



ONESTREAM®

STUDIO REPORT DESIGN GUIDE FOR WINFORMS

7.0.1 Release

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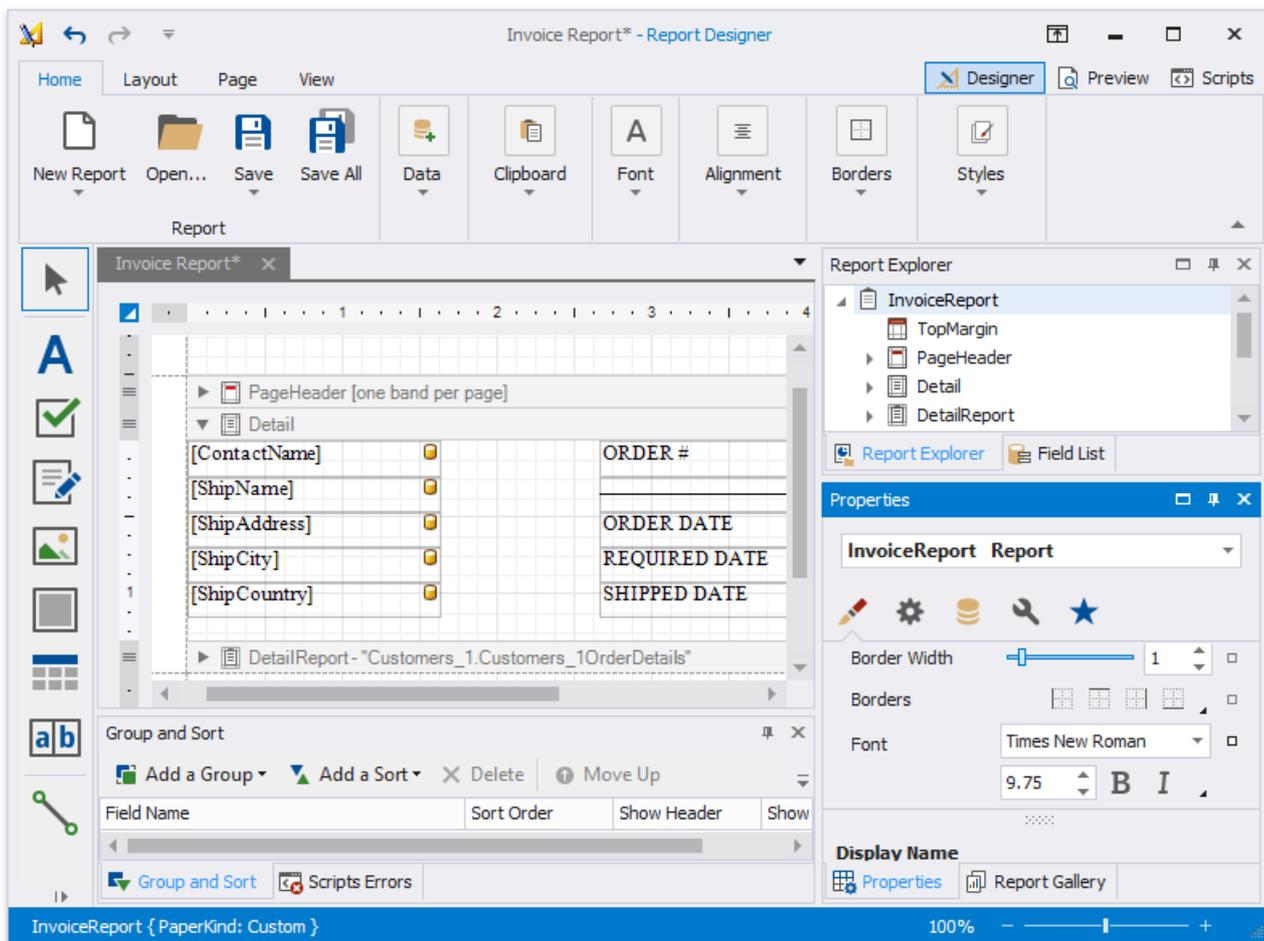
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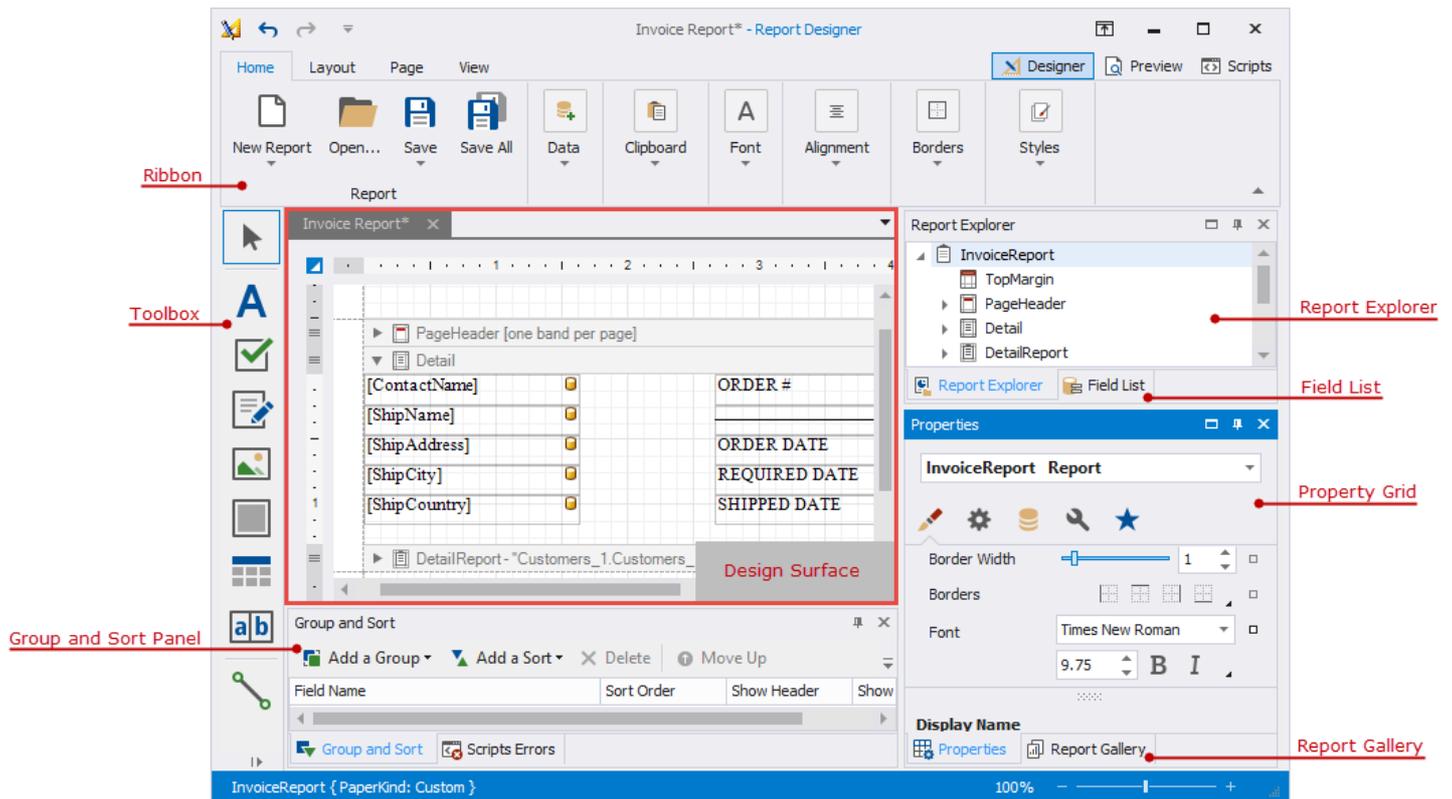
Report Designer for WinForms

The Report Designer allows you to create data-bound reports and provides a rich set of tools to construct report layouts that meet your requirements.



Note: Specific features described in this guide may differ from what you see in your application. This depends on your application vendor.

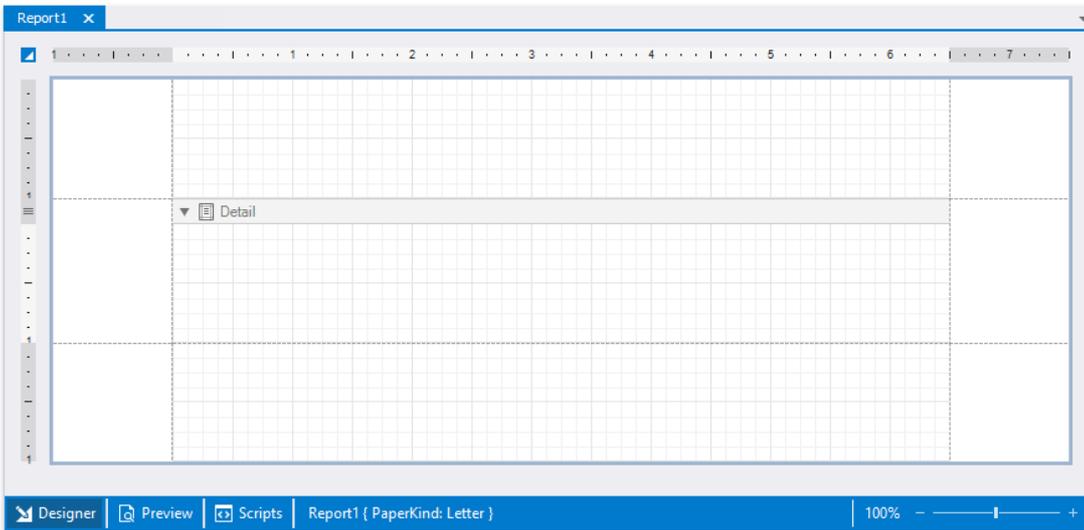
First Look at the Report Designer



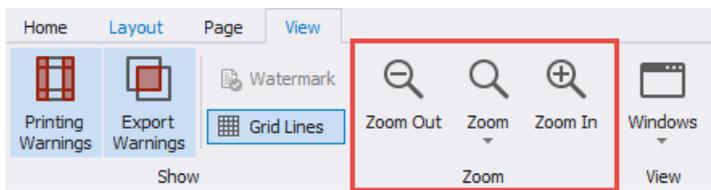
The *design surface* displays a report's structure and contents. You can use the tools on the Report Designer's panels to design the report:

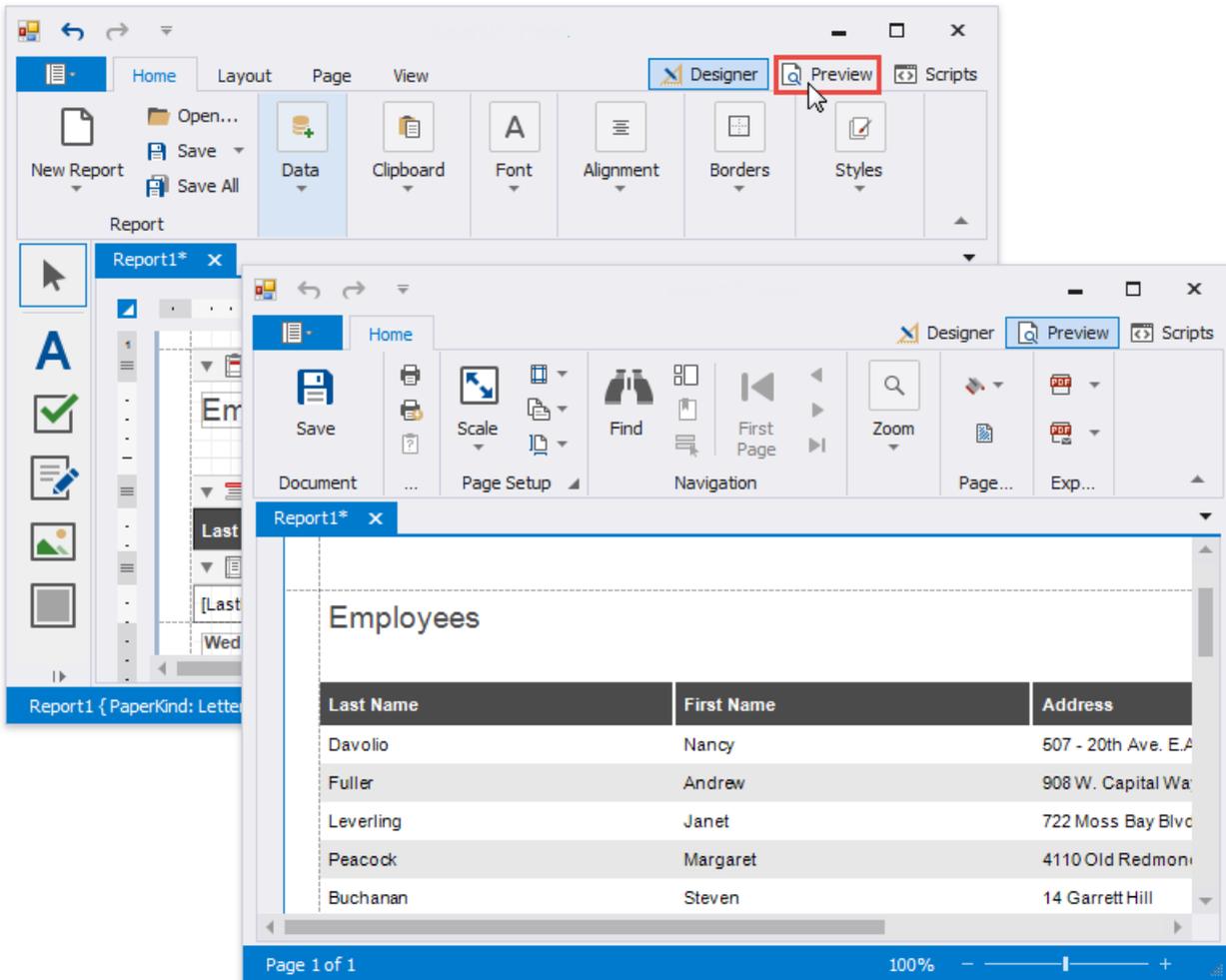
- access the report's data source schema in the [Field List](#); drop report controls from the [Toolbox](#) to the design surface;
- use the [Ribbon](#) toolbar and [Property Grid](#) to set up the report controls; access the report's elements in the [Report Explorer](#);
- use the [Group and Sort](#) panel to manage the report's group and sort settings.

A blank report's design surface displays page margins and an empty [detail band](#).



Use the zoom panel to change the Report Designer's default zoom factor.





Switch to the **Preview** tab. This opens a [Print Preview](#) and displays the generated report document with the data source's data.

Switch to the **Scripts** tab to manage and customize [report scripts](#).

Add New Reports

This topic explains how to create a new report in the Report Designer.

Tip

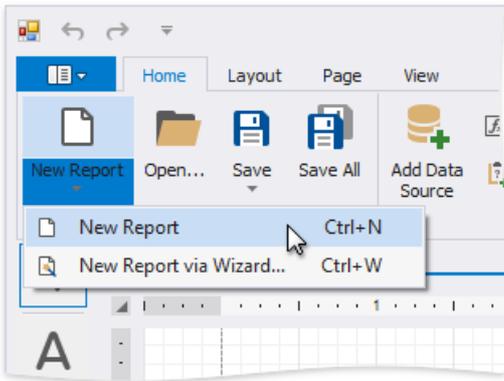
Before you start, make sure to [back up the current report](#).

Create a New Blank Report

You can use one of the following commands to create a new report. The created report contains three **bands** - **Top Margin**, **Detail**, and **Bottom Margin**. Refer to the [Use Report Elements](#) section for information on how to add controls to the report.

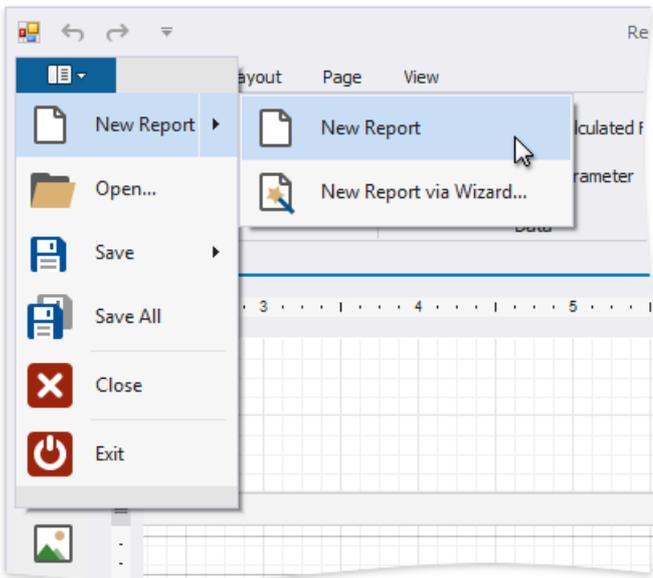
Use the Ribbon's Home Tab

Click **New Report**.



Use the Ribbon Application Menu

Click the application button and then **New Report**.



Use a Shortcut

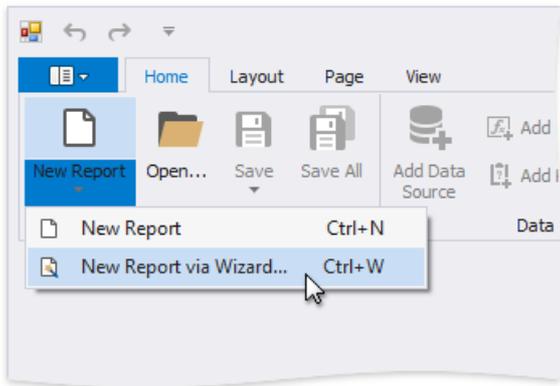
You can also use the CTRL+N shortcut to create a new report.

Create a New Report Using the Report Wizard

The following commands run the [Report Wizard](#). Go through the wizard's pages to get a predesigned report.

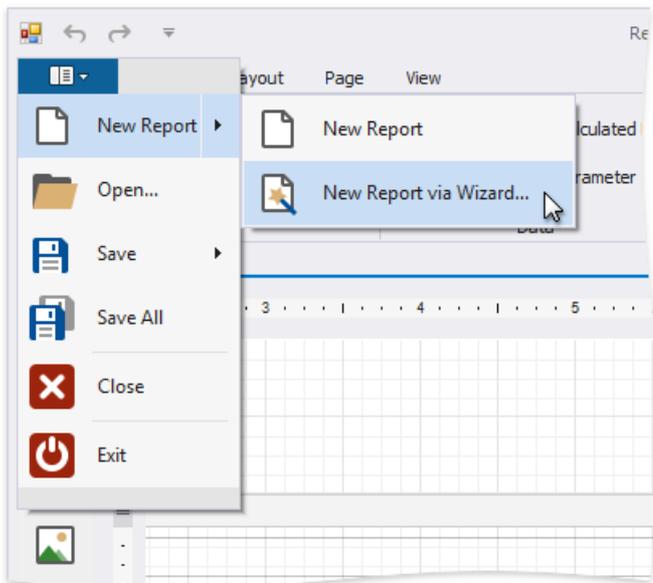
Use the Ribbon's Home Tab

Click **New Report** and then **New Report via Wizard....**



Use the Ribbon Application Menu

Click the application button and then choose **New Report | New Report via Wizard....**



Use a Shortcut

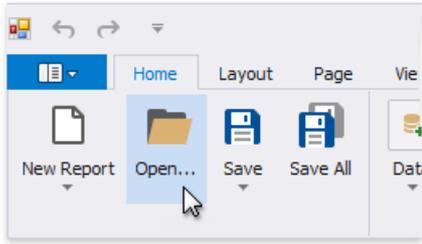
You can also use the CTRL+W shortcut to run the [Report Wizard](#).

Open Reports

You can use different commands to open a report. The **Open** dialog displays [saved report files](#) with the REPX extension. These files store information about the report's layout. Select a report file and press **Open**.

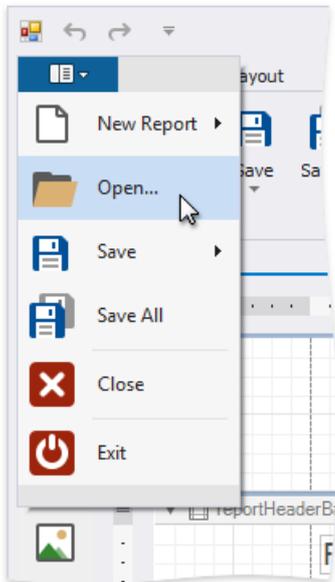
Use the Ribbon Application Menu

Click **Open**.



Use the Ribbon Application Menu

Click the application button and then **Open** in the invoked application menu.



Use a Shortcut

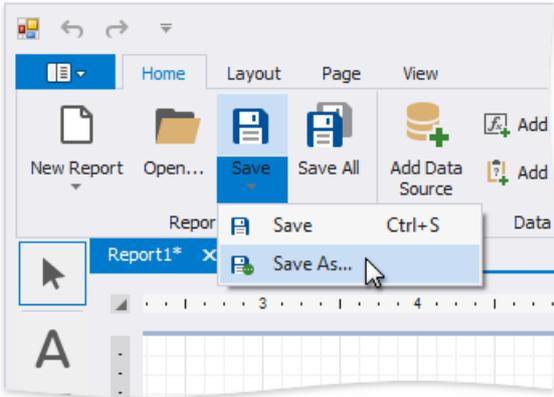
You can also use the CTRL+O shortcut to open a report.

Save Reports

Reports are saved as a file with an REPX extension. This file stores information about the report layout. You can use one of the following commands to save reports:

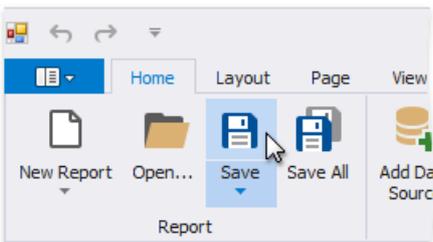
Use the Ribbon's Home Tab

- Click **Save** | **Save As** to save a copy of the report.



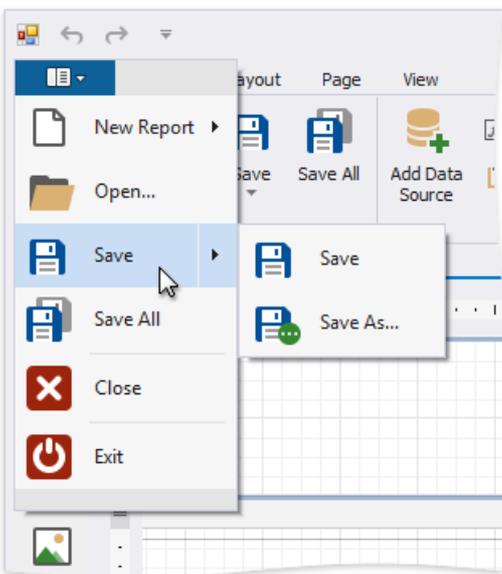
Specify the folder and file name in the invoked **Save As** dialog.

- Click **Save** or press CTRL+S to save the report's layout in the application's folder.



Use the Ribbon Application Menu

You can use the **Save** or **Save As** command in the application's menu to save the report's current layout or save a copy of the report.



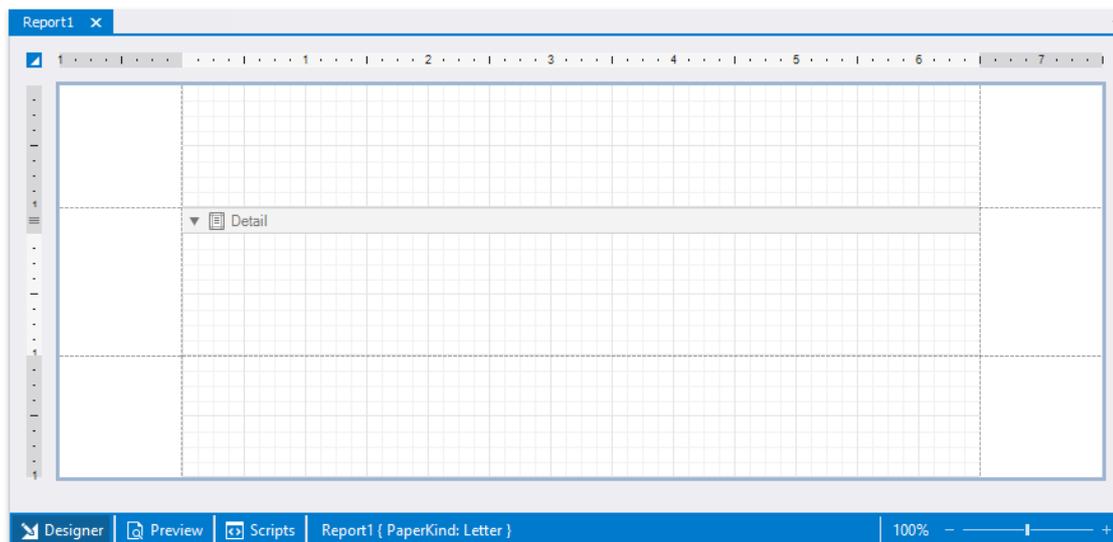
Introduction to Banded Reports

Banded reports provide a generalized report layout notion. When you preview a banded report, a report document is generated based on the report layout and data source.

Report Bands

A report layout consists of bands that contain report controls and define their location on document pages. A blank report contains the following bands:

- The **Detail Band** is printed for every record in a data source unless you filtered the data. Every report should have a detail band, and you cannot delete it.
- The **Top Margin** and **Bottom Margin** bands. These bands are repeated once on every document



page.

You can also add the following bands:

- **Report Header** and **Report Footer**

The **Report Header** is the report's first band (margins are "out-of-page" zones). Use this band to display the report's name, company logo, [date of creation](#), [username](#), etc.

The **Report Footer** is placed before the Page Footer and Bottom Margin on the report's last page. You can use the Report Footer band for report [summaries](#) or conclusions.

- **Page Header** and **Page Footer**

These bands are at the top and bottom of every page in a report. They display information that should be printed on every page.

- **Group Header** and **Group Footer**

These bands are above and below each [group](#). The [Group and Sort Panel](#) create these bands

Tip: Only the detail and group bands can be used to display dynamic data source contents. Other bands display titles, summaries, and extra information.

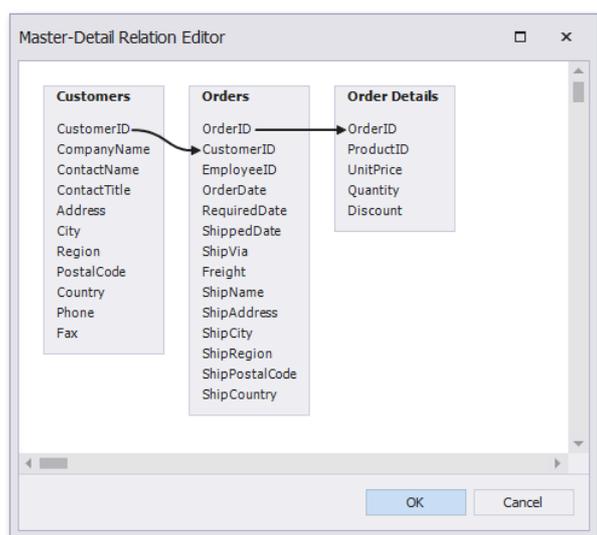
automatically.

The following image illustrates a sample report layout and the [Report Explorer](#) that reflects the report's structure:

Add a Detail Band to a Master-Detail Band

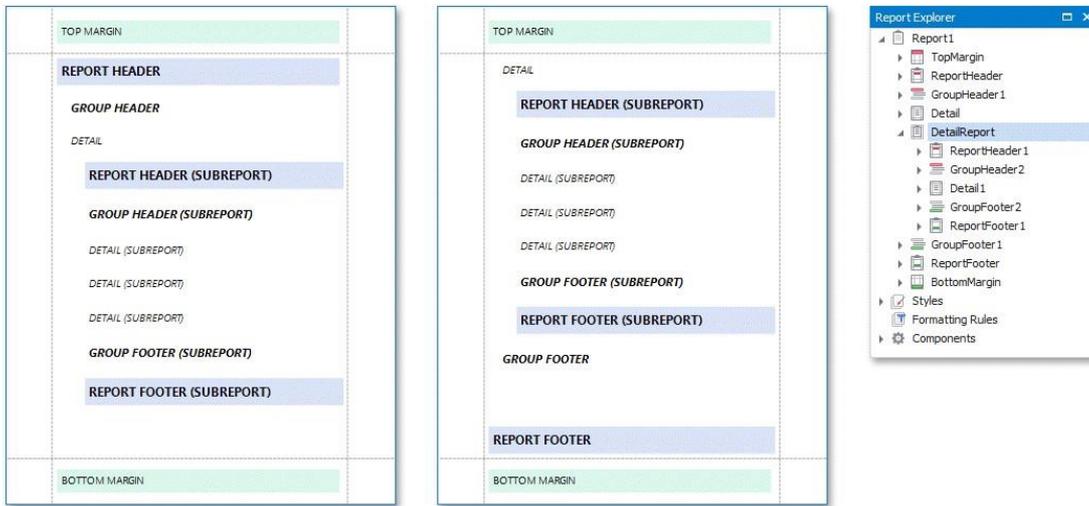


Use the **Detail Report** band to create hierarchical [master-detail reports](#). Detail report bands provide detailed information about each record in the master report's detail band (for example, orders shipped to each customer). You can create such reports when master-detail relationships are defined between data source tables:



The Detail Report band is a separate report (subreport) with its own data source and different bands. A report can have any number of detail reports that can also be nested.

The following image illustrates a master-detail report and the [Report Explorer](#) that reflects the report's structure:



Vertical Bands

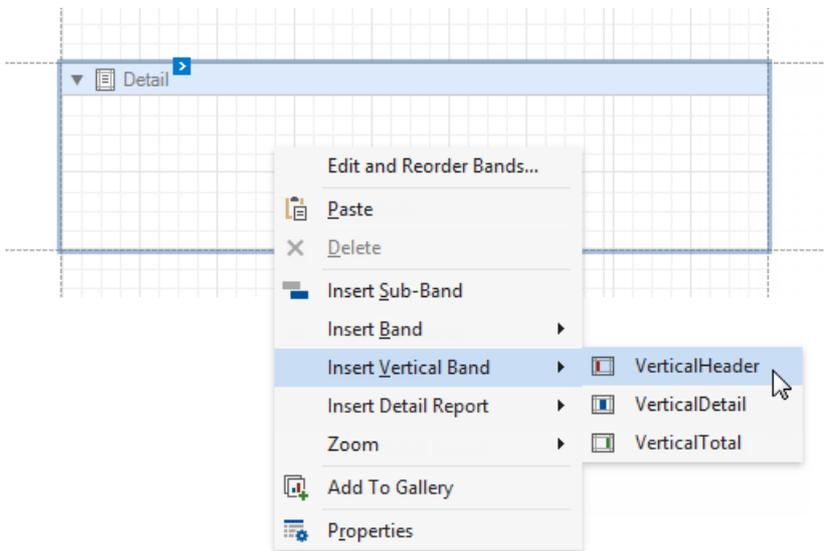
You can replace the Detail band with the Vertical Header, Vertical Detail and Vertical Total bands to display record fields vertically and print data records horizontally - from left to right (and vice versa if the report's RTL mode is enabled).

Profit and Loss

January - June 2018

	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
INCOME							
Construction Income	\$88,593.76	\$93,252.79	\$82,345.80	\$76,067.11	\$119,220.71	\$115,339.77	\$574,819.94
Sales Income	\$720.00	\$749.00	\$471.00	\$26.00	\$69.00	\$579.00	\$2,614.00
TOTAL INCOME	\$89,313.76	\$94,001.79	\$82,816.80	\$76,093.11	\$119,289.71	\$115,918.77	\$577,433.94
COST OF GOODS SOLD							
Cost of Goods Sold	\$2,532.99	\$1,453.18	\$2,452.07	\$239.49	\$1,417.39	\$373.61	\$8,468.72
Job Expenses	\$14,628.39	\$10,060.92	\$18,692.87	\$11,596.53	\$28,317.67	\$18,540.57	\$101,836.94
TOTAL COST OF GOODS SOLD	\$17,161.38	\$11,514.10	\$21,144.94	\$11,836.02	\$29,735.06	\$18,914.18	\$110,305.66
GROSS PROFIT	\$72,152.38	\$82,487.70	\$61,671.87	\$64,257.09	\$89,554.65	\$97,004.59	\$467,128.28

To add vertical bands to your report, right-click the report in the Report Designer and choose **Insert Vertical Band** in the invoked context menu.



Not e

If your report's **Detail** band contains report controls, this band and all these controls are lost when you add a vertical band (the same behavior takes place in the opposite situation).

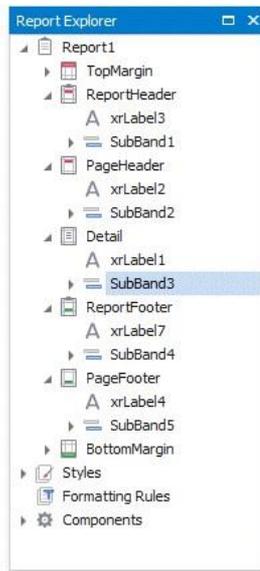
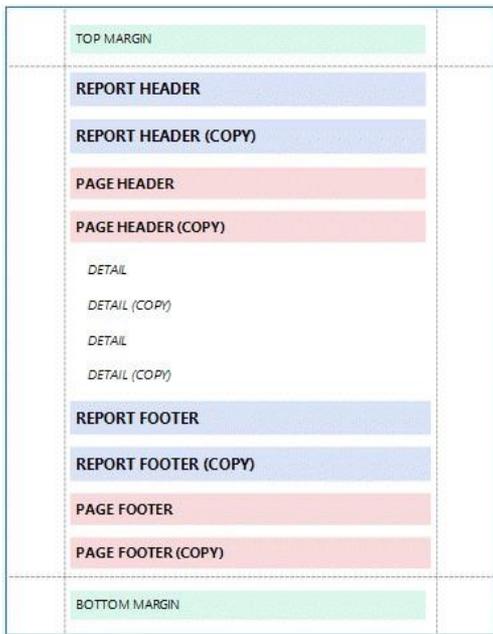
The following vertical bands are available:

- **Vertical Header**
Contains headers of the report's data fields. These headers are arranged vertically.
- **Vertical Details**
This band is printed for every record in a data source unless you filtered the data. The records are displayed one after another in a horizontal direction.
- **Vertical Total**
This band is placed at the rightmost position (leftmost when RTL is enabled). You can use the Vertical Total band for report [summaries](#) or conclusions.

You can use the [Report Wizard](#) to create a report with vertical bands. Refer to the [Create a Vertical Report](#) topic for instructions on how to create a report with vertical bands.

Create Band Copies

You can create functional copies of a band, for example, to display different contents based on a specific condition. To do this, add **sub-bands** to bands.

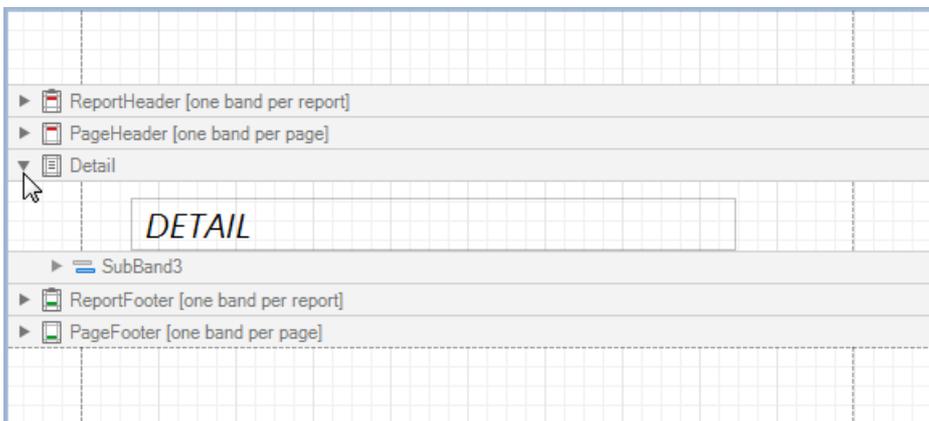


Manage Report Bands

Hide Bands in the Report Designer

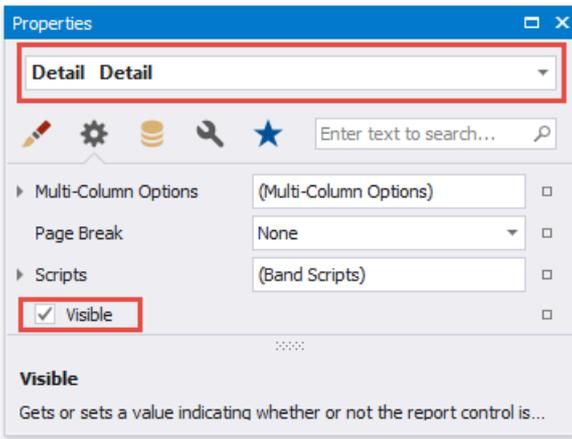
T i p: See [Layout Dynamic Report Content](#) for details on how to specify the location of bands' content on document pages.

Click the arrow button on the band's title to collapse or expand the band.



Hide Bands in the Report Document

You can avoid printing band content in a document. To do this, select the band and set the band's **Height** property to zero or disable its **Visible** property in the [Property Grid](#).

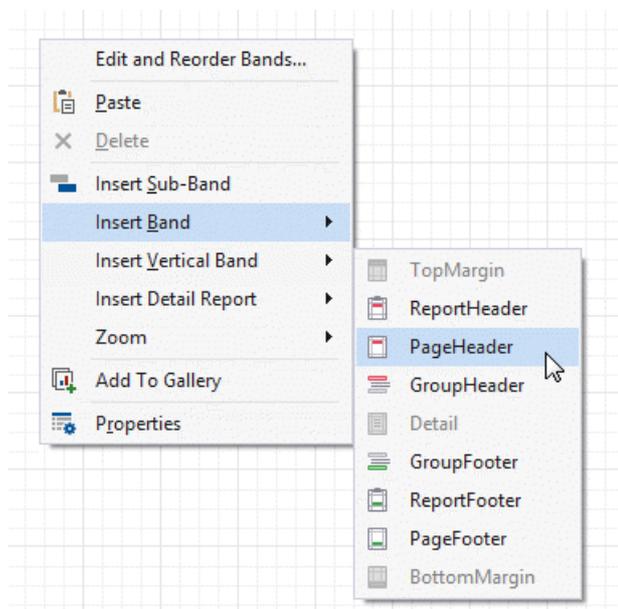


Remove Bands

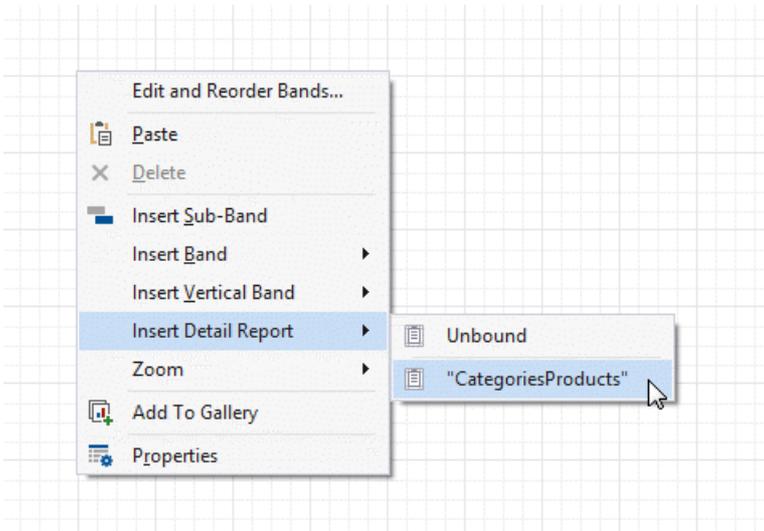
Select a band on the report design surface and press DELETE. This removes the band and all its content.

Add Bands

To add a band, right-click a report's design surface, and in the invoked context menu, choose **Insert Band**.

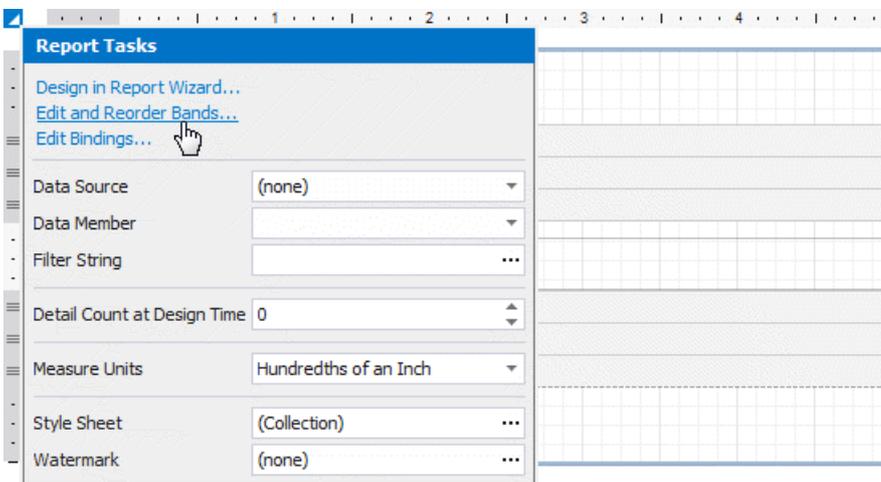


You can insert a detail report band if the report's data source has [master-detail relations](#).

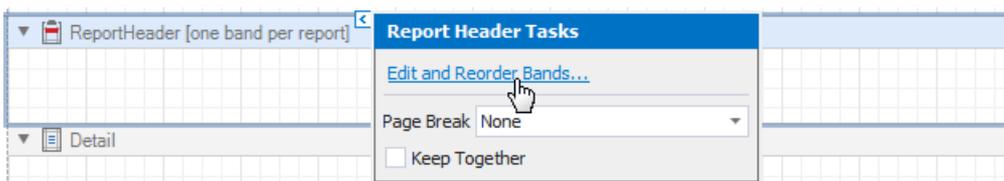


Access the Bands Collection

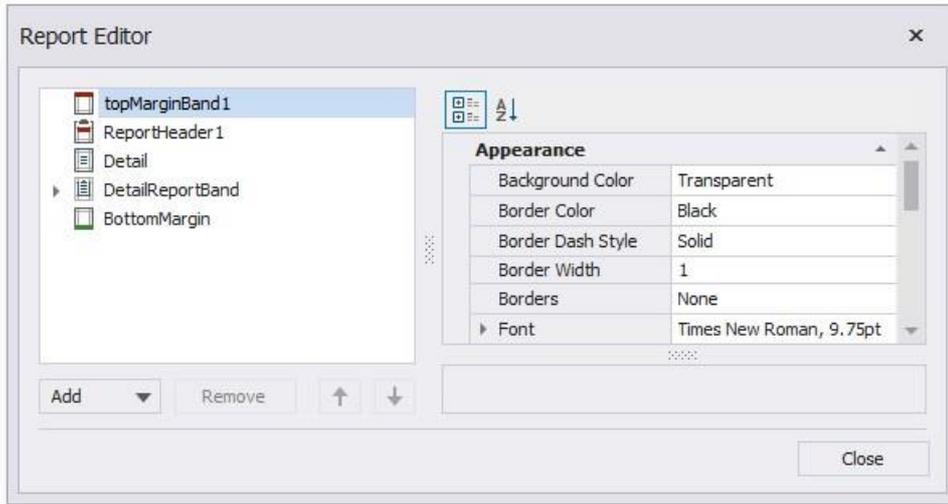
Click the **Edit and Reorder Bands** context link in a report's smart tag to access the report's bands collection.



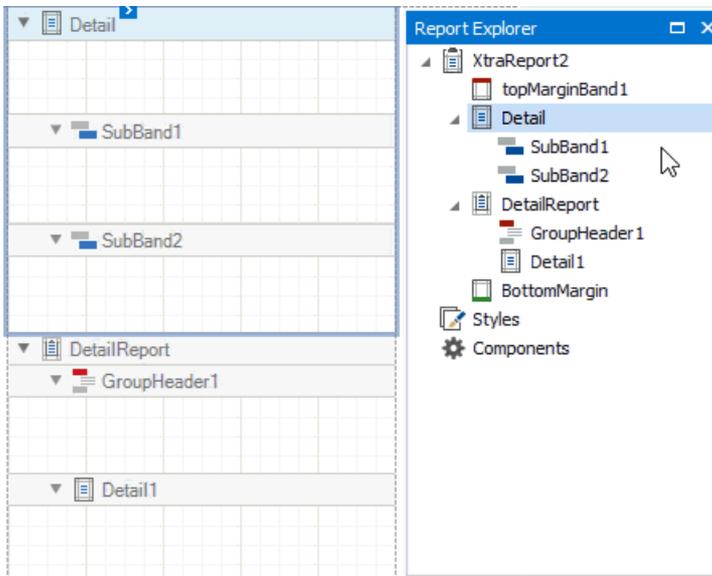
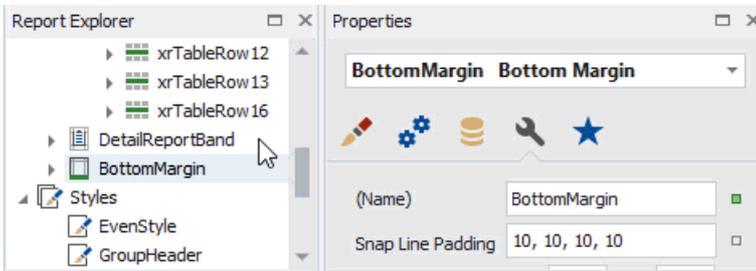
This command is also available in a band's context and smart tag menus.



The invoked editor allows you to reorder bands and change their properties.

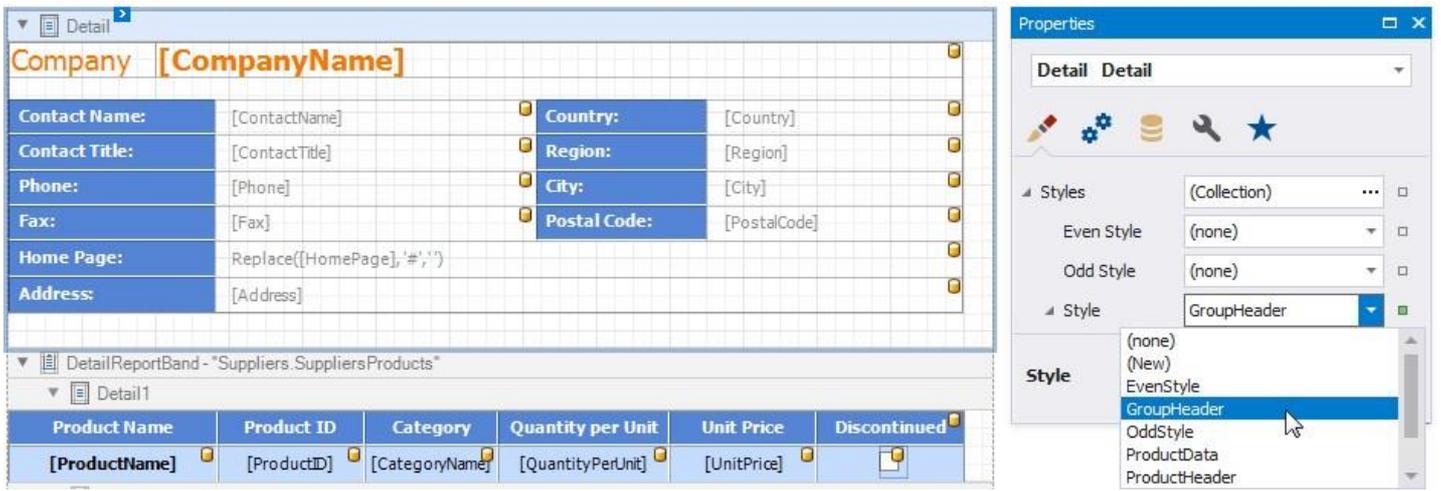


Alternatively, use the [Report Explorer](#) to edit and reorder bands. Select a band and edit its properties in the **Property Grid**.



Apply Styles to Bands

Select a band and switch to the **Property Grid**. Expand the **Styles** group and set the **Style** property to the style name.

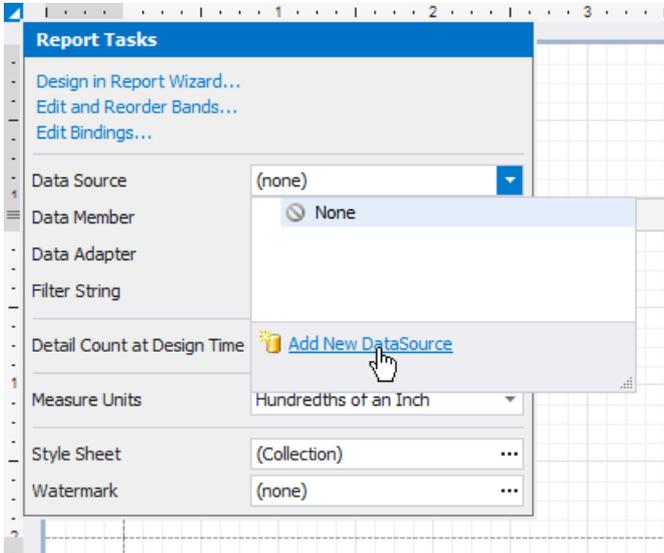


As an alternative, you can drag a style from the [Report Explorer](#) onto a band. This is applicable to all bands except **DetailReport**.

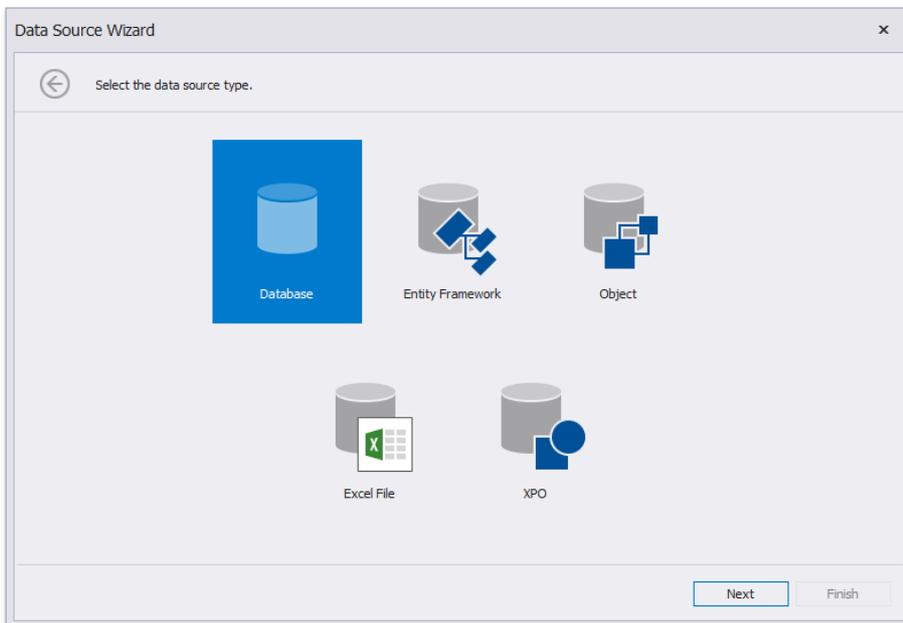
Bind a Report to a Database

This tutorial demonstrates how to bind a report to a hierarchical data source and specify a master-detail relationship between data source queries:

1. [Create a new report](#).
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



3. On the first page of the invoked [Data Source Wizard](#), select **Database** and click **Next** to proceed.

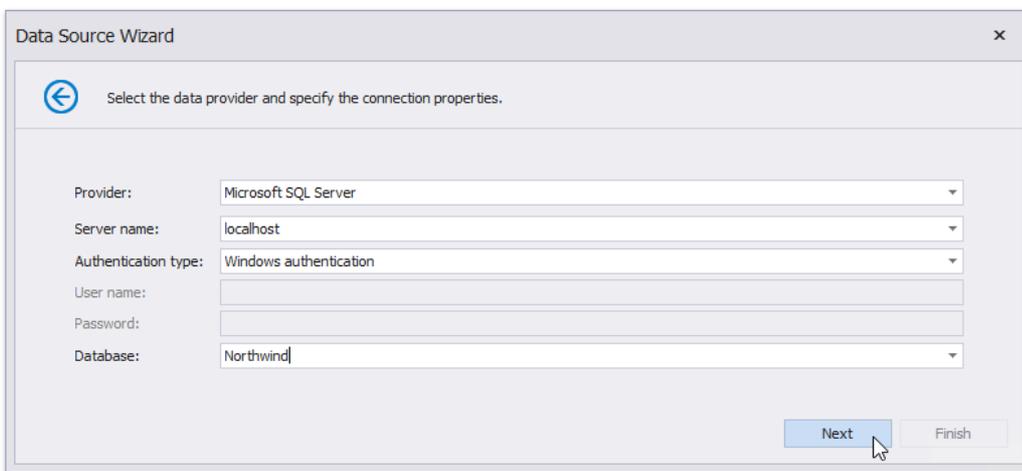


4. The next page allows you to specify whether you want to use an existing data connection or create a new data connection from scratch. Select the first option to create a new connection and click **Next**.



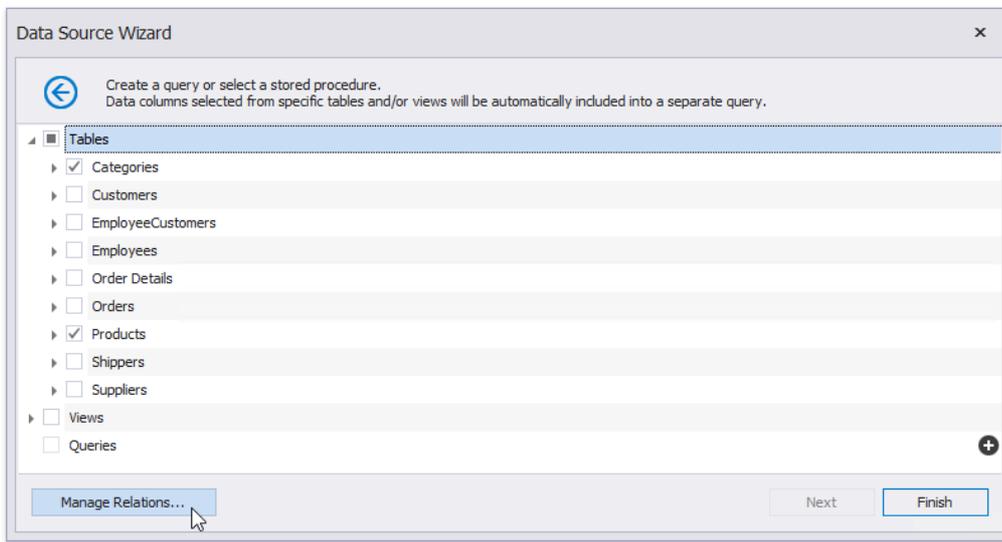
5. On the next page, you can define a custom connection string, or select one of the supported data providers.

Depending on the data provider selected, it may be necessary to specify additional connection options (such as the authentication type and database name) on this page.

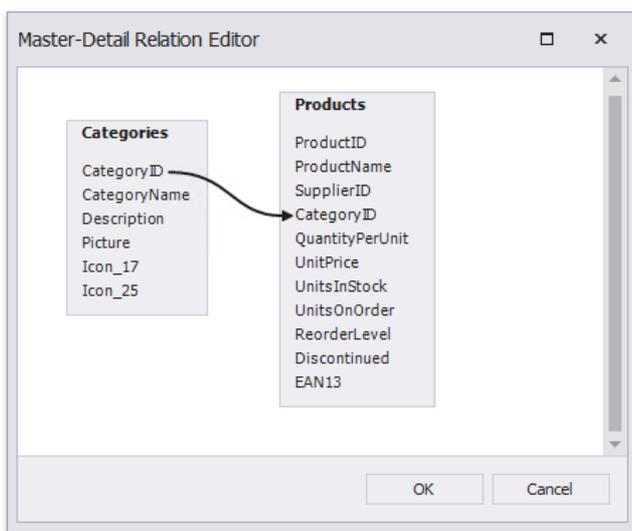


To proceed to the next wizard page, click **Next**.

6. On the next page, you can choose which tables, views and/or stored procedures to add to the report. To create a master-detail report, select two or more tables and click **Manage Relations**.



In the invoked editor, connect the required key fields (columns) using drag and drop.



Click **OK** to close the editor.

Not e

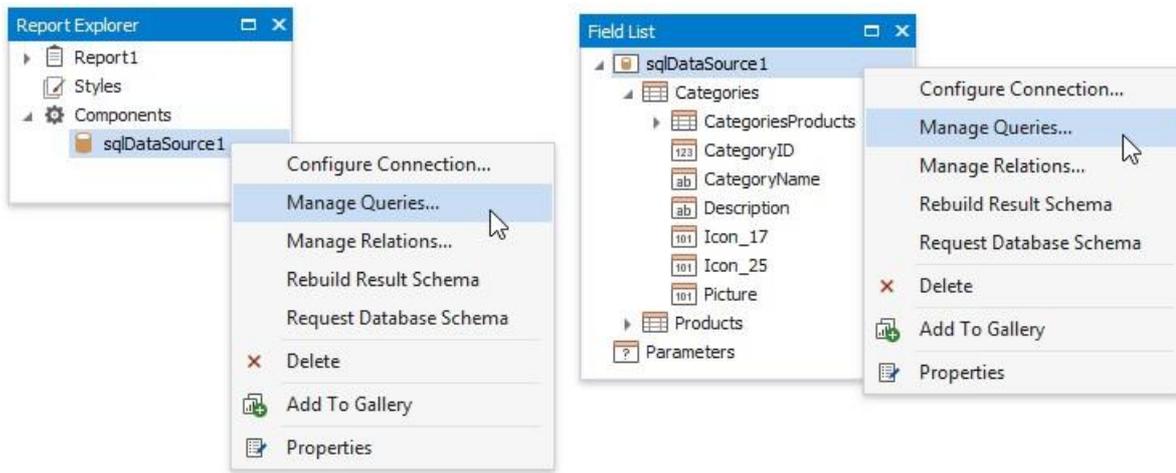
When you are required to shape data at the level of a data source, you can create [custom queries](#) by expanding the **Queries** category and clicking the plus button.

This will invoke the [Query Builder](#) where you can create complex queries by joining multiple tables, filtering, sorting and grouping their data, as well as calculating various aggregate functions.

Although it is also possible to join different tables within a single query, creating hierarchical data sources is preferred in most cases to provide better performance (in general, master-detail reports are generated faster than similar-looking reports created by grouping "flat" data sources).

Click **Finish** to complete the **Data Source Wizard**. If the selected queries or stored procedures contain any [parameters](#), you can go to the [next wizard page](#) and define their values.

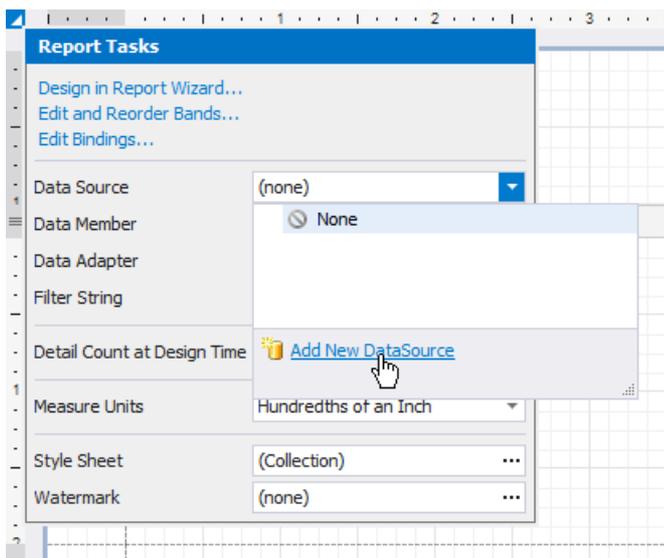
The newly created SQL data source will be displayed in the **Components** node of the [Report Explorer](#). Additionally, the hierarchy of the data source will be reflected by the [Field List](#). In both panels, you can right-click the data source to access its settings.



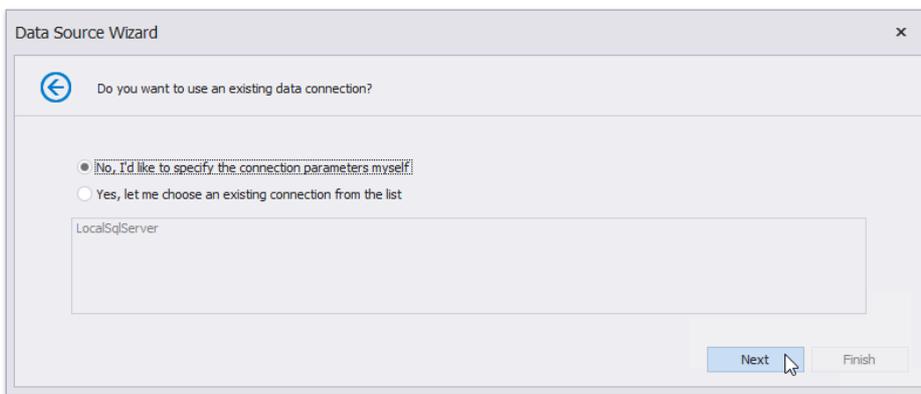
Bind a Report to a Stored Procedure

This tutorial demonstrates how to bind a report to a stored procedure provided by an SQL data source:

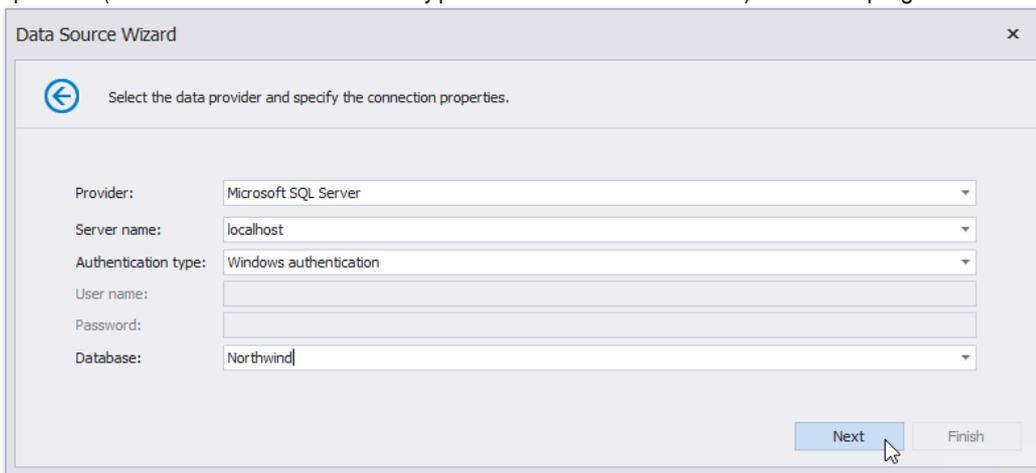
1. [Create a new report](#).
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



3. On the first page of the invoked [Data Source Wizard](#), select **Database** and click **Next**.
4. The next page allows you to specify whether you want to use an existing data connection or create a new data connection with custom parameters. Select the first option to create a new connection and click **Next**.

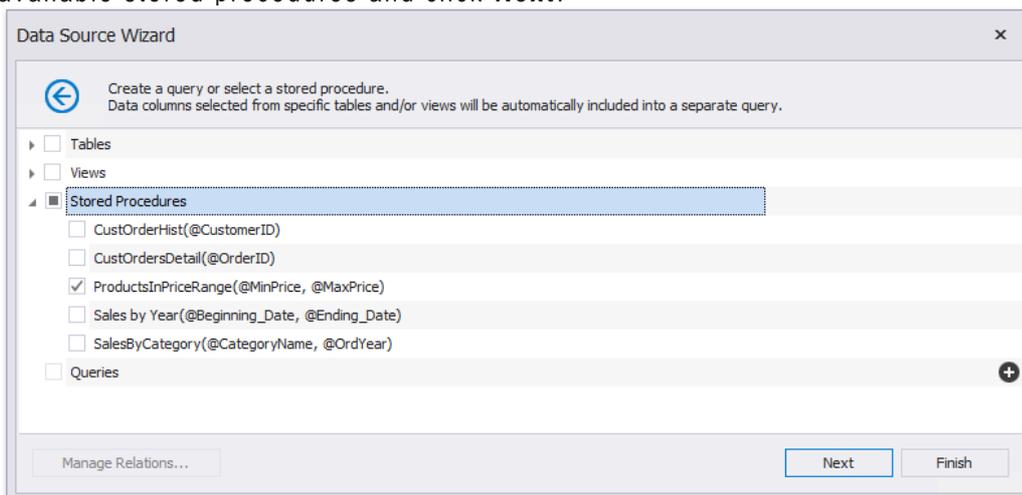


- On the next page, you can define a custom connection string or select from the list of [supported data providers](#). Depending on the data provider selected, it may be necessary to specify additional connection options (such as authentication type and database name) on this page.



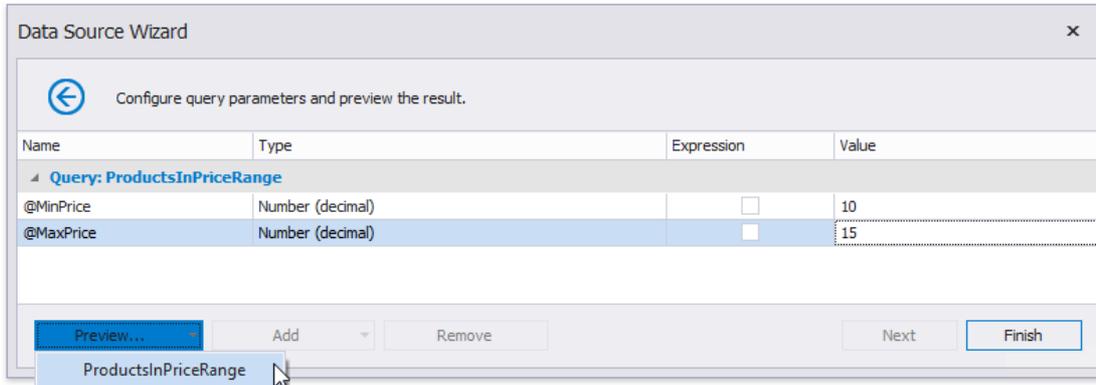
To proceed to the next wizard page, click **Next**.

- On the next page, you can choose which tables, views and/or stored procedures to add to the report. Expand the **Stored Procedures** category, select the required stored procedure from the list of available stored procedures and click **Next**.



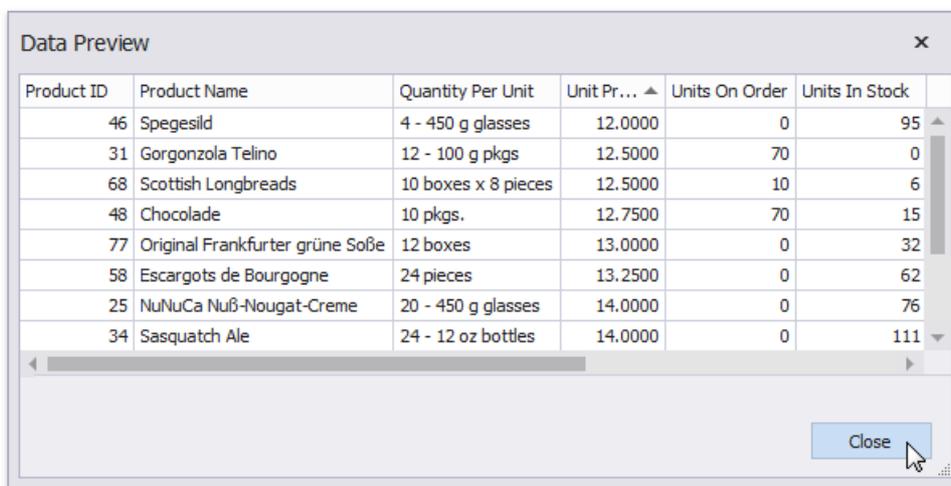
- Then, the wizard generates query parameters for each stored procedure parameter. The next wizard page presents the generated query parameters. You can assign a static value or an expression to a parameter. In addition, you can map a report parameter to a query parameter. This is helpful when you specify parameter values in the report's Preview. For details on how to configure query parameters, refer to the [Use Query Parameters](#) topic.

Click the **Preview** button and select a query to preview the result of the stored procedure execution with



the specified parameters.

The following image demonstrates the **Data Preview** displaying the resulting data sample. Click **Close** to exit the preview.

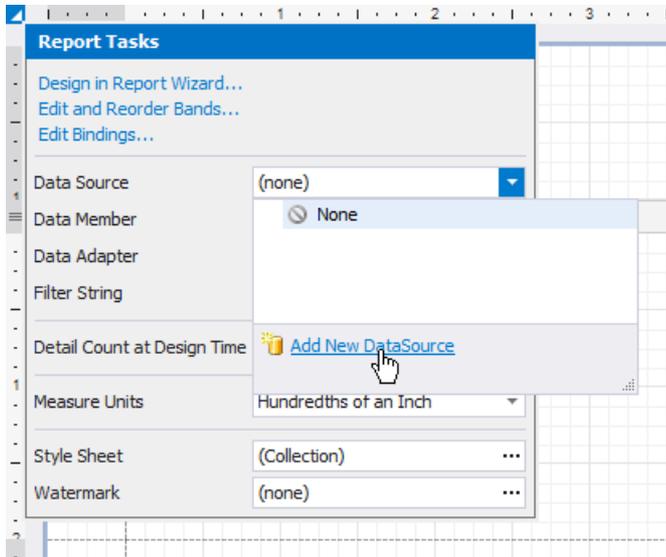


Click **Finish** to exit the wizard.

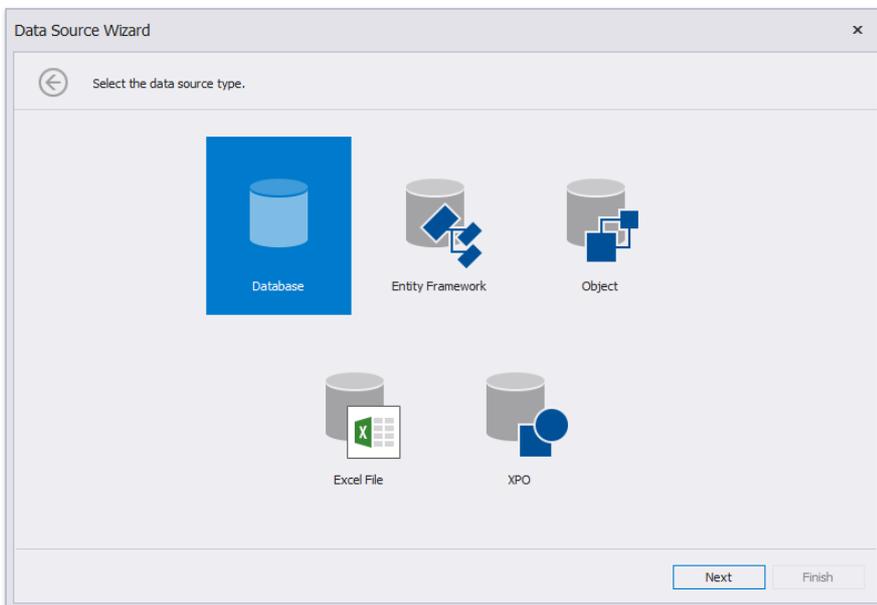
Bind a Report to an XML File

This tutorial demonstrates how to bind a report to data stored in an external XML file.

1. [Create a new report.](#)
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource.**



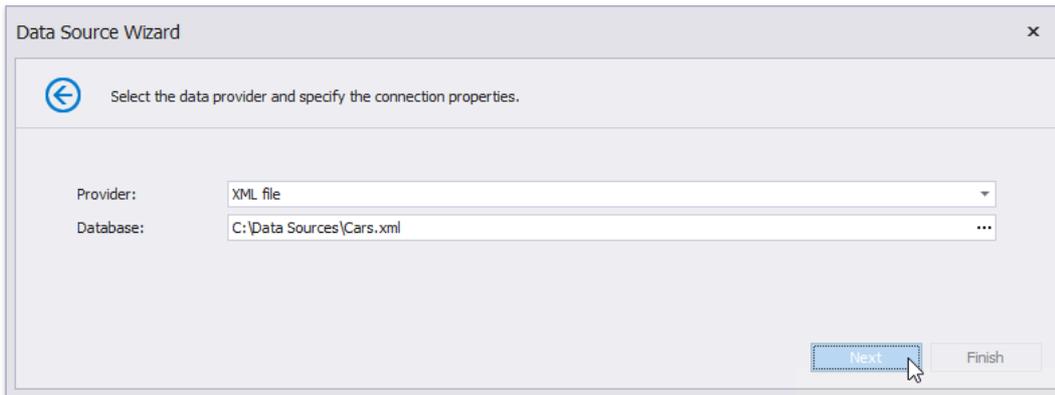
3. On the first page of the invoked [Data Source Wizard](#), select **Database** and click **Next**.



4. The next page allows you to specify whether you want to use an existing data connection or create a new data connection. Select the first option and click **Next**.

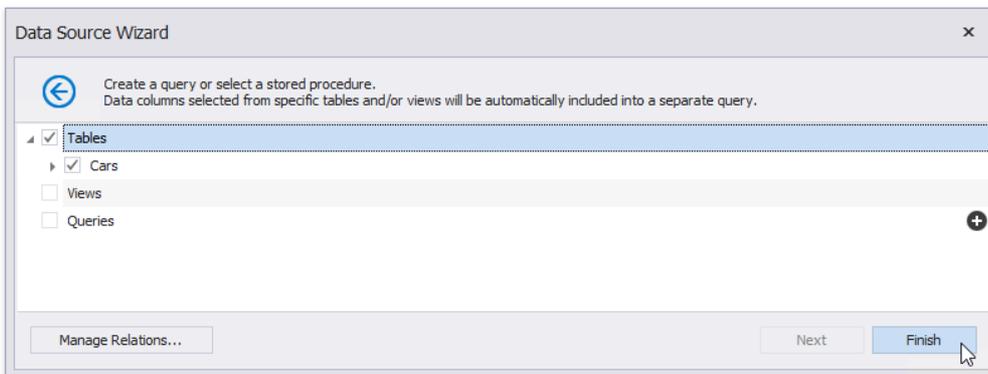


5. On the next page, specify the data provider (**XML file**) and the path to the database file.



To proceed to the next wizard page, click **Next**.

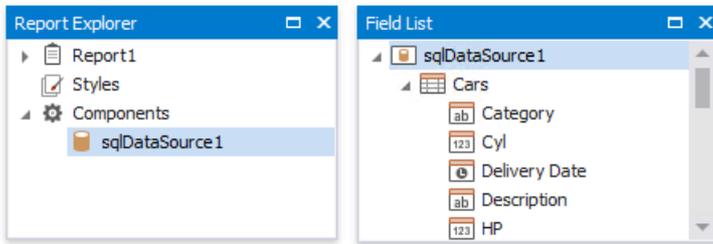
6. On the next page, you can choose which tables, views and/or stored procedures to add to the report. You can also construct custom queries using the [Query Builder](#). Click **Finish** to exit the wizard.



Not e

Some of the data shaping capabilities available to SQL data sources (such as sorting, grouping and filtering data, as well as using aggregate functions) are not supported for XML files.

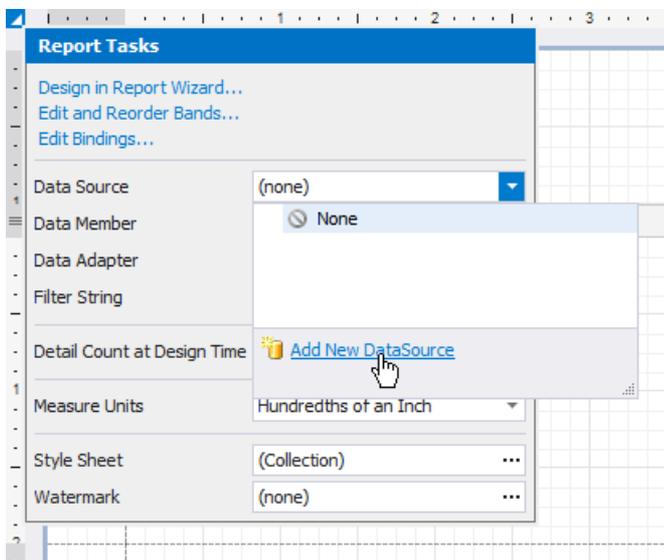
The newly created SQL data source will be displayed in the **Components** node of the [Report Explorer](#). Additionally, the hierarchy of the data source will be reflected by the [Field List](#).



Bind a Report to an Entity Framework Data Source

This document describes how to use an Entity Framework data source to bind a report to data provided by an Entity Framework data context:

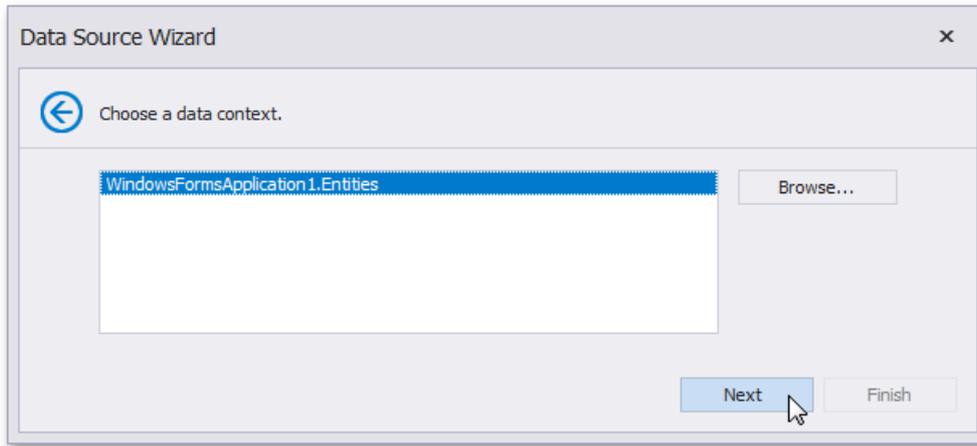
1. [Create a new report](#).
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



3. On the first page of the invoked [Data Source Wizard](#), select the **Entity Framework** and click **Next**.

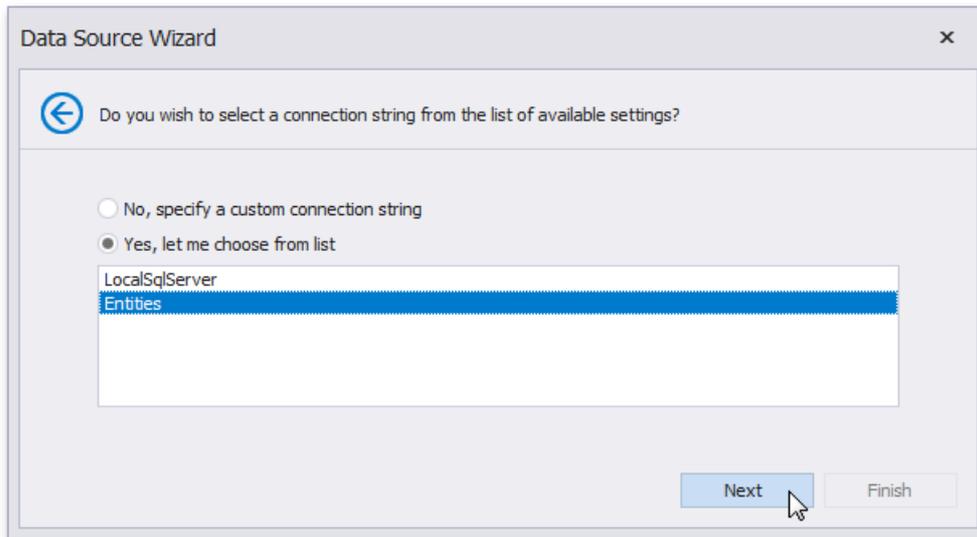
4. On the next page, select the required data context. You can bind it to an Entity Framework data context that is contained in either the current project assembly or a separate assembly.

To use a data context that exists in the current project assembly, select it in the **Choose Context** list and click **Next**.

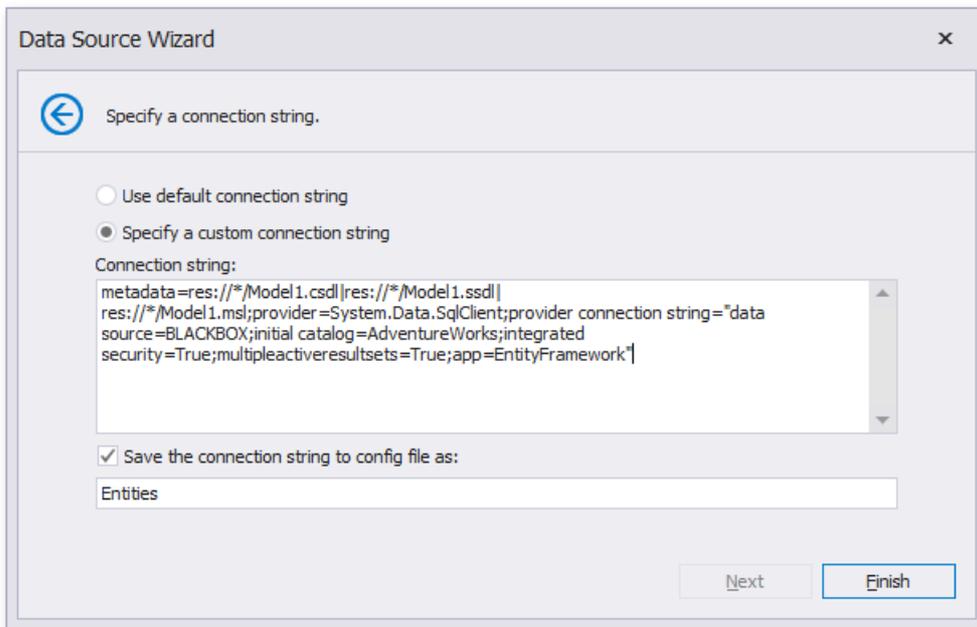


Select the required data context and click **Next**.

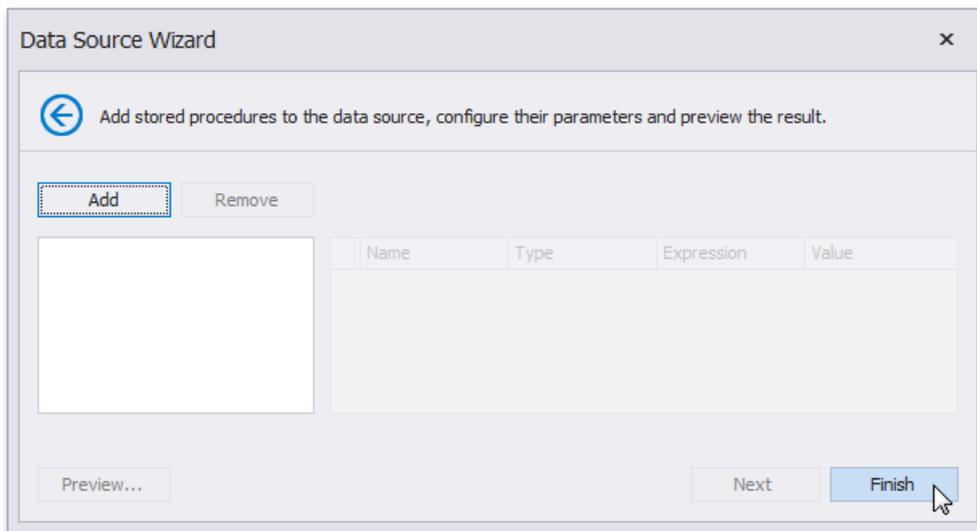
5. On the next page, specify a connection string to be used to establish a data connection using one of the following two options.
 - Use an existing connection string available in the current project. To do this, select **Yes, let me choose from the list**. Next, select the required connection string from the list of the available connection strings.



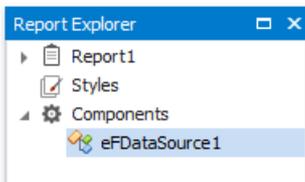
- Specify a connection string manually. To do this, select **No, specify a custom connection string** and click **Next**. On the next page, specify a connection string. You can choose to use the default connection string or specify a custom connection string.



- The next wizard page is available only if the current entity data model contains stored procedures. This page allows you to add stored procedures to the data source and configure their parameters. Click **Finish** to exit the wizard.



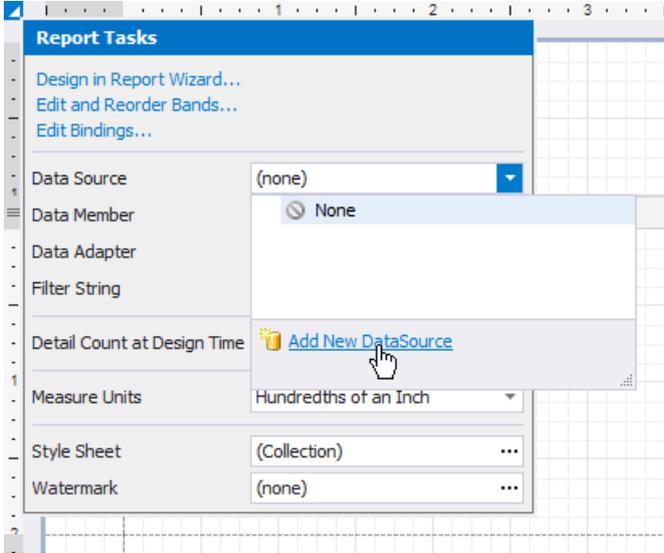
The newly created data source will be displayed in the **Components** node of the [Report Explorer](#). Additionally, the hierarchy of the data source will be reflected by the [Field List](#).



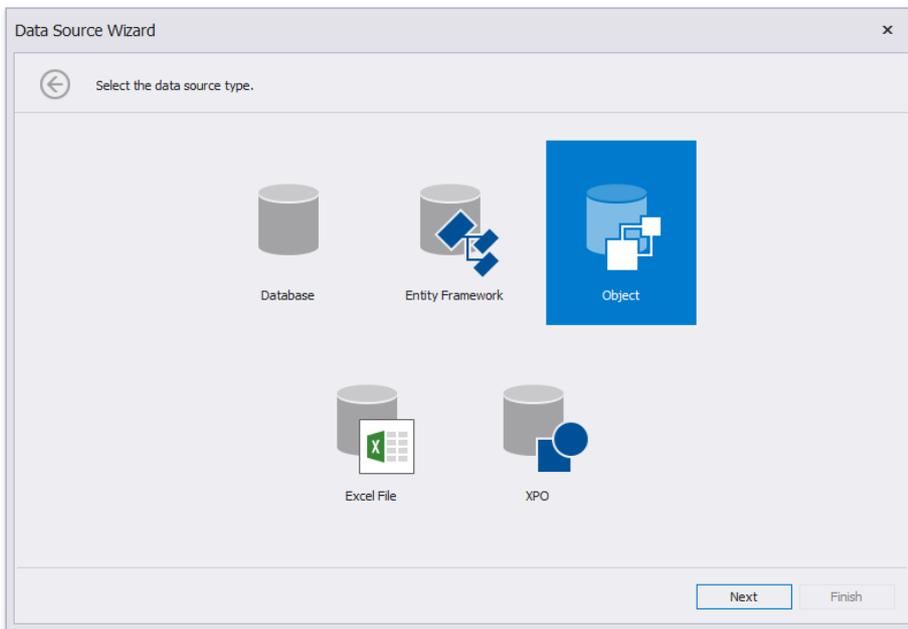
Bind a Report to an Object Data Source

This tutorial describes how to bind a report to an object data source:

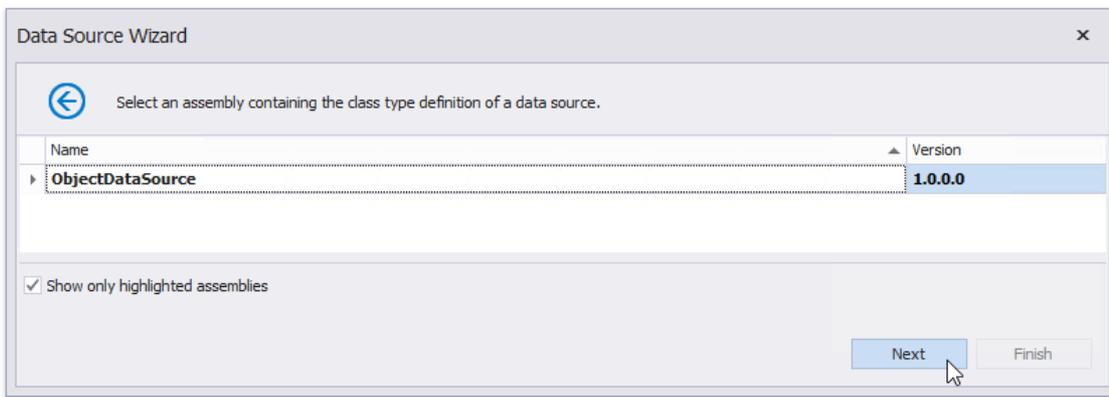
1. [Create a new report](#).
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



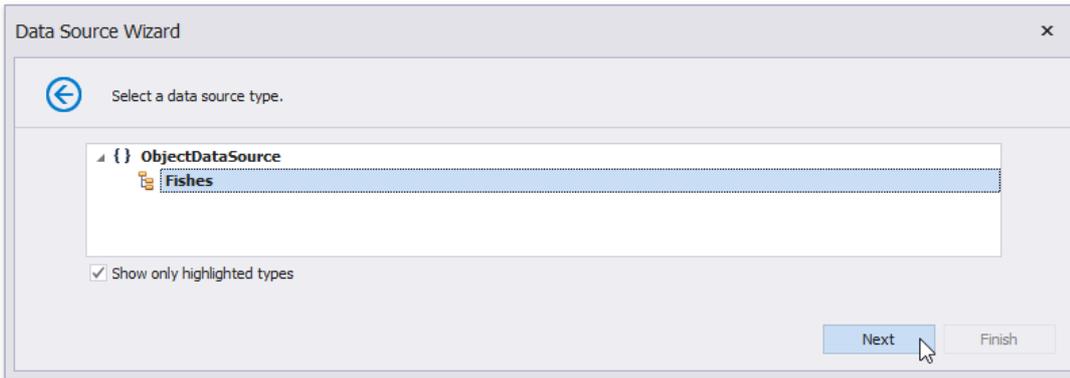
3. On the next wizard page, choose the **Object Binding** option and click **Next**.



4. The following wizard page allows you to select an assembly that contains the data source's class type definition. Use the **Show only highlighted assemblies** checkbox to exclude irrelevant assemblies from this list.

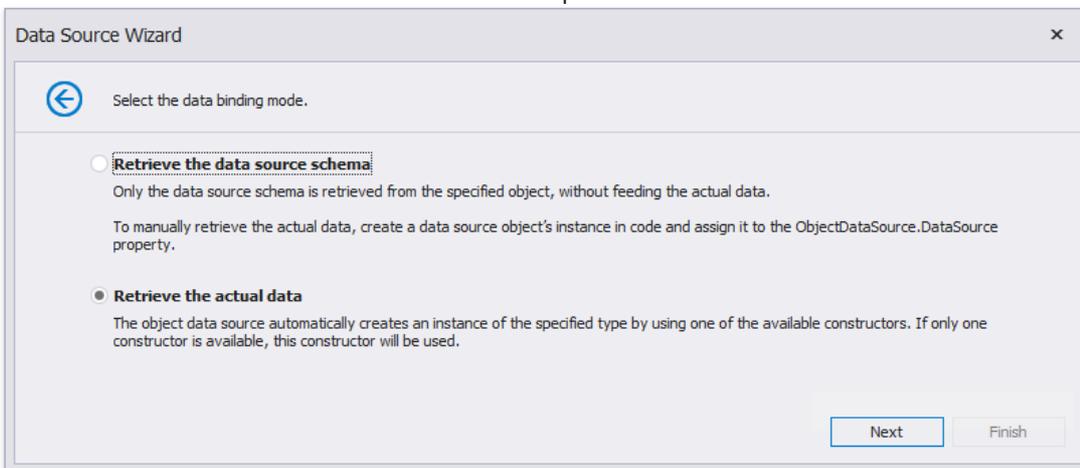


5. On the next wizard page, select a data source type. Enable the **Show only highlighted types**

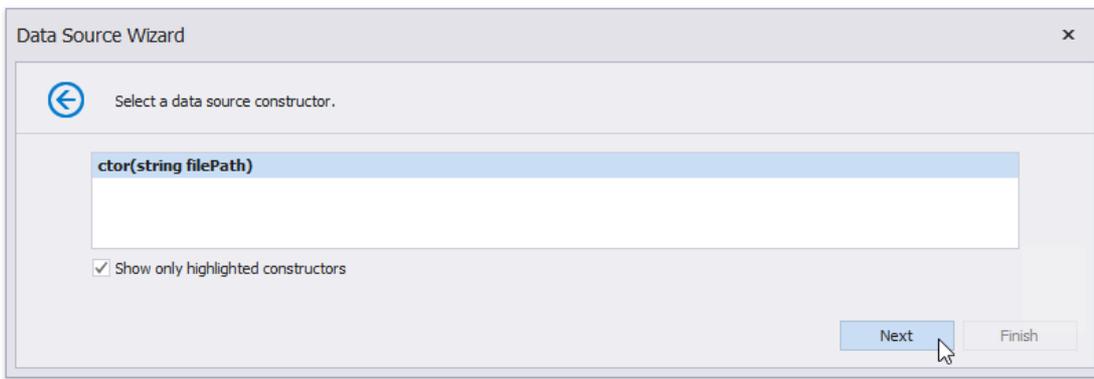


checkbox to hide irrelevant classes from this list.

6. The next wizard page enables you to select whether to obtain the data source schema (enabling you to edit the report layout without having access to the actual underlying data) or retrieve the actual data from the data source. Choose the second option and click **Next**.

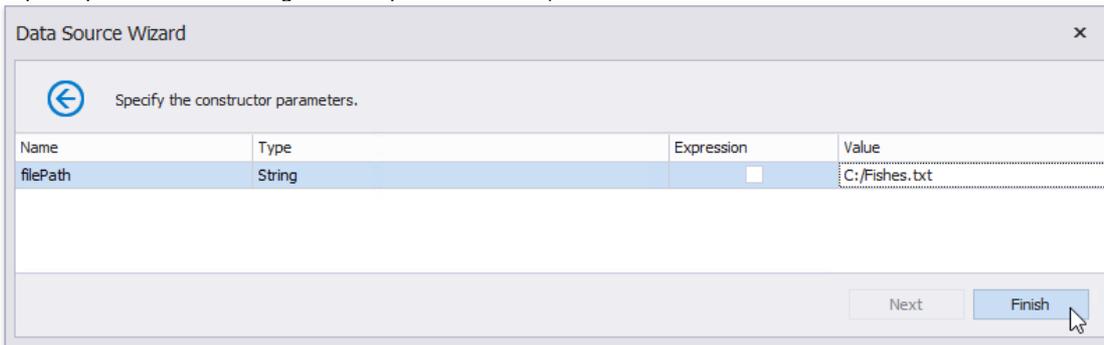


7. On the following wizard page, select a data source constructor and click **Next**. Use the **Show only highlighted constructors** checkbox to exclude irrelevant constructors from this list.



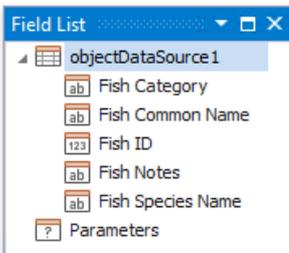
8. The next wizard page allows you to specify the constructor parameters.

Enabling the checkbox in the **Expression** column allows you to specify the parameter expression (using the **Expression Editor**), as well as pass an existing [report parameter](#) to the constructor (or create a new report parameter using the in-place editor).



Click **Finish** to complete the wizard.

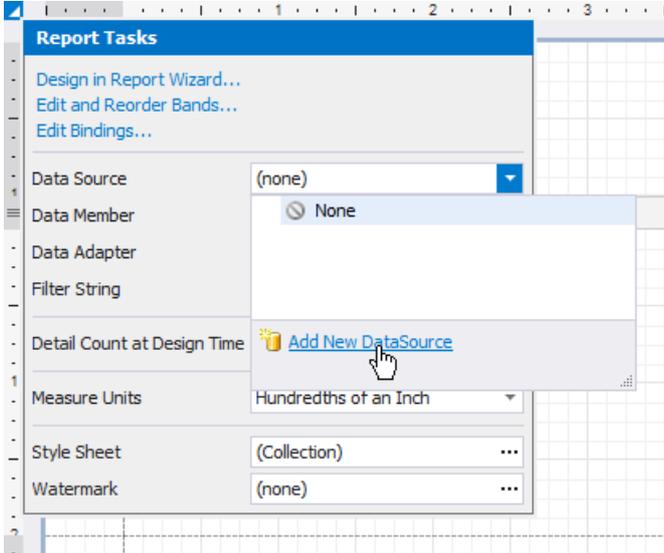
The newly created data source will be displayed in the **Components** node of the [Report Explorer](#). Additionally, the hierarchy of the data source will be reflected by the [Field List](#).



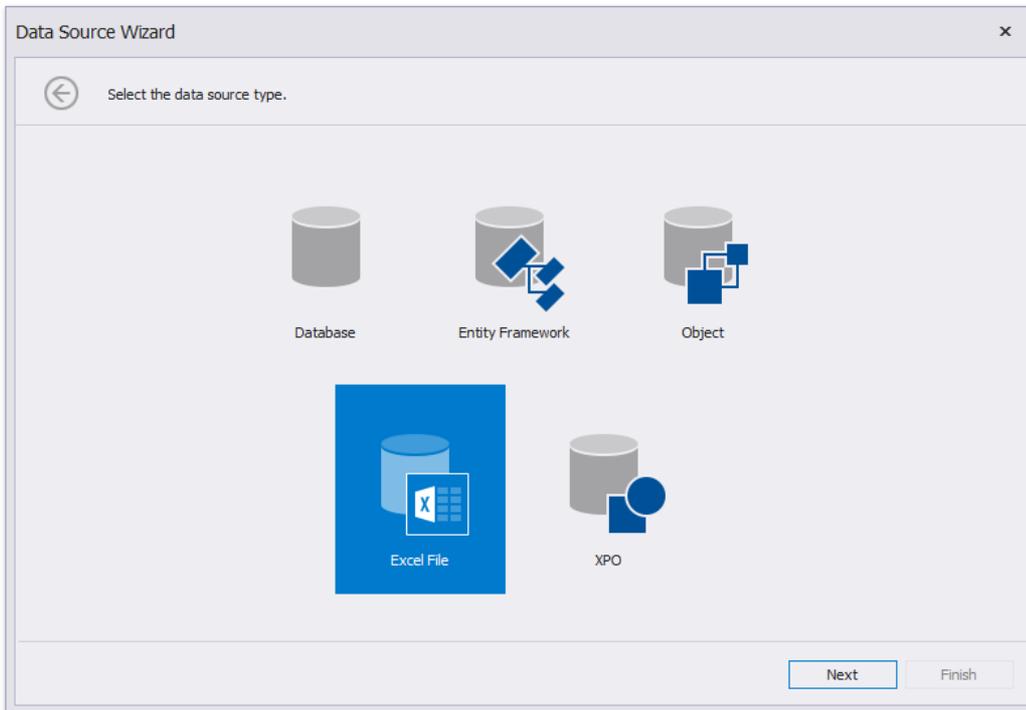
Bind a Report to an Excel Workbook

This tutorial describes how to bind a report to data obtained from a Microsoft Excel workbook:

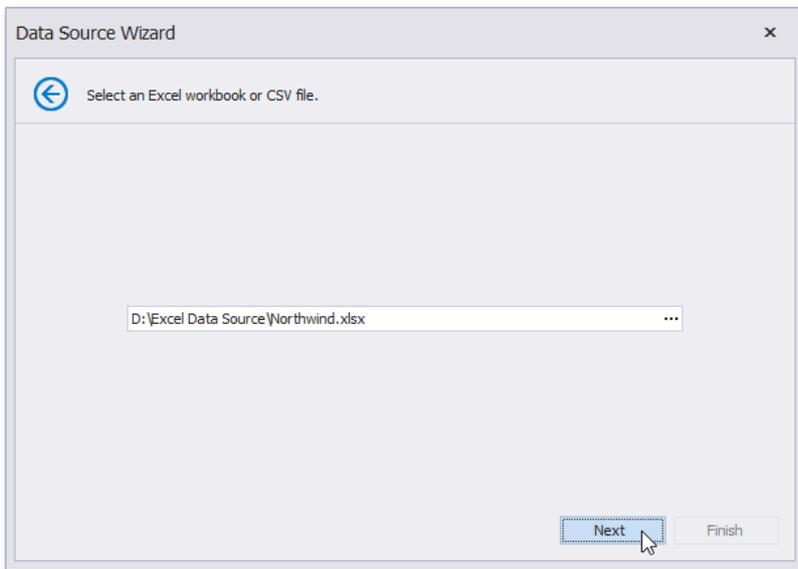
1. [Create a new report](#).
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



3. On the first page of the invoked [Data Source Wizard](#), select **Excel File** and click **Next**.



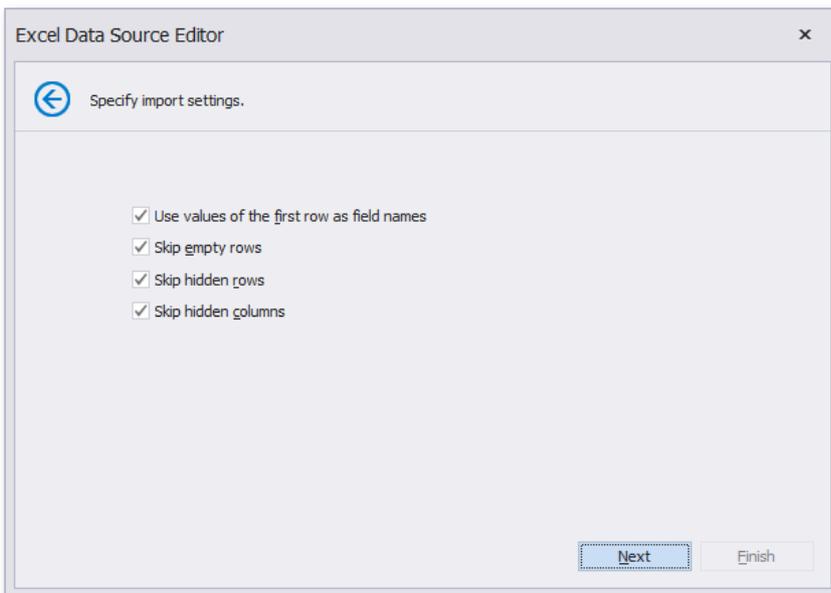
4. On the next wizard page, select a required Excel workbook. To do this, click the ellipsis button and locate the source file or enter the full path to this file. The XLS, XLSX and XLSM formats are supported.



Click **Next** to proceed to the next wizard page.

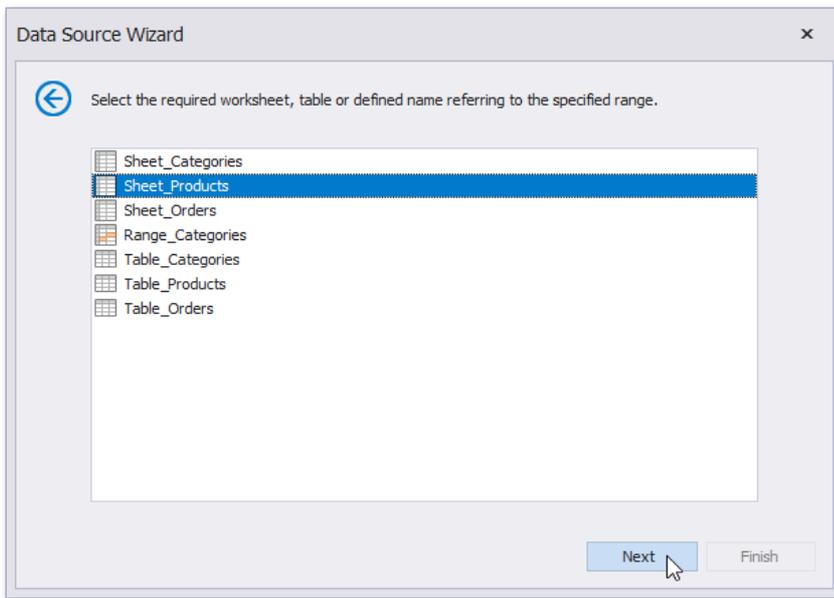
5. The next wizard page allows you to specify import settings.

Enable the first check box to use values of the first row as field names. If you disable this option, values of the first row will be imported as data and field names will be generated automatically. You can also specify whether to include empty rows to the result data source and whether to skip hidden rows and columns.



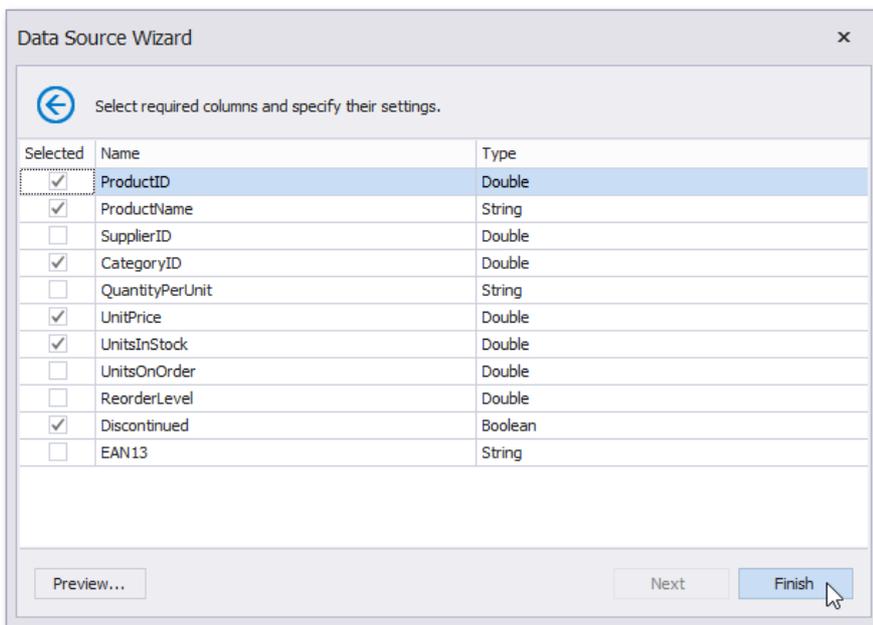
Specify required settings and click **Next**.

6. On the next wizard page specify from which part of the workbook to extract data. All worksheets, tables and named regions existing in the workbook are listed here.



7. The next wizard page allows you to select required columns and specify their settings.

To include a column to the resulting data source, enable the corresponding **Selected** check box. Use **Name** to specify the custom column name and **Type** to choose the column type.

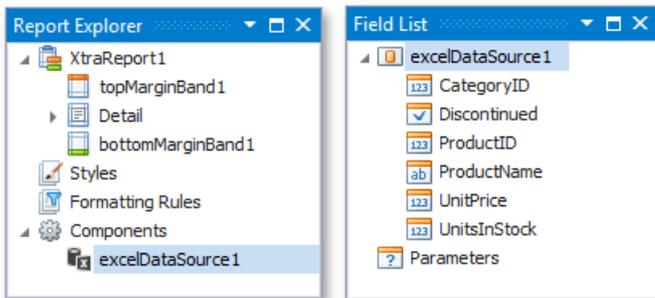


On this page, you can also preview the resulting data by clicking the **Preview...** button.

Product ID	Product Name	Category ID	Unit Price	Units In Stock	Discontinued
1	Chai	1	18	39	<input type="checkbox"/>
2	Chang	1	19	17	<input type="checkbox"/>
3	Aniseed Syrup	2	10	13	<input type="checkbox"/>
4	Chef Anton's Cajun Seasoning	2	22	53	<input type="checkbox"/>
5	Chef Anton's Gumbo Mix	2	21.35	0	<input checked="" type="checkbox"/>
6	Grandma's Boysenberry Spread	2	25	120	<input type="checkbox"/>
7	Uncle Bob's Organic Dried Pears	7	30	15	<input type="checkbox"/>
8	Northwoods Cranberry Sauce	2	40	6	<input type="checkbox"/>
9	Mishi Kobe Niku	6	97	29	<input checked="" type="checkbox"/>
10	Ikura	8	31	31	<input type="checkbox"/>

Click **Finish** to complete the wizard.

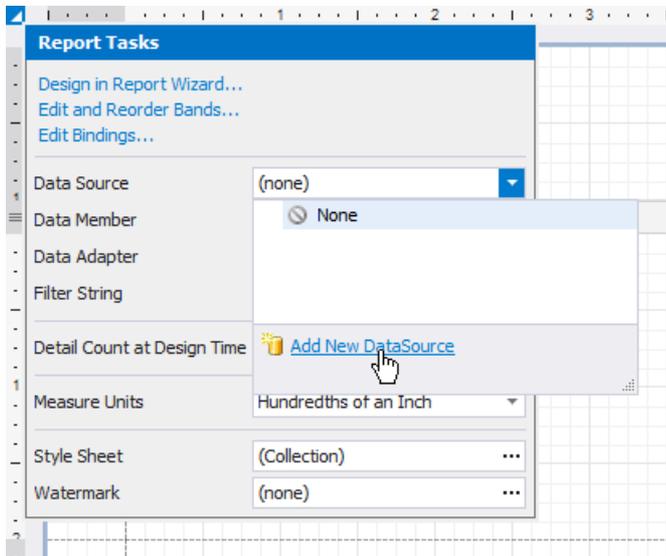
The created data source becomes displayed in the [Report Explorer's Components](#) node. The [Field List](#) reflects the data source's hierarchy.



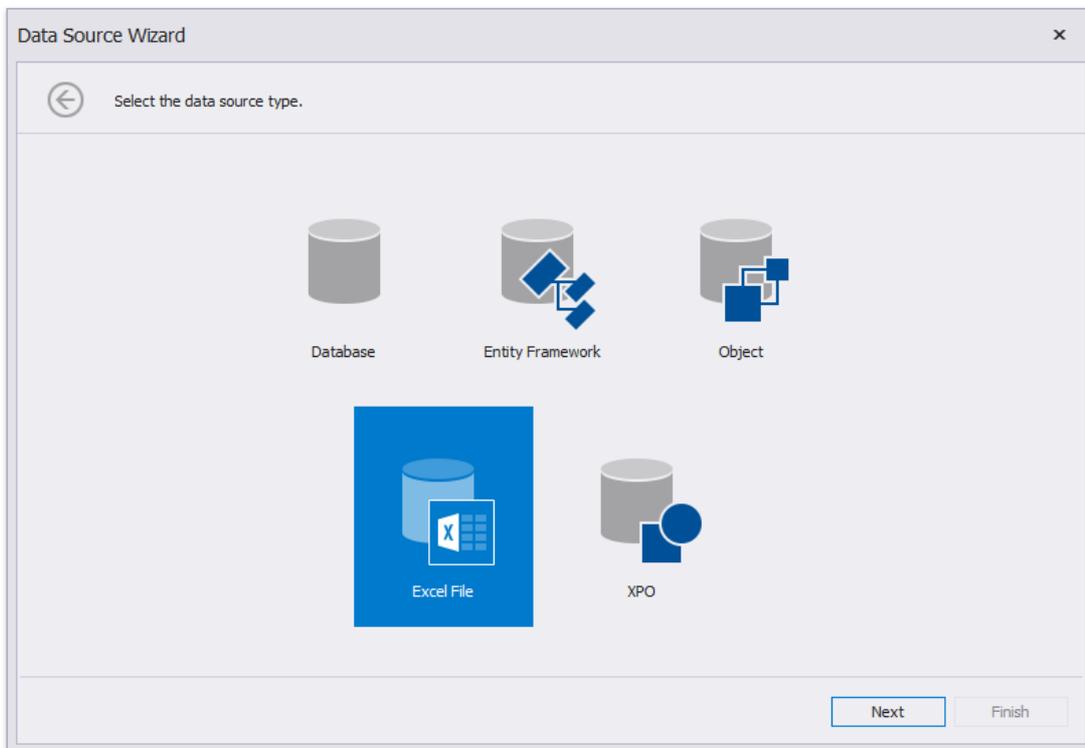
Bind a Report to a CSV File

This tutorial describes how to bind a report to data obtained from a CSV file:

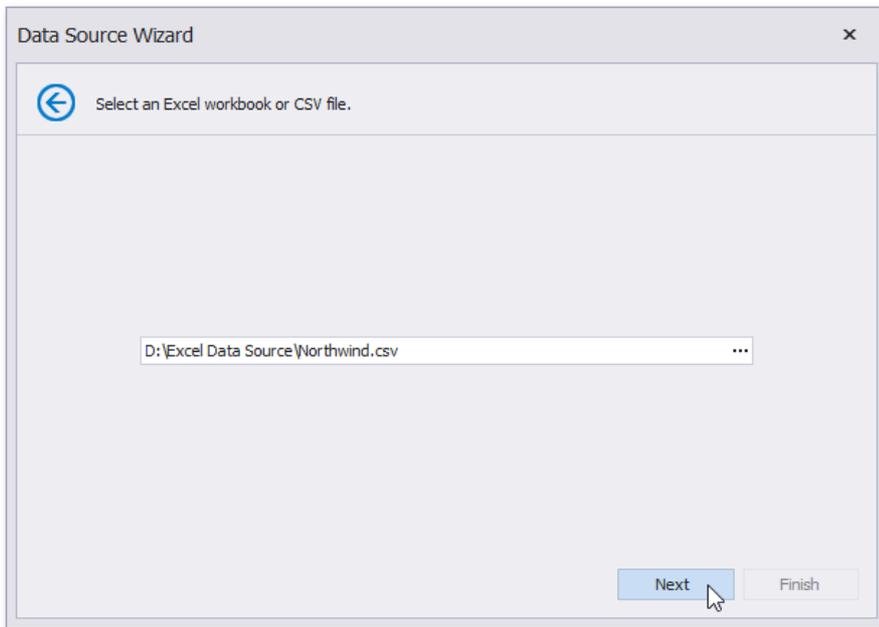
1. [Create a new report](#).
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



3. On the first page of the invoked [Data Source Wizard](#), select **Excel File** and click **Next**.



4. On the next wizard page, click the ellipsis button and locate the required CSV file or enter the full path to the file.



Click **Next** to proceed to the next wizard page.

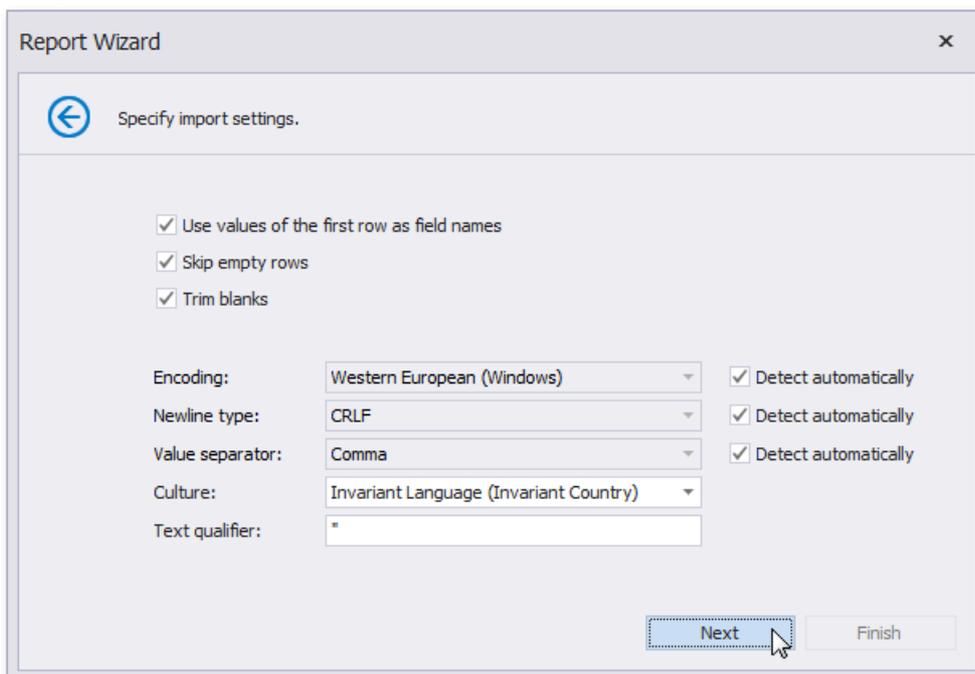
5. The next wizard page allows you to specify the import settings.

Enable the first check box to use values of the first row as field names. If you disable this option, values of the first row will be imported as data and field names will be generated automatically. The **Skip empty rows** option specifies whether to include empty rows to the result data source.

This page also provides the **Encoding**, **Newline type** and **Value separator** settings that specify the character encoding, the line break type and a character used to separate values in the CSV document. To automatically determine values of these settings, enable the corresponding **Detect automatically** check boxes. You can also disable these check boxes and manually choose desired values in the drop-down lists.

Use the **Culture** option to specify the culture information. The **Text Qualifier** setting allows you to select the character that encloses values in the source file.

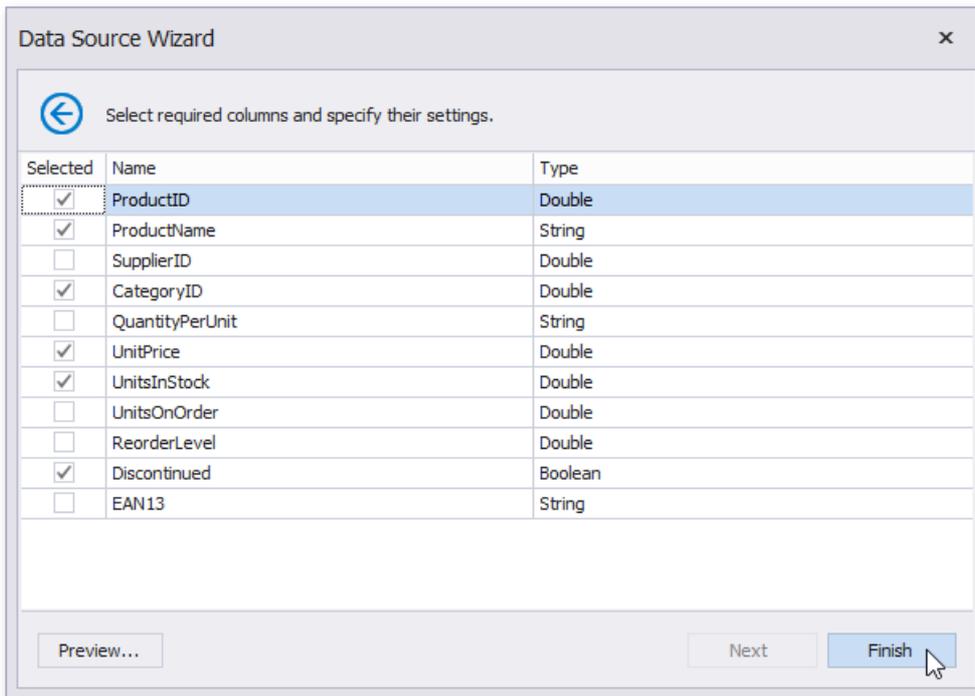
Enable the **Trim Blanks** check box to delete all leading and trailing empty spaces from each value in the CSV file.



Specify required settings and click **Next**.

6. The next page allows you to select required columns and specify their settings.

To include a column to the result data source, enable the corresponding **Selected** check box. Use **Name** to specify the custom column name and **Type** to choose the column type.



On this page, you can also preview the result data by clicking the **Preview** button.

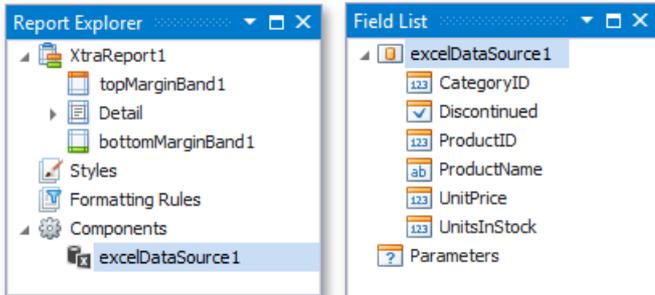
Data Preview (First 1000 Rows Displayed)

Product ID	Product Name	Category ID	Unit Price	Units In Stock	Discontinued
1	Chai	1	18	39	<input type="checkbox"/>
2	Chang	1	19	17	<input type="checkbox"/>
3	Aniseed Syrup	2	10	13	<input type="checkbox"/>
4	Chef Anton's Cajun Seasoning	2	22	53	<input type="checkbox"/>
5	Chef Anton's Gumbo Mix	2	21.35	0	<input checked="" type="checkbox"/>
6	Grandma's Boysenberry Spread	2	25	120	<input type="checkbox"/>
7	Uncle Bob's Organic Dried Pears	7	30	15	<input type="checkbox"/>
8	Northwoods Cranberry Sauce	2	40	6	<input type="checkbox"/>
9	Mishi Kobe Niku	6	97	29	<input checked="" type="checkbox"/>
10	Ikura	8	31	31	<input type="checkbox"/>

Close

Click **Finish** to complete the wizard.

The created data source becomes displayed in the [Report Explorer's Components](#) node. The [Field List](#) reflects the data source's hierarchy.

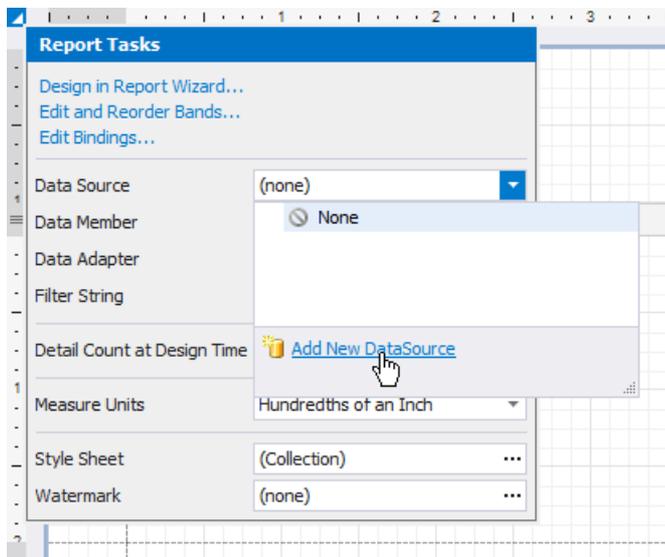


Bind a Report to JSON Data

This topic describes how to bind a report to JSON data at design time.

Create JsonDataSource

1. [Create a new report.](#)
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **DataSource** property and click **Add New Data Source...**



This invokes the [Data Source Wizard](#).

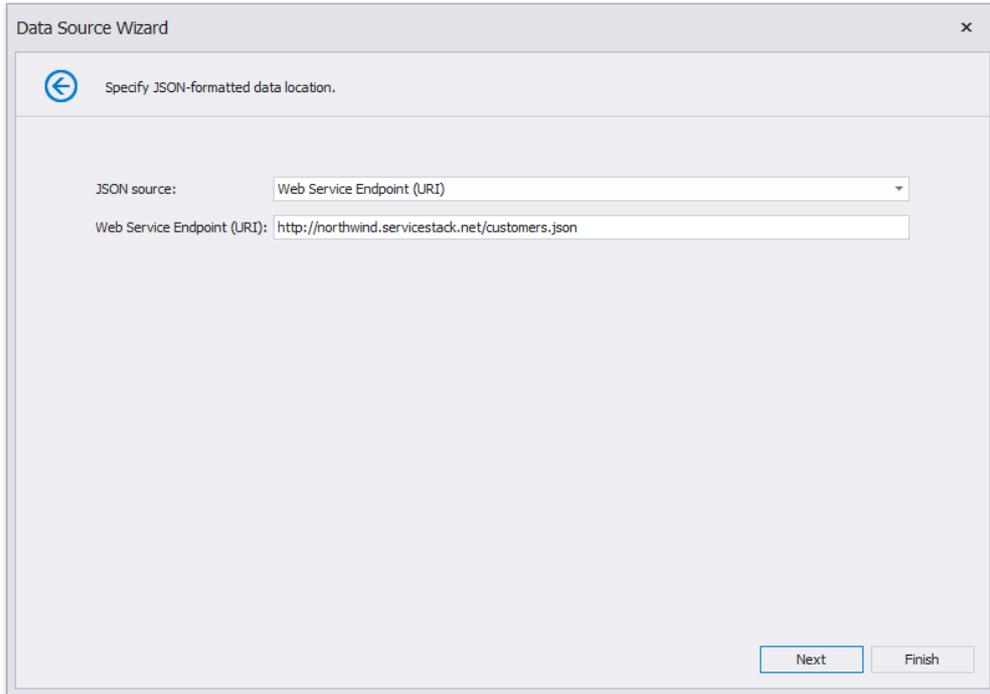
3. Choose the **JSON** option and click **Next**.

Not e

The Report Designer's Report Wizard provides the JSON option if the application has a reference to the open-source Newtonsoft.Json library.

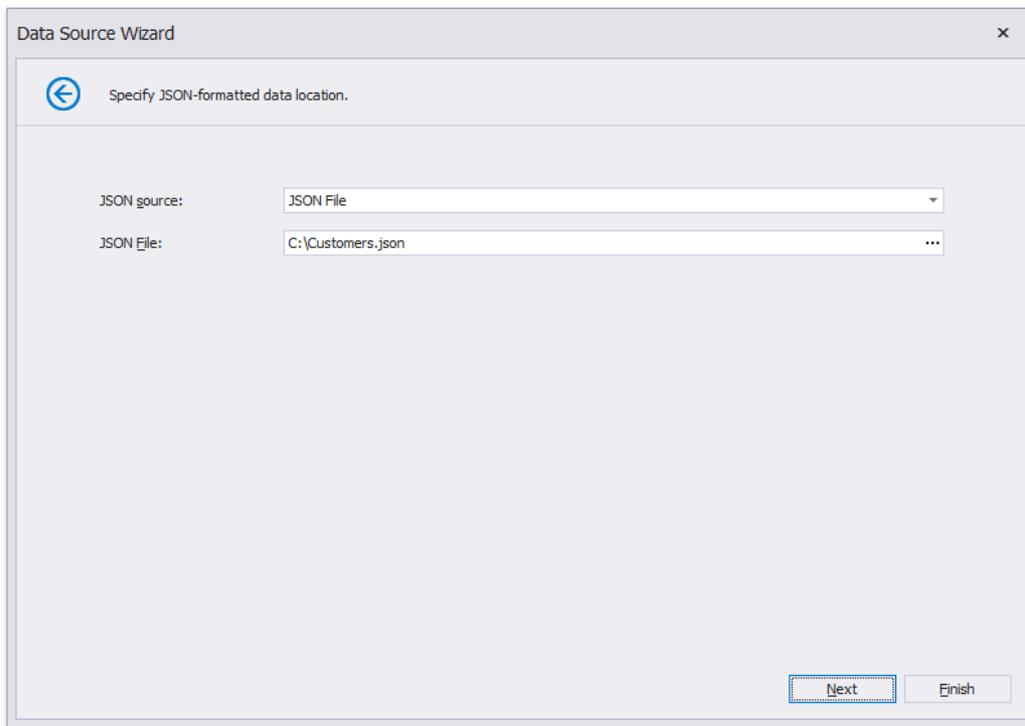
4. The next wizard page allows you to specify the location of the JSON-formatted data: Web Service Endpoint URI

o

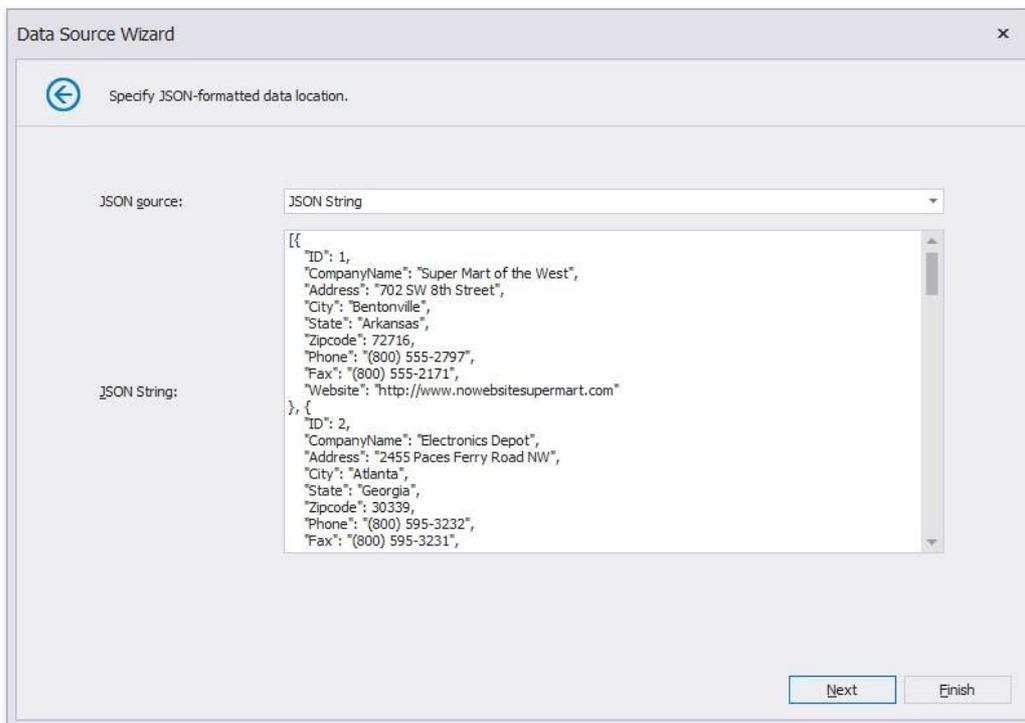


File Name

o



- String with JSON Content



If you choose the **Web Service Endpoint** option, you can configure a connection string on the next wizard pages.

4.1. Specify request parameters.

Data Source Wizard

Specify request parameters.

Basic HTTP Authentication

Username: user

Password: ●●●●

HTTP Headers

Header Name	Header Value

Query Parameters

Parameter Name	Parameter Value

Next Finish

Tip

Specify the Basic HTTP Authentication parameters or header parameters to access JSON data.

5. On the next page, the wizard shows the specified JSON data's structure. You can choose all nodes or a

Data Source Wizard

Select data fields.

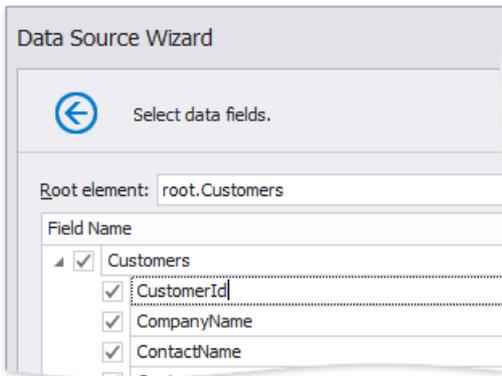
Root element: root.Customers

Field Name	Field Name	Field Name
<input type="checkbox"/>	root	
<input checked="" type="checkbox"/>	root.Customers	
<input checked="" type="checkbox"/>	Custom	root.ResponseStatus
<input checked="" type="checkbox"/>	Id	string
<input checked="" type="checkbox"/>	CompanyName	string
<input checked="" type="checkbox"/>	ContactName	string
<input checked="" type="checkbox"/>	ContactTitle	string
<input checked="" type="checkbox"/>	Address	string
<input checked="" type="checkbox"/>	City	string
<input checked="" type="checkbox"/>	PostalCode	string
<input checked="" type="checkbox"/>	Country	string
<input checked="" type="checkbox"/>	Phone	string
<input checked="" type="checkbox"/>	Fax	string

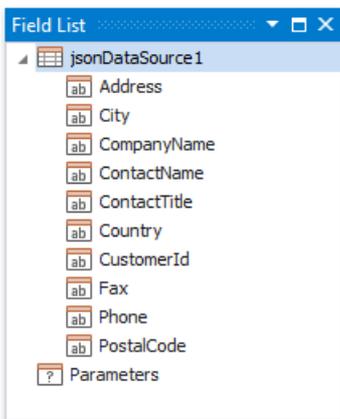
Next Finish

subset of nodes.

Uncheck the data fields that your report does not require. You can rename data fields if necessary.

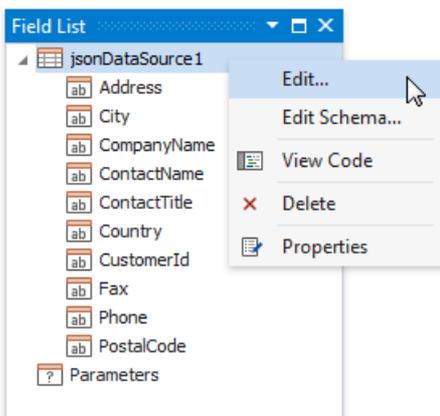


After you finish the wizard, it creates the **JsonDataSource** component. This component retrieves the checked data fields that the selected JSON element includes. The [Field List](#) reflects the data source structure.



Customize the JSON Data Source

Right-click the **JsonDataSource** component in the Field List or Report Explorer and choose **Edit**. Specify another JSON data location and reconfigure data fields in the invoked wizard.



Customize the JSON Data Source Schema

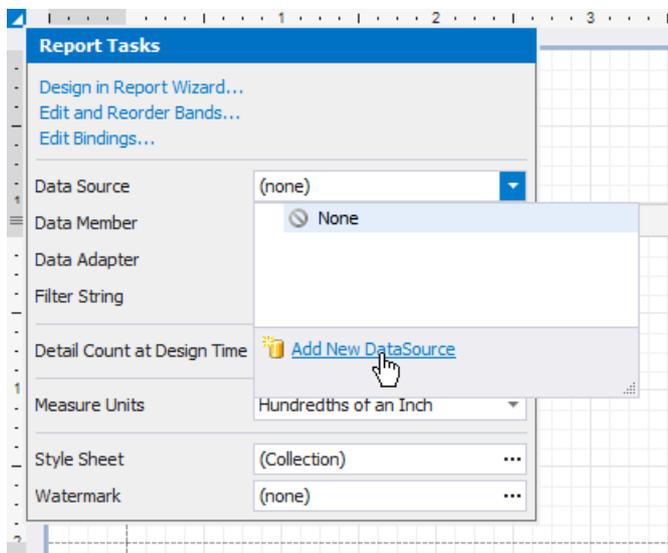
Right-click the **JsonDataSource** component in the Report Explorer and choose **Edit Schema**. Reconfigure data fields in the invoked wizard page.

Bind a Report to an XPO Persistent Object

This topic describes how to bind a report to XPO data at design time.

Create XPODataSource

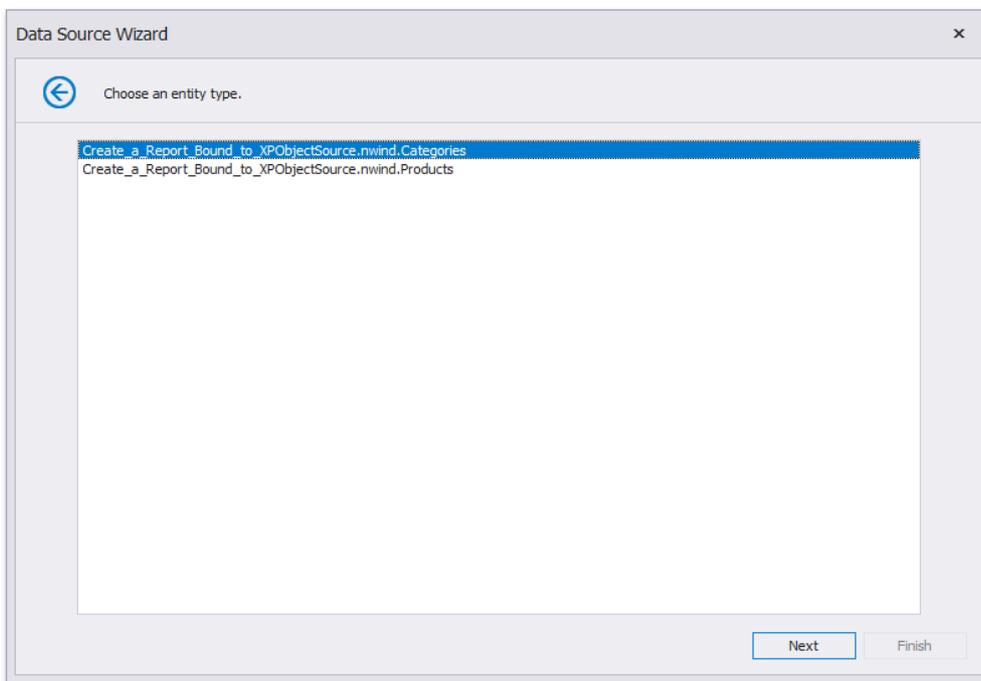
1. [Create a new report](#).
2. Click the report's smart tag. In the invoked action list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



This invokes the [Data Source Wizard](#).

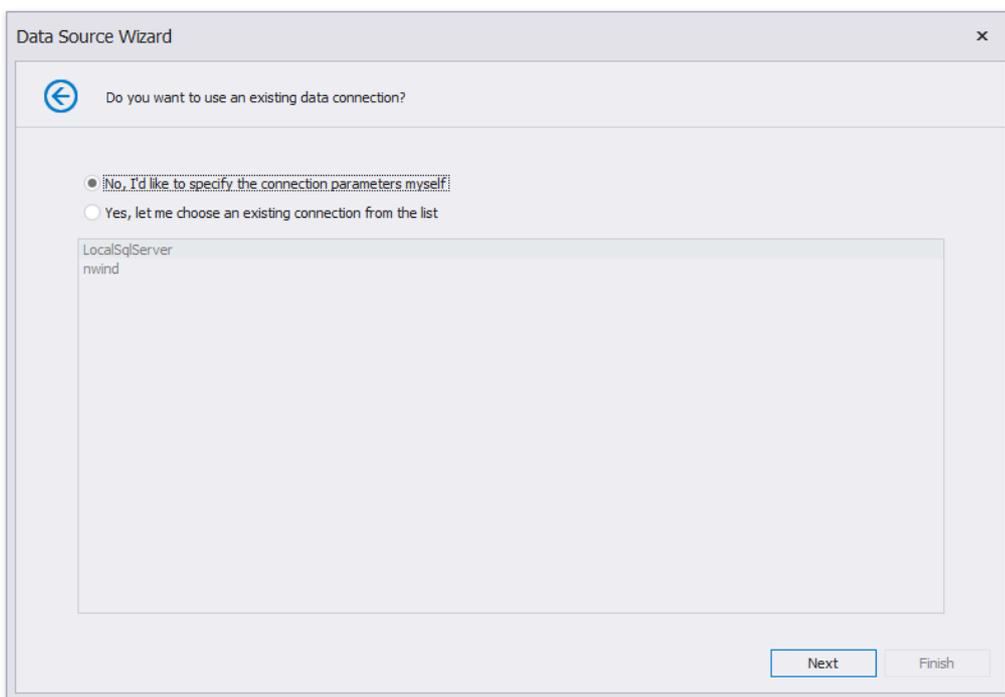
3. Choose the **XPO** option and click **Next**.

4. The following wizard page lists your application project's persistent object classes. Choose one



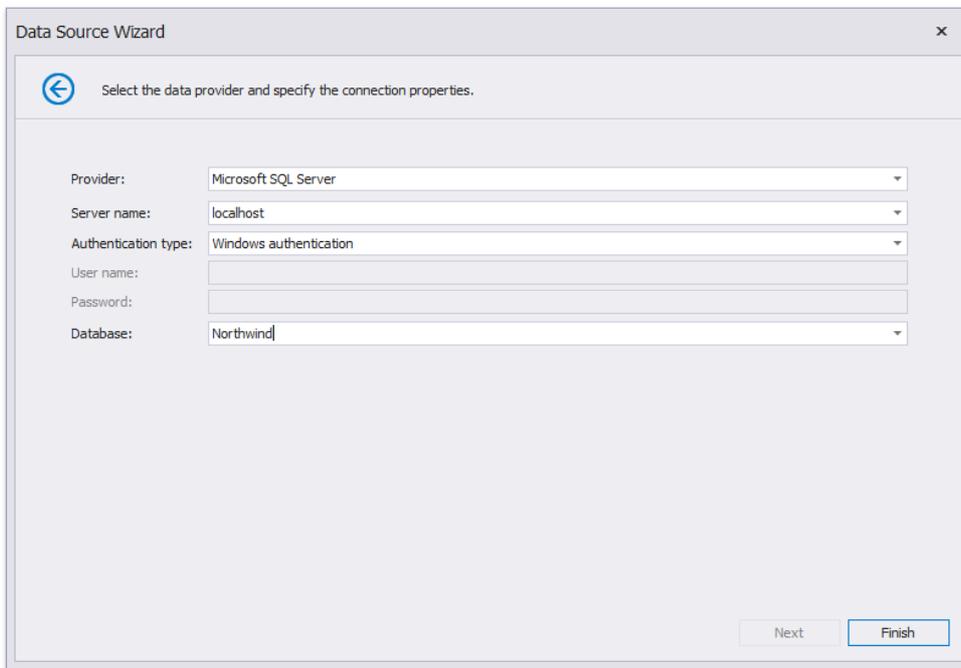
entity type.

5. On the next page, specify whether to use an existing data connection or create a new data

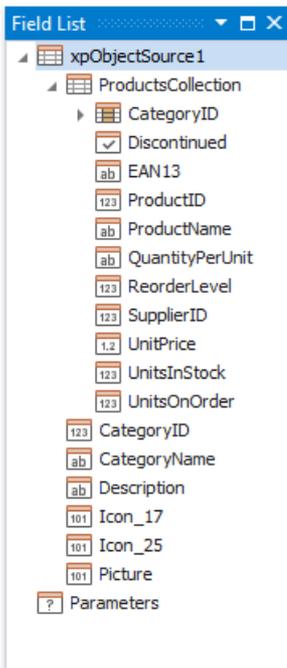


connection.

6. To create a new data connection, select a data provider or define a custom connection string. Specify provider-specific connection options (for example, the authentication type and database name).



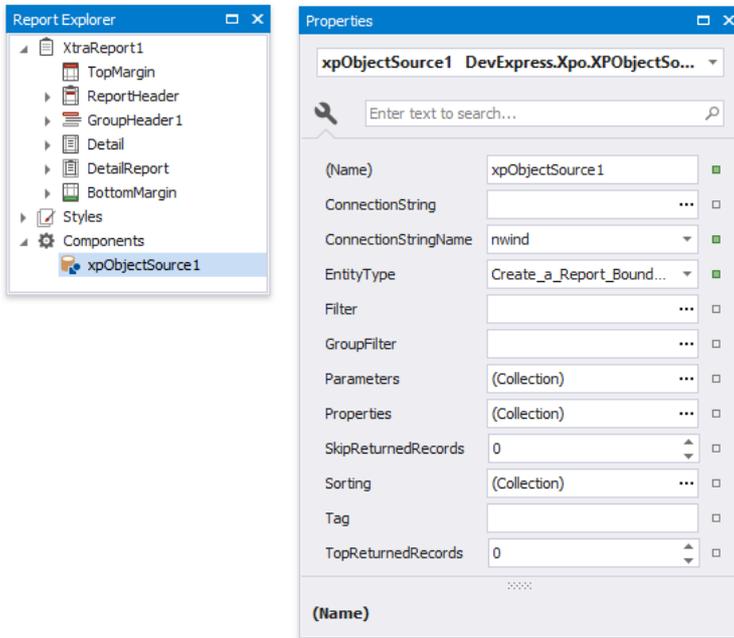
Finish the wizard. At this step, the wizard creates an **XPOjectSource** component. This component retrieves all the properties the chosen entity type includes. The [Field List](#) reflects the data source structure.



You can [customize the field list](#) and set up the component's settings after you finish the wizard.

Customize Data Source Settings

You can customize the created **XPOjectSource** component's settings. To do this, select this component in the [Report Explorer](#) and switch to the Property grid.



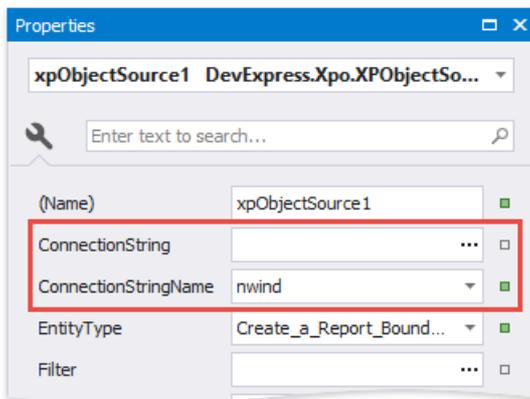
These settings allow you to specify which data to retrieve from the data source.

Not e

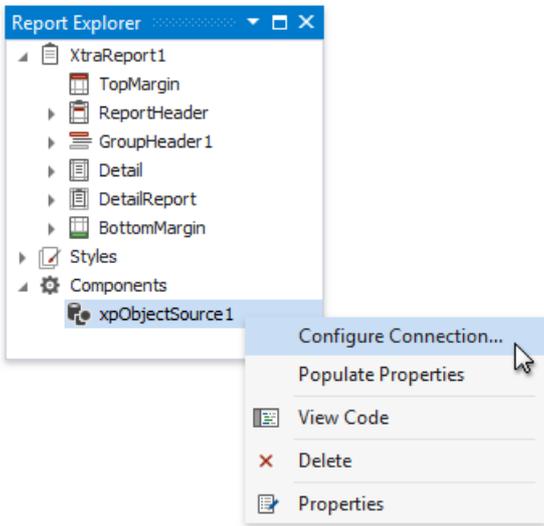
Group/filter combinations and complex expressions support depends on the data source.

Change the Connection Parameters

Use the **ConnectionStringName** property to change the connection string name only or the **ConnectionString** property to reconfigure a connection string. These properties are available in the Property Grid.

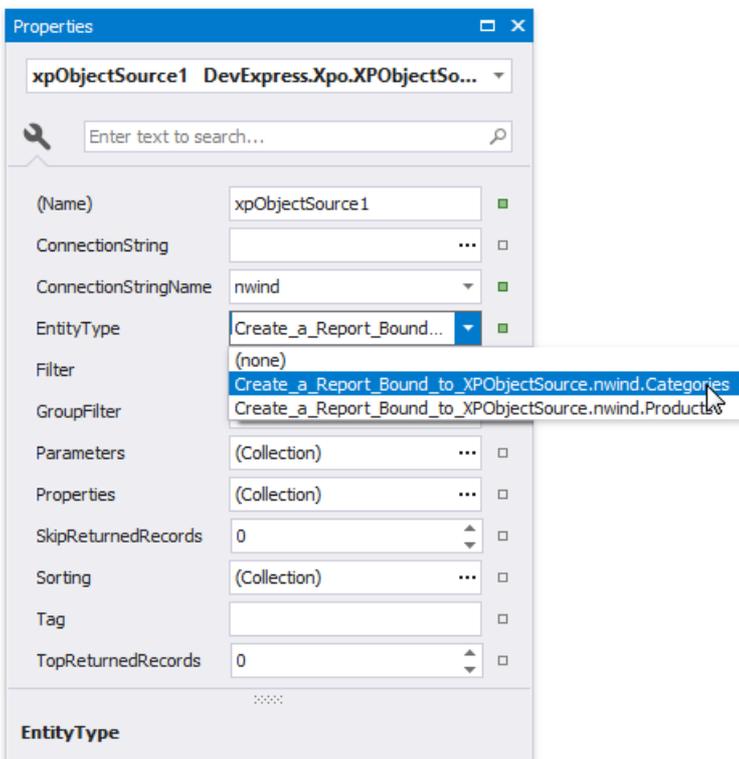


You can also right-click the **XPOBJECTSOURCE** component in the Report Explorer and choose **Configure Connection** to invoke the wizard and reconfigure the connection string.



Change the Entity Type

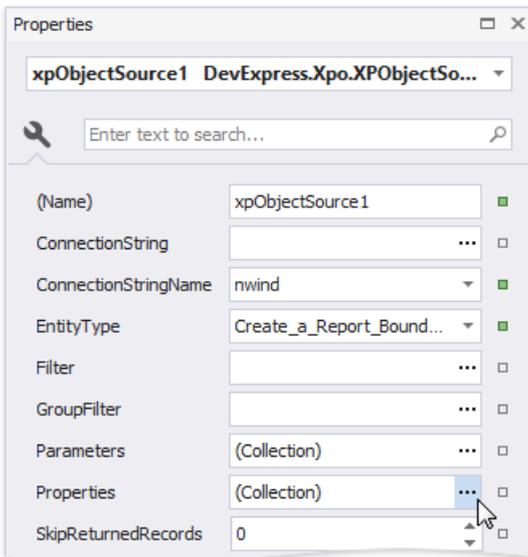
Use the **EntityType** property to specify another persistent object class.



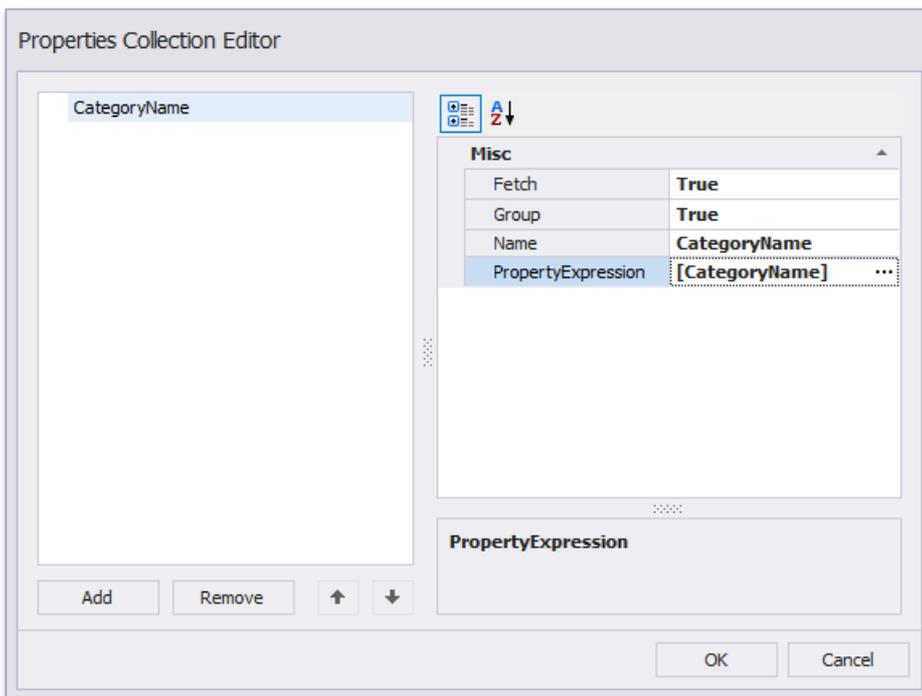
This reloads the Field List. It displays the fields that correspond to the the newly specified type. You can bind report elements to these fields.

Change the Property Set

XPO loads all the persistent properties that the specified entity type exposes. You can use the **XPOjectSource** component's **Properties** property to customize the properties set.



Click the **Properties** property's ellipsis button. This invokes the **Properties Collection Editor**.

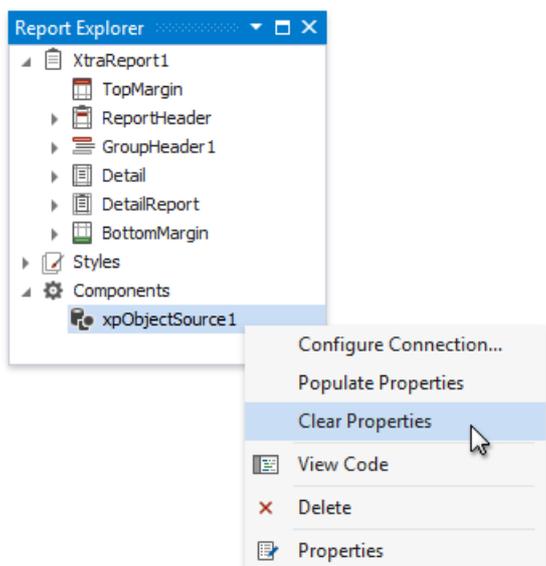


You can specify the following options for the newly added properties:

- **Name**
The name that you use to access the property in the report.
- **PropertyExpression**
The entity's persistent property or an expression that you can construct using several properties. The expression is calculated on the server.
- **Group**
Indicates whether to use this property to group data that XPO retrieves from the server.
- **Fetch**
Indicates whether to retrieve data for this property from the server.

Not e

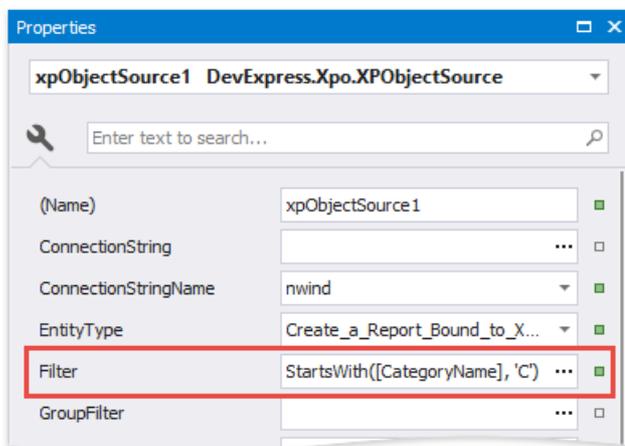
At least one property in the **Properties** collection must have an enabled **Fetch** property. Use the **Clear Properties** command to clear the **Properties** collection and the **Populate Properties** command to add all the properties the entity type exposes.



The Field List contains the fields that correspond to the **Properties** collection's properties. If this collection is empty, the Field List reflects the data source structure.

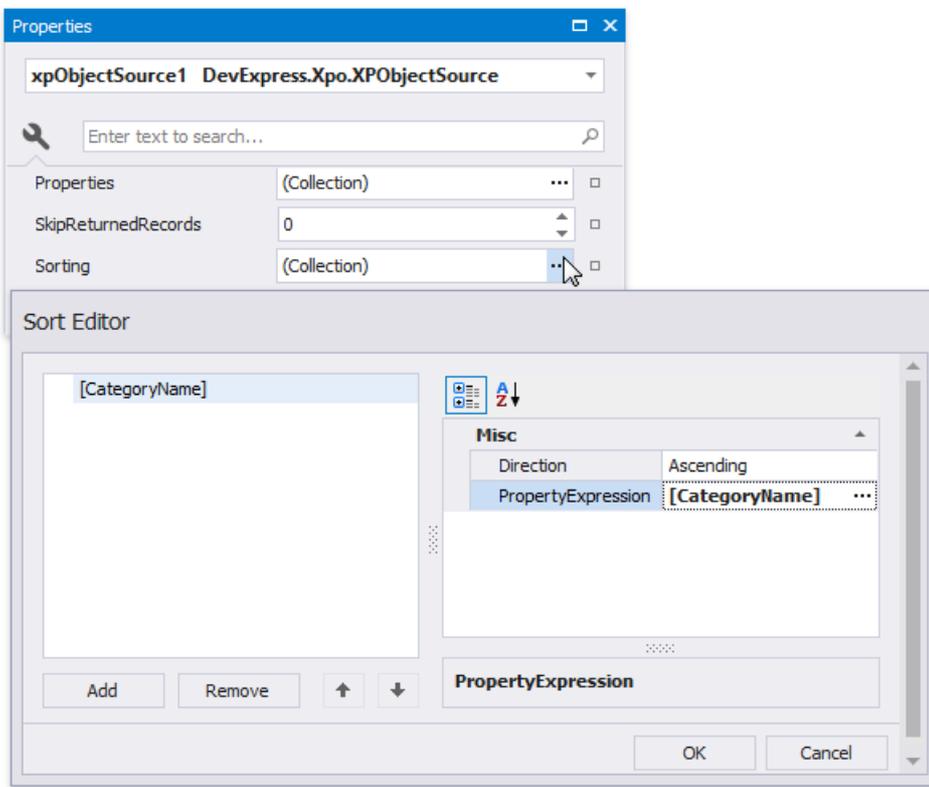
Retrieve Filtered Data

Use the **XPOObjectSource**'s **Filter** property to specify a filter expression for the data XPO retrieves from the data source.



Retrieve Sorted Data

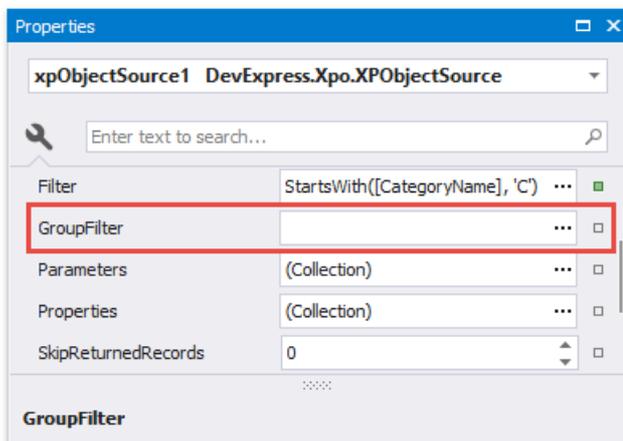
Use the **XPOObjectSource**'s **Sorting** property to specify sort settings for the retrieved data.



The **XPOjectSource** supports multiple column sorting. You can also specify a sorting expression for the data XPO retrieves from the data source.

Retrieve Filtered Groups

Use the **XPOjectSource**'s **GroupFilter** property to filter data on the server against values of the [grouped properties](#).

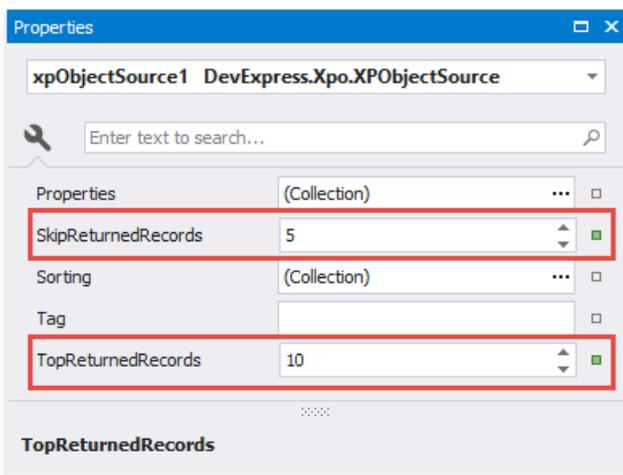


Not e

The **Group Filter** property is available when the **Properties** collection is not empty and has at least one property with an enabled **Group** flag.

Limit the Retrieved Records' Number

Use the following properties to limit the number of records XPO retrieves from the server:



- **Top Returned Records**

Specifies the number of the top records in the data source XPO retrieves for the report.

- **Skip Returned Records**

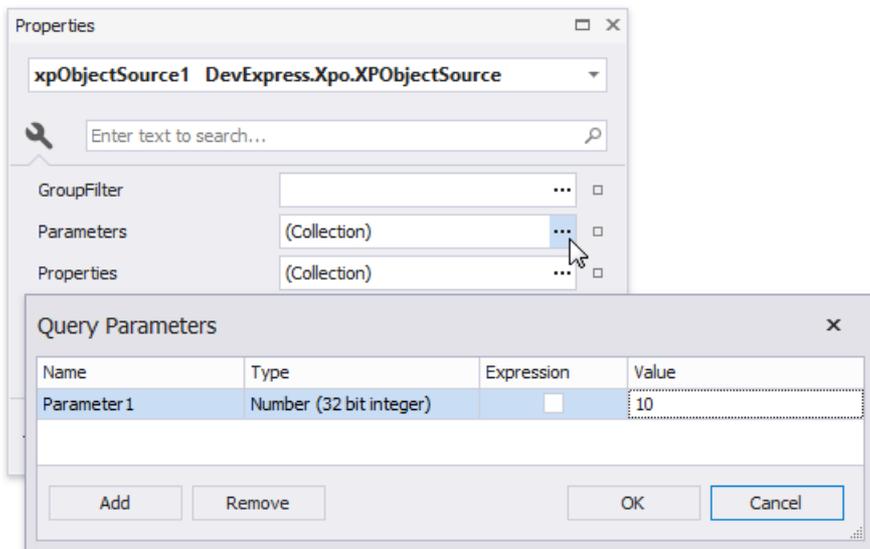
Specifies the number of top records in the data source XPO skips when it retrieves data for the report.

Not e

The **XPOObjectSource** does not process the zero value.

Specify Query Parameters

You can define parameters and use them in **Properties**, **Filter**, **Sorting** and **GroupFilter** expressions.



The following properties are available for each query parameter:

- **Name**

Specifies the parameter's name.

- **Type**

Specifies the parameter value's data type.

- **Expression**

Determines whether the actual parameter value is static or generated dynamically.

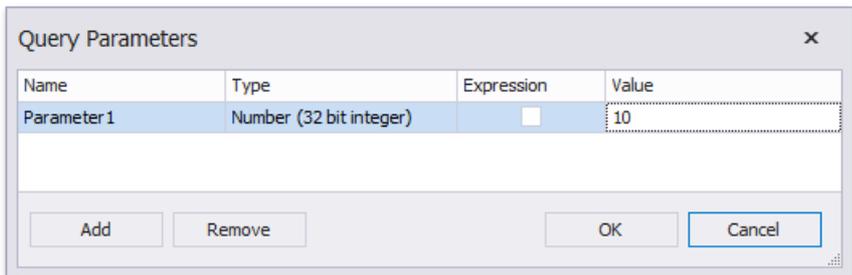
- **Value**

Specifies the query parameter's actual value (a static or dynamically calculated). If the **Expression** option is enabled, you can assign a report parameter or an expression that can also include a report parameter.

You can set a parameter to a static value or generate it dynamically based on an associated expression.

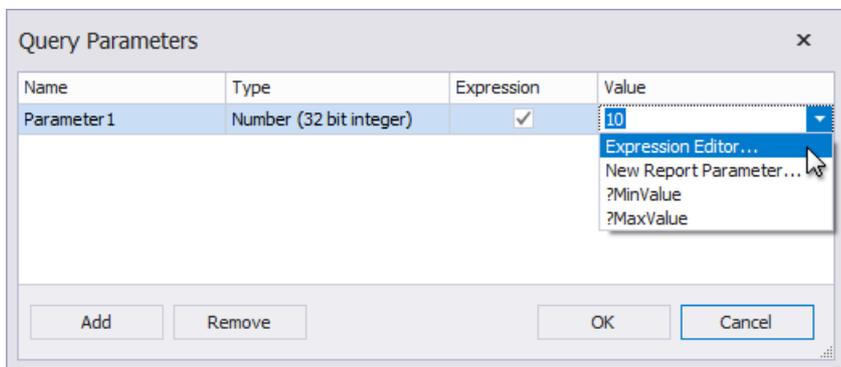
- *Specify a static value*

Choose a query parameter's value type and set a static value to the **Value** property according to the selected type.



- *Provide a dynamic value*

Activate the Expression checkbox for a parameter.



The following three options are available to dynamically calculate the parameter's actual value: Select **Expression Editor** to construct an expression in the

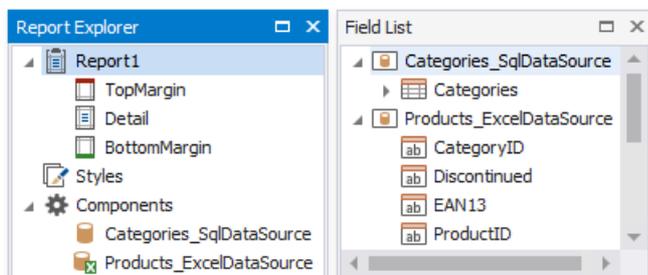
- invoked Expression Editor.
- Selecting **New Report Parameter** to create a new report parameter and map it to the query parameter. Ensure the report parameter's type corresponds to the query parameter's type.
- Select an existing report parameter and map it to the query parameter.

Bind a Report to a Join-Based Federated Data Source

This topic describes how to create a federated data source that joins data from multiple data sources into a single query.

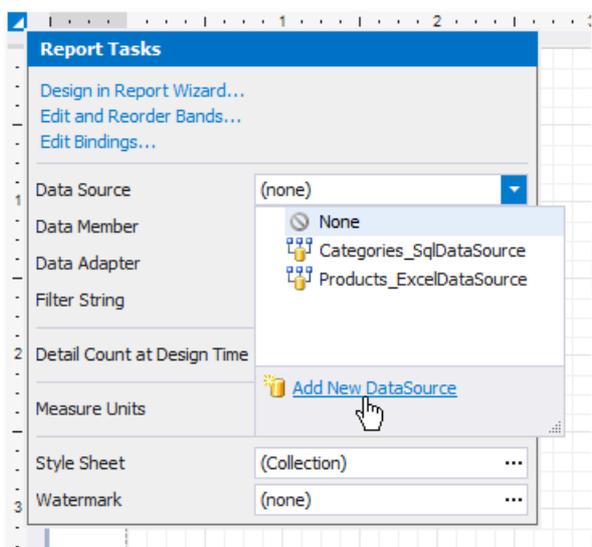
Create a Report and Data Sources

1. [Create a new blank report.](#)
2. [Add a SQL data source](#) that provides one data table.
3. [Add an Excel data source](#) that provides the other data table.

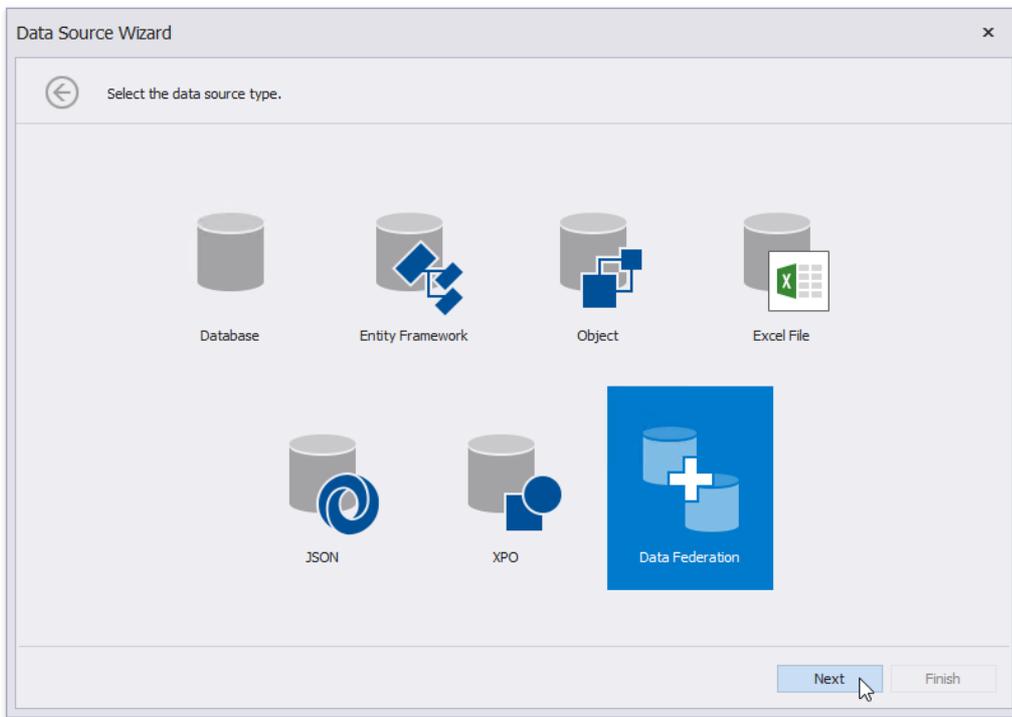


Create Data Federation and Bind the Report to It

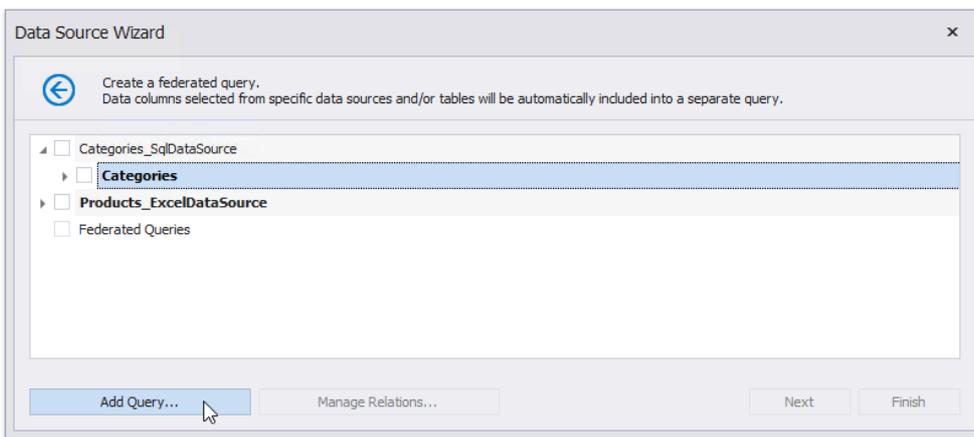
1. Click the report's smart tag, expand the **Data Source** property's drop-down menu, and click **Add New DataSource**.



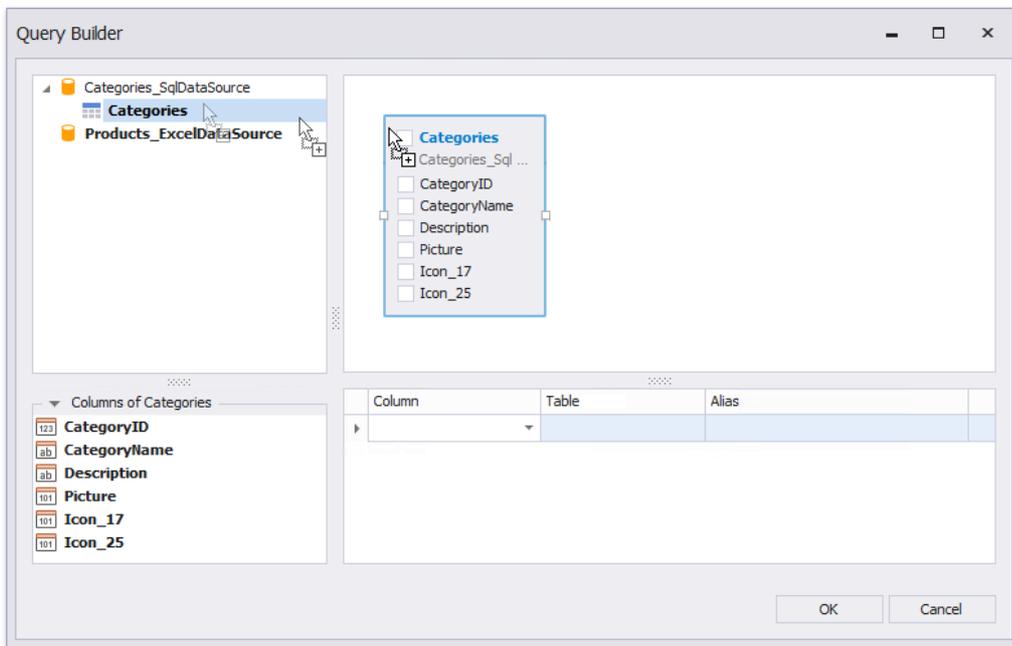
2. In the invoked [Data Source Wizard](#), select **Data Federation** and click **Next**.



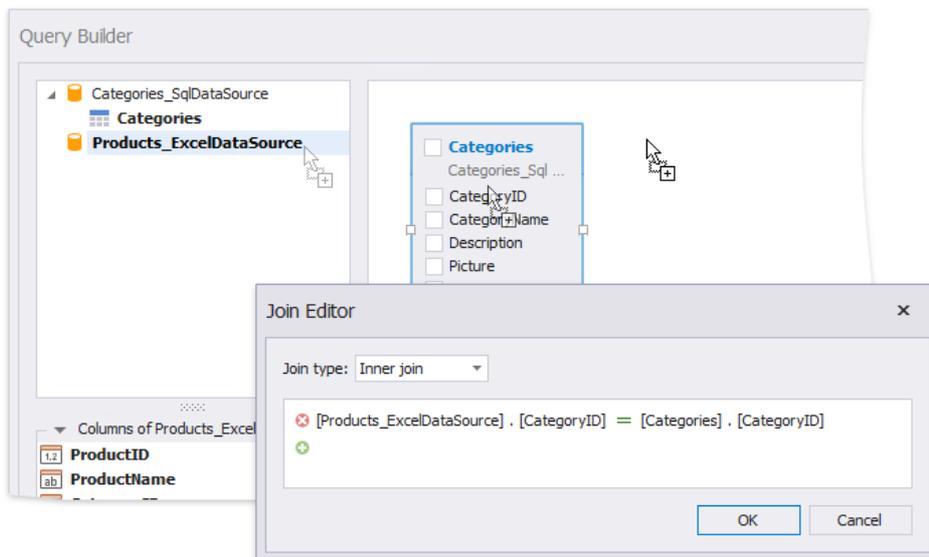
3. On the next page, click **Add Query**.



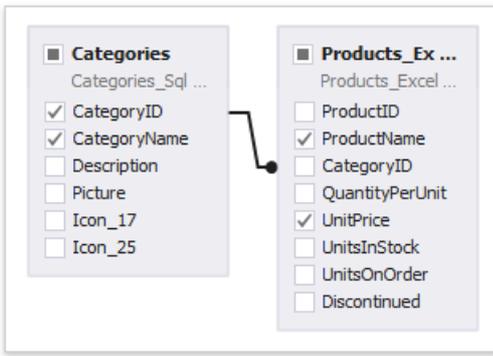
4. In the invoked **Query Builder**, drag and drop the table from the SQL data source onto the design surface.



5. Drag and drop the Excel data source onto the design surface. In the invoked **Join Editor**, select the **Inner join** type and create a relationship based on the key field.

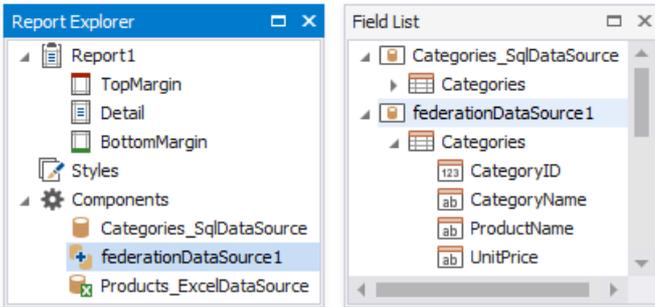


6. Enable checkboxes for the data fields you want to include in the query result set.

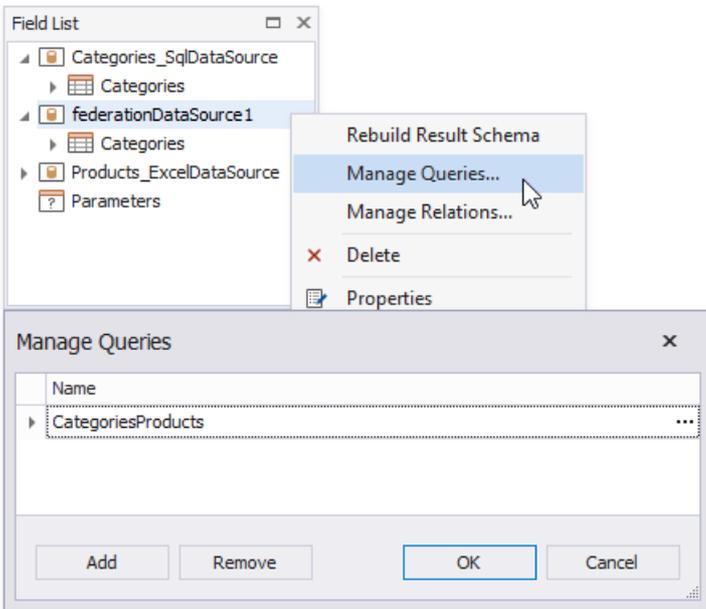


7. Click **OK** to close the Query Builder. Click **Finish** to complete the Data Source Wizard.

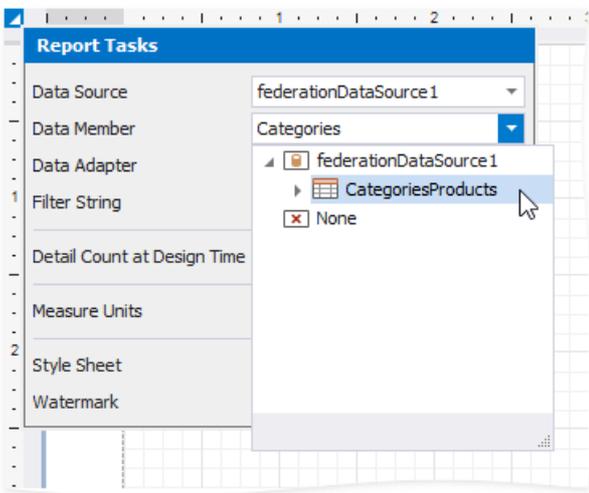
The Wizard creates a new **FederationDataSource** that includes the single query. This data source becomes available in the **Report Explorer's Components** node. The **Field List** reflects the data source structure.



The federated query's default name is the same as the main table's name. To rename this query, right-click the data source in the Field List or Report Explorer and select **Manage Queries** in the context menu.

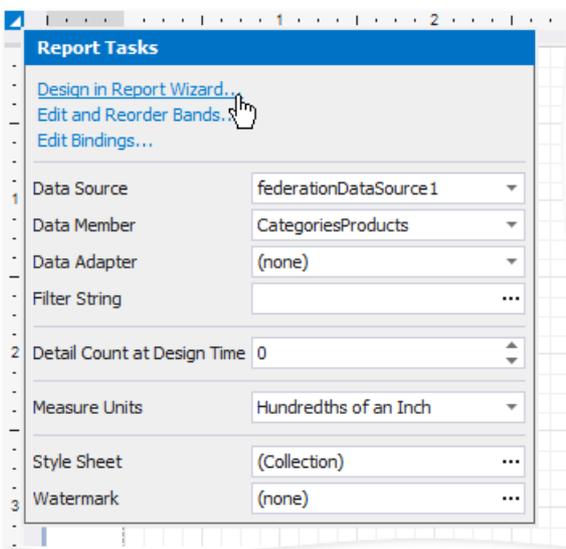


Once you rename the query, update the report's **Data Member** property.

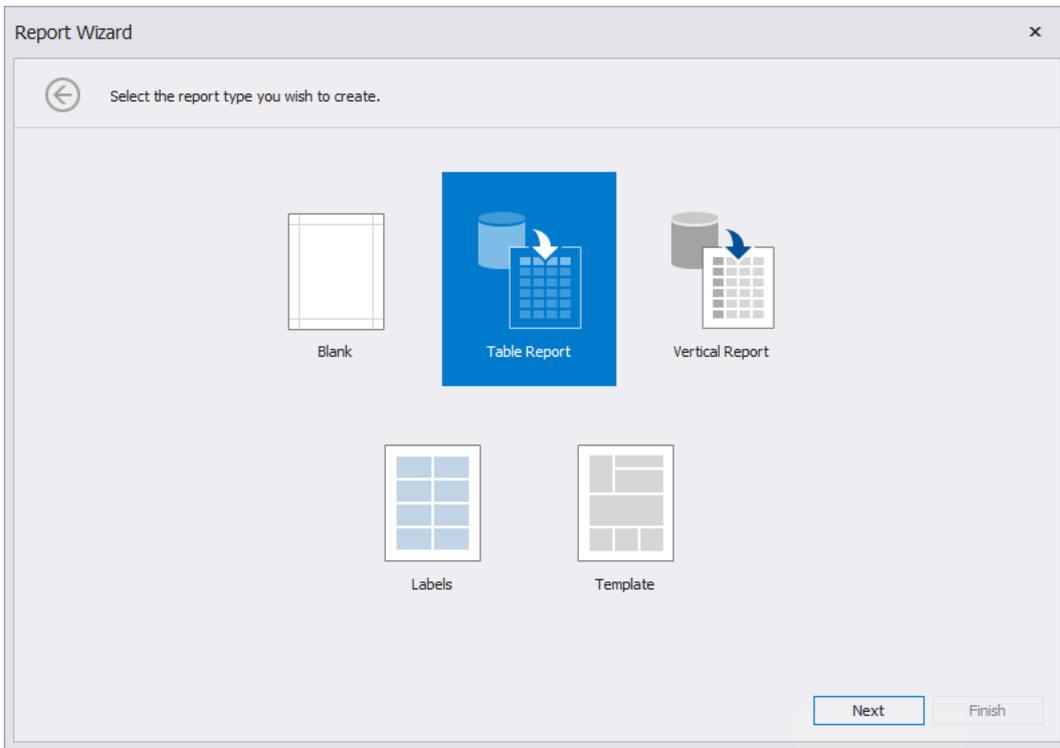


Design the Report Layout

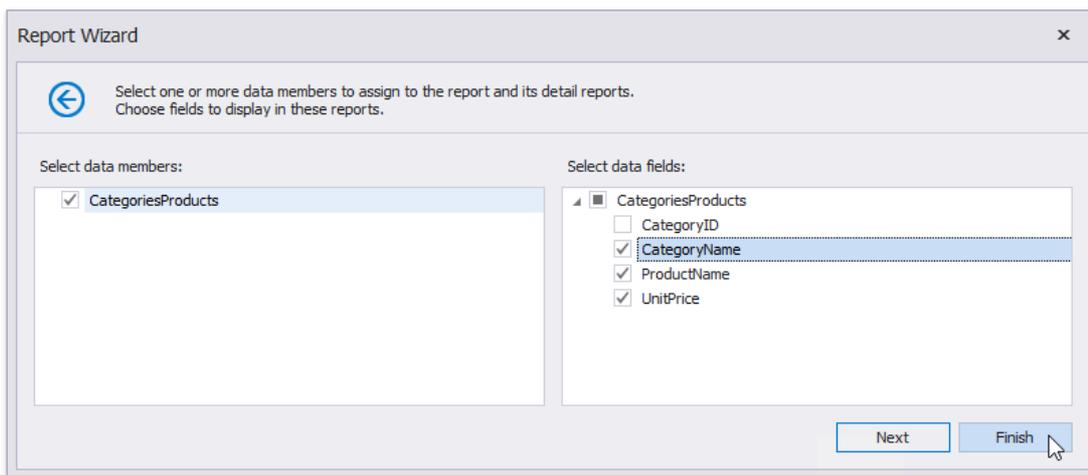
1. Click the report's smart tag and select **Design in Report Wizard**.



2. In the invoked **Report Wizard**, select **Table Report** and click **Next**.

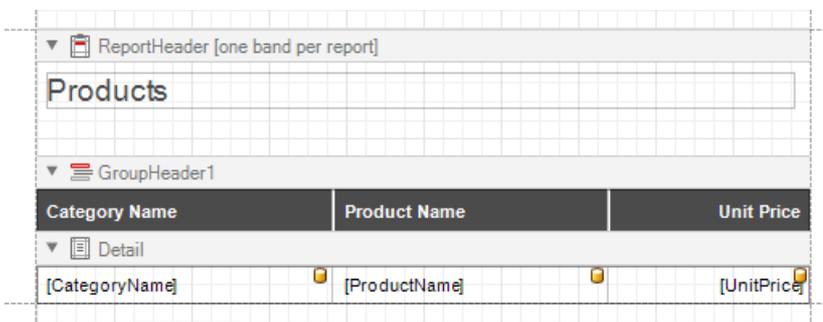


3. Select data fields to display in the report and click **Finish**. You can also go to the [next page](#) to



create the layout.

The resulting layout looks similar to the following image:



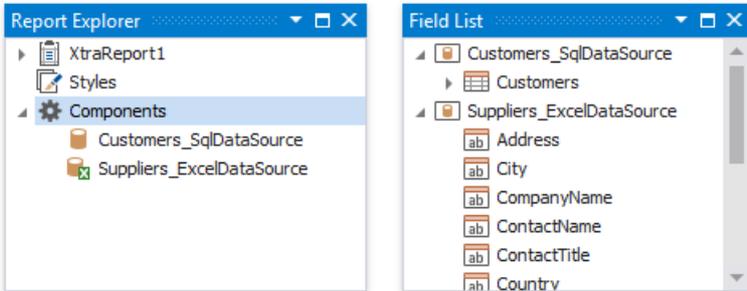
Switch to the Preview mode to see the report document.

Bind a Report to Union-Based Federated Data Source

You can create a federated data source for your report to display data combined from several sources. This topic demonstrates how to use the **Union** and **UnionAll** operations to combine data into a single query.

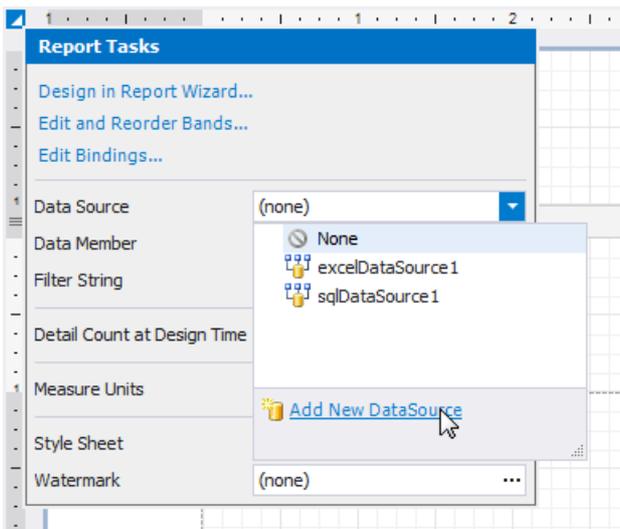
Create a Report and Data Sources

1. [Create a new blank report](#).
2. [Add a SQL data source](#) that provides one data table.
3. [Add an Excel data source](#) that provides the other data table.

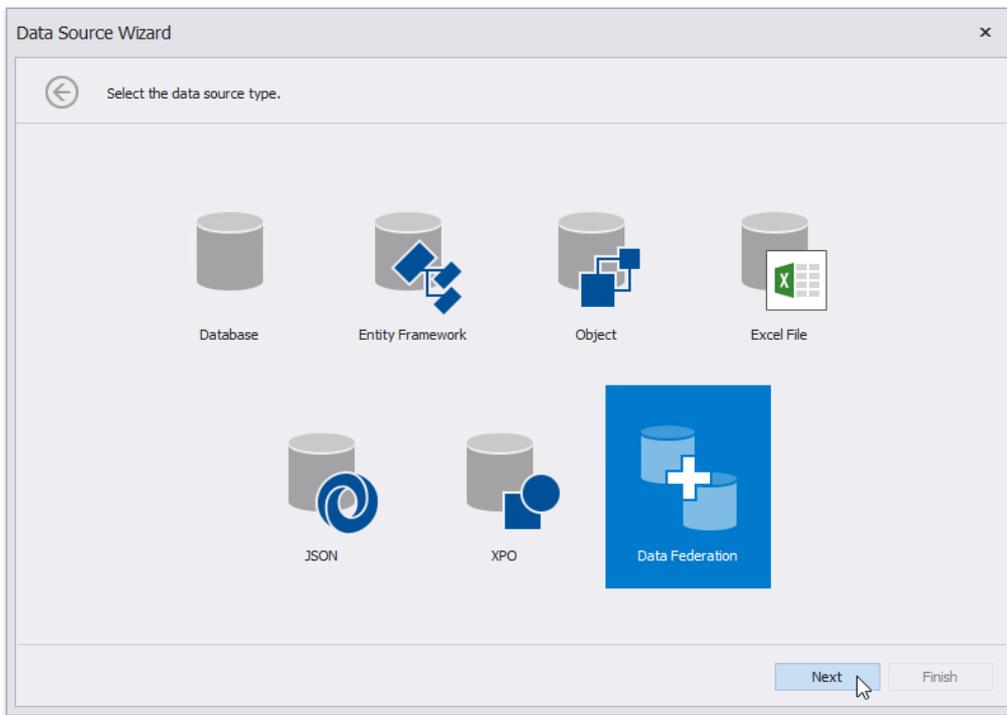


Create Data Federation and Bind the Report to It

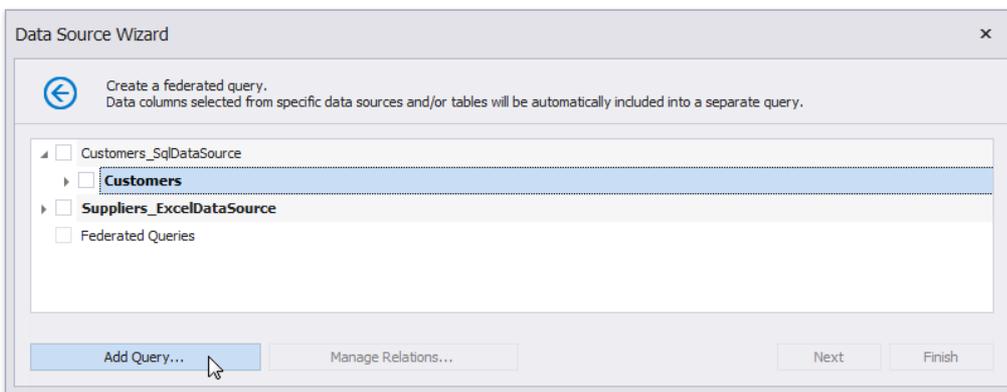
1. Click the report's smart tag, expand the **DataSource** property's drop-down menu and click **Add Report Data Source**.



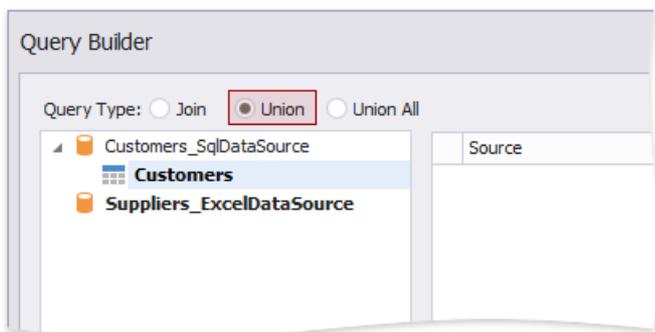
2. In the invoked [Data Source Wizard](#), select **Data Federation** and click **Next**.



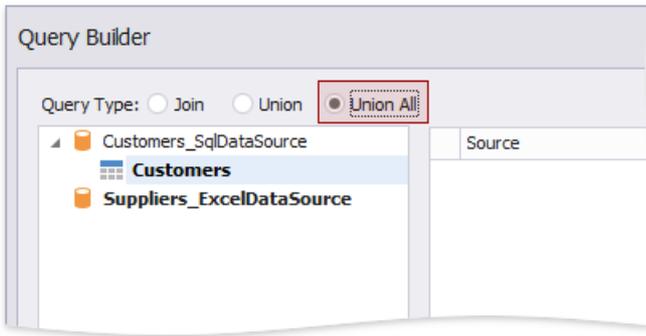
3. On the next page, click **Add Query**.



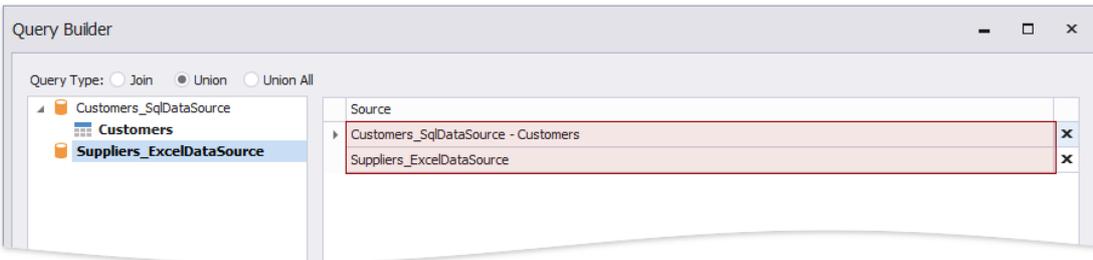
4. In the invoked **Query Builder** (adapted to federated data sources), choose **Union** as a query type.



Or you can choose **Union All**.

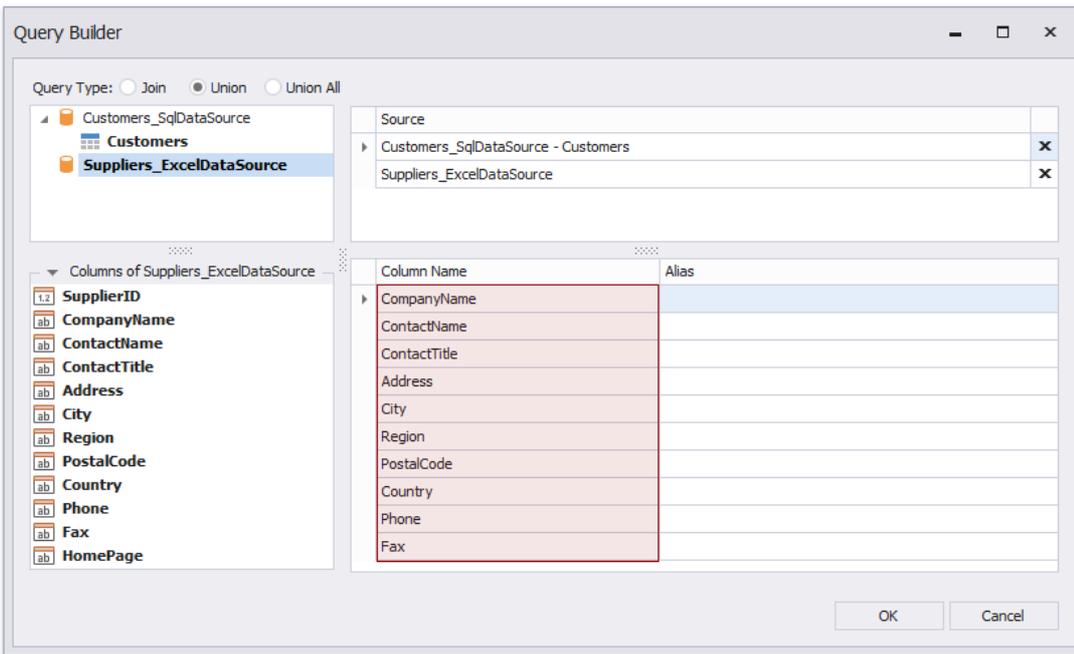


5. Double-click the **Customers** table and the **Excel data source**. The two sources are added to the



query.

The query includes only fields that have identical names and types in the origin sources.



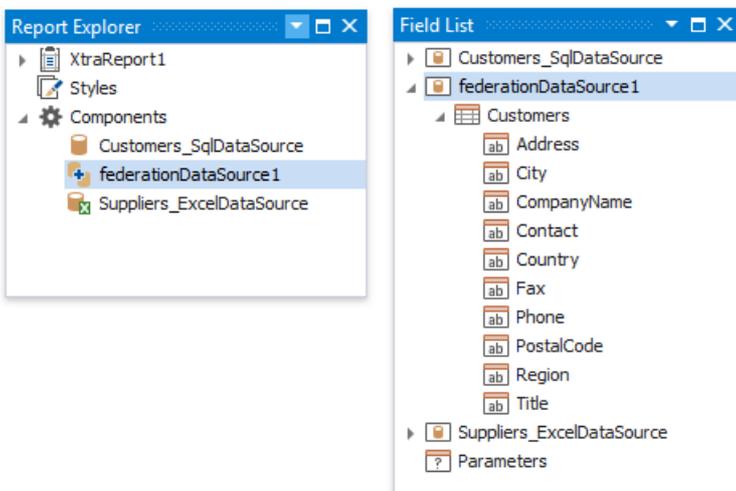
6. Enable check boxes for the data fields you want to include in the query result set.

7. Rename fields.

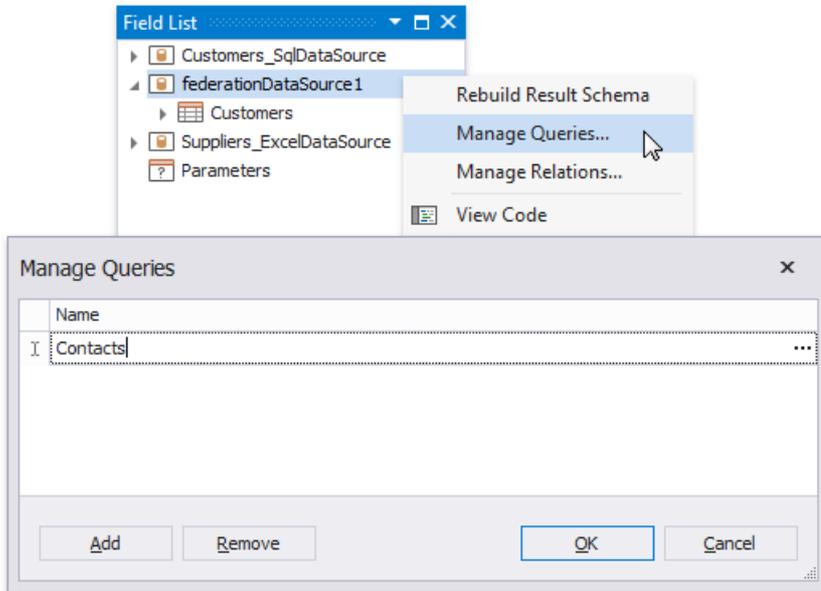
Column Name	Alias
CompanyName	
ContactName	Contact
ContactTitle	Title
Address	
City	
Region	
PostalCode	
Country	
Phone	
Fax	

8. Click **OK** to close the Query Builder. Click **Finish** to complete the Data Source Wizard.

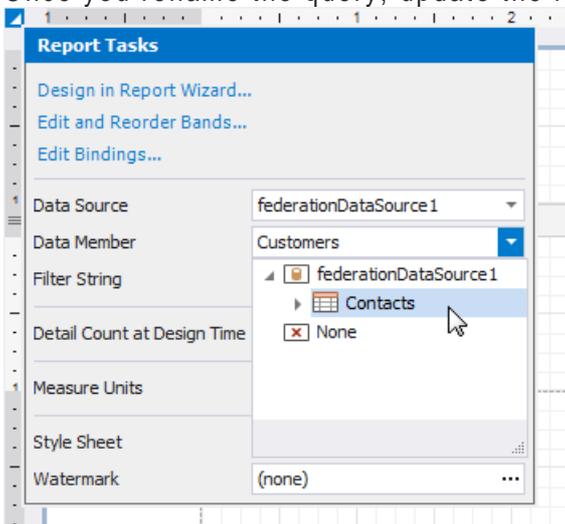
The Wizard creates a new **FederationDataSource** that includes the single **Customers** query. This data source becomes available in the **Report Explorer's Components** node. The **Field List** reflects the data source structure.



The federated query's default name equals the first source's name (the **Customers** table in this tutorial). You can rename this query in the **Manage Queries** dialog. To invoke it, right-click the data source in the Field List or Report Explorer and select **Manage Queries** in the context menu.

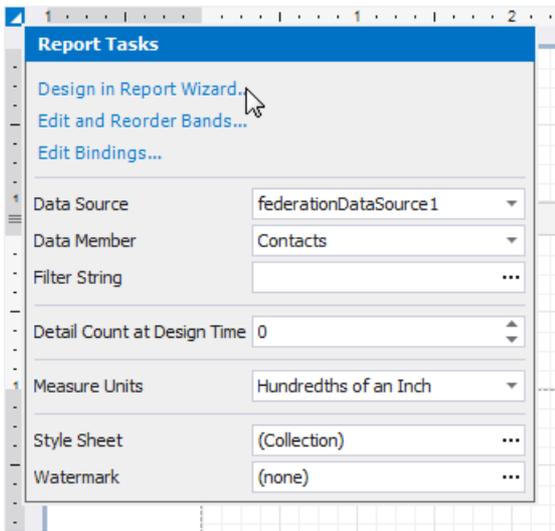


Once you rename the query, update the report's **DataMember** property.

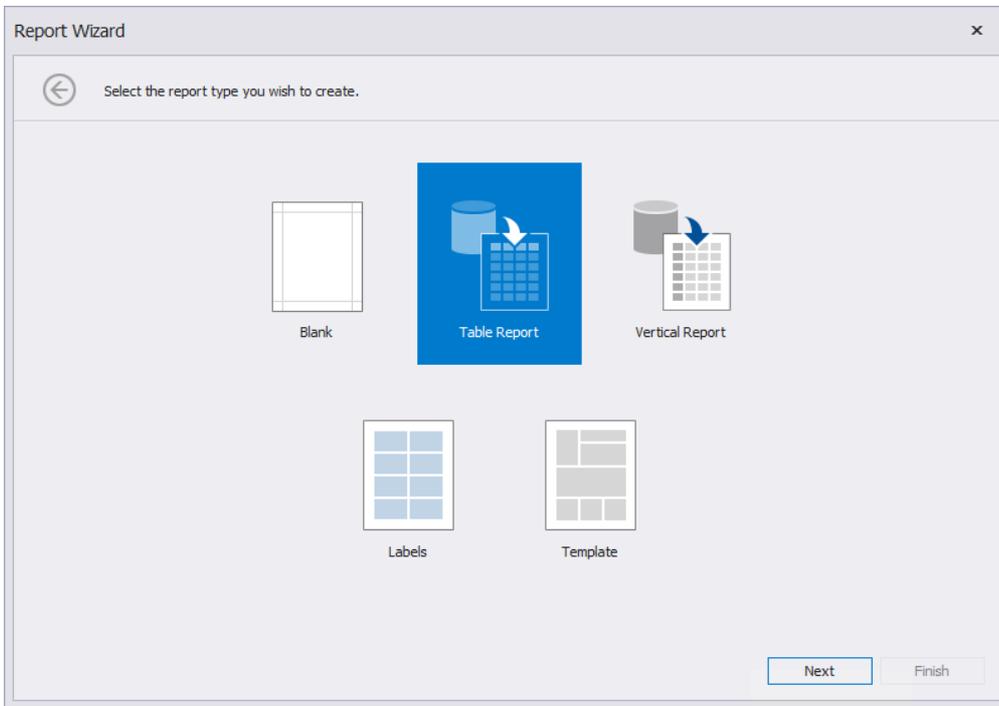


Design the Report Layout

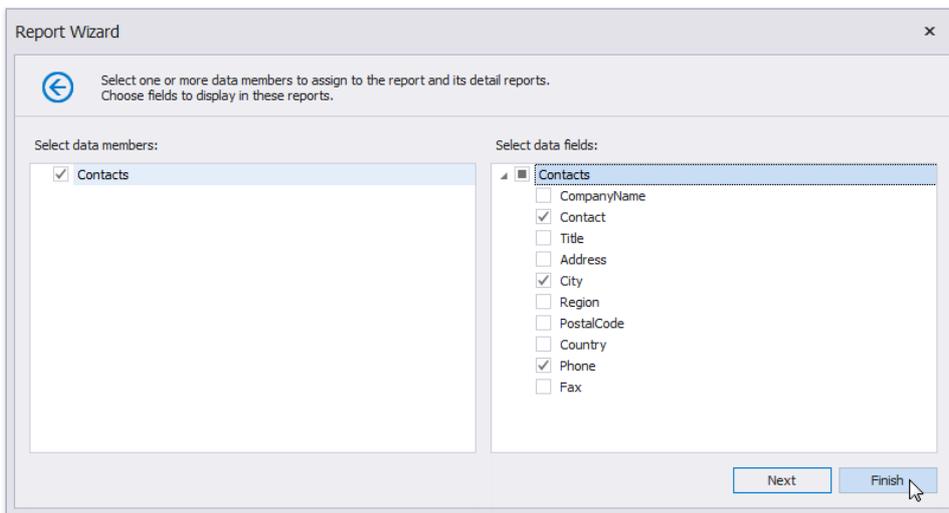
1. Click the report's smart tag and select **Design in Report Wizard**.



2. In the invoked [Report Wizard](#), select **Table Report** and click **Next**.

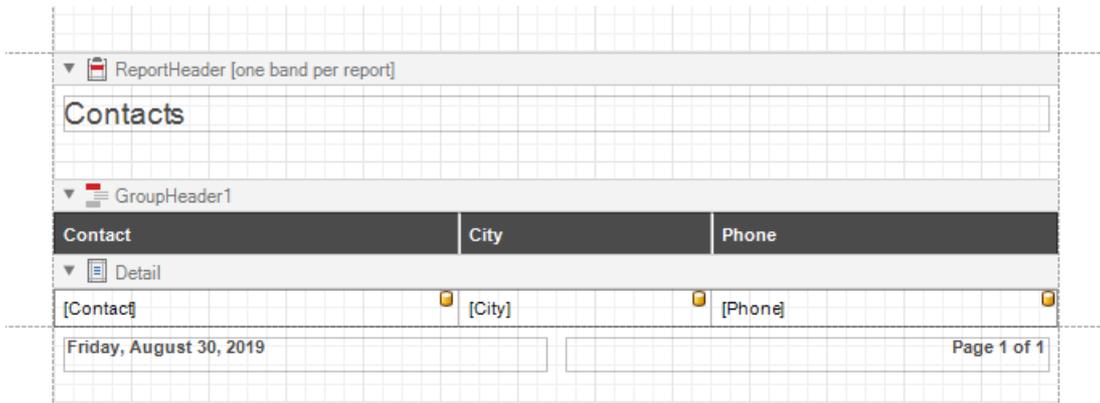


3. Select data fields to display in the report and click **Finish**. You can also go to the [next page](#) to



continue layout creation.

The resulting layout looks similar to the following image:



Switch to the Preview tab to see the report document. It displays contacts from the Customers and Suppliers tables.

Contacts		
Contact	City	Phone
Maria Anders	Berlin	030-0074321
Ana Trujillo	México D.F.	(5) 555-4729
Antonio Moreno	México D.F.	(5) 555-3932
Thomas Hardy	London	(171) 555-7788
Christina Berglund	Luleå	0921-12 34 65
Hanna Moos	Mannheim	0621-08460
Frédérique Citeaux	Strasbourg	

Note

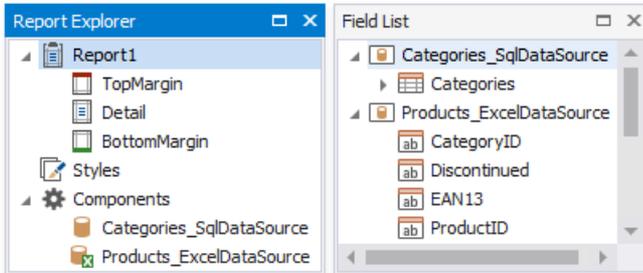
Duplicate contacts from the Customers and Suppliers tables are not removed in the **Union All** mode.

Bind a Report to a Federated Master-Detail Data Source

This topic describes how to create a federated data source that retrieves data from multiple data sources. The topic also shows how to specify a master-detail relationship between these queries.

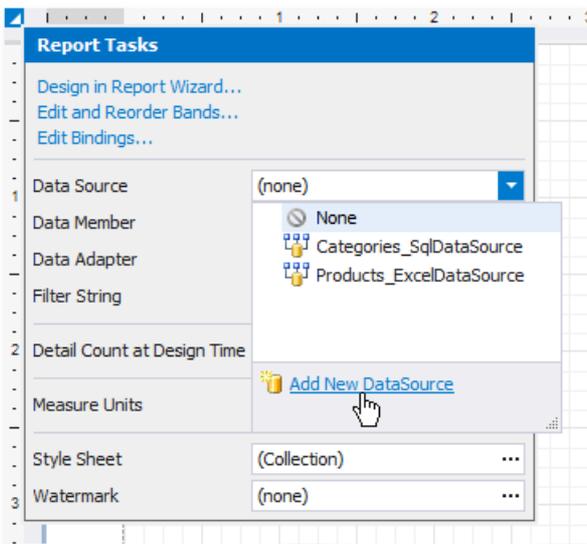
Create a Report and Data Sources

1. [Create a new blank report.](#)
2. [Add a SQL data source](#) that provides one data table.
3. [Add an Excel data source](#) that provides the other data table.

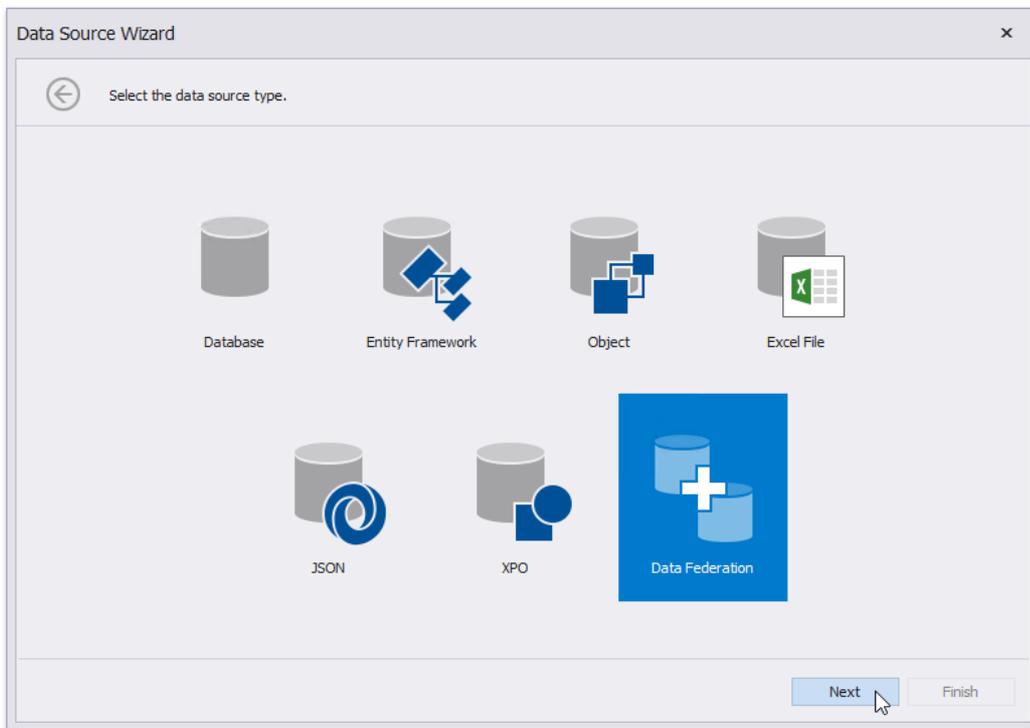


Create Data Federation and Bind the Report to It

1. Click the report's smart tag, expand the **Data Source** property's drop-down menu, and click **Add New DataSource**.

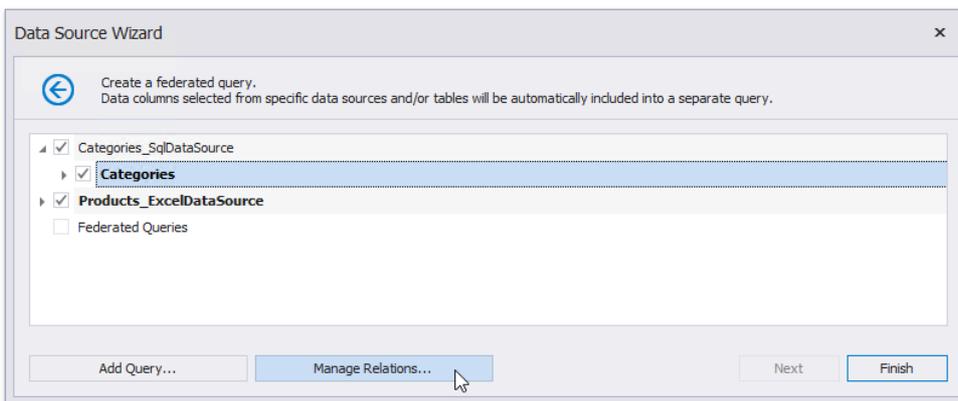


2. In the invoked [Data Source Wizard](#), select **Data Federation** and click **Next**.

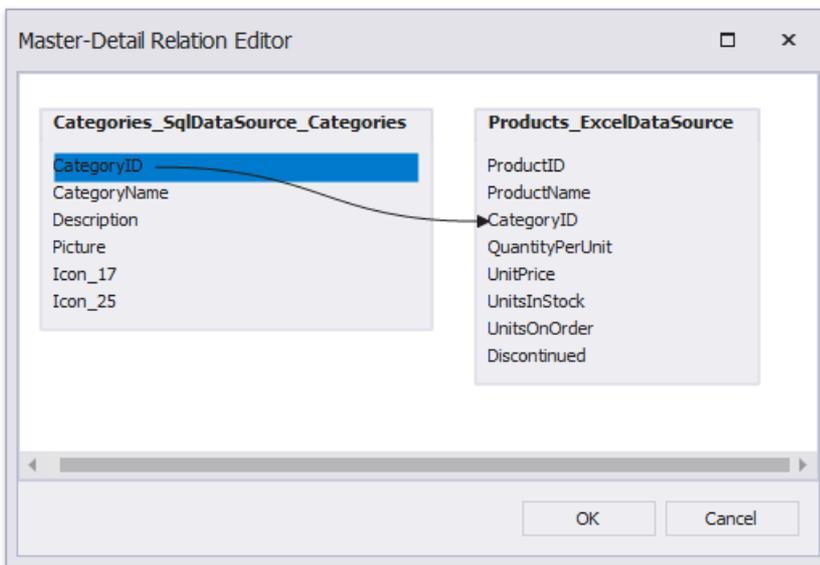


3. On the next page, enable check boxes for the SQL data source's table and the Excel data source. The selected items are included in data federation as separate queries.

Click **Manage Relations** to specify a master-detail relationship between these queries.

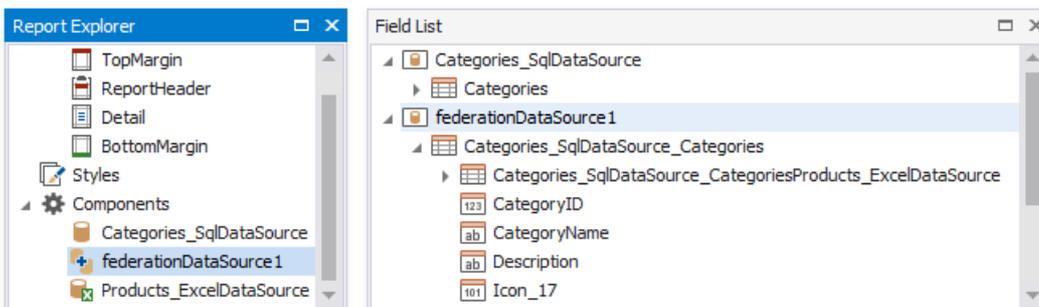


4. In the invoked editor, drag and drop the key field from the master query to the detail query.



5. Click **OK** to close the editor. Click **Finish** to complete the Data Source Wizard.

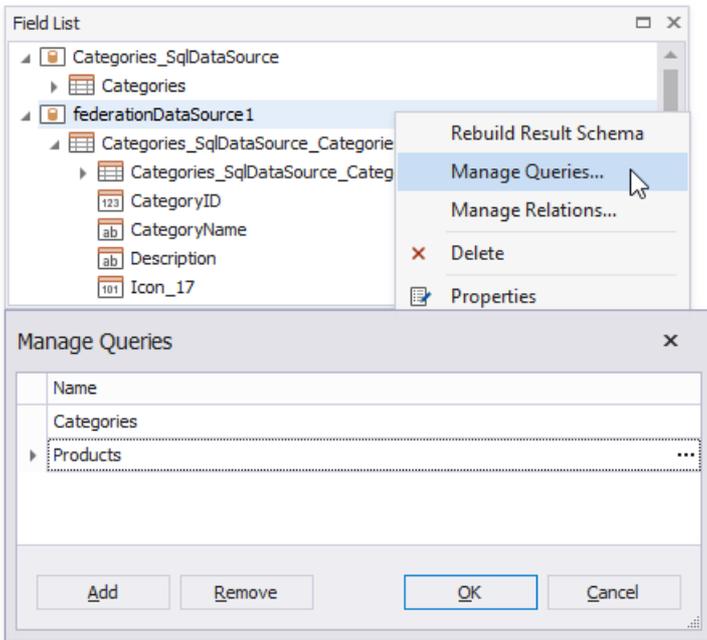
The Data Source Wizard creates a new **FederationDataSource** that includes two queries with a master-detail relationship. This data source becomes available in the **Report Explorer's Components** node. The **Field List** reflects the data source's structure.



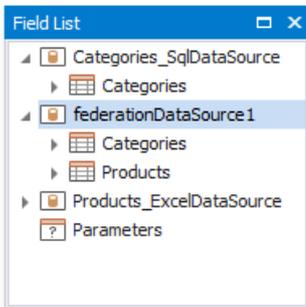
The Data Source Wizard specifies query names as follows:

- If the initial data source contains data at the root level (as the Excel data source), the federated query's name equals to the data source name.
- If the initial data source contains one or more queries (as the SQL data source), the federated query's name consists of the data source name and query name separated by an underscore.

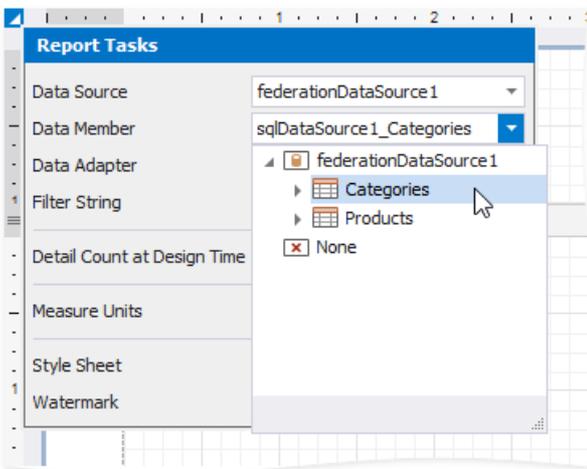
You can rename queries in the **Manage Queries** dialog. To invoke it, right-click the data source in the Field List or Report Explorer and select **Manage Queries** in the context menu.



The master-detail relationship's name changes accordingly.

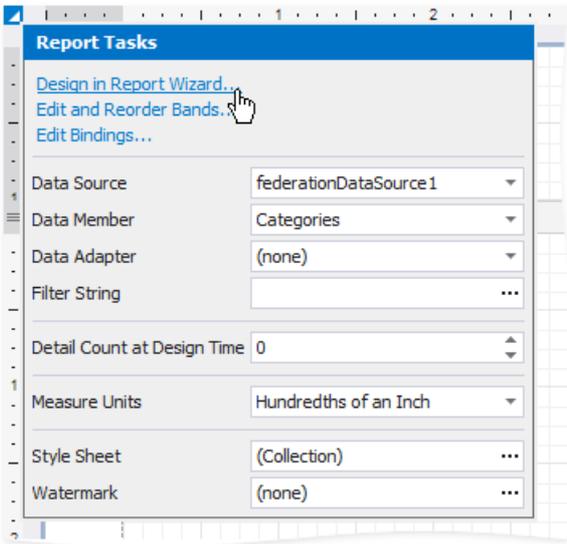


Once you rename the query, update the report's **Data Member** property.

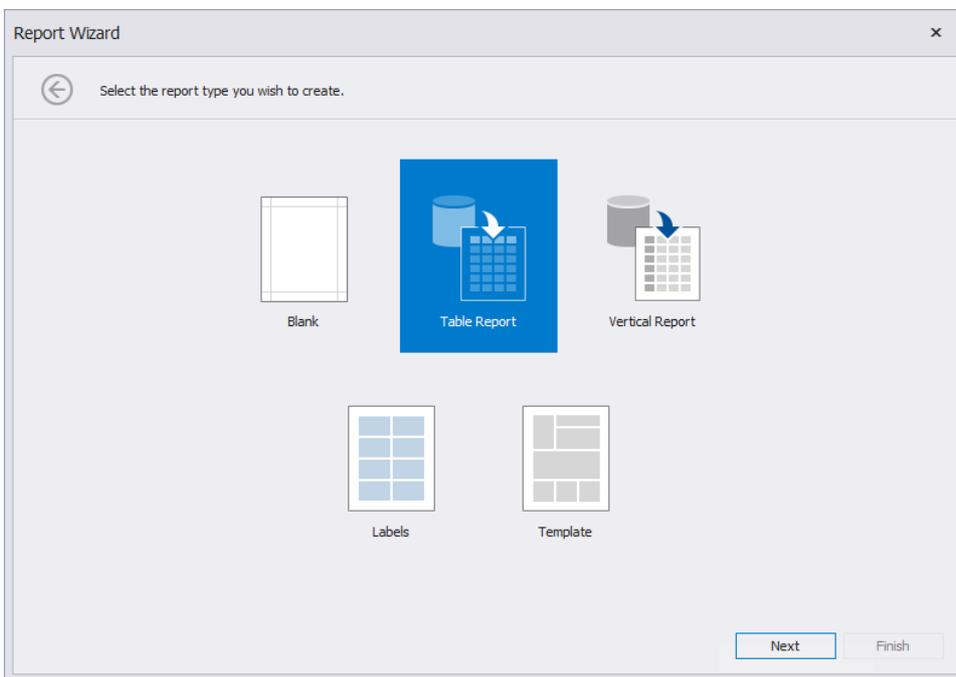


Design the Report Layout

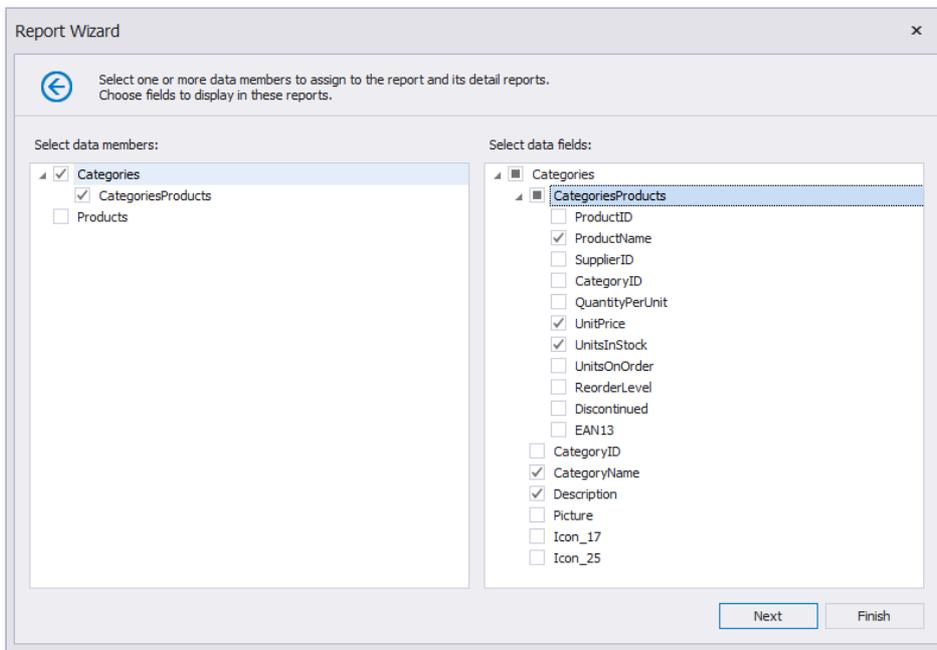
1. Click the report's smart tag and select **Design in Report Wizard**.



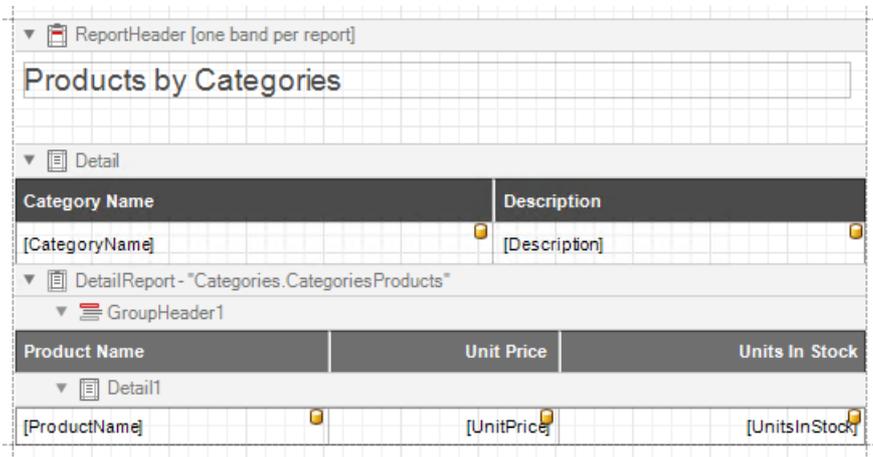
2. In the invoked [Report Wizard](#), select **Table Report** and click **Next**.



3. Select data members for the report and its [detail reports](#). Select data fields to display in the report and click **Finish**. You can also go to the [next page](#) to continue layout creation.



The resulting layout looks similar to the following image:



Switch to the Preview mode to see the report document.

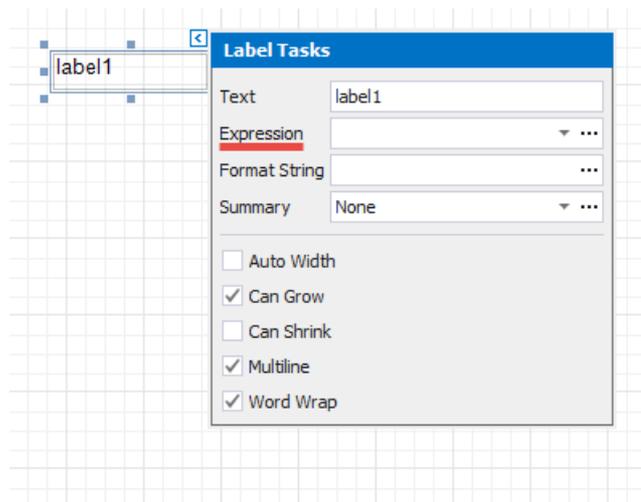
Data Binding Modes

The Report Designer uses one of the following modes to provide dynamic content to your reports: expression bindings or standard data bindings.

Expression Bindings

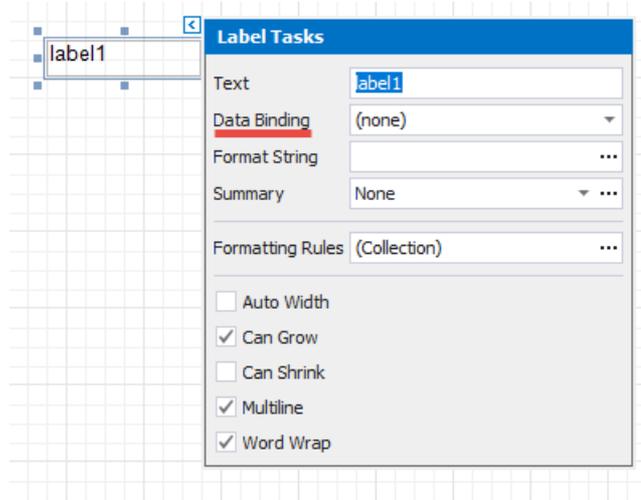
Expression bindings enable you to use complex [expressions](#) that include two or more fields and various functions. Expressions also allow you to calculate complex summaries without scripts and conditionally shape your data without formatting rules.

This mode is enabled in the Report Designer if a control's smart tag includes the **Expression** property.



Data Bindings

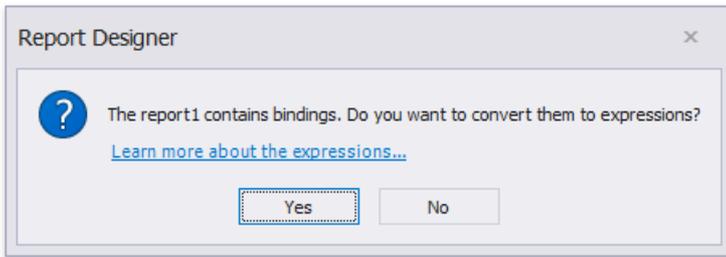
Standard data bindings enable you to assign a single data field to a report control or use [report scripts](#) to provide custom logic. This mode is enabled in the Report Designer if a control's smart tag includes the **Data Binding** property.



This mode is enabled in the Report Designer if a control's smart tag includes the **Data Binding** property.

Conversion Dialog

The following dialog appears only when [expression bindings](#) are enabled in the Report Designer, and you [open an existing report](#) that uses standard [data bindings](#):



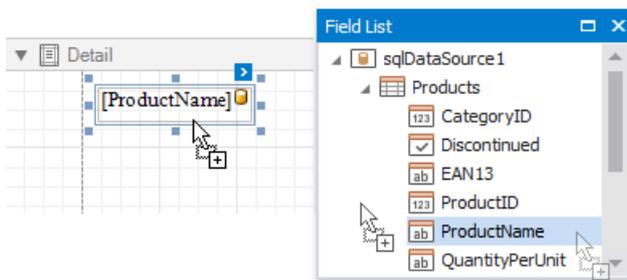
This dialog prompts you to convert your report to use expressions (the new binding mechanism). Click **Yes** to run the report conversion, click **No** to open the report without changes.

See the section below for information on how to use expressions instead of data bindings.

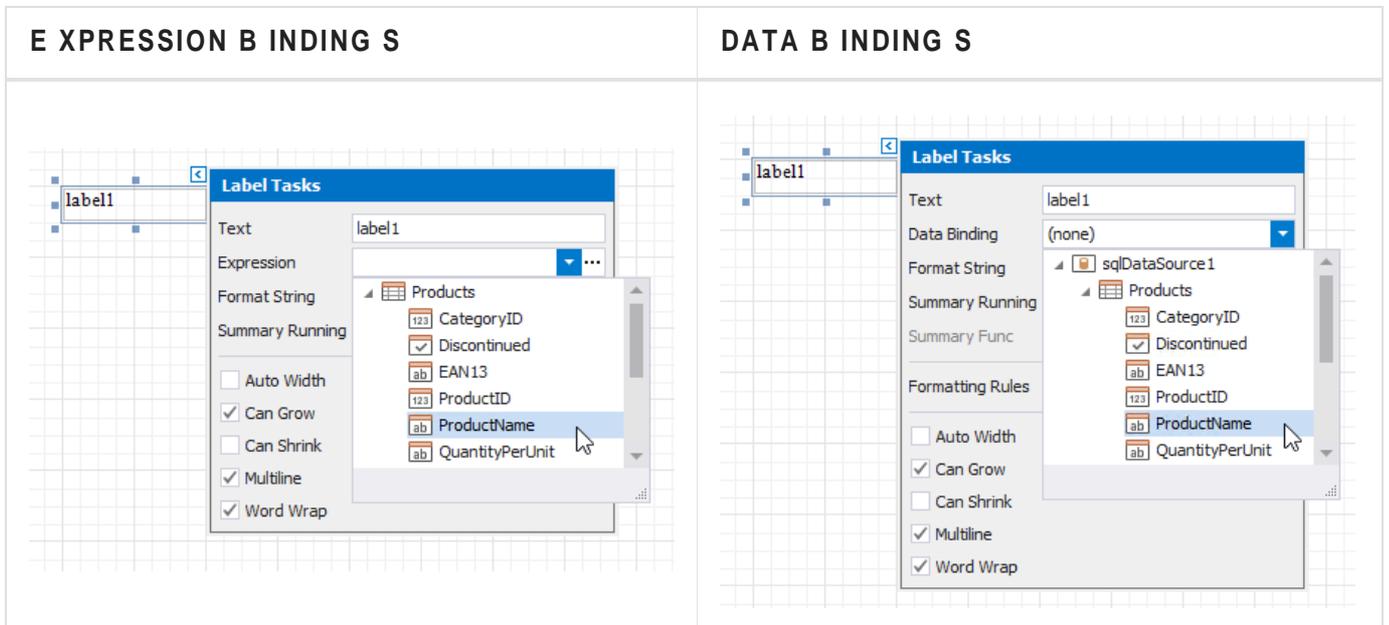
Binding Mode Comparison

Binding to a Single Data Field

- The **Field List** panel allows you to drop fields onto the design surface or existing report controls. All binding ways are identical in the **data bindings** and **expression bindings** modes.



- The control's smart tag enables you to select the target data field in the corresponding drop-down list.



- You can select a report control and bind it to data in the **Property Grid**.

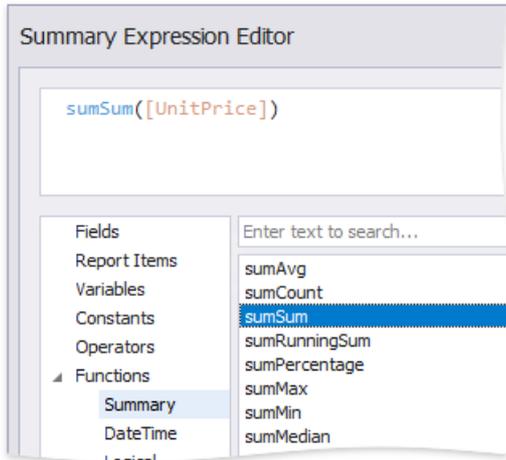
See the following topics for more information:

- [Bind Report Controls to Data \(Expression Bindings\)](#)
- [Bind Report Controls to Data \(Data Bindings\)](#)

Calculate Summary

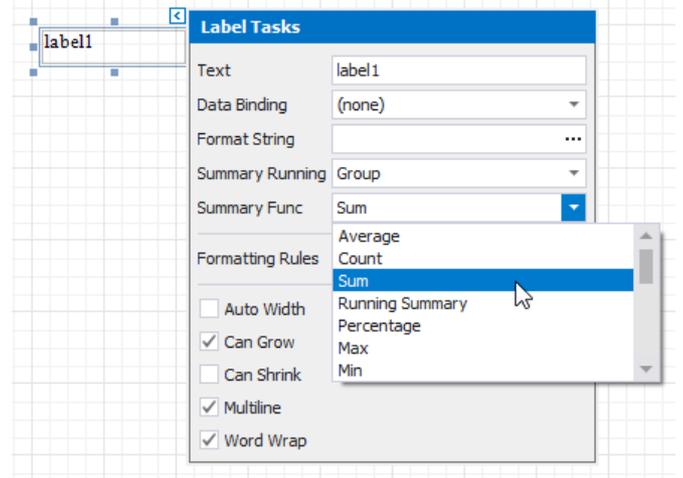
Select the summary function in the **Expression Editor's Summary** section.

All functions has the 'sum' prefix.



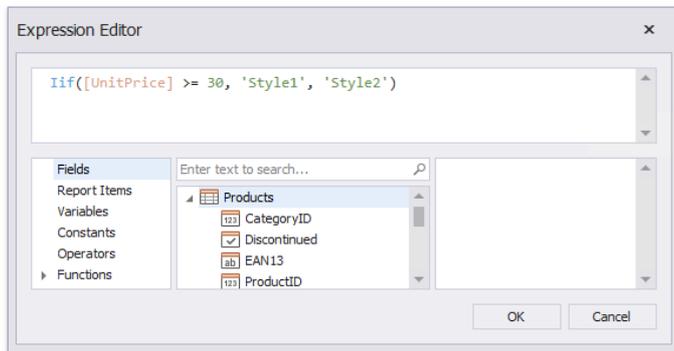
See [Calculate a Summary](#) for more information.

Select the summary function in the **Summary Func** drop-down list.



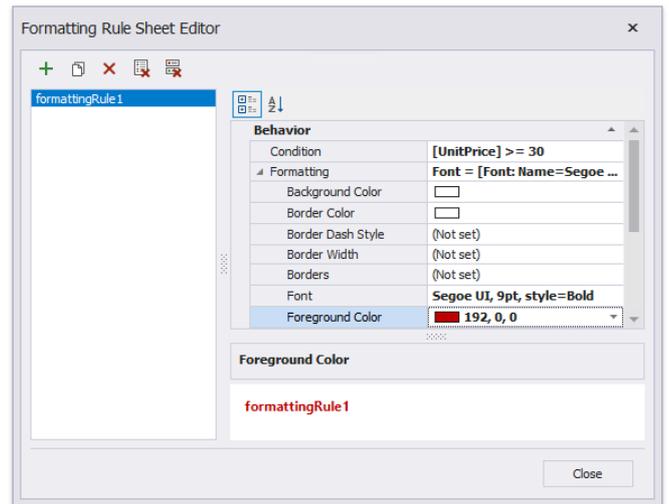
See [Calculate a Summary](#) for more information.

Use the **Expression Editor** to construct [expressions](#) for a control's appearance and style properties.



Refer to [Conditionally Change a Control Appearance](#) for an example.

Create formatting rules and assign them to report controls.

