you can create it from the relation dialog by clicking the New Relation |

| | |
|------------------|---|
| | button. |
| Left | Specifies the indent of the current component from the left border of the page. The value is specified in the report units. |
| Top | Specifies the indent of the current component from the top border of the page. The value is specified in the report units. |
| Width | Specifies the width of the current component. The value is specified in the report units. |
| Height | Specifies the height of the current component. The value is specified in the report units. |
| Min Size | A group of properties is used to specify the minimum width and height for the current component. |
| Max Size | A group of properties is used to specify the maximum width and height for the current component. |
| Conditions | It is used to call the condition editor for the current component. To do this, click the Browse button in the value field of the current property. |
| Component Style | It is used to select a style for the current component. Also, in the list of values for this property, there is a command Edit Styles , which you may use to call the Style Designer . |
| Use Parent Style | It is used to apply a style to the current component. This style is applicable to the owner component. If the current property is set to True , the style of the owner component will be applied to the component. If the current property is set to False , the assigned style will be applied to the component. |
| Anchor | It is used to select the binding mode of the current component to the owner component. |
| Dock Style | It is used to select the mode of docking of the current component with the owner component. |

| | |
|----------------|---|
| Enabled | It processes the current component when rendering a report. If the current property is set to True , the component will be processed when the report is rendered. If the current property is set to False , then the component will not be processed when rendering the report. |
| Grow to Height | Increases or decreases the height of a component when rendering a report. If the current property is set to True , the component will stretch to the height of the owner component. If the current property is set to False , then the component will not stretch to the height of the owner component. |
| Interaction | Calls the interaction editor for the current component. Click the Browse button in the value field of the current property. |
| Printable | Shows or hides the current component in the rendered report. If the current property is set to True , the component will be displayed in the rendered report. If the current property is set to False , then the component will not be displayed in the generated report. |
| Print On | It is used to specify the display mode of the current component in the rendered report. |
| Shift Mode | It is used to offset a component that sits below another component at the same level in the report component hierarchy. |
| Name | It is used to change the name of the current component in the report. |
| Alias | It is used to change the alias of the current component in the report. |
| Restrictions | Configures the rights to use the current component: <ul style="list-style-type: none">➤ The Allow Change parameter enables or disables the changes of the component.➤ The Allow Delete parameter is used to |

| | |
|--------|---|
| | <p>enable or disable the deletion of the component.</p> <ul style="list-style-type: none"> ➤ The Allow Move parameter is used to enable or disable moving of the component. ➤ The Allow Resize option is used to enable or disable resizing of the component. ➤ The Allow Select parameter is used to enable or disable selecting of the component. |
| Locked | Prevents or allows resizing and moving the current component. If the property is set to True , then the current component cannot be moved or resized. If this property is set to False , then this component can be moved and resized. |
| Linked | It is used to bind the current location to a report page or other component. If the property is set to True , then the current component is bound to the current location. If this property is set to False , then this component is not bound to the current location. |

4.38 Gauge

Gauge is a graphical component used to display progress, metrics, or status in the form of a scale or circular.

Gauges in reports can be used to display:

- Progress measurement: the degree of task or plan completion, such as 75% of a project being finished.
- Performance evaluation: display current KPIs (Key Performance Indicators), such as revenue, productivity, or quality, in relation to target values.
- Status monitoring: track the state of systems or resources, such as CPU usage, memory load, etc.

Gauges can be of the following types:

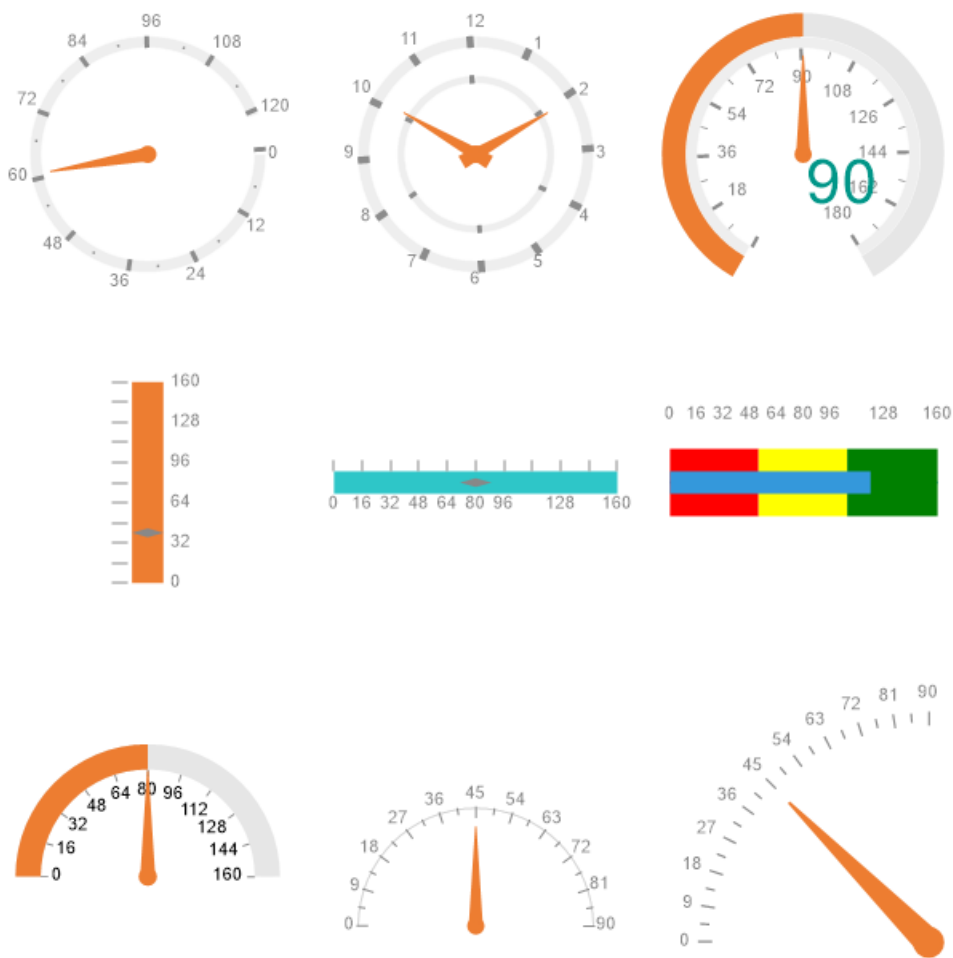
- Full Circular;
- Half-Circular;
- Vertical Linear;
- Horizontal Linear;
- Bullet.

Gauges

This sample demonstrates how to use Radial Gauges.

Stimulsoft

Date: January 2025

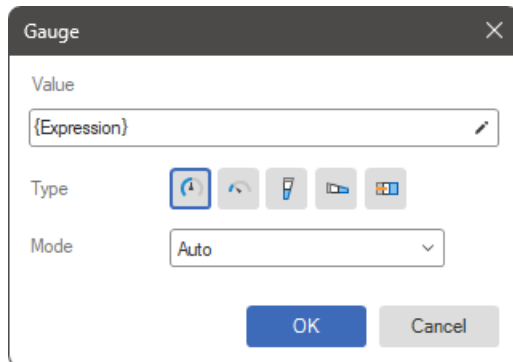


4.38.1 Gauge editor

The configuration of a gauge is performed in its editor. The gauge editor in reports can be:

- **Advanced** allows for element-by-element configuration of the component. It requires a deep understanding of gauges. This type of editor is available only in Stimulsoft Designer for WinForms.
- **Simple** provides a quick and easy way to add a component to a report and use it for data display and analysis.

Switching between editor modes is done in the **Options** menu of the report designer using the **Gauge Editor** option. By default, the simple editor is used. Below is a description of the simple editor for the **Gauge component**.



- The **Value** field allows you to specify a value for the gauge or an expression whose calculation result will serve as the value for this component.
- The **Type** parameter allows you to change the type of the gauge.
- The **Mode** parameter allows you to change the calculation mode for the gauge's value range.

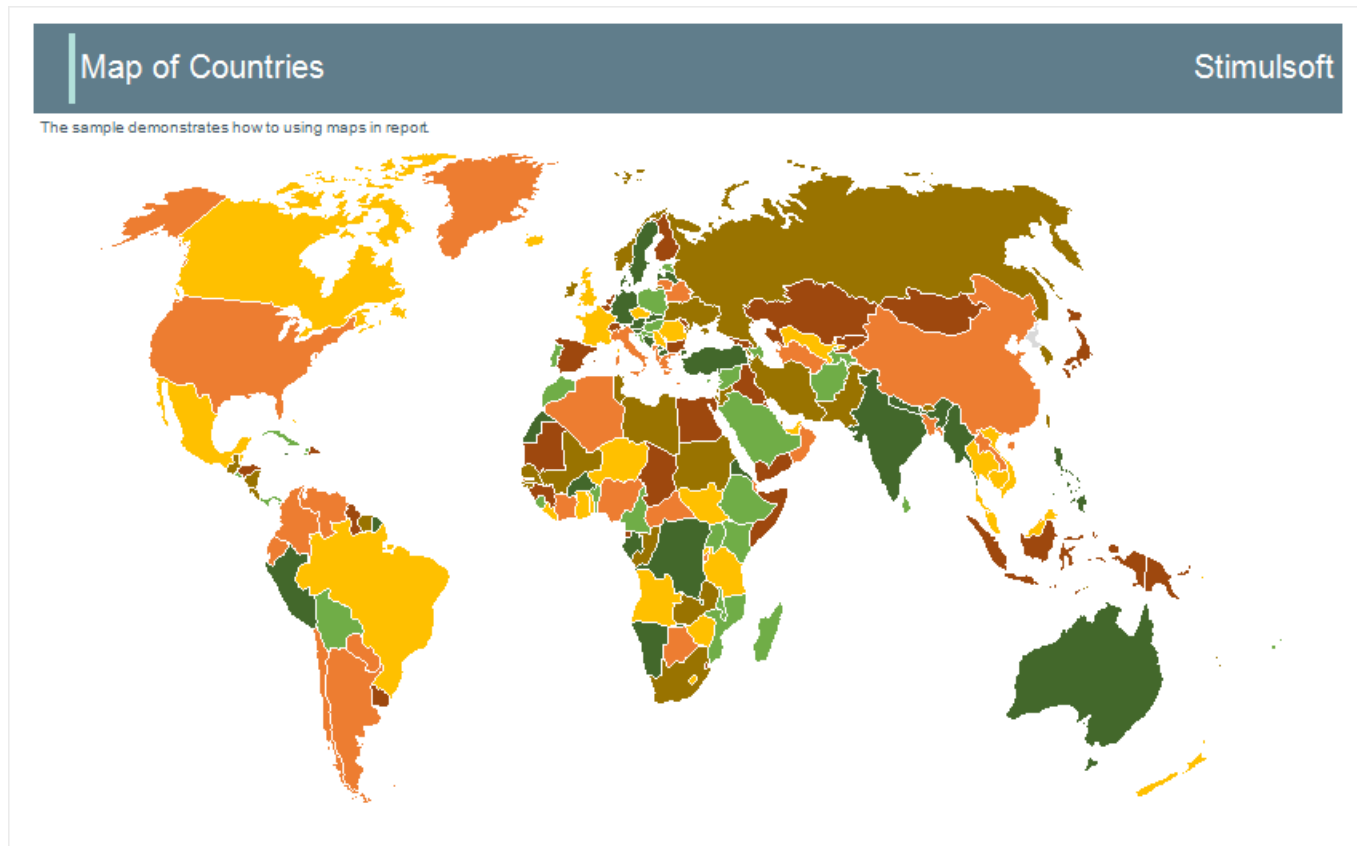
4.39 Maps

YouTube

Watch our [videos on how to create maps in the report designer](#).

The Map component represents a tool to visualize data with reference to geographical location. With the help of maps, you can display various statistics for a particular region or in the world. For example, you can display the sales of any

product for each state in the US or, for example, for each European country. The map may be placed directly on the page or other components like panels, bands, clones etc. Data for maps may be filled manually or obtained from the data source. The Map component can be setup in the component editor. To add the Map component in the report you should go to the Infographics menu on the toolbox or Insert tab:



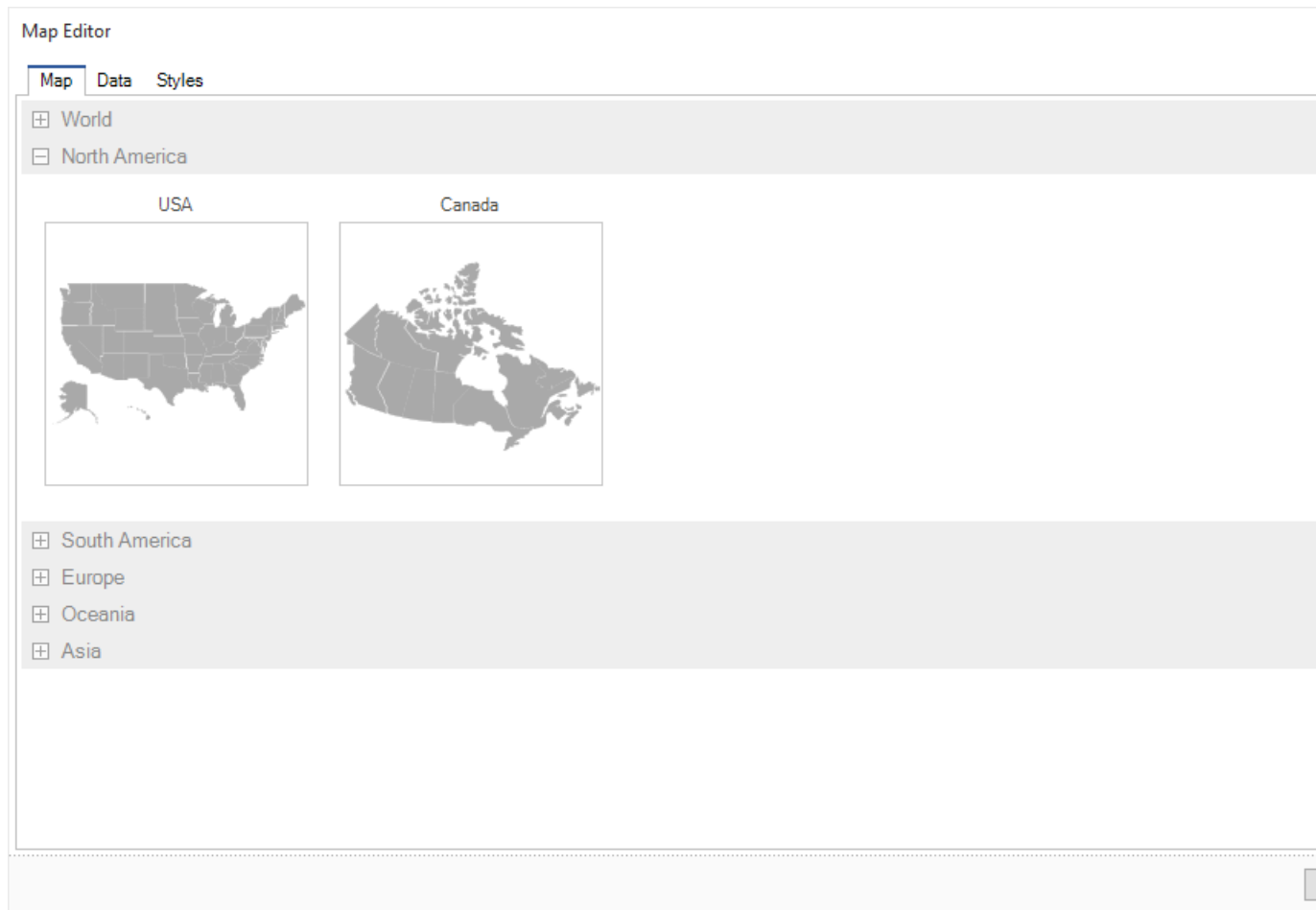
- > [Map Editor;](#)
- > [Map Types;](#)
- > [Map Keys;](#)
- > [Data for Maps.](#)

4.39.1 Map Editor

Setting the map can be done in the **Map** component. To call the **Map Editor** you should double-click the component in the report template or select the Design item from the context menu of the component. The map editor will be called. It has the following tabs:

➤ The **Map** tab

On this tab, you can change the look of a future map. You can select the global or regional map. In this case, regions are grouped by continents. Depending on the type, the map will contain a variety of options:



➤ The **Data** tab

On this tab you can set the map type, the data for the map and map parameters. Data can be entered manually or derived from a data source.

Map Editor

Map Data Styles

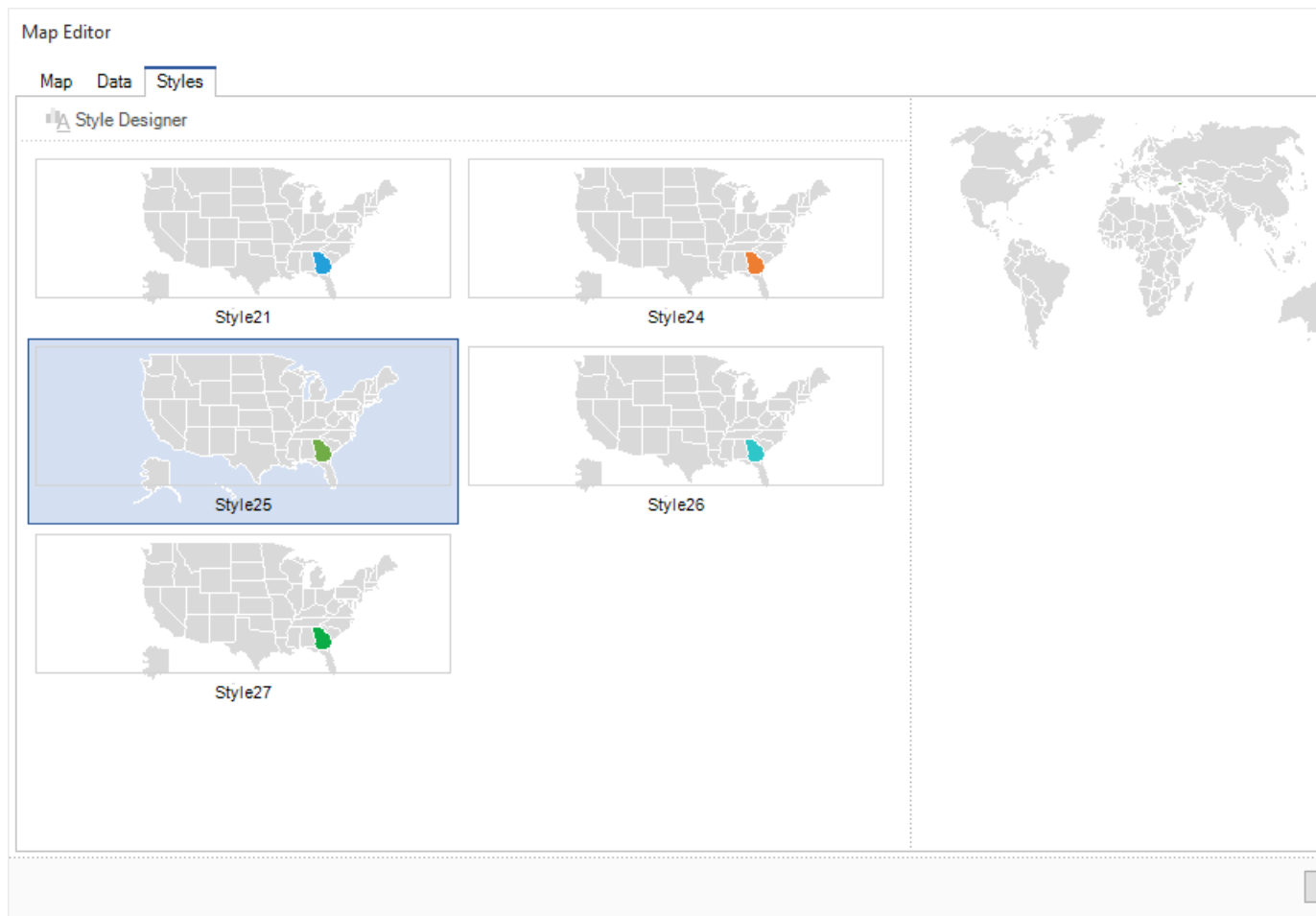
Map Type: Group ☒ Show Value [Link Data](#)

| | Key | Name | Value | Group | Color |
|---|--------------------|------|-------|-------|-------|
| ▶ | Afghanistan | | 0 | | |
| | Albania | | 0 | | |
| | Algeria | | 0 | | |
| | Andorra | | 0 | | |
| | Angola | | 0 | | |
| | AntiguaAndBarbu... | | 0 | | |
| | Argentina | | 0 | | |
| | Armenia | | 0 | | |
| | Australia | | 0 | | |
| | Austria | | 0 | | |
| | Azerbaijan | | 0 | | |
| | Bahamas | | 0 | | |
| | Bahrain | | 0 | | |
| | Bangladesh | | 0 | | |
| | Barbados | | 0 | | |
| | Belarus | | 0 | | |
| | Belgium | | 0 | | |
| | Belize | | 0 | | |
| | Benin | | 0 | | |
| | Bhutan | | 0 | | |



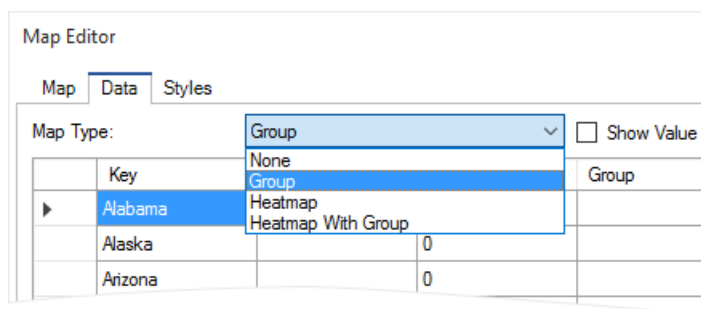
➤ The **Style** tab

On this tab you can set the map style. There are some preset styles and custom styles in style designer:



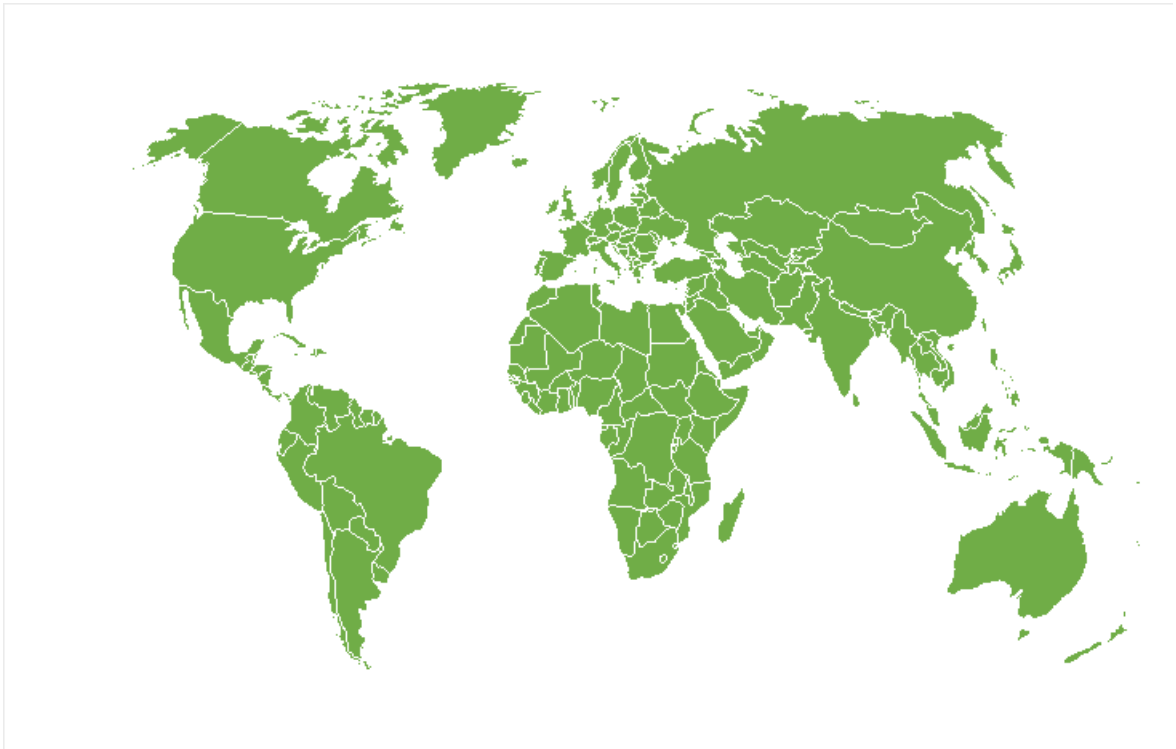
4.39.2 Map Types

Maps can be with a group, heatmap and heatmap with group. You can change the type of a map in the map editor on the Data tab selecting the **Map Type** parameter:



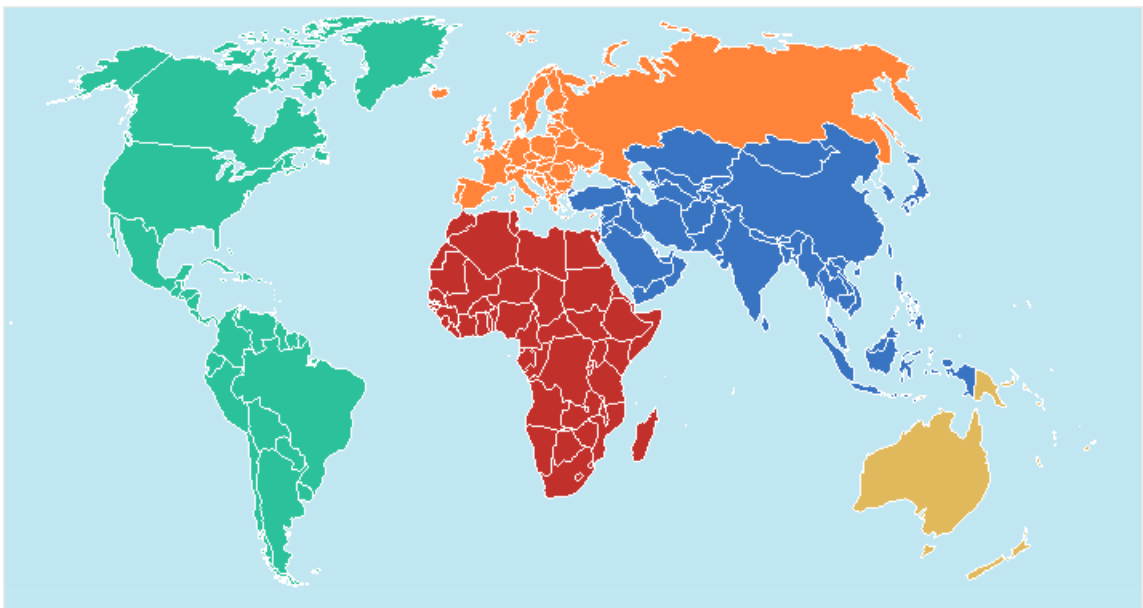
✖ None

In this case, the map, regardless of the style or color values of each key, will be filled with the base color. The map will remain to be split on items:

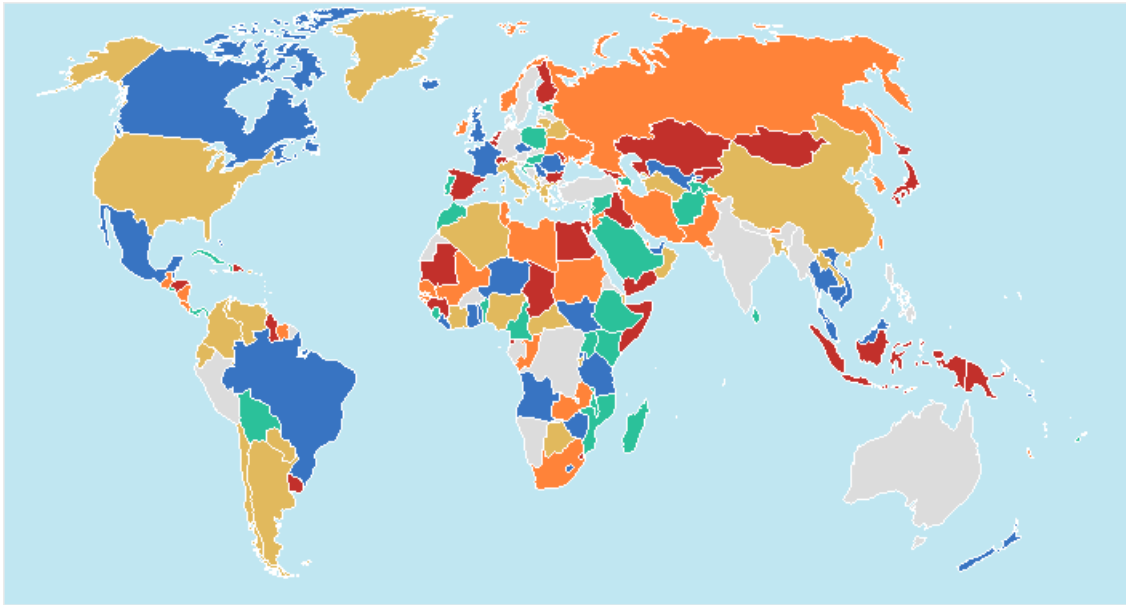


Group

In this case, it is necessary to fill the Group column with data or specify data columns indication in the Group field. Each group of map elements will be drawn with one of the color map style or color that is defined for each entry:



However, if the number of colors in the map style is less than the number of groups of elements of the map, colors can be repeated:

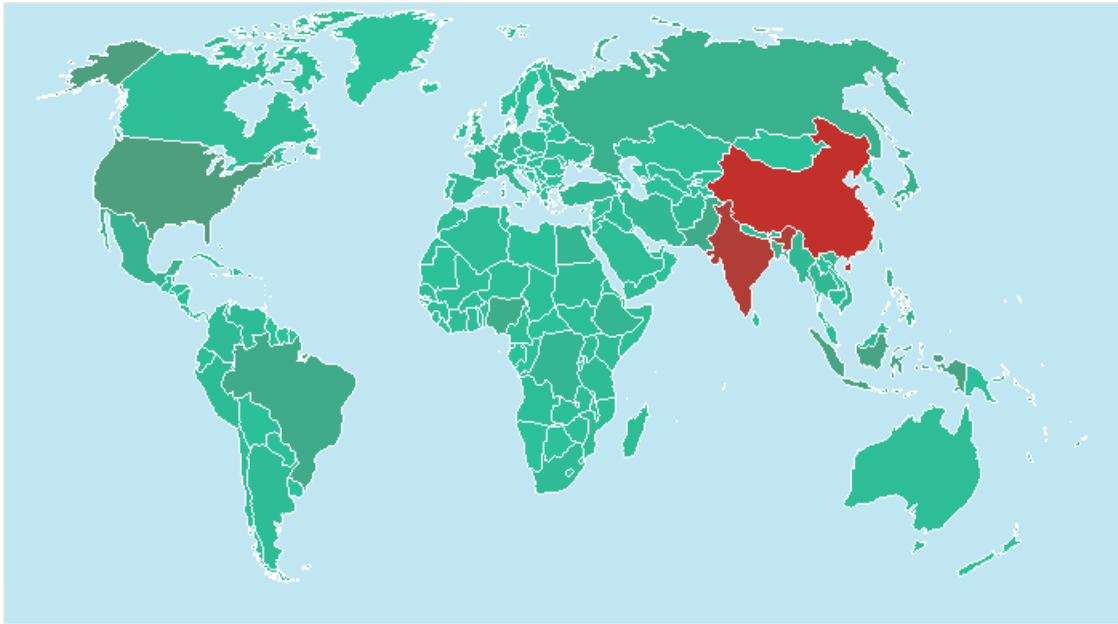


Heatmap

The heatmap provides an opportunity to graphically display values of map items. Therefore, it is necessary to specify the value of map items. Also, in the style of the map, it is necessary to determine the color of the heatmap. The reporting tool, at the time of the report creation process, will check all entries or all the values in the data column. The engine will determine the maximum value and assign to it the first color of the heatmap, and the minimum value will get the second color of the heatmap style. Then, for each value in the list, depending on how close the maximum or minimum values are, shades for values will be created. The shade will be applied to the map item.

Information

When using a heatmap, the values of groups and elements of the map will not be grouped. If you want to display the heat map by the grouped values, it is necessary to specify the type of map as the heatmap with the group.



Heatmap with Group

To group the map elements and apply the heatmap to these groups, you should specify the type of a map as the Heatmap with Group. In this case, the map elements are grouped, and then the heatmap will be rendered. At the same time, it is necessary to fill the Group column or specify the data column in the Group field.

4.39.3 Map Keys

A map of any type is a graphic object consisting of one or more elements. Each element has its name which is called the **key**. Each type of the map uses its own keys. For example, a world map has the keys like the names of countries. For the US maps, the keys are names of states. For the EU map the keys are names of the European Union countries. To change the value or color of any map element, you must specify the key. Particularly, it is taken into account when the data for the map will be obtained from the data source. In this case, entries in the data column (indicated in the **Key** field of a map) must be identical to particular of map keys. In other words, in the world map, country names should match the entries in the data column.

World Map Keys

| Key | Name |
|--------------------------|------------------------------|
| Afghanistan | Afghanistan |
| Albania | Albania |
| Algeria | Algeria |
| AmericanSamoa | American Samoa |
| Andorra | Andorra |
| Angola | Angola |
| AntiguaandBarbuda | Antigua and Barbuda |
| Argentina | Argentina |
| Armenia | Armenia |
| Australia | Australia |
| Austria | Austria |
| Azerbaijan | Azerbaijan |
| Bahrain | Bahrain |
| BajoNuevoBank(Petrells.) | Bajo Nuevo Bank (Petrel Is.) |
| Bangladesh | Bangladesh |
| Barbados | Barbados |
| Belarus | Belarus |
| Belgium | Belgium |
| Belize | Belize |
| Benin | Benin |
| Bhutan | Bhutan |
| Bolivia | Bolivia |
| BosniaandHerzegovina | Bosnia and Herzegovina |
| Botswana | Botswana |
| Brazil | Brazil |

| | |
|------------------------------|--------------------------|
| Brunei | Brunei |
| Bulgaria | Bulgaria |
| BurkinaFaso | Burkina Faso |
| Burundi | Burundi |
| Cambodia | Cambodia |
| Cameroon | Cameroon |
| Canada | Canada |
| CapeVerde | Cape Verde |
| CentralAfricanRepublic | Central African Republic |
| Chad | Chad |
| Chile | Chile |
| China | China |
| Colombia | Colombia |
| Comoros | Comoros |
| CostaRica | Costa Rica |
| Croatia | Croatia |
| Cuba | Cuba |
| Cyprus | Cyprus |
| CyprusNoMansArea | Cyprus No Mans Area |
| CzechRepublic | Czech Republic |
| DemocraticRepublicoftheCongo | Congo |
| Denmark | Denmark |
| Djibouti | Djibouti |
| Dominica | Dominica |
| DominicanRepublic | Dominican Republic |
| EastTimor | East Timor |
| Ecuador | Ecuador |
| Egypt | Egypt |
| ElSalvador | El Salvador |

| | |
|-----------------------------|--------------------------------|
| EquatorialGuinea | Equatorial Guinea |
| Eritrea | Eritrea |
| Estonia | Estonia |
| Ethiopia | Ethiopia |
| Faroelands | Faroe Islands |
| FederatedStatesofMicronesia | Federated States of Micronesia |
| Fiji | Fiji |
| Finland | Finland |
| France | France |
| Gabon | Gabon |
| Gambia | Gambia |
| Georgia | Georgia |
| Germany | Germany |
| Ghana | Ghana |
| Greece | Greece |
| Greenland | Greenland |
| Grenada | Grenada |
| Guam | Guam |
| Guatemala | Guatemala |
| Guinea | Guinea |
| GuineaBissau | Guinea Bissau |
| Guyana | Guyana |
| Haiti | Haiti |
| Honduras | Honduras |
| Hungary | Hungary |
| Iceland | Iceland |
| India | India |
| Indonesia | Indonesia |
| Iran | Iran |

| | |
|---------------|---------------|
| Iraq | Iraq |
| Ireland | Ireland |
| Israel | Israel |
| Italy | Italy |
| IvoryCoast | Ivory Coast |
| Jamaica | Jamaica |
| Japan | Japan |
| Jordan | Jordan |
| Kazakhstan | Kazakhstan |
| Kenya | Kenya |
| Kiribati | Kiribati |
| Kosovo | Kosovo |
| Kuwait | Kuwait |
| Kyrgyzstan | Kyrgyzstan |
| Laos | Laos |
| Latvia | Latvia |
| Lebanon | Lebanon |
| Lesotho | Lesotho |
| Liberia | Liberia |
| Libya | Libya |
| Liechtenstein | Liechtenstein |
| Lithuania | Lithuania |
| Luxembourg | Luxembourg |
| Macedonia | Macedonia |
| Madagascar | Madagascar |
| Malawi | Malawi |
| Malaysia | Malaysia |
| Maldives | Maldives |
| Mali | Mali |

| | |
|-------------------------|--------------------------|
| Malta | Malta |
| MarshallIslands | Marshall Islands |
| Mauritania | Mauritania |
| Mauritius | Mauritius |
| Mexico | Mexico |
| Moldova | Moldova |
| Monaco | Monaco |
| Mongolia | Mongolia |
| Montenegro | Montenegro |
| Morocco | Morocco |
| Mozambique | Mozambique |
| Myanmar | Myanmar |
| Namibia | Namibia |
| Nauru | Nauru |
| Nepal | Nepal |
| Netherlands | Netherlands |
| NewZealand | New Zealand |
| Nicaragua | Nicaragua |
| Niger | Niger |
| Nigeria | Nigeria |
| NorthernCyprus | Northern Cyprus |
| NorthernMarianalIslands | Northern Mariana Islands |
| NorthKorea | North Korea |
| Norway | Norway |
| Oman | Oman |
| Pakistan | Pakistan |
| Palau | Palau |
| Panama | Panama |
| PapuaNewGuinea | Papua New Guinea |

| | |
|------------------------------|----------------------------------|
| Paraguay | Paraguay |
| Peru | Peru |
| Philippines | Philippines |
| Poland | Poland |
| Portugal | Portugal |
| PuertoRico | Puerto Rico |
| Qatar | Qatar |
| RepublicofCongo | Republic of Congo |
| RepublicofSerbia | Republic of Serbia |
| Romania | Romania |
| Russia | Russia |
| Rwanda | Rwanda |
| SaintKittsandNevis | Saint Kitts and Nevis |
| SaintLucia | Saint Lucia |
| SaintVincentandtheGrenadines | Saint Vincent and the Grenadines |
| Samoa | Samoa |
| SanMarino | San Marino |
| SaoTomeandPrincipe | Sao Tome and Principe |
| SaudiArabia | Saudi Arabia |
| ScarboroughReef | Scarborough Reef |
| Senegal | Senegal |
| SerranillaBank | Serranilla Bank |
| Seychelles | Seychelles |
| SiachenGlacier | Siachen Glacier |
| SierraLeone | Sierra Leone |
| Singapore | Singapore |
| Slovakia | Slovakia |
| Slovenia | Slovenia |
| SolomonIslands | Solomon Islands |

| | |
|--------------------------|-----------------------------|
| Somalia | Somalia |
| Somaliland | Somaliland |
| SouthAfrica | South Africa |
| SouthKorea | South Korea |
| SouthSudan | South Sudan |
| Spain | Spain |
| SpratlyIslands | Spratly Islands |
| SriLanka | Sri Lanka |
| Sudan | Sudan |
| Suriname | Suriname |
| Swaziland | Swaziland |
| Sweden | Sweden |
| Switzerland | Switzerland |
| Syria | Syria |
| Tajikistan | Tajikistan |
| Thailand | Thailand |
| TheBahamas | The Bahamas |
| Togo | Togo |
| Tonga | Tonga |
| TrinidadandTobago | Trinidad and Tobago |
| Tunisia | Tunisia |
| Turkey | Turkey |
| Turkmenistan | Turkmenistan |
| Tuvalu | Tuvalu |
| Uganda | Uganda |
| Ukraine | Ukraine |
| UnitedArabEmirates | United Arab Emirates |
| UnitedKingdom | United Kingdom |
| UnitedRepublicofTanzania | United Republic of Tanzania |

| | |
|----------------------------------|--------------------------------------|
| UnitedStates | United States |
| UnitedStatesMinorOutlyingIslands | United States Minor Outlying Islands |
| UnitedStatesVirginIslands | United States Virgin Islands |
| Uruguay | Uruguay |
| Uzbekistan | Uzbekistan |
| Vanuatu | Vanuatu |
| Vatican | Vatican |
| Venezuela | Venezuela |
| Vietnam | Vietnam |
| WesternSahara | Western Sahara |
| Yemen | Yemen |
| Zambia | Zambia |
| Zimbabwe | Zimbabwe |

Europe Map Keys

| Key | Name |
|----------------------|------------------------|
| Albania | Albania |
| Andorra | Andorra |
| Armenia | Armenia |
| Austria | Austria |
| Belarus | Belarus |
| Belgium | Belgium |
| BosniaAndHerzegovina | Bosnia and Herzegovina |
| Bulgaria | Bulgaria |
| Croatia | Croatia |
| Cyprus | Cyprus |
| CzechRepublic | Czech Republic |
| Denmark | Denmark |

| | |
|---------------|---------------|
| Estonia | Estonia |
| Finland | Finland |
| France | France |
| Georgia | Georgia |
| Germany | Germany |
| Greece | Greece |
| Hungary | Hungary |
| Iceland | Iceland |
| Ireland | Ireland |
| Italy | Italy |
| Kosovo | Kosovo |
| Latvia | Latvia |
| Liechtenstein | Liechtenstein |
| Lithuania | Lithuania |
| Luxembourg | Luxembourg |
| Macedonia | Macedonia |
| Moldova | Moldova |
| Montenegro | Montenegro |
| Netherlands | Netherlands |
| Norway | Norway |
| Poland | Poland |
| Portugal | Portugal |
| Romania | Romania |
| Serbia | Serbia |
| Slovakia | Slovakia |
| Slovenia | Slovenia |
| Spain | Spain |
| Sweden | Sweden |
| Switzerland | Switzerland |

| | |
|---------------|----------------|
| Turkey | Turkey |
| Ukraine | Ukraine |
| UnitedKingdom | United Kingdom |

USA Map Keys

| Key | Name |
|--------------------|----------------------|
| Alabama | Alabama |
| Alaska | Alaska |
| Arizona | Arizona |
| Arkansas | Arkansas |
| California | California |
| Colorado | Colorado |
| Connecticut | Connecticut |
| Delaware | Delaware |
| DistrictOfColumbia | District of Columbia |
| Florida | Florida |
| Georgia | Georgia |
| Hawaii | Hawaii |
| Idaho | Idaho |
| Illinois | Illinois |
| Indiana | Indiana |
| Iowa | Iowa |
| Kansas | Kansas |
| Kentucky | Kentucky |
| Louisiana | Louisiana |
| Maine | Maine |
| Maryland | Maryland |
| Massachusetts | Massachusetts |

| | |
|---------------|----------------|
| Michigan | Michigan |
| Minnesota | Minnesota |
| Mississippi | Mississippi |
| Missouri | Missouri |
| Montana | Montana |
| Nebraska | Nebraska |
| Nevada | Nevada |
| NewHampshire | New Hampshire |
| NewJersey | New Jersey |
| NewMexico | New Mexico |
| NewYork | New York |
| NorthCarolina | North Carolina |
| NorthDakota | North Dakota |
| Ohio | Ohio |
| Oklahoma | Oklahoma |
| Oregon | Oregon |
| Pennsylvania | Pennsylvania |
| Rhodelsland | Rhode Island |
| SouthCarolina | South Carolina |
| SouthDakota | South Dakota |
| Tennessee | Tennessee |
| Texas | Texas |
| Utah | Utah |
| Vermont | Vermont |
| Virginia | Virginia |
| Washington | Washington |
| WestVirginia | West Virginia |
| Wisconsin | Wisconsin |

Wyoming

Wyoming

4.39.4 Data for Maps

The Map component provides an opportunity to visualize the data with reference to geographical location. The data for maps can be specified manually and by passing from a data source. Consider both of these methods in detail.

✖ Manual

To enter the values manually, you should call the map editor, go to the **Data** tab and fill the cells in the table below:

| | Key ▲ | Name | Value | Group | Color |
|---|-------------|------|-------|-------|---------|
| | Alabama | AL | 99 | 1 | #FF0000 |
| | Alaska | AK | 87 | 2 | #FF7400 |
| | Arizona | AZ | 50 | 3 | #CD0074 |
| | Arkansas | AR | 134 | 4 | #009999 |
| | California | CA | 127 | 5 | #1D7373 |
| | Colorado | CO | 74 | 6 | #BF7130 |
| | Connecticut | CT | 89 | 7 | #FF7373 |
| | Delaware | DE | 90 | 8 | #33CCCC |
| | Florida | FL | 62 | 9 | #FFB273 |
| ▶ | Georgia | GA | 36 | 6 | #BF7130 |

To draw the map, simply add the Map component to the report and specify its view, because the basic **Key** column is filled by default. In this case, the map carries only geographical information and will be drawn in one color. In order the map be informative, you should complete other columns:

➤ The **Name** column. This column contains the name of the element. For example, the USA map contains the full name of the states as keys. In the Name column, you can specify any text that will be displayed when you hover the cursor in the rendered report. This column is not required to be filled, and, if the text is not specified, then when hovering the element in the report, the key name will be shown.

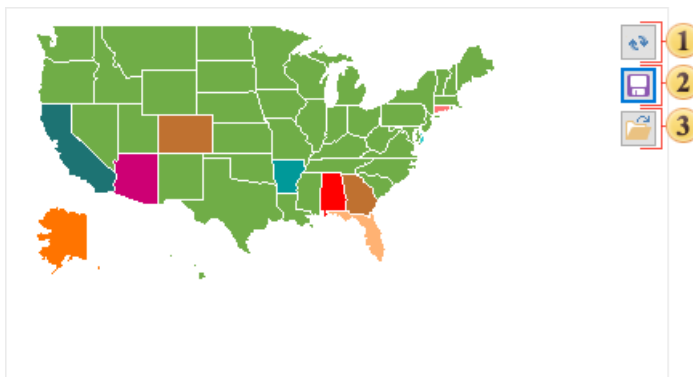
➤ The **Value** column. This column contains a value for a particular map element. The value can be any number. The value will also be displayed in the rendered report when you hover the cursor, if the **Show Value** is enabled.

➤ The **Group** column. The values of this column are relevant when the map type

is a map with the group, or a heatmap with the group. In this case, the group keys are specified. If you want to group some objects, you need to be sure that their keys completely match. In this case, the map elements in the rendered report will be painted in one color. There will also be summed values of the group elements. The result will be displayed in the rendered report with the Total prefix, when you hover over any element of the group.

➤ The **Color** column specifies the color of the map elements in the report. Color is defined by the #XXXXXX template. If the value in this column is not specified, the map element will be colored in a color map preset or custom style. If the color is specified, and the style is set for the map, the specified color will be applied to the map element.

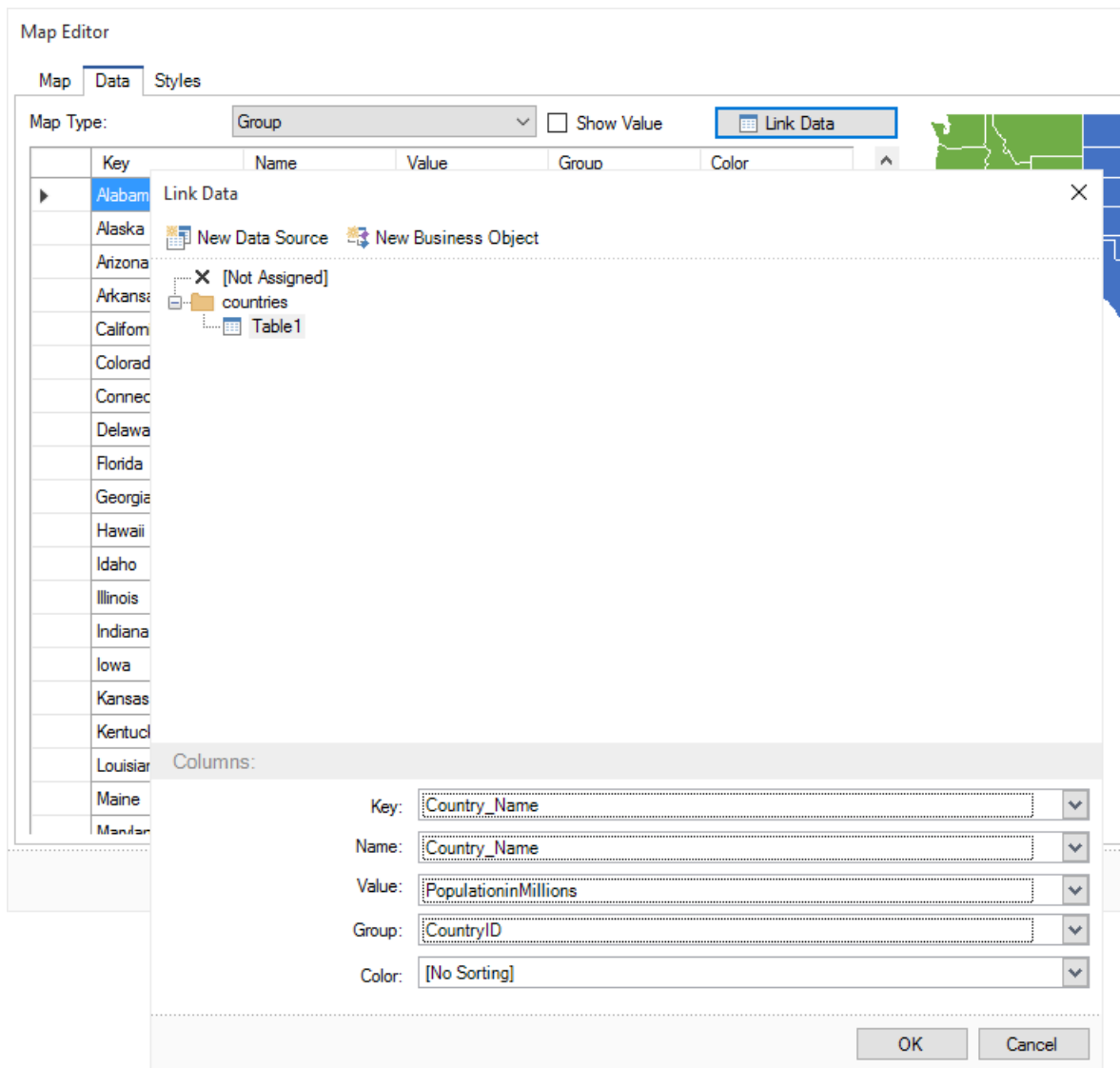
Once the table is full, you can render a report. Also, entries can be stored in the JSON file, and can be used in reports in the future. To save the data, you should click the **Save** button in the map editor on the **Data** tab in the preview panel:



- ➊ The button to update the map in the preview panel.
- ➋ The **Save** button calls the menu in which you must specify the path to save the JSON file.
- ➌ The **Open** button calls a menu where you can select a previously saved JSON file with the map data.

Data from Data Source

In addition to manual data input, the data map can be obtained from the data source. To do this click the Linked Data button in the map editor, in the Data tab:



In the **Link Data** menu you can select the data source and specify the column from the data source for map fields:

- The **Key** field indicates the data column that contains entries identical to map keys of a specific type.
- The **Name** field specifies a column with the names of map elements.
- The **Value** field indicates a column with values for map elements.
- The **Group** field indicates the data column with keys for the group. In this field, you should specify the data column, if the map type is defined with the group, or a heatmap with the group. Grouped map elements in the rendered report will be painted in one color.
- The **Color** field specifies data column with a set of colors for the map elements. If the data column is not specified in this field, the map element will

be colored in a preset or custom color of the map style. If the column contains data (the map style is set) then the color from the data columns will be applied to the map element.

4.40 Scripts in Interpretation Mode

When developing reports, various scripts can be executed in **Interpretation** mode. To enable this functionality, the following conditions must be met:

- The report template property **Script Language** must be set to C#;
- The script description must contain a `return` statement.

Information

If an expression contains a `return` operator, the report engine processes this expression as a script. Without a `return` operator, any constructs are treated as a regular expression.

When developing various scripts, you can use:

- report variables;
- data columns;
- functions, including custom functions;
- basic C# constructs such as if, else, the ternary operator, and loops.

Scripts can be used in:

- report events;
- custom functions;
- report expressions;
- expressions of components, variables, and calculated columns.

Script Language

Script processing in a report depends on the selected value of the **Script Language** property. To ensure that C# scripts work on all supported platforms, the Script Language property must be set to C#. This value is used by default for all newly created reports. However, for backward compatibility, reports created earlier may have the **Script Language** property set to **Platform**. In this case, the scripting language depends on the platform used to generate the report:

- on the .NET platform - C# scripts are used;
- on the JS platform - JavaScript is used.

Script Execution Management

To completely disable script execution, set the report property **Allow Scripts To Run** to **False**. If you only need to disable scripts in expressions, set the report property **Allow Scripts In Expressions** to **False**.

Information

Please note that script execution in expressions also depends on the **Allow Scripts To Run** property. If script execution is disabled in the report properties, the value of the **Allow Scripts In Expressions** property will be ignored, because scripts will not be executed. In addition, you can configure a script timeout in seconds using the **Script Timeout** property.

By default, report designers use Safe Script Execution Mode. For more details, see the [Safe Mode](#) section.

4.40.1 Safe Mode

By default, scripts are executed in Safe Mode with certain restrictions. Safe Mode is recommended when running user-defined scripts or scripts from untrusted sources. This helps restrict access to the file system, network, system processes, and other potentially dangerous platform capabilities.

To disable these restrictions, set the **Script Security** option in the report designer **Options** menu to **Full Access**. If the **Script Security** option is set to **Safe Mode**, the following restrictions are applied during script execution.

Type Validation

Before types are used in a script, they are validated against lists of allowed and prohibited types.

Validation specifics:

- Both fully qualified type names and short type names are checked;
- Namespaces are validated by prefix. If a namespace starts with a prohibited value,

the type is considered unavailable;

- For arrays and generic types, validation is performed recursively. If at least one nested type is prohibited, the entire type is blocked from use.

Resource Usage Restrictions

To protect against excessive memory and CPU consumption, the following limitations are applied:

- Maximum array size - 10 000 elements;
- Maximum recursion depth - 50 calls;
- Maximum number of execution steps or loop iterations - 100 000;
- Maximum nesting depth of generic types - 10 levels.

If any of these limits are exceeded, script execution is terminated.

Prohibited Types

In Safe Mode, types that allow system operations, work with processes, networking, threading, serialization, or dynamic code loading are unavailable.

The following types are prohibited:

- System.Activator
- System.AppDomain
- System.Environment
- System.Diagnostics.Process
- System.Diagnostics.ProcessStartInfo
- System.Threading.Thread
- System.Threading.Tasks.Task
- System.Runtime.InteropServices.Marshal
- System.Runtime.Serialization.Formatters.Binary.BinaryFormatter
- System.Xml.Serialization.XmlSerializer
- System.Data.SqlClient.SqlConnection
- System.Data.OleDb.OleDbConnection
- System.Net.Http.HttpClient
- System.Net.WebClient
- System.Net.Sockets.Socket
- System.Net.Sockets.TcpClient
- Stimulsoft.Base.StiCSharpScriptParser

Prohibited Namespaces

By default, the following namespaces are prohibited:

- System.IO
- System.Diagnostics
- System.Net
- System.Net.Sockets
- System.Reflection
- System.Runtime.InteropServices
- System.Security.Cryptography
- System.CodeDom
- System.Web
- Microsoft.CSharp
- Microsoft.VisualBasic
- Microsoft.Win32

All types belonging to these namespaces are considered unavailable for use in scripts.

4.40.2 Samples

This chapter provides several samples of using C# constructs in scripts.

Variables and Types

In Stimulsoft scripts, variables can be declared using the `var` keyword or by explicitly specifying the type. All basic C# types are supported, including numbers, strings, dates, boolean values, colors, collections, and objects.

C#

```
...
var number = 10;
var text = "Hello, World!";
var isActive = true;
var price = 19.99m;
var date = DateTime.Today;
var color = Color.Red;
...
```

Arrays and Collections

.NET arrays and collections are available.

C#

```
...
var numbers = new int[3];
var list = new List<string>();
```

```
var dict = new Dictionary<string, int>();  
...
```

Special Types

Types such as GUID, Color, and custom business objects can also be used if they are registered in the report.

C#

```
...  
var id = Guid.NewGuid();  
var color = Color.FromArgb(255, 128, 64);  
...
```

In Stimulsoft scripts, you can directly use variables defined in the report, as well as access and modify their values in code. To access a variable, simply specify its name without additional prefixes, for example: `var value = MyVariable`; If a variable is declared in the report, it automatically becomes available in all report scripts, including component events, expressions, custom functions, and global scripts. You can also assign new values to variables: `MyVariable = 42`; This allows variables to be used for storing intermediate results, transferring data between different parts of the report, and dynamically controlling report generation logic.

Type Conversion

Both implicit and explicit type conversions are supported.

C#

```
...  
var d = 5.5;  
var i = (int)d; // 5  
var s = (string)123; // "123"  
...
```

Operators in Stimulsoft Scripts

Stimulsoft scripts support all standard C# operators, including:

- arithmetic operators (+, -, *, /, %);
- comparison operators (==, !=, <, >, <=, >=), logical operators (&&, ||, !);
- bitwise operators (&, |, ^, ~, <<, >>);

- assignment operators (=, +=, -=, *=, /=, %=, etc.);
- the ternary operator (? :);
- increment and decrement operators (++, --);
- type checking and casting operators (is, as, typeof, GetType).

This makes it possible to use familiar C# expressions and constructs for calculations, conditions, working with variables and types, just as in standard C#. All operators follow the same precedence and associativity rules as in C#, including support for complex expressions, operator combinations, and all standard usage scenarios in conditions, loops, functions, and collections.

Loops in Stimulsoft Scripts

All main types of C# loops can be used in Stimulsoft scripts.

The loop `for`. A loop with an explicit counter. It is usually used when you know in advance how many times an action needs to be repeated.

C#

```
...
var sum = 0;
for (var i = 0; i < 5; i++) {
    sum += i;
}
// sum = 0 + 1 + 2 + 3 + 4 = 10
...
```

The loop `while`. A loop with a precondition that runs as long as the condition is true.

C#

```
...
var count = 0;
while (count < 3) {
    count++;
}
// count = 3
...
```

The loop `do...while`. A loop with a postcondition that executes the loop body at

least once.

C#

```
...  
var value = 0;  
do {  
    value += 2;  
} while (value < 6);  
// value = 6  
...
```

The loop `foreach`. A loop for iterating over each element of a collection (e.g., a list, array, etc.).

C#

```
...  
var list = new List<int>();  
list.Add(1);  
list.Add(2);  
list.Add(3);  
var total = 0;  
  
foreach (var item in list) {  
    total += item;  
}  
// total = 6  
...
```

Inside loops, you can use `break` to exit the loop and `continue` to move to the next iteration. Here are some examples with `break` and `continue`:

C#

```
...  
for (var i = 0; i < 10; i++) {  
    if (i == 5) break;  
    if (i % 2 == 0) continue;  
    // This code will only execute for odd i values less than 5.  
}  
...
```

Functions in Stimulsoft Scripts

You can use different types of functions in scripts: built-in functions, static functions, type functions, and custom (user) functions, which can be defined directly in the code or accessed from the report.

Built-in Stimulsoft Functions

Scripts support a large number of built-in Stimulsoft functions for working with data, strings, numbers, dates, colors, and more. These functions can be called directly by name.

C#

```
...  
var empty = IsNullOrEmpty("");  
var max = Maximum(3, 5);  
var color = RGB(255, 0, 0);  
...
```

[Full list of built-in functions.](#)

Static .NET Methods

You can use static methods from standard .NET classes, for example, to convert types or to work with numbers, strings, and dates.

C#

```
...  
var absValue = Math.Abs(-10);  
var rounded = Math.Round(2.6);  
var parsed = int.Parse("123");  
var now = DateTime.Now;  
var formatted = string.Format("Value: {0}", 42);  
...
```

Type Methods (Object Methods)

Methods of standard .NET types are available, including methods for strings, numbers, dates, and collections.

C#

```
...  
var text = "hello";
```

```
var upper = text.ToUpper();  
var length = text.Length;  
var tomorrow = now.AddDays(1);  
var exists = list.Contains(2);  
...
```

Custom Functions

You can declare your own functions directly in the script and call them as usual.

C#

```
...  
double square(double n) {  
    return n * n;  
}  
var result = square(5);  
...
```

Report Functions

If custom functions are defined in the report, they can be called by name if they are available in the script context.

C#

```
...  
var value = MyReportFunction(10);  
...
```

Type Casting and Type Checking

Stimulsoft scripts support standard C# operators for working with types: `as`, `is`, `typeof`, as well as explicit and implicit type conversions. You can also use the `GetType()` method to retrieve type information about an object.

Operator `is`. The operator allows you to check whether an object belongs to a certain type. Returns `true` or `false`.

C#

```
...  
var result = "hello" is string; // true  
var isInt = 123 is int; // true  
var isBool = 123 is bool; // false  
...
```

Operator `as`. The operator attempts a type conversion. If the conversion is not possible, it returns `null` (rather than throwing an exception).

C#

```
...  
var obj = "hello";  
var str = obj as string; // "hello"  
var num = obj as int;    // null  
...
```

Operator `typeof`. The operator allows you to obtain a type object for further checking or reflection.

C#

```
...  
typeof(string); // Type { Name = "String", FullName = "System.String" }  
typeof(int);    // Type { Name = "Int32",   FullName = "System.Int32" }  
...
```

Operator `GetType()`. The method returns the actual type of the object at runtime. This is useful for dynamic testing and debugging.

C#

```
...  
var value = 123;  
var typeName = value.GetType().Name; // "Int32"  
var typeFullName = value.GetType().FullName; // "System.Int32"  
var text = "abc";  
var isString = text.GetType() == typeof(string); // true  
...
```

The parser supports standard C# casting syntax, including conversions between numbers, strings, boolean values, and other types. If a conversion is not possible, an exception is thrown, as in regular C#.

Using Data Sources and Business Objects in Stimulsoft Scripts

In Stimulsoft scripts, you can directly access data sources registered in the report, as well as their related data and business objects. To access data, simply use the data source name, for example:

C#

```
...
Products.First();
var name = Products.ProductName;
...
```

Here we move to the first row of the Products data source and read the value of its ProductName column. If relationships are set up between data sources, we can access related data using a dot:

C#

```
...
var categoryName = Products.Categories.CategoryName;
...
```

This is how you can get the category name for the current product. Navigation methods such as `First()`, `Next()`, `Previous()`.

If business objects are added to a report via the `RegBusinessObject` method, they can be accessed by name like regular objects:

C#

```
...
var id = Business.Id;
var name = Business.Name;
Business.Name = "NewName";
...
```

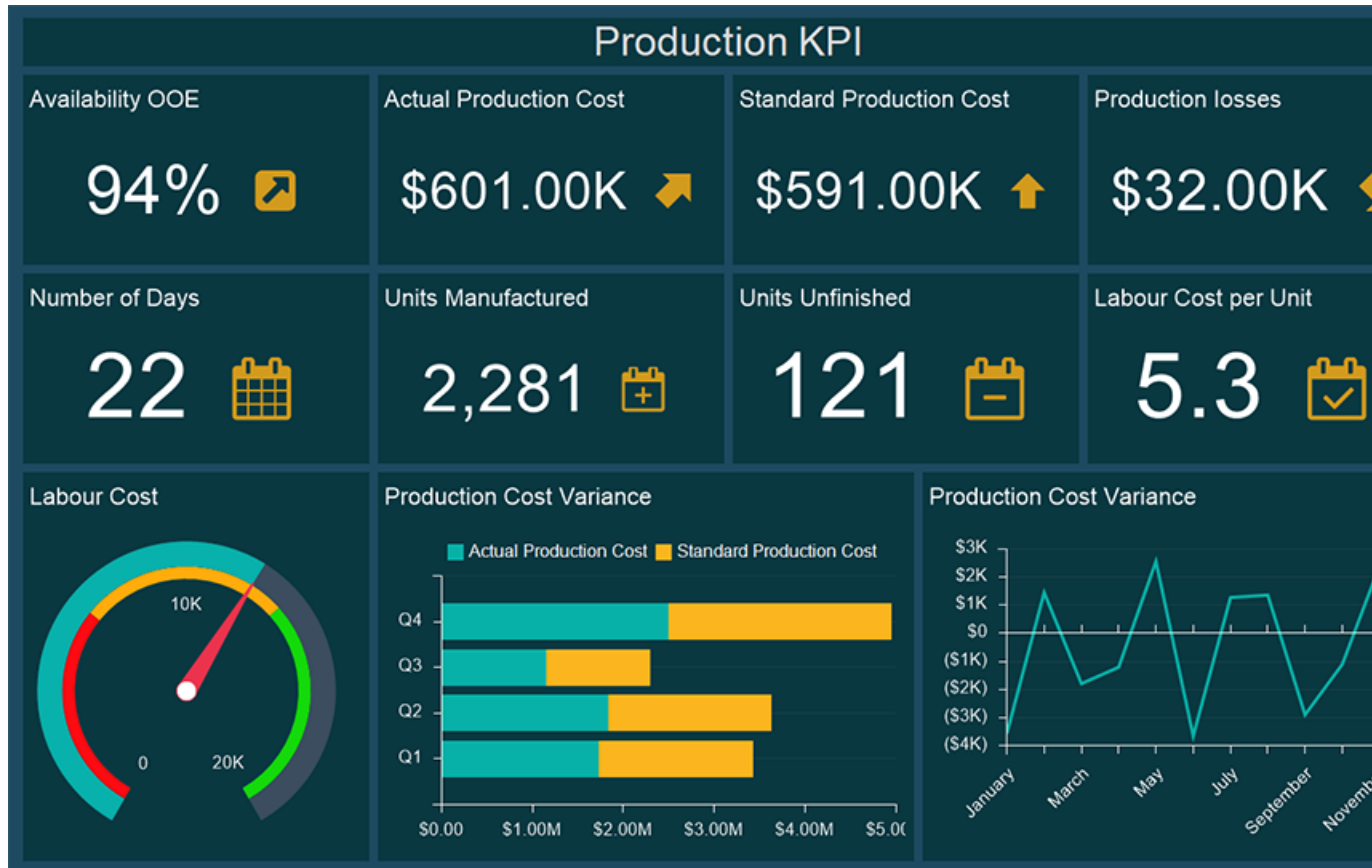
For nested objects, use dot.

C#

```
...
var subPrice = Business.Child.SubChild.Price;
...
```

5 Dashboards

The **Dashboard** component is a scalable area on which you can place elements of data analysis. All elements placed on the dashboard can be related to each other or split into groups of related elements. The dashboard panel is created in the report designer and viewed in the preview panel in the report designer or viewer.



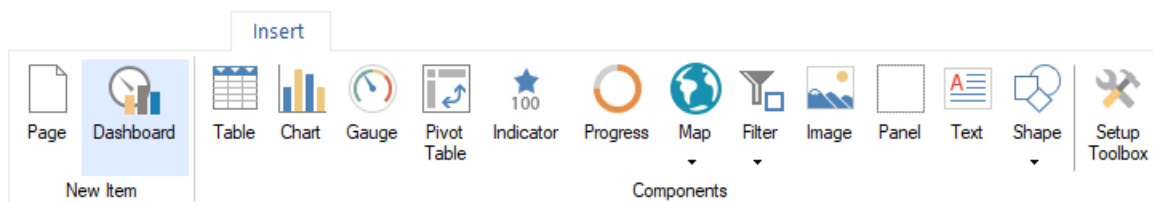
This chapter covers the following:

- › [Creating dashboards;](#)
- › [The size of a dashboard;](#)
- › [Elements of data analysis;](#)
- › [Elements of data filtering;](#)
- › [Other dashboard elements;](#)
- › [Actions with the dashboard;](#)
- › [Adding items to the dashboard;](#)
- › [Changing the item type.](#)

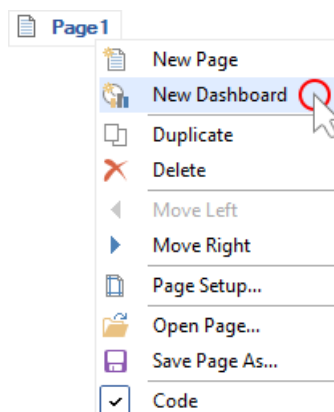
Creating dashboards

Do the following steps in the report designer to add a new dashboard in the report:

- Click the **Dashboard** button on the **Insert** tab;



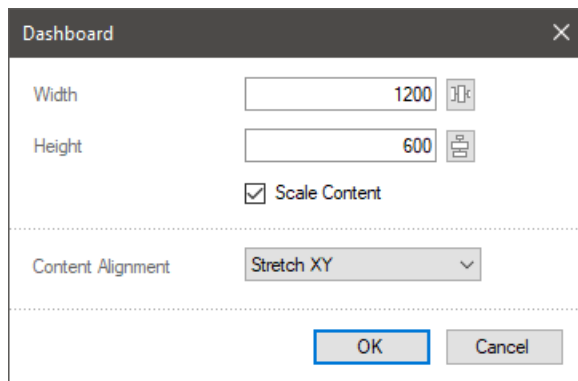
- Select **New Dashboard** in the context menu of the page title or dashboard panel.



The size of a dashboard

When creating the dashboard in the designer, its size has a working area that looks like a white sheet with a grid. To change the size of the dashboard in the report designer, you should:

- Double-click on the working area of the dashboard;
- Specify the width and height of the dashboard in pixels. Pay attention to the fact, that there are also control commands that can be used to make the same free distance top-bottom and left right.



The screenshot shows a 'Dashboard' dialog box with the following settings:

- Width: 1200
- Height: 600
- ☒ Scale Content
- Content Alignment: Stretch XY
- Buttons: OK, Cancel

When you change the size of the working area of the dashboard in the report designer, the elements can stretch (shrink) or keep their size unchanged. It depends on the **Scale Content** parameter. If this option is enabled, then, when resizing the dashboard, all elements will also be stretched or shrunk. If this parameter is disabled, only the size of the working area of the dashboard will increase, while the size of the elements will remain unchanged.

The **Content Alignment** parameter allows you to define the indicator panel mode in the view area. Depending on the parameter value you select, a dashboard will be stretched in the view area, or remain unchanged. For the Content Alignment parameter, one of the following values can be set:

- **Left, Right, Center.** In this case, a dashboard will not be stretched in the viewer. The value defines only the horizontal alignment of the dashboard in the viewer area.
- **Stretch X.** In this case, a dashboard will be stretched horizontally across the entire viewer area. The height of the current dashboard can also be changed so as the aspect ratio of the dashboard will be kept.
- **Stretch XY.** In this case, a dashboard will be stretched (or shrunk) across the entire area of the viewer horizontally and vertically.

Information

Data filtering elements of drop-down type ([combo box](#), [date picker](#), [tree view box](#)) are not stretched in height.

All elements of the dashboard are grouped into the following categories according to their functionality:

Elements of data analysis

- › [Table](#);
- › [Chart](#);
- › [Pivot](#);
- › [Indicator](#);
- › [Progress](#);
- › [Maps](#);

Elements of data filtering

- › [List box](#);
- › [Combo box](#);
- › [Tree View](#);
- › [Tree View Box](#);
- › [Date Picker](#).

Other dashboard elements

- › [Panel](#);
- › [Text](#);
- › [Image](#);
- › [Shapes](#);
- › [Button](#).

Actions with the dashboard

- › [View the dashboard](#);
- › [Export the dashboard and its items](#);
- › Share the dashboard and embed it into your website;
- › Publish the dashboard.

Adding items to the dashboard

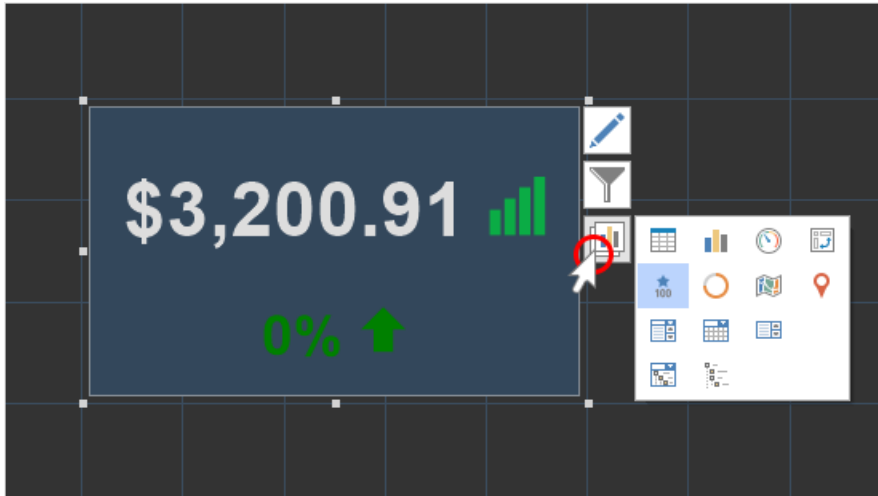
Do the following to add an element to the dashboard:

- › Drag items from the **Toolbox** or the **Insert** tab to the working area of the dashboard;
- › Select items on the **Toolbox** or the **Insert** tab and left-click in the dashboard panel.

Changing the item type

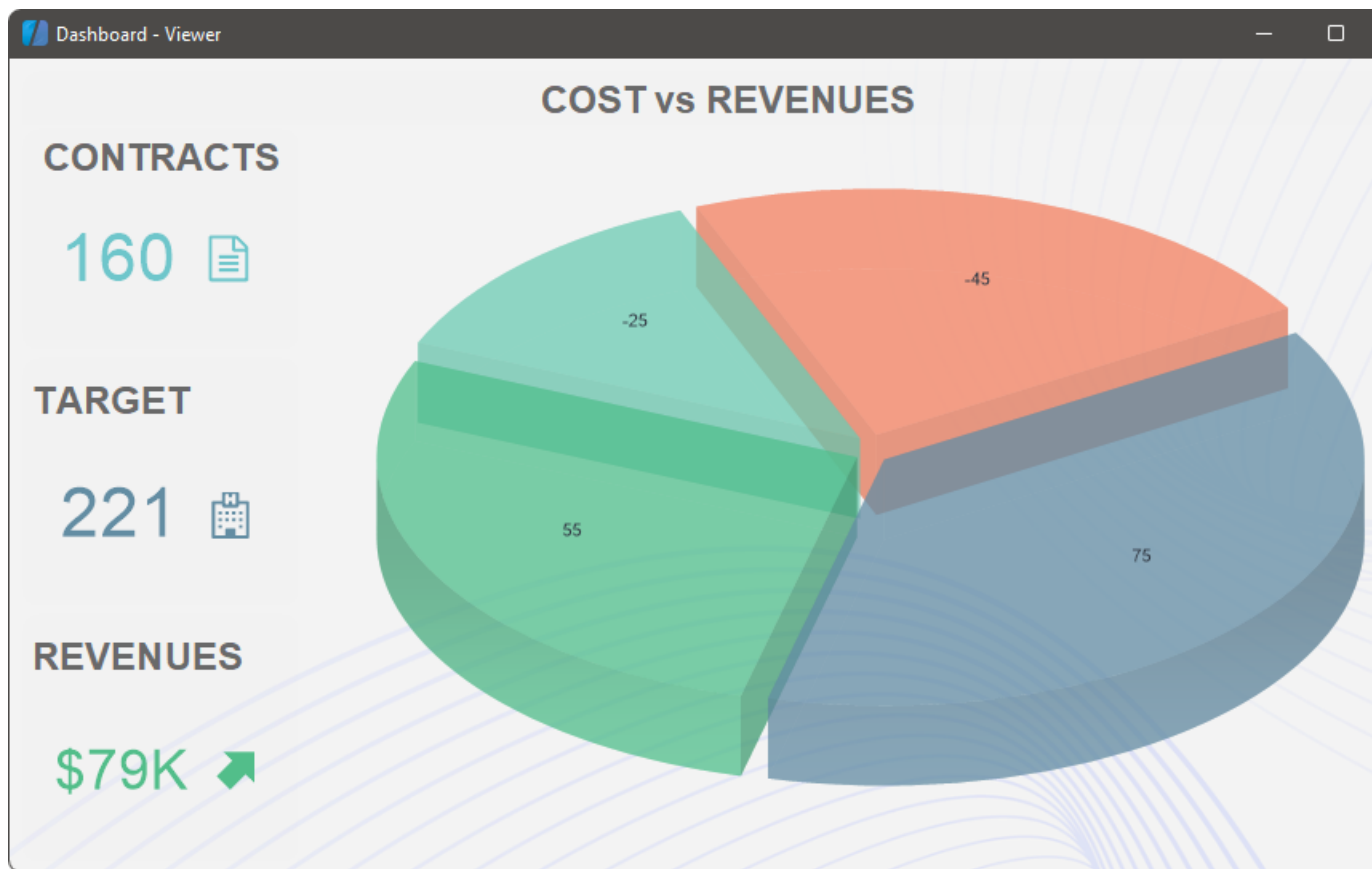
You can change the type of the element without redesigning it. To do this:

- Select an element that needs to be changed on the dashboard;
- Left-click on the **Change Type** button;
- In the menu that opens, select the element to which you want to convert the current one.



5.1 Appearance

In addition to creating dashboards, an important role plays the setting of this panel and its elements.



In this chapter, we will describe the parameters of the dashboard and its elements:

- › [Styles](#);
- › [Fore Color](#);
- › [Back Color](#);
- › [Margins and padding](#);
- › [Titles elements](#);
- › [Text Format](#);
- › [Watermark](#);
- › [Text of watermark](#);
- › [Image of watermark](#);
- › [Weave of watermark](#);
- › [Transparency of elements](#);
- › [Rounding of elements](#);
- › [Shadows of elements](#).

Information

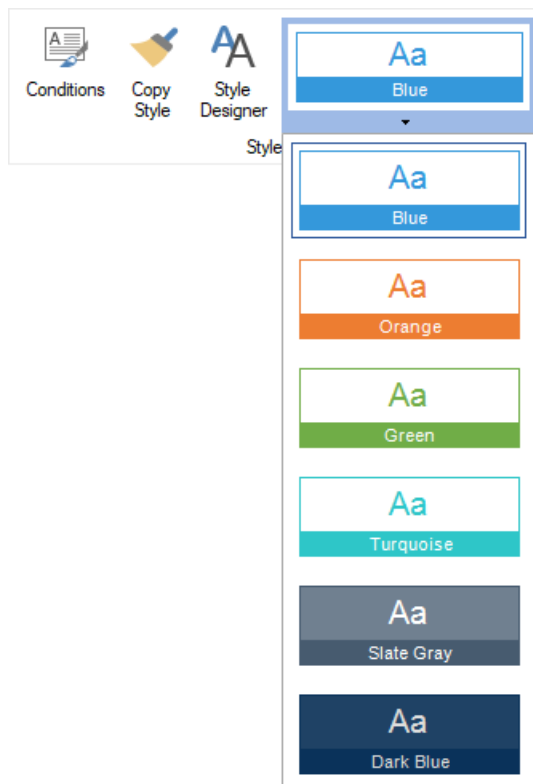
Some elements, besides those listed below, may also have individual design options.

Styles of a dashboard and elements

When creating a dashboard, the report designer contains predefined styles. The first style from the list is applied to the dashboard. For all newly added elements on this dashboard, the current color scheme of the dashboard is used. By default, when you change the style of the dashboard, the newly selected color scheme will be applied to all elements on this panel. However, for each component of the dashboard you can assign your style.

To change the style of the dashboard, you should:

- Left-click on the empty area of the dashboard;
- Select the dashboard style on the **Home** tab, in the styles menu.



To change the style of an element in the dashboard, you should:

- Select a dashboard element;

- Select the desired element style on the **Home** tab, in the style menu.

Information

In this case, if you change the style of the dashboard, the color scheme of the element will not change.

In addition, you can create custom styles for the elements of the dashboard. To do this, call the [Style Designer](#) and create styles for the elements. You can also assign the created style using the style menu on the Home tab or using the Style property of the element.

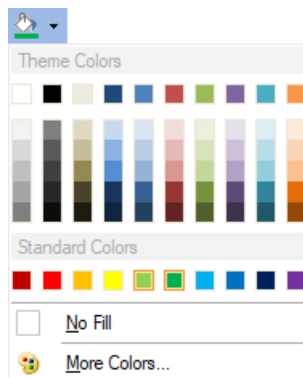
Background

One of the settings for the design is to set the background color of the element. By default, the background color is used from the assigned style. To change the background color of the dashboard or its elements you should:

- Select the dashboard or element;
- Change the value of the **Back Color** property in the property panel.
- After that, select the background color from the drop-down list.

Also, you can change the background color of the element on the Home tab in the report designer:

- Select the dashboard or element;
- Use the **Background** tool to select a background color from the palette or specify a custom color.



Text color

When customizing the design, you can change the text color of a specific item. To do this:

- Select an element;
- Select the required color from the drop-down list in the **Fore Color** property.

Information

The [Table](#) element also has its own color for each column. To do this, select the data field in the **Table** element editor and change the text color.

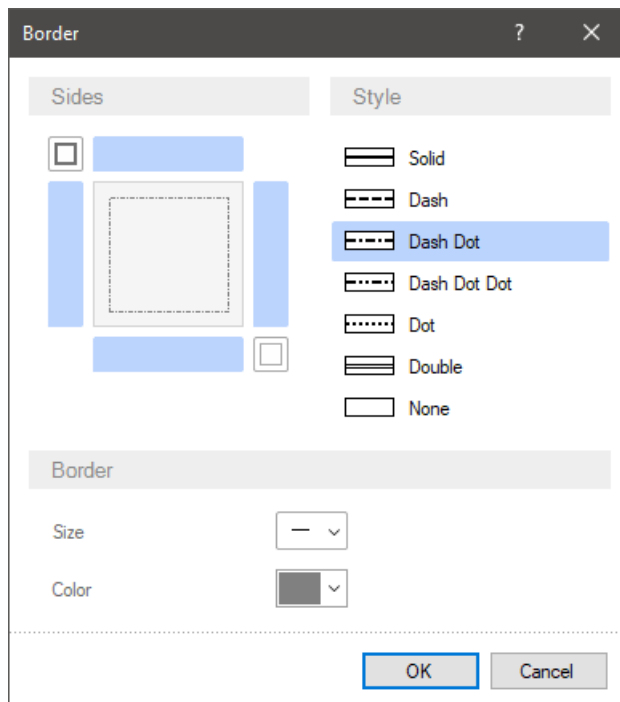
Margin and padding

Each element in the dashboard can define the margin and padding of the element. To do this:

- Select an item on the dashboard;
- Change the values of the **Margins** and **Padding** property groups on the property panel.

You can also customize the type, borders, size and color of the borders of the element. To do this:

- Select an item on the dashboard;
- Change the type, size, sides, borders color using the **Border** property group on the property panel, or tools on the **Home** tab in the report designer.



Element titles

The titles of elements on the dashboard can be created in various ways. For example, using the **Text** element. However, elements also have the ability to enable and configure an element title. To include the title:

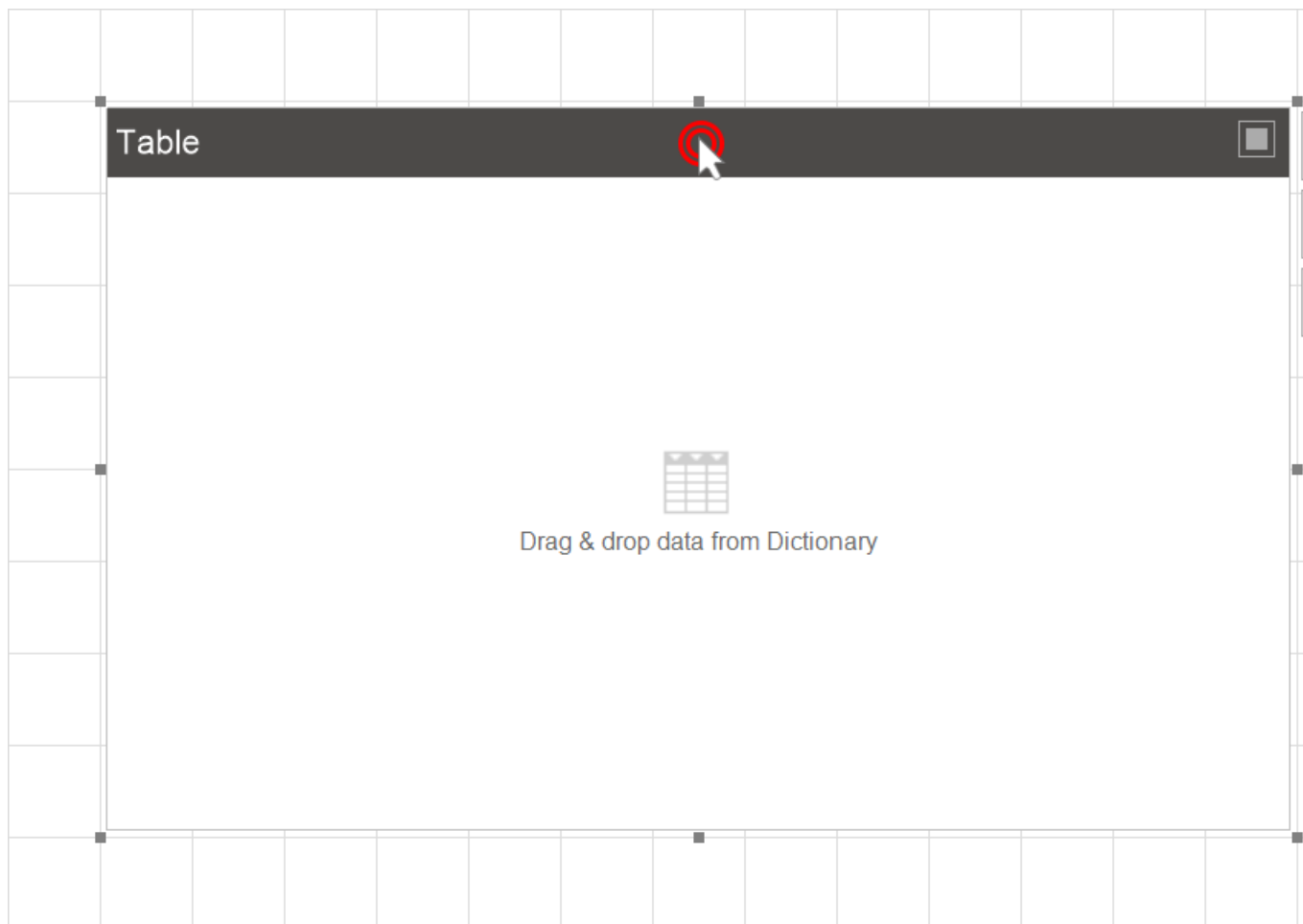
- Move the cursor to the top of the element;
- In the upper right corner, check the box to enable the title display or uncheck the box to disable the title display. By default, the title of the elements is enabled.



➤ You can also enable or disable displaying of the title by setting the **Visible** property from the **Title** group on the property panel to **true** or **false**.

To change the title text you should do the following:

- Double-click the input pointer on the header area on the item.
- Enter the title text.



You can also change the title on the property panel:

- Select an item;
- In the **Title** property group, change the **Text** property value.

In addition, text of the title can also be changed:

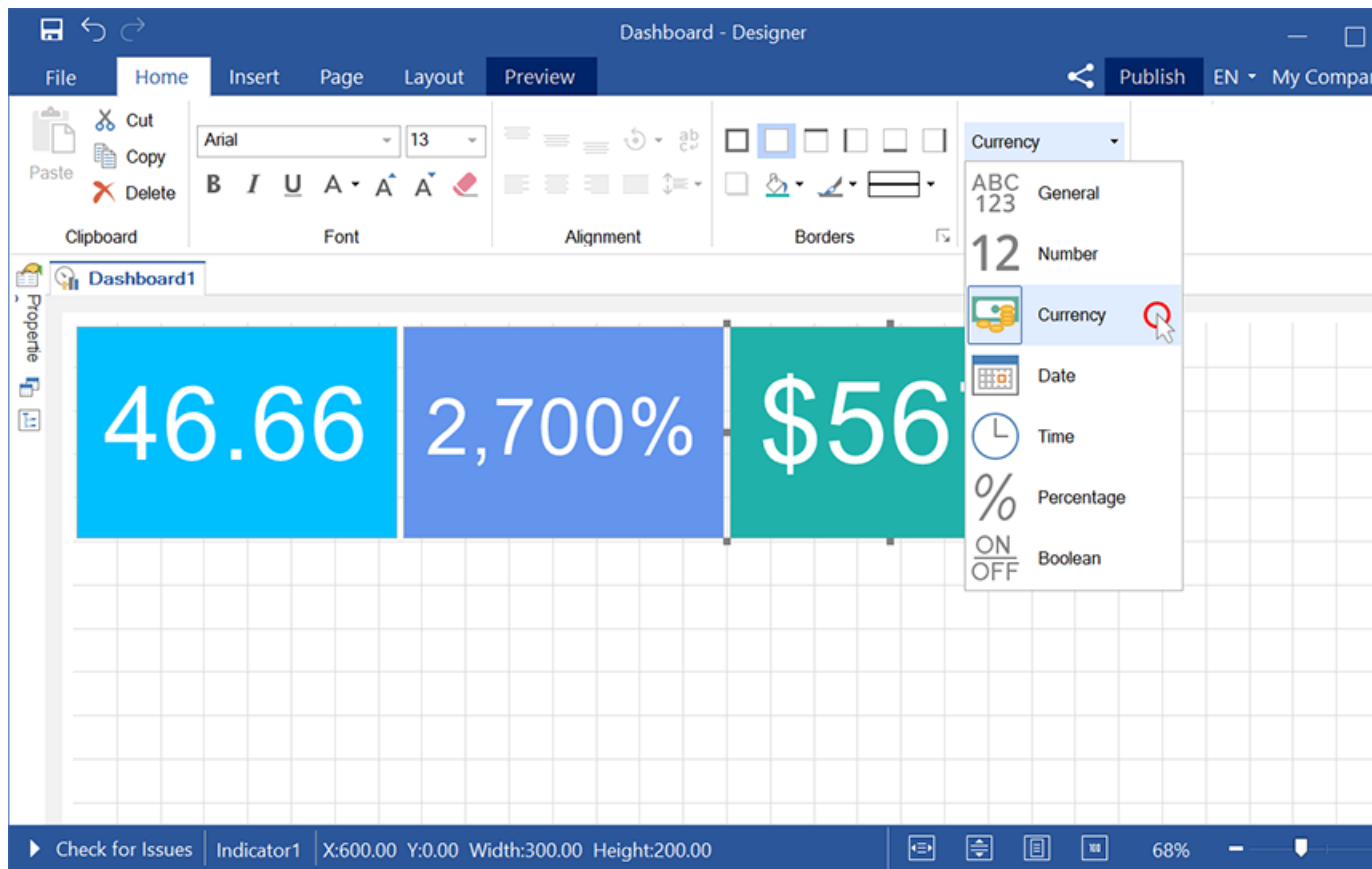
- Align the title horizontally;
- Header background color;
- The color of the text and its font.

Text formatting

You can apply formatting to the elements of the dashboard. You should do the following steps:

- Select an item on the dashboard;
- Using the **Text Format** tool on the **Home** tab of the ribbon panel, apply the

format to the element values.



Also, you should remember that for the Table and Pivot Table elements you can set the formatting for the values of each data field. You should do the following steps:

- In the [Table](#) or [Pivot Table](#) element editor, select the data field;
- Select a format using the **Text Format** tool on the **Home** tab of the ribbon panel.

For charts, you can specify the formatting of the chart axis values. To do this:

- Select a chart on a dashboard panel;
- Click the **Browse** button of the **Argument Format** or **Value Format** property and respectively set up the formatting of the arguments or chart values.

Information

Please note that the **Text** element on the Dashboard doesn't support the **Text Format** tool. However, to format data of the DateTime type, you can use the **Format** function. For example:

`{Format("{0:MM/dd/yyyy}", Today)}` - the result of this will be the current date in the following format: "Month/Day/Year";
`{Format("yyyy", Today)}` - the result of this will be the year from the current date;
`{Format("From {0:yyyy} ", Today)}` - the result of this will be the text "From" + year from the current date.

Watermark

When creating dashboards for a watermark you can specify:

- › [Text](#) which will be displayed in a dashboard.
- › [Image](#), which will fill the image background
- › [Weave](#), basic and auxiliary icons. Using them you can create different weaves.

Information

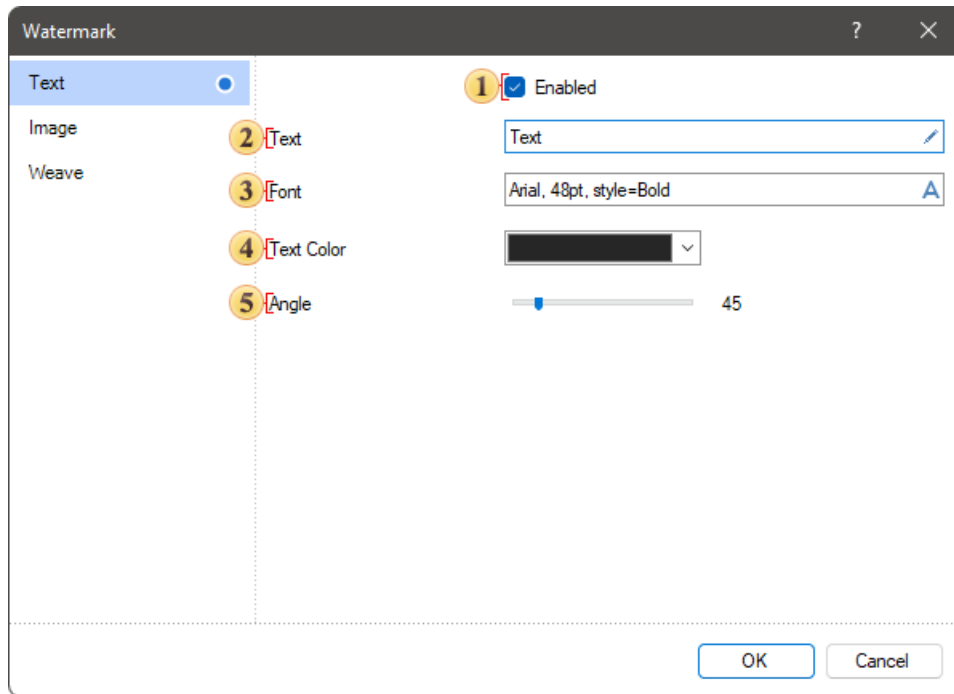
When creating a watermark for a dashboard, you can use various combinations of watermark modes. For example, image and text or text and weave or all of them.

Watermark is set in a special editor. To call the watermark editor you should:

- › Select a dashboard;
- › Click the **Browse** button in the **Watermark** property.
- › Click the **Watermark** on the **Page** tab in the report designer.

Text parameters

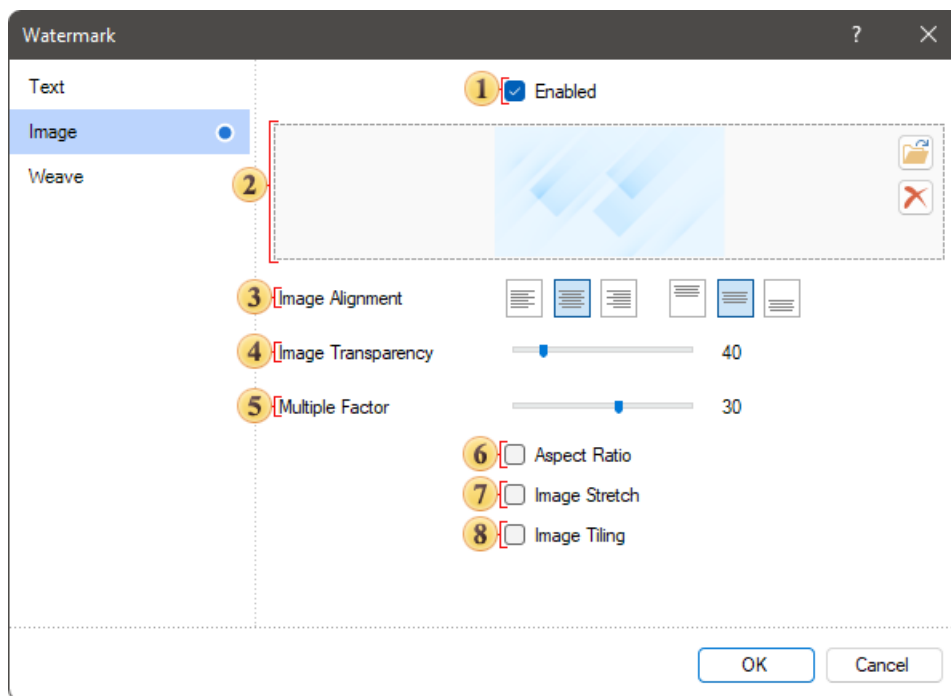
All parameters of the watermark text are placed on the corresponding tab in the watermark editor.



- ❶ The **Enabled** parameter allows you to enable or disable watermark text;
- ❷ The **Text** parameter allows you to define the text which will be displayed as a watermark;
- ❸ The **Font** parameter allows you to define font, its size and style for watermark text;
- ❹ The **Text Color** parameter allows you to select watermark text color;
- ❺ The **Angle** parameter allows you to define rotation angle for watermark text.

Image parameters

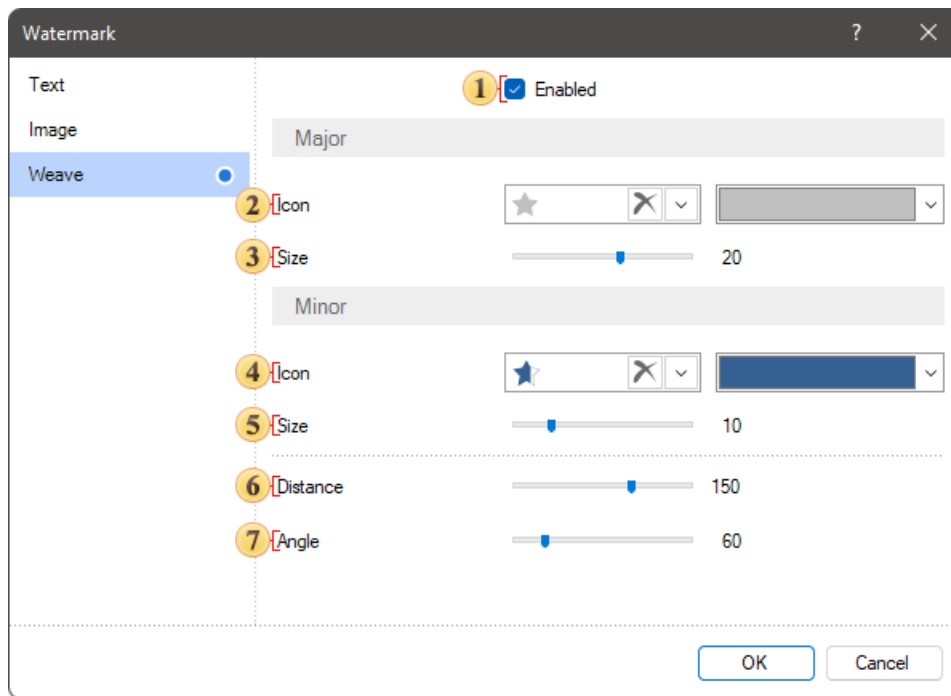
You can specify an image as a watermark. The parameters of this watermark type are placed on the corresponding tab in the watermark editor.



- ❶ The **Enabled** parameter allows you to enable or disable watermark text;
- ❷ The field of image loading, which will be a watermark for the dashboard.
- ❸ Controls of horizontal and vertical image alignment;
- ❹ The **Image Transparency** parameter allows you to change the transparency of watermark image;
- ❺ The **Multiple Factor** parameter allows you to set a multiplier for watermark image sizes;
- ❻ The **Aspect Ratio** parameter allows you to enable or disable the mode of saving image aspect ratio when it is stretched.
- ❼ The **Image Stretch** parameter allows you to stretch an image over the entire area of a dashboard.
- ❽ The **Image Tiling** parameter allows you to fill the entire area of a dashboard with image copies not stretching it.

Weave parameters

You can specify an image as a watermark. The parameters of this watermark type are placed on the corresponding tab in the watermark editor.



- ❶ The **Enabled** parameter allows you to enable or disable watermark weaves;
- ❷ The **Icon** parameter allows you to specify main icon and its color for weave.
- ❸ The **Size** parameter allows you to define the size of the main icon;
- ❹ The **Icon** parameter allows you to specify an additional icon and its color for weave;
- ❺ The **Size** parameter allows you to define the size of an additional icon;
- ❻ The **Distance** parameter allows you to change the distance between icons in weave;
- ❼ The **Angle** parameter allows you to define rotation angle of icons in weave.

Transparency of elements

Transparency of elements can be defined using the Alpha parameter in the color picker of a component or specify ARGB color code as a value of the **Back Color** property. As a result, the component background will have the transparency you specified and the using of watermark will become more obvious.



Rounding of elements

When designing a dashboard, you can round the angles of elements. You can do it using the **Corner Radius** property group. These properties can be set to value from 0 to 30, where 0 is the absence of rounding, and 30 is max radius of element angle rounding.

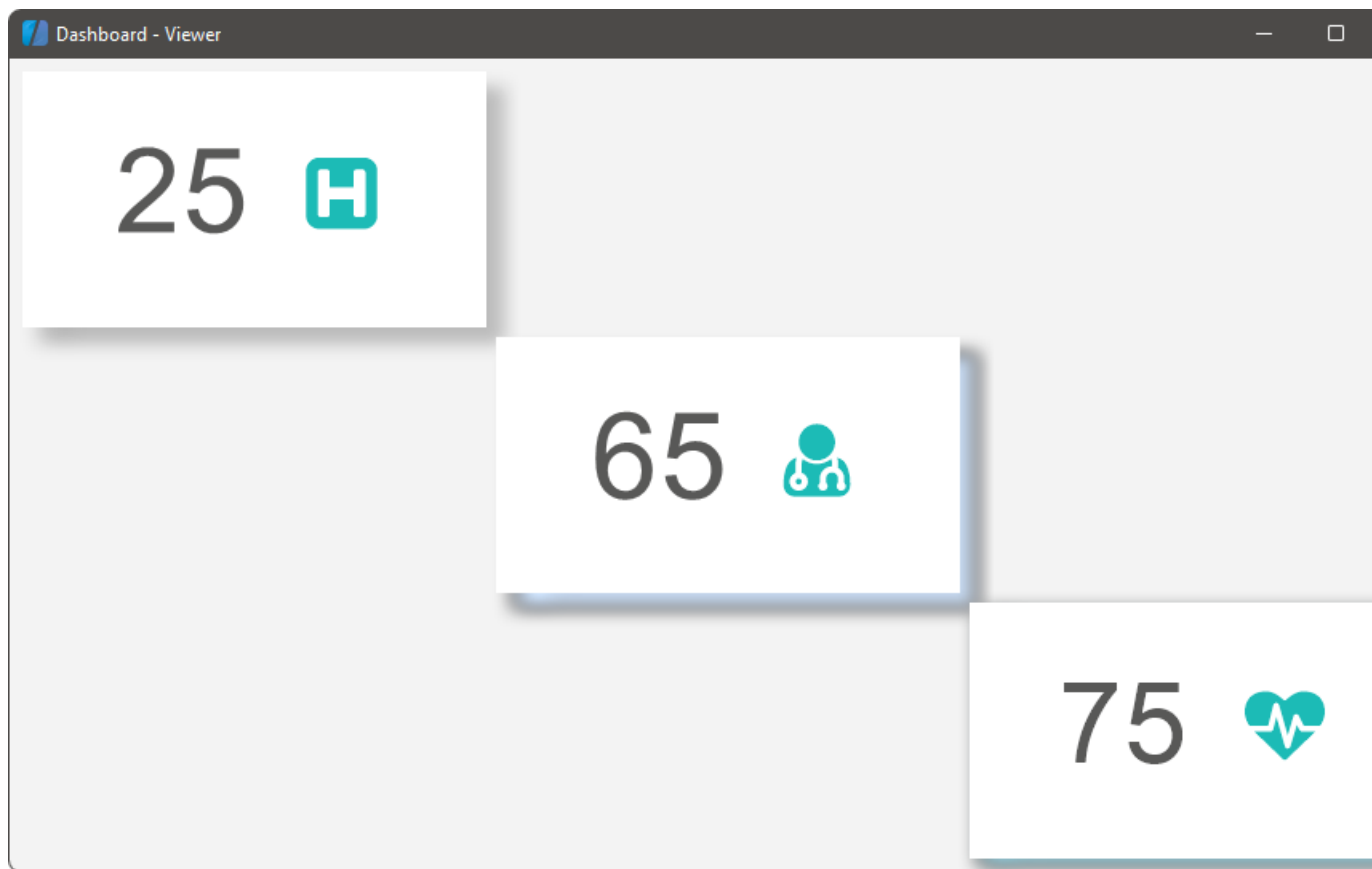
- To round element angles you should:
- Select the element in a dashboard;
- Define the radius of each angle rounding of the element.



Shadows of elements

Also, when designing a dashboard you can apply shadows of elements. You can do it using the group of the **Shadow** element properties.

- To set shadow of an element, you should:
- Select the element in a dashboard;
- Set the **Visible** property in the **True** value;
- Change shadow color using the **Color** property;
- Define the depth of shadow using the **Size** property;
- Change the location of shadow on the X and Y axis of the element using the **Position** property group. The X and Y properties can be set from 0 to 10, where 0 is absence of shadow shift on the axis and 10 is max shadow shift on the X and Y axis.



5.2 Data

Elements of data analysis can work with different data sources. Before starting the design of the dashboard, you should read the following chapters:

- › [Data Sources](#);
- › [Relations](#) between data sources;
- › Data transformation.

This chapter will cover the following:

- › [Data fields](#);
- › [Data filed expression](#);
- › [Adding data to an element](#);
- › [Putting values manually](#);
- › [Enter data manually](#);
- › [Removing data from elements](#);
- › [Table of Functions](#).

All data sources of dashboard elements form a virtual data table for the current dashboard. This is necessary for the interaction of the dashboard elements with each

other.

Information

When designing a dashboard, data from various sources can be used in the elements. In this case, for correct analysis and comparison of data between these sources, relationships should be established. Otherwise, interactive actions with the elements of the dashboard may lead to incorrect data processing and incorrect displaying of the result.

You can view the virtual table of a dashboard by selecting the **View Query** command in the context menu of the dashboard header.

The screenshot shows the 'MarketingKPI - Designer' application. A context menu is open over the dashboard header, with 'View Query' selected. The 'View Query' window displays a table with the following data:

| Sales.Region | [Sales.Total Traffic] | Sum([Sales.Facebook Likes]) | Sum([Sales.YouTube Subscribers]) |
|--------------|-----------------------|-----------------------------|----------------------------------|
| Canada | 3488.6 | 511 | |
| Canada | 3543.6 | 567 | |
| Canada | 4032 | 563 | |
| Canada | 4574.6 | 732 | |
| Canada | 5174 | 714 | |
| Canada | 6880.6 | 827 | |
| USA | 2972.6 | 459 | |
| USA | 3939 | 643 | |
| USA | 4060 | 690 | |
| USA | 4112.6 | 679 | |
| USA | 5956.8 | 789 | |
| USA | 6651 | 811 | |

The dashboard background shows a 'Twitter Followers' widget with a value of '12K' and a line chart. The status bar at the bottom indicates 'Check for Issues', 'Dashboard1', and coordinates 'X:205.87 Y:427.04'.

Data fields

There are fields in which data fields are indicated in the editor of the dashboard

elements. Each data field has an expression which results of processing are the data values for the current dashboard item. The data field expression can be a reference to a data column or a variable.

- If a reference to a data column is specified, the values of the data column will be the values of the data field on the basis of which the current element of the dashboard will be rendered.
- If a reference to a variable is specified, the value of the variable will be the value of the current data field. You should know that at this moment we support the variable of the [Value](#) is specified.
- Also, you can manually specify the values of the data field. To do this, enter a value or a list of values in the **Expression** field of the current data field. To enter values manually, you should use the **List()** or **Array()** functions using the "," separator between values.

A function can be applied to the expression of data fields. In that case, the values of the data field will be the values processed using this function.

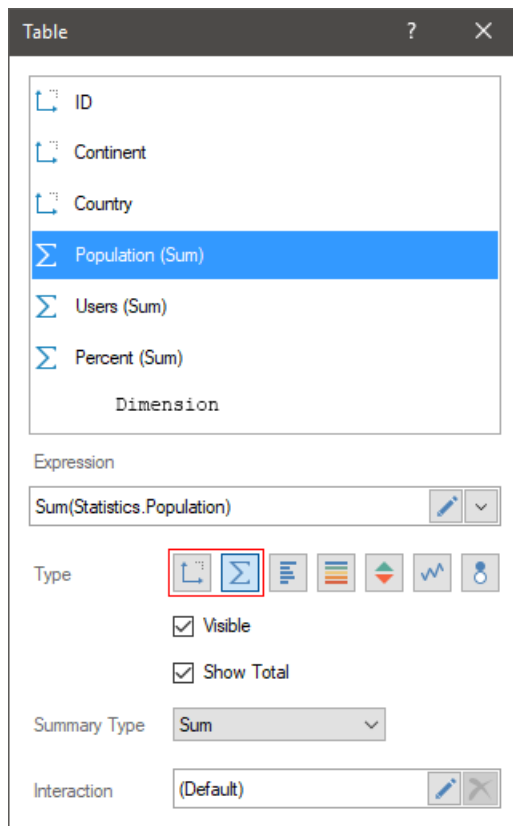
You can add a new data field using one of the ways below:

- Drag and drop a data column into an item field. In this case, a new data field will be created with reference to the data column you dragged.
- Select the **New Field** command from the context menu of the element editor.

In the Table element, the data fields can be of the following types:

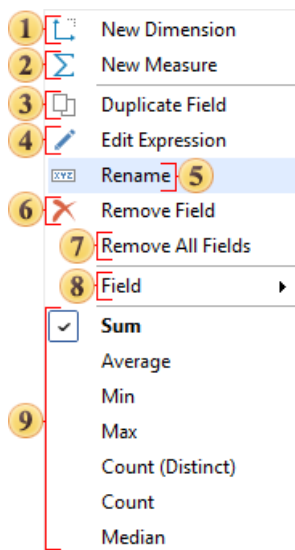
- **Measure**. By default, this field type applies to all numeric data types. Also, this type of data field is used if it is necessary to group the values of the current data field by the values of another data field.
- **Dimension**. This type of field is used by default for non-numeric data types. When grouping data, the values of this data field will be a condition of grouping for the values of other data fields.

Changing the type of data field is carried out in the **Table** element editor, using the **Measure** and **Dimension** buttons:



Data field expression

The data fields of the element have the **Expression** field. In this field, you can see the expression of the current data field, and there is also a drop-down menu with a list of commands:



- ❶ The command is used to create a field of the **Dimension** type.
- ❷ The command is used to create a field of the **Measure** type.
- ❸ The command is used to create a duplicate of the current data field.
- ❹ The command calls the expression editor for the current data field.
- ❺ The command is used to change the name of the current field. Also, you can select a field in the list and press the F2 key.
- ❻ The command is used to delete the current field.
- ❼ The command is used to remove all data fields from the current item field.
- ❽ The command contains menus and submenus with a list of data sources from the report dictionary and data columns in these sources. With this command, you can select the data column for the current field.
- ❾ A list of the most frequently used functions that can be applied to the expression of the current field. Depending on the type of data, this list of functions may vary.

Adding data to an element

Drag and drop the data source or columns from the dictionary to the element or its editor. In this case, data fields will be created with references to data columns.

Information

When you drag a data source into the dashboard, a **Table** element with all columns of this data source will be added.

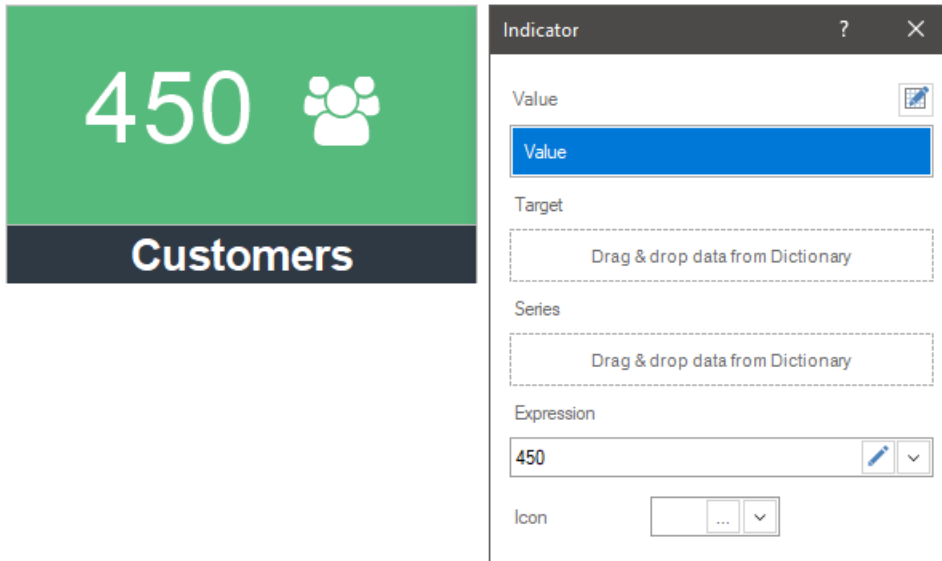
- Select the data field in the element editor, using the **Field** command, select a data column. In this case, the expression of the data field will be a reference to the selected data column.
- Select the data field, call the Expression editor to create an expression for this field;
- Select the data field and change the expression manually.

Putting values manually

In the elements of the dashboard, you can enter one value for the current data field or you can specify a list of values. To enter a single value, you should:

- Call the item editor;
- Create a new data field;

- In the **Expression** field you should enter the value for the current data field;
- In addition to this data, which entered manually.



To enter a list of values, you should do the following:

- Call the item editor;
- Create a new data field;
- In the **Expression** field you should enter the **List()** or **Array()** function with the list of values with the "," separator.

| Name | List |
|------|------|
| a | 10 |
| b | 20 |
| c | 30 |

Table

Name (Array)

List (List)

Expression

List(10,20,30)

Type

☒ Visible

☐ Show Total

Interaction

(Default)

Enter data manually

There is the mode of element data manual input for the following elements: [Chart](#), [Indicator](#), [Progress](#), and [Gauge](#). In this mode, each element data field is a column with cells. You can specify one value of an element in each cell. A list of entered values in various columns will form a data table for this element. The number of element data rows is not limited.

To go to the manual value input mode, you should click the **Enter Data Manually** control. After that, the grid of value input, where you should specify element data will be displayed. You can specify expressions in the cells. For example, specify a link to the - **{Variable1}**. In this case, the result of the expression processing will be a value for the current cell.

| Indicator ? X | | | |
|--|-------|--------|--------|
| Data  | | | |
| | Value | Target | Series |
| 1 | 1 | 10 | A |
| 2 | 2 | 9 | B |
| 3 | 3 | 8 | C |
| 4 | 4 | 7 | D |
| 5 | 5 | 6 | E |
| 6 | 6 | 5 | F |
| 7 | 7 | 4 | G |
| 8 | 8 | 3 | H |
| 9 | 9 | 2 | I |
| 10 | 10 | 1 | J |

Information

When you enter data manually, this element is not interconnected with the others and it's a stand-alone analytical element. The data manually entered are not displayed in the **View Query** menu of a dashboard too.

The commands of row control are placed in the context menu and allow you to:

- Move a selected row upper or bottom;
- Insert a row or rows upper or bottom than the current one;
- Delete a selected row or rows from the grid of element data.

Pay attention to the fact that:

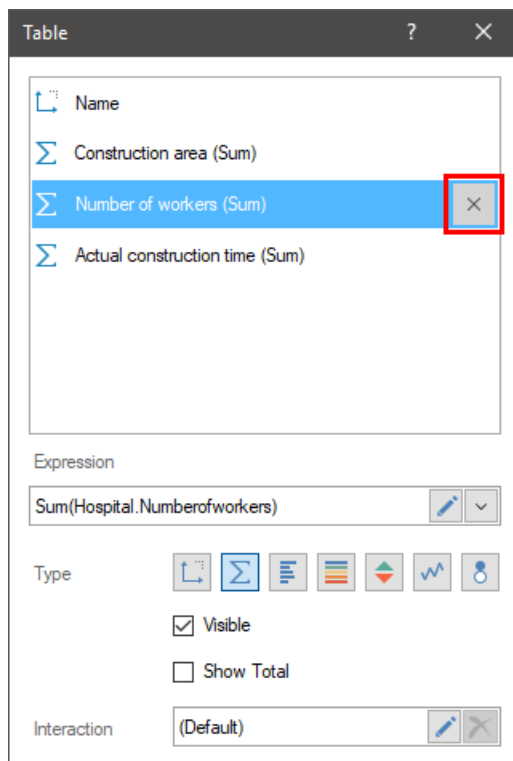
- The cells in the grid of manual input can be selected using the Ctrl button.
- The range of cells can be selected using the Shift button.
- You can entirely select a column or row having clicked a column or row header;
- You can select entirely the grid of manual input having clicked the upper left cell, which is located at the intersection of row and column headers.

To go back to the data from columns mode, you should click the **Use Data Fields** in the element editor.

Links to data columns can be specified in a dashboard element and entered manually. However, the analysis and display of data depends on the mode you select (manual or data fields) in the element editor.

Removing data from elements

➤ Select the field in a specific field of the element editor, and click the **Remove Field** button (see the picture below).



- Select the **Remove Field** command in the context menu of the current data field.
- Select the **Remove All Fields** command in the context menu of the field of the dashboard element, .

If the manual mode is enabled you can:

- Delete rows from a table. To do this, you should select the rows or cells in the rows that should be deleted and select the **Delete** command from the context menu of the value input grid.
- Also, you should clear the content of the cells. To do this, you should select the cells that should be cleared and click the **Delete** key on the keyboard.

List of functions

Depending on the type of values, the list of functions used may vary. The table below contains a complete list of functions that can be applied to data fields.

| Function | Description |
|--|---|
| Functions that are available from the menu of the Expression field | |
| Count() | Calculates the number of values in the current data field. |
| DistinctCount() | Calculates the number of unique values in the current data field. |
| First() | Shows the first value of the current data field. |
| Last() | Shows the last value of the current data field. |
| Sum() | Shows the result of the sum of values in the current data field. |
| Avg() | Calculates the arithmetic average for the values of the current data field. |
| Min() | Shows the minimum value from the current data field. |
| Max() | Shows the maximum value from the current data field. |
| Median() | Shows the average (non arithmetic) value from the current data field. |
| Year() | Shows the year from date encoding. |
| Quarter() | Shows the quarter from the date encoding. |
| Month() | Shows the month from date encoding. |
| Day() | Shows the day from date encoding. |
| PercentOfGrandTotal() | It shows the specific gravity of a value from the sum of all values of |

| | |
|--|---|
| | the current data column. If you apply the percent formatting to this data field, percentage of the value of 100 percent will be displayed |
| Functions that can be added from the data dictionary or entered manually | |
| CountIf(,) | It allows you to calculate the number of values in the current data field by a condition. For example, CountIf(DataSource.Column1, DataSource.ColumnID > 5). |
| SumIf(,) | It shows the result of the sum of values in the current data field by a certain condition. For example, SumIf(DataSource.Column1, DataSource.ColumnID > 5). |
| Mode() | Shows the most frequently repeating values in the current data field. |
| List() | Enters a list of values for the current data field of an item. |
| Array() | Enters an array of values for the current data field of an item. |
| ToUpperCase() | Converts all data field values to uppercase. |
| ToLowerCase() | Converts all data field values to lowercase. |
| ToProperCase() | Sets the first character value to uppercase, and the remaining characters to lowercase. |
| Insert(,,) | <p>Inserts text into data field values, after a specific character. Three arguments are specified through the "," delimiter:</p> <ul style="list-style-type: none"> ❶ Data field; ❷ The ordinal number of the |

| | |
|------------------|--|
| | <p>character after which another value will be inserted.</p> <p>③ The value to be inserted.</p> |
| Replace(,,) | <p>Replaces certain characters in values. Three arguments are specified through the "," delimiter:</p> <p>① Data field;</p> <p>② A character or combination of characters that needs to be replaced.</p> <p>③ The value to be replaced.</p> |
| Remove(,,) | <p>Removes the specified number of characters in the values. Three arguments are specified through the "," delimiter:</p> <p>① Data field;</p> <p>② The ordinal number of the character from what the removal starts.</p> <p>③ Number of characters to remove.</p> |
| DayOfWeek() | Shows day of week from date encoding. |
| DayOfWeekIdent() | It shows the days of the week from the date encoding, sorted in the order from Sunday to Saturday. Also, this function is used to sort the days of the week, if data field type is defined as string. |
| DaysInMonth() | Shows the number of days in a month. |
| DaysInYear() | Shows the number of days per year. |
| Month() | Shows the number of the month. |
| MonthIdent() | It shows the names of months from the date encoding, sorted in the order from January to December. Also, this function is used to sort months, if data field type defined as |

| | |
|---------------------|---|
| | string. |
| FiscalMonthIdent(,) | This function allows to sort data by months starting from a different month in a fiscal year. Example of using:
FiscalMonthIdent(DataSource.DataColumn, "September") or
FiscalMonthIdent(DataSource.DataColumn, 9). |
| Quarter() | It shows the abbreviated names of the quarters of the year, sorted in the order from the first quarter to the fourth. |
| ISO2() | Shows the two-letter code of the geographical object. |
| ISO3() | Shows the three-letter code of the geographical object. |
| NormalizeName() | Shows the names of the geographical objects by default. |
| Left(,) | Shows the specified number of characters from the left side of the value. Two arguments are specified through the "," delimiter:
<ol style="list-style-type: none"> 1 Data field; 2 The number of characters to show. |
| Mid(,,) | Shows characters from a value. Three arguments are specified through the "," delimiter:
<ol style="list-style-type: none"> 1 Data field; 2 The ordinal number of the character with which to start the display. 3 The number of characters to show. |
| Right(,) | Shows the specified number of characters from the right side of the value.. Two arguments are specified |

| | |
|---------------|---|
| | <p>through the "," delimiter:</p> <ul style="list-style-type: none"> ❶ Data field; ❷ The number of characters to show. |
| Substring(,,) | <p>Shows characters from a value. Three arguments are specified through the "," delimiter:</p> <ul style="list-style-type: none"> ❶ Data field; ❷ The ordinal number of the character with which to start the display. ❸ The number of characters to show. |
| Subtotal(,) | <p>Can take two arguments:</p> <ul style="list-style-type: none"> ❶ Data field whose values are summed. <p>If only one parameter is specified, it works similarly to the GrandTotal() function;</p> <ul style="list-style-type: none"> ❷ Data field used to filter the selection of values. <p>For example, if you specify SubTotal(Products.UnitsInStock, Suppliers.Country), it returns the sum by the Suppliers.Country field.</p> |
| Image() | <p>It allows you to get images from URL and display them in the ranges of the Table element. You should also specify height and width in arguments of the function for SVG images. For example, Image(DataSource.DataColumn1, 10, 15), where the DataSource.DataColumn1 contains URL for SVG images.</p> |

5.3 Groups

By default, all elements on the dashboard are related to each other, which means that data filtering of one element affects the data filtering of other elements. However, when designing a dashboard, it is possible to split the elements of the

dashboard into groups. For example, you want to display statistics for two unrelated companies in one dashboard. In this case, the elements of the dashboard should be split into groups, where the first group is one company and the second group is another company.



This chapter will cover the following:

- [Creating groups](#);
- [Removing elements from the group](#).

The belonging of an element to a group can be determined using the **Group** property. By default, this property is empty for an element, and it does not belong to any group. The group of elements in the dashboard is a set of elements for which the value of the **Group** property matches.

Information

You should know that using the **Group** property, you can also create relationships between elements that are located on different dashboards within the same report. For this, those elements must belong to the same group, the values of the **Group** property of those elements must be identical.

Creating groups

Do the following to create a group of items on the dashboard:

- Select the elements;
- Specify any value in the **Group** property.

To add an element to a group, you should do the following:

- Select an element in the dashboard;
- In the **Group** property, specify the group value that is the same as for other elements in this group.

Removing elements from the group

- To remove an element from the group you should select it in the dashboard;
- Delete a specified value from the **Group** property.

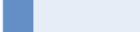
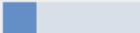
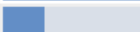
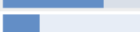
You can also select several elements in the dashboard and delete the value from the **Group** property.

5.4 Table

Table is an element of data analysis, which provides the ability to display data field values in **Measure** and **Dimension** modes, as well as apply **Data Bars**, **Color Scale**, **Indicator**, **Sparklines** to data field values. In addition, the table element has settings for data aggregation — filtering, sorting, replacing values, calculating a cumulative total, etc.

Information

When dragging a data source to the dashboard, a table element will be created with all the data columns of this source.

| Name | Cost | Cost | Cost | Cost | Cost |
|--------------------------------------|--------|--|-----------|-------------|-----------|
| Gate to the East | \$700M |  \$700.00M | \$700.00M | \$700.00M ▲ | \$700.00M |
| HSBC Main Building | \$780M |  \$780.00M | \$780.00M | \$780.00M ▲ | \$780.00M |
| MGM Cotai | \$3B |  \$3.40B | \$3.40B | \$3.40B ▲ | \$3.40B |
| MGM Grand Macau | \$980M |  \$980.00M | \$980.00M | \$980.00M ▲ | \$980.00M |
| Ping An International Finance Center | \$680M |  \$680.00M | \$680.00M | \$680.00M ▲ | \$680.00M |
| Shanghai Tower | \$2B |  \$2.40B | \$2.40B | \$2.40B ▲ | \$2.40B |
| Shanghai World Financial Center | \$850M |  \$850.00M | \$850.00M | \$850.00M ▲ | \$850.00M |
| Taipei 101 | \$2B |  \$1.76B | \$1.76B | \$1.76B ▲ | \$1.76B |
| The Venetian Macao | \$2B |  \$2.40B | \$2.40B | \$2.40B ▲ | \$2.40B |
| Two International Finance Centre | \$770M |  \$770.00M | \$770.00M | \$770.00M ▲ | \$770.00M |
| | | \$14.72B | \$14.72B | \$14.72B | \$14.72B |

This chapter will cover the following:

- › [Table Editor](#);
- › [The Order of Elements](#);
- › [Size Mode](#);
- › [Grouping data](#);
- › [Images in Table](#);
- › [Header Menu](#);
- › [Table of Properties](#).

The options for displaying the values of the **Table** element are made in its editor. To call the editor, you should:

- › Double-click on the **Table** element;
- › Select the **Table** element, and select the **Design** command in the context menu;
- › Select the **Table** element, and click the **Browse** button of to the **Columns** property on the property panel.

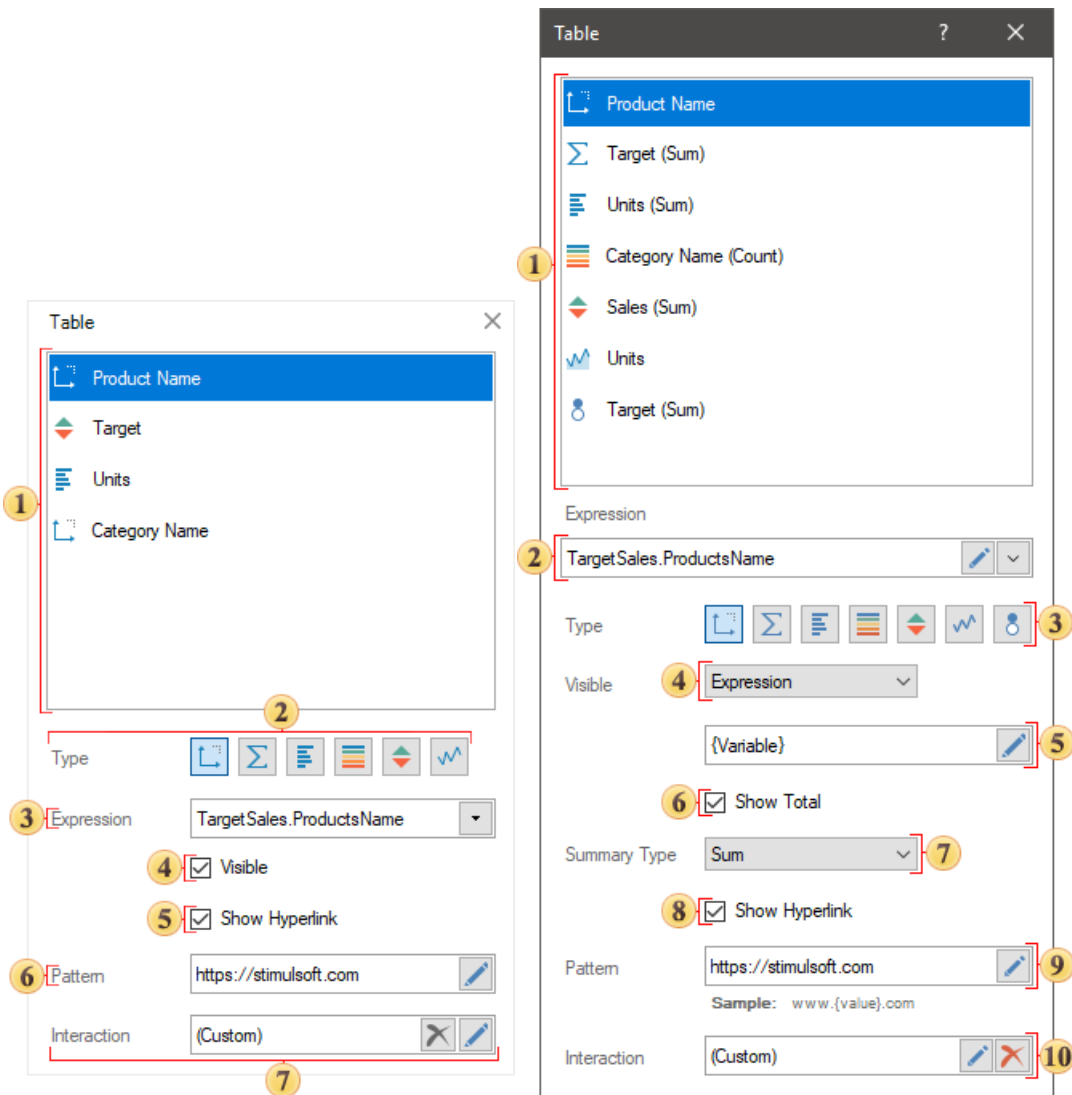
Information

[Text formatting](#) and [Interaction](#) can be applied to the values of the current

element.

Table element editor

In the editor of the **Table** element, you may add data fields, the order in which they are displayed in the table, the deletion, and the insertion of graphical indicators of data analysis are determined.



- ❶ The list of data fields of the Table element.
- ❷ The **Expression** field of the selected data field.
- ❸ The type of values of the selected data field:
 - **Dimension**, the type in which the value of the data field will be displayed in the

initial state.

- > **Measure**, a type in which various functions can be applied to the values of a data field.
- > **Data Bars**, the type in which different functions can be applied to the values of the data field, and a data bar will be added for each value of this field.
- > **Color Scale**, the type in which different functions can be applied to the data field values, and a color scale will be added for each value of this field.
- > **Indicator**, the type in which different functions can be applied to the values of the data field, and an indicator will be added for each value of this field.
- > **Sparklines**, a type in which different functions can be applied to the values of a data field, and a sparkline will be added to each value of this field. By the way, in this case, sparkline also has several types - a graph, area, data bar, a win/loss. Also for a sparkline graph or area, you can define a starting point mode.
- > **Bubble**. It's the type where various functions can be applied to the values of data fields and each value will be presented as Bubble.

- 4 The **Visible** parameter provides the ability to enable or disable the display of the selected column in the dashboard table. Also enabling and disabling of the column can depend on the result of a logic expression. If the result of the expression calculation is the true value, the column will be enabled. If the result of the expression calculation is the false value, the column will be disabled.
- 5 The field where the expression of enabling (disabling) visibility of a data column in a table. This field is displayed, only if the **Visible** parameter is set to **Expression** value.
- 6 The **Show Total** parameter allows you to display the total by the values of a selected field.
- 7 The **Summary Type** parameter allows you to select the function which will be applied to calculate total for the current data field.
- 8 The **Show Hyperlink** parameter allows you to set a hyperlink for the current field values. This option is available only if the data field type is defined as Dimension.
- 9 In the **Pattern** field, a hyperlink is specified for the values of the current data field. This field is available only if the **Show** hyperlink option is enabled.
- 10 The **Interaction** parameter provides the ability to configure interactive actions for the current data field of an item.

The order of elements output

The order of the fields in the editor from top to bottom, displays the sequence of their output in the **Table** element, from left to right. To change the order of the output fields in the table you should change their order in the editor. To do this:

- Move the cursor to the required field;
- Press the left button of the mouse and, without releasing it, drag the field to a specific place.

Size mode

By default, the table has a fixed width of columns both in the report designer and in the report viewer. However, you can enable stretching the table. You may do this the following way:

- Select the **Table** element in the dashboard.
- Set the **Fit** value to the **Size Mode** property on the property panel. In this case, the table will stretch across the width of the element. However, in the viewer the width of the columns cannot be less than the preset width. To prevent the table from stretching by the width of the element, set the **Resizing Method** property to **AutoSize**.

Grouping data in a table

To group the data in the **Table** element, it is necessary for the data fields which values are to be grouped, to switch the mode from **Dimension** to **Measure**. For example, if there are three data fields in the table - a list of categories, products, the number of orders for each product from different states, then to group by product, follow the fields with the number of orders for different states to switch the item type from **Dimension** to **Measure**.

| Category Name | Product Name | Unit Price |
|---------------|------------------------------|------------|
| Beverages | Chai | \$18.00 |
| Beverages | Chang | \$19.00 |
| Beverages | Chartreuse verte | \$18.00 |
| Beverages | Côte de Blaye | \$263.50 |
| Beverages | Guaraná Fantástica | \$4.50 |
| Beverages | Ipoh Coffee | \$46.00 |
| Beverages | Lakkalikööri | \$18.00 |
| Beverages | Laughing Lumberjack Lager | \$14.00 |
| Beverages | Outback Lager | \$15.00 |
| Beverages | Rhönbräu Klosterbier | \$7.75 |
| Beverages | Sasquatch Ale | \$14.00 |
| Beverages | Steeleye Stout | \$18.00 |
| Condiments | Aniseed Syrup | \$10.00 |
| Condiments | Chef Anton's Cajun Seasoning | \$22.00 |
| Condiments | Chef Anton's Gumbo Mix | \$21.35 |
| Condiments | Genen Shouyu | \$15.50 |
| | | \$2,222.71 |

Table

Category Name

Product Name

Unit Price (Sum)

Expression

Sum(Products.UnitPrice)

Type

Visible

Show Total

Summary Type

Sum

Interaction

(Default)

In the case of grouping data into categories, it is also necessary for the data field with the list of products to change the element type from **Dimension** to **Measure**.

| Table | |
|-------|----------------------|
| | Category Name |
| | Product Name (Count) |
| | Unit Price (Sum) |

Expression

Count(Products.ProductName)

Type

☒ Visible

☐ Show Total

Interaction

(Default)

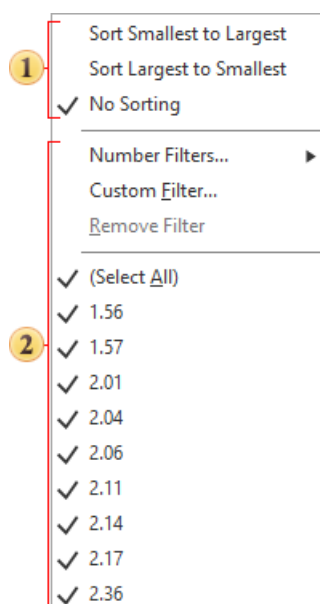
In the table, you can display images obtained from data sources, as well as images obtained by URL. To display images in a table from a data source, you should add the data field to the list of table fields.

- Select the data field with the image URL in the Table editor;
- Apply the **Image()** function to the expression of this field. For example, Image(DataSource.DataColumn1).
- Specify the height and width of the image in the function arguments, if the URL redirects to an SVG image - Image(DataSource.DataColumn, height, width).

- Select the data field with the image URL in the Table editor;
- Apply the **Image()** function to the expression of this field. For example, `Image(DataSource.DataColumn1)`.
- Specify the height and width of the image in the function arguments, if the URL redirects to an SVG image - `Image(DataSource.DataColumn, height, width)`.

Each data field added to the editor is a column of values in the **Table** element. In this case, for each column a column header values will be created. The text of this

header is the name of the data field in the **Table** element editor. Each header of the value column contains a drop-down menu, in which the commands for sorting and filtering by the values of the current column can be found. To call the drop-down menu of the header, you should click the left button of the mouse.



- ① Commands to sort the table data by the values of the current column. In this case, the data is sorted according to the same principle as in data conversion.
- ② Commands to filter table data and related items by the values of the current column. In this case, the data filtering is carried out on the same principle as when converting data - a typical filter, a custom filter, the selection of values.

Information

You can disable the sorting and filtering commands in the value column header menu using [the interaction parameters of the Table element](#).

List of Table properties

The list shows the name and description of the properties of the **Table** element and its fields, which you may find in the properties panel of the report designer.

| Name | Description |
|------|-------------|
|------|-------------|

| | |
|---------------------|---|
| Cross-Filtering | It allows you to enable or disable the Cross-Filtering mode for the current item. |
| Data Transformation | Customizes the data transformation of the current item. |
| Frozen Columns | It allows you to specify the number of columns, which will be anchored to the left and will not be scrolled horizontally with scrolling. The number of columns is counted from left to right. |
| Group | Adds the current item to a specific group of items . |
| Size Mode | Sets the size mode of the columns of the element:
➤ AutoSize - optimal column widths will be calculated;
➤ Fit - the columns will be proportionally stretched across the entire width of the element. |
| Rows per Page | Provides the ability to set the number of rows per page in a table. By default, this property is set to 0, meaning all rows are displayed on a single page. |
| Page Turn Time | Provides the ability to set the time interval after which the table will switch to the next page. |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of |

| | |
|-------------------|--|
| | the element separately: Top - Left , Top - Right , Bottom - Right , Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius. |
| Font | A group of properties defines the font family, its style, and size for the values of the element. |
| Footer Font | A group of properties defines the font family, its style, and size for the footer values of the element. |
| Footer Fore Color | Specifies the color of the footer values of the element. By default, this property is set to From Style , i.e. the color of the footer values will be obtained from the settings of the current element style. |
| Fore Color | Specifies the color of the values of the element. By default, this property is set to From Style , i.e. the color of the values will be obtained from the settings of the current element style. |
| Header Font | A group of properties that allows you to define a font family, its style and size for the headers of the values of the Table element. |
| Header Fore Color | Determines the color of the headers of the values of the element. By default, this property is set to From Style , i.e. the color of the value headers will be obtained from the settings of the current element style. |
| Shadow | A group of properties that allows configuring the shadow of an element: <ul style="list-style-type: none"> ➤ The Color property allows you to specify the color that will be used to display the shadow of the element. ➤ The properties in the Location group |

| | |
|-------------|---|
| | <p>allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel.</p> <ul style="list-style-type: none"> ➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size. ➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel. |
| Style | Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard. |
| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |
| Interaction | Sets interaction of the current element. |
| Margin | A group of properties that allows you to define margin (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define padding (left, top, right, bottom) of the columns from the range of values. |
| Title | <p>A group of properties that allows you to customize the title of the element:</p> <ul style="list-style-type: none"> ➤ The Back Color property allows the ability to change the background color of the title of the current item. By default, |

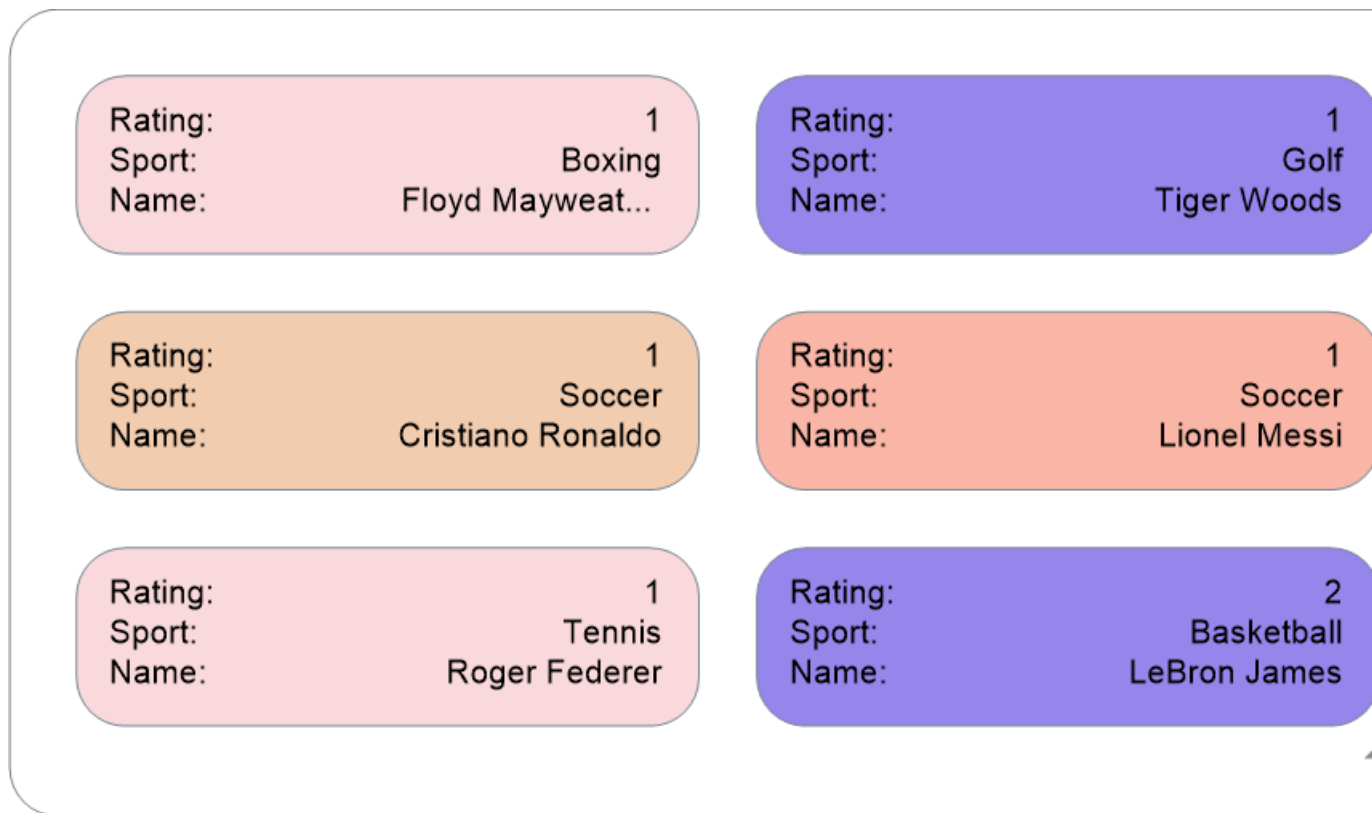
| | |
|--------------|--|
| | <p>this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element.</p> <ul style="list-style-type: none">➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style➤ The group property Font that allows you to define the font family, its style and size for the title of the current element.➤ The Horizontal Alignment property allows the ability to change the title alignment relative to the element - Left, Center, Right.➤ The Text property is used to set the title text of the current element.➤ The Visible property is used to enable or disable displaying of the title of the current item. If the property is set to True, then the element title will be included. If this property is set to False, then the element header will be disabled. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none">➤ The Allow Change option enables or disables changes of the element. If checked, the current element can be changed. If unchecked, the element can't be changed.➤ The Allow Delete option enables or disables the deletion of an item. If checked, the current element can be deleted. If unchecked, the element can't be deleted. |

| | |
|-------------------------------|---|
| | <ul style="list-style-type: none"> ➤ The Allow Move option allows or prohibits moving an item. If checked, the current element can be moved. If unchecked, the element can't be moved. ➤ The Allow Resize option enables or disables resizing of an element. If checked, the current element can be changed. If unchecked, the element can't be changed. ➤ The Allow Select option enables or disables the element selection. If checked, the current element can be selected. If unchecked, the element can't be selected. |
| Locked | Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location. |
| Data field properties: | |
| Expression | It allows you to specify an expression for the current data field. |
| Label | It allows you to change the label of a data field. |
| Show Total Summary | It allows the ability to display or hide the summary value for a specific data field. |
| Fore Color | It allows you to specify text color for the current data field. |
| Header Alignment | It allows you to align the value of header. |
| Horizontal Alignment | It allows you to specify horizontal text |

| | |
|-----------------------------|--|
| | alignment for the current data field. |
| Summary Alignment | It allows you to align the value of total in a range: Left, Center, Right . |
| Text Format | It allows you to specify text format for the values of the current data field. |
| Hyperlink Pattern | It allows you to specify a hyperlink for the values of the current data field. |
| Show Hyperlink | It allows you to enable or disable a hyperlink for the values of the current data field. |
| Size | The group of properties, which allows you to set a fixed column width or max column width. Also, depending on the Word wrap property value, the word wrap mode for the current data field will be either enabled or disabled. |
| Data Bar properties: | |
| Maximum | Allows setting the maximum value for the data bar. |
| Minimum | Allows setting the minimum value for the data bar. |
| Fill Color | Allows setting the color of the data bar area. |
| Negative Color | Allows setting the color for negative values. |
| Overlapped Color | Allows setting the color for values that exceed the defined maximum and/or minimum. |
| Positive Color | Allows setting the color for positive values. |

5.5 Cards

Cards is a data analytics element, which allows you to display grouped values of data fields as a card.



In this chapter the following questions will be considered:

- › [Element editor](#);
- › [Card Layout](#);
- › [The order of displaying values in cards](#);
- › [The order of displaying cards in an element](#);
- › [The color of cards background](#);
- › [Table of Properties](#).

You can display on cards:

- › Values from data fields and a graphic analysis applied to them;
- › Manually specified value;
- › Images from data fields.

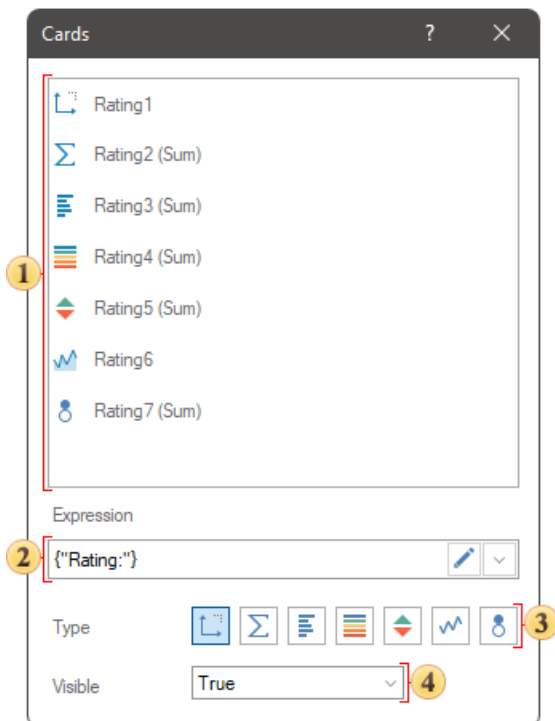
Values display of the **Cards** element is customized in its editor and using properties.

To call the editor, you should:

- › Double click on the **Cards** element;
- › Select the **Cards** element, and choose the **Design** command in the context menu.

Element Editor

In the editor of the **Cards** element, you can add fields with data, the order of their display in each card, deletion and enable of different types of graphic data analysis.



- ❶ The list of data fields of the **Cards** element.
- ❷ The **Expression** field of a selected data field.
- ❸ Value type of the selected data field:
 - The **Dimension** is the type at which the value of the data field will be displayed in its initial state.
 - The **Measure** indicator is the type in which various functions can be applied to the values of the data field.
 - The **Data Bars** is the type in which various functions can be applied to the values of a data field, and a Data Bars will be added for each value of this field.
 - The **Color Scale** is the type in which various functions can be applied to the values of a data field, and a color scale will be added for each value of this field.
 - The **Indicator** is the type in which various functions can be applied to the values of a data field, and an indicator will be added for each value of this field.
 - The **Sparklines** is the type in which a value of a data field will be presented as a graphic. By the way, in this case, the sparkline has several views – graphic, area, data bars, win/lose. In addition, you can define the mode of starting points for

sparkline, graphic or area.

