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# Document Viewer

The Web Document Viewer displays an interactive preview of a document generated from a report that is designed in the DevExpress Reporting platform. The Document Viewer allows the user to view, print, and export the report document.

The Viewer has a toolbar with commands that allows you to view, navigate, print and export the document. The Viewr's side panel has tabs that open the **Parameters** panel to specify report parameters, the **Export Options** panel to specify export settings for different formats, the **Search** panel for text search in the document, and the **Document Map** that allows you to navigate the bookmarks in the document.

The screenshot shows the DevExpress Document Viewer interface. At the top is a toolbar with navigation buttons (back, forward, first, last), a page number dropdown (1 of 5), a zoom dropdown (100%), and various export/print icons. To the right of the toolbar is a vertical sidebar with icons for Filter, Settings, Search, and Document Map. The main content area displays a report titled "Customer list with order information". The report includes a header stating "Orders with purchase dates from 11/20/2016 to 12/20/2016". It features two sections, each with a table of order details. The first section is for Customer: Jane Doe, showing 5 orders with a total amount of \$485,038.00. The second section is for Customer: Sam Hill, showing 4 orders with a total amount of \$230,018.00. Each section includes a summary row at the bottom.

No.	ID	Purchase Date	Time	Payment Type	Amount
5	913	11/26/2016	1:02 PM	Cash	\$164,968.00
5	926	11/30/2016	1:53 PM	AmEx	\$128,000.00
5	955	12/8/2016	3:52 PM	Master	\$62,825.00
5	979	12/15/2016	5:26 PM	Cash	\$49,600.00
5	995	12/20/2016	11:36 AM	Cash	\$79,645.00

Order count: 5      Total Amount: \$485,038.00

No.	ID	Purchase Date	Time	Payment Type	Amount
4	916	11/27/2016	11:02 AM	AmEx	\$17,748.00
4	952	12/7/2016	1:46 PM	AmEx	\$44,320.00
4	963	12/10/2016	6:51 PM	Master	\$118,350.00
4	1000	12/20/2016	7:56 PM	Visa	\$49,600.00

Order count: 4      Total Amount: \$230,018.00

## View and Navigate

- [Navigate Between Pages](#)
- [Navigate Using Bookmarks](#)
- [Search for a Specific Text](#)
- [Switch Multipage Mode](#)
- [Zoom](#)

## Interactivity

- [Edit Content](#)

## Parameters

- [Specify Parameter Values](#)

## **Print**

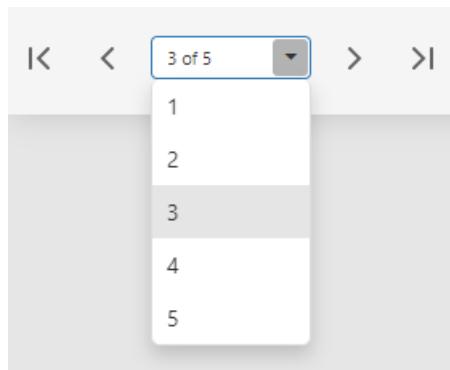
- [Print the Document](#)

## **Export**

- [Export a Document](#)
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- [HTML-Specific Export Options](#)
- [Image-Specific Export Options](#)
- [MHT-Specific Export Options](#)
- [PDF-Specific Export Options](#)
- [RTF-Specific Export Options](#)
- [Text-Specific Export Options](#)
- [XLS-Specific Export Options](#)
- [XLSX-Specific Export Options](#)

# Navigate Between Pages

To navigate to a specific page of a document, select the page number in the dropdown list in the Document Viewer toolbar. Use buttons to navigate to the first, previous, next or last page.



# Navigate Using Bookmarks

If a report contains bookmarks, the **Document Map** tab is displayed, and you can use it to navigate between bookmarks.



## Document Map

To open the panel that contains the document map, click the **Document Map** tab in the Document Viewer side panel. Click the bookmark in the document map to display a page with that bookmark. A document element associated with the bookmark is highlighted.

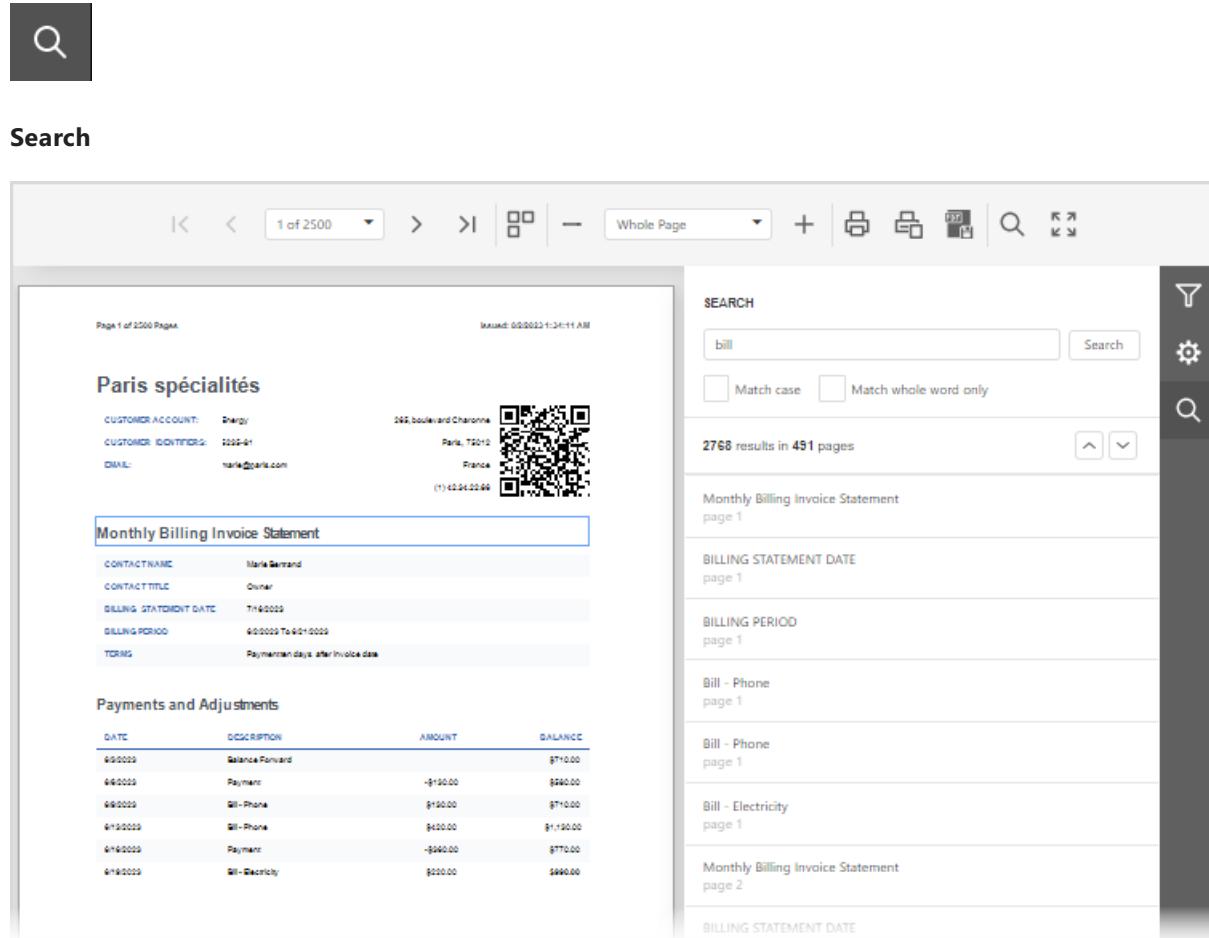
The screenshot shows the Document Viewer interface with the Document Map tab selected. The main area displays two reports. The first report is for 'Customer: Sam Hill' with an order count of 5. The second report is for 'Customer: Karen Holmes' with an order count of 4. The Document Map panel on the right lists bookmarks for each customer, with 'Sam Hill' currently selected. The interface includes standard navigation controls (back, forward, search, etc.) at the top.

**DOCUMENT MAP**

- Subreport-Based Report
  - Jane Doe
  - Sam Hill**
  - Karen Holmes
  - Bobbie Valentine
  - Frank Frankson
  - Christa Christie
  - Jimmie Jones
  - Alfred Newman
  - James Johnson
  - Robert James
  - Juno Alessandro

# Search for Text

To search for text in a document, click the **Search** tab in the Document Viewer side panel or the **Search** button in the toolbar.



The **Search** panel allows you to enter a string to find and specify whether to use case-sensitive search and whether it is required to match the whole word during the search. To start the search, press ENTER or click the **Search** button. Click **Stop** to stop the search process. You can use the **up** and **down** buttons to navigate the document's search results.

The **Search** panel displays a list of matching words in the document. You can click the item in the **Search Result** list to navigate to the location in the document and highlight the element that contains the match.

# Switch Multipage Mode

You can switch between the Single Page and MultiPage modes with the **Toggle Multipage Mode** button located in the Document Viewer toolbar.



## Toggle Multipage Mode

In the default single page mode, the Document Viewer displays only one page. You can navigate between document pages with the navigation buttons and dropdown list (see [Navigate Between Pages](#)).

The screenshot shows the Document Viewer interface in Single Page mode. At the top, there is a toolbar with various icons: back, forward, search, zoom, and document-related functions. Below the toolbar, the main content area displays a "Customer list with order information" report. The report includes a header with customer details (Customer: Jane Doe, Company: Doe Enterprises, Occupation: Owner) and a table of purchase orders. The table has columns for No., ID, Purchase Date, Time, Payment Type, and Amount. It lists five entries for Jane Doe. Below the table, it says "Order count: 5" and "Total Amount: \$485,038.00". Another section shows details for Sam Hill (Customer: Sam Hill, Company: Hill Corporation, Occupation: Developer) with a table of four entries. To the right of the content area, there is a vertical sidebar with icons for filter, settings, search, and other document-related functions.

No.	ID	Purchase Date	Time	Payment Type	Amount
5	913	11/26/2016	1:02 PM	Cash	\$164,968.00
5	926	11/30/2016	1:53 PM	AmEx	\$128,000.00
5	955	12/8/2016	3:52 PM	Master	\$62,825.00
5	979	12/15/2016	5:26 PM	Cash	\$49,600.00
5	995	12/20/2016	11:36 AM	Cash	\$79,645.00

No.	ID	Purchase Date	Time	Payment Type	Amount
4	916	11/27/2016	11:02 AM	AmEx	\$17,748.00
4	952	12/7/2016	1:46 PM	AmEx	\$44,320.00
4	963	12/10/2016	6:51 PM	Master	\$118,350.00
4	1000	12/20/2016	7:56 PM	Visa	\$49,600.00

In the multipage mode, the Document Viewer displays several document pages, the pages can be partially visible. In addition to the standard navigation features, there is a vertical scroll bar that allows you to scroll through pages.

Order details 1					Total Amounts \$13,317,234.00	
Customer: <b>John Doe</b>		Company: <b>Acme Works</b>			Description: <b>Paint House</b>	
No.	ID	Purchase Date	Time	Payment Type	Amount	
1	001	12/21/2016	12:00 AM	Bank	\$12,000.00	
2	002	12/22/2016	12:00 AM	Cash	\$1,000.00	
3	003	12/23/2016	12:00 AM	Cash	\$1,000.00	
4	004	12/24/2016	12:00 AM	Bank	\$1,000.00	
5	005	12/25/2016	12:00 AM	Cash	\$1,000.00	
6	006	12/26/2016	12:00 AM	Cash	\$1,000.00	

Order details 2					Total Amounts \$1343,013.00	
Customer: <b>John Doe</b>		Company: <b>Acme Works</b>			Description: <b>Paint House</b>	
No.	ID	Purchase Date	Time	Payment Type	Amount	
1	001	12/23/2016	12:00 AM	Bank	\$12,000.00	
2	002	12/24/2016	12:00 AM	Cash	\$1,000.00	
3	003	12/25/2016	12:00 AM	Cash	\$1,000.00	
4	004	12/26/2016	12:00 AM	Cash	\$1,000.00	

Order details 3					Total Amounts \$13,313,231.00	
Customer: <b>John Doe</b>		Company: <b>Acme Works</b>			Description: <b>Paint House</b>	
No.	ID	Purchase Date	Time	Payment Type	Amount	
1	001	12/21/2016	12:00 AM	Bank	\$12,000.00	
2	002	12/22/2016	12:00 AM	Cash	\$1,000.00	
3	003	12/23/2016	12:00 AM	Cash	\$1,000.00	
4	004	12/24/2016	12:00 AM	Cash	\$1,000.00	
5	005	12/25/2016	12:00 AM	Cash	\$1,000.00	
6	006	12/26/2016	12:00 AM	Cash	\$1,000.00	

Order details 4					Total Amounts \$172,888.00	
Customer: <b>Very Bad</b>		Company: <b>Very Bad Systems</b>			Description: <b>Very Bad</b>	
No.	ID	Purchase Date	Time	Payment Type	Amount	
1	001	12/22/2016	2:00 PM	Bank	\$4,000.00	
2	002	12/23/2016	2:00 PM	Cash	\$20,000.00	
3	003	12/24/2016	2:00 PM	Cash	\$20,000.00	
4	004	12/25/2016	2:00 PM	Cash	\$20,000.00	
5	005	12/26/2016	2:00 PM	Cash	\$20,000.00	
6	006	12/27/2016	2:00 PM	Cash	\$20,000.00	

↓

↓



# Zoom

To zoom in or out of a document, click the **Zoom In** or **Zoom Out** button on the Document Viewer toolbar. These buttons change the current zoom factor by 5 percent.

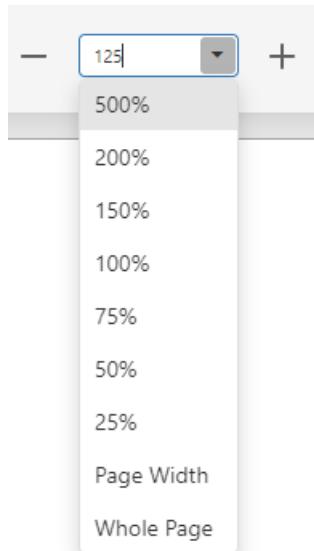


Zoom In



Zoom Out

You can enter the desired zoom factor in the combobox editor or select one of the zoom factor presets in the drop-down list.



# Content Editing

A report may contain elements with editable fields, and you can edit field values in the Document Viewer.



## Highlight Editing Fields

To highlight all editable fields in the document, click the **Highlight Editing Fields** button on the toolbar. This button is disabled if there are no such fields in the document.

When you click an editable field, the appropriate editor is invoked. You can edit text in labels and table cells, and switch check box states. For image elements, you can change pictures, specify size mode and alignment.

The screenshot shows a "ARRIVAL CARD" form in the Document Viewer. The form includes fields for LAST NAME (D O E), FIRST NAME (JOHN), PASSPORT NO., DATE OF BIRTH (with day, month, year dropdowns), NATIONALITY, ADDRESS, SIGNATURE, VISA NO., and FLIGHT NO. (disabled). There are also gender options (MALE checked, FEMALE) and a date range selector (0 to 5 days).

Field	Value
LAST NAME	D O E
FIRST NAME	JOHN
PASSPORT NO.	
DATE OF BIRTH	DAY: [ ] MONTH: [ ] YEAR: [ ]
NATIONALITY	
ADDRESS	
SIGNATURE	
VISA NO.	
FLIGHT NO.	(disabled)
Gender	MALE (checked), FEMALE
Days	0 to 5

# Specify Parameter Values

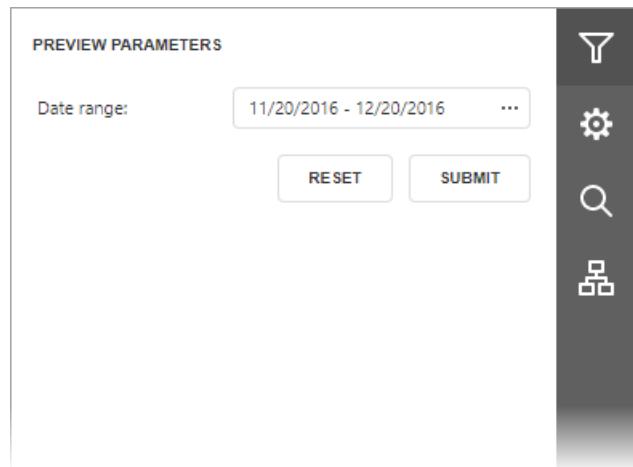
A report may contain parameters that allows you to control the data displayed in the document.



## Parameters

To invoke the **Preview Parameters** panel, click the **Parameters** button on the Document Viewer side panel. This panel allows you to specify parameter values that apply when the document preview generation starts.

Use parameter editor to specify a parameter value and click **Submit**. After changing the current values, you can return to the original values by clicking **Reset**.



# Print

The Web Document Viewer supports pixel perfect document rendering, that is, it displays a report document exactly how it appears on paper. The Web Document Viewer renders the report in PDF and invokes the **Print** dialog of the browser PDF plug-in.



## Print



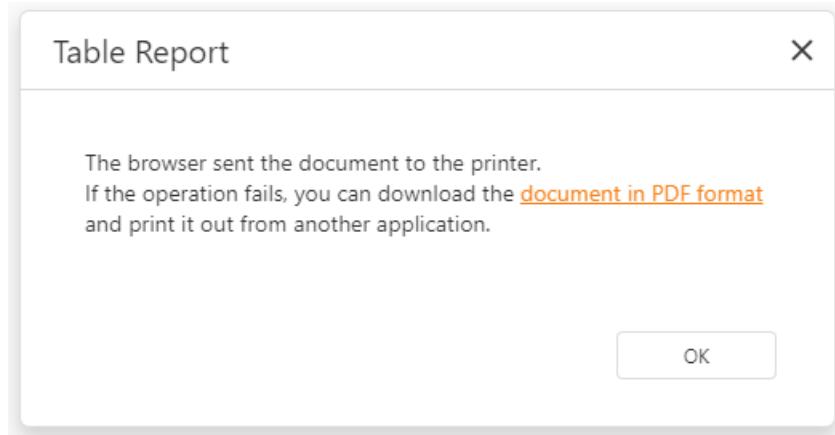
## Print Page

To print the entire document, click the **Print** button on the Viewer toolbar. Click the **Print Page** button to print the currently displayed document page.

When you click any of these buttons, the Document Viewer attempts to detect the browser PDF plug-in and use it for printing.

If the PDF plug-in is installed and enabled, its **Print** dialog is invoked. To print the document, specify the settings in this dialog and click **Print**.

The Document Viewer also displays a dialog that allows you to download the PDF file in case the PDF plug-in is disabled or not installed, or print action fails. The resulting PDF file contains a script that starts printing the document immediately after it is opened in a compatible viewer.



# Export a Document

To export a document to one of the supported formats, click the **Export To** button on the Document Viewer toolbar and select the format from the invoked list. The available formats are PDF, XLS, XLSX, RTF, DOCX, MHT, HTML, Text, CSV and Image.

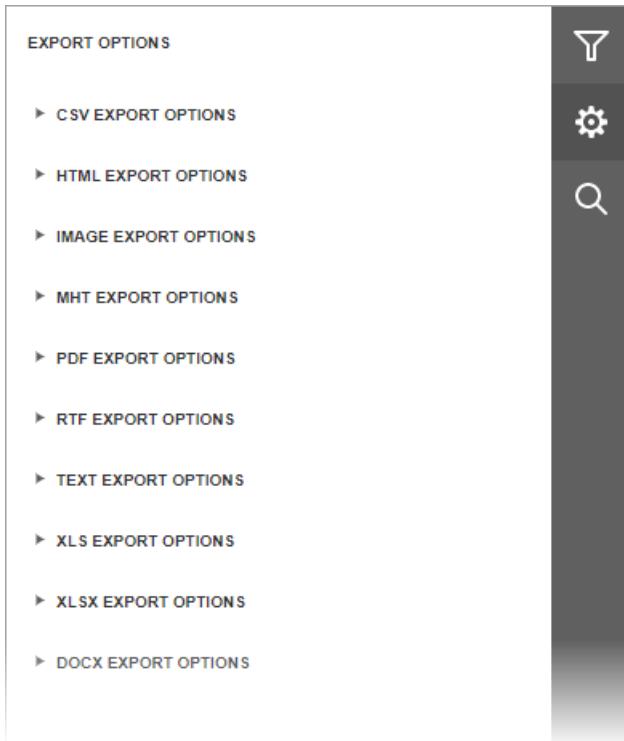


The exported document starts downloading. The browser may invoke a dialog that prompts you whether to save the exported file or open it in an associated application.



## Export Options

The Document Viewer allows you to view and edit export options for different formats in the **Export Options** panel. To invoke the panel, click the **Export Options** button on the Document Viewer side panel.

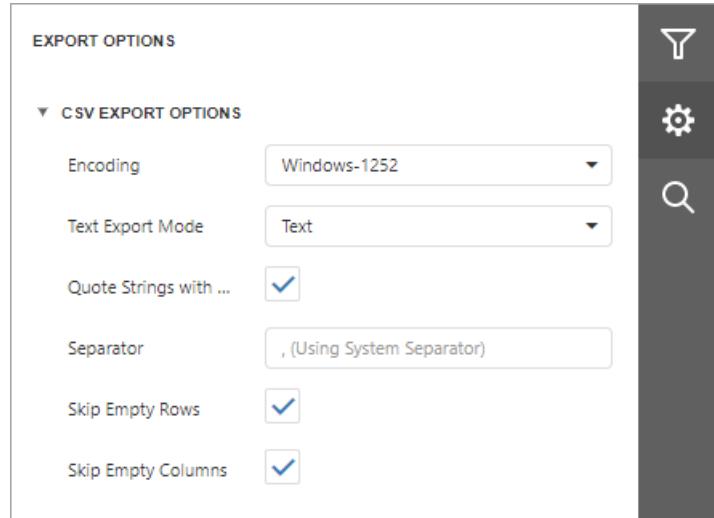


The options are grouped by export format. Click the group header to expand the options group. Review the following help topics for information about format-specific options:

- [CSV Export Options](#)
- [HTML Export Options](#)
- [Image Export Options](#)
- [MHT Export Options](#)
- [PDF Export Options](#)
- [RTF Export Options](#)
- [Text Export Options](#)
- [XLS Export Options](#)
- [XLSX Export Options](#)
- [DOCX Export Options](#)

# CSV Export Options

Before [exporting a document](#) to CSV format, you can specify CSV-specific options in the **Export Options** panel.



- **Encoding**

Specifies the encoding of the text-based file to which a report is exported.

- **Text Export Mode**

Specifies whether to use the formatting of data fields in the bound data source for cells in the exported document. If this option is set to **Text**, all data fields are exported to the CSV file as strings with the corresponding formatting embedded into those strings. If the option is set to **Value**, all formatting will be lost in the resulting document.

- **Quote Strings with Separators**

Specifies whether strings with separators should be placed in quotation marks in the exported document.

- **Separator**

Specifies a symbol used to separate text elements (comma by default).

- **Skip Empty Rows**

Specifies whether to include empty rows into the resulting file.

- **Skip Empty Columns**

Specifies whether to include empty columns into the resulting file.

# HTML Export Options

Before [exporting a document](#) to HTML format, you can specify HTML-specific options in the **Export Options** panel.

## EXPORT OPTIONS

### ▼ HTML EXPORT OPTIONS

Export Mode	Single file
Page Border Color	<input type="color" value="black"/> rgba(0, 0, 0, 1)
Page Border Width	1
Page Range	
Rasterization Resolution	96
Title	Document
Table Layout	<input checked="" type="checkbox"/>
Use HRef Hyperlinks	<input type="checkbox"/>
Allow URLs with JS Content	<input type="checkbox"/>
Remove Secondary Symbols	<input type="checkbox"/>
Export Watermarks	<input checked="" type="checkbox"/>
Character Set	Unicode (UTF-8)

### • Export Mode

Specifies how a document is exported to HTML. The following modes are available.

- The **Single File** mode allows exporting a document to a single file, without preserving the page-by-page breakdown.
- The **Single File PageByPage** mode allows exporting a document to a single file, while preserving the page-by-page breakdown. In this mode, the **Page Border Color**, **Page Border Width** and **Page Range** options are available.

### • Page Border Color

Specifies the color of page borders.

### • Page Border Width

Specifies the width (in pixels) of page borders.

### • Page Range

Specifies a range of pages which will be included in the resulting file. To separate page numbers, use commas. To set page ranges, use hyphens.

### • Rasterization Resolution

Specifies the image resolution for raster images.

### • Title

Specifies the title of the created document.

### • Table Layout

Specifies whether to use table or non-table layout in the resulting document.

- **Use HRef Hyperlinks**

Specifies whether to enable the use of standard HTML link references in document navigation.

- **Allow URLs with JS Content**

Specifies whether the JavaScript code can be placed in URLs in the resulting HTML document.

- **Remove Secondary Symbols**

Specifies whether to remove all secondary symbols (for instance, **Space**, **Carriage Return**, etc.) in the resulting document to reduce its size.

- **Export Watermarks**

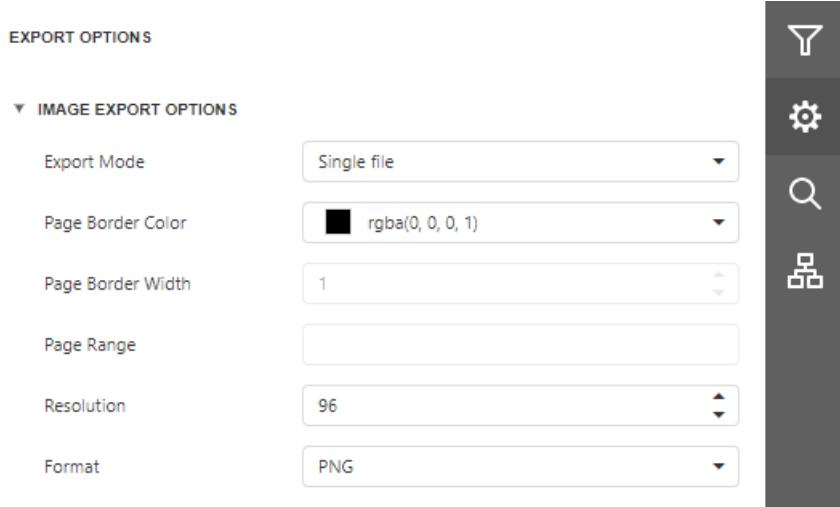
Specifies whether to export watermarks to HTML along with the rest of the document content.

- **Character Set**

Specifies the character set for the HTML document.

# Image Export Options

Before [exporting a document](#) to an image, you can specify Image-specific options in the **Export Options** panel.



- **Export Mode**

Specifies how a document is exported to an image. The following modes are available.

- The **Single File** mode allows exporting a document to a single file, without preserving the page-by-page breakdown.
- The **Single File PageByPage** mode allows exporting a document to a single file, while preserving the page-by-page breakdown. In this mode, the **Page Border Color**, **Page Border Width** and **Page Range** options are available.

- **Page Border Color**

Specifies the color of page borders.

- **Page Border Width**

Specifies the width (in pixels) of page borders.

- **Page Range**

Specifies a range of pages which will be included in the resulting file. To separate page numbers, use commas. To set page ranges, use hyphens.

- **Resolution**

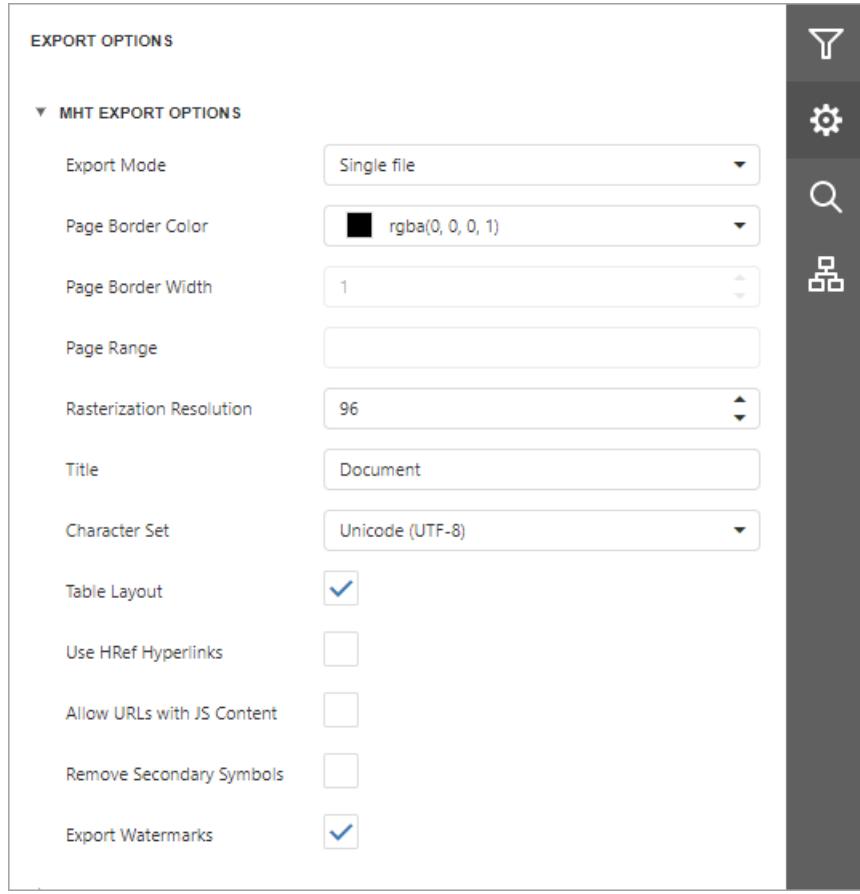
Specifies the required image resolution (in dpi).

- **Format**

Specifies an image format to export a document. Available formats are BMP, GIF, JPEG, PNG, EMF, WMF and TIFF.

# MHT Export Options

Before [exporting a document](#) to MHT format, you can specify MHT-specific options in the **Export Options** panel.



- **Export Mode**

Specifies how a document is exported to MHT. The following modes are available.

- The **Single File** mode allows exporting a document to a single file, without preserving the page-by-page breakdown.
- The **Single File PageByPage** mode allows exporting a document to a single file, while preserving the page-by-page breakdown. In this mode, the **Page Border Color**, **Page Border Width** and **Page Range** options are available.

- **Page Border Color**

Specifies the color of page borders.

- **Page Border Width**

Specifies the width (in pixels) of page borders.

- **Page Range**

Specifies a range of pages which will be included in the resulting file. To separate page numbers, use commas. To set page ranges, use hyphens.

- **Title**

Specifies a title of the created MHT file.

- **Character Set**

Specifies the encoding name used in the exported document.

- **Table Layout**

Specifies whether to use table or non-table layout in the resulting document.

- **Use HRef Hyperlinks**

Specifies whether to enable the use of standard HTML link references in document navigation.

- **Allow URLs with JS Content**

Specifies whether the JavaScript code can be placed in URLs in the resulting HTML document.

- **Remove Secondary Symbols**

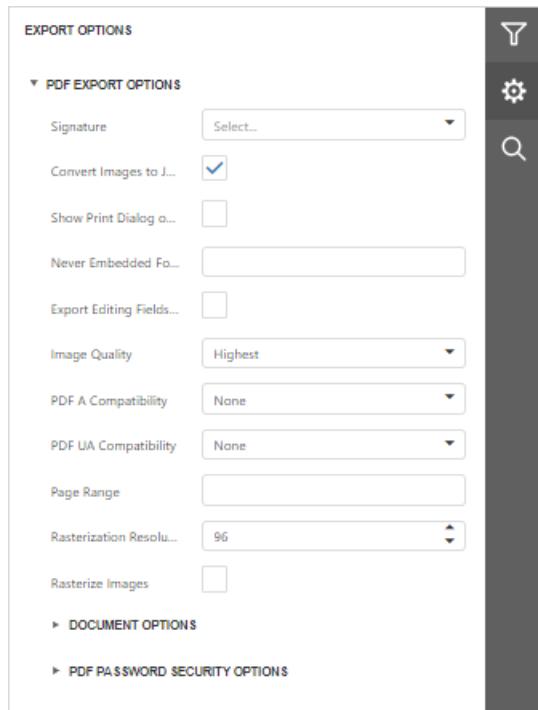
Specifies whether to remove all secondary symbols (for instance, **Space**, **Carriage Return**, etc.) in the resulting document to reduce its size.

- **Export Watermarks**

Specifies whether to export watermarks to HTML along with the rest of the document content.

# PDF Export Options

Before [exporting a document](#) to PDF, you can specify PDF-specific options in the **Export Options** panel.



## General Options

- **Signatures**

Provides access to digital signatures. Select a signature to sign the document on export to PDF.

- **Convert Images to Jpeg**

Specifies whether all bitmaps contained in the document should be converted to JPEG format during export to PDF.

- **Show Print Dialog on Open**

Specifies whether the **Print** dialog should be displayed when the resulting PDF file is opened in an appropriate application.

- **Never Embedded Fonts**

Specifies font names which should not be embedded into the resulting file. To separate fonts, use semicolons.

- **Export Editing Fields To AcroForms**

Specifies whether to convert a report's editing fields to interactive forms.

- **Image Quality**

Specifies the document's image quality level. The higher the quality, the bigger the file, and vice versa.

- **PDF A Compatibility**

Specifies document compatibility with the **PDF/A** specification.

- **Page Range**

Specifies a range of pages which will be included in the resulting file. To separate page numbers, use commas. To set page ranges, use hyphens.

- **Rasterization Resolution**

Specifies the image resolution for raster images.

## Document Options

The **Document Options** complex property contains options which specify the **Document Properties** of the created PDF file. Click the complex property's header to access its nested options.

▼ DOCUMENT OPTIONS

Author	<input type="text"/>
Application	<input type="text"/>
Title	<input type="text"/>
Subject	<input type="text"/>
Keywords	<input type="text"/>

## PDF Password Security Options

This complex property allows you to adjust the security options of the resulting PDF file.

▼ PDF PASSWORD SECURITY OPTIONS

OpenPassword	<input type="text"/>
EncryptionLevel	128-bit AES
PermissionsPassword	<input type="text"/>

▼ PDF PERMISSIONS OPTIONS

PrintingPermissions	None
ChangingPermissions	None
EnableCopying	<input type="checkbox"/>
EnableScreenReaders	<input checked="" type="checkbox"/>

- **Open Password**

Specifies the password for opening the exported PDF document.

- **Encryption Level**

Specifies the algorithm used to encrypt PDF content.

- **Permissions Password**

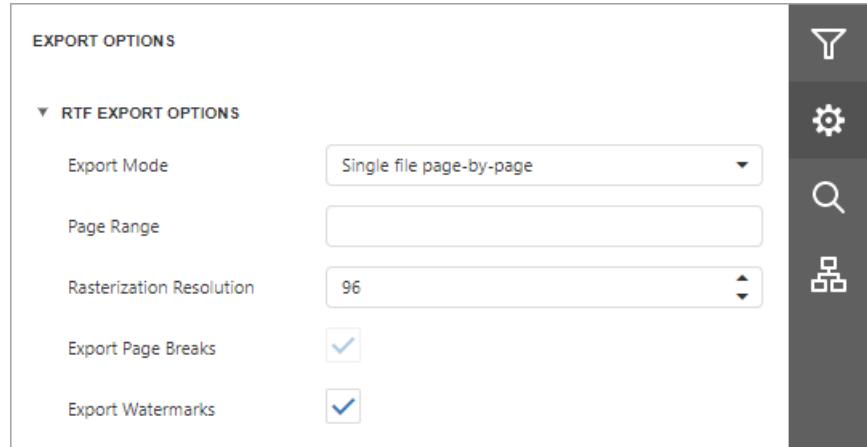
Specifies the PDF permissions password for the document.

- **PDF Permissions Options**

Provides access to the options which specify the permissions for printing, changing, copying, and accessing the exported document.

# RTF Export Options

Before [exporting a document](#) to RTF, you can specify RTF-specific options in the **Export Options** panel.



## • Export Mode

Specifies how a document is exported to RTF. The following modes are available.

- The **Single File** mode allows exporting a document to a single file, without preserving the page-by-page breakdown.
- The **Single File PageByPage** mode allows exporting a document to a single file, while preserving the page-by-page breakdown. In this mode, the **Page Range** and **Export Watermark** options are available.

## • Page Range

Specifies a range of pages which will be included in the resulting file. To separate page numbers, use commas. To set page ranges, use hyphens.

## • Rasterization Resolution

Specifies the image resolution for raster images.

## • Export Page Breaks

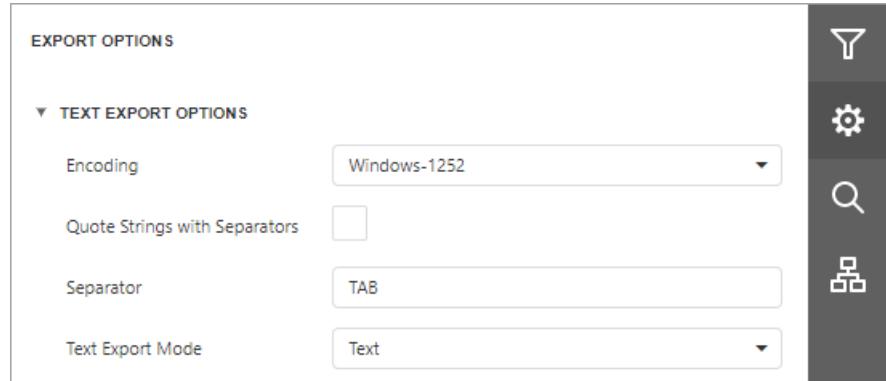
Specifies whether to include page breaks in the exported RTF file.

## • Export Watermarks

Specifies whether watermarks (if they exist) should be included into the resulting file.

# Text Export Options

Before [exporting a document](#) to TXT format, you can specify TXT-specific options in the **Export Options** panel.



- **Encoding**

Specifies the encoding used in the exported document.

- **Quote Strings with Separators**

Specifies whether strings with separators should be placed in quotation marks in the exported document.

- **Separator**

Specifies a symbol to separate text elements (TAB by default).

- **Text Export Mode**

Specifies whether to use the formatting of data fields in the bound data source for cells in the exported document. If this option is set to **Text**, all data fields are exported to the text file as strings with the corresponding formatting embedded into those strings. If the option is set to **Value**, all formatting will be lost in the resulting document.

# XLS Export Options

Before [exporting a document](#) to XLS format, you can specify XLS-specific options in the **Export Options** panel.

The screenshot shows the 'EXPORT OPTIONS' panel with the 'XLS EXPORT OPTIONS' section expanded. The panel includes a vertical toolbar on the right with icons for filter, settings, search, and group. The 'XLS EXPORT OPTIONS' section contains various configuration fields:

- Export Mode:** Single file (dropdown)
- Suppress 256 Columns Warning:** Unchecked checkbox
- Suppress 65536 Rows Warning:** Unchecked checkbox
- Workbook Color Palette Compliance:** Reduce Palette For Exact Colors (dropdown)
- Export Hyperlinks:** Checked checkbox
- Page Range:** Empty input field
- Raw Data Mode:** Unchecked checkbox
- Sheet Name:** Sheet (input field)
- Show Grid Lines:** Unchecked checkbox
- Text Export Mode:** Value (dropdown)
- Rasterize Images:** Unchecked checkbox
- Rasterization Resolution:** 96 (input field)
- Fit to Printed Page Width:** Unchecked checkbox
- Fit to Printed Page Height:** Unchecked checkbox
- Ignore Errors:** None (dropdown)
- Right to Left Document:** Default (dropdown)

Below the main section, there are collapsed sections for 'DOCUMENT OPTIONS' and 'ENCRYPTION OPTIONS' indicated by arrows.

- **Export Mode**

Specifies how a document is exported to XLS.

- **Suppress 256 Columns Warning**

Specifies whether to suppress the exception that raises when trying to export a document to an XLS file with more than 256 columns.

- **Suppress 65536 Rows Warning**

Specifies whether to suppress the exception that raises when trying to export a document to an XLS file with more than 65536 rows.

- **Workbook Color Palette Compliance**

Specifies the color palette compatibility mode with different workbook versions. The workbook palette can store no more than **56** colors. If you select the **ReducePaletteExactColors** value, original color values are kept, but only the first **56** colors are included in the palette. Choose **AdjustColorsToDefaultPalette** to degrade the color values to match the **56** standard

colors of the default workbook palette.

- **Export Hyperlinks**

Specifies whether hyperlinks should be exported to the XLS document.

- **Page Range**

Specifies a range of pages which will be included in the resulting file. To separate page numbers, use commas. To set page ranges, use hyphens.

- **Raw Data Mode**

Specifies whether to enable the raw data export mode. In this mode, only a document's actual data is exported to XLS, ignoring non-relevant elements, such as images, graphic content, font and appearance settings.

- **Sheet Name**

Specifies the name of the sheet in the created XLS file.

- **Show Grid Lines**

Specifies whether grid lines should be visible in the resulting XLS file.

- **Text Export Mode**

Specifies whether value formatting should be converted to the native XLS format string (if it is possible), or embedded into cell values as plain text.

- **Rasterize Images**

Specifies whether to rasterize vector images, such as pictures, charts, or barcodes.

- **Rasterization Resolution**

Specifies the image resolution for raster images.

- **Fit To Printed Page Width**

Shrinks the width of the exported document's printout to one page.

- **Fit To Printed Page Height**

Shrinks the height of the exported document's printout to one page.

- **Ignore Errors**

Specifies the document errors to be ignored in a resulting XLS file.

- **Right To Left Document**

If you use right-to-left fonts in a report, enable the **Right-to-Left Document** option to use the right-to-left layout for sheets in the exported XLS file.

## Document Options

The **Document Options** complex property contains options which specify the **Document Properties** of the created XLS file. Click the complex property's header to access its nested options.

▼ DOCUMENT OPTIONS

Author	
Application	
Title	
Subject	
Tags	
Category	
Comments	
Company	

## Encryption Options

This complex property allows you to adjust the encryption options of the resulting XLS file.