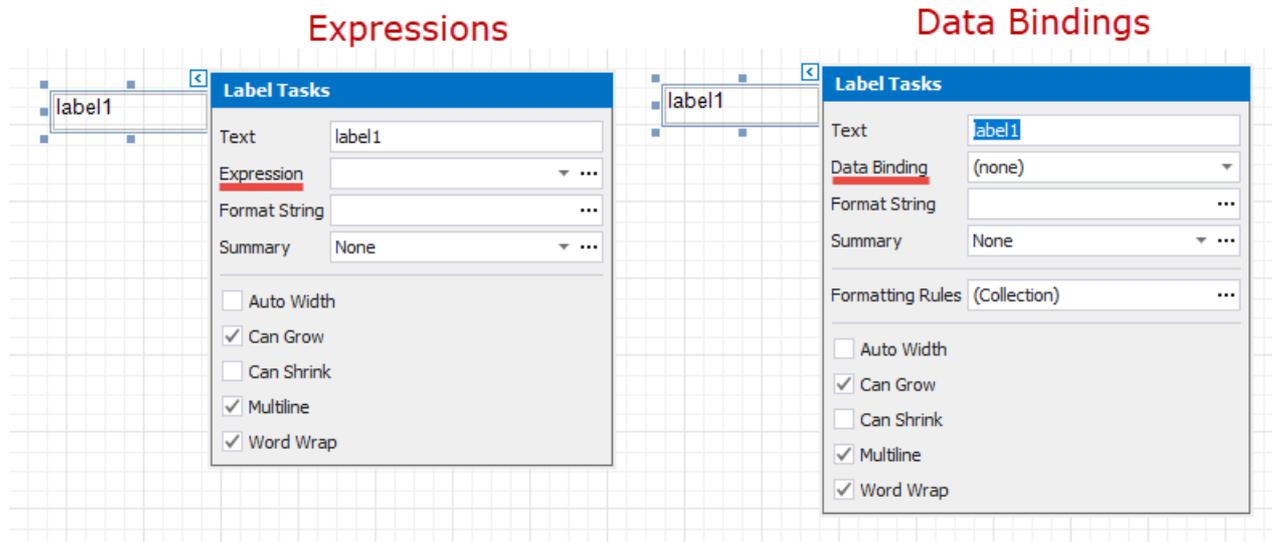


Refer to [Conditionally Change a Control Appearance](#) for an example.

Bind Report Controls to Data (Expression Bindings)

O Not e

Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).



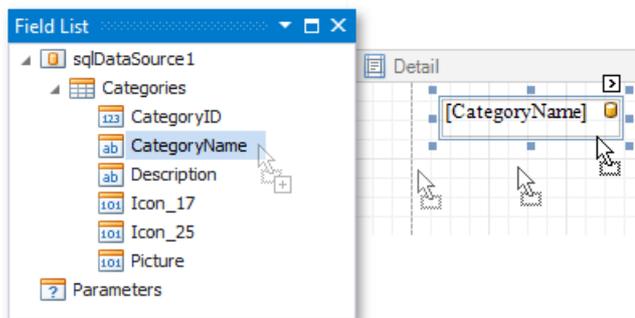
See the [Bind Report Controls to Data \(Data Bindings\)](#) topic to learn about an alternative approach. You can use the following approaches to include a data source's information in your report:

- [Use the Field List](#)
- [List Use the Smart Tag](#)
- [Use the Property Grid](#)

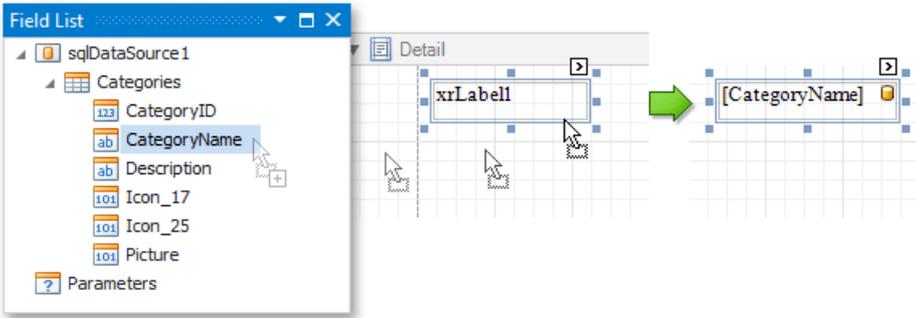
Use the Field List

After you [bind your report to data](#), the [Field List](#) panel displays the data source's hierarchy and provides access to the available data fields.

Drop a data field from this panel onto a report's surface to create a new report control bound to the corresponding field.



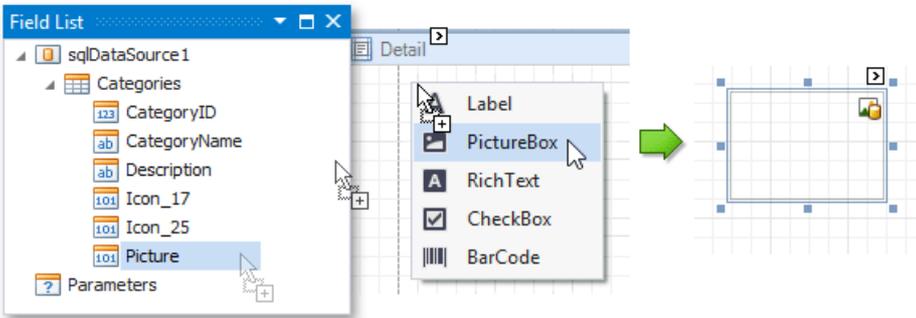
Drop a data field onto an existing control to bind this control to the corresponding field.



You can do one of the following to create a data-bound control of a specific type:

- Hold down the SHIFT key and drop a data field onto a report's surface. Right-click a corresponding data field and drop it onto a report's surface.

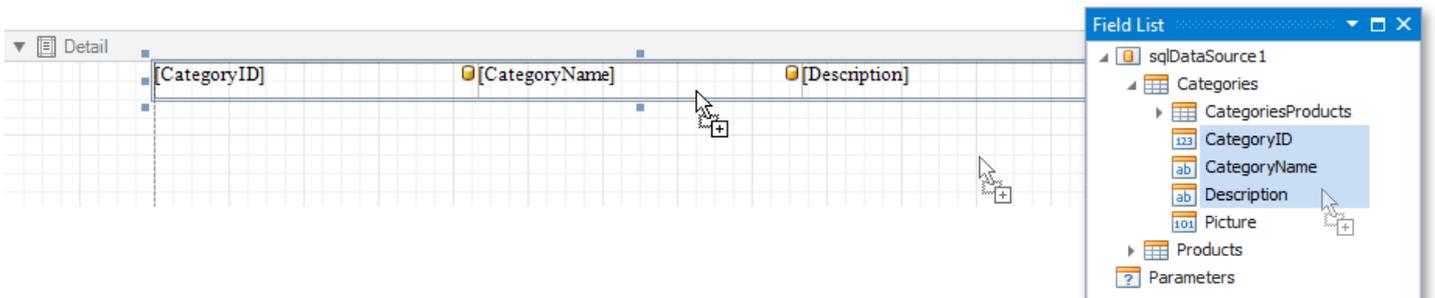
This invokes a context menu that enables you to select which control to create.



You can also drop an entire data table onto a report to create a **Table** control with its cells bound to the corresponding data table fields.

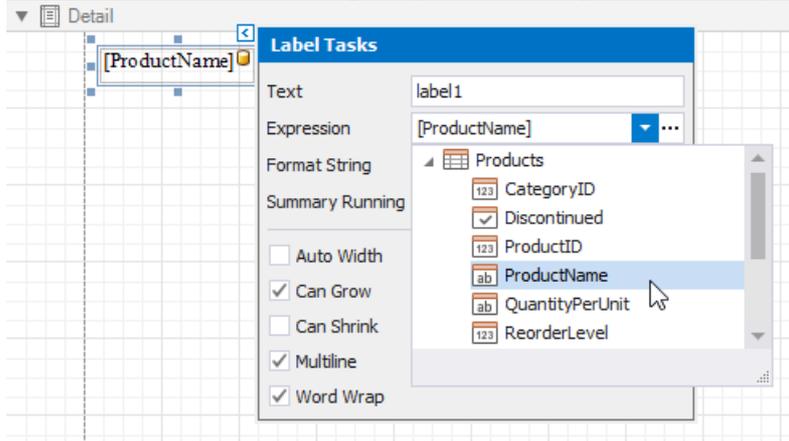


To select multiple fields in the Field List, hold CTRL or SHIFT and click the fields. Drop these fields onto a report to create a new table.

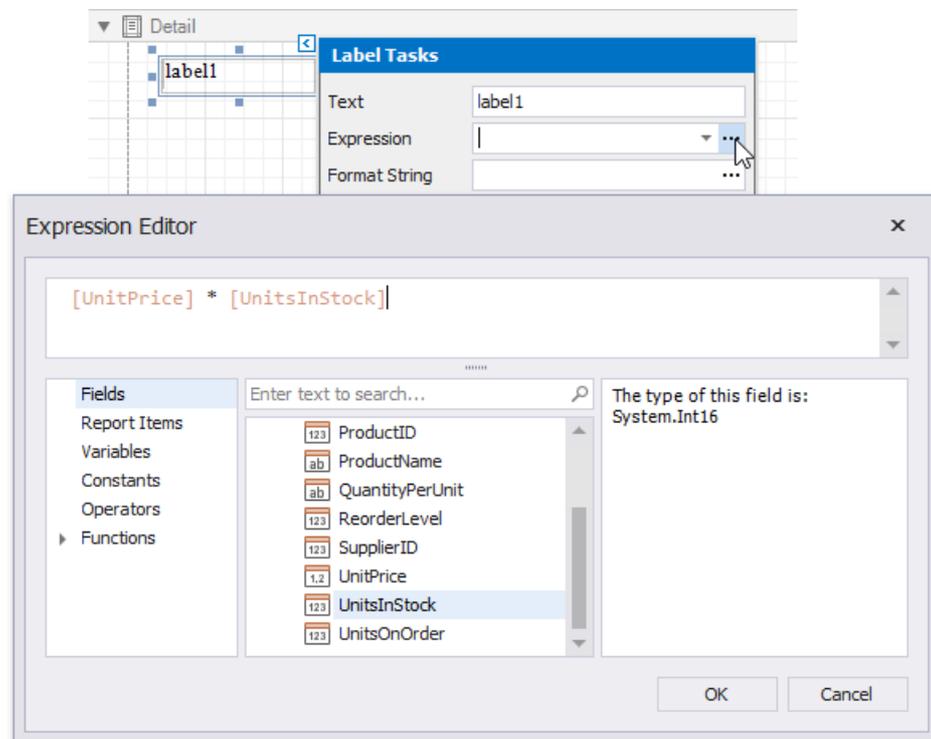


Use the Smart Tag

Click a control's smart tag, expand the **Expression** drop-down list and select a data field.

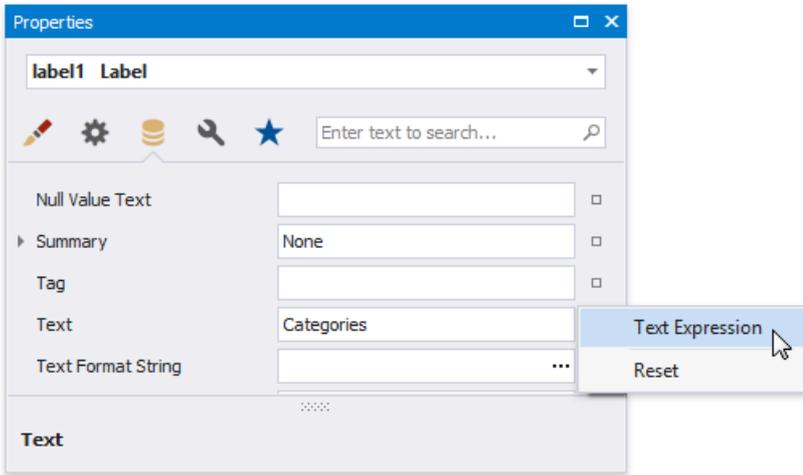


You can also click the **Expression** option's ellipsis button to invoke the **Expression Editor**. This editor allows you to construct a complex binding expression with two or more data fields and various functions. See [Expression Syntax](#) for more information.

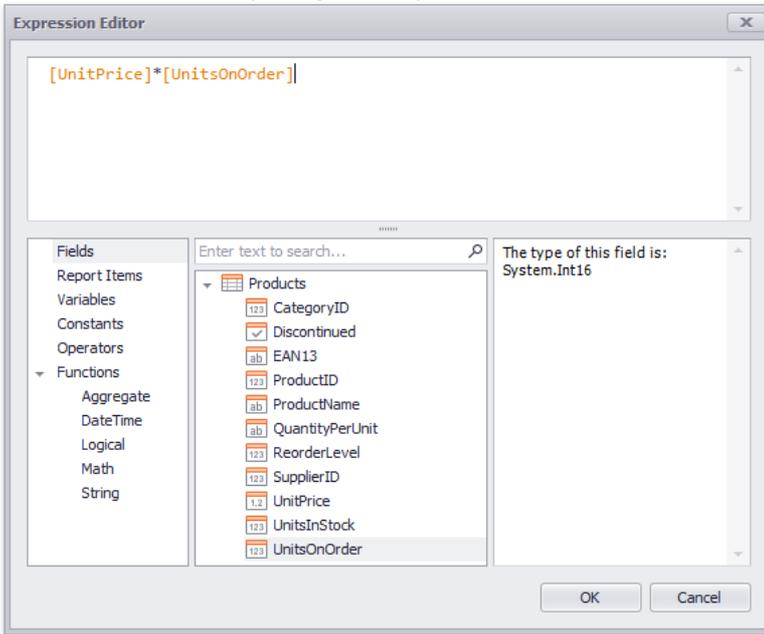


Use the Property Grid

Click a property marker to see whether the invoked context menu has the **PropertyName Expression** item.



Click this item to specify an expression in the invoked Expression Editor.



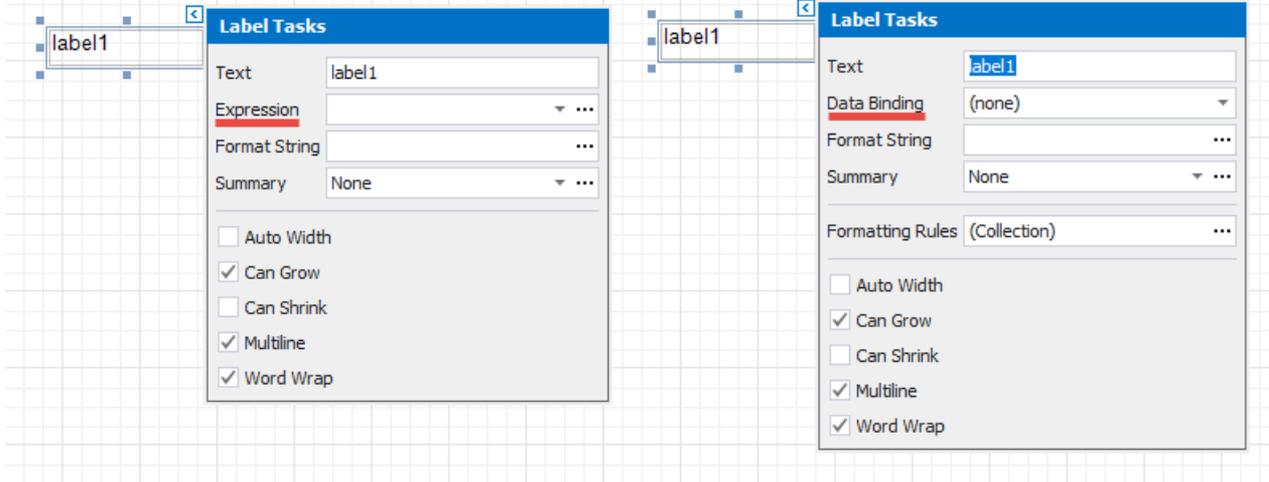
You can use the same approach to specify expressions for all the control properties. See [Shape Report Data](#) for more tutorials.

Bind Report Controls to Data (Data Bindings)

Not e
Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).

Expressions

Data Bindings



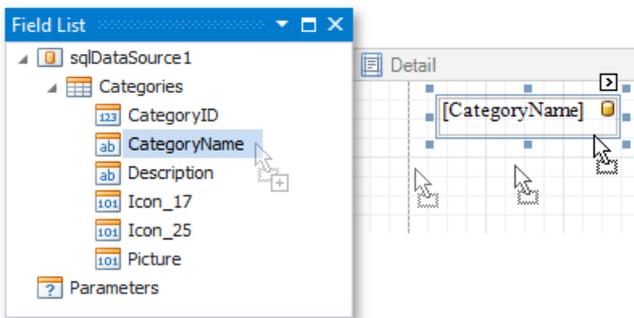
See the [Bind Report Controls to Data \(Expression Bindings\)](#) topic to learn about an alternative approach. You can use the following approaches to include a data source's information in your report:

- [Use the Field List](#)
- [List Use the Smart Tag](#)
- [Use the Property Grid](#)

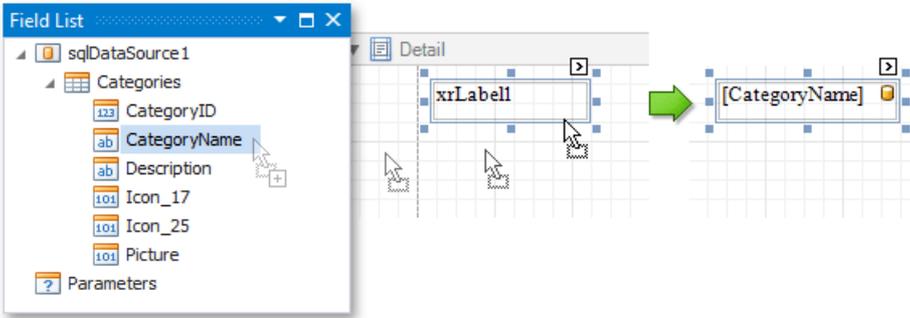
Use the Field List

After you [bind your report to data](#), the [Field List](#) panel displays the data source's hierarchy and provides access to the available data fields.

Drop a data field from this panel onto a report's surface to create a new report control bound to the corresponding field.



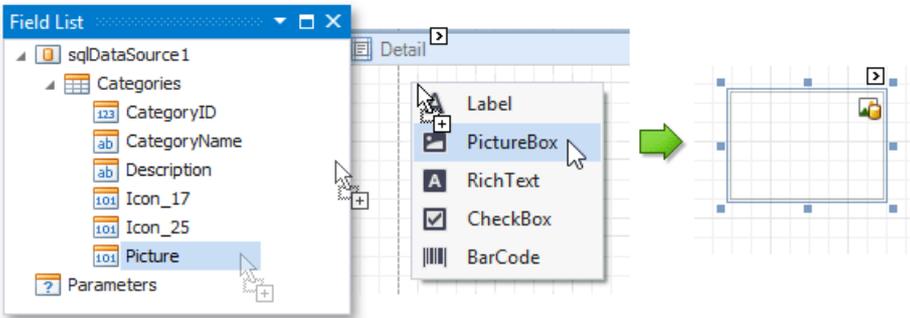
Drop a data field onto an existing control to bind this control to the corresponding field.



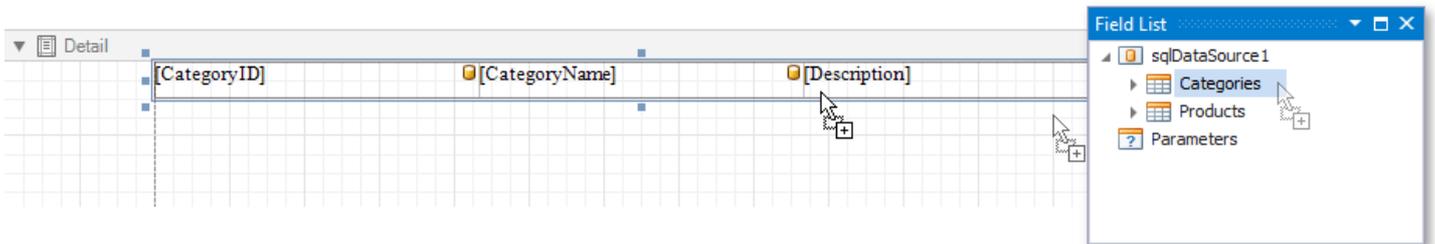
You can do one of the following to create a data-bound control of a specific type:

- Hold down the SHIFT key and drop a data field onto a report's surface. Right-click a corresponding data field and drop it onto a report's surface.

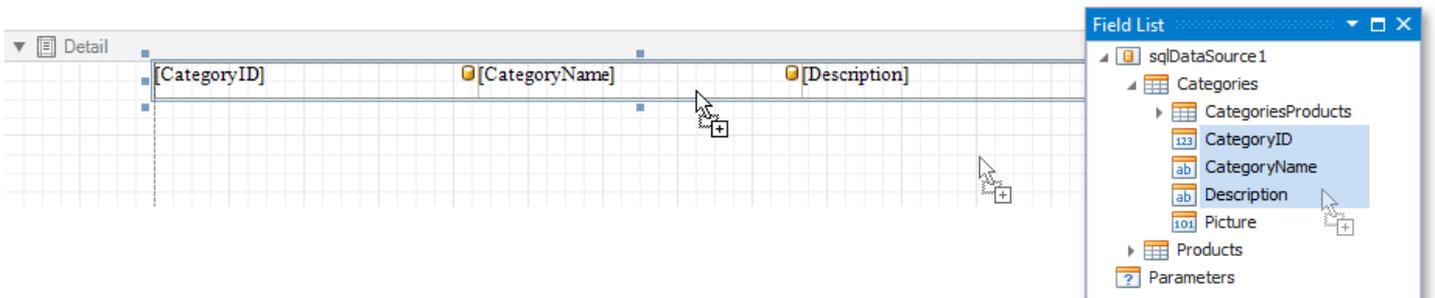
This invokes a context menu that enables you to select which control to create.



You can also drop an entire data table onto a report to create a **Table** control with its cells bound to the corresponding data table fields.

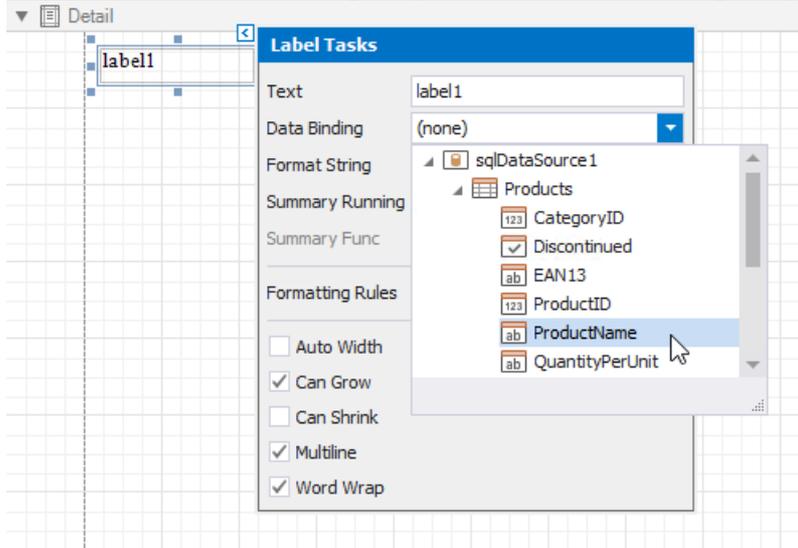


To select multiple fields in the Field List, hold CTRL or SHIFT and click the fields. Drop these fields onto a report to create a new table.



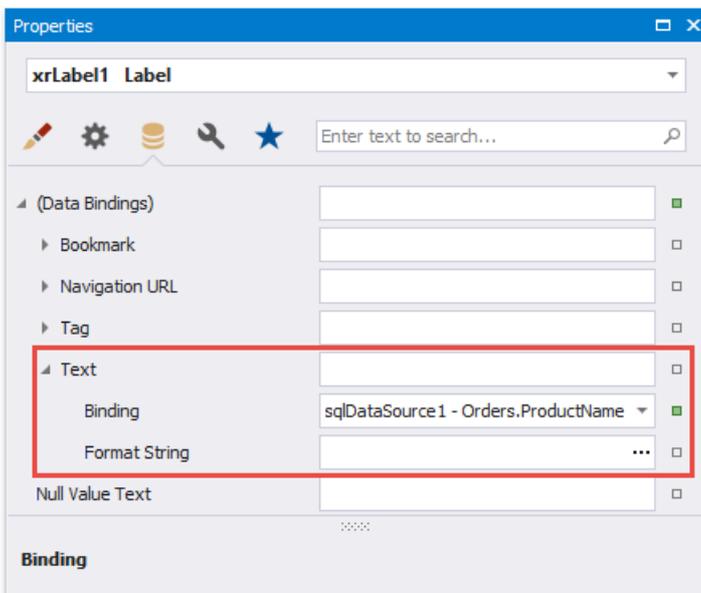
Use the Smart Tag

Click a control's smart tag, expand the **Data Binding** drop-down list and select a data field.



Use the Property Grid

In the [Property Grid](#), expand the (Data Bindings) category and specify a data field for a required property (for instance, Text).

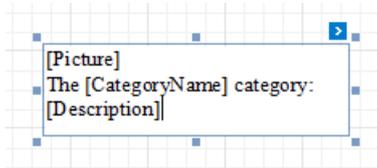


Use Embedded Fields (Mail Merge)

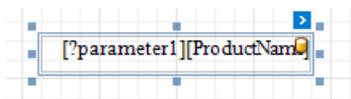
This topic describes how to provide data to report controls using the advanced **Mail Merge** binding method. This feature allows you to create templates in which data source values populate specific fields while other text remains constant (that is, allows you to combine static and dynamic content within the same control).

Embed Fields in a Control Text

You can apply mail merge to the control's **Text** property only. Double-click the required control on the design surface to invoke the in-place editor. Insert data field names with square brackets to create embedded fields and use any prefixes or postfixes.

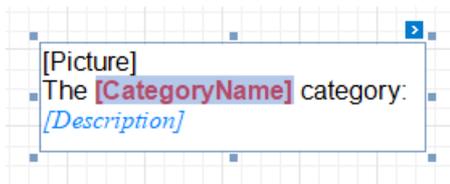
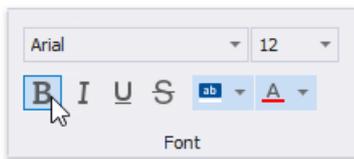


You can embed a [parameter](#)'s value into a control's content using the **[?ParameterName]** syntax.

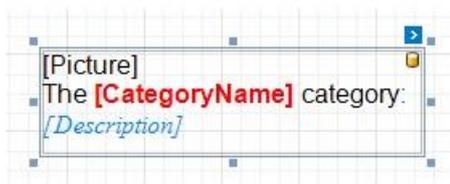


A database barrel icon is displayed above the control if embedded fields are valid in the current data context (specified by the report's **Data Source** and **Data Member** properties).

For the **Rich Text** control, you can select any text part and adjust its color and font options using the **Toolbar's Font** group.



Embedded fields are replaced with values obtained from an assigned data source when previewing or exporting a report:



The **Beverages** category:
Soft drinks, coffees, teas, beers, and ales

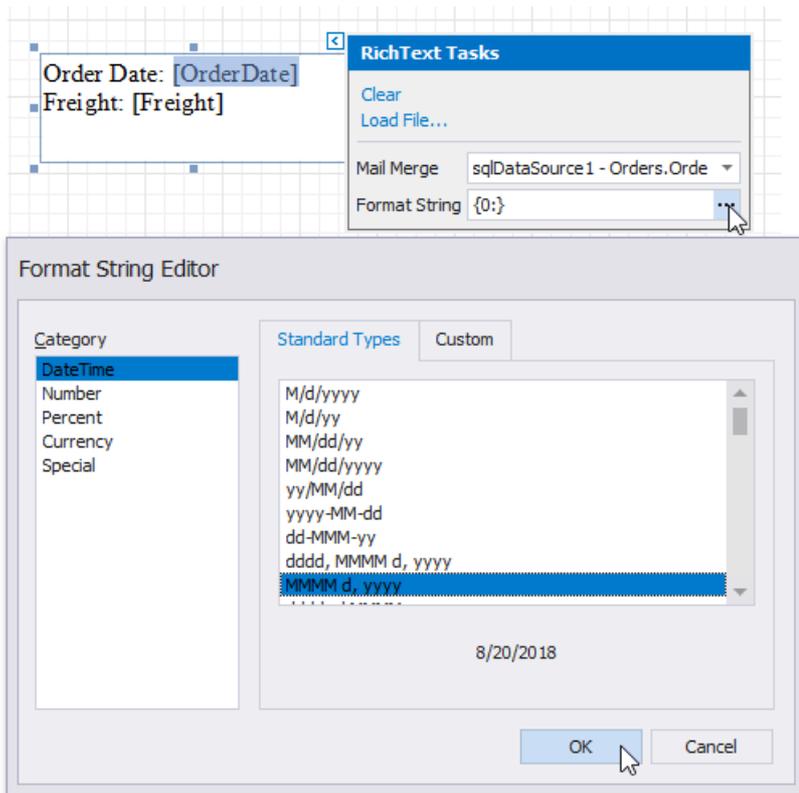
Consider the following specifics and limitations when using

embedded fields: Field names should not use dots and

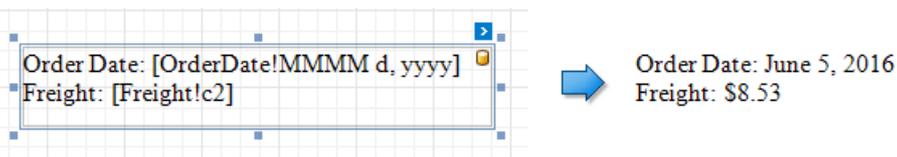
- spaces to be interpreted correctly.
- Mail Merge is not available for a table's nested fields in a master-detail hierarchy.
- Embedded fields cannot be exported to [XLS](#) and [XLSX](#) as values; they are always exported as plain text. We recommend using [text formats](#) instead if you need to accompany dynamic data with static text.

Format Embedded Fields

The mail merge feature enables you to apply formats to embedded field values. Select a required data field and click the control's smart tag. Click the **Format String** property's ellipsis button, and in the invoked **Format String Editor**, choose a built-in format pattern.



This adds the selected format to the target data field by separating it from the field name with the ! symbol and applies this format to field values when previewing a document.



Supported Controls

You can apply the mail merge feature to the **Text** of the following report controls:

- [Bar Code](#)
- [Character](#)
- [Comb Check](#)
- [Box](#)
- [Label](#)
- [Rich](#)

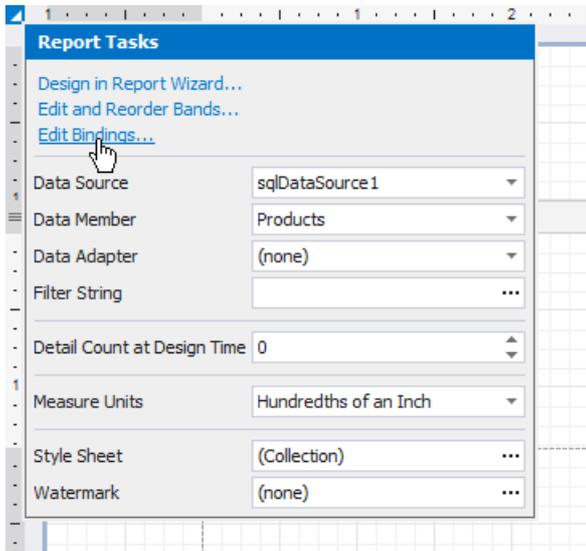
Text

Table
Cell

Update Report Data Bindings

After you assign a new data source to a loaded report, the report tries to automatically resolve all data bindings. When the field names of your data source do not coincide with the report controls' bindings, you can maintain them yourself.

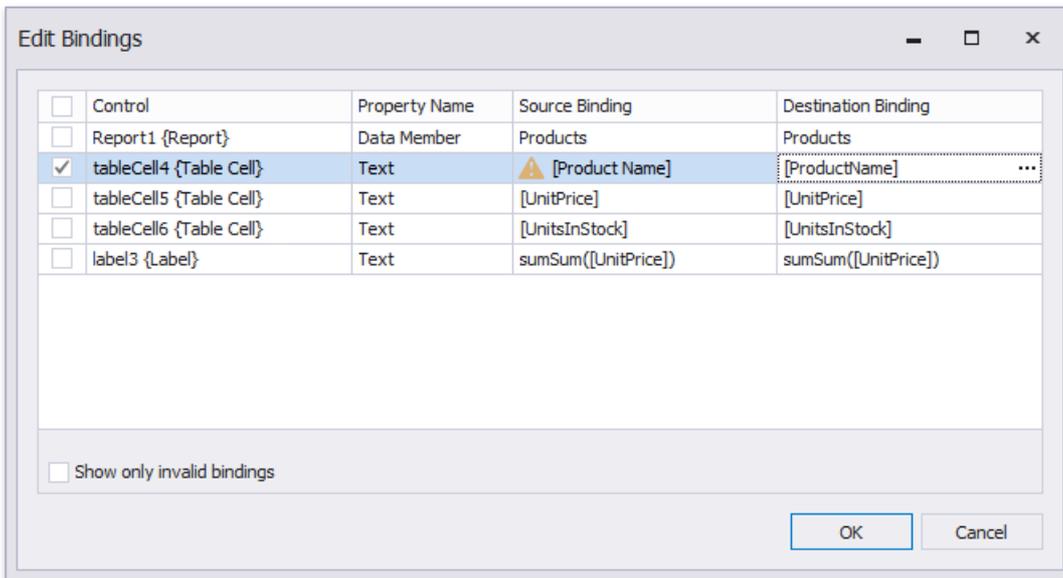
To do this, click the report's smart tag and in the invoked actions list, select the **Edit Bindings** link.



In the invoked **Edit Bindings** dialog, you can view the bindings that are currently assigned to every report control (in the **Control**, **Property Name** and **Source Binding** columns).

Enable the **Show only invalid bindings** option to exclude properly bound controls from this list.

To update a control's data bindings, enable the corresponding check box in the first column and assign the required bindings from the report's data source (in the **Destination Bindings** column).



After you have finished updating the bindings, click **OK** to close the dialog and apply the changes.

Create Popular Reports

The following tutorials illustrate how to create table and invoice reports:

- [Create a Table Report](#)
- [Create a Vertical Report](#)
- [Create an Invoice Based on a Template](#)
- [Create an Invoice Manually](#)

The following topics describe how to display hierarchical data in

- your reports: [Create a Master-Detail Report \(Use Detail Report Bands\)](#)
- [Create a Master-Detail Report \(Use Subreports\)](#)
- [Create a Hierarchical Report](#)

The tutorials listed below demonstrate various layout options available for

- reports: [Create Labels and Badges](#)
- [Create a Multi-Column Report](#)
- [Create a Report with Cross-Band Content and Populated Empty Space](#)

The following tutorial illustrates interactive report

features: [Create an Interactive E-Form](#)

O Note

See the [Provide Interactivity](#) documentation section to learn about providing a drill-down functionality to your reports. See [Use Report Parameters](#) to learn how to customize reports by submitting parameter values in Print Preview.

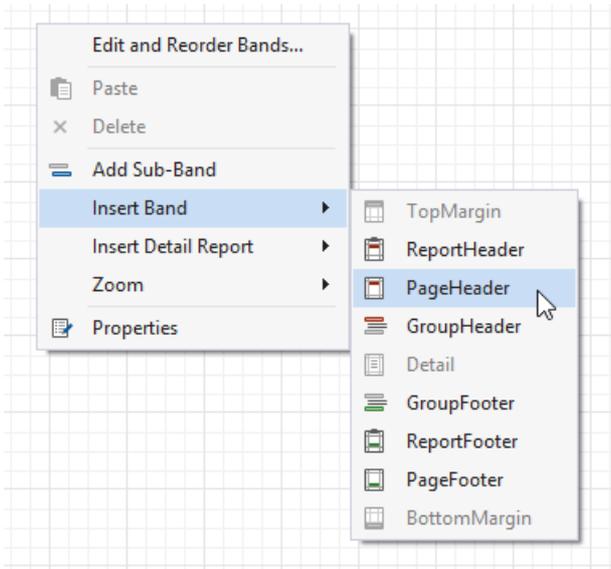
The following tutorials explain how to use the Cross Tab control in your reports:

- [Create a Cross-Tab Report](#)
- [Create a Balance Sheet](#)

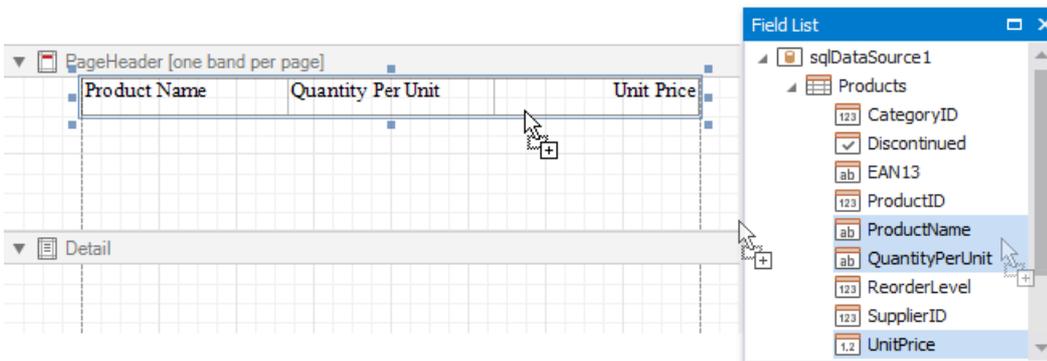
Create a Table Report

This tutorial describes how to create a data-bound report displaying information in a tabular format. Table reports should not be confused with hierarchical [master-detail reports](#), nor with [cross-tab reports](#).

1. [Create a new report](#) or [open an existing one](#).
2. [Bind the report](#) to a required data source.
3. Add the [Page Header](#) band to the report to print the column headers at the top of every document page. To do this, right-click the report's surface, and select **Insert Band | PageHeader** in the context menu.

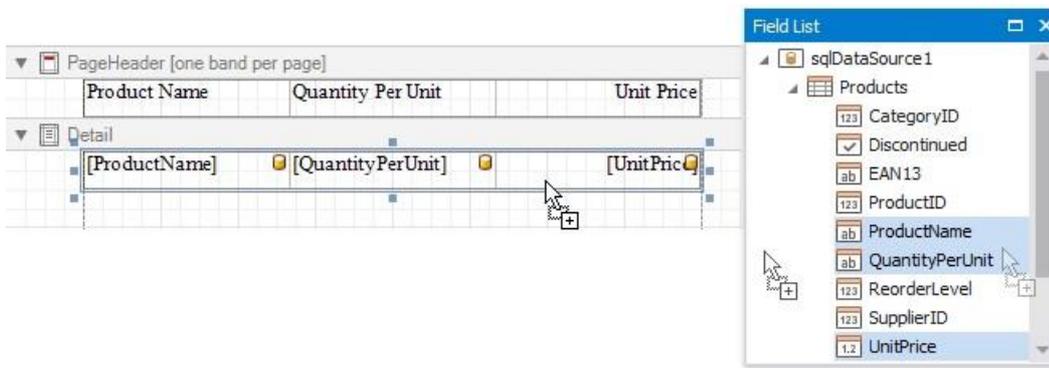


4. Switch to the [Field List](#) and select the required fields by clicking them while holding the CTRL or SHIFT key. Then, drop them onto the Page Header band with the right mouse button to quickly create column headers.



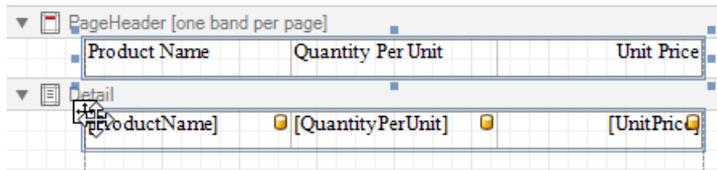
This creates a [Table](#) in which each cell shows a field name.

5. To provide dynamic content to the report, switch to the Field List again and select the same fields. Click the selected fields and drag-and-drop them onto the Detail band.

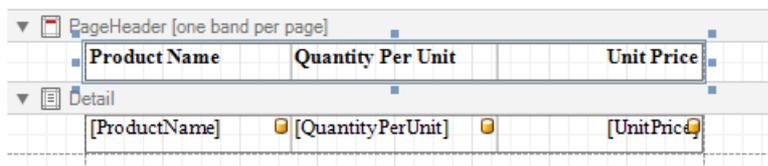
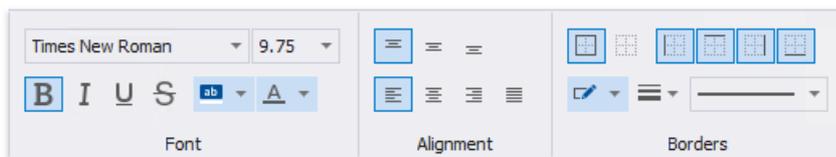


This creates a table with the same number of cells as the number of fields selected with each cell bound to the appropriate data field.

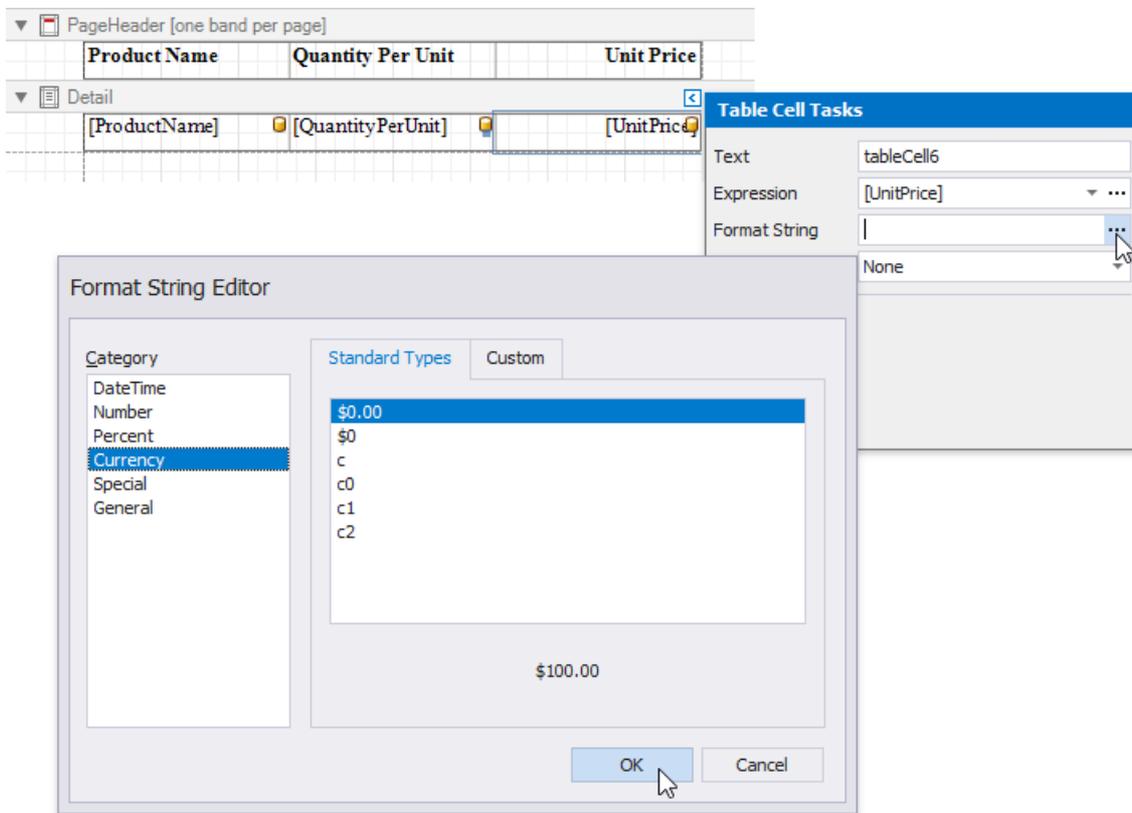
6. Select a table by clicking its handle, which appears when you hover the table with the mouse cursor. To select both tables simultaneously, click their handles while holding the CTRL key.



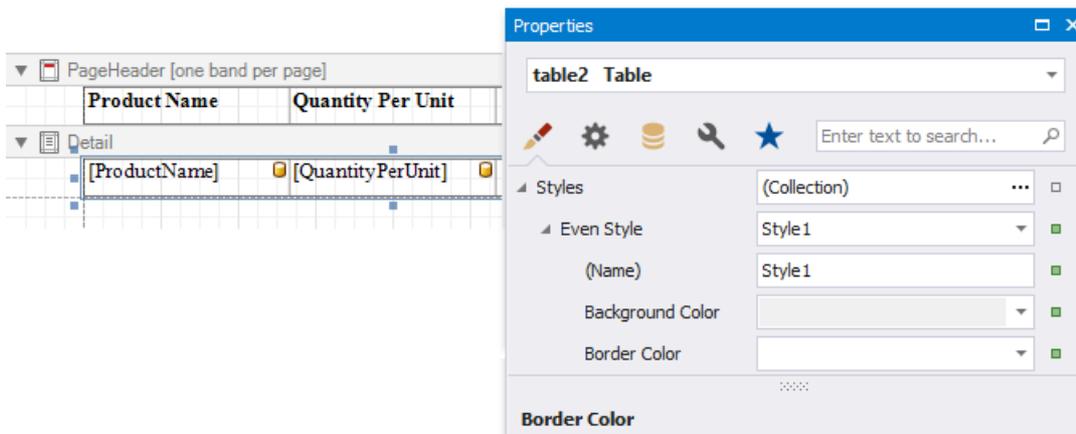
7. Use the **Toolbar's Font, Alignment and Borders** sections to customize the tables' appearance.



8. Define a currency format for the **UnitPrice** cell. Click the cell's smart tag, and then, click the **Format String** property's ellipsis button. Select the appropriate format in the invoked **Format String Editor** editor and click **OK**.



9. To further improve the table readability, you can apply different visual styles to its odd and even rows. See [Report Visual Styles](#) to learn more.



See the [Use Tables](#) section to learn how to add or remove the table's rows and cells, as well as convert the table's cells to separate label controls.

Switch to [Print Preview](#) to see the resulting report.

Item Name	Quantity	Unit	Price
Chai	10 boxes x 20 bag;		5
18.00			
Chang	24 - 12 oz bottles		5
19.00			
Aniseed Syrup	12 - 550 ml bottles		10.00
Chef Anton's Cajun Seasoning	48 - 16 oz jars		522.00
Chef Anton's Gumbo Mix	36 boxes		52
13.5			
Grandma's Boysenberry Spread	12 - 8 oz jars		525.00
Uncle Bob's Organic Dried Peas	12 - 1 lb pkgs.		530.00
Northwoods Cranberry Sauce	12 - 12 oz jars		540.00
Jiashi	18 - 500 g pkgs.		\$9.00
Kobe	12 - 200 ml jars		\$9.00
Niku	1 kg pkg.		\$100.00
Ikura	10 - 500 g pkgs.		\$2.00
Quern	2 kg box		\$0.00
Cabrales	40 - 100 g pkgs.		\$9.00
Quern	24 - 250 ml bottles		\$8.00
Man	32 - 500 g boxes		\$6.00
ohago			
Konbu			
Tofu			
Genen			523
Shoyu			-25
Pa			
vlova			\$15.50
			\$145

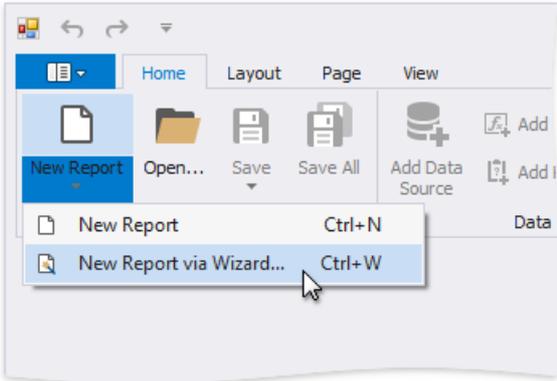
Create an Invoice Based on a Template

This document describes how to create an invoice report based on a predefined template using the [Report Wizard](#).

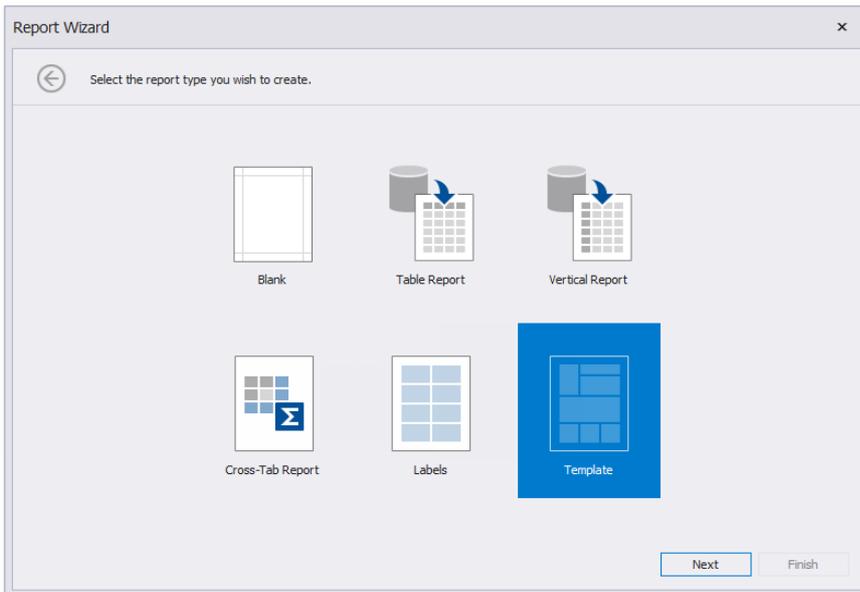
O Not e

See the [Create an Invoice Manually](#) topic to learn how to create an invoice report with a custom layout from scratch. Do the following to select an invoice template and configure its settings:

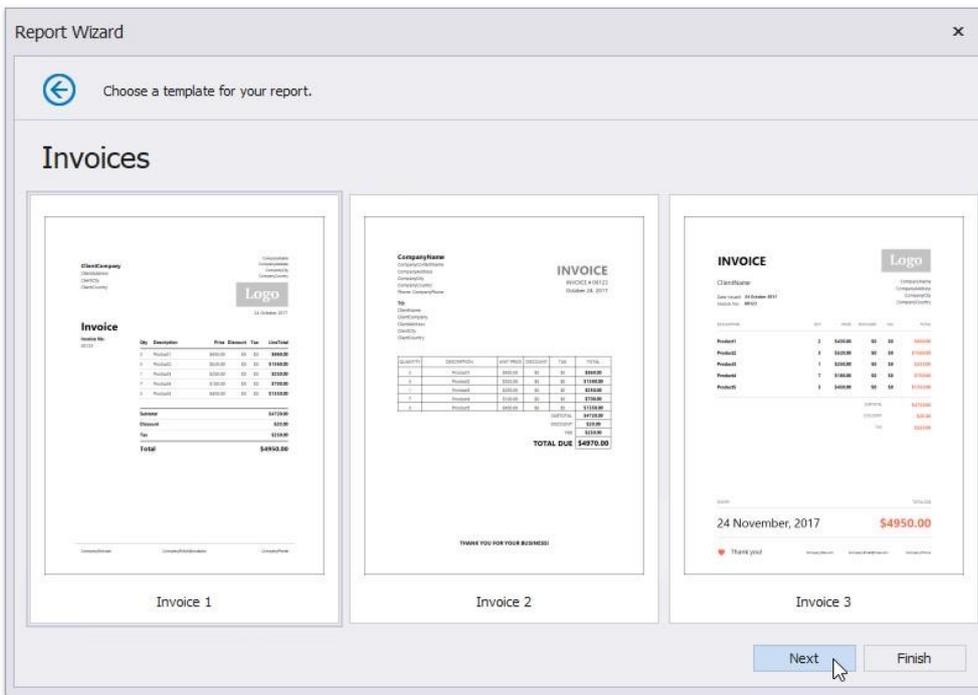
1. Click [New Report via Wizard](#) in the [Toolbar](#)'s **Home** tab.



2. On the first wizard page, select **Template** and click **Next**.

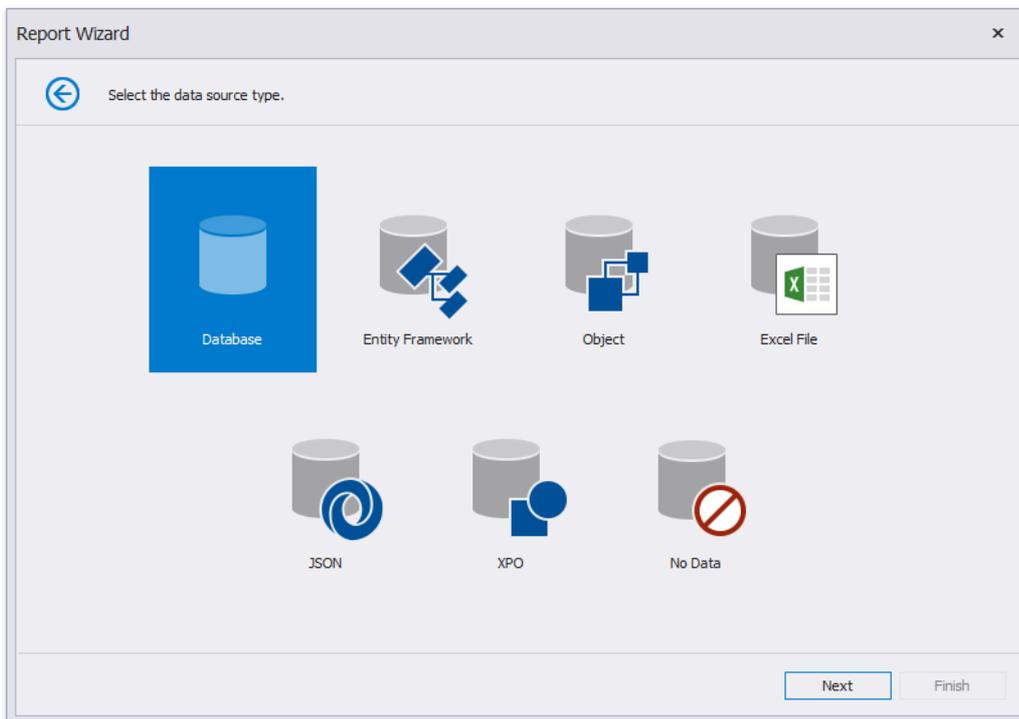


3. On the next wizard page, choose the report template that specifies elements' arrangement and appearance settings.



Click **Next** to proceed to the next wizard page.

- The following page allows you to select a data source's type that provides data to your report. Choose **Database** and click **Next**.

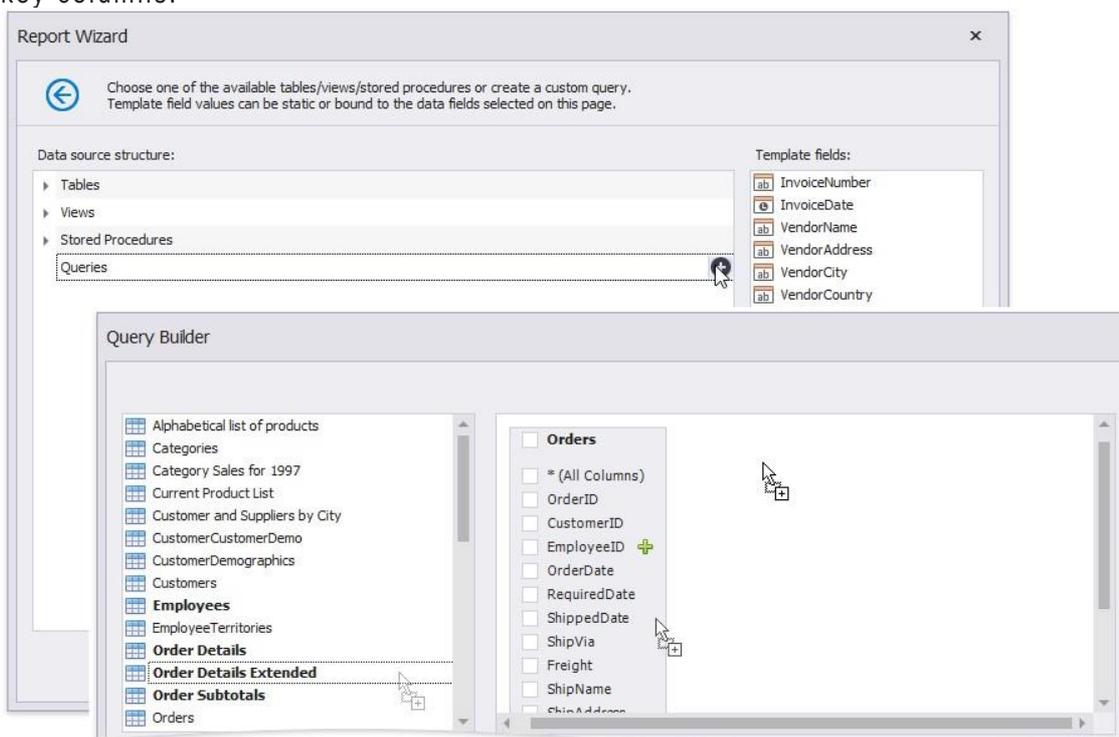


5. On the next wizard page, specify whether you want to use an existing data connection or create a new one. For this tutorial, select an existing connection and click **Next**.



6. The following wizard page has a list on the right-hand side displaying the selected template's available fields. On the left-hand side, you can choose a table, view or stored procedure containing the data fields corresponding to the template fields. You do not need to provide data to all template fields.

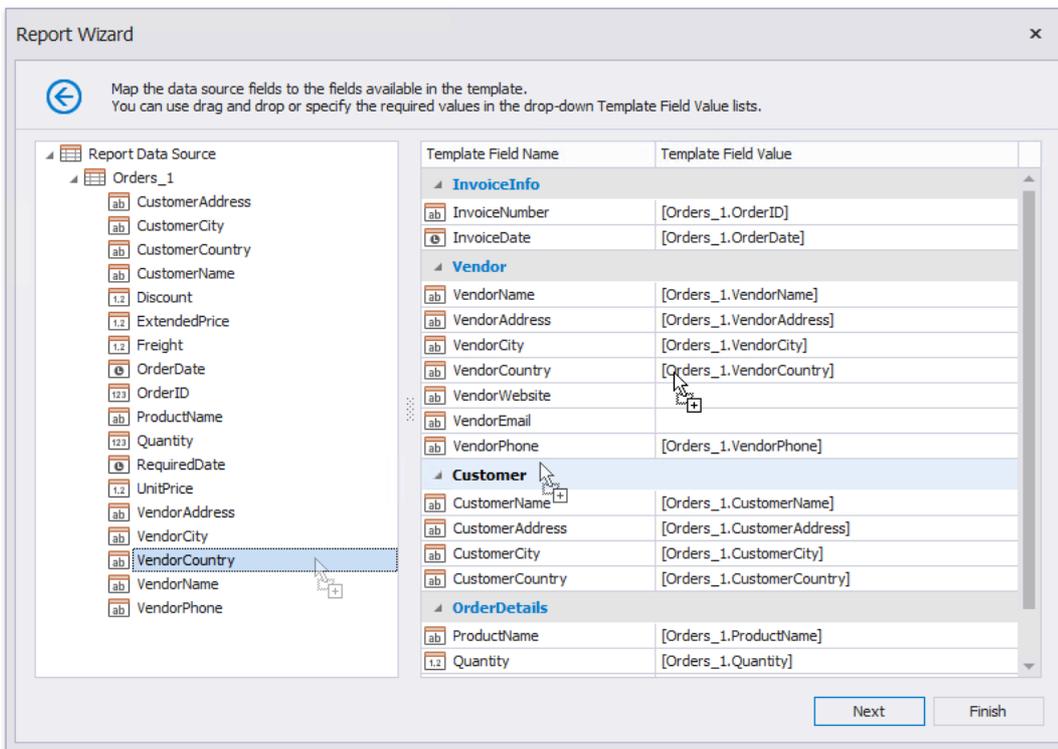
You can combine several different tables' or views' data fields by creating a custom query. Click the **Queries** category's plus button, and in the invoked **Query Builder**, join data tables and views based on key columns.



Click **Next** on the wizard page to continue report creation.

7. The next wizard page enables you to specify the relationships between the data source's fields and predefined template fields.

Drag and drop the required data field from the tree on the left-hand side onto the corresponding template field's column.

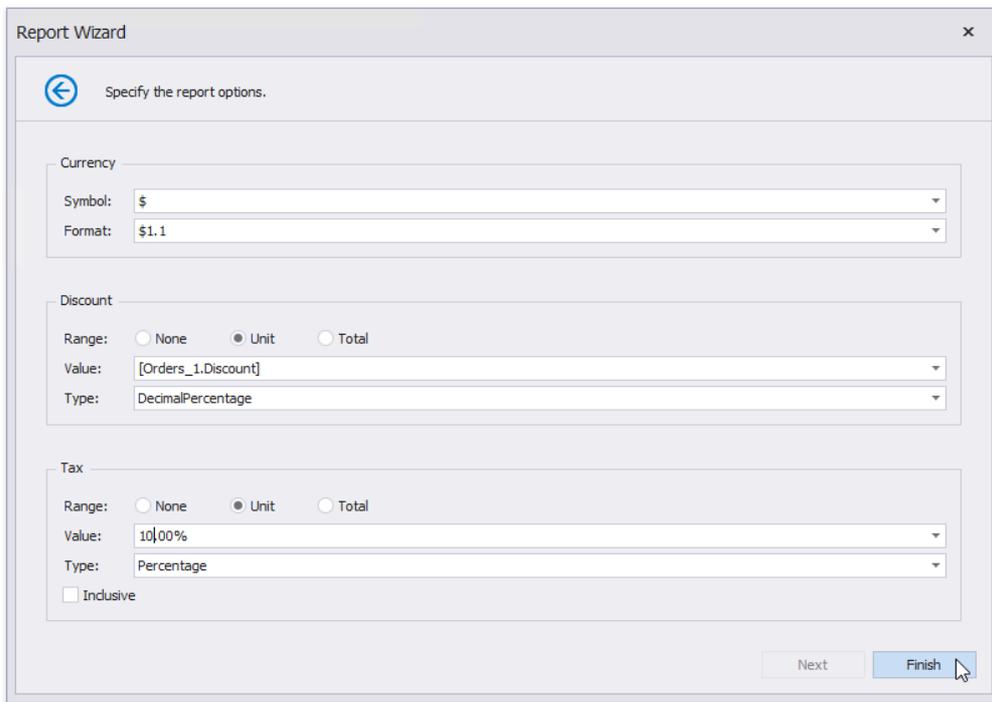


You can also select a data field from the **Template Field Value** drop-down list or manually enter a static field value in this column.

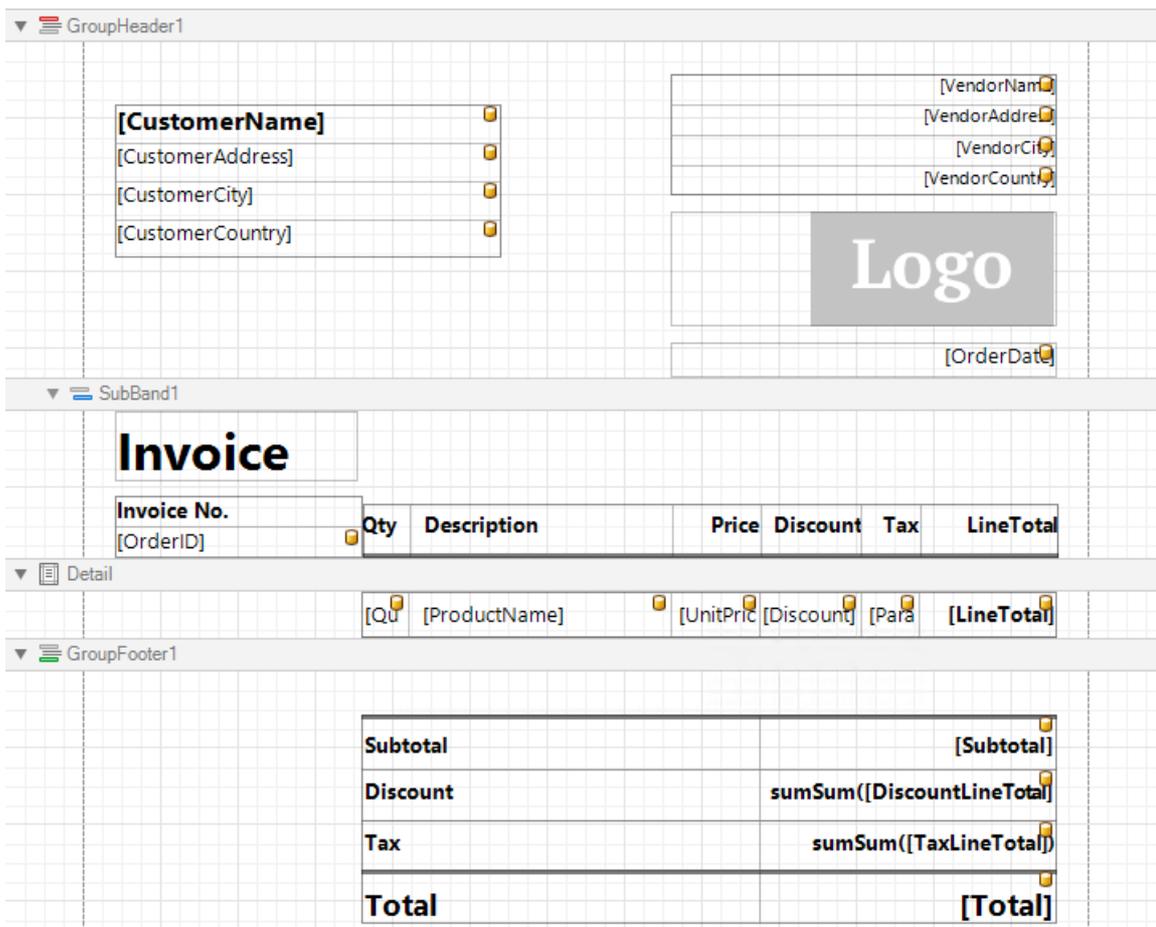
If you do not provide values to specific template fields, the corresponding elements are automatically added to the resulting report.

Click **Next** to proceed.

8. On the last wizard page, select the currency symbol and price values' format. You can also specify the following discount/tax options:
 - **Range** - Defines whether the discount/tax value should not be taken into account (**None**), or should be used for individual items (**Unit**) or the entire order (**Total**).
 - **Value**- Specifies the discount/tax value that can be static or bound to the data source field.
 - **Type** - Specifies the type of the discount/tax value (flat, fixed or percentage).
 - **Inclusive** (for the tax only) - Indicates whether the tax value is included in product prices.



Click **Finish** to complete the wizard and get the report layout according to the selected template and specified options.



Switch to [Print Preview](#) to see the result.

Paul Harriot
 Abballe
 59 rue de l'Abbal'
 Reims
 France

Villiers et Associés
 5 rue de la
 France



July 2017

Invoice

Line	Description	Qty	Unit	Price	Tax	Total	Rate
12.	Que o cabrale!			\$14.00	0%		
					11%	\$14.00	
	10 Sing p o reanHokkiai			\$ 9.80	0%		
					10%	\$9.80	
	Fried Mee						
	ozzar ella dl Grnanni			\$34.80	0%		10%
						\$34.80	
				\$48.80			
				4s			
				00			
				50			
				,0			
				0			
				\$44.00			
Total						\$48.80	

Invoice No: 10248
 Date: 26.07.2017
 Contact: Paul Harriot
 Email: paul.harriot@villiers-et-associes.com

Create an Invoice Manually

This tutorial describes how to create a simple invoice report displaying information about customers and their orders. You can perform similar steps to create various invoice layouts depending on your requirements.

O Note

See the [Create an Invoice based on a Template](#) topic to learn how to create an invoice report based on a predefined layout.

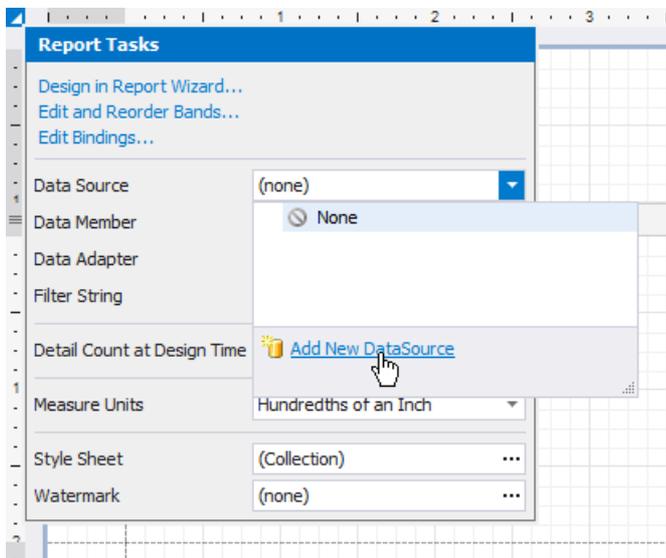
Quantity	Product	Unit Price	Discount	Extended Price
5	Mozzarella di Giovanni	\$34.80	0.00%	\$174.00
12	Queso Cabrales	\$14.00	0.00%	\$168.00
10	Singaporean Hokkien Fried Mee	\$9.80	0.00%	\$98.00
				Total: \$440.00

INVOICE August 22, 2018

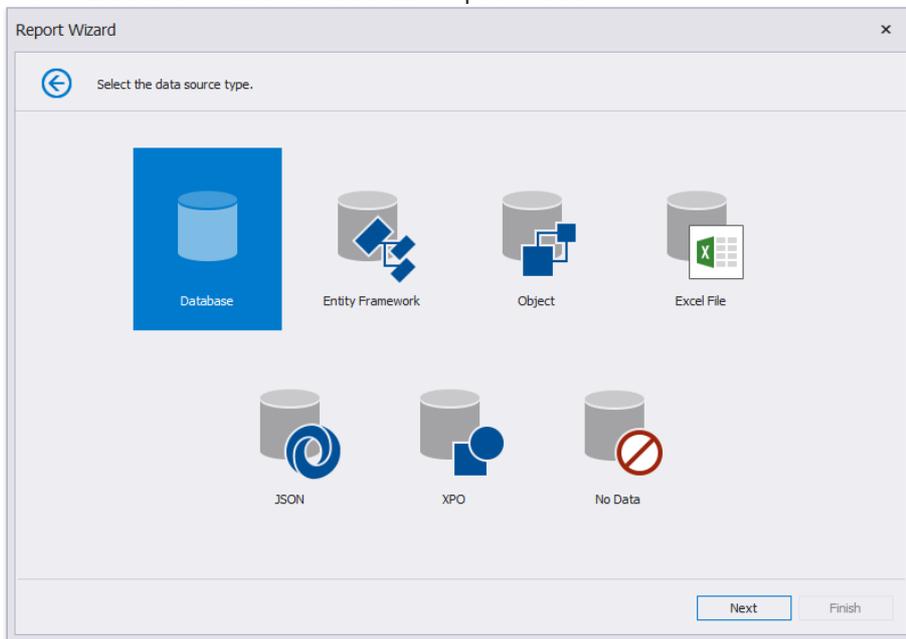
Paul Henriot ORDER # 10248
Vins et alcools Chevalier
59 rue de l'Abbaye ORDER DATE August 4, 2014
Reims REQUIRED DATE September 1, 2014
France SHIPPED DATE August 16, 2014

Create a Report and Bind It to Data

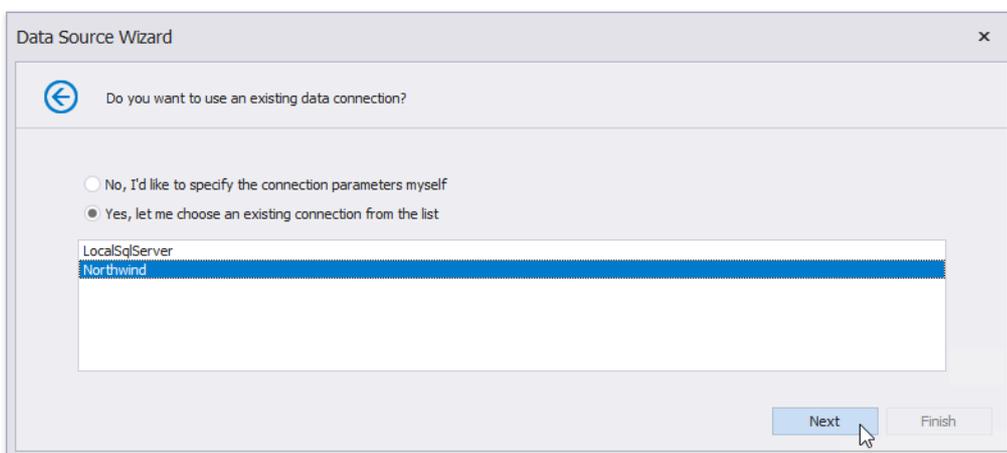
1. [Create a new report](#) or [open an existing one](#).
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



3. On the first page of the invoked **Data Source Wizard**, you can choose the required data source type. Select **Database** and click **Next** to proceed.

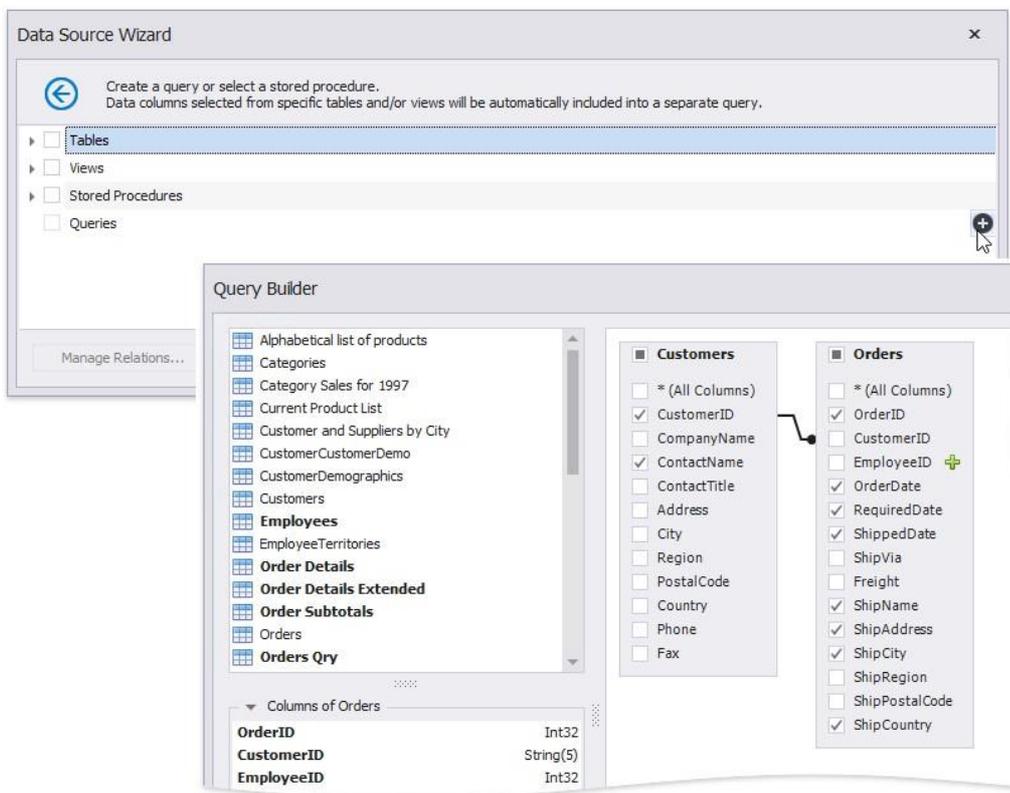


4. The following page allows you to specify whether you want to use an existing data connection or create a new one. For this example, select an existing connection and click **Next**.

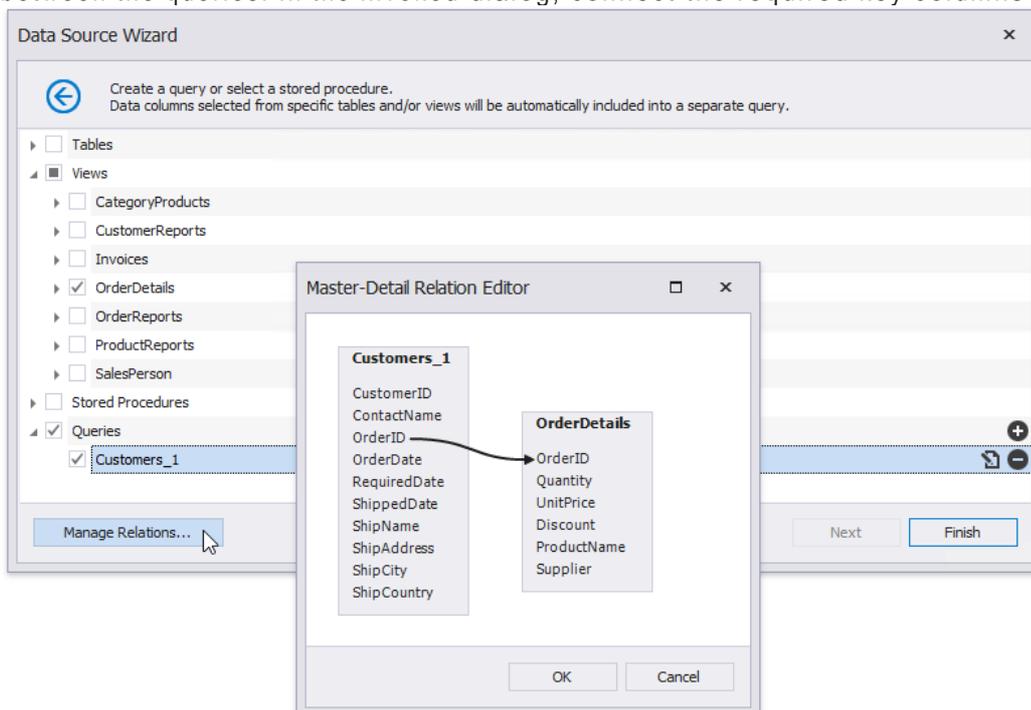


5. On the next page, you can choose which tables, views and/or stored procedures to add to the report.

Obtain data from two different tables to display information about customers and orders at the same hierarchical level in the report. Click the plus button for the **Queries** category to create a custom query. In the invoked [Query Builder](#), add the required data tables to a query and join them based on a key column.

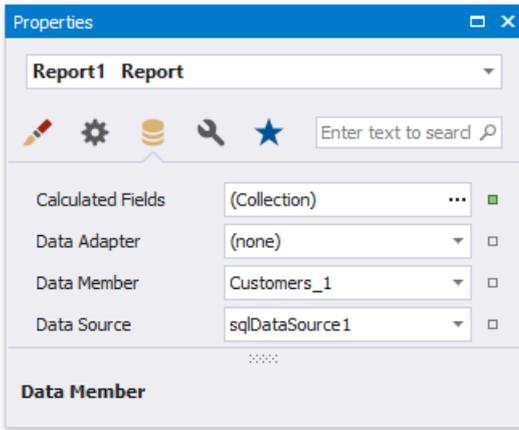


- On the same wizard page, select the data view providing order details for listing products included in each order in the invoice. Click the **Manage Relations** button to specify a master-detail relationship between the queries. In the invoked dialog, connect the required key columns using drag-and-drop.



- Click **Finish** to complete the wizard.

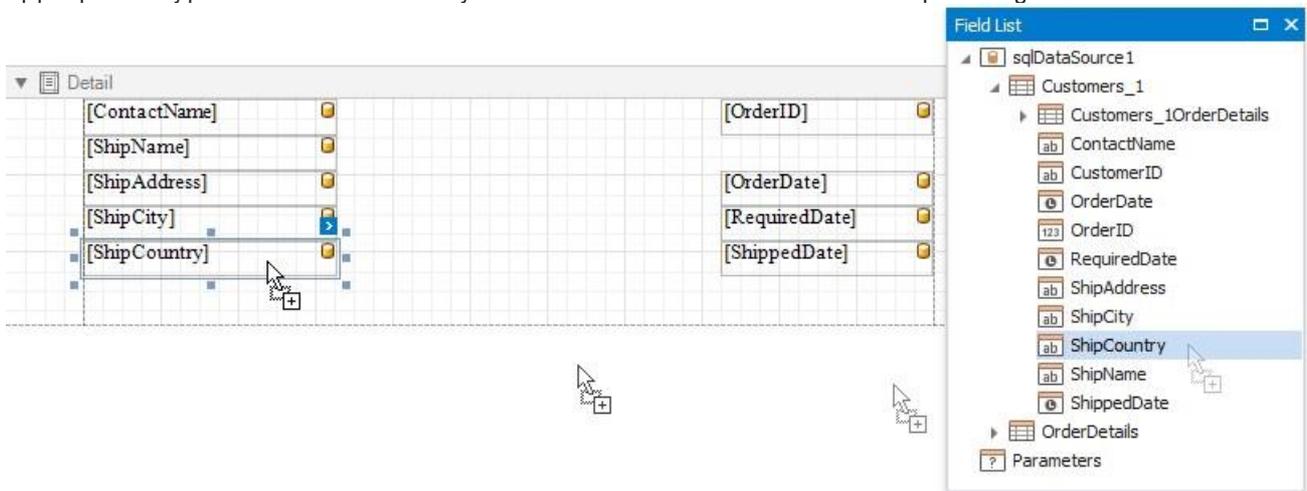
After these steps, make sure that an appropriate data member is assigned to the report.



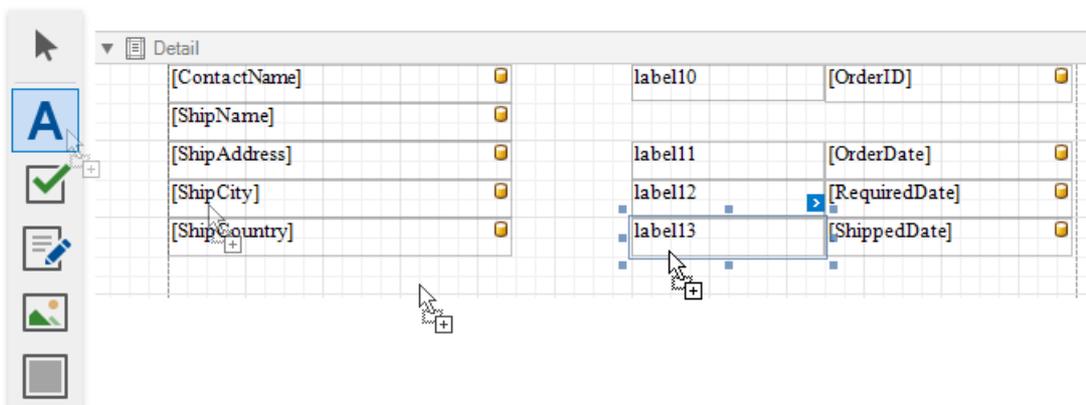
Prepare the Master Report Layout

Create the master report layout to display basic information about customers and their orders.

1. Switch to the **Field List** and drop the required data fields onto the **Detail band**. New controls of appropriate types are automatically created and bound to the corresponding fields.



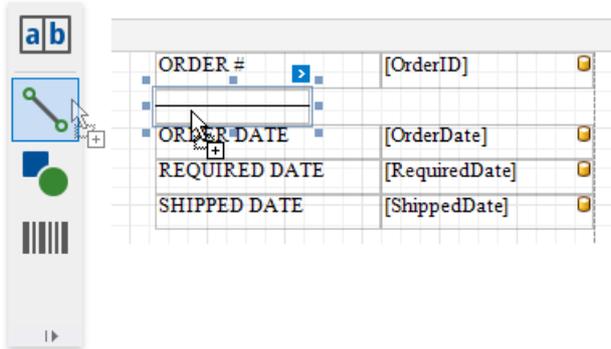
2. Drop **Label** controls from the **Toolbox** onto the band to display static captions for specific data fields.



3. Double-click the added labels one after another and enter the required text.

Detail	
[ContactName]	ORDER # [OrderID]
[ShipName]	
[ShipAddress]	ORDER DATE [OrderDate]
[ShipCity]	REQUIRED DATE [RequiredDate]
[ShipCountry]	SHIPPED DATE [ShippedDate]

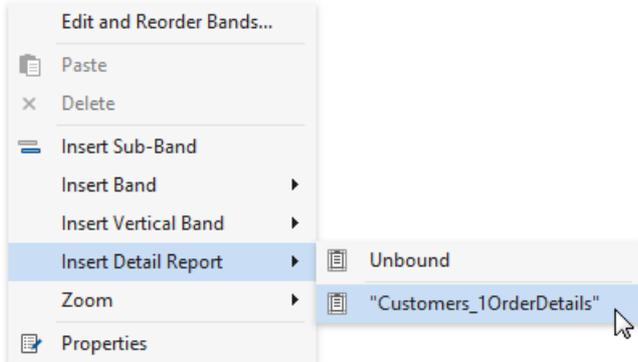
4. Use the [Line](#) control to separate data.



Prepare the Detail Report Layout

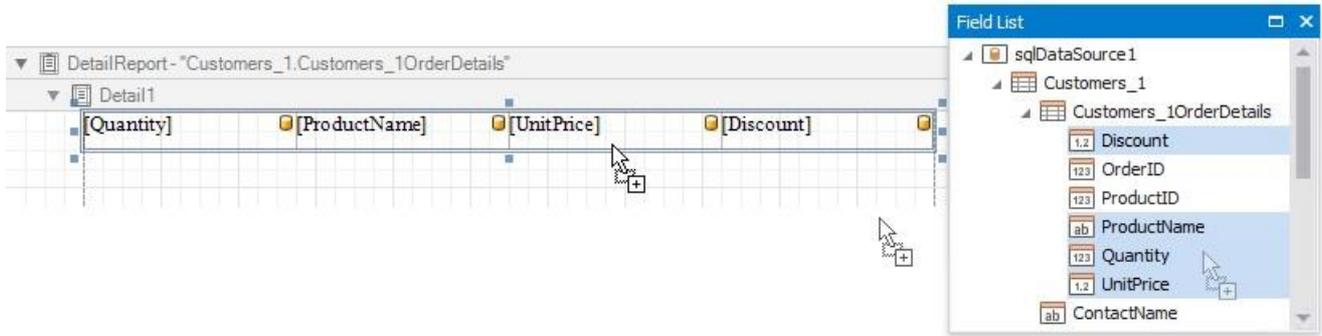
Perform the following steps to create a detail report and construct its layout to show the order details in a tabular form:

1. Create a [Detail Report Band](#) by right-clicking the report's surface. In the invoked context menu, select **Insert Detail Report**, and then, select the master-detail relationship's name.

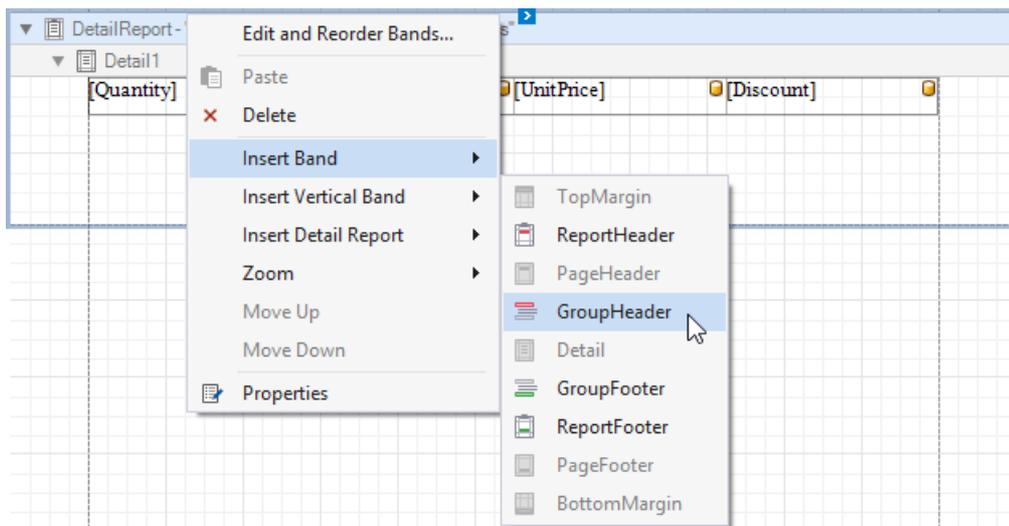


2. Add dynamic content to the detail report. Go to the **Field List**, select the data fields while holding down CTRL or SHIFT and drag-and-drop them onto the Detail band. This automatically creates a [Table](#) control with table cells bound to the corresponding fields.

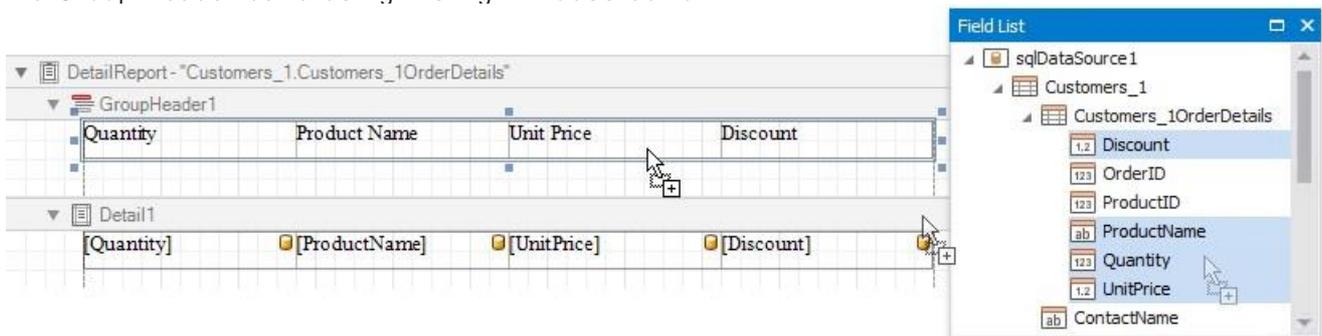
You should drag-and-drop fields from the category corresponding to the master-detail relationship to correctly generate the detail report's data.



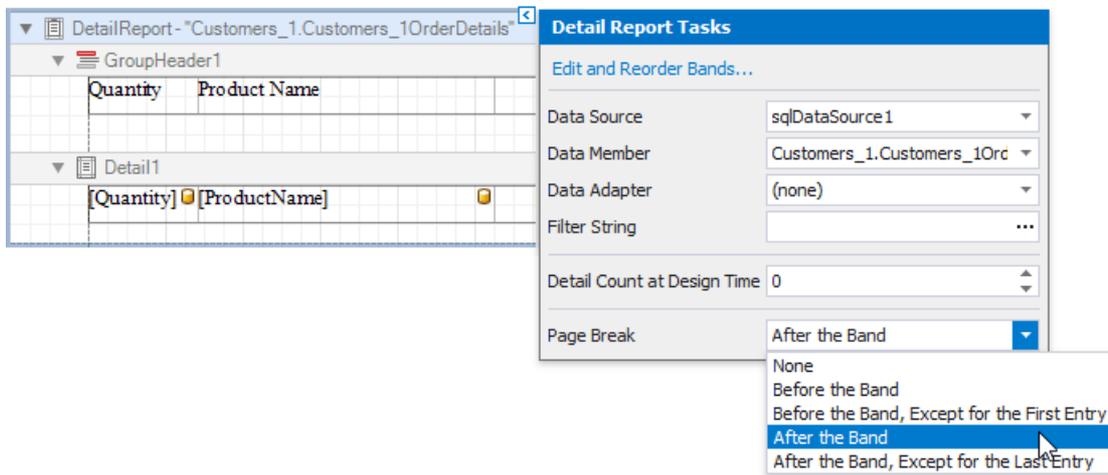
3. Add the Group Header band to the detail report to display captions for table columns. Right-click the detail report, and in the context menu, select **Insert Band | GroupHeader**.



4. To create column headers, select the same data fields in the **Field List** and drag-and-drop them onto the Group Header band using the right mouse button.



5. Click the Detail Report band's smart tag, and in the invoked actions list, set the band's **Page Break** property to **After the Band** to print each order on a separate page.

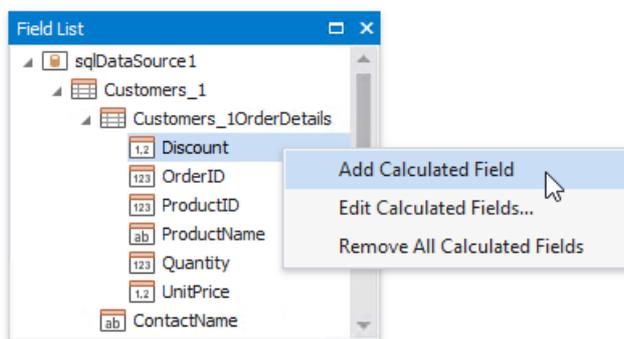


Create a Calculated Field

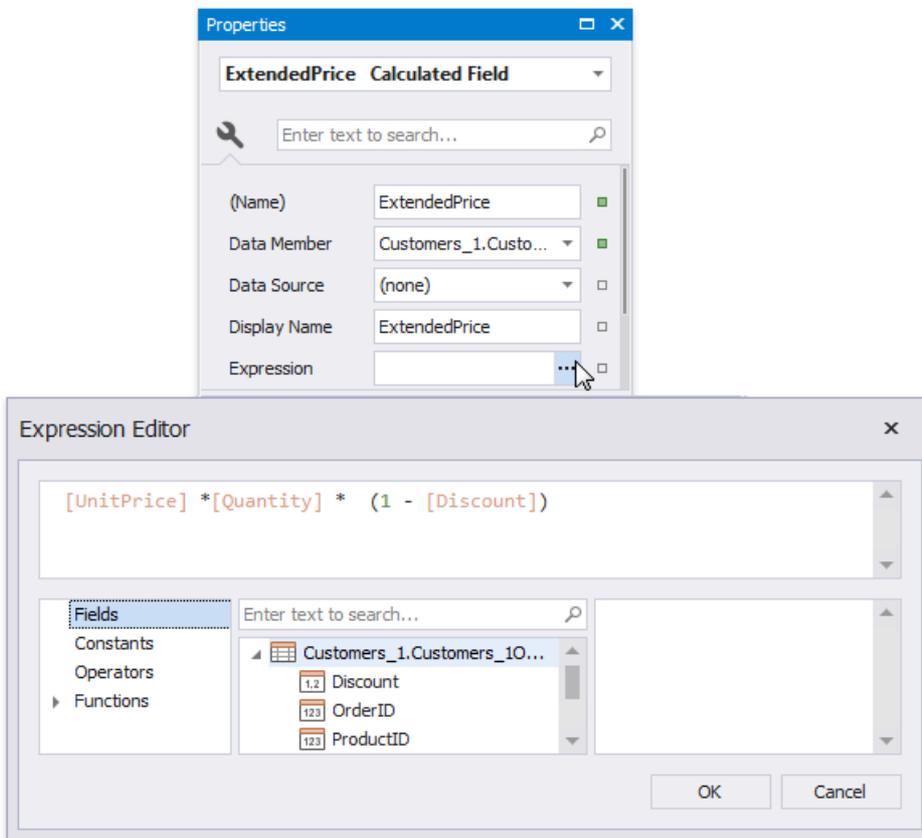
This section demonstrates how to create a [custom field](#) whose values are calculated using a pre-defined expression.

Do the following to evaluate an extended price based on the price, quantity and discount values obtained from a database:

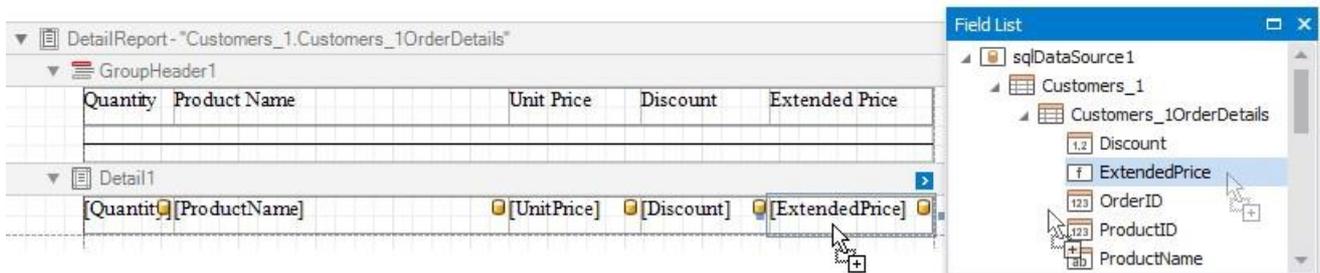
1. In the [Field List](#), right-click any item inside the data relationship node, and in the invoked context menu, select **Add Calculated Field**.



2. Select the created calculated field, and in the [Property Grid](#), change its name to **ExtendedPrice**. Click the **Expression** property's ellipsis button, and in the invoked **Expression Editor**, construct the expression based on the **UnitPrice**, **Quantity** and **Discount** fields.



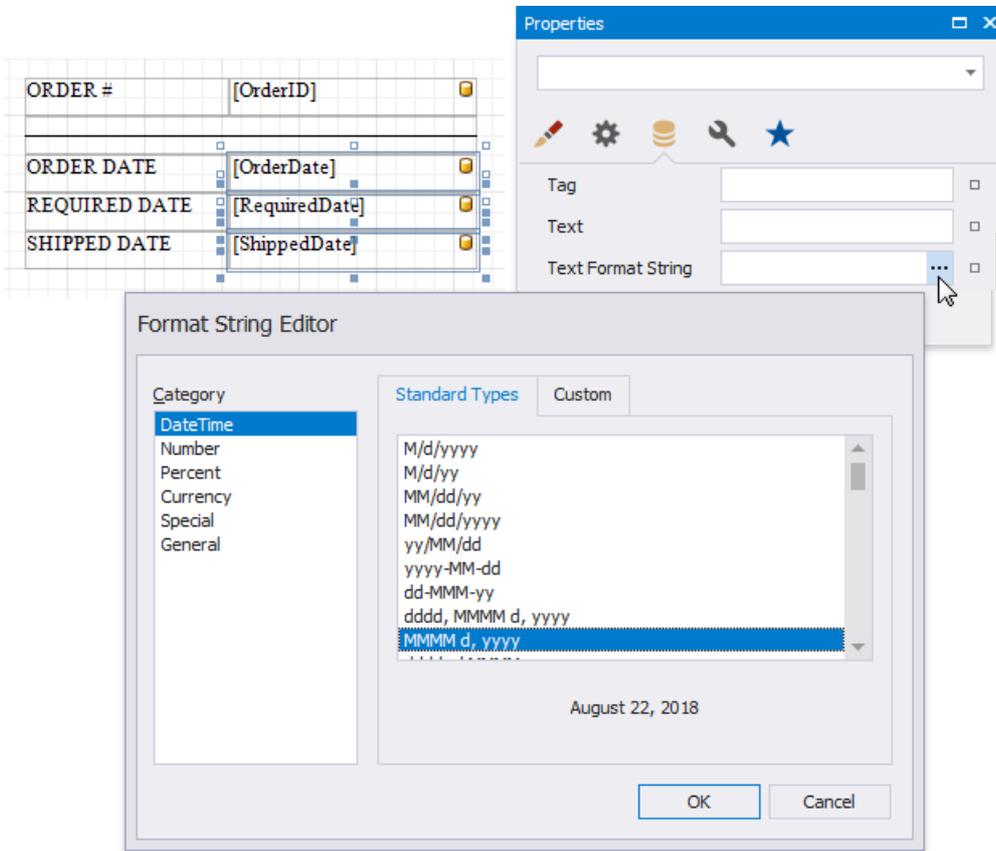
3. You can use the created calculated field as an ordinary data field. Add a cell to a table in the Detail band and drop the calculated field onto this cell. Additionally, create one more table cell in the Group Header for displaying the corresponding caption.



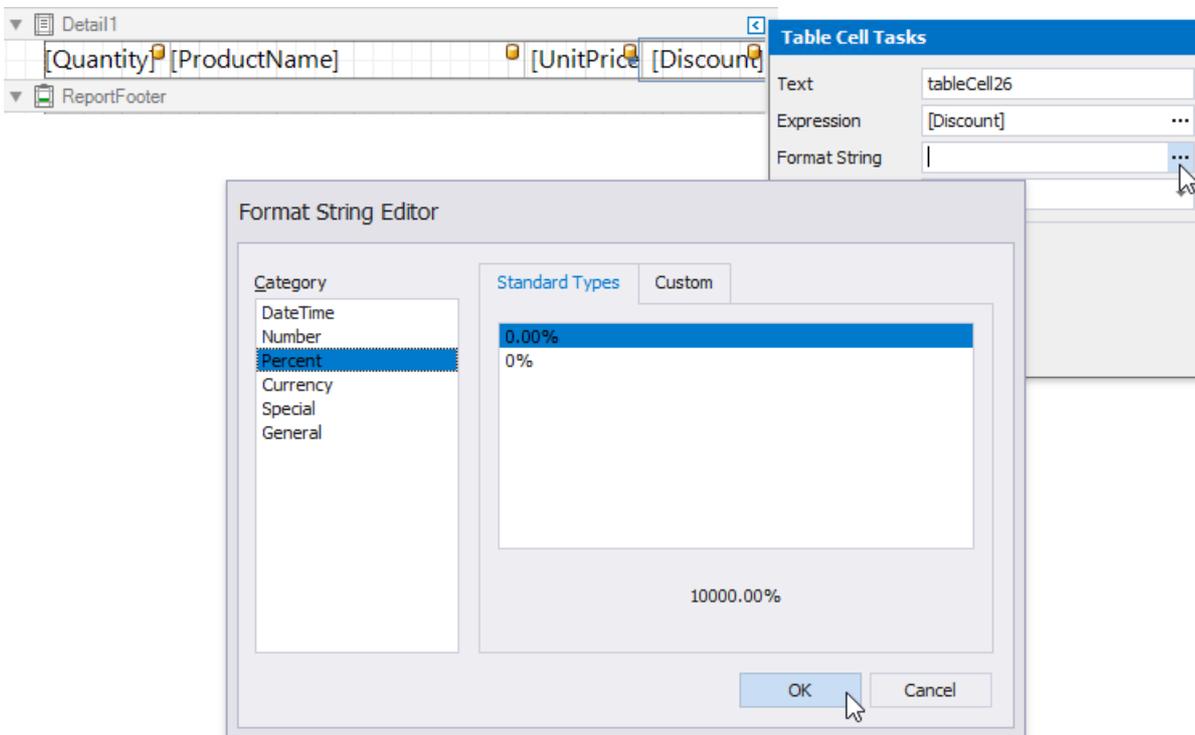
Format Data

The next step is to specify report elements' [value formatting](#) to improve displaying their incoming data.

1. In the master report's Detail band, select controls bound to date fields while holding down CTRL or SHIFT. Switch to the [Property Grid](#) and click the **Text Format String** property's ellipsis button. In the invoked **Format String Editor**, activate the **DateTime** category and select the format, for example, display dates as a month (name) followed by the day (number) and year (four digits).



2. Select the table cell bound to the **Discount** data field in the detail report's Detail band and click its smart tag. Click the **Format String** property's ellipsis button, and in the invoked **Format String Editor**, apply the **Percent** format. In this case, field values are multiplied by 100 and displayed with a percent symbol.



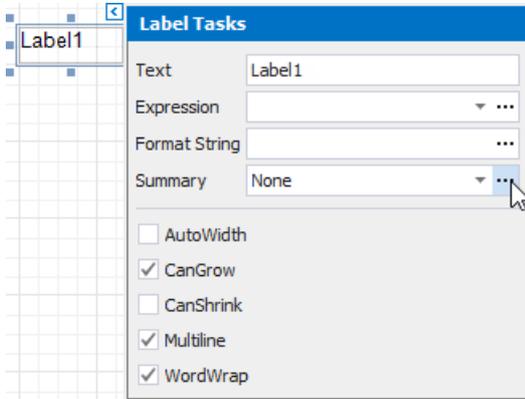
3. In the detail report's Detail band, select the cells bound to the **UnitPrice** and **ExtendedPrice** fields. Invoke the **Format String Editor** once again and choose the format preset from the **Currency**

category (for instance, **c2**).

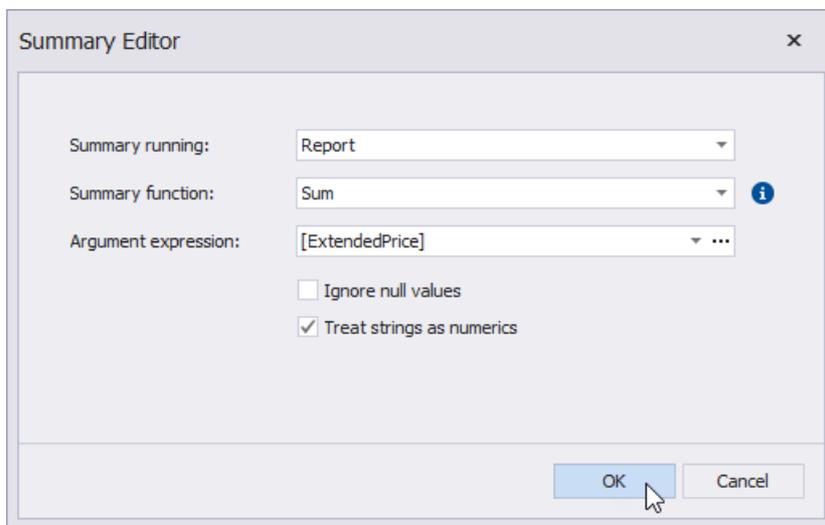
Calculate a Summary

Do the following to calculate a total price for each order as a sum of **Extended Price** values:

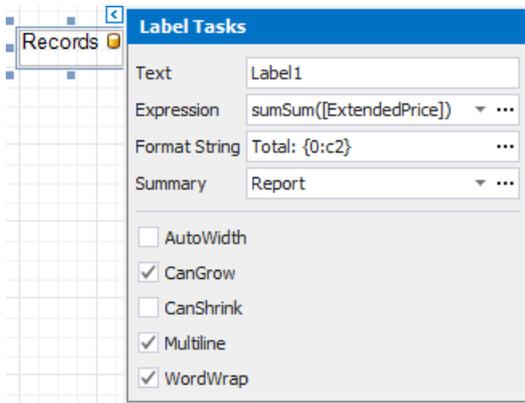
1. Add the Group Footer band to the detail report in the same way as the Group Header.
2. Drop the Label control onto the added band and click its smart tag. In the invoked Label Tasks window, click the **Summary** field's ellipsis button.



- In the **Summary Editor** window:
 - Set the **Summary running** property to the **Report** value to calculate the summary for the entire detail report. Set the **Summary function** property to **Sum**.
 - Set the **Argument Expression** property to the field you want to sum up.



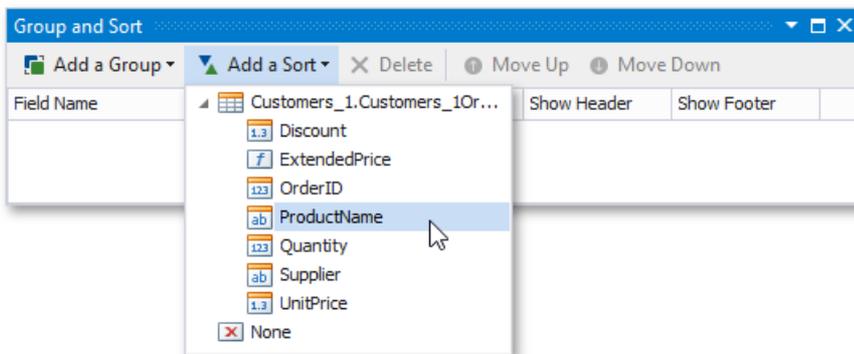
1. Back in the **Label Tasks** window, use the **Format String** property to format the summary's value (for instance, set it to **Total: {0:c2}**).



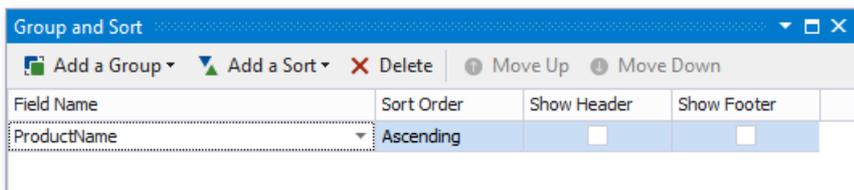
Sort Data

Perform the following steps to sort data in the detail report:

1. Select the **Detail** band in the detail report and switch to the [Group and Sort Panel](#). Click **Add a Sort**, and in the invoked drop-down window, select the required data field.



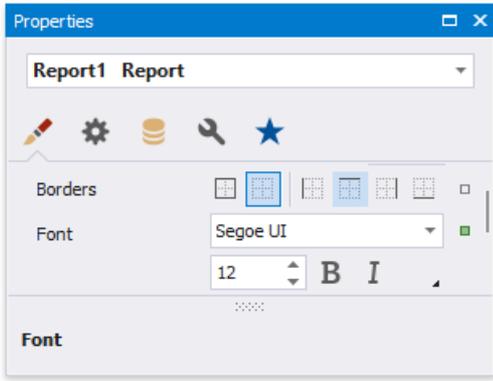
2. Use the **Sort Order** drop-down list to define the sort order.



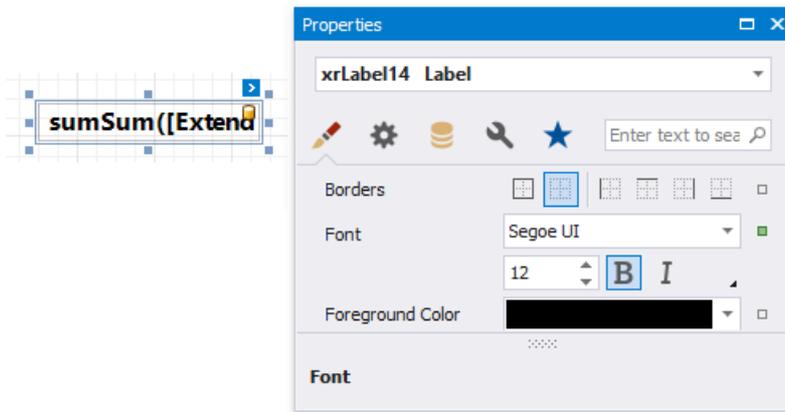
Customize the Report Appearance

Do the following to customize the report and its elements' appearance:

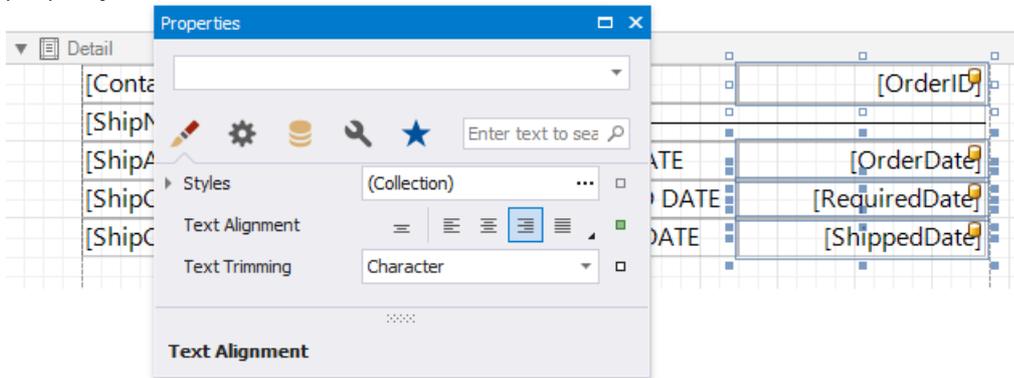
1. Click the gray area around the design surface to select the report, and in the [Property Grid](#), specify the font settings. These settings are distributed to all report elements.



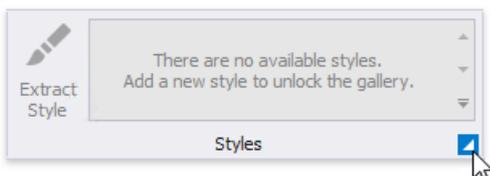
- You can adjust a control's font independently from its parent (for instance, make summary values bold).



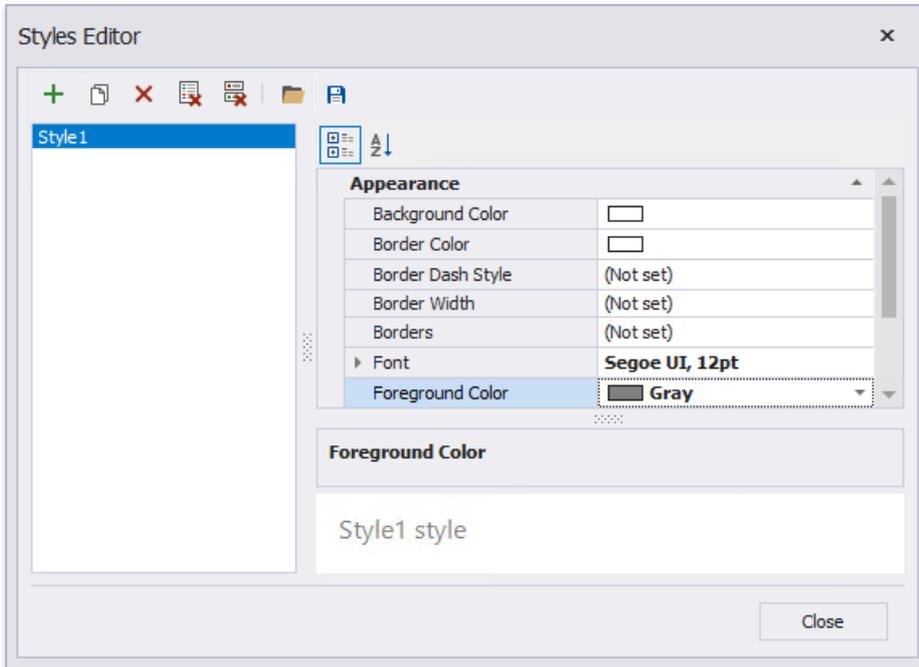
- Change specific controls' (bound to date fields, price fields, etc.) text alignment using the **Text Alignment** property.



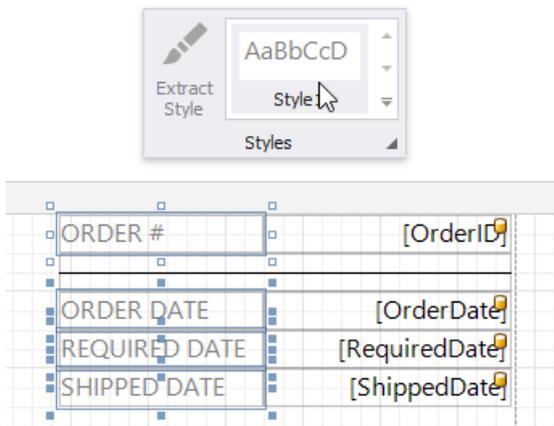
- Create a global [visual style](#) to apply it afterwards to multiple controls. Click the caption button in the **Toolbar's Styles** section.



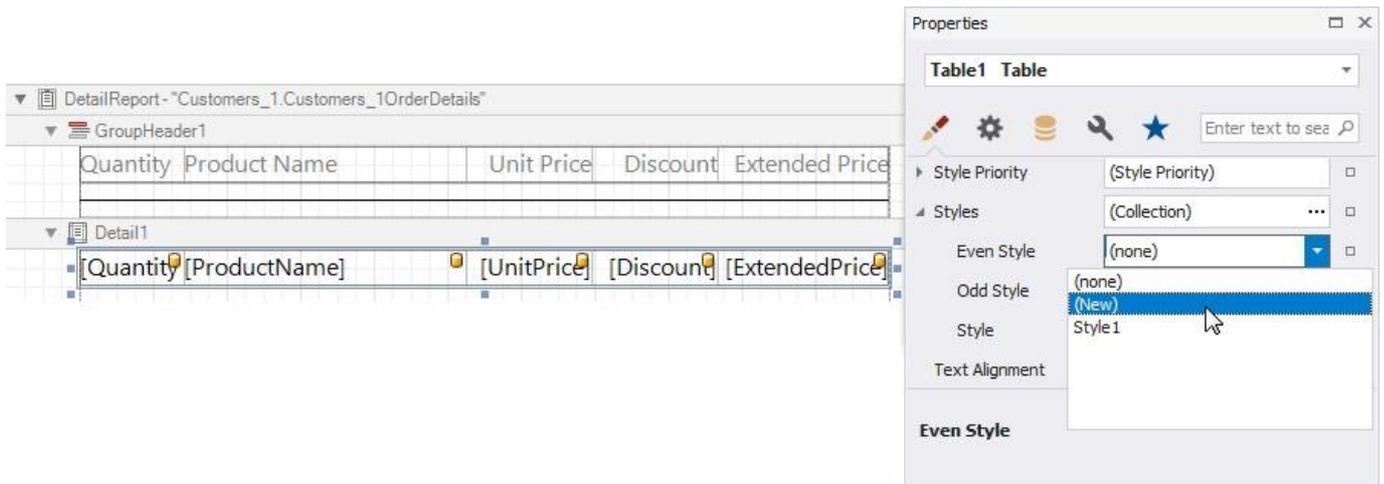
5. In the invoked **Styles Editor**, click the plus button and specify appearance properties for the newly created style.



6. Apply a style to report elements by selecting them and clicking the created style in the **Styles** gallery.



- You can provide different appearances to alternating (odd and even) table rows in the detail report. Select the table and expand the **Styles** property in the Property Grid. Invoke the drop-down list for the **EvenStyle** property and select **New**.



Specify the created style's appearance settings (for example, background color).

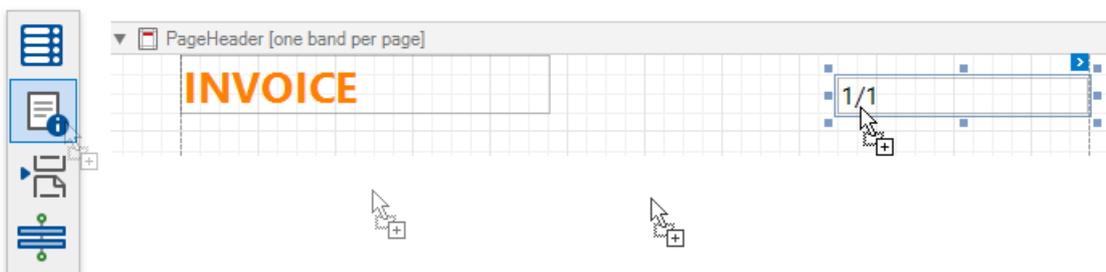
Add Additional Information

Do the following to provide additional information to your invoices, such as the report name and current date:

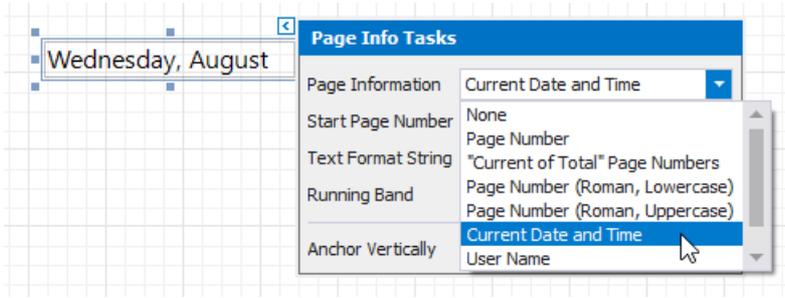
- Add the Page Header band to the master report to display the required information on each invoice page.
- Drop the Label control from the **Toolbox** onto the Page Header, double-click the control and type "**INVOICE**". Specify the required appearance settings (font, foreground color, etc.).



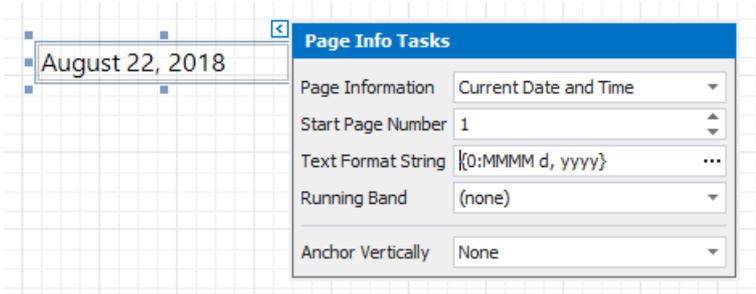
- Add the **Page Info** control to the Page Header band to display system date in the report.



- Click the control's smart tag, and in the invoked actions list, set the **Page Information** property to **Current Date and Time**.



5. Click the **Text Format String** property's ellipsis button, and in the invoked **Format String Editor**, select a date format as in the [Format Data](#) section above.



View the Result

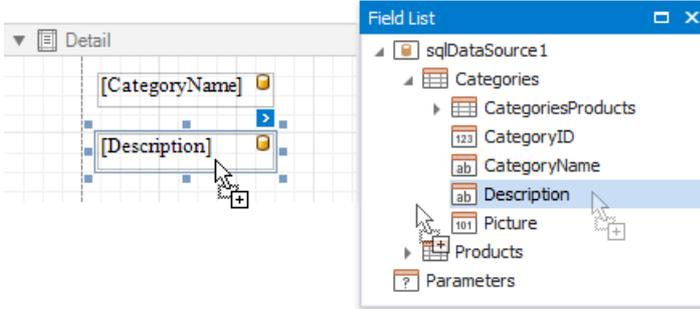
The invoice report is now ready. Switch to [Print Preview](#) to see the result.

Quantity	Product	Unit Price	Discount	Extended Price
5	Mozzarella di Giovanni	\$34.80	0.00%	\$174.00
12	Queso Cabrales	\$14.00	0.00%	\$168.00
10	Singaporean Hokkien Fried Mee	\$9.80	0.00%	\$98.00
Total:				\$440.00

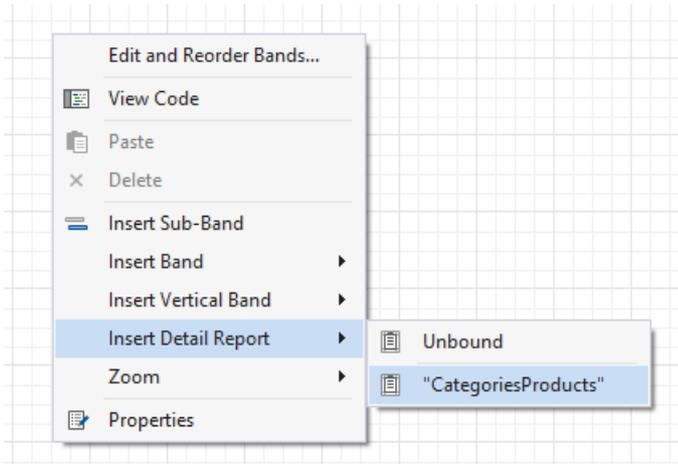
Create a Master-Detail Report (Use Detail Report Bands)

This tutorial illustrates how to display hierarchical data in a master-detail report using nested [Detail Report bands](#). This approach is effective if your data source contains master-detail relationship. Another way is described at [Create a Master-Detail Report \(Use Subreports\)](#).

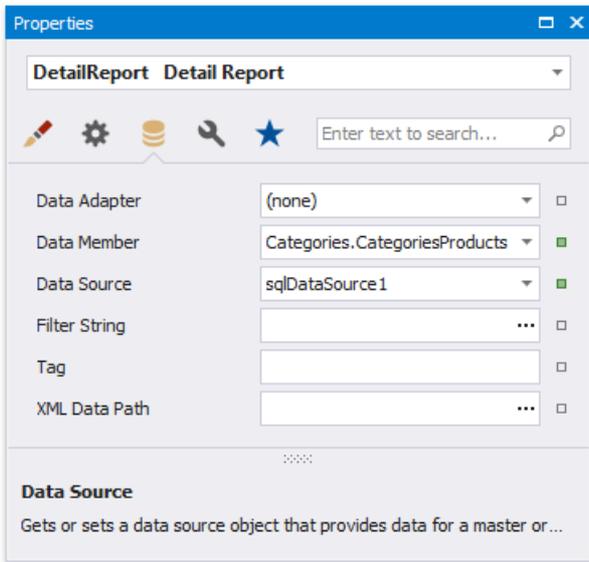
1. [Create a new report](#) or [open an existing one](#).
2. [Bind the report](#) to a required data source and provide it with a master-detail relationship as described in the [Bind a Report to a Database](#) topic.
3. Drop the required data fields from the [Field List](#) onto the [Detail](#) band.



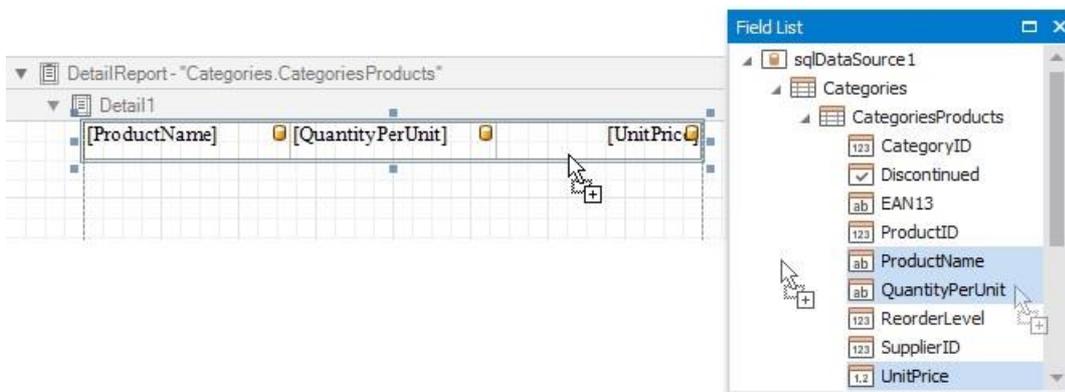
4. Create a [Detail Report Band](#) by right-clicking the report's surface. In the invoked context menu, select **Insert Detail Report**, and then, select the master-detail relationship's name.



This sets the detail report's **Data Source** and **Data Member** properties automatically.



5. Switch to the **Field List**, select the data fields while holding down CTRL or SHIFT and drag-and-drop them onto the Detail band.



Not e

You should drag-and-drop fields from the category corresponding to the master-detail relationship to correctly generate the detail report's data. Otherwise, the report will display only the first record of the detail table as many times as there are records in this table.

6. If required, customize the report's [appearance](#) and [format values](#). Switch to [Print Preview](#) to see the resulting report.

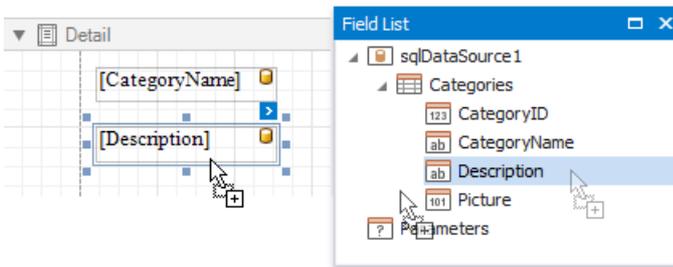
Beverages		
<i>Soft drinks, coffees, teas, beers, and ales</i>		
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Steeleye Stout	24 - 12 oz bottles	\$18.00
Côte de Blaye	12 - 75 cl bottles	\$263.50
Chartreuse verte	750 cc per bottle	\$18.00
Ipoh Coffee	16 - 500 g tins	\$46.00
Lakkalikööri	500 ml	\$18.00
Condiments		
<i>Sweet and savory sauces, relishes, spreads, and seasonings</i>		
Chef Anton's Cajun Seasoning	48 - 6 oz jars	\$22.00
Chef Anton's Gumbo Mix	36 boxes	\$21.35
Grandma's Boysenberry Spread	12 - 8 oz jars	\$25.00
Northwoods Cranberry Sauce	12 - 12 oz jars	\$40.00

Create a Master-Detail Report (Use Subreports)

This tutorial demonstrates how to create a master-detail report using the [Subreport](#) control. This approach is useful if your data source does not contain master-detail relationship or you prefer to store master and detail reports in different files. Another approach is described at [Create a Master-Detail Report \(Use Detail Report Bands\)](#).

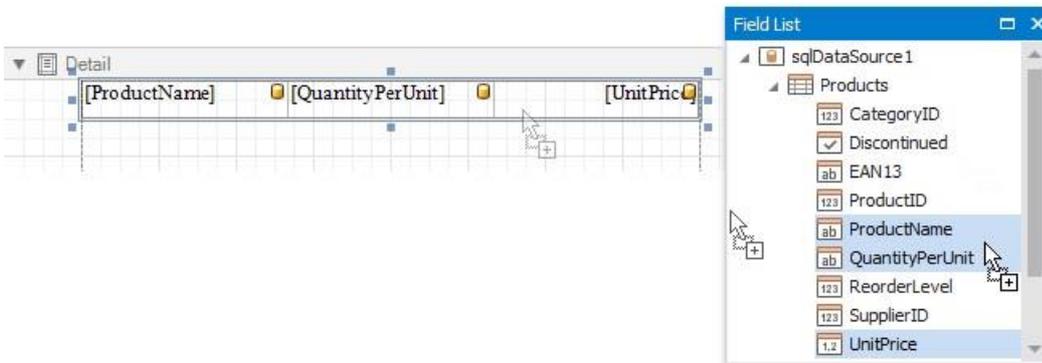
Create a Master Report

1. [Create a new report](#) or [open an existing one](#) to use it as a master report.
2. [Bind the report](#) to a required data table.
3. Drop the required data fields from the [Field List](#) onto the [Detail](#) band.

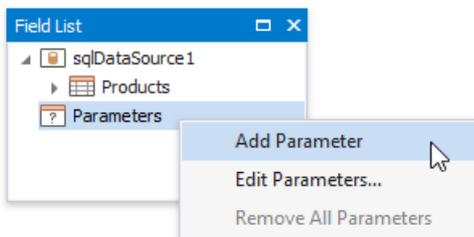


Create the Detail Report

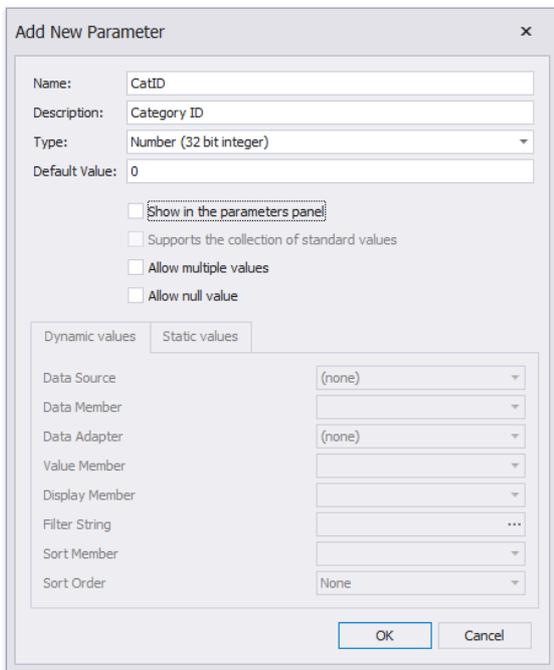
1. [Add one more blank report](#) to use it as a detail report.
2. [Bind it to data](#). For instance, use another table of the same database as for the master report.
3. Switch to the **Field List**, select the data fields while holding down CTRL or SHIFT and drag-and-drop them onto the Detail band.



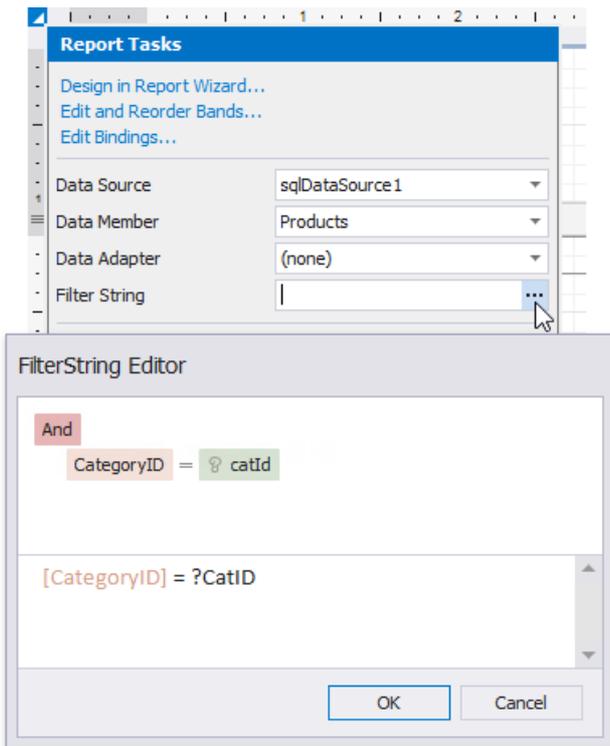
4. Add parameter to the detail report. Right-click the **Parameters** section in the **Field List** and choose **Add Parameter** in the context menu.



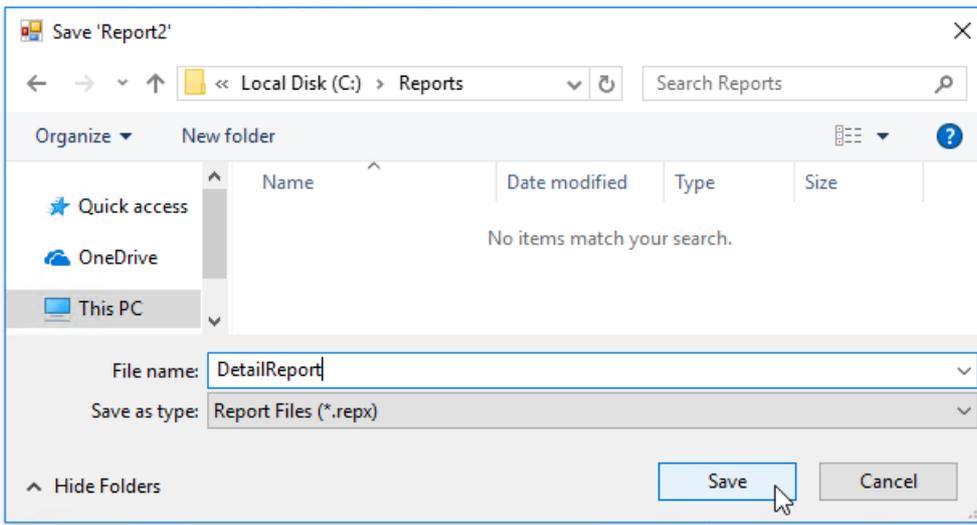
5. In the invoked **Add New Parameter** dialog, specify the parameter's **Name** and **Type** as well as disable the **Show in the parameters panel** option.



6. Click the report's smart tag, and in its actions list, click the **Filter String** property's ellipsis button. In the invoked **FilterString Editor**, construct an expression where the required data field is compared to the created parameter. To access the parameter, click the icon on the right until it turns into a question mark.

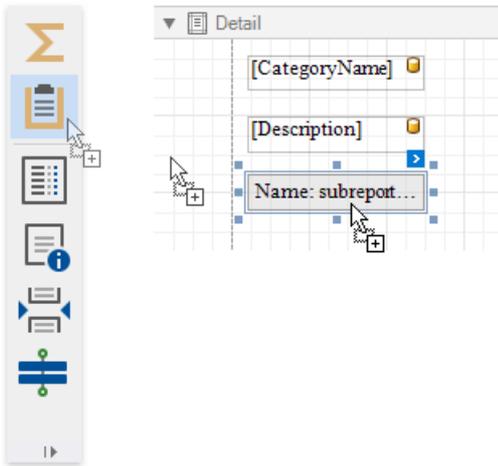


7. [Save the detail report](#) by selecting **Save | Save As** in the toolbar. In the invoked standard **Save** dialog, specify the folder and file name.

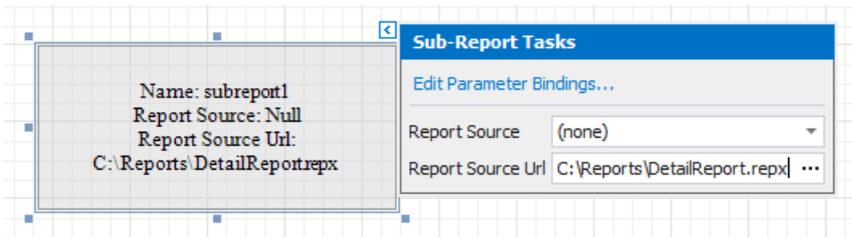


Embed the Subreport

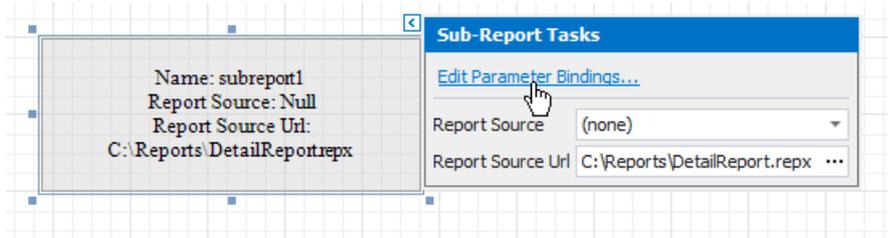
1. Switch back to the master report and drop the **Subreport** control from the **Toolbox** onto the **Detail** band.



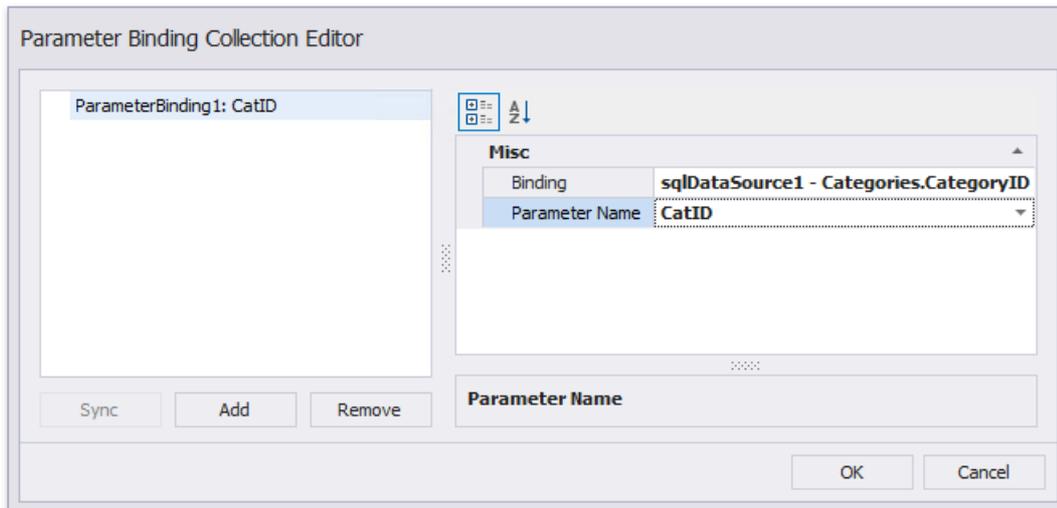
2. Click the subreport's smart tag and click the **Report Source URL** property's ellipsis button. In the invoked **Open** dialog, select the previously saved detail report.



3. Bind the subreport's parameter used as a filter criterion to the master report's corresponding data field, which serve as a source of the parameter value. To do this, click the subreport's smart tag and select **Edit Parameter Bindings** in the invoked actions list.



- In the invoked **Parameter Binding Collection Editor**, click **Add** to add new binding. In the property list, specify the data field to which you want to bind a subreport parameter and the name of the parameter that you want to bind.



- If required, customize the report's [appearance](#) and [format values](#).

View the Result

Switch to [Print Preview](#) to see the resulting report.

Beverages

Soft drinks, coffees, teas, beers, and ales

Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Steeleye Stout	24 - 12 oz bottles	\$18.00
Côte de Blaye	12 - 75 cl bottles	\$263.50
Chartreuse verte	750 cc per bottle	\$18.00
Ipoh Coffee	16 - 500 g tins	\$46.00
Lakkalikööri	500 ml	\$18.00

Condiments

Sweet and savory sauces, relishes, spreads, and seasonings

Chef Anton's Cajun Seasoning	48 - 6 oz jars	\$22.00
Chef Anton's Gumbo Mix	36 boxes	\$21.35
Grandma's Boysenberry Spread	12 - 8 oz jars	\$25.00
Northwoods Cranberry Sauce	12 - 12 oz jars	\$40.00

Create a Hierarchical Report

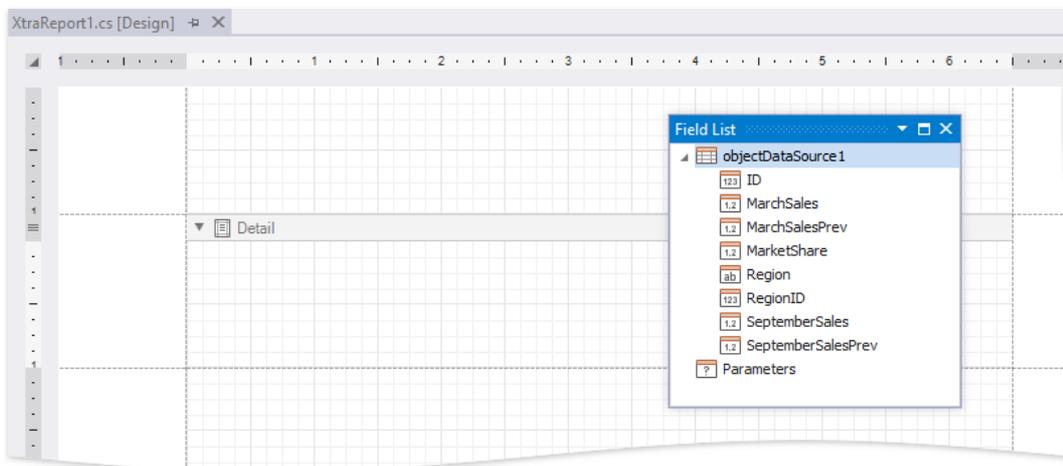
This tutorial describes how to use the [detail band](#)'s **Hierarchy Print Options** property to create a

Sales			
Region	March	September	
▼ Asia	\$20,388.00	\$22,547.00	
China	\$20,388.00	\$22,547.00	
India	\$4,642.00	\$5,320.00	
Japan	\$9,457.00	\$12,859.00	
> Eastern Europe	\$22,500.00	\$24,580.00	
> North America	\$31,400.00	\$32,800.00	
> South America	\$16,380.00	\$17,590.00	
> Western Europe	\$30,540.00	\$33,000.00	

hierarchical report.

1. [Create a new report](#) or [open an existing one](#).
2. [Bind the report](#) to a required data source.

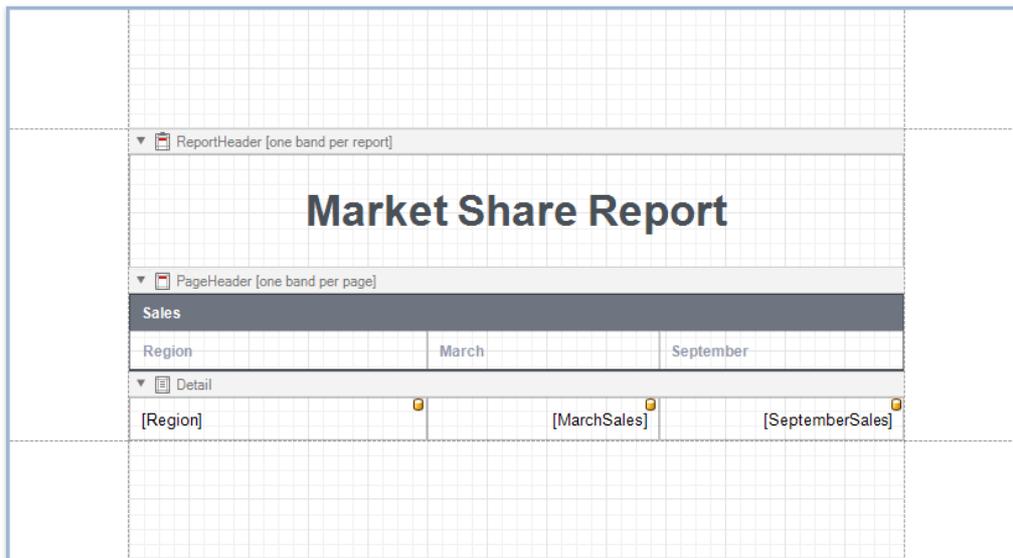
The following image demonstrates an empty report bound to an [ObjectDataSource](#).



Each record in this data source includes the "parent ID" field that defines the parent-child relationship and thus builds the hierarchy.

3. Arrange controls on the report.
 - Add the [Report Header](#) and [Page Header](#) bands (see the **Manage Report Bands | Add Bands** section in the [Introduction to Banded Reports](#) document for details)

- Add [data-bound labels](#) to the **Detail** band.

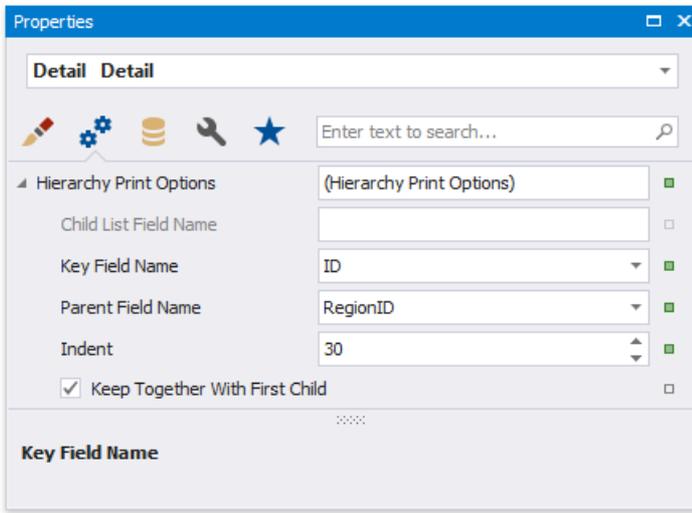


Switch to the [Preview](#) tab to see an intermediate result.

The preview shows the rendered report with the following data:

Market Share Report		
Sales		
Region	March	September
Western Europe	\$30,540.00	\$33,000.00
Austria	\$22,000.00	\$28,000.00
Belgium	\$13,000.00	\$9,640.00
Denmark	\$21,000.00	\$18,100.00
Finland	\$17,000.00	\$17,420.00
France	\$23,020.00	\$27,000.00

4. Specify the Detail band's **Hierarchy Print Options** property.



Set the following options:

- Key Field Name** and **Parent Field Name**, or **Child List Field Name**
 Set the **Key Field Name** and **Parent Field Name** properties if your report's data has the Id-ParentID related fields. Set the **Child List Field Name** property if your report's data is recursive. Assign the collection of child objects (records) if they have the same type as the parent objects (records).
- Indent**
 Specify the child level node offset.
- Keep Together with First Child**
 Specify whether to print a parent node together with its first child node on the next page if these nodes do not fit at the end of a page.

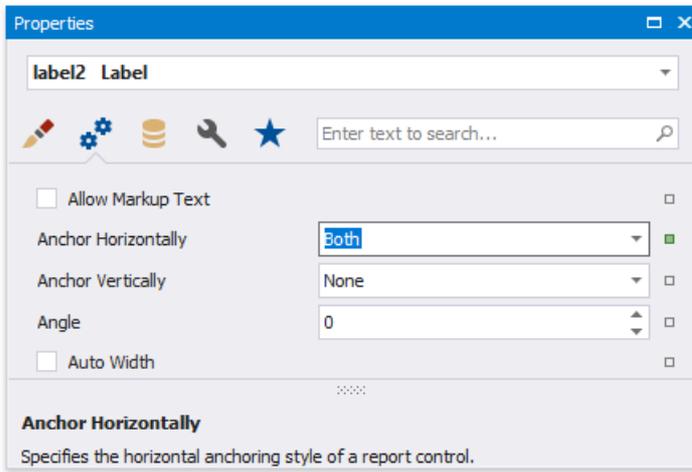
Sales		
Region	March	September
Western Europe	\$30,540.00	\$33,000.00
Austria	\$22,000.00	\$28,000.00
Belgium	\$13,000.00	\$9,640.00
Denmark	\$21,000.00	\$18,100.00
Finland	\$17,000.00	\$17,420.00

As you can see in the image above, the **Detail** band that contains child rows is printed with the specified indent. However, the row (the sum of the label widths) does not fit the page now.

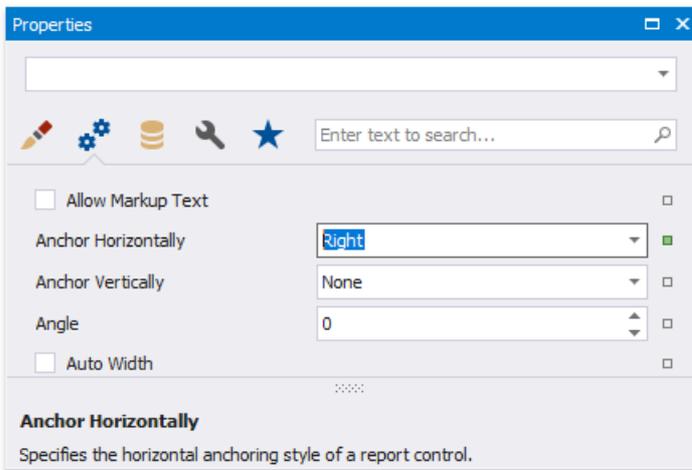
5. Align labels.

- Anchor the first data-bound label to the Detail band's left and right edges. Set the label's

Anchor Horizontally
property to **Both**.

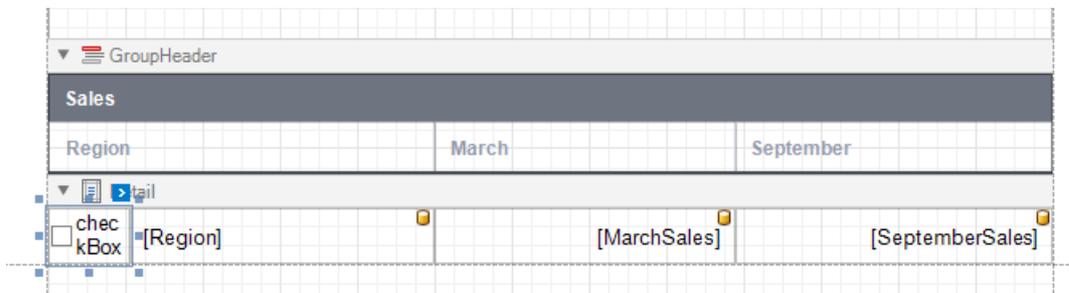


- Anchor the rest of the data-bound labels to the right edge of the Detail band (their container). Set their **Anchor Horizontally** property to **Right**.

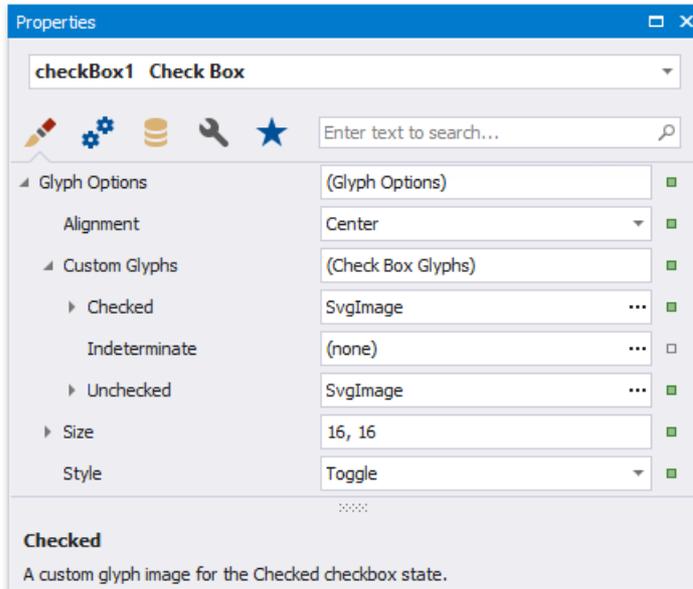


Market Share Report		
Sales		
Region	March	September
Western Europe	\$30,540.00	\$33,000.00
Austria	\$22,000.00	\$28,000.00
Belgium	\$13,000.00	\$9,640.00
Denmark	\$21,000.00	\$18,100.00
Finland	\$17,000.00	\$17,420.00

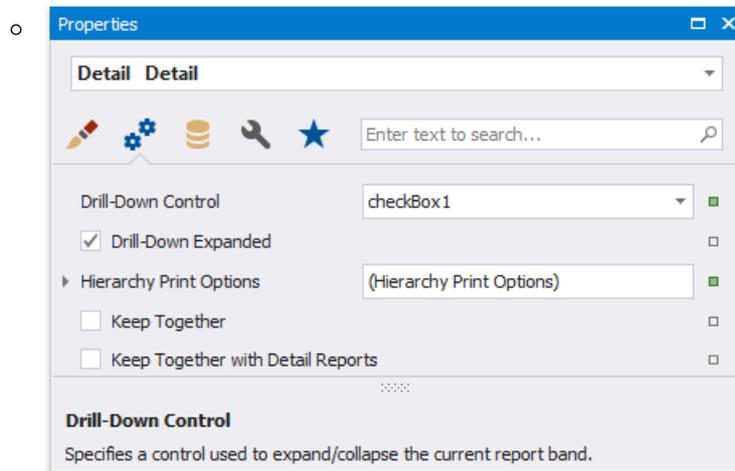
6. Add a drill-down control to expand/collapse child rows.
 - Add the **Check Box** control to the **Detail** band at the left-most position.



- Set the **Check Box** control's glyph options. Use custom glyphs for the *checked* and *unchecked* checkbox states.

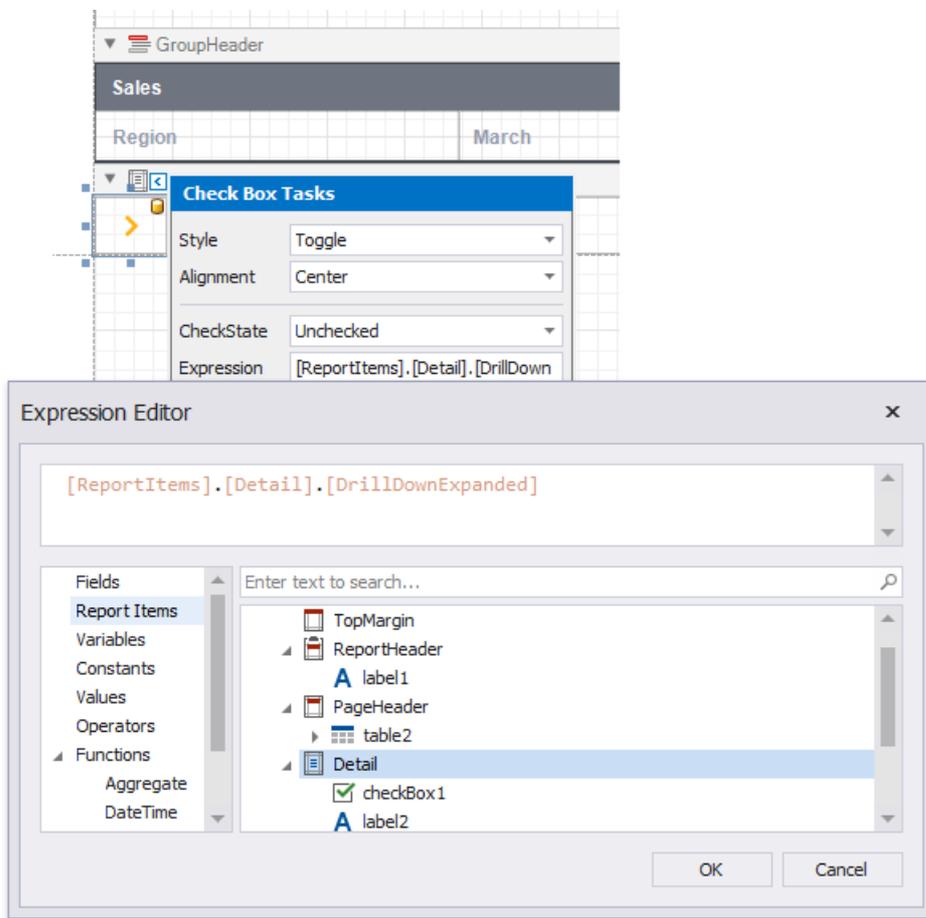


Set the **Detail** band's **Drill Down Control** property to the added **Check Box** control.



Set the **Check Box's Check State** property to the following expression:

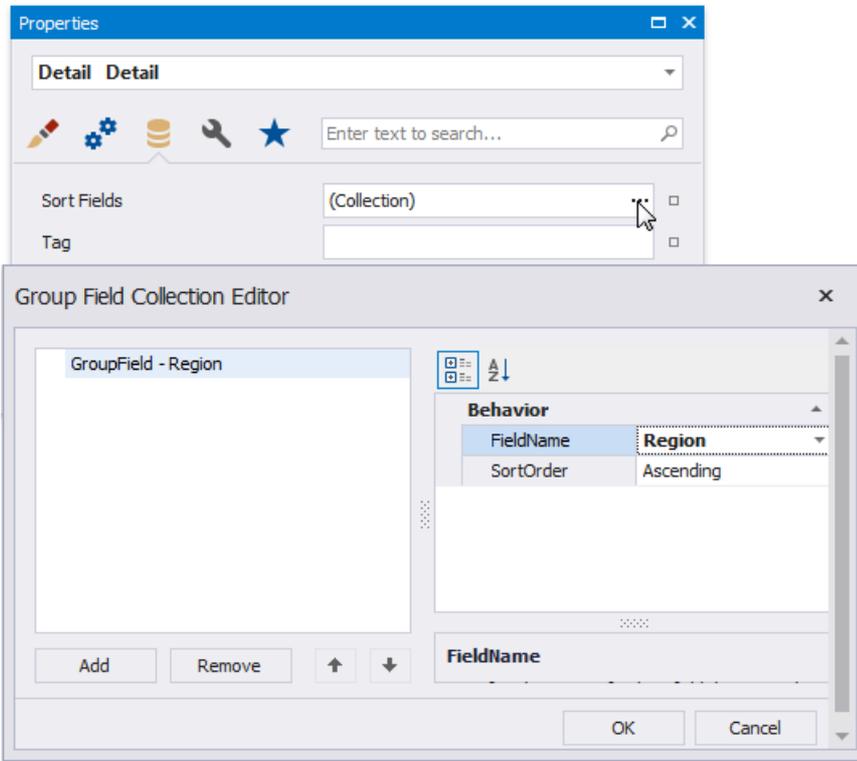
- `[ReportItems].[Detail].[DrillDownExpanded]`
(in the control's Smart Tag or the [Property Grid's Expressions](#) tab).



Market Share Report			
Sales			
Region	March	September	
> Western Europe	\$30,540.00	\$33,000.00	
> Eastern Europe	\$22,500.00	\$24,580.00	
Belarus	\$7,315.00	\$18,800.00	
Bulgaria	\$6,300.00	\$2,821.00	
Croatia	\$4,200.00	\$3,890.00	
Czech Republic	\$19,500.00	\$15,340.00	

7. Sort report data.

Use the Detail band's **Sort Fields** property to sort data on each hierarchy level.



Market Share Report

Sales			
Region	March	September	
> Asia	\$20,388.00	\$22,547.00	
> Eastern Europe	\$22,500.00	\$24,580.00	
√ North America	\$31,400.00	\$32,800.00	
Canada	\$25,390.00	\$27,000.00	
USA	\$31,400.00	\$32,800.00	
√ South America	\$16,380.00	\$17,590.00	

8. Highlight root nodes.

To format rows based on their nesting level, use the **Current Row Hierarchy Level** variable in expressions. For example, specify the **Detail** band's appearance properties as listed below:

- Set the **Back Color** property to `iif([DataSource.CurrentRowHierarchyLevel] == 0, Rgb(231,235,244), ?)`
- Set the **Font | Bold** property to `[DataSource.CurrentRowHierarchyLevel] == 0`



Detail
Detail

* Enter text to search, ,, p



Background Co



Bord er
Color



Bord er
Dash Sty
le

Expression Editor



```
ii [DataSource.CurrentRowHierarchyLevel] == .0 Rgb(231,235,244,
```

Fields

Enter text to search, ..



Returns a zero-based index of the current data row in a data source.

Report Items

Data Source.RowCount

Variables

Data Source.CurrentRowIndex

Constants

DataSource.CurrentRowHierarchyLevel

Values

Operators

Functions

Aggregate

DateTime

OK

Cancel

Market Share Report

Sales

Region	March	September
> Asia	\$20,388.01)	\$22,547.01)
> Eastern Europe	\$22,500.01)	\$24,580.01)
V North America	\$31,400.01)	\$32,800.01)
Canada	\$25,390.00	\$ 27,000.00
USA	\$31,400.00	\$ 32,800.00
V South America	\$16,380.01)	\$17,590.01)

Argentina	\$16,380 . 00	\$1 7,590 . 00
Brazil	\$4,560 . 00	\$ 9,480. 00
V Western Europe	\$30,540.01)	\$33,1)_1)1) 1)1)
Austria	\$22,000 . 00	\$ 28,000 . 00
Bel gium	\$13,000 . 00	\$ 9,64 0. 00

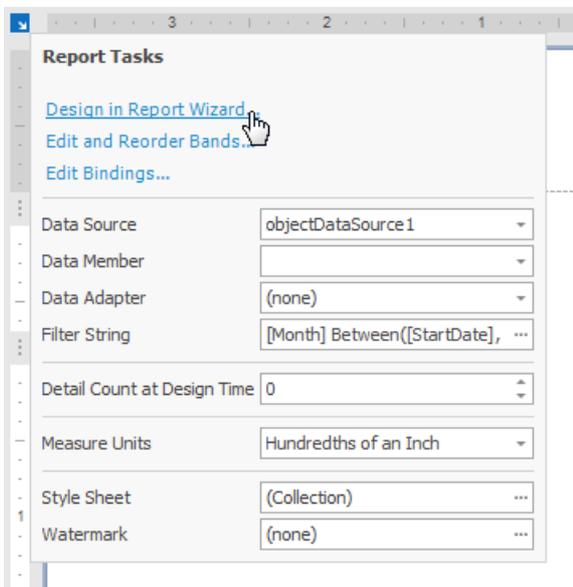
Create a Vertical Report

This tutorial describes how to use vertical bands to create a report where record fields are arranged vertically and data records are printed horizontally.

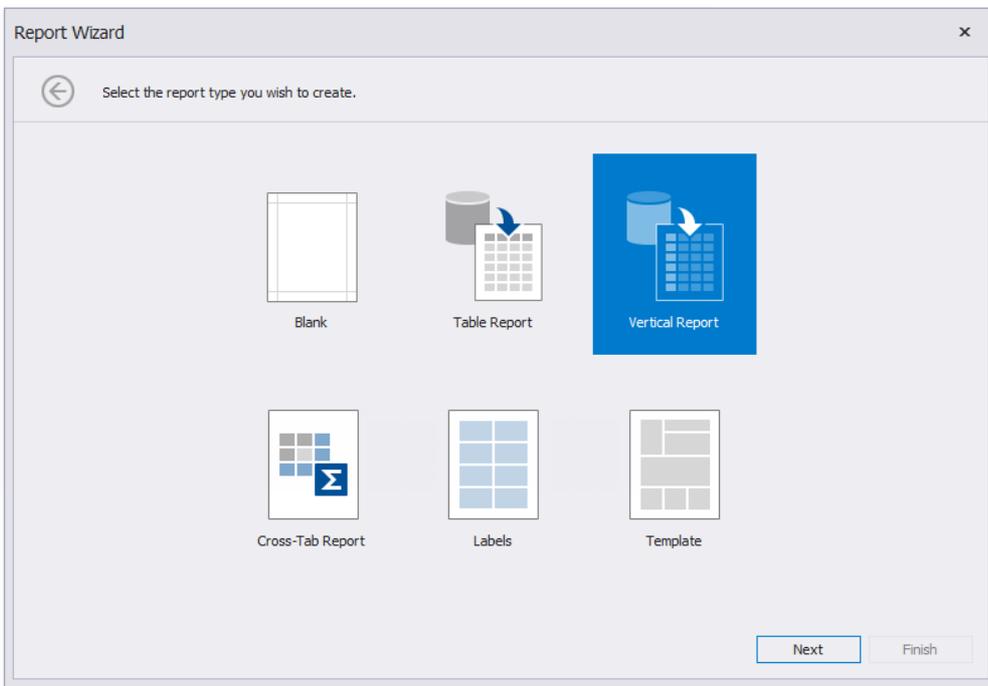
	JAN	FEB	MAR	APR	MAY
INCOME					
Construction Income	\$93,031.04	\$109,426.43	\$112,756.76	\$85,633.29	\$115,542.44
Sales Income	\$966.00				
TOTAL INCOME	\$93,997.04				
EXPENSE					
Automobile	\$312.57				
Bank Service Charges	\$63.00				
TOTAL EXPENSE	\$375.57				
NET INCOME	\$93,621.47				

	NOV	DEC	TOTAL
INCOME			
Construction Income	\$101,822.47	\$92,279.50	\$1,269,589.25
Sales Income	\$231.00	\$156.00	\$6,930.00
TOTAL INCOME	\$102,053.47	\$92,435.50	\$1,276,519.25
EXPENSE			
Automobile	\$864.84	\$888.81	\$7,317.45
Bank Service Charges	\$23.00	\$68.00	\$591.00
TOTAL EXPENSE	\$887.84	\$956.81	\$7,908.45
NET INCOME	\$101,165.63	\$91,478.69	\$1,268,610.79

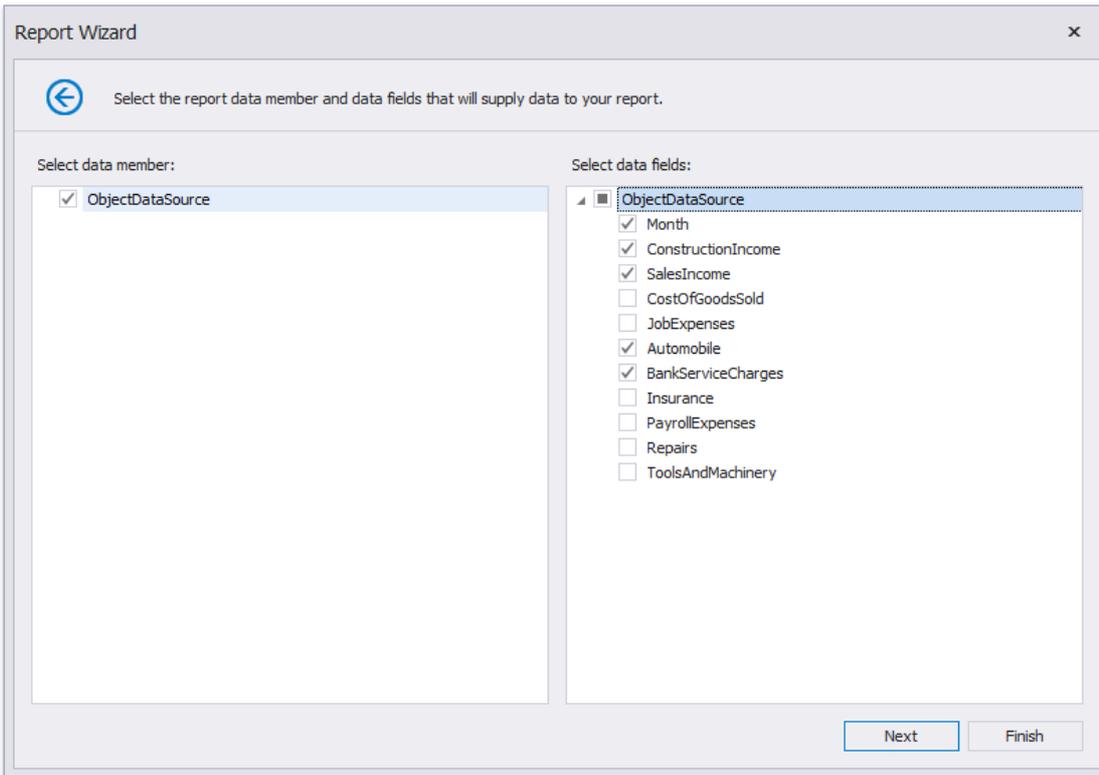
1. [Create a new report](#) or [open an existing one](#).
2. [Bind the report](#) to a required data source.
3. Click the report's smart tag and choose **Design in Report Wizard**.



4. In the invoked [Report Wizard](#), select **Vertical Report** and click **Next**.

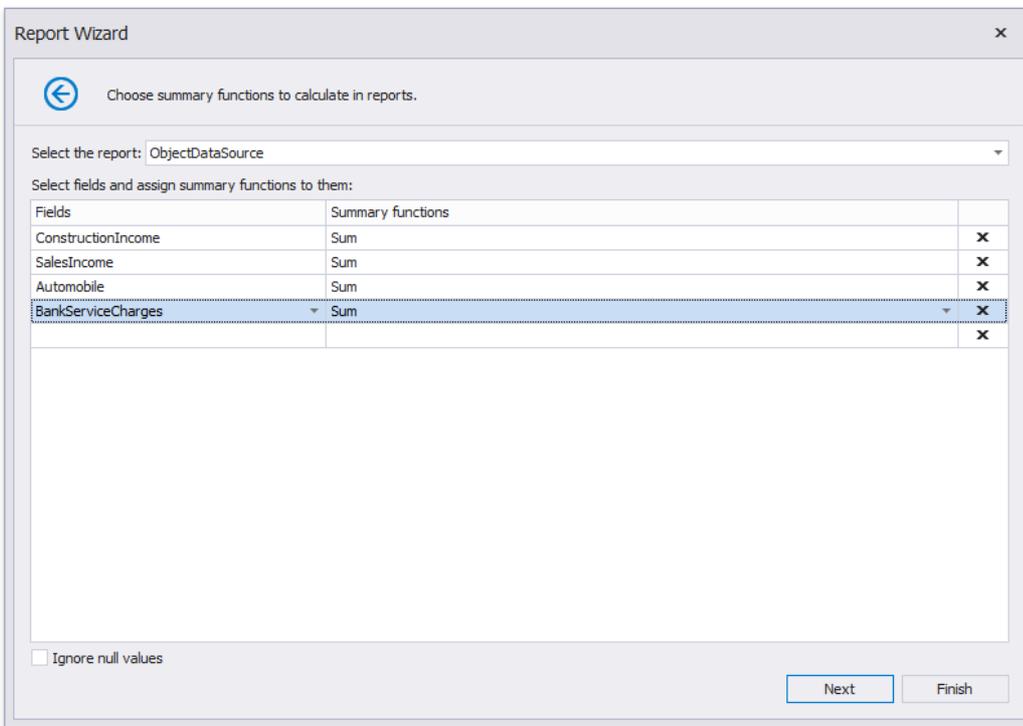


5. Select the data fields that should be included in the report.

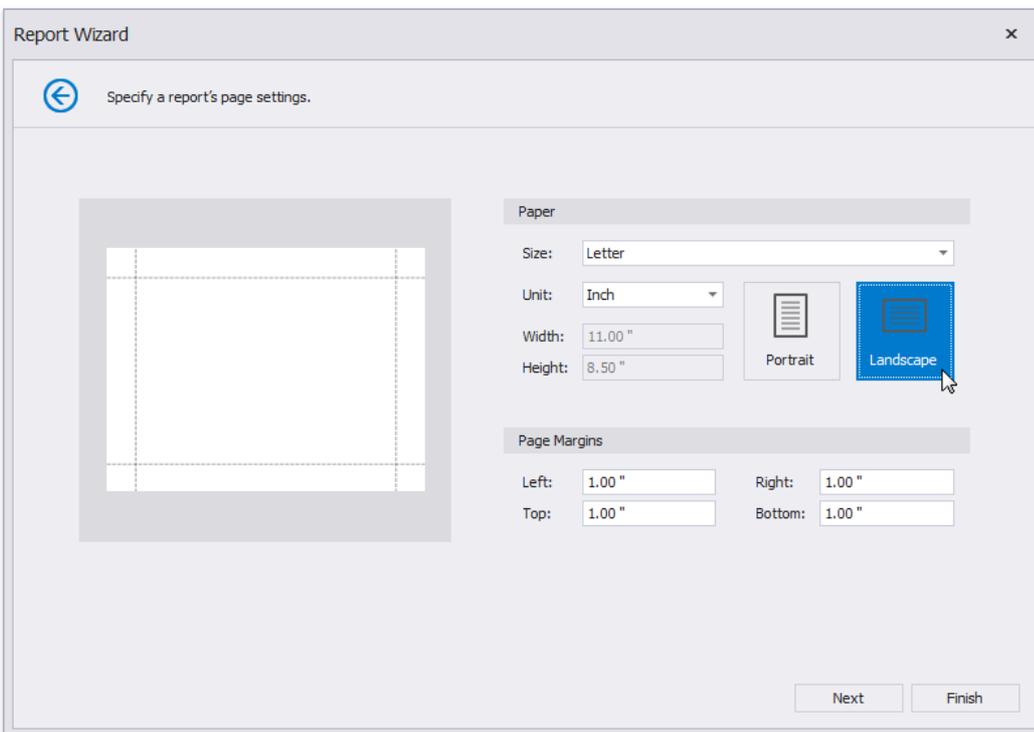


6. Specify group data fields to create a report with grouped data (the report in this tutorial does not have group fields).

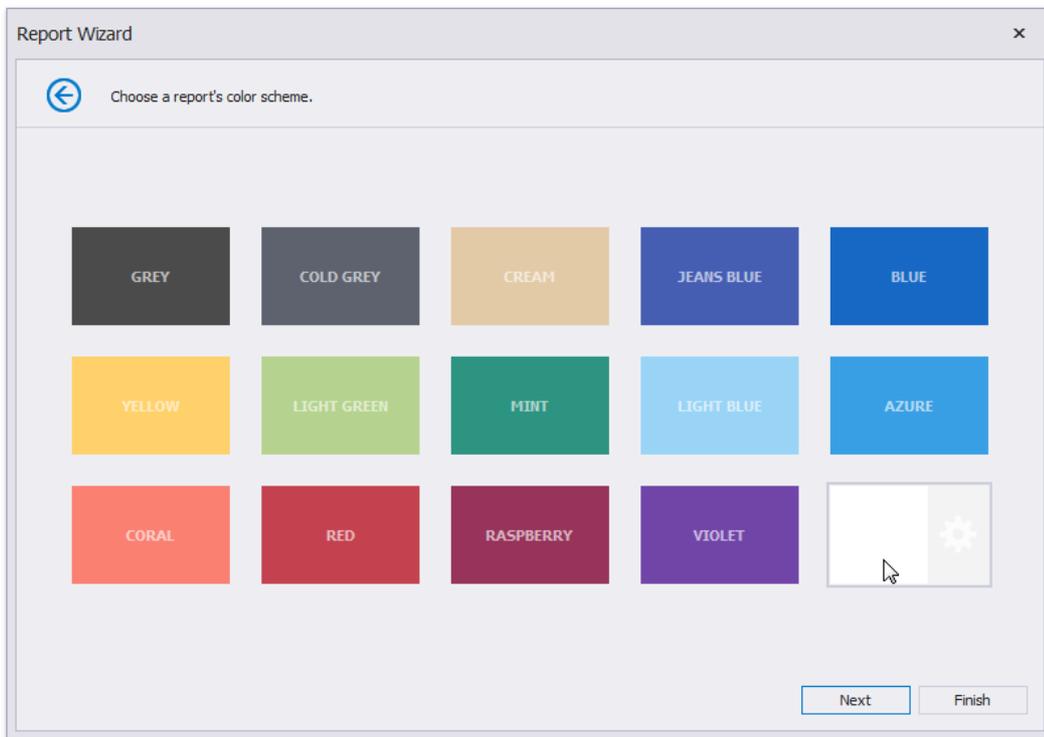
7. Add summary fields to the report.



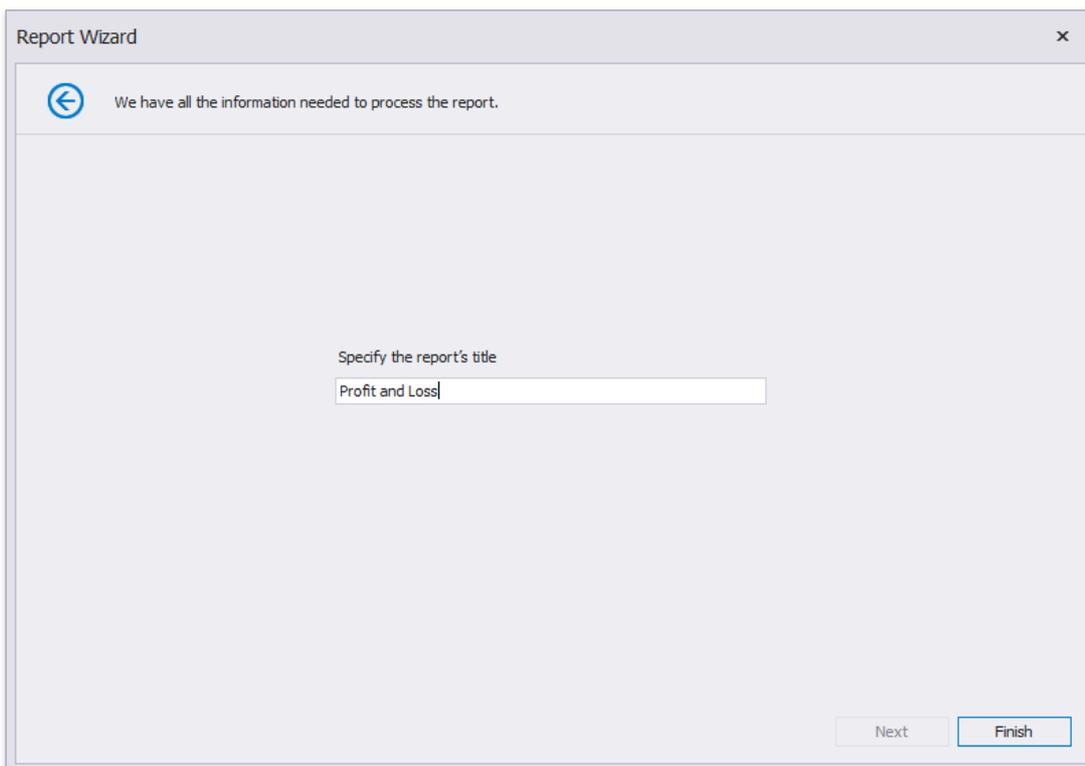
8. Change the report page layout to *landscape* so that the vertical table fit the report.



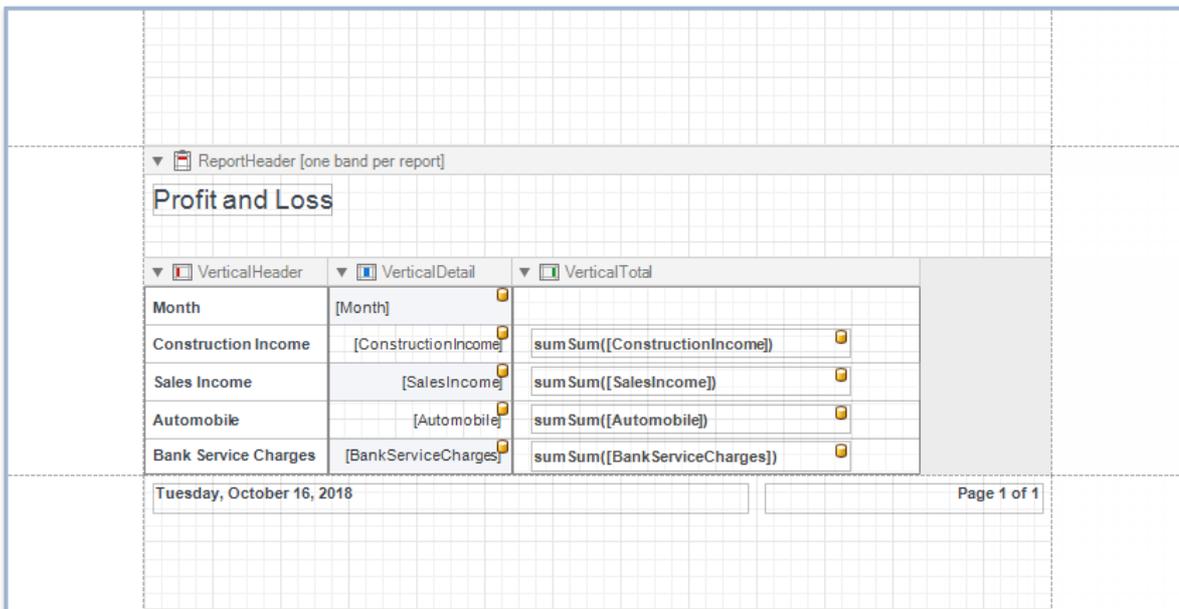
9. You can set the report's color scheme.



10. Specify the report's title.



Click **Finish** and the generated report opens in the Report Designer.



The wizard adds report controls to the following [bands](#):

- **Vertical Header band**
Contains a table with a single column that displays headers of the report's data fields.
- **Vertical Details band**
Contains a table with a single column that is printed so many times as there are records in the report's data source.
- **Vertical Total band**
Contains a table with a single column that has so many labels in cells as there are summary functions you specified for each field in the Report Wizard (only the **sum** function for each field in this demo).

Switch to the Preview tab to see the result.

Profit and Loss					
Month	1/31/2018 12:00:00 AM	2/28/2018 12:00:00 AM	3/31/2018 12:00:00 AM	4/30/2018 12:00:00 AM	5/31/2018 12:00:00 AM
Construction Income	\$93,031.04	\$109,426.43	\$112,756.76	\$85,633.29	\$115,543.44
Sales Income	\$966.00	\$240.00	\$880.00		
Auto					
Bank					

Month	6/30/2018 12:00:00 AM	7/31/2018 12:00:00 AM	8/31/2018 12:00:00 AM	9/30/2018 12:00:00 AM	10/31/2018 12:00:00 A
Construction Income	\$118,088.93	\$110,232.38	\$95,458.12	\$112,923.04	\$122,393.86
Sales Income	\$662.00	\$938.00	\$70.00	\$958.00	
Automobile					
Bank Service C					

Month	11/30/2018 12:00:00 A	12/31/2018 12:00:00 A	
Construction Income	\$101,822.47	\$92,279.50	\$1,269,589.25
Sales Income	\$231.00	\$156.00	\$6,930.00
Automobile	\$864.84	\$888.81	\$7,317.45
Bank Service Charges	\$23.00	\$68.00	\$591.00

Tip

You can create a vertical report without using the Report Wizard. Right-click the report in the Report Designer and choose **Insert**

Vertical Band in the invoked context menu. Refer to the [Introduction to Banded Reports](#) topic for more information.

Set Vertical Table Options

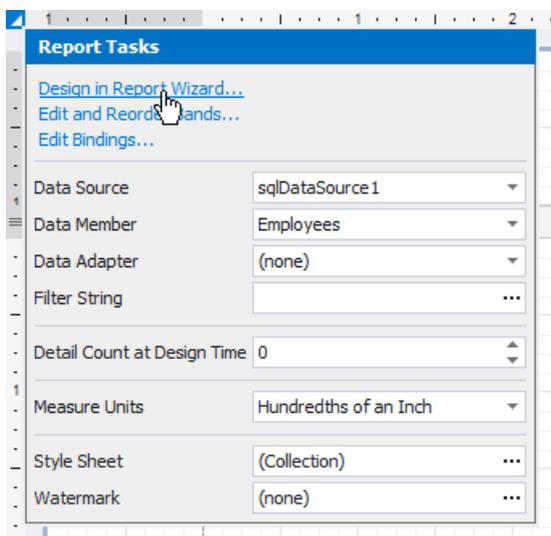
You can set the following options in the [Property Grid](#) to modify the vertical table:

- Disable the Vertical Header band's **Repeat Every Page** property to display field headers once - on the first report page.
- Set the Vertical Detail band's **Band Layout** property to *Across Then Down* to print the data records that do not fit a page on the same page, otherwise, they are printed on the next page (as in this demo).
- Specify the Vertical Detail band's **Sort Fields** property to sort the report's data.

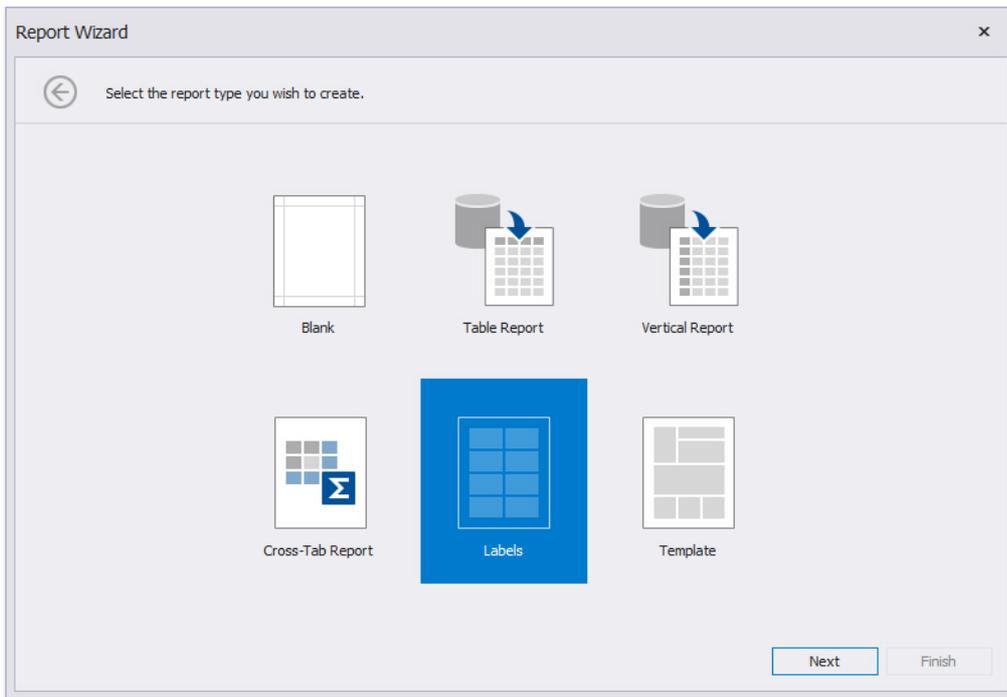
Create Labels and Badges

This tutorial describes the steps to create a label report that contains employee badges.

1. [Create a new report](#) and [bind it](#) to a required data source (for instance, to a table that contains information about employees).
2. Click the report's smart tag, and in the invoked actions list, click **Design in Report Wizard**.

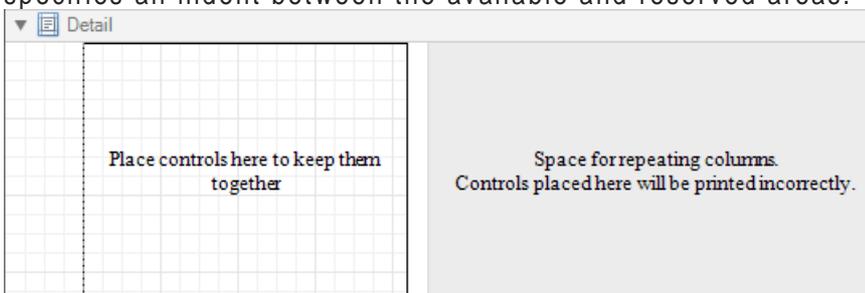


3. The wizard guides you through the process of creating a label report. Refer to [Label Report](#) for detailed

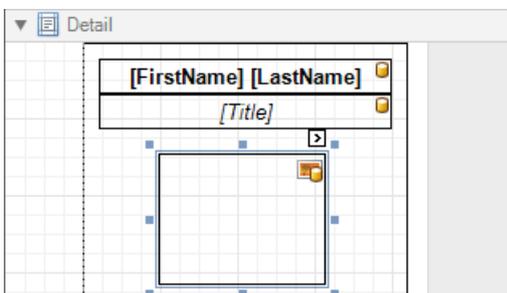


instructions on the wizard's steps.

4. After performing the above steps you will see that the report's Detail band is now divided into three differently colored areas. The first area at the left-hand side indicates the actual available band area for controls to be placed within it. The gray area at the right-hand side is intended for the columns in which labels will be displayed, so it cannot be occupied by controls. Finally, the white area specifies an indent between the available and reserved areas.



5. Drop the required fields from the [Field List](#) onto the available Detail band's area and adjust the layout.



If required, you can apply [mail merge](#) to combine several fields within the same [Label](#) control. For the [Picture Box](#) control, you can set its **Sizing** property to **Zoom Image**.

Switch to [Print Preview](#) to see the resulting report.

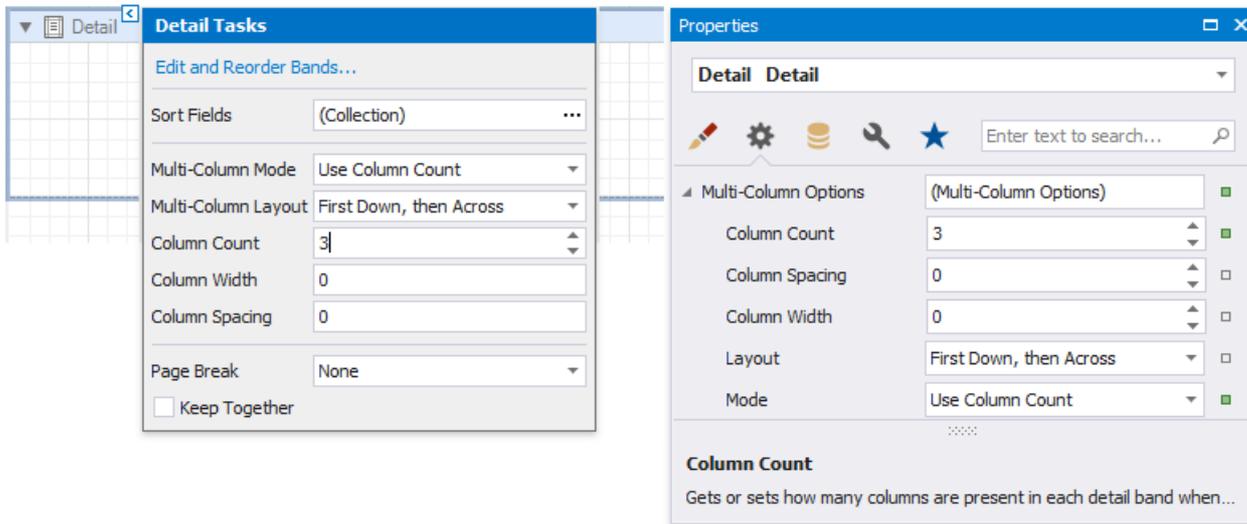
<p>Nancy Davolio <i>Sales Representative</i></p> 	<p>Andrew Fuller <i>Vice President, Sales</i></p> 	<p>Janet Leverling <i>Sales Representative</i></p> 
<p>Margaret Peacock <i>Sales Representative</i></p> 	<p>Steven Buchanan <i>Sales Manager</i></p> 	<p>Michael Suyama <i>Sales Representative</i></p> 
<p>Robert King <i>Sales Representative</i></p> 	<p>Laura Callahan <i>Inside Sales Coordinator</i></p> 	<p>Anne Dodsworth <i>Sales Representative</i></p> 

Create a Multi-Column Report

This document describes how to arrange report data in multiple columns, which can be used to create mailing labels, business cards or multi-column directories.

Settings

To access the multi-column settings of a report's Detail band, use its smart tag or the [Property Grid](#).



Multi-Column Mode

Enables you to select one of the following modes:

- **None**

Disables the multi-column layout.

- **Use Column Count**

Makes the report display a specific number of columns based on the **Column Count** value. When this property is set to **1**, the report looks as though its multi-column layout is disabled.

- **Use Column Width**

Makes the report columns have a specific width based on the **Column Width** value. With this setting, the report displays as many columns as it is possible according to the specified column width, column spacing and report page size.

Column Spacing

Specifies the distance between adjacent columns. This value is measured in [report units](#).

Multi-Column Layout

Specifies the preferred direction for arranging report data within columns.

- **First Across, then Down**

The report data is arranged horizontally and is wrapped to the next row on reaching the right page margin.

Office 101 Dr. Andrew Fuller Vice President, Sales	Office 102 Ms. Anne Dodsworth Sales Representative	Office 103 Mr. Michael Suyama Sales Representative
Office 104 Ms. Janet Leverling Sales Representative	Office 201 Ms. Nancy Davolio Sales Representative	Office 202 Mr. Steven Buchanan Sales Manager
Office 203 Ms. Laura Callahan Sales Coordinator	Office 301 Mr. Antonio Moreno Sales Representative	Office 302 Mr. Thomas Hardy Sales Representative
Office 303 Ms. Christina Berglund Sales Manager		

When the report data is grouped, the multi-column layout is applied to each group individually.

Floor 1		
Office 101 Dr. Andrew Fuller Vice President, Sales	Office 102 Ms. Anne Dodsworth Sales Representative	Office 103 Mr. Michael Suyama Sales Representative
Office 104 Ms. Janet Leverling Sales Representative		
Floor 2		
Office 201 Ms. Nancy Davolio Sales Representative	Office 202 Mr. Steven Buchanan Sales Manager	Office 203 Ms. Laura Callahan Sales Coordinator

- **First Down, then Across**

The report data is arranged vertically and is wrapped to the next column on reaching the bottom page margin.

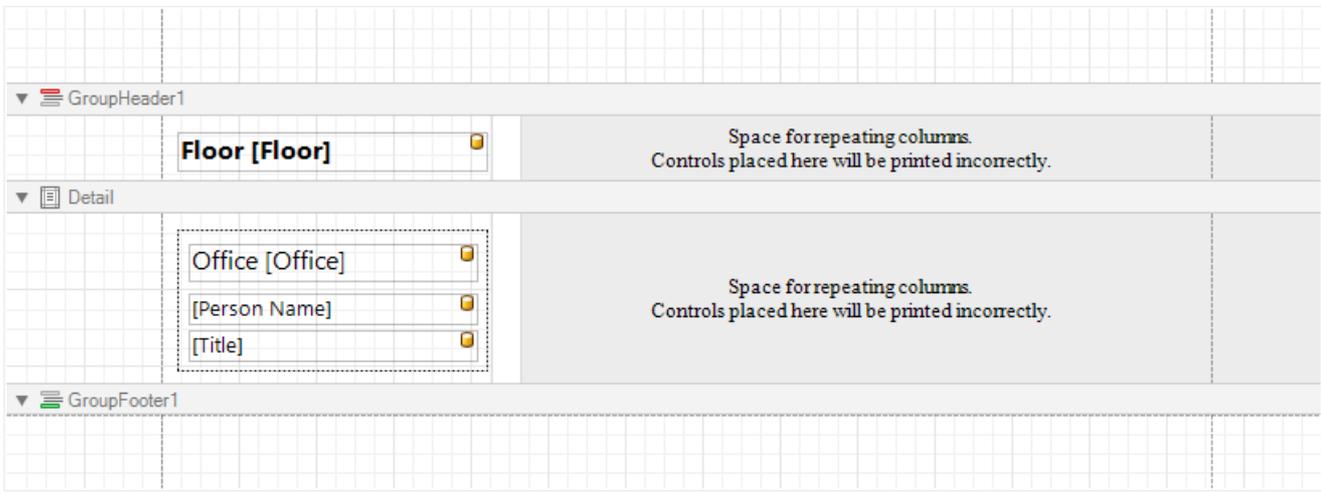
Office 101 Dr. Andrew Fuller Vice President, Sales	Office 201 Ms. Nancy Davolio Sales Representative	Office 302 Mr. Thomas Hardy Sales Representative
Office 102 Ms. Anne Dodsworth Sales Representative	Office 202 Mr. Steven Buchanan Sales Manager	Office 303 Ms. Christina Berglund Sales Manager
Office 103 Mr. Michael Suyama Sales Representative	Office 203 Ms. Laura Callahan Sales Coordinator	
Office 104 Ms. Janet Leverling Sales Representative	Office 301 Mr. Antonio Moreno Sales Representative	

When the report data is grouped, you can make each group start on a new column by setting the **Page Break** property of the Group Footer to **After the Band**.

Floor 1	Floor 2	Floor 3
Office 101 Dr. Andrew Fuller Vice President, Sales	Office 201 Ms. Nancy Davolio Sales Representative	Office 301 Mr. Antonio Moreno Sales Representative
Office 102 Ms. Anne Dodsworth Sales Representative	Office 202 Mr. Steven Buchanan Sales Manager	Office 302 Mr. Thomas Hardy Sales Representative
Office 103 Mr. Michael Suyama Sales Representative	Office 203 Ms. Laura Callahan Sales Coordinator	Office 303 Ms. Christina Berglund Sales Manager
Office 104 Ms. Janet Leverling Sales Representative		

How It Works

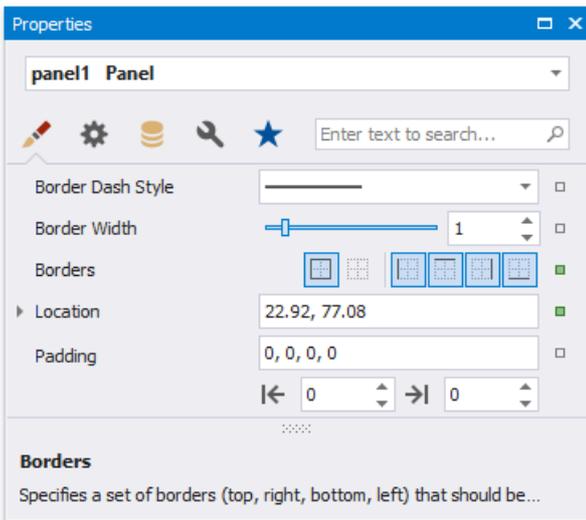
The following image illustrates a report designer with a multi-column layout applied to the report:



In multi-column mode, the report's design surface is limited to the area defined by the column width. This is the only area intended to contain report controls.

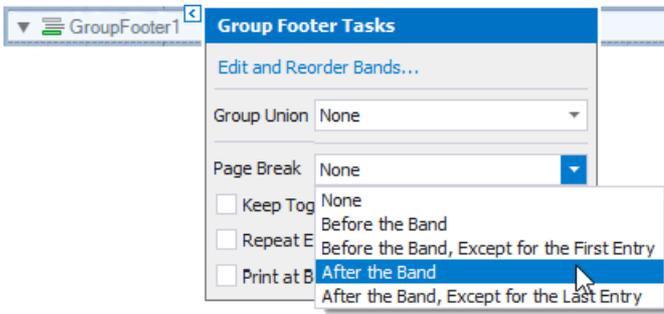
The rest of this surface defines the space on a page remaining for printing columns and column spacing area.

In the above image, the report data in the Detail band is contained within a [Panel](#) that provides borders around the enclosed content.



You can also specify a custom background color for the Panel. To learn how to change this color dynamically (based on the report's underlying data), see [Conditionally Change a Control's Appearance](#).

When the report data is [grouped](#) (as in the above image), and the **First Down, then Across** multi-column layout is used, you can make each group start on a new column. To do this, set the **Page Break** property of the Group Footer to **After the Band** or **After the Band, Except for the Last Entry**. When there is no data to display in the Group Footer, set the band height to zero.



Create a Report with Cross-Band Content and Populated Empty Space

This document describes how to create a report with the following

- layout options: Print part of the content across bands (the blue panel);
- Populate the empty space between the detail and footer information with blank rows.

Product Name	Unit Price	Quantity	Total
1 Queso Cabrales	\$14.00	12	\$168.00
2 Singaporean Hokkien Fried Mee	\$9.80	10	\$98.00
3 Mozzarella di Giovanni	\$34.80	5	\$174.00
4			
5			
6			
7			
8			
9			
25			
26			
27			
	Sub Total:		\$440.00
	Discount:		\$0.00
	Grand Total:		\$440.00

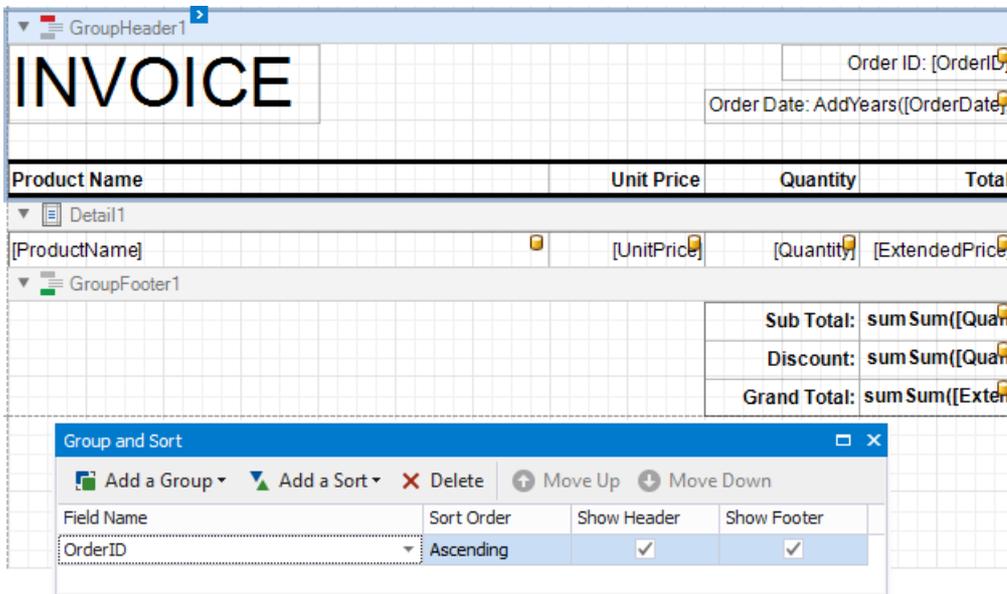
Order ID: 10248
Order Date: Friday, July 4, 2014

NORTH WIND

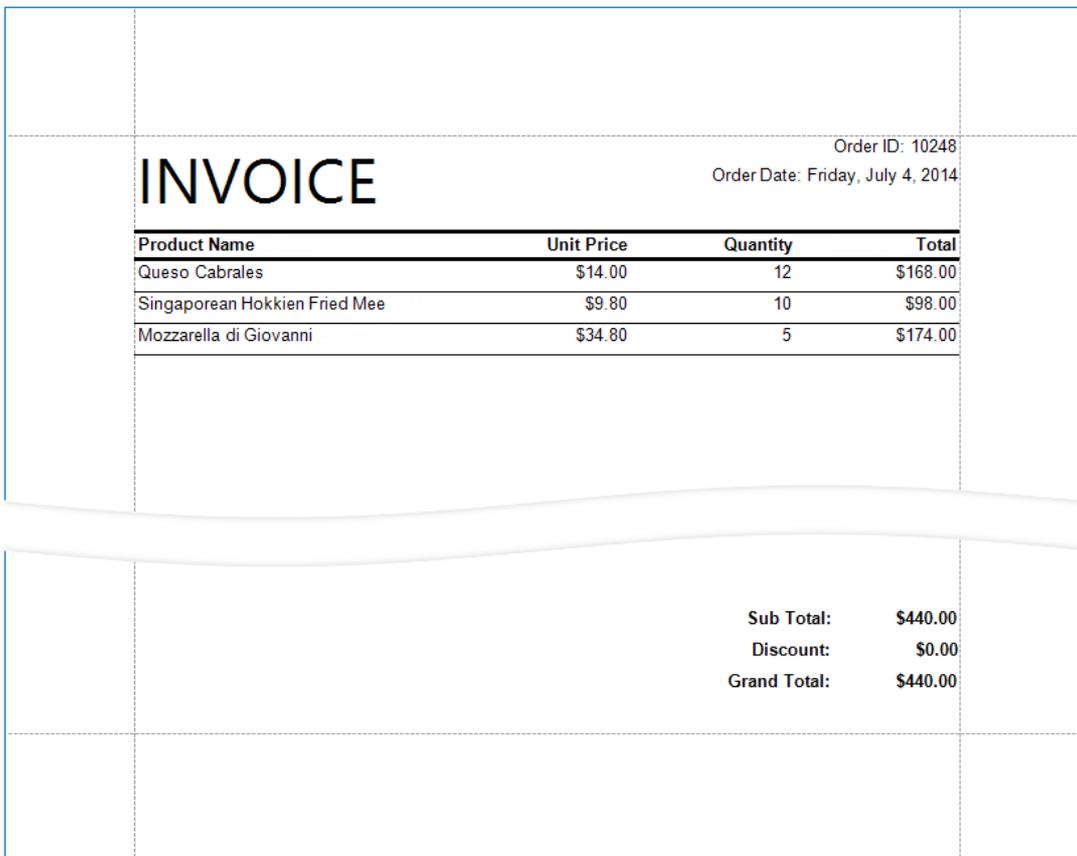
To: Vins et alcools Chevalier
Address: 59 rue de l'Abbaye

Initial Report

In this tutorial, the report [groups data](#) by a data source field (the report's group field).

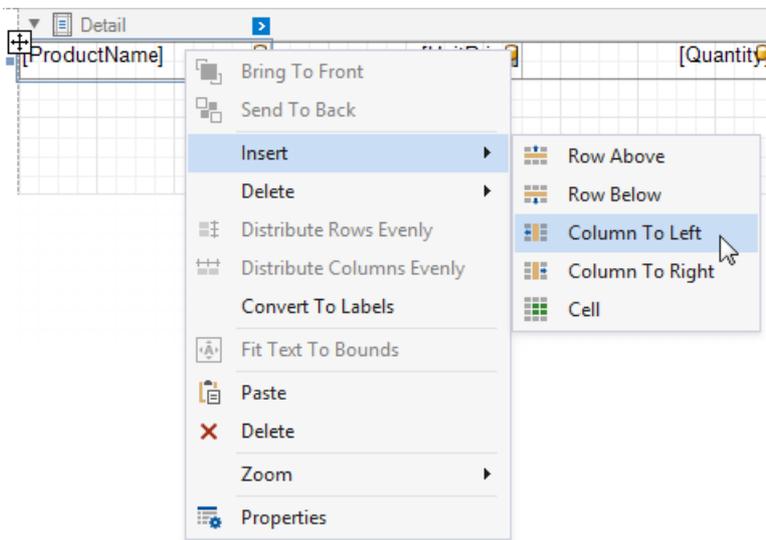


The *GroupFooter* band is displayed at the bottom of the page (the **Print At Bottom** property is enabled). There is an empty space between the *Detail* band's data and the footer.



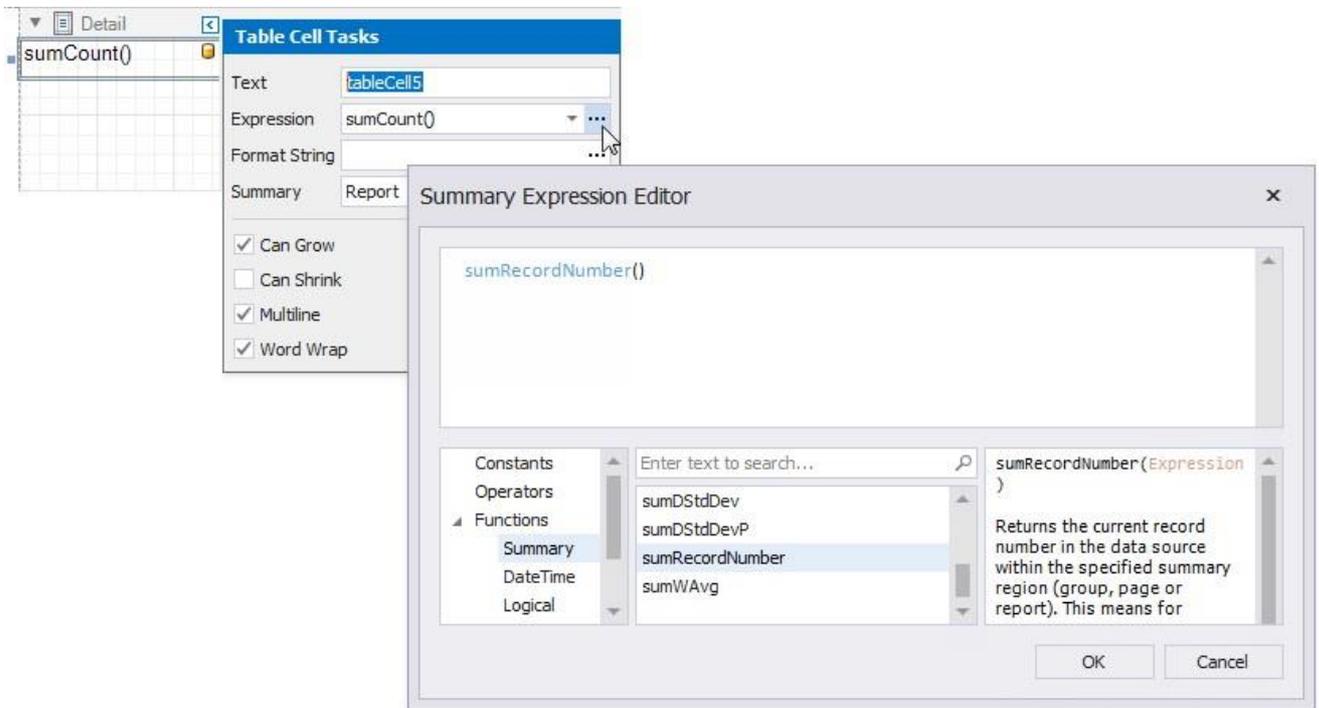
Add Line Numbers

1. Right-click the first cell in the **Detail band's** table and select **Insert / Column to Left** from the context menu.



2. Select the new cell and specify the following property values:

- o **Summary:** *Group*
- o **Expression:** *sumRecordNumber()*



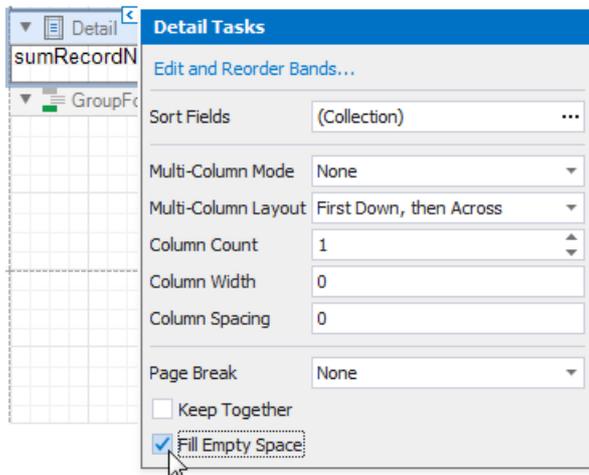
Each row now includes a number.

INVOICE		Order ID: 10248	
		Order Date: Friday, July 4, 2014	
Product Name	Unit Price	Quantity	Total
1 Queso Cabrales	\$14.00	12	\$168.00
2 Singaporean Hokkien Fried Mee	\$9.80	10	\$98.00
3 Mozzarella di Giovanni	\$34.80	5	\$174.00
		Sub Total:	\$440.00
		Discount:	\$0.00
		Grand Total:	\$440.00

Populate the Empty Space

Populate the empty space between the *Detail* band's data and footer.

Click the *Detail* band's smart tag and enable the **Fill Empty Space** property.



The empty space is now populated with numbered lines.

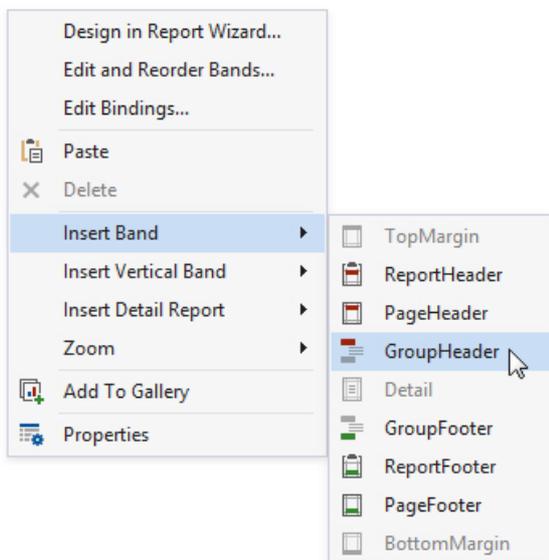
INVOICE		Order ID: 10248	
		Order Date: Friday, July 4, 2014	
Product Name	Unit Price	Quantity	Total
1 Queso Cabrales	\$14.00	12	\$168.00
2 Singaporean Hokkien Fried Mee	\$9.80	10	\$98.00
3 Mozzarella di Giovanni	\$34.80	5	\$174.00
4			
5			
6			
25			
26			
27			
Sub Total:			\$440.00
Discount:			\$0.00
Grand Total:			\$440.00

O Note

Set the **Text** properties of the *Detail* band's controls to display static text within the added lines.

Add Cross-Band Content to Report Groups

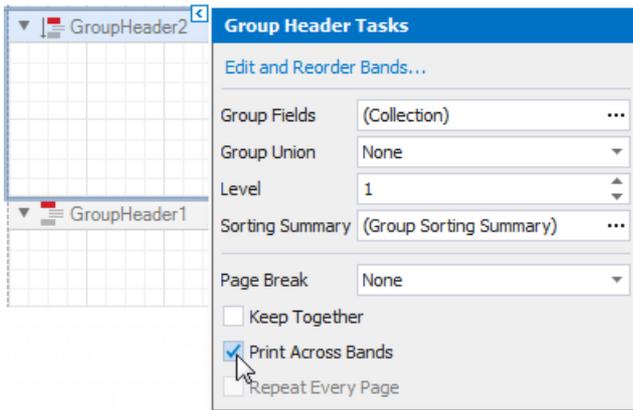
1. Right-click the design surface. Select **Insert Band / GroupHeader** from the context menu.



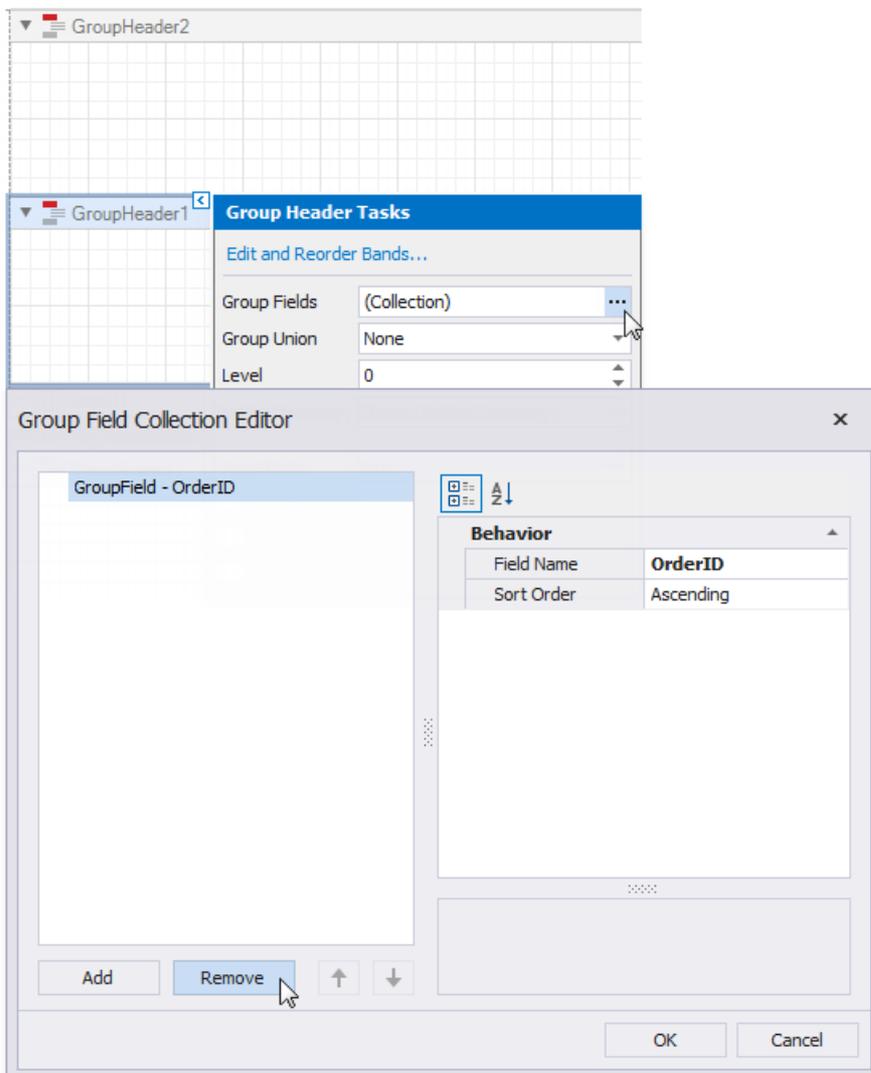
Tip

Choose a *PageHeader* band instead to display the cross-band content on an entire page.

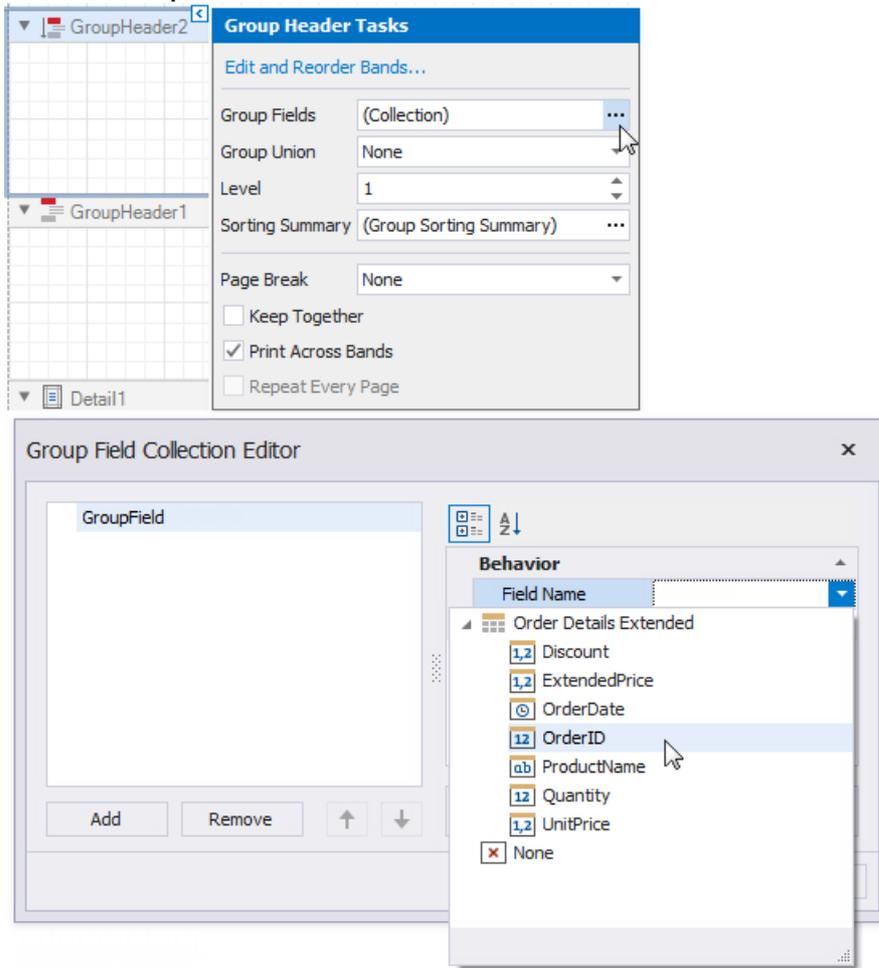
2. Click the added band's smart tag and enable the **Print Across Bands** property. This displays the band content on the background of the *GroupHeader1*, *Detail*, and *GroupFooter1* bands.



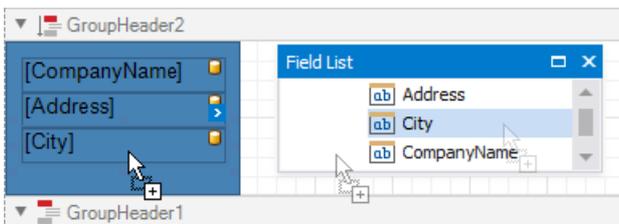
3. The report's group field is in the *GroupHeader1* band's **Group Fields** collection. The new band is above *GroupHeader1* and does not participate in the report's group. Move the group field to the new band.
 - o Click *GroupHeader1*'s smart tag, click the **Group Fields** property's ellipsis button and remove the group field from the invoked **Group Field Collection Editor**.



- Click the new band's smart tag, click the **Group Fields** property's ellipsis button and add the group field in **Group Field Collection Editor**.



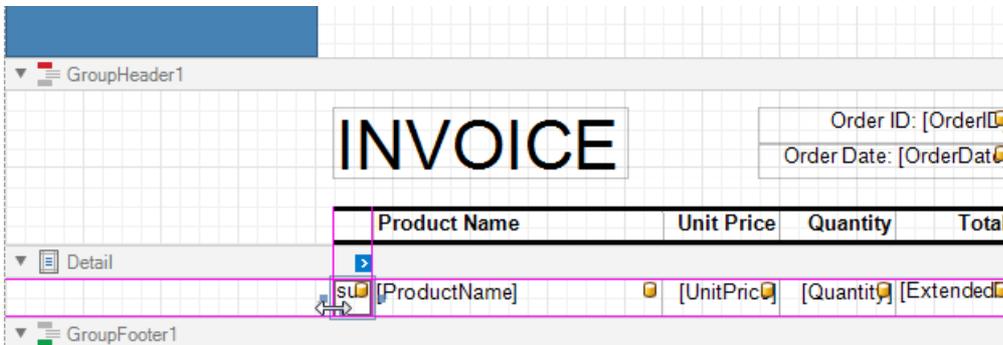
- Add a **Panel** control to the *GroupHeader*. Specify the panel's **Background Color** and drop fields onto the panel.



- Adjust the panel's width and height. The height should match the page height, as the footer is printed at the bottom of the page (the *GroupFooter*'s **Print At Bottom** property is enabled).
- Switch to Print Preview. The panel is printed on the background of the group content.

INVOICE		Order ID: 10248		
		Order Date: Friday, July 4, 2014		
	Product Name	Unit Price	Quantity	Total
1	Queso Cabrales	\$14.00	12	\$168.00
2	Singaporean Hokkien Fried Mee	\$9.80	10	\$98.00
3	Mozzarella di Giovanni	\$34.80	5	\$174.00
4				
5				
6				
7	To: Vins et alcools Chevalier			
8				
9	Address: 59 rue de l'Abbaye			
10				

7. Resize the content in other bands to print it side-by-side with the panel.



See the final report in Print Preview.

Create an Interactive E-Form

This tutorial describes how to create a form that is fillable in Print Preview.

To get started with this tutorial, [create a new report](#) or [open an existing one](#).

Add Form Fields

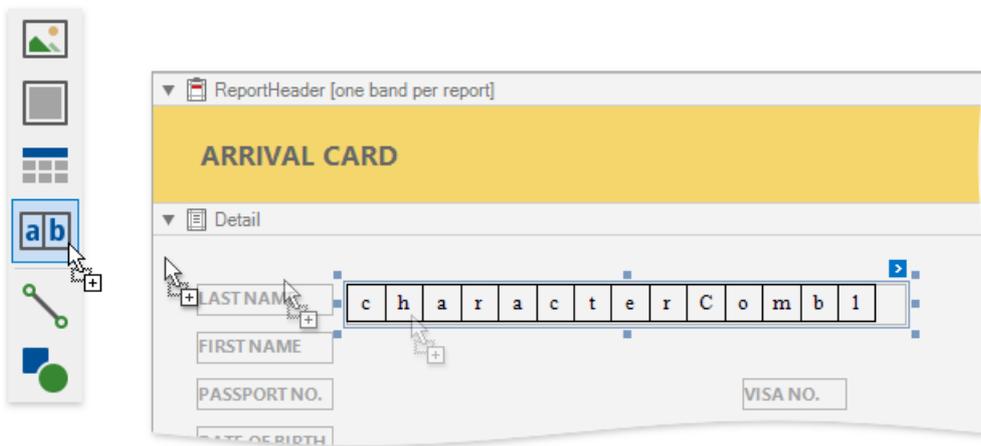
Add the [Label](#) report controls to the report and arrange them according to the form's template. Set the labels'

Text property to the form's field names.

Add Fillable Cells

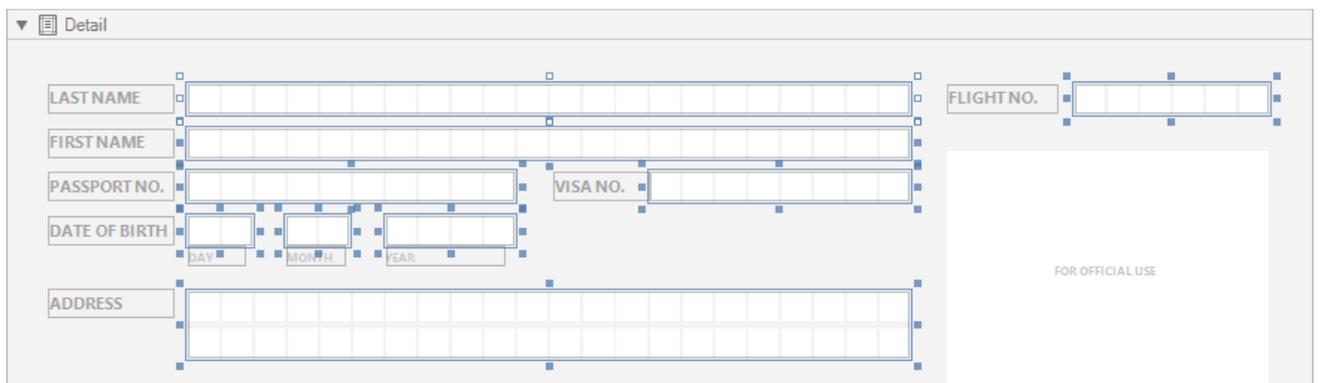
Use the [Character Comb](#) control for the form's text fields. This control displays letters in individual cells and allows you to fill these cells in Print Preview.

1. Drop the Character Comb item from the Toolbox onto the report.

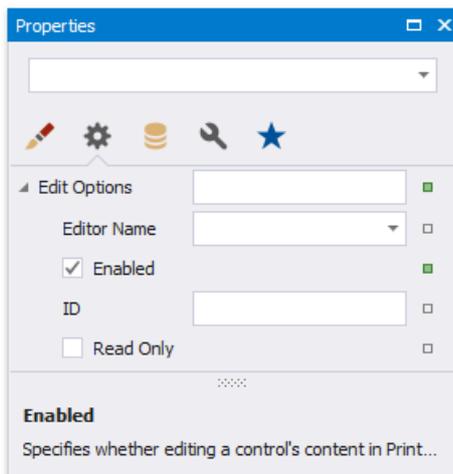


2. Select all the added Character Combs and set their properties in the **Property Grid**:

- **Cell Size**
- **Mode Cell**
- **Height, Cell**
- **Width,**
- and other cell settings.

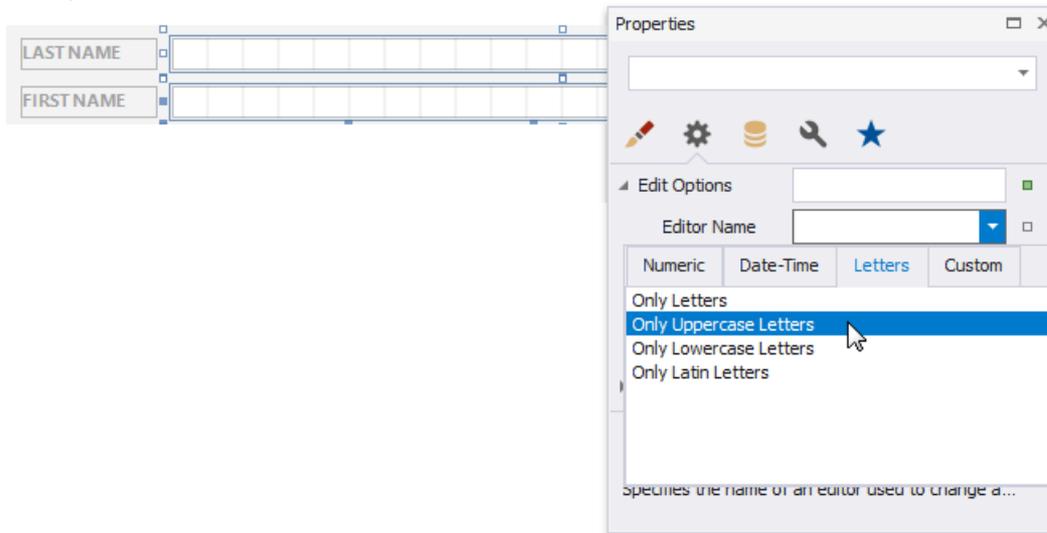


3. Enable the Character Combs' **Edit Options** | **Enabled** property.

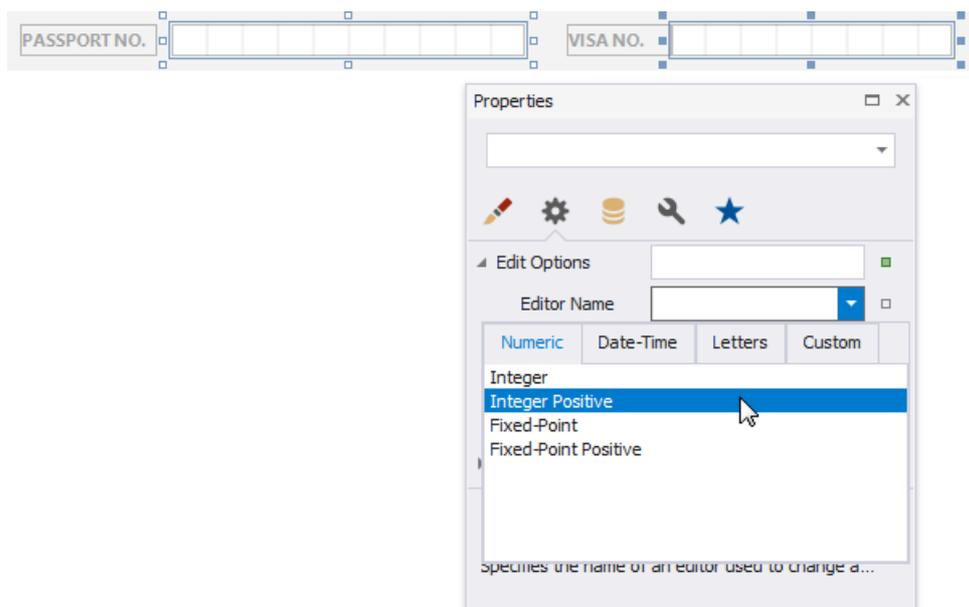


4. Choose editors for the Character Comb controls' edit mode. Controls that allow you to enter OneStream

- o letters
Invoke a drop-down list for the **Editor Name** property and select the **Only Uppercase Letters** item in the **Letters** category.

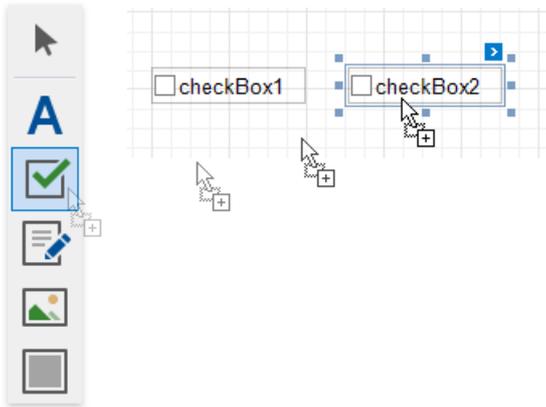


- o Controls that allow you to enter integers
Invoke a drop-down list for the **Editor Name** property and select the **Positive Integer** item in the **Numeric** category.



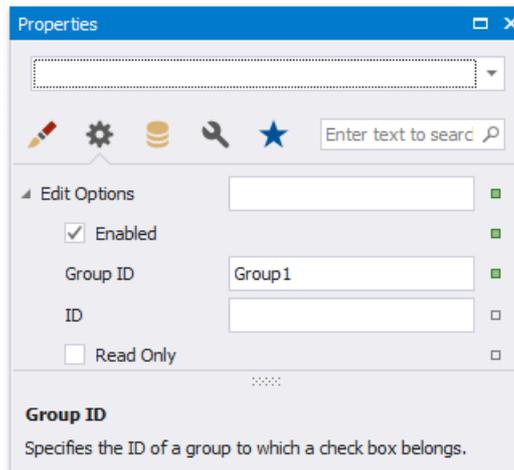
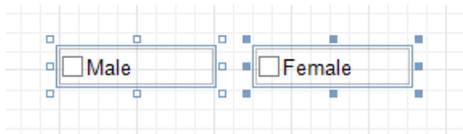
Add Check Box Editors

Add [Check Box](#) controls for the *Male/Female* fields.



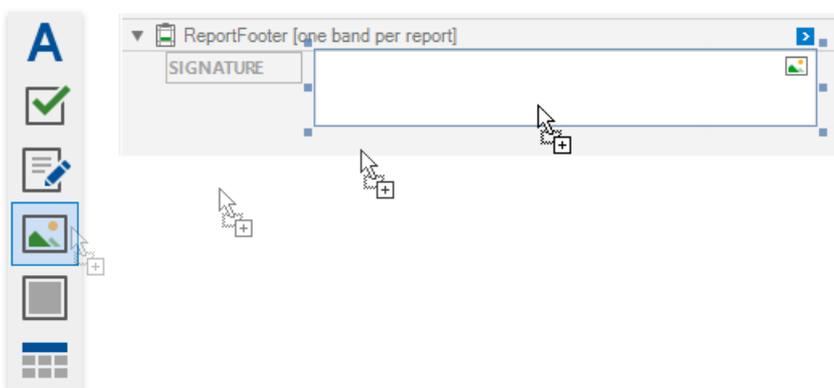
Use the following properties to set up these controls: Set the **Text** property.

- Set appearance properties.
- Enable the **Edit Options | Enabled** property switch check box states in Print Preview.
- Set the **Edit Options | Group ID** property to the same value to combine these two check boxes into a logical group. This allows you to select only one option at a time.



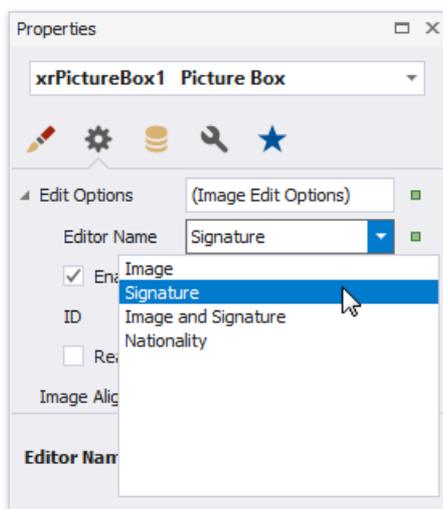
Add the Signature Editor

Add the [PictureBox](#) report control for the form's *Signature* field.



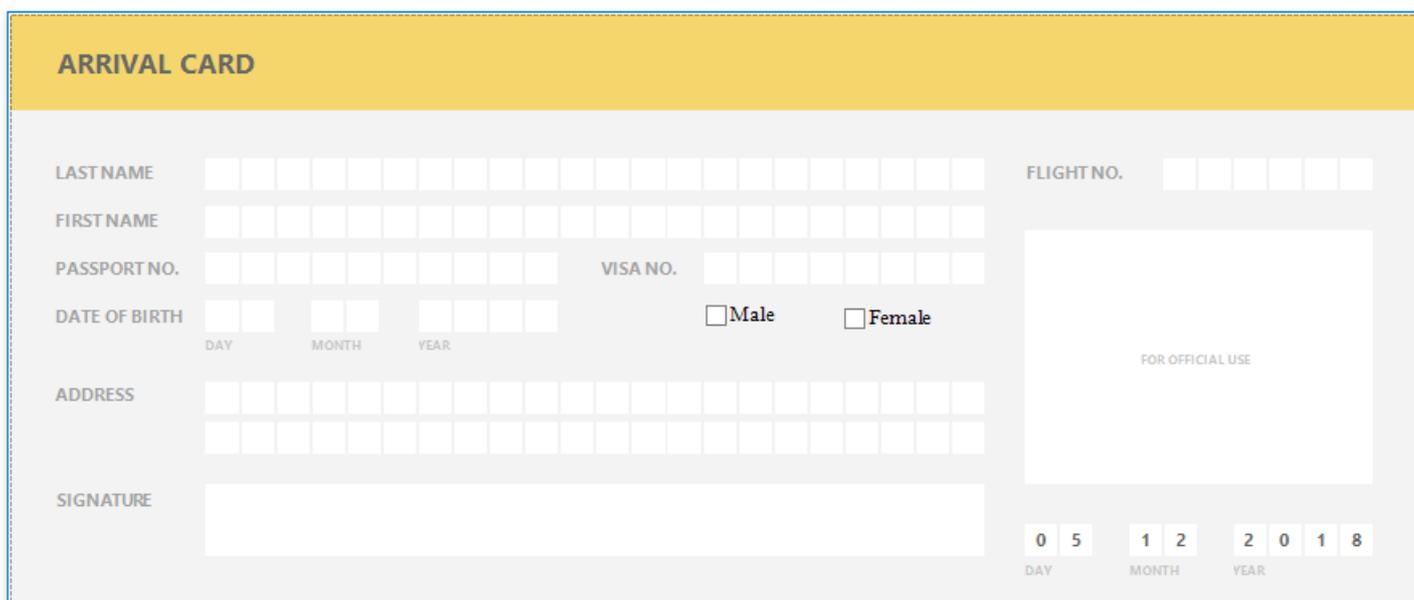
Do the following to enable drawing in Print Preview:

1. Enable the control's **Edit Options | Enabled** property.
2. Set the **Edit Options | Editor Name** property to **Signature**.