➤ The **Bubble** is the type in which various functions can be applied to the values of a data field, and each value will be presented as a bubble.

④ The **Visible** parameter allows you to enable or disable the display of a selected column in a element of a dashboard. Also, enable or disable of a column can depended on the result of a logic expression. If the result of expression calculation will be the true value, a column will be enabled. If the result of expression calculation will be the false value, the column will be disabled.

In cases, if such types of graphic analysis as **Color Scale**, **Sparkline**, **Bubble** are used for data fields, other parameters, which allow you to define additional settings of these types will be displayed in the editor.

Card Layout

When adding the first data field to the **Cards** element, for each value from a data column will be formed its own card. Next, if another data column will be added from the same source, its values will be added to existing cards as well as these data is compared in the source.

The screenshot displays a dashboard titled 'Cards' containing eight cards arranged in a 3x3 grid (with the last cell empty). The cards are numbered 1 through 8 and labeled as follows:

- 1 Bever...
- 2 Cond...
- 3 Confec...
- 4 Dairy ...
- 5 Grain...
- 6 Meat/...
- 7 Produce
- 8 Seafood

To the right, a window titled 'Categories - View Data' is open, showing a table with the following data:

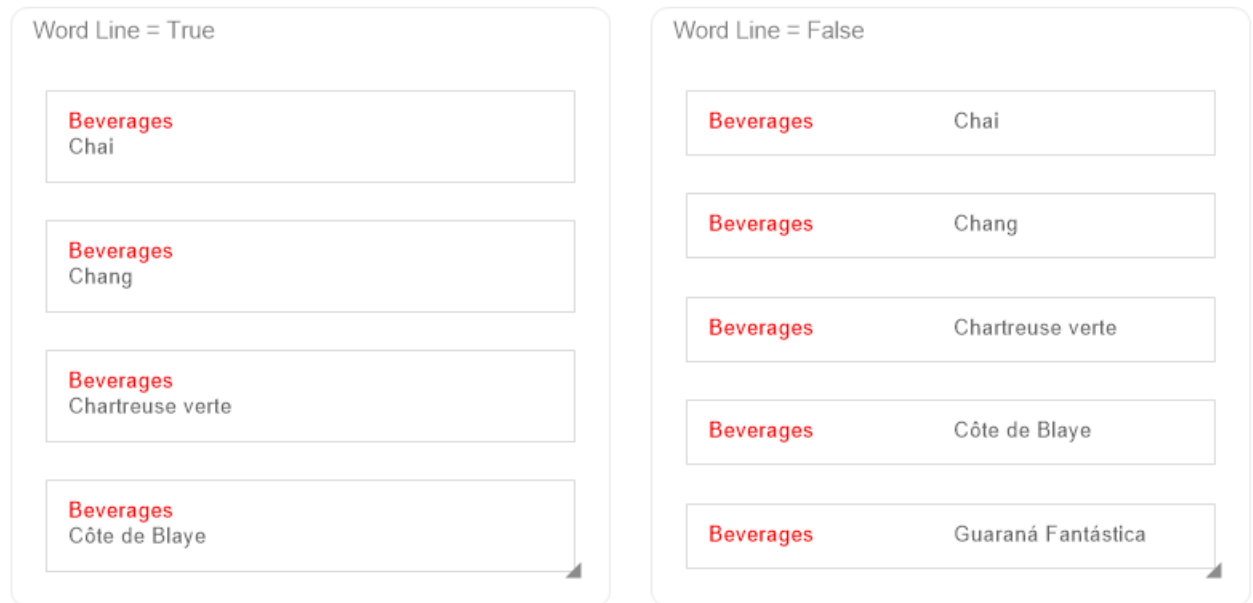
| | CategoryID | CategoryName | Description | Picture |
|---|------------|----------------|-----------------------|---------|
| | 1 | Beverages | Soft drinks, coffe... | |
| | 2 | Condiments | Sweet and savor... | |
| | 3 | Confections | Desserts, candie... | |
| | 4 | Dairy Products | Cheeses | |
| ▶ | 5 | Grains/Cereals | Breads, crackers,... | |
| | 6 | Meat/Poultry | Prepared meats | |
| | 7 | Produce | Dried fruit and be... | |
| | 8 | Seafood | Seaweed and fish | |

A red arrow points from the 'Seafood' card (card 8) to the 'Seafood' row (row 8) in the data table.

If a data column will be added from another data source, its values will be added to existing cards if there is a connection between data sources. Otherwise, if there is no connection between data sources, for values from the second column data column will be formed their own cards.

The order of displaying values in the cards

Each value from a data column, by default, it is displayed in a new row. The order of displaying values in rows of a card is defined by the location of fields in the **Cards** element editor. This way, the higher a data column, the higher a value from it in the card.



If you need to display a value from the following data column in the same row as the previous one, you should use the **Wrap Line** property and set to the **False** value. After that, the values from the data column which is located in the element editor below will be displayed in the card of the same row.

The order of displaying cards in the element

The order of displaying cards in the element is defined by the following element properties: **Column Count** and **Orientation**. By default, the **Column Count** property is set to 0 value, i.e. the number of columns in the element to display cards is calculated automatically. However, you can change it, having specified the necessary number of columns as a value of this property.

Column Count = 0

Beverages

Condiments

Confections

Dairy Products

Grains/Cereals

Meat/Poultry

Produce

Seafood

Column Count = 4

Beverages

Condiments

Confections

Dairy Products

Grains/Cereals

Meat/Poultry

Produce

Seafood

The direction of cards columns filling depends on a value of the **Orientation** property and by default is defined as **Horizontal**, i.e. cards are displayed from left to right line by line.

Orientation = Horizontal

Beverages

Condiments

Confections

Dairy Products

Grains/Cereals

Meat/Poultry

Produce

Seafood

However, the **Orientation** property can be defined as the Vertical, i.e. firstly cards will be filled from top to bottom, after in the next right column.

Orientation = Vertical

Beverages

Seafood

Condiments

Confections

Dairy Pr...

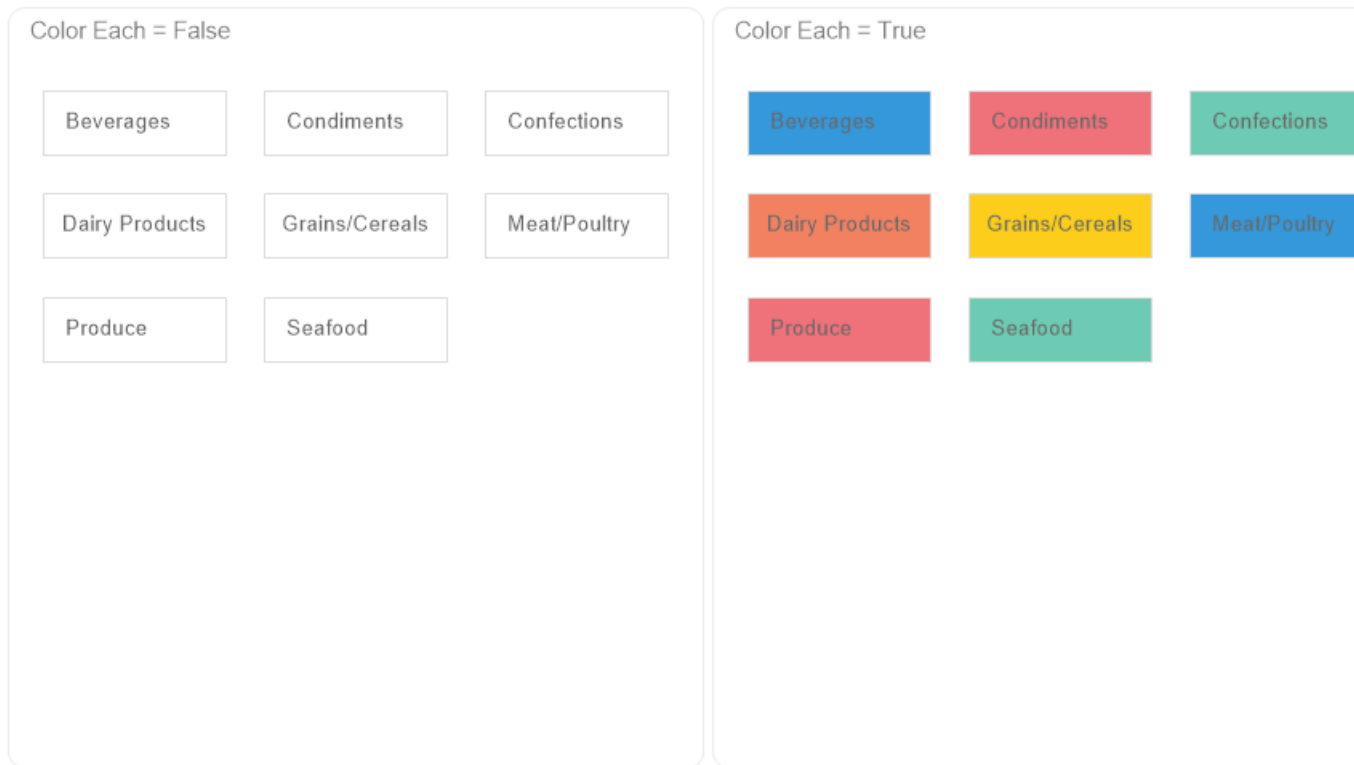
Grains/C...

Meat/Pou...

Produce

Cards Back Color

By default, cards back color in the element and the element back color are defined from the **Back Color** property. The value for this property can be received from the element style or defined from the **Back Color** property. However, each card can have its own shade. It depends on the value of the **Color Each** property. If the **Color Each** property is set to the True value, each card will have a unique shade.



Color sets for creating shades depend on a value of the **Series Colors** property and can be received from a style of the element or defined from preset color collections in the list of values of this property.

Table of Properties

The table contains name and description of the **Cards** element properties and its fields.

| Name | Description |
|-----------------|--|
| Cross-Filtering | It allows you to enable or disable the Cross-Filtering mode for the current item. |
| Group | Adds the current item to a specific group of items . |
| Cards | The group of properties, which allows you to set cards in the element:
➤ The Color Each property allows you to |

| | |
|---------------------|--|
| | <p>enable or disable the mode of a unique shade for each card in the element. If the property will be set to the False value, cards back color will be the same. If the property will be set to the True value, cards back color will be unique for Each card.</p> <ul style="list-style-type: none">➤ The Corner Radius group of properties allows you to define radiuses of rounding for cards in the element.➤ A group of properties that allows you to define indents (left, top, right, bottom) of the value area from the cards border.➤ The Padding group of properties allows you to define paddings (left, top, right, bottom) values of area border from the border of cards in the element. |
| Column Count | It allows you to define the number of columns in the element. By default, the property is set to 0, i.e. the number of columns for cards in element is counted automatically. |
| Data Transformation | Customizes the data transformation of the current item. |
| Orientation | It allows you to define the direction of filling the columns of the element with cards. If the property is set to the Horizontal value, the columns are first filled from left to right within the width of the element, and a transition to a new line is performed. If the property is set to the Vertical , the columns are first filled from top to bottom within the height of the element, and then a transition is made to a new column on the right. |
| Back Color | It allows you to specify a background color for cards in an element. By default, the color from the style is used. Also, it's worth |

| | |
|---------------|--|
| | taking into account that if the Color for each mode is enabled, the background color of the cards is defined by the value of the Series Colors property. |
| Border | A group of properties that allows you to customize the borders of the cards - color, sides, size, and style. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left, Top - Right, Bottom - Right, Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius. |
| Series Colors | It allows you to define a collection of colors to generate unique background hues for cards in an element. This property is relevant if the Color each mode is enabled. |
| Shadow | <p>The group of properties that allows you to customize the element's shadow:</p> <ul style="list-style-type: none"> ➤ The Color property allows you to specify the color that will be used to display the element's shadow; ➤ Properties in the Location group allow you to define the shadow shift in X and Y coordinates, relative to the location of the element in a dashboard; ➤ The Size property allows you to set the size of the shadow from the borders of the element. Can be set to a value between 1 and 10, where 1 is the minimum size and 10 is the maximum; ➤ The Visible property allows you to enable or disable the display of the element's shadow in a dashboard. |

| | |
|-------------|--|
| Style | It allows you to select a style for the current element. By default, the value is Auto , i.e. the style of this element is inherited from the style of a dashboard. |
| Enabled | It allows you to enable or disable the current item in a dashboard. If the property is set to the True , the current element is enabled and will be displayed when viewing a dashboard in the viewer. If this property is set the False , this element is disabled and will not be displayed when viewing the dashboard in the viewer. |
| Interaction | Customizes the interaction element of the cards. |
| Margin | The group of properties that allows you to define the indents (left, top, right, bottom) of the value area from the border of this element. |
| Padding | The group of properties that allows you to define indents (left, top, right, bottom) of values from the border of the value area. |
| Show Blanks | Allows displaying or hiding the label "Show (blank)" in the dashboard element when there is no data available for that element. |
| Title | The Back Color property allows you to change the background color of the current element's header. By default, this property is set to From Style , i.e. the background color will be obtained from the settings of the current element style.
➤ The Fore Color property provides the ability to change the text color of the heading of the current element. By default, this property is set to From Style , i.e. the heading text color will be derived from the current element style settings. |

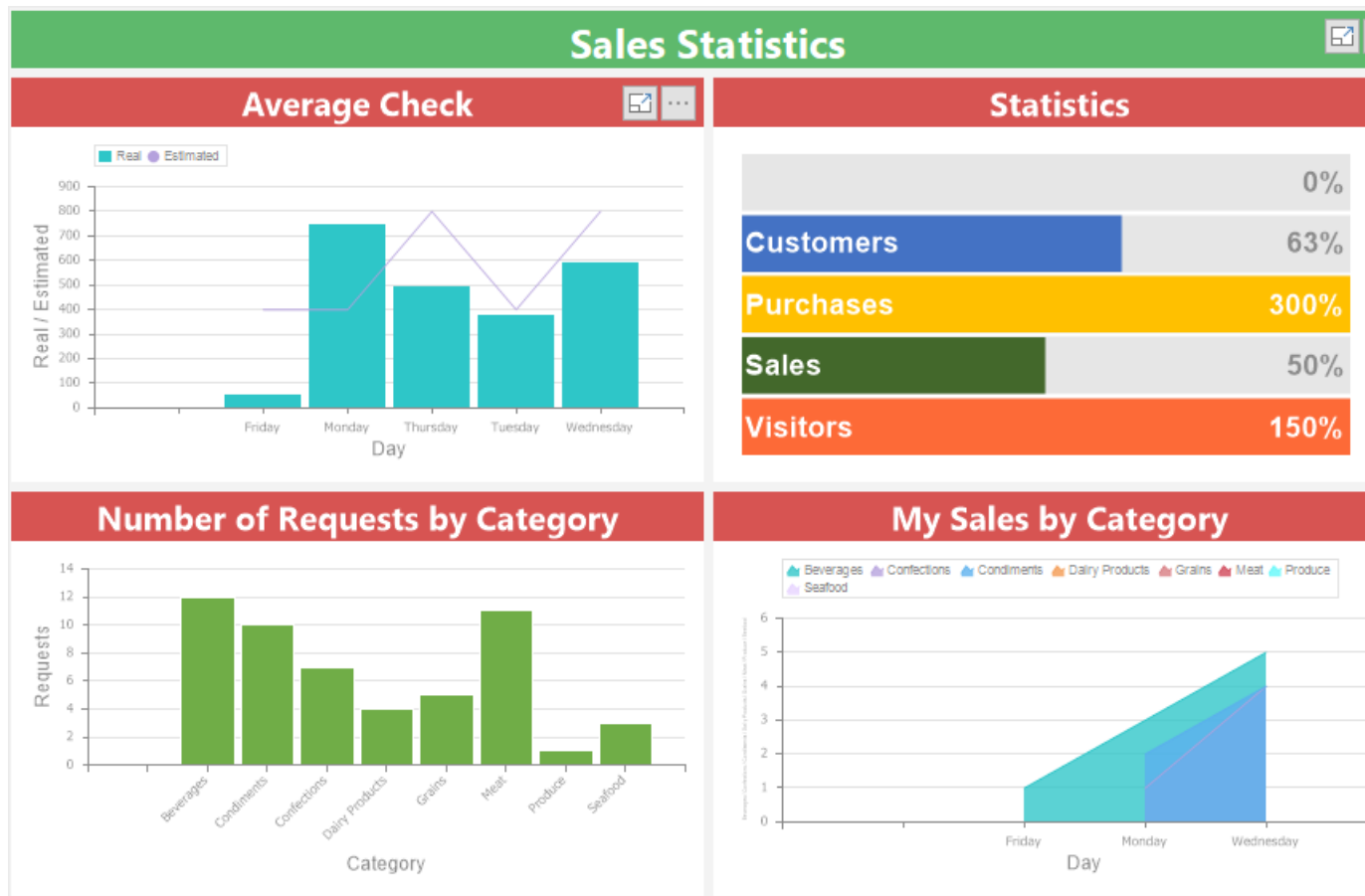
| | |
|--------------|---|
| | <ul style="list-style-type: none"> ➤ The Font property group allows you to define the font family, its style and size for the title of the current element. ➤ The Horizontal Alignment property allows you to change the alignment of the title relative to the element: Left, Center, Right. ➤ The Text property allows you to set the title text of the current element. ➤ The Visible property allows you to enable or disable the display of the title of the current element. If the property is set to the True, the header elements will be included. If this property is set to the False, the title of the element will be disabled. |
| Name | It allows you to change name of the current element. |
| Alias | It allows you to change alias of the current element. |
| Restrictions | <p>It allows you to set the permissions to use the current element in a dashboard:</p> <ul style="list-style-type: none"> ➤ The Allow Change parameter provides the option to allow or deny the element to be modified. If the checkbox is checked, the current element can be changed. If the checkbox is not checked, this element cannot be changed. ➤ The Allow Delete option provides the option to allow or deny the item's deletion. If the checkbox is checked, then the current element can be deleted. If the checkbox is not checked, then this element cannot be deleted. ➤ The Allow Move parameter provides the ability to allow or prohibit the element from being moved. If the checkbox is checked, the current element can be |

| | |
|---|--|
| | <p>moved. If the checkbox is not checked, then this element cannot be moved.</p> <p>➤ The Allow Resize option provides the ability to allow or prohibit the element from being resized. If the checkbox is checked, the size of the current element can be changed. If the checkbox is not checked, the dimensions of this element cannot be changed.</p> <p>➤ The Allow Select option provides the option to allow or deny the selection of the element. If the checkbox is checked, the current element can be selected. If the checkbox is not checked, then this element cannot be selected.</p> |
| Locked | It allows you to prevent or allow resizing and moving the current element. If the property is set to True, the current element cannot be moved or resized. If this property is set to the False, this element is moved and resized. |
| Linked | It allows you to bind the current location to a dashboard or another element. If the property is set to the True, the current element is anchored to the current location. If this property is set to the False, this element is not anchored to the current location. |
| Properties of the element data fields: | |
| Expression | It allows you to specify an expression for the current data field. |
| Label | It allows you to change the label of a data field. |
| Fore Color | It allows you to specify fore color for the current data field. |
| Height | It allows you a row height for the value of |

| | |
|----------------------|---|
| | the current data field. By default, the property is set to 0, i.e. the line height for the value is calculated automatically. |
| Horizontal Alignment | It allows you to specify the horizontal text alignment for the current data field. |
| Vertical Alignment | It allows you to specify vertical text alignment for the current data field. |
| Wrap Line | It allows you to define whether the next value in the current card will be displayed on the same line or will be moved to the next line. If the property is set to the True value, the next value will be displayed in a new line. If the property is set to the False value, the value from the next data field will be displayed on the same line as the value from the current data field. |
| Font | The group of properties that allows you to define font family, its style for values of the current data field. |
| Text Format | It allows you to specify text format for the values of the current data field. |
| Word Wrap | Allows enabling or disabling word wrap mode. |

5.6 Chart

Chart is a graphical element of data analysis, using which the data can be processed and the result is displayed as graphs.



Information

[Text formatting](#) and [Interaction](#) can be applied to the values of the current element.

This chapter will cover the following:

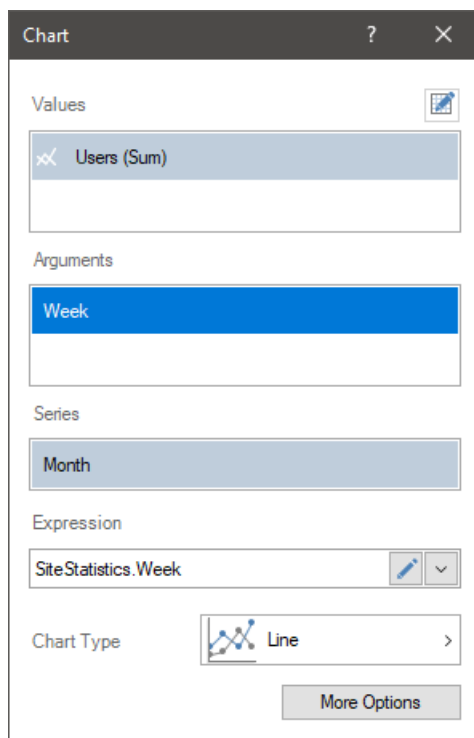
- › [Chart Editor](#);
- › [Chart Values](#);
- › [Chart Types](#);
- › [Chart Arguments](#);
- › [Chart Series](#);
- › [The Color Each Property](#);
- › [Chart Legend](#);
- › [Constant Lines](#);
- › [More Options](#);

- › [Icons](#);
- › [Round Values](#);
- › [Show Zero and Show nulls](#);
- › [Width and Style of Line](#);
- › [Y axis](#);
- › [Views](#);
- › [Table of Properties](#).

Chart Editor

You can configure the **Chart** element in the special editor. To call the chart editor, you should:

- › Double-click the left mouse button;
- › Select the **Chart** item and select the **Design** command in the context menu;
- › Select the **Chart** item, and, on the property panel, click the **Browse** button for the **Values**, **Arguments** or **Series** properties.



In the chart editor, you can do the following:

- › Specify data fields with values for the chart;
- › Specify chart arguments;
- › Specify the rows of the chart;

- Choose a chart type;
- Modify the expression of the selected item.

Information

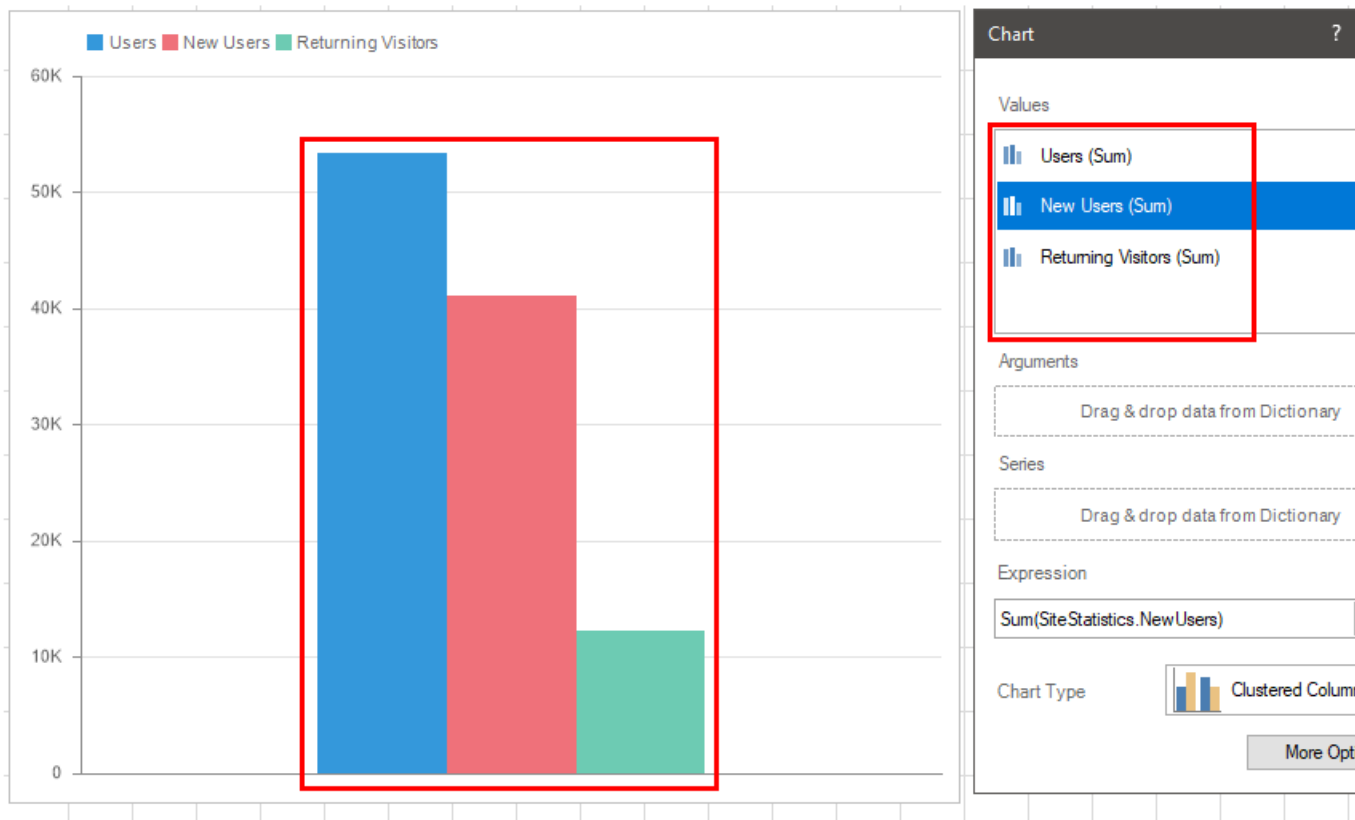
The chart area is configured using the **Area** group on the property bar. You can adjust the horizontal, vertical lines and etc.

Chart values

To create a chart in the dashboard, at least one data field specified in the **Value** field is required:

- Drag and drop the data column from the dictionary into the **Value** field, and for newly added items - into the editor or chart area.
- Create **New Field**. Set the expression for this element, the processing result of which will be the values for the chart.

Also, the chart can specify the arguments and series. If the arguments and series are not specified, then all element values will be processed and displayed using one graphic element. For example, if three data fields are created in the **Value** field, then three graphical elements will be displayed in the **Chart**.



Information

For some types of charts require setting values in several fields. For example, for financial charts you need to specify the value in the fields - **Open**, **Close**, **Max**, and **Min**. In this case, you should create at least one data field for every Value field.

Chart types

Depending on the type of a chart chosen, the data will be displayed using one or another graphic element. You can display several types of charts within the same chart element. For example Clustered Column and Line.

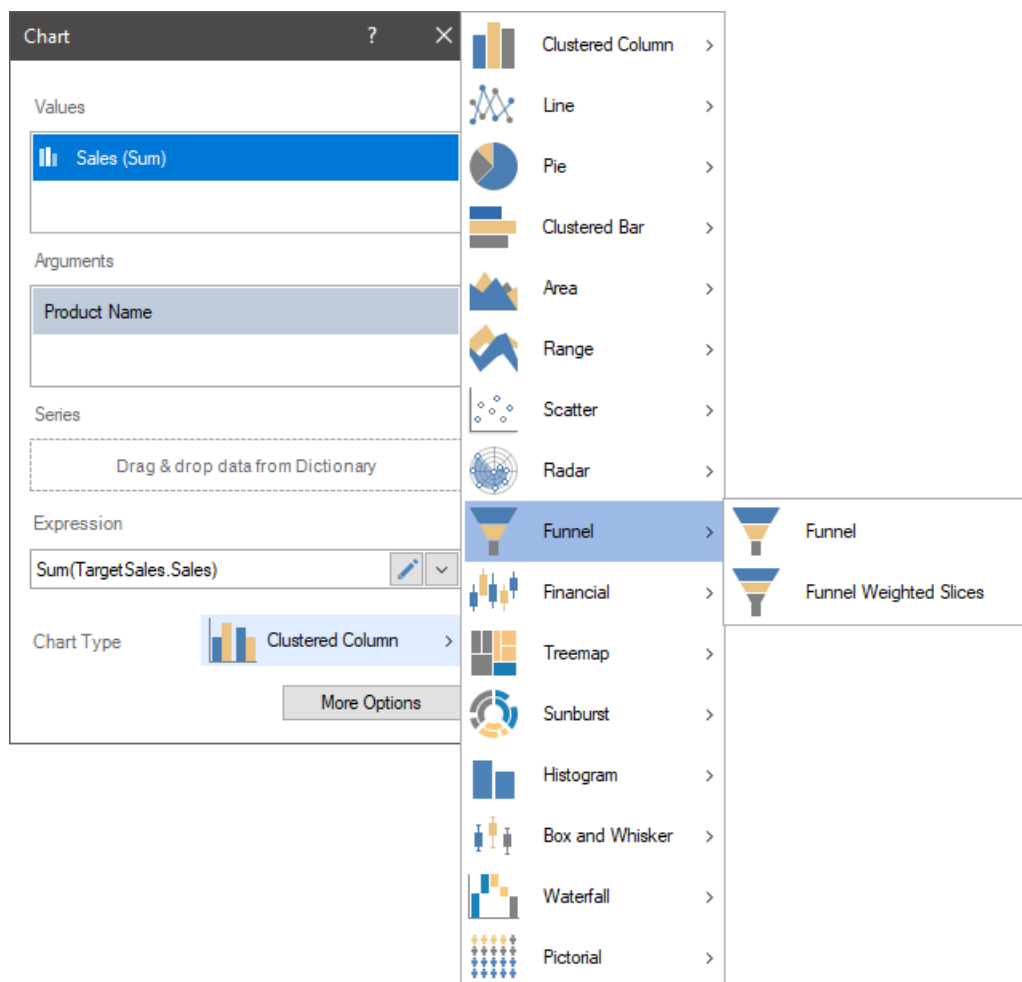
Information

Within the same **Chart** element, not all types are compatible. It is impossible to display the **Funnel** and **Gantt** in one element.

You should know that only one type of a chart can belong to one data field. If it is necessary to display the same data field with different types of charts within the same **Chart** element, you should create several duplicates of this data field in the **Value** field and specify one of the chart types for every copy.

To change the type of a chart, you should do the following:

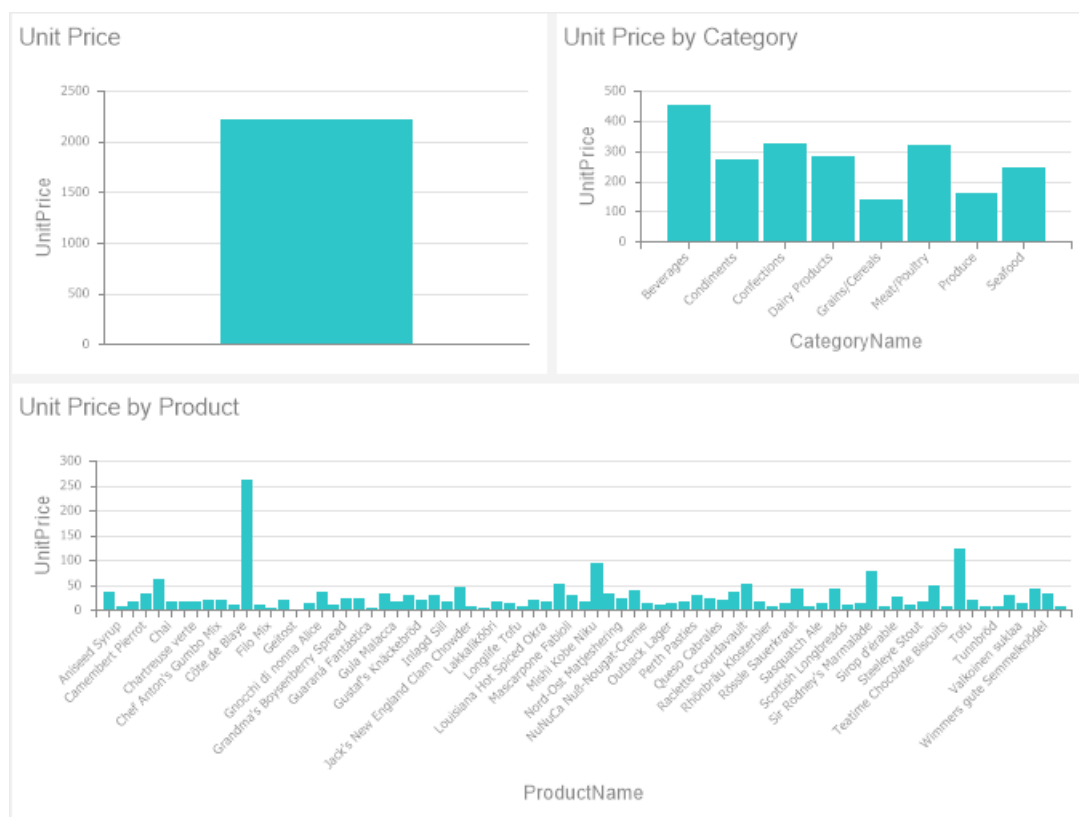
- Double-click the left mouse button on the **Chart** item;
- Click the chart type button in the editor;
- Select the chart type you need.



Arguments

The argument refers to data that is associated with the values of the chart. In other

Also, for product prices, an argument may be a category of products. In this case, for each category of products, a graphic element will be presented. The value of this graphic element will be the sum of the prices of products which are included into this category.



To set chart arguments, you should to the following:

- Double-click the mouse left button on the **Chart** element;
- In the element editor, drag and drop the data column from the dictionary to the **Arguments** field.

Create **New Field** in the **Arguments** field. Set the expression for this element, the processing result of which will be the arguments for the chart.

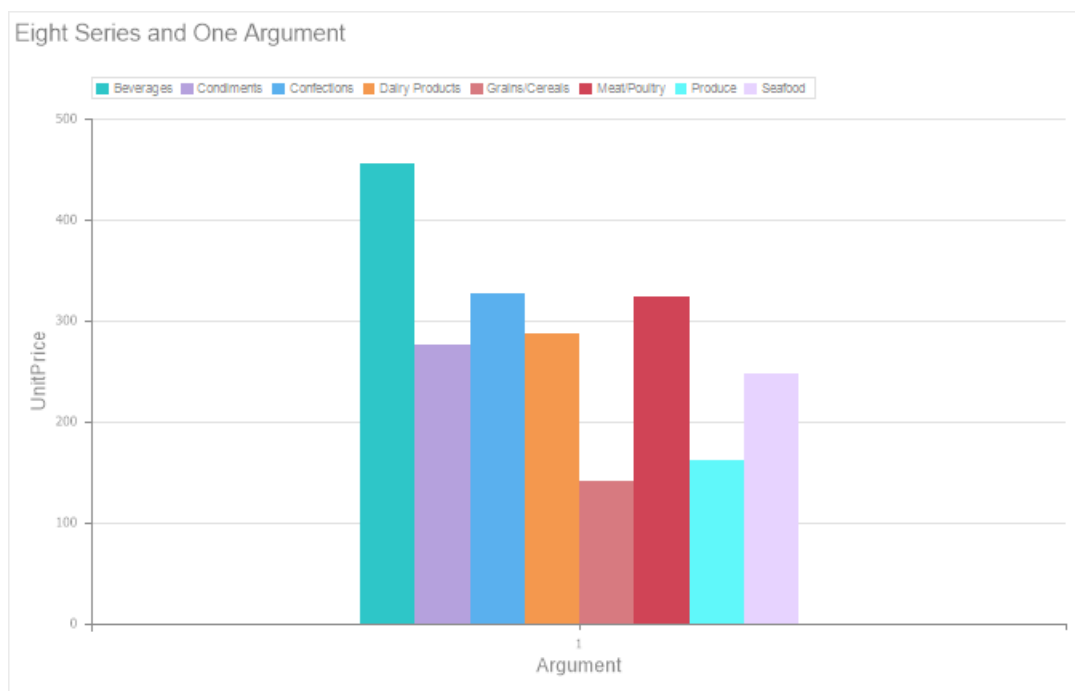
Information

In the chart editor, you can specify multiple data fields for the **Arguments** field.

Series

Series of charts are graphical elements with or without arguments and grouped by a specific value.

For example, you have a chart with product prices (chart values) and a list of products (chart arguments). If you add an element to the series of the chart with the category data for these products, then a list of products will be displayed for every category. Below is a chart with prices for every product category and one argument.



To set the series of a chart, you should do the following:

- Double-click the mouse left button on the Chart item;
- In the element editor, drag and drop the data column from the dictionary to the **Series** field.
- Create **New Item** in the **Series** field. Set an expression for this element, the

processing result of which will be series for the chart.

Information

The chart axes are configured using the **X Axis** and **Y Axis** property groups (you can find them on the property panel). You can customize axis labels and titles.

The Color Each property

By default, the graphical elements of a diagram within one series have one color. However, if you need to display each graphic element in a separate color, you should:

- Select the Chart element;
- set the **Color Each** property to **true** on the property panel.



Chart Legend

The chart legend is a description for the graphic elements. If the chart has series, the legend will automatically be enabled. The legend shows:

- **Marker** is a special graphic icon with the color of the graphic element to which it

belongs.

- › The value of the series for a specific graphic element of the chart;
- › If the arguments are set for the chart, it shows the value of the argument for a specific graphic element of the chart.

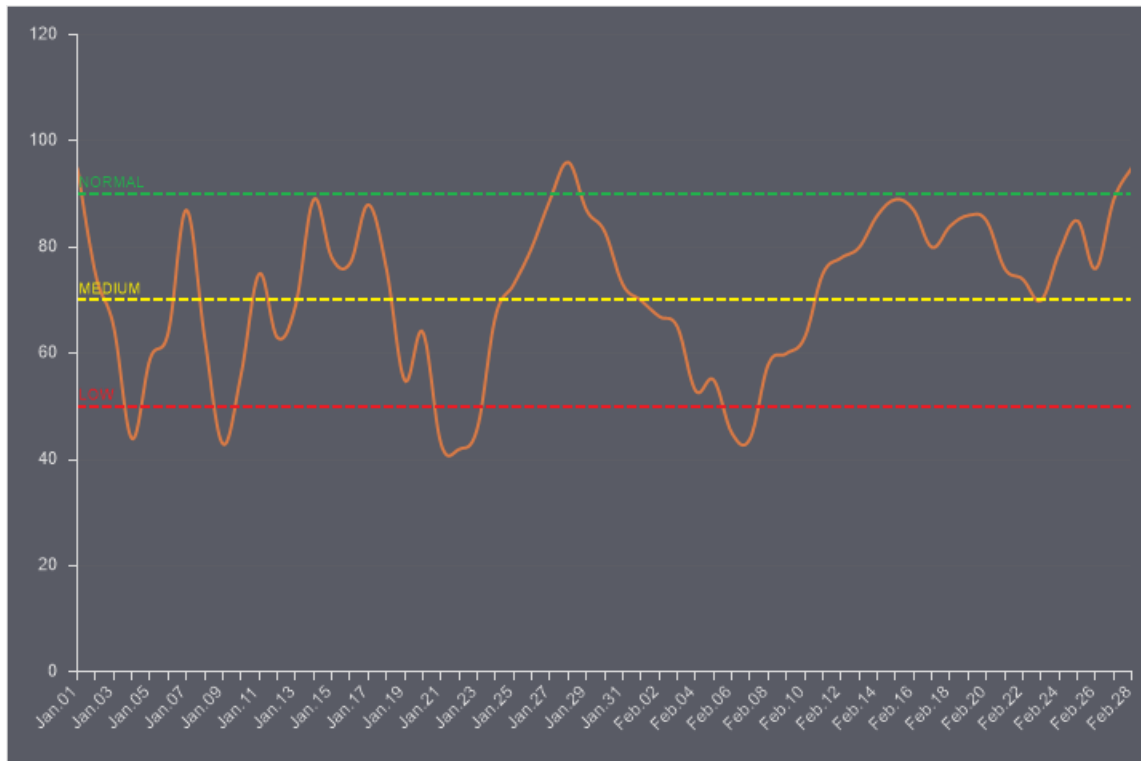


Information

Setting the legend is done using properties from the **Legend** group on the property panel. You can adjust the alignment of the legend horizontally and vertically, the title of the legend, the text of the legend, and etc.

Constant lines

Constant lines are used to display value lines in the chart area.



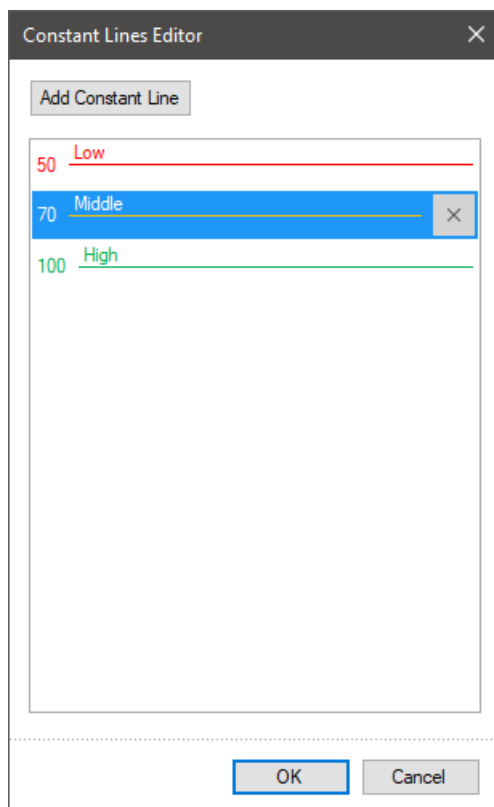
You should do the following to add constant lines in the chart:

- Select a chart in the dashboard;
- On the property panel, click the **Browse** button of the **Constant Lines** property.

After that, the editor will open. Configure constant lines for the current chart in the editor.

Constant Lines editor

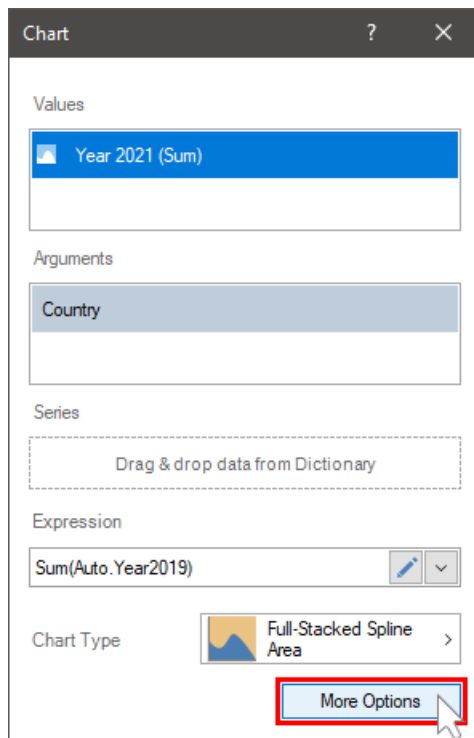
In the current editor, you can add, setup and remove constant lines for the current chart.



- click the **Add Constant Line** button to create a new constant line. After that, you can use the properties on the properties panel to set this constant line. For each constant line, you can specify value, color, style, width, text and its position.
- You can move constant lines in the list of lines by dragging.
- You can remove constant line from the list hovering over and click **Delete** button.

More Options

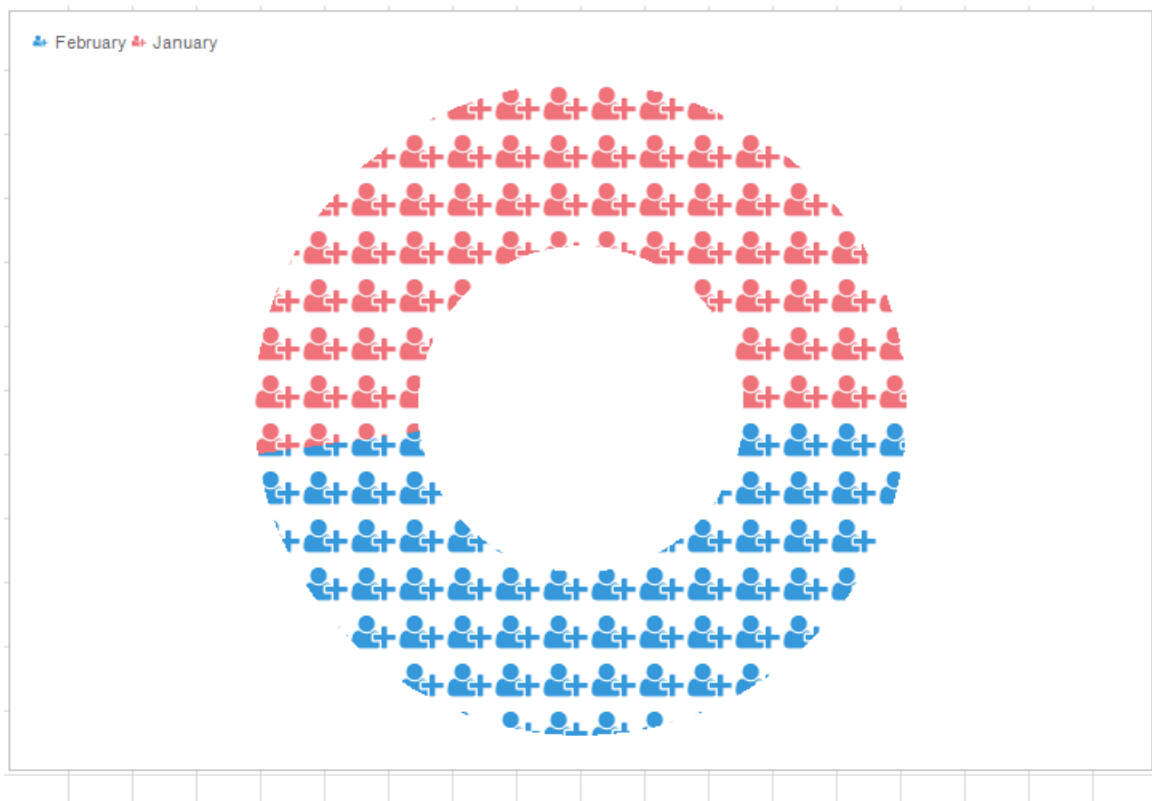
There are additional parameters on the **More Options** panel. However, a list of additional parameters depends on the type of a chart. Some of them can be available only for Line charts, other only for Clustered Columns, the third, such as the bind to the **right Y-axis**, depend on the values of the element properties. To open the additional parameters panel you should click the **More Options** button in the element editor. To hide the additional parameters panel you should click the **Less Options** button.



Below we will consider each parameter separately.

Icons

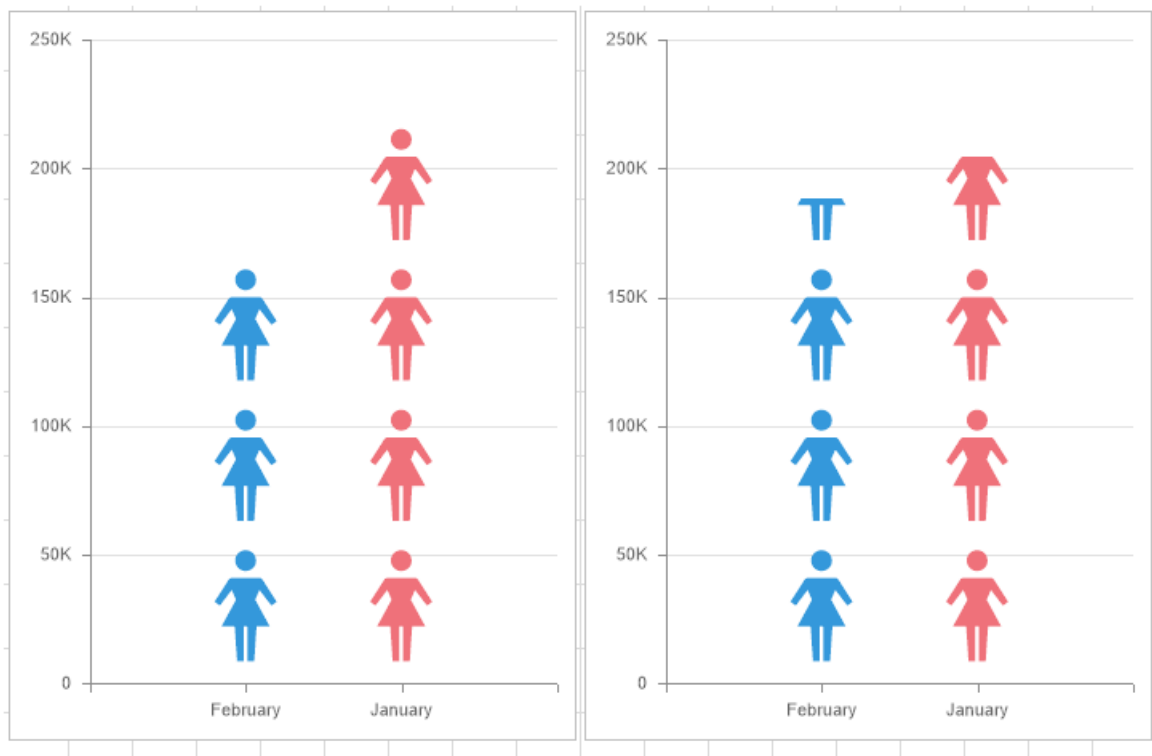
You can display a graphic value as a selected icon. It's worth noting that if the **Color Each** parameter is set, the icons of each graphic value will be of different colors. This parameter is available not only for all chart types. For example, you can't display values by an icon for lines.



The menu of icon selection is placed on the additional panel of parameters in the element editor. To display a value using an icon, you should select an icon. If you select the **None** value, an icon will not be applied to draw graphic chart values.

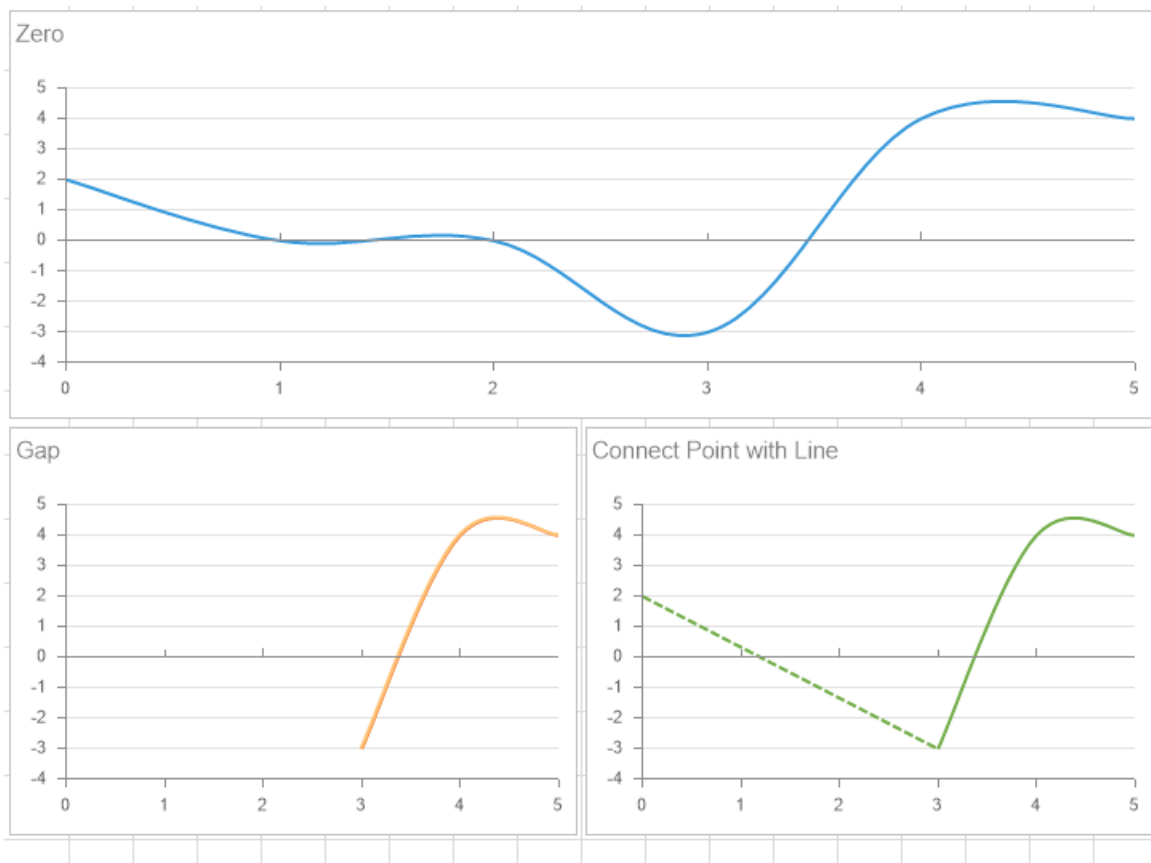
Round Values

The **Round Values** parameter allows you to display all or part of the icons for Clustered Columns. Accordingly, whether or not this parameter is present depends on whether or not the current chart type supports icons. If the property is set to **True** value, then only the entire icons will be displayed in Clustered Columns. If the property is set to **False** value, then the icons can be partially displayed.



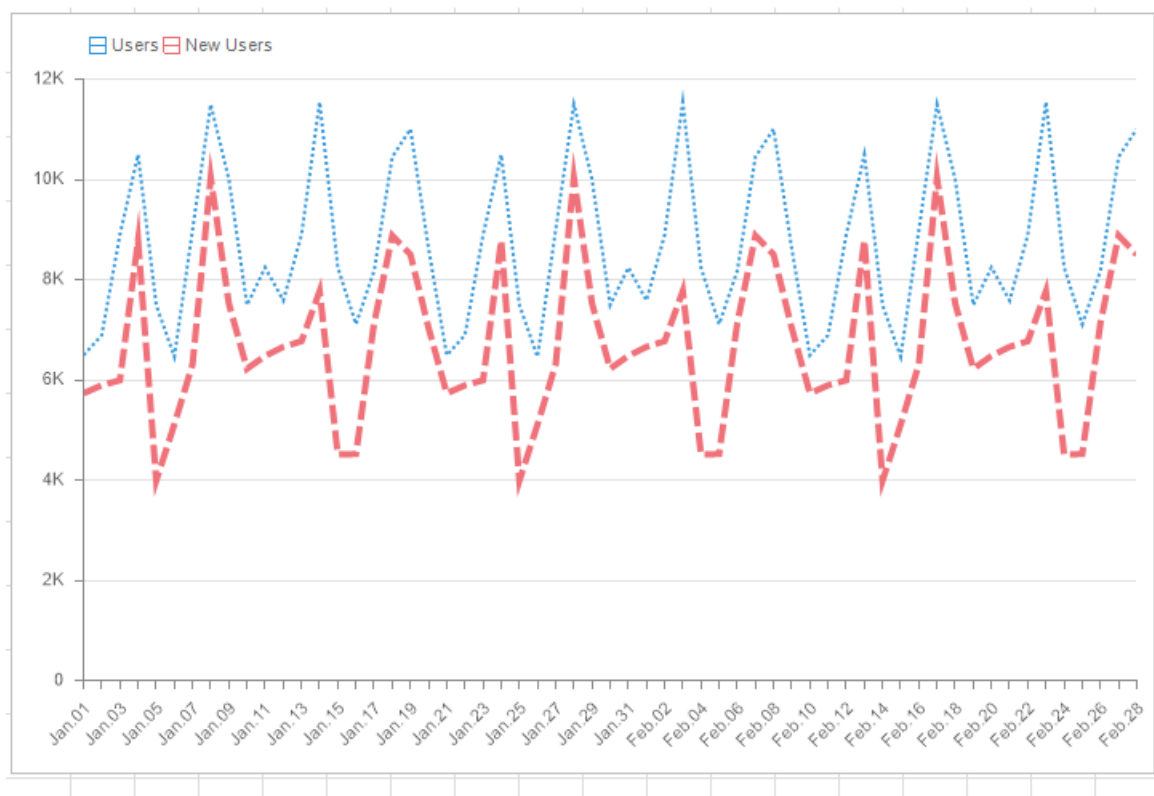
Show Zero and Show nulls

The **Show Zeros** and **Show nulls** parameters allow you to display zeros and nulls in a chart as chart zero values, a gap, a line connection points using a line. These parameters can be present individually for a specific chart type or together. These parameters are not available for some chart types.



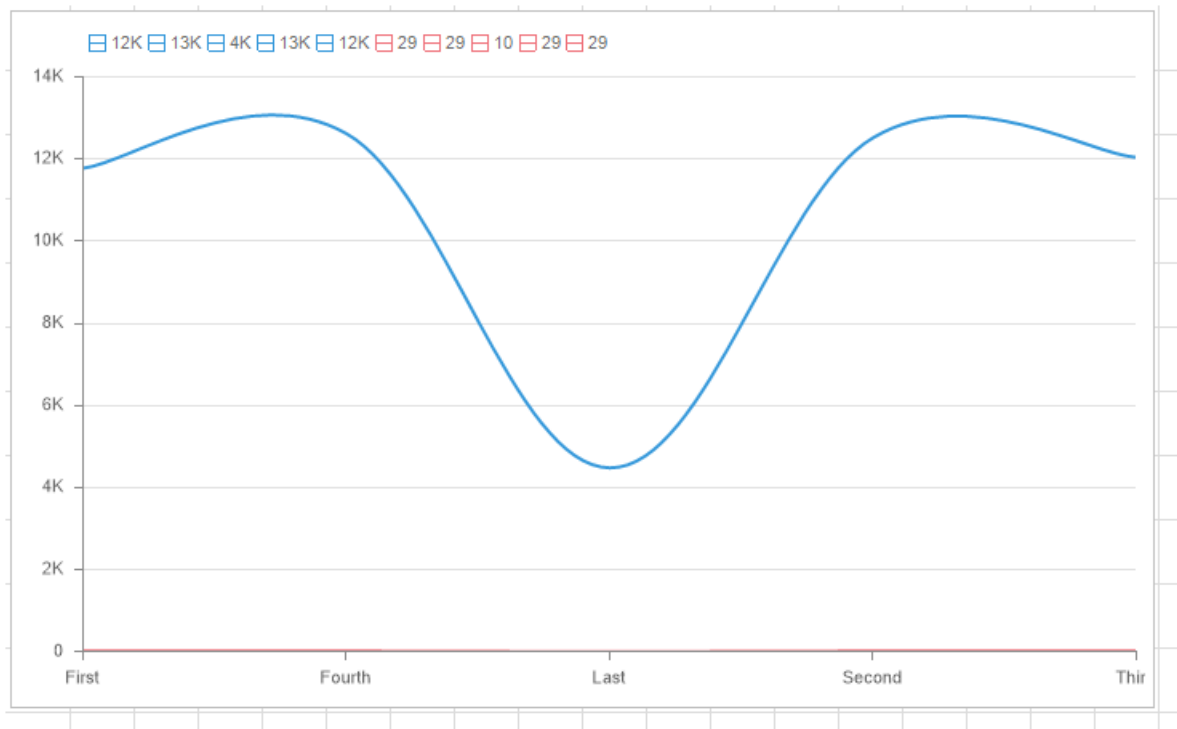
Width and Style of Line

You can change line width and line style for the charts that use lines when drawing values. It can be made using the **Line Width** and the **Line Style** parameters.



Bind to various axis of values

Sometimes there are situations when several data fields need to be displayed in one chart. In addition, the values of these fields may differ by several orders. For example, sales volumes (millions and billions) and average bill (hundreds and thousands), or number of visitors (hundreds, thousands, millions) and bounce rate (relative index from 0 to 100). Since the range of Y-axis values is calculated automatically during data processing, displaying values of different orders in a chart, especially the lowest ones, may not be comprehensible.



Pay your attention to the values of the red line. It was impossible to perceive values, tendencies of their behavior. To do that you should enable the display of the right Y axis. It can be done having set the **Area - Y Right Axis – Visible** property of chart element in the **True** value. Next in the chart editor, you should select data field and define an **Y axis** to which it will be assigned. The bind is carried out using the **Y axis** parameter in the additional parameter panel and by default, it is set to **Left Y** value, i.e. all data fields are bound to the left Y axis.

Chart

Value

- Users (Sum)
- Page / Session (Sum)

Arguments

Week

Series

Drag & drop data from Dictionary

Expression

Sum([SiteStatistics.Page/Session])

Chart Type

Spline

Y Axis

Left Y Axis

Left Y Axis

Right Y Axis

Line Style

Solid

Line Width

2

Show Zeros

Zero

Show Nulls

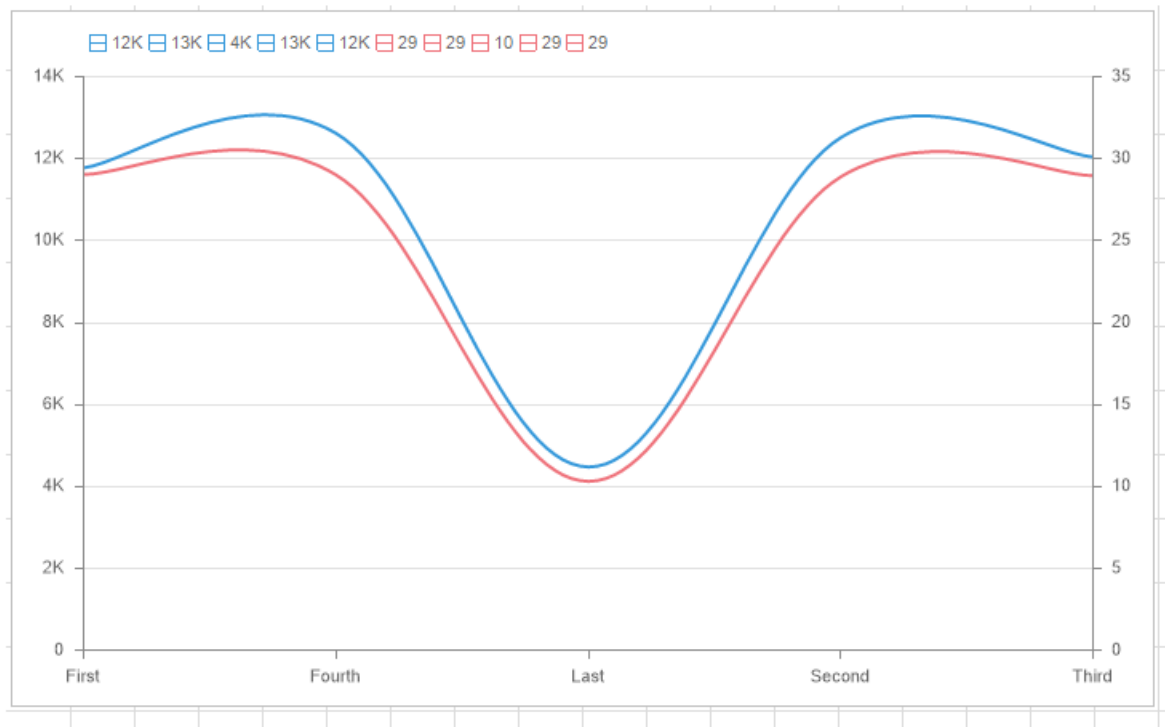
Zero

Views

(Not Specified)

Less Options

For the example above, we will set the right Y-axis to the red line. In this case, the range of the left Y-axis values will be calculated from the values of the blue line, and the range of the right Y-axis values will be calculated from the values of the red line. Now, you can analyze the graph of the red line, its values, and tendencies.



Views

You can create several chart views in one element and then use controls to switch chart view when viewing a dashboard in the viewer. To add an alternative view to the current chart, you should select the **New** command in the additional parameters panel, from the drop-down menu of the **Views** parameter. Each view should be set, i.e. you should specify data, define chart type, and change some properties. A maximum of 5 views the **Chart** element can have, i.e. the main kind element and 4 views. The **Duplicate** command allows you to create a copy of the current view. It is comfortable if you need to display the same data in a new view, but with another chart type.

Chart

Value

- Users (Sum)
- New Users (Sum)

Arguments

Drag & drop data from Dictionary

Series

Drag & drop data from Dictionary

Expression

Sum(SiteStatistics.Users)

Chart Type

Clustered Column

Icon

Round Values

True

Show Zeros

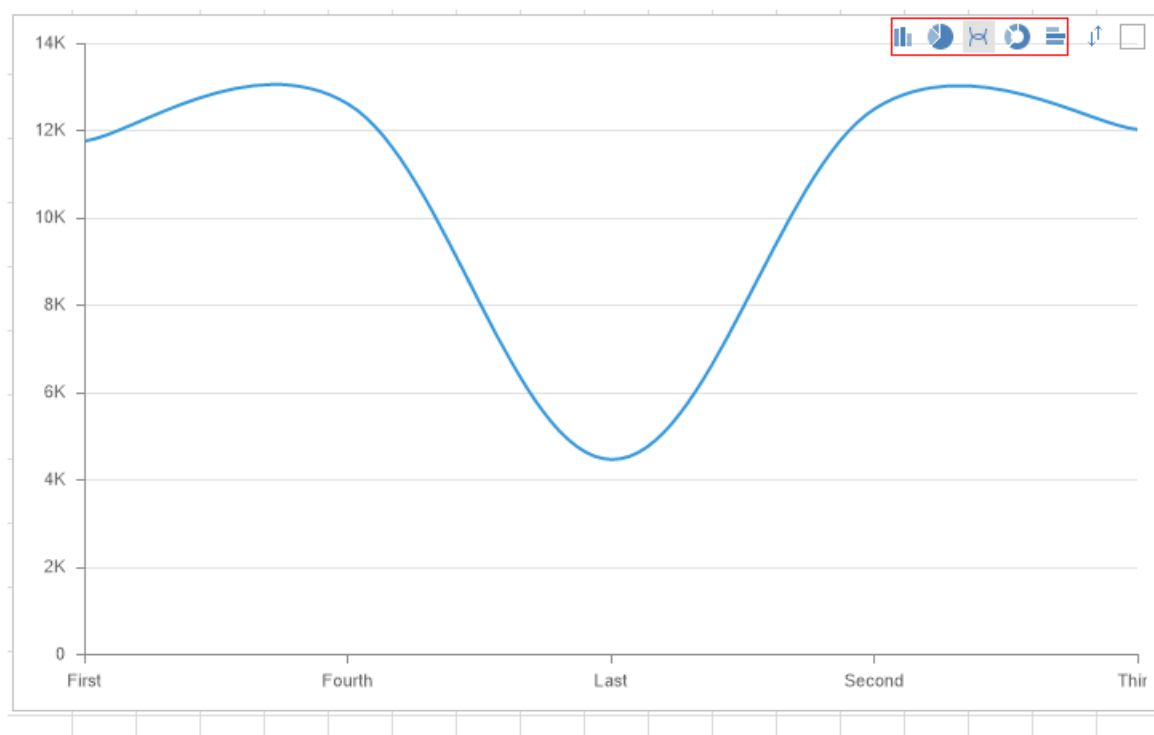
False

Views

Column

- New
- Duplicate
- ☒ Column
- Pie

The views are controlled using controls (buttons) in a chart when editing or viewing a dashboard. Each button includes a certain view. This way, views within one chart are switched using buttons.



List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

| Name | Description |
|------|--|
| Area | <p>A property group that is used to customize the chart area:</p> <p>➤ The Color Each property is used to set a unique shade for every graphic element of the chart. If this property is set to true, then colors from the style collection will be applied to graphic elements. Every graphic element will have its own color. After all the colors from the collection are used, the same colors with a lightening coefficient will be applied to the other graphic elements. Thus, every graphic element will have a certain shade. If this property is set to false, then the graphic</p> |

elements of one series will use one color from the collection of style colors.

➤ The **Grid Lines Horizontal** group of properties is used to change the color and visibility of horizontal grid lines. If the **Visible** property is set to **true**, the horizontal grid lines will be displayed.

➤ The **Grid Lines Vertical** group of properties is used to change the color and visibility of vertical grid lines. If the **Visible** property is set to **true**, the vertical grid lines will be displayed.

➤ The **Interlacing Horizontal** group of properties is used to change the color and visibility of horizontal interlacing. If the **Visible** property is set to **true**, the horizontal interlacing will be displayed.

➤ The **Interlacing Vertical** group of properties is used to change the color and visibility of vertical interlacing. If the **Visible** property is set to **true**, the vertical interlacing will be displayed.

➤ The **Reverse Horizontal** property is used to mirror the chart area horizontally. If the property is set to **true**, the area will be displayed horizontally.

➤ The **Reverse Vertical** property is used to mirror the chart area vertically. If the property is set to **true**, the area will be displayed vertically.

➤ The **X Axis** group of properties, which allows you to set the range of arguments: **Labels, Range, Show Edge Values, Start from zero, Title, Visible**.

➤ The **X Top Axis** group of properties which allows you to set the upper axis of arguments: **Labels, Show Edge Values, Title, Visible**.

➤ The **Y axis** group of properties, which

| | |
|---------------------|---|
| | <p>allows you to set the axis of values: Labels, Range, Start from zero, Title, Visible.</p> <p>➤ The Y Right Axis group of properties, which allows you to set the right axis of arguments: Labels, Start from zero, Title, Visible.</p> |
| Cross-Filtering | It allows you to enable or disable the cross-filtering mode for the current element. |
| Constant Lines | Customizes the constant lines of the chart element. |
| Data Transformation | Customizes the data transformation of the current item. |
| Group | Adds the current item to a specific group of items . |
| Labels | <p>A group of properties that is used to customize the chart labels:</p> <p>➤ The Auto Rotate property is used to enable or disable the auto rotate mode of chart labels.</p> <p>➤ The Font group property allows you to change the text color of the labels of the current item. By default, this property is set to From Style, the text color of the labels will be obtained from the settings of the current element style.</p> <p>➤ The Fore Color property allows you to change the text color of the labels of the current item. By default, this property is set to From Style, the text color of the labels will be obtained from the settings of the current element style.</p> <p>➤ The Position property allows you to select the type of headers of values in a chart area.</p> <p>➤ The Style property allows you to change the label style.</p> |

| | |
|------------|---|
| | <ul style="list-style-type: none"> ➤ The Text After property is used to specify text after a label value. ➤ The Text Before property is used to specify text before a label value. |
| Legend | <p>A property group that is used to customize the chart legend:</p> <ul style="list-style-type: none"> ➤ The Columns property allows you to define the number of columns for the Legend values. ➤ The Direction property allows you to define the direction of column fill in by the Legend values. ➤ The Horizontal Alignment property is used to determine the horizontal position of the legend on the Chart element. The legend can be located in the chart area or outside of it. ➤ The Labels group of properties is used to change the color and font of the legend label. ➤ The Title group of properties is used to customize the title of the legend - specify the text of a title, change its color and font. ➤ The Vertical Alignment property is used to set the vertical position of the legend on the Chart element. The legend can be located in the chart area or outside of it. ➤ The Visible property allows you to enable or disable the display of the Legend chart. |
| Trend Line | It allows you to set a trend line in the current chart. |
| Marker | <p>A group of properties that is used to customize the chart markers:</p> <ul style="list-style-type: none"> ➤ The Angle property allows you to change the inclination angle of markers. The value of the property can be negative |

| | |
|---------------|---|
| | <p>and positive. If a value of the property is negative then the marker is inclined anticlockwise. If the value of the property is positive then the marker is inclined clockwise.</p> <ul style="list-style-type: none">➤ The Size property is used to set marker size in pixels.➤ The Type property allows you to set the marker type.➤ The Visible property is used to define the display mode of markers:<ul style="list-style-type: none">❶ The From Style value - displaying of markers will depend on the visibility property in the chart style.❷ The True value - markers will always be displayed.❸ The False value - markers will not be displayed always. |
| Back Color | Changes the background color of the Chart element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of a table - color, sides, size, and style. |
| Conditions | Customizes the conditions element of the chart . |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left , Top - Right , Bottom - Right , Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius. |

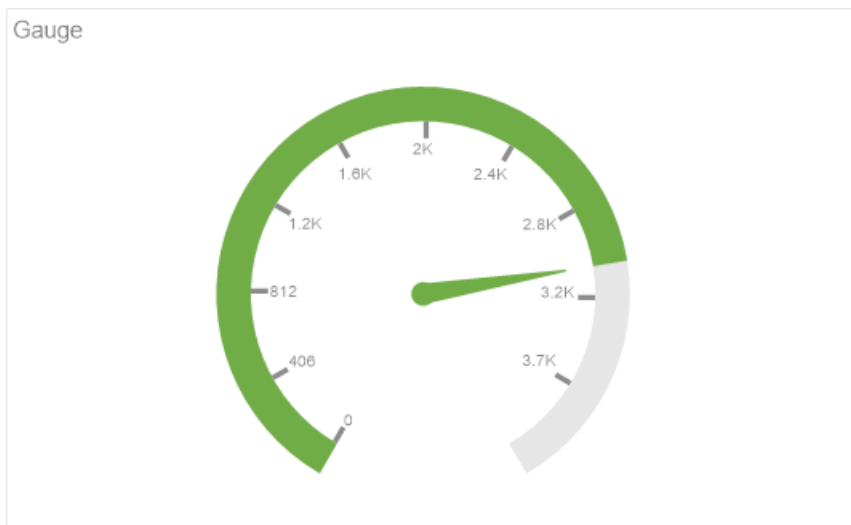
| | |
|-----------------------|---|
| Negative Series Color | Customizes the list of colors for negative values of the rows of the Chart element. |
| Series Color | Customizes the list of colors for the values of the rows of the Chart element. |
| Shadow | <p>A group of properties that allows configuring the shadow of an element:</p> <ul style="list-style-type: none"> ➤ The Color property allows you to specify the color that will be used to display the shadow of the element. ➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel. ➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size. ➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel. |
| Style | Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard. |
| Argument Format | Customizes the formatting of the arguments the Chart element. |
| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |
| Interaction | Customizes the interaction element of the |

| | |
|-------------|--|
| | chart. |
| Margin | A group of properties that allows you to define indents (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define indents (left, top, right, bottom) of the columns from the range of values. |
| Show Blanks | Allows displaying or hiding the label "Show (blank)" in the dashboard element when there is no data available for that element. |
| Title | <p>A group of properties that allows you to customize the title of the Table element:</p> <ul style="list-style-type: none">➤ The Back Color property provides the ability to change the background color of the title of the current item. By default, this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element.➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style.➤ The group property Font allows you to define the font family, its style and size for the title of the current element.➤ The Horizontal Alignment property provides the ability to change the title alignment relative to the element - Left, Center, Right.➤ The Text property is used to set the title text of the current element.➤ The Visible property is used to enable or disable displaying of the title of the current item. If the property is set to True, |

| | |
|--------------|---|
| | then the element title will be included. If this property is set to False , then the element header will be disabled. |
| Value Format | Customizes the formatting of the values of the Chart element. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none"> ➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed. ➤ The Allow Delete option enables or disables the deletion of an element. ➤ The Allow Move option allows or prohibits moving an element. ➤ The Allow Resize option enables or disables resizing of an element. ➤ The Allow Select option enables or disables the element selection. |
| Locked | Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location. |

5.7 Gauge

Gauge is an element of the dashboard panel using which you can display the processed value from the data field.



This chapter will cover the following:

- › [Gauge Editor](#);
- › [Gauge Values](#);
- › [Gauge Series](#);
- › [Gauge Types](#);
- › [Range of Values](#);
- › [Colored Ranges](#);
- › [Table of Properties](#).

You may adjust the **Gauge** element in its editor. To call the editor, you should:

- › Double-click the mouse left button on the item;
- › Select the **Gauge** element, and select the **Design** command in the context menu;
- › Select the **Gauge** element, and, on the property panel, click the **Browse** button of the **Value** or **Series** properties.

Gauge Editor

This editor adjusts the gauge.

Gauge

Value: Users (Sum)

Target: New Users (Sum)

Series: Month

Expression: SiteStatistics.Month

Type: [Icons]

Mode: Auto

Range Type: Color

Percentage: [Dropdown] Add Range

0 - 33 (Red)

33 - 66 (Yellow)

66 - 100 (Green)

0 - 33 (Input fields)

[Red Color Selector]

In the Gauge editor you can:

- › Specify a data field with values for the gauge;
- › Specify the series of the gauge;
- › Specify a data field with target values for the gauge;
- › Select **Type** of the gauge;
- › Modify **Expression** of the selected element;
- › Select and adjust the range of the gauge;
- › Set the color palette of the gauge scale.

Gauge values

To create a gauge on the dashboard panel, you need a data field in the **Value** field.

To do this:

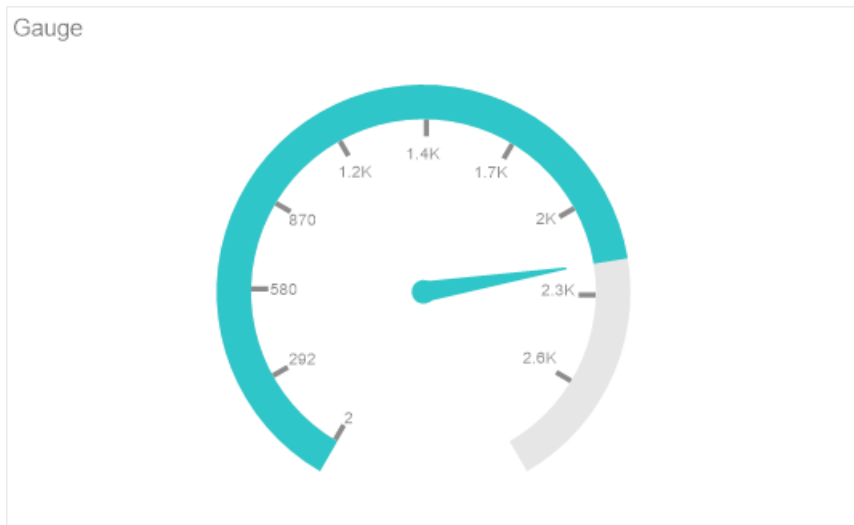
- Drag and drop the data column from the dictionary to the **Value** field, and for newly added items, drag it into the editor or the gauge area.
- Create **New Field**. Set the expression for this element, the processing result of which will be the value for the gauge.



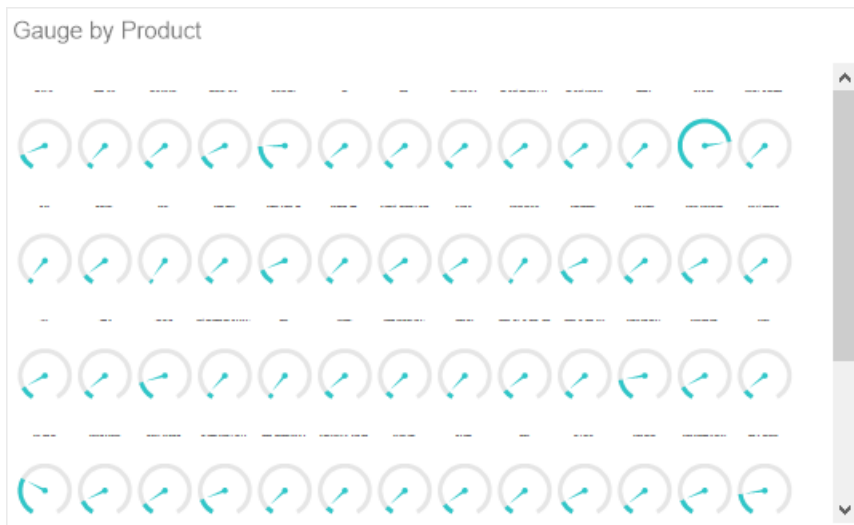
Series of gauge

A gauge series is a separate graphic element for a specific segment of values selected by a specific condition. The condition in this case will be the values of the data field which is indicated in the **Series** field.

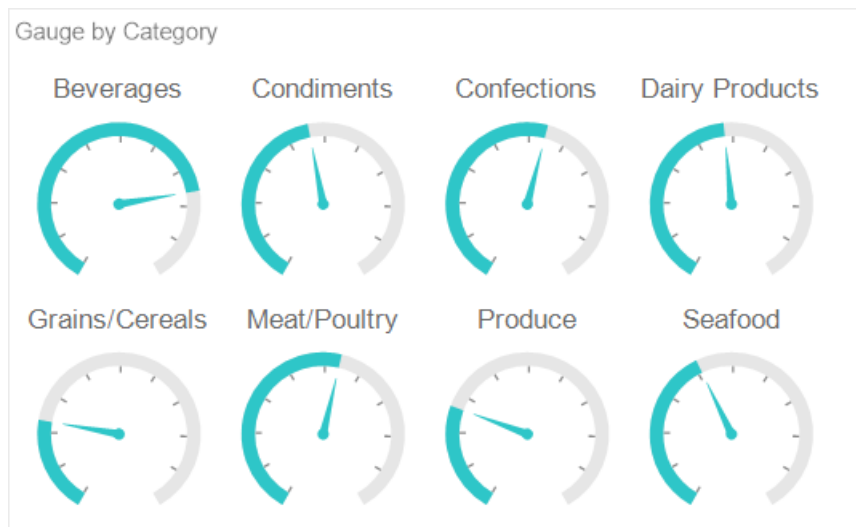
For example, a data field with product prices is specified in the **Gauge** field. Without specifying the series one graphic element will be displayed, the value of which will be the sum of the prices of all products.



If you specify a data field with a list of products in series then, for every product, a graphic element will be displayed, the value of which will be the price of this product.



If you specify a data field with a list of product categories in series, then a graphic element will be displayed for every category. The value of this graphic element will be the sum of the prices of products included into this category.



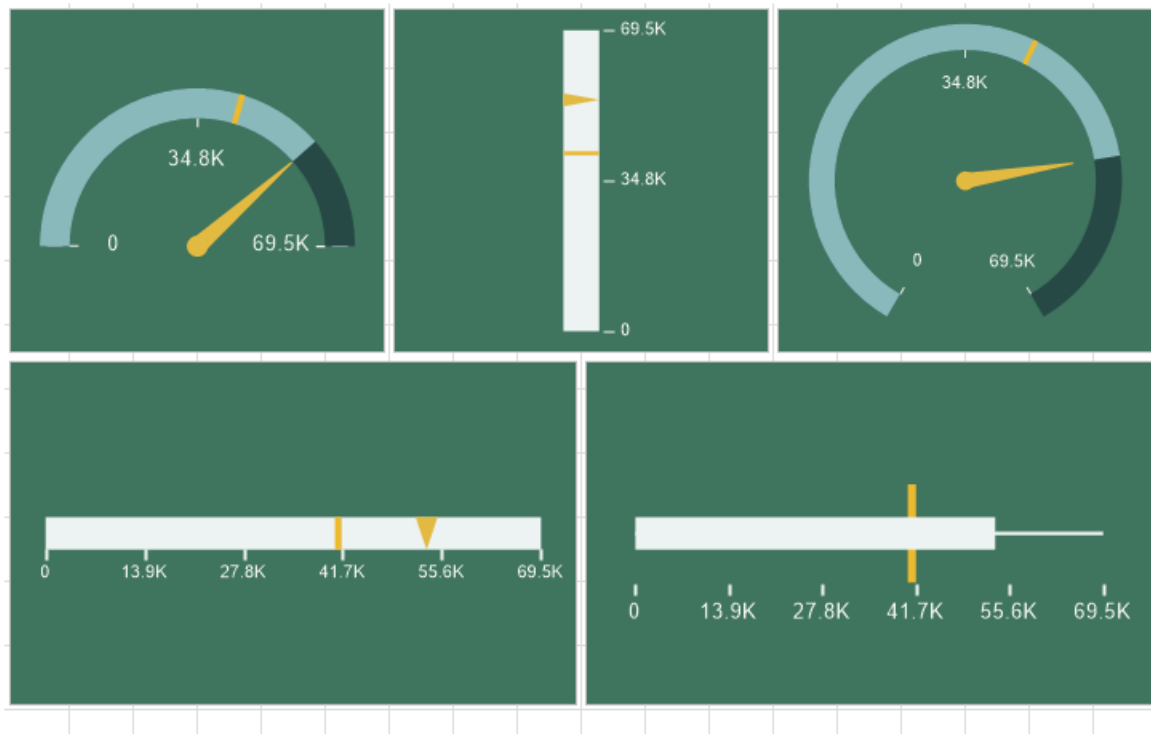
To specify the series of the gauge, you should do the following:

- Double-click the mouse left button on the gauge;
- In the element editor, drag and drop the data column from the dictionary to the **Series** field.
- Create **New Field** in the **Series** field. Set the expression for this element, the processing of which will be series for the gauge.

Gauge types

The gauge can be of the following types:

- Full Circular;
- Half-Circular;
- Vertical Linear;
- Horizontal Linear;
- Bullet.



To change the type of a gauge, you should:

- Double-click the mouse left button on the gauge;
- Using the control buttons, select one of the types of a gauge.

Gauge ? X

Value 

Users (Sum)

Target

New Users (Sum)

Series

Drag & drop data from Dictionary

Expression

Sum(SiteStatistics.Users)  

Type     

Mode Auto 

Range Type None 

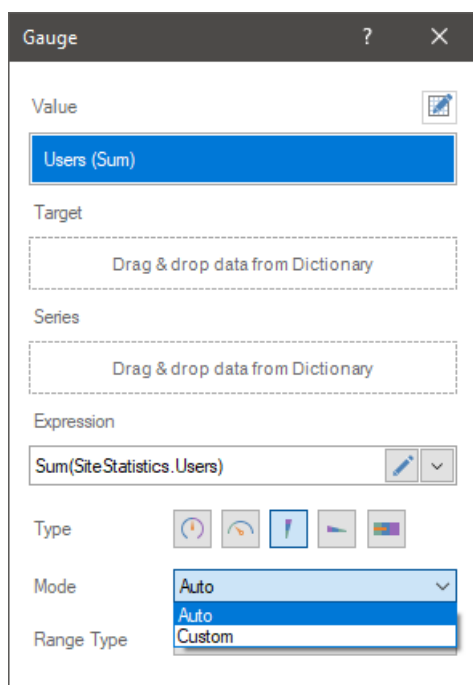
Information

Within the limits of one **gauge** element it is possible to use only one type of a gauge. Even in the case of multiple series, the type of the gauge will be the same for all values.

Gauge range of values

Regardless of the gauge type, its values and series, you can define a range of values. By default, the **AutoRange** mode is used. In this case, the initial and final value of the gauge scale is calculated automatically. However, if you need to specify a specific range of values, you should do the following:

- Double-click the mouse left button on the gauge;
- In the **Mode** field, left-click on the menu.
- Select **Custom** in the drop-down list.



- In the **Minimum** field you should set the initial value of the gauge scale;
- In the **Maximum** field you should set the maximum value of the gauge scale;

The screenshot shows a 'Gauge' configuration window with the following fields and options:

- Value:** A blue button labeled 'Users (Sum)'.
- Target:** A dashed box containing the text 'Drag & drop data from Dictionary'.
- Series:** A dashed box containing the text 'Drag & drop data from Dictionary'.
- Expression:** A text field containing 'Sum(SiteStatistics.Users)' with a dropdown arrow.
- Type:** Five icons representing different gauge styles: a semi-circle, a quarter circle, a needle, a bar, and a multi-colored bar.
- Mode:** A dropdown menu currently set to 'Custom'.
- Minimum:** A text field with '-10.00' and a dropdown arrow.
- Maximum:** A text field with '300000' and a dropdown arrow.
- Range Type:** A dropdown menu currently set to 'None'.

Select the **Auto** value in the **Mode** field to enable the automatic mode for calculating the range of values of the gauge scale.

Multi-colored scale

By default, the gauge scale is monochromatic. However, you can adjust the color for a specific range of the scale. To do this:

- Double-click the mouse left button on the gauge;
- Left-click in the **Range Type** field.
- Select **Color** in the drop-down list.

Then you should:

- Determine the type of values for the scale range - **Percentage** or **Value**;
- Customize the list of ranges;
- Customize every range by specifying the start - end values of the range and its color.

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

| Name | Description |
|------|-------------|
|------|-------------|

| | |
|---------------------|---|
| Cross-Filtering | It allows you to enable or disable the cross-filtering mode for the current element. |
| Data Transformation | Customizes the data transformation of the current item. |
| Group | Adds the current item to a specific group of items . |
| Labels | <p>The group of properties that allows you to set labels of values:</p> <ul style="list-style-type: none"> ➤ The Visible property allows you to enable or disable the display of the value labels in the gauge; ➤ The Placement property allows you to change the placement of labels relative to the gauge scale – Inside or Outside. |
| Target | <p>The group of properties, which allows you to customize the display of target value in an element:</p> <ul style="list-style-type: none"> ➤ The Show Label property allows you to enable or disable the display of target value signature in an element; ➤ The Placement property allows you to define the placement of target value signature in an element - Inside or Outside. |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left , Top - |

| | |
|------------|--|
| | Right, Bottom - Right, Bottom - Left. The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius. |
| Font | A group of properties defines the font family, its style, and size for the values of the element. |
| Fore Color | Specifies the color of the values of the element. By default, this property is set to From Style , i.e. the color of the values will be obtained from the settings of the current element style. |
| Shadow | <p>A group of properties that allows configuring the shadow of an element:</p> <ul style="list-style-type: none">➤ The Color property allows you to specify the color that will be used to display the shadow of the element.➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel.➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size.➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel. |
| Style | Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard. |
| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , |

| | |
|-------------|---|
| | the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |
| Interaction | Sets interaction of the current element. |
| Margin | A group of properties that allows you to define margin (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define padding (left, top, right, bottom) of the graphic element area from the margin of the value area. |
| Show Blanks | Allows displaying or hiding the label "Show (blank)" in the dashboard element when there is no data available for that element. |
| Title | <p>A group of properties that allows you to customize the title of the element:</p> <ul style="list-style-type: none"> ➤ The Back Color property provides the ability to change the background color of the title of the current item. By default, this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element. ➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style ➤ The group property Font that allows you to define the font family, its style and size for the title of the current element. ➤ The Horizontal Alignment property |

| | |
|--------------|---|
| | <p>provides the ability to change the title alignment relative to the element - Left, Center, Right.</p> <ul style="list-style-type: none">➤ The Text property is used to set the title text of the current element.➤ The Visible property is used to enable or disable displaying of the title of the current item. If the property is set to True, then the element title will be included. If this property is set to False, then the element header will be disabled. |
| Value Format | It allows you to set the formatting of labels of scales for the current element. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none">➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed.➤ The Allow Delete option enables or disables the deletion of an element.➤ The Allow Move option allows or prohibits moving an element.➤ The Allow Resize option enables or disables resizing of an element.➤ The Allow Select option enables or disables the element selection. |
| Locked | Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current |

item is bound to the current location. If this property is set to **False**, then this element is not tied to the current location.

5.8 Pivot

Pivot is an element of the dashboard, which is used to process, group and summarize data values by rows and columns of this table.

| Pivot Table | | Sales | | | | | |
|-------------|------------------------|----------|---------|-----------|-----------|----------|-----------|
| Continent | Country | 1 | 2 | 3 | 4 | 5 | Total |
| ▶ | Africa | | | | \$124.08M | | \$124.08M |
| ▶ | America | | | \$473.09M | | | \$473.09M |
| ▶ | Asia | | \$1.12B | | | | \$1.12B |
| ▶ | Australia | \$16.35M | | | | | \$16.35M |
| | Albania | | | | | \$1.34M | \$1.34M |
| | Austria | | | | | \$5.97M | \$5.97M |
| | Belarus | | | | | \$3.30M | \$3.30M |
| | Belgium | | | | | \$8.36M | \$8.36M |
| | Bosnia And Herzegovina | | | | | \$2.40M | \$2.40M |
| | Bulgaria | | | | | \$3.31M | \$3.31M |
| | Croatia | | | | | \$2.70M | \$2.70M |
| | Czech Republic | | | | | \$7.02M | \$7.02M |
| | Denmark | | | | | \$4.89M | \$4.89M |
| | Estonia | | | | | \$1.20M | \$1.20M |
| | Finland | | | | | \$4.57M | \$4.57M |
| | France | | | | | \$52.23M | \$52.23M |
| | Germany | | | | | \$67.50M | \$67.50M |
| | Greece | | | | | \$4.77M | \$4.77M |
| | Hungary | | | | | \$6.52M | \$6.52M |
| | Ireland | | | | | \$3.23M | \$3.23M |

This chapter will cover the following:

- [Pivot Editor](#);
- [Totals](#);
- [Rows](#);
- [Columns](#);
- [Table of Properties](#).

To display the pivot element you should to add at least one data field in the **Totals** field. Element settings of the **Pivot** table is implemented in the element editor. To call the editor, you should:

- Double-click the **Pivot** item;
- Select the **Pivot** item, and select the **Design** command in the context menu;
- Select the **Pivot** item, and, on the property bar, click the **Browse** button of the

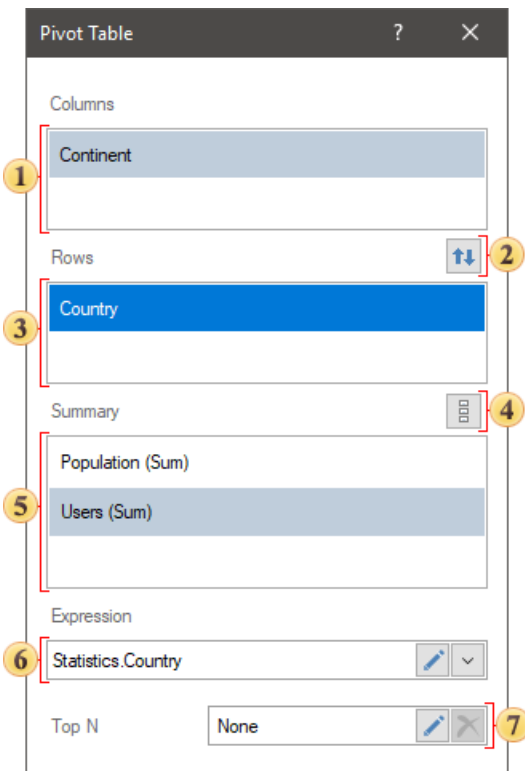
Columns property.

Information

[Text formatting](#) can be applied to the values of the current element.

Editor of the Pivot table

In the editor of the **Pivot** table, you can add elements with data and edit expressions for these elements, as well as adjust the top values of the element.



- ❶ The **Columns** field indicates the data fields for the rows of this table;
- ❷ The button is used to swap data fields between **Columns** and **Rows** fields.
- ❸ The **Row** field indicates data fields for the columns of this table;
- ❹ The button for changing orientation of the summary cells: by columns or rows;
- ❺ The **Summary** field indicates the data fields for the resulting cells of this table;
- ❻ The **Expression** field in which the expression of the selected data field is displayed.
- ❼ The **Top N** parameter is used to customize the list of maximum or minimum

values of the pivot table. The top values are set to Top N values editor. To call the editor, click the **Edit** button in the current field. To reset the top values, click the **Remove** button in the current field.

Totals

At the intersection of the columns and rows of the pivot table you can see cells. A value from the corresponding cell of the data source will be added to this cell, i.e. the value from the data source cell formed at the intersection of the corresponding column and rows in the data source. Then, all values of each row and each column will be summed up and displayed in the resulting cells of the pivot table. Also, in the **Totals** field you can specify several data fields. In this case, cells will be added to the pivot table both for the first data field and for the second one.

| Pivot Table | | Category Name | | | | |
|------------------------------|----------------|---------------|----------------|---------|---------|---------|
| Product Name | | Condiments | Dairy Products | Produce | Seafood | Total |
| Aniseed Syrup | Price | \$10.00 | | | | \$10.00 |
| | Units In Stock | 13 | | | | 13 |
| | Units On Order | 70 | | | | 70 |
| Boston Crab Meat | Price | | | | \$18.40 | \$18.40 |
| | Units In Stock | | | | 123 | 123 |
| | Units On Order | | | | | |
| Camembert Pierrot | Price | | \$34.00 | | | \$34.00 |
| | Units In Stock | | 19 | | | 19 |
| | Units On Order | | | | | |
| Camaron Tigers | Price | | | | \$62.50 | \$62.50 |
| | Units In Stock | | | | 42 | 42 |
| | Units On Order | | | | | |
| Chef Anton's Cajun Seasoning | Price | \$22.00 | | | | \$22.00 |
| | Units In Stock | 53 | | | | 53 |
| | Units On Order | | | | | |
| Chef Anton's Gumbo Mix | Price | \$21.35 | | | | \$21.35 |
| | Units In Stock | | | | | |
| | Units On Order | | | | | |
| Escargots de Bourgogne | Price | | | | \$13.25 | \$13.25 |
| | Units In Stock | | | | 62 | 62 |
| | Units On Order | | | | | |

Rows

This field of the pivot table indicates the data fields which values will form the rows of the pivot table. Also in this field you can specify multiple items. In this case, the data fields must be related with each other, because the values of the top data field in this field are "predecessor" for the values of the lower data field. For example, if the top data field contains a list of categories, and the bottom contains a list of

products.

The screenshot shows a 'Pivot Table' configuration window with the following sections:

- Columns:** A dashed box containing the text 'Drag & drop data from Dictionary'.
- Rows:** A list containing 'Category Name' (highlighted in blue) and 'Product tName'.
- Summary:** A list containing 'Price (Sum)' (highlighted in blue).
- Expression:** An empty text box with a blue pencil icon and a dropdown arrow.
- Top N:** An empty text box with a blue pencil icon and a cross icon.

In this case, in the pivot table, each category will be a separate line in the pivot table. However, each category will contain its own list of products that will form the rows of the pivot table within that category.

| Category Name | Product Name | Price |
|---------------|---------------------------|------------|
| Beverages | Chai | \$18.00 |
| | Chang | \$19.00 |
| | Chartreuse verte | \$18.00 |
| | Côte de Blaye | \$263.50 |
| | Guaraná Fantástica | \$4.50 |
| | Ipoh Coffee | \$46.00 |
| | Lakkalikööri | \$18.00 |
| | Laughing Lumberjack Lager | \$14.00 |
| | Outback Lager | \$15.00 |
| | Rhönbräu Klosterbier | \$7.75 |
| | Sasquatch Ale | \$14.00 |
| | Steeleye Stout | \$18.00 |
| | Total | \$455.75 |
| ► | Condiments | \$276.75 |
| ► | Confections | \$327.08 |
| ► | Dairy Products | \$287.30 |
| ► | Grains/Cereals | \$141.75 |
| ► | Meat/Poultry | \$324.04 |
| ► | Produce | \$161.85 |
| ► | Seafood | \$248.19 |
| | Total | \$2 222.71 |

Columns

This field of the pivot table indicates the data fields which values will form the rows of the pivot table. Also in this field you can specify multiple data fields. In this case, the data fields must be related to each other, because the values of the top data field in this field are "predecessor" for the values of the lower data field. For example, if the top data field contains a list of categories, and the bottom contains a list of products.

Pivot Table ? X

Columns

Category Name

Product Name

Rows

Drag & drop data from Dictionary

Summary

Price (Sum)

Expression

Categories.CategoryName

Top N

None

In this case, in the pivot table, each category will be a separate column in the pivot table. However, each category will contain its own list of products that will form the columns of the pivot table within that category.

| Category Name | ▶ Beverages | ◀ Condiments | | | ▶ Confections | ▶ Dairy Products |
|---------------|-------------|----------------------------|--------------|---------|---------------|------------------|
| Product Name | | Northwoods Cranberry Sauce | Vegie-spread | Total | | |
| Price | \$309.50 | \$40.00 | \$43.90 | \$83.90 | \$174.20 | \$93.00 |

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

| Name | Description |
|---------------------|--|
| Cross-Filtering | It allows you to enable or disable the cross-filtering mode for the current element. |
| Data Transformation | Customizes the data transformation of the current element. |
| Group | Adds the current item to a specific group of items . |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left, Top - Right, Bottom - Right, Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius. |
| Shadow | A group of properties that allows configuring the shadow of an element:
➤ The Color property allows you to specify the color that will be used to display the shadow of the element.
➤ The properties in the Location group |

| | |
|-------------|--|
| | <p>allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel.</p> <p>➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size.</p> <p>➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel.</p> |
| Style | Selects a style for the current element. By default, it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard. |
| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |
| Interaction | Sets interaction of the current element. |
| Margin | A group of properties that allows you to define margin (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define padding (left, top, right, bottom) of the columns from the range of values. |
| Title | <p>A group of properties that allows you to customize the title of the element:</p> <p>➤ The Back Color property provides the ability to change the background color of the title of the current item. By default,</p> |

| | |
|--------------|---|
| | <p>this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element.</p> <ul style="list-style-type: none"> ➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style ➤ The group property Font that allows you to define the font family, its style and size for the title of the current element. ➤ The Horizontal Alignment property provides the ability to change the title alignment relative to the element - Left, Center, Right. ➤ The Text property is used to set the title text of the current element. ➤ The Visible property is used to enable or disable displaying of the title of the current item. If the property is set to True, then the element title will be included. If this property is set to False, then the element header will be disabled. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none"> ➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed. ➤ The Allow Delete option enables or disables the deletion of an element. ➤ The Allow Move option allows or prohibits moving an element. ➤ The Allow Resize option enables or disables resizing of an element. ➤ The Allow Select option enables or |

| | |
|-------------------------------|--|
| | disables the element selection. |
| Locked | Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location. |
| Data field properties: | |
| Expand | Allows defining the default expand/collapse condition for rows or columns in a pivot table. |
| Expression | It allows you to specify an expression for a selected data field. |
| Hide Zero | Allows displaying or hiding zero values in the resulting cells. |
| Horizontal Alignment | It allows you to define horizontal alignment of a selected data field. |
| Label | It allows you to change a name of a selected data field. |
| Show Total | It allows you to enable or disable the display of total cells for rows or columns. Accordingly, the property is available only for data fields from the rows or columns of the pivot table. |
| Size | The group of properties that allows you to define the size of cells, their range, from min to max size and enable the word wrap mode, if needed. |

| | |
|----------------|--|
| Sort Direction | Allows defining the sorting direction for row or column headers in a pivot table. Possible directions include ascending, descending, or no sorting. |
| Text Format | It allows you to set text format for the values of a selected data field. |
| Total Label | It allows you to change the header of a total column or row. Accordingly, the property is available only for data fields from rows and columns of a pivot table. |

5.9 Indicator

Indicator is an element of the dashboard that represents the ability to display the aggregated value of the data field, as well as the rate of increase of this value to the target. In addition, the growth rate and the aggregated value of the indicator can be grouped by a condition.



This chapter will cover the following:

- › [Indicator Editor](#);
- › [Indicator Value](#);
- › [Indicator Target Value](#);
- › [Indicator Series](#);
- › [Indicator Icon](#);
- › [Glyph Color](#);
- › [Table of Properties](#).

To display the **Indicator**, you should add a data item in the **Value** field. In this case, the value will be displayed with a specific graphic element. Also to display the growth rate, it is necessary to set the data element in the **Target** field. The settings of the **Indicator** element can be done in the element editor. To call the editor, you should:

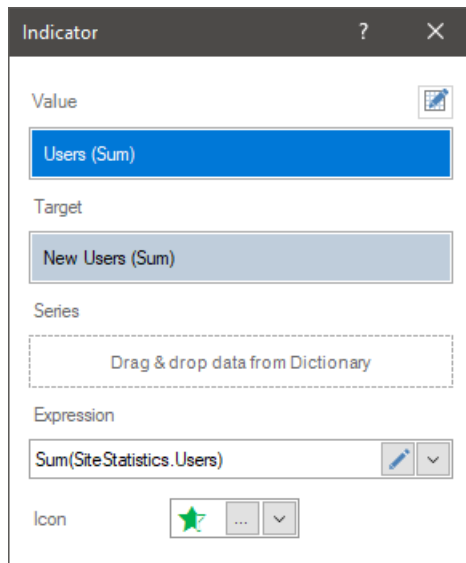
- › Double-click on the **Indicator** element;
- › Select the **Indicator** element and select the **Design** command in the context menu;
- › Select the **Indicator** element, and, on the property panel, click the **Browse** button of the Value, Target, and Series properties.

Information

[Text formatting](#) can be applied to the values of the current element.

Indicator editor

In the **Indicator** editor, you can add elements with data, edit the expressions of these elements, select a graphic element to indicate the value.



The image shows a software window titled "Indicator" with a standard Windows-style title bar containing a question mark and a close button. The window is divided into several sections for configuring an indicator:

- Value:** A blue rectangular field containing the text "Users (Sum)".
- Target:** A light blue rectangular field containing the text "New Users (Sum)".
- Series:** A dashed rectangular box containing the text "Drag & drop data from Dictionary".
- Expression:** A text field containing "Sum(SiteStatistics.Users)" with a small edit icon (pencil) and a dropdown arrow to its right.
- Icon:** A section containing a green star icon, an ellipsis "...", and a dropdown arrow.

In the **Indicator** editor you can:

- Specify the data field for the Indicator value;
- Specify the data field for the target value of the Indicator;
- Specify the data field for the series of the Indicator;
- Select a graphic element to display the value.

Indicator value

In the value field, you can specify only one data field. All values of this field will be aggregated, i.e. a function will be applied to them. By default, this is a summation function for numeric values. If a field with non-numeric values is added, then by default the function of the number of rows in this data field is applied to them.

Only Value

50



Information

In the **Indicator** element, you can specify only the value. In this case, the aggregated value of the data field will be displayed with a specific graphic element, without a growth rate.

Target value

To use the indicator to display the growth rate, besides the value in the indicator, it is necessary to indicate the target value. The target value is the aggregated value of the data field specified in the **Target** field of the indicator. In the **Target** field, you can specify only one data field. By default, the summation function for numeric values is applied to the data field in the **Target** field. If a data field with non-numeric values is added, then, by default, the function of counting the number of rows in this data field is applied to it.

Value and Target

1802



-81% ↓

Information

If only the target value is specified in the **Indicator** element but the value of this indicator is not indicated, then the growth rate in the indicator will be -100 percent.

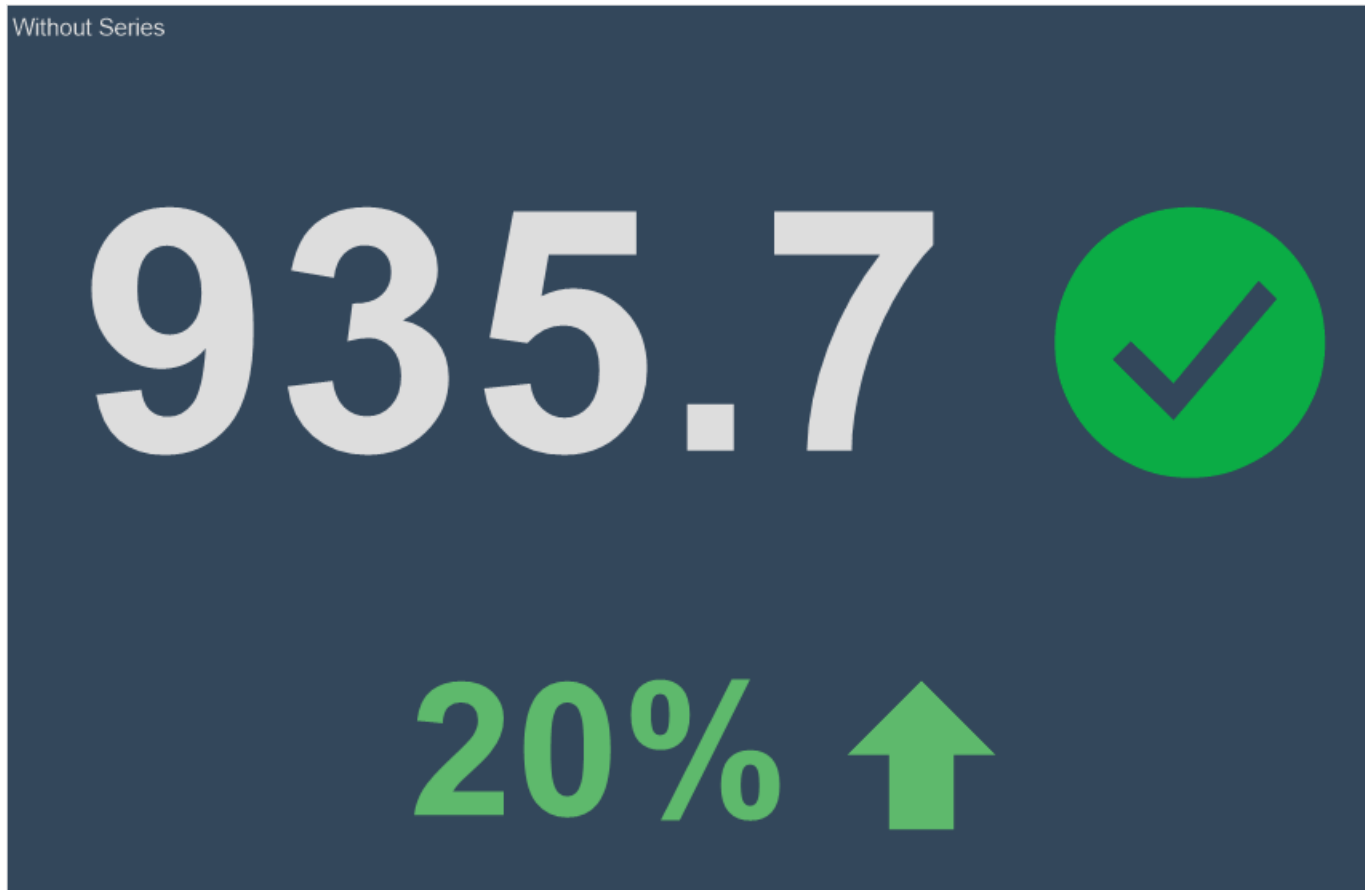
The target value is not displayed in the indicator, but it is involved in the calculation of the **Variation** value. The variation value is expressed as a percentage and can display either the percentage of the value from the target value or the variation of the value from the target value. The variation display mode depends on the value of the **Target Mode** property.

Indicator series

The indicator series is a separate indicator for a specific segment of values selected by a specific condition. The condition in this case will be the values of the data

element that is specified in the **Series** field.

For example, in the **Value** field on the indicator, a data field with the number of orders issued is set, and in the Target field you set the planned number of orders. Without a series, only one indicator will be displayed. The indicator value will be the aggregated value of the data field specified in the Value field. All data field values from the **Target** field will also be aggregated. Based on the value and the target value, the indicator will be displayed with the growth rate.



If you specify a data field with a list of products in series, then the indicator will be displayed for every product, i.e. for each product, the number of orders issued and the rate of growth of orders for each product will be displayed.

Series by Product

| | | | |
|------------------------------|----|-------|---|
| Alice Mutton | 0 | -100% | ↓ |
| Aniseed Syrup | 70 | 438% | ↑ |
| Boston Crab Meat | 0 | -100% | ↓ |
| Camembert Pierrot | 0 | -100% | ↓ |
| Carnarvon Tigers | 0 | -100% | ↓ |
| Chai | 0 | -100% | ↓ |
| Chang | 40 | 135% | ↑ |
| Chartreuse verte | 0 | -100% | ↓ |
| Chef Anton's Cajun Seasoning | 0 | -100% | ↓ |
| Chef Anton's Gumbo Mix | 0 | -100% | ↓ |
| Chocolade | 70 | 367% | ↑ |
| Côte de Blaye | 0 | -100% | ↓ |
| Escargots de Bourgogne | 0 | -100% | ↓ |
| Filo Mix | 0 | -100% | ↓ |
| Fløtemysost | 0 | -100% | ↓ |
| Geitost | 0 | -100% | ↓ |
| Genen Shouyu | 0 | -100% | ↓ |
| Gnocchi di nonna Alice | 10 | -52% | ↓ |
| Gorgonzola Telino | 70 | -100% | ↓ |
| Grandma's Boysenberry Spread | 0 | -100% | ↓ |
| Gravad lax | 50 | 355% | ↑ |
| Guaraná Fantástica | 0 | -100% | ↓ |
| Gudbrandsdalsost | 0 | -100% | ↓ |
| Gula Malacca | 0 | -100% | ↓ |
| Gumbär Gummibärchen | 0 | -100% | ↓ |
| Gustafs Knäckebröd | 0 | -100% | ↓ |

If you specify a data field with a list of product categories in series, then an indicator will be displayed for each category, i.e. the indicator value and growth rate will be calculated by processing the values and growth rate of all products included into this category. In other words, the values and growth rate of each product will be grouped into categories to which they relate.

Series by Category

| | | | |
|----------------|-------|-------|---|
| Beverages | 167.7 | 180% | ↑ |
| Condiments | 152.1 | -11% | ↓ |
| Confections | 115.8 | -36% | ↓ |
| Dairy Products | 117.9 | -16% | ↓ |
| Grains/Cereals | 92.4 | 3% | ↑ |
| Meat/Poultry | 49.5 | -100% | ↓ |
| Produce | 30.0 | 50% | ↑ |
| Seafood | 210.3 | 75% | ↑ |

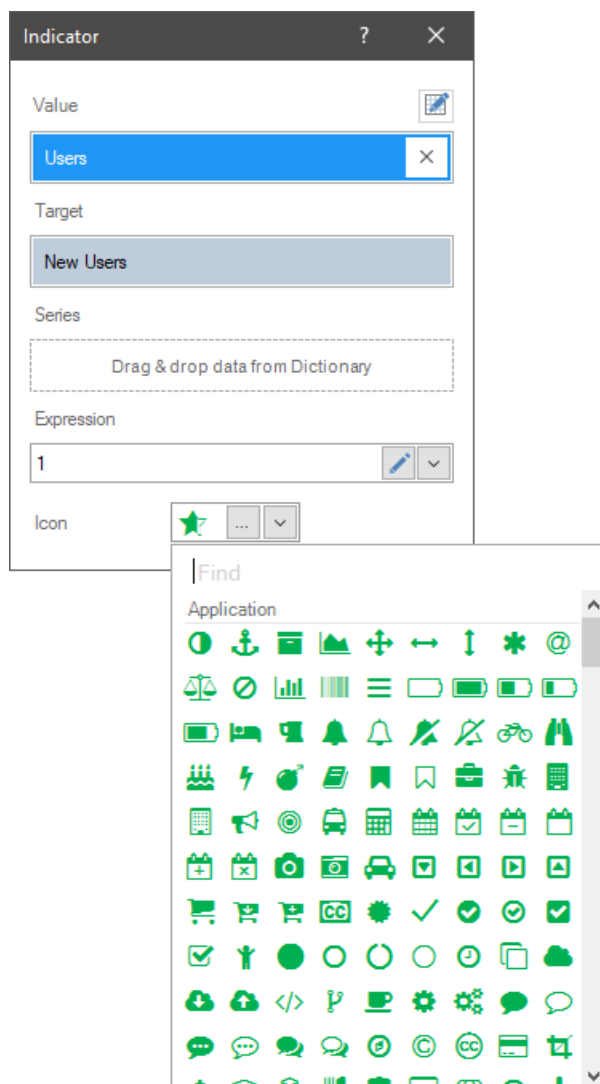
To set the series of the indicator, you should:

- Double-click the left mouse button on **Indicator**;
- Drag and drop the data column from the dictionary to the **Series** field.
- Create **New Field** in the **Series** field. Set the expression for this element, the processing of which will be the values of the series of the indicator.

Graphic element of value

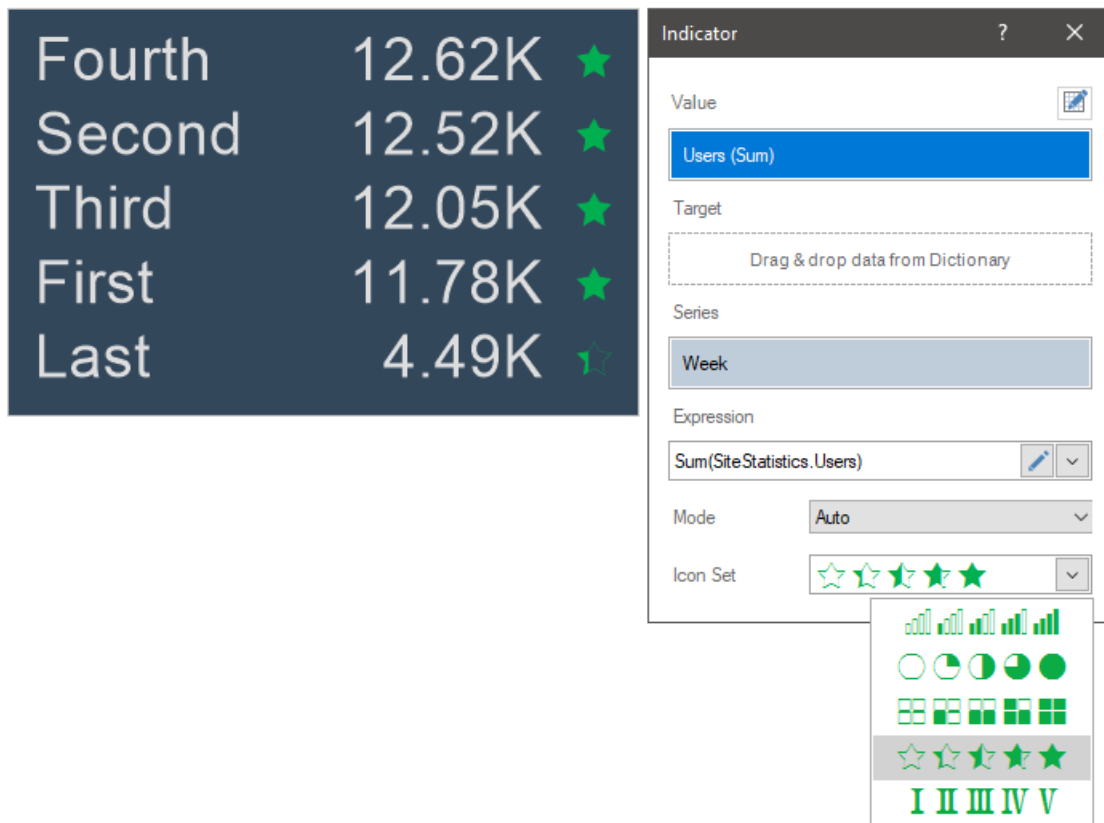
When creating an indicator for a value, you can select a graphic element. To do this:

- Call the editor of the element;
- Click the **Browse** button in the **Icon** field, and select the icon in the drop-down list.



If rows and target value are specified in an indicator, you can't specify an icon for the indicator. However, if values and rows are specified in an indicator, you can specify a set of icons for indicators or ranges of values for each icon. Let's have a look at the example.

Let's specify rows for an indicator. In this case, you can select a set of icons for the indicator. The minimum value of the indicator will be assigned to the first icon from the set, the maximum - to the last one. The value range will be divided into the number of icons in the set, and depending on which part of the value range the value of the row belongs to, one or another icon from the set will be assigned. By default, the **Mode** property is set to the **Auto** value, i.e. the calculation of the range of values by parts is performed automatically.



Also, you can divide the range of values manually, and for each part of the range, you can assign a different icon. To do this, you should set the **Mode** property to the **Custom** value. This will display additional controls that can be used to customize each part of the indicator values range. You should click the **Add Range** button, define its numerical boundaries, select an icon for each part of the range. It is worth considering that parts of the range can be defined as absolute or relative. This depends on the range type parameter - **Percentage** or **Value**.

If you select a type as **Percentage**, the boundaries of the value range part is the percentage size of the current part from the relative value of the range. For example, from 0 to 50 percent means that it will be a part from the beginning to the average number of the range values. If you select a type as **Value**, the range part boundaries are absolute range boundaries. For example, from 0 to 50 means that it will be the portion from the numeric value 0 to the numeric value 50.

Glyph Color

By default, icon color is assigned from the element style. You can change it using the **Glyph Color** property of the indicator. When using a set of icons for indicator series, the color of these icons will be the same. However, you can change the color of the icon depending on the value using [Conditional Formatting](#).

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

| Name | Description |
|---------------------|--|
| Cross-Filtering | It allows you to enable or disable the cross-filtering mode for the current element. |
| Data Transformation | Customizes the data transformation of the current element. |
| Group | Adds the current item to a specific group of items . |
| Target Mode | It allows you to calculate target indicator: Variation or Percentage . |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Conditions | Customizes the conditions element of the indicator . |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left , Top - Right , Bottom - Right , Bottom - Left . The |

| | |
|----------------|--|
| | property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius. |
| Font | A group of properties defines the font family, its style, and size for the values of the element. |
| Font Size Mode | <p>It allows you to define mode, size for the font of an indicator value or deviation value. The following values are available:</p> <ul style="list-style-type: none">➤ Auto. In this case, the font size of an indicator values is automatically changed depending on the size of the current element;➤ Value. In this case, you can change the size of an indicator value using the Size property from the Font group of properties;➤ Target. In this case, you can change the size of an indicator deviation value using the Size property from the Font group of properties. |
| Fore Color | Specifies the color of the values of the element. By default, this property is set to From Style , i.e. the color of the values will be obtained from the settings of the current element style. |
| Glyph Color | Changes the color of the glyph. |
| Shadow | <p>A group of properties that allows configuring the shadow of an element:</p> <ul style="list-style-type: none">➤ The Color property allows you to specify the color that will be used to display the shadow of the element.➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the |

| | |
|----------------|---|
| | <p>indicator panel.</p> <ul style="list-style-type: none"> ➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size. ➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel. |
| Style | Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard. |
| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |
| Icon Alignment | Changes alignment of the element icon. |
| Interaction | Sets interaction of the current element. |
| Margin | A group of properties that allows you to define margin (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define padding (left, top, right, bottom) of the columns from the range of values. |
| Show Blanks | Allows displaying or hiding the label "Show (blank)" in the dashboard element when there is no data available for that element. |
| Text Format | Sets the formatting values of the element. |
| Target Format | Sets the formatting targets of the element. |

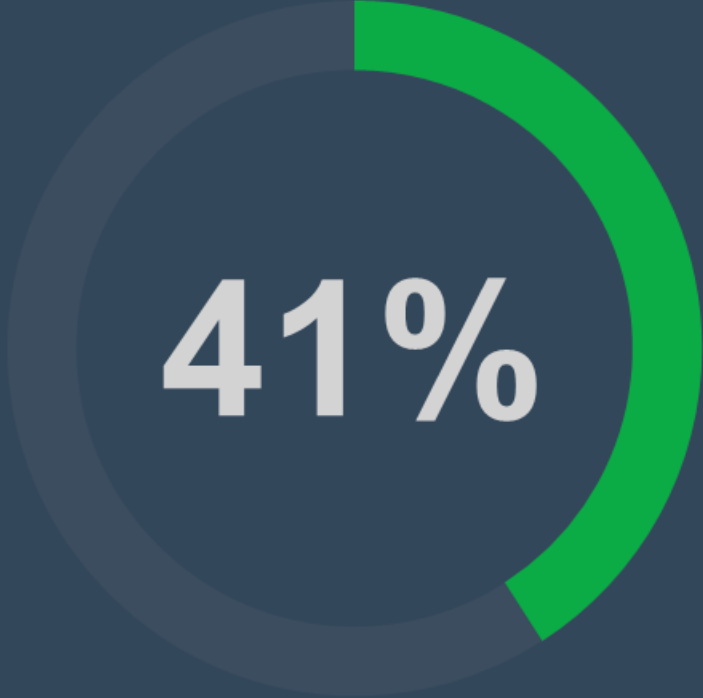
| | |
|--------------|---|
| Title | <p>A group of properties that allows you to customize the title of the element:</p> <ul style="list-style-type: none">➤ The Back Color property provides the ability to change the background color of the title of the current item. By default, this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element.➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style➤ The group property Font that allows you to define the font family, its style and size for the title of the current element.➤ The Horizontal Alignment property provides the ability to change the title alignment relative to the element - Left, Center, Right.➤ The Text property is used to set the title text of the current element.➤ The Visible property is used to enable or disable displaying of the title of the current item. If the property is set to True, then the element title will be included. If this property is set to False, then the element header will be disabled. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none">➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed.➤ The Allow Delete option enables or disables the deletion of an element. |

| | |
|--------|--|
| | <ul style="list-style-type: none">➤ The Allow Move option allows or prohibits moving an element.➤ The Allow Resize option enables or disables resizing of an element.➤ The Allow Select option enables or disables the element selection. |
| Locked | Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location. |

5.10 Progress

Progress is an element of the dashboard panel that represents the ability to display the growth rate (relative share) of a value relative to the target value.

Progress



41%

This chapter will cover the following:

- › [Progress Editor](#);
- › [Progress Value](#);
- › [Progress Target Value](#);
- › [Progress Series](#);
- › [Progress Types](#);
- › [Table of Properties](#).

To display **Progress**, you need to add a data field to the **Value** and **Target** fields. In this case, using the graphical element, the growth rate of the value in relation to the target will be displayed. You can setup the **Progress** element in the editor. To call the editor, you should:

- › Double-click on the **Progress** element in the dashboard panel;
- › Select the **Progress** element and select the Design command in the context menu;
- › Select the **Progress** element, and, on the property panel, click the **Browse** button

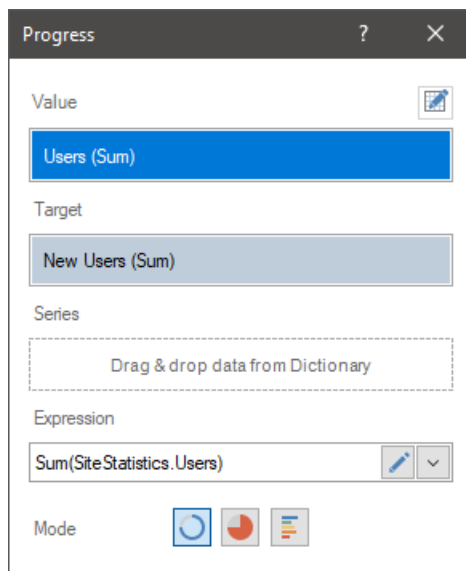
of the **Value**, **Target**, and **Rows** properties.

Information

[Text formatting](#) can be applied to the values of the current element.

Progress editor

In the **Progress** editor, you can add elements with data, edit the expressions of these elements, select the type of a graphic element to display the calculated value.



In the **Progress** editor you can:

- › Specify the data field for the Progress value;
- › Specify the data field for the target Progress value;
- › Specify the data field for the Progress series;
- › Select the type of the graphic element.

Progress values

In the **Value** field, you can specify only one data field. All values of this field will be aggregated, i.e. a function will be applied to them. By default, this is a summation function for numeric values. If a data field with non-numeric values is added, then, by default, the function of the number of rows in this data field is applied to them.

Progress



100%

Information

Without a target value, the growth rate will always be 100 percent.

Target value of progress

To display the growth rate with the help of progress, besides the value in the progress it is necessary to indicate the **target** value. The target value is the aggregated value of the data field specified in the **Target** field of progress. Only one data field can be specified in this field. By default, the summation function for numeric values is applied to the data field in the **Target** field. If a field with non-numeric values is added, then by default the function of counting the number of rows in this data field is applied to it.

Progress



Information

If only a target value is specified in the **Progress** element, but no value is specified, then the growth rate in progress will be 0 percent.

Progress series

A series of progress is a separate progress for a specific segment of values selected by a certain condition. The condition in this case will be the values of the data field, which is specified in the **Series** field.

For example, in the **Progress** value field, a field with the number of orders issued is set, and the planned number of orders is set to **Target** field. One progress will be displayed without specifying a series. The value of progress will be the growth rate (the value relative to the target value).

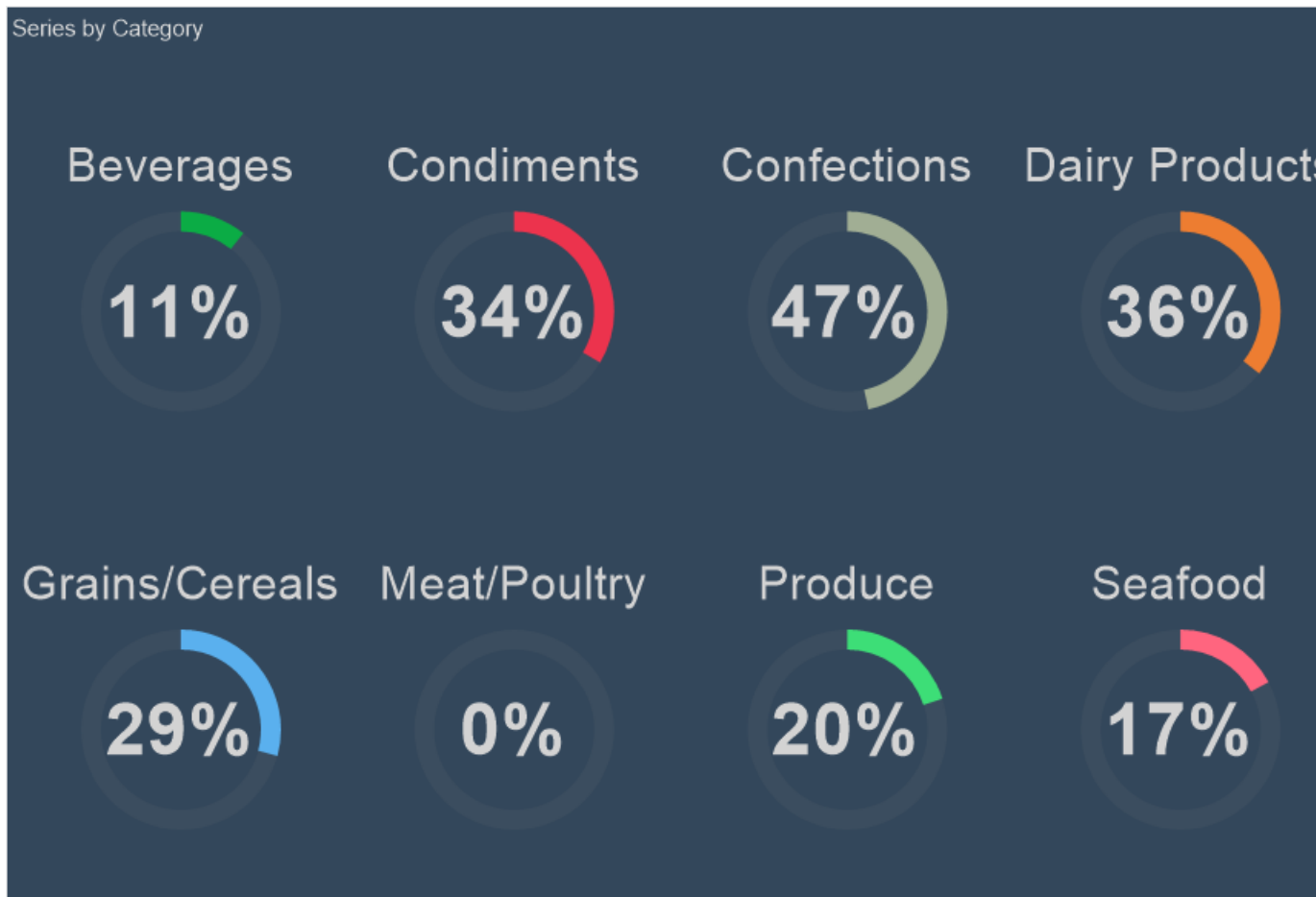
Without Series



If you specify a data field with a list of products in series, then the progress will be displayed for every product, i.e. the growth rate will be displayed for every product.



If you specify a data field in the rows with a list of product categories, then progress will be displayed for every category, i.e. growth rate will be calculated by aggregating the growth rate of all products included into this category. In other words, the growth rate of every product will be grouped into the categories to which they relate.



To set the series of progress, you should:

- Double-click the left mouse button on the **Progress** element;
- Drag and drop the data column from the dictionary to the **Series** field in the editor.
- Create **New Field** in the **Series** field. Set the expression for this data field, the processing result of which will be the values of the progress series.

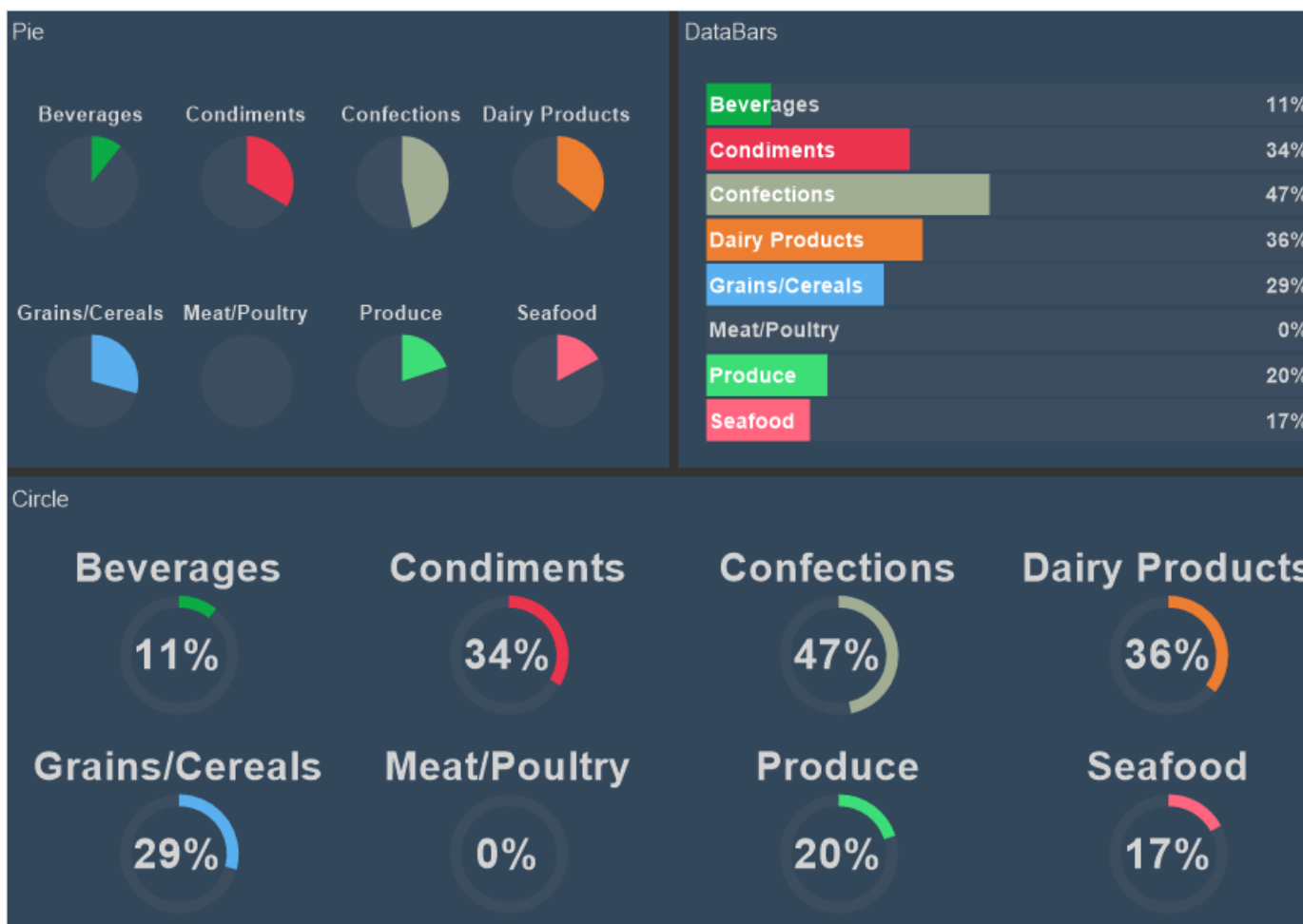
Progress types

When creating the progress, you can select the type of graphic element with which the growth rate value will be displayed. To do this:

- Call the editor of the **Progress** element;
- Use the buttons to select the mode of the graphic element - Circle, Pie, Data Bars.

The screenshot shows the 'Progress' configuration window. It has a title bar with a question mark and a close button. The window is divided into several sections: 'Value' with a blue bar labeled 'Users (Sum)' and a small icon; 'Target' with a light blue bar labeled 'New Users (Sum)'; 'Series' with a dashed box containing the text 'Drag & drop data from Dictionary'; 'Expression' with a text box containing 'Sum(SiteStatistics.Users)' and a dropdown arrow; and 'Mode' at the bottom, which is highlighted with a red rectangle. The 'Mode' section contains three icons: a circular arrow (refresh), a pie chart (gauge), and a bar chart (table).

Below are the three elements of progress with different modes.



Information

Within one **Progress** element, you can select only one type of graphic element.

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

| Name | Description |
|-----------------|--|
| Cross-Filtering | It allows you to enable or disable the cross-filtering mode for the current element. |

| | |
|---------------------|---|
| Data Transformation | Customizes the data transformation of the current element. |
| Group | Adds the current item to a specific group of items . |
| Color Each | Sets a unique shade for every graphic element of the progress. If this property is set to True , the colors from the style collection will be applied to the graphic elements. A different color will be applied to each graphic item. After all the colors from the collection are used, the same colors with the lightening coefficient will be applied to the remaining graphical elements. This way, each graphic item will be with a certain shade. If this property is set to False value, one color from the collection of style colors will be applied to graphic items of the one row. |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Conditions | Customizes the conditions element of the progress. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left, Top - Right, Bottom - Right, Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius. |

| | |
|--------------|--|
| Font | A group of properties defines the font family, its style, and size for the values of the element. |
| Fore Color | Specifies the color of the values of the element. By default, this property is set to From Style , i.e. the color of the values will be obtained from the settings of the current element style. |
| Series Color | Customizes the list of colors for the series of the element. |
| Shadow | <p>A group of properties that allows configuring the shadow of an element:</p> <ul style="list-style-type: none">➤ The Color property allows you to specify the color that will be used to display the shadow of the element.➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel.➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size.➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel. |
| Style | Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard. |
| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to |

| | |
|-------------|---|
| | False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |
| Interaction | Sets interaction of the current element. |
| Margin | A group of properties that allows you to define margin (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define padding (left, top, right, bottom) of the columns from the range of values. |
| Show Blanks | Allows displaying or hiding the label "Show (blank)" in the dashboard element when there is no data available for that element. |
| Text Format | Sets the formatting values of the element. |
| Title | <p>A group of properties that allows you to customize the title of the element:</p> <ul style="list-style-type: none"> ➤ The Back Color property provides the ability to change the background color of the title of the current item. By default, this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element. ➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style. ➤ The group property Font that allows you to define the font family, its style and size for the title of the current element. ➤ The Horizontal Alignment property provides the ability to change the title alignment relative to the element - Left, Center, Right. |

| | |
|--------------|---|
| | <ul style="list-style-type: none">➤ The Text property is used to set the title text of the current element.➤ The Visible property is used to enable or disable displaying of the title of the current item. If the property is set to True, then the element title will be included. If this property is set to False, then the element header will be disabled. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none">➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed.➤ The Allow Delete option enables or disables the deletion of an element.➤ The Allow Move option allows or prohibits moving an element.➤ The Allow Resize option enables or disables resizing of an element.➤ The Allow Select option enables or disables the element selection. |
| Locked | Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location. |

5.11 Maps

Map is an element of the dashboard, which provides the ability to display data with reference to geographic location.

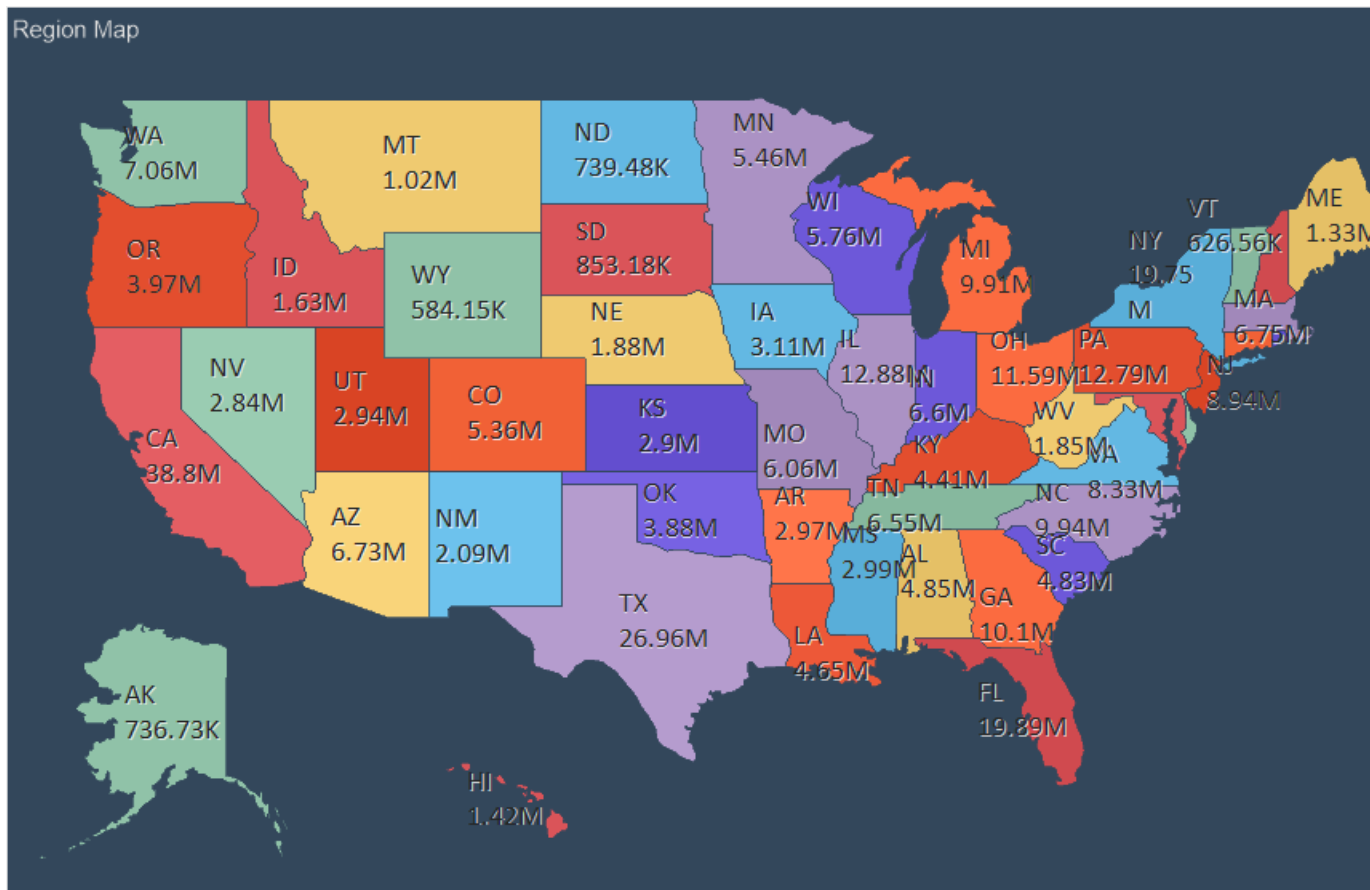


When designing a dashboard for displaying maps, you can use the following elements:

- [Region map](#), provides the ability to display any value with reference to a geographic object.
- [Online map](#), provides the ability to display any object by geographic coordinates on an online Bing map.

5.11.1 Region Map

Region Map provides the ability to display any value with reference to a geographic object.



This chapter will cover the following:

- › [Region Map Editor](#);
- › [Region Map Editor \(Data Columns Mode\)](#);
- › [Adding a custom map](#);
- › [Creating a map file](#);
- › [Editing a custom map](#);
- › [Table of Properties](#).

Information

[Interaction](#) can be applied to the values of the current element.

The **Region Map** element can be placed anywhere on the dashboard. This item is configured in its editor. To call the editor, you should:

- Double-click on an item;
- Select the **Region Map** element, and select the **Design** command in the context menu;

To resize the **Region Map** element you should:

- Select an item on the dashboard panel;
- Increase or decrease the size of the element vertically, horizontally or diagonally.

Region Map editor

In the region map, you can display any value, with reference to a specific geographical object. The list of geographical objects depends on the selected map view.

Below is the editor of the Region Map element when manually filling in the data.

The screenshot shows the 'Map' editor window. It contains a table for manual data entry, a map preview, and several configuration options. Numbered callouts point to specific elements:

- 1** Points to the 'Data from' dropdown menu, which is currently set to 'Manual'.
- 2** Points to the data table with columns: Key, Name, Value, and Color.
- 3** Points to the map preview area showing a USA outline.
- 4** Points to the 'Map Type' dropdown menu, currently set to 'Individual'.
- 5** Points to the 'Display Name Type' dropdown menu, currently set to 'Short'.
- 6** Points to the 'Show Value' checkbox, which is checked.
- 7** Points to the 'Color Each' checkbox, which is checked.
- 8** Points to the 'Show Bubble' checkbox, which is checked.

| Key | Name | Value | Color |
|-------------|-------------|-------|---------|
| Alabama | Alabama | | #90C2A8 |
| Alaska | Alaska | | #DA5459 |
| Arizona | Arizona | | #EFC470 |
| Arkansas | Arkansas | | #63B8E3 |
| California | California | | #AB92C4 |
| Colorado | Colorado | | #6D58D9 |
| Connecticut | Connecticut | | #FB6B40 |
| Delaware | Delaware | | #E34E2E |
| Florida | Florida | | #90C2A8 |
| Georgia | Georgia | | #DA5459 |

- 1 Data from** parameter provides the ability to define a data source:

- **Manual** by setting a value for each map element;
- **Data Columns** by filling in the appropriate fields.

2 The table contains **Key**, **Name**, **Value** and **Color**. Also, if a map with grouping or heat map with grouping is selected, a column for the grouping keys of map elements will be present. By default, keys and map elements are filled. All that is needed is to enter a value for a specific map element, and specify the key of grouping, if necessary.

3 The **Add Map** menu call button where you can change the view of a regional map. All maps are grouped into regional categories. Depending on the selected category, maps of a certain type will be displayed in the list. In the **Name** field you can specify the name of a map to search for a map of a certain type.

The 'Add Map' dialog box is shown with the following elements:

- Category:** A dropdown menu currently showing 'All (106)'.
- Name:** A text input field with the placeholder text 'Type to search'.
- Popular maps:** A section displaying five map thumbnails: World, USA, Europe, Asia, and China.
- A-Z:** A section displaying eight map thumbnails arranged in two rows: Afghanistan, Albania, Andorra, Argentina, Argentina (FD), Armenia, Asia, and Australia.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom right.

4 The **Map Type** parameter is used to change the type of the **Region Map** element. The map may be of the following type:

- **Individual** - every **Map Key** is a separate geographical object. Each geographical object will have its own value.
- **Group** - by any condition, Map Keys will be combined into a group of geographical objects.
- **Heatmap** - every **Map Key** is a separate geographical object, and the values of all geographical objects of the map will also be analyzed. For a geographic object with a maximum value, the specific color will be defined, for a geographic object with a minimum value, another specific color will be defined. The color of other geographical objects will be obtained by mixing these colors.
- **Heatmap with Group** - by any condition, map keys will be combined into a group of geographical objects. After grouping of geographical objects, their values will be analyzed. In every group, the geographic object with the maximum value will have one color, and the geographic object with the minimum value will have another color. The color of the remaining geographical objects in the group will be obtained by mixing these colors.

5 The **Display Name Type** parameter allows you to select the display mode for the names of map elements:

- **None** - map names for every map element will not be displayed;
- **Full** - names for every map element will be displayed in full;
- **Short** - names for every map element will be abbreviated.

6 The **Show Values** parameter is used to display the values of map elements. If the box is checked, then its value will be displayed for every map element. If the box is not checked, the values of the map elements will not be displayed.

7 The **Color Each** parameter allows every element of the map to define its own color. This option is available only for an individual card. If the check box for the option is checked, then each map element will have a specific color; if the check box is not checked, all map elements will have one color. Also, this option must be enabled, if a data column with colors of geographic objects in the Color field is specified.

8 The **Show Bubble** parameter allows you to display a graphical object value as a bubble.

Consider the setting of the Region Map editor, if the data will be obtained from the data fields. To do this, you should select the **Data Columns** value in the **Data from** parameter. Below is a map editor with data fields:

The screenshot shows a 'Map' configuration window with the following fields and callouts:

- 1. **Data from**: A dropdown menu set to 'Data Columns'.
- 2. **Key**: A text field containing 'State'.
- 3. **Name**: A text field containing 'State'.
- 4. **Value**: A text field containing 'Total'.
- 5. **Color**: A dashed box containing the text 'Drag & drop data from Dictionary'.
- 6. **Image**: A text field containing a map icon of the USA and the text 'USA'.
- 7. **Expression**: A text field containing 'Tickets.State'.
- 8. **Map Type**: A dropdown menu set to 'Individual'.
- 9. **Display Name Type**: A dropdown menu set to 'Short'.
- 10. **Show Value**: A checked checkbox.
- 11. **Color Each**: A checked checkbox.
- 12. **Show Bubble**: A checked checkbox.

- 1 The **Data from** option is used to specify a data source:
 - **Manually** - setup a value for every element of the map;
 - From the **Data columns** by filling in the appropriate fields.
- 2 The **Key** field indicates a data field with a list of keys of map elements of a certain type.
- 3 The **Name** field indicates a data field with names for map elements of a certain type.
- 4 The **Value** field indicates a data field with values for every map element of a certain type.
- 5 The **Color** field indicates a data field that contains the color as **#FFFFFF** for every map key.