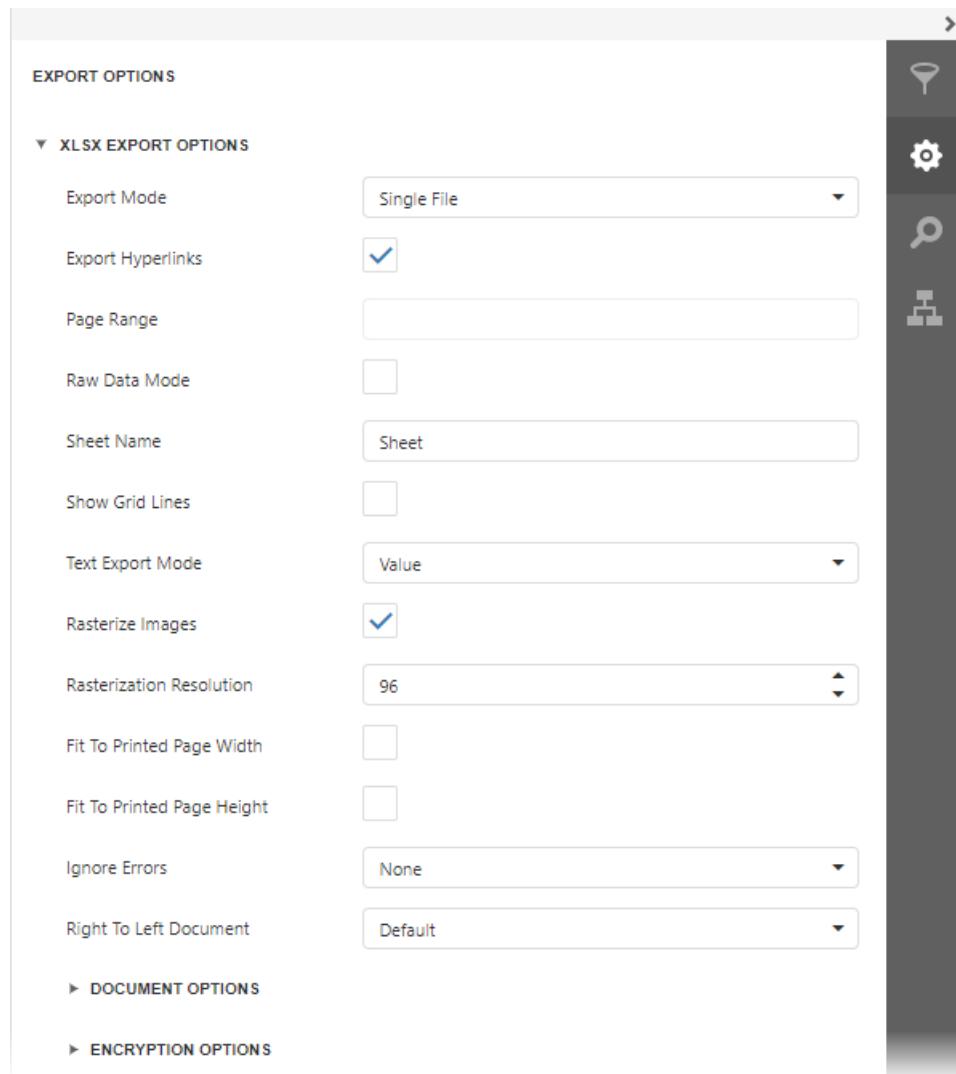
▼ ENCRYPTION OPTIONS

Type	Strong
Password	

- **Type** Specifies one of the following encryption types:
  - Strong (default) type uses the **Agile Encryption** mechanism.
  - Compatible type uses the **Standard Encryption** that is compatible with Excel 2007.
- **Password** Sets a password for the exported XLS file. XLS files support **ARC4** encryption (except for **RC4CryptoAPI**).  
Passwords for XLS files are stored as plain text in report definitions. Ensure that only trusted parties have access to report definition files.

# XLSX-Specific Export Options

Before [exporting a document](#) to XLSX format, you can specify XLSX-specific options in the **Export Options** panel.



## • Export Mode

Specifies how a document is exported to XLSX. The following modes are available.

- o The **Single File** mode allows exporting a document to a single file, without dividing it into pages.
- o The **Single File PageByPage** mode allows exporting a document to a single file, while preserving the page-by-page breakdown. In this mode, the **Page Range** option is available.

## • Export Hyperlinks

Specifies whether to include hyperlinks into the resulting file.

## • Page Range

Specifies a range of pages which will be included in the resulting file. To separate page numbers, use commas. To set page ranges, use hyphens.

## • Raw Data Mode

Specifies whether to enable the raw data export mode. In this mode, only a document's actual data is exported to XLSX, ignoring non-relevant elements, such as images, graphic content, font and appearance settings.

## • Sheet Name

Specifies the name of the sheet in the created XLSX file.

- **Show Grid Lines**

Specifies whether grid lines should be visible in the resulting XLSX file.

- **Text Export Mode**

Specifies whether value formatting should be converted to the native XLSX format string (if it is possible), or embedded into cell values as plain text.

- **Rasterize Images**

Specifies whether to rasterize vector images, such as pictures, charts, or barcodes.

- **Rasterization Resolution**

Specifies the image resolution for raster images.

- **Fit To Printed Page Width**

Shrinks the width of the exported document's printout to one page.

- **Fit To Printed Page Height**

Shrinks the height of the exported document's printout to one page.

- **Ignore Errors**

Specifies the document errors to be ignored in a resulting XLS file.

- **Right To Left Document**

If you use right-to-left fonts in a report, enable the **Right-to-Left Document** option to use the right-to-left layout for sheets in the exported XLSX file.

## Document Options

The **Document Options** complex property contains options which specify the **Document Properties** of the created XLSX file. Click the complex property's header to access its nested options.

▼ DOCUMENT OPTIONS

Author	
Application	
Title	
Subject	
Tags	
Category	
Comments	
Company	

## Encryption Options

This complex property allows you to adjust the encryption options of the resulting XLSX file.



- **Type** Specifies one of the following encryption types:
  - Strong (default) type uses the **Agile Encryption** mechanism.
  - Compatible type uses the **Standard Encryption** that is compatible with Excel 2007.
- **Password** Sets a password for the exported XLSX file. Passwords for XLSX files are stored as plain text in report definitions. Ensure that only trusted parties have access to report definition files.

# DOCX Export Options

Before [exporting a document](#) to DOCX format, you can specify DOCX-specific options in the **Export Options** panel.

The screenshot shows the 'EXPORT OPTIONS' panel for DOCX export. It includes a vertical toolbar on the right with icons for Filter, Settings, Search, and Refresh. The main area contains the following settings:

- DOCX EXPORT OPTIONS**
  - Export Mode: Single file page-by-page
  - Page Range: (empty)
  - Table Layout: (checkbox)
  - Keep Row Height: (checkbox)
  - Rasterize Images: (checkbox)
  - Rasterization Resolution: 96
  - Export Page Breaks: (checked)
  - Export Watermarks: (checked)
- DOCUMENT OPTIONS**: (partially visible)

- **Export Mode**

Specifies how a document is exported to DOCX. The following modes are available.

- The **Single file** mode allows export of a document to a single file without dividing it into pages.
- The **Single file page-by-page** mode allows export of a document to a single file divided into pages. In this mode, the **Page range** option is available.

- **Page Range**

Specifies a range of pages which will be included in the resulting file. Use commas to separate page numbers. Use hyphens to set page ranges.

- **Table Layout**

The table-based layout is the default layout for reports exported in **Single File** mode. You can also use the **Table Layout** option to enable this layout for reports exported in **Single File Page By Page** mode. When you export a report to **DOCX** with the table-based layout, a table with merged cells is created to mimic the original layout of the report's controls.

- **Keep Row Height**

This option is enabled if you enable the **Table Layout** option. If you edit content inside the table after the export, the table cells grow to fit the new content size. Thus, the resulting document can differ from the initial document in **Print Preview**. To avoid this effect, enable the **Keep Row Height** option. If the option is set to **false** (the default value), row heights are not fixed. If you add a new line of text to a cell, the line increases the cell's row height.

- **Rasterize Images**

Specifies whether to rasterize vector images, such as pictures, charts, or barcodes.

- **Rasterization Resolution**

Specifies the image resolution for raster images.

- **Export Page Breaks**

Specifies whether to include page breaks in the exported DOCX file.

- **Export Watermarks**

Specifies whether the exported document should include watermarks (if they exist).

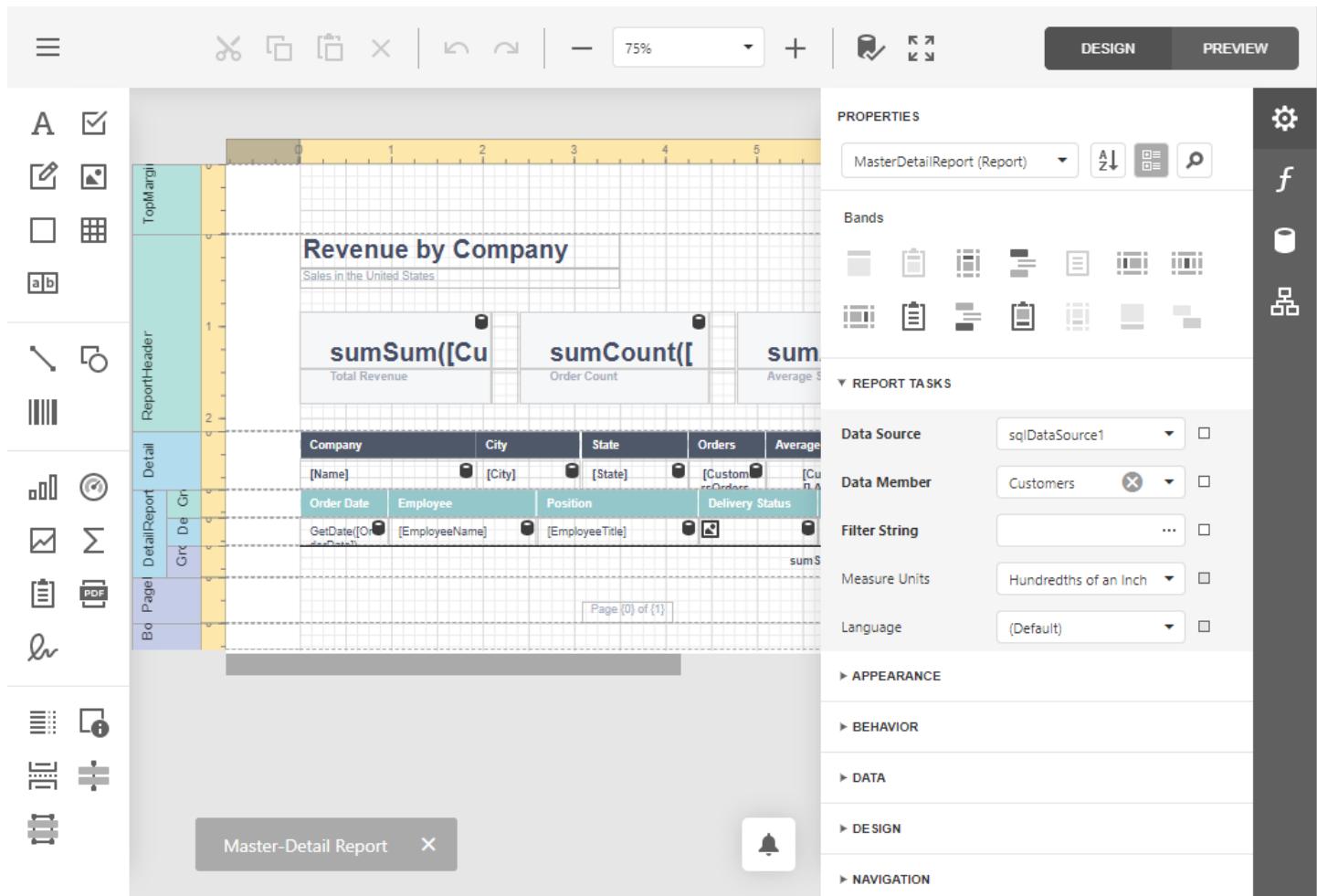
## Document Options

The **Document Options** complex property contains options which specify the **Document Properties** of the created DOCX file. Click the complex property's header to access its nested options.

▼ DOCUMENT OPTIONS	
Title	<input type="text"/>
Subject	<input type="text"/>
Keywords	<input type="text"/>
Category	<input type="text"/>
Comments	<input type="text"/>
Author	<input type="text"/>

# Report Designer

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

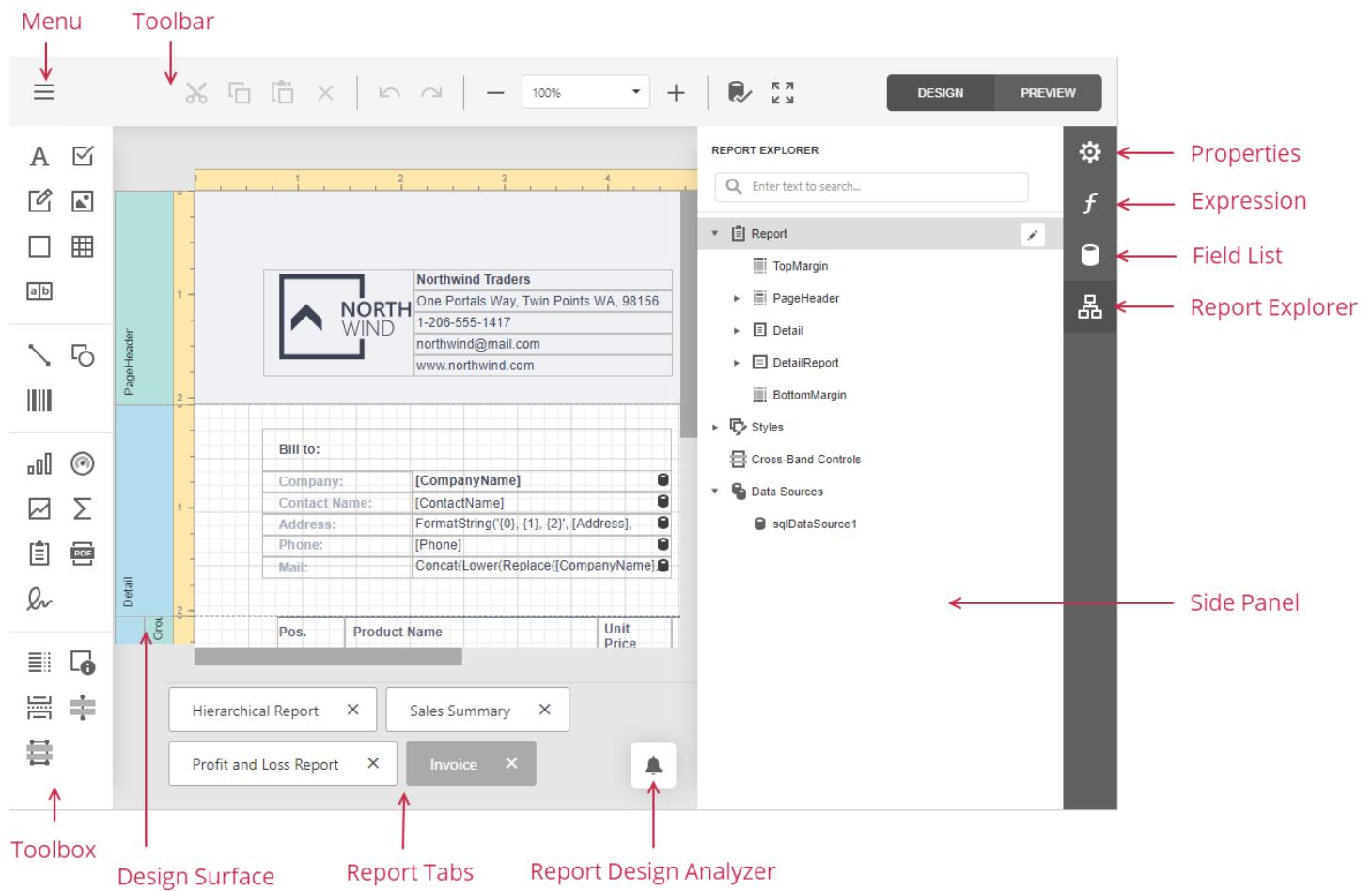


- First Look at the Report Designer
- Add New Reports
- Open Reports
- Save Reports
- Introduction to Banded Reports
- Bind to Data
- Create Popular Reports
- Configure Design Settings
- Use Report Elements
- Shape Report Data
- Lay out Dynamic Report Content
- Customize Appearance
- Add Navigation
- Provide Interactivity
- Add Extra Information
- Use Expressions
- Localize Reports
- Report Designer Tools
- Preview, Print and Export Reports

## 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:

- use the **Menu** to manage and set up reports;
- drop report controls from the **Toolbox** to the design surface;
- access report editing commands in the **Main Toolbar**;
- use the **Properties** panel to set up the report controls;
- use the **Expressions** panel to provide data to the report controls and conditionally shape data;
- access the report's data source schema in the **Field List** panel;
- access the report's elements in the **Report Explorer** panel.

# Add New Reports

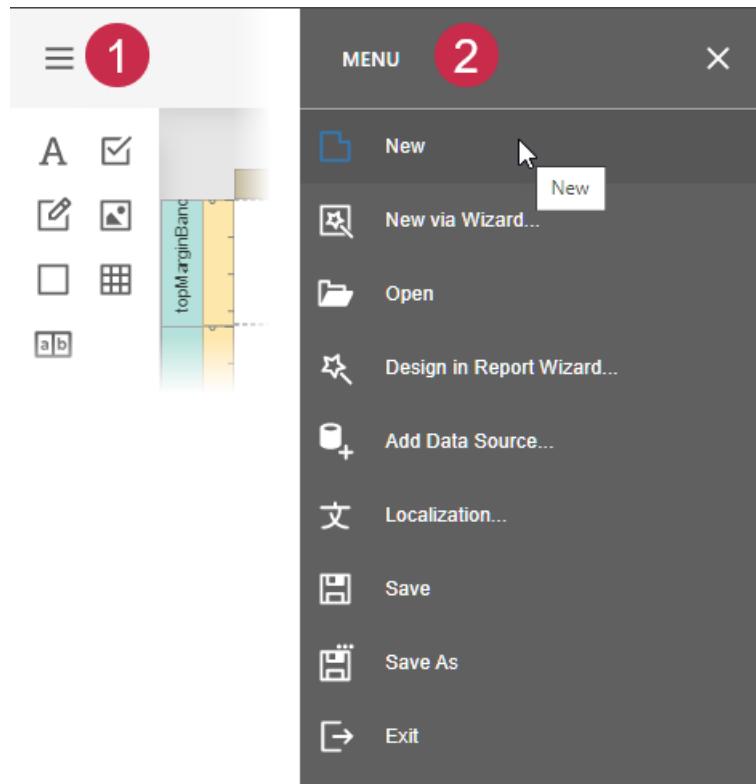
This topic explains how to create a new report in the Report Designer.

## NOTE

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

## Create a New Blank Report

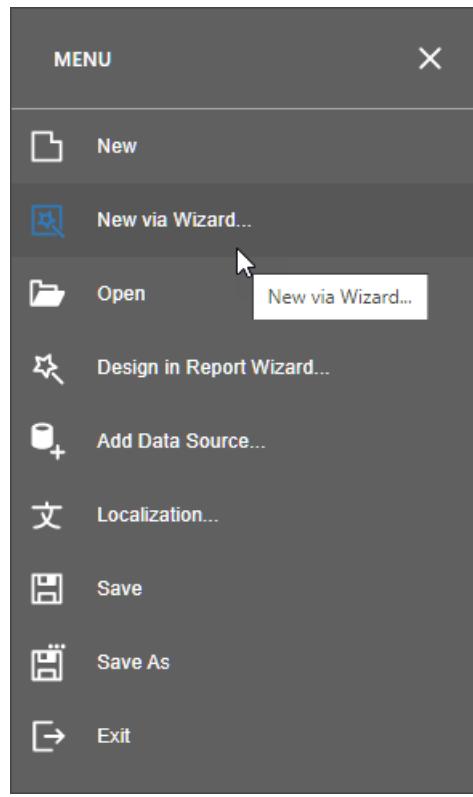
In the designer [menu](#), click **New**.



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.

## Create a New Report Using the Report Wizard

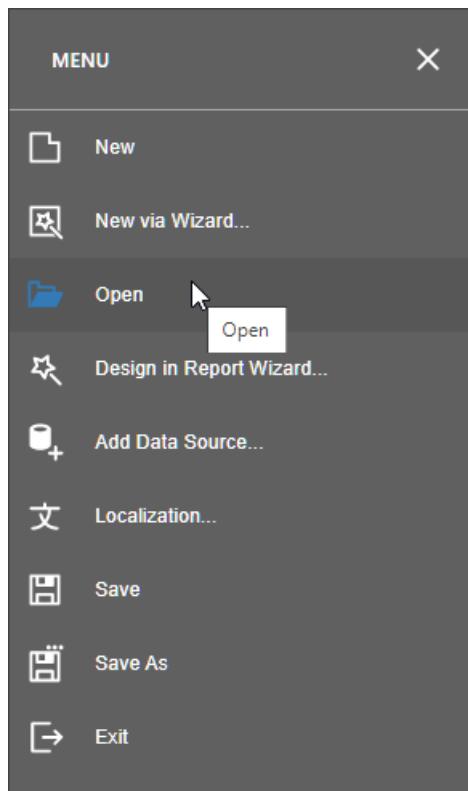
In the designer [menu](#), click **New via Wizard**.



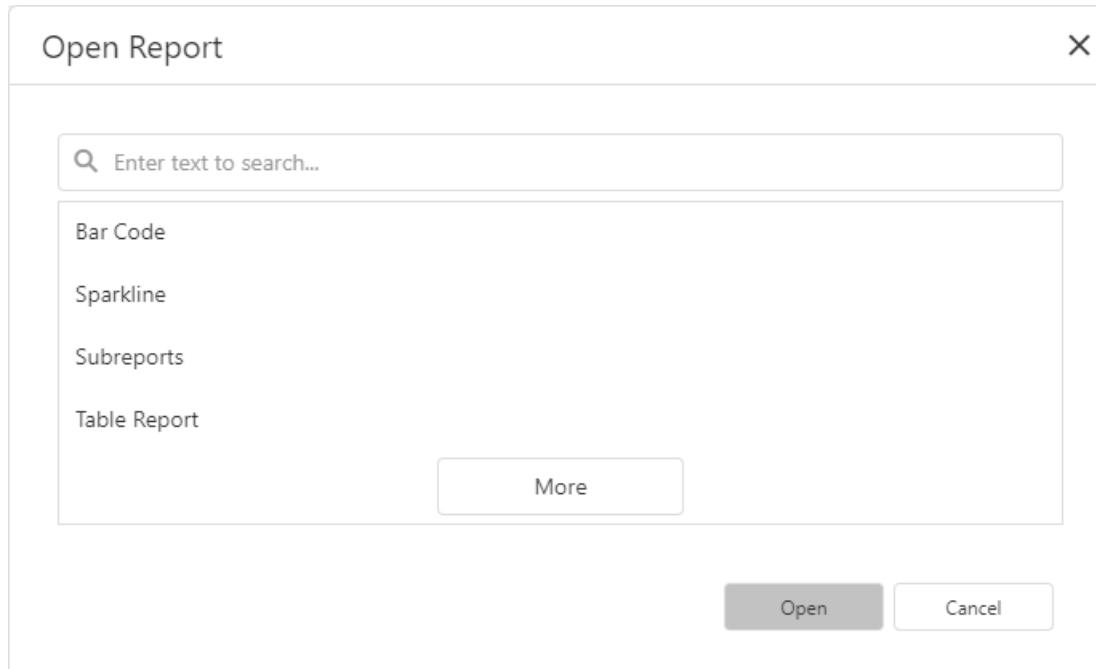
Go through the wizard's pages to get a predesigned report. For more information about this option, refer to [Report Wizard](#).

# Open Reports

Click **Open** in the **menu** to invoke the **Open Report** dialog.



The dialog displays reports from the report storage. You can enter text in the search field to filter the report list. Select a report and click **Open**.



You can use the **Open Report** dialog to search for a report.

## Open Report

X

 cross 

Cross-Tab Report

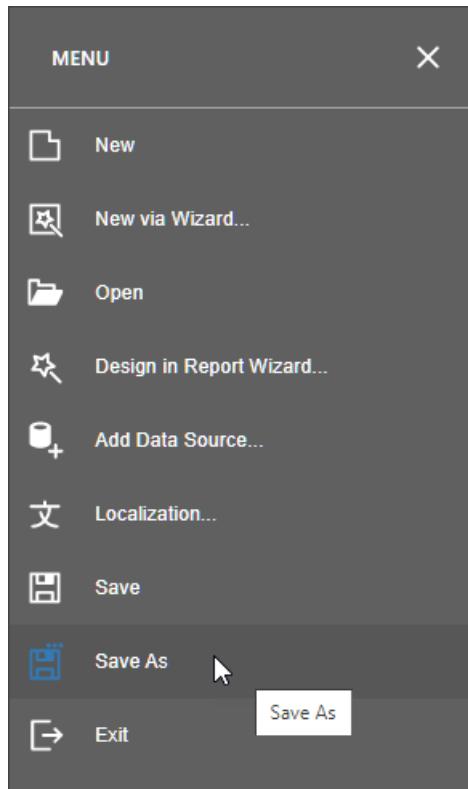
Cross-band Controls

Open

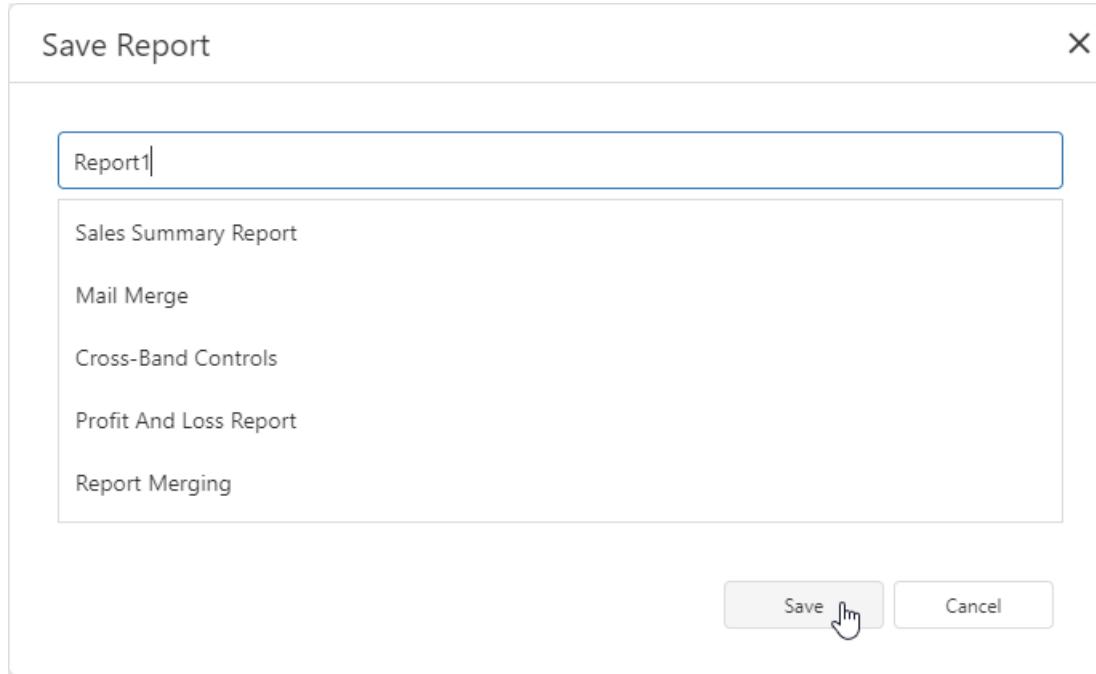
Cancel

# Save Reports

Click **Save| Save As** in the **menu** to save the current report.



Specify the report name in the invoked **Save Report** dialog.



You can see the following message at the bottom of the Designer, if the report is saved successfully.

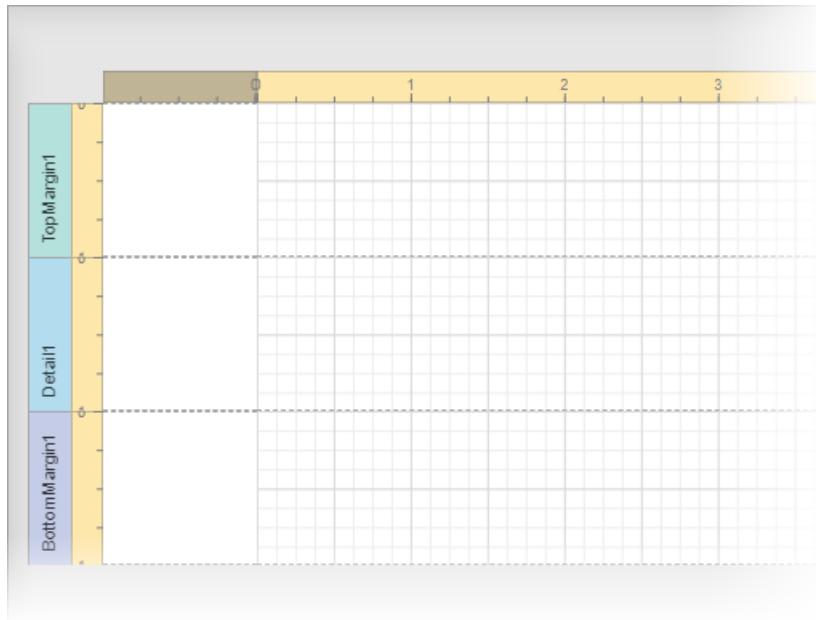


# Introduction to Banded Reports

## 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** displays recurring contents from the report's data source. This band is printed as many times as there are records available in a data source unless you filtered the data.  
Every report must have a detail band, and you cannot delete it.
- The top and bottom page **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.

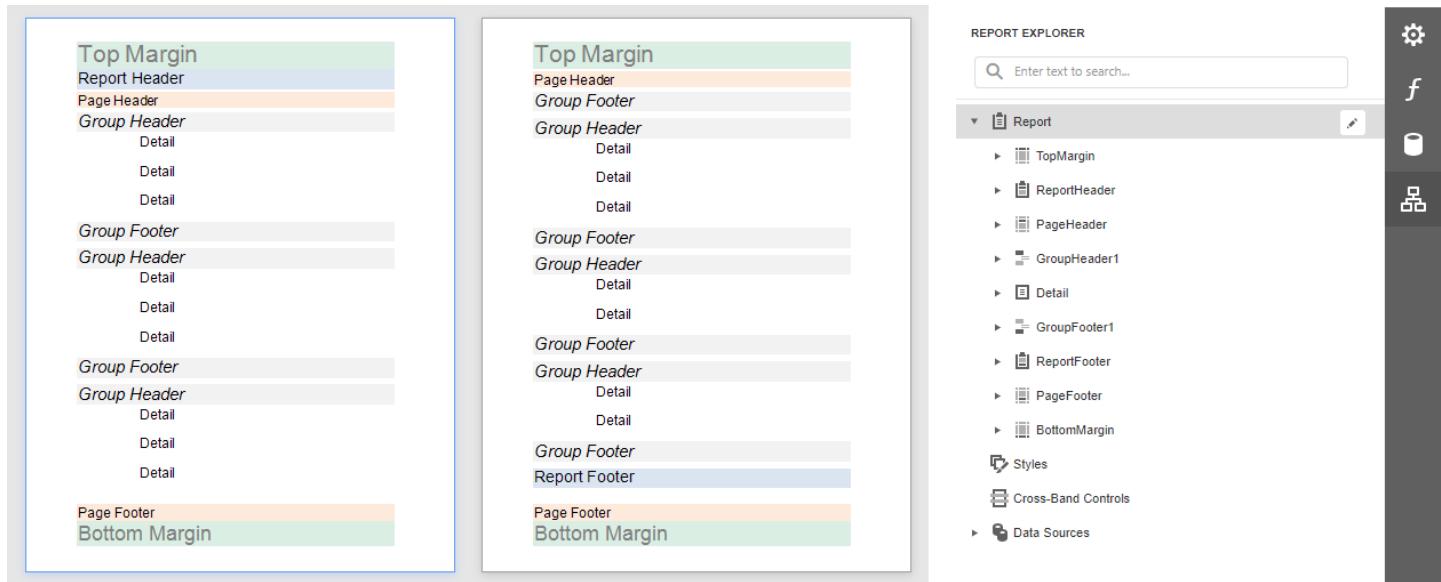
- **Group Header** and **Group Footer**

These bands are above and below each [group](#).

### TIP

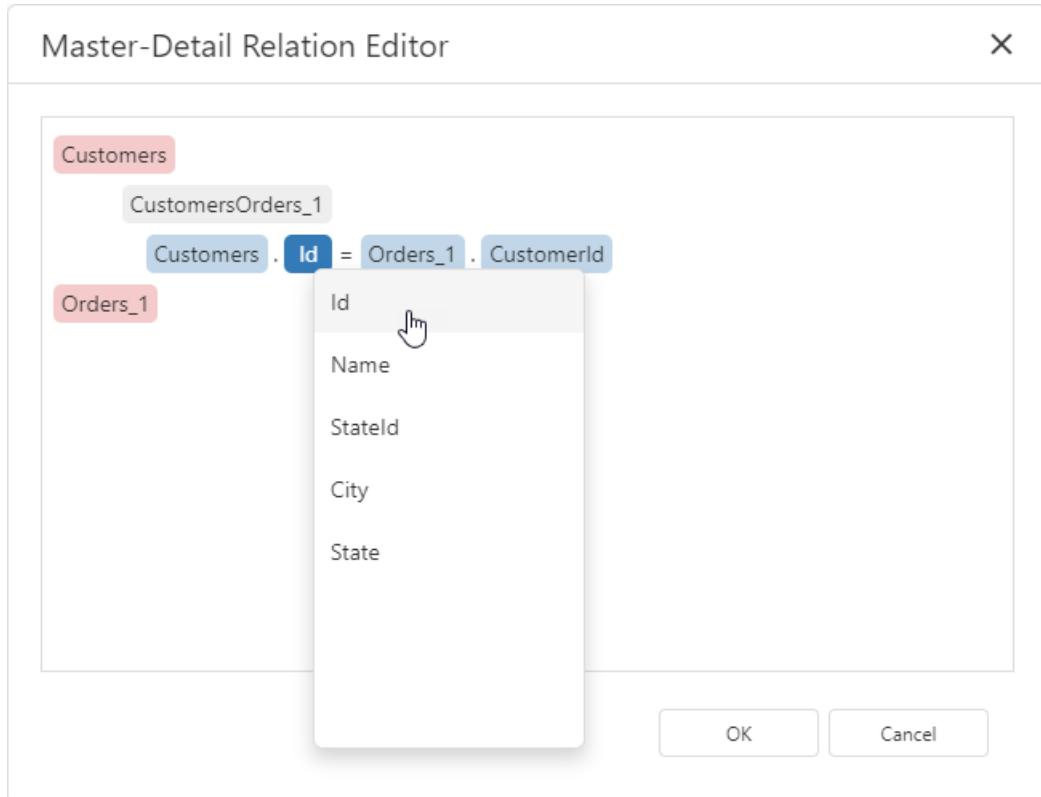
Only the detail and group bands can be used to display dynamic data source contents. Other bands display titles, summaries, and extra information.

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



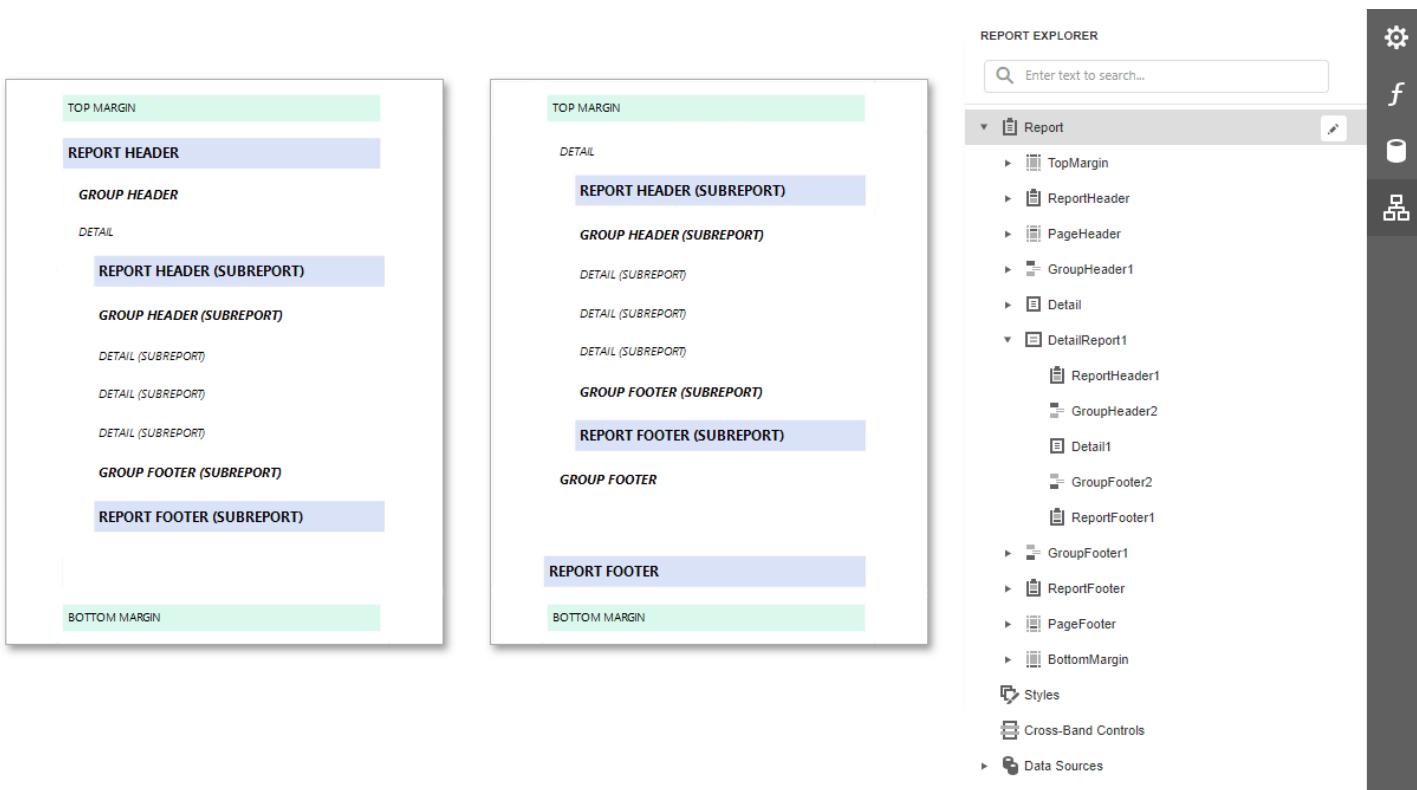
## Add a Detail Band to a Master-Detail Band

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. You can create such reports when master-detail relationships are defined between data source tables:



A 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](#) panel 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.

	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
<b>INCOME</b>							
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
<b>TOTAL INCOME</b>	<b>\$89,313.76</b>	<b>\$94,001.79</b>	<b>\$82,816.80</b>	<b>\$76,093.11</b>	<b>\$119,289.71</b>	<b>\$115,918.77</b>	<b>\$577,433.94</b>
<b>COST OF GOODS SOLD</b>							
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
<b>TOTAL COST OF GOODS SOLD</b>	<b>\$17,161.38</b>	<b>\$11,514.10</b>	<b>\$21,144.94</b>	<b>\$11,836.02</b>	<b>\$29,735.06</b>	<b>\$18,914.18</b>	<b>\$110,305.66</b>
<b>GROSS PROFIT</b>	<b>\$72,152.38</b>	<b>\$82,487.70</b>	<b>\$61,671.87</b>	<b>\$64,257.09</b>	<b>\$89,554.65</b>	<b>\$97,004.59</b>	<b>\$467,128.28</b>

### NOTE

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**

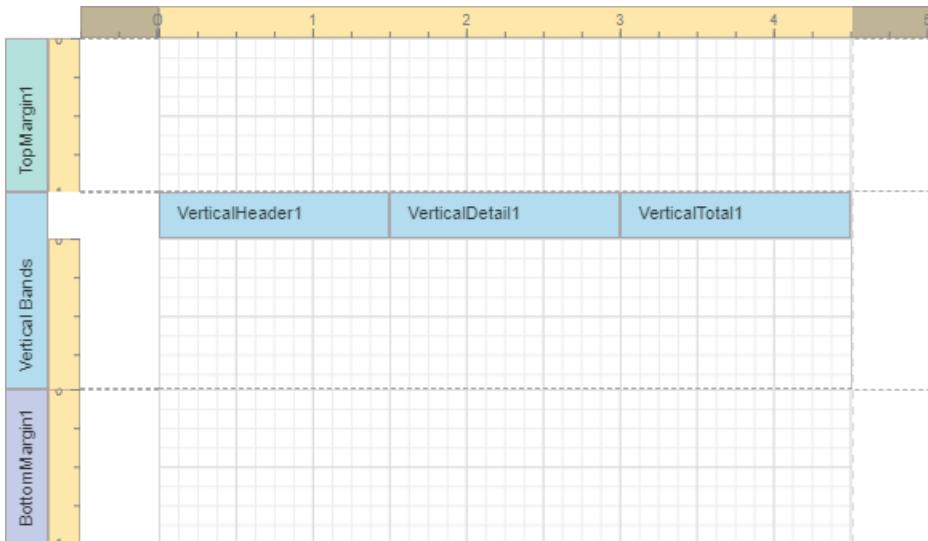
Contains headers of the report's data fields. These headers are arranged one after another in a vertical direction.

- **Vertical Details**

Displays recurring contents from the report's data source. This band is printed as many times as there are available records 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.



**TIP**

See [Vertical Reports](#) for details on how to use 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.