Get the Result

Switch to the [Preview tab](#) to see the result.



Click the  button on the Print Preview toolbar to highlight all the editable fields on the form.

Create a Cross-Tab Report

This tutorial describes how to use the Cross Tab control to create a **Sales Summary** report.

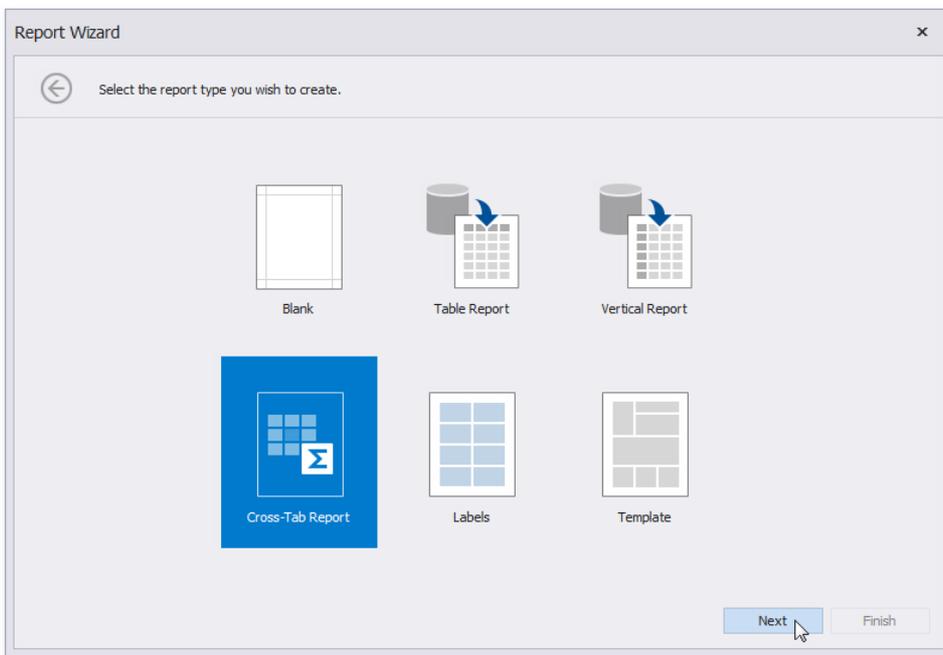
Sales Summary by Year									
Order Date	Category Name	UK				USA			
		Anne Dodsworth	Michael Suyama	Robert King	Steven Buchana	Total UK	Andrew Fuller	Janet Leverling	
Quarter 1	Beverages	\$12,170.00	\$4,171.30	\$11,264.56	\$7,769.65	\$35,375.51	\$22,217.25	\$16,063.64	
	Condiments	\$4,173.50	\$505.00	\$1,324.50	\$1,050.45	\$7,053.45	\$1,713.80	\$5,707.26	
	Confections	\$1,366.75	\$517.14	\$2,583.60	\$2,338.40	\$6,805.89	\$2,059.68	\$16,197.20	
	Dairy Products	\$3,602.30	\$3,950.13	\$3,960.00	\$11,352.20	\$22,864.63	\$5,411.00	\$9,358.80	
	Grains/Cereals	\$1,971.70	\$4,866.50	\$2,541.56	\$9,379.76	\$18,699.52	\$1,869.95	\$8,871.75	
	Meat/Poultry	\$3,563.76	\$3,840.85	\$876.00	\$228.00	\$8,508.61	\$11,526.54	\$15,226.12	
	Produce	\$2,365.90	\$2,467.92	\$2,467.92	\$754.72	\$5,508.54	\$700.00	\$2,369.70	
Seafood	\$2,723.15	\$1,973.27	\$1,564.39	\$1,582.70	\$7,843.51	\$203.04	\$11,049.88		
Total Quarter 1									
Quarter 2									
Sales Summary by Year									
Order Date	Category Name	USA			Total USA	Grand Total			
		Laura Callahan	Margaret Peaco	Nancy Davolio					
Quarter 1	Beverages	\$2,444.00	\$25,434.25	\$5,378.35	\$71,527.49	\$106,903.00			
	Condiments	\$5,818.00	\$6,705.63	\$2,736.30	\$22,680.99	\$29,734.44			
	Confections	\$8,439.96	\$12,229.54	\$5,939.92	\$44,860.50	\$51,666.39			
	Dairy Products	\$2,298.77	\$14,450.40	\$10,211.00	\$41,729.97	\$64,594.60			
	Grains/Cereals	\$5,609.20	\$3,317.30	\$3,713.73	\$23,380.93	\$32,760.69			
	Meat/Poultry	\$7,000.55	\$14,007.89	\$6,703.64	\$54,464.74	\$62,973.35			
	Produce	\$1,317.60	\$4,644.10	\$8,612.10	\$17,843.50	\$23,432.84			
Seafood	\$2,730.12	\$7,292.89	\$8,833.19	\$30,109.12	\$37,952.63				
Total Quarter 1		\$35,652.20	\$88,082.00	\$52,328.23	\$306,597.24	\$410,017.14			
Quarter 2									
Quarter 2	Beverages	\$8,081.30	\$7,848.90	\$25,581.05	\$77,343.35	\$87,313.80			
	Condiments	\$6,027.30	\$6,086.38	\$3,633.85	\$25,427.60	\$34,388.79			
	Confections	\$4,637.73	\$7,059.94	\$6,930.35	\$43,139.79	\$56,543.64			
	Dairy Products	\$13,842.00	\$5,951.20	\$6,266.47	\$48,507.69	\$74,933.40			
	Grains/Cereals	\$1,562.40	\$10,810.85	\$789.51	\$20,680.66	\$25,261.26			
	Meat/Poultry	\$2,941.73	\$2,782.80	\$5,460.51	\$20,282.09	\$39,395.51			
	Produce	\$6,933.28	\$3,521.75	\$5,379.75	\$28,178.18	\$41,129.49			
Seafood	\$3,092.97	\$5,806.43	\$4,370.68	\$28,333.56	\$33,381.98				
Total Quarter 2		\$47,118.71	\$49,868.25	\$58,412.17	\$291,812.92	\$392,347.87			
Quarter 3									
Quarter 3	Beverages	\$3,210.05	\$5,370.85	\$8,884.01	\$21,184.47	\$25,260.94			
	Condiments	\$2,513.85	\$3,133.12	\$3,364.50	\$13,698.39	\$15,769.92			
	Confections	\$4,486.92	\$5,841.72	\$5,473.25	\$17,802.89	\$26,525.02			
	Dairy Products	\$1,112.70	\$7,697.70	\$9,360.92	\$26,790.83	\$39,269.73			
	Grains/Cereals	\$2,932.65	\$2,580.95	\$1,502.00	\$12,300.66	\$17,746.36			
	Meat/Poultry	\$2,826.00	\$5,316.24	\$2,384.66	\$13,597.80	\$20,775.42			
	Produce								

Add a Cross-Tab Report

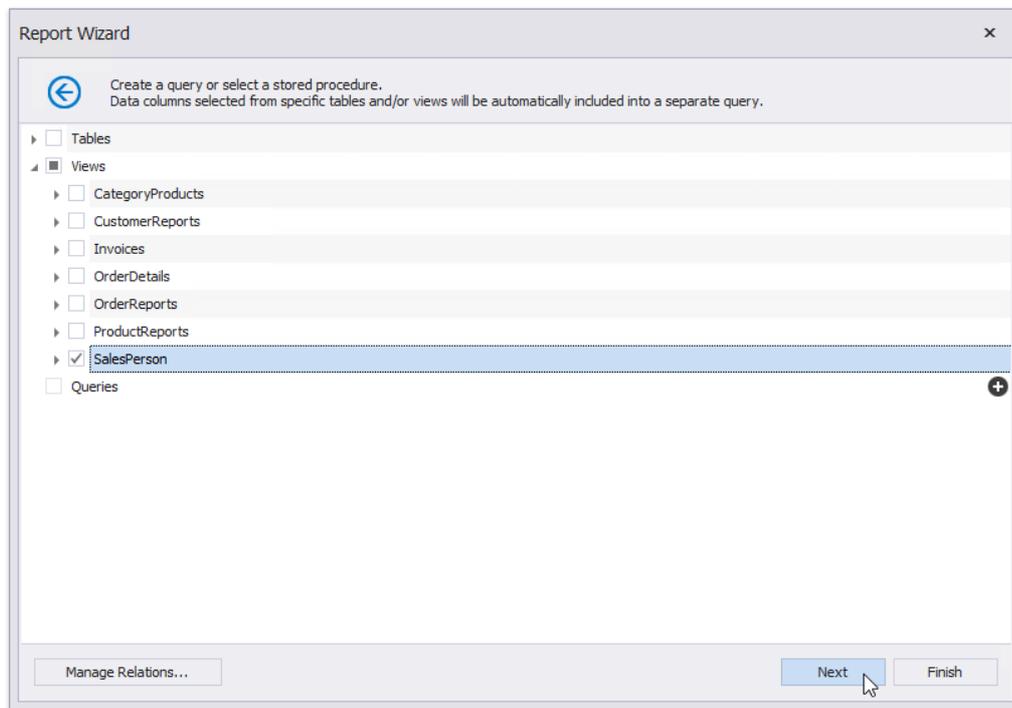
1. Invoke the [Report Wizard](#).
2. Select **Cross-Tab Report** and click **Next**.

Tip

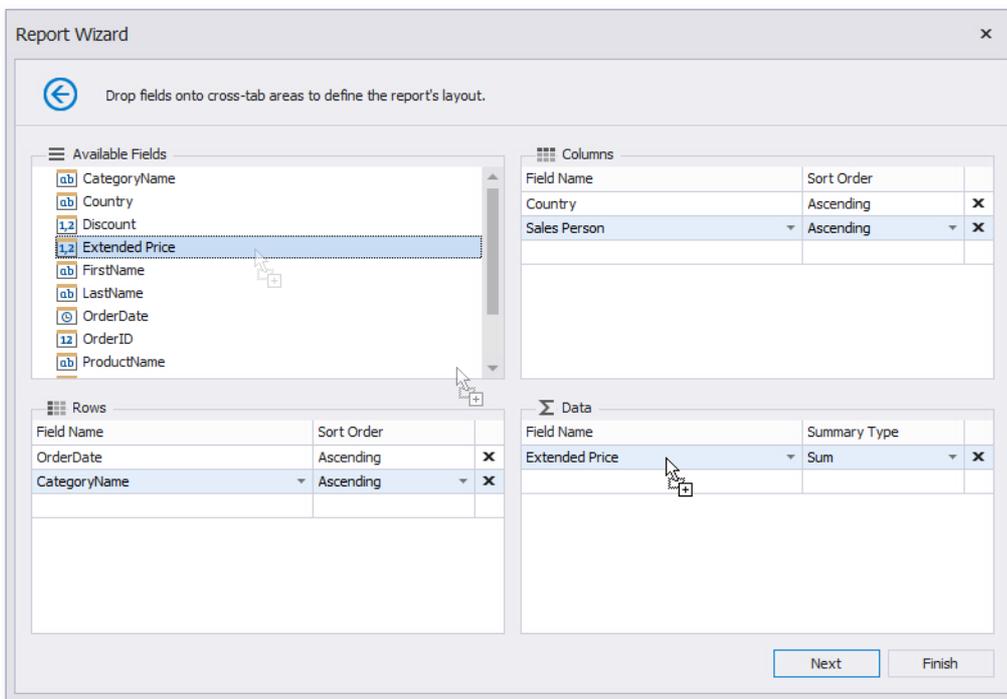
This tutorial demonstrates how to use the Cross-Tab Report Wizard. See [Create a Balance Sheet](#) for information on how to configure a Cross Tab on the Design Surface.



3. Bind the report to a data source as described in the [Bind to Data](#) section.
4. Select a data member that stores data for each sales person's sales. Click **Next**.

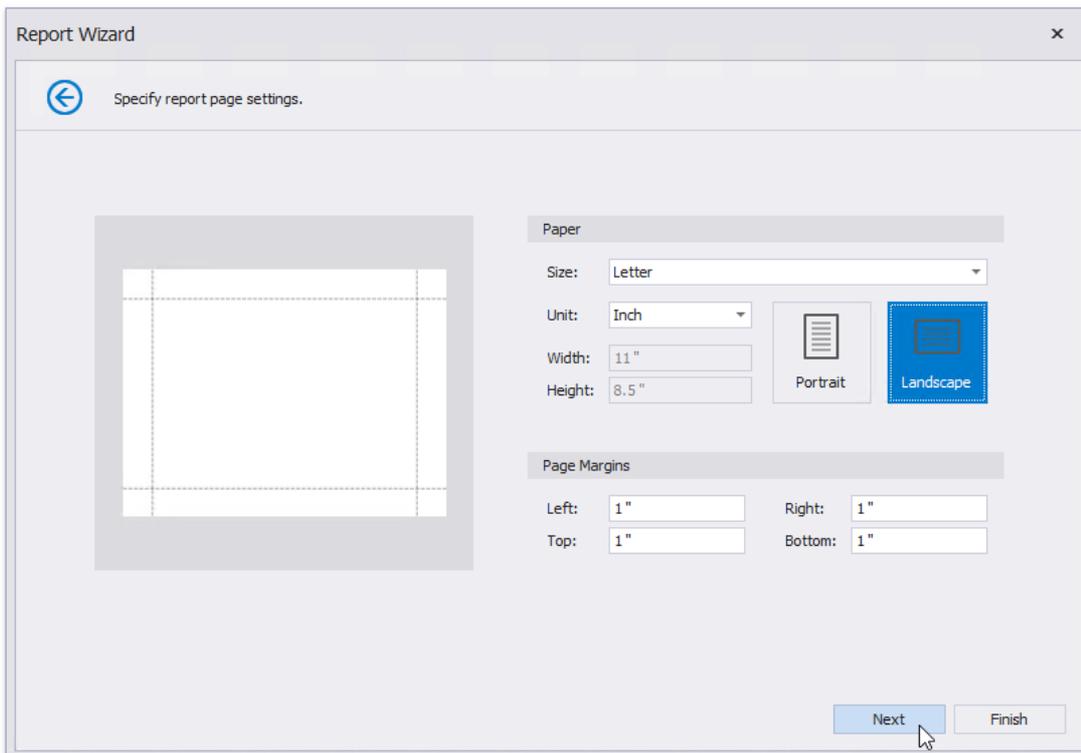


5. Drop data fields onto cross-tab areas to define row/column headers and data.



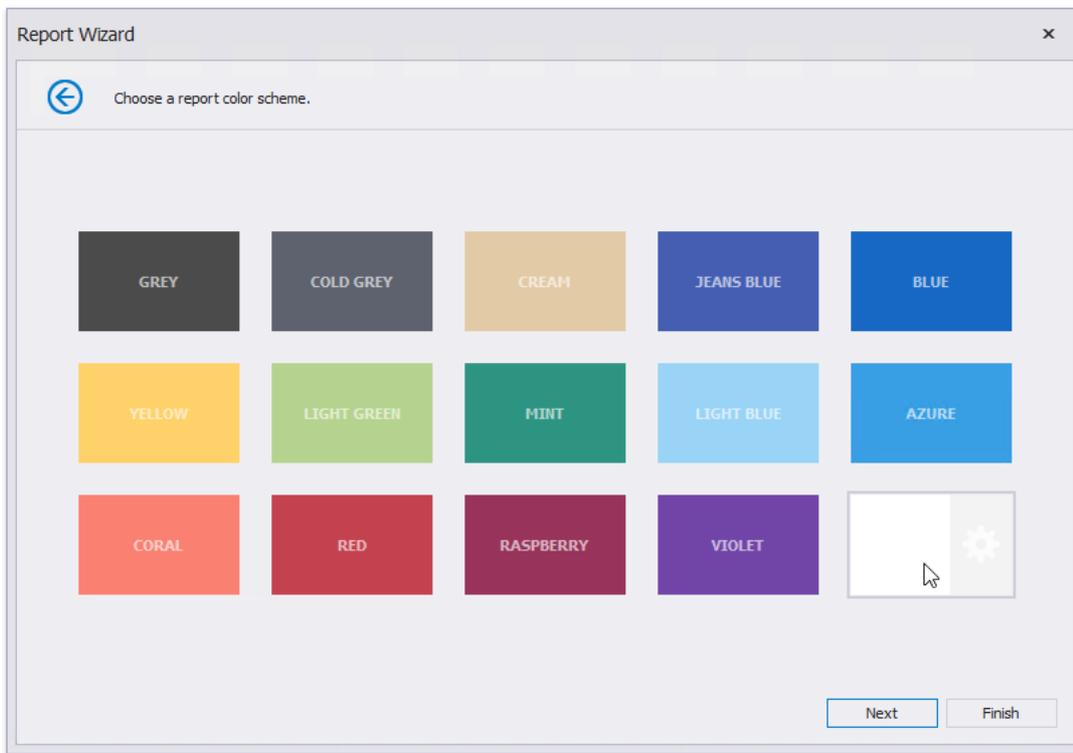
The field order defines the hierarchy in the resulting cross-tab report. The higher the field on the list, the higher the level in the field hierarchy.

6. Change the report page layout to landscape to ensure the cross-tab content fits the report well. Click

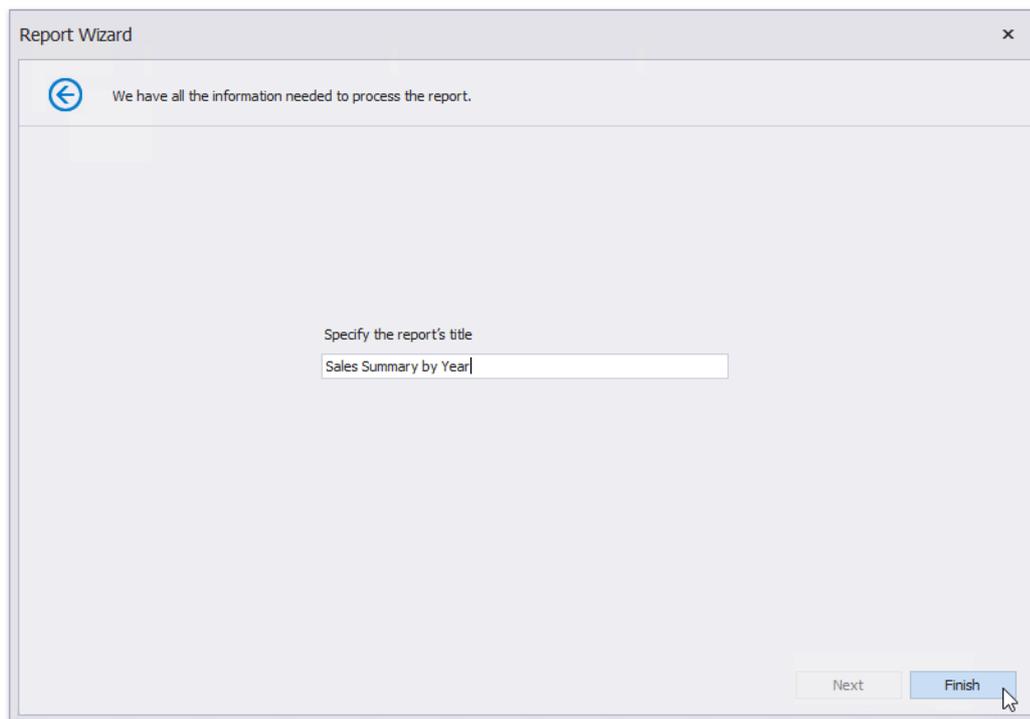


Next.

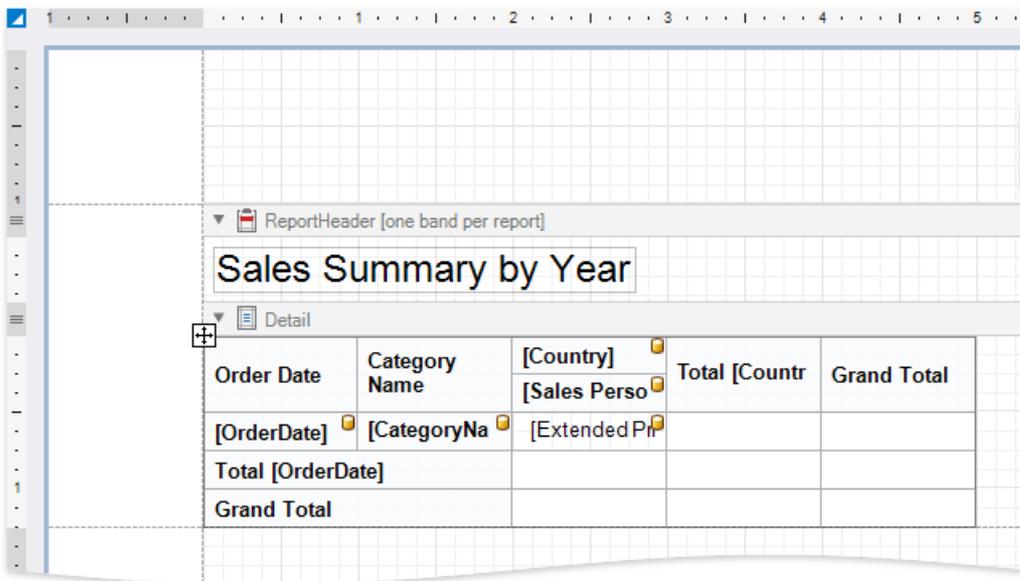
7. Set the report's color scheme and click **Next**.



8. Specify the report's title and click **Finish**.



The generated report contains a Cross Tab that is configured based on the specified settings. The Cross Tab calculates automatic totals and grand totals across row and column fields.



Tip

Ensure that the report's **Data Source** property is not set if you place the Cross Tab into the Detail band. Otherwise, the Cross Tab data is printed as many times as there are rows in the report data source.

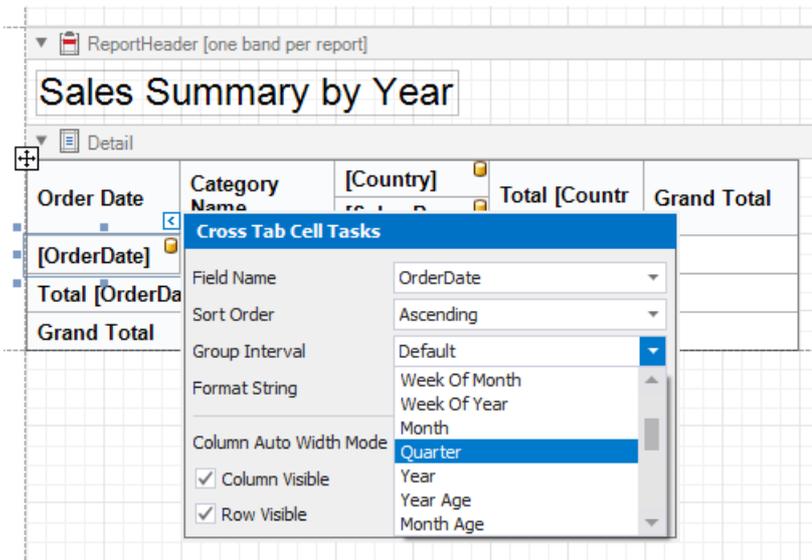
Switch to the Preview tab to see an intermediate result.

Sales Summary by Year						
Order Date	Category Name	UK				Total UK
		Anne Dodsw	Michael Suya	Robert King	Steven Buch	
8/4/2014 12:00:00 AM	Dairy Products				342	342
	Grains/Cereals				98	98
Total 8/4/2014 12:00:00 AM					440	440
8/5/2014 12:00:00 AM	Produce		1863.4			1863.4
Total 8/5/2014 12:00:00 AM			1863.4			1863.4
8/8/2014 12:00:00 AM	Condiments					
	Grains/Cereals					
	Produce					
	Seafood					
Total 8/8/2014 12:00:00 AM						
8/9/2014 12:00:00 AM	Confections					
	Dairy Products					
Total 8/9/2014 12:00:00 AM						

As you can see in the image above, the Cross Tab displays data for individual days. The next section shows how you can adjust the report so that it summarizes values by quarters.

Specify Group Settings

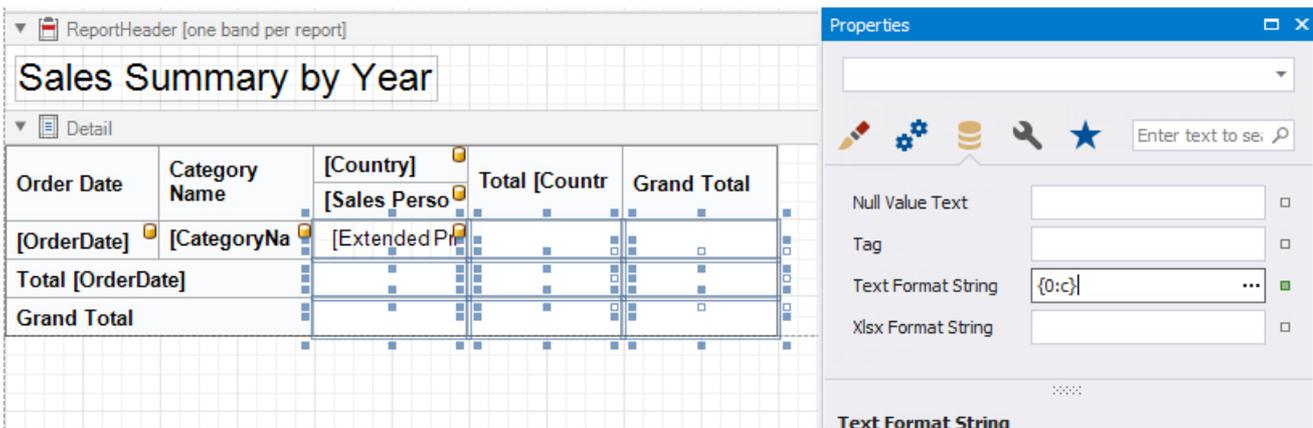
Select the row header cell and click its smart tag. Specify the **Group Interval** property to group data.



Sales Summary by Year						
Order Date	Category Name	UK				Total UK
		Anne Dodsw	Michael Suya	Robert King	Steven Buch	
1	Beverages	12170.0	4171.3	11264.56	7769.65	35375.51
	Condiments	4173.5	505	1324.5	1050.45	7053.45
	Confections	1366.75	517.14	2583.6	2338.4	6805.89
	Dairy Products	3602.3	3950.13	3960	11352.2	22864.63
	Grains/Cereals		1971.7	4866.5	2541.56	9379.76
	Meat/Poultry	3563.76	3840.85	876	228	8508.61
	Produce		2365.9	2467.92	754.72	5588.54
	Seafood	2723.15	1973.27	1564.39	1582.7	7843.51
Total 1		27599.46	19295.29	28907.47	27617.68	103419.90
	Beverages	1626.20				

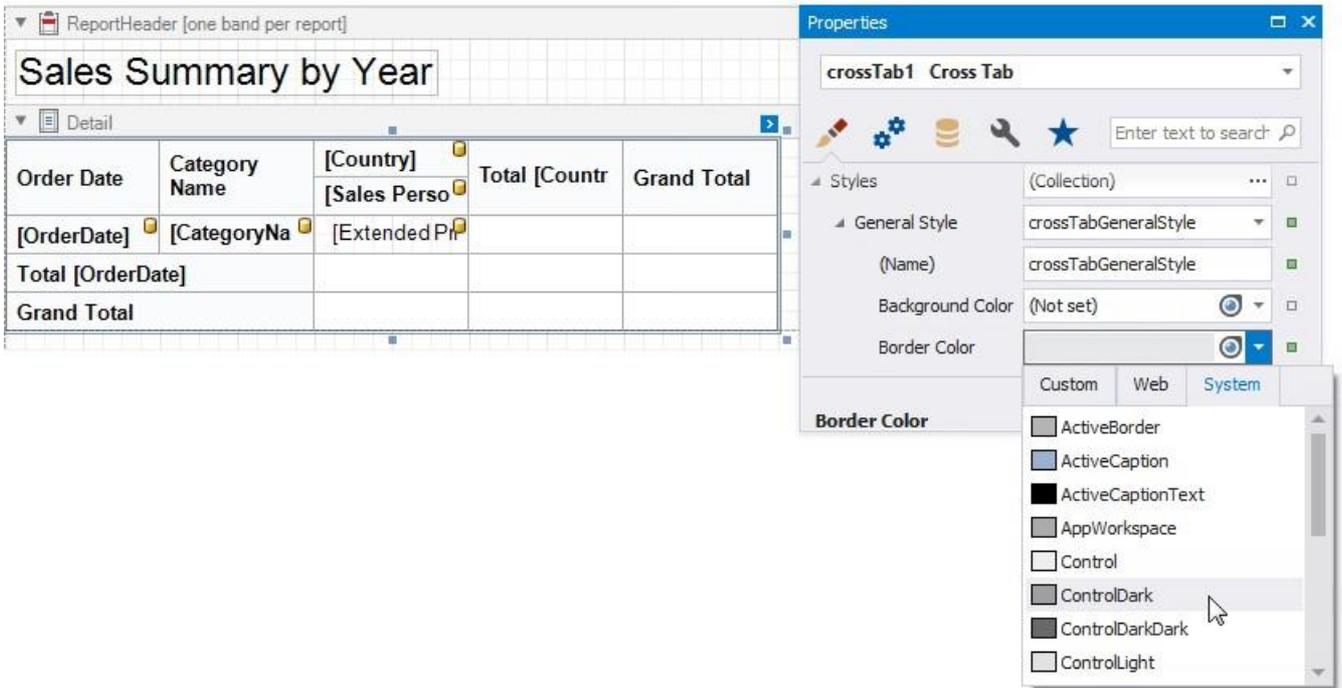
Format Data

Apply data formatting to cells. Hold down SHIFT or CTRL to select multiple cells, then go to the **Properties** window and specify the **Text Format String** property.

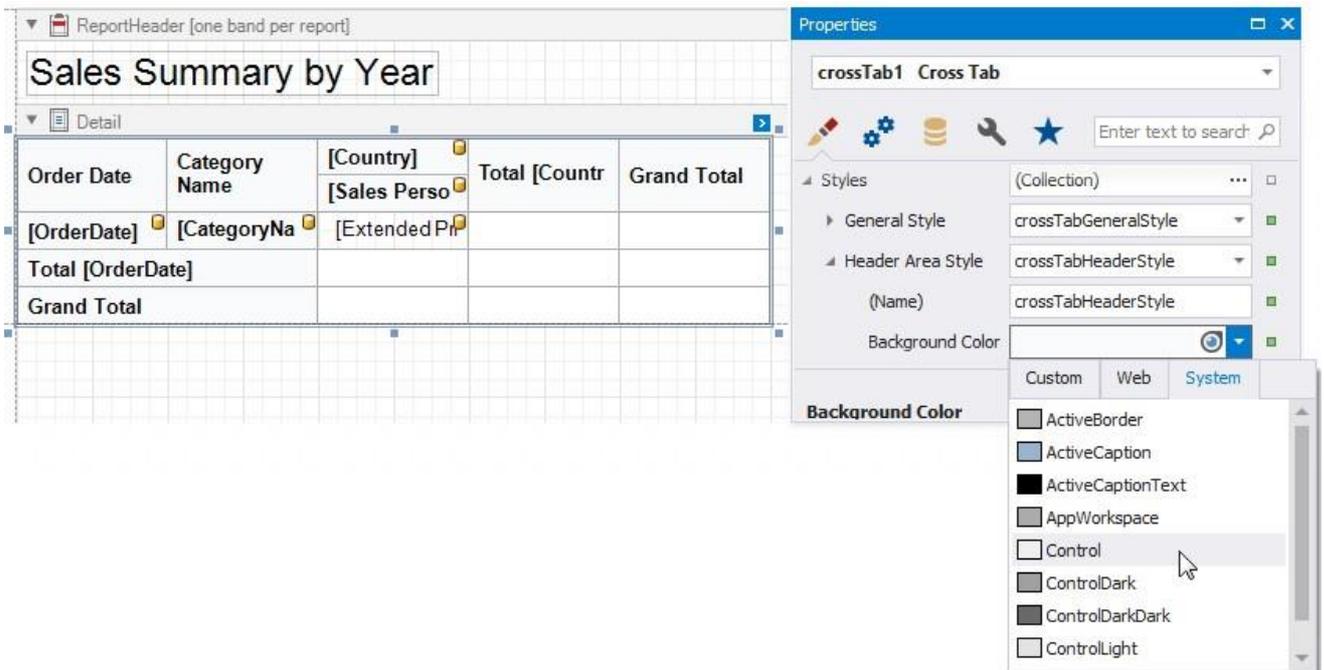


Customize Appearance

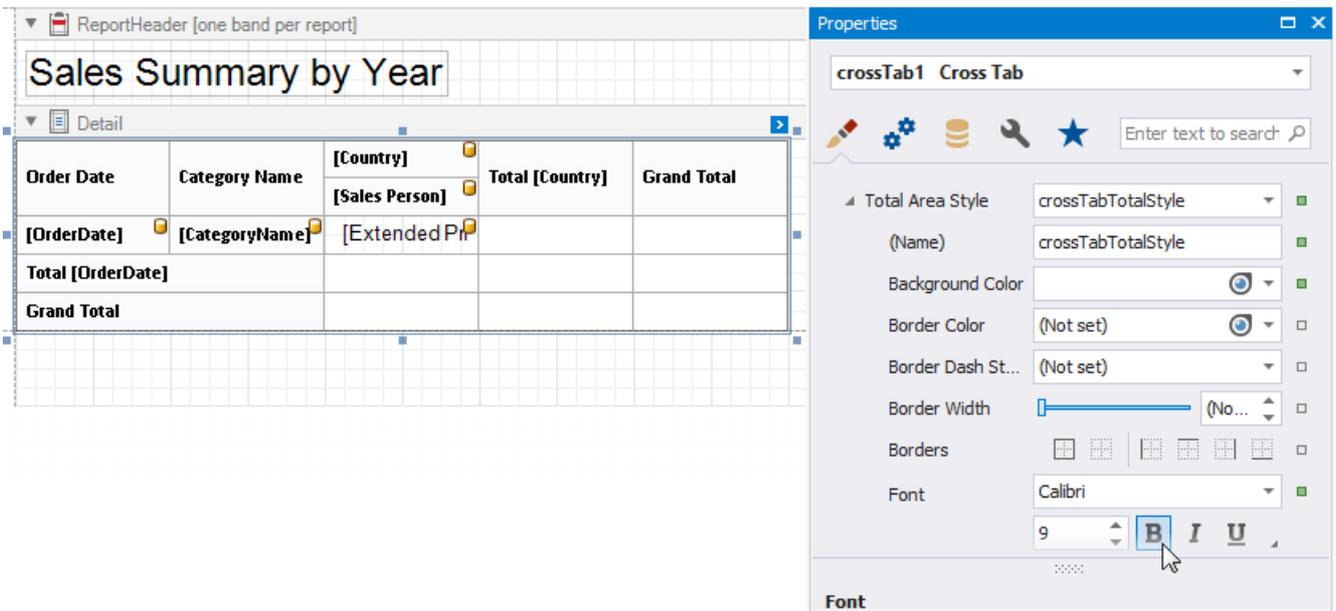
1. Select the Cross Tab, switch to the **Properties** window and expand the **Styles** property. Expand the **General Style** property and set **Border Color** to **ControlDark**. This value applies to all Cross Tab cells.



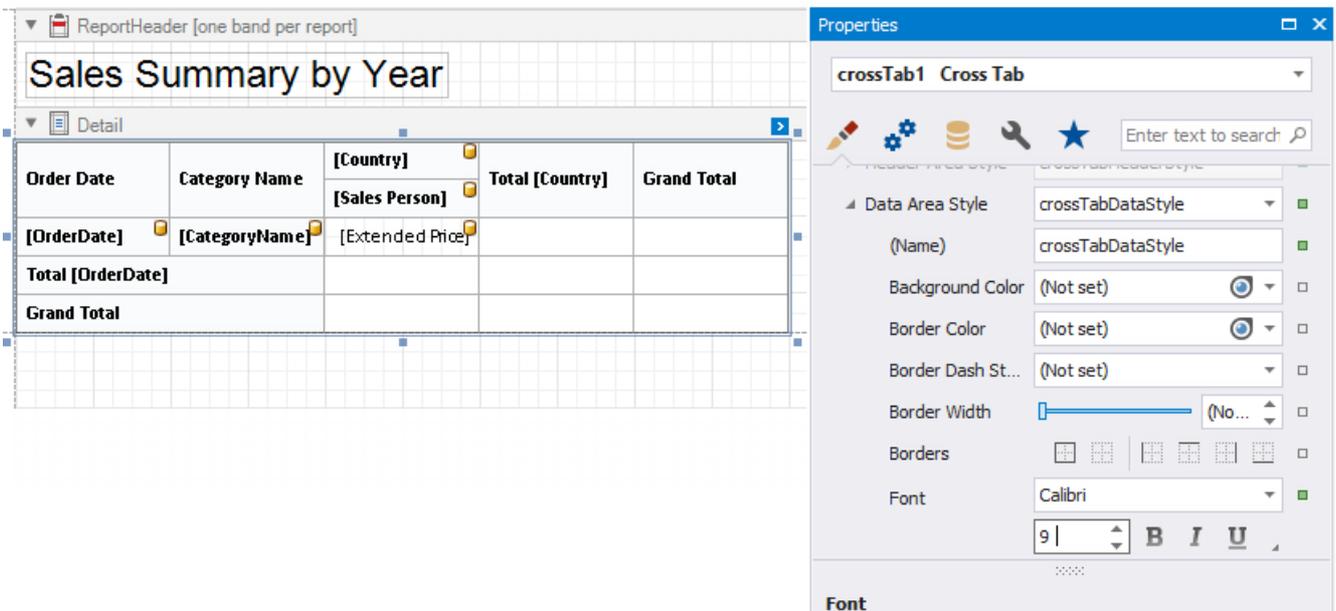
2. Expand the **Header Area Style** property and set the following
 - o properties: Background Color to **Control**
 - o Font to **Calibri 9 Bold**



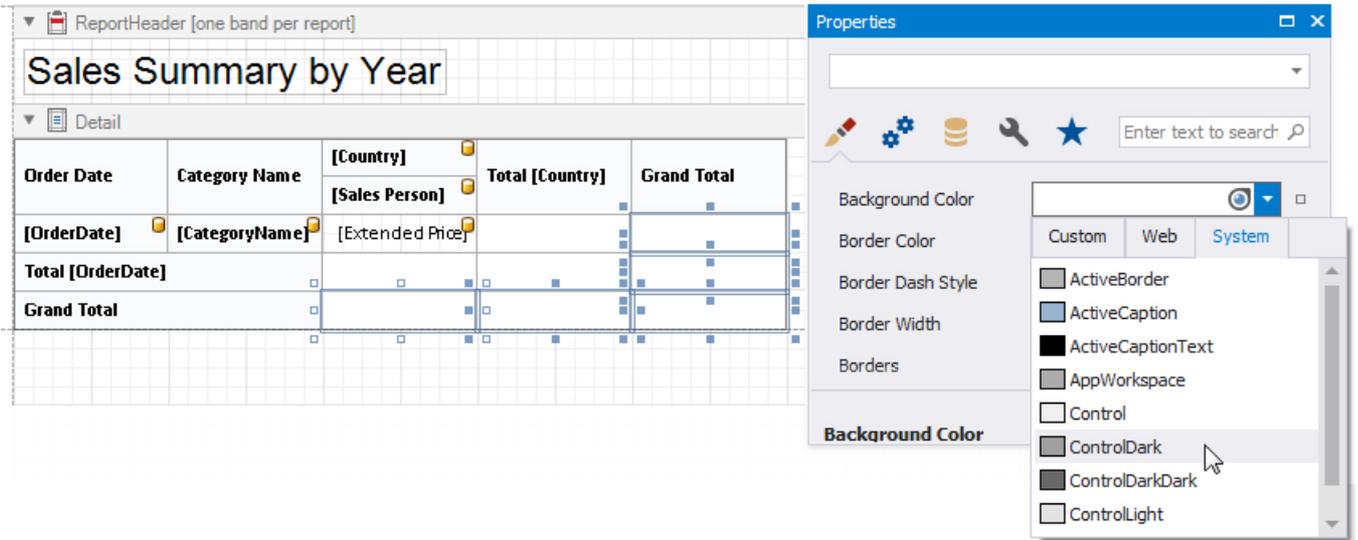
3. Expand the **Total Area Style** property and set **Font** to **Calibri 9 Bold**.



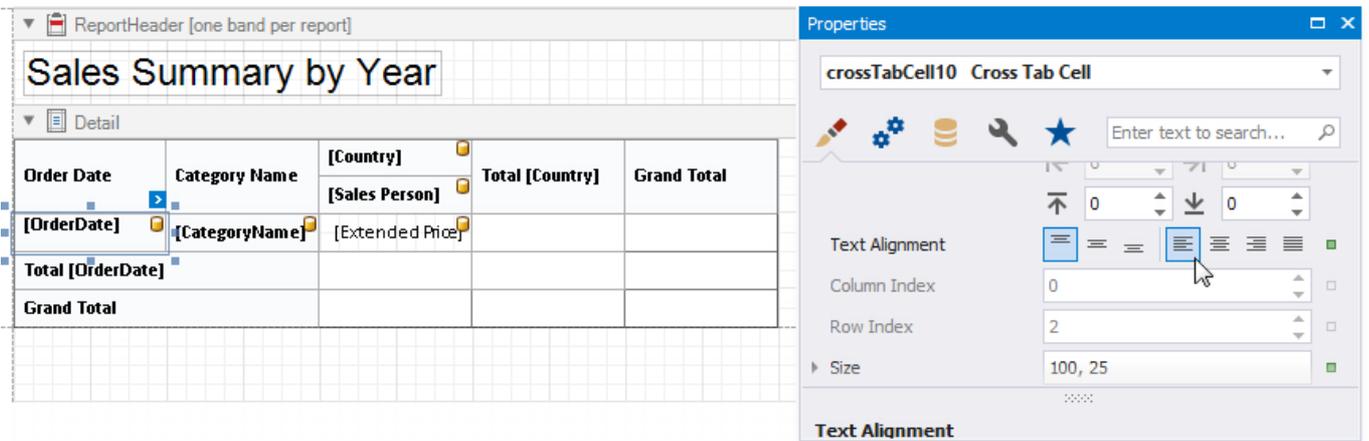
- Expand the **Data Area Style** property and set Font to **Calibri 9**.



- Hold down SHIFT or CTRL, and select the cells that display the grand total values. Go to the **Properties** window and set **Background Color** to **ControlDark**. This value applies to the selected cells only and overrides the value specified at the area level.



6. Select the row header cell and set **Text Alignment** to **Top Left**.

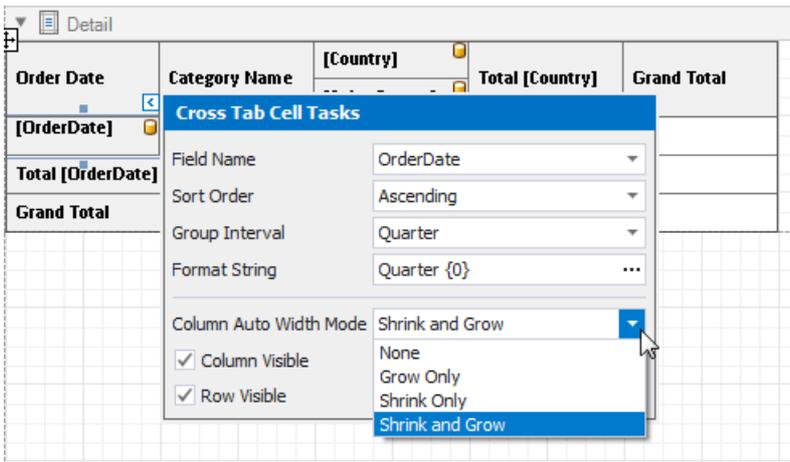


		UK				Total UK
		Anne Dodswort	Michael Suyama	Robert King	Steven Buchana	
Quarter 1	Beverages	\$12,170.00	\$4,171.30	\$11,264.56	\$7,769.65	\$35,375.51
	Condiments	\$4,173.50	\$505.00	\$1,324.50	\$1,050.45	\$7,053.45
	Confections	\$1,366.75	\$517.14	\$2,583.60	\$2,338.40	\$6,805.89
	Dairy Products	\$3,602.30	\$3,950.13	\$3,960.00	\$11,352.20	\$22,864.63
	Grains/Cereals		\$1,971.70	\$4,866.50	\$2,541.56	\$9,379.76
	Meat/Poultry	\$3,563.76	\$3,840.85	\$876.00	\$228.00	\$8,508.61
	Produce		\$2,365.90	\$2,467.92	\$754.72	\$5,588.54
	Seafood	\$2,723.15	\$1,973.27	\$1,564.39	\$1,582.70	\$7,843.51
Total Quarter 1		\$27,599.46	\$19,295.29	\$28,907.47	\$27,617.68	\$103,419.90
Quarter 2	Beverages	\$1,626.20	\$1,906.60	\$5,786.15	\$651.50	\$9,970.45
	Condiments	\$1,836.70				

Adjust the Content Size

1. Use a cell's **Column Auto Width Mode** property to specify a cell width calculation method. The

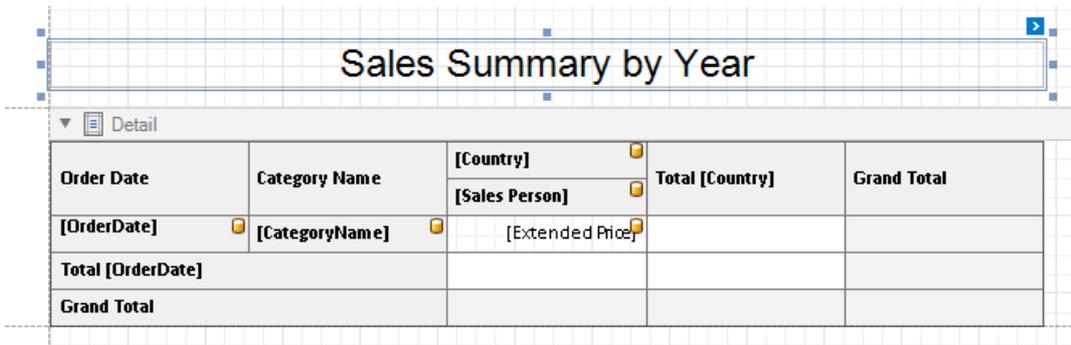
Report Wizard sets this property to **Shrink And Grow** for row headers and to **None** for other cells.



2. Resize the Cross Tab. You can also resize the individual rows and columns.



3. Move the report title to the **Top Margin band** to repeat the title on each page and make the Cross Tab occupy the entire page area.



Create a Balance Sheet

This tutorial describes how to use the Cross Tab control to create a **Balance Sheet** report.

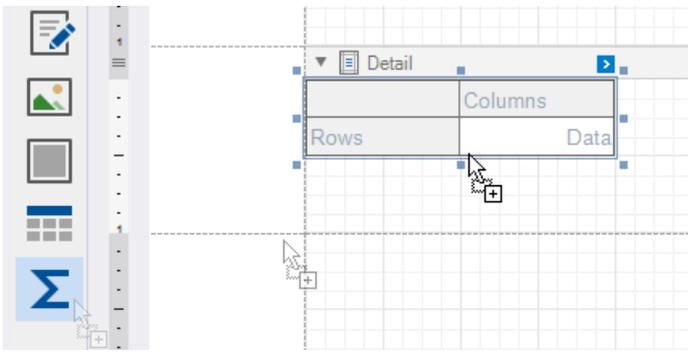
Balance Sheet			
	2017	2018	2019
Assets			
Current assets			
Cash and cash equivalents	13,692.56	17,532.10	11,910.76
Marketable securities	24,187.44	14,629.48	21,956.18
Accounts receivable trade, less allowances for doubtful accounts	11,155.68	10,363.31	10,260.00
Inventories	7,139.41	8,398.09	7,128.75
Total Current assets	56,175.09	50,922.98	51,255.69
Long-term assets			
Property, plant and equipment, net	16,244.50	13,576.09	13,911.89
Intangible assets, net	28,199.35	24,374.22	28,860.46
Goodwill	20,982.49	22,112.28	20,378.70
Equity and long-term investments	6,225.03	6,071.37	6,592.01
Deferred taxes on income	12,139.94	11,442.37	11,928.68
Other assets	3,777.55	5,015.98	4,372.08
Total Long-term assets	87,568.86	82,592.31	86,043.82
Total Assets	143,743.95	133,515.29	137,299.51
Liabilities and Shareholders Equity			
	30,140.70	32,453.05	30,571.28
Shareholders equity			
Preferred stock - without par value	-	-	-
Common stock - par value \$1.00 per share	8,440.18	8,123.28	6,597.07
Accumulated other comprehensive income	(5,531.59)	(5,683.68)	(5,117.93)
Retained earnings	17,461.54	19,101.24	21,816.32
Total Shareholders equity	20,370.13	21,540.84	23,295.46
Total Liabilities and Shareholders Equity	75,406.80	75,695.15	75,210.42

Add a Cross Tab and Bind It to Data

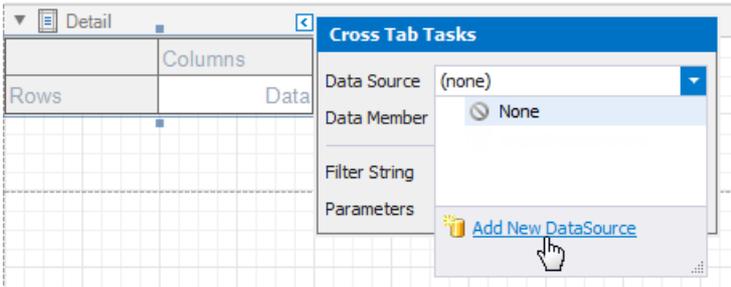
1. Invoke the Report Wizard and [add a blank report](#) to your application.
2. Drop the Cross Tab control from the Toolbox onto the report's [Detail band](#).

Tip

This tutorial shows how to configure a Cross Tab using the [Report Wizard](#). See [Create a Cross-Tab Report](#) for information on how to use the Cross-Tab Report Wizard.

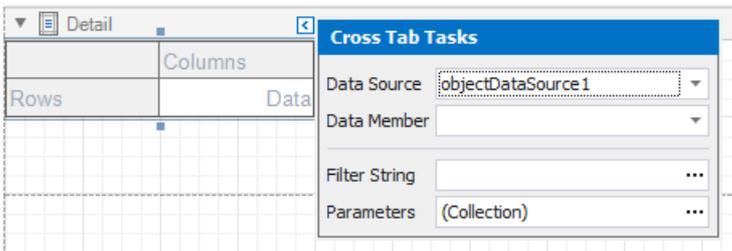


3. Click the Cross Tab's smart tag, expand the **Data Source** property's drop-down menu and click **Add New Data Source**.

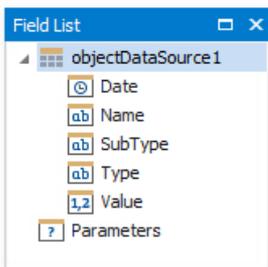


4. Use the invoked [Data Source Wizard](#) to bind the Cross Tab to a data source.

Click **Finish** to complete the Data Source Wizard and assign the created data source to the Cross Tab.



The data source structure becomes available in the [Field List](#).



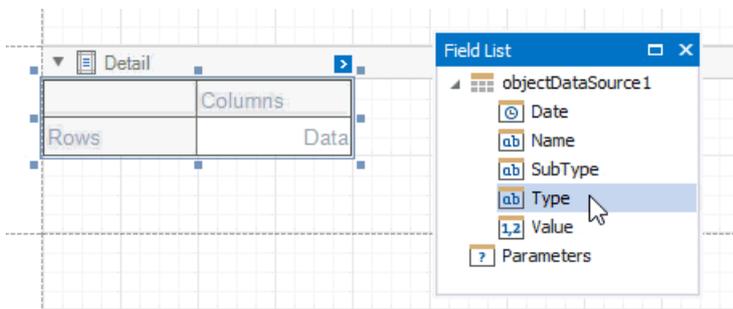
O Not e

Ensure that the report's **Data Source** property is not set if you place a Cross Tab into the [Detail band](#). Otherwise, the Cross Tab data is printed as many times as there are rows in the report data source.

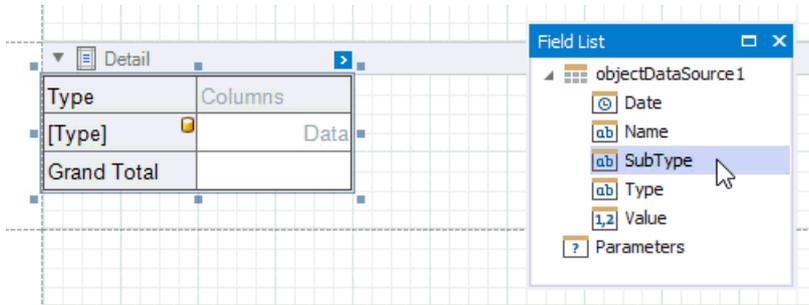
Define the Cross Tab Layout

1. Drop data fields from the Field List onto the Cross Tab's areas to define the Cross Tab's rows, columns, and data.

A row is added to the bottom of the Cross Tab to display grand total values calculated against the added row or column header.



Drop nested row headers next to the parent header cells to create a hierarchy.



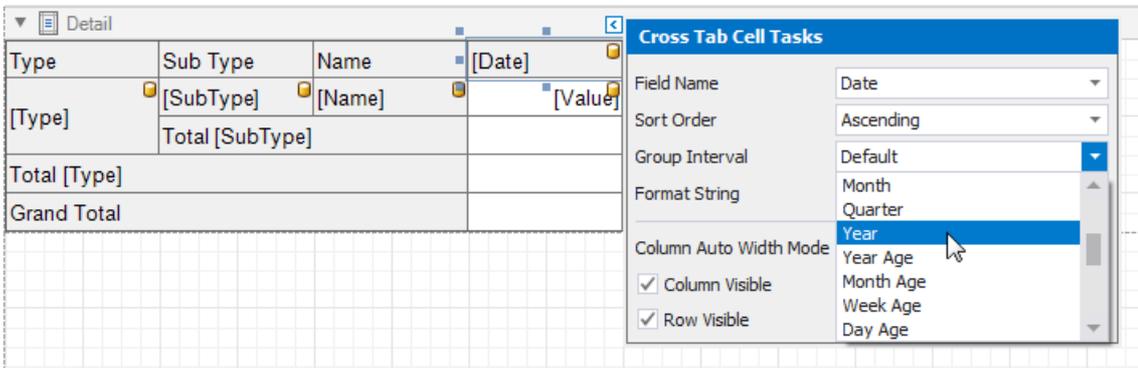
Switch to Print Preview to see the Cross Tab populated with data.

Type	Sub Type	Name	1/1/2017 12:0	2/1/2017 12:0	3/1/2017 12:0	4/1/2017 12:0	
Assets	Current assets	Accounts rece	717.91	576.91	1309.23	510.58	
		Cash and cas	1147.38	1146.13	977.22	964.64	
		Inventories	541.96	1168.09	399.05	230.11	
		Marketable se	1592.41	649.88	2873.53	2973.93	
	Total Current assets			3999.66	3541.01	5559.03	4679.26
	Long-term assets	Defered taxes	822.59	934.92	643.81	1437.04	
		Equity and lon	984.86	452.78	606.42	598.76	
		Goodwill	1212.58	2374.64	2419.77	1380.61	
		Intangible ass	1998.02	2873.94	2754.26	1581.82	
		Other assets	622.34	366.89	180.77	602.68	
		Property, plan	1704.52	1747.78	1687.51	1552.37	
Total Long-term assets			7344.91	8750.95	8292.54	7153.28	
Total Assets			11344.57	12291.96	13851.57	11832.54	

Specify Group Settings

As you can see in the image above, the Cross Tab displays data for individual days.

Select the column header cell and click its smart tag. Set the **Group Interval** property to group data.

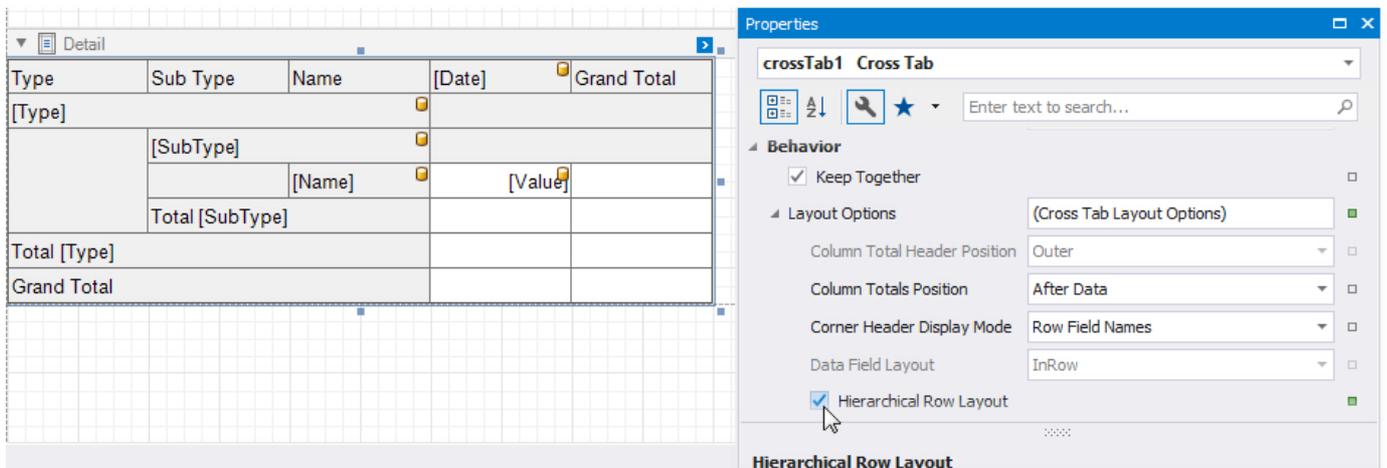


Type	Sub Type	Name	2017	2018	2019	Grand Total	
Assets	Current assets	Accounts receivable	11155.68	10363.31	10260	31778.99	
		Cash and cash equivalents	13692.56	17532.1	11910.76	43135.42	
		Inventories	7139.41	8398.09	7128.75	22666.25	
		Marketable securities	24187.44	14629.48	21956.18	60773.1	
	Total Current assets			56175.09	50922.98	51255.69	158353.76
	Long-term assets	Deferred taxes	12139.94	11442.37	11928.68	35510.99	
		Equity and long-term investments	6225.03	6071.37	6592.01	18888.41	
		Goodwill	20982.49	22112.28	20378.7	63473.47	
		Intangible assets	28199.35	24374.22	28860.46	81434.03	
		Other assets	3777.55	5015.98	4372.08	13165.61	
		Property, plant, and equipment	16244.5	13576.09	13911.89	43732.48	
	Total Long-term assets			87568.86	82592.31	86043.82	256204.99
	Total Assets			143743.95	133515.29	137299.51	414558.75
			Accounts payable	7737.05			

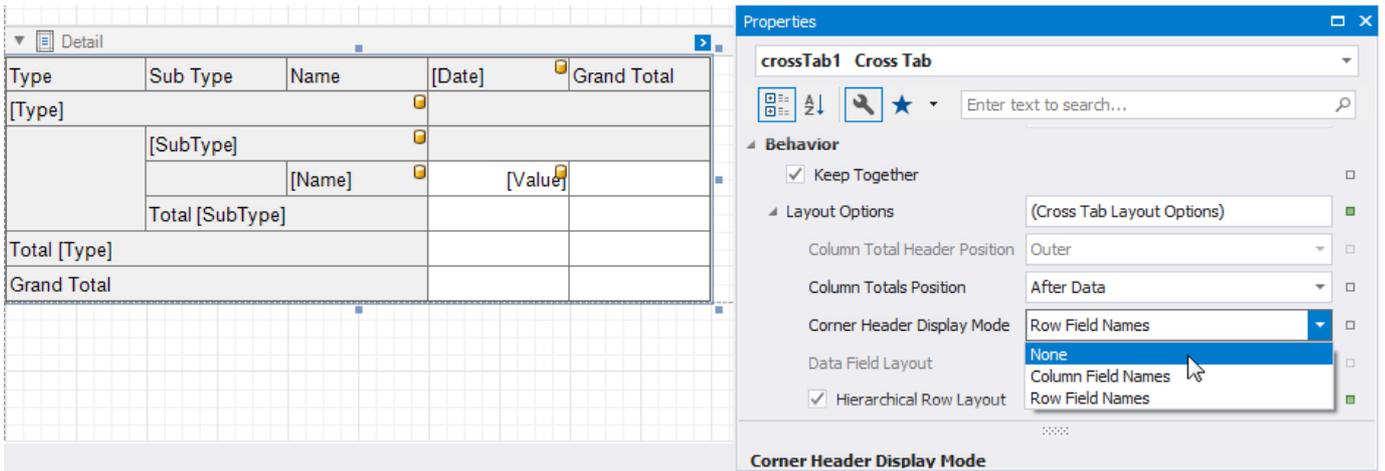
Specify Layout Options

1. The Cross Tab control stacks row headers horizontally. You can change the view so that parent values span the entire row header panel width.

Select the Cross Tab and switch to the **Property Grid**. Expand the **Layout Options** group and enable the **Hierarchical Row Layout** property.



- Set the **Corner Header Display Mode** property to **None** to merge cells in the top-left corner into a single empty cell.



Switch to Print Preview to see the result.

		2017	2018	2019	Grand Total
Assets					
Current assets					
	Accounts rec	11155.68	10363.31	10260	31778.99
	Cash and cas	13692.56	17532.1	11910.76	43135.42
	Inventories	7139.41	8398.09	7128.75	22666.25
	Marketable s	24187.44	14629.48	21956.18	60773.1
	Total Current assets	56175.09	50922.98	51255.69	158353.76
Long-term assets					
	Deferred taxes	12139.94	11442.37	11928.68	35510.99
	Equity and lo	6225.03	6071.37	6592.01	18888.41
	Goodwill	20982.49	22112.28	20378.7	63473.47
	Intangible ass	28199.35	24374.22	28860.46	81434.03
	Other assets	3777.55	5015.98	4372.08	13165.61
	Property, plan	16244.5	13576.09	13911.89	43732.48
	Total Long-term assets	87568.86	82592.31	86043.82	256204.99
	Total Assets	143743.95	133515.29	137299.51	414558.75
Liabilities and Shareholders Equity					

Hide Grand Totals

- Select the bottom right cell and click its smart tag. Disable the **Row Visible** and **Column Visible** properties to hide the row and column that display grand total values. Invisible cells are filled with a hatch brush.

	2017	2018	2019
Assets			
Current assets			
Accounts receivable trade, less allowances for doubt	11155.68	10363.31	10260
Cash and cash equivalents	13692.56	17532.1	11910.76
Inventories	7139.41	8398.09	7128.75
Marketable securities	24187.44	14629.48	21956.18
Total Current assets	56175.09	50922.98	51255.69
Long-term assets			
Deferred taxes on income	12139.94	11442.37	11928.68
Equity and long-term investments	6225.03	6071.37	6592.01
Goodwill	20982.49	22112.28	20378.7
Intangible assets, net	28199.35	24374.22	28860.46
Other assets	3777.55	5015.98	4372.08
Property, plant and equipment, net	16244.5	13576.09	13911.89
Total Long-term assets	87568.86	82592.31	86043.82
Total Assets	143743.95	133515.29	137299.51
Liabilities and Shareholders Equity			
Shareholders equity			
Accumulated other comprehensive income	-5531.59	-5683.68	-5117.93
Common stock - par value \$1.00 per share	8440.18	8123.28	6597.07
Preferred stock - without par value	0	0	0
Retained earnings	17461.54	19101.24	21816.32
Total Shareholders equity	20370.13	21540.84	23295.46
Total Liabilities and Shareholders Equity	75406.8	75695.15	75210.42

Cell Tasks

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Visible

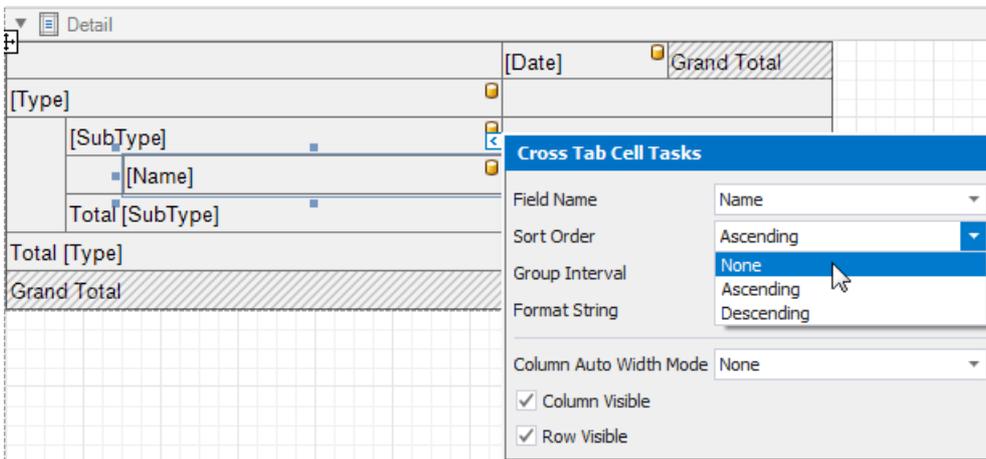
2. Resize the Cross Tab. You can also resize individual rows and columns.

	[Date]	[Grand Total]
[Type]		
[SubType]		
[Name]	[Value]	
Total [SubType]		
Total [Type]		
Grand Total		

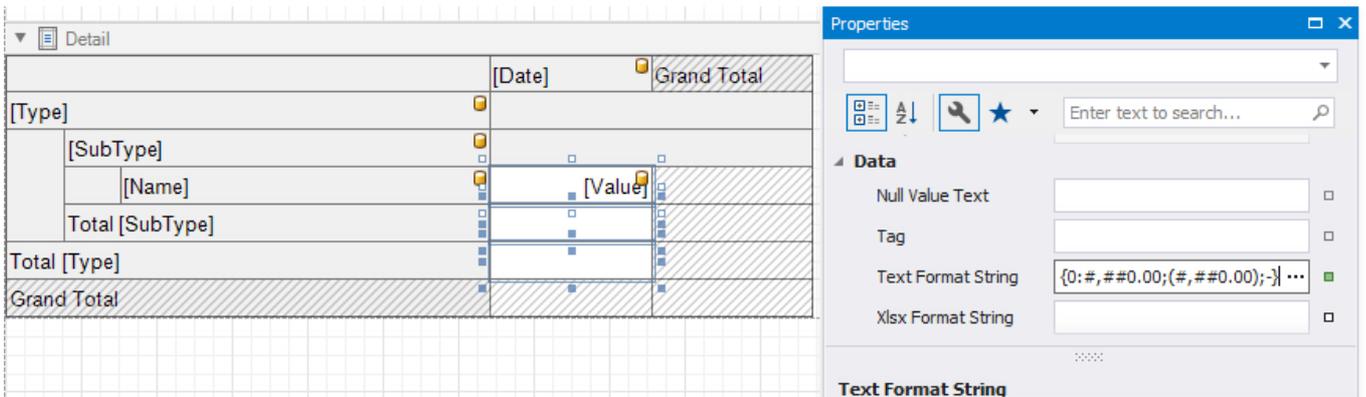
The Cross Tab control no longer displays grand total values.

Sort and Format Data

1. Select the row sub-header cell and change its sort order. The Cross Tab sorts row and column field values in ascending order. Set the **Sort Order** property to **None** to restore the original data source order.



2. Format the data. Hold down SHIFT or CTRL and select cells. Specify the cells' **Text Format String** property.



	2017	2018	2019
Assets			
Current assets			
Cash and cash equivalents	13,692.56	17,532.10	11,910.76
Marketable securities	24,187.44	14,629.48	21,956.18
Accounts receivable trade, less allowances for doubt	11,155.68	10,363.31	10,260.00
Inventories	7,139.41	8,398.09	7,128.75
Total Current assets	56,175.09	50,922.98	51,255.69
Long-term assets			
Property, plant and equipment, net	16,244.50	13,576.09	13,911.89
Intangible assets, net	28,199.35	24,374.22	28,860.46
Goodwill	20,982.49	22,112.28	20,378.70
Equity and long-term investments	6,225.03	6,071.37	6,592.01
Deferred taxes on income	12,139.94	11,442.37	11,928.68
Other assets	3,777.55	5,015.98	4,372.08
Total Long-term assets	87,568.86	82,592.31	86,043.82
Total Assets	143,743.95	133,515.29	137,299.51
Liabilities and Shareholders Equity			
Shareholders equity			
Preferred stock - without par value	-	-	-
Common stock - par value \$1.00 per share	8,440.18	8,123.28	6,597.07
Accumulated other comprehensive income	(5,531.59)	(5,683.68)	(5,117.93)
Retained earnings	17,461.54	19,101.24	21,816.32
Total Shareholders equity	20,370.13	21,540.84	23,295.46
Total Liabilities and Shareholders Equity	75,406.80	75,695.15	75,210.42

Customize Appearance

1. Select the Cross Tab, switch to the **Properties** window and expand the **Styles** property. Use the **General Style** property to specify common appearance settings that apply to all Cross Tab cells. Set the following properties:

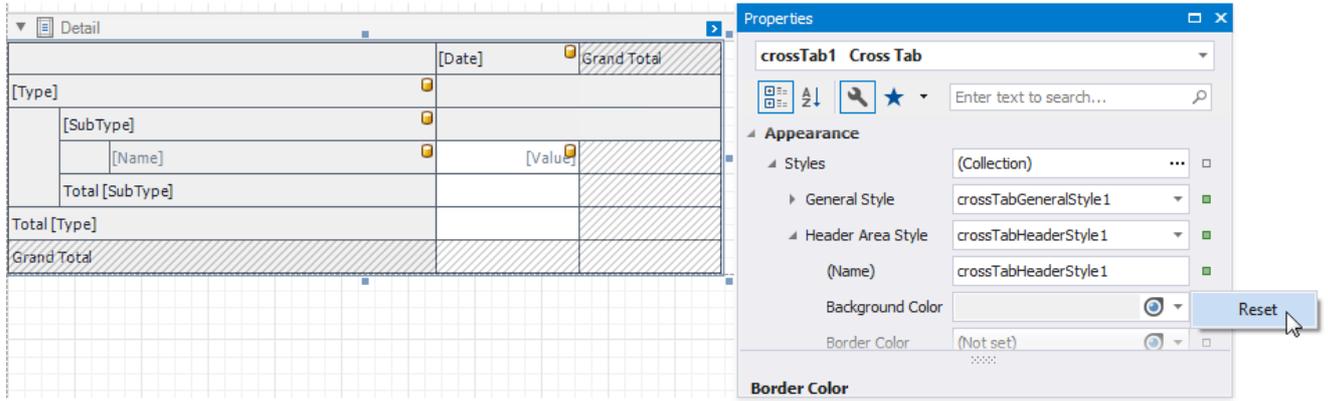
- **Background Color** to **White**
- **Border Color** to **SlateGray**
- **Font** to **Tahoma 8.25**
- **Foreground Color** to **SlateGray**

The screenshot shows a 'Detail' window with a grid. The grid has several rows and columns. The 'Grand Total' row is shaded with diagonal lines. The 'Total' row is shaded with a solid gray background. The cells contain labels like '[Type]', '[SubType]', '[Name]', and 'Total [SubType]'.

2. Expand the **Header Area Style** property and do the following:

reset the **Background Color** property value to inherit the color from the general style;
set the **Foreground Color** property to **MidnightBlue** to override the general foreground color;

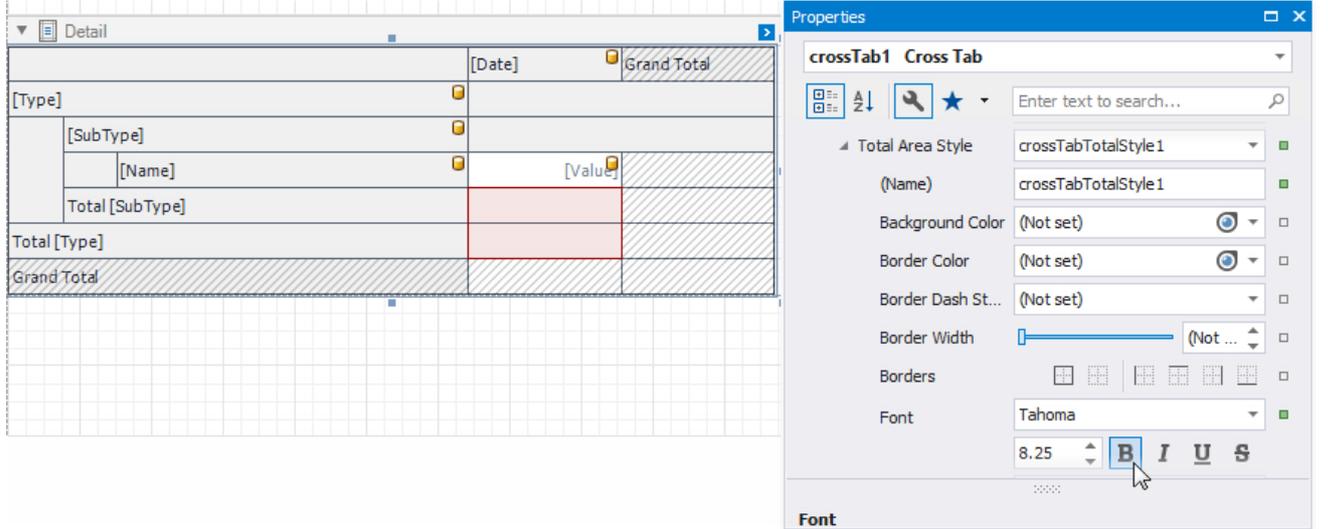
set the **Font** property to **Tahoma 8.25** to override the general font.



3. Expand the **Total Area Style** property and set the following properties to override general settings:

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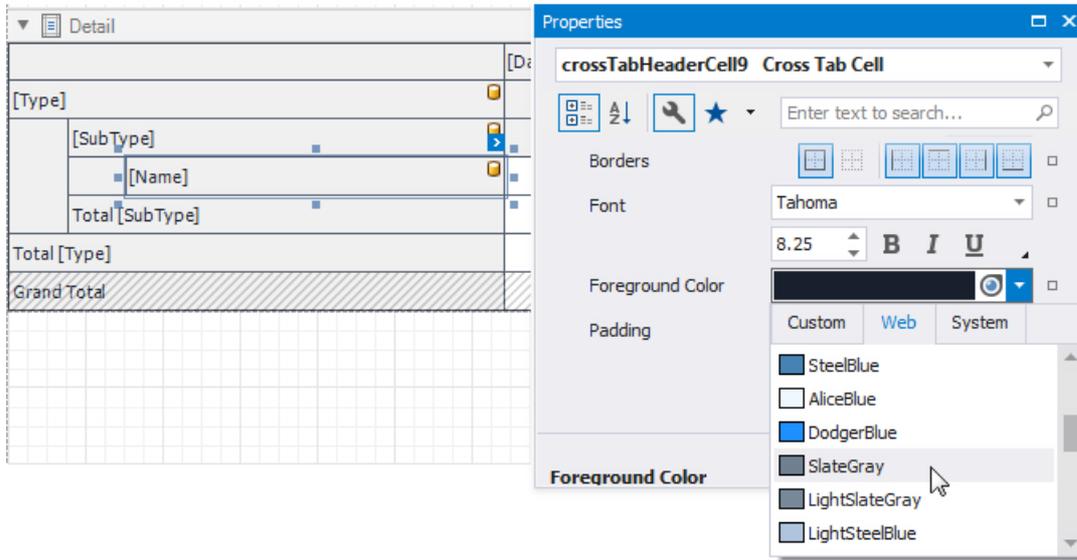
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4. Select the row sub-header cell and set the following appearance properties:

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- o **t**

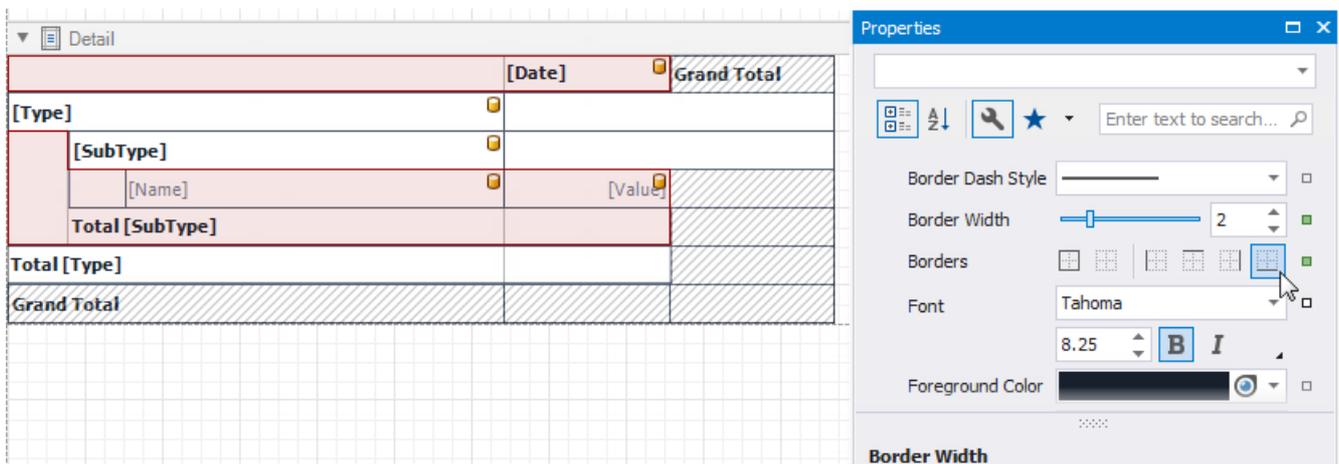
These values apply to the selected cell only and override values specified for the entire header area.

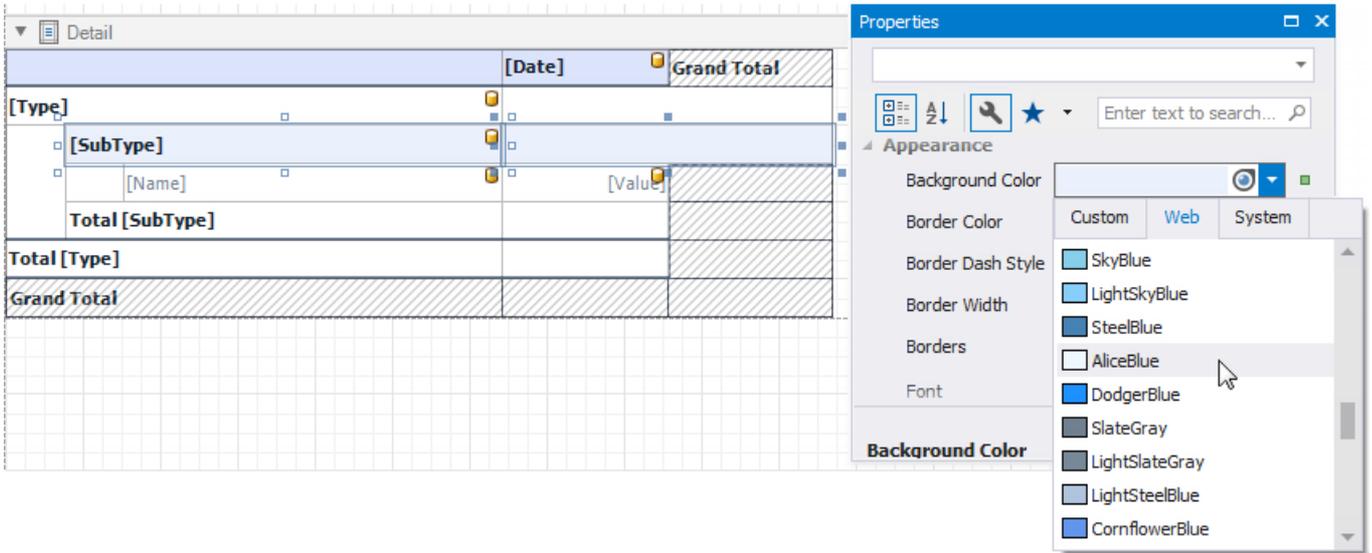


	2017	2018	2019
Assets			
Current assets			
Cash and cash equivalents	13,692.56	17,532.10	11,910.76
Marketable securities	24,187.44	14,629.48	21,956.18
Accounts receivable trade, less allowances for doubtful account	11,155.68	10,363.31	10,260.00
Inventories	7,139.41	8,398.09	7,128.75
Total Current assets	56,175.09	50,922.98	51,255.69
Long-term assets			
Property, plant and equipment, net	16,244.50	13,576.09	13,911.89

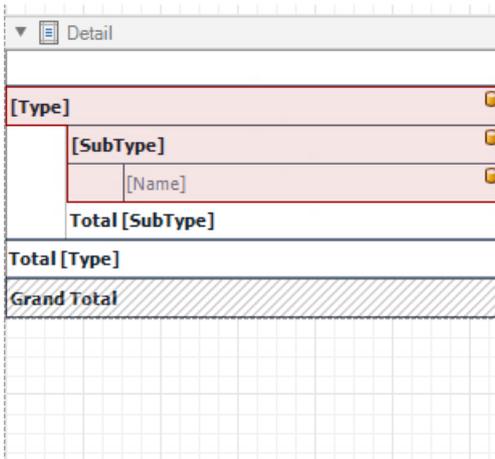
1. Select the cells in the top row and in the rows with total values. Set the **Borders** property to **Bottom** and **Border Width** property to **2**.

2. Select the cells you did not customize in the previous step and set the **Borders** property to **None**.

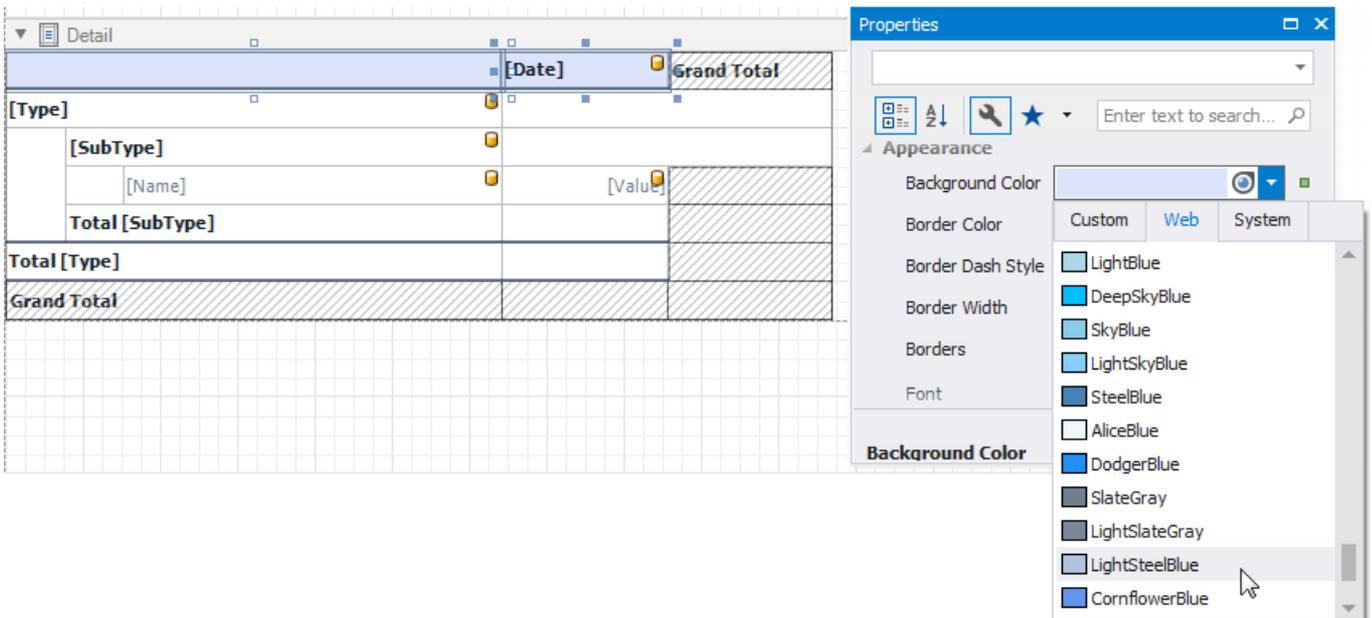


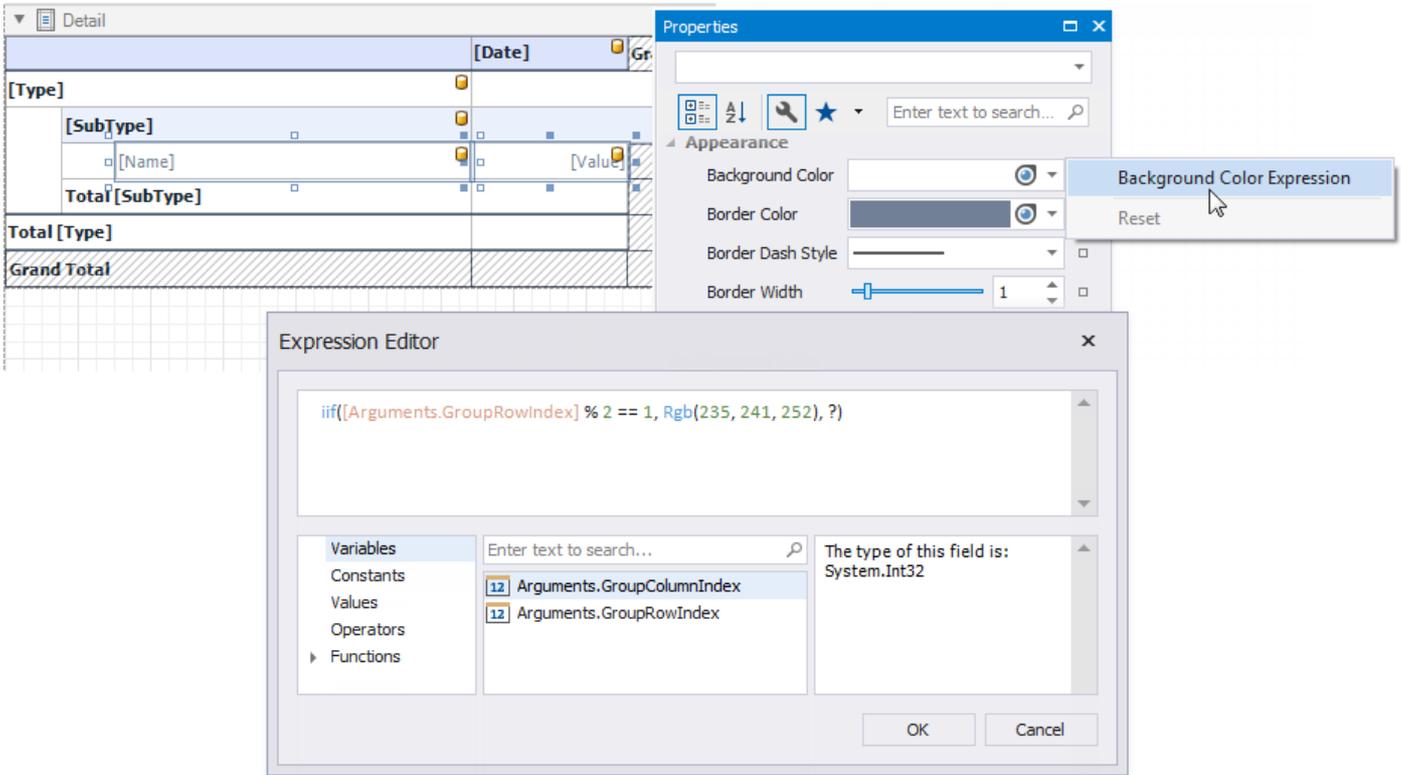


4. Select the row sub-header cell and the next cell in the data area. Set their **Background Color** property to **AliceBlue**.



3. Select the cells in the top row and set the **Background Color** property to **LightSteelBlue**.





the **Expressions** tab. Click the **Background Color** property's marker, select **Background Color Expression** and specify the following expression:

iif([Arguments.GroupRowIndex] % 2 == 1, Rgb(235, 241, 252), ?)

Assets	
Current assets	
Cash and cash equivalents	
Marketable securities	
Accounts receivable trade, less allowances	
Inventories	
Total Current assets	
Long-term assets	
Property, plant and equipment, net	
Intangible assets, net	
Goodwill	
Equity and long-term investments	
Deferred taxes on income	
Other assets	
Total Long-term assets	
Total Assets	
Liabilities and Shareholders Equity	

	2017
Assets	
Current assets	
Cash and cash equivalents	13,692.56
Marketable securities	24,187.44
Accounts receivable trade, less allowances for doubtful accoun	11,155.68
Inventories	7,139.41
Total Current assets	56,175.09
Long-term assets	

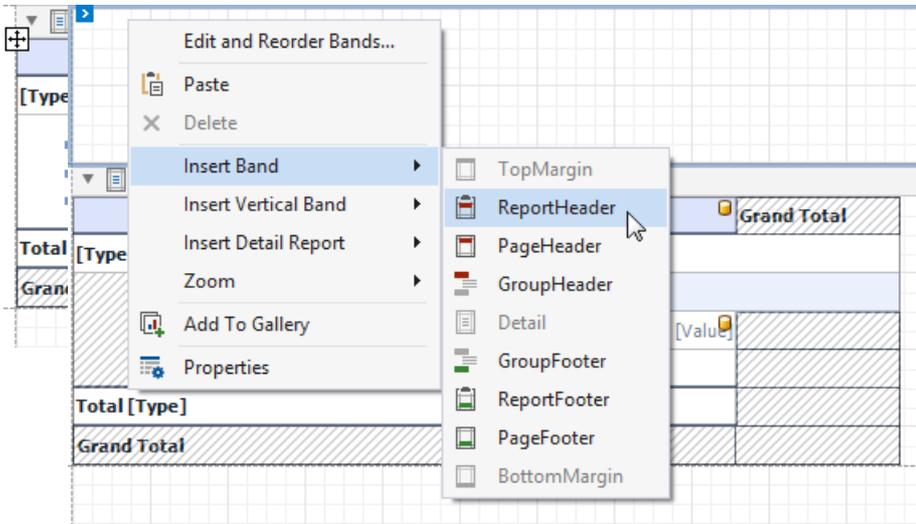
As you can see, the row backgrounds do not start from the page's left border, but have indents. These indents correspond to auxiliary cells in a tree.

Select these auxiliary cells and disable the **Column Visible** property.

Apply Odd and Even Row Styles

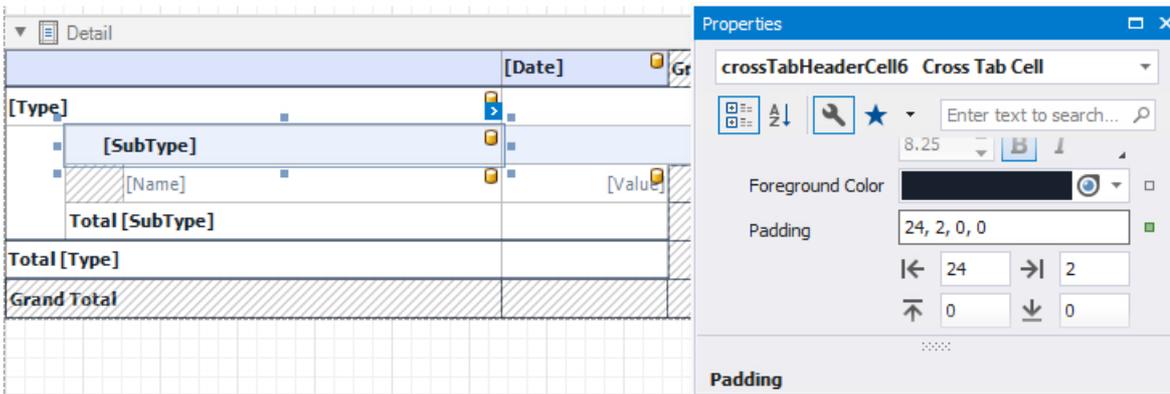
Use the **GroupRowIndex** variable in **expressions** to identify odd and even rows.

Select the row sub-header cell and the next cell in the data area. Go to the **Properties** window and open



To add indents to row field values and imitate a tree-like view, set the **Padding** property for the Cross Tab's cells.

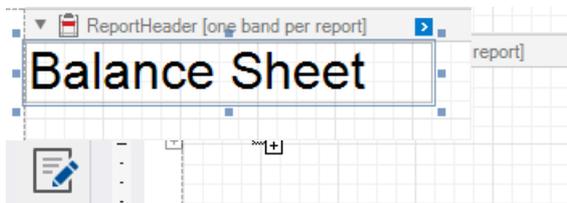
- Drop a **Label** from the Toolbox onto the created Report Header.



	2017	2018	2019
Assets			
Current assets			
Cash and cash equivalents	13,692.56	17,532.10	11,910.76
Marketable securities	24,187.44	14,629.48	21,956.18
Accounts receivable trade, less allowances for doubtful accounts	11,155.68	10,363.31	10,260.00
Inventories	7,139.41	8,398.09	7,128.75
Total Current assets	56,175.09	50,922.98	51,255.69
Long-term assets			
Property, plant and equipment, net			

Add a Report Title

- Right-click the report and select **Insert Band / ReportHeader** from the context menu.



3. Double-click the label and type the report title. Specify appearance settings.

4. Switch to Print Preview to see the final result.

Configure Design Settings

The documents in this section describe how to specify a report's various

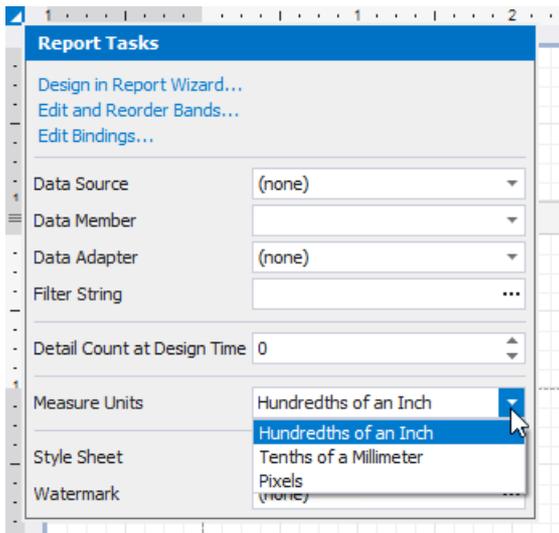
- design settings: [Change a Report's Measurement Units](#)
 - Learn how to switch your reports between using the imperial or metric system for specifying the size and location of report elements, or use pixels as a measurement.
- [Change a Report's Page Settings](#)
 - Learn how to specify the settings of the default printer or page settings that affect the layout of the report's design surface. [Right-To-Left Support](#)
- Learn how to mirror your reports' layout for audiences using a right-to-left writing system.

Change a Report's Measurement Units

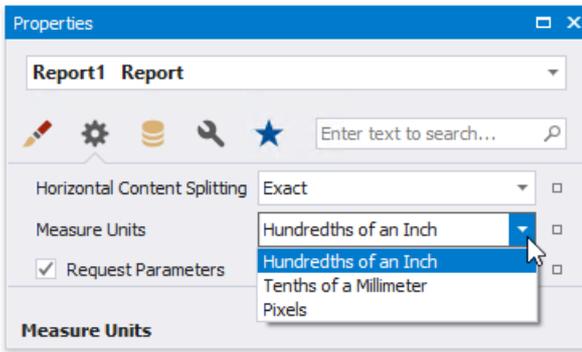
Most metrics of report elements (i.e., element locations, dimensions and margins) can be expressed in units that correspond to one of the following systems of measurement.

- **Imperial system** (in hundredths of an inch)
 - This is the default system that is assigned to each new report.
- **Metric system** (in tenths of a millimeter)
- **Screen coordinates** (in pixels)

To assign a system of measurements to a report, use its **Measure Units** property. You can specify this property either in the report's smart tag...



... or in the [Property Grid](#)'s **Behavior** tab.



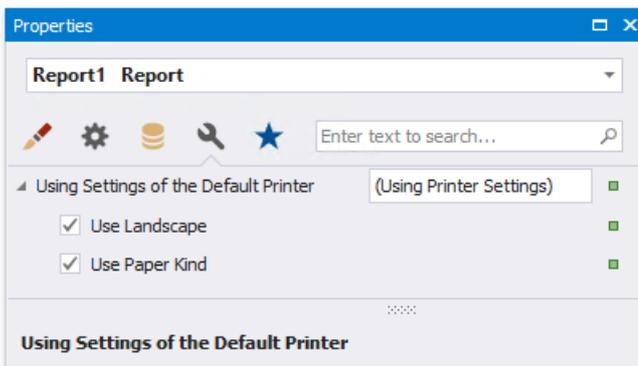
Changing the system of measurement results in converting the corresponding property values and updating the layout of all report elements in the Report Designer. Notably, the system of measurement determines the minimum increment with which an element's [location and size](#) can be changed.

Change a Report's Page Settings

In the Report Designer, page settings of a report can be specified in one of two ways. The first approach forces the default printer settings to be used when the report is printed, while the other one enables you to alter page settings independently.

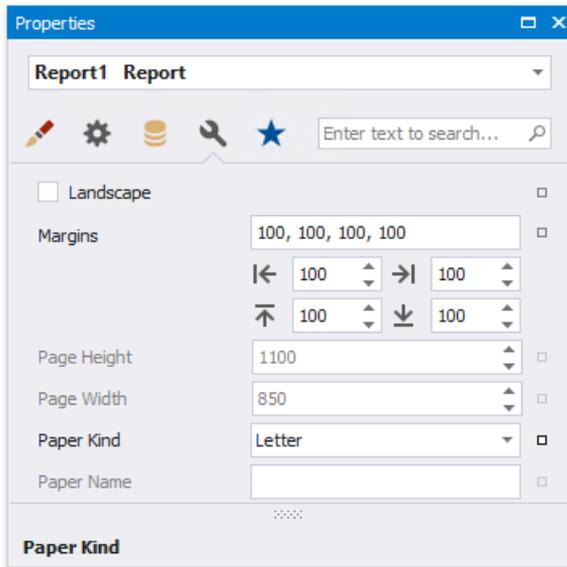
Use Settings of the Default Printer

For the orientation and paper size, you can specify a requirement that applies the corresponding printer settings instead of the report's. In this instance, the page properties in the [Property Grid](#) are disabled and displayed as grayed out. This may be useful when the report is printed in several places with different printers and printer settings.



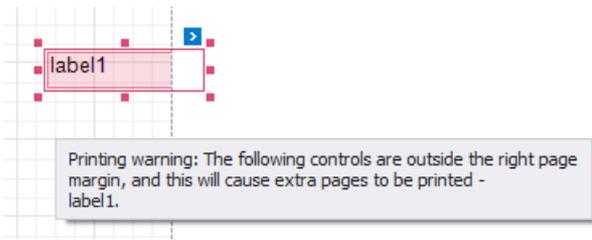
Specify the Report's Page Settings

While designing the report, you can specify the report's page settings in the [Property Grid](#)'s **Miscellaneous** tab:



You can set the page orientation and modify the margins. The margin values are expressed in the report's [measurement units](#). You can select from the predefined paper sizes (**Paper Kind** property), choose **Custom** and create your own paper size, or select one which is already defined for this printer (**Paper Name** property).

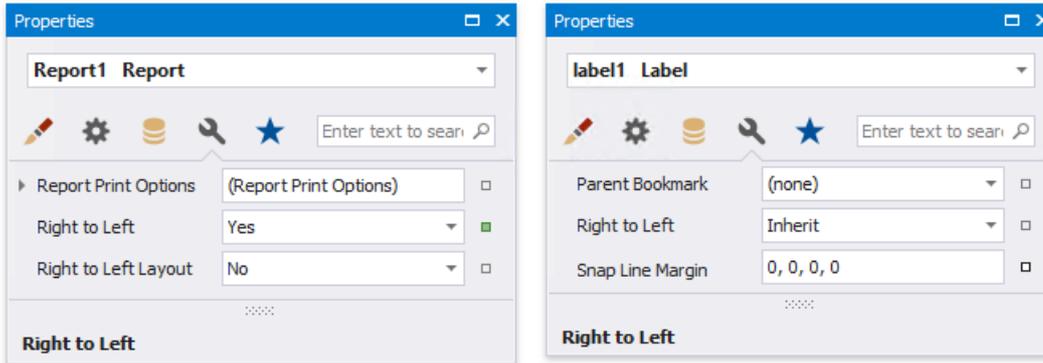
These settings affect the layout of the report's design surface. After their modification, you may notice red warning marks, indicating that the controls go beyond the page width. These warnings can be switched off by setting the **Show Printing Warnings** property of the report to **No**.



You can also modify the page settings in [Print Preview](#) using the [Page Setup](#) dialog.

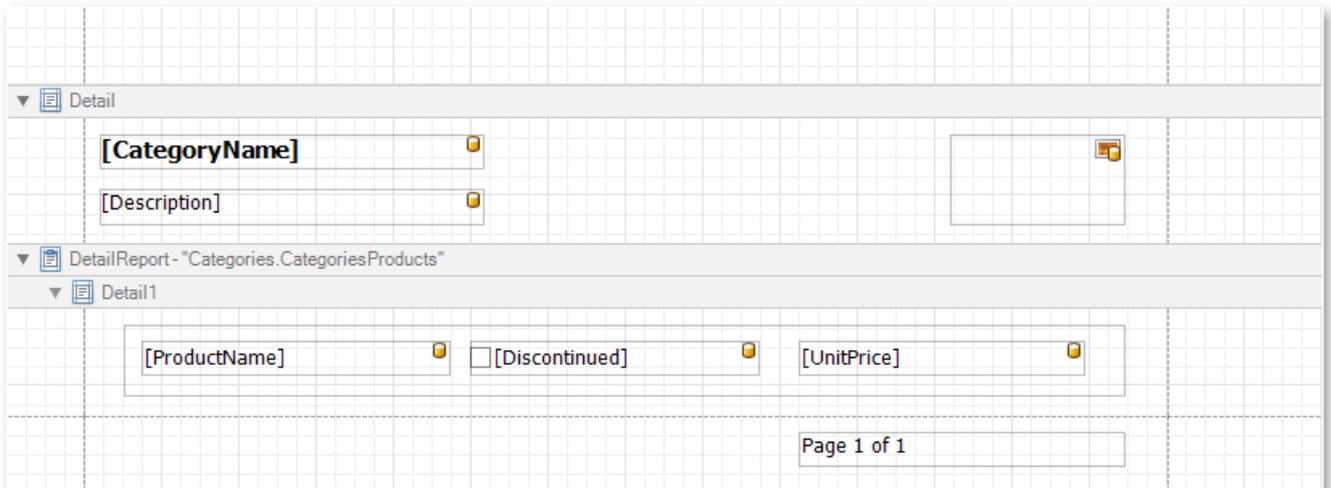
Enable the Right-To-Left Layout

The report and most of the report controls provide the **Right to Left** property.

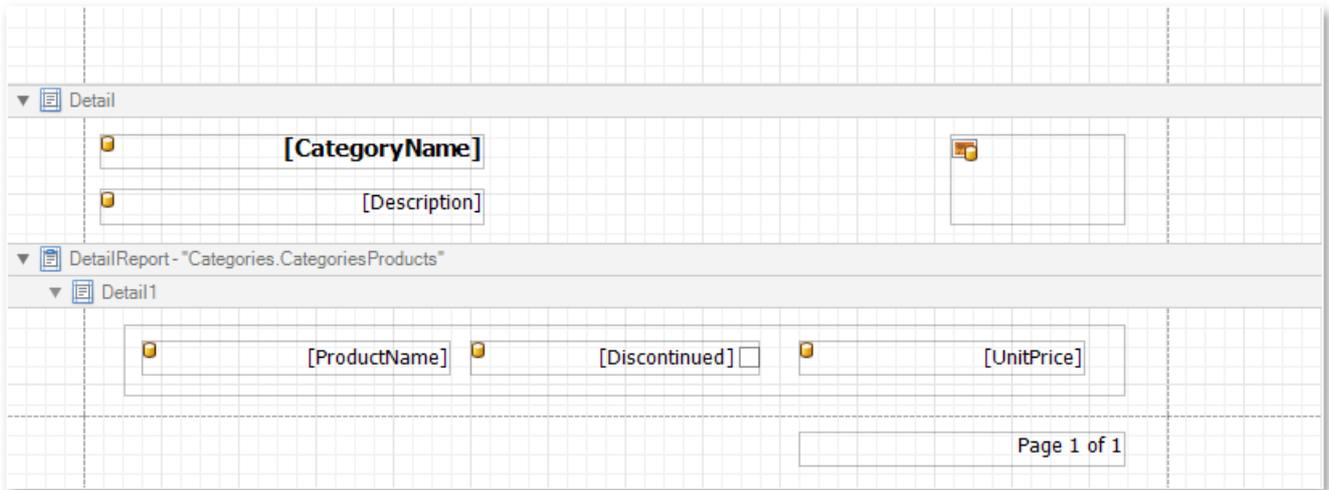


This property specifies content layout within a control (for most controls, this property affects the direction of their text, and for the [Check Box](#), this property also affects the check box position within the control).

- **Left-To-Right**



- **Right-To-Left**

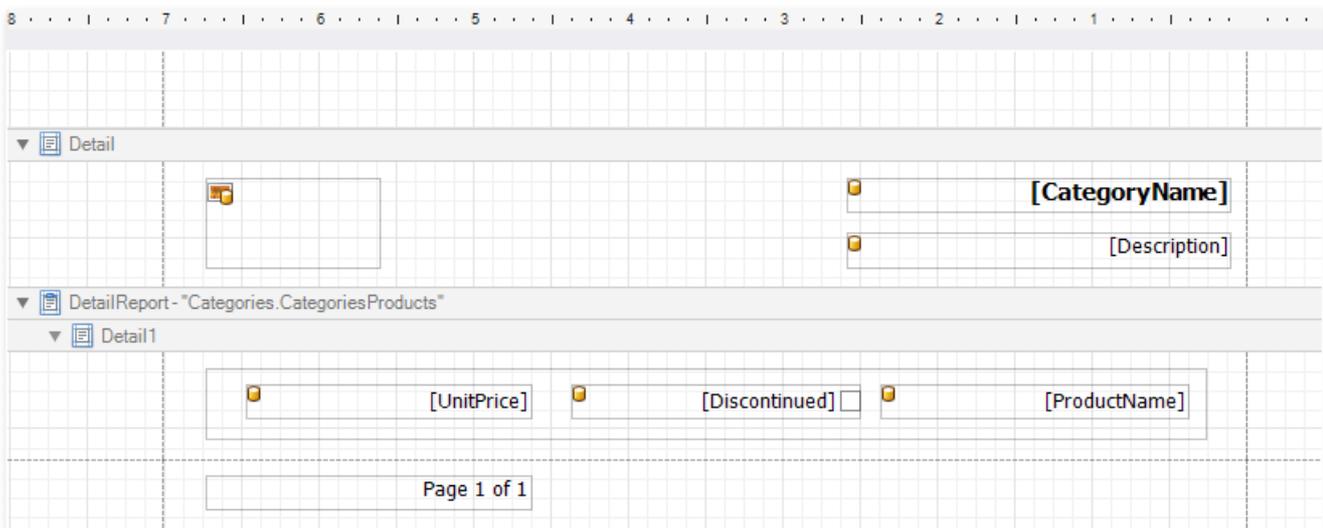


By default, all report controls have this property set to **Inherit**, so enabling it for a report will apply this setting to all its controls. The following controls support this feature:

- [Label](#)
- [Check](#)
- [Box Page](#)
- [Info](#)
- [Panel](#)
- [Pivot](#)
- [Grid](#)
- [Table](#)
- [Table of Contents](#)

For the **Panel** and **Table**, this option only affects the controls contained in them.

When the **Right to Left** property of a report is set to **Yes**, you can also enable the **Right To Left Layout** property that specifies the position of controls within [report bands](#). Enabling the right-to-left layout will also swap the page margins of a document (it will become impossible to place controls outside the right page margin).



The controls' coordinates will remain unchanged and only the point and direction of reference will change (the X coordinate will be calculated starting with the top right corner).

The right-to-left layout is preserved when exporting a report to any of the [supported formats](#) (e.g., PDF, OneStream XF Studio Report Design Guide

Excel, or RTF).

Use Report Elements

The documents in this section describe how to use various controls in a report, manipulate report elements and customize the report layout:

- [Manipulate Report Elements Use Basic](#)
- [Report Controls Use](#)
- [Tables](#)
- [Use Bar Codes](#)
- [Use Charts and Pivot Grids Use Gauges and Sparklines Draw Lines and Shapes](#)

Manipulate Report Elements

The following topics describe how to add various controls to a report, manipulate report elements and customize the report layout:

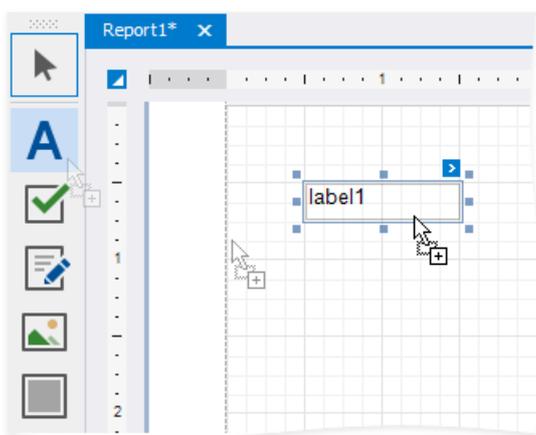
- [Add Controls to a Report](#)
- [Select Report Elements and Access Their Settings Move and Resize Report Elements](#)
- [Apply Styles to Report Elements Copy Report Controls](#)
- [Reuse Report Controls Arrange Report Controls](#)
- [Add Report Controls to Containers Validate the Report Layout](#)

Add Controls to a Report

This document describes how to add [controls](#) to a report.

Add Controls from the Standard Controls Bar

Use the End-User Designer's [Toolbox](#) to add controls to your report.

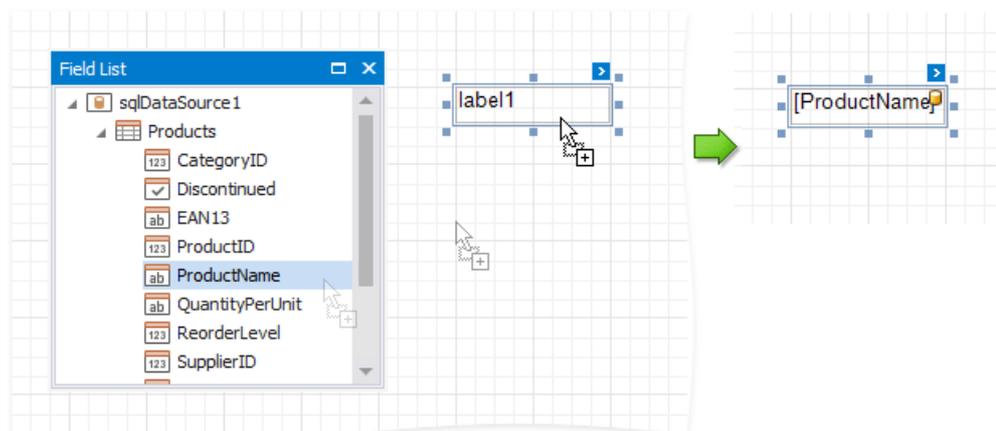


Add Data-Bound Controls from the Field List

You can drag fields from the [Field List](#) onto your report to add data-bound controls, after you [bound](#) your report to a data source.

Add a Control

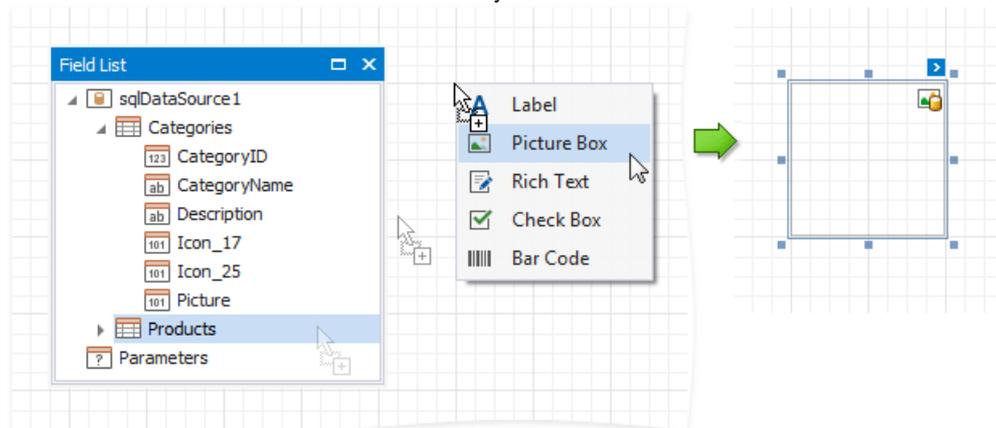
Drag a field from the [Field List](#) and drop it onto the report's surface.



To add a control of specific type, do either of the following:

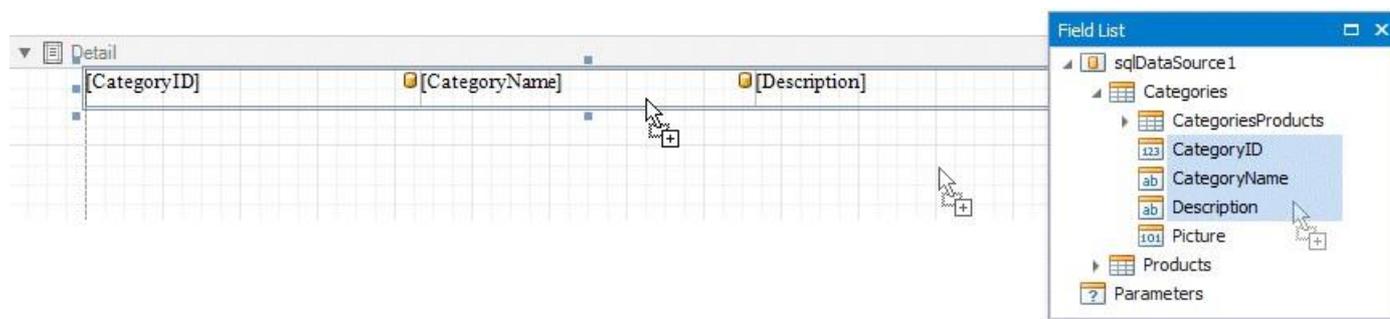
- Hold down the SHIFT key and drop a data field onto a report's surface. Right-click a data field and drop it onto a report's surface.

This invokes a context menu where you can select which control to add.

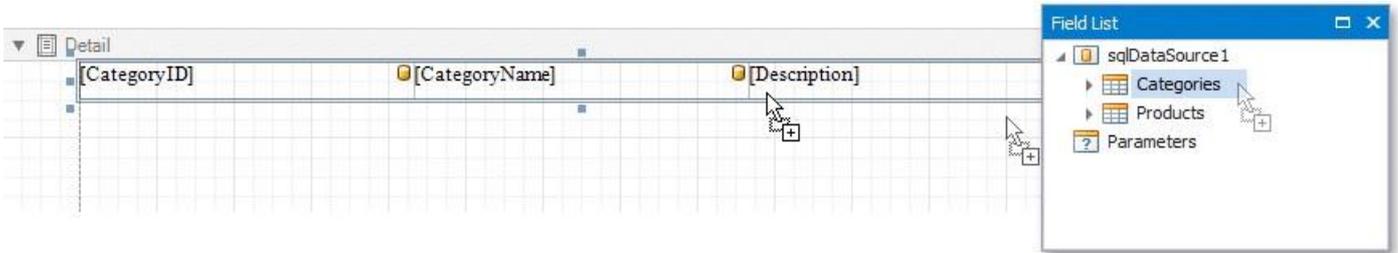


Add a Table

Hold the CTRL or SHIFT key and click several fields. Drop them onto the report's surface to add a table with its cells bound to these fields.

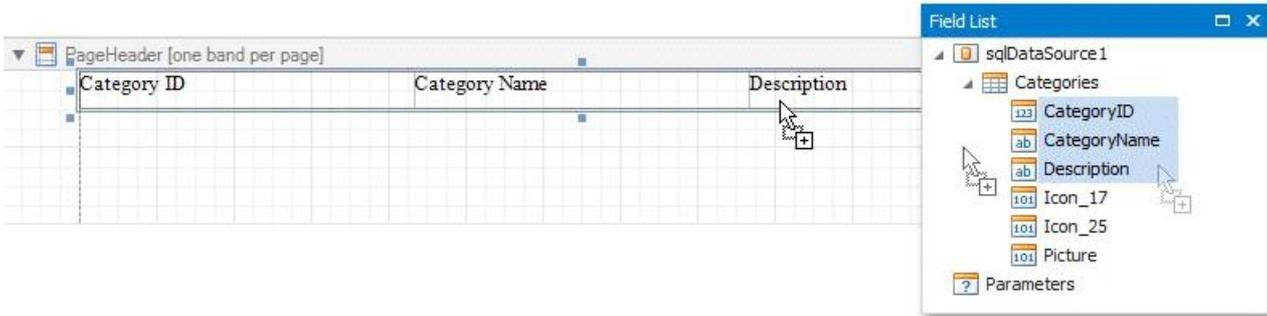


Drop an entire data table from the [Field List](#) to add a report table with columns bound to the data table's fields.



To add column headers, do either of the following:

- Select the fields and hold the CTRL or SHIFT key when you drop them onto a report surface. Drag and drop fields with the right mouse button.

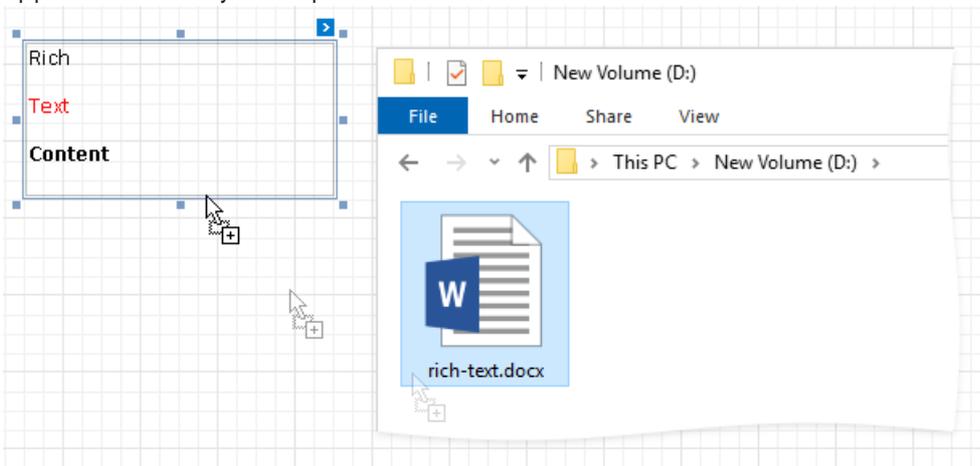


This adds a new table whose cells display the field names.

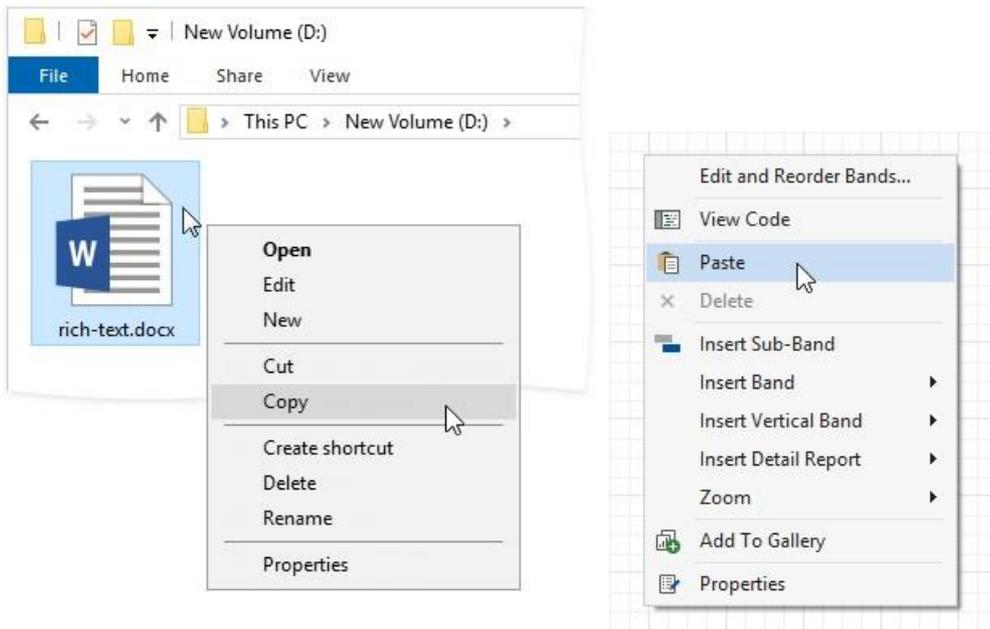
Add Content from External Sources

You can add text and graphics from external applications to your

- reports: Drag a file, text or image from an external application onto your report.



- Copy a file, text or image from an external application, and paste it into your report.



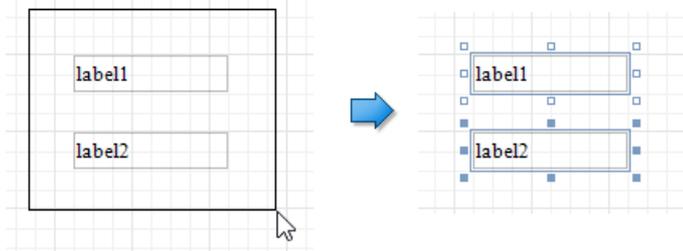
The following table shows which file types transform into report controls:

FILE T YPE	CONTROL
.TXT	A Label control that contains file contents.
.DOC, .DOCX, .RTF, .HTM, .HTML	A Rich Text control that contains file content.
.JPG, .PNG, .BMP, .GIF, .TIF, .SVG	A Picture Box control that contains the image.

Select Report Elements and Access Their Settings

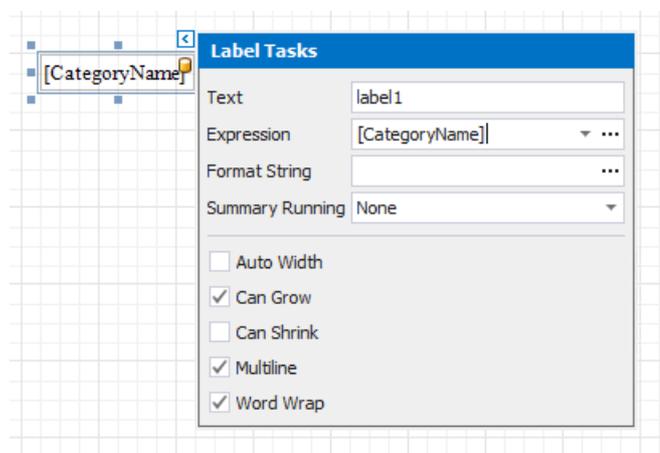
You can click a report control or band to select it, and press TAB/SHIFT+TAB to select the next/previous control. Do one of the following to select multiple report controls:

- Press and hold the SHIFT or CTRL key and click the controls.
- Click an empty place on a report's surface and draw a rectangle around the controls.

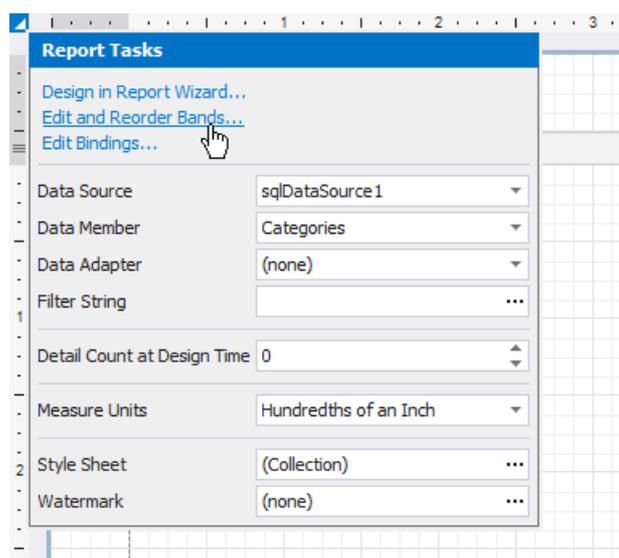


Click the gray area around the design surface to select a report.

You can use smart tags to access the most commonly used element properties. Smart tags are available for reports and most report controls and bands.

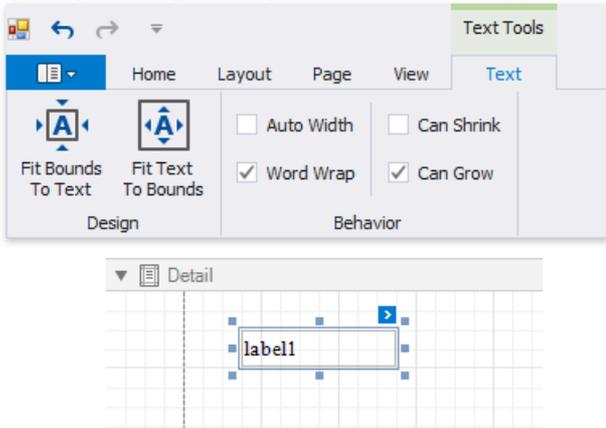


Smart tags can also contain context links that enable you to perform various actions.

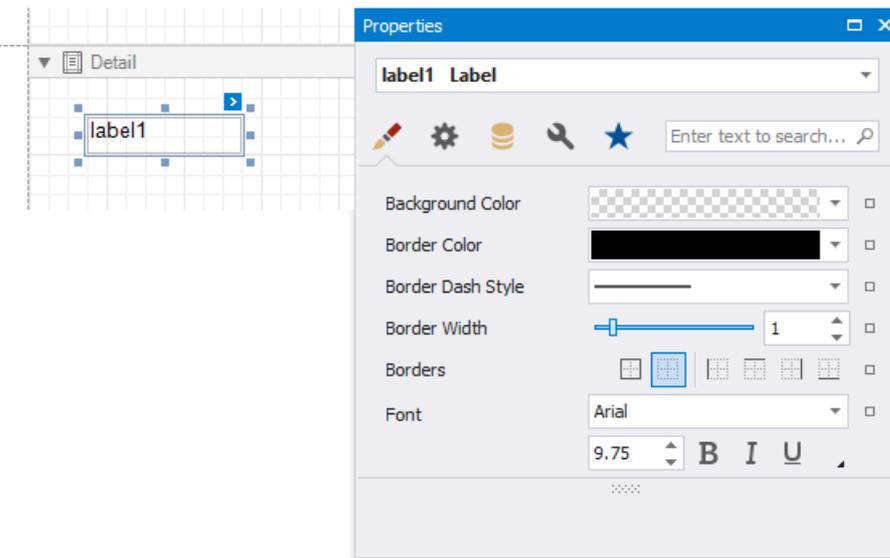


The **Toolbar** provides a corresponding contextual tab when you select a report control. This tab allows you to

specify settings and perform actions applicable to the selected element's type.



You can use the [Property Grid](#) to access the whole set of settings that the selected element supports.

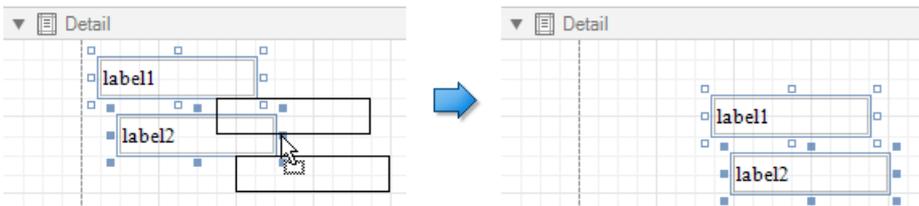


Move and Resize Report Elements

You can use the mouse or keyboard to move a report control to a new location.

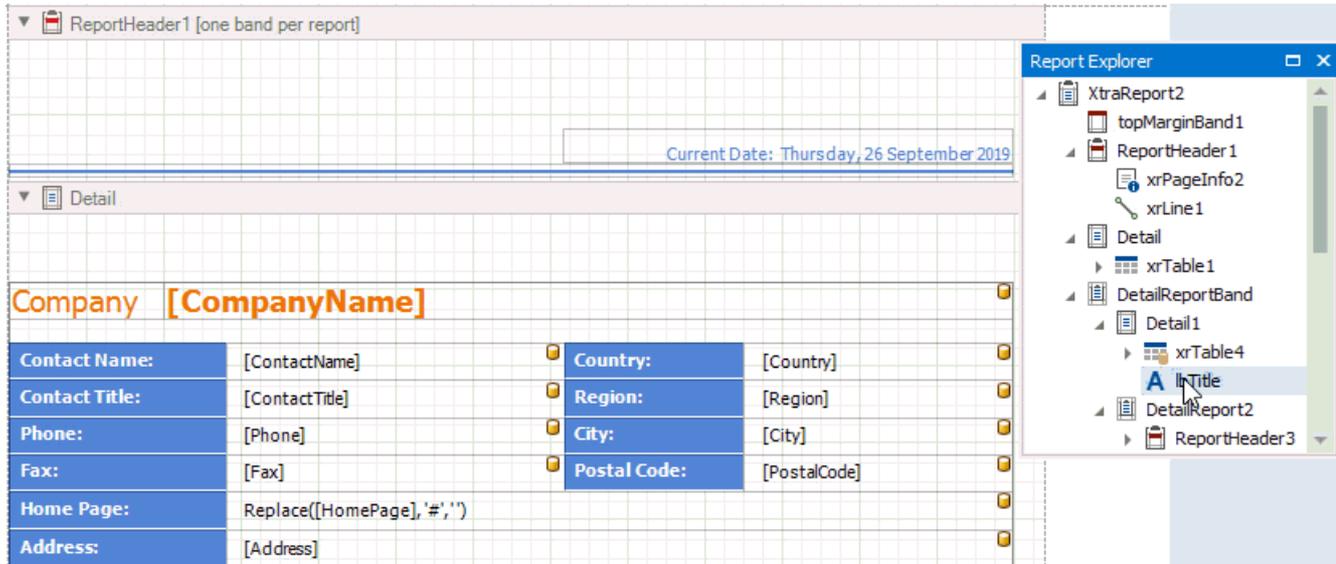


You can [select multiple controls](#) and move them in the same way as individual report controls.



You can also use the [Report Explorer](#) to move a control. You can move controls to other bands (except the **DetailReport** band), or into a **Panel** or **TableCell** controls. Select a control and drag it (either within the Report

Explorer or to the design surface). The drop targets are highlighted when you drag the control over them.

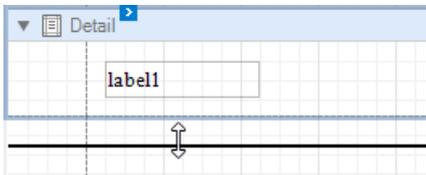


Note

You can drag the TableOfContents control only to the **ReportHeader** and **ReportFooter** bands. To resize a control, select it and then drag a rectangle drawn on its edge or corner.



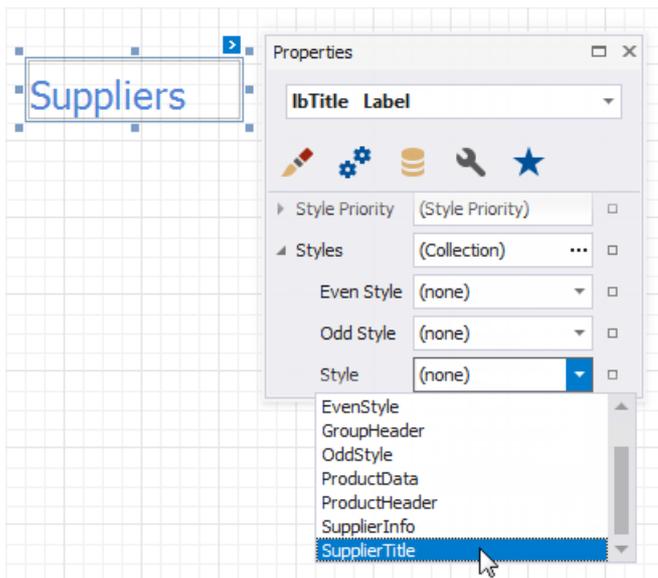
Drag a band's header strip to resize the band.



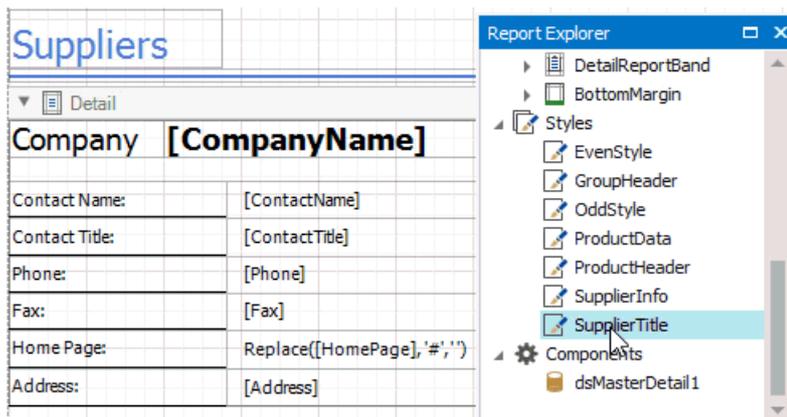
You can also press SHIFT+ARROW or CTRL+SHIFT+ARROW to resize a selected element. See [Arrange Report Controls](#) for information about tools that help you align report controls to each other and layout edges.

Apply Styles to Report Elements

Select a control and switch to the **Property Grid**. Expand the **Styles** group and set the **Style** property to the style name.

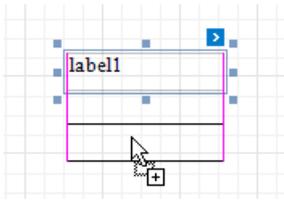


As an alternative, you can drag a style from the [Report Explorer](#) onto a control.



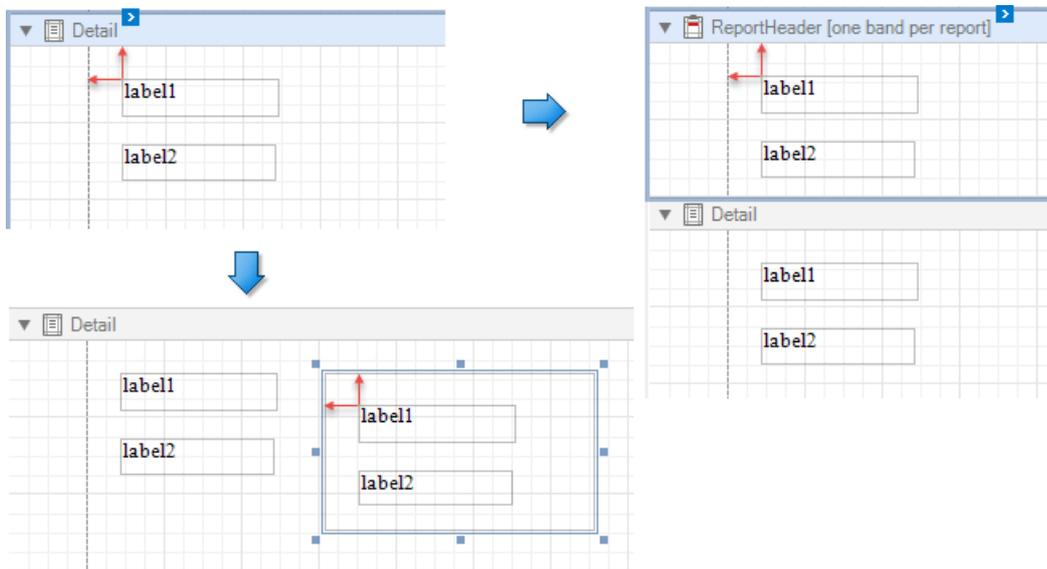
Copy Report Controls

You can clone an existing report control by selecting it using the mouse, holding the CTRL key and moving the mouse to the required location. A cloned control has the same settings as the initial control.



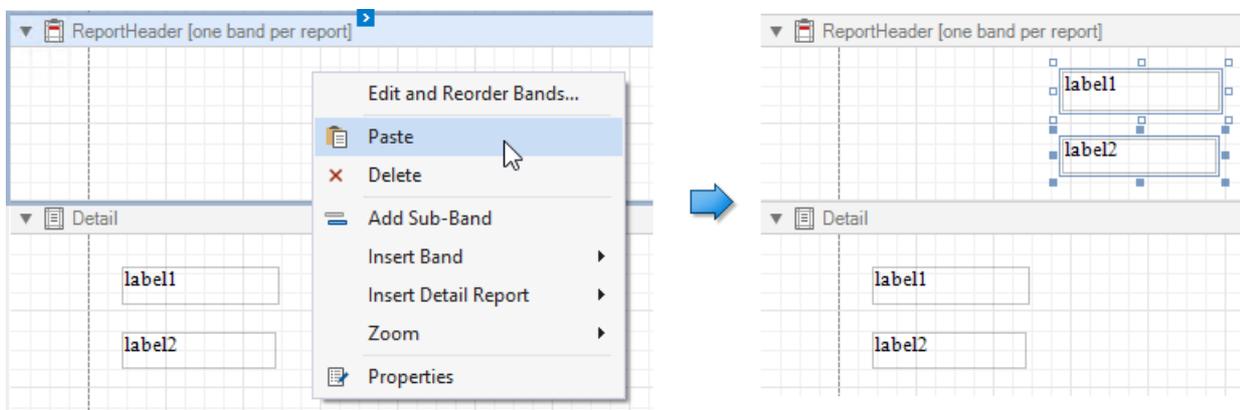
You can also copy report controls to the clipboard using CTRL + C or the **Copy** command, and then paste these controls to a new container or band.

- The original control positions are preserved when you use the CTRL + V hotkey or the **Paste** toolbar command to insert controls.



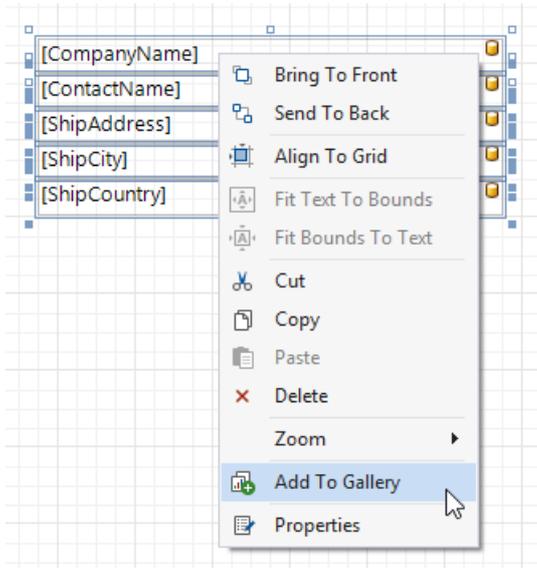
The pasted controls are repositioned by an offset of 10 units on both axes if another control already occupies the target position.

- When you use the **Paste** context menu item, controls are inserted at the position where you invoked the context menu.

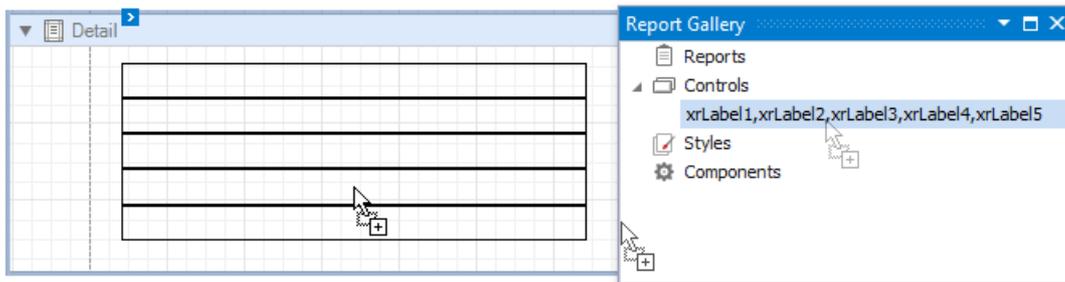


Reuse Report Controls

You can add selected controls to the [Report Gallery](#) and reuse them later in other reports. Select one or multiple controls while holding down the SHIFT or CTRL key and choose **Add To Gallery** in the context menu.



To add a selected template to a report, drag it from the Report Gallery onto a report's surface.



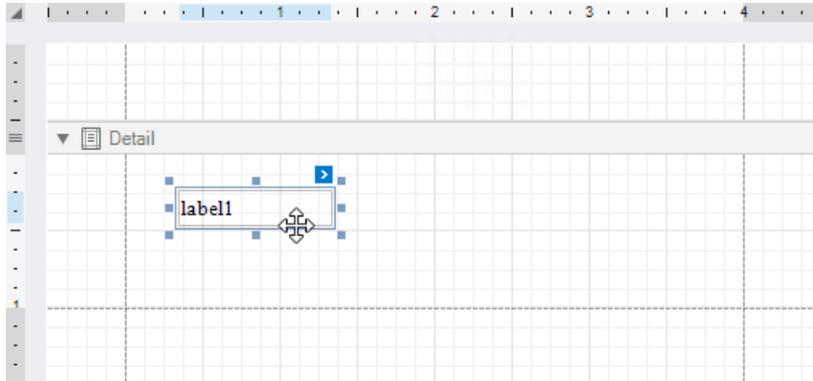
A template stores various settings related to its controls, such as binding information and appearance options. All these settings are restored after you add controls to a report.

Arrange Report Controls

The following tools allow you to control report element size, location, alignment, and to maintain the distance between them:

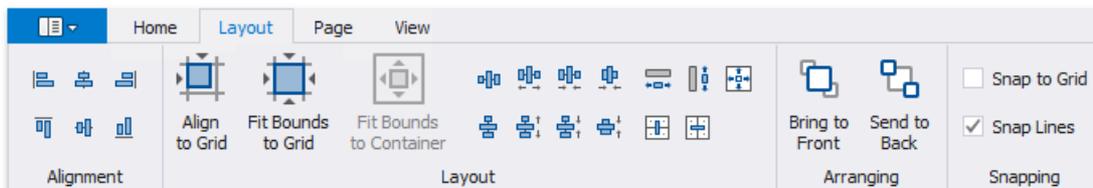
- **Rulers**

The Report Designer provides horizontal and vertical rulers to help you determine report elements' size and location.



- **Layout Toolbar**

Use the **Layout Toolbar** commands to align report controls.



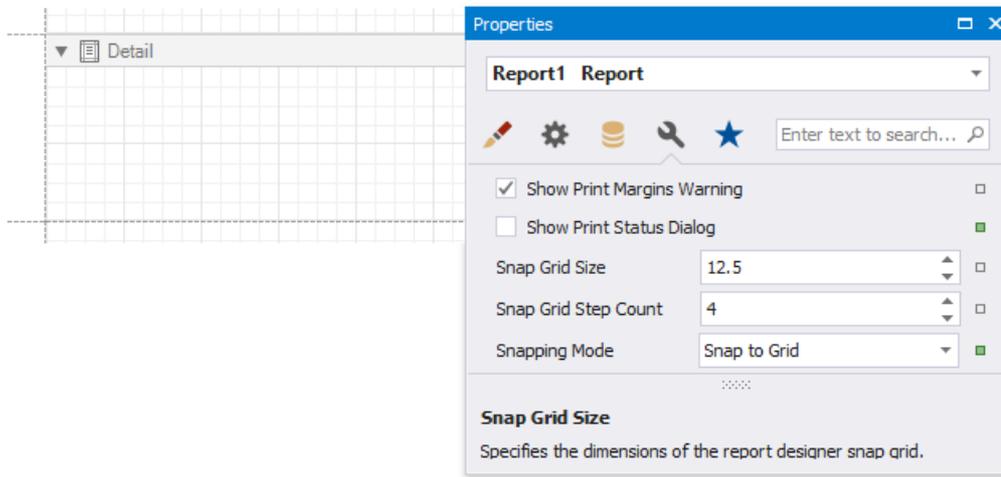
- **Snapping**

Use the **Snapping** toolbar group or a report's **Snapping Mode** property to enable automatic report control snapping to a grid and/or snap lines.

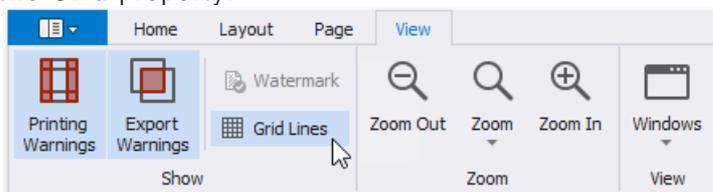
- **Snap Grid**

The design surface displays a visual grid that allows you to determine elements' size and location in a report. Use the

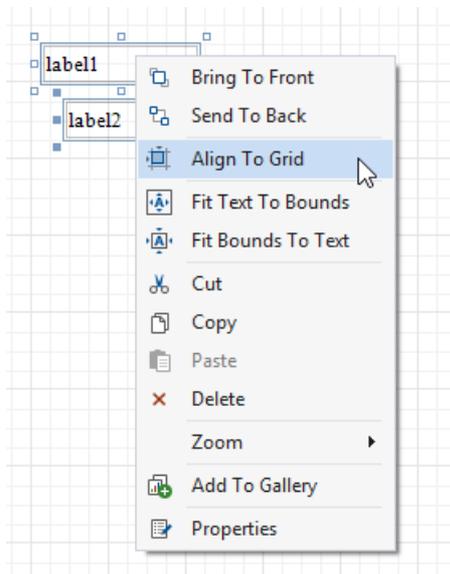
Snap Grid Size and **Snap Grid Step Count** properties to customize the grid's settings.



To hide the grid, disable the **Grid Lines** option in the toolbar's **View** tab or disable a report's **Draw the Grid** property.



A report control is aligned to the nearest grid cell when moved with the mouse or ARROW keys. You can use the **Align to Grid** toolbar button or context menu item to align the selected controls to the grid cells.



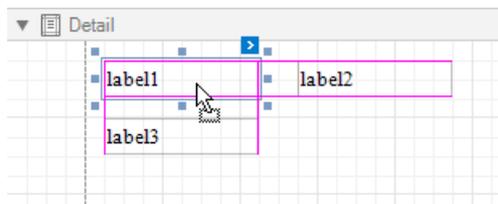
You can temporarily ignore snapping when you move and resize controls:

- hold down ALT if you move or resize controls using the mouse; hold down CTRL if you move or resize controls using the keyboard.

○ Snap Lines

The Report Designer displays snap lines when you move or resize report controls. These lines appear around the report controls and indicate the distance to other report elements (controls

and bands).



When you use the ARROW keys to move a report control or press SHIFT+ARROW to resize the control, it is aligned to the nearest report element in that direction based on snap lines.

A report control's **Snap Line Margin** property and a band's or panel's **Snap Line Padding** property allows you to maintain a uniform distance between elements in a report.

Validate the Report Layout

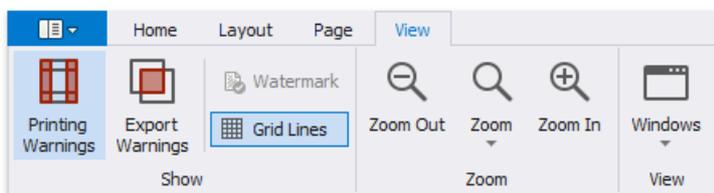
Your report layout should meet the following requirements to correctly print and export it:

- **Avoid overlapping controls**

The Report Designer highlights intersecting report controls to warn you that the report layout can be exported incorrectly to HTML, RTF, DOCX, XLS, XLSX, CSV and TXT formats.

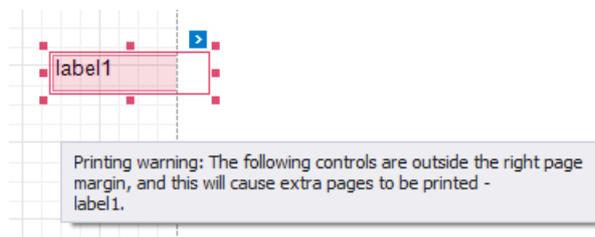


Disable the **Export Warnings** option in the toolbar to ignore this rule and not highlight intersecting controls.

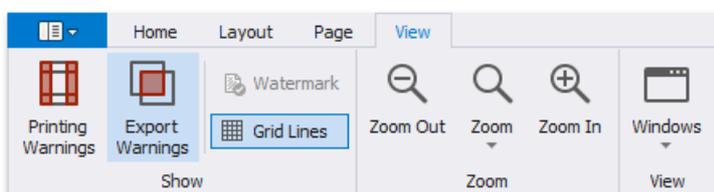


- **Do not place controls outside page margins**

The Report Designer highlights report controls that do not fit into the printable page area and overlap the right page margin. This warns you that extra pages can appear when document is printed.



Disable the **Printing Warnings** option in the toolbar to hide these warnings.



Use Basic Report Controls

The following documents describe the basic controls that display data in a report:

- [Label](#)
- [Character](#)
- [Comb Rich](#)
- [Text](#)
- [Check](#)
- [Box](#)
- [Picture](#)
- [Box](#)

The controls below allow you to embed other reports and customize the

- report layout: [Subreport](#)
- [Panel](#)
- [Page Break](#)

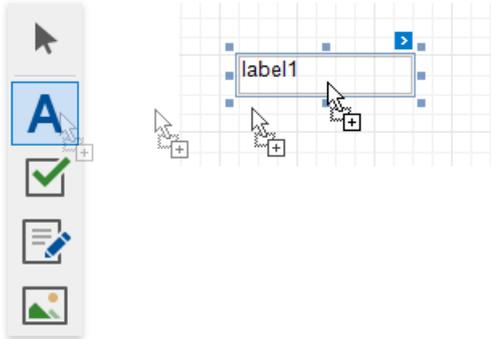
Use the following controls to display auxiliary information

- in a report: [Table of Contents](#)
- [Page Info](#)

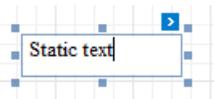
Label

Label Overview

The **Label** control displays plain text in a report. Drag the **Label** item from the **Toolbox** onto the report's area to add a Label control to it.



Double-click the label to invoke its in-place editor and enter the static text.

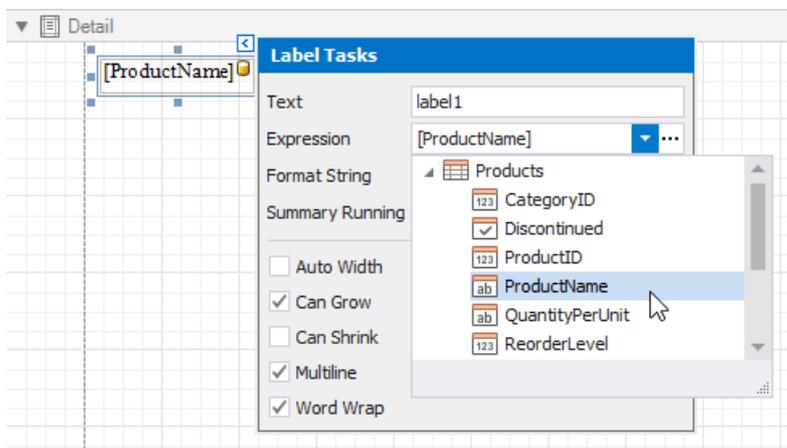


Press CTRL+Enter to submit text changes and exit the label's in-place edit mode.

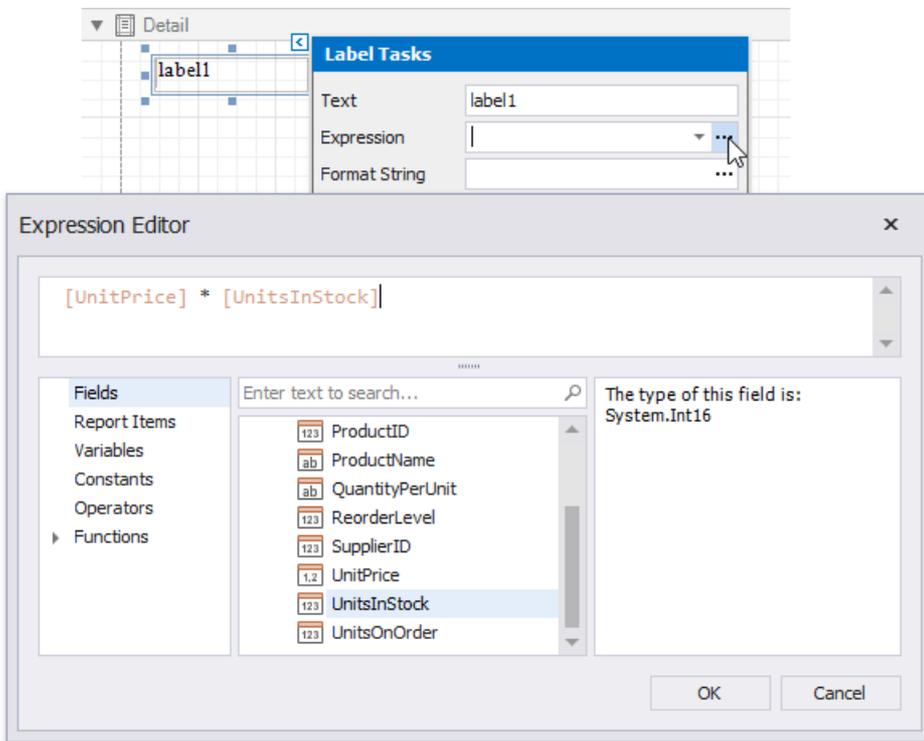
Bind to Data

Display Field Values

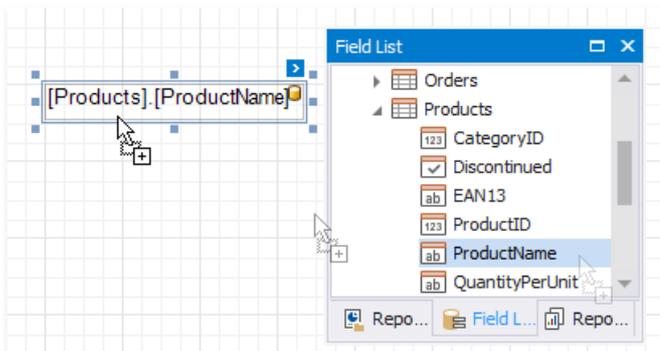
You can **bind** the label's **Text** property to a data field obtained from a report's data source. Click the control's smart tag, expand the **Expression** drop-down list and select the data field.



Click the **Expression** option's ellipsis button to invoke the **Expression Editor**. You can use this editor to construct a complex binding expression from two or more data fields.

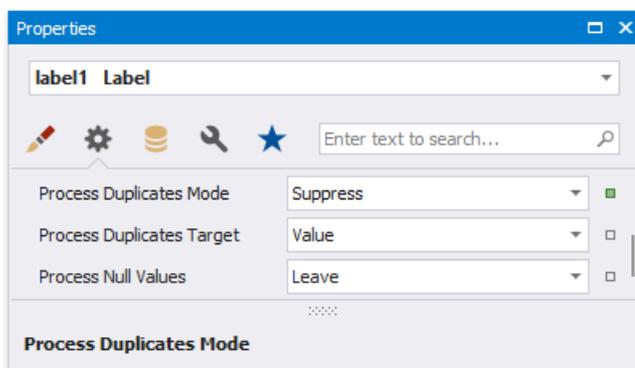


You can also drag and drop a numeric or text field from the [Field List](#) to create a new label bound to this field.

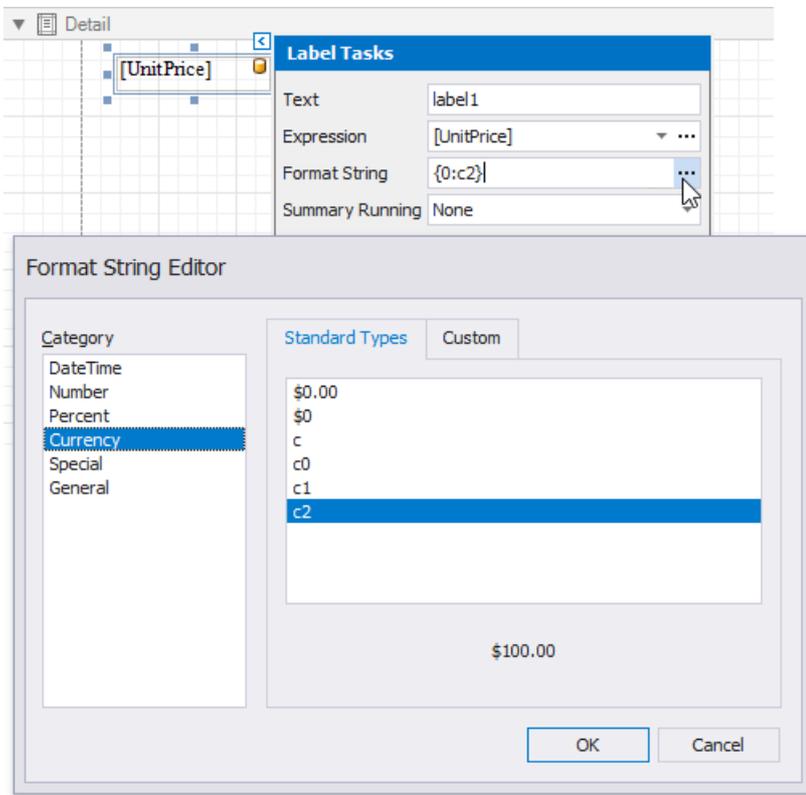


See the [Bind Controls to Data](#) topic for more information.

The **Process Duplicates Mode**, **Process Duplicates Target** and **Process Null Values** options enable you to hide a control when a duplicated or null value appears in an assigned data source.

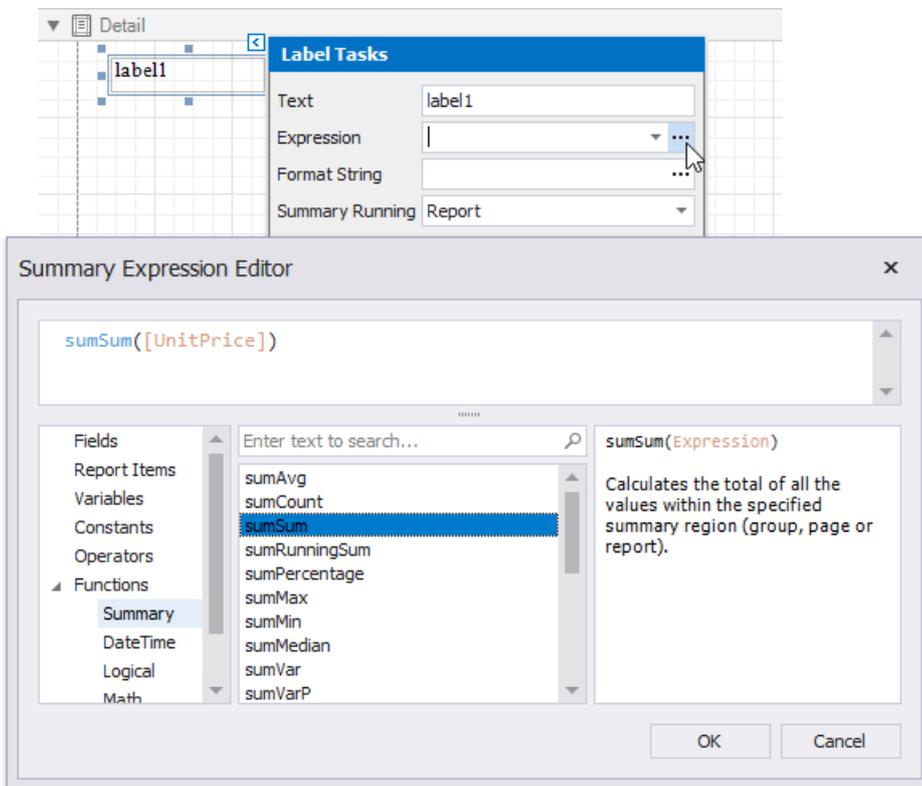


You can also use the **Format String** property to specify output values' [format](#).



Display Summaries

Specify a data range in the **Summary Running** property and select the summary function in the **Summary Expression Editor** to make the label display a [summary function's result](#).

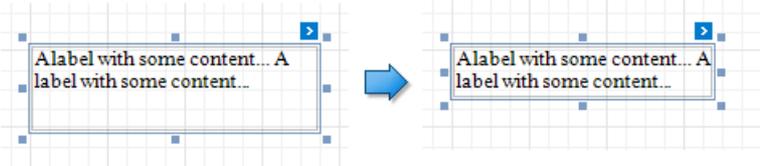
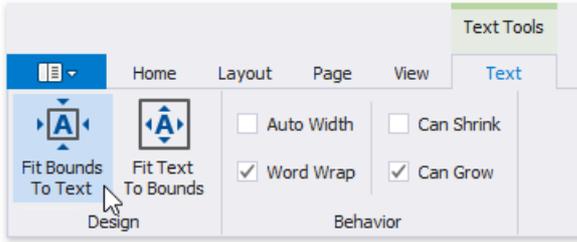


Adjust the Label Size and Content

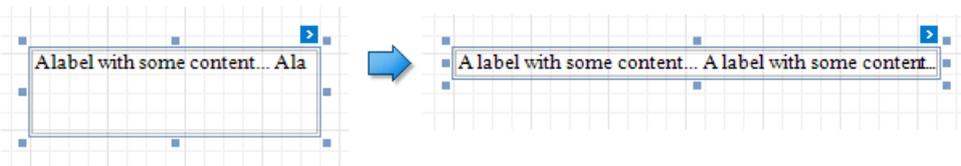
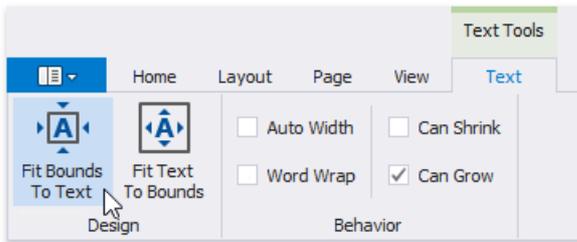
Static Content

You can change label size at design time to fit its static text. Right-click the label and select the **Fit Bounds**

- **To Text** toolbar button: If the **Word Wrap** option is enabled, the command displays control content on multiple lines. It reduces control height and adjusts its width to fit its content.

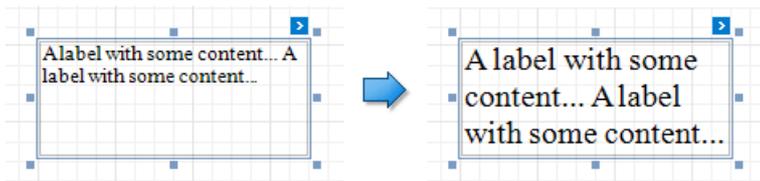
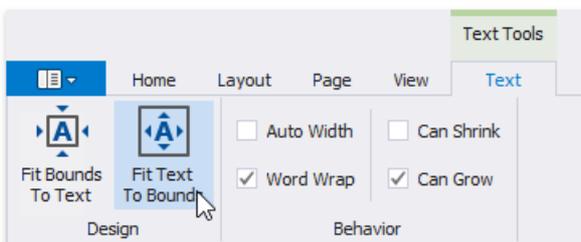


- If the **Word Wrap** option is disabled and the control's content is partially visible, the command adjusts the control size to display this content.



The command's result also depends on the control's **Text Alignment** and **Right To Left** settings.

Use the **Fit Text To Bounds** button to adjust the control's font size to fit its area. The **Word Wrap** option defines whether the text can occupy multiple lines or should be in a single line.



These commands are not available in the

following cases: A label's text is an empty

- string;
- A label's text is bound to data;
- A label's **Angle** property is specified.

Data-Bound Labels

The **Can Grow** and **Can Shrink** properties allow you to increase or decrease the control's height according to its content in Print Preview mode.

CAN G ROW IS ENABLED	CAN G ROW IS DISABLED
<div style="border: 1px solid black; padding: 5px;"> A control with some lengthy content... </div>	<div style="border: 1px solid black; padding: 5px;"> A control with some lengthy content... A control with some lengthy content... A control with some le </div>
CAN SHRINK IS ENABLED	CANSHRINK IS DISABLED
<div style="border: 1px solid black; padding: 5px;"> A control with some content... </div>	<div style="border: 1px solid black; padding: 5px;"> A control with some content... </div>

The **Auto Width** property specifies whether to adjust a data-bound label's width to its content.

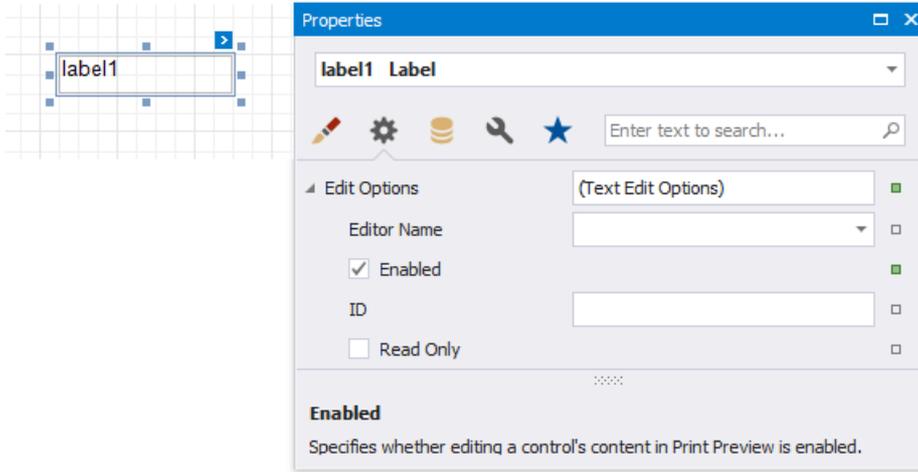
You can also use the opposite **Text Fit Mode** property to adjust a control's font size to fit its boundaries in Print Preview. This property is not available if the **Can Grow**, **Can Shrink** or **Auto Width** option is enabled.

TE X T FIT MODE = NONE	TE X T FIT MODE = G ROW ONLY	TE X T FIT MODE = SHRINK ONLY	TE X T FIT MODE = SHRINK AND G ROW
<div style="border: 1px solid black; padding: 2px;"> Alabel with some lengthy </div> <div style="border: 1px solid black; padding: 2px;"> Alabel with some lengthy content... </div>	<div style="border: 1px solid black; padding: 2px;"> Alabel with some lengthy </div> <div style="border: 1px solid black; padding: 2px;"> A label with some lengthy content... </div>	<div style="border: 1px solid black; padding: 2px;"> Alabel with some lengthy content... </div> <div style="border: 1px solid black; padding: 2px;"> Alabel with some lengthy content... </div>	<div style="border: 1px solid black; padding: 2px;"> Alabel with some lengthy content... </div> <div style="border: 1px solid black; padding: 2px;"> A label with some lengthy content... </div>

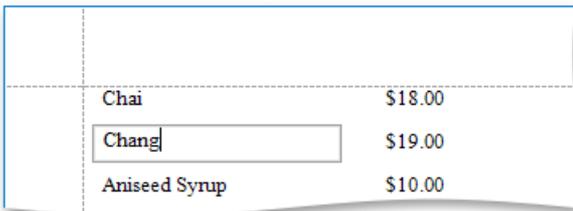
See the [Arrange Dynamic Report Content](#) topic for more information.

Interactivity

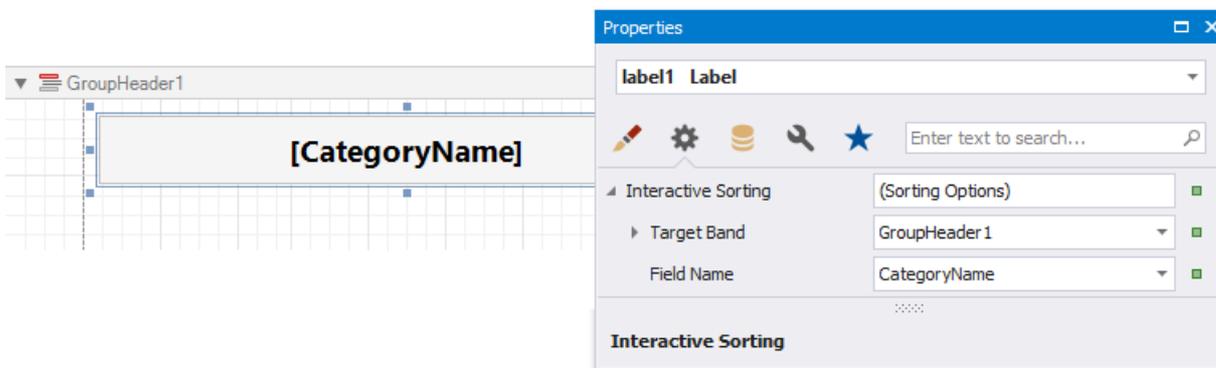
Check the **Enabled** option in the **Edit Options** category to allow users to [edit a label's content](#) in Print Preview mode.



Click this label in a previewed document to invoke the editor.



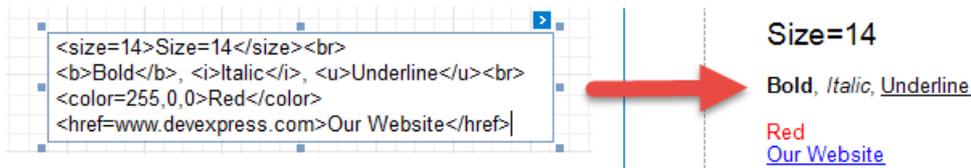
Use the label's **Interactive Sorting** option to allow users to click this label in Print Preview to sort report data. Set the **Target Band** property to the Group Header or Detail band, and specify the data field in the **Field Name** property.



Refer to [Sort a Report in Print Preview](#) for a step-by-step tutorial.

Markup Text

Enable the **Allow Markup Text** property to format the label's text with markup tags.



Label supports the following tags:

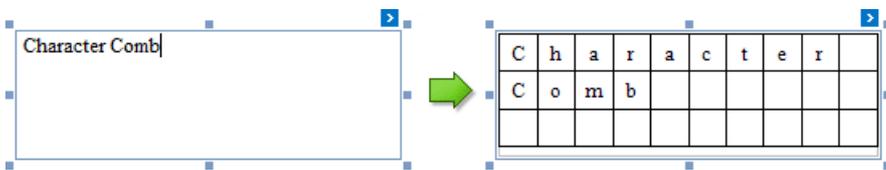
TAG	END TAG	DESCRIPTION
 		Inserts a single line break. Enable the WordWrap property to use this tag.
<nbsp>	-	Inserts a space.
<color=value>	</color>	Specifies the text color.
<backcolor=value>	</backcolor>	Specifies the background color.
<size=value>	</size>	Specifies the font size.
		Defines bold text.
<i>	</i>	Defines italic text.
<s>	</s>	Defines strikethrough text.
<u>	</u>	Defines underlined text.

TAG	END TAG	DESCRIPTION
<code><image=value></code>	-	Inserts an image from the report's named image collection. Supports both raster images and SVG images. Use the report's Image Resources property to provide images and reference them by their Id . The image tag's size attribute sets the image display pixel size. If the specified width/height exceeds the label's width/height, it is reduced to display the entire image. Specify the size attribute after the tag's value followed by the ";" character.
<code><href=value></code>	<code></href></code>	Displays a hyperlink. The value string specifies the hyperlink source, and the string between the opening and closing tags is the text to display.

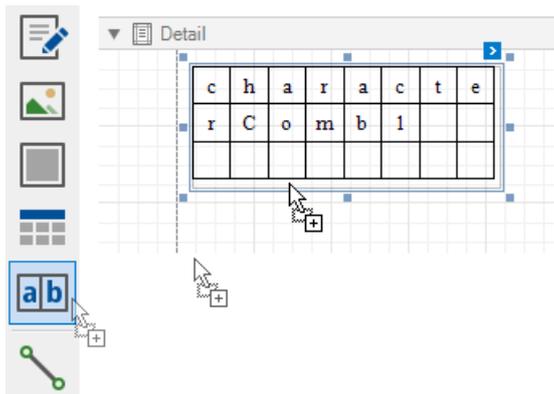
Character Comb

Overview

The **Character Comb** control displays text so that each character is printed in an individual cell.



To add a Character Comb to the report, drag the **Character Comb** item from the [Toolbox](#) onto the report's area.



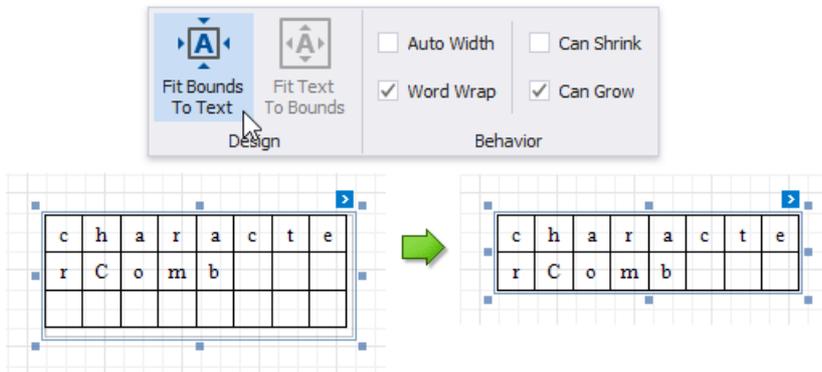
The number of cells displayed by the control in Print Preview depends on the **Can Shrink** and **Auto Width** settings.

- If both these properties are enabled, the number of cells corresponds to the number of characters in the control's text. Otherwise, the number of cells corresponds to the specified cell size and the control size.

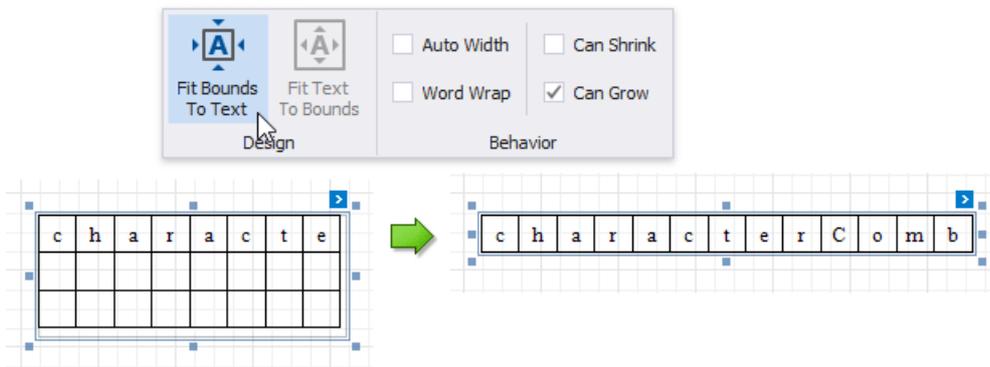
See the [Content Layout and Position](#) section to learn more on using these properties.

You can also adjust the character comb's size to match its characters using the **Fit Bounds To Text** [toolbar](#) button or context menu command:

- If the **Word Wrap** option is enabled, the command keeps control content displayed in multiple lines. It decreases the control's height and adjusts the width to fit this content.



- If the **Word Wrap** option is disabled, the command adjusts the control's height and width to completely display the control's content in a single line. As a result, the number of cells corresponds to the number of characters.



When exporting this control to [third-party formats](#), consider the following

- When a report is exported to an [XLS](#) or [XLSX](#) file, the cells of the Character Comb correspond to the cells of a resulting Excel sheet.
- When a report is exported to a [CSV](#) (or [TXT](#)) file, the content of individual cells is separated (or spaced) by a specified **Separator** character.

In most aspects, the Character Comb is similar to the [Label](#) control from which it inherits most of its properties and its basic behavior. For general information about binding these controls to data and display summary function results, see the [Label](#) topic. To learn about Character Comb specifics, see the following sections in this document.

Main Options

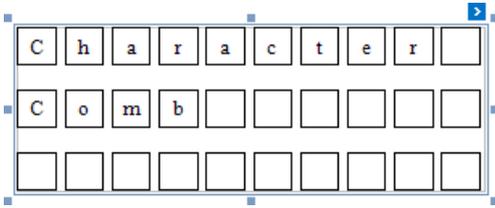
The following properties are specific to the Character Comb control:

- **Cell Vertical Spacing** and **Cell Horizontal Spacing**

Specify the spacing between adjacent cells (measured in [report units](#)). These values do not depend on the specified border width of a control.

The following image illustrates a Character Comb with **Cell Vertical Spacing** set to **15** and **Cell Horizontal Spacing** set to

5.



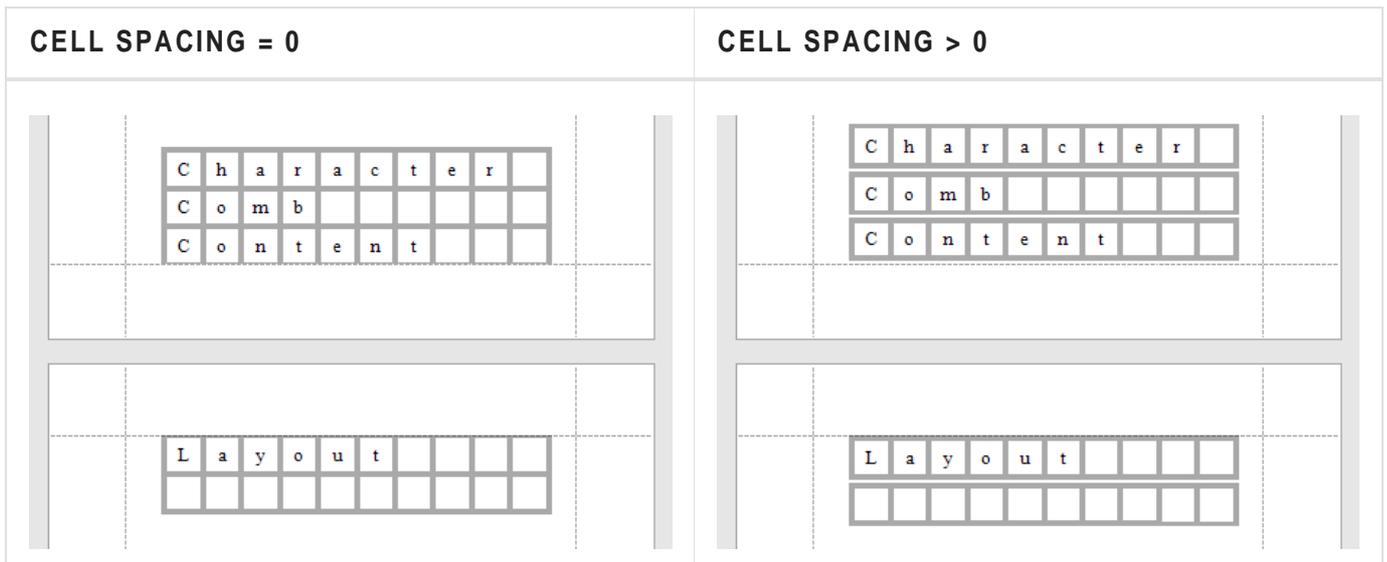
- **Border Width**

Specifies the width of cell borders in pixels, as a floating point value.

When the cell spacing is set to zero, the borders of adjacent cells are merged (i.e., the actual border width is not doubled). The following images illustrate how cell spacing affects the **Border Width** property behavior:

CELL SPACING = 0	CELL SPACING = 1

When the control's content is to be printed on multiple pages, a page break horizontally splits the cell border based on the cell spacing setting, as shown below.



- **Cell Size Mode**

Specifies whether or not the cell size should depend on the current font size of a control. The following cell size modes are supported:

- **Custom**

The cell size is determined by the **Cell Height** and **Cell Width** property values and does not depend on the assigned font size.

With this setting, the actual cell size is less than the specified **Cell Height** and **CellWidth** by the **Border Width** value.

- **Auto Size**

The cell size depends on the current font size of a control (the **Cell Height** and **Cell Width** properties are ignored). With this setting, the actual cell size does not depend on the specified border width of a control.

- **Auto Height**

Only the cell height depends on the current font size of a control (the **Cell Height** property is ignored), and the **Cell Width** value is specified manually.

With this setting, the following behavior is expected:

- The actual cell height does not depend on the specified border width of a control.
 - The actual cell width is the difference between the specified **Cell Width** and **Border Width** values.

- **Auto Width**

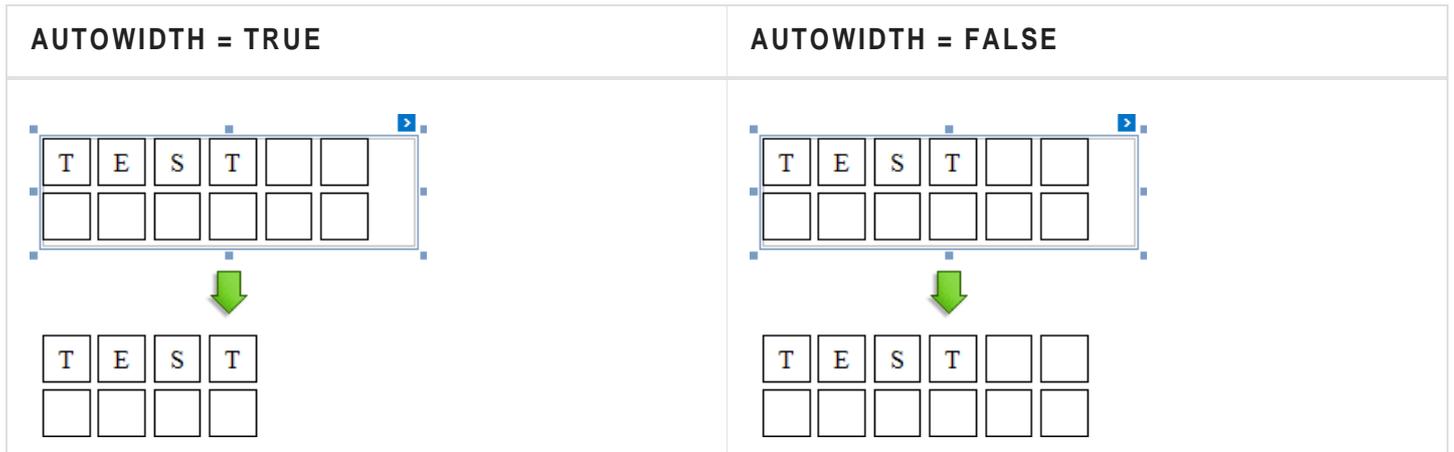
Only the cell width depends on the current font size of a control (the **Cell Width** property is ignored), and **Cell Height** value is specified manually.

With this setting, the following behavior is expected:

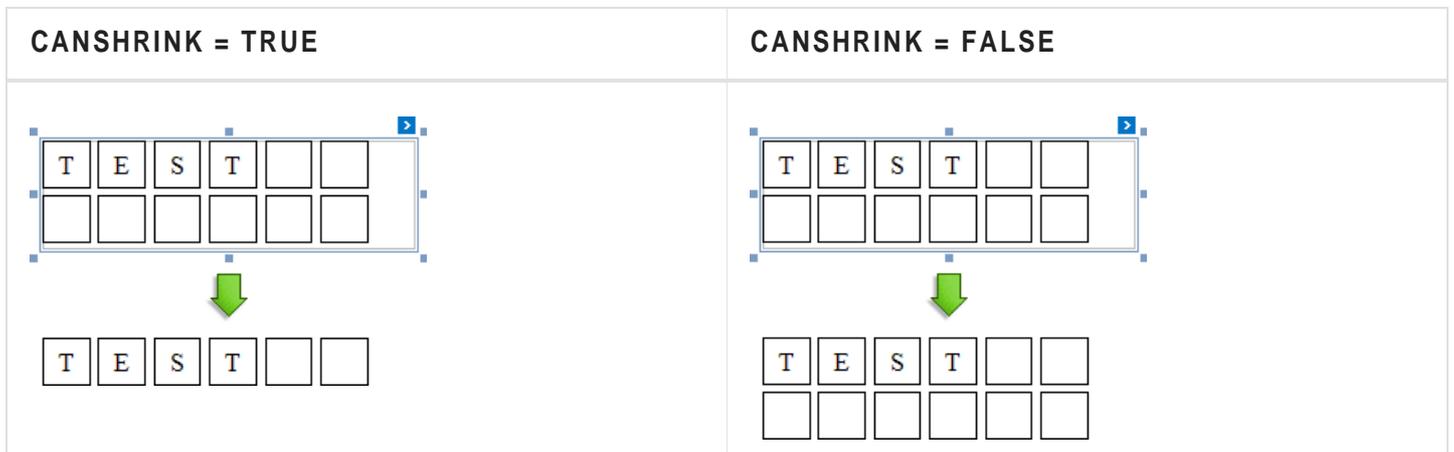
- The actual cell width does not depend on the specified border width of a control.
 - The actual cell height is the difference between the specified **Cell Height** and **Border Width** values.

This section describes the **Character Comb** properties that affect the control's position on a page and content layout.

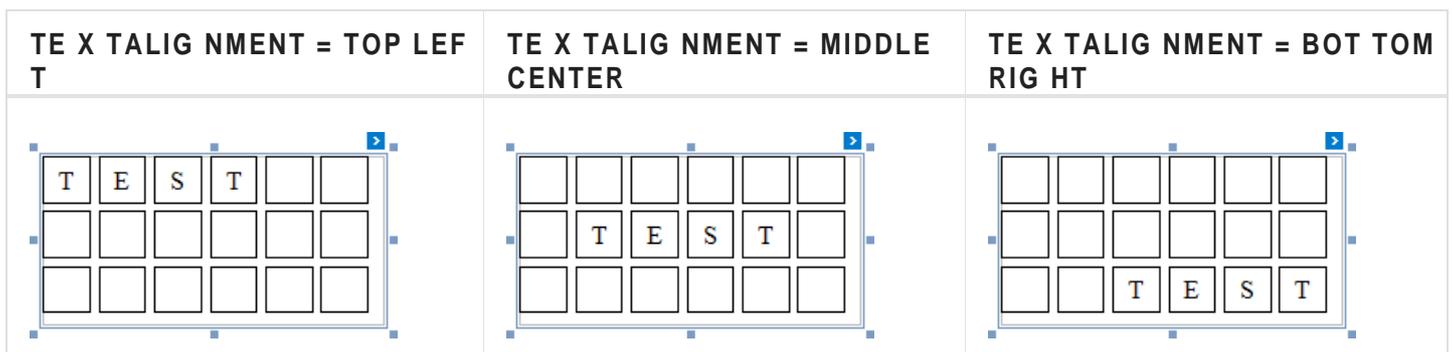
The following image illustrates the behavior of the **Auto Width** property that specifies whether or not the width of a control depends on its text.



The following image illustrates the behavior of the **Can Shrink** property that specifies whether or not the height of a control depends on its text.



The **Text Alignment** property specifies the alignment of text within a control.

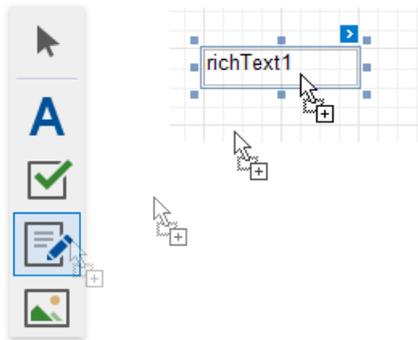


Rich Text

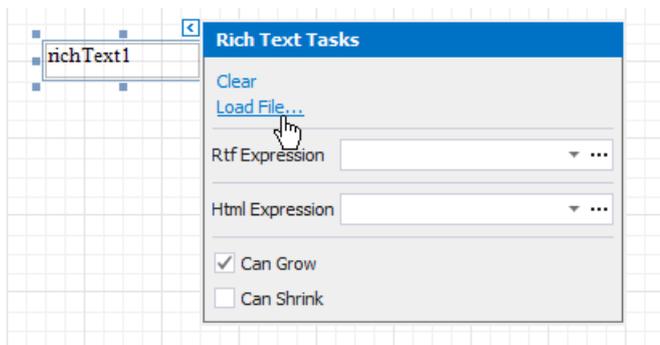
Overview

The **Rich Text** control displays formatted text (static, dynamic or mixed) in your report.

To add this control to a report, drag the **Rich Text** item from the **Toolbox** onto the report's area.

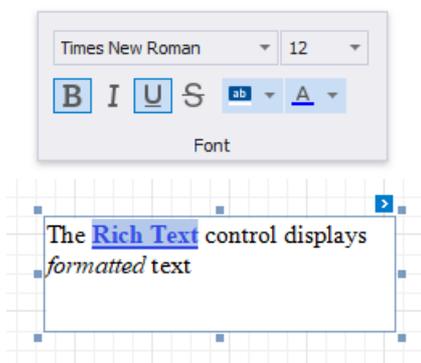


You can load RTF or HTML content from an external file. Click the control's smart tag and select **Load File**.



In the invoked **Open** dialog, use the drop-down list to define the file's extension (.rtf, .docx, .txt, .htm or .html), select the file and click **Open**.

You can double-click the Rich Text to invoke its in-place editor and enter static text. Use the **Toolbar's Font** group to format the text.



Press CTRL+Enter to submit changes and exit the in-place editor.

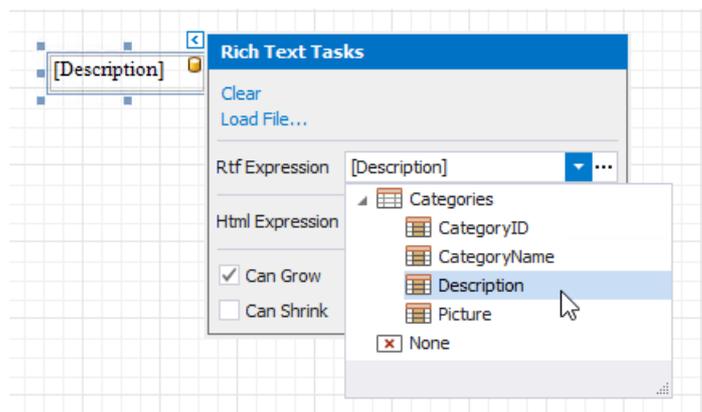
O Not e

The Rich Text's content is exported as plain text only when exporting to XLS or XLSX format.

Bind to Data

You can [bind](#) the control's **RTF** property to a data field obtained from a report's data source. Click the control's smart tag, expand

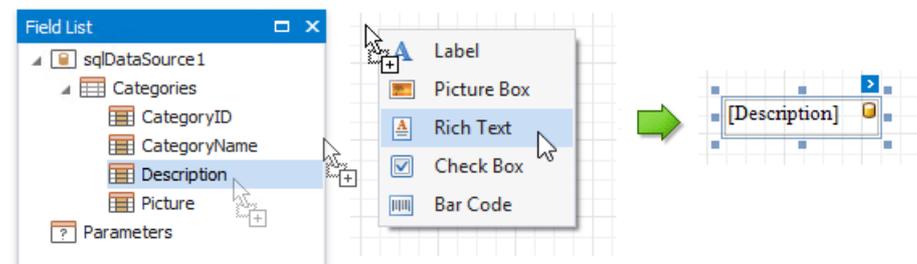
the **Rtf Expression**'s drop-down list and select the data field.



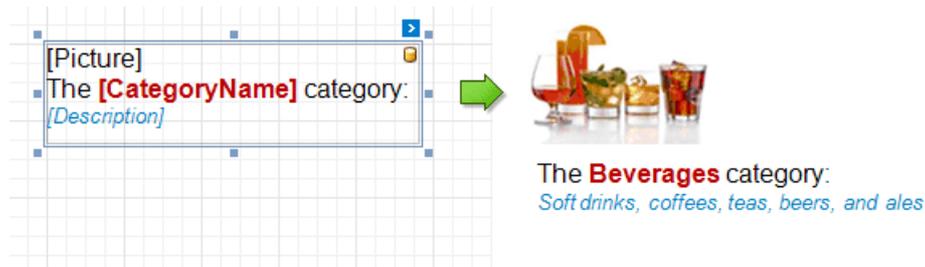
You can bind the control to a data field that provides HTML content in the same way. To do this, click the control's smart tag and use the **Html Expression**'s drop-down list.

Click the **Rtf Expression** or **Html Expression** option's ellipsis button to invoke the **Expression Editor**. This editor allows you to construct a complex binding expression with two or more data fields.

You can also drag and drop any field from the **Field List** with the right mouse button and select the **Rich Text** menu item. This creates a new Rich Text control bound to this field.



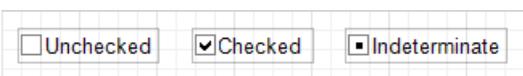
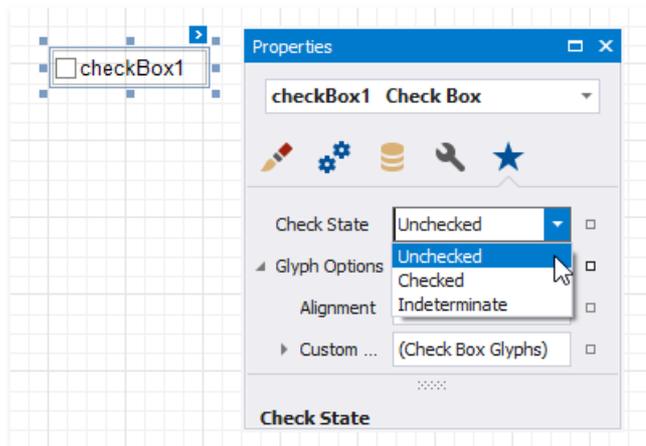
The Rich Text also enables you to merge data fields and static content in its text.



See the [Bind Controls to Data](#) and [Use Embedded Fields](#) topics for more information.

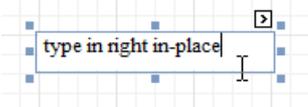
Check Box

The **Check State** property specifies the checkbox's state.



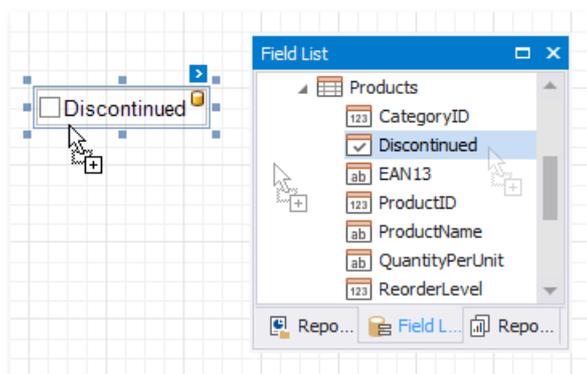
The **Checked** property indicates whether the checkbox is checked (displays a check mark) or not (is empty).

The **Text** property specifies the checkbox's caption. Double-click the checkbox to invoke its in-place editor and type the caption text.

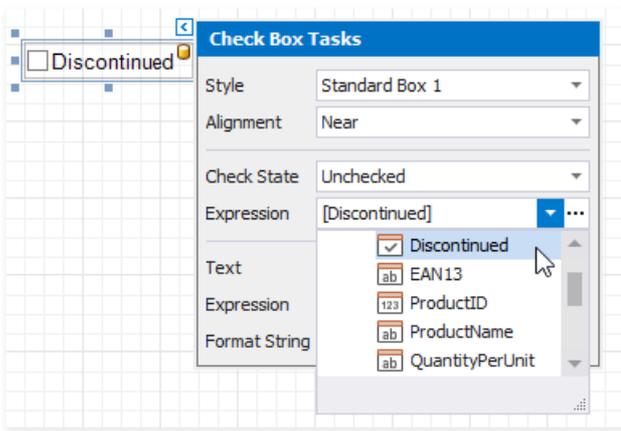


Bind to Data

Drag a Boolean field from the [Field List](#) onto your report. This adds a new checkbox to your report and binds its **Check State** property to the dragged field.



If you add a checkbox from the [Toolbox](#), click the control's [smart tag](#), expand the **CheckState** property's **Expression** drop-down list and select a data field. This [binds](#) your control's **CheckState** property to a data source field.

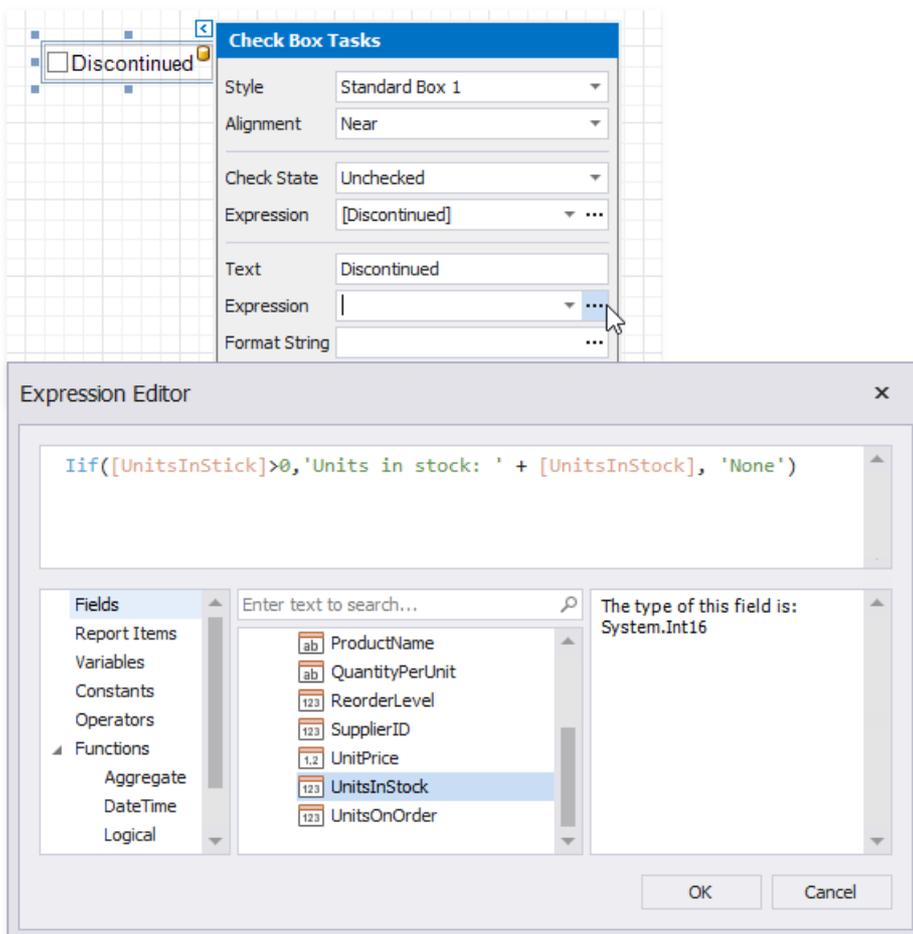


The data field value specifies the checkbox's state:

- **True** or **1** - activates the **Checked** state;
- **False** or **0** - activates the **Unchecked** state;
- Any other value - activates the **Indeterminate** state.

You can [bind](#) your control's **CheckState** the checkbox caption to a data source field. Click the control's [smart tag](#), expand the **Expression** drop-down list and select the data field.

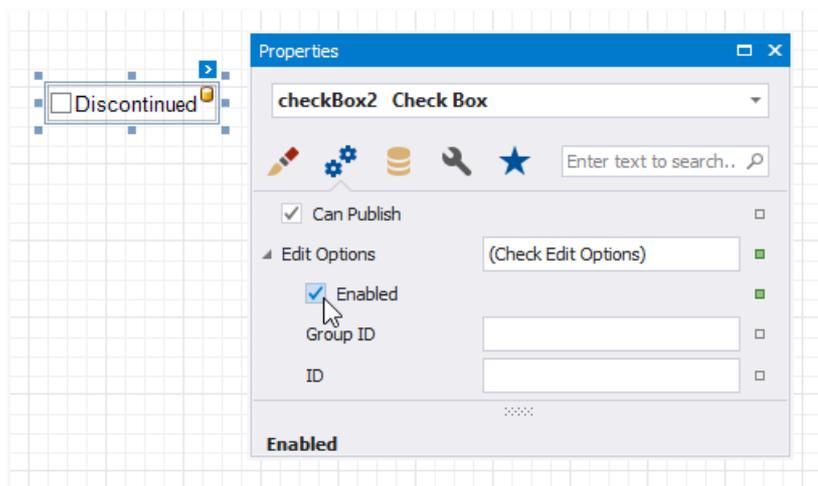
The **Expression** option's ellipsis button invokes the **Expression Editor**. This Editor allows you to construct a complex binding expression with two or more fields.



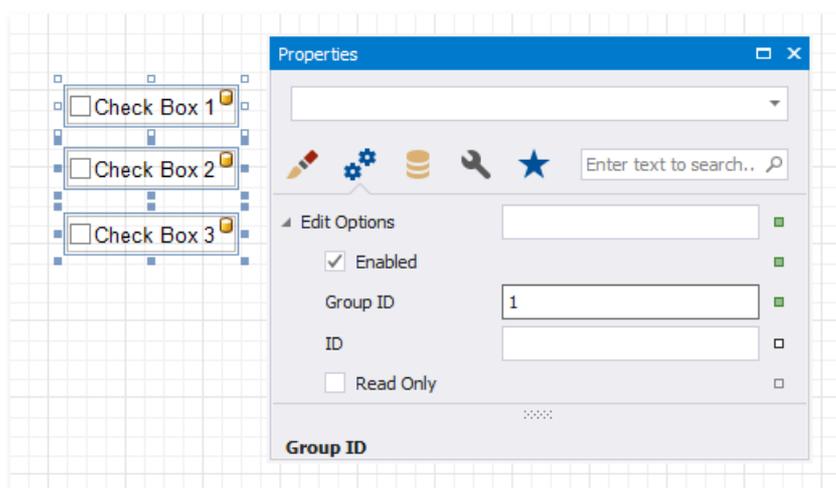
Refer to the [Bind Controls to Data \(Expression Bindings\)](#) topic for more information about the available data binding modes and how to create data-aware controls.

Interactivity

Change the **Enabled** checkbox within the **Edit Options** group to specify if users can [change the checkbox state](#) in Print Preview.



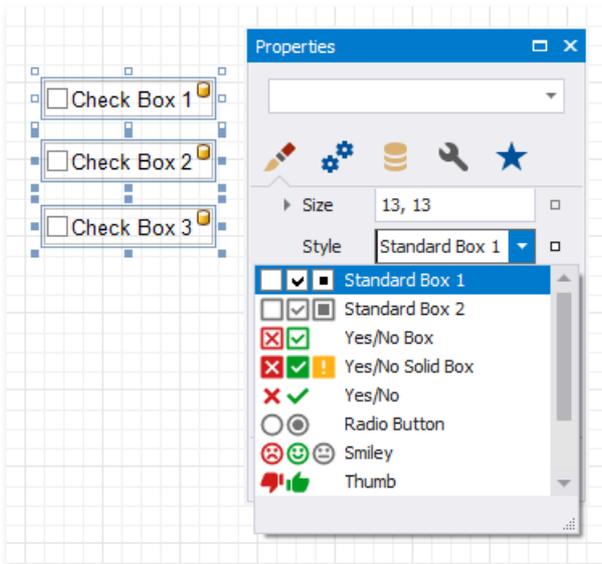
You can create checkbox groups to make them behave like radio lists. To group checkboxes, set their **Group ID** option within the **Edit Options** group a group ID value.



Customization

The **Glyph Options** property provides access to glyph settings.

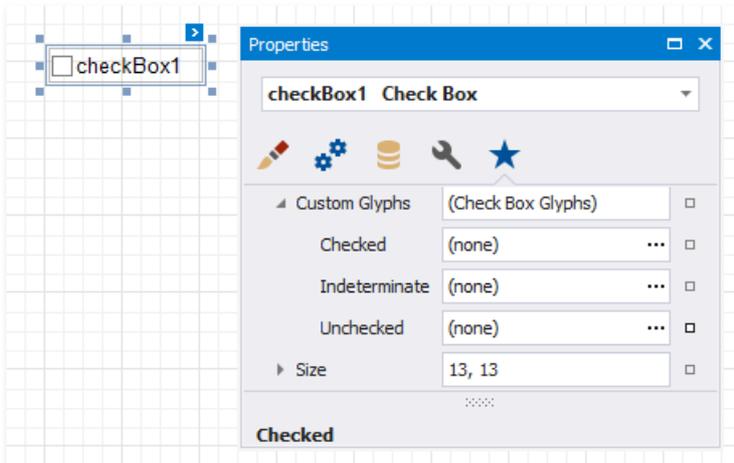
- **Style** - specifies a predefined glyph style.



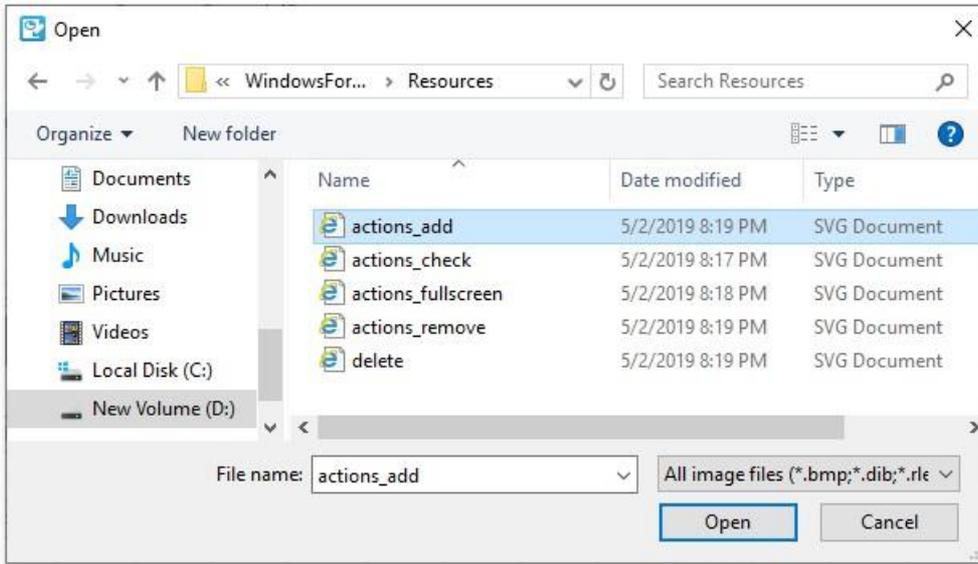
- **Alignment** - specifies the glyph's alignment within the control.



- **Size** - specifies the glyph size.
- **Custom Glyphs** - specifies a custom glyph image for each checkbox state (Checked/Unchecked/Indeterminate).



The **Open File** dialog is invoked when you specify custom glyphs.



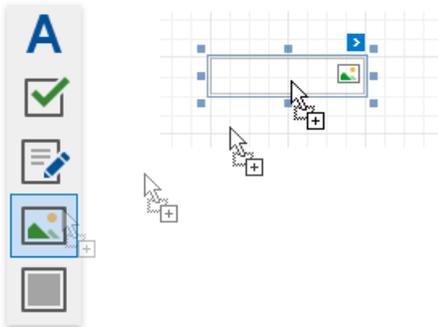
The selected glyph image is saved to the report definition .repX file.

Picture Box

Overview

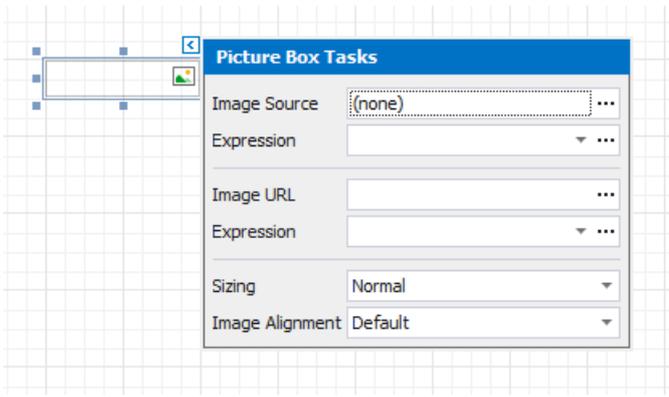
Use the **Picture Box** control to add images to a report. The images can have one of the following formats: BMP, JPG, JPEG, GIF, TIF, TIFF, PNG, ICO, DIB, RLE, JPE, JFIF, EMF, WMF, SVG.

To add the **Picture Box** control to a report, drag the **Picture Box** item from the [Toolbox](#) onto the report's area.



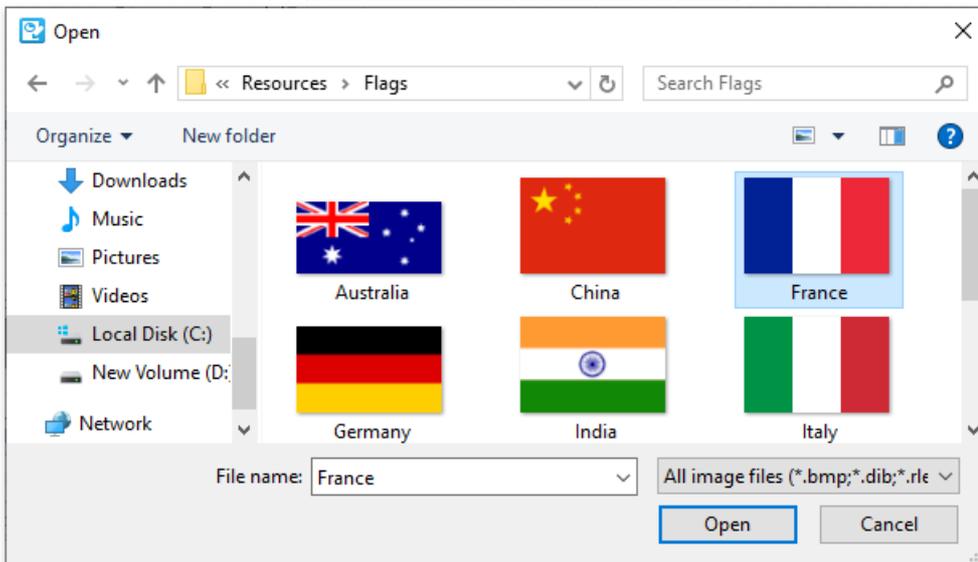
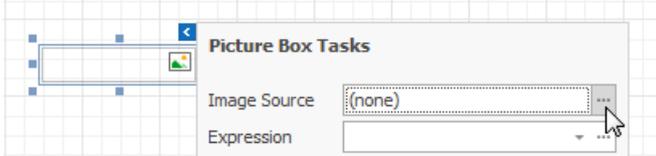
Specify one of the following properties to set an image:

- **Image Source**
Save the image to the report definition.
- **Image Url**
Only save a path to the image.



Assign an External Image

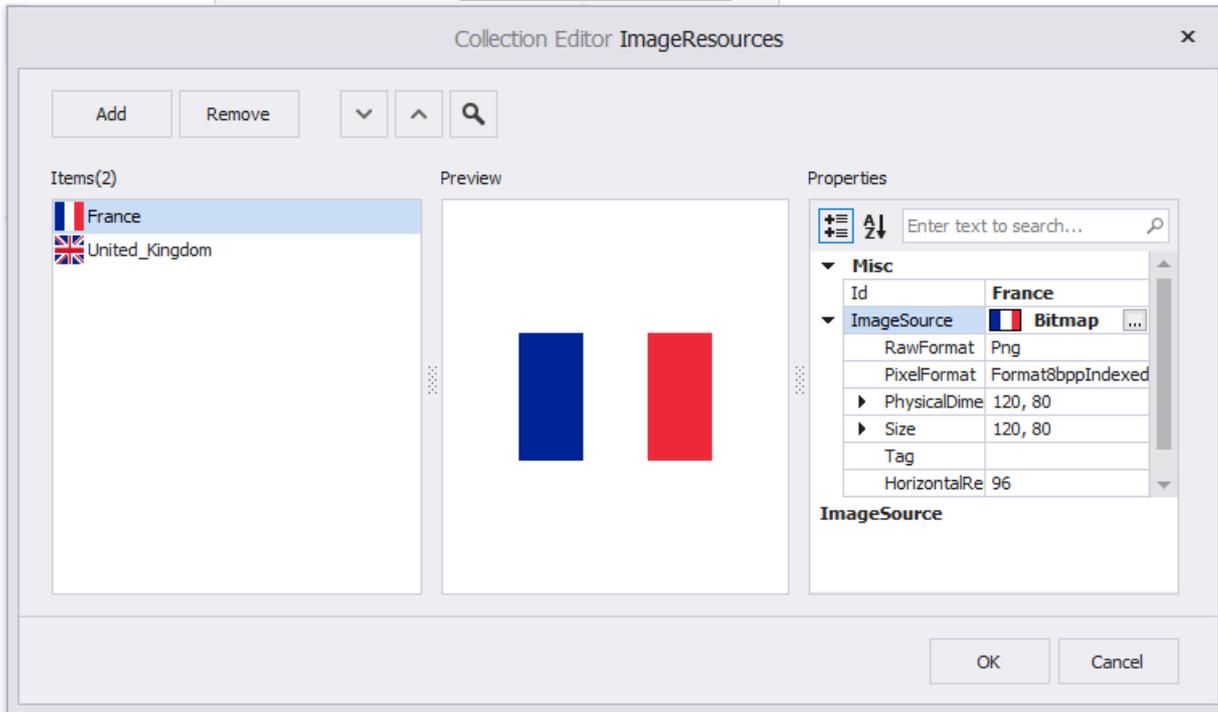
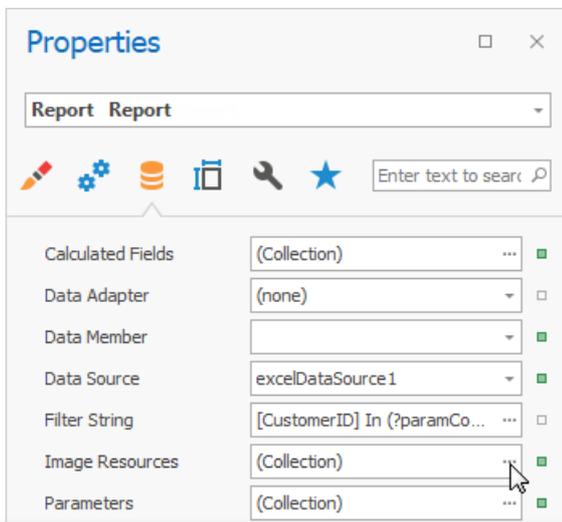
Click the **Image Source** / **Image URL** property's ellipsis button to invoke the **Open File** dialog.



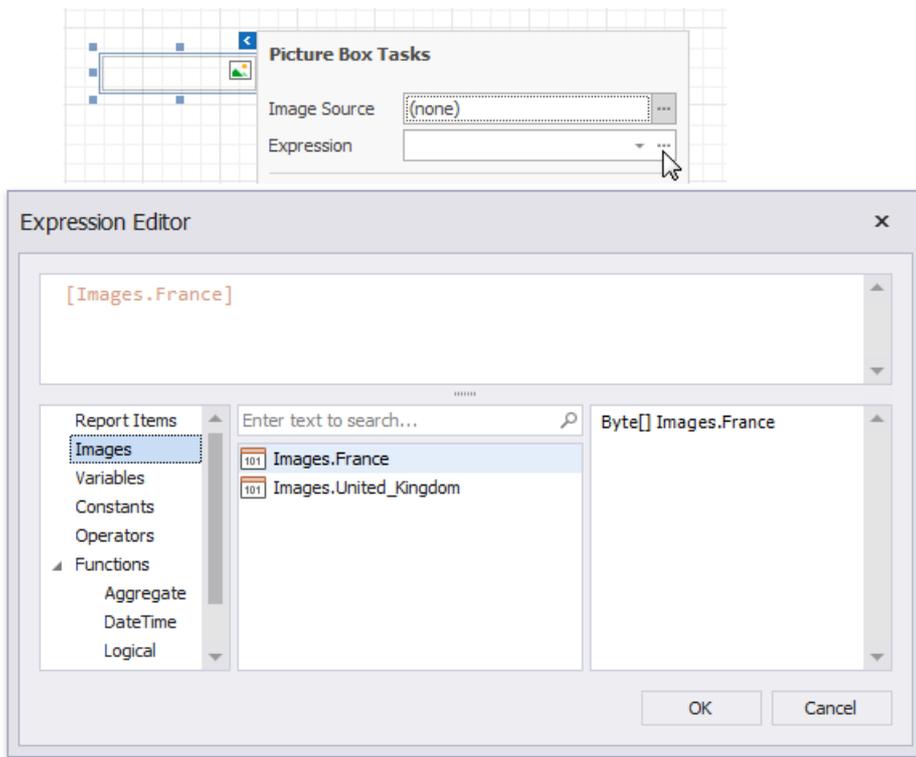
The selected image or its URL is saved to the report definition **.repx** file.

Assign an Image from the Report's Image Collection

Set the report's **Image Resources** property.



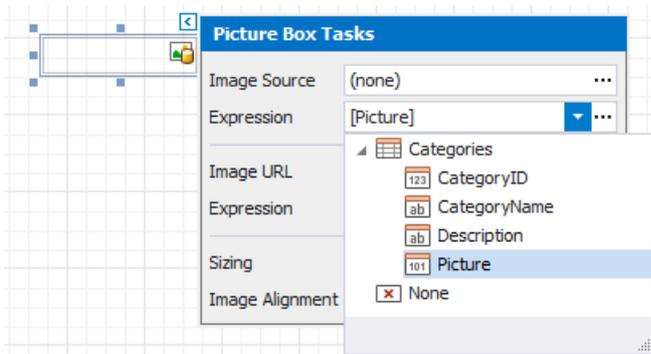
Click the **Picture Box's** smart tag. In the invoked menu, click the **Expression** option's ellipsis button to open the **Expression Editor**. Choose an image from the **Images** collection:



Bind a Picture Box to Data

Use one of the following techniques to add the **Picture Box** control that obtains an image from a data source.

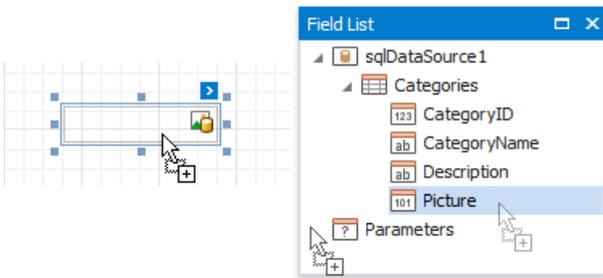
- Click the control's smart tag. In the invoked menu, expand the **Expression** drop-down list for the **Image Source** property and select a data field.



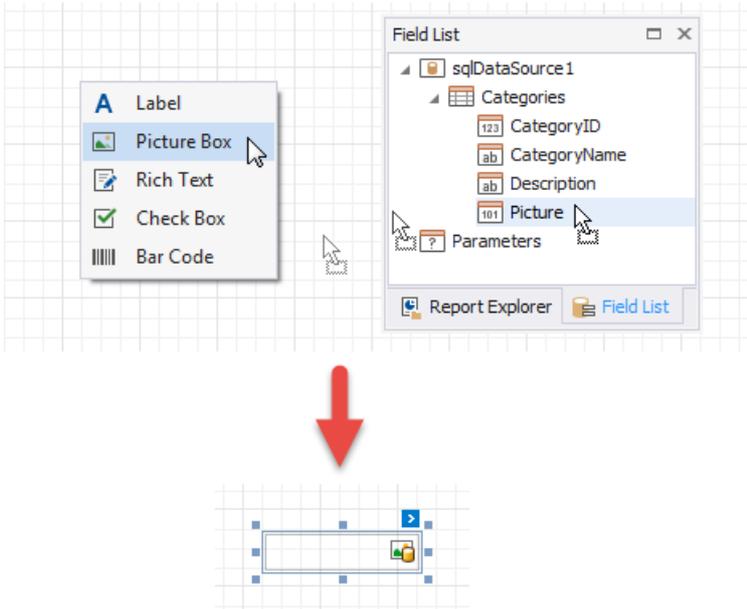
You can bind the **Image Url** property to data in a similar way. In this instance, the URL that specifies the image location is obtained from the data source.

Click the **Expression** option's ellipsis button to invoke the **Expression Editor**. Use this editor to construct a **binding expression** that can include two or more data fields.

- Drag an image data field from the report's **Field List** and drop it onto a report band.



Right-click a data field in the [Field List](#) and drop it onto a report band. Select the **Picture Box** item in the invoked context menu.



See the [Bind Report Controls to Data](#) topic for more information about how to create data-aware controls.

SVG Support Limitations

The **Picture Box** control does not support the following SVG content:

- Gradient colors
- Text (you can convert text to curves as a workaround) Animations
- External .css styles

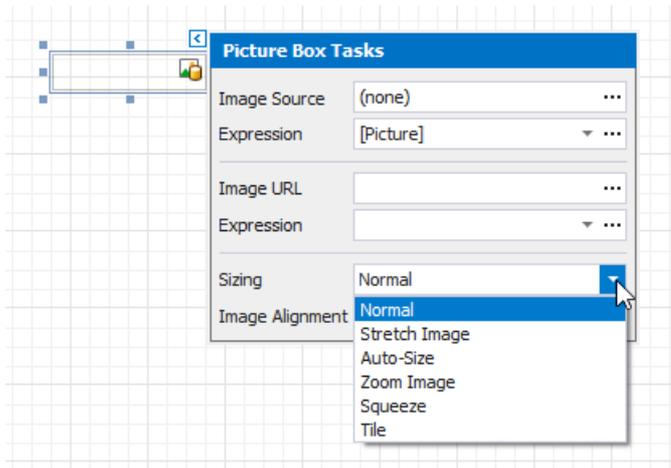
Export (except for PDF) has the following limitations:

- SVG images are converted to metafiles because document viewers may not support SVG format. SVG images are exported as PNG in the Microsoft Azure environment.

The **Medium Trust** permission level does not support SVG.

Image Size Modes

Use the **Sizing** property to specify an image's position in the Picture Box.



This control supports the following image size modes:

- **Normal**

The image is displayed at the top left corner with its original dimensions. The image is clipped if it does not fit the control's boundaries.



- **Stretch Image**

The image is stretched or shrunk to fill the control's width and height.



- **Auto Size**

The control's dimensions are adjusted to the image's size.



- **Zoom Image**

The image is resized proportionally without clipping it to fit the control dimensions.



- **Squeeze**

The image is centered and shown full-size if the control dimensions exceed the image size. Otherwise, the image is resized to fit the control's boundaries.



• Tile

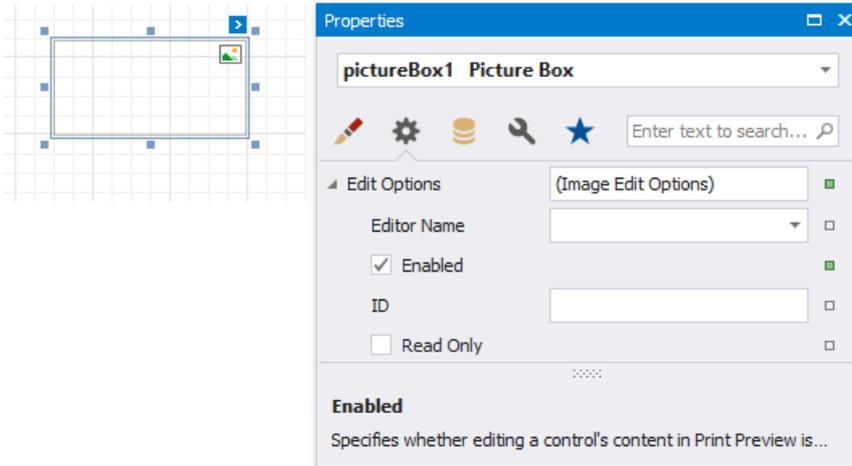
The original image is replicated within the control starting from the top left corner. The replicated image is clipped if it does not fit the control's boundaries.



You can also use the **Image Alignment** property in the **Normal**, **Squeeze** and **Zoom Image** modes to specify the alignment in relation to the control's boundaries.

Interactivity

You can add a possibility to load/change an image and/or draw a signature in a picture box when it is displayed in Print Preview. To do this, enable the **Edit Options | Enabled** property.



Click the picture box in a previewed document and an editor invokes.



Tip

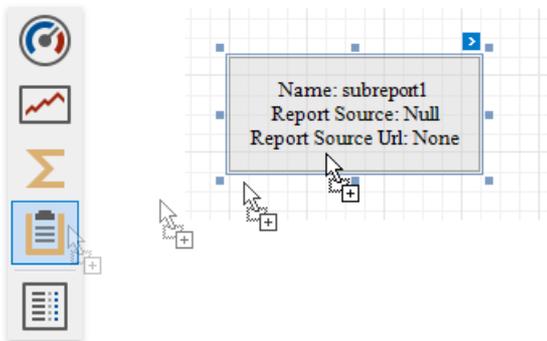
You can draw borders for the picture box to make the editor visible in Print Preview, if an image is not specified.

Refer to the [Content Editing in Print Preview](#) topic for details and to the [Create-an-Interactive-E-Form](#) tutorial to see how the E- Form demo report uses this picture box mode.

Subreport

The **Subreport** control is used to embed other reports into the current report.

To add this control to a report, drag the **Subreport** item from the [Toolbox](#) onto the report's area.



The Subreport control allows you to solve the following tasks:

- **Reuse reports**, if there is a particular report structure (template) that needs to be included in many reports; for instance, a report header that always contains the same information (the company information, logo, date, etc.).
- [Create master-detail reports](#)
- [Merge reports](#)

Use one of the following properties to provide the report source:

- **Report Source**

Determines a report to be included as a subreport.

If report classes of the application that invoked the Report Designer are compiled into one assembly, then they are available as items in this combo box.

- **Report Source URL**

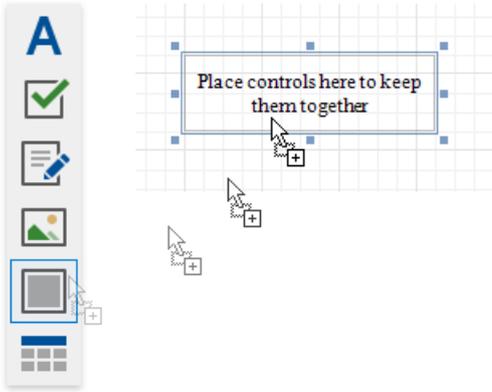
Defines a URL of a report file (*.REPX), to use as a report source.

Double-click a subreport to open its associated report in a new Report Designer tab.

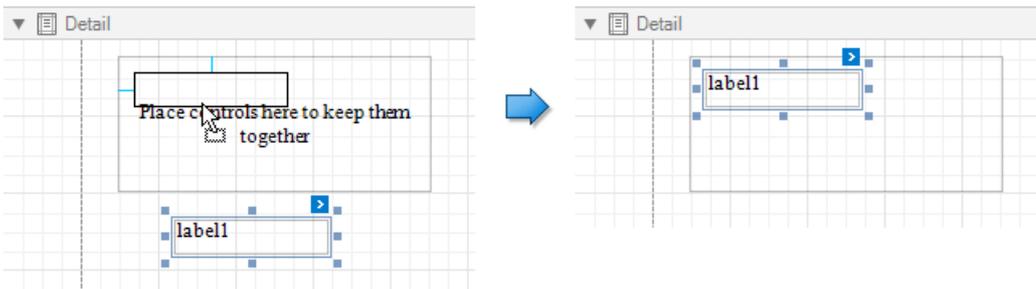
Panel

The **Panel** control is a container that frames separate report controls and allows you to move, copy and paste them. The panel also visually unites report controls in Print Preview (for instance, with borders or a uniform color background).

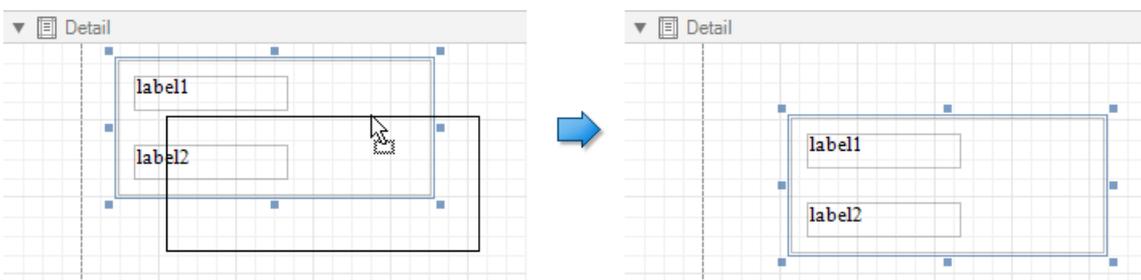
To add a panel to a report, drag the **Panel** item from the **Toolbox** and drop it onto the required report band.



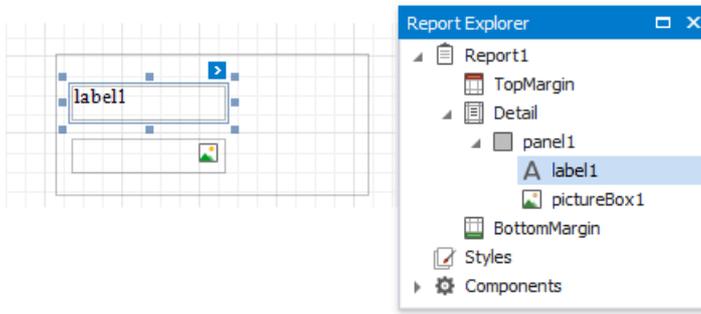
Drop the desired report controls onto the panel to combine them to a group.



You can use this panel to move, copy, change appearance settings, etc. instead of adjusting individual controls.



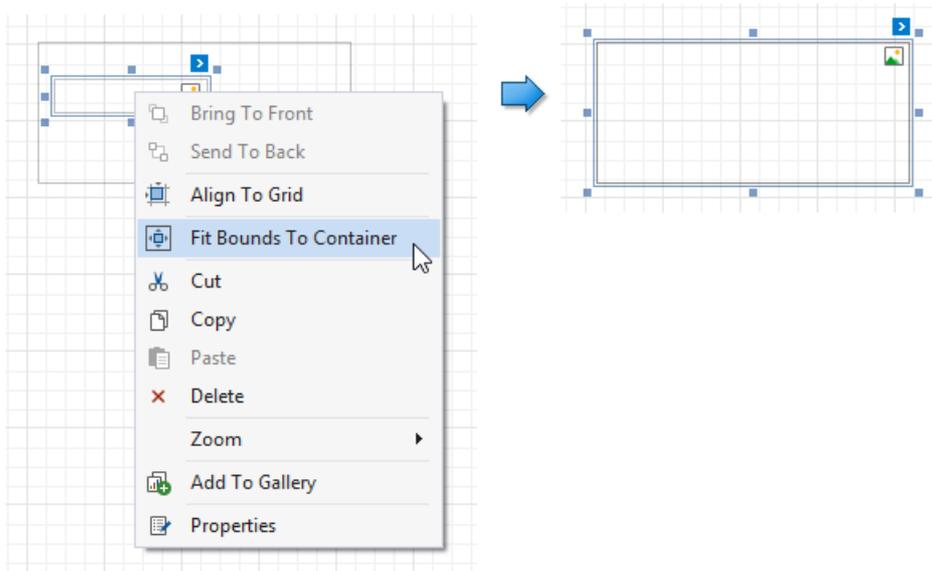
The **Report Explorer** displays controls placed onto a panel as its subordinate nodes.



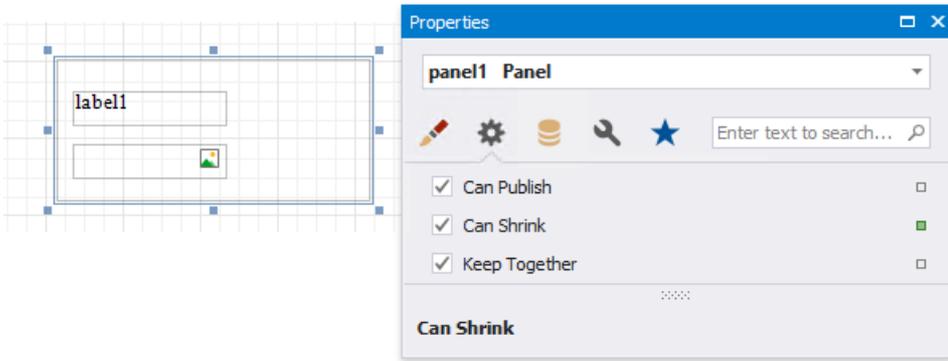
The panel cannot contain the following report

- controls: [Pivot Grid](#)
- [Subreport Page](#)
- [Break](#)
- [Table of Contents](#)
- [Cross-Band Line and Box](#)

If a panel includes only one control, you can use the **Fit Bounds to Container** command in the context menu or in the **Layout** toolbar tab. This command resizes the control so that it occupies all the available container space (excluding borders).



You can also enable the panel's **Can Shrink** property to automatically adjust the panel's size to fit all the inner controls. For instance, this allows preventing blank areas when you [conditionally hide specific controls](#).

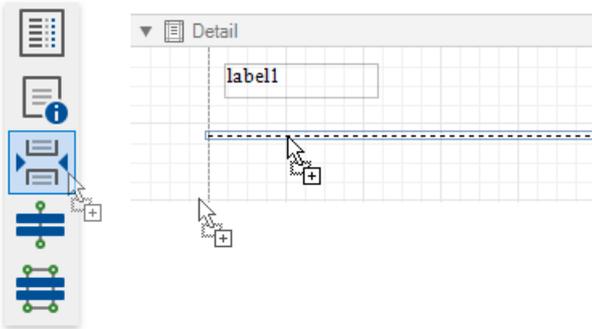


O Not e

The Panel control cannot span several [report bands](#) as [cross-band controls](#) can.

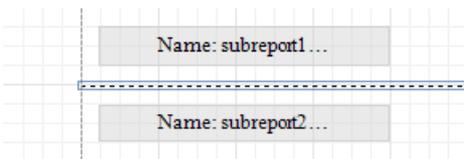
Page Break

The **Page Break** control's sole purpose is to insert a page delimiter at any point within a report. You can add this control by dragging the **Page Break** item from the [Toolbox](#) onto the report's area.



This control is visually represented by a short line attached to the report's left margin.

The Page Break control is useful when you need to insert a page break between controls within a [report band](#) (for example, to divide subreports so that the second subreport starts printing on a new page).



You can also insert a page break before or after a specific report band using the band's **Page Break** property.

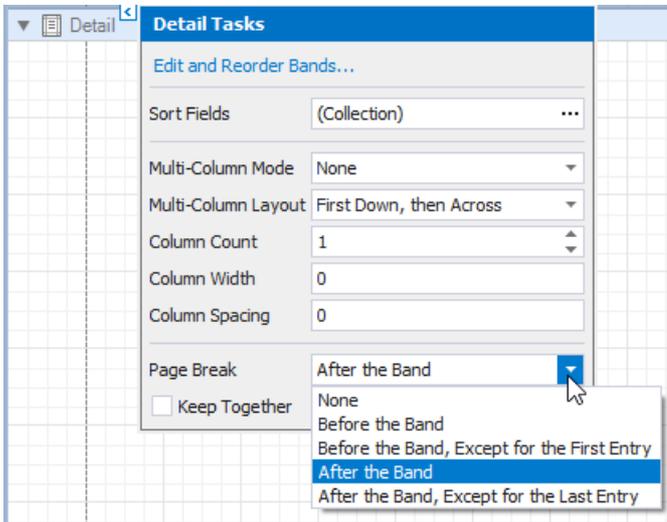
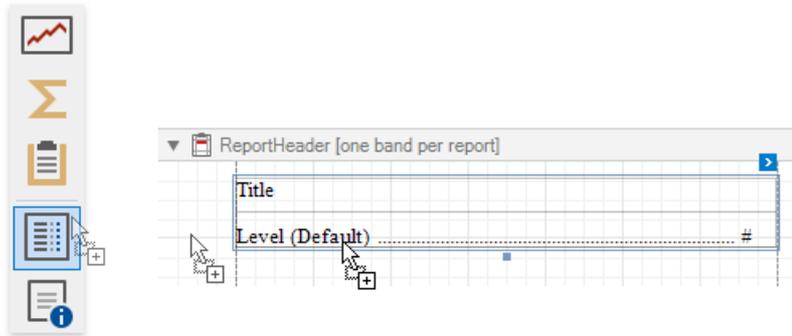


Table of Contents

Overview

Once [bookmarks](#) have been assigned to specific report elements, you can generate a table of contents that displays page numbers containing the elements included into the document map.

To implement a table of contents, drop the **Table Of Contents** control from the [Toolbox](#) onto the report's area. If the report does not contain a [Report Header](#) at the moment, it is created automatically so that the table of contents can be added to it.



The following image illustrates the difference in displaying information by a table of contents within a report and in a published document.