Information

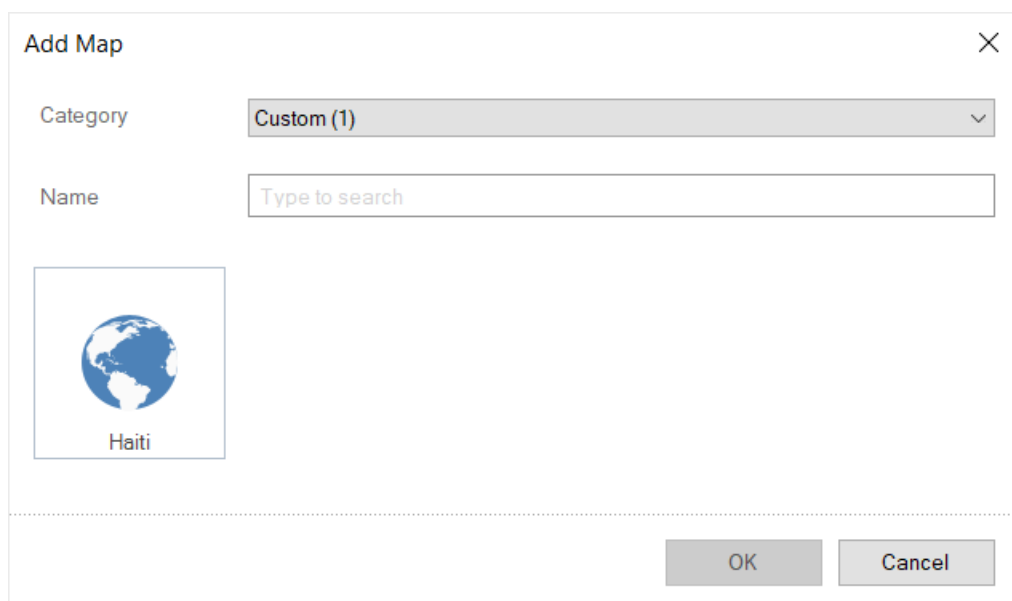
If the **Color** field is empty and an individual map type is selected, the **Color Each** option will be available in the editor. This option is used to automatically apply an individual color to every map element. If a box next to the **Each Color** parameter is checked, each element of a map will have an individual color.

- 6 The **Add Map** menu call button, where you can change a regional map view.
- 7 The **Expression** field displays the expression of the selected data item.
- 8 The **Map Type** parameter is used to change the type of the **Region Map**. There are several types of the map:
 - **Individual** - every **Map Key** is a separate geographical object. Each geographical object will have its own value.
 - **Group** - by any condition, **Map Keys** will be combined into a group of geographical objects.
 - **Heatmap** - every **Map Key** is a separate geographical object, and the values of all geographical objects of the map will also be analyzed. The specific color will be defined for a geographic object with a maximum value; for a geographic object with a minimum value, another specific color will be defined. The color of other geographical objects will be obtained by mixing these colors.
 - **Heatmap with Group** - by any condition, map keys will be combined into a group of geographical objects. After grouping of geographical objects, their values will be analyzed. In every group, the geographic object with the maximum value will have one color, and the geographic object with the minimum value will have another color. The color of the remaining geographical objects in the group will be obtained by mixing these colors.
- 9 The **Display Name Type** option allows you to select the display mode for the name of the map elements:
 - **No** - map names for every map element will not be displayed;
 - **Complete** - names for every map element will be displayed in full;
 - **Short** - names for every map element will be abbreviated.
- 10 The **Show Value** parameter is used to display the values of map elements. If the check box is checked, then its value will be displayed for every map element. If the box is not checked, the values of the map elements will not be displayed.
- 11 The **Color Each** parameter allows every element of the map to define its own color.
- 12 The **Show Bubble** parameter allows you to display a graphical object value as a

bubble.

Adding a custom map

When designing dashboards, you can add a custom map. This map will be displayed in the common list of maps and in the user category.



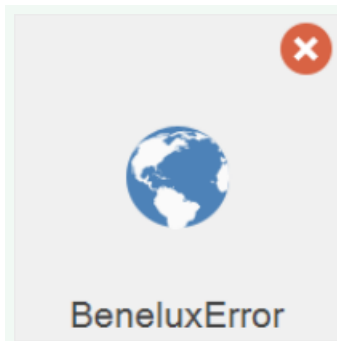
The 'Add Map' dialog box is shown. It has a title bar with a close button (X). Inside, there is a 'Category' dropdown menu set to 'Custom (1)'. Below it is a 'Name' text input field with the placeholder text 'Type to search'. Under the text field is a preview area showing a globe icon and the label 'Haiti'. At the bottom right, there are 'OK' and 'Cancel' buttons.

To use a custom map in the design you should:

- Add a map file to resources of a report;
- In the editor of the **Regional map**, select this type of the map or drag and drop the resource from the dictionary to the dashboard.

Information

If you add an invalid map file to the report resources, this type of the map will be marked in the list with the icon as on the picture below.



Creating a map file

A map file has the *.map extension, with the JSON markup of geographic data. The map file must contain the following fields:

- **Name**. This is the name of the map;
- **Width** and **Height**. Sets the width and height of the map.
- The **Paths** array. Contains data of geographic objects of the map.

Each geographic object in the **Paths** array must contain the following fields:

- **Key**. This is the identifier of the geographic object. It may only contain English characters "a-z". It cannot contain spaces, special characters, dashes, etc.
- **EnglishName**. This is the name of the geographic object.
- **Data**. This is a patch of a geographic object.
- **ISOCODE**. This is the ISO code of a geographic object.


```

{
  "Name": "Haiti",
  "Width": 700,
  "Height": 700,
  "Paths": [
    {
      "Key": "Ouest",
      "EnglishName": "Ouest",
      "Data": "M411.1,359.5 L408.5,360.6 L406.7,359.0 L404.5,354.4 L402.4,352.6 L394.
L365.4,346.7 L357.5,344.8 L335.6,331.1 L313.6,325.4 L307.7,321.6 L302.6,314.6 L
L294.9,308.1 L292.4,302.6 L293.2,299.7 L296.3,296.3 L300.5,293.4 L305.5,291.3 L
L316.7,291.2 L351.0,305.1 L367.9,310.4 L386.8,319.7 L404.4,326.8 L411.7,335.5 L
L414.6,347.8 L414.0,354.3 Z M627.0,400.2 L636.1,409.2 L631.3,406.2 L627.1,400.3
L661.0,365.0 L656.1,373.8 L652.9,377.3 L643.4,380.7 L624.8,377.6 L615.7,379.7 L
L611.4,372.2 L608.3,368.0 L601.2,374.5 L598.2,382.4 L599.4,391.2 L605.3,400.2 L
L614.4,404.1 L618.9,406.6 L621.0,411.6 L623.2,413.8 L628.3,413.6 L637.1,410.6 L
L635.7,418.4 L634.8,421.3 L636.4,426.0 L640.1,428.0 L649.8,430.3 L651.9,432.1 L
L667.2,445.8 L680.6,450.6 L687.0,455.6 L684.2,460.6 L662.4,464.8 L649.5,457.1 L
L612.0,456.7 L590.5,452.2 L569.0,448.1 L548.0,449.8 L527.5,448.8 L521.0,441.0 L
L502.5,436.2 L493.6,435.8 L485.5,439.7 L479.5,447.1 L477.0,449.1 L474.0,449.2 L
L459.0,453.1 L456.2,455.5 L446.7,456.5 L441.2,461.5 L436.9,461.0 L433.0,458.9 L
L444.3,421.4 L449.1,413.4 L453.1,404.2 L459.0,396.8 L466.8,394.9 L508.0,398.0 L
L512.9,394.7 L520.2,402.0 L522.5,403.3 L526.9,402.1 L528.8,397.7 L529.3,391.7 L
L529.0,373.0 L533.4,365.4 L532.0,362.3 L529.8,360.8 L518.5,355.4 L509.4,354.9 L
L501.4,349.8 L496.9,344.5 L492.1,340.8 L486.1,341.6 L477.6,336.6 L475.5,334.3 L
L460.4,310.0 L451.9,302.5 L446.7,299.3 L438.5,296.1 L441.9,291.7 L446.0,288.6 L
L486.1,291.9 L492.2,291.6 L497.5,299.2 L510.2,304.3 L516.9,309.0 L522.8,314.9 L
L537.5,328.3 L545.9,330.3 L553.4,335.3 L568.4,349.7 L587.3,355.8 L606.8,349.2 L
L643.4,350.8 L653.7,353.3 L663.2,358.7 Z",
      "ISOCODE": "HT-OU",
      "Rect": "442,399,215,44",
      "SetMaxWidth": false,
      "SkipText": false
    }
  ]
}

```

Editing a custom map

You may edit each map that is added to report resources. To do this:

- Call the map resource editing form;
- Click the **Edit** button in the resource editing form.

Edit Resource

Name

Alias

Map, 13 KB

☐ Available in the Viewer

Save a Copy OK Cancel

After that, the map editor will be called. In this editor, you can enable or disable geographic objects, customize the titles of geographic objects, and assign an icon to the map.

Information

Titles of geographic objects will be obtained from the **EnglishName** fields in the *.map file. Each title has an area in which the title text is placed. This area can be moved using the cursor keys (left, right, top, bottom). To resize an area, hold down the **Shift** key and use the cursor keys (top, right, left, bottom) to increase or decrease the size of the area in the corresponding directions.



- 1 A panel displays a list of geographic objects of the map. If the check box is selected, then the geographic object will be displayed on the preview panel of the current editor. If the box is unchecked, then the geographic object will not be displayed.
- 2 Map preview. This panel displays only enabled geographic objects.
- 3 The commands are used to align a title of a geographic object vertically.
- 4 The commands are used to align a title of a geographic object horizontally.
- 5 The option is used to wrap the title text. If the **Word Wrap** option is enabled, the title will be wrapped to the next line. Otherwise the text wrapping will be cut off along the border of the title area.
- 6 The **Hide Text** option. It is used to hide the title of the selected geographic object.

7 The **Icon** option. It is used to load a map icon. This icon will appear as a thumbnail in the map selection window.

You can acquaint with the step-by-step instruction of adding a custom map in the [Dashboard with Custom Region Map](#) chapter.

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

| Name | Description |
|---------------------|---|
| Cross-Filtering | It allows you to enable or disable the cross-filtering mode for the current element. |
| Data Transformation | Customizes the data transformation of the current item. |
| Group | Adds the current item to a specific group of items . |
| Labels | A group of properties that is used to customize the map labels. |
| Show Value | Allows displaying or hiding the value of a geographic object on the map. |
| Show Zero | Allows displaying or hiding zero values on the current item. |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the |

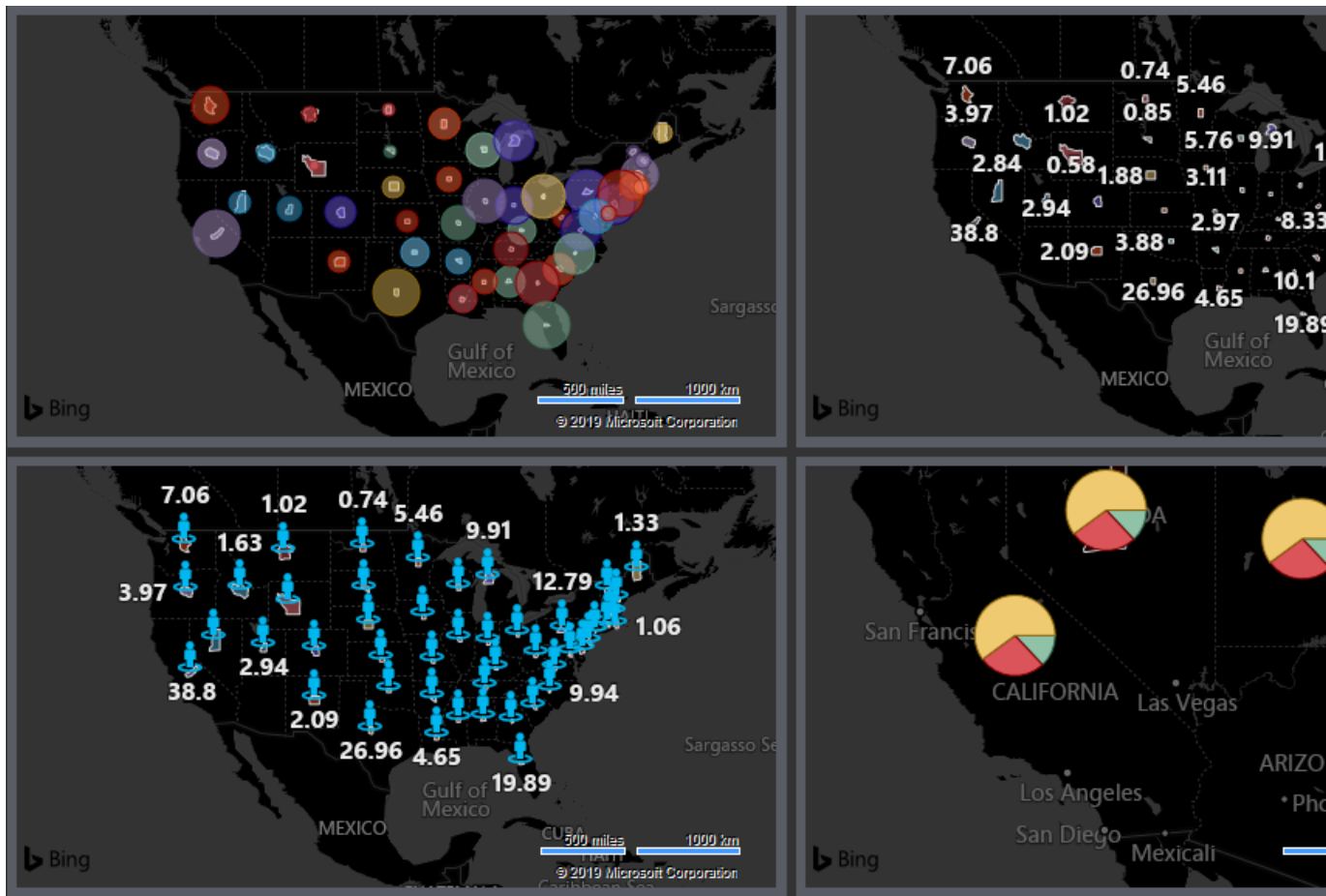
| | |
|-------------|--|
| | <p>dashboard. You can round each corner of the element separately: Top - Left, Top - Right, Bottom - Right, Bottom - Left. The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius.</p> |
| Shadow | <p>A group of properties that allows configuring the shadow of an element:</p> <ul style="list-style-type: none">➤ The Color property allows you to specify the color that will be used to display the shadow of the element.➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel.➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size.➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel. |
| Style | <p>Selects a style for the current element. The default it is set to Auto, i.e. the style of this element is inherited from the style of the dashboard.</p> |
| Enabled | <p>Enables or disables the current item on the dashboard. If the property is set to True, the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False, this element is disabled and will not be displayed when previewing the dashboard in the viewer.</p> |
| Interaction | <p>Sets interaction of the Region Map</p> |

| | |
|---------|--|
| | element. |
| Margin | A group of properties that is used to define margins (left, top, right, bottom) of the map area from the border of this element. |
| Padding | A group of properties that is used to define padding (left, top, right, bottom) of the map area from the border of this element. |
| Title | <p>A group of properties that allows you to customize the title of the element:</p> <ul style="list-style-type: none">➤ The Back Color property provides the ability to change the background color of the title of the current item. By default, this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element.➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style➤ The group property Font that allows you to define the font family, its style and size for the title of the current element.➤ The Horizontal Alignment property provides the ability to change the title alignment relative to the element - Left, Center, Right.➤ The Text property is used to set the title text of the current element.➤ The Visible property is used to enable or disable displaying of the title of the current item. If the property is set to True, then the element title will be included. If this property is set to False, then the element header will be disabled. |

| | |
|--------------|---|
| Value Format | Customizes the formatting of the values of the Region Map element. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none">➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed.➤ The Allow Delete option enables or disables the deletion of an element.➤ The Allow Move option allows or prohibits moving an element.➤ The Allow Resize option enables or disables resizing of an element.➤ The Allow Select option enables or disables the element selection. |
| Locked | Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location. |

5.11.2 Online Map

Online Map is used to display any object by geographic coordinates on the online map from Bing.



This chapter will cover the following:

- [Editor by coordinates](#);
- [Editor by Location](#);
- [Table of Properties](#).

The **Online Map** element can be placed anywhere on the dashboard. This item is configured in the element editor. To call the editor, you should:

- Double-click on an item;
- Select **Online Map**, and select the **Design** command in the context menu.

To resize an item on the **Online Map**, you should:

- Select an item on the dashboard;
- Increase or decrease the size of the element vertically, horizontally or diagonally.

You can display the Objects on Online Map by:

- Geographic coordinates (Latitude and Longitude);

➤ Location.

The screenshot shows a dialog box titled "Online Map" with a close button (X) in the top right corner. Inside the dialog, there are four input sections, each with a label and a dashed border containing a button:

- Location**: A dashed box containing the button "Drag & drop data from Dictionary".
- or**: A horizontal line with the word "or" in the center.
- Latitude**: A dashed box containing the button "Drag & drop data from Dictionary".
- Longitude**: A dashed box containing the button "Drag & drop data from Dictionary".
- or**: A horizontal line with the word "or" in the center.
- GIS**: A dashed box containing the button "Drag & drop data from Dictionary".

Information

The Online Map editor will contain various parameters depending on the way objects are displayed.

Editor by coordinates

Online map is used to display any object by geographic coordinates and works only with data elements.

The screenshot shows a configuration window titled 'Online Map' with a close button (X) in the top right corner. The window contains several input fields and controls, each highlighted with a numbered yellow circle and a red bracket:

- 1** Latitude: A text input field containing the word 'Latitude'.
- 2** Longitude: A text input field containing the word 'Longitude'.
- 3** Expression: A text input field containing the word 'Field', followed by a blue pencil icon and a dropdown arrow.
- 4** Mode: A dropdown menu currently showing 'Icon'.
- 5** Icon: A control with a person icon, an ellipsis, and a dropdown arrow.
- 6** Color: A green rectangular color selection box.

- ❶ The **Latitude** field indicates the data field with the latitude value of the geographical object.
- ❷ The **Longitude** field indicates the data field with the longitude value of the geographical object.
- ❸ The **Expression** field displays the expression of the selected data field.
- ❹ The **Mode** parameter allows you to define the type of geographic objects: **Icon** or **Heatmap**.
- ❺ The **Icon** parameter is used to select or load an icon for the value of a geographic object, as well as set the color of this icon.
- ❻ The **Color** parameter allows you to define icon color.

Editor by Location

If you display the objects by location, then the online map editor will contain the following parameters.

- 1 The **Location** field. It indicates data column with the location of geographic objects. These may be state names, postal codes, etc.
- 2 The **Value** field. It indicates a data column with values of geographic objects.
- 3 In the **Color Group** you can specify a data field, by the values of which geographic objects will be grouped.
- 4 An expression of the selected data field will be displayed in this field.
- 5 The **Mode** parameter. It allows you to determine the option to display the value of a geographical object:
 - **Value**. A numerical value will be displayed for each geographic object.
 - **Bubble**. A separate bubble will represent the value of every geographic object. The larger is the value; the larger is the bubble in diameter.
 - **Icon**. A numerical value with a specific symbol will be displayed for each geographic object. The icon can be selected from the Stimulsoft collection or uploaded from your local storage. Also, for the icons from the collection, you can set its color.
 - **Chart**. If you select this value, an additional field called Arguments will be displayed. In this field, you should specify the data field, the values from which will be the arguments for the chart values of each geographic object. In other words, each value is a pie chart sliced by arguments.

➤ The **Heatmap**. When selecting this value, a heatmap of values. Also, additional parameters of the heatmap settings will be displayed.

6 The **Icon** parameter is used to select or load an icon for the value of a geographic object, as well as set the color of this icon.

7 The **Type** parameter. It allows you to set a location. The Auto type is used by default. The Bing service does not always correctly determine the data type of a location. So if geographic objects location is not found, you should change the type of location.

8 The **Culture** parameter. It allows to specify a culture of a map.

9 The **Color** parameter. It allows you to specify color of geographic objects. The following values are available:

➤ The **Color Each**. Each geographic objects will have a unique color;

➤ The **Value**. The Color Value field will be displayed in the editor. You should specify data field with a color list in this field. These colors will be mapped to the positions of geographic objects and a certain color will be assigned for each object.

➤ The **Fixed Single**. You should select a color, which can be applied for all geographic objects.

➤ The **Group**. The Color Group field will be displayed in the editor. You should specify data fields with colors. Geographic objects will be grouped by value and each group of objects will have a specific color assigned.

Heatmap

The Heatmap is a graphical display of values using color. When using the heatmap mode, the entire range of values of a data column is split into parts. Colors are defined along the boundaries of this part. All values that fall within any part of the range will be displayed with the color that is obtained by mixing the colors of the boundaries of this part of the range. The closer the value is to any border, the bigger the proportion of the border color in the value color.

To display a heatmap on an online map, you should set the **Display Mode** parameter in **Heatmap** value. After that, the **Color** parameter will be displayed in the online map editor, and using it you can select one of the preset color schemes for the heatmap.

Online Map

Location

Location

Value

Value

Color Group

Drag & drop data from Dictionary

Expression

Field

Mode

Heatmap

Type

AdminDivision2

Culture

en-US

Color

Heated Metal

Black Aqua White

Blue Red

Color Spectrum

Custom

Deep Sea

Heated Metal

Incandescent

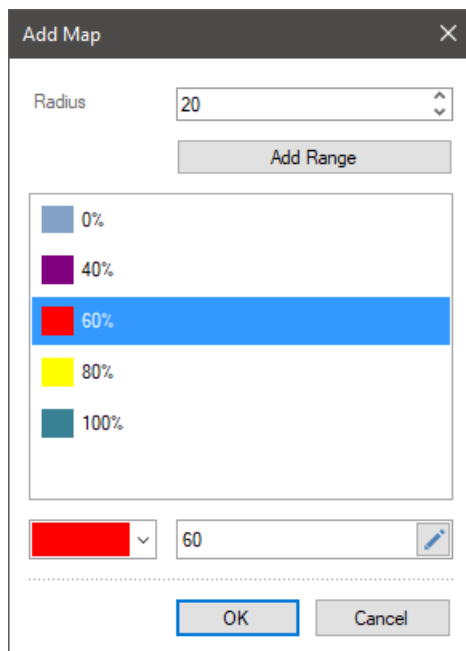
Stepped Colors

Sunrise

Visible Spectrum

The color scheme is a ready-made set of parts of a range of values with assigned colors. The preset color scheme can be edited. To do this, you should select the color scheme and click the Edit button. In the **Add Map** menu, you should change the color scheme parameters:

- Add or delete parts of the range;
- Specify a relative value of the border of the current range part;
- Change color for border values;
- Change radius for color glow for the value.



The 'Add Map' dialog box contains the following elements:

- Radius:** A text input field with the value '20' and up/down arrow controls.
- Add Range:** A button located below the Radius field.
- Legend:** A list of color-coded percentage ranges:
 - 0% (light blue)
 - 40% (purple)
 - 60% (red, currently selected with a blue highlight)
 - 80% (yellow)
 - 100% (dark teal)
- Color Picker:** A dropdown menu showing a red color swatch.
- Value:** A text input field containing the number '60' and a small edit icon.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom.

GIS

The online map element in GIS mode allows you to display primitives on various map providers. To do this, you should add a data column with a primitive encoding to the GIS field of the online map element editor. Below you can see the editor of the GIS map with the decoding of the parameters.

The screenshot shows a configuration window titled "Online Map" with a close button (X) in the top right corner. The window contains several input fields and controls, each annotated with a yellow circle and a red bracket:

- 1** Points to the "GIS" text input field.
- 2** Points to the "Description" text input field.
- 3** Points to the "Color" text input field.
- 4** Points to the "Line Size" text input field, which is highlighted in blue.
- 5** Points to the "Expression" text input field, which includes a small blue pencil icon and a dropdown arrow on its right side.
- 6** Points to the "Provider" dropdown menu, which currently displays "Open Street Map".
- 7** Points to the "Icon" section, which includes a heart-shaped icon in a square, a small dropdown arrow, and a blue color selection box with a dropdown arrow.

- ❶ The field, where a data column is specified with the encoding of primitives;
- ❷ The field, where a data column with a description for a primitive is specified. It's topical only for primitives as points;
- ❸ The field, where a data column with colors for primitives is specified;
- ❹ The field, where a data column with sizes for primitives is specified;
- ❺ The field, where an expression of a selected data field is displayed;
- ❻ The Provider allows you to select a different provider of online maps to display primitives;
- ❼ The Icon parameter allows you to select an icon for points of a primitive and change the color of this icon.



Route 66

Route 66 is the chain of main streets of small towns and village lanes which connected a grateful Chicago with a palm-lined Los Angeles.

This route was one of the first highway numbered highways in USA. It was set up on November 11, 1926 and gained fame in mass culture in 1950-1960's due to popular songs and TV series which became hits.

If you make a decision to visit Route 66 you will see some of the most striking landmarks along winding roads of the USA: the Grand Canyon and the Mississippi River, the Painted Desert in Arizona, Petrified Forest National Park, and at the end - the Pacific beaches of sunny southern California.

Attractions

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List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

| Name | Description |
|---------------------|--|
| Cross-Filtering | It allows you to enable or disable the cross-filtering mode for the current element. |
| Data Transformation | Customizes the data transformation of the current item. |
| GIS Settings | <p>The group of properties allows you to define settings for an online map of GIS type, such as:</p> <ul style="list-style-type: none"> ➤ Color of a primitive; ➤ Icon for a primitive; ➤ Icon Color for primitives; ➤ Language provider maps; |

| | |
|---------------|---|
| | <p>➤ Size of a primitive.</p> |
| Group | Adds the current item to a specific group of items . |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left, Top - Right, Bottom - Right, Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius. |
| Shadow | <p>A group of properties that allows configuring the shadow of an element:</p> <ul style="list-style-type: none">➤ The Color property allows you to specify the color that will be used to display the shadow of the element.➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel.➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size.➤ The Visible property allows you to enable or disable the display of the |

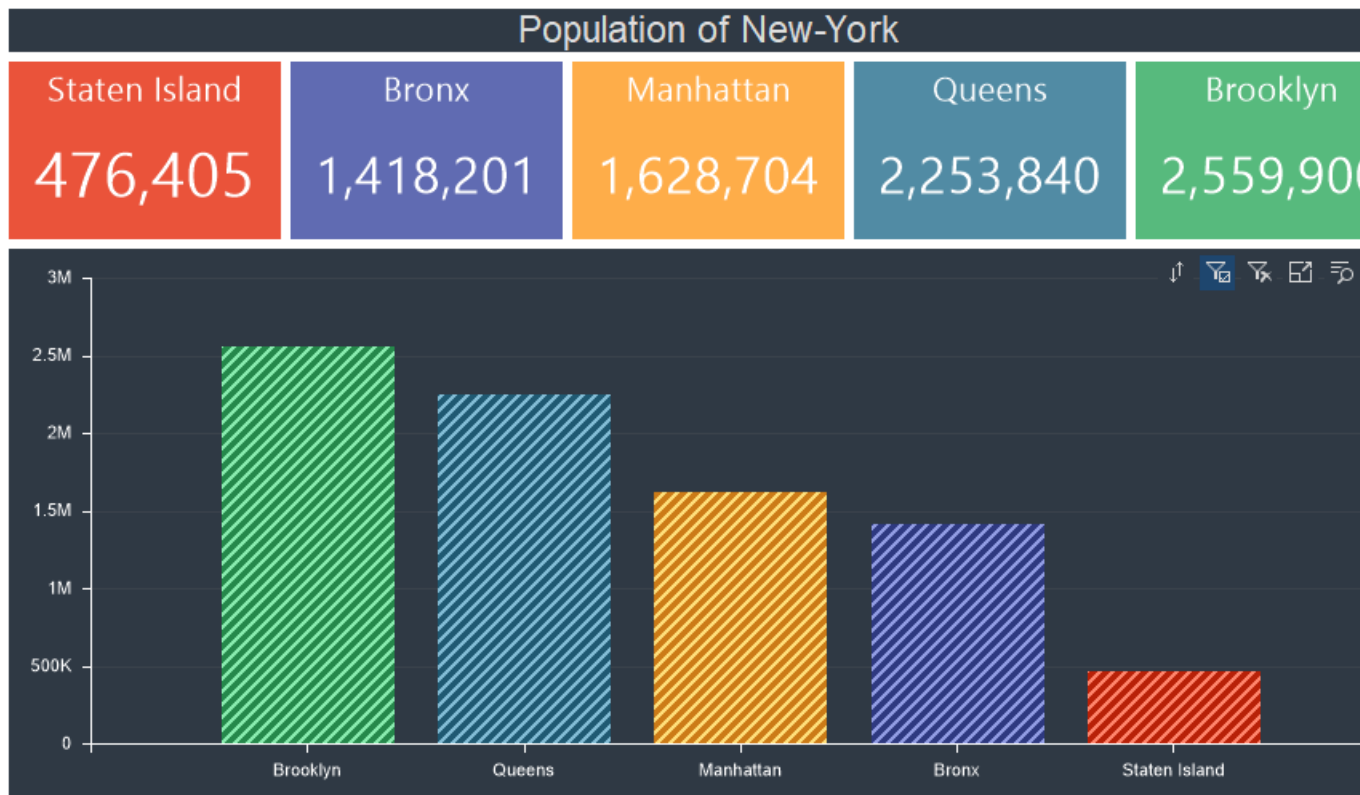
| | |
|-------------|---|
| | element's shadow on the indicator panel. |
| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |
| Interaction | Sets interaction of the Online Map element. |
| Margin | A group of properties that allows you to define indents (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define indents (left, top, right, bottom) of the columns from the range of values. |
| Title | <p>A group of properties that allows you to customize the title of the element:</p> <ul style="list-style-type: none"> ➤ The Back Color property provides the ability to change the background color of the title of the current item. By default, this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element. ➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style ➤ The group property Font that allows you to define the font family, its style and size for the title of the current element. ➤ The Horizontal Alignment property provides the ability to change the title |

| | |
|--------------|---|
| | <p>alignment relative to the element - Left, Center, Right.</p> <ul style="list-style-type: none">➤ The Text property is used to set the title text of the current element.➤ The Visible property is used to enable or disable displaying of the title of the current item. If the property is set to True, then the element title will be included. If this property is set to False, then the element header will be disabled. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none">➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed.➤ The Allow Delete option enables or disables the deletion of an element.➤ The Allow Move option allows or prohibits moving an element.➤ The Allow Resize option enables or disables resizing of an element.➤ The Allow Select option enables or disables the element selection. |
| Locked | Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location. |

5.12 Filtering data

One of the main principles of creating and using dashboards is the principle of the interaction of all elements for analysis and displaying data related between them. Thus, all data sources of the dashboard elements form virtual data tables for the current dashboard. This is necessary for the interaction of the dashboard elements with each other.

Data filtering is a selection of values from data sources by a specific condition. As a rule, the condition for selecting data is any value of a certain element in the dashboard panel.



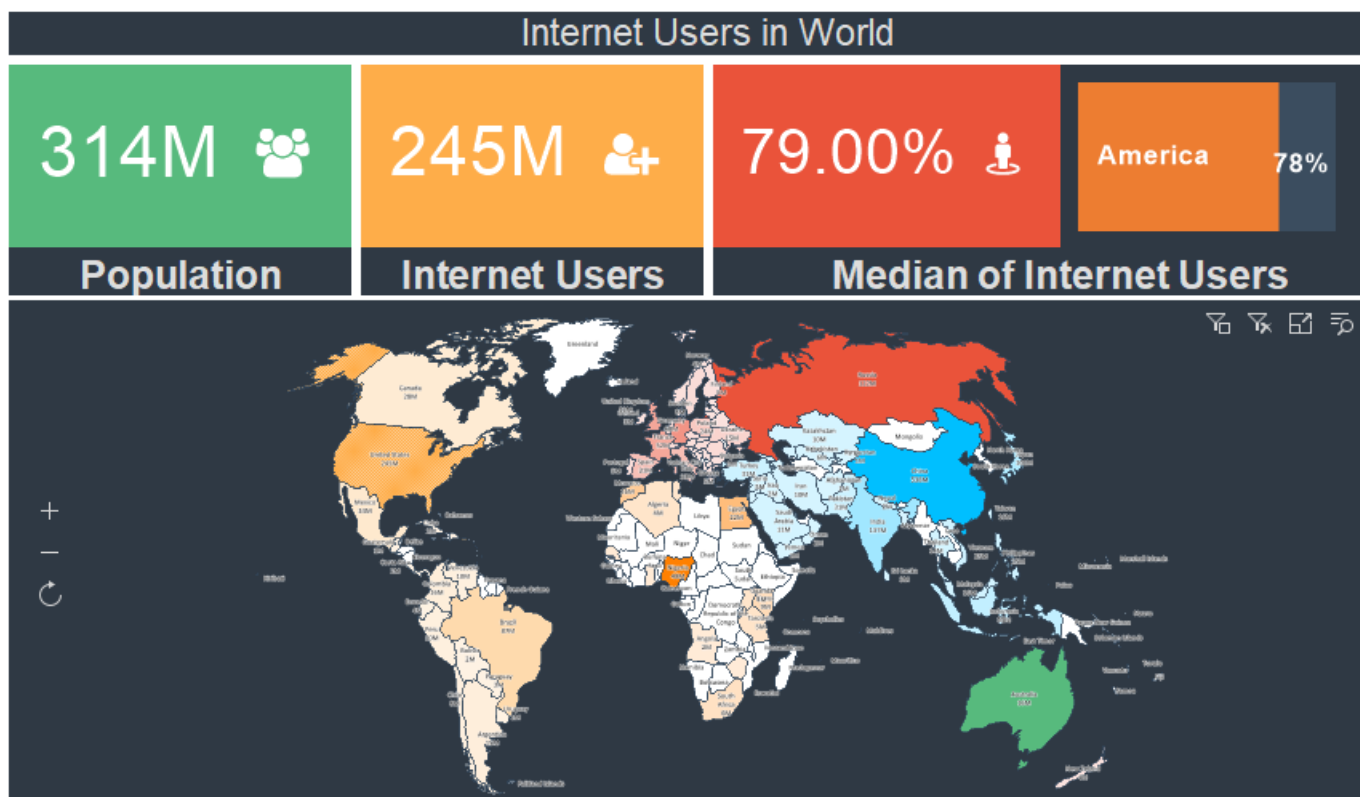
Data filtering using the dashboard panel can be:

- **Prior** - filtering settings are defined in the report designer using the [Data Transformation](#), [Filters](#), [Top N](#) and tools.
- **Interactive** - filtering settings are performed in the viewer through the interaction of the dashboard elements, the choice of the value of one element affects the values of other elements. For example, if in the viewer a certain segment is clicked on the map, the data from the virtual data table will be compared with the value of this segment, and filtered for other elements of this dashboard.

➤ Using data filtering elements: [List Box](#), [Combo Box](#), [Tree View](#), [Tree View Box](#), [Date Picker](#).

5.12.1 Relationship of Elements

Interaction means filtering data in the viewer of an analysis element on the dashboard panel, depending on the selected value of another analysis element on this panel. For example, depending on the selected segment on the map, the gauge will display the population size, and the progress will be the population growth rate.



In order filtering through interaction to occur, the following conditions must be met:

- Data items on the dashboard should be related to each other;
- Items on the dashboard panel should belong to the same group.

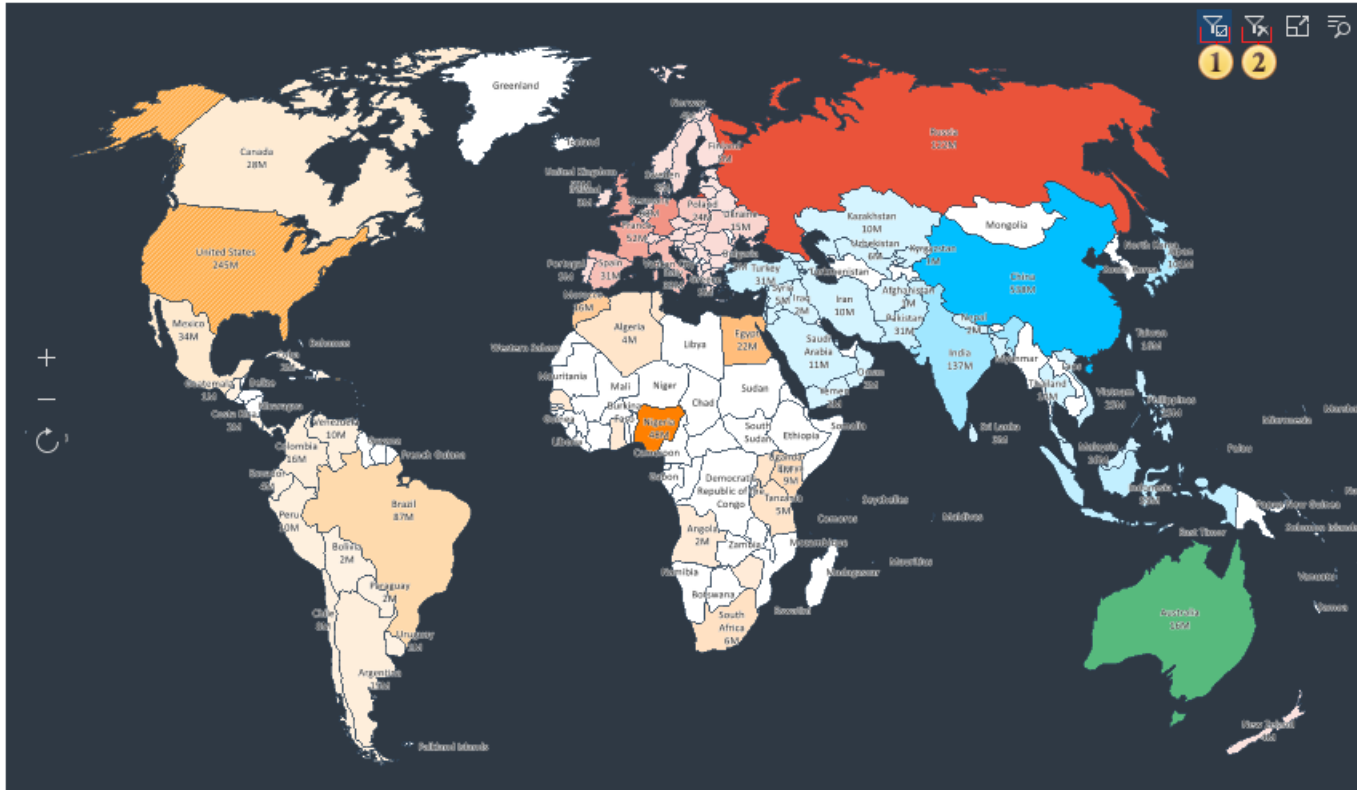
All elements of data analysis depend on the values of other elements within their group. However, not all elements can be interactive.

The elements that can affect the values of other elements of the dashboard panel include:

- [Table](#);

- [Some types of charts;](#)
- [Region Map.](#)

Every element (a chart and regional map) on the dashboard that can filter data has data filtering control buttons. These buttons are displayed when you hover over the element of the dashboard:



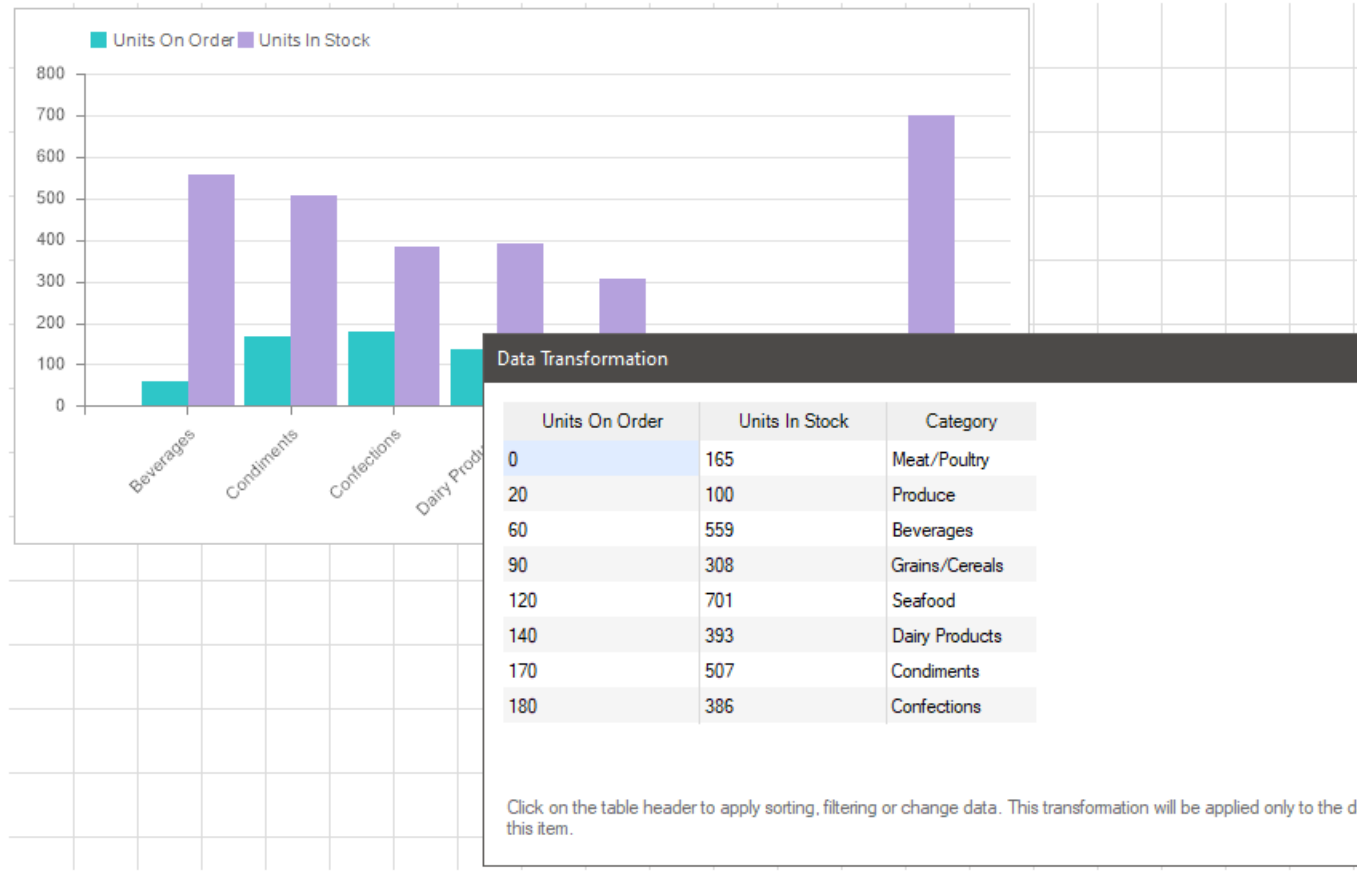
- 1 The button is used to enable and disable the filtering mode by several segments.
 - If this button is enabled, then for filtering data, you should select several segments on one dashboard element.
 - If this button is disabled, then when selecting the next segment, the previous filter will be reset.

For example, when filtering by map, by clicking on each segment in the single mode, other elements of the dashboard will display the associated data only with the current map segment. In the multi-segment filtering mode, other elements of the dashboard will display the associated data with all selected map segments.

- 2 The button is used to remove all filters. When you click it, all filters of the current item in the dashboard will be deleted.

5.12.2 Data Transformation

All data that is used in any dashboard is a data column in the virtual table of the dashboard panel. For example, if three data fields are specified in a chart, the chart uses three columns from the virtual data table of the dashboard.



This chapter will cover the following:

- › [Data Transformation Editor](#);
- › [Sorting Data](#);
- › [Skip and Limit Rows](#);
- › [Running total](#);
- › [Show percentage](#);
- › [Replace value](#);
- › [Filtering by type of values](#);
- › [Custom filter](#);
- › [Selecting values](#).

Information

There are always two additional columns of data: Max and Min in the data transformation of the [Gauge](#) element.

Filtering using the **Data Transformation** tool is:

- Prior and customizable in the report designer.
- Resetting filter settings are also carried out in the report designer.
- The already filtered data for the current element of the dashboard is displayed in the viewer.

To configure **Data Transformation** you should:

- Select the dashboard element;
- Click the Browse button of the Data Transformation property on the property panel.

Information

Data transformation is configured only for a specific element of the dashboard. All data transformation settings are applied only to the current element and are not applied to the data of the other elements of the dashboard.

Data Transformation editor

Every column in the data transformation consists of:

- Header;
- List of values.

Data Transformation ×

| Product | Units In Stock | Units On Order | Unit Price | Category |
|---------|----------------|----------------|------------|----------------|
| 5 | 5 | 5 | 5 | Produce |
| 6 | 6 | 6 | 6 | Meat/Poultry |
| 7 | 7 | 7 | 7 | Grains/Cereals |
| 10 | 10 | 10 | 10 | Dairy Products |
| 12 | 12 | 12 | 12 | Beverages |
| 12 | 12 | 12 | 12 | Condiments |
| 12 | 12 | 12 | 12 | Seafood |
| 13 | 13 | 13 | 13 | Confections |

← Headers

↑
List of Values

Click on the table header to apply sorting, filtering or change data. This transformation will be applied only to the data of this item.

All data transformation settings are located in the command menu. To call this menu, left-click on the header of the data column.

Information

Depending on the type of values (numeric, string, Boolean, etc.), the list of commands and actions for the values of the data column may differ.

Consider the commands that can be applied to the values of the data column.

Data sorting

By data sorting we mean the order of the element values in a certain direction.

| Data Transformation | | | | |
|---------------------|----------------|--------------------------|------------|----------------|
| Product | Units In Stock | ↑ Units On Order ▾ | Unit Price | Category |
| 5 | 5 | Sort Smallest to Largest | | Produce |
| 6 | 6 | Sort Largest to Smallest | | Meat/Poultry |
| 7 | 7 | ✓ No Sorting | | Grains/Cereals |
| 10 | 10 | Actions ▶ | | Dairy Products |
| 12 | 12 | Number Filters... ▶ | | Beverages |
| 12 | 12 | Custom Filter... | | Condiments |
| 12 | 12 | Remove Filter | | Seafood |
| 13 | 13 | ✓ (Select All) | | Confections |
| | | ✓ 5 | | |
| | | ✓ 6 | | |
| | | ✓ 7 | | |
| | | ✓ 10 | | |
| | | ✓ 12 | | |
| | | ✓ 13 | | |

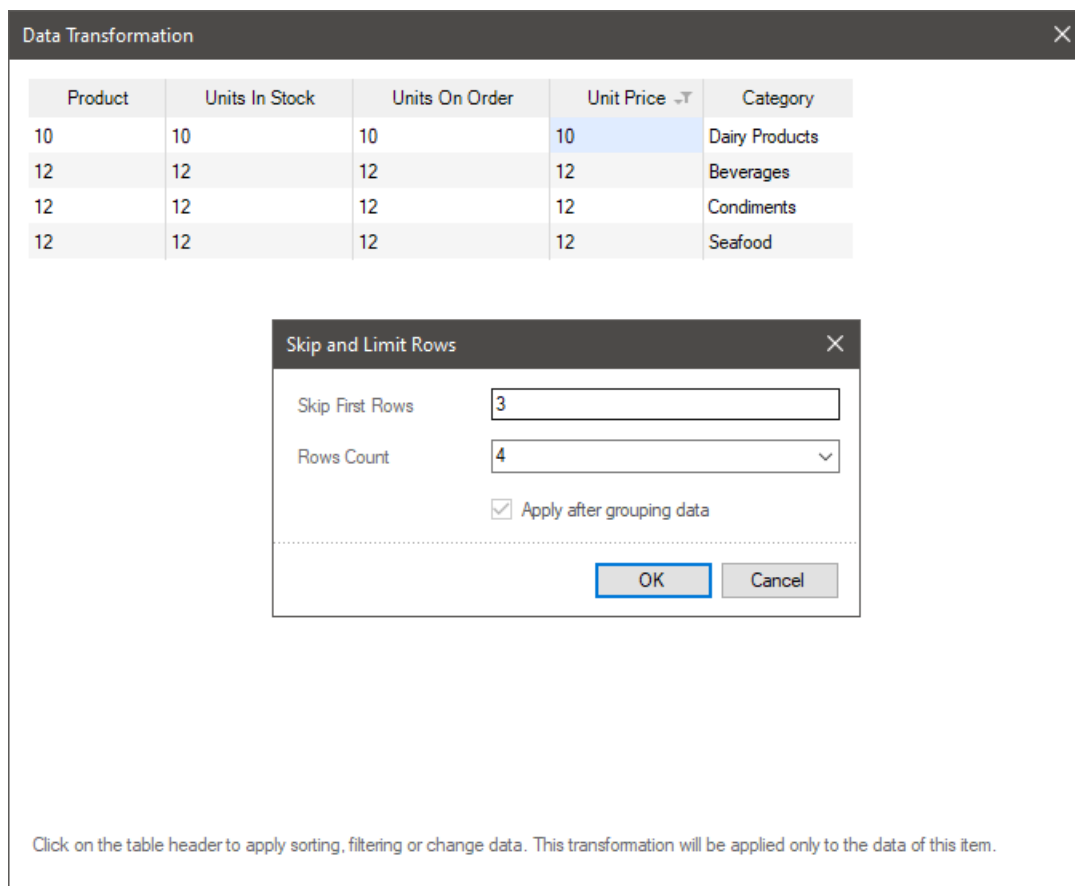
Click on the table header to apply sorting, filtering or change data. This transformation will be applied only to the data of this item.

In the Data Transformation element, the values can be:

- Sorted in ascending order. In the case of string values, the sorting is performed From A to Z, and for numeric values From Smallest to Largest;
- Sorted in descending order. In the case of string values, the sorting is From Z to A, and for numeric values From Largest to Smallest;
- Without sorting, values are transferred to the report in the order that they are contained in the data storage.

Skip and Limit Rows

One of the ways to filter data when converting data is to skip and set the limit rows in the data table element. For example, defining a range from 3 to 7 lines, or only the first three lines, or only the first four lines, starting from the 3rd line.



To skip lines and (or) set their limit, you should:

- Click on the title of the data column in the **Data Transformation** editor of the element;
- In the menu of the **Actions** item, select the **Skip and Limit Rows** command;
- In the dialog that opens, specify the number of lines to skip. The default value is 0, no rows in the table are skipped.
- Select a predefined number of rows or enter an integer that will be the number of rows in the data table of the element. By default, all rows are selected.

Running total

When designing a report, it is often necessary to calculate the cumulative total. The cumulative total is the calculation of a new value, as a result of adding the current string value to the sum of the previous values. You can enable the function to calculate the cumulative total for the item data field in the Data Transformation of the element.

| Data Transformation ✕ | | | | |
|------------------------------------|----------------|------------|------------------------------|----------------|
| Product | Units On Order | Unit Price | Unit Price (Running Total) → | Category |
| 5 | 5 | 161.85 | 161.85 | Produce |
| 6 | 6 | 324.04 | 485.89 | Meat/Poultry |
| 7 | 7 | 141.75 | 627.64 | Grains/Cereals |
| 10 | 10 | 287.3 | 914.94 | Dairy Products |
| 12 | 12 | 248.19 | 1163.13 | Seafood |
| 12 | 12 | 276.75 | 1439.88 | Condiments |
| 12 | 12 | 455.75 | 1895.63 | Beverages |
| 13 | 13 | 327.08 | 2222.71 | Confections |

Click on the table header to apply sorting, filtering or change data. This transformation will be applied only to the data of this item.

To enable the calculation of the cumulative total for a column, you should:

- Click on the title of the Data Transformation editor;
- Select the **Running total** command in the **Actions** menu.
- Set the initial value. The default value is 0, the cumulative total is calculated only from the data column values. However, if necessary, you can set the initial value. Then the specified value will be added to the first value.

To disable the calculation of the cumulative total you should:

- Click on the title of the element in the Data Transformation editor;
- Select the **Remove Actions** command in the **Actions** menu.
- Delete the value in the cumulative total dialog and click **OK**.

Displaying percent

When designing reports, the situations may occur when it is necessary to output a specific weight (percentage) of a value from the list of values of a data column. For example, when analyzing sales, to identify the most profitable regions, it is necessary

to calculate the percentage of sales in a particular region in relation to sales in all regions.

| Data Transformation ✕ | | | | |
|------------------------------------|----------------|------------|--------------------------------|----------------|
| Product | Units On Order | Unit Price | Unit Price (Show Percentage) ↕ | Category |
| 5 | 5 | 161.85 | 7.28 | Produce |
| 6 | 6 | 324.04 | 14.58 | Meat/Poultry |
| 7 | 7 | 141.75 | 6.38 | Grains/Cereals |
| 10 | 10 | 287.3 | 12.93 | Dairy Products |
| 12 | 12 | 248.19 | 11.17 | Seafood |
| 12 | 12 | 276.75 | 12.45 | Condiments |
| 12 | 12 | 455.75 | 20.50 | Beverages |
| 13 | 13 | 327.08 | 14.72 | Confections |

Click on the table header to apply sorting, filtering or change data. This transformation will be applied only to the data of this item.

To display the percentage of the value from all the values in the data column, you should:

- Click on the title of the element in the Data Transformation editor;
- Select the **Show Percentage** command from the **Actions** menu.

Replacing values

You can replace some value with another one or add text to the current value in the Data Transformation.

| Data Transformation | | | | |
|---------------------|----------------|------------|----------------|-----------------------------|
| Product | Units On Order | Unit Price | Category | Category (Replace Value) -T |
| 5 | 5 | 161.85 | Produce | More... |
| 6 | 6 | 324.04 | Meat/Poultry | Meat/Poultry |
| 7 | 7 | 141.75 | Grains/Cereals | More... |
| 10 | 10 | 287.3 | Dairy Products | Dairy Products |
| 12 | 12 | 248.19 | Seafood | More... |
| 12 | 12 | 276.75 | Condiments | Condiments |
| 12 | 12 | 455.75 | Beverages | Beverages |
| 13 | 13 | 327.08 | Confections | More... |

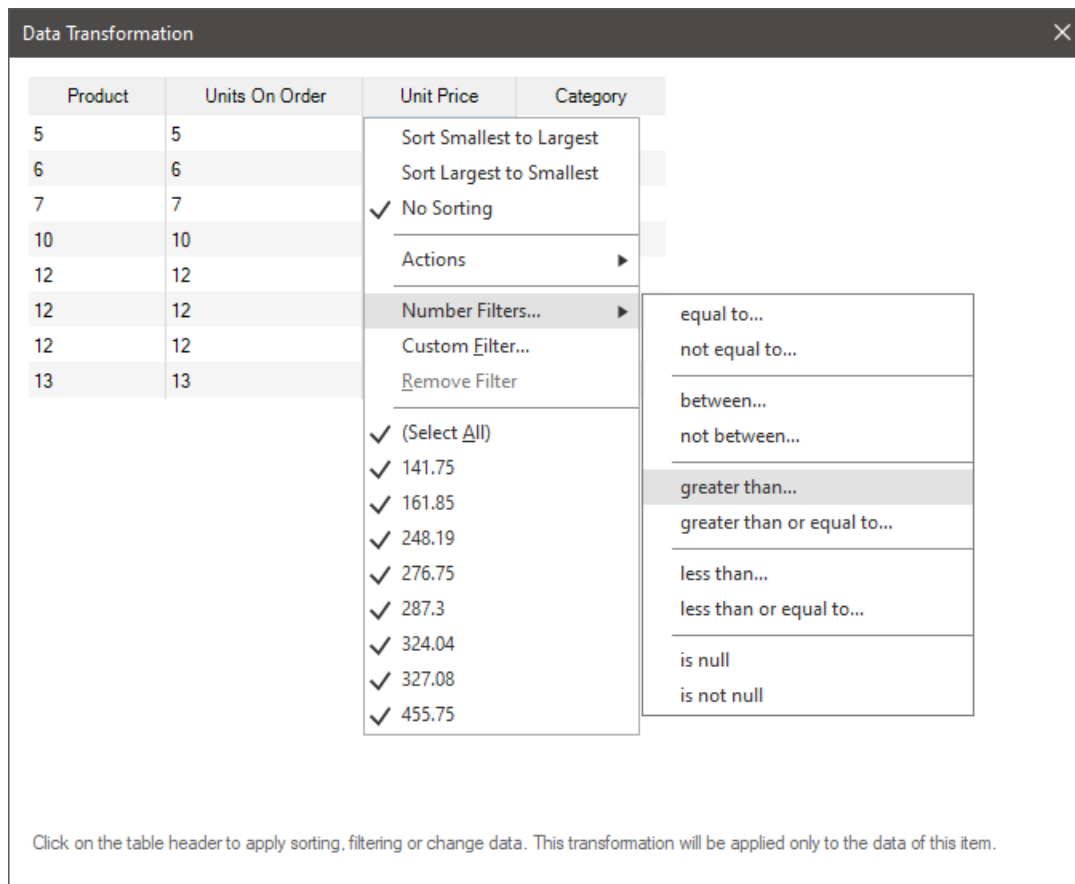
Click on the table header to apply sorting, filtering or change data. This transformation will be applied only to the data of this item.

To replace the value in the Data Transformation editor:

- Click on the title of the data column;
- Select the **Replace Values** command in the **Actions** menu;
- In the editor that opens, you should specify the value to be replaced and the value to be replaced. Also, you can configure the replacement of several values at once.

Filtering by type of values

By filtering data we mean the selection of data by any condition. For example, the statistics of visits for the last day, or sales in a certain category, etc.



The screenshot shows a 'Data Transformation' window with a table containing data for products and their unit prices. A context menu is open over the 'Unit Price' column, showing options for sorting and filtering. The 'Number Filters...' option is selected, opening a sub-menu with various comparison operators.

| Product | Units On Order | Unit Price | Category |
|---------|----------------|------------|----------|
| 5 | 5 | | |
| 6 | 6 | | |
| 7 | 7 | | |
| 10 | 10 | | |
| 12 | 12 | | |
| 12 | 12 | | |
| 12 | 12 | | |
| 13 | 13 | | |

Context Menu Options:

- Sort Smallest to Largest
- Sort Largest to Smallest
- ✓ No Sorting
- Actions
- Number Filters... (selected)
- Custom Filter...
- Remove Filter

Number Filters Sub-menu Options:

- equal to...
- not equal to...
- between...
- not between...
- greater than... (selected)
- greater than or equal to...
- less than...
- less than or equal to...
- is null
- is not null

Click on the table header to apply sorting, filtering or change data. This transformation will be applied only to the data of this item.

Data filtering in data conversion can be done the following way:

- Click on the title of the data column;
- Go to the filter (the name depends on the type of the element, i.e. for numeric elements - Number Filter, for string elements - String Filter, etc.);
- In the define logical operation sub-menu.
- Then, an editor will be opened in which you need to specify a value for the [logical operation](#). When this filter is triggered, fulfilling a certain logical condition, the values will be displayed.

Custom filter

A custom filter can be applied to any data column of an element.

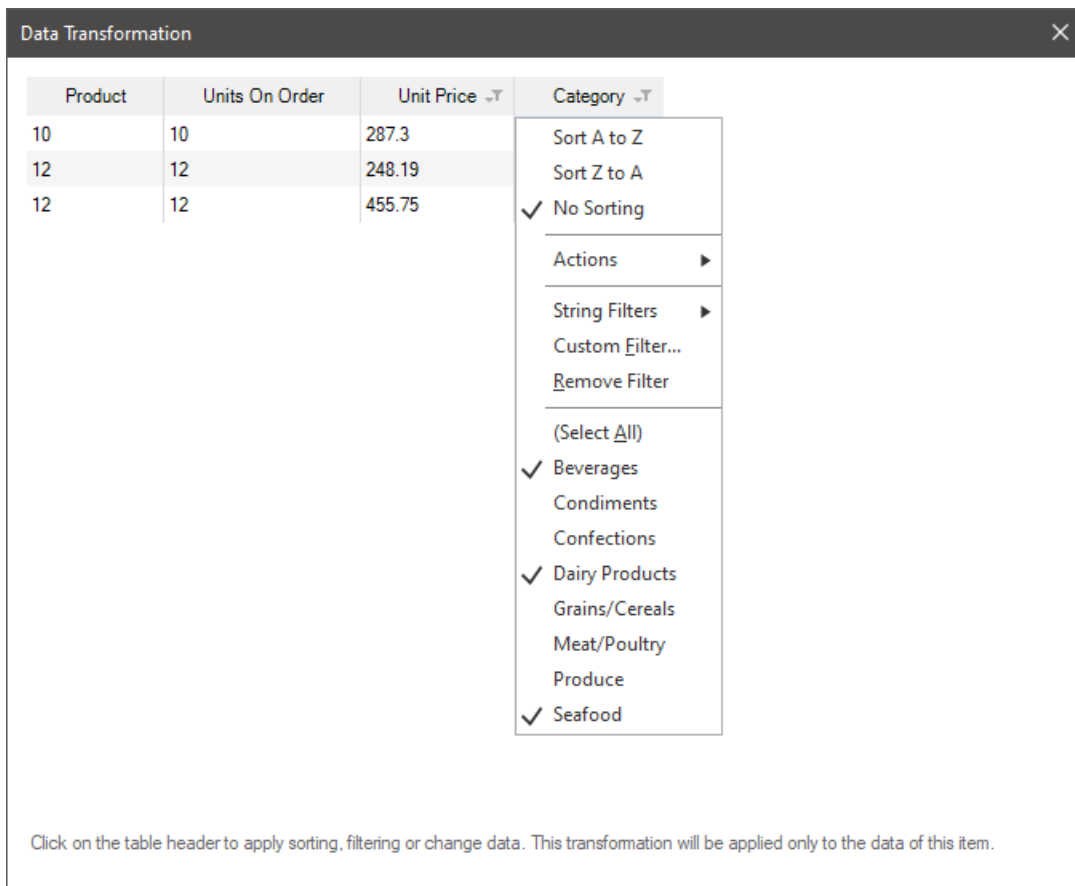
The screenshot shows a 'Filters' dialog box. At the top, there's a title bar with the word 'Filters' and a close button. Below the title bar, there's a section with an 'Add Filter' button and a checked 'Filter On' checkbox. A horizontal dashed line separates this from the main filter configuration area. In this area, there's a dropdown menu currently showing 'greater than', followed by a text input field containing the number '120'. To the right of the input field is an unchecked checkbox labeled 'Expression'. A small 'X' icon is at the far right of this configuration row. At the bottom of the dialog, there are 'OK' and 'Cancel' buttons.

To add a custom filter, you should:

- Click on the title of the data column;
- Select the **Custom** filter command in the drop-down menu.
- The filter editor will be called. You should add filters, define a [logical operation](#) and value. When this filter is triggered, the values will be displayed.

Selecting values

Also, you can filter the data simply by selecting values.



The screenshot shows a 'Data Transformation' window with a table containing three rows of data. The columns are 'Product', 'Units On Order', 'Unit Price', and 'Category'. A context menu is open over the 'Category' column header, displaying options for sorting (A to Z, Z to A, No Sorting) and filtering (Beverages, Condiments, Dairy Products, Grains/Cereals, Meat/Poultry, Produce, Seafood). The 'No Sorting' and 'Dairy Products' options are checked.

| Product | Units On Order | Unit Price | Category |
|---------|----------------|------------|----------|
| 10 | 10 | 287.3 | |
| 12 | 12 | 248.19 | |
| 12 | 12 | 455.75 | |

Click on the table header to apply sorting, filtering or change data. This transformation will be applied only to the data of this item.

- Click on the title of the data column in the Data Transformation editor.
- In the drop-down menu, check the values that you want to leave, remove flags from values that are not needed.

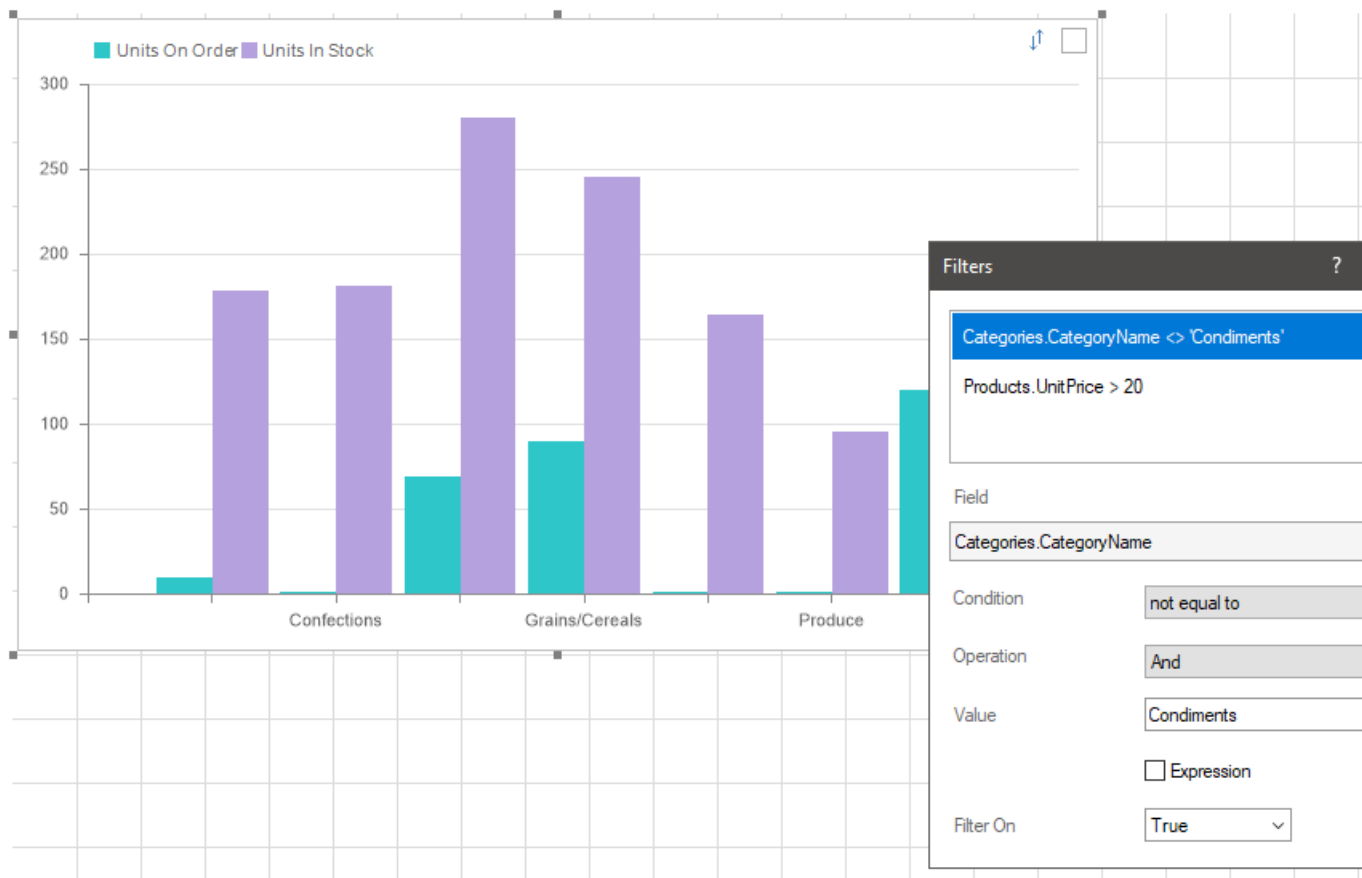
Information

You should know that more than one command can be applied to a single data column. For example, sorting of values, restriction of lines and filtering by the type of values.

Also you should know that if a dashboard element has more than one data column, different commands may be applied to each of them. In this case, the commands of one data column affect the other. For example, if the first data column contains a filter by product category, and the second one has prices for these products, then the first column filter will be applied to the values of these columns, and then the second one will be applied.

5.12.3 Filters

All data that is used in any element of the dashboard is a data column in the virtual table of the dashboard panel. For example, if three data fields are specified in a chart, the chart uses three columns from the virtual data table of the dashboard. Unlike the [Data Transformation](#) tool, the Filters tool is used to filter data of an element not only by the used fields, but also by other data fields it is related to.



This chapter will cover the following:

- > [Filter editor;](#)
- > [Example of setting the filters of an element.](#)
- > [Table of filter operations.](#)

Information

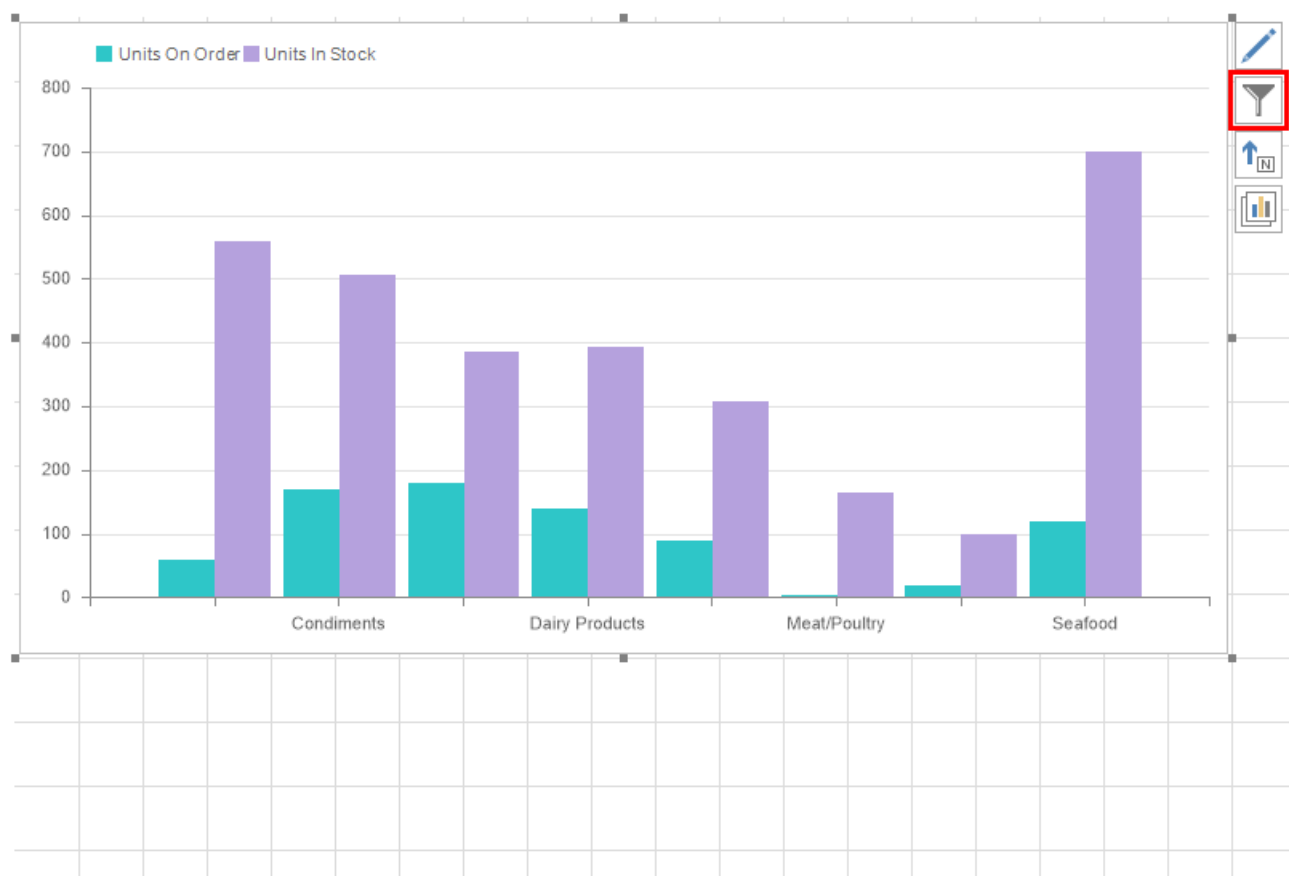
You may configure filters only for a specific element of the dashboard and apply them only to it. The data of the remaining elements of the current dashboard panel is not filtered.

Filtering using the **Filters** tool is:

- Prior and customizable in report designer;
- Reset filter settings are also carried out in the report designer;
- In the viewer, the already filtered data for the current element of the dashboard is displayed.

To set up Filters you should:

- Select the element on the dashboard panel;
- Click the **Filters** button.



And specify the settings for filtering data in the editor.

Filter editor

The editor is setting up data filters. Every filter is a data field, a logical operation, and a data filtering value. All added filters work through the logical "AND", the data will be filtered first by the first filter, then by the second, and so on. In other words, only data that matches all filter conditions will be displayed in the element. The order of applying filters is determined by their order in the Filter editor. The higher is the filter in the list, the higher is its order of application.

The screenshot shows a window titled "Filters" with a list of filters and configuration options. The list contains two filters: "Categories.CategoryName <> 'Condiments'" and "Products.UnitPrice > 20". The first filter is selected. To the left of the list, there are numbered callouts 1 through 7. Below the list, there are configuration options: "Field" (set to "Categories.CategoryName"), "Condition" (set to "not equal to"), "Operation" (set to "And"), "Value" (set to "Condiments"), "Expression" (unchecked), and "Filter On" (set to "True").

- ❶ This field indicates any related data fields.
- ❷ The field, where an expression of a selected data column is displayed.
- ❸ This parameter is used to determine the [logical operation](#) in the data filtering condition.
- ❹ The parameter is used to determine the logical operation of adding **And** or **Or** filters. This parameter is displayed only if several different data columns are specified. The **AND** operation means that data will be displayed that matches all of the enabled filters. If the **OR** operation is selected, this means that data will be displayed that match at least one filter from the list of all enabled filters.
- ❺ This field indicates the value of the filter condition.
- ❻ The parameter defines the algorithm of processing the value of the filtering condition. If a checkbox is set, the value of the filtering condition will be processed as an expression. The result of calculation this expression will be the value of the

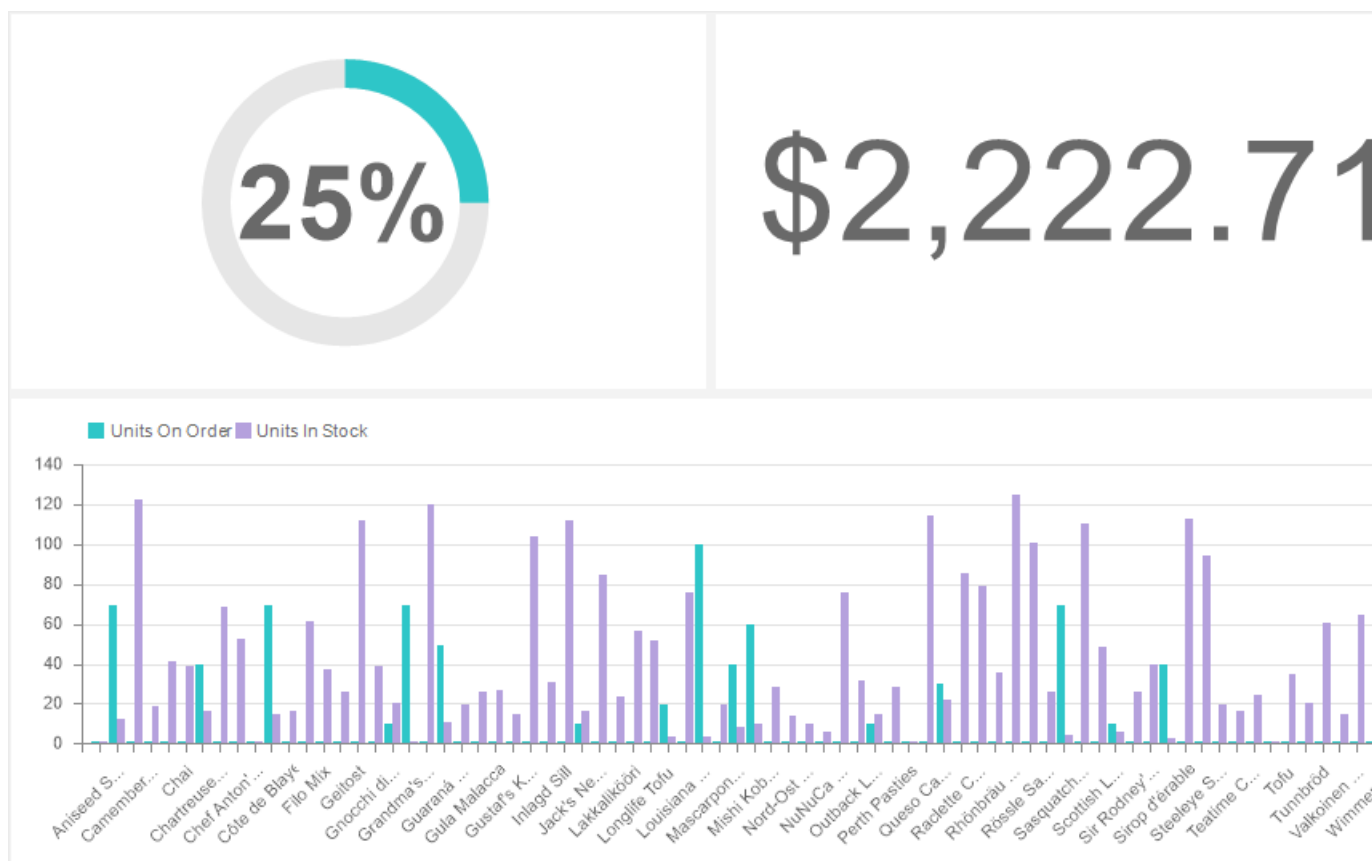
filtering condition. If a checkbox is not set, the value of the filter condition will be processed as a normal value.

7 The parameter defines whether the current filter is enabled or disabled. If the **Filter On** parameter is set to **True** value, the filter is enabled and takes part in data processing for the current item. If the current parameter is set to **False** value this filter is disabled and does not take part in data processing for the current element.

An example of setting the filters of an element

Suppose there are three elements on the dashboard:

- Progress - displays the number of orders in relation to the quantity of goods in stock;
- Indicator - displays the total value of goods in stock;
- Chart - displays the quantity in stock and the number of orders for each product.



Set up filtering of data in a chart. Display products only from a certain category, the price of which is in the required range.

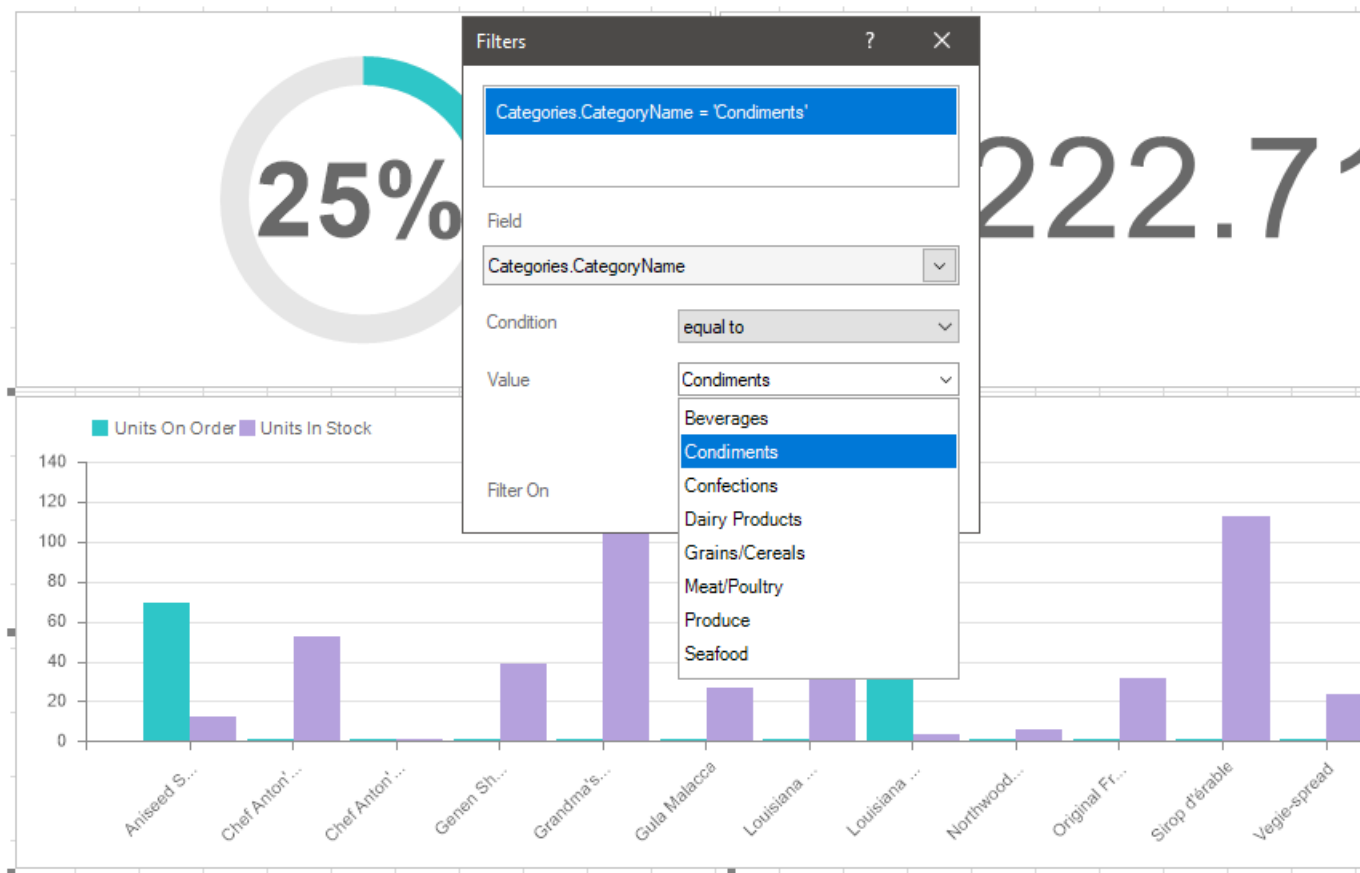
Step 1: Select the **Chart** element in the report designer;

Step 2: Click the **Filters** button to open the Filter editor;

Step 3: Add a data field with a list of product categories;

Step 4: Define a [logical filter operation](#). In this case, select the **equal to** operation.

Step 5: Select or enter the value of the filter condition. In this example, the category **Condiments** will be selected.



Products related to the category **Condiments** will be displayed. The relationship of categories and products is defined in the data dictionary. Now add a second filter. We display products from the category **Condiments**, which prices are in a certain range.

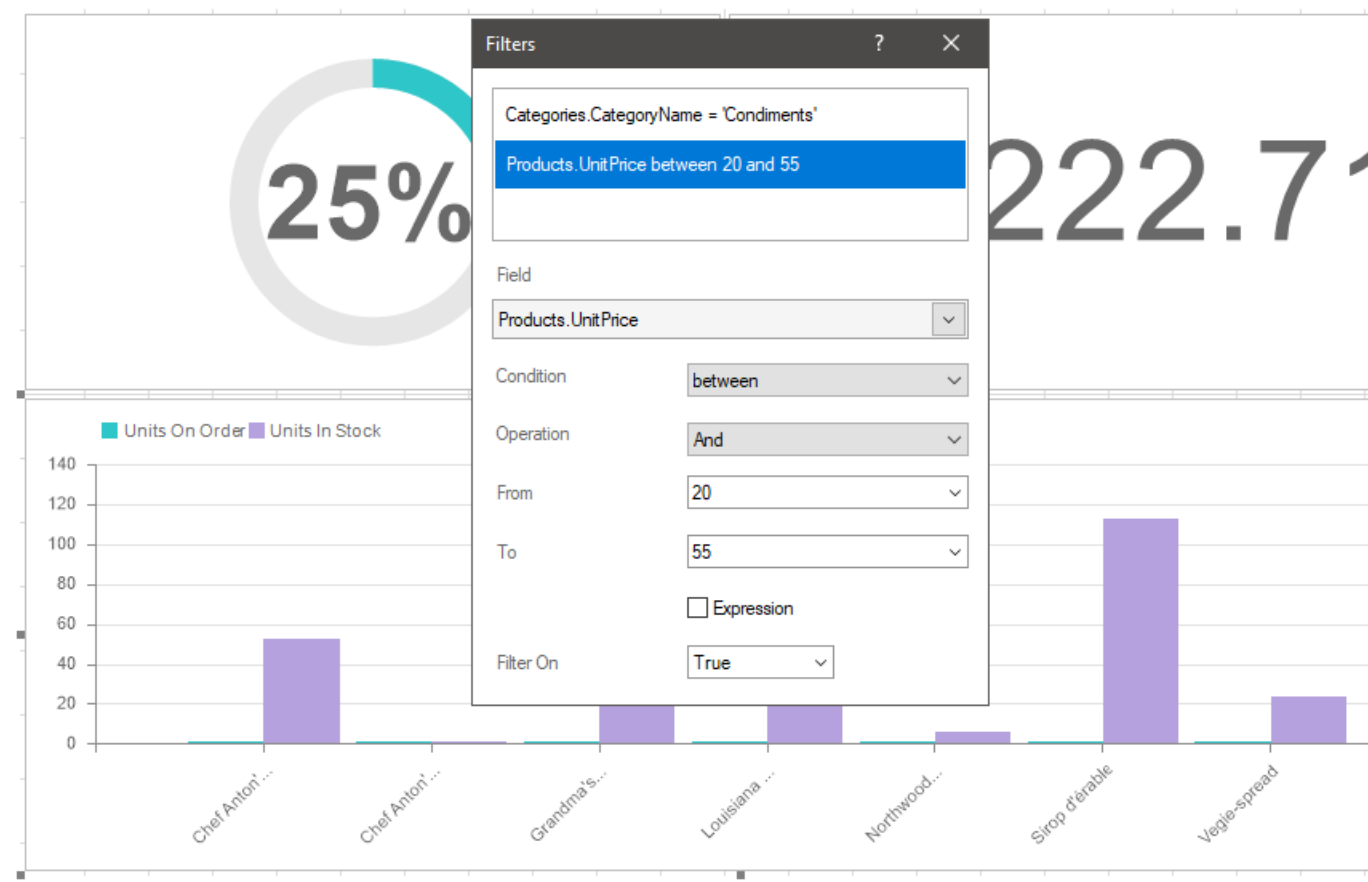
Step 6: Add a data field with product prices to the Filter editor;

Step 7: Select this data field and select a [logical operation](#) **between**;

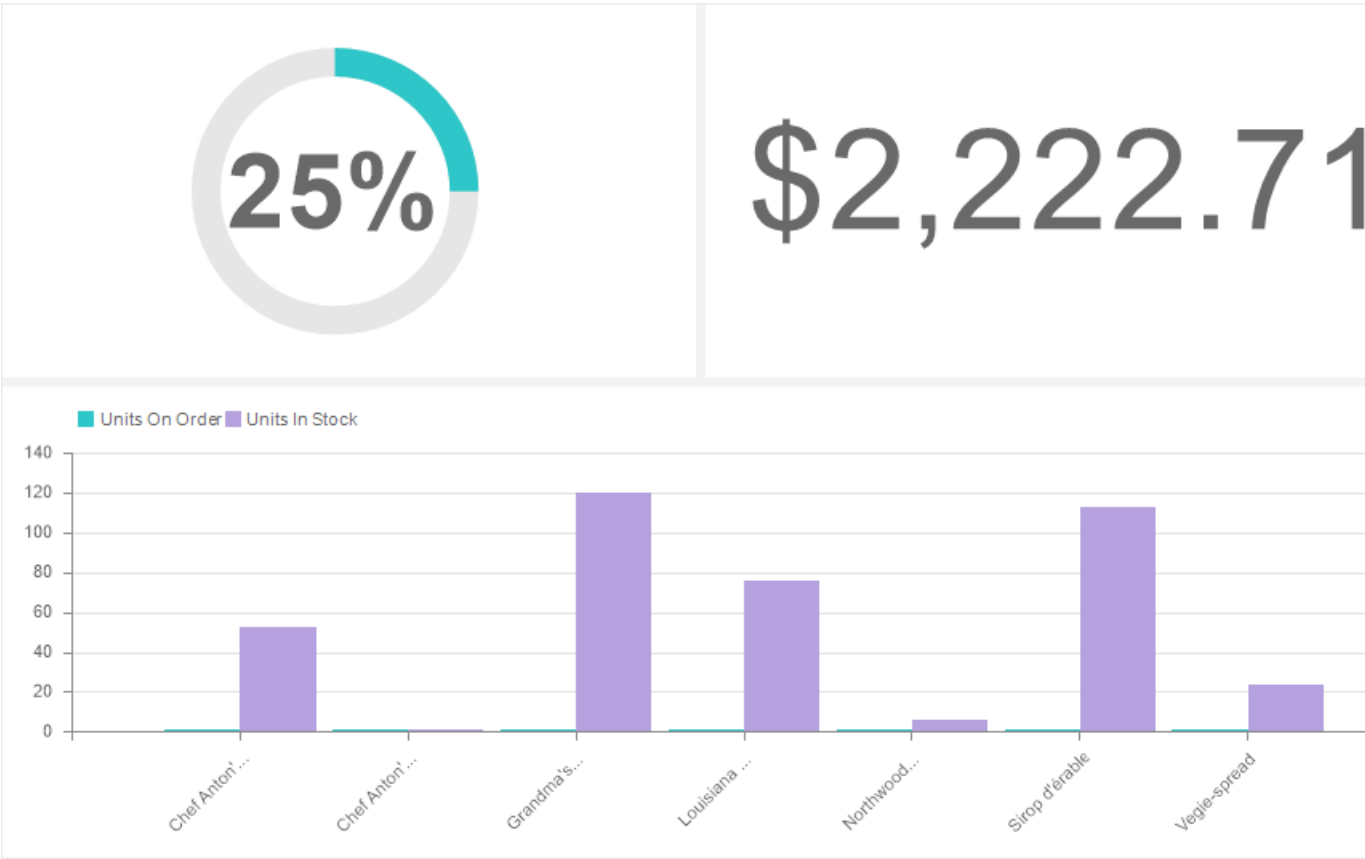
Step 8: Select or set the price range values.

Information

Pay your attention to the fact that the filter addition operation is set to **And** value. A chart displays the products which data matches the conditions of all filters.



Now, the product list in the chart will first be filtered by the category **Condiments**. After that, products will be filtered by prices and displayed only those which prices are in range within the specified prices.



Information

Note that data filtering using filters:

- It is performed on data fields that are not used in the **Chart** element;
- It is applied only to the element of the dashboard where filters are set, in our example, only to the chart.

Table of Operations

The list of available operations depends on the data type. Below is a list of operations for each data type and their description. The operation is performed on the value from the data field and the filter value (the value or expression that is specified in the filter).

| Name | Data Type | Data Type | Data Type | Data Type | Descr iption |
|------|-----------|-----------|-----------|-----------|--------------|
|------|-----------|-----------|-----------|-----------|--------------|

| | is
String | is
Num
ber | is
Data | is
Boole
an | |
|--------------|--------------|------------------|------------|-------------------|---|
| equal to | + | + | + | + | If the data field value is equal to the filter value, then the condition is true. |
| not equal to | + | + | + | + | If the data field value is not equal to the filter value, then the condition is true. |
| between | + | + | + | | If the data field value is in the specifi |

| | | | | | |
|--------------|---|---|---|--|---|
| | | | | | c
range
of
filter
values
, then
the
condit
ion is
true. |
| not between | + | + | + | | If the
data
field
value
is not
in the
specifi
c
range
of
filter
values
, then
the
condit
ion is
true. |
| greater than | + | + | + | | If the
data
field
value
is
greate
r then
the
filter
value,
then |

| | | | | | |
|--------------------------|---|---|---|--|--|
| | | | | | the condition is true. |
| greater than or equal to | + | + | + | | If the data field value is greater than the filter value of equal to the filter value, then the condition is true. |
| less than | + | + | + | | If the data field value is less than the filter value, then the condition is true. |

| | | | | | |
|-----------------------|---|---|---|--|---|
| less then or equal to | + | + | + | | If the data field value is less then the filter value of equal to the filter value, then the condition is true. |
| containing | + | | | | If the data field value contains the filter value, then the condition is true. |
| not containing | + | | | | If the data field value does not |

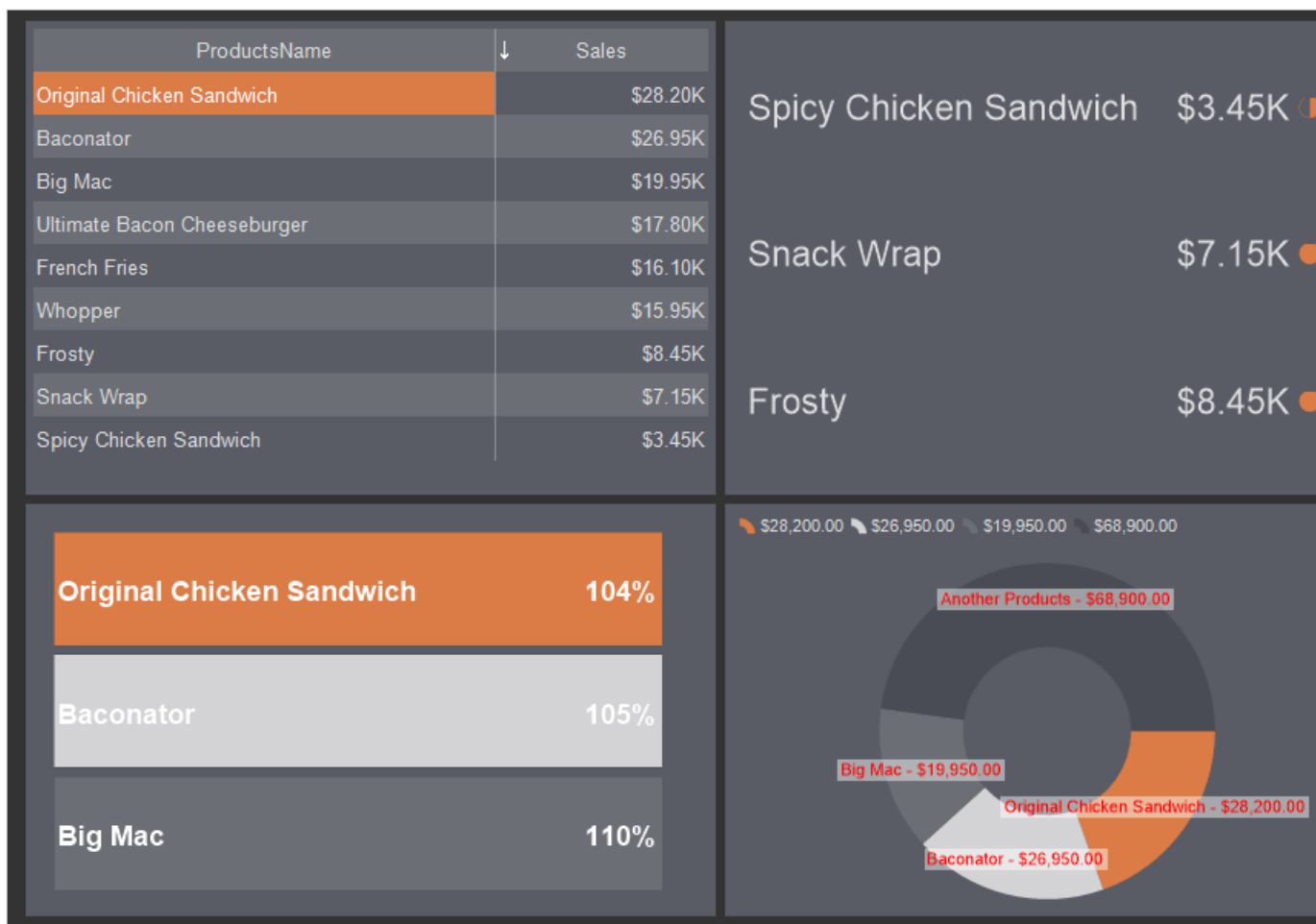
| | | | | | |
|----------------|---|--|--|--|---|
| | | | | | contain the filter value, then the condition is true. |
| beginning with | + | | | | If the data field value starts with the filter value, then the condition is true. |
| ending with | + | | | | If the data field value ends with the filter value, then the condition is true. |
| is blank | + | | | | If the |

| | | | | | |
|--------------|---|---|---|--|---|
| | | | | | data field value is blank, then the condition is true. |
| is not blank | + | | | | If the data field value is not blank, then the condition is true. |
| is null | + | + | + | | If the data field value is null, then the condition is true. |
| is not null | + | + | + | | If the data field value is not null, then |

| | | | | | |
|--|--|--|--|--|------------------------|
| | | | | | the condition is true. |
|--|--|--|--|--|------------------------|

5.12.4 Top N

One of the options for filtering data for the elements of the dashboard panel is the ability to display a certain number of maximum or minimum values. This can be applied with the **Top N** tool. This feature applies to pre-filtering and only to the current element.



This chapter will cover the following:

- [Top N Editor](#);
- [An example of Top values](#);
- [An example of minimum Top values](#).

Information

The top values can be setup only for a specific element of the dashboard and are applied only to it. The data of the remaining elements of the current dashboard is not filtered.

Filtering using the Top N tool is:

- Prior and you customize it in the report designer.
- Reset filter settings are also carried out in the report designer.
- In the viewer, the already filtered data for the current element of the dashboard is displayed.

To customize the Top values you should:

- Select the element on the dashboard;
- Click the **Browse** button for the **TopN** property on the property panel.

You can specify the top values for the elements of the dashboard panel:

- [Chart](#);
- [Indicator](#);
- [Progress](#);
- [Pivot](#).

Information

The Top values for the **Pivot** element are configured in the editor of this element.

Top N editor

In the Top N editor you may define the type of the values (maximum or minimum), the number of the best values, actions with the rest of the element data.

The image shows a 'Top N' dialog box with four numbered annotations on the left side:

- 1. **Mode**: A dropdown menu set to 'Top'.
- 2. **Count**: A numeric input field set to '10'.
- 3. **Show Others**: A checked checkbox.
- 4. **Others Text**: A text input field containing 'Another Prodcuts'.

1 The **Mode** parameter allows you to define the type of values that you want to display:

- **None** - all values of the current item are displayed. This mode is set by default.
- **Top** - a list of maximum values will be displayed. The first value is the maximum value from the list of values. Depending on the number of values, the values in the direction from the maximum to the minimum will be sequentially displayed.
- **Bottom** - a list of minimum values will be displayed. The first value is the minimum value from the list of values. Depending on the number of values, the values in the direction from the minimum to the maximum will be sequentially displayed.

2 The **Count** parameter is used to determine the number of maximum or minimum values. For example, if this parameter is set to 10, then 10 maximum or minimum values from the list of values will be displayed.

Information

When setting the top values for the [Pivot](#) element, you should also define the **Measure** parameter. The value for this parameter will be one of the data fields specified in the **Summary** field.

3 The **Show Other** option is used to display a sum of values that were not included in the list of top values:

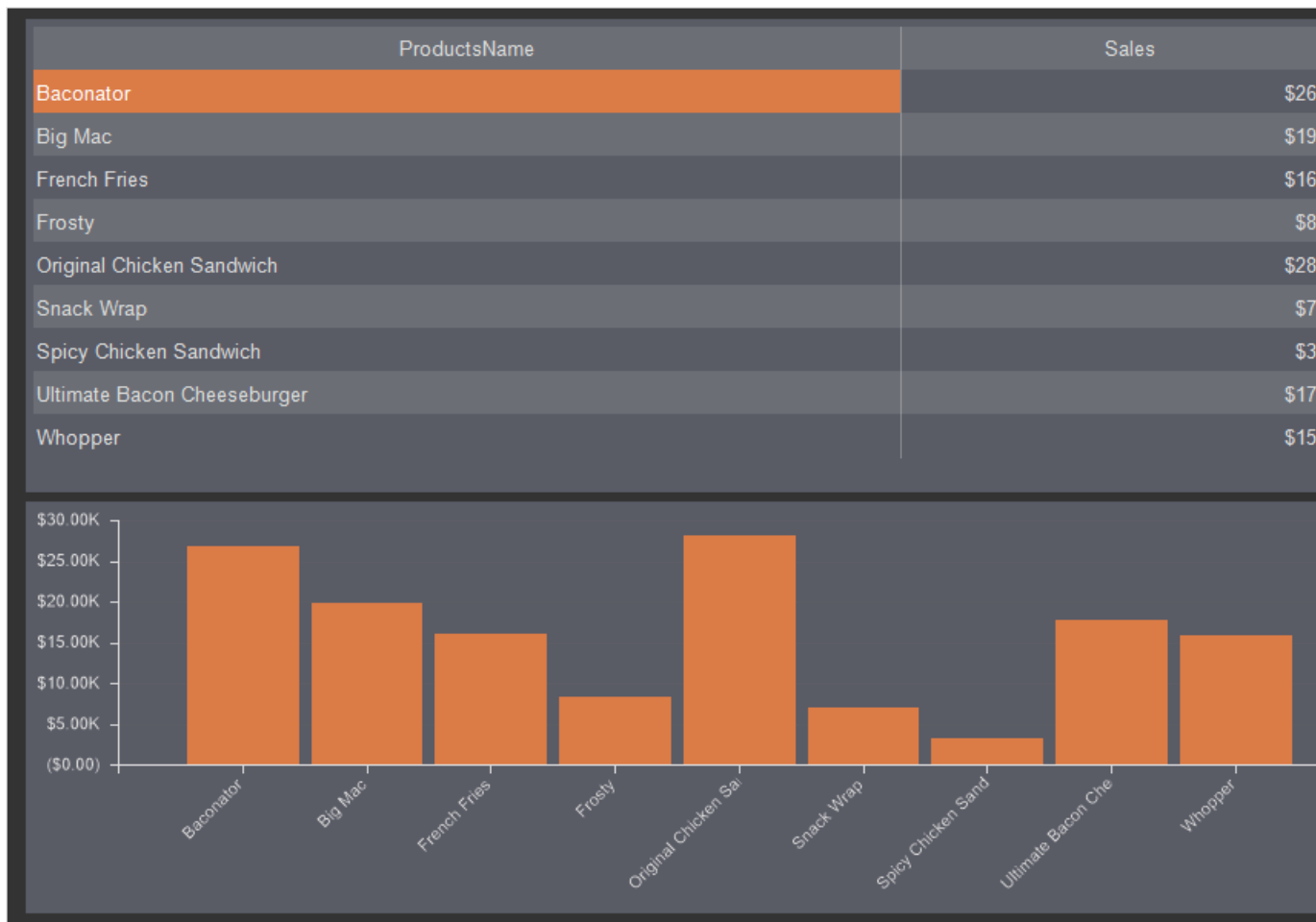
- If the **Show other** option is enabled, then all values that were not included in the list of top values will be summed up and displayed as a separate value.
- If the **Show other** option is disabled, then only values that appear on the list of top values will be displayed on the item.

4 The **Other Text** parameter is used to specify a title for the sum of other values.

This parameter is applicable only if the **Show other** option is enabled. If the **Text** parameter of other values is not filled, the default value **Other** is used for the sum of other values.

An example of Top values

For example, we have a table and a chart that display the sales volume for every product.



Let's show three products with maximum sales on the chart:

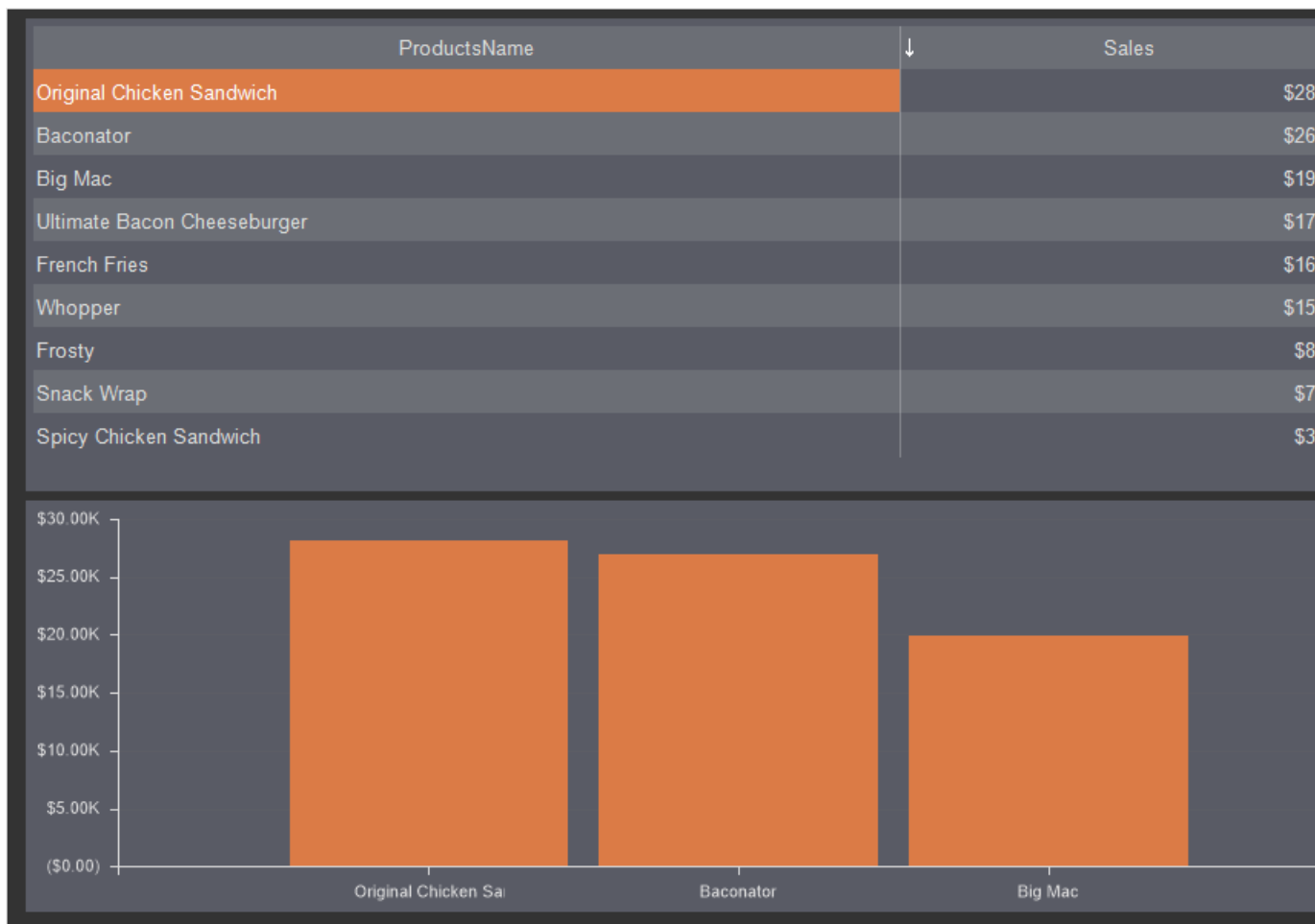
Step 1: Select a chart in the dashboard panel in the report designer;

Step 2: Click the **Browse** button on the **Top N** property on the property panel;

Step 3: Select the **Top** mode in the **Top N** editor;

Step 4: Set the number to 3;

Step 5: Uncheck the box next to **Show others**.



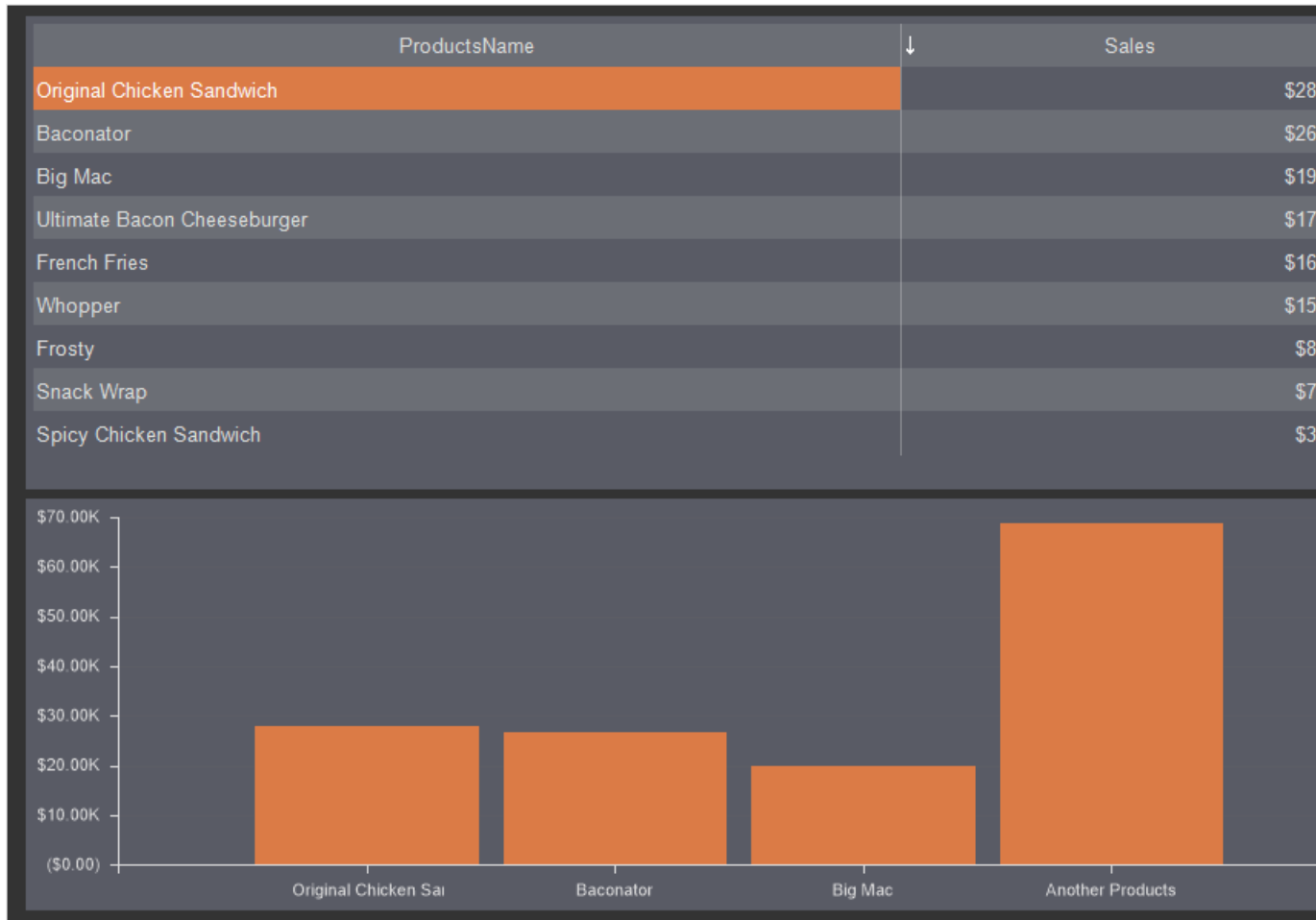
As you can see in the picture, three products with maximum sales will be displayed in the chart. In this case, this filtering does not affect the lists of values of other elements.

Step 6: Go back to the report designer;

Step 7: Click the **Browse** button on the **Top N** property on the property panel;

Step 8: Check the box next to **Show other**.

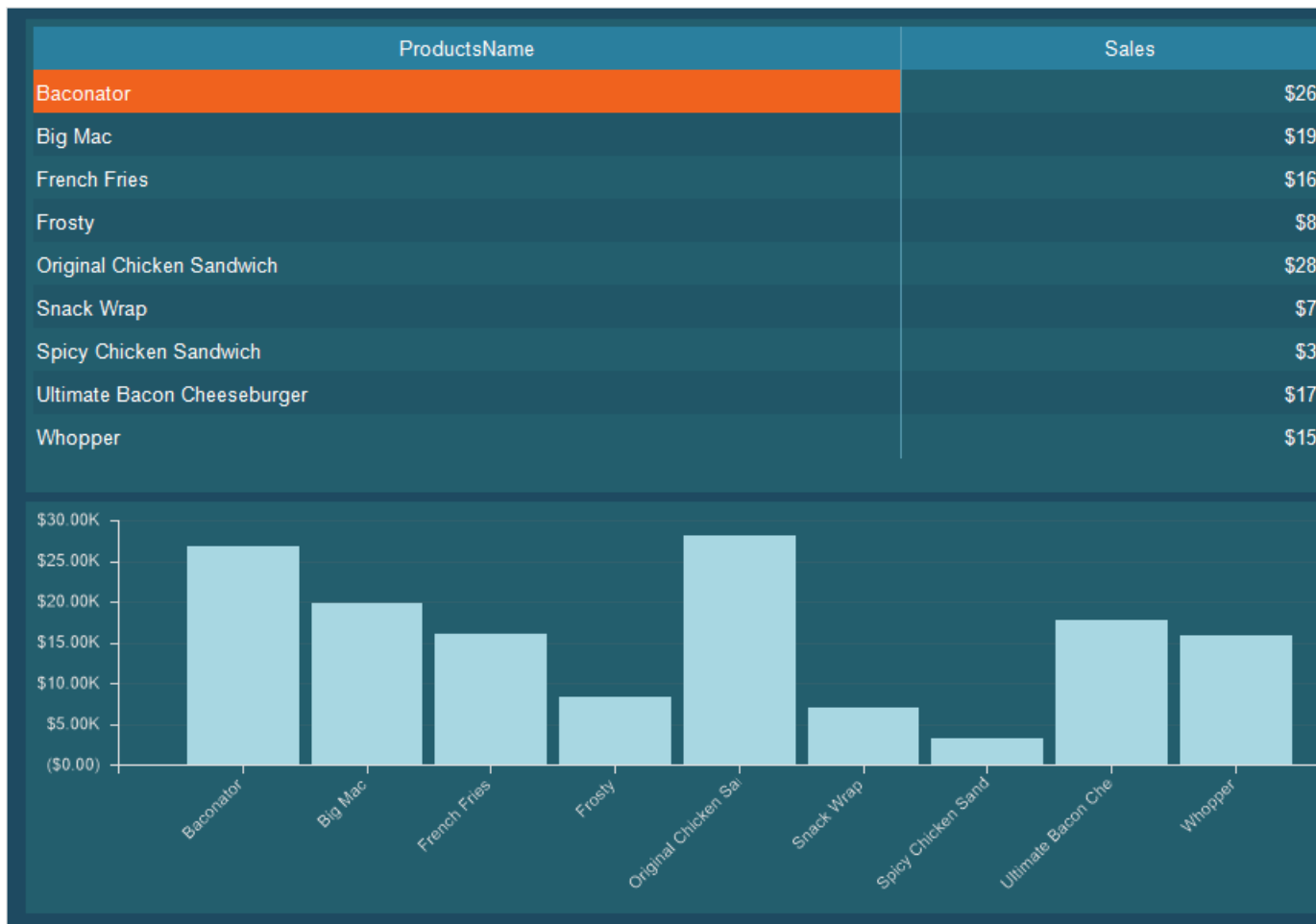
Step 9: Define text for a general value. For example, Another Products.



Now, the chart will display three products with maximum sales. All other values will be summed up and displayed on the chart as a separate graphic element, with the Another Products argument.

An example of minimum Top values

For example, in the dashboard panel, a table and a chart are displayed with the sales volume for every product.



Let's show three products on the chart with minimal sales volumes:

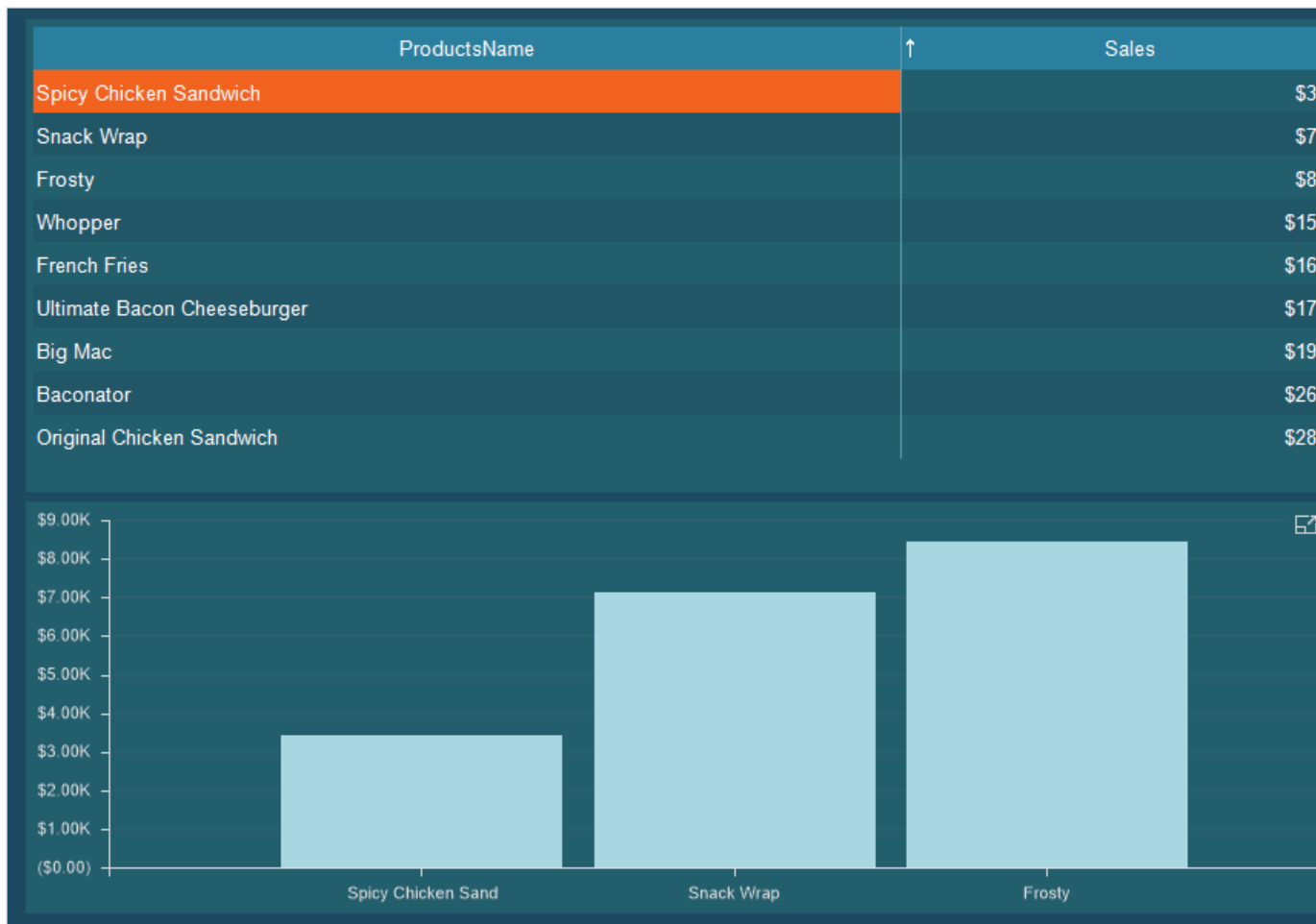
Step 1: Select a chart in the dashboard panel in the report designer;

Step 2: Click the **Browse** button on the **Top N** property on the property panel;

Step 3: Select the **Bottom** mode in the **Top N** editor;

Step 4: Set the number to 3;

Step 5: Uncheck the box next to **Show other**.



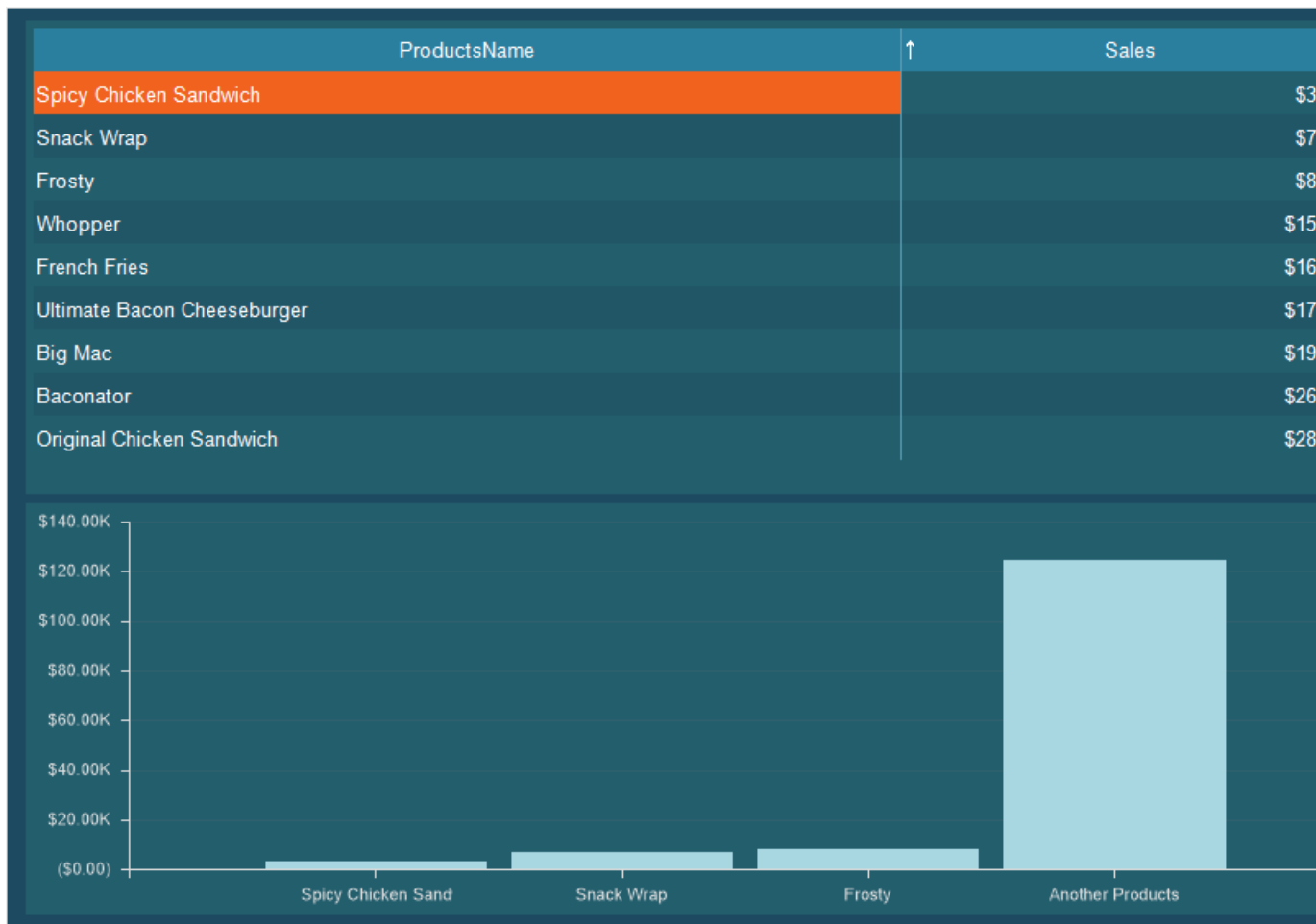
As can be seen in the picture, three products with minimal sales volumes will be displayed on the chart. In this case, this filtering does not affect the lists of values of other elements.

Step 6: Return to the report designer;

Step 7: Click the **Browse** button on the **Top N** property on the property panel;

Step 8: Check the box next to **Show other**.

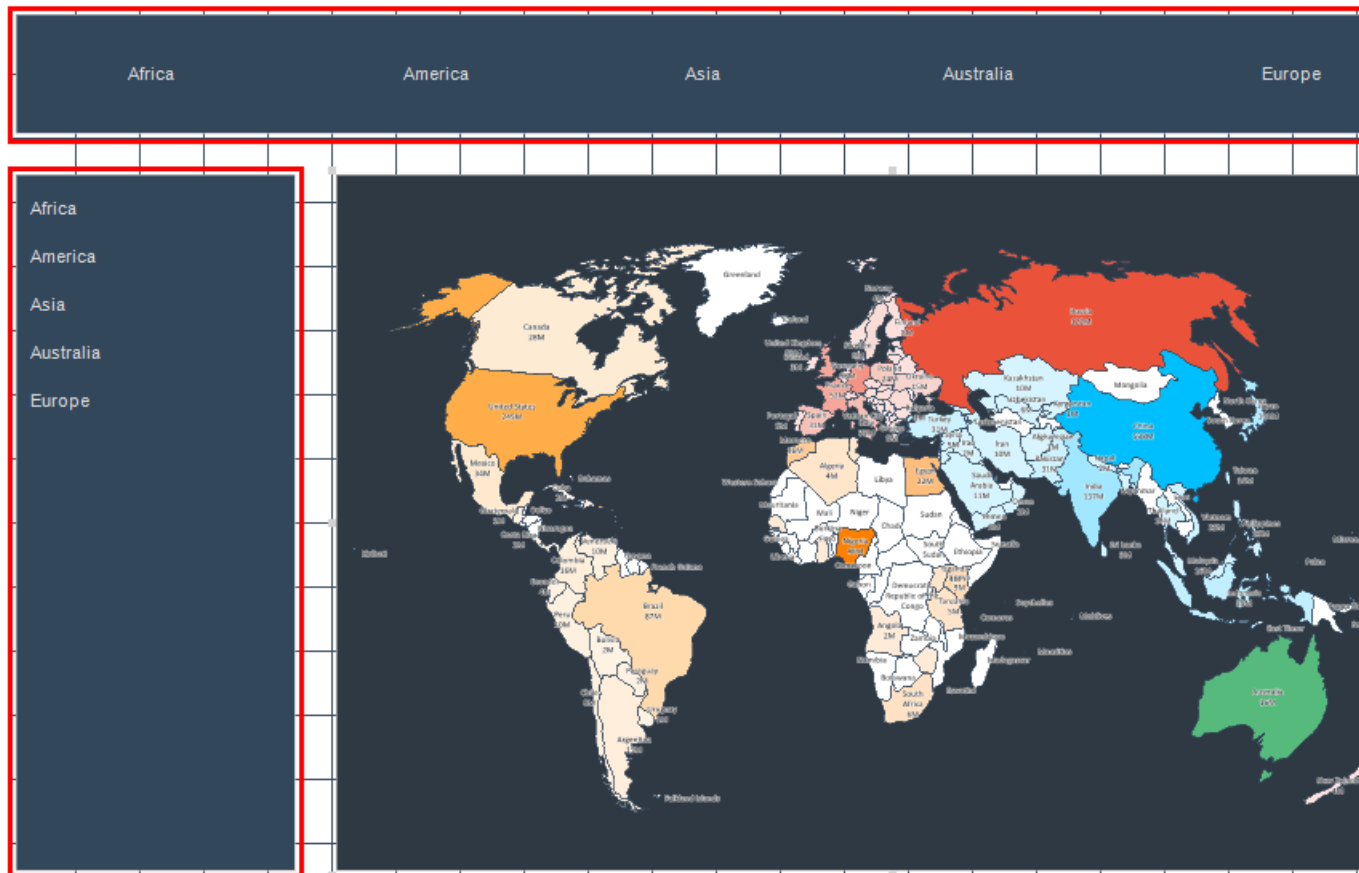
Step 9: Define text for a general value. For example, **Another Products**.



Now, the chart will display three products with minimal sales. All other values will be summed up and displayed on the chart as a separate graphic element, with the Another Products argument.

5.12.5 List Box

List Box is a filtering element on the dashboard, which is used to filter data for analysis elements in the viewer, depending on the selected value. It can be located anywhere on the dashboard panel. Depending on the size of the dashboard in the viewer, it can grow or shrink in height and width.



This chapter will cover the following:

- [List Box editor](#);
- [Table Of Properties](#).

The **List Box** element can be subordinate to other filtering elements, or can be the main filtering element for them. The **List Box** can work in two modes:

- **One.** In the viewer you can select only one value of the List Box. Accordingly, data filtering for the elements of the dashboard will be executed only by one value.
- **Multi.** In the viewer, you can select several values of the List Box. Accordingly, data filtering for the elements of the dashboard will be executed by all selected values.

The **List Box** element can be of two types:

- Horizontal list of values;
- Vertical list of values.

The item is set up in its editor. To call the editor, you should do the following in the report designer:

- Double-click the List Box;
- Select the List Box and select **Design** in the context menu.

Information

The search string for elements will be displayed automatically, if the number of values of the element will be 10.

List Box editor

In the editor of the List Box element, you may add elements with data, set up the mode for selecting values, select the main element of filtering.

The screenshot shows the 'List Box' editor dialog box. It has a title bar with a question mark and a close button. The dialog contains several fields and options, each with a numbered yellow circle annotation:

- 1** Key: A text field containing 'Week ID'.
- 2** Name: A text field containing 'Week'.
- 3** Field: A text field containing 'SiteStatistics.WeekID' with a dropdown arrow.
- 4** Selection Mode: A dropdown menu set to 'Multi'.
- 5** Orientation: A dropdown menu set to 'Vertical'.
- 6** ☒ Show (All) Value
- 7** ☒ Show Blanks
- 8** Parent Element: A dropdown menu set to 'ListBox1'.

- 1** The **Key** field. The data element is specified there by the values of which the data will be filtered.
- 2** The **Name** field. Indicates the data item which values will be displayed in the List Box element. If the name is not specified, then the names of keys will be displayed in the list item.

- 3 The **Field** field. Displays the expression of the selected item data field.
- 4 The **Selection Mode** parameter. Specifies the number of simultaneously selected values of the **List Box** item — **One** or **Multi**. If one value is selected, the data will be filtered by the current value of the List Box element. If the Multi mode is set, the filtering will be performed for all selected values.
- 5 The **Orientation** parameter allows you to define the List Box element orientation: **Horizontal** or **Vertical**.
- 6 The **Show (All) Value** option. Enables the option to select all values in the List Box element. If this option is enabled, then the **Select (All) Value** value will be present in the List Box element.
- 7 The **Show Blanks** parameter allows you to display or not to display blank values from a data source in the list of the values of the current element.
- 8 The **Parent Element** parameter. It is used to define the main filtering element for the current List Box element. The data of these filter elements will be interrelated, and depending on the selected value of the main element, the list of values of the current element will be filtered.

Get acquainted with the step-by-step instruction in the [Dashboards with List Box](#) chapter.

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

| Name | Description |
|---------------------|---|
| Data Transformation | Customizes the data transformation of the current item. |
| Group | Adds the current item to a specific group of items . |
| Selection Type | Allows defining the mode of the element as either List Box or Radio Button. |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |

| | |
|---------------|--|
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left , Top - Right , Bottom - Right , Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius. |
| Font | A group of properties defines the font family, its style, and size for the values of the element. |
| Fore Color | Specifies the color of the values of the element. By default, this property is set to From Style , i.e. the color of the values will be obtained from the settings of the current element style. |
| Shadow | <p>A group of properties that allows configuring the shadow of an element:</p> <ul style="list-style-type: none">➤ The Color property allows you to specify the color that will be used to display the shadow of the element.➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel.➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size.➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel. |

| | |
|-------------|---|
| Style | Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard. |
| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |
| Margin | A group of properties that allows you to define margin (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define padding (left, top, right, bottom) of values from the range of values. |
| Text Format | Sets the formatting of values for the element. |
| Title | <p>A group of properties that allows you to customize the title of the element:</p> <ul style="list-style-type: none"> ➤ The Back Color property provides the ability to change the background color of the title of the current item. By default, this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element. ➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style ➤ The group property Font that allows you to define the font family, its style and size |

| | |
|--------------|---|
| | <p>for the title of the current element.</p> <ul style="list-style-type: none"> ➤ The Horizontal Alignment property provides the ability to change the title alignment relative to the element - Left, Center, Right. ➤ The Text property is used to set the title text of the current element. ➤ The Visible property is used to enable or disable displaying of the title of the current item. If the property is set to True, then the element title will be included. If this property is set to False, then the element header will be disabled. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none"> ➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed. ➤ The Allow Delete option enables or disables the deletion of an element. ➤ The Allow Move option allows or prohibits moving an element. ➤ The Allow Resize option enables or disables resizing of an element. ➤ The Allow Select option enables or disables the element selection. |
| Locked | Locks or unlocks resizing and replacement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current |

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| | item is bound to the current location. If this property is set to False , then this element is not tied to the current location. |
| Max Selected Items | It allows you to set a limit using the Max Selected Items property by specifying a numeric value that represents the maximum number of values that can be selected simultaneously. By default, the property is set to 0, i.e., no limit is applied and all values in the filter elements can be selected. |

5.12.6 Combo Box

Combo Box is an element of filtering on the dashboard, which is used to filter data for analysis, depending on the selected value. This element is an analogue of the List Box element, with the only difference that all values are contained in the drop-down menu. It can be located anywhere on the dashboard. Depending on the size of the dashboard panel in the viewer, it can grow or shrink by width only.

(All) X

Type to search

- ☒ (All)
- ☒ Alabama
- ☒ Alaska
- ☒ Arizona
- ☒ Arkansas
- ☒ California
- ☒ Colorado
- ☒ Connecticut
- ☒ Delaware
- ☒ Florida
- ☒ Georgia

This chapter will cover the following:

➤ [Combo Box editor](#);

› [Table Of Properties.](#)

The **Combo Box** element may be subordinate to other filtering elements or be the main filtering element for them. The **Combo Box** item can work in two selection modes:

- › **One.** In the viewer you can select only one value of the Combo Box. Accordingly, data filtering for the elements of the dashboard will be executed only by one value.
- › **Multi.** In the viewer you can select several values of the Combo Box. Accordingly, data filtering for the elements of the dashboard will be executed by all selected values.

The item is set up in its editor. To call the editor, you should do the following in the report designer:

- › Double-click the Combo Box;
- › Select the Combo Box and select **Design** in the context menu.

Information

The search string for elements will be displayed automatically, if the number of values of the element will be 10.

Combo Box editor

In the editor of the Combo Box element, you may add elements with data, set up the mode for selecting values, select the main element of filtering.

- ❶ The **Key** field. The data element is specified there by the values of which the data will be filtered.
- ❷ The **Name** field. Indicates the data item which values will be displayed in the Combo Box element. If the name is not specified, then the names of keys will be displayed in the list item.
- ❸ The **Field** field. Displays the expression of the selected item data field.
- ❹ The **Selection Mode** parameter. Specifies the number of simultaneously selected values of a Combo Box item — **One** or **Multi**. If one value is selected, the data will be filtered by the current value of the Combo Box element. If the Multi mode is set, the filtering will be performed for all selected values.
- ❺ The **Show (All) Value** option. Enables the option to select all values in the Combo Box element. If this option is enabled, then the **Select (All) Value** value will be present in the Combo Box element.
- ❻ The **Show Blanks** parameter allows you to display or not to display blank values from a data source in the list of the values of the current element.
- ❼ The **Parent Element** parameter. It is used to define the main filtering element for the current Combo Box element. The data of these filter elements will be interrelated, and depending on the selected value of the main element, the list of values of the current element will be filtered.

Get acquainted with the step-by-step instruction in the [Dashboards with Combo Box](#) chapter.

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

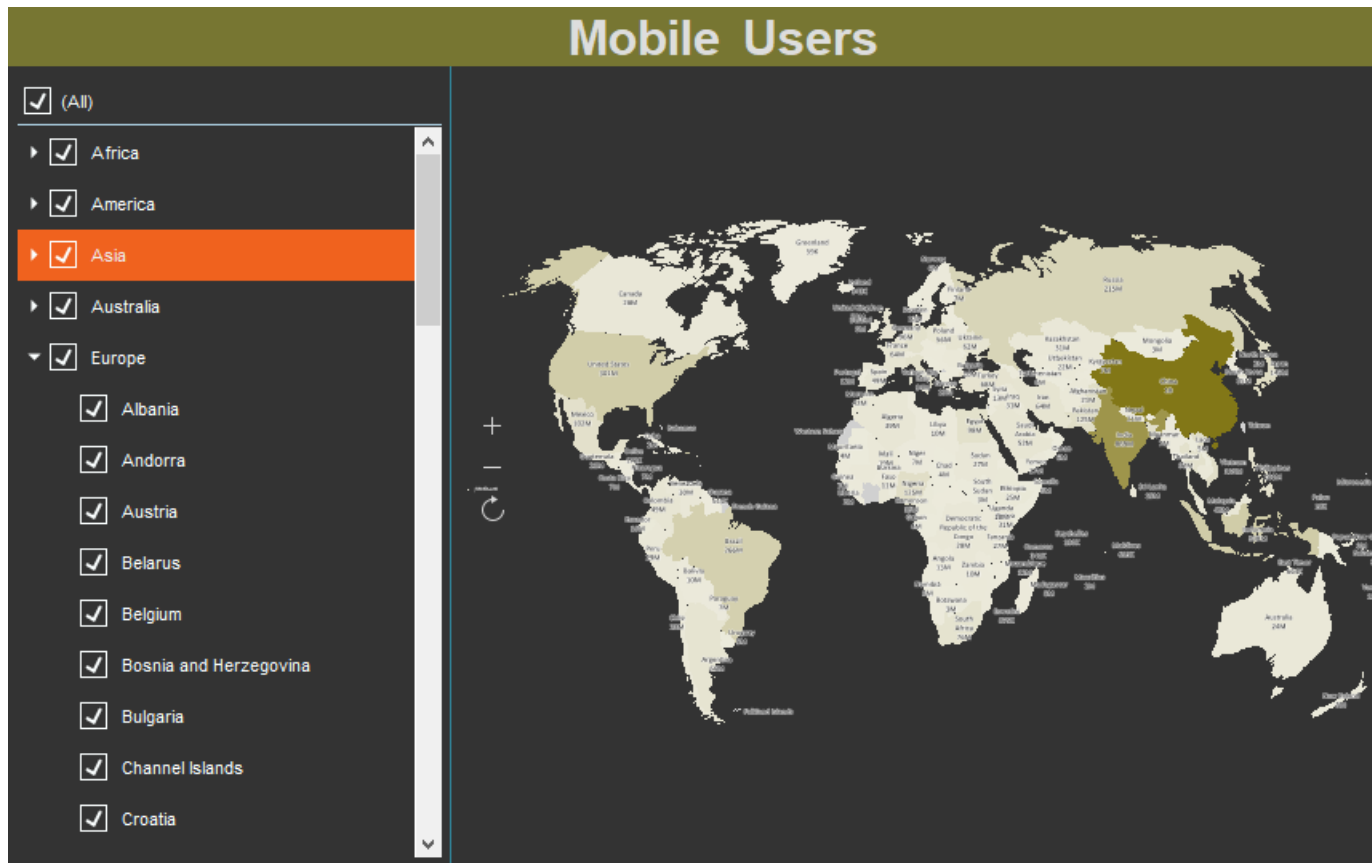
| Name | Description |
|---------------------|--|
| Data Transformation | Customizes the data transformation of the current item. |
| Group | Adds the current item to a specific group of items . |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left , Top - Right , Bottom - Right , Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius. |
| Font | A group of properties defines the font family, its style, and size for the values of the element. |
| Fore Color | Specifies the color of the values of the element. By default, this property is set to From Style , i.e. the color of the values will be obtained from the settings of the current element style. |
| Shadow | A group of properties that allows configuring the shadow of an element:
➤ The Color property allows you to specify |

| | |
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| | <p>the color that will be used to display the shadow of the element.</p> <ul style="list-style-type: none"> ➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel. ➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size. ➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel. |
| Style | Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard. |
| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |
| Fixed Height | Allows setting the mode of fixed or change height. |
| Margin | A group of properties that allows you to define margin (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define padding (left, top, right, bottom) of values from the range of values. |
| Text Format | Sets the formatting of values for the |

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|--------------------|---|
| | element. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none">➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed.➤ The Allow Delete option enables or disables the deletion of an element.➤ The Allow Move option allows or prohibits moving an element.➤ The Allow Resize option enables or disables resizing of an element.➤ The Allow Select option enables or disables the element selection. |
| Locked | Locks or unlocks resizing and replacement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location. |
| Max Selected Items | It allows you to set a limit using the Max Selected Items property by specifying a numeric value that represents the maximum number of values that can be selected simultaneously. By default, the property is set to 0, i.e., no limit is applied and all values in the filter elements can be selected. |

5.12.7 Tree View

Tree View is a filtering element on the dashboard, which is used to create a hierarchy of values and filter data for analysis in the viewer by these values. It can be located anywhere on the dashboard panel. Depending on the size of the dashboard in the viewer, it can grow and shrink by height and width.



This chapter will cover the following:

- [Tree View editor](#);
- [Table Of Properties](#).

The **Tree View** can be subordinate to other filtering elements, or be the main filtering element for them. The **Tree View** can work in two selection modes:

- **One.** In the viewer, you can select only one value within one level of the hierarchy of values. Accordingly, data filtering for the elements of the dashboard will be performed only by one value.
- **Multi.** In the viewer, you can select multiple values within the same level of the hierarchy of values. Accordingly, data filtering for the elements of the dashboard will

be performed by all selected values.

You may setup the **Tree View** element in the editor. To call the editor, you should do the following in the report designer:

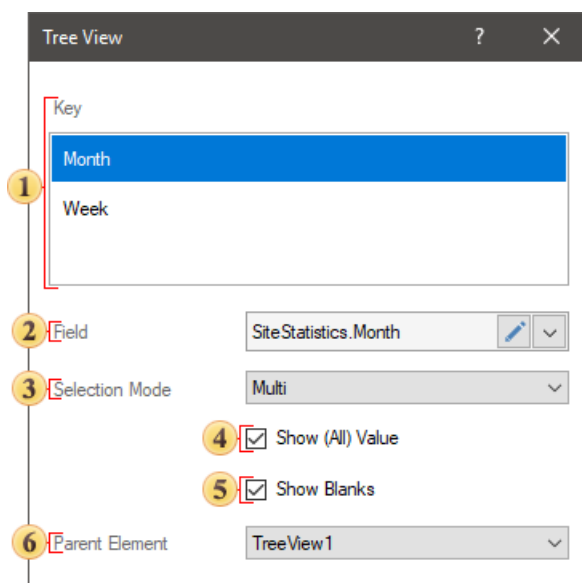
- Double-click the **Tree View** element;
- Select the **Tree View** element and select the **Design** command in the context menu.

Information

The search string for elements will be displayed automatically, if the number of values of the element will be 10.

The Tree View editor

In the **Tree View** editor, you can add items with data, set up the value selection mode, select the main filter item.



- ➊ The **Key** field. The data item is specified, the values of which will form the hierarchy and be displayed in the **Tree View** item.
- ➋ The **Field** field. Displays the expression of the selected item data field.
- ➌ The **Selection Mode** parameter. Specifies the number of simultaneously selected

values of the element. A **Tree View** is one element or many elements.

- 4 The **Show (All) Value** option. Enables the option to select all values in the **Tree View** element. If this option is enabled, the **Select (All) Value** value will be present in the Tree View element.
- 5 The **Show Blanks** parameter allows you to display or not to display blank values from a data source in the list of the values of the current element.
- 6 The **Parent Element** parameter. It is used to define the main filtering element for the current element. The data of these filter elements will be interrelated, and depending on the selected value of the main element, the list of values of the current element will be filtered.

Get acquainted with the step-by-step instruction in the [Dashboards with Tree View](#) chapter.

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

| Name | Description |
|---------------------|--|
| Data Transformation | Customizes the data transformation of the current item. |
| Group | Adds the current item to a specific group of items . |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left , Top - Right , Bottom - Right , Bottom - Left . The |

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| | property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius. |
| Font | A group of properties defines the font family, its style, and size for the values of the element. |
| Fore Color | Specifies the color of the values of the element. By default, this property is set to From Style , i.e. the color of the values will be obtained from the settings of the current element style. |
| Shadow | <p>A group of properties that allows configuring the shadow of an element:</p> <ul style="list-style-type: none">➤ The Color property allows you to specify the color that will be used to display the shadow of the element.➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel.➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size.➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel. |
| Style | Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard. |
| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be |

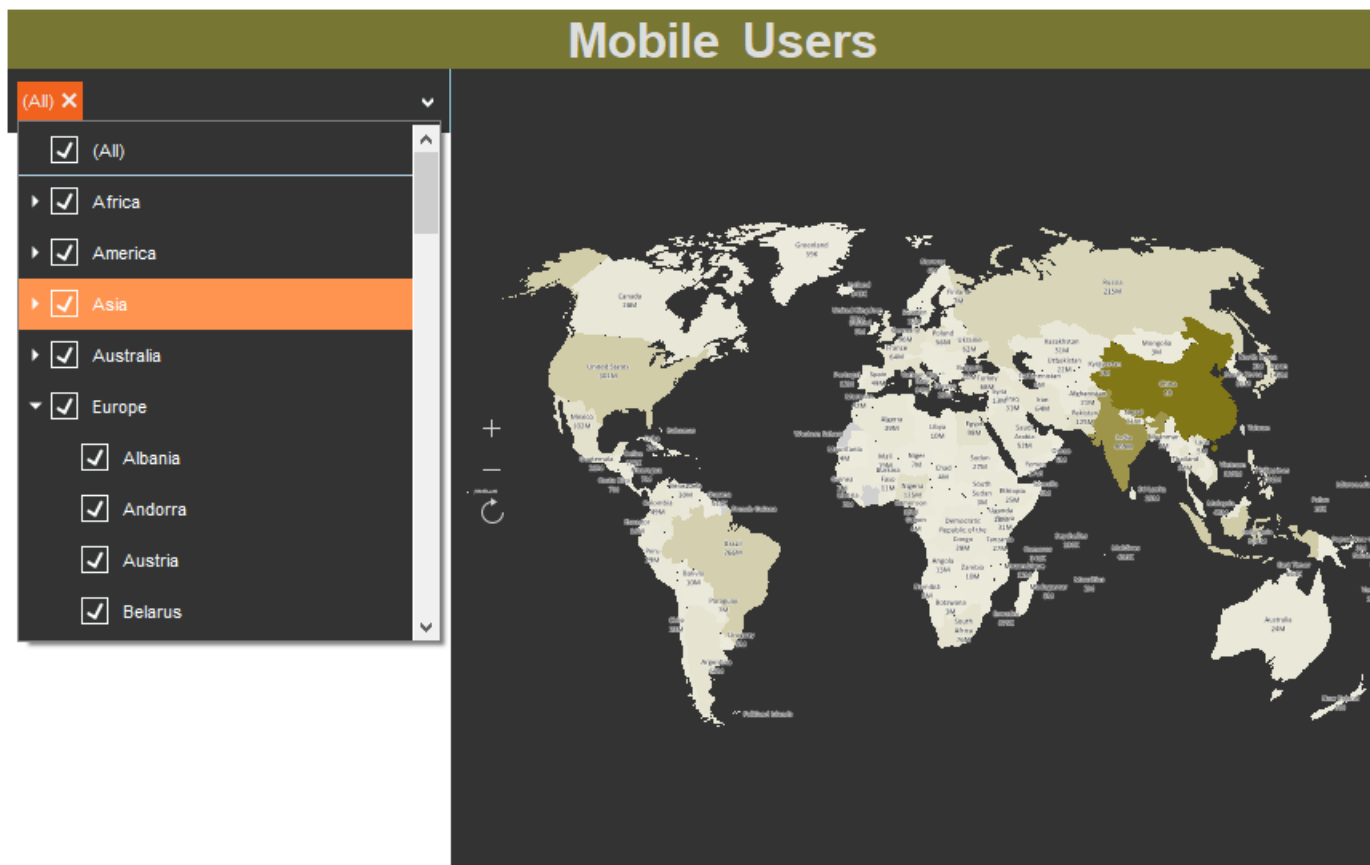
| | |
|-------------|--|
| | displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |
| Margin | A group of properties that allows you to define margins (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define padding (left, top, right, bottom) of values from the range of values. |
| Text Format | Sets the formatting of values for the element. |
| Title | <p>A group of properties that allows you to customize the title of the Table element:</p> <ul style="list-style-type: none"> ➤ The Back Color property provides the ability to change the background color of the title of the current item. By default, this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element. ➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style ➤ The group property Font allows you to define the font family, its style and size for the title of the current element. ➤ The Horizontal Alignment property provides the ability to change the title alignment relative to the element - Left, Center, Right. ➤ The Text property is used to set the title text of the current element. ➤ The Visible property is used to enable or |

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| | disable displaying of the title of the current item. If the property is set to True , then the element title will be included. If this property is set to False , then the element header will be disabled. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none">➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed.➤ The Allow Delete option enables or disables the deletion of an element.➤ The Allow Move option allows or prohibits moving an element.➤ The Allow Resize option enables or disables resizing of an element.➤ The Allow Select option enables or disables the element selection. |
| Locked | Locks or unlocks resizing and replacement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location. |

5.12.8 Tree View Box

Tree View Box is a filtering element on the dashboard, which is used to create a hierarchy of values and filter data for analysis in the viewer by these values. It can be located anywhere on the dashboard panel. Depending on the size of the dashboard

in the viewer, it can grow or shrink by width only.



This chapter will cover the following:

- [Tree View Box editor](#);
- [Table Of Properties](#).