The screenshot shows the Report Designer interface with a layout grid and a Report Explorer pane. The layout grid contains several bands: Top Margin, Report Header, Page Header, Group Header, Detail, Group Footer, Report Footer, Page Footer, and Bottom Margin. The Report Explorer pane on the right lists the bands with their corresponding colors:

- Top Margin
- Report Header
- Report Header (Copy)
- Page Header
- Page Header (Copy)
- Group Header
- Detail
- Detail (Copy)
- Group Footer
- Report Footer
- Page Footer
- Bottom Margin

### TIP

See [Laying out Dynamic Report Contents](#) for details on how to specify the location of bands' content on document pages.

## Manage Report Bands

### Collapse Bands in the Report Designer

Select a band and click on the band's tab title to collapse or expand the band.

The screenshot shows the Report Designer interface with the 'DETAIL' band expanded. Other bands like REPORTHEADER1, PAGEHEADER1, and SUBBAND3 are collapsed, indicated by small arrows on their tabs. The layout grid shows the structure of the report with various bands.

### Hide Bands in the Report Document

You can avoid printing a band's content in a document. To do this, set the band's **Visible** property to **false**. Select the band and set this property in the [Properties Panel](#).

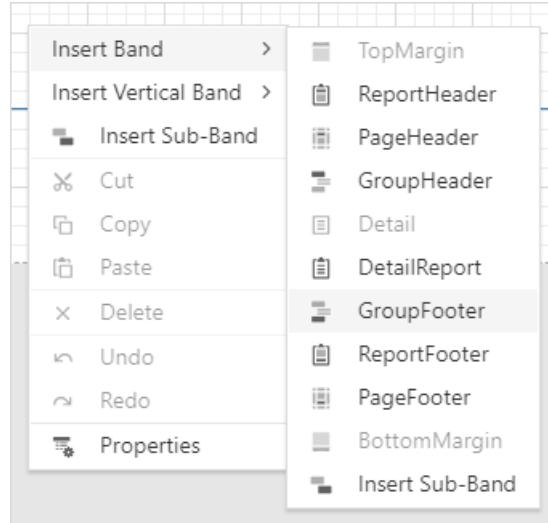
The screenshot shows the 'Properties' panel of the Report Designer. The 'Bands' section contains icons for various report bands like Report Header, Page Header, Group Header, Detail, Group Footer, Page Footer, and Bottom Margin. Below this, the 'Behavior' section is expanded, showing options for 'Keep Together', 'Page Break', and 'Visible'. The 'Visible' checkbox is checked and highlighted with a blue circle. Other sections like 'DATA' and 'DESIGN' are also visible.

## 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, select the report or any of its bands on Designer Surface, right-click to invoke the context menu and select a band.



# Bind to Data

The following topics illustrate how to bind a report and its controls to data:

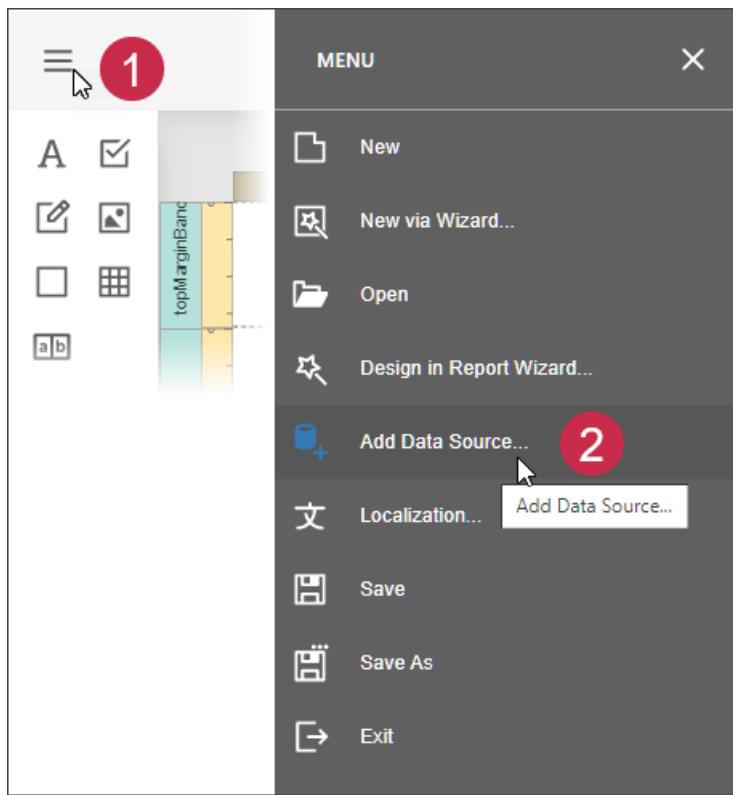
- [Bind a Report to a Database](#)
- [Specify Query Parameters](#)
- [Bind a Report to JSON Data](#)
- [Bind a Report to an Object Data Source](#)
- [Bind a Report to a Join-Based Federated Data Source](#)
- [Bind a Report to a Union-Based Federated Data Source](#)
- [Bind a Report to a Transformation-Based Federated Data Source](#)
- [Bind a Report to a Federated Master-Detail Data Source](#)

# Bind a Report to a Database

This tutorial illustrates how to bind a report to a database and specify a master-detail relationship between data source queries.

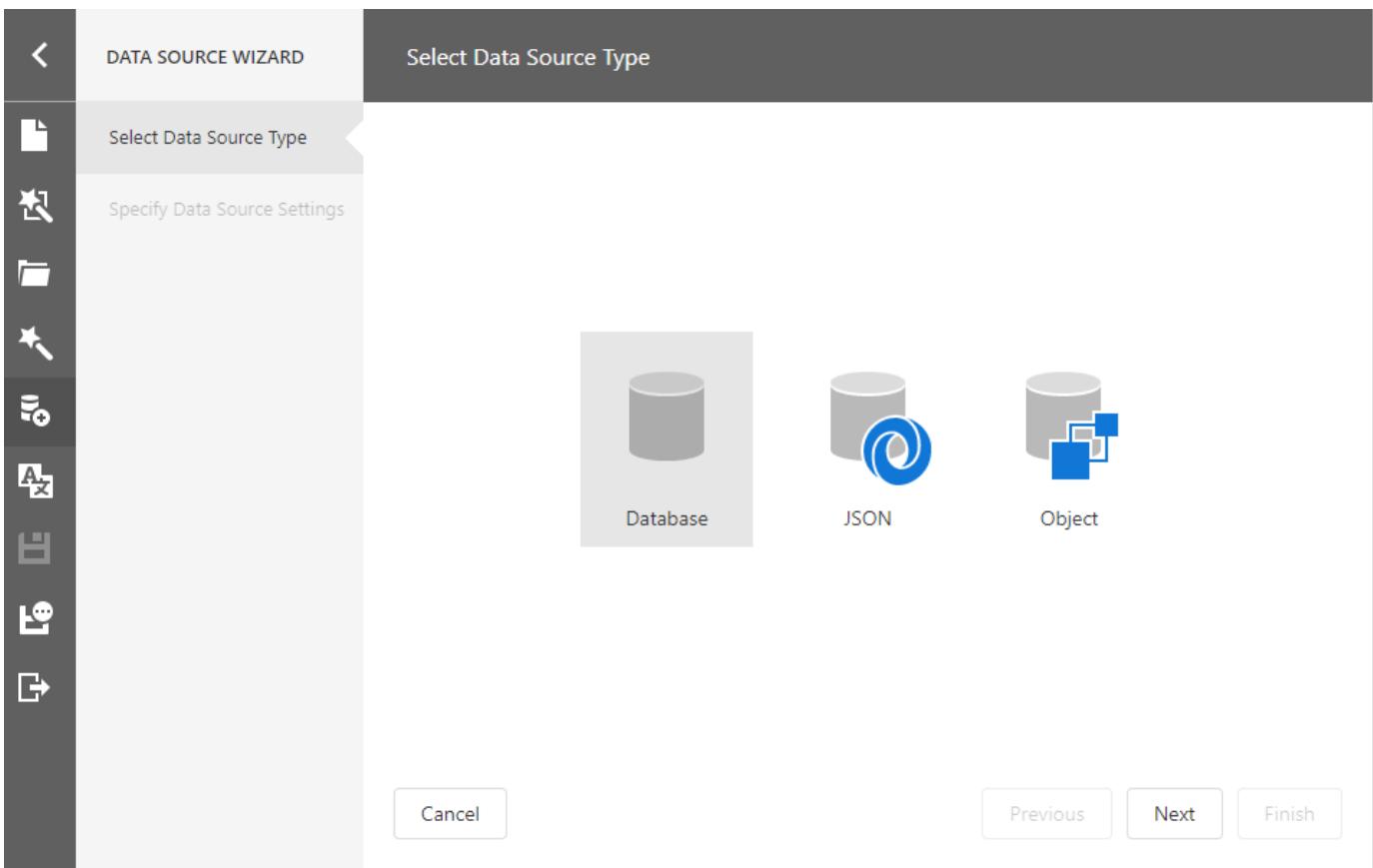
## Add a New Data Source

1. [Create a new blank report](#).
2. Invoke the designer **menu** and click **Add Data Source**.

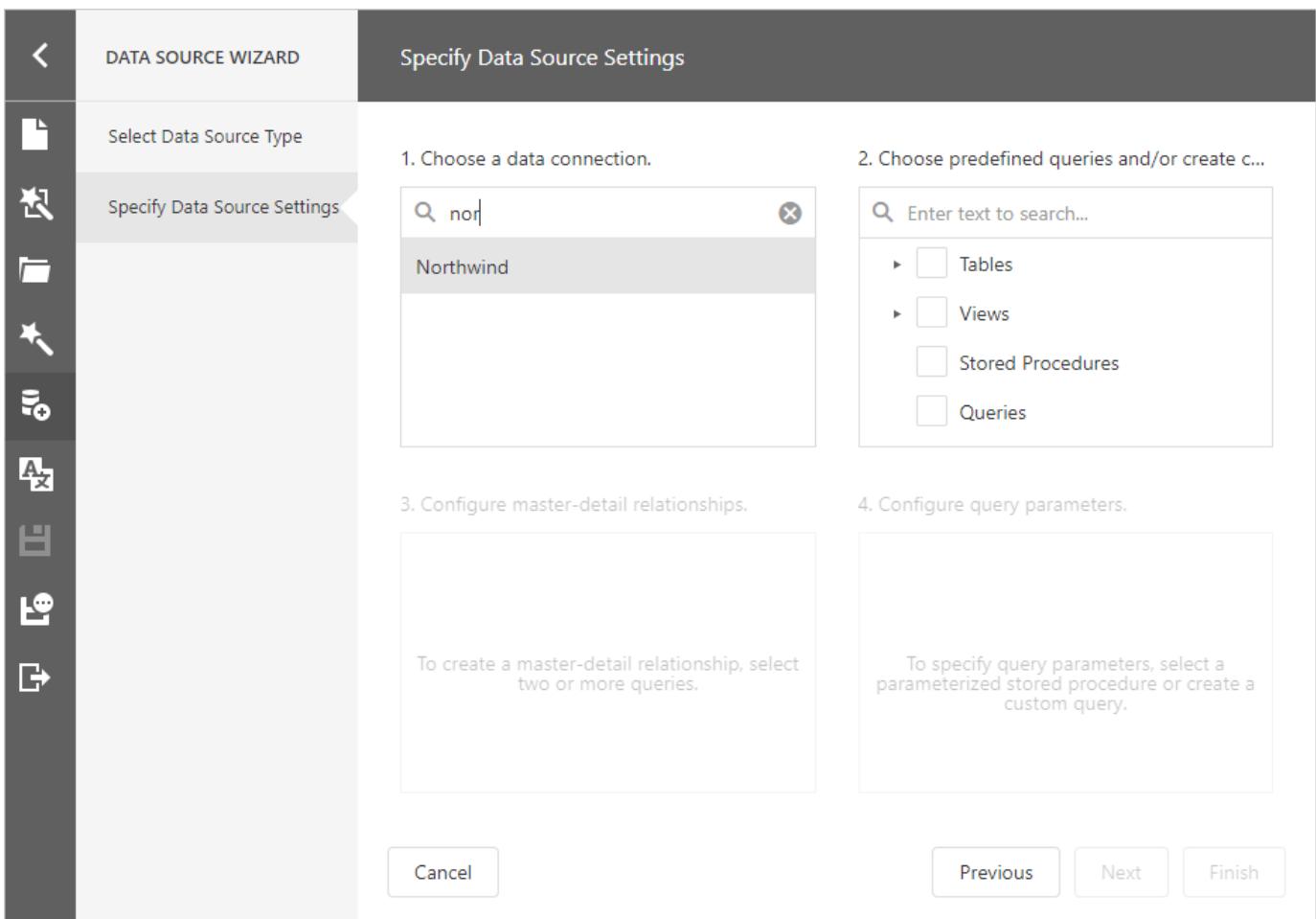


The menu contains this command if your software vendor has registered data connections in the application.

3. Select **Database** in the invoked **Data Source Wizard** and click **Next**. Available database types depend on the data connections registered in the application for the Data Source Wizard.



4. Select the data connection and click **Next**.



5. Choose which tables, views and/or stored procedures to add to a report and click **Next**. Select two or more tables to [create a master-detail report](#).

2. Choose predefined queries and/or create custom queries.

A screenshot of a search interface. At the top is a search bar with the placeholder "Enter text to search...". Below it is a list titled "Tables" with a blue square icon. The list includes the following items:

- Categories
- Customers
- EmployeeCustomers
- Employees
- EmployeeTerritories
- OrderDetails
- Orders
- Products

#### NOTE

You can also create **custom queries** to shape data at the data source level. Select **Queries** and click the plus button to add a new query.

The invoked **Query Builder** allows you to join multiple tables, filter, sort, and group their data, and calculate various aggregate functions.

6. Set master-detail relationships on this wizard page. Hover the master table name, click the plus button and choose the detail table.

3. Configure master-detail relationships.

A screenshot of a master-detail relationship configuration interface. On the left, there are two buttons: "Categories" (highlighted with a pink rounded rectangle) and "Products" (highlighted with a pink rounded rectangle). A green plus sign button is positioned between them. A tooltip-like box is overlaid on the "Products" button, containing the word "Products". To the right of the buttons is a large, empty white area where relationships would be configured.

Select the required key fields (columns) to connect tables.

3. Configure master-detail relationships.

The screenshot shows the 'Categories' data source being configured. A relationship named 'CategoriesProducts' is being established between 'Categories' and 'Products'. The condition for the relationship is 'Categories . CategoryID = Products . <Select a column>'. A dropdown menu is open, listing columns from the 'Products' table: ProductID, ProductName, SupplierID, CategoryID (with a cursor icon indicating it is selected), QuantityPerUnit, and UnitPrice.

Click **Finish** to close the Data Source Wizard.

## Use an Existing Data Source

You can bind your report to a predefined data source. Open the **Field List** panel, click the **Add DataSource** button and select a data source from the drop-down list.

The Field List panel displays the added SQL data source 'sqlDataSource1' under the 'Data Sources' section. Below it, the 'Parameters' section is visible. On the right side of the panel, there is a toolbar with icons for settings, search, filter, edit, and delete, along with a 'Add query' button.

The Field List reflects the added SQL data source and its hierarchy. You can select the data source to edit it.

This screenshot is similar to the previous one, showing the Field List panel with 'sqlDataSource1' and 'Parameters'. The difference is that the 'Add query' button on the toolbar is now highlighted with a cursor icon, indicating it is the active or selected tool.

# Specify Query Parameters

This document provides general information on query parameters and describes common ways of utilizing parametrized SQL queries to filter data at the data source level.

## Query Parameters Overview

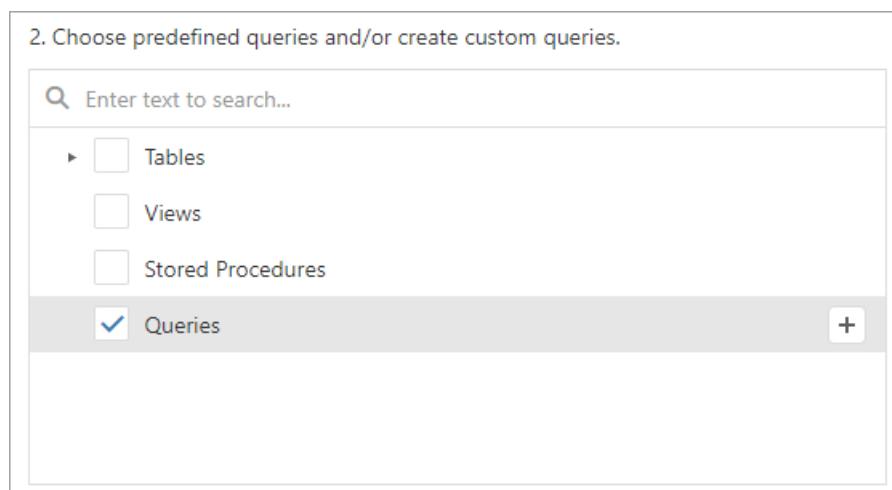
A query parameter holds an external value that is inserted into an SQL statement before query execution. This value can be either static or dynamically generated by an associated expression.

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](#),



You can add queries to an existing SQL data source or edit existing queries:

You can filter the constructed queries using query parameters. Expand the **Parameters** section in the [Query Builder](#) to add a new query parameter.

# Query Builder

**QUERY PROPERTIES**

Name	Products
Filter	...
Group Filter	...
Select All (*)	No
Select Top	0
Offset	0
Select distinct	No

**AVAILABLE TABLES AND VIEWS**

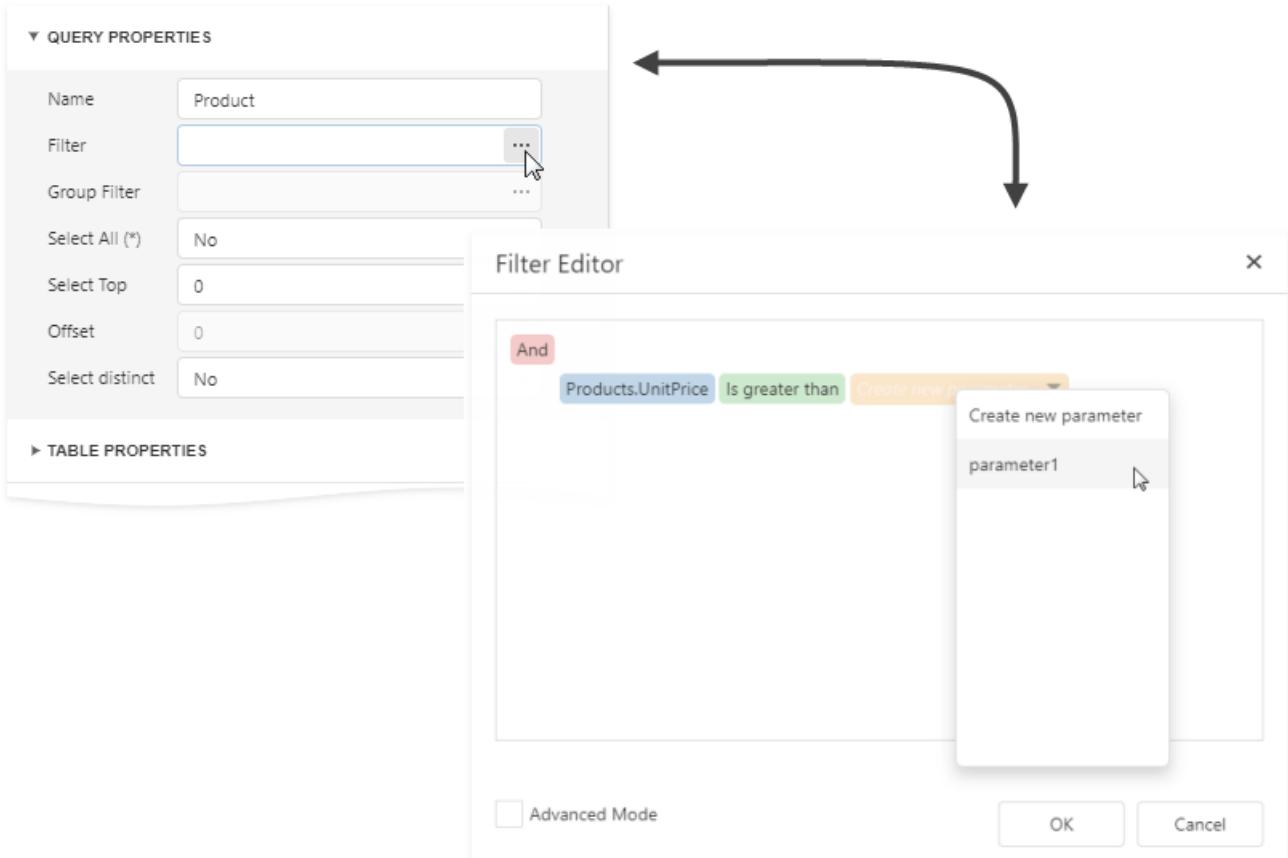
**PARAMETERS**

Name	parameter1
Type	String
Value	

**Buttons:** Preview Results... OK Cancel

The screenshot shows the Query Builder window with the 'Products' table selected. In the 'Query Properties' section, the 'Name' is set to 'Products'. The 'Filter' property has an ellipsis button. Other properties include 'Group Filter', 'Select All (\*)' (set to 'No'), 'Select Top' (set to '0'), 'Offset' (set to '0'), and 'Select distinct' (set to 'No'). The 'Parameters' section contains one parameter named 'parameter1' of type 'String'. At the bottom, there are buttons for 'Preview Results...', 'OK', and 'Cancel'.

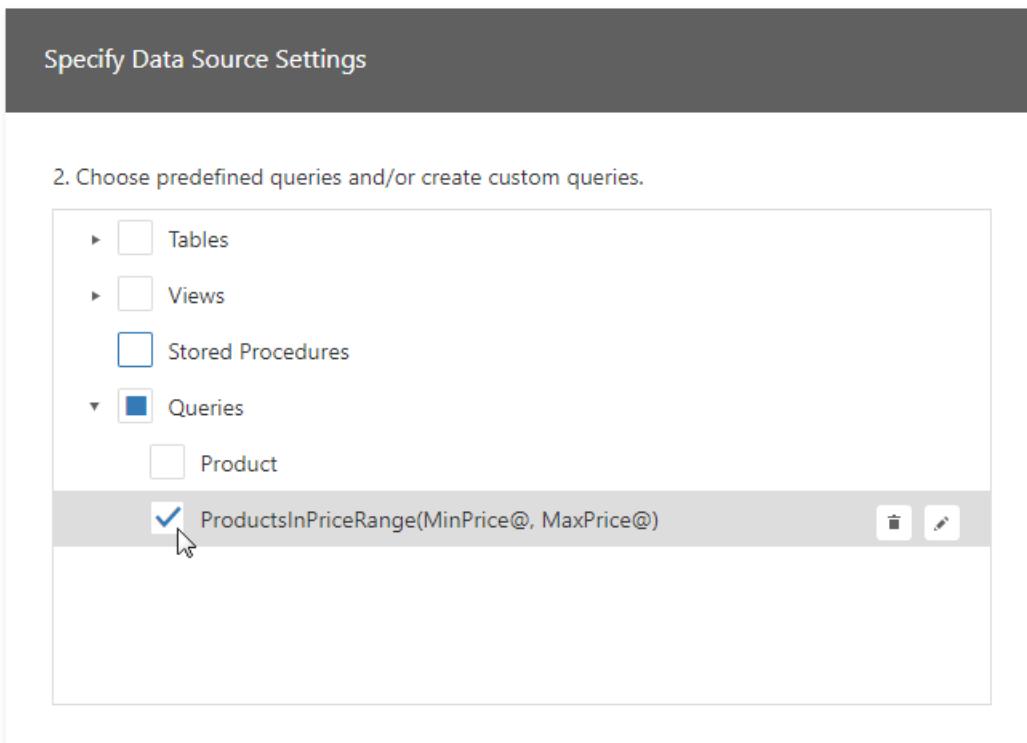
Expand the **Query Properties** section and click the **Filter** property's ellipsis button to invoke the Filter Editor and filter data using the created query parameters.



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 Data Source Wizard include the following 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** page.

#### 4. Configure query parameters.

The screenshot shows the 'Configure query parameters' step of the Data Source Wizard. A dropdown menu is open, showing the option 'ProductsInPriceRange(@MinPrice, @MaxPrice)'. Below it, two parameters are listed: '@MinPrice' and '@MaxPrice'. '@MinPrice' has its Name set to '@MinPrice', Type set to 'Number (decimal)', and Value set to '20'. '@MaxPrice' has its Name set to '@MaxPrice'. There are also delete and edit icons for each parameter entry.

## 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.

4. Configure query parameters.

The screenshot shows the 'Configure query parameters' dialog. It contains two entries under the section 'ProductsInPriceRange(@MinPrice, @MaxPrice)'. The first entry is '@MinPrice' with a value of 20. The second entry is '@MaxPrice' with a value of 30. At the bottom right, there are 'Previous', 'Next', and 'Finish' buttons.

Name	Type	Value
@MinPrice	Number (decimal)	20
@MaxPrice	Number (decimal)	30

Previous Next Finish

- **Providing a dynamic value**

Create a complex expression by expanding the **Type** property's drop-down list and selecting **Expression**.

The screenshot shows the 'Configure query parameters' dialog. It contains one entry under the section 'ProductsInPriceRange(@MinPrice, @MaxPrice)'. The entry is '@MinPrice'. The 'Type' property is set to 'Number (decimal)'. The 'Value' property has an ellipsis button, which is highlighted. A dropdown menu is open, showing options: 'Number (decimal)', 'Boolean', 'Guid', and 'Expression'. The 'Expression' option is at the bottom of the list.

Name	Type	Value
@MinPrice	Number (decimal)	...

Click the **Value** property's ellipsis button and construct an expression in the invoked [Expression Editor](#). You can map a report parameter that already exists in a report to a query parameter.

#### 4. Configure query parameters.

The screenshot illustrates the configuration of query parameters in a report. At the top, a parameter named '@MinPrice' is defined with the following properties:

- Name: @MinPrice
- Type: Expression
- Result Type: System.Decimal
- Value: 0

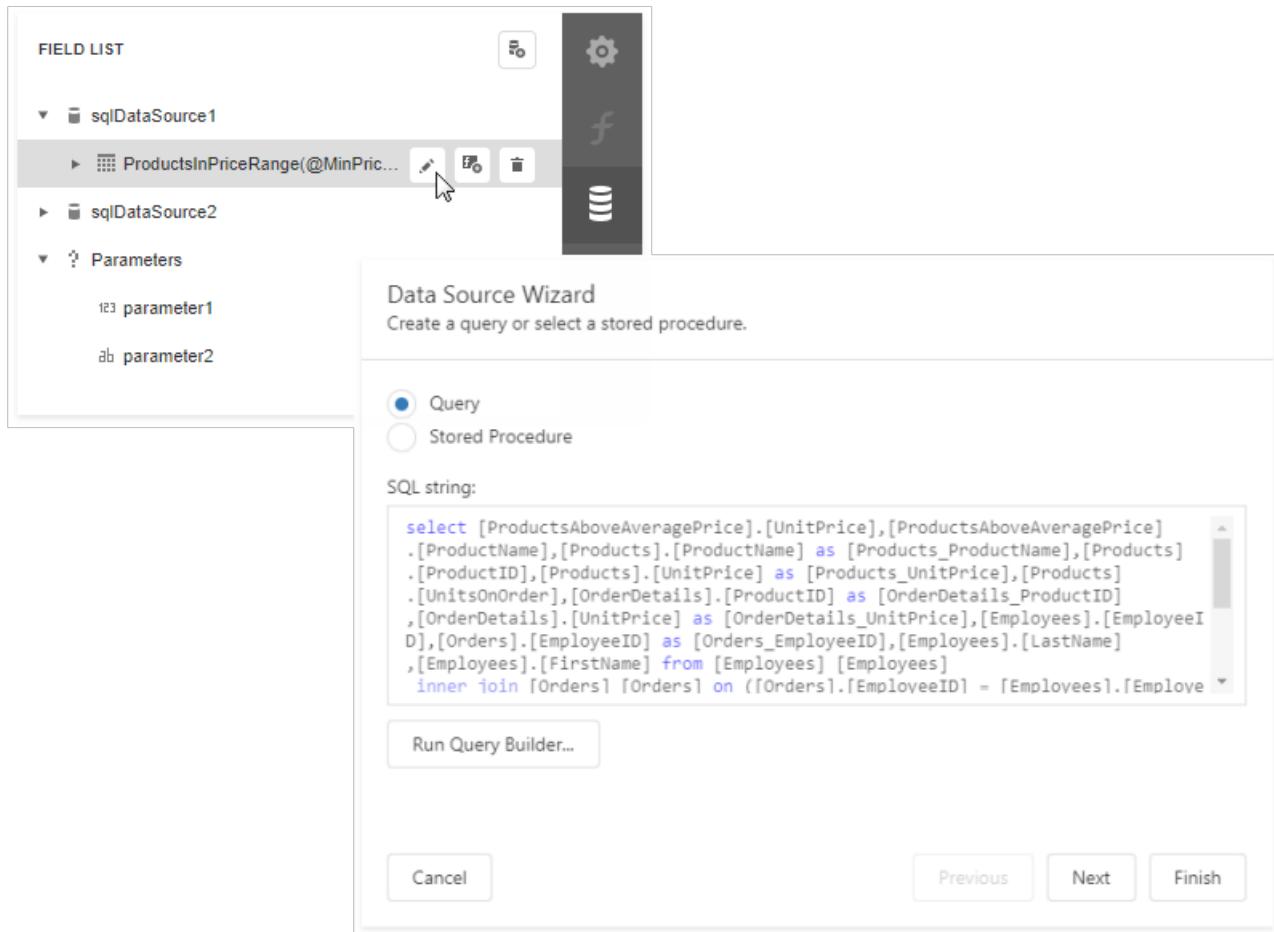
An arrow points down from this configuration to an 'Expression Editor' window. The editor shows the following expression:

```
1 Min (?parameter1, ?parameter2)
```

The 'Fields' category in the sidebar of the expression editor is selected. A search bar at the top right contains the placeholder 'Enter text to search...'. Below it, a list of parameters is shown, with 'parameter1' and 'parameter2' being the items currently visible.

## 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.

4. Configure query parameters.

The screenshot shows the 'Expression Editor' and the 'Parameters' configuration side-by-side. In the Expression Editor, the code `1 Join({ ?OrderID })` is displayed. Below it, the 'Parameters' section lists 'parameter1' and 'parameter2'. On the right, the 'Parameters' configuration panel is open, showing a parameter named 'OrderID' with the following settings:

- Name: OrderID
- Description: OrderID
- Visible: checked
- Multi-Value: checked
- Allow Null: unchecked
- Type: Number (32 bit integer)
- Look-Up Settings: Static List

- Use the [CreateTable\(\)](#) expression function to prepare a table using values of several multi-value parameters.

4. Configure query parameters.

The screenshot shows the 'Expression Editor' and the 'Parameters' configuration side-by-side. In the Expression Editor, the code `1 CreateTable({?parameter1},{?parameter2})` is displayed. Below it, the 'Parameters' section lists 'parameter1' and 'parameter2'. On the right, the 'Parameters' configuration panel is open, showing a parameter named 'OrderID' with the following settings:

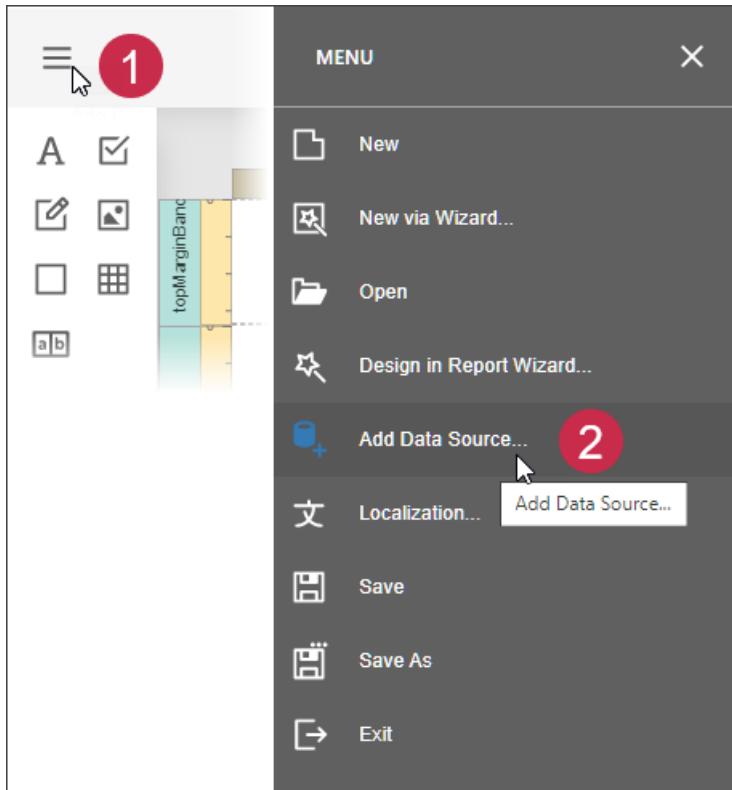
- Name: OrderID
- Description: OrderID
- Visible: checked
- Multi-Value: checked
- Allow Null: unchecked
- Type: Number (32 bit integer)
- Look-Up Settings: Static List

# Bind a Report to JSON Data

This topic describes how to bind a report to JSON data.

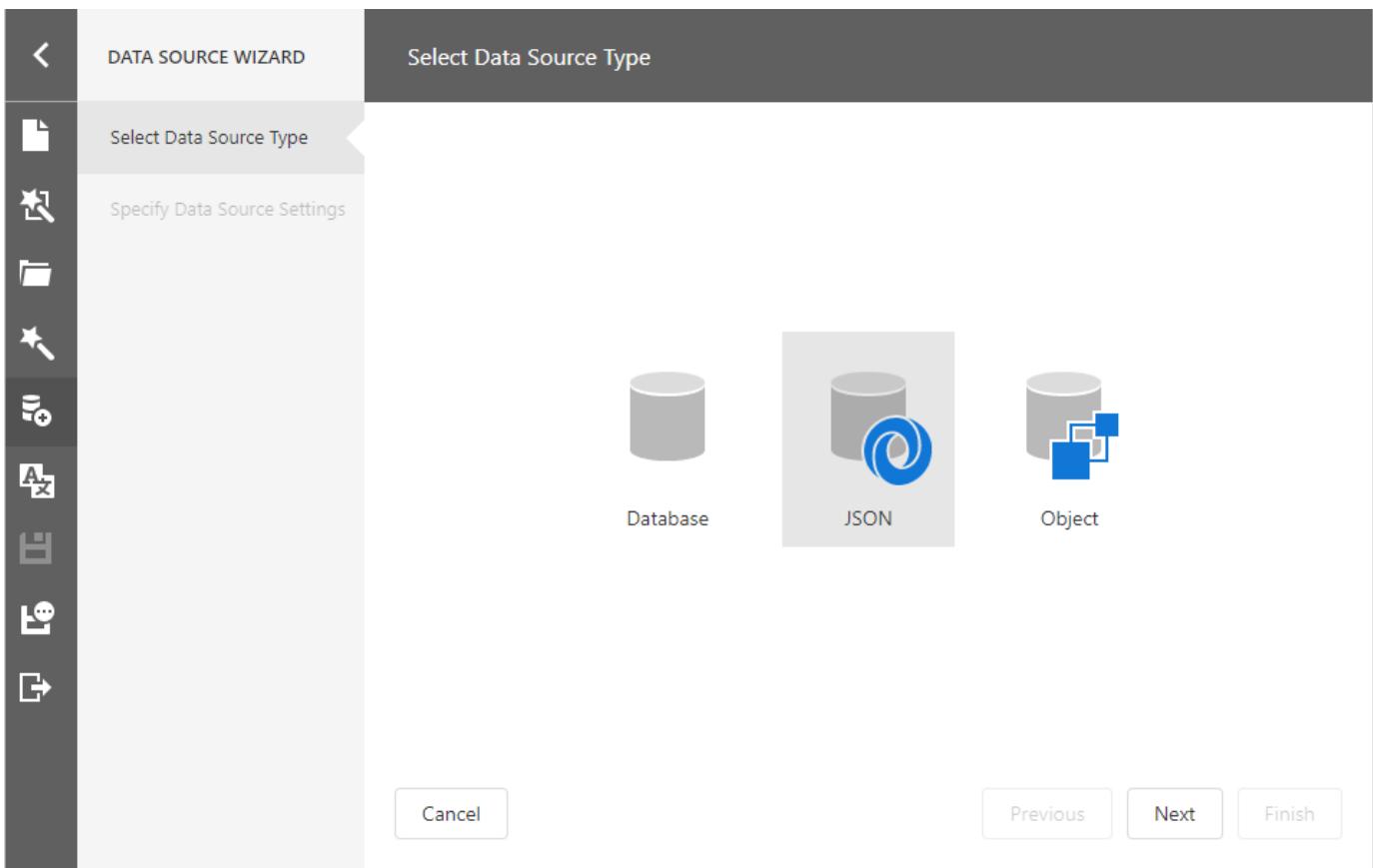
## Add a New Data Source

1. Invoke the designer menu and click **Add Data Source....**

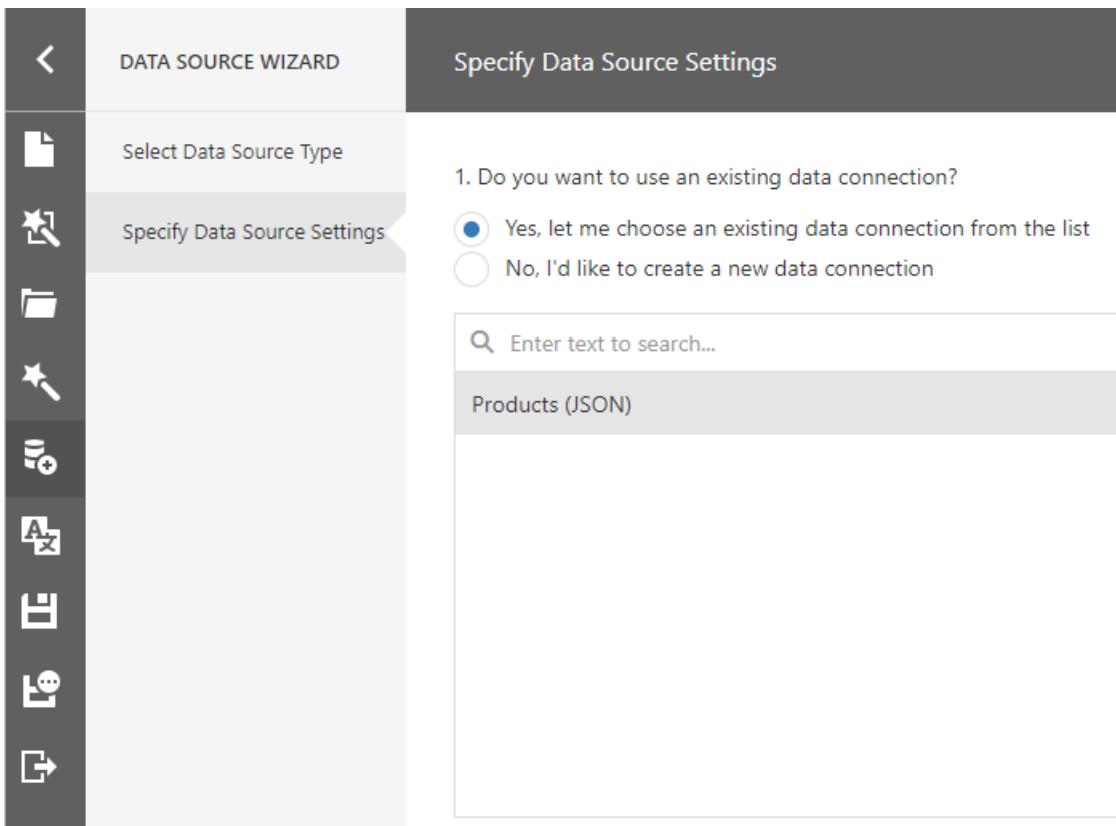


This invokes the Data Source Wizard.

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



3. The next wizard page allows you to specify whether you want to use an existing data connection or create a new data connection.



If you prefer to create a new data connection, specify its settings. You can use a Web Service Endpoint, a filename, or a string with JSON data. In this example, the JSON data is obtained from a [JSON sample data location](#).

1. Do you want to use an existing data connection?

Yes, let me choose an existing data connection from the list

No, I'd like to create a new data connection

Connection Name: *	Customers
JSON Source:	Web Service Endpoint (URI)
Web Service Endpoint (URI): *	https://raw.githubusercontent.com/DevExpress...
▼ BASIC HTTP AUTHENTICATION	
Username:	
Password:	
▼ PARAMETERS	
<input type="button" value="^"/> <input type="button" value="v"/> <input type="button" value="+"/> <input type="button" value="-"/>	

Specify request parameters (username and password, path parameters, query parameters, or HTTP headers).

- A path parameter appends a path element to a JSON endpoint URI.
- A query parameter specifies a HTTP request parameter that is passed to a JSON endpoint.
- A header parameter adds a custom HTTP header to JSON endpoint requests.