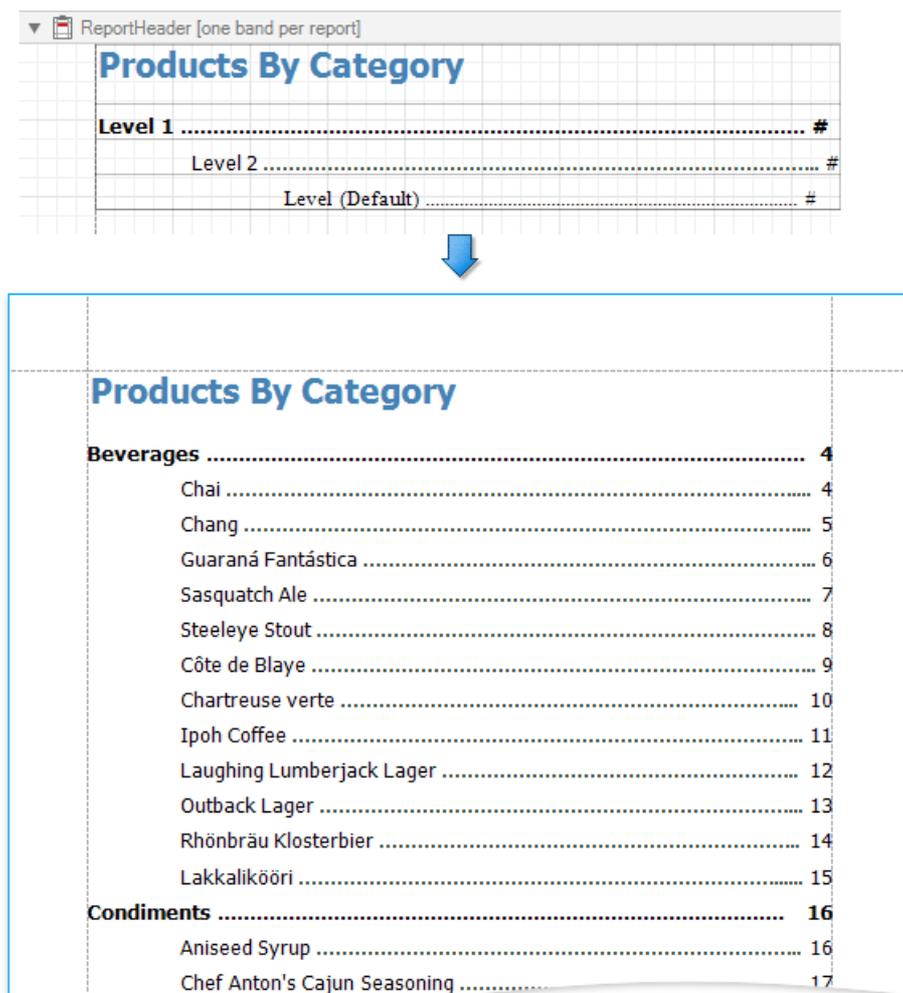


Table of Contents Structure

The table of contents contains the following elements:

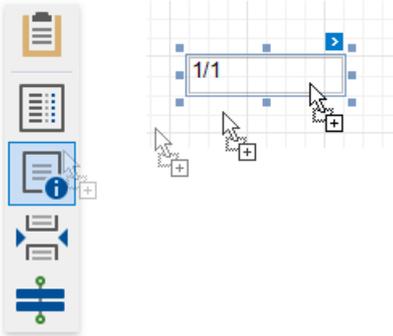
1. A title that displays text and formatting options specified by the **Level Title** property.
2. One or more document levels that provide individual formatting settings to specific nodes of a document map's tree. To access the collection of levels, use the **Levels** property.

Unless levels have been added to a table of contents, a single default level is used to provide common settings to the elements of a document map for which no specific level has yet been assigned.

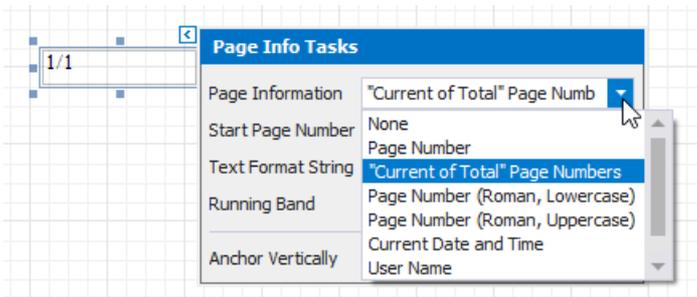
Refer to the [Add a Table of Contents](#) topic for a step-by-step tutorial.

Page Info

The **Page Info** control is used to display auxiliary information on report pages, such as date, time, page numbers or user name. To add a new Page Info control to a report, drag the **Page Info** item from the [Toolbox](#) and drop it onto the required report band.



Use the **Page Information** property to define the kind of information the control displays: page numbers, system date-time, or user name.



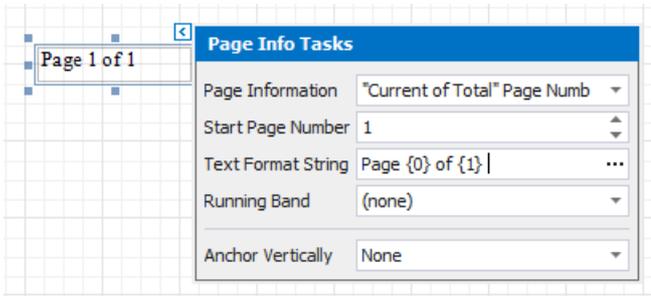
For examples of different uses of this control, see the

- corresponding tutorials: [Add Page Numbers](#)
- [Display the User Name in a Report](#)
- [Display the Current Date and Time in a Report](#)

O Not e

Because usually this information is displayed in the Page Header/Footer and Top/Bottom Margin bands, you cannot bind the **Page Info** property to a field from a data source. So, in order to display dynamic information, use the [Label](#) or [Rich Text](#) controls instead.

In addition, a format string can be applied to a control's contents. For example, you can change the control's format to **Page {0} of {1}** using the **Text Format String** property.



When a report contains at least one [group](#), you can specify individual page numbers for report groups by setting the **Running Band** property to the name of the required group.

Use Tables

The documents in this section describe the **Table** control and illustrate its main features:

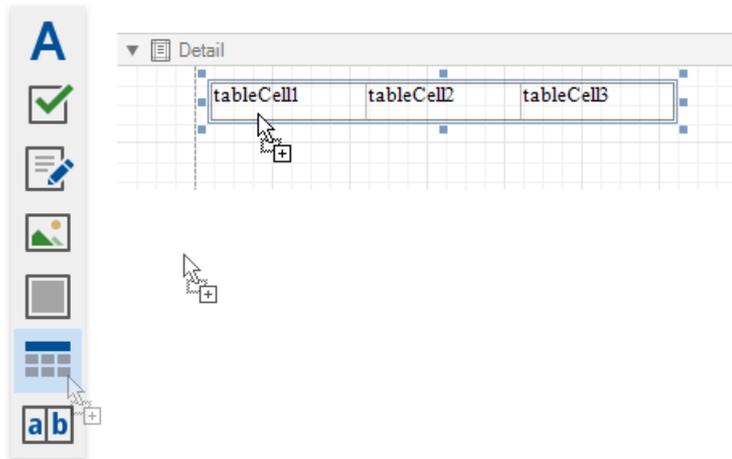
- [Table Overview](#)
- [Bind Table Cells to Data Manage Table](#)
- [Structure Manipulate](#)
- [Table Elements Hide](#)
- [Table Cells](#)

Table Overview

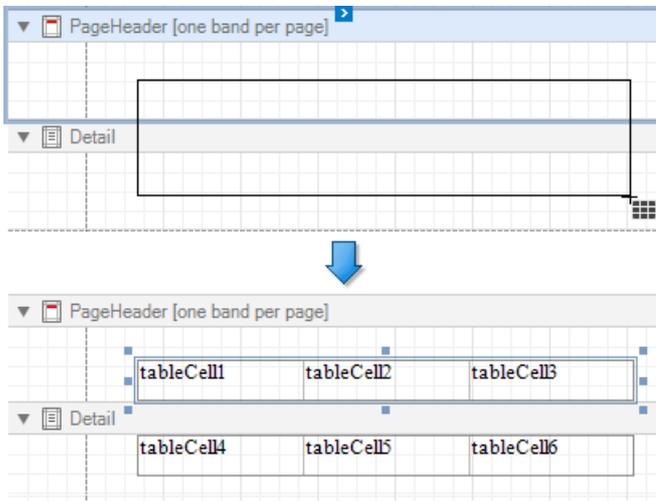
Refer to [Create a Table Report](#) for a step-by-step tutorial on creating a data-bound table report.

Table Overview

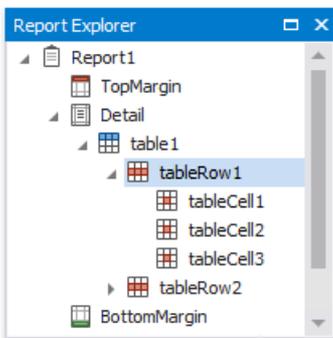
The **Table** control displays information in a tabular format and allows you to create [table reports](#). You can add a table control by dragging the **Table** item from the [Toolbox](#) onto the report's area.



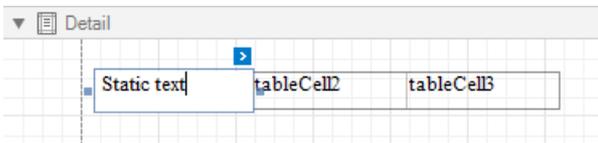
You can also create two tables simultaneously, for instance, one that shows column titles in the Page Header and one that shows regular information in the Detail band. Select the **Table** item in the Toolbox and draw a rectangle across these bands.



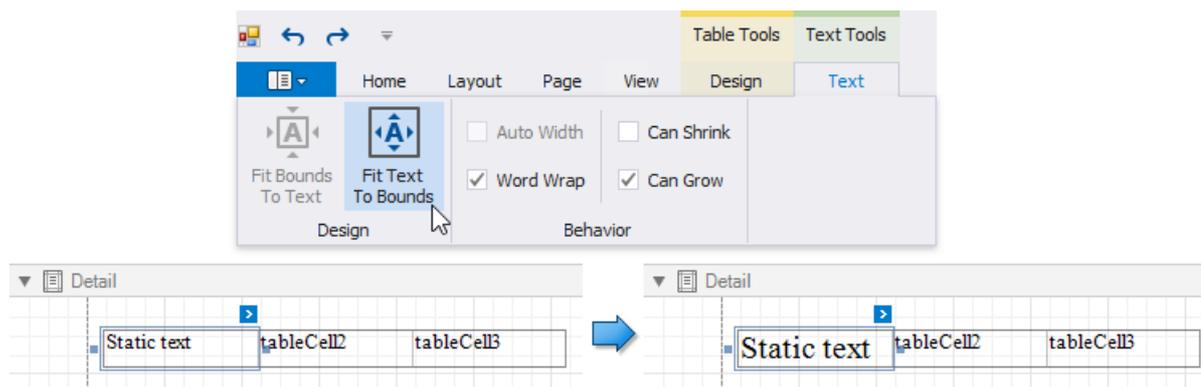
The table control contains one or more rows. Each row contains one or more cells. See the [Report Explorer](#) for a table structure example.



You can double-click the cell to invoke its in-place editor and type the desired static text.



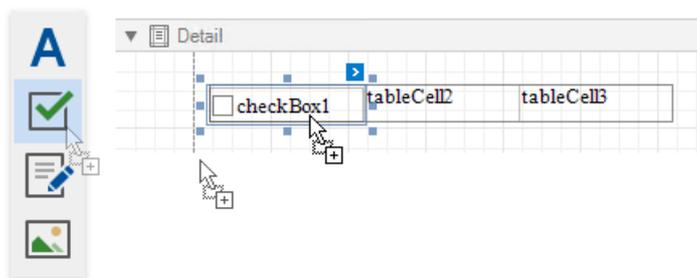
You can adjust the font size of a cell's static text to fit into the cell's boundaries. Use the **Fit Text to Bounds** button in the **toolbar's Text** contextual tab, or right-click this cell and select **Fit Text to Bounds** in the context menu.



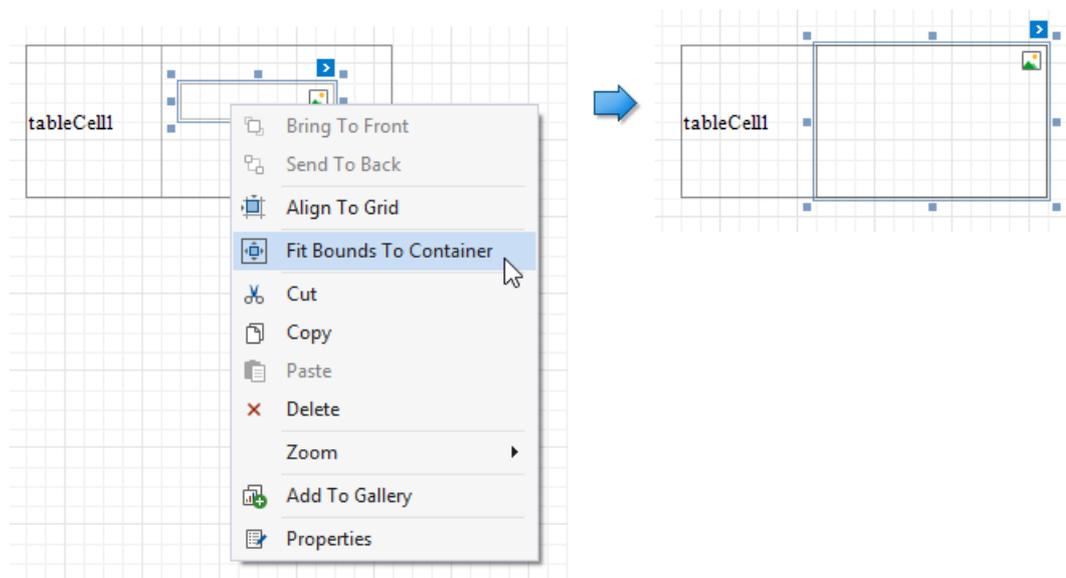
Refer to [Bind Table Cells to Data](#) to learn about providing dynamic content to table cells.

A table cell is like an [Label](#) control - it provides the same options for text formatting, alignment, appearance, interactivity, etc.

You can also make a table cell act as a container for other report controls by dropping the required control from the toolbox on this cell.

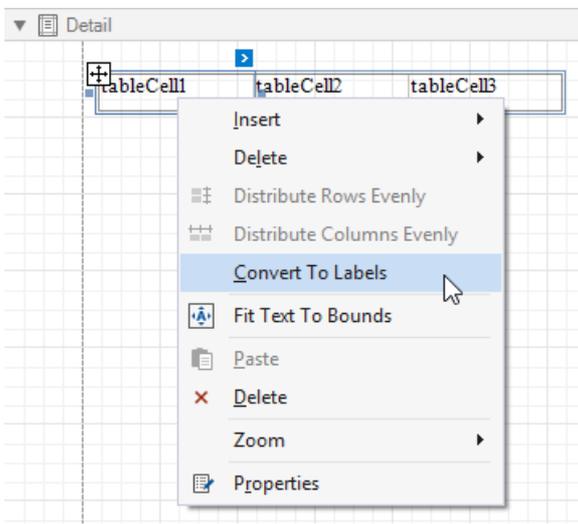


If a table cell includes only one control, you can right-click this control and use the **Fit Bounds to Container** command in the context menu. The same command is available in the toolbar's **Layout** tab. This command resizes the control so that it occupies all the available cell space (excluding borders).



To transform a table into a set of Label controls, right-click a table or any of its cells and select **Convert To**

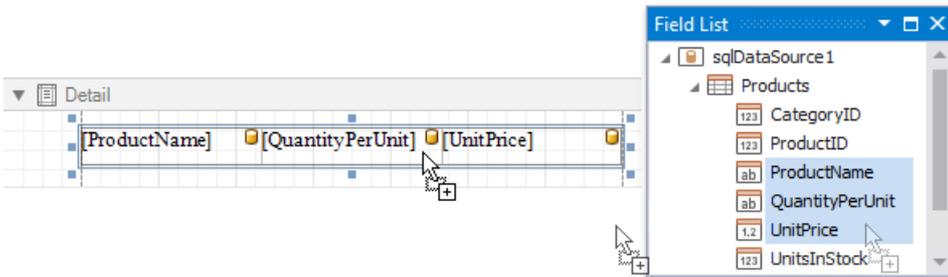
Labels. Table cells containing other controls are converted to [Panel](#) controls.



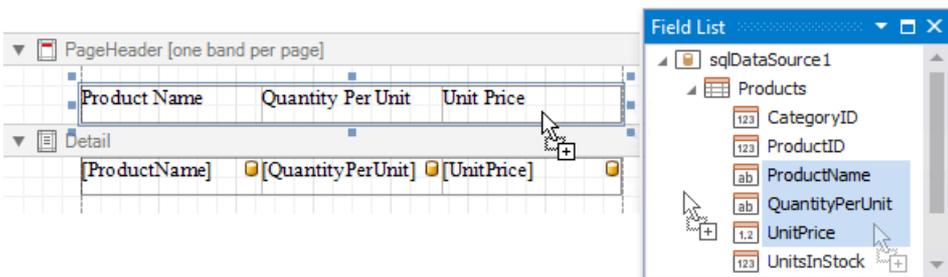
You can assign different [visual styles](#) for even and odd table rows to improve readability.

Bind Table Cells to Data

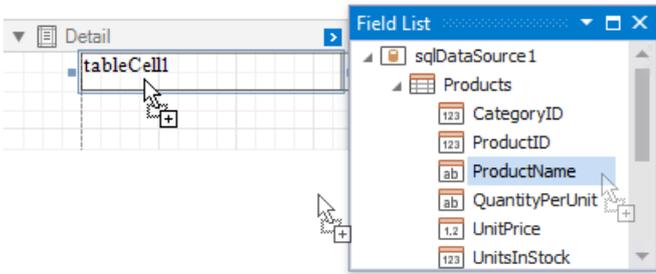
You can create a table control with cells [bound](#) to data fields obtained from a report's data source using the [Field List](#). Select data fields by clicking them while holding the CTRL or SHIFT key and drop them onto the Detail band.



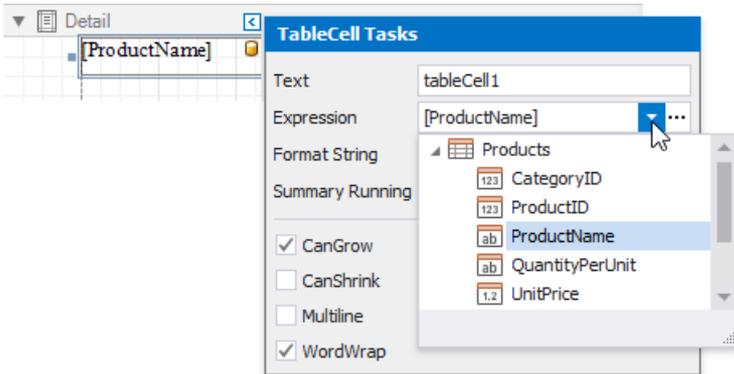
Drag and drop the same fields with the right mouse button to create column headers with the corresponding field names.



You can bind individual table cells to data in the same ways as [Label](#) controls. Dropping a data field onto an existing cell binds this cell to a corresponding field.



Alternatively, click the cell's smart tag, expand the **Expression** drop-down list and select the required data field



Clicking the **Expression** option's ellipsis button invokes the Expression Editor. This allows you to construct a complex binding expression involving two or more data fields.

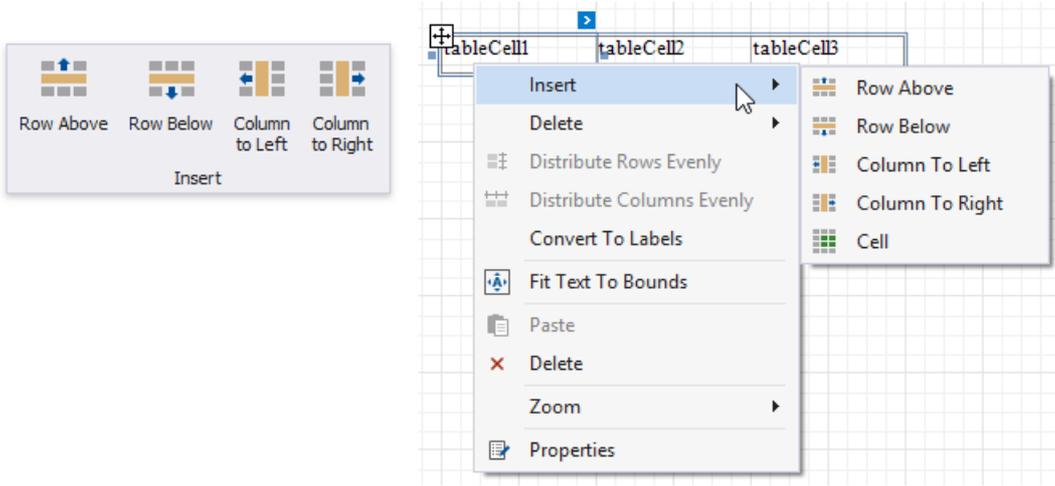
See the [Bind Report Controls to Data](#) topic to learn more about creating data-aware controls.

The **Process Duplicates Mode** and **Process Duplicates Target** options enable you to merge cells with identical values.

Manage Table Structure

Insert Table Rows and Columns

You can use the **Insert** group in the **toolbar's Table Tools** contextual tab or the **Insert** context menu items to add new rows and columns. The added cells inherit the source cells' size and appearance settings.



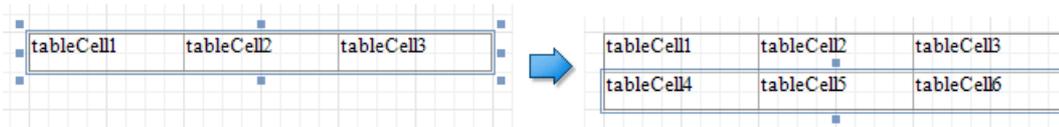
- **Insert Row Above**

Inserts a row above the current cell and shifts the existing rows up if there is enough space above the table (otherwise, shifts the existing rows down).



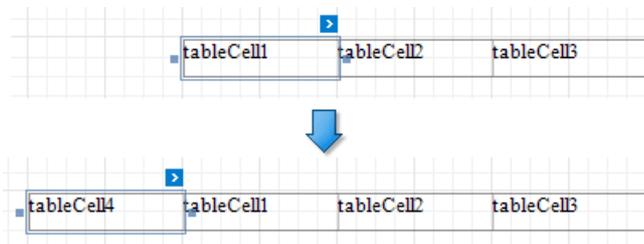
- **Insert Row Below**

Inserts a row below the current cell and shifts the existing rows down. This command increases the band height to accommodate all the rows if there is not enough space under the table.



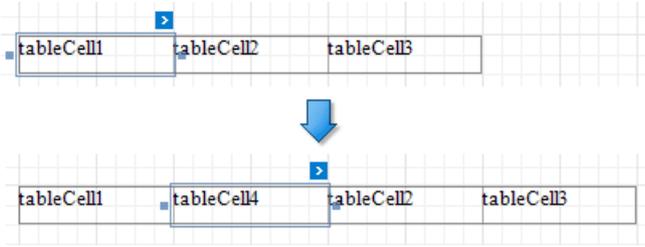
- **Insert Column to Left**

Inserts a new column to the left of the current cell and shifts the leftmost columns to the left (otherwise, shifts these columns to the right).



- **Insert Columns to Right**

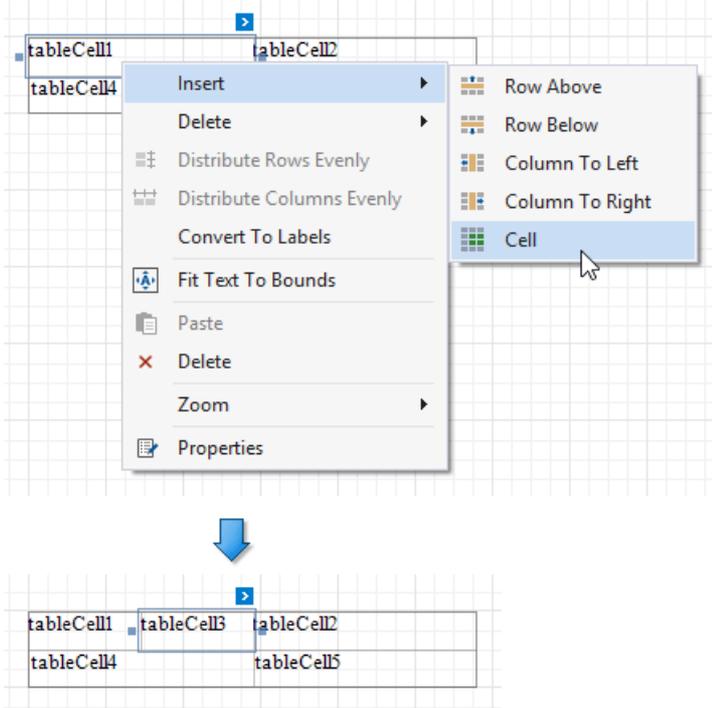
Inserts a new column to the right of the current cell and shifts the rightmost columns to the right. This command decreases all columns' width proportionally to accommodate all the columns if there is not enough space to the right of the table.



Insert, Split and Merge Table Cells

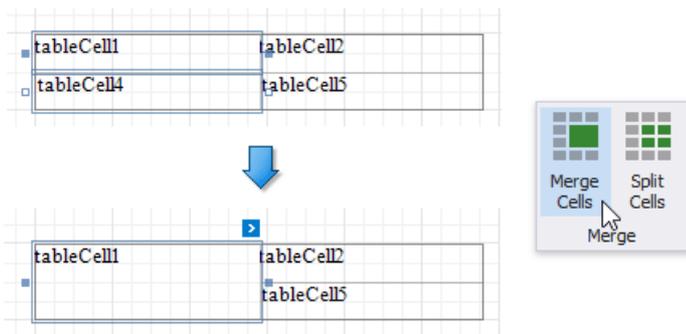
- **Insert Cell** (context menu item)

Divides the current cell width in half and inserts a new cell to the right. The added cell copies the source cell's appearance settings.



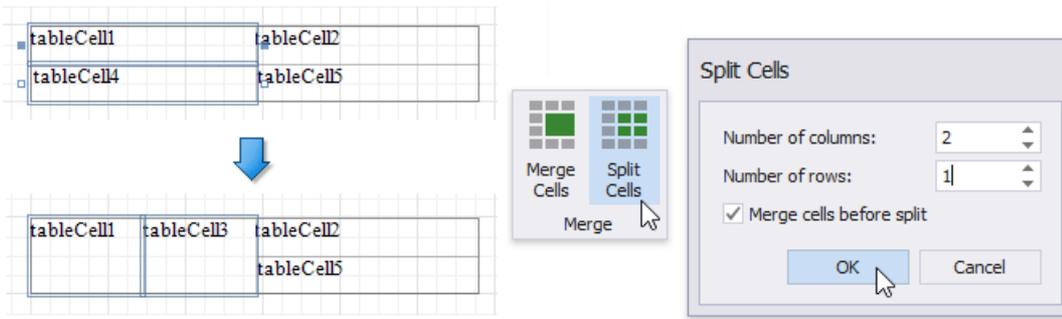
- **Merge Cells**

Merges the selected cells. This command is available if the selection has a rectangle form.



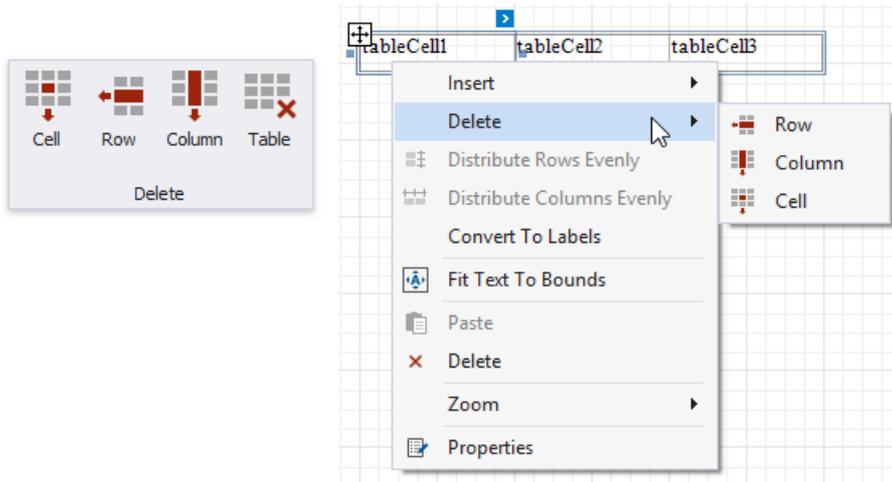
- **Split Cells**

Invokes the **Split Cells** dialog where you can specify the number of columns and rows to split the selected cells. You can apply this change to each selected cell individually, or merge the cells and then split the resulting cell.



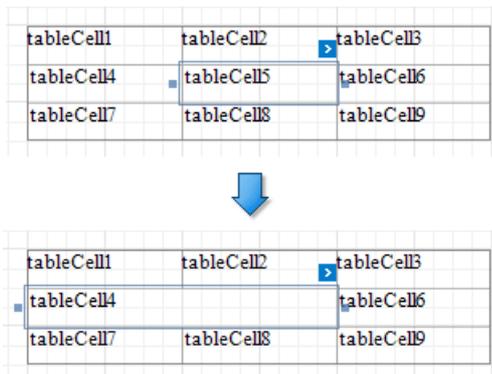
Delete Table Elements

Use the **Delete** group in the **toolbar**'s **Table Tools** contextual tab or the **Delete** context menu items to remove table elements.



- **Delete Cell**

Deletes a table cell and stretches the previous cell to occupy the remaining space. If this cell is the first in the row, the next cell is stretched.



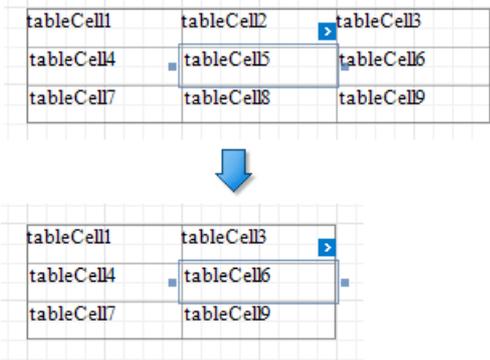
- **Delete Row**

Deletes a row and shifts the existing rows up.



- **Delete Column**

Deletes a column and shifts the existing columns to the left.



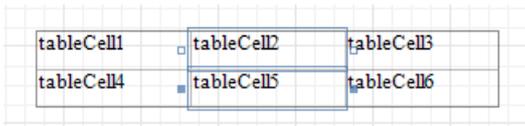
- **Delete Table**

Deletes the entire table.

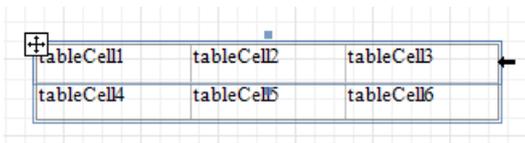
Manipulate Table Elements

Select Table Elements

You can click a table cell to select it and [access its settings](#). To select multiple cells, hold the SHIFT or CTRL key and click cells.

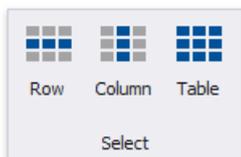


Use the arrow that appears when a mouse cursor hovers over the table edges to select an entire row or column.



Click the  button at the table's left bottom corner to select the whole table. You can also use this button to move the table.

The **Select** group in the [toolbar's Table Tools](#) contextual tab also enables you to select the current row, the current column or the entire table.

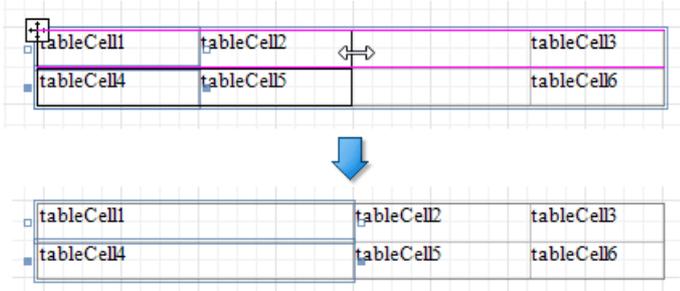


Resize Table Elements

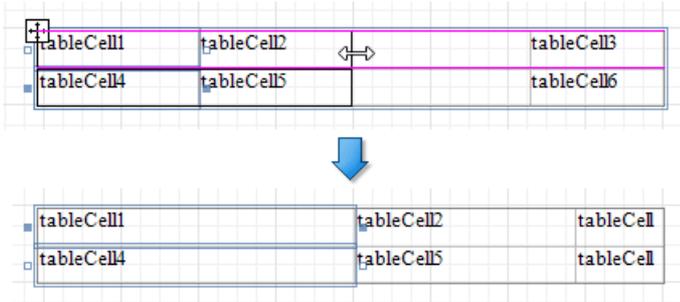
You can resize a table or its cell by dragging the rectangle drawn on its edge or corner. The following column resizing modes are supported:

- Resizing a column changes the next column's width without affecting the other columns (keeps the table

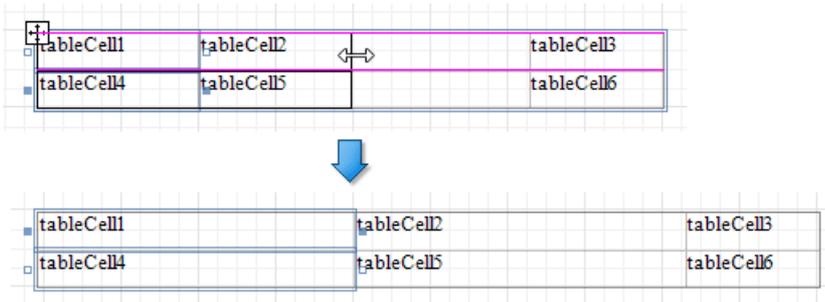
dimensions intact).



- Resizing a column while holding the CTRL key changes the next columns' width while maintaining their proportion to the overall table (keeps the table dimensions intact).

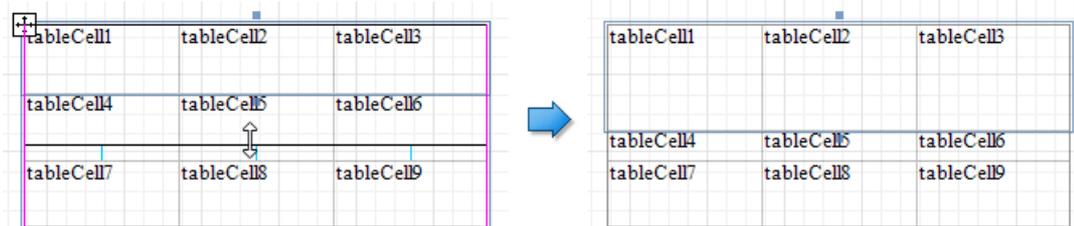


- Resizing a column while holding the SHIFT key shifts the next columns without changing their size.

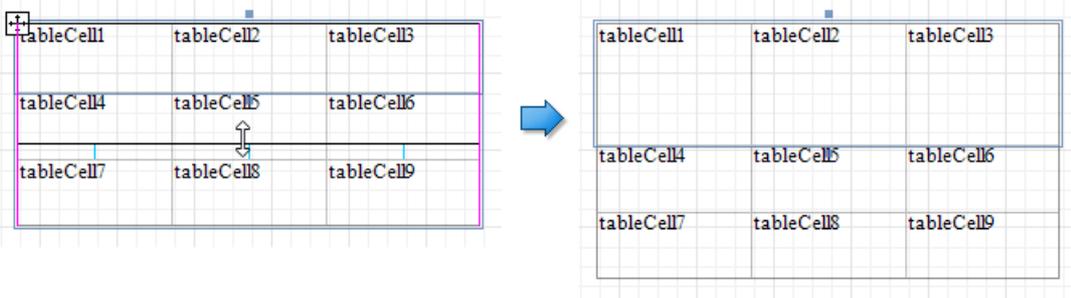


The following row resizing modes are supported:

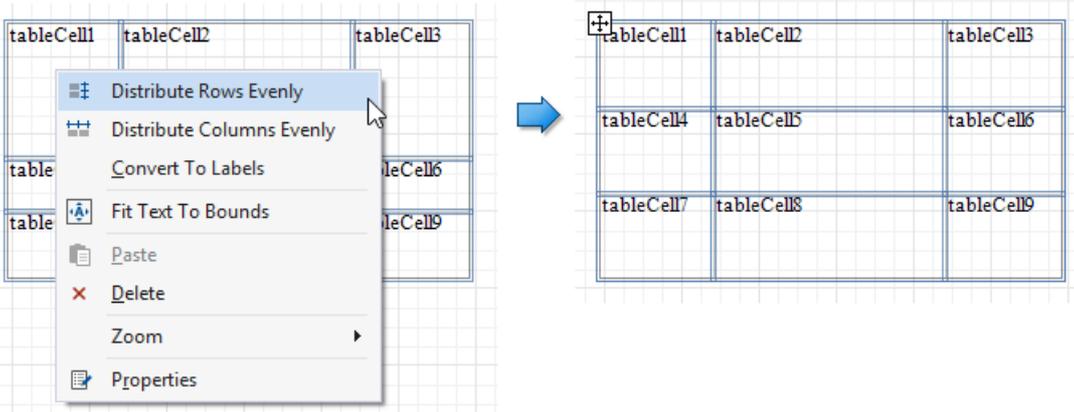
- Resizing a row changes the next row's width without affecting the other rows (keeps the table dimensions intact).



- Resizing a row while holding the SHIFT key shifts the next rows without changing their size.

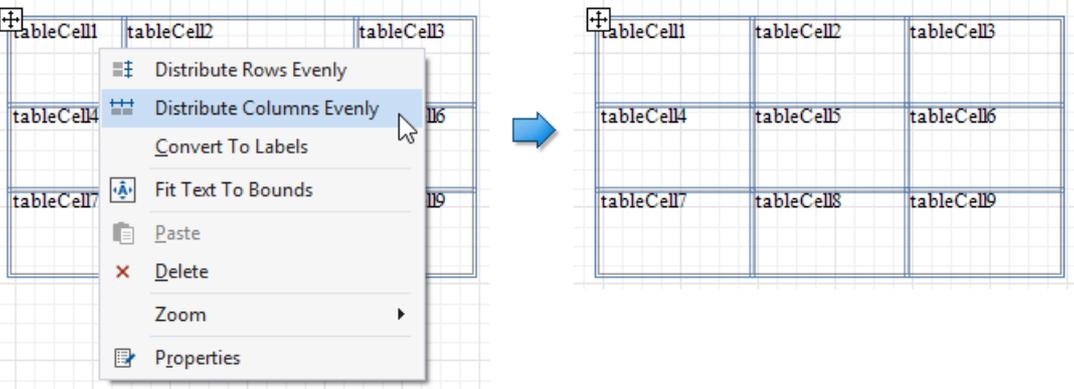


You can set the same size for multiple table columns or rows. Select the required rows or the whole table, right-click the selected area and choose **Distribute Rows Evenly**.



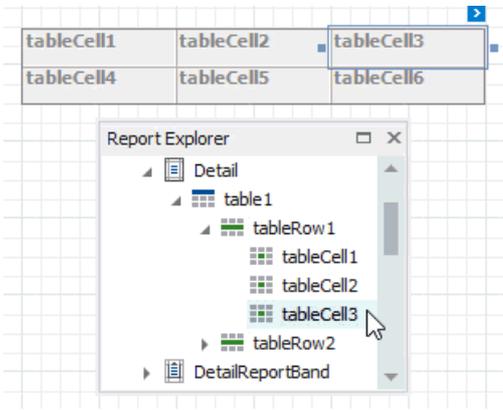
If the cell's content is partially visible in the resulting row, this row automatically increases its height to fit its content and also adjusts the other rows accordingly.

You can resize columns equally in a similar way by selecting the columns or the table itself and choosing **Distribute Columns Evenly** in the context menu.



Reorder Table Rows and Cells

You can change the order of table rows and cells. Switch to the [Report Explorer](#) window, select a row or cell and drag it to a new position.



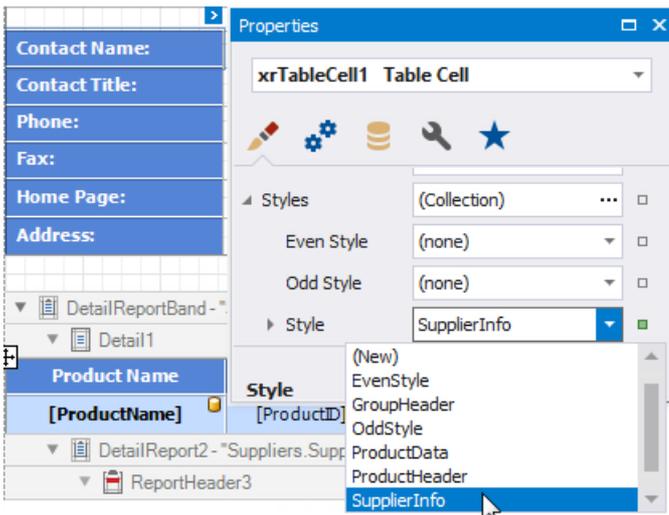
The Report Explorer highlights the possible drop targets when you drag an element over them.

O Not e

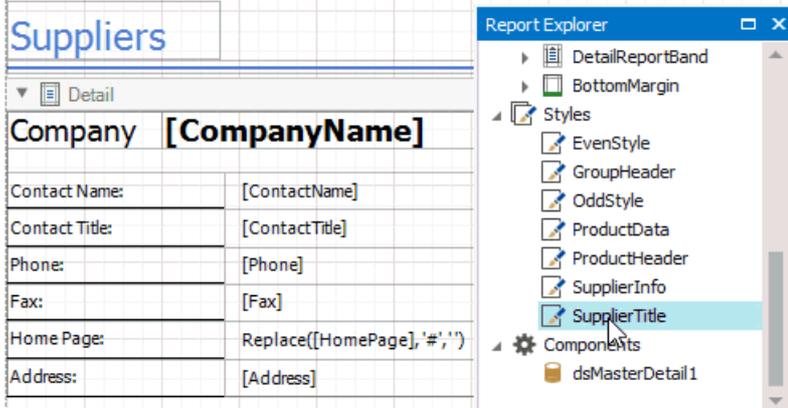
You can move table rows and cells only within the same parent control.

Apply Styles to Table Elements

Select a table element and switch to the **Property Grid**. Expand the **Styles** group and set the **Style** property to the style name.



As an alternative, you can drag a style from the Report Explorer onto an element.

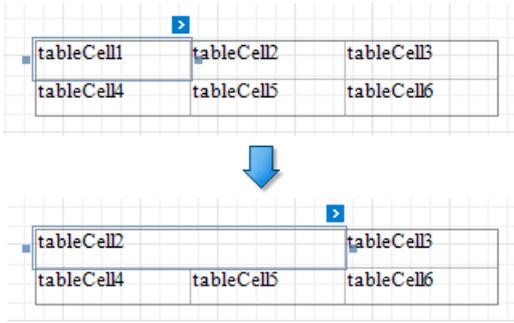


Stretch Table Cells

You can stretch a cell so that it occupies several rows and columns.

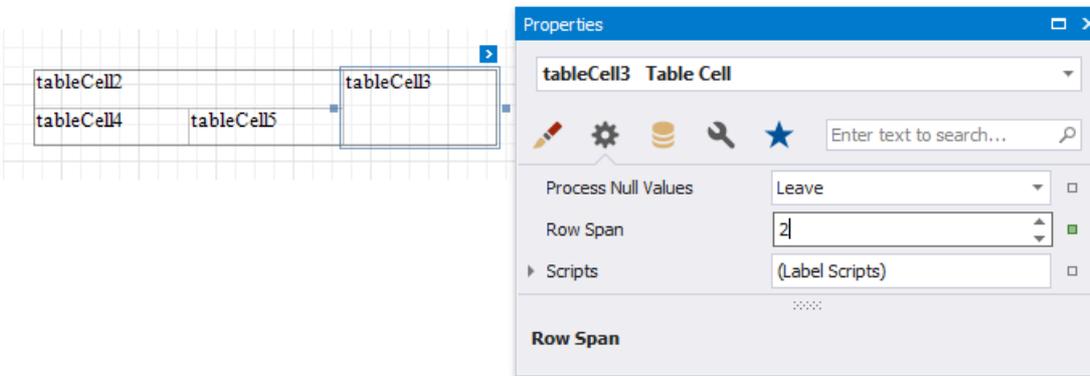
- Stretch a cell across several columns

Remove a neighboring cell by pressing **DELETE** or selecting **Delete | Cell** in the context menu and resize the remaining cells.



- Stretch a cell across several columns

Use a table cell's **Row Span** property to specify the number of rows the table cell spans.

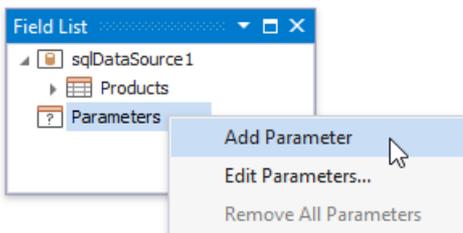


O Not e

For the **RowSpan** property to work properly, the spanned cells should have the same width.

Hide Table Cells

You can hide a specific table cell conditionally, for instance, based on a [report parameter](#) value. Right-click the **Parameters** section in the [Field List](#) and select **Add Parameter**.



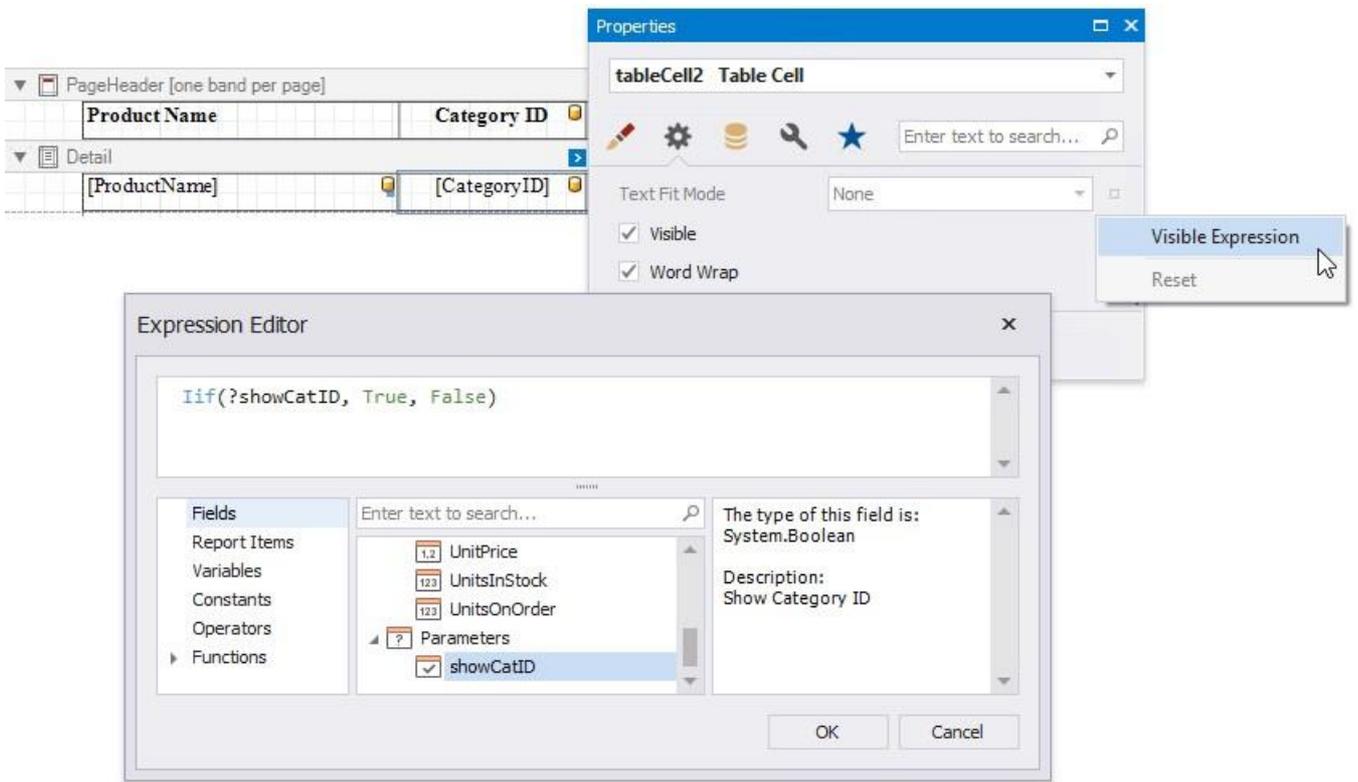
In the invoked **Add New Parameter** dialog, specify the parameter's name and description for Print Preview, and set the type to **Boolean**.

- **Warning**

Use the approach below if expression bindings **are enabled** in the Report Designer (the [Property Grid](#) provides the **PropertyName Expression** item in the property marker's context menu).

Specify an [expression](#) for the cell's **Visible** property to define a logical condition for displaying or hiding this cell.

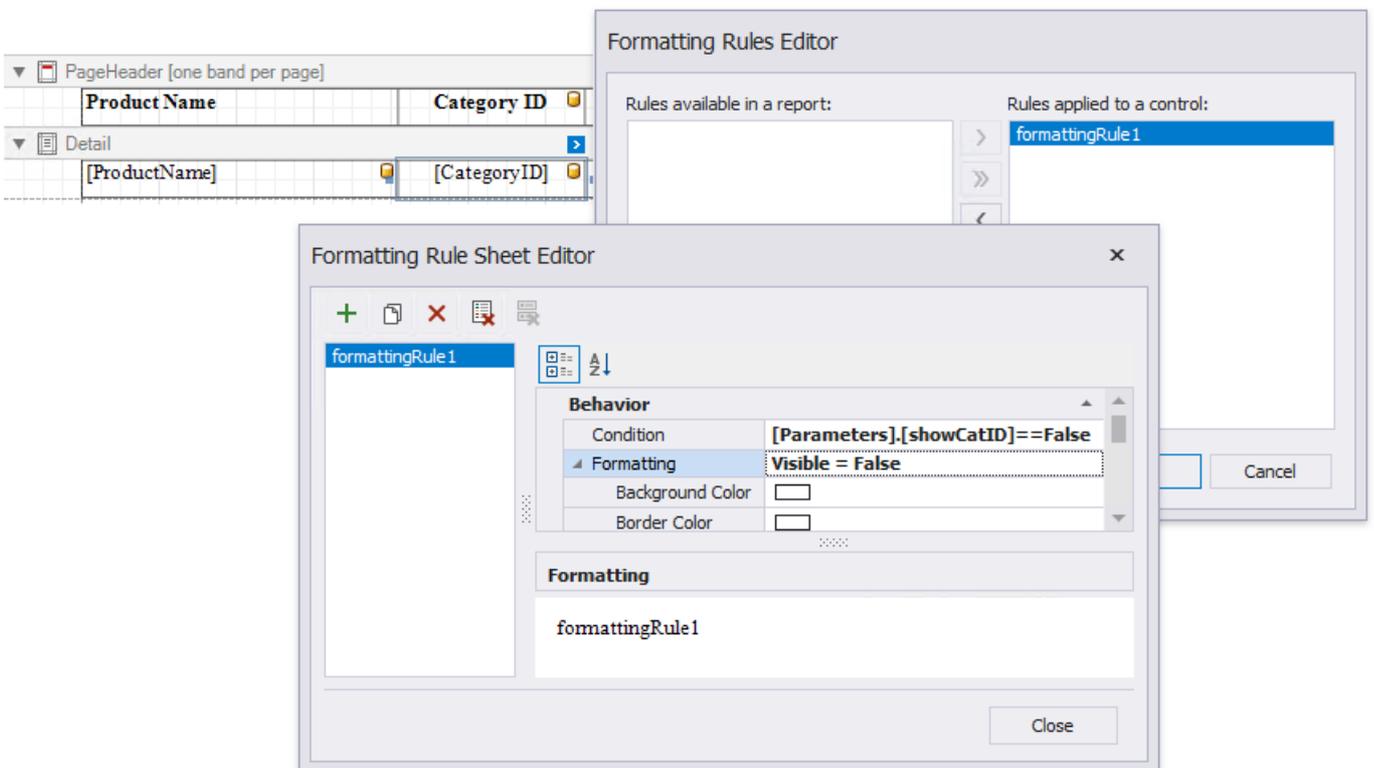
The image below demonstrates how to provide the visibility expression for the cell bound to the **CategoryID** field. For a report to display correctly, you should specify the same expression for the cell that displays the field caption in the Page Header.



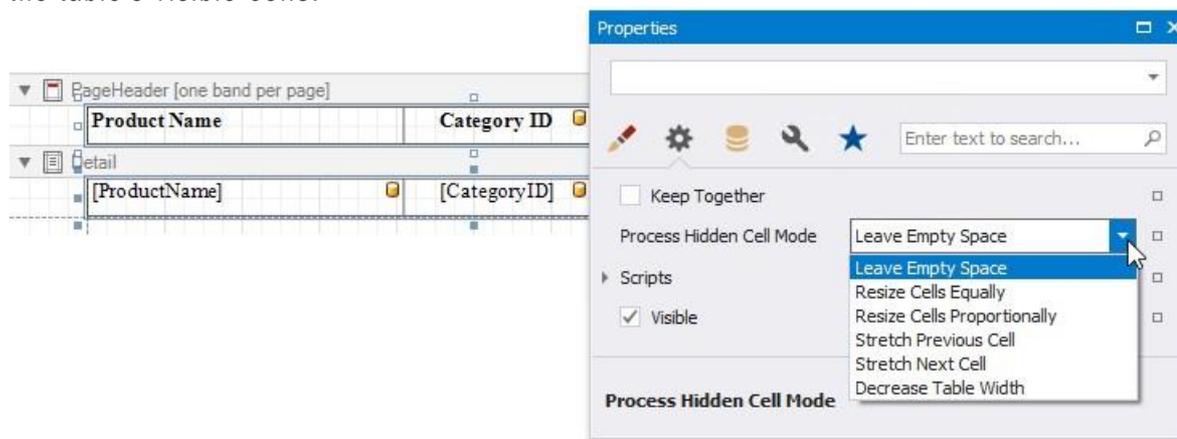
- **Warning**

Use the approach below if expression bindings **are not enabled** in the Report Designer (the PropertyGrid does not provide the **PropertyName Expression** item in the property marker's context menu).

Create a **formatting rule**, specify a logical condition to hide a cell and set the **Visible** property to **False** as shown below. For a report to display correctly, apply the created rule to the cells in the Detail band and the Page Header band.



The **Process Hidden Cell Mode** property allows you to define how to distribute the remaining space between the table's visible cells.



The image below illustrates how the original table looks like:

Product Name	Category ID	Unit Price	Units In Stock
Chai	1	\$18.00	39
Chang	1	\$19.00	17
Aniseed Syrup	2	\$10.00	13
Chef Anton's Cajun Seasoning	2	\$22.00	53

The following modes are available to process hidden cells:

- **StretchPreviousCell** - A cell to the left of the hidden cell is stretched to occupy the available space. If the hidden cell is the first in the row, the next cell is stretched.

Product Name	Unit Price	Units In Stock
Chai	\$18.00	39
Chang	\$19.00	17
Aniseed Syrup	\$10.00	13
Chef Anton's Cajun Seasoning	\$22.00	53

- **StretchNextCell** - A cell to the right of the hidden cell is stretched to occupy the available space. If the hidden cell is the last in the row, the previous cell is stretched.

Product Name	Unit Price	Units In Stock
Chai	\$18.00	39
Chang	\$19.00	17
Aniseed Syrup	\$10.00	13
Chef Anton's Cajun Seasoning	\$22.00	53

- **ResizeCellsEqually** - All visible cells are resized to divide the space that a hidden cell reserved equally.

Product Name	Unit Price	Units In Stock
Chai	\$18.00	39
Chang	\$19.00	17
Aniseed Syrup	\$10.00	13
Chef Anton's Cajun Seasoning	\$22.00	53

- **ResizeCellsProportionally** - All visible cells are resized to proportionally divide the space that a hidden cell reserved based on their weights in the whole table width.

Product Name	Unit Price	Units In Stock
Chai	\$18.00	39
Chang	\$19.00	17
Aniseed Syrup	\$10.00	13
Chef Anton's Cajun Seasoning	\$22.00	53

- **DecreaseTableWidth** - The table width is decreased, and visible cells are shifted to a hidden cell's location without changing their size.

Product Name	Unit Price	Units In Stock
Chai	\$18.00	39
Chang	\$19.00	17
Aniseed Syrup	\$10.00	13
Chef Anton's Cajun Seasoning	\$22.00	53

- **LeaveEmptySpace** (the default mode) - A space remains at a hidden cell's location, and other cells are not affected.

Product Name	Unit Price	Units In Stock
Chai	\$18.00	39
Chang	\$19.00	17
Aniseed Syrup	\$10.00	13
Chef Anton's Cajun Seasoning	\$22.00	53

Use Bar Codes

The following topics provide basic information about using bar codes:

- [Add Bar Codes to Reports](#)
- [Bar Code Recognition Specifics](#)

See the following topics to learn about the supported one-dimensional bar

- codes: [Codabar](#)
- [Code 11 \(USD-8\)](#)
- [Code 128](#)
- [Code 39 \(USD-3\)](#)
- [Code 39 Extended](#)
- [Code 93](#)
- [Code 93 Extended](#)
- [EAN 8](#)
- [EAN 13](#)
- [GS1-128 - EAN-128 \(UCC\)](#)
- [GS1 - DataBar](#)
- [Industrial 2 of 5](#)
- [Intelligent Mail](#)
- [Package Interleaved](#)
- [2 of 5](#)
- [Matrix 2 of 5 MSI -](#)
- [Plessey](#)
- [PostNet](#)
- [UPC Shipping Container Symbol \(ITF-14\) UPC Supplemental 2](#)
- [UPC](#)
- [Supplemental 5](#)
- [UPC-A](#)
- [UPC-E0](#)
- [UPC-E1](#)

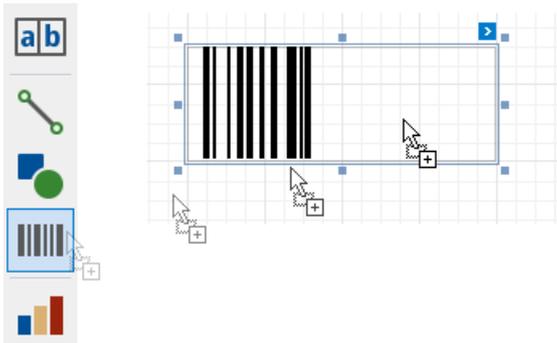
See the following topics to learn about the supported two-dimensional bar

- codes: [ECC200 - Data Matrix](#)
- [GS1- Data Matrix](#)
- [Intelligent Mail](#)
- [PDF417](#)
- [QR Code](#)

Add Bar Codes to a Report

Overview

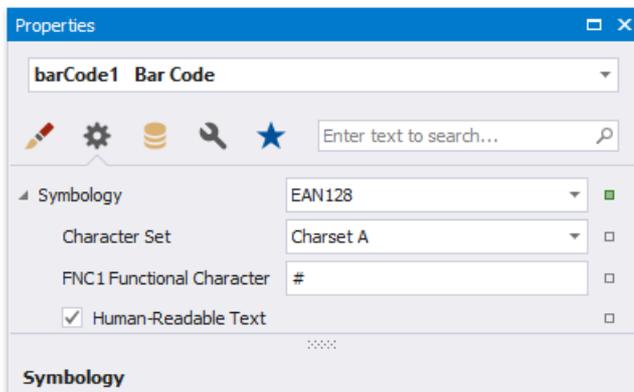
To insert a bar code into a report, drag the **Bar Code** item from the **Toolbox** onto the report's area.



After creating the bar code, select the bar code type (symbology) in the **Bar Code Tools toolbar** tab's **Symbology** gallery.



After specifying the symbology, you can customize the type-specific options of the bar code, which are listed in the **Property Grid** under the **Symbology** property.



Main Options

You can use the **Binary Data** property to supply the data that a bar code should encode. To specify the bar width (a bar code's resolution), use the following options:

- Automatically calculate the bar width according to a bar code's dimensions by enabling the **Auto Module** option; Provide a fixed bar width value using the **Module** property.

The following are some additional bar code options:

- Use the bar code's **Text** property to provide accompanying text. The **Show Text** property allows you to show or hide this text.

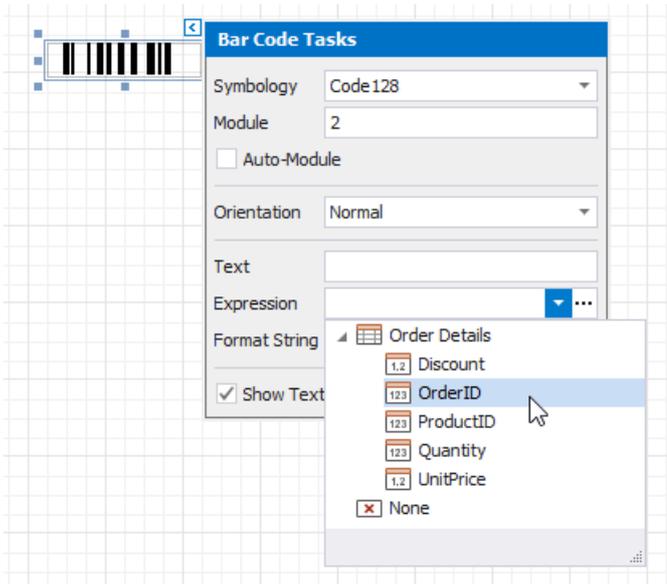
Use the **Orientation** property to rotate a bar code.



- Use the **Padding** property to specify the indent between bars and the bar code's inner boundaries.

Bind to Data

You can **bind** the bar code's **Text** property to a data field obtained from a report's data source. Click the control's smart tag, expand the **Expression** drop-down list and select the data field.

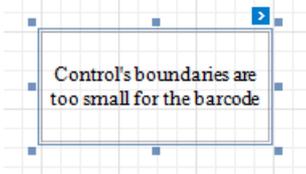


You can also click the **Expression** option's ellipsis button to invoke the **Expression Editor**. This editor allows you to construct a complex binding expression with two or more data fields.

Common Errors

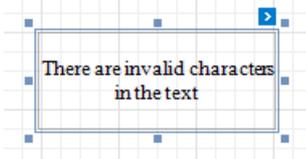
The following section explains how to work around the most frequently encountered errors related to the incorrect use of bar codes.

- The following error message is shown in place of the bar code if the control's dimensions are too small to fit the bar code with its specified resolution.



To get rid of this error, enable the **Auto Module** property and/or increase the bar code's dimensions.

- The following error message appears when the data supplied to a bar code contains characters that are not supported by this bar code type.



To avoid this error, supply data that applies to a particular bar code specification.

Bar Code Recognition Specifics

This document describes the main specifics of bar code recognition and how to resolve the most frequently encountered issues when working with bar codes.

Choose an Appropriate Bar Code Type

Selecting an appropriate bar code type (symbology) depends on your specific business requirements and the applied industrial standards.

In general, consider using [Bar Code 2 of 5 Interleaved](#) for encoding digits and [Bar Code 39](#) for encoding the full range of ASCII characters.

Insert the Function Code One Character (FNC1) or the Application Identifier into a Bar Code

Some encodings enable you to insert a special **FNC1** character for separating application identifiers from the rest of the bar code.

According to the **GS1** specification, the **FNC1** character is always inserted at the first position of the encoded data. Other identifiers can be inserted manually using the default "#" character.

Although you can use any ASCII character as the **FNC1** placeholder, it will not be a part of the encoded data as it does not have any direct ASCII representation.

O Note

For the [Code 128](#) symbology, only **FNC1** characters are currently supported. At present, there is no way to define **FNC2 - 4** characters for this bar code.

For the list of the available application identifiers, refer to the official documentation at www.gs1.org.

Specify the Bar Code Resolution on Export to Third-Party Formats

At present, only [export to PDF](#) preserves the original bar code in its vector form. Export to other formats will keep only the rasterized version of a bar code (with the default DPI set to **96**).

For [XLSX](#) and [XLS](#) export, the output resolution can be set up manually using the **Rasterization Resolution** property.

Common Issues

This document section provides solutions to the most common issues that you may encounter when creating bar codes.

- **The bar code is too "dense"**

The more information you wish to encode, the more bars should be drawn and the larger the bar code should become.

The bar code's **Module** property specifies the width of the narrowest bar in a bar code. Although you can set this property to a very small value, the actual value is determined by the maximum resolution of your bar code printer device.

Alternatively, consider using the **Auto Module** option to automatically calculate the optimal bar size based on the current bar code dimensions.

O Note

When bar codes are "dense" and you are manually specifying the Module value, make sure that multiplying this value by the bar code printer resolution results in an integer number. Otherwise, rounding errors may occur on calculating the resulting bar width.

For example, when the Module is set to **0.015** inches and the printer resolution is **300** DPI, their product equals **4.5**, which may be rounded to **4** or **5** pixels for different bars and result in bar code recognition errors. In this case, the Module property should be set to **0.01333** (to make the bar width equal to **4** pixels) or to **0.01667** (to make the bar width equal to **5** pixels).

- **The bar code is correctly displayed on the preview but it is not scanned**

Make sure that your scanner has been correctly set up to be able to recognize a specific kind of a bar code. If you are not certain about how to operate the scanner properly, please refer to its product manual.

Avoid scanning bar codes from the monitor screen (e.g., using an application installed on your smartphone), because the screen DPI may not be sufficient to effectively recognize each particular bar.

- **The bar code is correctly displayed on the preview but it is scanned incorrectly**

The cause for this problem may be an encoding issue specific to the "binary" input mode.

By default, the **UTF-16** encoding is used. However, your scanner device may use a different encoding model or even a codepage (i.e., a specific table that maps abstract values to real human-understandable characters). For additional information on this subject, please refer to the specification of your scanner device.

- **The "There are invalid characters in the text" error occurs**

Different bar code symbologies define different ranges of allowed characters under different character sets. To avoid this error, please check the bar code specification.

Codabar

The **Codabar** is a discrete, self-checking symbology that may encode **16** different characters, plus an additional **4** start/stop characters. This symbology is used by U.S. blood banks, photo labs, and on FedEx air bills.



The following properties are specific to the **Codabar** type and listed in the [Property Grid](#) under the **Symbology** property:

- **StartSymbol**

Gets or sets the first (start) symbol used to code the bar code's structure.

- **StopSymbol**

Gets or sets the last (stop) symbol used to code the bar code's structure.

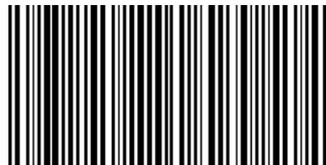
- **Wide Narrow Ratio**

Specifies the density of a bar code's bars.

Code 11 (USD-8)

Code 11, also known as **USD-8**, was developed as a high-density numerical-only symbology. It is used primarily in labeling telecommunications equipment.

The symbology is discrete and is able to encode the numbers **0** through to **9**, the dash symbol (-), and start/stop characters.



0123456789

There are no properties specific to the **Code 11** bar code type.

Code 128

Code 128 is a very effective, high-density symbology which permits the encoding of alphanumeric data. The symbology includes a checksum digit for verification, and the bar code can also be verified character-by-character, allowing the parity of each data byte to be verified.

This symbology has been widely implemented in many applications where a relatively large amount of data must be encoded in a relatively small amount of space. Its specific structure also allows numerical data to be effectively encoded at double-density.



BarCode 0123456

The following property is specific to the **Code 128** type and available in the [Property Grid](#) under the **Symbology** property:

- **Character Set**

Specifies the set of symbols which can be used when setting the bar code's text.

Code 39 (USD-3)

Code 39, the first alpha-numeric symbology to be developed, is still widely used, particularly in non-retail environments. It is the standard bar code used by the United States Department of Defense, and is also used by the Health Industry Bar Code Council (HIBCC). **Code 39** is also known as "**3 of 9 Code**" and "**USD-3**".



BARCODE

The following properties are specific to the **Code 39** type and listed in the [Property Grid](#) under the **Symbology** property:

- **Calculate a Checksum**

Specifies whether to calculate a checksum for the bar code.

Wide Narrow Ratio

- Specifies the density of a bar code's bars.

Code 39 Extended

Using **Code 39**'s "Full ASCII Mode", it is possible to encode all **128** ASCII characters. This is accomplished by using the (\$), (/), (%), and (+) symbols as "shift" characters. These characters combined with the single character that follows indicate which Full ASCII character is to be used.



BarCode

The following properties are specific to the **Code 39 Extended** type and listed in the [Property Grid](#) under the **Symbology**

property:

- **Calculate a Checksum**

Specifies whether to calculate a checksum for the bar code.

- **Wide Narrow Ratio**

Specifies the density of a bar code's bars.

The **Code 39 Extended** bar code, as opposed to [Code 39](#), automatically replaces all necessary characters with special symbols, when required. This means that you do not need to do this manually, otherwise, the result will be incorrect.

For example, if you want to insert a "TAB" character into a bar code's text, use "\t", which will be replaced by "\$I" for coding, and then into "TAB" after scanning:

PROPERTY	VALUE
Bar code's text:	"12345\t678"
Coded text:	"12345\$I678"
Scanned text:	"12345[TAB]678"

The checksum is not considered to be part of a bar code's text and checksum characters are never replaced. When the bar code's **Show Text** and **Calculate a Checksum** properties are enabled, the bar code will not display a checksum character. This is required to avoid mistakenly treating a checksum as part of bar code text.

Code 93

Code 93 was designed to supplement and improve upon **Code 39**.

Code 93 is similar in that, like **Code 39**, can represent the full ASCII character set by using combinations of 2 characters. It differs in that **Code 93** is a continuous symbology and produces denser code. It also encodes 47 characters (compared to **Code 39**'s 43 characters).



BARCODE

The following property is specific to the **Code 93** type and available in the [Property Grid](#) under the **Symbology** property:

- **Calculate a Checksum**

Specifies whether to calculate a checksum for the bar code.

O Not e

A checksum of a **Code 93** bar code can contain characters that are not supported by this bar code symbology. For this reason, the checksum is not included in the **Code 93** bar code's displayed text.

Code 93 Extended

Using **Code 93**'s "Full ASCII Mode", it is possible to encode all 128 ASCII characters. This is accomplished by using the (\$), (/), (%), and (+) symbols as "shift" characters. These characters combined with the single character that follows indicate which Full ASCII character is to be used.



BarCode

The following property is specific to the **Code 93 Extended** type and available in the [Property Grid](#) under the **Symbology** property:

- **Calculate a Checksum**

Specifies whether to calculate a checksum for the bar code.

O Not e

A checksum of a **Code 93 Extended** bar code can contain characters that are not supported by this bar code symbology. For this reason, the checksum is not included in the **Code 93 Extended** bar code's displayed text.

EAN 13

EAN-13, based upon the **UPC-A** standard, was implemented by the International Article Numbering Association (EAN) in Europe. At present, the **GS1** organization is responsible for the maintenance of bar code standards.

The **EAN-13** bar code contains **13** digits, no letters or other characters. The first two or three digits represent the country. The leading zero actually signifies the USA, and **UPC-A** coding. The last digit is the "check digit", the checksum. The check digit is calculated using the first twelve figures when the bar code is constructed. So, for the correct **EAN-13** code, you should specify only the first **12** digits.

The recommended dimensions are shown in the following image. The standard allows magnification up to **200%**, and reduction of up to **80%** of the recommended size.



There should be two quiet zones before and after the bar code. They provide reliable operation of the bar code scanner. The quiet zone recommended length is **3.63** mm for the left zone and **2.31** mm for the right zone.

There are no properties specific to the **EAN 13** bar code type.

EAN 8

EAN-8 is the **EAN** equivalent of **UPC-E** in the sense that it provides a "short" bar code for small packages.

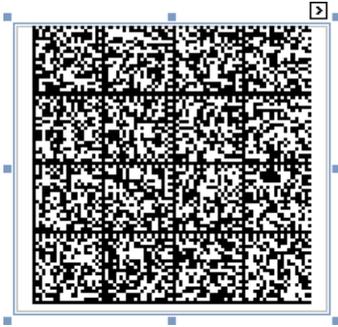


There are no properties specific to the **EAN 8** bar code type.

ECC200 - Data Matrix

Data Matrix code (ISO/IEC 16022 international standard) is a two-dimensional matrix bar code consisting of black and white "cells" arranged in a rectangular pattern. The information to be encoded can be text or raw data.

Every **Data Matrix** 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"). Within these borders are rows and columns of cells that encode information. The finder pattern is used to locate and orient the symbol, while the timing pattern provides a count of the number of rows and columns in the symbol.



The following properties are specific to the **ECC200 - Data Matrix** type and available in the [Property Grid](#) under the **Symbology** property:

- **Compaction Mode**

Specifies whether textual information or a byte array should be used as the bar code's data, as well as its encoding.

- **Matrix Size**

Specifies the bar code matrix size.

GS1 - DataBar

The **GS1 DataBar** bar code is based on a family of symbols often used in the **GS1 DataBar Coupon** (coupon codes commonly used in retail).

These bar codes can encode up to **14** digits, which makes them suitable for **GTIN 8, 12, 13** and **14**.

GS1 DataBar Expanded and **GS1 DataBar Expanded Stacked** can encode up to **74** numeric or **41** alphanumeric characters, and provide the capability to utilize all **GS1 Application Identifiers** (e.g., expiration date, batch and serial number). These bar codes are often used in manufacturer coupons.



The following properties are specific to the **GS1 DataBar** type and available in the [Property Grid](#) under the **Symbology** property:

- **FNC1 Functional Character**

Specifies the symbol (or set of symbols) in the bar code text that will be replaced with the **FNC1** functional character when the bar code's bars are drawn.

- **Segments In Row**

Specifies the number of data segments per row in the Expanded Stacked type of a GS1 DataBar bar code.

- **Type**

Specifies the type of a GS1 DataBar bar code.

GS1- Data Matrix

The **GS1 Data Matrix** uses a special start combination to differentiate the **GS1 DataMatrix** symbol from other **Data Matrix ECC 200** symbols. This is achieved by using the **Function 1 Symbol Character (FNC1)** in the first position of the encoded data. It enables scanners to process the information according to the **GS1 System Rules**.



The following properties are specific to the **GS1 DataMatrix** type and available in the [Property Grid](#) under the **Symbology** property:

- **FNC1 Functional Character**

Specifies the symbol (or set of symbols) in the bar code text that will be replaced with the **FNC1** functional character when the bar code's bars are drawn.

- **Human-Readable Text**

Specifies whether or not parentheses should be included in the bar code's text to improve the readability of the bar code's text.

- **Matrix Size**

Specifies the bar code matrix size.

GS1-128 - EAN-128 (UCC)

GS1-128 (EAN-128) was developed to provide a worldwide format and standard for exchanging common data between companies.

While other bar codes simply encode data with no respect for what the data represents, **GS1-128** encodes data and encodes what that data represents.



BarCode 0123456

The following properties are specific to the **GS1-128 (EAN-128)** type and available in the [Property Grid](#) under the **Symbology** property:

Character Set

- Specifies the set of symbols which can be used when setting the bar code's text.

FNC1 Functional Character

Specifies the symbol (or set of symbols) in the bar code text that will be replaced with the **FNC1** functional character when the bar code's bars are drawn.

Human-Readable Text

Specifies whether or not parentheses should be included in the bar code's text to improve the readability of the bar code's text.

Industrial 2 of 5

Standard 2 of 5 is a low-density numerical bar code that is used in the photofinishing and warehouse sorting industries, as well as to sequentially number airline tickets.



0123456789

The following properties are specific to the **Industrial 2 of 5** type and available in the [Property Grid](#) under the **Symbology** property:

- **Calculate a Checksum**

Specifies whether to calculate a checksum for the bar code.

- **Wide Narrow Ratio**

Specifies the density of a bar code's bars.

Intelligent Mail

The **Intelligent Mail (IM)** code is a **65**-bar code for use on mail in the United States. This bar code is intended to provide greater information and functionality than its predecessors POSTNET and PLANET.

The **Intelligent Mail** bar code has also been referred to as **One Code Solution** and **4-State Customer** bar code abbreviated **4CB**, **4-CB** or **USPS4CB**.



There are no properties specific to the **Intelligent Mail** bar code type.

Intelligent Mail Package

The **Intelligent Mail Package Barcode (IMPB)** was developed for the use on mail in the United States. Bar codes of this symbology are used only for packages as opposed to [Intelligent Mail](#) bar codes, which are used for postcards, letters, and flats.

This bar code is capable of encoding package tracking information required for more efficient sorting and delivering of packages with the capability of piece-level tracking.

USPS TRACKING #



9212 3912 3456 7812 3456 70

The following property is specific to the **Intelligent Mail Package** type and available in the [Property Grid](#) under the **Symbology** property:

- **FNC1 Functional Character**

Specifies the symbol (or set of symbols) in the bar code text that will be replaced with the **FNC1** functional character when the bar code's bars are drawn.

Interleaved 2 of 5

Interleaved 2 of 5 is a higher-density numerical bar code based upon the **Standard 2 of 5** symbology. It is used primarily in the distribution and warehouse industry.



0123456789

The following properties are specific to the **Interleaved 2 of 5** type and available in the [Property Grid](#) under the **Symbology** property:

- **Calculate a Checksum**
Specifies whether to calculate a checksum for the bar code.
- **Wide Narrow Ratio**
Specifies the density of a bar code's bars.

Matrix 2 of 5

Matrix 2 of 5 is a linear one-dimensional bar code. **Matrix 2 of 5** is a self-checking numerical-only bar code.

Unlike the **Interleaved 2 of 5**, all of the information is encoded in the bars; the spaces are of a fixed width and used only to separate the bars. **Matrix 2 of 5** is used primarily for warehouse sorting, photo finishing, and airline ticket marking.



00123456789

The following properties are specific to the **Matrix 2 of 5** type and available in the [Property Grid](#) under the **Symbology** property:

- **Calculate a Checksum**
Specifies whether to calculate a checksum for the bar code.
- **Wide Narrow Ratio**
Specifies the density of a bar code's bars.

MSI - Plessey

MSI was developed by the MSI Data Corporation, based on the original **Plessey Code**. **MSI**, also known as **Modified Plessey**, is used primarily to mark retail shelves for inventory control.

MSI is a continuous, non-self-checking symbology. While an **MSI** bar code can be of any length, a given application usually implements a fixed-length code.



0123456789

The following property is specific to the **MSI** type and available in the [Property Grid](#) under the **Symbology** property:

- **MSI Checksum**

Specifies the bar code's checksum type, which defines the appearance of checksum bars added to the bar code.

PDF417

PDF417 (Portable Data File) is a stacked linear two-dimensional bar code used in a variety of applications; primarily transport, postal, identification card and inventory management. It has spawned an Open Source decoder project together with an Open Source encoder.

The **PDF417** bar code is also called a **symbol** bar code and usually consists of **3 to 90** rows, each of which is like a small linear bar code.



The following properties are specific to the **PDF417** type and available in the [Property Grid](#) under the **Symbology** property:

- **Columns**

Specifies the number of bar code columns, which allows you to control the logic width of the bar code.

- **Compaction Mode**

Specifies whether textual information or a byte array should be used as the bar code's data.

- **Error Correction Level**

Specifies the amount of redundancy built into the bar code's coding, to compensate for calculation errors.

- **Rows**

Specifies the number of bar code rows, which allows you to control the logic height of the bar code.

- **Truncate Symbol**

Specifies whether the special end-symbol should be appended to the bar code.

- **Y to X Ratio**

Specifies the height-to-width ratio of a logical unit's graphic representation.

PostNet

PostNet was developed by the United States Postal Service (USPS) to allow faster mail sorting and routing. **PostNet** codes are the familiar and unusual looking bar codes often printed on envelopes and business return mail.

Unlike most other bar codes, in which data is encoded in the width of the bars and spaces, **PostNet** actually encodes data in the height of the bars. That's why all the bars are of the same width, but not the same height.



There are no properties specific to the **PostNet** bar code type.

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. **QR Code** can encode textual, numeric and binary data.



The following properties are specific to the **QR** type and available in the [Property Grid](#) under the **Symbology** property:

- **Auto Module** Gets or sets whether the Module property value should be calculated automatically based upon the barcode's size.
- **Compaction Mode**
Specifies whether numeric, alpha-numeric or byte information should be used as the bar code's data.
- **Error Correction Level**
Specifies the amount of redundancy built into the bar code's coding, to compensate for calculation errors.
- **Version**
Specifies the bar code's size.
- **Logo**
Specifies the image that overlays the QR code.

UPC Shipping Container Symbol (ITF-14)

The **UPC Shipping Container Symbol (ITF-14)** bar code is used to mark packaging materials that contain products labeled with a **UPC** or **EAN** product identification number.

This bar code provides a **GS1** implementation of an **Interleaved 2 of 5** bar code for encoding a **Global Trade Item Number** (an identifier for trade items developed by **GS1**). This bar code always uses a total of **14** digits.

The thick black border around the symbol (the **Bearer Bar**) is intended to improve bar code reading reliability.



The following properties are specific to the **ITF-14** type and listed in the [Property Grid](#) under the **Symbology** property:

- **Calculate a Checksum**

Specifies whether to calculate a checksum for the bar code.

- **Wide Narrow Ratio**

Specifies the density of a bar code's bars.

UPC Supplemental 2

2-digit supplemental bar codes should only be used with magazines, newspapers and other periodicals.

The 2-digit supplement represents the issue number of the magazine. This is useful so that the product code itself (contained in the main bar code) is constant for the magazine, so that each issue of the magazine doesn't have to have its own unique bar code. Nevertheless, the 2-digit supplement can be used to track which issue of the magazine is being sold, for example, for sales analysis or restocking purposes.



There are no properties specific to the **UPC Supplemental 2** bar code type.

UPC Supplemental 5

5-digit supplemental bar codes are used on books to indicate the suggested retail price.



There are no properties specific to the **UPC Supplemental 5** bar code type.

UPC-A

The **UPC-A** bar code is by far the most common and well-known symbology, especially in the United States. A **UPC-A** bar code is the bar code you will find on virtually every consumer item on the shelves of your local supermarket, as well as books, magazines, and newspapers. It is called simply, a "UPC bar code" or "UPC Symbol."



The **UPC-A** bar code contains **12** digits, no letters or other characters. The first digit is the prefix signifying the product type. The last digit is the "check digit". The check digit is calculated using first eleven figures when the bar code is constructed. So, for the correct **UPC-A** you should specify only the first **11** digits.

The recommended dimensions are shown in the picture. The standard allows magnification up to **200%**, and reduction of up to **80%** of the recommended size.

There should be two quiet zones before and after the bar code. They provide reliable operation of the bar code scanner. The quiet zone recommended length is **2.97** mm for the bar code of standard width and height.

UPC-E0

UPC-E is a variation of **UPC-A** which allows for a more compact bar code by eliminating "extra" zeros. Since the resulting **UPC-E** bar code is about half the size as an **UPC-A** bar code, **UPC-E** is generally used on products with very small packaging, where a full **UPC-A** bar code could not reasonably fit.

The **UPC-E0** is a kind of **UPC-E** code with the number system set to **0**. In the human readable string of the bar code the first digit signifies the number system (always **0** for this code type), and the last digit is the check digit of the original **UPC-A** code.

In the example below, the original **UPC-A** code is "**04210000526**". We should remove the leading zero when assigning the string to the control's property, since the code format itself implies its presence. The checksum digit (**4**) is calculated automatically, and the symbology algorithm transforms the rest of the numeral string. The result is **425261**, and it is encoded along with the number system prefix and the check digit into the scanner-readable form.



Not every **UPC-A** code can be transformed into the **UPC-E0** (it must meet special requirements).

UPC-E1

UPC-E is a kind of **UPC-A**, which allows a more compact bar code by eliminating "extra" zeros. Since the resulting **UPC-E** bar code is about half the size of the **UPC-A** bar code, **UPC-E** is generally used on products with a very small packaging where a full **UPC-A** bar code does not fit.

The **UPC-E1** is a variation of **UPC-E** code with the number system set to "1". In the human readable string of the bar code the first digit signifies the number system (always 1 for this code type), the last digit is the check digit of the original **UPC-A** code.

In the example below, the original **UPC-A** code is "14210000526". We should remove the leading "1" when assigning the string to the control's property, since the code format itself implies its presence. The checksum digit (1) is calculated automatically, and the symbology algorithm transforms the rest of the numeral string. The result is **425261**, and it is encoded along with the number system prefix and the check digit into the scanner-readable form.



Not every **UPC-A** code can be transformed into the **UPC-E1** (it must meet special requirements).

Use Charts and Pivot Grids

Refer to the following topics for instructions on how to add charts and pivot grids to reports:

Chart

Use the **Chart** control to add a chart to a report.

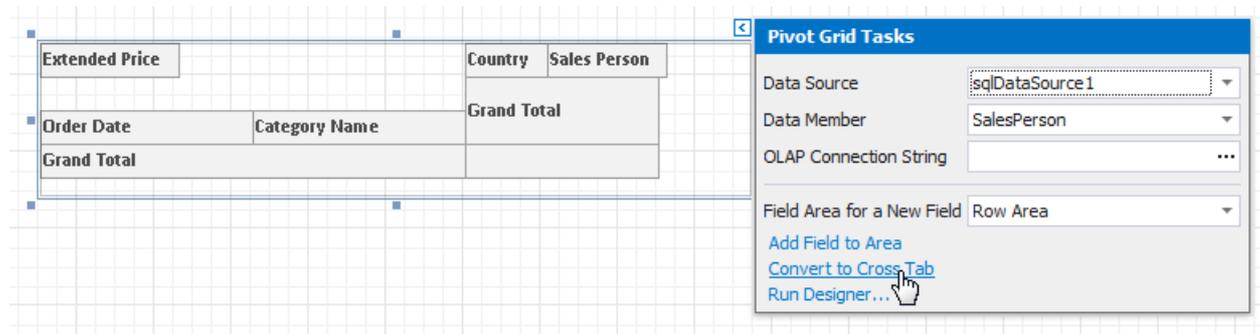
- [Use Charts in Reports](#)
- [Add a Chart \(Set Up Series Manually\)](#)
- [Add a Chart \(Use a Series Template\)](#)
- [Use Charts to Visualize Grouped Data](#)

Use Chart and Pivot Grid Linked Together

- [Link a Chart and a Pivot Grid](#)

Convert a Pivot Grid to a Cross Tab

To migrate an existing Pivot Grid control to a new Cross Tab control, click the Pivot Grid's smart tag and select **Convert to Cross Tab**.



Note that the Cross Tab does not support specific Pivot Grid functionality:

- The Cross Tab cells cannot display pictures (both static and dynamic); The Chart control cannot use the Cross Tab as a data source;

- The Cross Tab does not support data headers that are used to manage location of data field headers; The Cross Tab does not support the Pivot Grid's predefined aggregate functions.

If the conversion result does not suit your requirements, you can restore the Pivot Grid. Click the Cross Tab's smart tag and select **Revert to Original Pivot Grid**.

Use Charts in Reports

Overview

You can use the **Chart** control to add a chart to a report. This control provides 2D or 3D views to visualize data series (for instance, Bar, Point, Line, Pie and Doughnut, Area, etc.).

2 D SERIES VIEW	3 D SERIES VIEW
<p>A 2D bar chart showing the number of looms in the UK from 1803 to 1857. The y-axis is labeled 'Looms' and ranges from 0 to 250,000. The x-axis is labeled 'Year' and has ticks for 1803, 1820, 1829, 1833, and 1857. The bars are blue with their values labeled on top: 2,400 (1803), 14,650 (1820), 55,500 (1829), 100,000 (1833), and 250,000 (1857). A citation at the bottom reads: '* Hills, Richara Leslie (1993), Power from Steam: A History of the Stationary Steam Engine, Cambridge University Press'.</p>	<p>A 3D bar chart showing the number of looms in the UK from 1803 to 1857. The y-axis is labeled 'Looms' and ranges from 0 to 250,000. The x-axis is labeled 'Year' and has ticks for 1803, 1820, 1829, 1833, and 1857. The bars are blue and shown in a 3D perspective. A citation at the bottom reads: '* Hills, Richara Leslie (1993), Power from Steam: A History of the Stationary Steam Engine, Cambridge University Press'.</p>

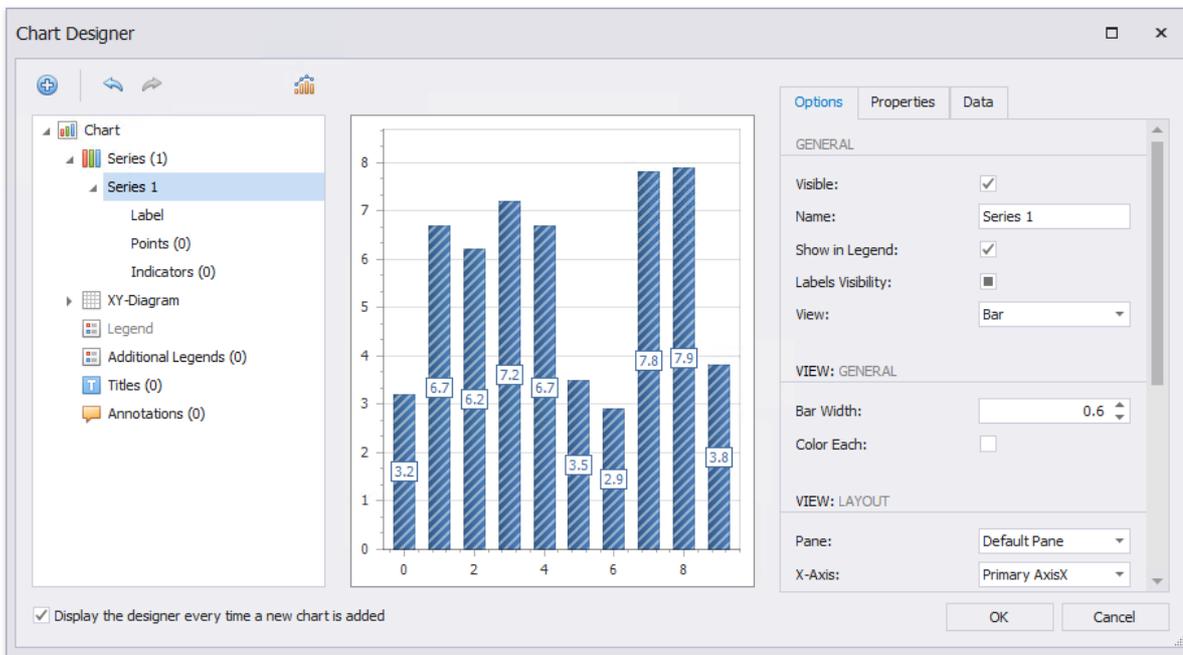
The **Chart** control can display multiple series.

BAR AND POINT SERIES	NESTED DOUGHNUT SERIES
----------------------	------------------------



The **Chart** control contains various visual elements (diagrams, series, legends, primary and secondary axes, titles and labels, etc.). You can select these elements in the **Report Designer** and customize their settings in the [Property Grid](#).

The Report Designer provides the Chart Designer that allows you to create and customize charts.



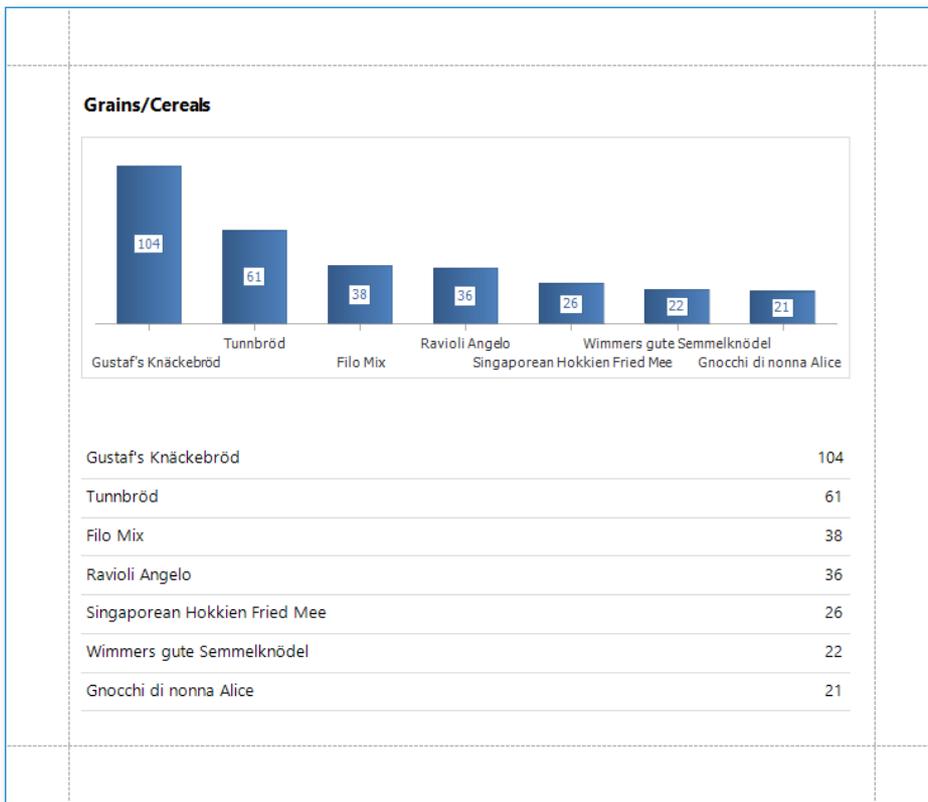
Bind to Data

To provide data to a chart, use the **Data Source** property.

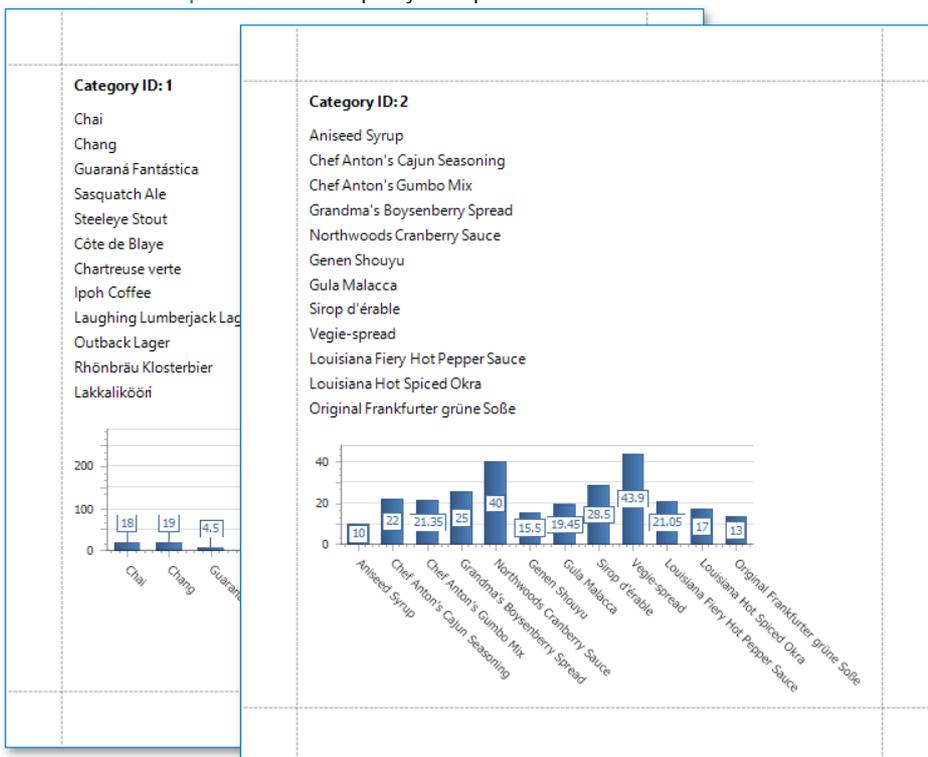
You can assign a [Pivot Grid](#) to a chart's data source. This allows the **Pivot Grid** to supply data to the chart. Refer to the [Link a Chart and a Pivot Grid](#) topic for details.

When the chart data source is not assigned, the chart obtains data from the report's data source. A chart can display report data in the following ways:

- Place a chart on the report header/footer band to display a summary for the detail report data.



- Place a chart on a group header/footer to visualize data in each report group. Refer to the [Use Charts to Visualize Grouped Data](#) step-by-step tutorial for more information.



- The chart in the Detail band is printed as many times as there are records in the report's data source.

Specify the following settings to provide data to a chart's series.

- The **Argument Data Member** property specifies the data field that provides point arguments. The **Value Data Members** property specifies the data fields that

supply point values.

You can specify these settings in the following ways:

- **Bind each series individually**

Add a new series to the chart and specify the argument and value data members. Refer to the [Add a Chart \(Set Up Series Manually\)](#) step-by-step tutorial for details.

- **Create series dynamically**

Assign the data field that contains series names to the chart's **Series Data Member** property and specify the argument and value data members using the series template. Refer to the [Add a Chart \(Use a Series Template\)](#) step-by-step tutorial for more information.

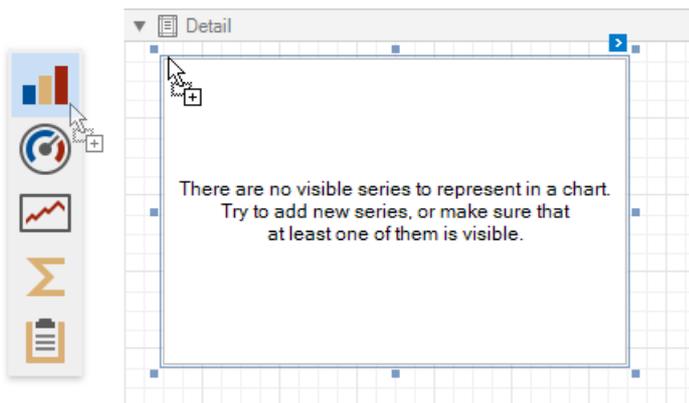
Add a Chart (Set Up Series Manually)

This document demonstrates how to add a chart to a report, provide data for chart series, and set up chart elements. This topic shows two chart series based on the same data source. You can use different data sources for different series.

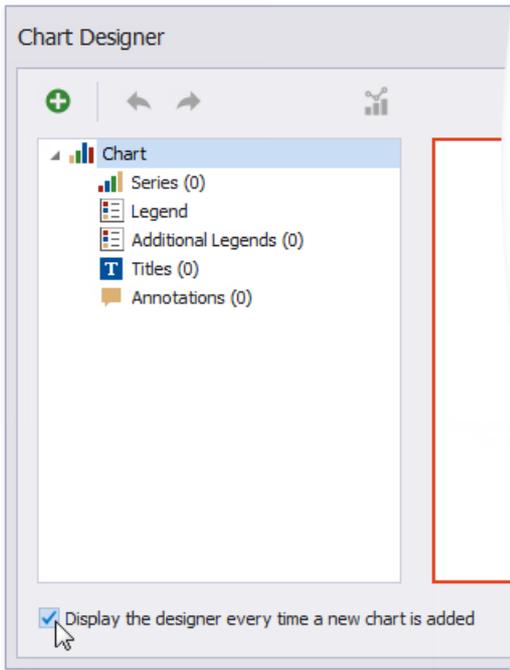


Add a Chart to a Report

1. Drop the **Chart** control from the [Toolbox](#) onto the [Detail band](#).

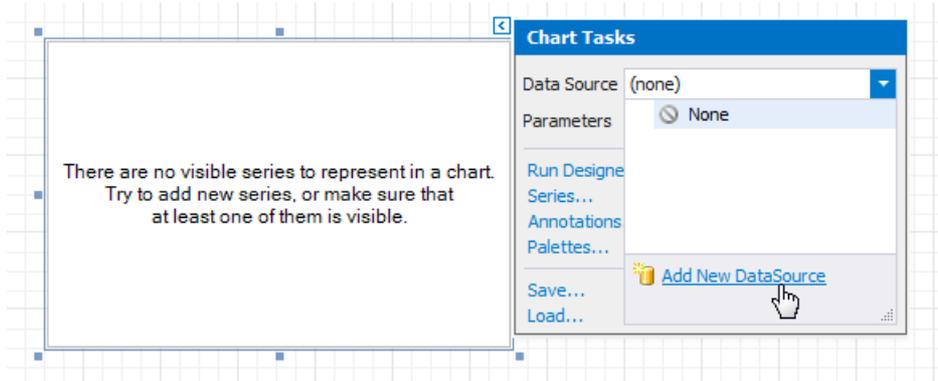


The **Chart Designer** wizard is invoked. Disable the **Display the designer every time a new chart is added** option if you do not want to trigger the wizard the next time you create a chart.



Close the wizard at this stage.

2. Click the chart's [smart tag](#) to bind the chart to data. Expand the **Data Source** property's drop-down and click **Add New Data Source**.



3. The invoked [Data Source Wizard](#) enables you to create a data source and [bind](#) the chart to it.

O Not e

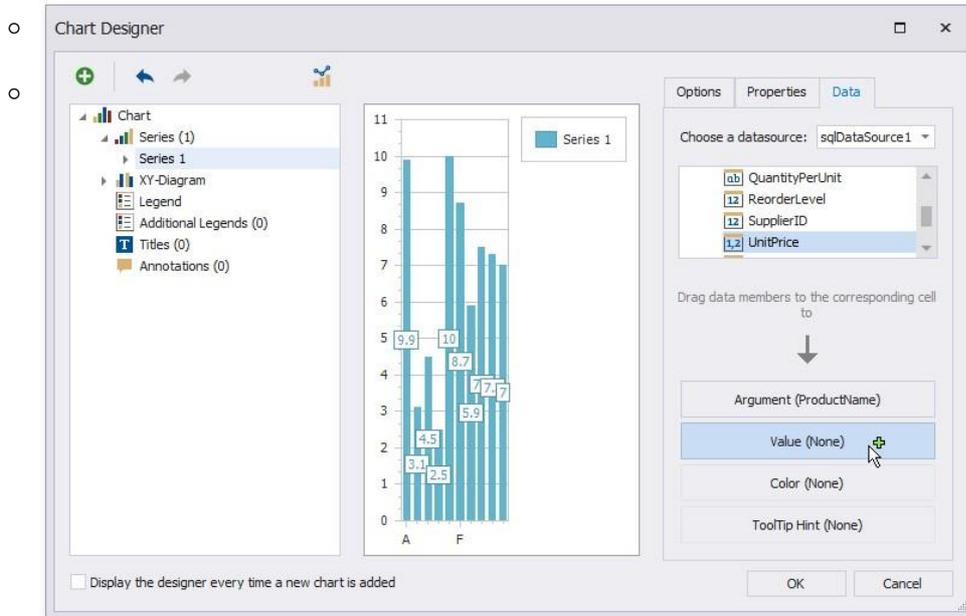
Ensure that the report's **Data Source** property is set to **None** when you place a chart into the **Detail** band. Otherwise, the chart is repeated as many times as there are records in the report's data source.

Add Series to the Chart

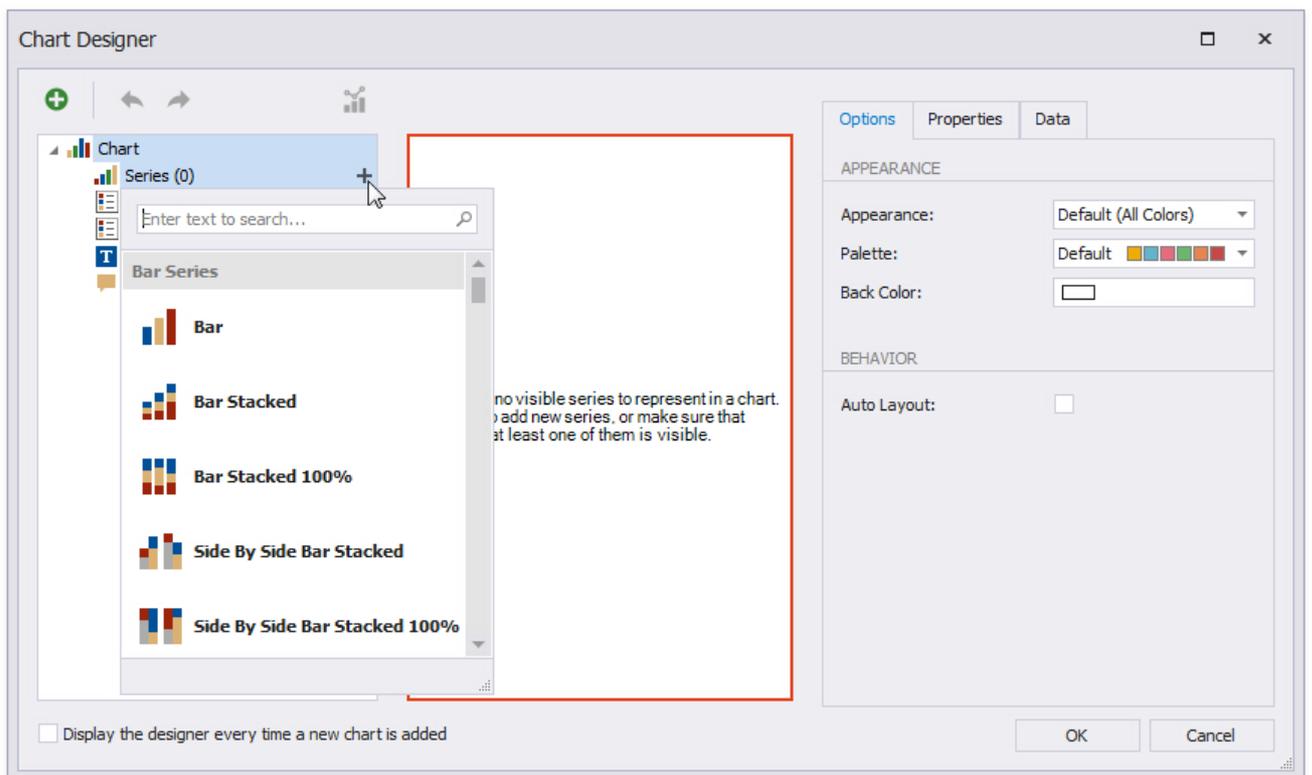
1. Select the chart. Switch to the **Chart Tools** toolbar tab and click **Run Designer**.



2. Add a new series to the chart.



Locate **Series** in the chart elements tree and click the plus button. Select the series type (for example, **Bar**) from the invoked list.

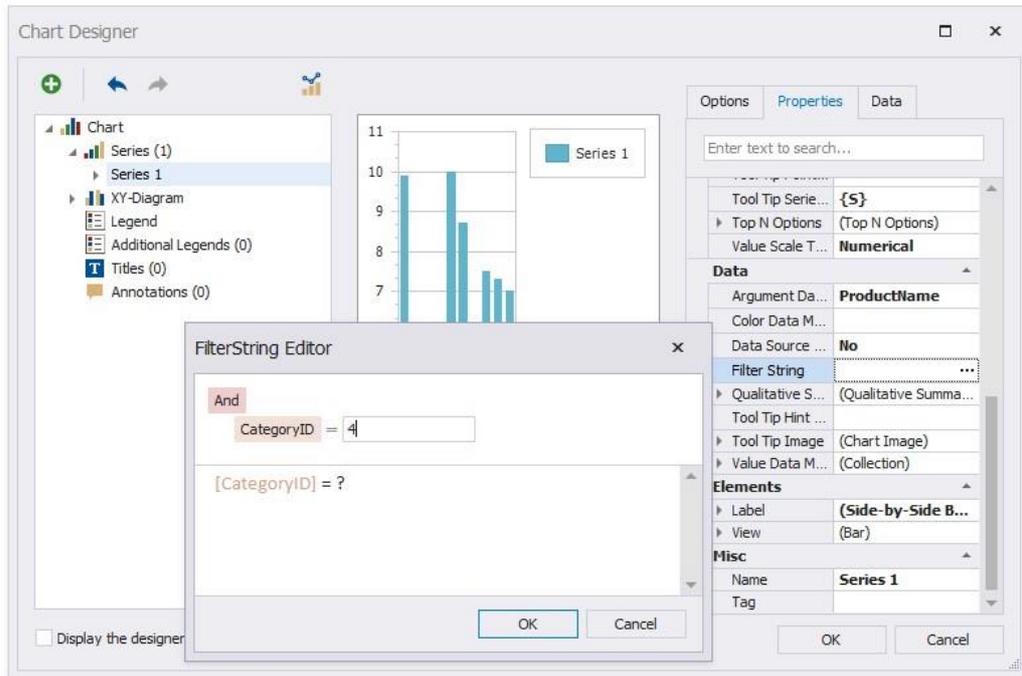


3. Populate the created series with points.

- Switch to the **Data** tab.
- Select a data source from the drop-down list.
- Drop data fields onto the **Argument** and **Value** cells to define the series' points.

4. Filter series data.

- Switch to the **Properties** tab.
- Click the **Filter String** property's ellipsis button.
- Construct filter criteria in the invoked **FilterString Editor** and click **OK**.

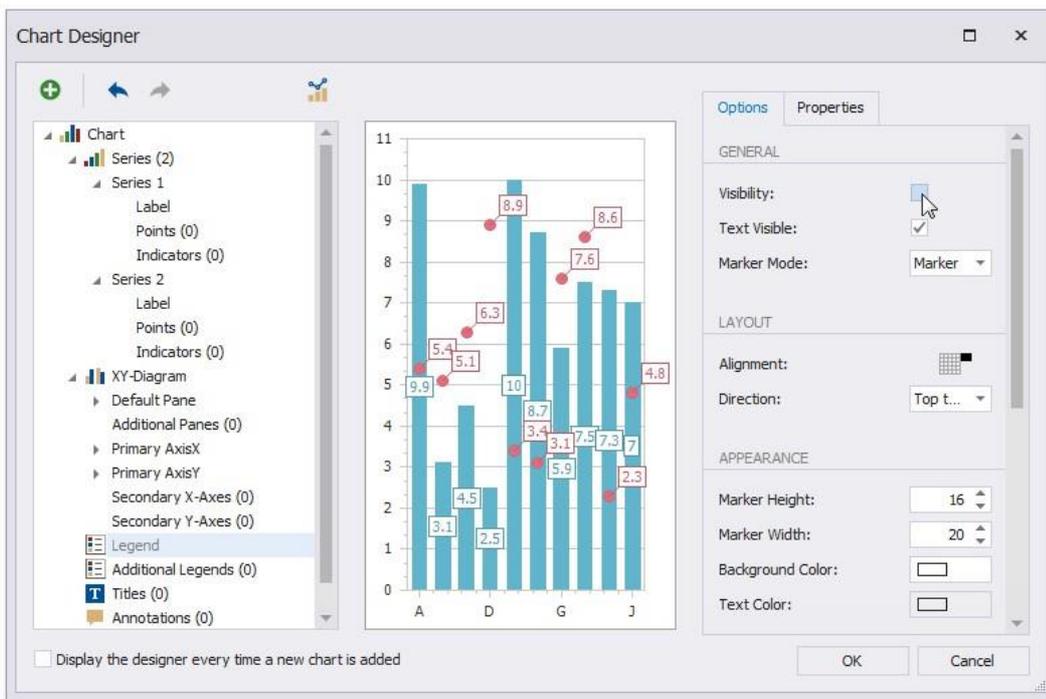


5. Create another series with the same settings. Select the **Point** view type for this series.

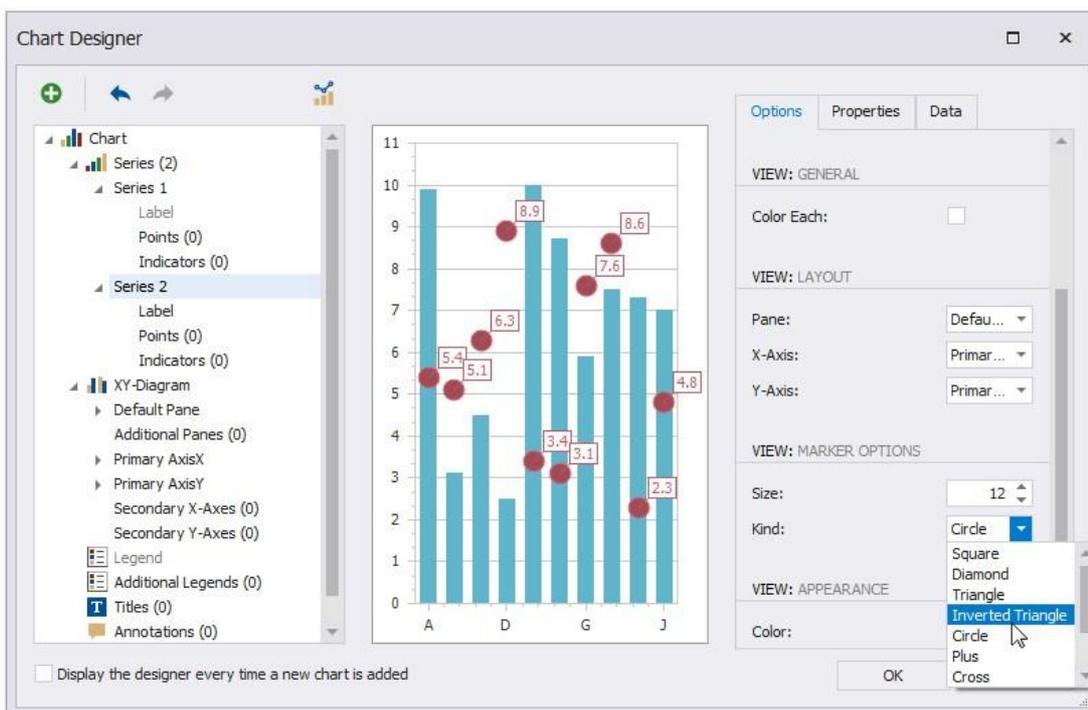
Customize the Chart

Improve the chart's appearance:

- Remove the chart legend, because the chart series are bound to the same data. Select **Legend** in the chart elements tree and disable the **Visibility** check box in the **Options** tab.



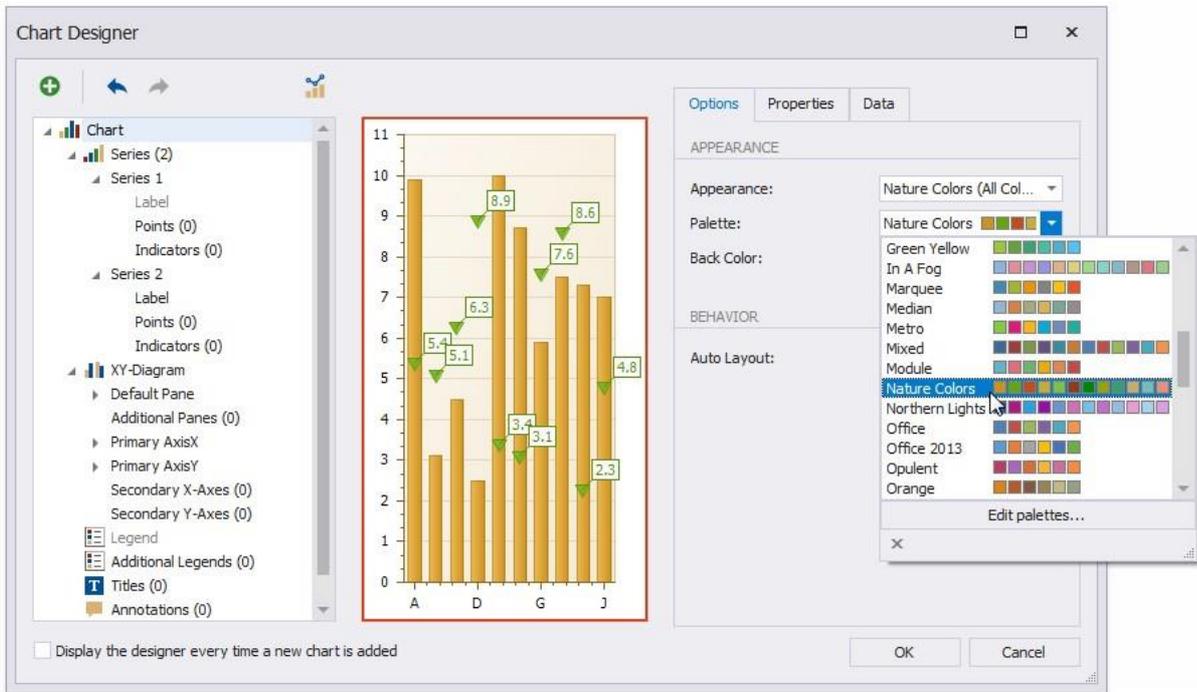
- Select the **Label** node under **Series 1** and disable the **Visibility** check box to hide point labels.
- Customize the **Series 2** markers' appearance. Set **Size** to **12** and **Kind** to **Inverted Triangle** to replace



the default circle with an upside down triangle.

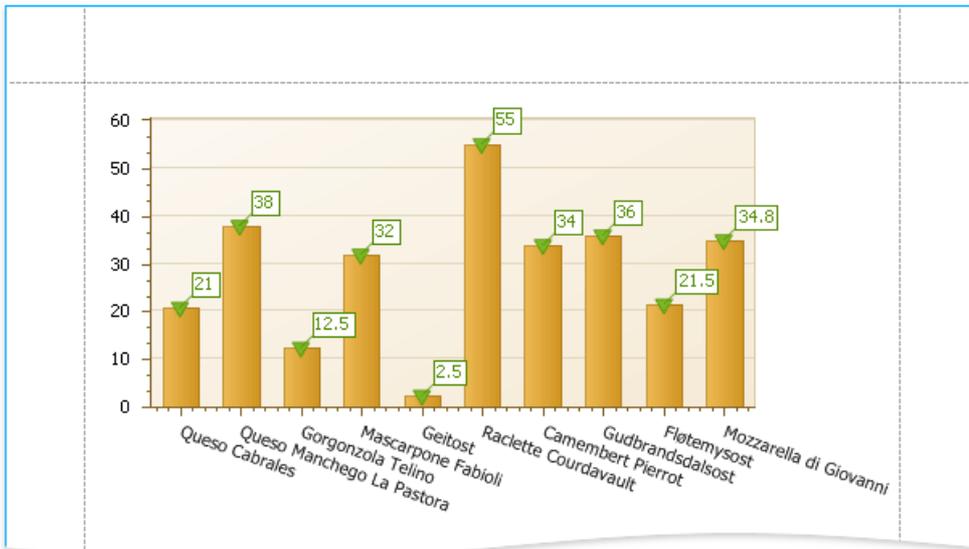
Customize the chart's appearance settings. For instance, select **Nature Colors** from the drop-down **Palette** list.

-



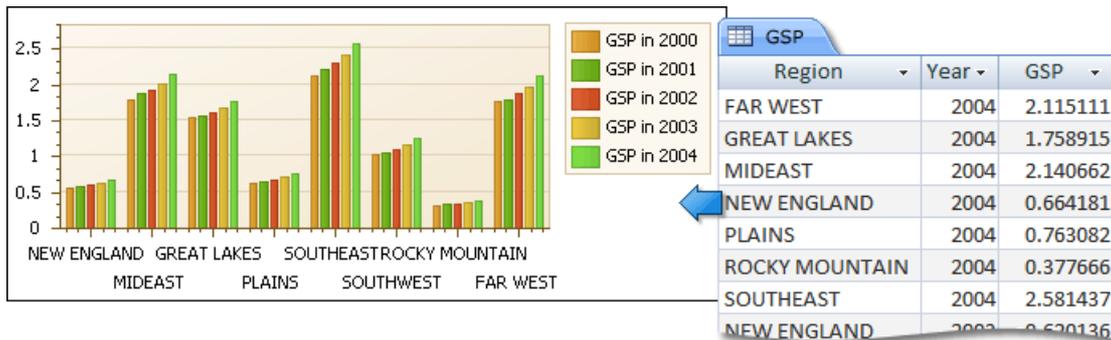
View the Result

Switch to [Print Preview](#) to preview your report.



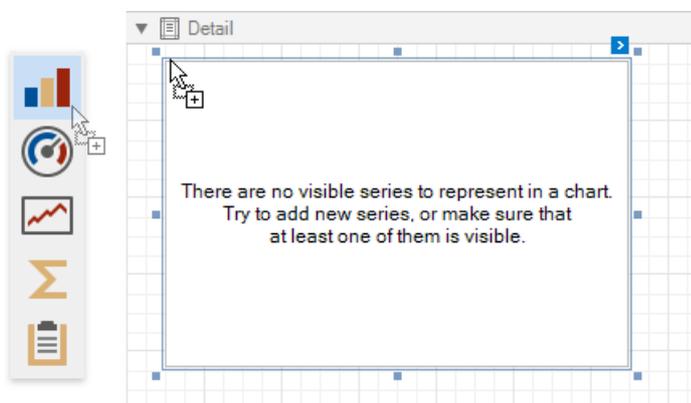
Add a Chart (Use a Series Template)

This document describes how to create a report with a **Chart** control bound to data and generate all series automatically based on a common template.



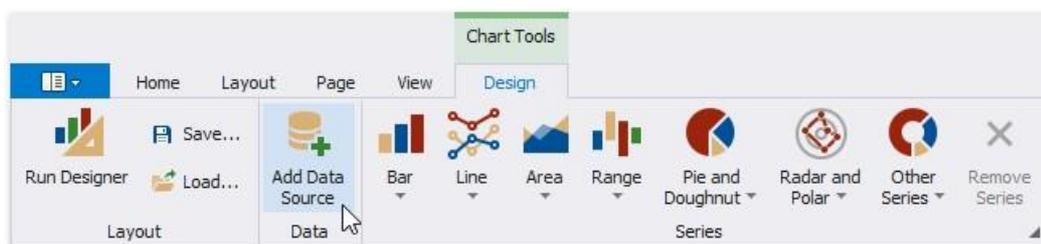
Add a Chart to a Report

1. Drop the **Chart** control from the **Toolbox** onto the **Detail band**.

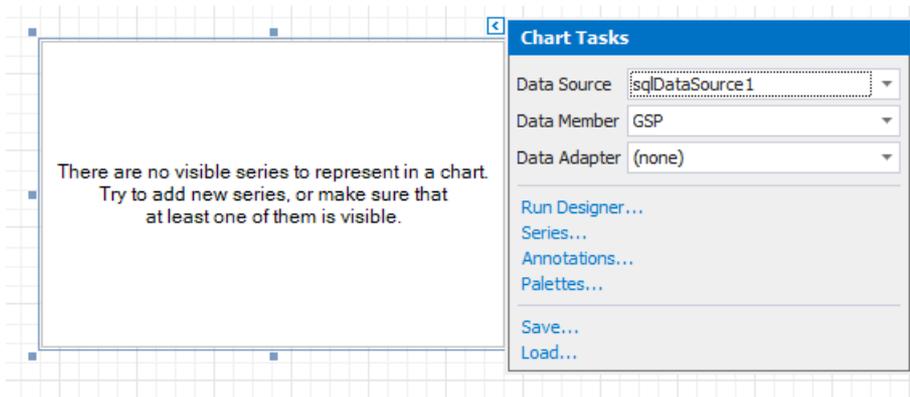


After you drop the chart, the **Chart Designer** is automatically invoked if its **Display the designer every time a new chart is added** option is enabled. Close the designer at this step.

2. Open the **Toolbar's Chart Tools** contextual tab and click **Add Data Source** to bind the chart to data.



3. The invoked **Data Source Wizard** enables you to assign a data source to the chart. Bind the chart to a data source as described in the **Bind to Data** section.
4. Click the chart's smart tag and make sure that the **Data Source** and **Data Member** properties were specified correctly.



O Note

The report's **Data Source** property should be set to **None** because the Chart is in the Detail band. When a report has its **Data Source** property specified, the Chart is repeated in preview as many times as there are records in the report data source.

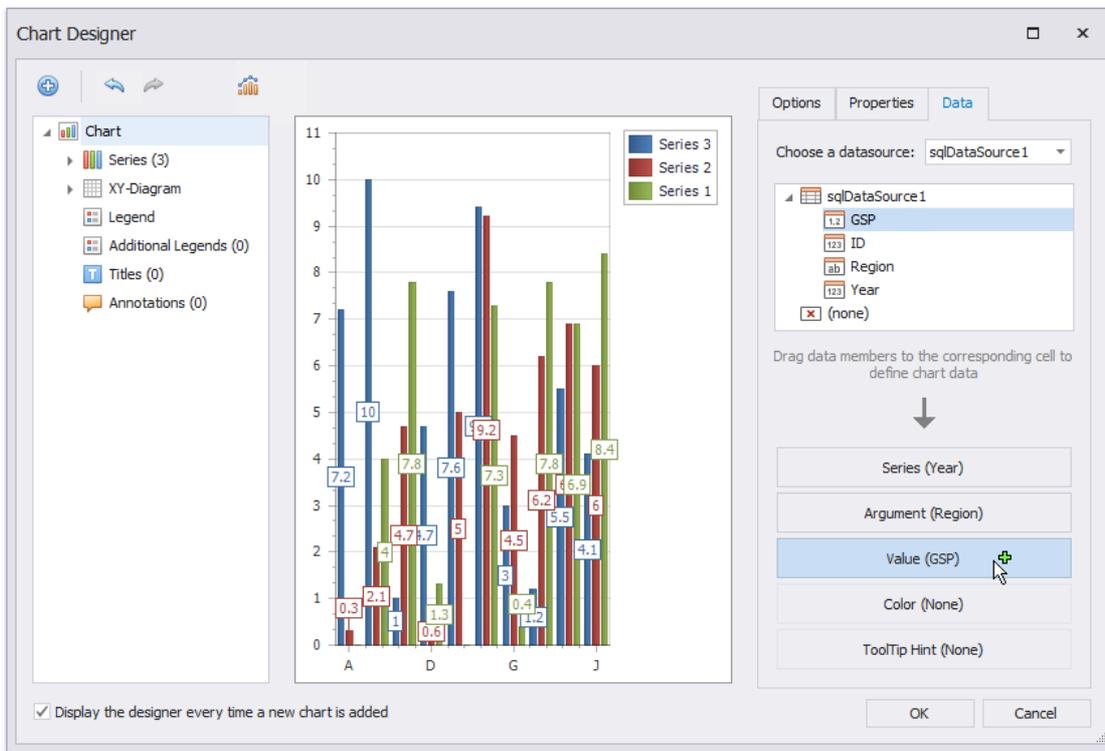
Adjust the Series Template

1. Switch to the **Chart Tools** toolbar tab and click **Run Designer**.

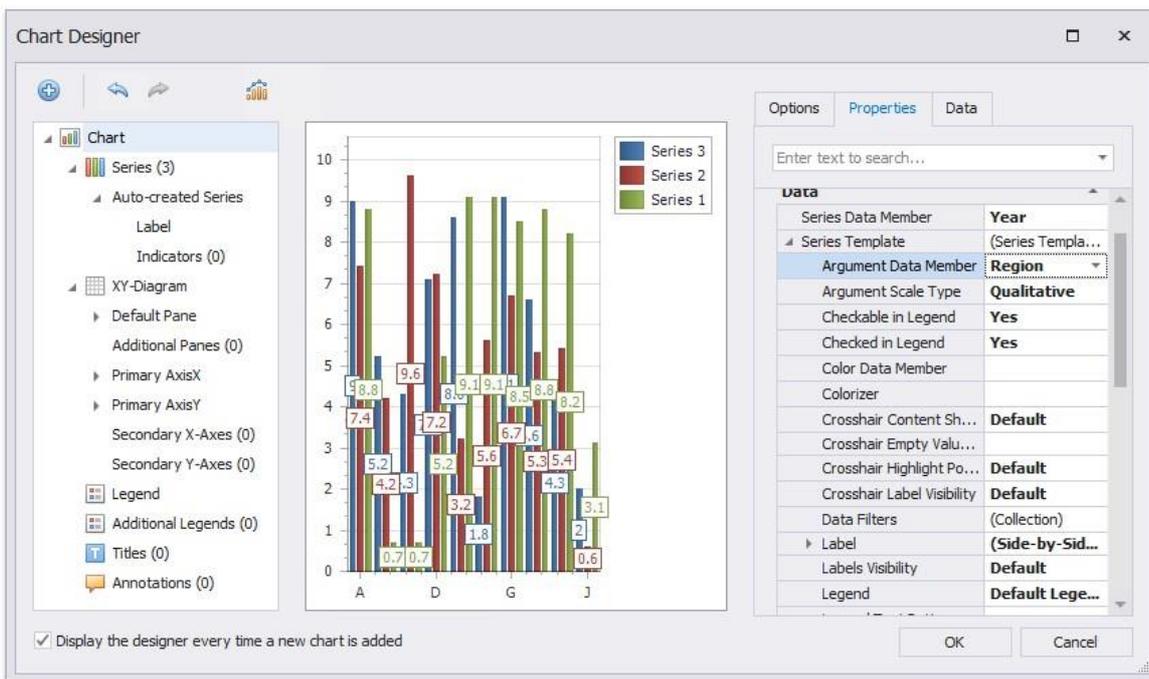


2. In the invoked **Chart Designer**, go to the **Data** tab to the right of the designer's window. Select a data source in the corresponding drop-down list and drag-and-drop the data fields onto the corresponding cells.

The **Series** cell specifies a data field that should provide data for series names. A new series should be created for each record in this data field. Use the **Argument** and **Value** cells to define where to get data for point arguments and values.



3. Switch to the **Properties** tab and expand the **Series Template** option. The **Argument Data Member** and **Value Data Members** properties are automatically assigned to the corresponding data fields. Make sure that the **Argument Scale Type** and **Value Scale Type** properties are set to appropriate values.



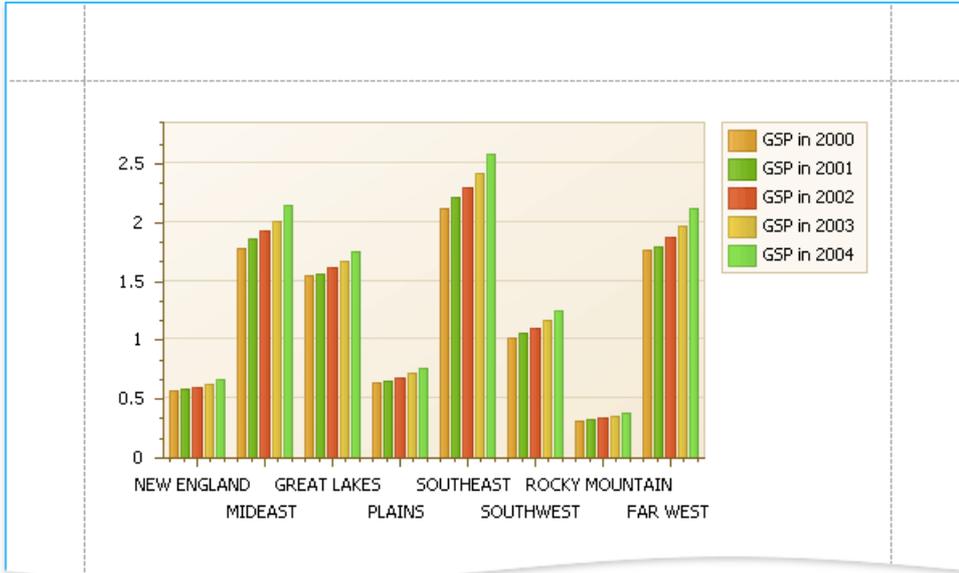
Customize the Chart

Perform the following customization to improve the chart's appearance:

- Use the chart's **Series Name Template** property to add text to the beginning or end of each series name. For example, set the **Begin Text** inner property to "GSP in ".
- Set the **Labels Visibility** property to **False** to avoid overlapping series labels.
- Specify the color settings used to draw the chart's series. For instance, select **Nature Colors** in the **Palette's** drop-down list.

View the Result

Switch to [Print Preview](#) to see the resulting report.



Use Charts to Visualize Grouped Data

This topic describes how to use charts to visualize grouped data in a report.



In this tutorial, the report data is grouped against a data field (the report's group field). A chart is placed in the Group Footer band and is not bound to data. The report's data source is used to populate the chart with data.

GroupHeader1

Category ID: [CategoryID]

Detail

[ProductName] [UnitPrice]

GroupFooter1

There are no visible series to represent in a chart. Try to add new series, or make sure that at least one of them is visible.

Group and Sort

Add a Group Add a Sort Delete Move Up Move Down

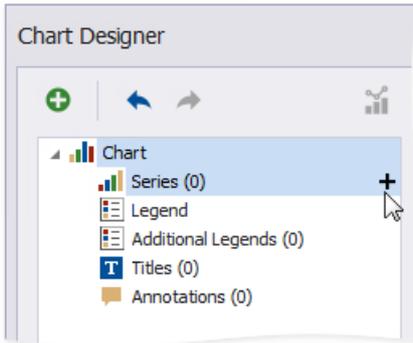
Field Name	Sort Order	Show Header	Show Footer
CategoryID	Ascending	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Follow the steps below to make each chart instance display data for its group.

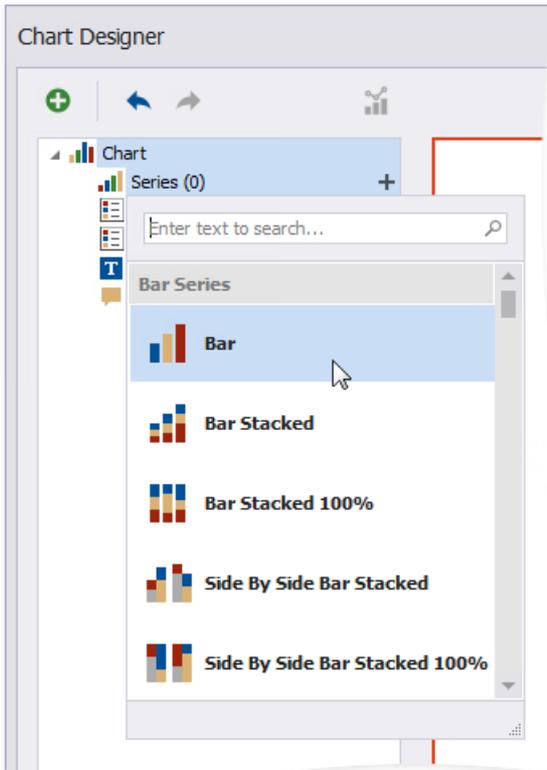
1. Select the chart. Open the **Toolbar's Chart Tools** contextual tab and click **Run Designer**.



2. Add a new series. Click the plus button next to the **Series** item in the Chart Designer.

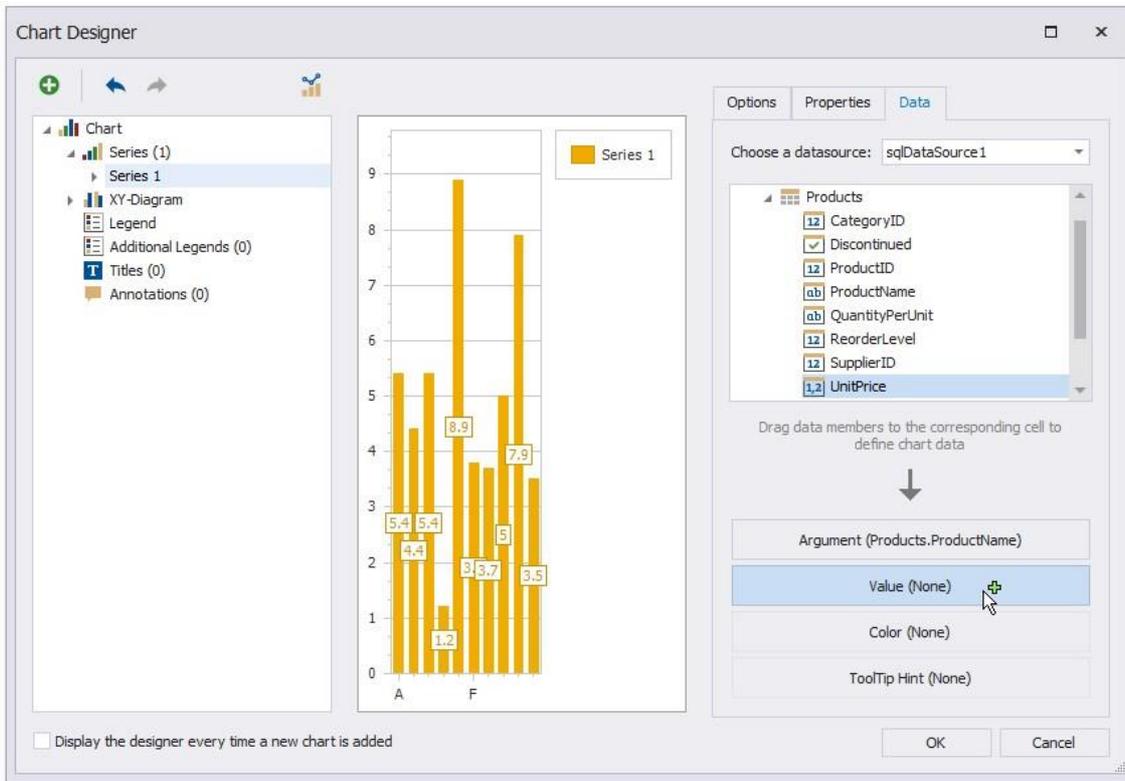


Select a series type.

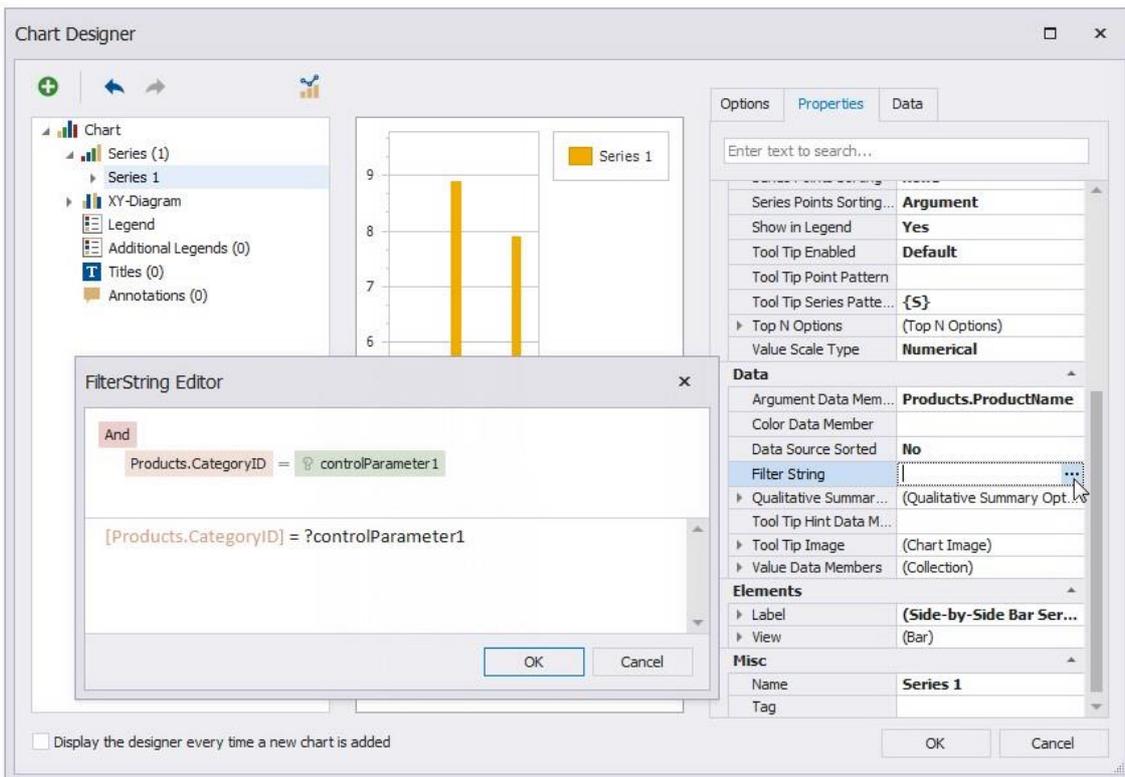


3. Provide data for the argument and value axes.

Switch to the created series' **Data** tab. Drop fields onto the **Argument** and **Value** areas.

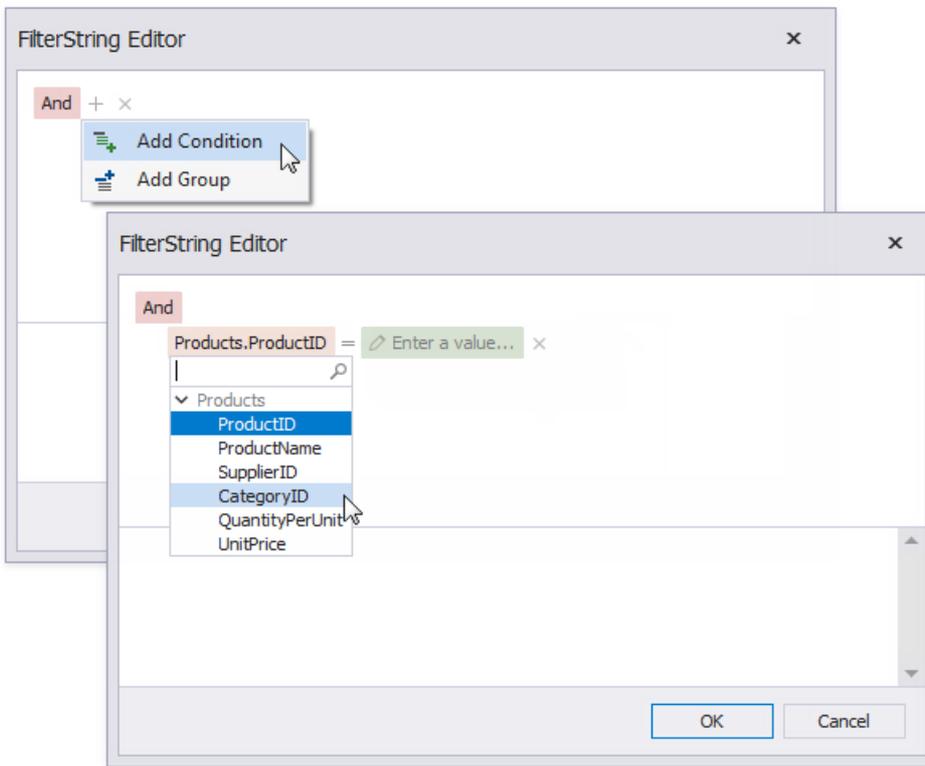


4. Filter the chart. Go to the **Properties** tab. Click the **Filter String** property's ellipsis button to invoke the

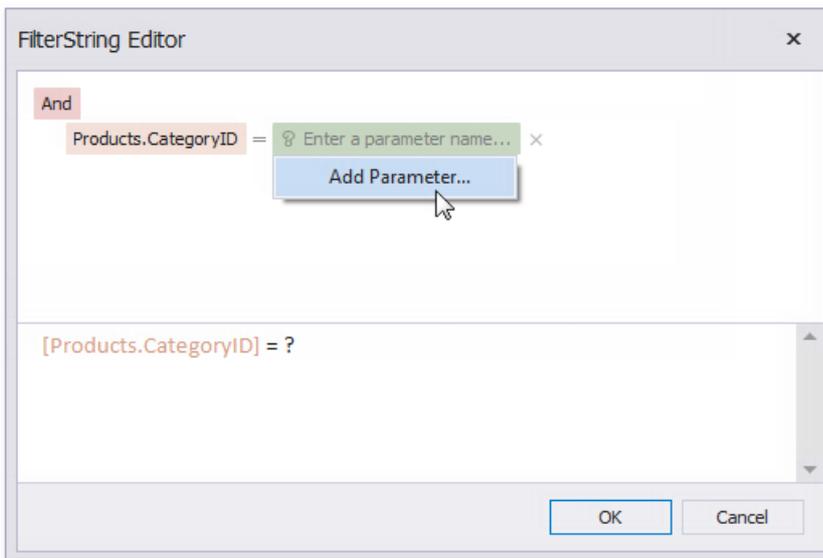


FilterString Editor.

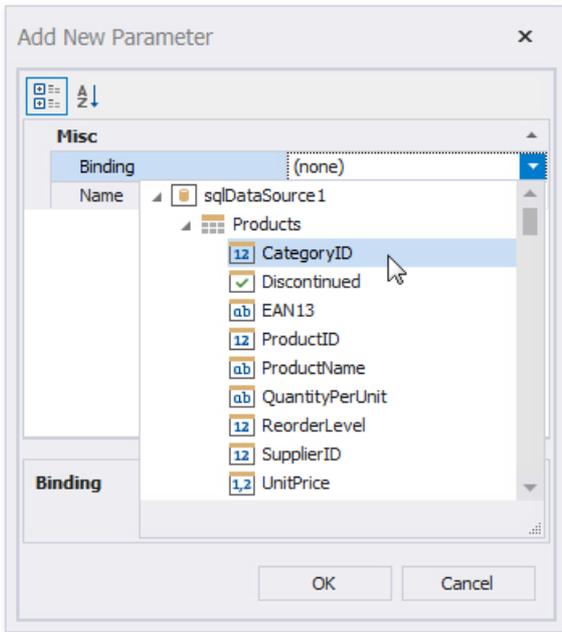
Add a filter condition. On the left side, specify the field by which chart data should be filtered.



On the right side, use a chart parameter to obtain a group value from the report's group field. Click the right side's icon until it turns into a question mark and select **Add Parameter** from the context menu to invoke the Add New Parameter dialog.



Set the **Binding** property to the report's group field and click **OK**.



Click OK in the FilterString Editor and in the Chart Designer to apply changes. Switch to [Print Preview](#) to see the result.

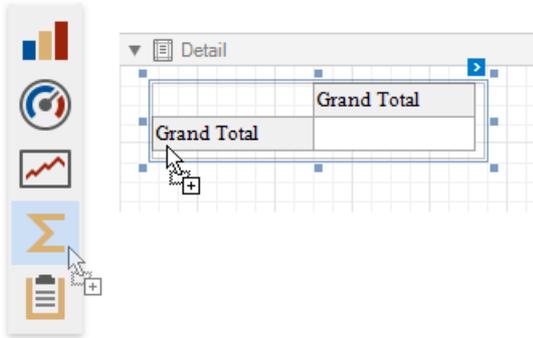


Link a Chart and a Pivot Grid

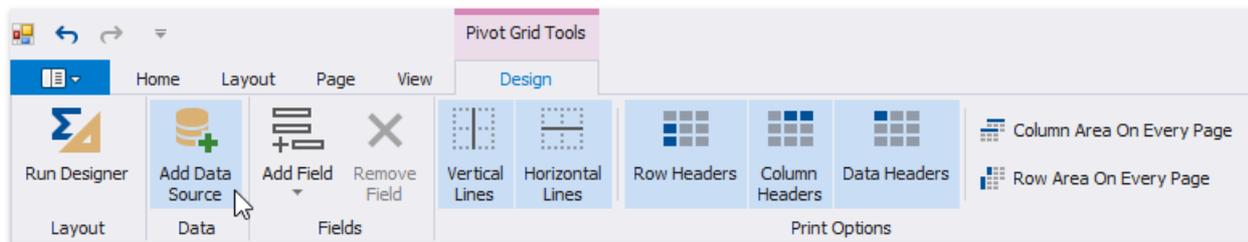
This tutorial demonstrates how to use the Chart control to visualize the Pivot Grid control's data.

Create a Pivot Grid

1. Drop the **Pivot Grid** control from the [Toolbox](#) onto the [Detail band](#).



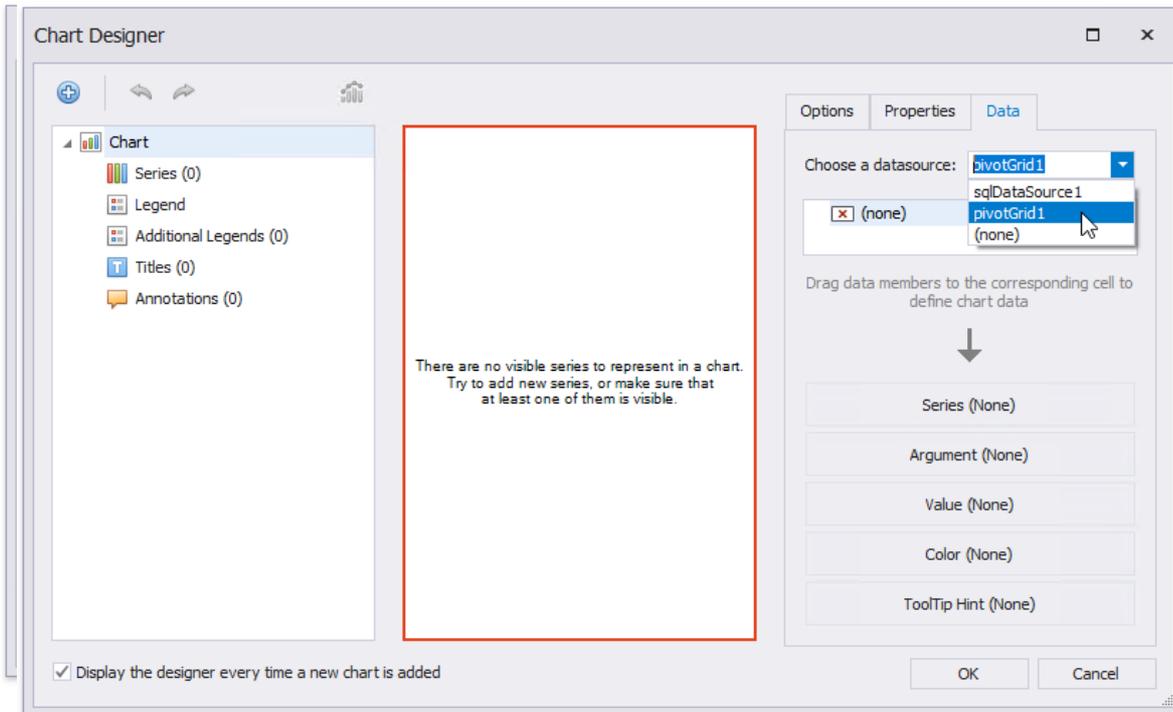
2. Open the [Toolbar](#)'s **Pivot Grid Tools** contextual tab and click **Add Data Source** to bind the pivot grid to data.



3. Navigate through the invoked [Data Source Wizard](#)'s pages to set up the data source. See the [Bind to Data](#) section for more information.

After the data source is created, the Pivot Grid's **Data Source** and **Data Member** properties are assigned automatically.

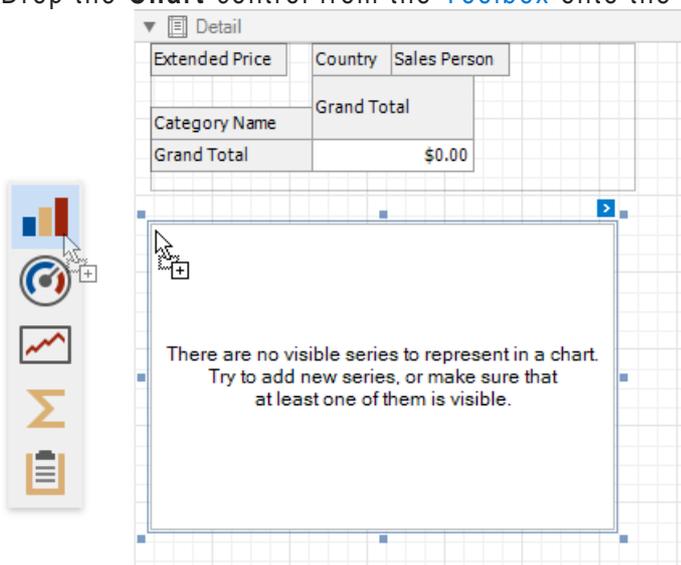
4. Switch the **Pivot Grid Tools** toolbar tab and click **Run Designer**. In the invoked Designer, click **Retrieve Fields** to obtain fields from the control's data source.
5. Switch to the **Layout** page and drag-and-drop the data fields onto the **Row Fields**, **Column Fields** and **Data Items** areas to define the Pivot Grid's layout.



Click **Apply** and close the Designer.

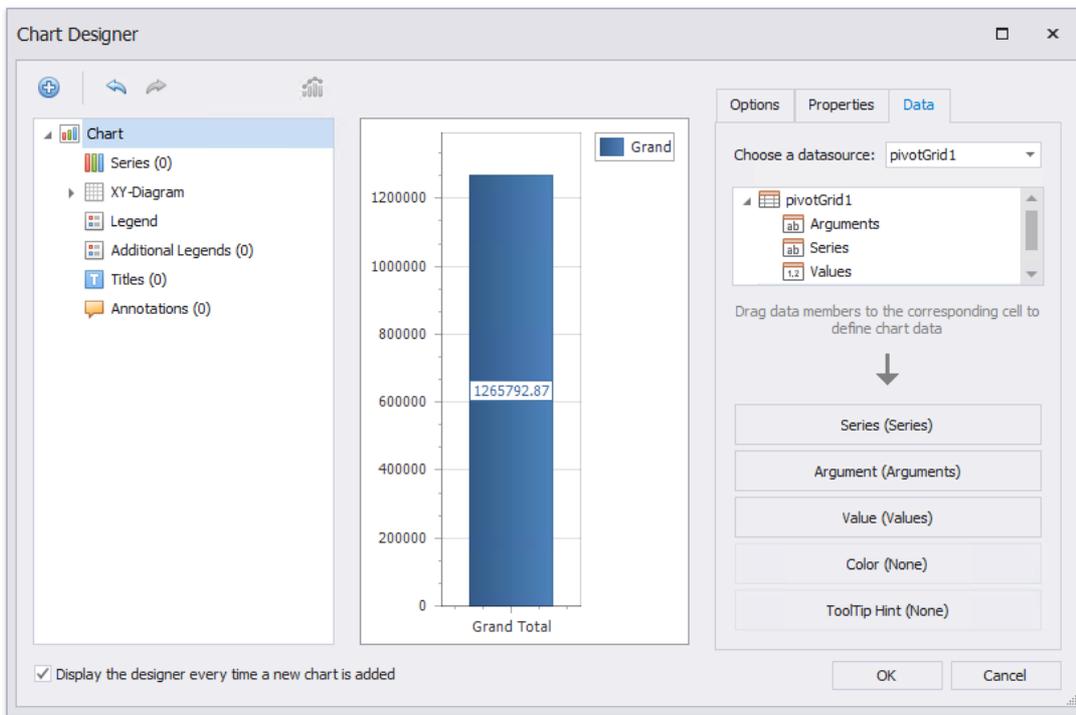
Link a Chart with the Pivot grid

1. Drop the **Chart** control from the **Toolbox** onto the Detail band below the Pivot Grid.

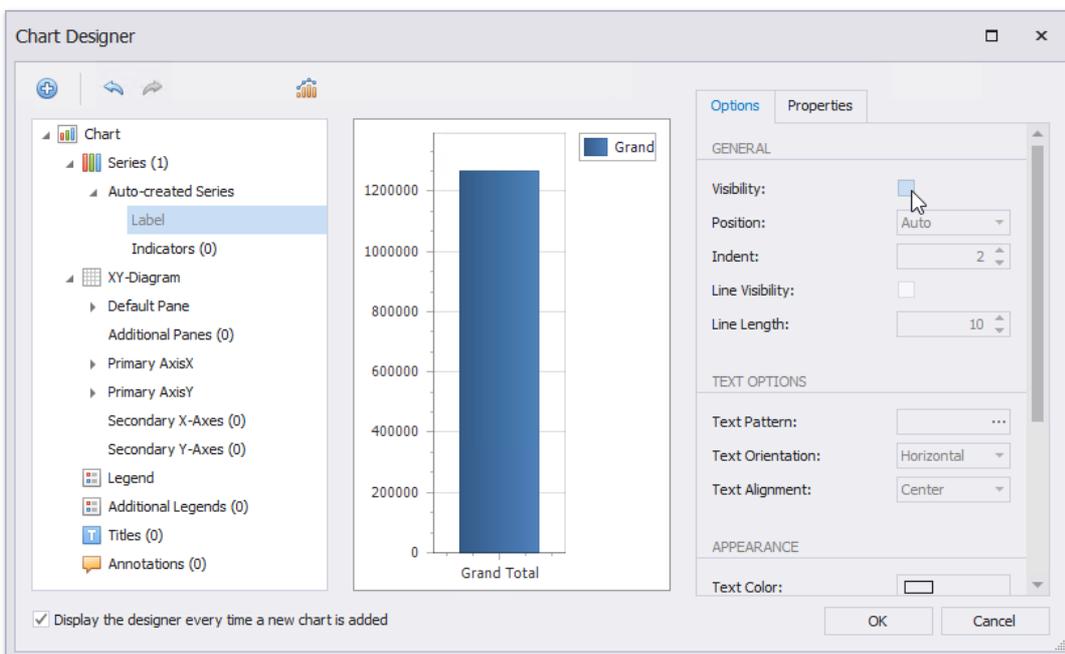


2. The **Chart Designer** is invoked automatically after you drop the Chart onto the Detail band. Switch to the **Data** tab at the right of the Designer's window and choose the Pivot Grid in the drop-down list.

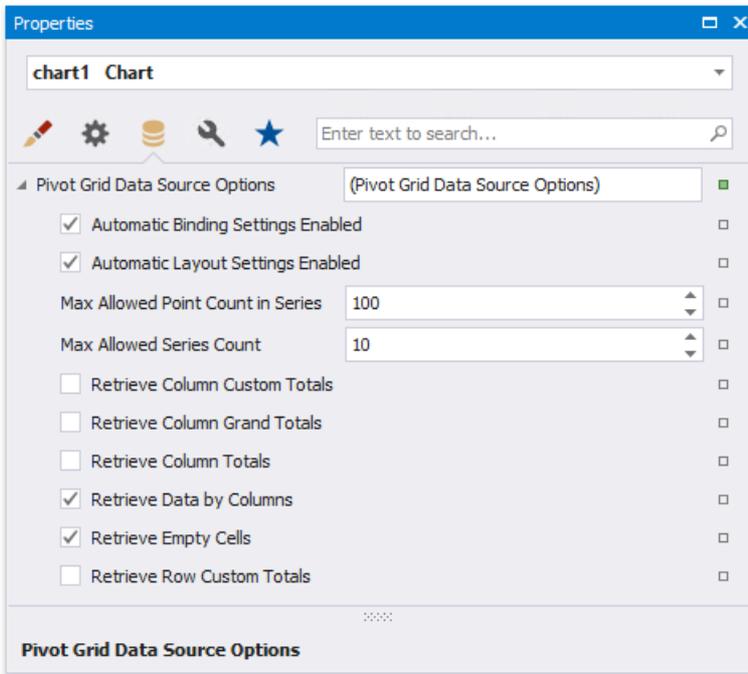
This adjusts all the Chart's binding and layout settings automatically. Make sure that **Series**, **Argument** and **Value** cells are filled with the corresponding fields. Note that field values are generated based on the Pivot Grid's columns, rows, and data items.



3. Select the **Label** node under auto-generated series in the chart elements tree and switch to the **Options** tab. Disable the **Visibility** check box to avoid overlapping series labels.

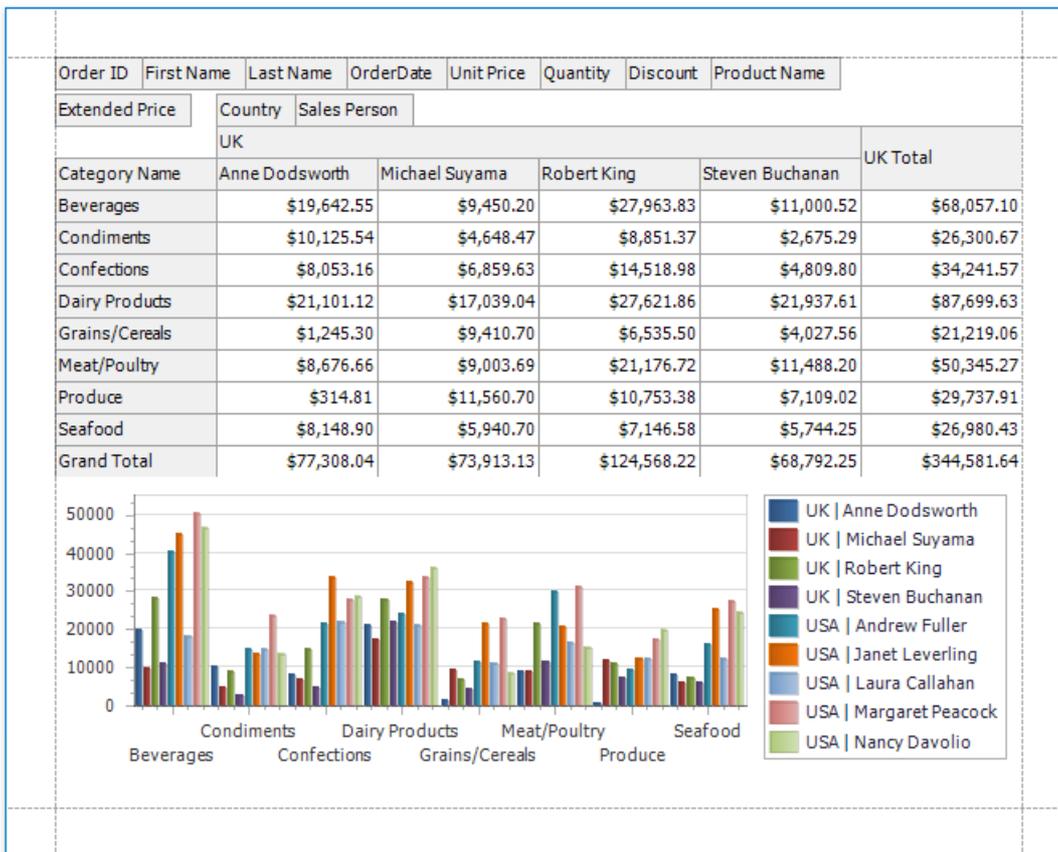


4. (optionally) You can customize various settings that determine a linked Chart and Pivot Grid pair's common behavior. To do this, use the Chart's **Pivot Grid Data Source Options** property. This property is synchronized with the Pivot Grid's **Options Chart Data Source** property.



View the Result

Switch to [Print Preview](#) to see the resulting report.



Use Cross Tabs

The Cross Tab control displays data in rows and columns. You can specify what data to use as row/column headers, and what data should be shown at row and column intersections. You can also determine how to group, sort, format and lay out data.

Order Date	Category Name	[Country]	Total [Country]	Grand Total
[OrderDate]	[CategoryName]	[Sales Person]	[Extended Price]	
Total [OrderDate]				
Grand Total				

Order Date	Category Name	UK		Total UK	USA		Total USA	Grand Total
		Anne Dodsw	Robert King		Andrew Fuller	Janet Leverlin		
2015	Grains/Cereal	\$1,021.30	\$1,271.60	\$2,292.90	\$6,320.40	\$14,146.80	\$20,467.20	\$22,760.10
	Meat/Poultry	\$5,024.40	\$7,524.24	\$12,548.64	\$12,730.30	\$5,975.73	\$18,706.03	\$31,254.67
	Produce	\$98.81	\$3,978.42	\$4,077.23	\$4,377.00	\$2,457.15	\$6,834.15	\$10,911.38
Total 2015		\$6,144.51	\$12,774.26	\$18,918.77	\$23,427.70	\$22,579.68	\$46,007.38	\$64,926.15
2016	Grains/Cereal	\$224.00	\$4,912.50	\$5,136.50	\$3,402.25	\$6,050.15	\$9,452.40	\$14,588.90
	Meat/Poultry	\$3,563.76	\$13,155.08	\$16,718.84	\$13,224.50	\$12,881.11	\$26,105.61	\$42,824.45
	Produce		\$4,637.20	\$4,637.20	\$3,700.00	\$8,655.70	\$12,355.70	\$16,992.90
Total 2016		\$3,787.76	\$22,704.78	\$26,492.54	\$20,326.75	\$27,586.96	\$47,913.71	\$74,406.25
Grand Total		\$9,932.27	\$35,479.04	\$45,411.31	\$43,754.45	\$50,166.64	\$93,921.09	\$139,332.40

Refer to the following topics for instructions on how to use cross

- tabs in reports: [Cross Tab Overview](#)
Explains how to add a Cross Tab to a report and bind a Cross Tab to data. [Cross Tab Fields](#)
- Describes the Cross Tab row fields, column fields, data fields, and how to format field values. [Data Shaping](#)
- Demonstrates how to group, sort and filter a Cross Tab. [Layout and Print Options](#)
- Shows how to adjust Cross Tab size, change header text, and specify how the control is printed. [Cross Tab Appearance](#)
- Explains how to change Cross Tab element appearance settings.

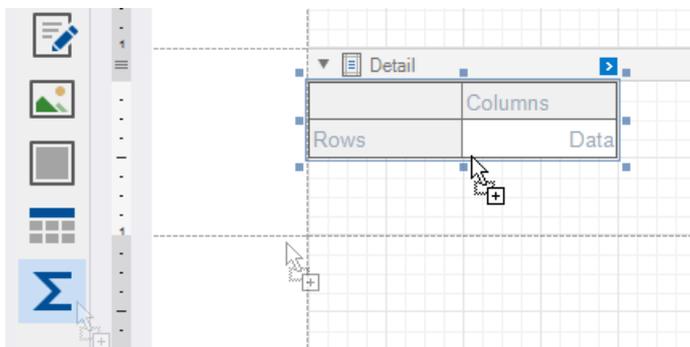
Cross Tab Overview

Use the **Cross Tab** control to display multi-dimensional data, such as summary statistics, surveys, and market research information.

	2017	2018	2019
Balance Sheet			
Assets			
Current assets			
Cash and cash equivalents	13,692.56	17,532.10	11,910.76
Marketable securities	24,187.44	14,629.48	21,956.18
Accounts receivable trade, less allowances for doubtful accounts	11,155.68	10,363.31	10,260.00
Inventories	7,139.41	8,398.09	7,128.75
Total Current assets	56,175.09	50,922.98	51,255.69
Long-term assets			
Property, plant and equipment, net	16,244.50	13,576.09	13,911.89
Intangible assets, net	28,199.35	24,374.22	28,860.46
Goodwill	20,982.49	22,112.28	20,378.70
Equity and long-term investments	6,225.03	6,071.37	6,592.01
Deferred taxes on income	12,139.94	11,442.37	11,928.68
Other assets	3,777.55	5,015.98	4,372.08
Total Long-term assets	87,568.86	82,592.31	86,043.82
Total Assets	143,743.95	133,515.29	137,299.51
Liabilities and Shareholders Equity			
	30,140.70	32,453.05	30,571.28
Shareholders equity			
Preferred stock - without par value	-	-	-
Common stock - par value \$1.00 per share	8,440.18	8,123.28	6,597.07
Accumulated other comprehensive income	(5,531.59)	(5,683.68)	(5,117.93)
Retained earnings	17,461.54	19,101.24	21,816.32
Total Shareholders equity	20,370.13	21,540.84	23,295.46
Total Liabilities and Shareholders Equity	75,406.80	75,695.15	75,210.42

Add a Cross Tab to a Report

Drag the **Cross Tab** item from the Toolbox onto a report.

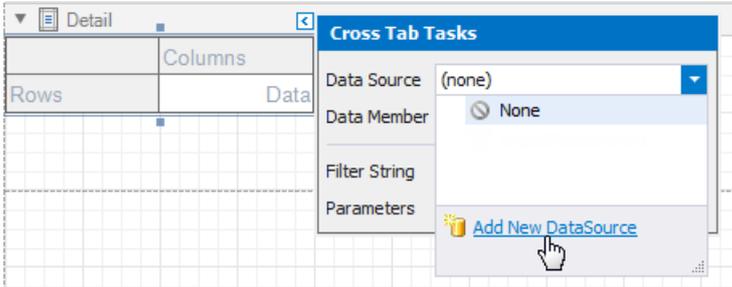


You cannot place the Cross Tab in another report control ([Table Cell](#) or [Panel](#)) because its width cannot be determined at design time.

Bind to Data

Use the Cross Tab's **Data Source** and **Data Member** properties to bind this control to data.

1. Click the Cross Tab's smart tag.
2. Expand the **Data Source** property's drop-down list and click **Add New Data Source**.
3. Follow the steps in the invoked [Data Source Wizard](#) to configure a data source.



If these properties are not set, the Cross Tab uses its parent report's data source (the report's **Data Source** and **Data Member** properties).

Not e

If you place a Cross Tab in the [Detail band](#), ensure that the report's **Data Source** property is not set. Otherwise, the Cross Tab data is printed as many times as there are rows in the report data source.

The following step-by-step tutorials describe how to create reports that use the Cross Tab

- control: [Create a Cross-Tab Report](#) - Use the [Cross-Tab Report Wizard](#) to create a report.
- [Create a Balance Sheet](#) - Configure a Cross Tab on the design surface.

Cross Tab Fields

Drop data fields from the [Field List](#) onto cross-tab areas to define the control layout. The Cross Tab supports three field types (areas):

- **Rows** (the **Row Fields** collection) - displays field values as row headers.
- **Columns** (the **Column Fields** collection) - displays field values as column headers.
- **Data** (the **Data Fields** collection) - uses field values to calculate summaries at row and column intersections.

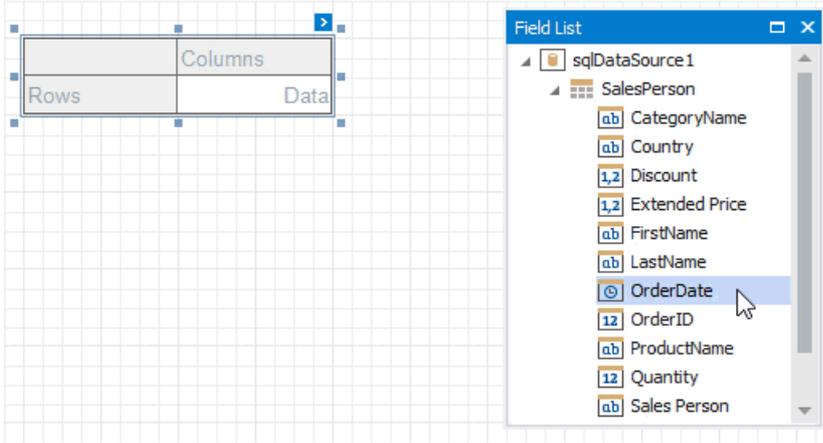
Tip

You can also use [calculated fields](#) if data source fields do not suit your requirements and you need to pre-process data before it is shown in the Cross Tab.

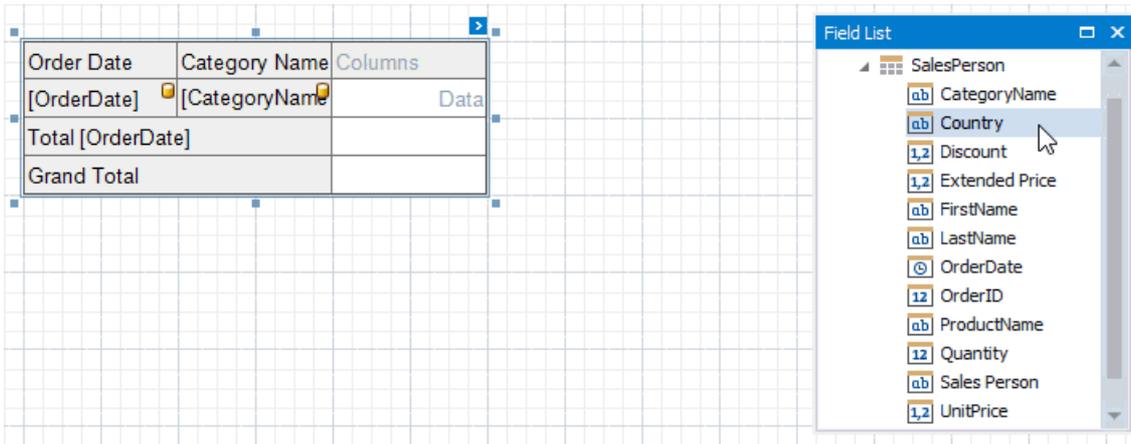
Row and Column Fields

You can drop two or more data fields onto the same area to create a hierarchy. The first field's values are displayed at the root level (the first column/row), the second field's values are grouped by the first field's values and displayed at the second hierarchy level (the second column/row), and so on.

Specify Row Fields



Specify Column Fields



Cross Tab cells marked with a database icon become bound to the dropped fields. The corresponding rows/columns are printed in the document as many times as there are field values in the data source. The top left corner displays headers for row data fields.

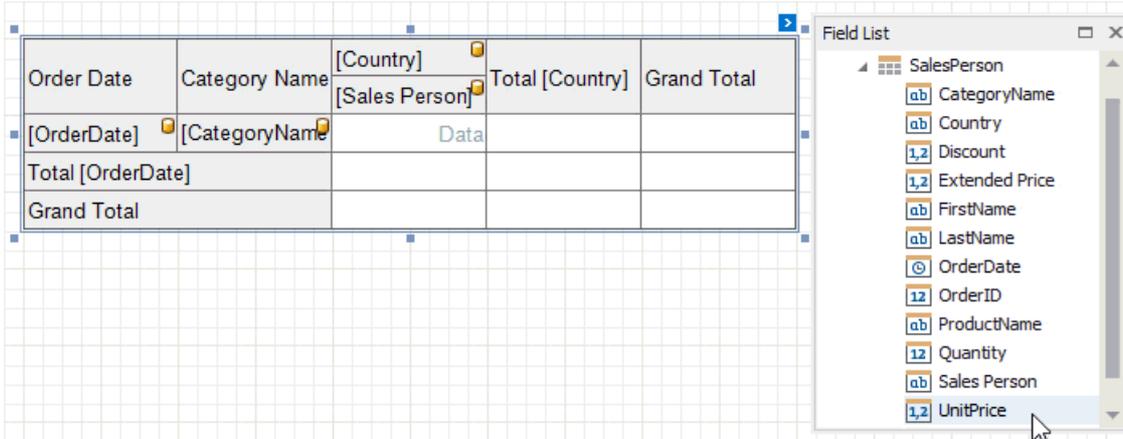
Additional rows/columns are added to the Cross Tab to display total values calculated against these fields. The last row/column

displays grand total values calculated against all the rows/columns.

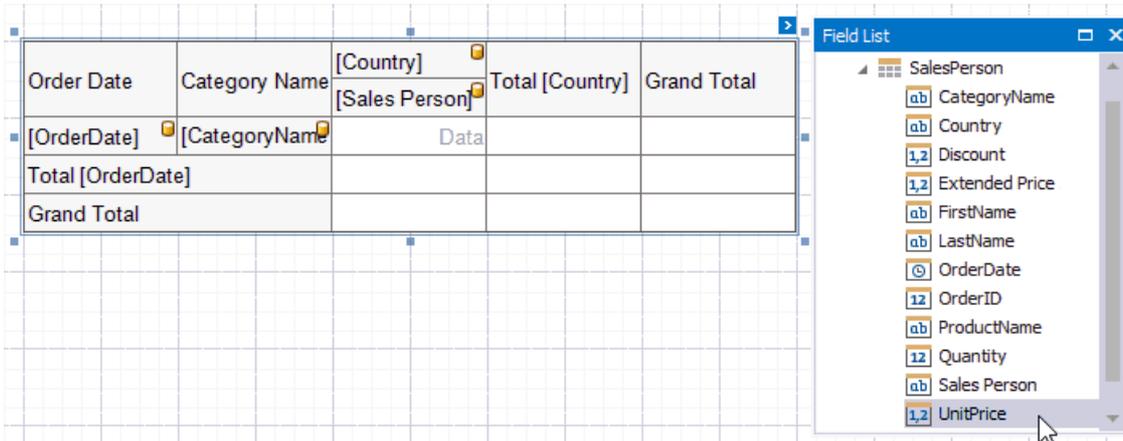
Data Fields

You can add two or more data fields and arrange them in two ways:

- in a column, one under the other (field headers are displayed as row headers);



- in a row, one after the other (field headers are displayed as column headers);



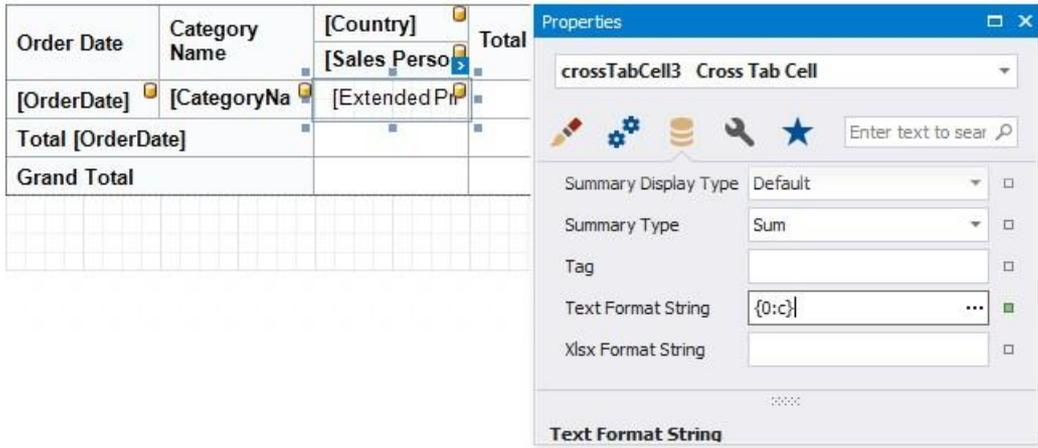
When the data area contains only one field, the field header is not displayed.

Note

- You cannot bind the top left corner, row/column totals, and row/column grand totals; You cannot bind Cross Tab cells to [report parameters](#);
- You can only bind Cross Tab cells to fields from a data source and data member assigned to the **Data Source** and **Data Member** properties.

Format Field Values

Use a cell's **Text Format String** property to format output data.



You can also use the **Null Value Text** property to specify the text shown when a data field's value is null or empty.

Data Shaping

Calculate Totals

The Cross Tab calculates the following automatic totals:

- **Row Totals** - against outer row fields;
- **Row Grand Totals** - against all the rows;
- **Column Totals** - against outer column fields;
- **Column Grand Totals** - against all the columns.

Order Date	Category Name	UK		Column Totals	USA		Column Totals	Column Grand Totals	
		Robert King	Steven Buch	Total UK	Andrew Fulle	Laura Callah	Total USA	Grand Total	
2015	Dairy Products	Extended Price	\$15,586.90	\$6,415.49	\$22,002.39	\$13,532.05	\$10,149.22	\$23,681.27	\$45,683.66
		Quantity	523	304	827	534	373	907	1734
	Meat/Poultry	Extended Price	\$7,524.24	\$10,332.48	\$17,856.72	\$12,730.30	\$5,913.95	\$18,644.25	\$36,500.97
		Quantity	147	332	479	311	214	525	1004
	Produce	Extended Price	\$3,978.42	\$6,649.02	\$10,627.44	\$4,377.00	\$5,486.44	\$9,863.44	\$20,490.88
		Quantity	102	191	293	100	187	287	580
Row Totals Total 2015		Extended Price	\$27,089.56	\$23,396.99	\$50,486.55	\$30,639.35	\$21,549.61	\$52,188.96	\$102,675.51
		Quantity	772	827	1599	945	774	1719	3318
2016	Dairy Products	Extended Price	\$11,169.40	\$10,114.52	\$21,283.92	\$9,608.50	\$10,181.05	\$19,789.55	\$41,073.47
		Quantity	356	277	633	326	334	660	1293
	Meat/Poultry	Extended Price	\$13,155.08	\$813.00	\$13,968.08	\$13,224.50	\$5,031.83	\$18,256.33	\$32,224.41
		Quantity	198	25	223	251	136	387	610
	Produce	Extended Price	\$4,637.20	\$106.00	\$4,743.20	\$3,700.00	\$6,170.08	\$9,870.08	\$14,613.28
		Quantity	104	2	106	160	209	369	475
Row Totals Total 2016		Extended Price	\$28,961.68	\$11,033.52	\$39,995.20	\$26,533.00	\$21,382.96	\$47,915.96	\$87,911.16
		Quantity	658	304	962	737	679	1416	2378
Row Grand Totals Grand Total		Extended Price	\$56,051.24	\$34,430.51	\$90,481.75	\$57,172.35	\$42,932.57	\$100,104.9	\$190,586.67
		Quantity	1430	1131	2561	1682	1453	3135	5696

You can use the [layout options](#) to move rows and columns that display total values.

If you want to [hide specific totals](#), select any cell in the row/column and disable the **Row Visible/Column**

Visible property.

Order Date	Category Name	[Country]	Total [Country]	Grand Total
[OrderDate]	[CategoryName]	[Sales Person]		
		Extended Price	[Extended Price]	
		Quantity	[Quantity]	
Total [OrderDate]		Extended Price		
		Quantity		
Grand Total		Extended Price		
		Quantity		

Cross Tab Cell Tasks

Format String

Column Auto Width Mode: None

Column Visible

Row Visible

Change the Summary Type

The Cross Tab summarizes values of [data fields](#) and displays the results "as is" at the intersection of the corresponding rows and columns.

Use the **Summary Type** property to specify the summary function calculated against a data field.

Order Date	Category Name	[Country]	Total [Country]	Grand Total
[OrderDate]	[CategoryName]	[Sales Person]		
		Extended Price		
Total [OrderDate]				
Grand Total				

Cross Tab Cell Tasks

Field Name: Extended Price

Summary Type: **Average**

Format String

Column Auto Width Mode: None

Column Visible

Row Visible

Order Date	Category Name	UK		Total UK	USA		Total USA	Grand Total
		Robert King	Steven Buc		Andrew Full	Laura Callah		
2015	Dairy Produ	\$974.18	\$534.62	\$785.80	\$712.21	\$563.85	\$640.03	\$702.83
	Meat/Poultry	\$1,074.89	\$1,291.56	\$1,190.45	\$1,273.03	\$492.83	\$847.47	\$986.51
	Produce	\$1,326.14	\$949.86	\$1,062.74	\$1,459.00	\$783.78	\$986.34	\$1,024.54
Total 2015		\$1,041.91	\$866.56	\$952.58	\$957.48	\$582.42	\$756.36	\$841.60
2016	Dairy Produ	\$1,241.04	\$1,011.45	\$1,120.21	\$600.53	\$727.22	\$659.65	\$838.23
	Meat/Poultry	\$2,631.02	\$406.50	\$1,995.44	\$1,102.04	\$718.83	\$960.86	\$1,239.40
	Produce	\$1,159.30	\$106.00	\$948.64	\$616.67	\$771.26	\$705.01	\$769.12
Total 2016		\$1,608.98	\$848.73	\$1,290.17	\$780.38	\$737.34	\$760.57	\$935.23
Grand Total		\$1,273.89	\$860.76	\$1,077.16	\$866.25	\$650.49	\$758.37	\$882.35

Use the **Summary Display Type** property to display results' contribution to other cell values, for example, as a percentage of grand total values.

Order Date	Category Name	[Country]	Total
[OrderDate]	[CategoryName]	[Sales Person]	[Extended Price]
Total [OrderDate]			
Grand Total			

Properties

crossTabCell3 Cross Tab Cell

Field Name: Extended Price

Null Value Text:

Summary Display Type: Default

Summary Type: **Percent Of Column Grand Total**

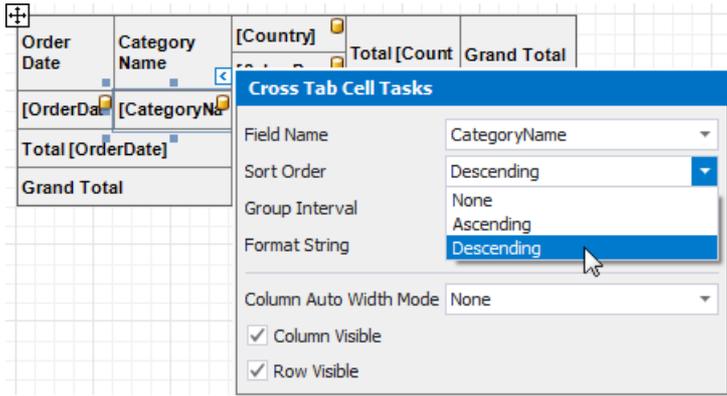
Tag:

Summary Display Type: **Percent Of Column Grand Total**

Order Date	Category Name	UK			USA		Total USA	Grand Total
		Robert King	Steven Buc	Total UK	Andrew Full	Laura Callah		
2015	Dairy Produ	57.54%	27.42%	43.58%	44.17%	47.10%	45.38%	44.49%
	Meat/Poultry	27.78%	44.16%	35.37%	41.55%	27.44%	35.72%	35.55%
	Produce	14.69%	28.42%	21.05%	14.29%	25.46%	18.90%	19.96%
Total 2015		48.33%	67.95%	55.80%	53.59%	50.19%	52.13%	53.87%
2016	Dairy Produ	38.57%	91.67%	53.22%	36.21%	47.61%	41.30%	46.72%
	Meat/Poultry	45.42%	7.37%	34.92%	49.84%	23.53%	38.10%	36.66%
	Produce	16.01%	0.96%	11.86%	13.94%	28.86%	20.60%	16.62%
Total 2016		51.67%	32.05%	44.20%	46.41%	49.81%	47.87%	46.13%
Grand Total		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Sort Data

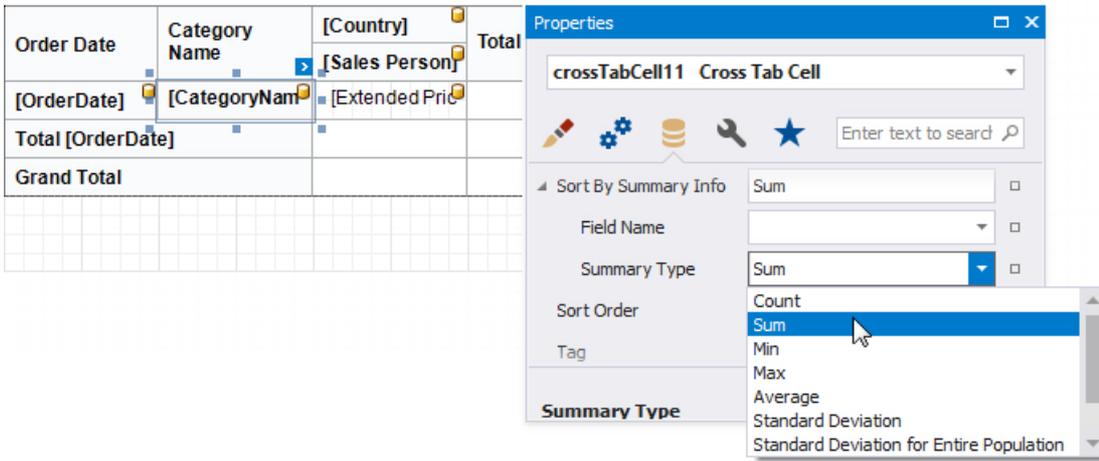
The Cross Tab displays row and column field values in the ascending order. Use the **Sort Order** property to change the current sort order. Set this property to **None** to keep the same order as records in the Cross Tab's data source.



Order Date	Category Name	UK		Total UK
		Robert King	Steven Buc	
2015	Produce	14.69%	28.42%	21.05%
	Meat/Poultry	27.78%	44.16%	35.37%
	Dairy Produ	57.54%	27.42%	43.58%
Total 2015		48.33%	67.95%	55.80%
2016	Produce	16.01%	0.96%	11.86%
	Meat/Poultry	45.42%	7.37%	34.92%
	Dairy Produ	38.57%	91.67%	53.22%
Total 2016		51.67%	32.05%	44.20%
Grand Total		100.00%	100.00%	100.00%

You can also use the **Sort By Summary Info** property to arrange row/column field values based on grand totals values.

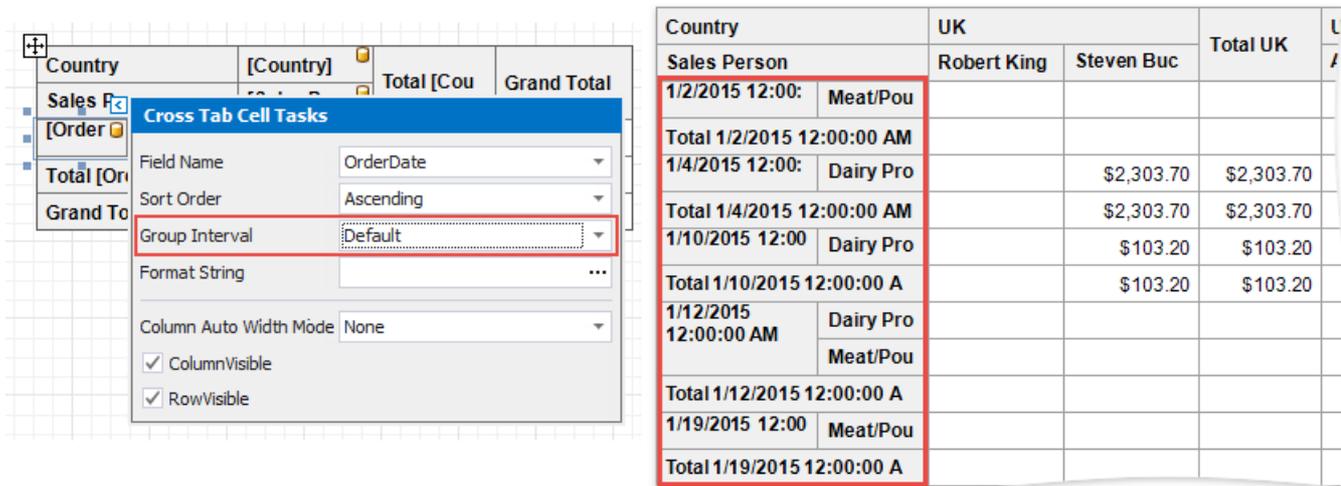
1. Select a cell you want to sort and expand the **Sort By Summary Info** property in the [Property Grid](#).
2. Set the **Field Name** property to the name of an assigned data source's field. You can also define a field that is not currently displayed in the Cross Tab.
3. Use the **Summary Type** property to specify which summary function to calculate. The summary type can differ from the summary type currently used in the Cross Tab.
4. Use the **Sort Order** property to define the sort order.



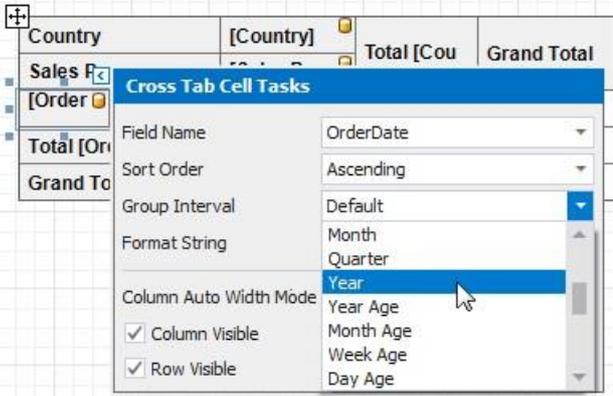
Category Name	UK		Total UK	USA		Total USA	Grand Total
	Robert King	Steven Buc		Andrew Full	Laura Callah		
Grains/Cereal	2.13%	3.45%	2.66%	9.17%	10.44%	9.75%	6.64%
Condiments	6.41%	4.04%	5.46%	9.65%	12.63%	11.01%	8.57%
Produce	6.68%	16.52%	10.64%	6.35%	9.38%	7.74%	9.02%
Seafood	8.53%	8.92%	8.69%	11.39%	10.46%	10.96%	9.96%
Confections	16.34%	4.71%	11.65%	16.84%	17.62%	17.20%	14.76%
Beverages	21.13%	20.74%	20.97%	8.51%	12.00%	10.12%	14.89%
Meat/Poultry	12.62%	25.68%	17.89%	18.47%	10.11%	14.63%	16.06%
Dairy Product	26.15%	15.94%	22.04%	19.63%	17.36%	18.59%	20.10%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Group Data

The Cross Tab displays unique values of column and row fields and does not group their values.

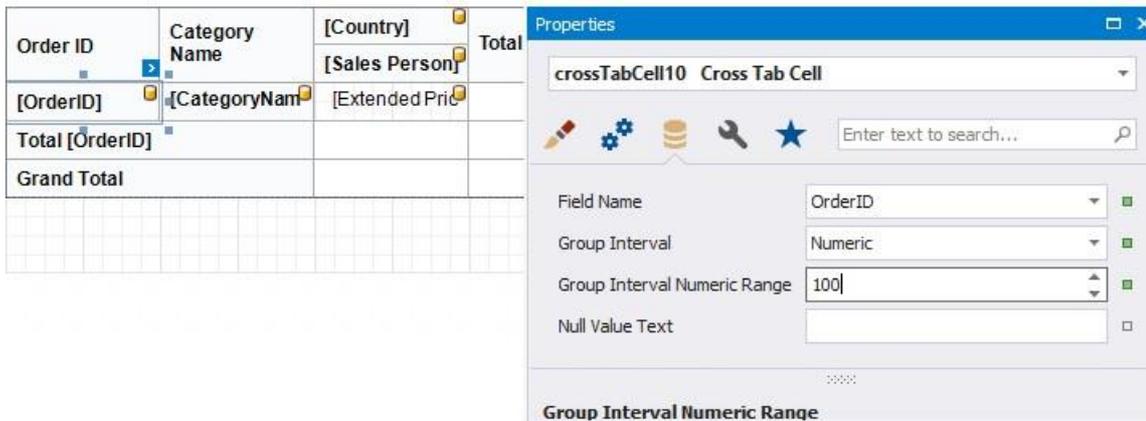


Use the **Group Interval** property to combine original field values into categories (groups). For instance, you can group date-time values by year, month, quarter, day, hour.



Country		UK		Total UK	USA
Sales Person		Robert King	Steven Buc		Andrew Full
2015	Dairy Pro	\$15,586.90	\$6,415.49	\$22,002.39	\$13,532.00
	Meat/Pou	\$7,524.24	\$10,332.48	\$17,856.72	\$12,730.30
	Produce	\$3,978.42	\$6,649.02	\$10,627.44	\$4,377.00
Total 2015		\$27,089.56	\$23,396.99	\$50,486.55	\$30,639.35
2016	Dairy Pro	\$11,169.40	\$10,114.52	\$21,283.92	\$9,608.50
	Meat/Pou	\$13,155.08	\$813.00	\$13,968.08	\$13,224.50
	Produce	\$4,637.20	\$106.00	\$4,743.20	\$3,700.00
Total 2016		\$28,961.68	\$11,033.52	\$39,995.20	\$26,533.00

To group numeric values, set the **Group Interval** property to **Numeric** and use the **Group Interval Numeric Range** property to specify the interval length. For instance, set the range to **100** to group records by 100 orders.

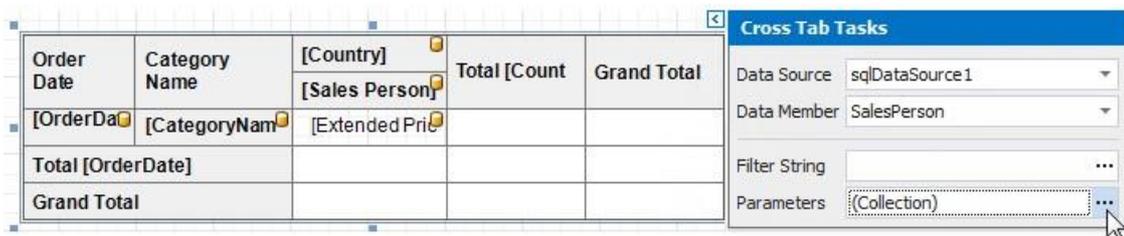


Country	UK		Total UK	USA		
Sales Person	Robert King	Steven Buch		Andrew Full	Laura Callah	
10300 - 10399	Dairy Products		\$2,406.90	\$2,406.90	\$1,440.00	\$662.88
	Meat/Poultry				\$3,121.60	\$2,451.60
	Produce		\$648.72	\$648.72		
Total 10300 - 10399			\$3,055.62	\$3,055.62	\$4,561.60	\$3,114.48
10400 - 10499	Dairy Products	\$4,385.00		\$4,385.00	\$2,878.00	\$3,282.64
	Meat/Poultry				\$106.20	\$2,399.25
	Produce	\$2,467.92	\$878.40	\$3,346.32	\$720.00	\$2,080.80
Total 10400 - 10499		\$6,852.92	\$878.40	\$7,731.32	\$3,704.20	\$7,762.69
10500 - 10599	Dairy Products	\$2,312.80	\$2,998.37	\$5,311.17	\$7,563.55	\$2,014.20
	Meat/Poultry	\$2,844.30	\$336.00	\$3,180.30	\$2,753.90	\$59.60
	Produce		\$2,162.40	\$2,162.40	\$2,650.00	\$217.39
Total 10500 - 10599		\$5,157.10	\$5,496.77	\$10,653.87	\$12,967.45	\$2,291.19
10600 - 10699	Dairy Products	\$8,889.10	\$974.60	\$9,863.70	\$1,020.00	\$2,376.50
	Meat/Poultry	\$4,679.94	\$5,270.73	\$9,950.67	\$6,007.60	\$780.00
	Produce					

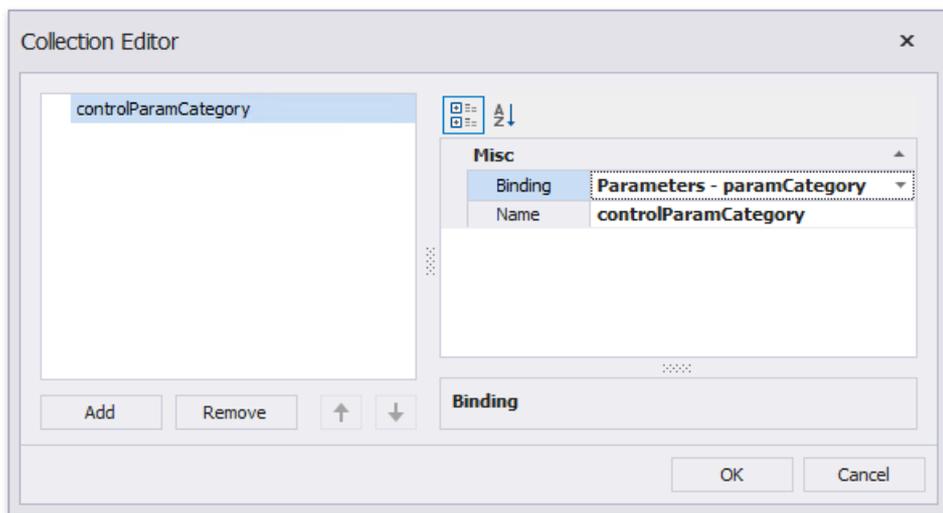
Use Parameters

The Cross Tab uses and displays values of data fields from an assigned data source. To provide values outside the data source, use internal Cross Tab parameters. Each parameter is stored in the **Parameters** collection.

You can access the **Parameters** property in the Cross Tab's smart tag or in the Properties window.



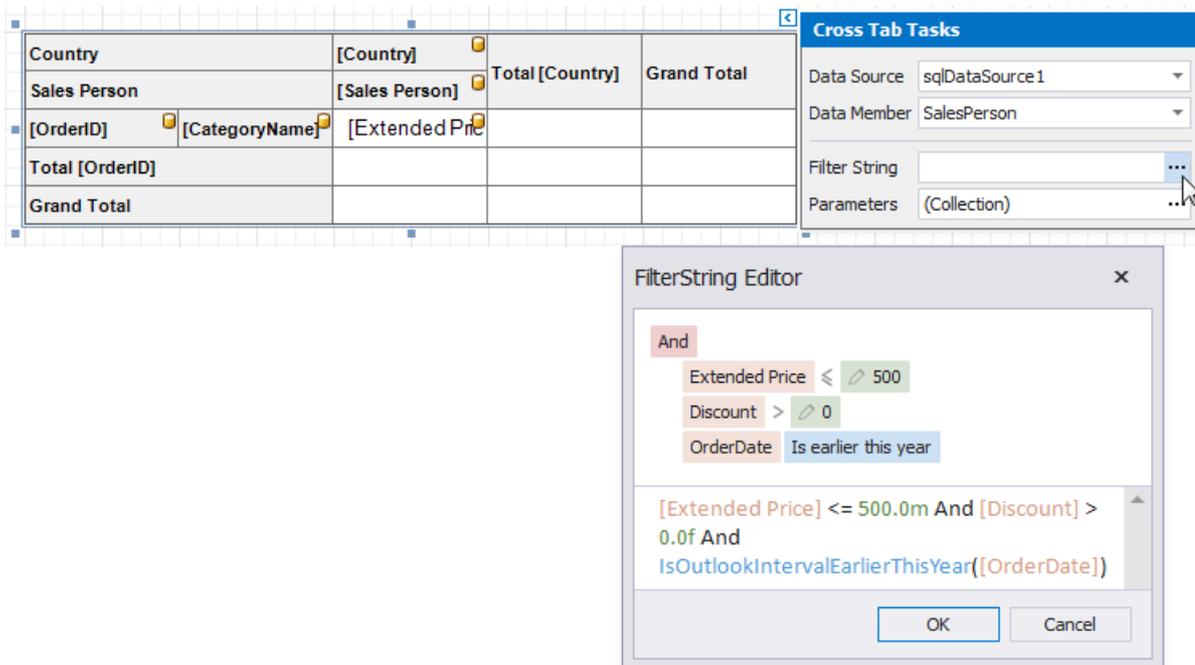
Click this property's ellipsis button and add parameters in the invoked Collection Editor. You can bind a Cross Tab parameter to a [report parameter](#) or to any data field available in a report.



You can then use the created parameters to [filter the Cross Tab](#).

Filter Data

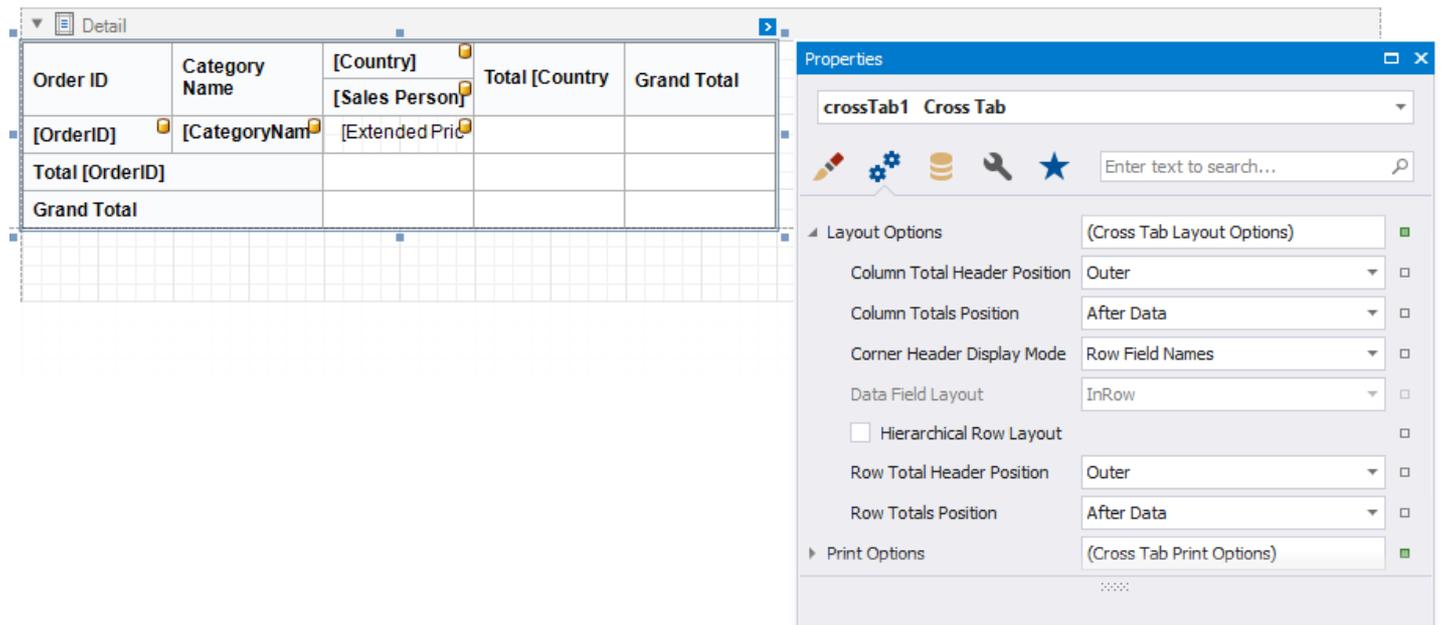
Use the Cross Tab's **Filter String** property to invoke the **FilterString Editor** and specify the filter criteria.



You can use the [Cross Tab's parameters](#) in filter criteria.

Layout and Print Options

Use the **Layout Options** property to change the cells' order and location.



- **Column Total Header Position, Row Total Header Position**

Specifies where to display column/row total headers:

- show in the same row/column as column/row field values against which totals are calculated (**Inner**); span across two rows/columns (**Outer**).

- **Column Totals Position, Row Totals Position**

Specifies the position of the column/row totals and column/row grand totals:

- after column/row field values (**After Data**);
- before column/row field values (**Before Data**).

- **Corner Header Display Mode**

Specifies what data the Cross Tab should display in the top left corner:

- split the corner into columns and display row field names (**Row Field Names**); split the corner into rows and display column field names
- (**Column Field Names**); do not split the corner and do not display
- any text (**None**).

- **Data Field Layout**

Specifies how to arrange two or more data fields in the Cross Tab layout:

- in a row one after another (**InRow**);
- in a column one under another (**InColumn**).

- **Hierarchical Row Layout**

Specifies how to display row headers:

- in a tree-like view one under another (**checked**) in a single line
- (**unchecked**).

Hide Specific Rows and Columns

Use a cell's **Row Visible** and **Column Visible** properties to specify row and column visibility. For instance, select the bottom right cell and disable these options to hide grand totals. At design time, invisible cells are filled with a hatch brush.

The screenshot shows a grid with columns: Country, [Country], Total [Cou], and Grand Total. The bottom-right cell is selected, and the 'Cross Tab Cell Tasks' menu is open. The 'Column Visible' and 'Row Visible' checkboxes are both unchecked, indicating that the grand total cell is hidden.

Country	UK		Total UK	USA		Total USA	
Sales Person	Robert King	Steven Buc		Andrew Full	Laura Calla		
2015	Dairy Pro	\$15,586.90	\$6,415.49	\$22,002.39	\$13,532.05	\$10,149.22	\$23,681.27
	Meat/Pou	\$7,524.24	\$10,332.48	\$17,856.72	\$12,730.30	\$5,913.95	\$18,644.25
	Produce	\$3,978.42	\$6,649.02	\$10,627.44	\$4,377.00	\$5,486.44	\$9,863.44
Total 2015	\$27,089.56	\$23,396.99	\$50,486.55	\$30,639.35	\$21,549.61	\$52,188.96	
2016	Dairy Pro	\$11,169.40	\$10,114.52	\$21,283.92	\$9,608.50	\$10,181.05	\$19,789.55
	Meat/Pou	\$13,155.08	\$813.00	\$13,968.08	\$13,224.50	\$5,031.83	\$18,256.33
	Produce	\$4,637.20	\$106.00	\$4,743.20	\$3,700.00	\$6,170.08	\$9,870.08
Total 2016	\$28,961.68	\$11,033.52	\$39,995.20	\$26,533.00	\$21,382.96	\$47,915.96	

Print Options

Use the **Print Options** property to specify print options and define which Cross Tab elements to print.

The screenshot shows a grid with columns: Order ID, Category Name, [Country], Total [Country], and Grand Total. The 'Properties' window is open, and the 'Print Options' section is expanded. The 'Print Layout' is set to 'Across Only', and the checkboxes for 'Print Totals For Single Values', 'Repeat Column Headers', and 'Repeat Row Headers' are all checked.

- **Print Layout**

Specifies how to print the Cross Tab content that does not fit the page's width:

- on the next page (**Across Only**);

- on the same page below the previous content (**Across Then Down**).

- **Across Then Down Offset**

Specifies the vertical distance between parts of the Cross Tab content in the **Across Then Down** print layout.

- **Print Totals For Single Values**

Specifies when to print totals:

- for any field value even when it contains one nested value (**checked**);
- for the field values that contain two and more nested values (**unchecked**).

- **Repeat Row Headers, Repeat Column Headers** Specifies whether to repeat row/column headers when the Cross Tab content is split horizontally/vertically or print them only once.

O Not e

Cross tab cells are split between pages if they do not fit the page's width or height. Set the report's **Vertical Content Splitting** and **Horizontal Content Splitting** properties to **Smart Smart** to move cells to the next page (or to the Cross Tab's next part shown on the same page).

Adjust Control Size

Drag the Cross Tab's handlers to change its size. You can also resize individual rows and columns.

Country	[Country]	Total [Cou	Grand Total
Sales Person	[Sales Pers		
[Order	[Category	[Extended P	
Total [OrderDate]			
Grand Total			

Use a cell's **Column Auto Width Mode** property to specify a cell width calculation method.

Country	[Country]	Total [Country]	Grand Total
Sales Person	[Sales Person]		
[OrderID]	[CategoryName]	[Extended Price]	
Total [OrderID]			
Grand Total			

Cross Tab Cell Tasks

Field Name: Extended Price

Summary Type: Sum

Format String: ...

Column Auto Width Mode: None

Column Visible

Row Visible

Adjust Header Text

You can double-click any cell that displays the header and use the in-place editor to enter text.

Country	[Country]	Total [Country]	Grand Total
Sales Person	[Sales Person]		
[OrderID]	[CategoryName]	[Extended Price]	
Total [OrderID]			
Grand Total			

Each Cross Tab cell provides the **Angle** property that allows you to rotate the cell's text.

Country	1c
Sales Person	IS
@	11('CategoryName')
Total	11e J
Grand Total	

u ossTabCell10 Gross Tab Cell

* Enter text to search, .P

An
gl
e

Column

Shrink and Grow

Auto

Width

Mode

Column

Visible

An le

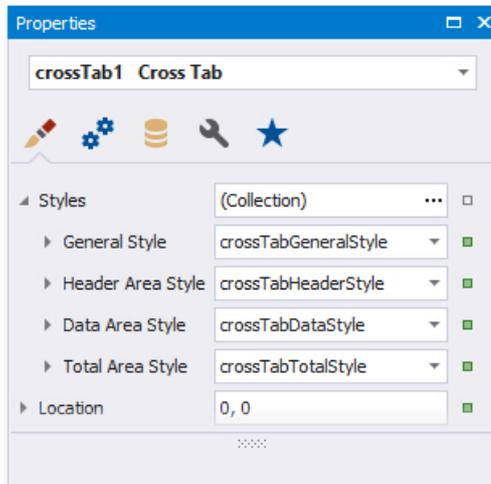
Country		UK			U SA			G ra ndi Tot al
Sa le s Pers on,	Ro bert Kingl	St e ven, Buch	Total UK	And'rew F ull	Laura Callah	Total USA		
:i R	Da iry Pro	\$15,586 .90	6,415.4 9	\$ \$ 22,00 2.39	\$13,532 .05	0,149..2 2	\$,23 ,681- 27	45,683 .66
	M'ea t/Poul	\$7,524- 24	\$1 0,3 324 8	\$17 ,856.72	\$12,73 0.30	\$ 5,913 .95	\$18,64 4 -25	\$3 6,500.9 7
	Pr oduce	\$3,978. 42	\$ 6,649.0 2	\$1 0,627.4 4	\$4 ,37 7 .00	\$ 5,486 .44	\$ 9,86 3.44	\$ 20,490. 88
Tota l 2 015		\$ 27,089. 56	\$ 23,3 96 99	\$ 50,486 .55	\$3 0,639.3 5	\$ 21,549. 61	\$ 52,188 .96	\$1 02 ,675.51
R	D a iry Pro	\$11,169 .40	\$1 0,114.5 2	\$ 21,283 .92	\$ 9,608 .50	\$1 0,181.0 5	\$19,7 89.55	\$ 41,073. 47
	Mea t/Poul	\$13,15 5.08	\$ 813 00	\$13 ,968.0 8	\$13,224 .50	\$5,031. 83	\$18,25 6.33	\$3 2,224 4 1
	Pro duce	\$4,637. 20	\$1 06 .00	\$ 4,7 43..20	\$3 ,7 00 .00	\$6,170. 08	\$ 9,87 0.08	\$14 ,613..28

Total.2016	\$ 28,961 .68	\$11 ,033 .52	\$3 9,995- 20	\$26 ,533 .00	\$ 21,382. 96	\$47,91 5.96	\$ 87 ,911 .16
G r a n d Total	\$ 56,051. 24	\$3 4,430.5 1	\$ 90,481 .75	\$57 ,172. 35	\$4 2 ,932.57	\$100,1 04 9	\$ 1 90 ,5 86.67

Cross Tab Appearance

Customize Appearance

After you drop the Cross Tab from the Toolbox onto a report or finish the Cross-Tab Report Wizard, 4 predefined [report styles](#) are created and assigned to the Cross Tab's **Styles**.



Use the **General Style** property to specify common appearance settings that apply to all Cross Tab cells.

Use the **Header Area Style**, **Data Area Style** and **Total Area Style** properties to customize appearance settings of specific areas shown below.

Category Name	UK			Total UK	USA			Total USA	Grand Total
	2014	2015	2016		2014	2015	2016		
Beverages	\$378.00	\$1,333.60	\$1,107.50	\$2,819.10	\$1,315.40	\$3,253.40	\$4,423.75	\$8,992.55	\$11,811.65
Condiments	\$120.20	\$614.15	\$483.85	\$1,218.20	\$506.10	\$1,463.05	\$1,417.95	\$3,387.10	\$4,605.30
Confections	\$204.70	\$756.13	\$710.29	\$1,671.12	\$843.20	\$2,632.37	\$2,402.61	\$5,878.18	\$7,549.30
Dairy Products	\$635.20	\$1,753.80	\$1,025.40	\$3,414.40	\$800.60	\$3,252.40	\$2,408.40	\$6,461.40	\$9,875.80
Grains/Cereals	\$57.60	\$396.80	\$463.50	\$917.90	\$364.80	\$1,795.35	\$1,086.25	\$3,246.40	\$4,164.30
Meat/Poultry	\$87.30	\$950.57	\$871.81	\$1,909.68	\$886.10	\$2,499.85	\$2,121.70	\$5,507.65	\$7,417.33
Produce	\$216.80	\$628.25	\$568.05	\$1,413.10	\$309.40	\$1,587.85	\$1,476.10	\$3,373.35	\$4,786.45
Seafood	\$103.10	\$733.98	\$479.52	\$1,316.60	\$652.40	\$2,366.06	\$1,955.72	\$4,974.18	\$6,290.78
Grand Total	\$1,802.90	\$7,167.28	\$5,709.92	\$14,680.10	\$5,678.00	\$18,850.33	\$17,292.48	\$41,820.81	\$56,500.91

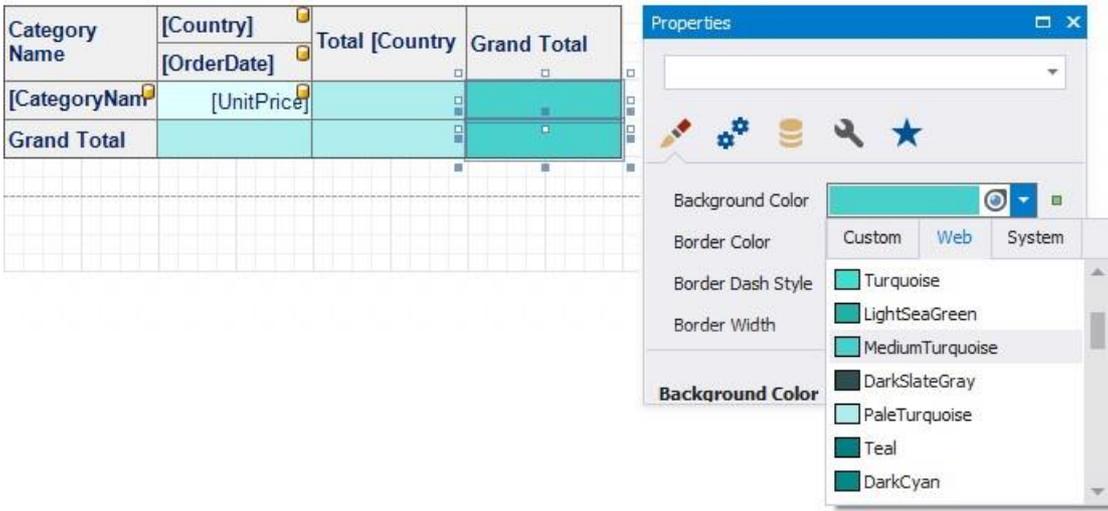
Header Area

Data Area

Total Area

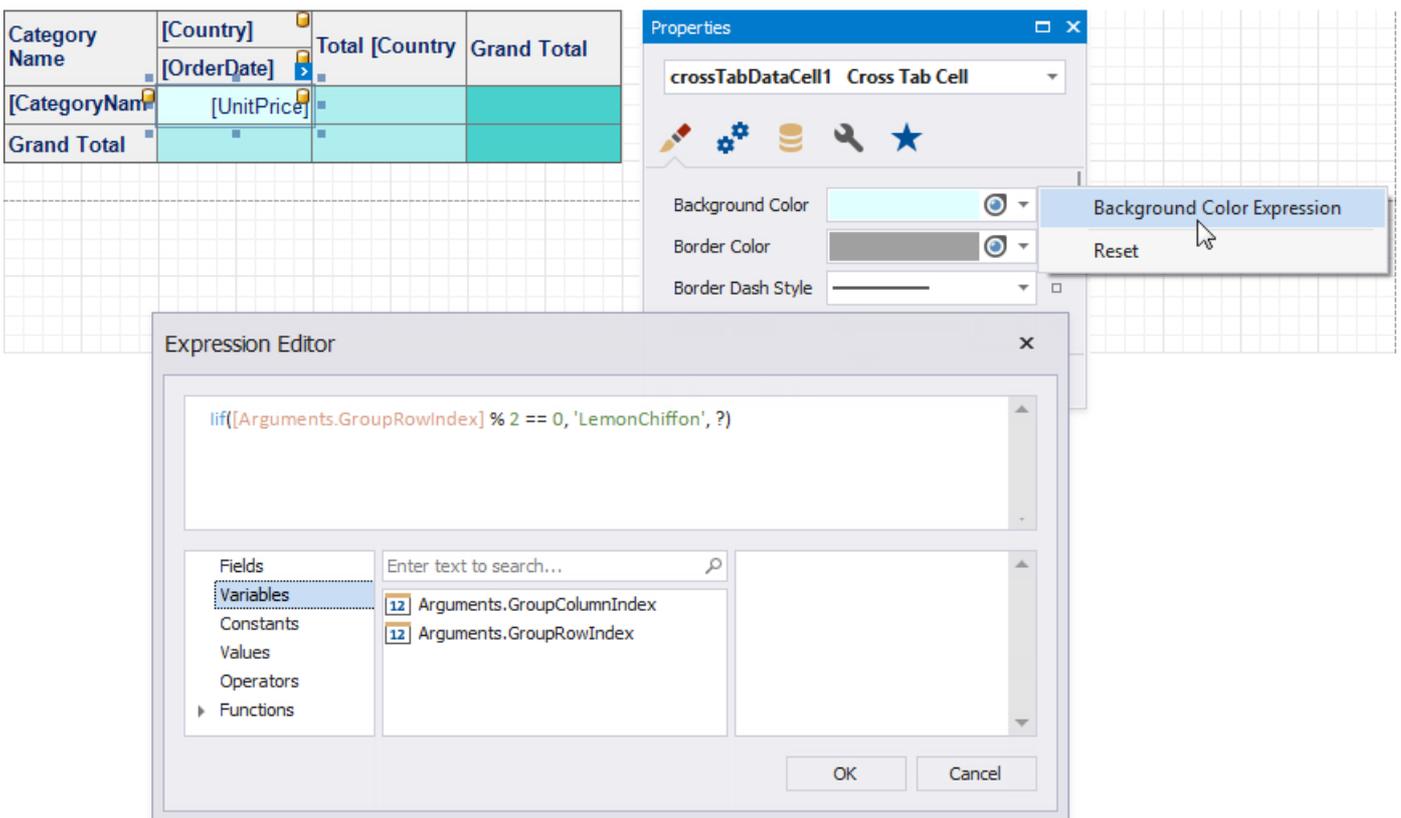
If an area's appearance option is not set, its value is inherited from the general style.

You can also override appearance settings of each Cross Tab cell. These settings have a higher priority over style settings.



Customize Appearance Conditionally

Specify [expression bindings](#) to change a cell's appearance based on a specific condition. You can use the **GroupRowIndex** and **GroupColumnIndex** arguments to identify group indexes (for instance, to define the background color for odd and even rows).



Expressions are evaluated when a report is previewed. The calculated appearance settings have the highest priority. They override a cell's appearance settings and style settings.

Category Name	UK			Total UK	USA			Total USA Grand Total
	2014	2015	2016		2014	2015	2016	
Beverages	\$378,000	\$1,333,600	\$1,107,500	\$2,819.10	\$1,315,400	\$3,253,400	\$4,423,750	\$8,992.55 \$11,811.65
Condiments	\$120,200	\$614,150	\$483,850	\$1,218.20	\$506,100	\$1,463,050	\$1,417,950	\$3,387.10 \$4,605.30
Confections	\$204,700	\$756,130	\$710,290	\$1,671.12	\$843,200	\$2,632,370	\$2,402,610	\$5,878.18 \$7,549.30
Dairy Products	\$635,200	\$1,753,800	\$1,025,400	\$3,414.40	\$800,600	\$3,252,400	\$2,408,400	\$6,461.40 \$9,875.80
Grains/Cereals	\$57,000	\$396,800	\$463,500	\$917.90	\$364,800	\$1,795,350	\$1,086,250	\$3,246.40 \$4,166.80
Meat/Poultry	\$87,300	\$950,570	\$871,810	\$1,909.68	\$886,100	\$2,499,850	\$2,121,700	\$5,507.65 \$7,417.33
Produce	\$216,800	\$628,250	\$568,050	\$1,413.10	\$309,400	\$1,587,850	\$1,476,100	\$3,373.35 \$4,786.45
Seafood	\$103,100	\$733,980	\$479,520	\$1,316.60	\$652,400	\$2,366,060	\$1,955,720	\$4,974.18 \$6,290.78
Grand Total	\$1,802,900	\$5,678,000	\$7,167,280	\$18,850.33	\$5,709,920	\$17,292,480	\$14,680,100	\$41,820.81

Use Gauges and Sparklines

The topics in this section describe how to add graphical content to your reports:

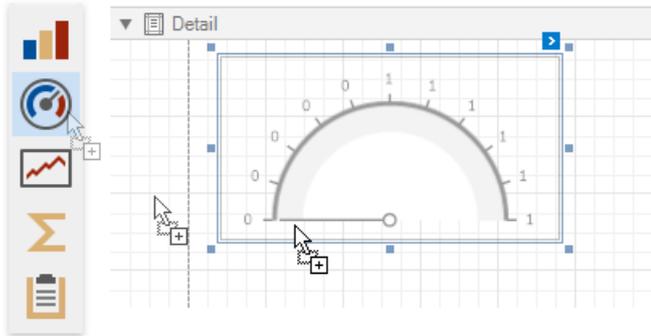
- [Add Gauges to a Report](#)
- [Add Sparklines to a Report](#)

Add Gauges to a Report

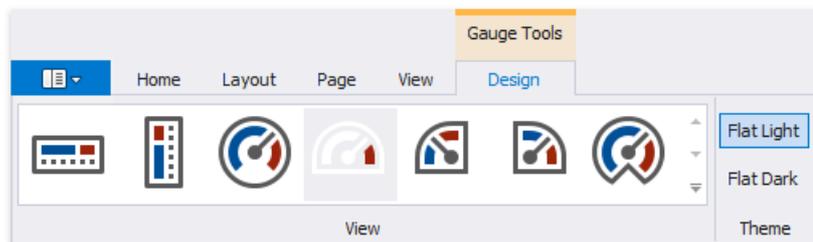
Gauge Overview

The **Gauge** control provides you with the capability to embed graphical gauges into your report.

To add this control to the report, drag the **Gauge** item from the **Toolbox** and drop it onto the report.



Use the **Toolbar's Gauge Tools** contextual tab to select a gauge's appearance.



- **View**

Specifies the type of the displayed gauge. The following view types are available:

- **Linear**



Supported view styles: **Horizontal** and

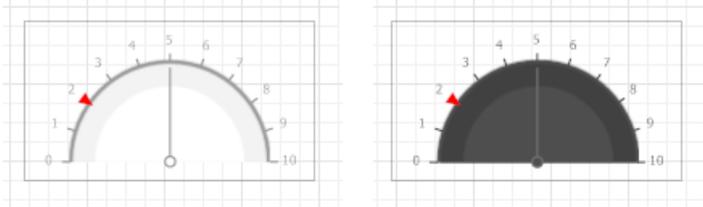
- **Vertical. Circular**



Supported view styles: **Full, Half, Quarter Left, Quarter Right** and **Three Fourth**.

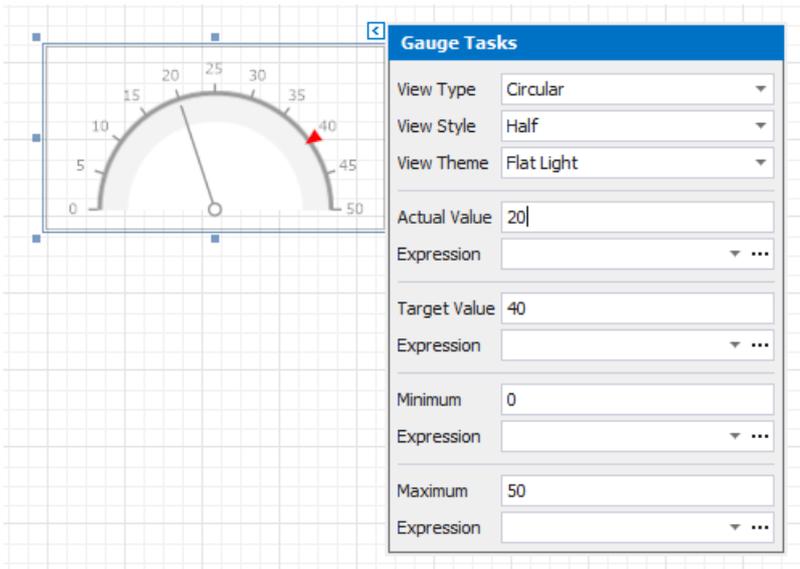
- **Theme**

Specifies the gauge's color theme. The **Flat Light** and **Flat Dark** view themes are supported.



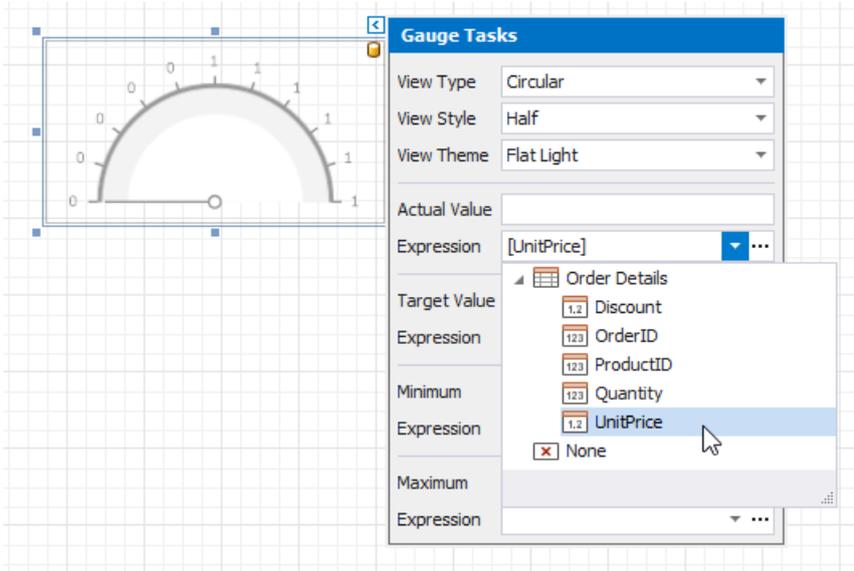
The following properties allow you to customize the gauge scale and specify its displayed values.

- **Actual Value** - specifies the value displayed by a gauge. **Target Value** - specifies the position of the target value marker. **Maximum** - specifies the gauge's maximum value.
- **Minimum** - specifies the gauge's minimum value.



Bind a Gauge to Data

To **bind** the gauge's displayed value to data, click the control's smart tag and in the invoked actions list, expand the **Expression** drop-down list for the **Actual Value** property and select the required data field.



In the same way, you can bind the **Target Value**, **Minimum** and **Maximum** properties to data. To do this, expand the

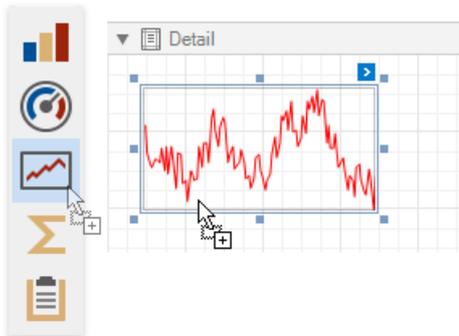
Expression drop-down list for the corresponding property and select the required data field.

Clicking the **Expression** option's ellipsis button invokes the **Expression Editor**, in which you can construct a complex binding expression involving two or more data fields.

Add Sparklines to a Report

Sparkline Overview

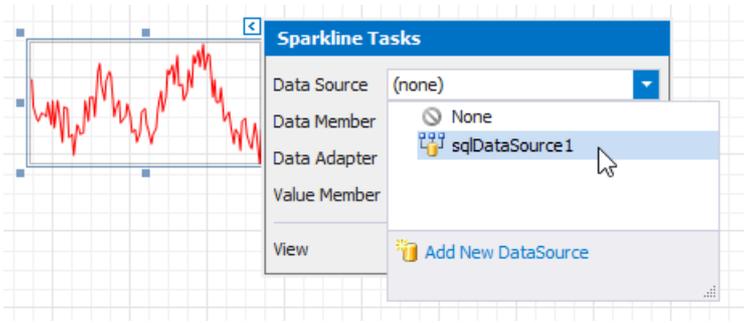
The **Sparkline** control displays a compact chart that is commonly used to illustrate the data flow for every row in a report. To add this control to the report, drag the **Sparkline** item from the [Toolbox](#) and drop it onto the report.



Bind the Sparkline to Data

You can connect the sparkline to individual data without accessing a report's data source. Click the control's smart tag, expand the

Data Source drop-down list and select the required data source.



The sparkline uses the report's data source if you do not specify the **DataSource** property.

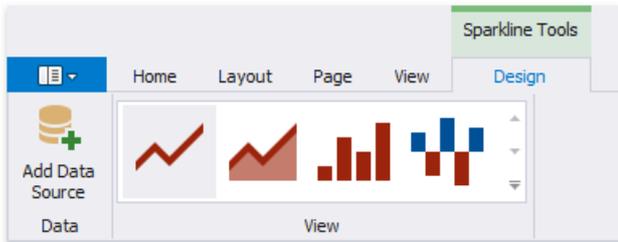
After that, specify the **Data Member** property and set the **Value Member** property to a data field that provides point values for the sparkline.

To create a new data source for a sparkline, open the **Toolbar's Sparkline Tools** contextual tab and click the **Add Data Source**

button. This invokes the **Data Source Wizard** that allows you to set up a required data source.

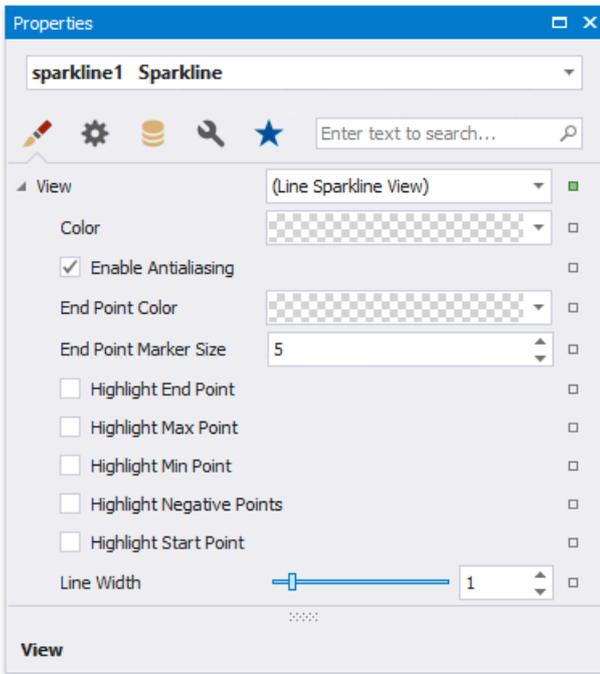
Adjust the Sparkline View

You can select the sparkline's view type in the **Sparkline Tools** toolbar tab's **View** gallery.



Alternatively, you can click the sparkline's smart tag and select the required view type in the **View** drop-down list. The sparkline supports the **Line**, **Area**, **Bar** and **WinLoss** view types.

The **View** property provides access to options that change the sparkline's appearance.



Each view type has properties that define the extreme values' visibility:

- **Highlight Start Point** and **Highlight End Point**;
- **Highlight Min Point** and **Highlight Max Point**.

Specific properties differ between view types, such as the **Highlight Negative Points** setting that is available only for the **Bar** sparkline.

The following image illustrates a [table report](#) containing sparklines that provide maximum and minimum value indicators in their data range:

ID	Customer Name	Sum	Average	Payments
	John Doe	Year: 2017 [count =9)	\$16.42	
		\$197.00		
2	Sam Hill	\$165.00	\$13.75	
3	Karen Holmes	\$224.00	\$18.67	
4	Bobb ie Valen ine	\$207.00	\$17.25	
5	Jenn ie Valentine	\$185.60	\$15.47	
6	Ricar d o Menendez	\$461.99	\$38.50	
7	Frank Frankson	\$494.00	\$41.17	
9	Jimmie Jones	\$301.00	\$25.08	
		\$2,537.59	\$23.50	

Draw Lines and Shapes

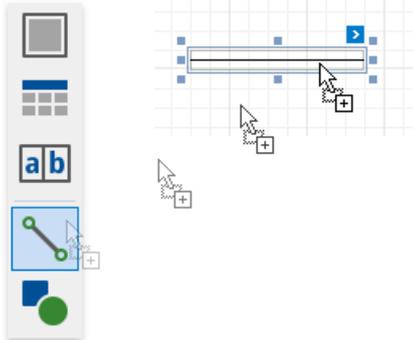
The topics in this section describe how to draw various lines and shapes in a report:

- [Draw Lines](#)
- [Draw Shapes](#)
- [Draw Cross-Band Lines and Boxes](#)

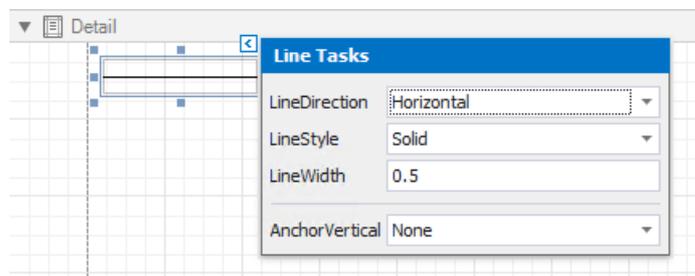
Draw Lines

The **Line** control draws a line in a specified direction, style, width, and color. You can use it to decorate and visually separate a report's sections.

To add a line to a report, drag the **Line** item from the [Toolbox](#) onto the report's area.



The actions list of the line's smart tag provides the main control properties:



- **Line Direction**

Enables you to draw a line horizontally, vertically, and across the rectangle the line occupies from one corner to another (**Horizontal**, **Vertical**, **Slant** and **Back Slant** types).



- **Line Style**

You can select the solid (by default), dashed, dotted, or mixed line style.



Line Width

- Specifies the line width in pixels as a floating point value.

- **Anchor Vertically**

Specifies the vertical anchoring style, so that after page rendering a control stays attached to the top control, bottom control, or both.

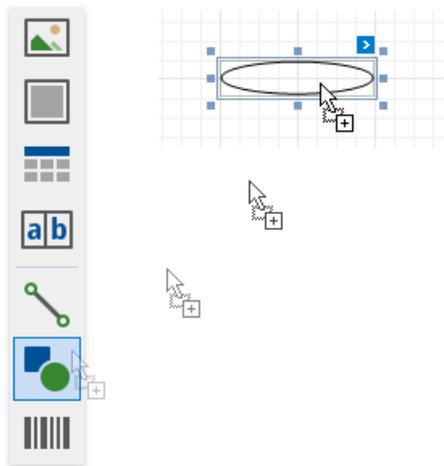
O Not e

The **Line** control cannot span several bands. See [Draw Cross-Band Lines and Boxes](#) to learn about drawing lines through several bands.