The **Tree View Box** can be subordinate to other filtering elements, or be the main filtering element for them. The **Tree View Box** can work in two selection modes:

- **One.** In the viewer, you can select only one value within one level of the hierarchy of values. Accordingly, data filtering for the elements of the dashboard will be performed only by one value.
- **Multi.** In the viewer, you can select multiple values within the same level of the hierarchy of values. Accordingly, data filtering for the elements of the dashboard will be performed by all selected values.

You may setup the **Tree View Box** element in the editor. To call the editor, you should do the following in the report designer:

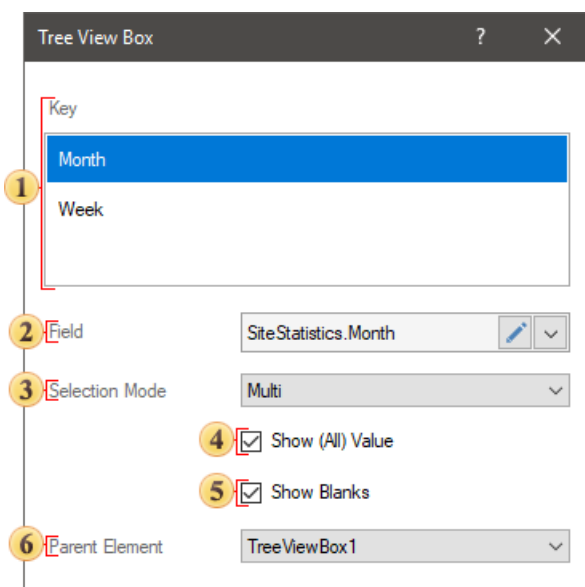
- Double-click the **Tree View Box** element;
- Select the **Tree View Box** element and select the **Design** command in the context menu.

Information

The search string for elements will be displayed automatically, if the number of values of the element will be 10.

The Tree View Box editor

In the **Tree View Box** editor, you can add items with data, set up the value selection mode, select the main filter item.



- 1 The **Key** field. The data item is specified, the values of which will form the hierarchy and be displayed in the **Tree View Box** item.
- 2 The **Field** field. Displays the expression of the selected item data field.
- 3 The **Selection Mode** parameter. Specifies the number of simultaneously selected values of the element. A **Tree View Box** is one element or many elements.
- 4 The **Show (All) Value** option. Enables the option to select all values in the **Tree View Box** element. If this option is enabled, the **Select (All) Value** value will be present in the Tree View Box element.
- 5 The **Show Blanks** parameter allows you to display or not to display blank values

from a data source in the list of the values of the current element.

6 The **Parent Element** parameter. It is used to define the main filtering element for the current element. The data of these filter elements will be interrelated, and depending on the selected value of the main element, the list of values of the current element will be filtered.

Get acquainted with the step-by-step instruction in the [Dashboards with Tree View Box](#) chapter.

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

| Name | Description |
|---------------------|--|
| Data Transformation | Customizes the data transformation of the current item. |
| Group | Adds the current item to a specific group of items . |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left, Top - Right, Bottom - Right, Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius. |
| Font | A group of properties defines the font |

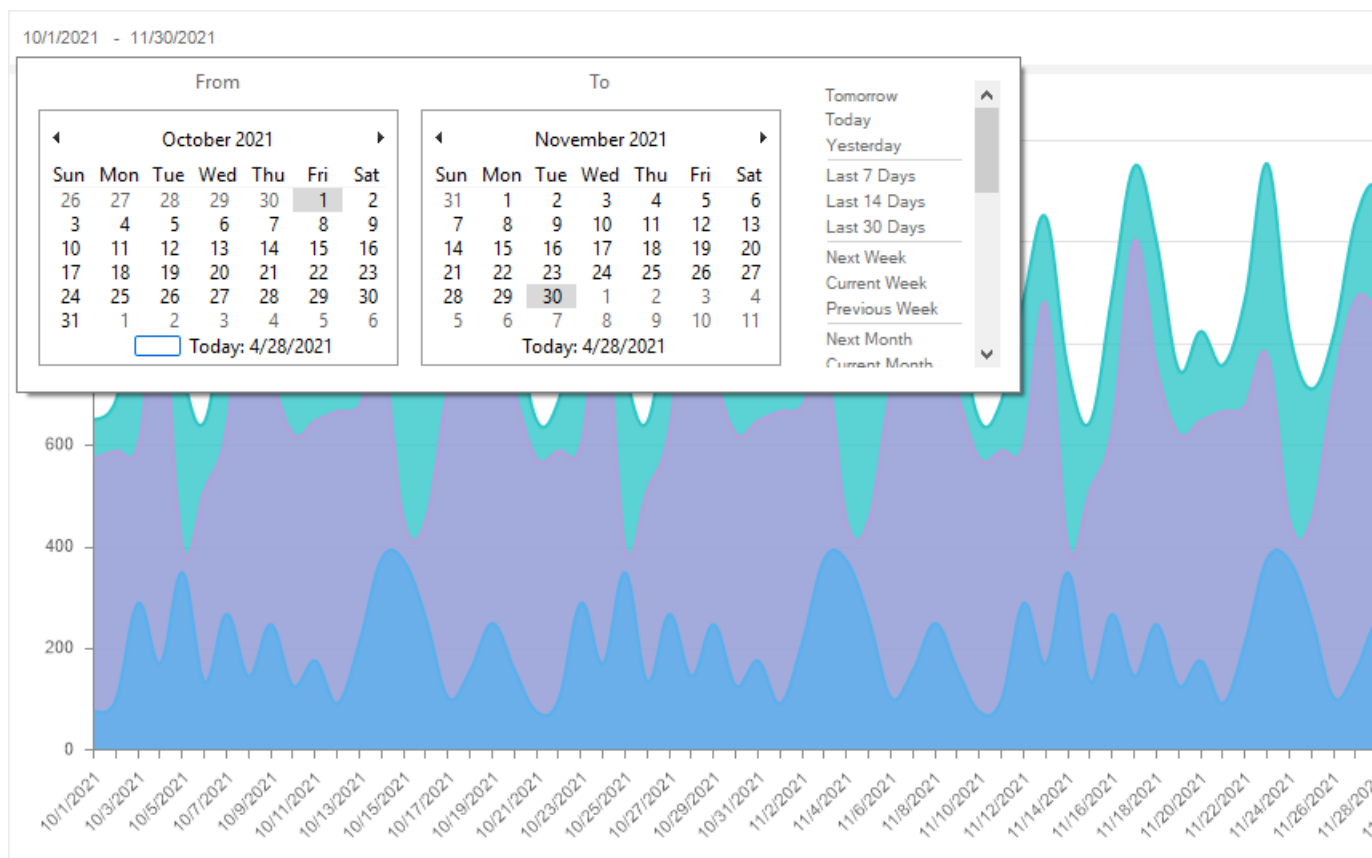
| | |
|------------|--|
| | family, its style, and size for the values of the element. |
| Fore Color | Specifies the color of the values of the element. By default, this property is set to From Style , i.e. the color of the values will be obtained from the settings of the current element style. |
| Shadow | <p>A group of properties that allows configuring the shadow of an element:</p> <ul style="list-style-type: none">➤ The Color property allows you to specify the color that will be used to display the shadow of the element.➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel.➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size.➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel. |
| Style | Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard. |
| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |

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|--------------|---|
| Fixed Height | Allows setting the mode of fixed or change height. |
| Margin | A group of properties that allows you to define margin (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define padding (left, top, right, bottom) of values from the range of values. |
| Text Format | Sets the formatting of values for the element. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none"> ➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed. ➤ The Allow Delete option enables or disables the deletion of an element. ➤ The Allow Move option allows or prohibits moving an element. ➤ The Allow Resize option enables or disables resizing of an element. ➤ The Allow Select option enables or disables the element selection. |
| Locked | Locks or unlocks resizing and replacement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If |

this property is set to **False**, then this element is not tied to the current location.

5.12.9 Date Picker

Date Picker is a filtering element on the dashboard panel that is used to determine the calendar range and filter the data for the analysis in the viewer, taking into account the specified range. It can be located anywhere on the dashboard panel. Depending on the size of the dashboard panel in the viewer, it can grow or shrink by width only.



This chapter will cover the following:

- [Date Picker editor](#);
- [Table Of Properties](#).

The **Date Picker** element can only be the main filtering element for other filtering elements and cannot depend on the values of other filtering elements. The **Date Picker** can have the following selection modes:

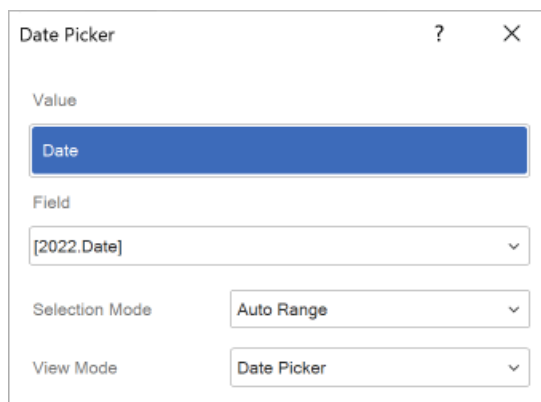
- **Single.** By default, the current date of the operating system and the subsequent range will be determined depending on the value of the **Condition** parameter.
- **Range.** By default, the current day range will be set.
- **Auto Range.** By default, the range will be set from the earliest date in the data source to the latest date. In other words, the original date range will correspond to the data range of the data source.

You may setup the **Date Picker** element in the editor. To call the editor, you should to the following in the report designer:

- Double-click on the **Date Picker** element;
- Select the **Date Picker** and choose the Design command in the context menu.

The Date Picker editor

In this editor you can add elements with data, set up the mode for selecting values, select the main filtering element.



The screenshot shows the 'Date Picker' editor dialog box. It has a title bar with a question mark and a close button. Inside, there are four sections: 'Value' with a blue button labeled 'Date'; 'Field' with a dropdown menu showing '[2022.Date]'; 'Selection Mode' with a dropdown menu showing 'Auto Range'; and 'View Mode' with a dropdown menu showing 'Date Picker'.

- ❶ The **Key** field. The data element is specified in it, according to the values of which the data will be filtered.
- ❷ The **Field** field. Displays the expression of the selected item data field.
- ❸ The **Selection Mode** field. It selects the mode of the Date Picker item. The following values can be selected:
 - **Single.** The current date of the operating system and the subsequent range will be determined depending on the value of the **Condition** parameter.
 - **Range.** By default, the current day range will be set.
 - **Auto Range.** By default, the range will be set from the earliest date from the data source to the latest. In other words, the original date range will correspond to the data range of the data source.
- ❹ The **Condition** field. Depending on the selected item mode, the following

parameters may be present:

- The **Condition** parameter is available only if the **Single** mode is selected. The value of this parameter is a logical operation that determines the continuation of the date range from the current date. For example, if **Greater than** is selected, then the default element range will include all subsequent dates from the current date of the operating system.
- The **Initial Selection** parameter is available only if **Range** is selected. You can specify the default element range. For example, you can select the previous week. Then when you open the dashboard in the viewer, the range of the **Date Picker** item will be set to the previous week.
- 5 The **View Mode** parameter provides the ability to set the operating mode of the filtering element. The following values can be selected:
 - **Date Picker.** A mode in which the user selects the start and end dates using a calendar, and the data is displayed within the specified time range.
 - **Slider.** A mode in which the user sets the start and end dates by moving markers along a timeline, and the data is displayed within the selected range.

Get acquainted with the step-by-step instruction in the [Dashboards with Date Picker](#) chapter.

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

| Name | Description |
|---------------|---|
| Group | Adds the current item to a specific group of items . |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the |

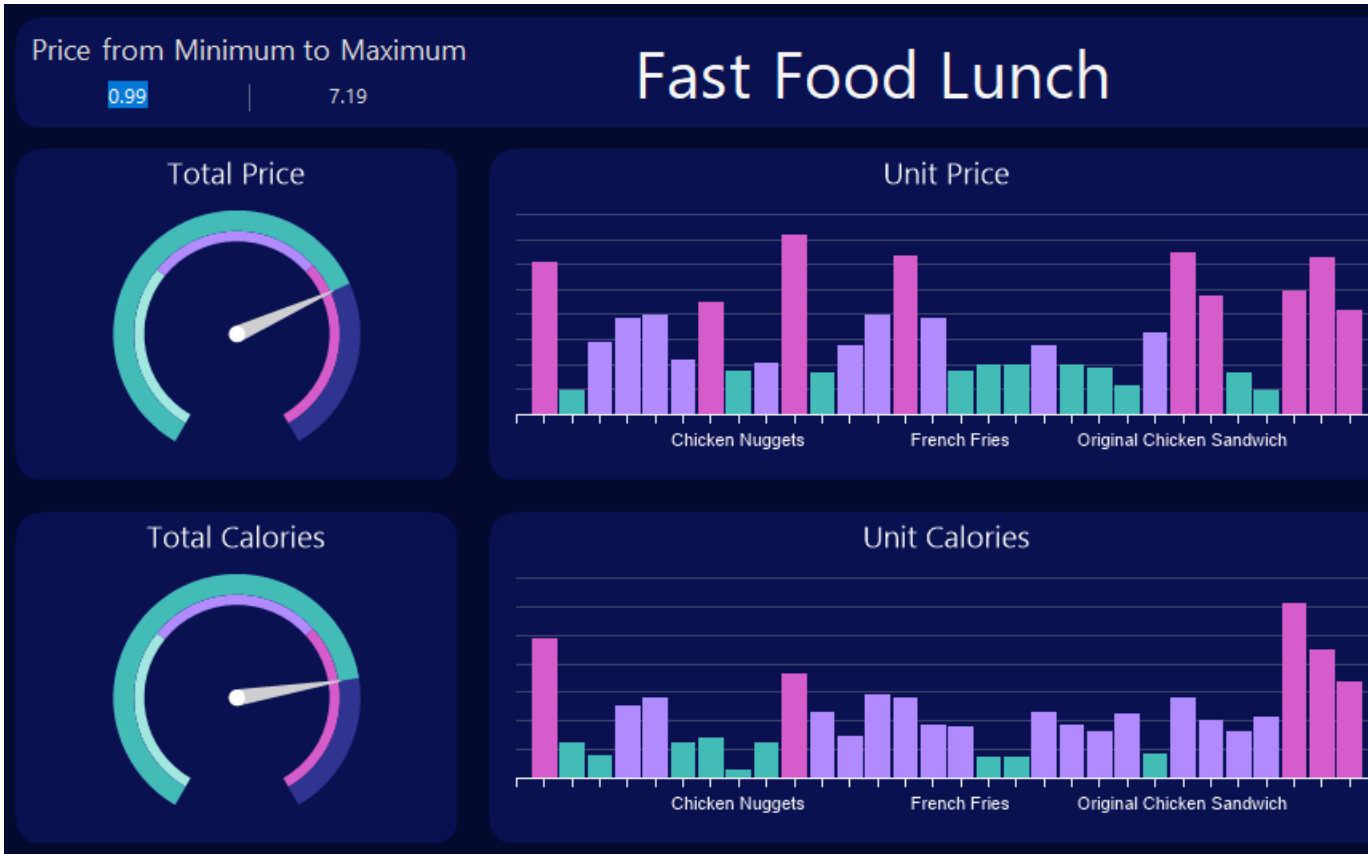
| | |
|------------|---|
| | <p>dashboard. You can round each corner of the element separately: Top - Left, Top - Right, Bottom - Right, Bottom - Left. The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius.</p> |
| Font | A group of properties defines the font family, its style, and size for the values of the element. |
| Fore Color | Specifies the color of the values of the element. By default, this property is set to From Style , i.e. the color of the values will be obtained from the settings of the current element style. |
| Shadow | <p>A group of properties that allows configuring the shadow of an element:</p> <ul style="list-style-type: none"> ➤ The Color property allows you to specify the color that will be used to display the shadow of the element. ➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel. ➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size. ➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel. |
| Style | Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard. |

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| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |
| Fixed Height | Allows setting the mode of fixed or change height. |
| Margin | A group of properties that allows you to define margins (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define padding (left, top, right, bottom) of the columns from the range of values. |
| Text Format | Sets the formatting of values for the element. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | Configures the permissions to use the current item in the dashboard: <ul style="list-style-type: none">➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed.➤ The Allow Delete option enables or disables the deletion of an element.➤ The Allow Move option allows or prohibits moving an element.➤ The Allow Resize option enables or disables resizing of an element.➤ The Allow Select option enables or disables the element selection. |
| Locked | Locks or unlocks resizing and replacement of the current element. If the property is |

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| | set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location. |

5.12.10 Number Box

The **Number Box** is a filtering element on the dashboard that is utilized to specify either a numeric value or a range of values. It serves to filter data for analysis elements within the viewer. This element can be positioned anywhere on the dashboard. Its width is capable of adjusting, either expanding or contracting, depending on the dimensions of the dashboard in the viewer.



This chapter will cover the following questions:

- [Number Box editor](#);
- [Switching Values](#);
- [List of properties](#).

The **Number Box** element can function only as the primary filter element among other filter elements, and it cannot rely on the values of other filter elements. The **Number Box** element can operate in the following selection modes:

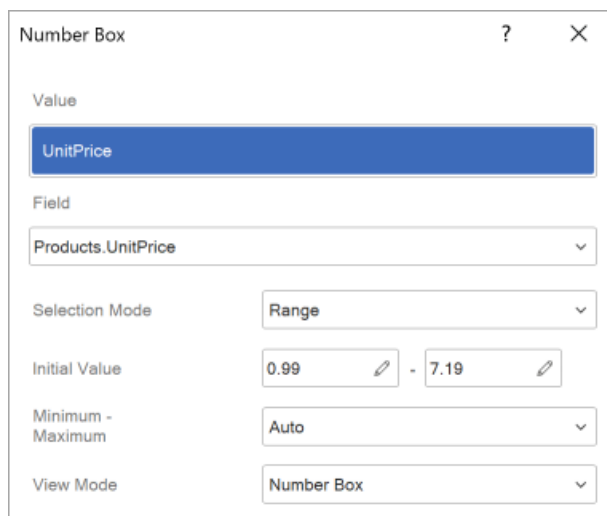
- **Single**. In this mode, a single numeric value is defined, and the filter is applied to the dashboard elements based on the value of the Condition parameter.
- **Range**. In this mode, both the minimum and maximum numeric values are determined.

The configuration of the **Number Box** element takes place within its editor. To access the editor in the report designer, follow these steps:

- Double-click on the **Number Box** element.
- Select the **Number Box** element, then choose the **Design** command from the context menu.

The Number Box editor

In the **Number Box** editor, you can add elements with data, configure the value selection mode, and designate the primary filtering element.



The screenshot shows the 'Number Box' editor dialog box. It has a title bar with a question mark and a close button. The dialog contains several fields and dropdown menus:

- Value**: A blue button labeled 'UnitPrice'.
- Field**: A dropdown menu showing 'Products.UnitPrice'.
- Selection Mode**: A dropdown menu showing 'Range'.
- Initial Value**: Two input fields with values '0.99' and '7.19', separated by a minus sign. Each input field has a small edit icon (pencil).
- Minimum - Maximum**: A dropdown menu showing 'Auto'.
- View Mode**: A dropdown menu showing 'Number Box'.

- ❶ The **Value** field designates the data element whose values will be utilized for data filtration.
- ❷ The **Field** displays the expression of the selected data field for the element.

- 3 The **Selection Mode** parameter determines the operating mode of the filtering element. The following values are available for selection:
- **Single**. In this scenario, an initial value is specified, and the filtering of these elements in the indicator panel will be conducted based on the Condition parameter.
 - **Range**. In this scenario, it will be possible to establish both the minimum and maximum values, which will constitute the range of values for filtering these dashboard elements.
- 4 The **Condition** parameter is accessible only when the **Single** mode is chosen. The value of this parameter represents a logical operation that determines the extension of the value range from the current one. For instance, if "**Greater than...**" is selected, the element's default range will encompass all values greater than the current value of the element.
- 5 The **Initial Value** parameter is utilized to designate a starting value for the **Number Box** element. In single mode, only one value can be specified, whereas in range mode, both minimum and maximum values can be provided. If the parameter value is left unspecified, the initial value will default to the minimum value from the data element.
- 6 The **Minimum/Maximum** value parameter is used to restrict the range of valid values that can be entered into the **Number Box** element. By default, the **Auto** mode is utilized, meaning the range of valid input values is automatically calculated based on the specified data. In the **Custom** mode, you have the option to manually define the minimum and maximum values permissible for input in the **Number Box** element.
- 7 The **View Mode** parameter provides the ability to set the operating mode of the filtering element. The following values can be selected:
- **Number Box**. A mode in which the user manually enters the minimum and maximum values of the range, and the data is displayed within the specified interval.
 - **Slider**. A mode in which the user defines the range boundaries by moving markers along a scale, and the data is displayed within the selected interval.

Switching Values

When viewing the dashboard, you can input values into this element, paste them from the clipboard, or use controls to switch them. When using controls to switch values, an essential consideration for data filtering is the switching step. By default, the toggle step is an integer that increments or decrements by one. Nonetheless, if you wish to make fractional adjustments, you need to modify the value of the

Decimal Digits property.

The value of this property indicates the quantity of decimal places. By default, the property value is 0, signifying a whole number. The switching step is defined by the smallest digit. Put differently, for example, if the **Decimal Digits** property is set to 1, the switching step will involve decimal values. If the **Decimal Digits** property is set to 2, the step will involve hundredths, and so forth.

List of properties

The list below contains the name and description of the properties of the Number Box element, which you may find on the properties panel of the report designer.

| Name | Description |
|----------------|--|
| Group | Adds the current item to a specific group of items . |
| Decimal Digits | Adjusts the number of decimal places for values within the Number Box element. The increment at which values change within the Number Box element is determined by the value of this property. |
| Back Color | Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style. |
| Border | A group of properties that allows you to customize the borders of the element - color, sides, size, and style. |
| Corner Radius | It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left , Top - Right , Bottom - Right , Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding |

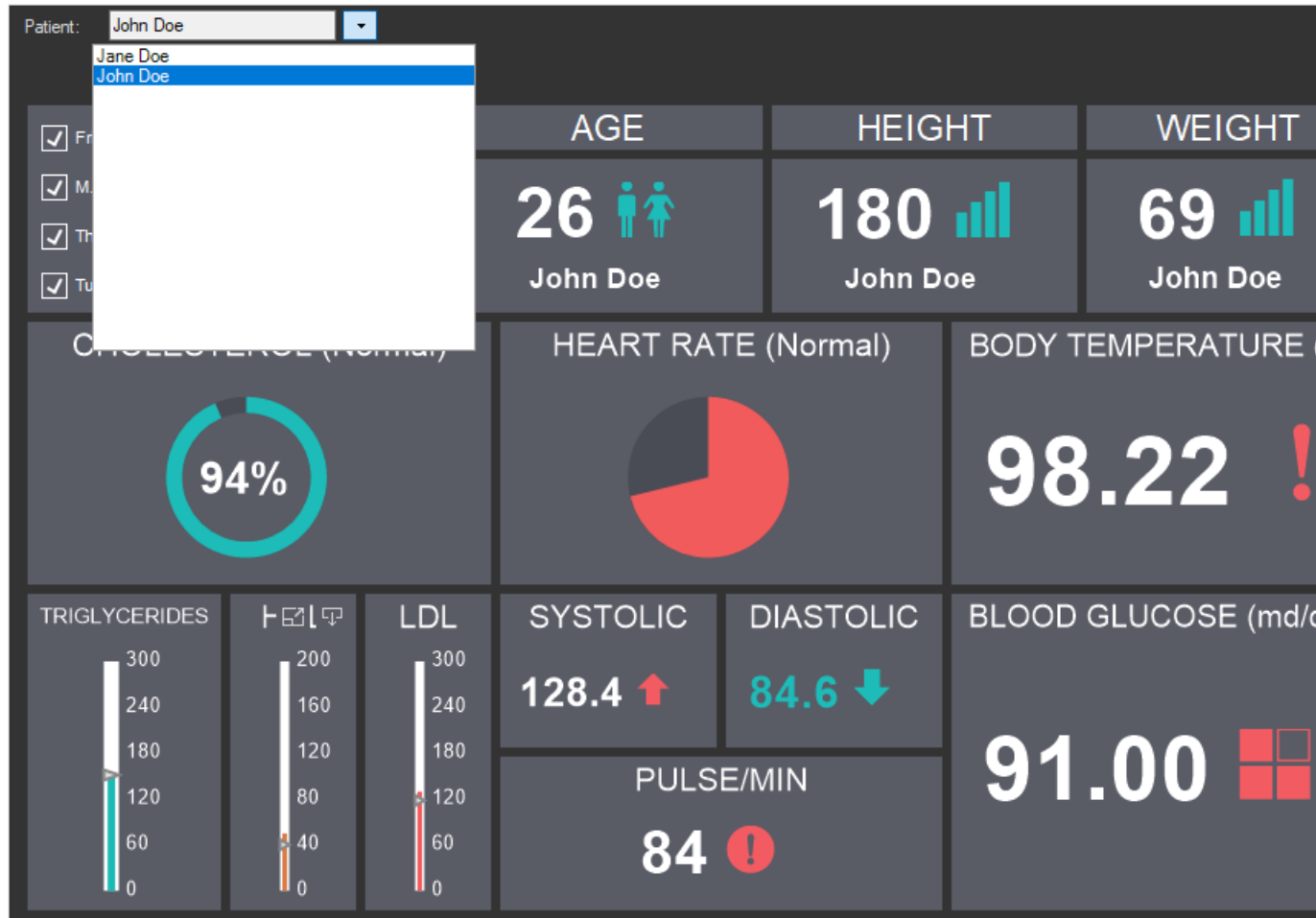
| | |
|----------------------|---|
| | radius. |
| Font | A group of properties defines the font family, its style, and size for the values of the element. |
| Fore Color | Specifies the color of the values of the element. By default, this property is set to From Style , i.e. the color of the values will be obtained from the settings of the current element style. |
| Horizontal Alignment | Horizontally aligns values within the Number Box element to the Left , Center , or Right . |
| Shadow | <p>A group of properties that allows configuring the shadow of an element:</p> <ul style="list-style-type: none"> ➤ The Color property allows you to specify the color that will be used to display the shadow of the element. ➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel. ➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size. ➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel. |
| Style | Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard. |
| Enabled | Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be |

| | |
|--------------|---|
| | displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer. |
| Margin | A group of properties that allows you to define margins (left, top, right, bottom) of the value area from the border of this element. |
| Padding | A group of properties that allows you to define padding (left, top, right, bottom) of the columns from the range of values. |
| Name | Changes the name of the current element. |
| Alias | Changes the alias of the current item. |
| Restrictions | <p>Configures the permissions to use the current item in the dashboard:</p> <ul style="list-style-type: none">➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed.➤ The Allow Delete option enables or disables the deletion of an element.➤ The Allow Move option allows or prohibits moving an element.➤ The Allow Resize option enables or disables resizing of an element.➤ The Allow Select option enables or disables the element selection. |
| Locked | Locks or unlocks resizing and replacement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized. |
| Linked | Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If |

this property is set to **False**, then this element is not tied to the current location.

5.12.11 Variables

Variables are used to pass a value to the elements of the dashboard panel, while filtering the data of these elements.



Variables can be:

- With user-selectable value, the user selects or enters a value, and the data of the elements of the dashboard panel will be filtered based on this value;
- Without user selection, the user does not select a value, but the elements of the dashboard panel are filtered by the value of the variable.

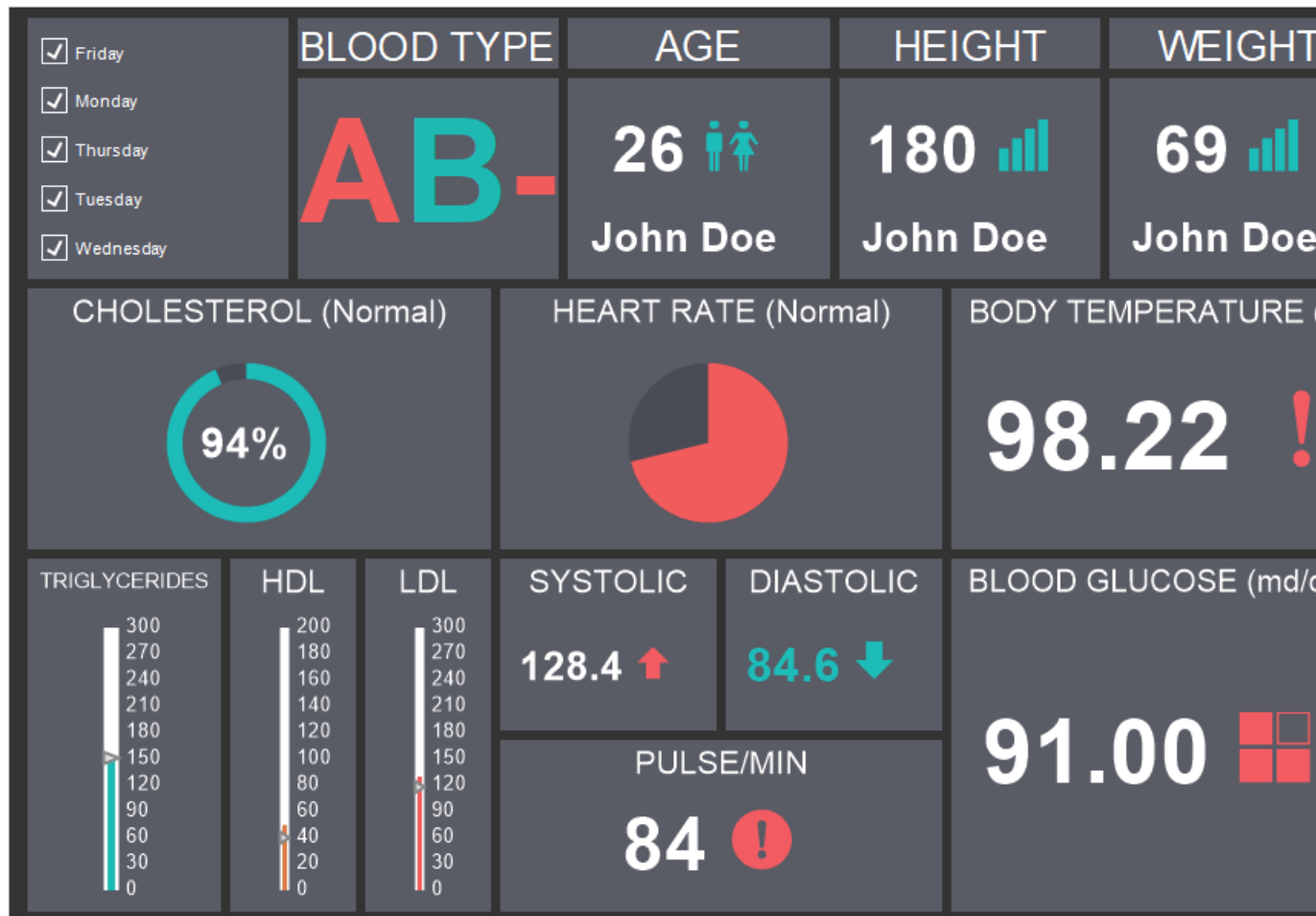
To create an dashboard with variables, you should:

- Create a variable in the data dictionary;

- Open or create a dashboard;
- Set filters for this item using a variable.

An example of a dashboard with a variable

Suppose there is a dashboard that displays the results of the examination of patients in a clinic.



At the same time, since there are more than one patients, it is necessary, when choosing a patient, to display the results of the his/her examination. In this case, it is necessary to create a variable with a list of patients, as well as provide the user to select the value of the variable. To do this:

Step 1: Go to the Data Dictionary;

Step 2: Select the **New Variable** command from the **New Item** menu or from the context menu of the dictionary;

Step 3: Specify the name, alias, description of the variable;

Step 4: Specify the data type of the variable. It should match the data type of the column by which the element data will be filtered;

Step 5: Specify the type of variable.

Information

At this moment, the dashboard panel only works with Value variables. If you need to use the selection of several values, then you can use such filter elements of the dashboard panel as the List and the Drop-down list.

Step 6: Select the method of initializing the variable as **Value** or **Expression**;

Step 7: Select the **Request from User** parameter if the user needs to select a value;

Step 8: Select the **Allow User Values** if you want to allow user input;

Step 9: Create a list of variable elements or select data columns with values;

Step 10: Specify whether the first value is obtained using the Select parameter.

Edit Variable

Name: Variable1

Alias: Patient:

Description:

Type: string Value

Init by: Value

Value: 1
Sample: 123; My text; 567f; 456.23f; Test String; A

☐ Read Only

☒ Request from User

☐ Allow using as SQL parameter

☐ Allow User Values

Data Source: Data Columns

Selection: From Variable

Keys: Info.NameID

Labels: Info.Name

Sort by: Ascending Label

☐ Dependent Value

Format Mask:

Save a Copy OK Cancel

Next, you need to set filters for elements that will be affected by the selected variable value. To do this:

Step 1: Select an item;

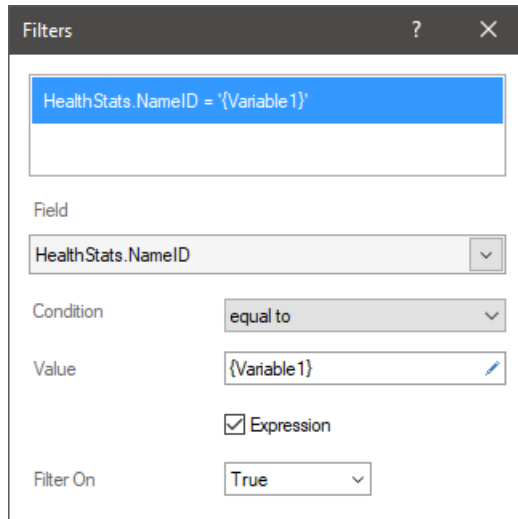
Step 2: Click the [Filters](#) button for this item;

Step 3: Indicate the data field by which the data will be filtered for the current element;

Step 4: Set the operation of the filter condition;

Step 5: Set the check box next to **Expression**;

Step 6: Provide a reference to the variable by name. For example, **{Variable1}**.



The screenshot shows a 'Filters' dialog box with a title bar containing a question mark and a close button. Inside the dialog, there is a text field at the top containing the expression 'HealthStats.NameID = {Variable1}'. Below this, there is a 'Field' dropdown menu with 'HealthStats.NameID' selected. A 'Condition' dropdown menu has 'equal to' selected. The 'Value' field contains '{Variable1}' and has a small blue edit icon to its right. Below the 'Value' field, there is a checked checkbox labeled 'Expression'. At the bottom, there is a 'Filter On' dropdown menu with 'True' selected.

Information

Despite the fact that the Range variable is not supported when filtering on the dashboard panel, if you need to filter a range of values in elements, this can be done using variables. To do this, you should:

- Create two **Value** variables, where the first variable will represent the value of the range, and the second - its end.
- When creating an element filter, the operation of the filter condition is defined as **Between**.
- Indicate the first variable in the initial value field, and the second variable - in the end value field.

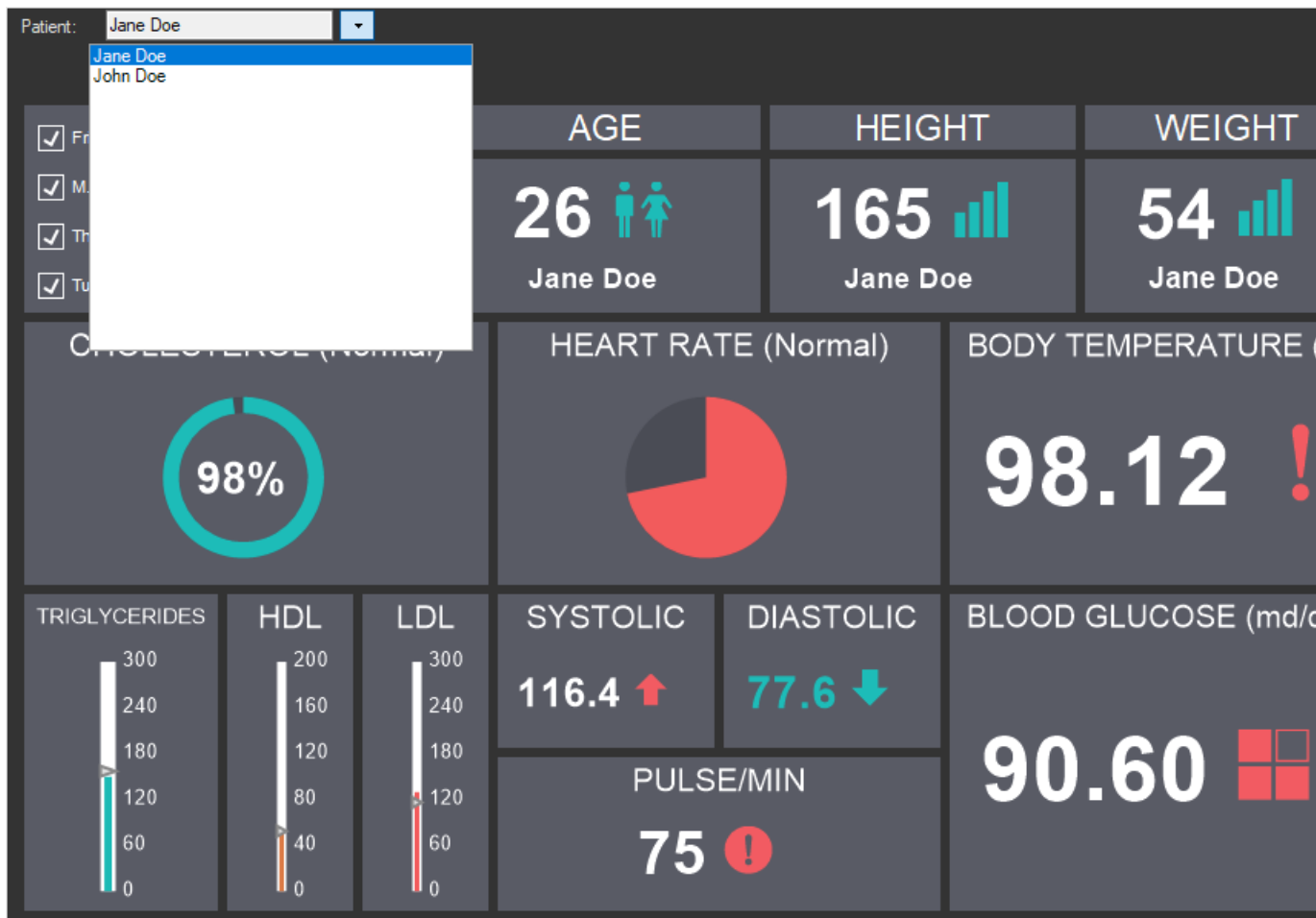
So, in the report viewer, changing the values of variables will change the data filtering range.

Now, when viewing the dashboard panel, data can be filtered by the value of the variable. To do this:

Step 1: Open the dashboard panel in the preview panel or in the viewer;

Step 2: Select or enter a value if the variable provides for the selection or input of values;

Step 3: Click the **Submit** button on the options bar.

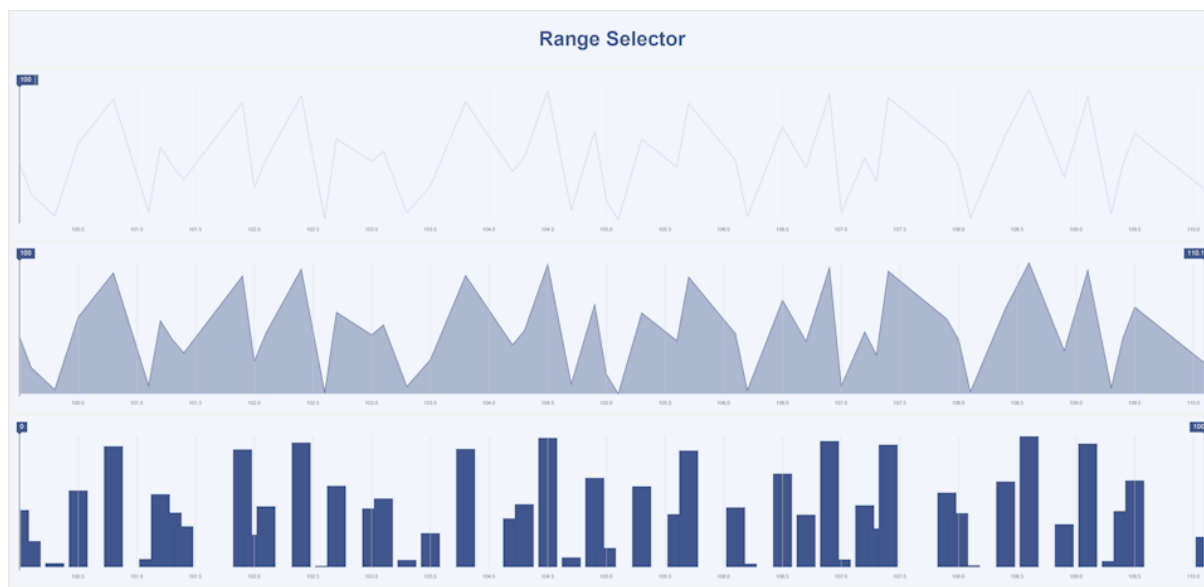


Information

You should know that when filtering data by variable values, you can also use several variables, including dependent variables. In addition, after filtering the data of the dashboard panel, you can filter the data using the elements [List Box](#), [Combo Box](#), [Date Picker](#), [Tree View](#), [Tree View Box](#).

5.12.12 Range Selector

Range Selector - this component is used to select a range of values on a scale or a timeline. It allows users to visually define the minimum and maximum boundaries of the range.



Configuration of the Range Selector element is performed in its editor. To open the editor in the report designer, you should:

- Double-click the **Range Selector** element with the left mouse button;
- Select the Range Selector element and choose the **Editor** command from the context menu.

The Range Selector element allows selecting a range of values (for example, dates or numbers). It can act as either a dependent or a master element in relation to other filtering elements. The selected range limits the dataset used by other elements of the dashboard panel.

Range Selector Element Editor

In the Range Selector editor, data items are added, the value selection mode is configured, and the master filtering element is selected.

Range Selector

Value ¹

Argument ²

Series ³

Field ⁴

Type ⁵

Snap Mode ⁶

- ¹ In the **Value** field, the data item whose values will be used for filtering is specified.
- ² In the **Argument** field, the data item used as the X-axis for visualizing the mini-chart inside the slider is specified.
- ³ In the **Series** field, numeric fields are placed to build the chart inside the slider (mini sparkline or columns). This is an additional visualization, for example: number of events, metric values.
- ⁴ The **Field** displays the expression of the selected data field of the element.
- ⁵ The **Type** parameter allows setting the operating mode of the filtering element. The following values are available:
 - **Line**. Displays data as a line chart;
 - **Area**. Displays data as a line chart with the area under the line filled;
 - **Column**. Displays data as columns. Each value is represented as a vertical bar.

⁶ Snap Mode

- **None**. No snapping, the slider moves freely;
- **Step**. Moves by specific X values;
- **Tick**. Moves by scale intervals (for example, every 7 days).

Properties Table

The table contains the names and descriptions of the properties of the **Range Selector** element located in the Properties panel of the report designer.

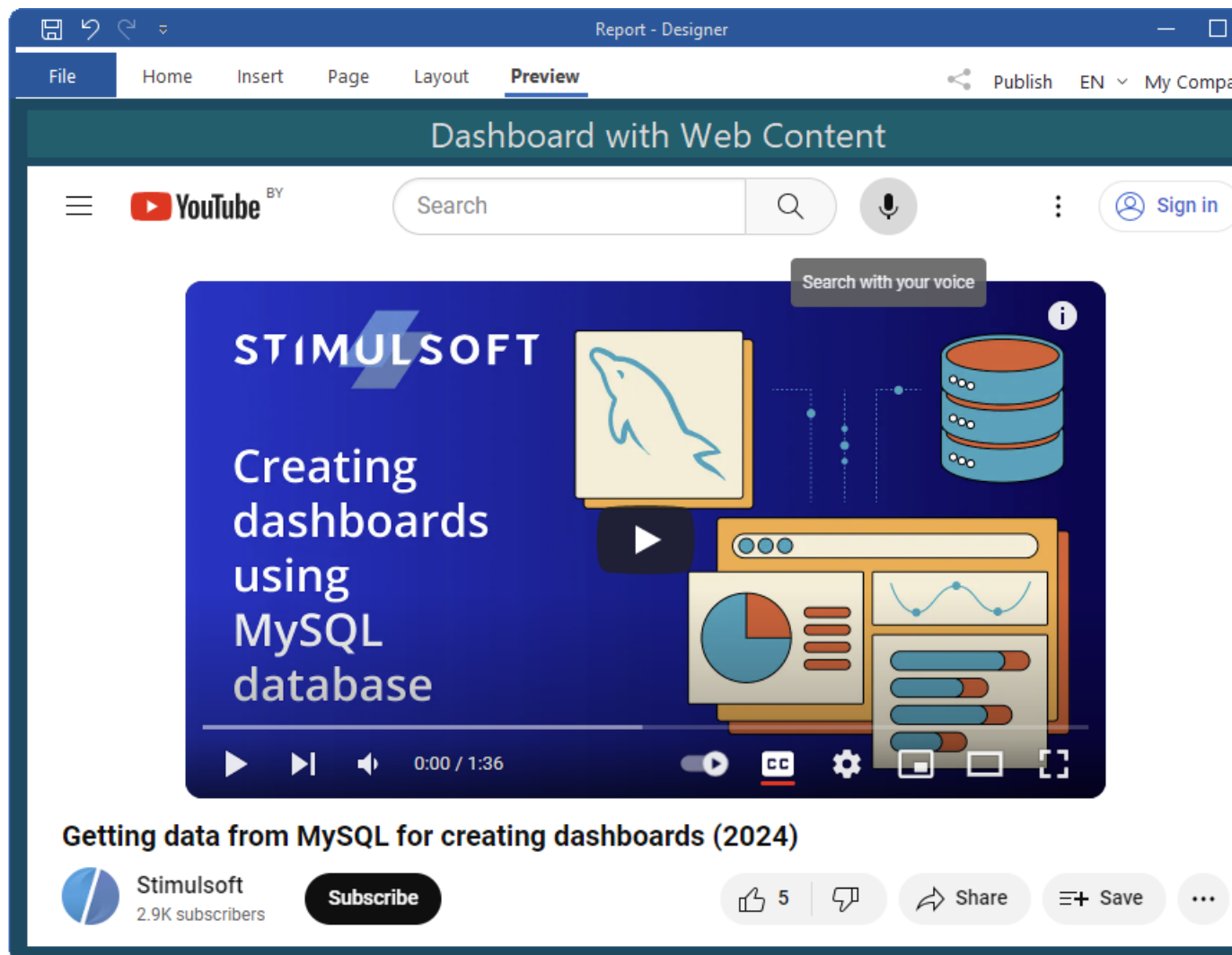
| Name | Description |
|---------------|--|
| Group | Provides the ability to add the current element to a specific group of elements . |
| Corner Radius | Provides the ability to define the corner radius for the element on the dashboard panel. Each corner can be rounded individually: Top - Left , Top - Right , Bottom - Right , Bottom - Left . The property can be set from 0 to 30, where 0 means no rounding and 30 is the maximum radius value. |
| Font | A group of properties that allows defining the font family, style, and size for the values of the Numeric Field element. |
| Shadow | A group of properties that allows configuring the element shadow: <ul style="list-style-type: none"> ➤ The Color property defines the color used to display the shadow; ➤ The Location group properties define the shadow offset along the X and Y axes relative to the element position on the dashboard panel; ➤ The Size property defines the shadow size relative to the element boundaries. It can be set from 1 to 10, where 1 is the minimum size and 10 is the maximum; ➤ The Visible property enables or disables the display of the element shadow on the dashboard panel. |
| Style | Provides the ability to select a style for the current element. By default, the value is set to Auto , meaning the style is inherited from the dashboard panel style. |
| Back Color | Provides the ability to change the background color of the Numeric Field element. By default, this property is set to From Style, meaning the color is taken |

| | |
|----------------|---|
| | from the current element style settings. |
| Fore Color | Provides the ability to define the color of the Numeric Field element values. By default, this property is set to From Style , meaning the color is taken from the current element style settings. |
| Border | A group of properties that allows configuring the element borders: color, sides, size, and style. |
| Enabled | Provides the ability to enable or disable the current element on the dashboard panel. If set to True , the element is enabled and will be displayed in the viewer. If set to False , the element is disabled and will not be displayed in the viewer. |
| Inclusion Mode | Defines how values are included in the selected range (for example, whether boundary values are included or excluded). |
| Margin | A group of properties that allows defining outer spacing (left, top, right, bottom) of the value area relative to the element boundaries. |
| Padding | A group of properties that allows defining inner spacing (left, top, right, bottom) of the values relative to the value area boundaries. |
| Text Format | Specifies the display format of the range values (for example, numeric, date, or custom format). |
| Name | Provides the ability to change the name of the current element. |
| Alias | Provides the ability to change the alias of |

| | |
|--------------|--|
| | the current element. |
| Restrictions | <p>Provides the ability to configure usage permissions for the current element on the dashboard panel:</p> <ul style="list-style-type: none">➤ The Allow Change option enables or disables modification of the element. If selected, the element can be modified, otherwise it cannot be changed.➤ The Allow Delete option enables or disables deletion of the element. If selected, the element can be deleted, otherwise it cannot be removed.➤ The Allow Move option enables or disables moving the element. If selected, the element can be moved, otherwise it cannot be moved.➤ The Allow Resize option enables or disables resizing of the element. If selected, the element size can be changed, otherwise it cannot be resized.➤ The Allow Select option enables or disables selecting the element. If selected, the element can be selected, otherwise it cannot be selected. |
| Locked | <p>Provides the ability to prevent or allow resizing and moving of the current element. If set to True, the element cannot be moved or resized. If set to False, the element can be moved and resized.</p> |
| Linked | <p>Provides the ability to link the current position to the dashboard panel or another element. If set to True, the element is bound to its current position. If set to False, the element is not bound to its current position.</p> |

5.13 Web content

Web Content is an element through which you can display various types of content from the Internet, including videos, web pages, animated images, and more, on the indicator panel within the viewer. To exhibit content in Stimulsoft Designer, the WebView2 environment is utilized. Consequently, the dashboard can showcase everything that a web browser can display.



This chapter will cover the following questions:

- [Web Content editor](#);
- [List of properties](#).

The **Web Content** can be positioned anywhere on the dashboard. Setting the content source is accomplished in the element editor. To access the editor:

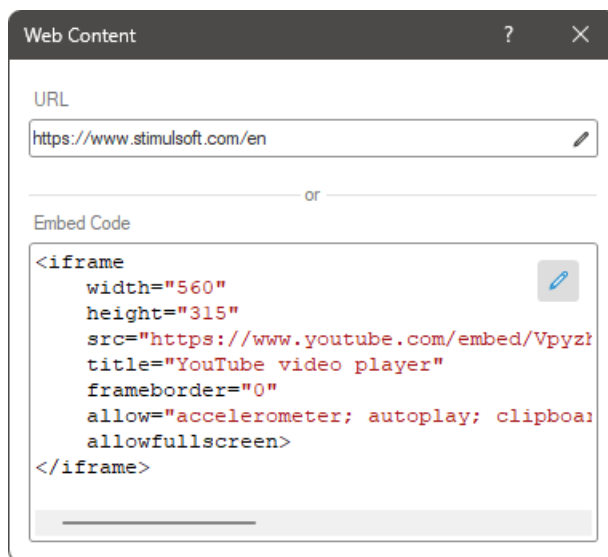
- Double-click the **Web Content** element.
- Select the **Web Content** element and choose the **Design** command from the context menu.
- Choose the **Web Content** element and click the **Design** button.

To resize the **Web Content** element:

- Select it on the indicator panel.
- Adjust the size vertically, horizontally, or diagonally as needed.

Web Content editor

The editor specifies the source URL for the content to be displayed or the embed code. Within one element, you can display content from only one source - either via a link or by using an embed code.



Web Content

URL

<https://www.stimulsoft.com/en>

or

Embed Code

```
<iframe
  width="560"
  height="315"
  src="https://www.youtube.com/embed/VpyzI"
  title="YouTube video player"
  frameborder="0"
  allow="accelerometer; autoplay; clipboard;
  allowfullscreen"
></iframe>
```

- In the **URL** field, you can specify a link to web content.
- In the **Embed Code** field, you can specify a code to embed the content.

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

Name	Description
Back Color	Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style.
Border	A group of properties that allows you to customize the borders of the element - color, sides, size, and style.
Corner Radius	It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left, Top - Right, Bottom - Right, Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius.
Shadow	A group of properties that allows configuring the shadow of an element: ➤ The Color property allows you to specify the color that will be used to display the shadow of the element. ➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel. ➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size. ➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel.
Enabled	Enables or disables the current item on the

	dashboard. If the property is set to True, the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False, this element is disabled and will not be displayed when previewing the dashboard in the viewer.
Margin	A group of properties that allows you to define indents (left, top, right, bottom) of the value area from the border of this element.
Padding	A group of properties that allows you to define indents (left, top, right, bottom) of the columns from the range of values.
Title	A group of properties that allows you to customize the title of the Table element: ➤ The Back Color property provides the ability to change the background color of the title of the current item. By default, this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element. ➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style ➤ The group property Font that allows you to define the font family, its style and size for the title of the current element. ➤ The Horizontal Alignment property provides the ability to change the title alignment relative to the element - Left, Center, Right. ➤ The Text property is used to set the title text of the current element. ➤ The Visible property is used to enable or

	disable displaying of the title of the current item. If the property is set to True , then the element title will be included. If this property is set to False , then the element header will be disabled.
Name	Changes the name of the current element.
Alias	Changes the alias of the current item.
Restrictions	Configures the permissions to use the current item in the dashboard: ➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed. ➤ The Allow Delete option enables or disables the deletion of an element. ➤ The Allow Move option allows or prohibits moving an element. ➤ The Allow Resize option enables or disables resizing of an element. ➤ The Allow Select option enables or disables the element selection.
Locked	Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized.
Linked	Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location.

5.14 Image

Image is an element with which you can display various graphical objects (photo, logo, picture, etc.) on the dashboard. The Image element supports the following types of graphics - BMP, PNG, JPEG, TIFF, GIF, PNG, ICO, EMF, WMF, SVG.



This chapter will cover the following:

- › [Image editor](#);
- › [Element settings](#);
- › [Table of properties](#).

Information

[Interaction](#) can be applied to the current element.

The image can be placed anywhere on the dashboard. Setting up the source for the image element is carried out in its editor. To call the editor, you should:

- › Double-click on the Image element;

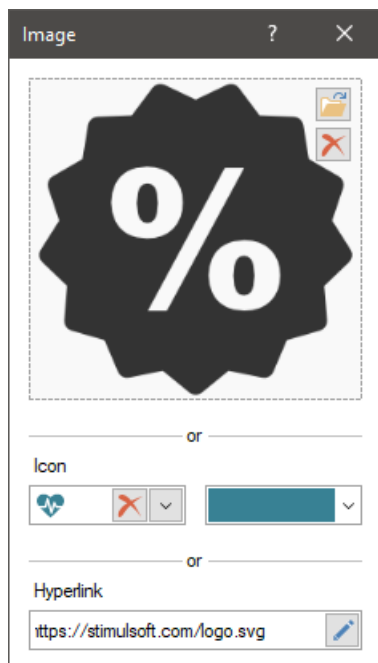
- Select the **Image** item, and select the **Design** command in the context menu;
- Select the **Image** item, and, on the property panel, click the **Browse** button of the Image, **Hyperlink** properties of the image.

To resize an image element you should:

- Select it in the dashboard;
- Increase or decrease the size of the element vertically, horizontally or diagonally.

Image editor

In the editor you can indicate the source of the image for the current element. Within one element, you can display only one graphic object (picture, logo, photo, an image by hyperlink).



- In the **Image** field you can upload an image from the local storage.
- In the **Icon** field, you can select an icon for the Image element and the color of this icon.
- In the **Hyperlink** field, the link to the graphic object is indicated. This can be either a URL or a link to a report resource (resource://logo). In addition, you can specify a link to the datacolumn://DataSource.DataColumn data column which contains an image in the base64 encoding or variable - variable://variablename.

Information

Since only one graphic object can be displayed in one element, the image can have only one source. The order in which the object is shown in the image element is as follows:

- An image uploaded from the local storage has the highest priority. This image will overlap the selected icon or image by hyperlink;
- An icon has a medium priority. It will be displayed in the current element if the image from the local storage is not loaded, but regardless of the specified hyperlink.
- An image by a hyperlink has the lowest priority. The hyperlink will upload the image in the current element if the image from the local storage is not loaded, and the icon is not selected.

Thus, if a graphic object is loaded directly in the Image element, the image receiving hyperlink or the selected icon will not work.

Element settings

Any graphic object added to the element is stretched to the entire area of the element, with the exception of the specified margins and padding. The setting of the graphic object in the element is carried out using buttons on the ribbon panel or using properties on the property panel. All these properties are located in the Image additional group:

- The **Aspect Ratio** property. When stretching an image, its proportions may be broken. To stretch the Image element while maintaining the proportions of the graphic object, you should set the Aspect Ratio property to **true**.
- The **Horizontal Alignment** property is relevant if the **Aspect Ratio** property is set to **true**. Horizontal alignment of the graphic object within the Image element. You can also specify the horizontal alignment using the buttons on the Ribbon panel.
- The **Vertical Alignment** property is relevant if the **Aspect Ratio** property is set to **true**. Vertical alignment of the graphic object within the Image element. You can also specify the vertical alignment using the buttons on the Ribbon panel.

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

Name	Description
Aspect Ratio	Provides the option of the aspect ratio of the image in the current element. If the property is set to True , then the aspect ratio of the image in the current element will be saved. If this property is set to False , then the aspect ratio will not be taken into account and the image will not stretch proportionally.
Cross-Filtering	It allows you to enable or disable the cross-filtering mode for the current element.
Group	It allows you to add the current element to a definite group of elements.
Horizontal alignment	Changes the horizontal alignment of the image in the current element.
Vertical alignment	Changes the vertical alignment of the image in the current element.
Back Color	Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style.
Border	A group of properties that allows you to customize the borders of the element - color, sides, size, and style.
Corner Radius	It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left, Top - Right, Bottom - Right, Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius.
Shadow	A group of properties that allows

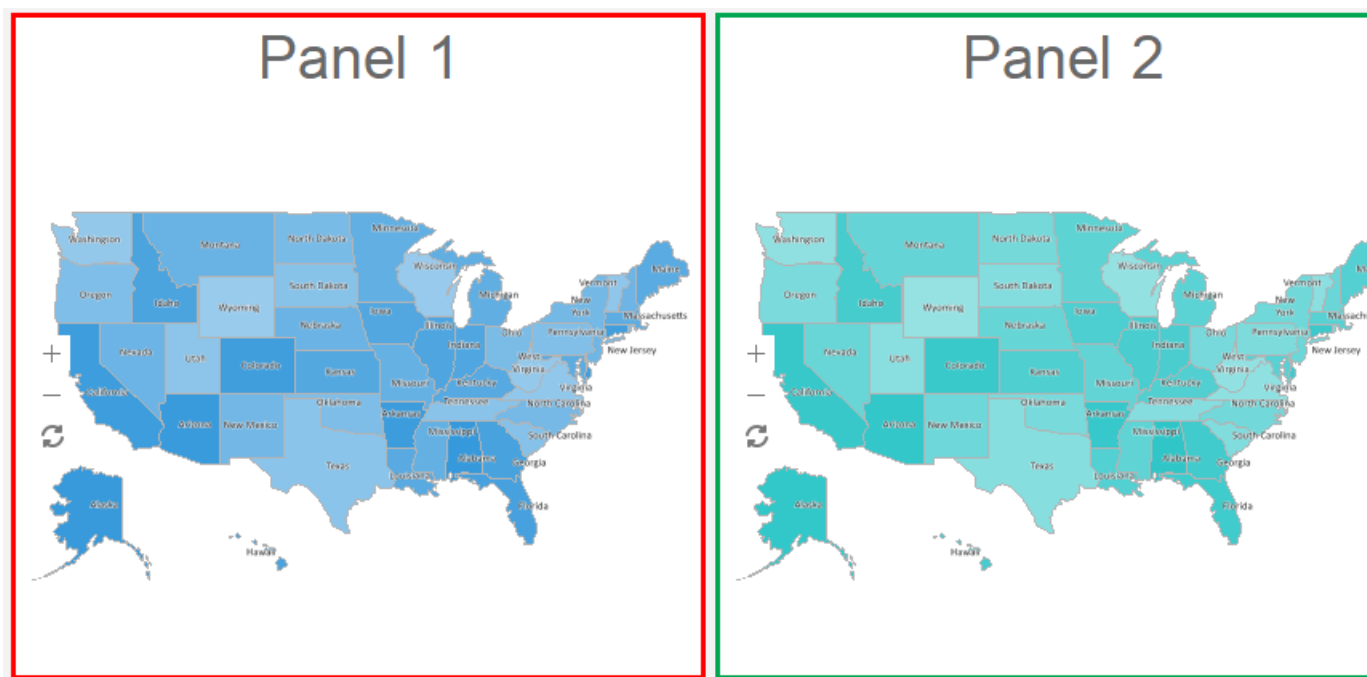
	configuring the shadow of an element: ➤ The Color property allows you to specify the color that will be used to display the shadow of the element. ➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel. ➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size. ➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel.
Style	Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard.
Enabled	Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer.
Interaction	Sets interaction of the current element.
Margin	A group of properties that allows you to define indents (left, top, right, bottom) of the value area from the border of this element.
Padding	A group of properties that allows you to define indents (left, top, right, bottom) of the columns from the range of values.

Title	A group of properties that allows you to customize the title of the Table element: ➤ The Back Color property provides the ability to change the background color of the title of the current item. By default, this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element. ➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style ➤ The group property Font that allows you to define the font family, its style and size for the title of the current element. ➤ The Horizontal Alignment property provides the ability to change the title alignment relative to the element - Left, Center, Right. ➤ The Text property is used to set the title text of the current element. ➤ The Visible property is used to enable or disable displaying of the title of the current item. If the property is set to True, then the element title will be included. If this property is set to False, then the element header will be disabled.
Name	Changes the name of the current element.
Alias	Changes the alias of the current item.
Restrictions	Configures the permissions to use the current item in the dashboard: ➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed. ➤ The Allow Delete option enables or disables the deletion of an element.

	➤ The Allow Move option allows or prohibits moving an element. ➤ The Allow Resize option enables or disables resizing of an element. ➤ The Allow Select option enables or disables the element selection.
Locked	Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized.
Linked	Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location.

5.15 Panel

The **Panel** is an element of the dashboard on which other elements can be placed, including other panels and dashboards.



The **Panel** element is stretched along with the dashboard by height and width. To resize the **Panel** element you should:

- Select a dashboard element;
- Increase or decrease the size of the element vertically, horizontally or diagonally.

List of properties

The list shows the name and description of the properties of the element which you may find in the properties panel of the report designer.

Name	Description
Back Color	Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style.
Border	A group of properties that allows you to customize the borders of the element - color, sides, size, and style.
Corner Radius	It allows you to define the rounding radius

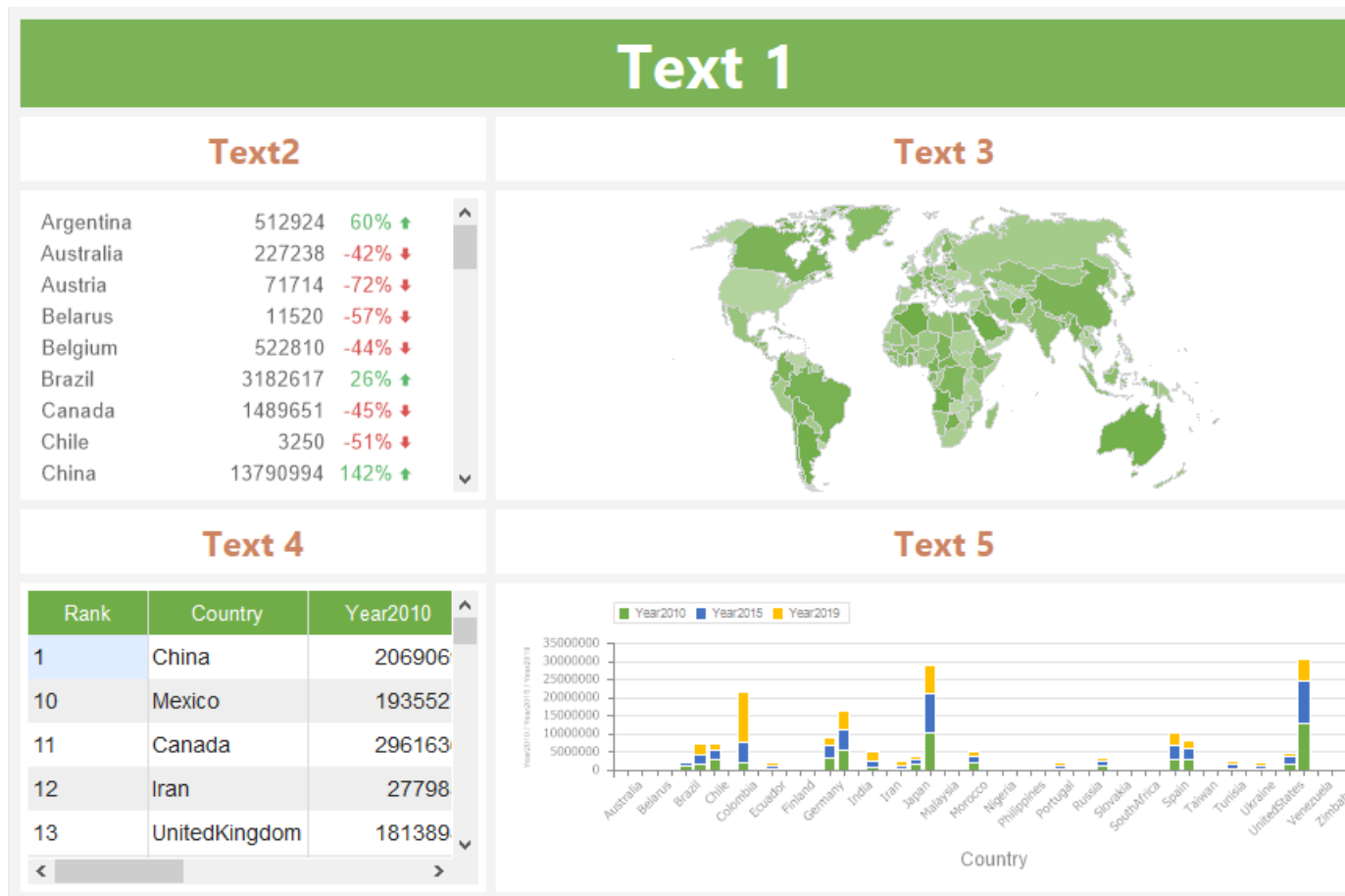
	for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left, Top - Right, Bottom - Right, Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius.
Shadow	A group of properties that allows configuring the shadow of an element: ➤ The Color property allows you to specify the color that will be used to display the shadow of the element. ➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel. ➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is the maximum size. ➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel.
Style	Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard.
Watermark	Allows setting a watermark for the panel. The watermark can be the same as that for the entire indicator panel.
Watermark Style	Allows using a watermark style for the current component.
Enabled	Enables or disables the current item on the dashboard. If the property is set to True ,

	the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer.
Margin	A group of properties that allows you to define indents (left, top, right, bottom) of the value area from the border of this element.
Padding	A group of properties that allows you to define indents (left, top, right, bottom) of the columns from the range of values.
Name	Changes the name of the current element.
Alias	Changes the alias of the current item.
Restrictions	Configures the permissions to use the current item in the dashboard: ➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed. ➤ The Allow Delete option enables or disables the deletion of an element. ➤ The Allow Move option allows or prohibits moving an element. ➤ The Allow Resize option enables or disables resizing of an element. ➤ The Allow Select option enables or disables the element selection.
Locked	Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized.
Linked	Binds the current location to the dashboard or another element. If the property is set to True , then the current

item is bound to the current location. If this property is set to **False**, then this element is not tied to the current location.

5.16 Text

Text is an element that allows you to display any text or the result of a specified expression on the dashboard. An expression can be a reference to a system variable or a data column.



This chapter will cover the following:

- [Text editor](#);
- [Table of properties](#).

Information

[Interaction](#) can be applied to the current element.

Information

If the text element contains a reference to a system variable, then the result that appears in this element will be the value of the system variable. For example, if a reference to the **Today** system variable is specified, the result will be the current date and time of the operating system. If the text element expression is a reference to a data column, then the result that is displayed using this element will be the current value of this data column.

The **Text** element can be placed anywhere on the dashboard. The text element is configured in its editor. To invoke the **Text** element editor, you should:

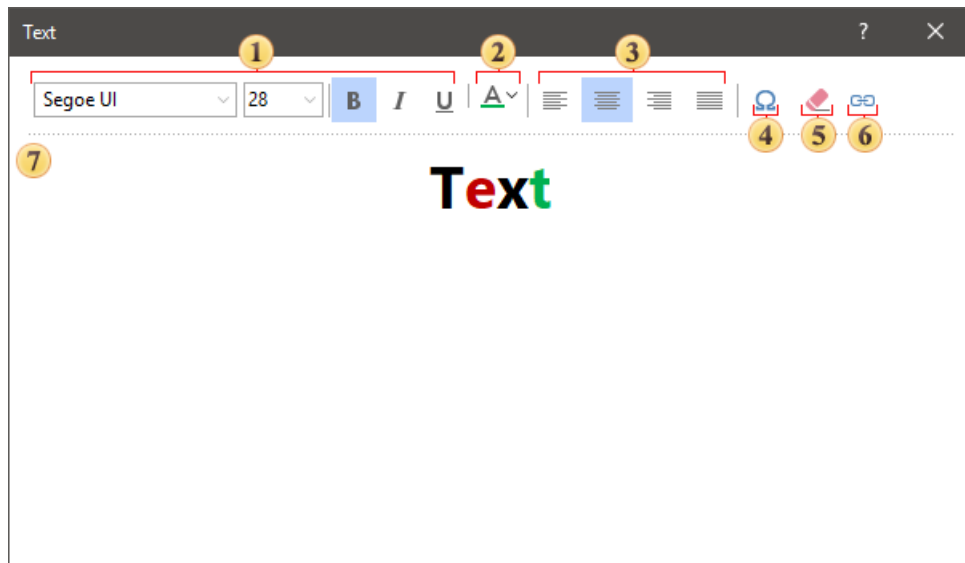
- Double-click on this item;
- Select the **Text** element and select the **Edit** command in the context menu;
- Select the **Text** element, and, on the property panel, click the **Browse** button of the **Text** property.

To resize the text element you should:

- Select it on the dashboard;
- Increase or decrease the size of the element vertically, horizontally or diagonally.

Text editor

In the **Text** editor you can change the content of this element. You can customize the design of the text in the editor or using the control buttons on the Ribbon panel.



- ❶ The group of commands for managing text fonts - font family, font size, font type.
- ❷ Sets the color of the text or its characters. Each character of the text can select its own color. To do this, select the character in the field and select a color from the palette or enter a color value in the RGBA format.
- ❸ Commands for horizontal text alignment in the Text element area - left, center, right, justify.
- ❹ **Insert Symbol**. It calls the menu with a set of various symbols, which can be inserted to a text.
- ❺ Text field clear command.
- ❻ The **Insert Link** allows you to insert a URL address. In the editor of a hyperlink you should specify a URL address and the text, which will be displayed instead of this address.
- ❼ Text or expression input field. An expression is specified in curly brackets. For example, {DataSource.DataColumn}.

Information

Similar commands to work with text ❶ - ❸, are located on the **Home** tab of the Ribbon panel in the report designer. Select the **Text** element and change its font settings, text color, text alignment. In addition, on the Ribbon panel on the Home tab, you can align text vertically - top, bottom, center.

Also, the text element can change the **Back Color** and the borders of the element.

In more detail can be found in the chapter [Appearance](#).

List of properties

The list shows the name and description of the properties of the **Text** element which you may find in the properties panel of the report designer.

Name	Description
Cross-Filtering	It allows you to enable or disable the cross-filtering mode for the current element.
Text	Specifies text in a Table element. When you click the Browse button, the editor of the element will be opened, in which you can add or delete text, as well as customize its appearance.
Group	It allows you to add the current element to a definite group of elements.
Size Mode	It allows you to define text behavior in the current element: ➤ The Fit value allows you to scale element content, i.e. change text size to fit it within the element. ➤ The Trimming value allows you not to scale element content, i.e. not to change text size. At the same time, if the text doesn't fit within the element, it will be trimmed by the borders of the element. ➤ The Word wrap value allows you not to scale element content, i.e. not to change text size. At the same time, if the text doesn't fit within the element, it will be wrapped to the next row. In cases, if the number of rows is greater than element height, the rows will be trimmed in the element height.
Right to Left	Allows enabling right-to-left text display

	mode.
Back Color	Changes the background color of the element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style.
Border	A group of properties that allows you to customize the borders of a table - color, sides, size, and style.
Corner Radius	It allows you to define the rounding radius for the corners of an element on the dashboard. You can round each corner of the element separately: Top - Left, Top - Right, Bottom - Right, Bottom - Left . The property can be set to a value between 0 and 30, where 0 is no rounding angle and 30 is the maximum value of the rounding radius.
Fore Color	Specifies the color of the values of the element. By default, this property is set to From Style , i.e. the color of the values will be obtained from the settings of the current element style.
Shadow	A group of properties that allows configuring the shadow of an element: ➤ The Color property allows you to specify the color that will be used to display the shadow of the element. ➤ The properties in the Location group allow you to define the offset of the shadow along the X and Y coordinates, relative to the element's position on the indicator panel. ➤ The Size property allows you to set the size of the shadow from the element's borders. It can be set to a value from 1 to 10, where 1 is the minimum size and 10 is

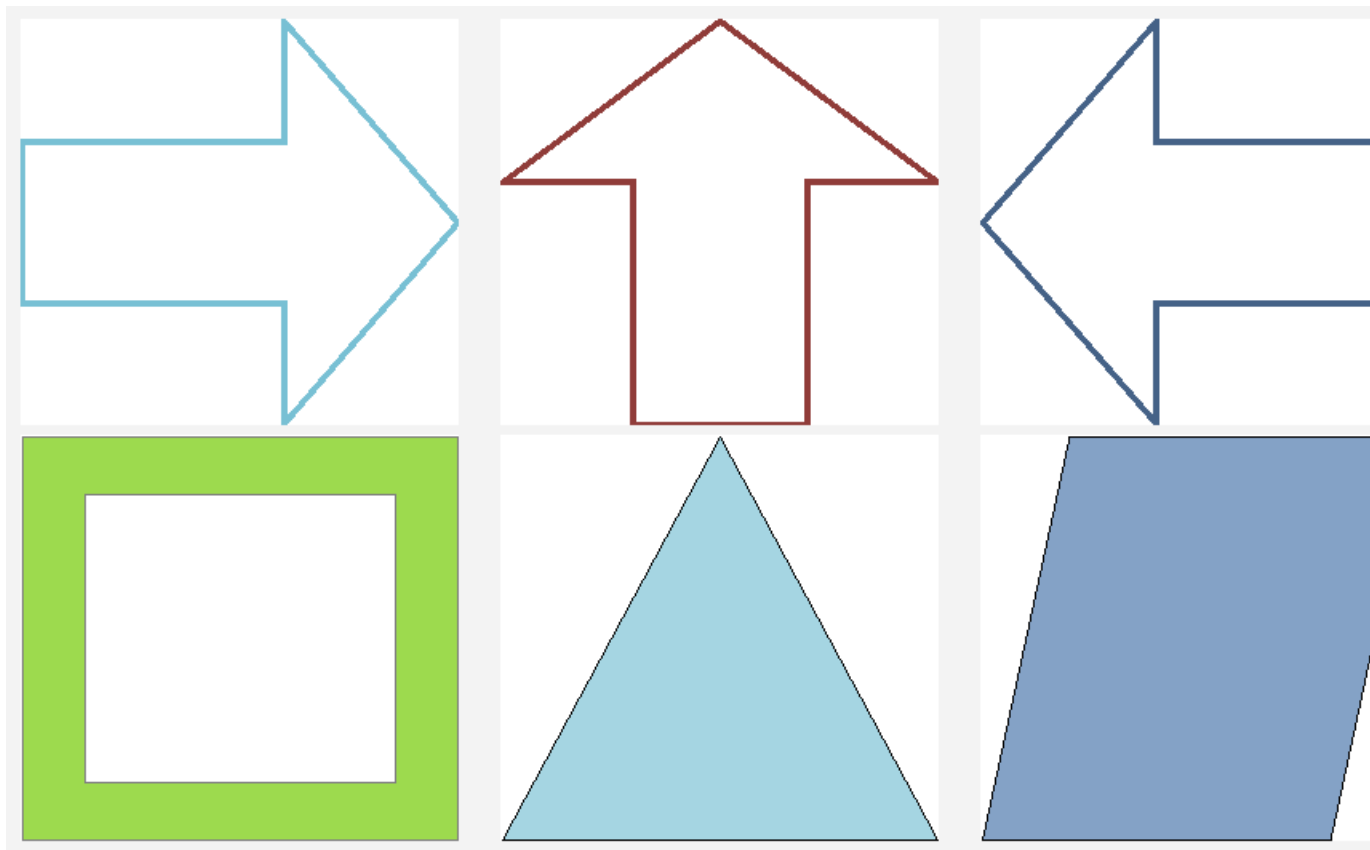
	the maximum size. ➤ The Visible property allows you to enable or disable the display of the element's shadow on the indicator panel.
Style	Selects a style for the current element. The default it is set to Auto , i.e. the style of this element is inherited from the style of the dashboard.
Enabled	Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer.
Interaction	Sets interaction of the current element.
Margin	A group of properties that allows you to define indents (left, top, right, bottom) of the value area from the border of this element.
Padding	A group of properties that allows you to define indents (left, top, right, bottom) of the columns from the range of values.
Title	A group of properties that allows you to customize the title of the element: ➤ The Back Color property provides the ability to change the background color of the title of the current item. By default, this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element. ➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current

	element style ➤ The group property Font allows you to define the font family, its style and size for the title of the current element. ➤ The Horizontal Alignment property provides the ability to change the title alignment relative to the element - Left, Center, Right. ➤ The Text property is used to set the title text of the current element. ➤ The Visible property is used to enable or disable displaying of the title of the current item. If the property is set to True, then the element title will be included. If this property is set to False, then the element header will be disabled.
Name	Changes the name of the current element.
Alias	Changes the alias of the current item.
Restrictions	Configures the permissions to use the current item in the dashboard: ➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed. ➤ The Allow Delete option enables or disables the deletion of an element. ➤ The Allow Move option allows or prohibits moving an element. ➤ The Allow Resize option enables or disables resizing of an element. ➤ The Allow Select option enables or disables the element selection.
Locked	Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized.

Linked	Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location.
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5.17 Shape

Shape is an element with the help of which various shapes can be displayed on the dashboard.



This chapter will cover the following:

- [Shape editor](#);
- [Table of properties](#).

The **Shape** element can be placed anywhere on the dashboard. The setting of the **Shape** element is carried out in the shape editor. To invoke the editor of this

element, you should:

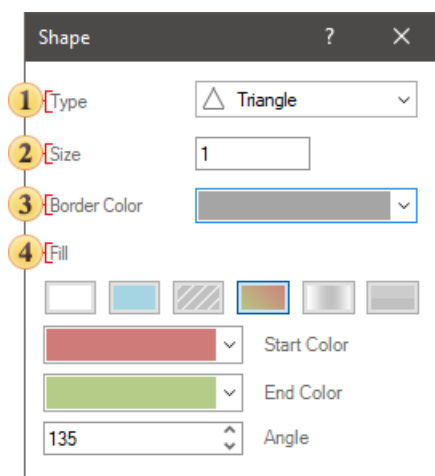
- Double-click on a **Shape**;
- Select the Shape element, and select the **Design** command in the context menu;

To resize the Shape element you should:

- Select it in the dashboard;
- Increase or decrease the size of the element vertically, horizontally or diagonally.

Shape editor

Shape settings can be found in the Shape editor.



- ➊ **Type** - determines the type of shapes. Click on the value field and select a shape from the drop-down list.
- ➋ **Size** - changes the size of the stroke of shapes.
- ➌ **Stroke** - changes the stroke color of shapes. Click on the value field and select a shape from the drop-down list.
- ➍ **Fill** - changes the fill type of shapes and, depending on the type selected, override the colors, angle, scale, focus, blending, and hatching. For example, for the Solid type, only one color can be defined. If the **Gradient fill** type is selected, then the starting and ending colors must be selected. You can also change the gradient angle.

Information

All these parameters are represented as identical properties on the property panel. You can configure settings by selecting the **Shape** element and changing the

values of these properties in the properties panel.

List of Shape properties

The list shows the name and description of the properties of the **Shape** element which you may find in the properties panel of the report designer.

Name	Description
Fill	A property group that is used to change the brush and fill color of a shape in the current element.
Shape Type	Changes the type of a shape in the current element.
Size	Changes the stroke width of a shape for the current element.
Stroke	Changes the stroke color of a shape.
Back Color	Changes the background color of the Shape element. By default, this property is set to From Style , i.e. the color of the element will be obtained from the settings of the current element style.
Border	A group of properties that allows you to customize the borders of a table - color, sides, size, and style.
Enabled	Enables or disables the current item on the dashboard. If the property is set to True , the current item is enabled and will be displayed when previewing the dashboard in the viewer. If this property is set to False , this element is disabled and will not be displayed when previewing the dashboard in the viewer.
Margin	A group of properties that allows you to define indents (left, top, right, bottom) of the value area from the border of this

	element.
Padding	A group of properties that allows you to define indents (left, top, right, bottom) of the columns from the range of values.
Title	A group of properties that allows you to customize the title of the element: ➤ The Back Color property provides the ability to change the background color of the title of the current item. By default, this property is set to From Style, i.e. the background color will be obtained from the style settings of the current element. ➤ Fore Color allows you to change the text color of the title of the current item. By default, this property is set to From Style, i.e. the text color of the title will be obtained from the settings of the current element style. ➤ The group property Font allows you to define the font family, its style and size for the title of the current element. ➤ The Horizontal Alignment property provides the ability to change the title alignment relative to the element - Left, Center, Right. ➤ The Text property is used to set the title text of the current element. ➤ The Visible property is used to enable or disable displaying of the title of the current item. If the property is set to True, then the element title will be included. If this property is set to False, then the element header will be disabled.
Name	Changes the name of the current element.
Alias	Changes the alias of the current item.
Restrictions	Configures the permissions to use the current item in the dashboard:

	➤ The Allow Change option enables or disables changes of the element. If checked, the current item can be changed. ➤ The Allow Delete option enables or disables the deletion of an element. ➤ The Allow Move option allows or prohibits moving an element. ➤ The Allow Resize option enables or disables resizing of an element. ➤ The Allow Select option enables or disables the element selection.
Locked	Locks or unlocks resizing and movement of the current element. If the property is set to True , the current element cannot be moved or resized. If this property is set to False , then this element can be moved and resized.
Linked	Binds the current location to the dashboard or another element. If the property is set to True , then the current item is bound to the current location. If this property is set to False , then this element is not tied to the current location.

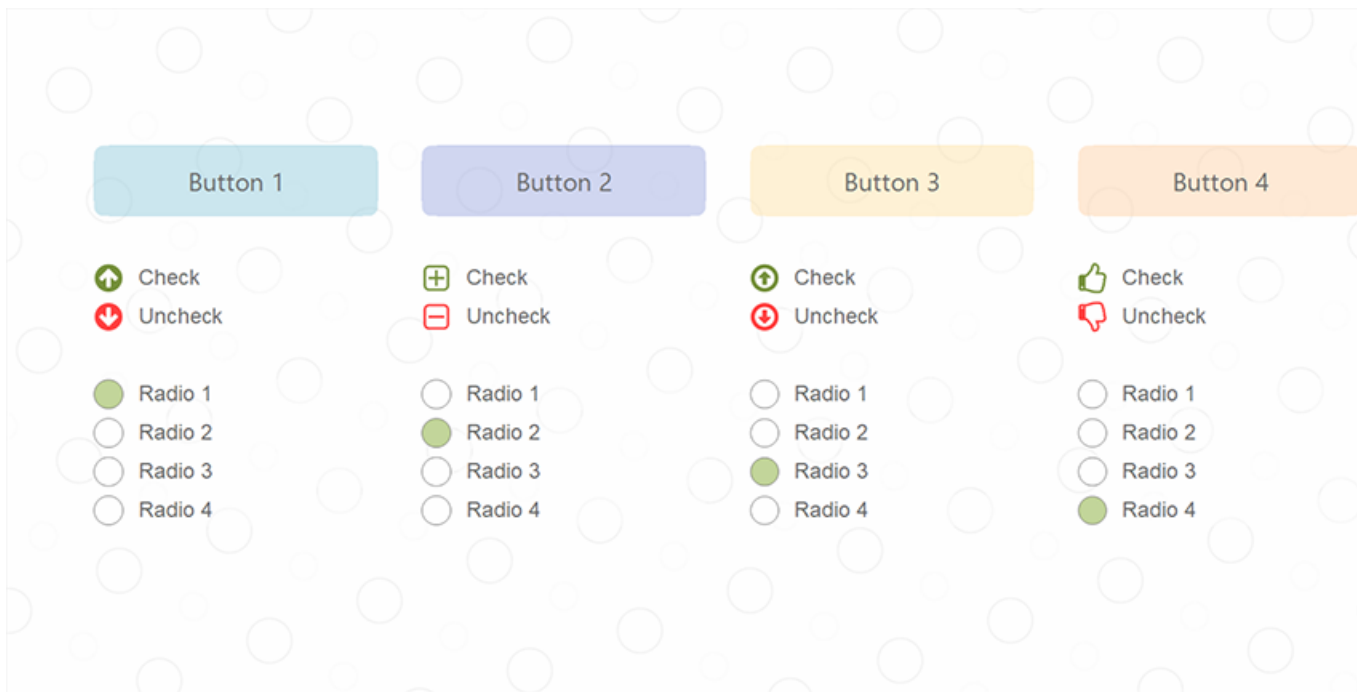
5.18 Button

Important

Scripts can be a security risk, so they are disabled in the [Interpretation mode](#). However, if you are confident in the safety of your scripts, you can use them in the [Compilation mode](#).

Button is a dashboard element, which allows you to execute a certain script when clicking or depending on click condition. When using the **Button**, you can change design settings of dashboard elements, filter data, hide other elements, etc. The **Button** element doesn't have its own editor, and it is customized using properties and controls on the Ribbon panel. A full set of properties will be presented in the

table of element properties.



This chapter will cover the following:

- > [Button Text](#);
- > [Icons in the Button](#);
- > [Button Shape](#);
- > [Appearance](#);
- > [Table of the Properties](#).

When creating dashboards, you can change a type for the **Button** element. To do this, you should set the Type property to one of the following values:

- > **Button**, i.e. an element will be presented as a simple button and will call a script when clicking.
- > **Check Box**, i.e. an element will be presented as a check box, accordingly it may have checked and unchecked conditions. You can define a condition by default using the **Checked** property. Depending on a condition, a script can be executed. Also, you can execute a script when clicking.
- > The **Radio Button**, i.e. several buttons can be grouped into one control, where only one button can be checked from the group. Buttons are formed into groups to the general rule of [grouping elements in a dashboard](#). Depending on a condition, a

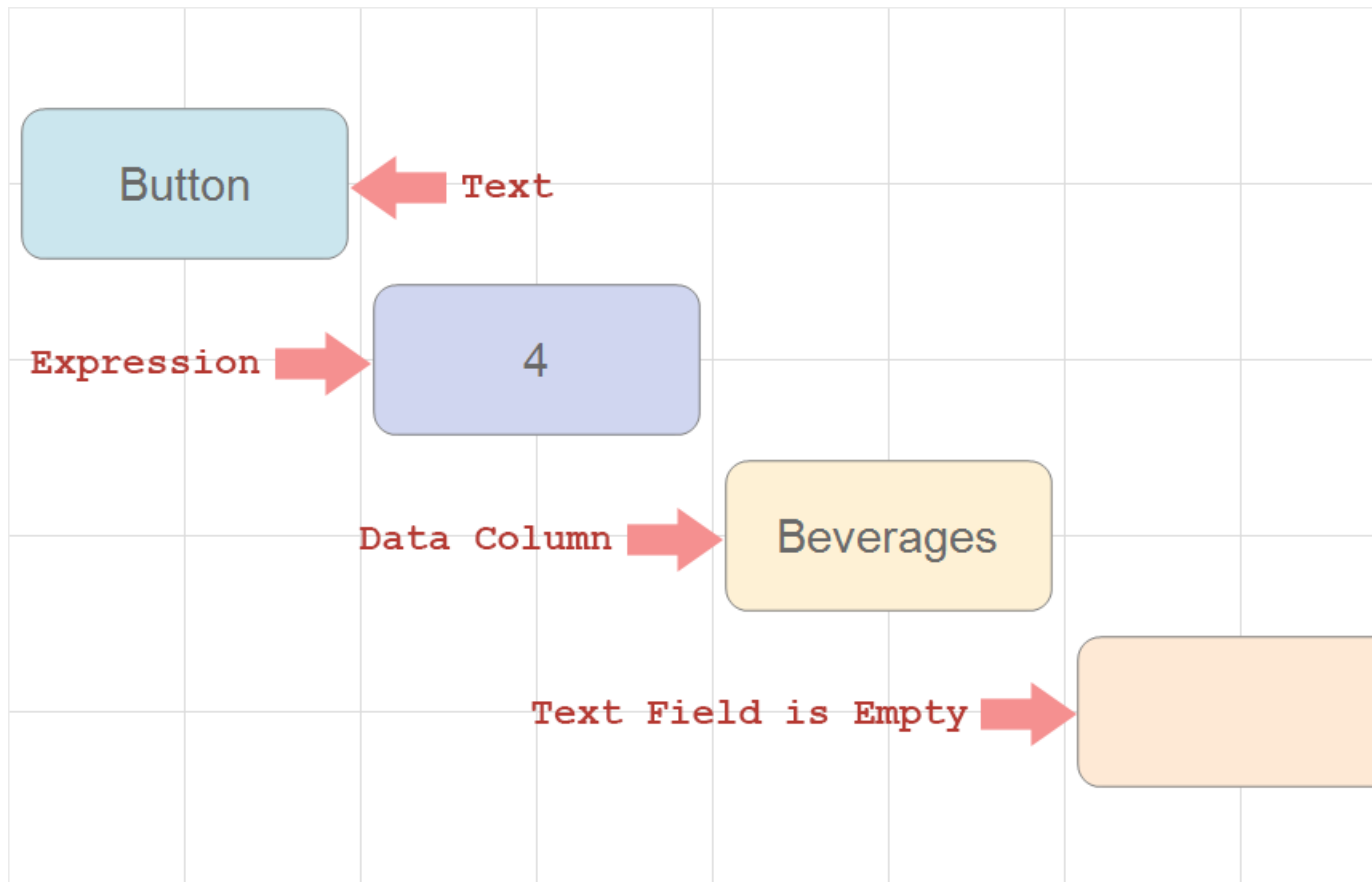
script can be executed. You can define a condition by default using the **Checked** property. Also, it's possible to execute a script when clicking.

The script, that is executed when interacting with the **Button** element, is defined in its events. The following events can be defined for this element:

- When clicking the **Click**, it occurs when clicking on the element by the input pointer. It's the main event.
- **Checked Changed**, it occurs when changing element condition from the preset value of the **Checked** property.

Button Text

When creating dashboards, you can define some text, which will be displayed in the **Button** element. It is defined using the **Text** property. Also, as a value of this property you can specify an expression in curly brackets - {expression}. In this case, the text will be the result of the expression calculation. Please, note if an expression is a link to a data source column, the first value from this data source column will be displayed on the button.



In addition, you can change horizontal or vertical text alignment. You can do this using the **Horizontal Alignment** and **Vertical Alignment** properties. In cases, when the text is longer than the button, it will be wrapped to the next line. However, you can disable wrapping having set the **Word Wrap** property to the False value. In this case, the text will be clipped to the border of the element.

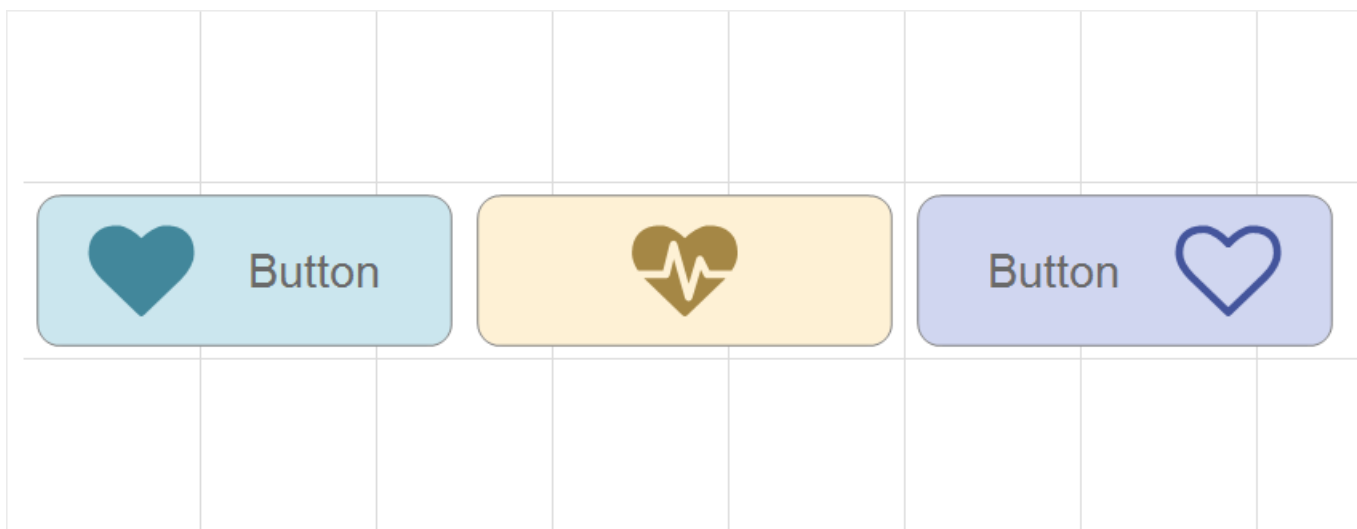
Icons in the Button

In addition to the text in the **Button** element, you can specify an icon. It can be done using the **Icon Set** properties group. In this group, using properties, you can define an icon by default, also icons depending on button condition. It's relevant for buttons of **Check Box** and **Radio Button** type. This way, the button may have three icons:

- By default, an icon is defined using the property of the same name – **Icon**;
- **Checked Icon**, i.e. the icon which will be displayed on the button, if its status will be defined as checked;
- **Unchecked Icon**, i.e. the icon, that will be displayed on the button, if its status will

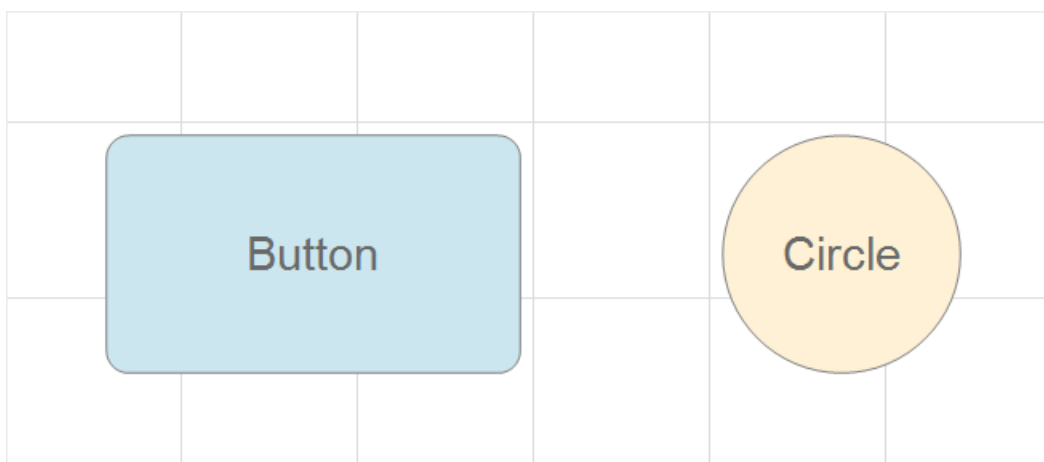
be defined as unchecked.

Icon alignment in the **Button** element is defined using the **Icon Alignment** property, and can be defined to the left, to the right, bottom, and center. Please, note that the **None** value for the **Icon Alignment** property disables the display of an icon on the button.



Button Shape

To display the button in a dashboard, you can use one of two shapes: **Rectangle** and **Circle**. By default, rectangle is used to display the button. You can change button shape using the **Shape Type** property.



It's worth taking into account, that when viewing, the entire dashboard will be stretched to the viewer area. If another is not defined using the **Content Alignment** property. Elements of the dashboard will be stretched proportionally. However, you can define behavior for the Button element when stretching in width and height. You can do this, having set the **Stretch** property to the **Stretch XY** value, i.e. stretch in height and width, or **Stretch X**, i.e. stretch only in width.

Appearance

Element visual design is defined using the properties, which are located in the **Appearance** group in the properties panel or style settings of the **Report Control** type. All design properties of the **Button** element can be divided into the following categories:

- Common, i.e. the categories that are present and for other elements of a dashboard. For example, border, brush, style, rounding radius, font, icon brush, shadow, text brush.
- Special, i.e. the categories that are located in the **Visual States** group. These properties allow you to define design depending on the interaction with the Button element. For example, you can change an icon, its brush, button brush when clicking or hovering. More detailed the set of the property will be presented in a table of properties.

It's worth considering that you can't define design settings in the style properties. For example, you're not able to change an icon when hovering there. You can do it only using special design properties.

Table of properties

The table contains name and description of the **Button** element properties.

Name	Description
Text	It allows you to specify some text on the button. Also, you can specify an expression in curly braces. For example, {expression}. In this case, the result of the expression calculation will be displayed as the text. If the expression is a link to a data column, the first value from this data column will be displayed as the button text.

Checked	It allows you to define button element condition by default. This property is available for buttons of the Check Box and the Radio Button types. If the current property is set to the true value, the element condition will be defined as Checked . If the property is set to the false value, the element condition will be defined as Unchecked .
Group	It allows you to combine Button elements into a group. This property is available only for buttons of the Radio Button type. Using grouping, you can form a single control from different buttons. Buttons are combined according to the general principle of grouping elements in a dashboard .
Icon Alignment	It allows you to change icon alignment in the button. Icon can be aligned to Left , Right , Top , Bottom and Center of the button. In addition, this property can be set to the None value. In this case, the button icon will not be displayed.
Icon Set	The group of properties, that allows you to set an icon for the button: ➤ The Icon property allows you to define an icon by default for the Button element; ➤ The Checked Icon property allows you to define an icon for the Button element in Checked condition. ➤ The Unchecked Icon property allows you to define an icon for the Button element in Unchecked condition.
Horizontal Alignment	It allows you to define the horizontal alignment of the Button text: Left , Center , Right , Width .
Vertical Alignment	It allows you to define the vertical

	alignment of the Button text: Left, Center, Right.
Type	It allows you to change the element type, which can be defined as Button, Check Box, Radio Button.
Word Wrap	It allows you to enable or disable text wrapping in the Button element. If the current property is set to the True , the text can be wrapped to the next line in the button element. If the property is set to the False , word wrapping will not be possible, and the text will be cut off at the border of the element.
Shape Type	It allows you to change drawing shape of the Button element. The following kinds of shape: Rectangle and Circle.
Stretch	It allows you to define the element stretch mode in a dashboard. It can be set to one of two modes: ➤ The Stretch XY value allows you to stretch the element in width and height in a dashboard; ➤ The Stretch X value allows you to stretch the element only in width in a dashboard.
Border	The group of properties, which allows you to set element borders: color, sides, size and style.
Brush	It allows you to change brush type and its customization for the Button element.
Corner Radius	It allows you to define the rounding radius for the corners of an element in a dashboard. You can round each corner of the element separately: Top - Left, Top - Right, Bottom - Right, Bottom - Left. The property can be set to a value from 0 to 30, where 0 is no rounding angle and 30 is

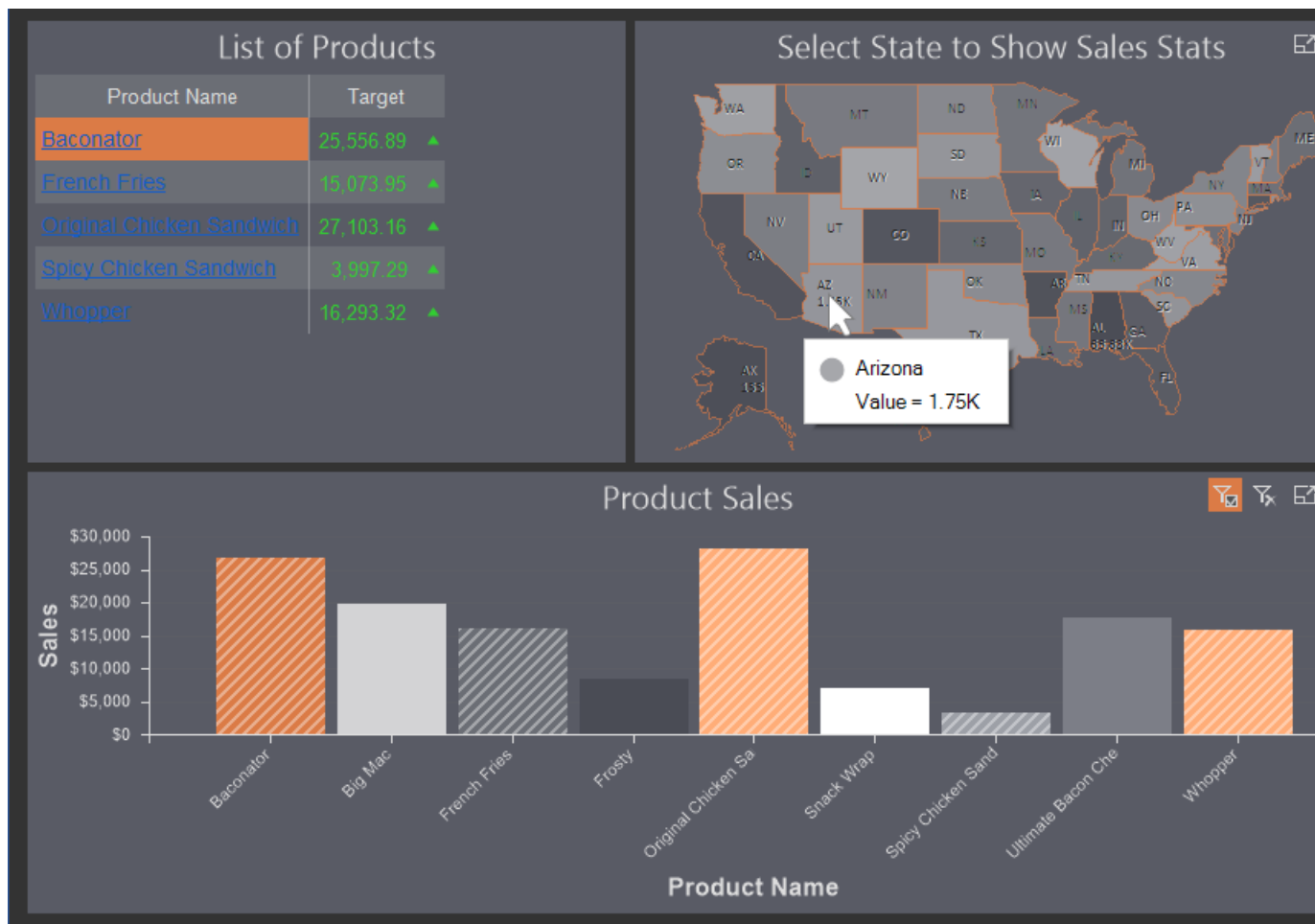
	the maximum value of the rounding radius.
Font	The group of properties that allows you to define font family, its style and size for the values of the Indicator element.
Icon Brush	It allows you to change brush type and its settings for the Button icon. It's relevant, if icon is defined for the button.
Shadow	The group of properties allows you to customize the element's shadow: ➤ The Color property allows you to specify the color that will be used to display the element's shadow; ➤ The properties in the Location group allow you to determine the shadow shift in X and Y coordinates, relative to the location of the element in a dashboard; ➤ The Size property allows you to set the size of the shadow from the borders of the element. It can be set to the value from 1 to 10, where 1 is the minimum size and 10 is the maximum; ➤ The Visible property allows you to enable or disable the display of the element's shadow in a dashboard.
Style	It allows you to select a style for the current element. By default, the Auto is set, i.e. a style of this element is inherited from a style of a dashboard.
Text Brush	It allows you to change brush type and its settings for some text in the Button element. It's relevant if some text is specified for the button.
Visual States	The group of special properties allows you to define different design settings, depending on the state of the interaction: ➤ The Checked property group allows you

	to define the border, brush, font, icon brush, character set, and text brush for the Button element when its state is checked. ➤ The Hover property group allows you to define the border, brush, font, icon brush, character set, and text brush for the Button element when the input pointer is hovered. ➤ The Pressed property group allows you to define the border, brush, font, icon brush, character set, and text brush for the Button element if the element has been clicked.
Enabled	It allows you to enable or disable the current element in a dashboard. If the property is set to the True, the current element is enabled and will be displayed when viewing the dashboard in the viewer. If this property is set to the False, this element is disabled and will not be displayed when viewing the dashboard in the viewer.
Margin	The group of properties allows you to define margins (left, top, right, bottom) of the value area from the border of this element.
Padding	The group of properties allows you to define paddings (left, top, right, bottom) of the graphic element area from the border of the value area.
Name	It allows you to change name of the current element.
Alias	It allows you to change the alias of the current element.
Restrictions	Configures the permissions to use the current item in the dashboard: ➤ The Allow Change option enables or

	disables changes of the element. If checked, the current item can be changed. ➤ The Allow Delete option enables or disables the deletion of an element. ➤ The Allow Move option allows or prohibits moving an element. ➤ The Allow Resize option enables or disables resizing of an element. ➤ The Allow Select option enables or disables the element selection.
Locked	It allows you to prevent or allow resizing and moving the current element. If the property is set to the True value, the current element cannot be moved or resized. If this property is set to the False value, this element is moved and resized.
Linked	It allows you to bind the current location to a dashboard or another element. If the property is set to the True value, the current element is anchored to the current location. If this property is set to the False value, this element is not anchored to the current location.

5.19 Interaction

When viewing the dashboard, its elements may have certain interactive features. In other words, depending on the impact of users on the elements of the dashboard, various actions can be carried out.



This chapter will cover the following:

- [Interaction editor;](#)
- [Table element interaction;](#)
- [The Interaction editor for Table data fields;](#)
- [Tool tips;](#)
- [Showing dashboard;](#)
- [Parameters;](#)
- [Drill Down;](#)
- [Drill down with filtering;](#)
- [Drill down without filtering;](#)
- [Drill down order for data fields.](#)
- [The table of parameters in the editor interaction.](#)

The user actions for viewing the dashboard include:

- Cursor hover over the value of the dashboard element;

- Single click with the left button of the mouse or touch the element value of the dashboard.

The interactive actions of the dashboard panel include:

- Displaying additional information on the values of the dashboard element as a **Tool Tip**. It can occur only when the user hovers the cursor.
- Filtering data. It can occur only when a user clicks on an element or when a user touches an element value.
- Following the hyperlink. It can occur only when a user clicks on an element or when a user touches an element value.
- [Showing dashboard](#) can occur only with a single left-click on the input cursor or when a user touches an element value.
- [Drill-down](#) of values of a dashboard element.

In addition to this, an element can have the following features when viewing:

- Sorting data of element;
- View data of element;
- Element view in full screen;
- Export of element;
- Disable data columns for the Table element.

You can specify interactive element actions in the **Interaction** editor. To call the editor you should:

- Select an element on the dashboard in the report designer;
- Click the **Interaction** button on the **Home** tab of the Ribbon panel of the report designer.

Interactive actions are not available for the following items:

- Panel;
- Shape;
- Filtering elements: [List Box](#), [Combo Box](#), [Tree View](#), [Tree View Box](#), [Date Picker](#).

Interaction editor

In this editor, every action is represented as a separate group of parameters with which you can customize an interactive action.

The screenshot shows the 'Interaction' dialog box with the following settings:

- On Hover (1):**
 - Mode: Show Tool Tip
 - Tool Tip: (Custom)
- On Click (2):**
 - Mode: Show Dashboard
 - Page: Dashboard1
- On Data Manipulation (3):**
 - Allow User Sorting: ☒
 - Allow User Drill-Down: ☒
- Layout (4):**
 - Show 'Full Screen': ☒
 - Show 'Save': ☒
 - Show 'View Data': ☒

Buttons: OK, Cancel

1 The **On Hover** group of parameters is used to define settings for an interactive action when hovering the cursor over the value of a dashboard element. The **Mode** parameter allows you to select the type of the interactive action:

- > **None** - when you hover the cursor over the value of the dashboard element, no action will occur
- > **Show Tool Tip** - when the user hovers the cursor over the value of the element of the dashboard, certain information will be displayed. Also, if you select this type of action, the **Tool Tip** option will be available. You can create and design a custom tool tip. By default, a standard tool tip is used for every element.
- > **Show Hyperlink** - when the user hovers the cursor over the value of the element, the hyperlink specified in the **On Click** group will be displayed.

2 The **On Click** group of parameters allows you to define an interactive action when you click the left button of the mouse or touch the value of a dashboard element. The **Mode** parameter allows you to select the type of interactive action:

- **None** - when clicking on the value of the dashboard element, no action will occur;
- **Apply Filter** - when you click on the value of the dashboard item, the dashboard data will be filtered through the [interrelation of its elements](#).
- **Open Hyperlink** - when you click on the value of the dashboard item, the follow by the hyperlink will occur. Also, when this type of action is selected, the **Hyperlink** parameter will be displayed, in the value field of which you should specify a hyperlink.
- **Show Dashboard**. When clicking on the value of a dashboard element, another specified dashboard will open.
- **Drill Down**. When clicking on the value of an element, a transition to the lower level of the data hierarchy will occur. You should enable the data drill down mode using the Allow User Drill Down option.

3 The **On Data Manipulation** group of parameters is used to customize the data management of the current item.

- The **Allow User Sorting** parameter is used to enable/disable interactive sorting when viewing dashboards.
- The **Allow User Drill Down** parameter is an item of the dashboard that enables data drill down mode.

4 This group of parameters can be used to enable or disable the **Full Screen**, **View Data** and **Save** buttons in the viewer or in the preview panel for the current dashboard element.

Information

Drill down of element data can be carried out [with the Apply Filter](#) action or [without it](#).

Table element interaction

In the **Table** element, you can configure interaction both for each column of this table, and for the entire element. You can setup interactive actions in the **Interaction** editor.

For a column of the **Table** element you can:

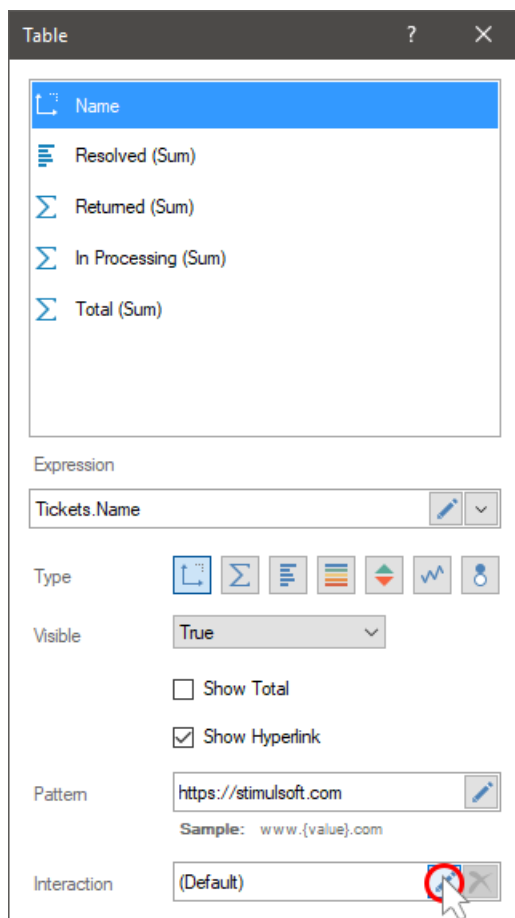
- Specify a hyperlink for all values of this column. Only for the fields of the **Dimension** type. You should define a hyperlink in the **Table** element having set a check next to the **Show Hyperlink** parameter and having set an address in an appropriate field.
- Display a tool tip or a hyperlink when you hover over a column value;
- Filter by value by a single click.

For the entire **Table** element, you can:

- Enable or disable sorting in value column titles;
- Enable or disable data filtering commands in value column titles.

To invoke the **Interaction** editor for a column of values, you should:

- Select the data field in the **Table** element editor;
- Click the **Edit** button of the **Interaction** parameter.



To invoke the **Interaction** editor of the **Table** element you should:

- Select an item on the dashboard panel;
- Click the **Browse** button on the **Interaction** property in the property panel.

The Interaction editor for Table data fields

You can configure Interactive actions for every data field. To do this, select the data field and click the **Edit** button in the **Table** editor.

The screenshot shows the 'Interaction' editor dialog box. It has a title bar with a question mark and a close button. The dialog is divided into two main sections: 'On Hover' (marked with a yellow circle 1) and 'On Click' (marked with a yellow circle 2). The 'On Hover' section has a 'Mode' dropdown set to 'Show Tool Tip' and a 'Tool Tip' text field containing '(Not Specified)'. The 'On Click' section has a 'Mode' dropdown set to 'Show Dashboard' and a 'Page' dropdown set to 'Dashboard1'. Below these is a 'Parameters' section with a 'New Parameter' button and a list box containing '[?] Name - Expression'. At the bottom, there are 'Name' and 'Value' fields, both set to 'Name' and 'Expression' respectively, with edit and dropdown icons. At the very bottom are 'OK' and 'Cancel' buttons.

1 The **On Hover** group of parameters is used to define settings for the **Interactive** action when you hover over a data field value. The **Mode** parameter allows you to select the type of the interactive action:

- **None** - when you hover the cursor over the value of data fields, no action will occur;
- **Show Tool Tip** - when the user hovers the cursor over the value of the data fields of the dashboard, certain information will be displayed. Also, if you select this type of action, the **Tool Tip** option will be available. You can create and design a custom tool tip.
- **Show Hyperlink** - when the user hovers the cursor over the data fields, the

hyperlink for this data field will be displayed. If the hyperlink is not set, then the value itself will be displayed when hovering over the value.

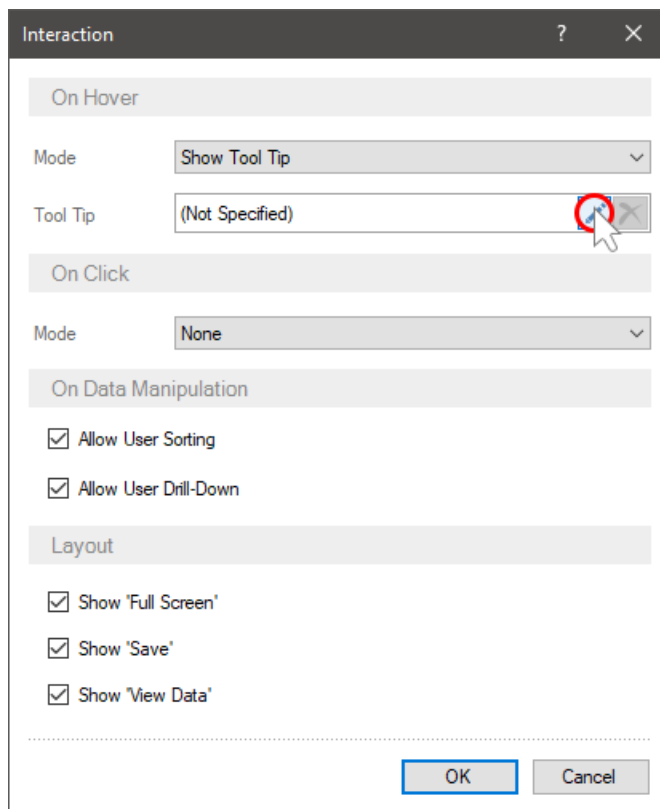
- 2 The **On Click** group of parameters allows you to set an interactive action when you click with the left button of a mouse or touch the value of a data field. The **Mode** parameter allows you to select the type of an interactive action:
- **None** - when you click on the value of the data field, no action will occur. You should know that, if a hyperlink is specified for the values of the data field, then you can follow by this hyperlink.
 - **Apply Filter** - when you click on the value of the data field, the data of the dashboard will be filtered through [the interrelation of its elements](#).
 - The **Show Dashboard**, i.e. when clicking on a data field value another dashboard will be displayed. Also, the parameters can be transferred.

Tooltips

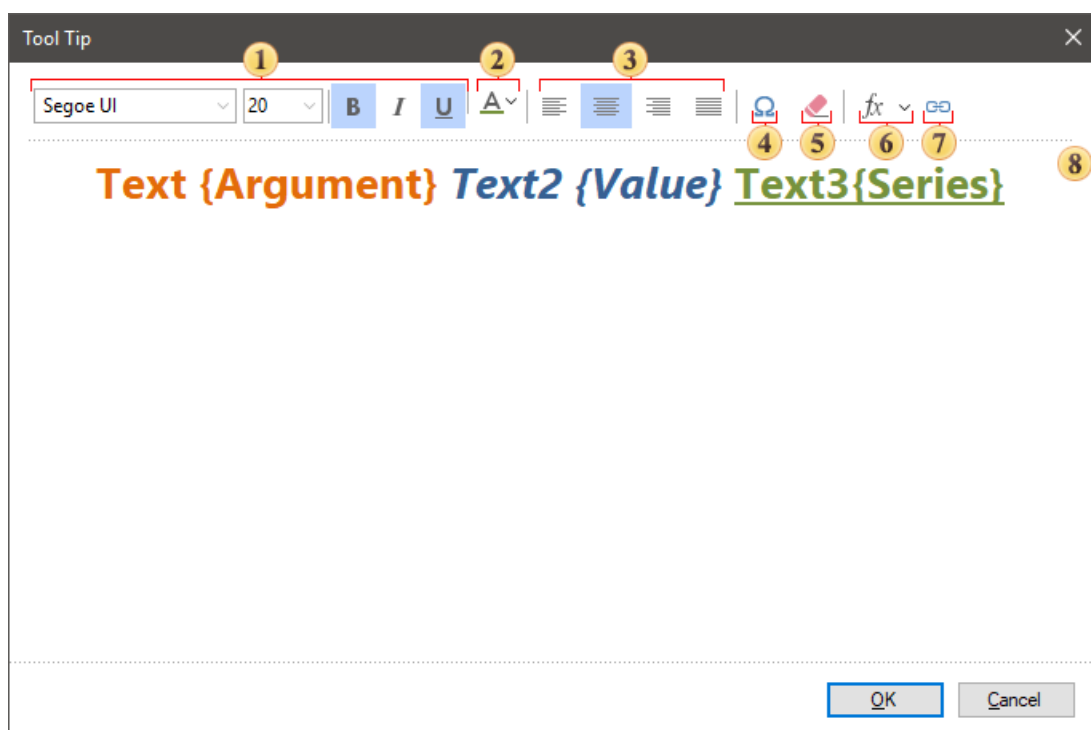
A tooltip is a message that appears when you hover over the value of an item. The following types of tooltips are available for dashboard elements:

- Value or text, and combinations of them. To do this, set the Mode property to the Show tooltip value.
- The hyperlink that is set for the current values. To do this, you should set the Mode property to the Hyperlink value.

You can setup tooltips (value, text) in the editor. To call the editor, click the Edit button of the Display tooltip action.



The editor will open and you may configure the tooltip.



- ❶ Options are used to customize text style such as font family, size, style, and color.
- ❷ Sets the color of the text or its characters. Each character of the text can select its own color. To do this, select the character in the field and select a color from the palette or enter a color value in the RGBA format.
- ❸ Text alignment options - left, center, right, justify.
- ❹ The **Insert Symbol** command calls the menu with a set of various icons, which can be inserted to a tool tip text.
- ❺ Command is used to delete text of a tooltip.
- ❻ The function menu contains variables. Each variable is an element data field and contains a list of values for this data field. Adding a variable to the tooltip for the item value, the tooltip will display the corresponding value from a specific data field.
- ❼ The **Insert Link** allows you to insert a URL address. In the hyperlink editor you should specify a URL address and the text that will be displayed instead of this address.
- ❽ Tooltip template. In the current example, the tooltip uses the text and variables of the [Chart element](#).

Showing dashboard

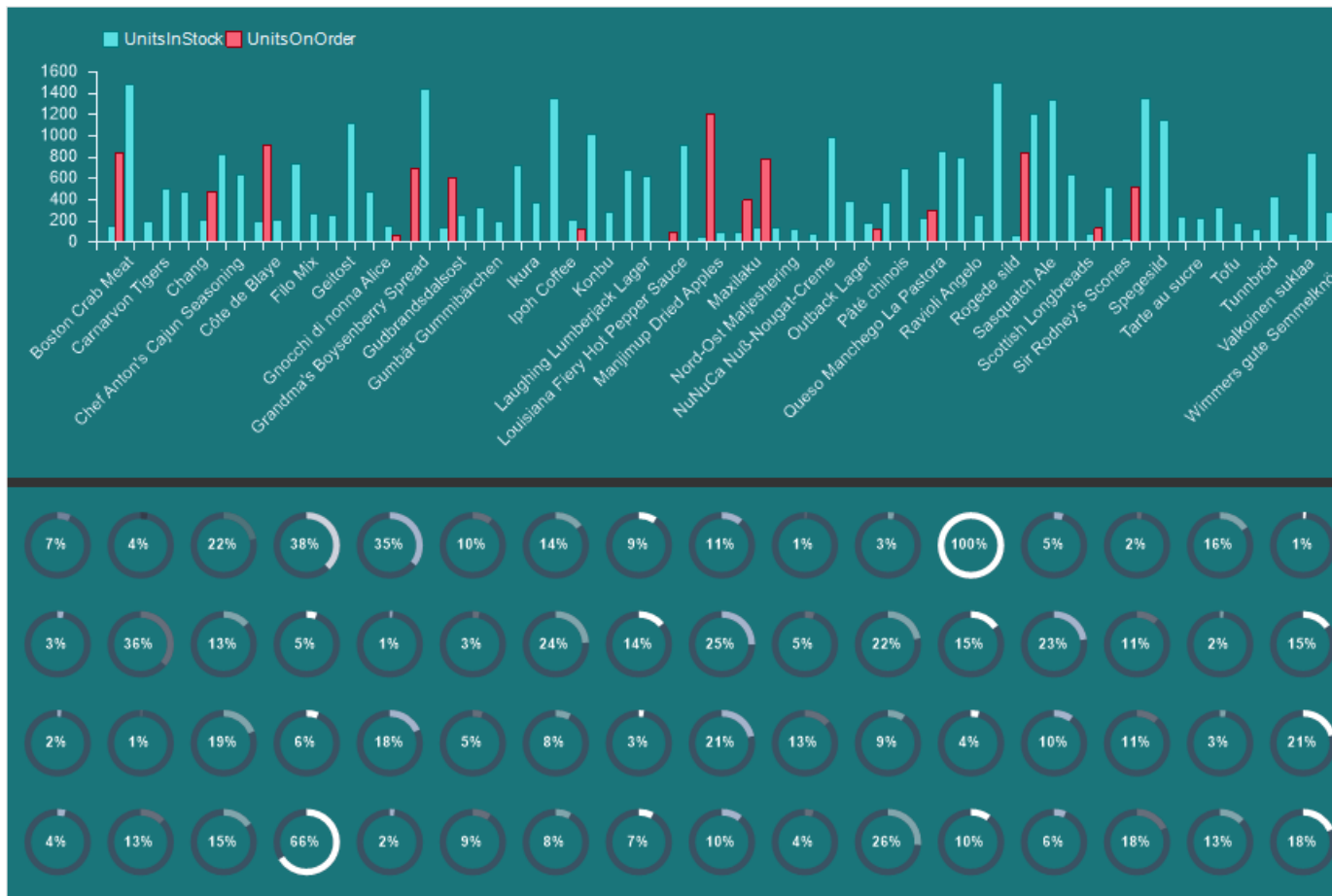
When designing dashboards when you click on the values of a table, chart, map, you can display another dashboard. In this case, it is also possible to pass parameters. Thus, you can create drill down dashboard. Consider the example of displaying a drill down dashboard.

Suppose a dashboard displays sales statistics by category.



You need to display a drill down dashboard for each category - statistics of products sold and availability for each category. You should do the following:

- Create a new dashboard in the report template;
- Put elements for data analysis and displaying of product statistics;
- Specify data fields for these elements.



Then do the following:

- Go back to the main dashboard;
- Select an element for which, when you click on a value, a drill down dashboard will be displayed. In our example, this is a [Chart](#).
- Call the [Interaction editor](#).

In the Interaction editor, you should:

- Set the Mode parameter to **Show Dashboard**;
- Select the dashboard with product statistics as the value of the **Drill-Down Page** parameter.
- Create and configure [drill-down parameters](#).

Interaction

On Hover

Mode: Show Tool Tip

Tool Tip: (Not Specified)

On Click

Mode: Show Dashboard

Page: Products

Parameters: New Parameter

[?] Category - {Argument}

Name: Category

Value: {Argument}

On Data Manipulation

☒ Allow User Sorting

☒ Allow User Drill-Down

Layout

☒ Show 'Full Screen'

☒ Show 'Save'

☒ Show 'View Data'

OK Cancel

Then:

- Go to the drill down dashboard.
- Specify a filter for the elements of the dashboard panel using the drill down parameters.

Filters

Products.CategoryID = this["Category"]

Field

Products.CategoryID

Condition

equal to

Value

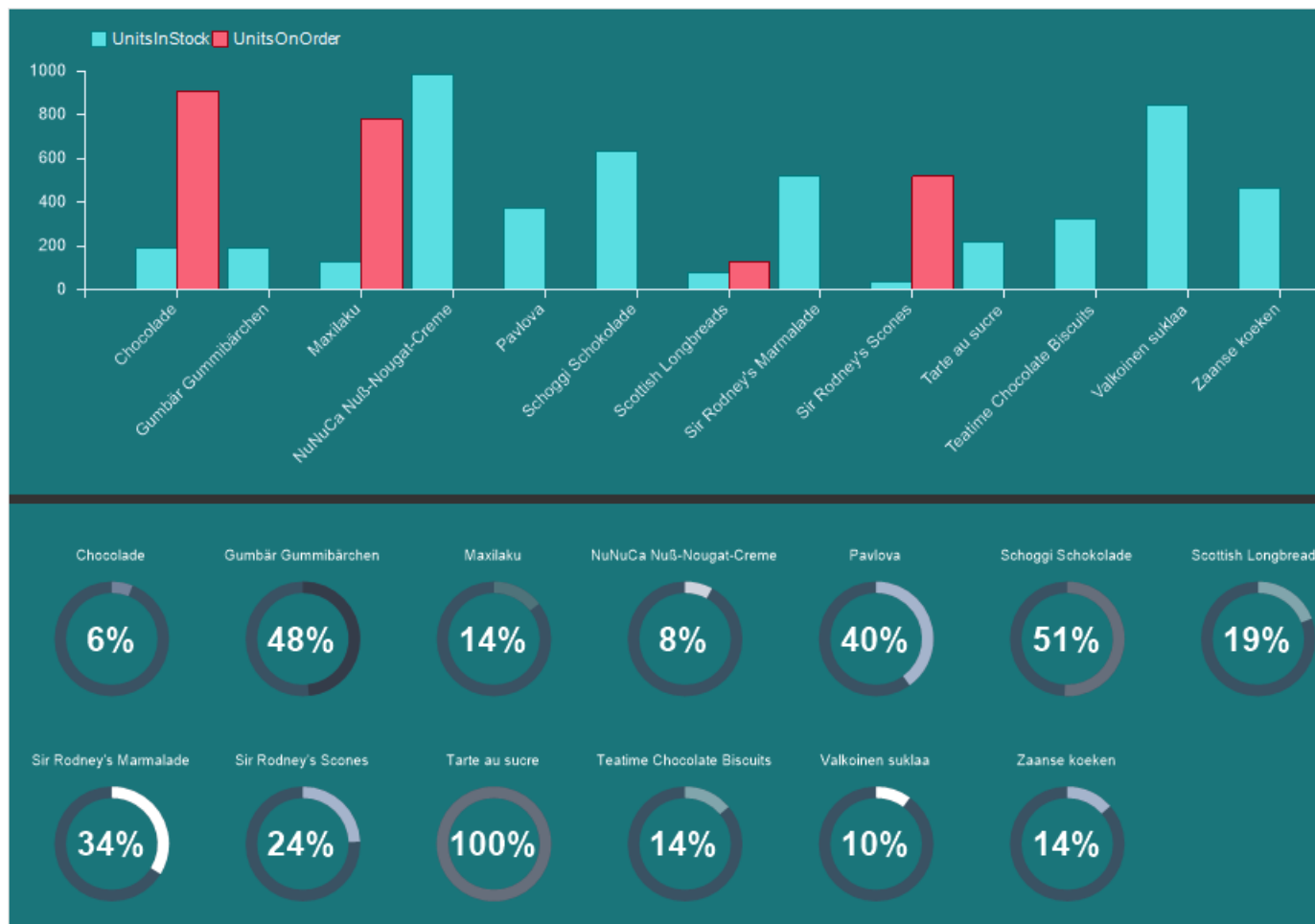
this["Category"]

☒ Expression

Filter On

True

Now, when you preview the dashboard, you can click on the chart value - in any category. After that, a drill down dashboard with filtered data will be displayed in another tab in the report viewer.



As you can see on the picture, a parameter was passed (in the current example, the category name) to the drill down dashboard and the product data was filtered by this parameter. Only data for products in the selected category is displayed.

Parameters

A parameter is a value transmitted from the main dashboard to the drill down dashboard. To create a parameter, you should:

- The Mode parameter should be set to **Show Dashboard** in the interaction editor;
- Press the **New Parameter** button;
- Specify the parameter name in the **Name** field;
- Specify the parameter value in the **Value** field.

The screenshot shows the 'Interaction' dialog box with the following configuration:

- On Hover:** Mode is 'Show Tool Tip', Tool Tip is '(Not Specified)'.
- On Click:** Mode is 'Show Dashboard', Page is 'Products'.
- Parameters:** A 'New Parameter' button is highlighted with a red circle. Below it, a parameter is listed with Name 'Category' and Value '{Argument}'.
- On Data Manipulation:** Checkboxes for 'Allow User Sorting' and 'Allow User Drill-Down' are checked.
- Layout:** Checkboxes for 'Show "Full Screen"', 'Show "Save"', and 'Show "View Data"' are checked.

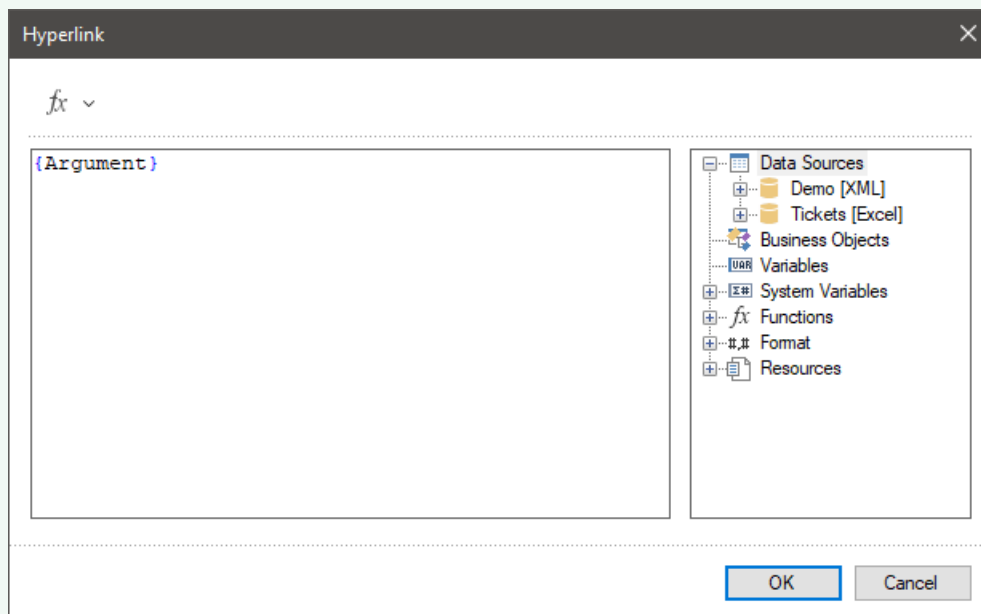
As a parameter value you can specify:

- Any constant - number, text, etc.;
- Variable, for example, **{Variable1}**;
- Link to the item field. In this case, the parameter value will be the value from the specified field of the element. For example, if a chart refers to the **Arguments** field, the parameter value will be the argument value of the selected graphic element of the chart.

Information

Each element of the dashboard has its own fields. To indicate a link to an element field, you should:

- Click the **Edit** button in the **Value** field of the [Interaction editor](#);
- In the **Hyperlink** editor, click the **Insert Expression** button;
- Select what you need from the list of element fields.



After the parameter has been created, you should specify the filtering condition using the drill down parameters in the drill down dashboard:

- Select an item in the drill down dashboard;
- Press the button to call the [Filters editor](#);
- Specify the data field by which the data will be filtered;
- Set the logical operation of the condition;
- Specify the parameter as the second value of the filter value. If the parameter is passed directly without using a variable in the data dictionary, then **this["ParameterName"]** must be specified. If a variable is used, then you must specify a link to this variable - **{Variable1}** in the expression field.

Filters
?
X

Products.CategoryID = this["Category"]

Field
Products.CategoryID

Condition
equal to

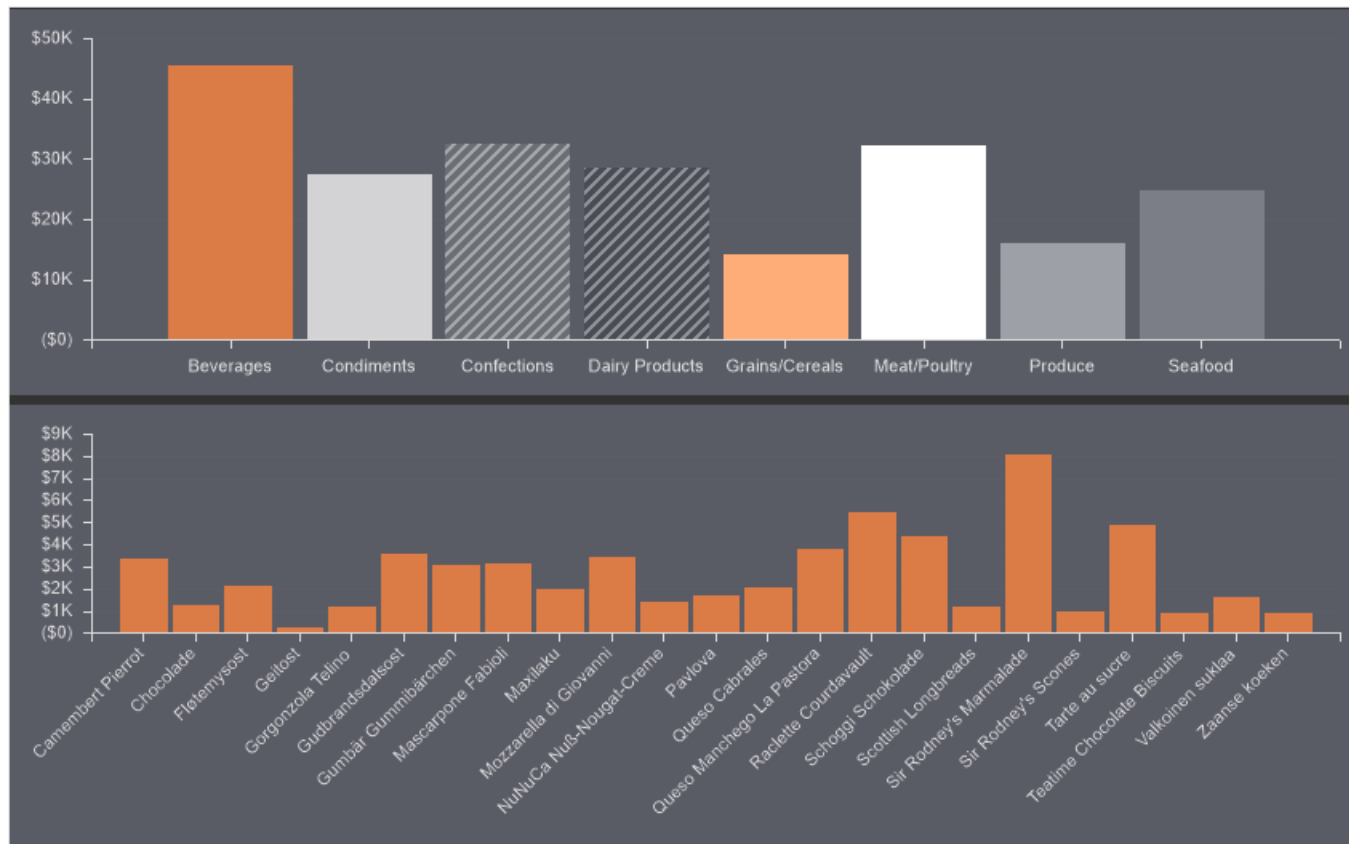
Value
this["Category"]

☒ Expression

Filter On
True

Drill Down

Drill down refers to moving to the lower or upper level in the data hierarchy of an element, without rebuilding the dashboard within the current element.



The picture above shows an example of a data hierarchy - the first chart shows sales statistics by category; the second one shows sales statistics of products from selected categories.

Drill down of element data can be done in the following modes:

- [With filters](#). In this case, when choosing element values, data will be filtered for all connected elements of the dashboard panel. To drill down the element data, you will need to click the **Drill Down** button on the current element.
- [Without filters](#). In this case, when choosing the element value, you will go to the lower level in the data hierarchy of this element. To drill down to multiple values, you will need to click the **Drill Down** button on the current element.

Information

When drill down element data, the data of other elements of the dashboard does not change. Data drill down applies only to the current item.

Drill down with filtering

To view hierarchical data within a single element of the dashboard, you can apply drill down on element data. To do this you should:

- Add the main and subordinate data fields to the element in a [specific order](#). In charts, drill down is carried out according to the data fields of the chart's arguments.
- Select an element in the dashboard;
- Press the call button of the [interaction editor](#);
- Enable the **Allow User Drill Down** parameter.

Interaction

On Hover

Mode: Show Tool Tip

Tool Tip: (Not Specified)

On Click

Mode: Apply Filter

On Data Manipulation

☒ Allow User Sorting

☒ Allow User Drill-Down

Layout

☒ Show 'Full Screen'

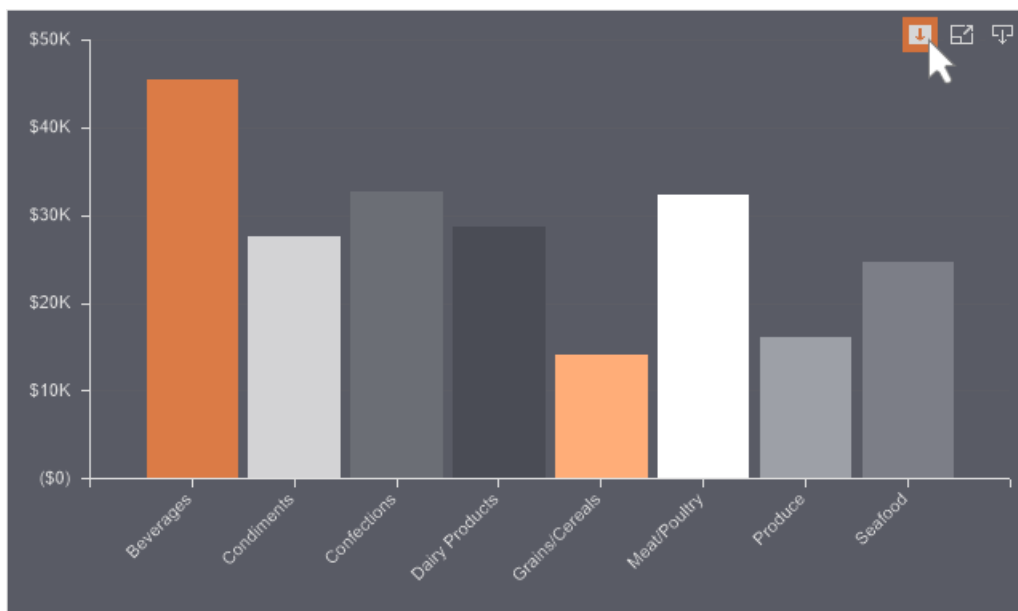
☒ Show 'Save'

☒ Show 'View Data'

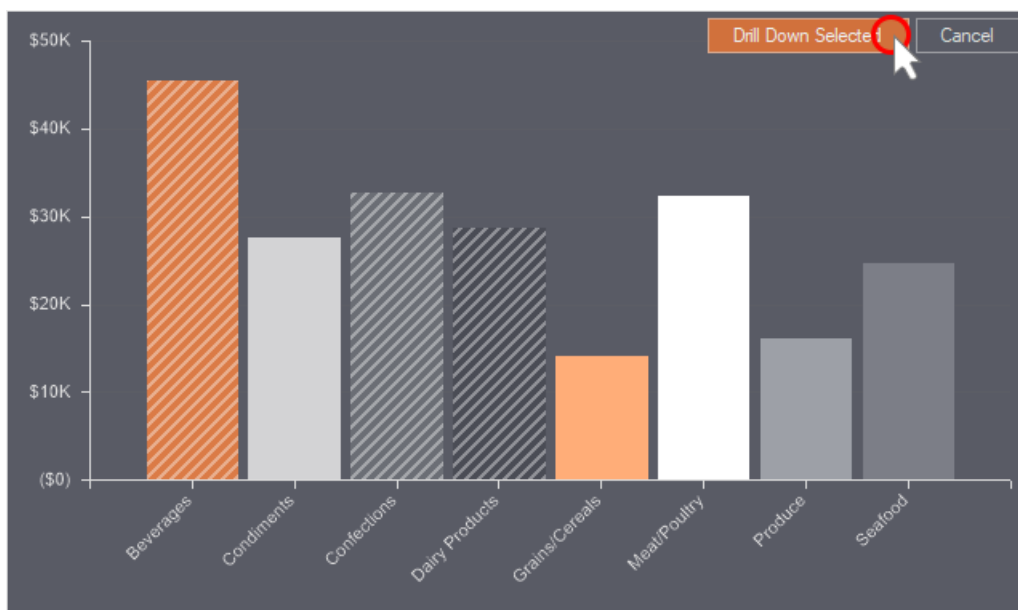
OK Cancel

Now, when you choose chart values, the data of all interconnected elements of the dashboard will be filtered, and to drill down to the data of the current element, you should:

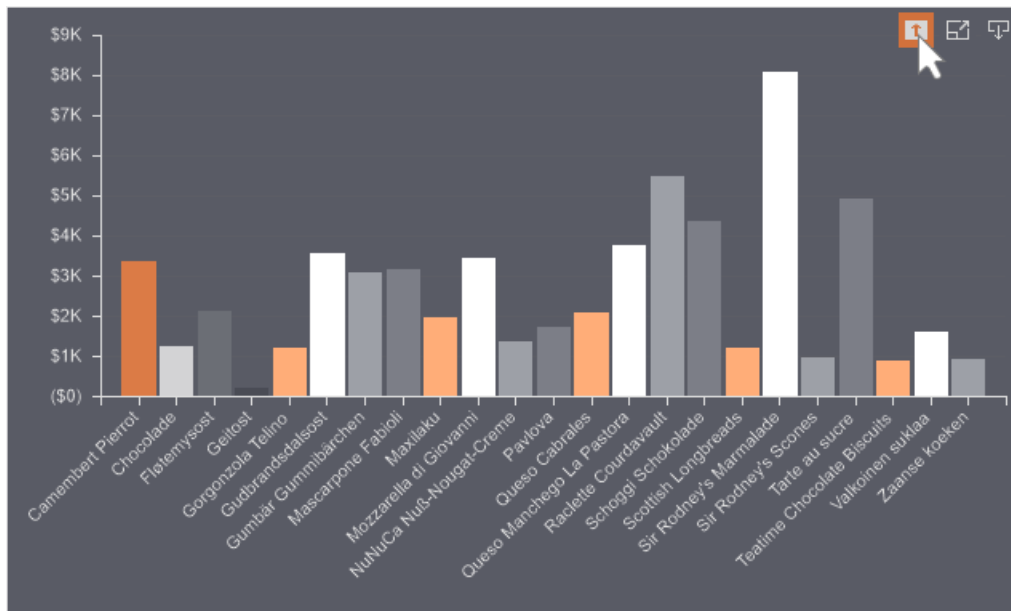
- Click the **Drill Down** button on the dashboard element;



- Select the element values for which you want to display detail;
- Click the **Drill Down Selected** button;



After that, detailed data of the selected element values will be displayed. click the **Drill Up** button to return to the previous level in the data hierarchy.



Drill down without filtering

Using this option, it will be impossible to filter data for related elements of the dashboard using the current element, and when you select the element value, it will be drilled down. To do this:

- Add the main and subordinate data fields to the element in a [specific order](#);
- Select a dashboard element;
- Press the button to invoke the [Interaction editor](#);
- Enable the **Allow User Drill Down** parameter.
- Set the **Drill Down** mode.

Interaction

On Hover

Mode: Show Tool Tip

Tool Tip: (Not Specified)

On Click

Mode: Apply Filter

On Data Manipulation

☒ Allow User Selection

☒ Allow User Drill-Down

Layout

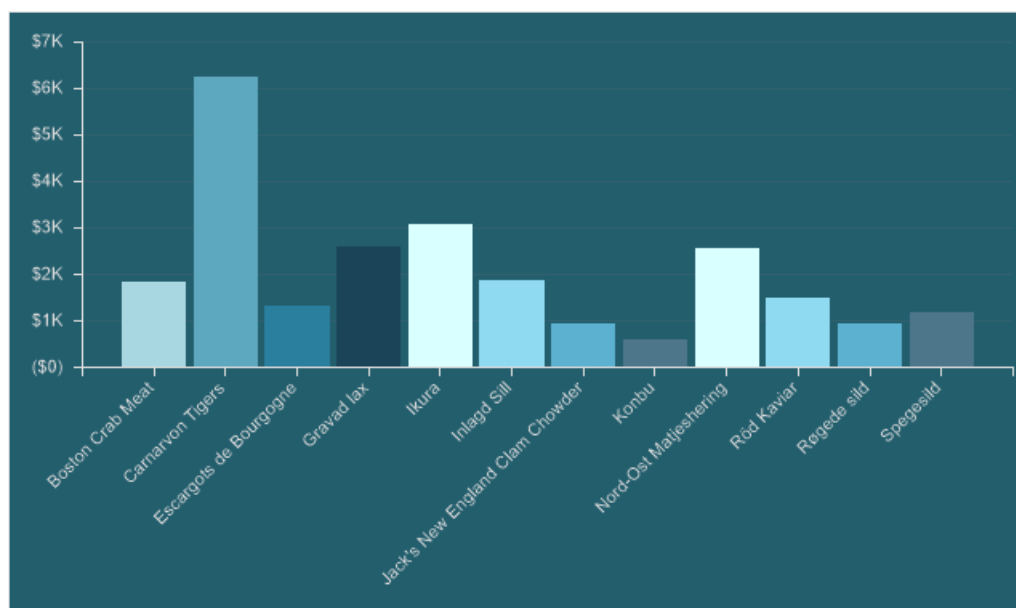
☒ Show 'Full Screen'

☒ Show 'Save'

☒ Show 'View Data'

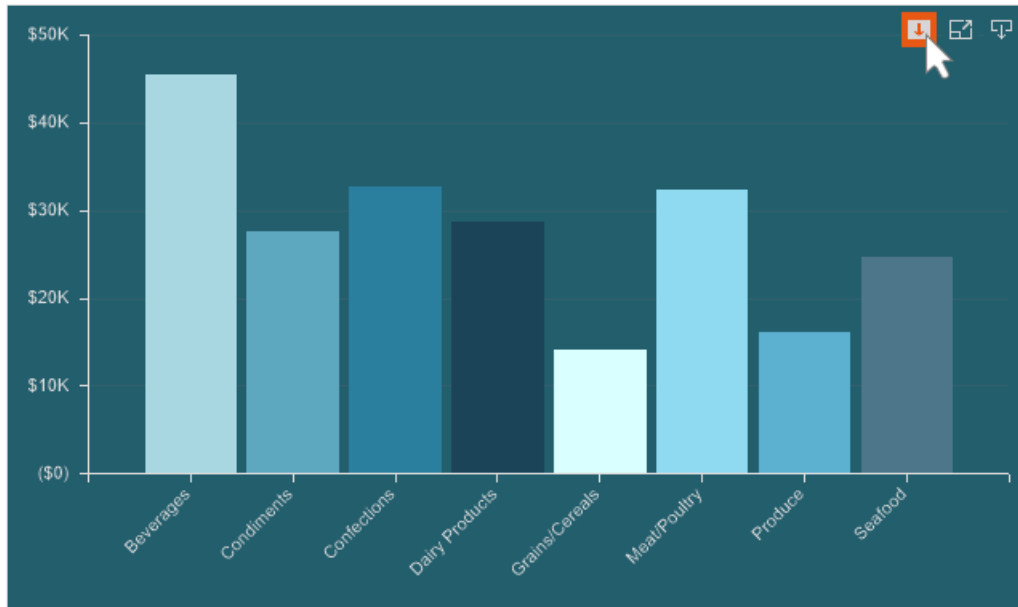
OK Cancel

Now, when you select the value of an element, its drill down will be implemented.