1. Do you want to use an existing data connection?

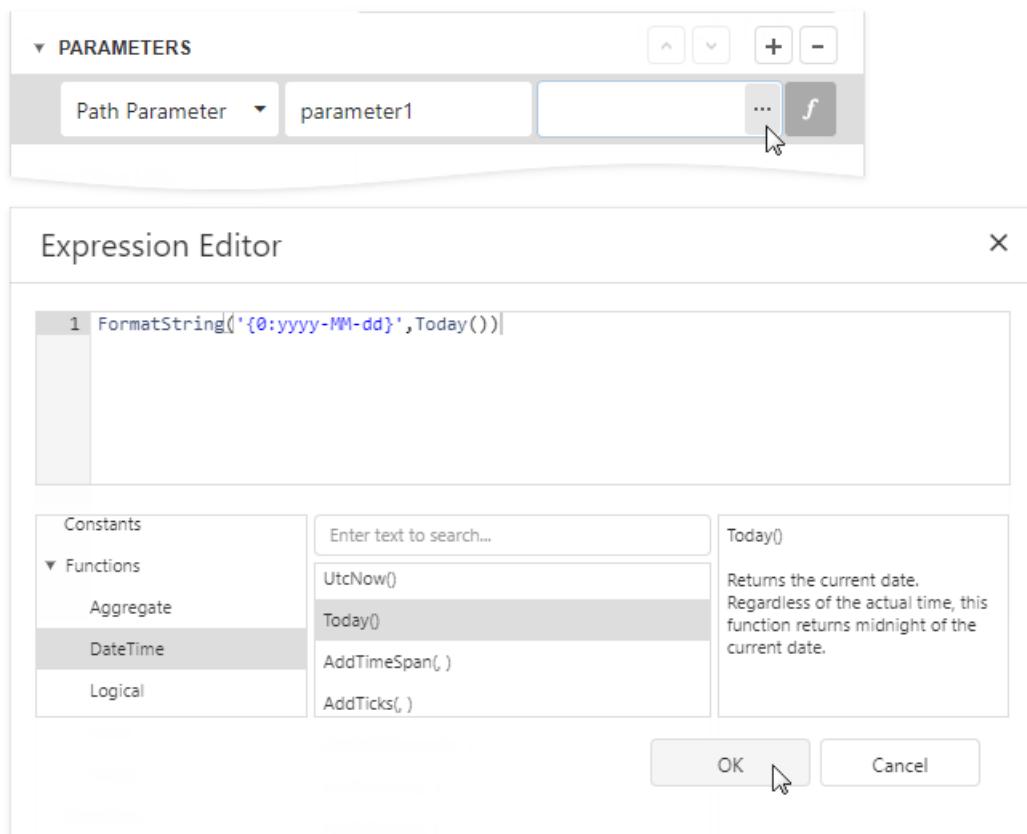
Yes, let me choose an existing data connection from the list

No, I'd like to create a new data connection

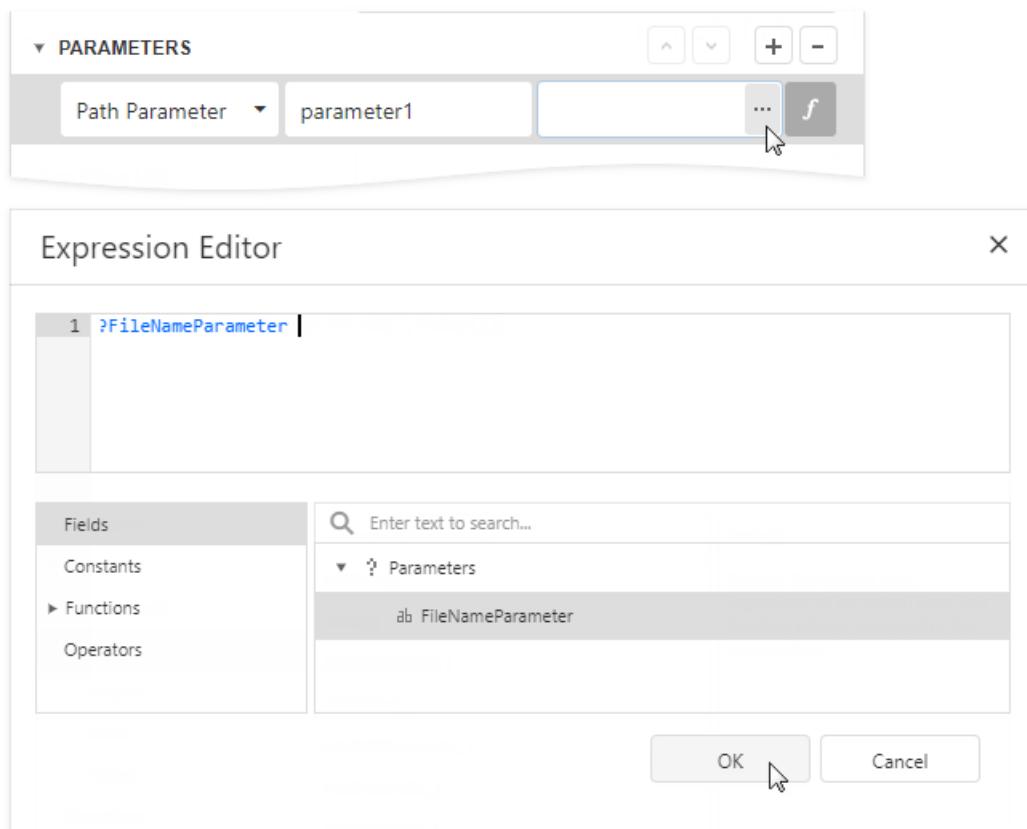
Connection Name: *	Customers		
JSON Source:	Web Service Endpoint (URI)		
Web Service Endpoint (URI): *	https://raw.githubusercontent.com/DevExpress-E...		
► BASIC HTTP AUTHENTICATION			
▼ PARAMETERS			
Path Parameter	parameter1	Value	<input type="button" value="f"/>
Re	<input type="button" value="Path Parameter"/> <input type="button" value="Query Parameter"/> <input type="button" value="Header"/>		
<input type="button" value="^"/> <input type="button" value="v"/> <input type="button" value="+"/> <input type="button" value="-"/>			

You can click the parameter's **f** button and use an expression to set the parameter value.

- Click the **Value** property's ellipsis button. Specify the expression in the invoked [Expression Editor](#) and click **OK**.



- Expressions can include **report parameters**. In the **Expression Editor**, expand **Parameters**, select a report parameter to which you want to bind the path parameter, query parameter, or header parameter, and click **OK**.



#### NOTE

The Data Source Wizard sends a request to the endpoint with the specified parameters to populate the data source and build the data source schema. Ensure that the parameters are always set to the values that the endpoint expects. Otherwise, the Data Source Wizard generates an error on the next steps.

For instance, if a user specifies the name of a JSON file in a parameter, specify the default file name in order to avoid an error.

Path parameters, query parameters, and header parameters are included in endpoint requests in the same order as they are listed. Move a parameter up or down in the list to change its position in endpoint requests.

The **Resulting URI** read-only field shows how the resulting JSON URI looks.

1. Do you want to use an existing data connection?

Yes, let me choose an existing data connection from the list  
 No, I'd like to create a new data connection

Connection Name: \*

JSON Source:

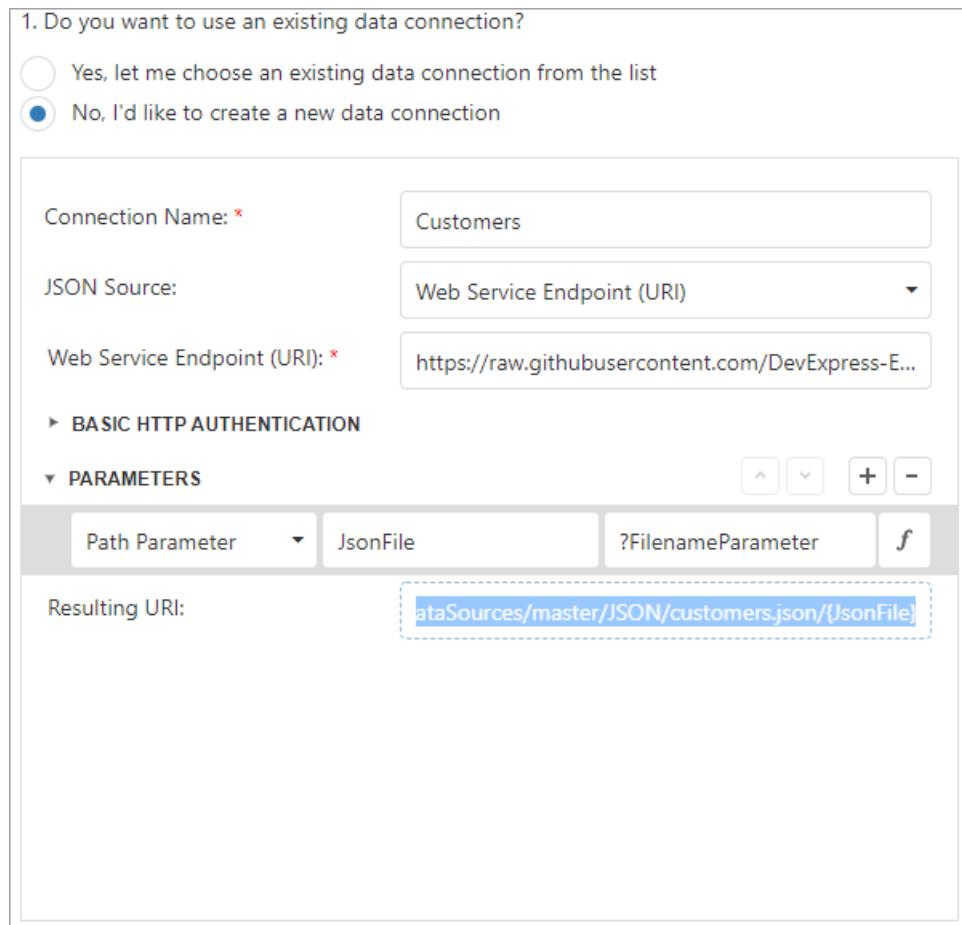
Web Service Endpoint (URI): \*

▶ BASIC HTTP AUTHENTICATION

▼ PARAMETERS [+/-]

Path Parameter	JsonFile	?FilenameParameter	f
----------------	----------	--------------------	---

Resulting URI:



4. This wizard page also shows the specified JSON data's structure. You can choose all nodes or a subset of nodes.

2. Select data fields.

Root element: root.Customers

- Customers
- Address
- City
- CompanyName
- ContactName
- ContactTitle
- Country
- Fax
- Id
- Phone
- PostalCode
- Region

Uncheck the data fields that your report does not require.

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.

FIELD LIST

+ Add Data Source

Enter text to search...

jsonDataSource1

- ab Address
- ab City
- ab CompanyName
- ab ContactName
- ab ContactTitle
- ab Country
- ab Fax
- ab Id
- ab Phone
- ab PostalCode
- ab Region

? Parameters

## Customize the JSON Data Source Schema

Choose the **JsonDataSource** component in the Field List and click **Edit Schema...**. Reconfigure data fields in the invoked wizard page.

**FIELD LIST**

Enter text to search...

sqlDataSource1

jsonDataSource1

ab Address

ab City

ab CompanyName

ab ContactName

ab ContactTitle

ab Country

ab Fax

ab Id

ab Phone

ab PostalCode

ab Region

Parameters

**f**

**Edit Schema...**

**Data Source Wizard**  
Select data fields.

Root element: root.Customers

Customers

Address

City

CompanyName

ContactName

ContactTitle

Country

Cancel

Previous

Next

Finish

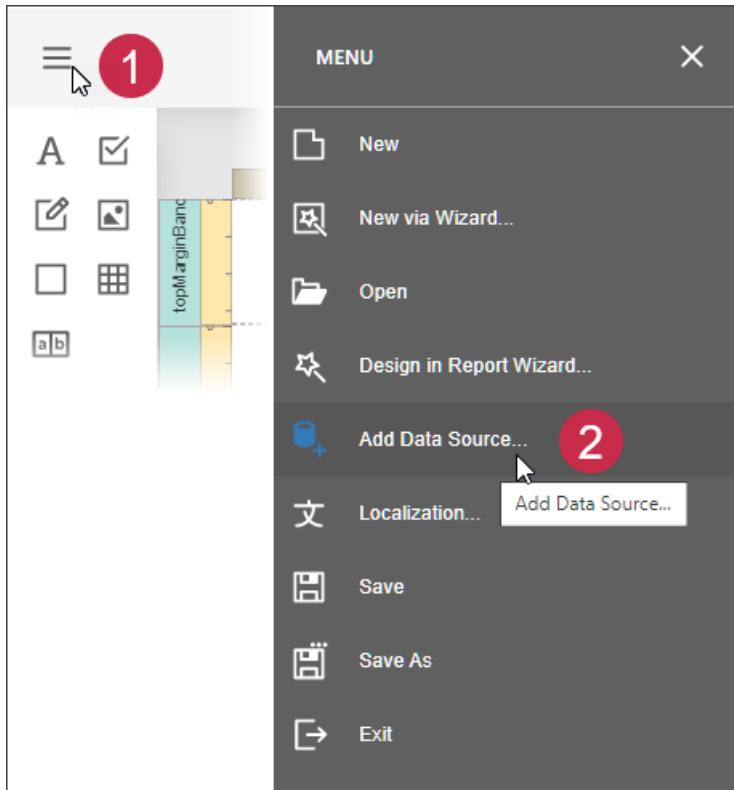
The screenshot shows a 'Data Source Wizard' dialog box overlaid on a field list interface. The field list on the left lists various data sources and their fields. The 'jsonDataSource1' section is expanded, showing fields like 'Address', 'City', 'CompanyName', etc. A context menu is open over the 'jsonDataSource1' entry, with 'Edit Schema...' highlighted. The main dialog has a title 'Data Source Wizard' and a subtitle 'Select data fields.' It shows a tree view under 'Root element:' with 'Customers' selected. All child nodes ('Address', 'City', 'CompanyName', 'ContactName', 'ContactTitle', 'Country') are checked. At the bottom are standard dialog buttons: 'Cancel', 'Previous', 'Next', and 'Finish'.

# Bind a Report to an Object Data Source

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

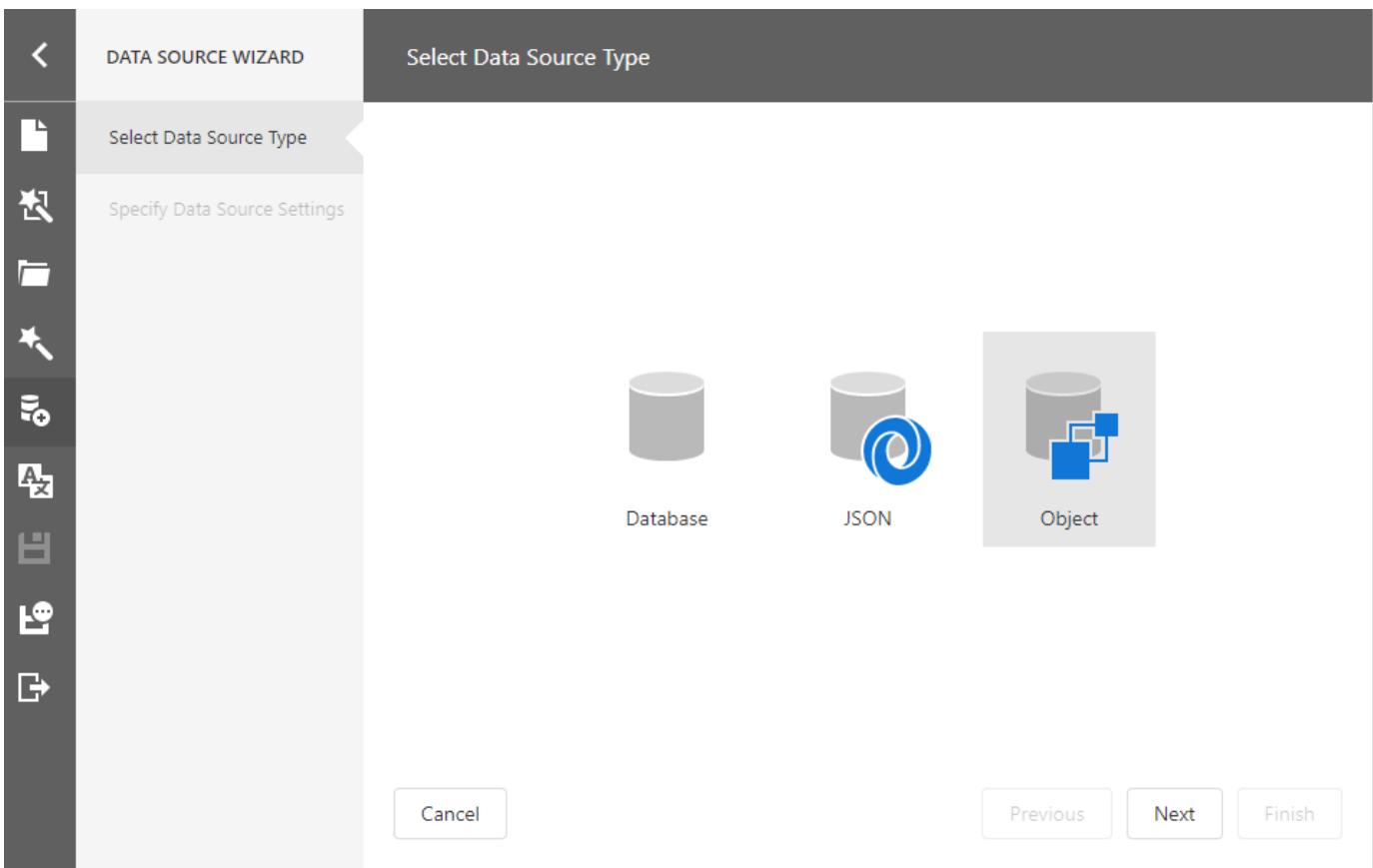
## Add a New Data Source

1. Select **Add Data Source** from the [designer menu](#).

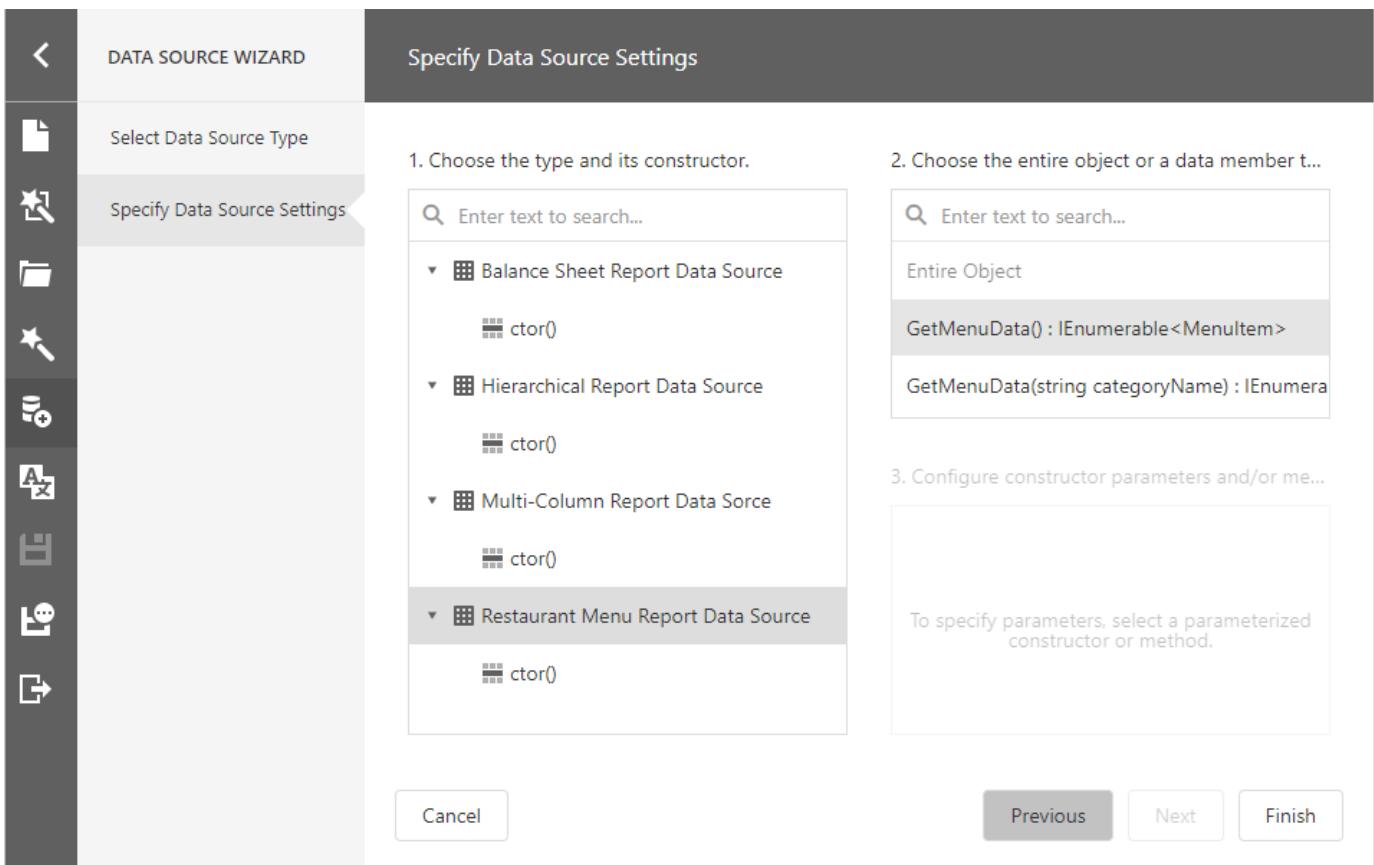


This invokes the [Data Source Wizard](#).

2. Choose **Object** and click **Next**.



3. Specify data source settings on the next screen.



- o Select a data object or constructor from the list. If you select a data object, its default constructor is used.

DATA SOURCE WIZARD

## Specify Data Source Settings

Select Data Source Type

Specify Data Source Settings

1. Choose the type and its constructor.

Enter text to search...

- ▼  Balance Sheet Report Data Source
  - ctor()
- ▼  Hierarchical Report Data Source
  - ctor()
- ▼  Multi-Column Report Data Sorce
  - ctor()
- ▼  Restaurant Menu Report Data Source
  - ctor()

- Select the method that should provide data or select **Entire Object** to bind the report to the object's fields.

2. Choose the entire object or a data member to bind.

Enter text to search...

Entire Object

`GetMenuData() : IEnumerable<MenuItem>`

`GetMenuData(string categoryName) : IEnumerable<MenuItem>`

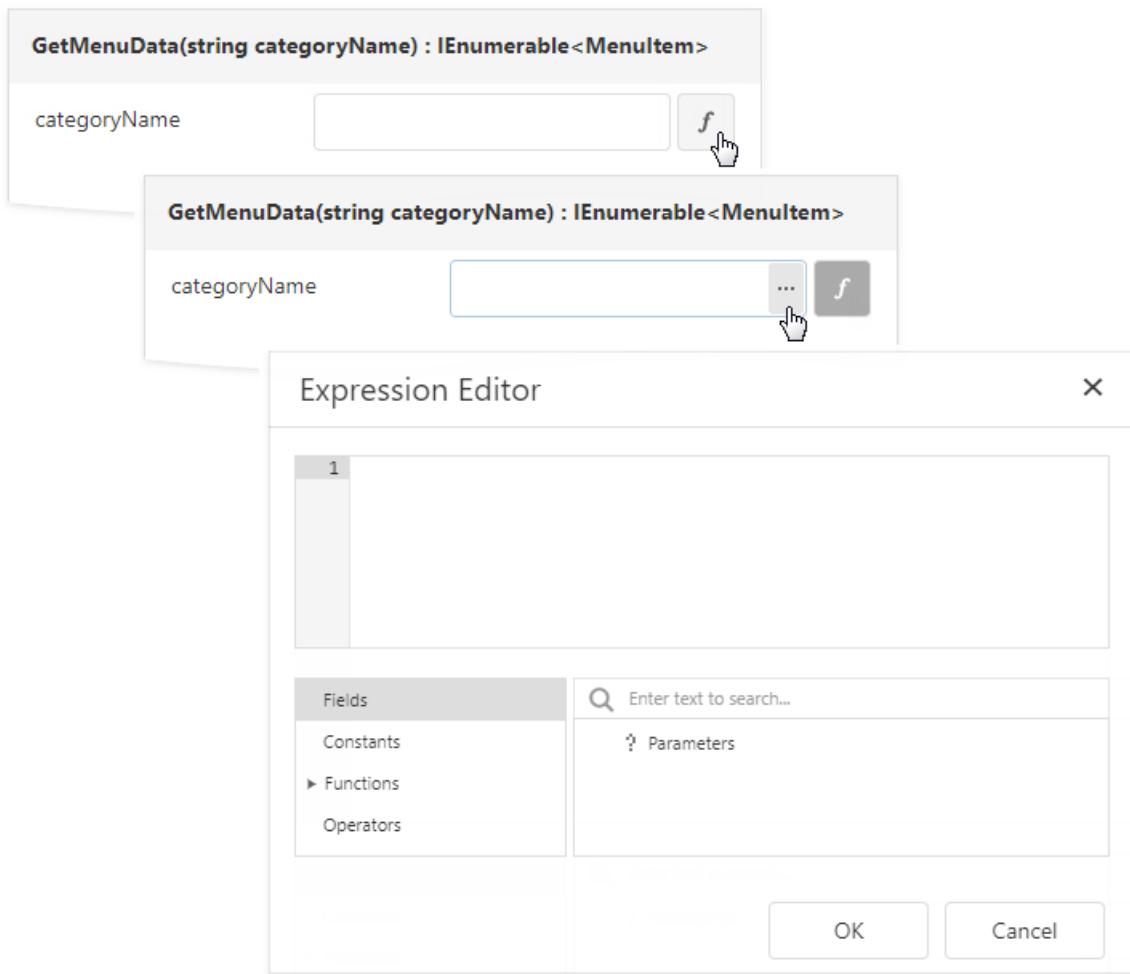
- Specify constructor and/or data member parameters, if required.

3. Configure constructor parameters and/or method parameters.

`GetMenuData(string categoryName) : IEnumerable<MenuItem>`

categoryName

You can use expressions to provide data source parameter values. Click the  button to switch the parameter's editor to the expression mode. Specify an expression in the parameter's editor, or click the parameter's ellipsis button to launch the [Expression Editor](#). You can use [report parameters](#) in expressions to specify an input value for a data source parameter.



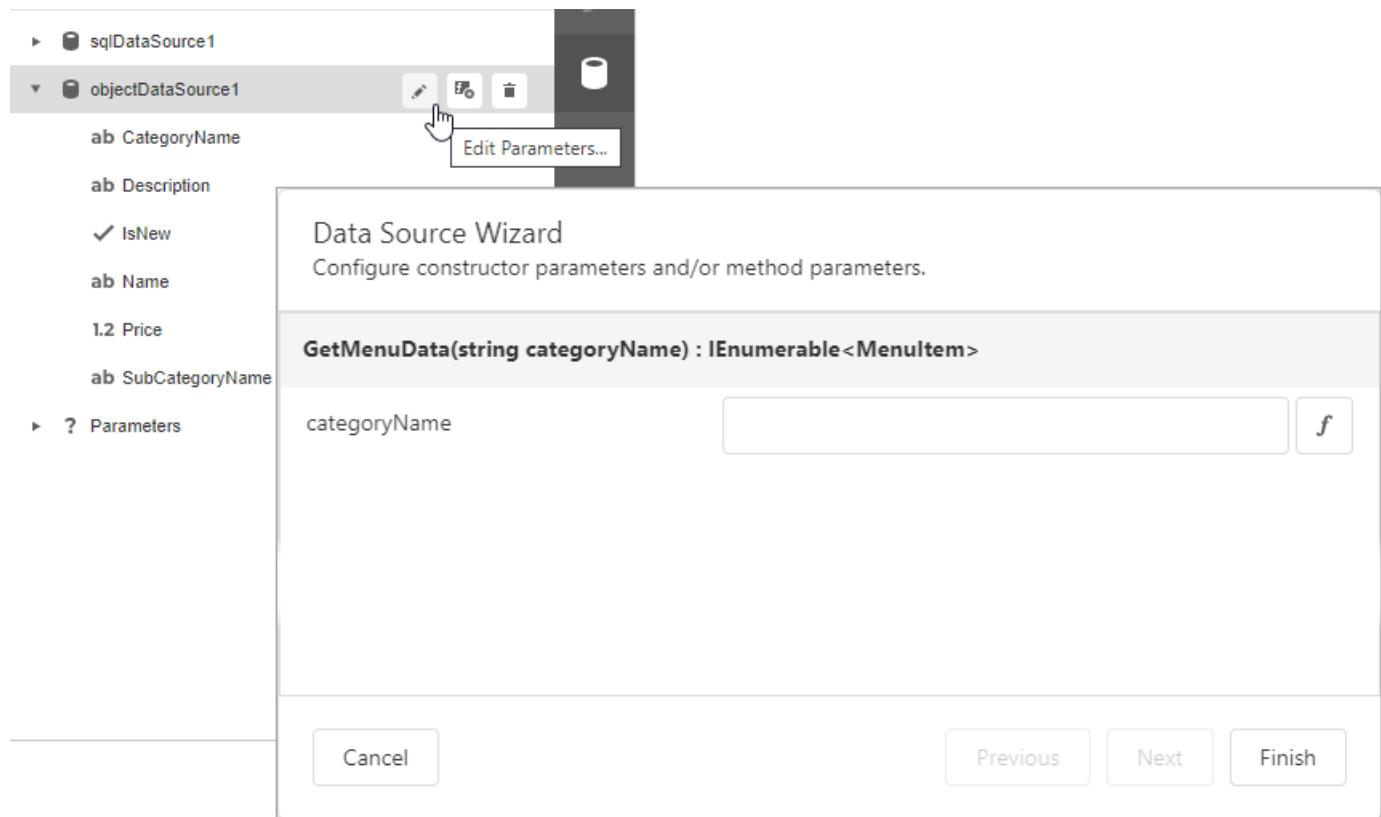
Click **Finish** to close the Data Source Wizard.

Once you finished the wizard, the data source becomes available in the [Report Explorer's Data Sources](#) node. The Field List reflects the data source structure.

The screenshot shows the Visual Studio interface with the 'REPORT EXPLORER' and 'FIELD LIST' panes. In the 'REPORT EXPLORER' pane, under 'Data Sources', there is an entry for 'objectDataSource1'. In the 'FIELD LIST' pane, 'objectDataSource1' is expanded, showing its fields: 'CategoryName', 'Description', 'IsNew' (with a checked checkbox), 'Name', 'Price', 'SubCategoryName', and a 'Parameters' section. Each field has a small edit icon next to it.

## Configure Parameters

Choose an **ObjectDataSource** component in the Field List and click **Edit Parameters**. Reconfigure the parameters on the invoked wizard page and click **Finish** to apply the changes.



For more information on how to set up an object data source, refer to the [Data Source Wizard](#).

# 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 retrieves data from the `Invoices` view of the **Northwind** database.
3. [Add a JSON data source](#) that retrieves customer data from the <https://raw.githubusercontent.com/DevExpress-Examples/DataSources/master/JSON/customers.json> location.

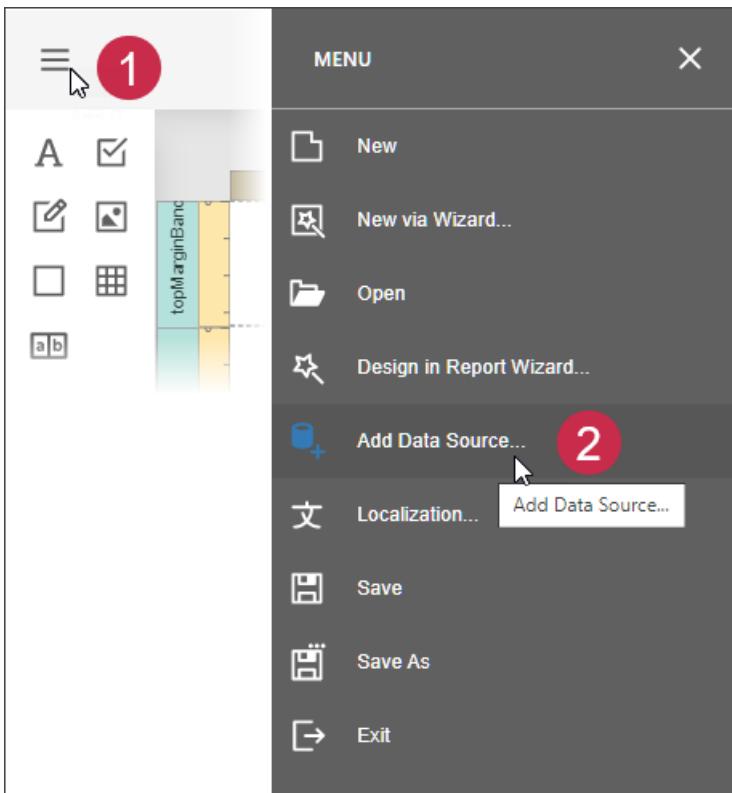
The screenshot shows the 'FIELD LIST' window with two data sources listed:

- sqlDataSource2**: Contains a single view named `Invoices`, which includes fields: CustomerID, OrderDate, OrderID, Quantity, and UnitPrice.
- jsonDataSource1**: Contains fields: Address, City, ContactName, and Id.

A vertical toolbar on the right side of the window provides various operations such as search, add, edit, and delete.

## Create Data Federation

1. Invoke the designer [menu](#) and click **Add Data Source**.



2. Select **Data Federation** in the invoked **Data Source Wizard** and click **Next**.



## Select Data Source Type



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H

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E

→



Database



JSON



Object



Data Federation

Cancel

Previous

Next

Finish

3. On the next page, click the **+ (plus) button** and select **Join** to add a Join query.



## Specify Data Source Settings



文



1. Create a federated query.

Enter text to search...

- ▶  sqlDataSource2
- ▶  jsonDataSource1
- Federated Queries

- Join
- Union
- Transform

2. Configure master-detail relationships.

To create a master-detail relationship, select two or more queries.

Cancel

Previous

Next

Finish

4. In the invoked [Query Builder](#), drag and drop the table from the SQL data source onto the design surface.

Query Builder

1

2

INVOICES  
sqlDataSource2

\* (All Columns)

CustomerID

OrderID

OrderDate

UnitPrice

Quantity

Join result

No data

OK Cancel

This screenshot shows the Query Builder interface. On the left, there's a tree view with nodes for 'sqlDataSource2' (expanded) and 'jsonDataSource1' (expanded). Under 'sqlDataSource2', there's a node for 'Invoices'. Under 'jsonDataSource1', there are nodes for 'Address', 'City', 'ContactName', and 'Id'. In the center, there's a list of columns for the 'INVOICES' table from 'sqlDataSource2'. At the bottom, there's a 'Join result' section which currently displays 'No data'. At the bottom right are 'OK' and 'Cancel' buttons.

5. Drag and drop the JSON data source onto the design surface.

Query Builder

1

2

INVOICES  
sqlDataSource2

\* (All Columns)

CustomerID

OrderID

OrderDate

UnitPrice

Quantity

JSONDATASOURCE1  
jsonDataSource1

\* (All Columns)

Address

City

ContactName

Id

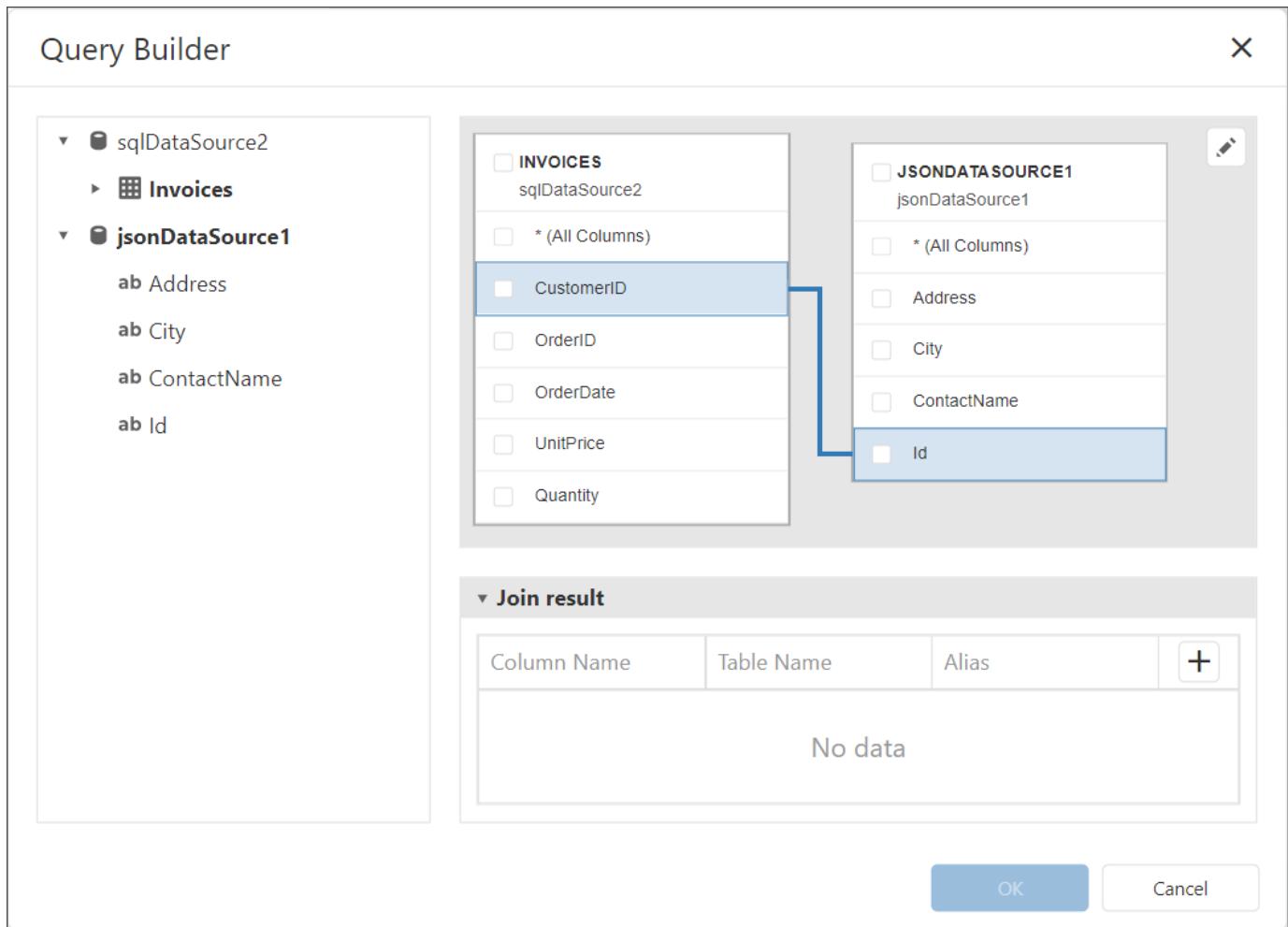
Join result

No data

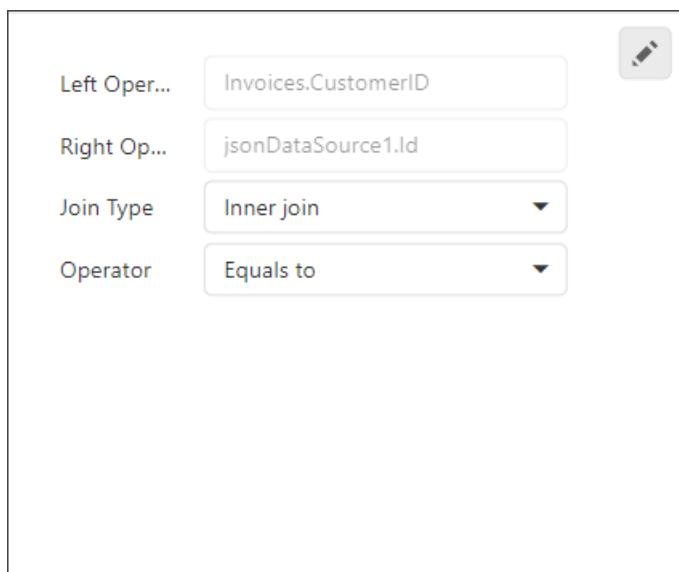
OK Cancel

This screenshot shows the Query Builder interface after dragging and dropping 'jsonDataSource1' onto the design surface. The tree view now includes 'jsonDataSource1' under 'sqlDataSource2'. The 'Invoices' node under 'jsonDataSource1' is highlighted with a red circle labeled '1'. The 'JSONDATASOURCE1' table node is highlighted with a red circle labeled '2'. The central column list and 'Join result' section remain the same as in the previous screenshot.

6. Click a field in one table and drag it to the related field in another table to create a Join relationship.



7. Select the line that indicates a relationship and click the Edit button in the upper right corner of the design surface to invoke the Relation Properties editor.



The editor allows you to change the join type and operator.

8. Select the data fields that you want to include in the result set.

Query Builder

sqlDataSource2

- Invoices**

jsonDataSource1

- Address
- City
- ContactName
- Id**

<input type="checkbox"/> INVOICES	sqlDataSource2
<input type="checkbox"/> * (All Columns)	
<input checked="" type="checkbox"/> CustomerID	
<input checked="" type="checkbox"/> OrderID	
<input checked="" type="checkbox"/> OrderDate	
<input type="checkbox"/> UnitPrice	
<input type="checkbox"/> Quantity	

<input type="checkbox"/> JSONDATASOURCE1	jsonDataSource1
<input type="checkbox"/> * (All Columns)	
<input checked="" type="checkbox"/> Address	
<input checked="" type="checkbox"/> City	
<input checked="" type="checkbox"/> ContactName	
<input type="checkbox"/> Id	

Join result

Column Name	Table Name	Alias	<b>+</b>
City	f	jsonDataSource1	<b>–</b>
Address	f	jsonDataSource1	<b>–</b>

OK Cancel

You can specify a different name for a field. Click the field's **Alias** cell and enter the field name.

- Click the **+ (plus) button** to add a field to the query. Click the field's **f-button** to switch to the Expression edit mode.

Join result

Column Name	Table Name	Alias	<b>+</b>
Address	f	jsonDataSource1	<b>–</b>
...	<b>f</b>	Expr	<b>–</b>

- Click the **ellipsis (...)** in the field to invoke the **Expression Editor** and construct an expression for the field value:

```
[Invoices.UnitPrice] * [Invoices.Quantity]
```

## Expression Editor

X

```
1 [Invoices.UnitPrice] * [Invoices.Quantity]
```

### Fields

Constants

► Functions

Operators

Enter text to search...

12 OrderID

⌚ OrderDate

1.2 UnitPrice

12 Quantity

► jsonDataSource1

OK

Cancel

Click **OK** to close the Expression Editor.

11. Specify *Amount* as the alias for the newly created calculated field.

▼ Join result

Column Name	Table Name	Alias	
CustomerID	Invoices		
OrderID	Invoices		
OrderDate	Invoices		
ContactName	jsonDataSource1		
City	jsonDataSource1		
Address	jsonDataSource1		
nitPrice] * [Invoices.Quar		Amount	

Click **OK** to close the Query Builder.