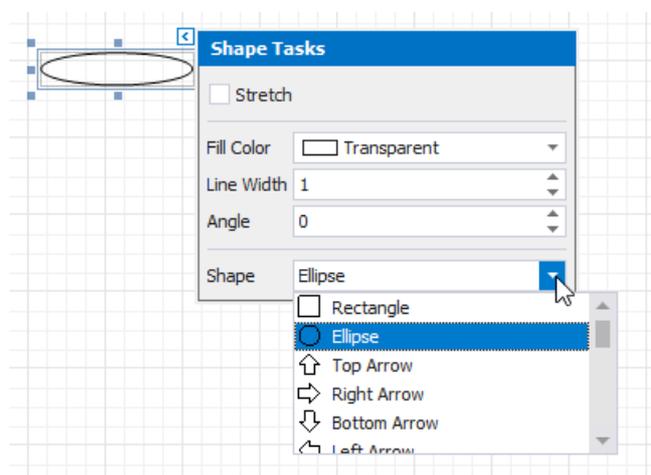
Draw Shapes

The **Shape** control allows you to draw various shapes in a report.

To add a shape to a report, drag the **Shape** item from the [Toolbox](#) onto the report's area.



Click a control's smart tag and use the **Shape** property to select the shape type. You can also choose the shape type in the [Toolbar](#)'s **Shape Tools** contextual tab.



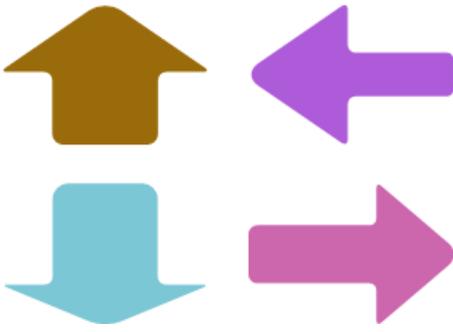
The smart tag provides the following main properties common to all shape types:

- **Fill Color** - specifies the the shape's color.
- **Stretch** - specifies whether to stretch a shape to fill its client rectangle area when it is rotated.
- **Line Width** - specifies the width of the line used to draw the shape.
- **Angle** - specifies the shape's rotation angle.

Each shape type provides its own specific set of properties which are detailed below.

Arrow

The image below illustrates the **Arrow** type's shape.

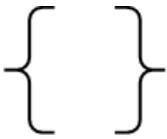


This shape type has the following additional properties:

- **Fillet** - specifies how the shape's corners are rounded (as a percentage). This value should be between **0** and **100**.
- **Arrow Height** - specifies the arrow's relative height (as a percentage). This value should be between **0** and **100**.
- **Arrow Width** - specifies the arrow's relative width (as a percentage). This value should be between **0** and **100**.

Brace

The image below illustrates the **Brace** type's shape.

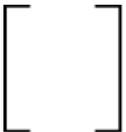


Use the following properties to set up a brace:

- **Tip's Length** - specify the length of a brace's tip.
- **Fillet** - specifies how the shape's corners are rounded (as a percentage). This value should be between **0** and **100**.
- **Tail's Length** specify the length of a brace's tail.

Bracket

The following image demonstrates the **Bracket** type's shape:



The **Tip's Length** property is specific to this shape type and defines the length of a bracket's tip.

Cross

The image below shows the **Cross** type's shape.



This shape type has the following properties:

- **Fillet** - specifies how the shape's corners are rounded (as a percentage). This value should be between **0** and **100**.
- **Horizontal Line Height** - specifies the relative width of a cross's horizontal line (as a percentage). This value should be between **0** and **100**.
- **Vertical Line Width** - specifies the relative width of a cross's vertical line (as a percentage). This value should be between **0**

and **100**.

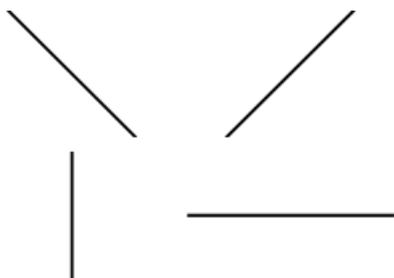
Ellipse

The image below shows **Ellipse** type shapes.



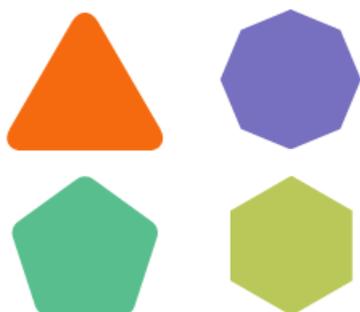
Line

The following image demonstrates **Line** type shapes:



Polygon

The image below illustrates the **Polygon** type's shape:



This shape type has the following properties:

- **Fillet** - specifies how the polygon's corners are rounded (as a percentage). This value should be between **0** and **100**.
- **Number Of Sides** - specifies the number of polygon sides.

Rectangle

The image below illustrates **Rectangle** type shapes.



This shape type's **Fillet** property specifies the rectangle's relative roundness (as a percentage, between **0** and **100**).

Star

The following image shows a **Star** type shape:



This shape type has the following properties:

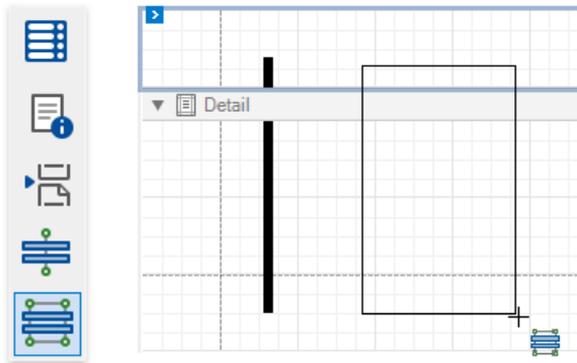
- **Fillet** - specifies the relative roundness of the star's points (as a percentage). This value should be between **0** and **100**.
- **Count of Star Points** - specifies the number of points that make up the star.
- **Concavity** - specifies the concavity level (as a percentage) between two neighboring start points. This value should be between **0** and **100**.

Draw Cross-Band Lines and Boxes

Cross-band controls allow you to draw lines and rectangles through several [report bands](#). The Report Designer provides the following two cross-band controls:

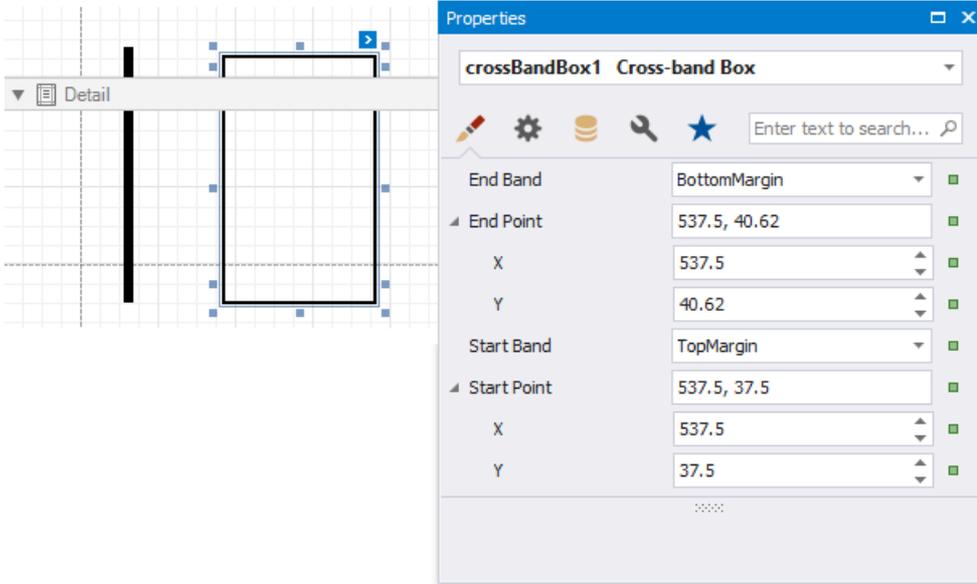
- The **Cross-Band Line** control draws vertical lines that can span multiple report bands. You can use this control to emphasize a report area that consists of different bands.
- The **Cross-Band Box** control draws rectangles through several report bands. You can use this control to encompass a report section that includes multiple band areas.

To add a cross-band control to a report, select the corresponding item in the [Toolbox](#) and draw a rectangle across required bands.



The following properties define a cross-band control's location in a report:

- **Start Band** - determines the band from which the control starts to draw;
- **Start Point** - specifies the exact coordinates (measured in [report units](#)) within the start band where the control starts to draw;
- **End Band** - determines the band where the cross-band control stops to draw;
- **End Point** - specifies the exact coordinates (measured in [report units](#)) within the end band where the control finishes to draw.



Shape Report Data

The topics in this section describe the data shaping features reports support:

- [Filter Data](#)
- [Group and Sort Data](#)
- [Shape Data \(Expression Bindings\) Shaping Data \(Data Bindings\) Use](#)
- [Calculated Fields](#)
- [Use Report Parameters](#)

Filter Data

The topics in this section describe different approaches to filtering data

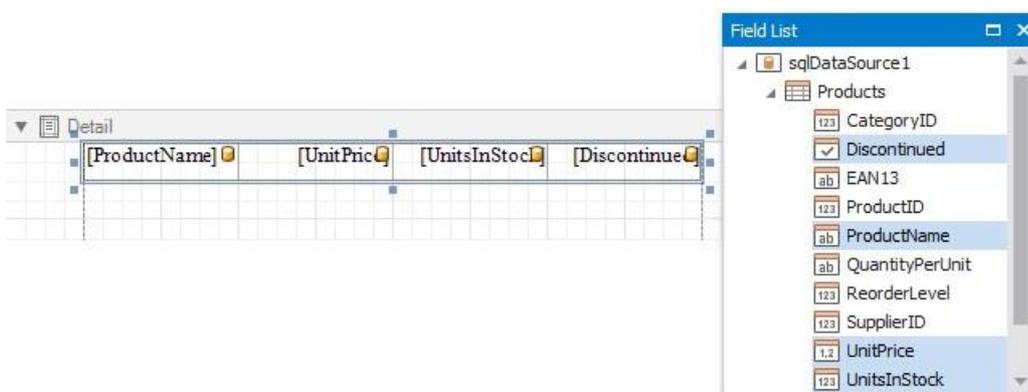
- in your reports: [Filter Data at the Report Level](#)
- Use the report's settings demonstrated in this tutorial if you want to load the entire dataset and filter it on the client. [Filter Data at the Data Source Level](#)
- Filter records at data source level using your data connection query if you are binding to a large data source and want to speed up the retrieval process.
- [Limit the Number of Records to Display](#)

Options described in this topic allow you to emulate the Top N feature in a sorted report or increase the Print Preview performance by rendering only a subset of a report's data.

Filter Data at the Report Level

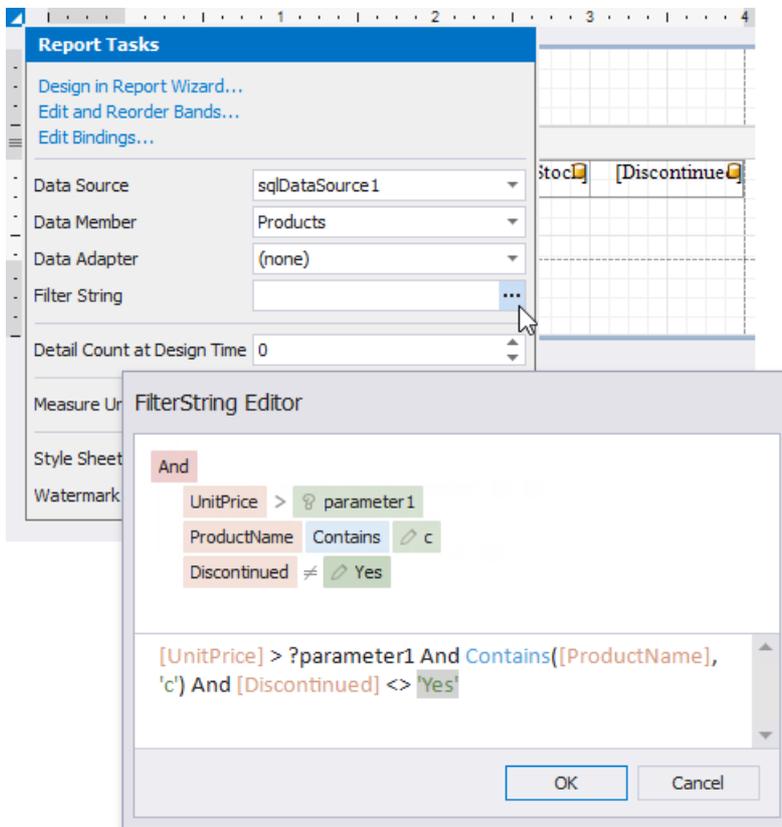
This tutorial illustrates how to filter data at the report level, as opposed to the [data source level](#). This approach is useful when dealing with relatively small data sources, when data load times are acceptable.

1. [Create a new report](#) or open an existing one.
2. Bind your report to a required data source. See the [Bind to Data](#) section to learn more about providing data to reports.
3. Switch to the [Field List](#) and drop the required fields onto the report's [Detail](#) band.



4. Click the report's smart tag and click the **Filter String** property's ellipsis button.

In the invoked [FilterString Editor](#), construct an expression in which the data fields are compared with the required values.

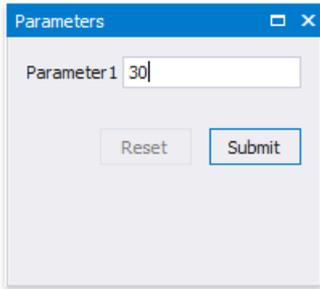


Every filter condition consists of three parts:

- A field of a data source to which a report is bound or the name of the [calculated field](#), which exists in this data source at the same level.
- Criteria operator, such as **Equals**, **Is less than**, **Is between**, etc.
- A static operand value, another data field or a [report parameter](#). To access parameters, click the icon on the right until it turns into a question mark.

You can arrange specific conditions into groups with **And**, **Or**, **Not And**, and **Not Or** operators.

Your report is now ready to be generated. Switch to [Print Preview](#) to see the result.

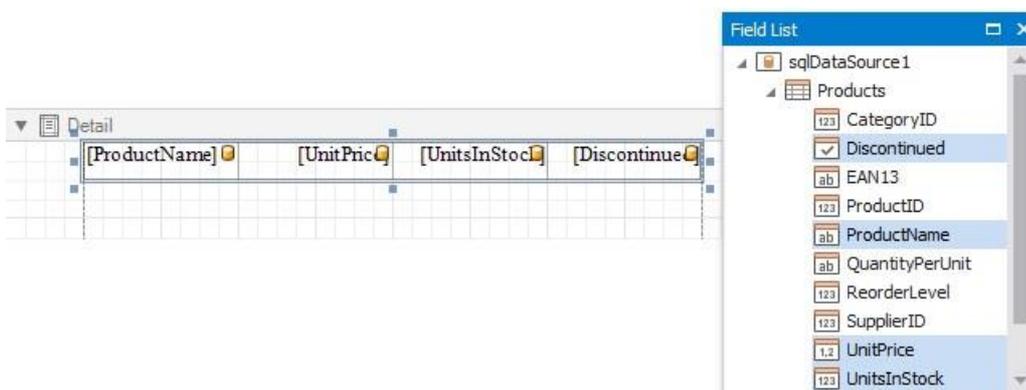


Product Name	Unit Price	Units In Stock	Discontinued
Northwoods Cranberry Sauce	\$40.00	6	False
Queso Manchego La Pastora	\$38.00	86	False
Camarvon Tigers	\$62.50	42	False
Gumbär Gummibärchen	\$31.23	15	False
Schoggi Schokolade	\$43.90	49	False
Mascarpone Fabioli	\$32.00	9	False
Côte de Blaye	\$263.50	17	False
Ipoh Coffee	\$46.00	17	False
Gnocchi di nonna Alice	\$38.00	21	False
Raclette Courdavault	\$55.00	79	False
Camembert Pierrot	\$34.00	19	False
Tarte au sucre	\$49.30	17	False

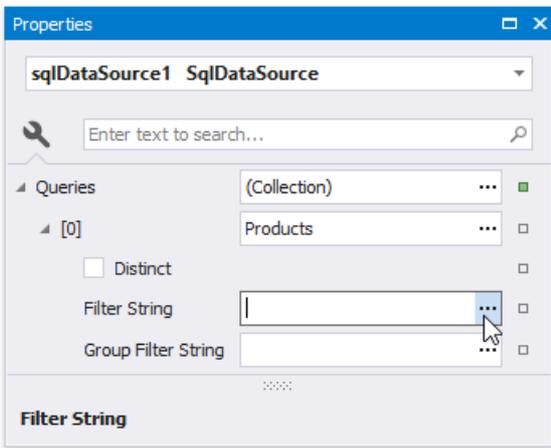
Filter Data at the Data Source Level

This tutorial illustrates how to filter data at the report data source level, as opposed to the [report level](#). This approach is recommended when dealing with comparatively large data sources when the retrieval process is slow.

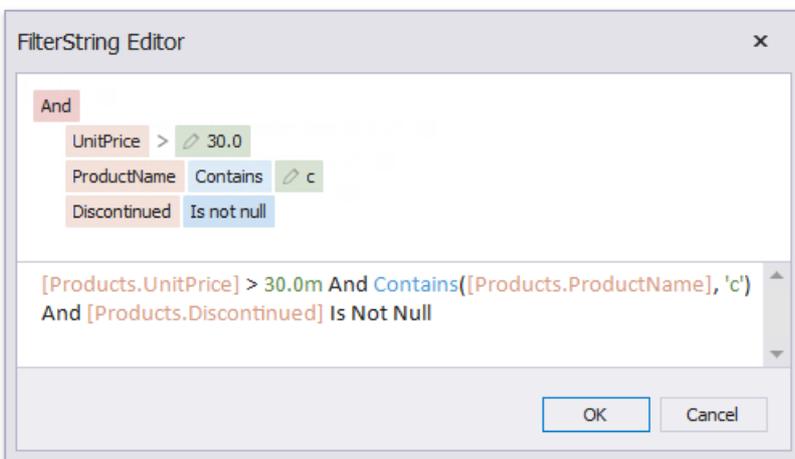
1. [Create a new report](#) or open an existing one.
2. Bind your report to a required data source. See the [Bind to Data](#) section to learn more about providing data to reports.
3. Switch to the [Field List](#) and drop the required fields onto the report's [Detail](#) band.



4. Select the data source in the [Report Explorer](#), expand its **Queries** collection property in the [Property Grid](#) and click the ellipsis for the **Filter String** property of the required query.



5. In the invoked [Filter Editor](#), construct an expression where the data fields are compared with the required values as shown below.



Every filter condition consists of three parts:

- A data field name.
- Criteria operator, such as **Equals**, **Is less than**, **Is between**, etc.
- A static operand value, another data field or a query parameter. See the [Use Query Parameters](#) topic to learn about embedding these parameters into filter conditions.

You can arrange specific conditions into groups with **And**, **Or**, **Not And**, and **Not Or** operators.

Alternatively, you can specify a filter expression when creating a query using the [Query Builder](#). To invoke the **Filter Editor** at this stage, click the **Filter...** button.

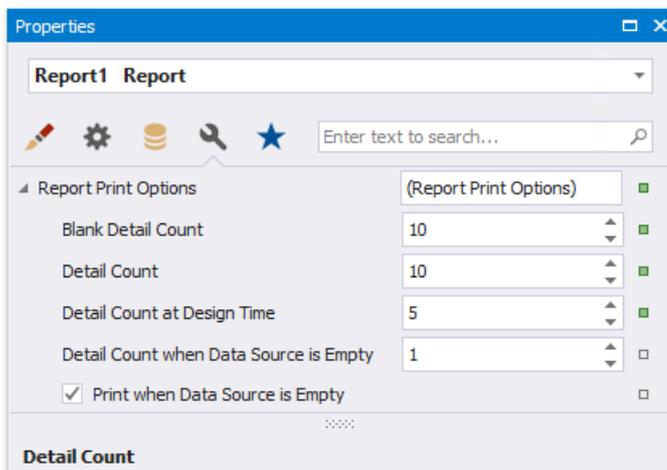
Switch to [Print Preview](#) to see the result.

Product Name	Unit Price	Units In Stock	Discontinued
Northwoods Cranberry Sauce	\$40.00	6	False
Queso Manchego La Pastora	\$38.00	86	False
Camarvon Tigers	\$62.50	42	False
Gumbär Gummibärchen	\$31.23	15	False
Schoggi Schokolade	\$43.90	49	False
Mascarpone Fabioli	\$32.00	9	False
Côte de Blaye	\$263.50	17	False
Ipoh Coffee	\$46.00	17	False
Gnocchi di nonna Alice	\$38.00	21	False
Raclette Courdavault	\$55.00	79	False
Camembert Pierrot	\$34.00	19	False
Tarte au sucre	\$49.30	17	False

Limit the Number of Records to Display

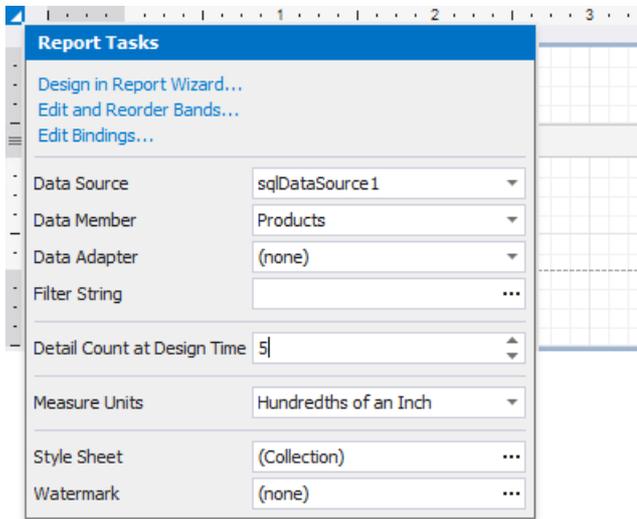
You can filter records displayed in [Print Preview](#) using **Report Print Options**. You can specify them in the [Property Grid](#)'s

Miscellaneous tab.



Limit the Number of Records

The **Detail Count at Design Time** property enables you to limit the number of records a report shows in Print Preview embedded into the Report Designer. This option is also available in the report's smart tag.



Use the **Detail Count** option to define how many times to print the Detail band when generating a report document to display in Print Preview.

Print on Empty Data Source

Disable the **Print when Data Source is Empty** option to avoid generating a report when its data source is empty. You can use this setting in [master-detail reports](#) to hide the detail report if its data source contains no records.

The **Detail Count when Data Source is Empty** property allows you to specify how many times to print the Detail band when a report does not have a data source. You can use this property to create static reports that are not connected to a data source and display the same static content several times.

Group and Sort Data

The following documents describe how to group and sort a report's data:

- [Sort Data Group Data](#)
- [Sort Data by a Custom Field Group Data by a Custom Field](#)
- [Sort Groups by a Summary Function's Result](#)

Sort Data

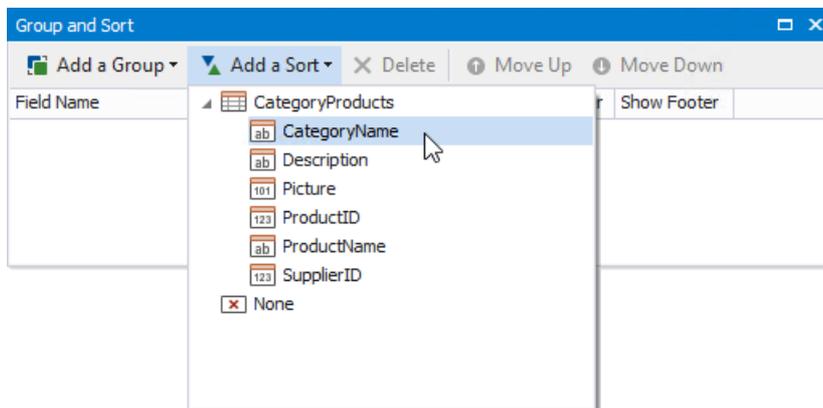
Sort a Report's Data

Do the following to sort data in your report:

1. Create a new or open an existing data-bound report.

You cannot apply sorting unless your report is bound to a data source.

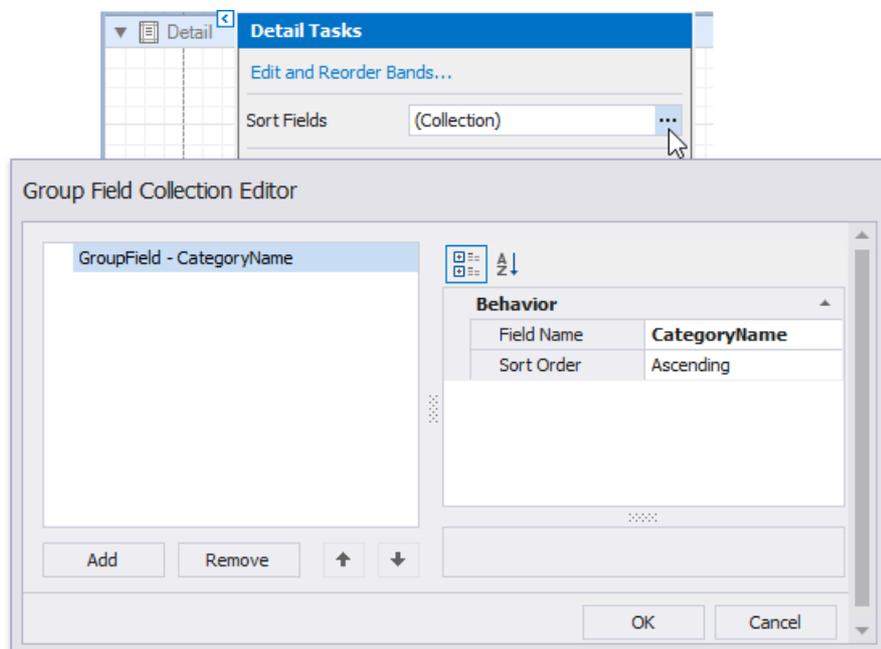
2. Switch to the [Group and Sort](#) panel, click **Add a Sort** and select the required data field in the invoked drop-down menu.



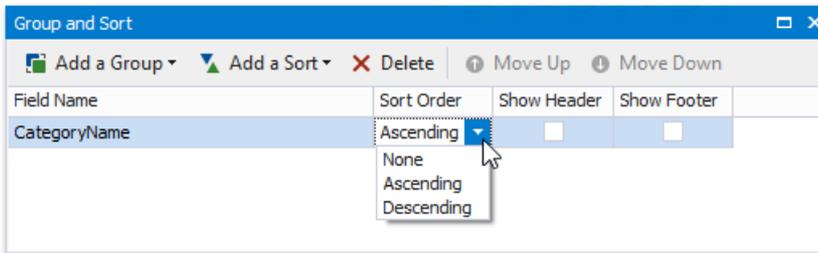
0 Note

See the [Sort Data by a Custom Field](#) tutorial to learn how to sort a report's data by a custom field.

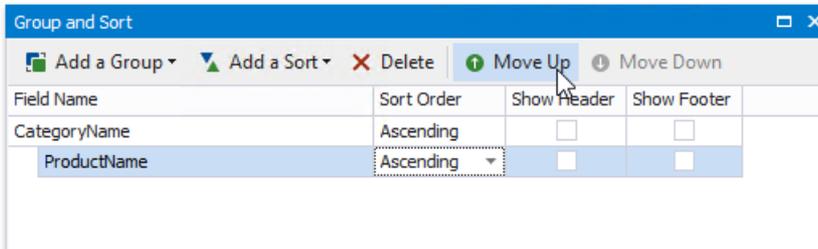
This adds a corresponding sort field to the **Sort Fields** collection. You can access this collection by clicking the Detail band's smart tag.



3. Back in the **Group and Sort** panel, you can specify the sort order (ascending or descending).



4. When a report has multiple sort fields, you can change their order by clicking **Move Up** or **Move Down**.



5. Drag the corresponding field from the [Field List](#) onto the report area and switch to [Print Preview](#) to see the result.

Beverages	Chai
Beverages	Chang
Beverages	Chartreuse verte
Beverages	Côte de Blaye
Beverages	Guaraná Fantástica
Beverages	Lakkalikööri
Beverages	Laughing Lumberjack Lager
Beverages	Sasquatch Ale
Condiments	Aniseed Syrup
Condiments	Gula Malacca
Condiments	Vegie-spread
Confections	Gumbär Gummibärchen
Confections	Maxilaku

Interactive Sorting in Print Preview

You can allow sorting report data directly in Print Preview by clicking a designated element.

Beverages		
Product Name	Quantity Per Unit	Unit Price
Steeleye Stout	24 - 12 oz bottles	\$18.00
Sasquatch Ale	24 - 12 oz bottles	\$14.00
Rhönbräu Klosterbier	24 - 0.5 l bottles	\$7.75
Outback Lager	24 - 355 ml bottles	\$15.00
Laughing Lumberjack Lager	24 - 12 oz bottles	\$14.00
Lakkalikööri	500 ml	\$18.00
Ipoh Coffee	16 - 500 g tins	\$46.00
Guaraná Fantástica	12 - 355 ml cans	\$4.50
Côte de Blaye	12 - 75 cl bottles	\$263.50
Chartreuse verte	750 cc per bottle	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Chai	10 boxes x 20 bags	\$18.00

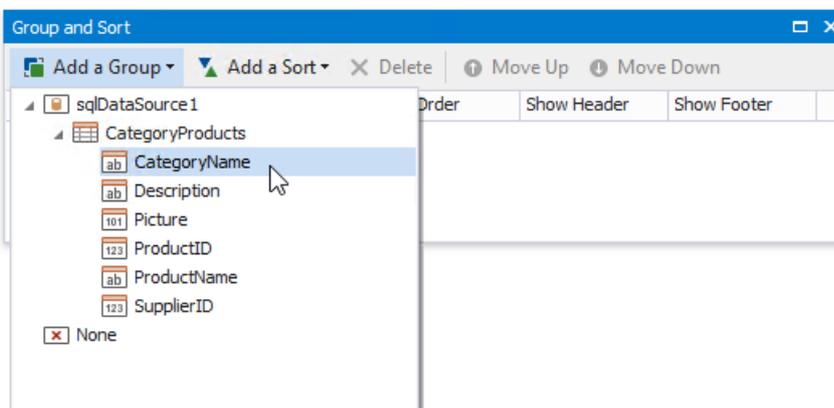
See [Sort a Report in Print Preview](#) for more information.

Group Data

Group a Report's Data

Do the following to group data in your report:

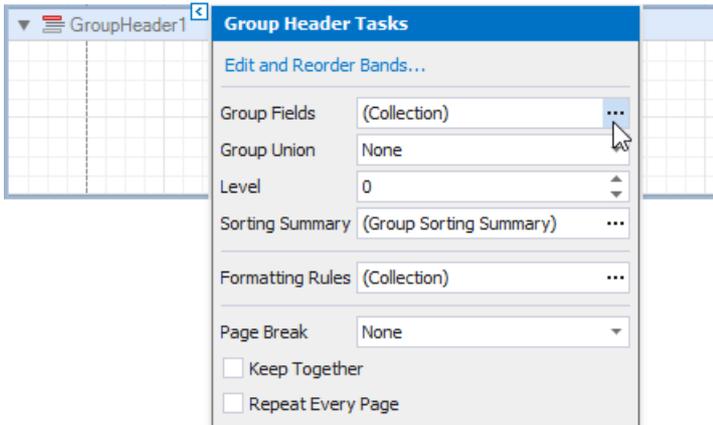
1. Create a new or open an existing data-bound report.
You cannot apply grouping unless your report is bound to a data source.
2. Switch to the [Group and Sort](#) panel, click **Add a Group** and select the required data field in the invoked drop-down menu.



Not e

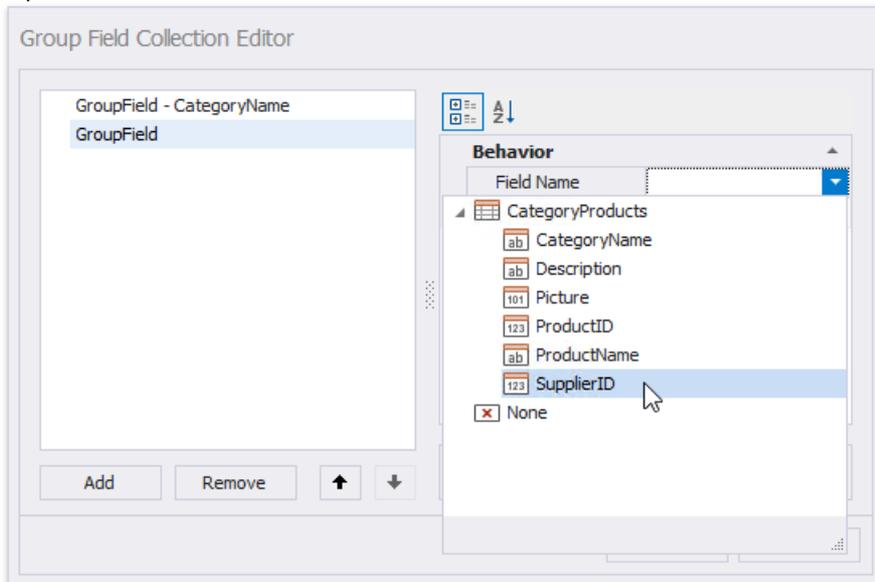
See the [Group Data by a Custom Field](#) tutorial to learn how to group a report's data by a custom field.

This creates an empty **Group Header** with a corresponding group field added to its **Group Fields** collection. You can access this collection by clicking the Group Header's smart tag.

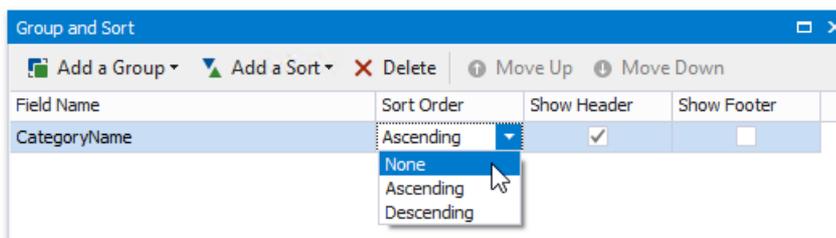


You can use the **Group Field Collection Editor** to group data by multiple criteria. Click **Add** to create a new group field and specify its **Field Name** property.

Use the up and down arrow buttons to specify the order in which these criteria are applied to the report's data.

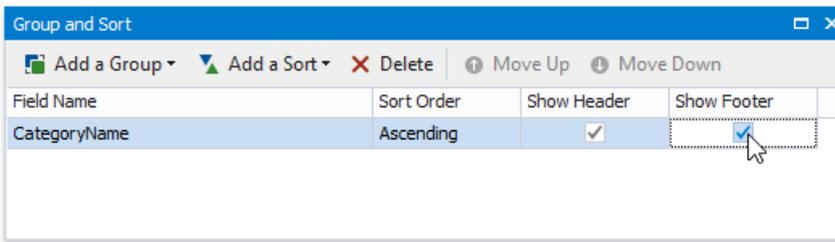


3. Back in the **Group and Sort** panel, you can specify the group fields' sorting order (ascending or descending). Select **None** if your groups are already ordered in the data source, and you do not

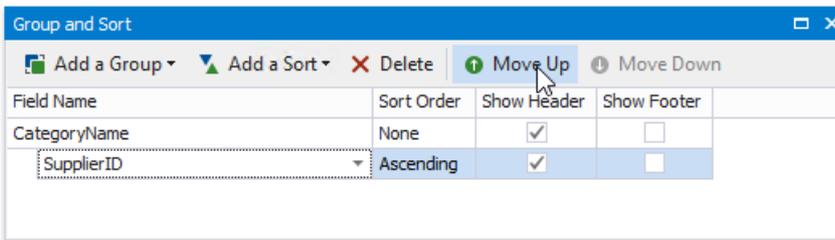


need to sort them in the report.

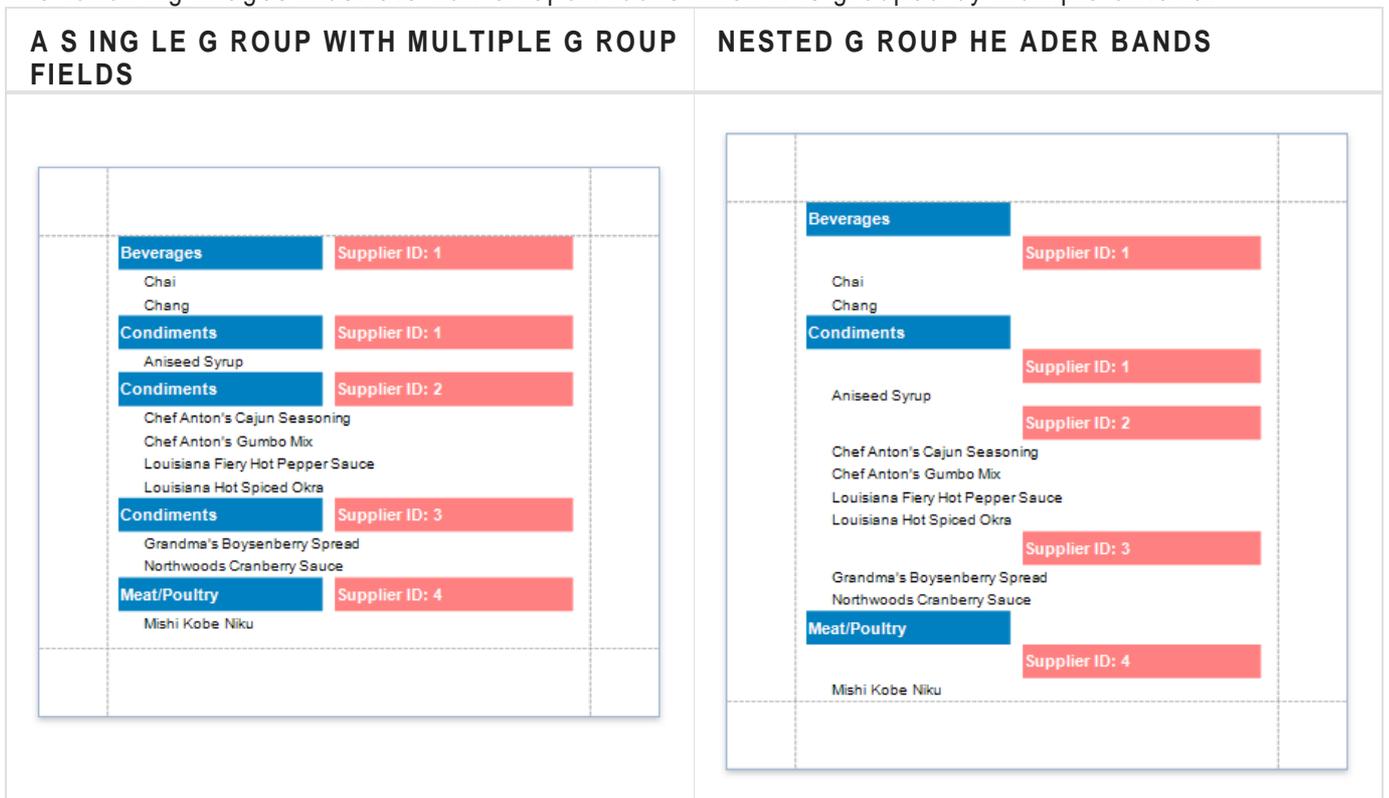
4. Click **Show Footer** to create an empty footer for this group.



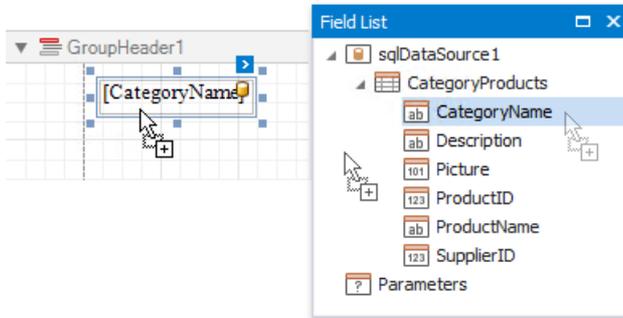
5. When a report has multiple groups, you can change their order by clicking **Move Up** or **Move Down**.



The following images illustrate how a report looks when it is grouped by multiple criteria:



6. Drag the corresponding field from the [Field List](#) and drop it onto the group footer to display the group field's value in the report.



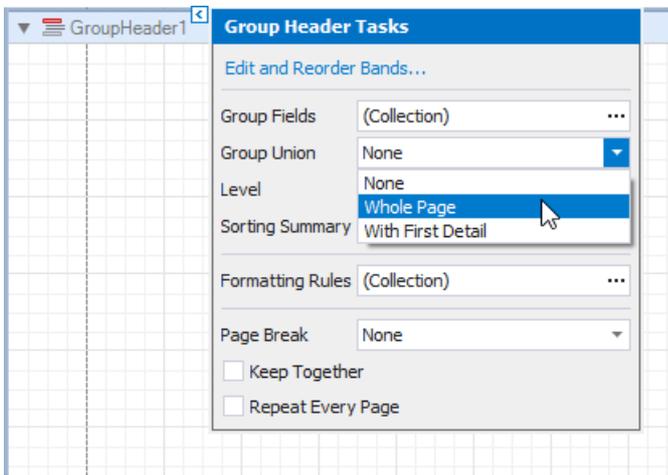
The resulting report looks as follows:

Beverages
Côte de Blaye
Ipoh Coffee
Condiments
Chef Anton's Cajun Seasoning
Chef Anton's Gumbo Mix
Grandma's Boysenberry Spread
Northwoods Cranberry Sauce
Sirop d'érable
Vegie-spread
Louisiana Fiery Hot Pepper Sauce
Confections
Sir Rodney's Marmalade
Gumbär Gummibärchen
Schoggi Schokolade
Tarte au sucre

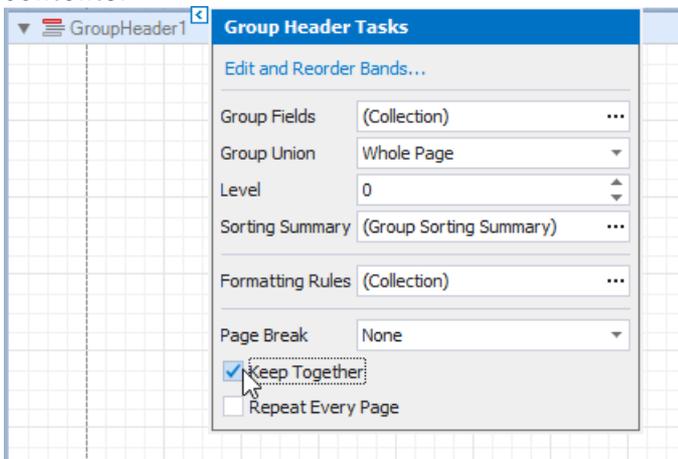
Specify the Group's Settings

You can use the group band's smart tag to customize the group's layout settings:

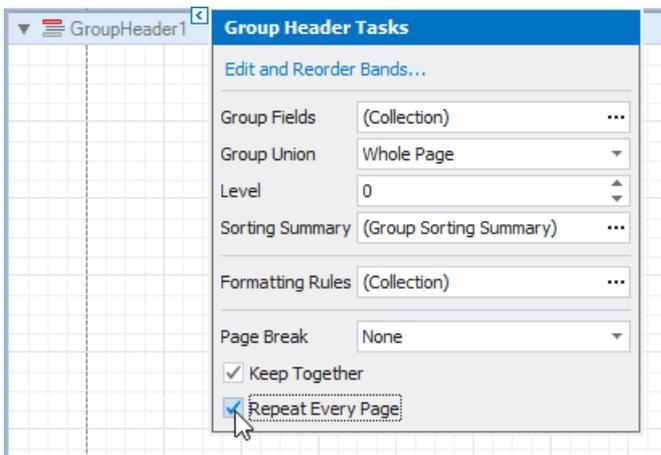
- Use the **Group Union** property to keep a group's content on the same page when possible.



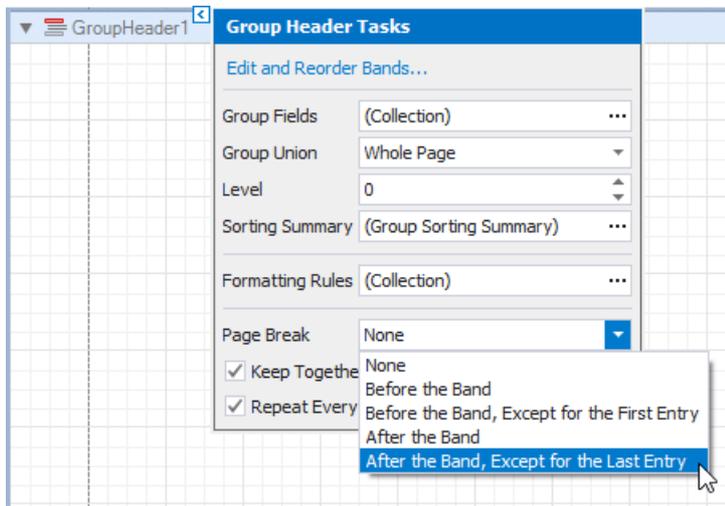
Use the **Keep Together** property to print the Group Header/Footer on the same page as the group's contents.



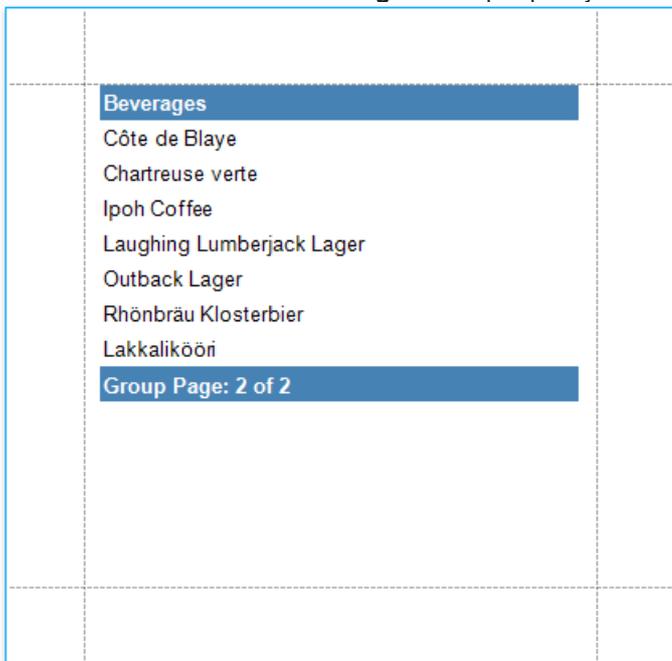
- Use the **Repeat Every Page** property to print the group band on each page.



- Use the **Page Break** property to start a new page before or after each group.



When you need to display page numbers for individual groups, add the [Page Info](#) control to the Group Header or Footer and set its **Running Band** property to the Group Header's name.



Accurate page numbering requires that different groups do not appear on the same page. For this reason, you need to set the Group Header's **Page Break** property to **After Band**, or place the **Page Break** control at the band's bottom.

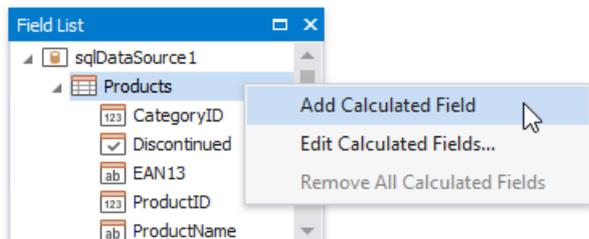
Sort Data by a Custom Field

This tutorial illustrates how to sort a report against a custom criteria, in particular, sort data by the number of characters in the data field value.

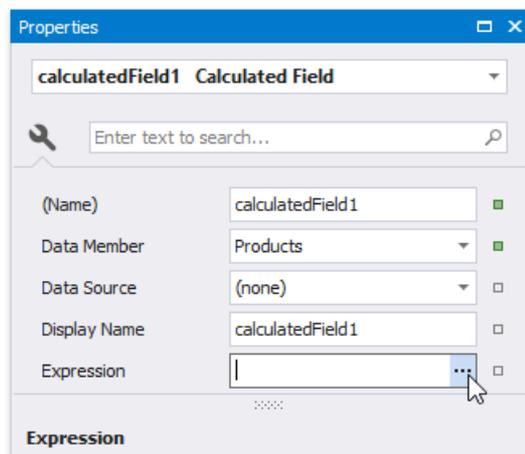
1. Create a new or open an existing data-bound report.

You cannot apply grouping unless your report is bound to a data source.

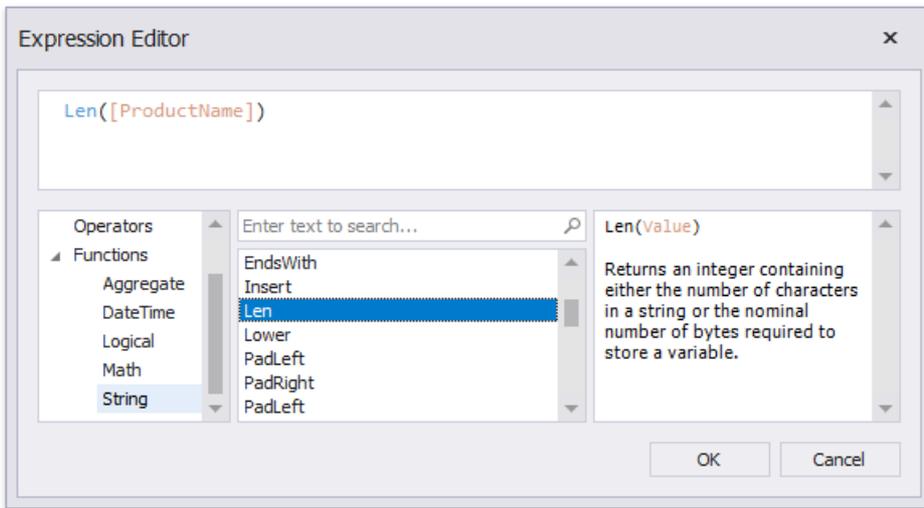
2. Create a [calculated field](#). Switch to the [Field List](#), right-click any item inside the data source and select **Add Calculated Field**.



3. Select the calculated field, and in the [Property Grid](#), click the **Expression** property's ellipsis button.



4. In the invoked **Expression Editor**, select the required date-time function and define the data field's name in [square brackets]. For example, use the **Len([ProductName])** function to return the number of characters extracted from the **ProductName** data field.



Click **OK** to close the editor and save the changes.

- In the **Group and Sort** panel, click **Add a Sort** and select the calculated field from the invoked drop-down menu.



The **Sort Order** drop-down list allows you to define the sort order within the group (ascending or descending).

- Drag the corresponding field from the **Field List** onto the report area and switch to **Print Preview** to see the result.

Chai
Tofu
Chang
Konbu
Pavlova
Geitost
Maxilaku
Filo Mix
Spegesild
Chocolade
Inlagd Sill
Ipoh Coffee
Flotemysost

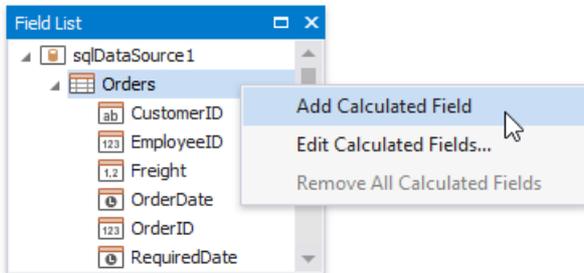
Group Data by a Custom Field

This tutorial illustrates how to group a report against a custom criteria, in particular, group data by days of the week.

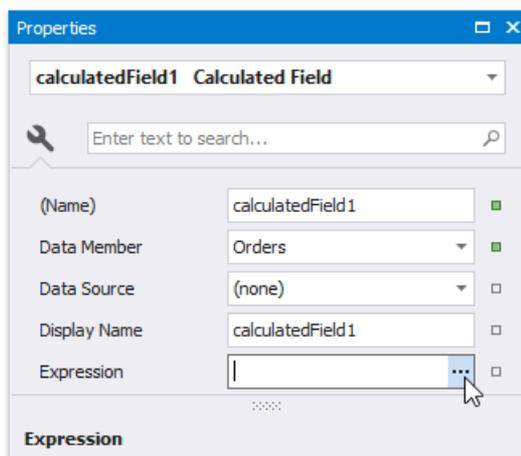
1. Create a new or open an existing data-bound report.

You cannot apply grouping unless your report is bound to a data source.

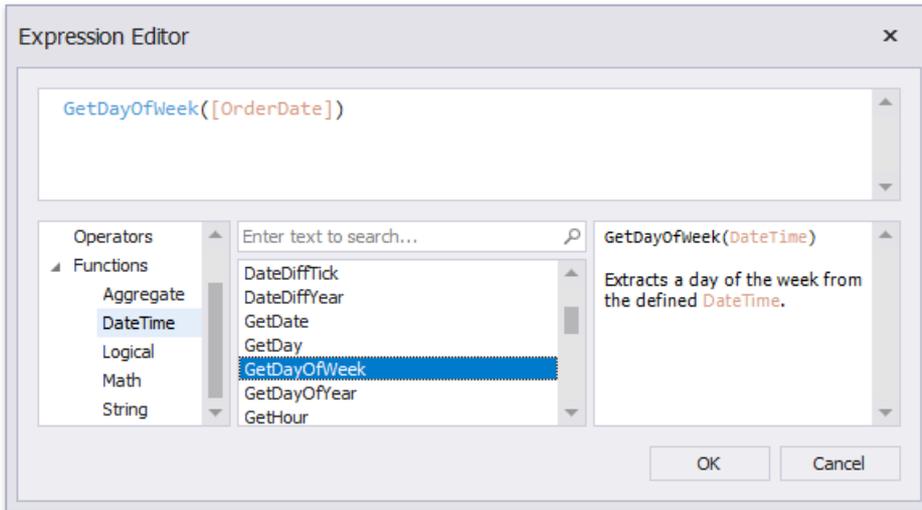
2. Create a [calculated field](#). Switch to the [Field List](#), right-click any item inside the data source and select **Add Calculated Field**.



3. Select the calculated field, and in the [Property Grid](#), click the **Expression** property's ellipsis button.



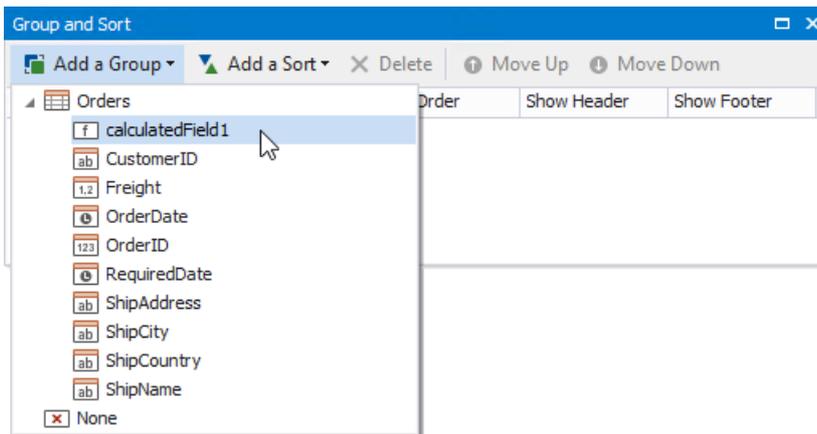
4. In the invoked **Expression Editor**, select the required date-time function and define the data field's name in [square brackets]. For example, use the **GetDayOfWeek([OrderDate])** function to return a zero-based index of the day of the week, extracted from the **OrderDate** data field.



Click **OK** to close the editor and save the changes.

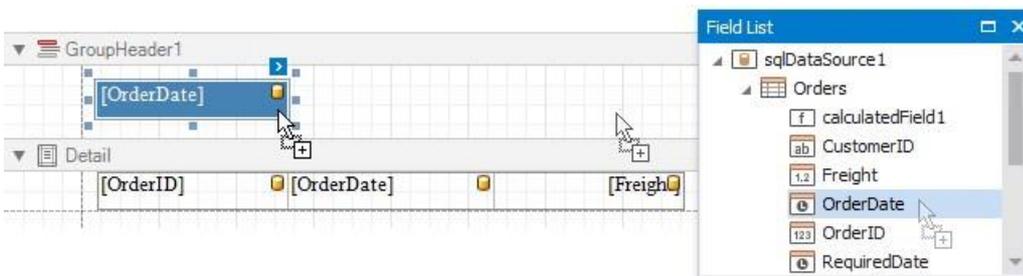
5. Use the **Group and Sort** panel to quickly create a **Group Header** band associated with the calculated field.

To create a group criteria, click **Add a Group** and select the calculated field from the invoked drop-down menu.

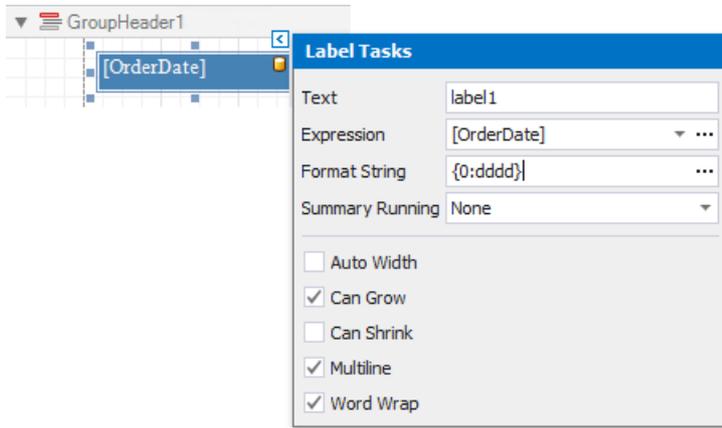


You can also use this panel to specify whether or not the corresponding Group Footer band should be visible. The **Sort Order** drop-down list allows you to define the sort order within the group (ascending or descending) or disable sorting in grouped data.

6. Switch to the **Field List** and drop the required data fields onto the report's area.



7. Click the smart tag of the label in the Group Header and set the **Format String** property to **{0:dddd}**. This makes the label only display the day of the week, and not the date.



Switch to [Print Preview](#) to see the result.

1		

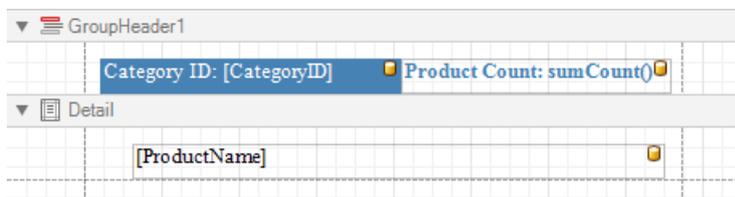
\ fo rulay		
110.	4 _0	\$40.>2
>4	/201	
110	4 _0	\$0 .1
.>5	/201	
110	4 _0	.S 149
> 6	/201	A
110	4 _	\$59.41
50	/201	
110	4 _	\$2 .79
51	/201	
110	4 _	\$.26
52	/201	
110	4 _	\$ 5.>.0 5
53	/201	
1106	01 ⁴	\$ _y g
11068	'\ 14n 017	\$ 81.7)
11069	'\ 14n 017	\$ 15.67
1103	4 1/201	\$3 .20
11033	4 1/201	\$2959
11039	4 1/201	\$ 5.00
11054	4 8/201	\$0 .33



Sort Groups by a Summary Function's Result

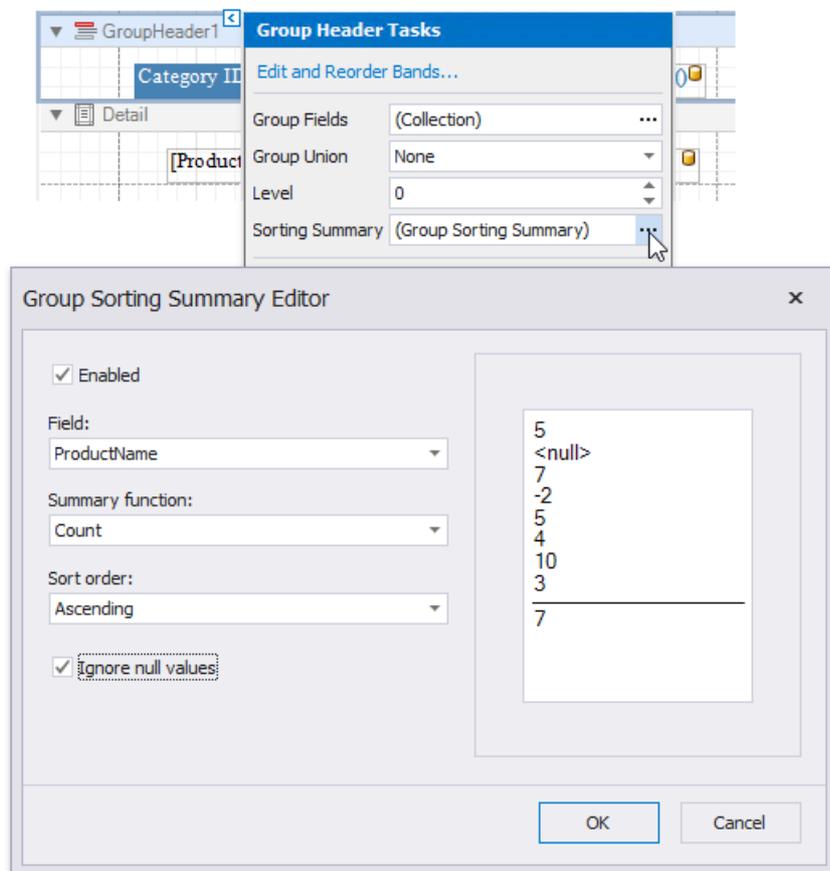
This tutorial explains how to sort groups by a summary function result, in particular, by the number of records groups contain.

1. Create a new or open an existing data-bound report.
You cannot apply grouping unless your report is bound to a data source.
2. [Group the report](#) by the required data field, [calculate the record count](#) in each group and construct the required report layout.



3. Click the Group Header band's smart tag, and click the **Sorting Summary** property's ellipsis button.

In the invoked **Group Sorting Summary Editor**, turn on the **Enabled** option, set the **Field** option to the data field from the Detail band, and set the **Summary function** to **Count**.



In this editor, you can also define the sorting direction for the group, as well as specify whether or not the **Null** values should be ignored.

Click **OK** to apply the changes and close the dialog.

Switch to [Print Preview](#) to see the result.

Category ID: 7
5

Product Count:

Uncle Bob's Organic

Dried Pear;

Tofu

Roasted Sauerbraten

Manjimpur

Dried

Apples

Longlife

Tofu

Category ID: 6
6

Product Count:

Mishi Kobe Niku

Alice Mattson

Thuringer Rostbratweil

Perth

Pastry

,

Tourti

ere

Pate

crunoi

s

Category ID: 5
Count: 7

Product

Gustaf's Knekkbrød

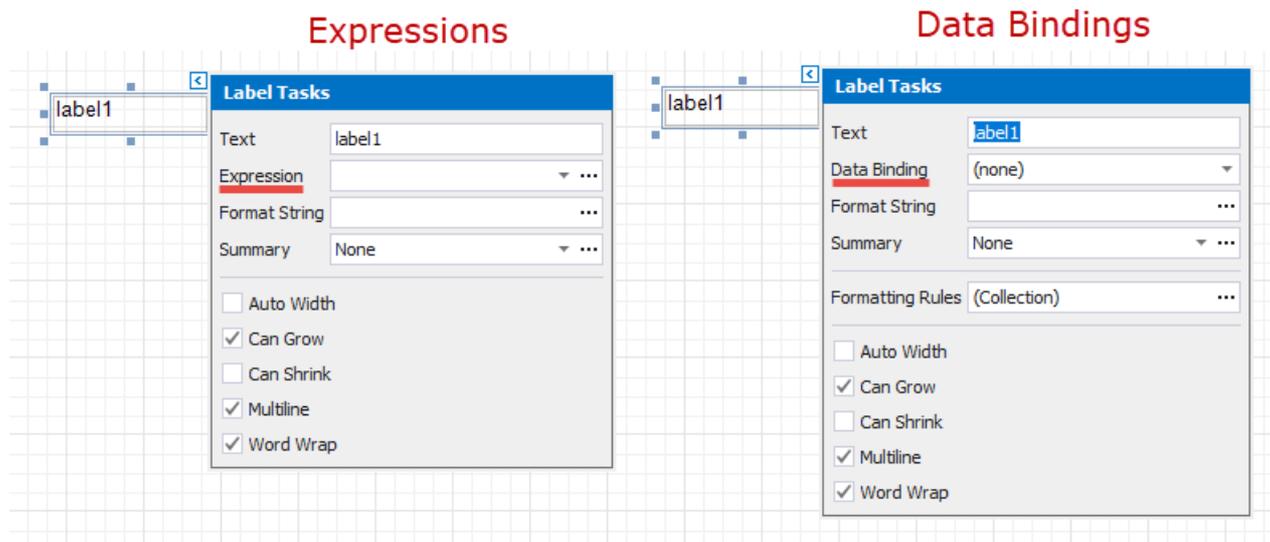
Shape Data (Expression Bindings)

The tutorials in this section illustrate how to solve various tasks related to shaping report data when expression bindings **are enabled** in the Report Designer (the [Property Grid](#) provides the **PropertyName Expression** item in the property marker's context menu).

- [Format Data](#)
- [Conditionally Change a Control's Appearance](#)
- [Conditionally Change a Label's Text](#)
- [Conditionally Change a Band's Visibility](#)
- [Filter Report Data](#)
- [Conditionally Suppress Controls](#)
- [Limit the Number of Records per Page](#)
- [Calculate a Summary](#)
- [Calculate a Weighted Average](#)
- [Calculate an Advanced Summary](#)
- [Display Row Numbers in a Report, Group or Page](#)
- [Count the Number of Records in a Report or Group](#)
- [Count the Number of Groups in a Report](#)

Note

Use this section if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).



See the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach.

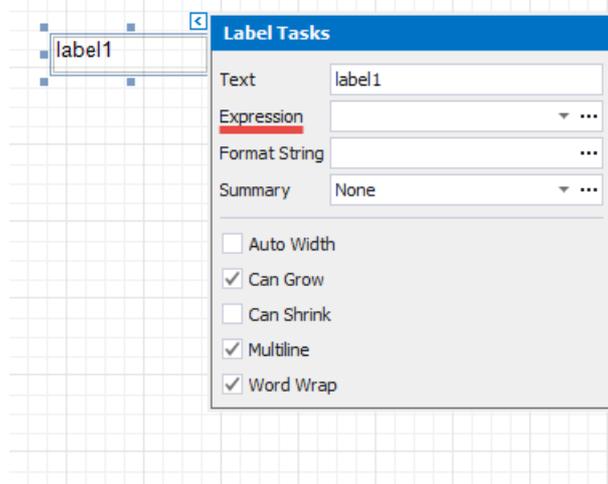
Format Data

This document demonstrates how to specify value formatting for report elements (for instance, format numeric values as a currency or apply a percent format).

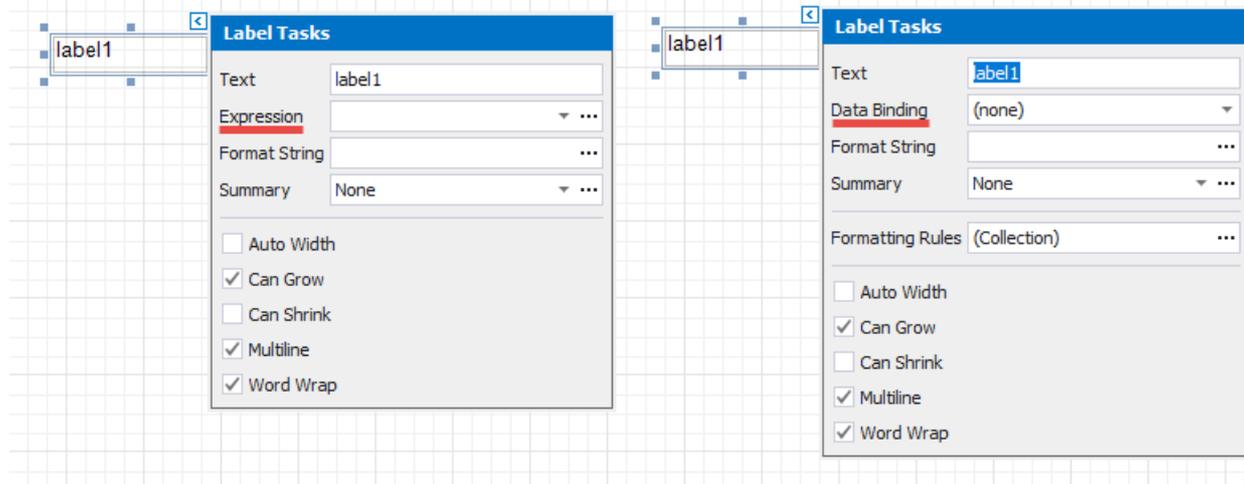
Note

Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).

Expressions



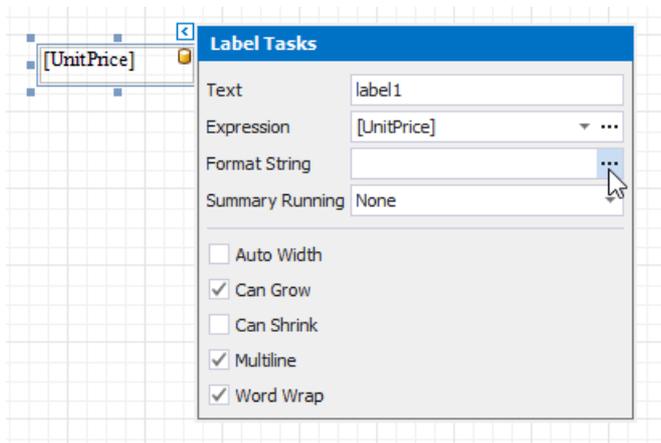
Data Bindings



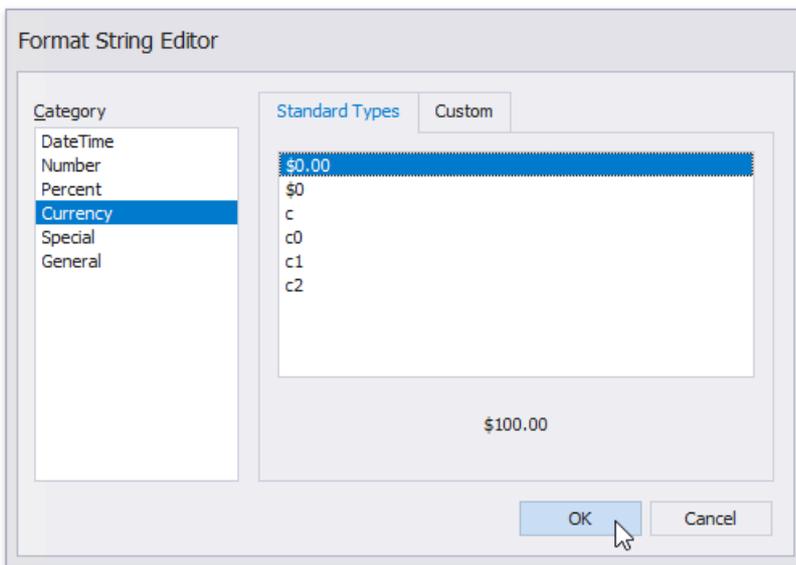
See the [Format Data](#) topic in the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach.

After you [bound your report to data](#) and specified a bound data field in a report control's **Expression** property, you can format data values in a report.

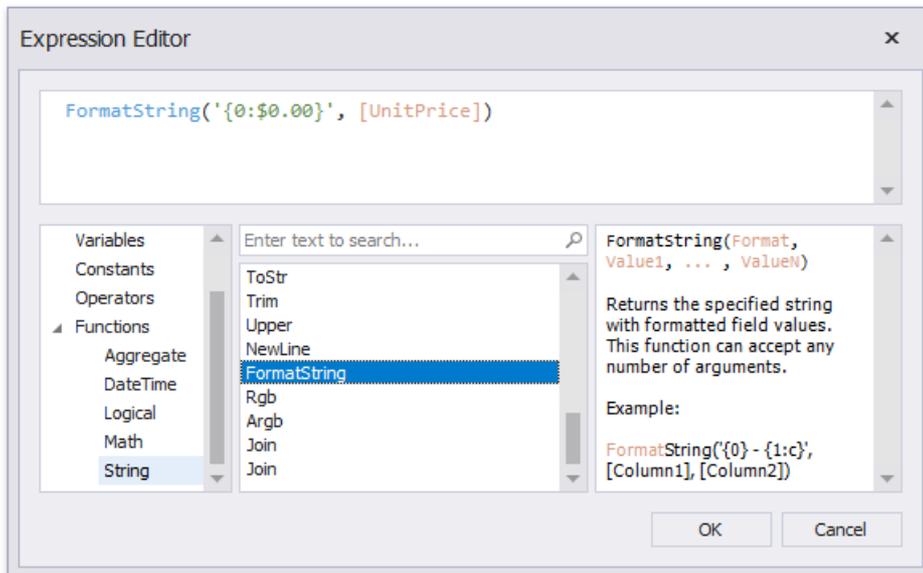
1. Invoke the control's smart tag and click the **Format String** property's ellipsis button.



2. This invokes the **Format String Editor** where you can specify the required format.



Alternatively, you can use the **FormatString** function within the expression you specified for the report control.



When switching to [Print Preview](#), you can view the report control displaying values with the specified format.

Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$21.35
Grandma's Boysenberry Spread	\$25.00
Uncle Bob's Organic Dried Pears	\$30.00
Northwoods Cranberry Sauce	\$40.00
Mishi Kobe Niku	\$97.00
Ikura	\$31.00
Queso Cabrales	\$21.00

You can use the control's **Xlsx Format String** property to assign a native Excel format that is used for exporting reports to **XLSX**.

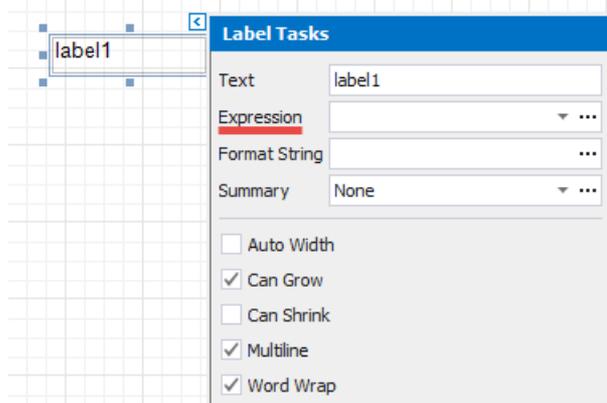
Conditionally Change a Control's Appearance

This document describes how to change a report control's appearance based on a specific condition.

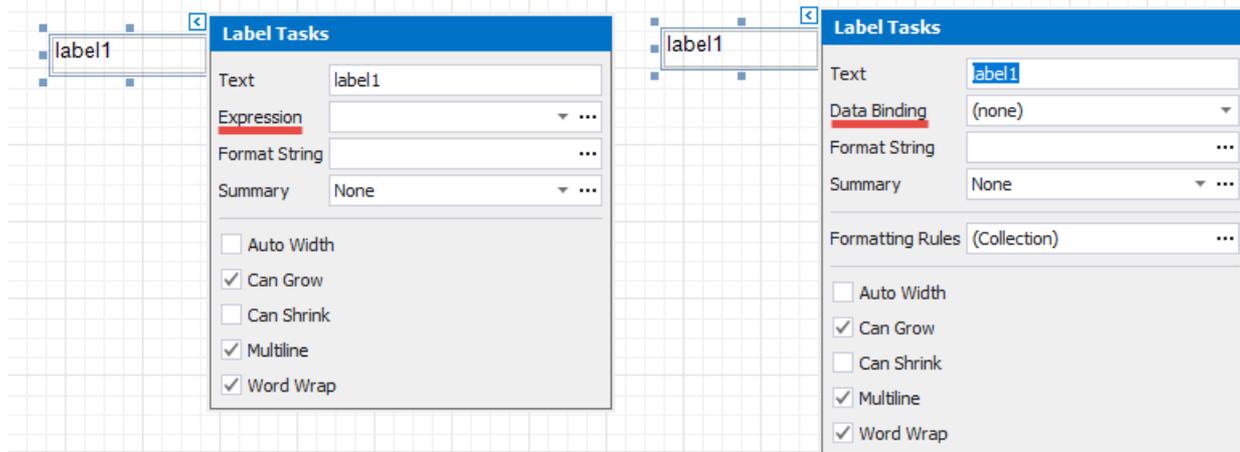
Not e

Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).

Expressions

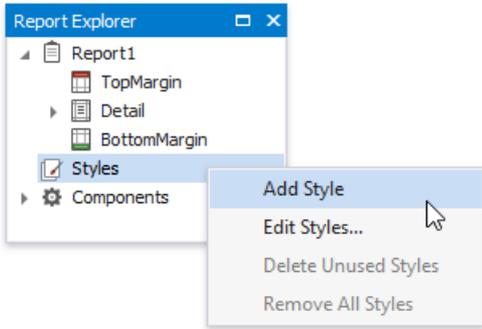


Data Bindings

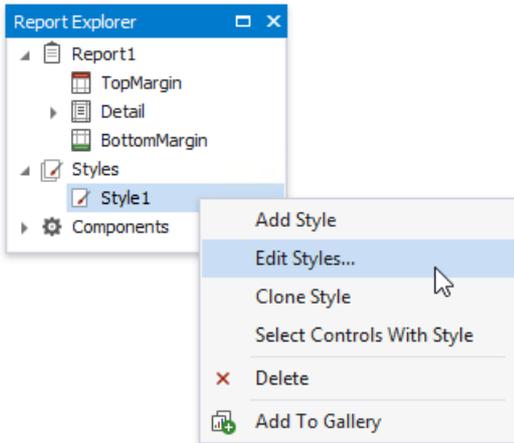


See the [Conditionally Change a Control's Appearance](#) topic in the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach.

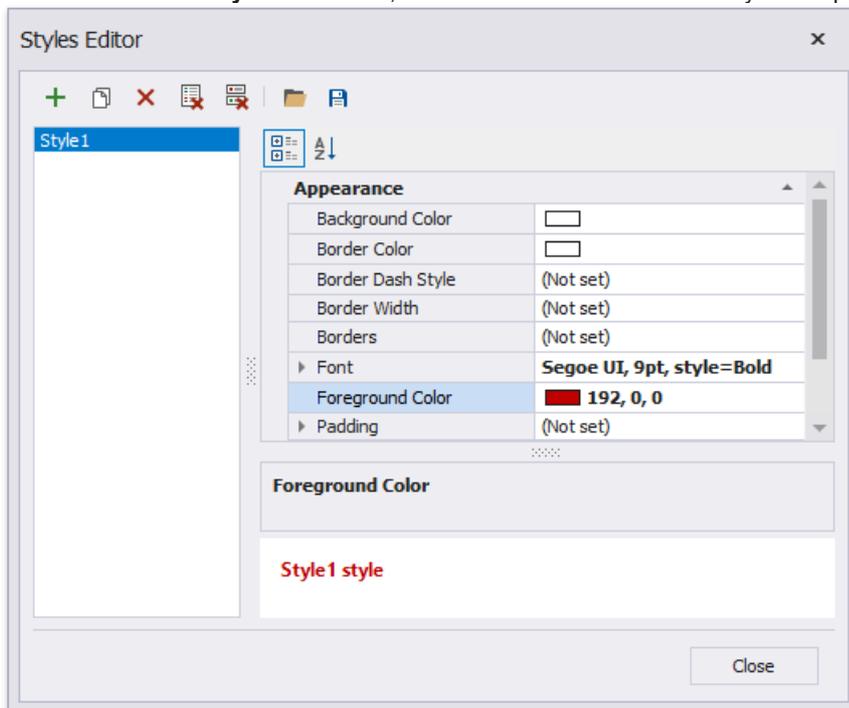
1. Switch to the [Report Explorer](#) and right-click the **Styles** category to create a new visual style.



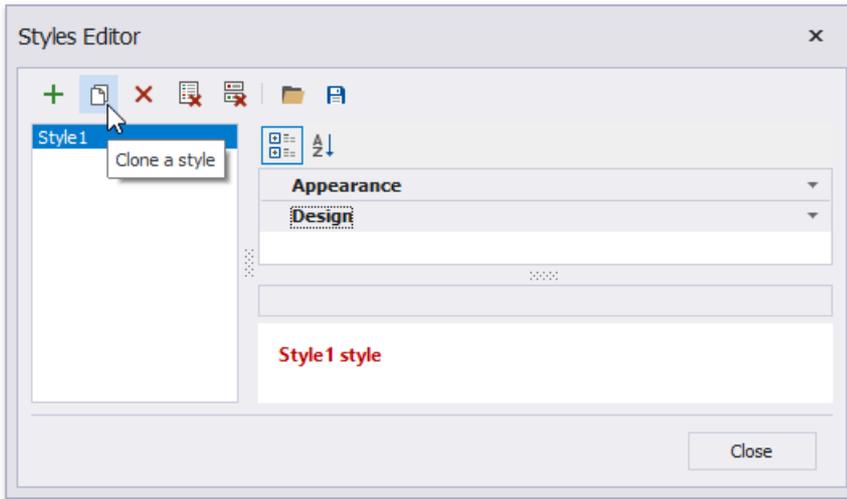
2. Right-click the created style and select **Edit Styles**.



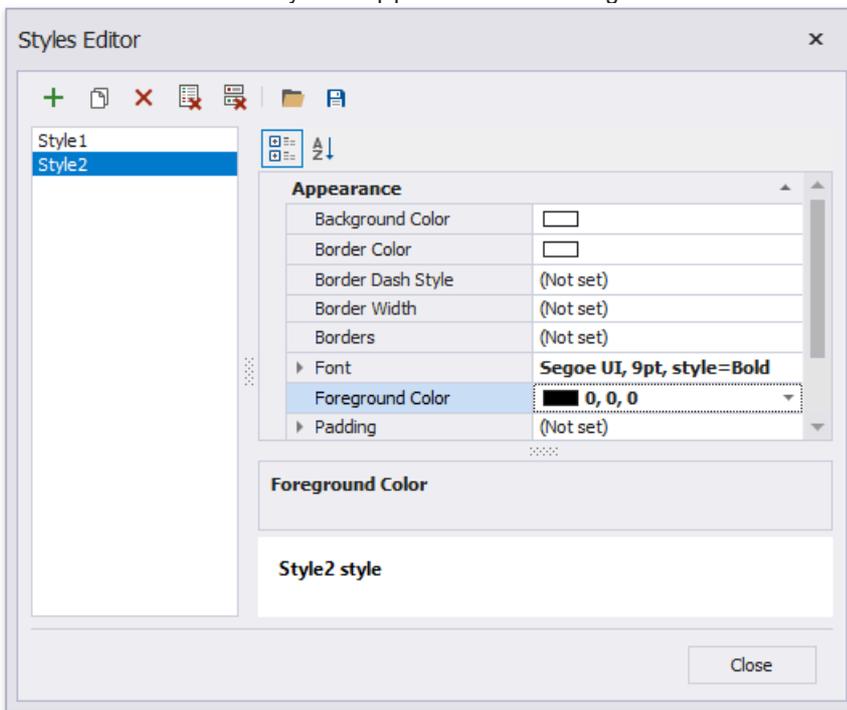
3. In the invoked **Styles Editor**, customize the created style's appearance settings.



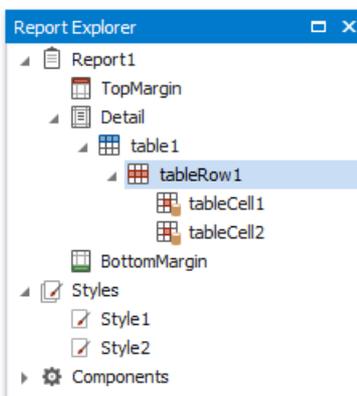
4. Create another style by cloning the existing one.



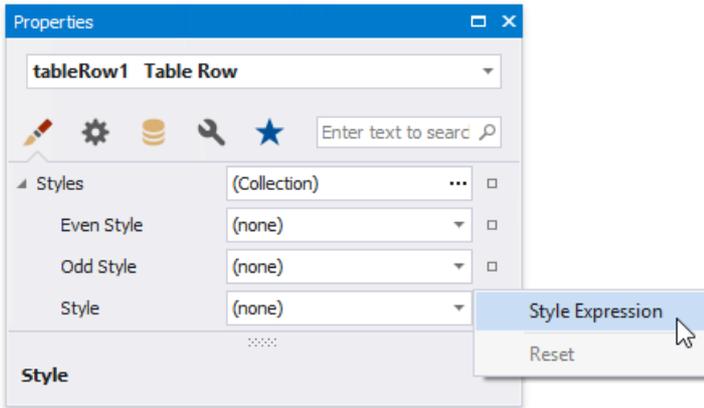
5. Customize the new style's appearance settings and close the editor.



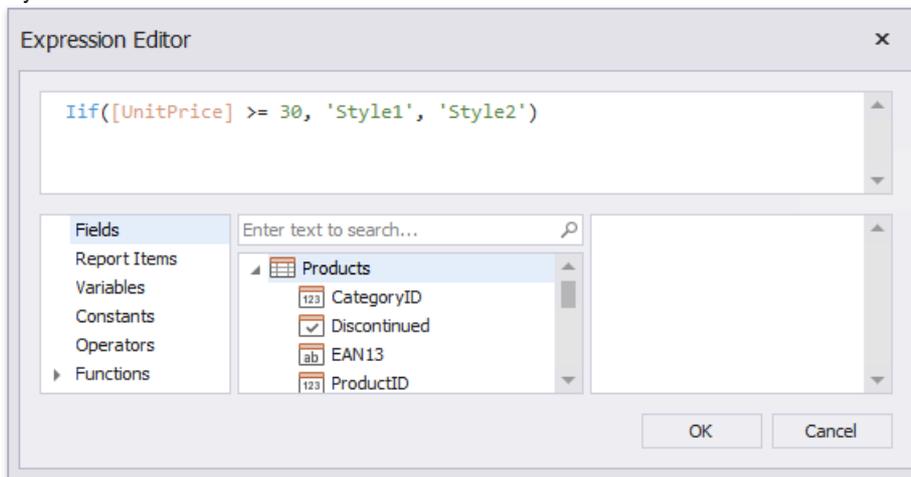
6. Back in the Report Explorer, select a report element to which you wish to assign the created styles.



- Open the [Property Grid](#)'s **Appearance** tab, click the **Style** property's marker and select **Style Expression** in the context menu.



- In the invoked **Expression Editor**, specify the required condition for switching between the created styles.



Switch to [Print Preview](#) to view the resulting report.

Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$21.35
Grandma's Boysenberry Spread	\$25.00
Uncle Bob's Organic Dried Pears	\$30.00
Northwoods Cranberry Sauce	\$40.00
Mishi Kobe Niku	\$97.00
Ikura	\$31.00
Queso Cabrales	\$21.00
Queso Manchego La Pastora	\$38.00
Konbu	\$6.00
Tofu	\$23.25
Genen Shouyu	\$15.50
Pavlova	\$17.45

Conditionally Change a Label's Text

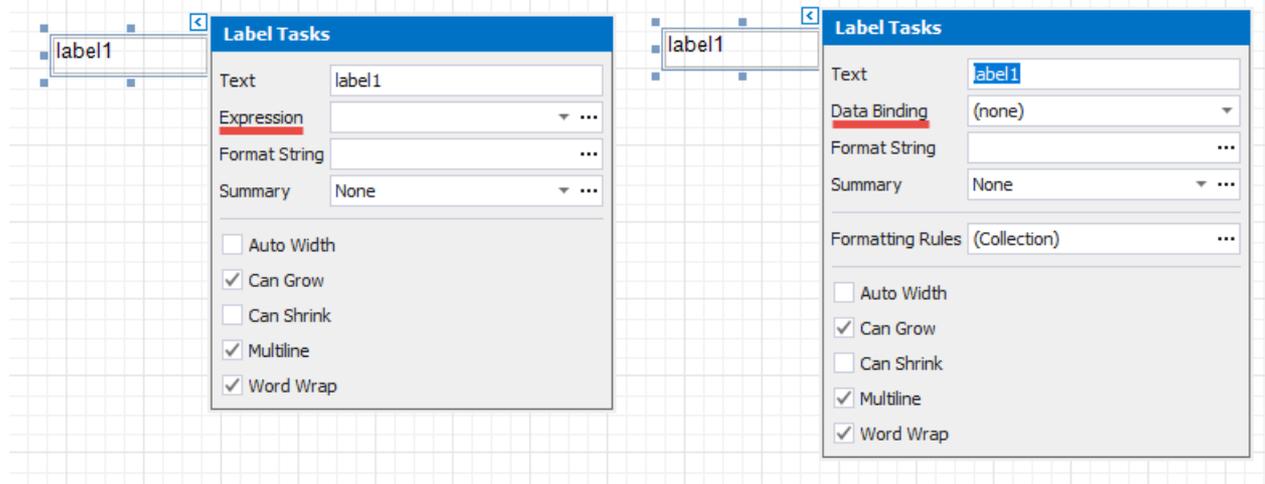
This document describes how to display different values in a report control based on a specified logical condition.

Note

Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).

Expressions

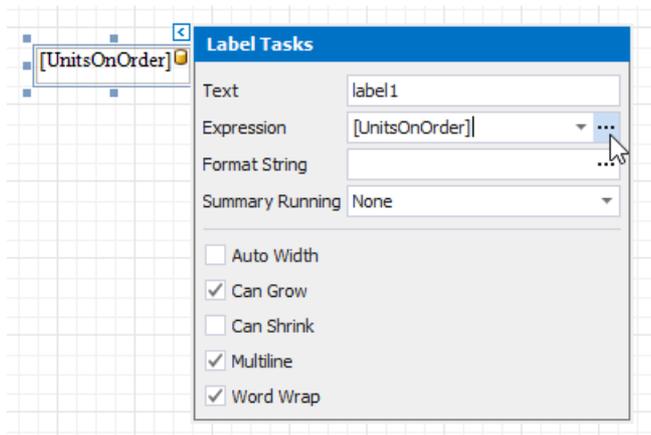
Data Bindings



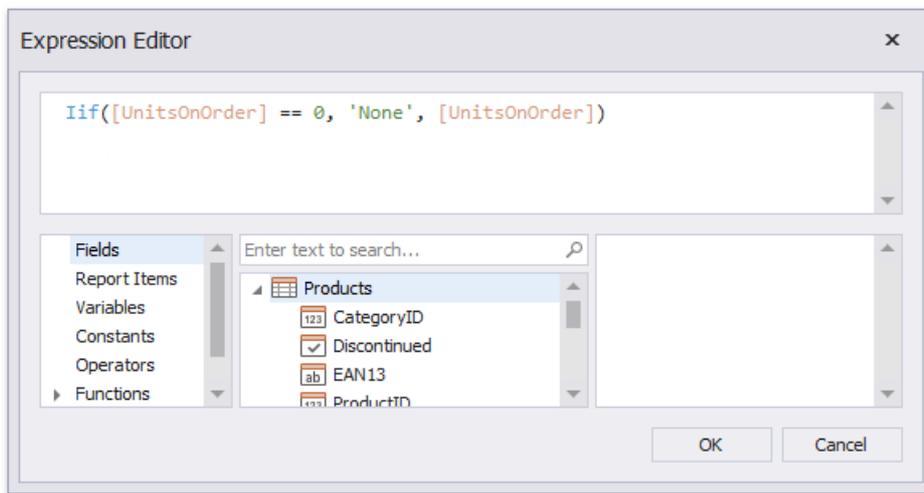
See the [Conditionally Change a Label's Text](#) topic in the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach.

After you [bound your report to data](#) and specified a bound data field in a report control's **Expression** property, you can make this control display different values based on a specified logical condition:

1. Invoke the control's smart tag and click its **Expression** property's ellipsis button.



2. In the invoked **Expression Editor**, specify the required [expression](#).



Use the **Iif** function to define the condition. For example:

Iif([UnitsOnOrder] == 0, 'None', [UnitsOnOrder])

This expression means that if the data field's value is zero, the control's text is set to '**None**'; otherwise, it displays the actual field value.

When switching to [Print Preview](#), you can see the report control displaying the assigned values.

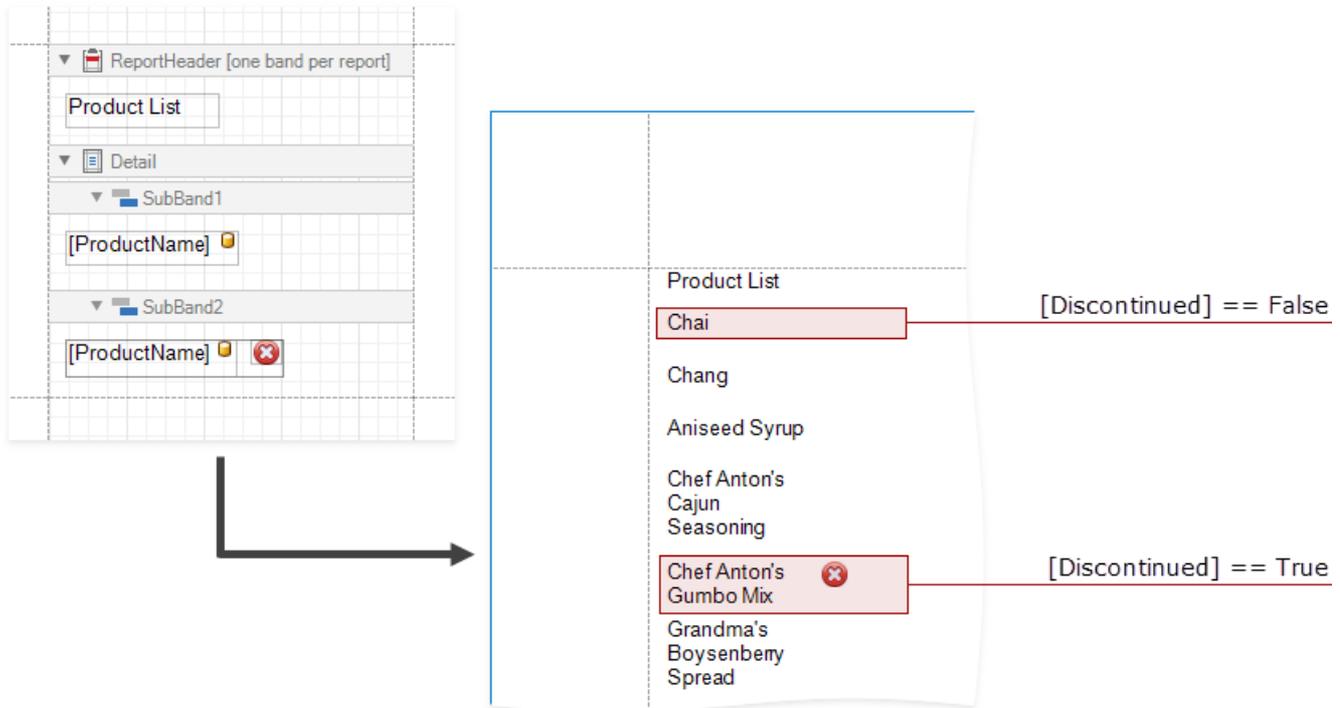
Chai	None
Chang	40
Guaraná Fantástica	None
Sasquatch Ale	None
Steeleye Stout	None
Côte de Blaye	None
Chartreuse verte	None
Ipoh Coffee	10
Laughing Lumberjack Lager	None
Outback Lager	10

Conditionally Change a Band's Visibility

This topic describes how to change the report band's visibility.

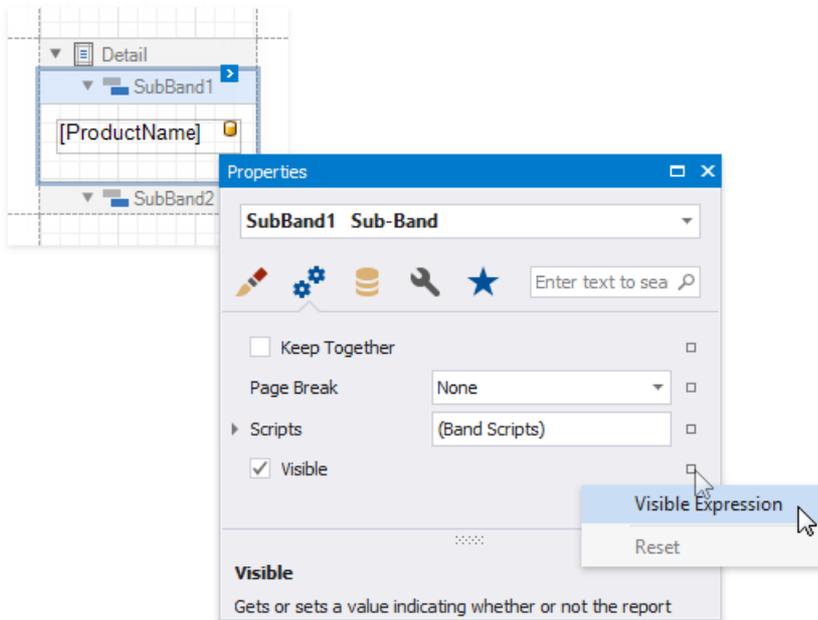
Set a band's **Visible** property to an expression to conditionally change the band's visibility based on a field's value or a parameter.

The report created in this tutorial contains two Detail **sub-bands** with different report controls. These sub-bands are used to display discontinued and current products.

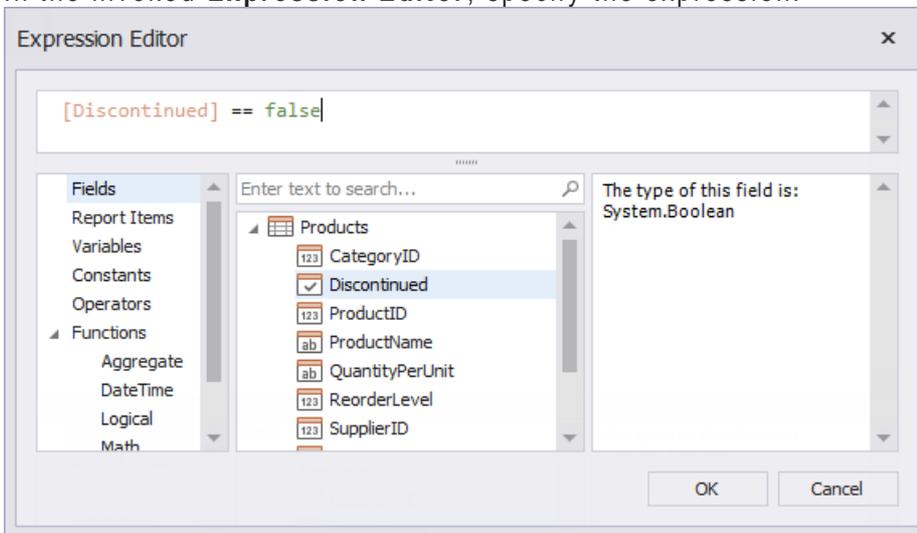


The steps below demonstrate how to change a band's visibility based on a field's value.

1. Select a band and switch to the **Properties** panel. Choose **Expressions**  and click the **Visible** property's ellipsis button.



2. In the invoked **Expression Editor**, specify the expression.



Here, the **[Discontinued] == false** expression is set for the **SubBand1** and the **[Discontinued] == true** expression for the **SubBand2**. These expressions specify the **Visible** property based on the **Discontinued** data field's value.

The **Preview** below displays how changes to band visibility influence the Product List. The **SubBand1** is used to display products that have the **Discontinued** field set to **false**, and the **SubBand2** is used to display discontinued products.

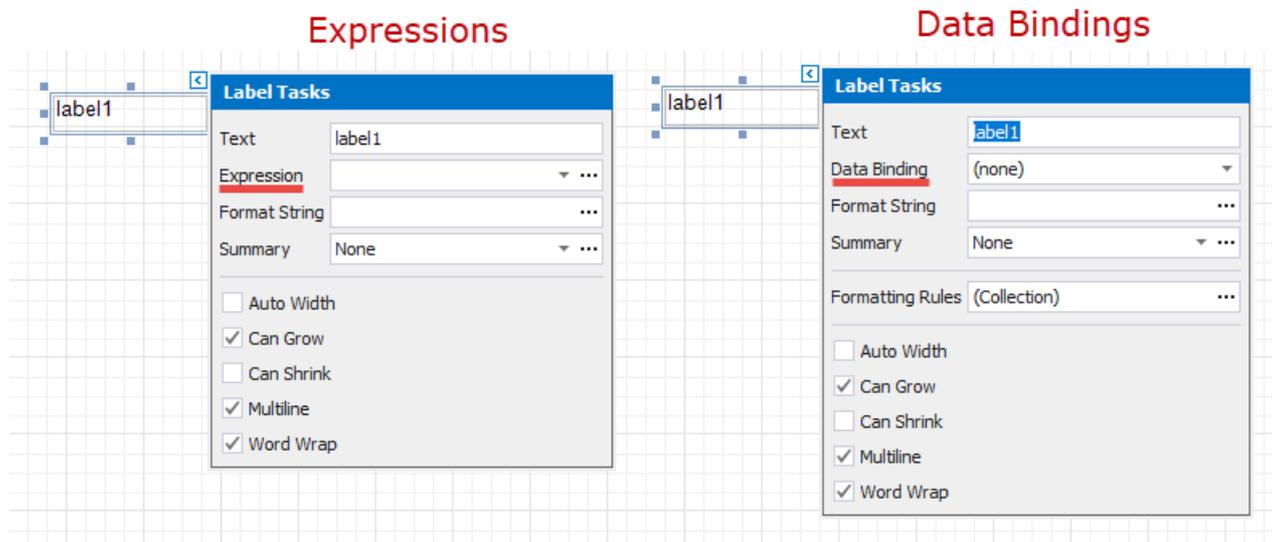
	Product List
	Chai
	Chang
	Aniseed Syrup
	Chef Anton's Cajun Seasoning
	Chef Anton's Gumbo Mix 
	Grandma's Boysenberry Spread

Conditionally Filter Report Data

This document describes how to filter a report's data based on a specific condition.

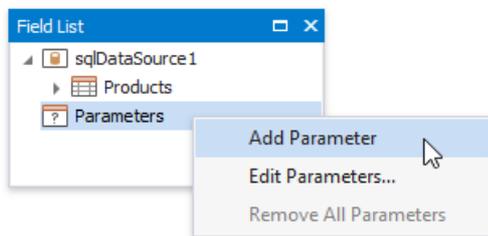
Note

Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).

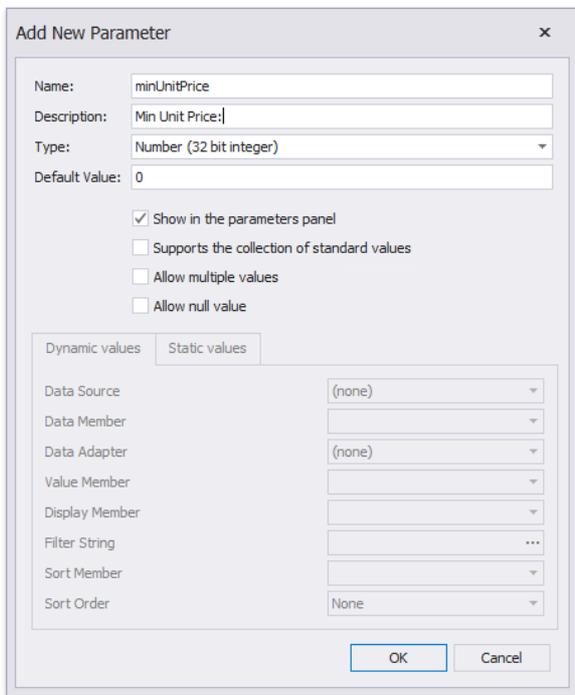


See the [Conditionally Filter Report Data](#) topic in the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach.

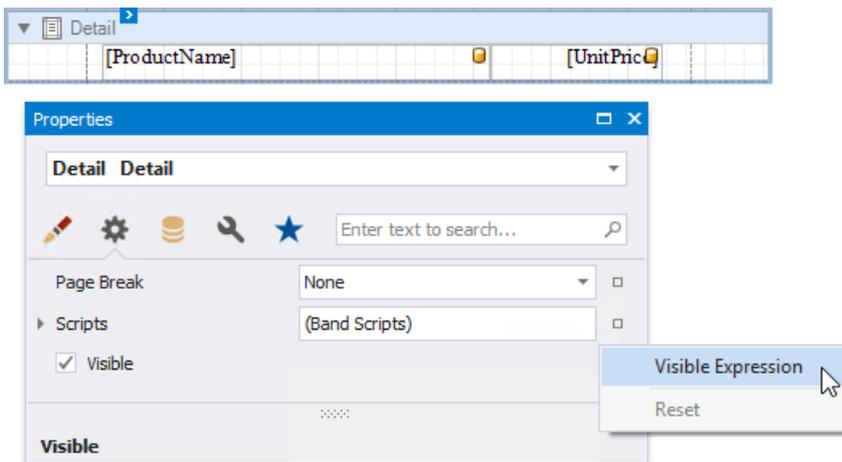
1. Switch to the [Field List](#), right-click the **Parameters** section and add a new report parameter.



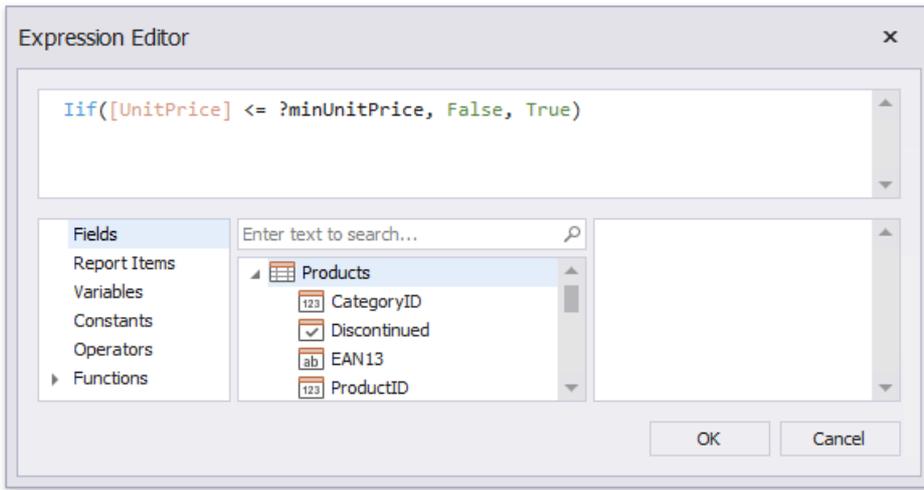
2. Specify the parameter's description in Print Preview and set its type to **Number (Integer)**.



3. Select the report's detail band and switch it to the [Property Grid](#). Navigate to its **Behavior** tab, click the **Visible** property's marker and select **Visible Expression** in the context menu.

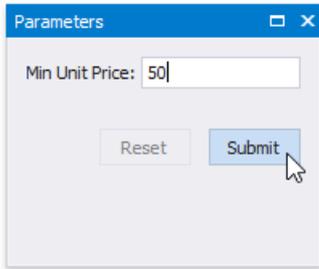


4. In the invoked **Expression Editor**, specify the required visibility condition. For example:



The expression above enables/disables the **Visible** property depending on whether the field value is below the specified parameter value.

Switch to [Print Preview](#) to see the result.



Côte de Blaye	\$263.50
Sir Rodney's Marmalade	\$81.00
Raclette Courdavault	\$55.00
Mishi Kobe Niku	\$97.00
Thüringer Rostbratwurst	\$123.79
Manjimup Dried Apples	\$53.00
Camaron Tiges	\$62.50

Conditionally Suppress Controls

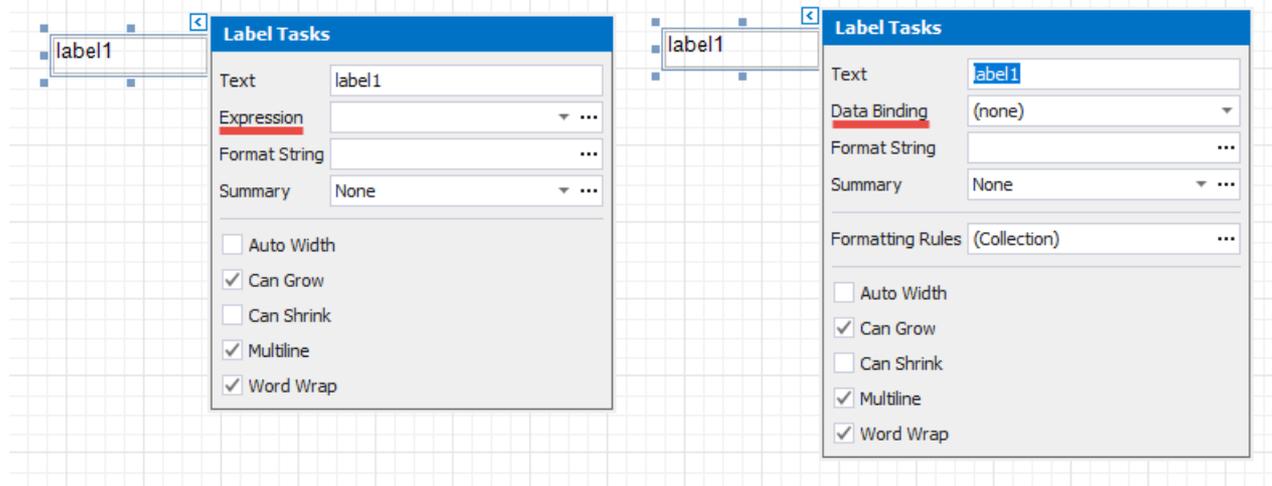
This document describes how to display or hide a report control in a published document based on a specified logical condition.

Not e

Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).

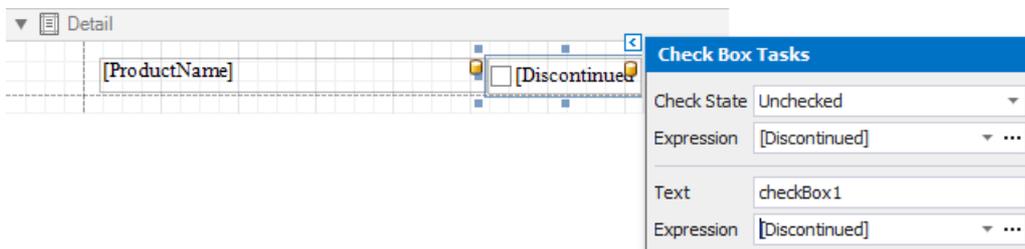
Expressions

Data Bindings

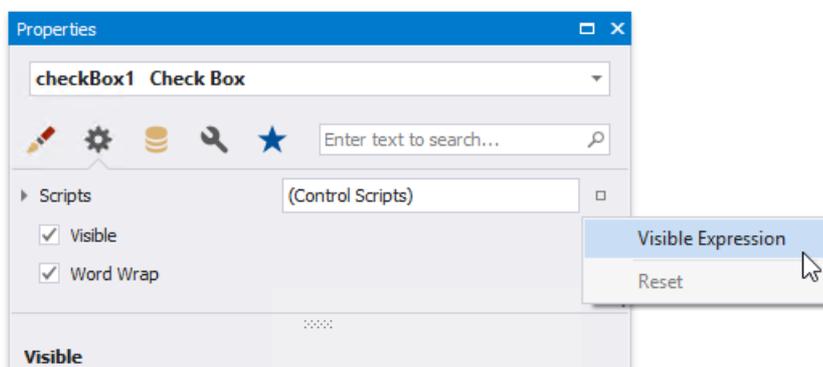


See the [Conditionally Suppress Controls](#) topic in the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach.

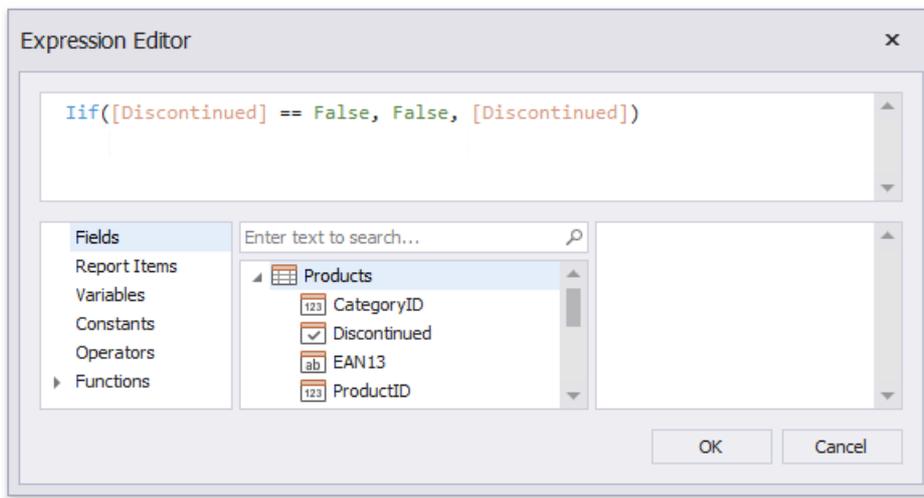
1. [Create a new report](#) or open an existing one and prepare the report layout.



2. Select the required control and switch to the [Property Grid](#). Open the **Behavior** tab, click the **Visible** property's marker and select **Visible Expression** in the context menu.



3. In the invoked **Expression Editor**, specify the required [expression](#).



Use the **Iif** function to define the required condition. For example:

Iif([Discontinued] == False, False, [Discontinued])

This expression means that if the data field's value is **False**, the control's **Visible** property is disabled.

When switching to [Print Preview](#), you can view the report control's visibility changes according to the assigned condition.

Pavlova	
Mishi Kobe Niku	<input checked="" type="checkbox"/> True
Gula Malacca	
Flotemysost	
Gudbrandsdalsost	
Singaporean Hokkien Fried Mee	<input checked="" type="checkbox"/> True
Rössle Sauerkraut	<input checked="" type="checkbox"/> True
Teatime Chocolate Biscuits	

Not e

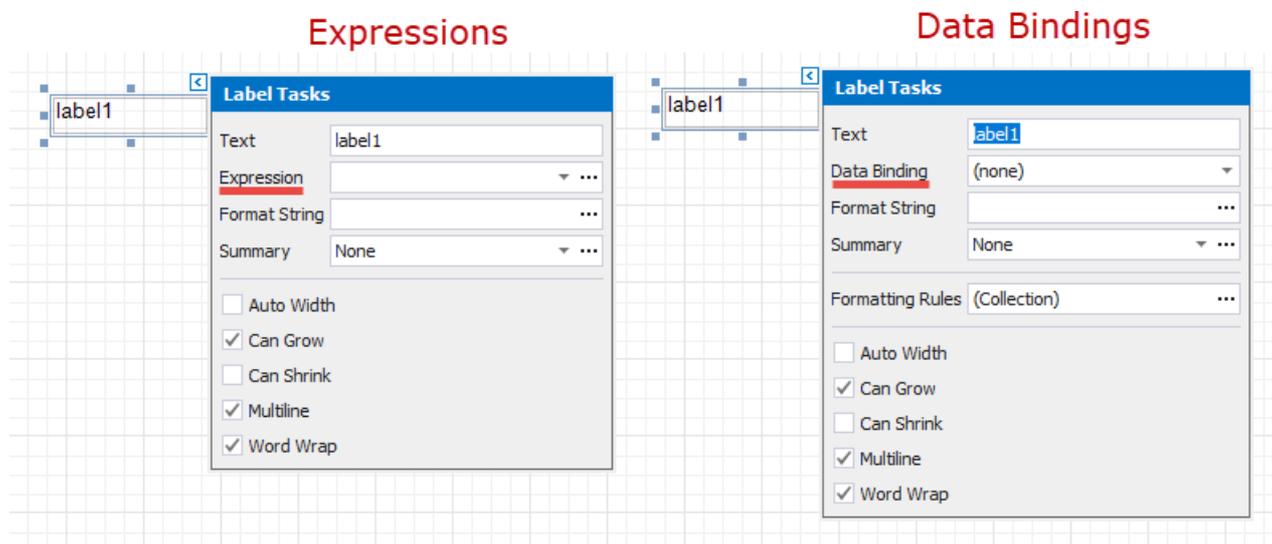
See [Hide Table Cells](#) to learn how to conditionally suppress table cells and define the mode for processing them.

Limit the Number of Records per Page

This document describes how to specify the number of data source records displayed on report pages.

Note

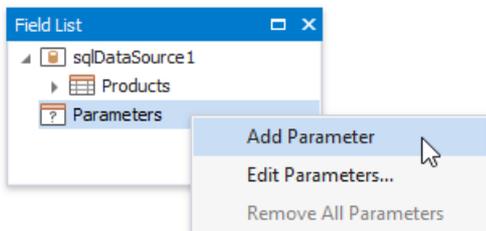
Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).



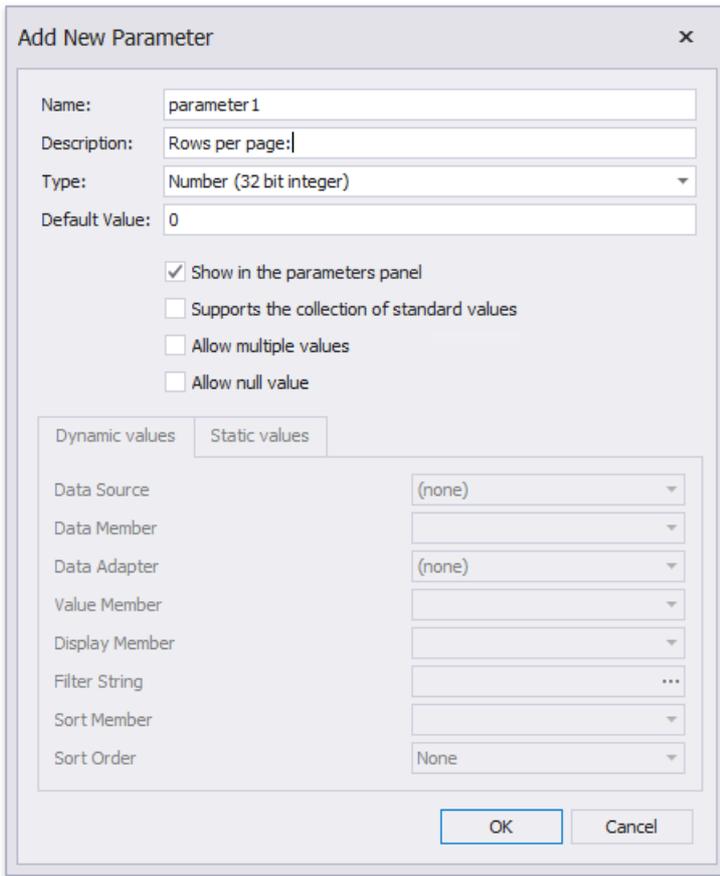
See the [Limit the Number of Records per Page](#) topic in the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach.

After you [bound your report to data](#) and provided content to the report's [Detail band](#), you can limit the number of records each report page displays. This example demonstrates how to pass the required record count as a parameter value.

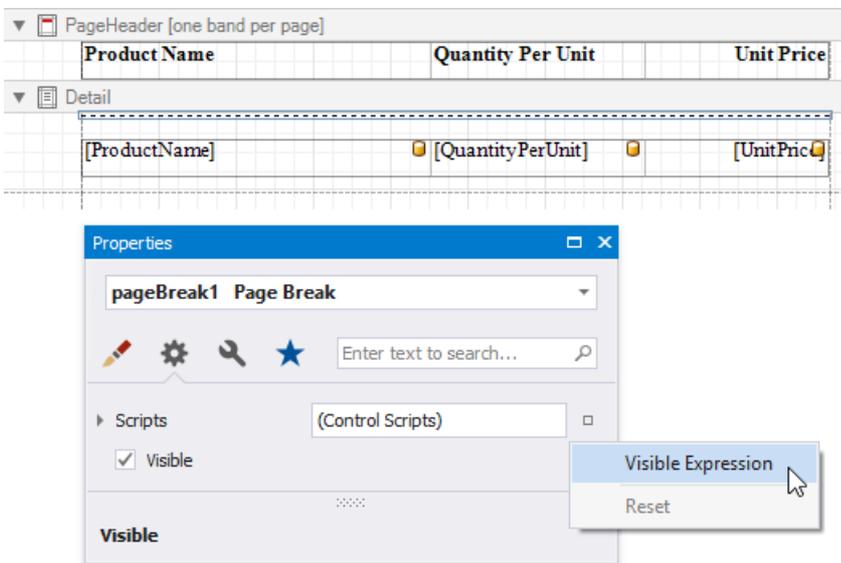
1. Switch to the [Field List](#), right-click the **Parameters** section and add a new report parameter.



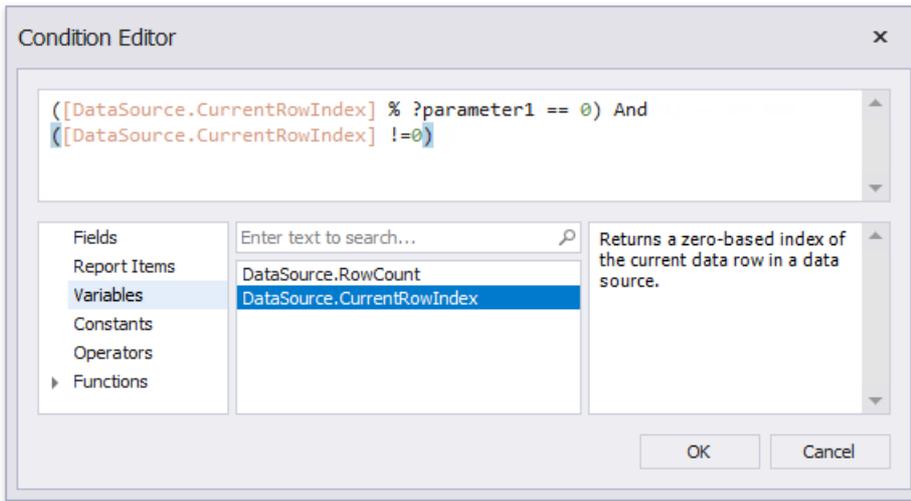
2. Specify the parameter's description displayed in Print Preview and set its type to **Number (Integer)**.



- Drop a **Page Break** control onto the report's detail band and switch to the **Property Grid**. Open the **Behavior** tab, click the **Visible** property's marker and select **Visible Expression** in the context menu.



- In the invoked **Expression Editor**, specify the required **expression**.



For example:

([DataSource.CurrentRowIndex] % ?parameter1 == 0) And ([DataSource.CurrentRowIndex] != 0)

When switching to [Print Preview](#), you can specify how many rows each report page should display by entering the corresponding parameter value:

Product Name	Quantity Per Unit	Unit Price
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Aniseed Syrup	12 - 550 ml bottles	\$10.00
Chef Anton's Cajun Seasoning	48 - 6 oz jars	\$22.00
Chef Anton's Gumbo Mix	36 boxes	\$21.35

Calculate a Summary

This document shows how to use a report control's Expression property to calculate a group summary, as shown in the image below:

Unit Price	Units In Stock
\$18.00	39
\$19.00	17
\$4.50	20
\$14.00	111
\$18.00	20
\$263.50	17
\$18.00	69
\$46.00	17
\$14.00	52
\$15.00	15
\$7.75	125
\$18.00	57
In Stock: 559 items	

Label Tasks

Text: Label1

Expression: sumSum([UnitsInStock])

Format String: In Stock: {0} items

Summary: Group

AutoWidth

CanGrow

CanShrink

Multiline

WordWrap

Note

Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).

Expressions

Label Tasks

Text: label1

Expression

Format String

Summary: None

Auto Width

Can Grow

Can Shrink

Multiline

Word Wrap

Data Bindings

Label Tasks

Text: label1

Data Binding: (none)

Format String

Summary: None

Formatting Rules: (Collection)

Auto Width

Can Grow

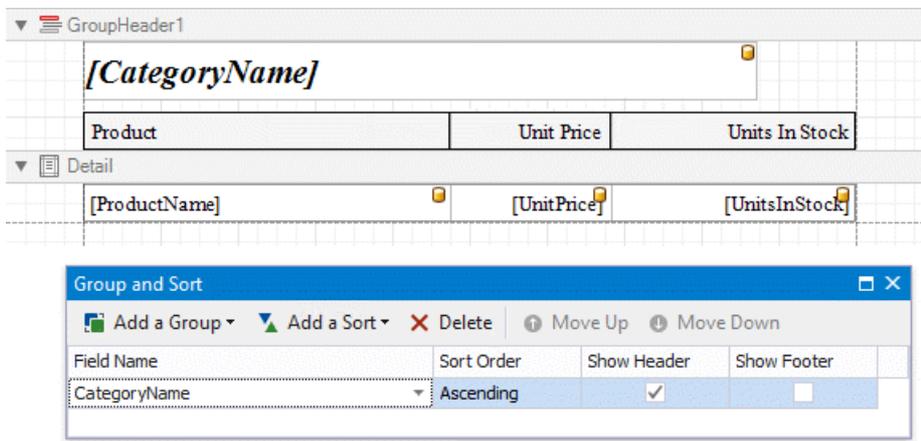
Can Shrink

Multiline

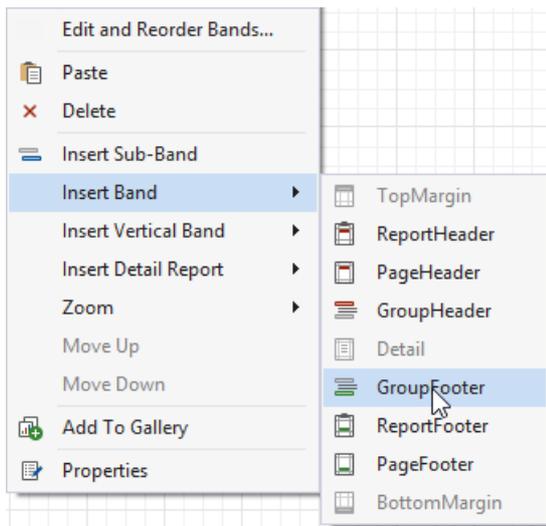
Word Wrap

See the [Calculate a Summary](#) topic in the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach. Follow the steps below to calculate a summary:

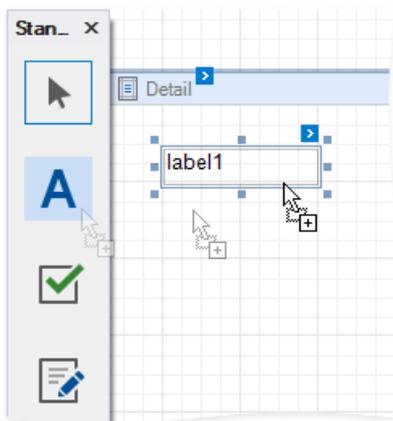
1. Create a report [bound](#) to a data source.
2. Use the [Group and Sort Panel](#) to [group report data](#) by the key data field and construct a layout like the following:



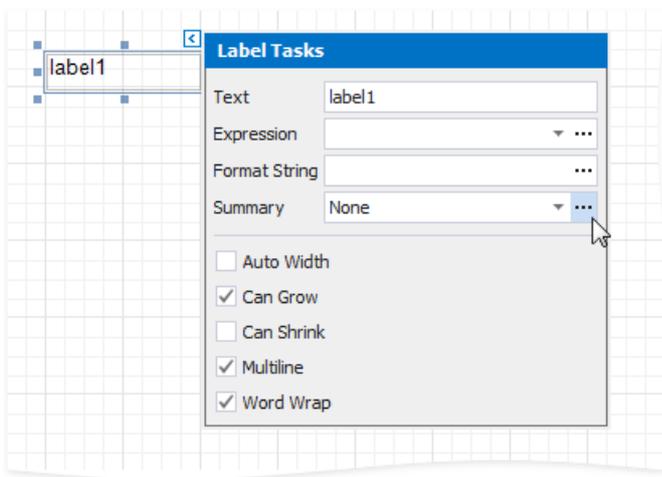
3. Right-click the report's **Detail** band and select **Insert Band / Group Footer** from the context menu.



4. Drop a **Label** control onto the **Group Footer** band.

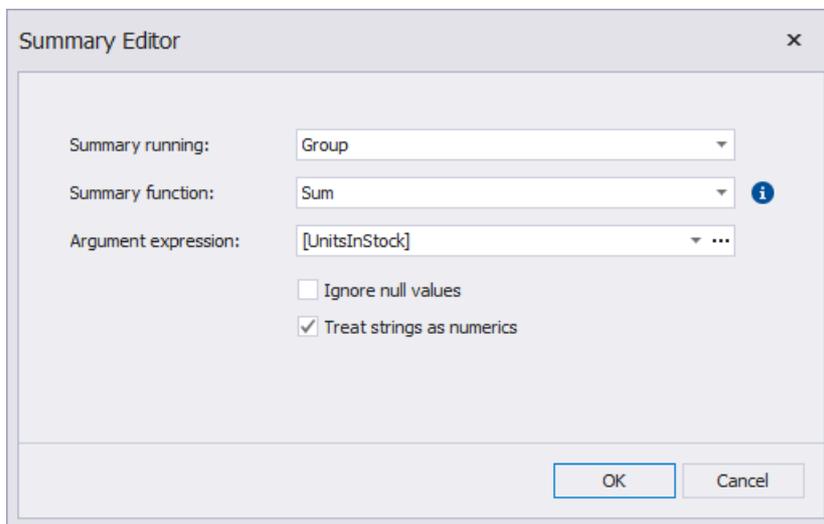


5. Click the label's smart tag, then click the **Summary** field's ellipsis button to open the **Summary Editor** form.



6. In the **Summary Editor** form, use the following options:

- **Summary running** - specifies summary calculation range (the entire report, current report group, or current document page).
- **Summary function** - specifies a summary function.
- **Argument expression** - specifies a data field or a complex expression.



Tip

See the [Expression Operators, Functions and Constants](#) topic for a complete list of supported summary functions.

7. You can use the **Format String** property to format the summary value:

	Units In Stock	Unit Price
	[UnitsInStoc]	[UnitPric]
In Stock: sumSum([UnitsInStock]) items		

Label Tasks

Text: Label1

Expression: sumSum([UnitsInStock])

Format String: In Stock: {0} items

Summary: Group

AutoWidth
 CanGrow
 CanShrink
 Multiline
 WordWrap

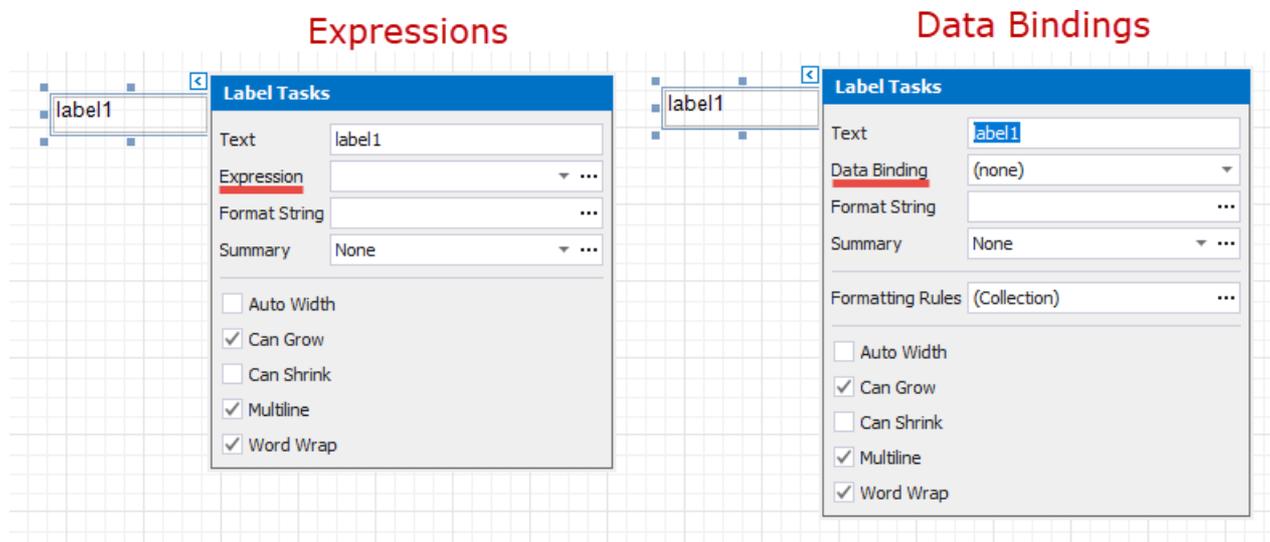
Switch to Print Preview mode to see the result:

<i>Beverages</i>		
Product	Unit Price	Units In Stock
Chai	\$18.00	39
Chang	\$19.00	17
Guaraná Fantástica	\$4.50	20
Sasquatch Ale	\$14.00	111
Steeleye Stout	\$18.00	20
Côte de Blaye	\$263.50	17
Chartreuse verte	\$18.00	69
Ipoh Coffee	\$46.00	17
Laughing Lumberjack Lager	\$14.00	52
Outback Lager	\$15.00	15
Rhönbräu Klosterbier	\$7.75	125
Lakkalikööri	\$18.00	57
		In Stock: 559 items

Calculate a Weighted Average

Not e

Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).



See the [Calculate a Weighted Average](#) topic in the [Shape Data \(Expression Bindings\)](#) section to learn about an alternative approach.

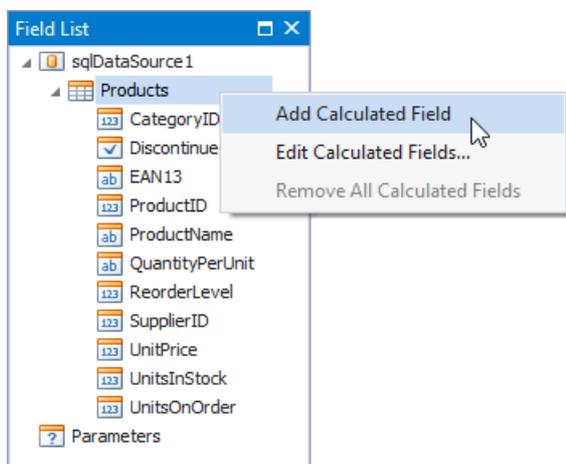
<i>Beverages</i>			
Product	Unit Price	Units In Stock	Extended Price
Chai	\$18.00	39	\$702.00
Chang	\$19.00	17	\$323.00
Guaraná Fantástica	\$4.50	20	\$90.00
Sasquatch Ale	\$14.00	111	\$1,554.00
Steeleye Stout	\$18.00	20	\$360.00
Côte de Blaye	\$263.50	17	\$4,479.50
Chartreuse verte	\$18.00	69	\$1,242.00
Ipoh Coffee	\$46.00	17	\$782.00
Laughing Lumberjack Lager	\$14.00	52	\$728.00
Outback Lager	\$15.00	15	\$225.00
Rhönbräu Klosterbier	\$7.75	125	\$968.75
Lakkalikööri	\$18.00	57	\$1,026.00
Weighted Average Price:			\$22.33

Use one of the following approaches to calculate weighted average data:

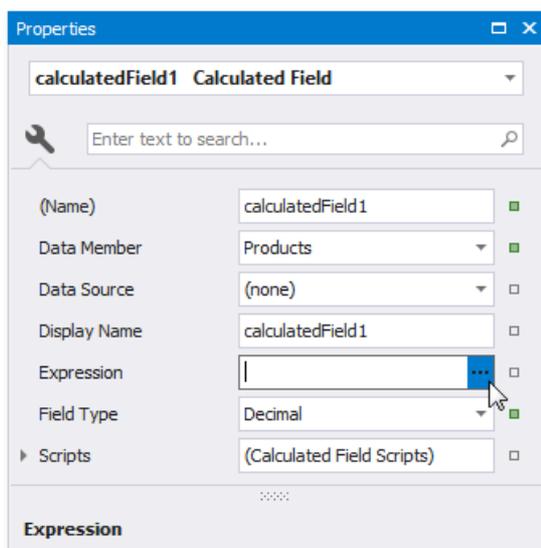
Aggregate Functions

You can create a [calculated field](#) and use a standard aggregate function in its expression to evaluate a weighted average at the report level.

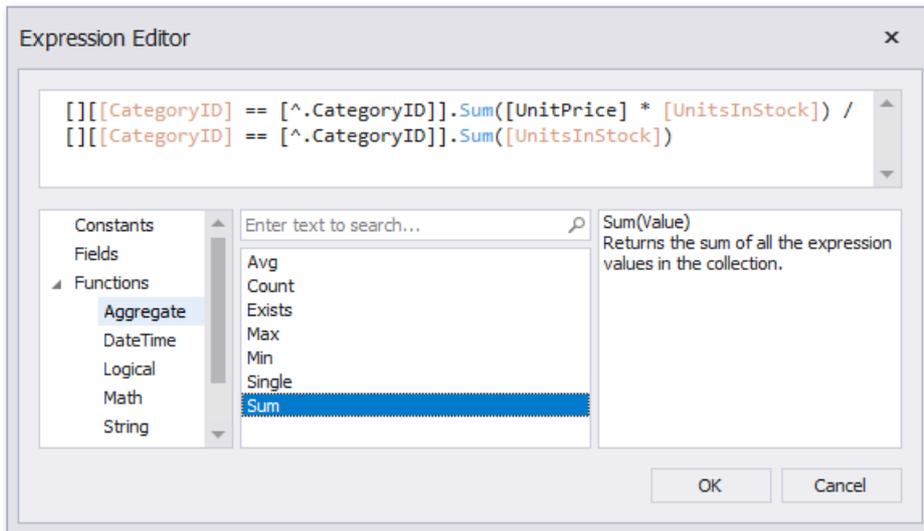
1. [Open an existing report](#) or [create a new one from scratch](#).
2. [Bind a report](#) to a required data source.
3. Right-click any item in the [Field List](#)'s data source node, and in the invoked context menu, select **Add Calculated Field**.



4. Select the created calculated field and switch to the **Properties** window. Specify the **Name** property, set the **Field Type** to Decimal and click the Expression property's ellipsis button.



5. In the invoked Expression Editor, specify an aggregate expression:



To construct a valid aggregate expression, use the following format:
 [<Collection>][<Condition>].<Aggregate>(<Expression>)

- <Collection> - Specifies a collection to calculate an aggregated value against. It can be the relationship name for a master-detail relationship, or a collection property's name exposed by the target class. For example, [CategoriesProducts][[CategoryID]>5].Count(). Empty brackets [] indicate the root collection.
- <Condition> - Specifies a condition that defines which records to use for the aggregate function calculation. To calculate an aggregated value against all records, delete this logical clause and its square brackets (for example, [].Count()).
- <Aggregate> - Specifies one of the available aggregate functions listed in the Aggregate enumeration.
- <Expression> - Specifies the expression to use. For example, [[CategoryID] > 5].Sum([UnitPrice]*[Quantity]). The Count function does not require field values to count the records (the round brackets can be empty for this function).

Use the Parent Relationship Traversal Operator ('^') to refer to the processed group (for instance, [[[^.CategoryID] == [CategoryID]].Sum([UnitPrice])). This allows you to calculate aggregates within groups.

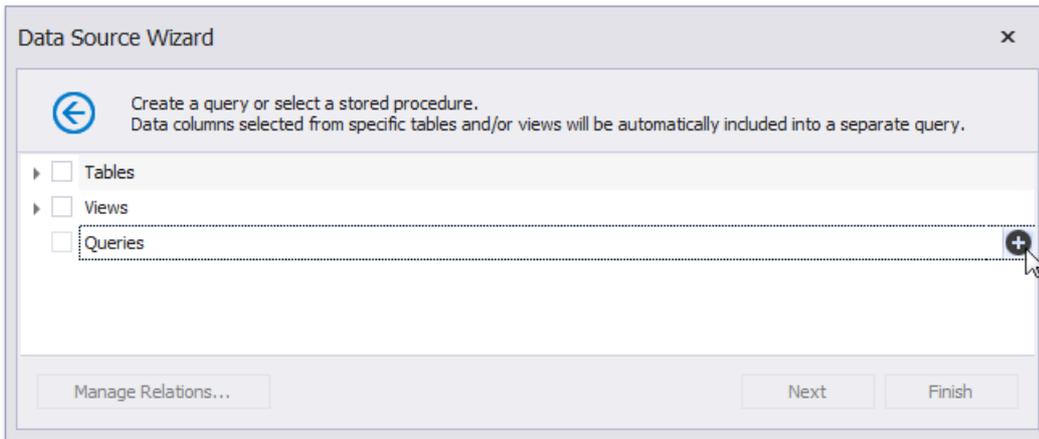
For more information, see [Expression Constants, Operators, and Functions](#).

6. Add the created calculated field to the report as an ordinary data field and format its value.

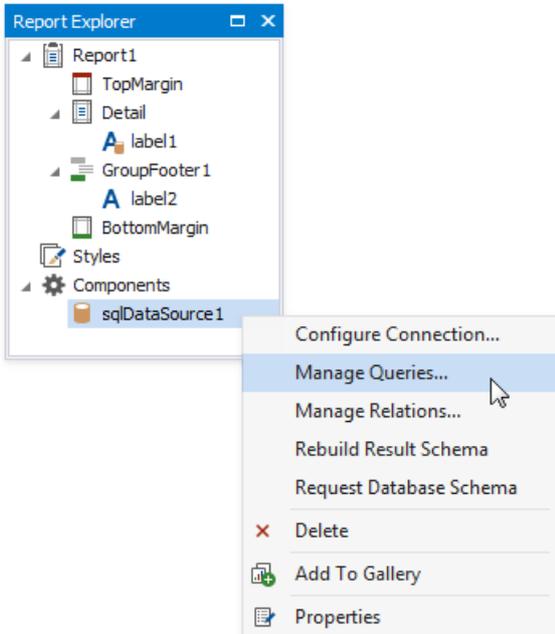
Data Source Level

Use a **sqlDataSource** component to calculate summaries at data source level. You can use these summaries as regular data fields in your report. Then, create a **calculated field** where your expression uses these fields.

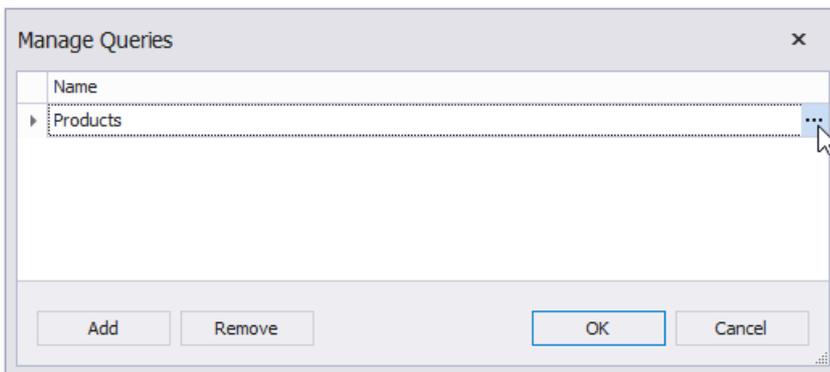
1. When you use the [Report Wizard](#) or [bind a report to an SQL data source](#), go to the [query customization](#) page and click the **+** button for the **Queries** category. Then use the [Query Builder](#) to create a new query.



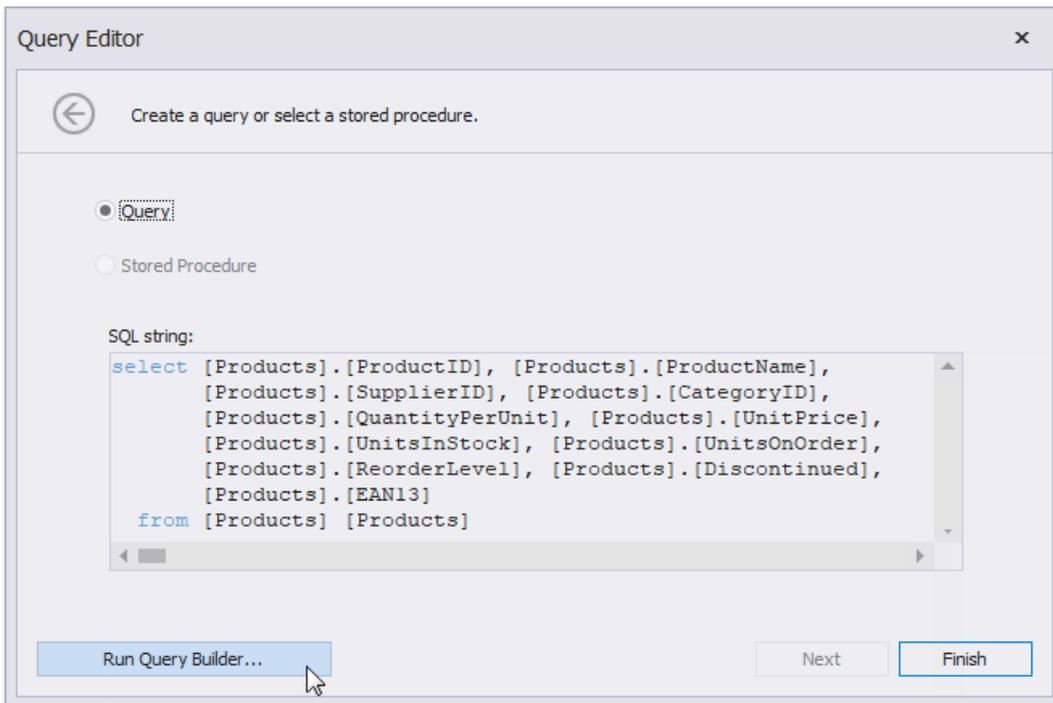
To customize a data source, right-click the data source in the [Report Explorer](#) or [Field List](#) and select **Manage Queries** in the context menu.



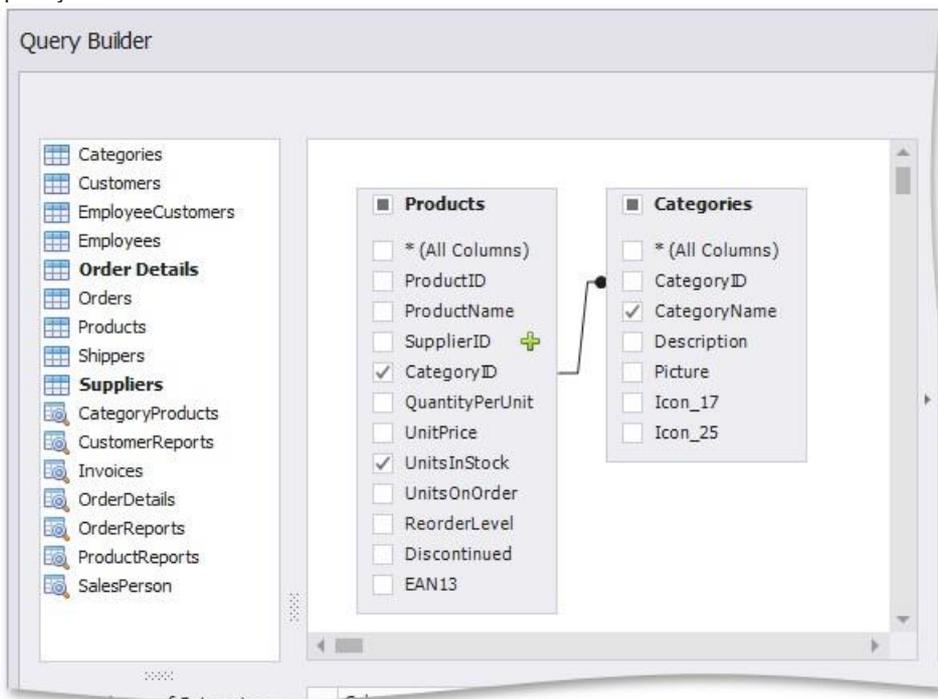
In the invoked **Manage Queries** dialog, click the query's ellipsis button.



In the invoked editor page, click the **Run Query Builder** button.



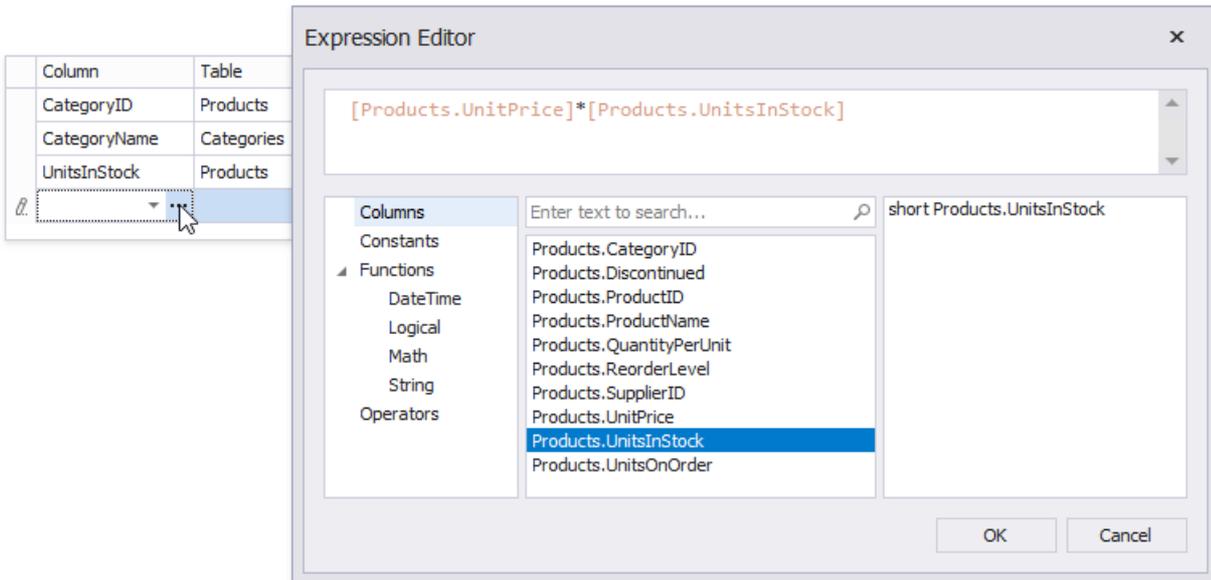
2. In the **Query Builder**, add tables to the query. Enable the fields' checkboxes to include them in the query.



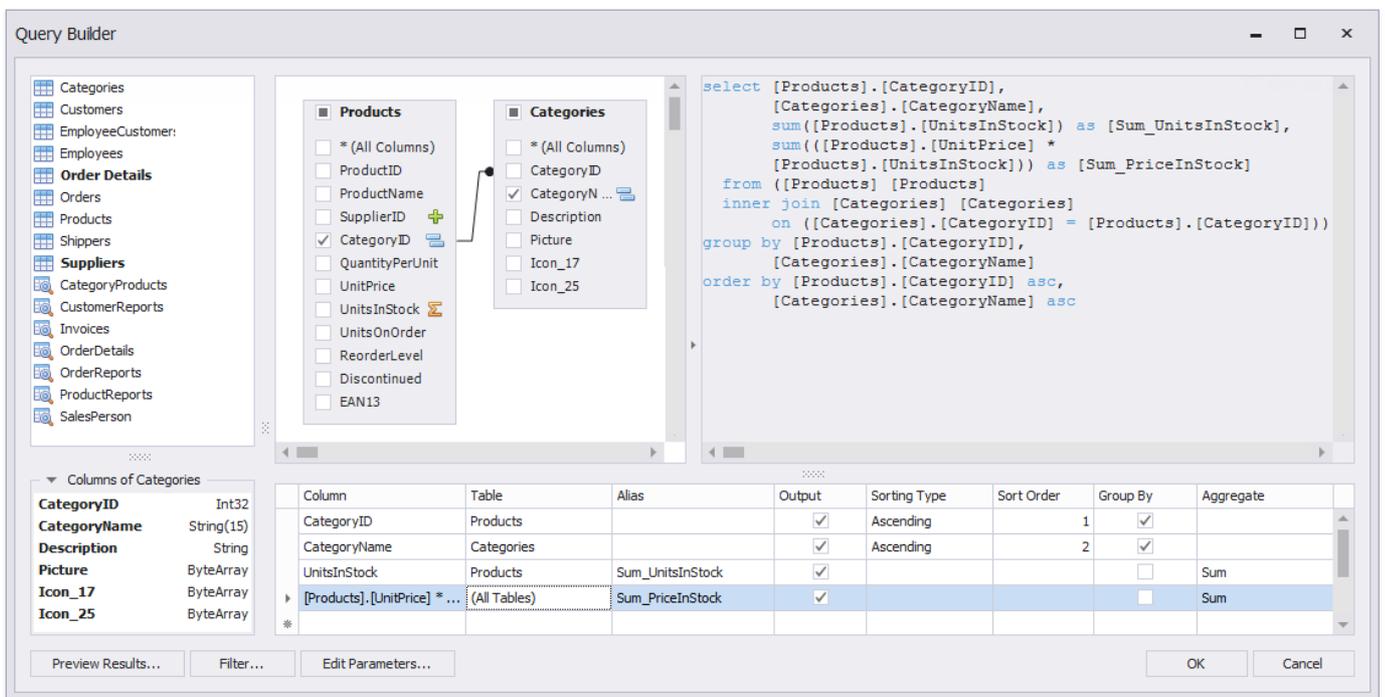
3. In the column list under the data source editor, group data by the group fields and apply the **Sum** aggregate function to the **UnitsInStock** field.

Column	Table	Alias	Output	Sorting Type	Sort Order	Group By	Aggregate
CategoryID	Products		<input checked="" type="checkbox"/>	Ascending	1	<input checked="" type="checkbox"/>	
CategoryName	Categories		<input checked="" type="checkbox"/>	Ascending	2	<input checked="" type="checkbox"/>	
UnitsInStock	Products	Sum_UnitsInStock	<input checked="" type="checkbox"/>			<input type="checkbox"/>	Sum
*							

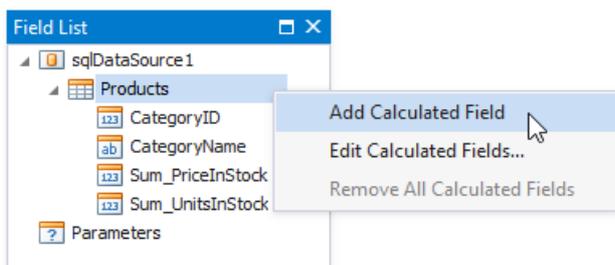
4. Click a new column's expression ellipsis button. In the invoked **Expression Editor**, specify an expression that multiplies the averaged field and the weight field as in the image below:



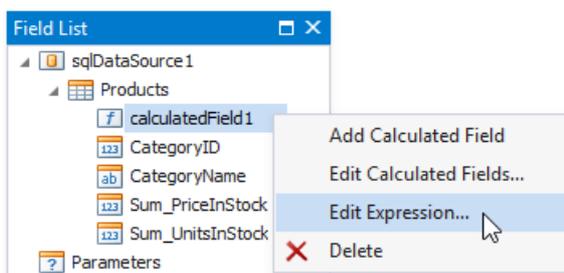
5. Apply the **Sum** aggregate function to the previously created column as well. The image below shows the created query.



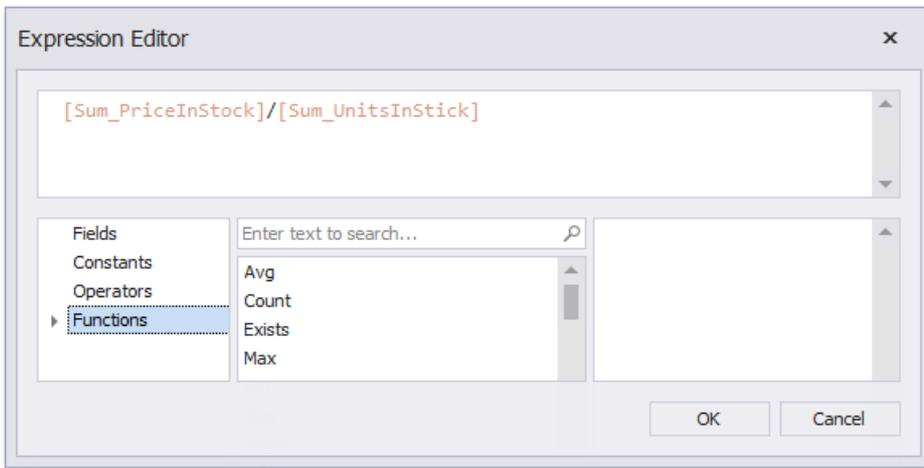
- Click **OK** to complete the **Query Builder**, then click **Finish** to exit the wizard.
- Go to the **Field List**, right-click any item inside the data source node. In the invoked context menu, select **Add Calculated Field**.



- Right-click the created calculated field and select **Edit Expression**.



- In the invoked **Expression Editor**, construct the expression and click **OK**:



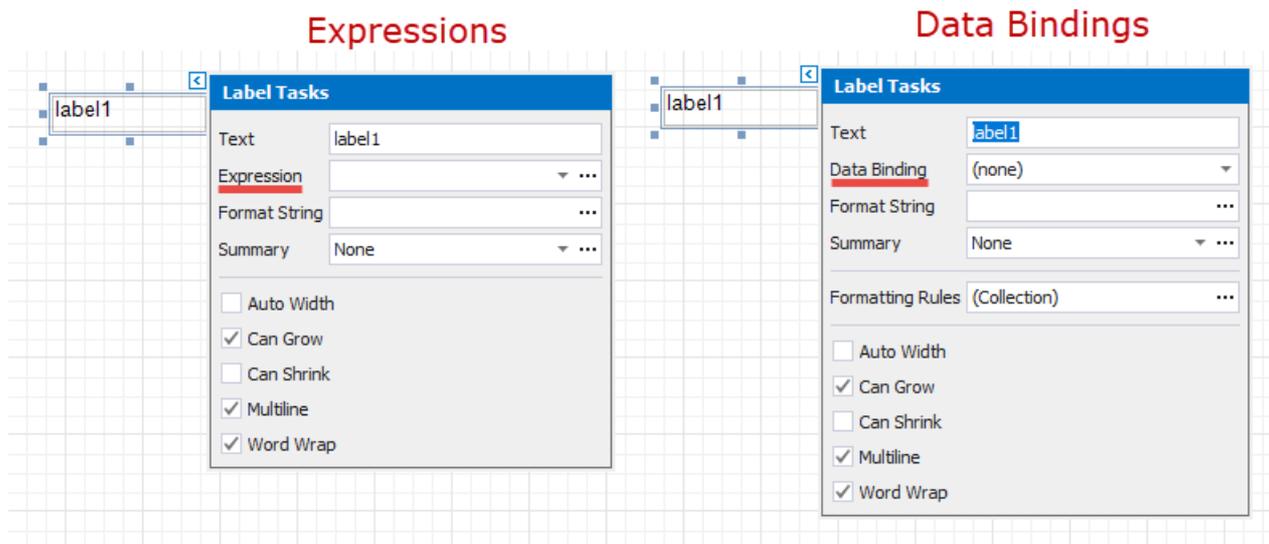
10. Add the created calculated field to the report as an ordinary data field and format its value.

Calculate an Advanced Summary

This document describes how to calculate an advanced summary for report groups using a built-in summary function and arithmetical or logical functions.

Not e

Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).

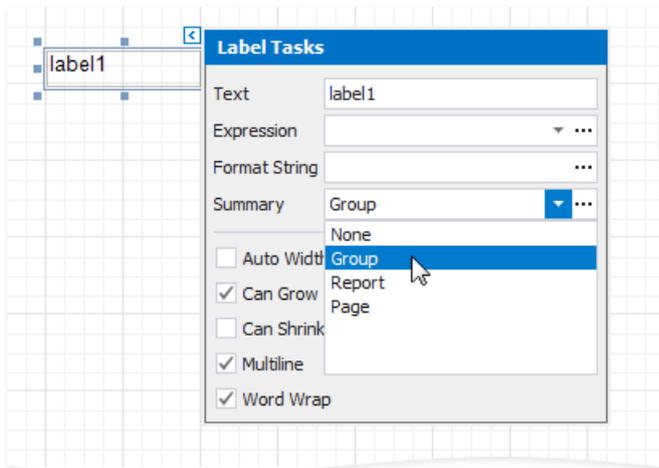


See the [Calculate a Custom Summary](#) topic in the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach.

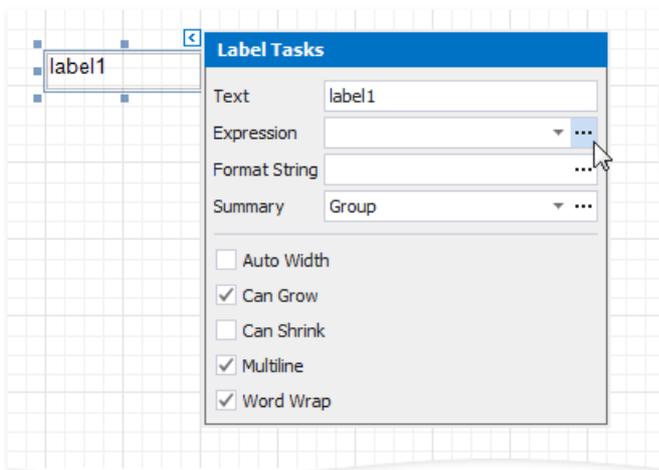
1. [Create a new report](#) or open an existing one and [bind it to a data source](#).
2. Switch to the [Group and Sort](#) panel and group the report's data by the required field. Display the footer for the created group.

Field Name	Sort Order	Show Header	Show Footer
CategoryID	Ascending	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

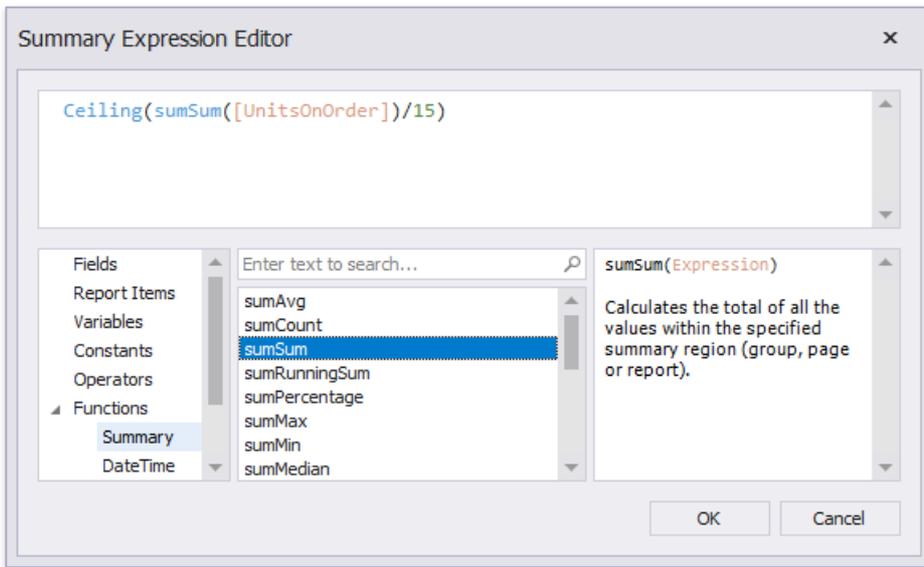
- Drop a **Label** onto the group footer to display the summary result. Click the label's smart tag and set its **Summary** property to **Group**.



- Click the **Expression** property's ellipsis button.



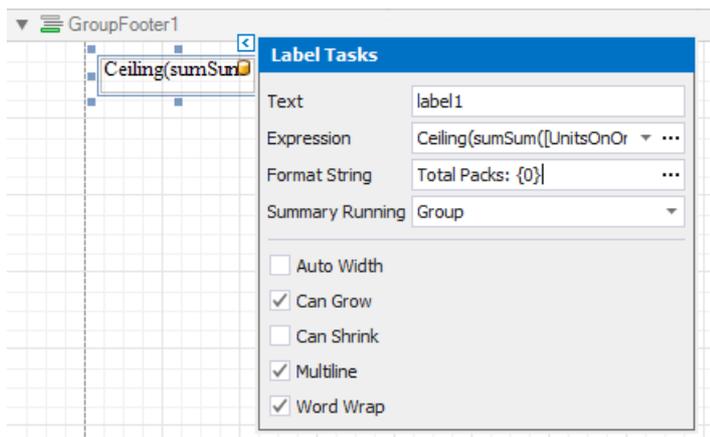
- This invokes the **Summary Expression Editor** where you can specify a custom expression with the required summary functions and other logical or arithmetical functions. For example:



Tip

See the [Expression Constants, Operators, and Functions](#) topic for a complete list of supported summary functions.

6. You can use the **Format String** property to format the summary's value.



Switch to [Print Preview](#) to see the result.

Product Category ID: 1

Product Name	Units On Order
Chang	40
Iloh Coffee	10
Outback Lager	10

**Total Packs:
4**

Product Category ID: 2

Product Name	Units On Order
Aniseed Syrup	70
Louisiana Hot Spiced Okra	100

**Total
Packs: 170**

Display Row Numbers in a Report, Group or Page

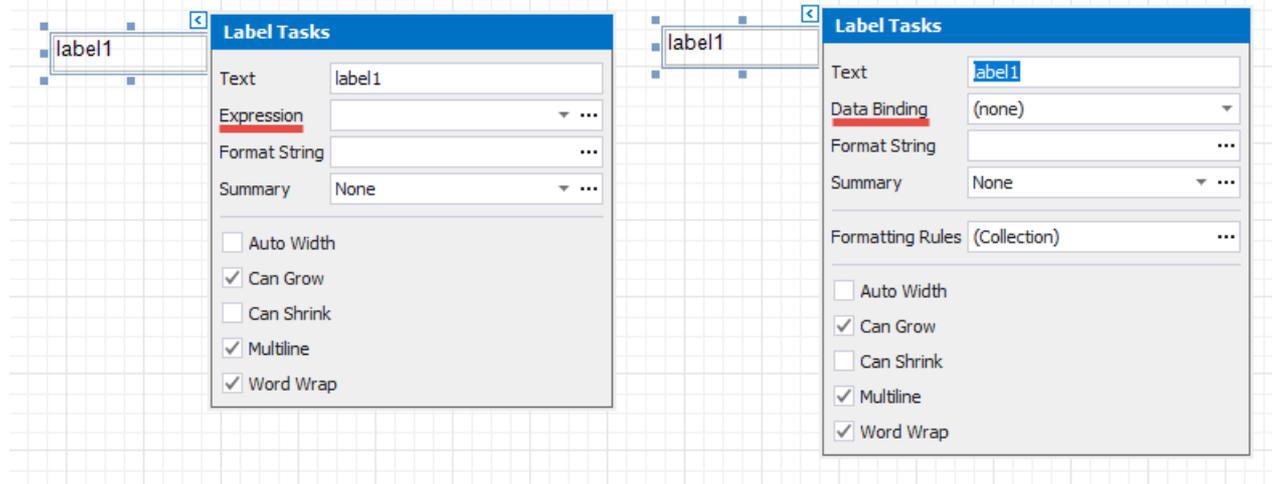
This document describes how to show the current row number for each data source value displayed in a report.

Not e

Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).

Expressions

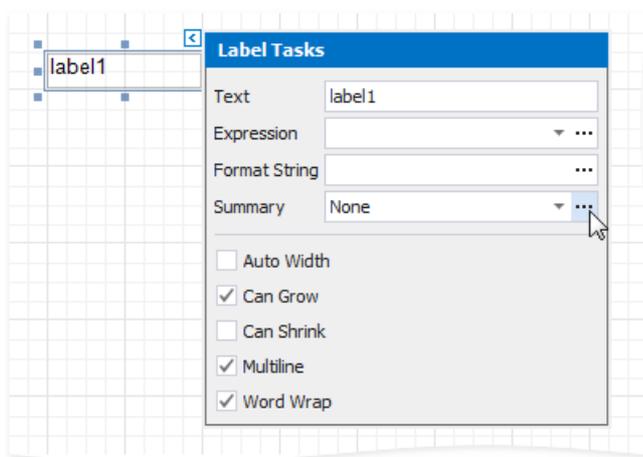
Data Bindings



See the [Display Row Numbers in a Report, Group or Page](#) topic in the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach.

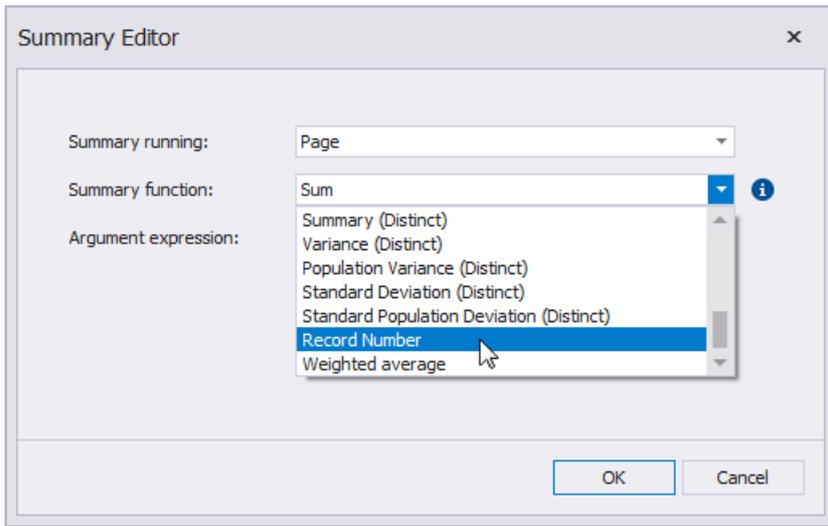
A label can display row numbers after [binding your report to data](#) and specifying a bound data field in the Label's **Expression** property.

1. Click the label's smart tag. In the invoked **Label Tasks** window, click the **Summary** property's ellipsis button.

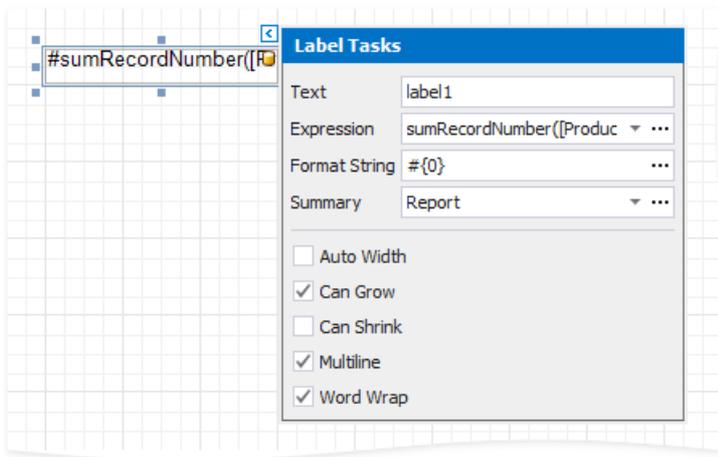


2. In the Summary Editor window:
 - o Set the **Summary running** property. Select **Report** to increment the row numbers throughout the entire report, or select **Group** or **Page** to reset the row numbers for every group or page.

- Set the **Summary function** property to **Record Number**.



3. Back in the **Label Tasks** window, you can use the **FormatString** property to format the resulting value:



You can switch to [Print Preview](#) to see the record numbers displayed for the specified range.

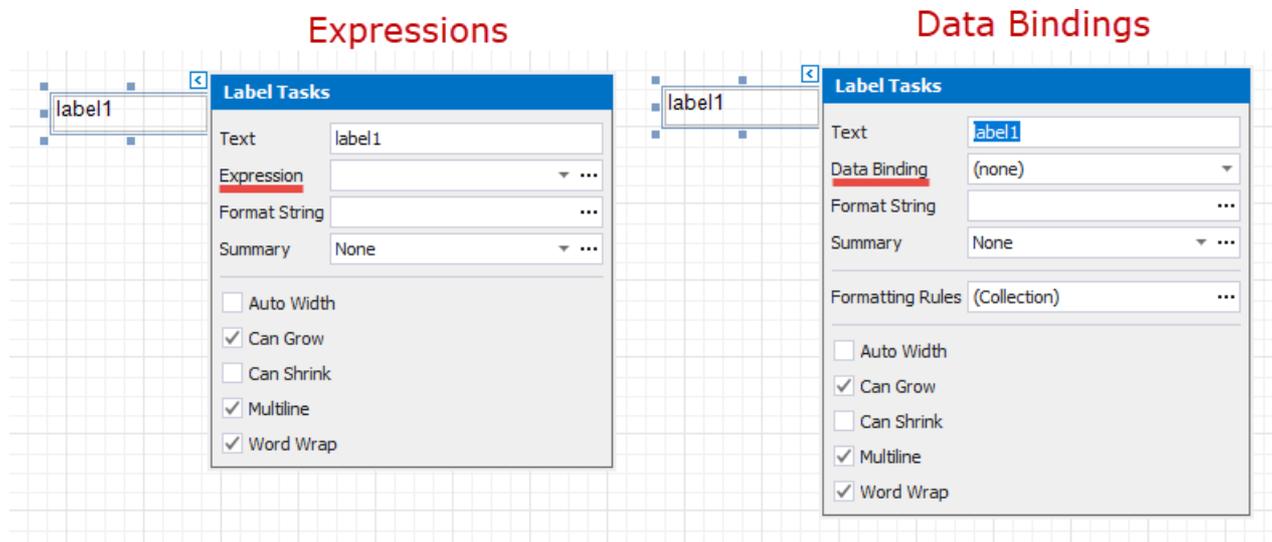
#1	Uncle Bob's Organic Dried Pears	
#2	Mishi Kobe Niku	
#3	Tofu	
#4	Alice Mutton	
#5	Rössle Sauerkraut	
#6	Thüringer Rostbratwurst	
#7	Manjimup Dried Apples	
#8	Perth Pasties	
#9	Tourtière	
#10	Pâté chinois	
#11	Longlife Tofu	

Count the Number of Records in a Report or Group

This document describes how to display the number of records in a report or group.

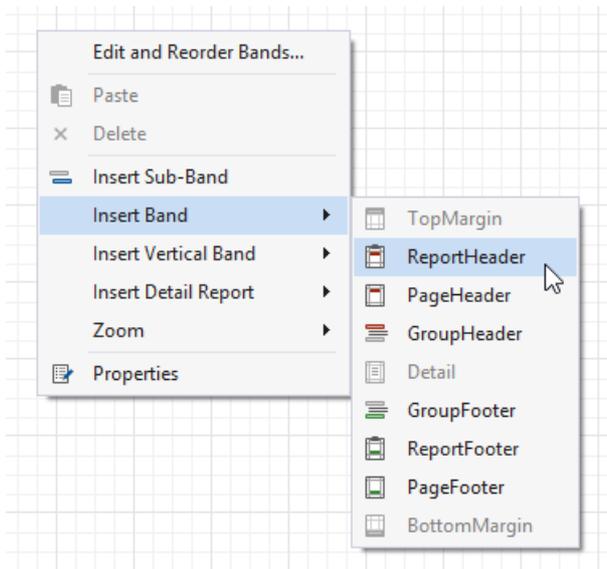
Not e

Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).



See the [Count the Number of Records in a Report or Group](#) topic in the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach.

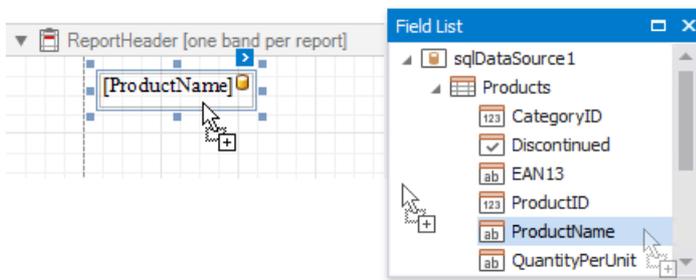
1. Right-click the report's design surface and add a Report Header or Footer to display the record count for the entire report.



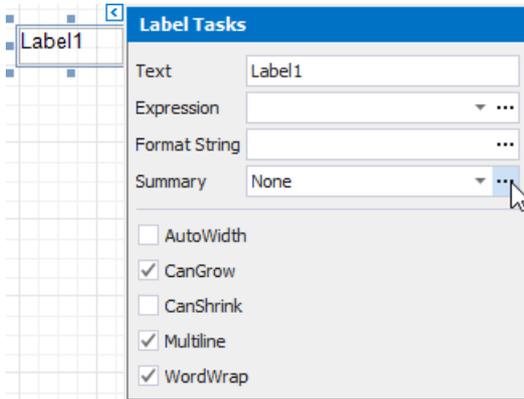
0 Not e

Use a Group Header/Footer for displaying record counts for groups, and a Page Header/Footer for displaying record counts for pages.

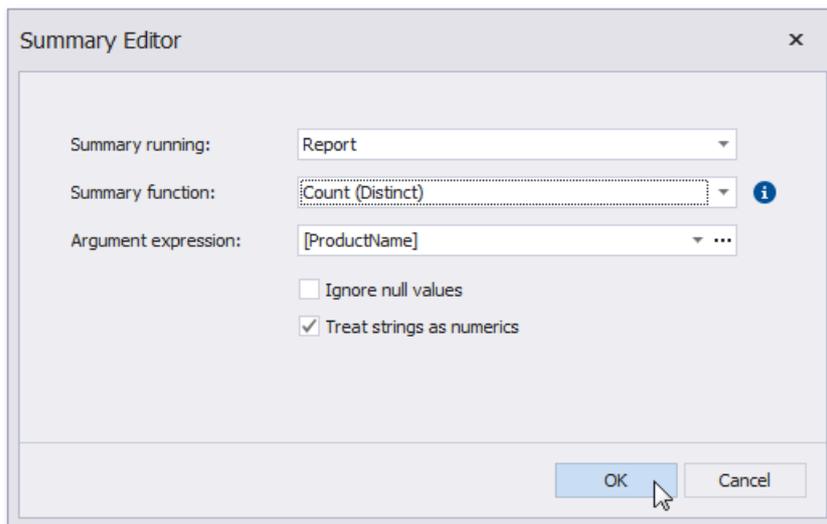
2. Switch to the [Field List](#) and drop the corresponding data table field onto the created band to create a data-bound label.



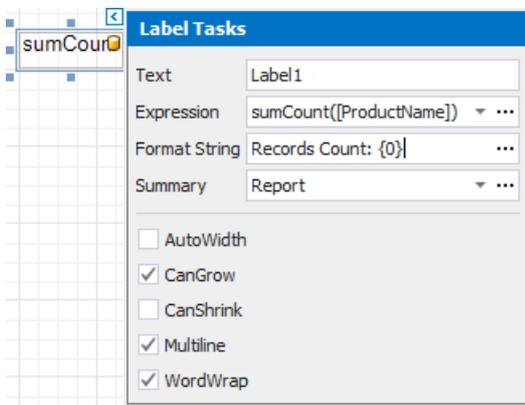
3. Click the label's smart tag. In the invoked Label Tasks window, click the **Summary** field's ellipsis button.



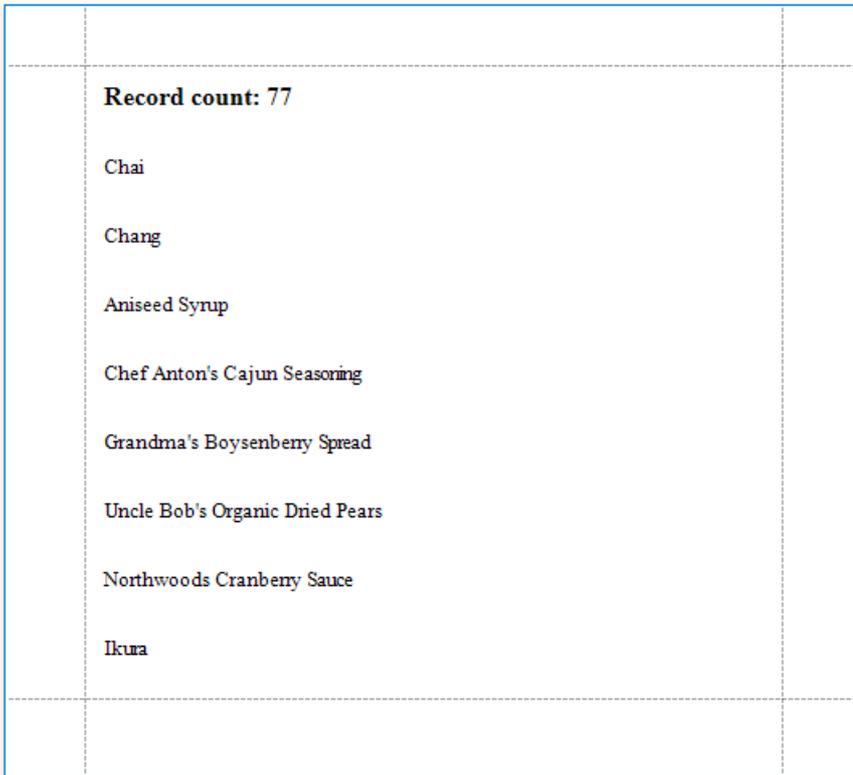
4. In the **Summary Editor** window:
 - Set the **Summary** property. Select **Report** to count the records throughout the entire report, or select **Group** or **Page** to reset the record count for every group or page. Set the **Summary function** property to **DCount**.
 - Set the **Argument Expression** property to the data field you need to count.



5. Back in the **Label Tasks** window, you can use the **Format String** property to format the resulting value:



You can switch to [Print Preview](#) to see the resulting report.



Count the Number of Groups in a Report

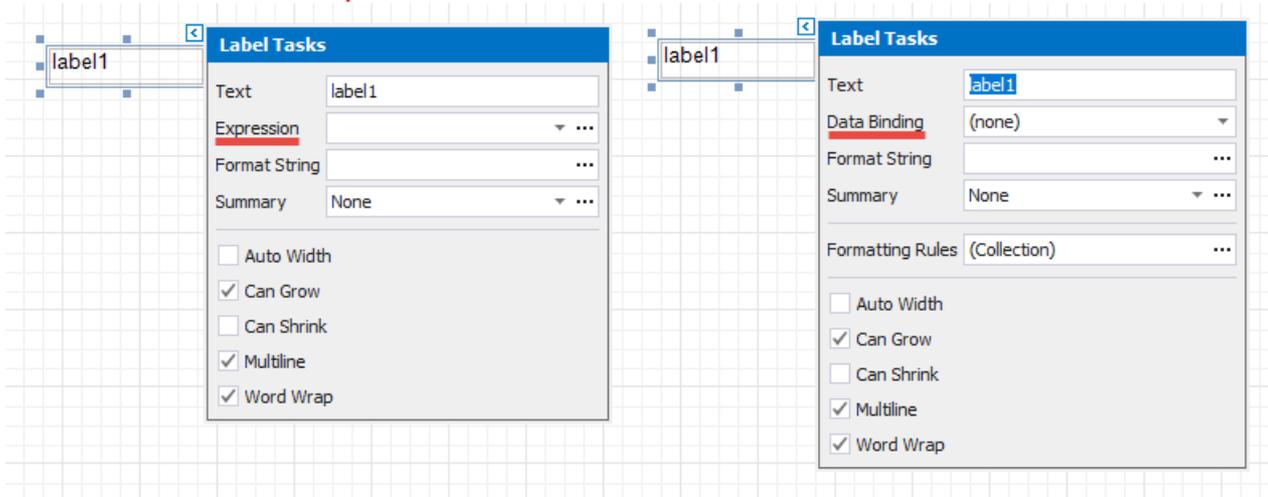
This document describes how to count the number of groups in a report.

Not e

Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).

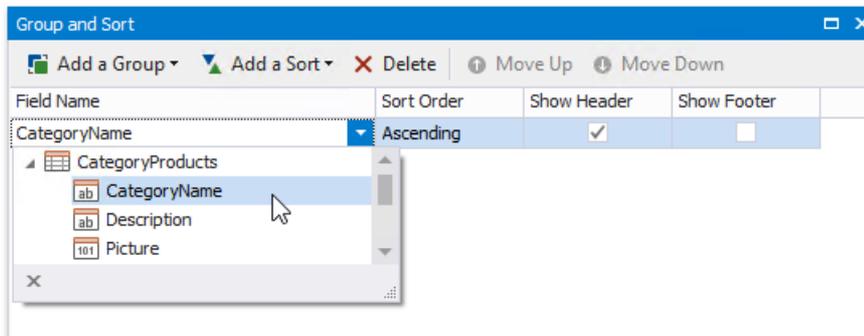
Expressions

Data Bindings

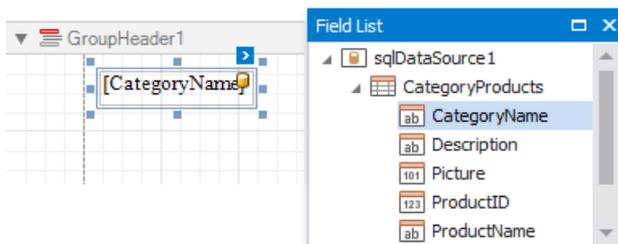


See the [Count the Number of Groups in a Report](#) topic in the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach.

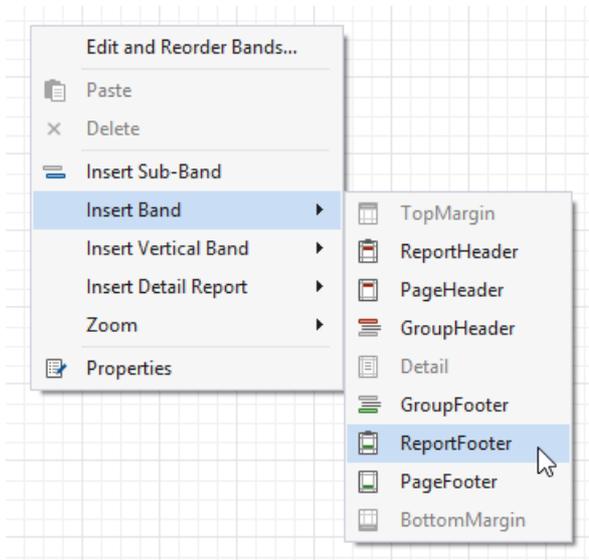
1. Switch to the [Group and Sort](#) panel and create a new group. Enable the **Show Header** option to display the Group Header in the report.



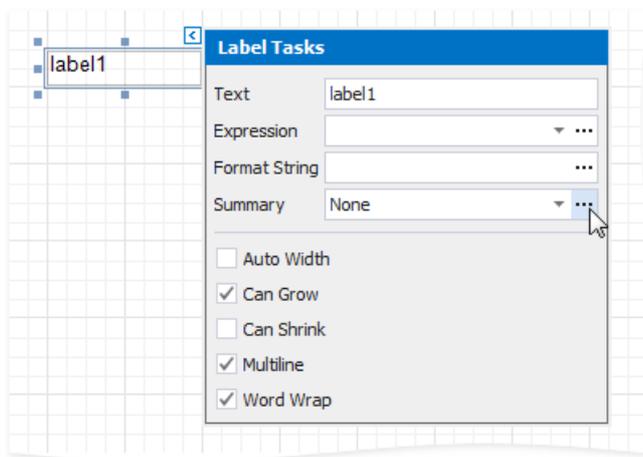
2. Switch to the [Field List](#) and drop the group field onto the created Group Header.



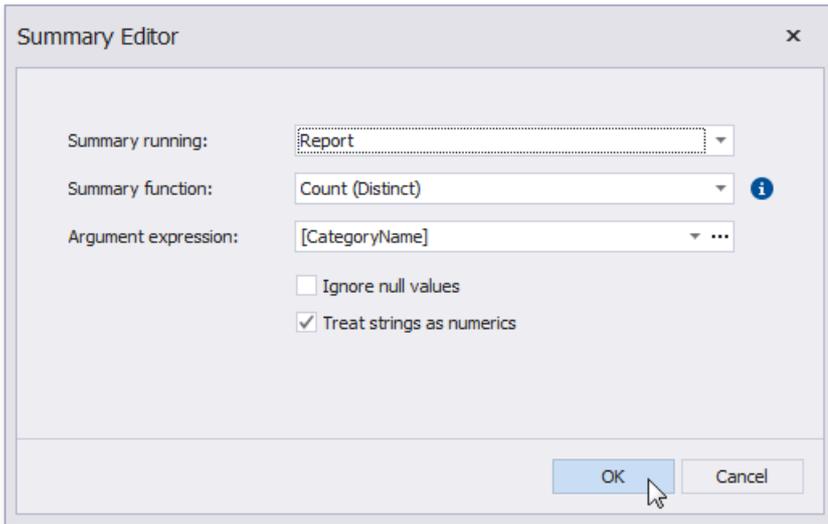
3. Right-click the report's surface and add a Report Footer to the report.



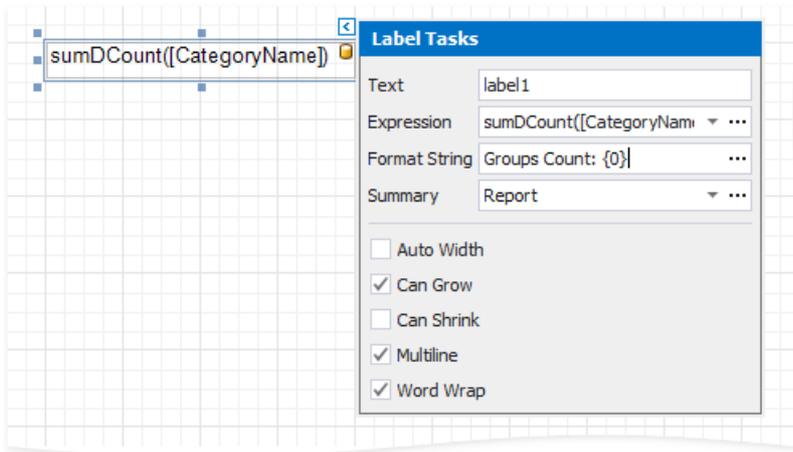
4. Drop a label onto the Report Footer and click its smart tag. In the invoked **Label Tasks** window, click the **Summary** property's ellipsis button.



5. In the Summary Editor window:
 - o Set the **Summary running** property to the **Report** value. Set the **Summary function** property to **Count (Distinct)**.
 - o Set the **Argument expression** property to the field you group the data by.



1. Back in the **Label Tasks** window, you can use the **Format String** property to format the summary's value:



You can see the group count in the report footer when switching to [Print Preview](#).

<p>Meat/Poultry</p> <p>Mishi Kobe Niku</p> <p>Alice Mutton</p> <p>Thüringer Rostbratwurst</p> <p>Perth Pasties</p> <p>Tourtière</p> <p>Pâté chinois</p> <p>Produce</p> <p>Uncle Bob's Organic Dried Pears</p> <p>Tofu</p> <p>Rössle Sauerkraut</p> <p>Manjimup Dried Apples</p> <p>Longlife Tofu</p> <p>Group Count: 2</p>

Shape Data (Data Bindings)

The tutorials in this section illustrate how to solve various tasks related to shaping report data when expression bindings **are not enabled** in the Report Designer (the [Property Grid](#) does not provide the **PropertyName Expression** item in the property marker's context menu).

- [Format Data](#)
- [Conditionally Change a Control's Appearance](#)
- [Conditionally Change a Label's Text](#)
- [Conditionally Change a Band's Visibility](#)
- [Filter Report Data](#)
- [Report Data](#)
- [Conditionally Suppress Controls](#)
- [Limit the Number of Records per Page](#)
- [Calculate a Summary](#)
- [Calculate a Weighted Average](#)
- [Calculate a Custom Summary](#)
- [Display Row Numbers in a Report, Group or Page](#)
- [Count the Number of Records in a Report or Group](#)
- [Count the Number of Groups in a Report](#)

Note

Use this section if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).

Expressions

Data Bindings

Label Tasks

Text: label1

Expression: ...

Format String: ...

Summary: None

Auto Width

Can Grow

Can Shrink

Multiline

Word Wrap

Label Tasks

Text: label1

Data Binding: (none)

Format String: ...

Summary: None

Formatting Rules: (Collection)

Auto Width

Can Grow

Can Shrink

Multiline

Word Wrap

See the [Shape Data \(Expression Bindings\)](#) section to learn about an alternative approach.

Format Data

This document demonstrates how to specify value formatting for report elements (for instance, format numeric values as a currency or apply a percent format).

Not e

Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).

Expressions

Data Bindings

Label Tasks

Text: label1

Expression: ...

Format String: ...

Summary: None

Auto Width

Can Grow

Can Shrink

Multiline

Word Wrap

Label Tasks

Text: label1

Data Binding: (none)

Format String: ...

Summary: None

Formatting Rules: (Collection)

Auto Width

Can Grow

Can Shrink

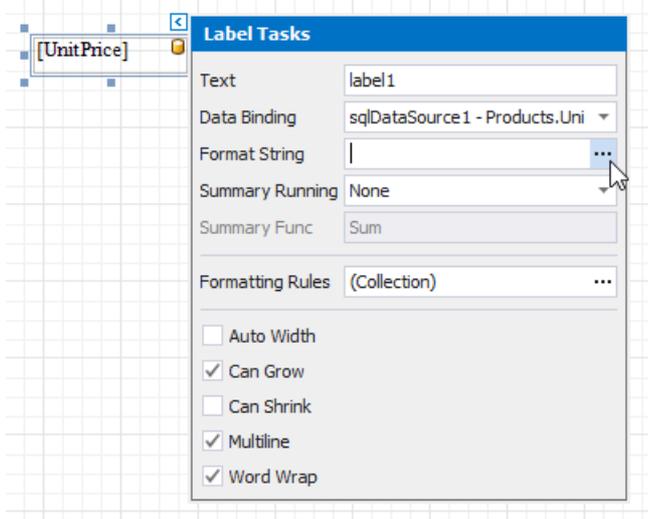
Multiline

Word Wrap

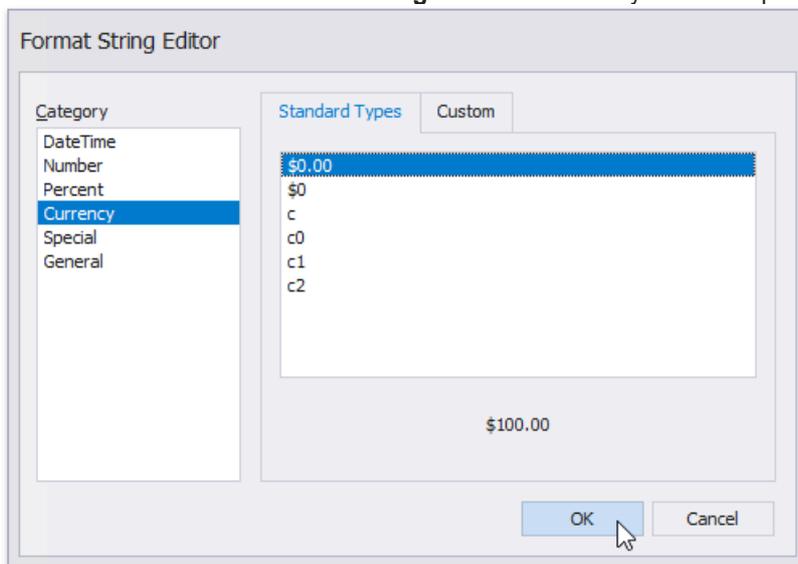
See the [Format Data](#) topic in the [Shape Data \(Expression Bindings\)](#) section to learn about an alternative approach.

After you [bound your report to data](#) and specified a bound data field in a report control's **Data Binding** property, you can format data values in a report.

1. Invoke the control's smart tag and click the **Format String** property's ellipsis button.



2. This invokes the **Format String Editor** where you can specify the required format.



When switching to [Print Preview](#), you can view the report control displaying values with the specified format.

Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$21.35
Grandma's Boysenberry Spread	\$25.00
Uncle Bob's Organic Dried Pears	\$30.00
Northwoods Cranberry Sauce	\$40.00
Mishi Kobe Niku	\$97.00
Ikura	\$31.00
Queso Cabrales	\$21.00

You can use the control's **Xlsx Format String** property to assign a native Excel format that is used for exporting reports to **XLSX**.

Conditionally Change a Control's Appearance

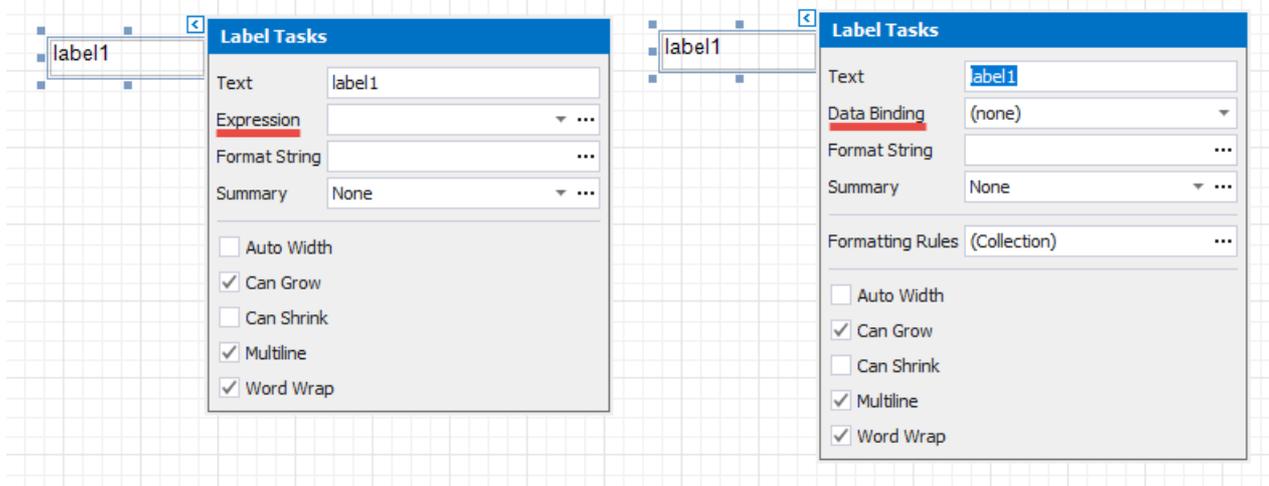
This document describes how to change a report control's appearance based on a specific condition.

Not e

Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).

Expressions

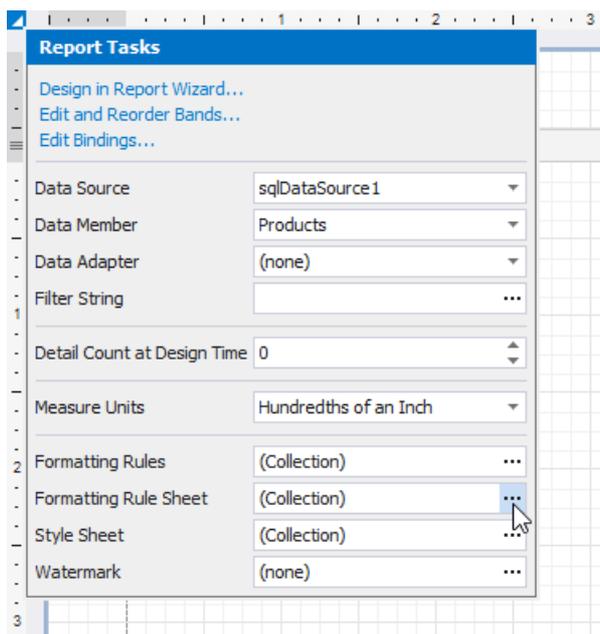
Data Bindings



See the [Conditionally Change a Control's Appearance](#) topic in the [Shape Data \(Expression Bindings\)](#)

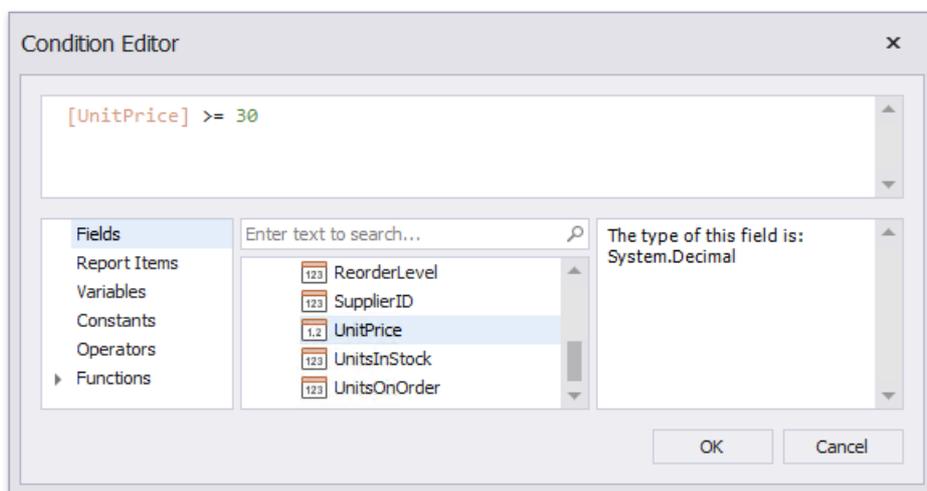
section to learn about an alternative approach.

1. Click the report's smart tag, and in the invoked actions list, click the **Formatting Rule Sheet** property's ellipsis button.



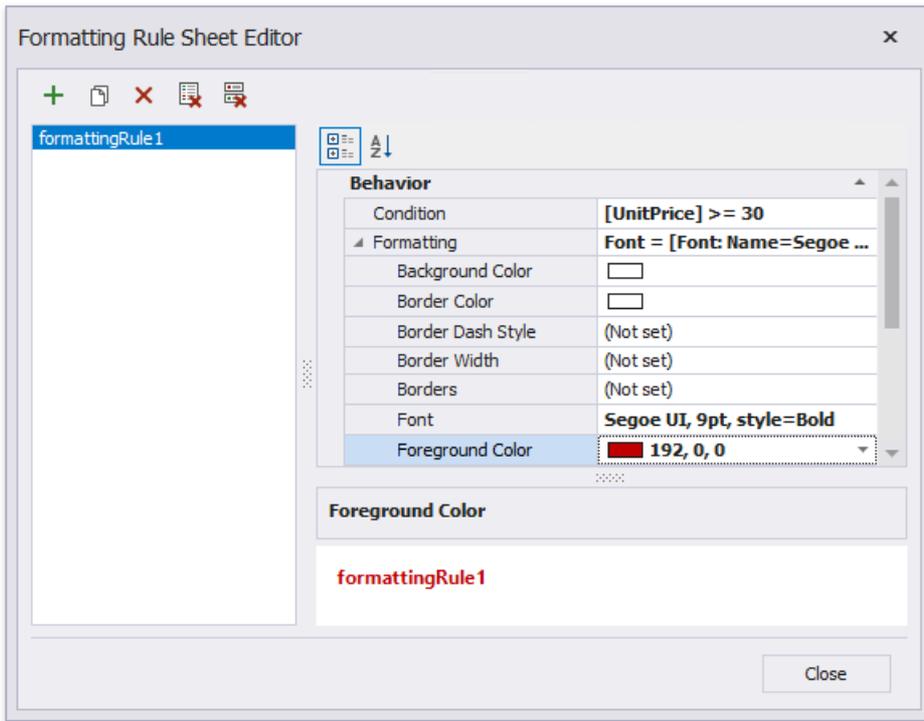
2. In the invoked **Formatting Rule Sheet Editor**, click the plus button to create a new formatting rule and click the **Condition** property's ellipsis button.

3. In the invoked **Condition Editor**, specify the required Boolean condition (which means that its result is either *true* or *false*).



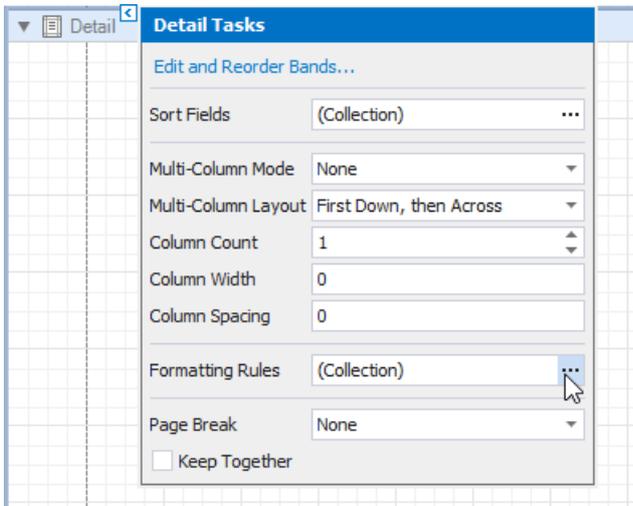
Click **OK** to save the changes and close the dialog.

4. Back in the **Formatting Rule Sheet Editor**, define the formatting to be applied (e.g. specify the desired font color).

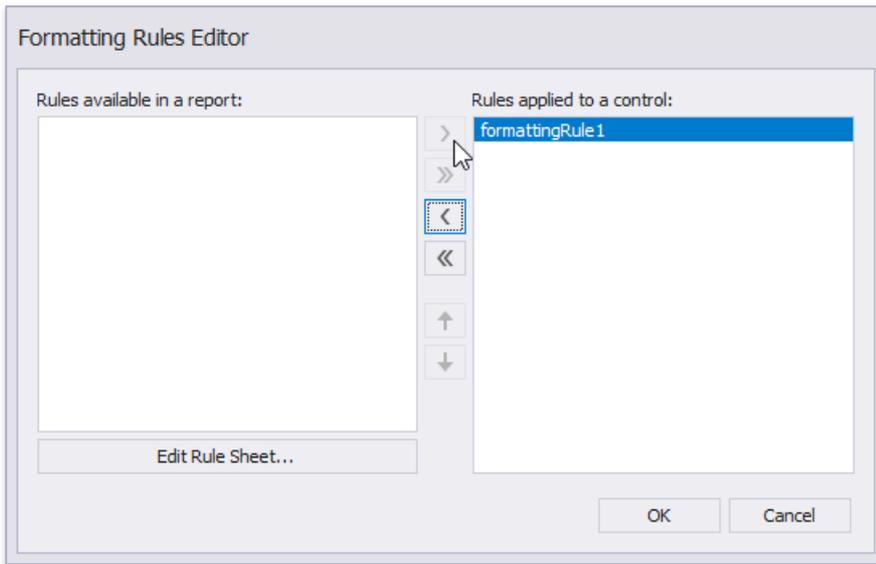


Click **Close** to save the changes and quit the dialog.

5. Select a required band or control to which the formatting rule should be applied and access its **Formatting Rules** collection.



6. In the invoked **Formatting Rules Editor**, move the rule to the list of active rules on the right using the arrow buttons in the center of the editor.



In this editor, you can also customize the precedence of formatting rules using the up and down arrow buttons on the right of the dialog box. The rules are applied in the same order that they appear in the list, and the last rule in the list has the highest priority.

Switch to [Print Preview](#) to view the resulting report.

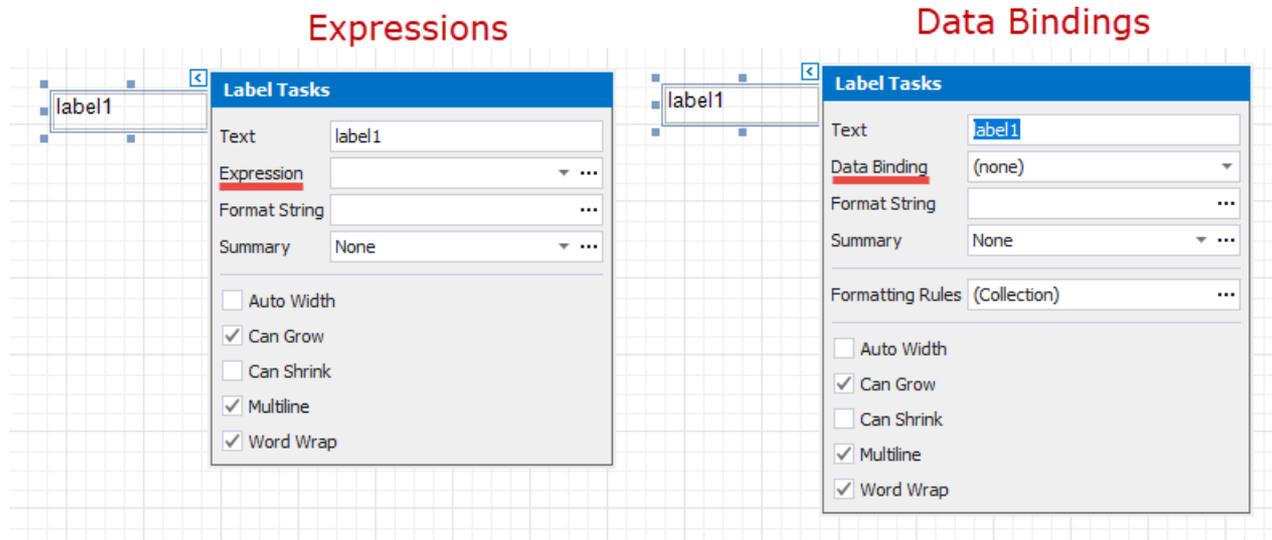
Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$21.35
Grandma's Boysenberry Spread	\$25.00
Uncle Bob's Organic Dried Pears	\$30.00
Northwoods Cranberry Sauce	\$40.00
Mishi Kobe Niku	\$97.00
Ikura	\$31.00
Queso Cabrales	\$21.00
Queso Manchego La Pastora	\$38.00
Konbu	\$6.00
Tofu	\$23.25
Genen Shouyu	\$15.50
Pavlova	\$17.45

Conditionally Change a Label's Text

This document describes how to display different values in a report control based on a specified logical condition.

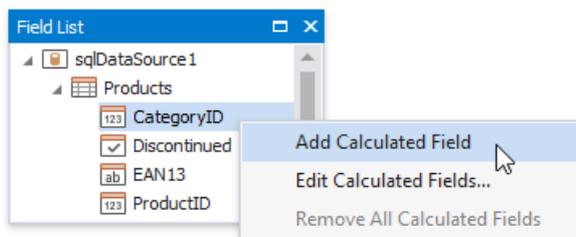
Not e

Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).

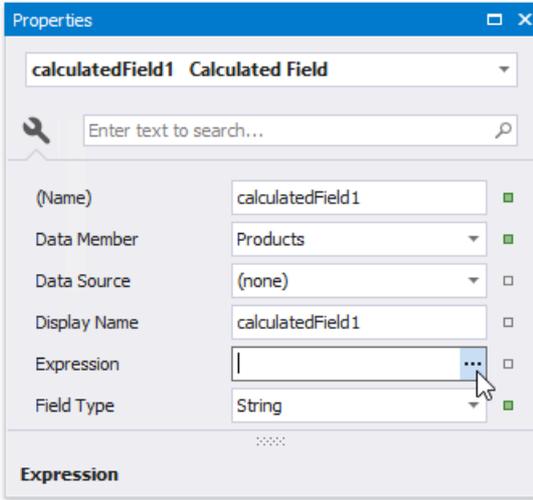


See the [Conditionally Change a Label's Text](#) topic in the [Shape Data \(Expression Bindings\)](#) section to learn about an alternative approach.

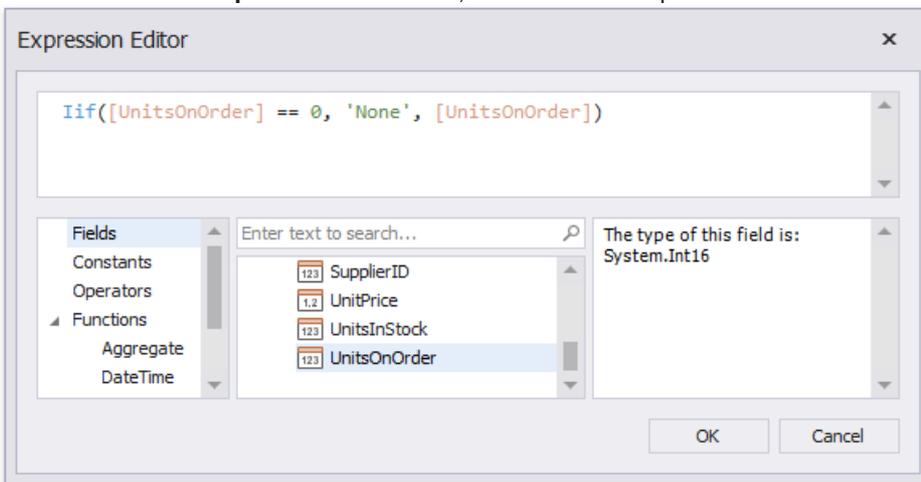
1. [Create a new report](#) or open an existing one and [bind it to a data source](#).
2. Right-click any of the data fields in the [Field List](#) and select **Add Calculated Field**.



3. Switch to the [Property Grid](#) and set the **Field Type** property to **String**. Then, click the **Expression** property's ellipsis button.



4. In the invoked **Expression Editor**, define the required condition for the calculated field.

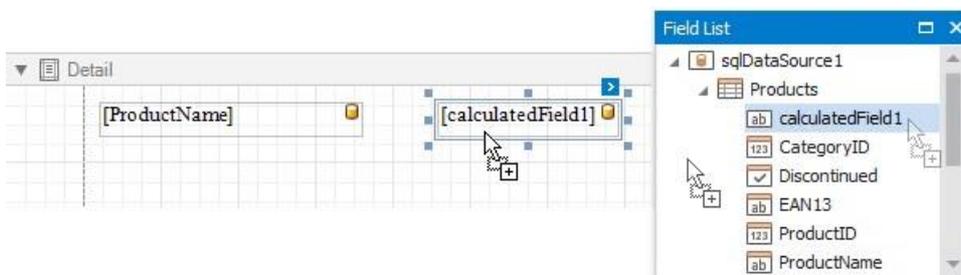


Use the **Iif** function to define the condition. For example:

Iif([UnitsOnOrder] == 0, 'None', [UnitsOnOrder])

This expression means that if the data field's value is zero, the control's text is set to '**None**'; otherwise, it displays the actual field value.

5. Drop the required data fields and the created calculated field from the **Field List** on the report's Detail band.



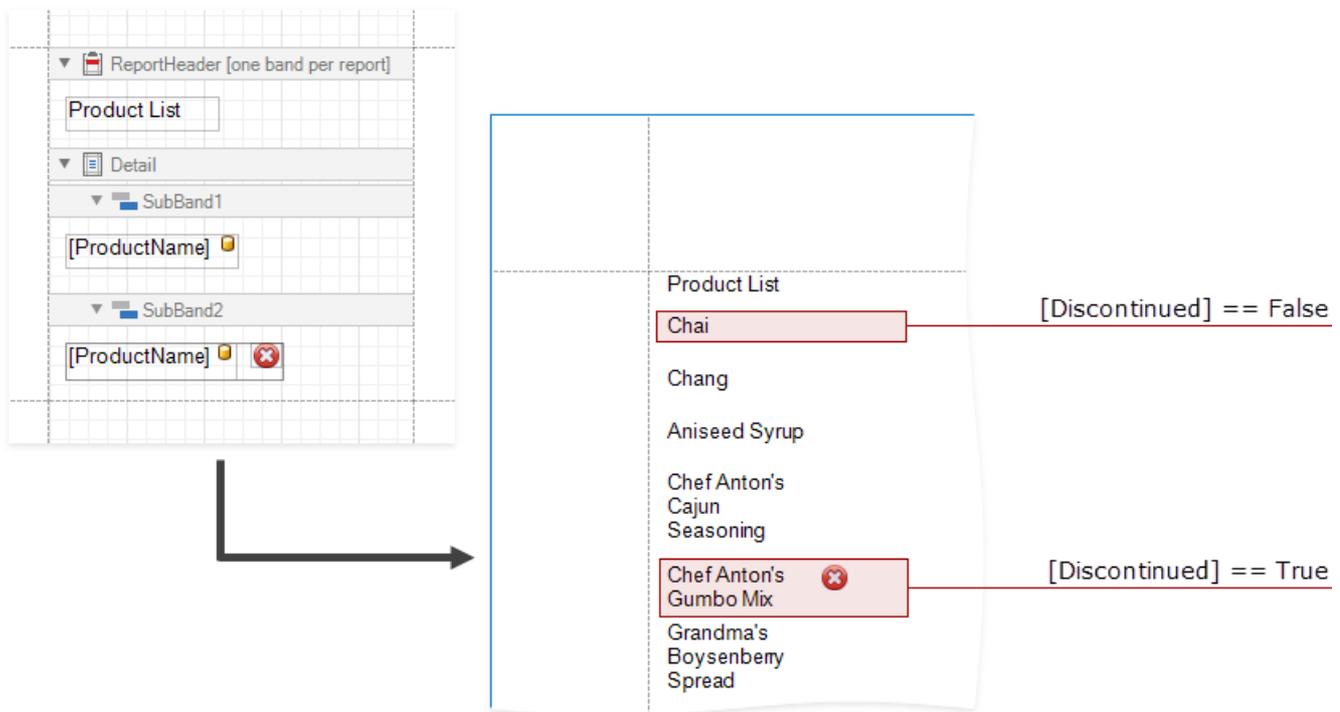
When switching to **Print Preview**, you can see the report control displaying the assigned values.

Chai	None
Chang	40
Guaraná Fantástica	None
Sasquatch Ale	None
Steeleye Stout	None
Côte de Blaye	None
Chartreuse verte	None
Ipoh Coffee	10
Laughing Lumberjack Lager	None
Outback Lager	10

Conditionally Change a Band's Visibility

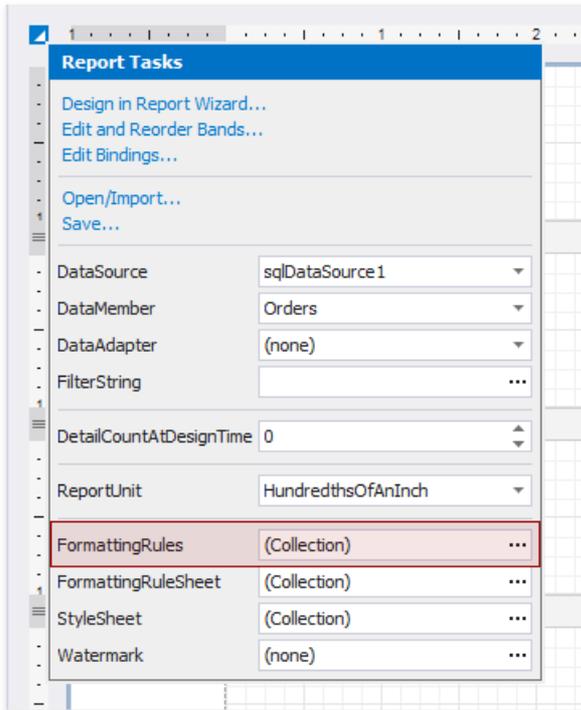
This document describes how to change a report band's visibility.

The report created in this tutorial contains two Detail **sub-bands** with different report controls. These sub-bands are used to display discontinued and current products.

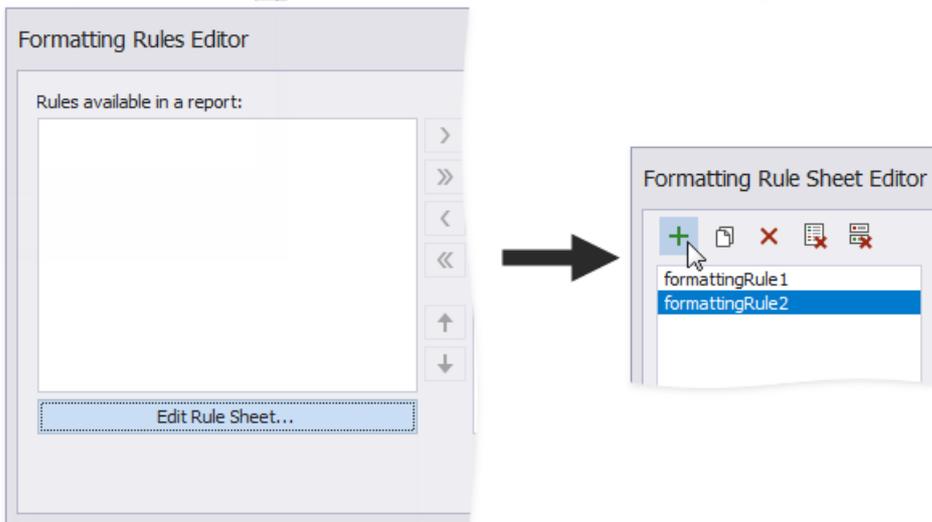


The steps below demonstrate how to change a band's visibility based on a field's value.

1. Create formatting rule(s).
 - o Select a report and click its smart tag. In the invoked actions list, click the **FormattingRules** property's ellipsis button.

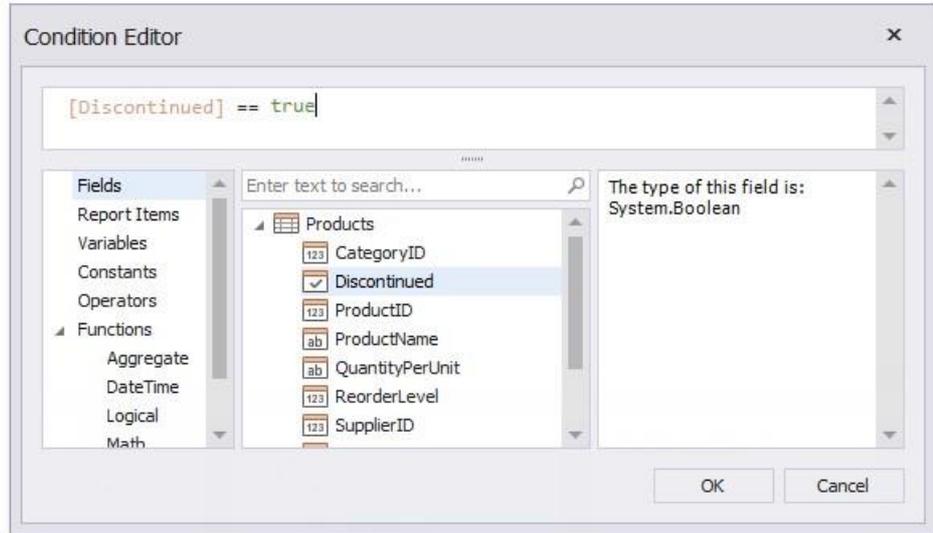
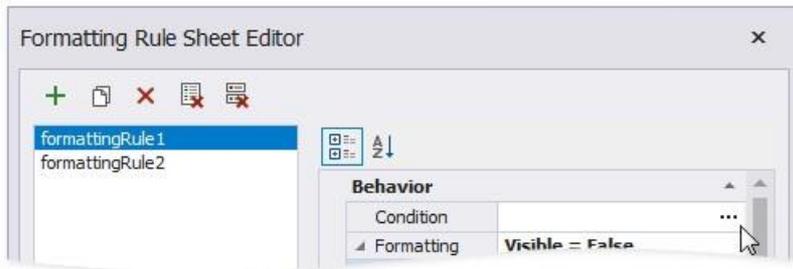


- o In the **Formatting Rules Editor**, click the **Edit Rule Sheet...** button to invoke the **Formatting Rule Sheet Editor**. Click  to create a new formatting rule.



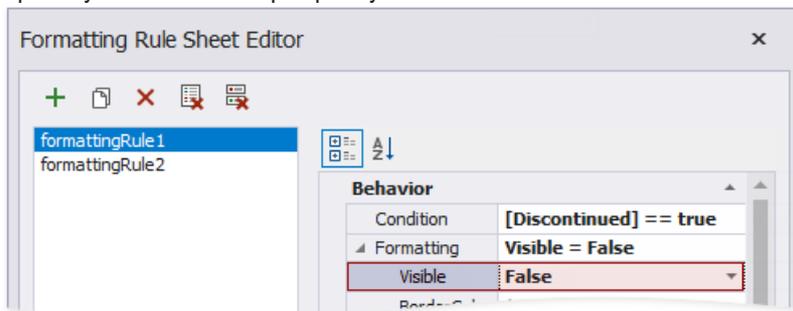
In the tutorial's report, two rules are added.

- o Specify a condition for the rule. Click the ellipsis button for the rule's **Condition** property and specify the expression in the invoked **Formatting Rules Editor**.



Here, the **[Discontinued] == true** expression is set for the **formattingRule1** and the **[Discontinued] == false** expression - for the **formattingRule2**.

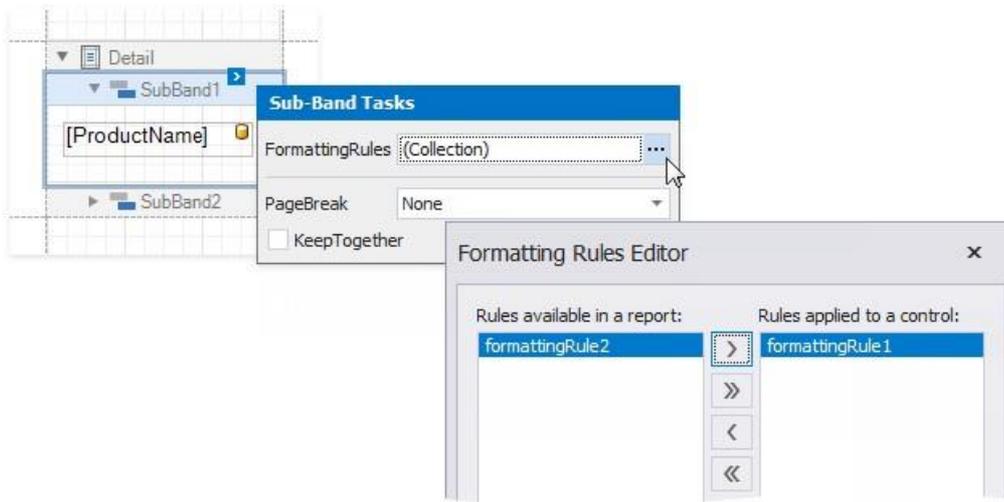
- Specify the **Visible** property for the rule.



Here, the **Visible** property is set to **False** for both rules.

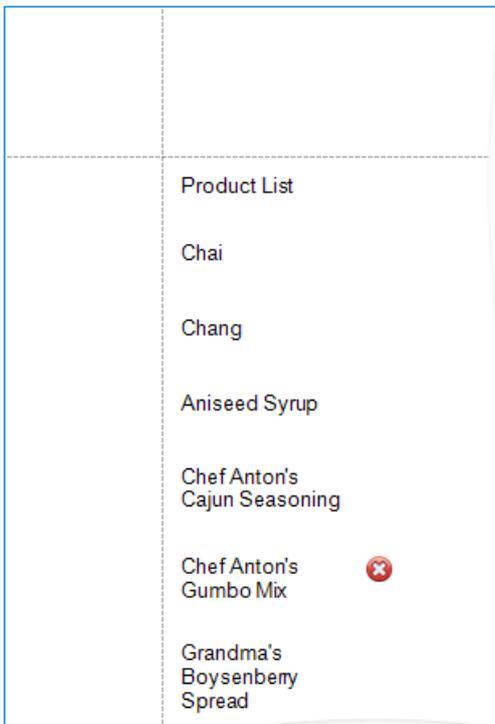
- Apply the rule(s) to the required band(s).

Select a band, invoke the **Formatting Rules Editor**, and move a rule to the **Rules applied to a control** section.



Here, the **formattingRule1** is applied to **SubBand1**, and the **formattingRule2** to **SubBand2**.

The Print Preview displays how changes to band visibility influence the Product List. The **SubBand1** is used to display products that have the **Discontinuous** field set to false, and the **SubBand2** is used to display the discontinued products.

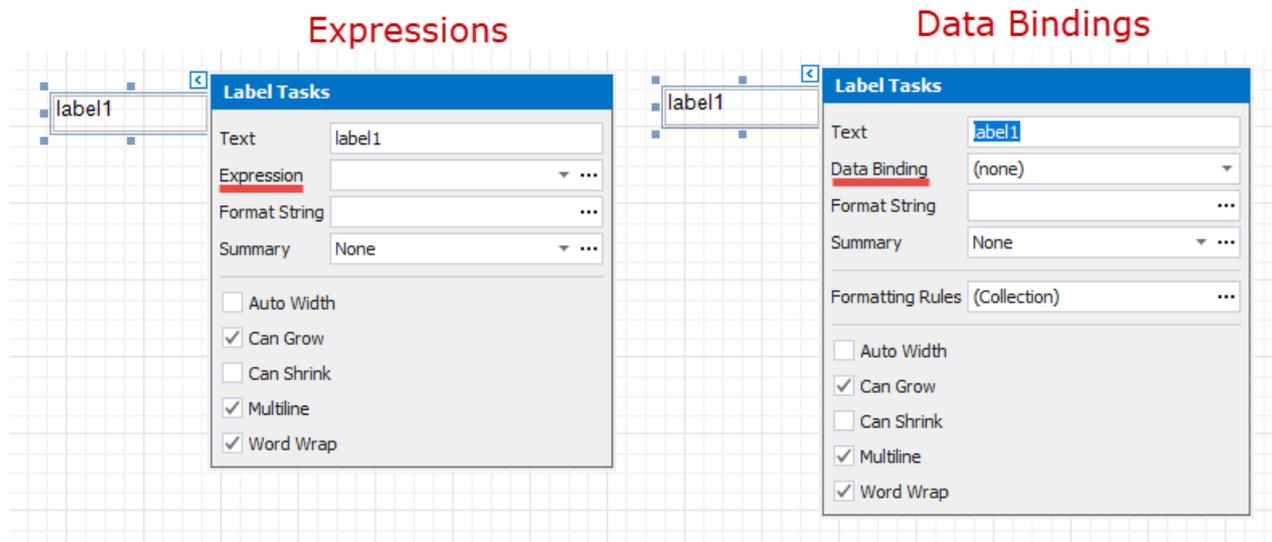


Conditionally Filter Report Data

This document describes how to filter a report's data based on a specific condition.

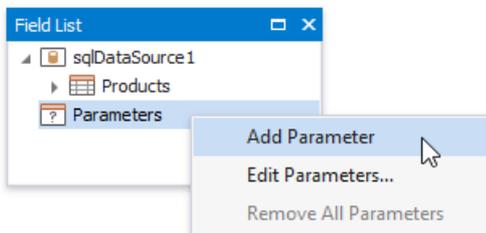
Not e

Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).



See the [Conditionally Filter Report Data](#) topic in the [Shape Data \(Expression Bindings\)](#) section to learn about an alternative approach.

1. Switch to the [Field List](#), right-click the **Parameters** section and add a new report parameter.



2. Specify the parameter's description in Print Preview and set its type to **Number (Integer)**.

Add New Parameter [Close]

Name:

Description:

Type:

Default Value:

Show in the parameters panel

Supports the collection of standard values

Allow multiple values

Allow null value

Dynamic values | Static values

Data Source:

Data Member:

Data Adapter:

Value Member:

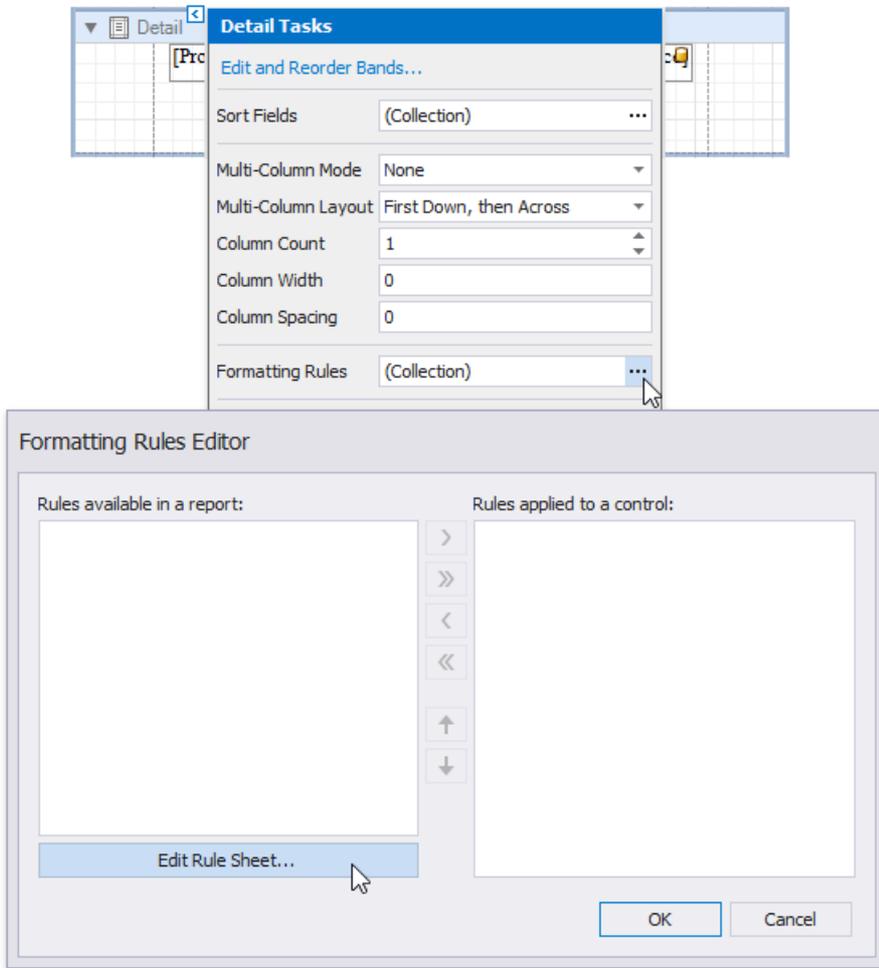
Display Member:

Filter String:

Sort Member:

Sort Order:

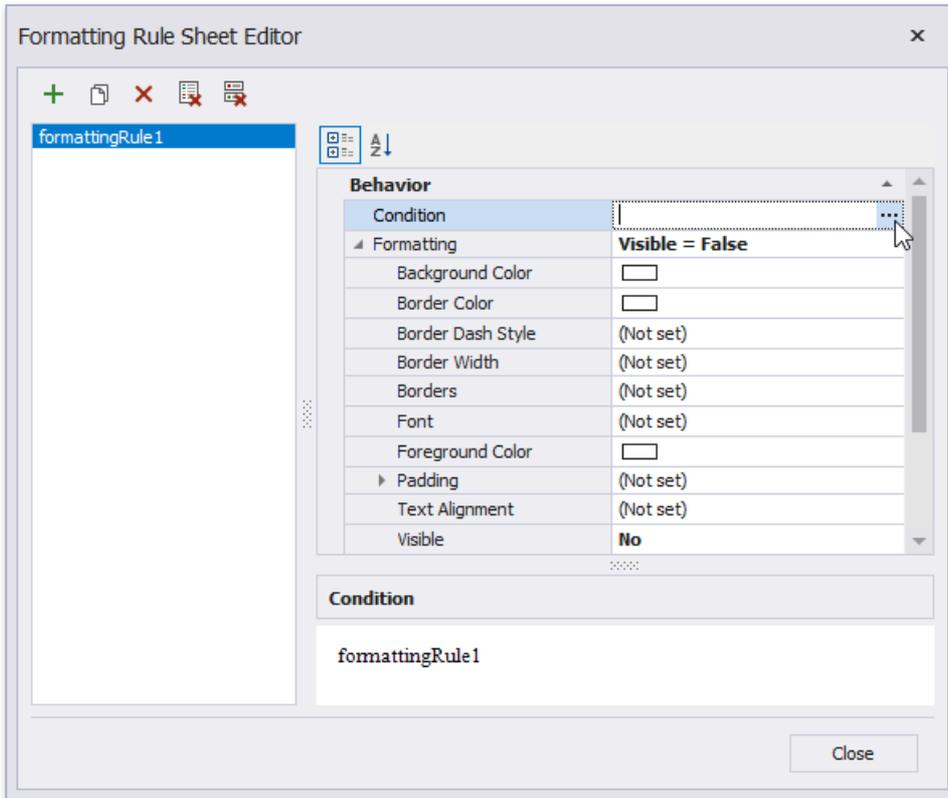
- Click the Detail band's smart tag, and in its actions list, click the **Formatting Rules** property's ellipsis button. In the invoked



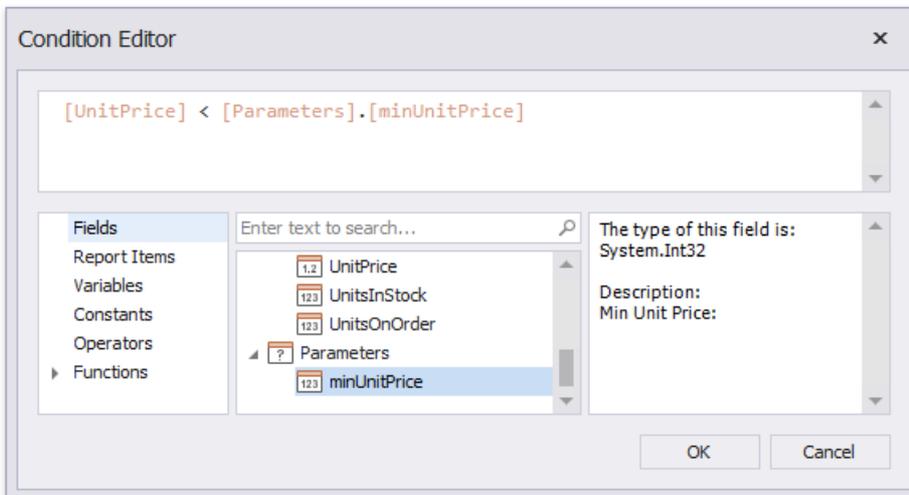
Formatting Rules Editor, click the **Edit Rule Sheet** button.

4. In the invoked **Formatting Rule Sheet Editor**, click the plus button to create a new formatting rule. Set the **Visible**

property to **No** and click the **Condition** property's ellipsis button.