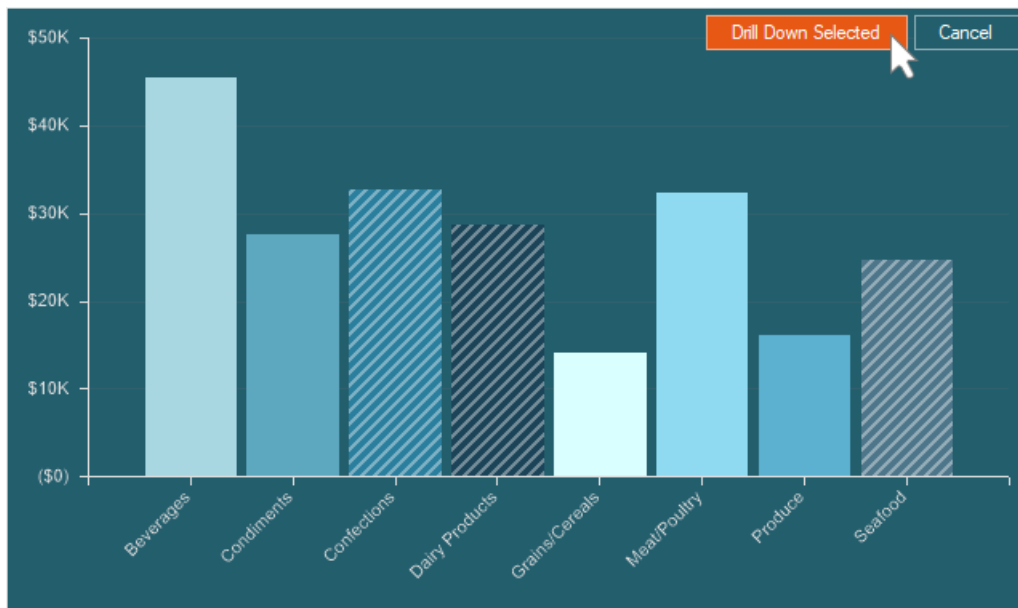


To drill down to multiple values, you should:

- Click the **Drill down** button in the dashboard element;

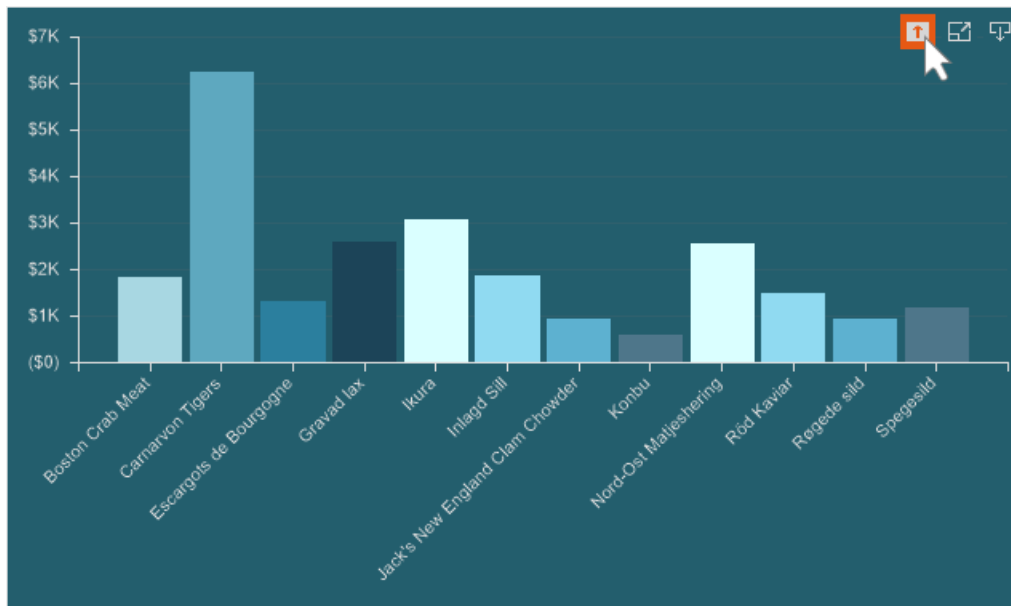


- Select the element values for which you want to display detail;
- Click the **Drill Down Selected** button;



The drill down data of the selected element values will be displayed. Click the **Drill**

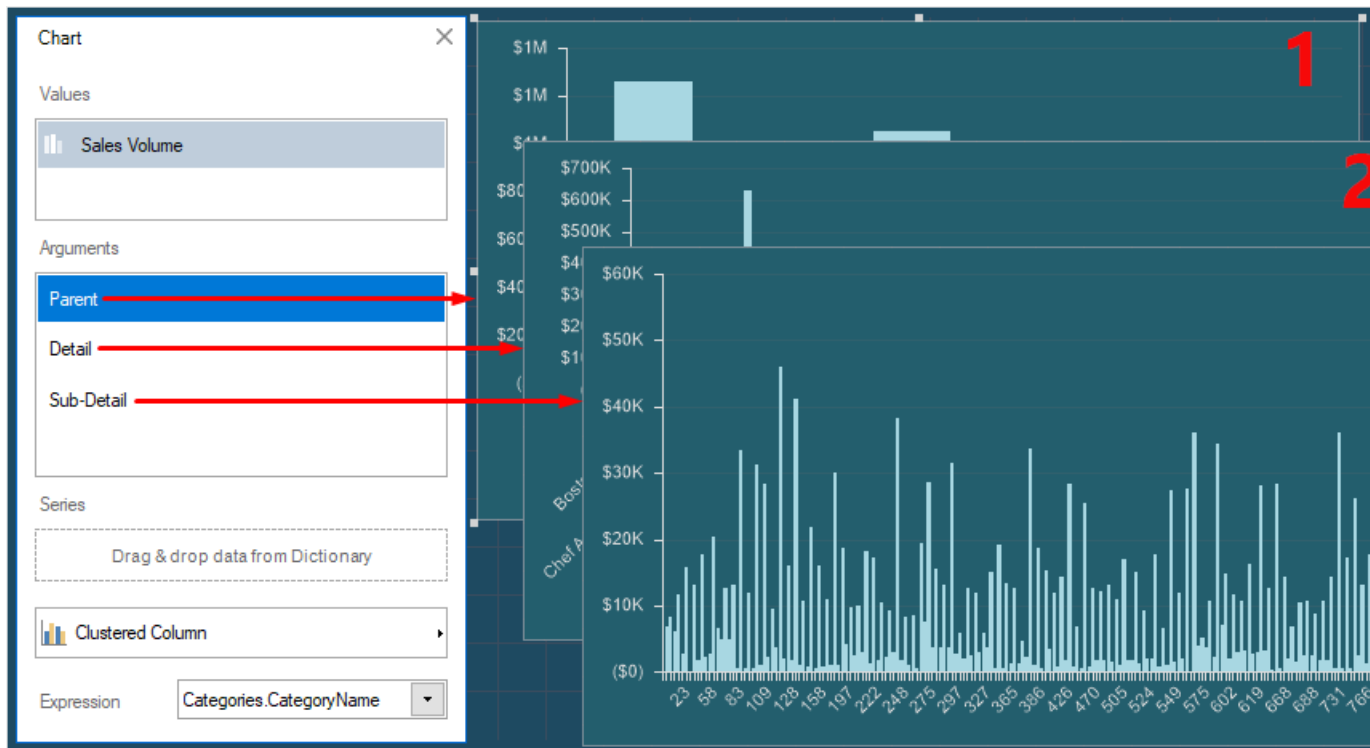
Up button to return to the previous level in the data hierarchy.



Drill down order for data fields

The order of the data fields in the chart arguments displays the drill-down hierarchy in a top-down direction. In other words, the top field is processed as the top level of the hierarchy, and each subsequent field is treated as the next level in the item hierarchy.

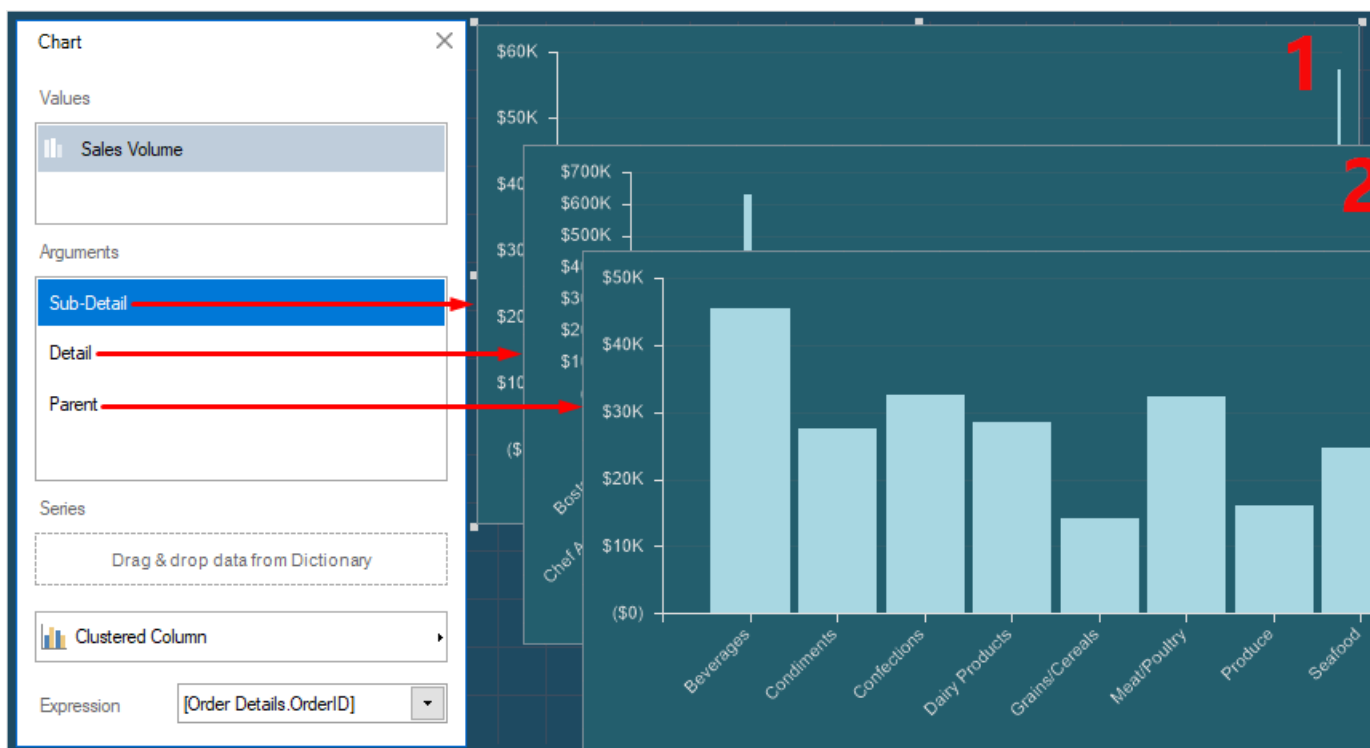
So, by changing the order of the data fields in the arguments, the hierarchy of the item drill down changes, but the data hierarchy does not change. To correctly displaying the data hierarchy in an element, you should follow the order of the data fields in the arguments: Up is the main data field, then the detailed data fields.



The numbers indicate the drill down levels of the dashboard element:

- 1 - sales by category;
- 2 - products sales from selected categories;
- 3 - sales by region for the selected products.

However, if you need to display detailed data first, and then go to the main ones, you can use any order of the data fields in the chart arguments.



The numbers indicate the drill down levels of the dashboard element:

- 1 - products sales by region;
- 2 - products sales from selected regions;
- 3 - sales volume by categories for the products selected on the previous level.

Table of interaction parameters

Name	Description
On Data Manipulation:	
Allow User Sorting	It allows you to select a data column of an element in the viewer by the values of which element data sorting will be carried out. If a box is checked next to this parameter, when hovering the cursor over an element, the sorting button will be displayed. If a box is unchecked, the sorting

	button will not be displayed when hovering the cursor over an element.
Allow User Drill-Down	It allows you to enable the drill down mode of element data. If a box is checked, data will be drilled. If a box is unchecked, drill down will not be carried out.
Allow User Column Selection	It allows you to enable the mode of column disable when viewing the Table item. If a box checked, in the viewer when hovering the cursor over, the control, which allows you to enable and disable columns of the Table item will be displayed. If a box is unchecked, the control for disabling table columns will not be displayed.
Drill-Down Filtered	It allows you to apply a filter having clicked on a value in the Table item, then drill data.
Full Row Select	It allows you to select a table row entirely using the cursor. If a box is checked, a row of an element will be selected entirely. If a box is unchecked, only the cell you click will be selected.
Layout:	
Show 'Full Screen'	It allows you to display the control, which helps you to view an element in the full screen mode. If a box is checked, the current control will be displayed for an element when hovering the cursor over it. If a box is unchecked, the current control will not be displayed.
Show 'Save'	It allows you to display the menu

	with the set of file formats into which the current element can be transformed. If a box is checked, the current control will be displayed for an element when hovering the cursor over it. If a box is unchecked, the current control will not be displayed.
Show 'View Data'	It allows you to display the control, which helps you to view used data columns in the current element. If a box is checked, the current control will be displayed for the element when hovering the cursor over it. If a box is unchecked, the current control will not be displayed.

5.20 Sorting

Read the following in this chapter:

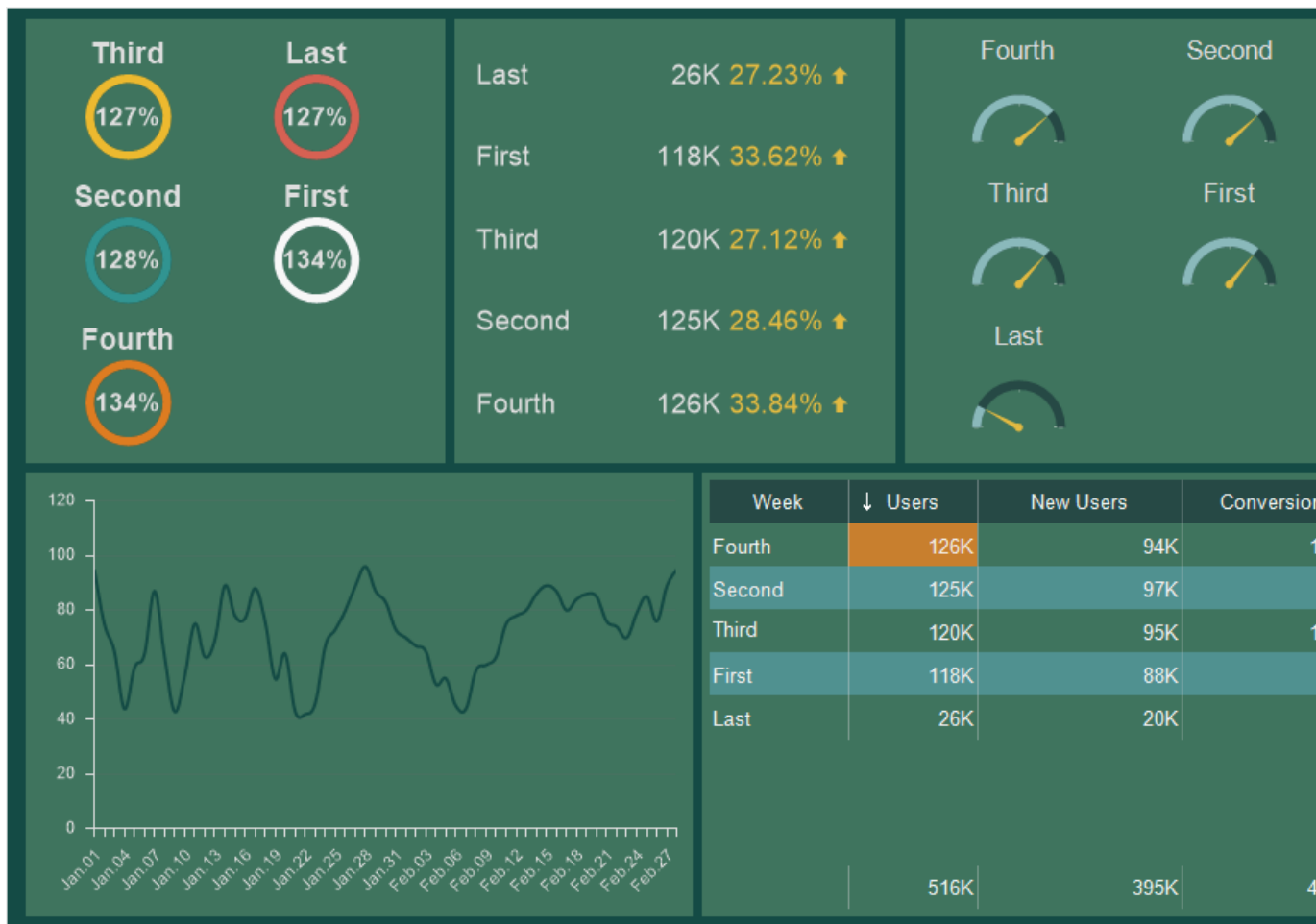
- › [Sorting in a Table](#);
- › [Sorting in a Chart](#);
- › [Sorting in an Indicator](#);
- › [Sorting in a Progress](#);
- › [Sorting in a Gauge](#).

When designing an analytical panel, you often need to sort data. You can do this in the following ways:

- › Create a sorted data source that will be used for elements of the dashboard;
- › [Sort data in data transformation](#);
- › Sort data in each item.

Sorting data in an element can be:

- › Preset, customized when you design the dashboard panel;
- › Interactive, when the user is viewing the dashboard panel, he/she can change the sorting options.



You may set up data sorting for the following items:

- › [Chart](#);
- › [Table](#);
- › [Indicator](#);
- › [Progress](#);
- › [Gauge](#).

Information

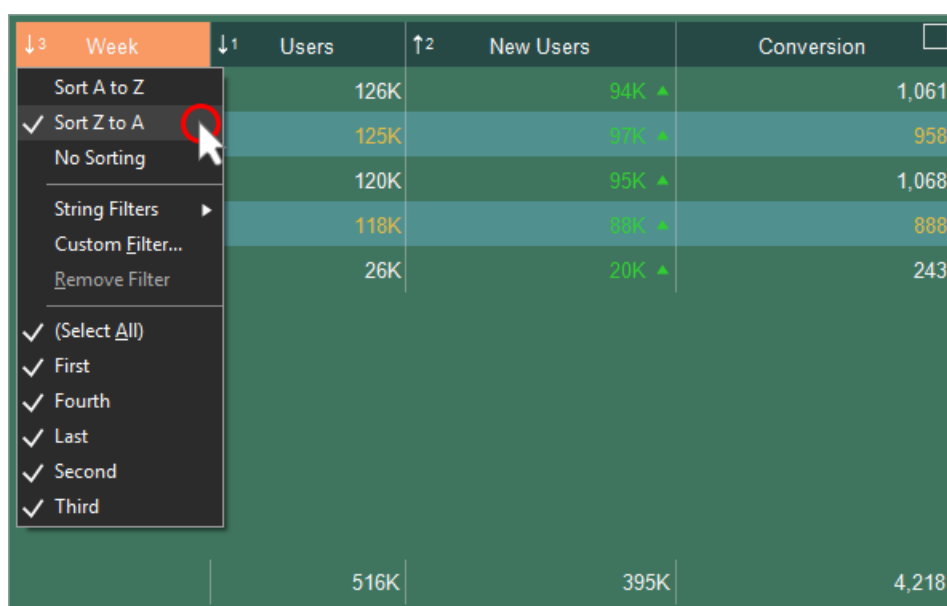
You may enable/disable interactive sorting in the [Interaction editor](#) of a dashboard element. To do this, you should:

- › Select an item;
- › Call the Interaction editor;
- › Enable the interactive sort button, or uncheck the box to disable the interactive

sort button for the **Allow User Sorting** option.

Sorting in a Table

Sorting data in a Table is the ordering of table rows by the values of a specific column. You can sort the data in the Table by one or more data columns. In this case, the sorting will be performed by the first column, then by the second, etc. Sort commands are located in the column header menu.



↓ ³ Week	↓ ¹ Users	↑ ² New Users	Conversion
Sort A to Z	126K	94K ▲	1,061
✓ Sort Z to A	125K	97K ▲	958
No Sorting	120K	95K ▲	1,068
String Filters	118K	88K ▲	888
Custom Filter...	26K	20K ▲	243
Remove Filter			
✓ (Select All)			
✓ First			
✓ Fourth			
✓ Last			
✓ Second			
✓ Third			
	516K	395K	4,218

In the column title menu, you may select the sort direction for the values of the current. If None is selected, then sorting by the values of the current column will not happen.

Sorting in a Chart

Sorting data can be performed for each data field that is used in the Chart. To specify sorting in the Chart, you should:

- Press the Sort button on the current item;
- Select a data field by the values of which sorting will be performed;
- Select the direction of sorting.



Information

Please note that sorting in the Indicator, Progress, Gauge is possible only if **Series** of elements are specified.

Sorting in an Indicator

Sorting data can be performed for each data field that is used in the Indicator. To set the sorting in the Indicator, you should:

- Press the Sort button on the current item;
- Select a data field by the values of which sorting will be performed;
- Select the direction of sorting.

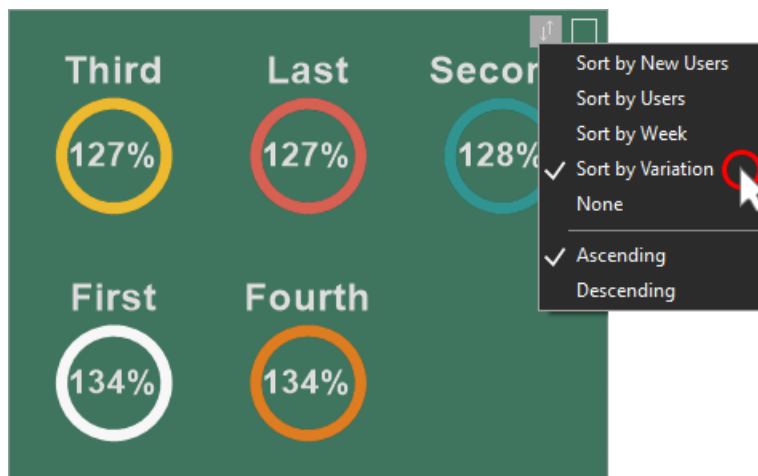
Fourth	126K	33.84%
First	118K	33.62%
Second	125K	28.46%
Last	26K	27.23% ↑
Third	120K	27.12% ↑

A sorting menu is open over the table, showing options: 'Sort by New Users', 'Sort by Users', 'Sort by Week', 'Sort by Variation' (checked), 'None', 'Ascending', and 'Descending' (checked). A red circle highlights the 'Sort by Variation' option.

Sort in a Progress

Sorting data can be performed for each data field that is used in the Progress. To specify sorting in the Progress, you should:

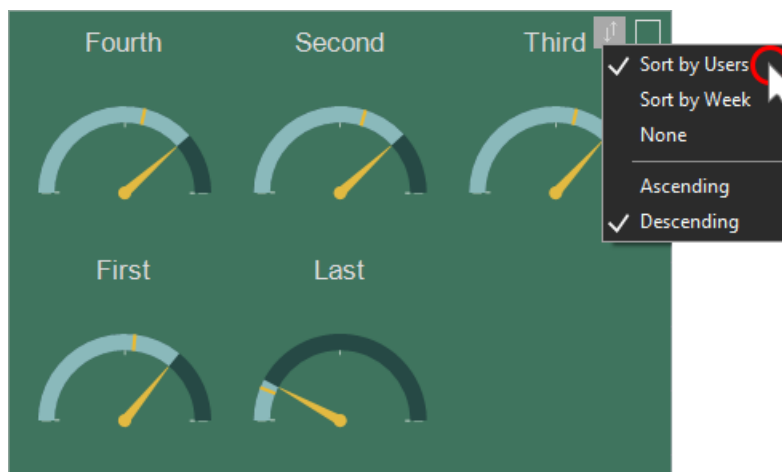
- Press the Sort button on the current item;
- Select a data field by the values of which sorting will be performed;
- Select the direction of sorting.



Sort in a Gauge

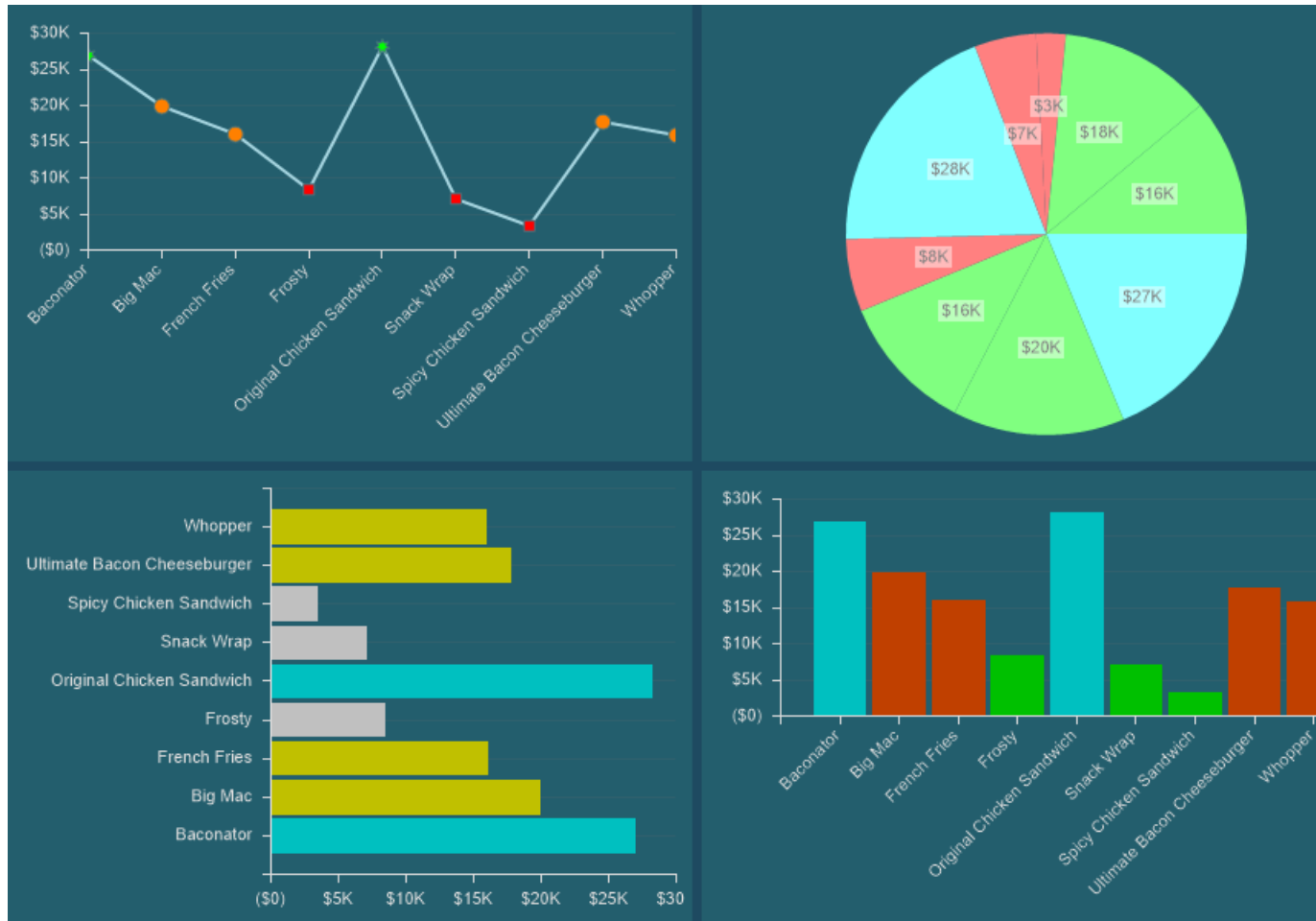
Sorting data can be performed for each data field that is used in the Gauge. To specify sorting in the Gauge, you should:

- Press the Sort button on the current item;
- Select a data field by the values of which sorting will be performed;
- Select the direction of sorting.



5.21 Conditions

Conditional formatting is used to highlight information in a certain color.



This chapter will cover the following:

- › [Condition editor](#);
- › [Condition parameters of Table](#);
- › [Condition parameters of Chart](#);
- › [Condition parameters of Pivot Table](#);
- › [Condition parameters of Indicator](#);
- › [Condition parameters of Progress](#);
- › [Terms of using conditions](#);
- › [Table of condition operations](#).

Conditional formatting can be applied to the following elements of the dashboards:

- [Chart](#);
- [Pivot](#);
- [Indicator](#).

Conditional formatting is configured in the condition editor. To call this editor, you should:

- Select an element on the dashboard panel;
- Click the **Condition** button on the **Home** tab in the report designer.

Condition editor

In the editor, conditions can be added, configured, moved and deleted.

- ❶ The **Add Condition** button is used to add a new condition to the list of conditions.
- ❷ The **Remove Condition** button is used to remove the selected condition from the list.
- ❸ Buttons to move up or down the selected condition in the list of conditions.

Information

All conditions are processed sequentially in the direction from top to bottom - the

higher is the condition in the list, the earlier it is processed and applied. To move a condition above or below the others, you should place the cursor, hold down the left cursor button and drag the cursor up or down. See the details [how to apply the conditions](#).

Condition parameters of Table

For each new condition, you should specify the parameters of its applying. The color will be applied to the specific value of the selected data columns if the condition is executed.

The diagram shows a form for defining table conditions with the following fields and callouts:

- 1**: Data Field (dropdown menu)
- 2**: Data Type (dropdown menu)
- 3**: Condition (dropdown menu)
- 4**: Value (text input field)
- 5**: Value (dropdown menu)
- 6**: Destination (dropdown menu)
- 7**: Formatting menu (icon with three horizontal lines)
- 8**: Font style buttons (B, I, U, abc)
- 9**: Fore Color (color selection dropdown)
- 10**: Back Color (color selection dropdown)

- ❶ The **Field Is** parameter is used to specify the data field from which the source values will be obtained.
- ❷ The **Data Type** parameter is used to specify the type of condition values.
- ❸ The **Condition** parameter is used to specify the [condition operation](#), which means the operation of logical comparison of the initial value of the series and the value of the condition.
- ❹ The **Value** parameter is used to specify a condition value.
- ❺ The parameter, which allows you to initialize a condition value as **Value** or **Expression**. If this parameter is defined as **Expression**, the condition value will be the result of calculation this expression.
- ❻ The **Destination** parameter allows you to define table columns which values should be formatted, if a condition is executed.
- ❼ The menu of formatting settings. In this menu, you should check the conditional formatting options to be applied to the table values, in case the condition is executed.
- ❽ The commands that allow you to define a font style in a table cell, if the condition is executed.
- ❾ The parameter, that allows you to specify text color for values when a condition is executed.
- ❿ The parameter, that allows you to specify back color for table cells when a condition is executed.

Condition parameters of Chart

For each new condition, you should specify the parameters of its applying. The color will be applied to the specific value of the element if the condition is executed.

The image shows a configuration window for chart conditions. It contains several dropdown menus and an input field, each labeled with a number in a yellow circle. 1. 'Field Is' dropdown menu with 'Resolved' selected. 2. 'Data Type' dropdown menu with 'Numeric' selected. 3. 'Condition' dropdown menu with 'equal to' selected. 4. 'Value' input field with '65' entered. 5. 'Value' dropdown menu with 'Value' selected. 6. 'Color' dropdown menu with a blue color swatch and the hex code '#0070C0' selected.

- 1 The **Field Is** parameter is used to specify the data field from which the source values will be obtained.
- 2 The **Data Type** parameter is used to specify the type of condition values.
- 3 The **Condition** parameter is used to specify the [condition operation](#), which means the operation of logical comparison of the initial value of the series and the value of the condition.
- 4 The **Value** parameter is used to specify a condition value.
- 5 The parameter, which allows you to initialize a condition value as **Value** or **Expression**. If this parameter is defined as **Expression**, the condition value will be the result of calculation this expression.
- 6 The **Color** parameter is used to specify the color that will be applied to the value of the element when the condition is executed.

Information

For line charts, two additional options will be displayed:

- Marker Type is used to change the type of a marker when the condition is executed;
- Angle is used to rotate the marker to the right (positive value) or left (negative value).

Condition parameters of Pivot Table

For each new condition, you should specify the parameters of its application and design settings. Design settings will be applied to the cells of the pivot table, if the condition will be executed.

The screenshot shows a configuration window for conditional formatting. It is divided into two main sections. The top section contains four fields: 'Field Is' (1) with a dropdown menu showing 'UnitPrice', 'Data Type' (2) with a dropdown menu showing 'Numeric', 'Condition' (3) with a dropdown menu showing 'greater than', and 'Value' (4) with a text input field containing '3'. The bottom section contains a preview panel (5) showing a teal box with the text 'AaBbCcYyZz', a 'Font' section (10) with a dropdown menu showing 'Arial', a 'Font Size' (11) dropdown menu showing '10', an 'Icon' (12) dropdown menu showing 'Right', and an 'Icon Type' (13) dropdown menu showing a dollar sign. Below the preview panel are several formatting options: 'B' (6), 'I' (7), 'U' (8), 'A' (9), and a color selection box (14). The entire interface is surrounded by a red border, and each numbered callout points to a specific element.

- 1 The **Field Is** parameter. It is used to specify the field from which the initial values will be taken – from the field of rows, columns or totals. You should know that, depending on the selected field, conditional formatting will be applied to its values. If the total field is selected, formatting will be applied to the values of the current field in the pivot table. If a row or column field is selected, formatting will be applied to the row or column headings, respectively.
- 2 The **Data Type** parameter. It is used to specify the type of condition values. This parameter affects how the report engine handles the condition. Also, the list of condition operations depends on this parameter.
- 3 The **Condition** parameter. It is used to specify the [condition operation](#), the operation of a logical comparison of the initial value from the data field, and the value from the condition.
- 4 The **Value** parameter. It is used to specify a condition value.
- 5 The preview panel for the conditional formatting value, when the condition is executed.
- 6 Commands with which you can specify the font style in the cell of the pivot table when the condition is executed.
- 7 The **Fore Color** option. It is used to specify the text color of the cell in the pivot table to which conditional formatting will be applied.
- 8 The **Back Color** parameter. It is used to specify the background color of the cell in the pivot table to which conditional formatting will be applied.
- 9 Formatting settings menu. You should check the conditional formatting parameters that must be applied to the values of the pivot table if the condition is executed.
- 10 The **Font** parameter. It is used to specify the font family for the pivot table cell to which the conditional formatting will be applied.
- 11 The **Font Size** parameter. It is used to set the font size in the cell of the pivot table to which the conditional formatting will be applied.
- 12 The **Icon** parameter. It is used to enable and locate the icon relative to the value in the cell in the pivot table to which the conditional formatting will be applied.
- 13 The **Icon Type** parameter. It is used to select a value icon from the list of

Stimulsoft icons. You can also load a custom value icon. To do this, click the **Browse** button and select the icon from the repository.

14 The **Icon Color** option. It is used to specify the color of the icon for values.

Also, when using the conditions of the pivot table, you should take into account the procedure for applying conditions. Below is a step-by-step example of using conditional formatting in a pivot table.

Condition parameters of Indicator

For each new condition, you should specify the parameters of its application and design settings. Design settings will be applied to the indicator values if the condition is executed.

The screenshot shows the 'Condition parameters of Indicator' dialog box. It is divided into two main sections. The top section contains three fields: 'Field Is' (1) with a dropdown menu showing 'Value', 'Condition' (2) with a dropdown menu showing 'greater than', and 'Value' (3) with a text input field containing '0'. The bottom section contains a 'Format' (4) group with a 'Font' (5) dropdown menu showing 'Arial', a 'Font Size' (9) dropdown menu showing '8', and a 'Font Style' (6) group with buttons for Bold (B), Italic (I), Underline (U), and a color picker (7). Below the font settings are two color pickers: 'Icon Color' (8) and 'Target Icon Color' (11). The 'Icon' (10) group contains a 'Right' dropdown menu, a 'Target Icon' dropdown menu, and a 'Color' dropdown menu showing a green color. The 'Target Icon' group contains a 'Right' dropdown menu and a 'Color' dropdown menu showing a red color.

- 1 The **Field Is** parameter is used to specify the field from which the initial values will be taken: from the value field, target, series etc.
- 2 The **Condition** parameter is used to specify the [condition operation](#). This is the operation of logical comparison of the initial value from the data field and the value from the condition.
- 3 The **Value** parameter is used to specify a condition value.
- 4 Format settings menu. In this menu, you should check the conditional formatting parameters that must be applied to the indicator, if the condition is executed.
- 5 The **Font** parameter is used to specify a font family for indicator values.
- 6 Commands using which you can specify the font style in the indicator.
- 7 The **Fore Color** option is used to specify the color of the indicator value.
- 8 The **Back Color** parameter is used to specify the background color of the indicator.
- 9 The **Font Size** parameter is used to set the font size of indicator values.
- 10 The **Icon group** of parameters is used to change the appearance of the value icon, its position and color.
- 11 The **Target Icon** group of parameters is used to change the appearance of the

relative value icon, its position and color. You should know that the color of the target icon will also be applied to the deviation value.

Also, when using the indicator conditions, the procedure for [applying the conditions](#) should be considered. Below is a [step-by-step example of using conditional formatting for an indicator](#).

Condition parameters of Progress

For each new condition, you should specify the parameters of its application and design settings. Design settings will be applied to the progress values if the condition is executed.

The image shows a dialog box titled 'Condition parameters of Progress'. It contains several fields and options, each numbered with a yellow circle:

- 1**: 'Field Is' dropdown menu, currently set to 'Value'.
- 2**: 'Condition' dropdown menu, currently set to 'equal to'.
- 3**: 'Value' text input field, containing the number '85'.
- 4**: A group of format settings including a font color icon, bold (B), italic (I), underline (U), text color (abc), and a font style icon (A).
- 5**: The 'Color' dropdown menu, currently set to green.
- 6**: The 'Track Color' dropdown menu, currently set to red.
- 7**: The 'Color' dropdown menu (repeated from 5).
- 8**: The 'Track Color' dropdown menu (repeated from 6).

- 1 The **Field Is** parameter is used to specify the field from which the initial values will be taken: from the value field, target, series etc.
- 2 The **Condition** parameter is used to specify the [condition operation](#). This is the operation of logical comparison of the initial value from the data field and the value from the condition.
- 3 The **Value** parameter is used to specify a condition value.
- 4 Format settings menu. In this menu, you should check the conditional formatting parameters that must be applied to the progress, if the condition is executed.
- 5 Commands using which you can specify the font style in the progress.
- 6 The **Fore Color** option is used to specify the color of the progress value.
- 7 The **Color** parameter allows you to define the color of the progress value, which will be applied when a condition is executed.
- 8 The **Track Color** parameter allows you to define progress track color, which will be applied when a condition is executed.

Terms of using conditions

All conditions are processed sequentially, in the "from top to down" direction in the list of conditions. When creating multiple conditions for a single element, logical operations should be considered.

Considering the [logical operation](#) of the condition and the value of the condition, a range of element values is formed to which formatting will be applied. For example, a condition operation is less than, a condition value is 3. Therefore, formatting will be applied to all element values that are less than 3.

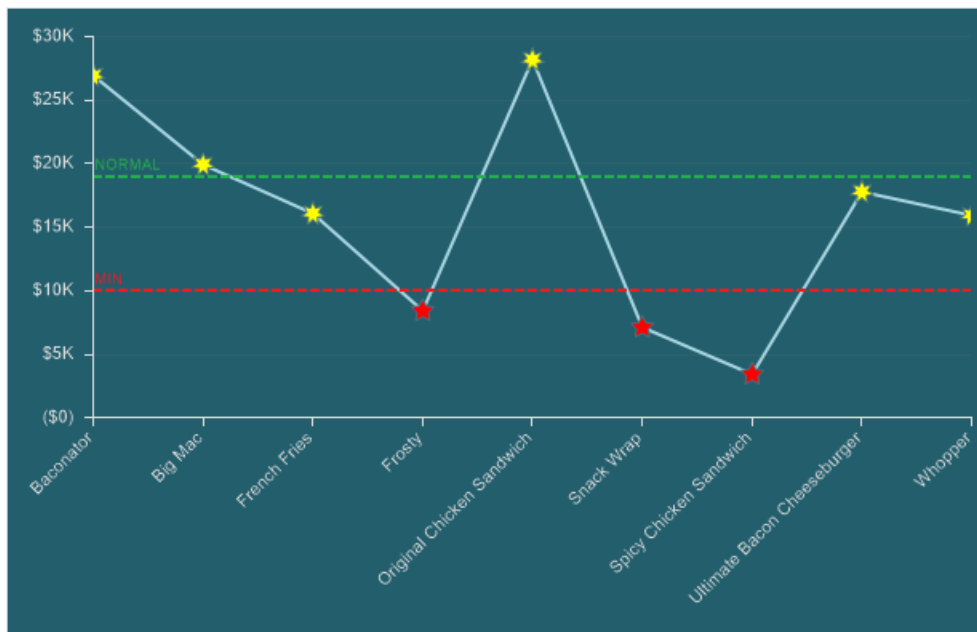
For the [example discussed bottom](#), change the order of the conditions - move the condition of maximum values (green color) above the average values (yellow color).

The screenshot shows a 'Conditions' dialog box with three conditions listed. Each condition is defined by a field, data type, condition, value, color, marker type, and marker angle.

Field Is	Data Type	Condition	Value	Color	Marker Type	Marker Angle
Sales	Numeric	less than	10000	#FF0000	Star 5	0
Sales	Numeric	greater than	19000	#00B050	Star 6	0
Sales	Numeric	greater than	10000	#FFFF00	Star 7	0

At the bottom of the dialog box, there are 'OK' and 'Cancel' buttons. The 'OK' button is highlighted with a blue border.

And then, there will be no values indicated in green on the chart.



This will happen because:

Step 1: The report engine will analyze all the values of the selected data field;

Step 2: Apply a red color to all values that are less than 10,000.

Step 3: Apply a green color to all values that are greater than 19,000.

Step 4: Apply a yellow color to all values that are greater than 10,000. Values greater than 19,000 fall into the range of values of the last condition, and formatting will be applied to them.

Therefore, when using conditions in the elements of the dashboard, it is important to track the logical operations of the conditions and their order in the list of conditions.

Table of Operations

The list of available operations depends on the data type. Below is a list of operations for each data type and their description. The operation is performed on the value from the data field and the condition value (the value that is specified in the condition).

Name	Data Type is String	Data Type is Number	Data Type is Data	Data Type is Boolean	Description
equal to	+	+	+	+	If the data field value is equal to the condition value, then the condition is true.
not equal to	+	+	+	+	If the data field value is not equal to the condition value, then the condition is true.
between	+	+	+		If the data field

					value is in the specific range of condition values , then the condition is true.
not between	+	+	+		If the data field value is not in the specific range of condition values , then the condition is true.
greater than	+	+	+		If the data field value is

					greater than the condition value, then the condition is true.
greater than or equal to	+	+	+		If the data field value is greater than the condition value of equal to the filter value, then the condition is true.
less than	+	+	+		If the data field value is less than

					the condition value, then the condition is true.
less then or equal to	+	+	+		If the data field value is less then the condition value of equal to the filter value, then the condition is true.
containing	+				If the data field value contains the condition value,

					then the condition is true.
not containing	+				If the data field value does not contain the condition value, then the condition is true.
beginning with	+				If the data field value starts with the condition value, then the condition is true.
ending with	+				If the data

					field value ends with the condition value, then the condition is true.
is blank	+				If the data field value is blank, then the condition is true.
is not blank	+				If the data field value is not blank, then the condition is true.
is null	+	+	+		If the data field

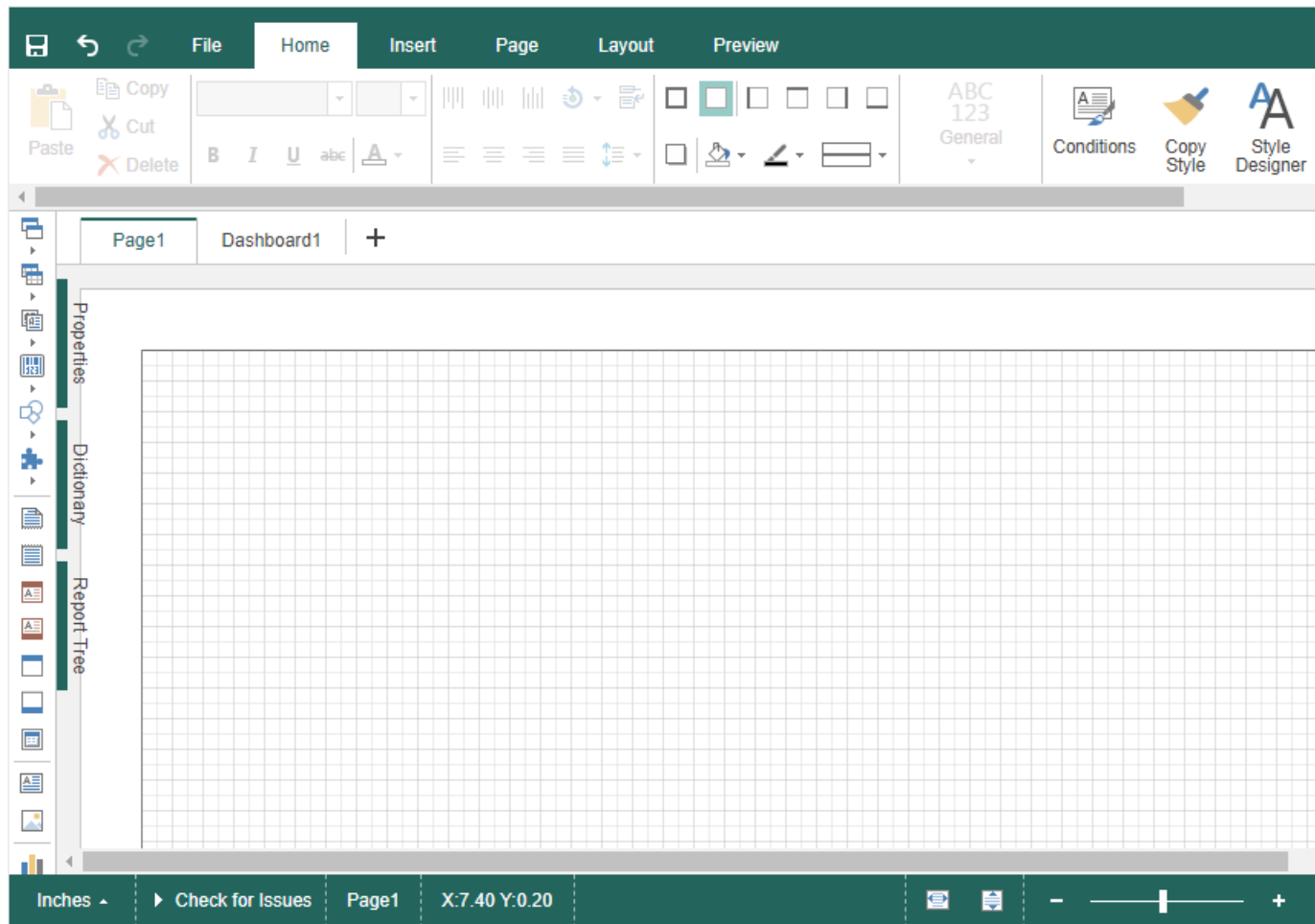
					value is null, then the condition is true.
in not null	+	+	+		If the data field value is not null, then the condition is true.

6 Report Designer

Information

The report designer supports the execution of various commands when pressing keys or key combinations. For more details, you can refer to the chapter on [hotkeys](#), which provides a comprehensive list of available shortcuts.

The Report Designer is a standalone application that is part of the **Stimulsoft Reports** product. This application is designed for creating, modifying, and publishing reports and dashboards. The designer's interface provides users with a vast set of tools, components, elements, and features for report and dashboard development, visual styling, and previewing. The **Ribbon** interface of the Report Designer is based on tabbed navigation. Commands and tools are grouped into tabs, reducing the number of toolbars displayed simultaneously in the designer window.



The key elements of the Report Designer interface include:

- Ribbon panel with tabs: [Home](#), [Insert](#), [Page](#), [Layout](#), [Preview](#);
- [File menu](#);
- Panels: [Properties](#), [Data dictionary](#), [Tree](#), [Toolbox](#);
- Report template;
- [Status bar](#);

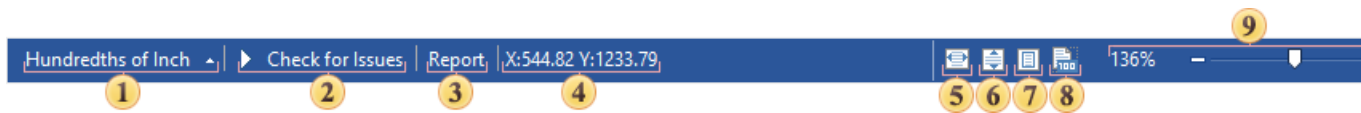
Additionally, the report designer includes:

- [Context menu](#) for components or elements;
- [Component layout wizard](#);
- [Component drag-and-drop wizard](#).

Status Bar

The Status Bar is located at the bottom of the Report Designer window and contains

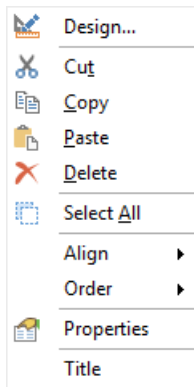
various control elements and commands.



- ❶ A control element that allows users to change the measurement units in the report. Clicking on it displays a list of available measurement units;
- ❷ A command to initiate a report check. More details about the report inspector can be found in the [corresponding section](#);
- ❸ A field displaying the name of the selected component or element;
- ❹ A field showing the cursor coordinates on the report template page or dashboard, as well as the coordinates and dimensions of the selected component or element. The coordinate origin (X:0,0 and Y:0,0) corresponds to the top-left corner of the component or element;
- ❺ A command to set the zoom level so that the report page or dashboard fits the width of the report template area;
- ❻ A command to set the zoom level so that the report page or dashboard fits the height of the report template area;
- ❼ A command to set the zoom level so that the report page or dashboard fits both width and height within the report template area;
- ❽ A command to set the zoom level to 100% for the report page or dashboard;
- ❾ A control element for adjusting the zoom level of the report page or dashboard;

Context menu

The **Context Menu** is a menu that appears when the secondary button of an input device is clicked. This menu displays duplicate commands for managing the component or element under the cursor at the time of the menu activation. The availability and content of the context menu depend on the type of component or element.



Components placement wizard

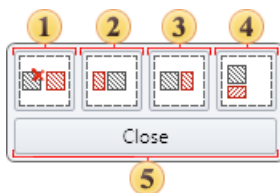
When dragging components from the dictionary, toolbox, or any other container onto bands in the report template, if the component's boundaries extend beyond the band's borders, the **Components Placement Wizard** will be triggered. This wizard allows users to define the placement of the component within the current band.



- 1 Moves the component to the left side of the free space, stretching it vertically to fill the available height;
- 2 Moves the component to the right side of the free space, stretching it vertically to fill the available height;
- 3 Closes the **Components Placement Wizard** window.

Drag-and-Drop Wizard

When one text component is placed over another, the **Drag & Drop Wizard** is activated. This wizard allows users to choose how to arrange the content of the two components.



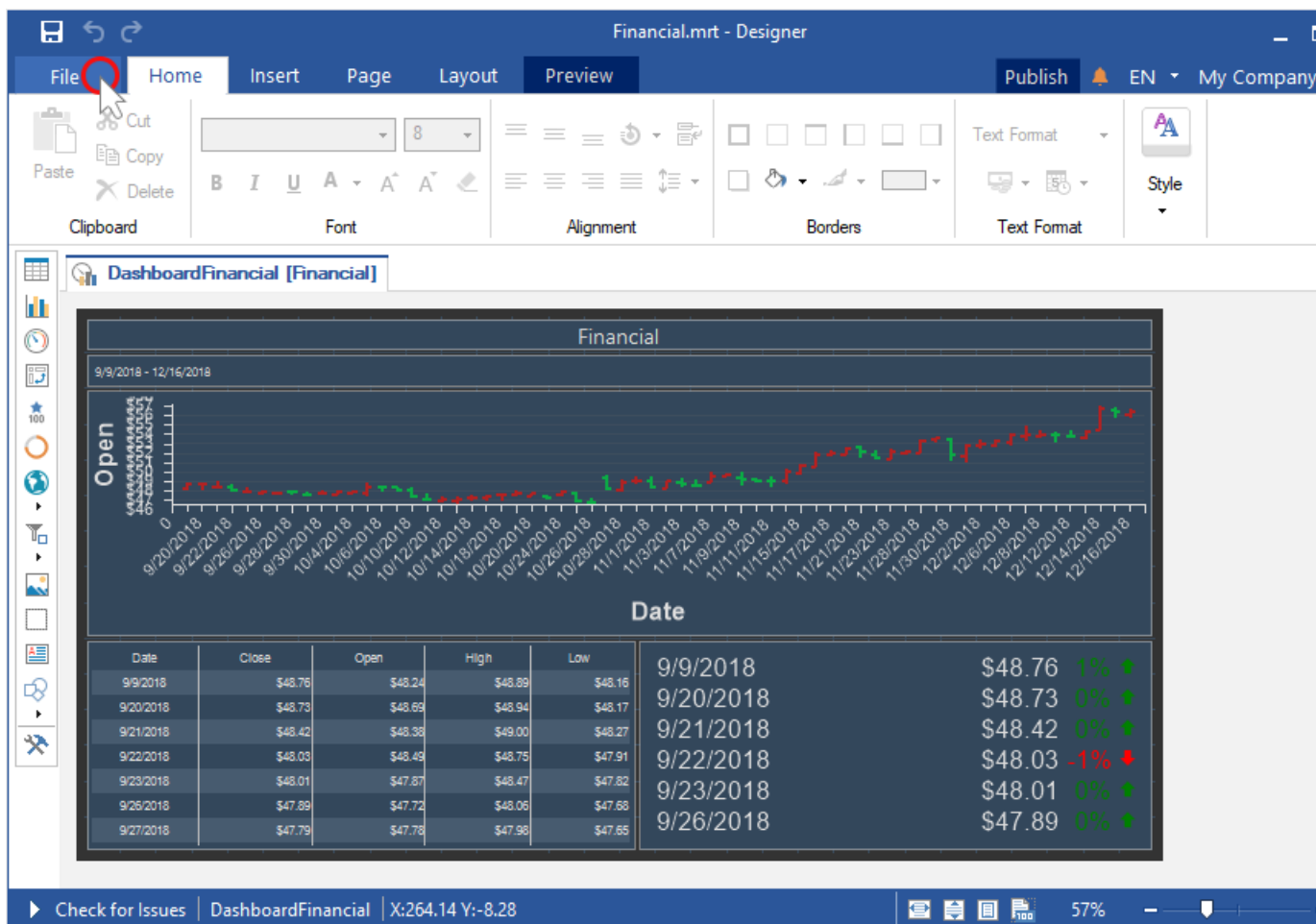
- 1 Replaces the expression in the text component originally in the report template

with the expression from the dragged text component;

- ② Inserts the expression from the dragged text component before the expression of the current component;
- ③ Inserts the expression from the dragged text component after the expression of the current component;
- ④ Inserts the expression from the dragged text component after the expression of the current component, on a new line;
- ⑤ The **Close** button closes the Drag & Drop Wizard window.

6.1 File menu

The main element is the **File menu** and the menu that is called by pressing **File** button. This is a main menu of the report designer. Basic commands for work with reports in the report designer are represented in the menu. The picture below shows a menu of the application and its items.



- The [Info](#) menu item contains report options, protect report and check for issues commands.
- The [New](#) menu item contains submenu where a list of new report components is available for creation is shown.
- The [Open](#) menu item. When calling this menu item, a dialog for opening a report will appear.
- The [Save](#) menu item saves changes in a report. If a report was not changed previously, then the Save Report As menu item will be called automatically.
- The [Save As](#) menu item. When calling this menu item, a dialog for saving a report will appear.
- The [Preview](#) menu item. When calling this menu item, a report will be shown in the viewer.
- The [Scheduler](#) menu item contains create or set scheduler commands.
- The [Share](#) menu item. When calling this menu item, a dialog for sharing a report will appear.
- The [Publish](#) menu item. When calling this menu item, a dialog for publishing a report will appear.
- The [Help](#) menu item contains helper resources.
- The [Get Started](#) menu item. When calling this menu item, a menu for getting Stimulsoft Products will appear.
- The [Account](#) menu item contains submenu where you can control your team, subscriptions and account settings.
- The [Options](#) menu item calls a window for designer parameters settings.
- The [Close](#) menu item closes a report that is opened in the report designer.
- The [About](#) menu item. When calling this menu item, a menu for showing product information will appear.

6.1.1 Info

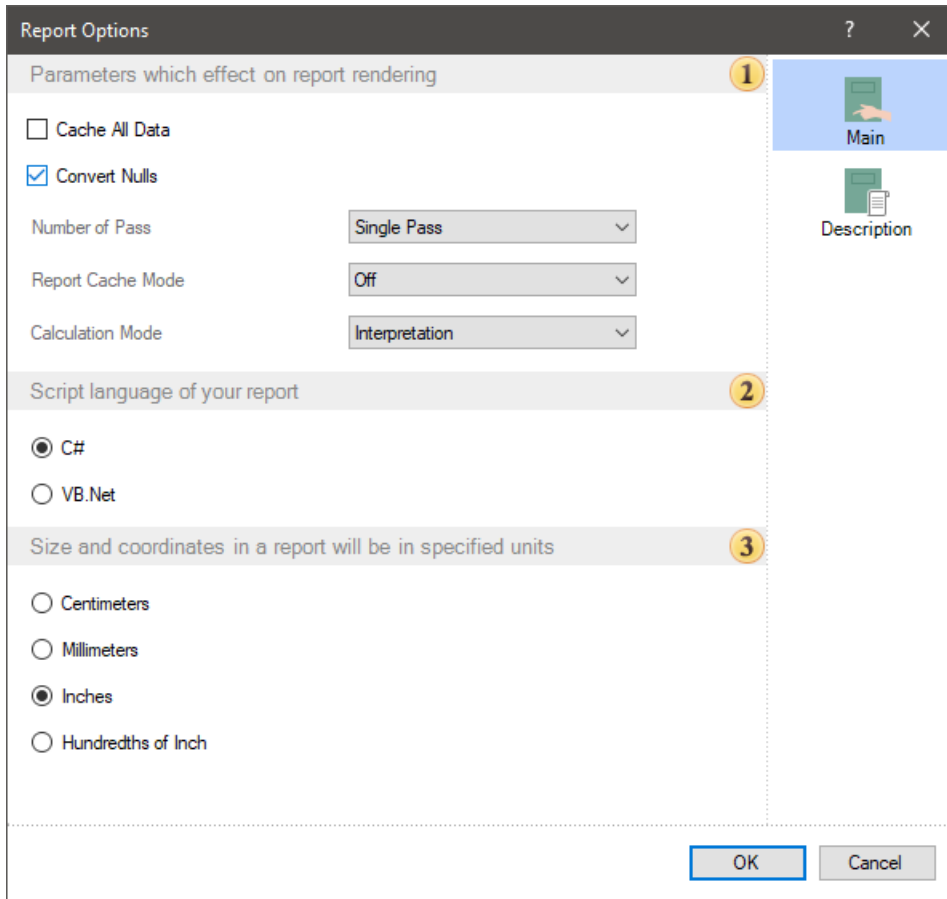
Important

Scripts can pose a security risk. Therefore, [calculation mode](#) is disabled in **Interpretation** mode. If you are confident in the security of the scripts, you can use them in **Compilation** mode.

The **Info** section in the [File](#) menu contains commands for configuring, checking, and protecting the current report.

Report Settings

Selecting this command opens a window where you can configure the report template. This window displays the report template properties along with their values.



- 1 Settings affecting report generation: Cache all data, Convert zeros, Number of passes, Cache mode, [Calculation mode](#).
- 2 Choosing the report script language.
- 3 Selecting measurement units for the report.

On the **Description** tab, you can specify the report name, alias, author, and description. Additionally, it displays the creation date and time, as well as the last modification date of the current report.

Password Protection

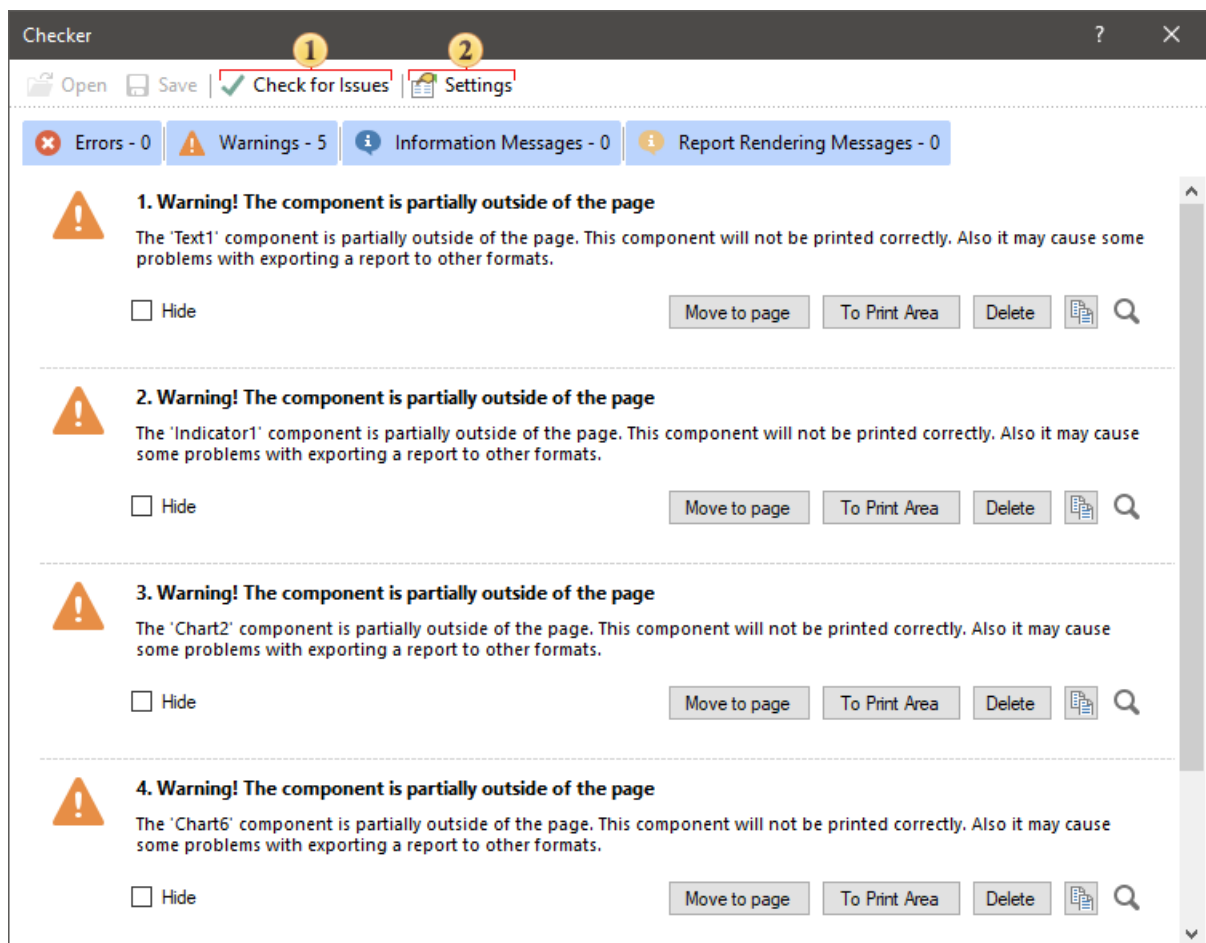
When developing and saving a report, you can protect the report file with a password. To do this:

- Open or create a report in the Report Designer;
- In the **Info** section, select **Protect Report**;
- Enter a password to protect the report file;
- Select [Save](#) or [Save As](#). The report will then be saved as an mrx file.

The file will be encrypted. To decrypt it—meaning, to open the report in the designer or viewer—you will need to enter the correct password.

Report Checker

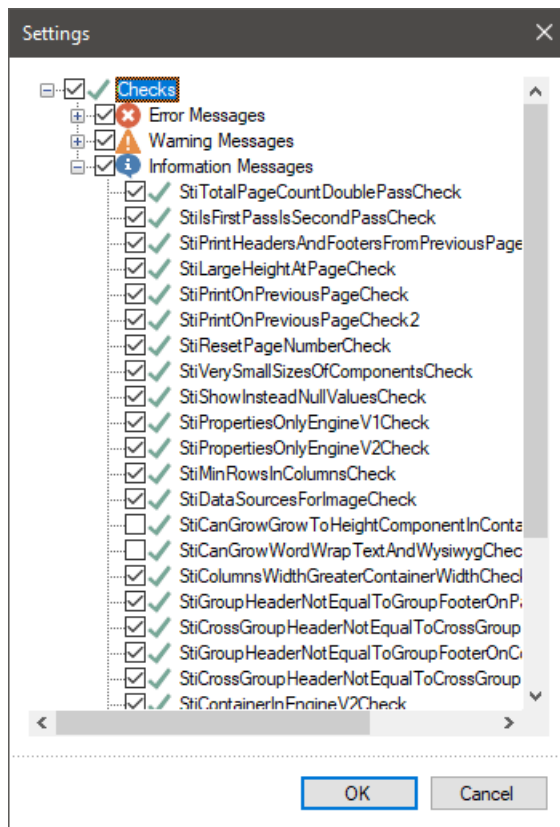
To check a report for errors, use the **Report Checker**. It analyzes the report and provides messages regarding errors, warnings, and inaccuracies found in the report.



- ➊ **Check for Issues** button starts the report validation process.
- ➋ **Settings** button opens the Report Checker settings window.
- ➌ Message panel categorizes messages into: **Errors, Warnings, Information Messages, Report Rendering Messages**. To enable or disable the display of a

specific type of message, click the corresponding button.

In the Report Checker Settings window, you can select which checks should trigger a message if they fail. If a checkbox for a specific validation is enabled, the Report Checker will include it in the validation process. If unchecked, that validation will be ignored.



Information

The Check for Issues command is also available on the status bar of the Report Designer.

6.1.2 New

The **New** section contains the following commands:

- The **Blank Report** command allows you to create a new report and open it in the designer;
- The **Blank Dashboard** command allows you to create a new dashboard and open it in the designer;

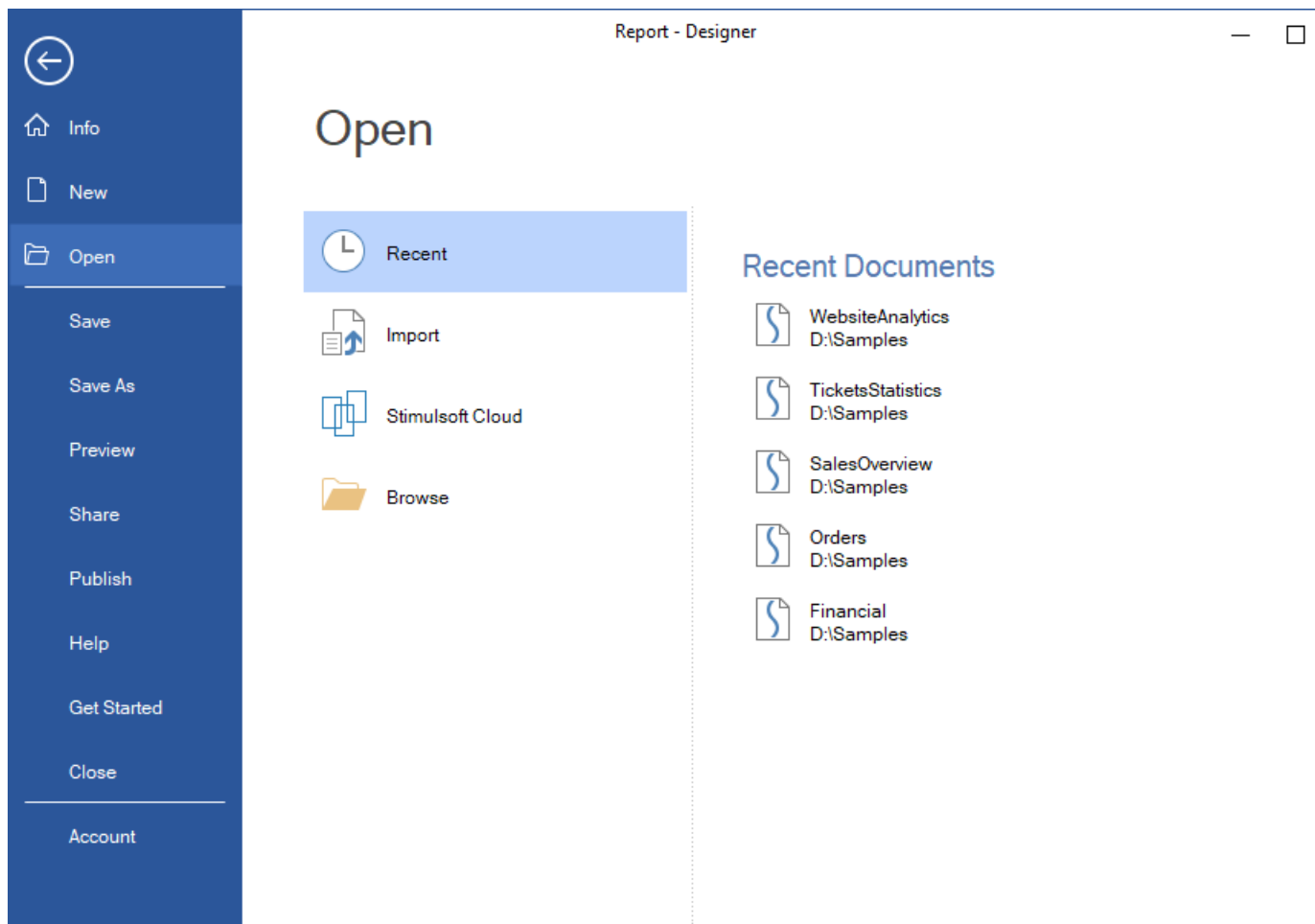
- The **Get Data** item allows you to create a new report or dashboard with or without demo data;
- A **Search Bar** enables you to find report and dashboard examples with demo data using a search query;
- The **Report Creation Wizards** are a set of wizards that allow you to configure templates step by step.

6.1.3 Open

YouTube

Watch our [video tutorial on importing reports from Crystal Reports](#). Subscribe to the [Stimulsoft channel](#) to be the first to learn about new tutorials. Leave your questions and suggestions in the video comments.

The **Open** section in the **File** menu contains commands for loading reports into the designer.

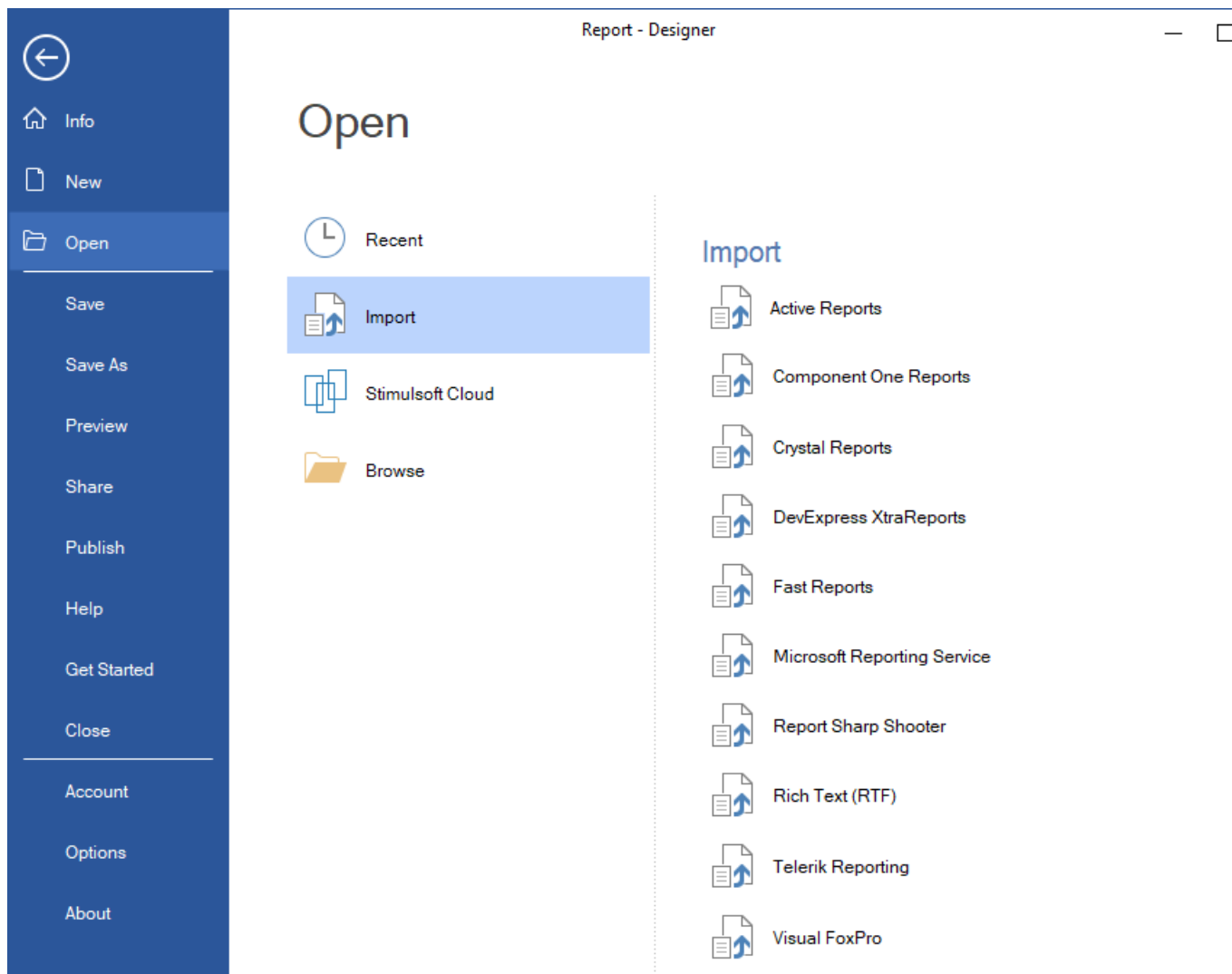


A report can be loaded into the Report Designer from:

- The **Recent** tab, which stores links to the most recently opened reports;
- Import from other report development platforms;
- [Stimulsoft Cloud Storage](#);
- The user's local storage.

Report Import

Stimulsoft Reports allows importing reports from other report development platforms. The import process can be done directly in the Report Designer or using the Import Utility. To import reports in the Report Designer, go to the **File** menu, select **Open**, then **Import**, and choose the platform from which you want to import the report.



All imports, except those from Crystal Reports and DevExpress XtraReports, are built-in. This means reports from these platforms can be opened directly in the designer. However, for Crystal Reports and DevExpress XtraReports, reports must first be converted using the Import Utility before being opened in **Stimulsoft Report Designer**.

Information

In some Report Designers, the **Import** option may be missing from the **Open** menu. In this case, you can use the Import Utility to import reports and then work with them in **Stimulsoft products**.

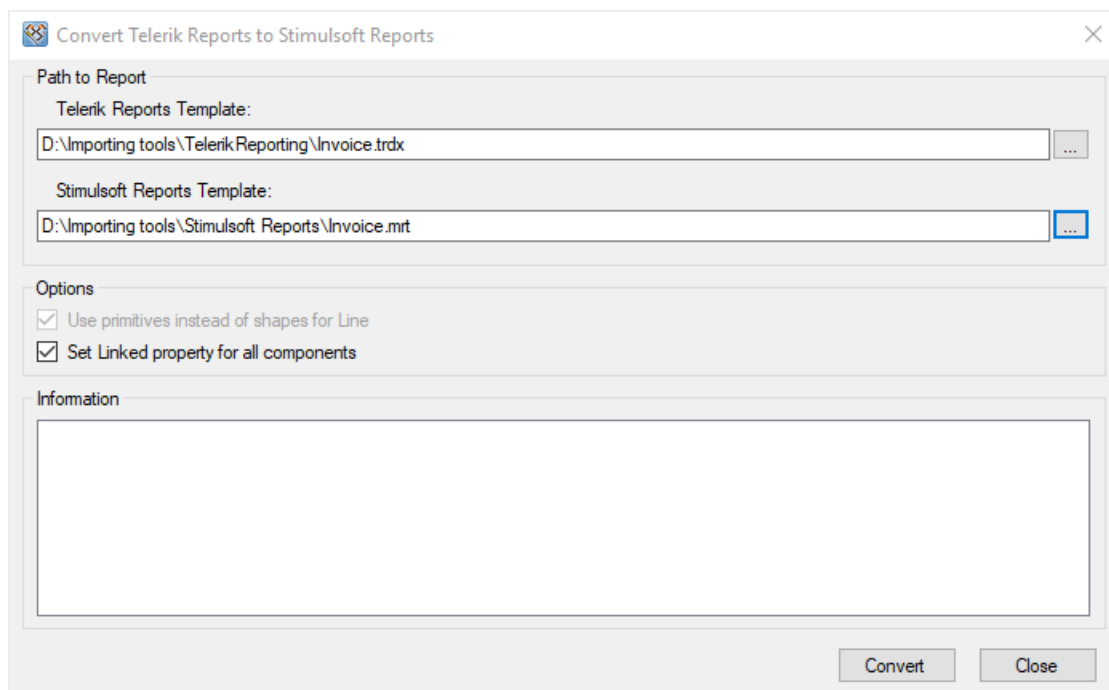
Run the Import Utility

With the help of import utilities, you can convert reports from other reporting tools. Every file type has its own import utility. To run the import utility, follow the steps below:

Step 1: Open the web browser and go to <https://github.com/stimulsoft/Importing.Tools>

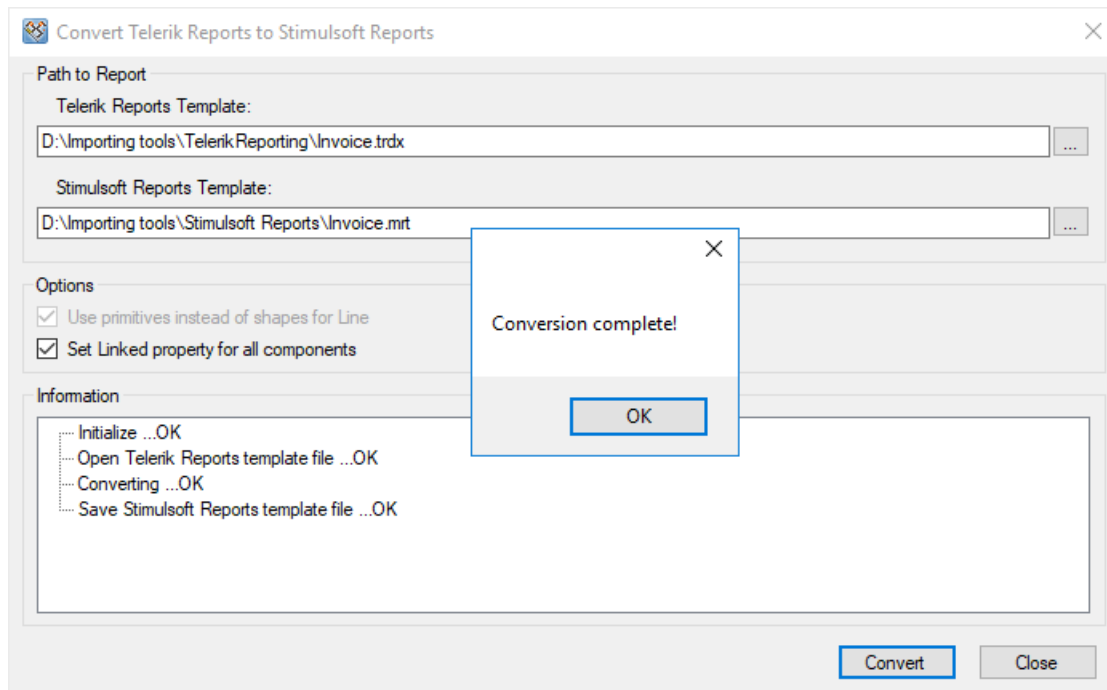
Step 2: Download the archive with the import projects and unpack it.

Step 3: Use the development environment, such as Visual Studio, to compile the project.



Step 4: Select the reports that you want to convert to Stimulsoft reports and specify the location where the converted report should be saved.

Step 5: Click the **Convert** button. The result of the conversion will be displayed to the user.



Use converted reports in **Stimulsoft products**.

Import Report from Crystal Reports

The utility converts the Crystal Reports templates (*.rpt-files) to the Stimulsoft Reports report templates format (*.mrt-files). The tool is supplied as the C# source code only and requires referencing of some Crystal Reports runtime libraries to be built successfully in Visual Studio 2010, .NET Framework 4.0 or higher. Please download the archive from the link below, unzip it and open in the Visual Studio. The project will be built successfully, once all the required dll libraries are referenced and found in Visual Studio.

Download the archive from the link below, extract its contents, and open the project in Visual Studio.

The project was created in a way that all the required assemblies would be automatically taken from the GAC (Global Assembly Cache). If *.dll libraries of Stimulsoft Reports are not in the GAC, they will be added to the project from NuGet automatically. If you do not have an Internet connection, you should manually add **Stimulsoft.Base.dll** and **Stimulsoft.Report.dll** to the project.

The Crystal Reports report templates' file format is a proprietary format. Therefore, the tool requires some Crystal Reports special managed assemblies. The tool interacts with these assemblies via some special Crystal Reports interfaces for the special Visual Studio managed dlls.

These assemblies are not always installed in the system together with Crystal Reports, usually the additional and an official installation of these assemblies is required in order for them to work correctly with the import tool.

For example, for Crystal Reports 2013 the Support Pack (developer version for VS: Updates & Runtime) is required and needs to be installed first, and only after that the import tool will be built successfully.

The current Crystal Reports version requires the additional installation of the 'SAP Crystal Reports runtime engine' (32 bit or 64 bit). The automatic installer will copy the required assemblies to the GAC. But this installer must be downloaded separately, it is not a part of the standard Crystal Reports installation package.

The project uses the following **Crystal Reports** assemblies:

- CrystalDecisions.CrystalReports.Engine
- CrystalDecisions.ReportAppServer.DataDefModel
- CrystalDecisions.ReportAppServer.ReportDefModel
- CrystalDecisions.Shared
- CrystalDecisions.Web
- CrystalDecisions.Windows.Forms

These assemblies are not included with the tool. The packages will not work if they are just referenced and copied to the project without the proper installation by the Crystal Reports' official installer first.

Please find the explanation of the required installations:

Operational system	Platform Target, CPU	Installation package requirements
Windows x32	Any CPU	'SAP Crystal Reports runtime engine 32 bit'.
Windows x64	Any CPU	'SAP Crystal Reports runtime engine 64 bit'.

Windows x64 + runtime engine x32bit	X86	not required
Windows x64 + runtime engine x32bit	Any CPU	'SAP Crystal Reports runtime engine 64 bit'.

The above mentioned installers can be downloaded using the following links:

<http://www.crystalreports.com/crvs/confirm/>

<http://downloads.businessobjects.com/akdlm/cr4vs2010/>

[CRforVS redistributable install 32bit 13 0 20.zip](#)

<http://downloads.businessobjects.com/akdlm/cr4vs2010/>

[CRforVS redistributable install 64bit 13 0 20.zip](#)

Please read more about the requirements of those additional installations in the official reply from the Crystal Reports:

<https://archive.sap.com/discussions/thread/3675145>

Run Crystal Reports on client machine without install runtime package?

No, the only way to make your app work is to run one of the redistributable packages on the user's PC. We don't support nor do we have a way to manually deploy the runtime. Too many Registry entries and registering of the dll's to do this manually.

Parameters of Import Utility

➤ Use primitives instead of shapes for the Line and the Box

If the flag is not enabled then the **Line** and the **Box** components will be converted to ordinary primitives (**shapes**, **VerticalLine/HorizontalLine**, and **Rectangle/RoundedRectangle**). If the flag is enabled then the **Line** and the **Box** components will be converted to special primitives (**VerticalLinePrimitive/HorizontalLinePrimitive** and **RectanglePrimitive/RoundedRectanglePrimitive**). When viewing/printing reports, there are no big differences between graphic and special primitives. Graphic primitives are exported as images when exporting. So it is easier to work with special primitives. But, due to **Crystal Reports** peculiarity, special primitives cannot work correctly on complex reports. This is why there is the ability to select the option.

➤ Use functions for Formula Fields

In each **Formula Field** either expression or a data string can be placed. Each

Formula Field is converted into the variable in the data dictionary. If the "**Use functions for Formula Fields**" flag is enabled, then the "**Function**" flag is set to variable. In other words, when report rendering, Stimulsoft Reports will use the value of a variable as an expression and will try to calculate the value of this expression. If the "**Use functions for Formula Fields**" flag is not enabled, then the value of a variable will be used as the data string.

Problems with conversion

One of the main problems in conversion is that not all object properties are available when working with managed dll. The second problem is the different reporting tools structures, such as data structures, work with bands etc. Therefore, it is not always possible to convert a report automatically, and it is required to correct a report manually.

> **DataBase:**

Crystal Reports often uses their internal libraries when working with data bases. It is possible to get only some properties from .NET and it is impossible to get `ConnectionString`. So, not all data bases can be identified. By default, for not identified data bases, the `StiOleDbDatabase` type and `ConnectionString` template without specifying the provider is used.

> **DataBases:**

In Crystal Reports, each report or subreport maintains its own separate data dictionary, which allows the same database to be represented differently across subreports. In contrast, Stimulsoft Reports utilizes a unified, global data dictionary, where all data sources are merged. If the same database appears multiple times across reports or subreports, duplicate entries are eliminated from the unified dictionary.

> **Image:**

For images, it is possible to retrieve their dimensions and positioning, but it is not possible to extract the image content itself (if the image is embedded within the template).

> **FormulaField:**

Expressions and formulas can be placed in these fields. On the current moment, parsing and syntax of these expressions are written "as is". So in many cases further manual correction is required.

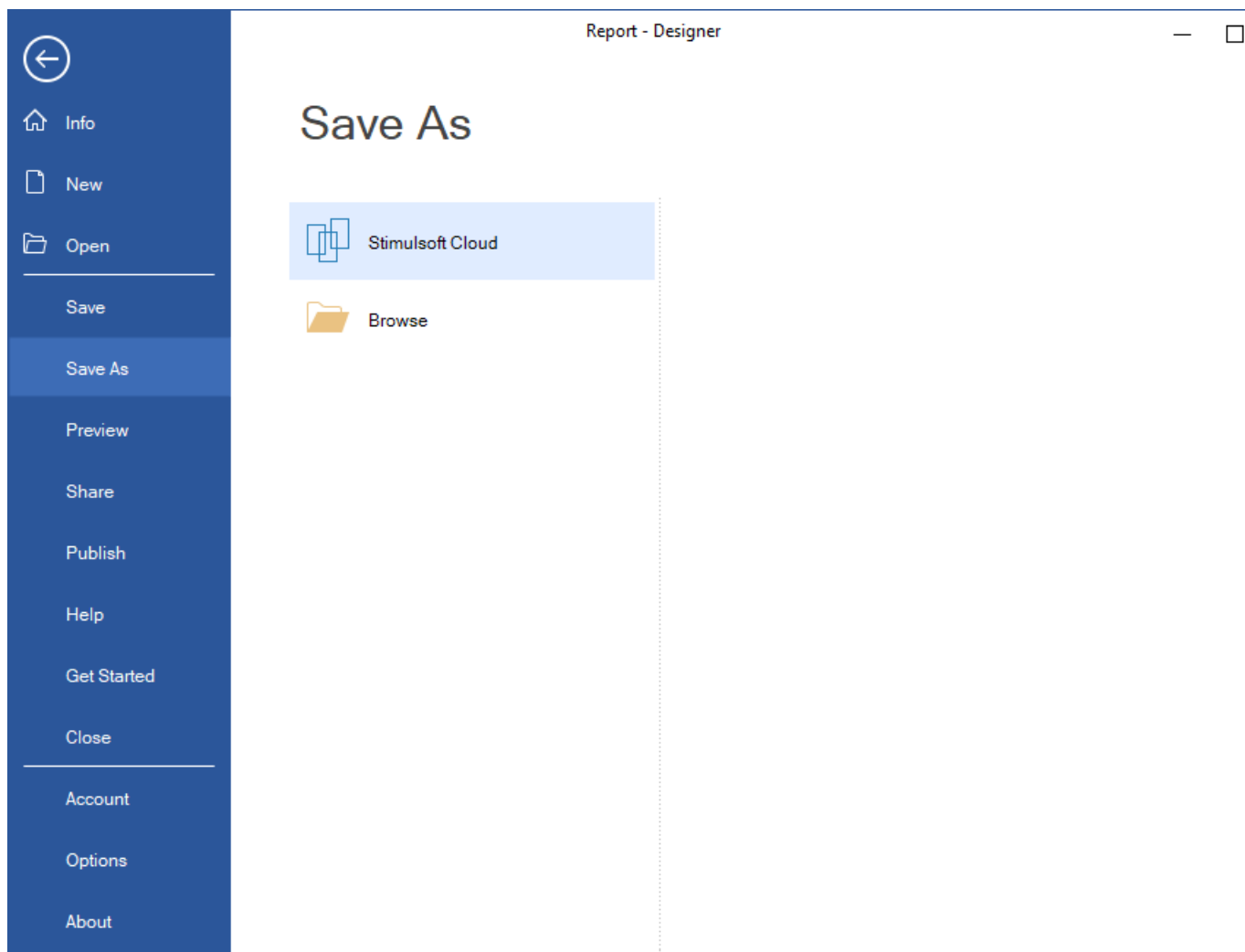
{Crystal Reports allows using expressions and formulas in FormulaFields. On the current moment parsing and syntax conversion cannot be done, expressions are written 'as is'. Therefore, in many cases, it is required further manual correction of expressions.}

Information

In Report SharpShooter v2.0+, the internal report template file format was changed, and the import utility was designed specifically for this new format. Older format files previously converted as blank reports. A minor improvement has been made, so they now convert partially. However, the best approach is to resave old reports in the new format before importing them.

6.1.4 Save and Save As

The **Save** and **Save As** options in the **File** menu allow users to save changes to a report. Selecting Save applies changes to the current report. If the report has not been saved before, the **Save As** command will be triggered. **Save As** provides multiple options for saving the report file.



A report can be saved to:

- [Stimulsoft Cloud Storage](#);
- Local Storage.

The report can be saved to local storage as:

- Report Template *.mrt (xml);
- Packed Report Template *.mrz;
- Encrypted Report Template *.mrx;
- JSON Report Template *.mrt (json);
- Report Templates with Embedded Data (*.mrt). In this case, each data connection is converted into a separate XML file and embedded into the report file as a resource. The data source connections will be redefined to use these embedded resources. This may significantly increase the report file size.

- Compiled Assembly *.dll;
- CSharp Class *.cs.

Information

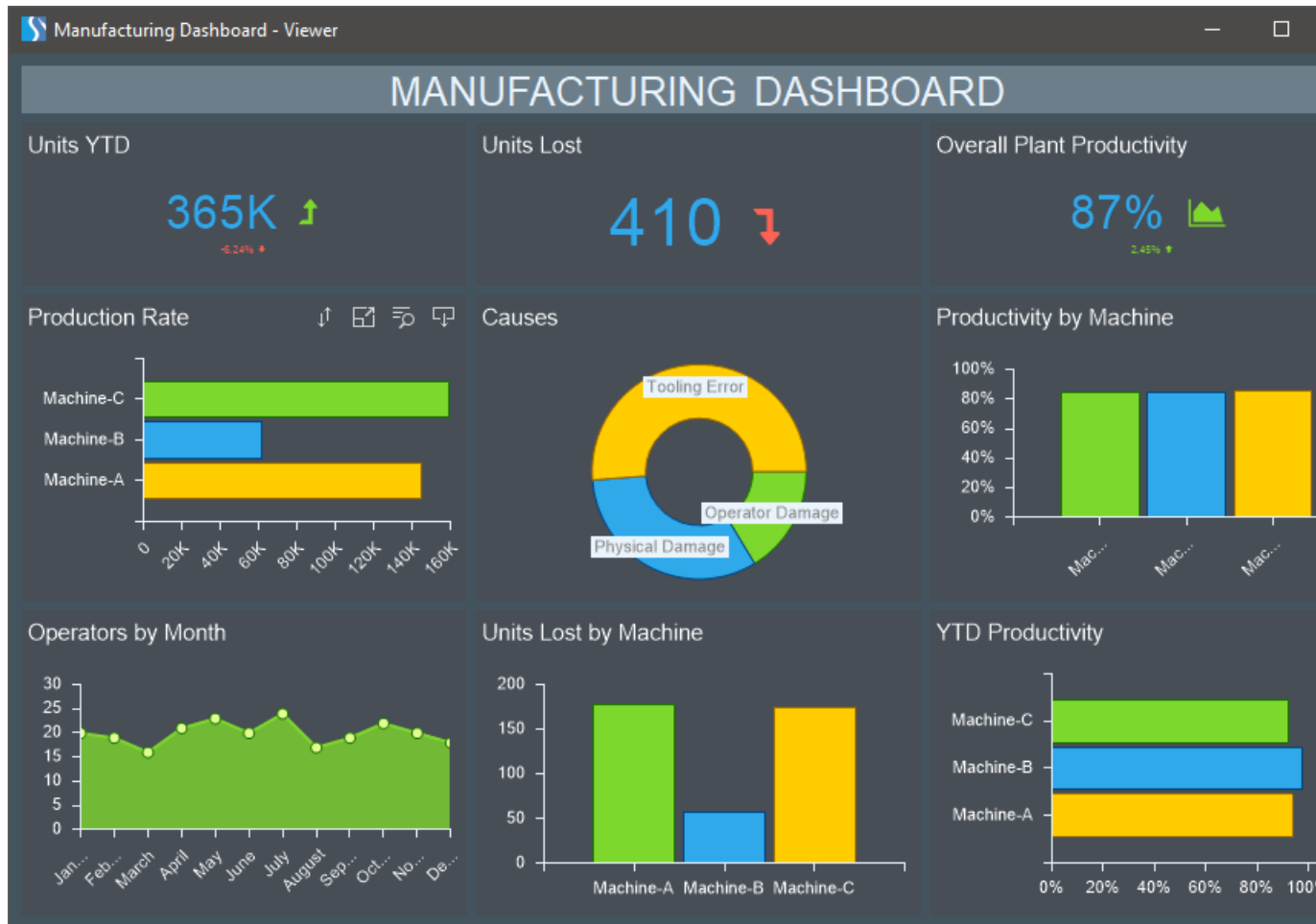
If you need to save a report as a standalone file (*.exe, *.html), use the [Report Publishing](#) feature.

6.1.5 Preview

Stimulsoft Designer allows previewing a report before printing, exporting, sending via Email or any other action, to identify possible errors. Clicking the **Preview** tab it is possible to preview a report or dashboard.



You can also preview the report in the separate window by using the **F5** shortcut key or selecting **Preview** from the **File** menu.



Information

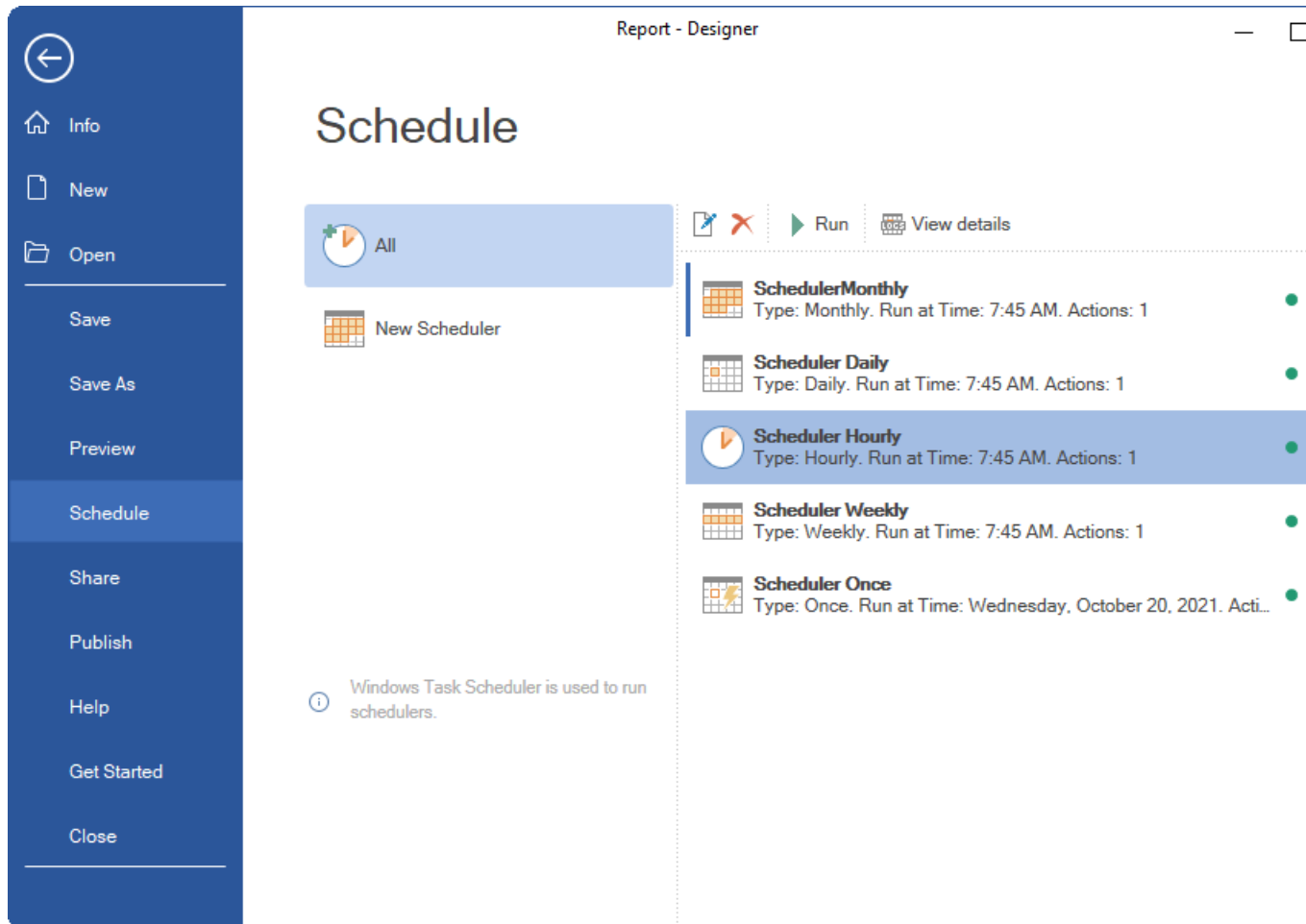
It is worth noting that the report or dashboard preview tab can be customized. For more details, refer to the [Preview settings](#) chapter.

You can learn about all commands and controls of the viewer in the corresponding chapters: When [viewing a report](#) and when [viewing a dashboard](#).

6.1.6 Schedule

The **Schedule** point in the **File** menu contains a list of created **Schedulers** in the report designer and the command of a new element **Scheduler** creation. This

element allows you to make definite actions with a report by schedule. For example, you can automate the process of report creation, export it to a definite file type and save the result to the local storage or send by email.



The following questions will be considered in this chapter:

- › [Panel control of schedulers;](#)
- › [Parameters of the Scheduler Once;](#)
- › [Parameters of the Scheduler Hourly;](#)
- › [Parameters of the Scheduler Daily;](#)
- › [Parameters of the Scheduler Weekly;](#)
- › [Parameters of the Scheduler Monthly;](#)
- › [More Options;](#)
- › [Scheduler Actions.](#)

All schedulers are located in the **Schedule** panel point, as a list. To add a new scheduler, you should click the **New Scheduler** button. When creating a scheduler you should define its type. Depending on a type, schedule settings may vary.

- The **Scheduler Once** will be run once at a specified date and time, unless otherwise specified by additional parameters;
- The **Scheduler Hourly** will be run every hour at certain minutes, unless otherwise specified by additional parameters;
- The **Scheduler Daily** will be run every day at certain time, unless otherwise specified by additional parameters;
- The **Scheduler Weekly** will be run on a certain day of the week and time, unless otherwise specified by additional parameters;
- The **Scheduler Weekly** will be run on a certain day of the week and time, unless otherwise specified by additional parameters.

Information

Any scheduler can be run forcibly. To do that you should select it in the list of schedulers and click the **Run** button.

Schedulers toolbar

There is the toolbar in the **File** menu on the scheduler panel where scheduler controls are located.



- ➊ The **Edit** command allows you to call the menu of a selected scheduler editing.
- ➋ The **Delete** command allows you to delete a selected scheduler from the list.
- ➌ The **Run** command allows you to run a selected scheduler forcibly, not having interrupted the schedule.
- ➍ The **View details** command allows you to call the menu of a selected scheduler logos. The event logbook of this scheduler is displayed in the menu of logos. You can save the logs to a file, if needed.

Also, control commands are duplicated in the context menu of the schedulers. Besides, the context menu contains the **Delete All** command, which allows you to

delete all schedulers.

Parameters of the Scheduler once

Below you can see the menu of a new Scheduler Once creation.

The screenshot shows a 'New Scheduler' dialog box with the following fields and controls:

- 1 Name:** A text input field containing 'SchedulerOnce'.
- 2 Description:** An empty text input field.
- 3 Type:** A dropdown menu set to 'Once'.
- 4 Enabled:** A checked checkbox.
- Common Section:**
 - 5 Run at Time:** A dropdown menu set to '12/15/2021 2:24:00 PM'.
- Buttons:** 'More Options', 'Save', and 'Cancel'.
- Right Panel:** 'Settings' (gear icon) and 'Actions' (checklist icon).

- 1 The **Name** parameter allows you to specify name for the current scheduler.
- 2 The **Description** parameter allows you to specify an additional explanation for the current scheduler.
- 3 The **Type** parameter allows you to change a type of the scheduler.
- 4 The **Enabled** parameter allows you to define the status of the current scheduler: it is run, if the checkbox is checked, or it is stopped, if the checkbox is unchecked.
- 5 The **Run at Time** allows you to define date and time when the scheduler is run.

Parameter of Scheduler Hourly

Below you can see the menu of a new Scheduler Hourly creation.

The screenshot shows the 'New Scheduler' dialog box. It has a title bar with the text 'New Scheduler' and a close button. The main area contains several fields: 'Name' (SchedulerHourly), 'Description' (empty), 'Type' (Hourly), and 'Enabled' (checked). Below these is a 'Common' section with 'Run at Time' (2:24 PM) and 'Run Every' (1). On the right, there are 'Settings' and 'Actions' icons. At the bottom, there are 'More Options', 'Save', and 'Cancel' buttons. Numbered callouts 1 through 6 point to the Name, Description, Type, Enabled, Run at Time, and Run Every fields respectively.

- ❶ The **Name** parameter allows you to specify name for the current scheduler.
- ❷ The **Description** parameter allows you to specify an additional explanation for the current scheduler.
- ❸ The **Type** parameter allows you to change a type of the scheduler.
- ❹ The **Enabled** parameter allows you to define the status of the current scheduler: it is run, if the checkbox is checked, or it is stopped, if the checkbox is unchecked.
- ❺ The **Run at Time** allows you to define time when the scheduler is run, i.e., the minutes of each hour when the scheduler will be run.
- ❻ The **Run Every** parameter allows you to define the interval of the Scheduler Hourly to run. For example, if the parameter is set to 1 value, the scheduler will run every hour. If this parameter is set to 2 value, the scheduler will run every two hours, etc.

Parameters of the Scheduler Daily

Below you can see the menu of a new Scheduler Daily creation.

The screenshot shows the 'New Scheduler' dialog box. It features a sidebar on the right with 'Settings' and 'Actions' buttons. The main form includes fields for Name, Description, Type, Enabled status, Run at Time, and Run Every interval. Numbered callouts 1 through 6 highlight these specific fields.

- ❶ The **Name** parameter allows you to specify name for the current scheduler.
- ❷ The **Description** parameter allows you to specify an additional explanation for the current scheduler.
- ❸ The **Type** parameter allows you to change a type of the scheduler.
- ❹ The **Enabled** parameter allows you to define the status of the current scheduler: it is run, if the checkbox is checked, or it is stopped, if the checkbox is unchecked.
- ❺ The **Run at Time** parameter allows you to define the time of day when the scheduler is run.
- ❻ The **Run Every** parameter allows you to define the interval of the Scheduler Daily to run. For example, if the parameter is set to 1 value, the scheduler will be run every day. If this parameter is set to 2 value, the scheduler will be run every two days, etc.

Parameters of Scheduler Weekly

Below you can see the menu of a new Scheduler Weekly creation.

The screenshot shows the 'New Scheduler' dialog box. It has a title bar with the text 'New Scheduler' and a close button. The dialog is divided into sections. The top section contains fields for 'Name' (SchedulerDaily), 'Description' (empty), 'Type' (Weekly), and 'Enabled' (checked). Below this is a 'Common' section with fields for 'Run at Time' (2:17 PM), 'Days of Week' (Monday, Wednesday...), and 'Run Every' (1). On the right side, there are 'Settings' and 'Actions' buttons. At the bottom, there are 'More Options', 'Save', and 'Cancel' buttons. Numbered callouts 1 through 7 point to the Name, Description, Type, Enabled, Run at Time, Days of Week, and Run Every fields respectively.

- ❶ The **Name** parameter allows you to specify name for the current scheduler.
- ❷ The **Description** parameter allows you to specify an additional explanation for the current scheduler.
- ❸ The **Type** parameter allows you to change a type of the scheduler.
- ❹ The **Enabled** parameter allows you to define the status of the current scheduler: it is run, if the checkbox is checked, or it is stopped, if the checkbox is unchecked.
- ❺ The **Run at Time** parameter allows you to define the time of day when the scheduler will be run.
- ❻ The **Days of Week** parameter allows you to select days of the week when the scheduler will be run.
- ❼ The **Run Every** parameter allows you to define the interval of the Scheduler Weekly to run. For example, if the parameter is set to 1 value, the scheduler will be run every week. If this parameter is set to 2 value, the scheduler will be run once two weeks, etc.

Parameters of the Scheduler Monthly

Below you can see the menu of a new Scheduler Monthly creation.

The screenshot shows a 'New Scheduler' dialog box with the following fields and callouts:

- 1** Name: SchedulerDaily
- 2** Description: (empty)
- 3** Type: Monthly
- 4** Enabled: ☒ Enabled
- 5** Run at Time: 2:17 PM
- 6** Run at Day: Day (selected), Day 1, Day 11, Day 25...
- 7** Run at Month: January, March, October...
- 8** Run Every: 1

Additional elements include a 'Settings' button, an 'Actions' button, a 'More Options' button, and 'Save' and 'Cancel' buttons at the bottom.

- ❶ The **Name** parameter allows you to specify name for the current scheduler.
- ❷ The **Description** parameter allows you to specify an additional explanation for the current scheduler.
- ❸ The **Type** parameter allows you to change a type of the scheduler.
- ❹ The **Enabled** parameter allows you to define the status of the current scheduler: it is run, if the checkbox is checked, or it is stopped, if the checkbox is unchecked.
- ❺ The **Run at Time** parameter allows you to define the time of day, when the scheduler will be run.
- ❻ The **Days of Week** parameter allows you to select days of the week when the scheduler will be run.
- ❼ The **Run at Month** parameter allows you to select the months when the scheduler will be run.
- ❽ The **Run Every** parameter allows you to define the interval of the Scheduler Monthly to run. For example, if the parameter is set to 1 value, the scheduler will be run every cycle of selected months. If this parameter is set to 2 value, the scheduler will be run once two cycles, etc.

More Options

Apart from basic parameters, each scheduler contains additional parameters, which are located on a separate panel. To open this panel, you should click the **More Options** button.

The screenshot shows the 'Options' panel with the following settings:

- 1 ☒ Repeat task every 1 hours
- for a duration of 1 hours
- 2 ☒ Stop all running tasks at end of repetition duration
- 3 ☒ Delay task for up to (random delay) 1 hours
- 4 ☒ Stop tasks if it runs longer than 1 hours
- 5 ☒ Expire 10/15/2021 7:47:36 AM

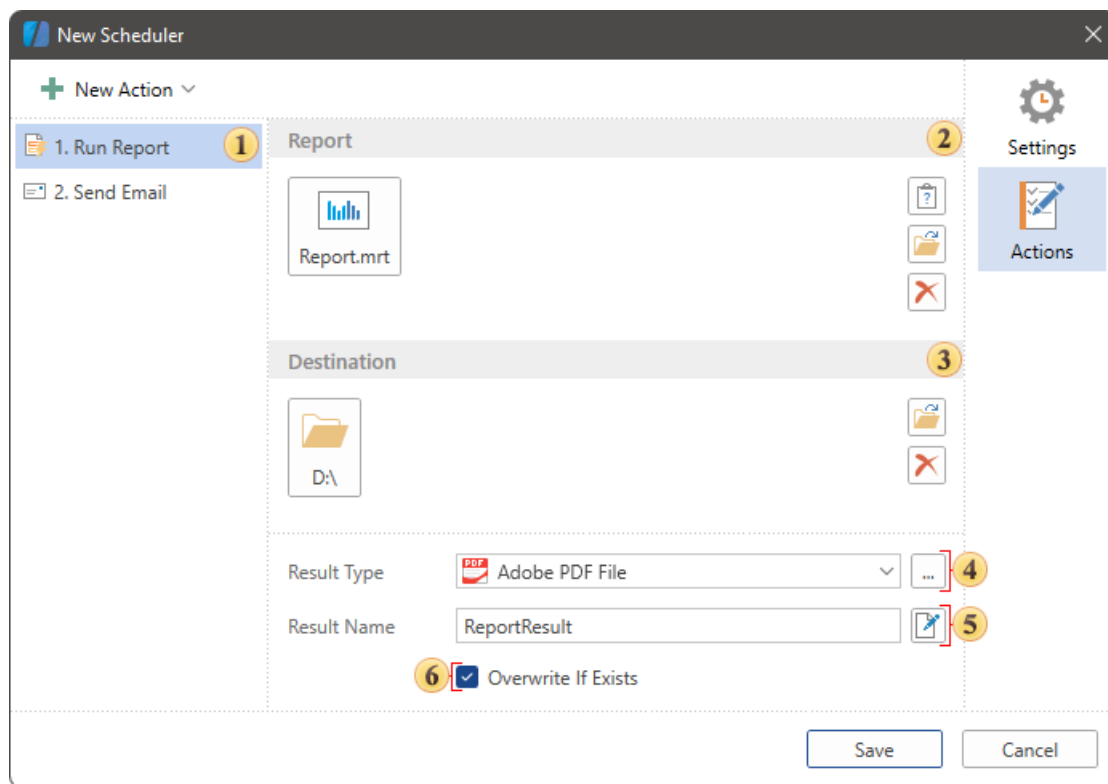
- 1 The **Repeat task every** parameter allows you to define the interval of additional run of the current scheduler. The **for a duration of** parameter allows you to define the interval during which additional runs of the scheduler will be occurred.
- 2 The **Stop all running tasks at the end of repetition duration** parameter allows you to stop the scheduler after the completion of the repetition cycle.
- 3 The **Delay task for up to** parameter allows you to define the delay interval of run the current scheduler.
- 4 The **Stop tasks if it runs longer than** parameter allows you to define a time interval after which the scheduler will be stopped if its tasks are not completed.
- 5 The **Expire** parameter allows you to define date and time when the scheduler is stopped.

Scheduler actions

Each scheduler makes definite actions. By type, all actions can be divided into:

- The **Run Report**, i.e rendering and exporting a report or a dashboard to a definite document;
- The **Send Email**, i.e sending a report file or a document to a definite list of people.

Max number of actions in the scheduler is limited up to 15 tasks. You can control the Scheduler tasks on the **Actions** tab in its editor.



- ❶ The list of all scheduler actions.
- ❷ You should specify a report for the current action in the **Report** field. Also, if the report contains the parameters, which require user's request, they can be set using the **Parameters** special control.
- ❸ You should define a local place of saving a finished document in the **Destination** field.
- ❹ The **Result Type** parameter allows you to define a type of a file, in which a report or a dashboard will be exported. Please take note that the list of available file types differs for a report or a dashboard. If there is a report or a dashboard in a template, the list of file types will be as well as for the template only with a dashboard.
- ❺ The **Result Name** parameter allows you to create a name formation template for the finished document.
- ❻ The **Owerwrite If Exists** parameter allows you to define either the finished document will be overwritten every time when the scheduler is run or a copy of the file will be saved for each exporting.

In case of creating the **Send Email** action, you should fill some fields, too.

The screenshot shows the 'New Scheduler' dialog box. It features a list of actions on the left, a central form for email details, and a right sidebar with 'Settings' and 'Actions' tabs. The 'To' field contains three email addresses, the 'Subject' is 'My Report', the 'Message' is 'Hello,World!', and the 'Files' section lists three actions: '1. Run Report' (checked), '2. Run Report' (unchecked), and '4. Run Report' (checked). The 'Send Email' action is highlighted in the left list, and the 'Actions' tab is selected in the sidebar.

- ❶ The list of all scheduler actions.
- ❷ The emails of the receivers, who will get a message when the scheduler is run are specified in the **To** field.
- ❸ The theme of the email is specified in the **Subject** field.
- ❹ You can specify the text of your email in the **Message** field.
- ❺ You should choose exported reports using the **Run Report** actions, which will be attached to the current email. Please take note that you can't attach other files to the email apart from the result of the **Run Report** the result of the action.

Information

Please take note that you should define SMPT settings for the **Send Email** action. These settings are defined in the **Options** menu of the report designer on the **Scheduler** tab.

6.1.7 Share

When designing reports, it often becomes necessary to provide access to it to other users. This can be done in various ways:

- i Save a report template or a rendered report, by forwarding these files to other

users. However, in this case, Stimulsoft Reports installed will be required to view the reports. In addition, each time you change the report or retrieve new data, you will have to forward these files.

❖ Export the rendered report to a format like PDF, Excel, HTML, etc. In this case, Stimulsoft Reports installed will not be required, but you will have to generate new documents every time you change the report and forward these files to other users.

❖ Set up remote access to the report and send the link to users. In this case, Stimulsoft Reports installed will not be required, and you will not have to generate documents every time the report is modified. It will be enough to refresh the page in the browser.

How it works

- The report from the report designer is saved in [Stimulsoft Cloud](#);
- A link to the report is forwarded to the user. You can also embed the report access code in your HTML page or get a QR code with an access link.
- The user opens the link in the browser, browses the report or downloads it in a format like PDF, Excel, HTML, etc.

To use the remote access, it is necessary to:

- Use the report designer.
- Have access to the Internet, both from the report designer side (to make changes in the report), and from the user side (to download the report from the Cloud).
- Have a Stimulsoft account for the designer of reports. If you do not have an account, you may register it for free.

The remote access can be set up from the **Share** dialog, which can be called by selecting the **Share** command from the **File** menu.

Information

If the report template was opened not from [Stimulsoft Cloud](#) (when you select the **Share** command from the **File** menu), the report must be saved to the account of a user.

If you are not logged in, after selecting the **Share** command from the **File** menu, the login form will be displayed. If you do not have an account, click the account

registration command.

Below is the menu for setting access to the report:

Share

1 **No Access**
External access to the item is restricted.

2 **Public Access**
External access for any unauthorized user.

End Date: 3 ☒ 29.09.2017 6:30

4 **Link to Share** | Embed Code | QR Code

https://stimulsoft.com/s/09697

Save Cancel

- 1 **No Access** sets the ability to view only from the report designer or the cloud service, the report cannot be viewed by the link.
- 2 **Public Access** allows you the remote viewing of the report the link for any user. Also this mode is used when embedding a report to the HTML page.
- 3 This parameter sets the time and date after which access will be denied. If this option is disabled, then there is no validity period, access will always be enabled.
- 4 Access to the report can be provided in the following ways:
 - > Select **Link to Share** to get a link only to this item. Also, in this case, the field contains the **Copy** button (when you click it, the item will be copied to the clipboard), and the **Update** button (when you click it, a new link to the item will be generated).
 - > Select **Embed Code** to get the code for the HTML page with a link to this element. Also in this case, the field contains the **Copy** button (when you click it, the embed code is copied to the clipboard).
 - > Select **QR Code** to display the QR code for reading. When this code is read, the

link to the item will be automatically received.

Step-by-step instructions to set up share to a report

Step 1: Run the report designer;

Step 2: Create or open a report to which you want to configure share.

Step 3: Select **Share** in the **File** menu.

Step 4: If the report was not opened from [Stimulsoft Cloud](#), specify the storage location in the workspace of your account and click the **Save** button in the **Save As...** dialog;

Step 5: Set the **Public Access** in the **Share** menu.

Step 6: Enable the **End date** parameter, and specify the time which is the date when the public access to the report is terminated;

Step 7: Select the type of file in which the report will be submitted. Please note that viewing a report without downloading is possible only if the **Document file** type is selected. If you select a different type, for example PDF, then when you click on the link, you will download the PDF file for local viewing.

Step 8: Copy the share link to the report;

Step 9: Click the **Ok** button in the **Share** menu;

Step 10: Forward the link to the user.

When clicking on the link, the web browser will run. The report will be displayed in the web browser or if a different result type is selected, the report will be downloaded using the browser.

Information

The report can be viewed by the link only if the Result Type is set as the Document file. In other cases, the report will be downloaded using the web browser.

However, when viewing the report, you can always download it in the required format without changing the access settings and without sending a new link. Add **/Result** Type to the link.

For example, if the link for viewing the report is <https://stimulsoft.com/s/55af6> , and this report should be downloaded as a PDF document, then, in the address bar, add **/pdf**. So the link will look like <https://stimulsoft.com/s/55af6/pdf>.

6.1.8 Publish

Important

Scripts can be a security risk, so they are disabled in the [Interpretation mode](#). However, if you are confident in the safety of your scripts, you can use them in the [Compilation mode](#).

YouTube

Watch our videos [to learn how to publish reports](#). Subscribe to the [Stimulsoft channel](#) and be the first who watches new video tutorials. Leave your questions and suggestions in the comments to the video.

Publishing reports means saving them as separate projects or files to simplify and speed up the process of embedding these reports into an application on different platforms. The report is published using a wizard that can be called by clicking the **Publish** button on the Ribbon panel of the designer, or by selecting this command from the **File** menu:

Publish

Deploy Report to Platform:

ASP.NET
ASP.NET MVC
.NET Core
WinForms
WPF
JavaScript
PHP
Java

Report Publish Type:

Project
Standalone

Framework Type:

JS
Node.js

Load Report from:

File
String
Hyperlink

☐ Include Report as Packed String to Code

What to do with Report:

Show
Export
Design

☐ Display the Viewer in Full Browser Window

Addons

☐ Include License Key
☒ Include Localization

cs
de
en
es
fr
pl
ru
zh-CHS
▶

☒ Include UI Theme

Theme Style:
Background:

☒
☐
☐
☐

☐ Use Compressed Scripts

Hide Options

index.html

```

<!DOCTYPE html>

<html>
<head>
  <title>Report.mrt - Viewer</title>
  <link rel="stylesheet" type="text/css" href="css/...>
  <script type="text/javascript" src="scripts/stimu...>
  <script type="text/javascript" src="scripts/stimu...>

  <script type="text/javascript">
    Stimulsoft.Base.Localization.StiLocalization.

    var str = Stimulsoft.System.IO.File.getFile('
    var report = new Stimulsoft.Report.StiReport
    report.load(str);

    var options = new Stimulsoft.Viewer.StiViewe
    var viewer = new Stimulsoft.Viewer.StiViewe
    viewer.report = report;
    viewer.renderHtml("viewerContent");
  </script>
</head>
<body>
  <div id="viewerContent"></div>
</body>
</html>

```

After calling the wizard, you need to specify the platform for which the report will be published.

Information

Depending on the selected platform, the number of parameters may vary.

✖ Publishing Settings

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As it is already mentioned, the number of parameters can vary depending on the selected platform. Consider the parameters of the wizard when publishing report for the JavaScript as an example.

Publish

Deploy Report to Platform:

ASP.NET ASP.NET MVC .NET Core WinForms WPF **JavaScript** PHP Java

1 **Report Publish Type:**
Project Standalone

2 **Framework Type:**
JS Node.js

3 **Load Report from:**
File String Hyperlink

4 **What to do with Report:**
Show Export Design

☐ Display the Viewer in Full Browser Window

5 **Addons**

6 ☐ Include License Key

7 ☒ Include Localization
cs de en es fr pl ru zh-CHS ▶

8 ☒ Include UI Theme
Theme Style:
[Blue] [Red] [Green] [Orange] [Purple] [Dark Purple] [Checkmark]

Background:
☒ ☐ ☐ ☐

9 ☐ Use Compressed Scripts

10 Hide Options

11 Save Project Package

index.html

```
<!DOCTYPE html>

<html>
<head>
  <title>Report.mrt - Viewer</title>
  <link rel="stylesheet" type="text/css" href="...">
  <script type="text/javascript" src="scripts/st...">
  <script type="text/javascript" src="scripts/st...">

  <script type="text/javascript">
    Stimulsoft.Base.Localization.StiLocalizati...

    var report = new Stimulsoft.Report.StiRepor...
    report.loadFile("reports/Report.mrt");

    var options = new Stimulsoft.Viewer.StiVie...
    var viewer = new Stimulsoft.Viewer.StiVie...
    viewer.report = report;
    viewer.renderHtml("viewerContent");
  </script>
</head>
<body>
  <div id="viewerContent"></div>
</body>
</html>
```

- 1 The option for selecting the type of the report deployment:
 - > **Project.** The report will be saved as a project to run it in the development environment or embed it into the application.
 - > **Standalone.** The report will be saved as a separate file (or files). For example, for the JavaScript platform, this will be an HTML page, and if you select the WinForms platform, then this will be the executable (exe) file.
- 2 The option for selecting a framework type. You can select a JavaScript application without using a framework, or select the Node.js framework.

3 The option to load a report from:

- > **File;**
- > **String;**
- > **Hyperlink.**

Information

On some platforms, you can also load a report from:

- > **Stream,**
- > **Bite Array,**
- > **Resource,**
- > **Class,**
- > **Assembly.**

4 The option for selecting an action with a report, after it is published:

- > **Show.** The project will be created for viewing the report. When you run the project, the report viewer is called with this report. Also, when you select a Web platform for publishing, you can enable the report to be displayed in the full browser window.
- > **Export.** The project will be created to convert the report. When you run the project, the report will be converted to the selected format. You should also specify the type of document to which the report will be converted.
- > **Design.** The project will be created to edit the report. When you run the project, the report designer with this report will be called.

Information

If there are data sources and parameters (variables) in the report, then when you select any action, you should specify the data connection parameters:

- > **Use Connection from Report.** If the connection is present in the report, then it will be used when the project is run.
- > **Replace Connection String.** Provides the ability to specify a new connection string to the data storage.

i If the report uses file data sources (XML or JSON), then, instead of the **Replace Connection String** option, the **Replace Path to Data** parameter will be present. Using it you can specify a new path to the data files.

- **Register Data from Code.** Select this option if you want to use data from XML, JSON sources or from Business objects. If you select this item, you can also enable the following options:
 - i **Synchronize Report Dictionary.** Use this option to synchronize the registered data in the data storage and in the data dictionary of the report.
 - i **Use Only for Report Preview.** Select this option to use the data only for preview.

In addition, the data dictionary can contain variables. When you select the **Show** or **Export** action, you can define a value for each variable:

- **Use Value from Report.** The value of the variable will remain as the default.
- **Replace Value from Code.**
- **Request from User.** Use the value entered by the user.

5 Options that depend on the selected action. In this case, the **Show** action is selected, so the **Display the Viewer in Full Browser Window** option is available.

6 **Include License Key.** If this option is not enabled, the report will be displayed with the Trial watermark. If you enable this option, you can connect the license key in one of the following ways:

- **String;**
- **File.**

7 **Include Localization.** This option is relevant only for the **Show** and **Design** actions. When this option is enabled, select the interface of the viewer localization if the **Show** action is selected, or the designer, if the **Design** action is selected.

8 **Include UI Theme.** This option is relevant only for the **Show** and **Design** actions. When this option is enabled, you can specify the theme of the layout of the viewer interface, if the **Show** action is selected, or the designer, if the **Design** action is selected.

9 **Use Compressed Scripts.** If you enable this option on, the size of the scripts will significantly decrease but when you run the application it will take time to unpack them.

10 The **Hide Options** button is used to expand and collapse the options bar in the publish wizard.

11 The **Save Project Package** button. When you click this button, a dialog box will

be displayed to specify the location of the project or standalone application. Note, when saving a project, it will be saved as a zip archive.

12 The **Close** button can be used to close the Publish wizard.

13 The field in which the current project code is displayed. Also in this field, you can find the **Copy** button, with which you can copy the code to the clipboard.

Information

On some platforms, the **Get Stimulsoft Libraries from NuGet** option may be present. In this case, when the project is run, if there are no Stimulsoft libraries in it, they will be automatically loaded from the NuGet repository.

For the Java platform you can find the **Get Stimulsoft Libraries from Maven** option.

Publishing report step by step

Step 1: Run the report designer.

Step 2: Create a report or open it.

Step 3: Save the last changes.

Step 4: Call the Publish wizard by clicking the **Publish** button on the Ribbon panel or by clicking **Publish** from the **File** menu.

Step 5: Select the platform for which the report will be published. The following platforms are available ASP.NET, ASP.NET MVC, .NET Core, WinForms, WPF, JavaScript, PHP, Java.

Step 6: Specify the publishing settings for the selected platform.

Step 7: Click the **Save Project Package** button and specify the location where the project should be saved.

Step 8: Unpack the archive, if the package is saved as a project. Open the .sln file with Visual Studio or another development environment.

Step 9: Make changes in the project code, if necessary.

Step 10: Run the project.



6.1.9 Help

This menu item contains links to various help resources:

- The **Documentation** command opens a window with the user guide.
- The **Support** command provides a link to the [technical support page on the official Stimulsoft website](#);
- The **Video** command provides a link to [Stimulsoft's YouTube channel](#);
- The **Sample** command provides a link to the [examples page on the official Stimulsoft website](#);
- The **Forum** command provides a link to the [Stimulsoft forums](#);
- The **Demo** command provides a link to [Stimulsoft's demo page](#);
- The **Training Courses** command provides a link to the [training courses page on](#)

[the Stimulsoft website.](#)

6.1.10 Get Started

The **Get Started** command opens a window that provides options for quickly getting started with Stimulsoft:

- The **Apps** tab allows you to download and launch Stimulsoft applications, including the desktop demo application and the JavaScript report designer;
- The **Develop** tab provides access to download Stimulsoft product packages. Note that this tab is only displayed if the account difficulty level is set to **Professional**;
- The **Help** tab contains links to various help resources and serves as an equivalent to the **Help** section in the **File** menu.

6.1.11 Close

The **Close** command allows you to close a report or dashboard template in the report designer. If any changes have been made, the user will be prompted to save them. After closing the template, many commands in the report designer will become unavailable.

6.1.12 Account

The Account section contains various commands for managing your account and workflow. All commands are divided into several tabs:

- The **Profile** tab contains commands for managing the current account;
- The **Team** tab provides commands for managing your team;
- The **Subscriptions** tab displays a list of your active and expired subscriptions;
- The **Check for Updates** tab shows a list of new report designer versions available for installation.

Profile

This tab contains settings for managing the current profile:

- The **Picture** option allows you to select an avatar for the account. If no image is uploaded, the first letters of the first and last name are displayed instead;
- The **First Name** option enables you to change the first name of the account user;
- The **Last Name** option allows you to modify the last name of the account user;
- The **User Name** option displays the account's email address, which is used as the login for Stimulsoft applications;
- The **Password** option allows you to change the password for the current account.

Note: You must enter the current password to make changes. If you do not remember your current password, you should reset it in the login window of the report designer or on our website;

- › The **Skill Level** option allows you to change the skill level for the current account;
- › The **Log In with Google** option lets you add a Google account for authentication in Stimulsoft applications and services.

Team

This tab displays information and commands for managing your team:

- › The **New** command allows you to create a new user account within your team;
- › The **Edit** command enables you to modify an existing team member's account;
- › The **Delete** command lets you remove a user account from your team;
- › The **Invite** command allows you to invite a user to join your team. An invitation link will be sent to the user via email.

Subscriptions

This tab displays a list of your active and expired subscriptions. It includes **Renew** redirects you to the subscription renewal process. **Refresh** updates the subscription list with the latest information.

Check for Updates

This tab shows a list of new versions available for installation. Each version includes a changelog detailing the updates included in the release.

6.1.13 Options

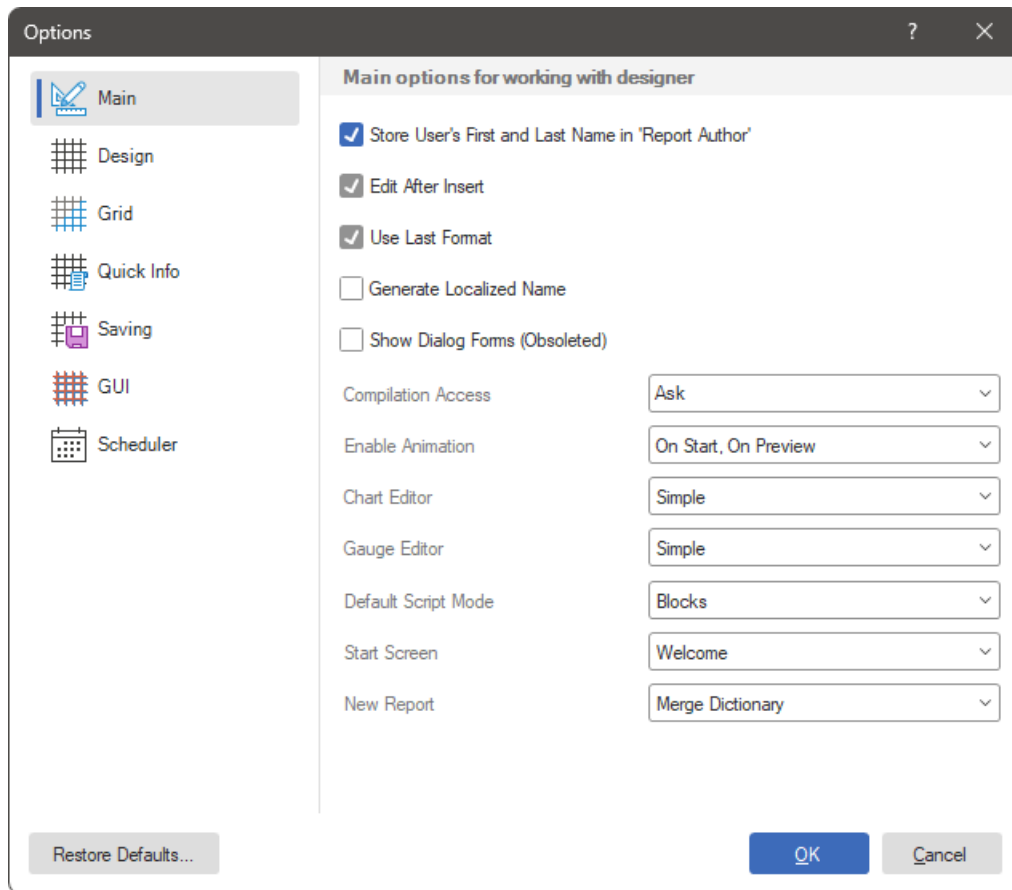
Important

Scripts may pose a security risk. Therefore, they are disabled in [calculation mode](#) such as **Interpretation**. If you are confident that your scripts are safe, you can use them in **Compilation** [calculation mode](#).

When you select the **Options** command from the File menu, the report designer settings editor will be invoked. All designer settings are grouped into tabs. Let's look closer at these tabs and the parameters located on them in more detail.

The **Main** Tab

Contains basic settings for the report designer.



Below, you can find a list of parameters for the current tab in the **Options** menu.

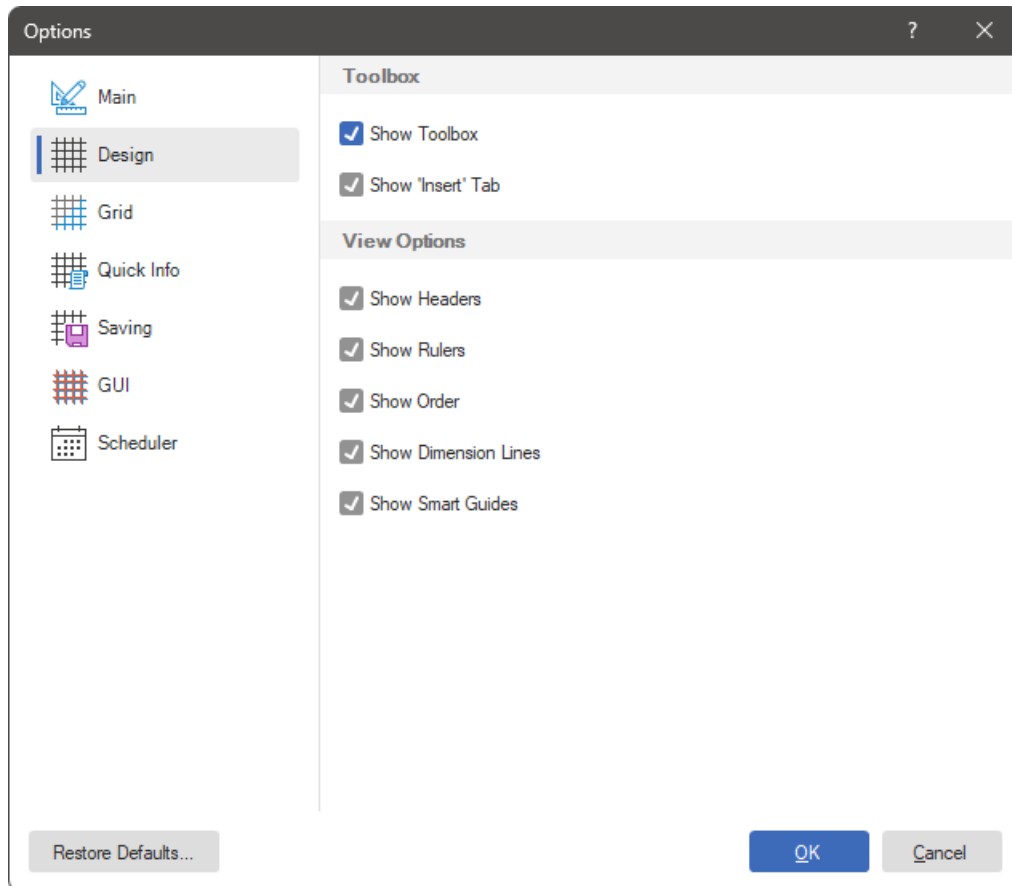
Name	Description
Use User's First and Last Name in 'Report Author'	Sets the first and last name of the current user account as the value of the Report Author property.
Edit After Insert	Calls the component editor when adding it to a report. If this parameter is checked, the component editor will be called. If the checkbox is cleared, the editor will not be called.
Use Last Format	Uses the latest component design settings when adding new components of the same type. If this option is checked, then

	when adding a new component, the latest design settings of a component of the same type will be applied to it. If the checkbox is cleared, a new component will be added with default design settings.
Generate Localized Name	Displays localized component names in the report designer. If this option is checked, component names will be localized and displayed in the report designer. If the checkbox is cleared, the names will not be localized and the original names of the components will be displayed.
Show Dialog Forms	Displays Dialog forms in the Report Designer. If this option is checked, you can create dialog forms in the report. If the checkbox is cleared, the elements for creating dialog forms will not be displayed.
Compilation Access	Defines the security behavior when opening a template with the Compilation calculation mode in the report designer.
Enable Animation	Defines the animation mode in the report components when building and viewing it.
Chart Editor	Selects the type of editor for the Gauge component: Simple or Advanced .
Gauge Editor	Selects the type of editor for the Gauge component: Simple or Advanced .
Default Script Mode	Defines the type of scripting in report and component events - Code or Blocks . In Interpretation mode, scripting in C# or VB.Net is not available for security reasons.
Start Screen	Defines the report designer start settings: Welcome, Blank Report, Blank Dashboard .
New Report	Defines the behavior of the data dictionary when creating a new report - Create a new

data dictionary or Merge data dictionary.

The **Design** Tab

This tab defines the visual design options for the report designer and report viewing.



- 1 The **Toolbox** group is used to enable the display of the Insert or Toolbox tab;
- 2 The **View Options** group is used to define options when viewing a report.

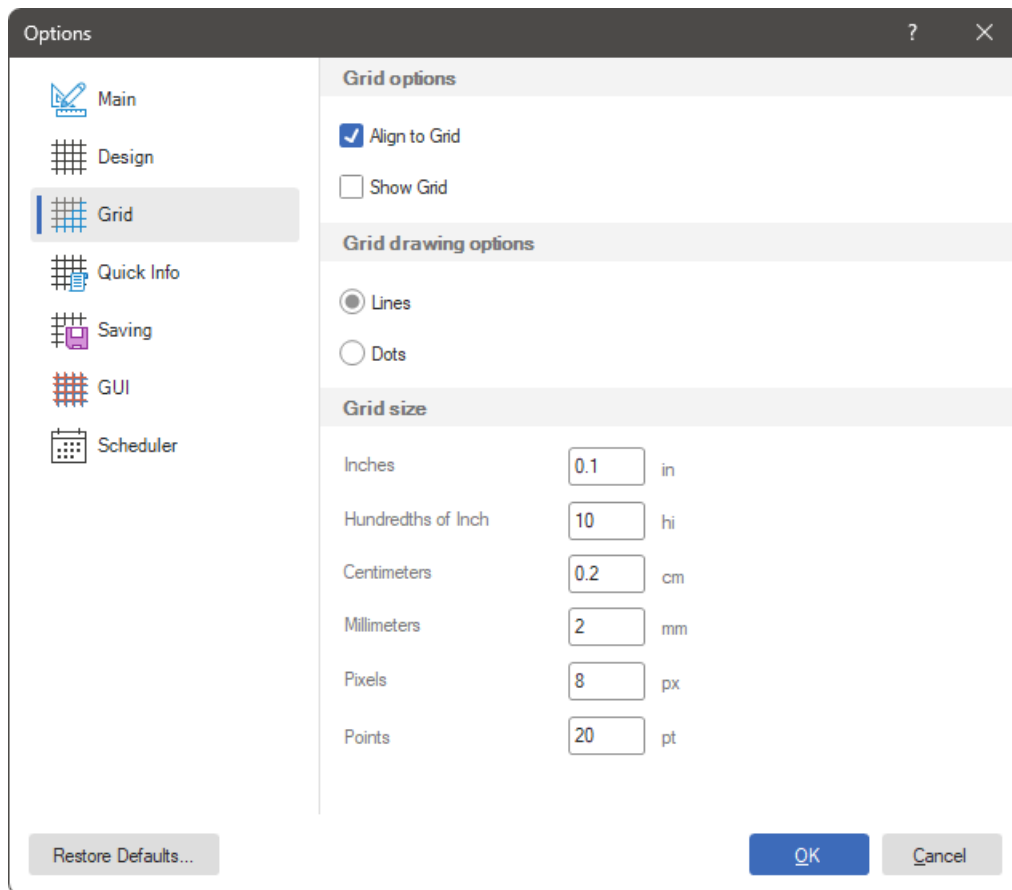
Below is a list of parameters for the current tab in the **Options** menu.

Name	Description
Show Toolbox	Enables the display of the toolbox in the report designer. If this option is checked, the toolkit will be displayed. If the checkbox is cleared, the toolkit will not be

	displayed.
Show 'Insert' Tab	Enables display of the Insert tab in the report designer. If this option is checked, the Insert tab will be displayed. If the checkbox is cleared, the Insert tab will not be displayed.
Show Headers	Enables the display of report component headers. If this option is checked, the headers will be displayed. If the checkbox is unchecked, the headers will not be displayed.
Show Rulers	Enables the display of rulers in the report designer. If this option is checked, the rulers will be displayed. If the checkbox is unchecked, the rulers will not be displayed.
Show Order	Enables the display of the report component serial number. If this option is checked, the sequence number will be displayed. If the checkbox is cleared, the serial number will not be displayed.
Show Dimension Lines	Enables the display of dimension lines in the report designer. If this option is checked, dimension lines will be displayed. If the checkbox is cleared, dimension lines will not be displayed.
Show Smart Guides	Displays smart guides which simplify the process of joining components. This is especially true when the mode for aligning components to the grid is disabled.

The **Grid** Tab

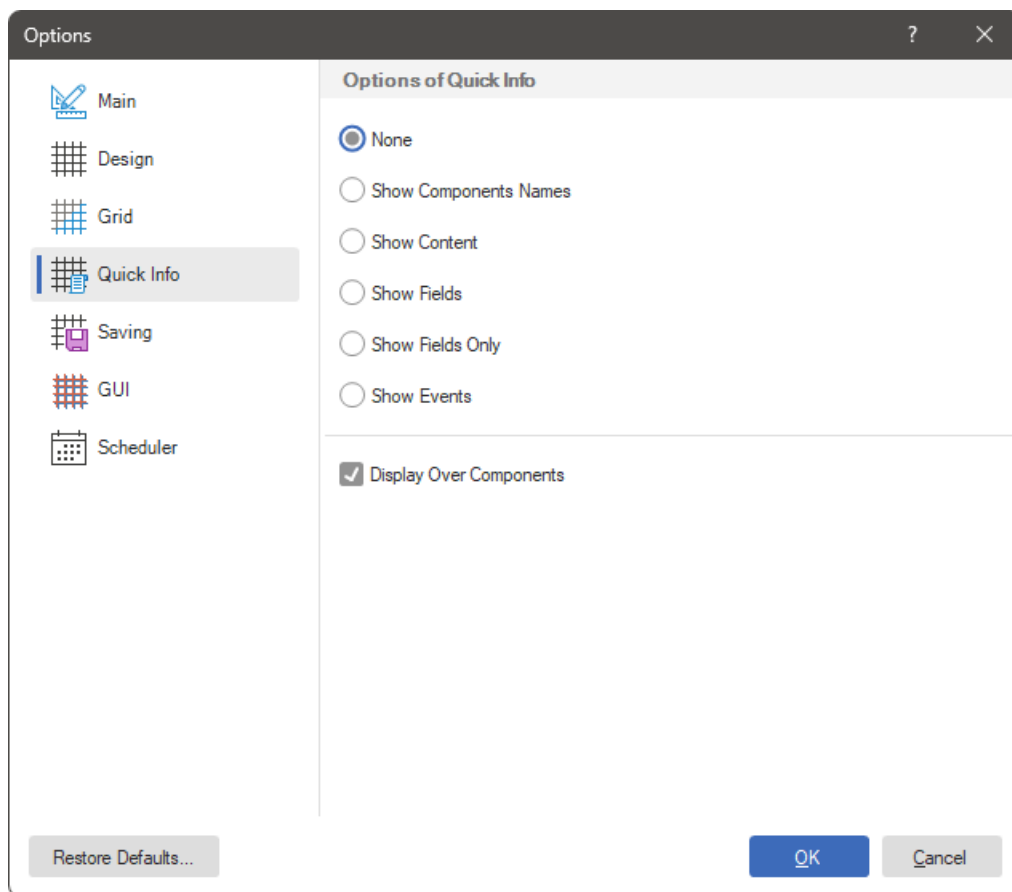
This tab defines the grid settings on the report page or workspace in the dashboard.



- ❶ The **Grid Options** group includes the following parameters:
 - **Align to Grid** snaps the report component to the grid;
 - **Show Grid** disables/enables the grid display.
- ❷ The **Grid** drawing options parameter specifies how the grid will be displayed as **Lines** or **Dots**;
- ❸ The **Grid size** group is used to set grid sizes in different units.

The **Quick Info** Tab

This tab defines the parameters for displaying information in report components.



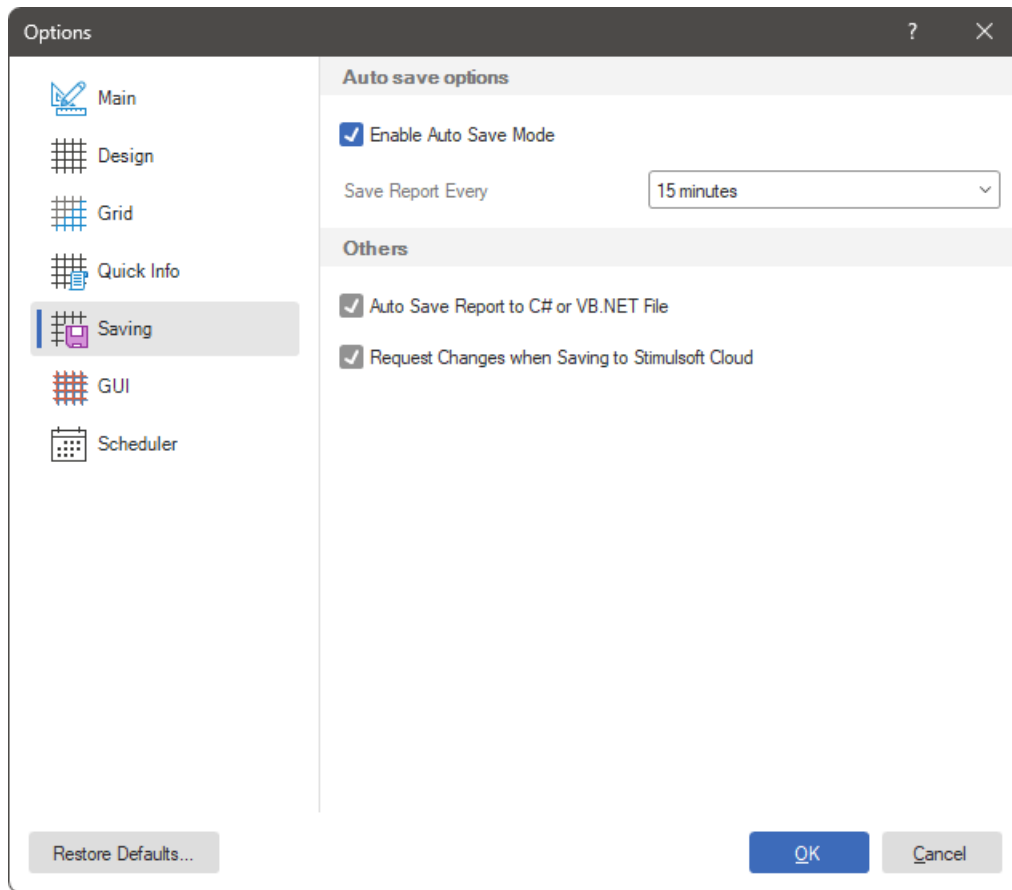
Below is a list of parameters for the current tab in the **Options** menu.

Name	Description
None	If you set it to None, the report components will not display any information.
Show Components Name	If this value is enabled, then the report components will display their names.
Show Content	If this value is enabled, the report components will display their contents.
Show Fields	If this value is enabled, the report components will display their contents.
Show Fields Only	If this value is enabled, only column names will be displayed in report

	components.
Show Events	If this value is enabled, report components will display their used events.
Display Over Components	Enables displaying quick information in the foreground of the component. If the checkbox is checked, the information will be displayed in the foreground of the component. If the checkbox is not checked, then the component information will not be displayed in the foreground.

The **Saving** Tab

This tab contains options that are used to configure the saving of the report.