12. Click **Finish** to complete the Data Source Wizard.

[!\[\]\(444a59b87b72dd87279ef8d682df6350\_img.jpg\)](#) Specify Data Source Settings

1. Create a federated query.

Enter text to search...

- sqlDataSource2
- jsonDataSource1
- Federated Queries
  - Invoices

Invoices

2. Configure master-detail relationships.

To create a master-detail relationship, select two or more queries.

[Cancel](#) [Previous](#) [Next](#) [Finish](#)



The Wizard creates a new **FederationDataSource** that includes a single query.

## Manage the Federation Data Source

The federation data source is shown in the Field List.

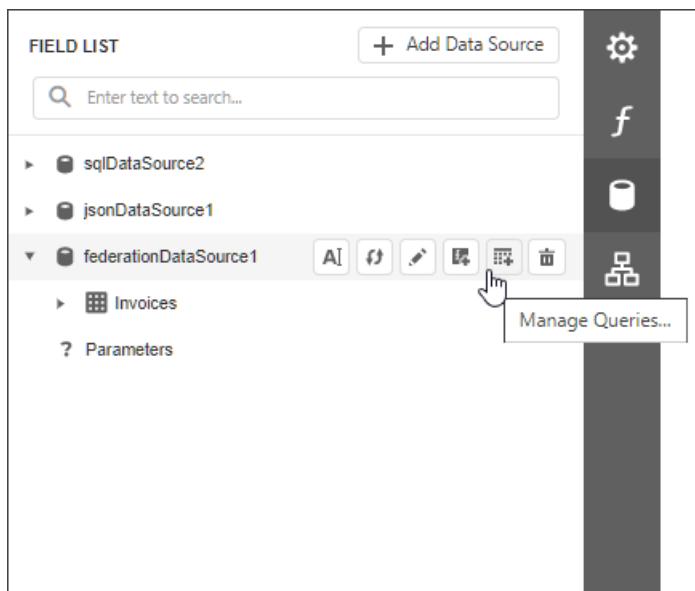
[FIELD LIST](#) [+ Add Data Source](#)

Enter text to search...

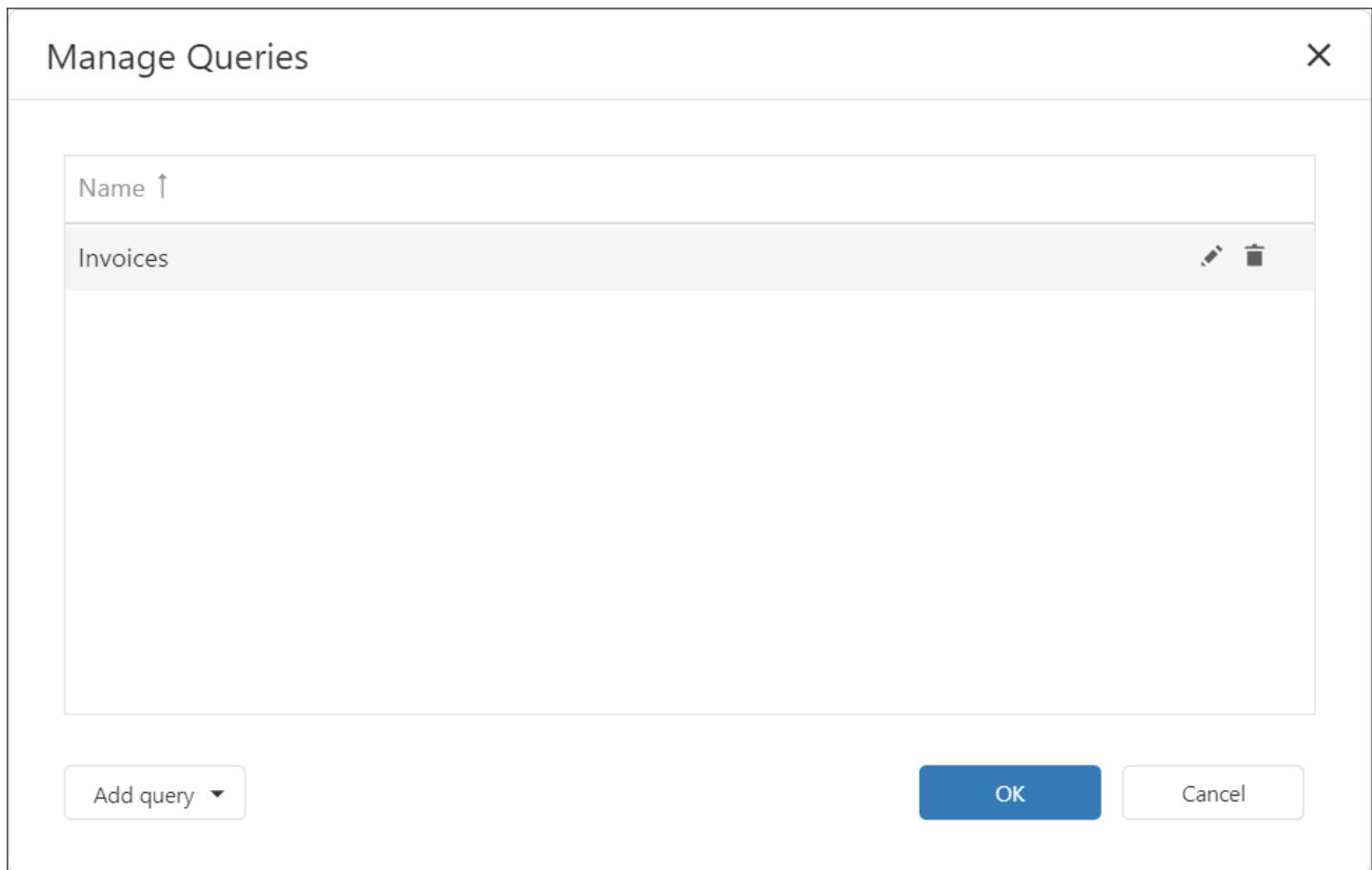
- sqlDataSource2
- jsonDataSource1
- federationDataSource1
  - Invoices
  - Parameters



When you create a federated query, its name is set to the name of the first table added to the query. You can rename the query in the **Manage Queries** dialog. To invoke the dialog, click the **Manage Queries** button.



The **Manage Queries** dialog appears.



Click the query name in the list to invoke the text editor and change the name.

## Manage Queries

X

Name ↑

Invoices

Add query ▾

OK

Cancel

The **Manage Queries** dialog allows you to add, modify, or delete queries.

To add a new query, click the **Add query** drop-down in the bottom left corner and select the query type: Join, Union, or Transform. The Query Builder is invoked to help you construct a new query.

To edit a query, select the query name in the list and click the **Edit button** that appears in the selected item. The Query Builder window is invoked to help you edit the query.

To delete a query, select the query name in the list and click the **Delete button** that appears in the selected item. The query is deleted without confirmation.

### NOTE

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

# Bind a Report to a Union-Based Federated Data Source

This topic describes how to create a union-based federated data source that combines two tables from different data sources by appending rows from one table to another.

## Create a Report and Data Sources

1. [Create a new blank report](#).
2. [Add a SQL data source](#) that retrieves data from the `Customers` table of the **Northwind** database.
3. [Add a JSON data source](#) that retrieves supplier data from the <https://services.odata.org/v4/northwind/northwind.svc/Suppliers> location.

The screenshot shows the Field List pane of a report designer. On the left, there's a tree view of fields under two data sources:

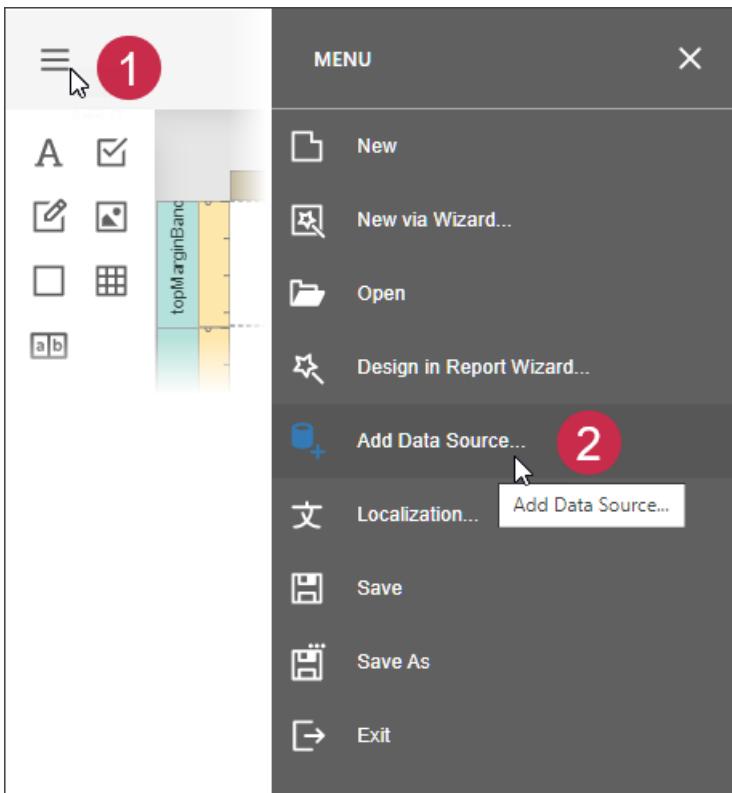
- sqlDataSource2**:
  - Customers**:
    - ab Address**
    - ab City**
    - ab CompanyName**
    - ab ContactName**
    - ab ContactTitle**
    - ab Country**
    - ab CustomerID**
    - ab Fax**
    - ab Phone**
    - ab PostalCode**
    - ab Region**

**jsonDataSource1**:
  - ab Address**
  - ab City**
  - ab CompanyName**

On the right, there's a vertical toolbar with icons for settings, a gear, a lowercase 'f', a cylinder, and a cube.

## Create Data Federation

1. Invoke the designer [menu](#) and click **Add Data Source**.



2. Select **Data Federation** in the invoked **Data Source Wizard** and click **Next**.



## Select Data Source Type



文

H

H

→



Database



JSON



Object



Data Federation

Cancel

Previous

Next

Finish

3. On the next page, click the **+ (plus) button** and select **Union** to add a Union query.



## Specify Data Source Settings



文



1. Create a federated query.

Enter text to search...

- ▶  sqlDataSource2
- ▶  jsonDataSource1
- Federated Queries

- Join
- Union
- Transform

2. Configure master-detail relationships.

To create a master-detail relationship, select two or more queries.

[Cancel](#)

[Previous](#)

[Next](#)

[Finish](#)

4. In the invoked [Query Builder](#), drag and drop the table from the SQL data source onto the design surface.

## QueryBuilder

The Query Builder interface shows two main sections: a left sidebar and a right panel.

**Left Sidebar:**

- sqlDataSource2
  - Customers (highlighted with a red circle containing '1')
- jsonDataSource1
  - Address
  - City
  - CompanyName
  - ContactName
  - ContactTitle
  - Country
  - Fax
  - HomePage
  - Phone
  - PostalCode
  - Region

**Right Panel:**

**Source:**

Source
sqlDataSource2 - Customers

**Column Mappings:**

Column Name	Alias
CustomerID	
CompanyName	
ContactName	
ContactTitle	

**Buttons:**

- Union All
- OK
- Cancel

5. Drag and drop the JSON data source onto the design surface.

**Query Builder**

The Query Builder window displays two main sections: a left pane showing data sources and fields, and a right pane showing the query results.

**Left Pane:** Shows the available data sources and their fields. A red circle with the number 1 highlights the **jsonDataSource1** node, which contains the following fields:

- ab Address
- ab City
- ab CompanyName
- ab ContactName
- ab ContactTitle
- ab Country
- ab Fax
- ab HomePage
- ab Phone
- ab PostalCode
- ab Region

**Right Pane:** Shows the query results. A red circle with the number 2 highlights the first row of the table, which contains the following data:

Source
sqlDataSource2 - Customers
jsonDataSource1

**Bottom Left:** A checkbox labeled **Union All**.

**Bottom Right:** Buttons for **OK** and **Cancel**.

6. The query includes only fields that have identical names and types in the original sources. You can specify a different name for a field. Click the field's **Alias** cell and enter the new field name, if necessary.

You can select the **Union All** checkbox in the bottom left to prevent the removal of duplicate entries from the query result.

Click **OK** to close the Query Builder window.

7. Click **Finish** to complete the Data Source Wizard.



## Specify Data Source Settings



1. Create a federated query.

Enter text to search...

- ▶  sqlDataSource2
- ▶  jsonDataSource1
- ▼  Federated Queries
  - Customers [trash] [edit]

2. Configure master-detail relationships.

To create a master-detail relationship, select two or more queries.

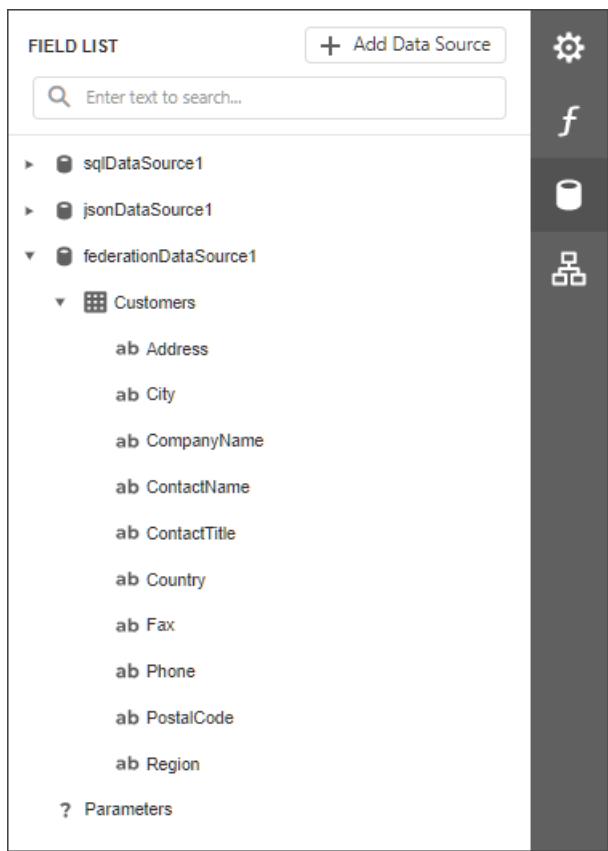
[Cancel](#)

[Previous](#)

[Next](#)

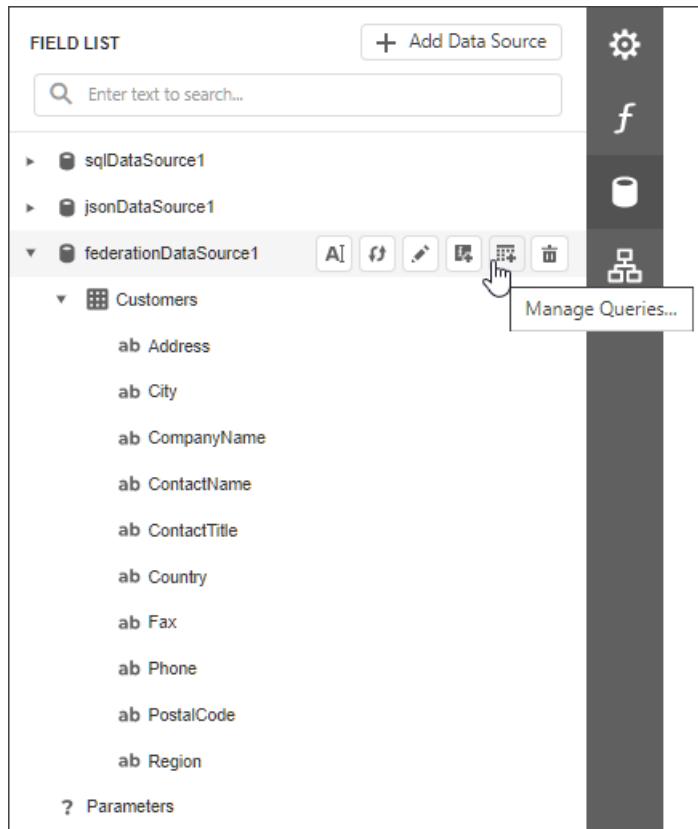
[Finish](#)

The Wizard creates a new **FederationDataSource** that includes similar data from both data sources.



## Manage the Federation Data Source

When you create a federated query, its name is set to the name of the first table added to the query. You can rename the query in the **Manage Queries** dialog. To invoke the dialog, click the **Manage Queries** button.



The **Manage Queries** dialog appears.

## Manage Queries

X

Name

Customers



Add query ▾

OK

Cancel

Click the query name in the list to invoke the text editor and change the name.

## Manage Queries

X

Name

Customers

Add query ▾

OK

Cancel

The **Manage Queries** dialog allows you to add, modify, or delete queries.

To add a new query, click the **Add query** drop-down in the bottom left corner and select the query type: Join, Union, or

Transform. The Query Builder is invoked to help you construct a new query.

To edit a query, select the query name in the list and click the **Edit button** that appears in the selected item. The Query Builder window is invoked to help you edit a query.

To delete a query, select the query name in the list and click the **Delete button** that appears in the selected item. The query is deleted without confirmation.

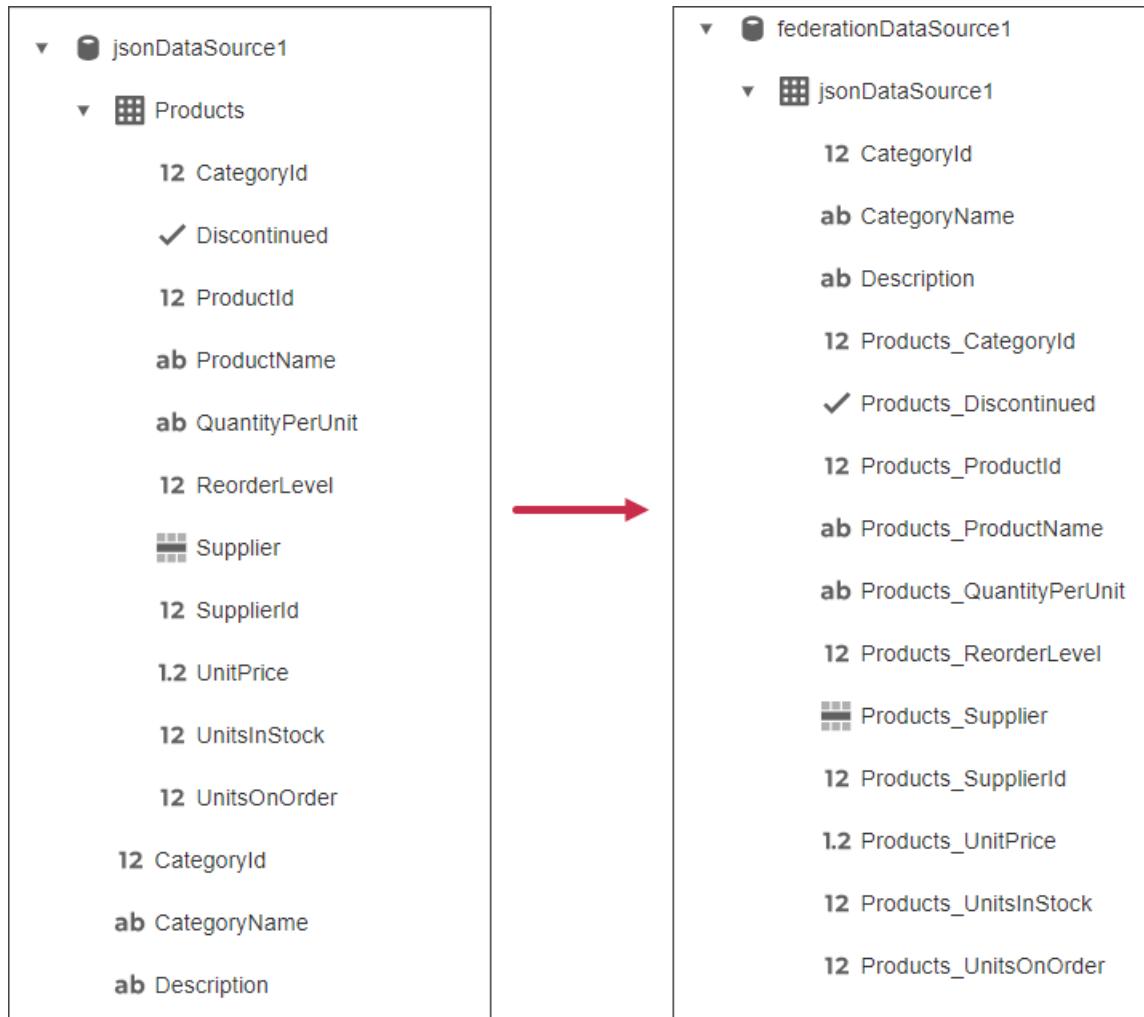
**NOTE**

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

# Bind a Report to a Transformation-Based Data Source

If the data source contains hierarchical data, it can be transformed to flatten nested fields and display them as separate fields. If the data column is an array, you can unfold its values and display a new row of data for each element of the array.

The following image illustrates the transformation applied to a complex JSON data source.



This help topic describes how to use the **Transformation** query of the **Federation Data Source** to flatten a JSON Data Source that contains nested data (collection property).

## Create a Report and Data Sources

1. [Create a new blank report](#).
2. [Add a JSON data source](#) that uses the following JSON string:

```
[  
{  
  "CategoryId": 1,  
  "CategoryName": "Beverages",  
  "Description": "Soft drinks, coffees, teas, beers, and ales",  
  "Products": [  
    {  
      "ProductId": 1,  
      "ProductName": "Chai",  
      "SupplierId": 1,  
      "CategoryId": 1,  
      "QuantityPerUnit": "10 boxes x 20 bags",  
      "UnitPrice": 18.0000,  
      "UnitsInStock": 39.  
    }  
  ]  
}
```

```

    "UnitsInStock": 0,
    "UnitsOnOrder": 0,
    "ReorderLevel": 10,
    "Discontinued": false,
    "Supplier": null
},
{
    "ProductId": 2,
    "ProductName": "Chang",
    "SupplierId": 1,
    "CategoryId": 1,
    "QuantityPerUnit": "24 - 12 oz bottles",
    "UnitPrice": 19.0000,
    "UnitsInStock": 17,
    "UnitsOnOrder": 40,
    "ReorderLevel": 25,
    "Discontinued": false,
    "Supplier": null
}
]
},
{
    "CategoryId": 2,
    "CategoryName": "Condiments",
    "Description": "Sweet and savory sauces, relishes, spreads, and seasonings",
    "Products": [
{
    "ProductId": 3,
    "ProductName": "Aniseed Syrup",
    "SupplierId": 1,
    "CategoryId": 2,
    "QuantityPerUnit": "12 - 550 ml bottles",
    "UnitPrice": 10.0000,
    "UnitsInStock": 13,
    "UnitsOnOrder": 70,
    "ReorderLevel": 25,
    "Discontinued": false,
    "Supplier": null
},
{
    "ProductId": 4,
    "ProductName": "Chef Anton's Cajun Seasoning",
    "SupplierId": 2,
    "CategoryId": 2,
    "QuantityPerUnit": "48 - 6 oz jars",
    "UnitPrice": 22.0000,
    "UnitsInStock": 53,
    "UnitsOnOrder": 0,
    "ReorderLevel": 0,
    "Discontinued": false,
    "Supplier": null
}
]
}
]

```

The created JSON data source is displayed in the Field List pane:

**FIELD LIST**

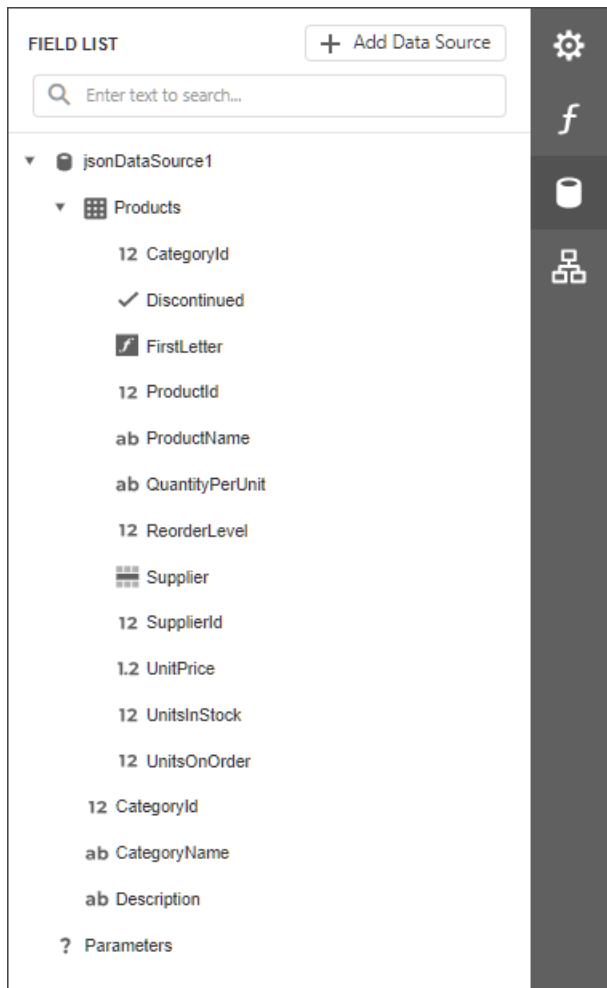
+ Add Data Source

Enter text to search...

jsonDataSource1

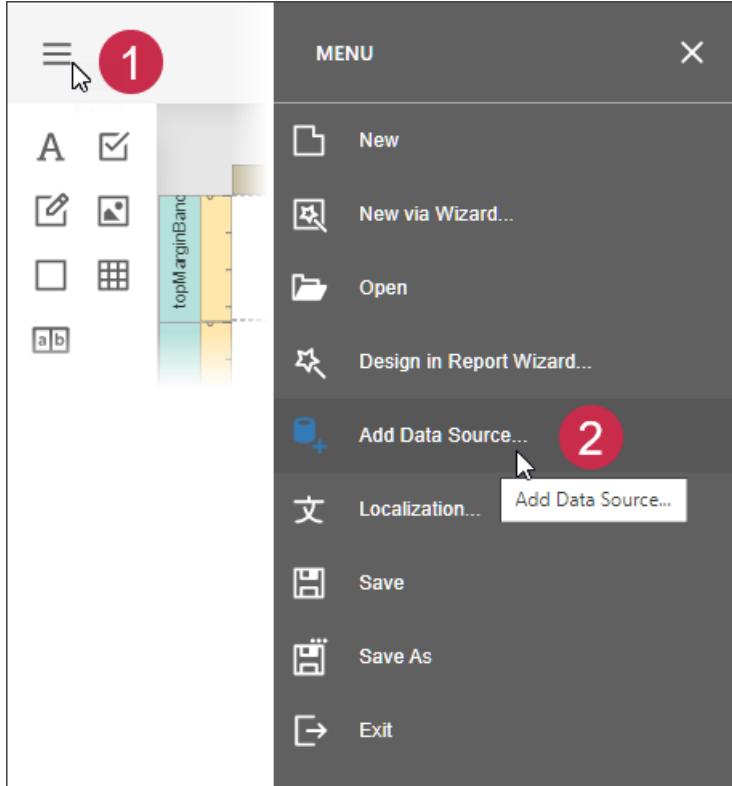
Products

12 CategoryId  
✓ Discontinued  
f FirstLetter  
12 ProductId  
ab ProductName  
ab QuantityPerUnit  
12 ReorderLevel  
Supplier  
12 SupplierId  
1.2 UnitPrice  
12 UnitsInStock  
12 UnitsOnOrder  
12 CategoryId  
ab CategoryName  
ab Description  
? Parameters



## Create Data Federation

1. Invoke the designer menu and click **Add Data Source**.



2. Select **Data Federation** in the invoked **Data Source Wizard** and click **Next**.



## Select Data Source Type



文



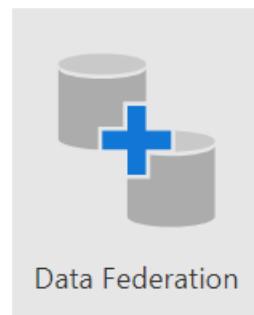
Database



JSON



Object



Data Federation

Cancel

Previous

Next

Finish

3. On the next page, click the **+ (plus) button** and select **Transform** to add a Transformation query.



## Specify Data Source Settings



文



1. Create a federated query.

The screenshot shows a user interface for creating a federated query. At the top is a search bar with the placeholder "Enter text to search...". Below it is a list of data sources. The first item, "jsonDataSource1", has a checkbox next to it. The second item, "Federated Queries", is highlighted with a gray background. To the right of the list is a context menu with three options: "Join", "Union", and "Transform". The "Transform" button is highlighted with a blue background and white text.

2. Configure master-detail relationships.

The screenshot shows a large empty rectangular area with a light gray background. In the center of this area, the text "To create a master-detail relationship, select two or more queries." is displayed in a smaller gray font.

Cancel

Previous

Next

Finish

4. The invoked [Query Builder](#) displays the columns that you can transform.

## Query Builder

X

**jsonDataSource1**

- Products

**Transformation node root: jsonDataSource1**

Column Name	Alias	Transform
Products		<input type="checkbox"/>
CategoryId		<input checked="" type="checkbox"/>
CategoryName		<input checked="" type="checkbox"/>
Description		<input checked="" type="checkbox"/>

**Transformation result**

- Products
- 12 CategoryId
- ab CategoryName
- ab Description

**OK** **Cancel**

5. Select the **Transform** check box next to the column you need to unfold and flatten. You can specify the aliases for the generated columns.

## Query Builder

X

**jsonDataSource1**

- Products

**Transformation node root: jsonDataSource1**

Column Name	Alias	Transform
Products		<input checked="" type="checkbox"/>
CategoryId		<input type="checkbox"/>
CategoryName		<input type="checkbox"/>
Description		<input type="checkbox"/>

**Transformation result**

- 12 Products\_CategoryId
- ✓ Products\_Discontinued
- 12 Products\_ProductId
- ab Products\_ProductName
- ab Products\_QuantityPerUnit

**OK**   **Cancel**

Click **OK** to close the Query Builder window.

6. Click **Finish** to create the data source.

< Specify Data Source Settings

1. Create a federated query.

Enter text to search...

▶  jsonDataSource1

▼  Federated Queries

jsonDataSource1    

2. Configure master-detail relationships.

To create a master-detail relationship, select two or more queries.

Cancel Previous Next Finish

The screenshot shows the 'Specify Data Source Settings' dialog. On the left, there is a vertical toolbar with icons for file operations like copy, paste, find, and save. The main area has a title 'Specify Data Source Settings' with a back arrow. It contains two sections: '1. Create a federated query.' and '2. Configure master-detail relationships.'. Section 1 shows a search bar and a tree view with 'jsonDataSource1' and 'Federated Queries' expanded. Section 2 is empty with a placeholder message. At the bottom are 'Cancel', 'Previous', 'Next', and a large blue 'Finish' button.

The **Field List** displays the created Federation Data Source.

**FIELD LIST**

+ Add Data Source

Enter text to search...

- ▶ jsonDataSource1
- ▼ federationDataSource1
  - ▶ jsonDataSource1
    - 12 CategoryId
    - ab CategoryName
    - ab Description
    - 12 Products\_CatgeoryId
    - ✓ Products\_Discontinued
    - 12 Products\_ProductId
    - ab Products\_ProductName
    - ab Products\_QuantityPerUnit
    - 12 Products\_ReorderLevel
    - ### Products\_Supplier
    - 12 Products\_SupplierId
    - 1.2 Products\_UnitPrice
    - 12 Products\_UnitsInStock
    - 12 Products\_UnitsOnOrder
  - ? Parameters

# 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 and sets the master-detail relationship between the queries.

## Create a Report and Data Sources

1. [Create a new blank report](#).
2. [Add a SQL data source](#) that retrieves data from the `Customers` table of the **Northwind** database.
3. [Add a JSON data source](#) that retrieves product data from the **nwind.json** file. The **nwind.json** file is included in the sample web project if you create it from the Visual Studio template.

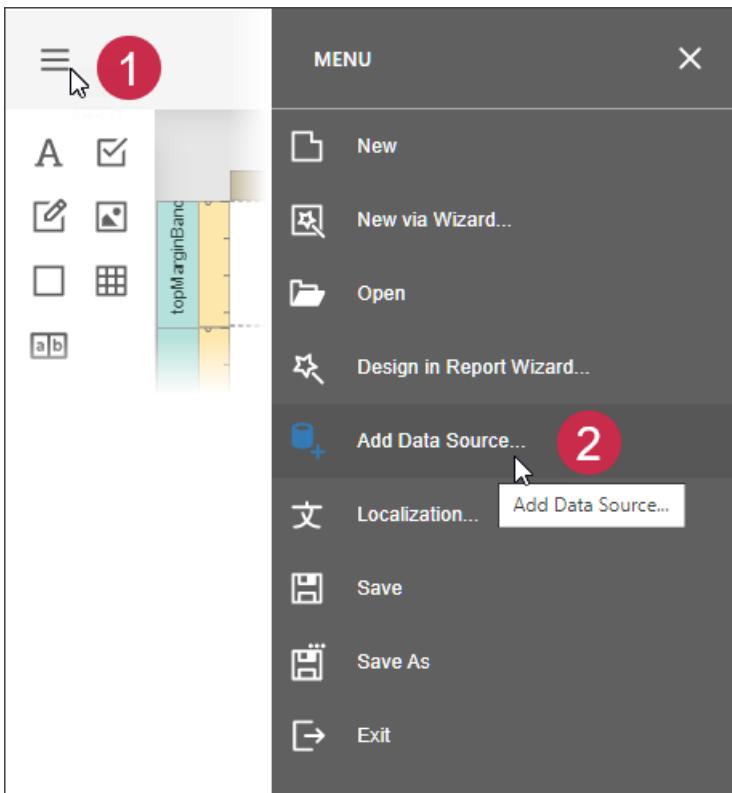
The Field List pane in the End-User Report Designer appears as follows:

The screenshot shows the Field List pane with two data sources listed:

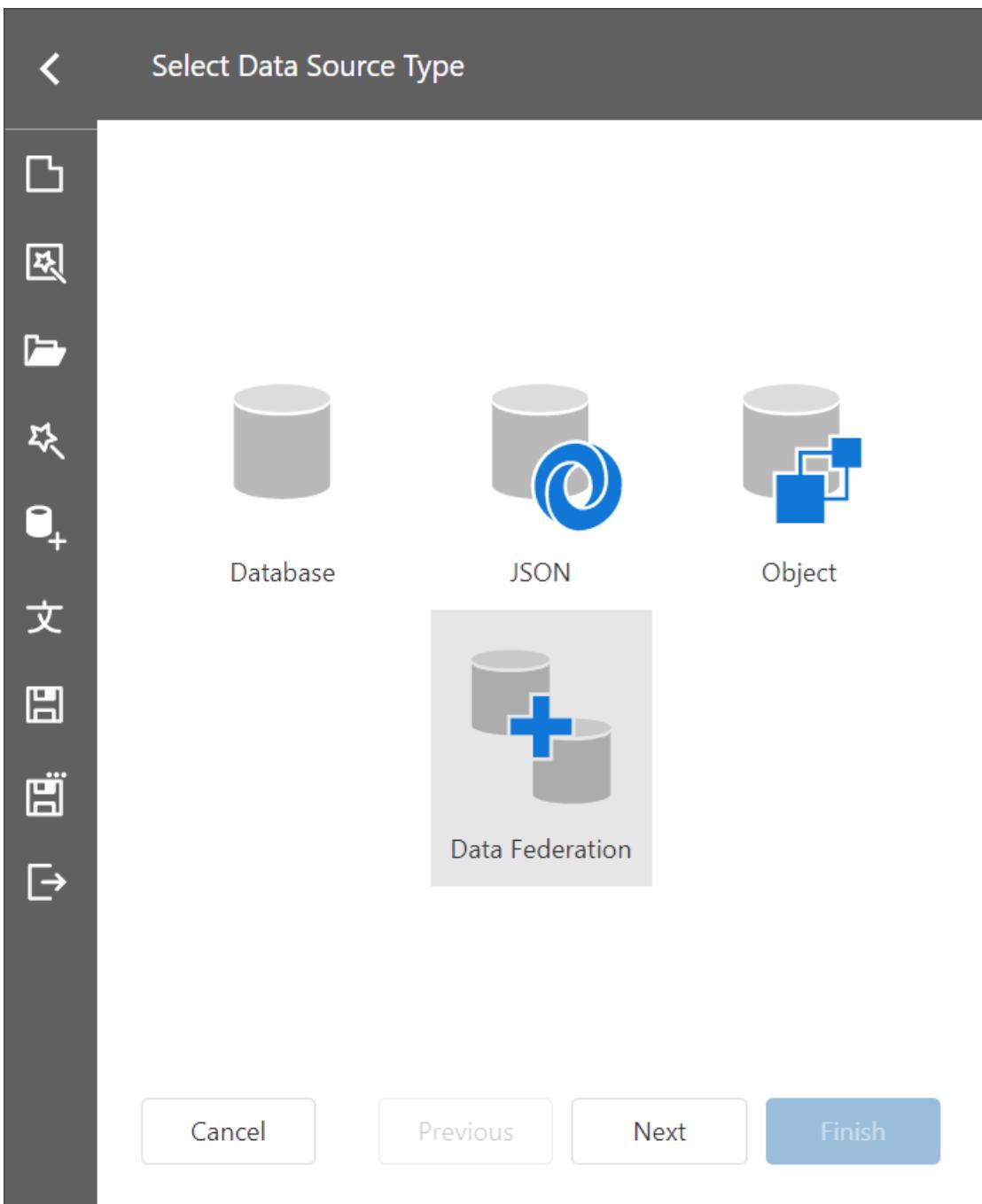
- sqlDataSource2**:
  - Categories**:
    - CategoryID**
    - CategoryName**
    - Description**
    - Picture**
- jsonDataSource1**:
  - CategoryID**
  - Discontinued**
  - EAN13**
  - ProductID**
  - ProductName**
  - QuantityPerUnit**
  - ReorderLevel**
  - SupplierID**
  - UnitPrice**
  - UnitsInStock**

## Create Data Federation

1. Invoke the designer [menu](#) and click **Add Data Source**.



2. Select **Data Federation** in the invoked **Data Source Wizard** and click **Next**.



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

## Specify Data Source Settings

1. Create a federated query.

- ▶  sqlDataSource2
- ▶  jsonDataSource1
- Federated Queries

2. Configure master-detail relationships.

sqlDataSource2\_Categories

jsonDataSource1

Cancel

Previous

Next

Finish

4. Click the **+** (plus) element command element in the **Configure master-detail relationships** pane, and specify the master-detail relationship as shown below:

2. Configure master-detail relationships.

sqlDataSource2\_Categories **+**

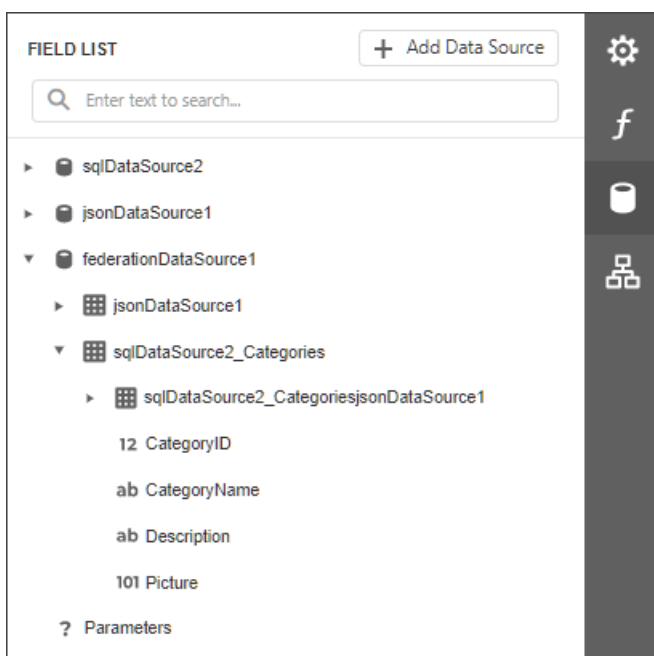
sqlDataSource2\_Categories jsonDataSource1

sqlDataSource2\_Categories . CategoryID = jsonDataSource1 . CategoryID

jsonDataSource1

Click **Finish** to complete the Data Source Wizard.

5. The Data Source Wizard creates a new **FederationDataSource** that includes two queries with a master-detail relationship. The [Field List](#) reflects the data source's structure.

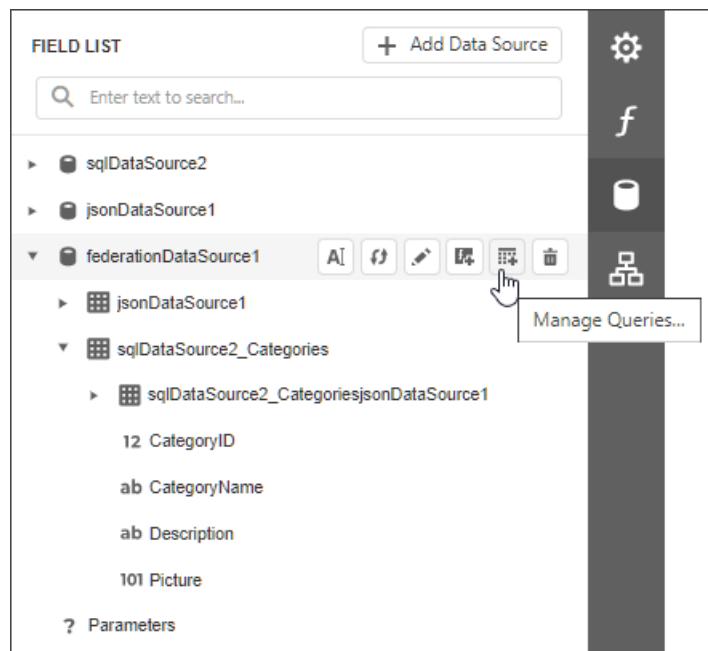


The Data Source Wizard specifies query names as follows:

- If the initial data source contains data at the root level (as the JSON data source), the federated query's name is equal 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.