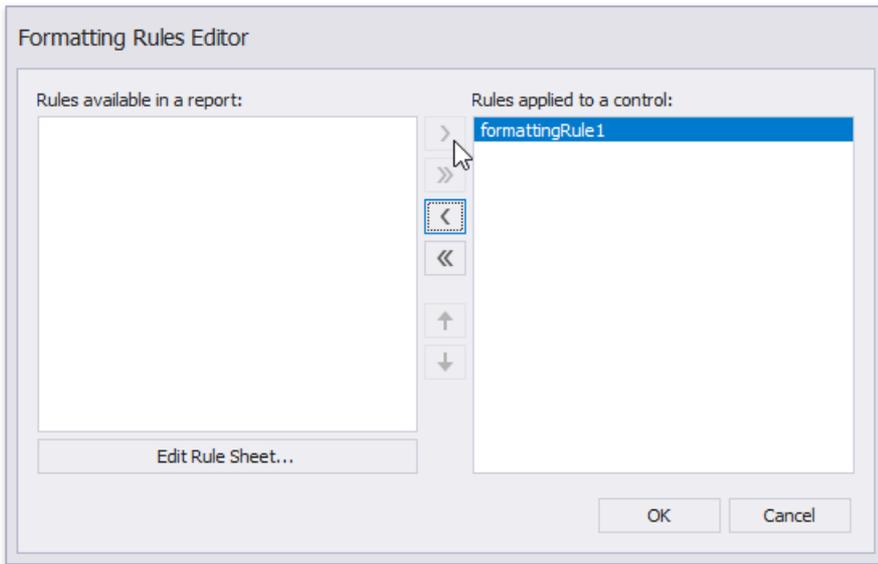


5. In the invoked **Condition Editor**, specify the required visibility condition.



Click **OK** to save the changes and close the dialog. Then, click **Close** to quit the **Formatting Rule Sheet Editor**.

6. In the **Formatting Rules Editor**, you can see the created rule (called **formattingRule1**), which should be moved to the list of active rules on the right using the arrow buttons in the center of the dialog box.



In this editor, you can also customize the precedence of formatting rules using the up and down arrow buttons on the right of the dialog box. The rules are applied in the same order that they appear in the list, and the last rule in the list has the highest priority.

Switch to [Print Preview](#) to see the result.

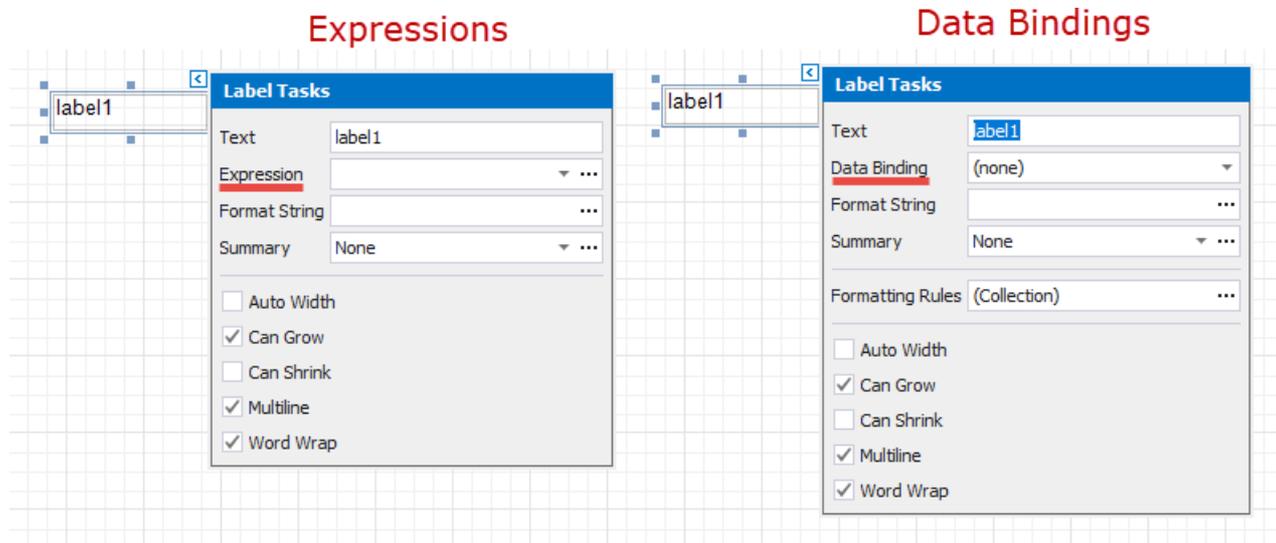
Côte de Blaye	\$263.50
Sir Rodney's Marmalade	\$81.00
Raclette Courdavault	\$55.00
Mishi Kobe Niku	\$97.00
Thüringer Rostbratwurst	\$123.79
Manjimup Dried Apples	\$53.00
Camarvon Tiges	\$62.50

Conditionally Suppress Controls

This document describes how to display or hide a report control in a published document based on a specified logical condition.

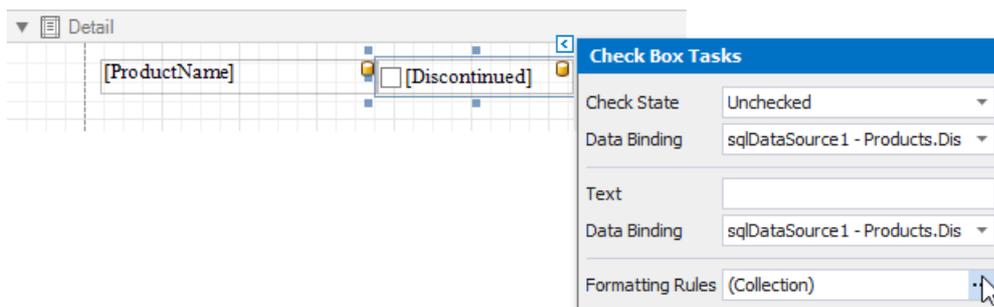
Not e

Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).

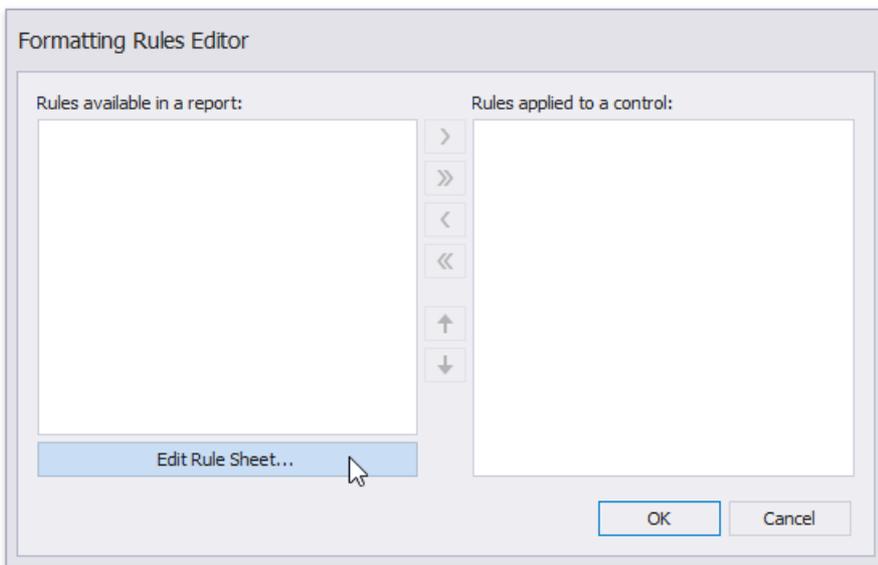


See the [Conditionally Suppress Controls](#) topic in the [Shape Data \(Expression Bindings\)](#) section to learn about an alternative approach.

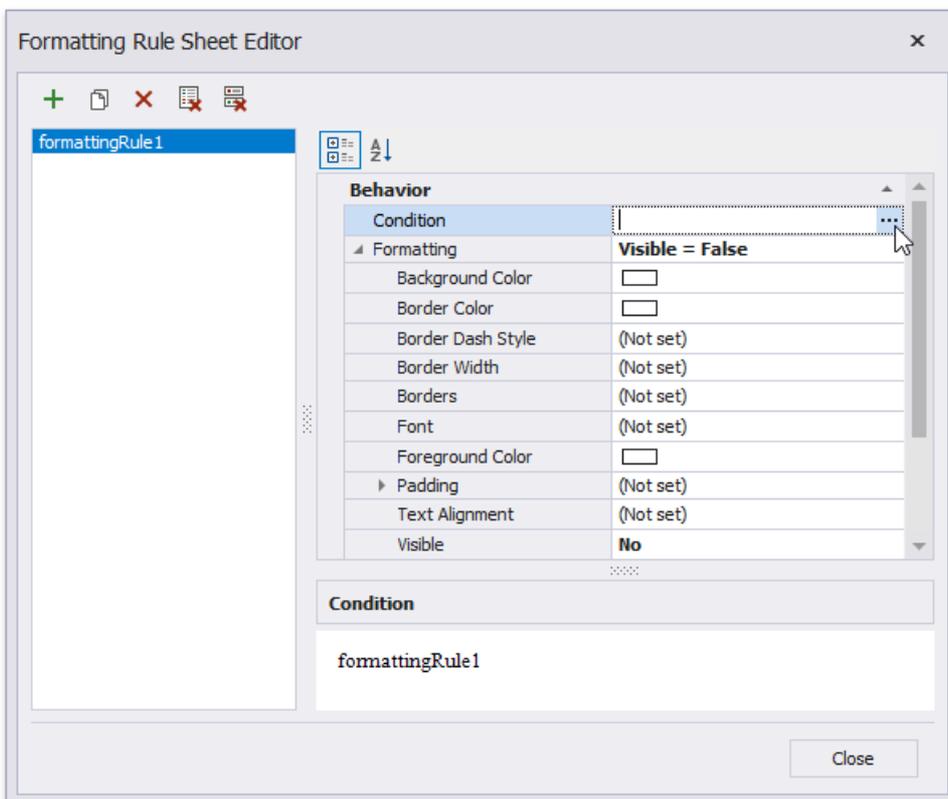
1. [Create a new report](#) or open an existing one and prepare the report layout.
2. Select the required control and click its smart tag. In the invoked actions list, click the **Formatting Rules** property's ellipsis button.



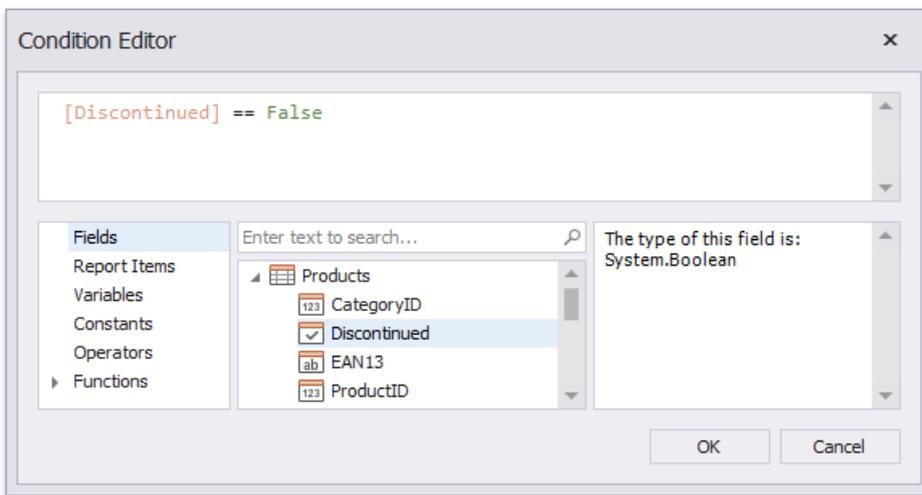
3. In the invoked **Formatting Rules Editor**, click the **Edit Rule Sheet** button.



4. In the invoked **Formatting Rule Sheet Editor**, click the plus button to create a new formatting rule. Set the **Visible** property to **No** and click the **Condition** property's ellipsis button.

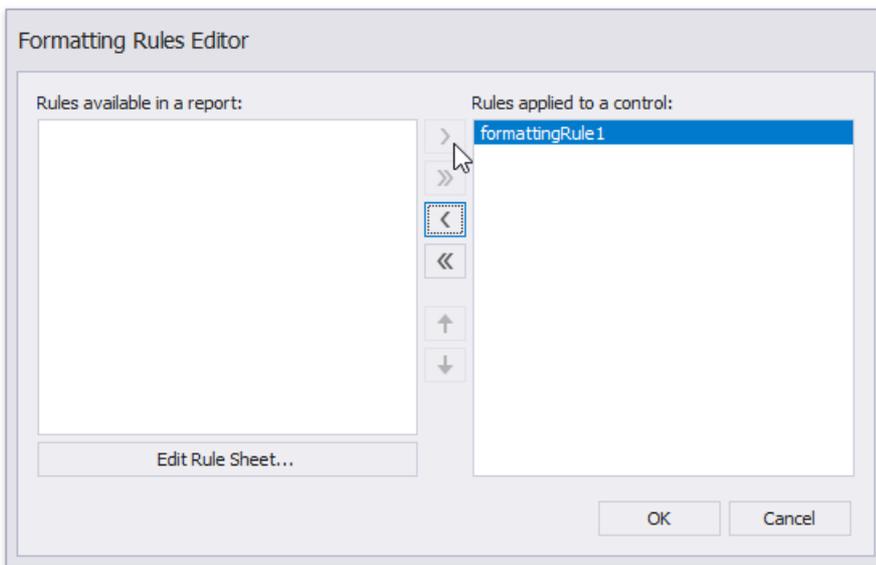


5. In the invoked **Condition Editor**, specify the required visibility condition.



Click **OK** to save the changes and close the dialog. Then, click **Close** to quit the **Formatting Rule Sheet Editor**.

6. In the **Formatting Rules Editor**, you can see the created rule (called **formattingRule1**), which should be moved to the list of active rules on the right using the arrow buttons in the center of the dialog box.



In this editor, you can also customize the precedence of formatting rules using the up and down arrow buttons on the right of the dialog box. The rules are applied in the same order that they appear in the list, and the last rule in the list has the highest priority.

When switching to [Print Preview](#), you can view the report control's visibility changes according to the assigned condition.

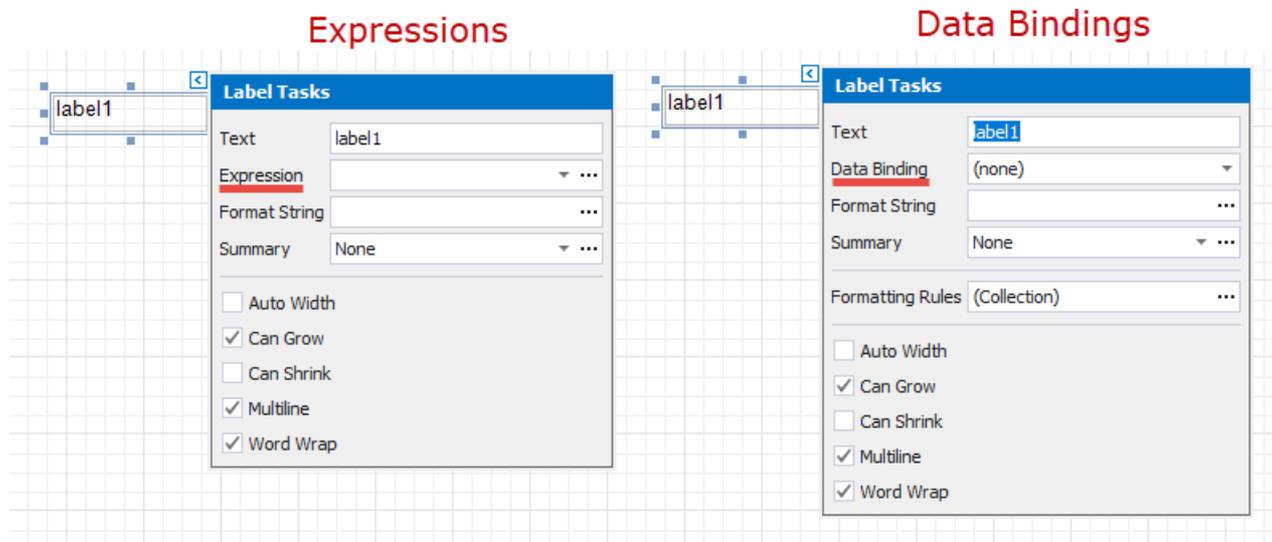
C	
Pavlova	
\1itlri Kobe Niku	True
Gula Malacca	
F1otem _ ;o,Ei:	
Gudbrand , dalsost	
Singaporean Hokkien Fried M ee	True
Rostle Sau-erkraut.	True
Teatime Oho colate Biscuits	

Limit the Number of Records per Page

This document describes how to specify the number of data source records displayed on report pages.

Not e

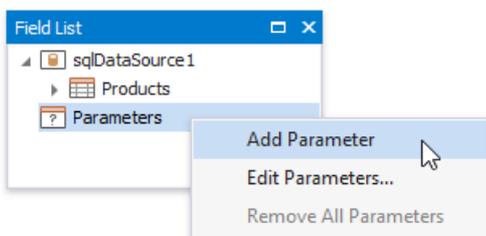
Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).



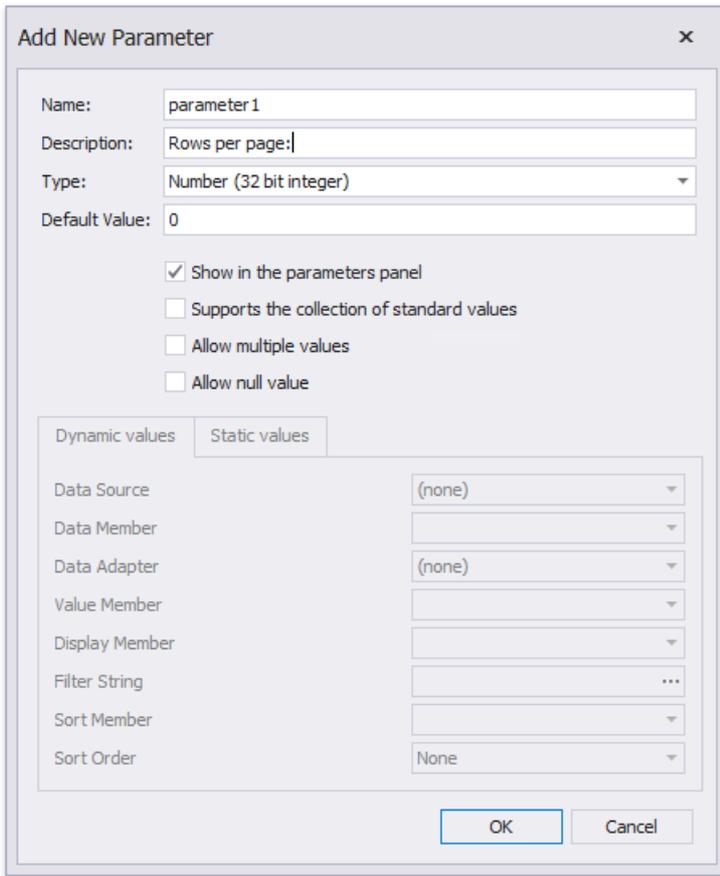
See the [Limit the Number of Records per Page](#) topic in the [Shape Data \(Expression Bindings\)](#) section to learn about an alternative approach.

After you [bound your report to data](#) and provided content to the report's [Detail band](#), you can limit the number of records each report page displays. This example demonstrates how to pass the required record count as a parameter value.

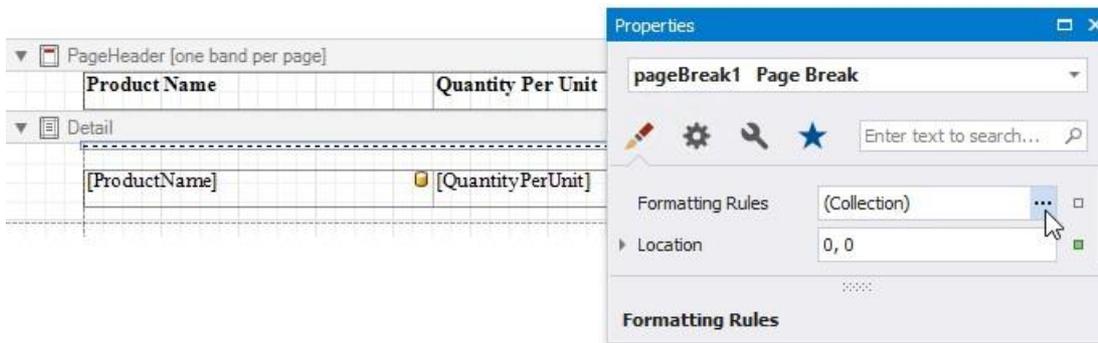
1. Switch to the [Field List](#), right-click the **Parameters** section and add a new report parameter.



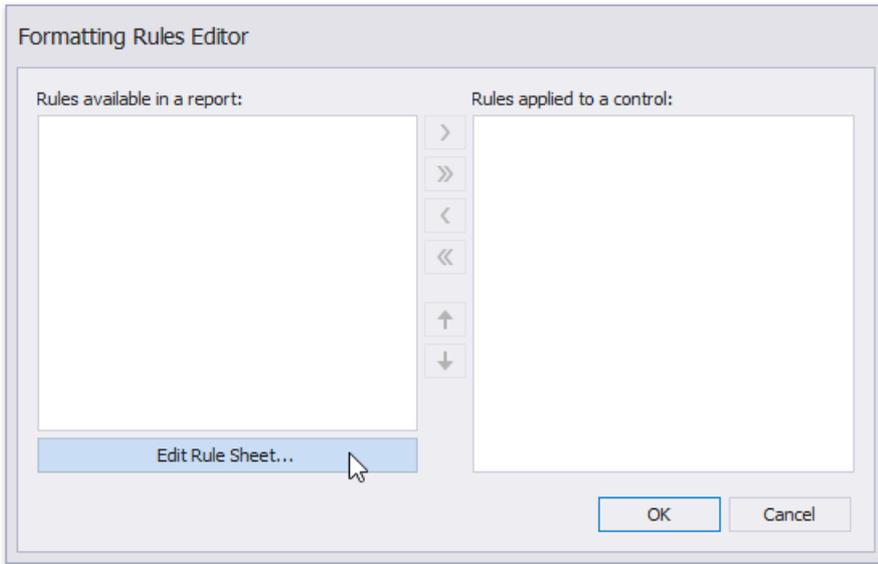
2. Specify the parameter's description displayed in Print Preview and set its type to **Number (Integer)**.



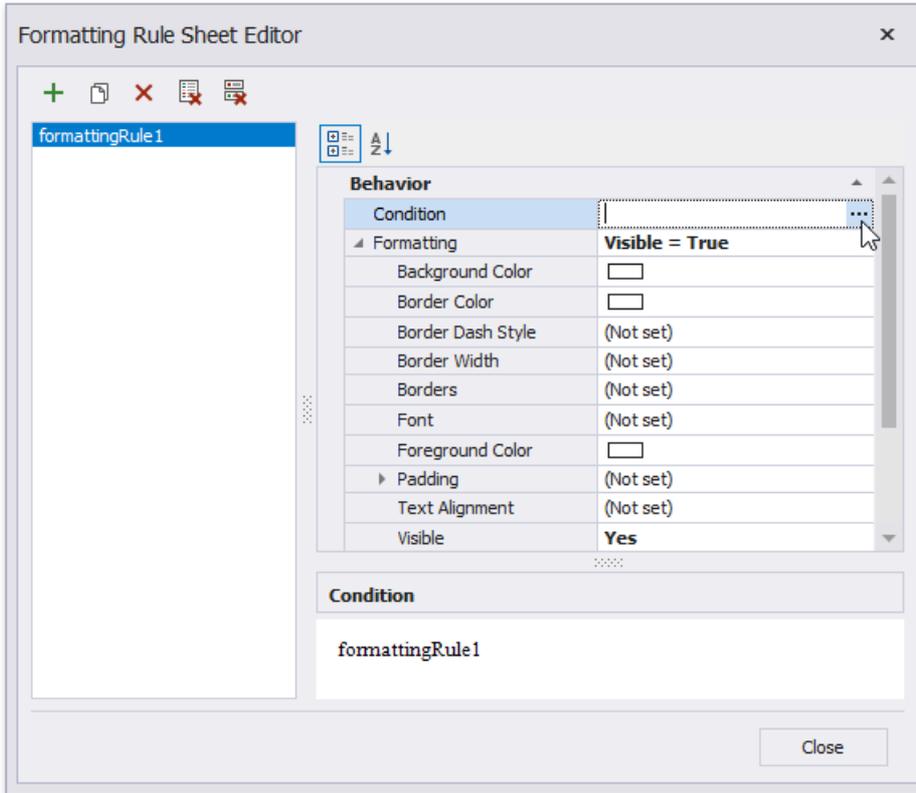
- Drop a **Page Break** control onto the report's Detail band. Disable the control's **Visible** property and click the **Formatting Rules** property's ellipsis button.



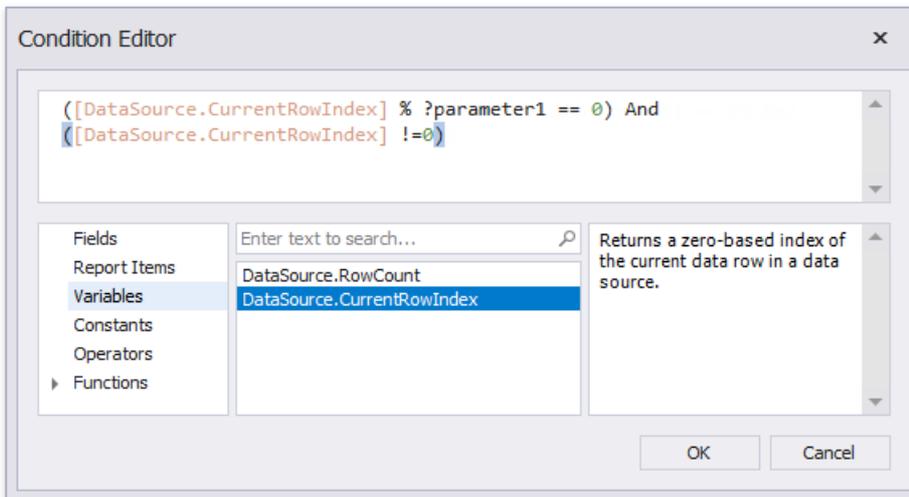
- In the invoked **Formatting Rules Editor**, click the **Edit Rule Sheet** button.



- In the invoked **Formatting Rule Sheet Editor**, click the plus button to create a new formatting rule. Set the **Visible** property to **Yes** and click the **Condition** property's ellipsis button.



- In the invoked **Condition Editor**, specify the required expression.



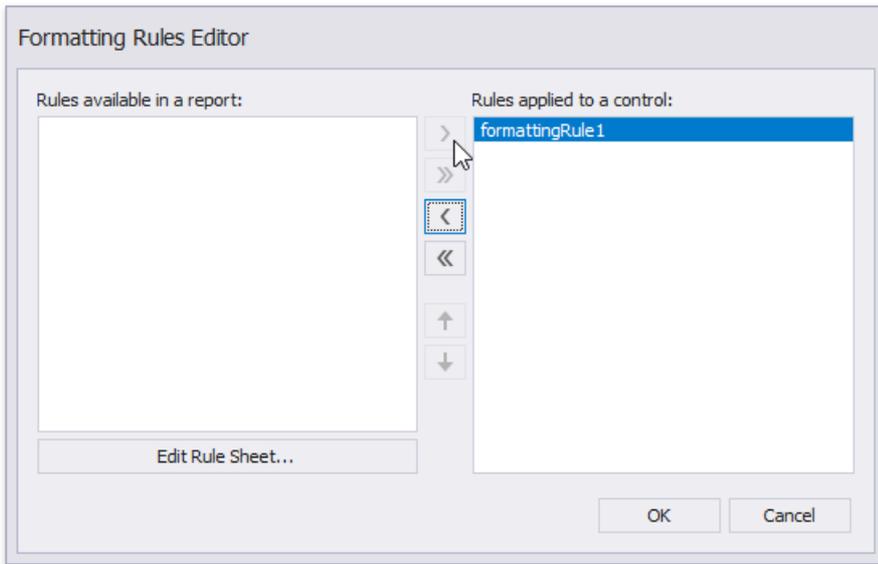
For example:

`([DataSource.CurrentRowIndex] % ?parameter1 == 0) And ([DataSource.CurrentRowIndex] != 0)`

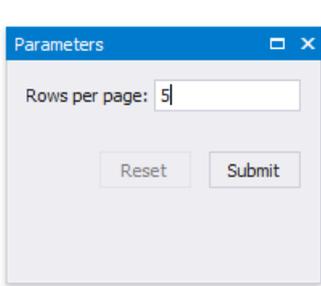
Click **OK**, to save the changes and close the dialog. Then, click **Close** to quit the **Formatting Rule Sheet Editor**.

- In the **Formatting Rules Editor**, you can see the created rule (called **formattingRule1**), which should be moved to the list of active rules on the right using the arrow buttons in the center of the dialog

box.



When switching to [Print Preview](#), you can specify how many rows each report page should display by entering the corresponding parameter value:



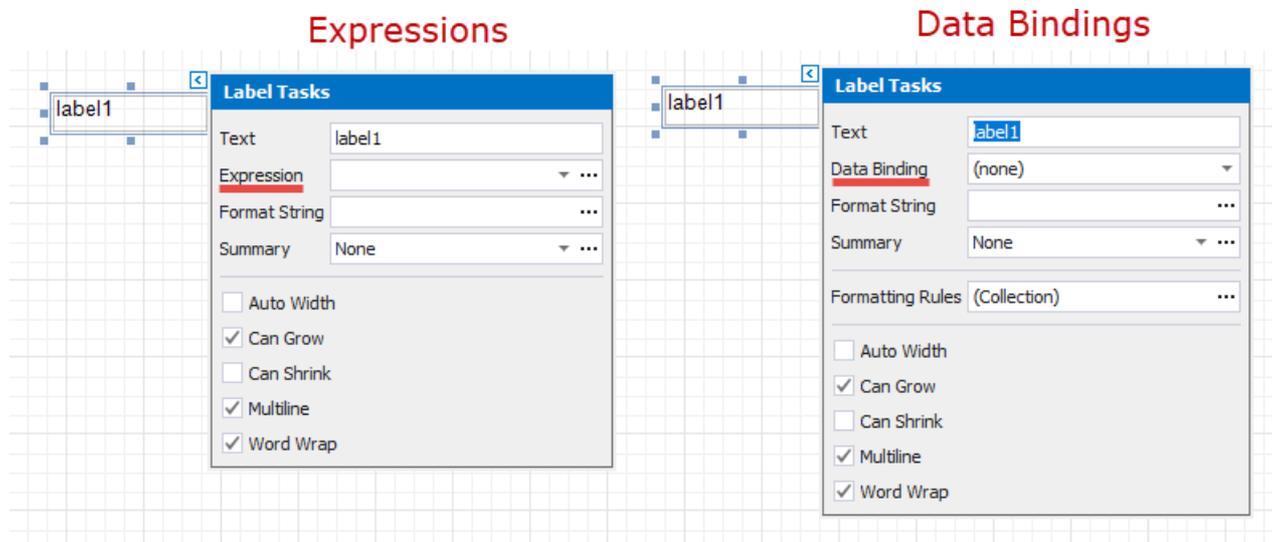
Product Name	Quantity Per Unit	Unit Price
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Aniseed Syrup	12 - 550 ml bottles	\$10.00
Chef Anton's Cajun Seasoning	48 - 6 oz jars	\$22.00
Chef Anton's Gumbo Mix	36 boxes	\$21.35

Calculate a Summary

This tutorial describes the steps required to calculate one of the built-in summary functions in your report.

Note

Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).

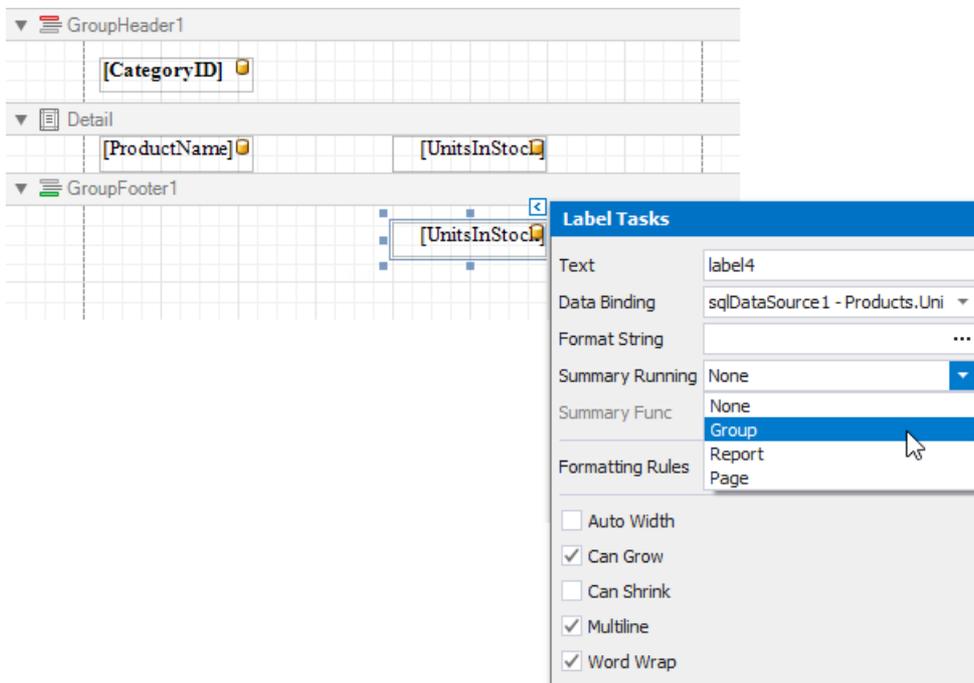


See the [Calculate a Summary](#) topic in the [Shape Data \(Expression Bindings\)](#) section to learn about an alternative approach.

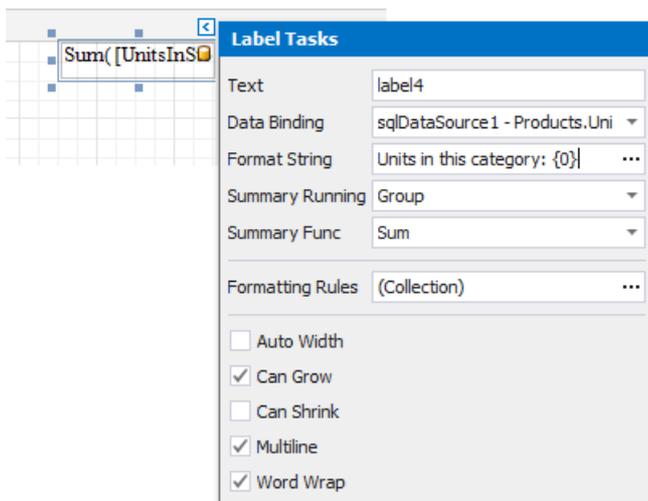
1. [Create a new report](#) or open an existing one and [bind it to a data source](#).
2. Switch to the [Group and Sort](#) panel and group the report's data by the required field. Display the footer for the created group.

Field Name	Sort Order	Show Header	Show Footer
CategoryID	Ascending	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

3. Prepare the report layout and drop a required data field onto the group footer to display the summary result.
4. Click the label's smart tag and invoke its **Summary Running** drop-down list. Select the range for which to calculate a summary (the entire report, a specific report group or document page).



5. Set the **Summary Func** property to **Sum** and use the **Format String** property to format the summary's value.



Switch to [Print Preview](#) to see the result.

Category ID: 1	
Chai	39
Chang	17
Guarani Faniirtica	20
Sas quatch Al;	111
Steeleye St out	20
Cote de Blaye	17
Charrreuse verte	69
Ipoh Coffee	
Laughing Lumberjack Lager	12
Outback Lager	15
Rhonbrau Klosterbier	15
Latlialikci mi	7
Units in thfarnteguy: 559	
- +	

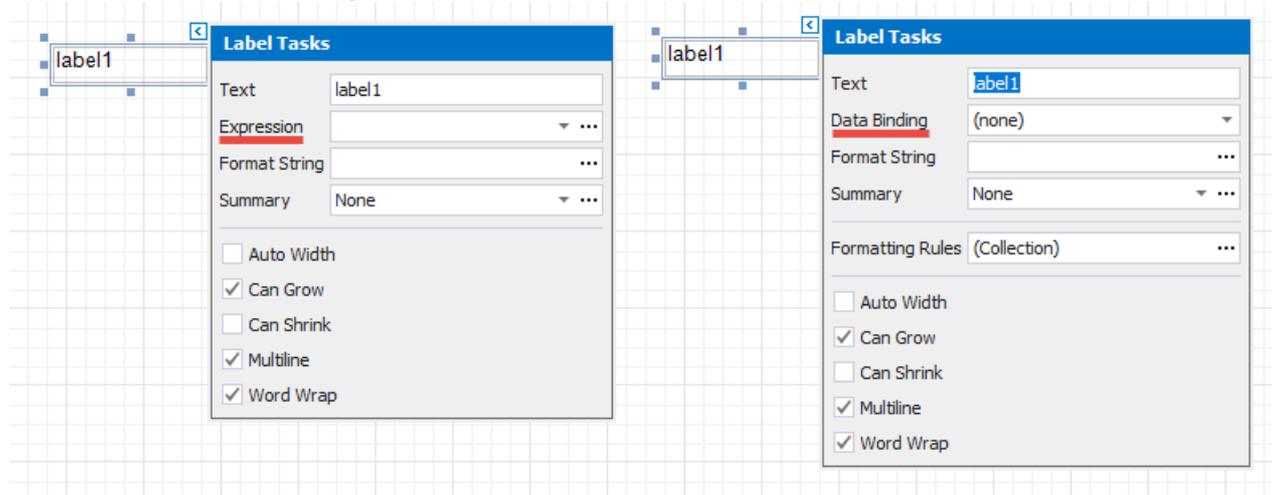
Calculate a Weighted Average

Not e

Use this approach if expressions **are enabled** in the Report Designer (the Label's smart tag includes the **Expression** property).

Expressions

Data Bindings



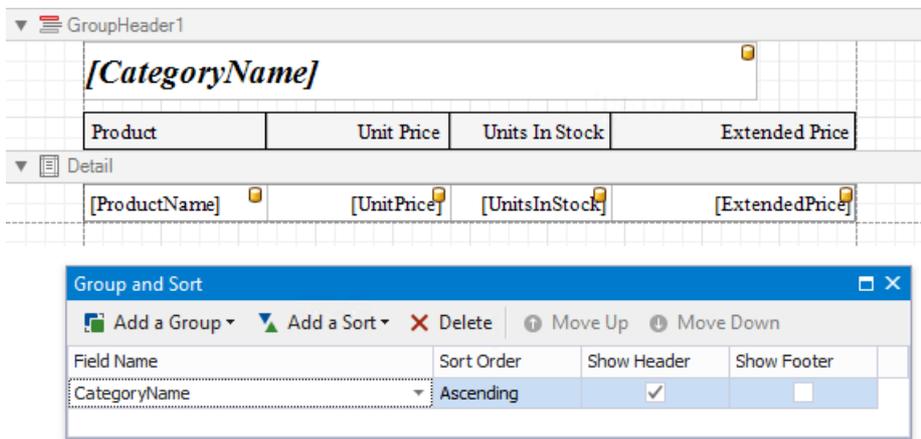
See the [Calculate a Weighted Average](#) topic in the [Shape Data \(Data Bindings\)](#) section to learn about an alternative approach.

<i>Beverages</i>			
Product	Unit Price	Units In Stock	Extended Price
Chai	\$18.00	39	\$702.00
Chang	\$19.00	17	\$323.00
Guaraná Fantástica	\$4.50	20	\$90.00
Sasquatch Ale	\$14.00	111	\$1,554.00
Steeleye Stout	\$18.00	20	\$360.00
Côte de Blaye	\$263.50	17	\$4,479.50
Chartreuse verte	\$18.00	69	\$1,242.00
Ipoh Coffee	\$46.00	17	\$782.00
Laughing Lumberjack Lager	\$14.00	52	\$728.00
Outback Lager	\$15.00	15	\$225.00
Rhönbräu Klosterbier	\$7.75	125	\$968.75
Lakkalikööri	\$18.00	57	\$1,026.00
Weighted Average Price: \$22.33			

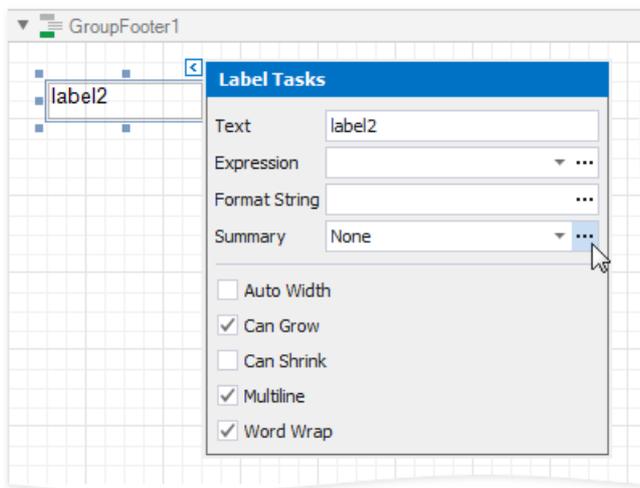
Follow the steps below to calculate a weighted average:

1. [Open an existing report](#) or [create a new one from scratch](#).
2. [Bind a report](#) to a required data source.

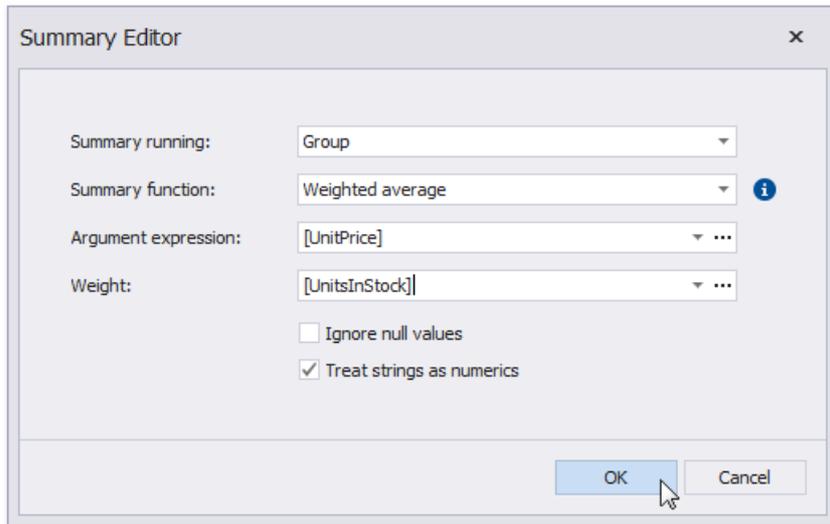
3. [Group the report's data](#) using the [Group and Sort Panel](#) and construct a layout like the following:



4. Add the **Group Footer** band to the report and drop a **Label** control on this band to display the summary result. Click the label's smart tag, then click the Summary field's ellipsis button.



5. In the invoked **Summary Editor** window:
 - o Set the **Summary Running** property to **Group**.
 - o Set the **Summary Function** property to **Weighted average**.
 - o Set the **Argument Expression** property to the field to count the weighted average on, and the **Weight** property to the field that provides weights.



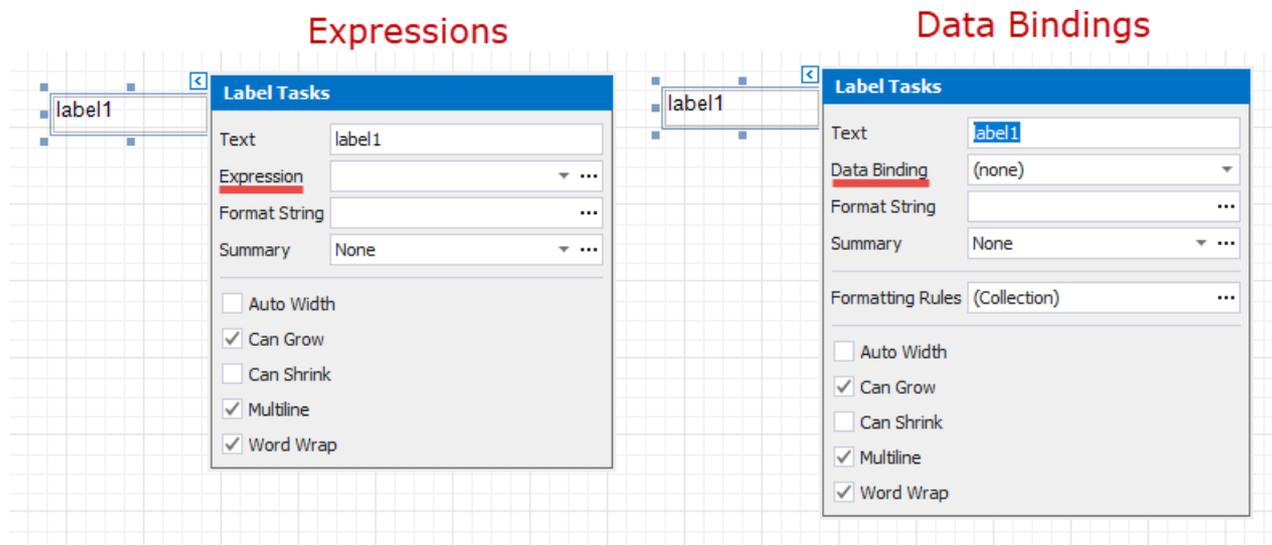
6. You can also use the control's **Format String** property to format the summary value. For instance, set this property to **Weighted Average Price: {0:c2}**.

Calculate a Custom Summary

This tutorial describes the steps required to calculate a custom summary that is not one of the built-in summary functions.

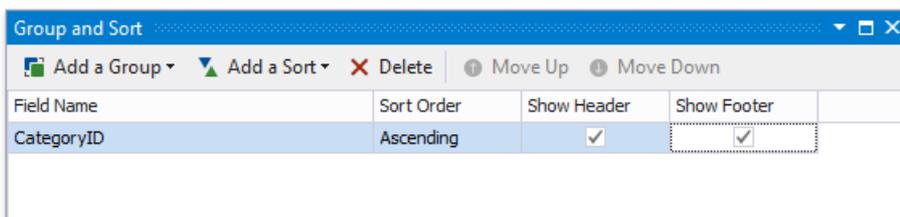
Note

Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).

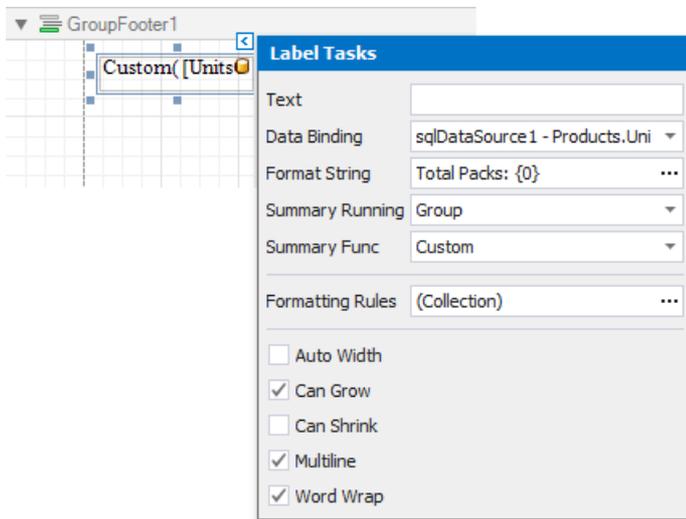


See the [Calculate an Advanced Summary](#) topic in the [Shape Data \(Expression Bindings\)](#) section to learn about an alternative approach.

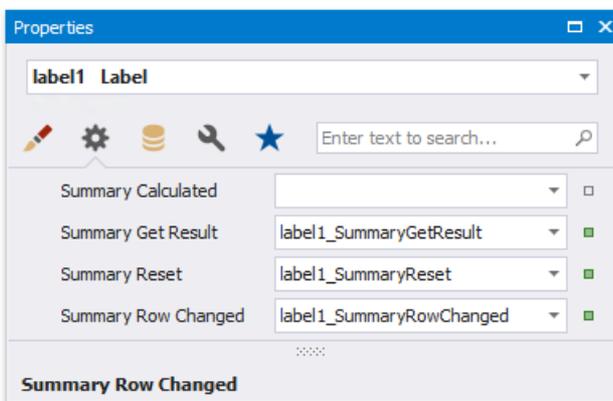
1. [Create a new report](#) or open an existing one and [bind it to a data source](#).
2. Switch to the [Group and Sort](#) panel and group the report's data by the required field. Display the footer for the created group.



3. Drop a required data field onto the group footer to display the summary result. Click the label's smart tag and set its **Summary Running** property to **Group**. Set the **Summary Func** property to **Custom** and use the **Format String** property to format the summary's value.



4. When selecting the **Custom** option, three more events are added to the label's **Scripts** list: **Summary Get Result**, **Summary Reset** and **Summary Row Changed**.



You can handle these events in the following way using the [Script Editor](#).

C#

```

// Declare a summary and a pack.
double totalUnits = 0;
double pack = 15;

private void OnSummaryReset(object sender, System.EventArgs e) {
    // Reset the result each time a group is printed.
    totalUnits = 0;
}

private void OnSummaryRowChanged(object sender, System.EventArgs e) {
    // Calculate a summary.
    totalUnits += Convert.ToDouble(GetCurrentValue("UnitsOnOrder"));
}

private void OnSummaryGetResult(object sender,
DevExpress.XtraReports.UI.SummaryGetResultEventArgs e) {
    // Round the result, so that a pack will be taken into account
    // even if it contains only one unit.
    e.Result = Math.Ceiling(totalUnits / pack);
    e.Handled = true;
}

```

VB.NET

Switch to [Print Preview](#) to see the result.

Product Category ID: 1	
Product Name	Units On Order
Chang	40
Ipoh Coffee	10
Outback Lager	10
Total Packs: 4	
Product Category ID: 2	
Product Name	Units On Order
Aniseed Syrup	70
Louisiana Hot Spiced Okra	100
Total Packs: 12	

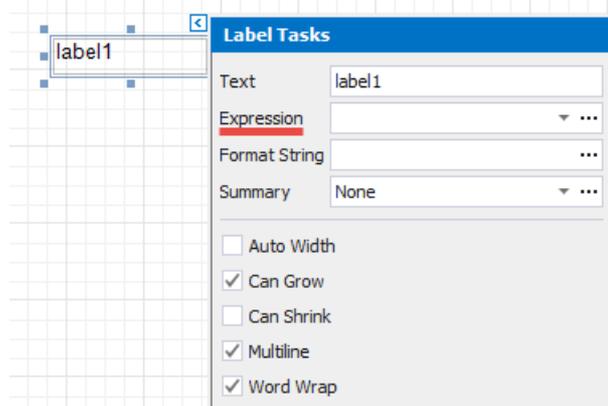
Display Row Numbers in a Report, Group or Page

This document describes how to show the current row number for each data source value displayed in a report.

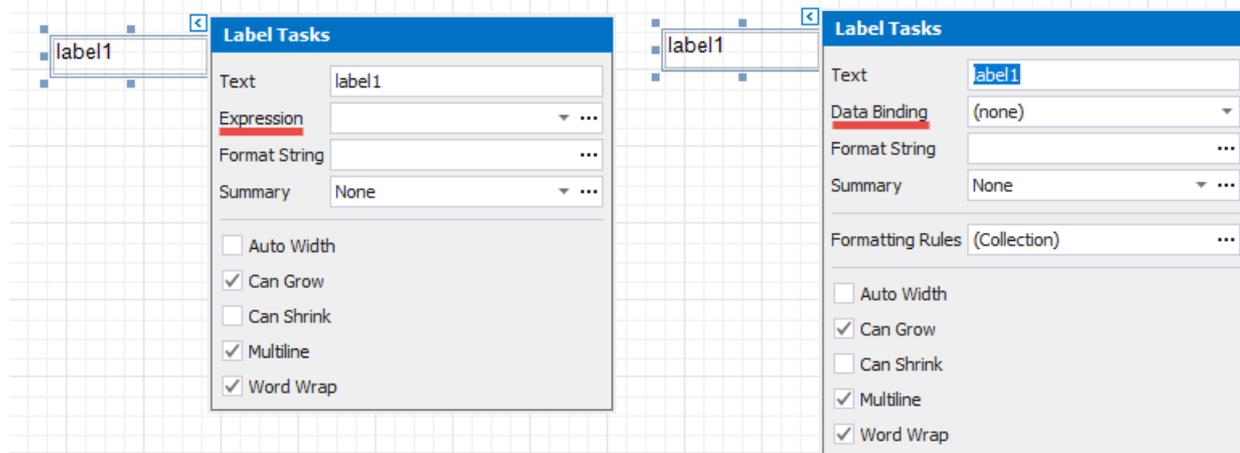
Note

Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).

Expressions



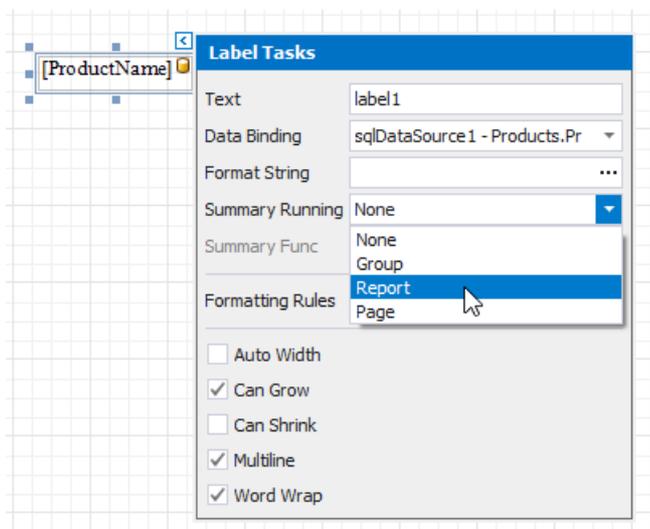
Data Bindings



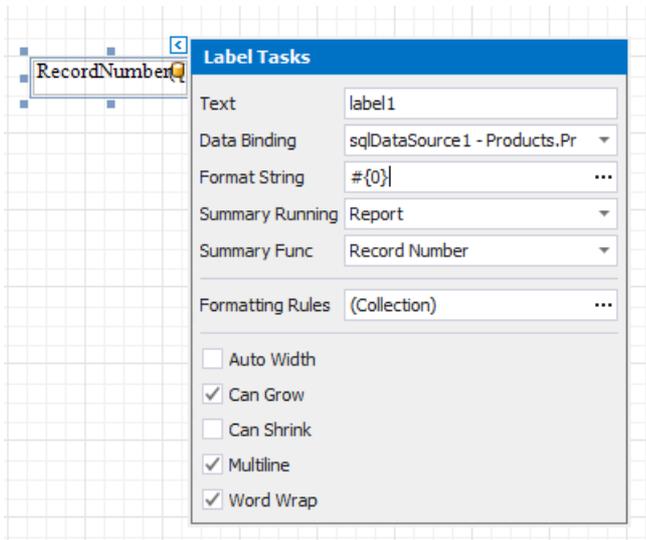
See the [Display Row Numbers in a Report, Group or Page](#) topic in the [Shape Data \(Expression Bindings\)](#) section to learn about an alternative approach.

A label can display row numbers after [binding your report to data](#) and specifying a bound data field.

1. Click the label's smart tag and invoke its **Summary Running** drop-down list. Select **Report** to increment the row numbers throughout the entire report, or select **Group** or **Page** to reset the row numbers for every group or page.



2. Set the **Summary Func** property to **Record Number** and use the **Format String** property to format the summary's value.



You can switch to [Print Preview](#) to see the record numbers displayed for the specified range.

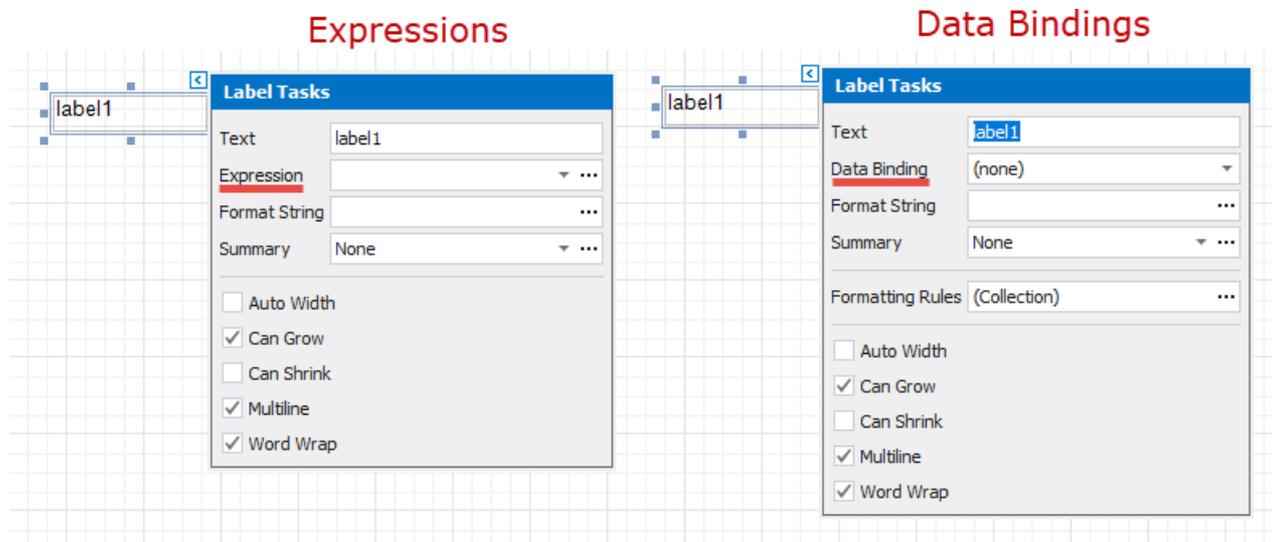
#1	Uncle Bob's Organic Dried Pears
#2	Mishi Kobe Niku
#3	Tofu
#4	Alice Mutton
#5	Rössle Sauerkraut
#6	Thüringer Rostbratwurst
#7	Manjimup Dried Apples
#8	Perth Pasties
#9	Tourtière
#10	Pâté chinois
#11	Longlife Tofu

Count the Number of Records in a Report or Group

This document describes how to display the number of records in a report or group.

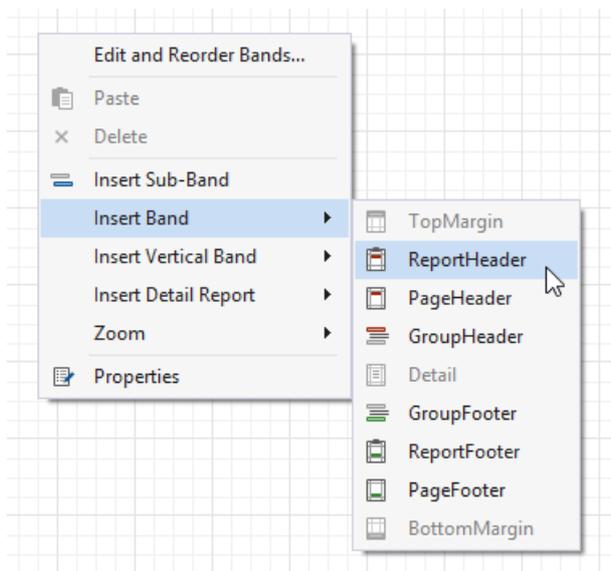
Not e

Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).



See the [Count the Number of Records in a Report or Group](#) topic in the [Shape Data \(Expression Bindings\)](#) section to learn about an alternative approach.

1. Right-click the report's design surface and add a Report Header or Footer to display the record count for the entire report.

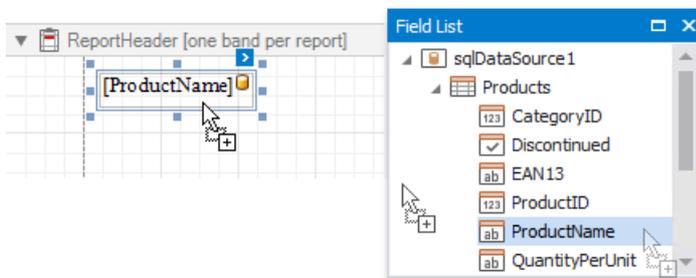


Not e

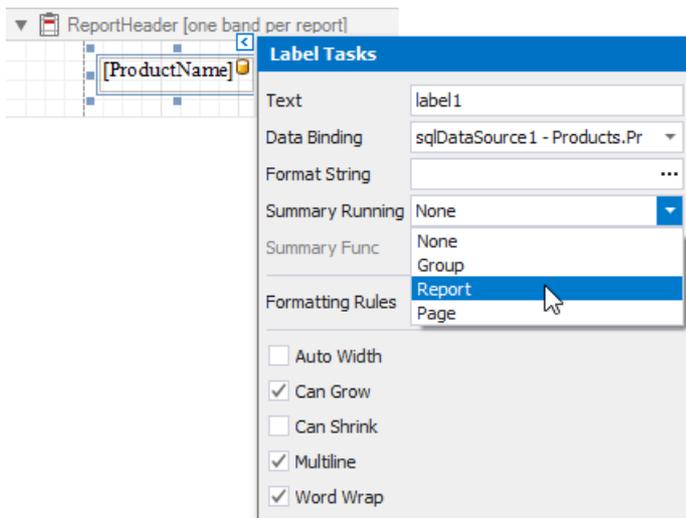
Use a Group Header/Footer for displaying record counts for groups, and a Page Header/Footer for displaying record counts for pages.

2. Switch to the [Field List](#) and drop the corresponding data table field onto the created band to create a

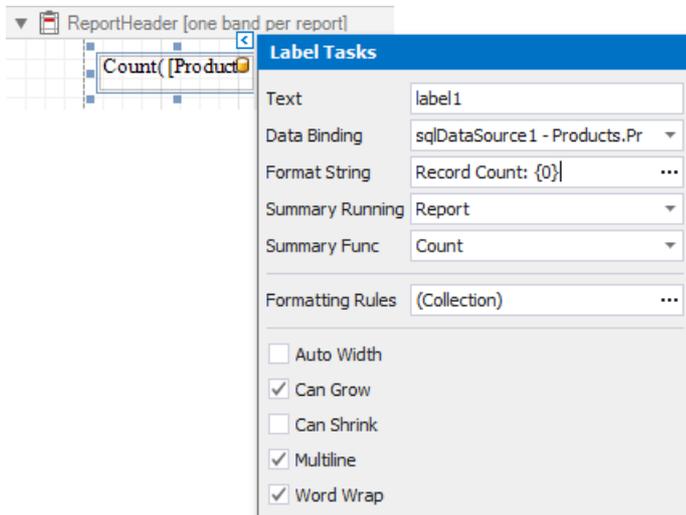
data-bound label.



3. Click the label's smart tag and invoke its **Summary Running** drop-down list. Select **Report** to count the records throughout the entire report, or select **Group** or **Page** to reset the record count for every group or page.



4. Set the **Summary Func** property to **Count** and use the **Format String** property to format the summary's value.



You can switch to [Print Preview](#) to see the resulting report.

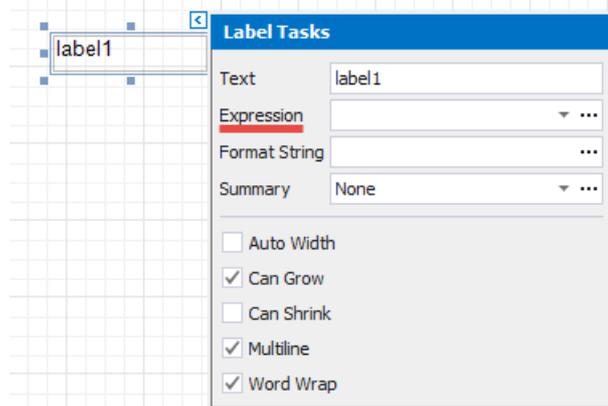
Count the Number of Groups in a Report

This document describes how to count the number of groups in a report.

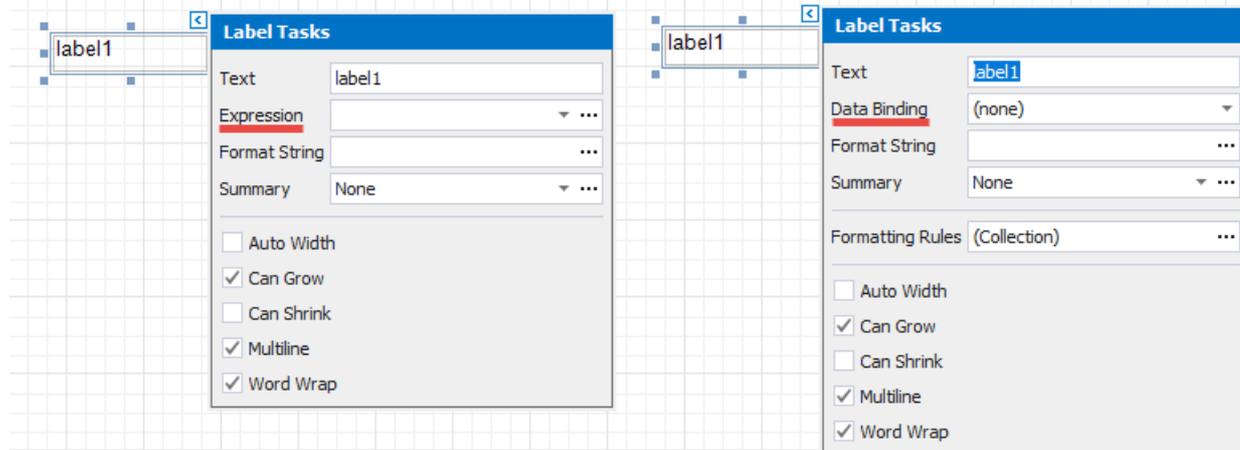
Not e

Use this approach if data bindings **are enabled** in the Report Designer (the Label's smart tag includes the **Data Binding** property).

Expressions

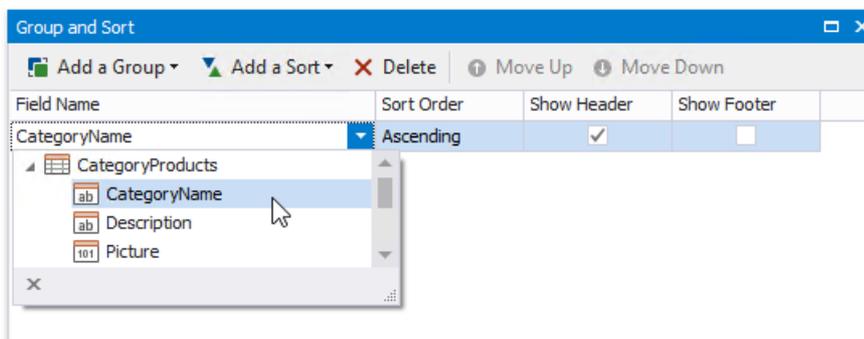


Data Bindings

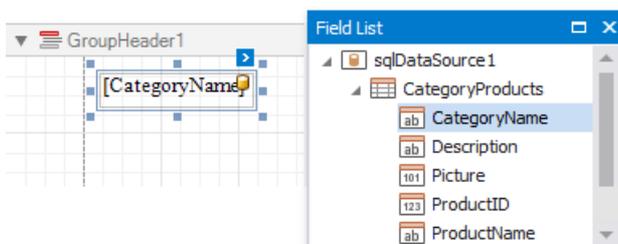


See the [Count the Number of Groups in a Report](#) topic in the [Shape Data \(Expression Bindings\)](#) section to learn about an alternative approach.

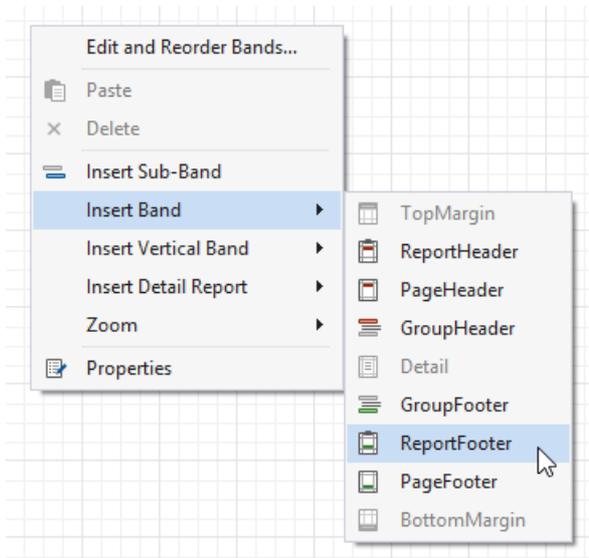
1. Switch to the [Group and Sort](#) panel and create a new group. Enable the **Show Header** option to display the Group Header in the report.



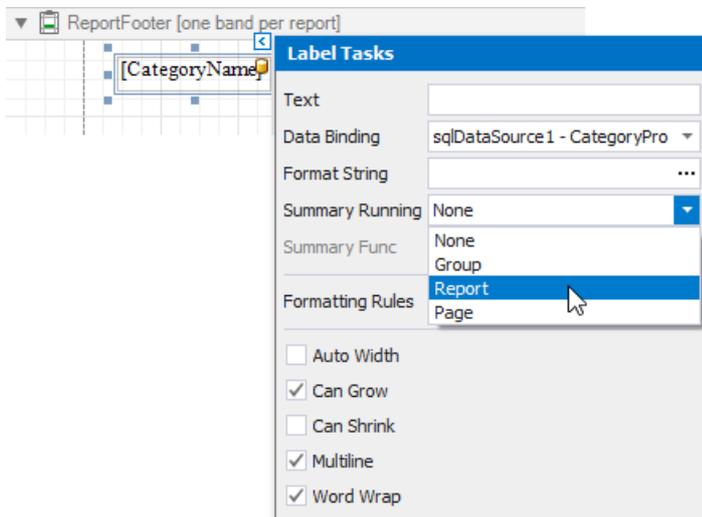
2. Switch to the [Field List](#) and drop the group field onto the created Group Header.



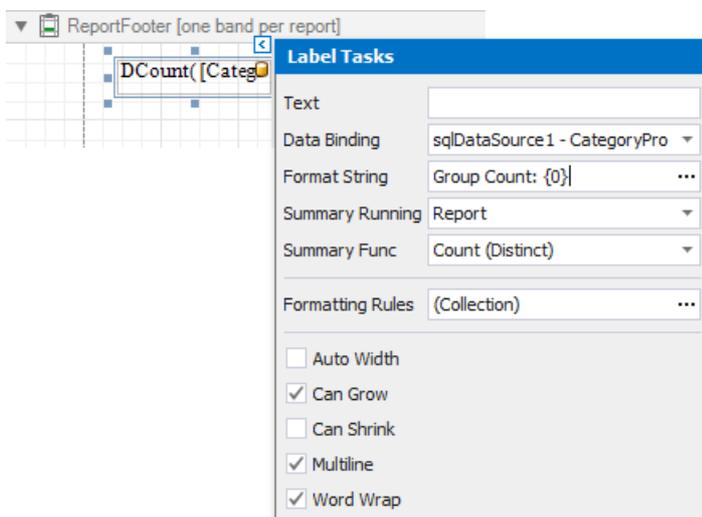
3. Right-click the report's surface and add a Report Footer to the report.



- Drop the group field onto the Report Footer and invoke its smart tag. Set its **Summary Running** property to **Report**.



- Set the **Summary Func** property to **Count (Distinct)** and use the **Format String** property to format the summary's value.



You can see the group count in the report footer when switching to [Print Preview](#).

Meat/Poultry

Yishu Kobe Niku
Alice Mutton
Thuringer Rostbratwurst
Perth Pasties
Tourtiere
Pate Dhinois

Produce

Uncle Bob's Organic Dried Peas
Tofu
Rostle Sauerkraut
Manjimup Dried Apples
Longlife Tofu

Group Count: 2

Use Calculated Fields

The topics in this section describe how to add custom fields to a report's data source and use them to perform various calculations in the report:

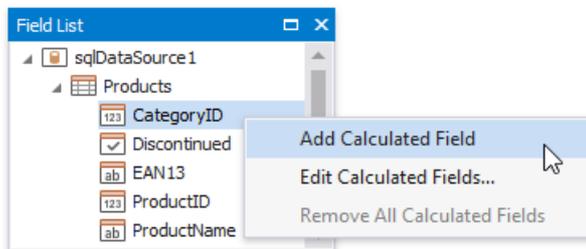
- [Calculated Fields Overview](#)
- [Calculate an Aggregate Function](#)

Calculated Fields Overview

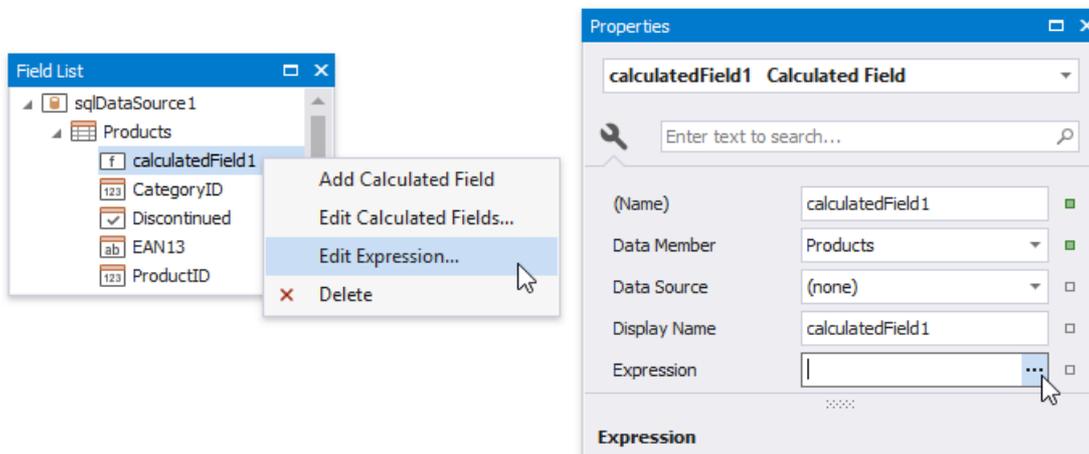
Calculated fields are primarily used in data-aware reports when using both [standard data binding](#) and [mail merge](#). Calculated fields allow you to pre-process a report's input data, based on a certain expression. So, using calculated fields allows you to apply complex expressions to one or more data fields that are obtained from your report's underlying data source. Moreover, you can both [group](#) and [sort](#) your report data based on a calculated field's value.

Calculated Fields Overview

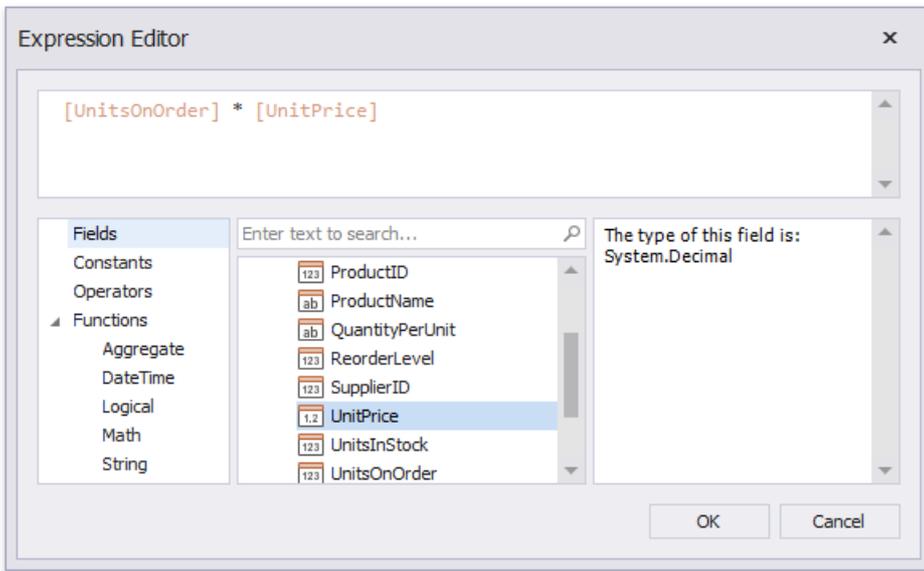
To create a calculated field, switch to the [Field List](#), right-click any item inside the data source and select **Add Calculated Field**.



Right-click the calculated field in the **Field List** and select **Edit Expression**. Alternatively, you can select the calculated field, and in the [Property Grid](#), click the **Expression** property's ellipsis button.



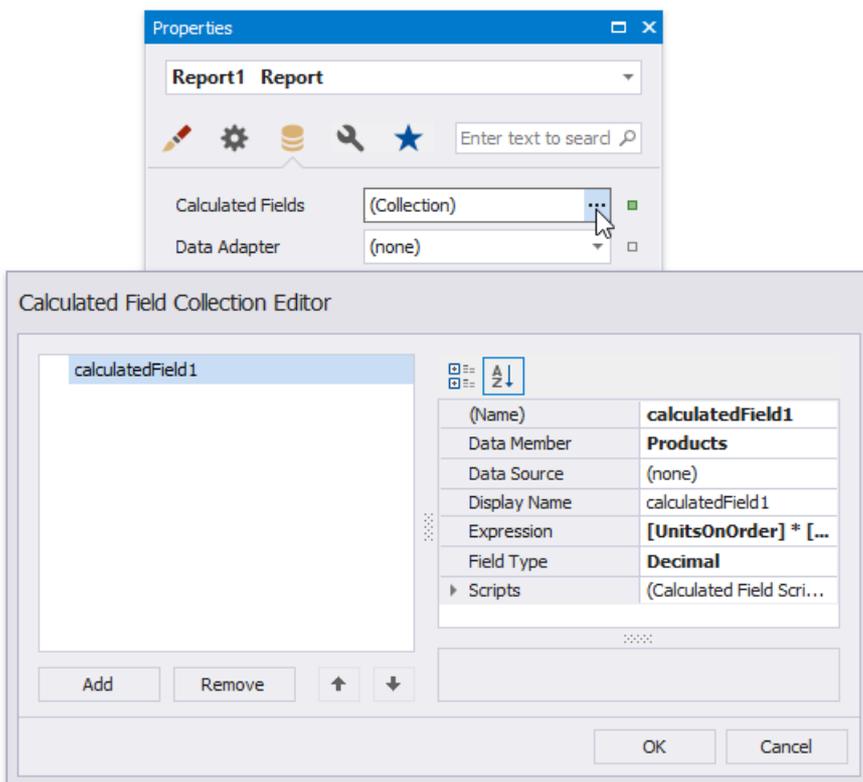
In the invoked **Expression Editor**, construct the required expression. You can use data fields, [report parameters](#), predefined constants as well as various date-time, logical, math and string functions. See the next document section for more information about expression syntax.



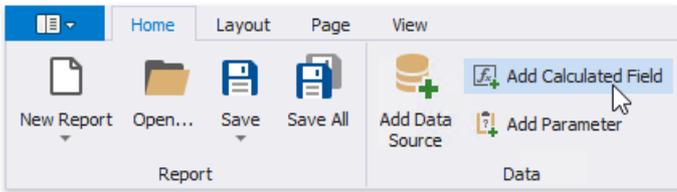
Not e

The Expression Editor displays only those data fields that are obtained from a data source specified by the calculated field's **Data Source** and **Data Member** property values.

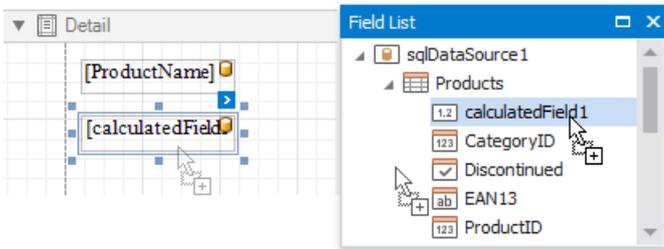
The report's **Calculated Fields** property provides access to the calculated field collection.



You can click the **Add Calculated Field** button in the **Toolbar's Home** tab to invoke the **Calculated Field Collection Editor**.



You can drag the calculated field from the **Field List** onto the required band like an ordinary data field.



You can also group and sort your report data based on the calculated field values.

Expression Syntax

A data field is inserted into the expression's text using its name in [square brackets], and parameters are inserted using a question mark before their names.

A calculated field's expression can evaluate the values of other calculated fields if you make sure to avoid circular references.

Not e

When creating calculated fields, avoid dots in their names, because reports use them to address data source members.

Date-time constants must be wrapped in hashtags (#) (e.g., **[OrderDate] >= #1/1/2009#**). To represent a null reference (one that does not refer to any object), use a question mark (e.g., **[Region] != ?**). To denote strings, use apostrophes ('), otherwise an error will occur.

To embed an apostrophe into an expression's text, it should be preceded by another apostrophe (e.g., **'It's sample text'**). The type of a value returned by a calculated field is defined by its **Field Type** property.

If a calculated field expression involves the use of different types, it is necessary to convert them to the same type (e.g.,

Max(ToDecimal([Quantity]),[UnitPrice])

Although a value that is returned by a calculated field is usually converted to a string (to be displayed in a text-aware report control), it can return a value of any kind. For example, if a database field contains an image, you can set a calculated field's expression to **"=..."**, after which this calculated field can be bound to the [Picture Box](#) control.

To construct a valid aggregate expression, use the following format, which consists of four parts.

[<Collection>][<Condition>].<Aggregate>(<Expression>)

- **<Collection>** - Specifies a collection against which an aggregated value should be calculated. It can be the relationship name in a case of a master-detail relationship, or the name of a collection property exposed by the target class. For example, **[CategoriesProducts][[CategoryId]>5].Count()**. Empty brackets [] indicate the root collection.
- **<Condition>** - Specifies a condition defining which records should participate in calculating an aggregate function. To obtain an aggregated value against all records, delete this logical clause along with square

brackets (for example, `[].Count()`).

- `<Aggregate>` - Specifies one of the available aggregate functions.
- `<Expression>` - Specifies an expression evaluating values to be used to perform calculation. For example, `[[[CategoryID] > 5].Sum([UnitPrice]*[Quantity])]`. The **Count** function does not require field values to count the records, so leave the round brackets empty for this function.

You can refer to the currently processed group using the Parent Relationship Traversal Operator ('^'). This allows you to calculate aggregates within groups using expressions like the following: `[[[^.CategoryID] == [CategoryID]].Sum([UnitPrice])]`.

For more information, see [Expression Syntax](#).

Examples

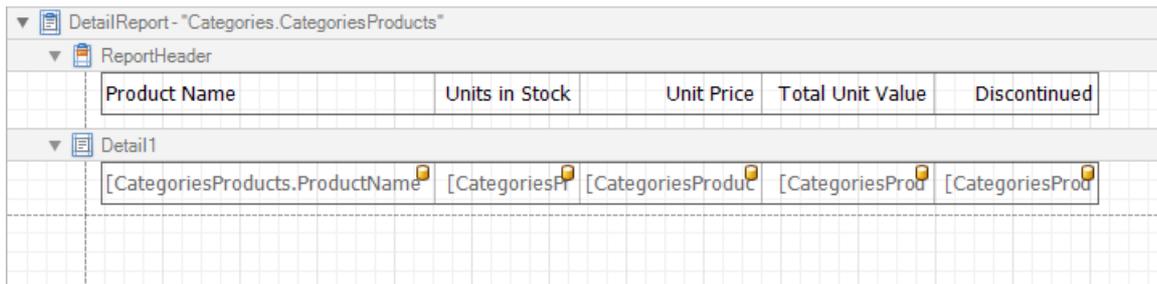
The following tutorials demonstrate the use of calculated fields in various environments:

- [Calculate an Aggregate Function](#)
- [Function Calculate a Weighted Average Function Sort Data by a Custom Field](#)
- [Group Data by a Custom Field](#)

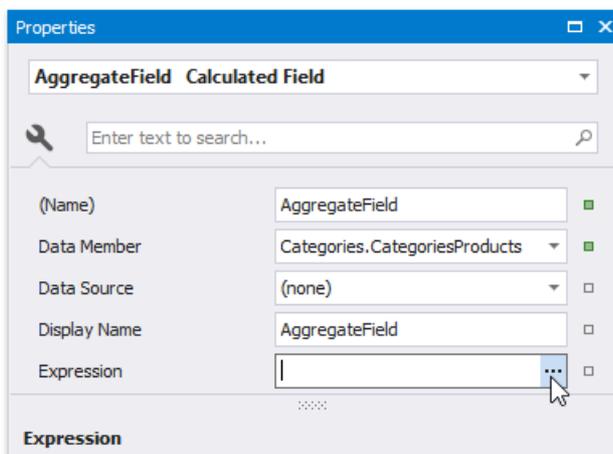
Calculate an Aggregate Function

This tutorial describes the steps required to create a report with an *aggregate function*. In this example, products that are not discontinued and have a total unit value greater than \$500 will be displayed.

1. Create a new or open an existing data-bound report. This tutorial starts with the following report layout:

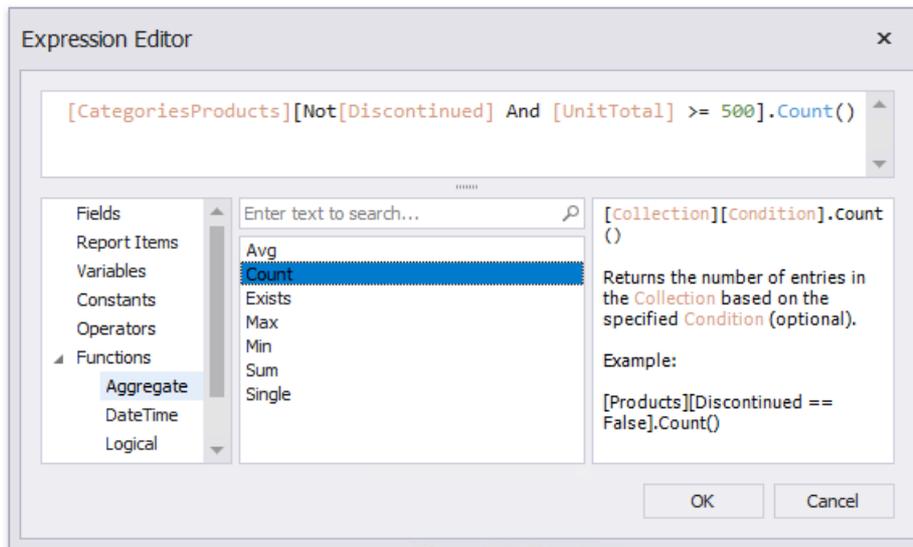


2. Create a new [calculated field](#) and set the field name to "AggregateField".
3. Select the calculated field, switch to the [Property Grid](#) and click the **Expression** property's ellipsis button.



- In the invoked **Expression Editor**, double click the **[CategoriesProducts]** field and choose **Functions | Aggregate**. Then, double click the **Count()** function and insert the following text into the empty square brackets:

"Not[Discontinued]And[UnitTotal] >= 500".



To construct a valid aggregate expression, use the following format, which consists of four parts.

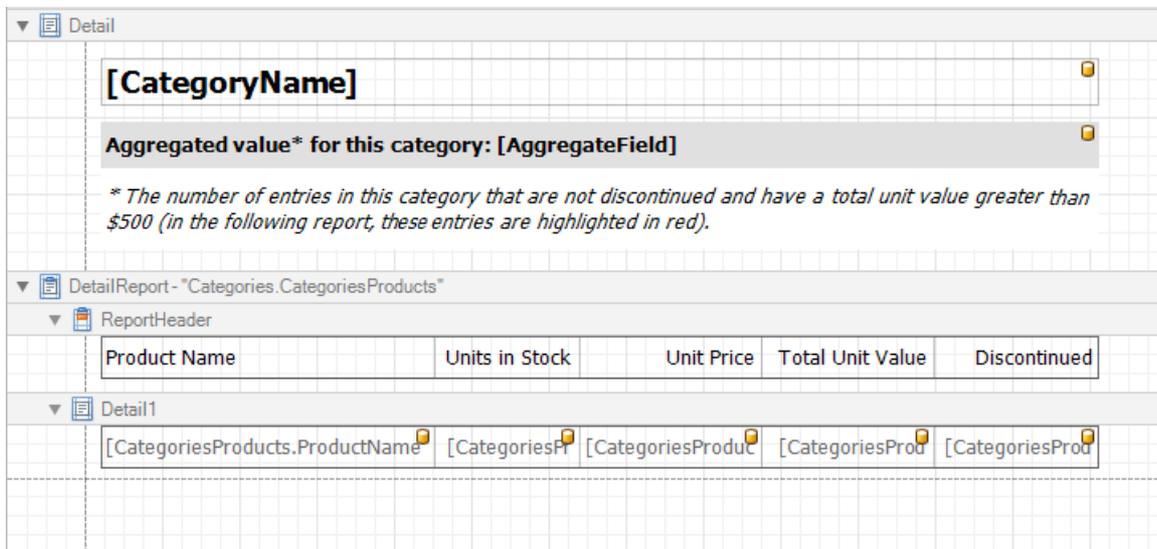
[<Collection>][<Condition>].<Aggregate>(<Expression>)

- *<Collection>* - Specifies a collection against which an aggregated value should be calculated. It can be the relationship name in a case of a master-detail relationship, or the name of a collection property exposed by the target class. For example, *[CategoriesProducts][[CategoryID]>5].Count()*. Empty brackets [] indicate the root collection.
- *<Condition>* - Specifies a condition defining which records should participate in calculating an aggregate function. To obtain an aggregated value against all records, delete this logical clause along with square brackets (for example, *[].Count()*).
- *<Aggregate>* - Specifies one of the available aggregate functions.
- *<Expression>* - Specifies an expression evaluating values to be used to perform calculation. For example, *[][[CategoryID] > 5].Sum([UnitPrice]*[Quantity])*. The **Count** function does not require field values to count the records, so leave the round brackets empty for this function.

You can refer to the currently processed group using the Parent Relationship Traversal Operator ('^'). This allows you to calculate aggregates within groups using expressions like the following: *[][[^.CategoryID] == [CategoryID]].Sum([UnitPrice])*.

For more information, see [Expression Syntax](#).

- Click **OK** to close the dialog and save the expression.
- Add three **Labels** to the **Detail Band** and customize their content as shown in the following image:



The report is now ready. Switch to [Print Preview](#) to see the result.

Use Report Parameters

The topics in this section describe how to use parameters

- in a report: [Parameters Overview](#)
 - Describes how to create and use report parameters. [Multi-Value and Cascading](#)
 - [Report Parameters](#)

Explains how to configure report parameters to accept multiple values and filter a parameter's values based on another parameter's value.
 - [Date Range Parameters](#)

Describes how to create date range parameters to filter report data by a specific time period. [Request and Pass Report Parameter Values](#)
 - Illustrates how to assign default and custom values to a report's parameters and describes the editors that are used to request these values in a Print Preview.
 - [Query Parameters](#)

Explains how to link report parameters to query parameters defined in your report's data source.

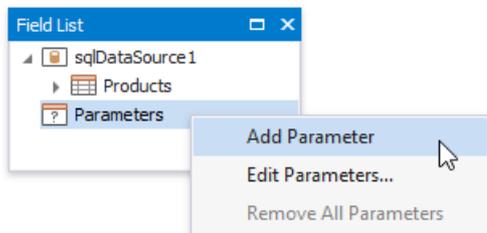
Parameters Overview

You can use report parameters to pass data to a report before it is generated. Parameter values are specified in Print Preview's

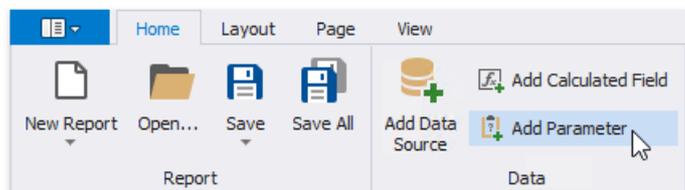
Parameters panel.

Add Parameters

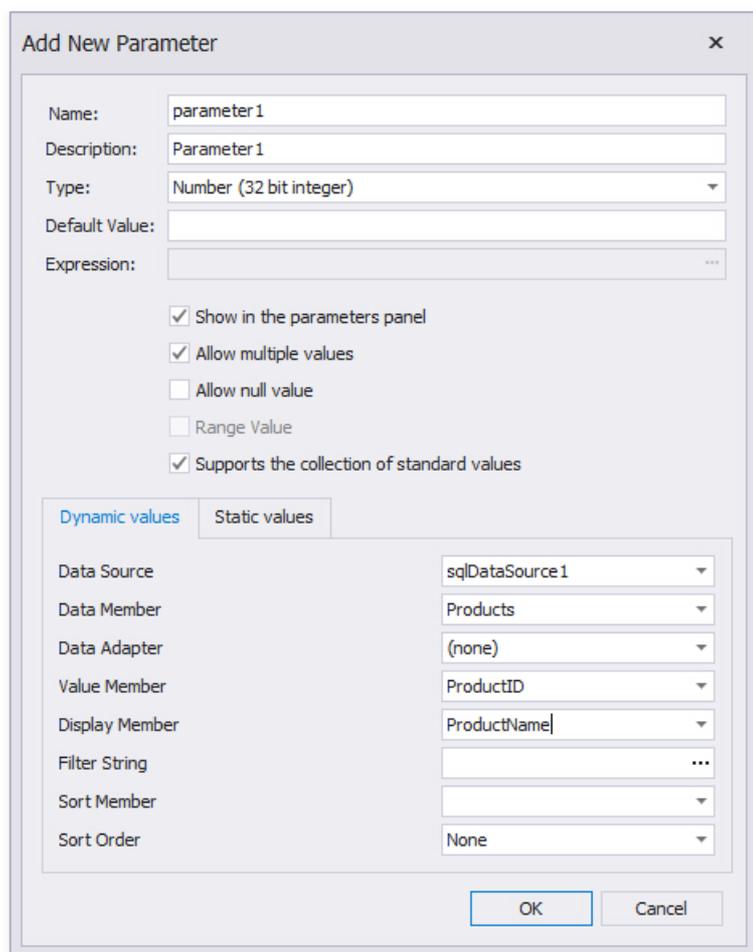
Switch to the [Field List](#), right-click the **Parameters** node and click **Add Parameter** in the context menu to create a report parameter.



Alternatively, you can click the **Add Parameter** button in the **Toolbar's Home** tab.



This invokes the **Add New Parameter** dialog where you can configure the created parameter.



The dialog provides the following options:

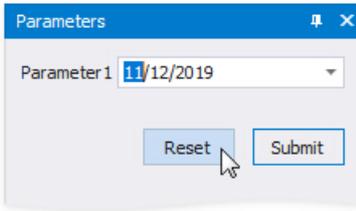
- **Name**
Specifies the unique name by which you can refer to the parameter.
- **Description**
Specifies the text that appears in Print Preview alongside with the value editor.

- **Type**

Specifies the parameter's value type. A value editor for the specified type is displayed in Print Preview.

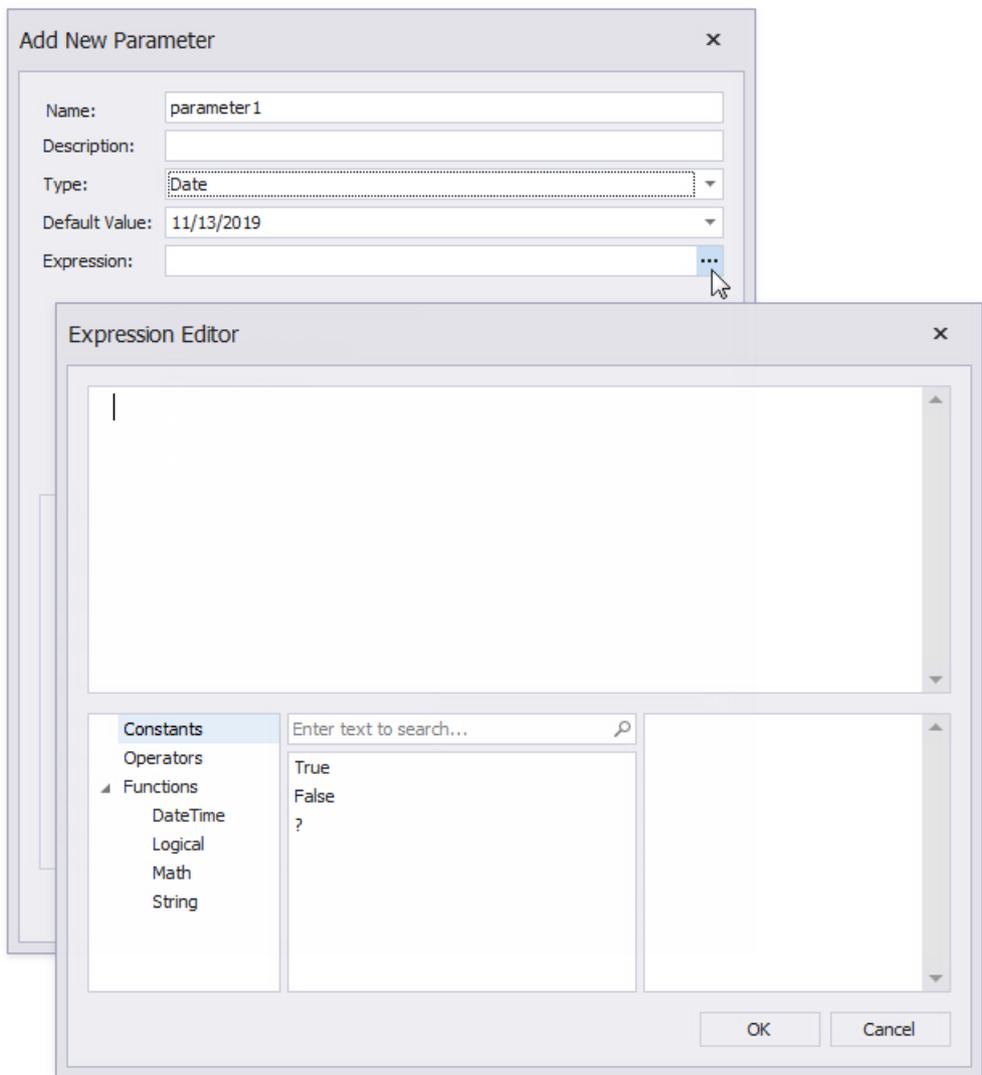
- **Default value**

Specifies the parameter's **Value**. When you change a parameter's value in Print Preview, you can press **Reset** to return to the default value.



- **Expression**

Specifies an **expression** that defines the parameter's value based on specific conditions. Click the **Expression** property's ellipsis button and construct an expression in the invoked **Expression Editor**.



- **Show in the parameters panel** (corresponds to the parameter's **Visible** property)

Enable this option to request the parameter value in Print Preview. Otherwise, the report takes the default

parameter value.

- **Allow multiple values** (corresponds to the parameter's **Multi-Value** property)

Enable this option to allow a parameter to accept a [collection of values](#). **Allow null value** (corresponds to the parameter's

- **Allow Null** property) Enable this option if the parameter's value can be unspecified.

- **Range Value**

Enable this option if the parameter should specify a range with a start and end value. This option applies to *Date*-type parameters. See [Date Range Parameters](#) for information on how to configure a date range parameter.

- **Supports the collection of standard values**

Applies if the parameter is visible (its value is requested in Print Preview). You can choose a value from a predefined list which is populated with static values, or specify a data source from where the values are obtained.

- **Dynamic values**

Specify a data source, data adapter, and data member for the parameter values storage. **Value Member** defines the data field that provides the parameter's values. **Display Member** defines the data field that stores values displayed in Print Preview.

Property	Value
Data Source	sqlDataSource1
Data Member	Products
Data Adapter	(none)
Value Member	ProductID
Display Member	ProductName
Filter String	
Sort Member	
Sort Order	None

If the data member's value type does not match the parameter type, the validation rejects the value. Use the **Filter String** property to filter parameter values and implement [cascading parameters](#).

Specify the **Sort Member** and **Sort Order** properties to sort parameter values.

- **Static values**

Switch to this tab to specify a static list of values. Each value should have a description that is displayed in Print Preview.

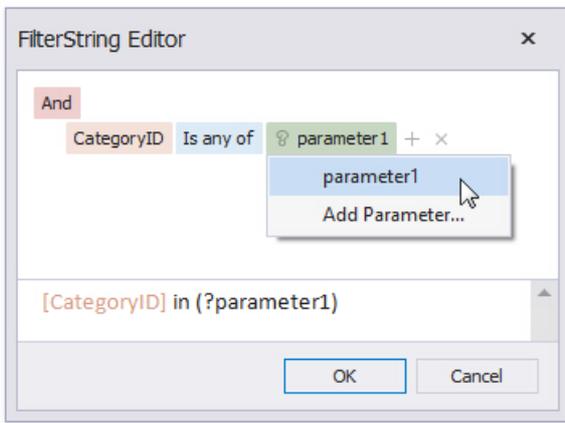
Value	Description
0	zero
1	one
2	

Use Parameters

Use report parameters in the following cases:

- **Filter**

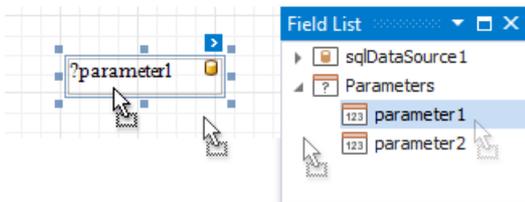
Parameters can provide values to a report's **Filter String** to [filter report data](#).



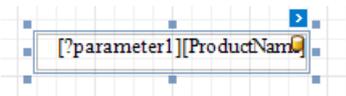
You can link the report parameter to [query parameters](#) used in the SQL string's SELECT statement to [filter data at the data source level](#).

- **Bind to Data**

You can bind a report control to a parameter and display its value in a report. To create a new [label](#) bound to a parameter, drag the parameter from the [Field List](#) and drop it onto a band.

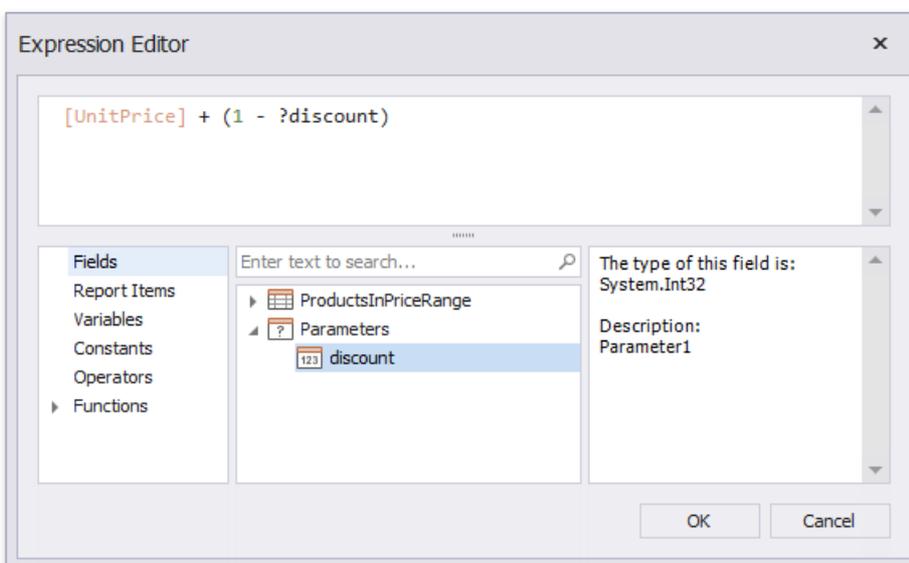


Add a question mark in front of a parameter's name to refer to it in [mail merge](#).



- **Specify Expressions**

Use a question mark (?) in front of a parameter's name to include it in an [expression](#).



Multi-Value and Cascading Parameters

This document describes how to implement multi-value and cascading parameters. Cascading parameters display values that correspond to other parameters' values.

Multi-Value Parameters

To assign a collection of values to a parameter, enable its **Multi-Value** property. In the **Add New Parameter** dialog, this option corresponds to the **Allow multiple values** checkbox.

The 'Add New Parameter' dialog box is shown with the following configuration:

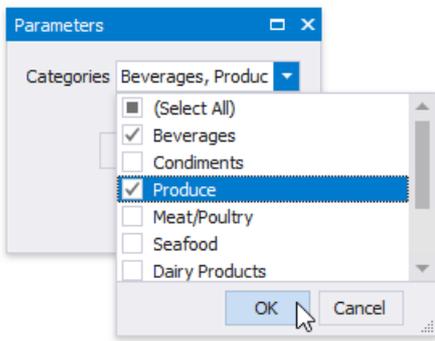
- Name: categories
- Description: Categories
- Type: String
- Default Value: (empty)
- Show in the parameters panel
- Supports the collection of standard values
- Allow multiple values
- Allow null value
- Dynamic values tab selected
- Data Source: sqlDataSource1
- Data Member: CategoryProducts
- Data Adapter: (none)
- Value Member: CategoryName
- Display Member: CategoryName
- Filter String: (empty)
- Sort Member: (empty)
- Sort Order: None

Multi-value parameters are useful when you need to [filter report data](#) against a list of values. The following image illustrates a correct filtering expression that incorporates a multi-value parameter. This expression is assigned to the report's **Filter String** property.

The 'FilterString Editor' dialog box shows the following filter expression:

```
[CategoryName] In (?categories)
```

The following image demonstrates an editor for a multi-value parameter in a Print Preview.

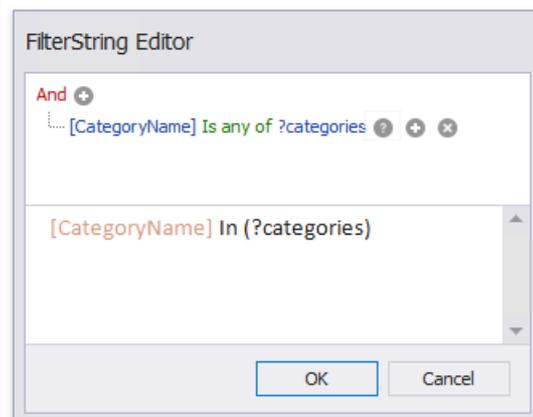
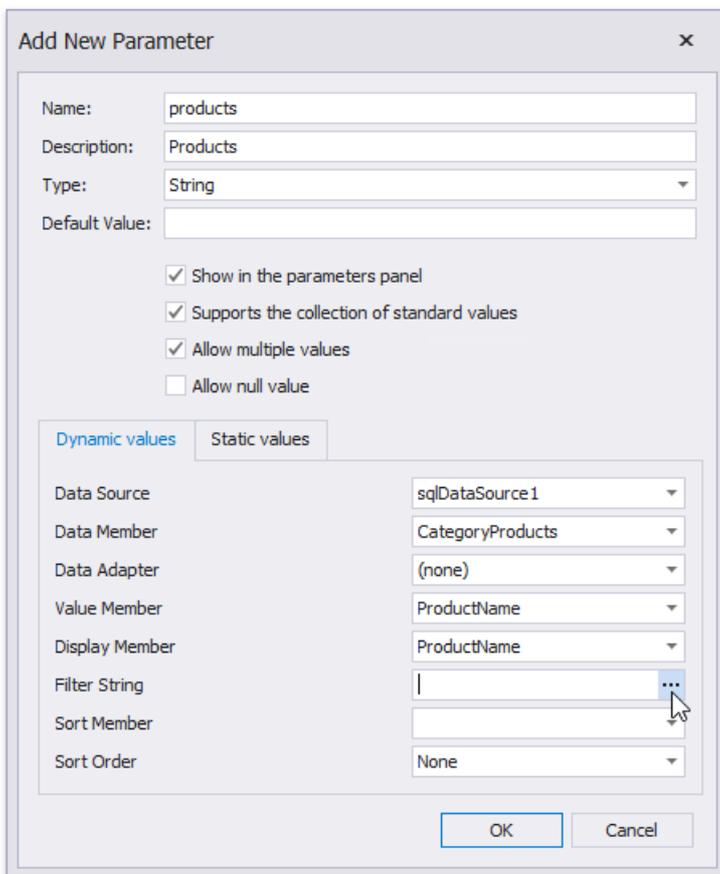


Category Name	Product Name
Beverages	Chai
Beverages	Chang
Produce	Uncle Bob's Organic Dried Pears
Produce	Tofu
Beverages	Guaraná Fantástica
Produce	Rössle Sauerkraut
Beverages	Sasquatch Ale
Beverages	Steeleye Stout
Beverages	Côte de Blaye
Beverages	Chartreuse verte
Beverages	Ipoh Coffee
Produce	Manjimup Dried Apples

Cascading Parameters

The list of values available for a parameter in a Print Preview can be filtered based on the current value of another parameter.

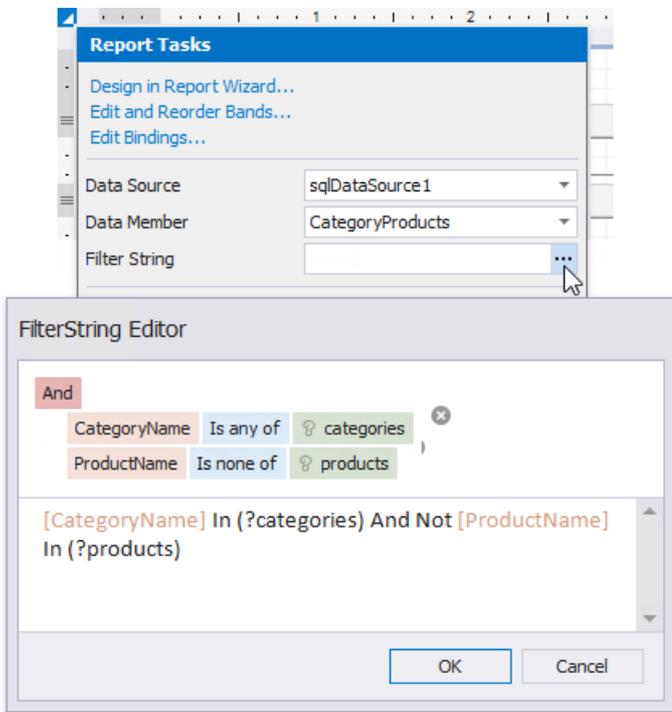
To filter the list of parameter values, click the ellipsis button for the parameter's **Filter String** property in the **Add New Parameter** dialog window and specify a filter string that refers to another parameter.



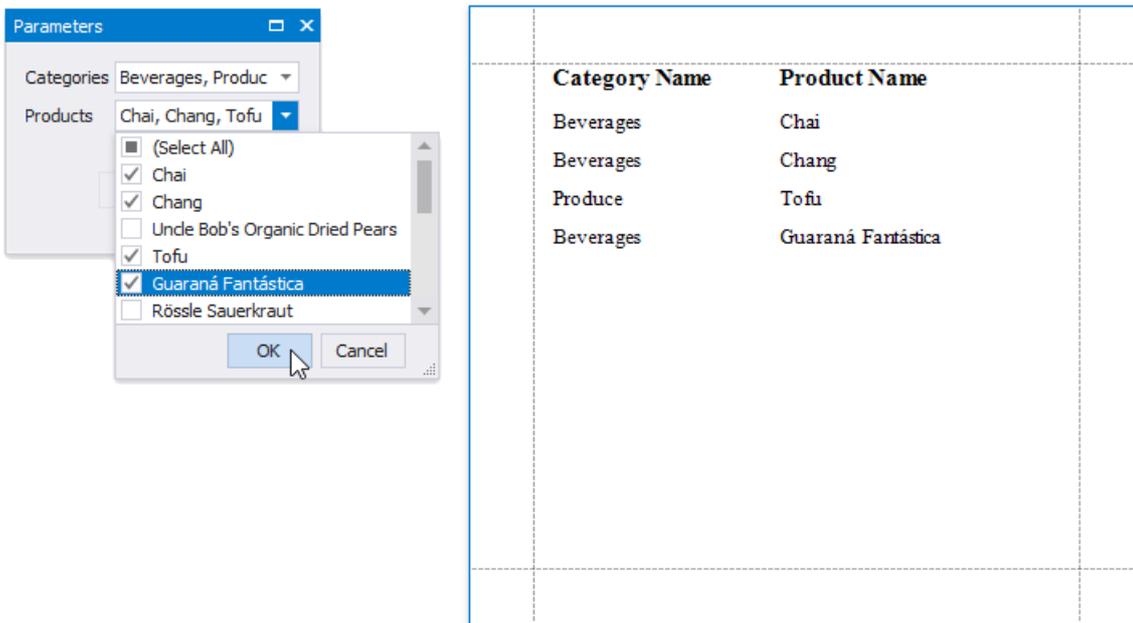
Click the report's smart tag, and in the invoked actions list, click the ellipsis button for the **Filter String**

property. In the invoked

FilterString Editor, construct an expression that uses both parameters:



The following image illustrates cascading parameters.



Date Range Parameters

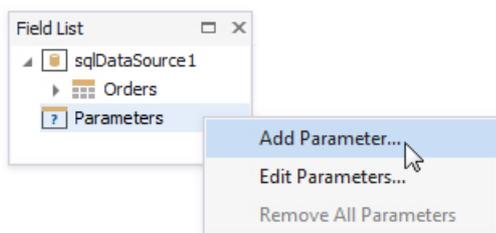
This document describes how to create a date range parameter and filter report data by the specified dates.

The image shows two screenshots of the software interface. The top screenshot shows the 'Parameters' dialog box with the 'Date Range' set to '11/6/2019 - 11/13/2019'. The dialog includes a list of preset date ranges on the left and two calendar views for November 2019 on the right. The bottom screenshot shows the 'Parameters' dialog box with the 'Date Range' set to '11/6/2019 - 11/13/2019' and 'Submit' button. Below the dialog is the 'Orders List' report table.

Order Date	Order ID	Customer	Total
11/6/2019	11057	North/South	\$15.00
11/6/2019	11058	Blauer See Delikatessen	\$72.50
11/6/2019	11059	Ricardo Adocicados	\$79.00
11/7/2019	11060	Franchi S.p.A.	\$47.00
11/7/2019	11061	Great Lakes Food Market	\$34.00
11/7/2019	11062	Reggiani Caseifici	\$47.80
11/7/2019	11063	Hungry Owl All-Night Grocers	\$42.05
11/8/2019	11064		

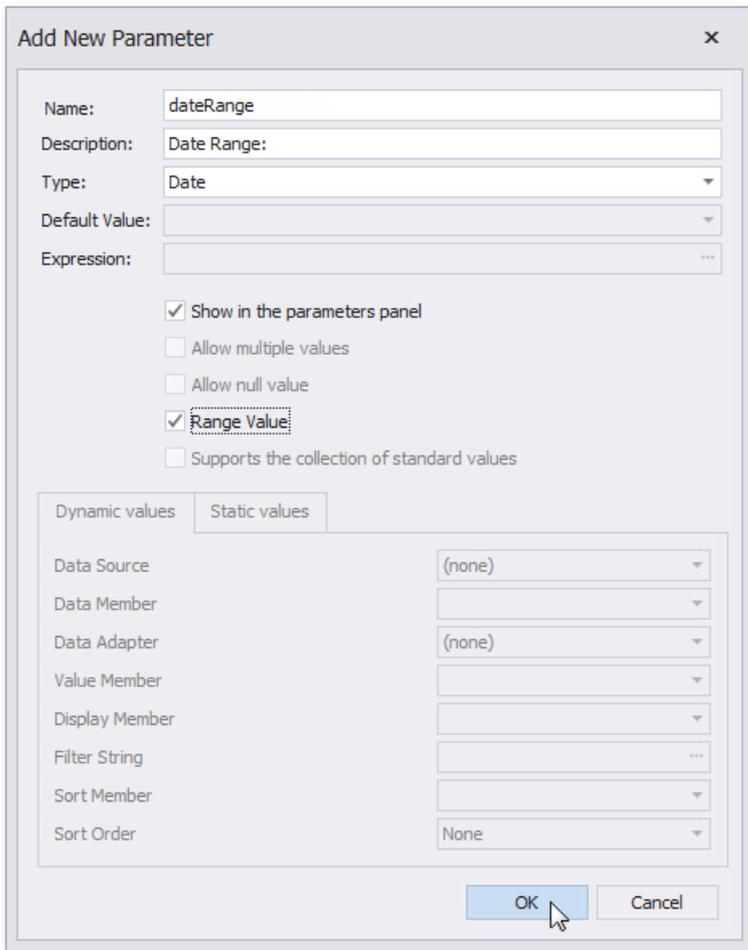
Perform the steps below to add a date range parameter to a report.

1. Switch to the **Field List** and right-click **Parameters**. Select **Add Parameter** from the context menu.

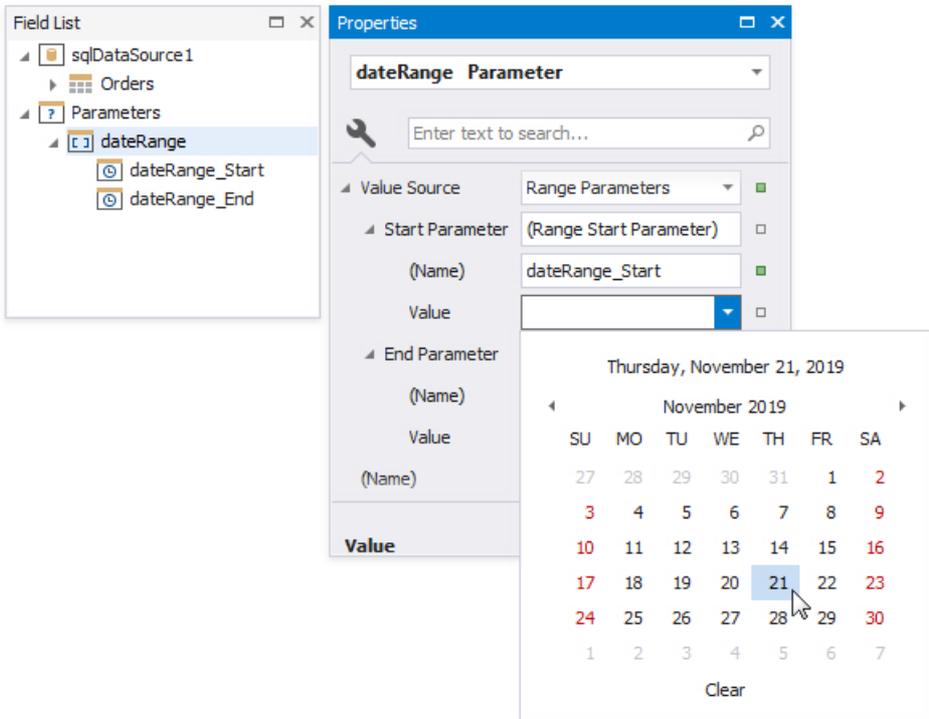


2. Specify the options below in the invoked **Add New Parameter** dialog

- o and click **OK**. **Name** - the parameter's name;
- o **Description** - the parameter's description displayed in Print Preview's **Parameters** panel;
- o **Type** - the parameter's data type. Set it to **Date** to create a date range;
- o **Range Value** - enable this option to create a date range.

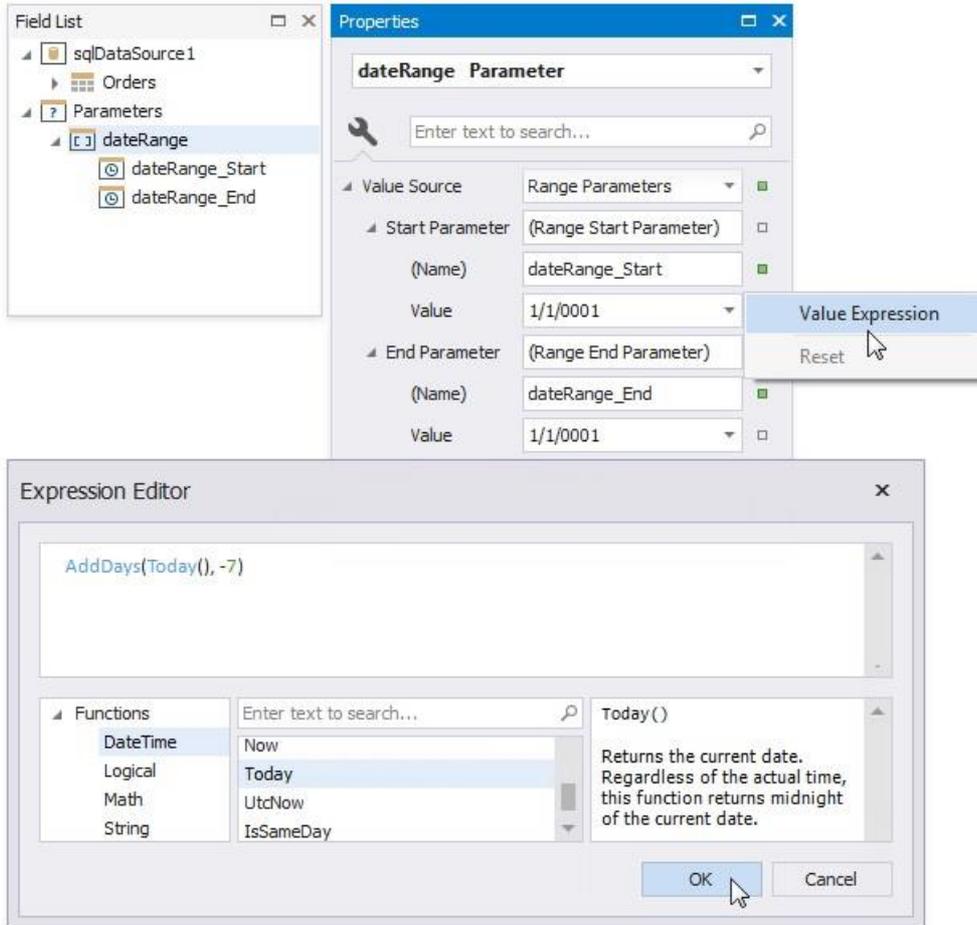


- The *dateRange* parameter appears in the **Field List** and includes the *dateRange_Start* and *dateRange_End* parameters. Select the *dateRange* parameter and switch to the **Property Grid** to specify the parameters' default values.

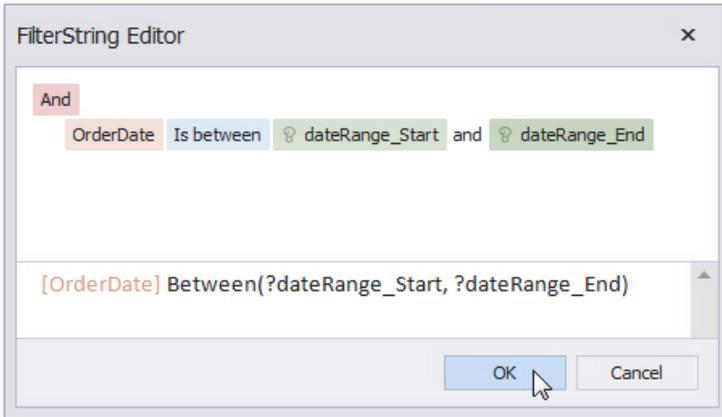
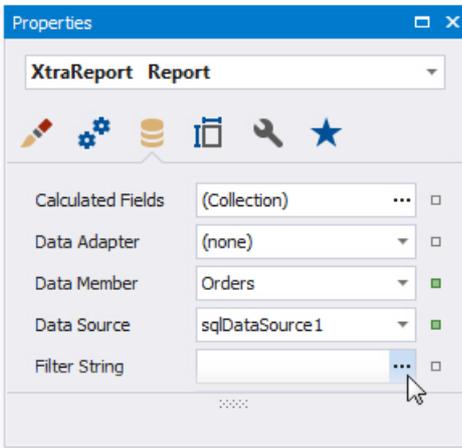


The **Value** property allows you to specify a static value. To specify a dynamic value, click the **Value** property's marker, select

Value Expression and specify an expression in the invoked editor.

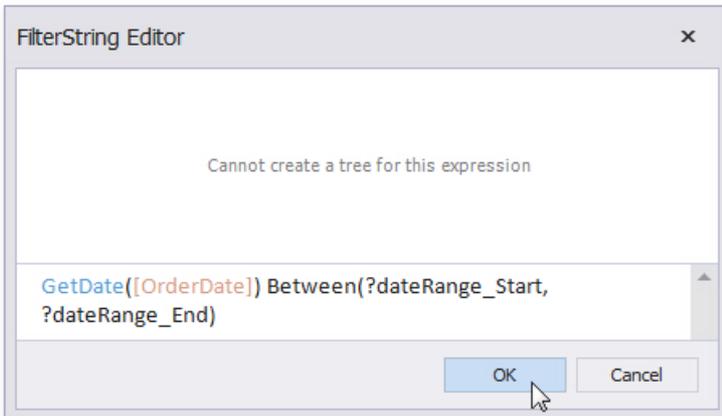


4. Use the start and end parameter names in the report's filter string to **filter data** by the specified date range. Select the report, click the **Filter String** property's ellipsis button in the **Property Grid** and construct a filter string in the invoked **FilterString Editor**.



Not e

The start and end parameter values store the selected day's midnight time. For instance, if you choose 10/15/2019, the value is 10/15/2019 12:00:00 AM. If your date fields include non-midnight time, records for the end date 10/15/2019 are excluded from a report. Use the **GetDate()** function in the **FilterString Editor** to include data for the 10/15/2019 date.



When you switch to Print Preview, the **Parameters** panel displays the date range parameter. After you submit a start and end date, a report document is displayed with filtered data.

Parameters

Date Range: 11/6/2019 - 11/13/2019

- Today
- Yesterday
- Current Week
- Last Week
- Last 7 Days
- Current Month
- Last Month
- Current Quarter
- Previous Quarter
- Current Year
- Last Year

November 2019

SU	MO	TU	WE	TH	FR	SA
27	28	29	30	31	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
1	2	3	4	5	6	7

11/6/2019

November 2019

SU	MO	TU	WE	TH	FR	SA
			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
1	2	3	4	5	6	7

11/13/2019

Apply Cancel

Parameters

Date Range: 11/6/2019 - 11/13/2019

Reset Submit

Orders List

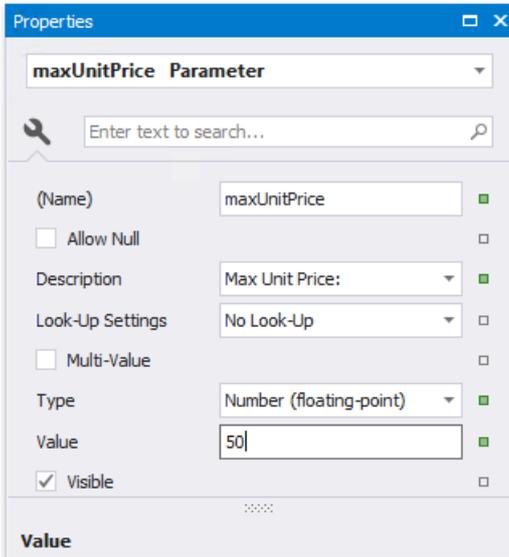
Order Date	Order ID	Customer	Total
11/6/2019	11057	North/South	\$15.00
11/6/2019	11058	Blauer See Delikatessen	\$72.50
11/6/2019	11059	Ricardo Adocicados	\$79.00
11/7/2019	11060	Franchi S.p.A.	\$47.00
11/7/2019	11061	Great Lakes Food Market	\$34.00
11/7/2019	11062	Reggiani Caseifici	\$47.80
11/7/2019	11063	Hungry Owl All-Night Grocers	\$42.05
11/8/2019	11064		

Request and Pass Report Parameter Values

This document illustrates how to assign the default and custom values to a report's parameters and describes the editors that are used to request these values in a Print Preview.

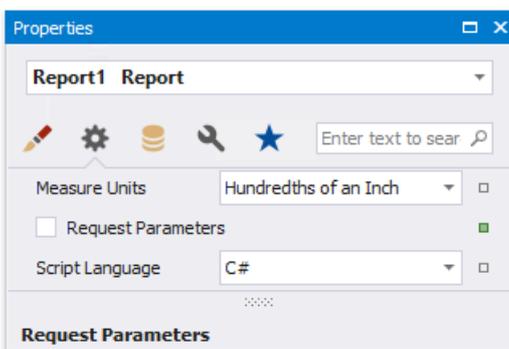
Requesting Parameter Values in a Print Preview

The parameter's **Value** property specifies the parameter's actual value. This value must correspond to the parameter's value type the **Type** property defines.



A parameter's value is not requested from end-users and is automatically passed to the report when the parameter's **Visible** property is disabled. When a report has at least one visible parameter, a Print Preview provides the **Parameters** panel for submitting parameter values.

When loading a Print Preview, a report document is not created by default unless values for all visible parameters are submitted. To create report documents without requesting parameter values (and using their default values instead), disable the report's **Request Parameters** property.



Standard Parameter Editors

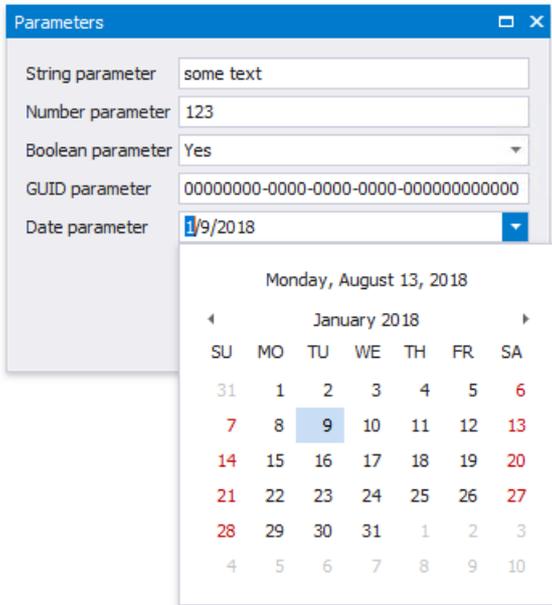
The parameter's **Type** property determines which values a parameter can accept. The corresponding value editors are created automatically for the following standard parameter types:

- String
- Date
- Number
- r
 - 16-bit integer 32-
 -

bit integer

- 64-bit integer
- floating point
- double-precision floating point decimal
- Boolean
- GUID (Globally Unique Identifier)

The following image illustrates the standard editors for parameter values:

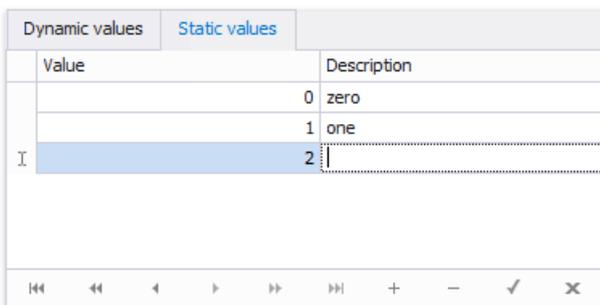


Look-Up Parameter Editors

You can list a parameter's values in a lookup editor:

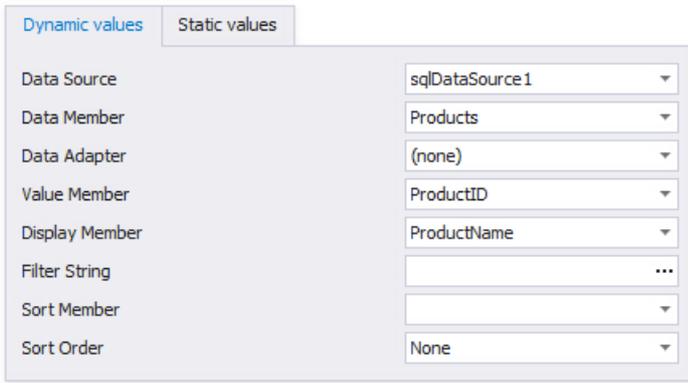
- **Assign a Static List of Values to a Parameter**

A parameter can be provided with a predefined set of static values, without creating a separate data source. Each value is accompanied by a description that appears in the Print Preview's user interface.



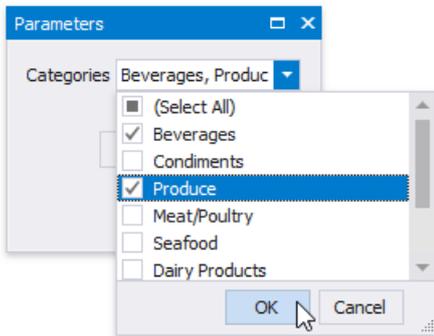
- **Assign a Dynamic List of Values to a Parameter**

A parameter can obtain a list of values from a specified data source.



Assign Multiple Values to a Parameter

A parameter can also be allowed to accept multiple values by enabling its **Multi-Value** property.



When creating cascading parameters, the list of values available for one parameter is filtered based on another parameter's current value. See [Create Multi-Value and Cascading Report Parameters](#) for more information.

Query Parameters

This document provides information on query parameters and describes how to use parameterized SQL queries to filter data at data source level.

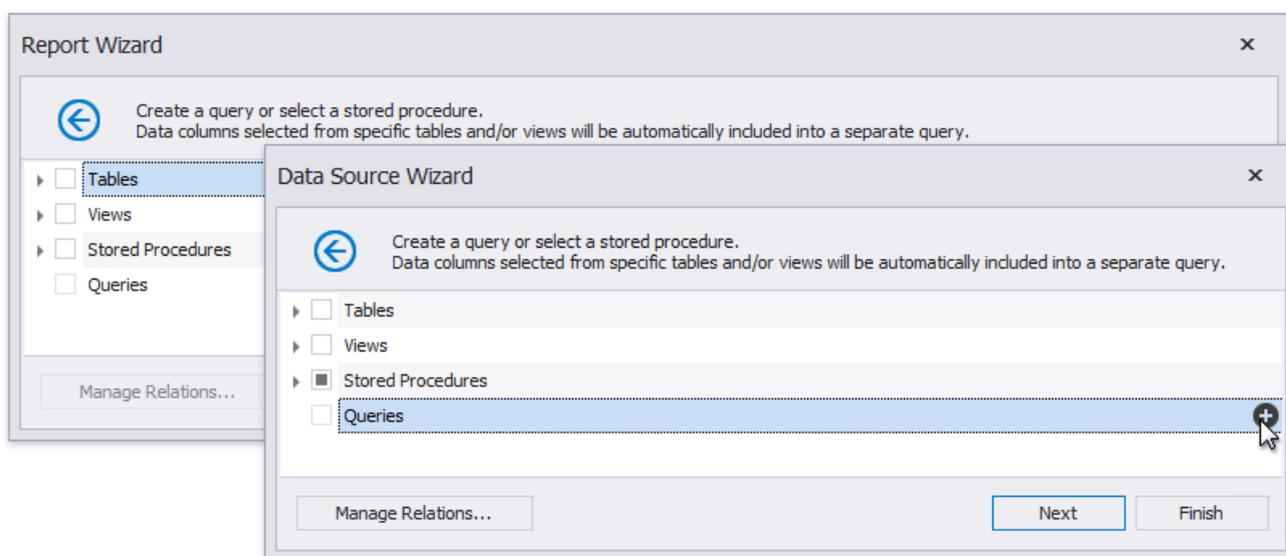
Query Parameters Overview

A query parameter holds an external value that is inserted into an SQL statement before query execution. This value can be static or an associated expression can generate it dynamically.

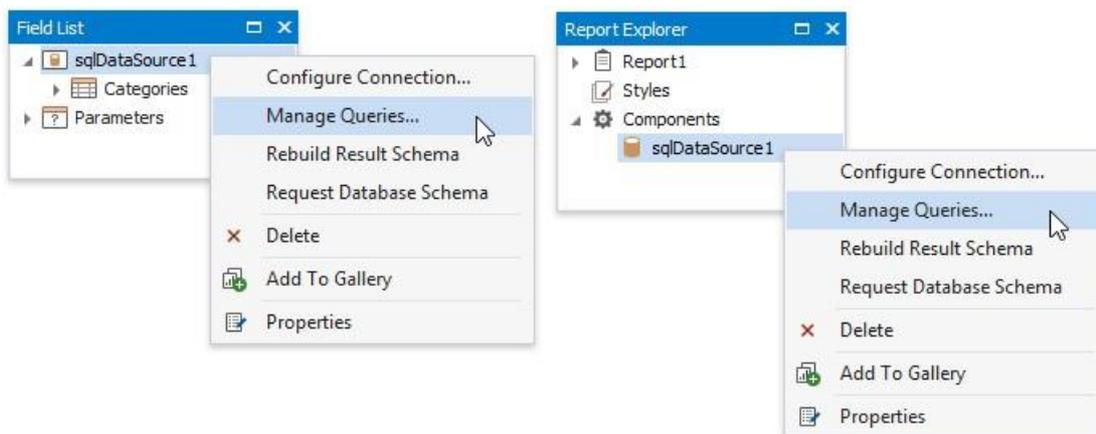
The query parameter value is inserted into the resulting SQL query string in the "@QueryParameterName" placeholder's position. Query parameters are used in the following scenarios:

- When filtering report data at the data source level using the [Query Builder](#).

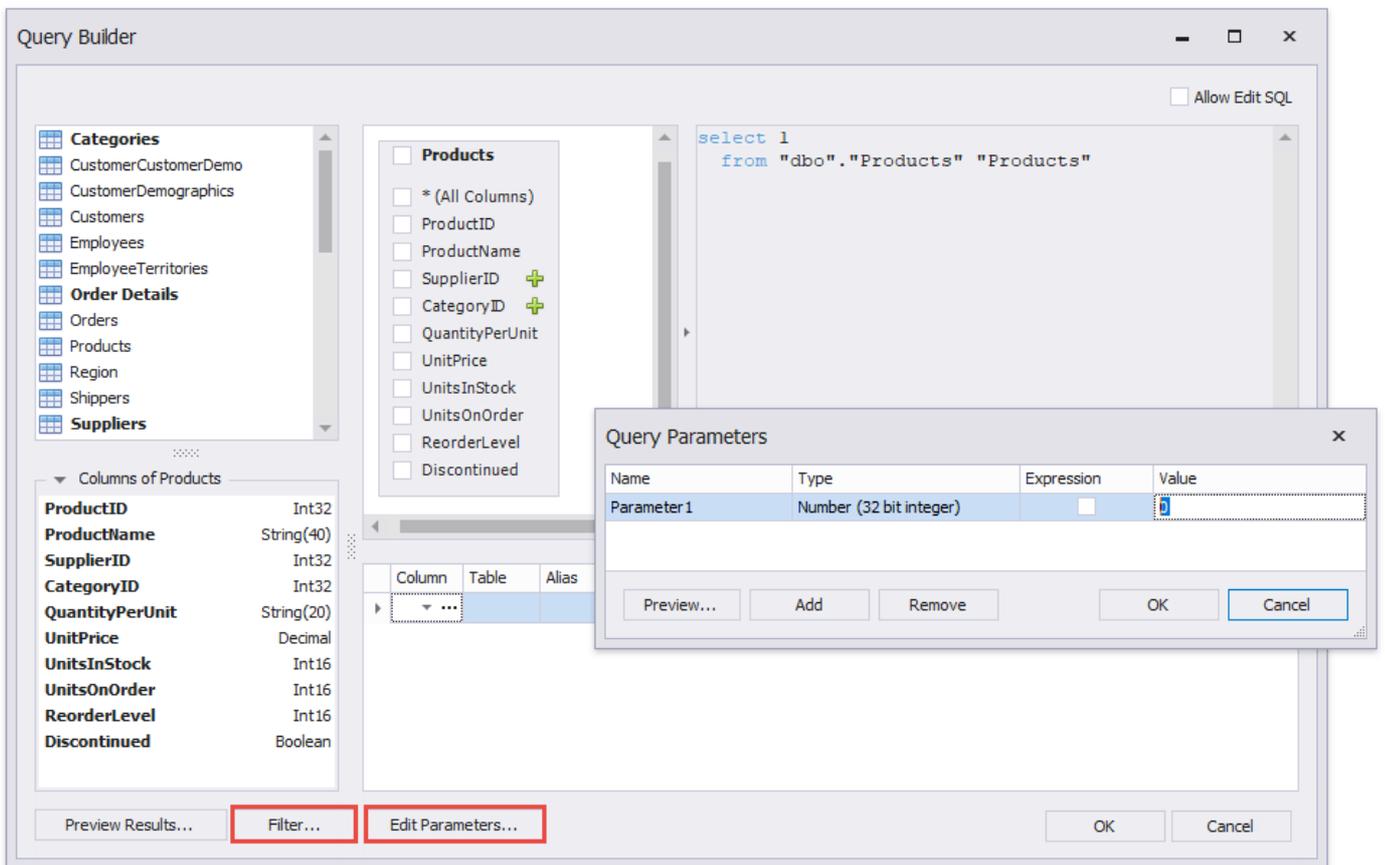
The Query Builder helps you construct SQL queries when creating a new data-bound report or [binding an existing report to an SQL data source](#),



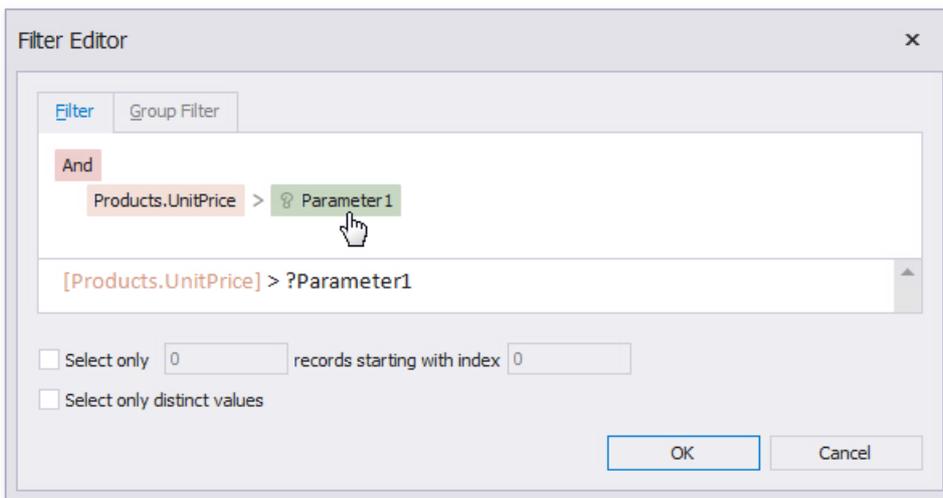
... or when adding queries to an existing SQL data source or editing existing queries.



You can filter the constructed queries using query parameters. Press the **Edit Parameters...** button to invoke the **Query Parameters** dialog.



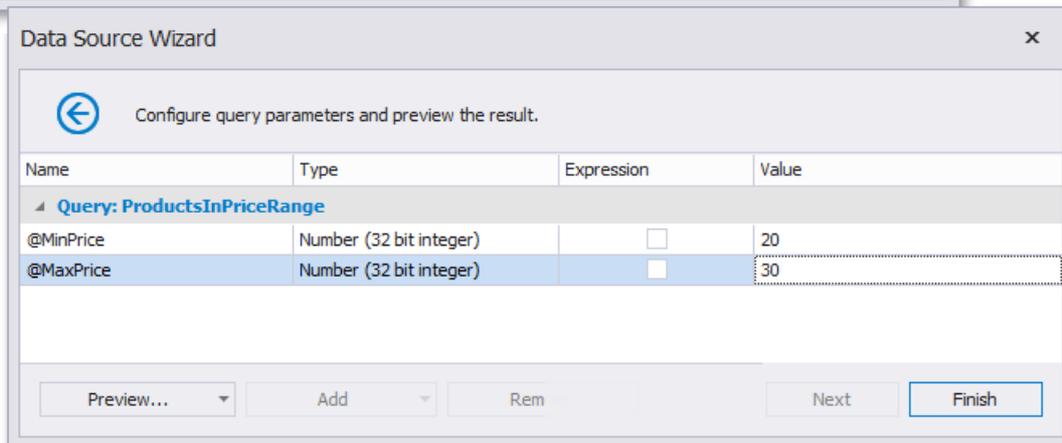
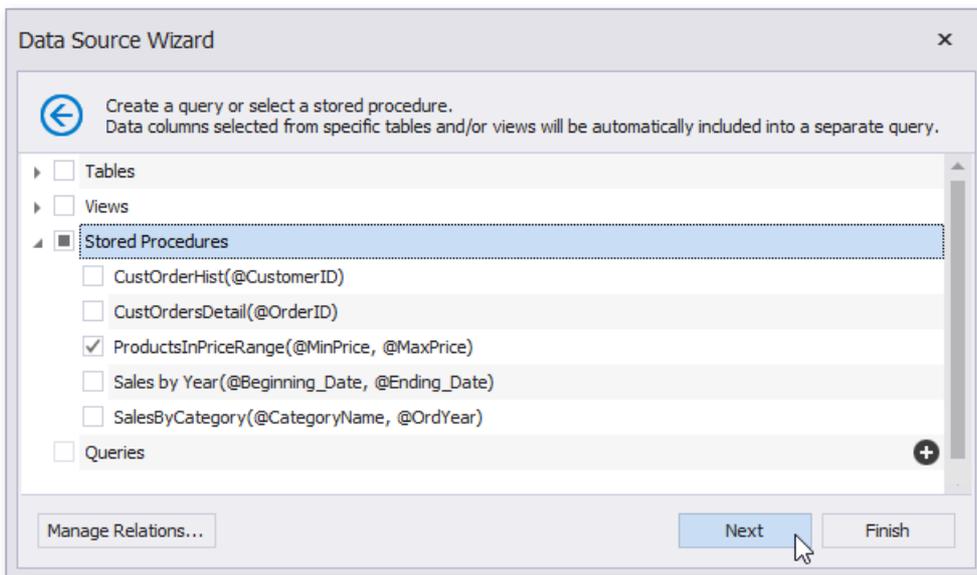
Press the **Filter...** button to invoke the Filter Editor and filter data using the created query parameters.



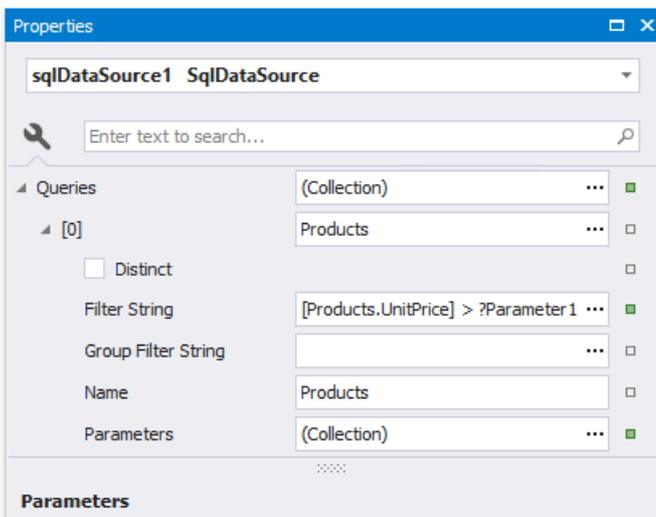
The criteria based on the specified query parameters are added as an SQL statement's WHERE part. When [binding a report to a stored procedure](#) provided

- by an SQL data source.

The Report Wizard, as well as the Data Source Wizard, include the **Create a query or select a stored procedure** page. If you select a stored procedure, the wizard creates a query parameter for each procedure parameter and allows you to configure the query parameters in the next **Configure query parameters and preview the result** page.



You can access query parameters using the **Parameters** property of the query the report's **SqlDataSource** component exposes. These parameters include the ones you created within the Query Builder or that were generated for the data source's stored procedure. You can also access the query's filter string using the **Filter String** property. This filter string includes the filter that you specified in the Query Builder.



You can add new query parameters in the Query Parameters dialog and modify the filter within the Filter Editor.

Configure Query Parameters

The following properties are available for each query parameter:

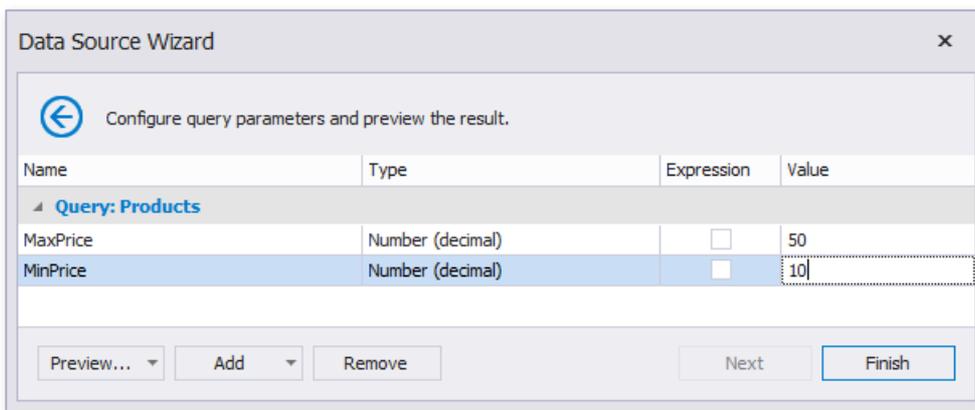
- **Name** - specifies the parameter's name.
- **Type** - specifies the parameter value's data type.
- **Expression** - determines whether the actual parameter value is static or generated dynamically.
- **Value** - determines the query parameter's actual value. If the **Expression** option is enabled, the actual parameter value is produced dynamically by calculating an associated expression. This is useful when you map the query parameter value to the [report parameter](#) value. Refer to the next document section for more information.

Provide the Query Parameter Value

Below, you can see how a value is specified for a query parameter within the Data Source Wizard's page. You can also specify query parameter values in the Report Wizard or the Query Parameters dialog in the same way.

- **Specifying a static value**

Choose a query parameter's value type and set a static value to the **Value** property according to the selected type.

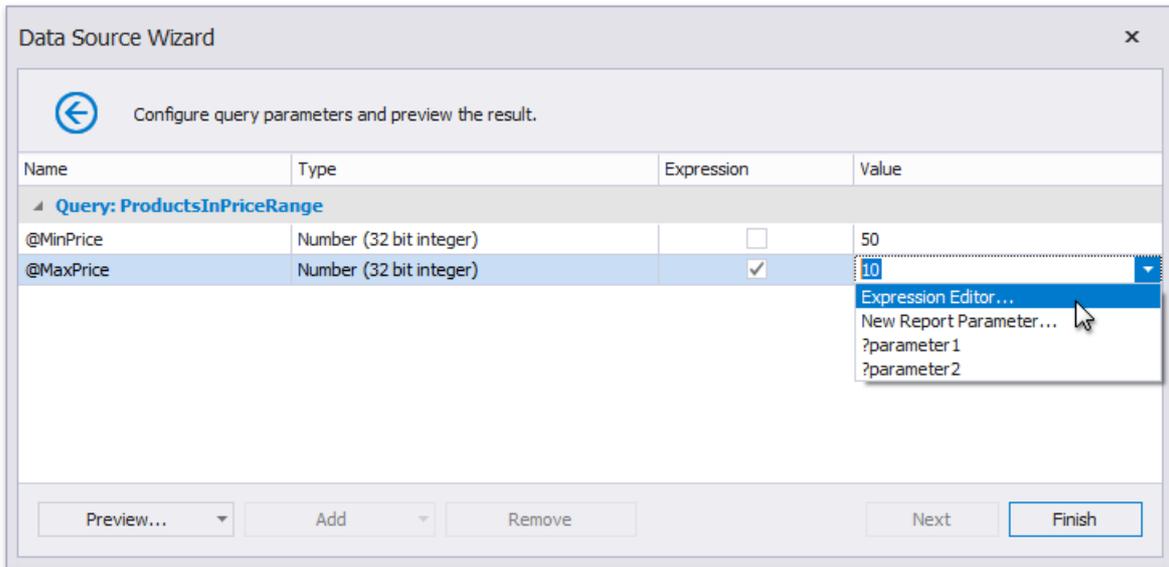


- **Providing a dynamic value**

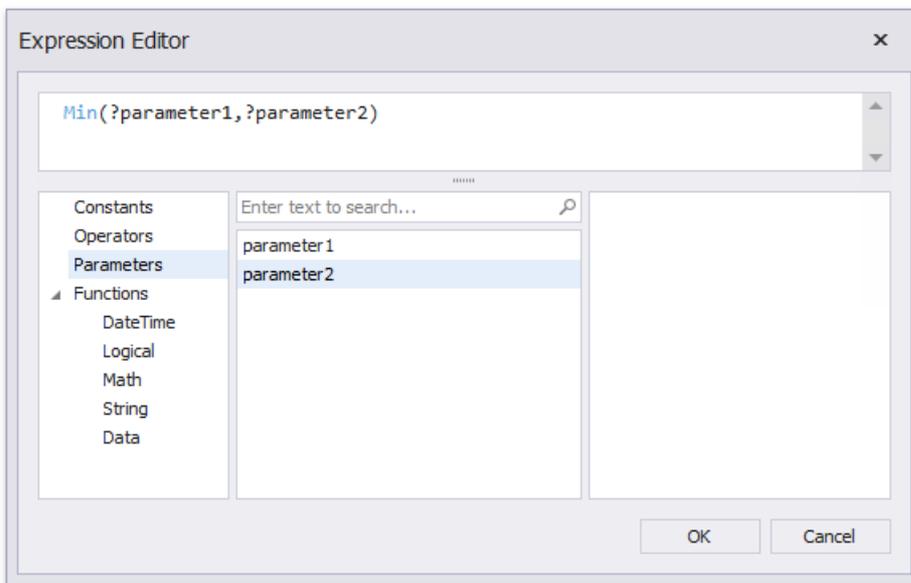
Activate the **Expression** checkbox for a parameter.

The following three options are used to dynamically calculate the parameter's actual value:

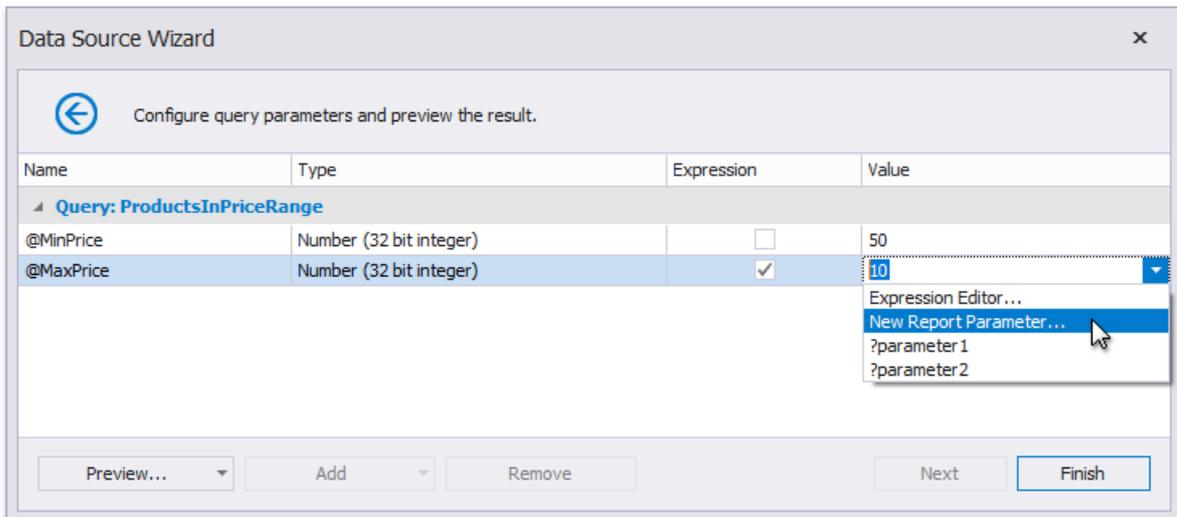
- Create a complex expression by expanding the **Value** property's drop-down list and selecting **Expression Editor**.



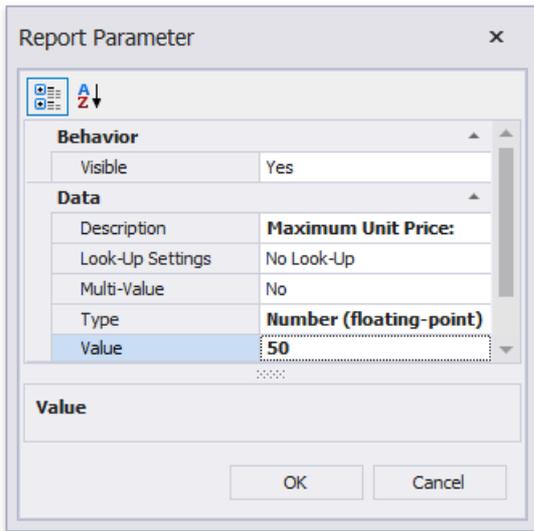
Construct an expression in the invoked **Expression Editor**.



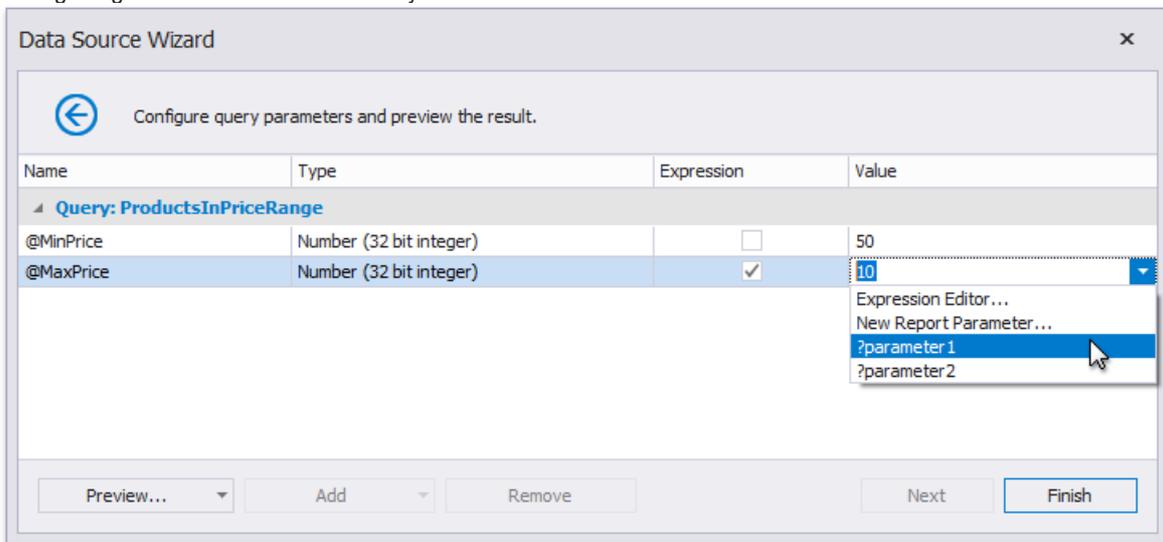
- o Map a new report parameter to a query parameter by expanding the **Value** property's drop-down list and selecting **New Report Parameter**.



Specify report parameter settings in the invoked **Report Parameter** dialog. Remember to specify the report parameter type according to the type of the corresponding query parameter. Click **OK** to exit the dialog.

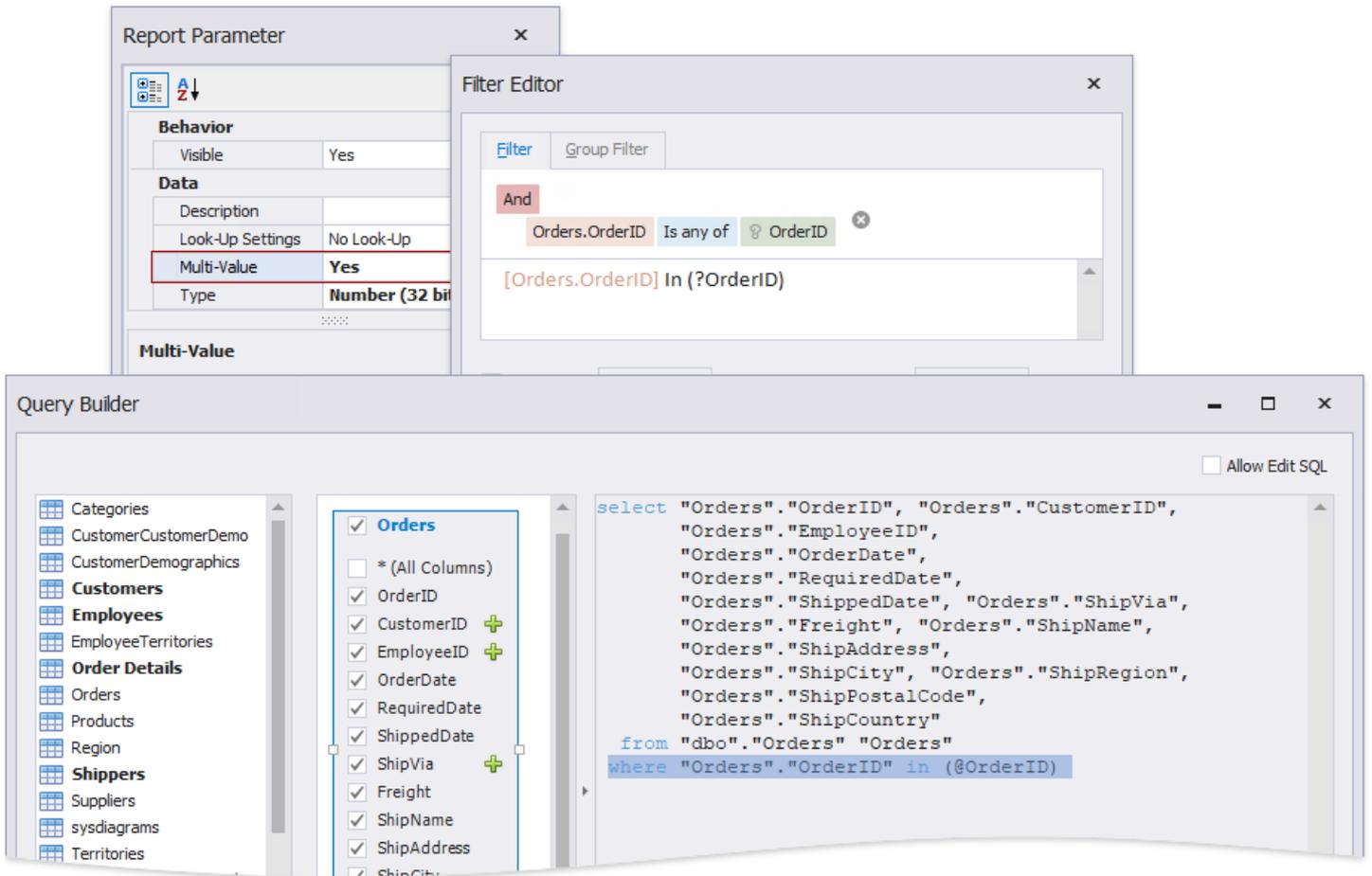


- Map a report parameter that already exists in a report to a query parameter by expanding the **Value** property's drop-down list and selecting the parameter you want to use. An appropriate expression string is generated automatically.



Pass a Multi-Value Parameter Value to a Query

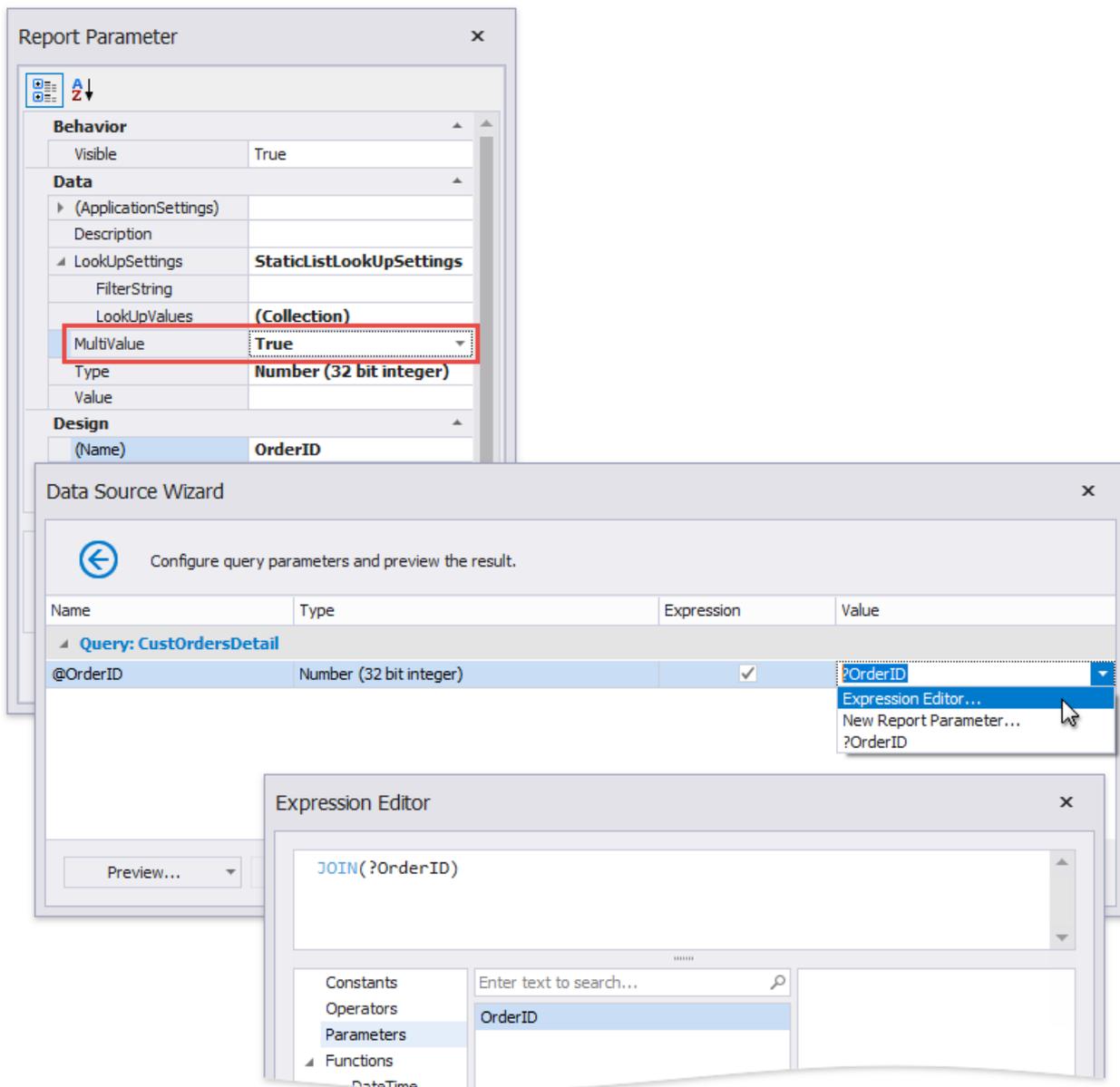
You can map [multi-value parameters](#) to query parameters. For instance, the following query selects the orders whose IDs can be found within the values the `@OrderID` query parameter provides.



Pass a Multi-Value Report Parameter Value to a Stored Procedure

You cannot pass a [multi-value parameter](#) value to a stored procedure directly. Use one of the following expression functions:

- Use the [Join\(\) expression function](#) to convert the array of parameter values to a string if you use MS SQL Server, MySQL or Oracle database systems.



- Use the [CreateTable\(\)](#) expression function to prepare a table using values of several multi-value parameters.

Report Parameter x

Behavior

Visible True

Data

(ApplicationSettings)

Description

LookUpSettings **Standard:LookUpSettings**

FilterString

LookUpValues **(Collection)**

MultiValue **True**

Type **Number (32 bit integer)**

Value

Design

(Name)

Data Source Wizard x



Configure query parameters and preview the result

Name	Type	Expression	Value
Query: GetOrdersByID			
@OrderID	Number (32 bit integer)		<input type="text" value="OrderID"/>

Expression Editor x

CREATE TABLE (?parameter 1 , ?parameter 2)

Preview...

- Constants
- Operators
- Parameters
- Functions
- Datetime
- Logical

Enter text to search...

- OrderID
- parameter 1
- parameter 2

Lay out Dynamic Report Content

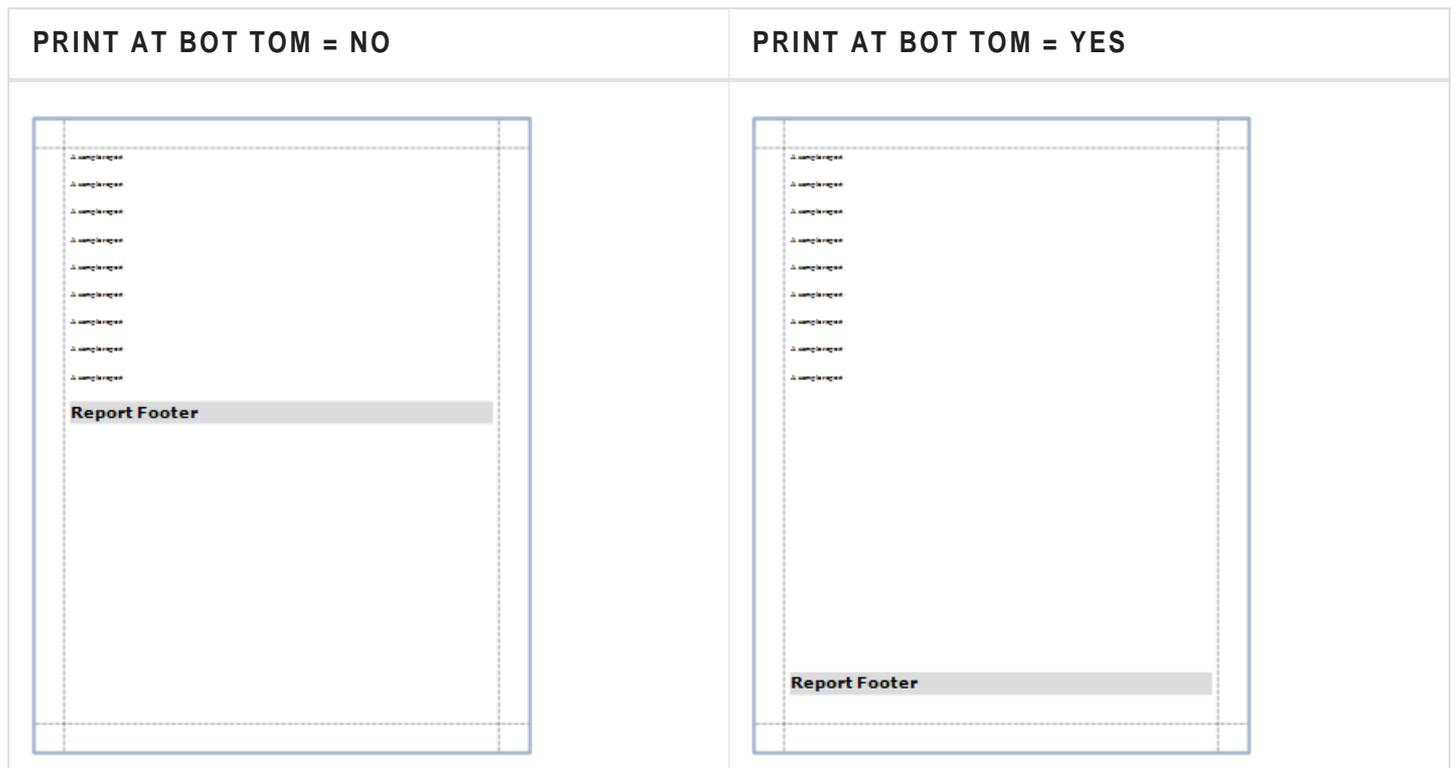
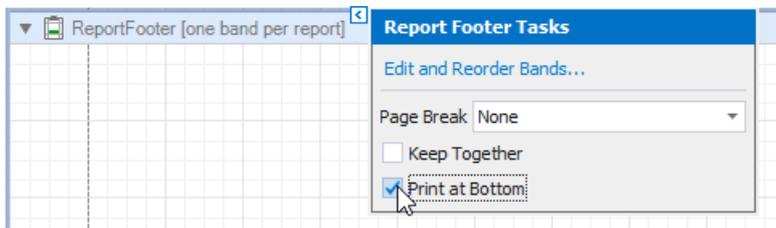
You can use [Print Preview](#) to see what the resulting document looks like because data-aware controls' contents are not available at design time.

This section contains topics that describe how to maintain report elements' correct location in a published

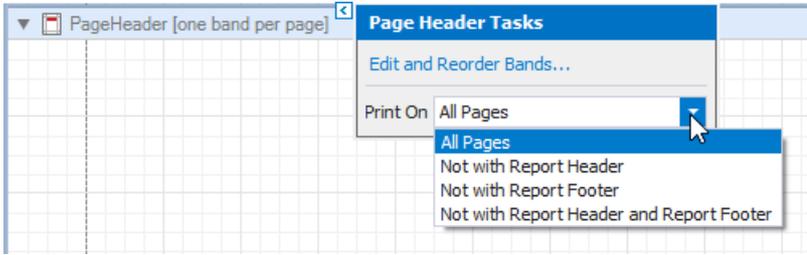
- document: [Maintain the Band Location on a Page](#)
- [Keep Content Together](#)
- [Maintain the Size and Content of Data-Bound Controls Anchor Controls](#)
- [Suppress Controls](#)

Maintain the Band Location on a Page

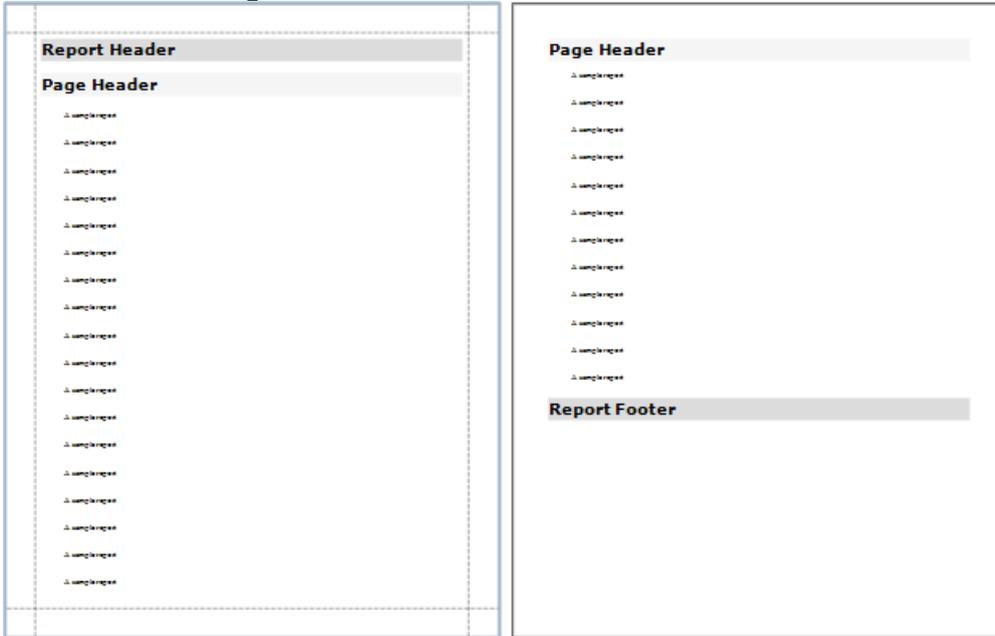
Use the [Group and Report Footer's Print At Bottom](#) property to choose whether these bands should appear at the bottom of a page or immediately after the previous band.



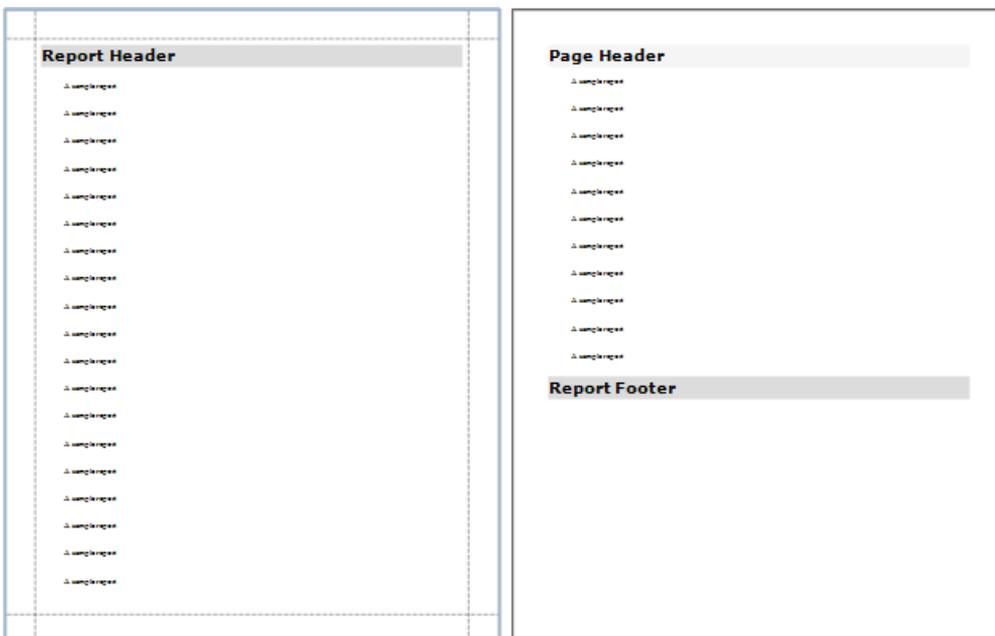
Use the Page Header and Footer's **Print On** property to avoid printing these bands on the same page with a Report Header and/or Footer.



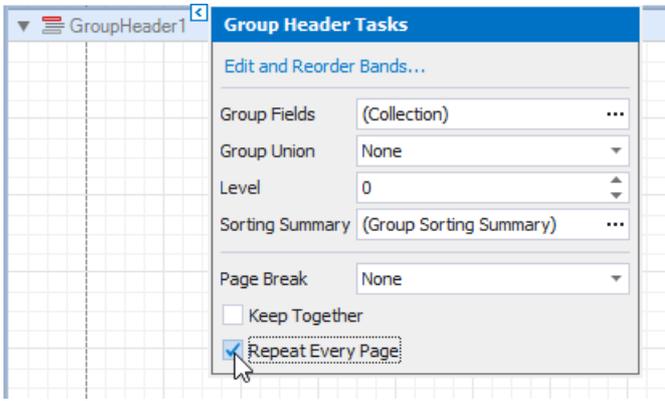
Print On = All Pages



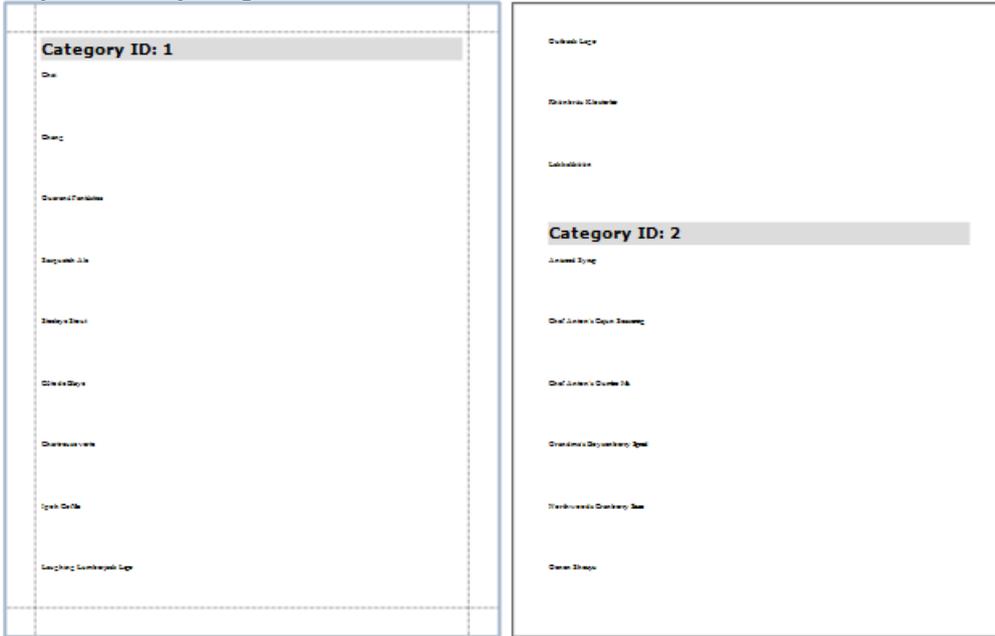
• Print On = Not With Report Header



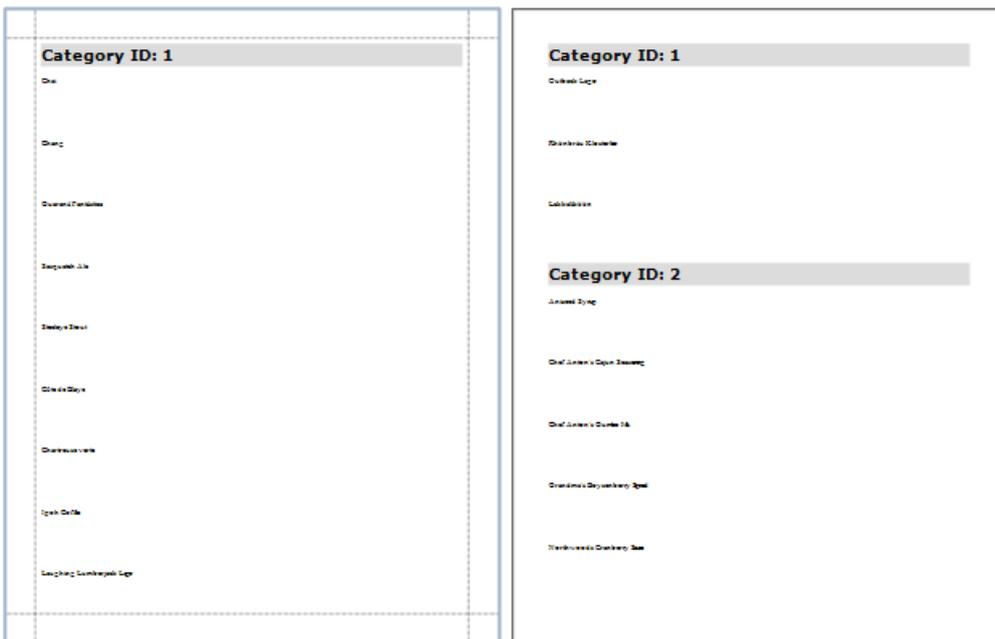
Use the Group Header and Footer's **Repeat Every Page** property to repeat these bands on every page.



Repeat Every Page = No

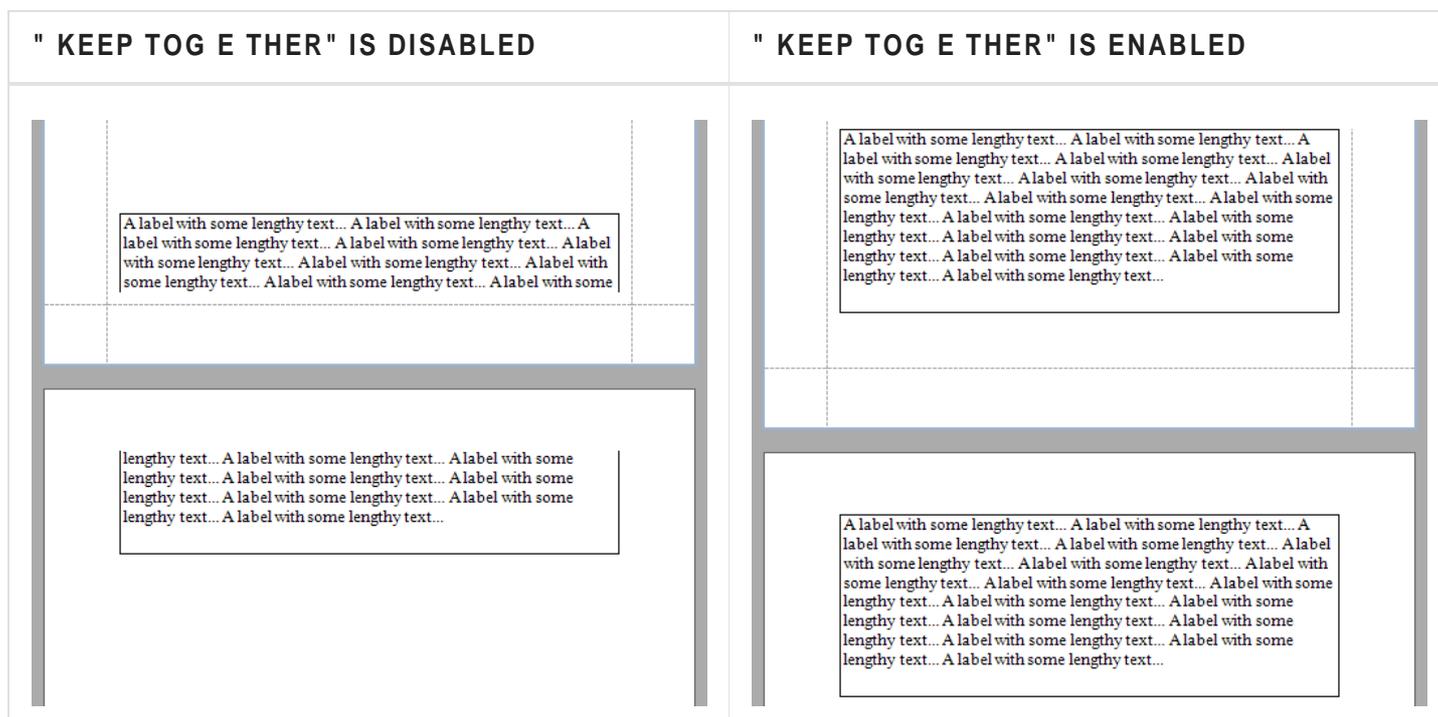
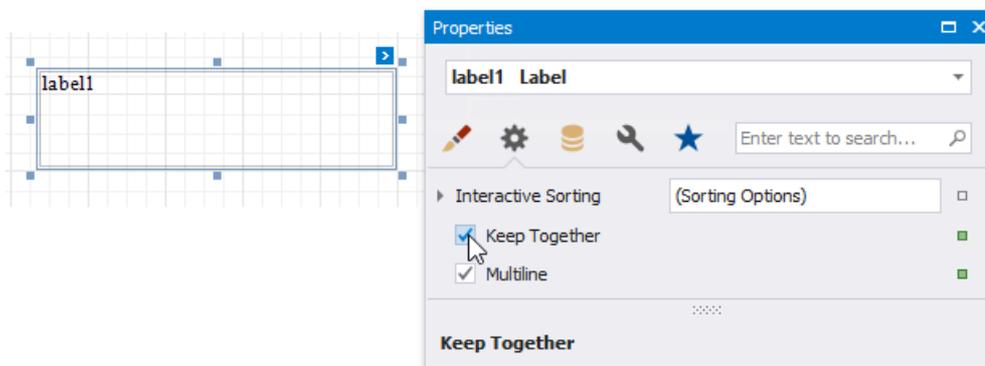


Repeat Every Page = Yes



Keep Content Together

You can choose whether a control's content can be split across several pages using its **Keep Together** property.

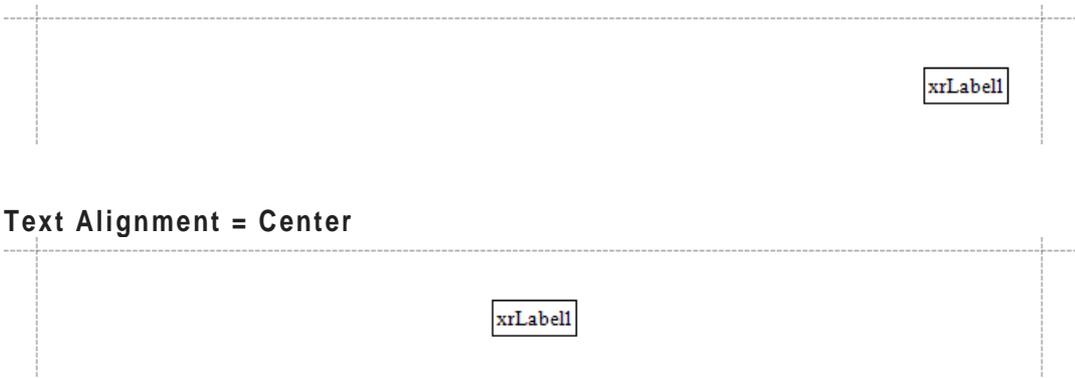


Enabling this property for a single control makes the same band's controls behave like this option is enabled. Use the band's **Keep Together** property to enable this feature for all controls within a specific band.

Not e

This feature is not available for the [Chart](#), [Sparkline](#) and [Subreport](#) controls.

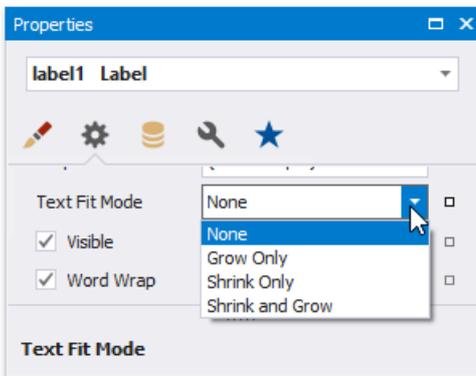
In a master-detail report, you can print the detail band on the same page as the detail report band using the detail band's **Keep Together With Detail Reports** property.



The control's **Word Wrap** property allows you to make a control display its contents in multiple lines when it does not fit into the control's dimensions.

AUTO WIDTH = NO, WORD WRAP = NO	AUTO WIDTH = NO, WORD WRAP = YES
Some lengthy text assigned to a l	Some lengthy text assigned to a label
AUTO WIDTH = YES, WORD WRAP = NO	AUTO WIDTH = YES, WORD WRAP = YES
Some lengthy text assigned to a label.	Some lengthy text assigned to a label

You can also use the opposite **Text Fit Mode** property to adjust a label or table cell's font size to fit the control's bounds.



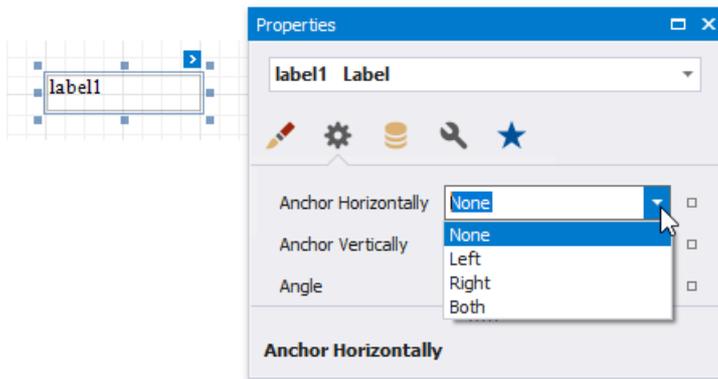
TE X T FIT MODE = NONE	TE X T FIT MODE = G ROW ONLY	TE X T FIT MODE = SHRINK ONLY	TE X T FIT MODE = SHRINK AND G ROW
<div style="border: 1px solid gray; padding: 2px;">Alabel with some lengthy</div> <div style="border: 1px solid gray; padding: 2px;">Alabel with some lengthy content..</div>	<div style="border: 1px solid gray; padding: 2px;">Alabel with some lengthy</div> <div style="border: 1px solid gray; padding: 2px;">A label with some lengthy content...</div>	<div style="border: 1px solid gray; padding: 2px;">Alabel with some lengthy content...</div> <div style="border: 1px solid gray; padding: 2px;">Alabel with some lengthy content..</div>	<div style="border: 1px solid gray; padding: 2px;">Alabel with some lengthy content...</div> <div style="border: 1px solid gray; padding: 2px;">A label with some lengthy content...</div>

This property is not available in the following cases:

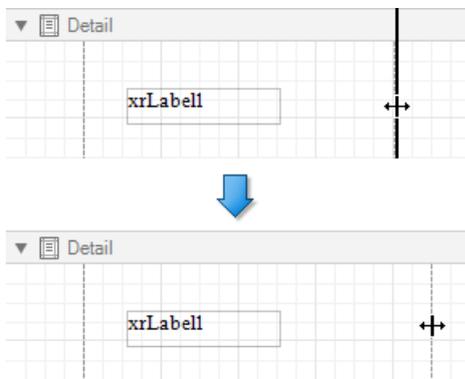
- The **Can Grow**, **Can Shrink** or **Auto Width** option is enabled; The label's **Angle** property is specified;
- The control's **Anchor Horizontally** or **Anchor Vertically** property is set to **Both**.

Anchor Controls

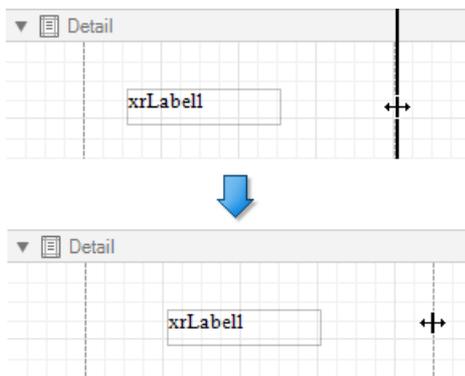
You can anchor a control to the top, bottom, or both edges of its parent container using the **Anchor Horizontally** and **Anchor Vertically** properties.



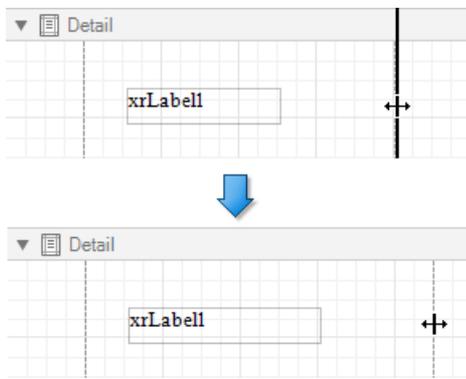
- **Anchor Horizontally = None**



- **Anchor Horizontally = Right**



- **Anchor Horizontally = Both**



Suppress Controls

Avoid Duplicated and Empty Values

When identical or null values appear in a report's data source, you can suppress these values in a report using the following properties:

- **Process Duplicates Mode**

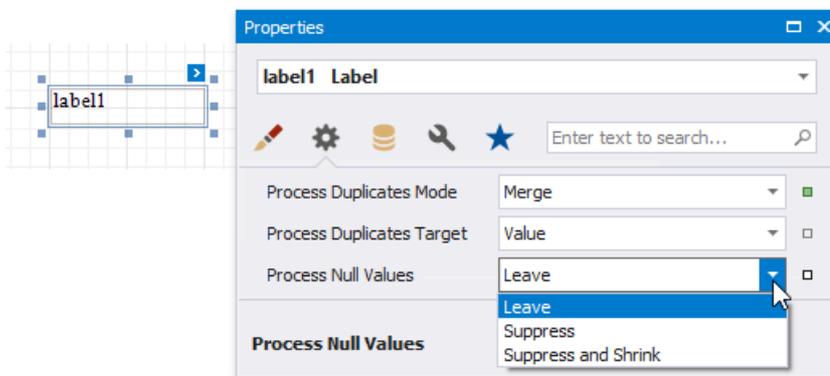
Specifies how to process report controls with identical values (leave them as is, merge, suppress, or suppress and shrink).

- **Process Null Values**

Specifies how to process report controls receiving null values from a data source (leave them as is, suppress, or suppress and shrink).

- **Process Duplicates Target**

Specifies whether to process duplicate the control's **Text** or **Tag** property values.



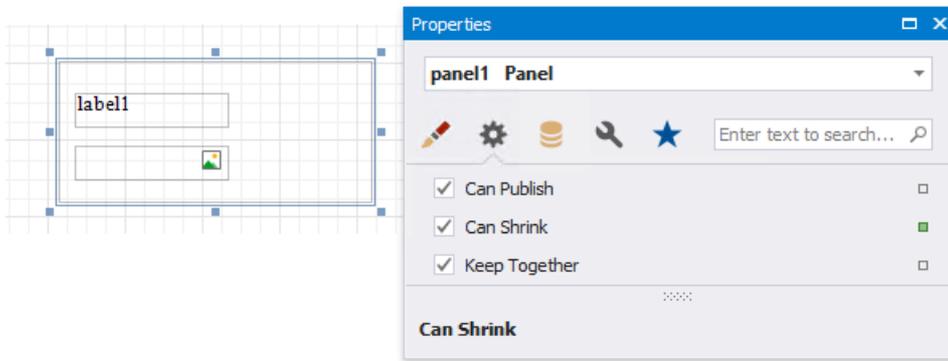
These properties are available for the following

- controls: [Bar Code](#)
- [Label](#)
- [Character](#)
- [Comb Rich](#)
- [Text](#)
- [Table](#)
- [Cell](#)
- [Picture Box](#)

Conditionally Suppress a Control

You can suppress a control when a specified logical condition is met by specifying the required **Visible** property expressions as described in the [Conditionally Suppress Controls](#) topic.

In this case, a space remains in the band at the control's location. You can avoid this by placing these controls onto an [Panel](#) and enabling its **Can Shrink** property.



For this feature to work correctly, consider the following:

- Specify the **Visible** property's expression to the controls in the panel (and not to the panel itself).
- Do not assign borders to the panel container. Otherwise, they are printed when the panel's content is suppressed.

Customize Appearance

The topics in this section describe how to customize the report elements' appearance:

- [Appearance](#)
- [Properties Report](#)
- [Visual Styles](#)
- [Report Style Sheets](#)

Appearance Properties

This document describes the purpose and implementation of the appearance properties - a special set of properties that allow you to customize the appearance of a report or any of its elements.

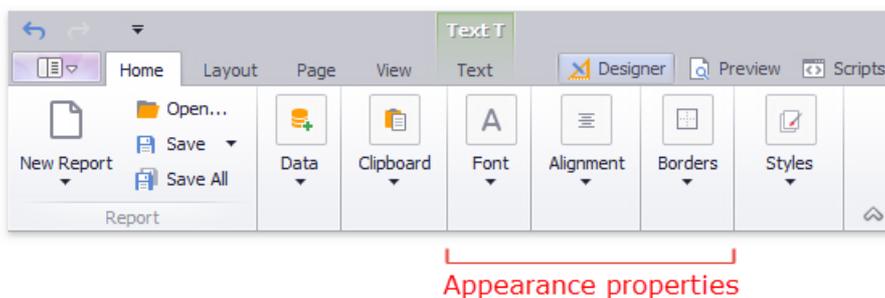
Properties Overview

Every report element ([control](#) or [band](#)), and a report itself, has a set of properties that specify its appearance. They are listed in the following table.

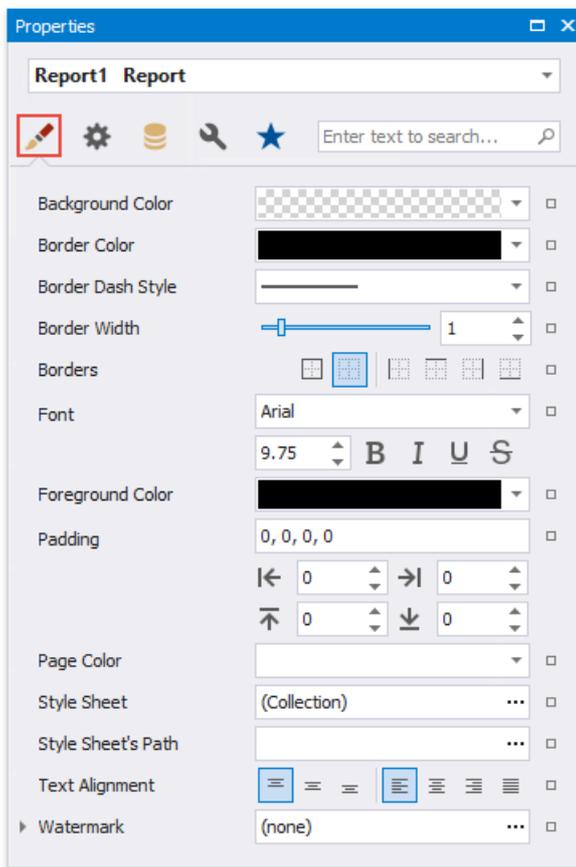
PROPERTY NAME	DESCRIPTION
Background Color	Gets or sets a background color to a report element and its child controls.
Border Color	Gets or sets a border color to a report element and its child controls.
Border Dash Style	Gets or sets a border dash style to a report element and its child controls.
Borders	Gets or sets borders (top, right, bottom, left), which should be visible for a report element and its child controls.
Border Width	Gets or sets a border width to a report element and its child controls.
Font	Gets or sets the font options (its name, size, etc.) to a report element and its child controls.
Foreground Color	Gets or sets the foreground color to a report element and its child controls.
Padding	Gets or sets the indent values which are used to render the contents of a report element and its child controls.
Text Alignment	Gets or sets the text alignment to a report element and its child controls.

Access Appearance Properties

Use the Report Designer's [Toolbar](#) to access the appearance properties.

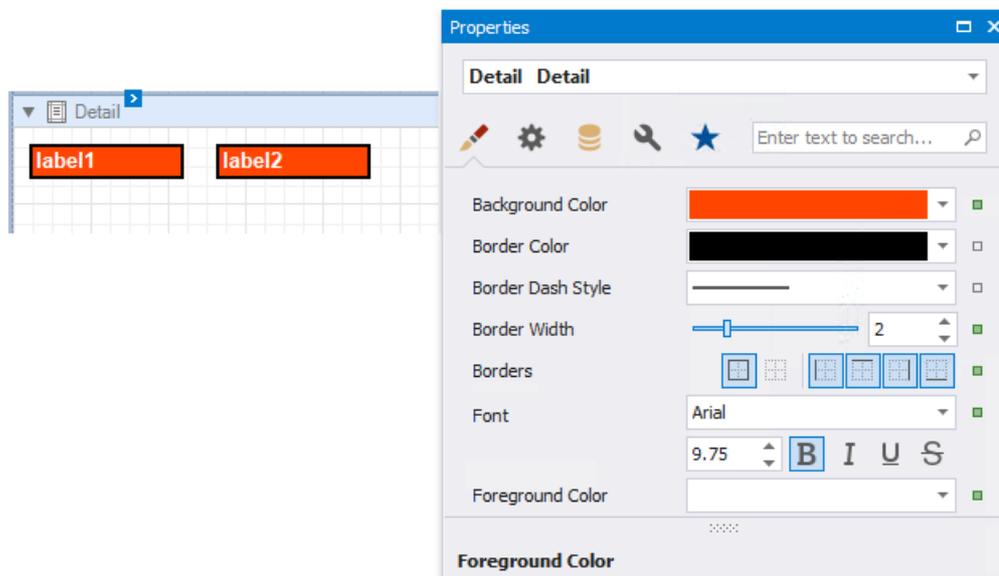


More appearance properties are available in the [Property Grid](#)'s **Appearance** tab.



Property Value Inheritance

By default, appearance properties for every control or a band are set to empty values, which means that their real values are obtained from a control's parent, or a parent of its parent and so on.

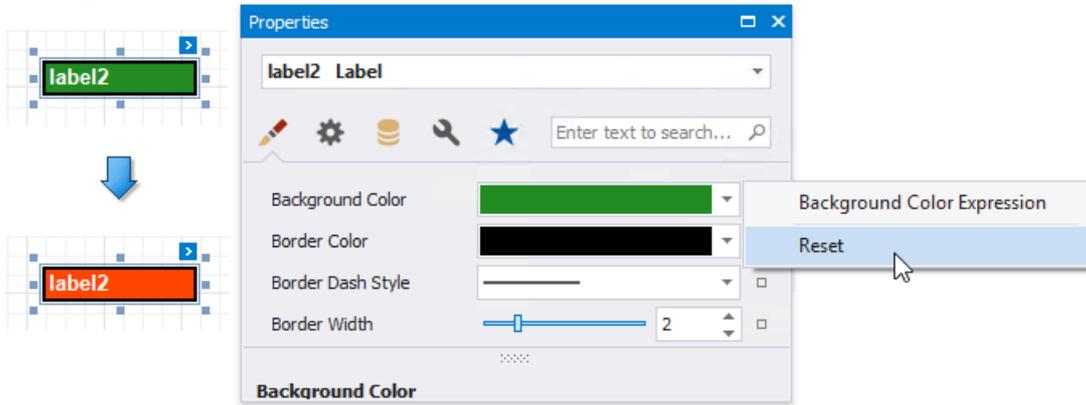


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The appearance properties may not be used by all descendants of the current report element for which they are defined. For example, the **Page Break** element ignores the **Back Color** property.

To reset values of these properties, click the property marker in the Property Grid, and select **Reset** in the invoked menu. Then, the control's actual appearance will be determined by the appropriate properties

settings of its parent.



If a report element has a [style](#) assigned to it, the priority of the properties defined by this style is determined by the **StylePriority** property. Note that when a [conditional formatting](#) is involved, the appearance it defines is of greater priority than the properties described above.

Report Visual Styles

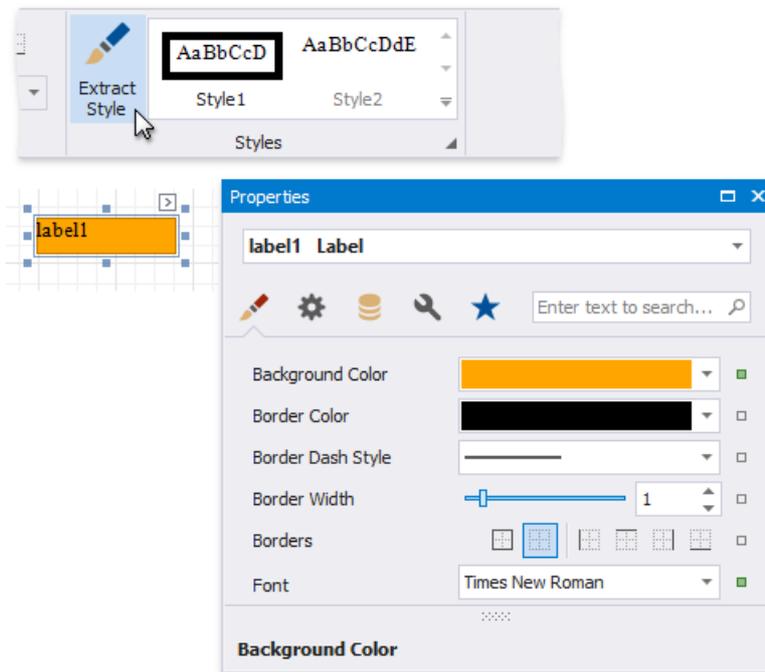
This topic describes how to combine [appearance properties](#) into styles and apply them to report elements.

Create a Report Style

Use the following approaches to create a visual style in your report:

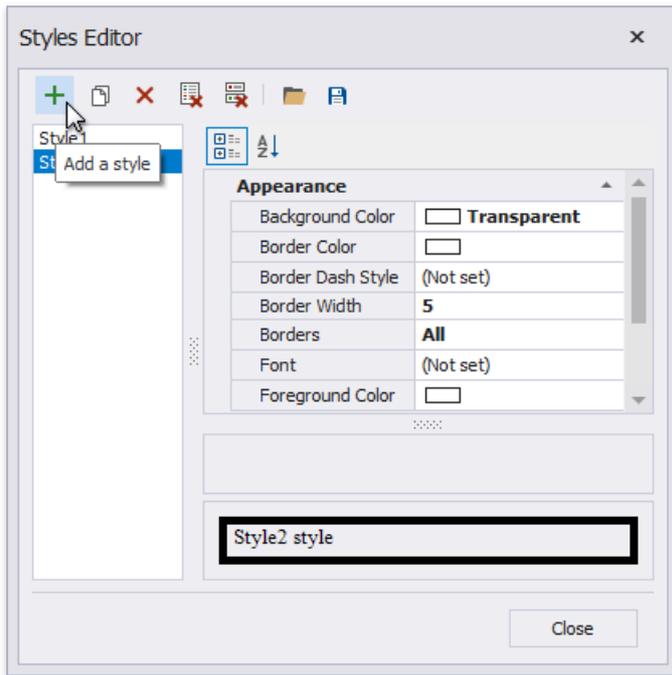
- **Extract a Style**

Specify a report control's [appearance properties](#) and press **Extract Style** in the report's [toolbar](#).



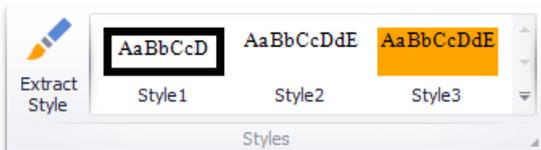
- **Create a new Style**

Press the caption button in the toolbar's Styles group to invoke the Styles Editor.

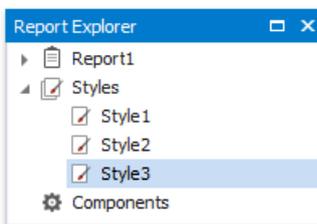


Press the **Add a style** button and specify the new style's appearance properties. Close the Styles Editor.

The created style is added to the Style gallery. You can access this gallery in the following places: the Styles group in the report's [toolbar](#);



• the Styles group in the [Report Explorer](#).

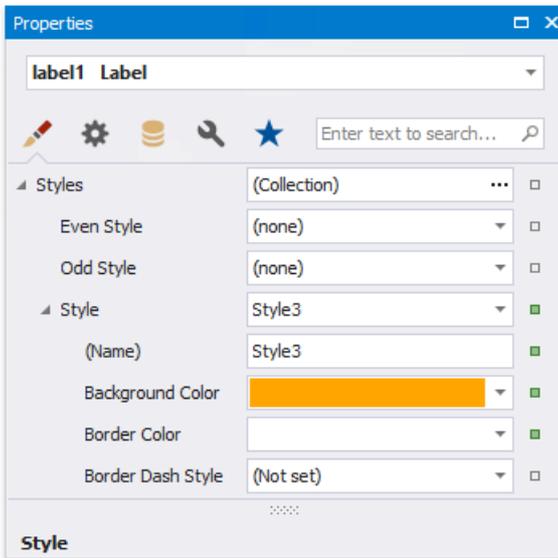


Assign a Style to a Report Element

Select a report element and press a style in the toolbar's Styles group.

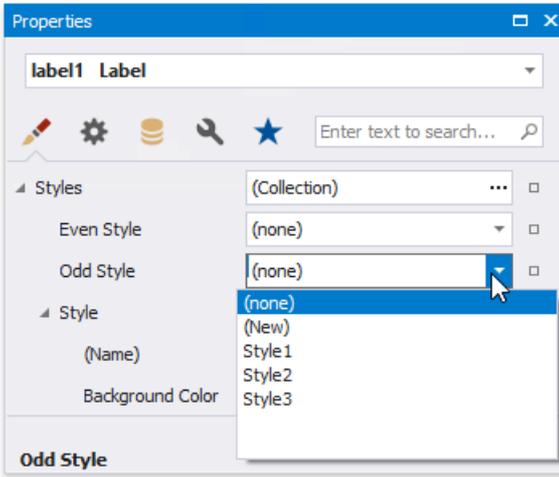


This assigns the style to the report element's **Style** property.



Assign Odd and Even Styles

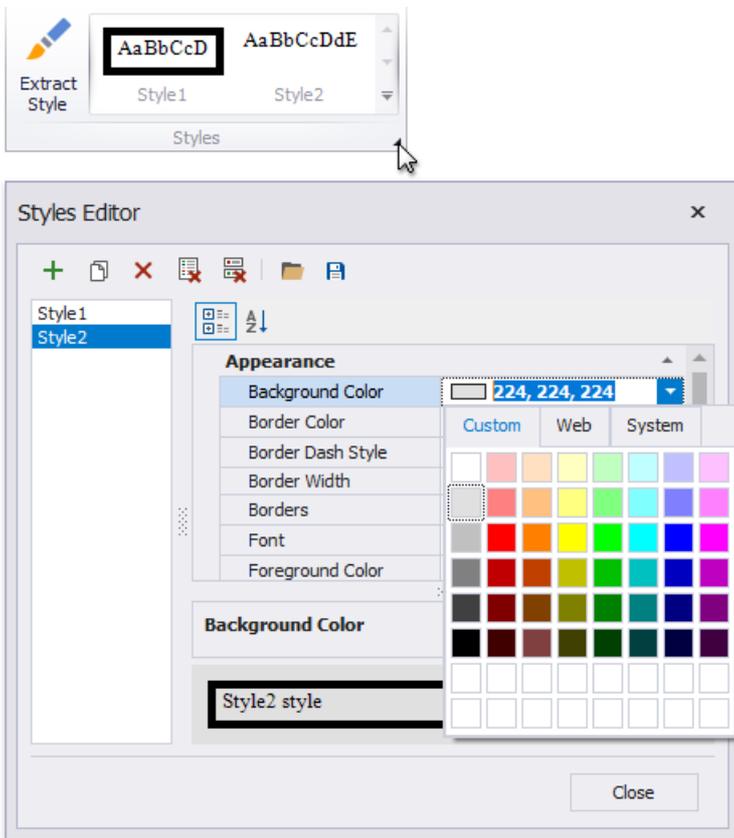
You can use the **Odd Style** and **Even Style** properties to apply different styles to alternating rows in a report.



Product Name	Quantity per Unit	Unit Price
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Aniseed Syrup	12 - 550 ml bottles	\$10.00
Chef Anton's Cajun Seasoning	48 - 6 oz jars	\$22.00
Chef Anton's Gumbo Mix	36 boxes	\$21.35
Grandma's Boysenberry Spread	12 - 8 oz jars	\$25.00
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	\$30.00
Northwoods Cranberry Sauce	12 - 12 oz jars	\$40.00
Mishi Kobe Niku	18 - 500 g pkgs.	\$97.00
Ikura	12 - 200 ml jars	\$31.00
Queso Cabrales	1 kg pkg.	\$21.00

Customize a Style

Press the caption button in the toolbar's Styles group to invoke the Styles Editor.



Select a style and modify its property values. All the report elements apply the updated style immediately.

Style Inheritance

Nested elements inherit their parent element's style if they do not have an applied style.

Override Styles

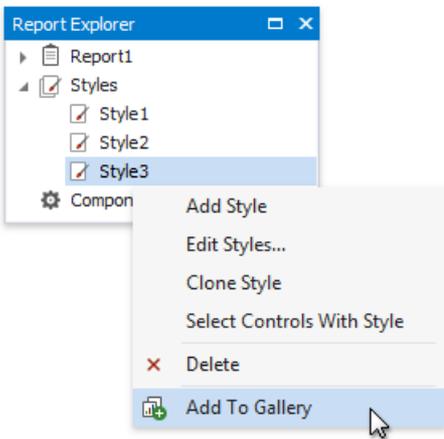
You can specify a different value for a report element's appearance property to override the corresponding property value in the report element's style.

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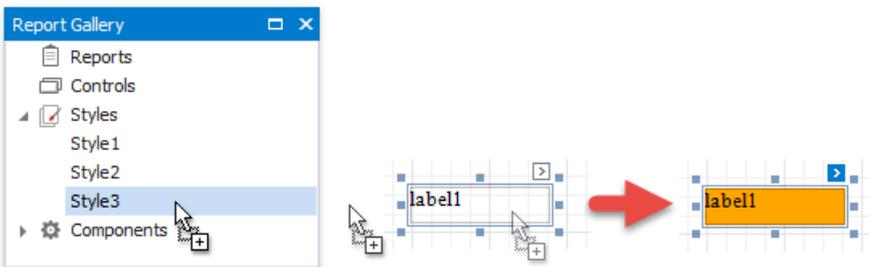
If you apply [conditional formatting](#), its appearance property values have a higher priority than both the individually specified properties and the style's properties.

Reuse Styles

You can add a style to the [Report Gallery](#) and use it across different reports. In the [Report Explorer](#), right-click a style and choose **Add to Gallery**.



The styles that the Report Gallery includes are available across reports. Drag a style from the **Report Gallery** to a report element.



This embeds the style to the report and set's the report element's **Style** property.

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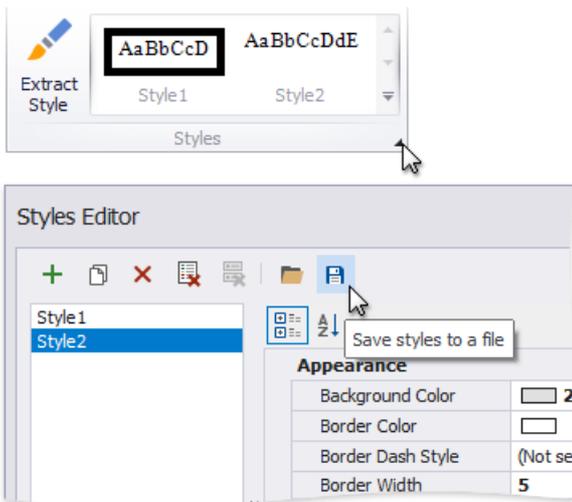
You can combine styles into [style sheets](#) and reuse them in reports.

Report Style Sheets

You can combine [report styles](#) into a style sheet and reuse them in reports. This topic explains how to create and use style sheets in reports.

Save Styles as Style Sheets

Press the caption button in the toolbar's Styles group to invoke the Style Editor.



Press the  button to save the styles as a style sheet (external REPSS file).

Add a Style Sheet to a Report

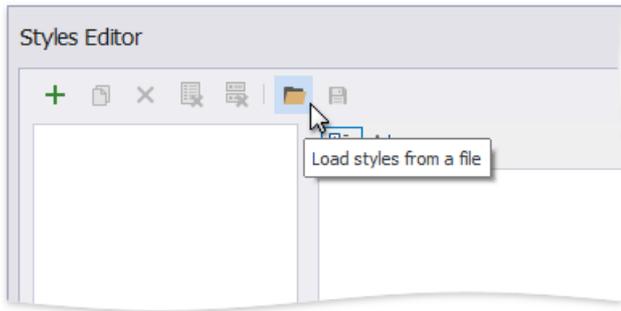
Do the following to embed a style sheet's styles in

a report: invoke the Styles Editor;

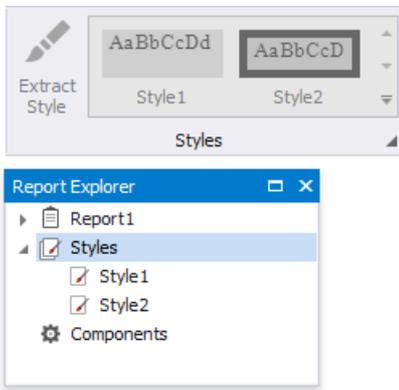
-



press  and choose a style sheet file in the Open dialog.

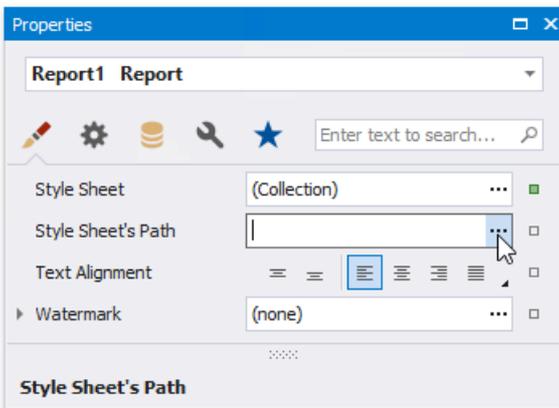


All the styles are now available in the report's toolbar and Report Explorer.

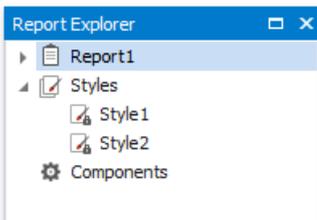


Reuse Style Sheets in Reports

You can utilize styles from a style sheet in a report. To do this, specify the path to the style sheet file in the report's **Style Sheet's Path** property.



The attached style sheet's styles are now available in the report's toolbar and the Report Explorer. You **cannot edit these styles**.



Add Navigation

The topics in this section describe how to use navigation features in your reports:

- [Add Page Numbers](#)
- [Add Cross-References and Hyperlinks](#)
- [Add Bookmarks and a Document Map](#)
- [Add a Table of Contents](#)

Note

See [Provide Interactivity](#) to learn how to create drill-down reports.

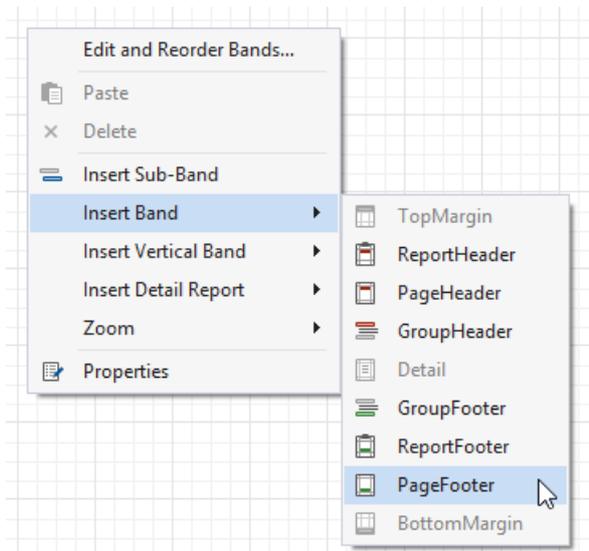
Add Page Numbers

The tutorial describes how to add page numbers to your reports.

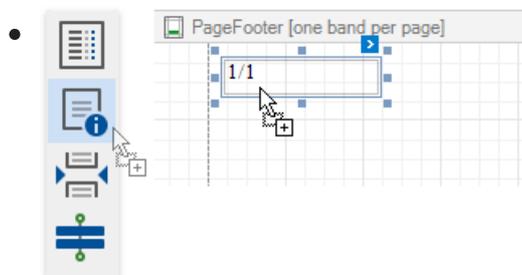
Add Page Numbers

Do the following to add page numbers to a report:

- Create a [PageFooterBand](#) in your report. To do this, right-click anywhere in the report designer, and in the context menu point to **Insert Band**, and then click **PageFooter**.

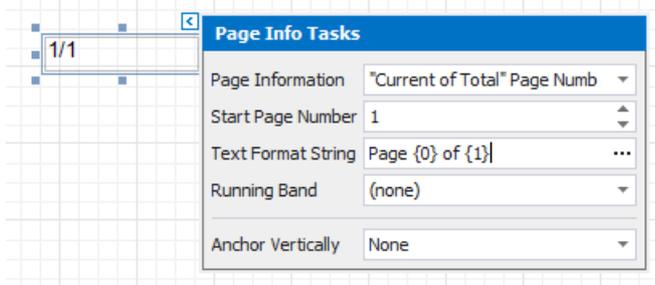


Drop the [Page Info](#) control from the [Toolbox](#) to the **PageFooter** band.



To change the control's display format, click its smart tag, and in the invoked actions list, specify the **Text**

- **Format String** property (e.g., **Page {0} of {1}**, to display the current page number out of the total number of pages).



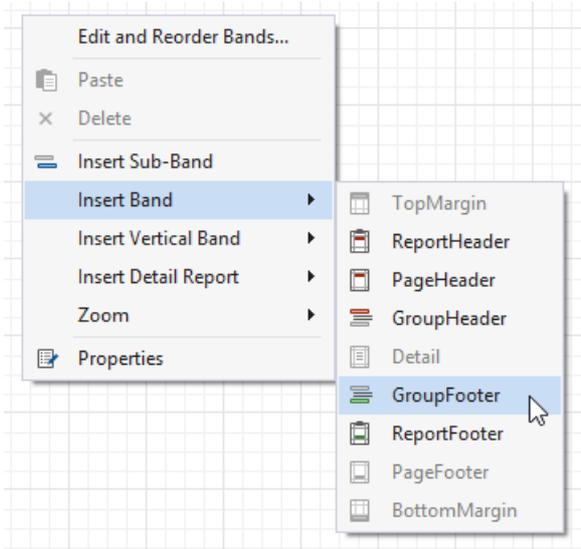
The following image illustrates the resulting report:

Gula Malacca	\$19.45
Røgedede sild	\$9.50
Spegesild	\$12.00
Zaanse koeken	\$9.50
Chocolade	\$12.75
Maxilaku	\$20.00
Valkoinen suklaa	\$16.25
Manjimup Dried Apples	\$53.00
Filo Mix	\$7.00
Perth Pasties	\$32.80
Tourtière	\$7.45
Pâté chinois	\$24.00
Gnocchi di nonna Alice	\$38.00
Ravioli Angelo	\$19.50
Escargots de Bourgogne	\$13.25
Raclette Courdavault	\$55.00
Camembert Pierrot	\$34.00
Page 2 of 3	

Add Page Numbers for Groups

Do the following to make your report display page numbers for groups or detail reports:

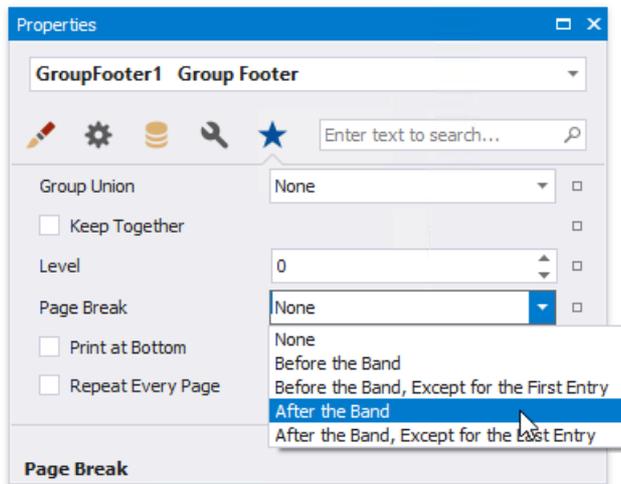
- Add the **GroupFooter** band. To do this, right-click anywhere on the report's surface, and in the invoked menu, point to **Insert Band** and click **GroupFooter**.



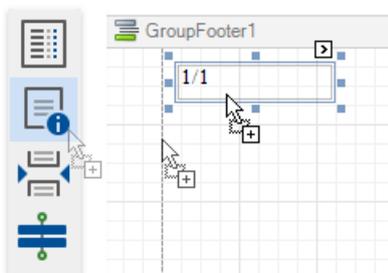
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You can force the group header and/or the group footer to be repeated on each page, using the GroupBand's **Repeat Every Page** property.

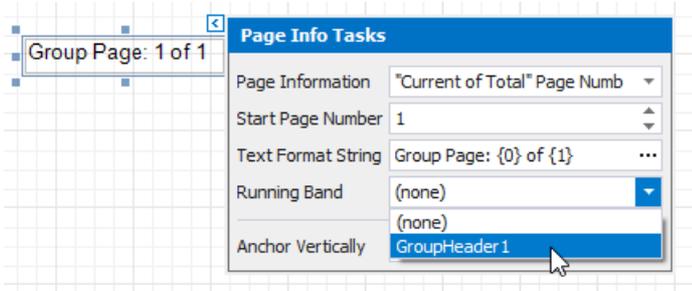
- Next, force each new group to start on a separate page. Otherwise, group page numbers will be calculated incorrectly. To do this, select the Group Footer, and set its **Page Break** property to *After the Band*.



- Drop the **Page Info** control from the **Toolbox** onto the **GroupFooter** (or **GroupHeader**) band.



- Select the created control, and set its **Running Band** property to *GroupHeader1*.



Tip

You can use the **Text Format String** and **Page Information** properties to adjust the way the control represents its contents.

The following image illustrates the resulting report:



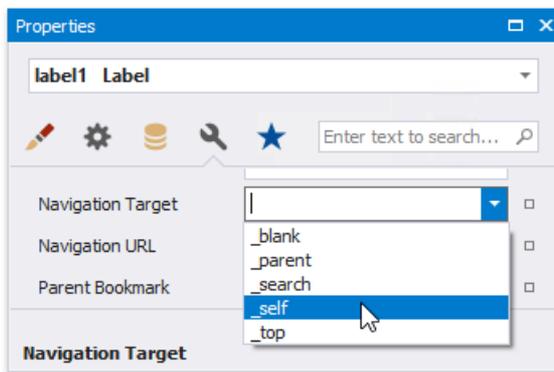
Add Cross-References and Hyperlinks

This document describes how to make an element navigate to other elements in a report or external resources by clicking it in a Print Preview.

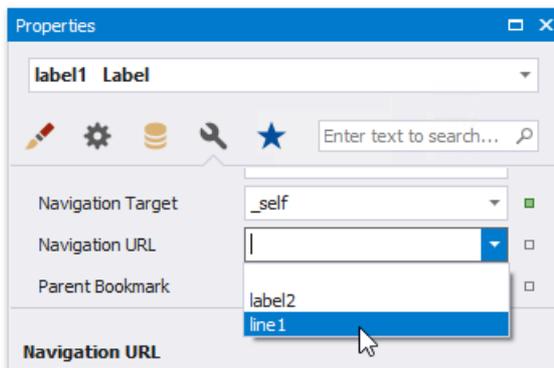
Add Cross-References

You can improve report navigation using a cross-reference because the link's target is in the same document. You can add a cross-reference for a [report control](#) by setting the following properties:

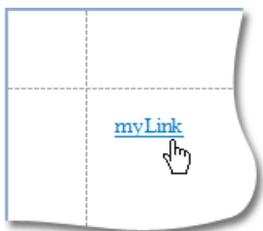
1. Set the **Navigation Target** property to `_self` to specify that the link is in the same document.



2. Set the **Navigation URL** property to the target control's **Name** property value.



In this case, the control behaves like a link meaning that the cursor automatically changes to a hand in a report's preview when hovering the control. You can make a control resemble a link by specifying its [appearance properties](#) (for example, change the text's color to blue and underline it).



The link uses the first occurrence if there are multiple instances of an object marked as a link's target.

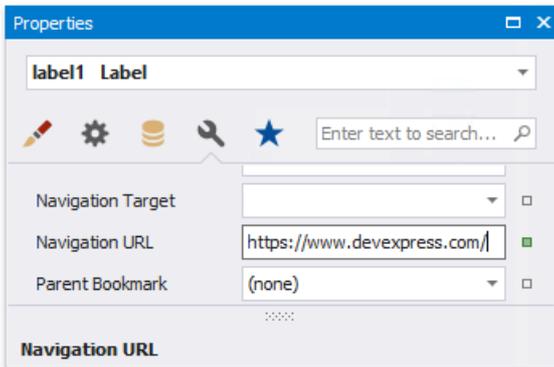
Tip

A report's cross-references are preserved when [exporting it to PDF](#).

Add Hyperlinks

A hyperlink means that a link's target is outside the report.

You can use any control as a link by setting the **Navigation Url** property to the required target document's URL.



Note

Remember to use the "http://" or "https://" prefix when specifying the URL.

You can make a control resemble a link by specifying its [appearance properties](#) (for instance, set the underlined text and blue color).

The cursor automatically changes to a hand when hovering the control in a report's preview.



Use the link's **Navigation Target** property to specify where to open the target document (in the same preview window, in a new blank window, etc.).

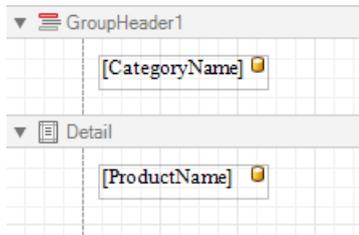
Tip

A link's behavior is preserved when [exporting a report](#) to most of the available formats (in particular to PDF, HTML, MHT, RTF and Excel).

Add Bookmarks and a Document Map

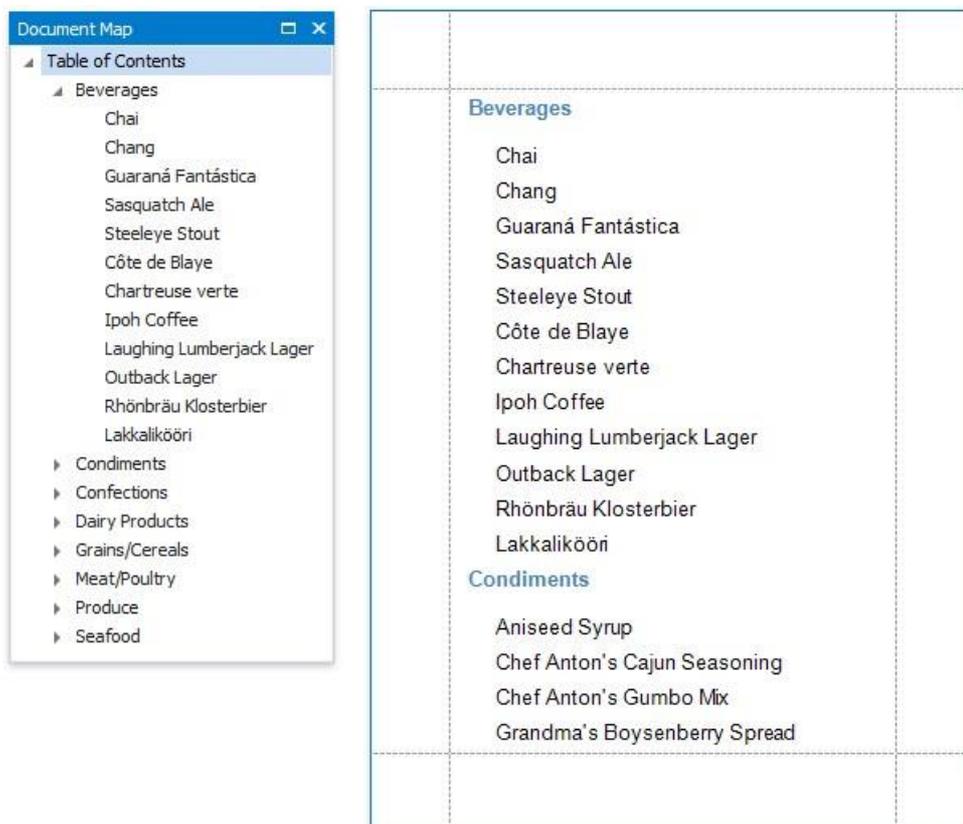
This document describes how to use bookmarks for mapping the report elements' hierarchy to the Document Map that is displayed in a Print Preview, and speeds up the navigation through complex reports.

The example below is based on the following report:



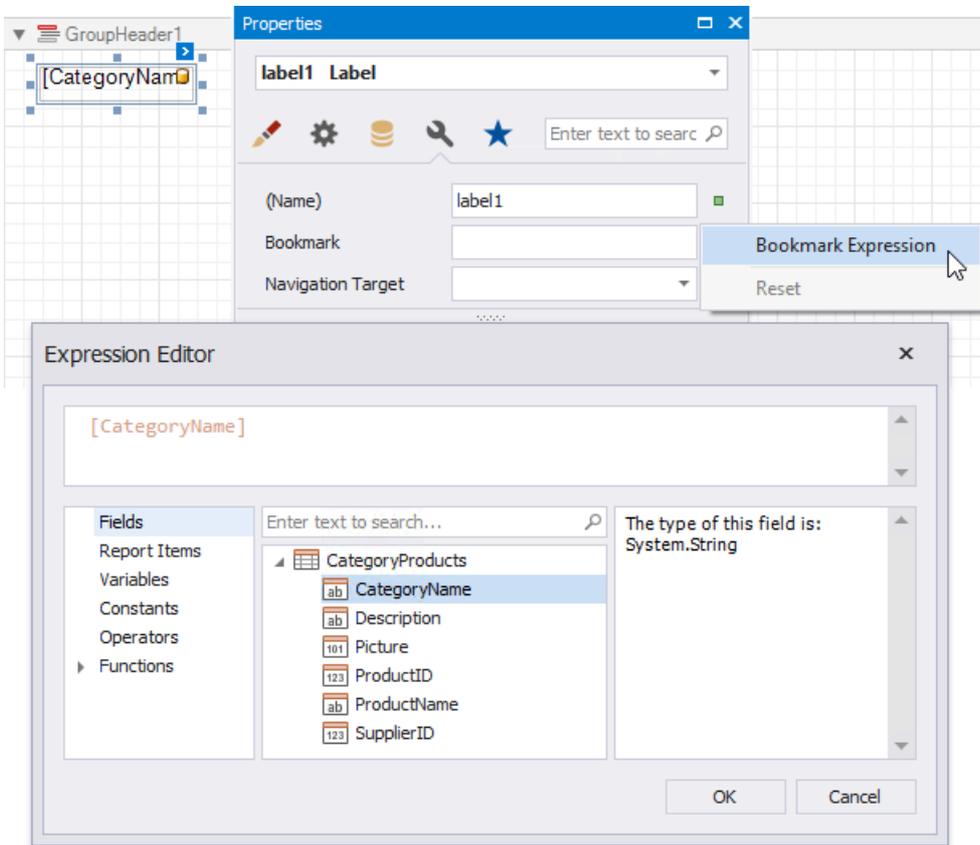
This report displays products that are **grouped** by the **CategoryName** field.

The following image illustrates the resulting report with a hierarchical Document Map. Clicking any bookmark navigates the Print Preview to the document section containing the associated element.