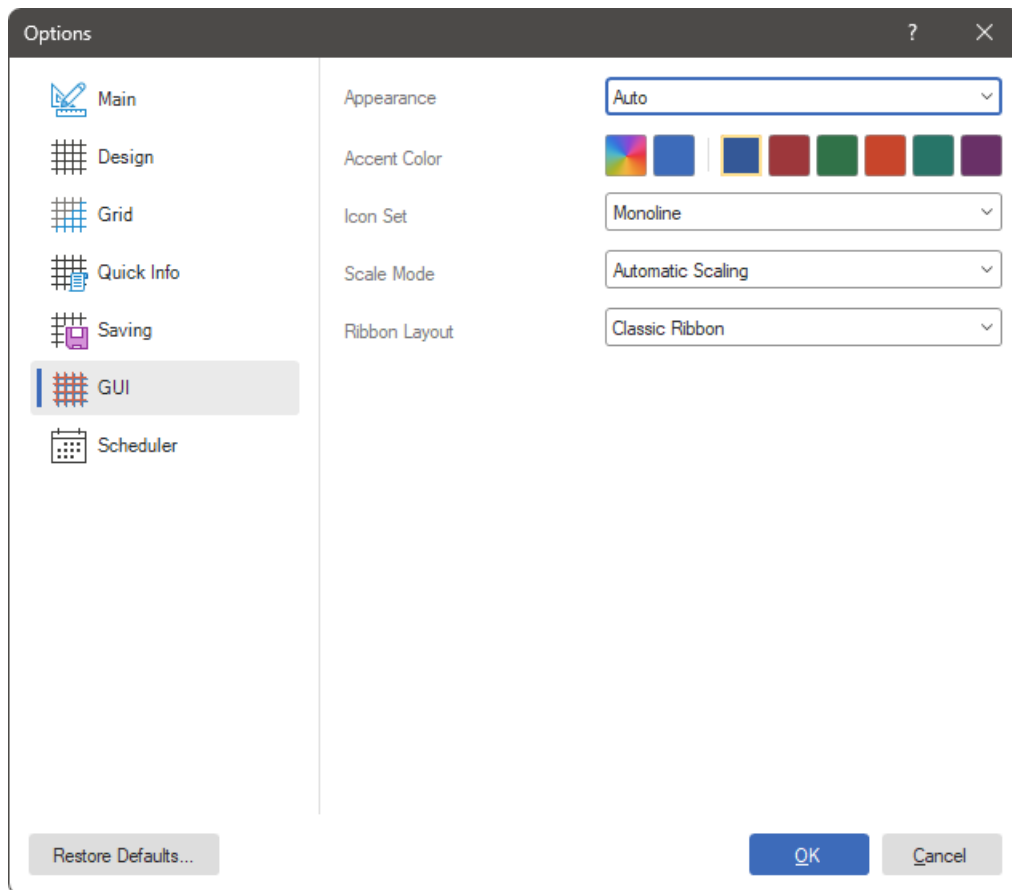


Below is a list of parameters for the current tab in the **Options** menu.

Name	Description
Enable Auto Save Mode	Enables the report autosave mode.
Save Report Every	Specifies the period of time after which the report is automatically saved.
Auto Save Report to C# or VB.NET File	Enables auto saving of the report as a source file. If this option is checked, then when saving the report, the source file will also be saved. If the checkbox is cleared, the source file will not be saved.
Request Changes when Saving to Cloud	Enables the display of the changes window when saving to Stimulsoft Cloud storage. If this option is checked, a changes window will be displayed when saving the report to cloud storage. If the checkbox is cleared, the changes window will not be displayed.

The **GUI** Tab

On this tab, you select the type and color scheme of the report designer interface.



Below is a list of parameters for the current tab in the **Options** menu.

Name	Description
Appearance	Selects a design theme in the designer and report viewer - Light or Dark . At the same time, the Auto value is also available, in which the theme is determined in the operating system settings.
Accent Color	Specifies an accent color in the report designer. There are preset colors, and a user-selectable color is also available.
Icon Set	Selects a set of icons for commands and controls in the report designer.
Scale Mode	Sets the scalability parameter for

	displaying controls in the report designer - 100% or Autoscale. When the autoscale is set, the value will be obtained from the operating system settings.
Ribbon Layout	Specifies the Ribbon mode of the toolbar - classic or UI in one line.

The **Scheduler** tab

When using the scheduler, for some actions it is necessary to define the SMTP service settings. This is done on this tab.

The screenshot shows the 'Options' dialog box with the 'Scheduler' tab selected. The 'Scheduler' tab is highlighted in the left sidebar. The main area is titled 'Smtp Settings' and contains the following fields and controls:

- Sender Email: Text input field
- Host: Text input field
- Port: Spin box with '0' selected
- User Name: Text input field
- Password: Text input field
- Enable SSL: Checked checkbox

At the bottom of the dialog, there are three buttons: 'Restore Defaults...', 'OK', and 'Cancel'.

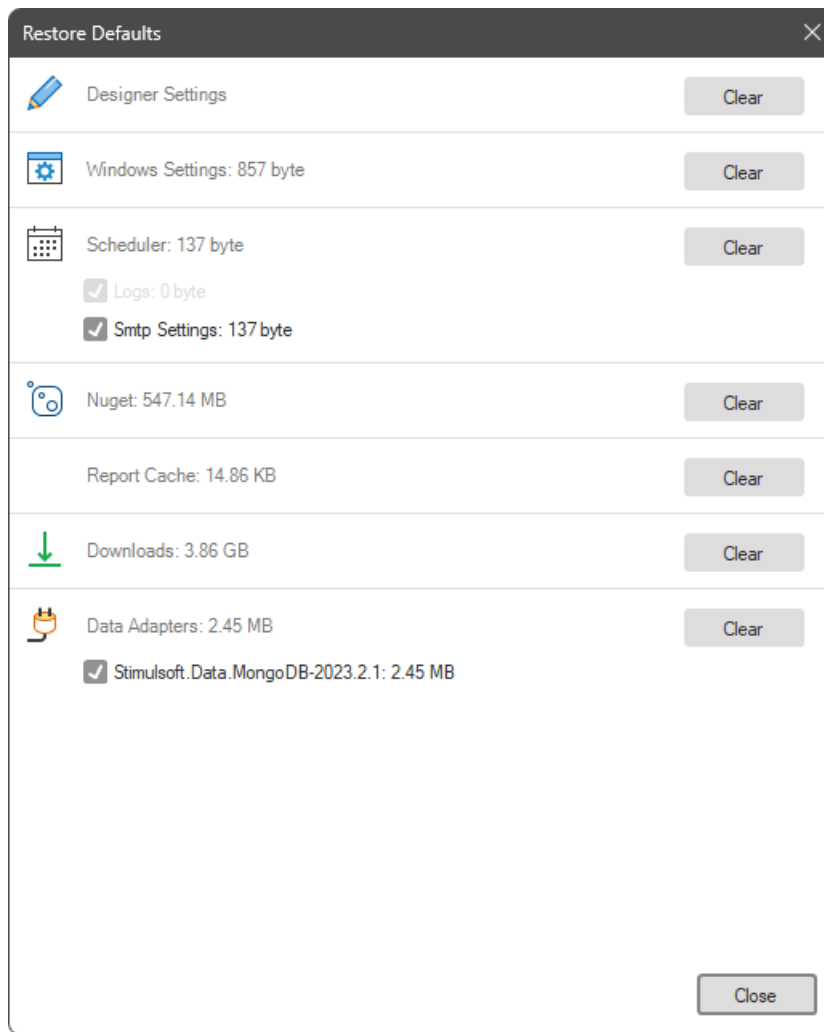
Below is a list of parameters for the current tab in the **Options** menu.

Name	Description
------	-------------

Sender Email	Indicates the sender's email address.
Host	Specifies the host of the SMTP server.
Port	Specifies the port of the SMTP server.
User Name	Specifies a username for the SMTP server account.
Password	Specifies a password for the SMTP server account.
Enable SSL	Enables to use encryption when connecting to the SMTP server.

Restore Default

The **Restore Default...** command is used to reset various user settings. To do this, execute the **Clear** command for those settings that need to be removed.



6.1.14 About

A command that opens the **About** window, which provides information about the current application version, release date, platform, and framework.

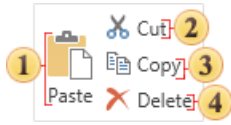
6.2 Tab Home

The **Home** tab is a section of the Ribbon in the report designer, containing key commands for configuring report components and dashboard elements.



Clipboard Management Commands

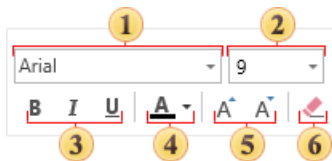
This group includes commands for working with the clipboard:



- 1 The **Paste** command allows inserting components or elements from the clipboard into the report page or dashboard.
- 2 The **Cut** command allows cutting selected components or elements to the clipboard.
- 3 The **Copy** command allows copying selected components or elements to the clipboard.
- 4 The **Delete** command allows deleting all selected components or elements.

Font Group

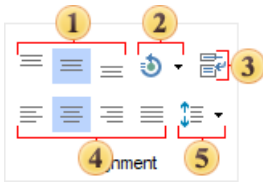
This group contains commands and controls for managing the [font](#) settings of report components or dashboard elements:



- 1 A control that allows changing the font family. Clicking this control opens a drop-down list of installed fonts.
- 2 A control that allows changing the font size. Clicking this control opens a drop-down list of predefined font sizes. Font size can also be entered manually.
- 3 Controls that enable or disable bold, italic, or underlined text styles.
- 4 A control that allows changing the text color of the selected component or element.
- 5 Controls that adjust the font size up or down.
- 6 The **Clear Contents** command removes the content of all selected text components.

Alignment Group

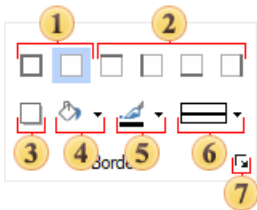
This group contains commands for managing horizontal and vertical alignment, text rotation, word wrapping, and line spacing:



- 1 The [Vertical Alignment](#) controls: **Top, Center, Bottom**.
- 2 The Text Rotation control opens a drop-down list for selecting the text rotation angle.
- 3 The **WordWrap** button enables word wrapping in text components. When enabled, text automatically moves to the next line when reaching the right boundary of the component. If disabled, text is truncated at the component's edge.
- 4 The [Horizontal Alignment](#) controls: **Left, Center, Right, Width**.
- 4 The [Line Spacing](#) controls open a drop-down menu for selecting text line spacing options.

Borders Group

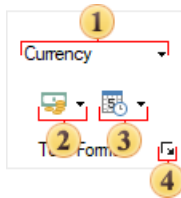
This group contains commands and controls for configuring the [borders](#) and background settings of report components and dashboard elements.



- 1 Controls that enable or disable the display of all borders for a component or element.
- 2 Controls that enable or disable the display of borders for each side of a component or element.
- 3 A control that enables or disables the shadow effect for a component or element.
- 4 A control that allows changing the background fill color of a component or element. Clicking this control opens a color palette.
- 5 A control that allows changing the border color of a component or element. Clicking this control opens a color palette.
- 6 A control that allows changing the border style of a component or element. Clicking this control opens a drop-down list of available border styles.
- 7 A command that opens the [border editor](#).

Formatting Group

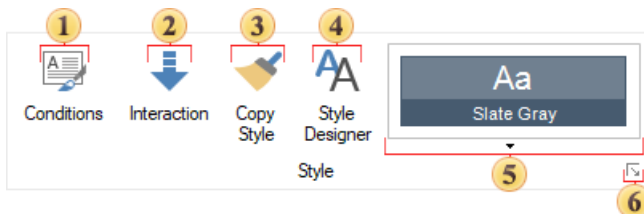
This group contains commands and controls for [text formatting](#).



- ❶ A control that allows changing the text format. Clicking this control opens a drop-down menu with a list of available formats.
- ❷ A control that allows changing the currency for text formatted as currency. Clicking this control opens a drop-down menu with the most commonly used currencies.
- ❸ A control that allows changing the [date format](#) mask. Clicking this control opens a drop-down menu with a list of available date format masks.
- ❹ A command that opens [Format editor](#).

Styles Group

This group contains commands for managing [styles](#) and [conditions](#) for report components and dashboard elements.

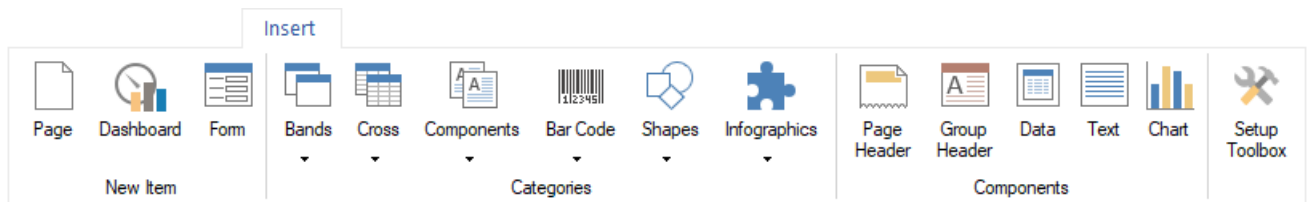


- ❶ A command that opens [condition editor for components](#).
- ❷ A command that opens the interaction editor for [report components](#) and [dashboard elements](#).
- ❸ A button that copies the formatting of the selected component or element. When activated, the formatting settings of the selected component are stored in the clipboard. These settings can then be applied to other report components of the same type. To clear the copied formatting from the clipboard, click this button again to disable the formatting copy mode.
- ❹ A command that opens [style designer](#).
- ❺ A control that allows selecting a style for report components or dashboard elements. Clicking this control opens a drop-down list of styles and collections. When a collection is selected, it is [applied to the report](#).

- 6 A command that opens [style designer](#).

6.3 Tab Insert

The **Insert** tab is a section of the Ribbon in the report designer that contains commands for creating a new page, a new form, a new dashboard, as well as inserting report components or dashboard elements. It functions as an equivalent to the [Toolbox](#) in the report designer and can be used alongside it or independently.



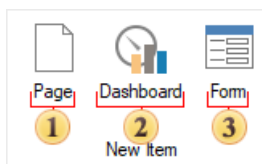
You can enable or disable the **Insert** tab in:

- > [Report Designer settings](#);
- > [Toolbox settings](#).

All elements in the **Insert** tab or **Toolbox** are organized into groups.

New Item Group

This group contains commands for creating primary elements within the current report template. It is only available on the **Insert** tab.



- 1 A command that creates a new report page in the template.
- 2 A command that creates a [dashboard](#) in the template.
- 3 A command that creates a new dialog form in the template.

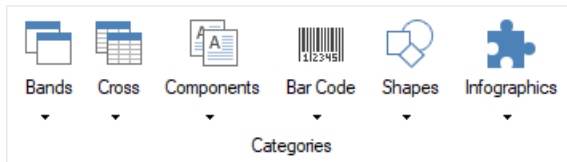
Information

By default, the create new dialog form command is disabled. To make it visible on the **Insert** tab, enable the **Show Dialog Forms** option in the [report designer](#)

[settings.](#)

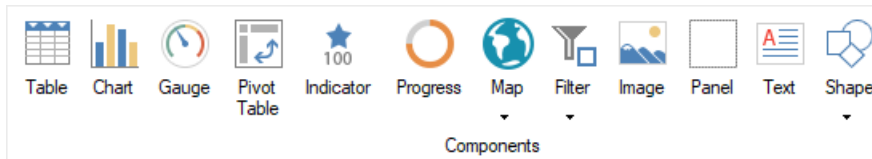
Categories Group

This group contains report component categories. It is not available for dialog forms or dashboards.



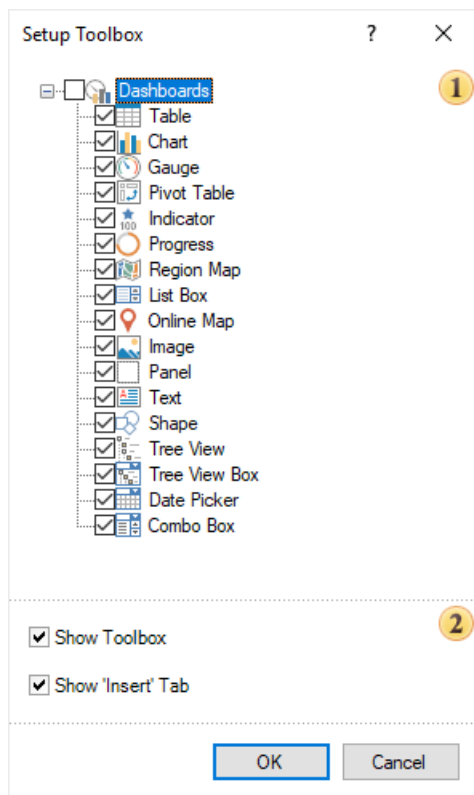
Components Group

This group contains report components, dashboard elements, or dialog form components, depending on the main element in the current report template. The list of available elements in this category can be configured in the Toolbox settings when designing reports or dashboards.



Toolbox Settings

In the Toolbox settings, you can define the list of elements that will be displayed in the **Components** group on the **Insert** tab and in the **Toolbox**. Enable or disable the visibility of the Insert tab and the Toolbox in the report designer. To access the Toolbox settings, click the **Setup Toolbox** button on the **Insert** tab or directly in the **Toolbox**.



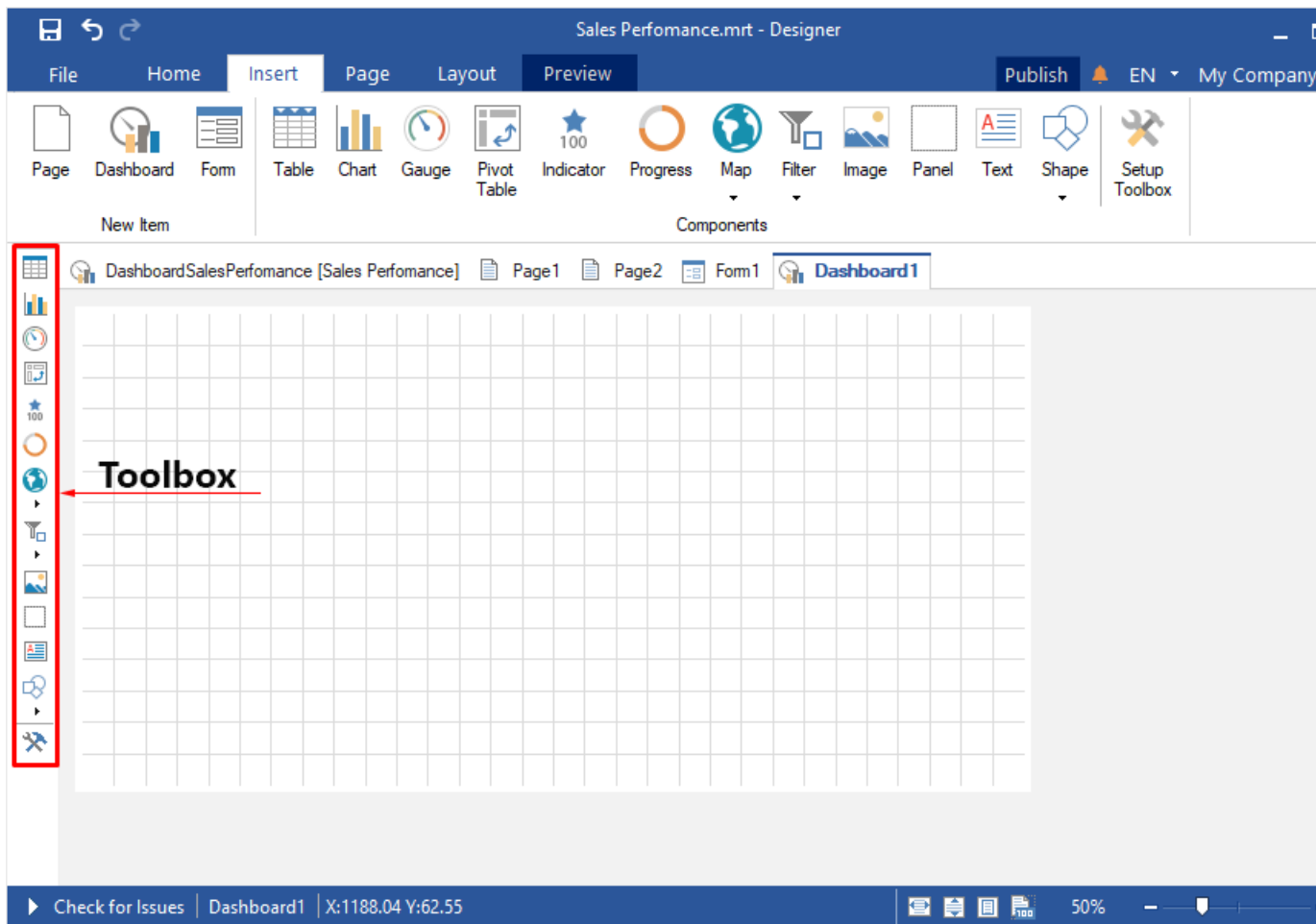
- ① A component list determines which report components or dashboard elements appear in the **Components** group on the **Insert** tab and in the **Toolbox**. If an item is checked, it will be displayed; if unchecked, it will not appear.
- ② A options, that enable or disable **Toolbox** and **Insert** Tab controls the visibility of the **Insert** tab and **Toolbox** in the report designer. If checked, they will be displayed; if unchecked, they will be hidden.

Information

Either the **Insert** tab or the **Toolbox** must always be visible in the report designer. It isn't possible to disable both at the same time.

Toolbox

The Toolbox is a sidebar in the report designer that contains report components, dialog form components, and dashboard elements. It functions as an equivalent to the **Insert** tab.

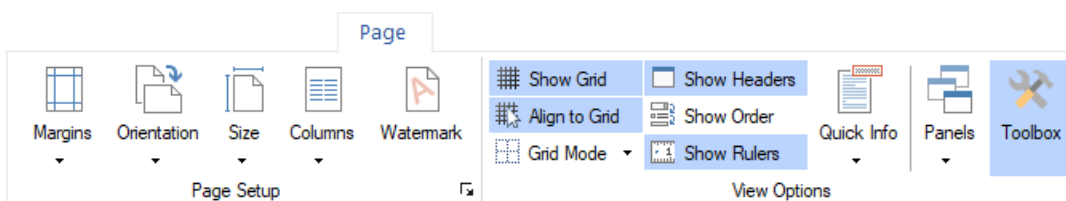


You can enable or disable the Toolbox in:

- [Report designer settings](#);
- [Toolbox settings](#);
- [Page](#) tab of the report designer.

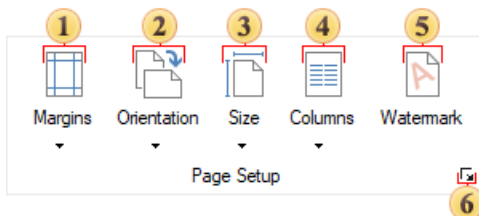
6.4 Tab Page

The **Page** tab is a tab on the Ribbon of the report designer that contains commands for managing the report page settings, the workspace of the dashboard panel, and the dialog form.



Page Settings Group

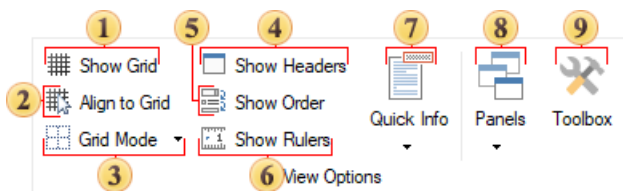
This group contains elements to control basic parameters of a page. These are page margins, orientation, page size, columns.



- ❶ A control that allows selecting page borders. When clicked, a dropdown menu appears where page borders can be selected.
- ❷ A control for changing the page orientation. When clicked, a dropdown menu appears where the page orientation can be selected.
- ❸ A control for changing the page size. When clicked, a dropdown menu appears with a list of available page sizes.
- ❹ A control for selecting the number of columns on the report page. When clicked, a dropdown menu appears with the available column count options.
- ❺ A command to open the **Page Setup** window and navigate to the **Watermark** tab. [Learn more about adding a watermark in the report.](#)
- ❻ A command to open the **Page Setup** window and navigate to the **Paper** tab.

View Options Group

This group contains settings for displaying the grid, additional information, and commands for enabling various panels.

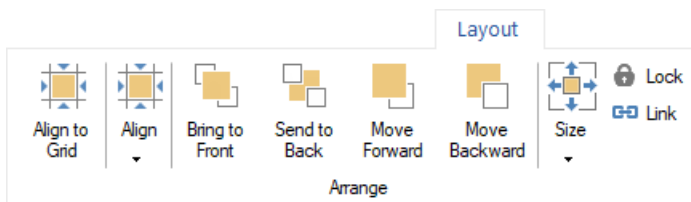


- ❶ The **Show Grid** command enables or disables the grid display on the report template page or in the dashboard panel workspace.
- ❷ The **Align to Grid** command allows aligning selected components or elements to the grid nodes.
- ❸ A control for selecting the grid drawing mode: **Lines** or **Dots**.

- 4 The **Show Headers** command enables or disables the display of component headers in the report template.
- 5 The **Show Order** command enables or disables the display of the component or element order number. The order number is assigned as components are added to the report or elements to the dashboard panel.
- 6 The **Show Rulers** command enables or disables the display of rulers in the report designer.
- 7 A control that allows displaying additional information on report components or dashboard elements. This is an equivalent of the [Quick Info](#) tab in the report designer settings.
- 8 A control that allows enabling or disabling the display of various report designer panels, such as [Properties](#), [Dictionary](#), [Tree](#).
- 9 The **Show Toolbox** command enables or disables the display of the [Toolbox](#).

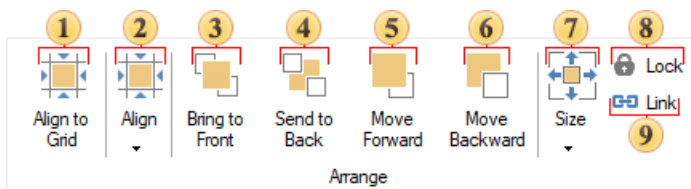
6.5 Tab Layout

The **Layout** tab is a section of the Ribbon in the report designer that contains commands for managing the placement of components on the page and elements on the dashboard.



Placement Group

The group contains a lot of commands to change position of components on a page. The picture below shows this group.

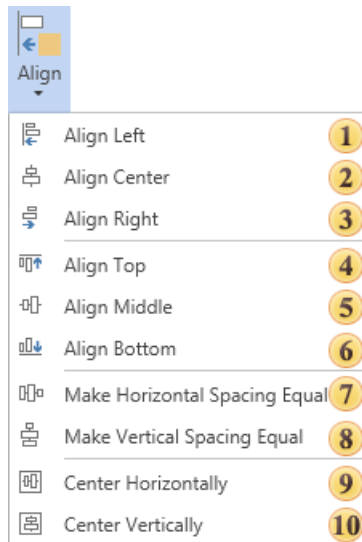


- 1 The **Align to Grid** command that aligns all selected components to the page or dashboard grid.
- 2 Controls that provides various alignment options for selected components and elements. Clicking this control opens a drop-down menu with alignment commands. A detailed [description of these commands](#) is provided below.

- 3 The **Bring to Front** command that moves the selected components or elements to the front, placing them at the highest level in the component or element hierarchy. The hierarchy can be viewed in the [Tree](#) panel.
- 4 The **Send to Back** command that moves the selected components or elements to the back, placing them at the lowest level in the hierarchy. The hierarchy can be viewed in the [Tree](#) panel.
- 5 The **Move Forward** command that moves the selected components or elements one level up in the hierarchy. The hierarchy can be viewed in the [Tree](#) panel.
- 6 The **Move Backward** command that moves the selected components or elements one level down in the hierarchy. The hierarchy can be viewed in the [Tree](#) panel.
- 7 Controls that allows selecting predefined sizes for the selected components. Clicking this control opens a drop-down menu with size commands. A detailed [description of these commands](#) is provided below.
- 8 The **Lock** command, that enables or disables the ability to resize, move, or edit a component. If this command is active (button pressed), modifications to the selected component or element are restricted. If inactive (button not pressed), the component or element can be freely edited.
- 9 The **Link** command, that associates selected components or elements with containers. When active (button pressed), the selected component or element becomes a dependent element of the container, regardless of its position. The container in this case is another report component or dashboard element. If inactive (button not pressed), the component or element remains dependent on the container it is placed on during report generation.

Alignment Menu

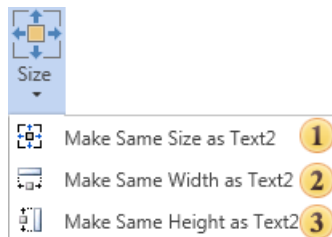
This menu contains commands for aligning selected components or elements.



- 1 Align all selected components to their common left margin.
- 2 Align horizontally all selected components to their common center.
- 3 Align all selected components to their common right margin.
- 4 Align all selected components to their common top margin.
- 5 Align vertically all selected components to their common center.
- 6 Align all selected components to their common bottom margin.
- 7 Make horizontal spacing of selected components equal by their width.
- 8 Make vertical spacing of selected components equal by their height.
- 9 Center all selected components horizontally.
- 10 Center all selected components vertically.

Size Menu

This menu contains commands for setting the sizes of the selected report components or dashboard elements. The original sizes, i.e., the sizes that will be applied to other components or elements, are the sizes of the component or element from which the selection of the group of components or elements was initiated.



- ❶ Make the same size of components as the size of the first selected component.
- ❷ Make the same width of components as the size of the first selected component.
- ❸ Make the same height of components as the size of the first selected component.

6.6 Panels

Important

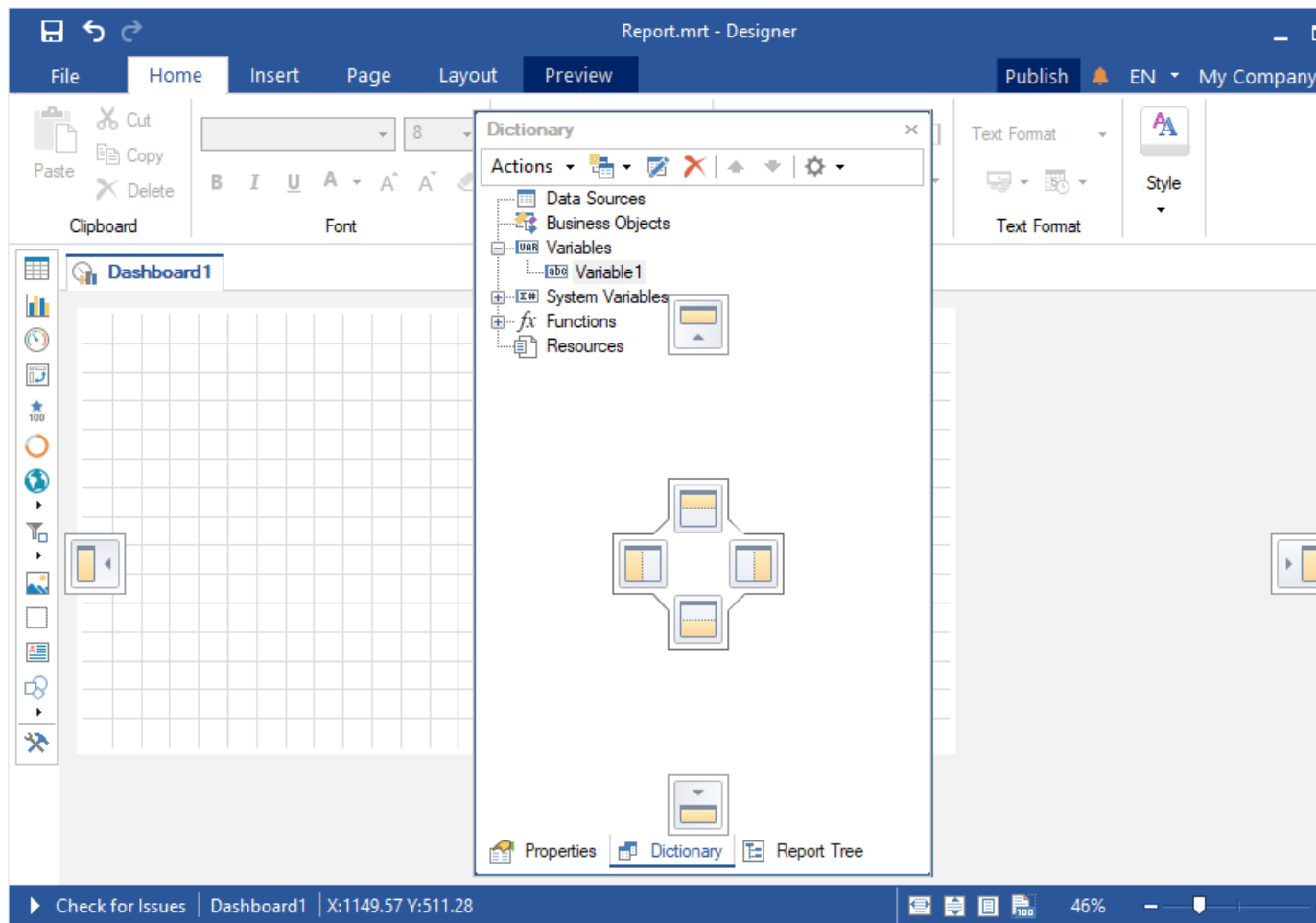
Scripts can pose a security risk. Therefore, [calculation mode](#) is disabled in **Interpretation** mode. If you are confident in the security of the scripts, you can use them in **Compilation** mode.

In addition to the Ribbon and Toolbox, the report designer includes the following panels:

- [Properties](#) - a panel displaying the properties of the selected element, their values, and associated events.
- [Dictionary](#) - a panel that displays all created data sources, variables, functions, and resources.
- [Tree](#) - a panel that shows the hierarchy of report components or dashboard elements.

You can enable or disable these panels in the **Page** tab under the [Panels control menu](#). These panels can also be moved within the designer window. To do this:

- Hover the mouse cursor over the panel title;
- Press and hold the left mouse button and move the cursor without releasing it.

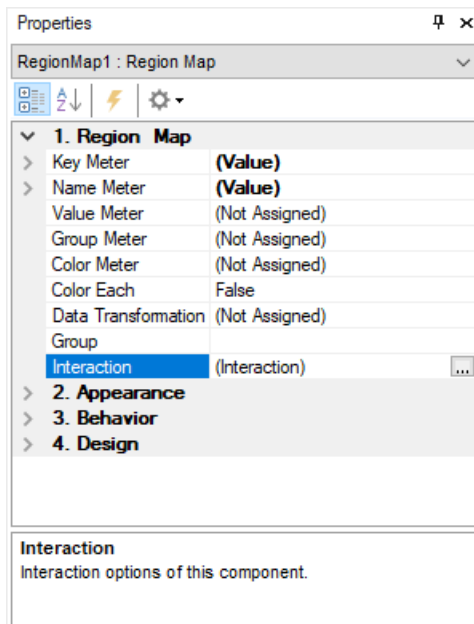


When moving panels, a docking guide appears to help snap the panel to other interface elements. However, free movement of panels is also possible.

Properties Grid

The **Properties** grid displays the properties of the selected report component or dashboard element, as well as component events. The panel includes:

- A control that allows changing the selected component or element. When clicked, a list of all report components or dashboard elements is displayed;
- A toolbar for managing the properties grid;
- A table displaying the properties or events of a component or element;
- A description field for the selected property.



ToolBar

This panel contains commands for managing the Properties panel.

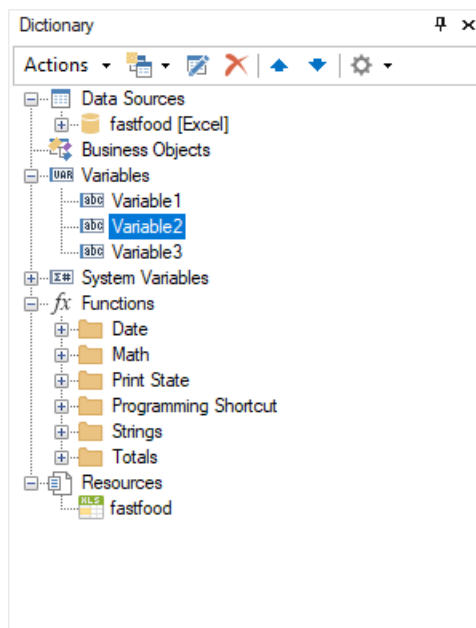


- 1 The **Categorized** command groups the properties of a component or element into categories.
- 2 The **Alphabetical** command sorts the list of component or element properties alphabetically, from A to Z.
- 3 The command to switch to the Properties Tab of the selected component or element.
- 4 The command to switch to the Events Tab of the selected component.
- 5 A control containing commands for configuring the Properties panel:
 - The **Localize Property Grid** command enables or disables localization of property names. If enabled (checkbox checked), property names will be translated when the designer's interface language changes. If disabled (checkbox unchecked), property names will not be localized;
 - The **Show Description** command enables or disables localization of property names. If enabled (checkbox checked), property names will be translated when the designer's interface language changes. If disabled (checkbox unchecked), property names will not be localized;

➤ Commands for selecting the property table type: **Basic**, **Standard**, **Professional**. Depending on the selected type, the list of properties of the component or element will be minimal, standard or extended.

Dictionary

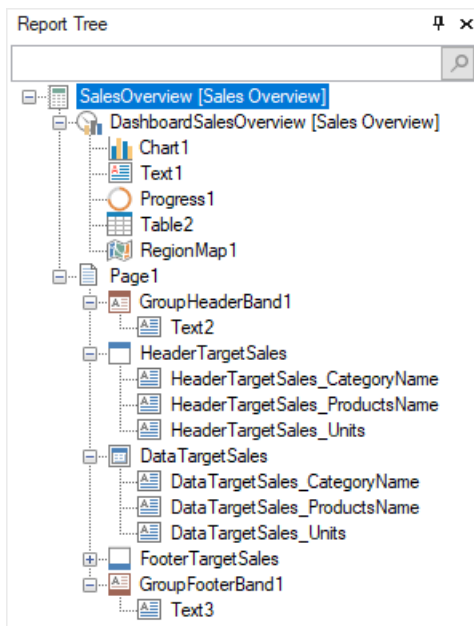
This panel in the report designer displays created [data sources](#), [functions](#), [variables](#), business objects, [resources](#).



More details about the **Dictionary**, working with it and its elements [can be found in the corresponding section](#).

Report Tree

The Report Tree panel displays the hierarchy of report components or dashboard elements. The hierarchy of report components displays the order in which they are processed when building a report, i.e. the higher the component is in the hierarchy, the earlier it will be processed.



To change the processing order of a component or element, select it and use the controls in the [Layout](#) tab of the report designer to move it within the hierarchy.

Information

The **Tree** panel also includes a search field to find components or elements by name. Additionally, if a report component has an associated event, it will be marked with an event icon in the hierarchy.

6.7 Report Template

Important

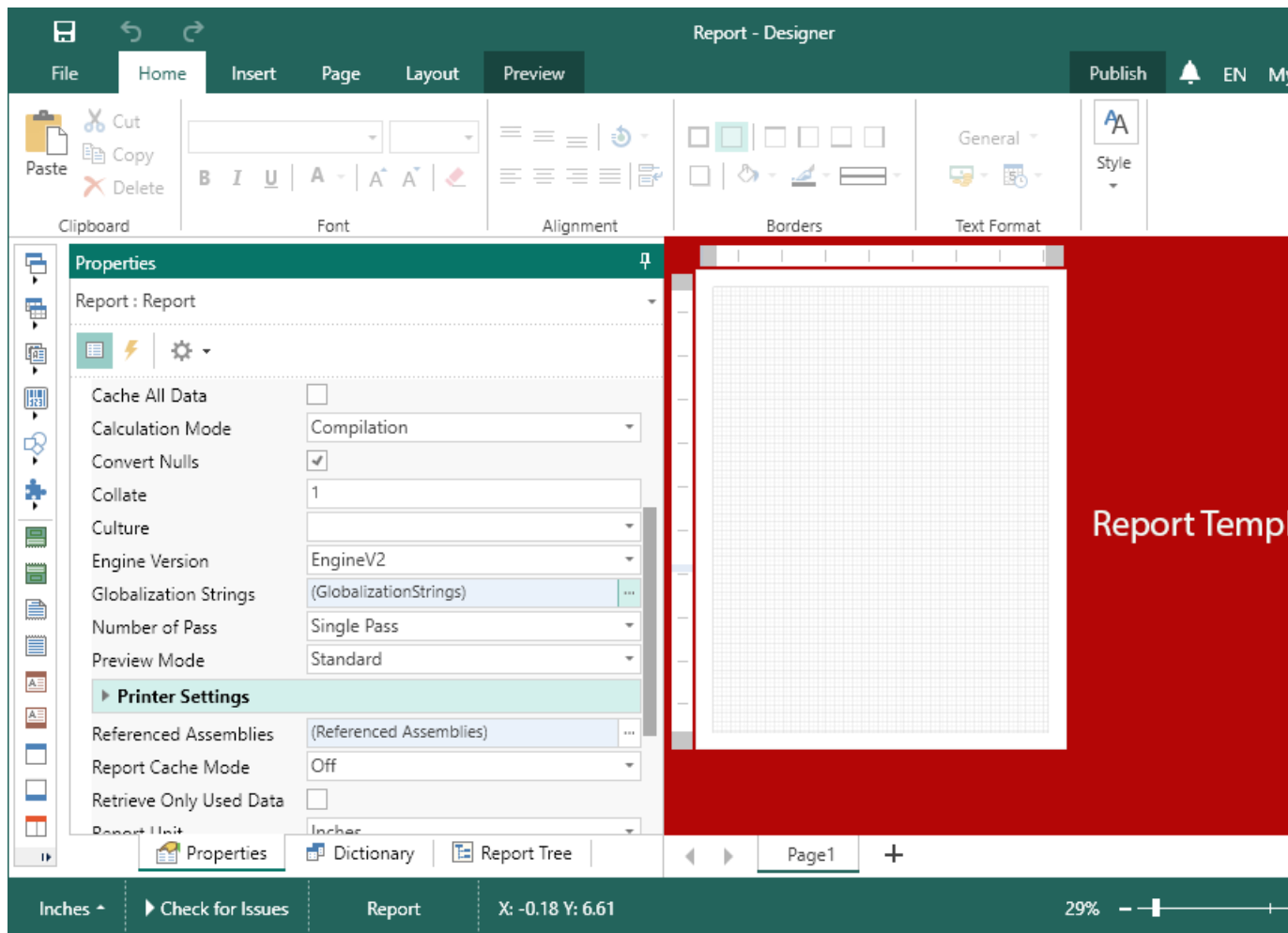
Scripts can pose a security risk. Therefore, [calculation mode](#) is disabled in **Interpretation** mode. If you are confident in the security of the scripts, you can use them in **Compilation** mode.

A report or dashboard is a way of processing data presented by any structure. The

report engine processes the data of the report or dashboard, and its structure is created in the report template. A report template is an area in the report designer in which a report structure or analytical panel is created using components or elements, respectively.

You can create the structure, a position of components or elements:

- On a page or form if you design a report;
- On the dashboard panel, if you create a [dashboard](#).



The report template has its settings that affect both the process of building a report or dashboard and its result. For example, in the properties of a report template, the expression processing mode is determined - compilation or interpretation. Also, using the settings of the report template, you can configure the preview panel, report update time, report culture, and more.

The following ways exit to change the report template settings:

- Click on the report template area (outside the page or dashboard), and set the property values on the **Property** panel in the report designer.
- Double-click the left mouse button in the report template area (outside the page or dashboard) to call the **Report Options** window.

Report Options

Parameters which effect on report rendering

☐ Cache All Data

☒ Convert Nulls

Number of Pass: Single Pass

Report Cache Mode: Off

Calculation Mode: Compilation

Script language of your report

☒ C#

☐ VB.Net

Size and coordinates in a report will be in specified units

☐ Centimeters

☐ Millimeters

☐ Inches

☒ Hundredths of Inch

OK Cancel

Information

The **Report Options** window contains duplicate properties of the report template. A complete list is provided on the **Property** panel.

The table below shows the properties of the report template.

Name	Description
------	-------------

Report Name	It is used to change the name of the report.
Report Alias	It is used to change the report alias.
Report Author	It is used to change the author of the report.
Report Description	It is used to change the description of the report.
Report Image	It is used to upload an image that will be a thumbnail for the current report.
Auto Localize Report on Run	It is used to enable the automatic localization of strings. Learn more about this in this section.
Cache All Data	It is used to enable or disable the caching mode of all data in one DataSet. If the property is set to True, then all data will be cached in one DataSet. If the property is set to False, then all data will not be cached in one DataSet.
Cache Totals	It is used to enable or disable caching of totals with the Totals prefix. If the property is set to True, the totals will be cached. If the property is set to False, the totals will not be cached.
Calculation Mode	It is used to determine the processing mode of report expressions - Compilation or Interpretation. Learn more about this in this section.
Convert Nulls	It is used to convert null to default values, for numerical values - to zero. If the property is set to True and the data column type containing null is not Nullable, all null values will be converted to default values. If the property is set to False, null values will not be converted.
Collate	It is used to shuffle the pages of a

	rendered report. If the property is set to greater than 1, then all pages of the rendered report will be split into groups, and then one page from each group will be sequentially added to the new page collection. If the property is set to 1, then the report pages will not be shuffled.
Culture	It is used to change the report culture. You can learn more about the report culture in this section.
Engine Version	It is used to select the version of the report engine that will be used to build reports.
Globalization Strings	It is used to customize globalization strings in a report. Click the Browse button in the value field to open the Globalization editor .
Number of Pass	It is used to select the number of passes when rendering the report - Single Pass, Double Pass.
Preview Mode	It is used to define the preview mode – Standard , Standard and Dot-Matrix, and Dot-Matrix .
Preview Settings	It is used to customize the preview panel of reports and dashboards. Click the Browse button in the value field to open the preview settings editor .
Printer Settings	A group of properties that is used to specify print settings - select a printer, set the duplex mode, determine the number of copies, etc.
Referenced Assemblies	It is used to edit the list of used assemblies. Click the Browse button in the value field to open the row collection editor, in which you must add or remove the necessary assemblies.

Refresh Time	It is used to determine the time of rebuilding a report or dashboard. You can learn more about the refresh time in this chapter.
Report Cache Mode	It is used to choose the mode of report caching. The next values are available On, Off, and Auto. If the current property is set to Auto , the report caching will be activated automatically if the number of report pages is more than 200.
Report Unit	It is used to select the units in the report- Centimeters, Inches, Hundredths, and Millimeters.
Retrieve Only Used Data	It is used to request only the necessary data or all dictionary data. You can learn more about requesting only the necessary data in this chapter.
Parameters Orientation	It is used to select the orientation of the toolbox panel when viewing a report - Vertical or Horizontal.
Request Parameters	It is used to request input parameters before rendering a report. If the property is set to True, you should enter the parameters before building the report. If the property is set to False, then it is not required to enter parameters before building the report.
Script Language	It is used to choose a scripting language - CSharp or VB.NET.
Stop Before Page	It is used to stop render a report when it reaches a specific page. The numerical value is indicated in the value field of this property. This value is the serial number of the page of the rendered report, after which the report rendering will be stopped. By default, the property is set to 0, which means that there are no

	restrictions on the number of pages of the rendered report. The entire report will be built.
Styles	It is used to call a style designer. Click the Browse button in the value field to call the Style Designer.

6.7.1 Calculation mode

Important

Scripts can be a security risk, so they are disabled in the [Interpretation mode](#). However, if you are confident in the safety of your scripts, you can use them in the [Compilation mode](#).

When you design reports and dashboards, expressions can be processed in the **Interpretation** or **Compilation** mode.

In the **Compilation** mode, the CSharp compiler is used to calculate expressions. In this case, it is allowed to use events, various methods, and functions of the .NET Framework. However, the time taken to build a report or dashboard is slowing down, and it also requires more RAM.

In **Interpretation** mode, the Stimulsoft interpreter is used to calculate expressions. This speeds up the building of a report or dashboard and reduces the required amount of RAM. However, only built-in functions and methods can be used in a report or dashboard. The use of events and third-party scripts is not allowed.

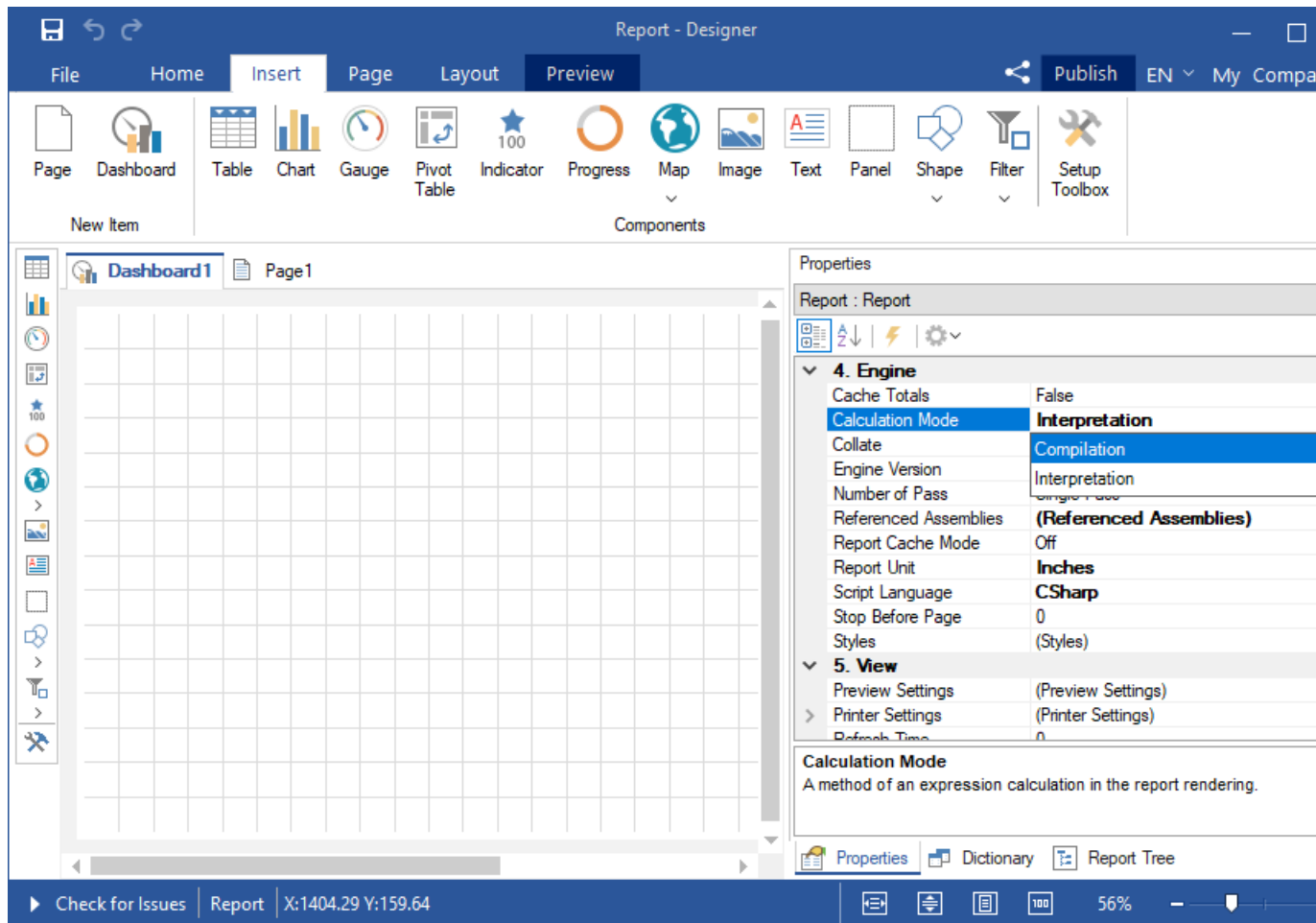
Information

For some platforms, report generators cannot use the **Compilation** mode. For example, on the .NET Core and JavaScript platforms, all expressions in reports and on dashboards are processed only in the Interpretation mode.

You can change the mode of calculating expressions in a report or on the dashboard

in the following way:

- In the report designer, select the report template area and choose the expression processing mode as the value of the **Calculation Mode** property on the **Property** panel.



- Double-click on the report template area to call the **Report Options** window. Select the expression processing mode as the value of the **Calculation mode** parameter.

Report Options

Parameters which effect on report rendering

☐ Cache All Data

☒ Convert Nulls

Number of Pass: Single Pass

Report Cache Mode: Off

Calculation Mode: Interpretation

Script language of your report

☒ C#

☐ VB.Net

Size and coordinates in a report will be in specified units

☐ Centimeters

☐ Millimeters

☒ Inches

☐ Hundredths of Inch

OK Cancel

Information

You should know that you can only edit the dashboard from the viewer if the expression processing mode is set to **Interpretation**.

6.7.2 Globalization Editor

When designing reports, there can be situations when users who view rendered reports have different language cultures. In this case, they can make the required number of copies of the report, each of which is localized in a specific language. However, when editing one report template, you will have to do changes in all of its copies. Thus, every change in the report template will increase the time spent on preparing the report and significantly increases the likelihood of errors in copies of this report.

Our report generator provides the ability to localize the report depending on the selected report culture. The **Globalization Strings** tool is used for this. You can

define a list of cultures with which the elements of the report will be translated. The items for which you can configure localization include:

- Report properties: Report Alias, Report Author, Report Description;
- Text component, text in cells, Rich text;
- Each cell of the Table and the Cross-tab components;
- Variables in the report;
- The text fields of the Chart component (labels, legends, rows, charts, and also you can override the values of the text properties before and the text after these chart items).

You should know that for each text component, as well as for each cell in the **Table** and **Cross-tab**, you can override several properties of this component. For example, if the report uses the text component **Text1**, then:

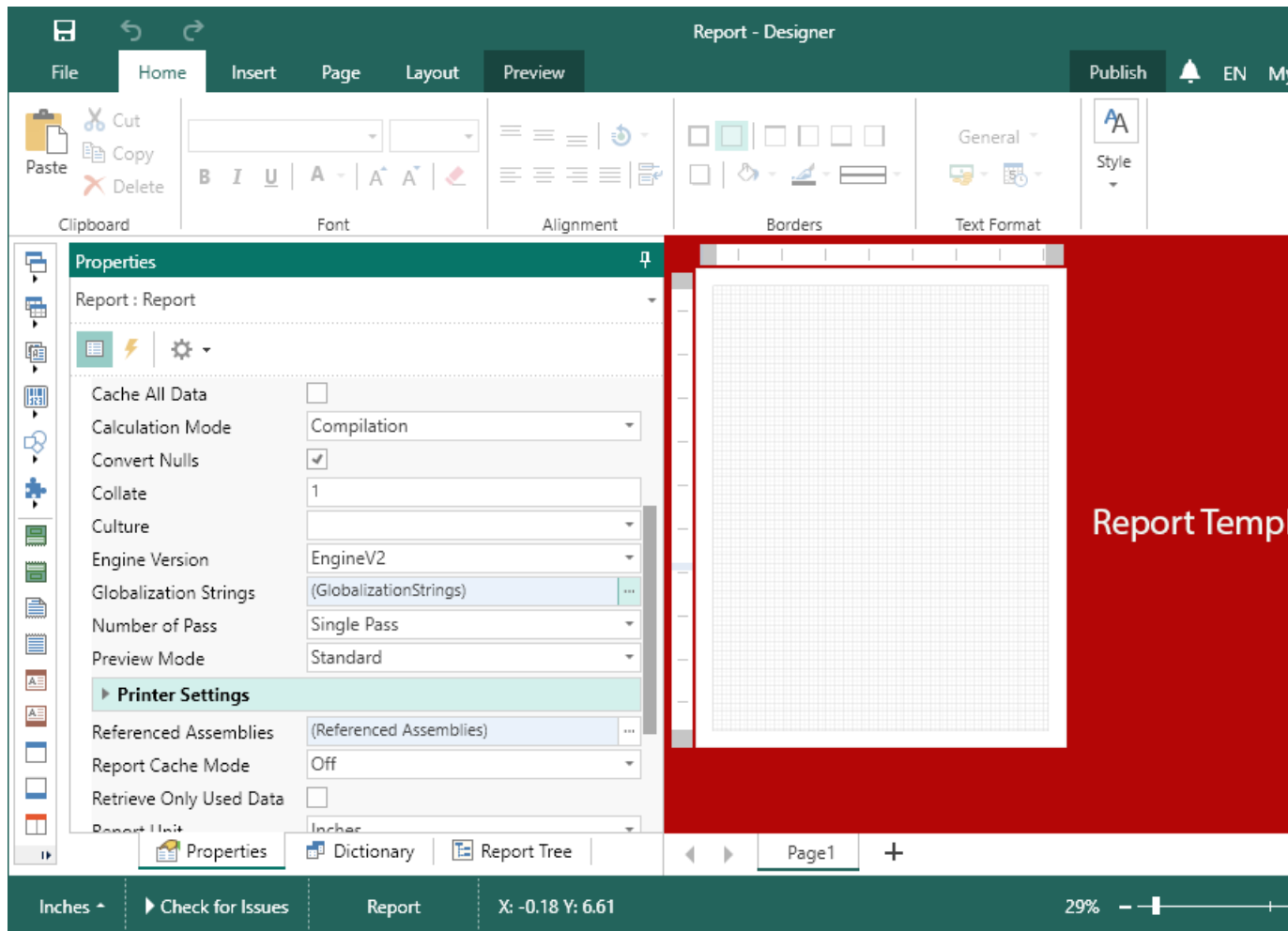
- In the **Text1.Hyperlink** property, you can specify a hyperlink (or expression) when you select a specific culture. For example, you can specify a hyperlink (or expression) on a localized page of your website.
- In the **Text1.Tag** property, you can specify a tag (or expression) for this text component when you select a specific culture. The tags in the report are used to refer to a particular report component.
- In the **Text1.Text** property, you can specify the text (or expression) of the text component that will be processed when the report is rendered and displayed to the user when a particular culture is selected.
- In the **Text1.Tooltip** property, you can specify the tooltip (or expression) of this text component when you select a specific culture.

If a property is not filled, then when you select a specific culture, the result will be empty. For example, if you do not specify anything for a particular culture in the **Text1.Text** property, then when you select this culture, the text component will be printed without any content.

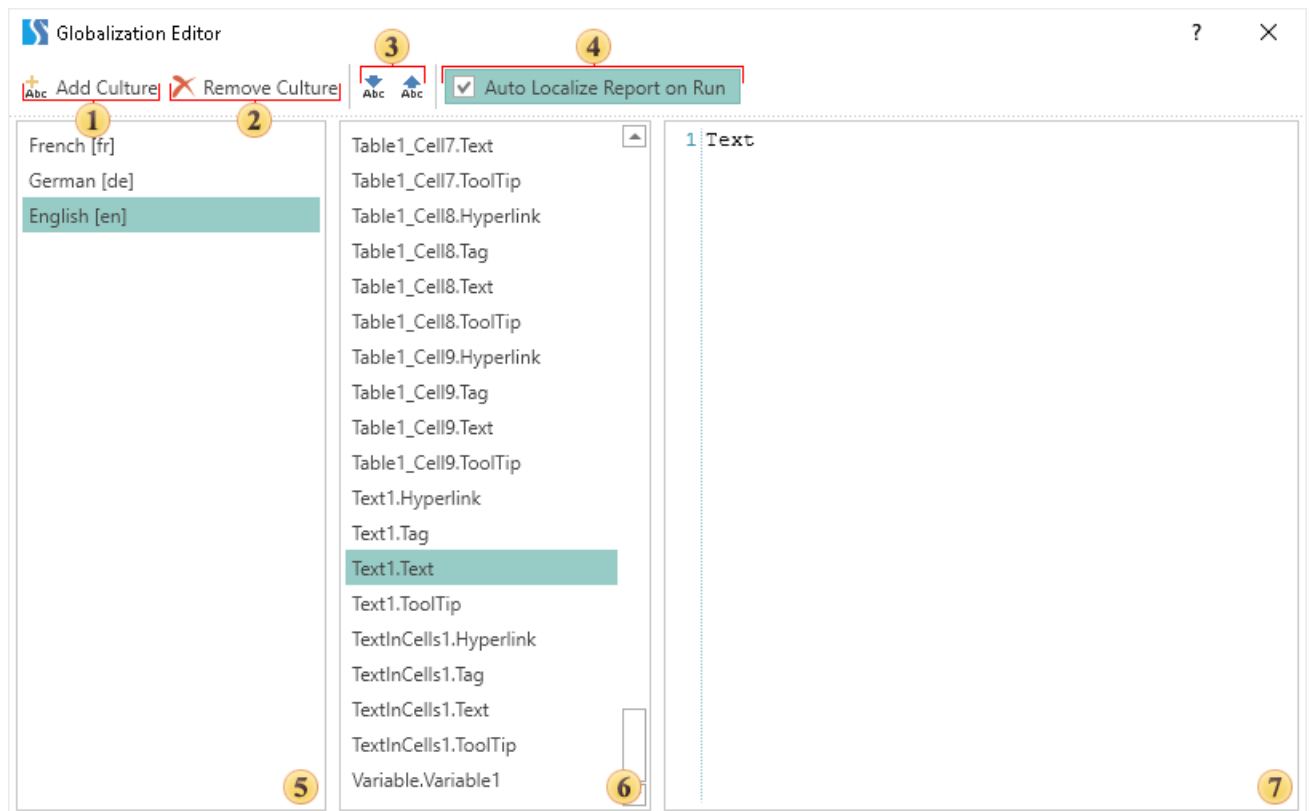
Information

The report culture does not depend on the localized GUI of the report designer. The culture of the report depends on the value of the **Culture** property. The list of values for this property depends on the list of cultures supported by the operating system. By default, the report uses the current culture of the operating system.

To call the **Globalization Editor**, you should go to the report properties and click in the report template area.



And on the properties panel, click the **Browse** button on the **Globalization** property. Below is the view of the **Globalization Editor**.



- 1 Click this button to add a new culture. The added cultures will be displayed in the list of cultures.
- 2 Select the culture in the list and click this button to remove the culture from the list.
- 3 The buttons to control cultures.
 - Get the culture settings from the report, in this case, for the items of the selected culture, the values that are used in the report will be specified.
 - Transfer culture settings to a report, in this case, the values from the selected culture will be specified for the report items.
- 4 If the **Auto Localize Report on Run** option is enabled, then, when rendering reports, the report engine will check the report culture and whether they are presented in the list. If identical cultures are found, then expressions of the report items will be replaced.
- 5 The list of cultures, setting which, the localization of the report items will occur (i.e. replacing expressions that are specified in a particular culture).
- 6 The list of report items, which localization can be configured.
- 7 An expression of the item that will be assigned to the selected report item when you select a specific culture.

To automatically localize the report, you should specify the report culture after specifying the list of cultures and their settings. To do this, select the required value in the **Culture** property of the report. Then, when rendering the report, the report engine will check the report culture and their presence in the list of cultures. If identical cultures are found, the expressions of the report items will be replaced.

6.7.3 Report Culture

By default, the regional settings of the operating system are used to build reports and dashboards. If you need to show data in the report or dashboard, regardless of the current culture in the operating system, then you should apply a particular culture to this report or dashboard. To apply culture to a report or dashboard, use the **Culture** property of the report template. Set the culture code (format **xx-XX**, for example, **en-GB**) in the field of the property. After that, the report generator, before rendering a report, will set a specific culture and apply regional settings for components and elements. Below, you may find an example of the report with different cultures:

Russian (Russia) (ru-RU)

ProductName	UnitPrice	OrderDate
Queso Cabrales	18,00p.	03.08.2008 23:00:00
Singaporean Hokkien Fried Mee	18,00p.	03.08.2008 23:00:00
Mozzarella di Giovanni	18,00p.	03.08.2008 23:00:00

Arabic (Libya) (ar-LY)

ProductName	UnitPrice	OrderDate
Queso Cabrales	18.000.ل.د.	03/08/2008 11:00:00
Singaporean Hokkien Fried Mee	18.000.ل.د.	03/08/2008 11:00:00
Mozzarella di Giovanni	18.000.ل.د.	03/08/2008 11:00:00

English (United Kingdom) (en-GB)

ProductName	UnitPrice	OrderDate
Queso Cabrales	£18.00	03/08/2008 23:00:00
Singaporean Hokkien Fried Mee	£18.00	03/08/2008 23:00:00
Mozzarella di Giovanni	£18.00	03/08/2008 23:00:00

You should notice that the first columns contain text that is independent of the report culture. The second (currency) and third (date-time) columns are culture-dependent. Therefore, when changing the culture, the type of data record changes.

Information

It is impossible to remember all the codes of cultures. Therefore, for convenience, you can find the list of values of the **Culture** property in a drop-down menu with a list of cultures and their codes that are available in the operating system on the current computer.

If you need the components to be independent of culture, displayed the same for any culture applied to the report, you should uncheck the **Use local settings** parameter and define formatting settings in the [Text Format](#) editor of the text component. For example, you want to see the price of a product always in the same currency, regardless of regional settings. Below is a report sample with different cultures:

Russian (ru-RU)

ProductName	UnitPrice 1	UnitPrice 2
Sasquatch Ale	14,00p.	14,00p.
Steeleye Stout	18,00p.	18,00p.
Iniagol Sili	19,00p.	19,00p.

English (United States) (en-US)

ProductName	UnitPrice 1	UnitPrice 2
Sasquatch Ale	\$14.00	\$14.00
Steeleye Stout	\$18.00	\$18.00
Iniagol Sili	\$19.00	\$19.00

As you can see in the picture, the currency depends on the culture applied to the report, which is not entirely true. In order for the price to always be in the same currency, you should select the text component in the report template with reference to the **UnitPrice 2** column and the [Currency format](#) editor to determine specific parameters – currency, USD. Now, regardless of the report culture, the price in this column will always be in the USD:

English (United States) (en-US)

ProductName	UnitPrice 1	UnitPrice 2
Sasquatch Ale	\$14.00	\$14.00
Steeleye Stout	\$18.00	\$18.00
Iniagdi Sili	\$19.00	\$19.00

Russian (ru-RU)

ProductName	UnitPrice 1	UnitPrice 2
Sasquatch Ale	14,00p.	\$14.00
Steeleye Stout	18,00p.	\$18.00
Iniagdi Sili	19,00p.	\$19.00

As you can see, when applying the Russian (ru-RU) culture, the currency in the second column has not changed, while in the first one, it depends on the culture used.

Information

If the culture selected for the report is not supported by the operating system, then the current culture of the operating system will be applied to the report.

6.7.4 Refresh Time

By default, the report is built:

- › When you load reports into the viewer;
- › When you switch from the report designer to the **Preview** tab;
- › When you click the **Refresh** button on the preview tab.

In this case, to rebuild the report, you need some action from the user. To rebuild a report automatically at a specified time interval, you should set the **Refresh Time** report property to:

- › One of the predefined values from seconds to hours;
- › Enter the value in seconds manually. For example, if you want the report to be rebuilt every hour, enter 3600 (1 hour = 3600 seconds).

After the specified interval, the report will be automatically rebuilt.

Setting the report update time

Step 1: Run the report designer;

Step 2: Create or open a report;

Step 3: Left-click in the area between the page of the report template and the property panel;

Step 4: Select the **Refresh Time** property on the property panel, select a preset value or manually enter the value in seconds;

Step 5: Save the changes by clicking the **Save** button in the upper left corner of the report designer;

Step 6: Go to preview or open the report in the viewer by pressing the F5 button.

After the specified interval, the report will be rebuilt.

6.7.5 Preview settings

When designing a report and dashboard, or before exporting, printing, sending by email, you can preview them. Viewing a report or dashboard is done on a separate tab in the report designer. The preview tab for reports and dashboards contains toolbars with buttons and menus.

In the report designer, you can customize toolbars to preview a report or dashboard. You can do this in the **Preview Settings** editor. To call this editor, you should do the following:

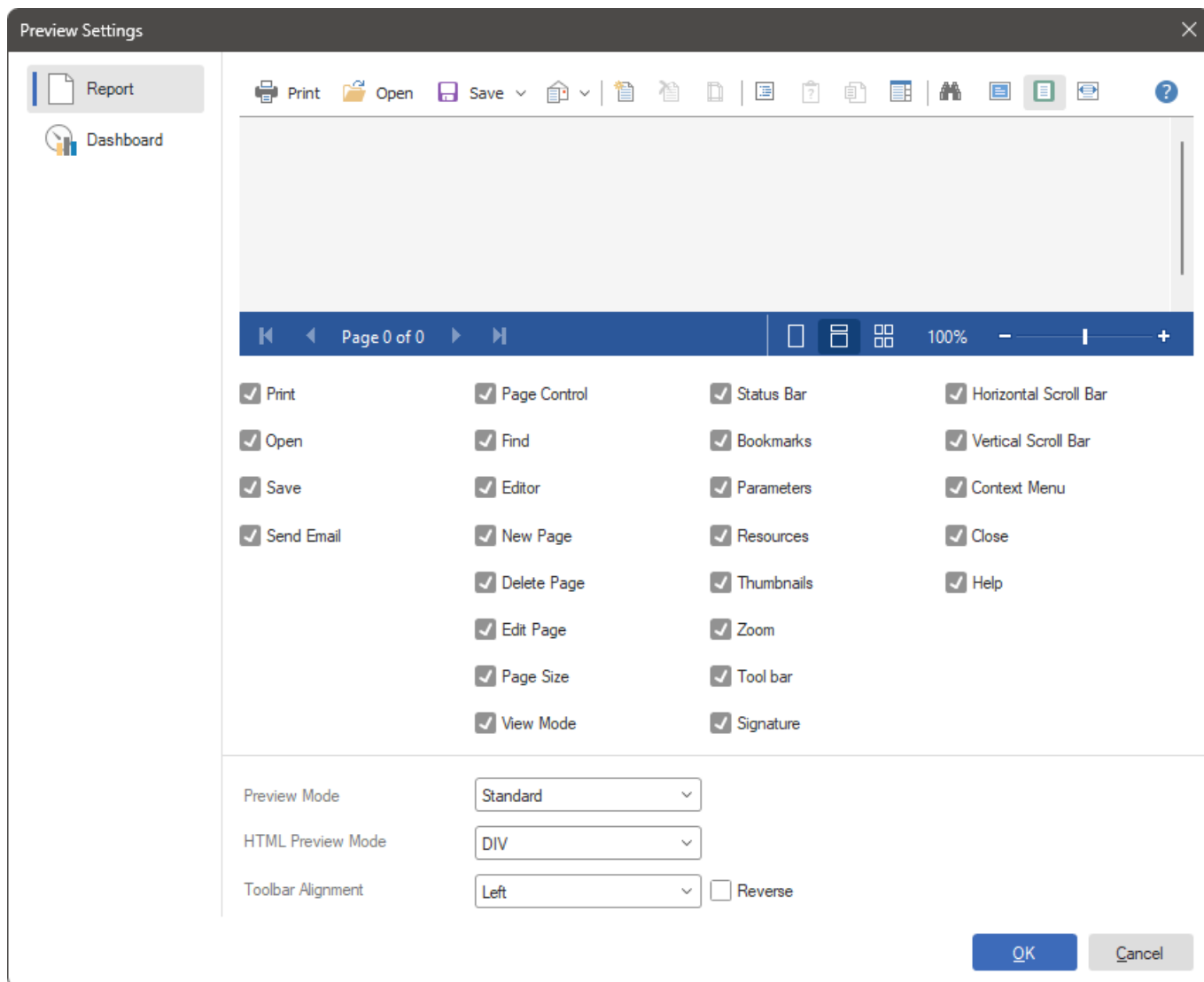
- Left-click in the report template area (outside the page and dashboard).
- Click the **Browse** button of the **Preview Settings** property.
- Since reports and dashboards use different viewing modes, their toolbars differ. On the [Report tab](#) of the editor, the toolbar is configured when viewing the current report, and on the [Dashboard tab](#), the current toolbar is configured.

Information

Pay attention to these settings are stored in the template itself and are applied to the viewer toolbar only when viewing the current report or dashboard.

Report preview settings

In the preview editor, on the **Report** tab, you can find a panel with a preview and a panel of parameters on which you can disable the buttons and controls in the preview. To disable a button or any control, you should uncheck a particular setting. Accordingly, to enable a button or control, a flag must be checked for that parameter. The included buttons and controls in the preview panel are displayed in real-time.



Below is a table of parameters for customizing the report viewer toolbar.

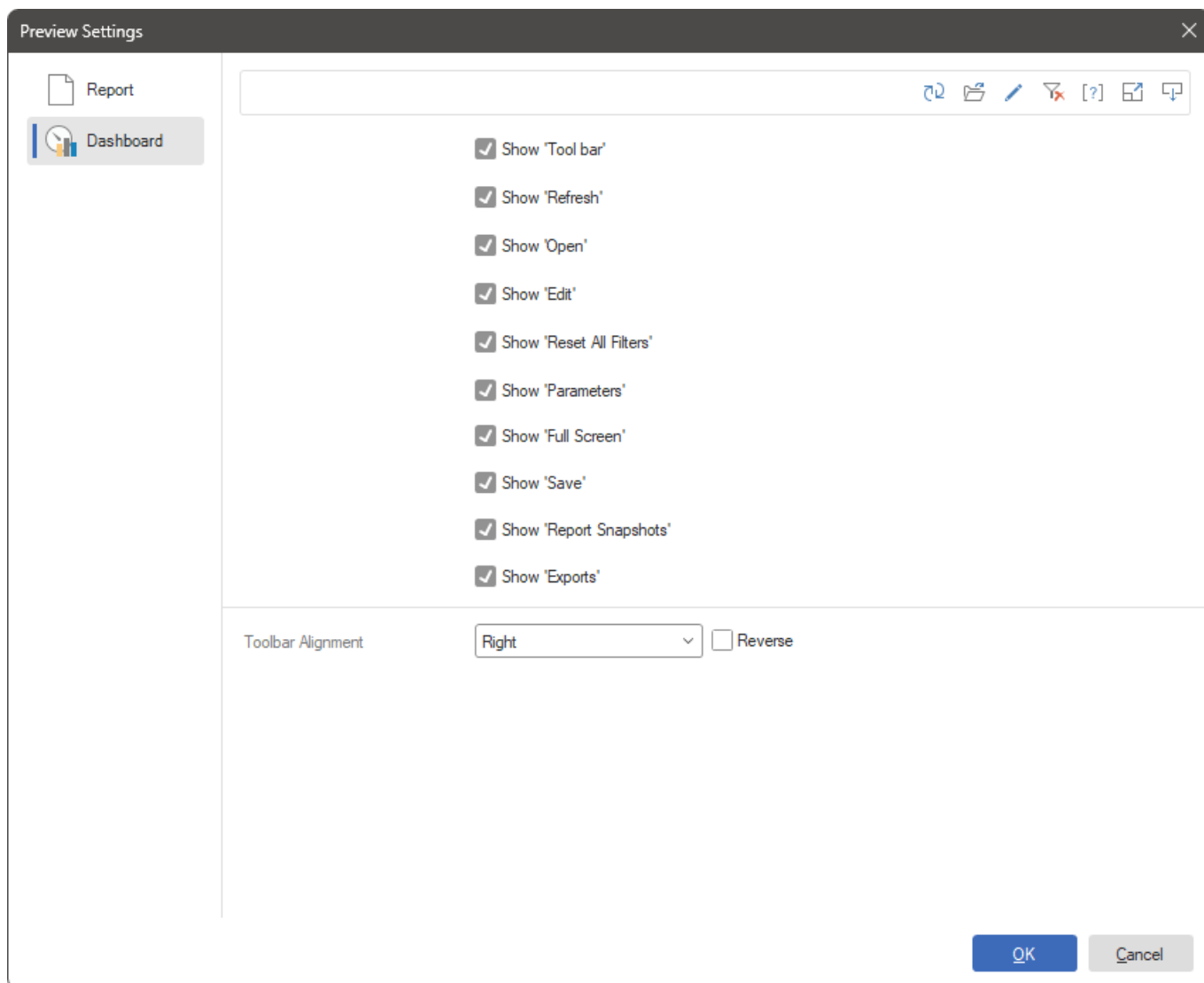
Parameter	Description
Print	This parameter is used to enable/disable the display of the Print button on the toolbar.
Open	This parameter is used to enable/disable the display of the Open button on the toolbar.
Save	This parameter is used to enable/disable the display of the Save button on the toolbar.
Send Email	This parameter is used to enable/disable the display of the Send Email button on the toolbar.
Page Control	This parameter is used to enable/disable the display of the page navigation control in the status bar.
Find	This parameter is used to enable/disable the display of the Find button on the toolbar.
Editor	This parameter is used to enable/disable the display of the Editor button on the toolbar.
New Page	This parameter is used to enable/disable the display of the New Page button on the toolbar.
Delete Page	This parameter is used to enable/disable the display of the Delete Page button on the toolbar.
Edit Page	This parameter is used to enable/disable the display of the Edit Page button on the toolbar.
Page Size	This parameter is used to enable/disable the display of the Page Size

	button on the toolbar.
View Mode	This parameter is used to enable/disable the display of the View Mode buttons on the toolbar.
Status bar	This parameter is used to enable/disable the display of the status bar in the viewer.
Bookmarks	This parameter is used to enable/disable the display of the Bookmarks button on the toolbar.
Parameters	This parameter is used to enable/disable the display of the Parameters button on the toolbar.
Resources	This parameter is used to enable/disable the display of the Resources button on the toolbar.
Thumbnails	This parameter is used to enable/disable the display of the Thumbnails button on the toolbar.
Zoom	This parameter is used to enable/disable the display of the zoom control in the status bar.
Toolbar	This parameter is used to enable/disable the display of the toolbar in the viewer.
Signature	This parameter is used to enable/disable the display of the Sign button on the toolbar.
Horizontal Scroll bar	This parameter is used to enable/disable of the horizontal scroll control in the viewer.
Vertical Scroll bar	This parameter is used to enable/disable of the vertical scroll control in the viewer.
Context Menu	This parameter is used to enable/

	disable the display of the context menu in the viewer.
Close	This parameter is used to enable/disable the display of the Close button on the toolbar.
Help	This parameter is used to enable/disable the display of the Help button on the toolbar.
Preview Mode	This parameter is used to define mode of the report view in the viewer Standard , Dot-matrix or Standard and Dot-matrix .
HTML Preview Mode	This parameter is used to define mode of the report layout for viewing in the Web viewer: DIV or Table .
Toolbar Alignment	This parameter is used to define mode of the viewer toolbar alignment: Left , Center , Right .
Reverse	This parameter is used to define order of the viewer controls in direct order, i.e. from left to right or reverse order, i.e. from right to left.

Setting the dashboard preview

In the preview editor, on the **Dashboard** tab, a toolbar and a parameter panel are presented, on which you can disable the buttons on the toolbar. To disable the button, you should uncheck the box for a particular parameter. Accordingly, to enable the button, you must check it for any setting. The enabled buttons on the toolbar are displayed in real-time.



Below is a table of parameters for customizing the dashboard viewer toolbar.

Parameter	Description
Show 'Too bar'	This parameter is used to enable/disable the display of the toolbar in the viewer.
Show 'Refresh'	This parameter is used to enable/disable the display of the Refresh button on the toolbar.
Show 'Open'	This parameter is used to enable/

	disable the display of the Open button on the toolbar.
Show 'Edit'	This parameter is used to enable/disable the display of the Edit button on the toolbar.
Show 'Reset All Filters'	This parameter is used to enable/disable the display of the Reset All Filters button on the toolbar.
Show 'Parameters'	This parameter is used to enable/disable the display of the Parameters button on the toolbar.
Show 'Full Screen'	This parameter is used to enable/disable the display of the Full Screen button on the toolbar.
Show 'Save'	This parameter is used to enable/disable the display of the Save button on the toolbar.
Show 'Report Snapshot'	This parameter is used to enable/disable the display of the Report Snapshot command on the Save menu. This command is only available if the calculation mode property sets as Interpretation .
Show 'Exports'	This parameter is used to enable/disable the display of the export commands on the Save menu
Toolbar Alignment	This parameter is used to define mode of the viewer toolbar alignment: Left, Center, Right .
Reverse	This parameter is used to define order of the viewer controls in direct order, i.e. from left to right or reverse order, i.e. from right to left.

1 This option is used to enable/disable the display of the toolbar in the preview tab.

- 2 This option is used to enable/disable the display of the **Refresh** button on the toolbar.
- 3 This option is used to enable/disable the display of the **Open** button on the toolbar.
- 4 This option is used to enable/disable the display of the **Edit** button on the toolbar.
- 5 This option is used to enable/disable the display of the **Full Screen** button on the toolbar.
- 6 This option is used to enable/disable the display of the **Menu** button on the toolbar.
- 7 This option is used to enable/disable the display of the **Report Snapshot** command in the **Menu** on the toolbar.
- 8 This option is used to enable/disable the display of export commands in the **Menu** on the toolbar.

Information

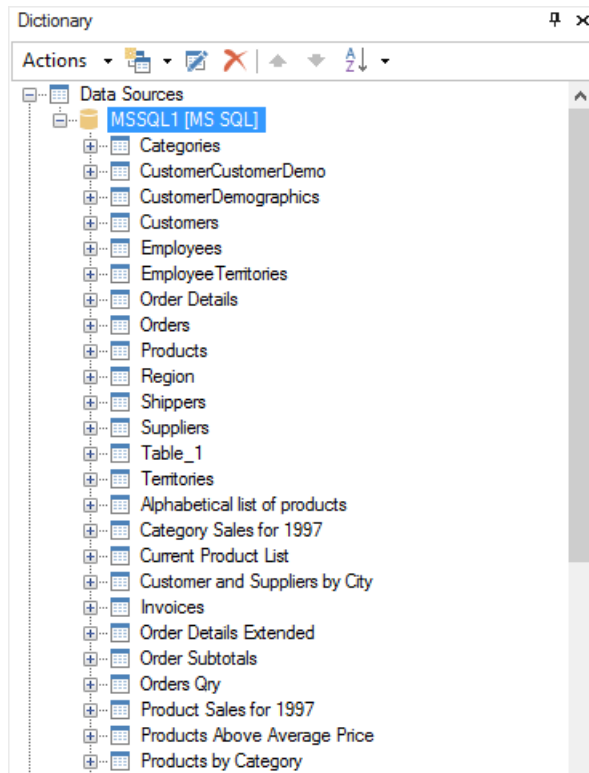
You should know that you can enable or disable the display of buttons on the dashboard elements in the viewer or on the preview tab. Select the element in the report designer, click the **Interaction** button on the **Home** tab of the Ribbon panel, and [check/uncheck the box for the parameters](#) if you want to display/hide the buttons of elements.

6.7.6 Retrieve Only Used Data

Sometimes it is enough to change the value of one property to significantly increase the speed the report rendering. When working with the report template, the data dictionary does not contain any real data. Data in the dictionary are located only as a description of the data structure. Execution of all queries and data transfer from the storage is carried out at the moment of the report rendering process. At this time, the entire structure of the dictionary is filled with real data. In other words, if 200 data sources are created in the dictionary then the actual data are transferred from the storage to all those sources. The more data to be transmitted from the storage to the dictionary, the longer is the time of the report rendering process. However, not always all data sources are used in the report. To significantly reduce the time of the report rendering getting only real data for data sources used in the report, you should set the **Retrieve Only Used Data** report property to **true**.

Consider an example. For example, a MS SQL database that contains data tables,

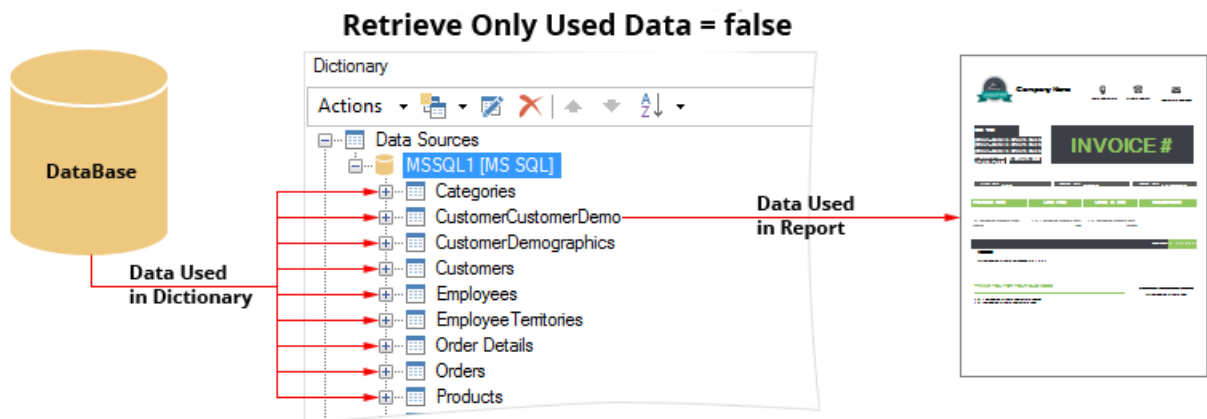
stored procedures, and views is used. The picture below shows the data structure of the dictionary:



Each table contains data from one to the plurality of data columns, with at least one data row. For example, only the CustomerCustomerDemo data source will be used in the report.

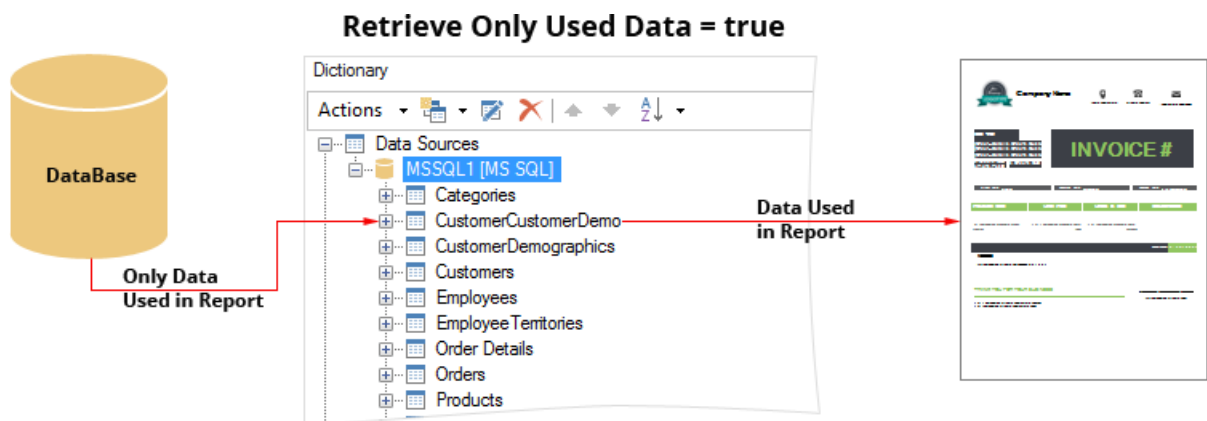
➤ The **Retrieve Only Used Data property** is set to **false**

In this case, when rendering the report, data will be transferred from the database for each table in the data dictionary, and then the dictionary in the report itself. In other words, every table will be filled with actual data. Then, the report generator, selects the data used in the report and displays them in a structured way. Time of the report rendering depends on how fast data is transferred and the data size. The faster the data will be transmitted, the faster the report will be rendered. The picture below schematically shows the data transferring, if the Retrieve Only Used Data property is set to false:



➤ **The Retrieve Only Used Data property is set to true**

In this case, when rendering a report, the report generator will analyze the report structure and transfer data only for tables used in this report. In the current example, the data will be transferred only for the CustomerCustomerDemo table. The rendering time of the report, in this case, will be much less. If the report will be used by more than one table, the data will be transferred to the several tables only. The picture below schematically shows the data transfer, if the Retrieve Only Used Data property is set to true:



Information:

An alternative method is to remove unused data sources from the data dictionary. However, sometimes it is necessary that the whole structure is present. For example, for the further development of the report or, say, when one and the same dictionary is used for a variety of reports.

6.8 Hotkeys

The report designer supports many hotkeys. Using them can speed up the effectiveness of work in creating reports. The table below lists the hotkeys and their descriptions.

Hotkeys	Description
Designer:	
Escape (Esc)	Exit various modes, close component editors.
F1	Navigate to the Stimulsoft documentation website page.
F4 (or Shift+Enter)	Activate the "Properties" panel.
F5	Switch to the preview tab in the report designer.
Shift+F5	Call the report (or dashboard) viewer in a separate window.
F6	Select the "Copy Style" tool.
F10	Enable hotkey mode for the Ribbon interface.
Ctrl+N	Create a new report.
Ctrl+O	Call the dialog window to select a report template file.
Ctrl+S (or Ctrl +F12)	Call the "Save As" dialog window to save the report template.
Ctrl+A	Select all on the report or dashboard page.
Ctrl+Z	Undo the last action.
Ctrl+Y	Redo the undone action.
Ctrl+Tab	Switch between pages (dashboards, forms if available) in the report template.
Ctrl+Shift+N	Add a new page to the report template.
Ctrl+Shift+F	Add a new form to the report template.

Ctrl+Shift+I	Add a new dashboard to the report template.
Ctrl+Shift+O	Call the dialog window to select a previously saved report template page (*.pg file).
Ctrl+Shift+D	Enable or disable the "Data Dictionary" panel.
Ctrl+Shift+L	Enable or disable the "Report Tree" panel.
Components:	
Ctrl+Enter	Call the editor for the selected report component or dashboard element.
Cursor keys	Move the selected component or element.
Shift+Cursor keys	Resize the component or element by one grid cell.
Shift+Alt+Cursor keys	Resize the component or element by one report unit.
Ctrl+Cursor keys	Move the selected component or element by one grid cell.
Ctrl+Alt+Cursor keys	Move the selected component or element by one report unit.
Ctrl+Drag mouse	Copy selected components or elements.
Alt+Drag mouse	Ignore the "Align to Grid" command when moving or resizing components (elements).
Text Component:	
Enter	Edit the Text Box component without opening the editor.
F3	Select the Text Editor tool.
Ctrl+B	Apply Bold font style to the selected text component.

Ctrl+I	Apply <i>Italic</i> font style to the selected text component.
Ctrl+U	Apply <u>Underline</u> font style to the selected text component.
Ctrl+"+"	Increase the font size for the selected component.
Ctrl+"-"	Decrease the font size for the selected component.
Ctrl+L	Align text to the left within the text component.
Ctrl+E	Align text to the centre within the text component.
Ctrl+R	Align text to the right within the text component.
Ctrl+J	Justify text within the text component.
Clipboard:	
Ctrl+C (or Ctrl+Insert)	Copy selected components or their contents to the clipboard.
Delete (or Ctrl+Delete)	Delete selected components or content.
Ctrl+V (or Shift+Insert)	Paste clipboard content into the report.
Ctrl+X (or Shift+Delete)	Cut selected components or their contents to the clipboard.
For the Standard interface designer only:	
Ctrl+F2	Display " Data Store ".
Ctrl+F5	Display " Services Configurator ".

7 Data

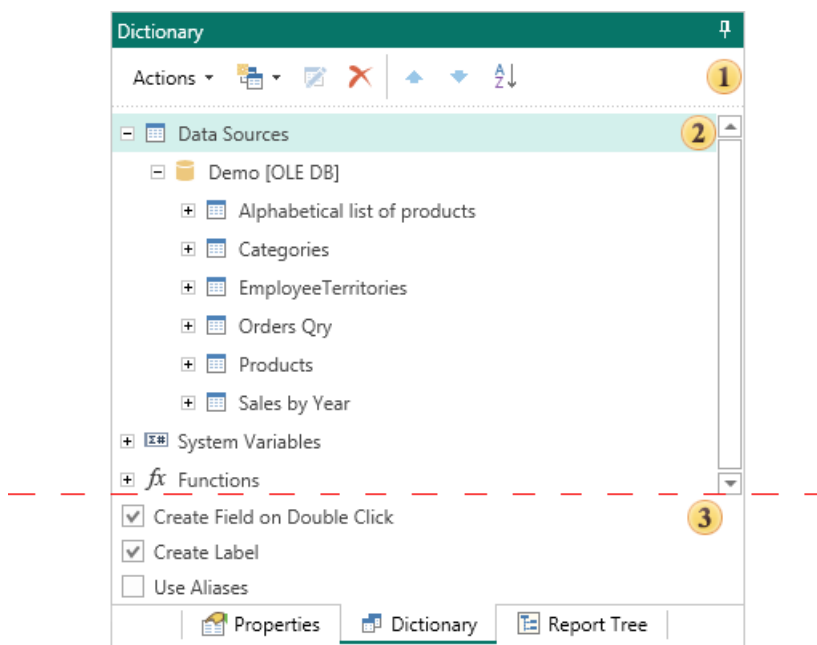
This section provides information on using the data dictionary. The examples in this section show the processes of creating a database connection from the Report Designer, creating a data source to work with variables, and their use in reports.

Information

When creating report templates, you should consider the value of the Retrieve Only Used Data property.

7.1 Data Dictionary

Each report contains the data dictionary. The data dictionary contains information about the data used to create reports. This information includes connections to databases, data sources, and their relations, variables, and business objects. Also, the report data dictionary may not have any information about the data, but the report will be rendered. The report data dictionary is displayed in the **Dictionary** panel. The picture below shows the **Dictionary** panel:



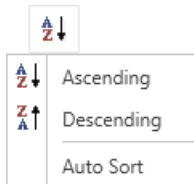
- ❶ The **Data Dictionary** panel. It contains the necessary controls in the dictionary.
- ❷ The **Information** panel. Displays information about the data as a tree.
- ❸ The **Settings** panel. Used to enable/disable some options to work with the data dictionary.

7.1.1 Control Panel

The basic elements to control the data dictionary can be found on the control panel. The picture below shows the control panel:



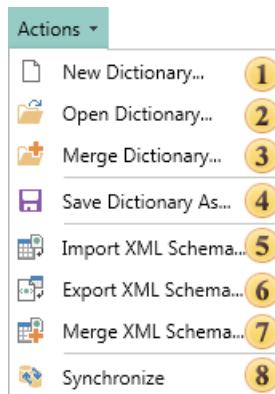
- 1 The **Actions** menu. This menu contains the main control commands for the data dictionary;
- 2 The **New Item** menu. In this menu the basic commands to create new elements in the data dictionary are placed;
- 3 The **Edit** button provides an opportunity to change any element, which can be edited;
- 4 Using the **Delete** button one can delete any item in the data dictionary available for deleting;
- 5 Pressing the **Up/Down** buttons, the selected item in the data dictionary is moved one position up/down;
- 6 The **Sorting Items** menu. In this menu one can select the sorting direction: **Ascending**, **Descending**. Also in this menu, one can enable **Auto Sort**. The picture below shows the Sorting Items menu:



The **Ascending** option sorts the information in order from **A** to **Z**; The **Descending** option sorts the information in order from **Z** to **A**. The **Auto Sort** sorts in order from **A** to **Z**. One should note that the items are sorted within functional groups. For example, data sources within the data sources group are not mixed with the variables and the variables within the variables group are not mixed with the data sources, etc. Also note the nesting of elements of the data dictionary.

7.1.1.1 Actions Menu

In the **Actions** menu the main commands to control the data dictionary are located. The picture below shows this menu item:

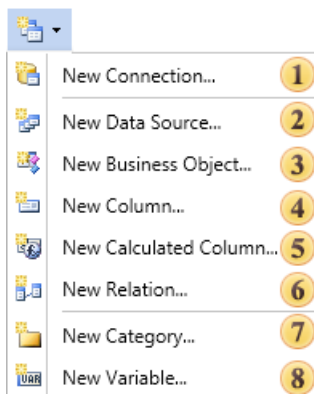


- ❶ The **New Dictionary...** command is used to create a new data dictionary in an editing report;
- ❷ The **Open Dictionary...** command invokes a dialog box in which one should specify the path to the previously saved data dictionary, select it and click Open. In this case, the current data dictionary is replaced with the specified data dictionary.
- ❸ If it is necessary to add a data dictionary to the data dictionary in the report, you can use the **Merge Dictionary...** command. Using this option, the user will see a dialog box in which it is possible to specify the path to the previously saved data dictionary, select it and click Merge. Then, the selected data dictionary will be added to the data dictionary in the report. If the current data dictionary and the data dictionary, which will be added, have the same items, the existing items will be replaced with data items from the added data dictionary;
- ❹ The **Save Dictionary As** command invokes a dialog box in which it is possible to specify the path by what data dictionary, the name of the saving *.dct file will be saved, click the Save button. After that, the data dictionary of a report will be saved;
- ❺ Using the **Import XML Schema...** command it is possible to import information about the data from the selected XML schema to the data dictionary. After clicking this item, a dialog box will be invoked where a user must specify the path to a previously saved XML schema, select it and click Open;
- ❻ Using the **Export XML Schema...** command it is possible to save the data dictionary as an XML schema. After clicking this item, a dialog box will be invoked where one must specify the path to save the XML schema and the *.xsd file name. Then click the Save button;
- ❼ If it is necessary to add more information about the data from the selected XML schema to the information about the data in the data dictionary, click the Merge XML Schema... command. A dialog box will be invoked where one must specify the path to the XML schema, information from which will be added, select it and click Open;
- ❽ The **Synchronize** command provides the ability to synchronize the contents of a

data dictionary with the data that are registered for the report. This command synchronizes the registered data in a data store and data dictionary of a report. Moreover, the data can be passed to the report from both the program and be connected in the report. If data were registered using the **RegData** or **RegBusinessObjects** methods then, when running the report designer, they will be synchronized. It is necessary to note that if the data are registered in a report as connections to databases, then synchronization will not be performed automatically. This remark is not related to a connection in the report, generated for the **XML** data. For data that are registered in the report and receive the information from databases using queries, one must use the wizard to create a new data source. A wizard to create a new data source provides the ability to add tables from the database automatically.

7.1.1.2 New Item Menu

Commands using which it is possible to add new items to the data dictionary of a report can be found in the **New Item** menu. The picture below shows the **New Item** drop down list:



- ❶ If you want to create a new data source in the data dictionary of a report, you must select the **New Data Source...** command. The type of the data source depends on the type of connection. When using this command, a wizard to create a new data source that provides the ability to add more than one data table in a data dictionary of a report. It is necessary to know that this is just a method of describing the data source.
- ❷ To add a description of a new business object to the data dictionary of a report you should select the **New Business Object...** command. It should be remembered that for each created business object, you must pass real business objects from the program. Since, as already mentioned before, only a method of describing data is created in the data dictionary. So, without real business objects, it will not work.
- ❸ Add a new column in the selected data source or a business object using the **New**

Column... command. Also, if the data column is added to the report data dictionary, but it does not really exist in the database, it can lead to incorrect report rendering.

4 In the report data dictionary, it is possible to add a new calculated column in the selected data source. Use the **New Calculated Column...** command for this. In contrast to the simple data column, for proper report rendering, it is not necessary for a new calculated data column to be placed in the database.

5 The command to add the variable to the data dictionary.

6 To organize a new relation between the data sources, you should use the **New Relation...** command. It is worth noting that relations can be created only between data sources and cannot be created between business objects. Therefore, if it is necessary to create the relation between business objects, the **RegData** method should be used instead of the **RegBusinessObjects** method. The **RegData** method converts the business object into the ADO.NET DataSet. As a result, you can work with this business object by means of ADO.NET. Accordingly, it will provide an opportunity to add new relations between business objects and use them.

7 If you want to add a new category of variables in the report data dictionary, you should use the **New Category...** command. All variables are organized in a two-level structure, where the variable can be located both in the main list and in the category, which is located in the main list. Such a category can be created with this command.

8 The **New Variable...** command provides an opportunity to add a new variable into the data dictionary. If, when calling this command, any category of variables has been selected in the data dictionary, then the variable will be created in this category. If no category in the data dictionary has been selected or the Variable element has been selected in the data dictionary, then the new variable will be created at the top level of the variables list.

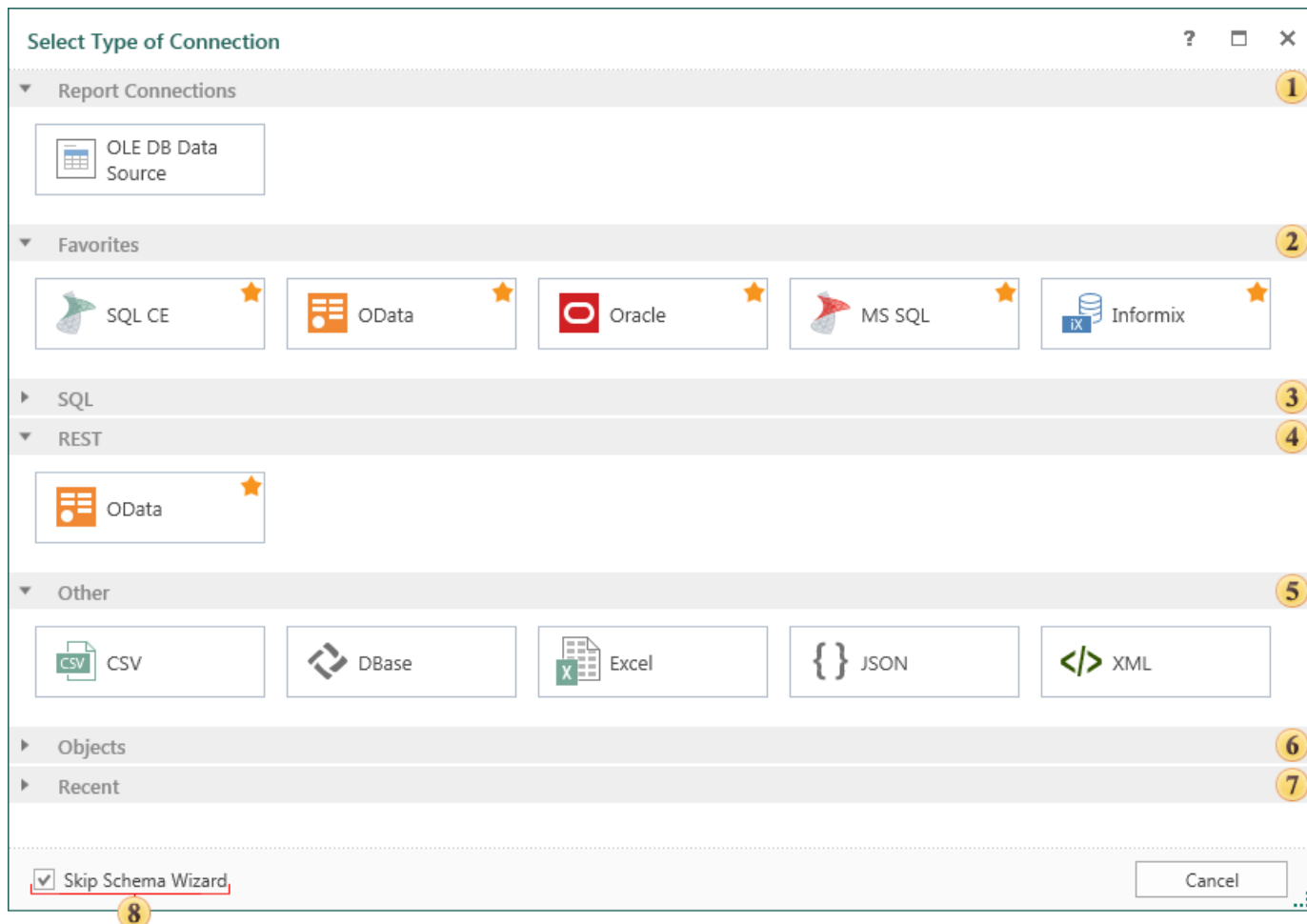
7.1.2 Data Sources

The **Data Source** is a structural description of the data used for the report. The Data Source is like a program "layer" which provides data from the database and its conversion and to the report generator. In other words, the data source is a description of the methods, parameters, and data access methods.

Information

The description of data does not contain actual data. Filling the data is carried out at the time of the report rendering process.

To create a data source you should select the **New Data Source** command in the **New Item** menu of the data dictionary or from the context menu:



Before the new data source is created, you need to connect to the data storage. In the dialog of creation the data source, connection types are grouped:

- 1 The **Connection** group contains already created links to the data storage. If no connection is established, this group will not be displayed.
- 2 The **Favorites** group lists the types of connections that have been marked by the user. In other words, the user can create a list of connections, checking them with stars. To do this, move the cursor to the upper right corner of the connection and press the left mouse button (in the case of the touch UI, simply press the input pointer). If the star is orange, the connection is added to the list of favorites. To remove the connection from the list of favorites, you must click on the "burning" star:



In the left picture, the star is not checked, the connection is not selected. In the right picture, the connection is selected. If no one is checked with the star then this group will not be displayed.

- 3 This group contains a list of all connections that support SQL connection strings.
- 4 This group contains data sources to connect to the data store using REST protocol.
- 5 The **Other** group contains commands to create connections to data stores such as the XML, Excel, JSON, CSV, Dbase.
- 6 To create a connection to the database containing objects, you should use this group. For example, for passing business objects from the repository in the report.
- 7 This group contains previously created connections. In other words, ever created connections to the data stores but not available in the current report are located in this group.
- 8 The Skip Schema Wizard parameter. When you create a data source, the following methods exist to obtain them from data storage:
 - Get the data scheme. In this case, you will see a hierarchical list of data in the form of tables, views, stored procedures, etc. The user should select the required sources with flags;
 - Generate a query to obtain data. For more details read about queries here.

To determine the method of obtaining the data is possible by means of the **Skip Schema Wizard** parameter. If you want to retrieve the database schema, you should uncheck this option. If you need to go to the creation of a query, check the flag for this parameter. It should be borne in mind that you can go to the creation of a query from the form of retrieving data by clicking the New Query button.

Once the connection is established, depending on the type of the data source and the **Skip Schema Wizard** value, the create data source form is created.

7.1.2.1 Queries

Queries are text script forms, which are used to extract data from tables and make them available in the report generator. Queries is that they get data from database tables and create them on the basis of a temporary table. The data in the temporary table will be filtered, grouped, sorted and ordered, according to the query parameters. Then, the temporary table is passed to the report generator. Applying

queries provides the ability to avoid duplication of data in tables and provides maximum flexibility for searching and displaying data in a database. Most of queries are used to fetch data from the database and transfer them to the report generator. Not all data source types support **SQL** queries. If the type of a data source supports **SQL** queries, the **New Data Source** dialog will display the **Text Query** with the query. The picture below shows a **New Data Source** dialog, where in the **Query Text** field a query for fetching is created.

The screenshot shows the 'New Data Source' dialog box with the following fields and sections:

- 1 Name in Source:** A text field containing 'MSSQL'.
- 2 Name:** A text field containing 'NewDataSource1'.
- 3 Alias:** A text field containing 'New Data'.
- 4 Query:** A section with a tabbed interface. The 'SQL' tab is selected, showing a text area with the query 'select * from customer'.
- 5:** A red box highlights the SQL query text area.
- 6 Type:** A dropdown menu set to 'Query'.
- 7 Query Timeout:** A numeric field set to '30'.
- 8 Columns & Parameters:** A section with a 'Retrieve Columns' button and a list of columns: customer_id, store_id, first_name, last_name, email, address_id. The 'last_name' column is selected.
- 9:** A red box highlights the 'last_name' column in the list.
- 10:** A table showing the data for the selected column:

1. Data	
(Name in Source)	last_name
(Name)	last_name
(Alias)	last_name
Type	string

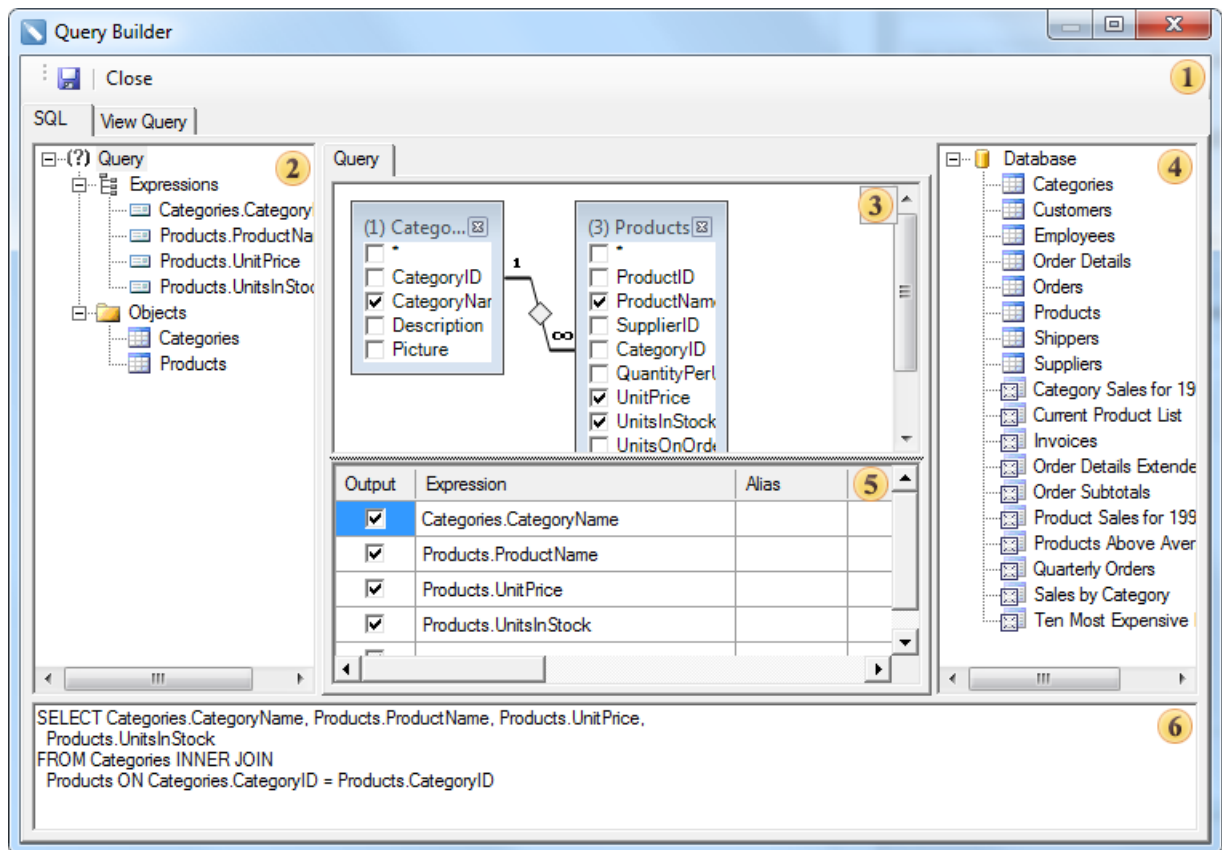
- 1 The **Name in Source** field. In this field, you can enter the name or you can click the to call a list of names.
- 2 In the **Name** field specifies the data source name that appears in the report generator;
- 3 The **Alias** of the data source should be indicated in the Alias field;
- 4 Command to control queries. This panel has the main items to control text

queries. Click the Run button to run the query for execution.

- 5 The **Query** Text field. This field specifies the text of the query.
- 6 The menu to select the data source type. The following types of data source are Table and Stored Procedure. The picture below shows the selection menu of the data source type:
- 7 The **Query Timeout** parameter is used to specify the execution time of a query, which means time during which the request will be executed. If the request timed out and the request failed, the user will see a message about this. The parameter value is indicated in seconds.
- 8 Commands to manage data. This panel lists commands such as creating a new column, the new calculated columns, the new parameter. Among other things, this panel has the Retrieve Columns command.
- 9 The **Columns** panel. This panel displays the data source columns, and parameters. Properties of the selected column or parameter are located on the property bar.
- 10 Properties panel of the selected data column or a parameter.

Query Builder

The **Query Builder** is a visual component that allows creating queries visually. Creating a query using a designer allows complete control over the query parameters and building of complex conditions of data selection using simple visual user interaction. The picture below shows the **Query Builder** dialog:



- ❶ **Control Panel.** Contains the Save button (saves the query) and the Close button (closes the query builder);
- ❷ **Query tree panel.** This panel shows the query tree.
- ❸ **Query design panel.** This panel is an area in which the query is visually represented. In this area, you can determine the initial database objects and derived data sources, as well as define relations between data sources, configure the data source properties, and references.
- ❹ **Database panel.** This panel displays the database and included in its data sources;
- ❺ **Table panel.** This panel shows a table in which rows are data columns used in the query and columns are operations. In this table, you can define data columns, aliases, sorting type, sorting order, grouping, criteria.
- ❻ This panel displays a query built on the panel ❸ as a code.

The Query Builder contains the **View** tab, which provides an opportunity to display data columns selected by the query. The operations in the query should also be taken into account. The picture below shows the **View** tab in the Query Builder:

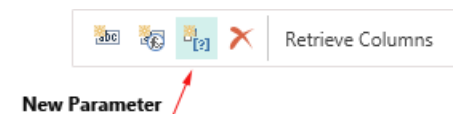
View Query

"(Name)"	ProductName	UnitPrice	UnitsInStock
Beverages	Chateau d'Ay	18	69
Beverages	Chang	19	17
Beverages	Guinness Extra Stout	4.5	20
Beverages	Sasquatch Ale	14	111
Beverages	Steeleye Stout	18	20
Beverages	Chai	18	39
Beverages	Cote de Blaye	263.5	17
Beverages	Ipiho Coffee	46	17
Beverages	Laughing Lumberjack Lager	14	52
Beverages	Outback Lager	15	15
Beverages	Rhinbrau Mosterbier	7.75	125
Beverages	Lekkalkaut	18	57
Condiments	Genen Shoyu	15.5	39
Condiments	Northwoods Cranberry Sauce	40	6
Condiments	Original Frankfurter grune Soße	13	32
Condiments	Grandma's Boysenberry Spread	25	120
Condiments	Gula Malacca	19.45	27
Condiments	Chef Anton's Gumbo Mix	21.35	0
Condiments	Chef Anton's Cajun Seasoning	22	53
Condiments	Aniseed Syrup	10	13
Condiments	Louisiana Fiery Hot Pepper Sauce	21.05	76
Condiments	Louisiana Hot Spiced Okra	17	4

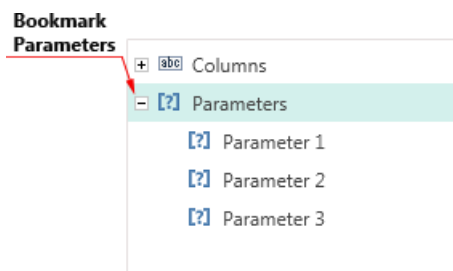
Click the **Save** button to add the created query text into the **Query Text** field.

7.1.2.1.1 Parameters

When creating a query it is possible to use the **Parameter** object. This object is designed to send additional conditions for selecting data into a query. For example, if you need a query to use a value entered by the user each time the query is executed, you can create a query using parameters. The **Parameter** object can only be used with **SQL** data sources. These data sources typically have the **Text Query** field. To insert a parameter in the query, you must click the **New Parameter** button. The picture below shows the toolbar, on which the **New Parameter** button can be found:



After clicking this button a new parameter will be created. This parameter will be displayed in the **Parameters** tab in the **Columns** panel. The picture below shows an example of the **Columns** panel with the **Parameters** tab:



Each parameter has a property with which you can change its settings. The picture

below shows the panel of parameters properties:

▼ 1. Data		
Name	Parameter 1	❶
Expression		❷
Size	0	❸
Type	Variant	❹ ▼

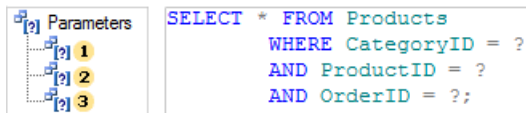
- ❶ For each parameter you can specify a value that is used to populate the parameter. The value can be an expression, **const**, variable, etc. For example, **{x + y}** or **{variable}**.
- ❷ The **Name** property. Used to change the parameter name. This feature works only for named parameters.
- ❸ The **Size** property provides an opportunity to change the size of the type used in the parameter. Keep in mind that each type in the database has its own size. Therefore, when using a query, you must specify the correct type size. For some adapters, database size may be omitted, but generally if the size is not specified or is incorrect, then the queries using these parameters will be performed incorrectly.
- ❹ Use the **Type** property to change the parameter type. The values of the properties are in the drop-down list, and are a list of types used in the parameters for a particular database. It should be noted that a list of types differs depending on the database.

Also, you must specify the parameter in the query. Here is an example of schematic position of parameters in the query:

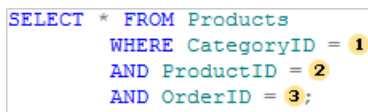
```

SELECT * FROM Categories
WHERE CategoryID = @Parameter1;
  
```

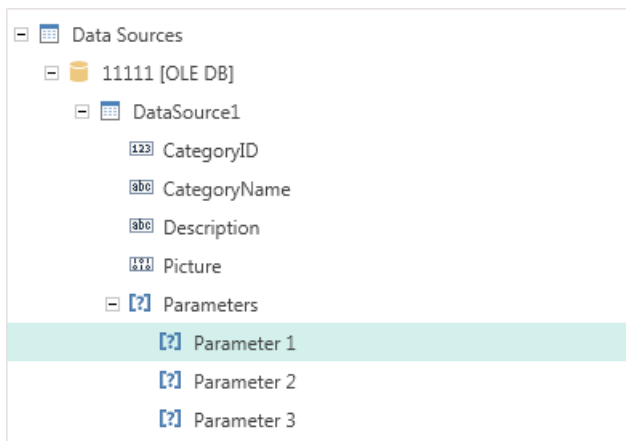
As a rule, the **@** symbol is used to specify a parameter in the query. The **@** symbol is used with named parameters, i.e. after the **@** symbol goes the name of the parameter. But in some databases (for example in **OleDB**), the **@** symbol cannot be perceived by the adapter and database queries with parameters will not work. In this case, you can use unnamed parameters. For specifying unnamed parameters in the query the **?** character is used. After the **?** character, the parameter name is not specified. In this case, the order of parameters in the **Parameters** tab is important. As indications of the **?** characters in the query, parameters will be taken sequentially from the **Parameters** tab in the top-down direction. Consider the following example. Suppose there are three parameters that are specified in the query:



Since, in this case, unnamed parameters (marked with **?**) are used, then, when running, the query parameters will be taken from the **Parameters** tab in the top-down order. The picture below schematically presents a comparison of parameters of the **Parameters** tab to the parameters in the query:



In this case, the parameters used in this example, can have names, but when using the **?** character they play no role. Once a query to parameters is created and executed, the parameters will also be displayed in the **Dictionary**, in the created data source in the **Parameters** tab. The picture below shows an example of the **Dictionary** panel and placing parameters in it:



To edit a parameter separately from the data source, select the **Parameter** in the data dictionary and click **Edit** on the toolbar in the dictionary or select **Edit** item in the context menu of the selected parameter. After pressing the button or selecting **Edit**, the user will be shown the **Edit Parameter** dialog, in which you can edit the selected parameter. The picture below shows an example of the **Edit Parameter** dialog:

Edit Parameter

Name:

Type:

Expression:

Expression

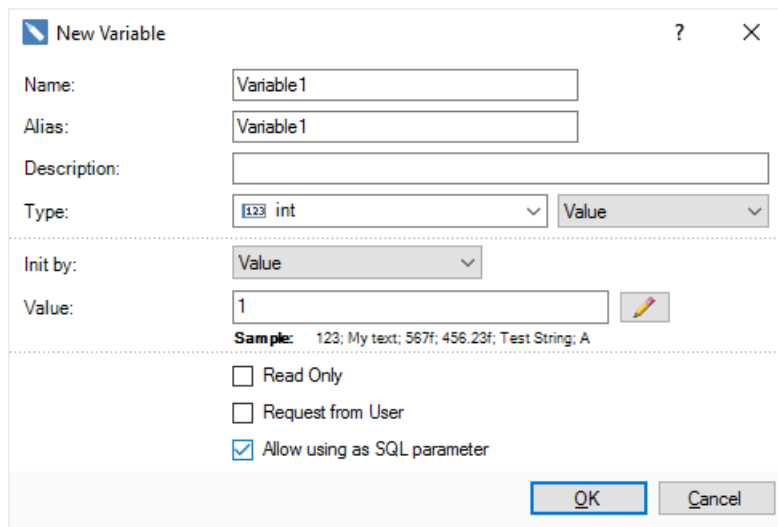
Variable

- ❶ This field displays the parameter **Name**, which can be edited;
- ❷ This field displays the **Type** of the parameter, which can be edited;
- ❸ The **Expression** field displays used expressions in a query parameter, which, if necessary, can be edited;
- ❹ The **Save a Copy** button saves a copy of the edited parameter by assigning the **Copy** postfix in the parameter name.
- ❺ The **Expression** tab. An expression, link to the data column, etc is specified as a value of the parameter.
- ❻ The **Variable** tab. A variable is specified as a value of the parameter.

Using variable as SQL parameter

A variable can be specified as a value in the parameter. In this case, values of the variable will be the values of the parameter when requesting data. There are two ways to use a variable in a query as a parameter:

- Create a variable in the data dictionary. Open the data source for editing. Create a parameter in the data source. Specify a variable as the value of this parameter. Insert the parameter in the text of the query.
- When creating or editing a variable, set the **Allow using as SQL** parameter check box:



The 'New Variable' dialog box is shown with the following fields and options:

- Name:** Variable1
- Alias:** Variable1
- Description:** (empty)
- Type:** int (dropdown menu)
- Value:** Value (dropdown menu)
- Init by:** Value (dropdown menu)
- Value:** 1 (text input field)
- Sample:** 123; My text; 567f; 456 23f; Test String; A
- ☐ Read Only
- ☐ Request from User
- ☒ Allow using as SQL parameter
- Buttons:** OK, Cancel

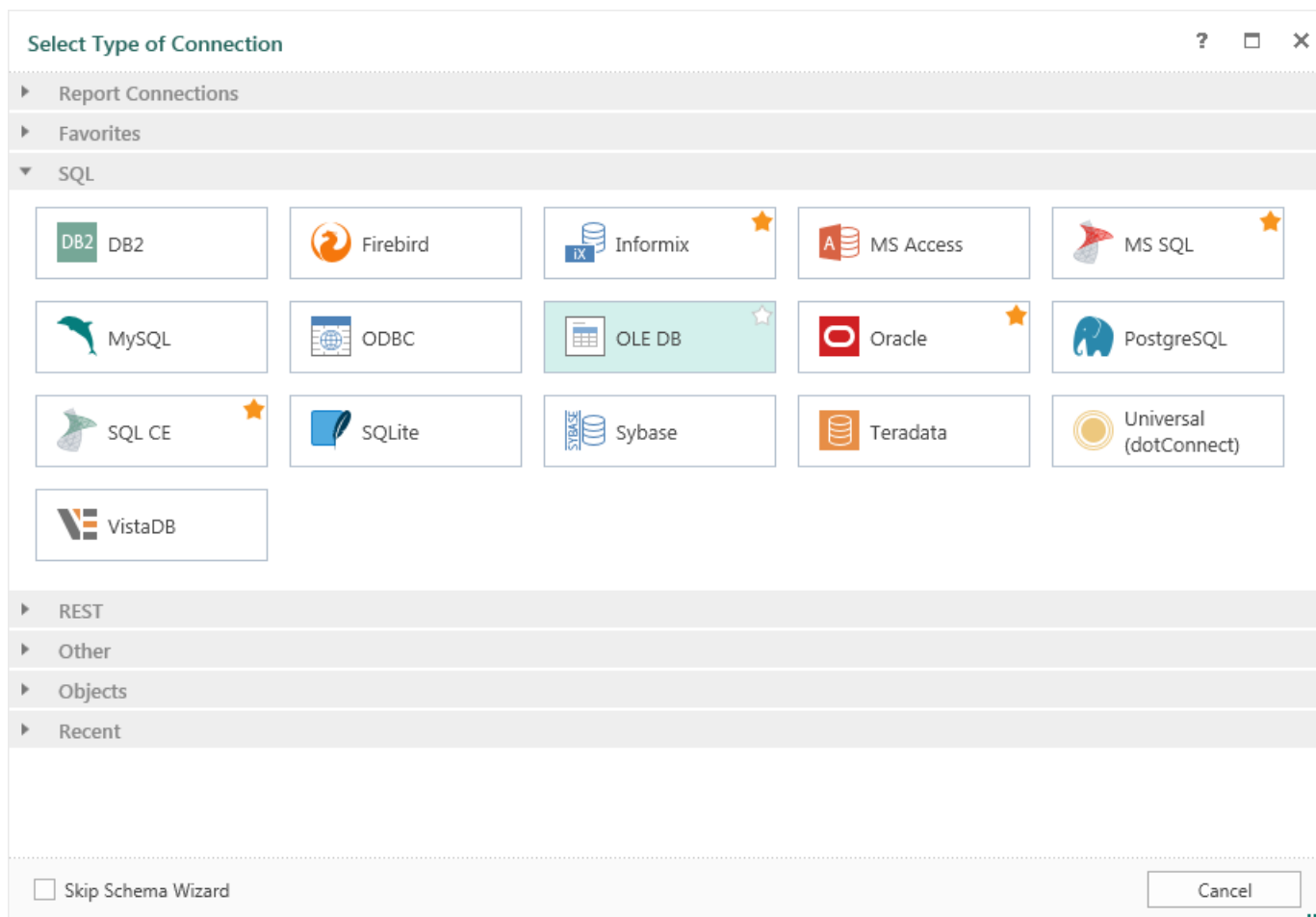
Register this variable in the text of the query, using the special "@" symbol before the variable name:

```
select * from Products
where Discontinued = @Variable1
```

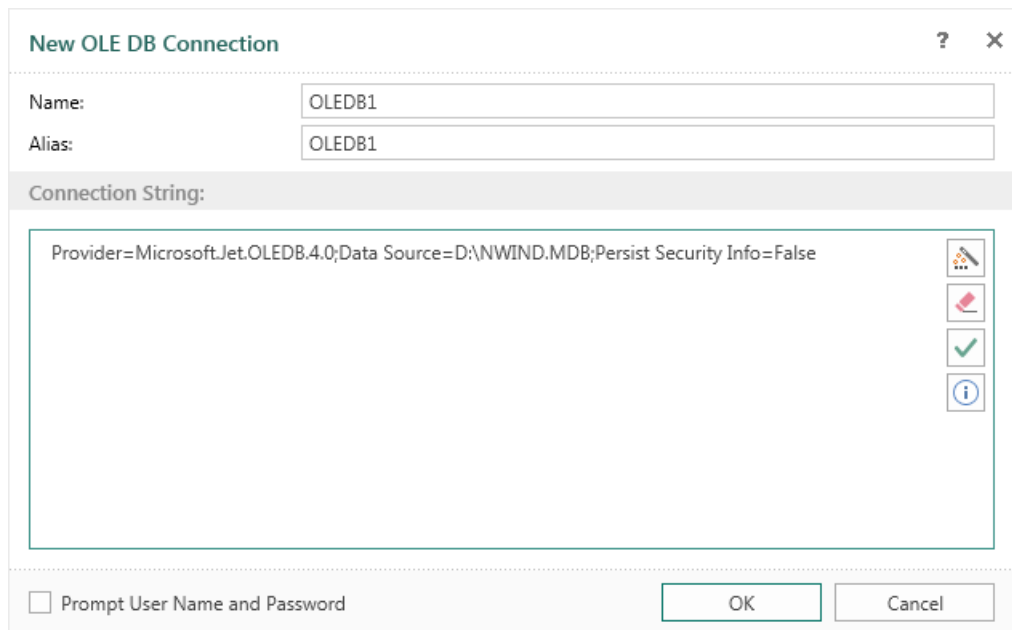
Click **OK**. Now the variable is present in the data source and is used as a parameter in the query.

7.1.2.2 Creating Data Source

Consider an example of creating a new data source. It is worth noting that before you can create a data source, you must setup a connection. If there is no connection, then go to Dictionary, select the **New Data Source** command in the **New Item** menu:



In the opened menu, select the type of a connection, for example, OleDB. The form to create the connection will be opened:



New OLE DB Connection

Name: OLEDB1

Alias: OLEDB1

Connection String:

Provider=Microsoft.Jet.OLEDB.4.0;Data Source=D:\NWIND.MDB;Persist Security Info=False

☐ Prompt User Name and Password

OK Cancel

Specify the connection name, alias, and the connection string. Also you can find buttons to call the query builder, to clean the connection string, the button to check the connection and the button of the connection string template (for OleDb pattern is as follows: Provider=SQLOLEDB.1; Integrated Security=SSPI; Persist Security Info=False; Initial Catalog=myDataBase; Data Source=myServerAddress). To verify the connection string, press the Test button. In this case, if the connection string does not contain errors, the user will see the Connection was successful window. If the connection string contains an error, the user will be shown a window with the text of the error which was returned by the database server in response to the attempt to create the connection. After clicking the OK button, a new connection will be created.

Next, the following ways to create a new data source are possible:

- Obtaining data by schema;
- Creating a request for retrieving data.

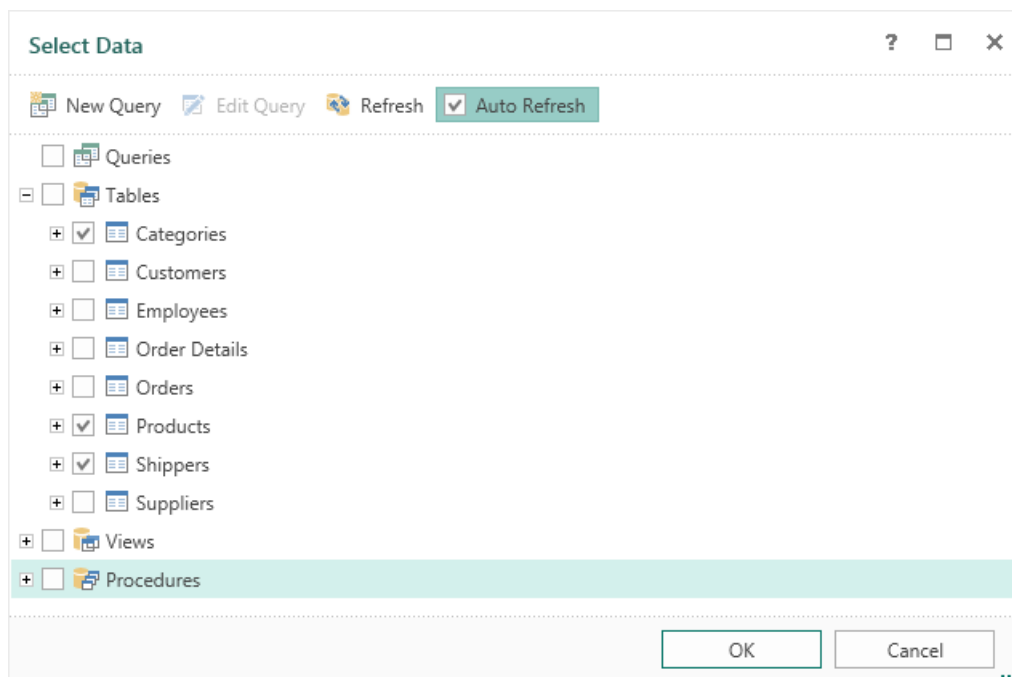
It specifies how to create a data source, such parameter as Skip Schema Wizard. If it is checked, then after creating a connection, the user will see a the query form. If the check box is not checked, the data schema will be retrieved.

Consider a ways of obtaining data in detail.

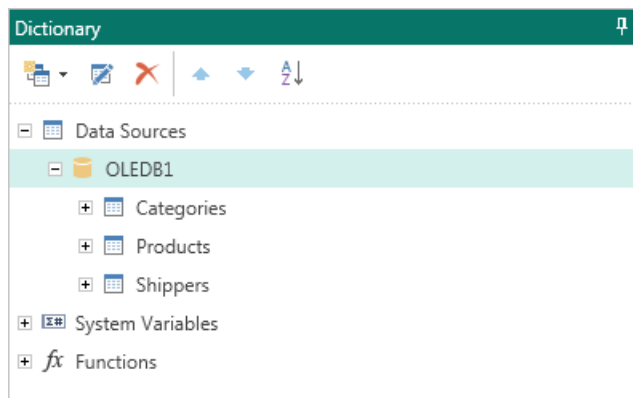
Retrieving the data schema (the check box of the Skip Schema is not set)

After you create the connection you will go to the Select Data dialog. To get a list of tables from the database, you must click the **Refresh** button in this window. You can also enable/disable the **Auto Refresh** mode check/uncheck the check box. If checked, the wizard will automatically update the list of data tables. The list in this window is represented as tabs which are arranged in a hierarchical form. The Home tab is a category (for example, Queries, Tables, Views, Procedures).

For creating a new data source you should select the data table. It is also possible to exclude the table data columns from the future data source. For this purpose, it is necessary to open the selected table and uncheck the flag next to the name of the column that you want to exclude. By default, if you select the data table, all the columns in this table are checked. They will be added to the new data source. Each selected data table will be a single data source, one table is one source. The picture below shows the Select Data window with selected data tables and data columns selected:



After clicking OK, the Categories, Products and Shippers data sources will be created. The picture below shows the data sources created in the Dictionary:



Now, report templates will be created on the basis of these data descriptions.

Retrieving data without schema (the check box of the Skip Schema is set)

After the connection has been created and Skip Schema is checked and you will go to the **New Data Source** dialog to create the query:

New Data Source

Name in Source:

Name:

Alias:

Query

SQL Run Query Builder

```
select * from category
```

Type:

Query Timeout:

Columns & Parameters

Retrieve Columns

Columns

- ☒ category_id
- ☐ name
- ☐ last_update

Parameters

1. Data

(Name in Source)	category_id
(Name)	category_id
(Alias)	category_id
Type	byte

OK Cancel

In this window you must define parameters such as the Name in Source, Name, Alias. Also, in the Query Text field, it is necessary to form a database query and execute it. If the request is successful, press the **Retrieve Columns** button.

Each column contains properties such as the Name in Source, Name, Alias, and Type. To change the values of these properties, you should select the data column, and, in the Properties panel, to change and edit them. It is also possible to add or remove a data column. To add a column, click the **New Column** button or the **New Calculated Column** button. To delete a column, it is necessary to select it and click **Delete**.

After clicking OK, a new source will be created.

Editing the data source

Any created data source can be edited. To do this, select the data source, click the **Edit** button on the toolbar in the Dictionary, or select the Edit button in the context menu of the data source. After clicking the button or selecting the Edit item of the context menu, the user will see the **Edit Data Source** dialog. It has the same tools and fields as a second dialog - **New Data Source**.

Edit Data Source

Name in Source: MSSQL

Name: category

Alias: category

Query

SQL Run Query Builder

```
select * from category
```

Type: Query

Query Timeout: 30

Columns & Parameters

Columns: category_id, last_update, name

Parameters: [2]

Retrieve Columns

1. Data	
(Name in Source)	name
(Name)	name
(Alias)	name
Type	string

Save a Copy OK Cancel

Depending on the type of source, this box may not have the **Query Text** field, because not all connections support SQL queries. All changes will be applied after pressing the OK button. The **Save a Copy** button saves a copy of the edited data source, with the Copy postfix in the name of the data source.

7.1.2.3 Creating and Editing Data Columns

Creating data columns

To create a new column select the data source, which will be added to the data column, and select **New Column...** in the **New Item** menu or the context menu of the selected data source. After selecting this option the **New Column** dialog will be invoked. In this dialog you should specify new columns. The picture below shows a **New Column** dialog:

The screenshot shows a 'New Column' dialog box with the following fields and values:

Field	Value	Annotation
Name in Source:	Phone 1	1
Name:	Phone	2
Alias:	Mobile Phone	3
Type:	int	4

Buttons: OK, Cancel

- 1 The **Name in Source** field. Specifies the name in the data source (not in the report).
- 2 The column **Name**. Used to call the new column in the report.
- 3 The column **Alias**. Specified in the Alias.
- 4 The **Type** field. Used to select the type of data that will be contained in the new column.

After clicking **OK**, a new data column in the selected data source will be created. It should be noted that the data column generated this way is only a description of the (virtual) data columns and it does not contain real data. If the database does not have this column, then when calling the database, the report generator will produce an error.

Editing data columns

The data column can be edited. To do this, you must select **Edit** in the context menu of the selected column, or click the **Edit** button on the toolbar in the data dictionary. After that, the user will be shown the **Edit Column** dialog, where you can change settings such as **Name in Source**, **Name**, **Alias** and **Type** of the edited column. Press **OK** to apply changes. The picture below shows the **Edit Column** dialog:

Edit Column ? X

Name in Source: Phone 1

Name: Phone

Alias: Home Phone

Type: int

Save a Copy OK Cancel

The **Save a Copy** button saves a copy of the edited data column, with the assignment of the Copy postfix in the name of the data column.

7.1.2.4 Calculated Data Column

The calculated data column is calculated on the base of an expression that can be used by other data columns into an existing data source. The expression can be a name of the non-calculated column, constant, function, or any combination, connected to one or more operators. The expression cannot be a nested query. The calculated data column is a virtual column that is not stored physically in the data source. The values of the calculated data column are updated each time you access to them in the query. Also, the values of calculated column are updated every time you change the columns included into the calculated expression. Before you add a calculated column, you must connect at least one data source. Consider the creation of calculated data column in the data source Auto. The following columns are in this data source: Rank, Country, Year2000, Year2005, Year2009. Columns Year2000, Year2005, Year2009 contain data about cars produced in 2000, 2005, and 2009. Create a calculated data column, which will contain data on the growth of production cars in 2009 relative to 2000, the results are displayed in percentages. The picture below shows the data column of Year2000 and Year2009:

Year2000	Year2009
2069069	13790994
10140796	7934516
12799857	5711823
5526615	5209853
3114998	3512916
1681517	3182617
801360	2632694
3032874	2170078
3348361	2049762
1935527	1557290

To create a new calculated column you should call the **New Calculated Column**

dialog and fill in the dialogue form. The dialog can be called from the context menu of data source or from the **Actions** menu. The picture below shows the **New Calculated Column** dialog:

The screenshot shows a dialog box titled "New Calculated Column". It contains four fields with numbered callouts: 1. Name: "New Calculated Column"; 2. Alias: "New Calculated Column"; 3. Type: "double" (selected from a dropdown); 4. Value: "Auto.Year2000/Auto.Year2009". At the bottom are "OK" and "Cancel" buttons.

- ❶ The **Name** column is used to call this calculated column in the report. Enter in the **Name**.
- ❷ The **Alias** column is used as a prompt. Enter in the **Alias**.
- ❸ The **Type** field provides the ability to choose the data type that will contain the new calculated column.
- ❹ The **Dictionary** button contains a drop-down menu that displays the structure of the data dictionary. In this menu you can select data columns, business objects, or system variables that will be added to the calculation of expression of the calculated data column.
- ❺ The **Value** field is used to define an expression for calculating the values of the new calculated data column.

In this example, the calculation expression will contain data columns Year2000 and Year2009 from the data source Auto, and the type of data in a new calculated column will be double. After the column is created, you should place a text component with a reference to this data column. In this example, the text component will contain a link **{Auto.NewCalculatedColumn1}**. As the result of calculations is necessary to be displayed in the percentage, then this text component should change the format, i.e. set the **Percentage** format. Below is a report with the calculated data column:

Year2000	Year2009	NewCalculatedColumn1
2069069	13790994	15,00%
10140796	7934516	127,81%
12799657	5711823	224,09%
5526615	5209653	106,08%
3114996	3512916	86,67%
1681517	3182617	52,83%
801360	2632694	30,44%
3032874	2170078	139,76%
3348361	2049762	163,35%
1936527	1557290	124,29%

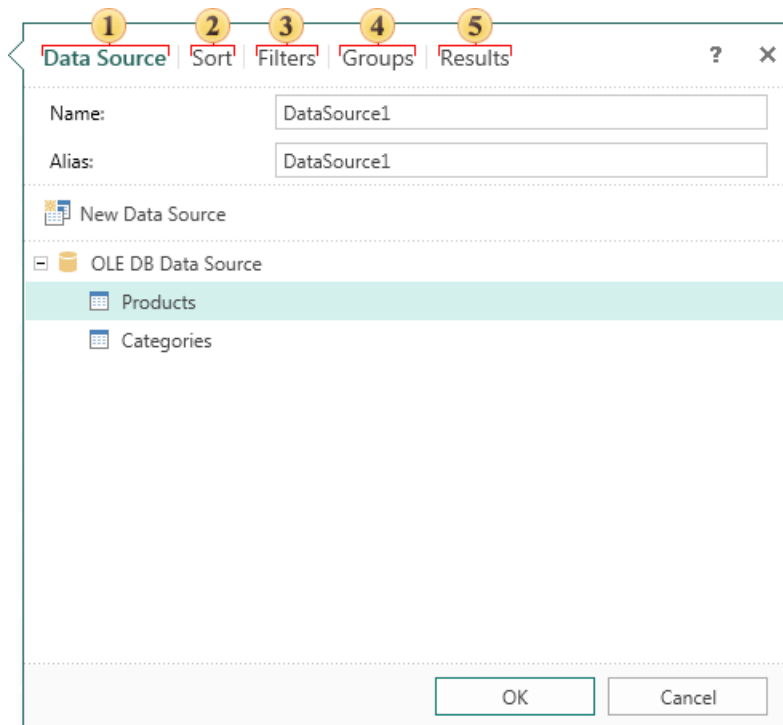
7.1.2.5 Data From Other Data Source

In the report generator you can create a data source based on existing data sources. The **Data from other Data Source** provides similar features like the query to the database. When creating a data source using the visual interface, in the process of creating a data source, to perform sorting, grouping, filtering, and calculating of totals using aggregate functions. Consider the example of creating data from other data sources. Suppose there is a **Master-Detail** report, to which each category corresponds a number of products. The picture below shows a page of the **Master-Detail** report (shown partially):

Beverages		
Chai	18	39
Chang	19	17
Guaraná Fantástica	4.5	20
Sasquatch Ale	14	111
Steeleye Stout	18	20
Côte de Blaye	263.5	17
Chartreuse verte	18	69
Ippoh Coffee	46	17
Laughing Lumberjack Lager	14	52
Outback Lager	15	15
Rhinbräu Klosterbräu	7.75	125
Lakkaikku	18	57

As can be seen from the picture above, the name of the category, product name (related to this category) and the price of the product are displayed in the report. If you want to create a report that displays the name of the category and the total value of all products included in this category, it can be done in various ways. But the easiest way is to create a data source based on another data. To do this, select **Data from other Data Source** item in the **New Data Source** dialog and setup the data source you create. The picture below shows the second form of the **New Data**

Source dialog:



As can be seen from the picture above, the process of creating data from other sources includes the following steps:

- ❶ **Data Source.** On this stage, you must specify the Name of a new data source and its Alias. In our example, the alias name and the data source name are DataSource1. You should also select a data source on which to setup a new one. In this case, the selected data source is Products. This step is optional.
- ❷ Sorting criteria are specified in the Sort step. On this stage you should specify the data column to be used for sorting, and to select the sorting direction. This step is optional.
- ❸ Set conditions of filtering data in a new data source on stage Filters. To filter the data you need to add a filter to specify an expression or a condition that will be filtered. This step is optional.
- ❹ To specify the conditions of grouping data in a new data source, you can do the step **Groups**. To group the data you should indicate the data column by which the data will be grouped, and select your destination of groups location. Data column, by which grouping will be performed will present in the new data source. In this example, using the relation, between data sources **Categories** and **Products**, indicate grouping by the data column **CategoriesName**, which contains the names of categories. This step is optional.

5 The last step is **Results**. In this step, you can make the calculation on a data column with aggregate functions. The picture below shows the Results tab:

Column	Aggregate Function	Name
UnitPrice	Sum	UnitPrice.Sum

As can be seen from the picture, this tab should indicate the following parameters:

- Select the data column in the **Column** field that will be present in the new data source or from which data will be collected to calculate the aggregate. This field is mandatory. For example, the data column **UnitPrice** is selected. It contains data on the product prices.
- The **Aggregate Function** menu is a list of aggregate functions that can be used to calculate the selected data columns. Aggregate functions can be omitted in this case, the data column will contain data, which are in the data column, which is the basic one. In this example, select the aggregate function **Sum**, which summarizes the data.
- In the **Name** field specify the column name, which is used to refer to this calculated column in the report.

Now for the report rendering the data source **DataSource1** can be used, which contains two data columns: **CategoryName** and **UnitPrice.Sum**. The picture below shows a report, based on data from a data source **DataSource1**:

1	Beverages	455.75
2	Condiments	276.75
3	Confections	327.08
4	Dairy Products	287.3
5	Grains/Cereals	141.75
6	Meat/Poultry	324.04
7	Produce	161.85
8	Seafood	248.19

As can be seen in the picture above, each category corresponds to the total value of all products included in this category.

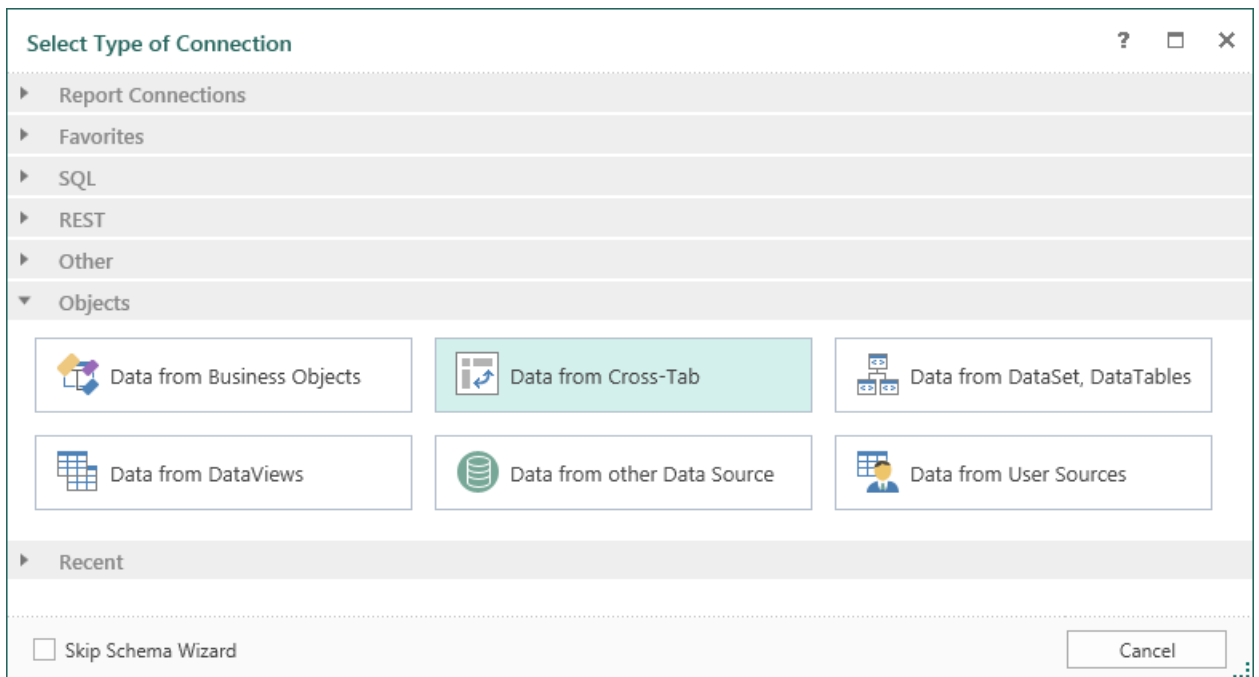
7.1.2.6 Data From Cross-Tab

In Stimulsoft Reports you can create a data source based on cross-table, i.e. you can create a new source, which columns will be columns of the rendered cross-table, and strings are the strings of the rendered cross-table. Consider an example of creating a

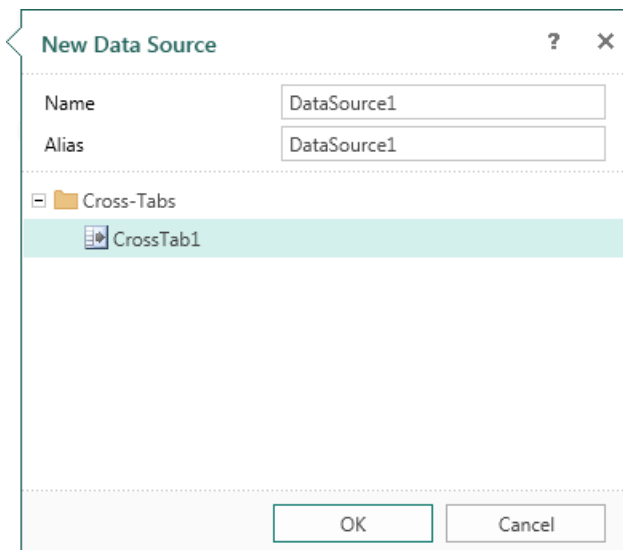
data source based on the cross-table. The picture below shows a report page with the rendered cross-table:

Products	CategoryName								
Country	Beverages	Condiments	Confections	Dairy Products	Grains/Cereals	Meat/Poultry	Produce	Seafood	Total
Australia	15	43.9	17.45		7	71.8	53	62.5	270.65
Brazil	4.5								4.5
Canada		28.5	49.3			31.45			109.25
Denmark								21.5	21.5
Finland	18		36.25						54.25
France	281.5			89				13.25	383.75
Germany	7.75	13	89.13		33.25	123.79	45.6	25.89	338.41
Italy				79.3	57.5				136.8
Japan		15.5				97	33.25	37	182.75
Netherlands			22.25						22.25
Norway				60.0					60.0
Singapore	46	19.45			14				79.45
Spain				59					59
Sweden								60	60
Sweden					30				30
UK	37	10	112.7						159.7
USA	46	146.40					30	28.05	250.45
Total	455.75	276.75	327.08	287.3	141.75	324.04	161.85	248.19	2222.71

To create a data source based on cross-table, you should call the **New Data Source** dialog and select the **Data from Cross-tab** item. The picture below shows the **New Data Source** dialog:



After clicking **OK**, in the next dialog form **New Data Source**, you should indicate the **Name** of the new data source and cross-table, which will be used as a basis. You can also specify the **Alias** of the new data source. The picture below shows the second form of the **New Data Source** dialog:



After clicking **OK**, you will create a data source **DataSource1**, which will contain the columns **ShipCountry**, **CategoryName**, **UnitsPrice**. The data source on the base of the cross-table is a virtual data source that does not contain real data. Filling this source occurs when rendering the cross-table. Therefore, a report that will use this data source, for example, to render a report with the list, must contain the cross-table on the base of which the data source was created. For example, create a report with the list. Put the cross-table in the first report page, and in the second page, put the **DataBand** with text components, which will contain the expressions **{DataSource1.ShipCountry}**, **{DataSource1.CategoryName}**, **{DataSource1.UnitsPrice}**. The picture below shows a part of the report page with the rendered list:

UK	Beverages	37
UK	Condiments	10
USA	Condiments	146.40
USA	Produce	30
Japan	Meat/Poultry	97
Japan	Seafood	37
Spain	Dairy Products	59
Japan	Produce	33.25
Japan	Condiments	15.5
Australia	Confections	17.45
Australia	Meat/Poultry	71.8

When rendering a report, the report generator fills created data source **DataSource1** with data from the cross-table and display the data as a list.