## Manage the Federation Data Source

You can rename the query in the **Manage Queries** dialog. To invoke the dialog, click the **Manage Queries** button.



The **Manage Queries** dialog appears.

## Manage Queries

X

Name

sqlDataSource2\_Categories



jsonDataSource1

Add query ▾

OK

Cancel

Click the query name in the list to invoke the text editor and change the name.

## Manage Queries

X

Name

sqlDataSource2\_Categories

jsonDataSource1

Add query ▾

OK

Cancel

The **Manage Queries** dialog allows you to add, modify, or delete queries.

To add a new query, click the **Add query** drop-down in the bottom left corner and select the query type: Join, Union, or

Transform. The Query Builder is invoked to help you construct a new query.

To edit a query, select the query name in the list and click the **Edit button** that appears in the selected item. The Query Builder window is invoked to help you edit a query.

To delete a query, select the query name in the list and click the **Delete button** that appears in the selected item. The query is deleted without confirmation.

**NOTE**

Once you rename the query, update the **Data Member** properties for the DetailReport band and the Report itself.

# Create Reports

This section contains tutorials that explain how to create different reports.

## Basic Reports

### Table Reports

Details for Customer Order # 11077				
Friday, November 27, 2020				
Page 1 of 4 pages				
PRODUCT/SUPPLIER	UNIT PRICE	QUANTITY	DISCOUNT	SUBTOTAL
<b>Chang</b> Charlotte Cooper ( Exotic Liquids, Purchasing Manager) - UK, London, EC1 4SD 49 Gilbert St.	\$19.00	24	20%	\$456.00
<b>Sir Rodney's Marmalade</b> Peter Wilson ( Specialty Biscuits, Ltd., Sales Representative) - UK, Manchester, M14 GSD 29 King's Way	\$81.00	1	4%	\$81.00
<b>Queso Manchego La Pastora</b> Antonio del Valle Saavedra ( Cooperativa de Quesos 'Las Cabras', Export Administrator) - Spain, Oviedo, 33007 Calle del Rosal 4	\$38.00	2	5%	\$76.00
<b>Northwoods Cranberry Sauce</b> Regina Murphy ( Grandma Kelly's Homestead, Sales Representative) - USA, Ann Arbor, 48104 707 Oxford Rd.	\$40.00	2	10%	\$80.00
<b>Wimmers gute Semmelknödel</b> Martin Bein ( Plutzer Lebensmittelgroßmärkte AG, International Marketing Mgr.) - Germany Frankfurt 60420, D	\$33.25	2	3%	\$66.50

### Vertical Reports

## Profit and Loss

	AUG	SEP	OCT	NOV	DEC	TOTAL
<b>INCOME</b>						
Construction Income	\$120,282.16	\$96,403.45	\$122,524.75	\$98,646.04	\$124,767.33	\$562,623.73
Sales Income	\$359.00	\$58.00	\$757.00	\$456.00	\$155.00	\$1,785.00
<b>TOTAL INCOME</b>	<b>\$120,641.16</b>	<b>\$96,461.45</b>	<b>\$123,281.75</b>	<b>\$99,102.04</b>	<b>\$124,922.33</b>	<b>\$564,408.73</b>
<b>EXPENSE</b>						
Automobile	\$573.96	\$874.09	\$575.21	\$876.33	\$577.46	\$3,477.05
Bank Service Charge	\$25.00	\$51.00	\$77.00	\$33.00	\$58.00	\$244.00
<b>TOTAL EXPENSE</b>	<b>\$598.96</b>	<b>\$925.09</b>	<b>\$652.21</b>	<b>\$909.33</b>	<b>\$635.46</b>	<b>\$3,721.05</b>
<b>NET INCOME</b>	<b>\$120,042.20</b>	<b>\$95,536.36</b>	<b>\$122,629.54</b>	<b>\$98,192.71</b>	<b>\$124,286.87</b>	<b>\$560,687.68</b>

Letters

Dear **Nancy Davolio**,

I am glad to notify you that the **Chai** you purchased on  
**09/20/2014** has been shipped.

## Reports with Hierarchical Data

[Master-Detail Reports with Detail Report Bands](#)

## Beverages

Soft drinks, coffees, teas, beers, and ales

Chai	\$18.00
Chang	\$19.00
Guaraná Fantástica	\$4.50
Sasquatch Ale	\$14.00
Steeleye Stout	\$18.00
Côte de Blaye	\$263.50
Chartreuse verte	\$18.00
Ipoh Coffee	\$46.00
Laughing Lumberjack Lager	\$14.00
Outback Lager	\$15.00
Rhönbräu Klosterbier	\$7.75
Lakkalikööri	\$18.00

## Master-Detail Reports with Subreports

## Produce

### Dried fruit and bean curd



Uncle Bob's Organic Dried Pears	\$30.00
Tofu	\$23.25
Rössle Sauerkraut	\$45.60
Manjimup Dried Apples	\$53.00
Longlife Tofu	\$10.00

## Seafood

### Seaweed and fish



Ikura	\$31.00
Konbu	\$6.00
Carnarvon Tigers	\$62.50
Nord-Ost Matjeshering	\$25.89
Inlagd Sill	\$19.00
Gravad Lax	\$26.00
Boston Crab Meat	

## Hierarchical Reports

## Market Share Report

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
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
Hungary	\$13,495.00	\$13,900.00
Poland	-	-

## Invoice Reports

### Invoices



# INVOICE

Invoice #: 10643  
Invoice Date: 9/25/2015

**Bill To:**

Company: **Alfreds Futterkiste**  
Contact Name: Maria Anders  
Address: Obere Str. 57, Berlin, Germany  
Phone: 030-0074321

Pos.	Product Name	Unit Price	Quantity	Discount	Total
1	Chartreuse verte	\$18.00	21	25.00%	\$283.50
2	Rössle Sauerkraut	\$45.60	15	25.00%	\$513.00
3	Spegesild	\$12.00	2	25.00%	\$18.00
4					
5					
6					

## Cross-Tab Reports

### Cross-Tab Reports

#### Sales Summary by Year

Order Date	Category Name	UK				Total UK	USA	
		Anne Dodsworth	Michael Suyama	Robert King	Steven Buchanan		Andrew Fuller	Jani
Quarter 1	Beverages	\$12,809.70	\$1,952.30	\$12,734.96	\$1,957.65	\$29,454.61	\$19,266.00	
	Condiments	\$5,646.29	\$1,637.58	\$2,047.90	\$1,050.45	\$10,382.22	\$2,010.98	
	Confections	\$6,114.25	\$1,936.49	\$4,742.85	\$2,014.31	\$14,807.90	\$7,933.38	
	Dairy Products	\$2,855.47	\$3,375.00	\$8,506.50	\$9,904.52	\$24,641.49	\$4,946.00	
	Grains/Cereals	\$224.00	\$1,211.70	\$4,754.50	\$3,101.56	\$9,291.76	\$2,223.05	
	Meat/Poultry	\$3,563.76	\$573.68	\$876.00	\$813.00	\$5,826.44	\$8,108.31	
	Produce		\$2,052.00	\$3,012.72	\$984.40	\$6,049.12	\$1,670.00	
	Seafood	\$2,860.15	\$57.90	\$1,378.39	\$2,176.40	\$6,472.84	\$2,747.40	
Total Quarter 1		\$34,073.62	\$12,796.65	\$38,053.82	\$22,002.29	\$106,926.38	\$48,905.08	
Quarter 2	Beverages	\$1,414.00	\$1,382.40	\$4,833.75	\$720.00	\$8,350.15	\$11,673.60	
	Condiments	\$598.00	\$857.05	\$4,231.38	\$263.40	\$5,949.83	\$4,047.62	
	Confections	\$578.80	\$567.60	\$3,176.34	\$250.00	\$4,572.74	\$7,504.77	
	Dairy Products	\$8,691.05	\$1,134.20	\$8,364.70	\$3,208.37	\$21,398.32	\$13,001.05	
	Grains/Cereals	\$997.50	\$3,401.00	\$815.60		\$5,214.10	\$3,030.00	
	Meat/Poultry	\$149.00	\$4,866.84	\$15,123.38	\$336.00	\$20,475.22	\$5,606.40	
	Produce		\$5,407.31	\$4,092.40	\$2,162.40	\$11,662.11	\$5,050.00	
	Seafood	\$1,260.25	\$1,436.56	\$1,719.77	\$807.50	\$5,224.08	\$7,380.98	
Total Quarter 2		\$13,688.60	\$19,052.96	\$42,357.32	\$7,747.67	\$82,846.55	\$57,294.42	
Quarter 3	Beverages	\$4,164.55	\$2,009.50	\$910.80	\$1,291.27	\$8,376.12	\$2,117.90	

## Multi-Column Reports

## Labels and Badges

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

## Multi-Column Reports

FLOOR 1

Dr. Andrew Fuller  
Vice President, Sales

**Office 101**

Ms. Anne Dodsworth  
Sales Representative

**Office 102**

Mr. Michael Suyama  
Sales Representative

**Office 103**

Ms. Janet Leverling  
Sales Representative

**Office 104**

Dr. Elliot Komaroff  
Sales Coordinator

**Office 105**

FLOOR 2

Ms. Nancy Davolio  
Sales Representative

**Office 201**

Mr. Steven Buchanan  
Sales Manager

**Office 202**

Ms. Laura Callahan  
Sales Coordinator

## Interactive Reports

You can add interactive elements to your report to customize it in Print Preview:

[Interactive E-Forms](#)

ARRIVAL CARD																					
LAST NAME	T	H	O	M	A	S				FLIGHT NO.	5	0	1	2	0	7					
FIRST NAME	M	A	R	K																	
PASSPORT NO.	7	3	3	6	0	9	3	4	1	0	VISA NO.	1	0	9	2	4	1	5	5		
DATE OF BIRTH	1	9		0	2		1	9	7	5	MALE	<input checked="" type="checkbox"/>		FEMALE	<input type="checkbox"/>						
NATIONALITY				ADDRESS	4	8	0	L	I	N	D	A	R	D	.						
					Y	U	M	A	.	A	Z	.	U	S	A						
SIGNATURE											DAY	2	8	MONTH	0	8	YEAR	2	0	2	0
											FOR OFFICIAL USE										

#### NOTE

See the [Provide Interactivity](#) section for information on how to provide drill-down and drill-through functionality in your reports.

See [Use Report Parameters](#) for instructions on how to submit parameter values in Print Preview to customize your reports.

## Layout Features

### Reports with Cross-Band Content and Populated Empty Space

To: Vins et alcools  
Chevalier

Address: 59 rue de  
l'Abbaye

City: Reims

Phone:  
26.47.15.10

Order ID: 10248

Order Date: Friday, July 4, 2014

# INVOICE

	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				
10				
11				
12				
13				
14				
15				
16				

Reports with PDF content

DX-XR650 Projector Plus



#### HD PERFORMANCE IN A SUPER PORTABLE PR

The HD Projector gives the home theater enthusiast HD output at a super low price and is both easy to install and setup. The combination of its size and power means you hours of enjoyment without a big blow to your wallet. New for this year's model is a single button, the HD Projector automatically focuses and adjusts colors so easily you can't go wrong. Once you press the button, the HD Projector begins a series of internal tests based on ambient light within your home theater.

OR TRAVERSING OR LOGGING THE SPAN AND ARE PREPARED AT THEIR RESPECTIVE ENDPOINTS. THIS IS NOT A REAR PROJECTION.

#### **DX-RX809 HD Video Player**



#### Precision HD Video Player with Networking

Get ready to be blown away by the world's best HD Video Player. Powered by our newest chipset, the Devia Video Player updates and upgrades like never before. Color and brilliance is the foundation of this video player. Its beautiful chassis and incredible build quality means you'll be proud to show it off to friends and family. Devia's HD Video Player can play CDs, DVDs, standard Blu-Ray Discs and 2D-encoded BDs. It handles videos, music, and photos sent from any DLNA 1.5-certified media server. Your image quality is superb, whatever the source. And whether you're playing high-def DTS and Dolby formats or compressed MP3s, your audio benefits from its high performance DAC.

ADVANCED FEATURES

- | ADVANCED FEATURES  | • Play BD/DVD, MP3, WMA, and JPEG  | • Sugar coating fan    |
|--|--|------------------------|
| • THX Certified  | • Dolby Part II BD-RE, Blu-ray<br>Upmixer, and Home Networking   |                        |
| • Supports Blu-ray 2D Playback (must have a 2D monitor)  | • Certified with BD-JU Version 1.2 for<br>Playing Video, Music, and Photo<br>Content (MP4, AVI, WMV, RM, M2TS,<br>M2T, TS, TTT, LPCM, MP3, WMA, and<br>JPEG Formats) |                        |
| • A-WB100 Outputs with AB-1040G,<br>AB-1040P, AB-1040R, and CEC<br>support                               | • USB Port for Media Sharing   |                        |
| • Dolby TrueHD and Dolby® Digital Plus<br>Decoding   | • 8x10 (8W min./8W max) Outputs for High-<br>Definition Video and Audio  |                        |
| • Supports DTS-HD Master Audio™<br>Decoding  | • Dolby® Atmos support   |                        |
| • 1080p Upscaling of Standard Video<br>Source (1080i, 720p, and 480i) with<br>BBC Technology by SRS Labs | • Digital Video Output (Analog and<br>Digital)   |                        |
| • Processor HD for superior sound quality  | • Independent volume for audio, digital<br>audio, and video outputs  |                        |
|  | • Sugar coating fan  | AUDIO & VIDEO FEATURES |
|  | • Play BD-Video (BD-RE, BD-R/RW,<br>BD-RW, BD-RE, DVD+/-RW, DVD-RW,<br>DVD-R, and DVD+/-R DL) and CD (WMA,<br>CD-DA, CD-RW, and CD-R)                                |                        |
|  | • 3D Live Panorality for Interactive<br>Content  |                        |
|  | • 1080p 3D Video Output for Full-HD<br>Movie   |                        |
|  | • 4 Digital Audio Outputs (Optical and<br>Coaxial)   |                        |
|  | • Analog Audio: Component (16-bit), and<br>Digital Optical   |                        |
|  | • Digital Noise Reduction for better HD<br>Video   |                        |

#### AUDIO & VIDEO FEATURES

- **HDMI** (DVI-D/AM, DVI-A/R/AW, DVI-D/HDCP, DVI-D/AW, DVI-D/AW)
  - **Digital Audio** (Coax, HDMI, TOSLINK, Optical)
  - **USB Functionality** for Interactive Content
  - **2000/1080p Video Outputs for Full-HD Movies**
  - **2 Digital Audio Outputs (Optical and Coaxial)**
  - **Analog Audio, Component Video, and Old School Composite**
  - **Digital Noise Reduction for better HD Content**

OR TRANSLATION OF PROTEIN AND TRANSLATION ARE SIMILARLY TO THEIR RESPECTIVE ENZYME. THIS IS NOT A REAL PRACTICE.

## Reports with a Visual PDF Signature

# DevExpress Website Terms of Use

## 1. INTRODUCTION

PLEASE READ THESE WEBSITE TERMS OF USE AND PRIVACY STATEMENT CAREFULLY BEFORE USING ANY DEVELOPER EXPRESS INC WEBSITE (THE "WEBSITE"). THESE WEBSITE TERMS OF USE (THE "TERMS OF USE") GOVERN YOUR ACCESS TO AND USE OF THE WEBSITE. IF YOU DO NOT AGREE TO ALL OF THE TERMS OF USE AND PRIVACY STATEMENT SET FORTH BELOW, DO NOT USE THE WEBSITE. BY ACCESSING OR USING THE WEBSITE, YOU AND THE BUSINESS ENTITY OR THE ORGANIZATION YOU REPRESENT ("YOU" OR "YOUR") INDICATE YOUR AGREEMENT TO BE BOUND BY THE TERMS OF USE.

I have read and accept this Website Terms of Use statement



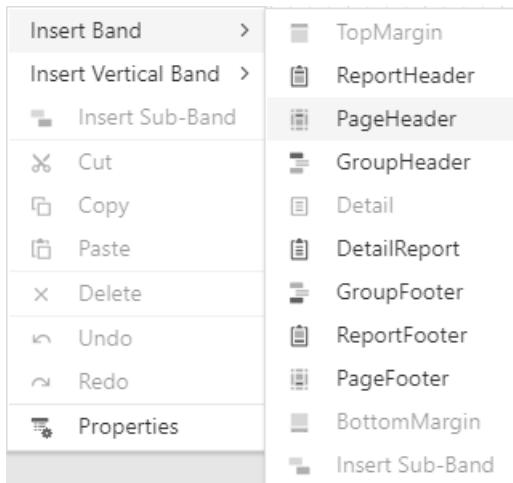
Digitally signed by Andrew Jacobson  
DN: CN=Andrew Jacobson  
Reason: Internal Approval  
Location: 505 N. Brand Blvd., Suite 1600, Glendale CA 91203, US.  
Date: 10/8/2020 1:07:52 PM +03:00

# Table Reports

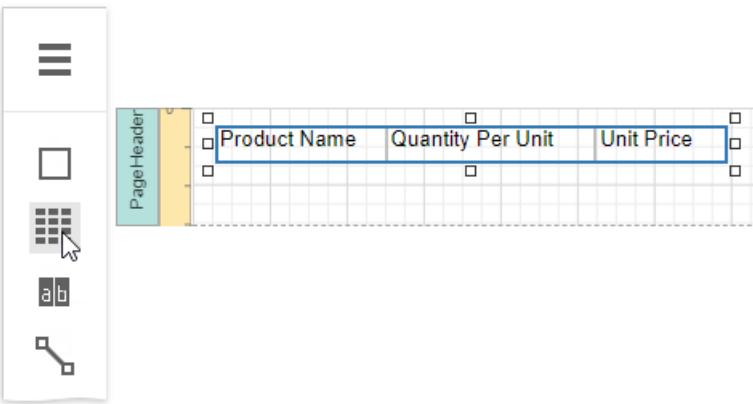
This tutorial describes how to create a data-bound report displaying information in a tabular format. Table reports should not be confused with hierarchical [master-detail reports](#), nor with [cross-tab reports](#).

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
Queso Manchego La Pastora	10 - 500 g pkgs.	\$38.00
Konbu	2 kg box	\$6.00
Tofu	40 - 100 g pkgs.	\$23.25
Genen Shouyu	24 - 250 ml bottles	\$15.50
Pavlova	32 - 500 g boxes	\$17.45

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, from the report's context menu, select the **Insert Page Header Band** command.



4. Drop the [Table](#) control from the [Toolbox](#) onto the Page Header band and specify columns' text to create column headers.

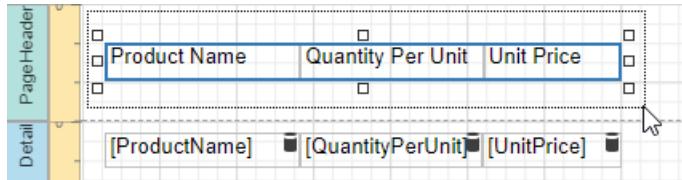


5. To provide dynamic content to the report, switch to the **Field List**, select data fields and drop them onto the Detail band.

Product Name	Quantity Per Unit	Unit Price
[ProductName]	[QuantityPerUnit]	[UnitPrice]

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. Click an empty place on the report's surface and draw a rectangle around the table to select it.



7. Expand the **Appearance** category and specify the **Font**, **Text Alignment** and **Borders** properties to customize the tables' appearance.

The screenshot shows a report design interface with a table component. The table has three columns labeled "Product Name", "Quantity Per Unit", and "Unit Price". The "Unit Price" column contains three placeholder fields: "[ProductName]", "[QuantityPerUnit]", and "[UnitPrice]". The "Appearance" section of the properties panel is open, showing settings for Background Color (rgba(0, 0, 0, 0)), Border Color (black), Border Dash Style (Solid), Border Width (1), and Borders. The "Font" section shows Arial font, size 10, and point unit. The "Text Alignment" is set to "Top Left".

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

The screenshot shows a report designer interface with a table structure. The table has three columns: 'Product Name', 'Quantity Per Unit', and 'Unit Price'. The 'Unit Price' column is currently selected, highlighted with a blue border. On the right side of the screen, there is a 'Properties' panel and a 'Format String Editor' dialog box.

**Properties Panel:**

- Selected item: 'tableCell6 (Table Cell)'
- Action buttons: A-Z, Filter, Search

**Format String Editor Dialog:**

- Category:** Currency (selected)
- Types:** \$0.00, \$0, c, c1, c2
- Text Format String:** \$0.00 (with a '...' button)
- Preview:** \$100.00
- Buttons:** OK (highlighted with a cursor), Cancel

- 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.

The screenshot shows the Report Designer interface with a table control selected. The table has a single header row and multiple detail rows. The properties panel on the right is open, showing the following settings:

- NAME:** table2 (Table)
- EVEN STYLE:** xrControlStyle1
- NAME:** xrControlStyle1
- TEXT ALIGNMENT:** Select...
- BACKGROUND COLOR:** rgba(240, 240, 240, 1)
- FOREGROUND COLOR:** rgba(0, 0, 0, 1)
- BORDER COLOR:** rgba(0, 0, 0, 1)

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.

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
Queso Manchego La Pastora	10 - 500 g pkgs.	\$38.00
Konbu	2 kg box	\$6.00
Tofu	40 - 100 g pkgs.	\$23.25
Genen Shouyu	24 - 250 ml bottles	\$15.50
Pavlova	32 - 500 g boxes	\$17.45

# Vertical Reports

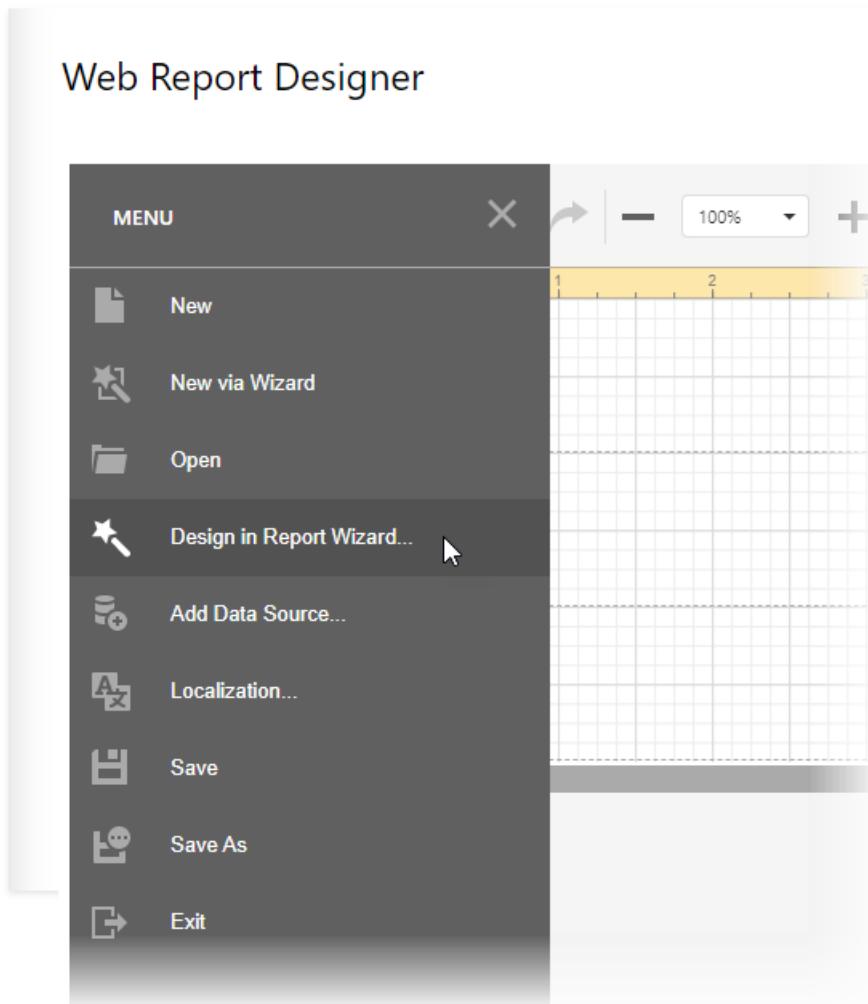
This tutorial describes how to use vertical bands to create a report where record fields are arranged vertically and data records are printed horizontally.

## Profit and Loss

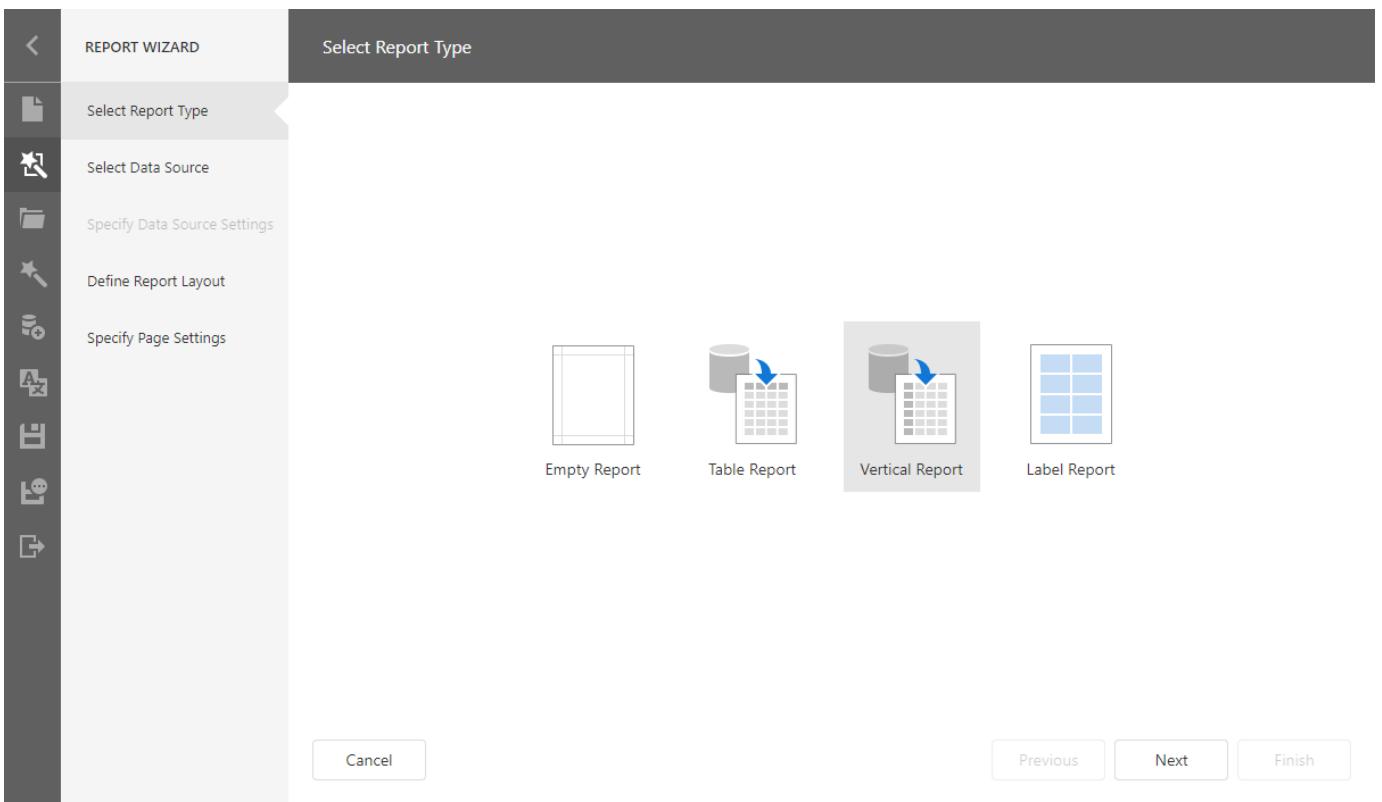
Month	1/31/2018 12:00:00 AM	2/28/2018 12:00:00 AM	3/31/2018 12:00:00 AM	4/30/2018 12:00:00 AM	5/31/2018 12:00:00 AM
Construction Income	\$75,035.31	\$81,479.21	\$84,874.68	\$75,634.84	\$80,369.13
Sales Income	\$27.00	\$770.00	\$950.00	\$979.00	\$31.00
Automobile	\$710.49	\$830.06	\$656.85	\$512.30	\$420.57
Bank Service Charges	\$60.00	\$79.00	\$62.00	\$76.00	\$12.00

## Design a Report in Report Wizard

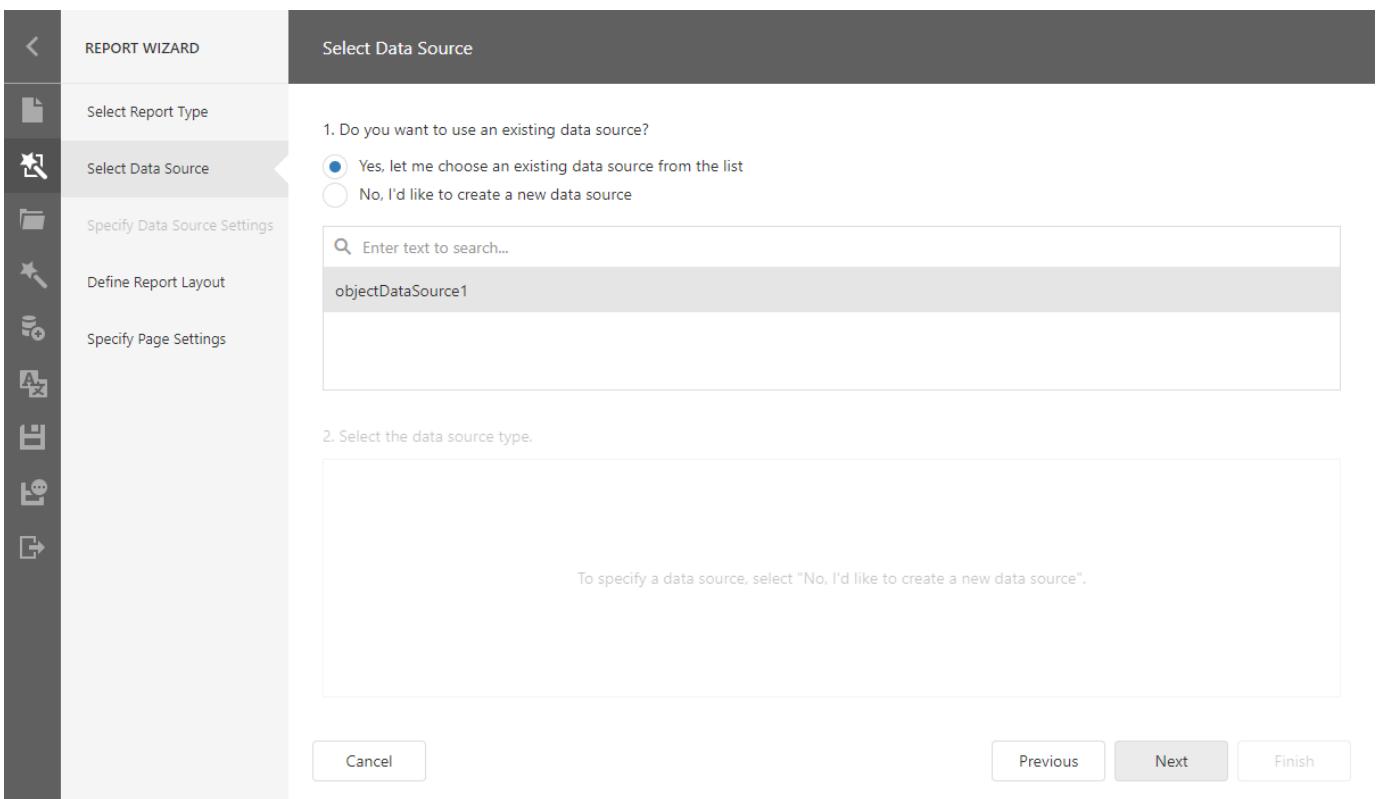
1. [Create a new report](#) or [open an existing one](#).
2. Open the Web Report Designer's menu. Select **Design in Report Wizard**.



3. In the invoked Report Wizard, select **Vertical Report** and click **Next**.



4. Select a data source for the report.



5. Select queries and data fields to include in the report. Add summary fields.

**REPORT WIZARD**

### Define Report Layout

1. Select queries for the report and its detail reports.

objectDataSource1

2. Select data fields to display in the report.

objectDataSource1

- Month
- ConstructionIncome
- SalesIncome
- CostOfGoodsSold
- JobExpenses

3. Add group fields.

objectDataSource1

Add Group

4. Add summary fields.

Field	Summary Functions
objectDataSource...	Select...

Ignore null values

**Cancel** **Previous** **Next** **Finish**

2. Select data fields to display in the report.

objectDataSource1

- Month
- ConstructionIncome
- SalesIncome
- CostOfGoodsSold
- JobExpenses
- Automobile
- BankServiceCharges
- Insurance
- PayrollExpenses

o Select data fields:

4. Add summary fields.

Field	Summary Functions	
objectDataSource1 - Construction	Sum <input type="button" value="X"/>	<input type="button" value="X"/>
objectDataSource1 - SalesIncome	Sum <input type="button" value="X"/>	<input type="button" value="X"/>
objectDataSource1 - Automobile	Sum <input type="button" value="X"/>	<input type="button" value="X"/>
objectDataSource1 - BankServices	Sum <input type="button" value="X"/>	<input type="button" value="X"/>
Select...	Select...	<input type="button" value="X"/>

Ignore null values

- o Add summary fields:

6. Specify page settings (Landscape orientation) and set the title (Profit and Loss).

REPORT WIZARD

Specify Page Settings

1. Specify page settings and a report color scheme.

Paper

Size: Letter

Unit: Inch

Width: 11.00 "

Height: 8.50 "

2. Specify the report title.

Profit and Loss

Month	Construction	SalesIncome	Automobile
[Month]	[Construction]	[SalesIncome]	[Automobile]

Cancel      Previous      Next      Finish

7. Click **Finish** to open the generated report in the Report Designer.

The screenshot shows a report structure with vertical bands. The bands are labeled on the left: TopMargin (yellow), ReportHeader (light blue), Vertical Bands (light blue), and BottomMargin (purple). The report header contains the title "Profit and Loss". Below the header is a table with three columns: "VerticalHeader", "VerticalDetail", and "VerticalTotal". The table rows correspond to the data fields: Month, Construction Income, Sales Income, Automobile, and Bank Service Charges. Each row contains a field name in the "VerticalDetail" column and a summary function (sum) in the "VerticalTotal" column. At the bottom of the report area, there is a "Current Date and Time" placeholder and a page number indicator "Page {0} of {1}".

VerticalHeader	VerticalDetail	VerticalTotal
Month	[Month]	
Construction Income	[ConstructionIncome]	sum Sum([ConstructionIncome])
Sales Income	[SalesIncome]	sum Sum([SalesIncome])
Automobile	[Automobile]	sum Sum([Automobile])
Bank Service Charges	[BankServiceCharges]	sum Sum([BankServiceCharges])

The wizard adds report controls to the following **bands**:

- **Vertical Header band**

Contains a table with a single column that displays data field headers.

- **Vertical Details band**

Contains a table with a single column that is printed as many times as there are records in the report's data source.

- **Vertical Total band**

Contains a table with a single column that has as many labels in cells as there are summary functions you specified for each field in the Report Wizard.

Switch to the Preview mode 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	\$75,035.31	\$81,479.21	\$84,874.68	\$75,634.84	\$80,369.13
Sales Income	\$27.00	\$770.00	\$950.00	\$979.00	\$31.00
Automobile	\$710.49	\$830.06	\$656.85	\$512.30	\$420.57
Bank Service Charges	\$60.00	\$79.00	\$62.00	\$76.00	\$12.00

### TIP

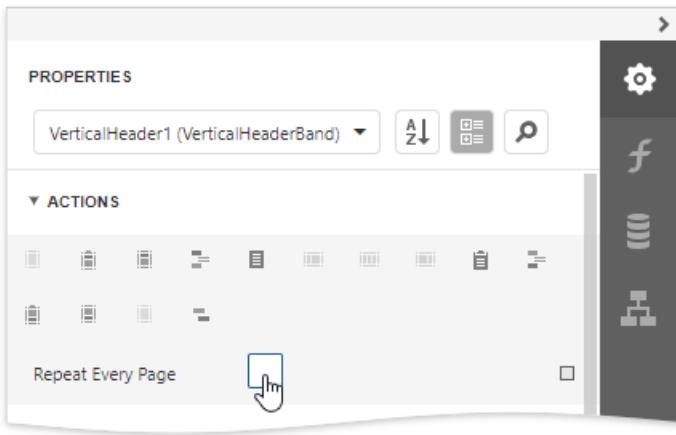
You can create a vertical report without using the Report Wizard. Click **Insert Vertical Header Band** from the report's context menu.

Refer to the [Introduction to Banded Reports](#) topic for more information.

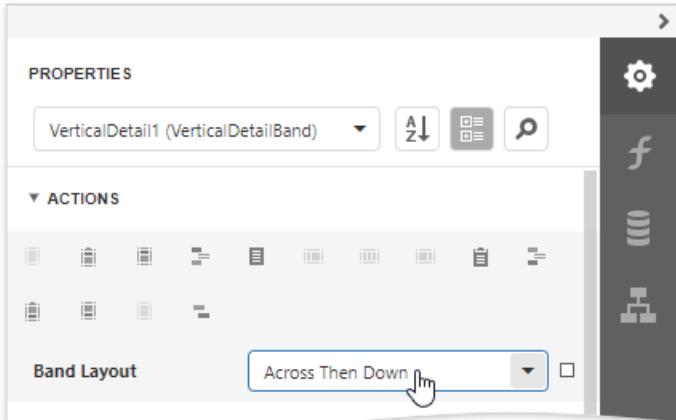
## Set Vertical Table Options

You can set the following options to modify the vertical table:

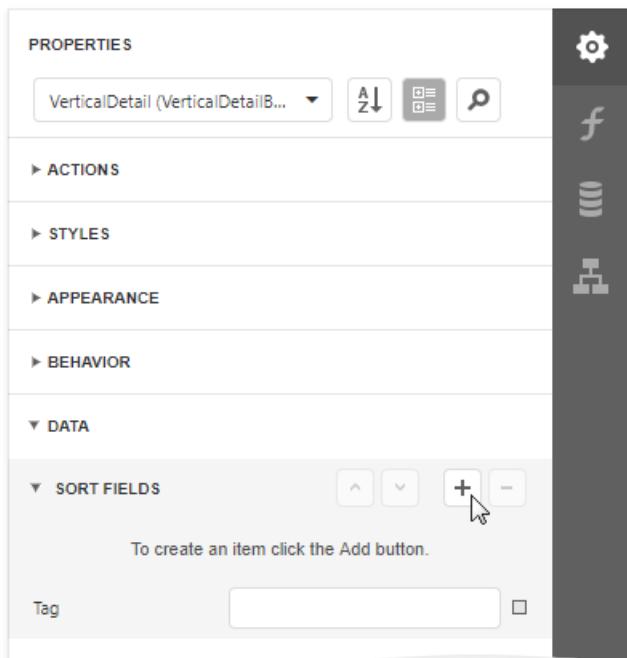
- Set the Vertical Header band's **Repeat Every Page** property to false to display field headers once - on the first report page.



- 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.



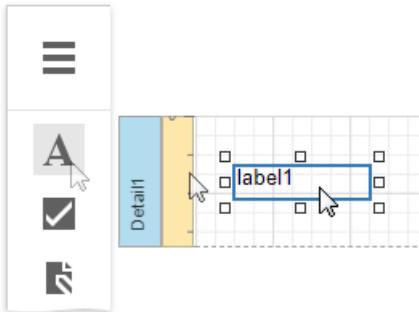
- Add a field to the **Sort Fields** group to sort the report's data.



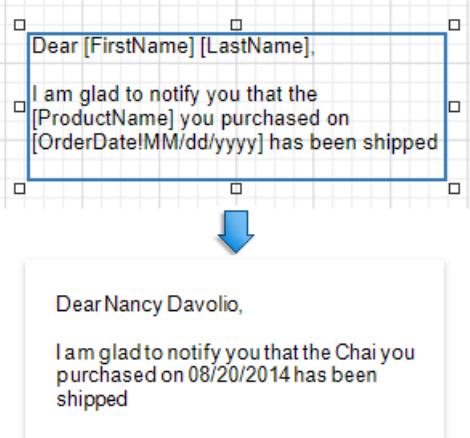
# Letters

This tutorial describes the steps to create a mail merge report, in which data fields are embedded into a label's text that is replaced with corresponding data values on preview or export.

1. [Create a new report](#) or [open an existing one](#).
2. [Bind the report](#) to a required data source.
3. Drop the [Label](#) control from the [Toolbox](#) onto the [Detail](#) band.



4. Add the required text to the control and embed data fields' names into it, surrounded by [ square brackets ], as shown in the following image:



For more information about mail merge, refer to [Use Embedded Fields \(Mail Merge\)](#).

# Master-Detail Report with Detail Report Bands

This tutorial illustrates how to display hierarchical data in a master-detail report using nested [Detail Report bands](#). This technique is effective if your data source contains a master-detail relationship. Another technique is described in the following topic: [Master-Detail Reports with Subreports](#).