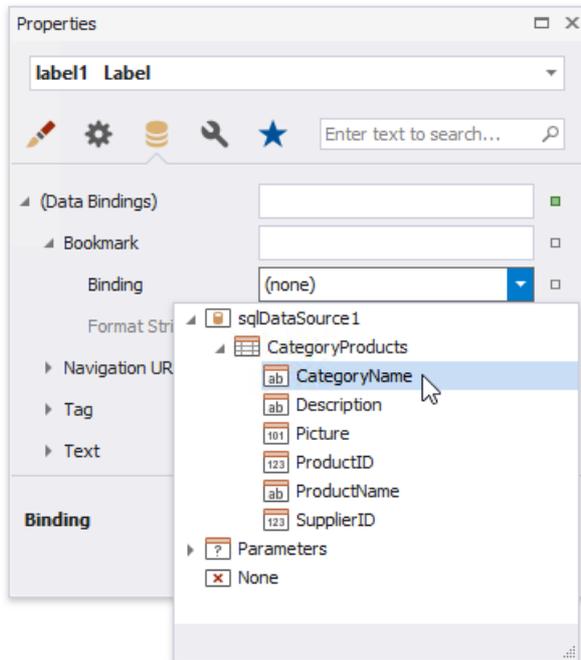


Use the following steps to generate a Document Map in your grouped report:

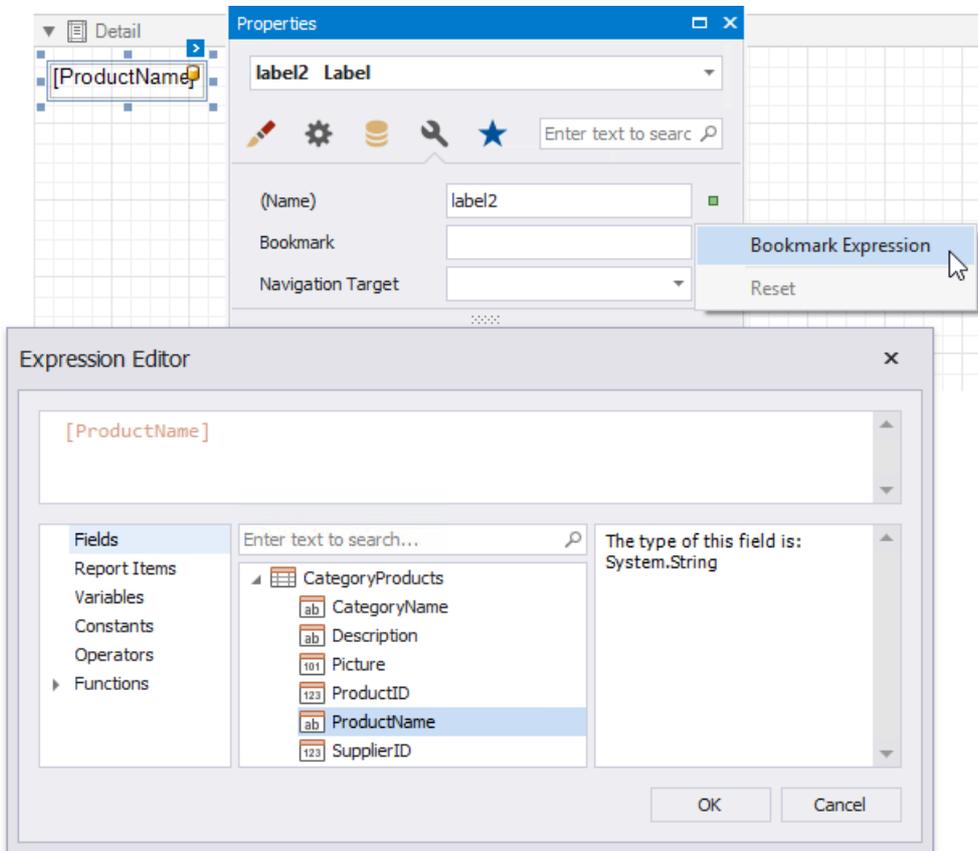
1. Select the label placed in the **Group Header** band and switch to the **Property Grid's Miscellaneous** tab. Click the **Bookmark** property's marker and select the **Bookmark Expression** item. In the invoked **Expression Editor**, select the **CategoryName** data field.



In the legacy binding mode (if the Property Grid does not provide the **Bookmark Expression** item), you can specify this property in the Property Grid's **Data Bindings** category.

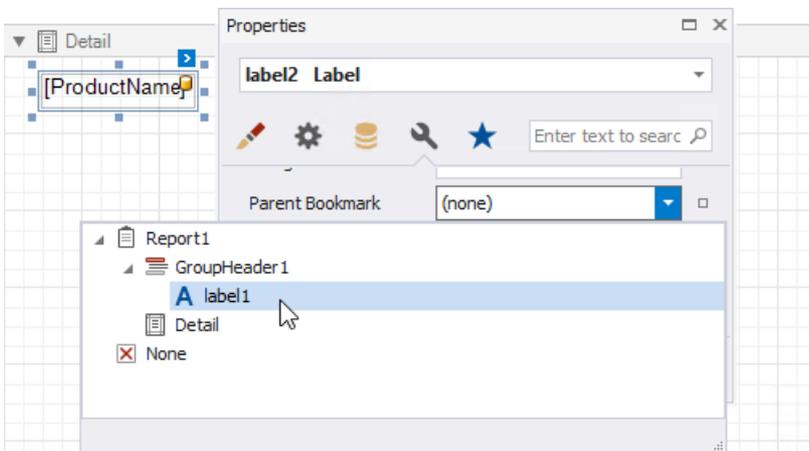


2. In the same way, select the label in the **Detail** band and bind its **Bookmark** property to the **ProductName** data field.



Most of the reporting controls (for example, [Table](#), [TableCell](#), [CheckBox](#), etc.) supports the **Bookmark** property.

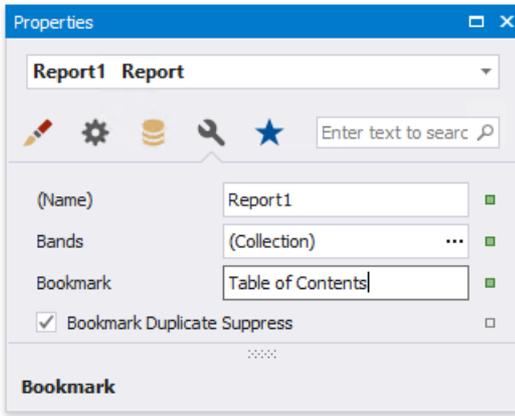
- Set the same label's **Parent Bookmark** property to the label in the group band. This arranges bookmarks into a parent- child structure reflecting the report elements' hierarchy in the Document Map.



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Avoid cyclic bookmarks that occur when you assign two bookmarks as parents to each other. In this scenario, an exception raises when you attempt to create the report document.

- Select the report itself and assign text to its **Bookmark** property to determine the root node's caption in the **Document Map**.



The root bookmark displays the report name if you do not specify this property.

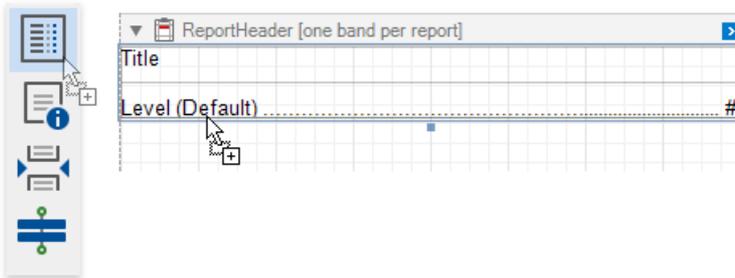
Note

Duplicated bookmarks are suppressed to prevent adding multiple bookmarks with the same name to a final document. You can disable the report's Bookmark Duplicate Suppress property to allow Create a Table of Contents.

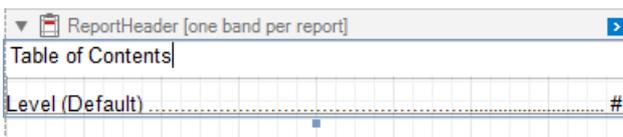
This tutorial describes the steps to create a report with a table of contents. A table of contents is automatically created based on the bookmarks existing in a report.

Do the following to create a table of contents in a report:

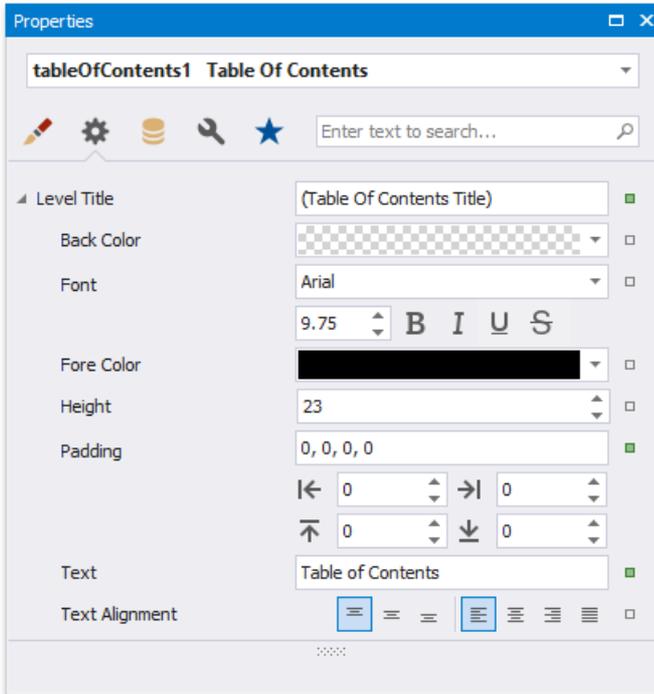
1. From the [Control Toolbox](#), drop the [Table of Contents](#) control onto the [Report Header band](#).



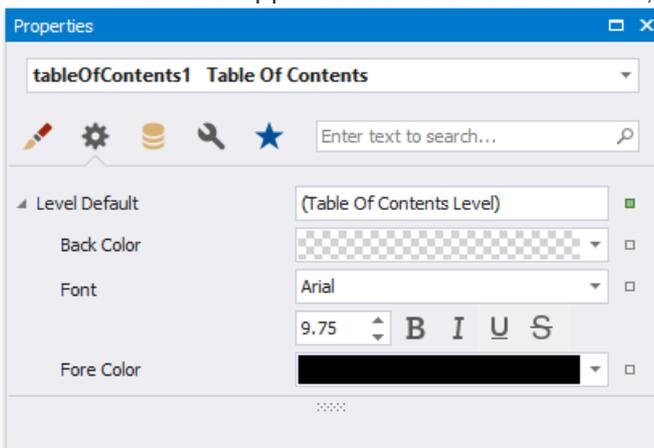
2. Double-click the title of the table of contents and specify its text.



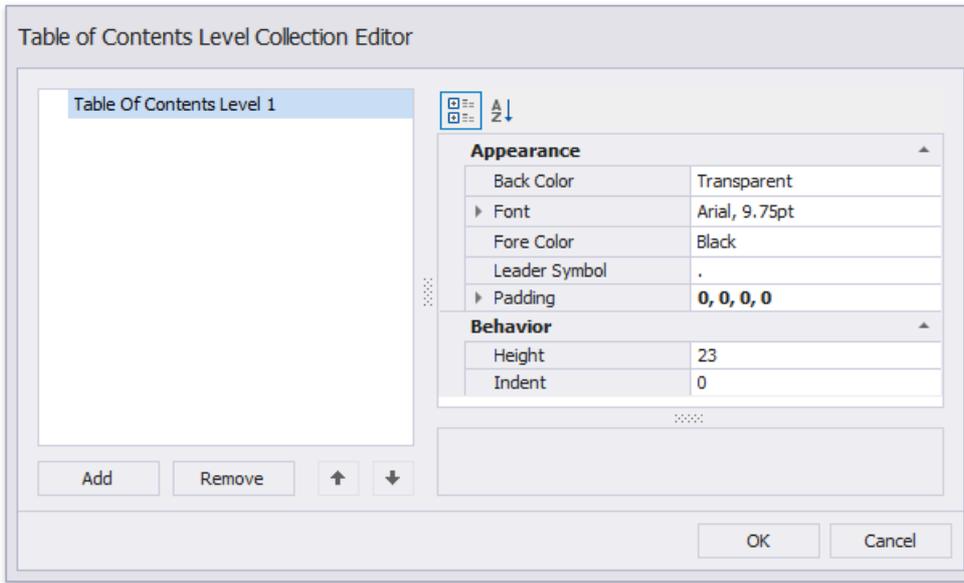
3. To customize the title appearance, use the **Level Title** option's settings available in the **Properties** window.



4. To customize the appearance of all other levels, use the **Level Default** option's settings.



5. To customize a specific level individually, add a corresponding item to the **Levels** collection of the table of contents and customize its properties.



The following image demonstrates the result in Print Preview:

Table of Contents	
Beverages	4
Ohai	4
Ohang	4
Guarana Fantastica	5
Sasquatch Ale	5
Steeleye Stout	5
Cote de Blaye	6
Ohartruese Verte	6
Ipoh Coffee	6
Laughing Lumberjack Lager	7
Outback Lager	7
Rhonbrau Klosterbier	7
Lakkalikoori	8

Provide Interactivity

The documents in this section provide information on the interactive features that enable report customization in Print Preview.

- [Create Drill-Down Reports](#)
- [Reports Sort a Report in Print Preview](#)
- [Content Editing in Print Preview](#)

Create Drill-Down Reports

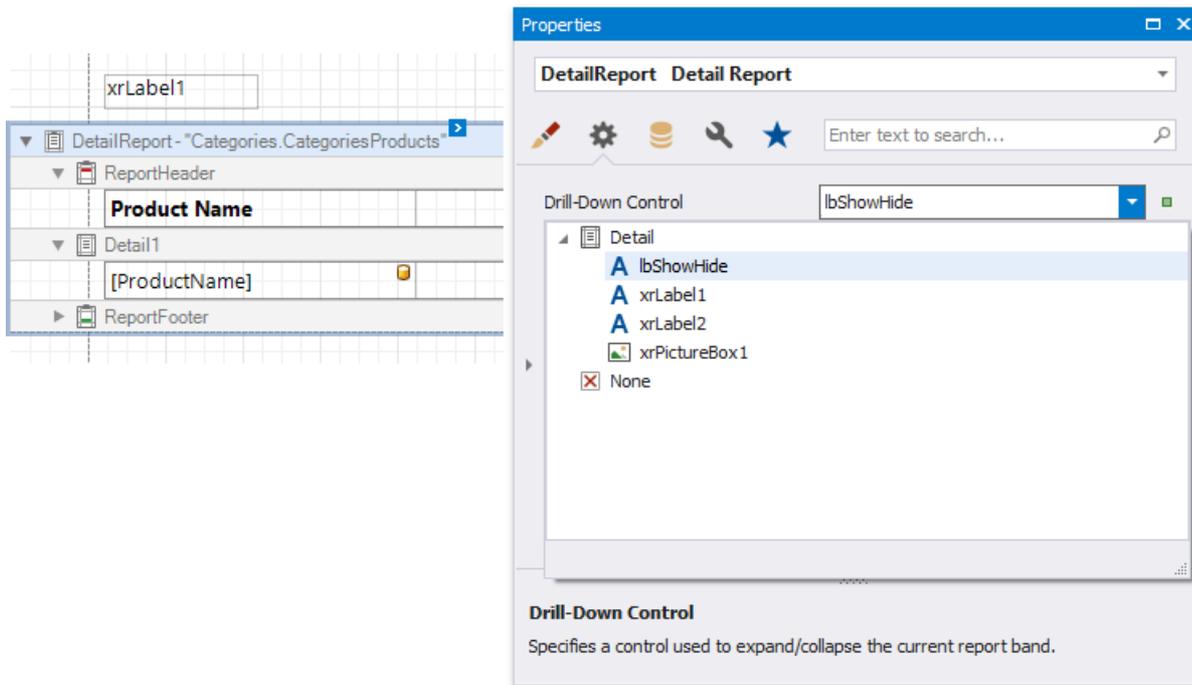
This tutorial describes how to create a drill-down report. Clicking a link in such a report displays the previously hidden detailed information in the same report:

Beverages		
<i>Soft drinks, coffees, teas, beers, and ales</i>		
		
Hide Details		
Product Name	Quantity Per Unit	Unit Price
Chang	24 - 12 oz bottles	\$19.00
Ipoh Coffee	16 - 500 g tins	\$46.00
Outback Lager	24 - 355 ml bottles	\$15.00
Condiments		
<i>Sweet and savory sauces, relishes, spreads, and seasonings</i>		
		
Show Details		

Do the following to create a drill-down report:

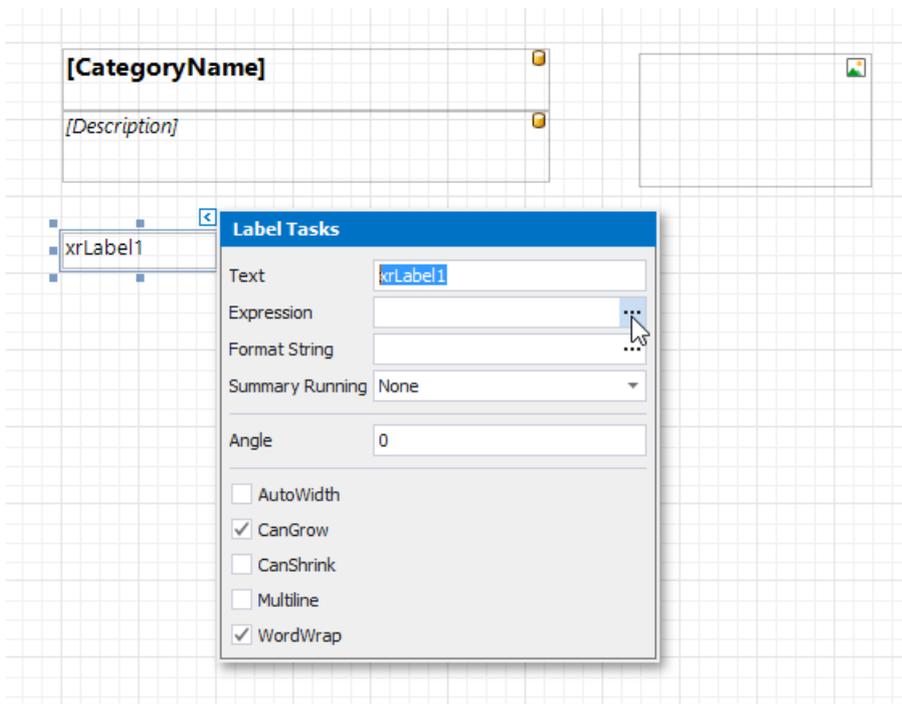
1. [Create a master-detail report using Detail Report bands.](#)
2. Drop a label onto the report's detail band. Clicking this label should expand or collapse the hidden report details.
3. Select the [detail report band](#) by clicking its header and expand the drop-down menu for the band's **DrillDownControl** property in the [Property Grid](#).

This menu displays all report controls available on the report band that is one level above the current band in the report bands' hierarchy. Select the corresponding label in the menu to make the label expand or collapse the detail report's band when clicked in the Print Preview.



You can also specify the band's **Drill Down Expanded** property to define whether or not the band is initially expanded. This property is enabled by default.

4. Click this label's smart tag and select the **Expression** property.



This invokes the **Expression Editor** where you can make the label display different text based on the detail report's **DrillDownExpanded** property value.

```
[ReportItems].[DetailReport].[DrillDownExpanded], 'Hide Details', 'Show Details'
```

Fields

Report Items

Constants

Operators

Functions

Aggregate

DateTime

Logical

Math

String

Enter text to search...

... @] XtraReport1

1:11 TopMargin

Detail

 A xnl abell

 i;J xrPictureBox1

 A xrl abel4

 A xrl abell

 DetailReport

 ▶ aJ ReportHeader

 Detail

 ReportFooter

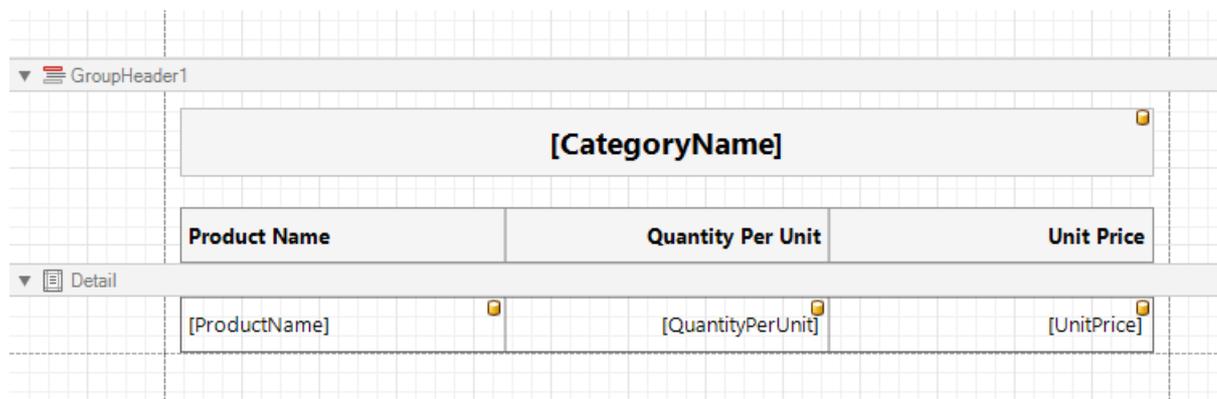
1:11 BottomMargin



Sort a Report in Print Preview

This tutorial illustrates how to enable sorting report data in Print Preview.

In this tutorial, we will start with the following report displaying products **grouped** by category names.

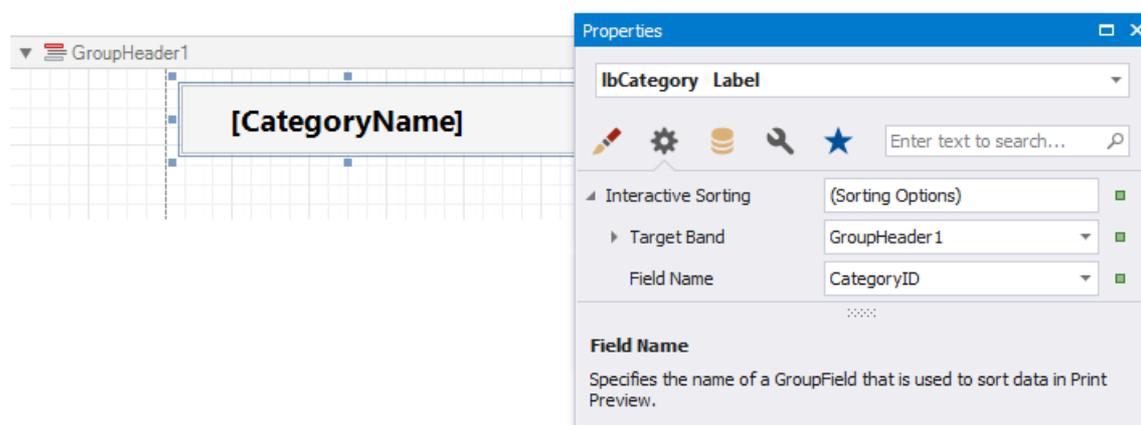


GroupHeader1		
[CategoryName]		
Product Name	Quantity Per Unit	Unit Price
Detail		
[ProductName]	[QuantityPerUnit]	[UnitPrice]

You can implement interactive sorting for both the detail data and report groups.

Sort Report Groups

To enable sorting report groups in Print Preview, select the label displaying product category names located in the **Group Header** band and switch to the [Property Grid](#).



The screenshot shows the report design grid with the **GroupHeader1** band selected. The **Properties** window is open, displaying the **Interactive Sorting** property for the **lbCategory Label**. The **Target Band** is set to **GroupHeader1** and the **Field Name** is set to **CategoryID**. The **Field Name** property is expanded, showing a description: "Specifies the name of a GroupField that is used to sort data in Print Preview."

Expand the label's **InteractiveSorting** property, and set the **TargetBand** property to *GroupHeader1* and **FieldName** to *CategoryName*.

Switch to the **Preview** tab to sort report groups by the **CategoryName** field. When a mouse pointer hovers over the category name, it changes to a hand indicating the sorting capability. The arrow displayed at the element's right edge indicates the sorting order.

Beverages		
Product Name	Quantity Per Unit	Unit Price
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Guaraná Fantástica	12 - 355 ml cans	\$4.50
Sasquatch Ale	24 - 12 oz bottles	\$14.00
Steeleye Stout	24 - 12 oz bottles	\$18.00
Côte de Blaye	12 - 75 cl bottles	\$263.50
Chartreuse verte	750 cc per bottle	\$18.00
Ipoh Coffee	16 - 500 g tins	\$46.00
Laughing Lumberjack Lager	24 - 12 oz bottles	\$14.00
Outback Lager	24 - 355 ml bottles	\$15.00
Rhönbräu Klosterbier	24 - 0.5 l bottles	\$7.75
Lakkalikööri	500 ml	\$18.00

Sort Detail Data

The screenshot shows the configuration of a table cell in the Detail band. The **Properties** window for **xrTableCell1 Table Cell** is open, showing the following settings:

- Interactive Sorting:** (Sorting Options)
- Target Band:** Detail
- Sort Fields:** (Collection) - This field is highlighted with a red box.
- Field Name:** ProductName

The **Group Field Collection Editor** dialog is also open, showing the configuration for the **GroupField - ProductName**:

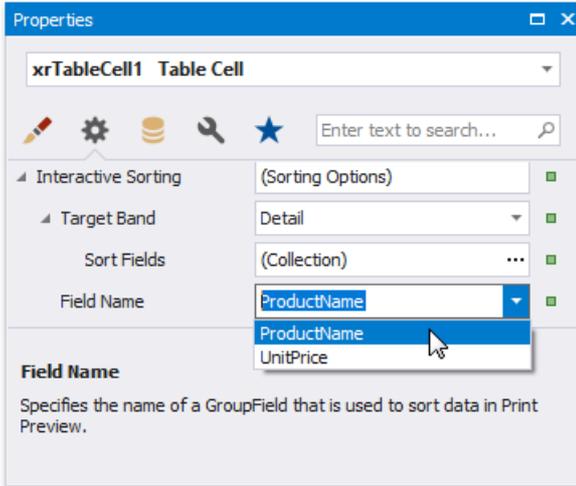
- Behavior:**
 - FieldName:** ProductName
 - SortOrder:** Ascending

The background shows a report design with a header row containing **[CategoryName]** and a detail row with columns **Product Name** and **Quantity Per**.

To enable sorting data in the Detail band, select the table cell displaying the **Product Name** title and switch to the [Property Grid](#).

Set the **TargetBand** property to *Detail* and access the **SortField** property.

In the invoked collection editor, add a new group field and set its **FieldName** to **ProductName**. Set the table cell's **FieldName** property to the **ProductName** field.



On switching to the Preview tab, you can now sort data in the Detail band by the **ProductName** field.

The screenshot shows a report preview with a table titled 'Beverages'. The table has three columns: 'Product Name', 'Quantity Per Unit', and 'Unit Price'. The data is sorted by Product Name. A mouse cursor is hovering over the 'Product Name' column header.

Product Name	Quantity Per Unit	Unit Price
Steeleye Stout	24 - 12 oz bottles	\$18.00
Sasquatch Ale	24 - 12 oz bottles	\$14.00
Rhönbräu Klosterbier	24 - 0.5 l bottles	\$7.75
Outback Lager	24 - 355 ml bottles	\$15.00
Laughing Lumberjack Lager	24 - 12 oz bottles	\$14.00
Lakkalikööri	500 ml	\$18.00
Ipoh Coffee	16 - 500 g tins	\$46.00
Guaraná Fantástica	12 - 355 ml cans	\$4.50
Côte de Blaye	12 - 75 cl bottles	\$263.50
Chartreuse verte	750 cc per bottle	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Chai	10 boxes x 20 bags	\$18.00

If you provide interactive sorting to multiple fields, clicking another field clears all the previously applied data sorting. Hold the SHIFT key while clicking to preserve the existing sorting settings and thus sort against multiple fields.

To disable data sorting against a specific field, hold the CTRL key on its caption click.

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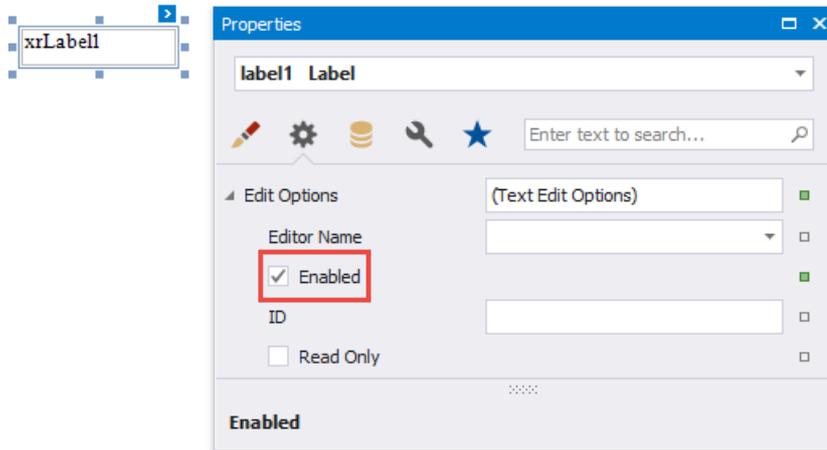
Reports embedded into the current report using the [Subreport](#) control do not support interactive data sorting.

Edit Content in Print Preview

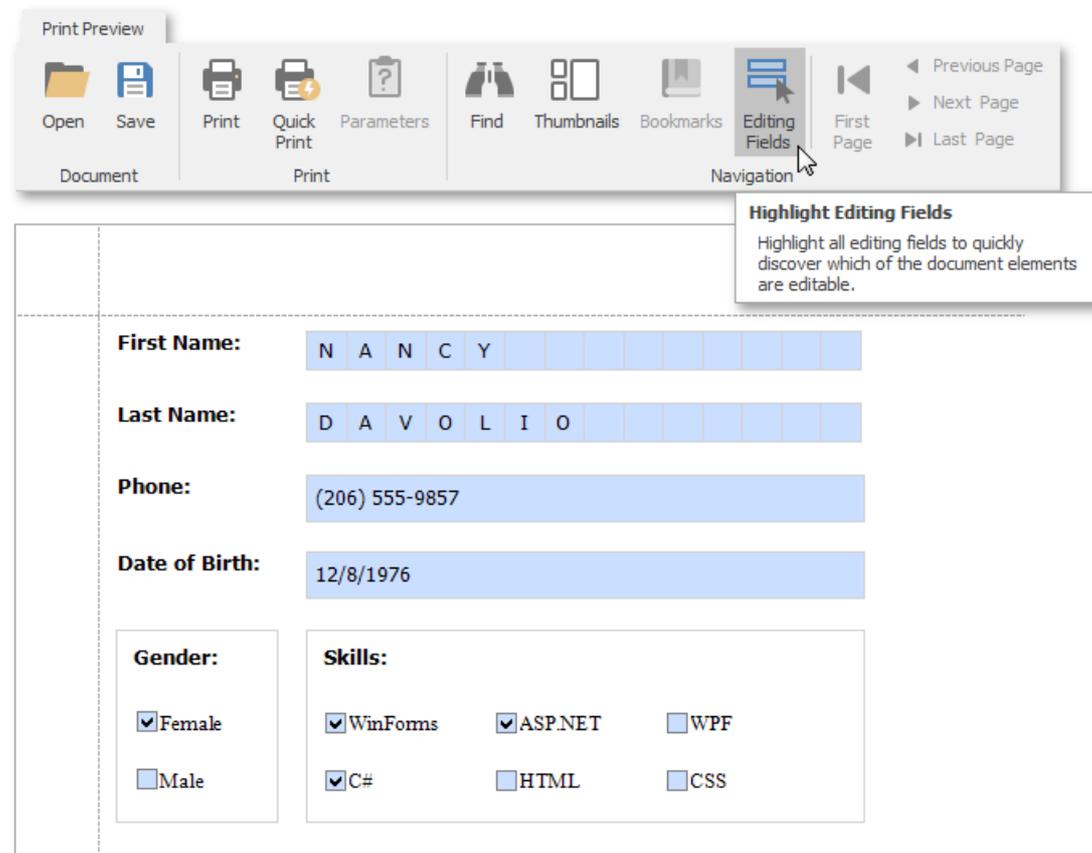
This document describes how to customize field values in a previewed document.

Content Editing Overview

Enable a report control's **Edit Options | Enabled** property and leave the **Edit Options | Read Only** property disabled to make the control's content editable in Print Preview.



Print Preview provides the **Editing Fields** toolbar button if content editing is enabled for at least one control in the displayed report. Click this button to highlight all editable fields available in the document.



Use the TAB and SHIFT+TAB keys to navigate between editable fields forward and back. Click an editable field to invoke an editor and specify a value.

You can enable content editing for data-aware and unbound report controls. The following report controls support content editing in Print Preview:

TEXT	BOOLEAN	IMAGE
Label	Check Box	Picture Box
Table Cell		
Character Comb		

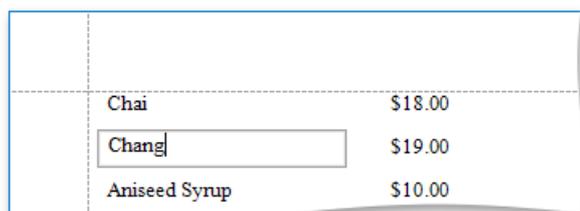
The sections below provide information about options these controls expose. You can use these options to set up content editing.

Content Editing Limitations

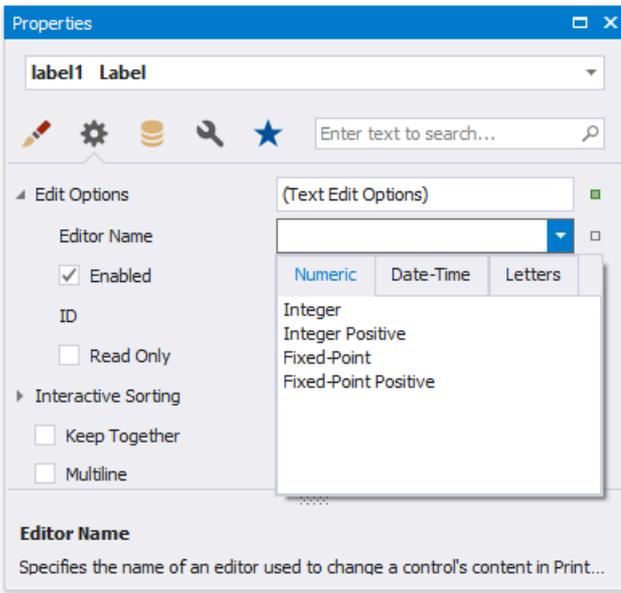
- Changes made to a control's content in Print Preview does not effect the document's other parts (for example, summary results, grouping, sorting, bookmarks and other settings that were processed before the document was generated).
- A control's **Can Grow** setting is ignored for editable fields. The edited area cannot exceed the control's original dimensions. Multi-line values can only be entered when no mask is applied to an editable field.
- Values entered into editable fields are reset after the document is refreshed (for example, when you submit [report parameter](#) values or expand/collapse data in a [drill-down report](#)).
- It is not possible to edit content in bands if their **DrillDownControl** property is specified.
- The entered values are not preserved in the Top Margin and Bottom Margin bands when the report is exported as a single file to the following formats:
 - TXT
 - CSV
 - HTM
 - L
 - MHT
 - RTF
 - XLS
 - XLS
 - X
 - image

Text Editors

Text editors are used to customize the [Label](#), [Table Cell](#) and [Character Comb](#) report controls' content in Print Preview. The default text editor is a memo edit.



Specify the **Edit Options** | **Editor Name** property to use one of the following text editors:



NUMERIC	DATE- TIME	LE T TERS
Integer	Date	Only Letters
Positive Integer		Only Uppercase Letters
Fixed-Point		Only Lowercase Letters
Positive Fixed-Point		Only Latin Letters

Each editor has a specific mask.

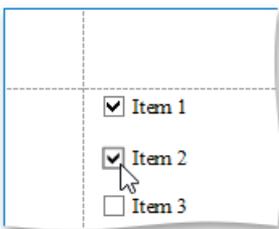
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If a table cell contains other controls, you cannot edit this cell (they can edit the cell's controls). The following image illustrates this:

Employee	Status
First Name: <input type="text" value="Nancy"/>	<input checked="" type="checkbox"/> Employed
Last Name: <input type="text" value="Davolio"/>	<input type="checkbox"/> Retired

Check Box Editor

The check box editor is used to customize the [Check Box](#) report control's content in Print Preview.



You can combine several check box editors into a radio group so that you can select only one option within a

group at a time. For this, set the **Check Box** report controls' **Group ID** property to the same value.

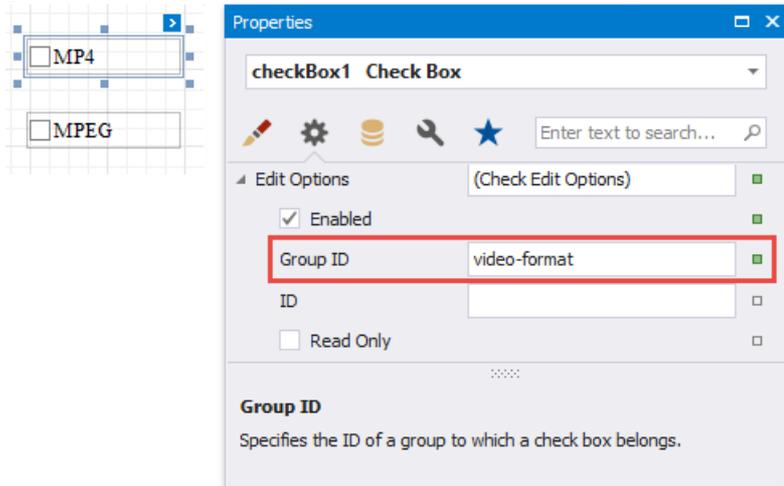


Image Editors

Image editors are used to customize the **XRPictureBox** report control's content in Print Preview.

Use the control's **Edit Options | Editor Name** property to assign one of the following image editors.

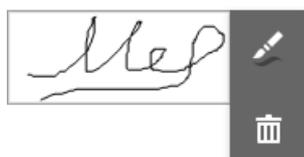
- **Image Editor**

Allows you to load an image and specify the image's size options.



- **Signature Editor**

Allows you to specify brush options and draw a signature.



- **Image and Signature Editor (default)**

Allows you to load an image and draw a signature. The image's size options and brush options are available.



All these image editors include the  button. This button allows you to clear the editor's content.

Add Extra Information

The topics in this section describe how to identify your reports by displaying information about their context:

- [Add Watermarks to a Report](#)
- [Display the Current Date and Time in a Report](#)
- [Display the User Name in a Report](#)

Not e

See [Add Navigation](#) to learn how to add page numbers and a table of contents to your reports.

Add Watermarks to a Report

This tutorial describes how to add watermarks to a report and use preprinted forms.

Andrew Fuller

Birth Date: 2/19/1952

Phone: (206) 555-9482

Country: USA

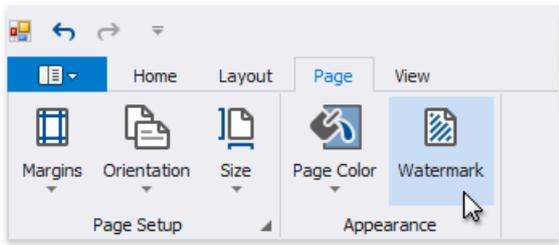
City: Tacoma

Andrew received his BTS commercial in 1974 and a Ph.D. in international marketing from the University of Dallas in 1981. He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager in January 1992 and to vice president of sales in March 1993. Andrew is a member of the Sales Management Roundtable, the Seattle Chamber of Commerce, and the Pacific Rim Importers Association.

Add a Watermark to a Report

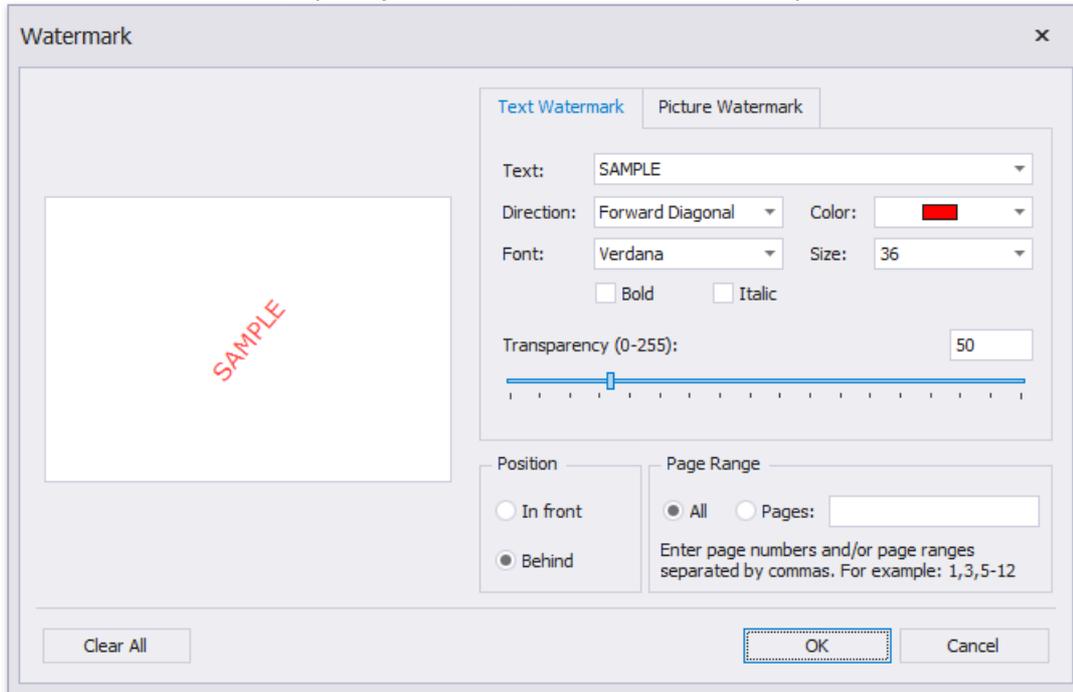
To add a watermark to a report, do the following.

1. Switch to the **toolbar's Page** page and press **Watermark**.

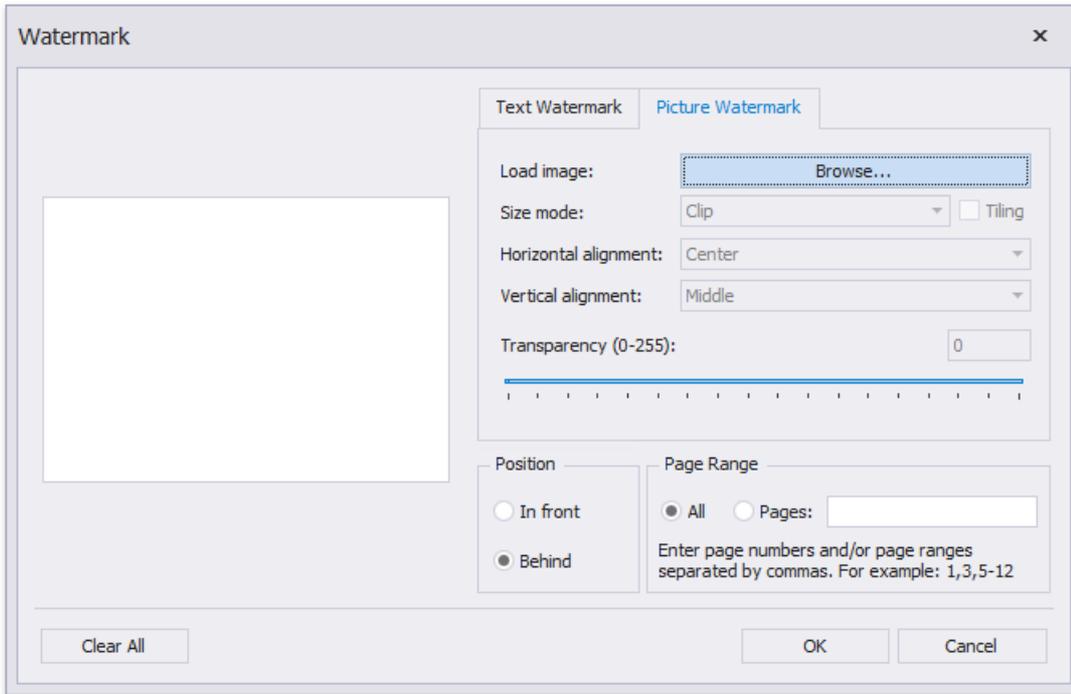


2. In the invoked **Watermark** dialog, select either the **Text Watermark** or **Picture Watermark** tab, depending on the type of watermark you wish to add.

For a text watermark, specify the text, direction and font options.



For a picture watermark, you need to specify an image. To do this, click the ellipsis button for the **Load image** option.



In the invoked **Select Picture** dialog, select the file containing the image that you wish to use as a watermark and click

Open. Next, specify the size mode and alignment options for the picture.

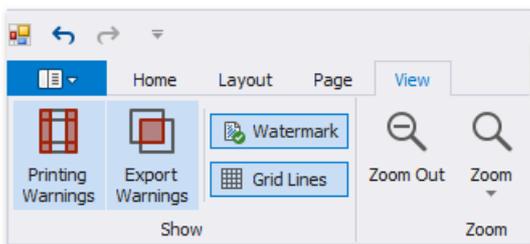
Additionally, for both textual and picture watermarks, you can adjust the transparency, position (in front of or behind the document content), and the page range in which the watermark will be printed.

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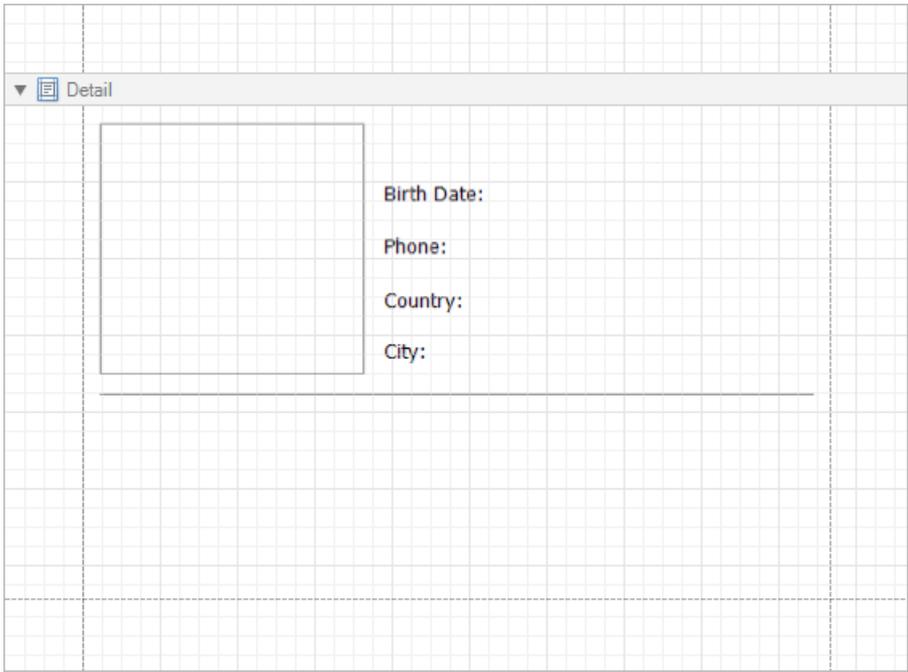
The **Transparency** property is unavailable when you specify an SVG image.

Supply a Preprinted Form

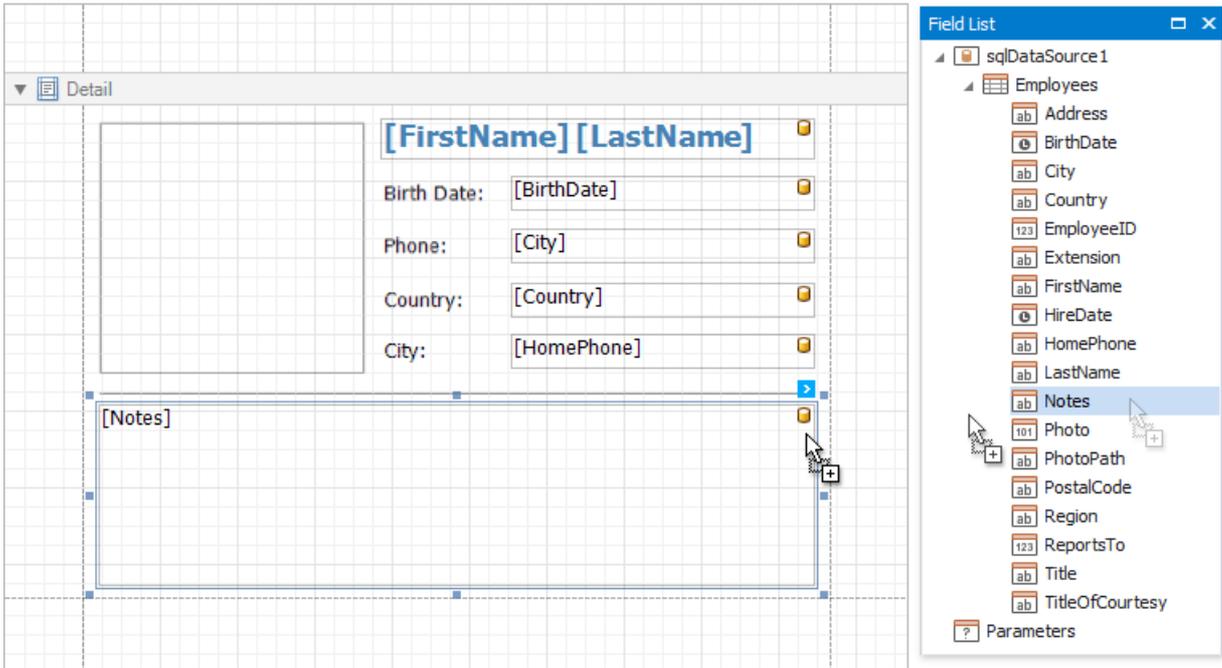
You can use a picture watermark as a template, to display an image of the preprinted form on the report's body at design time. To display a watermark at design time, switch to the **toolbar's View** page and activate **Watermark**.



The following image illustrates a report with a watermark shown at design-time that contains a template of a preprinted form.



Place report controls on the report's body according to the layout of the preprinted form.



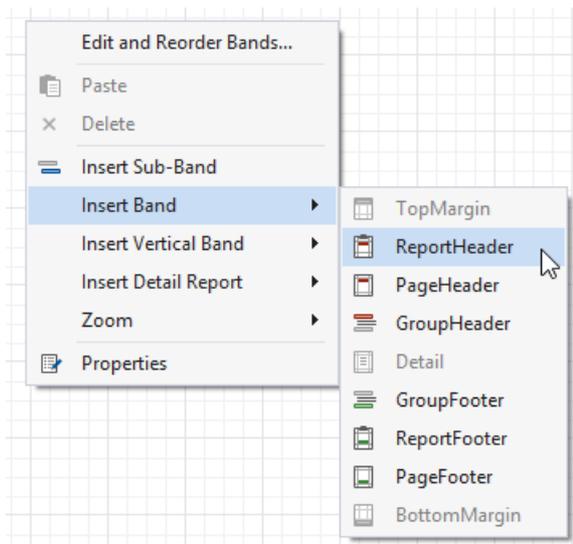
Display the User Name in a Report

This tutorial demonstrates how to insert the current user name in a report using the [Page Info](#) control.

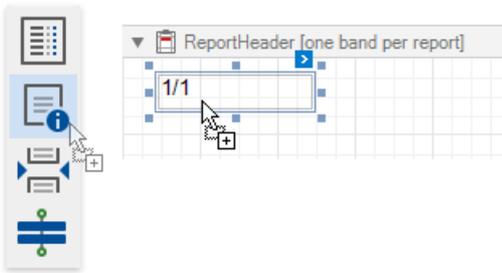
<u>Current User: Andrew Fuller</u>	
Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$21.35
Grandma's Boysenberry Spread	\$25.00
Uncle Bob's Organic Dried Pears	\$30.00
Northwoods Cranberry Sauce	\$40.00
Mishi Kobe Niku	\$97.00
Ikura	\$31.00
Queso Cabrales	\$21.00
Queso Manchego La Pastora	\$38.00
Konbu	\$6.00
Tofu	\$23.25
Genen Shouyu	\$15.50
Pavlova	\$17.45
Alice Mutton	\$39.00
Camaron Tigers	\$62.50

Do the following to insert the user name into a report:

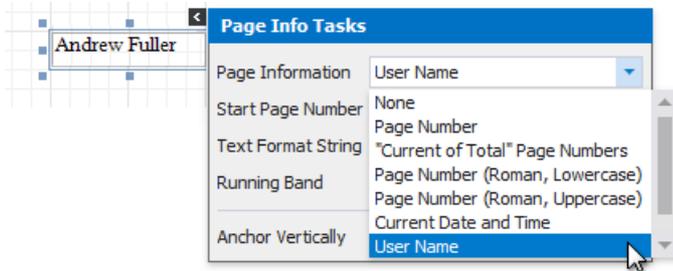
1. Typically, the user name is displayed within the [Report Header](#) band. To add it to the report, right click anywhere on the report's surface. In the invoked menu, point to **Insert Band** and click **ReportHeader**.



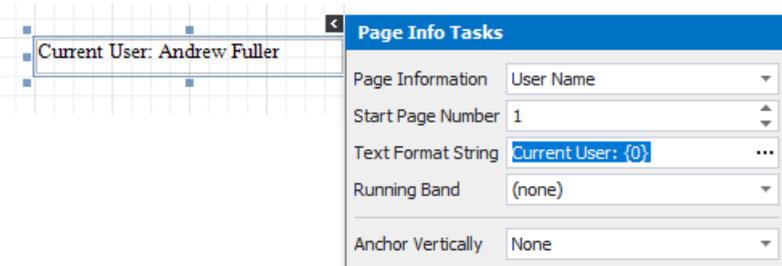
2. Drop the [Page Info](#) control from the [Toolbox](#) onto the **ReportHeader** band.



3. Set the control's **Page Information** property to *User Name* (e.g. using the smart tag).



4. Next, to apply a format string to the control's contents, type **Current User: {0}** into its **Text Format String** property.



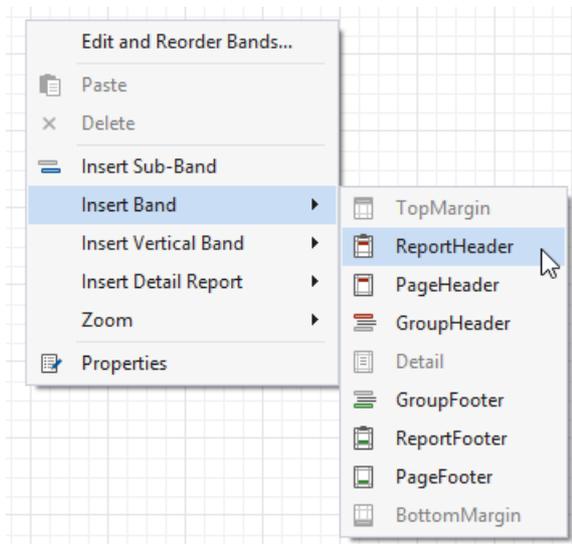
Display the Current Date and Time in a Report

This tutorial demonstrates how to insert the current system date and time into a report using the [Page Info](#) control.

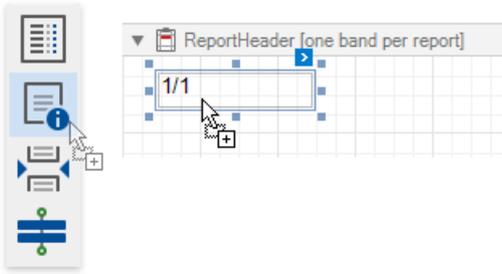
Created at 6:57 PM 06 Jun 2013	
Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$21.35
Grandma's Boysenberry Spread	\$25.00
Uncle Bob's Organic Dried Pears	\$30.00
Northwoods Cranberry Sauce	\$40.00
Mishi Kobe Niku	\$97.00
Ikura	\$31.00
Queso Cabrales	\$21.00
Queso Manchego La Pastora	\$38.00
Konbu	\$6.00
To fu	\$23.25
Genen Shoyu	\$15.50

Do the following to include information about the current date and time into a report:

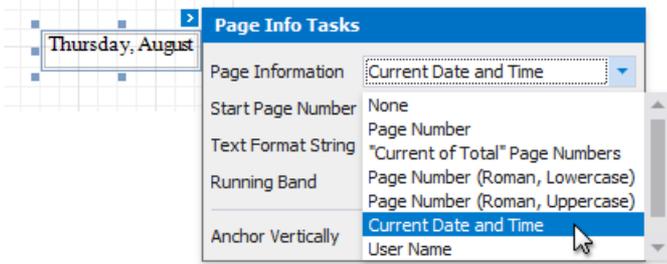
1. Typically, the current date and time are displayed within the [Report Header](#) band. To add it to the report, right click anywhere on the report's surface. In the invoked menu, point to **Insert Band** and click **ReportHeader**.



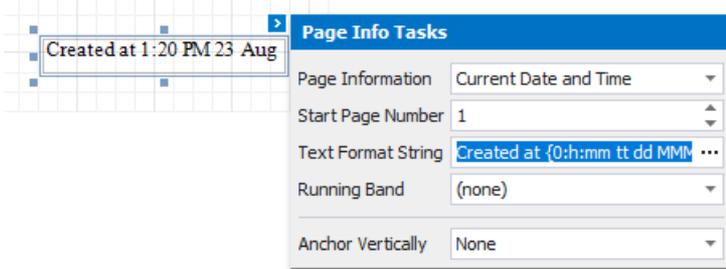
2. Drop the [Page Info](#) control from the [Toolbox](#) onto the **ReportHeader** band.



3. Set the control's **PageInformation** property to *DateTime* (e.g. using the smart tag).



4. To apply a format string to the control's contents, type **Created at {0:h:mm tt dd MMM yyyy}** into its **TextFormatString** property.

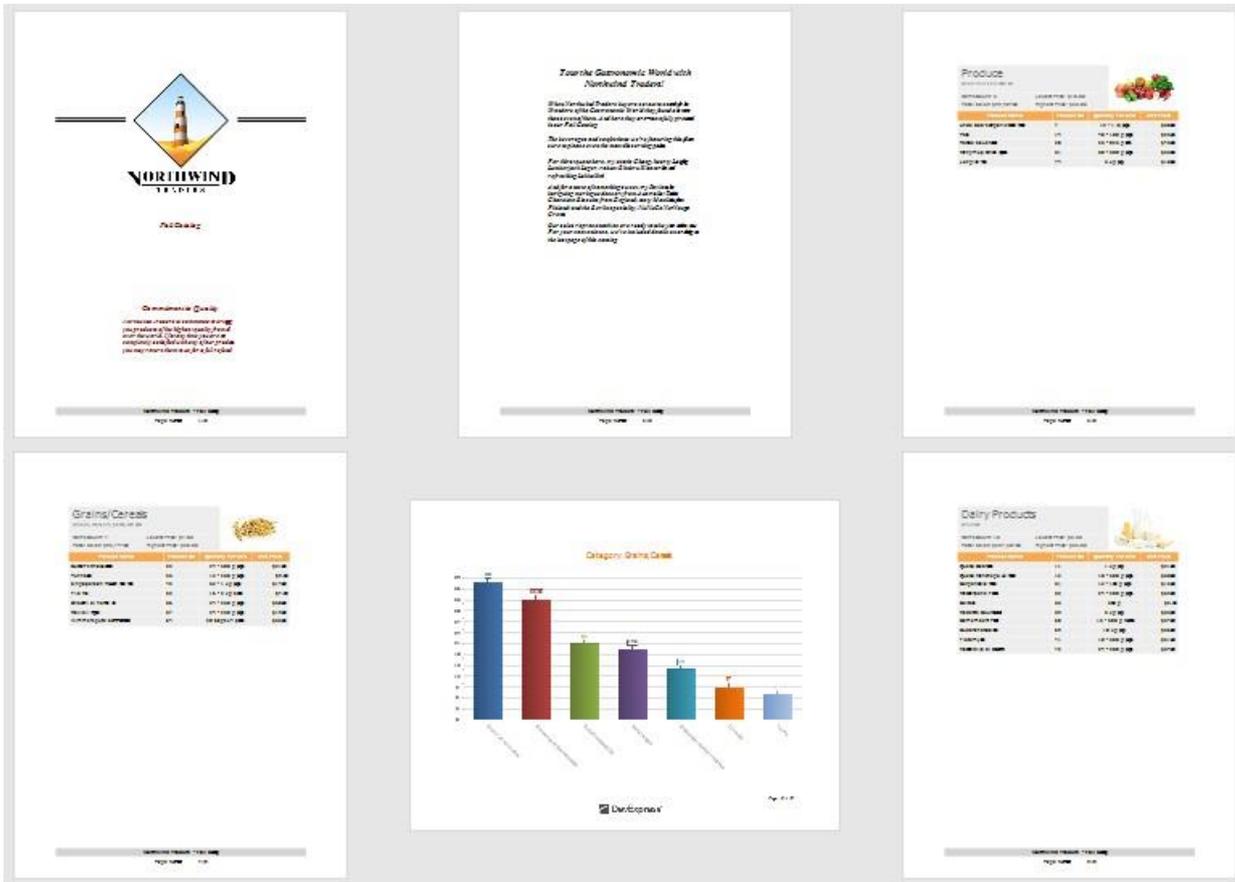


Merge Reports

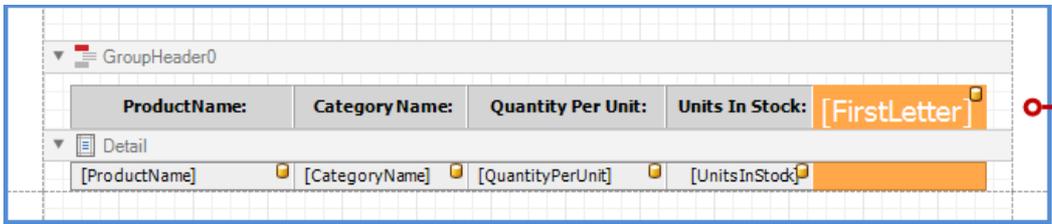
You may have report pages that do not fit within an entire report template in the following cases:

- Title pages or custom pages at the end of the report; Charts within a table report;

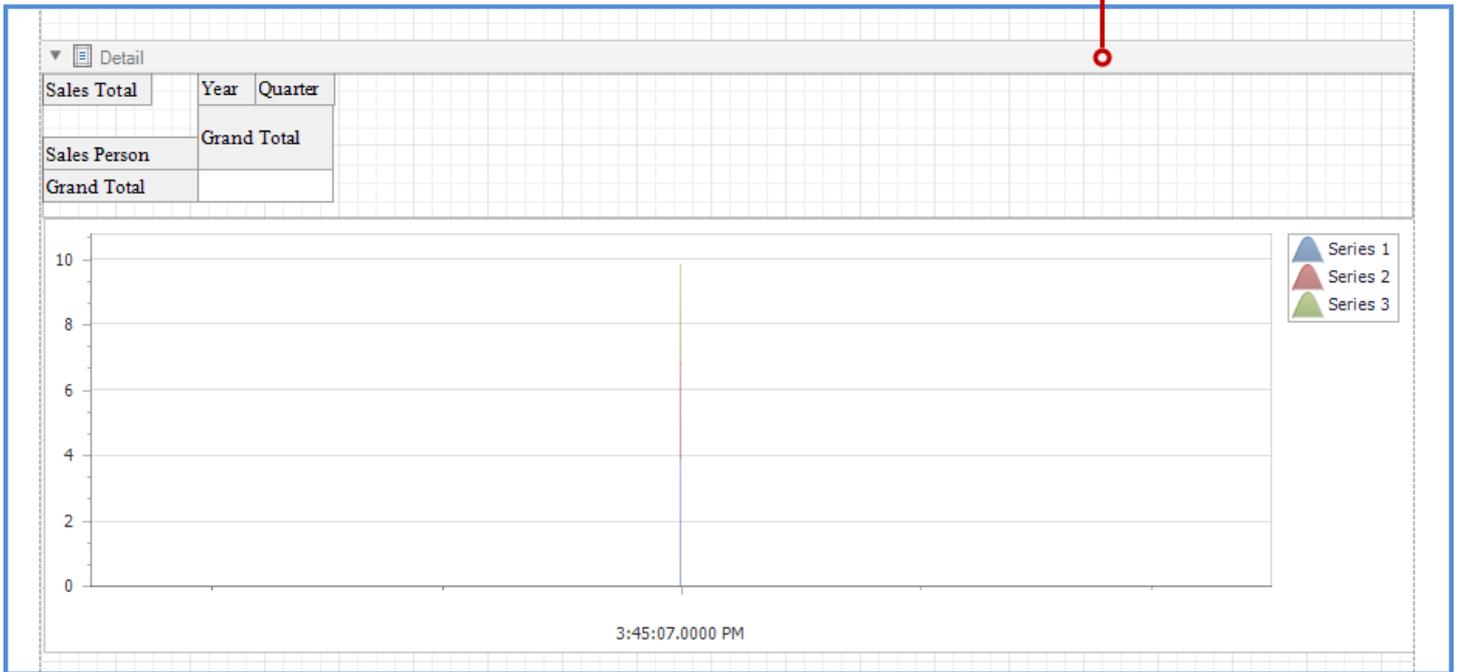
You can create pages in a separate report and merge them into your base report. This enables you to print and export merged pages as a single document, and preserve the original report page settings and orientation.



Add a Report to the End/Beginning

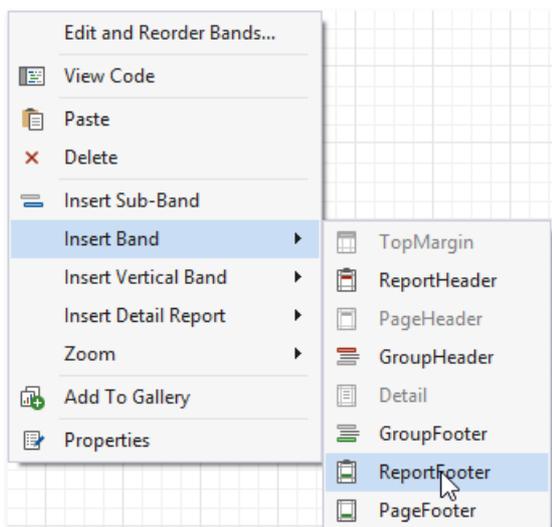


Base Report
Report to Embed

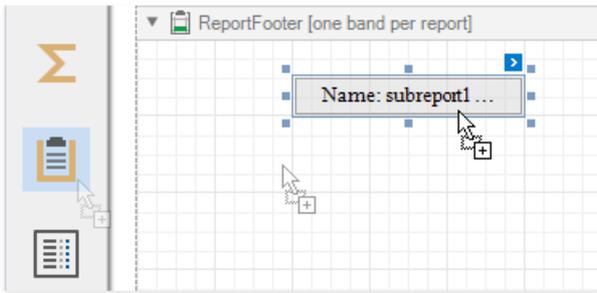


Follow the steps below to add a separate report to the end of another report and print it as a single job.

1. Right-click the base report and select the **Insert Band / Report Footer** item in the context menu.



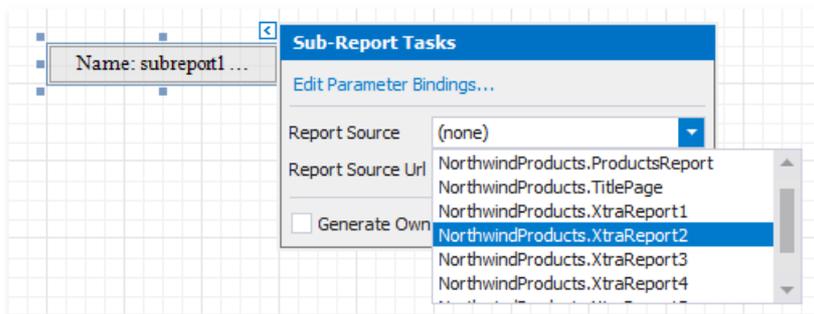
2. Drag a **Subreport** item from the Toolbox onto the created Report Footer band.



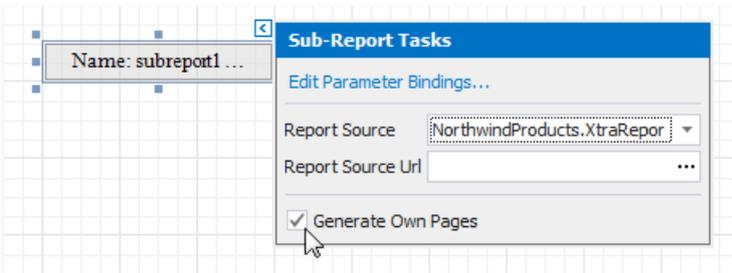
Tip

To add a report to the beginning of another report (for instance, to add a title page), use the **Report Header** band instead.

3. Click the subreport's smart tag and specify a report in the **Sub-Report Tasks**
 - **Tasks** window: Use the **Report Source** property to assign a predefined report from the Designer. Use the **Report Source Url**
 - property to assign a custom report.



4. Enable the **Generate Own Pages** option to print the embedded report on separate pages and use its own page settings.



5. Switch to Preview mode to see the combined report.

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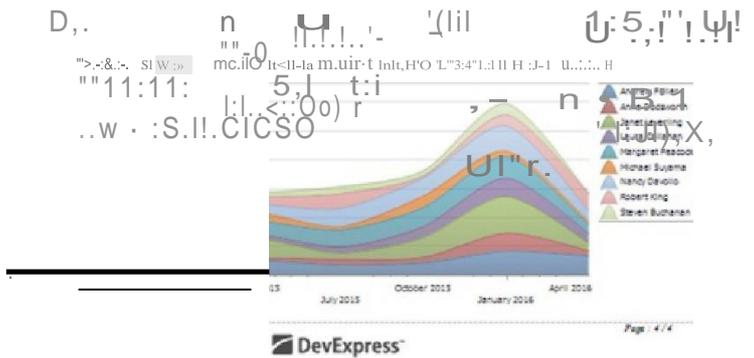
ar-5;1 IU,-liKto.No 13."51111 .U] n !U'U;0-16

U;1:40 Uü="!> U

'liU.t- ;_ 3 H'11".4iC"..U"

1iH.U1.JL ill.Q-' ..

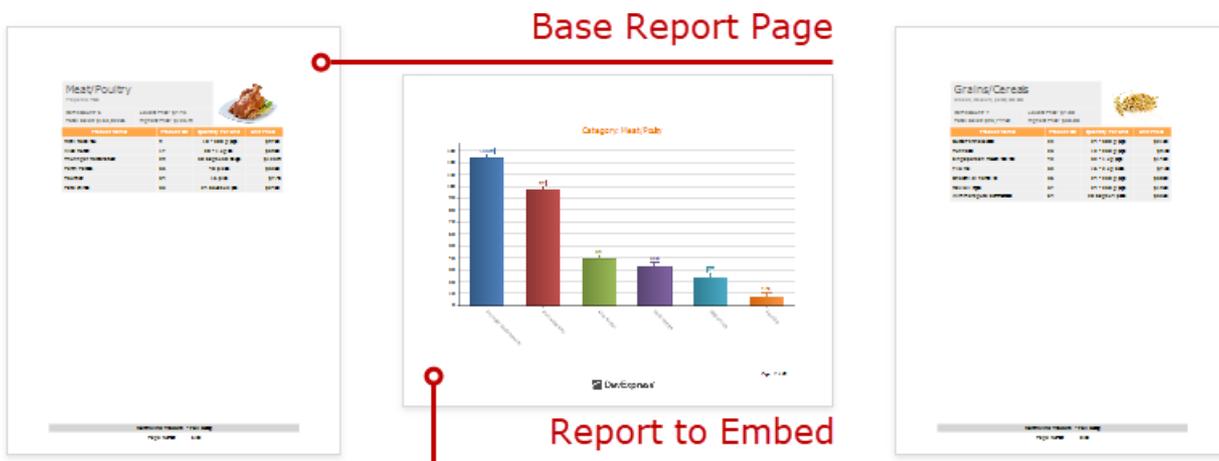
nUM 1.44 fiV" J"



DevExp
ress-

Use Data-Driven Page Sequence

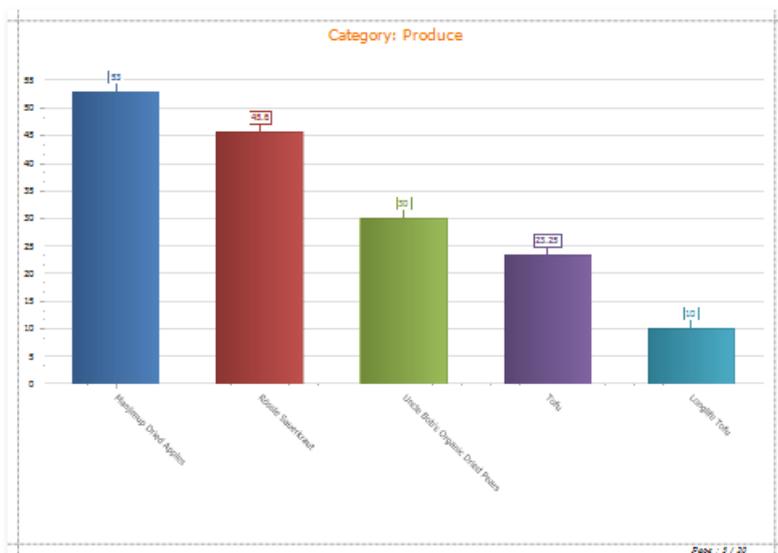
This topic describes how to combine a table report that uses the Portrait page orientation and a chart report that uses Landscape page orientation.



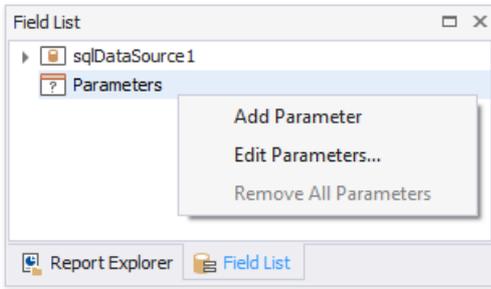
Follow the steps below to create a combined report:

Create a Chart Report

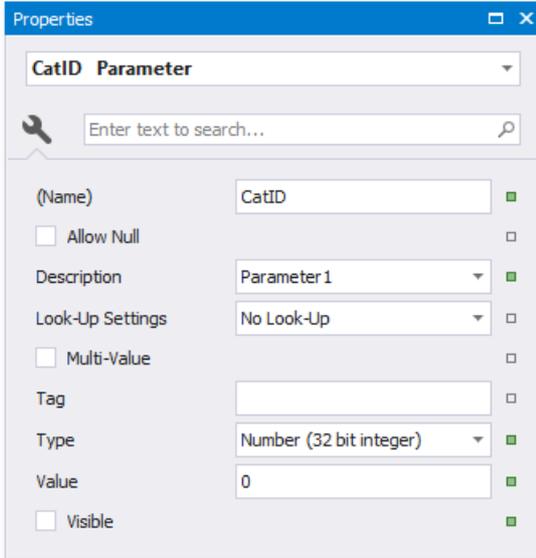
1. Create a report that shows data in the chart form. [Bind](#) the report to a data source. Set the report's **Landscape** property to **true** to enable the Landscape page orientation.



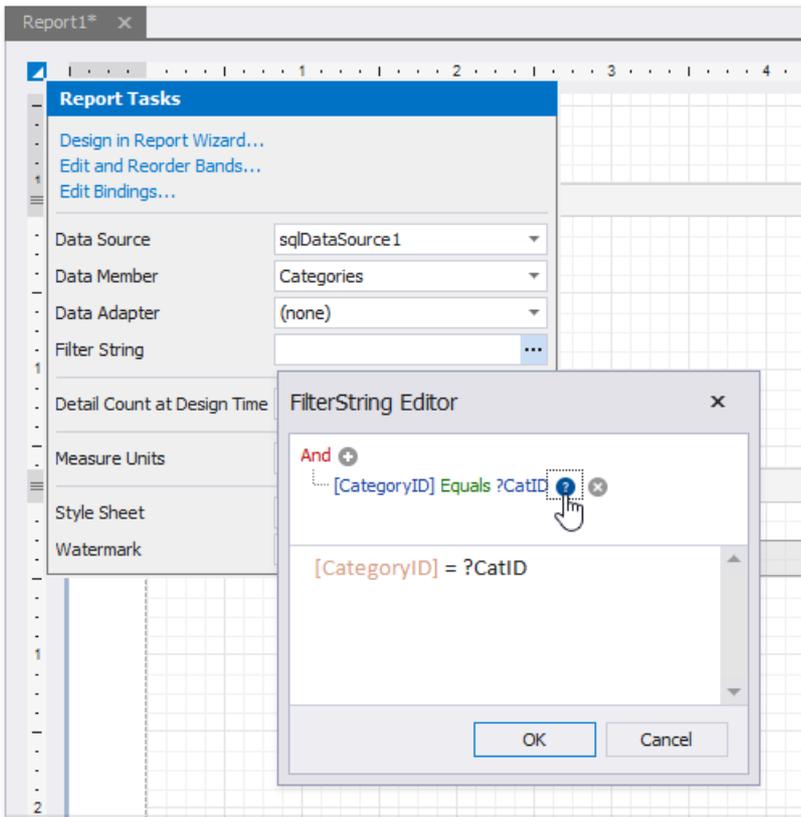
2. Add a parameter to your chart report to identify which data to use for the chart. Right-click **Parameters** in the **Field List** and choose **Add Parameter**.



3. Select the created parameter and set its **Name** and **Type**, and uncheck the **Visible** option.



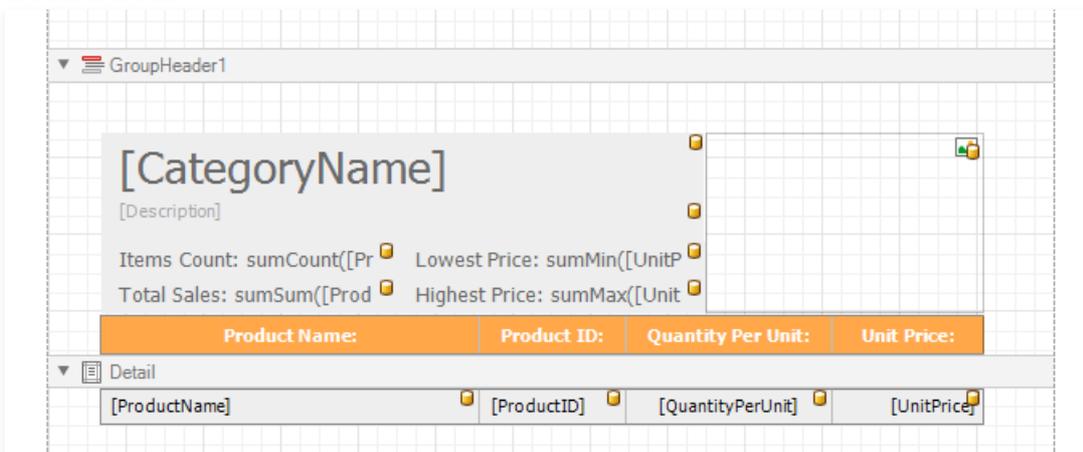
4. Click the report's smart tag. Click the **Filter String** option's ellipsis button. In the invoked [FilterString Editor](#), construct an expression to compare the key data field to the created parameter. To access the parameter, click the icon on the right until it turns into a question mark.



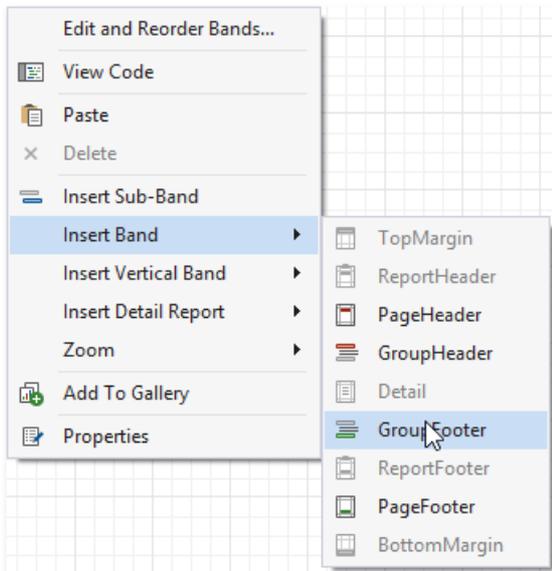
5. Save the report.

Create the Base Report

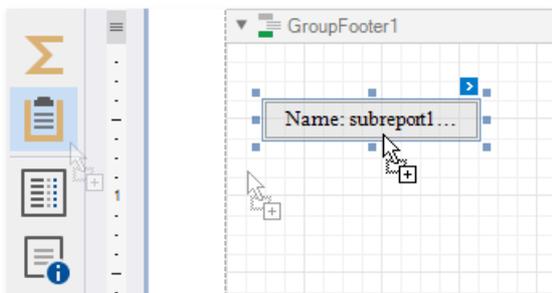
1. Create a report **bound** to the same data source as the chart report, and arrange a layout like the one shown below:



2. Right-click the base report's **Detail** band and select the **Insert Band / Group Footer** item in the context menu.

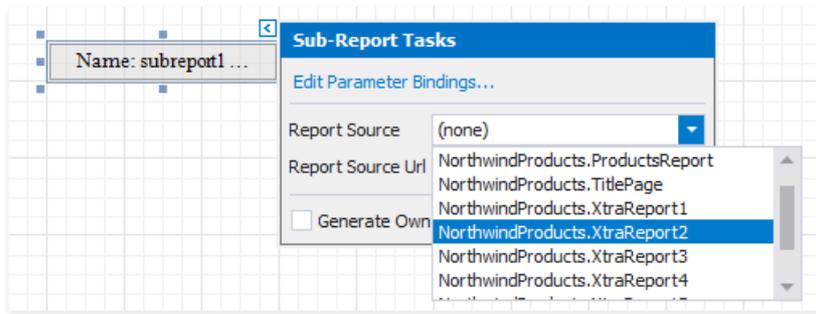


3. Drag a **Subreport** item from the Toolbox onto the added group footer band.

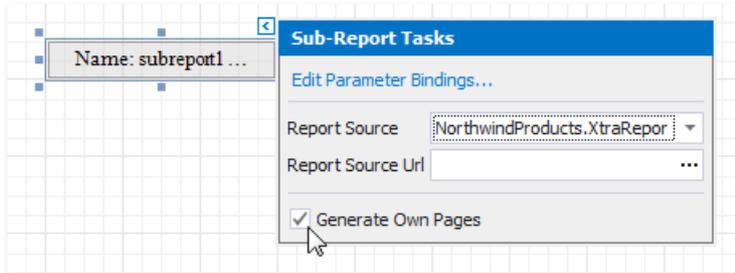


4. Click the sub-report control's smart tag and specify the chart report in the **Sub-Report Tasks** window: Use the **Report Source** property to assign a predefined report

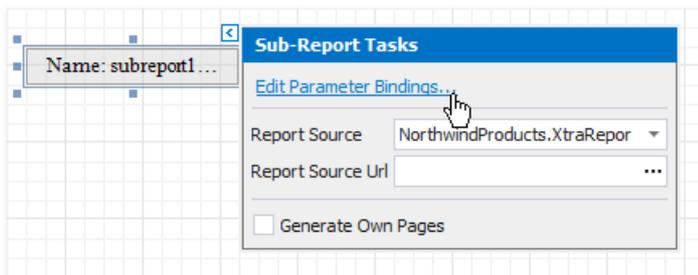
- from the Designer.
- Use the **Report Source Url** property to assign a custom report.



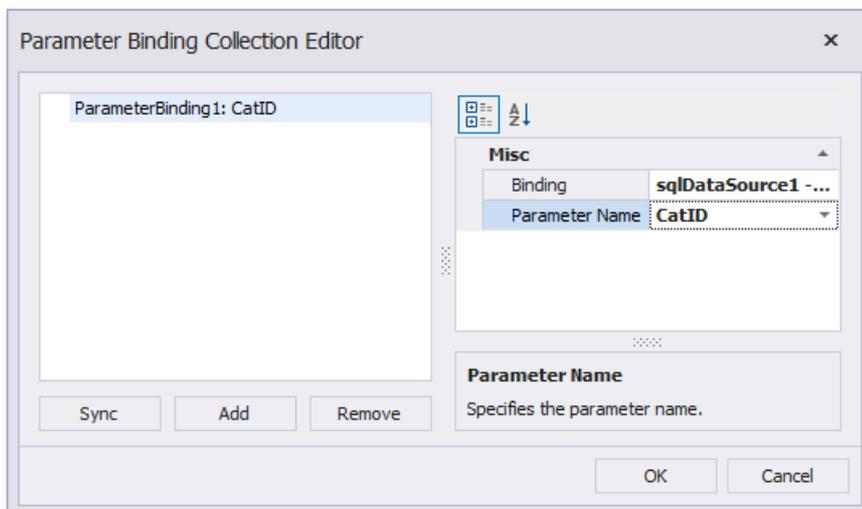
5. Enable the **Generate Own Pages** option to print the embedded report on separate pages and use its own page settings.



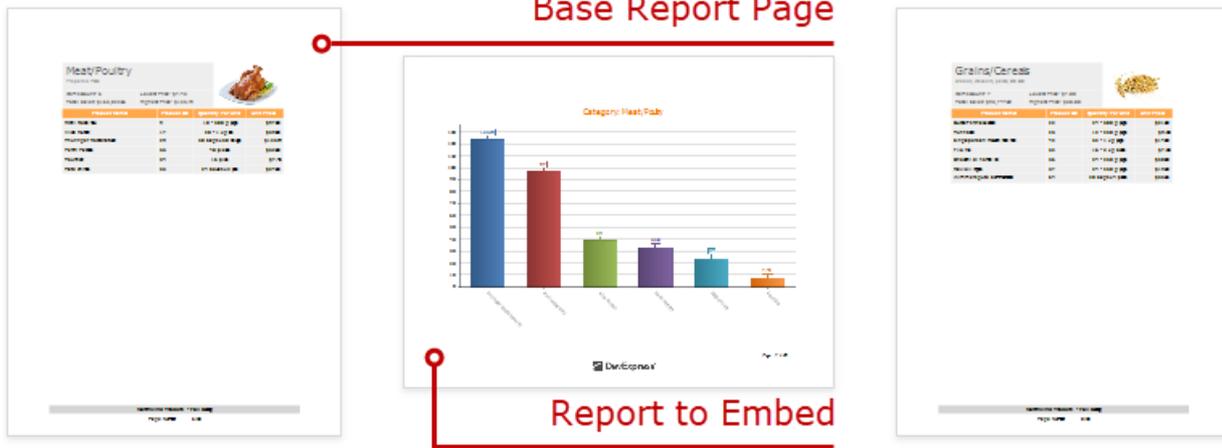
6. Bind the chart report's parameter to the base report's data field. Click the subreport's smart tag and select **Edit Parameter Bindings** in the invoked **SubReport Tasks** window.



7. The **Parameter Bindings Collection Editor** is invoked. Click **Add** to add a new binding. In the binding properties list, specify the data field to bind to and the parameter name to bind.



8. Switch to Preview mode to see the combined report.



Your base report's **Table of Contents** and **Document Map** include bookmarks from the embedded report. Use the **Parent Bookmark** property to specify the nesting level for the embedded report's bookmarks.

Use Expressions

Use expressions to [retrieve and format data](#), [create calculated fields](#) and [calculate summaries](#), [conditionally shape data](#) and [change a report control's appearance](#).

Expression Syntax

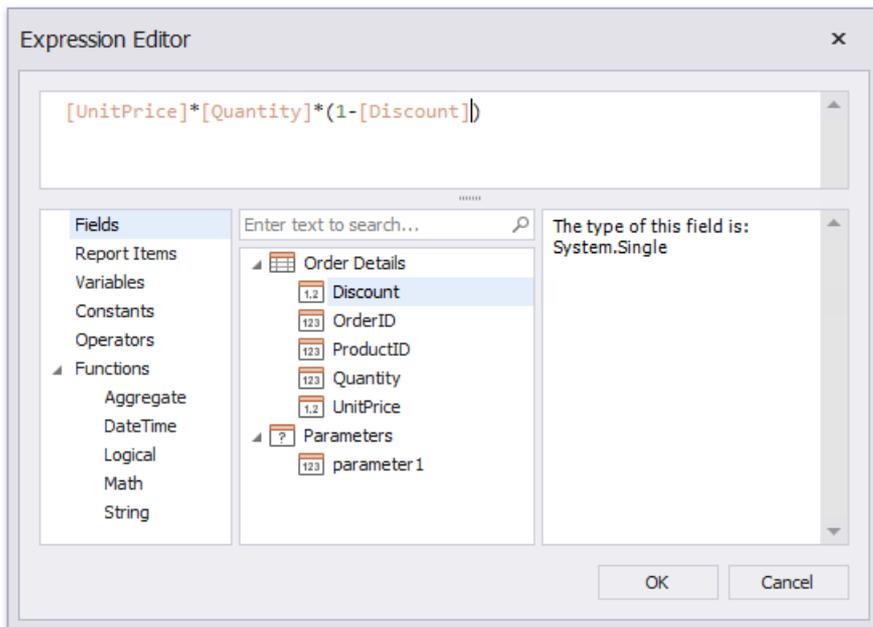
An expression is a string that is parsed and processed to evaluate a value. Expressions consist of field names, constants, operators, and functions. Field names are wrapped in square brackets.

```
"[Quantity] * [UnitPrice] * (1 -
[BonusAmount])" "[FirstName] + ' ' +
[LastName]"
"[Country] == 'USA'"
"[OrderDate] > #8/16/1994# AND [Quantity] > 20"
```

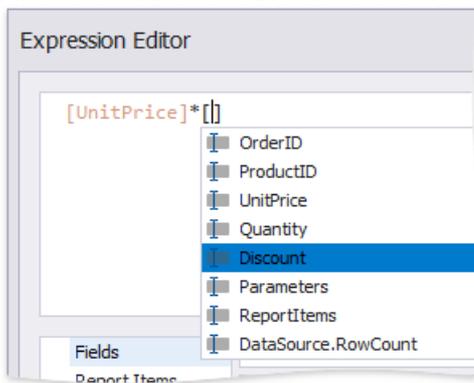
You can use [operators](#), [functions](#), and [constants](#) in your expressions.

Expression Editor

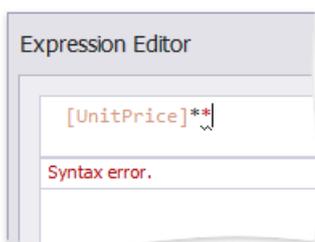
The Report Designer's Expression Editor provides functions, operators, data source fields, report elements, constants, and variables to construct expressions.



The Expression Editor highlights an expression's syntax and supports intelligent code completion (it suggests functions and available data elements as you type).



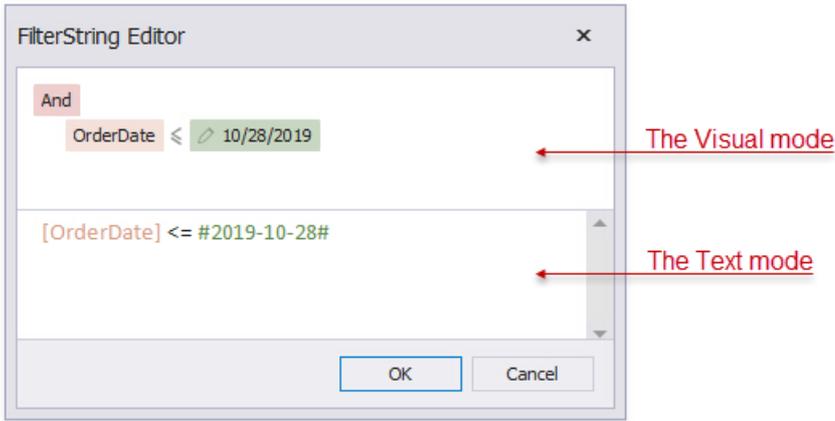
The Expression Editor displays all the errors it finds in the specified expression.



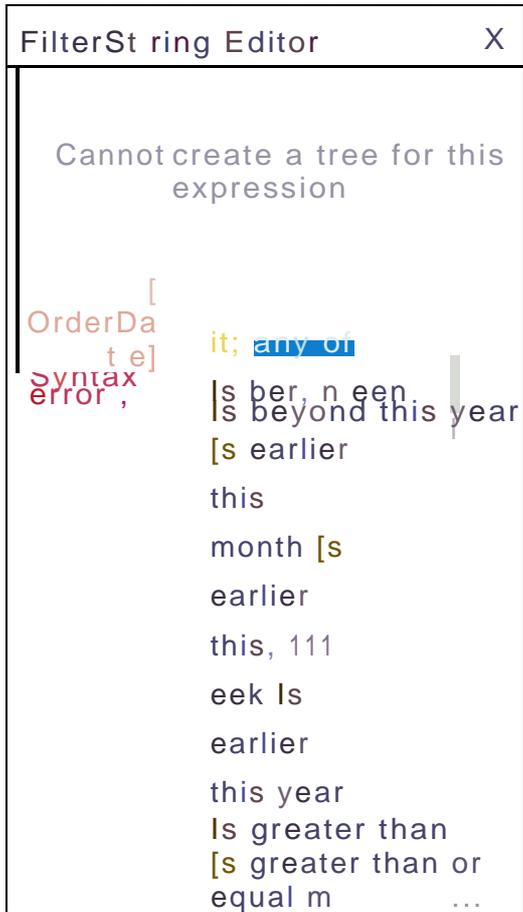
FilterString Editor

The Report Designer's FilterString Editor allows you to specify filter criteria for a report, [Cross Tab](#), or [Chart](#)'s series.

The FilterString Editor provides a visual interface where you can use an unlimited number of conditions and combine them with logical operators to create filter criteria. You can also switch to the Text mode and type a filter string.



The FilterString Editor highlights an expression's syntax and supports intelligent code completion (it suggests functions and available data elements as you type).



Expression Constants, Operators, and Functions

The table below contains constants, operators, and functions you can use in [expressions](#).

Constants

CONSTANT	DESCRIPTION	EXAMPLE
String constants	Wrap string constants in apostrophes. If a string contains an apostrophe, double the apostrophe.	[Country] == 'France' [Name] == 'O''Neil'
Date-time constants	Wrap date-time constants in '#'. #	[OrderDate] >= #2018-03-22 13:18:51.94944#
True	Represents the Boolean True value.	[InStock] == True
False	Represents the Boolean False value.	[InStock] == False
Enumeration	Specify an enumeration value using its underlying integer value.	[Status] == 1 You cannot specify an enumeration value using its qualified name. The following criteria is incorrect : [Status] = Status.InProgress
Guid	Wrap a Guid constant in curly braces. Use Guid constants in a relational operation with equality or inequality operators only.	[OrderID] == {513724e5-17b7-4ec6-abc4-0eae12c72c1f}
Numeric	Specify different numeric constant types in a string form using suffixes: Int32 (int) - 1 Int16 (short) - 1s Byte (byte) - 1b Double (double) - 1.0 Single (float) - 1.0f Decimal (decimal) - 1.0m	[Price] == 25.0m
?	Represents a null reference that does not refer to any object. We recommend using the IsNull unary operator (for example, "[Region] is null") or the IsNull logical function (for example, "IsNull([Region])") instead.	[Region] != ?

Operators

OPERATOR	DESCRIPTION	EXAMPLE
+	Adds the value of one numeric expression to another or concatenates two strings.	[UnitPrice] + 4 [FirstName] + '' + [LastName]
-	Finds the difference between two numbers.	[Price1] - [Price2]
*	Multiplies the value of two expressions.	[Quantity] * [UnitPrice] * (1 - [BonusAmount])
/	Divides the first operand by the second.	[Quantity] / 2
%	Returns the remainder (modulus) obtained by dividing one numeric expression by another.	[Quantity] % 3
	Performs a bitwise inclusive OR on two numeric expressions. Compares each bit of its first operand to the corresponding bit of its second operand. If either bit is 1, the corresponding resulting bit is set to 1. Otherwise, the corresponding resulting bit is set to 0.	[Number] [Number]
&	The bitwise AND operator. Compares each bit of its first operand to the corresponding bit of its second operand. If both bits are 1, the corresponding resulting bit is set to 1. Otherwise, the corresponding resulting bit is set to 0.	[Number] & 10
^	Performs a bitwise exclusive OR on two numeric expressions.	[Number] ^ [Number]
== =	Returns true if both operands have the same value; otherwise, it returns false.	[Quantity] == 10
!=	Returns true if the operands do not have the same value; otherwise, it returns false.	[Country] != 'France'

<	Less than operator. Used to compare expressions.	[UnitPrice] < 20
<=	Less than or equal to operator. Used to compare expressions.	[UnitPrice] <= 20
>=	Greater than or equal to operator. Used to compare expressions.	[UnitPrice] >= 30

>	Greater than operator. Used to compare expressions.	[UnitPrice] > 30
In (,,)	Tests for the existence of a property in an object.	[Country] In ('USA', 'UK', 'Italy')
Between (,)	Specifies a range to test. Returns true if a value is greater than or equal to the first operand and less than or equal to the second operand.	[Quantity] Between (10, 20)
And &&	Performs a logical conjunction on two Boolean expressions.	[InStock] And ([ExtendedPrice] > 100) [InStock] && ([ExtendedPrice] > 100)
Or	Performs a logical disjunction on two Boolean expressions.	[Country]=='USA' Or [Country]=='UK' [Country]=='USA' [Country]=='UK'
~	Performs a bitwise negation on a numeric expression.	~[Roles] = 251
Not !	Performs a logical negation on a Boolean expression.	Not [InStock] ![InStock]
+	Returns a numeric expression's value (a unary operator).	+ [Value] = 10
-	Returns the negative of a numeric expression's value (a unary operator).	- [Value] = 20
Is Null	Returns true if an expression is a null reference, the one that does not refer to any object.	[Region] is null

Functions (Basic)

Aggregate Functions

FUNCTION	DESCRIPTION	E XAMPLE
Avg(Value)	Evaluates the average of the values in the collection.	[Products].Avg([UnitPrice])

FUNCTION	DESCRIPTION	E XAMPLE
Count()	Returns the number of objects in a collection.	[Products].Count()
Exists()	Determines whether the object exists in the collection.	[Categories][[CategoryID] == 7].Exists()
Max(Value)	Returns the maximum expression value in a collection.	[Products].Max([UnitPrice])
Min(Value)	Returns the minimum expression value in a collection.	[Products].Min([UnitPrice])
Single()	Returns a single object from the collection.	[Accounts].Single() is not null
Sum(Value)	Returns the sum of all the expression values in the collection.	[Products].Sum([UnitsInStock])

Date-time Functions

FUNCTION	DESCRIPTION	E XAMPLE
AddDays(DateTime, DaysCount)	Returns a date-time value that is the specified number of days from the specified DateTime.	AddDays([OrderDate], 30)
AddHours(DateTime, HoursCount)	Returns a date-time value that is the specified number of hours from the specified DateTime.	AddHours([StartTime], 2)
AddMilliseconds(DateTime, MilliSecondsCount)	Returns a date-time value that is the specified number of milliseconds from the specified DateTime.	AddMilliseconds(([StartTime], 5000))
AddMinutes(DateTime, MinutesCount)	Returns a date-time value that is the specified number of minutes from the specified DateTime.	AddMinutes([StartTime], 30)
AddMonths(DateTime, MonthsCount)	Returns a date-time value that is the specified number of months from the specified DateTime.	AddMonths([OrderDate], 1)
AddSeconds(DateTime, SecondsCount)	Returns a date-time value that is the specified number of seconds from the specified DateTime.	AddSeconds([StartTime], 60)
AddTicks(DateTime, TicksCount)	Returns a date-time value that is the specified number of ticks from the specified DateTime.	AddTicks([StartTime], 5000)
AddTimeSpan(DateTime, TimeSpan)	Returns a date-time value that is from the specified DateTime for the given TimeSpan.	AddTimeSpan([StartTime], [Duration])
AddYears(DateTime, YearsCount)	Returns a date-time value that is the specified number of years from the specified DateTime.	AddYears([EndDate], -1)
DateDiffDay(startDate, endDate)	Returns the number of day boundaries between two non-nullable dates.	DateDiffDay([StartTime], Now())

DateDiffHour(startDate, endDate)	Returns the number of hour boundaries between two non-nullable dates.	DateDiffHour([StartTime], Now())
DateDiffMilliSecond(startDate, endDate)	Returns the number of millisecond boundaries between two non-nullable dates.	DateDiffMilliSecond([StartTime], Now())

FUNCTION	DESCRIPTION	E XAMPLE
DateDiffMinute(start Date, endDate)	Returns the number of minute boundaries between two non-nullable dates.	DateDiffMinute([StartTime], Now())
DateDiffMonth(start Date, endDate)	Returns the number of month boundaries between two non-nullable dates.	DateDiffMonth([StartTime], Now())
DateDiffSecond(start Date, endDate)	Returns the number of second boundaries between two non-nullable dates.	DateDiffSecond([StartTime], Now())
DateDiffTick(startDate, endDate)	Returns the number of tick boundaries between two non-nullable dates.	DateDiffTick([StartTime], Now())
DateDiffYear(startDate, endDate)	Returns the number of year boundaries between two non-nullable dates.	DateDiffYear([StartTime], Now())
GetDate(DateTime)	Extracts a date from the defined DateTime.	GetDate([OrderDateTime])
GetDay(DateTime)	Extracts a day from the defined DateTime.	GetDay([OrderDate])
GetDayOfWeek(DateTime)	Extracts a day of the week from the defined DateTime.	GetDayOfWeek([OrderDate])
GetDayOfYear(DateTime)	Extracts a day of the year from the defined DateTime.	GetDayOfYear([OrderDate])
GetHour(DateTime)	Extracts an hour from the defined DateTime.	GetHour([StartTime])
GetMilliSecond(DateTime)	Extracts milliseconds from the defined DateTime.	GetMilliSecond([StartTime])
GetMinute(DateTime)	Extracts minutes from the defined DateTime.	GetMinute([StartTime])
GetMonth(DateTime)	Extracts a month from the defined DateTime.	GetMonth([StartTime])
GetSecond(DateTime)	Extracts seconds from the defined DateTime.	GetSecond([StartTime])
GetTimeOfDay(DateTime)	Extracts the time of the day from the defined DateTime in ticks.	GetTimeOfDay([StartTime])
GetYear(DateTime)	Extracts a year from the defined DateTime.	GetYear([StartTime])
IsApril(DateTime)	Returns True if the specified date falls within April.	IsApril([OrderDate])
IsAugust(DateTime)	Returns True if the specified date falls within August.	IsAugust([OrderDate])
IsDecember(DateTime)	Returns True if the specified date falls within December.	IsDecember([OrderDate])

IsFebruary(DateTime)	Returns True if the specified date falls within February.	IsFebruary([OrderDate])
IsJanuary(DateTime)	Returns True if the specified date falls within January.	IsJanuary([OrderDate])

FUNCTION	DESCRIPTION	E XAMPLE
IsJuly(DateTime)	Returns True if the specified date falls within July.	IsJuly([OrderDate])
IsJune(DateTime)	Returns True if the specified date falls within June.	IsJune([OrderDate])
IsLastMonth(DateTime)	Returns True if the specified date falls within the previous month.	IsLastMonth([OrderDate])
IsLastYear(DateTime)	Returns True if the specified date falls within the previous year.	IsLastYear([OrderDate])
IsMarch(DateTime)	Returns True if the specified date falls within March.	IsMarch([OrderDate])
IsMay(DateTime)	Returns True if the specified date falls within May.	IsMay([OrderDate])
IsNextMonth(DateTime)	Returns True if the specified date falls within the next month.	IsNextMonth([OrderDate])
IsNextYear(DateTime)	Returns True if the specified date falls within the next year.	IsNextYear([OrderDate])
IsNovember(DateTime)	Returns True if the specified date falls within November.	IsNovember([OrderDate])
IsOctober(DateTime)	Returns True if the specified date falls within October.	IsOctober([OrderDate])
IsSameDay(DateTime)	Returns True if the specified date/time values fall within the same day.	IsSameDay([OrderDate])
IsSeptember(DateTime)	Returns True if the specified date falls within September.	IsSeptember([OrderDate])
IsThisMonth(DateTime)	Returns True if the specified date falls within the current month.	IsThisMonth([OrderDate])
IsThisWeek(DateTime)	Returns True if the specified date falls within the current week.	IsThisWeek([OrderDate])
IsYearToDate(DateTime)	Returns True if the specified date falls within the year-to-date period. This period starts from the first day of the current year and continues to the current date (including the current date).	IsYearToDate([OrderDate])
IsThisYear(DateTime)	Returns True if the specified date falls within the current year.	IsThisYear([OrderDate])
LocalDateTimeDayAfterTomorrow()	Returns a date-time value corresponding to the day after Tomorrow.	AddDays(LocalDateTimeDayAfterTomorrow(), 5)

LocalDateTimeLastMonth())	Returns the DateTime value corresponding to the first day of the previous month.	AddMonths(LocalDateTimeLastMonth(), 5)
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FUNCTION	DESCRIPTION	E XAMPLE
LocalDateTimeLastWeek()	Returns a date-time value corresponding to the first day of the previous week.	AddDays(LocalDateTimeLastWeek(), 5)
LocalDateTimeLastYear()	Returns the DateTime value corresponding to the first day of the previous year.	AddYears(LocalDateTimeLastYear(), 5)
LocalDateTimeNextMonth()	Returns a date-time value corresponding to the first day of the next month.	AddMonths(LocalDateTimeNextMonth(), 5)
LocalDateTimeNextWeek()	Returns a date-time value corresponding to the first day of the following week.	AddDays(LocalDateTimeNextWeek(), 5)
LocalDateTimeNextYear()	Returns a date-time value corresponding to the first day of the following year.	AddYears(LocalDateTimeNextYear(), 5)
LocalDateTimeNow()	Returns a date-time value corresponding to the current moment in time.	AddDays(LocalDateTimeNow(), 5)
LocalDateTimeThisMonth()	Returns a date-time value corresponding to the first day of the current month.	AddMonths(LocalDateTimeThisMonth(), 5)
LocalDateTimeThisWeek()	Returns a date-time value corresponding to the first day of the current week.	AddDays(LocalDateTimeThisWeek(), 5)
LocalDateTimeThisYear()	Returns a date-time value corresponding to the first day of the current year.	AddYears(LocalDateTimeThisYear(), 5)
LocalDateTimeToday()	Returns a date-time value corresponding to Today.	AddDays(LocalDateTimeToday(), 5)
LocalDateTimeTomorrow()	Returns a date-time value corresponding to Tomorrow.	AddDays(LocalDateTimeTomorrow(), 5)
LocalDateTimeTwoMonthsAway()	Returns the DateTime value corresponding to the first day of the following month.	AddMonths(LocalDateTimeTwoMonthsAway(), 5)
LocalDateTimeTwoWeeksAway()	Returns the DateTime value corresponding to the first day of the following week.	AddDays(LocalDateTimeTwoWeeksAway(), 5)
LocalDateTimeTwoYearsAway()	Returns the DateTime value corresponding to the first day of the following year.	AddYears(LocalDateTimeTwoYearsAway(), 5)
LocalDateTimeYearBeforeToday()	Returns the DateTime value corresponding to the day one year ago.	AddYears(LocalDateTimeYearBeforeToday(), 5)
LocalDateTimeYesterday()	Returns a date-time value corresponding to Yesterday.	AddDays(LocalDateTimeYesterday(), 5)
Now()	Returns the current system date and time.	AddDays(Now(), 5)

Today()	Returns the current date. Regardless of the actual time, this function returns midnight of the current date.	AddMonths(Today(), 1)
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FUNCTION	DESCRIPTION	E XAMPLE
UtcNow()	Returns the current system date and time, expressed as Coordinated Universal Time (UTC).	AddDays(UtcNow(), 7)

Logical Functions

FUNCTION	DESCRIPTION	E XAMPLE
Iif(Expression1, True_Value1, ..., ExpressionN, True_ValueN, False_Value)	<p>Returns one of several specified values depending upon the values of logical expressions.</p> <p>The function can take $2N+1$ arguments (N - the number of specified logical expressions):</p> <ul style="list-style-type: none"> • Each odd argument specifies a logical expression; • Each even argument specifies the value that is returned if the previous expression evaluates to true; • ... <p>The last argument specifies the value that is returned if the previously evaluated logical expressions yielded false.</p>	Iif(Name = 'Bob', 1, Name = 'Dan', 2, Name = 'Sam', 3, 4)
IsNull(Value)	Returns True if the specified Value is NULL.	IsNull([OrderDate])
IsNull(Value1, Value2)	Returns Value1 if it is not set to NULL; otherwise, Value2 is returned.	IsNull([ShipDate], [RequiredDate])
IsNullOrEmpty(String)	Returns True if the specified String object is NULL or an empty string; otherwise, False is returned.	IsNullOrEmpty([ProductName])

Math Functions

FUNCTION	DESCRIPTION	E XAMPLE
Abs(Value)	Returns the given numeric expression's absolute, positive value.	Abs(1 - [Discount])
Acos(Value)	Returns a number's arccosine (the angle in radians, whose cosine is the given float expression).	Acos([Value])
Asin(Value)	Returns a number's arcsine (the angle in radians, whose sine is the given float expression).	Asin([Value])

Atn(Value)	Returns a number's arctangent (the angle in radians, whose tangent is the given float expression).	Atn([Value])
Atn2(Value1, Value2)	Returns the angle whose tangent is the quotient of two specified numbers in radians.	Atn2([Value1], [Value2])
BigMul(Value1, Value2)	Returns an Int64 containing the full product of two specified 32-bit numbers.	BigMul([Amount], [Quantity])

FUNCTION	DESCRIPTION	E XAMPLE
Ceiling(Value)	Returns the smallest integer that is greater than or equal to the numeric expression.	Ceiling([Value])
Cos(Value)	Returns the angle's cosine, in radians.	Cos([Value])
Cosh(Value)	Returns the angle's hyperbolic cosine, in radians.	Cosh([Value])
Exp(Value)	Returns the float expression's exponential value.	Exp([Value])
Floor(Value)	Returns the largest integer less than or equal to the numeric expression.	Floor([Value])
Log(Value)	Returns a specified number's natural logarithm.	Log([Value])
Log(Value, Base)	Returns the logarithm of a specified number in a specified Base.	Log([Value], 2)
Log10(Value)	Returns a specified number's base 10 logarithm.	Log10([Value])
Max(Value1, Value2)	Returns the maximum value from the specified values.	Max([Value1], [Value2])
Min(Value1, Value2)	Returns the minimum value from the specified values.	Min([Value1], [Value2])
Power(Value, Power)	Returns a specified number raised to a specified power.	Power([Value], 3)
Rnd()	Returns a random number that is less than 1, but greater than or equal to zero.	Rnd()*100
Round(Value)	Rounds the given value to the nearest integer.	Round([Value])
Round(Value, Precision)	Rounds the given value to the nearest integer, or to a specified number of decimal places.	Round([Value], 2)
Sign(Value)	Returns the positive (+1), zero (0), or negative (-1) sign of the given expression.	Sign([Value])
Sin(Value)	Returns the sine of the angle defined in radians.	Sin([Value])
Sinh(Value)	Returns the hyperbolic sine of the angle defined in radians.	Sinh([Value])
Sqr(Value)	Returns the square root of a given number.	Sqr([Value])
Tan(Value)	Returns the tangent of the angle defined in radians.	Tan([Value])
Tanh(Value)	Returns the hyperbolic tangent of the angle defined in radians.	Tanh([Value])
ToDecimal(Value)	Converts Value to an equivalent decimal number.	ToDecimal([Value])
ToDouble(Value)	Converts Value to an equivalent 64-bit double-precision floating-point number.	ToDouble([Value])

ToFloat(Value)	Converts Value to an equivalent 32-bit single-precision floating-point number.	ToFloat([Value])
ToInt(Value)	Converts Value to an equivalent 32-bit signed integer.	ToInt([Value])

FUNCTION	DESCRIPTION	E XAMPLE
ToLong(Value)	Converts Value to an equivalent 64-bit signed integer.	ToLong([Value])

String Functions

FUNCTION	DESCRIPTION	E XAMPLE
Ascii(String)	Returns the ASCII code value of the leftmost character in a character expression.	Ascii('a')
Char(Number)	Converts an integerASCIIcode to a character.	Char(65) + Char(51)
CharIndex(String1, String2)	Returns the starting position of String1 within String2, beginning from the zero character position to the end of a string.	CharIndex('e', 'devexpress')
CharIndex(String1, String2, StartLocation)	Returns the starting position of String1 within String2, beginning from the StartLocation character position to the end of a string.	CharIndex('e', 'devexpress', 2)
Concat(String1, ... , StringN)	Returns a string value containing the concatenation of the current string with any additional strings.	Concat('A', ''), [ProductName])
Contains(String1, SubString1)	Returns True if SubString1 occurs within String1; otherwise, False is returned.	Contains([ProductName], 'dairy')
EndsWith(String1, SubString1)	Returns True if the end of String1 matches SubString1; otherwise, False is returned.	EndsWith([Description], 'The end.')
Insert(String1, StartPosition, String2)	Inserts String2 into String1 at the position specified by StartPositon	Insert([Name], 0, 'ABC-')
Len(Value)	Returns an integer containing either the number of characters in a string or the nominal number of bytes required to store a variable.	Len([Description])
Lower(String)	Returns String in lowercase.	Lower([ProductName])
PadLeft(String, Length)	Left-aligns the defined string's characters, padding its left side with white space characters up to a specified total length.	PadLeft([Name], 30)
PadLeft(String, Length, Char)	Left-aligns the defined string's characters, padding its left side with the specified Char up to a specified total length.	PadLeft([Name], 30, '<')
PadRight(String, Length)	Right-aligns the defined string's characters, padding its left side with empty space characters up to a specified total length.	PadRight([Name], 30)
PadRight(String, Length, Char)	Right-aligns the defined string's characters, padding its left side with the specified Char up to a specified total length.	PadRight([Name], 30, '>')
Remove(String, StartPosition)	Deletes all the characters from this instance, beginning at a specified position.	Remove([Name], 3)

Remove(String, StartPosition, Length)	Deletes a specified number of characters from this instance, beginning at a specified position.	Remove([Name], 0, 3)
Replace(String, SubString2, String3)	Returns a copy of String1, in which SubString2 has been replaced with String3.	Replace([Name], 'The ', '')

FUNCTION	DESCRIPTION	E XAMPLE
Reverse(String)	Reverses the order of elements within String.	Reverse([Name])
StartsWith(String1, SubString1)	Returns True if the beginning of String1 matches SubString1; otherwise, False.	StartsWith([Title], 'The best')
Substring(String, StartPosition, Length)	Retrieves a substring from String. The substring starts at StartPosition and has a specified Length.	Substring([Description], 2, 3)
Substring(String, StartPosition)	Retrieves a substring from String. The substring starts at StartPosition.	Substring([Description], 2)
ToStr(Value)	Returns a string representation of an object.	ToStr([ID])
Trim(String)	Removes all leading and trailing SPACE characters from String.	Trim([ProductName])
Upper(String)	Returns String in uppercase.	Upper([ProductName])

Functions for Expression Bindings and Calculated Fields

Below is a list of functions that are used to construct [expression bindings](#) and [calculated fields](#):

FUNCTION	DESCRIPTION	E XAMPLE
NewLine()	Returns the newline string defined for the current environment.	[CategoryName]+NewLine()+ [Description] Result: <i>Beverages</i> <i>Soft drinks, coffees,</i> <i>teas, beers and ales.</i>
FormatString(Format, Value1, ..., ValueN)	Returns the specified string with formatted field values. See Format Data for details.	FormatString('{0:\$0.00}', [UnitPrice]) Result: \$45.60
Rgb(Red, Green, Blue)	Returns a string defining a color using the Red, Green, and Blue color channel values.	Rgb(30,200,150) Result: <i>'30,200,150'</i>
Argb(Alpha, Red, Green, Blue)	Returns a string defining a color using the Alpha, Red, Green, and Blue color channel values.	Argb(1,200, 30, 200) Result: <i>'1,200,30,200'</i>

Join()	<p>Concatenates the multi-value report parameter's values into a string. This function is useful when you bind a multi-value parameter to a label to display the parameter's values in a report.</p> <p>This function has two overloads:</p> <ul style="list-style-type: none"> Join(parameter) - concatenates the specified parameter's values using comma as a separator. Join(parameter, separator) - concatenates the specified parameter's values using the specified separator. 	<p>Join(?CategoriesParameter)</p> <p>Result: <i>Beverages, Condiments</i></p> <p>Join(?CategoriesParameter, newline())</p> <p>Result: <i>Beverages Condiments</i></p>

Functions for Stored Procedure Binding

The following functions are specific for [binding reports to a stored procedure](#):

FUNCTION	DESCRIPTION	EXAMPLE
Join()	<p>Concatenates the multi-value report parameter's values into a string. This function can be used when mapping multi-value report parameters to query parameters generated from a stored procedure's parameters. Refer to the Query Parameters topic for more information.</p> <p>This function has two overloads:</p> <ul style="list-style-type: none"> Join(parameter) - concatenates the specified parameter's values using comma as a separator. Join(parameter, separator) - concatenates the specified parameter's values using the specified separator. 	Join(?Parameter1)
CreateTable(Column1, ..., ColumnN)	<p>Creates a table from several multi-value parameters' values. This function can be used when mapping multi-value report parameters to the query parameter that is generated from a stored procedure's User Defined Table Type parameter. Refer to the Query Parameters topic for more information.</p>	CreateTable(?Parameter1, ..., ?ParameterN)

Functions for Summary Expression Editor

Use the following functions when [calculating summaries](#) across a report and its groups:

FUNCTION	DESCRIPTION	EXAMPLE
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sumAvg(Expression)	Calculates the average of all the values within the specified summary region (group, page or report).	sumAvg([UnitPrice])
sumCount(Expression)	<p>Counts the number of values within the specified summary region (group, page or report). In a simple scenario, you may not pass a parameter.</p> <p>When using this function in a master-detail report's master band and passing a detail's field as a parameter, it counts the number of records within the detail's band.</p> <p>See also: Counting the Number of Records in a Report or Group, Counting the Number of Groups in a Report</p>	sumCount([UnitPrice])
sumDAvg(Expression)	Calculates the average of all the distinct values within the specified summary region (group, page or report).	sumDAvg([UnitPrice])
sumDCount(Expression)	Counts the number of distinct values within the specified summary region (group, page or report). In a simple scenario, you may not pass a parameter.	sumDCount([UnitPrice])
sumDStdDev(Expression)	Calculates the standard deviation of all the distinct values within the specified summary region (group, page or report).	sumDStdDev([UnitPrice])
sumDStdDevP(Expression)	Calculates the standard population deviation of all the distinct values within the specified summary region (group, page or report).	sumDStdDevP([UnitPrice])
sumDSum(Expression)	Calculates the total of all the distinct values within the specified summary region (group, page or report).	sumDSum([UnitPrice])
sumDVar(Expression)	Calculates the amount of variance for all the distinct values within the specified summary region (group, page or report).	sumDVar([UnitPrice])

sumDVarP(Expression)	Calculates the population variance of all the distinct values within the specified summary region (group, page or report).	sumDVarP([UnitPrice])
sumMax(Expression)	Calculates the maximum of all the values within the specified summary region (group, page or report).	sumMax([UnitPrice])
sumMedian(Expression)	Finds the middle number within a sequence. Note that if the total number of elements is odd, this function returns the value of the middle number in a sequence. If the total number of elements is even, this function returns the arithmetical mean of the two middle numbers.	sumMedian([UnitPrice])
sumMin(Expression)	Calculates the minimum of all the values within the specified summary region (group, page or report).	sumMin([UnitPrice])
sumPercentage(Expression)	Calculates the percent ratio of the current data row's value to the total of all the values within the specified summary region (group, page or report).	sumPercentage([UnitPrice])
sumRecordNumber(Expression)	Returns the current record number in the specified summary region (group, page or report). This means for instance, if the summary is calculated for a group, then the record number is calculated only within that group, and is reset every time a new group is started. In a simple scenario, you may not pass a parameter. See also: Displaying Row Numbers in a Report, Group or Page	sumRecordNumber()
sumRunningSum(Expression)	Summarizes all the values, which were printed before the current data row, with the current data row's value.	sumRunningSum([UnitPrice])
sumStdDev(Expression)	Calculates the standard deviation of all the values within the specified summary region (group, page or report).	sumStdDev([UnitPrice])
sumStdDevP(Expression)	Calculates the standard population deviation of all the values within the specified summary region (group, page or report).	sumStdDevP([UnitPrice])

sumSum(Expression)	Calculates the total of all the values within the specified summary region (group, page or report).	sumSum([UnitsInStock])
sumVar(Expression)	Calculates the amount of variance for all the values within the specified summary region (group, page or report).	sumVar([UnitPrice])
sumVarP(Expression)	Calculates the population variance of all the values within the specified summary region (group, page or report).	sumVarP([UnitPrice])
sumWAvg(Expression, Expression)	Calculates the weighted average of all the values within the specified summary region (group, page or report). This type of summary returns the result of the following operation: $\text{Sum}(\text{Expression1} * \text{Expression2}) / \text{Sum}(\text{Expression2})$.	sumWAvg([UnitPrice])

Report Items In Expressions

A report's elements are displayed in the Report Designer's Report Explorer. You can access these elements and their properties in expressions. The following example demonstrates how to set a label's BackColor property to the other label's BackColor property value.

[ReportItems].[xrLabel2].[BackColor]

Tip

[ReportItems] is a plain list that provides access to all report items at one level.

Note

You cannot use the ReportItems collection in a **Calculated Field's** expression.

Images for Picture Boxes

When you construct an expression for the **Picture Box's ImageSource** property, you can use image **Ids** from the report's

ImageResources collection.

IIf([MarchSales]>20, [Images.ArrowUp],[Images.ArrowDown])

Variables

VARIABLE	DESCRIPTION	EXAMPLE
DataSource.RowCount	Returns the total amount of data rows in a data source.	[DataSource.RowCount] != 0 Result: When using this expression for a control's Visible property, the control is not displayed if there is no data in the data source.

DataSource.CurrentRowIndex	Returns a zero-based index of the current data row in a data source.	<pre>lif([DataSource.CurrentRowIndex] % 2 = 0, 'red', 'green')</pre> <p>Result: When this expression is used for a table row's BackColor property, odd rows are colored in red and even rows - in green.</p>
DataSource.CurrentRowHierarchyLevel	Returns a zero-based level of the current row in a hierarchical report .	<pre>lif([DataSource.CurrentRowHierarchyLevel] == 0, Rgb(231,235,244), ?)</pre> <p>Result: When this expression is used for the BackColor property of the Detail band that is printed in tree mode, the root level rows are highlighted.</p>

O Note

These variables are not valid when the report includes a [table or contents](#).

Report Parameters

Use the following syntax to insert [parameters](#) into

- expressions: Type a question mark before a parameter's name.
?parameter1
- (*Obsolete approach*) Use the "Parameters." prefix before a [report parameter](#)'s name.
[Parameters.parameter1]

Collection Elements Verification

Use brackets "[]" to check if a collection contains an element that satisfies a condition. The following expression returns *true* if the Accounts collection contains at least one element that satisfies the *[Amount] == 100* condition:

```
[Accounts][[Amount] == 100]
```

The following expression returns *false* if the Accounts collection is empty:

```
[Accounts][[]]
```

Refer to the topic to see an example how to use this syntax.

Parent Relating Operator

Use the parent relating operator ('^' character) to refer to a parent in expressions written in the context of a child. You can apply this operator successively to navigate multiple parent relationships.

You can use this operator to refer to the currently processed report group. This allows you to calculate aggregates within groups using expressions like the following:

```
[[[^[.CategoryID] == [CategoryID]].Sum([UnitPrice])
```

Refer to the topic for details.

Grouping Clauses with Brackets

It is important to use brackets to ensure that your expression returns the intended results.

For instance, the following expression for objects of the Customer type returns all of the Customers where an Account exists with a Date of 8/25/2006 and where an account exists with an Amount of 100:

```
[Accounts][[Date] == #8/25/2006#] && [Accounts][[Amount] == 100]
```

Construct the expression as in the following example to search for all Customers that have an Account with both a Date of 8/25/2006 and an Amount of 100:

```
[Accounts][[Date] == #8/25/2006# && [Amount] == 100]
```

Operator Precedence

When an expression contains multiple operators, their precedence controls the order in which expression elements are evaluated.

- Literal values
- Parameters
- Identifiers
- OR (left-associative) AND (left-associative)
- '.' relationship qualifier (left-associative)
- ==, !=
- <, >, <=, >=
- -, + (left-associative)
- *, /, % (left-associative) NOT unary -
- In
- If
- Trim(), Len(), Substring(), IsNull() '[]' (for set-restriction)
- '()'

The default precedence can be changed by grouping elements with parentheses. For instance, the operators are performed in a default order in the first of the following two code samples. In the second code sample, the addition operation is performed first, because its associated elements are grouped with parentheses, and the multiplication operation is performed last.

```
Accounts[Amount == 2 + 48 * 2]
```

```
Accounts[Amount == (2 + 48) * 2]
```

Case Sensitivity

Operators are case insensitive. Although field values' case sensitivity depends on the data source.

O Not e

A data source affects certain operators' behavior. For instance, by default, the SQL Server Express 2005 is configured as case insensitive. In this case, the following expression always evaluates to **true**:

```
Lower(Name) == Upper(Name)
```

Escaping Keywords

You can mark a keyword-like field name with an escape character (@ sign). In the expression below, the

CriteriaOperator.Parse

method interprets @Or as the field named "Or", not the logical operator OR.

```
@Or = 'value'
```

Escape Characters

Use a backslash (\) as an escape character for characters in expressions. Examples:

- \[
- \\

• \'

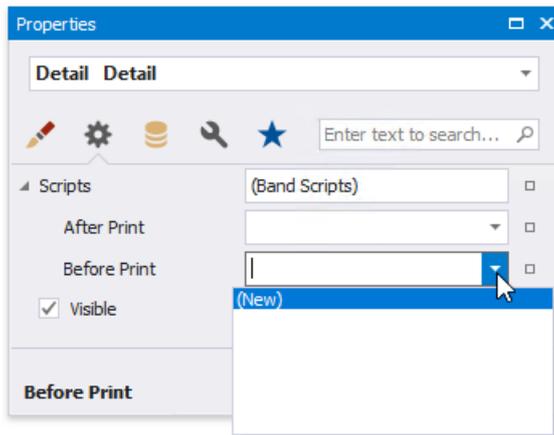
Use Report Scripts

This document describes the basic principles of *scripting*, which can be performed by handling the events of a report, and its [bands](#) and [controls](#).

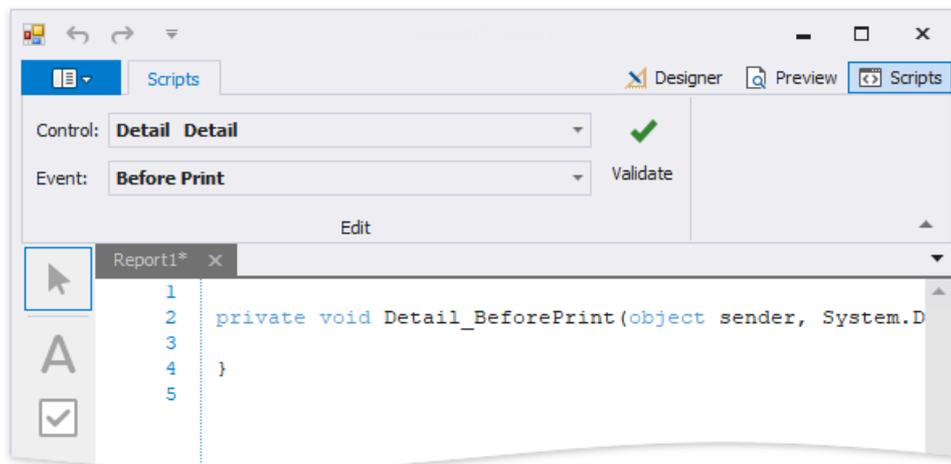
Scripts are program commands, placed within the *event handlers* of the required report elements. And, when the corresponding event occurs (e.g. a mouse click), the script code runs.

You can write *scripts* for a report or any of its elements (bands and controls), to be executed when the report is being [previewed](#), [printed](#) or [exported](#).

In the [Property Grid](#), expand the **Scripts** property for the required element. Every report element has an individual set of script events.

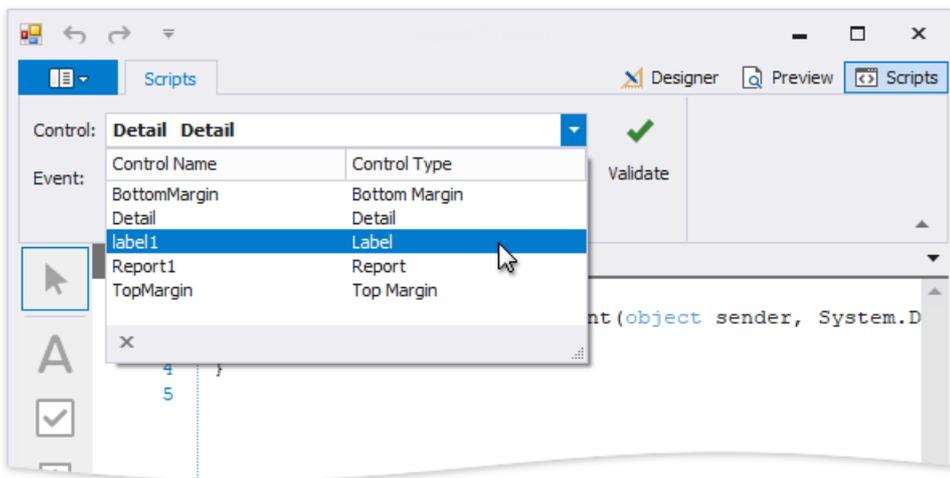


After you click **(New)** for an event (e.g. the **Before Print**, which is the most used), the **Scripts Tab** is switched on, where you can manage and edit all the report's scripts.

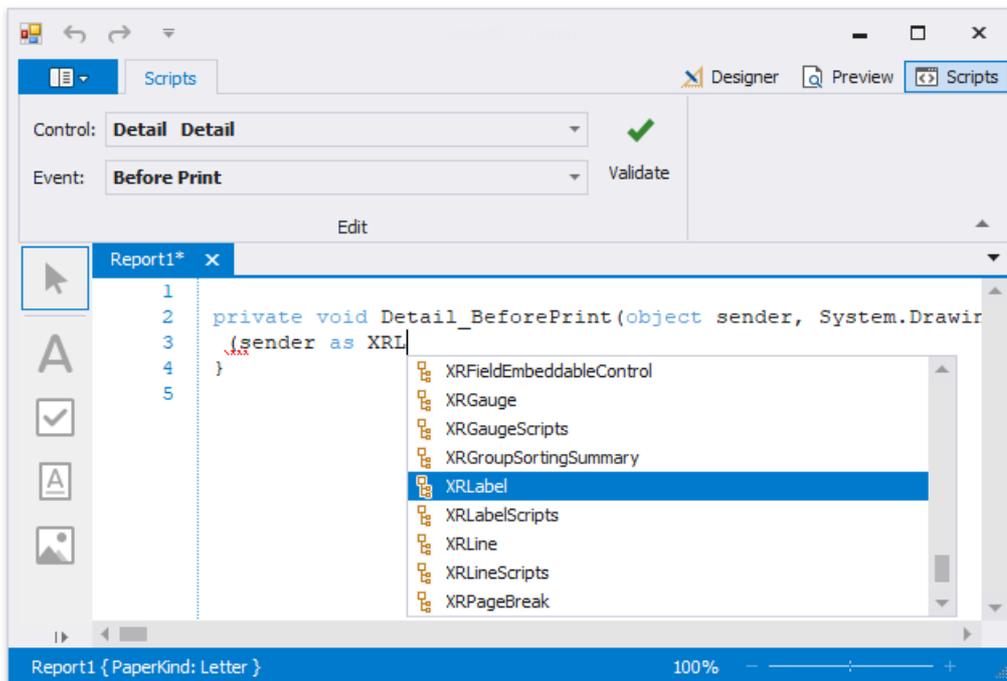


In this tab, for a selected event, a script template is auto-added, in the language specified via the **Script Language** property of the report.

This tab contains all scripts written for all report elements, and allows you to quickly navigate through them by choosing the required report element in the corresponding drop-down list, and specifying one of its available events in another menu.



The script editor supports intelligent code completion that makes it easier and faster for you to write scripts. Context-aware hints are displayed on typing a dot or pressing CTRL+spacebar.



You can verify that your report's scripts are valid, by clicking **Validate**. The validation result is then displayed in the **Scripts Errors** panel.

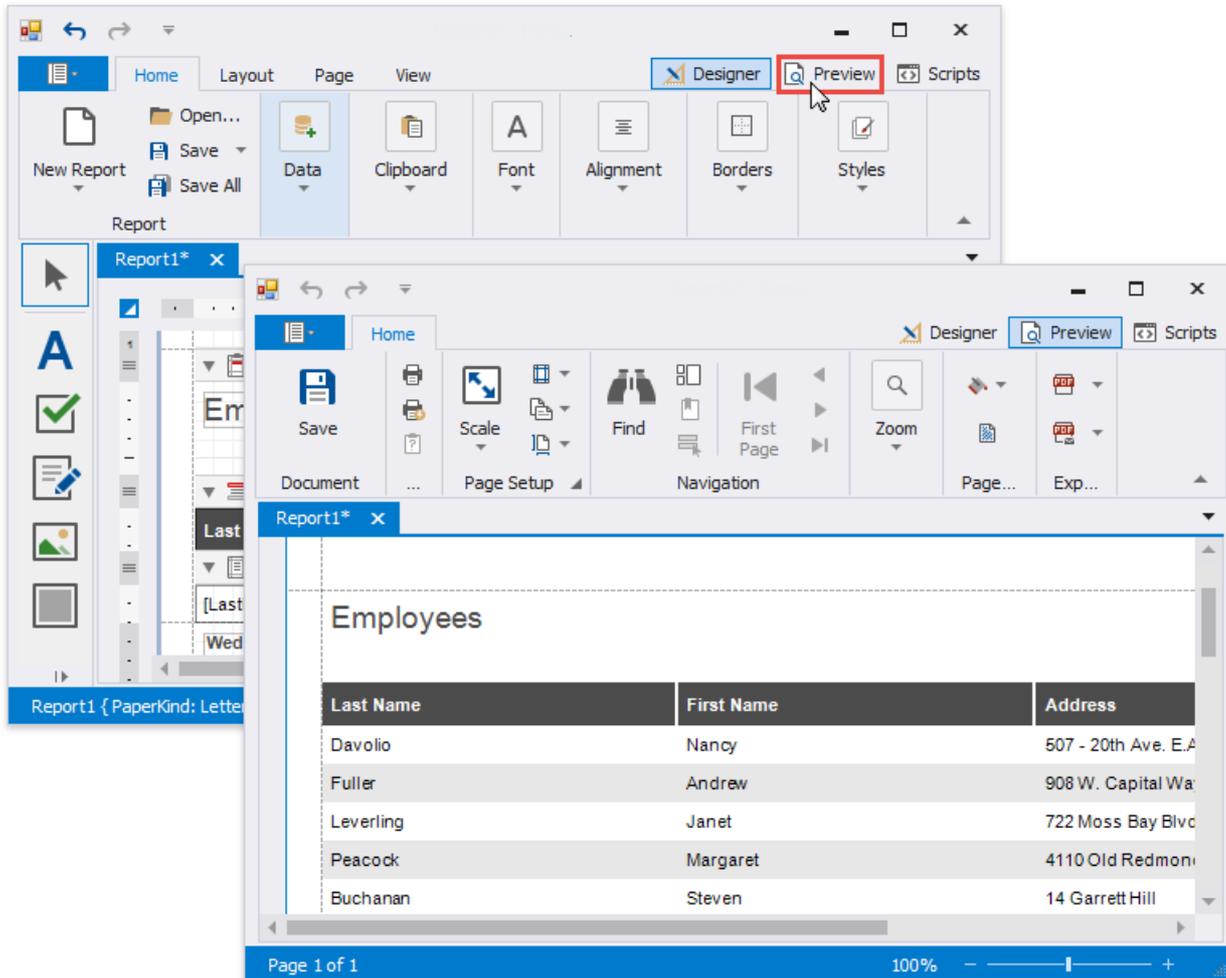
Scripts Errors		
Description	Line	Column
; expected	3	2

To proceed to the line that contains an error, click that error in the Error List panel. Note that scripts are saved to a file along with the report's layout.

Preview, Print and Export Reports

Preview a Report

To switch a report to the print preview mode, click the **Preview** tab. You will see your report populated with data and broken down into pages, as specified.

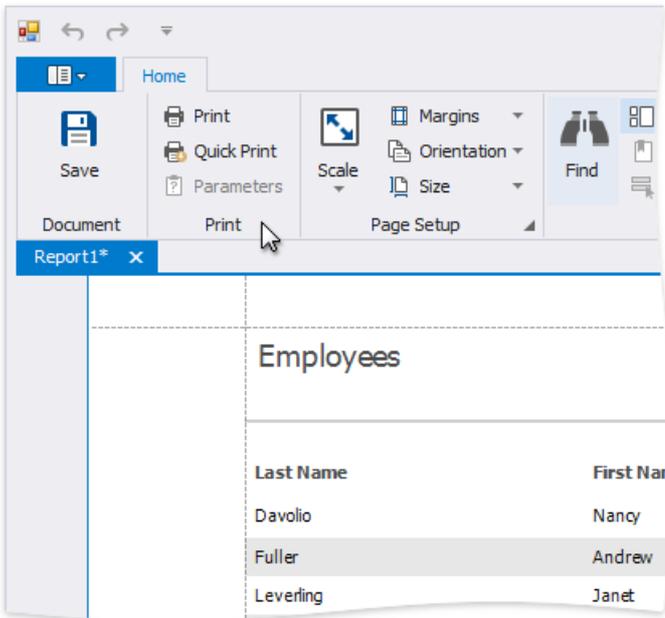


O Not e

To learn more about the options available in the print preview mode, refer to the [Print Preview for WinForms](#) section of this documentation.

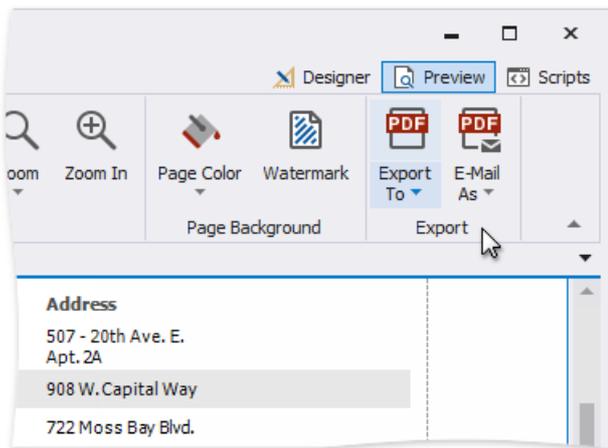
Print a Report

When in the Print Preview mode, you can print out your report using the appropriate menu and toolbar commands.



Export a Report

When in the Print Preview mode, you can export your report to files in different formats. The resulting files can either be saved to the hard drive or sent by e-mail.



The following documents describe the basics of report exporting and format-specific export options.

- [Exporting from Print Preview PDF-Specific](#)
- [Export Options HTML-Specific Export Options](#)
- [MHT-Specific Export Options RTF-Specific](#)
- [Export Options XLS-Specific Export Options](#)
- [XLSX-Specific Export Options CSV-Specific](#)
- [Export Options TXT-Specific Export Options](#)
- [Image-Specific Export Options](#)

Report Designer Tools

The topics in this section describe the main tools and features available in the Report Designer:

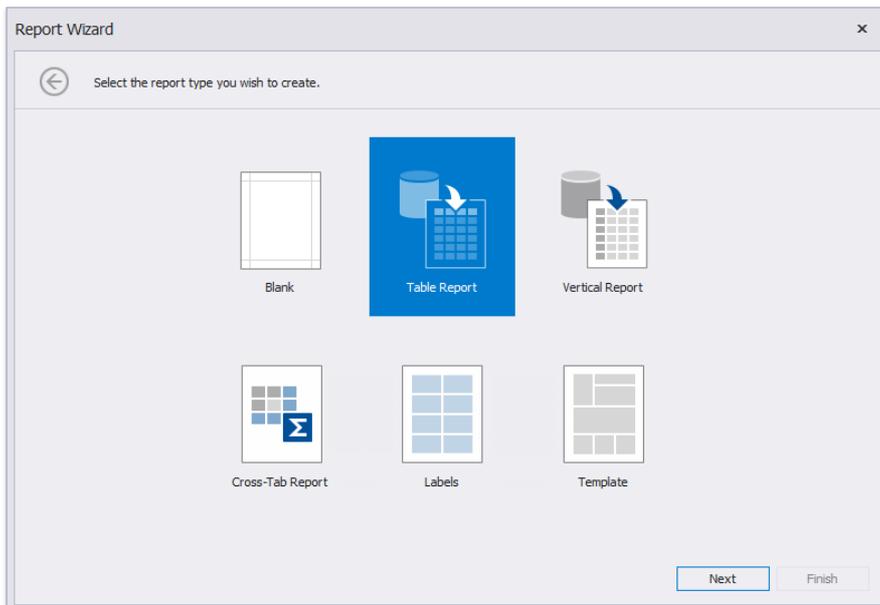
- [Report Wizard](#)
- [Data Source Wizard](#)
- [Query Builder](#)
- [Toolbox](#)
- [Toolbar](#)
- [UI](#)
- [Panels](#)

Report Wizard

The Report Wizard allows you to add a report using one of the

following templates: [Blank](#)

- Creates a new blank report that is not bound to a data source. Choose this option to design your report without using the wizard.
- [Table Report](#)
Allows you to create a [table report](#), connect it to a data source and configure basic report layout settings. [Vertical Report](#)
- Allows you to create a [vertical report](#), connect it to a data source and configure basic report layout settings. [Cross-Tab Report](#)
- Allows you to create a [cross-tab report](#), connect it to a data source and configure basic report layout settings. [Labels](#)
- Allows you to select from different customizable layouts to create labels, badges or price tags. [Template](#)
- Enables you to create a new report based on available predefined templates.



Run the Report Wizard

Use one of the following ways to invoke the Report Wizard.

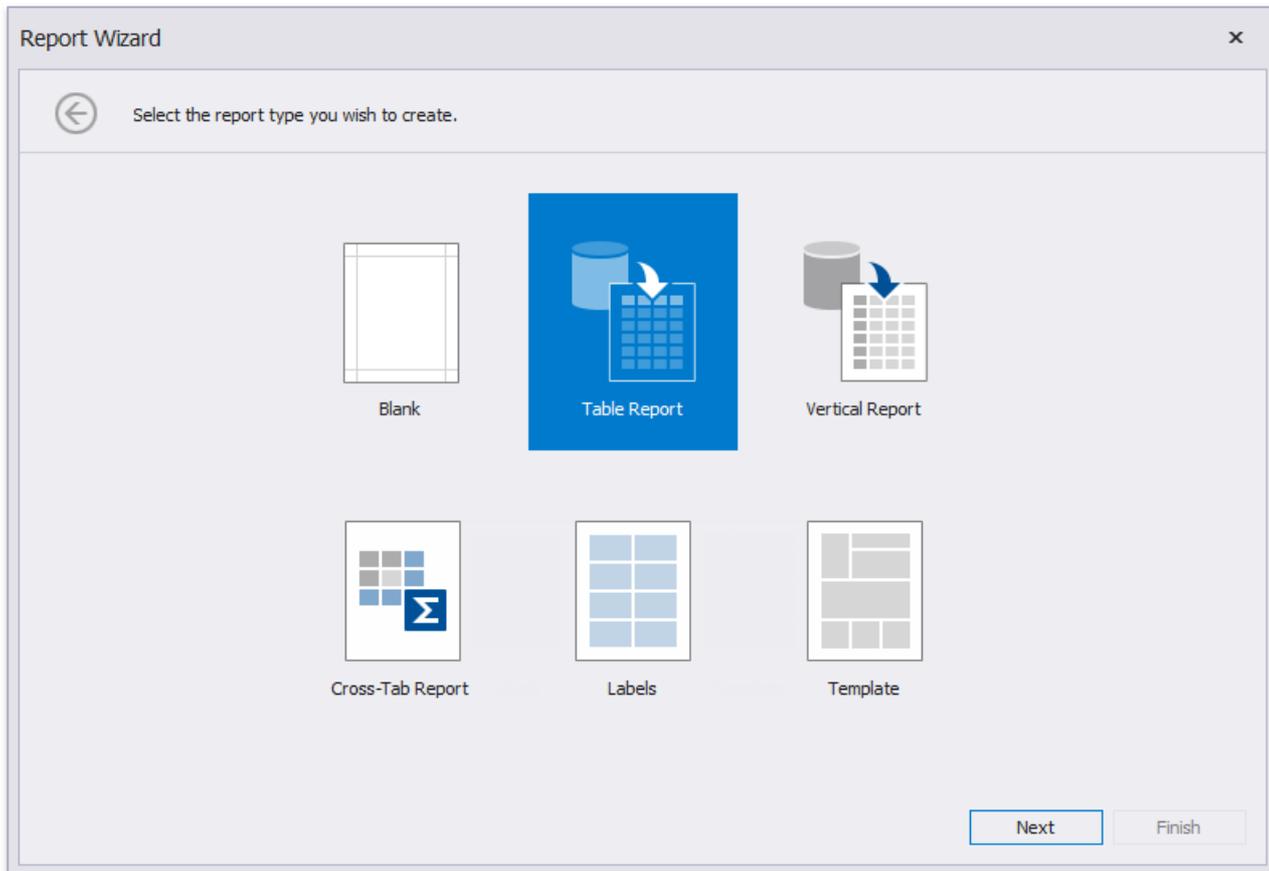
- Create a new report
 - Use the [New Report via Wizard](#) command to create a new report based on a Report Wizard template. Edit an existing report
- Click the report's Smart Tag and then the **Design in Report Wizard...** context link in the invoked actions list.

Note

The new report layout overrides the initial report layout.

Choose a Report Type

On this wizard page, you can choose the report type you want to create.

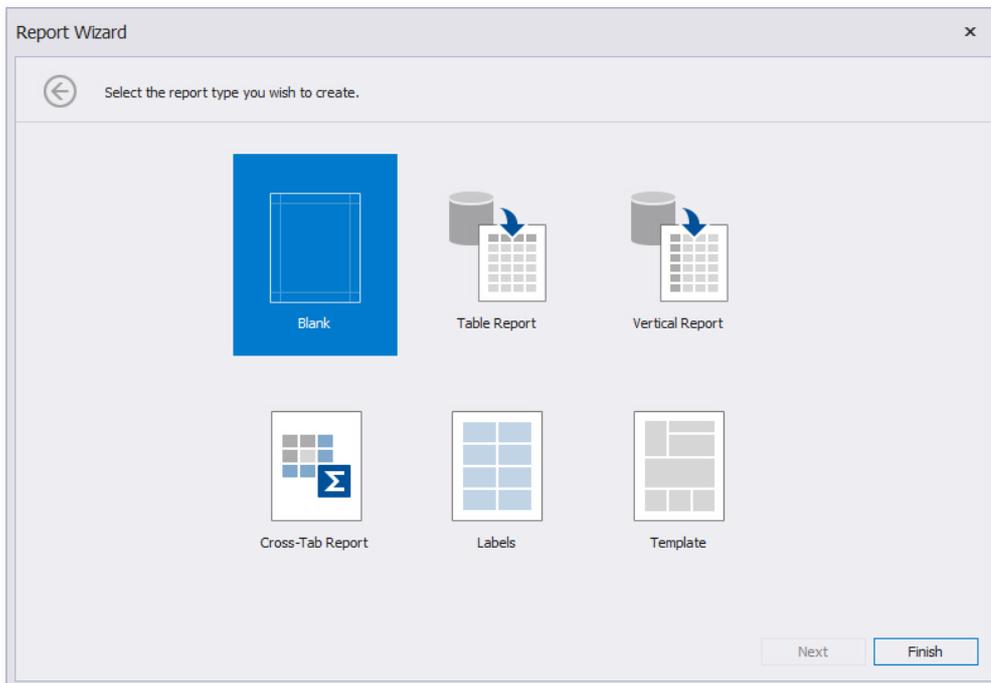


The following report types are available.

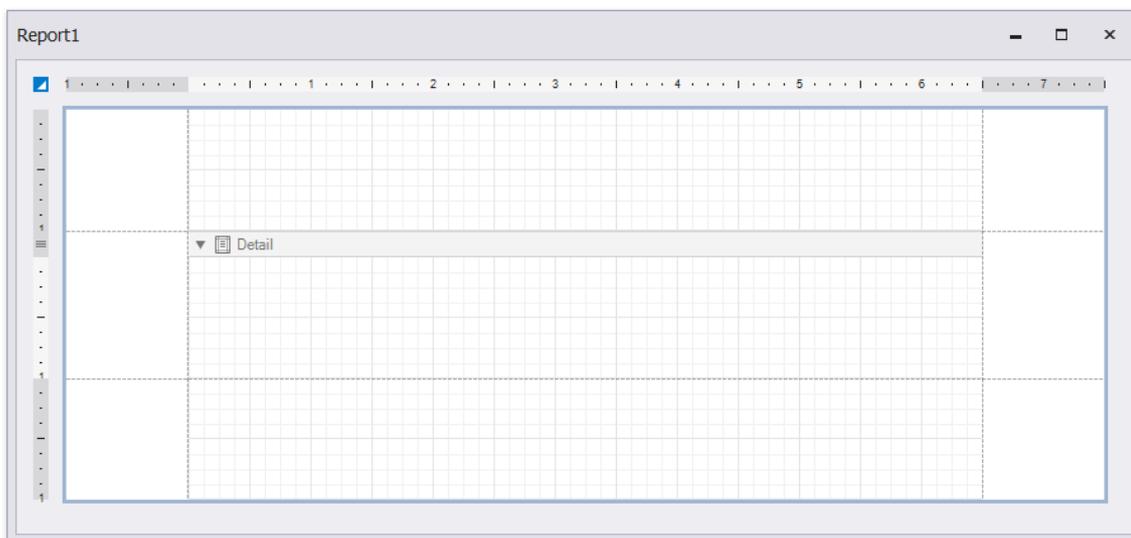
- [Blank Report](#)
- [Table Report](#)
- [Vertical Report](#)
- [Labels](#)
- [Template](#)

Blank Report

This topic describes how to add a new blank report to an application at design time in Visual Studio by using the **Report Wizard**. To create an empty report, [run the Report Wizard](#), select **Blank** and click **Finish**.



The following image illustrates the default layout of a newly added empty report.

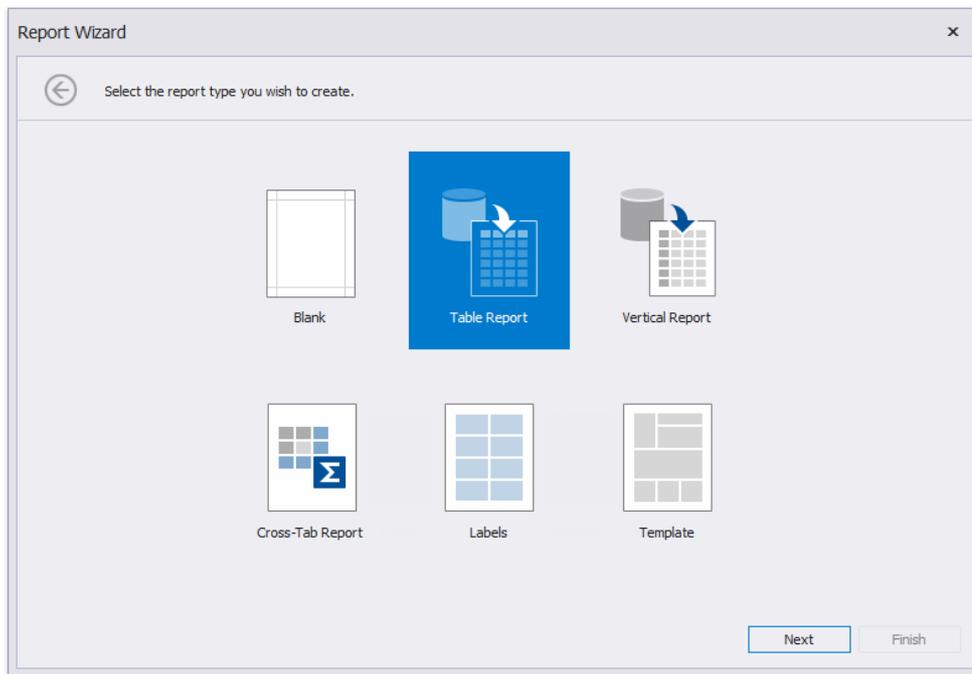


To learn how to connect a report to data and construct the report layout, see the following topic: [Bind to Data](#).

Table Report

The topics in this section describe how to create a table report and connect it to data at design time within Visual Studio using the **Data Source Wizard**.

To create a new report and connect it to data, [run the Report Wizard](#) and select **Table Report**.

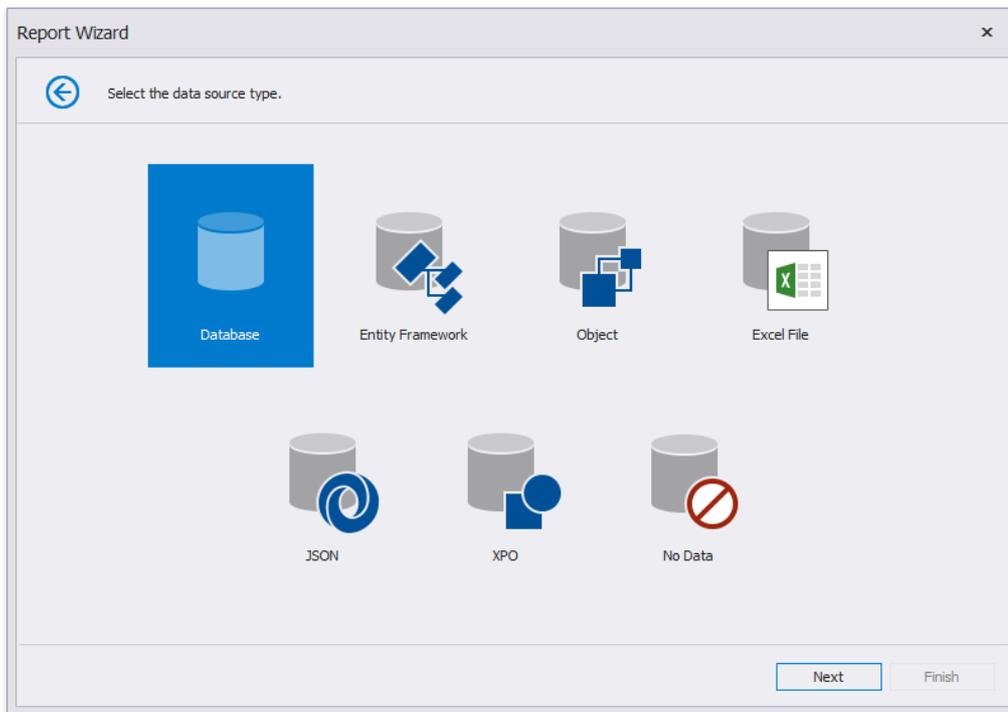


The Report Wizard can include the following

- pages: [Select the Data Source Type](#)
- [Choose Fields to Display in a Report](#)
- [Add Grouping Levels](#)
- [Specify Summary](#)
- [Options Specify Report](#)
- [Page Settings Specify a](#)
- [Report Color Scheme Set](#)
- [the Report Title](#)

Select the Data Source Type

This wizard page allows you to select the required data source type.

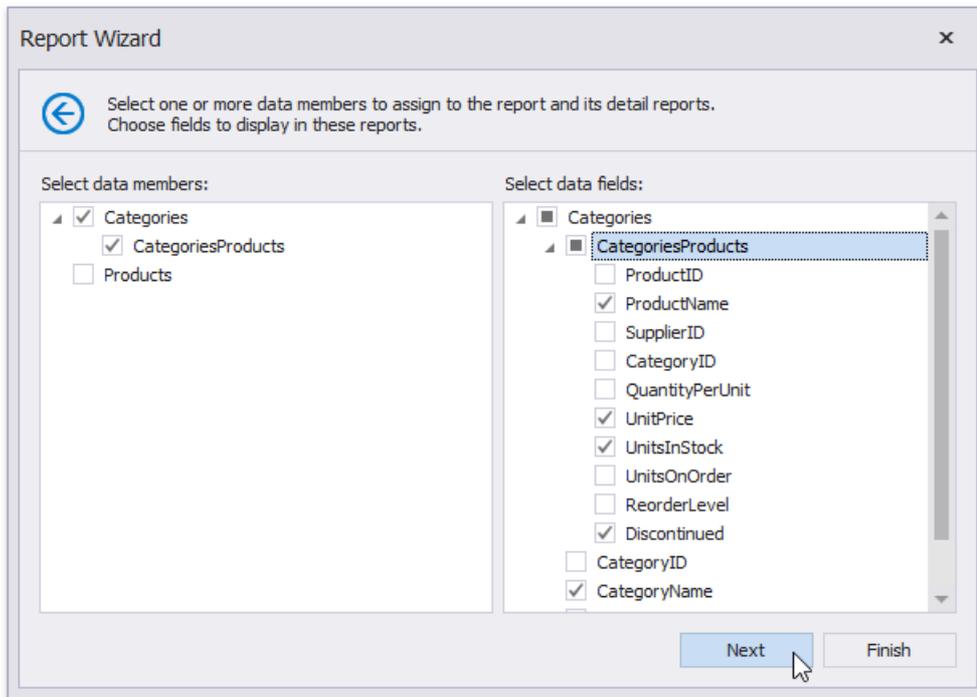


Click **Next** to proceed to the next wizard page, depending on the selected data source type.

- [Connect to a Database](#)
- [Connect to an Entity Framework Data Source](#)
- [Connect to an Object Data Source](#)
- [Connect to an Excel Data Source](#)
- [Connect to JSON Data Source](#)
- [Connect to XPO Data Source](#)
- [No Data](#)
-

Choose Fields to Display in a Report

This wizard page allows you to select data members for a report and its detail reports as well as choose data fields to display in these reports.



The list on the left-hand side displays queries and [master-detail relationships](#) specified on the previous wizard page. Select required check boxes to create relevant reports and assign their **DataMember** property.

In the list on the right-hand side, choose data fields from the selected data members to include into corresponding reports. After completing the wizard, the report is constructed according to the following:

- If you select one query, it assigns to the report's **DataMember** property. The selected fields with corresponding captions are automatically added to the report's [Detail Band](#).
- If you select two or more queries, this creates the [Detail Report Band](#) for each query at the same hierarchical level. The **DataMember** properties of these detail reports are assigned to the corresponding queries.
- For each selected master-detail relationship, the [Detail Report Band](#) with the **DataMember** property set to this relationship is created under the corresponding master report.

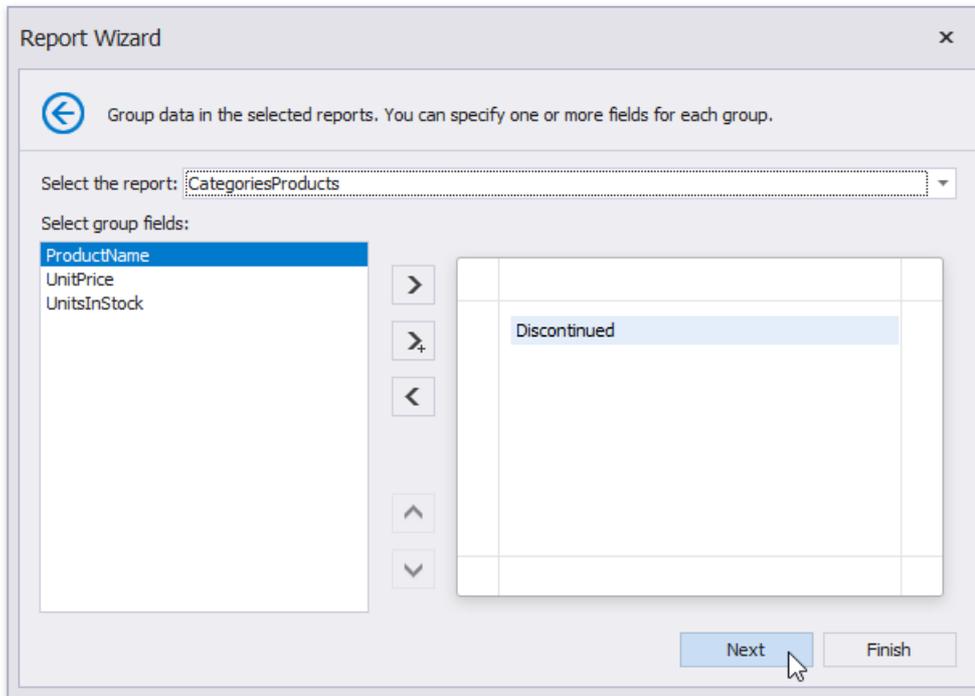
You can stop the wizard at this step by clicking **Finish**. The created report looks similar to the image below.

▼ Detail			
Category Name	Description	Picture	
[CategoryName]	[Description]		
▼ detailReportBand1 - "Categories.CategoriesProducts"			
▼ groupHeaderBand1			
Product Name	Unit Price	Units In Stock	Discontinued
[ProductName]	[UnitPrice]	[UnitsInStock]	<input type="checkbox"/>
▼ detailBand1			

If you want to customize the report further, click **Next** to go to the [Add Grouping Levels](#) page.

Add Grouping Levels

This page allows you to group data in your report. If you do not need to group your data, simply click **Next** on this page to skip this step.



Nested grouping and grouping against multiple fields are fully supported. The following image illustrates all basic grouping types.

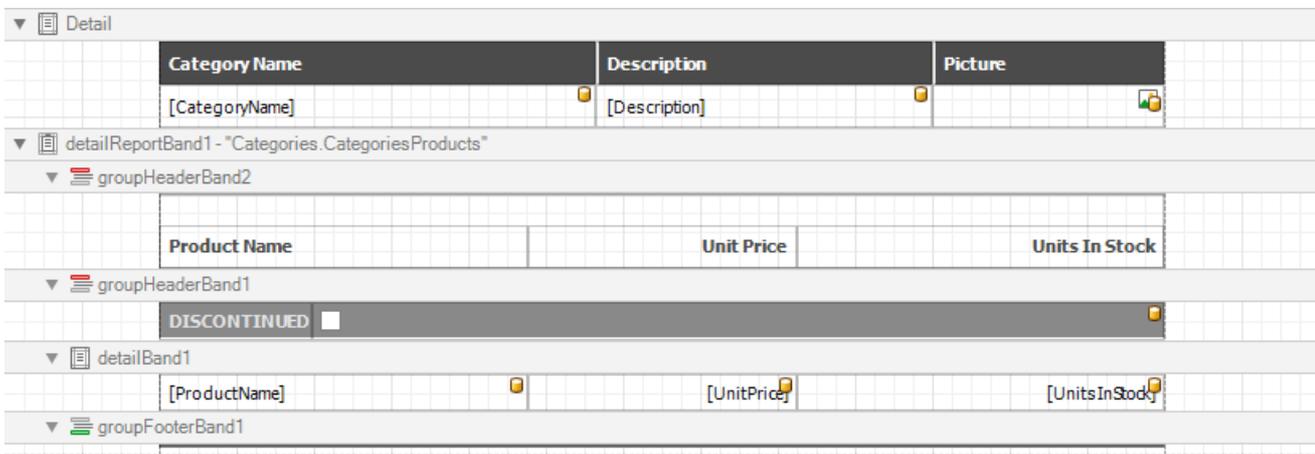
No grouping				One-level Grouping				Nested Grouping				Multiple Fields			
BMW	525i	1/1/2009	1	BMW				BMW				BMW 525i			
BMW	525i	1/2/2009	2	525i	1/1/2009	1	525i				1/1/2009 1				
BMW	740i	1/3/2009	3	525i	1/2/2009	2	740i				1/2/2009 2				
Toyota	Camry	1/4/2009	4	740i	1/3/2009	3	740i				1/3/2009 3				
Toyota	Prius	1/5/2009	5	Toyota				Toyota				Toyota Camry			
Toyota	Prius	1/6/2009	6	Camry	1/4/2009	4	Camry				1/4/2009 4				
				Prius	1/5/2009	5	Prius				Toyota Prius				
				Prius	1/6/2009	6	1/5/2009 5				1/5/2009 5				
							1/6/2009 6				1/6/2009 6				

The list on the left-hand side displays data fields that can be used to group data. To apply grouping, do one of the following.

- Select columns and click the right arrow button. Double-click columns.

To remove a grouping field, double-click it in the list on the right-hand side, or select it and click the left arrow button. You can also change the order of grouping fields using the up arrow and down arrow buttons.

You can stop the wizard on this step by clicking **Finish**. In this case, your report will look similar to the image below.



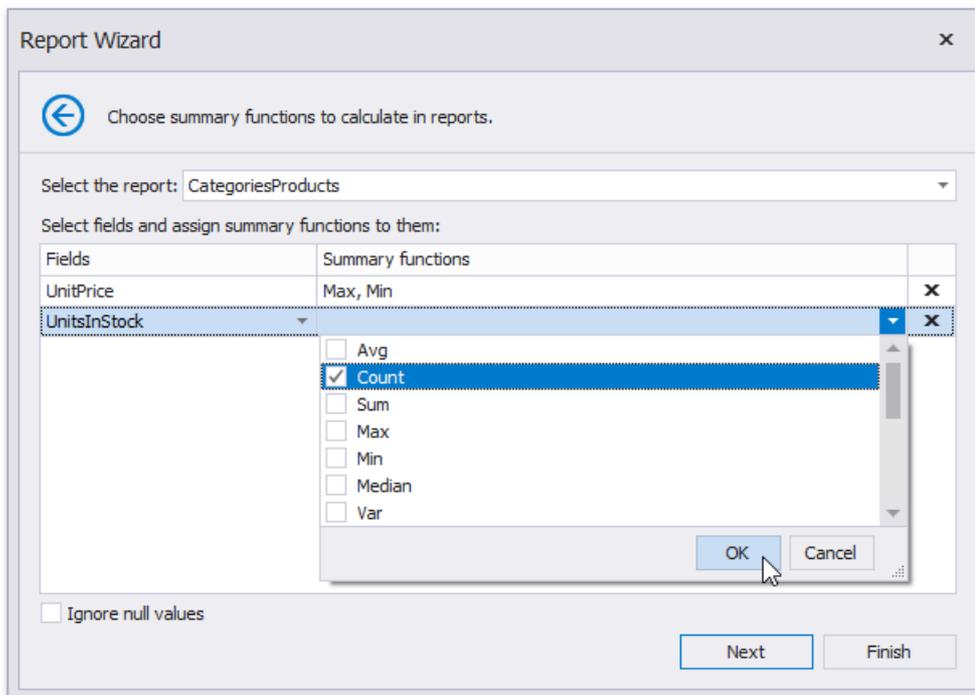
If you want to customize your report further, click **Next**. If data grouping has been applied on this page, you will proceed to the [Specify Summary Options](#) page. If you have not grouped your data, you will skip the summaries step and go to the [Specify Report Page Settings](#) page.

Specify Summary Options

O Not e

This wizard step is only available if you have applied data grouping in the previous step ([Add Grouping Levels](#)). If you have not grouped data, this step is skipped.

On this wizard page, you can specify summaries to calculate in the selected reports.



Use the drop-down list at the top of the wizard page to choose a required report.

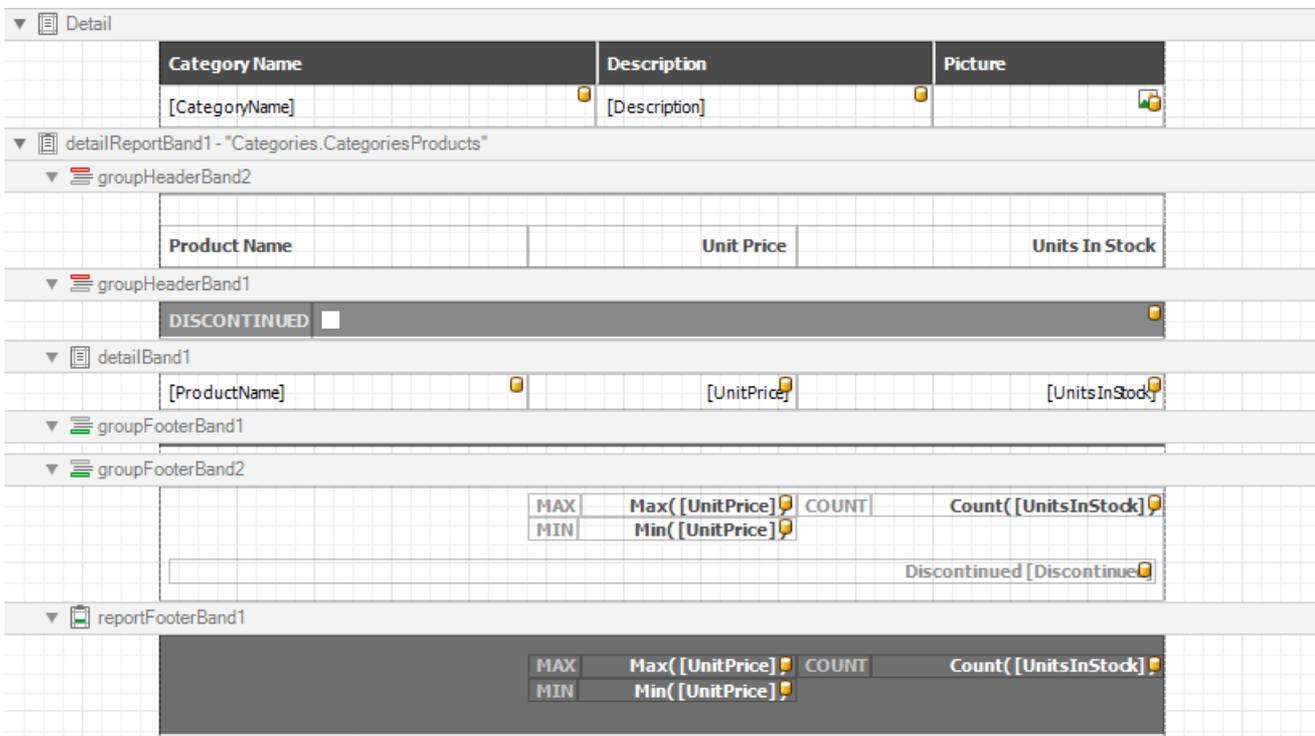
In the **Fields** table column, you can select an available numerical or date-time field. To specify which functions should be calculated for the selected field, enable the corresponding check boxes in the **Summary functions** drop-down.

The specified summaries are displayed in the report footer and after corresponding groups (if you have grouped report data on the [previous wizard page](#)).

If data fields can contain empty values and you do not want to take these values into account when

calculating totals, select the **Ignore null values** check box. Otherwise, these values are treated as zeros for numeric fields and the earliest system date for date-time fields.

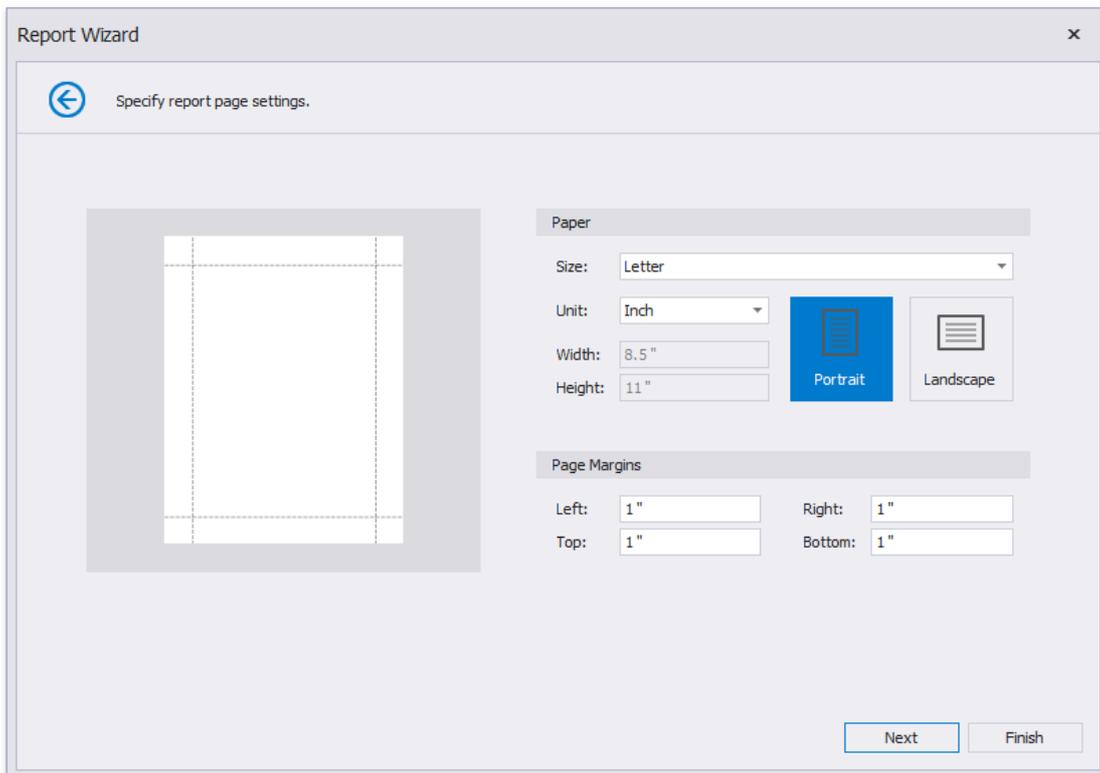
You can stop the wizard at this step by clicking **Finish**. The created report looks similar to the image below.



If you want to customize the report further, click **Next** to proceed to the next wizard page: [Set the Report Title](#).

Specify Report Page Settings

At this step, set up the report's page.



This wizard page allows you to specify the following report

properties: Report Page **Size**

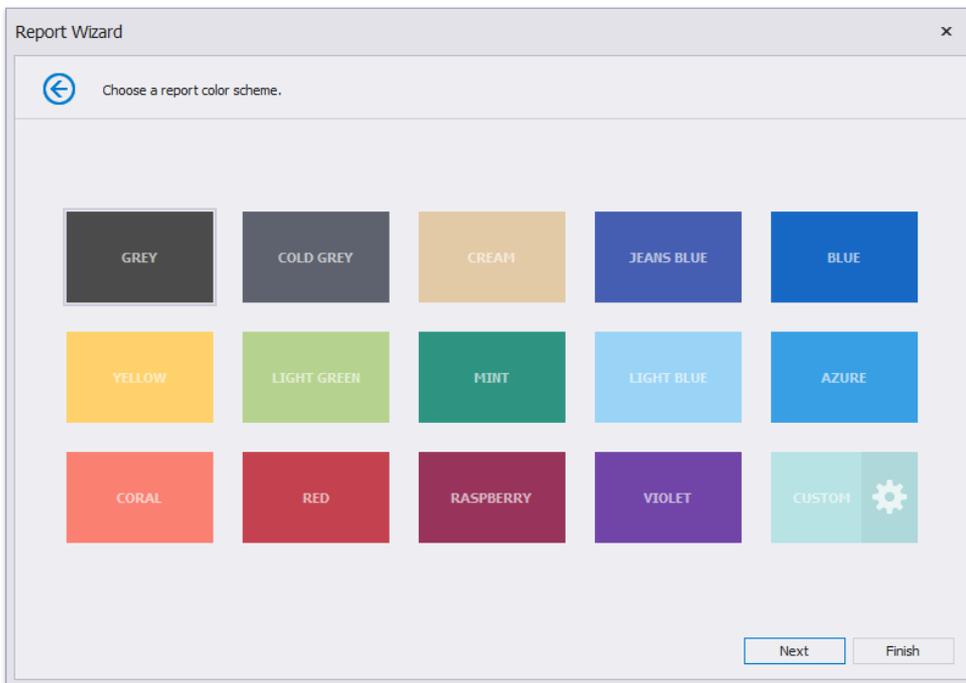
-
- **Unit**
Choose between *Inch*, *Millimeter* and *Pixel* to specify size options on this wizard page. After you finish the wizard, the Report Designer transforms the specified units to *HundredthsOfAnInch*, *TenthsOfAMillimeter* or *Pixels* to provide a more precise report element alignment.
- **Width and Height**
These properties are read-only until you set the **Size** option to *Custom*.
- **Page Margins**
Use the report page preview to drag the margins to a required position.
- **Page Orientation**

You can change these settings after you finish the wizard in the Report Designer's Property Grid.

If you want to customize the report further, click **Next** to proceed to the next wizard page: [Choose a Report Color Scheme](#). Otherwise, click **Finish** to complete report customization.

Choose a Report Color Scheme

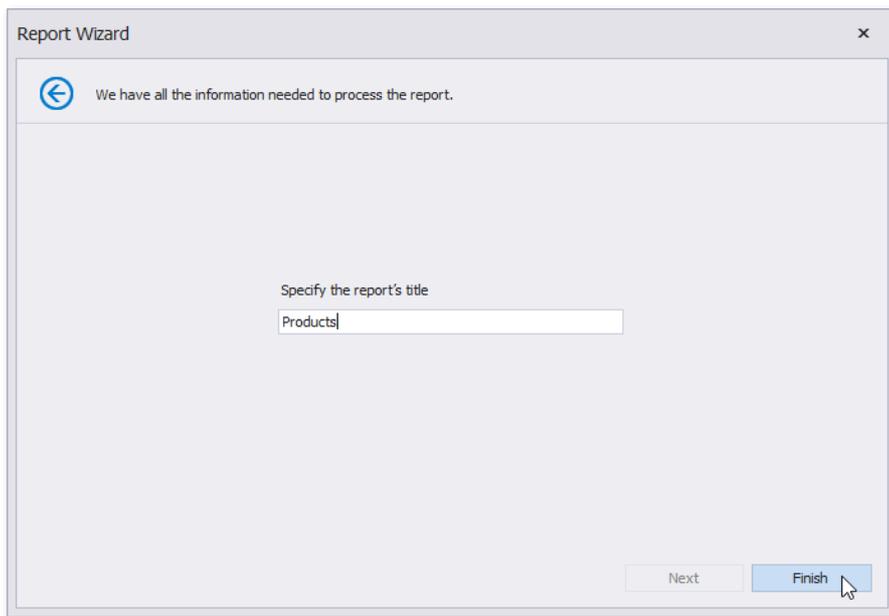
This page allows you to choose a base color for report styles.



The wizard creates styles based on the chosen color for the first level report controls and applies styles with more transparent colors to controls on deeper levels.

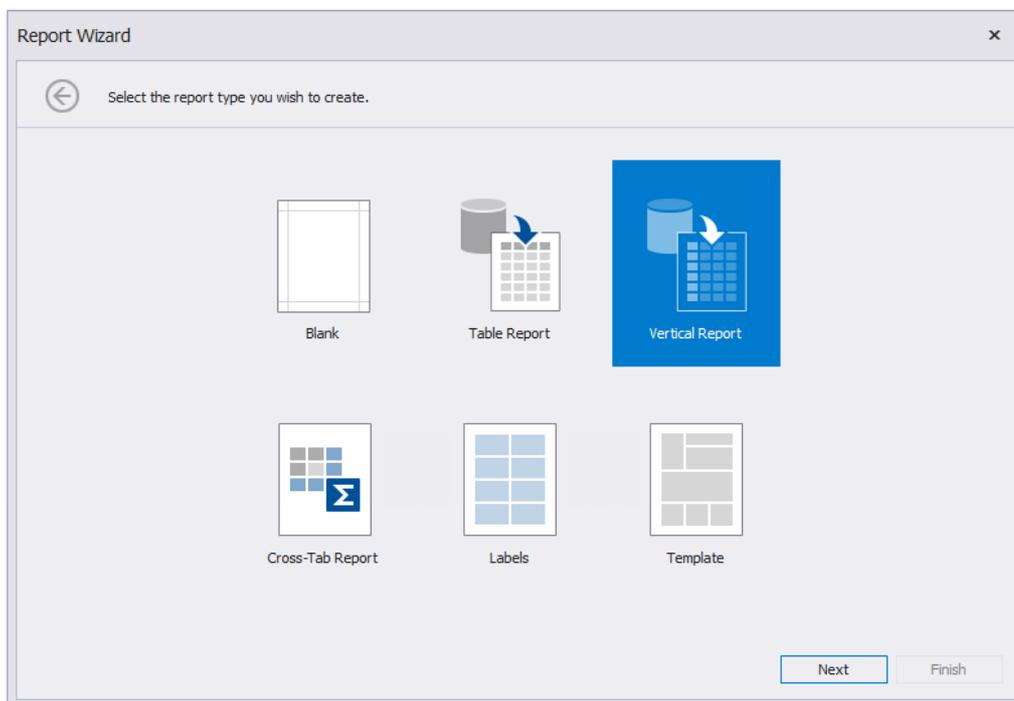
Set the Report Title

On this page, specify the title for the report and click **Finish** to exit the wizard.



Vertical Report

The topics in this section describe how to create a [vertical report](#) - a table report where record fields are displayed vertically and data records are printed horizontally.



Run the [Report Wizard](#) and select **Vertical Report** to create a new vertical report and connect it to data.

The Report Wizard can include the following pages (similar to the Table

- Report type): [Select the Data Source Type](#)
- [Choose Fields to Display in a](#)

- Report Add Grouping Levels
- Specify Summary
- Options Specify Report
- Page Settings Specify a
- Report Color Scheme Set
- the Report Title

ReportHeader [one band per report]

After you finish the report, it creates a report with vertical bands: Vertical Header, Vertical Detail and Vertical Total.

VerticalHeader VerticalDetail VerticalTotal

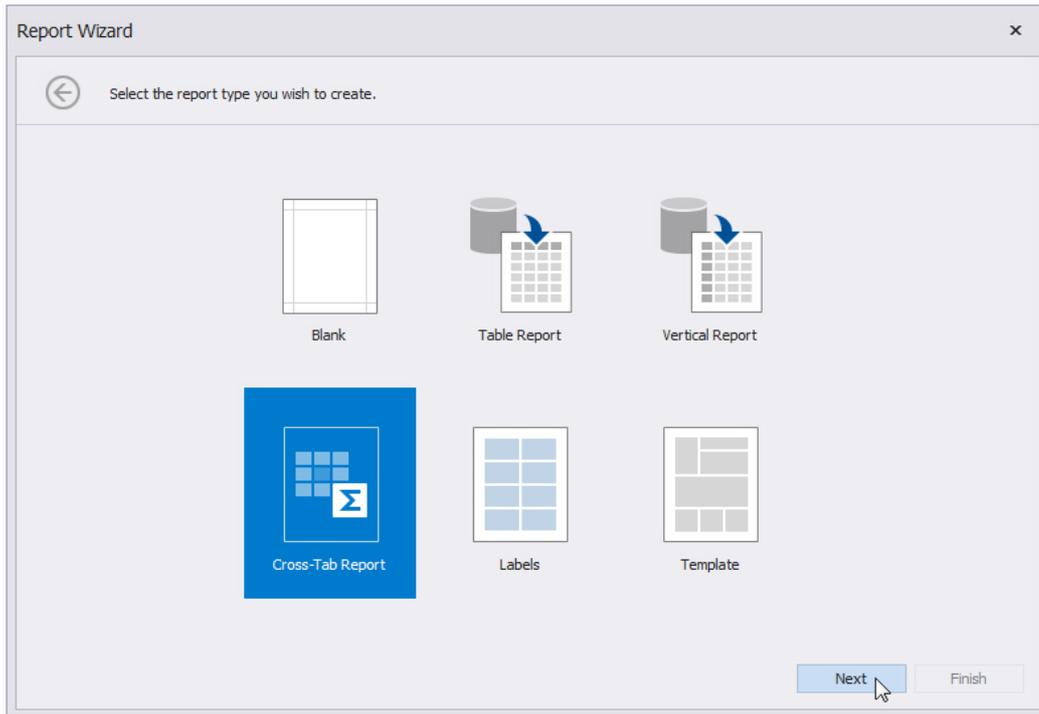
Month	[Month]	
Cons tinction l'ncome	/Consin.tclionIncom	sumS11m([Co nst rud io nl co l'llfj] [j]
Sales l'come	[Sale.sIn com]	sumSum([Salesl nco me] 0
A11tomob]le	[Automobil J'	sumS11m([Au t omo Hejj] [j]
Ba k ServiceCha ges	[BankServiceChargesfr	sumSum([Bank Servi ceC arges]) B

Friday, October 16, 2011

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Cross-Tab Report

Select **Cross-Tab Report** on the wizard's [start page](#) to create a [cross-tab report](#) that displays multi-

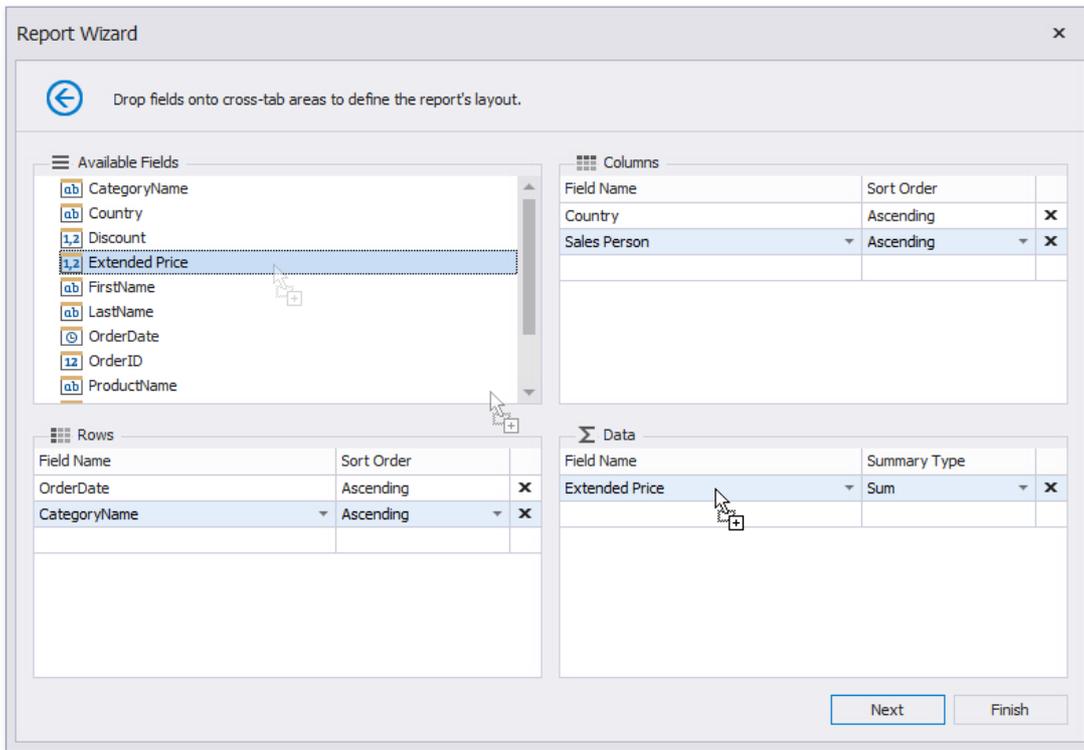


dimensional data.

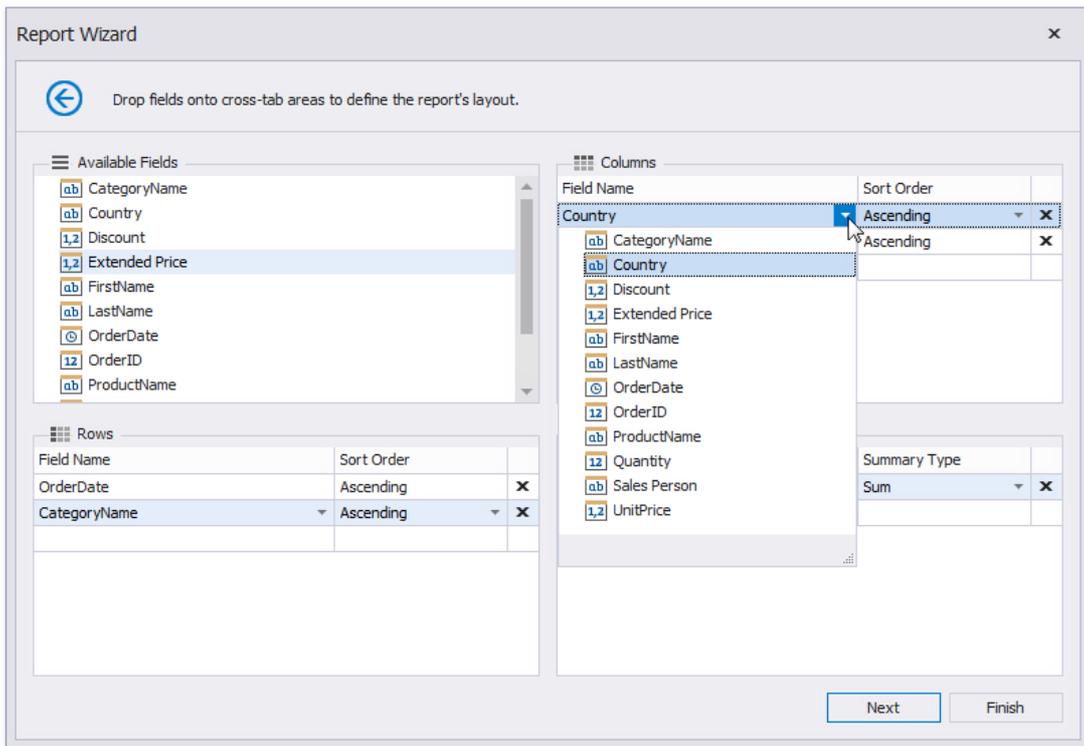
Click **Next** and use the [Data Source Wizard](#) to set up a report's data source.

Once the data source is configured, you can define the report's layout on the next page. Drop data fields onto the following cross- tab area:

- **Rows** - defines row headers;
- **Columns** - defines column headers;
- **Data** - defines fields against which to calculate summaries.



You can also select a field from the corresponding drop-down list.



O Not e

The field order defines the hierarchy in the resulting cross-tab report. The higher the field on the list, the higher the level in the field hierarchy.

You can click **Finish** to stop the Report Wizard. If you want to customize the report further, click **Next** and proceed to the next pages:

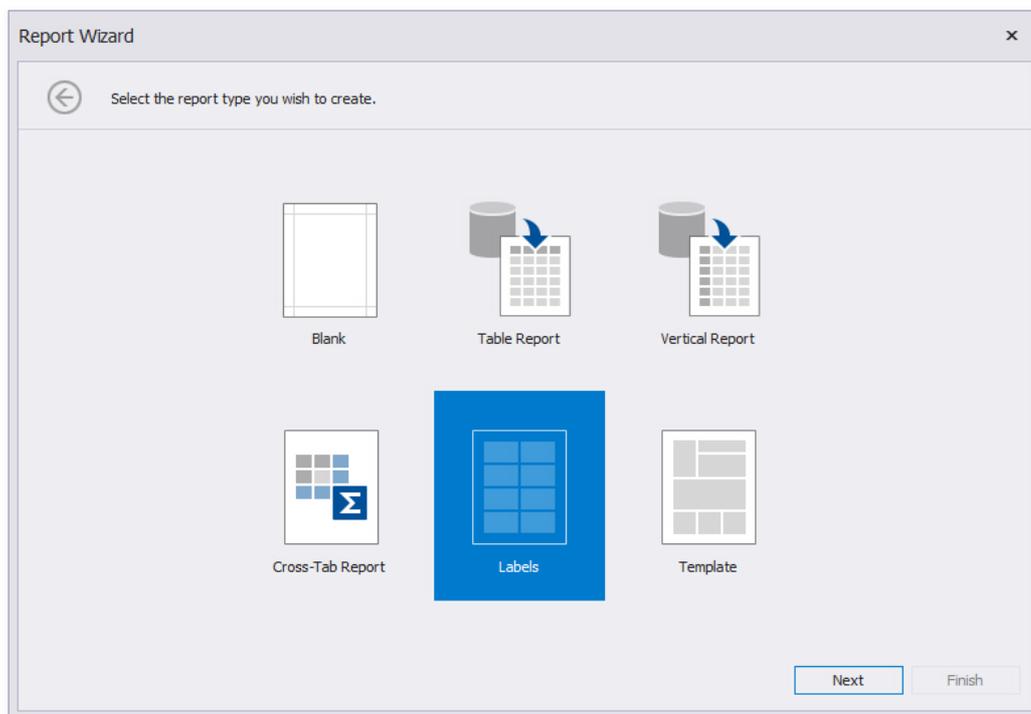
- [Specify Report Page Settings](#)
- [Choose a Report Color Scheme](#)
- [Set the Report Title](#)

The generated report contains the [Cross Tab](#) control that is configured based on the specified settings. The XRCrossTab control calculates automatic totals and grand totals across row and column fields.

Order Date	Category Name	[Country]	Total [Country]	Grand Total
[OrderDate]	[CategoryName]	[Sales Person]		
Total [OrderDate]				
Grand Total				

Labels

This topic describes the steps required to create a report with labels by using the [Report Wizard](#).

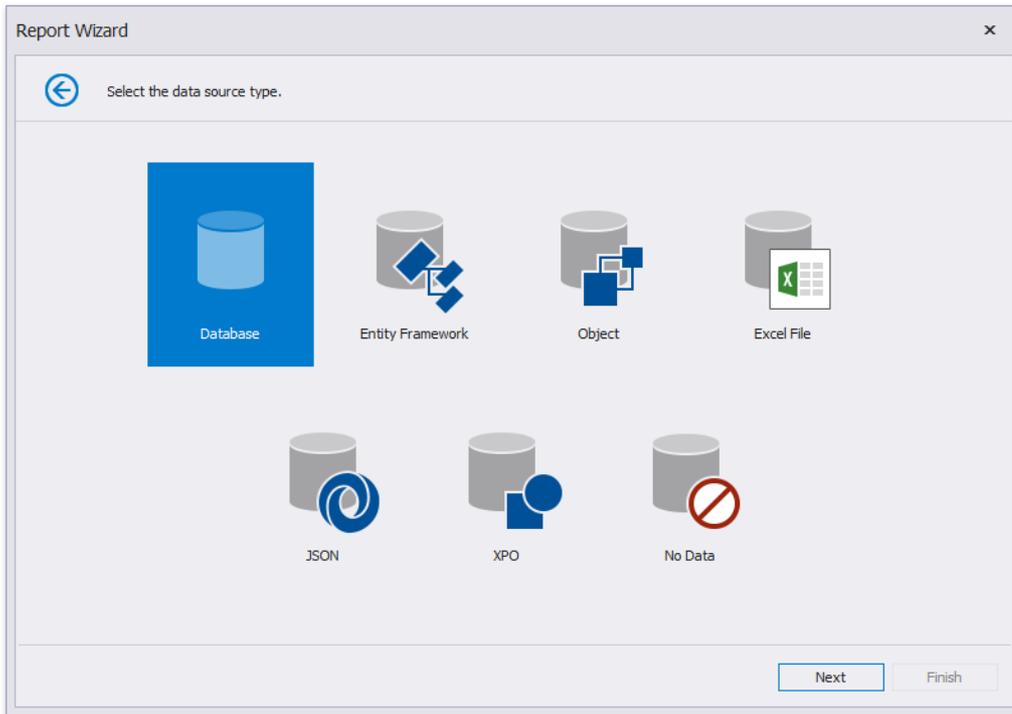


Label report creation consists of the following two steps.

- [Select the Data Source](#)
- [Type Select the Label](#)
- [Type Customize the Label](#)
- [Options](#)

Select the Data Source Type

This wizard page allows you to select the required data source type.



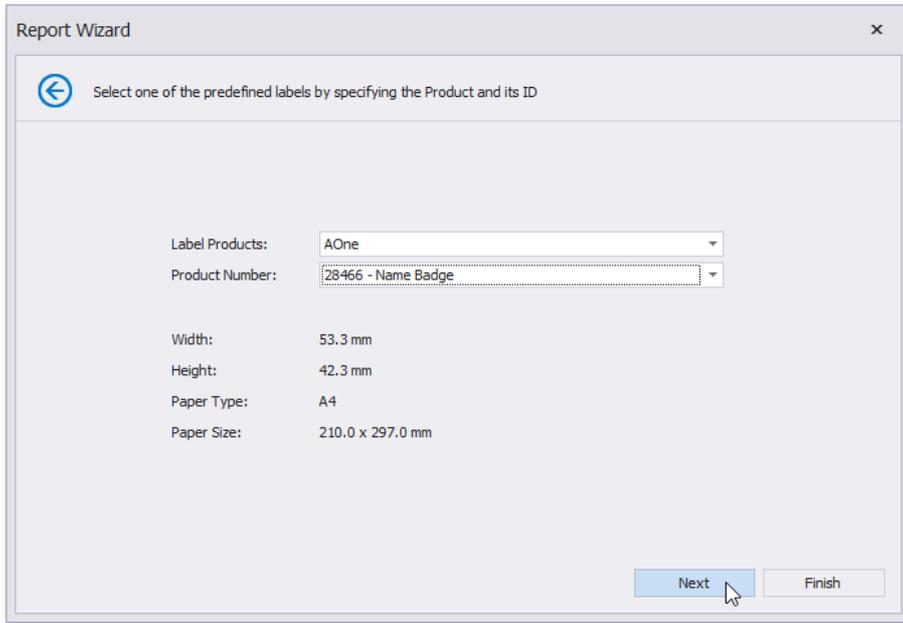
Click **Next** to proceed to the next wizard page, depending on the selected data source type.

- [Connect to a Database](#)
- [Connect to an Entity Framework Data Source](#)
- [Connect to an Object Data Source](#)
- [Connect to an Excel Data Source](#)
- [Connect to JSON Data Source](#)
- [Connect to XPO Data Source](#)
- [Connect to No Data Source](#)
-

Select the Label Type

This page is intended to select a label type from numerous predefined types.

On this page you can choose the proper setting from the **Label Products** and the **Product Number** drop-down lists. The selected type defines the label's size and layout, as well as the page type, which is default for this label.



The screenshot shows a 'Report Wizard' dialog box with the following content:

- Header: Report Wizard (with a close button 'x')
- Navigation: A blue circular arrow icon on the left and the text 'Select one of the predefined labels by specifying the Product and its ID'.
- Form Fields:
 - Label Products: A dropdown menu with 'AOne' selected.
 - Product Number: A dropdown menu with '28466 - Name Badge' selected.
 - Width: 53.3 mm
 - Height: 42.3 mm
 - Paper Type: A4
 - Paper Size: 210.0 x 297.0 mm
- Buttons: 'Next' and 'Finish' buttons at the bottom right. A mouse cursor is pointing at the 'Next' button.

Then, click **Next** to proceed to the [Customize the Label Options](#) page.

Customize the Label Options

This page is intended to customize the label's options.

On this page you can adjust the label's layout parameters and choose the **Page Size**.

The screenshot shows the 'Report Wizard' dialog box with the following settings:

- Page Size: A4 (210.0 × 297.0 mm)
- Units: Millimeter (selected)
- Label Width: 53.3
- Label Height: 42.3
- Horizontal Pitch: 57.2
- Vertical Pitch: 42.3
- Top Margin: 20.5
- Left Margin: 19.0
- Right Margin: 23.4
- Bottom Margin: 22.7

The diagram on the right illustrates the layout parameters: HORIZONTAL PITCH, TOP MARGIN, VERTICAL PITCH, WIDTH, HEIGHT, and LEFT MARGIN.

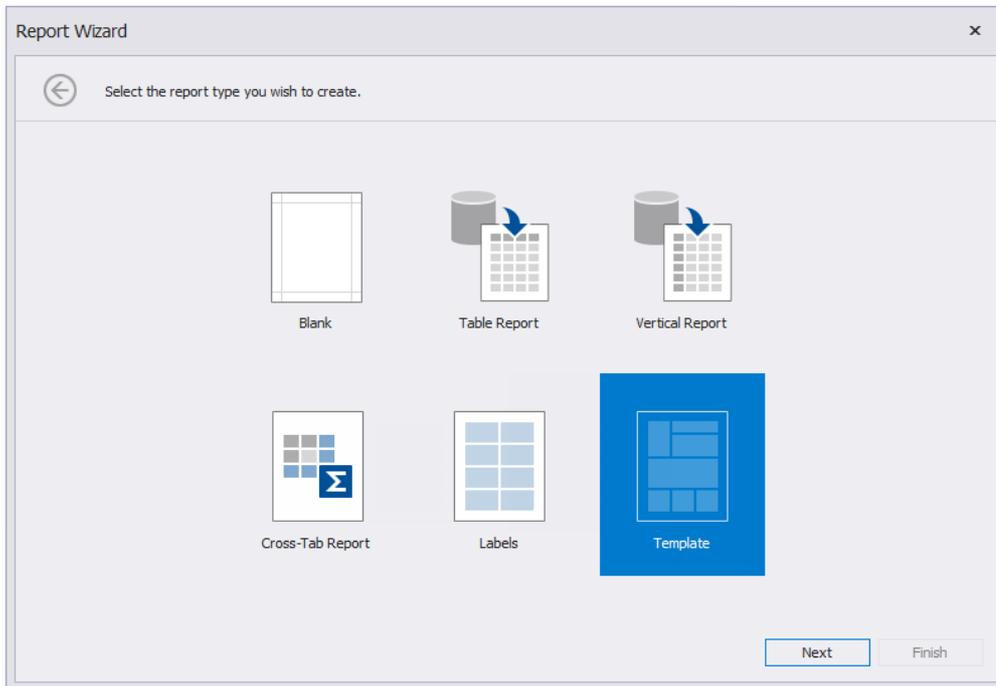
18 Labels on the Page, 3 × 6

Next Finish

Click **Finish** to complete report creation.

Template

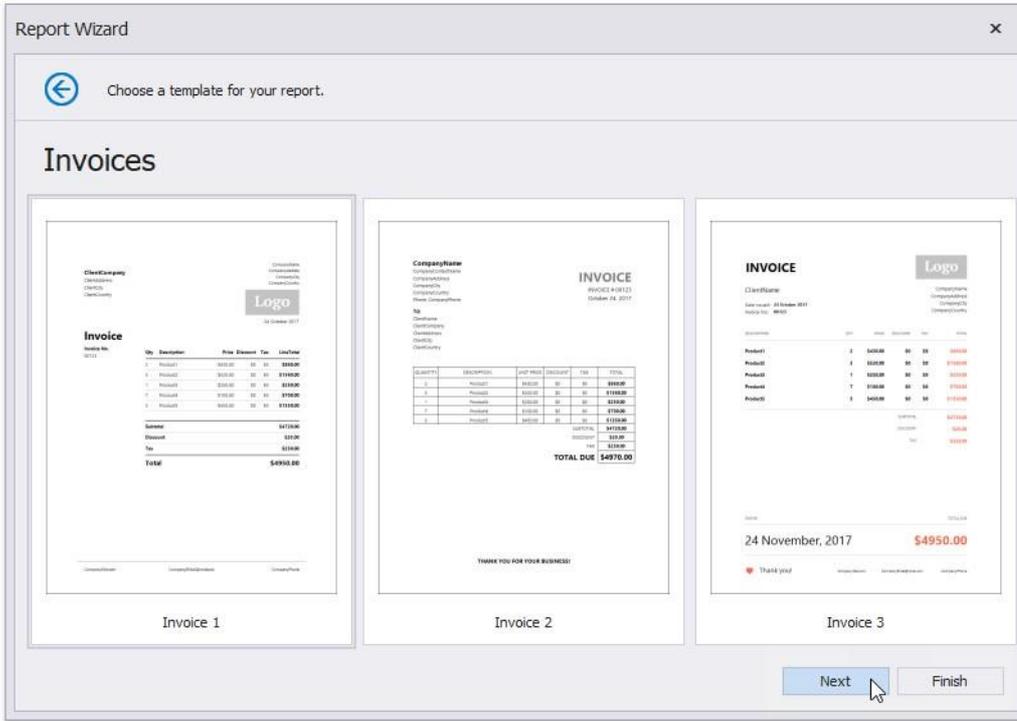
The topics in this section describe how to create a report based on available predefined templates in Visual Studio at design time. [Run the Report Wizard](#) and select the **Template** option on its first page.



Template report creation includes the following steps.

- [Choose a Report Template](#)
- [Select the Data Source](#)
- [Type Map Report](#)
- [Template Fields Specify](#)
- [Report Template Options](#)

This wizard page allows you to choose one of the predefined report layouts.



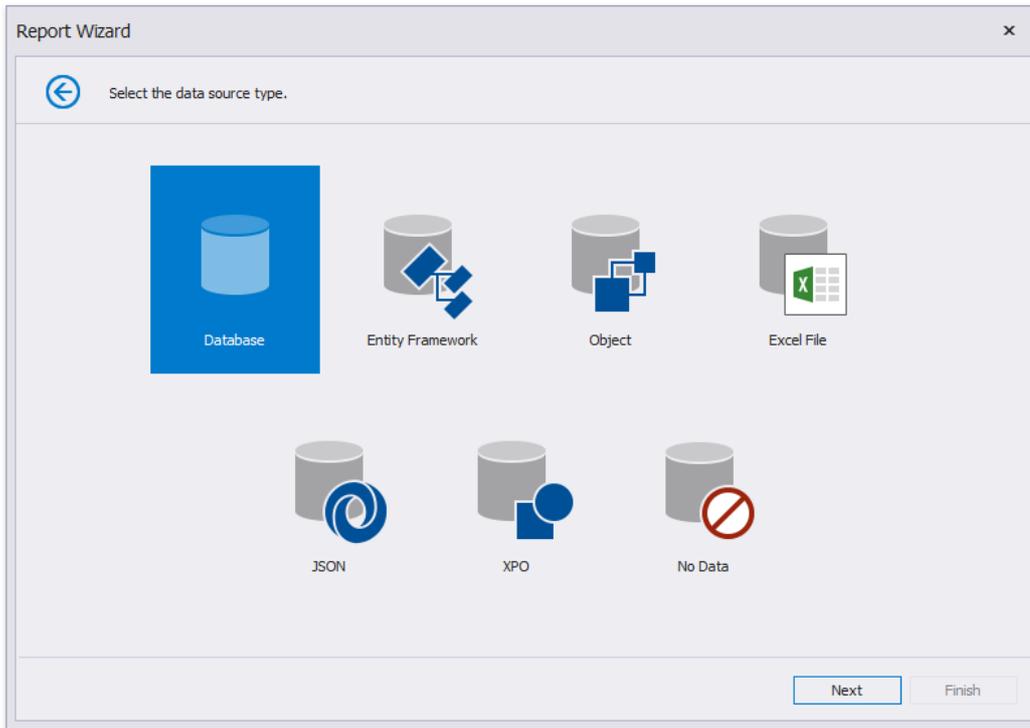
Once the wizard finishes, the selected template defines the arrangement of the appropriate elements in a report and their appearance settings. You can stop the wizard on this page by clicking **Finish**.

Click **Next** to provide data to your report and continue report customization. The [next page](#) guides you through the data source setup.

After you configured a data source, proceed to the following wizard page: [Map Report Template Fields](#).

Select the Data Source Type

This wizard page allows you to select the required data source type.



Click **Next** to proceed to the next wizard page, depending on the selected data source type.

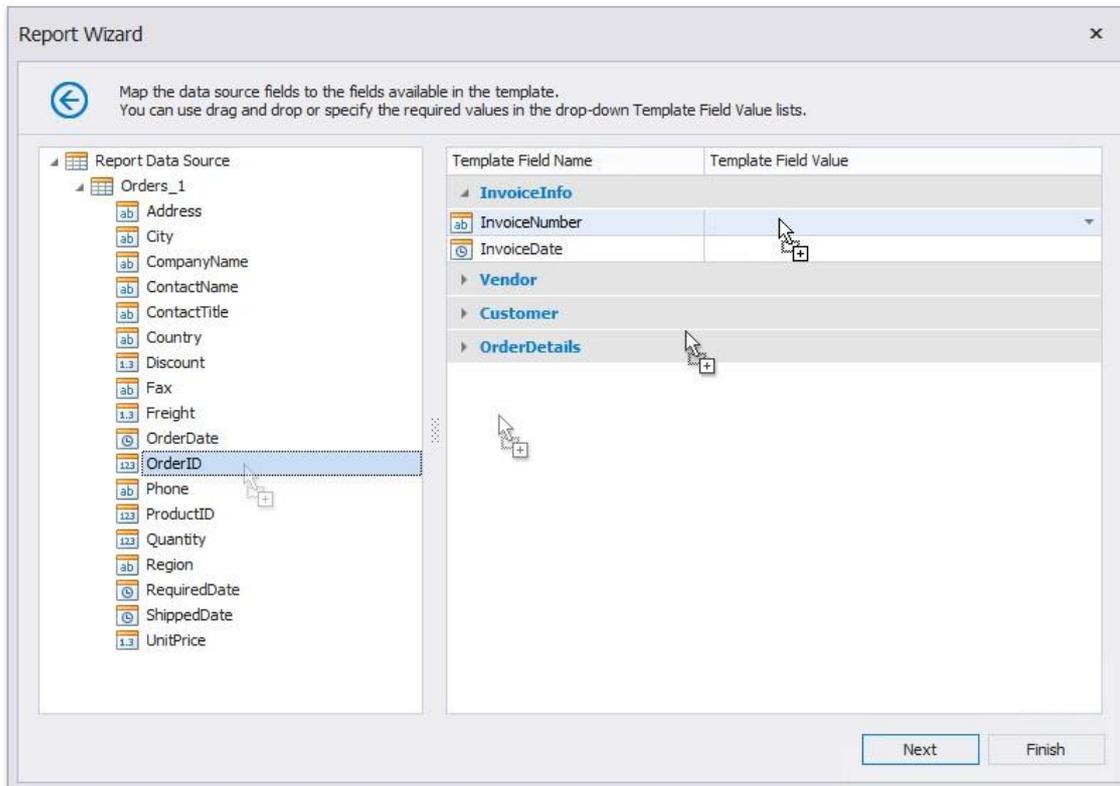
- [Connect to a Database](#)
- [Connect to an Entity Framework Data Source](#)
- [Connect to an Object Data Source](#)
- [Connect to an Excel Data Source](#)
- [Connect to JSON Data Source](#)
- [Connect to XPO Data Source](#)
- [No Data](#)
-

Map Report Template Fields

On this wizard page, you can specify the relationships between the data source's fields and predefined template fields, or provide static values for the template fields.

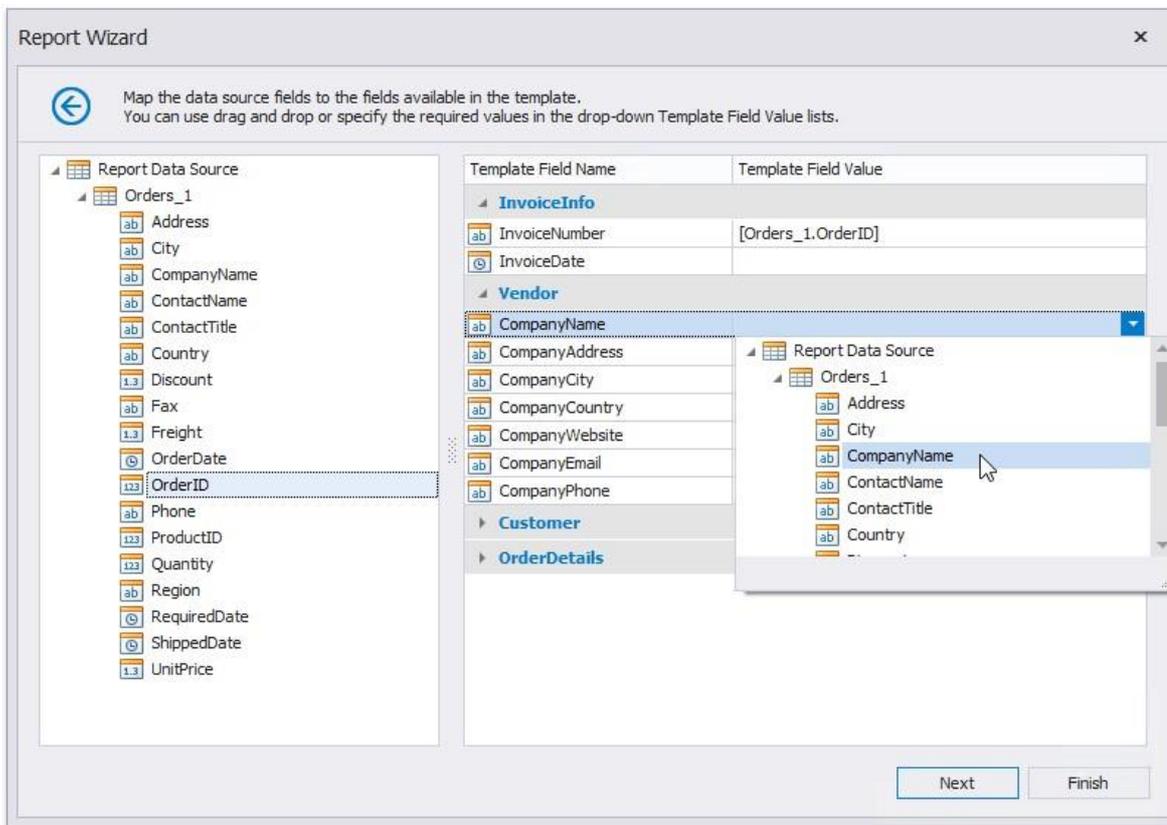
The tree on the left-hand side displays data source fields. The grid on the right-hand side contains two columns with available template fields and their values divided into categories.

Drag and drop the required data field from the tree onto the corresponding template field to map these



fields.

You can also select the necessary data field from the **Template Field Value** drop-down list.



Select **None** in the drop-down list to delete a mapping.

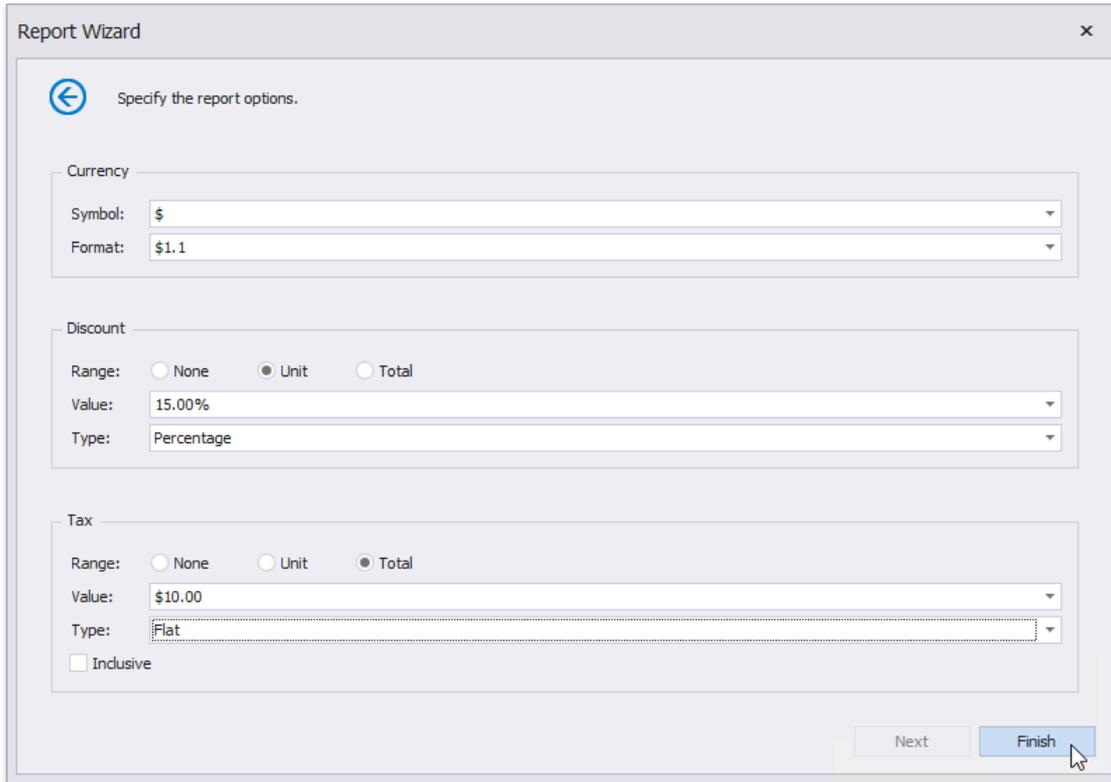
You can also manually enter a static field value in the **Template Field Value** column.

If you do not provide values to specific template fields, the corresponding elements are added to the resulting report anyway.

You can stop the wizard at this step by clicking **Finish** or click **Next** to proceed to the following wizard page: [Specify Report Template Options](#).

Specify Report Template Options

The following wizard page allows you to specify currency formatting options and the discount/tax options.



The screenshot shows a 'Report Wizard' dialog box with a title bar and a close button. The main area is titled 'Specify the report options.' and contains three sections: 'Currency', 'Discount', and 'Tax'. The 'Currency' section has 'Symbol' set to '\$' and 'Format' set to '\$1.1'. The 'Discount' section has 'Range' set to 'Unit', 'Value' set to '15.00%', and 'Type' set to 'Percentage'. The 'Tax' section has 'Range' set to 'Total', 'Value' set to '\$10.00', 'Type' set to 'Flat', and an 'Inclusive' checkbox that is unchecked. At the bottom right, there are 'Next' and 'Finish' buttons, with a mouse cursor pointing at the 'Finish' button.

In the **Currency** section, select the currency symbol and format for displaying price values. In the **Discount** and **Tax** section, you can specify the following settings.

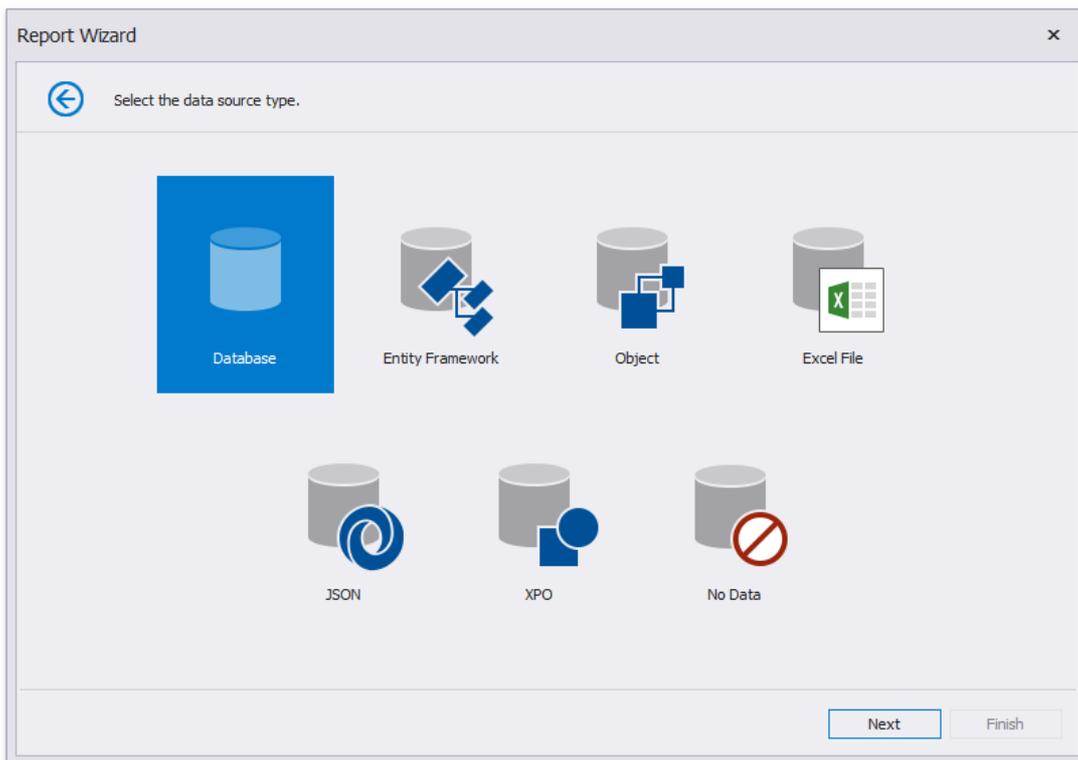
- **Range** - Defines whether the discount/tax value should not be taken into account (**None**), or should be used for individual items (**Unit**) or for the entire order (**Total**).
- **Value** - Specifies the discount/tax value that can be static or bound to the data source field.
- **Type** - Specifies the type of the discount/tax value (flat, fixed or percentage).
- **Inclusive** (for the tax only) - Indicates whether the tax value is included into product prices.

Click **Finish** to complete the wizard and get the resulting report.

Data Source Wizard

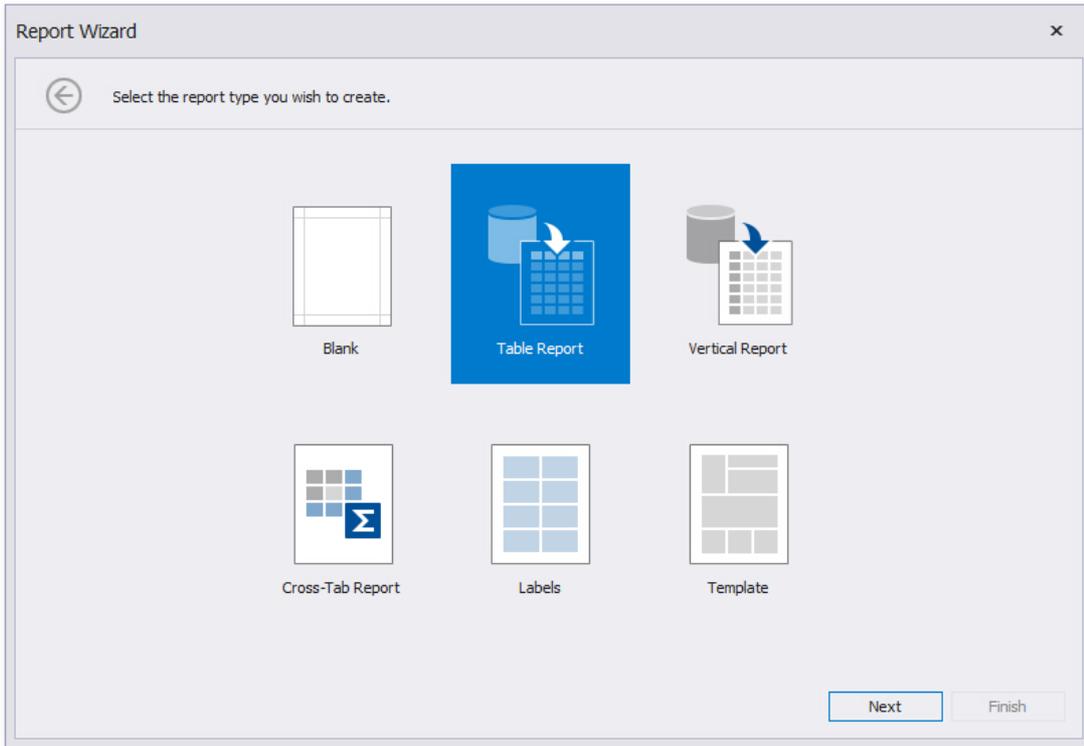
The Data Source Wizard enables you to configure a data source and retrieve the required data. It supports the following data source types:

- **Database**
Obtains data from all major data providers (Microsoft SQL Server, XML data, Microsoft Access, Oracle, etc.). [Entity Framework](#)
- Supports binding to a Microsoft ADO.NET Entity Framework data source. [Object Binding](#)
- Connects to a data object. [Excel File](#)
- Obtains data from Microsoft Excel workbooks (XLS, XLSX or XLSM files) or CSV files. [JSON](#)
- Connects to JSON-formatted data. [XPO](#)
- Allows you to bind to **XPO** data. [No Data](#)
- Allows you design a report that is not bound to a data source.



The Data Source Wizard allows you to do the following:

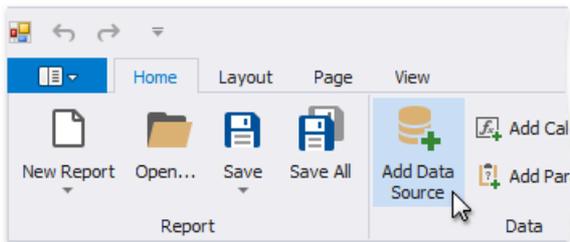
- [Add a new data-bound report](#) to your application using the [Report Wizard](#), which contains the Data Source



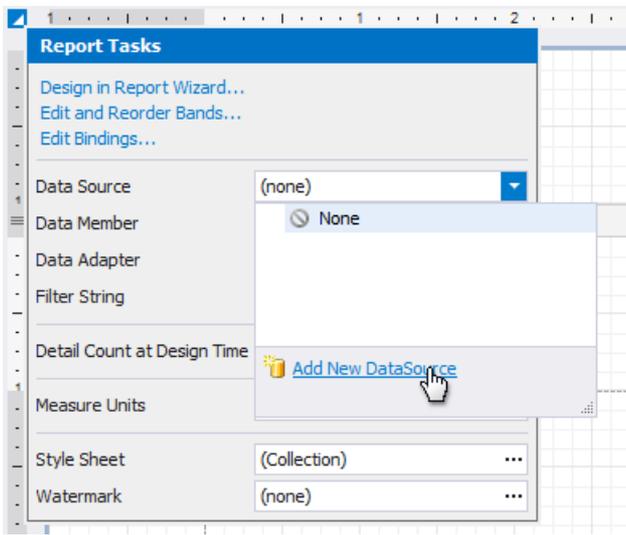
Wizard pages.

Bind an existing report or its [Detail Report band](#) to data. To invoke this Wizard, click **Add Data Source** on

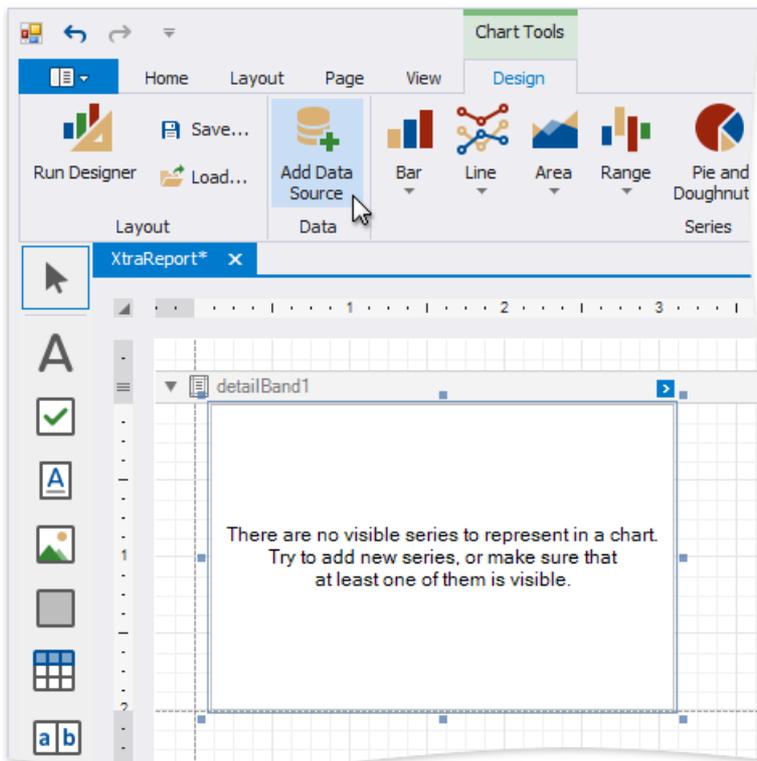
- the [Ribbon's Home page](#).



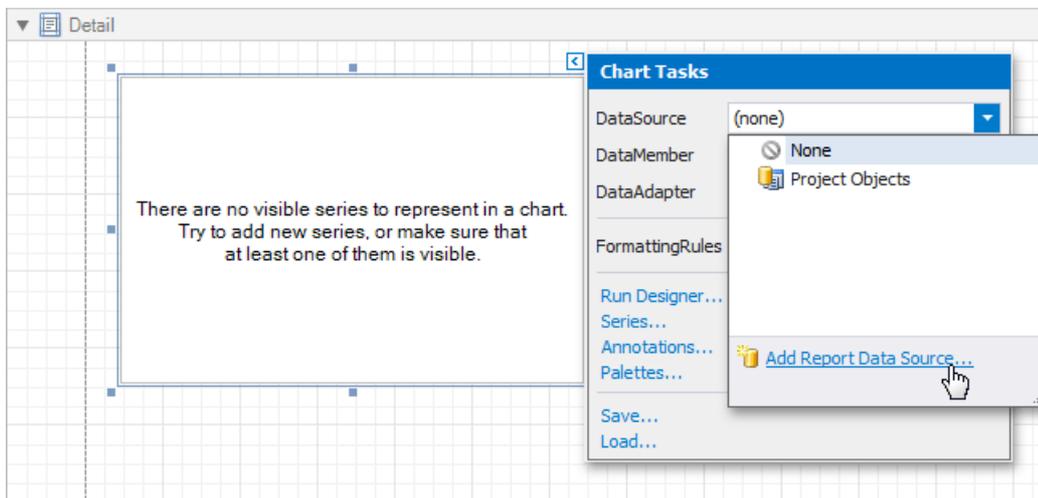
Alternatively, click the report's smart tag, expand the **DataSource** property's drop-down menu and click **Add Report Data Source**.



- Connect the [Chart](#), [Cross Tab](#) and [Sparkline](#) report controls to individual data sources. You can invoke the Data Source Wizard using the **Add Data Source** command on the **Chart | Design** contextual page.



You can invoke the Data Source Wizard using the **DataSource** property in the chart's smart tag.



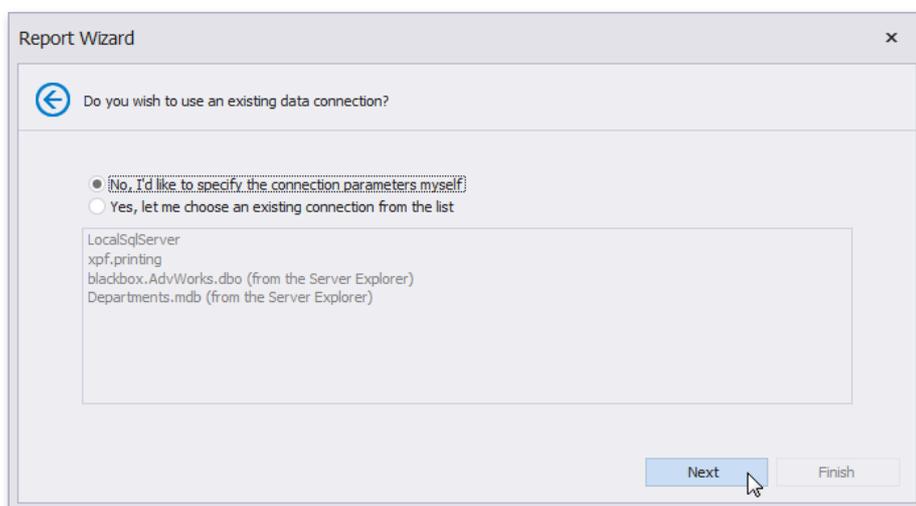
Connect to a Database

The topics in this section describe the steps required to connect a report to a database. This task includes the following steps.

- [Select a Data Connection](#)
- [Specify a Connection String](#)
- [Save the Connection String](#)
- [Create a Query or Select a Stored Procedure](#)
- [Configure Query Parameters](#)

Select a Data Connection

On this page, you can either select one of the currently available data connections from the list or create

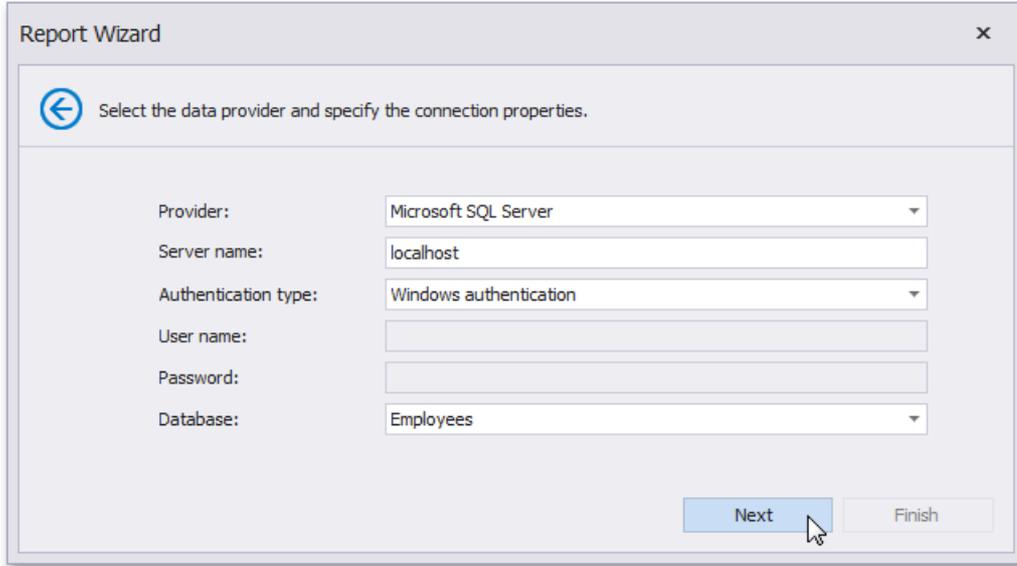


a new one.

Click **Next** to proceed to the next wizard page, depending on the selected option.

Specify a Connection String

On this page, define a custom connection string or select one of the supported data source types.



The screenshot shows the 'Report Wizard' dialog box with the following fields and values:

Provider:	Microsoft SQL Server
Server name:	localhost
Authentication type:	Windows authentication
User name:	
Password:	
Database:	Employees

At the bottom right, there are two buttons: 'Next' (highlighted with a mouse cursor) and 'Finish'.

The following data source types are supported.

- Amazon Redshift
- Firebird
- Google BigQuery
- IBM DB2
- Microsoft Access 2007
- Microsoft Access 97
- Microsoft SQL Server
- Microsoft SQL Server Compact Edition
- MySQL
- Oracle
- Pervasive
- PSQL
- PostgreSQL
- SAP Sybase Advantage
- SAP Sybase ASE
- SAP Sybase SQL Anywhere
- SQLite
- Teradat
- VistaD
- VistaDB
- XML file

Depending on the data provider selected, it may be necessary to specify additional connection options (such as authentication type and database name) on this page.

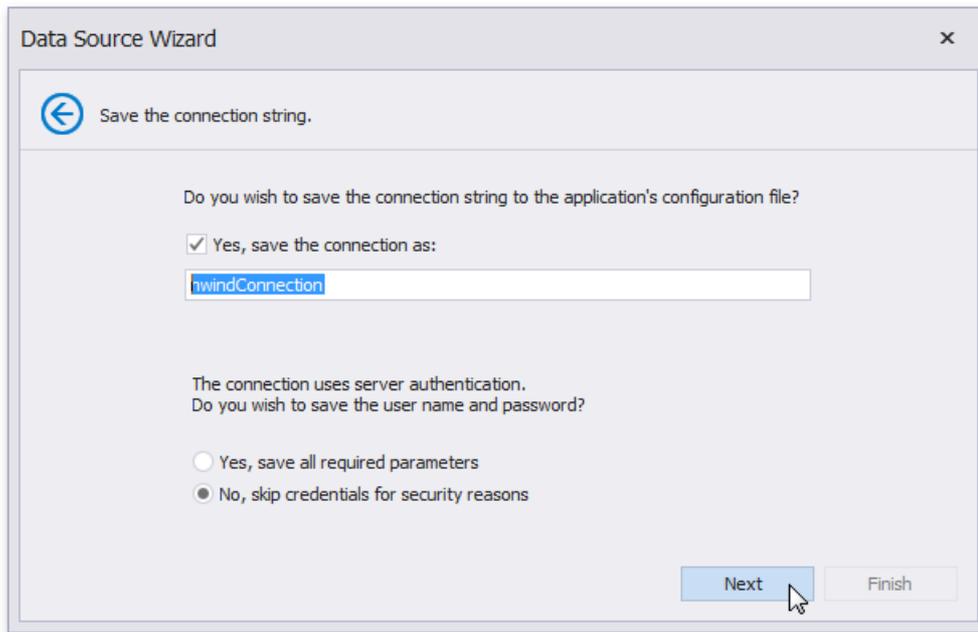
Click **Next** to proceed to the next wizard page, depending on whether or not the created connection uses server authentication.

- [Save the Connection String](#) - if server authentication is required, this page allows you to specify whether or not you want to save the user credentials along with the connection string.

- [Create a Query or Select a Stored Procedure](#) - if server authentication is not required, the page above does not appear, and you will proceed to constructing the query.