7.1.2.7 Custom Data Sources

If you want to build a report based on the custom data then, in Stimulsoft Reports, you can create custom data based on custom data sources. To do this, you should select Data from User Sources in the New Data Source window, and in the next New Data Source dialog box, configure a custom data source. The picture below shows the form **New Data Source**:

New Data Source

1 Name in Source:

2 Name:

3 Alias:

4 Columns:

5 6 7 Retrieve Columns

8

9

OK Cancel

Setting the data source is done using the following controls:

- ❶ The **Name in Source** field. Specifies the name of a connection or database. When creating data on the base user data sources this is not mandatory to fill this field.
- ❷ The source name that is used to access the report is indicated in the Name field. This field is mandatory.
- ❸ The alias of the source is indicated in the **Alias** field. This field is not mandatory.
- ❹ Using the **New Column** button you can add the new column to the data source.
- ❺ The new calculated data column can be added to the data source using the **New Calculated Column** button.
- ❻ The **Delete** button deletes the selected ❸ data column or deletes all data columns when the **Columns** tab is selected.
- ❼ Preview the query.
- ❽ Using the **Retrieve Columns** button you can get all the columns from the database. In this case, there is no connection to the database and the query is not built, so the button is no longer relevant.
- ❾ This panel displays the data source structure.

7.1.3 Relation

Relation is created between data sources and defines how should data from these sources be bind. When creating a relation, keys which play a role of data columns, are indicated. As a result, a relation is a connection between data sources on the basis of one or more key data columns. The Relation provides the ability to filter, sort, display data when accessing the same data source via a relation from another data source. Let's review the following example. The picture below shows two data sources - **Categories** and **Products** (partially):

	CategoryID	CategoryName
▶	1	Beverages
	2	Condiments
	3	Confections
	4	Dairy Products
	5	Grains/Cereals
	6	Meat/Poultry
	7	Produce
	8	Seafood

	CategoryID	ProductName	UnitPrice	UnitsInStock
►	1	Chai	18	39
	1	Chang	19	17
	2	Aniseed Syrup	10	13
	2	Chef Anton's Cajun Seasoning	22	53
	2	Chef Anton's Gumbo Mix	21,35	0
	2	Grandma's Boysenberry Spread	25	120
	7	Uncle Bob's Organic Dried Pears	30	15
	2	Northwoods Cranberry Sauce	40	6
	6	Mishi Kobe Niku	97	29
	8	Ikura	31	31
	4	Queso Cabrales	21	22
	4	Queso Manchego La Pastora	38	86

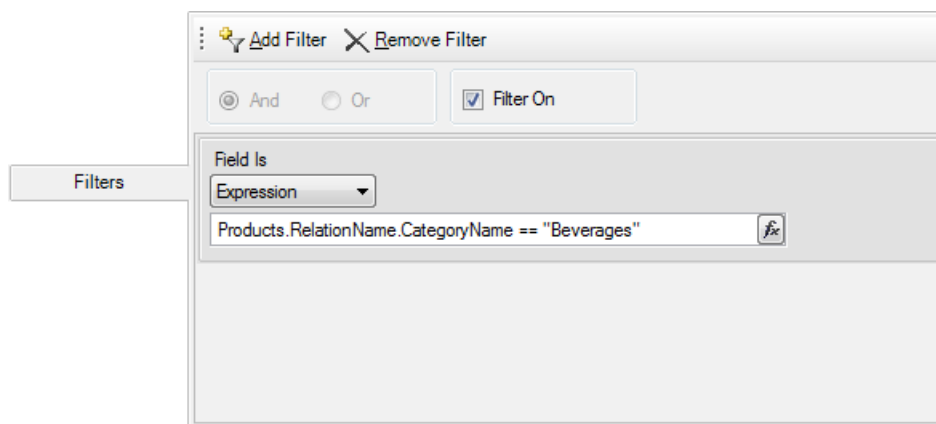
The relation is organized by the key data columns. Key data columns are present in the data sources, among which a relation is organized, and contain the keys. For example, in **Categories** and **Products** data sources the key columns are **CategoryID**. It should be noted that in this example, the names of key columns are the same, but this is not a prerequisite. The key data column in the data source **Categories** is called **CategoryID**, and the data source **Products** - **CategoryNumber**. Organizing the relation between data sources **Categories** and **Products** by the key columns **CategoryID**, where the data source **Categories** is the master data source, and **Products** is a detail data source. The relation between data sources will have the form as shown in the picture below (partially):

Beverages	Chai	18	39
	Chang	19	17
Condiments	Aniseed Syrup	10	13
	Chef Anton's Cajun Seasoning	22	53
	Chef Anton's Gumbo Mix	21,35	0
	Grandma's Boysenberry Spread	25	120
Dairy Products	Queso Cabrales	21	22
	Queso Manchego La Pastora	38	86

As can be seen, after the organization of a relation, to each entry from the data source **Categories** will be matched to entries from the data source **Products**. In this example, entry Beverages is matched to entries Chai and Chang; entry Condiments is matched to Aniseed Syrup, Chef Anton's Cajun Seasoning, Chef Anton's Gumbo Mix, Grandma's Boysenberry Spread; entry Dairy Products is matched to Queso Carbales and Queso Manchego La Pastora.

7.1.3.1 Filtering

In Stimulsoft Reports it is possible to filter data using relations between data sources. Let's review data filtering via a relation (in the example we use data source **Products**). If you want to filter data by the category name, i.e. by the entries in the data column **CategoryName** of the data source **Categories**, then, with established relation between data sources **Categories** and **Products**, to add a filter to the expression: **Products.RelationName.CategoryName == "category name"** by which filtering will occur. The picture below shows a window of data filtering via the relation between data sources:



where **Products** is a data source name; **RelationName** is a name of the relation between data sources, i.e. reference to another data source via the relation; **CategoryName** is a data column in the data source.

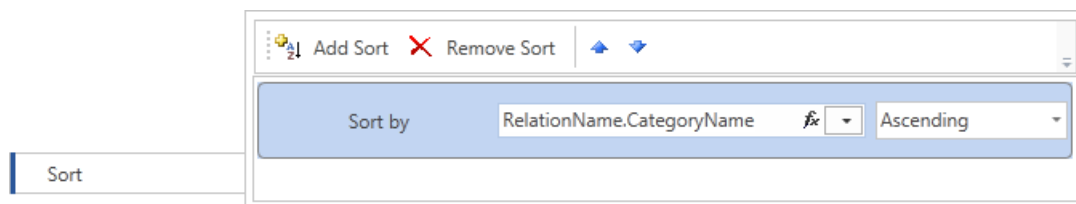
Now, when rendering a report, the report generator filters data from the data source **Products** and displays the data that belong to the category **Beverages**. The picture below shows a page of the rendered report:

ProductName	UnitPrice	UnitsInStock
Chai	18	39
Chang	19	17
Guaraná Fantástica	4,5	20
Sasquatch Ale	14	111
Steeleye Stout	18	20
Côte de Blaye	263,5	17
Chartreuse verte	18	69
Ipon Coffee	46	17
Laughing Lumberjack Lager	14	52
Outback Lager	15	15
Rhinobrau Klosterbier	7,75	125
Lakkalikööri	18	57

7.1.3.2 Sorting

When sorting data it can be used not only columns in the specified data source but the columns in the source, which can be accessed via the relation. Let's review data sorting using a relation (in the example we use data source **Products**). If you want to sort by category name, i.e. entries in the data column **CategoryName** of the data source **Categories**, then, with established relation between data sources **Categories** and **Products**, to add sorting to the expression:

Products.RelationName.CategoryName. You should also select sorting direction. In this example we set the **Ascending** sorting direction. The picture below shows a window of data sorting via the relation between data sources:



Now, when rendering a report, the report generator will sort data from the data source **Products** by names of the categories in alphabetical order from A to Z. The picture below shows a page of the rendered report:

	ProductName	UnitPrice	UnitsInStock
	Côte de Blaye	263,5	17
	Chartreuse verte	18	69
	Steeleye Stout	18	20
	Guaraná Fantástica	4,5	20
	Sasquatch Ale	14	111
	Rhinobrau Klosterbier	7,75	125
	Lakkalikööri	18	57
	Outback Lager	15	15
	Ispoh Coffee	46	17
	Laughing Lumberjack Lager	14	52
	Chang	19	17
	Chai	18	39
	Original Frankfurtur grüne Soße	13	32
	Sirup d'érable	28,5	113
	Chef Anton's Gumbo Mix	21,35	0
	Northwoods Cranberry Sauce	40	6
	Grandma's Boysenberry Spread	25	120
	Chef Anton's Cajun Seasoning	22	53
	Aniseed Syrup	10	13
	Louisiana Hot Spiced Okra	17	4
	Veggie-spread	43,9	24
	Louisiana Fiery Hot Pepper Sauce	21,05	76
	Gula Malacca	19,45	27
	Genen Shouyu	15,5	39
	Sir Rodney's Scones	10	3
	Mavilaku	20	10
	Pavlova	17,45	29
	Tarte au sucre	49,3	17
	Sir Rodney's Marmalade	61	40
	Teatime Chocolate Biscuits	9,2	25
	Chocolade	12,75	15
	Zaanse koeken	9,5	36
	Valkoinen suklaa	16,25	65

7.1.3.3 Showing Information

Stimulsoft Reports tools can display data from a bound data source. For example, data from columns are displayed in a report: **ProductName**, **UnitPrice**, **UnitsInStock** of the data source **Products**. The picture below shows a page of the report:

ProductName	UnitPrice	UnitsIn Stock
Chai	18	39
Chang	19	17
Aniseed Syrup	10	13
Chef Anton's Cajun Seasoning	22	53
Chef Anton's Gumbo Mix	21,35	0
Grandma's Boysenberry Spread	25	120
Uncle Bob's Organic Dried Pears	30	15
Northwoods Cranberry Sauce	40	6
Mishi Kobe Niku	97	29
Ikura	31	31
Queso Cabrales	21	22
Queso Manchego La Pastora	38	86
Konbu	6	24
Tofu	23,25	35

If you want to display a category name instead of a product one, and the data column with the names of categories is not present in the data source **Products**, then it can be done using a relation between data sources. To do this, you should change the expression **Products.ProductName** in the text component to the expression **Products.RelationName.CategoryName**. Using the relationship between data sources, the report generator, when report rendering, will take the names of categories from the column **CategoryName** of the data source **Categories**, and substitute them instead of the expression. The picture below shows the a page of the rendered report displaying category names instead of the product name:

ProductName	UnitPrice	UnitsInStock
Beverages	18	39
Beverages	19	17
Condiments	10	13
Condiments	22	53
Condiments	21,35	0
Condiments	25	120
Produce	30	15
Condiments	40	6
Meat/Poultry	97	29
Seafood	31	31
Dairy Products	21	22
Dairy Products	38	86
Seafood	6	24
Produce	23,25	35

As can be seen in the picture above, instead of the product names, the category names to which products are related are output.

7.1.3.4 Master-Detail Report

"From the detail via a relation to the master data source" scheme was used in the previous chapters (filtering, sorting, and showing information). When you render a Master-Detail report, a different scheme "from master to detail" is used, i.e. the relation works in reverse order. For example, DataBand1 is placed in the report template. This band contains a text component with reference to a data column, which contains the category names. Then, when rendering a report, you will see a list of categories. The picture below shows a report page with the names of categories:

Beverages
Condiments
Confections
Dairy Products
Grains/Cereals
Meat/Poultry
Produce
Seafood

Suppose you want to compare each category from the list to the list of products. To do this, follow these steps:

- ✓ Add **DataBand2** to the report template;
- ✓ Specify a data source that contains a list of products and the relation between data sources;
- ✓ Select the Master component;
- ✓ Put a text component with reference to a data column from the selected data source in the **DataBand2**. For example, on a data column that contains the name of the product.

And then, when rendering a report, each **Master** entry will be compared to a list of **Detail** entries. The picture below shows a diagram of a **Master-Detail** report:



7.1.3.5 Creating Relation

It is possible to create a relation between data sources in the data dictionary. To do this select the item **New Relation** in the context menu of a data source or from the menu **Actions**. The picture below shows a **New Relation** dialog:

The screenshot shows the 'New Relation' dialog box. It contains the following elements:

- Name in Source:** A text box containing 'Relation' (labeled 1).
- Name:** A text box containing 'Name2' (labeled 2).
- Alias:** A text box containing 'Name2' (labeled 3).
- Settings:** A section containing two dropdown menus.
 - Categories:** A dropdown menu (labeled 4) with a list of fields: CategoryID (selected, labeled 6), CategoryName, Description, and Picture.
 - Products:** A dropdown menu (labeled 5) with a list of fields: CategoryID (selected, labeled 7), Discontinued, ProductID, ProductName, QuantityPerUnit, ReorderLevel, SupplierID, UnitPrice, UnitsInStock, and UnitsOnOrder.
- Active Relation:** A checkbox (labeled 8) that is checked.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom right.

As can be seen there are nine fields, which define the relation parameters:

- ❶ In the field **Name in Source** the name of a relation is specified. By this name the relation will be found from the original data (for example in the **DataSet**). If the relation between data sources will be created on the basis of a relation in the DataSet, then this name will coincide with the field **Name**. This field is required to be filled.
- ❷ Filed **Name** is used to specify the name of a relation which is used to refer to this relation in the report. This field is required to be filled.
- ❸ In the field **Alias** a hint for the relation will be specified and displayed to the user. This field is mandatory.
- ❹ Filed **Parent DataSource** indicates the parent data source for the relation. This field is required to be filled.
- ❺ Filed **Child Data Source** indicates a detail data source for this event. This field is required to be filled.
- ❻ This field displays the selected column from the parent data source. In order to create a relation, you should select the column by which the relationship will be arranged.
- ❼ This field displays the selected column from the child data source. In order to

create a relation, you should select the column by which the relationship will be arranged.

8 The **Active Relation** parameter sets the mode of using the current relation by default, for example, when creating a new data transformation.

Information

The editor of relations has the built-in control. In case of issues with creating a relation, the user will see an error message. In this case, you cannot click the OK button, until the issues are fixed.

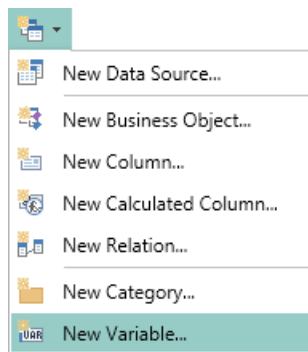
7.1.3.5.1 Limitations in Creating Relations

When creating or using relations between data sources, the following restrictions are:

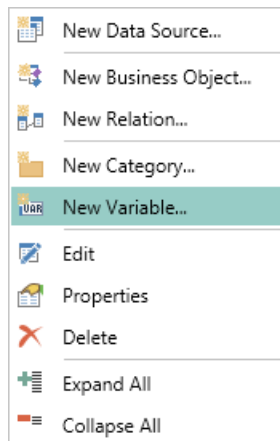
- Selected data sources (parent and child) must be of the same type, i.e. the types of relations should be identical. If the types of relations are different, then you can use the **CashAllData** property.
- **Name** must be present and correct, in terms of **C#** or **VB.NET** compiler. If the name is reserved in the source, you must add the **@** symbol before the relation name. For example, **@relation**.
- Column-keys must comply with all the rules for creating a relation to **ADO.NET**:
 - ✓ Their number must be the same;
 - ✓ Their types must match, so if the primary column-key is of the **String** type, then the child column-key must be of the **String** type;
 - ✓ Keys must be specified, so the relation cannot be created without keys.

7.1.4 Variables

In Stimulsoft Reports you can use Variables in the report. The Variable is the opportunity to place and use any value when rendering reports. The values can be of different types: string, date, time, number, array, collection, range, etc. All variables are stored in the data dictionary. Before using a variable in the report, it is necessary to add it to the data dictionary. To add a variable you can select the New variable... in the New Item of the data dictionary. The picture below shows the New Item menu:



Also, you can create a new variable by selecting New Variable... in the context menu of the Dictionary:



After selecting this item, the New Variable dialog will be called. In this dialog you can set the parameters of the variable. The picture below shows the New Variable dialog:

New Variable ? ✕

Name ① Variable

Alias ② ValueString

Description ③

Type ④ string Value

Init by ⑤ Value ☐ Read Only ⑦

Value ⑥ 1 ☐ Not Assigned ⑧

⑨ ☐ Allow using as SQL parameter

⑩ ☒ Show on Parameters Panel

⑪ ☐ Remember Selection

⑫ ☐ Allow User Values

Items ⑬ one, two, three Edit

Validation ⑭ [Not Assigned] Edit

Format Mask ⑮

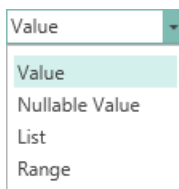
Numeric | ZIP Code | SSN | Currency

Save a Copy OK Cancel

- ① In the **Name** field, the variable name used in the report is specified.
- ② The **Alias** field specifies the variable name displayed to the user.
- ③ In the **Description** field, you can provide additional information about the variable.
- ④ In the **Type** field, you can change the data type stored in the variable and the variable type. This field consists of two dropdown lists. The first list contains all available data types grouped into categories:



As can be seen from the picture, the integer is selected. The second list contains a list of variables. Depending on the type of a variable, some additional fields of parameters can be displayed. The list of types of variable fields is presented in the second list of the Type field (see. picture above). The picture below shows a list of types of a variable:



As can be seen from the picture, the variable can be of the following types - Value, Nullable Value, List, Range. Next, consider all types of a variable and the Request from User option in detail.

- 5 In the **Init by** field, the method of variable initialization is specified.
- 6 In the **Value** field, the variable value is specified.
- 7 The **Read Only** option enables read-only mode. In this case, the value stored in the variable is returned, and the user cannot modify it. If the value is initialized by an expression, the expression will be recalculated each time the variable is accessed.
- 8 The **Not Assigned** property allows indicating that the variable has no value.
- 9 The **Allow using as SQL** parameter option allows using the variable as a parameter in a data query.

- 10 The **Show on Parameters Panel** property allows displaying the variable on the parameters panel.
- 11 The **Remember Selection** property allows saving the value selected by the user.
- 12 The **Allow User Values** property allows users to enter custom values for the variable.
- 13 In the **Items** field, the list of variable values is specified.
- 14 In the **Validation** field, you can configure validation rules for the variable value.
- 15 In the **Format Mask** field, you can define the display format of the variable value.

Information

When editing a variable, the **Save a Copy** button is available in the window. When this button is clicked, a copy of the edited variable is created with the postfix **Copy** added to the variable name.

7.1.4.1 Panel Request From User

The **Request from user** panel contains parameters that determine the options available for user interaction when a variable is used in a report. Some parameters may be present or absent depending on the value selected in the **Data Source** field. The image below shows the **Request from user** panel, if in the **Data Source** field the **Data Columns** value is selected:

The screenshot shows a form titled 'Request from user'. It contains the following fields:

- Allow User Values**: A checkbox, indicated by a red box and the number 1.
- Data Source**: A drop-down menu with 'Data Columns' selected, indicated by a red box and the number 2.
- Keys**: A drop-down menu, indicated by a red box and the number 3.
- Values**: A drop-down menu, indicated by a red box and the number 4.

- 1 The **Allow User Values** parameter provides the option to set the dialog mode, i.e. when this variable is used in a report, the user may be prompted to enter a value.
- 2 The **Data Source** field contains a drop-down list of values. Depending on the selected value: **Items** or **Data Columns**, the panel will display either the **Items** field or the **Keys** and **Values** fields.
- 3 The **Keys** field. Using the , the data column is selected. The entries of the column will be keys.
- 4 The **Values** field. Using the , the data column is selected. The entries of the column will be values.

If **Items** is selected in the **Data Source** field, other parameters will be displayed in

the **Request from user** panel. The image below shows the **Request from user** panel:

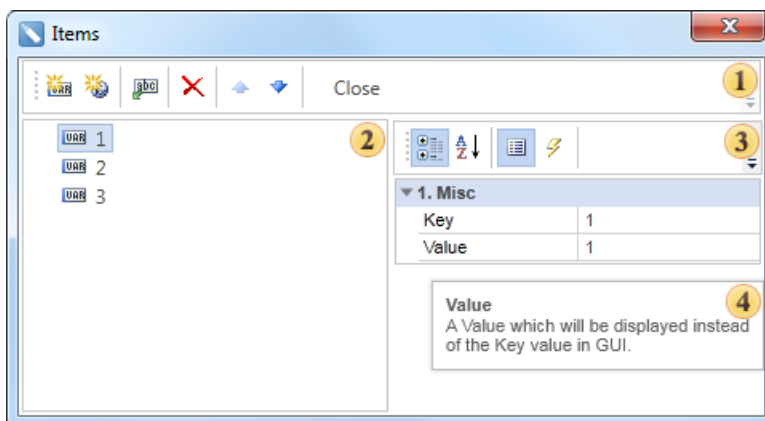
The screenshot shows a panel with the following elements:

- 1**: A checkbox labeled "Allow User Values".
- 2**: A drop-down menu labeled "Data Source:" with "Items" selected.
- 3**: A text field labeled "Items:" containing the text "1; 2; 3".
- 4**: An "Editor" button (pencil icon) next to the "Items:" field.

- 1** The **Allow User Values** parameter provides the option to set the dialog mode, i.e. when this variable is used in a report, the user may be prompted to enter a value.
- 2** The **Data Source** field contains a drop-down list of values. Depending on the selected value: **Items** or **Data Columns**, the panel will display either the **Items** field or the **Keys** and **Values** fields.
- 3** The **Items** field displays a list of the variable's created items. If no items have been created, this field will be empty. Note that the order of the items in this list depends on their order in the **Items** window: the higher an item is in the list, the further to the left it will be in this list, and vice versa.
- 4** The **Editor** button opens the **Items** window, where you can create new items, delete existing ones, or edit them.

7.1.4.1.1 Items Dialog

In the **Items** dialog you can create, delete, edit items (values, expressions). This window is invoked when clicking the **Editor** in the **Variables** dialog. The picture below shows the **Items** dialog:



- 1** Control Panel. This panel contains buttons to control items.
- 2** The Toolbox displays a list of created items (values, expressions). Keep in mind that the order of items in the list affects sequence of items in the **Items** field on the **Request from User** panel.

- 3 The properties panel. In this panel the properties of the selected item are displayed. The item has two properties: **Key** and **Value**.
- 4 The panel displays the description of the selected property.

Control Panel

As mentioned above, on this panel (see the picture above) the buttons to control items are placed.



- 1 The **New Value** button. Used to create a new type of the value;
- 2 The **New Expression** button. Creates a new type of an expression;
- 3 The **Select Columns** button. Calls a dialog where you can specify data columns as keys and values;
- 4 The **Remove** button. Removes the selected item.
- 5 The **Navigation** buttons. Used to move selected item up or down in the toolbox.
- 6 The **Close** button. Closes the Items dialog saving changes.

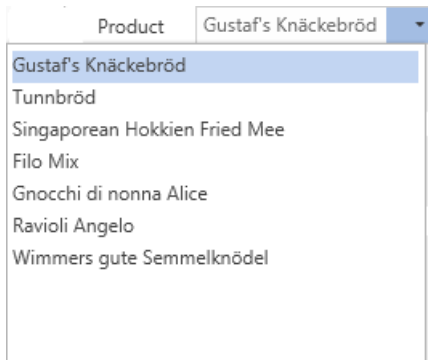
7.1.4.1.2 Dependent Variables

When you create a report with parameters, you can use the dependent variables. In this case, one variable will be independent, and the rest ones will depend on it or will represent a hierarchy. Each subsequent variable is dependent on the previous one. To become dependent, the variable must have the check box **Dependent Value** enabled (it is located on the panel **Request From User** when you choose a data source **Data Column**). After you enable the check box two fields will be displayed: the **Variable** and **Dependent Column**. In the first field, select the variable that will be the main one from which this variable will depend. In the second field select the data column, which will be in relation with the main variable.

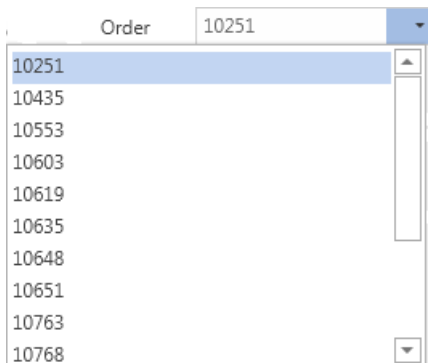
This possibility (relations between variables) is useful when using parameters in reports, for example, in Master-Detail reports. Suppose we have a list of categories, each category includes several products, and each product has detailed description. In this case, using the report parameters, the variable by a product and by product information will contain a huge list of values (completely full list of products and descriptions), and, if it is necessary to select a particular product or information on it, this will take much time. If the relations between variables is missing, then the list of category values will contain 8 categories of products - 77 records, and detailed data to several hundreds. It will be almost impossible to find a product or information on it. The images below show examples of lists of values without the relations between the variables:

The image displays three separate dropdown menus, each representing a different report parameter. The first dropdown, labeled 'Categories', lists eight food categories: Beverages, Condiments, Confections, Dairy Products, Grains/Cereals, Meat/Poultry, Produce, and Seafood. The second dropdown, labeled 'Product', lists ten specific products: Chai, Chang, Aniseed Syrup, Chef Anton's Cajun Seasoning, Chef Anton's Gumbo Mix, Grandma's Boysenberry Spread, Uncle Bob's Organic Dried Pears, Northwoods Cranberry Sauce, Mishi Kobe Niku, and Ikura. The third dropdown, labeled 'Order', lists ten order numbers: 11, 14, 41, 22, 20, 31, 24, 2, 53, and 27. Each dropdown is independent, meaning the data in one does not depend on the selection in another, which is the problem being discussed in the text.

The dependent variables provides an opportunity to reduce the list of variables. In other words, you can establish a connection among variables. This will lead to filtering the list of values depending on the value of the main variable. For example, depending on the selected category, a list of values of a variable by product is created, and, depending on the selected product, a list of detailed information is created. For example, the category Condiments will be selected, then the list of products will be filtered and will look like this:



Now select the product Genen Shouyu, and then the list of detailed information will be like this:



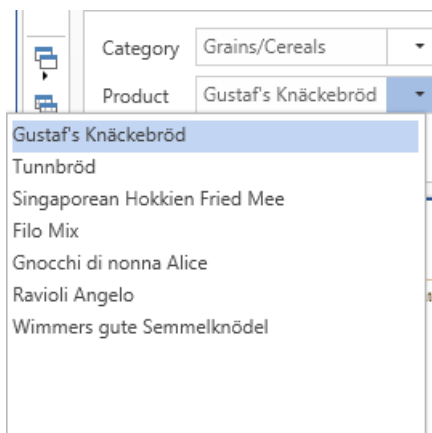
Consider creating and using variables in the report. Create two variables, one of which will contain a list of categories, a second is list of products. And the list of products will depend on the selected category. For example, on the base of data sources from our Demo application.

➤ Create variables Category and Product, of the type Value with initialization of data integer. In the main variable (Category), choose the keys Categories.CategoryID, and the values Categories.CategoryName.

⚠ Notice: The key is a unique identifier of a record (row) in the data source. In this

case, CategoryID will be a column that contains keys, and ProductID - for products. The connection is organized by keys between the data sources. It is important to understand that different product keys may be related to the same category key.

➤ In the dependent variable define keys Products.ProductID, and the values Products.ProductName. Select the check box Dependent Value, select Category as the main variable and data column Products.CategoryID as the dependent column. We go to the tab Preview, as shown in the picture below. It shows two parameters. In the first list the category is selected, and the second list (products) is created depending on the selected category:



As can be seen from the picture above, the second variable (a list of values) displays not complete list of stored values, but only those values that belong to the selected category.

➤ Add a third variable in the data dictionary. The variable will be named All, of the type Value with initialization data bool.

➤ Now use the dependent variable in the report. Suppose we have a Master-Detail Report, where each category has a few products. Add filters with expressions on Data bands in the report template to choose a certain product or products of a certain category:

✓ The first filter is on the data band Master. (this is the band with which a list of categories is created in the report). It is necessary to filter categories, depending on the selected report parameter, so the expression looks like `Category == Categories.CategoryID`.

✓ Next, add a second filter on the data band Detail (this is the band with which a list

of products is created in the report). The filter will have the expression `Product == Products.ProductID`.

➤ Switch to the tab Preview. In the report parameters select a category, then a product, apply settings to filter report data:

The screenshot shows a report preview interface. At the top, there are two dropdown menus: 'Category' with 'Grains/Cereals' selected and 'Product' with 'Gustaf's Knäckebröd' selected. Below these is an 'All' checkbox which is currently unchecked. There are 'Reset' and 'Submit' buttons. A red line connects the 'Category' dropdown to the 'CategoryID' column in the table below. Another red line connects the 'Product' dropdown to the 'ProductID' column in the table. The table has a header row with columns: 'CategoryID', 'ProductID', 'Quantity per unit', 'Price', and 'Units in stock'. The data row shows '5' for CategoryID, '22' for ProductID, 'Gustaf's Knäckebröd' for Quantity per unit, '21,00p.' for Price, and '104,00' for Units in stock. A 'Count: 1' is shown at the bottom right of the table.

CategoryID	ProductID	Quantity per unit	Price	Units in stock
5	22	Gustaf's Knäckebröd	21,00p.	104,00

Count: 1

As can be seen from the picture above, the category Grains/Cereals was chosen (note, the key of the category is 5) and the product Gustaf's Knackebrod (product key = 22). In other words, all categories with the key 5 and all the products with the key 22 are displayed.

➤ To display a complete list of products related to the category, it is necessary to use the third variable, All. Therefore, you should change the filter expression on the Data band with which to create a list of products (`Product == Products.ProductID || All`). In this case, depending on the value of the third variable (enabled/disabled) filtering will be done. If the check box is disabled, the filter will occur by the product keys (the report shows the product which key matches). If the check box is enabled all the products of the selected category will be shown:

Category: Grains/Cereals ▼

Product: Gustaf's Knäckebröd ▼

All ☒

Reset Submit



Grains/Cereals
Breads, crackers, pasta, and cereal

Products

CategoryID	ProductID	Quantity per unit	Price	Units in stock
5	52	16 - 2 kg boxes	7,00p.	38,00
5	56	24 - 250 g pkgs.	38,00p.	21,00
5	22	24 - 500 g pkgs.	21,00p.	104,00
5	57	24 - 250 g pkgs.	19,50p.	36,00
5	42	32 - 1 kg pkgs.	14,00p.	26,00 ✓
5	23	12 - 250 g pkgs.	9,00p.	61,00
5	54	20 bags x 4 pieces	33,25p.	22,00

One Category

As can be seen from the picture above, one category (key = 5) is displayed, and all products related to it, with different keys.

The example that was reviewed above is a single-level dependency. Now consider a more complex example of a two-level dependency. Leave the category, products related to them, and add detailed data by each product. To do this, create the variable Order of the Value type with initialization of data integer. Next, enable the check box Request From User, select the data source as the data column.

- ✓ The column with keys OrderDetails.OrderID, with values OrderDetails.UnitPrice.
- ✓ Next, set relations with the products. Select Product as a main variable. The dependent column is OrderDetails.ProductID.
- ✓ Now, in the report template, add the Data band with detailed information on the products. In this example, select Order Details as the data source for the Data band. The Master component will be the Data band with the products. Also indicate the relationship between the data sources.
- ✓ Add a filter with the expression Order == Order_Details.OrderID in the Data band, which contains detailed information on products.
- ✓ Go to the tab Preview.

In the report, select a category, and the list of products is filtered. Select the product, and then the list of detailed data for the selected product is filtered. Select a detailed value, click the button Apply:

Category: Grains/Cereals ☐ All

Product: Gustaf's Knäckebröd Order: 16,8



Grains/Cereals
Breads, crackers, pasta, and cereal

CategoryID	Name	Quantity per unit	Price	Units in stock
5	Gustaf's Knäckebröd	24 - 500 g pkgs.	21,00p.	104,00

ProductID	OrderID	UnitPrice	Quantity	Discount
22	10435	16,8	12	0

Count: 1

If you need to display all the detailed information on the selected product, you should change the filter expression in the Data band with detailed data by products. The expression will be with Variable3 and will look `Order == Order_Details.OrderID || All`. Now, you can simply specify a category, select a product and get all the detailed information on it:

Category: Grains/Cereals ☒ All

Product: Gustaf's Knäckebröd Order: 16,8



Grains/Cereals
Breads, crackers, pasta, and cereal

One Category

CategoryID	Name	Quantity per unit	Price	Units in stock
5	Gustaf's Knäckebröd	24 - 500 g pkgs.	21,00p.	104,00

ProductID	OrderID	UnitPrice	Quantity	Discount
22	10251	16,8	6	0,05
22	10435	16,8	12	0
22	10553	21	24	0
22	10603	21	48	0

As can be seen from the picture above one category, one product and all the details by the product were printed. It is also worth noting that the number of nesting levels is not limited.

7.1.4.2 New Variable

The variable of the first type provides the ability to place a simple value of any available data type or expression. Consider the example of creating such a variable. Call the **New Variable...** command. The dialog box in which to define the parameters of the variable will be opened. The Value variable is set by default. The picture below shows the **New Variable** dialog:

The screenshot shows the 'New Variable' dialog box. It contains the following fields and values:

- Name: Variable1
- Alias: Variable1
- Description: This variable will be used for filtering data
- Type: int (dropdown menu)
- Value: Value (dropdown menu)
- Init by: Value (dropdown menu)
- Value: 2 (text input field)
- Sample: 123; My text; 567f; 456.23f; Test String; A
- Read Only: ☐
- Request from User: ☐
- Buttons: Save a Copy, OK, Cancel

- 1 The **Init by** field has a menu with the drop-down list. Depending on the selected item in this menu the type of the value in a variable is defined: Value or Expression, i.e. the method of initializing a variable as a value or expression is selected. In this example, the variable is initialized as a Value.
- 2 This field specifies the value to be stored in a variable. Please note that this field may be missing. If, for example, the Expression is selected in the Init by field, then this field is absent, and the Expression field present instead. In this case, in the Expression field you should specify an expression that will be stored in a variable. In this example, the variable is equal to 2.

After pressing the **OK** button the variable named **Variable1** will be created. Consider the example of using variable of the type **Value** in the report. Suppose there is a report that contains information about employees (see the picture above).

EmployeeID	LastName	City	Country
1	Davolio	Seattle	USA
2	Fuller	Tacoma	USA
3	Leverling	Kirkland	USA
4	Peacock	Redmond	USA
5	Buchanan	London	UK
6	Suyama	London	UK
7	King	London	UK
8	Callahan	Seattle	USA
9	Dodsworth	London	UK

Add a filter with the expression **Employees.EmployeeID == UNN** in the **DataBand**. Now, when rendering a report, the information about employees whose **EmployeeID** is equal to the value stored in a variable will be output. In this example, **EmployeeID = 2**. The picture below shows a report with the condition of filtering:

EmployeeID	LastName	City	Country
2	Fuller	Tacoma	USA

7.1.4.3 Nullable Value

The **Nullable Value** variable provides the ability to place simple values and values equal to **null**. If it is necessary to return a **null** value in the report, then when using a variable of another type, a report compilation error occurs. The picture below shows the **New Variable** dialog of the **Nullable Value**:

- 1 The **Init by** field has a menu with the drop-down list. Depending on the selected item in this menu the type of the value in a variable is defined: Value or Expression,

i.e. the method of initializing a variable as a value or expression is selected. In this example, the variable is initialized as a Value.

2 This field specifies the value to be stored in a variable. Please note that this field may be missing. If, for example, the Expression is selected in the Init by field, then this field is absent, and the Expression field is present instead. In this case, in the Expression field you should specify an expression that will be stored in a variable. In this example, the variable is equal to 2.

7.1.4.4 List

The **List** variable provides the ability to place a list of values of any available data type. In contrast to the **Value** variable, in this case, when report rendering, the variable contains a list of values. The picture below shows the **New Variable** dialog with the selected **List** type:

The screenshot shows the 'New Variable' dialog box with the following fields and values:

- Name: UNN
- Alias: UNN
- Description: (empty)
- Type: int (dropdown), List (dropdown)
- ☐ Read Only
- ☒ Request from User
- ☐ Allow User Values
- Data Source: Data Columns (dropdown)
- Keys: Categories.CategoryID (dropdown)
- Values: Categories.CategoryName (dropdown)
- Buttons: Save a Copy, OK, Cancel

After clicking OK, a variable named **UNN** and the stored list of values from 0 to 8 will be created. Consider using a variable created in the report. Suppose there is a report that contains numbers, names and descriptions of categories. The picture below shows a report page:

1	Beverages <i>Soft drinks, coffees, teas, beers, and ales</i>
2	Condiments <i>Sweet and savory sauces, relishes, spreads, and seasonings</i>
3	Confections <i>Desserts, candies, and sweet breads</i>
4	Dairy Products <i>Cheeses</i>
5	Grains/Cereals <i>Breads, crackers, pasta, and cereal</i>
6	Meat/Poultry <i>Prepared meats</i>
7	Produce <i>Dried fruit and bean curd</i>
8	Seafood <i>Seaweed and fish</i>

If you want to show some of the categories then use already created variable in the report. To do this, add a filter in the **DataBand** with the expression **UNN.Contains(Categories.CategoryID)**, where **UNN** is the variable name. When rendering a report, by default, all categories are displayed. All values in the list of stored values of the variable are selected. Also, values, for example **Grains/Cereals** and keys, for example **[5]** are displayed in the variable list. The picture below shows a list of variable values:

UNN 1, 2, 3, 4, 5, 6, 7, 8 ▼

- ✓ Beverages [1]
- ✓ Condiments [2]
- ✓ Confections [3]
- ✓ Dairy Products [4]
- ✓ Grains/Cereals [5]
- ✓ Meat/Poultry [6]
- ✓ Produce [7]
- ✓ Seafood [8]

Because the **Allow User Values** parameter is not enabled, in this example, the user can only select values, stored in the variable, but cannot use their own values. Suppose the values such as **Beverages [1]**, **Confections [3]**, **Produce [7]** will be selected. Then, after clicking the **Submit** button, the generator will build a report, considering the filtering conditions and display entries **1,3,7**. Below is a report using a variable is shown:

1	Beverages Soft drinks, coffees, teas, beers, and ales
3	Confections Desserts, candies, and sweet breads
7	Produce Dried fruit and bean curd

7.1.4.5 Range

If using a variable of this type in the report, you can work with ranges of values. In this case, the variable will store a range of values. The picture below shows the New Variable dialog of the **Range** type:

The screenshot shows the 'New Variable' dialog box with the following details:

- Name:** UNN
- Alias:** UNN
- Description:** (empty)
- Type:** datetime (selected), Range (selected)
- Init by:** Value (selected, highlighted with a yellow circle and number 3)
- From:** Tuesday, January 01, 2008 (selected, highlighted with a yellow circle and number 2), Not Assigned (unchecked)
- To:** Thursday, February 28, 201 (selected, highlighted with a yellow circle and number 1), Not Assigned (unchecked)
- Read Only:** (unchecked)
- Request from User:** (checked)
- Allow User Values:** (unchecked)
- Data Source:** Items (selected)
- Items:** [Not Assigned] (with a pencil icon)
- Date Time Format:** Date and Time (selected)
- Buttons:** Save a Copy, OK, Cancel

- ❶ The **Init by** field has a menu with the drop-down list. Depending on the selected item in this menu the type of the value in a variable is defined: Value or Expression, i.e. the method of initializing a variable as a value or expression is selected. In this example, the variable is initialized as a Value.
- ❷ The **From** field. Specifies the starting value of the range. The value in this field is included into the values range. In our case the date **01/01/2008; 00:00:01** is specified.
- ❸ The **To** field. Specifies the ending value of the range. The value in this field is included into the values range. In our case the date **12/31/2008; 23:59:59** is specified.

After clicking **OK**, the variable will be created. Here is an example of this type of the variable in the report. Suppose there is a report that contains information about orders: country, name and date of delivery. The picture below shows a report page:

ShipCountry	ShipName	ShippedDate
Germany	Die Wandernde Kuh	12/15/2008 1:00:00 PM
Germany	Die Wandernde Kuh	5/23/2010 1:00:00 PM
Germany	Die Wandernde Kuh	10/23/2009 1:00:00 PM
Germany	Die Wandernde Kuh	11/2/2008 1:00:00 PM
Germany	Die Wandernde Kuh	5/28/2009 1:00:00 PM
Germany	Die Wandernde Kuh	9/18/2009 1:00:00 PM
Germany	Die Wandernde Kuh	9/27/2009 1:00:00 PM
Germany	Die Wandernde Kuh	10/17/2008 1:00:00 PM
Germany	Die Wandernde Kuh	12/27/2008 1:00:00 PM
Germany	Drachenblut Delikatessen	6/4/2010 1:00:00 PM

If you want to display information about orders, which were processed in 2008, then use the variable created in the report. To do this, add a filter in the DataBand with the expression **Orders.ShippedDate > Variable1.FromDate** & **Orders.ShippedDate < Variable1.ToDate**. When rendering a report, you will see only the information about orders that were processed in 2008. Below is a report with orders in 2008:

ShipCountry	ShipName	ShippedDate
Germany	Die Wandernde Kuh	12/15/2008 1:00:00 PM
Germany	Die Wandernde Kuh	11/2/2008 1:00:00 PM
Germany	Die Wandernde Kuh	10/17/2008 1:00:00 PM
Germany	Die Wandernde Kuh	12/27/2008 1:00:00 PM

It is worth noting that when referring to the start/end range value, if the **DateTime** data type is used, then to avoid additional changes, you can address to the **VariableName.FromDate** (or **VariableName.FromTime** if the **TimeSpan** data type is used) and **VariableName.ToDate** (or **VariableName.ToTime** if the **TimeSpan** data type is used).

7.1.4.6 Three Modes of Variable Functioning

Depending on the selected parameters the variable in the report can be operated in the following modes: autonomous, user (with selecting values), user (with inputting values). Let us consider these modes in more detail.

Autonomous

This mode will be applied if the **Request from User** parameter is disabled, i.e. using a variable in the report, no action will be required from the user. Create a variable that will store the value 2 of the integer type with the name **UNN**. Use this variable

in the report. The picture below shows an example of the rendered report:

CategoryID	CategoryName
1	Beverages
2	Condiments
3	Confections
4	Dairy Products
5	Grains/Cereals
6	Meat/Poultry
7	Produce
8	Seafood

Add a filter in the **DataBand**, where specify the expression **Categories.CategoryID == UNN** as the filtering condition. Now when rendering a report, the report generator will consider the filtering condition and display only those entries whose values in the column **CategoryID** are equal to the values, stored in the variable. In this case, it is the entry Condiments. The picture below shows an example of a report using a variable to filter data:

CategoryID	CategoryName
2	Condiments

In this case, when rendering a report, no action will be required from the user.

User (with selecting values)

This mode of operation of the variable will be used if the **Request from User parameter** is enabled and the **Allow Users Values** is disabled. If using this variable in the report, there may need some actions from the user for selecting values from a variable list. Create the variable **UNN**, which will store a list of items from 1 to 8. Use this variable in the report. The picture below shows an example of the rendered report:

CategoryID	CategoryName
1	Beverages
2	Condiments
3	Confections
4	Dairy Products
5	Grains/Cereals
6	Meat/Poultry
7	Produce
8	Seafood

Add a filter in the **DataBand**, where the expression **Categories.CategoryID == UNN** is a filtering condition. Now, when report rendering, the value from the list will

be selected in the viewer window. The picture below shows a list of variable values:

After selecting the value, click the **Submit** button to apply the selected value or the **Reset** button to reset the initial value in the list. The picture below shows the variable panel in the report:

When clicking the Submit button, the report generator will filter data and display these data, whose **CategoryID** is equal to the selected value. The picture below shows an example of a report with the selected value **4**:

CategoryID	CategoryName
4	Dairy Products

The **Reset** button resets the current value and sets the first top value from the variable list.

User (with inputting values)

This mode of the variable will be applied if the **Request from User** and **Allow Users Values** is enabled. When using this mode, selecting or entering values in the variable field will require from the user. Create a variable type of **List** with the name **UNN**, and specify the column **CategoryID** as keys and values. The picture below shows an example the rendered report:

CategoryID	CategoryName
1	Beverages
2	Condiments
3	Confections
4	Dairy Products
5	Grains/Cereals
6	Meat/Poultry
7	Produce
8	Seafood

Add a filter in the **DataBand**, where as the filter condition, specify the expression **UNN.Contains(Categories.CategoryID)**. Now, when rendering a report, it is necessary to edit the list of values of the variable (remove unwanted items, or change the key in the item field, or create a new item) in the viewer window. The picture below shows an edited list of the variable:

UNN 1, 3, 5, 7

- 1 New Item
- 1 3 5 7 (Each item has a red X remove button)
- 3 Remove All
- 4 Close

- 1 The **New Item** button. Creates a new item with the field in which to specify a key;
- 2 The **Remove** buttons. Remove the item to which they belong. Each item in the list has such a button.
- 3 The **Remove All** button. Removes all items from the list;
- 4 The **Close** button. Closes this menu saving items and input keys.

After that, click the **Submit** button. Now the report generator will filter data and display the data whose **CategoryID** is equal to keys specified in the fields in the list of the variable values. The picture below shows the filtered report:

CategoryID	CategoryName
1	Beverages
3	Confections
5	Grains/Cereals
7	Produce

The **Reset** button, in this case, resets the current list of values to the original one.

7.1.4.7 Variable Validation

Variable Validation - is the process of checking that a variable value matches the expected format, type, and constraints.

For example:

- The variable value must be in the range from 1 to 100;
- A string must not be empty;
- An email must match a specific format.

Let us consider the variable validation settings:

The screenshot shows a 'Validation' dialog box with three tabs: Range, Expression, and Pattern. The Range tab is selected, showing fields for Min (5), Max (15), and Message (The number must be between 5 and 15). The Expression tab shows Expression (DataSources) and Message (Expression validation failed). The Pattern tab shows Type (Pattern), Regular Expression, and Message. A 'Required' checkbox is checked at the bottom. The dialog has 'Reset', 'OK', and 'Cancel' buttons at the bottom.

Range

Allows defining a range of valid values. The parameters of this group are listed below.

- In the **Min** field, the minimum allowed value is specified;
- In the **Max** field, the maximum allowed value is specified;
- **Message** - provides the ability to specify a notification that will be displayed on the parameters panel when the entered value is outside the defined range;
- **Validation Type** - defines the type of value validation:
 - **Warning** - in this case, a message will be displayed on the parameters panel, but the parameter value will still be applied and the report will be generated;
 - **Error** - in this case, a message will be displayed on the parameters panel, and

the parameter value will not be applied and the report will not be generated.

Expression

Allows defining a validation criterion using an expression. The parameters of this group are listed below.

- 5 In the **Expression** field, you can specify a condition, for example: `variable_1 != 5`;
- 6 **Message** - provides the ability to specify a notification that will be displayed on the parameters panel when the entered value does not meet the criteria of the defined expression;
- 7 **Validation Type** - defines the type of value validation:
 - > **Warning** - in this case, a message will be displayed on the parameters panel, but the parameter value will still be applied and the report will be generated;
 - > **Error** - in this case, a message will be displayed on the parameters panel, and the parameter value will not be applied and the report will not be generated.

Pattern

Allows you to validate the result of the evaluated expression. The parameters of this group are described below.

- 8 **Type**. The following options are available:
 - > **No** - pattern validation is disabled;
 - > **Pattern** - custom regular expression;
 - > **Email** - email validation;
 - > **Phone** - phone number;
 - > **URL** - web address;
 - > **Alpha Numeric** - letters and digits;
 - > **Alpha** - letters only;
 - > **Numeric** - digits only;
 - > **SSN** - Social Security Number (USA);
 - > **TIN** - Tax Identification Number;
 - > **IP Address** - IP address;
 - > **IBAN** - International Bank Account Number;
 - > **ISBN** - International Standard Book Number.
- 9 **Regular Expression** - in this field, a custom regular expression is specified, which is used to validate the entered value. The value is considered valid if it matches the specified pattern. A regular expression allows defining complex validation rules, for example:
 - > validation of an e-mail format;
 - > validation of a phone number;

- validation of a string according to a specified pattern.

If the entered value does not match the regular expression, a validation message will be displayed.

10 Message - provides the ability to specify a notification that will be displayed on the parameters panel when the entered value does not meet the criteria of the defined pattern;

11 Validation Type - defines the type of value validation:

- **Warning** - in this case, a message will be displayed on the parameters panel, but the parameter value will still be applied and the report will be generated;
- **Error** - in this case, a message will be displayed on the parameters panel, and the parameter value will not be applied and the report will not be generated.

12 Required - makes the field mandatory, an empty value will be treated as an error.

Information

Validation is performed sequentially: Range → Expression → Pattern → Required. If the value does not meet one of the criteria, validation stops and an error message is displayed for that criterion.

Validation can be performed using a single criterion (for example, Range) or multiple criteria simultaneously (for example, Range and Expression).

7.1.5 Panel Setup

The panel (see the picture below) contains controls that provide an opportunity to change auxiliary parameters of the data dictionary.



- 1** If the option **Create Field on Double Click** is enabled, then when double clicking the data column data in the report data dictionary, the report template in the DataBand will create a text component with reference to this data column;
- 2** The parameter **Create Label** is used to create two text components (one with the signature, the a second with reference to the data column) when dragging a data column into the report. If this option is disabled, then, when dragging, only one text component with reference to a data column will be created;

3 To show the alias instead of the name, enable the option **Use Aliases**. If this option is disabled, it will display a name of the element.

7.1.6 System Variables

Stimulsoft Reports offers to use system variables in expressions. System variables are variables which provide information about the current status of a report. The following system variables are available:

Name	Description
Column	Returns the current column number (starts from 1).
Line	Returns the current line number. Used for numbering lines in reports. Numbering starts from 1. Numbering is performed separately for each group.
LineThrough	Returns the sequential line number. Unlike Line , it returns the line number from the very beginning of the report, regardless of report groupings. Numbering starts from 1.
LineABC	Returns the alphabetical analogue of the current line number.
LineRoman	Returns the current line number in Roman numerals.
GroupLine	Returns the current group line number (starts from 1).
PageLine	Returns the number of the current line on the page, starting from 1. Line numbering is maintained within a single page and is automatically reset when moving to the next page.
PageNumber	Returns the current page number. Page numbering starts from 1. Used for numbering pages.
PageNumberThrough	Returns the current page number

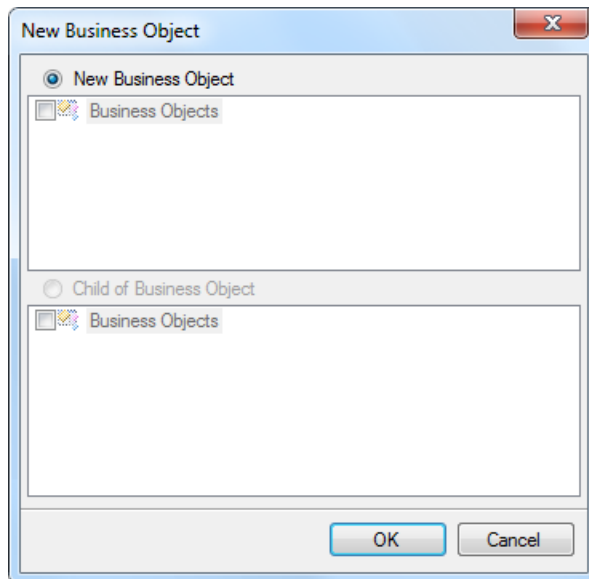
	(starts from 1). When calculating the PageNumberThrough , all properties ResetPageNumber are ignored and numbering starts from the beginning of a report.
PageNofM	Returns a string in the following format: Page {PageNumber} of {TotalPageCount} . This variable combines the system variables Page Number (PageNumber) and Total Page Count (TotalPageCount) , i.e., it displays the current page number in relation to the total number of pages.
PageNofMThrough	Returns a localized string, showing " Page N of M " where N is the current page number and M is the TotalPageCount of a report. When calculating the PageNofMThrough, all properties ResetPageNumber are ignored and numbering starts from the beginning of a report.
TotalPageCount	Returns the number of pages in a report.
TotalPageCountThrough	Returns the number of pages in a report. When calculating the TotalPageCountThrough, all properties ResetPageNumber are ignored and numbering starts from the beginning of report.
IsFirstPage	Returns true , if, in the current moment, the first page of a report is printed.
IsFirstPageThrough	Returns true , if, in the current moment, the first report page is printed. When calculating the IsFirstPageThrough, all ResetPageNumber properties are

	ignored and numbering starts from the beginning of report. For correct calculation of a variable it is required to execute two passes.
IsLastPage	Returns true , if, in the current moment, the last page of a report is printed. For correct calculation of a variable it is required to execute two passes.
IsLastPageThrough	Returns true , if, in the current moment, the last page of a report is printed. When calculating the IsLastPageThrough, all properties ResetPageNumber are ignored and numbering starts from the beginning of report. For correct calculation of a variable it is required to execute two passes.
PageCopyNumber	Return a number of a current copy of a page (starts from 1).
Report Alias	Returns the report alias. You can change the ReportAlias with help of the ReportAlias property of a report.
Report Author	Returns the report author. You can change ReportAuthor with help of the ReportAuthor property of a report.
Report Changed	The Date when a report was changed.
Report Created	The Date when a report was created.
Report Description	Returns the report description. You can change the ReportName with help of the ReportDescription property of a report.
Report Name	Returns the report name. You can change the ReportName with help of the ReportName property of a report.

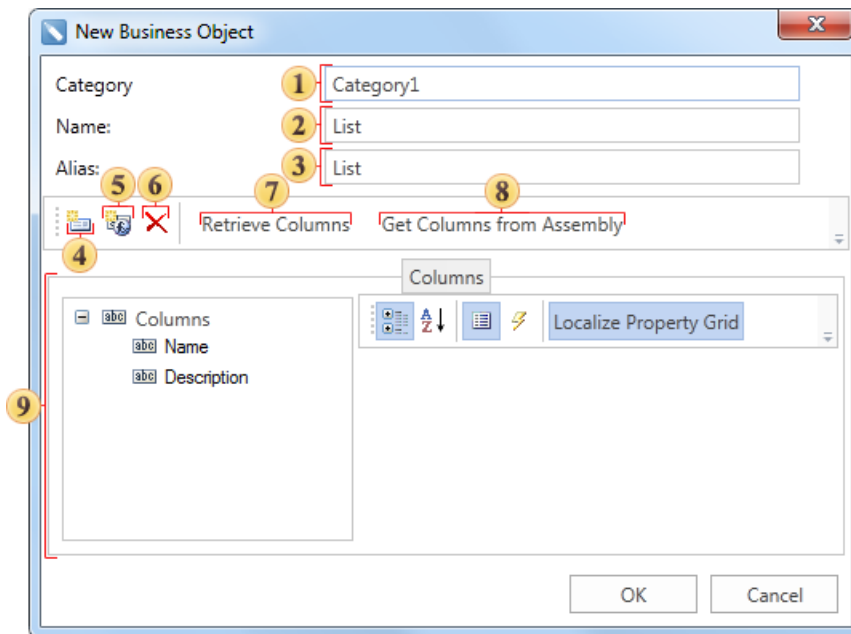
Time	Returns the current time.
Today	Returns the current date.

7.1.7 Business Object

A **Business object** is an object of the data class that can be used to represent data in various structures: tables, lists, arrays, etc. To create a description of the business object in the data dictionary, you need to select **New Business Object...** in the context menu of the data dictionary or in the menu **New Item**. After selecting this command the first dialog box of New Business Object will be opened. The picture below shows the first dialog box New Business Object:



It should be noted that a child business object can be created for each business object. To do this, select the business object and call the command **New Business Object...** Then, the first dialogue box of New Business Object will be called, in which the option Child of Business Object will be checked. After you click OK in that dialog box, the second dialog box will be opened. There you should specify the parameters of the new business object. The picture below shows the second dialog box of **New Business Object**:



- ❶ In the field **Category** you can specify the name of the category. If this field is filled, then the category of business objects in the report dictionary will be created. If the field is left blank, the category will not be created. When you create a child business object this field is not editable.
- ❷ The field **Name** is used to specify the business object. This field must be filled and, in this case, the name List is used.
- ❸ The field **Alias** specifies the alias of the business object. If it will not be changed by the user, then, by default, the alias is the same as the name of the business object. In our case, it is List.
- ❹ The button **New Column**. When you click it, a new data column will be created in the business object. It should be noted that the data column created this way is the virtual one, and does not contain actual data.
- ❺ When you click the button **New Calculated Column**, a new calculated column will be inserted into the business object.
- ❻ When you click the button **Delete**, the selected data column will be deleted. If the tab Columns is selected, it will remove all the columns, which are located in the tab.
- ❼ The button **Retrieve Columns** is used to get a data column from the business object.
- ❽ The button **Get Columns from Assembly** will open the dialog Open Assembly, in which you select an assembly file. After selecting the file, press the button Open and data columns (if they are present there) will be extracted from that file.
- ❾ The panel **Columns** has three fields. These fields show a list of columns, their properties and description

Information

The Business object created this way does not contain actual data. Therefore, when rendering a report using this business object the error will occur. The Business object with the real data is generated and passed from the code.

7.1.8 Resources

YouTube

Please watch video tutorials for [working with resources](#).

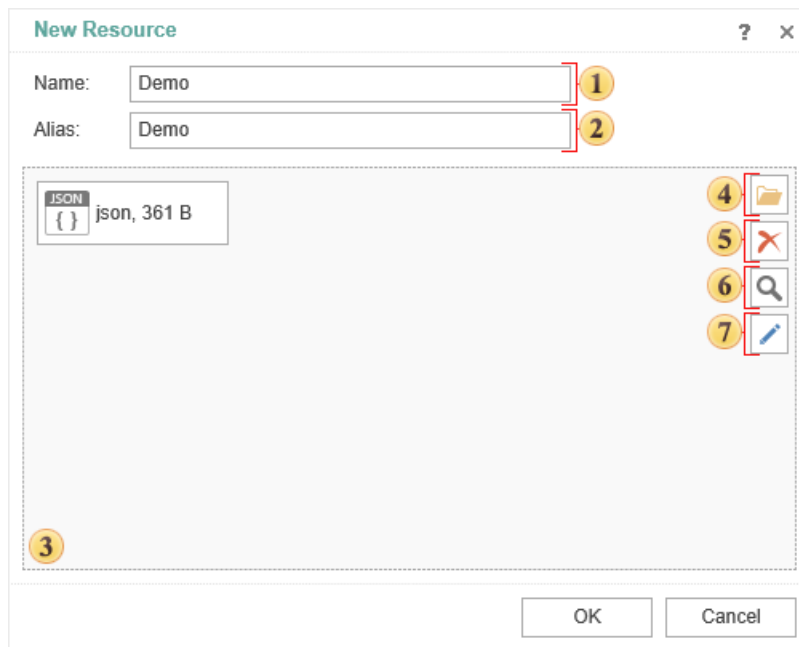
Resources are files that can be embedded in a report template. The following can be added as resources:

- Data files - CSV, Excel, JSON, XML, DBF;
- Image files - SVG, JPEG, JPG, PNG, BMP, GIF and other image files.
- Report templates (*.mrt, *.mrz) and built reports (*.mdc, *.mdz).
- RTF files.

You should do the following to embed a file into a report:

- Select the **New Resource...** command in the **New Item** menu or in the context menu of the report **Dictionary**.
- Drag the file from the explorer to the data dictionary. When dragging a data file, you should select the **New Resource** item.

After selecting this command, the menu for creating a new resource will be displayed:



- ❶ This field specifies the **Name** of the resource;
- ❷ This field specifies the **Alias** of the resource;
- ❸ This field displays the selected file which will be loaded as a resource;
- ❹ The button is used to call the explorer to select the file you want to upload to the report;
- ❺ The button is used to delete the selected file;
- ❻ The button is used to view the selected file;
- ❼ The button is used to call the text editor to change the selected file. However, the command is available only for files that can be edited with the text editor. For example, if you select an Excel file, this command will not be available.

Information

When you embed a big file into a report with data or images, and when you add multiple resources, the size of the *.mrt file can be significantly increased.

Saving a resource from a report

To save a resource from the report designer, you should select the resource in the Data Dictionary and click **Save** in the context menu. In this case, a dialog will be called in which it is necessary to specify the location for saving the file. Then, click the **Save** button and the resource will be saved in the format of the source file. In

addition, if a *.mrt file was added to the resource, then the *.mrt file will also be saved when this resource is saved.

Resource based data source

When designing reports, data files (CSV, Excel, JSON, XML, Dbase) are often used. Based on these files, you can create data sources in the data dictionary that will be used to create report templates. In this case, the data sources will not contain real data but only a description of the methods, parameters and methods to access to real data. The transfer of data from the file to the data sources, and accordingly the filling of the actual data of the report, occurs when rendering of this report.

In this case, you should always consider the specified path in the data source to CSV, Excel, JSON, XML, Dbase files, and, if necessary, edit them. Also, if you want to transfer the report template to another user, you should provide a data file to correctly render this report.

In such cases, when you create reports, you may add data files (CSV, Excel, JSON, XML, DBF) to the report resources.

After the data file is added to the report as a resource and based on it, you can create a data source:

- Select the **New Data Source...** in the **New Item** menu or in the **Data Dictionary** context menu, define the appropriate source type by specifying the path to the resource or simply by selecting it from the resource gallery.
- Select the resource in the data dictionary and select **New Data Source [Resource Name]** from the context menu.

Below is the menu for creating an Excel data source:

The screenshot shows a 'New Connection' dialog box with the following fields and options:

- Name:** October_2016
- Alias:** October_2016
- Path to Data:** resource://October_2016
- ☒ First Row is Header
- Resources:** A gallery showing three XLS files: 'Dow Jones', 'October_2016' (selected), and 'Continents'.

Buttons: OK, Cancel

- ❶ This field specifies the **name** of the data source.
- ❷ This field specifies the data source **alias**.
- ❸ This field specifies the path to the Excel file that contains the data. In this case, a link to the resource in the report is specified. The link can be specified manually using the template **resource://file name** or the link will be generated automatically when the resource is selected from the resource list.
- ❹ The parameter of using the first line in the Excel file as a header for the data. If it is enabled, the first line will be the header for the data.
- ❺ A resource gallery, on the base of which you can create a data source of a certain type.

After clicking **OK**, the generated data source can be used to create reports.

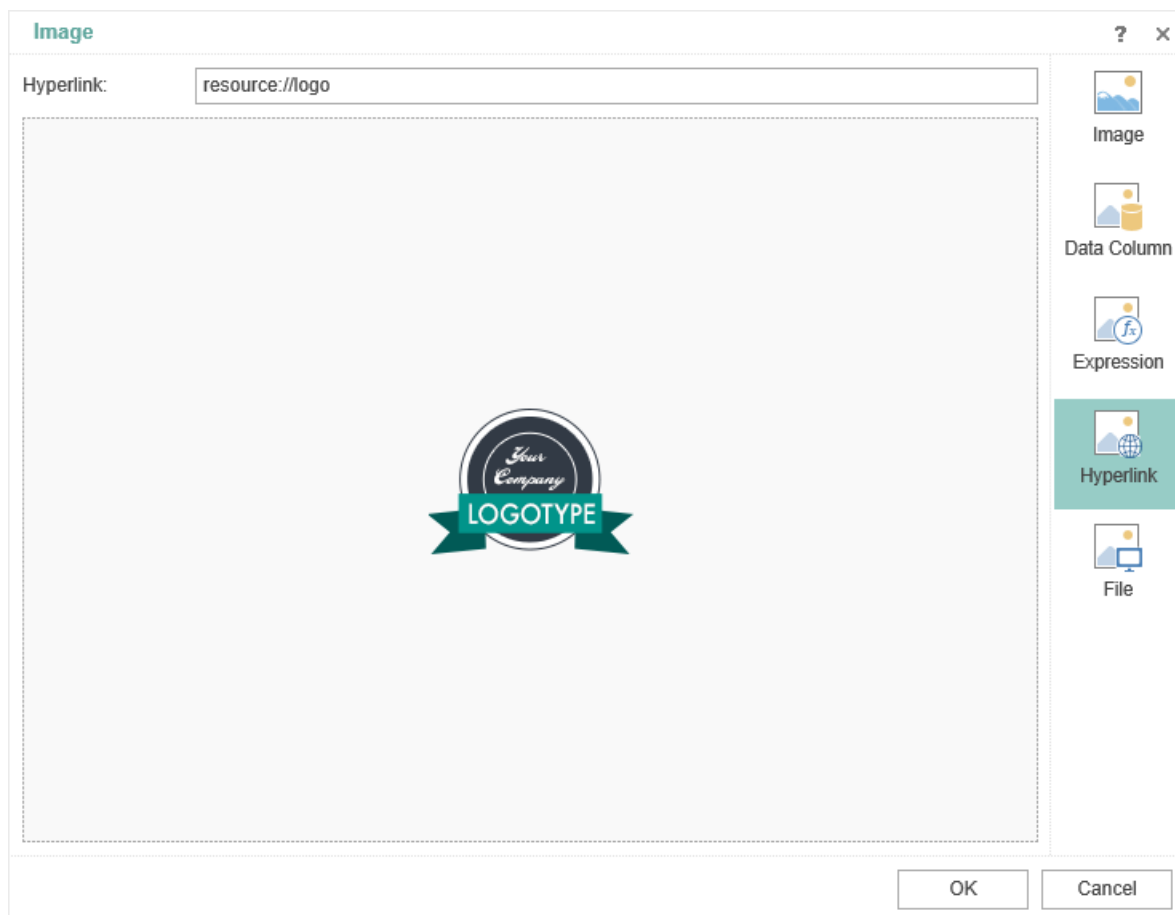
Images from resources

Images in reports can be obtained from various resources - uploaded directly, from a file, from a data source, by a hyperlink, etc. When you send a report to another person or move the report (or images) to another medium, you will have to send (along with the report) images, editing the path to these images. Except the cases when the image is uploaded directly to the **Image** component. However, each time you load an image into the Image component, the size of the report file is increased by the size of the image file.

Therefore, if the same image is used in several **Image** components or in a watermark for various report pages, it is better upload this image into a resource. Then, in the Image or Watermark component, you need to specify a link to this resource. Also the added image in the resources will be displayed in the image

gallery of the Image or Watermark component. If the image is uploaded to the resource, the size of the report file will grow only by the size of the image file, and when sending to another person (or when the report is moved to another media), no additional editing of the Image components is required.

After adding an image to the **Resource**, it can be used as a watermark of the report or in the **Image** component.



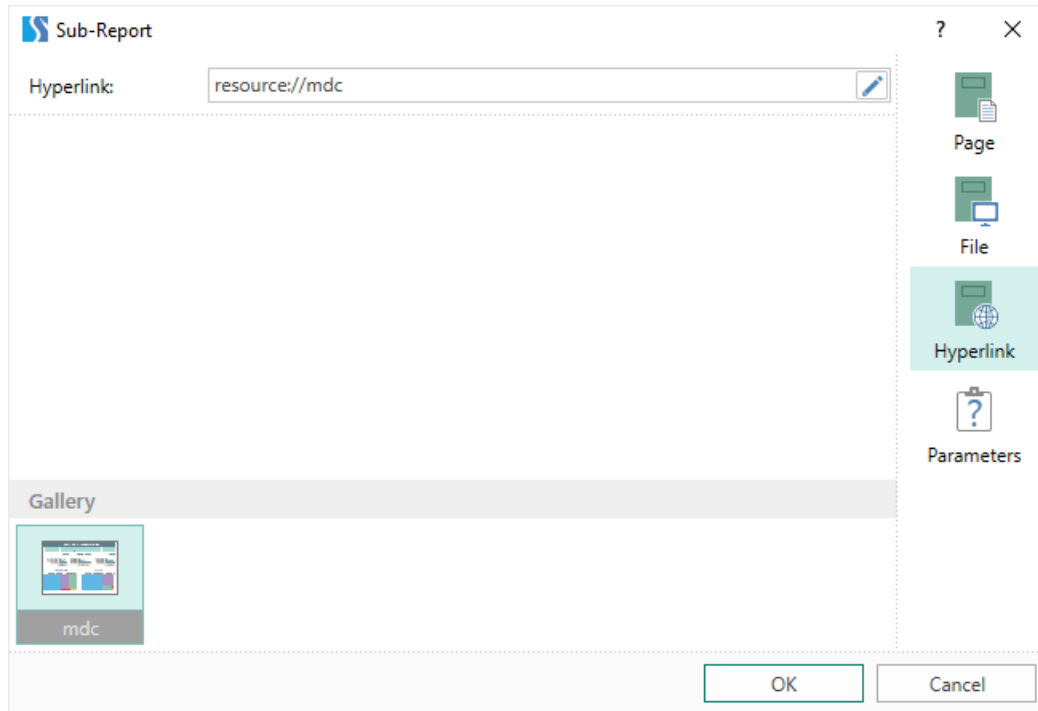
Sub-reports from Resources

The Sub-report component is used to display another report on the same report page within this component. This other report is the report which is nested one can be located on another page in this report template or in another report template file. Using the Sub-report component, you can also display the rendered report.

If the report you want to display in the Sub-report component is another file (*.mrt, *.mrz, *.mdc, *.mdz), you can add it to the report resources. After adding to the

resources, you can:

- Drag the resource to the report page. In this case, the Sub-report component with a link to this resource will be created.
- Add the Sub-report component to the report template. When editing this component, you should specify a link to the resource.



Also, you can pass a parameter in the Sub-report component editor. For example, to filter data in a nested report. However, this is only relevant for the not rendered report (*.mrt, *.mrz).

Rich text from resources

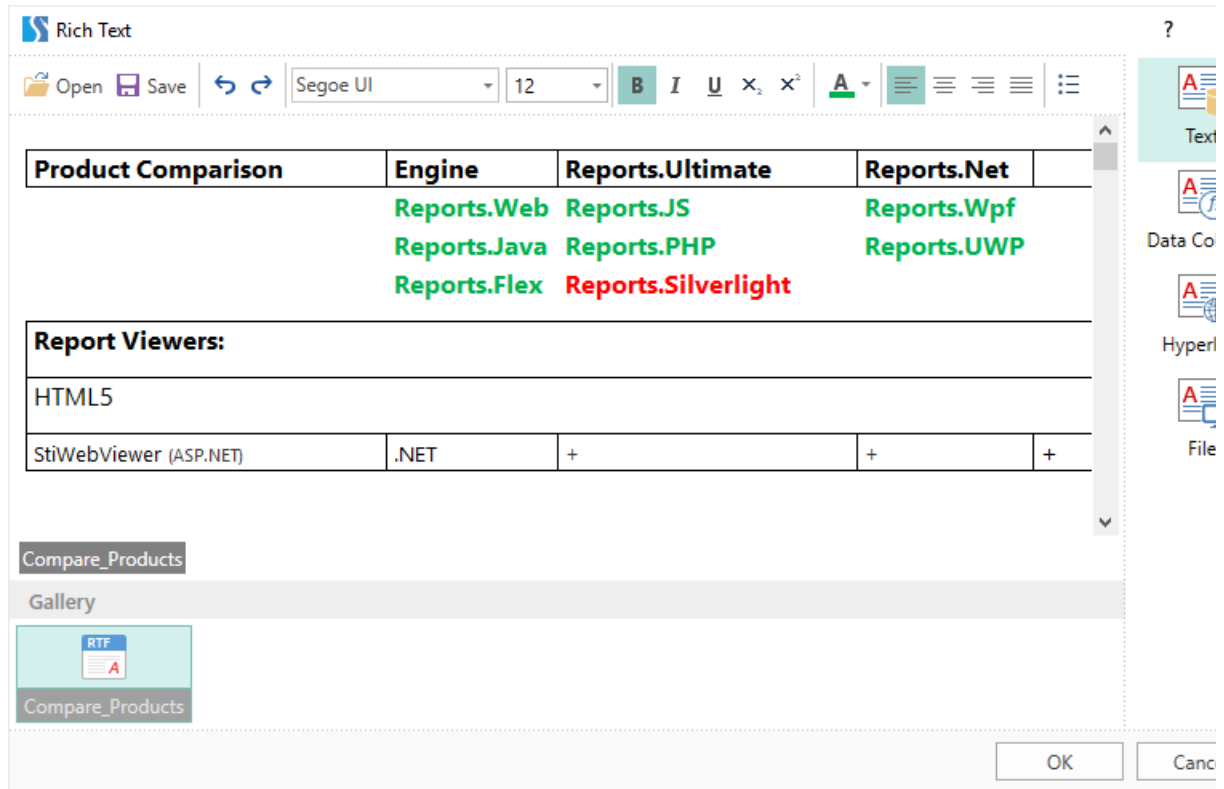
Sometimes you need to use Rich text in your reports. There is a special component to display this text in the report designer – Rich Text. You can add the Rich text to the report with next ways:

- Enter text in the Rich Text editor. In this case, you will have to edit the text formatting.
- Specify a file or hyperlink from where the text will be obtained. In this case, when you move a report or file, you may have to edit the path to the source text.

Therefore, one of the options is to add a Rich text file to the report resources. To

output the Rich text from resources:

- You need to drag the resource to the report template;
- In the Rich Text editor, you need to specify a link to the resource or simply select a resource from the gallery.



Also, if necessary, the text obtained from the resources can be edited in the Rich Text editor.

7.1.9 User Functions

When designing reports and dashboards, you may create user functions in the report designer. The function script can be written using the visual programming tool Blockly or one of the programming languages set as the report scripting language: JS, C#, or VB.NET. These functions are created in the report data dictionary.

To create a new function, you should:

- Select **New Function...** from the **New** menu;
- Select the **New Function...** command from the data dictionary context menu.

The user function can be edited. To do this you should:

- Select the user function in the data dictionary, and click the **Edit** control;
- Select the user function in the data dictionary, and click the **Edit** command in the data dictionary context menu.

User Function Editor

The function is created in a special editor:

The screenshot shows the 'New User Function' dialog box with the following fields and controls:

- 1** Name: MyFunction1
- 2** Description: This is a sample
- 3** Category: Custom
- 4** Custom Category: Users Category
- 5** Return Type: string
- 6** Arguments: Add button
- 7** args1: double, args2: DateTime, args3: string
- 8** Argument Type: DateTime
- 9** Argument Name: args2
- 10** Script Mode: Blocks
- 11** Script: string MyFunction1(double args1, DateTime args2, string args3) (Blocks)

1 The **Name** field is used to change the name of the function. This is a required field because the function is accessed by its name.

2 The **Description** field is used to specify additional information for the function. If this field is not empty, additional information will be displayed in the description

panel in the data dictionary.

- 3 The **Category** parameter is used to define the data dictionary category into which the new function will be added. It contains a list of preset categories, and a **Custom** mode. If **Custom** is selected, the **Custom Category** field will be displayed. Categories are used to catalog functions and do not provide any functionality themselves.
- 4 The **Custom Category** field appears only if the **Category** option is set to **Custom**. In this field you can specify the name of the custom category that will be created when creating the function. If the **Custom Category** field is blank, the function will be added to the root of the **Functions** category.
- 5 The **Return Type** parameter is used to set the data type that the function will return.
- 6 The **Add** button allows you to add function arguments. A maximum of 10 arguments can be passed to a function.
- 7 List of function arguments. If at least one argument is added, parameters will be displayed with which you can specify the data type of the argument and its name.
- 8 The **Argument Type** parameter is used to set the data type of the argument.
- 9 The **Argument Name** field is used to set the name of the argument by which it can be accessed in the function script.
- 10 The **Script Mode** option is used to select between **Blocks** or **Code** script creation mode. The script created using Blockly is universal for all platforms. The function script will work in all Stimulsoft reporting tools. However, the script can also be implemented using the report scripting language - JS, C#, VB.NET.
- 11 Function script field displays the function code or the inscription **Blocks**, which in turn means the script is implemented using Blockly.

The specifics of the function's script using code

When implementing a function script using code, there are several limitations and features you should keep in mind:

- The script should be implemented in the programming language that is set as the report scripting language. Change it using the report template property of the same name, **Script Language**.
- When building a report using the .NET and .NET Framework report engine, the function script written using code will be executed only if the [report calculation mode](#) is set to **Compilation**.
- When running function script code in a reporting tool for .NET and the .NET Framework, you should be aware of the **Compilation Access** option, which can be found in the **Main** tab of the [Options menu in the report designer](#). If **Compilation Access** is set to **Deny** or **Force Interpretation**, the script code will not be executed.

In reporting tools for JS, PHP and Python, you should consider the value of the **Events Access** parameter, which can be found in the **Main** tab in the **Options** menu of the report designer. If **Event Access** is set to **Deny**, the script code will not be executed.

7.2 Data Transformation

The report dictionary contains a description of data in a structured view, for example in tables. Sometimes when creating reports you need to [join data tables](#), [sort](#), [group](#), [filter data](#), add some new elements, perform mathematical operations, and calculate the total for joined tables and much more.

You can transform data using different ways:

- Write queries with parameters;
- Change data structure in a storage;
- Create a storage procedure and more.

However, you can use the **Data Transformation** tool in the report designer. Using this tool, you can create a description of data as a table. After that, you will be able to render some reports in the report designer based on this table.

New Data Transformation

Name in Source

Category

Name

Data1

Alias

Data1

Data Setup

CategoryName

ProductName

UnitPrice

UnitsInStock

UnitsOnOrder

CategoryName	ProductName	UnitPrice	UnitsInStock	UnitsOnOrder
Beverages	Chai	18	39	0
Beverages	Chang	19	17	40
Beverages	Chartreuse verte	18	69	0
Beverages	Côte de Blaye	263.5	17	0
Beverages	Guaraná Fantástica	4.5	20	0
Beverages	Ipoh Coffee	46	17	10
Beverages	Lakkalikööri	18	57	0
Beverages	Laughing Lumberjack Lager	14	52	0
Beverages	Outback Lager	15	15	10
Beverages	Rhönbräu Klosterbier	7.75	125	0

Mode

Expression

Products.UnitPrice

Type

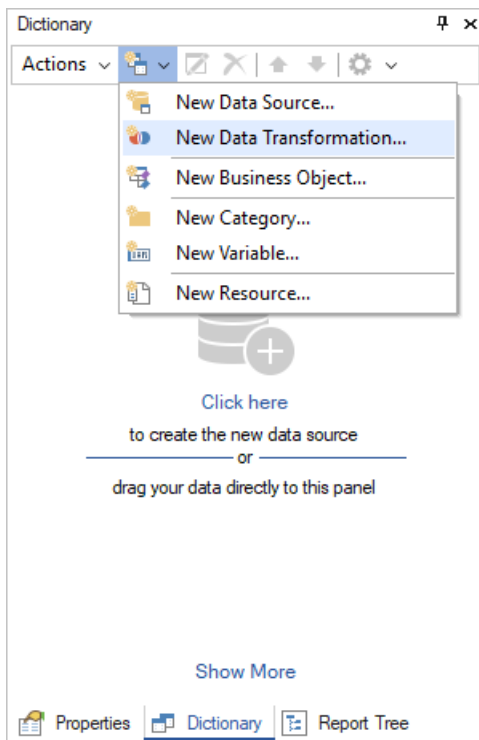
decimal

Ok

Cancel

To call the **Data Transformation** you should select the **New Data Transformation** command in the **New Item** menu of the data dictionary.

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After you select this command, the **New Data Transformation** window will be called where you can transform data.

7.2.1 Structure

When creating a new data transformation, settings and its elements are defined in the window of this tool. Below you can see the description of the **New Data Transformation** window structure.

New Data Transformation

1 Name in Source Category

2 Name Data2

3 Alias Data2

Data Setup

4

CategoryName	ProductName	UnitPrice	UnitsInStock	UnitsOnOrder
Beverages	Chai	18	39	0
Beverages	Chang	19	17	40
Beverages	Chartreuse verte	18	69	0
Beverages	Côte de Blaye	263.5	17	0
Beverages	Guaraná Fantástica	4.5	20	0
Beverages	Ipoh Coffee	46	17	10
Beverages	Lakkalikööri	18	57	0
Beverages	Laughing Lumberjack Lager	14	52	0
Beverages	Outback Lager	15	15	10
Beverages	Rhönbräu Klosterbier	7.75	125	0

6 Mode

7 Expression Products.ProductName

8 Type string

Ok Cancel

- 1 The name of transformation, which will be used in original data (for example in the DataSet) is specified in the **Name in Source** field.
- 2 The name of transformation used in a report is specified in the **Name** field.
- 3 In the **Alias** field, you can specify the name of transformation, which will be used if the Use **Alias** parameter is enabled in the data dictionary.
- 4 The list of a new transformation. Data columns added from different sources and created the **New Measure** and the **New Dimension** are displayed on this panel. You can add data columns in data transformation using the following ways:
 - Dragging a data source or a data column from the dictionary into the list of elements or the preview. If a data source is dragged into, all data columns from this source will be added to the list of data transformation fields.
 - Using the **New Dimension** or the **New Measure** commands from the context menu (below) in the list of fields.
- 5 The preview of a new data transformation. The values from data columns and fields are displayed on this panel, i.e. a new data table.

- 6 The **Mode** parameter allows you to define the mode of a selected field:
 - **Measure.** By default, this field type is applied for all numeric types of data. In addition, this type of data field is used if you need to group values of the current data field by the values of another data field.
 - **Dimension.** This field type is applied not for numeric data types by default. When grouping data the values of this data field will be the condition of grouping for values of other data fields.
- 7 Using this parameter the expression that resulted in getting a value for a selected field is defined. For example, a link to a data column in a table or data columns production, a data column with a function, etc.
- 8 The Type parameter allows you to define the type of data for the values of a selected field. For example, string, integer, decimal, byte[], object.

Information

You can delete fields from a new data transformation using the following way:

- Hover the cursor over a field and click the **delete** button to the right of its name;
- Hover the cursor over a field, click the right button of the input cursor, and select the **Remove Field** command in the context menu;
- Select a field and click the **delete** button.

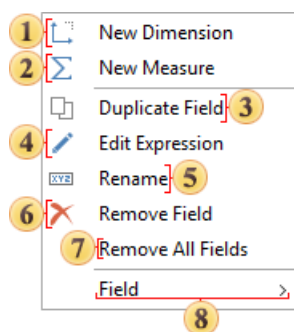
Also, you can delete all fields from data transformation. To do it, you should call the context menu and select the **Remove All Fields** command.

Field context menu

There are controls of the current field in the context menu. To call the context field menu you should:

- Hover the cursor over the field you need on the list panel;
- Click the right button of the input cursor.

After that, the context menu will be called:



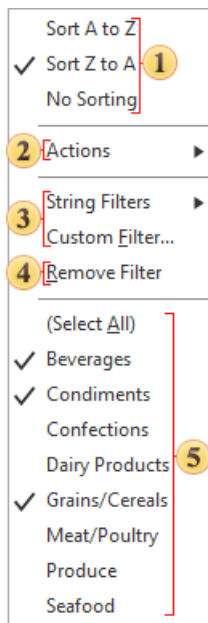
- ❶ Field creation command – the **New Dimension**.
- ❷ Field creation command – the **New Measure**.
- ❸ Duplicate (a copy) creation command of a selected field.
- ❹ The command, which calls the expression editor with an expression of a selected field.
- ❺ The command, which calls the mode of editing the name of a selected field. Also, you can rename an element using the following ways:
 - Double click the left button of the input cursor on a field in a list.
 - Select a field in a list and click the F2 button.
- ❻ Selected field deleting command.
- ❼ The Remove all fields command.
- ❽ When hovering the cursor over the **Field** command, the menu with the set of data sources and columns in them will be opened. In this list, you can select a link to a data column for the current field.

Information

If there are no data sources in the data dictionary, the **Field** command will not be displayed.

Field menu in the preview

To call the field menu in the preview, you should click on a header on this panel. This menu contains control commands of the values of the current field.



1 Sorting values commands:

- Sorting in ascending order. Depending on value type, sorting commands can be different. For row values from A to Z, for numerical from the Smallest to Largest, etc.
- Sorting in descending order. Depending on value type, sorting commands can be different. For row values from Z to A, for numeric from the Largest to Smallest, etc.
- No sorting. In this case, the order of values in the current field will be as well as in the data description.

2 Depending on the values of the current field the Actions menu can contain the following commands:

- [Skip and limit rows;](#)
- [Running total;](#)
- [Show percentage;](#)
- [Replace value.](#)
- The **Remove Actions** command. This command is active, if some action is applied to an element. When selecting this command, all actions for the current field will be deleted.

3 Commands of adding [data filtering](#) in the current field:

- The type filter, in this case the String Filters contains logical operations for the condition of the current field filtering. Depending on the value type of this field, logical operations can be different.

➤ The **Custom filter** allows you to set several filters with various logical operations.

- ④ The command, which deletes all filters for the current field.
- ⑤ Values of the current field. One of data filtering tools. By default, all values and the **Select All** item are displayed as well as other values they are checked a box. However, you can check a box next to the values you need. As a result, only the values checked a box and rows related with them will be displayed in a new table. When selecting the **Remove Filter** command all values will be checked a box, it means they will be displayed.

7.2.2 Join tables

Sometimes you need to join data tables when creating reports. You can do it using various ways. For example, create an SQL query for the data storage or a storage procedure. However, you can do it when creating a new data transformation.

You can join tables with the help of the following methods:

- Using relations between these tables;
- Unrelated data tables.

Information

Get acquainted with the information about [relation between data tables](#) and about limits of their creation.

Let's consider an example of joining various data tables for these cases. For example, that the first table contains a list of product categories and the second table – a list of products with prices and sale volume. You can organize relation between these tables by a column with unique keys of the CategoryID.

Joining unrelated data tables

You can organize relation between tables, but it doesn't exist at the moment. To join unrelated tables you should make the following steps:

Step 1: You should drag data columns from the first table of the data dictionary into the **New Data Transformation** menu. For example, a data column with category

names - **Categories.CategoryName;**

Step 2: You should drag columns from the second table of the data dictionary into the **New Data Transformation** menu. For example, data columns with product names, prices and number of orders - **Products.ProductName,** **Products.UnitsPrice,** **Products.UnitOnOrder.**

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName	ProductName	UnitPrice	UnitsOnOrder
	Valkoinen suklaa	16.25	0
	Vegie-spread	43.9	0
	Wimmers gute Semmelknödel	33.25	80
	Zaanse koeken	9.5	0
Beverages		0	0
Condiments		0	0
Confections		0	0
Dairy Products		0	0
Grains/Cereals		0	0
Meat/Poultry		0	0

Mode:  

Expression: Sum(Products.UnitsOnOrder)

Type: decimal

Ok Cancel

In this case, data will not be related. Firstly, the data from a table with a large number of data rows will be output. After the data from a table with a little number of rows. In the matched cells of unrelated tables for non-numeric fields will be empty. For numeric fields – 0.

Joining tables using relation

In this case, you should create relation between data sources. Besides, if there are

such several relations, for example via different columns with unique keys, you should set the **Active Relation** parameter for the relation, which will be used when joining tables. For the example described above, you should create relation between a table of categories and products via a **CategoryID** column.

To join tables using relation, you should make the following steps:

Step 1: Create relation between data sources and enable the **Active Relation** parameter for this relation;

Step 2: You should drag columns from the first table of the data dictionary into the **New Data Transformation** menu. For example, a data column with category names - Categories.CategoryName;

Step 3: You should drag data columns from the second table of the data dictionary into the **New Data Transformation** menu. For example, data columns with product names, prices and number of orders - Products.ProductName, Products.UnitsPrice, Products.UnitOnOrder.

New Data Transformation

Name in Source

Category

Name

Data1

Alias

Data1

Data Setup

CategoryName

ProductName

UnitPrice

UnitsOnOrder

CategoryName	ProductName	UnitPrice	UnitsOnOrder
Seafood	Escargots de Bourgogne	13.25	0
Seafood	Gravad lax	26	50
Seafood	Ikura	31	0
Seafood	Inlagd Sill	19	0
Seafood	Jack's New England Clam Chowder	9.65	0
Seafood	Konbu	6	0
Seafood	Nord-Ost Matjeshering	25.89	0
Seafood	Röd Kaviar	15	0
Seafood	Røgede sild	9.5	70
Seafood	Spegesild	12	0

Mode

CategoryName

UnitPrice

Expression

Sum(Products.UnitsOnOrder)

Type

decimal

Ok

Cancel

In this case, the report generator will define the relation that has the **Active Relation** parameter enabled and it will match data from various data sources. For the example described above each category will have its own set of products, their prices, and the number of orders.

Information

If more one relation is created from child data source to parent data source and no one of them has the **Active Relation** parameter enabled, the data will be matched by the first relation in child data source.

7.2.3 Grouping Data

Grouping data is their joining by some criterion or condition. The same data can be combined by various conditions. For example, data of product sale can be grouped

by sales region or categories. In addition, data can be grouped by several conditions, i.e. into several levels. For example, data about product sales will be grouped firstly by regions and after by categories.

You can group data when transforming data:

- Within one data table;
- Grouping data from one data table by a condition from another data table.

Information

When grouping data from one data table by a condition from another one, you should have relation between these data tables. So, you should create relation between data tables before grouping data.

To group data when creating data transformation, you should switch from the **Dimension** mode to the **Measure** for all fields instead of the field which data will be grouped.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

- CategoryName
- ProductName
- UnitPrice
- UnitsInStock
- UnitsOnOrder

CategoryName	ProductName	UnitPrice	UnitsInStock	UnitsOnOrder
Beverages	12	455.75	559	60
Condiments	12	276.75	507	170
Confections	13	327.08	386	180
Dairy Products	10	287.3	393	140
Grains/Cereals	7	141.75	308	90
Meat/Poultry	6	324.04	165	0
Produce	5	161.85	100	20
Seafood	12	248.19	701	120

Mode:

Expression:

Type:

Let's consider the examples of grouping data when transforming data.

Grouping data from one table

For example, there are fields with category number, the set of products and sales of each product in the **Products** table. You should get data with sales by each category. To do it you should:

Step 1: Drag a data source or a column from this source into the field list of a new data transformation. The **Category ID**, **Product Name**, **Sales** columns will be added in this example.

Step 2: For all fields except the field where the grouping is carried out, you should switch from the **Dimension** mode to the **Measure**. In this example, the field mode is changed for the column with the set of products and sales. The mode is not

changed for the field with category number so as data will be grouped by the values of this field.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

CategoryID

Σ ProductName

Σ Sales

CategoryID	ProductName	Sales
1	12	1370.00
2	12	2400.00
3	13	2617.50
4	10	2785.0
5	7	3040.00
6	6	0.00
7	5	200.00
8	12	1965.00

Mode:

Expression:

Type:

Grouping data from different tables

You should organize relation between these tables before starting data grouping. Imagine, the list of categories is in the **Categories** table, the list of products in the **Products** table and data by sales in the **Order Details** table. Firstly, when transforming data, you should group sales by each product and then by each category. This way, the grouping will be carried out in several levels.

Step 1: Drag a data source or column from this source into the field list of a new data transformation. The **Category Name**, **Product Name**, **Sales** columns will be added in this example. Data will be correlated via relations between tables so as the set of products will correspond to each category. Sale volumes will correspond to each product.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName	ProductName	Sales
Beverages	Chai	14
Beverages	Chai	18
Beverages	Chang	15
Beverages	Chang	19
Beverages	Chartreuse verte	14
Beverages	Chartreuse verte	18
Beverages	Côte de Blaye	211
Beverages	Côte de Blaye	264
Beverages	Guaraná Fantástica	4
Beverages	Guaraná Fantástica	4

Mode:  

Expression: Categories.CategoryName

Type: string

Ok Cancel

Step 2: For all fields except the field where the grouping is carried out you should switch from the **Dimension** to the **Measure** mode. In this case, the mode is changed for the **Sales** field. The mode is not changed for the fields with names of categories and products, because the grouping is carried out by products.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName	ProductName	Sales
Beverages	Chai	652
Beverages	Chang	787
Beverages	Chartreuse verte	500
Beverages	Côte de Blaye	5902
Beverages	Guaraná Fantástica	216
Beverages	Ipoh Coffee	1205
Beverages	Lakkalikööri	662
Beverages	Laughing Lumberjack Lager	137
Beverages	Outback Lager	552
Beverages	Rhönbräu Klosterbier	339

Mode:  

Expression: Sum(OrderDetails.Sales)

Type: int

Ok Cancel

Step 3: For all fields except the field where the grouping is carried out you should switch from the **Dimension** to the **Measure** mode. Since products are already grouped you should change the mode for the field with a list of products.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

- CategoryName
- ProductName**
- Sales

CategoryName	ProductName	Sales
Beverages	404	11812
Condiments	216	4605
Confections	334	7549
Dairy Products	366	9876
Grains/Cereals	196	4164
Meat/Poultry	173	7417
Produce	136	4786
Seafood	330	6291

Mode: ↶ Σ

Expression:

Type:

Information

It's worth noting, that the number of data grouping levels is not limited when their transforming.

7.2.4 Using functions

Frequently, when creating a report, you should apply some functions to data. You can do it using different ways, including the report designer tools. However, if you need to transfer data with an applied function to a report component, a possible solution is creation a new data transformation.

When creating a new data transformation you can use functions to the values of fields.

To use functions to an element you should:

- Switch the element mode from the **Dimension** mode to the **Measure**, if you need to apply calculation functions;
- Select a function from the drop down list of parameters in the **Expression** field or call the expression editor and select an appropriate function in the data dictionary;
- Select a function from the context menu in the element list;
- Also, you can manually add a function to an element expression.

Information

Pay attention to the fact, that a list of available functions can be different depending on a data type in a selected function. For example, you can apply the functions of sum, selection of max, min values, average calculation for numeric types. However, these operations can't be applied to the values of a string type.

Let's consider the examples of using functions to the fields with various data types.

Applying functions to dimension

All functions except the functions of total calculation can be applied to the dimension. For example, the function of transferring all values of the current field to the upper register or the function of inserting text inside current values can be applied.

Step 1: Add a field to the data transformation. For example, a data column with a list of categories.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName

CategoryName

Beverages

Condiments

Confections

Dairy Products

Grains/Cereals

Meat/Poultry

Produce

Seafood

Mode: [Field] [Aggregate]

Expression: Categories.CategoryName

Type: string

Ok Cancel

Step 2: Type function name manually to an expression of the current field or call the expression editor and drag the function from the data dictionary. For example, add the function of transferring all values to the upper register - **ToUpperCase()**. And the **ToUpperCase(Categories.CategoryName)** field expression for the list of categories.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

CategoryName
BEVERAGES
CONDIMENTS
CONFECTIONS
DAIRY PRODUCTS
GRAINS/CEREALS
MEAT/POULTRY
PRODUCE
SEAFOOD

Mode:  

Expression:

Type:

Ok Cancel

Applying functions of total calculation to non-numeric values

You can apply functions for total calculation only to the fields with the Measure mode. For the fields with non-numeric values only the following functions of total calculation are available:

- The **Count()** function for calculation the number of values in the current field;
- The **DistinctCount()** function for calculation the number of unique values in the current field;
- The **First()** function for displaying the first value from the current field;
- The **Last()** function for displaying the last value from the current field.

Let's consider the applying functions of total calculation to non-numeric data in the data transformation. Imagine, a table contains 77 products from 8 categories.

Step 1: Add a field to the data transformation. You should add a data field with a list

of categories for this example.

Step 2: Change the mode from the **Dimension** to the **Measure** for this field.

Step 3: You should select the total calculation function from the context menu of the current element or the drop down menu of the **Expression** parameter.

➤ Firstly, you should select the **Count()** function. As a result, you will get the total number of values in the field with a list of categories – 77, because there is more one product per a category, the values of categories are repeated.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

Category Name
77

Mode:  

Expression: Count(Products.CategoryID)

Type: int

Ok Cancel

➤ If you select the **DistinctCount()** function, the number of unique notes will be calculated – 8, so as repeated values will not be taken into account.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

Category Name
8

Mode:

Expression:

Type:

Applying functions to numeric values

You can apply functions for total calculation only to the fields with the **Measure** mode. Different total calculation functions are available for the fields with numeric values: sum, average and median value calculation, display of max and min, etc.

Let's consider the applying these functions to a field in the data transformation. For example, a table contains 77 products from 8 categories. You should calculate the number of product in stock by each category. To do it you should:

Step 1: Add a data field to a new data transformation. In this example, you should add a data field with the names of categories and a data field with units in a stock.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName	UnitsInStock
Beverages	15
Beverages	17
Beverages	20
Beverages	39
Beverages	52
Beverages	57
Beverages	69
Beverages	111
Beverages	125
Condiments	0

Mode:  

Expression: Categories.CategoryName

Type: string

Ok Cancel

Step 2: Change the mode from the **Dimension** to the **Measure** for the field where you should apply the total calculation function. In this example, you should do it for the field with units in stock.

Step 3: You should select the total calculation function from the context menu of the current field or the drop down menu of the **Expression** parameter.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName	UnitsInStock
Beverages	559
Condiments	507
Confections	386
Dairy Products	393
Grains/Cereals	308
Meat/Poultry	165
Produce	100
Seafood	701

Field List:

- CategoryName
- UnitsInStock

Field Actions:

- New Dimension
- New Measure
- Duplicate Field
- Edit Expression
- Rename
- Remove Field
- Remove All Fields

Field: Sum

Expression Editor:

Sum(Products.UnitsInStock)

decimal

Ok Cancel

All units in stock by each category will be summed. You can see a full list of total calculation in the data dictionary, in the Totals category. To add a function from the data dictionary, you should call the expression editor for a selected field and drag the function into the field of expression editor.

7.2.5 Filtering Data

Filtering data is data selection by some condition. For example, the statistics of visits for the last twenty four hours or sales volume by a definite category, etc.

You can filter data using various tools in the report designer. However, you can often face with such situations, when you have to transfer filtered data to a report components.

In this case, you can create the **New Data Transformation**, where you should filter data. After that, based on this table you can create a report.

You can filter data in the data transformation using the following ways:

- Click on the data field header in the preview. Check boxes next to the values which need to be skipped, it means uncheck boxes next to the values you don't need.
- Click on the data field header in the preview. In the drop down menu you should go to the Filter of data type (name depends on a data field type, i.e. the Number Filter is for numeric fields, the String Filter is for row fields, etc.) and define a logical operation in the submenu. After that, the editor will be opened, where you should specify a value for a logical operation. When this filter triggers, i.e. a definite logical condition is carried out, the values will be filtered in the current field.
- You should click on the data field header in the preview. Select the Custom filter command in the drop down menu. After that, the filter editor will be called where you should add filters, define a logical operation and a value. When this filter triggers, i.e. a definite logical condition is carried out, the values will be filtered in the current field.

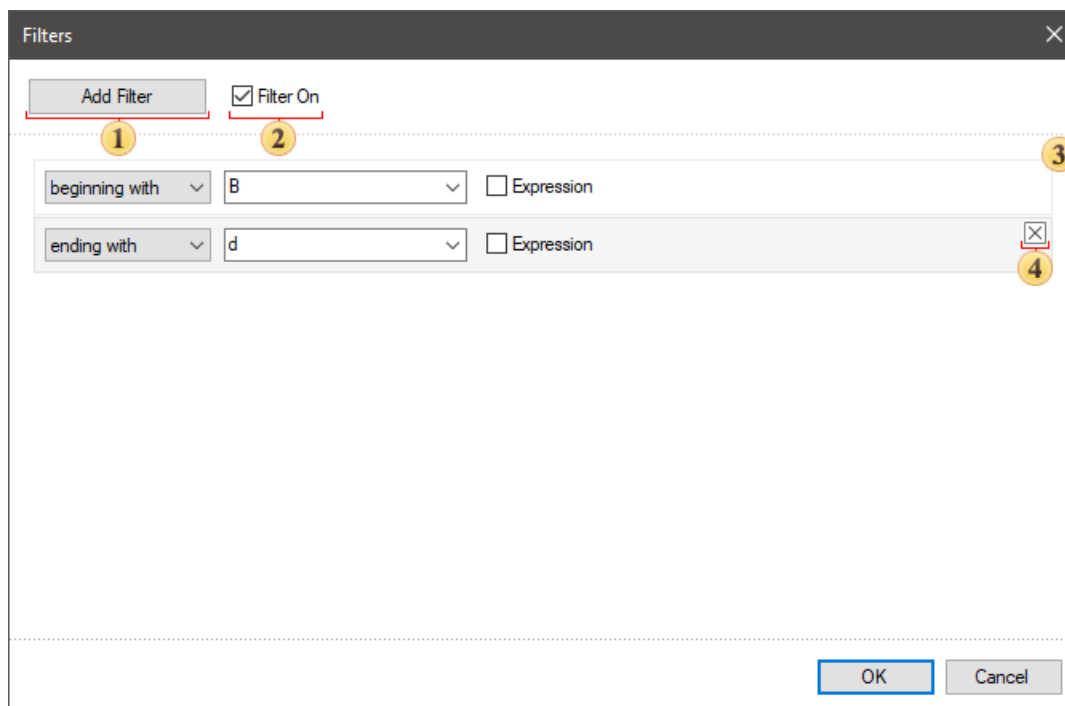
You should understand, that data are filtered with rows, i.e. if a logical operation triggers for a definite value of one field, the values from other fields of this row will be displayed. Besides, you can specify the Expression as filter value. In this case, the result of expression calculation will be a value for a logical condition in a filter.

Information

Pay attention to the fact that filtering can be multi-level both for one field and in relation to the entire table:

- You can specify several filters for one field. In this case, the values will be displayed, if even one of the filters is carried out.
- Besides, the filtering can be carried out by the values of one field and by the values of another field. For example, firstly, one category is selected and then two products with max sales are defined in this category.
- Also, when filtering data, read this article [Skip and limit rows](#).

When applying the type filter or custom filter to a field, the filter editor menu will be opened. Below you can see the **Filters** menu structure:



- 1 Button for adding a new filter.
- 2 The **Filter On** box is used to enable or disable filters.
- 3 List of added filters.
- 4 Button for deleting a selected filter.

Information

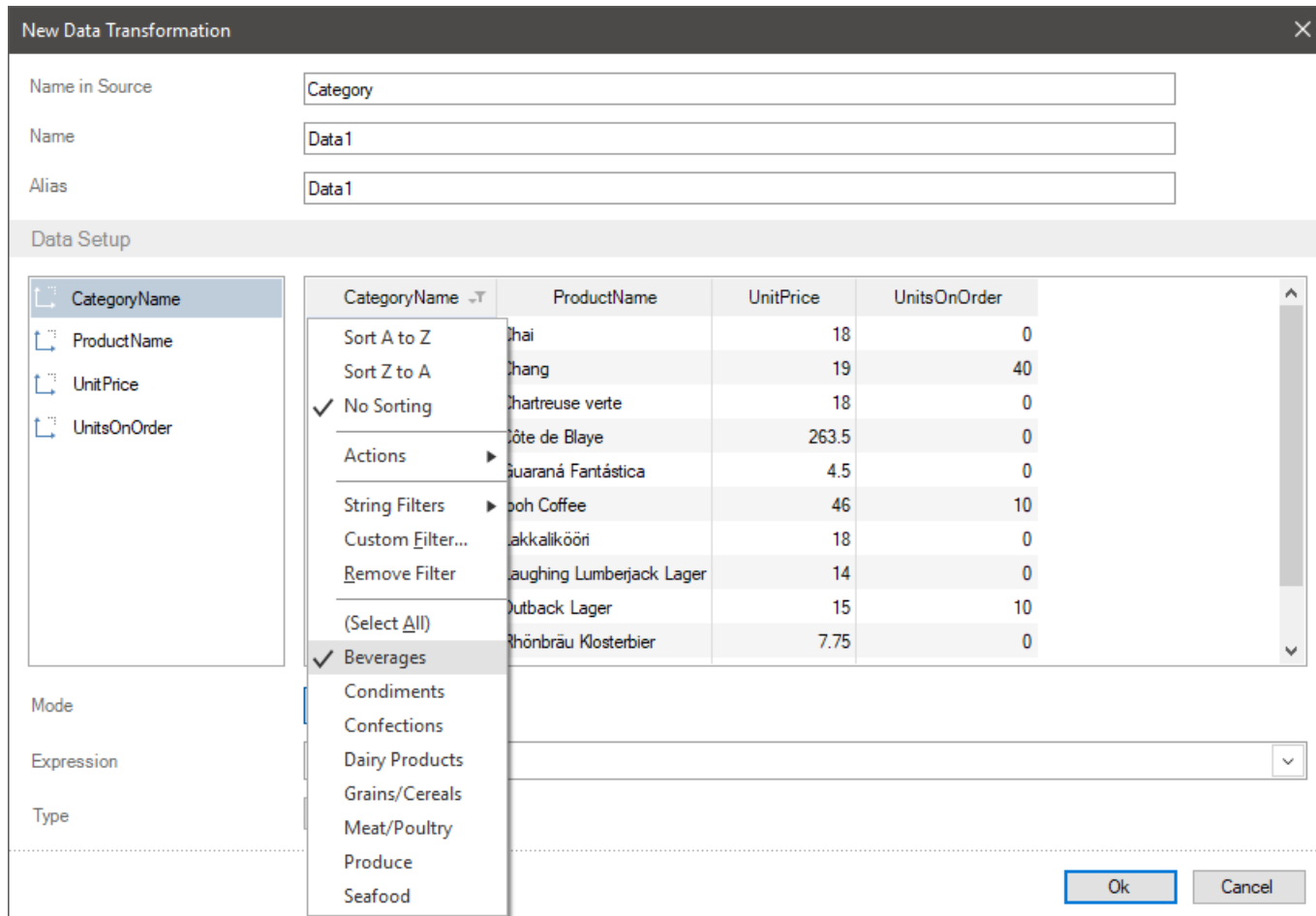
Moving the selected filter into up / down carried out by dragging. The higher a filter, the earlier it is processed.

Let's consider the examples of data filtering when creating a new data transformation. Imagine, a new table contains fields with the names of product categories, the products with price for each product and the number of orders for each product.

Filtering by values selection

Step 1: In the preview, you should click on a field header and check a box next to

the values, which need to be displayed. In this case, the filtering is carried out by the set of categories, only data for the Beverages category will be displayed.



You should understand that after filtering categories, you can filter by the values of another field.

Filtering using the type filter

Depending on data type of the current field, the filters of data type and their logical operations can be different. For example, there are different operations for string values, numeric values, and dates.

Step 1: You should click on a field header in the preview, in the menu of the filter of data type (for example the String Filters), select a logical operation. In this case, you should select the **beginning with** operation for category name.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName
 ProductName
 UnitPrice
 UnitsOnOrder

Mode

Expression

Type

CategoryName	ProductName	UnitPrice	UnitsOnOrder
Sort A to Z	Thai	18	0
Sort Z to A	Chang	19	40
✓ No Sorting	Chartreuse verte	18	0
Actions	Côte de Blaye	263.5	0
	Iguaraná Fantástica	4.5	0
String Filters		46	10
Custom Filter...		18	0
Remove Filter		14	0
✓ (Select All)		15	10
✓ Beverages		7.75	0
✓ Condiments			
✓ Confections			
✓ Dairy Products			
✓ Grains/Cereals			
✓ Meat/Poultry			
✓ Produce			
✓ Seafood			

equal to...
 not equal to...
 containing...
 not containing...
 beginning with...
 ending with...
 is blank
 is not blank
 is null
 is not null

Ok Cancel

Step 2: To perform a logical condition of filter you should specify a value in the **Filters** menu and click the **Ok** button. Also, if needed, you can change a logical operation and add other filters. In this case, specify **C** letter. Now all categories which start with this letter will be displayed.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName	ProductName	UnitPrice	UnitsOnOrder
Condiments			
Condiments			
Condiments			
Condiments			
Condiments			
Condiments			
Condiments			
Condiments			
Condiments			
Condiments			

Mode:  

Expression: Categories.CategoryName

Type: string

Filters

Add Filter ☒ Filter On

beginning with   ☐ Expression

OK Cancel

Ok Cancel

Custom Filters

Step 1: You should click on the field header in the preview and select the **Custom Filter** command. In this case, you should click on the field header with the set of categories.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName	ProductName	UnitPrice	UnitsOnOrder
Thai		18	0
Chang		19	40
Chartreuse verte		18	0
Côte de Blaye		263.5	0
Guaraná Fantástica		4.5	0
160 Boh Coffee		46	10
161 Kakalikoöri		18	0
162 Laughing Lumberjack Lager		14	0
163 Outback Lager		15	10
164 Rhönbräu Klosterbier		7.75	0

Mode

Expression

Type

Ok Cancel

Step 2: You should click on the **Add Filter** in the **Filters** menu, define a type of a logical operation and a value for a logical condition, and click Ok. In this case, you should select the **not containing** operation, specify the **Con** as a value of a logical condition. Now, all categories, which don't contain the **Con** will be displayed.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName

ProductName

UnitPrice

UnitsOnOrder

Mode:

Expression: Categories.CategoryName

Type: string

Filters

Add Filter ☒ Filter On

not containing Con ☐ Expression

OK Cancel

OK Cancel

Apart from filtering by categories, let's filter by product prices. For example, you need that from a filtered list of categories only the products where orders were written will be displayed. To do that you should:

Step 1: Click on a field header with the number of orders in the preview;

Step 2: Select the **greater than** operation in the **Number** filter menu;

Step 3: Specify the 0 as a value of a logical operation and click Ok in the **Filters** menu. This way, products, the number of orders, which more than null will be displayed.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

☐ CategoryName
☐ ProductName
☐ UnitPrice
☒ UnitsOnOrder

CategoryName	ProductName	UnitPrice	UnitsOnOrder
Beverages	Chang	19	40
Beverages	Ipoh Coffee	46	10
Beverages	Outback Lager	15	10
Dairy Products	Gorgonzola Telino	12.5	70
Dairy Products	Mascarpone Fabioli	32	40
Dairy Products	Queso Cabrales	21	30
Grains/Cereals	Gnocchi di nonna Alice	38	10
Grains/Cereals	Wimmers gute Semmelknödel	33.25	80
Produce	Longlife Tofu	10	20
Seafood	Gravad lax	26	50

Mode:

Expression:

Type:

Information

You can delete filters using the following ways:

- To delete all field filters, you should click on its header in the preview and select the **Remove Filters** command in the opened menu.
- To delete a specific filter, you should call the editor of filters, i.e. you should click on a field header and select the **Custom filters** command in the preview. Select the filter you need and click the **Remove Filter** button in the editor.

7.2.6 Skip and Limit Rows

One of the ways to filter data when transforming data is to skip and set row limit in a new data table. This way you can create a range of rows, which will be in a new table. For example, from 5 to 25 row or only first three rows starting with the 10th row.

To skip rows or set their limit you should:

- Click on a field header in the preview;
- Select the **Skip and Limit Rows** command in the **Actions** menu.
- Define the number of rows in the opened window, which need to be skipped. By default, the 0 value is set, i.e. no one row in a table is skipped.
- Select a preset number of rows or type an integer, which will be the number of rows in a new table. By default, all rows are selected.

Information

It's important to understand, that skip parameters and limits of row number can be set both together and separately. Besides, filters can be applied to data and on the contrary, you can apply skip and limit of rows to the data to which filters are applied.

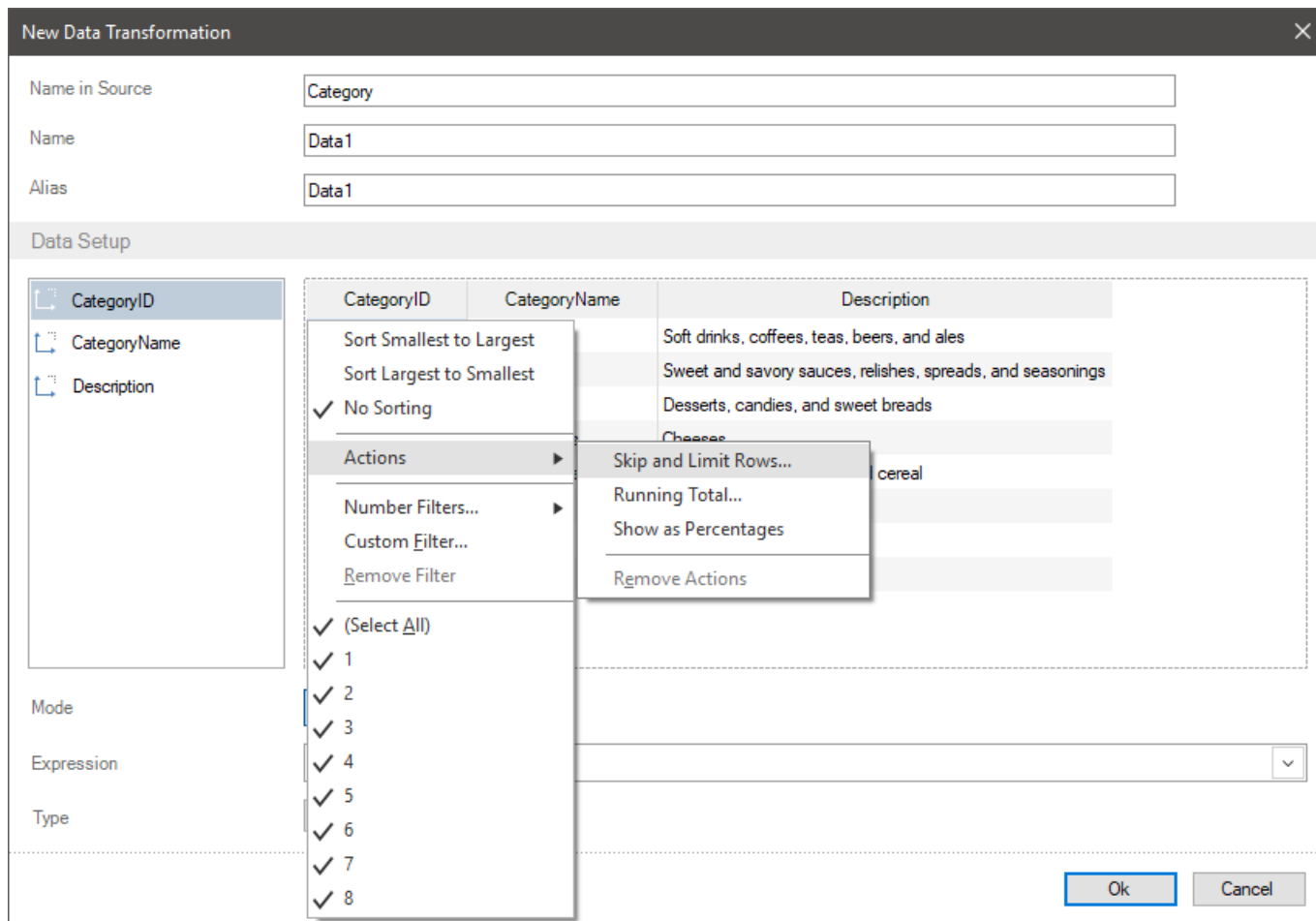
Also, pay attention to the fact that when applying the **Skip and Limit rows** action you should take into account the **Apply after grouping data** parameter.

Let's consider the example of skip and limit of the number of rows. Imagine, a new table contains category number, a list of categories, and a description of these categories.

Skip Rows

Step 1: You should click on a field header in the preview. In this case, you should click on the element with category numbers.

Step 2: In the Actions menu you should select the **Skip and Limit rows** command;



Step 3: You should define the number of rows, which need to be skipped and click Ok in the opened window. In this case, only 8 values, you should set the 3 value. It means, starting with the 4 row, all other rows will be displayed, if another one is not defined with limit or filters.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

☒ CategoryID
☐ CategoryName
☐ Description

CategoryID	CategoryName	Description
4	Dairy Products	Cheeses
5	Grains/Cereals	Breads, crackers, pasta, and cereal
6		
7		
8		

Skip and Limit Rows

Skip First Rows:

Rows Count:

☒ Apply after grouping data

OK Cancel

Mode:

Expression:

Type:

Ok Cancel

Limit rows

Step 1: You should click on an element header (a data column or a field) in the preview. In this case, you should click on an element with category numbers.

Step 2: You should select the **Skip and Limit Rows** command in the **Actions** menu.

Step 3: Select a preset number of rows or type an integer, which will be the number of rows in a new table and click Ok. In this case, type the 5 value. It means, that only 5 rows will be displayed in the table. The countdown of these rows starts with the first row or the row, which is defined using the **Skip First Row** parameter or other filters.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

☐ CategoryID
☐ CategoryName
☐ Description

CategoryID	CategoryName	Description
1	Beverages	Soft drinks, coffees, teas, beers, and ales
2	Condiments	Sweet and savory sauces, relishes, spreads, and seasonings
3		
4		
5		

Skip First Rows:

Rows Count:

☒ Apply after grouping data

OK Cancel

Mode:

Expression:

Type:

Ok Cancel

Rows Range

In this case, you should combine interaction of the **Skip First Rows** and the **Rows Count** parameters.

Step 1: You should click on a field header in the preview. In this case, you should click on category numbers.

Step 2: You should select the **Skip and Limit Rows** command in the **Actions** menu.

Step 3: You should define the number of rows, which need to be skipped in the opened window. In this case, only 8 values, let's set the 3 value. It means, starting with the 4 row all other will be displayed, if another one is not defined with limit or filters.

Step 4: You should select a preset number of rows or type an integer, which will be

the number of rows in a new table. In this case, you should type the 2 value. It means only 2 rows will be displayed in the table. The countdown of these rows starts with the first row or with the row, which is defined the first using the **Skip First Rows** parameter or other filters. In this case with the 4 row.

Step 5: Click **Ok** in the **Skip and Limit Rows** menu.

This way, a range of two rows starting with the 4 row will be displayed.

The screenshot shows the 'New Data Transformation' dialog box. The 'Name in Source' field is 'Category', 'Name' is 'Data1', and 'Alias' is 'Data1'. The 'Data Setup' section shows a list of fields: 'CategoryID', 'CategoryName', and 'Description'. A table preview shows two rows: '4 Dairy Products Cheeses' and '5 Grains/Cereals Breads, crackers, pasta, and cereal'. A 'Skip and Limit Rows' sub-dialog is open, showing 'Skip First Rows' set to 3, 'Rows Count' set to 2, and the 'Apply after grouping data' checkbox checked. The 'Mode' is set to 'Expression' with the value 'Categories.CategoryID' and type 'int'. The 'Ok' button is highlighted.

CategoryID	CategoryName	Description
4	Dairy Products	Cheeses
5	Grains/Cereals	Breads, crackers, pasta, and cereal

Skip and Limit Rows

Skip First Rows: 3

Rows Count: 2

☒ Apply after grouping data

OK Cancel

Mode: Expression

Expression: Categories.CategoryID

Type: int

Ok Cancel

Apply after grouping data parameter

This parameter allows you to apply the **Skip and Limit Rows** action before data grouping or after that. Accordingly, this parameter is relevant only for data fields, which are grouped by other fields in data transformation. Let's consider the applying of this parameter when creating data transformation. For example, a data transformation contains a list of categories and a list of product sales, which included

in these categories. This way, product sales are grouped by categories.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryID	UnitPrice
1	455.75
2	276.75
3	327.08
4	287.3
5	141.75
6	324.04
7	161.85
8	248.19

Mode:  

Expression: Sum(Products.UnitPrice)

Type: decimal

Ok Cancel

➤ If the **Apply after grouping data** parameter is disabled. i.e. a box unchecked, the **Skip and Limit Rows** action will be applied to original data. Let's consider the algorithm of applying this action to data transformation:

Step 1: Firstly, the entire list of products will be grouped by categories;

Step 2: Then, the **Skip and Limit Rows** action will be applied to the values within each group. For example, if the number of skip rows is set to 3 value, first three products will not be taken into account within each category;

Step 3: After that, the values of product prices will be aggregated for each category, not taking into account skipped rows.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

CategoryID

UnitPrice

CategoryID	UnitPrice
1	418.75
2	266.75
3	327.08
4	287.3
5	141.75
6	324.04
7	161.85
8	248.19

Skip and Limit Rows

Skip First Rows:

Rows Count:

☐ Apply after grouping data

OK Cancel

Mode:

Expression:

Type:

Ok Cancel

➤ If the **Apply after grouping data** parameter is enabled, i.e. a box checked, the **Skip and Limit Rows** action will be applied to data after transformation. Let's consider the algorithm of applying this action to data transformation:

Step 1: Firstly, the entire list of products will be grouped by categories;

Step 2: After that, the values of product prices will be aggregated for each category;

Step 3: Then the **Skip and Limit Rows** action will be applied to the values. For example, if the number of skip rows is set to 3 value, first three rows of grouped data will be skipped.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

CategoryID

UnitPrice

CategoryID	UnitPrice
4	287.3
5	141.75
6	324.04
7	161.85
8	248.19

Skip and Limit Rows

Skip First Rows:

Rows Count:

☒ Apply after grouping data

OK Cancel

Information

If the **Skip and Limit Rows** action is applied to a field, to get back to the values by default, you should call the **Skip and Limit Rows** menu and define settings by default, i.e. the **Skip First Rows** parameter is set to **0** value and **Select All** value for the **Rows Count** parameter.

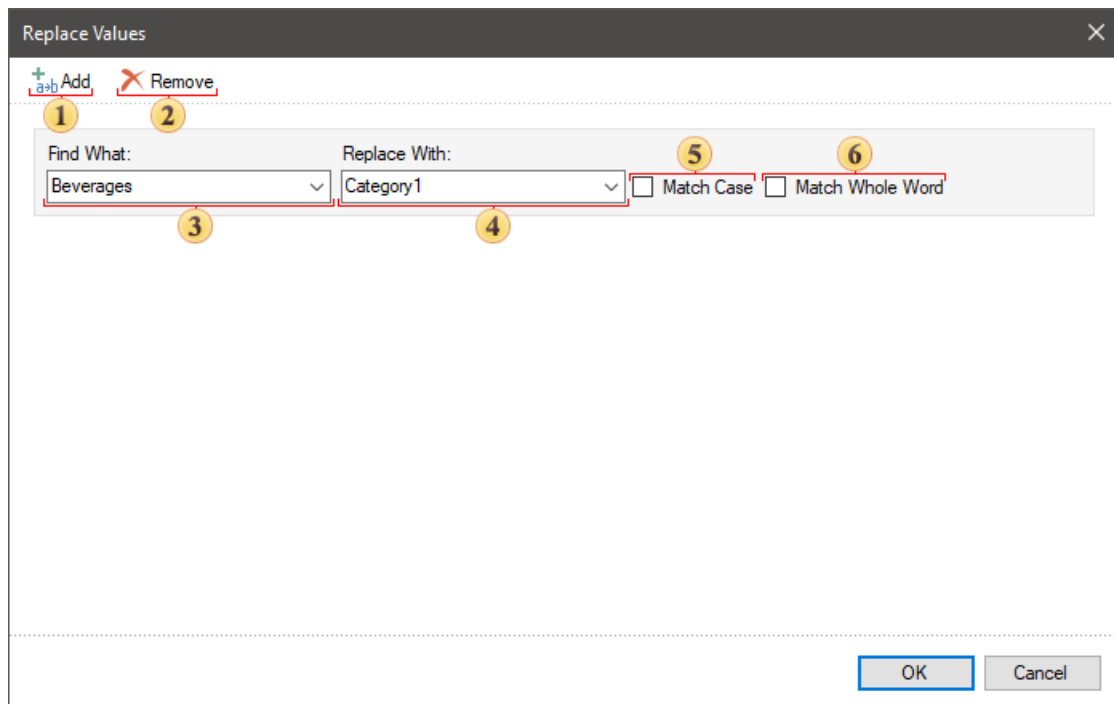
7.2.7 Replace Values

Frequently, when creating reports in row data you should replace some value with another or add a text to the current value.

You can do it in a report using different tools. However, if you need to transfer data with changed values to a report components, you can do it having created the **New Data Transformation**.

To change a value, you should make the following actions in a new data transformation:

- Click on a field header in the preview;
- The **Actions** menu contains the **Replace Values** command.
- In the opened editor, you should specify the value, which need to be replaced and the value to replace. Also, you can set the replace immediately after several values.



- ❶ Button for adding a new panel of value replace.
- ❷ Button for deleting a selected panel of value replace.
- ❸ The field to type a value, which need to be replaced.
- ❹ The field to type a value to be replaced.
- ❺ The **Match Case** parameter enables the mode in which a value will be replaced only if a register of an original value (a value specified in the 3 field) fully corresponds to the value in a data field. If this parameter is disabled, when analyzing values in a data field, the register is not taken into account.
- ❻ If the flag is set, then the search will be done considering the whole word.

Apart from direct values replace, you can add a text to all values. To do it you should:

- Specify an addition sign and a text, which need to be added in an element expression before or after this expression.
- Use the **Insert(,,)** function to insert a text to a value.

Let's consider the examples of replace values and adding a text to a value in an element. For example, data columns with numbers of categories and their names are added in a new data transformation.

Replace values

For example, you should replace the name of the **Beverages** category with the **Category1** value. To do it you should make the following steps:

Step 1: Click on a field header in the preview, select the **Replace Values** command in the **Actions** menu;

Step 2: Specify an original value (Beverages in this case) in the **Find What** field;

Step 3: Specify the value to replace (the Category1 in this case) in the **Replace With** field;

Step 4: Check a box next to the **Match Case**, if you need a full match of an original value with a value in a data field.

The screenshot shows a 'Replace Values' dialog box with a dark title bar and a close button (X) in the top right corner. Below the title bar, there are two buttons: 'Add' (with a plus icon) and 'Remove' (with a minus icon). The main area of the dialog contains two input fields: 'Find What:' and 'Replace With:'. The 'Find What:' field has a dropdown menu showing 'Beverages'. The 'Replace With:' field has a dropdown menu showing 'Category1'. To the right of these fields are two checkboxes: 'Match Case' and 'Match Whole Word', both of which are checked. At the bottom right of the dialog, there are two buttons: 'OK' and 'Cancel'.

Step 5: Click the **Ok** button.

All values of the **Beverages** in this data column will be replaced with the **Category1** value.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

CategoryID	CategoryName
1	Category 1
2	Condiments
3	Confections
4	Dairy Products
5	Grains/Cereals
6	Meat/Poultry
7	Produce
8	Seafood

Mode:

Expression:

Type:

Text adding before and after values

To add some text before or after a value, you should make the following steps:

Step 1: Add fields to a list of data transformation fields. For example, the numbers of categories and their names.

Step 2: Specify an addition sign and a text, which need to be added in a field expression before and after this expression. To add a text before the names of categories and after that, you should change the **Categories.CategoryName** element expression to the **"text before " + Categories.CategoryName + " text after"**.

The text before and after will be added to all values in this element.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

CategoryID	CategoryName
1	text before Beverages text after
2	text before Condiments text after
3	text before Confections text after
4	text before Dairy Products text after
5	text before Grains/Cereals text after
6	text before Meat/Poultry text after
7	text before Produce text after
8	text before Seafood text after

Mode:

Expression:

Type:

Text insert into a value

You can insert another value into the text value of data fields using the `Insert(,,)`

function. To do it you should make the following steps:

Step 1: Add data fields to a list of data transformation fields. For example, the numbers of categories and their names.

Step 1: Add data fields to a list of data transformation fields. For example, the numbers of categories and their names.

- The first argument of the Insert function is a link to the data field, into the values of which other values need to be inserted.
- The second argument of the Insert function is an ordinal index in the value after which a new value will be inserted into.
- The third argument is the very argument (or a link to another data field), which need to be inserted into.

Let's insert the names of products into the names of categories, after the second character. In addition to this, drag the names of products for visual selection into the upper case. To do that, you should change the **Categories.CategoryName** element expression to the

Insert(Categories.CategoryName,2,ToUpperCase(Products.ProductName)).

Now the names of products in the upper case will be inserted into the names of categories.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

CategoryID

CategoryName

CategoryID	CategoryName
1	BeCHAlverages
1	BeCHANGverages
1	BeCHARTREUSE VERTEverages
1	BeCÔTE DE BLAYEverages
1	BeGUARANÁ FANTÁSTICAverage
1	BeIPOH COFFEEverages
1	BeLAKKALIKÖÖRverages
1	BeLAUGHING LUMBERJACK LAGERverages
1	BeOUTBACK LAGERverages
1	BeRHÖNBRÄU KLOSTERBIERverages

Mode:  

Expression:

Type:

Ok Cancel

Information

When applying the **Replace Values** actions to data fields they can be deleted selectively. To do it you should click on a field header in the preview, select the **Replace Values** from the **Actions** menu. Select the blocks you need in the opened editor and click the **Remove** button.

7.2.8 Running Total

Frequently, when creating a report, you have to calculate running total. Running total is when a new value is calculated in the result of adding the current value of a row with the sum of the previous values. In the report designer, you can do it using various ways. However, if you need to transfer data to a report components with calculated running total, you can do it having created the **New Data Transformation**.

To calculate running total for data fields you should:

- Click on an element header in the preview, select the Running Total command in the Actions menu.
- Set an original value. By default, the 0 value is set, i.e. the running total is calculated only from data fields. However, if needed, you can set an original value.

Information

You should understand, that you can create running total only with data fields, which contain numeric values.

Let's consider the examples of running total creation. For example, a new transformation contains the set of categories and their price.

New Data Transformation

Name in Source

Category

Name

Data1

Alias

Data1

Data Setup

CategoryName

UnitPrice

CategoryName	UnitPrice
Beverages	1370.00
Condiments	2400.00
Confections	2617.50
Dairy Products	2785.0
Grains/Cereals	3040.00
Meat/Poultry	0.00
Produce	200.00
Seafood	1965.00

Mode

Expression

Sum(Products.UnitPrice * Products.UnitsOnOrder)

Type

decimal

Ok

Cancel

Running total calculation without an original value

Step 1: Click on a field header in the preview, select the **Running Total** command in the **Actions** menu. In this case, you should click on the element with price.

Step 2: Type the 0 value, if earlier another value was typed, click Ok in the **Running Total** menu.

Now running total will be calculated, i.e. a new value is calculated with the help of adding the current value to the sum of the previous values.

New Data Transformation

Name in Source: Category
 Name: Data1
 Alias: Data1

Data Setup

CategoryName
 UnitPrice

CategoryName	UnitPrice
Beverages	455.75
Condiments	732.5
Confections	1059.58
Dairy Products	1346.88
Grains/Cereals	1488.63
Meat/Poultry	1812.67
Produce	1974.52
Seafood	2222.71

Running Total

Initial Value: 0

OK Cancel

Mode:

Expression: Sum(Products.UnitPrice)

Type: double

OK Cancel

Running total calculation with an original value

Step 1: Click on a field header in the preview, select the **Running Total** command in

the **Actions** menu.

Step 2: Type an original value, click the Ok button in the **Running Total** menu. In this case, let's type the -100.

Now, running total will be calculated, i.e. a new value is calculated with the help of adding the current value with the sum of the previous values and adding an original value.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

CategoryName
UnitPrice

CategoryName	UnitPrice
Beverages	355.75
Condiments	632.5
Confections	959.58
Dairy Products	1246.88
Grains/Cereals	1388.63
Meat/Poultry	1712.67
Produce	1874.52
Seafood	2122.71

Running Total

Initial Value:

OK Cancel

Mode:

Expression:

Type:

Ok Cancel

Information

To disable running total calculation for a field, you should click on its header in the preview, select the **Running Total** command from the **Actions** menu. You should delete a value in the opened window having left the value input field empty and click Ok. After that, running total for the current field will not be calculated.

7.2.9 Running Average

A **running average** is a data transformation in which, for each row, the average of all previous values (including the current one) is calculated for a selected numeric column. In the report designer, this can be performed in several ways. However, if the data needs to be passed to report components with the running average already calculated, this can be done by creating a **New Data Transformation**.

To calculate a running average for data fields, you should:

- Click the column header in the preview panel and select **Running Average** from the **Actions** menu.
- Specify an initial value. By default, the value is set to 0, meaning the running average is calculated only from the data field values. However, if needed, you can provide a different initial value.

Information

It's important to understand that a running average can only be created for data fields containing numeric values.

Let's look at examples of creating a running average. Suppose the new transformation contains a list of categories and their cost.

New Data Transformation
?
X

Name in Source
Category

Name
Data1

Alias
Data1

Data Setup

CategoryName
UnitPrice

CategoryName	UnitPrice
Beverages	455,75
Condiments	276,75
Confections	327,08
Dairy Products	287,3
Grains/Cereals	141,75
Meat/Poultry	324,04
Produce	161,85
Seafood	248,19

Mode

CategoryName
UnitPrice

UnitPrice

Expression
Sum(Products.UnitPrice)

Type
double

OK
Cancel

Calculating a running average without an initial value

Step 1: Click the field header in the preview pane (in this case, the field containing the cost) and select **Running Average** from the **Actions** menu.

Step 2: Enter the value 0 if another value was previously set, and click **OK** in the **Running Average** window.

Now the running average will be calculated, the new value is determined by summing the current value with the total of all previous values.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName	UnitPrice
Beverages	455,75
Condiments	366,25
Confections	353,19
Dairy Products	336,72
Grains/Cereals	297,73
Meat/Poultry	302,11
Produce	282,07
Seafood	277,84

Running Average

Initial Value: 0

OK Cancel

Mode: 

Expression: Sum(Products.UnitPrice)

Type: double

OK Cancel

Calculating a running average with an initial value

Step 1: Click the field header in the preview pane (in this case, the field containing the cost) and select **Running Average** from the **Actions** menu.

Step 2: Enter an initial value and click **OK** in the **Running Average** window. In this example, we will enter -100.

Now the running average will be calculated — the new value is determined by summing the current value with the total of all previous values and adding the initial value.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName	UnitPrice
Beverages	355,75
Condiments	316,25
Confections	319,86
Dairy Products	311,72
Grains/Cereals	277,73
Meat/Poultry	285,44
Produce	267,79
Seafood	265,34

Running Average

Initial Value: -100

OK Cancel

Mode:  

Expression: Sum(Products.UnitPrice)

Type: double

OK Cancel

7.2.10 Show Percentage

Frequently, when creating reports, you can face such situations when you need to output a specific weight (percent) of the value from a list of data columns. For example, when analyzing sales, to select a more profitable region, you should calculate sale percentage in a specific region in relation to sales in all market regions. In the report designer, you can do it using different tools. However, if you need to transfer processed data to a report, you can do it having created the **New Data Transformation**.

To display the percentage of a value from the sum of all element values (a field or a data column) you should:

- Add the field you need to a new data transformation;
- Click on an element header in the preview, select the **Show Percentage** command from the **Actions** menu.

Information

You should understand, that since percentage calculation is performing mathematical operations, this action is available only for fields with numeric values.

Let's consider the example of percentage calculation of sales volume for each category.

Show percentage

Step 1: Add the fields you need to a new data transformation. For example, add a data field with the set of categories, products included in these categories and sales volume.

Step 2: Group sales volume by categories. To do it you should switch the mode of fields from the **Dimension** to the **Measure**, for the fields with sales volume and a list of products.

Step 3: Click on a header in the preview for a field with numeric values and select the **Show Percentage** command from the **Actions** menu. For example, it should be done for the field with sales volume.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

CategoryName

UnitPrice

CategoryName	UnitPrice
Beverages	20.5
Condiments	12.45
Confections	14.72
Dairy Products	12.93
Grains/Cereals	6.38
Meat/Poultry	14.58
Produce	7.28
Seafood	11.17

Mode: Category Sum

Expression:

Type:

After that, a relative value will be displayed for each category instead of absolute values, i.e. a specific weight of each category in relation to the sum of all categories sales.

Information

If the **Show Percentage** action is applied to a field, to enable this action, you should click on a field header in the preview and (if this action is checked a box) select the **Show Percentage** command from the **Actions** menu again. After that, original values of data field will be displayed.

7.2.11 Sorting Data

Sorting data is ordering values of data fields in a specific direction. You can sort data in a report using various ways, but sometimes you need to transfer sorted data to a

report. In this case, you can create the **New Data Transformation** and based on it create a report.

When creating a new data transformation, the values can be:

- › Sorted in ascending order. In case with row values, the sorting is carried out **from A to Z** and for numeric values from **Smallest to Largest**.
- › Sorted in descending order. In case with row values, the sorting is carried out **from Z to A** and for numeric values from **Largest to Smallest**.
- › No sorting, i.e. they are transferred to a report in the order where they are contained in data sources.

Information

You should understand, that a data table can contain a nested sorting, i.e. firstly, values are sorted by one field then by another. For example, firstly product categories are sorted then products in each category.

To enable sorting you should:

- › Click on a field header in the preview;
- › Select the sorting mode in the field mode: **Ascending, Descending, No sorting**.

Let's consider the example of sorting data. For example, there are data columns in a new transformation with the names of product categories, a list of products and their prices.

Sorting by ascending

Step 1: Click on a field header in the preview. In this case, you should click on a data field with category names.

Step 2: You should select the sorting values direction in the opened menu. For example, select the **from A to Z**.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName	ProductName	UnitPrice
✓ Sort A to Z	Chai	0.81
Sort Z to A	Chang	0.85
No Sorting	Chartreuse verte	0.81
Actions	Côte de Blaye	11.85
String Filters	Guaraná Fantástica	0.20
Custom Filter...	Iroh Coffee	2.07
Remove Filter	Kakalikoöri	0.81
(Select All)	Laughing Lumberjack Lager	0.63
Beverages	Outback Lager	0.67
Condiments	Rhönbräu Klosterbier	0.35
Confections		
Dairy Products		
Grains/Cereals		
Meat/Poultry		
Produce		
Seafood		

Mode

Expression

Type

Ok Cancel

Now all categories will be sorted in the direction **from A to Z**.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName	ProductName	UnitPrice
Beverages	Outback Lager	0.67
Beverages	Rhönbräu Klosterbier	0.35
Beverages	Sasquatch Ale	0.63
Beverages	Steeleye Stout	0.81
Condiments	Aniseed Syrup	0.45
Condiments	Chef Anton's Cajun Seasoning	0.99
Condiments	Chef Anton's Gumbo Mix	0.96
Condiments	Genen Shouyu	0.70
Condiments	Grandma's Boysenberry Spread	1.12
Condiments	Gula Malacca	0.88

Mode:  

Expression: Categories.CategoryName

Type: string

Ok Cancel

Sorting by descending

Step 1: You should click on a field header in the preview. For example, click on the data field with category names.

Step 2: You should select the direction of sorting values in the opened menu. For example, select the **from Z to A**.

New Data Transformation

Name in Source

Category

Name

Data1

Alias

Data1

Data Setup

CategoryName

ProductName

UnitPrice

↓ CategoryName

Sort A to Z

✓ Sort Z to A

No Sorting

Actions

String Filters

Custom Filter...

Remove Filter

✓ (Select All)

✓ Beverages

✓ Condiments

✓ Confections

✓ Dairy Products

✓ Grains/Cereals

✓ Meat/Poultry

✓ Produce

✓ Seafood

↓ CategoryName	ProductName	UnitPrice ↕
	Boston Crab Meat	0.83
	Chamaron Tigers	2.81
	Escargots de Bourgogne	0.60
	Gravad lax	1.17
	Kura	1.39
	Lagd Sill	0.85
	Jack's New England Clam Chowder	0.43
	Konbu	0.27
	Nord-Ost Matjeshering	1.16
	Röd Kaviar	0.67

Mode

Expression

Type

Ok

Cancel

Now all categories will be sorted in the direction **from Z to A**.

New Data Transformation

Name in Source: Category

Name: Data1

Alias: Data1

Data Setup

CategoryName	ProductName	UnitPrice
Seafood	Röd Kaviar	0.67
Seafood	Røgede sild	0.43
Seafood	Spegesild	0.54
Produce	Longlife Tofu	0.45
Produce	Manjimup Dried Apples	2.38
Produce	Rössle Sauerkraut	2.05
Produce	Tofu	1.05
Produce	Uncle Bob's Organic Dried Pears	1.35
Meat/Poultry	Alice Mutton	1.75
Meat/Poultry	Mishi Kobe Niku	4.36

Mode:  

Expression: Categories.CategoryName

Type: string

Ok Cancel

Sorting data by several fields

Step 1: You should click on a field header in the preview. For example, click on data field with category names.

Step 2: You should select the direction of sorting value in the opened menu. For example, select the **from Z to A**.

Step 3: You should click on a header of another field in the preview. For example, click on the field with product prices.

Step 4: You should select the direction of sorting value in the opened menu. For example, select from the **Smallest to Largest**.

Now, all categories will be sorted in the direction **from Z to A**, and products in these

categories in the direction from the **Smallest to Largest**.

New Data Transformation

Name in Source:

Name:

Alias:

Data Setup

CategoryName

ProductName

UnitPrice

↓ CategoryName	ProductName	↑ UnitPrice
Seafood	Konbu	6
Seafood	Røgede sild	9.5
Seafood	Jack's New England Clam Chowder	9.65
Seafood	Spegesild	12
Seafood	Escargots de Bourgogne	13.25
Seafood	Röd Kaviar	15
Seafood	Boston Crab Meat	18.4
Seafood	Inlagd Sill	19
Seafood	Nord-Ost Matjeshering	25.89
Seafood	Gravad lax	26

Mode:

Expression:

Type:

Information

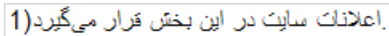
To enable sorting values, you should click on an element header in the preview and select the **No Sorting** direction. After that, the values will be displayed in an original order.

8 Right To Left

By default, components are output from left to right. The **Right to Left** property allows changing the mode of showing report items.

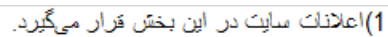
8.1 Text Component

How the text will be output depends on the **RightToLeft** property. If it is set to **false**, then a text (all symbols except letters) is output from left to right. The picture below shows a text sample in Arabic that is output from left to right:



اعلانات سایت در این بخش قرار می‌گیرد(1)

If the **RightToLeft** property is set to **true**, then a text is output from right to left. The picture below shows a text sample in Arabic that is output from right to left:



(1)اعلانات سایت در این بخش قرار می‌گیرد.

In any case a text written in a right-to-left language will be output right to left.

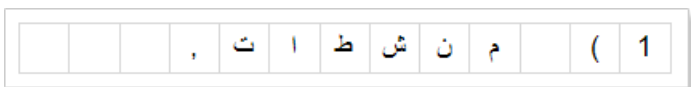
8.2 Text In Cells Component

A text in cells is placed symbol-by-symbol (one symbol or a space - one cell). How the text will be output depends on the **RightToLeft** property. If it is set to **false**, then a text is output from left to right. The picture below shows a text sample in Arabic that is output from left to right:



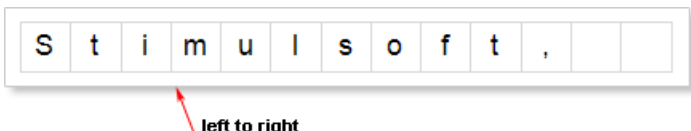
1	)		م	ن	ش	ط	ا	ت	,					
---	---	--	---	---	---	---	---	---	---	--	--	--	--	--

If the **RightToLeft** property is set to **true**, text is displayed from right to left. The image below shows an Arabic text sample displayed from right to left:



				(	1		م	ن	ش	ط	ا	ت	,	
--	--	--	--	---	---	--	---	---	---	---	---	---	---	--

The **RightToLeft** property works the same way for all languages in the **Text in Cells** component. Depending on its value, characters and symbols are displayed either from left to right or from right to left. The images below show text displayed in left-to-right (first image) and right-to-left (second image) modes:



S	t	i	m	u	l	s	o	f	t	,				
---	---	---	---	---	---	---	---	---	---	---	--	--	--	--

left to right



The **RightToLeft** property depends on the **Continuous Text** property. If **Continuous Text** is set to **true**, the **RightToLeft** property has no effect. In this case, text is always displayed from left to right. If **Continuous Text** is set to **false**, the text direction is determined by the **RightToLeft** property.

8.3 Cross Table Component

The cross table component has the **RightToLeft** property, that allows showing a cross-table in the right-to-left mode. If the **RightToLeft** property is set to **false**, then the cross table is rendered in the "left-to-right" mode. The picture below shows a cross table sample with the **RightToLeft** property set to **false**:

Products		Category Name						
Country	Beverages	Condiments	Confections	Dairy Products	Grains/Cereals	Meat/Poultry	Produce	Seafood
Australia	15	24	29	38		20	42	168
Brazil	20							20
Canada		113	17			136		266
Denmark							100	100
Finland	57		75					132
France	86			98			62	246
Germany	125	32	140		22	26	10	355
Italy				23	57			80
Japan		39				29	39	162
Netherlands			51					51
Norway				164				164
Singapore	17	27			26			70
Spain				108				108
Sweden					165		224	389
UK	56	13	74					143
USA	183	259				15	208	665
Total	559	507	386	393	308	165	701	3119

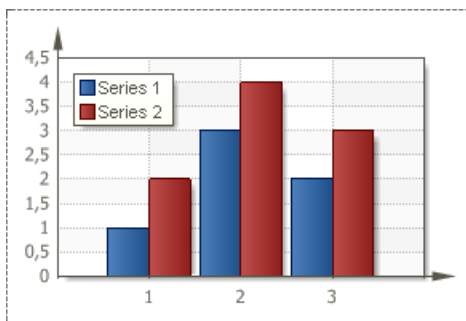
If the **RightToLeft** property of a cross table is set to **true**, then the cross table is output in the "right-to-left" mode. The picture below shows a cross table sample with the **RightToLeft** property set to **true**:

Total	CategoryName								Products
	Seafood	Produce	Meat/Poultry	Grains/Cereals	Dairy Products	Confections	Condiments	Beverages	Country
168	42	20		38		29	24	15	Australia
20								20	Brazil
266			136			17	113		Canada
100	100								Denmark
132						75		57	Finland
246	62				98			86	France
356	10	26	22		140	32	125		Germany
80				57	23				Italy
162	55	39	29					39	Japan
51						51			Netherlands
164					164				Norway
70			26			27	17		Singapore
108					108				Spain
389	224		165						Sweden
143						74	13	56	UK
665	208	15					259	183	USA
3119	701	100	165	308	393	386	507	559	Total

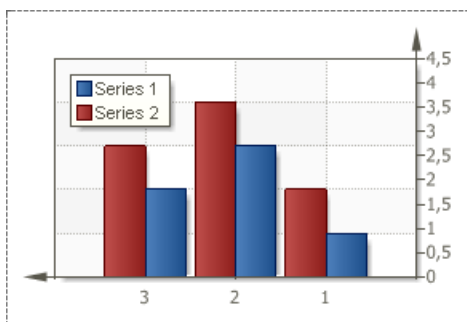
By default, the **RightToLeft** property of the cross table is set to **false**, this means that the cross table is output from left to right.

8.4 Chart Component

The **Reverse Horizontal** property is used to flip a chart horizontally. The picture below shows an example of a chart, with the **Reverse Horizontal** property set to **false** (As one can see, the values of the x-axis have left to right direction.):



If the **Reverse Horizontal** property is set to **true**, then the chart will appear in the opposite direction horizontally. The picture below shows an example of a chart, with the **Reverse Horizontal** property is set to true (As one can see, the values of the x-axis have right to left direction.):



By default, the **Reverse Horizontal** property is set to **false**.