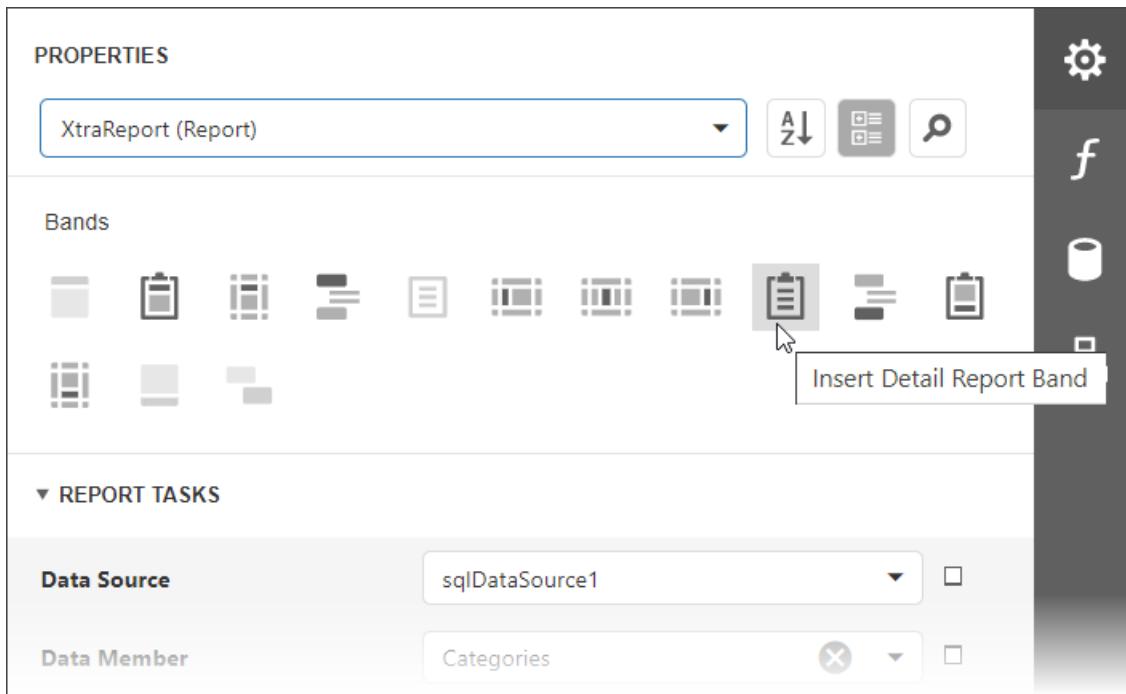
Beverages		
<i>Soft drinks, coffees, teas, beers, and ales</i>		
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Steeleye Stout	24 - 12 oz bottles	\$18.00
Côte de Blaye	12 - 75 cl bottles	\$263.50
Chartreuse verte	750 cc per bottle	\$18.00
Ipoh Coffee	16 - 500 g tins	\$46.00
Lakkalikööri	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

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

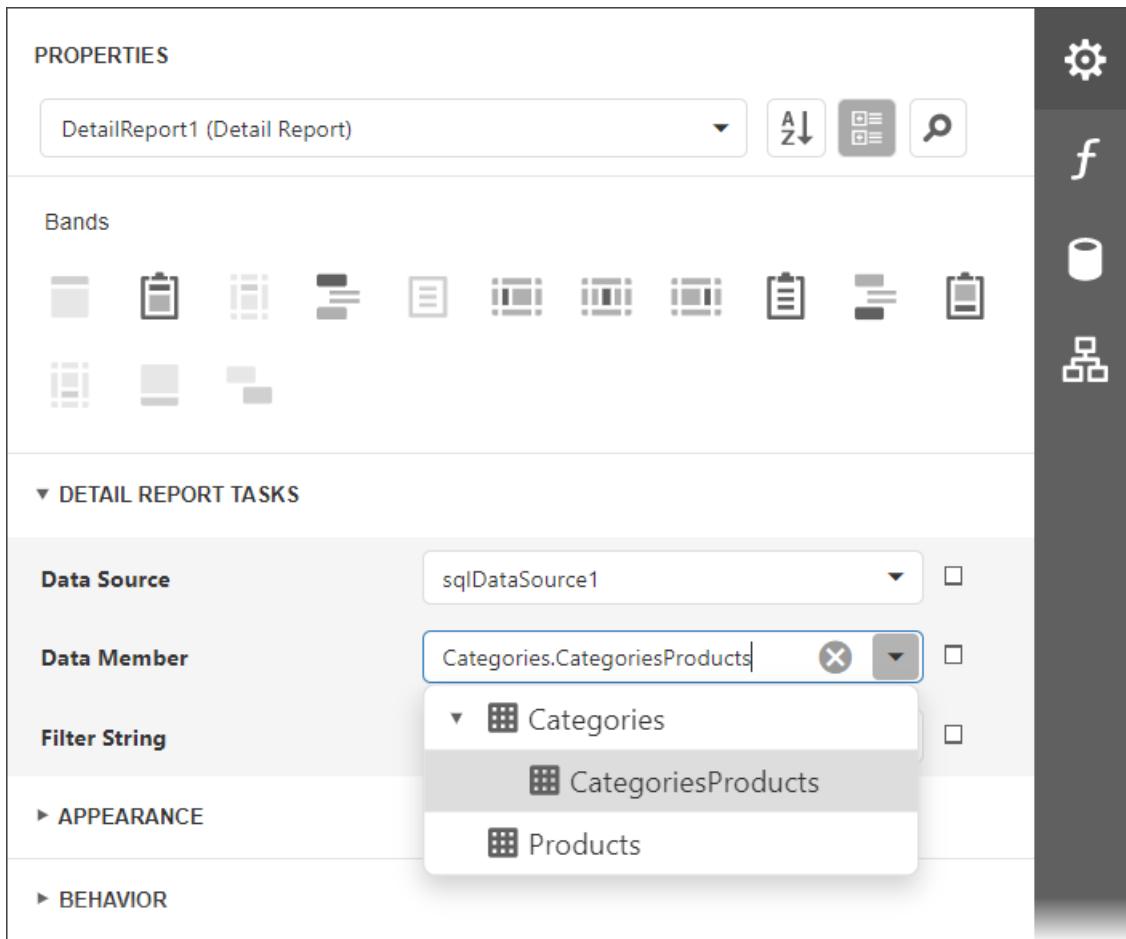
The screenshot shows the Report Designer interface with the following details:

- FIELD LIST:** A sidebar on the right containing a search bar and a tree view of available fields.
  - sqlDataSource1** (under **Categories**)
    - CategoriesProducts**
    - CategoryID**
    - CategoryName**
  - Description** (under **Products**)
  - Picture** (under **Products**)
  - Parameters**- Report Structure:** The main area shows a report structure with three bands:
  - TopMargin1**: A yellow margin band at the top.
  - Detail1**: The main data band, containing:
    - A label **[CategoryName]**.
    - A table with two rows:
      - Row 1: A label **[Description]** with a blue selection handle.
      - Row 2: An empty label.
  - BottomMargin1**: A grey margin band at the bottom.

4. Click **Insert Detail Report Band** to create a **Detail Report Band**.



Select the Detail Report band and select the master-detail relationship's name in the **Data Member** property's drop-down list.



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.

The screenshot shows a report design interface with a left panel for layout, a central preview area, and a right panel for managing fields.

**Left Panel:** Shows the report structure with sections: DetailReport1, Detail2, TOPMARGIN1, DETAIL1, and BOTOMMARGIN1. DETAIL1 contains three fields: [ProductName], [QuantityPerUnit], and [UnitPrice].

**Right Panel - FIELD LIST:**

- sqlDataSource1
- Categories
  - CategoriesProducts
    - 12 CategoryID
    - ✓ Discontinued
    - ab EAN13
    - 12 ProductID
    - ab ProductName
    - ab QuantityPerUnit
    - 12 ReorderLevel
    - 12 SupplierID
    - 1.2 UnitPrice
    - 12 UnitsInStock
    - 12 UnitsOnOrder

#### NOTE

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. Customize the report's [appearance](#) and [format values](#).

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

# Master-Detail Reports with 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 \(Use Detail Report Bands\)](#).

The screenshot shows a report with two main sections: 'Beverages' and 'Condiments'. The 'Beverages' section contains a list of products with their descriptions and prices. The 'Condiments' section contains a list of products with their descriptions and prices. The report is presented in a clean, organized layout with a light background.

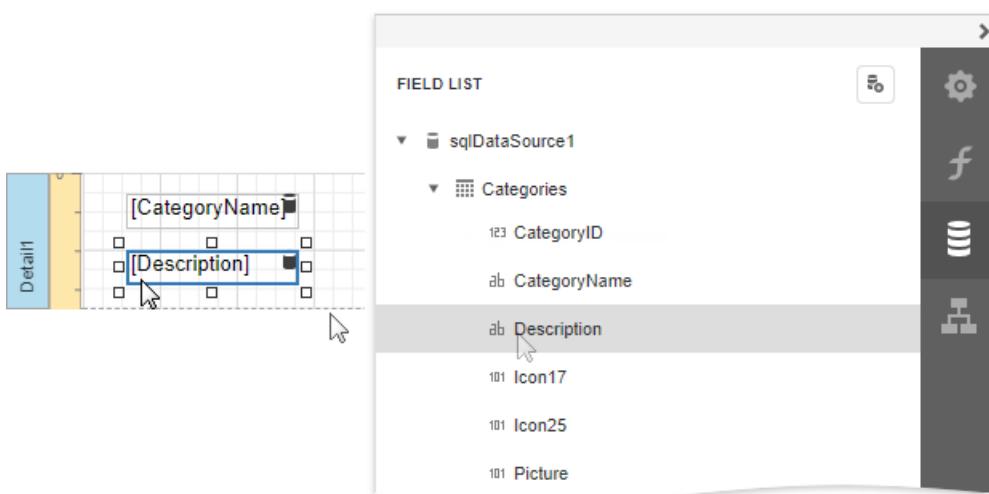
Beverages		
<i>Soft drinks, coffees, teas, beers, and ales</i>		
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Steeleye Stout	24 - 12 oz bottles	\$18.00
Côte de Blaye	12 - 75 cl bottles	\$263.50
Chartreuse verte	750 cc per bottle	\$18.00
Ipoх Coffee	16 - 500 g tins	\$46.00
Lakkalikööri	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 Report

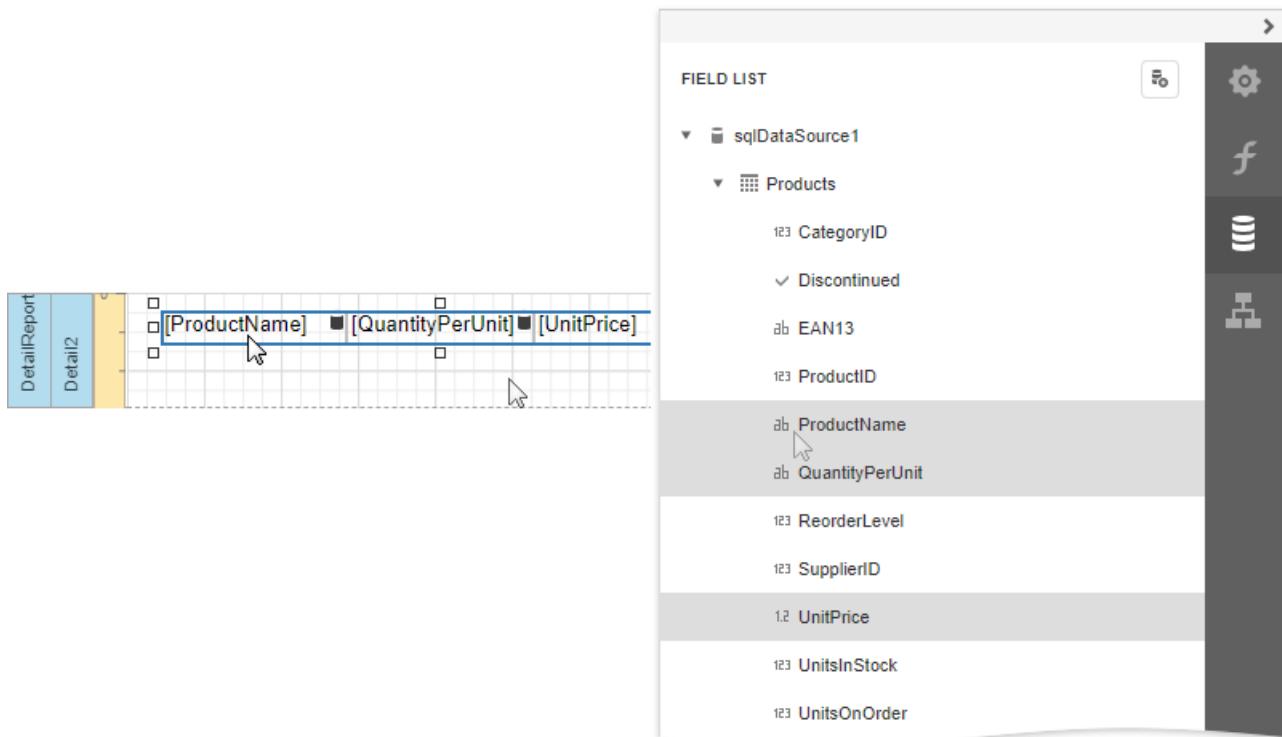
1. [Create a new report](#) or [open an existing one](#) to use it as a master report.
2. [Bind the report](#) to a required data table.
3. Drop the required data fields from the [Field List](#) onto the [Detail](#) band.



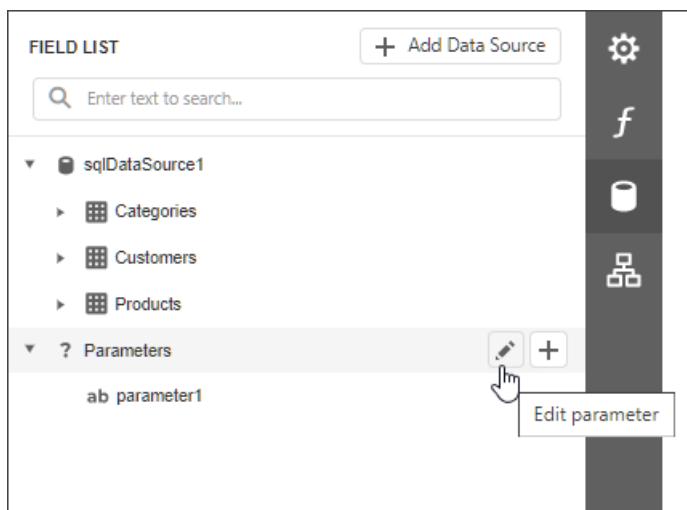
## Create the Detail Report

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.

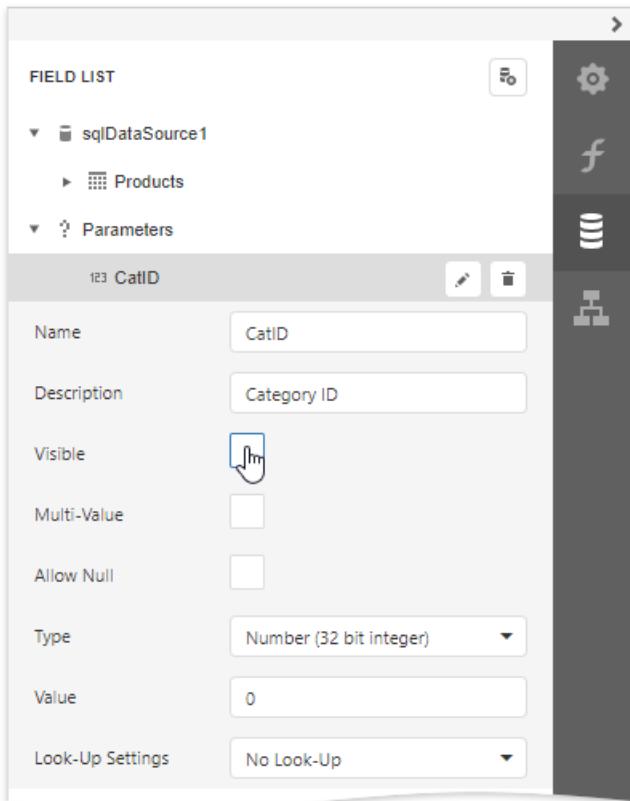
3. Switch to the **Field List**, select the data fields while holding down CTRL or SHIFT and drag-and-drop them onto the Detail band.



4. Add parameter to the detail report. Select the **Parameters** section in the **Field List** and click **Add parameter**.

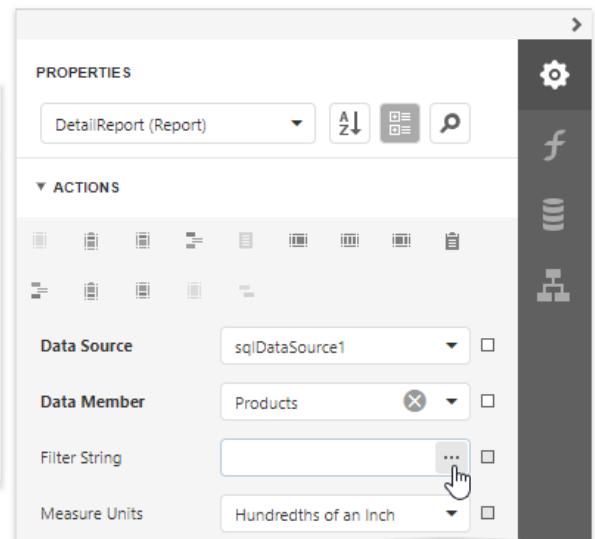
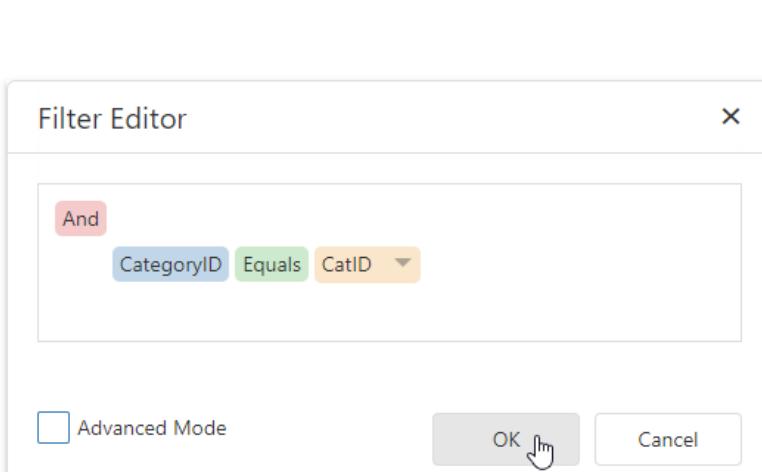


5. Click the **Edit** button for the created parameter and specify the parameter's **Name** and **Type** as well as disable the **Visible** property.

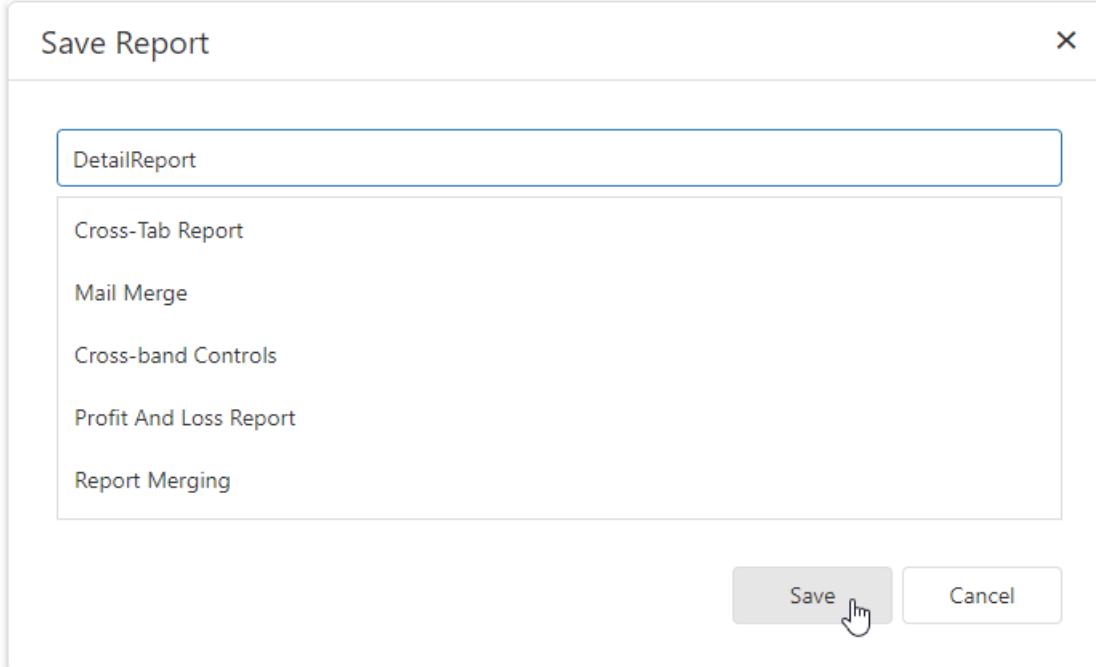


6. Switch to the **Properties** panel, expand the control's **Tasks** category and click the **Filter String** property's ellipsis button.

In the invoked **Filter Editor**, construct an expression where the required data field is compared to the created parameter. To access the parameter, invoke the drop-down list on the right and select **Parameter**.

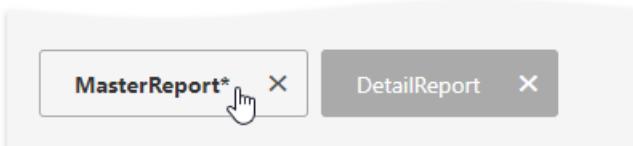


7. Click **Save | Save As** in the designer **menu** to **save the detail report** to the server-side report storage. In the invoked standard **Save** dialog, specify the folder and file name.

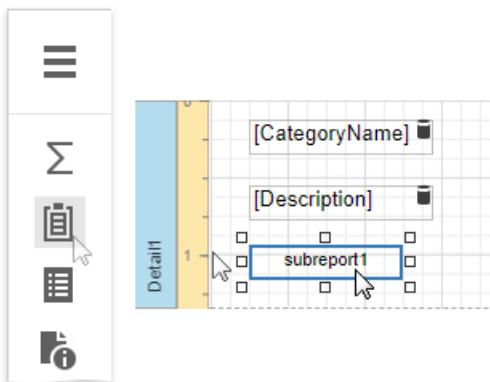


## Embed the Subreport

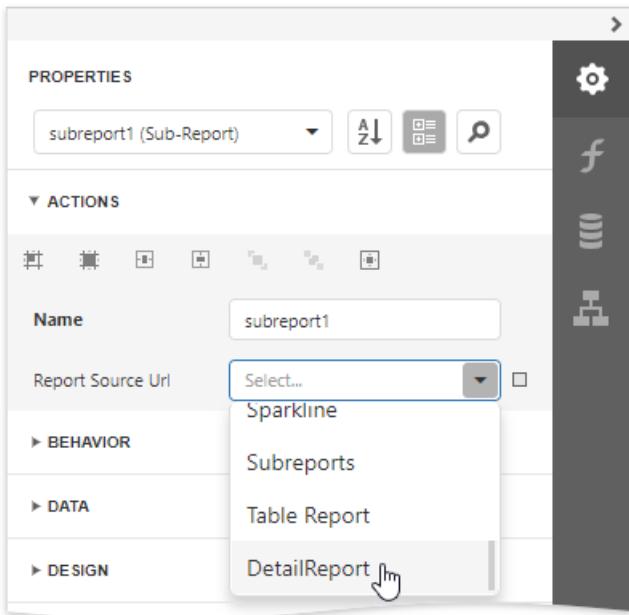
1. Click the corresponding tab in the bottom left corner of the Design Surface to switch back to the master report.



2. Drop the **Subreport** control from the **Toolbox** onto the **Detail** band.

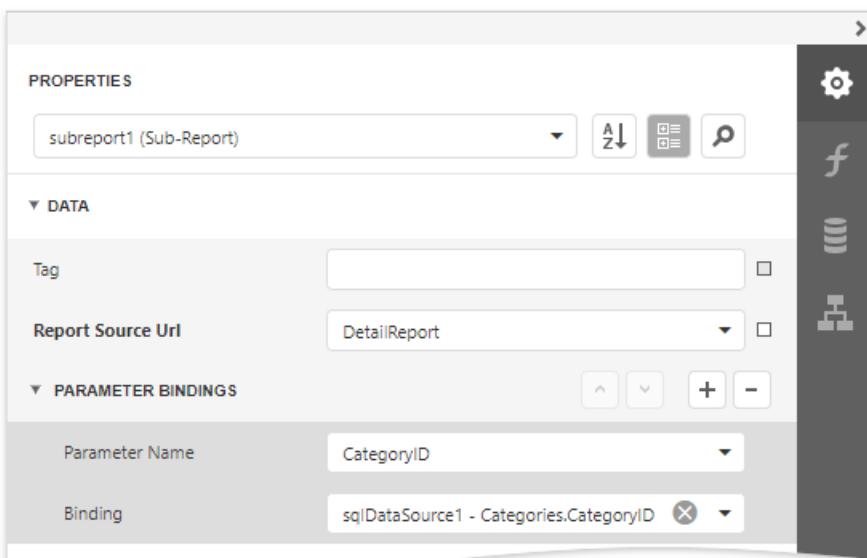


3. Expand the **Subreport Tasks** category and select the previously saved detail report in the **Report Source URL** property's drop-down list.



You can double-click the added subreport to open the detail report.

- 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, expand the **Data** category, select the **Parameter Bindings** section and add a new parameter binding. In the binding properties 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
Lakkaliköön	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

# Hierarchical Reports

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

The screenshot displays a report titled "Market Share Report". At the top, there is a header table with three columns: "Region", "March", and "September". Below this is a detailed table showing sales figures for various regions and countries. The regions are listed as rows, and each row contains a list of countries with their corresponding March and September sales values. The report uses a light gray background with dark gray horizontal and vertical grid lines. The data is presented in a clear, organized manner, allowing for easy comparison across different regions and over time.

Sales			
Region	March	September	
Asia	\$20,388	\$22,547	
Eastern Europe	\$22,500	\$24,580	
Belarus	\$7,315	\$18,800	
Bulgaria	\$6,300	\$2,821	
Croatia	\$4,200	\$3,890	
Czech Republic	\$19,500	\$15,340	
Hungary	\$13,495	\$13,900	
Poland	\$8,930	\$9,440	
Romania	\$4,900	\$5,100	
Russia	\$22,500	\$24,580	
North America	\$31,400	\$32,800	
South America	\$16,380	\$17,590	
Argentina	\$16,380	\$17,590	
Brazil	\$4,560	\$9,480	
Western Europe	\$30,540	\$33,000	

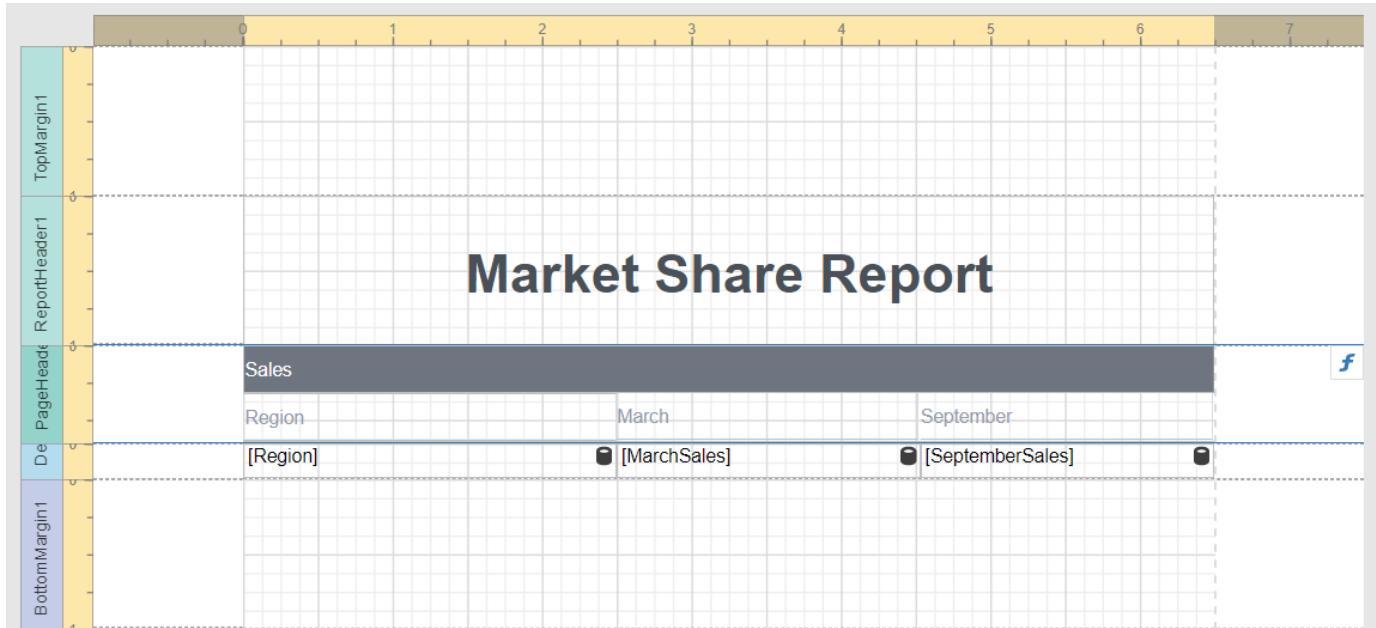
1. [Create a new report](#) or [open an existing one](#).
2. [Bind the report](#) to a data source.

The screenshot shows the report design interface. On the left, there is a toolbar with various icons for selecting, cutting, pasting, and zooming. The main area displays a hierarchical report structure with three levels of detail. The first level has three items labeled "TopMargin", "Detail", and "BottomMargin". The second level under "Detail" has several items, and the third level has even more detailed items. To the right of the design area is a "FIELD LIST" panel containing a search bar and a list of data source fields. The fields listed include "objectDataSource1" with its properties like "ID", "MarchSales", "MarchSalesPrev", "MarketShare", "Region", "RegionID", "SeptemberSales", and "SeptemberSalesPrev". There is also a "Parameters" section at the bottom of the field list. The overall interface is clean and modern, with a dark theme and a focus on the report structure.

Each record in the data source should include a field that defines the parent-child relationship and thus builds the hierarchy.

3. Arrange controls on the report.

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



Switch to [PREVIEW](#) to see an intermediate result.

The screenshot shows the preview of the Market Share Report. The title 'Market Share Report' is displayed. Below the title is a table with a dark grey header row labeled 'Sales'. The table has three columns: 'Region', 'March', and 'September'. The data rows list various regions with their corresponding March and September sales figures.

Region	March	September
Western Europe	\$30,540	\$33,000
Austria	\$22,000	\$28,000
Belgium	\$13,000	\$9,640
Denmark	\$21,000	\$18,100
Finland	\$17,000	\$17,420
France	\$23,020	\$27,000
Germany	\$30,540	\$33,000
Greece	\$15,600	\$13,200
Ireland	\$9,530	\$10,939
Italy	\$17,299	\$19,321
Netherlands	\$8,902	\$9,214
Norway	\$5,400	\$7,310

4. Switch back to **DESIGN**, select the **Detail** band, and type in "hier" in the **Search field** to navigate to the **Hierarchy Print Options** property pane.

The screenshot shows the 'PROPERTIES' panel of a reporting tool. On the left, there's a search bar with the text 'hier'. Below it is a section titled 'Bands' containing various icons for different report components. To the right is a vertical toolbar with icons for settings, a file, a cylinder, and a cube.

**DETAIL TASKS**

**BEHAVIOR**

**HIERARCHY PRINT OPTIONS**

- Child List Field Name: (dropdown menu)
- Key Field Name: ID (with an 'X' button)
- Parent Field Name: RegionID (with an 'X' button)
- Indent: 30 (with up/down arrows)
- Keep Together With First Child:

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.

5. Preview the result.

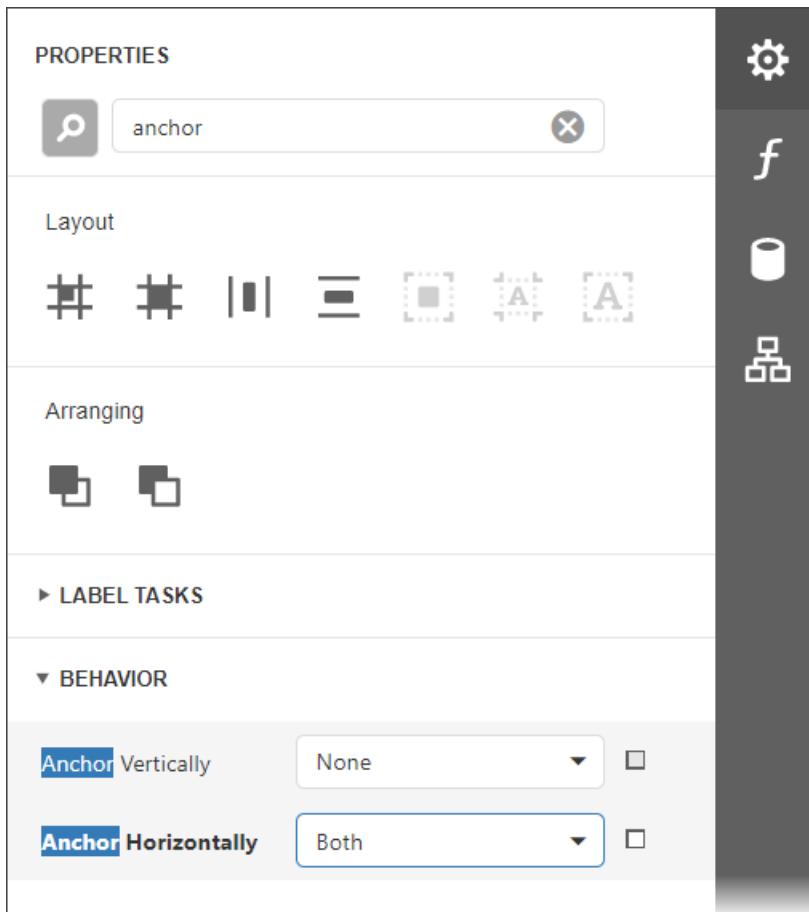
# Market Share Report

Sales		
Region	March	September
Western Europe	\$30,540	\$33,000
Austria	\$22,000	\$28
Belgium	\$13,000	\$9
Denmark	\$21,000	\$18
Finland	\$17,000	\$17
France	\$23,020	\$27
Germany	\$30,540	\$33
Greece	\$15,600	\$13
Ireland	\$9,530	\$10
Italy	\$17,299	\$19
Netherlands	\$8,902	\$9
Norway	\$5,400	\$7

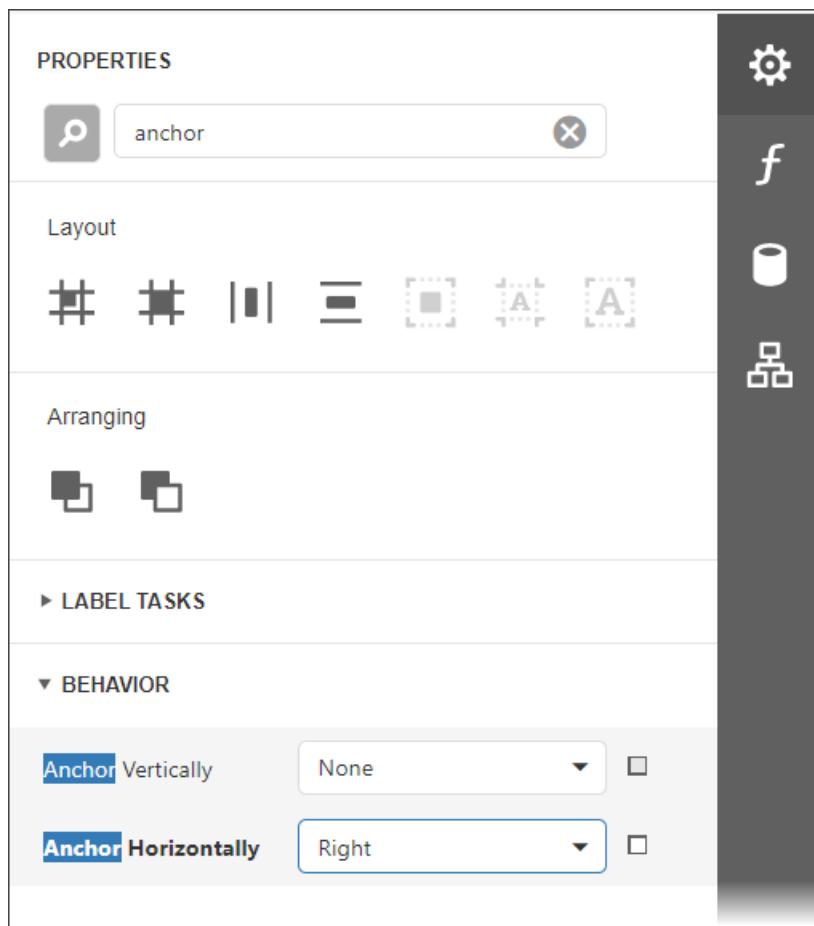
As you can see in the image above, the **Detail** band that contains child rows is printed with the specified indent. However, the row (the sum of the label widths) does not fit the page now.

## 6. 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 Horizontal** property to **Right**.



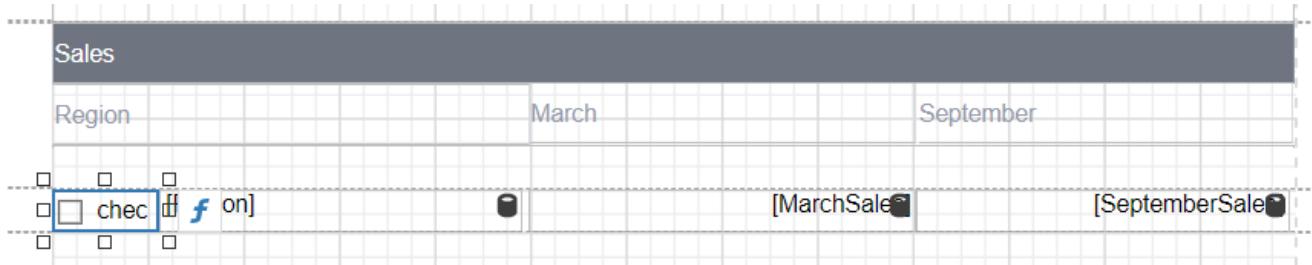
7. Preview the result.

The screenshot shows a preview of the 'Market Share Report'. The title 'Market Share Report' is at the top. Below it is a table with the following data:

Sales		
Region	March	September
Western Europe	\$30,540	\$33,000
Austria	\$22,000	\$28,000
Belgium	\$13,000	\$9,640
Denmark	\$21,000	\$18,100
Finland	\$17,000	\$17,420
France	\$23,020	\$27,000
Germany	\$30,540	\$33,000
Greece	\$15,600	\$13,200
Ireland	\$9,530	\$10,939
Italy	\$17,299	\$19,321
Netherlands	\$8,902	\$9,214
Norway	\$5,400	\$7,310

8. Add a **drill-down control** to expand/collapse child rows.

- Add a **Check Box** control to the **Detail** band at the left-most position.



- Set the **Check Box** control's **Glyph Options** and remove the unnecessary "checkbox1" text. You can specify different images to indicate the checkbox state. In the **Custom Glyphs** section, specify the image for the **Checked** state, and the image for the **Unchecked** state.

The screenshot shows the 'Properties' panel for a 'Check Box' control. Under 'GLYPH OPTIONS', the 'CUSTOM GLYPHS' section is expanded, showing three rows for 'Checked', 'Unchecked', and 'Indeterminate' states. Each row has an 'Image' button and a '...' button. The 'Checked' row is set to 'Image' and the 'unchecked' row is set to '(none)'. Other settings include 'Alignment: Near' and 'Style: Standard Box 1'.

State	Image	...
Checked	Image	...
Unchecked	Image	...
Indeterminate	(none)	...

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

The screenshot shows the 'PROPERTIES' pane of the Microsoft Report Designer. At the top, there is a dropdown menu set to 'Detail1 (Detail)', followed by several icons: a downward arrow, 'A Z' (sort), a grid, and a magnifying glass. Below this is a section titled 'Bands' containing two rows of icons representing different report bands. Underneath the bands are four expandable sections: 'DETAIL TASKS', 'STYLES', 'APPEARANCE', and 'BEHAVIOR'. The 'BEHAVIOR' section is expanded, showing a 'Drill-Down Control' field containing the text 'checkBox1' with an 'X' button and a dropdown arrow, and a 'Drill-Down Expanded' field with a checked checkbox and an unchecked checkbox.

- Click the **f-button** next to the **Check Box** control to invoke the **Expression Editor**, and assign the following expression to the **Check State** property:

```
Iif( [ReportItems.Detail1.DrillDownExpanded], 'Checked', 'Unchecked')
```

## Expression Editor

The screenshot shows the Expression Editor dialog box. On the left is a tree view of properties for a 'Check Box State' object, including Font, Foreground Color, Height, Left, Navigation URL, Padding, Style Name, Tag, Text, Text Alignment, Top, Visible, and Width. The main area contains the formula `IIf( [ReportItems.Detail1.DrillDownExpanded], 'Checked', 'Unchecked')`. To the right is a 'Report Items' browser with sections for Fields, Constants, Functions, Operators, and Variables, and a search bar. Below the browser are buttons for OK, Cancel, and Apply.