Save the Connection String

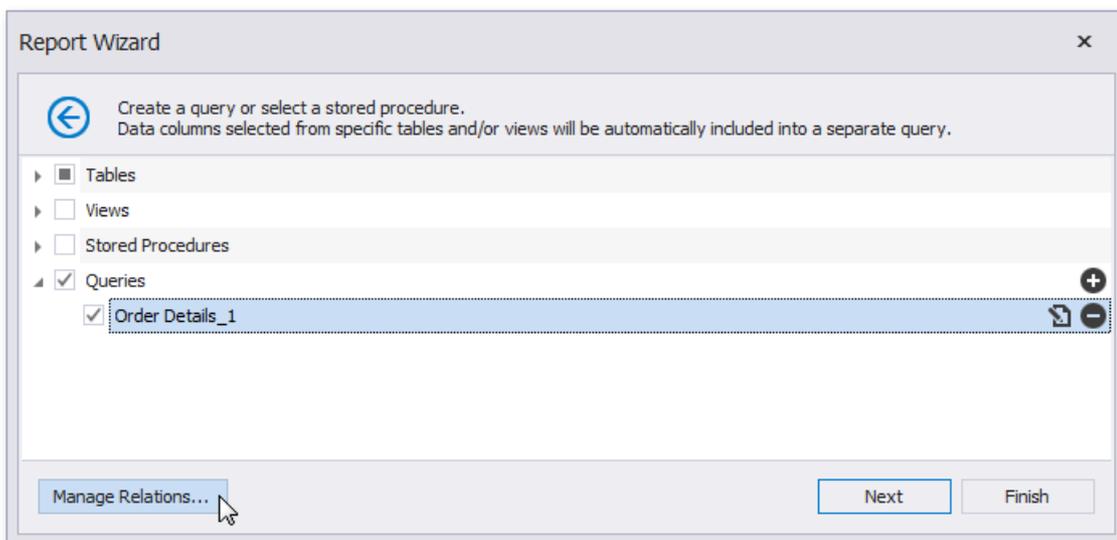
On this page, you can specify whether or not to save the user credentials along with the connection string.



Click **Next** to proceed to the next wizard page: [Create a Query or Select a Stored Procedure](#).

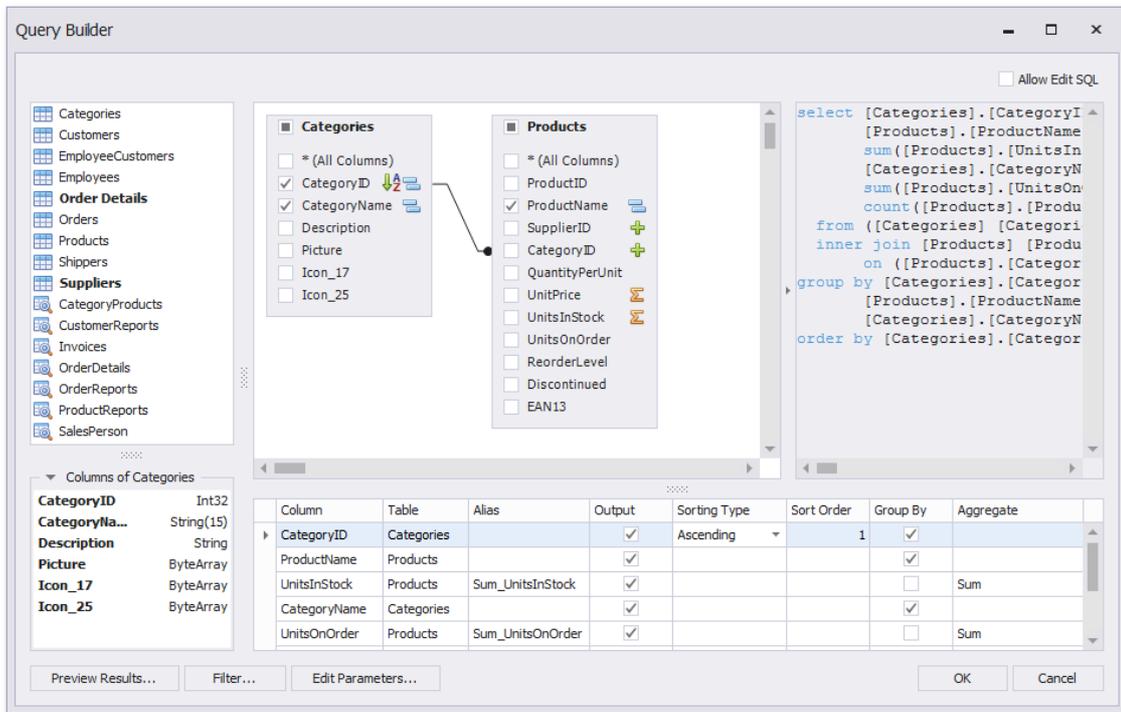
Create a Query or Select a Stored Procedure

On this wizard page, you can choose which tables, views and/or stored procedures from your data source to display in the report.



Manage Custom Queries

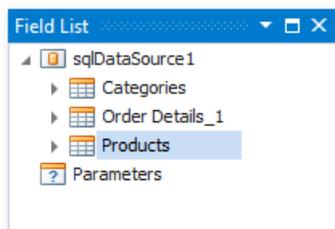
When you are required to shape the query data at the level of a data source, you can create custom queries by expanding the **Queries** category and clicking the **+** button. This will invoke the [Query Builder](#) where you can create complex queries by joining multiple tables, filtering, sorting and grouping their data, as well as calculating various aggregate functions.



The Query Builder can also be used to specify custom SQL, if this functionality is enabled by your software provider. To customize an existing query using the Query Builder, click the button.

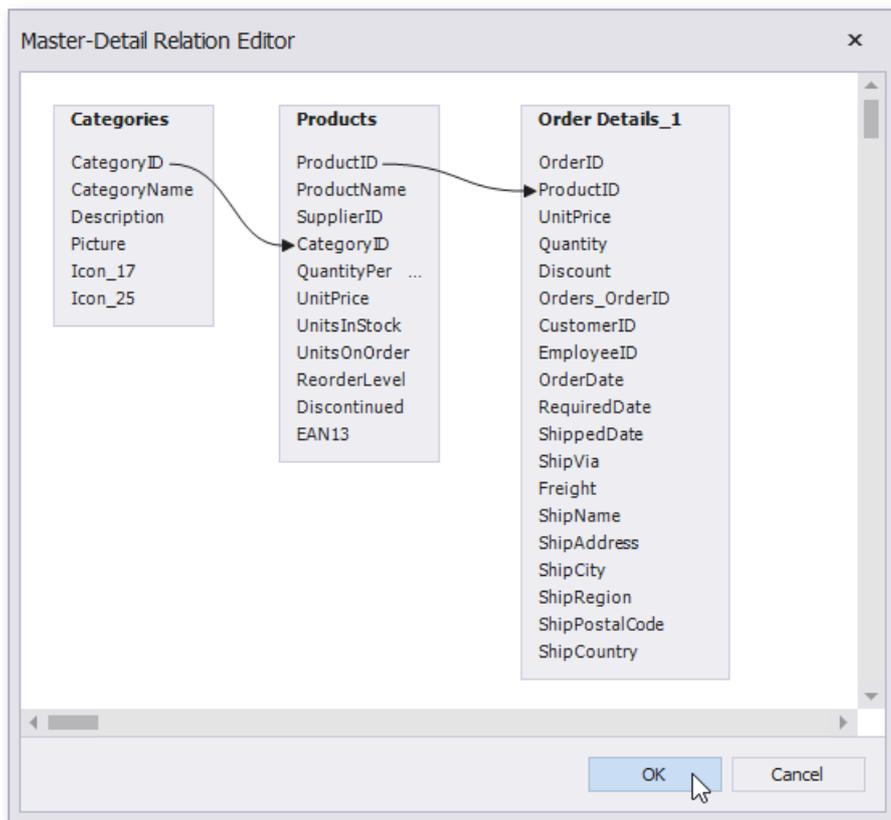
To delete a query, click the  button.

On finishing the wizard, each of the selected data items will be included into a separate query.



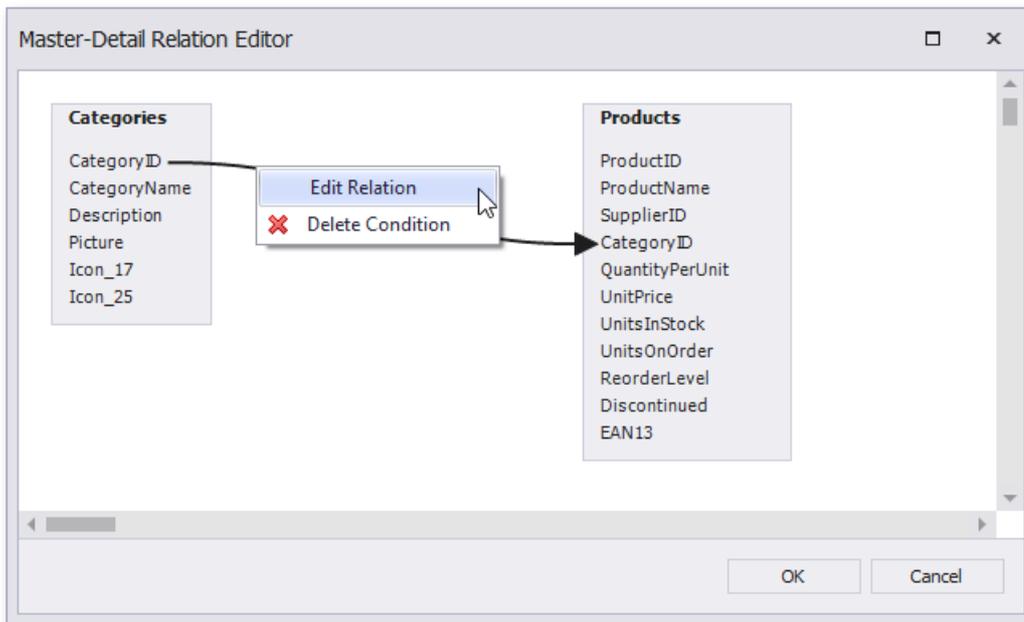
Specify Master-Detail Relationships

To define [master-detail relationships](#) between two or more queries, click **Manage Relations**.

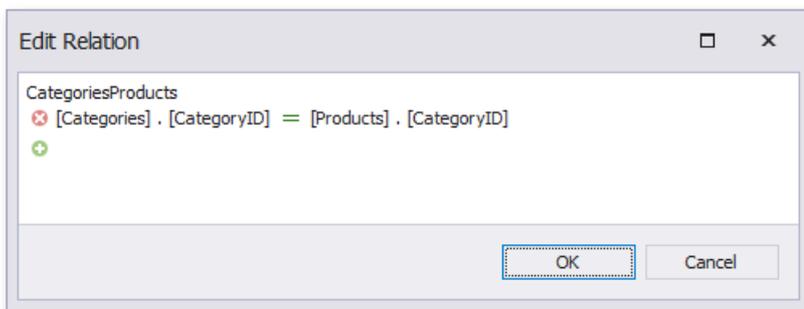


To create a new relationship, connect the required key fields using drag and drop.

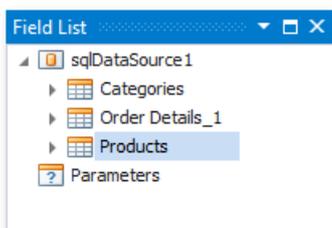
To edit an existing relationship, double-click the corresponding arrow or right-click it, and select the **Edit Relation** command in the invoked context menu.



This will invoke the **Edit Relation** editor that provides a different UI to manage the data relationships.



On finishing the wizard, the specified data relationships will appear in the [Field List](#).



If selected queries or stored procedures contain any [parameters](#), you will be required to define their values on the next wizard page: [Configure Query Parameters](#).

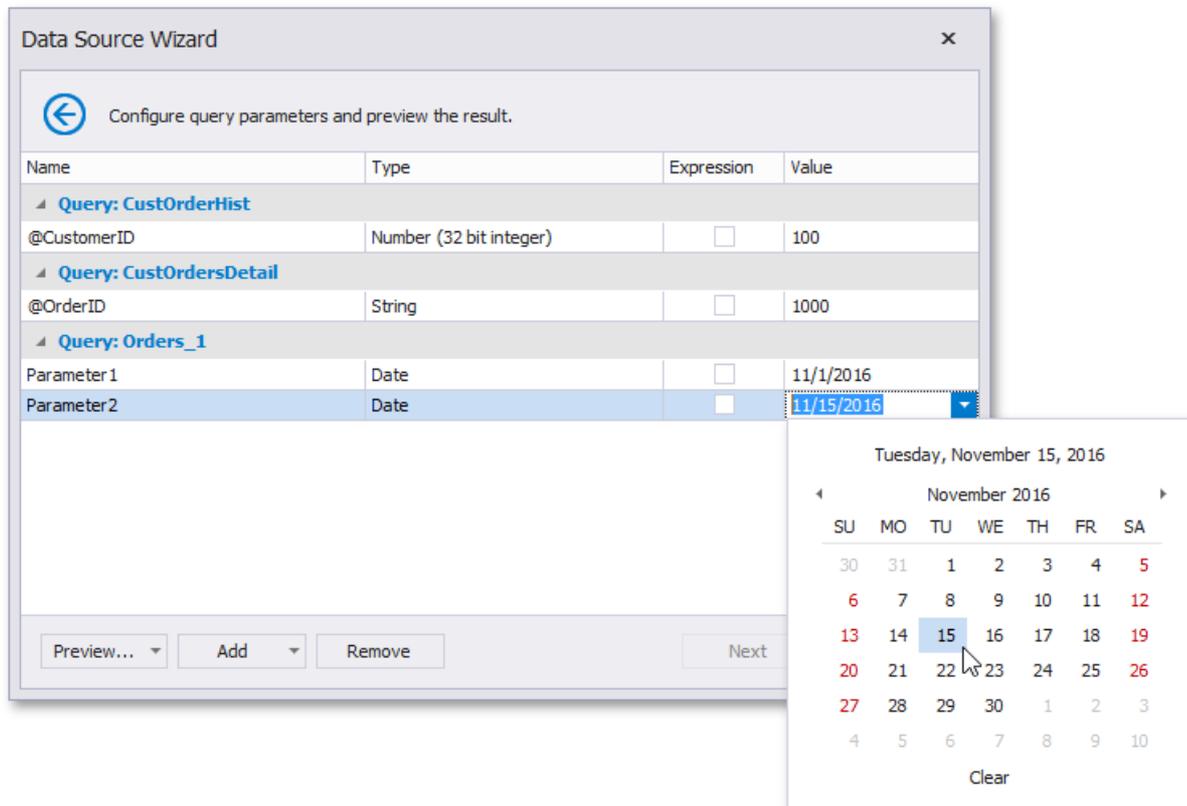
Configure Query Parameters

On this wizard page, you can manage parameters that are used in queries and/or stored procedures selected on the [previous wizard page](#), as well as specify parameter values.

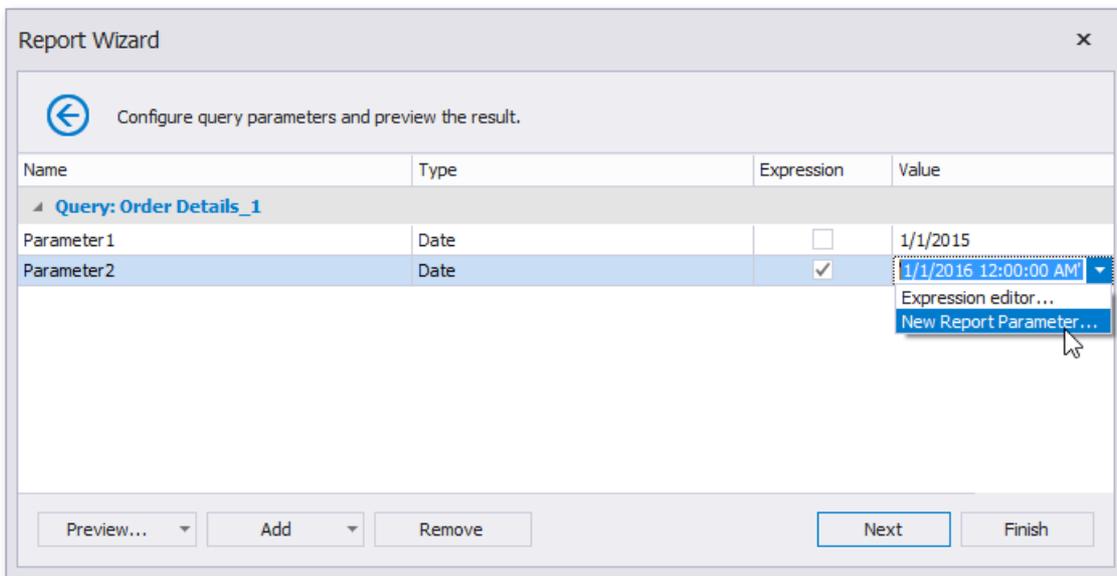
Specify Parameter Values

A parameter value can be specified in one of the following ways.

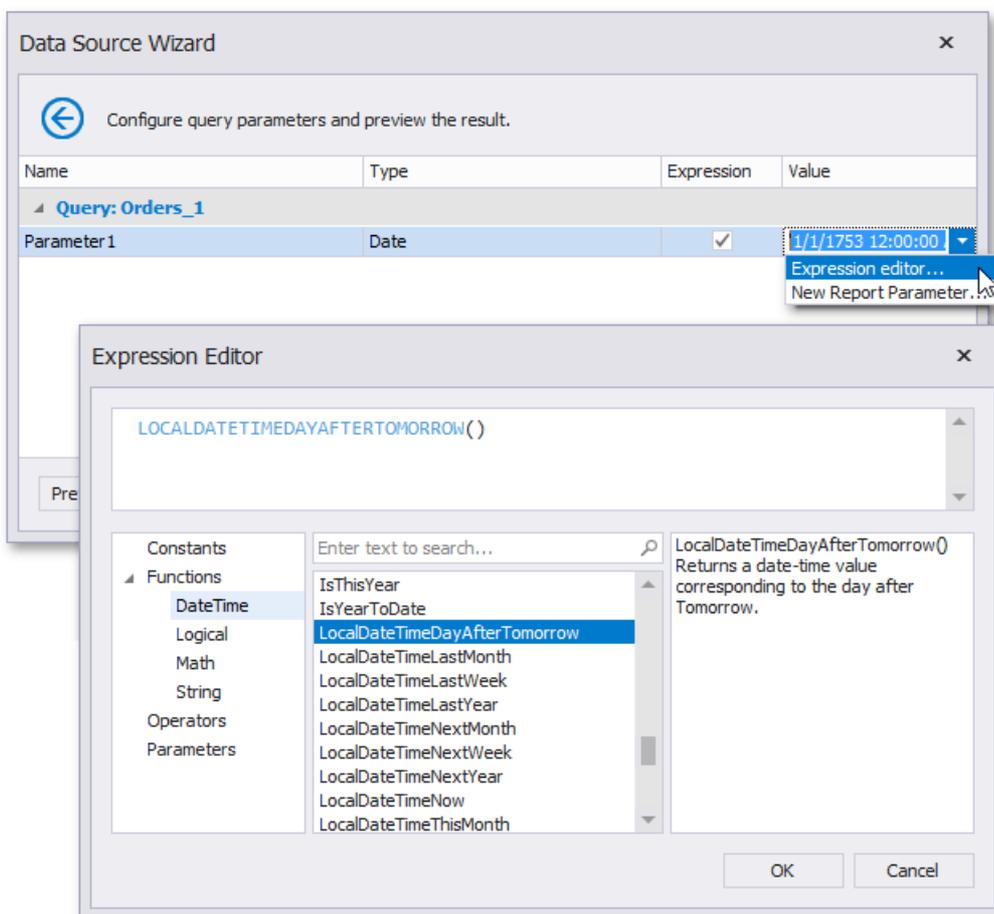
- Parameters can be assigned static values (according to the specified parameter type), which is illustrated in the following image.



- Alternatively, you can link a query or stored procedure parameter to a [report parameter](#), whose value can be requested each time before the report document is to be previewed or exported. To do this, enable the **Expression** check box and select an existing report parameter of the corresponding type or create a new one.



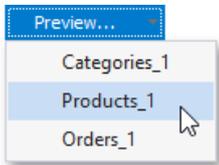
- Another option is to calculate a parameter value based on an expression. To do this, enable the **Expression** check box and run the **Expression Editor**.



Manage Parameters

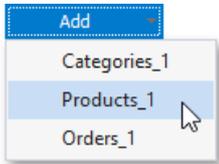
To delete a specific parameter, select it on this wizard page and click **Remove**.

To execute a specific query with the specified parameter values, click **Preview** and select a query.



When previewing a query or stored procedure result, only **1000** first data rows are displayed. If a query contains a custom SQL, the entire result set is obtained.

To create a new query parameter, click **Add** and select a query.



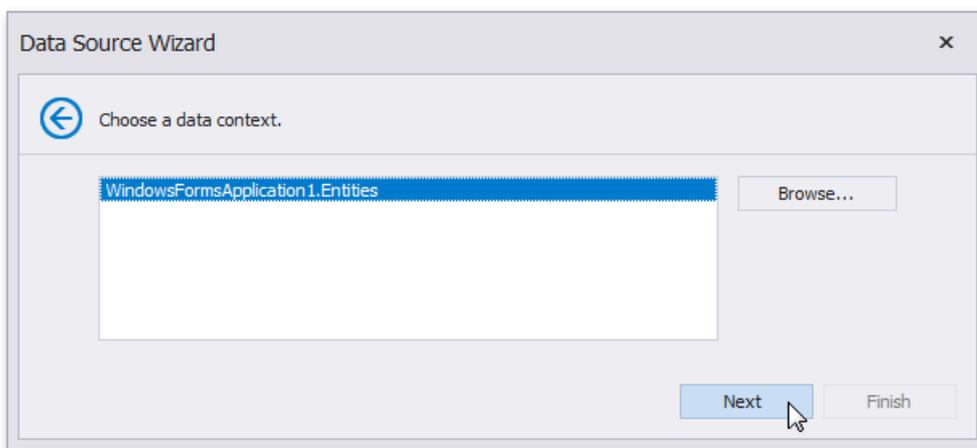
Connect to an Entity Framework Data Source

The topics in this section describe the steps required to connect a report to an Entity Framework data source:

- [Select the Data Context](#)
- [Context Select a Connection String](#)
- [Specify a Connection String Bind to a Stored Procedure Select a Data Member](#)
- [Configure Filters](#)

Select the Data Context

On this page, select the required data context from the list of available data contexts.

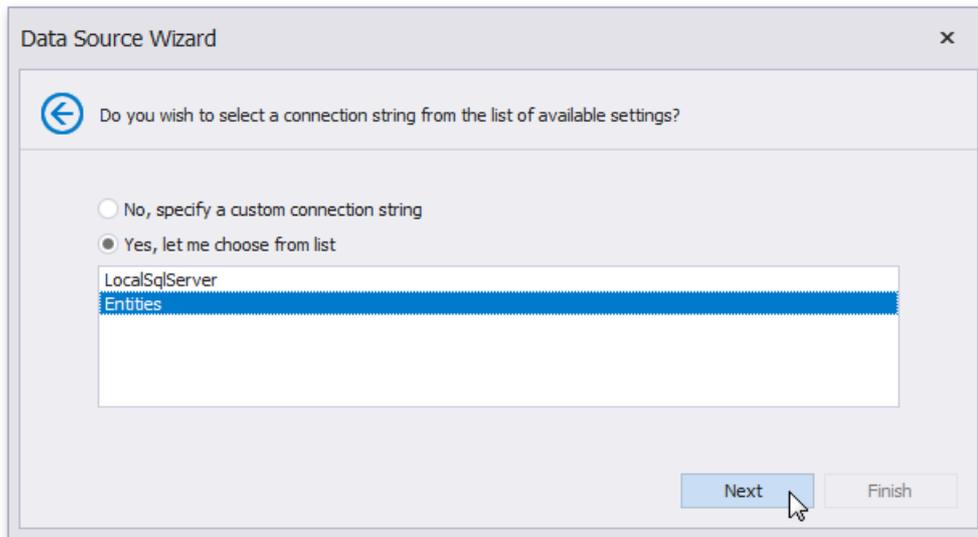


If the **Browse** button is available on this page, you can also select a data context from a custom assembly. Click **Next** to proceed to the next wizard page: [Select a Connection String](#).

Select a Connection String

On this page, you can specify a connection string using one of the following two options.

- Using an existing connection string. To do this, select **Yes, let me choose from list**. Next, select the required connection string from the list of the available connection strings.
- Specify a connection string manually. To do this, select **No, specify a custom connection string**.

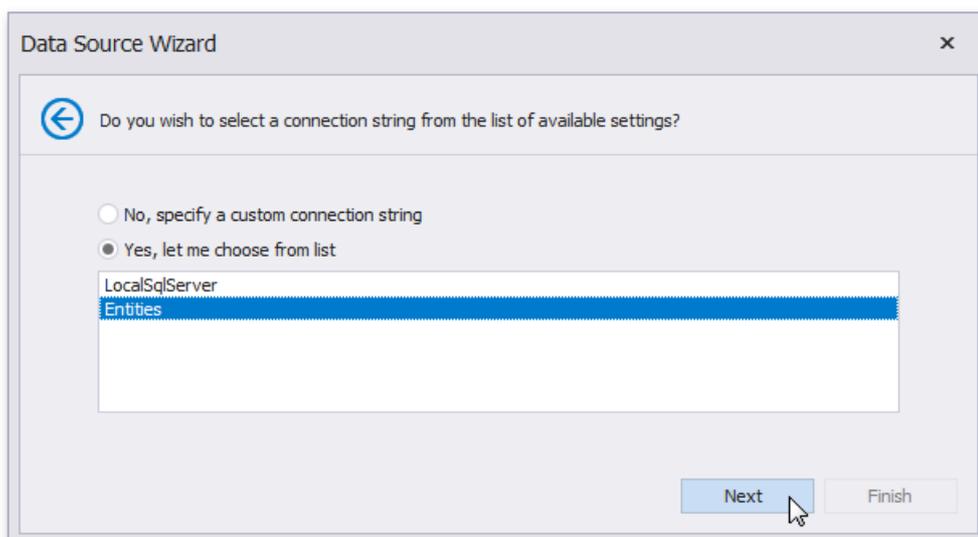


Click **Next** to proceed to the next wizard page. If you select the first option, proceed to the [Specify a Connection String](#) page. If you choose one of the available connection strings, go to the [Bind to a Stored Procedure](#) or [Select a Data Member](#) page, depending on whether or not the current Entity Framework model provides stored procedures.

Select a Connection String

On this page, you can specify a connection string using one of the following two options.

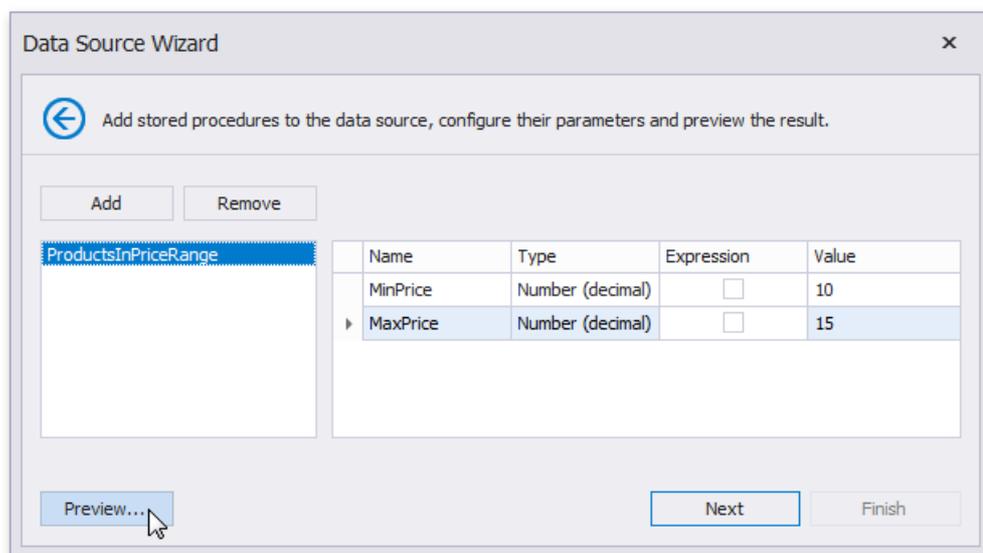
- Using an existing connection string. To do this, select **Yes, let me choose from list**. Next, select the required connection string from the list of the available connection strings.
- Specify a connection string manually. To do this, select **No, specify a custom connection string**.



Click **Next** to proceed to the next wizard page. If you select the first option, proceed to the [Specify a Connection String](#) page. If you choose one of the available connection strings, go to the [Bind to a Stored Procedure](#) or [Select a Data Member](#) page, depending on whether or not the current Entity Framework model provides stored procedures.

Bind to a Stored Procedure

This wizard page allows you to add stored procedures to the data source, configure their parameters and preview the results of a stored procedure's execution.



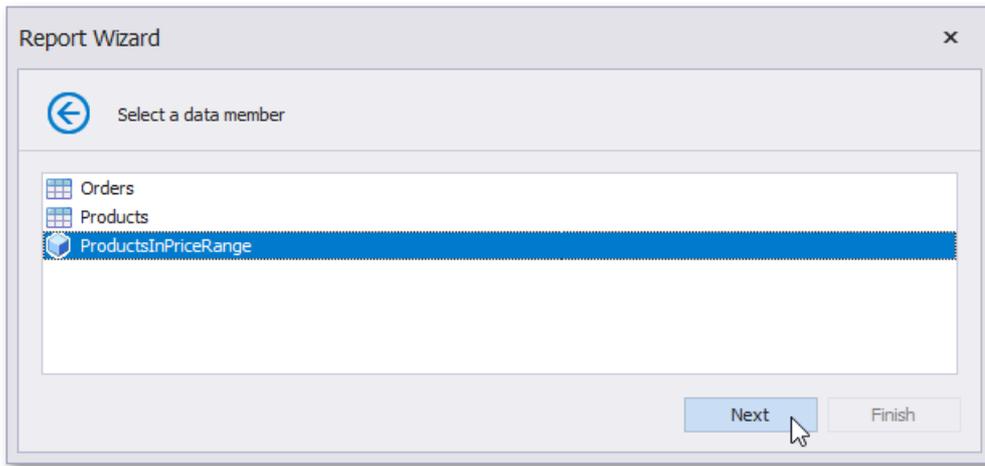
To bind to a stored procedure, do the following.

1. Click **Add**. Then, in the invoked window, select a required stored procedure and click **OK**.
2. [Configure the parameters](#) to be passed to the selected stored procedure. Make sure that the value of the passed parameter's **Type** property corresponds to the actual type of the stored procedure parameter.

Click **Next** to proceed to the next wizard page. If you have added more than one stored procedures on this page or if the current Entity Framework model additionally provides data tables, go to the [Select a Data Member](#) page.

Select a Data Member

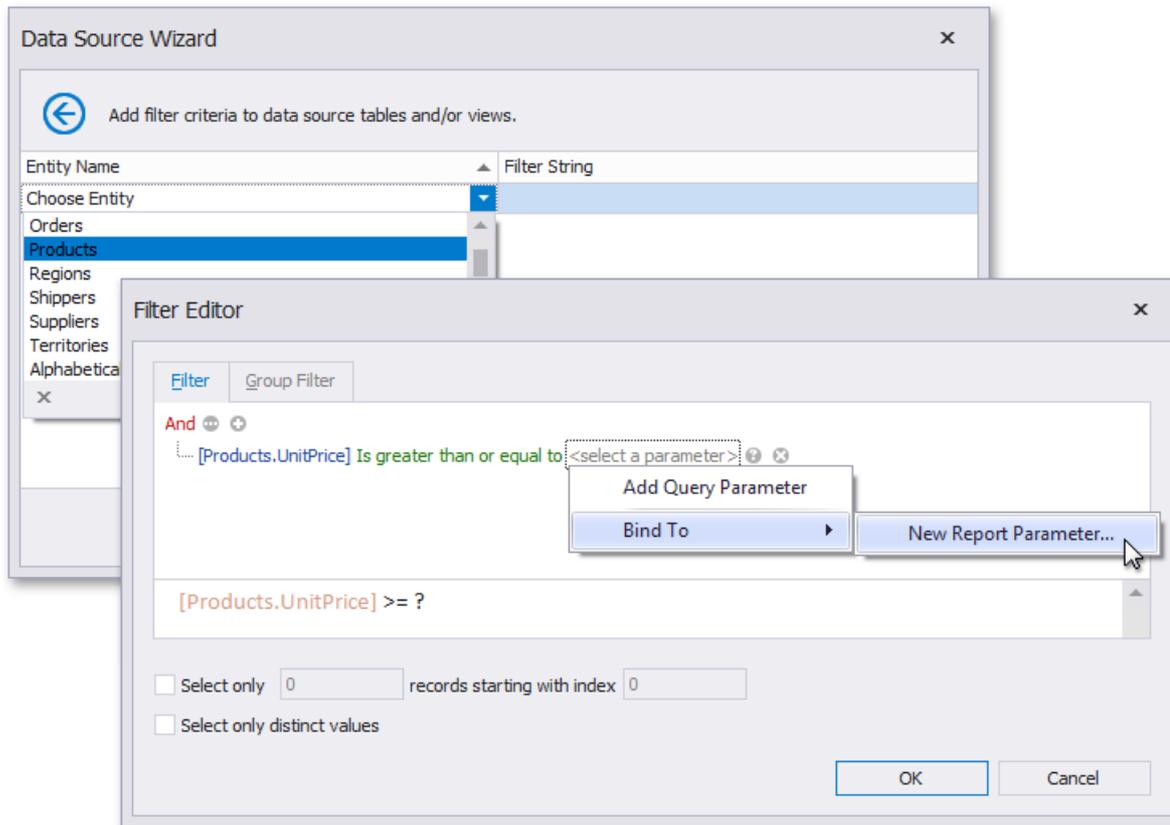
On this page, select the required data member from the list of available data members.



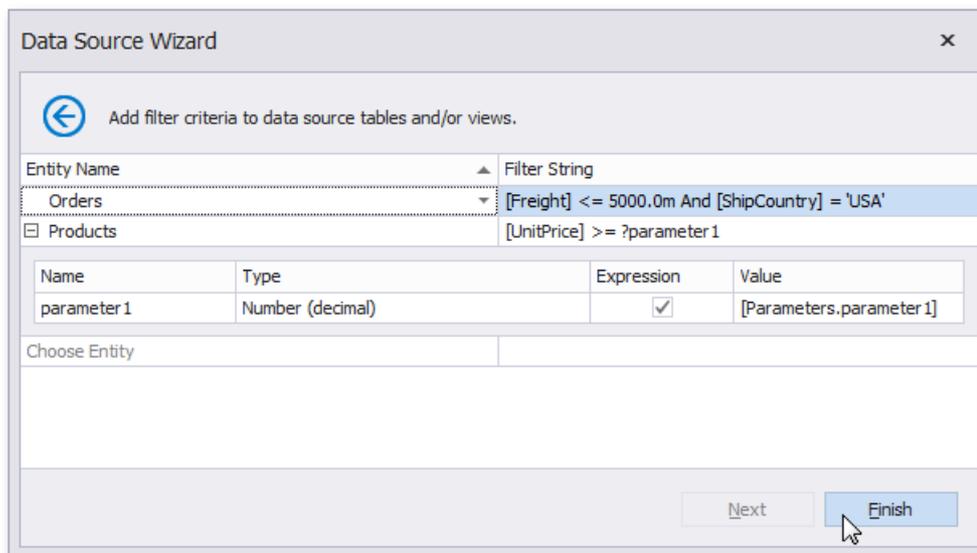
Click **Next** to proceed to the next wizard page: [Configure Filters](#).

Configure Filters

This wizard page allows you to define any number of [filter criteria](#) for your data source. The **Filter Editor** is displayed after choosing an entity on this wizard page.



Use this editor to define the selected entity's filter criteria. The filter string can also reference [report parameters](#).



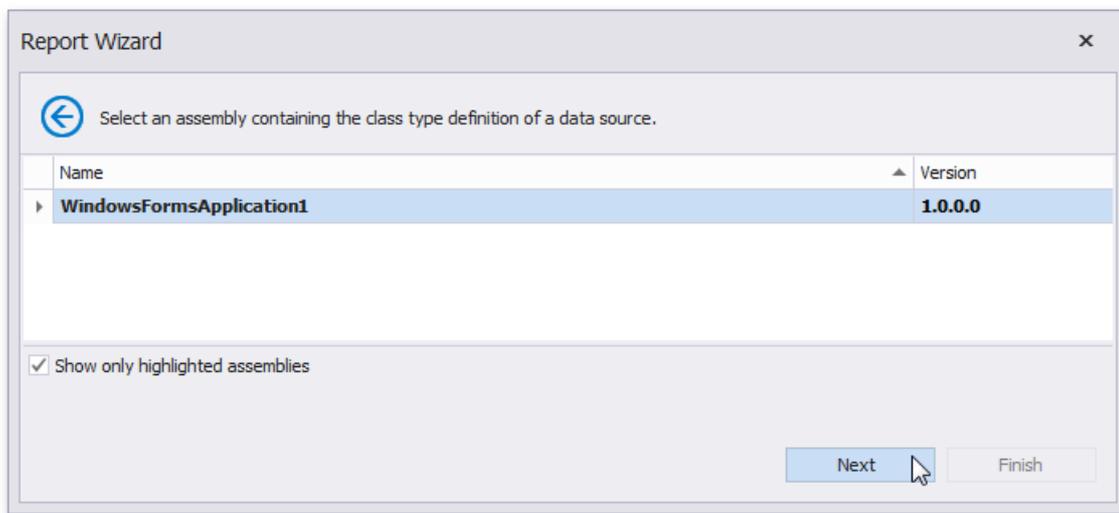
Connect to an Object Data Source

The topics in this section describe the steps required to connect a report to an object data source. This task includes the following steps.

- [Select an Assembly](#)
- [Select a Data Source](#)
- [Type](#)
- [Select a Data Source Member](#)
- [Specify the Member Parameters](#)
- [Select the Data Binding Mode](#)
- [Select a Data Source Constructor](#)
- [Specify the Constructor Parameters](#)

Select an Assembly

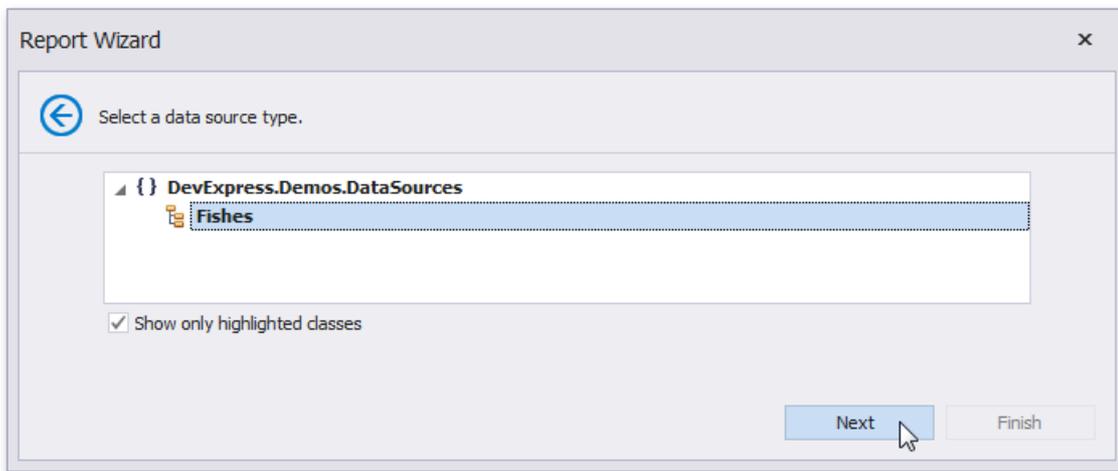
On this page, select an assembly that contains the class type definition of the data source. To exclude irrelevant assemblies from the list, select the **Show only highlighted assemblies** check box.



Click **Next** to proceed to the next wizard page: [Select a Data Source Type](#).

Select a Data Source Type

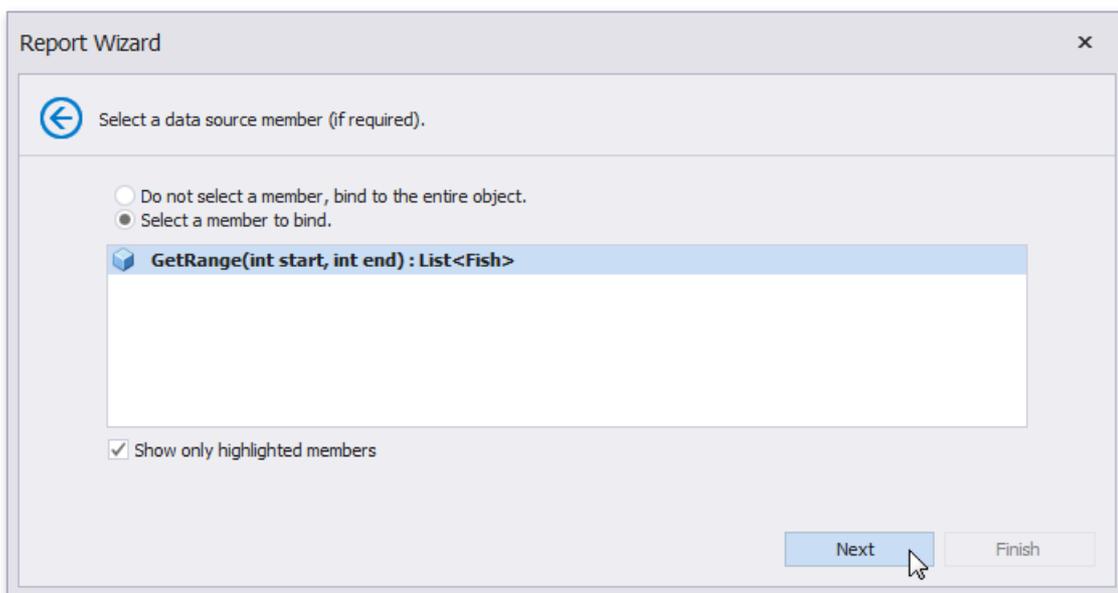
On this wizard page, select a required data source type. To exclude irrelevant classes from the list, select the **Show only highlighted classes** check box.



Click **Next** to proceed to the next wizard page: [Select a Data Source Member](#).

Select a Data Source Member

On this wizard page, specify whether you want to bind to the entire object or to its public member (method or property). To exclude irrelevant members from the list of available members, select the **Show only highlighted members** check box.



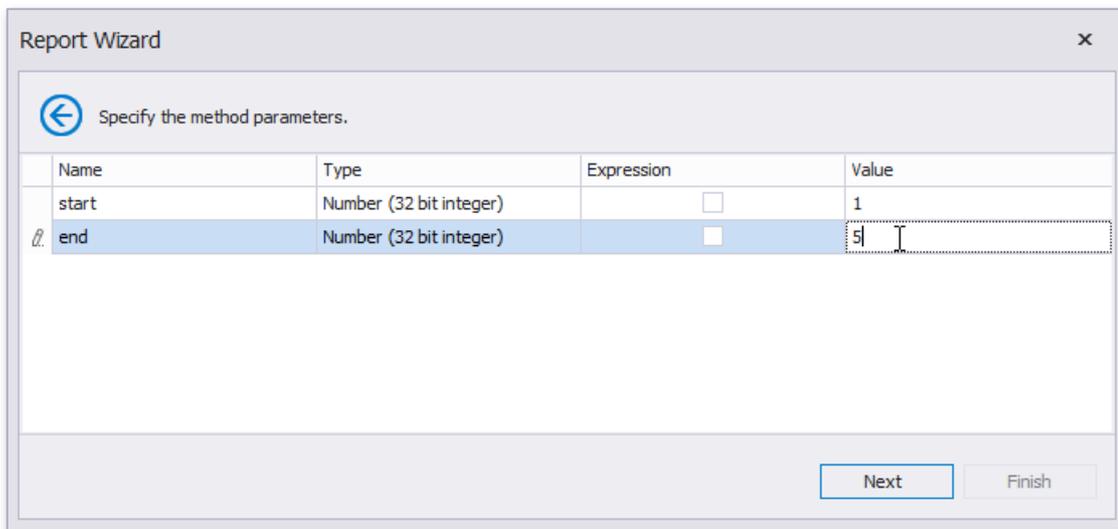
Click **Next** to proceed to the next wizard page depending on the selected option.

- [Specify the Member](#)
- [Parameters Select the Data](#)
- [Binding Mode](#)

Specify the Member Parameters

On this wizard page, specify the member parameters.

To specify the member parameter's value, use the **Value** column. Enable the check box in the **Expression** column to make it possible to specify the parameter expression using the **Expression Editor**. In this case, you can pass an existing report parameter to the member or even create a new report parameter using the in-place editor.

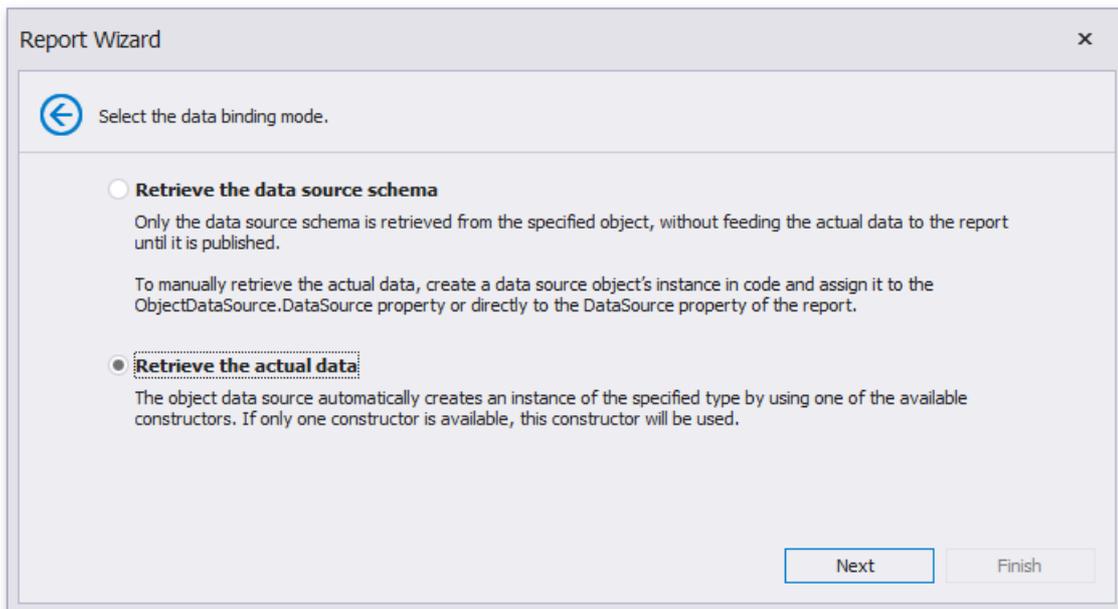


Click **Next** to proceed to the next wizard page: [Select the Data Binding Mode](#).

Select the Data Binding Mode

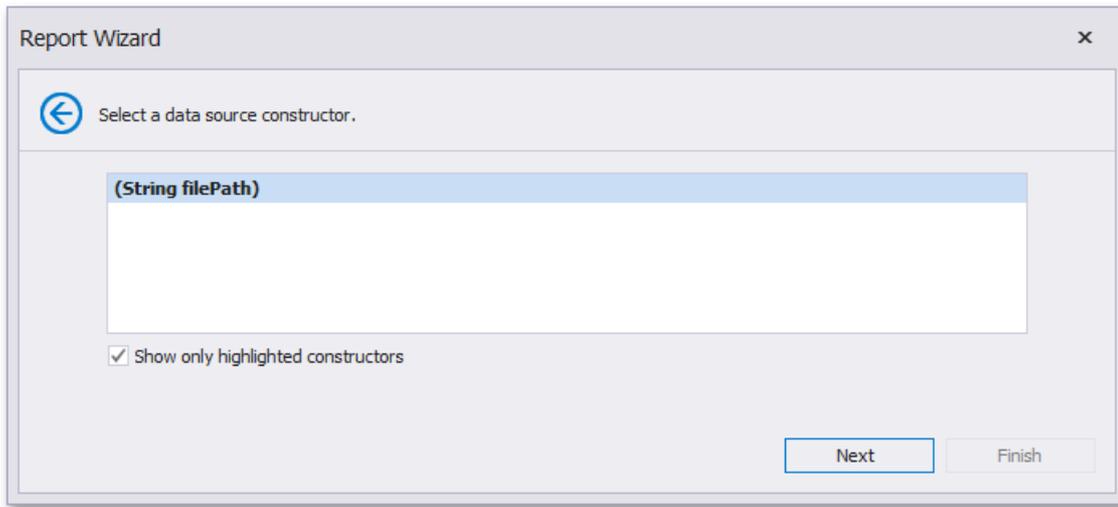
On this wizard page, you can choose one of the following two binding modes.

- **Retrieve the data source schema** - Select this option to retrieve only the data source schema from the specified object and edit the report layout without having access to the actual underlying data.
- **Retrieve the actual data** - Select this option to automatically create an instance of the data source type and obtain its actual data.



Select a Data Source Constructor

On this page, select one of the available data source constructors. To exclude irrelevant constructors from the list, select the **Show only highlighted constructors** check box.

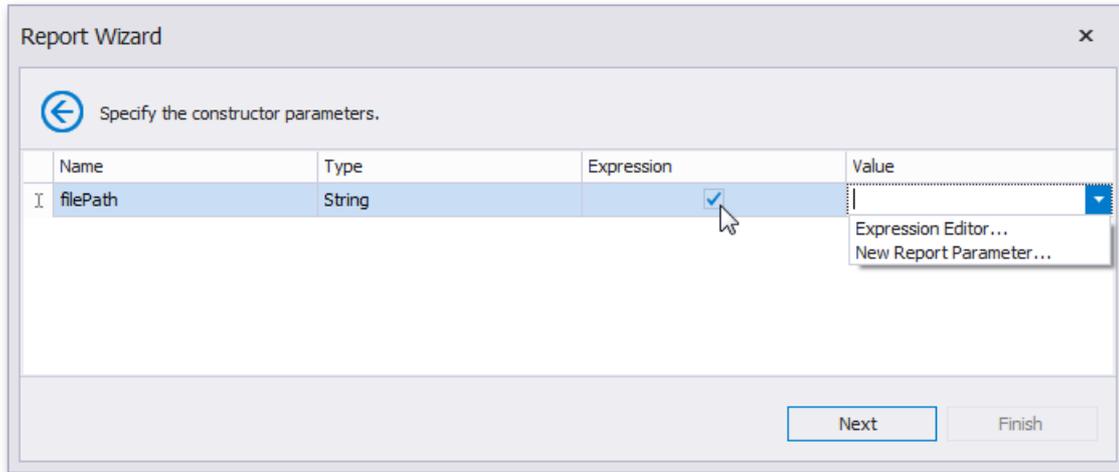


Click **Next** to proceed to the next wizard page: [Specify the Constructor Parameters](#).

Specify the Constructor Parameters

On this wizard page, specify the constructor parameters.

To specify the constructor parameter's value, use the **Value** column. Enable the check box in the **Expression** column to make it possible to specify the parameter expression using the **Expression Editor**. In this case, you can pass an existing [report parameter](#) to the constructor or even create a new report parameter using the in-place editor.



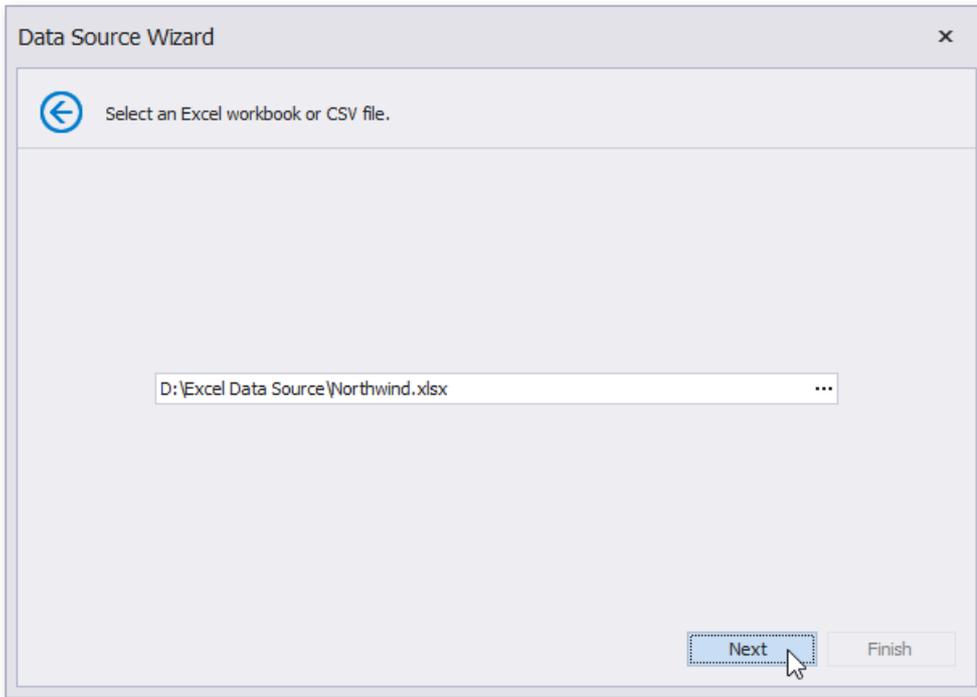
Connect to an Excel Data Source

The topics in this section describe the steps required to connect a report to an Excel data source. This task includes the following steps.

- [Select an Excel Workbook or CSV File Specify Import](#)
- [Settings](#)
- [Select a Worksheet, Table or Named Range Choose Columns](#)
-

Select an Excel Workbook or CSV file

On this wizard page, select a required Microsoft Excel Workbook (the XLS, XLSX and XLSM formats are supported) or CSV file. To do this, click the ellipsis button and locate the source file or enter the full path to this file.



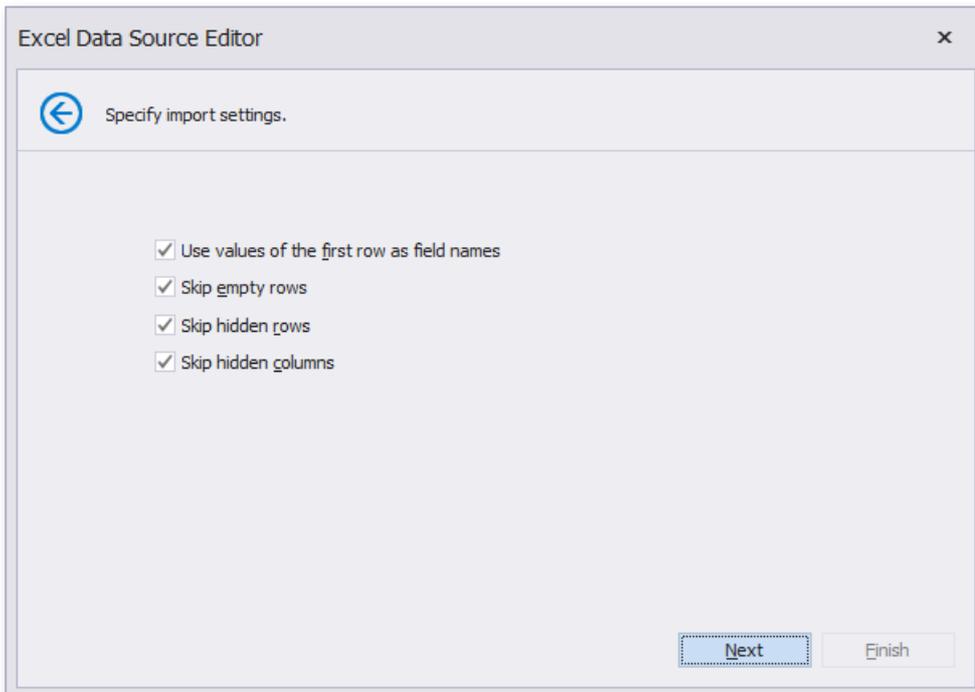
Click **Next** to proceed to the next wizard page: [Specify Import Settings](#).

Specify Import Settings

On this wizard page, you can specify required import settings. This page provides access to different settings depending on whether you have selected an Excel Workbook or CSV file.

Import Settings for an Excel Workbook

The following settings are available if an Excel workbook has been selected.



- **Use values of the first rows as field names** - Specifies whether values of the first row should be imported as field names. If this option is disabled, values of the first row will be imported as data and field names will be generated automatically.
- **Skip empty rows** - Specifies whether or not to include empty rows to the resulting data source.
- **Skip hidden rows** - Specifies whether or not to include hidden rows to the resulting data source.
- **Skip hidden columns** - Specifies whether or not to include hidden columns to the resulting data source.

Click **Next** to proceed to the next wizard page: [Select a Worksheet, Table or Named Region](#).

Import Settings for a CSV file

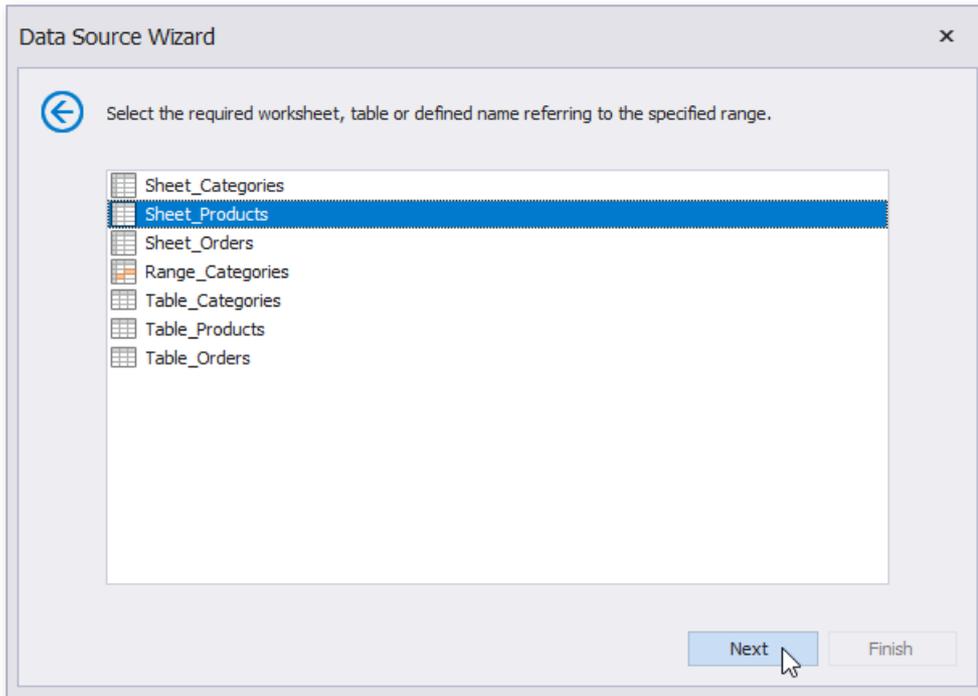
The following settings are available if a CSV file has been selected.

- **Use values of the first rows as field names** - Specifies whether or not values of the first row should be imported as field names. If this option is disabled, values of the first row will be imported as data and field names will be generated automatically.
- **Skip empty rows** - Specifies whether or not to include empty rows to the resulting data source.
- **Trim Blanks** - Specifies whether or not to delete all leading and trailing empty spaces from each value in the source CSV file.
- **Encoding** - Specifies the character encoding in the source CSV file. If the corresponding **Detect automatically** check box is enabled, this setting's value is automatically determined.
- **Newline type** - Specifies the line break type in the source CSV file. If the corresponding **Detect automatically** check box is enabled, this setting's value is automatically determined.
- **Value separator** - Specifies a character used to separate values in the source CSV file. If the corresponding **Detect automatically** check box is enabled, this setting's value is automatically determined.
- **Culture** - Specifies culture information used to import data from the source CSV file.
- **Text Qualifier** - Specifies the character that encloses values in the source CSV file.

Click **Next** to proceed to the next wizard page: [Choose Columns](#).

Select a Worksheet, Table or Named Region

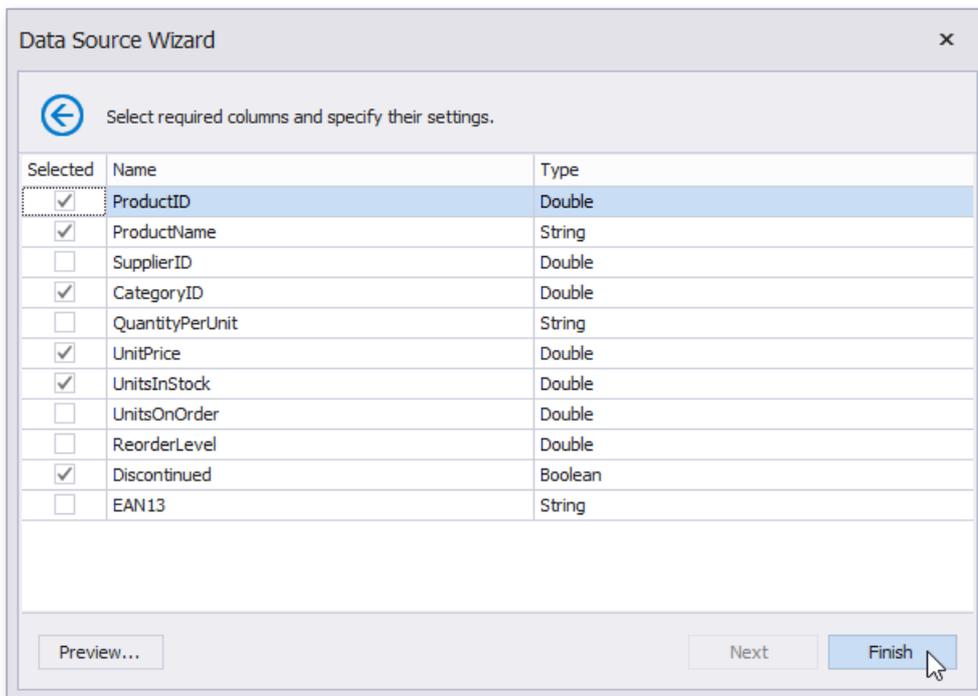
On this wizard page, select one of the available worksheets, tables or named regions.



Click **Next** to proceed to the next wizard page: [Choose Columns](#).

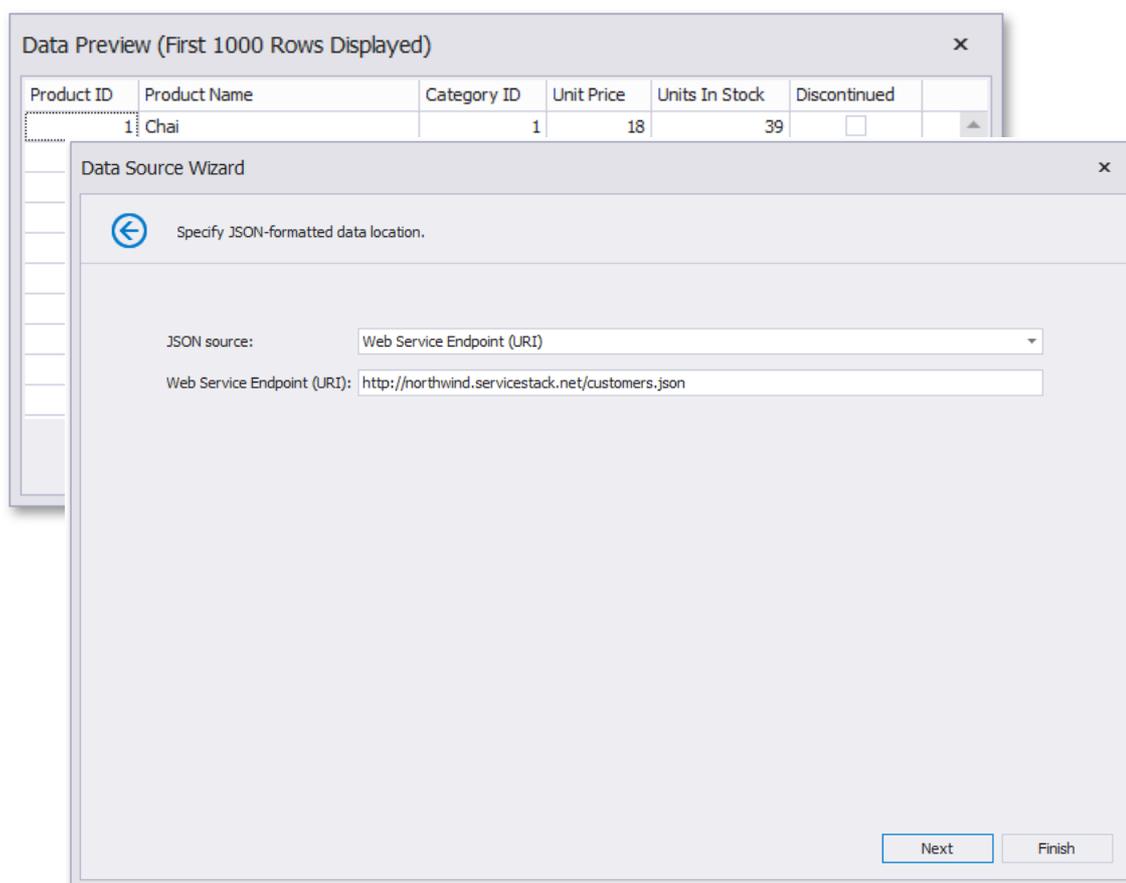
Choose Columns

On this wizard page, you can select required columns and specify their settings.



To select a column, enable the corresponding **Selected** check box. Use **Name** to specify the custom column name and **Type** to choose the column type.

This page also allows you to preview resulting data by clicking the **Preview...** button.



Connect to a JSON Data Source

The topics in this section describe the steps required to connect a report to JSON-formatted data. This task includes the following steps:

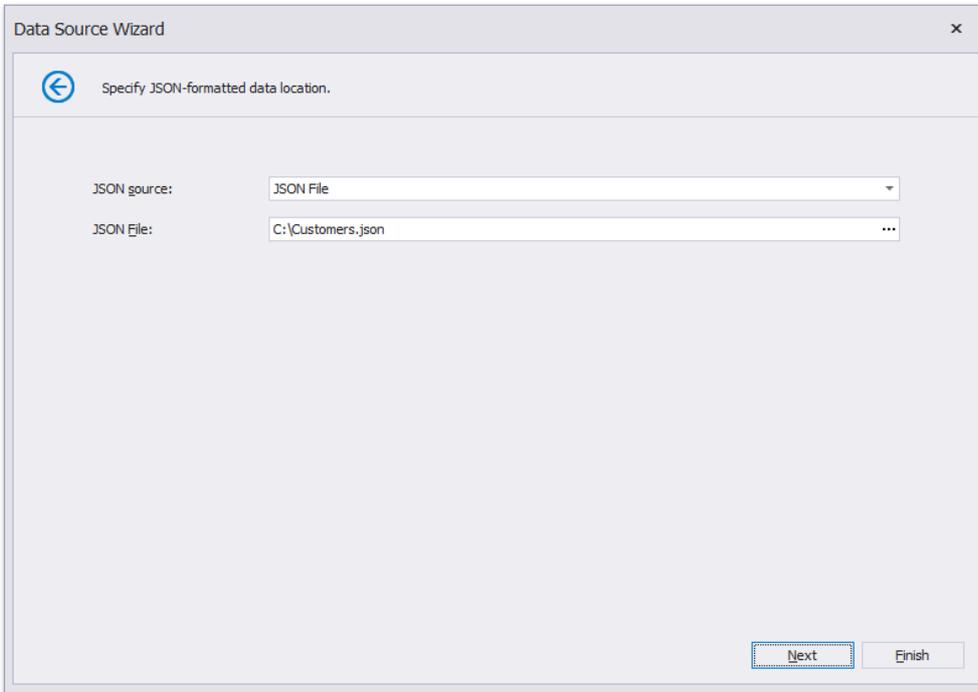
- [Specify JSON Data Location](#)
- [Specify Request Parameters](#)
- [Select Data Fields](#)

One

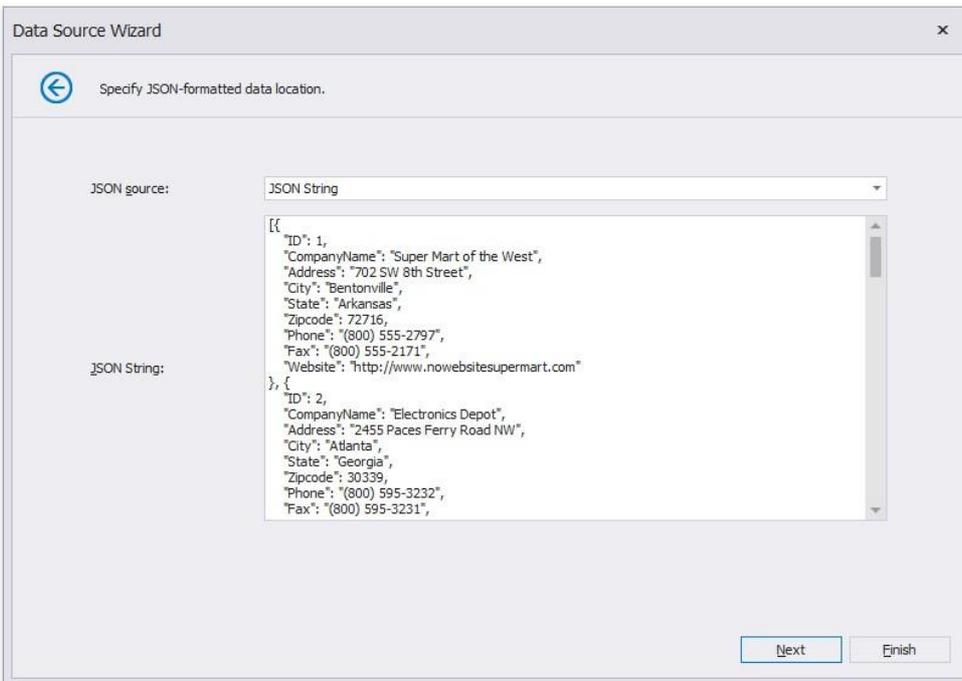
The Report Designer's Data Source Wizard provides the JSON option if the application has a reference to the open-source **Newtonsoft.Json** library.

Specify JSON Data Location. This wizard page allows you to specify the location of the JSON-formatted data:

- Web Service Endpoint URI
- File Name

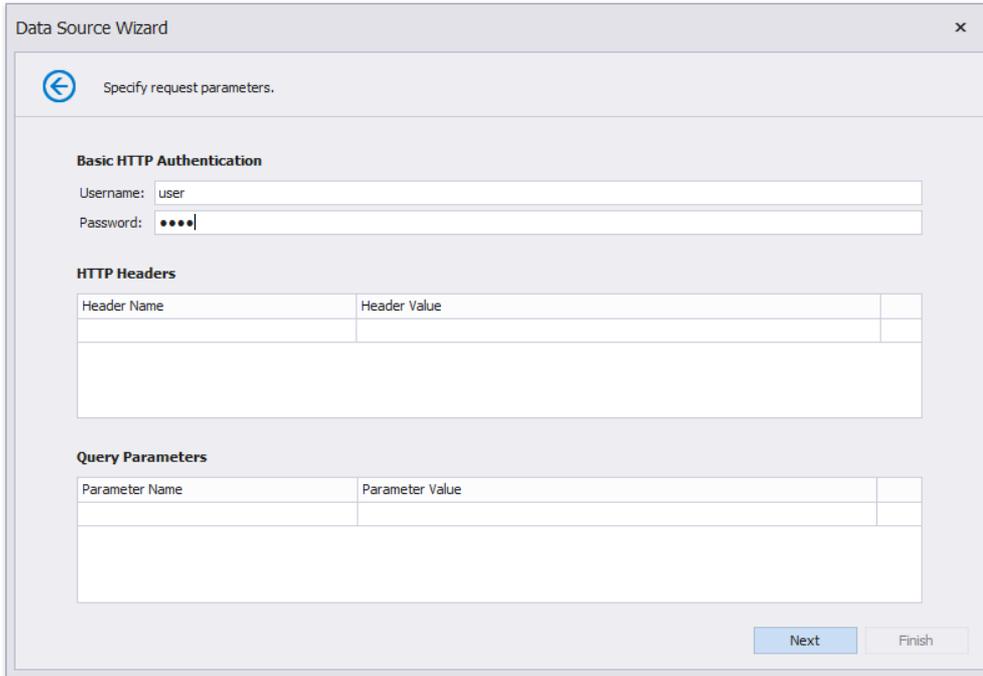


- String with JSON Content



Specify Request Parameters

This page allows you to specify request parameters for the Web Service Endpoint you specified on the



The screenshot shows a window titled "Data Source Wizard" with a close button (x) in the top right corner. The main area is titled "Specify request parameters." and contains three sections:

- Basic HTTP Authentication:** Includes a "Username:" field with the value "user" and a "Password:" field with masked characters "••••".
- HTTP Headers:** A table with two columns: "Header Name" and "Header Value". The table is currently empty.
- Query Parameters:** A table with two columns: "Parameter Name" and "Parameter Value". The table is currently empty.

At the bottom right of the window, there are two buttons: "Next" and "Finish".

[previous page.](#)

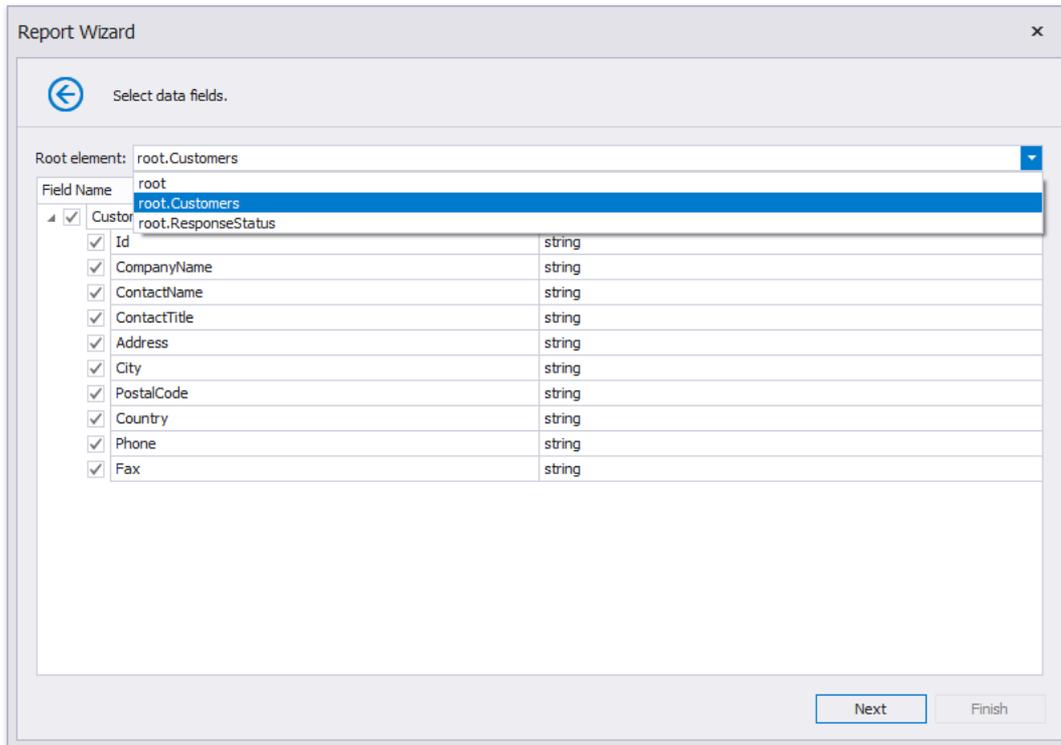
You can use this page to provide authentication parameters for the requested JSON data.

O Not e

This page is available when an end user chooses the **Web Service Endpoint** option on the [Specify JSON Data Location](#) page.

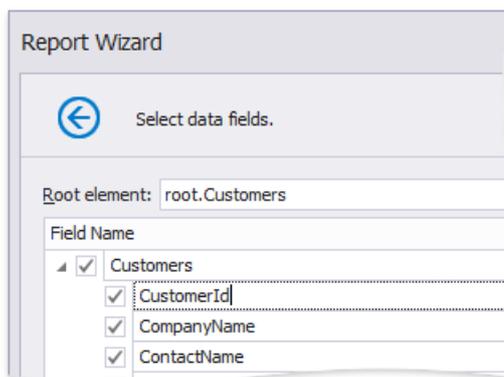
Select Data Fields

On this page, the wizard shows the specified JSON data's structure. You can choose all nodes or a



subset of nodes.

Uncheck the data fields that your report does not require. You can rename data fields if necessary.



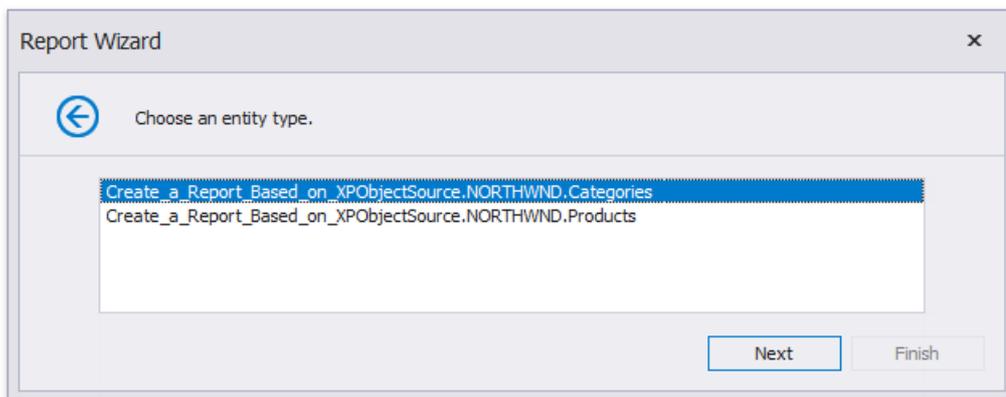
Connect to an XPO Data Source

The topics in this section describe the steps required to connect a report to XPO data. This task includes the following steps:

- [Choose an Entity Type](#)
- [Type Select a Data](#)
- [Connection Specify a](#)
- [Connection String Save](#)
- [the Connection String](#)

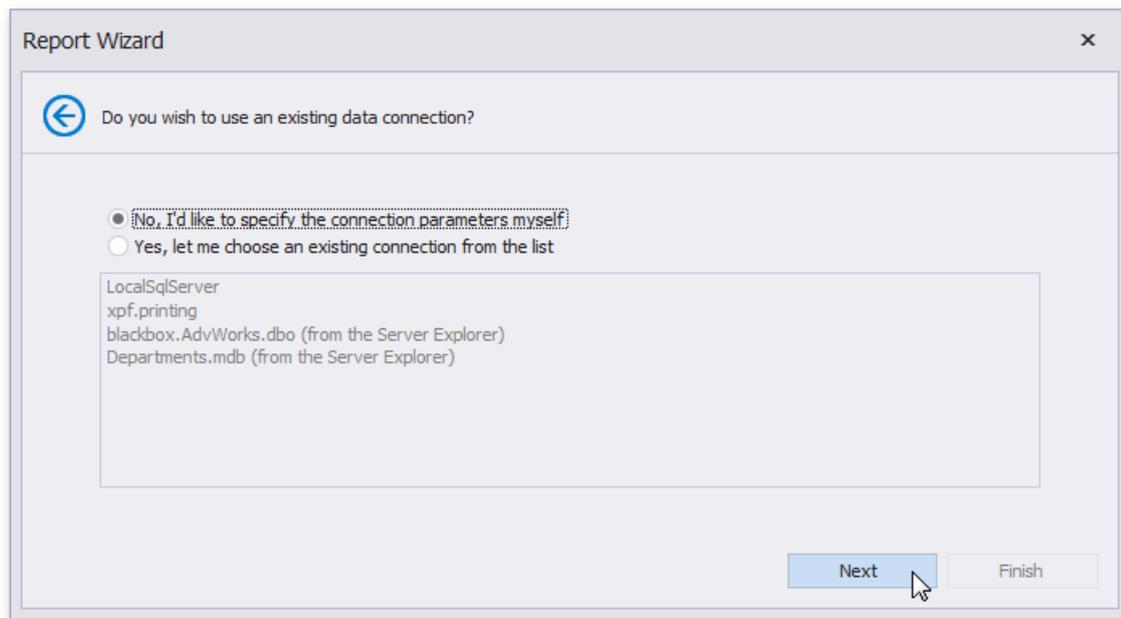
Choose an Entity Type

This wizard page lists your application project's persistent object classes. Choose one entity type and proceed to the next page.



Select a Data Connection

On this page, specify whether you want to use an existing data connection or create a new data connection.

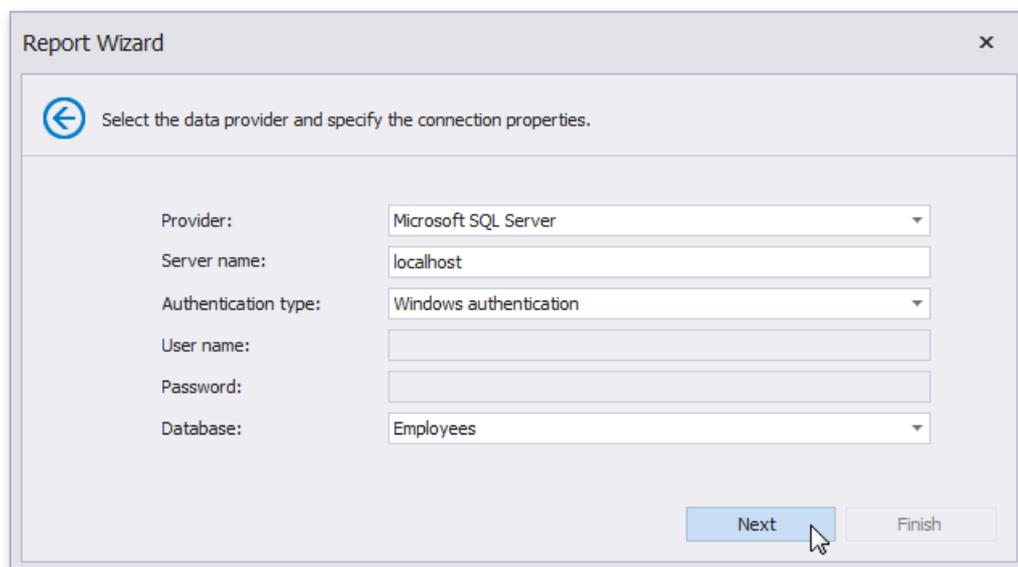


Click **Next** to proceed to the next wizard page, depending on the selected option.

- [Specify a Connection String](#)
- [Save the Connection String](#)

Specify a Connection String

This page allows you to specify connection string parameters or define a custom connection string.



The following data source types are supported.

- Amazon

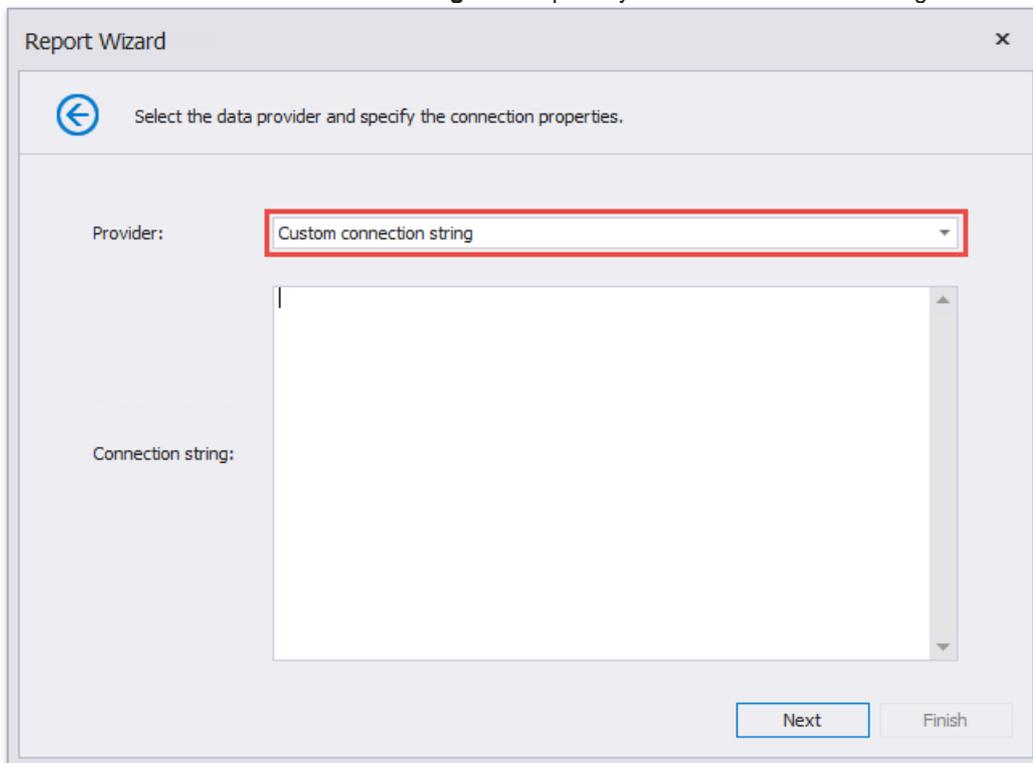
- Redshift
- Firebird
- Google
- BigQuery IBM
- DB2
- Microsoft Access 2007
- Microsoft Access 97
- Microsoft SQL Server
- Microsoft SQL Server Compact Edition
- MySQL
- Oracle
- Pervasive
- PSQL
- PostgreSQL
- SAP Sybase
- Advantage SAP
- Sybase ASE
- SAP Sybase SQL
- Anywhere SQLite
- Teradat
- a
- VistaD
- B
- VistaDB
- 5 XML
- file

Depending on the data provider selected, it may be necessary to specify additional connection options (such as authentication type and database name) on this page.

Click **Next** to proceed to the next wizard page.

Define a Custom Connection String

Select **Custom connection string** and specify the connection string.



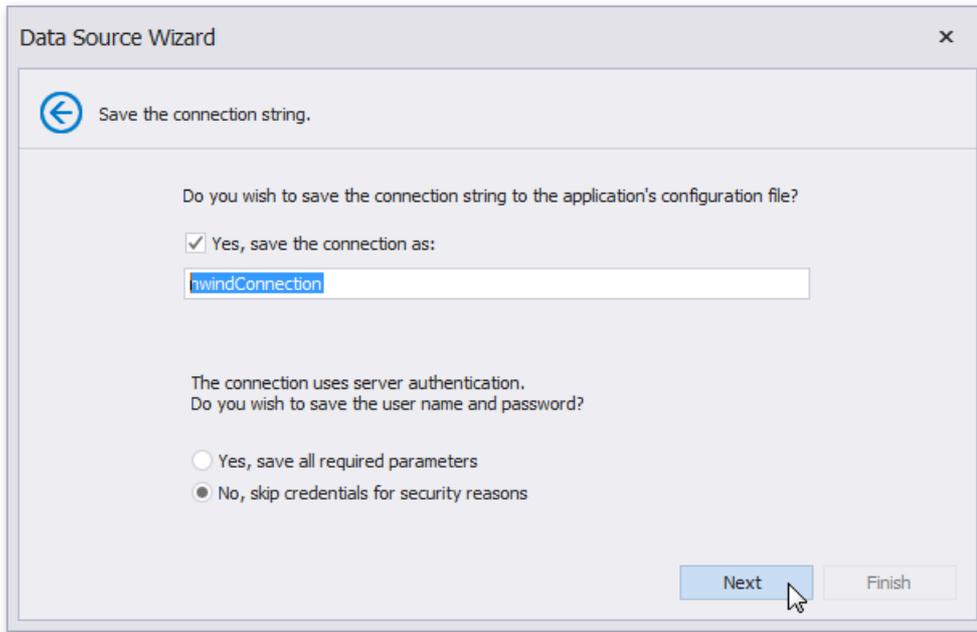
Use the **XpoProvider** parameter to identify a data source provider. For example, `XpoProvider=MSSqlServer;Data Source=(local);User ID=username;Password=password;Initial Catalog=database;Persist Security Info=true`

Click **Next** to proceed to the next wizard page: [Save the Connection String](#).

Save the Connection String

On this page, select whether or not to save the created connection string to the application's configuration file.

If the data connection uses server authentication, you can also choose to save the user credentials along with the connection string.

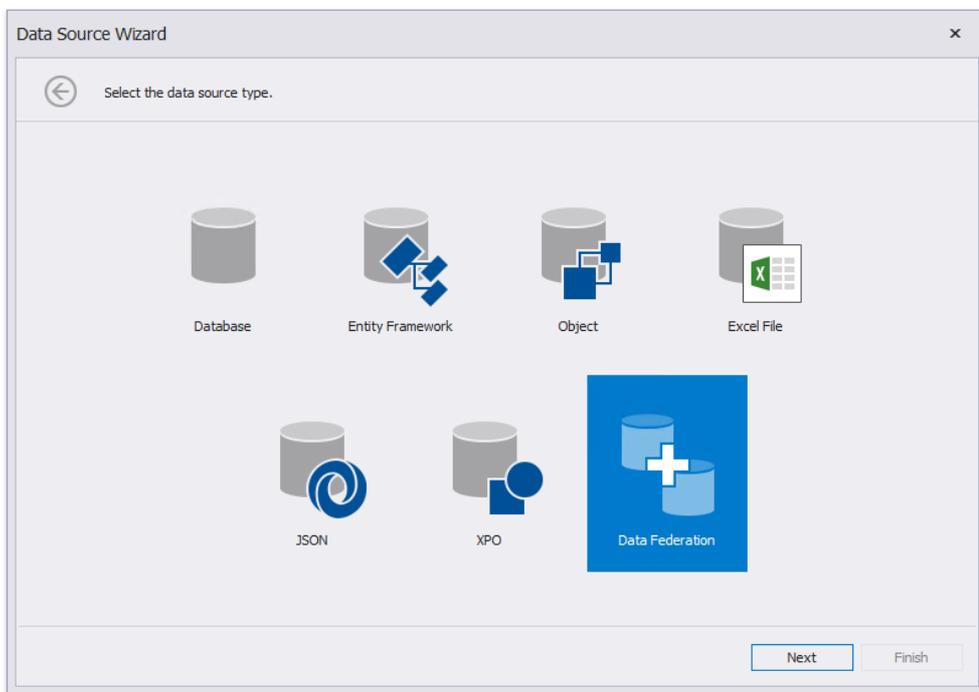


The screenshot shows a dialog box titled "Data Source Wizard" with a close button (X) in the top right corner. The main content area has a back arrow icon and the text "Save the connection string." Below this, there is a question: "Do you wish to save the connection string to the application's configuration file?". There are two radio button options: "Yes, save the connection as:" (which is selected) and "No, skip credentials for security reasons". Under the selected option, there is a text input field containing "hwindConnection". Below this, there is another question: "The connection uses server authentication. Do you wish to save the user name and password?". There are two radio button options: "Yes, save all required parameters" (which is unselected) and "No, skip credentials for security reasons" (which is selected). At the bottom right, there are two buttons: "Next" and "Finish". A mouse cursor is pointing at the "Next" button.

Connect to a Federated Data Source

O Not e

This data source type is available in the Data Source Wizard only if a report contains at least one data source.



Choose **Data Federation** to combine multiple data sources and specify unions, joins or master-detail relationships between data source queries.

Click **Next** to go to the [Create a Federated Query](#) page.

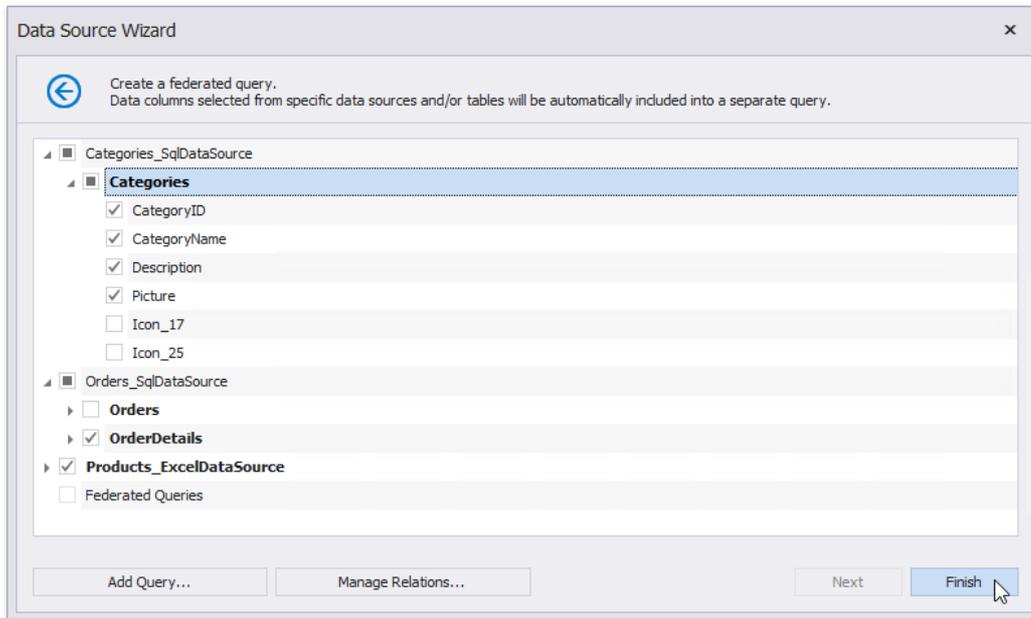
Create a Federated Query

On this wizard page, you can create federated queries based on data from other data sources.

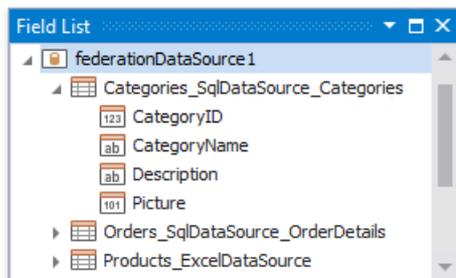
Note that initial data sources can contain data at the root level (e.g., an [Excel data source](#)) or have one or more queries (e.g., a [SQL data source](#)).

Include Data into Separate Queries

Enable check boxes for data fields, queries and/or entire data sources.



The selected items are included in data federation as separate queries based on initial data source queries.

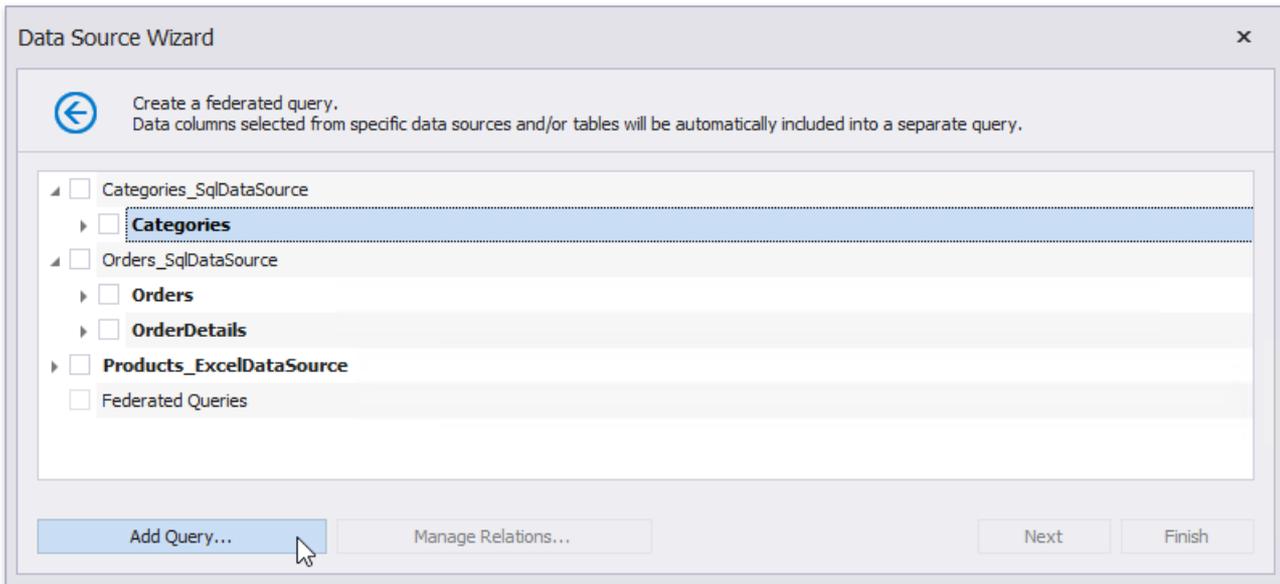


The wizard specifies query names as follows:

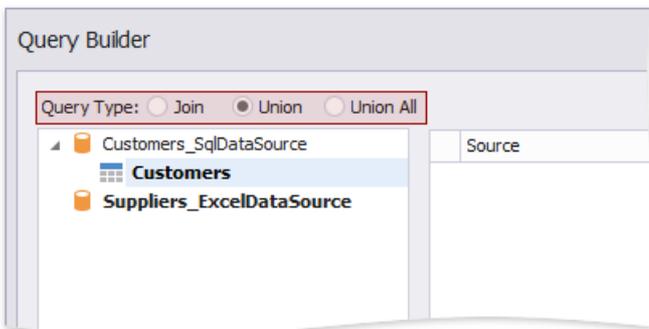
- If the initial data source contains one or more queries (such as in a SQL data source), the federated query name consists of the data source name and query name separated by an underscore.
- If the initial data source contains data at the root level (such as in an Excel data source), federated query name is equivalent to the data source name.

Combine Data into a Single Query

To combine data from multiple data sources into a single query, click **Add Query**.

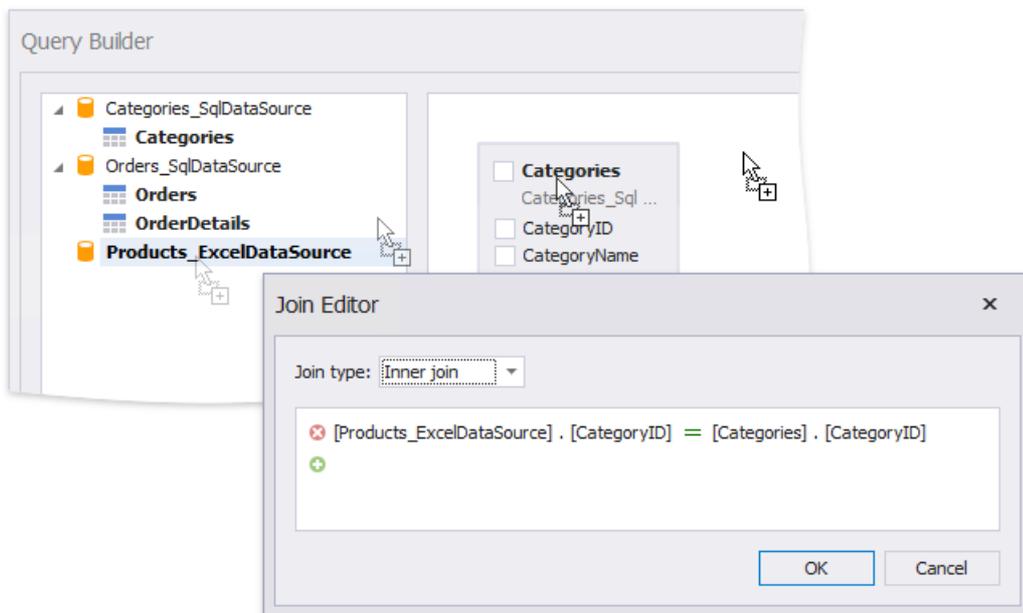


This invokes the [Query Builder](#) adapted to federated data sources. Specify the query type.

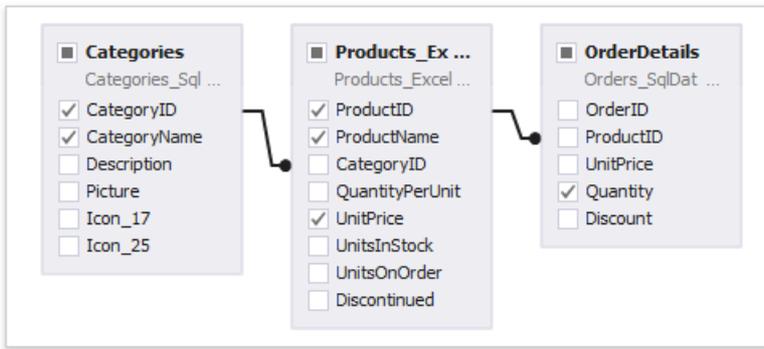


- **Join**

Drag and drop items onto the design surface, and specify join relationships in the **Join Editor**.

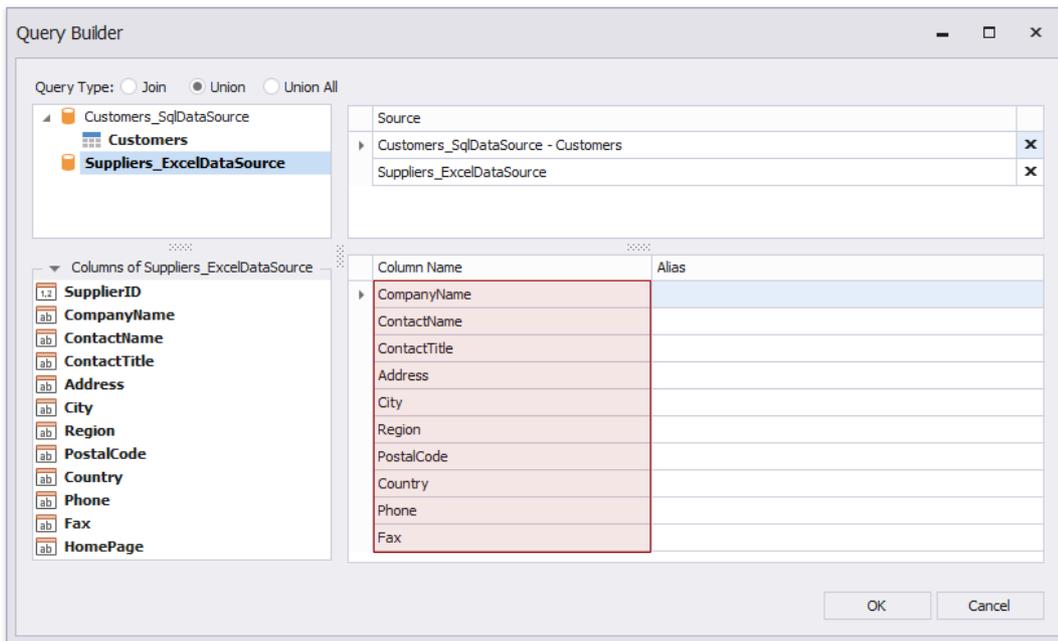


Enable check boxes for the data fields you want to include in the query result set.



• Union and Union All

Double-click the data sources you want to combine into a single query. The query includes only fields that have identical names and types in the origin sources.



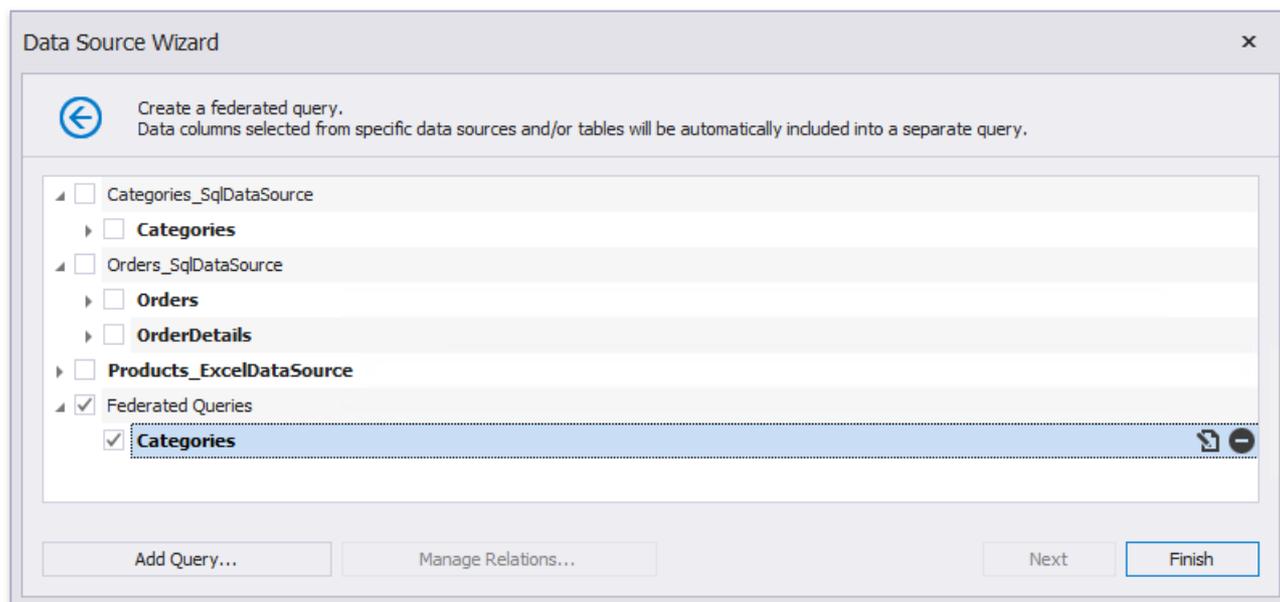
Rename fields.

Column Name	Alias
CompanyName	
ContactName	Contact
ContactTitle	Title
Address	
City	
Region	
PostalCode	
Country	
Phone	
Fax	

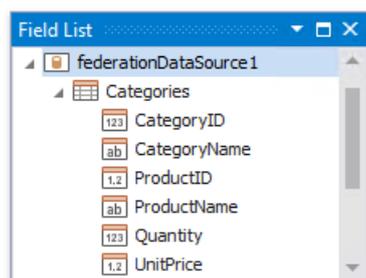
□ Tip

When you use the **Union** mode, duplicate data from the origin data sources is removed from the query result set. Use the **Union All** mode to include all data.

The created query appears on the wizard page in the **Federated Queries** category. The federated query's default name is equivalent to the main table name.

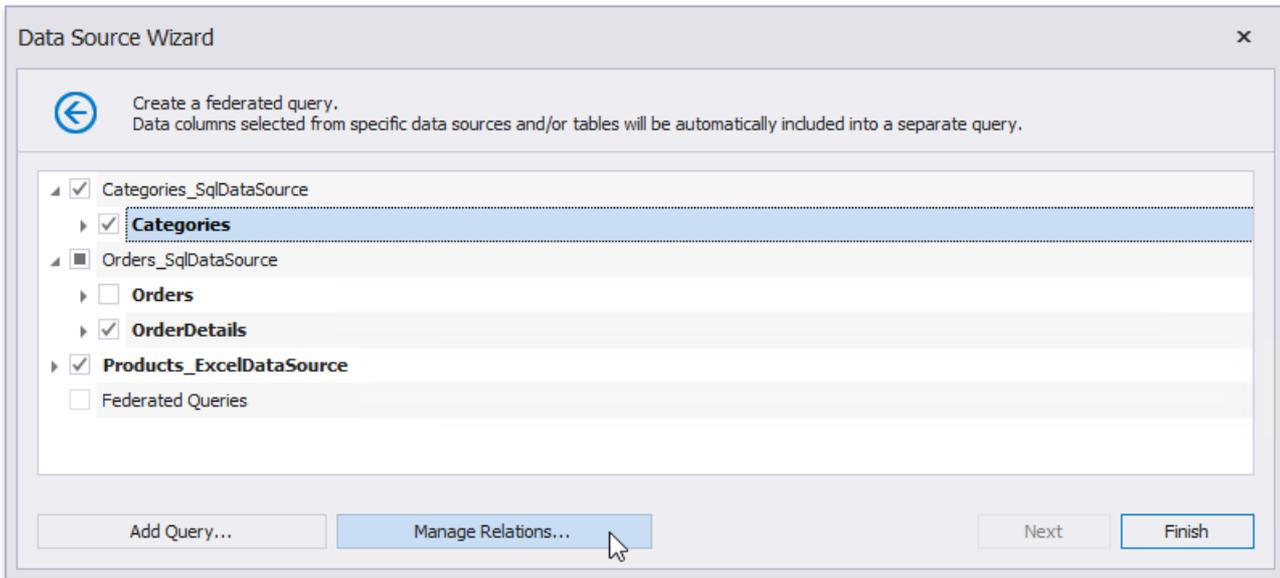


You can click the  button to customize the query or the  button to remove the query. Once you finish the wizard, it creates a federated data source that includes a single query.

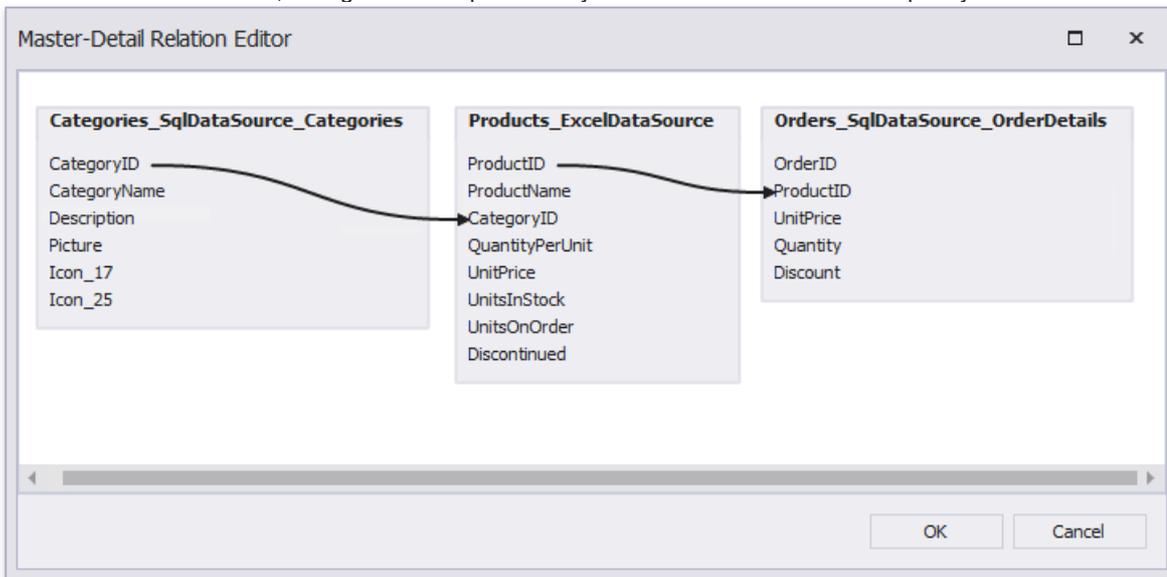


Specify Master-Detail Relationships

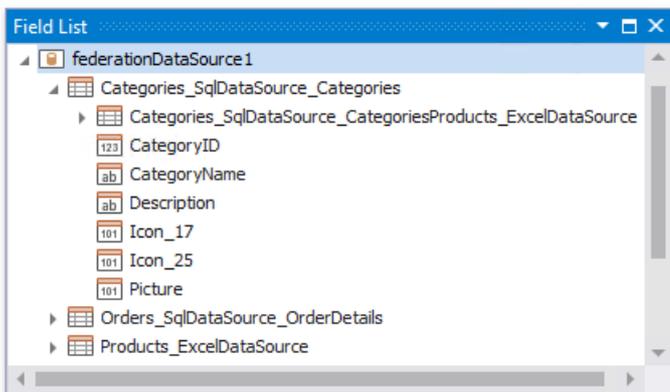
Click **Manage Relations** to define master-detail relationships between two or more queries.



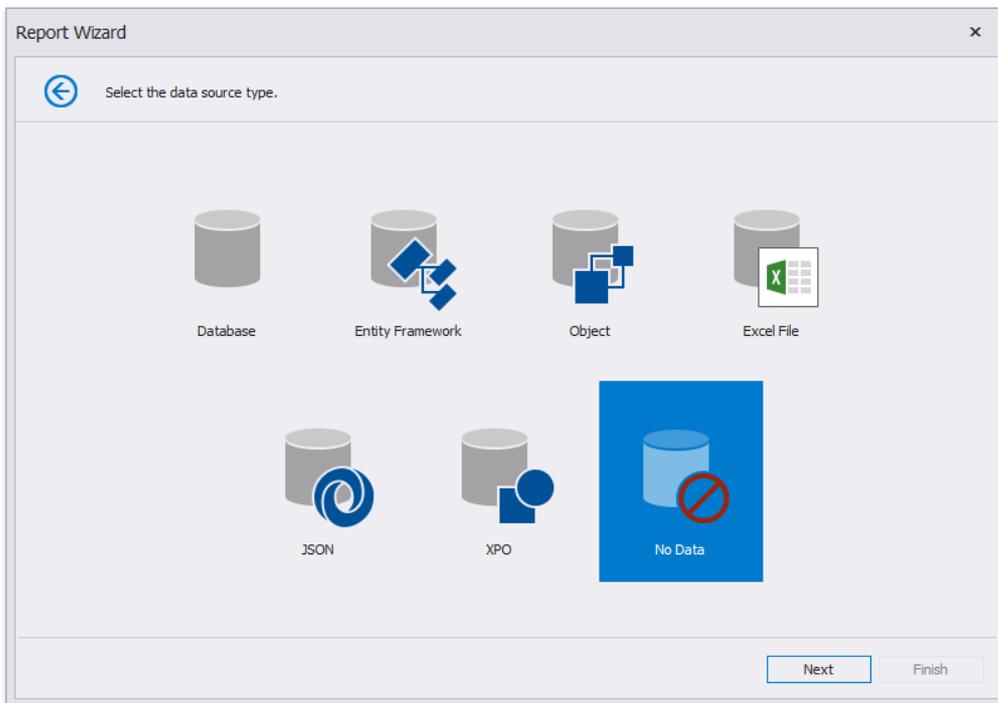
In the invoked editor, drag and drop the key field from the master query to the detail query.



Once the wizard is complete, you can see the master-detail hierarchy in the Field List.



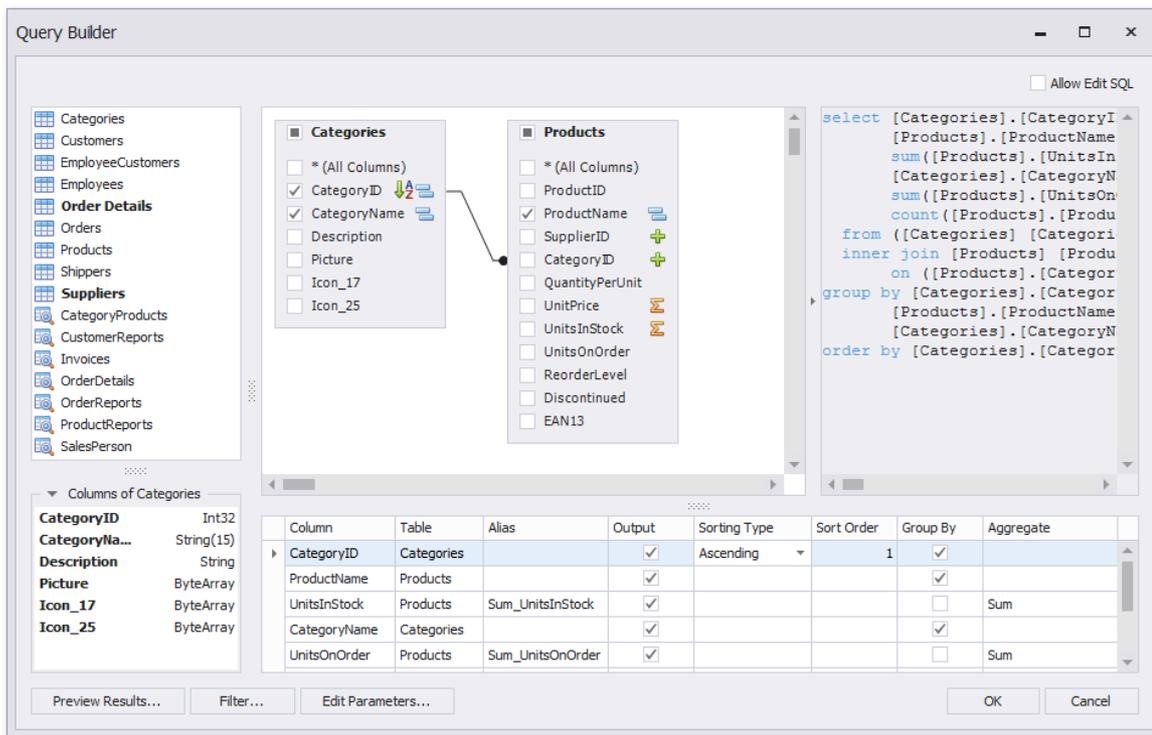
No Data



Choose *No Data* not to bind to a data source.

Query Builder

The **Query Builder** provides a visual interface for constructing SQL queries used to access database



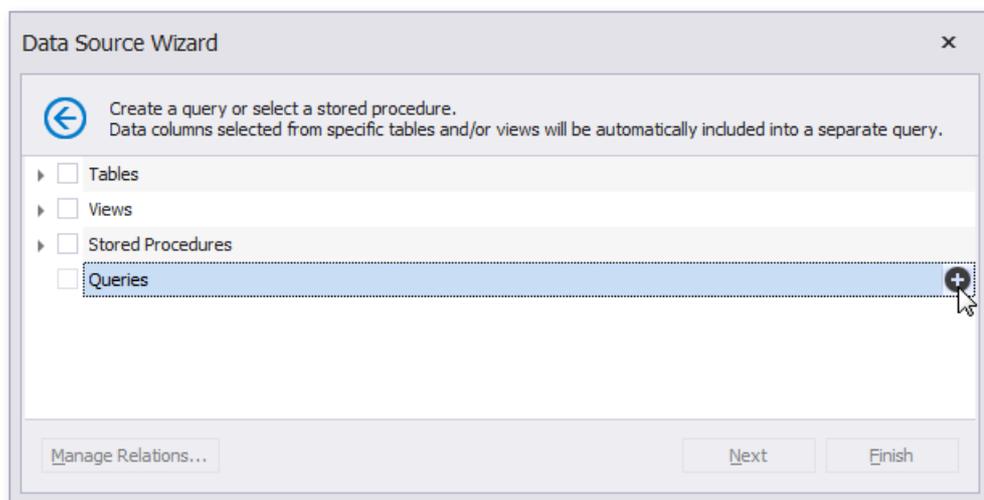
tables and views.

Not e

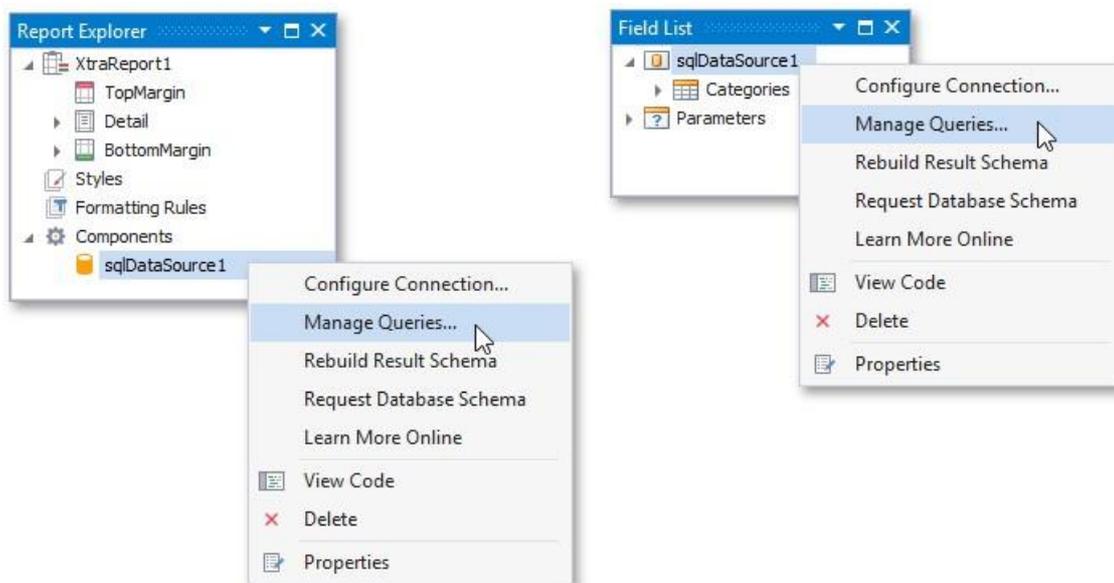
The Query Builder is not available for [object](#), [Entity Framework](#) and [Excel](#) data sources.

Run the Query Builder

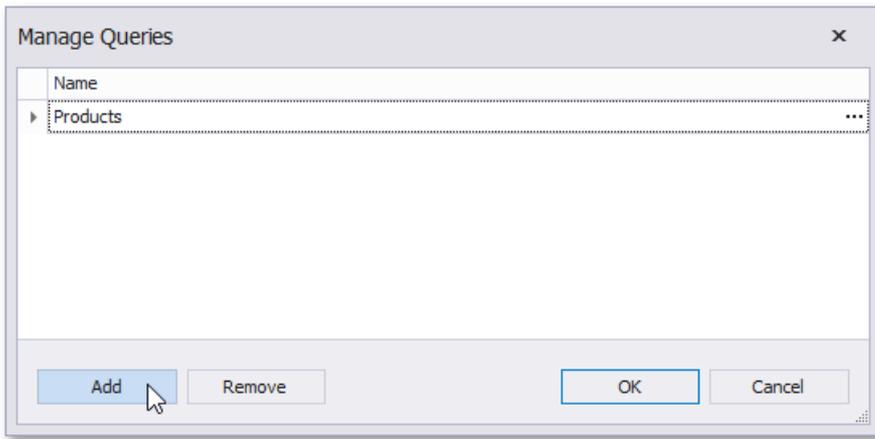
You can invoke the **Query Builder** from the [query customization](#) page of the **Report Wizard**. On this page, click the  button for the **Queries** category to create a new query using the Query Builder.



You can use the Query Builder to add queries to an existing SQL data source, as well as to edit existing queries. To do this, right-click the data source in the [Report Explorer](#) or [Field List](#), and select **Manage Queries...** in the context menu.



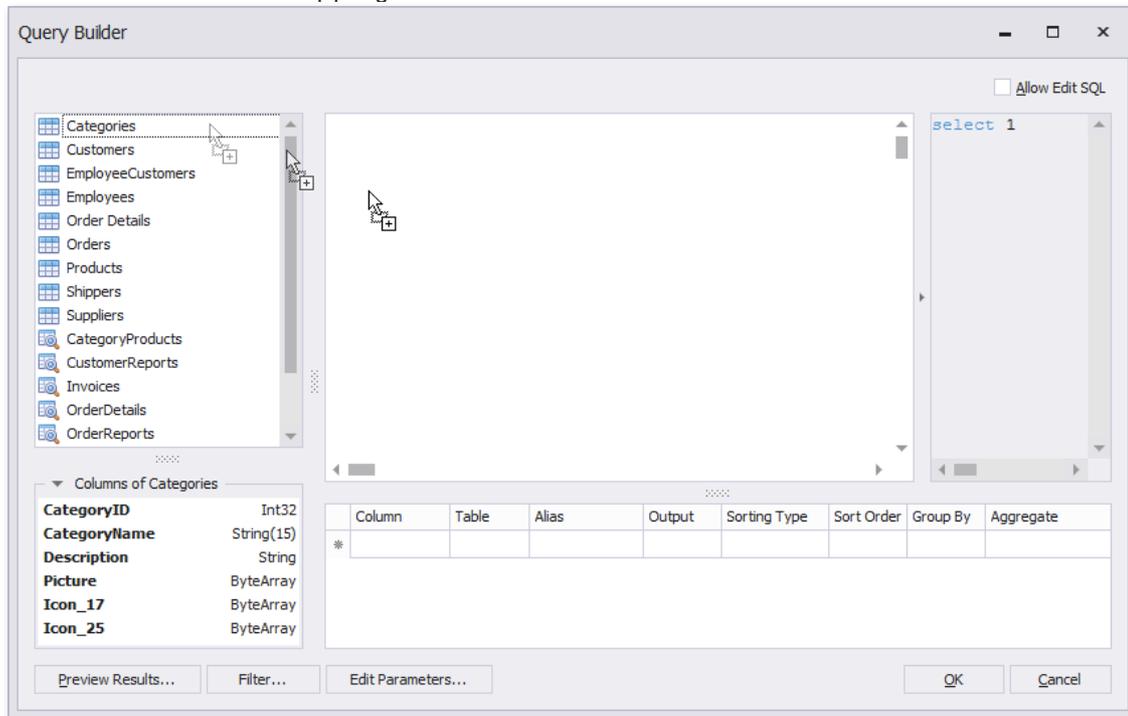
In the invoked **Manage Queries** dialog, click **Add** to add a new query. To edit an existing query, click the ellipsis button for it.



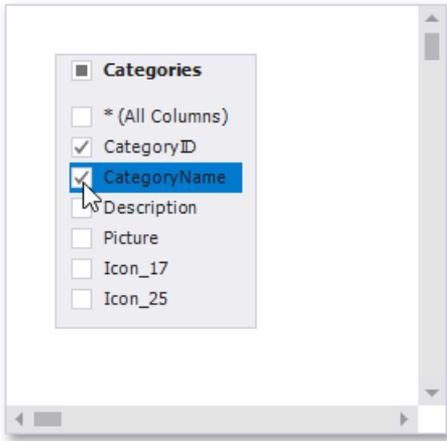
Finally, click the **Run Query Builder...** button in the invoked **Query Editor**.

Select Tables

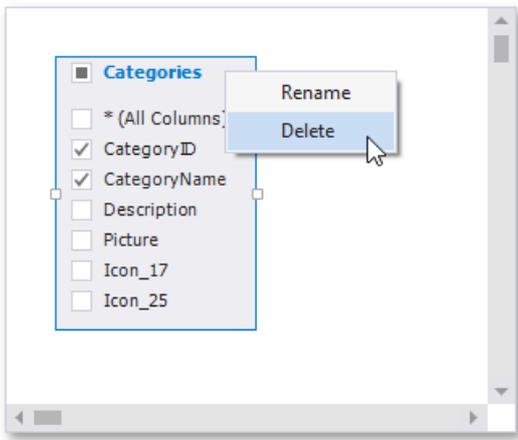
You can add a specific data table or view to a query by dragging the corresponding item from the list of available tables and dropping it onto the list of data tables to be used.



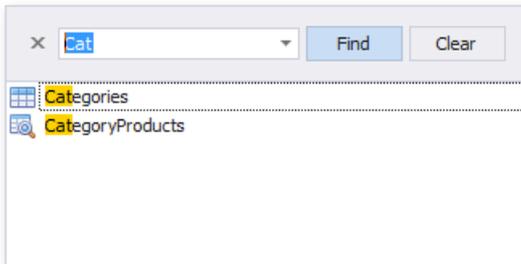
Enable check boxes for the table fields that you want to include in the query result set.



Each table provides the context menu, which allows you to rename the table or remove it from the query.

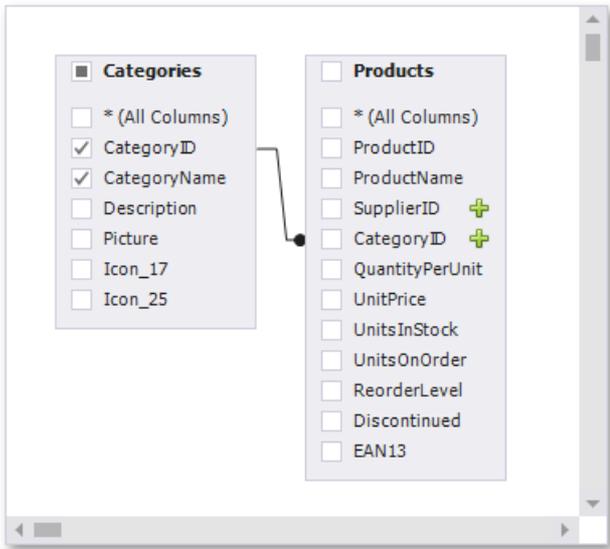


Click the list of available tables on the left and press CTRL+F to search for a specific table or view.



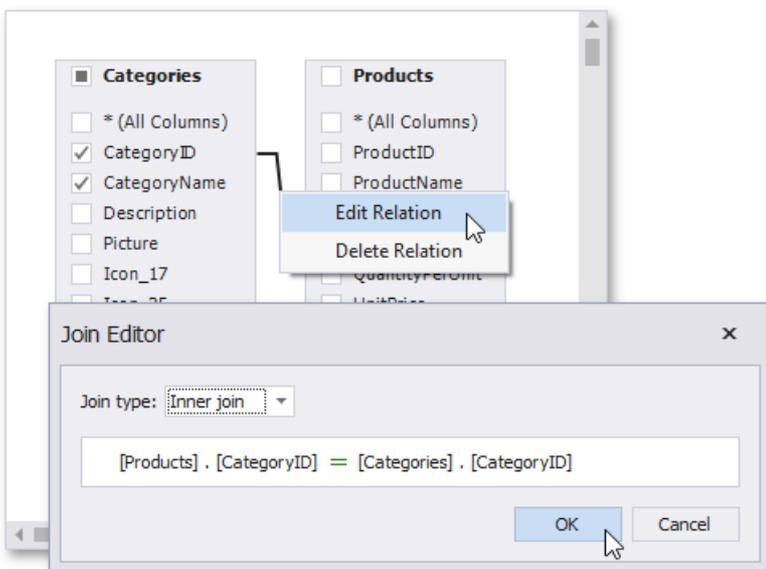
Join Tables

You can join multiple tables within the same query. The Query Builder automatically highlights tables related to any of the previously added tables. Drag-and-drop a subordinate table in the same way you added a main table to include it in a query and automatically create an inner join relation based on a key column.



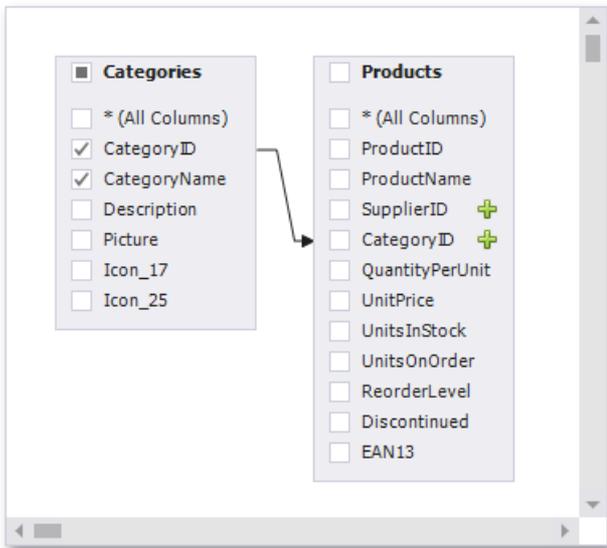
Alternatively, you can join tables by clicking the plus button in a row corresponding to a key column.

You can customize the relationship by right-clicking it on the diagram and selecting **Edit Relation** in the invoked context menu. Use the **Join Editor** to select the join type (**Left Outer** or **Inner**), apply a logical operator (**Equals to**, **Is less than**, etc.) and column key fields.



A left outer join returns an inner join's values, along with all the values in the "left" table that do not match the "right" table, including rows with NULL (empty) values in the key field.

When the left outer join is selected, the relationship line displays an arrow pointing to the "right" table.



You can manually join tables if they do not have a relationship at the database level. In this case, when you drag-and-drop a table onto the list of tables, the **Join Editor** is automatically invoked allowing you to construct a custom **join** relationship.

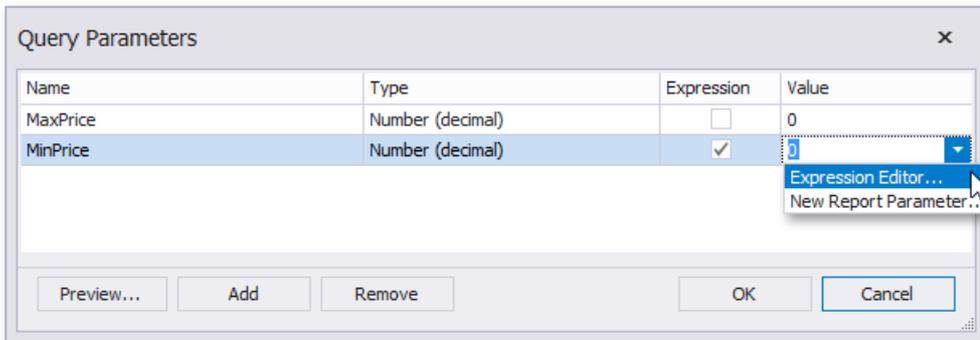
After executing the query, it returns a "flat" table composed of data records selected based on the specified join options.

0 Not e

Although joining different tables within a single query may be required in some scenarios, creating [hierarchical data sources](#) generally results in better performance (in general, [master-detail reports](#) are generated faster than similar-looking reports created by grouping "flat" data sources).

Edit Parameters

Click the **Edit Parameters** button to invoke the **Query Parameters** dialog, which allows you to add and remove [query parameters](#) as well as specify parameter settings.



For each query parameter, the following properties are available.

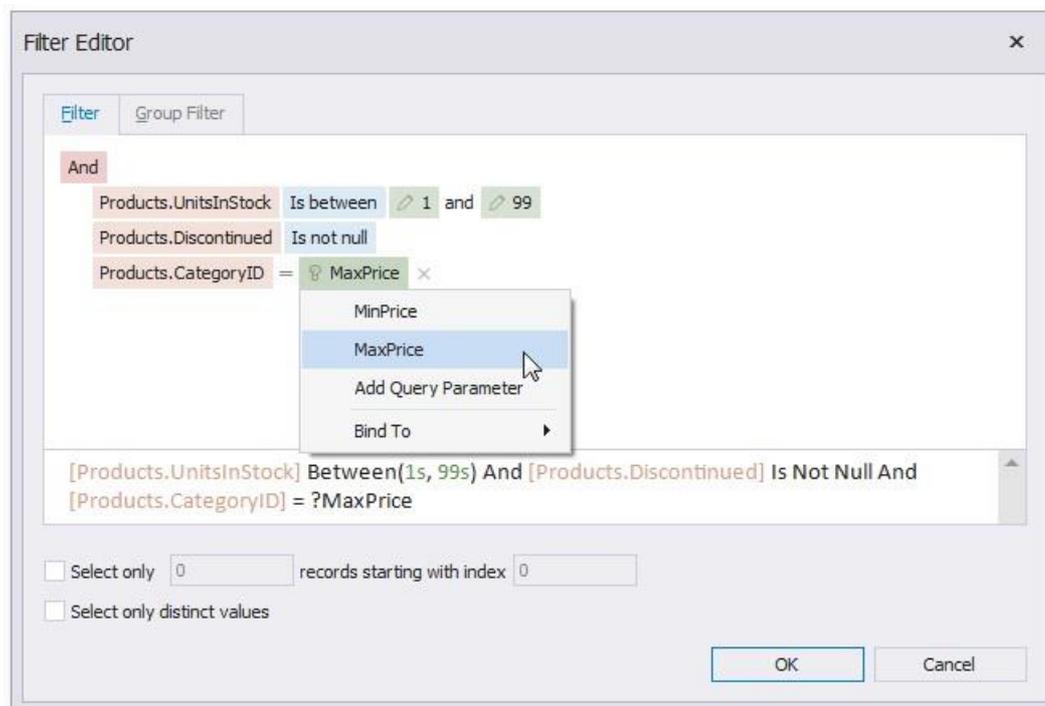
- **Name** - specifies the name used to refer a parameter.
- **Type** - specifies the data type of the parameter's value.
- **Expression** - determines whether the actual parameter value is static or generated dynamically.
- **Value** - specifies the actual value of a query parameter. If the **Expression** option is enabled, the actual parameter value is produced dynamically by calculating an associated [expression](#), which is particularly useful when you need to map the query parameter value to the value of a [report parameter](#).

The created parameters will be then available on the [Configure Query Parameters](#) wizard page.

For general information on query parameters and ways of providing parameter values, see [Query Parameters](#).

Filter Data

To specify filter criteria, click the **Filter...** button in the Query Builder. This invokes the **Filter Editor**, which provides the following capabilities.



- **Filter Tab**

The editor contains the **Filter** tab allowing you to specify filter conditions for resulting data. Filter criteria can be assigned [query parameters](#) or bound to [report parameters](#).

- **Group Filter Tab**

The **Group Filter** tab allows you to specify filter conditions for grouped and aggregated data. If data is not grouped, the second tab is disabled.

- **Other Options**

Using this editor, you can limit the number of resulting data rows. If data is sorted, you can specify how many rows to skip before retrieving the specified number of rows.

- **Not e**

Depending on the selected data provider, it can be impossible to take into account the skip setting in the provider-specific SQL string.

Another option enables you to include only distinct values into the resulting set.

Shape Data

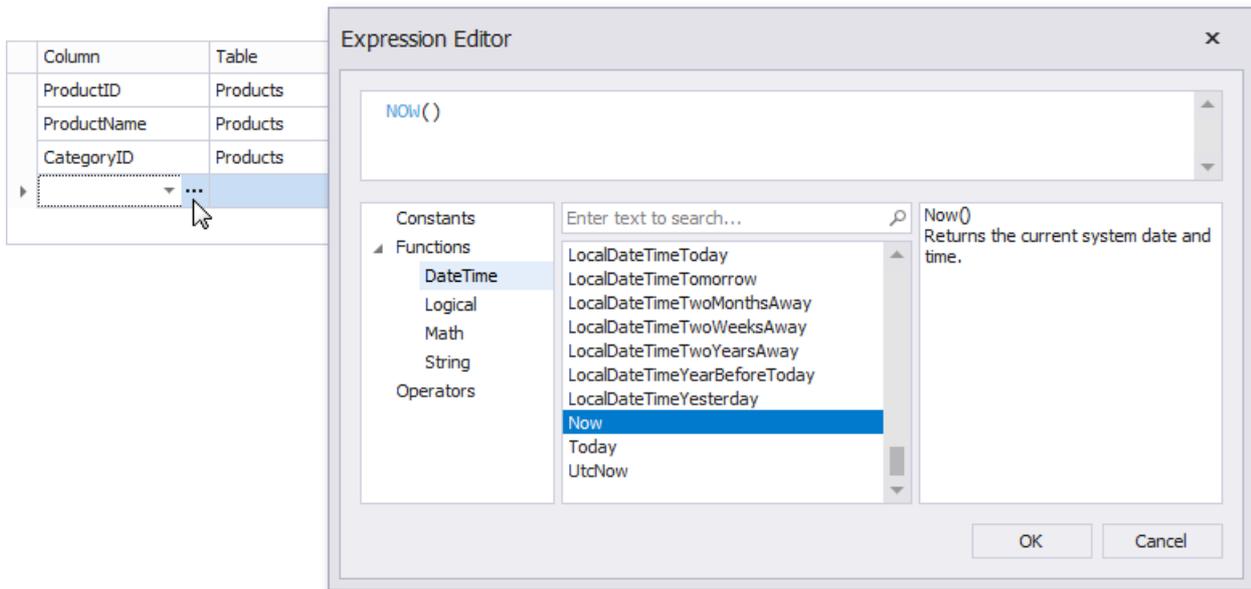
The Query Builder displays the column list under the data source editor, which provides various shaping options:

Column	Table	Alias	Output	Sorting Type	Sort Order	Group By	Aggregate
CategoryID	Categories		<input checked="" type="checkbox"/>	Ascending	1	<input checked="" type="checkbox"/>	
ProductName	Products		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
UnitsInStock	Products	Sum_UnitsInStock	<input checked="" type="checkbox"/>			<input type="checkbox"/>	Sum
CategoryName	Categories		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
UnitsOnOrder	Products	Sum_UnitsOnOrder	<input checked="" type="checkbox"/>			<input type="checkbox"/>	Sum

- **Column**

Specifies the selected column.

You can choose a column from the drop-down list or create a column expression by clicking the corresponding column's ellipsis button.



- **Table**

Specifies the table containing the selected column.

This option indicates **(All Tables)** if you created an expression for the corresponding column.

- **Alias**

Specifies a custom column name (alias).

This option is available only for columns that you included in a query.

- **Output**

Specifies whether to include the column in the query's resulting set.

- **Sorting Type**

Specifies whether to preserve the original data record order within the column or sort them (ascending or descending).

- **Not e**

When binding to XML files, the Query Builder does not support sorting by aggregate functions, DISTINCT and SELECT ALL statements, and custom SQL.

- **Sort Order**

This option becomes available after applying sorting to the data column records.

It defines the priority in which sorting is applied to multiple columns (a lower number has a higher priority).

For example, if column **A** has the sort order set to **1** and column **B** has it set to **2**, the query is first sorted by column **A** and then by the column **B**.

Changing this setting for one column automatically updates other columns' sorting order to avoid conflicting priorities.

- **Group By**

Specifies whether to group the query's resulting set by this column.

- **Aggregate**

Specifies whether to aggregate the column's data records. The following aggregate functions are supported:

- Count
- Max
- Min
- Avg
- Sum
- CountDistinct
- AvgDistinct
- SumDistinct

Applying any of these functions to a column discards individual data records from the query result set, which only includes the aggregate function result.

O Note

You should apply aggregation/grouping to either all columns or none of them.

Preview Results

You can preview the query execution's result in a tabular form by clicking the **Preview Results** button.

This opens the **Data Preview** window displaying the query result set (limited to the first 1000 data records).

Product ID	Product Name	Supplier ID	Category ID	Quantity Per Unit	Unit Price	Units In Stock	Units On
1	Chai	1	1	10 boxes x 20 bags	18	39	
2	Chang	1	1	24 - 12 oz bottles	19	17	
3	Aniseed Syrup	1	2	12 - 550 ml bottles	10	13	
4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22	53	
5	Chef Anton's Gumbo Mix	2	2	36 boxes	21.35	0	
6	Grandma's Boysenberry Spread	3	2	12 - 8 oz jars	25	120	
7	Unde Bob's Organic Dried Pears	3	7	12 - 1 lb pkgs.	30	15	
8	Northwoods Cranberry Sauce	3	2	12 - 12 oz jars	40	6	
9	Mishi Kobe Niku	4	6	18 - 500 g pkgs.	97	29	
10	Ikura	4	8	12 - 200 ml jars	31	31	
11	Queso Cabrales	5	4	1 kg pkg.	21	22	
12	Queso Manchego La Pastora	5	4	10 - 500 g pkgs.	38	86	
13	Konbu	6	8	2 kg box	6	24	

Control Toolbox

The **Control Toolbox** lists all available [controls](#) and allows you to add them to your report.



Available Controls

The available report controls can be divided into the following categories:

General Content

The following controls are most commonly used to display data in a report.

Bar Code	Check Box	Gauge	Label	Character Comb	Picture Box	Rich Text	Table

Extended Data

The following controls are connected to data individually, without accessing a report's data source.

--	--	--

Chart	Pivot Grid	Sparkline
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Report Layout

The following controls allow you to draw shapes in a report and customize the report layout.

						
Cross-Band Line	Cross-Band Box	Line	Page Break	Panel	Shape	Subreport

Document Statistics

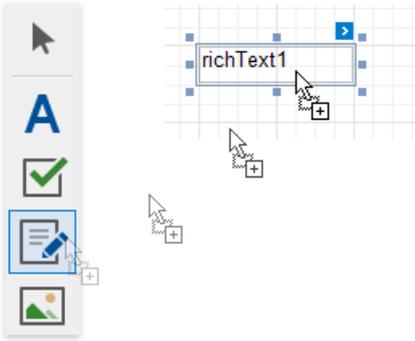
The dynamic content of the following controls is not obtained from a data source.

	
Page Info	Table of Contents

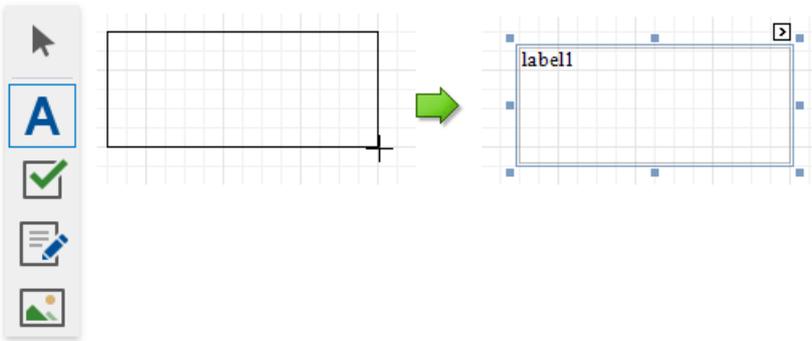
Add a Control to a Report

To add a control from the Toolbox, do one of the following.

- Double-click an item in the Toolbox for the appropriate control, which will be created at the Detail band's top left corner. Drag and drop an item from the Toolbox onto the required location within a report.



- Select an item in the Toolbox, and then click the required location within a report.
- Select an item in the Toolbox, and then indicate the bounding rectangle by holding the left mouse button.

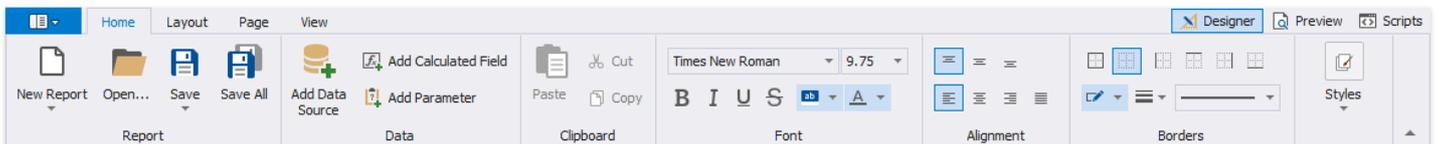


Select the **Pointer** item when you need to perform selection, re-positioning or resizing operations. It is automatically selected after you drop a control onto a report.

Toolbar

The Report Designer **Toolbar** includes the **Home**, **Layout**, **Page**, and **View** tabs for general commands as well as contextual tabs for commands relating to the selected report controls.

Home Tab



Use commands in this tab to

- add new reports, load and save report layouts;
- add data sources, [calculated fields](#), and [report parameters](#);
- delete the selected report elements, place them on the clipboard and paste them onto report bands; customize font, color, formatting and alignment settings;

- create new styles based on the selected control's appearance settings and then apply the created styles to other controls.

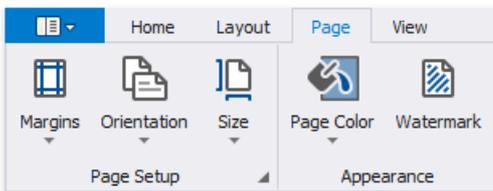
Layout Tab



This tab provides commands that

- align report elements to each other or the snap grid;
- change the report element size relative to other report elements and to fit the snap grid or the parent container; change the stacked elements' order;
- select the snapping mode.

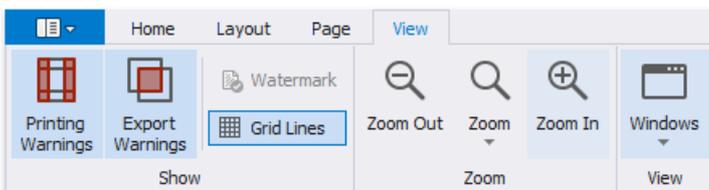
Page Tab



These commands allow you to

- set the page margins, orientation, and paper size; specify the page's background color;
- add watermark text to a report or turn a picture into a report's background.

View Tab



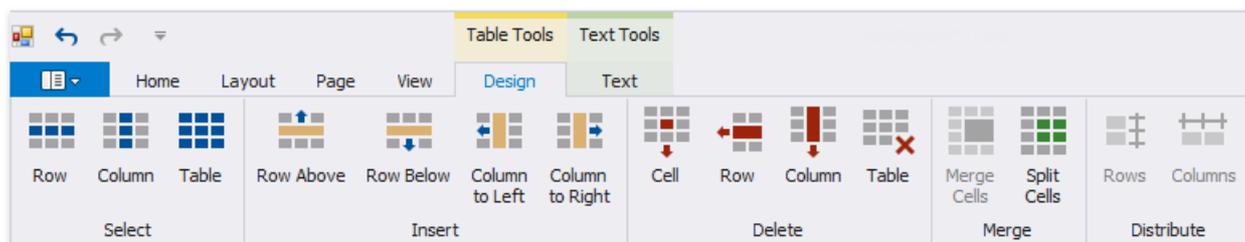
This tab enables you to

- turn on/off [export and printing warnings](#) to highlight intersecting controls and controls placed outside page margins; display the document's watermark on the design surface;
- specify whether to draw the snap grid; zoom the design surface;
- manage the Report Designer panels' visibility.

Contextual Tabs

Contextual tabs are visible whenever you select a specific report element and provide commands applicable to the selected element's type.

The following image demonstrates the table cell's available tabs:



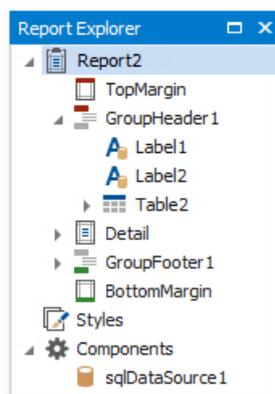
UI Panels

The Report Designer includes the following panels:

- [Report Explorer](#)
- [Field List](#)
- [Report Gallery](#)
- [Property Grid](#)
- [Group and Sort Panel](#)

Report Explorer

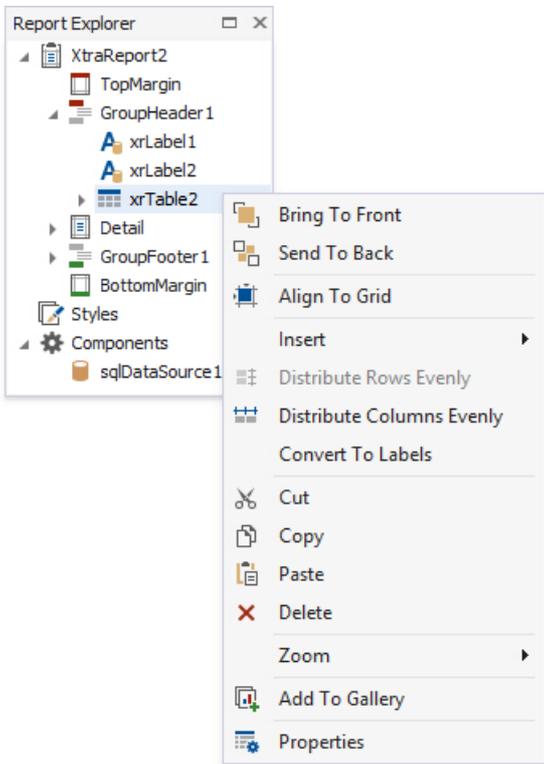
The **Report Explorer** shows a report structure in a tree-like form and provides access to components assigned to a report (such as its data sources).



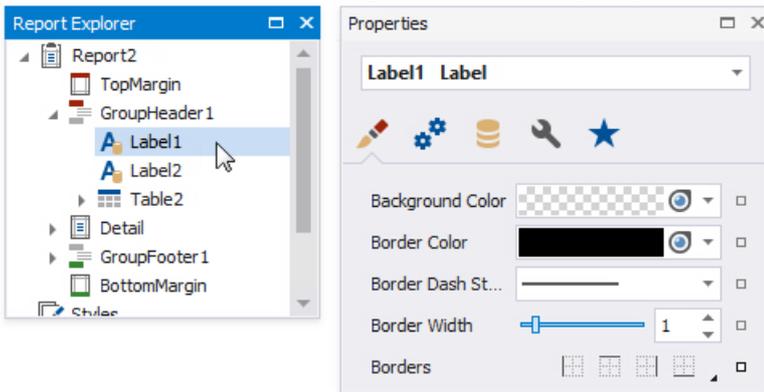
Report Bands and Controls

Bands and controls are listed in a hierarchical tree-like structure.

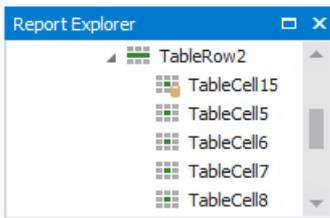
Select an element and invoke the context menu to access the available actions.



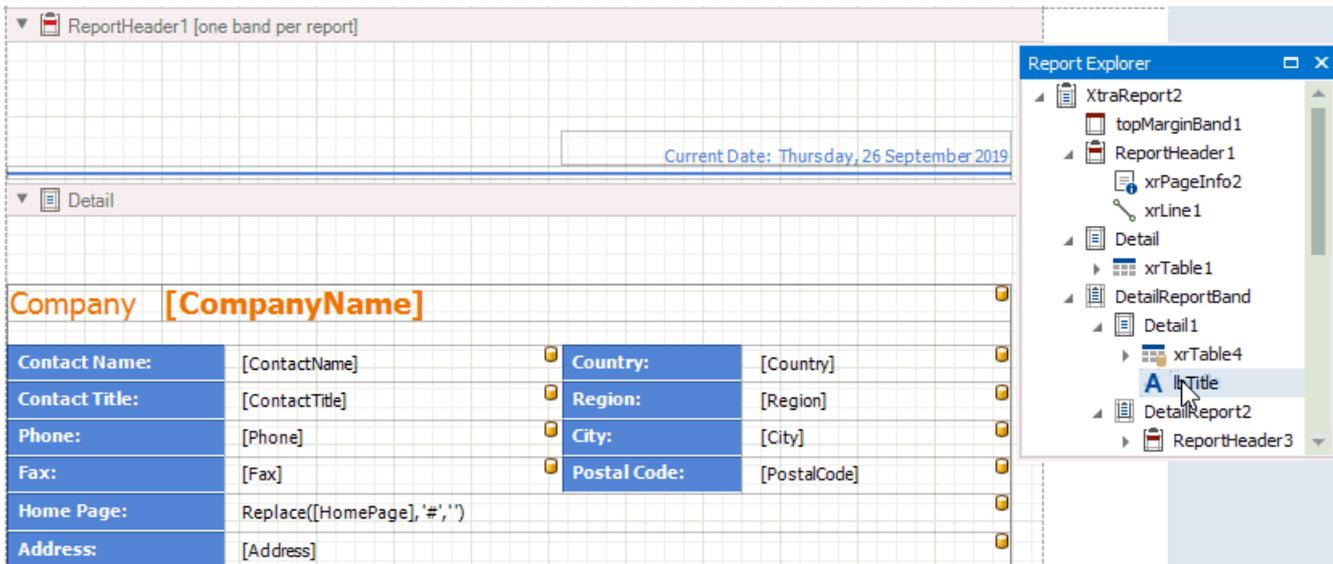
Select an element and navigate to the **Property Grid** to edit the element's options.



Data-bound controls are marked with a yellow database icon.



Drag elements to change their location.

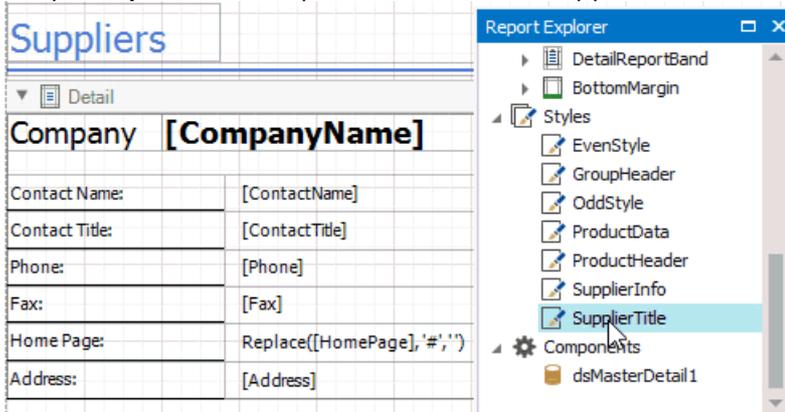


Check the following topics for more information on how to manipulate

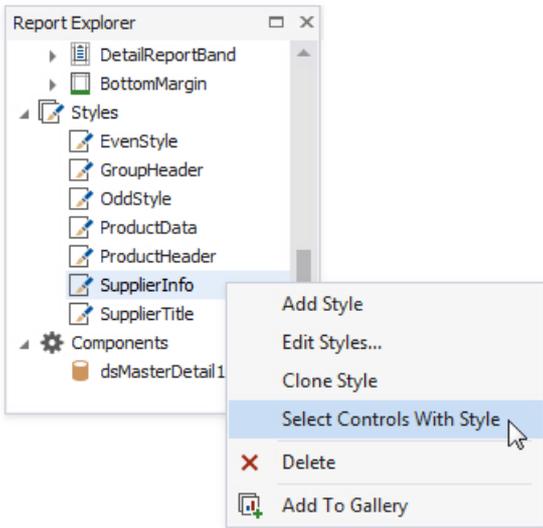
- report elements: [Manipulate Bands](#)
- [Manipulate Report Controls](#)
- [Manipulate Table Elements](#)

Report Styles

Drop a style onto a report element. This applies the selected style to the element.

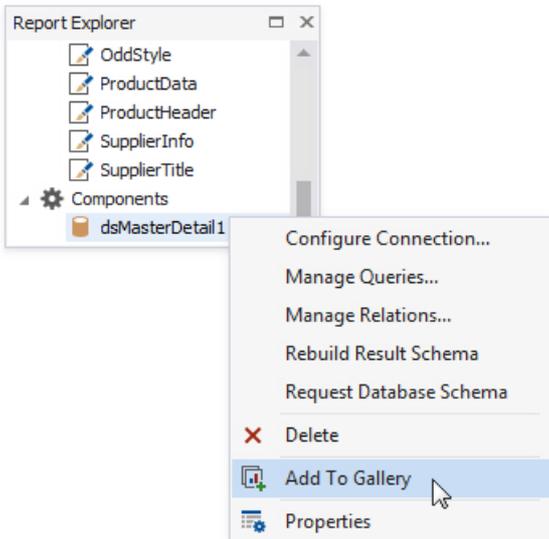


You can select all report elements with a specific style.



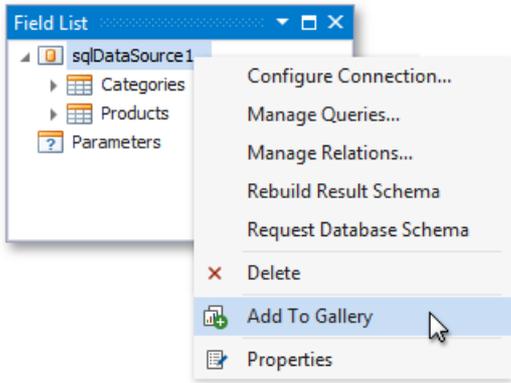
Report Components

The Components node lists all [data sources](#) configured for the report. Right-click a data source to customize its settings or add it to the [Report Gallery](#).



Field List

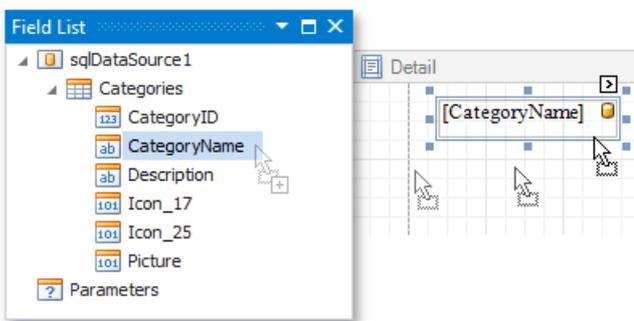
This panel displays the schema of a report's data sources. You can right-click a data source item to access its settings. For example, you can add a data source to the [Report Gallery](#) to later re-use it in other reports.



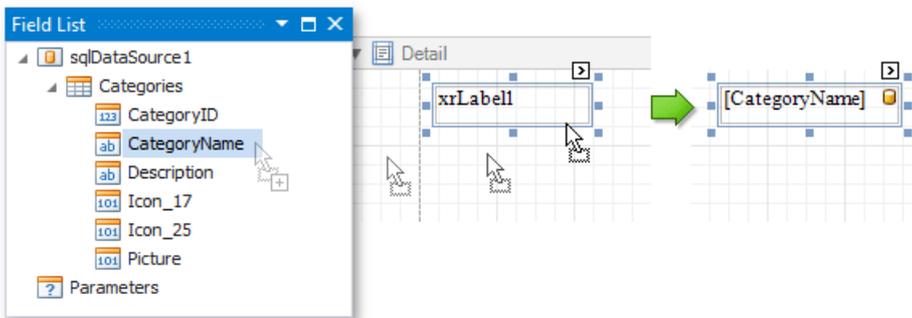
The Field List enables you to perform the following actions.

Bind controls to data

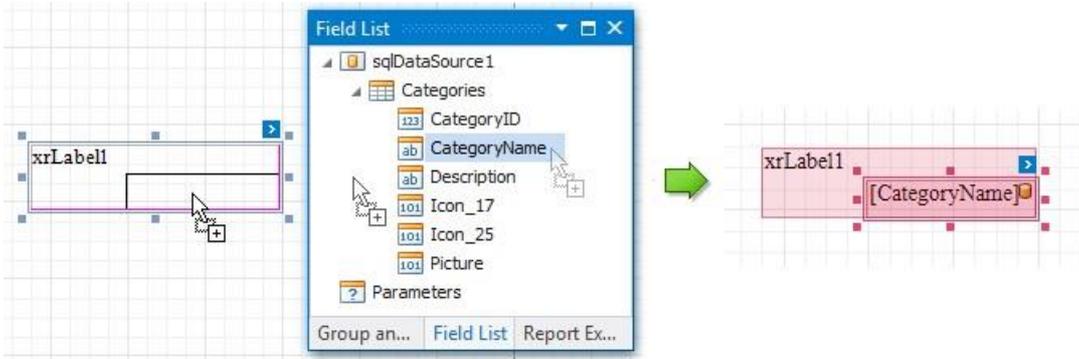
Dropping a field onto a report's surface creates a new report control bound to a corresponding field.



Dropping a field onto an existing control binds this control to a corresponding field.



You can preserve data bindings of an existing control by holding down the CTRL key when dropping a data field on this control. This creates a new report control on top of the existing control.

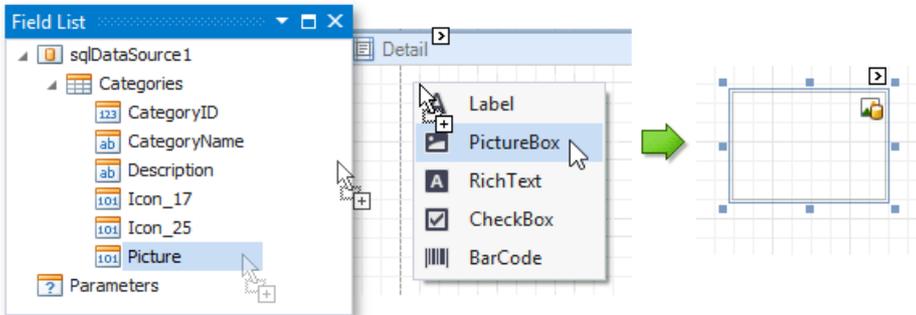


Create specific controls

To create a data-bound control of a specific type, do any of the following:

- Hold down the SHIFT key and drop a data field onto a report's surface. Right-click a corresponding data field and
- drop it onto a report's surface.

This invokes a context menu enabling you to select which control to create.

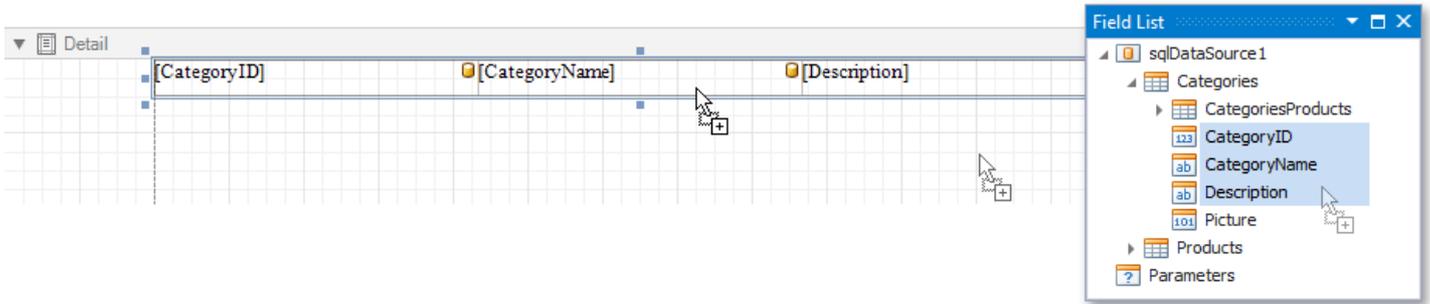


Create tables

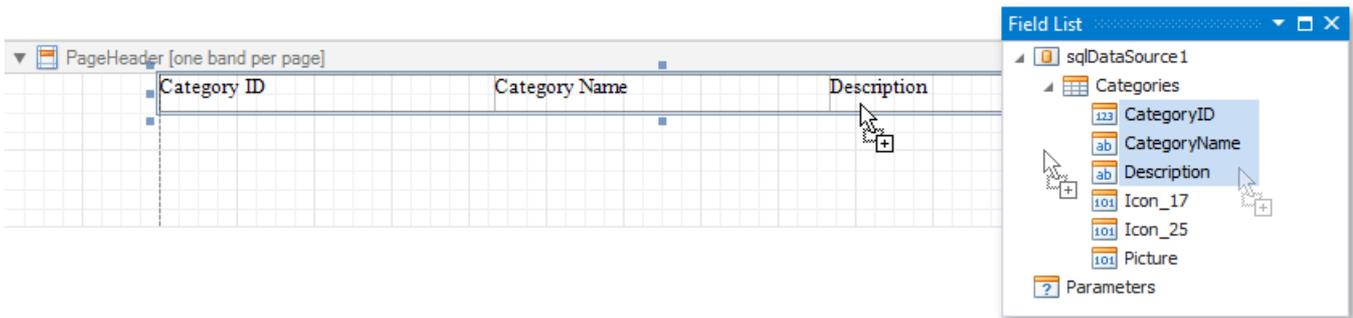
Dropping an entire data table onto a report creates a table with its columns bound to fields contained in the data table.



To select multiple fields, click them with holding the CTRL or SHIFT key. Dropping these fields onto a report creates a new table with its cells bound to the corresponding fields.



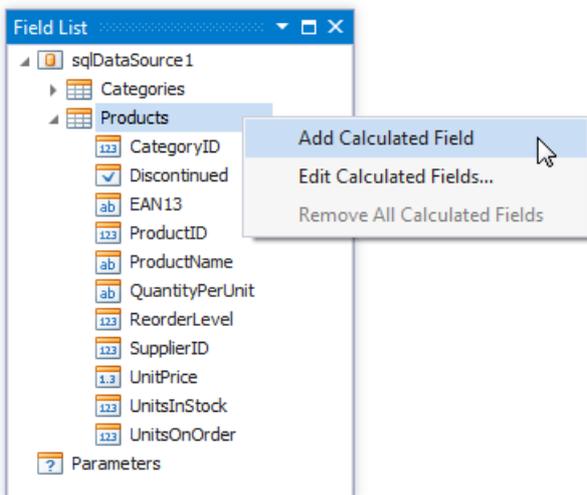
To create column headers, right-click the required fields with holding the CTRL or SHIFT key and drop them onto a report surface. This creates a new table with its cells displaying the field names.



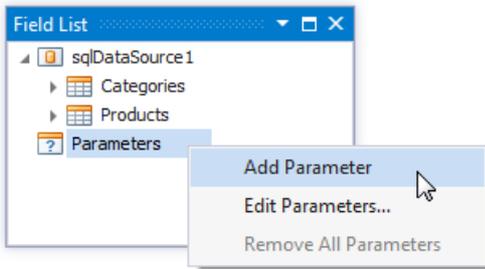
Data shaping operations

In addition, the Field List can help you solve the following tasks:

- Add [calculated fields](#) to data columns for performing various calculations in a report.

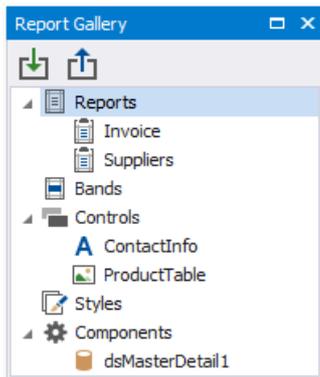


- Manage the collection of [report parameters](#).



Report Gallery

The **Report Gallery** allows you to store and reuse reports and their elements.

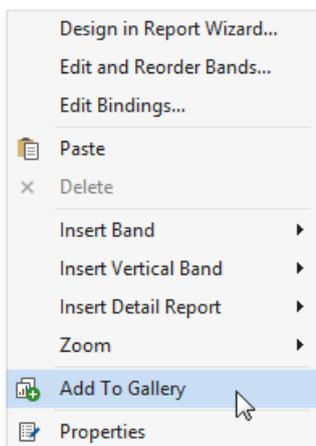


Do not confuse the Report Gallery with the [Report Explorer](#) that has a similar user interface. The Report Gallery stores shared templates. The Report Explorer displays the current report structure.

Reports

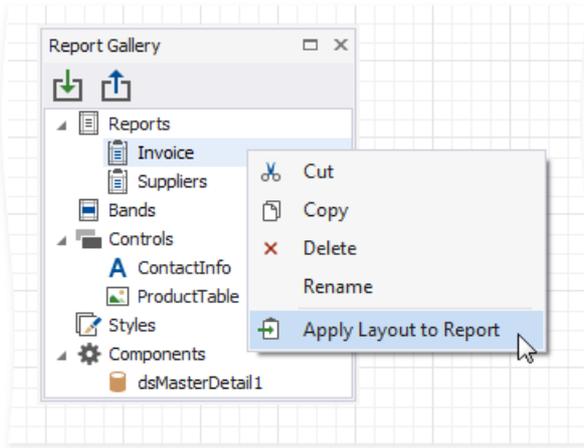
The Report Gallery displays report layout templates in the **Reports** category.

To create a new template, right-click an empty area around the design surface and select **Add To Gallery** in the context menu. The report's **Name** property value defines the template name.

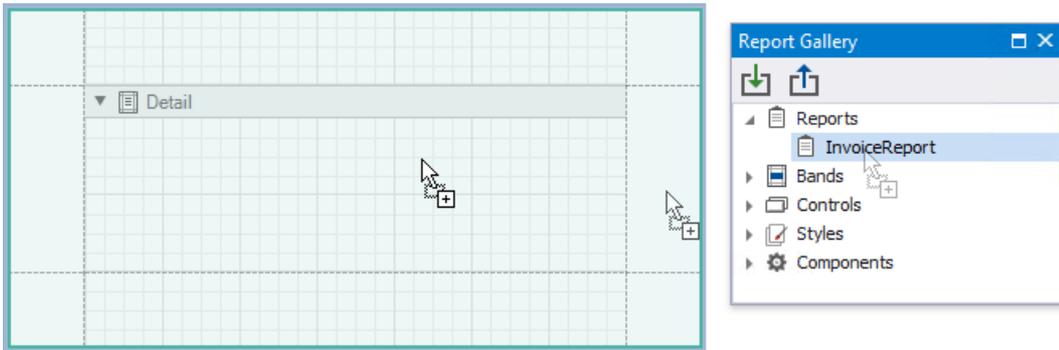


Do one of the following to apply a template to the current report:

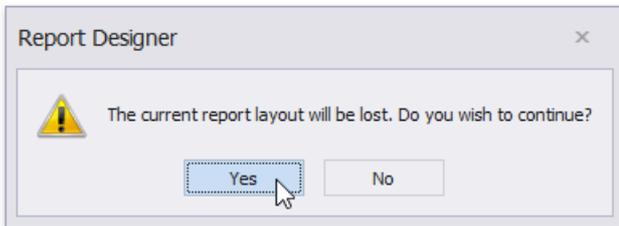
- Right-click the template in the Report Gallery and select **Apply Layout to Report**.



- Drag and drop the template from the Report Gallery onto the report.



The following dialog warns you that the template overrides the current layout:

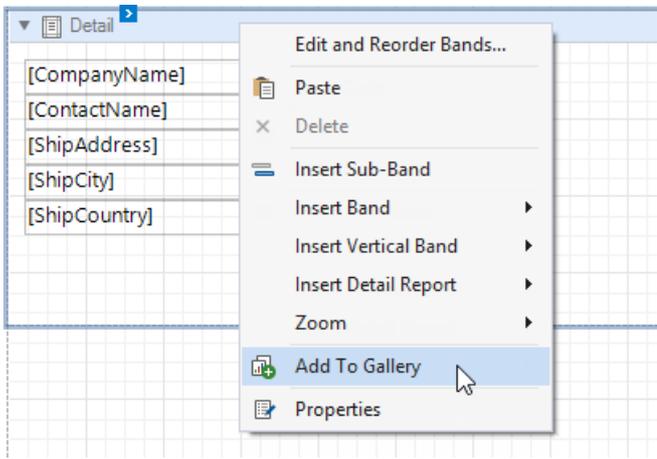


When you apply the report template, all the associated styles and components are added to the current report as well.

Bands

The Report Gallery's **Bands** category contains [band](#) templates.

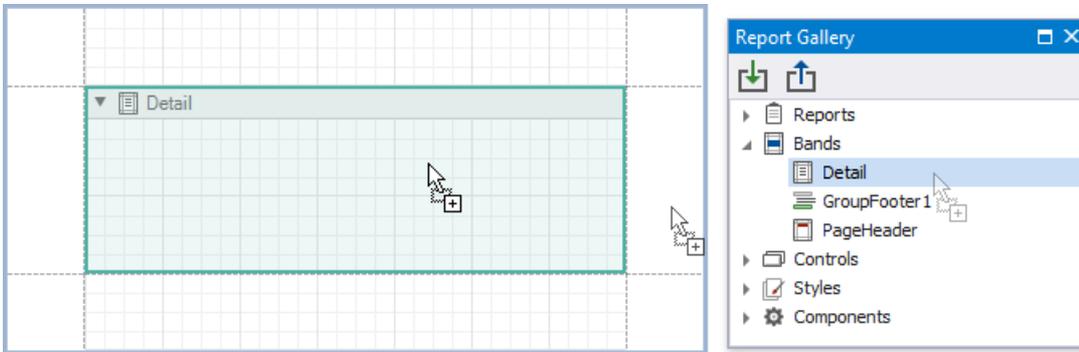
To create a new template, right-click a report band and choose **Add To Gallery** in the context menu. The band's **Name** property value defines the template name.



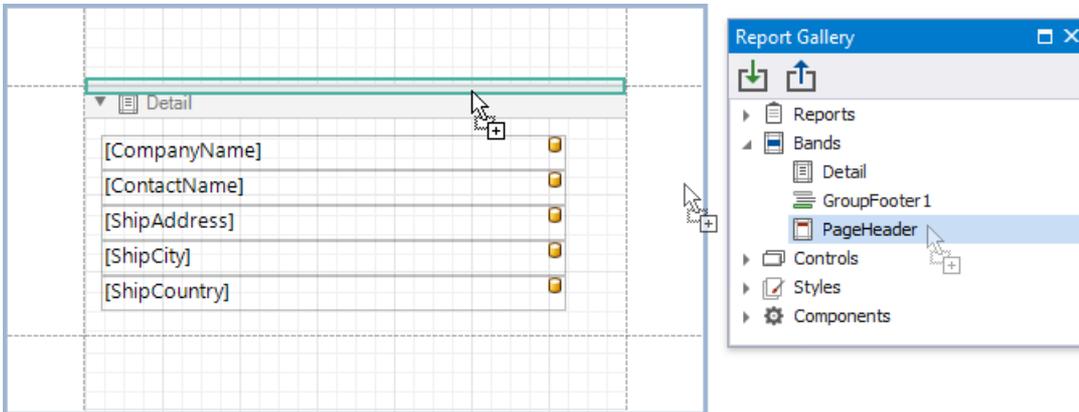
Use the following ways to apply a band template:

- **Drag and Drop**

Drag and drop the template from the Report Gallery onto the band of the same type to replace the band's content.



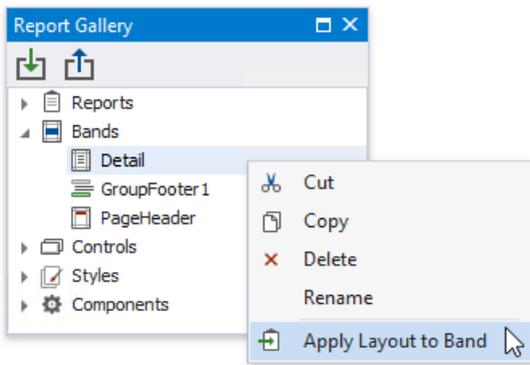
To create a new band, move the mouse cursor to the delimiter between bands and drop the template.



You can always create new Detail Report bands and Group Headers/Footers. You can add the Report Header/Footer or Page Header/Footer only if the report does not contain this band.

- **Gallery Context Menu**

Right-click a template in the Report Gallery and choose **Apply Layout to Band** in the context menu.



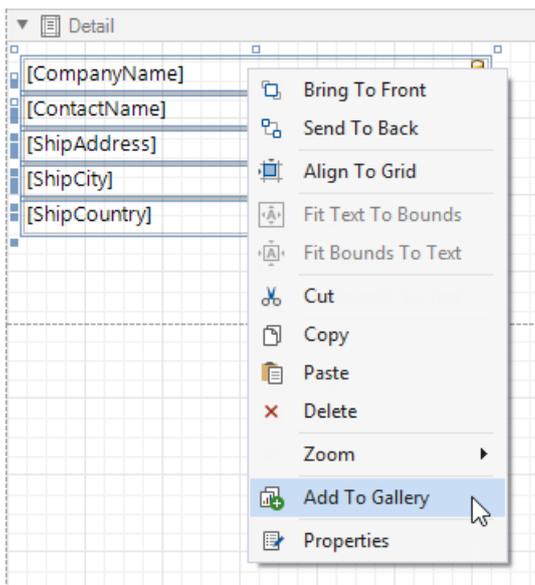
This action's behavior depends on the template's band type and the selected report band.

TEMPL ATE' S BAND T YPE	ACTION RESULT
Detail Band, Vertical Detail Band, Top Margin, Bottom Margin	Replaces the corresponding band's content independently from the selected band type.
Group Header, Group Footer, Detail Report Band	If the same band is selected in the report, replaces the band's content. Otherwise, adds a new band to the deepest hierarchy level.
Report Header, Report Footer, Page Header, Page Footer, Vertical Header, Vertical Footer	If the same band exists in the report, replaces the band's content. Otherwise, adds a new band.

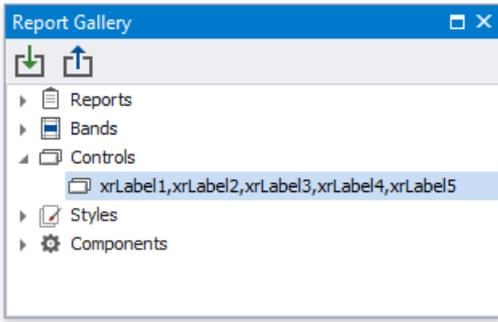
Note that the template stores settings related to the band and its controls ([binding information](#), [appearance options](#), etc). All these settings are restored when you apply the template.

Controls

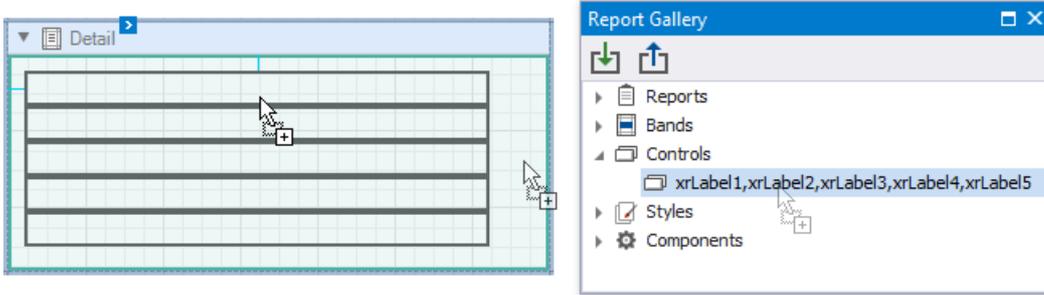
You can combine [report controls](#) from the same band into a template. Hold down SHIFT or CTRL and select controls. Then, right- click the selection and choose **Add To Gallery** in the context menu.



This adds a new template to the **Controls** section. The template name consists of control names separated by commas.



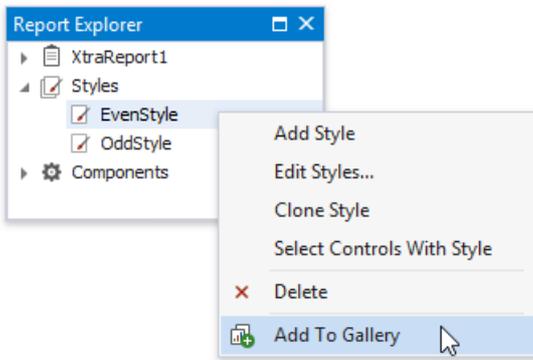
To apply a control template, drag and drop it from the Report Gallery onto a band.



All the control settings are restored when you apply the template.

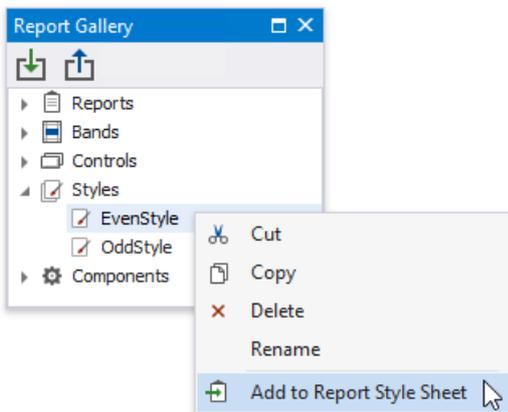
Styles

Right-click a style in the Report Explorer and select **Add To Gallery** to create a new template in the **Styles** category.



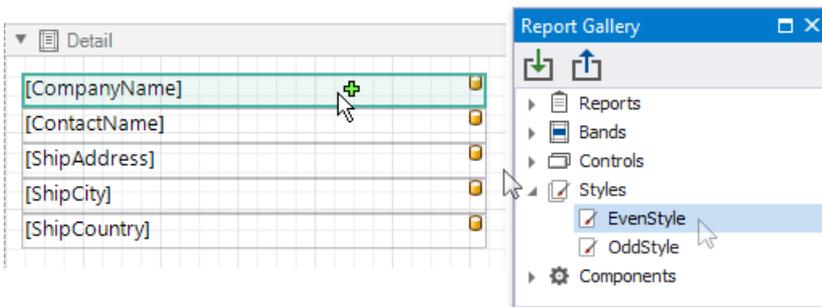
Use the following ways to apply a style template:

- To add the style to the report's [style sheet](#), right-click the style in the Report Gallery and select **Add to Report Style Sheet**.



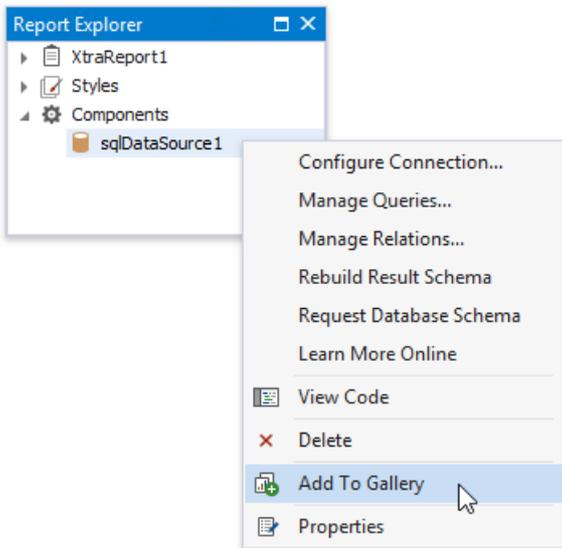
You can also use the same action in the **Styles** node's context menu to add all the styles available in the Report Gallery.

- To apply the style to a specific report control, drag and drop this style from the Report Gallery onto this control. This also adds the selected style to the report style sheet if it does not already contain this style.



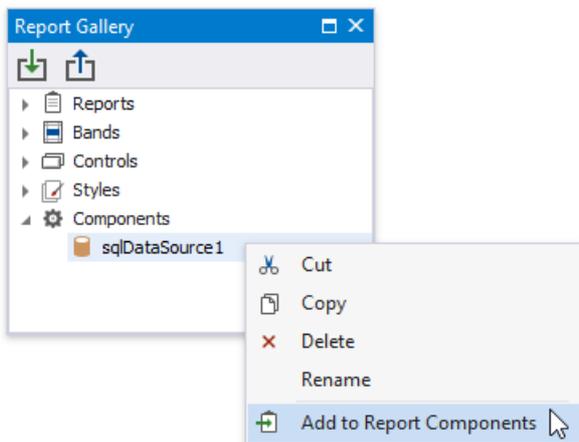
Components

Right-click a data source in the Report Explorer and select **Add To Gallery** to create a new template in the **Components** category.



Do one of the following to apply a data source template:

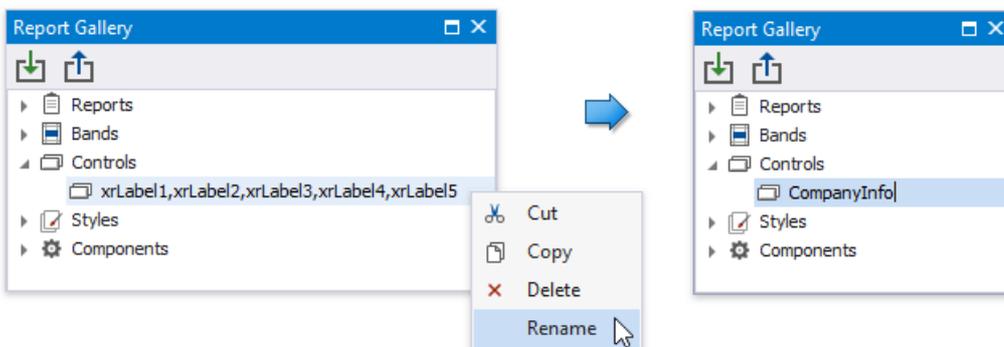
- Right-click the template in the Report Gallery and select **Add to Report Components** in the context menu.



- Drag and drop the template from the Report Gallery onto the report.

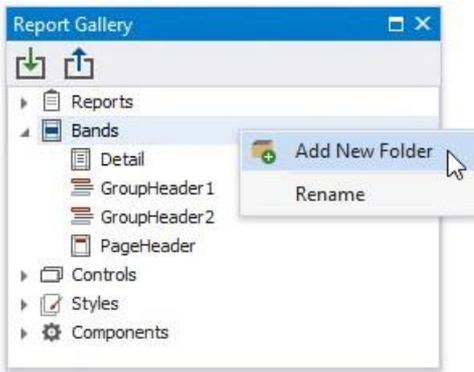
Rename Templates

To change the template name, select **Rename** in the template's context menu and type a new name.

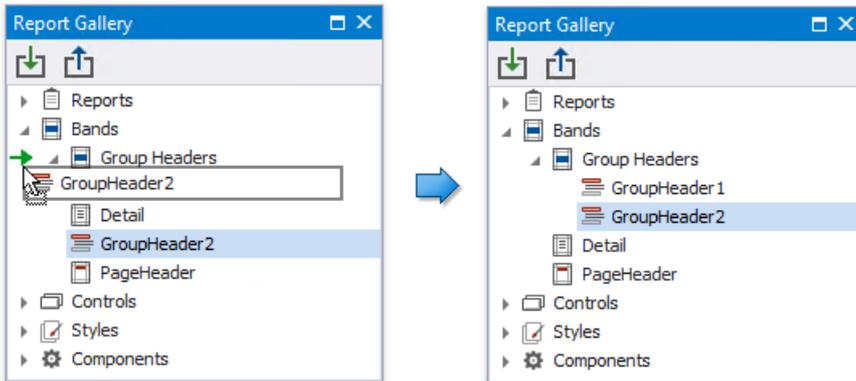


Group Templates

Right-click a root Gallery node and select **Add New Folder** in the context menu.

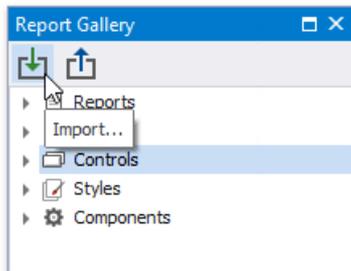


Specify the folder name. Move templates to this folder to combine them into a group.



Import and Export Templates

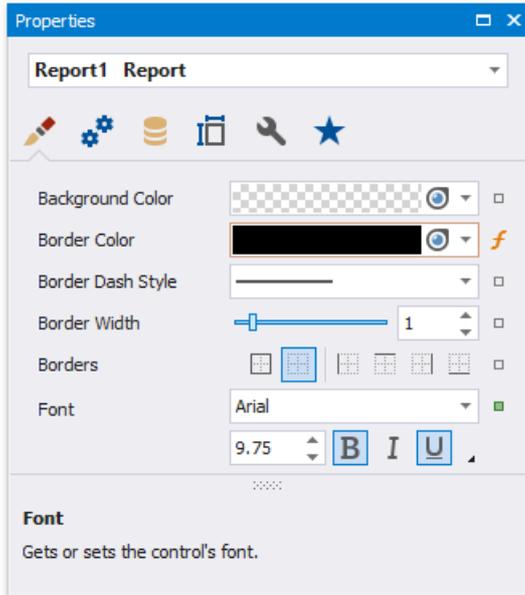
You can import gallery items from an XML file. Right-click the **Import** toolbar button, locate a file in the invoked **Open** dialog and click **OK**.



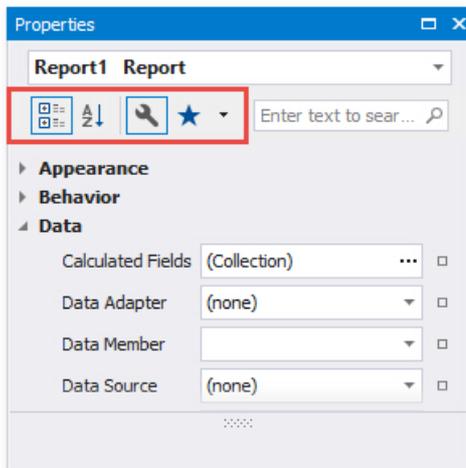
To save gallery templates to an XML file, click the **Export** toolbar button and select a target file in the **Save** dialog.

Property Grid (Tabbed View)

The **Property Grid** allows you to access and customize report/report element settings.



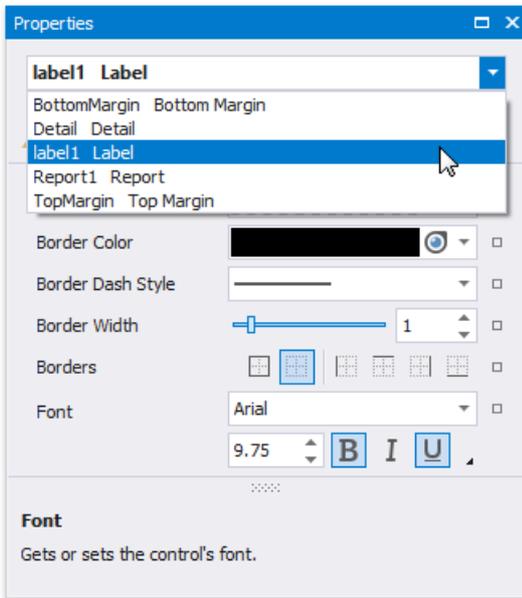
See the [Property Grid \(Non-Tabbed View\)](#) topic if your Property Grid does not display tabs.



Select a Report Element

Perform one of the following actions to select an element and show its properties in the

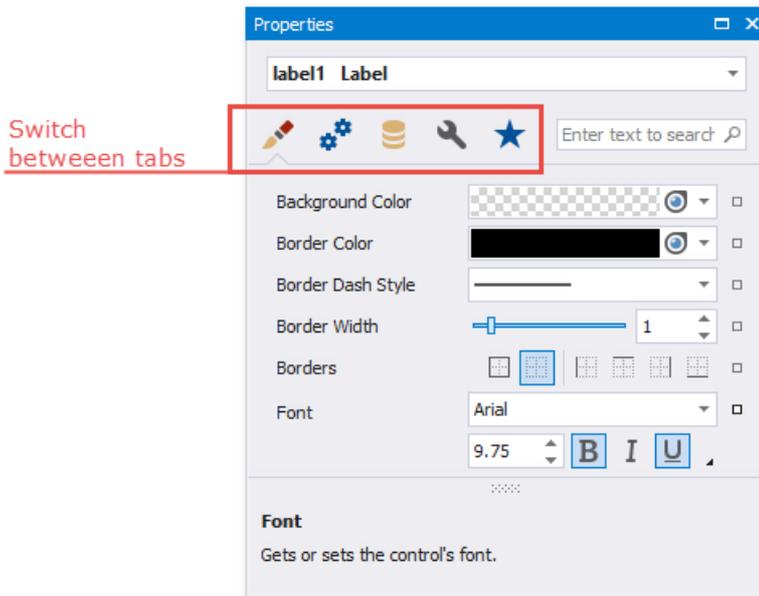
- Property Grid: Select an element in the drop-down list at the top of the Property Grid.



- Click an element in the [design surface](#). Select an element in the [Report Explorer](#).

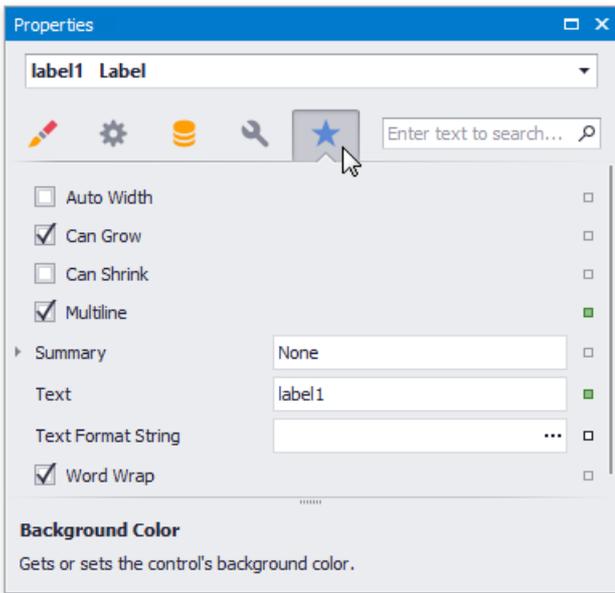
Property Grid Tabs

The Property Grid displays properties in tabs. The active tab is activated at the application's next start.

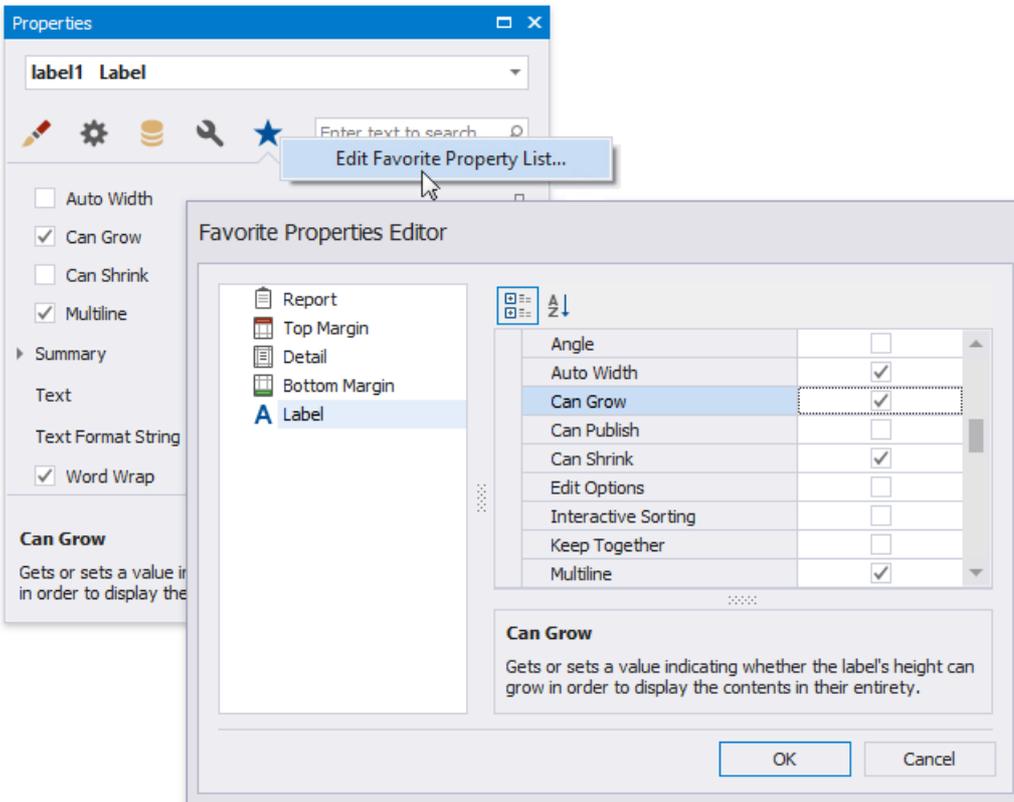


Favorite Properties

The **Favorites** tab displays favorite or most frequently used properties.

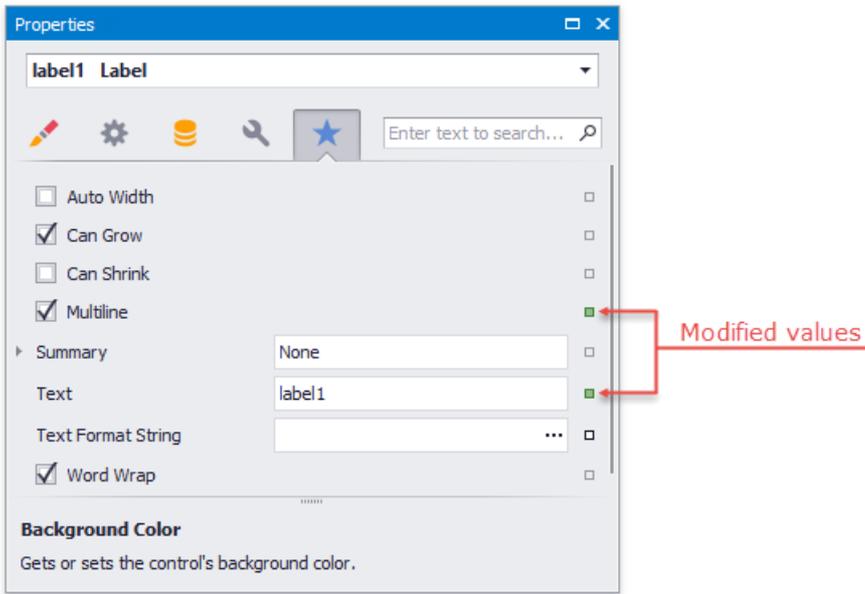


Click the **Edit Favorite Property List** context menu item to set up the favorite properties. Enable check boxes for the controls' properties in the invoked **Favorite Properties Editor** to include these properties into the favorite list.

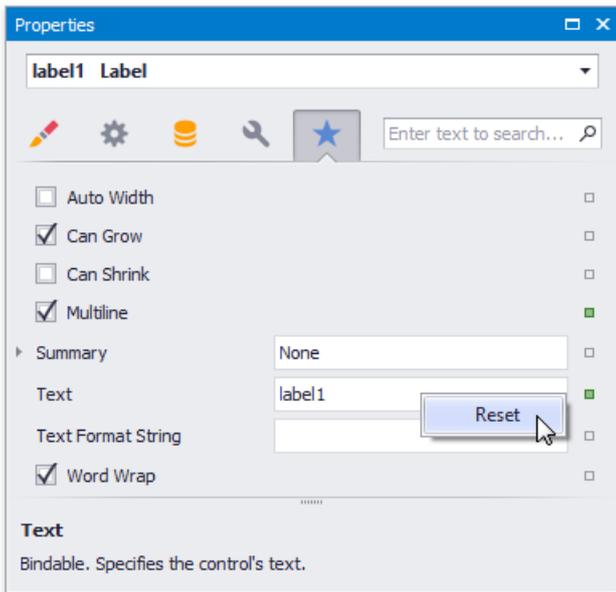


Change Property Values

The Property Grid adds a green property marker to properties if their default value changes.

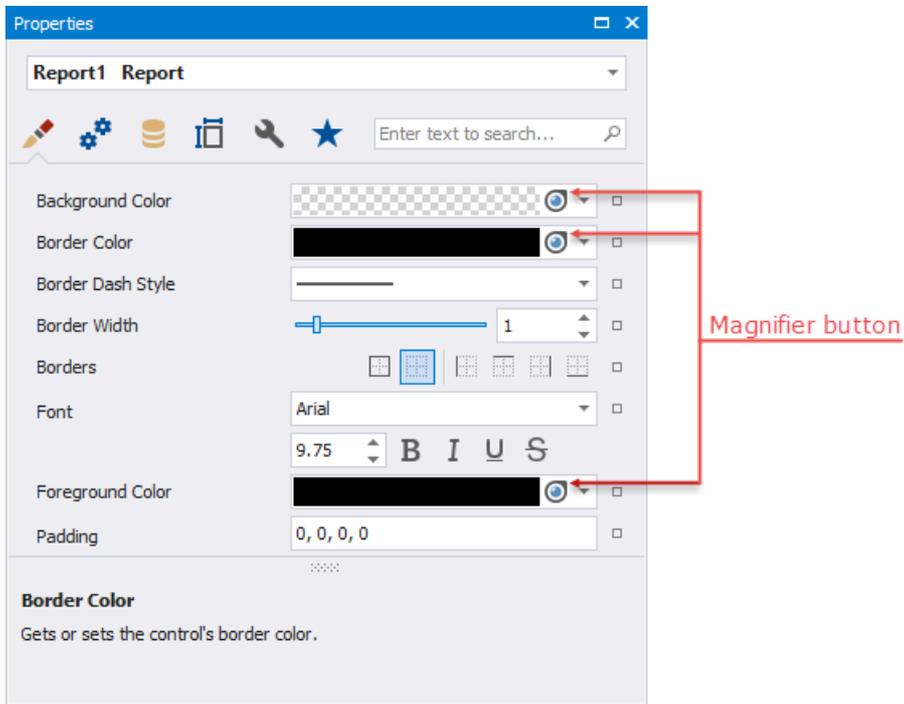


Right-click a property's editor to reset the value.



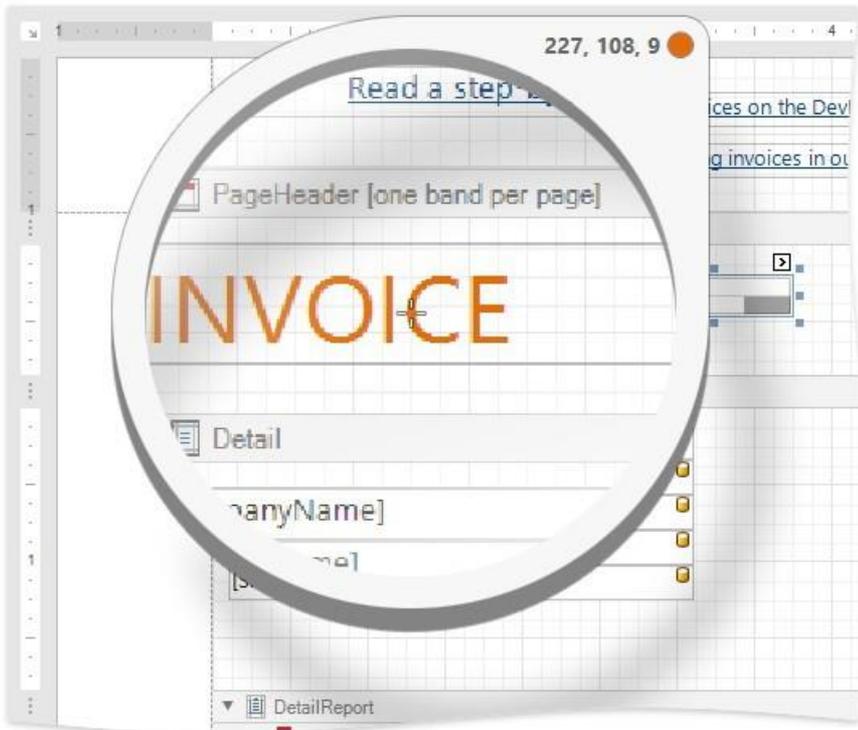
Set Color Properties

You can use the Magnifier to set color properties.



Do the following to use the

- Magnifier: Click the
 - Magnifier button.
 - Move the invoked Magnifier on the screen to find the color you want to set.

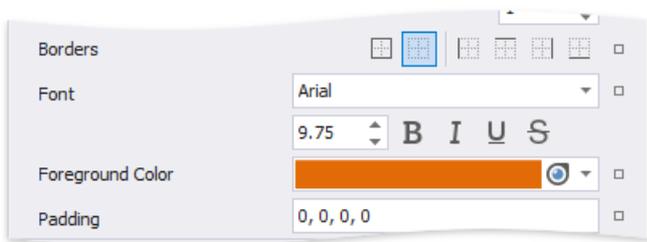


You can use the Magnifier to zoom out. Use one of the following

- options to do this: Hold Ctrl and press + / -
- Scroll the mouse wheel

Click to set the color property to the selected color.

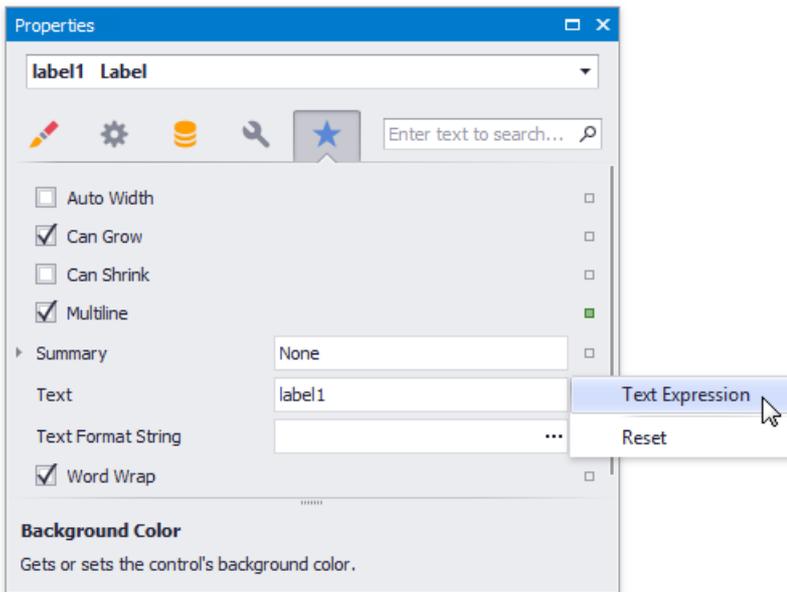


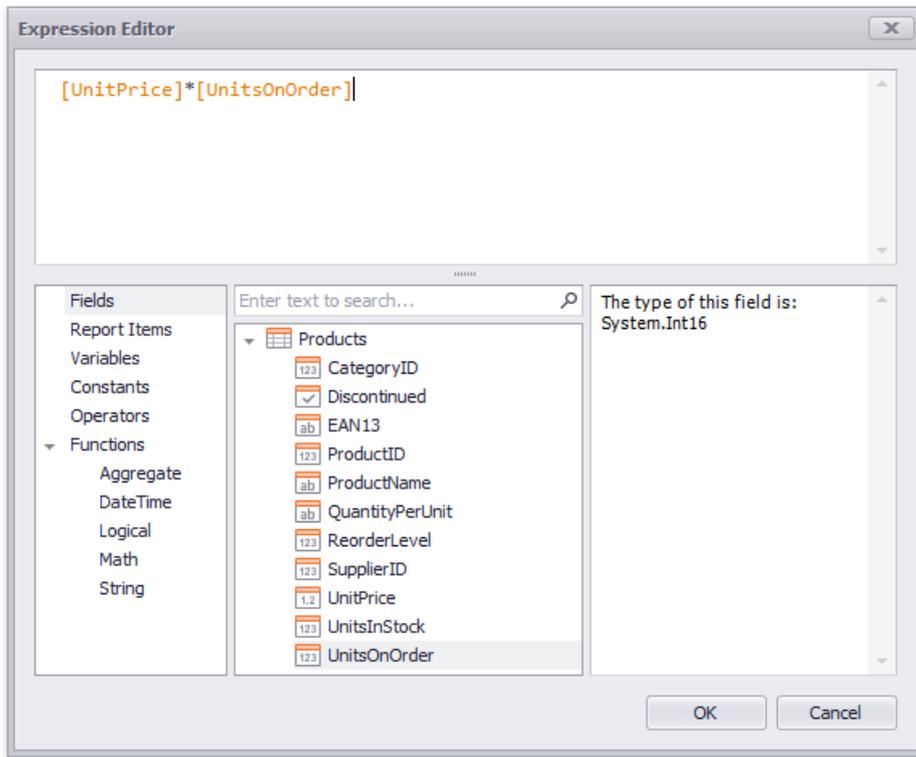


Right click or press Esc to cancel the Magnifier mode.

Specify Expressions

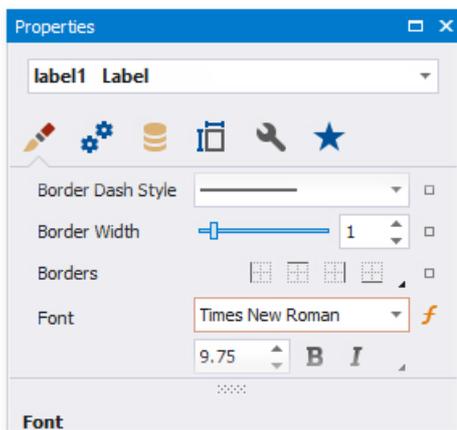
If [expression bindings](#) are enabled, the Property Grid allows you to specify expressions that can include two or more data fields and various functions. Click a property's marker to see whether the invoked context menu has the **PropertyName Expression** item.



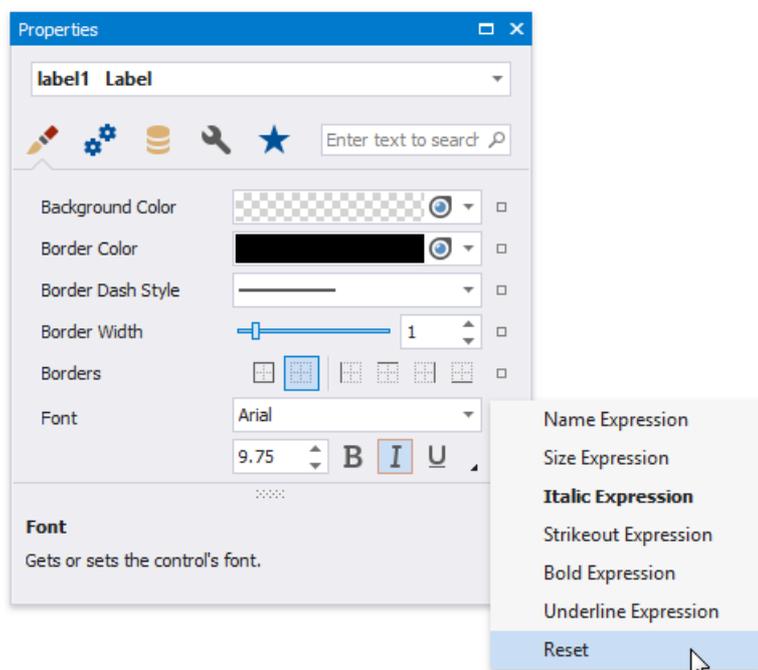


Click this item to specify an expression in the invoked Expression Editor.

The Property Grid highlights properties that have an assigned expression.



Click a property's marker and choose **Reset** to reset the property value.

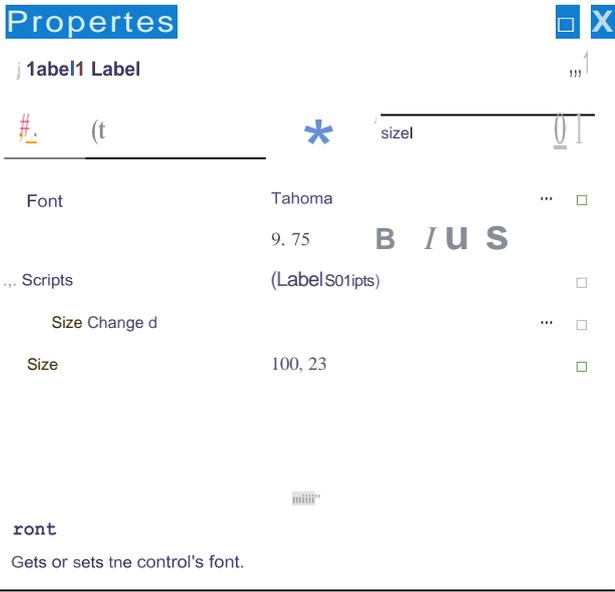


O Not e

The **Reset** command resets both the expression and the value you specified using the property editor.

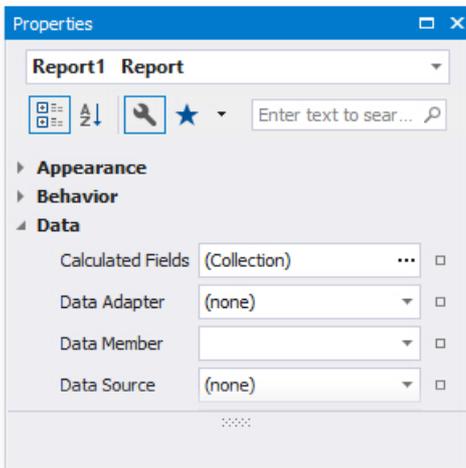
Search Properties

The Property Grid's search box allows you to search for a property. When you type within the search box, the Property Grid automatically creates a search criteria based on the entered text and filters the list of available properties.

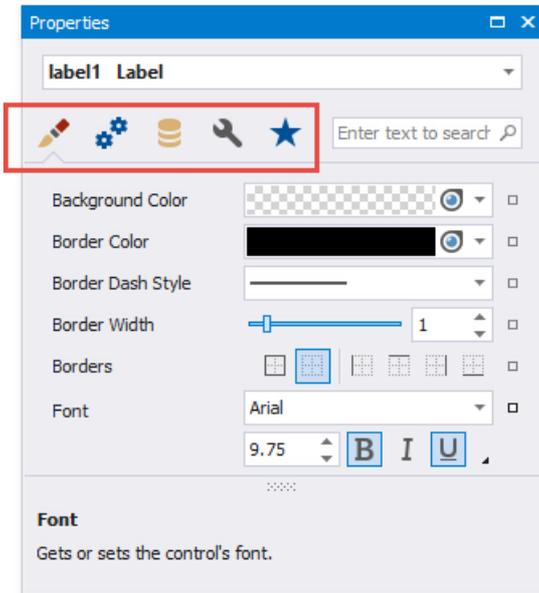


Property Grid (Non-Tabbed View)

The **Property Grid** allows you to access and customize report/report element settings.



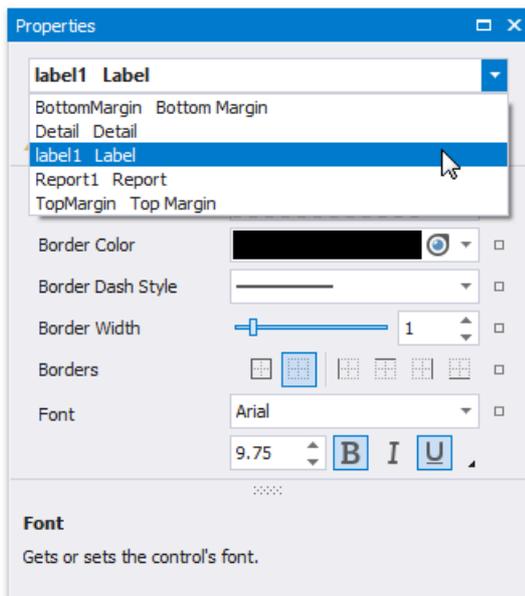
See the [Property Grid \(Tabbed View\)](#) topic if your Property Grid arranges properties in tabs.



Select a Report Element

Perform one of the following actions to select an element and show its properties in the

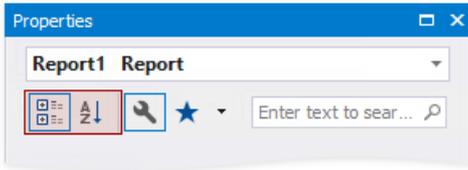
- Property Grid: Select an element in the drop-down list at the top of the Property Grid.



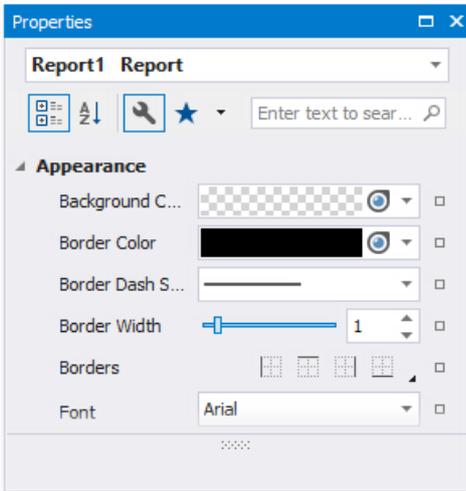
- Click an element in the [design surface](#). Select an element in the
- [Report Explorer](#).

Categorized and Alphabetical Modes

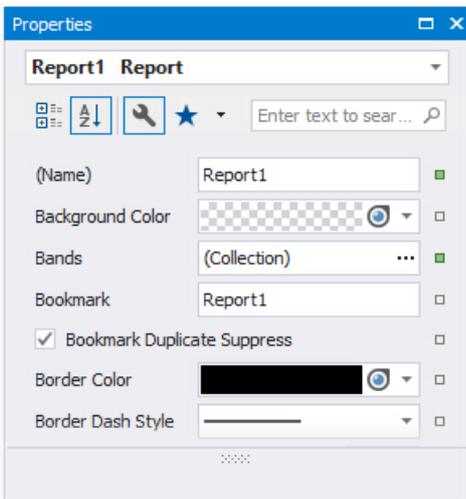
You can switch between categorized and alphabetical modes.



- In the categorized mode, properties are listed in a tree-like form.

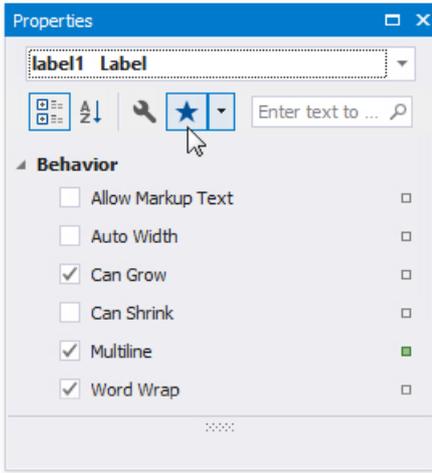


- In the alphabetical mode, all properties are displayed in a single list and are sorted alphabetically by name.

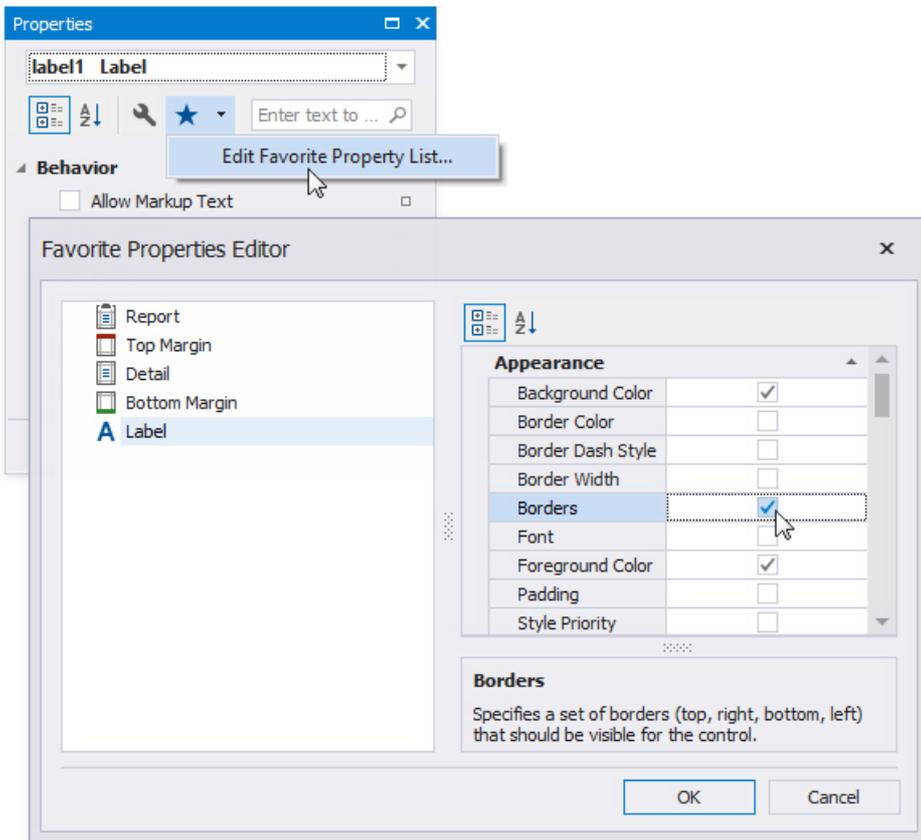


Favorite Properties

The **Favorites** tab displays favorite or most frequently used properties.

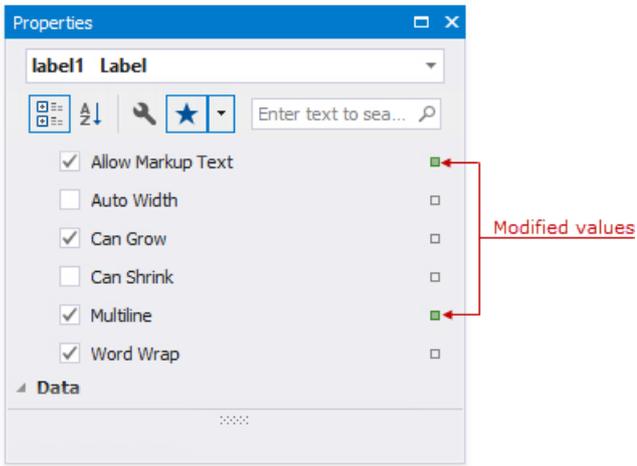


Click the **Edit Favorite Property List** context menu item to set up the favorite properties. Enable check boxes for the controls' properties in the invoked **Favorite Properties Editor** to include these properties into the favorite list.

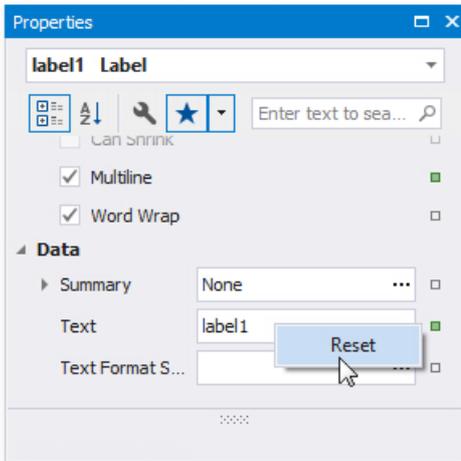


Change Property Values

The Property Grid adds a green property marker to properties if their default value changes.

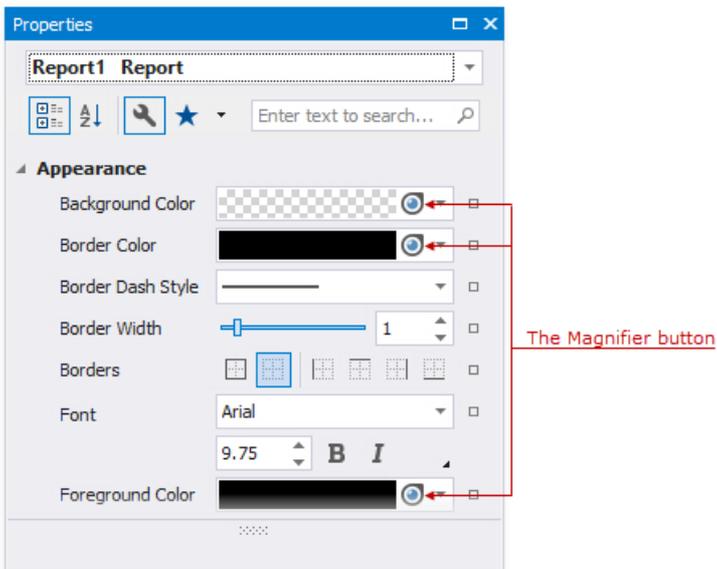


Right-click a property's editor to reset the value.



Set Color Properties

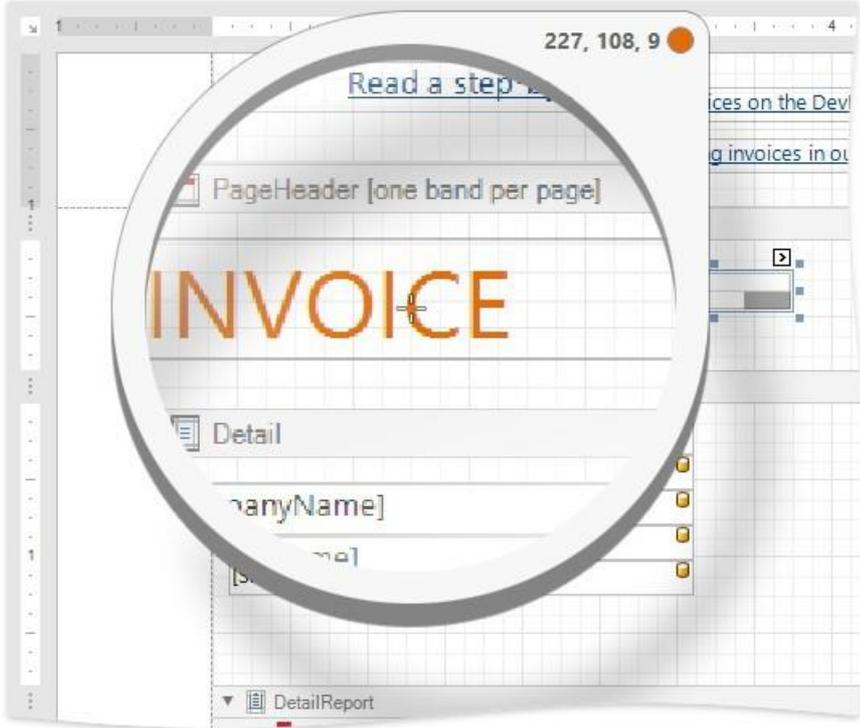
You can use the Magnifier to set color properties.



Do the following to use the
OneStream XF Studio Report Design Guide

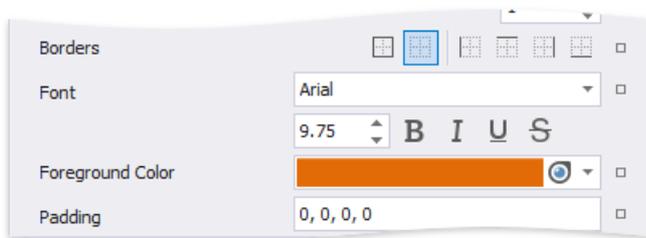
Magnifier: Click the

- Magnifier button.
- Move the invoked Magnifier on the screen to find the color you want to set.



You can use the Magnifier to zoom out. Use one of the following options to do this:

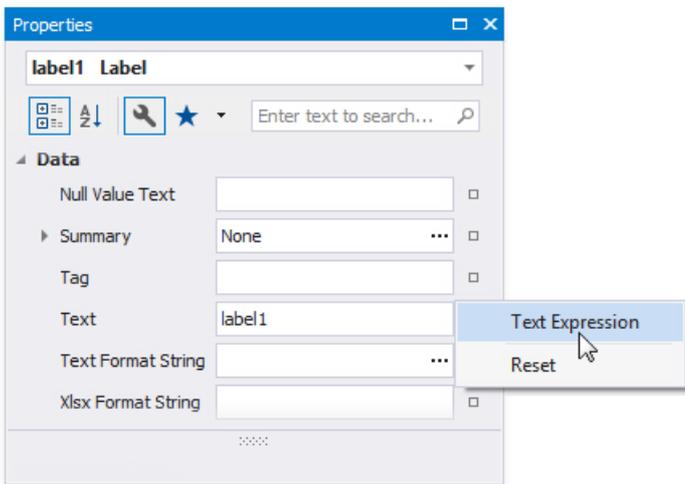
- Hold Ctrl and press + / - Scroll the mouse wheel
- Click to set the color property to the selected color.



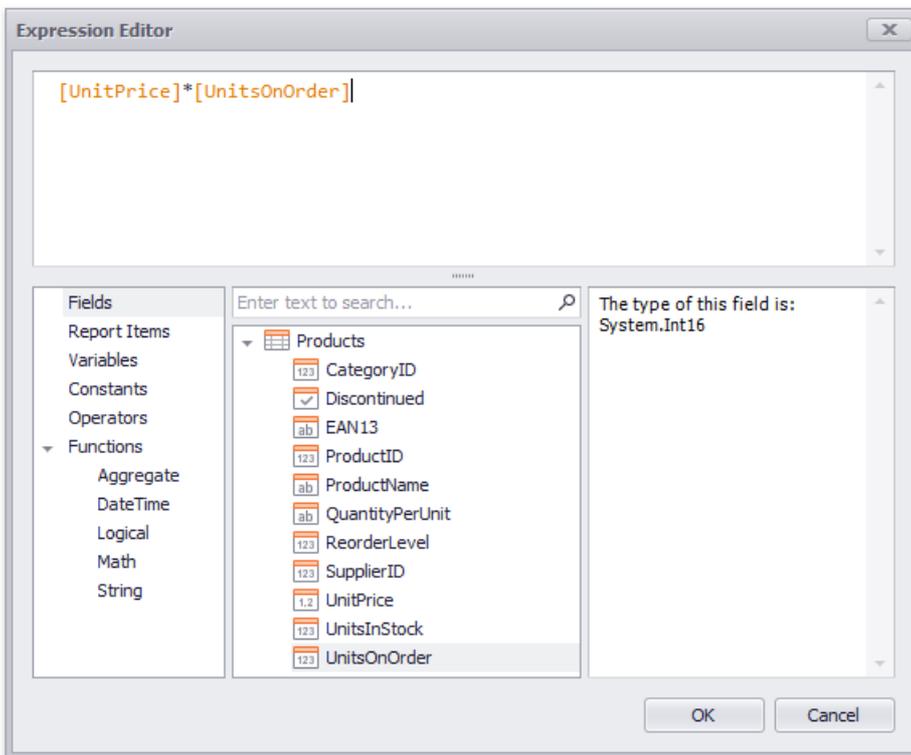
Right click or press Esc to cancel the Magnifier mode.

Specify Expressions

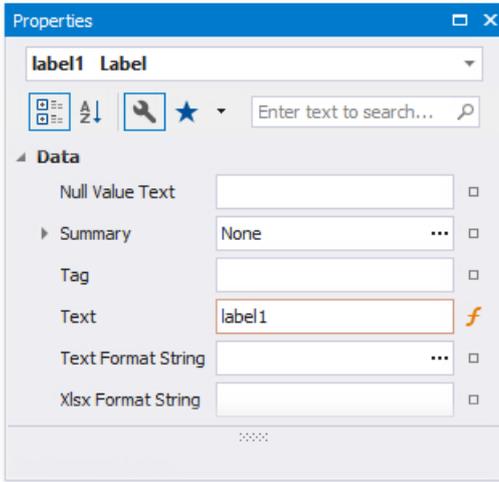
If [expression bindings](#) are enabled, the Property Grid allows you to specify expressions that can include two or more data fields and various functions. Click a property's marker to see whether the invoked context menu has the **PropertyName Expression** item.



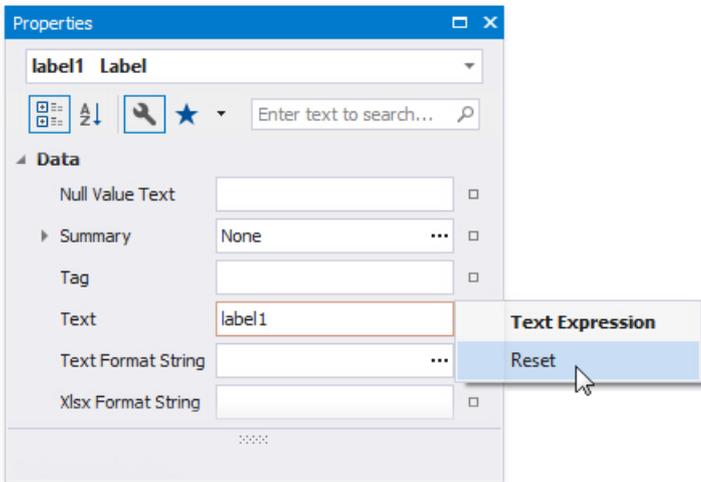
Click this item to specify an expression in the invoked Expression Editor.



The Property Grid highlights properties that have an assigned expression.



Click a property's marker and choose **Reset** to reset the property value.

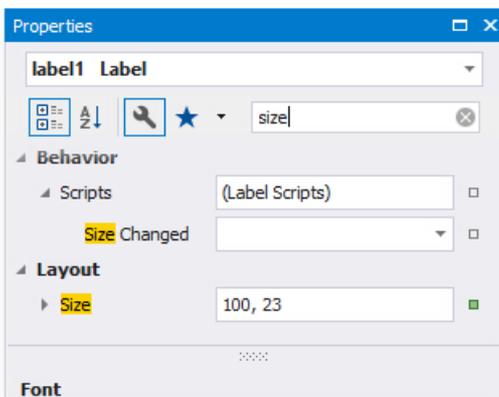


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The **Reset** command resets both the expression and the value you specified using the property editor.

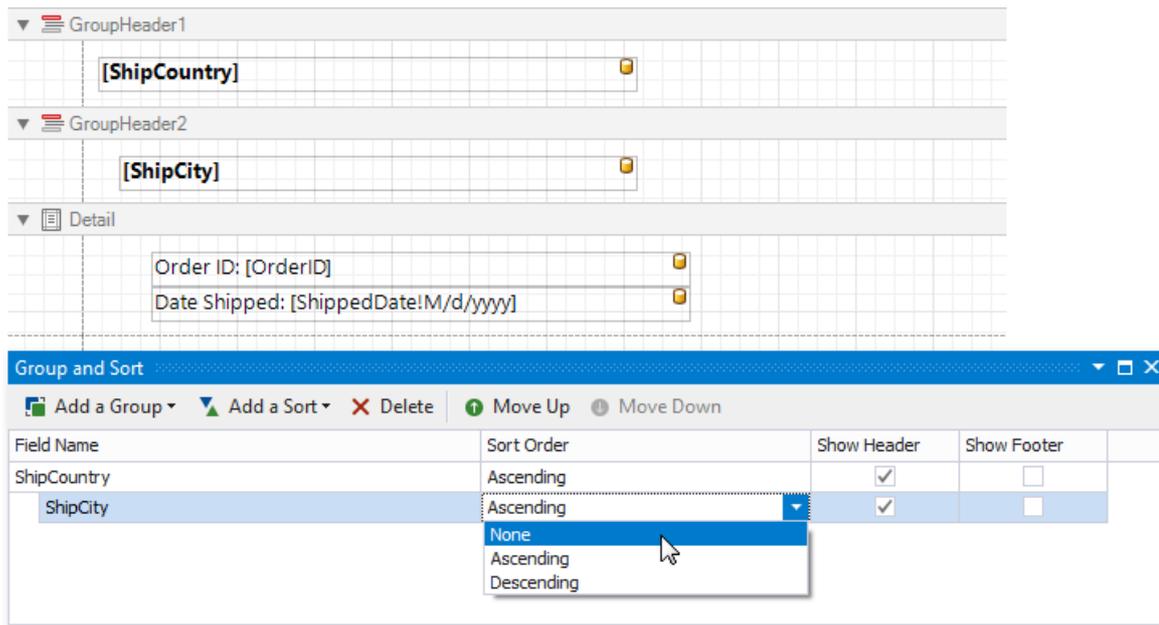
Search Properties

The Property Grid's search box allows you to search for a property. When you type within the search box, the Property Grid automatically creates a search criteria based on the entered text and filters the list of available properties.



Group and Sort Panel

The **Group and Sort Panel** allows you to quickly apply [grouping](#) and [sorting](#) to your report data.



To create a new grouping or sorting criterion, simply click **Add a Group** or **Add a Sort**.

Then, to control whether the corresponding [Group Header or Footer band](#) should be displayed, use the **Show Header** and **Show Footer** check boxes.

The **Sort Order** drop-down list allows you to specify a sorting mode (ascending or descending) or disable sorting.

You can change the order in which multiple grouping and sorting criteria are to be performed, using the **Move Up** and **Move Down** buttons.

To remove a grouping or sorting criterion, select it, and click **Delete**.

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If the Group and Sort Panel is hidden, you can enable it To do this, select in the **Windows | Group and Sort** on the [Toolbar's](#)

View page