8.5 Columns on Page

Stimulsoft Reports prints bands until there is a free space on a page. Then, instead of creating a new page, the reporting tool adds a new column on the right. Then it prints data from the top of a page. This happens until all data are printed and page will be exhausted. The columns direction is always from top to bottom, and a mode of showing columns can be different. There are two modes: "left to right" and "right to left". The mode of showing columns on a page depends on the value of the **RightToLeft** property of a page. If the **RightToLeft** property is set to **false**, then columns will be output in the "left to right" mode. If this property of a page is set to **true**, then columns will be output in the "right to left" mode. The picture below shows columns on a page output in two modes:

left to right



Company	Phone	Company	Phone
43. Laughlin Bacchus Wine Cellars	(804) 555-0392	1. Alfede's Putterkiste	020-0074321
44. Lazy K Kountry Store	(509) 555-7569	2. Ana Trujillo Emparedados y helados	(5) 555-4729
45. Lehmanns Marktstand	069-0245984	3. Antonio Moreno Taqueria	(5) 555-2932
46. Let's Stop N Shop	(415) 555-5938	4. Around the Horn	(171) 555-7788
47. LILA-Supermercado	(9) 331-6954	5. Belglands snackbar	0921-12 34 55
48. LINO-Delicatessen	(8) 34-56-12	6. Blauer See Delikatessen	0621-08480
49. Lonesome Pine Restaurant	(503) 555-9573	7. Blondes dds i ptre et fils	88.80.15.31
50. Magazzini Alimentari Uniti	035-640230	8. Bólido Comidas preparadas	(91) 555 22 82
51. Maison Dewey	(02) 201 24 67	9. Bon app'	91.24.45.40
52. Mere Pellerie	(514) 555-8054	10. Bottom-Dollar Markets	(804) 555-4729
53. Morgenstern Gesundkost	0142-023176	11. B's Beverages	(171) 555-1212
54. North/South	(171) 555-7733	12. Oactus Comidas para llevar	(1) 135-5555
55. Océano Atlántico Ltda.	(1) 135-5333	13. Centro comercial Moctezuma	(5) 555-3392
56. Old World Delicatessen	(907) 835-7584	14. Chop-suey Chinese	0452-075545
57. Otties Käseladen	0221-0641327	15. Comercio Mineiro	(11) 555-7647
58. Paris specialités	(1) 42.34.21.66	16. Consolidated Holdings	(171) 555-2282
59. Pericles Comidas clásicas	(5) 552-3745	17. Die Wandende Kuh	0711-020361
60. Piccolo und mehr	6562-9722	18. Diechenblut Delikatessen	0241-039123
61. Princess Isabel Vinhos	(1) 356-6634	19. Du monde entier	40.67.88.38
62. Que Delicia	(21) 555-4252	20. Eastern Connection	(171) 555-0297
63. Queen Cozinha	(11) 555-1189	21. Ernst Handel	7675-3425
64. QUICK-Stop	0372-035188	22. Família Arquiolo	(11) 555-9857
65. Rancho grande	(1) 123-5555	23. FIBBA Fabrica Inter Balchinhos SA	(91) 555 94 44
66. Rattlesnake Canyon Grocery	(505) 555-5939	24. Rolles gourmandes	20.16.10.16
67. Reggiani Caseifici	0522-556721	25. Polkovich's HB	0895-34 67 21
68. Ricardo Adocicados	(21) 555-3412	26. Poutine restaurant	40.32.21.21
69. Richter Supermarkt	0897-034214	27. Flancco, S.p.A.	011-4988280
70. Romero y tomillo	(91) 745 6200	28. Franken's Bier	089-0877310
71. Santé Gourmet	07-98 92 35	29. Pura Bacihaue Frutos do lar	(1) 354-2534
72. Savere-Hot Markets	(208) 555-8097	30. Galeria del Gastrónomo	(93) 203 4560
73. Seven Seas Imports	(171) 555-1717	31. Godos Cocina Tipica	(95) 555 82 82
74. Simons bistro	31 12 34 56	32. Gourmet Lanchonetes	(11) 555-9482
75. Spécialités du monde	(1) 47.55.60.10	33. Great Lakes Food Market	(503) 555-7555
76. Split Rail Beer & Ale	(307) 555-4680	34. GROBELLÀ-Restaurante	(2) 283-2951
77. Suprêmes délices	(071) 23 67 22 20	35. Hana's Cakes	(21) 555-0091
78. The Big Cheese	(503) 555-3612	36. HILARIOUS-Accasias	(5) 555-1340
79. The Checker Box	(406) 555-5834	37. Hungry Coyote Import Store	(503) 555-6874
80. Toms Spezialitäten	0251-031259	38. Hungry Owl All-Night Groceries	2367 542
81. Toruga's Restaurante	(5) 555-2933	39. Island Trading	(198) 555-8888
82. Tradição Hipermercados	(11) 555-2167	40. Königlich Essen	0555-09878
83. Trail's Head Gourmet Provisions	(206) 555-8257	41. La com'e d'abondance	30.59.34.10
84. Vaffeljernet	86 21 32 43	42. La maison d'Asie	61.77.61.10

right to left

8.6 Columns in Data Band

"Down Then Right" direction

In this direction the reporting tool tries equally to distribute all rows between columns. Then, after distribution rows between columns, the first column is output. And the column is not output to the end of a page, but until the number of elements that are distributed for this column. Then the second column is output. So the data take as much space on the page as it is required. So data will be distributed approximately equally among all the columns. And all data will be presented on a sheet in a convenient form. The mode of showing columns depends on the value of the **RightToLeft** property of the **DataBand**. If the **RightToLeft** property is set to **false**, then columns on the report page will be displayed from left to right. If the **RightToLeft** property is set to **true**, then the column on the report page will be displayed from right to left. The picture below shows examples of two modes of showing columns on report pages:

Company	Company	Company
1. Alfredo Futterkiste	32. Gourmet Lanchonetes	62. Que Delicia
2. Ana Trujillo Empanadados y helados	33. Great Lakes Food Market	63. Queen Cozinha
3. Antonio Moreno Taqueria	34. GROSELLA-Restaurante	64. QUICK-Stop
4. Around the Horn	35. Hanari Games	65. Rancho grande
5. Belgunds snabbköp	36. HILARIO-Abastos	66. Rattlesnake Canyon Grocery
6. Bleuler Bee Delikatessen	37. Hungry Coyote Import Store	67. Reggiani Caseificio
7. Blondes ddsi père et fils	38. Hungry Owl All-Night Grocers	68. Ricardo Adocicados
8. Bolido Comidas preparadas	39. Island Trading	69. Richter Supermarkt
9. Bon app'	40. Königlich Essen	70. Romero y tomillo
10. Bottom-Dollar Markets	41. La comie d'abondance	71. Santé Gourmet
11. B's Beverages	42. La maison d'Asie	72. Sauer-Hot Markets
12. Cactus Comidas para llevar	43. Laughing Bacchus Wine Cellars	73. Seive's Beas Imports
13. Centro comercial Moctezuma	44. Lazy K Country Store	74. Simons bistro
14. Chop-suey Chinese	45. Lehmanns Marktstand	75. Spécialités du monde
15. Comércio Mineiro	46. Let's Stop N Shop	76. Spitt's All Beer & Ale
16. Consolidated Holdings	47. LILA-Supermercado	77. Suprêmes délices
17. Die Wandende Kuh	48. LINO-Delicatessen	78. The Big Cheese
18. Drechenblut Delikatessen	49. Lonesome Pine Restaurant	79. The Cracker Box
19. Du monde entier	50. Magazzini Alimentari Riuniti	80. Toms Spezialitäten
20. Eastern Connection	51. Maison Dewey	81. Tortuga Restaurante
21. Ernst Handel	52. Mère Poularde	82. Tradico Hipermercados
22. Familia Arquibaldo	53. Morgenstern Gesundkost	83. Trail's Head Gourmet Provisions
23. FIBSA-Fabrica Inter. Balchichas S	54. North/South	84. Vaffeljernet
24. Folies gourmandes	55. Océano Atlántico Ltda.	85. Victuailles en stock
25. Folk och fä HB	56. Old World Delicatessen	86. Vins et alcools Chevalier
26. France restauration	57. Ottilies Käseladen	87. Warten Harkku
27. Franchi S.p.A.	58. Paris spécialités	88. Wellington Importados
28. Frankenversand	59. Pericles Comidas clásicas	89. White Clover Markets
29. Furti Bocalhaus e Frutos do Mar	60. Piccolo und mehr	90. Wilman Kala
30. Galeria del gastrónomo	61. Princess Isabel Vinhos	91. Wolski Zajazd
31. Godos Cocina Tipica		

left to right

Company	Company	Company
62. Que Delicia	32. Gourmet Lanchonetes	1. Alfredo Futterkiste
63. Queen Cozinha	33. Great Lakes Food Market	2. Ana Trujillo Empanadados y helados
64. QUICK-Stop	34. GROSELLA-Restaurante	3. Antonio Moreno Taqueria
65. Rancho grande	35. Hanari Games	4. Around the Horn
66. Rattlesnake Canyon Grocery	36. HILARIO-Abastos	5. Belgunds snabbköp
67. Reggiani Caseificio	37. Hungry Coyote Import Store	6. Bleuler Bee Delikatessen
68. Ricardo Adocicados	38. Hungry Owl All-Night Grocers	7. Blondes ddsi père et fils
69. Richter Supermarkt	39. Island Trading	8. Bolido Comidas preparadas
70. Romero y tomillo	40. Königlich Essen	9. Bon app'
71. Santé Gourmet	41. La comie d'abondance	10. Bottom-Dollar Markets
72. Sauer-Hot Markets	42. La maison d'Asie	11. B's Beverages
73. Seive's Beas Imports	43. Laughing Bacchus Wine Cellars	12. Cactus Comidas para llevar
74. Simons bistro	44. Lazy K Country Store	13. Centro comercial Moctezuma
75. Spécialités du monde	45. Lehmanns Marktstand	14. Chop-suey Chinese
76. Spitt's All Beer & Ale	46. Let's Stop N Shop	15. Comércio Mineiro
77. Suprêmes délices	47. LILA-Supermercado	16. Consolidated Holdings
78. The Big Cheese	48. LINO-Delicatessen	17. Die Wandende Kuh
79. The Cracker Box	49. Lonesome Pine Restaurant	18. Drechenblut Delikatessen
80. Toms Spezialitäten	50. Magazzini Alimentari Riuniti	19. Du monde entier
81. Tortuga Restaurante	51. Maison Dewey	20. Eastern Connection
82. Tradico Hipermercados	52. Mère Poularde	21. Ernst Handel
83. Trail's Head Gourmet Provisions	53. Morgenstern Gesundkost	22. Familia Arquibaldo
84. Vaffeljernet	54. North/South	23. FIBSA-Fabrica Inter. Balchichas S
85. Victuailles en stock	55. Océano Atlántico Ltda.	24. Folies gourmandes
86. Vins et alcools Chevalier	56. Old World Delicatessen	25. Folk och fä HB
87. Warten Harkku	57. Ottilies Käseladen	26. France restauration
88. Wellington Importados	58. Paris spécialités	27. Franchi S.p.A.
89. White Clover Markets	59. Pericles Comidas clásicas	28. Frankenversand
90. Wilman Kala	60. Piccolo und mehr	29. Furti Bocalhaus e Frutos do Mar
91. Wolski Zajazd	61. Princess Isabel Vinhos	30. Galeria del gastrónomo
		31. Godos Cocina Tipica

right to left

"Right Then Down" direction

In this direction lines are sequentially output in the **Data Band**. By default the mode of output is left to right. Row are displayed - one line in one column. When all rows are displayed in columns in the **Data Band**, a new Data Band is created and it again displays all the rows in columns. So, the data will take as much space on the page as it is required. The mode of showing columns depends on the value of the **RightToLeft** property of the **DataBand**. If the **RightToLeft** property is set to **false**, then columns on the report page will be displayed from left to right. If the

RightToLeft property is set to **true**, then the column on the report page will be displayed from right to left. The picture below shows examples of two modes of showing columns on report pages:

Company	Company	Company
1. Alfredo Futterkiste	2. Ana Trujillo Emperadados y helados	3. Antonio Moreno Taqueria
4. Around the Horn	5. Beglunds snabbköp	6. Blauer See Delikatessen
7. Blonsddsl pere etlla	8. Bólido Comidas preparadas	9. Bon app'
10. Bottom-Dollar Markets	11. B's Beverages	12. Cactus Comidas para llevar
13. Centro comercial Moctezuma	14. Chop-suey Chinese	15. Comercio Minic
16. Consolidated Holdings	17. Die Wandende Kuh	18. Drachenhut Delikatessen
19. Du monde entier	20. Eastern Connection	21. Ernst Handel
22. Famille Arquibado	23. FIBSA Fabrica Inter. Balchichas B	24. Fines gourmendes
25. Folk och fäHB	26. France restauration	27. Franchi S.p.A.
28. Frankenversand	29. Furia Bacalhau e Fritos do Mar	30. Galeria del gastrónomo
31. Godos Cocina Tipica	32. Gourmet Lanchonetes	33. Great Lakes Food Market
34. GROBELLA-Restaurante	35. Hanari Games	36. HILARION-Aceitos
37. Hungry Coyote Import Store	38. Hungry Owl All-Night Grocers	39. Island Trading
40. Königlich Essen	41. La come d'abondance	42. La maison d'Asie
43. Laughing Bacchus Wine Cellars	44. Lazy K Country Store	45. Lehmanns Marktstand
46. Let's Stop N Shop	47. LILA-Supermercado	48. LINO-Delicatessen
49. Lonesome Pine Restaurant	50. Magazzini Alimentari Riuniti	51. Maison Dewey
52. Mere Paillardie	53. Morgenstem Gesundkakt	54. North/South
55. Oceano Atlántico Ltda.	56. Old World Delicatessen	57. Ottilies Käseladen
58. Paris spécialités	59. Pericles Comidas clásicas	60. Piccolo und mehr
61. Princess Isabel Vinhos	62. Que Delicia	63. Queen Cozinha
64. QUICK-Stop	65. Rancho grande	66. Rattlesnake Canyon Grocery
67. Reggiani Ceseird	68. Ricardo Adocicada	69. Richter Supermarkt
70. Romero y tomillo	71. Santé Gourmet	72. Save-e-hot Markets
73. Seven Seas Imports	74. Simons bistro	75. Spécialités du monde
76. Split Rail Beer & Ale	77. Suprêmes délices	78. The Big Cheese
79. The CrackerBox	80. Toms Spezialitäten	81. Tortuga Restaurante
82. Tradigão Hipermarcados	83. Trails Head Gourmet Provisions	84. Vaffeljernet
85. Victualles en stock	86. Vins et alcools Chevalier	87. Warten Herkku
88. Wellington Importados	89. White Clover Markets	90. Wilman Kala
91. Wolski Zajazd		

left to right

Company	Company	Company
3. Antonio Moreno Taqueria	2. Ana Trujillo Emperadados y helados	1. Alfredo Futterkiste
6. Blauer See Delikatessen	5. Beglunds snabbköp	4. Around the Horn
9. Bon app'	8. Bólido Comidas preparadas	7. Blonsddsl pere etlla
12. Cactus Comidas para llevar	11. B's Beverages	10. Bottom-Dollar Markets
15. Comercio Minic	14. Chop-suey Chinese	13. Centro comercial Moctezuma
18. Drachenhut Delikatessen	17. Die Wandende Kuh	16. Consolidated Holdings
21. Ernst Handel	20. Eastern Connection	19. Du monde entier
24. Fines gourmendes	23. FIBSA Fabrica Inter. Balchichas B	22. Famille Arquibado
27. Franchi S.p.A.	26. France restauration	25. Folk och fäHB
30. Galeria del gastrónomo	29. Furia Bacalhau e Fritos do Mar	28. Frankenversand
33. Great Lakes Food Market	32. Gourmet Lanchonetes	31. Godos Cocina Tipica
36. HILARION-Aceitos	35. Hanari Games	34. GROBELLA-Restaurante
39. Island Trading	38. Hungry Owl All-Night Grocers	37. Hungry Coyote Import Store
42. La maison d'Asie	41. La come d'abondance	40. Königlich Essen
45. Lehmanns Marktstand	44. Lazy K Country Store	43. Laughing Bacchus Wine Cellars
48. LINO-Delicatessen	47. LILA-Supermercado	46. Let's Stop N Shop
51. Maison Dewey	50. Magazzini Alimentari Riuniti	49. Lonesome Pine Restaurant
54. North/South	53. Morgenstem Gesundkakt	52. Mere Paillardie
57. Ottilies Käseladen	56. Old World Delicatessen	55. Oceano Atlántico Ltda.
60. Piccolo und mehr	59. Pericles Comidas clásicas	58. Paris spécialités
63. Queen Cozinha	62. Que Delicia	61. Princess Isabel Vinhos
66. Rattlesnake Canyon Grocery	65. Rancho grande	64. QUICK-Stop
69. Richter Supermarkt	68. Ricardo Adocicada	67. Reggiani Ceseird
72. Save-e-hot Markets	71. Santé Gourmet	70. Romero y tomillo
75. Spécialités du monde	74. Simons bistro	73. Seven Seas Imports
78. The Big Cheese	77. Suprêmes délices	76. Split Rail Beer & Ale
81. Tortuga Restaurante	80. Toms Spezialitäten	79. The CrackerBox
84. Vaffeljernet	83. Trails Head Gourmet Provisions	82. Tradigão Hipermarcados
87. Warten Herkku	86. Vins et alcools Chevalier	85. Victualles en stock
90. Wilman Kala	89. White Clover Markets	88. Wellington Importados
		91. Wolski Zajazd

right to left

9 Viewer

Report Viewer is a tool for viewing, printing, exporting [reports](#) and [dashboards](#).

Simple Group - Viewer

Print Open Save

Simple Group

- A
- B
- C
- D
- E
- F
- G
- H
- I
- K
- L
- M
- N
- O
- P
- Q
- R
- S
- T
- V
- W

F

Company	Address	Phone	Contact
1. Familia Arquibaldo	Rua Orós, 92	(11) 555-9857	Marketing Assistant
2. FISSA Fabrica Inter. Salchichas S.A.	C/ Moralarzal, 86	(91) 555 94 44	Accounting Manager

DashboardChristmas - Viewer

Christmas

Year

- ☒ 1977
- ☒ 1987
- ☒ 1997
- ☒ 2007

Categories

- ☒ (All)
- ☒ Average Gift Check,...
- ☒ Fake Tree, in pieces
- ☒ Holiday retail sales,...

Expenses for Christmas

Year	Amount
1977	119%
1987	130%
1997	100%

Amount of Sales

Year	Beforehand	Xmas eve	E-commerce
1977	50%	37%	12%
1987	50%	37%	12%
1997	50%	37%	12%

Where People Buy Christmas

Beforehand / Xmas eve / E-commerce

People Meet Christmas

Family / Alone / At Work

Page 2 of 4

Year	Name	Amount
1977	Average Gift Check, in dollars USA	
1987	Average Gift Check, in dollars USA	
1997	Average Gift Check, in dollars USA	
2007	Average Gift Check, in dollars USA	

9.1 Reports

This chapter will cover the following:

- [Viewer Structure](#);
- [Viewer Toolbar](#);
- [Viewer Status Bar](#);
- [Displaying Mode](#);

- > [Search Panel;](#)
- > [Resources Panel;](#)
- > [Sending Report via E-Mail;](#)
- > [Exporting Report;](#)
- > [Shortcuts.](#)

Viewer Structure

On the picture below you may find the basic elements of the report viewer.

Simple Group - Viewer

Print Open Save

Simple Group

- A
- B
- C
- D
- E
- F
- G
- H
- I
- K
- L
- M
- N
- O
- P
- Q
- R
- S
- T
- V
- W

F

Company	Address	Phone	Contact
1. Familia Arquibaldo	Rua Orós, 92	(11) 555-9857	Marketing Assistant
2. FISSA Fabrica Inter. Salchichas S.A.	C/ Morazarzal, 86	(91) 555 94 44	Accounting Manager
3. Folies gourmandes	184, chaussée de Tournai	20.16.10.16	Assistant Sales Agent
4. Folk och få HB	Åkergatan 24	0695-34 67 21	Owner
5. France restauration	54, rue Royale	40.32.21.21	Marketing Manager
6. Franchi S.p.A.	Via Monte Bianco 34	011-4988260	Sales Representative
7. Frankenversand	Berliner Platz 43	089-0877310	Marketing Manager
8. Furia Bacalhau e Frutos do Mar	Jardim das rosas n. 32	(1) 354-2534	Sales Manager

Count: 8

G

Company	Address	Phone	Contact
1. Galería del gastrónomo	Rambla de Cataluña, 23	(93) 203 4560	Marketing Manager
2. Godos Cocina Típica	C/ Romero, 33	(95) 555 82 82	Sales Manager
3. Gourmet Lanchonetes	Av. Brasil, 442	(11) 555-9482	Sales Associate
4. Great Lakes Food Market	2732 Baker Blvd.	(503) 555-7555	Marketing Manager
5. GROSELLA-Restaurante	5ª Ave. Los Palos Grandes	(2) 283-2951	Owner

Count: 5

H

Company	Address	Phone	Contact
1. Hanari Carnes	Rua do Paço, 67	(21) 555-0091	Accounting Manager
2. HILARIÓN-Abastos	Carrera 22 con Ave. Carlos Soubi	(5) 555-1340	Sales Representative
3. Hungry Coyote Import Store	City Center Plaza	(503) 555-6874	Sales Representative
4. Hungry Owl All-Night Grocers	8 Johnstown Road	2967 542	Sales Associate

Count: 4

I

Company	Address	Phone	Contact
---------	---------	-------	---------

Page 2 of 4 69%

- ① This panel contains menus which have the basic control commands of the report viewer.
- ② The tree of bookmarks of the output report. Using these bookmarks you can navigate through structure elements of a report.
- ③ The area where the report is shown.

- 4 The report thumbnails panel. Decreased copies of report pages are shown on this panel. The panel is used to quickly navigate throughout a report.
- 5 The status bar of viewer.

Toolbar

The main toolbar locates commands to control the report. Below is the structure of the toolbar with the description of each command.



- 1 Print a report. After activation of this command the printing dialog with parameters of printing will be displayed.
- 2 Open previously saved report. Any rendered report can be saved to .mdc or .mdz format for further preview.

Information

A report file may contain only a report; only a dashboard; both a report and a dashboard.

- If the report file contains only the report, then this report will be rendered and displayed in the report viewer.
- If the report file contains only the dashboard, then the report viewer will switch to the view mode of the dashboard, with the display of this panel.
- If the report file contains both the report and the dashboard, then the report viewer will switch to the view mode of the dashboard, with the display of this panel. To view the report, go to the tab with the name of the report page.

- 3 [Save the rendered report](#) to other file formats.
- 4 [Send the render report](#) via Email. The report will be converted to one of the file formats.
- 5 Show/hide the tree of bookmarks. If there are no bookmarks in the rendered report then the viewer will automatically hide the tree of bookmarks. If there are bookmarks in a report, then the viewer will automatically show the tree of bookmarks.
- 6 Opens the dialog for changing the basic parameters of the rendered report.

- 7 The Resources button. With this button, you can enable or disable the [resource panel](#) in the viewer. If the report does not contain resources that can be displayed in the viewer, this button will be disabled.
- 8 Show/hide the thumbnails of reports.
- 9 Enable the [search panel](#).
- 10 Run the full-screen mode of report showing. To exit this mode, you can use the Esc or Alt+F4 hot keys.
- 11 Change zoom of the report to display only one full page. More than one page by the width can be output.
- 12 The Two Pages button is used the zoom the report so that two pages could fit the viewer window by height.
- 13 The Multiple Pages button is used to call a menu in which you can select the number of pages by width and height.
- 14 Change the zoom of the report to fit the page width to the screen width.
- 15 The button is used to open the user manual page.

Information

In addition to the above commands, other buttons may be displayed on the toolbar:

- If the report contains editable fields, the **Editor** button will be displayed in the viewer. When you click this button, the edit mode of the report components will be activated.
- Commands are used to create, edit, delete, and customize pages of the rendered report.
- The **Close** button is used to close the preview tab or viewer window.
- The button is used to enable the [Dot-matrix mode](#).

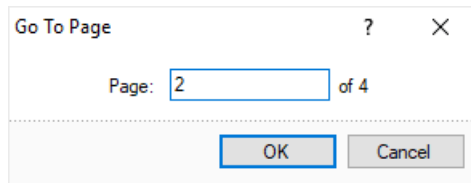
Status Bar

The status panel contains navigation controls in the report, report display modes, and its zoom.



- 1 Set the first page of a report as the current page.
- 2 Set the previous page of a report as the current one.

- 3 Show the number of the current page and the number of pages in a report. If you click on it, then it is possible to indicate the number of a page that should be the current one.



- 4 Set the next page of a report as the current one.
- 5 Set the last page of a report as the current page.
- 6 The buttons are used to switch display modes for pages.
- 7 The zoom control for the report.

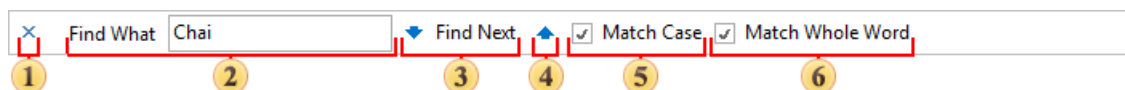
Displaying Mode

The viewer for WinForms supports three modes of viewing pages:

- >  Single page. In this mode, the current page of a report is shown in the window of the viewer. The picture below shows how this mode works.
- >  Continuous. In this mode, all pages are placed into one vertical line. The picture below shows how this mode works.
- >  Multiple Pages. In this mode as many pages in the selected zoom as they can fill the window of the viewer are shown. The picture below shows how this mode works.

Search Panel

The search panel is used to search for some text in the report. On the main toolbar, this option can be enabled by clicking the binocular icon. All controls for search are placed on a single panel.

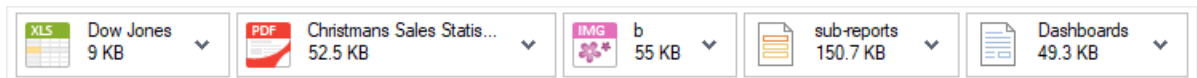


- 1 Close the search panel.
- 2 The field to put a text that should be found.
- 3 The button to run the search.
- 4 The button to run the search.
- 5 If the flag is set, then the search will be repeated considering the case.

- 6 If the flag is set, then the search will be done considering the whole word.

Resources Panel

You can display some resources which were added to the report in a separate panel in the viewer. To do this, when adding a resource in the report designer, select Available in the Viewer option. Then, click the Resources button in the viewer to display a panel with these resources.



Each resource in this panel can be viewed or saved.

Sending Report via E-Mail

Any rendered report can be sent via Email. Send a report via Email following the instruction below.

- The report is exported as a file. The file format is defined by the user in the menu Send Email;
- Then create a new message and attach a file to the Email;
- A dialog of the Email client is open by default, i.e. the wizard for sending Emails is invoked.

Exporting Report

Any rendered report can be converted to various formats, for example, to PDF, Excel, Word, etc. Report export has several stages.

- Click the Save button in the viewer;
- Select the type of file you want to convert the report into;
- Set export settings;
- Save the converted file.

See the chapter [Exports](#) to get more information about converting a report to other types of files.

Shortcuts

The list of keyboard shortcuts in the report viewer is as follows:

Shortcut	Actions
Ctrl+P	Print a report
Ctrl+O	Close a report
Ctrl+Shift+N	Add a new page to the report
Ctrl+Shift+D	Delete the current page of a report
Ctrl+Shift+E	Edit the current page of a report in the report designer
Ctrl+Shift+S	Change report parameters
Ctrl+B	Enable/disable tree of bookmarks
Ctrl+T	Enable/disable thumbnails
Ctrl+F	Search
Ctrl+E	Edit components which support editing
F2	Run the full screen mode of view a report
F3	Set zoom of a report view - one page
F4	Set zoom of a report view - two pages
F5	Set zoom of a report view - by page width
Ctrl+G	Jump to page
Shift+F2	Enable the page view mode - one page
Shift+F3	Enable the page view mode - continuous
Shift+F4	Enable the page view mode - some pages
Esc	The button is used to exit the Full Screen mode.
Alt+F4	The buttons are used to close the window, including the full-screen view.

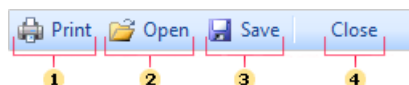
9.1.1 Dot-Matrix

The Dot-Matrix viewer is designed to preview the report before printing it on a dot matrix printer. The Dot matrix printer is used to print only the text and characters of pseudographics. Accordingly, the viewer displays only the text and borders of

objects as pseudographics characters.

Toolbar

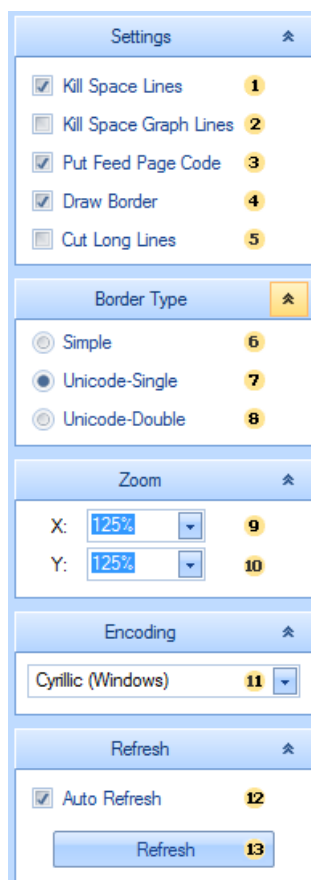
The picture below shows the toolbar of the Dot-matrix viewer:



- 1 Prints the report. After activation of this command the Print dialog will be displayed, where you will be asked to select printing options.
- 2 Opens a previously saved text file.
- 3 Saves the rendered report to a text file.
- 4 Closes the Dot-matrix viewer dialog box.

Bar Options

The Options bar is grouped, and each group is located on a separate tab. The picture below shows the options bar:



- ❶ The **Kill Space Lines** option removes empty rows in the text.
- ❷ The **Kill Space Graph Lines** option deletes the rows that contain only the "vertical line" pseudographics characters.
- ❸ The **Put Feed Page Code** option inserts the FormFeed symbol on the bottom of each page.
- ❹ The **Draw Border** option draws the borders of the objects of the selected type.
- ❺ The **Cut Long Lines** option cuts long lines of the text that is out of bounds of the text component.

- ❻ - ❸ options are the parameters of the border and define its type:
 - ❻ **Simple** border is drawn with + - | symbols and will be saved and printed in any encoding;
 - ❼ **Unicode-Single** single lines of pseudographics are used;
 - ❸ **Unicode-Double** double lines of pseudographics are used; Pseudographics characters are not present in each encoding.

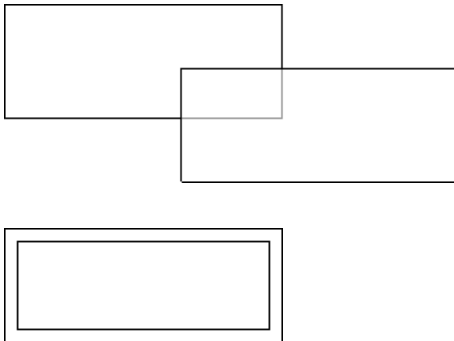
- ❾ - ❿ options. When exporting to text all the coordinates and sizes of objects are recalculated. Zoom **X** and Zoom **Y** coefficients control this conversion. By default, Zoom **X** = 100%, Zoom **Y** = 100%. With these values of the parameter, the A4 page is converted to text with sizes of 80 characters by width and 62 rows by height. This corresponds to using the **Pica** font of the printer (80 characters per line) and the line spacing **1,0**. The following values are frequently used:
 - Zoom **X** = 100% corresponds to using the Pica font of the printer (80 characters per line);
 - Zoom **X** = 120% corresponds to using the Elite font of the printer (96 characters per line);
 - Zoom **X** = 170% corresponds to using the condensed font of the printer (136 characters per line);
 - Zoom **Y** = 100% corresponds to the using the line spacing 1,0.

- ❶ Scale by the X-axis (Zoom X:), by page width.
- ❷ Scale by the Y-axis (Zoom Y:), by page height.
- ❸ Encoding is the encoding of the displayed text.
- ❹ The **Auto Refresh** parameter automatically updates the rendered report if any changes were applied to the settings.
- ❺ The **Refresh** button is used to update the rendered report manually.

9.1.2 Special Viewing Options in Web

Recommendations on Placing Components on Page

How the **StiWebViewer** helps to view a report? To view a report the **StiWebViewer** exports it to the **HTML** format. This HTML text is output in the part of the **StiWebViewer** that is used to show reports. The **HTML** file is formed as one big table. The output is done in the **HTML** format, so there are some limitations when report rendering. **Stimulsoft Reports** stores all objects separately but not as a table. When converting a report to the **HTML** format, the edges of the objects may be intersected. Such intersections may lead to the incorrect output of a report in the browser, though the report generator tries to output a report correctly with overlapping objects. Therefore, it is better not to overlap objects. Examples of components overlapping are shown in the picture below.



When report rendering, it is better to use the grid. It allows placing objects by the grid and getting correct viewing a report in the browser.

Using Graphic Objects in Report

Stimulsoft Reports offers a full set of graphic objects. The following graphic objects are used in web:

- Images;
- Charts;
- Graphic primitives (the Shape component);
- Bar-codes;
- RTF text;
- CheckBox.

The **Vertical Line**, **Horizontal Line**, **Rectangle** components are not graphic objects. Also, it is important to consider that vector images (WMF, EMF, EMF+) are not

supported by the **HTML** format. So they will be converted to images in the pixel format.

Information

All text components which contain text are rotated (the value of the Angle property is not 0) and converted to images. Besides, if the **ExportAsImage** property is set to **true**, then the text components will also be converted to images.

All components are joined with one rule - all of them will be converted as images. The **HTML** format does not allow passing an image in its body, and the report generator uses the cache of a page or the cache of a session for saving images. When a huge amount of calls to a report and multiple images in a report, there can be a huge amount of objects in the page cache or in the session cache. And these objects will take additional server memory. Therefore, it is better not to use many graphic objects. The **ServerTimeout** property can be used to set the time of objects caching in the page cache or in the session cache.

Information

HTML supports some formats of showing images (JPEG, PNG, BMP, and GIF). It is possible to set the image type using the **ImageFormat** property of the **StiWebViewer** component. Every type of image has its own advantages and disadvantages.

Displaying Images Placed on Server

If an image that should be output is static and can be saved on the server, then it is recommended to use the **ImageUrl** property of the **Image** component for showing images. When using this property, the report generator does not save the image in the cache of a page or the cache of a session but puts a link on this image. So the report generator saves nothing in the cache of a page or the cache of a session, and the server memory is not used for this.

Printing Reports

It is difficult to print a report from the browser. **Stimulsoft Reports** has three methods of printing:

- Converting a report to the PDF file and passing it to the end-user for printing.
- Printing a report with preview in the pop-up window.
- Printing without preview.

The first method is the best way. It allows printing a report more precisely. But it is required to have installed **Adobe Acrobat** to print a report to the PDF format. Often this requirement is a big disadvantage. When printing reports with preview the report generator creates a new pop-up window. A report in the HTML format is output in this window. The end-user may format this report and print it. In printing reports without preview the report generator prints a report without preview. When choosing the method of printing characteristics of each method should be considered.

Information

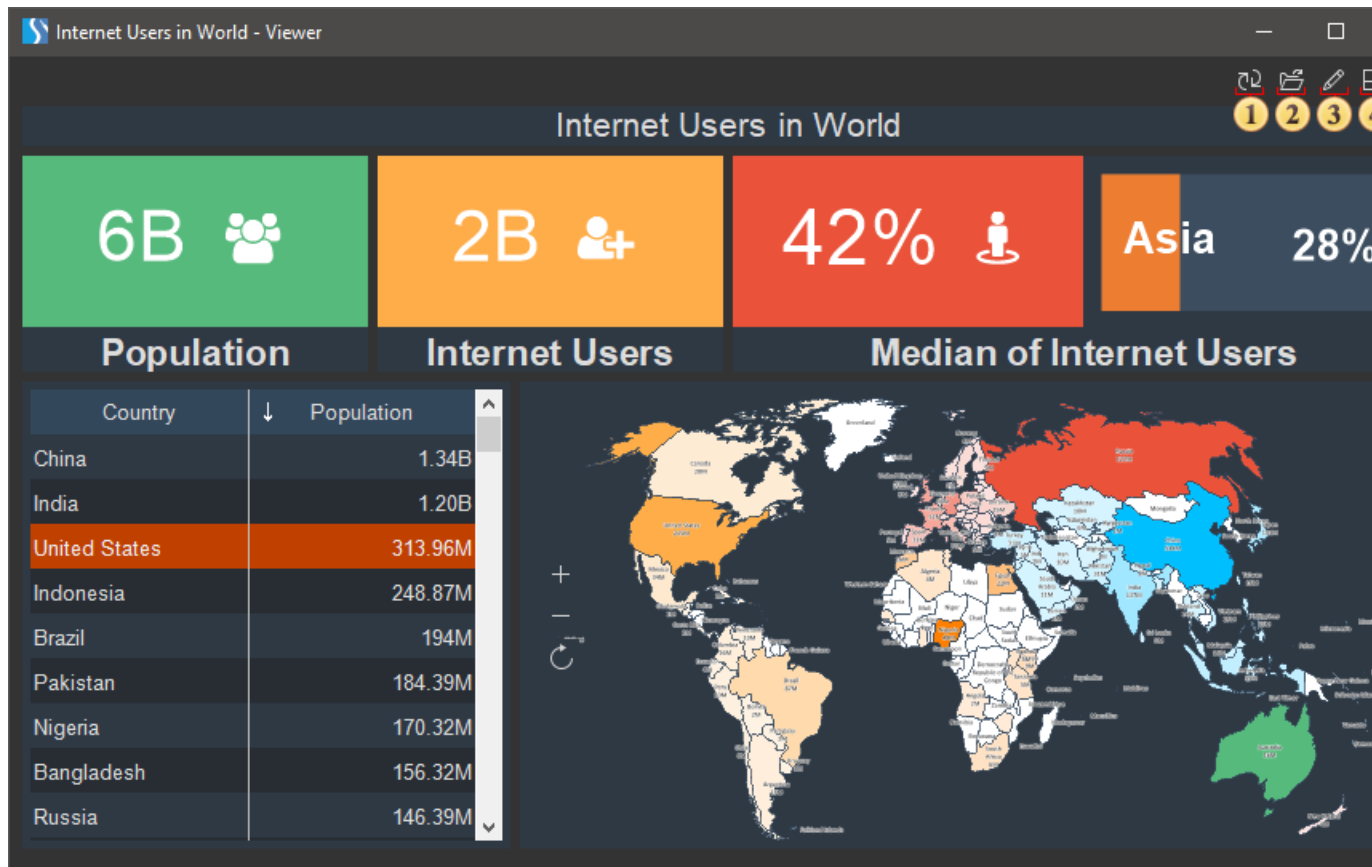
The **StiWebViewer** component cannot control page parameters (page size, page orientation, page margins) when printing using the 2 and 3 methods. All parameters are controlled with the browser.

9.2 Dashboards

The report viewer in the view mode for dashboard panels differs from the report viewer in the report view mode. The dashboard panel and its elements are stretched to the entire area of the viewer. Elements of the dashboard panel - [Combo Box](#), [Date Picker](#), [Tree View Box](#) are stretched only in width. Besides, the dashboard and its elements contain various control buttons.

Control buttons of the dashboard

Controls of the dashboard are located in the upper right corner above the dashboard panel.



- 1 The **Refresh** button is used to update the dashboard.
- 2 The **Open** button is used to open a previously saved report file.

Information

A report file may contain the following: only a report, only a dashboard, and both a report and a dashboard.

- If the report file contains only the report, then this report will be rendered and displayed in the report viewer.
- If the report file contains only the dashboard, then the report viewer will switch to the view mode of the dashboard, with the display of this panel.
- If the report file contains a report and dashboard, then the report viewer will switch to the view mode of the dashboard with this panel displayed. To view a report, in the report viewer window, go to the tab with the name of the report template page.

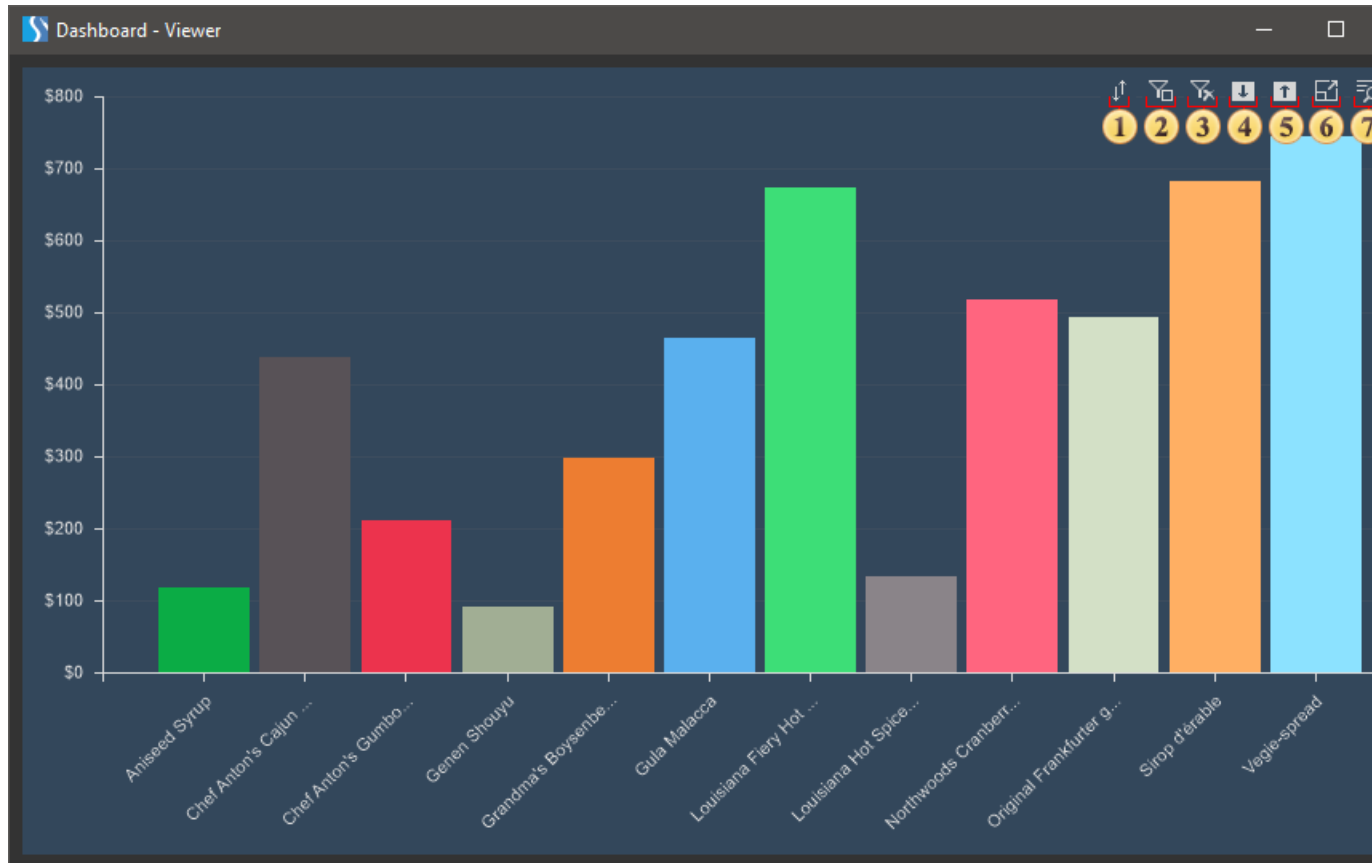
- 3 The **Edit** button is used to change the rendered dashboard in the report designer.

You should know that this can only be done if, before rendering the dashboard panel, the **Calculation Mode** property of the template is set to **Interpretation**.

- 4 The **Full Screen** button is used to view the dashboard in the full-screen mode. To exit this mode, you can use the Esc or Alt+F4 hot keys.
- 5 The **Save** button invokes a menu with various commands for controlling the dashboard panel. For example, [these are commands to convert the dashboard](#) to other files - PDF, Excel, and PNG.

Element controls

The control buttons of the dashboard elements are located in the upper right corner of the area of this element and are displayed when you hover over or select this element.



- 1 The **Sort** button calls a menu to define the data column and the sorting direction for the values of the current element of the dashboard panel.
- 2 This button is used to enable or disable the filtering mode for several segments.
 - If this button is enabled, then to filter data, you can select several segments on

one element of the dashboard.

➤ If the button is disabled, then when selecting the next segment, the previous filter will be reset.

For example, when filtering by map, in the single mode, when you click on each segment, other elements of the dashboard panel will only display related data with the current map segment. In the filtering mode by several segments, other elements of the dashboard will display the associated data with all selected segments of the map.

- 3 This button is used to delete all filters. When clicking it, all filters of the current element of the dashboard will be deleted.

Information

The filtering control buttons are present only in the dashboard elements that have active segments for filtering data - [Table](#), [Chart](#), and [Region Map](#).

- 4 This button is used to switch to the lower level of the drill-down of an element. This button is only displayed if the drill-down mode for the element is enabled.
- 5 This button is used to go to the upper level of the drill-down of the element. This button is only displayed if the drill-down mode for the element is enabled.
- 6 The **Full Screen** button is used to display a specific element of the dashboard over the entire area of the viewer.
- 7 The **View Data** button. When you click on this button, a window with the data used in the current element of the dashboard will be called.
- 8 The **Save** button invokes a menu with various control commands for a specific element of the dashboard. For example, commands to convert the current element of the dashboard to other files - PDF, Excel, and PNG.

Information

You should know that you can enable or disable displaying of the **Sort**, **Save**, **View Data** and **Full Screen** buttons in the viewer or on the preview tab. Select the element in the report designer, click the **Interaction** button on the **Home** tab of the Ribbon panel, and enable (or disable) the check box for the parameters if you want to display (or not display) the buttons of the element.

10 Exports

This section describes principles of saving rendered reports to different formats, basic characteristics of methods for export, export optimization guidelines data structure which are used in export methods. Stimulsoft Reports supports great many export formats to save rendered reports. Some users think that there are too many formats. But when you need to get file of definite format type, write only one string of code and the format is not PDF, HTML or RTF, only Stimulsoft Reports may help.

10.1 Available File Formats

A list of supported file formats is represented in the table below. All exports are joined into groups.

Export Name
PDF (Portable Document Format)
XPS (XML Paper Specification)
HTML (HyperText Markup Language)
HTML5 (HyperText Markup Language)
MHTML (MIME HTML)
TXT (Text File)
RTF (Rich Text)
Microsoft Word 2007/2010
ODT (Open Document Text)
Microsoft Excel
Microsoft Excel Xml
Microsoft Excel 2007/2010
Microsoft Power Point 2007/2010
ODS (Open Document Spreadsheet)
CSV (Comma Separated Values)
DBF (DataBase File)
XML (extensible Markup Language)
DIF (Data Interchange Format)

SYLK (Symbolic Link)
BMP (Bitmap)
GIF (Graphics Interchange Format)
PNG (Portable Network Graphics)
TIFF (Tagged Image File Format)
JPEG (Joint Photographic Experts Group)
PCX (PCExchange)
WMF (Windows MetaFile)
SVG (Scalable Vector Graphics)

10.2 Common Export Settings

These chapters describe export settings which are not unique and are met in a few exports. Therefore, to prevent describing them again and again, they are joined in this section.

10.2.1 Image Quality

Image quality is the compression degree of JPEG. If the compression is low then an image is of good quality and has a big file size. If the compression is high then an image is of bad quality and has a small file size. In Stimulsoft Reports an image quality can vary from 0.0 (the lowest quality) to 1.0 (the highest quality). If an image quality is 1.0 it does not mean that the image is saved without compression. The JPEG algorithm always compresses an image. The 1.0 quality means that an image quality will be the same as the quality of an original document but the file size will be smaller than the original. The 0.0 quality means that the image has the slightest similarity to the original document. In practice, the 0.9 quality does not differ greatly from the 1.0 quality but the image with a quality lower than 0.1 looks bad. By default, in Stimulsoft Reports the image quality is 0.75.

10.2.2 Image Resolution

Raster images such as scanned photos consist of small cells called pixels. Image resolution depends on the pixel size and is measured in pixels per inch, ppi, and sometimes in dots per inch, dpi. The higher the resolution, the more pixels the image contains and, accordingly, the larger the size of the image. In Stimulsoft Reports it is possible to set any image resolution. But when the resolution is increased by a factor of 2, the image size will increase by a factor of 4. Also it is not

good to set the image resolution more than the maximal resolution of an output device. For example, devices may have the following resolution:

- matrix printer - 72dpi
- monitor screen - 96dpi
- laser printers - 300dpi or 600dpi
- high-end printers - 1200dpi and higher.

By default the resolution is 100dpi.

10.2.3 Image Comparer

Sometimes a repetitive image can be met in a report, for example, company logos on the header of each page. If you do not process such duplicates, a report after export will have a large size. Some formats allow exporting only one image and then refer to it from different parts of a document. In Stimulsoft Reports, there is a special class that calculates check sums and searches and processes duplicates. Image processing may slow down the process of exporting, so it is possible to disable this feature. Each export has its own property to enable or disable image comparison. By default this property is always enabled.

10.2.4 Convert Digits to Arabic

Arabs do not use Arabic digits. They use Hindi digits and Arabic digits are auxiliary (the same as Roman digits for us). But, in any case, all digits are written from left to right. This property indicates whether it is necessary to convert Roman digits (ASCII 0030h-0039h) to Arabic digits (Unicode 0660h-0669h or 06F0h-06F9h, depending on the ArabicDigitsType property). In each type of export, the digits conversion can be set by its own property.

10.2.5 Arabic Digits Type

Arabic digits have two variants of drawing: Standard and Eastern. The property allows selecting the type of Arabic digits that will be used in export: Standard or Eastern; by default the Standard type is used. In each export the type of Arabic digits is enabled or disabled by its own property.

10.2.6 Divide Segment Pages

Stimulsoft Reports allows creating segmented pages. These are pages whose horizontal and/or vertical size is increased several times. Some applications, such as MS Excel, allow working with pages of any size, because breaking into small segments can be processed by the spreadsheet itself. Other applications, such as MS Word, cannot break pages into small segments. For such applications segmented pages are broken into separate pages on the stage of selected export; if the

property, for example, for Word2007, **StiOptions.Export.Word2007.DivideSegmentPages**, is set to **false** then pages are passed "as is" without breaking into segments. Each type of export has its own property for breaking segmented pages.

10.2.7 Remove Empty Space at Bottom

Many exports use the table mode of export. In this mode data is converted into one table. If, in the initial report, there is an empty space on the bottom of a page then the table is broken. The following property allows removing empty space at the bottom of a page and resulting table is not broken. If it is necessary to save the initial view of a document then it is necessary to set this property to **false**. In each type of export, its own property is used.

10.2.8 Use One Page Header and Footer

When exporting to Excel, the whole report is converted into one table. Headers and footers of a page break this table. This property leaves only the first header and the last header of a page. All other headers and footers are removed. If it is necessary to save the initial view of a document then it is necessary to set this property to **false**. For each type of export, its own property is used.

10.3 Formats with Fixed Page Layout

Stimulsoft Reports supports three exports with fixed page layout. What is the fixed page layout? This means that all elements of a page can be placed at any part of a page. In this case, if you change the position of one element, the position of other components will not be changed. These are the formats: **PDF** (Portable Document Format), **Microsoft PowerPoint 2007/2010** and **XPS** (XML Paper Specification).

10.3.1 PDF

PDF (Portable Document Format) – is a file format created by Adobe Systems for document exchange used to create electronic editions using the Adobe Acrobat package. The PDF format is a file text format that is used to publish documents on any platform and OS. The PDF document contains one or more pages. Each page may contain any components: text, graphic and illustrations, information, that provides navigation across the document.

Information

Export to PDF is based on the "Adobe Portable Document Format, Version 1.3, second edition", using some elements of latest format specifications.

PDF uses various compression methods to reduce the size of the file. To compress the text, the LZW ("Flate") algorithm is used. To compress pictures and omages, the JPEG or LZW algorithms are used. The JPEG algorithm is the compression with loss. It is recommended for full-color illustrations and images. The LZW algorithm is a lossless compression, it is recommended for illustrations and images with a small number of colors, for example graphics, chart, and schemes. To ensure the independence from the PDF fonts, the file contains a description for each font used in the document. The description includes the name, size, style and other font options. In the view document mode, if the font described in the document is available, then it is used. If the font is not available, it is replaced with a similar one with the same size and other characteristics. Fonts can be embedded in a document. This greatly increases the size of the file, but ensures that the document will be correctly displayed on any computer.

Export options in PDF

The screenshot shows the 'Export Settings' dialog box with the following elements and numbered callouts:

- Page Range:**
 - 1:** Radio button for 'All' (selected).
 - 2:** Radio button for 'Current Page'.
 - 3:** Radio button for 'Pages' followed by an empty text input field.
- Settings:**
 - 4:** 'Image Resolution' dropdown menu set to '100'.
 - 5:** 'Image Resolution Mode' dropdown menu set to 'Exactly'.
 - 6:** 'Image Compression Method' dropdown menu set to 'Flate'.
 - 7:** 'Allow Editable' dropdown menu set to 'No'.
 - 8:** 'Image Quality' dropdown menu.
 - 9:** Checked checkbox for 'Embedded Fonts'.
 - 10:** Checked checkbox for 'Export Rich Text as Image'.
 - 11:** Unchecked checkbox for 'PDF/A Compliance'.
 - 12:** 'Document Security' button.
 - 'Digital Signature' dropdown menu.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom right.

- 1 The checkbox **All** enables processing of all report pages.

- 2 The checkbox **Current Page** enables processing only the current (selected) report page.
- 3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start and end pages separated with "-". For example, 1,3,5-12.
- 4 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
- 5 The **Image Resolution Mode** parameter. Depending on the values of this parameter, a certain resolution will be applied to the images in the report:
- **Exactly** - all images after conversion will have the resolution specified in the Image resolution option;
 - **No more than**. If the original resolution of the image is less than specified in the Image resolution parameter, then the resolution of the image after the conversion of the report will be equal to the original one. If the original resolution is greater than the one specified in the Image Resolution settings, the image resolution will correspond to the value of the Image Resolution settings.
 - **Auto**. The image after the report is converted will have the original resolution.
- 6 The **Image Compression** Method allows defining the mode of image compression in the PDF file. The following modes are available:
- JPEG - compression with loss;
 - Flate - compression without loss;
 - Simple - monochrome mode without dithering;
 - Ordered - monochrome image with dithering;
 - FloydSt. - the most precise monochrome mode with dithering.
- 7 The option **Allow Editable** provides the ability to enable the mode in which, after exporting, it will be possible to modify components with the **Editable** property enabled. If **No** is selected, the **Editable** property will be ignored. If you select **Yes** then you can only edit components with the **Editable** property enabled.

Information

Please note that restrictions on editing a Word document do not use robust encryption algorithms resistant to cracking. Therefore, for the security of the

document it is recommended to use a [digital signature](#) and [security group](#).

8 The **Image Quality** will be available only if you select the compression method JPEG. This option allows you to change the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.

9 The flag **Embedded Fonts** provides the ability to embed the font files into the created PDF file. If this option is enabled, then when you export a report, the files of all the fonts used in the report will be [included in a PDF](#) file, and fonts in the resulting file will be displayed correctly in any PDF viewer. If the property is disabled, then to display the file correctly all the fonts used in the report must be installed on the computer.

Information

When editing a text in the rendered report, the font may be different from the standard. Therefore, when the editing is performed by some other font, then this font will be embedded in the PDF file. This may lead to a significant increase of the size of the PDF.

10 The flag **Export Rich Text as Image** enables/disables the conversion of the RTF text into the image. If the option is disabled, the Rich Text is decomposed into simpler primitives supported by the PDF format. The Rich Text with complex formatting (embedded images, tables) cannot always be converted correctly. In this case it is recommended to enable this option.

Information

When you enable this option, the file size may increase significantly.

11 The flag **PDF/A Compliance** enables/disables support for standard long-term archiving of electronic documents. Compliance ensures that the document will have the same look in later versions of Adobe Acrobat. Enabling this option will also automatically include the options Embed Fonts and use Unicode.

12 The [Document Security](#).

10.3.1.1 Embedded Fonts

By default all embedded fonts are optimized. Characters which are not used in a report are excluded. It allows decreasing the size of a file. But, for correct work of the editable field, the font should be complete. Therefore, for fonts, which are used in editable fields, optimization is not done. This increases the output file size. If Asian languages are used, the file size can be 15-20mb.

10.3.1.1.1 Font Styles

There is one peculiarity of the export: all fonts for embedding to PDF files should be installed in the system. And for each font style a single font file should be installed.

For example, for the Arial font 4 files should be installed:

- "arial.ttf" - the regular style,
- "ariali.ttf" - the italic style,
- "arialb.ttf" - the bold style,
- "arialbi.ttf" - the bold-italic style;

This font is embedded correctly and all styles of this font can be output.

The Lucida Console font is usually represented with one file that contains the regular style (other styles are generated by the system). Therefore, when embedding such a font to the PDF file, only **regular** style will be output, instead of all styles of this font.

10.3.1.2 Digital Signature

A digital signature is a requisite of an electronic document used to protect this document from falsification. The signature is a result of cryptographic conversion of information using the **closed key** of the electronic signature and allows identifying the owner of the certificate of the key of the signature. Digital signatures are widely used to verify the authenticity and integrity of electronic documents.

10.3.1.2.1 Keys

A key is the secret information that is used by the cryptographic algorithm when creating and checking the digital signature. Usually, a pair of keys is used for a digital signature:

- Private key: this key is known only to the owner;
- Public key: this key is available to all users of the cryptographic system.

In Digital Signature algorithms the signature is signed with the secret key of a user and is verified with the public key. So anyone may check which user put this signature. Keys are bound with specific certificates.

10.3.1.2.2 Public Key Certificate

Public key certificate EDS is a digital document confirming the correspondence between a public key and information identifying the owner of the key. It contains information about the owner of the key, information about the public key, its purpose and scope, the name of the certification authority and so on. Each certificate can be also connected with a private key. Storage of certificates is called a certificate authority. Certificate store often contains numerous certificates, possibly derived from different CAs. Certificates in the repository are organized into folders (categories) that have their own hierarchy. To access any certificate, you must specify the name of the repository (category) in which it is located. To create a digital signature, a private key is required. Certificates that contain private keys are usually located in one of two repositories - the repository of the current user or the local computer store. To select the storage you want to use the property **Use Local Machine Certificates**. By default it is set to **false**, and the search is made in the certificate store of the current user (CERT_SYSTEM_STORE_CURRENT_USER). If it is set to **true**, the search will be made in the local computer store (CERT_SYSTEM_STORE_LOCAL_MACHINE).

10.3.1.2.3 Choosing Certificate

There are two ways to create the digital signature:

- using the interface of the system library of cryptography;
- directly by specifying the string - certificate identifier.

In the first case it is necessary to set the **Get Certificate From CryptoUI** property to **true**. When exporting, the menu for selecting certificate from the current storage of certificates will be displayed. It is necessary to select one certificate from the list of available ones.

❗ **Note:** In web applications this way cannot be used, because the menu of selecting a certificate is displayed on a computer on which the export is in process, in other words on the server. So the user cannot see and cannot do anything with it. In other words the export endlessly waits when the certificate will be selected.

In the second way, it is necessary to use the **SubjectNameString** property and write in it the string - certificate identifier. The identifier is the name of the certificate owner (full string) or a part of the name (substring).

10.3.1.2.4 Placing Digital Signature Identifier

By default the digital signature identifier is placed on the top of the first page of a document in the right corner, in the margins. If it is required to set another position

of the digital signature identifier, then it is necessary to place the text box with the description of the digital signature, and to set the **Tag** property to "**PdfDigitalSignature**".

10.3.1.3 Encryption

A PDF document can be encoded to protect the content from unauthorized access. A user may set the following parameters of encryption. The Document Security is a set of parameters with which you can protect documents from unauthorized access to them:

- In the field **User Password**, specify the password required to open the document. If you set the password, access to the opening file is limited and will occur only if you specify the correct password. If no password is specified, i.e. the field is left blank, then the file may be opened without restrictions.
- In the field **Owner Password**, specify the owner password to access the file. If you specify a password, access to the file operations, such as printing, copying etc. will be available only after entering a password. If no password is specified, i.e., the field is left blank, the file operations will be available without restriction.
- The flag **Allow Print Document** enables/disables the restricted access to the printing operation. If this option is disabled, specifying the owner password is required to perform this operation. If enabled, then printing will be available for everyone who opens the document.
- The flag **Allow Modify Contents** enables/disables access to editing the text in the report. If this option is disabled, specifying the owner password is required to perform this operation. If enabled, then editing will be available for everyone who opens the document.
- The flag **Allow Copy Text and Graphics** enables/disables access to copying the information. If this option is disabled, specifying the owner password is required to perform this operation. If enabled, then copying will be available for everyone who opens the document.
- The flag **Allow Add or Modify Text Annotations** enables limited access to work with the annotations in the document. If this option is disabled, specifying the owner password is required to perform this operation. If enabled, then this operation will be available for everyone who opens the document.
- The flag **Encryption Key Length** allows selecting the length of the encryption key. The longer the length is, the more difficult it is to decrypt the document, and, therefore, the safety of the document is higher.

10.3.1.3.1 Passwords and Access Permission

According to the PDF specification, it is possible to set the access and two passwords: the public password and the owner's password. If there are no passwords and

everything is allowed to do with the document, then the document is not encrypted. If even one password is set or access is not allowed, then the document is encrypted.

The public password allows opening and viewing documents, and also some actions are allowed:

- edit document;
- copy text and graphics from the document;
- add and change commentaries;
- print document.

Information

The owner password provides full access to the document, including the ability to change passwords and access permissions. If an owner password is set and no user password is set, no password is required when opening the document.

10.3.1.3.2 Key Length

The PDF Reference defines 40-bit, 128-bit, and 256-bit encryption. By default, a 40-bit key is used.

256-bit and 128-bit keys are more secure than the 40-bit key. But in some countries the key length of encryption is limited.

Quote from PDF Reference:

"A PDF document can be encrypted to protect its contents from unauthorized access. The encryption of data in a PDF file is based on the use of an encryption key computed by the security handler. Different security handlers can compute the key in a variety of ways, more or less cryptographically secure. In particular, PDF's standard encryption handler limits the key to 5 bytes (40 bits) in length, in accordance with U.S. cryptographic export requirements in effect at the time of initial publication of the PDF 1.3 specification."

10.3.1.4 Compatibility of Different Versions

The information below shows the compatibility of Adobe Acrobat versions.

Adobe Acrobat 5:

- the PageScaling option from the file is ignored. By default the option in parameters of Adobe Acrobat is set to "None" but "Fit to printable area" value is

used.

Adobe Acrobat 5 & 6:

- when editing Adobe Acrobat does not recognize the Unicode - only Latin characters are output (Latin-1 encoding), other characters are output as dots;
- if the "**UseUnicode**" option in export parameters is enabled, then it is necessary to embed fonts (the "**Embedded Fonts**" option), otherwise they will be output incorrectly.

Adobe Acrobat 7:

- it is necessary to embed fonts to the PDF file. Otherwise, when editing, any font will be replaced on the default font (usually on Tahoma).

Adobe Acrobat 7 Reader:

- there are some problems with 7.0.5 - 7.0.9 versions. In these versions the field is not included into the editing mode, if there are non Latin characters present in the text field (different from Latin-1).

Adobe Acrobat 9

- Support for 256-bit encryption. In earlier versions, files with 256-bit encryption algorithm will not be opened.

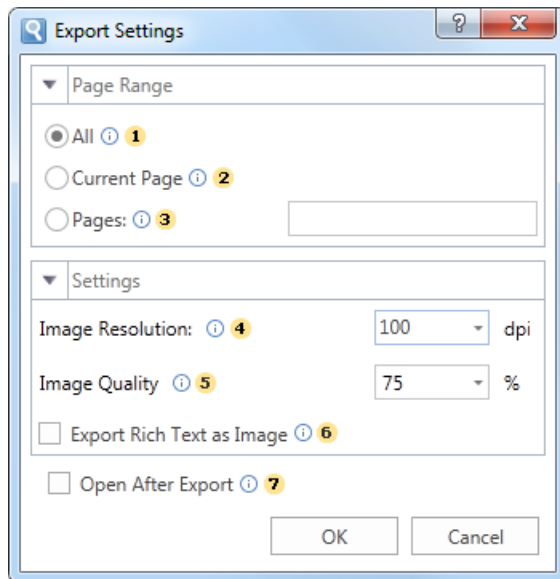
Adobe Acrobat X

- Support for 256-bit encryption with improved internal calculations, and hence with a more crypto-stable algorithm.

10.3.2 XPS

XPS (XML Paper Specification) is an open graphic format of fixed page layout on the base XML (more precisely XAML-based) used to store printed output as electronic documents. This format was developed by Microsoft as an alternative to the PDF format. The XPS document format consists of structured XML markup that defines the layout of a document and the visual appearance of each page, along with rendering rules for distributing, archiving, rendering, processing and printing the documents. The markup language for XPS is a subset of XAML that allows including vector graphic elements, using XAML to mark up the WPF-primitives. The XPS is a ZIP-archive that contains the files which make up the document. The archive includes page mark up (one file per each page of a document), text, embedded fonts, raster images, 2D vector graphics and other information.

Export options in XPS



- ❶ The checkbox **All** enables processing of all report pages.
- ❷ The checkbox **Current Page** enables processing only the current (selected) report page.
- ❸ The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
- ❹ The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
- ❺ The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.
- ❻ The flag **Export Rich Text as Image** enables/disables the conversion of the RTF text into the image. If the option is disabled, the Rich Text is decomposed into simpler primitives supported by the PDF format. The Rich Text with complex formatting (embedded images, tables) cannot always be converted correctly. In this case it is recommended to enable this option.

⚠ **Note:** When you enable this option, the file size may increase significantly.

- ❼ The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports) using the default program for these

file types.

10.3.3 Microsoft Power Point

Important

For desktop versions, there are no specific size restrictions; the size of the opened file is limited by the free memory of the computer. For web versions, there are limitations: the timeout for download/save operations is set to 1 minute, and usually, files larger than 1 gigabyte cannot be saved.

Microsoft PowerPoint is a presentation program developed by Microsoft. It is a part of the Microsoft Office suite. PowerPoint presentations consist of a number of individual pages or "slides". Slides may contain text, graphics, movies, and other objects, which may be arranged on the slide. The presentation can be printed, displayed on a PC, or navigated through at the command of the presenter. In Stimulsoft Reports each report page corresponds to one slide.

Export Settings

Microsoft PowerPoint File - Export Settings

Page Range

☒ All

☐ Current Page

☐ Pages

Enter page number and/or pages ranges separated by commas.
For example: 1, 3, 5-12

Settings

Image Resolution dpi

Image Quality %

☒ Export Rich Text as Image

☒ Open After Export

OK Cancel

- ❶ The parameter for setting the range of report pages to be rendered and exported.
- ❷ The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
- ❸ The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.
- ❹ The flag **Export Rich Text as Image** enables/disables the conversion of the RTF text into the image. If the option is disabled, the Rich Text is decomposed into simpler primitives supported by the PDF format. The Rich Text with complex formatting (embedded images, tables) cannot always be converted correctly. In this case it is recommended to enable this option.
- ❺ The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports) using the default program for these file types.

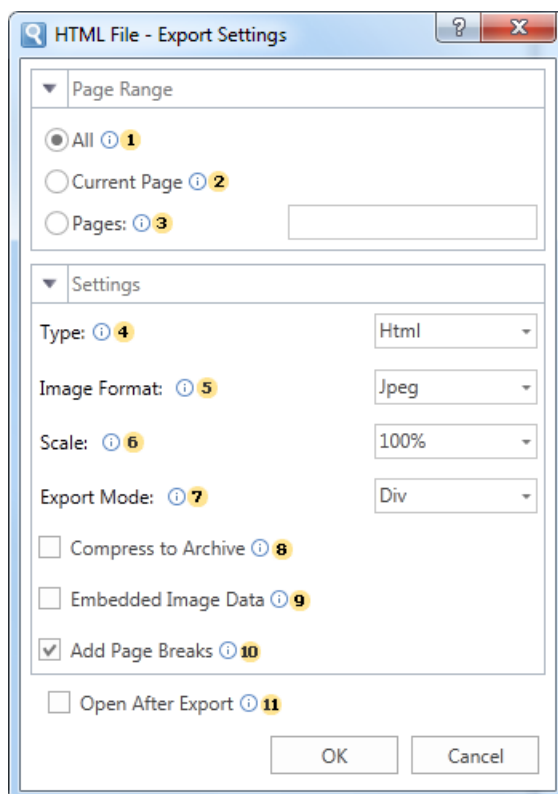
Information

When you enable **Export Rich Text as Image** option, the file size may increase significantly.

10.4 Web Documents

There are two formats **HTML** (HyperText Markup Language), **HTML5** and **MHTML** (MIME HTML) are described in this chapter. The first and second formats are used for web page layout. The second format is a web page archive format used to bind resources together with the HTML code into a single file.

Export options in Web



- ❶ The checkbox **All** enables processing of all report pages.
- ❷ The checkbox **Current Page** enables processing only the current (selected) report page.
- ❸ The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
- ❹ The option **Type** provides the ability to determine a type of the file the report will be converted into.

⚠ **Note.** If **Html5** is selected the following additional options are available:

- **Continuous Page**, which provides the ability to set the location of pages in the report as a vertical strip;
- The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file;
- The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.

- 5 With the **Image Format** it is possible to specify the format of images, which will be transformed into the image of the report.
- 6 The option **Scale** provides the ability to determine the size (scale) of report pages and items of the report after the export.
- 7 The option **Export Mode** provides the ability to determine the markup for the HTML page. The page layout is possible using tags div, span or table.
- 8 The flag **Compress to Archive** provides the ability, when exporting to HTML, to get the zip file after conversion. If this flag is on, the report processing occurs first, and then all the files and folders will be packed in a zip archive.
- 9 The flag **Embedded Image Data** provides the ability to embed images directly into the HTML file. In this case, it is necessary to consider that the correct displaying of this file depends on the browser being used. Not all browsers support the option to view the HTML file with embedded pictures.
- 10 The flag **Add Page Breaks** enables/disables the visual separator of report pages. If, for example, a few pages of the report are exported to an HTML page, it is not always possible to identify the beginning of the report page. To do this, you should select this option, then the beginning of the report page will be indicated by the appropriate delimiter.
- 11 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports) using the default program for these file types.

10.4.1 HTML

HTML (HyperText Markup Language) is the predominant markup language for Web pages. The majority of web pages are created using the HTML language. The HTML language is interpreted by a browser and shown as a document. HTML is a tag language of the document layout. It provides a means to describe the structure of text-based information in a document by denoting certain text as links, headings, paragraphs, lists, etc. Elements are the basic structure for HTML markup. Elements have two basic properties: attributes and content. Each attribute and each element's content has certain restrictions that must be followed for an HTML document to be considered valid. An element usually has a start tag (e.g. <element-name>) and an end tag (e.g. </element-name>).

10.4.1.1 Export Modes

There are three modes of export to HTML:

- **Div** - in this mode all objects of a report are converted to the **div** block element; the report is converted precisely, except for vertical text alignment;
- **Span** is the same as the Div mode but the span element is used;

➤ **Table** - in this mode all objects of a report are converted to the **table** block element; in this mode the vertical text alignment is correct but, if the WordWrap is disabled then a problem may occur with long lines of text.

10.4.1.2 Export Images in HTML Format

Also, it is possible to specify how to export images of a document. Images with transparency can be saved to the PNG format. It is important to remember that some browsers (for example, Internet Explorer 6) do not support images with transparency.

10.4.1.3 Compatibility of Different Versions

The following minimum web browser versions are required for correct HTML export:

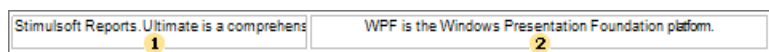
- Internet Explorer 6.0 and higher;
- FireFox 1.5 and higher;
- Opera 7.5 and higher.

10.4.1.4 Exporting Text Components

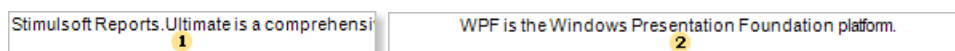
When exporting reports to the **HTML** format, it is necessary to take the following features of this format into consideration:

- if a text does not fit a table cell horizontally, then a browser automatically carries a text to the next page;
- if a text does not fit a table cell vertically, then a browser automatically increases height of a table cell.

Such a behavior of a text can be obtained in the **Net** and **WPF** viewers (**Win**-viewers) by setting **WordWrap** and **CanGrow** properties of a text component to **true**. In the **HTML** format (and in the **Web** viewer correspondingly), no matter what is the value of these two properties, the text component will be shown the same way. For example, put 2 text components on a report template. Insert long text to the first component and a short one to the second. Set **WordWrap** and **CanGrow** properties to **false**. The picture below shows a report template:

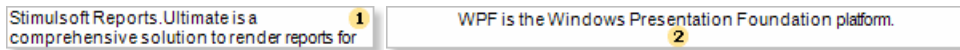


After rendering a report in the **Win**-viewer, a report will look like on a picture below:

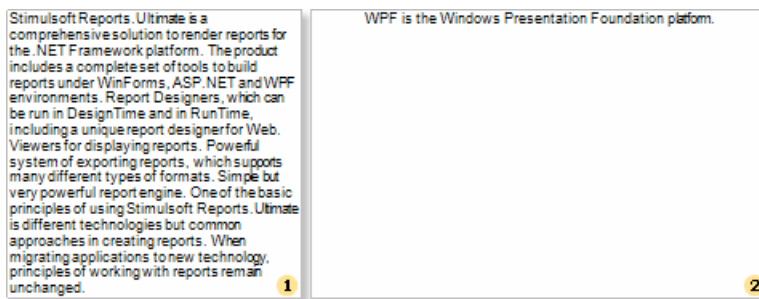


As seen on the picture, a text in the first text component did not fit and was cut, in the second text component the text fits a text component and shown without changes. Now set the **WordWrap** property to **true** for both components. After

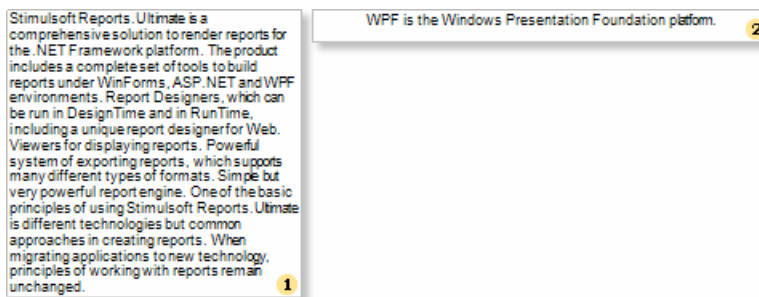
rendering, a report will look in the **Win** viewer like on the picture below:



As seen on the picture, a text in the first text component is wrapped to the second row. But the component is not grown in height, so the text does not fit this component and was cut. In the second component the text fits this component and is shown without changes. In both ways the text in the **HTML** format in the **Web** will look the following way:



If to set the **Can Grow** properties of these texts components to **true**, then the report will look the same in the **Win** viewer and **Web** viewer:



10.4.2 HTML5

HTML5 is a language for structuring and presenting content for the World Wide Web, and is a core technology of the Internet originally proposed by Opera Software.[1] It is the fifth revision of the HTML standard (created in 1990 and standardized as HTML4 as of 1997)[2] and as of December 2011 is still under development. Its core aims have been to improve the language with support for the latest multimedia while keeping it easily readable by humans and consistently understood by computers and devices (web browsers, parsers, etc.). HTML5 is intended to subsume not only HTML 4, but XHTML 1 and DOM Level 2 HTML as

well.

10.4.3 MHT

MHTML (MIME HTML) is a web page archive format used to bind resources which are typically represented by external links (such as images, Flash animations, Java applets, audio files) together with HTML code into a single file. This file is a web archive and has the «**.mht**» extension. The content of a file is written as an Email message using the MIME standard: at the beginning of the file, the HTML file is written. Then all resources in the base64 encoding with headers are written. Internet Explorer, Opera, and Microsoft Word can work with the MHTML format.

10.5 Text Formats

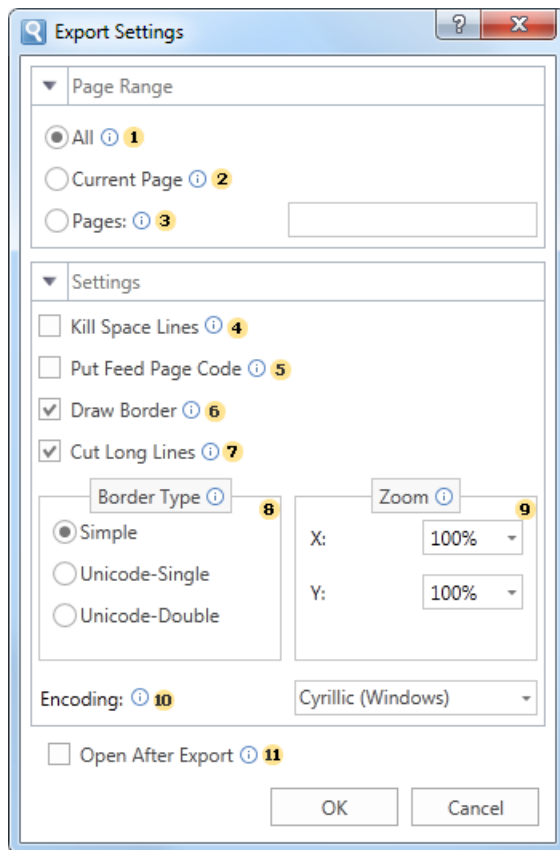
This chapter describes export formats of text files, in other words, the files that are used to create text documents.

10.5.1 TXT

Text file (TXT) is a kind of computer file that is structured as a sequence of lines. A text file exists within a computer file system. The end of a text file is often denoted by placing one or more special characters, known as an end-of-file marker, after the last line in a text file.

Text files are commonly used for storage of information.

Export options in TXT:



- ❶ The checkbox **All** enables processing of all report pages.
- ❷ The checkbox **Current Page** enables processing only the current (selected) report page.
- ❸ The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
- ❹ The checkbox **Kill Space Lines** provides the ability to delete blank lines in the document. If there are blank lines in a report, setting this flag will make the report more compact, but it should be taken into consideration that removing those lines can disrupt the formatting of other report elements.
- ❺ The checkbox **Put Feed Page Code** provides an opportunity to select the end of the page with a special character.
- ❻ The checkbox **Draw Border** enables/disables drawing borders of components with graphic symbols.
- ❼ The checkbox **Cut Long Lines** provides the ability to cut lines by the margins of the component. If this option is enabled, the line length is limited to the margins of the component. If this option is disabled, the line will be displayed in its full length.
- ❽ The option **Border Type** is used to enable a certain type of borders of

components. The options are:

- **Simple** - drawing the borders of components with characters +, -, |.
- **Unicode-Single** - drawing the borders of components with box-drawing characters.
- **Unicode-Double** - drawing the borders of components with double box-drawing characters.

9 The option **Zoom** provides the ability to set the report zoom horizontally and vertically.

10 The option **Encoding** provides the ability to set the text encoding of the report after exporting.

11 The checkbox **Open After Export** enables/disables the automatic opening of the created document (after completion of exports) using the default program for these file types.

10.5.1.1 Border Types

The border in the text mode can be drawn using simple symbols or using pseudographics. Using the **BorderType** property it is possible to choose the mode of border drawing. It may have the following modes:

- Simple - drawing a border using simple symbols such as "+", "-", and "|";
- UnicodeSingle - drawing a border using the symbols of pseudographics; symbols of a solid border are used;
- UnicodeDouble - drawing a border using the symbols of pseudographics; symbols of a double border are used.

10.5.1.2 Column Width

When exporting to the text format, all coordinates and sizes of objects are recalculated to get the text appearance the same as it is in a report. You can control the conversion by changing the zoom coefficients of ZoomX and ZoomY. The width of the columns of the output text is proportional to the width of the initial report. If you want to change the column width, it is possible to use the following methods:

- change the width of a column: it is necessary to specify the column width in characters in the **Tag** text box; the width will be set only for those lines which contain this text box.

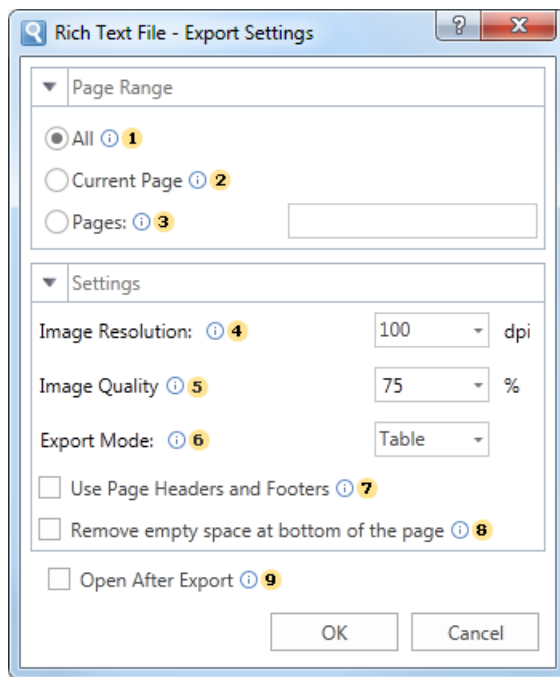
10.5.1.3 New Export Mode

The old/new export mode is set using the **UseOldExportMode** property. The new mode is created on the basis of the StiMatrix: if the Word Wrap is enabled and a text cannot be placed in a cell then the cell height is increased automatically. By default the new mode is enabled.

10.5.2 RTF

Rich Text Format (RTF) is a free document file format developed by Microsoft for cross-platform document interchange. The first version of the RTF standard appeared in 1987. Since that time format specification was changed and added. RTF-documents are supported by many text editors.

Export options in RTF:



- ❶ The checkbox **All** enables processing of all report pages.
- ❷ The checkbox **Current Page** enables processing only the current (selected) report page.
- ❸ The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
- ❹ The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
- ❺ The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.

6 The checkbox **Export Mode** provides the ability to define the presentation of the report data after export. If you select Table, then, after exporting, the entire report will look like a table, where each report component is a table cell. All components are located in different cells with relations created between them. If the Frame is selected, then, after export, each component will be a single frame, but without relations between them.

7 The checkbox **Use Page Headers and Footers** is used to define the Page Header and Footer as the header and footer of the Word document. If this option is not set, then, after exporting, page header and footer will be a table cell or an individual frame. In case of editing a report they may change its location. If this option is enabled, the data bands will be output as objects: a header and footer in the Word document.

! **Note:** If the checkbox **Use Page Headers and Footers** is on, it should be taken into consideration that, in this case, the height of the lines will be minimum allowable.

8 The checkbox **Remove Empty Space at Bottom of the Page** is used to display data one after the other while minimizing empty space at the bottom of the page. If this option is enabled, then, if empty space is available, the part of data from the next page will be moved to the empty space. If this option is disabled, the empty space is ignored and the report will be displayed in the viewer or in the tab Preview.

9 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports) using the default program for these file types.

10.5.2.1 Export Modes

The export to the **RTF** format has 2 basic modes:

- **Frames** - in this mode all objects of a report are converted to the **frame** rtf-objects; the report is converted precisely, but it is difficult to edit such a document.
- **Table** - in this mode all objects of a report are converted to the single table; when converting, objects can be changed, but this document can be easily edited, and, therefore, this mode is more frequently used and this mode is the default mode of this export.

Also there are 2 modes of operation, which are obsolete and retained for compatibility:

- **WinWord** - similar to Frames, but all the objects are passed as "frame" objects of MS-Word.
- **TabbedText** - the same as the export to the Text format, the position of a text is

set using blank spaces and tabulations.

10.5.2.1.1 Table Mode

In this mode, the entire report is converted into one large continuous table. Some objects may be modified during the conversion, but the resulting document is very convenient to edit.

Depending on the value of the **Use Page Headers and Footers** property the report is exported as follow:

- value is set to **false** - the report is exported "as is" and will look the same as in preview;
- value is set to **true** - the report is additionally processed, all changes are described in the text below.

The list of document changes:

- PageHeaders and PageFooters are exported as MS-Word objects. So they are cut from the table and other bands are converted into a single page. It is very convenient because it is easy to correct the document, for example, to put or edit text in cells, change the cell size; all data are moved, and headers and footers of a page stay on their place. (**Notice:** the header and the footer are exported from the first page of a report, others are ignored; in addition, an improvement was made: now the header is searched on the second page; if the property PrintOn of this header is set to ExceptFirstPage, then everything is exported correctly (using the RTF tags) - the header will not be output on the first page.
- If the PrintOnAllPages property of the Header is enabled, then it is exported as the table header, and is correctly output on each page.
- The height of rows is not exported (the "not set" mode; by default the "precise" mode is set).
- If the **Tag** field is not empty, then the content of the **Tag** field is exported. The **Text** field is not exported. The following expression can be used to change MS-Word commands:

Name	Description
#PageNumber#	The number of the current page (PAGE)
#TotalPageCount#	Total number of pages in the document (NUMPAGES)
#PageRef Bookmark#	The number of pages on what the

	bookmark is placed (PAGEREF)
--	------------------------------

For example, the following expression can be written in the **Tag** field:

Page #PageNumber# of #TotalPageCount#

When exporting, #PageNumber# and #TotalPageCount# will be substituted on the "Page number" field and "Total Page" field. And they will be automatically changed.

The following string-commands can be written in the **Tag** field:

Name	Description
rtfparagraph	The TextBox, RichTextBox and Image content is output as simple text, in the table break. It is supposed that this is the only component in the row of text, so other components in this row are ignored.
rtfnewpage	The page break is put before the text box

Also it is possible to export a separate sheets of a template to separate sections of the document with the headers/footers. To do this, use the **ExcelSheet** property. In this case, all pages of a report with the same value of the ExcelSheet property are combined in groups, then each group is exported as a separate section of the document with its headers/footers. By default, this property is not filled, and the report is exported as a single partition.

10.5.2.2 Issues

MS-Word: if you set the top and bottom margin of one of the cells in the table row, the same margin will be set in all cells of the row. Therefore, if you set the top and bottom margins of the text box, then, after exporting, the same margin will be set for the row of the table and the text will be moved. In OpenOffice this works without problems.

10.5.2.3 Compatibility of Different Versions

The RTF format is based on the RTF specification version 1.4 from 9/1995. The RTF files can be opened in Microsoft Word starting with the 97 (Office 97) version. In Microsoft Word 95 the RTF will have the following limitations:

- does not support vertical alignment in cells;
- does not support some parameters of a page;
- some colors are not shown correctly.

10.5.3 Word

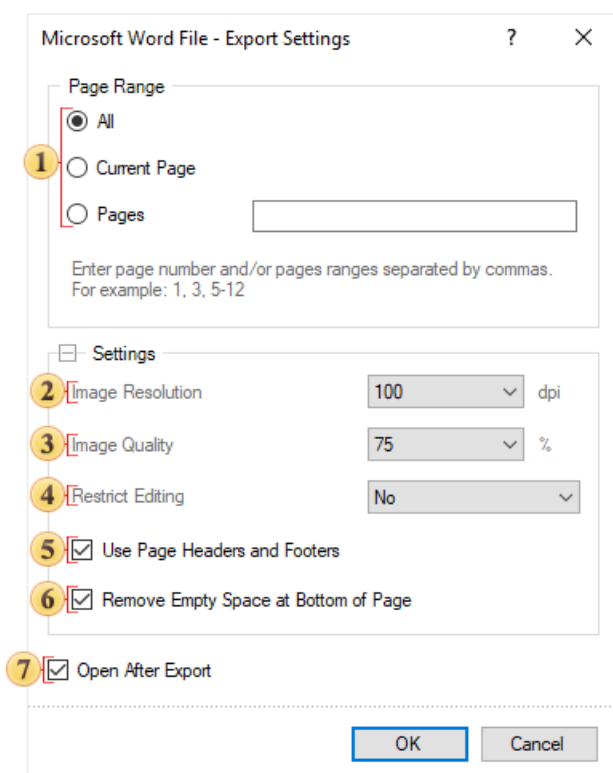
Important

Word can open max. size of the files:

- Plain text: 32 MB;
- Document with images: 512 MB.

Microsoft Word is a text processing software produced by Microsoft. It is a component of the Microsoft Office system. The first version was released for IBM PC's running DOS in 1983. Later there was a release for Apple Macintosh (1984), SCO UNIX, and Microsoft Windows (1989). Microsoft Word is the most popular text processor. Starting with the first versions, MS Word could write files in binary code with the «.doc» extension. The Word specification was secret and only in 2008 was published. The latest version of **Word 2007/2010** "uses by default" the XML based format: Microsoft Office Open XML. For a new format the «**.docx**» file extension is used. This format is a zip-archive that contains a text as XML, graphics, and other data. When exporting, a report is converted into one table. Such a document is easy to edit.

Export Settings



- 1 The parameter for setting the range of report pages to be rendered and exported.
- 4 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
- 5 The **Image Quality** allows changing the image quality. Remember that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.
- 6 The parameter **Restrict Editing** provides the ability to restrict editing the Word document. The available modes are: No – without editing; Yes - editing is not allowed; Except Editable Fields - editing is allowed only for editable fields in the report. In this case, the Editable property of components must be set to true.
- 7 The checkbox **Use Page Headers and Footers** is used to define the Page Header and Footer as the header and footer of the Word document. If this option is not set, then, after exporting, page header and footer will be a table cell or an individual frame. In case of editing a report they may change its location. If this option is enabled, the data bands will be output as objects: a header and footer in the Word document.
- 8 The checkbox **Remove Empty Space at Bottom of the Page** is used to display data one after the other while minimizing empty space at the bottom of the page. If this option is enabled, then, if empty space is available, the part of data from the

next page will be moved to the empty space. If this option is disabled, the empty space is ignored and the report will be displayed in the viewer or in the tab Preview.

9 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports) using the default program for these file types.

Information

If the checkbox **Use Page Headers and Footers** is on, it should be taken into consideration that, in this case, the height of the lines will be minimum allowable.

10.5.3.1 Headers and Footers

Depending on the value of the **Use Page Headers and Footers** property a report is exported in the following way:

- the value is false - a report is exported "as is" and looks as in preview;
- the value is true - a report is additionally processed. All changes are described below.

The list of changes of the document:

- PageHeaders and PageFooters are exported as MS-Word objects. So they are cut from a table and all other bands are exported as one table. It is very convenient, if it is necessary to elaborate the document (add rows or edit a text in cells, change cell size); in this case all data are moved but headers and footers stay in their place. (Notice: a header and a footer of the first page are taken, others are ignored).
- Row height is not exported (the "not set" mode; by default - the "precise" mode).

10.5.3.1.1 Page Numbering

If the Tag is not empty then the content of the Tag property is exported. The Text field is not exported. Also the string may contain the following expressions, which are changed to MS-Word commands:

#PageNumber#	The number of the current page (PAGE)
#TotalPageCount#	Total number of pages in a document (NUMPAGES)

For example, in the Tag property the following expression can be written:

Page #PageNumber# of #TotalPageCount#

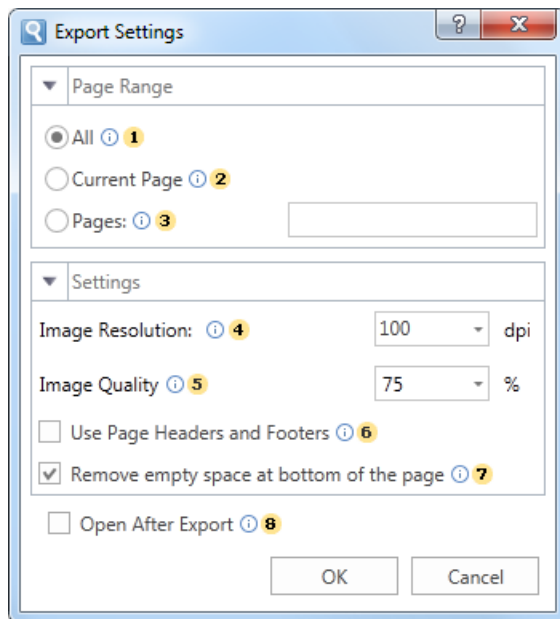
When exporting #PageNumber# and #TotalPageCount# will be replaced with "PageNumber" field and "TotalPageCount" field and will be automatically changed together with text.

10.5.4 ODT

Open Document Text (**ODT**) is the open document format for storing documents of the OpenOffice Writer, which is included into the OpenOffice.org package. OpenOffice.org is the open package of office applications created as an alternative to Microsoft Office. It was one of the first to support the new open OpenDocument format. It works on Microsoft Windows and UNIX systems: GNU/Linux, Mac OS X, FreeBSD, Solaris, Irix. OpenDocument Format (ODF) is the open file format for storing office documents, including text documents, spreadsheets, images, data bases, presentations. This format is based on the XML format.

OpenOffice Writer is the text processor and visual HTML editor, included into the OpenOffice. It is open software (LGPL license). Writer is similar to Microsoft Word and has approximately the same functionality. Writer allows saving documents in different formats including Microsoft Word, RTF, XHTML, and OASIS Open Document Format. Starting with the OpenOffice version 2.0, the OpenDocument Format is the default format for saving documents. Files have the «.odt» extension. When exporting to this format, the entire report is converted into one large continuous table. Some objects may be modified during the conversion, but the resulting document is convenient to edit.

Export options in ODT



- ❶ The checkbox **All** enables processing of all report pages.
- ❷ The checkbox **Current Page** enables processing only the current (selected) report page.
- ❸ The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
- ❹ The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
- ❺ The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.
- ❻ The checkbox **Use Page Headers and Footers** is used to define the Page Header and Footer as the header and footer of the Word document. If this option is not set, then, after exporting, page header and footer will be a table cell or an individual frame. In case of editing a report they may change its location. If this option is enabled, the data bands will be output as objects a header and footer in the Word document.

⚠ **Note:** If the checkbox **Use Page Headers and Footers** is on, it should be taken into consideration that, in this case, the height of the lines will be minimum allowable.

- 7 The checkbox **Remove Empty Space at Bottom of the Page** is used to display data one after the other while minimizing empty space at the bottom of the page. If this option is enabled, then, if empty space is available, the part of data from the next page will be moved to the empty space. If this option is disabled, the empty space is ignored and the report will be displayed in the viewer or in the tab Preview.
- 8 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports) using the default program for these file types.

10.6 Spreadsheets

Important

For desktop versions, there are no specific size restrictions; the size of the opened file is limited by the free memory of the computer. But for web versions there are restrictions depending on the version of the product and the service used (10mb - 50mb - 250mb).

This group of exports create spreadsheets. They are exports to both different formats of Microsoft Excel and to OpenOffice Calc.

Export Settings

- ❶ The parameter for setting the range of report pages to be rendered and exported.
- ❷ The option **Type** provides the ability to determine a type of the file the report will be converted into.
- ❸ The **Restrict Editing** parameter provides the ability to restrict editing of an Excel document. The following values are available:
 - **No** - sets unrestricted mode, meaning the document will be fully available for editing;
 - **Yes** - sets restricted editing mode for the entire document, meaning the document cannot be modified;
 - **Except Editable Fields** - sets restricted editing mode for the Excel document except for editable fields in the report. This means that if components have the **Editable** property enabled, these components will be available for modification after export.

Information

It should be noted that the restrictions on editing an Excel document do not use robust encryption algorithms resistant to tampering. Therefore, we recommend exporting to PDF format if you need a document with editing restrictions and a high level of protection.

- 4 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
- 5 The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.
- 6 The **Bands Filter** parameter provides the ability to specify which report bands will be exported. The following values are available:
 - > **All Bands** - when exporting the report, all bands present in the rendered report will be exported;
 - > **Data Only** - when exporting the report, only the Data band (or the Table/Tree component) will be exported;
 - > **Data and Headers** - when exporting the report, the Data band (or the Table/Tree component) and the related Header bands will be exported;
 - > **Data and Headers/Footers** - when exporting the report, the Data band (or the Table/Tree component), as well as the related Header and Footer bands, will be exported.
- 7 The checkbox **Export Object Formatting** is available only when you export the data. It provides the opportunity to apply formatting to them. If this option is enabled, the data will be exported with formatting applied in the report. If this option is disabled, the data formatting will be lost.
- 8 The checkbox **Use One Page Header and Footer** is used to get rid of repeats of headers and footers on the report pages. By default the page header and footer in the report are located on each page. The report in export to Excel is printed on a sizeless page. The page is able to grow in height as long as there are data. In this case, when you view the document in Excel, page headers and footers are output on the top and bottom of each report page. For example, if the report consists of 15 pages (in the Excel document it will all be placed on a single sheet), the page header and footer page will be output 15 times (each time on the top and bottom of the report page). To avoid this, you should enable this option, and then the page header

will be displayed only on the top of the Excel sheet, and the page footer - in the end.

9 The checkbox **Export Each Page to Sheet** is used to export each report page on a separate Excel sheet. If this option is enabled, then each report page will be located on a separate sheet in Excel. If this option is disabled, the entire report will be printed on a single sheet of Excel.

10 The checkbox **Export Page Breaks** is used to display the borders of the report pages on the Excel sheet. In other words, if the report contains 10 pages, all of them are placed on one sheet after export. Enable this option to define the borders of pages. If this option is disabled, all report pages will be printed, and, if no other delimiters present, will be output in one sizeless page.

11 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

Information

Enabling **Use One Page Header and Footer** option may have residual effects. For example, if the page header or footer has borders, then, when this option is enabled, these borders may be shown. It is recommended, before rendering the report, to enable the parameter of the report page, Unlimited Height. In this case, the report will be rendered on a sizeless single page. The page header and footer will be printed only once on the Excel sheet.

10.6.1 Excel

Microsoft Excel is a spreadsheet application written and distributed by Microsoft for Microsoft Windows. It allows using calculations, graphing tools, pivot tables, and a macro programming language called VBA. So, it is the most popular table processor available for these platforms since version 5 in 1993.

Microsoft Excel up until Excel 2007 version used a proprietary binary file format called Binary Interchange File Format (BIFF) and the **.xls** file extension. The specification was closed, but it has been published since 2008. Besides, most versions of Microsoft Excel can read CSV, DBF, SYLK, DIF, and other formats.

10.6.1.1 Excel Sheets

By default a report is exported as one table to one sheet of Excel. Maximal number of rows on a sheet is unlimited. It depends on the Excel version and is set using the

MaximumSheetHeight static property (by default 65534, for Excel XP and Excel 2003). If the number of rows is more than the default then odd rows will be carried on the next sheet.

Also it is possible to export each page of a report on a single sheet of Excel. To do this it is possible to set the **ExportEachPageToSheet** property to **true**.

Besides the forced Excel sheets creation, they can be created using the **ExcelSheet** page property to which any value can be assigned. If some sheets have the same **ExcelSheet** value then they are joined and exported as one sheet. In this case the name of the sheet is the name of the value.

10.6.1.2 Compatibility of Different Versions

The **XLS** format is based on the BIFF8 specification. Full support of this format is realized starting with Excel 9.0 (Excel 2000).

Excel 8.0 (Excel 97):

- does not support correct color;
- does not fully support the **Right to Left** mode.

Excel 7.0 (Excel 95) and earlier versions:

- does not support vertical alignment in a cell;
- does not support integrated cells;
- does not support some other parameters.

10.6.2 Excel XML

For storing documents as the basic Microsoft Excel format, right up to the Excel 2007 version, Excel used its own binary format of files (BIFF) and the file extension was «.xls». In **Excel 2003** additionally, a new format based on XML (XMLSS) was used. This open format is convenient for developers and is data oriented. The basic disadvantage of the format is the impossibility to embed raster images.

10.6.3 Excel 2007/2010

For storing documents as the basic Microsoft Excel format, right up to the Excel 2007 version, Excel used its own binary format of files (BIFF) and the file extension was «.xls». In **Excel 2007/2010**, the basic format is the Microsoft Office Open XML format and stores documents in files with the «.xlsx» extension. Excel 2007 is compatible with binary formats such as CSV, DBF, SYLK, DIF, and others.

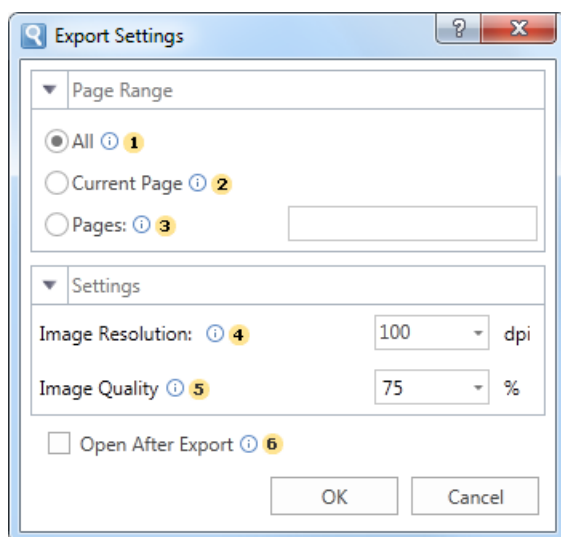
10.6.3.1 Sheets in Excel

By default a report is exported as one table to one Excel sheet. Maximal number of rows on a sheet is limited. It depends on the version of Excel and is set using the **MaximumSheetHeight** static property (by default 1048574 for Excel 2007). If rows are too many then redundant rows will be output on the next sheet. Also it is possible to export each page of a report to a single sheet of Excel. To do this, it is necessary to set the **ExportEachPageToSheet** property to **true**.

Each page of a report has the **ExcelSheet** report property to which any expression may be assigned. Numbers of pages with the same value in the "ExcelSheet" are combined and exported to a single sheet of Excel. The name of the sheet becomes the value of the expression.

10.6.4 ODS

Open Document Spreadsheet (**ODS**) is an open format to store OpenOffice Calc spreadsheet documents, that is included into the OpenOffice.org package. OpenOffice.org is a free package of office applications developed as an alternative to Microsoft Office. It was one of the first to support the new open OpenDocument format. It works on Microsoft Windows and UNIX-like systems: GNU/Linux, Mac OS X, FreeBSD, Solaris, Irix. OpenDocument Format (ODF) — an open document file format for storing and exchanging editable documents including text documents (such as notes, reports, and books), spreadsheets, drawings, databases, presentations. The format is based on the XML-format. The standard was jointly developed by the public and various organizations and is available to all and can be used without restrictions. OpenOffice Calc is the table processor that is included into the OpenOffice and is a free software (LGPL license). Calc is similar to the Microsoft Excel spreadsheet and functionality of these processors is approximately equal. Calc allows you to save documents to various formats, including Microsoft Excel, CSV, HTML, SXC, DBF, DIF, UOF, SLK, SDC. Starting with version OpenOffice 2.0, for document storage format by default OpenDocument Format, files are saved with the extension «.ods». Starting with the OpenOffice version 2.0 for storing documents, by default, the OpenDocument Format is used. Files are stored with the «.ods» extension.



- 1 The checkbox **All** enables processing of all report pages.
- 2 The checkbox **Current Page** enables processing only the current (selected) report page.
- 3 The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
- 4 The **Image Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
- 5 The **Image Quality** allows changing the image quality. Keep in mind that if you change this option the size of the finished file will increase. The higher the quality is, the larger is the size of the finished file.
- 6 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports) using the default program for these file types.

10.6.5 Excel value

When exporting a report to spreadsheets, each value of data will be located in a specific cell in the Excel spreadsheet. For example, if there are four columns of data and ten rows in a rendered report, when exporting to the Excel spreadsheet 40 cells will be filled up.

However, sometimes we need to apply Excel formulas to these cells. It can be done in a finished document, when opening it for editing or defining a formula in the Excel value for a text component in the report designer when designing a report.

To set a formula for the Excel text component you should:

- › Highlight this text component in a report template;
- › Click on the **Browse** on the **Properties** panel for the **Excel value** property;
- › Set an Excel formula in an opened editor.

Information

When designing a report it's important to know the range of cells to which a formula will be applied, so as the range of cells, that the data occupies may shift when adding other components to a report. To avoid the calculating of incorrect formulas you should:

- › Create a report template with all components;
- › Export this report to Excel;
- › Memorize the range of cells to which a formula will be applied;
- › Back to the report template and edit it, specifying an Excel formula with this range of cells.

Let's look at several examples of using Excel formulas in a report template. For example, there is a report with the list of products, their prices, the number of orders and products in the warehouse.

Sample 1

Apart from data this report doesn't have other components. All 4 columns and each of them has 77 values. It means that when exporting to Excel the cells will be filled up:

- › The names of the products will be in the cells A1 through A77;
- › Prices of the products will be in the cells B1 through B77;
- › The number of the products orders will be in the cells C1 through C77.
- › The number of the products in the warehouse will be in the cells D1 through D77.

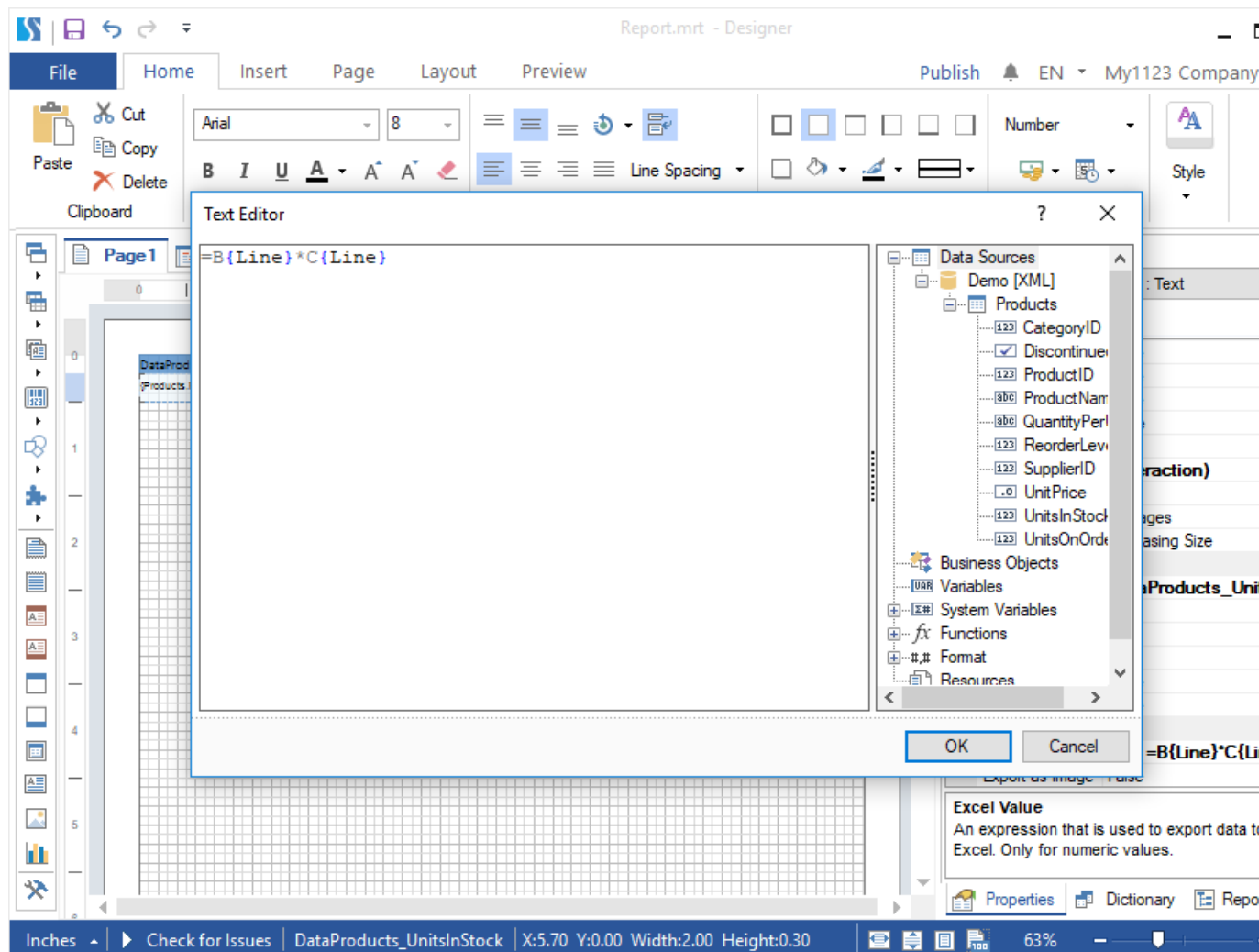
For example, you need in the column D shows not the number of products in the warehouse, but the volume of products sales (price multiplied by the number of orders). In this case, you should:

Step 1: Highlight the text component, where the result of the Excel formula

calculating must be shown;

Step 2: On the **Properties** panel, click on the **Browse** for the **Excel value** property;

Step 3: Set an Excel formula in an opened editor. In this case the **=B{Line}*C{Line}** formula.



Step 4: Click on **OK** in the editor;

Step 5: Go to the **Preview** tab or open this report in the Viewer.

Step 6: Click on the **Save** and select the **Microsoft Excel File** command in the drop-down menu.

Step 7: Define the export settings, click on **OK**.

Step 8: Select a place to save your Excel document, change name, and click on the **Save**.

After that, open this Excel document, a formula for each cell will be calculated in the D column, due to this the value in the cell will display. In this case, the volume of sales for each product will be calculated.

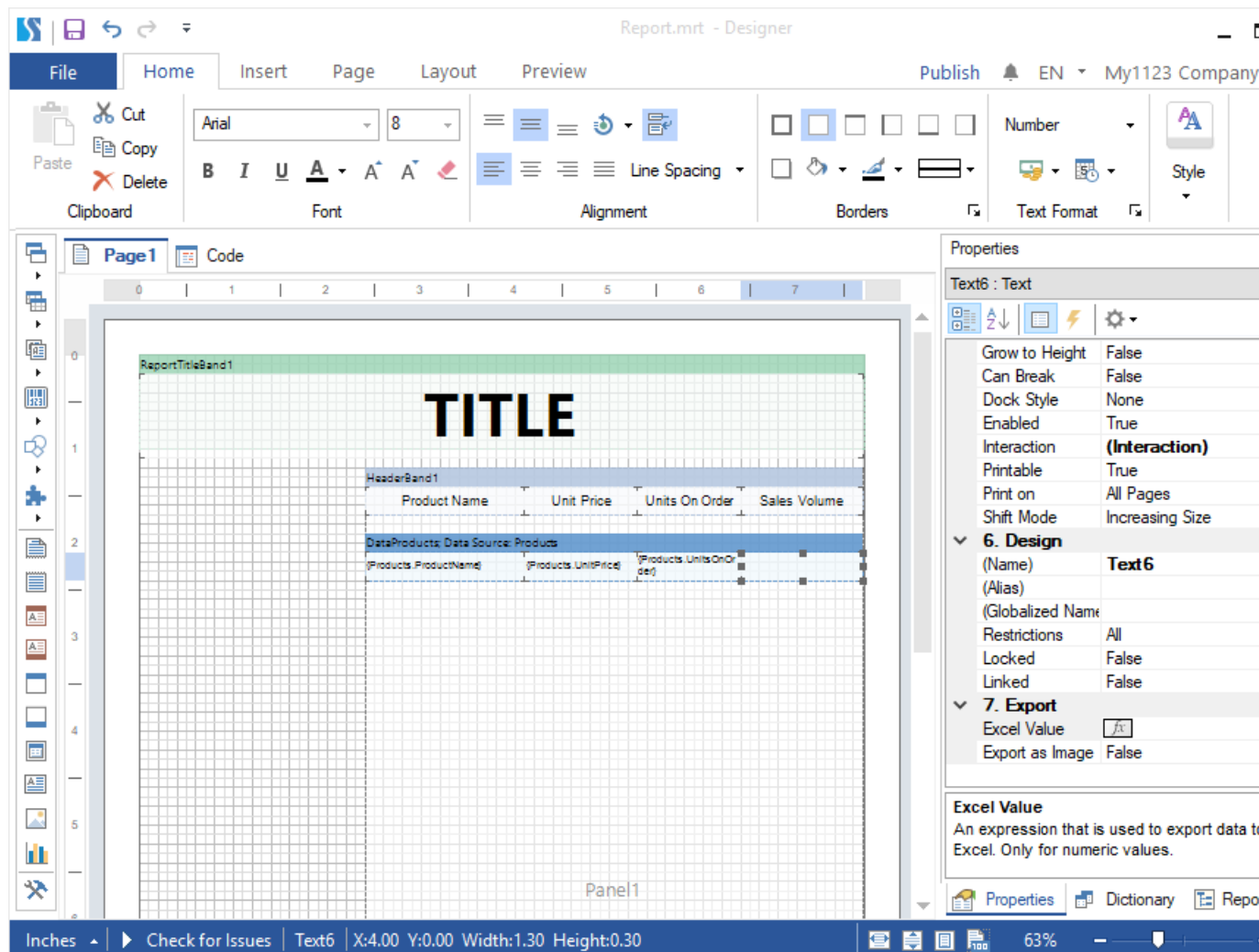
D11 ✕ ✓ fx =B11*C11				
	A	B	C	D
1	Chai	18.00	0.00	0.00
2	Chang	19.00	40.00	760.00
3	Aniseed Syrup	10.00	70.00	700.00
4	Chef Anton's Cajun Seasoning	22.00	0.00	0.00
5	Chef Anton's Gumbo Mix	21.35	0.00	0.00
6	Grandma's Boysenberry Spread	25.00	0.00	0.00
7	Uncle Bob's Organic Dried Pears	30.00	0.00	0.00
8	Northwoods Cranberry Sauce	40.00	0.00	0.00
9	Mishi Kobe Niku	97.00	0.00	0.00
10	Ikura	31.00	0.00	0.00
11	Queso Cabrales	21.00	30.00	630.00
12	Queso Manchego La Pastora	38.00	0.00	0.00
13	Konbu	6.00	0.00	0.00
14	Tofu	23.25	0.00	0.00
15	Genen Shouyu	15.50	0.00	0.00
16	Pavlova	17.45	0.00	0.00
17	Alice Mutton	39.00	0.00	0.00
18	Carnarvon Tigers	62.50	0.00	0.00
19	Teatime Chocolate Biscuits	9.20	0.00	0.00
20	Sir Rodney's Marmalade	81.00	0.00	0.00

Sample 2

In addition to data, the report contains other components, or if the **Data** band is located on another component. In this case, it is not possible to predict the cells, into which the data will be inserted. This is why, to set the range of cells in the Excel

correctly formula you should:

Step 1: Create final version of the report template with all components and their correct location. In this case, you should add the header of the report and the header of the data. In addition, you should place the list of the data on another component – the **Panel**.



Step 2: Go to the **Preview** tab or open this report in the Viewer;

Step 3: Click on the **Save** and select the **Microsoft Excel File** command in the drop-down menu;

Step 4: Define the export settings, click on **OK**;

Step 5: Select a place to save the Excel document, change the name, and click on the **Save**;

Step 6: Open this saved document and memorize the range of cells with data.

	A	B	C	D	E
1	TITLE				
2					
3		Product Name	Unit Price	Units On Order	0.00
4		Chai	18.00	0.00	
5		Chang	19.00	40.00	
6		Aniseed Syrup	10.00	70.00	
7		Chef Anton's Cajun Seasoning	22.00	0.00	
8		Chef Anton's Gumbo Mix	21.35	0.00	
9		Grandma's Boysenberry Spread	25.00	0.00	
10		Uncle Bob's Organic Dried Pears	30.00	0.00	
11		Northwoods Cranberry Sauce	40.00	0.00	
12		Mishi Kobe Niku	97.00	0.00	
13		Ikura	31.00	0.00	
14		Queso Cabrales	21.00	30.00	
15		Queso Manchego La Pastora	38.00	0.00	
16		Konbu	6.00	0.00	
17		Tofu	23.25	0.00	
18		Genen Shouyu	15.50	0.00	

Step 7: Go back to the report designer with this template;

Step 8: Highlight the text component, where the result of the calculated Excel formula must be shown;

Step 9: Click on the **Browse** on the **Properties** panel for the **Excel value** property;

Step 10: Enter the Excel formula with the range of cells you need in an opened editor. In this case the **=C{Line+3}*D{Line+3}** formula. In this case, number three is the number of rows in the Excel file, which must be skipped;

Step 11: Click on **OK** in the editor;

Step 12: Go to the **Preview** tab or open this report in the Viewer;

Step 13: Click on the **Save** and select the **Microsoft Excel File** command in the drop-down menu;

Step 14: Define the export settings, click on **OK**;

Step 15: Select a place to save the Excel document, change name, and click on the **Save**;

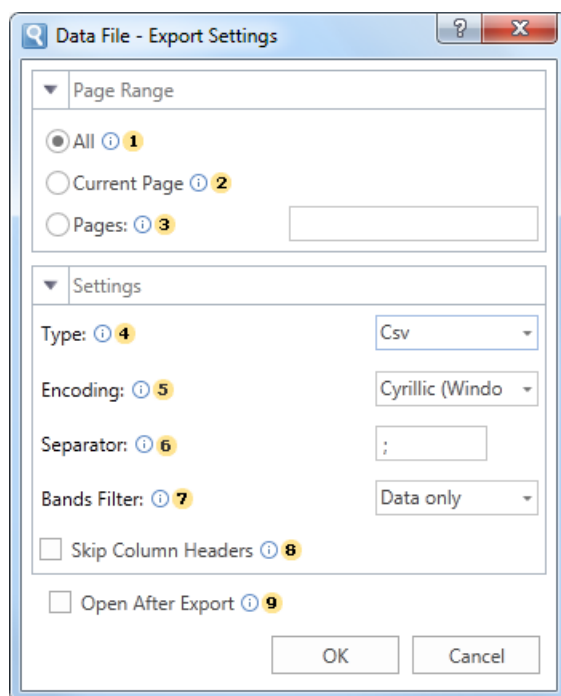
After that, open this Excel document, a formula will be calculated for each cell in the E column, and due to this, the value will display in the cell. In this case, the volume of sales for each product will be calculated.

TITLE

When making changes in a report template you should check the range of cells for your data to avoid incorrect calculations.

This is a group of file formats which are used to store table data.

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- ❶ The checkbox **All** enables processing of all report pages.
- ❷ The checkbox **Current Page** enables processing only the current (selected) report page.
- ❸ The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start page and end page range separated with "-". For example, 1,3,5-12.
- ❹ The parameter **Type** provides the ability to determine a type of the file the report will be converted into.

⚠ **Note:** Depending on the file type, parameters, and their number may vary. For example, when you select the DIF or Sylk format, the following options will be available:

- The option **Data Only** enables/disables the mode of exporting data only. If this option is enabled, information will be exported from the Data bands (the component table, Hierarchical band). Only these bands are processed, the rest are ignored. If this option is disabled, the entire report will be exported;
- The option **Use Default System Encoding** allows you to use the system encoding by default. Different encoding can be applied depending on the installed system. If this option is disabled, you must set the encoding by the standard.

- 5 The parameter **Encoding** is used to define file encoding.
- 6 The parameter **Separator** specifies delimiter between the data in the CSV file.
- 7 The parameter **Bands Filter** is used to apply a filtering condition in the export.

The following options are available:

- **Data Only** - in this case only Data bands will be processed (the Table component, Hierarchical band);
- **Data and Headers/Footers** - Data bands will be processed (the Table component, Hierarchical band), and their headers/footers, if any;
- **All Bands** - all bands of the report will be processed.

- 8 The checkbox **Skip Column Headers** enables/disables the column headers. If the option is enabled, then column headers will not be displayed. If this option is disabled, then column headers (if present in the report) will be displayed.
- 9 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports) using the default program for these file types.

10.7.1 CSV

CSV (Comma Separated Values) is a text format that is used to represent table data. Each string of the file is one row of the table. The values of each column are separated by the delimiter that depends on regional settings. The values that contain reserved characters (such as a comma or a new string) are framed with the double quotes (") symbol; if double quotes are found in the value they are represented as two double quotes in the file.

❗ **Note:** Only those data (components) can be exported to the CSV format which are placed on data bands. If the SkipColumnHeaders property is set to false then, additionally, column headers are exported as the first row.

10.7.1.1 Controlling Exports

The Tag property of each text box in a Data band can be specified with the following elements that control the export:

- Export Type : "FieldName"
- Column: "FieldName" "DataRow"

Several elements should be separated with the semicolon.

The "Export Type" element indicates for which export the field name is set. The values can be used: "dbf", "csv", "xml", "default". The "FieldName" element indicates the field name in the file. Its own name can be specified for each type of export. If the name for each export is not specified then the name for the "default" type is

taken. For example:

DBF : "Describe" ; CSV : "Description" ; default: "Default name"

The "Column" element indicates that an additional field is added to exported data. The "FieldName" element indicates the name of a new field. The "DataRow" element indicates the content of a new field and can be an expression. For example:

Column: "SortField" "{Products.Categories.CategoryName}"

10.7.2 DBF

DBF (DataBase File) is the format to store data and it is used as the standard way to store and pass information. The DBF file consists of a header section for describing the structure of the data in the file. There are several variations on the .dbf file structure.

🚩 **Note:** Only data can be exported to the DBF format, in other words only the components that are placed on data bands.

10.7.2.1 Controlling Exports

The following elements can be specified in the Tag property to control export:

- DataType [: FieldLength [: DecimalPartLength]]
- ExportType : "FieldName"
- Column: "FieldName" "DataString"

Several elements should be separated with the semicolon. The "DataType" element should be only one and should be placed first, other elements – if necessary.

Values of the "DataType" element are shown in the table below. If the data type is not set, then the **string** data type is taken by default. The "FieldLength" element sets fixed width of a data field. If the field width is not set, then the width is taken from the table. For the **string** type the default width is the longest string. The "DecimalPartLength" element sets the number of characters after comma. If it is not set, then the default number is taken.

Data type	DBF data type (default size)	Description
int	Numeric (15 : 0)	Numeric
long	Numeric (25 : 0)	Numeric

float	Numeric (15 : 5)	Decimal
double	Numeric (20 : 10)	Decimal
string	Character (auto)	Text
date	Date (8)	Date

Sample of using elements are shown in the table below.

Type	Description
string : 25	set the column width (25 characters) and cuts all long strings
float	converts decimal digit with the length 15 characters, 5 characters after comma
float :10	converts decimal digit with the length 10 characters, 5 characters after comma
float :10 : 2	converts decimal digit with the length 10 characters, 2 characters after comma
int :10 : 2	converts integer digit with the length 10 characters; the second parameter is ignored

❗ **Note:** If the integer part of a digit is long and cannot be placed into the specified field, then it is cut, so data are lost. For example, if you write «-12345,678» in the «float:8:3» field, then the «2345,678» will be output.

The "ExportType" element indicates for which export the field name is set. The values can be used: "dbf", "csv", "xml", "default". The "FieldName" element indicates the field name in the file (for the DBF, it is automatically cut up to 10 characters). A unique name can be specified for each type of export. If the name for each export is not specified then the name for the "default" type is taken. For example:

DBF : "Describe" ; XML : "Description" ; default: "Default name"

The "Column" element indicates that the additional field is added to the exported data. The "FieldName" element indicates the name of a new field. The "DataRow" element indicates the content of a new field and can be an expression. For example

Column: "SortField" "{Products.Categories.CategoryName}"

10.7.3 XML

XML (eXtensible Markup Language) is a text format that is used to store structured data (in exchange for existed files of data bases), for exchange of information between programs and also to create on its base the special markup languages (for example, XHTML), sometimes called dictionaries. XML is a hierarchical structure that is used to store any data. Visually this structure can be represented as a tree. XML supports Unicode and other encodings.

❗ **Note:** Only those data (components) are exported to the XML format which are placed on data bands.

10.7.3.1 Controlling Exports

The following elements can be specified in the Tag property to control export to XML:

- **DataType**
- **ExportType** : "FieldName"
- **Column**: "FieldName" "DataRow"

Several elements should be separated with the semicolon. The "DataType" element should be only one and should be placed first, other elements – if necessary.

Values of the "DataType" element are shown in the table below. If the data type is not set, then the **string** data type is taken by default.

Data type	Description
int	Numeric
long	Numeric
float	Decimal
double	Decimal
string	Text
date	Date

The "ExportType" element indicates for which export the field name is set. The values can be used: "dbf", "csv", "xml", "default". The "FieldName" element indicates the field name in the file. A unique name can be specified for each type of export. If the name for each export is not specified then the name for the "default" type is

taken. For example:

DBF : "Describe" ; XML : "Description" ; default: "Default name"

The "Column" element indicates that an additional field is added to the exported data. The "FieldName" element indicates the name of a new field. The "DataRow" element indicates the content of a new field and can be an expression. For example:

Column: "SortField" "{Products.Categories.CategoryName}"

10.7.4 DIF

DIF (Data Interchange Format) is a text format that is used to exchange sheets between spreadsheet processors (Microsoft Excel, OpenOffice.org Calc, Gnumeric, StarCalc, Lotus 1-2-3, FileMaker, dBase, Framework, Multiplan, etc). The only limitation of this format is that the DIF format may contain only one sheet in one book.

10.7.5 SYLK

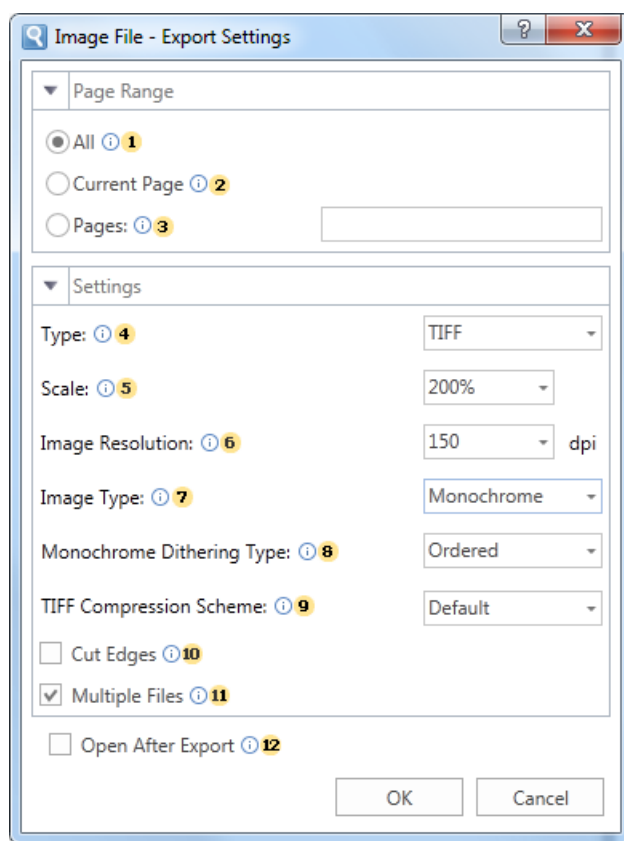
SYLK (Symbolic Link) format - this text format is used to exchange data between applications, specifically spreadsheets. SYLK files have the «**.slk**» extension. Microsoft does not publish a SYLK specification, therefore, working with this format in different applications may differ.

🚩 **Note:** A SYLK file can be written in Unicode and read by some applications but anyway many applications which do support Unicode write SYLK files into ANSI but not Unicode. Therefore, symbols which do not have representation in the system code page will be written as ('?') symbols.

10.8 Images

Export groups to graphic formats. All graphic formats can be divided into two types: bitmapped images and vector formats. Notice. At the current moment, the export of monochrome image is supported only to **BMP, GIF, PCX, PNG, TIFF** format. So the **DitheringType** property works only for these exports.

Export options in Image



- ❶ The checkbox **All** enables processing of all report pages.
- ❷ The checkbox **Current Page** enables processing only the current (selected) report page.
- ❸ The checkbox **Pages** has the field. This field specifies the number of pages to be processed. You can specify a single page, several pages (using a comma as the separator) and also specify a range by defining the start and end pages separated with "-". For example, 1,3,5-12.
- ❹ The option **Type** provides the ability to determine a type of the file the report will be converted into.
- ❺ The option **Scale** allows you to increase/decrease the size of the report after export. It should also be taken into consideration that the smaller the scale is selected, the greater is the number of pixels per inch, and vice versa.
- ❻ The Image **Resolution** is used to change DPI (image property PPI (Pixels Per Inch)). The greater the number of pixels per inch is, the greater is the quality of the image. It should be noted that the value of this parameter affects the size of the finished file. The higher the value is, the greater is the size of the finished file.
- ❼ The option **Image Type** provides the ability to define the color scheme of the image.
 - **Color** - an image after export will fully comply with the image in the report;

- **Gray** - an image after export will be gray.
- **Monochrome** - images will be strictly black and white. At the same time, it should be taken into consideration that monochrome images have three modes None, Ordered and FloydSt.

- 8 The option **Monochrome Dithering Type** allows you to determine the type monochrome color mixing: None - no dithering, Ordered, FloydSt. - with dithering.
- 9 The option **TIFF Compression Scheme** provides the ability to define a compression scheme for TIFF files.
- 10 The checkbox **Cut Edges** provides the ability to display a report without page edges. If this is enabled, then when you export the report the page edges will be cut off. If this option is disabled, the report page will be displayed with the specified edges.
- 11 The checkbox **Multiple Files** is available when exporting to TIFF. By default, each report page is a separate image. When exporting to TIFF you can put multiple images in a single file by disabling the option. You need a special viewer to view the TIFF file that contains multiple images.
- 12 The flag **Open After Export** enables/disables the automatic opening of the created document (after completion of exports), the default program for these file types.

10.8.1 BMP

BMP (Bitmap) is an image file format used to store bitmap digital images. Initially the format could store only DDB (Device Dependent Bitmap) but today the BMP format stores device-independent rasters (DIB - Device Independent Bitmap). Color depth in this format varies from 1 to 48 bits per pixel. The maximal image size is 65535×65535 pixels. An image can be compressed, but it is often stored uncompressed and has a large file size. Many programs work with the BMP format because its support is integrated into Windows and OS/2.

10.8.2 GIF

GIF (Graphics Interchange Format) is a format to store graphic images. The GIF format can store compressed images, supports up to 8 bits per pixel, allowing a single image to reference a palette of up to 256 distinct colors. The GIF format was introduced by CompuServe in 1987 and has since come into widespread usage on the World Wide Web. In 1989 the format was modified (GIF89a), and transparency and animation were added. GIF uses LZW-compression. It allows reducing the file size without degrading the visual quality (logos, schemes). GIF is widely used on the World Wide Web.

10.8.3 PNG

PNG (Portable Network Graphics) - is a bitmapped image format that employs lossless data compression. PNG was created to improve and replace the simpler GIF format, and to replace the more complicated TIFF format. In comparison with the GIF format, the PNG format supports RGB images without color losses, supports alpha channels, and uses DEFLATE (open algorithm of compression), that provides higher compression of multicolored files. The PNG format is usually used on the World Wide Web and for graphic editing.

10.8.4 TIFF

TIFF (Tagged Image File Format) is a file format for storing images. Originally, the TIFF format was created by the Aldus company in cooperation with Microsoft for use with PostScript. TIFF became popular for storing high-color-depth images, and is used for scanning, faxing, text recognition, and polygraphy (printing), and is widely used in graphic applications. This format is flexible. It allows saving photos in different color spaces, using different algorithms of file compression, and storing a few images in one file.

10.8.5 JPEG

JPEG (Joint Photographic Experts Group) is a format to store images. This format was created by C-Cube Microsystems as an effective method to store high-color-depth images. For example, scanned photos with smooth variations of tone and color. An algorithm of compression with loss of information is used in the JPEG format. This means that some visual quality is lost in the process and cannot be restored. It is necessary to get the highest coefficient of compression. Unpacked JPEG images rarely have the same quality as the original image, but the differences are insignificant. Compression ratio is usually set in conventional units, for example from 1 to 100. 100 is the best quality and 1 is the worst quality. The better the quality, the bigger the file size.

10.8.6 PCX

PCX is a format to store images. This format was used in the ZSoft PC Paintbrush graphic editor (one of the most popular programs) for MS-DOS, text processors and Microsoft Word and Ventura Publisher. This format is a less popular analogue of BMP but is supported by such graphics editors as Adobe Photoshop, Corel Draw and others. The algorithm of compression is very quick but is not effective for compression of photos and other detailed computer graphics. Today this format is not displaced by formats which support better compression. These formats are GIF, JPEG, and PNG.

10.8.7 EMF

WMF (Windows MetaFile) is a universal graphics file format on Microsoft Windows systems. This format was created by Microsoft and is an integral part of Windows because this file stores a list of function calls that have to be issued to the Windows graphics layer GDI to display an image on screen.

WMF is a 16-bit format. This format was introduced in Windows 3.0. A 32-bit version is called Enhanced Metafile (**EMF**). The EMF format supports many new commands, supports work with the GDI+ library, and also is used as a graphic language for drivers of printers.

10.8.8 SVG

SVG (Scalable Vector Graphics) is an XML-based file format for describing two-dimensional vector graphics, both static and dynamic. The **SVG** specification is an open standard that supports scripting and animation. An **SVG** image consists of graphical elements such as shapes, images, and text.

SVG supports three types of graphic objects:

- Vector graphics;
- Raster graphics;
- Text.

The Images below show the difference between exporting Bitmap format and SVG (vector) format.

Stimulsoft
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Bitmap Formats

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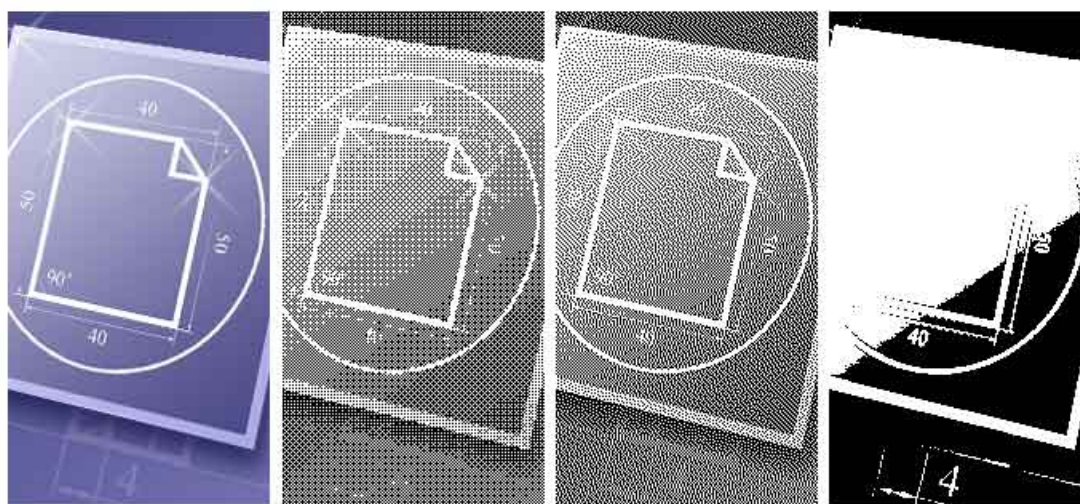
SVG Format

10.8.9 Compressed SVG

In addition to the **SVG** file format, there is a **compressed SVG** (with file extension **SVGZ**), which applies industry-standard, nonproprietary "gzip" compression (an open-source variant of Zip compression) to **SVG** files. Compressed SVG files are typically 50 to 80 percent smaller than SVG files. **SVG** files are compact and can be used to provide high-quality graphics on the Web.

10.8.10 Dither

Dither is an intentionally applied form of noise, when processing digit signals. It is used in most often surfaces in the fields of digital audio and video. The following image shows (from left to right) original image and the result of export to monochrome image. There are three modes of **DitheringType**: **Ordered**, **FloydSteinberg**, **None**.



❗ **Note:** On the current moment the export of monochrome image is supported only to the PCX format. So the **DitheringType** property works only for this export. Different images may look differently in these modes. The **FloydSteinberg** is the best mode to output an image but the file size is too big.

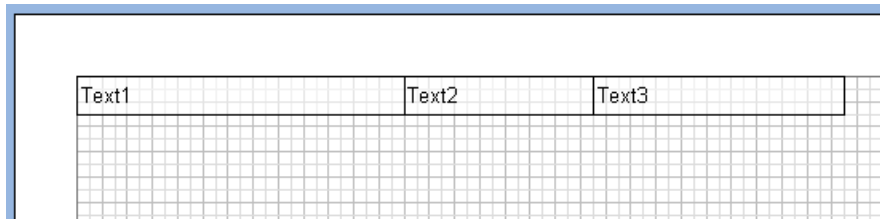
10.9 How to Create Report for Export?

Many exports have the table mode. In this mode the whole report is converted into one table. Creating correct templates from the source code allows making the table look much better, decreasing the size of the file, and increasing the speed of working with export. Therefore, when using the table mode of export it is important to follow some recommendations:

- use the "Align to Grid" button of the designer. This will decrease the number of

rows and columns in the output file; also this allows avoiding very small gaps between components (some formats "do not like" table with very small columns);
 ➤ put components on the data band at the same level (see the picture below); this will decrease the number of rows and columns in the output file;

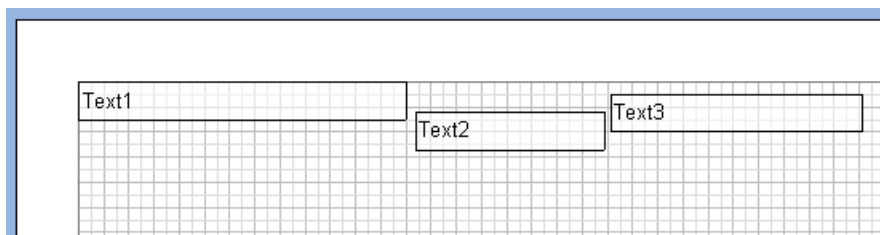
For example: put three components in the designer. They should be placed without gaps. See the picture below:



As a result we get a simple table: one row and three columns.

	A	B	C
1	Text1	Text2	Text3
2			
3			
4			
5			
6			
7			

Put three components as seen on the picture below.



As a result we get the Excel table: five rows and three cells (see the picture below). It is not convenient to edit such a table, the file size, time of export, and required memory are increased several times.

	A	C	E
2	Text1		
5		Text2	
6			
7			
8			
9			

Diagram illustrating the layout of three text elements (Text 1, Text 2, Text 3) arranged in a staggered, overlapping fashion on a grid background.

- Text 1 is positioned at the top left.
- Text 2 is positioned below and to the right of Text 1.
- Text 3 is positioned below and to the right of Text 2.

Diagram illustrating a linked list structure with two nodes:

- Node 1:** Contains **Header 1** and **Data1**.
- Node 2:** Contains **Header 2** and **Data2**.

	Header 1		Header 2		
Data1			Data2		

➤ do not use the **Autowidth** property. This property increases the number of columns in the exported file which is proportional to the number of records.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Company													
2	Alfreds Futterkiste													
3	Ana Trujillo Emparedados y helados													
4	Antonio Moreno Taquería													
5	Around the Horn													
6	Berglunds snabbköp													
7	Blauer See Delikatessen													
8	Blondesddsl père et fils													
9	Bólido Comidas preparadas													
10	Bon app'													
11	Bottom-Dollar Markets													
12	B's Beverages													
13	Cactus Comidas para llevar													
14	Centro comercial Moctezuma													

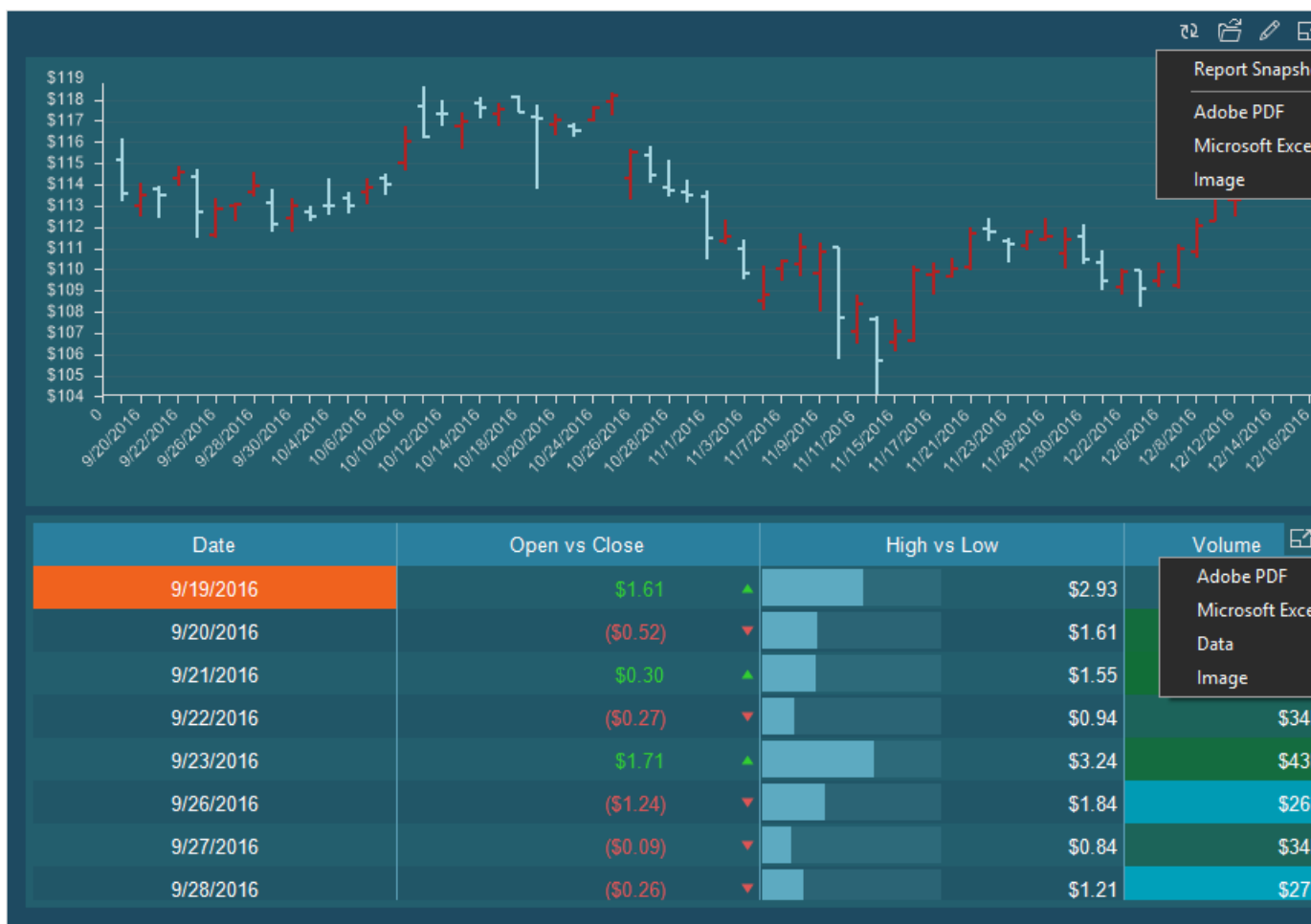
	A
1	Company
2	Alfreds Futterkiste
3	Ana Trujillo Emparedados y helados
4	Antonio Moreno Taquería
5	Around the Horn
6	Berglunds snabbköp
7	Blauer See Delikatessen
8	Blondesddsl père et fils
9	Bólido Comidas preparadas
10	Bon app'
11	Bottom-Dollar Markets
12	B's Beverages
13	Cactus Comidas para llevar
14	Centro comercial Moctezuma

On the left picture the number of columns is 14, and this case is equal in number of data rows. If the **AutoWidth** property is disabled, then only one column will be output (see the right picture). Accordingly, the file size of a report, shown in the right picture, is several times smaller than the file of the report shown on the left picture and the export works faster.

🚩 **Note:** The number of columns is very important for the text editors. For example, MS Word allows no more than 64 columns; if the table has more than 64 columns then the document is output incorrectly.

10.10 Export Dashboard

When viewing the dashboard in the report viewer, you can convert its elements to [PDF](#), [Excel files](#), as well as [image](#) files such as BMP, GIF, PNG, TIFF, JPEG, PCX, EMF, SVG, and SVGZ. In addition, you can save the dashboard as a [report snapshot](#).



To export the dashboard, click the [More Options](#) button and select the appropriate command. If you want to convert only a specific element, click the [Save](#) button on that element and select the file type.

Information

For the [Table](#) element, export formats to [CSV](#), [DBF](#), [XML](#), [JSON](#), [DIF](#), and [SYLK](#) are also available. To do this, select the **Data** command in the **Save** menu. Then, in the export settings, select the file type into which you want to convert the current element.

After selecting the export format, the export options dialog will be called. The

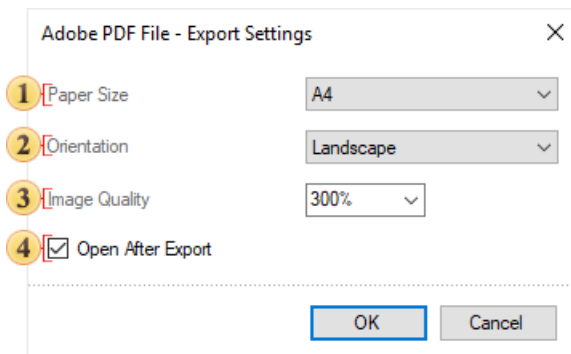
parameters may vary depending on the type. Let's consider export settings in more detail.

Report snapshot

The **Report Snapshot** command is used to save the dashboard with the current data to the **.mrt** file. In this case, the created data sources will be embedded into the report as resources. You can open this report both in the report designer and in the report viewer.

PDF Export Settings

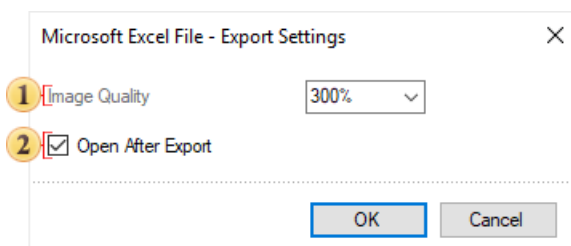
Export settings for the dashboard or its elements when converting to a PDF file.



- 1 The **Paper Size** option allows you to select the page size in the PDF document.
- 2 The **Orientation** parameter is used to select the page orientation in the PDF file - Portrait or Landscape.
- 3 The **Image Quality** option is used to change the quality of images.
- 4 The **Open After Export** parameter allows you to open the exported document after the export process is completed.

Excel Export Settings

Export settings for the dashboard or its elements when converting to an Excel file.



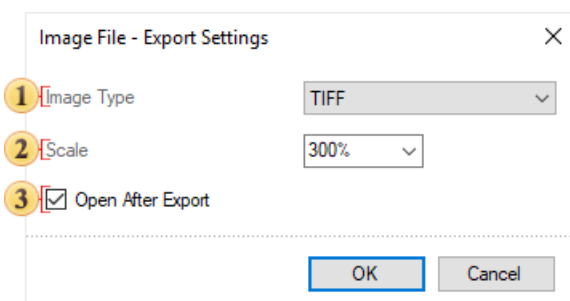
- 1 The **Image Quality** option allows you to change the quality of images.
- 2 The **Open After Export** parameter allows you to open the output document after the export process is completed.

Information

When exporting the [Table](#) element to Excel, the **Export Data Only** parameter will also be available in the export settings. This option is used to convert only the values of these elements, without headers and totals.

Image Export Settings

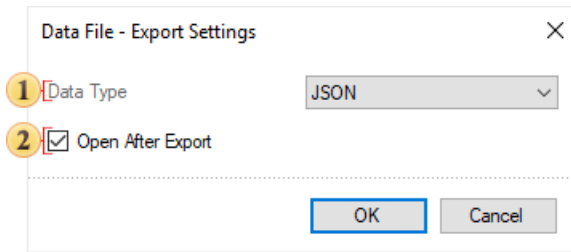
Export settings for the dashboard panel or its elements when converting to an image file.



- 1 The **Image Type** parameter is used to determine the type of image into which the report will be converted - BMP, GIF, PNG, TIFF, JPEG, PCX, EMF, SVG, SVGZ.
- 2 The **Scale** parameter is used to change the number of pixels per inch.
- 3 The **Open After Export** parameter allows you to open the exported document after the export process is completed.

Export Settings of Data

Export settings for the [Table](#) element when converting it to a data file.



- 1 The **Data Type** parameter is used to specify the type of data file into which the report will be converted - CSV, DBF, XML, JSON, DIF, SYLK.
- 2 The **Open After Export** parameter allows you to the exported document after the export process is completed.

Information

You should know that this type of export is available only for the [Table](#) element. However, if you need to convert the values of all the fields of an element into a data file, you may [change the type of this element](#) to the **Table** element, and then, export the **Table** element to the data file.