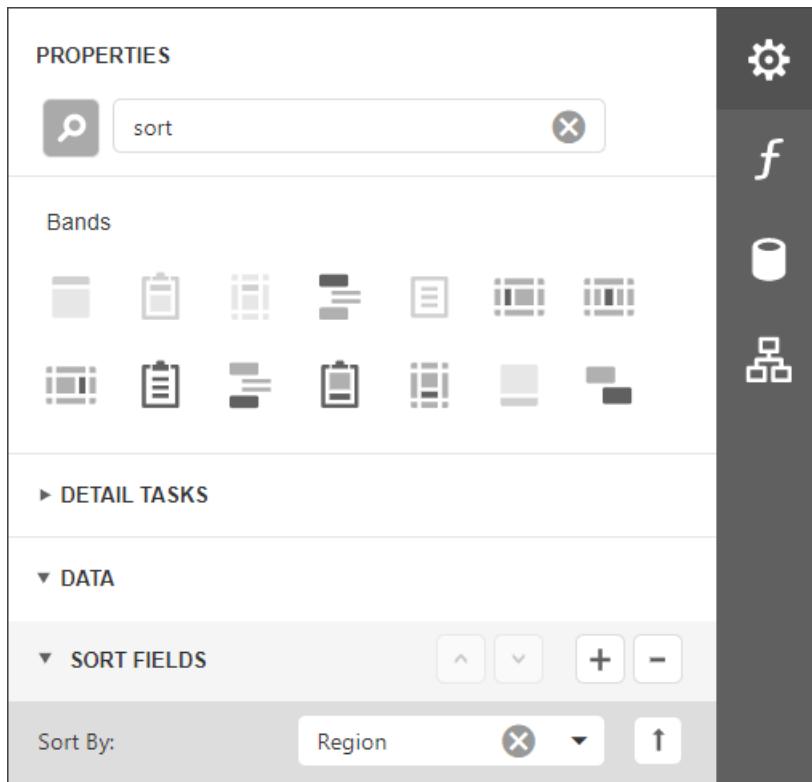
- Preview the result:

The screenshot shows a report titled 'Market Share Report'. The main content is a table with a dark header row labeled 'Sales'. The columns are 'Region', 'March', and 'September'. The data is organized hierarchically:
 

Sales			
Region	March	September	
Western Europe	\$30,540	\$33,000	
Eastern Europe	\$22,500	\$24,580	
North America	\$31,400	\$32,800	
USA	\$31,400	\$32,800	
Canada	\$25,390	\$27,000	
South America	\$16,380	\$17,590	
Argentina	\$16,380	\$17,590	
Brazil	\$4,560	\$9,480	
Asia	\$20,388	\$22,547	
India	\$4,642	\$5,320	
Japan	\$9,457	\$12,859	
China	\$20,388	\$22,547	

9. Sort report data.

Use the Detail band's **Sort Fields** property to sort data.



Preview the result:

## Market Share Report

Sales			
Region	March	September	
Asia	China	\$20,388	\$22,547
	India	\$4,642	\$5,320
	Japan	\$9,457	\$12,859
	Eastern Europe	\$22,500	\$24,580
Eastern Europe	Belarus	\$7,315	\$18,800
	Bulgaria	\$6,300	\$2,821
	Croatia	\$4,200	\$3,890
	Czech Republic	\$19,500	\$15,340
	Hungary	\$13,495	\$13,900
	Poland	\$8,930	\$9,440
	Romania	\$4,900	\$5,100
	Russia	\$22,500	\$24,580
North America		\$31,400	\$32,800
		\$16,380	\$17,590
		\$30,540	\$33,000
South America			
Western Europe			

10. Highlight root nodes.

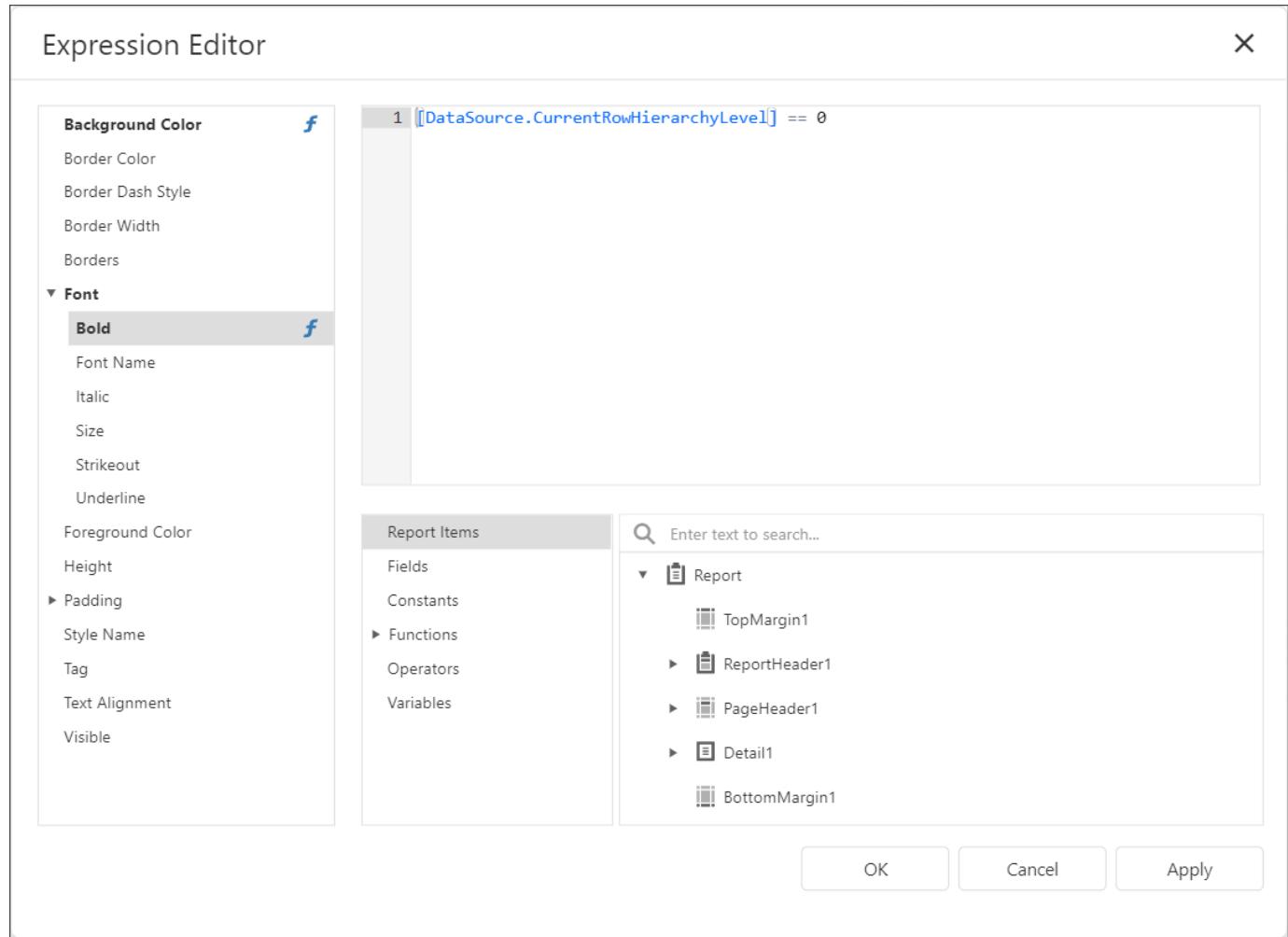
To format rows based on their nesting level, use the `CurrentRowHierarchyLevel` variable in expressions. Specify the following expressions for the **Detail** band's appearance properties:

#### Background Color:

```
Iif([DataSource.CurrentRowHierarchyLevel] == 0, Rgb(231,235,244), ?)
```

#### Font | Bold:

```
[DataSource.CurrentRowHierarchyLevel] == 0
```



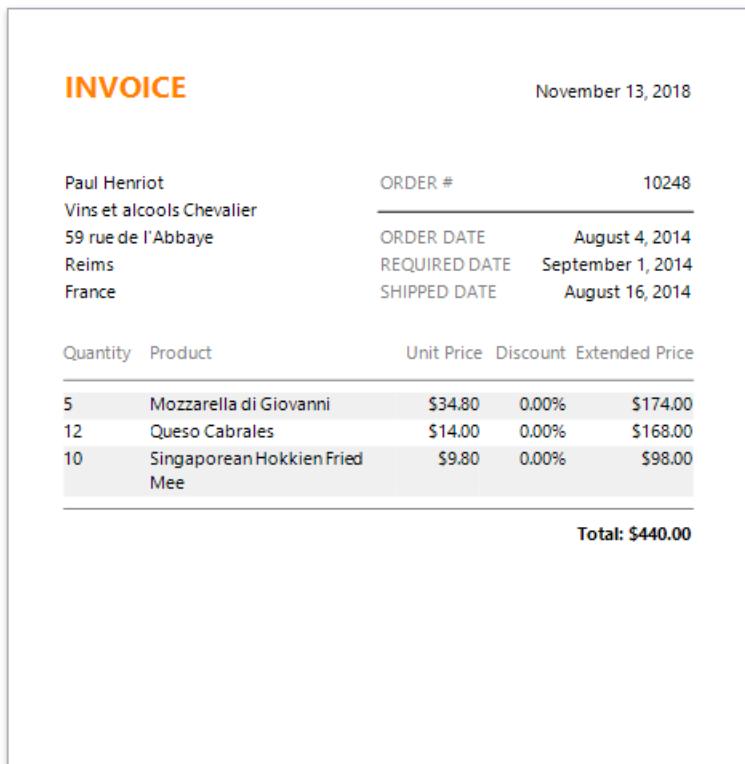
Preview the result:

# Market Share Report

Sales			
Region	March	September	
▼ Asia	\$20,388	\$22,547	
^ Eastern Europe	\$22,500	\$24,580	
Belarus	\$7,315	\$18,800	
Bulgaria	\$6,300	\$2,821	
Croatia	\$4,200	\$3,890	
Czech Republic	\$19,500	\$15,340	
Hungary	\$13,495	\$13,900	
Poland	\$8,930	\$9,440	
Romania	\$4,900	\$5,100	
Russia	\$22,500	\$24,580	
▼ North America	\$31,400	\$32,800	
^ South America	\$16,380	\$17,590	
Argentina	\$16,380	\$17,590	
Brazil	\$4,560	\$9,480	
▼ Western Europe	\$30,540	\$33,000	

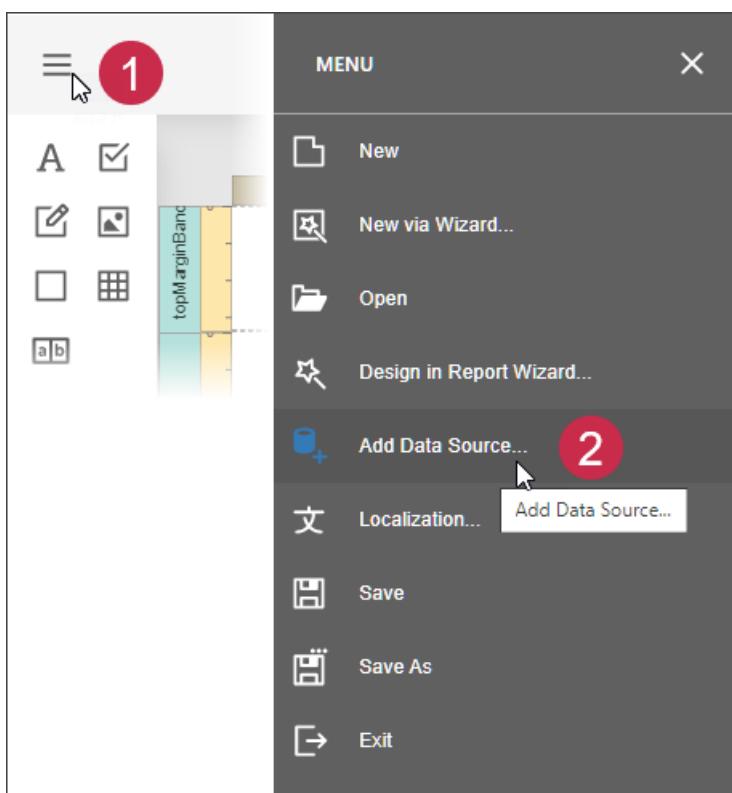
# Invoices

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.

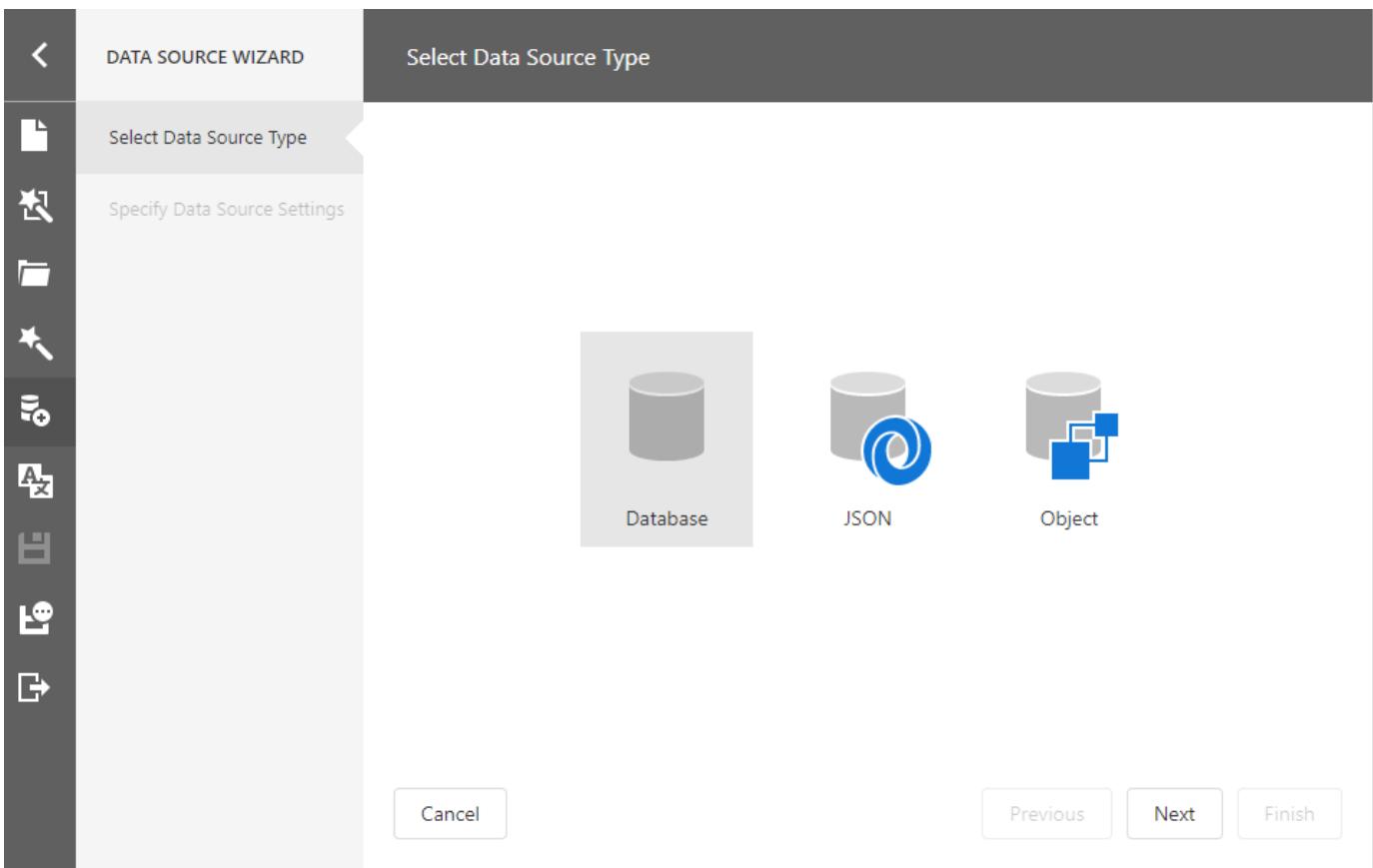


## Create a Report and Bind It to Data

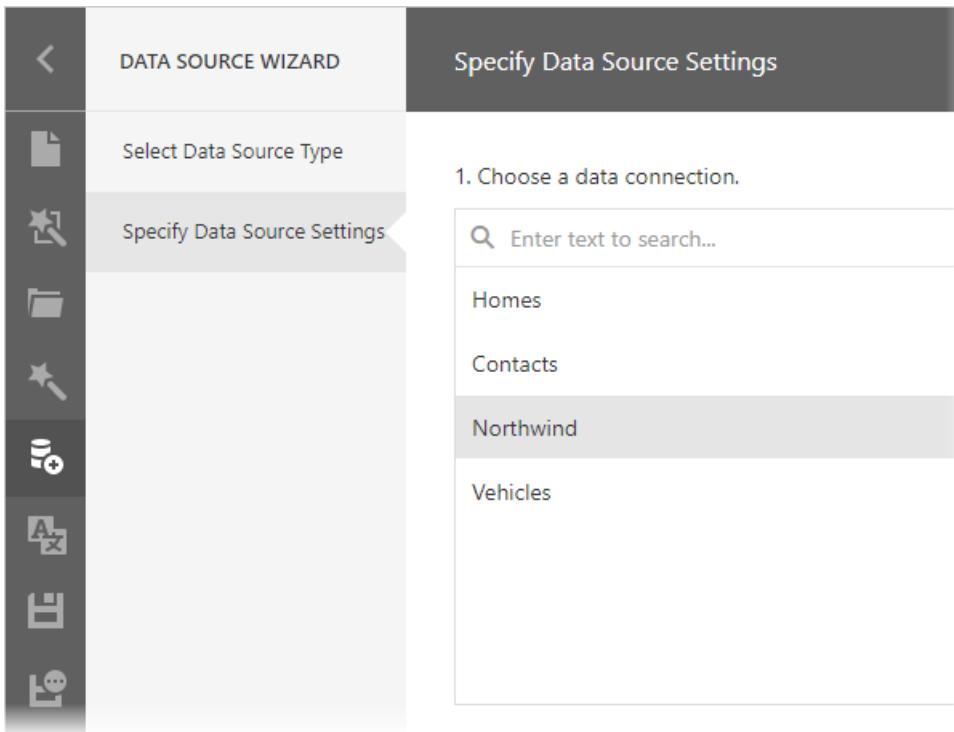
1. Create a new report or open an existing one.
2. Invoke the designer menu and click **Add Data Source....**



3. Select **Database** on the first page of the invoked Data Source Wizard and click **Next**.



4. Select a data connection on the next page.



5. On the same 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.

2. Choose predefined queries and/or create custom queries.

- ▶  Tables
- ▶  Views
- Stored Procedures
- Queries

Query Builder

ORDERS	CUSTOMERS
<input type="checkbox"/> * (All Columns)	<input type="checkbox"/> * (All Columns)
<input type="checkbox"/> OrderID	<input type="checkbox"/> CompanyName
<input checked="" type="checkbox"/> CustomerID	<input checked="" type="checkbox"/> Customers_CustomerID
<input type="checkbox"/> EmployeeID	<input type="checkbox"/> ContactName
<input type="checkbox"/> OrderDate	<input type="checkbox"/> ContactTitle
<input type="checkbox"/> RequiredDate	<input type="checkbox"/> Address
<input type="checkbox"/> ShippedDate	<input type="checkbox"/> City
<input type="checkbox"/> ShipVia	<input type="checkbox"/> Region
<input type="checkbox"/> Freight	<input type="checkbox"/> PostalCode
<input type="checkbox"/> ShipName	<input type="checkbox"/> Country
<input type="checkbox"/> ShipAddress	<input type="checkbox"/> Phone
<input type="checkbox"/> ShipCity	<input type="checkbox"/> Fax
<input type="checkbox"/> ShipRegion	
<input type="checkbox"/> ShipPostalCode	
<input type="checkbox"/> ShipCountry	

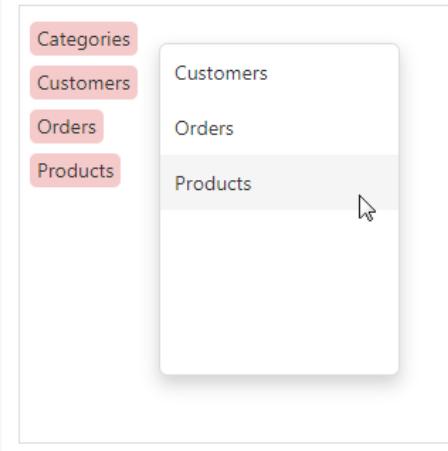
6. On the same wizard page, select the data view providing order details for listing products included in each order in the invoice.

2. Choose predefined queries and/or create custom queries.

- ▶  Tables
- ▼  Views
  - ▶  CategoryProducts
  - ▶  OrderDetails
  - ▶  OrderReports
- Stored Procedures
- ▼  Queries
  - Customers

7. On the same page, specify a master-detail relationship between the queries. Select the required key fields (columns) to connect tables.

3. Configure master-detail relationships.



3. Configure master-detail relationships.

Categories

CategoriesProducts

Categories . CategoryID = Products . <Select a column>

Customers

Orders

Products

ProductID

ProductName

SupplierID

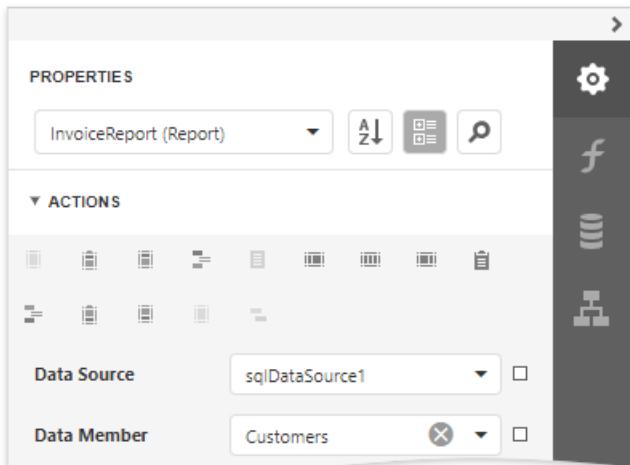
CategoryID

QuantityPerUnit

UnitPrice

8. 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.

The screenshot shows the Report Designer interface. On the left is a data grid with columns for ContactName, ShipName, ShipAddress, ShipCity, ShipCountry, OrderID, OrderDate, RequiredDate, and ShippedDate. The ShipCountry field is selected. On the right is the Field List pane, which displays the structure of the sqlDataSource1. It shows the Customers table with fields: ContactName, CustomerID, OrderDate, OrderID, RequiredDate, ShipAddress, ShipCity, ShipCountry, ShipName, and ShippedDate. The ShipCountry field is highlighted.

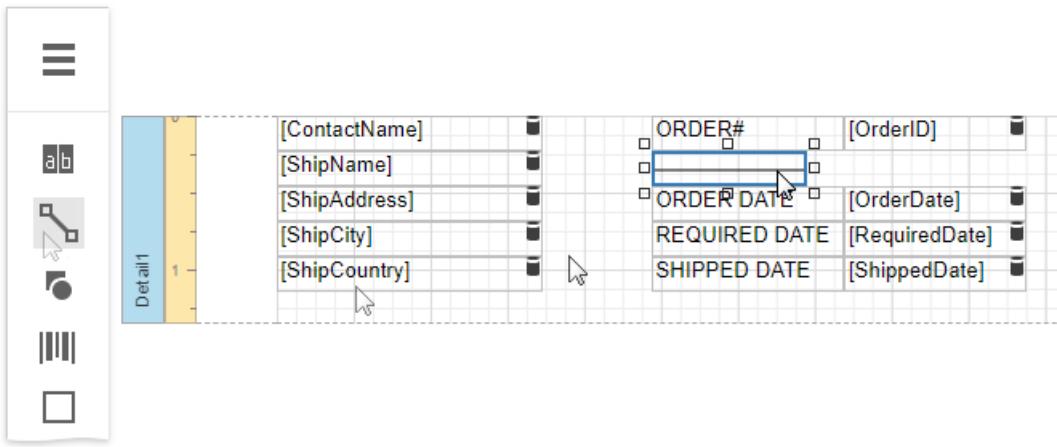
- Drop **Label** controls from the **Toolbox** onto the band to display static captions for specific data fields.

The screenshot shows the Report Designer with labels added to the data grid. The labels are positioned next to their corresponding data fields: label10 for OrderID, label11 for OrderDate, label12 for RequiredDate, and label13 for ShippedDate. The labels are currently empty and have a blue selection border.

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

The screenshot shows the Report Designer with static text labels added to the data grid. The labels are: ORDER# above OrderID, ORDER DATE above OrderDate, REQUIRED DATE above RequiredDate, and SHIPPED DATE above ShippedDate. The labels are now filled with text and have a blue selection border.

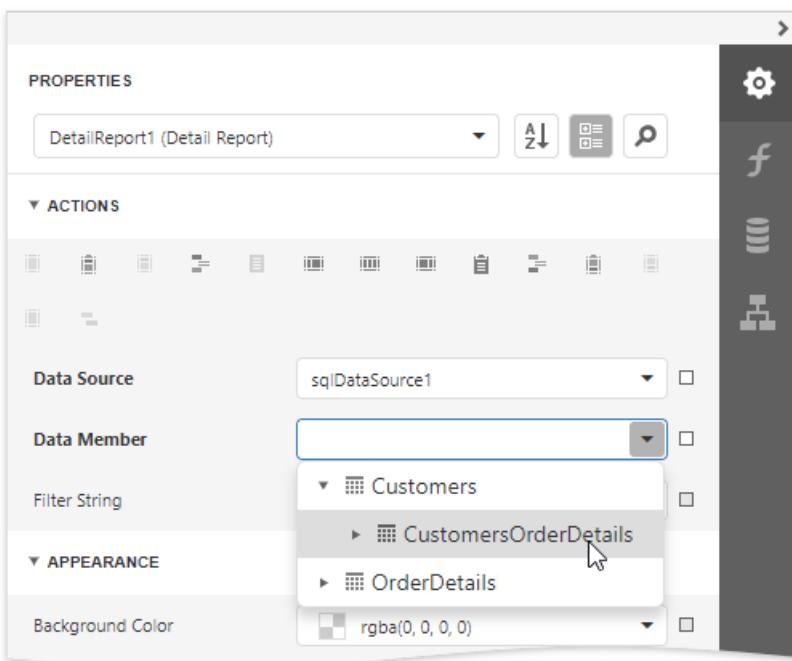
- Use the **Line** control to separate data.



## Prepare the Detail Report Layout

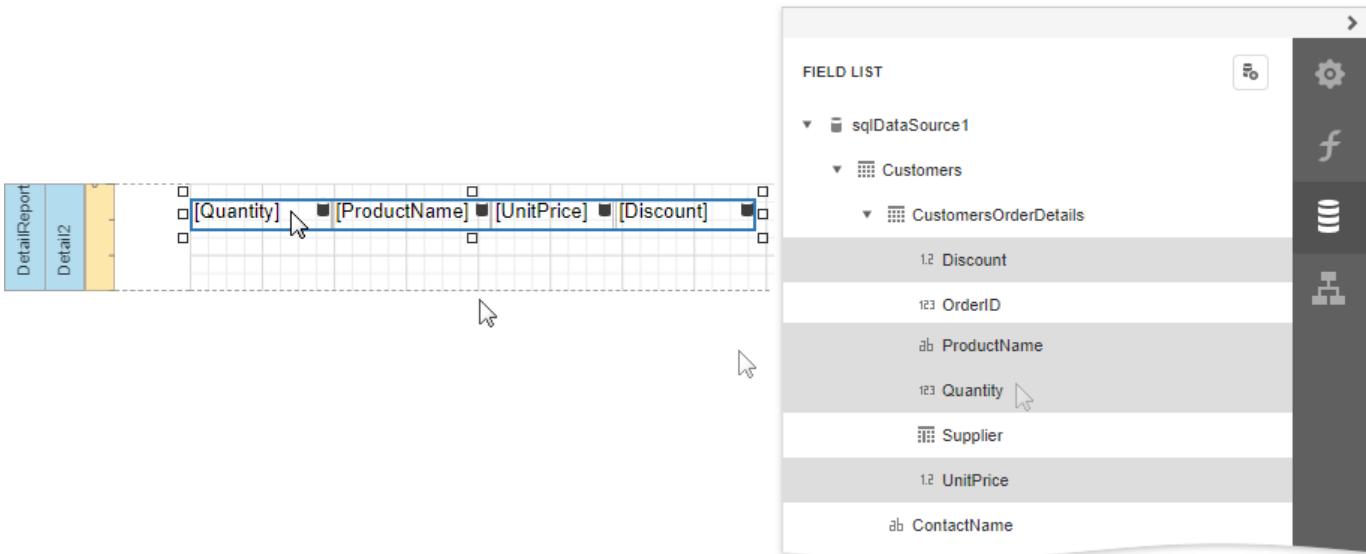
Perform the following steps to create a detail report and construct its layout to show the order details in a tabular form:

1. From the report's context menu, select the **Insert Detail Report Band** command to create a **Detail Report Band**.
2. Select the Detail Report band and select the master-detail relationship's name in the **Data Member** property's drop-down list.

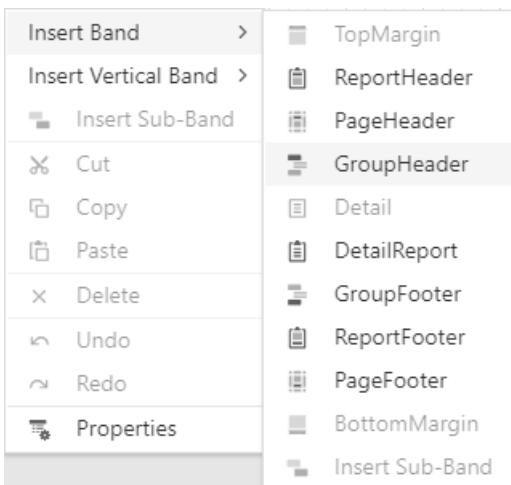


3. Add dynamic content to the detail report. Go to the **Field List**, select the data fields while holding down CTRL or SHIFT and drag-and-drop them onto the Detail band. This automatically creates a **Table** control with table cells bound to the corresponding fields.

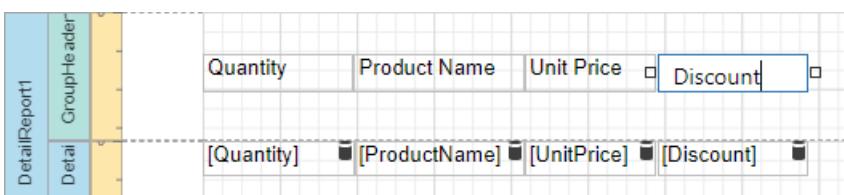
You should drag-and-drop fields from the category corresponding to the master-detail relationship to correctly generate the detail report's data.



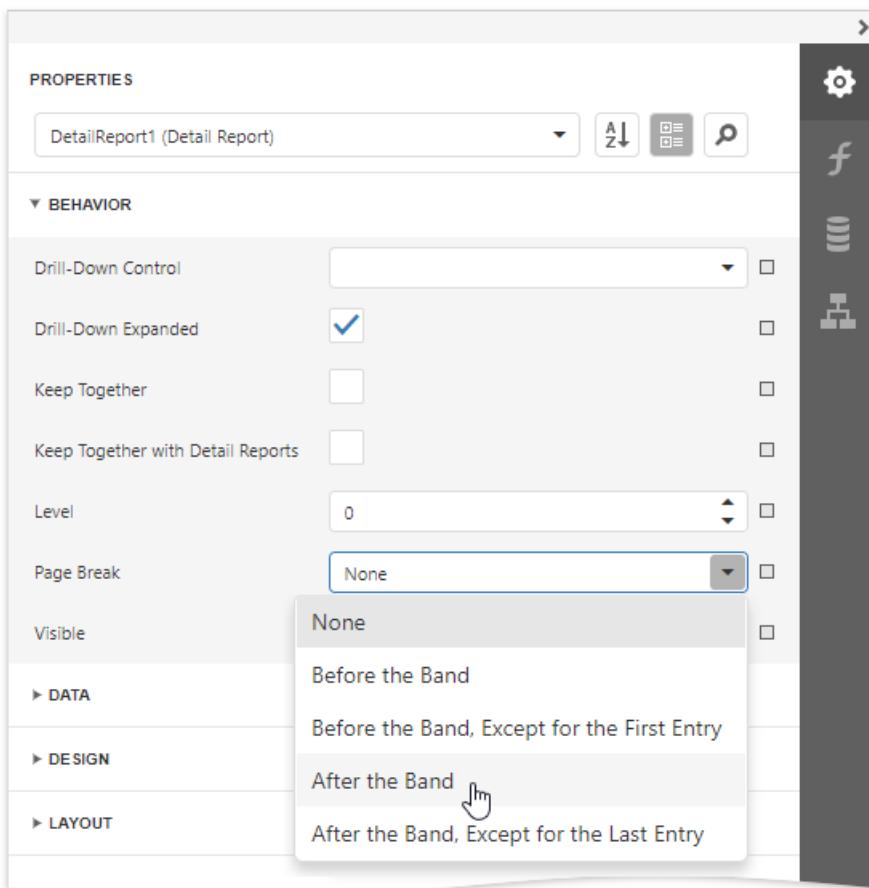
4. Add the Group Header band to the detail report to display captions for table columns. Select the Detail Report band and click **Insert Group Header Band** in the context menu.



5. To create column headers, drop the **Table** control from the **Toolbox** onto the Group Header band and enter the required text in the table's cells.



6. Select the Detail Report band, expand the **Behavior** category and set the band's **Page Break** property to **After the Band** to print each order on a separate page.

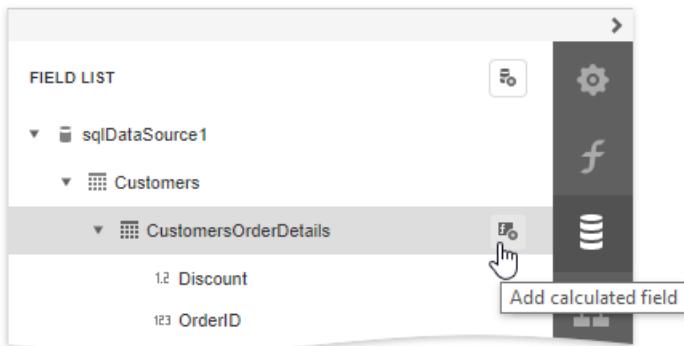


## Create a Calculated Field

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](#), select the detail table and click **Add calculated field**.



2. Click the **Edit** button for the calculated field and 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.

The screenshot shows the Expression Editor and the Field List side-by-side.

**Expression Editor:** Displays the expression `1 * [UnitPrice] * [Quantity] * (1 - [Discount])`. The Fields pane on the left lists Constants, Functions, and Operators. The right pane shows the expanded fields: `1`, `[UnitPrice]`, `[Quantity]`, and `[Discount]`.

**Field List:** Shows the field `ExtendedPrice` defined under `sqlDataSource1` / `Customers` / `CustomersOrderDetails`. The properties for `ExtendedPrice` are set as follows:

- Name: ExtendedPrice
- Display Name: ExtendedPrice
- Field Type: None
- Data Source: sqlDataSource1
- Data Member: Customers.CustomersOrderDetail
- Expression: `1 * [UnitPrice] * [Quantity] * (1 - [Discount])`

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.

The screenshot shows the Report Designer with a table in the Detail band and the Field List panel.

**Report Designer:** A table is shown in the Detail band with columns: Quantity, Product Name, Unit Price, Discount, and Extended Price. The `Extended Price` column contains the expression `[Quantity] * [UnitPrice] * (1 - [Discount])`.

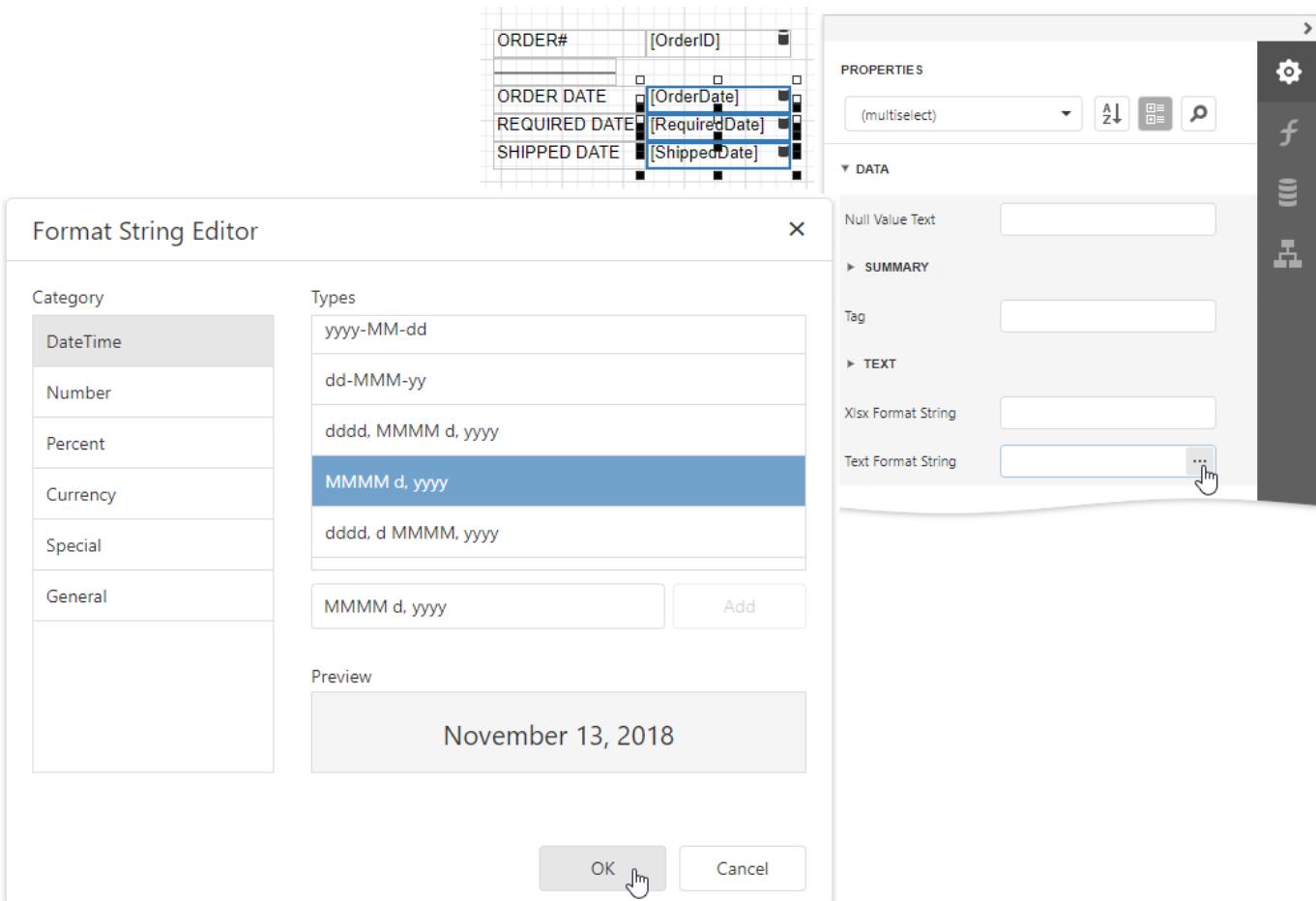
**Field List:** Shows the field `ExtendedPrice` defined under `sqlDataSource1` / `Customers` / `CustomersOrderDetails`. The properties for `ExtendedPrice` are set as follows:

- Name: ExtendedPrice
- Display Name: ExtendedPrice
- Field Type: None
- Data Source: sqlDataSource1
- Data Member: Customers.CustomersOrderDetail
- Expression: `1 * [UnitPrice] * [Quantity] * (1 - [Discount])`

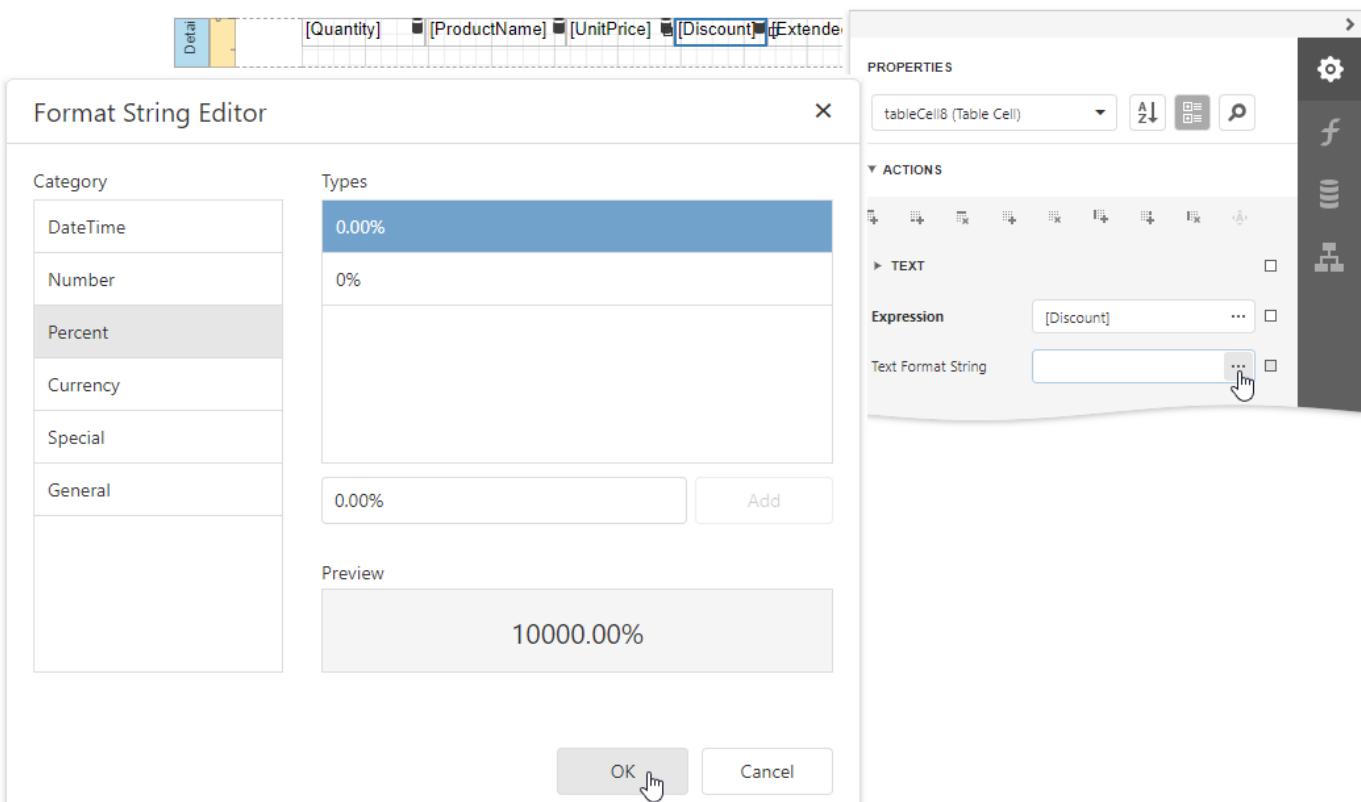
## Format Data

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. Switch to the **Properties** panel, expand the **Data** category 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. Expand the **Cell Tasks** category, click the **Text 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.

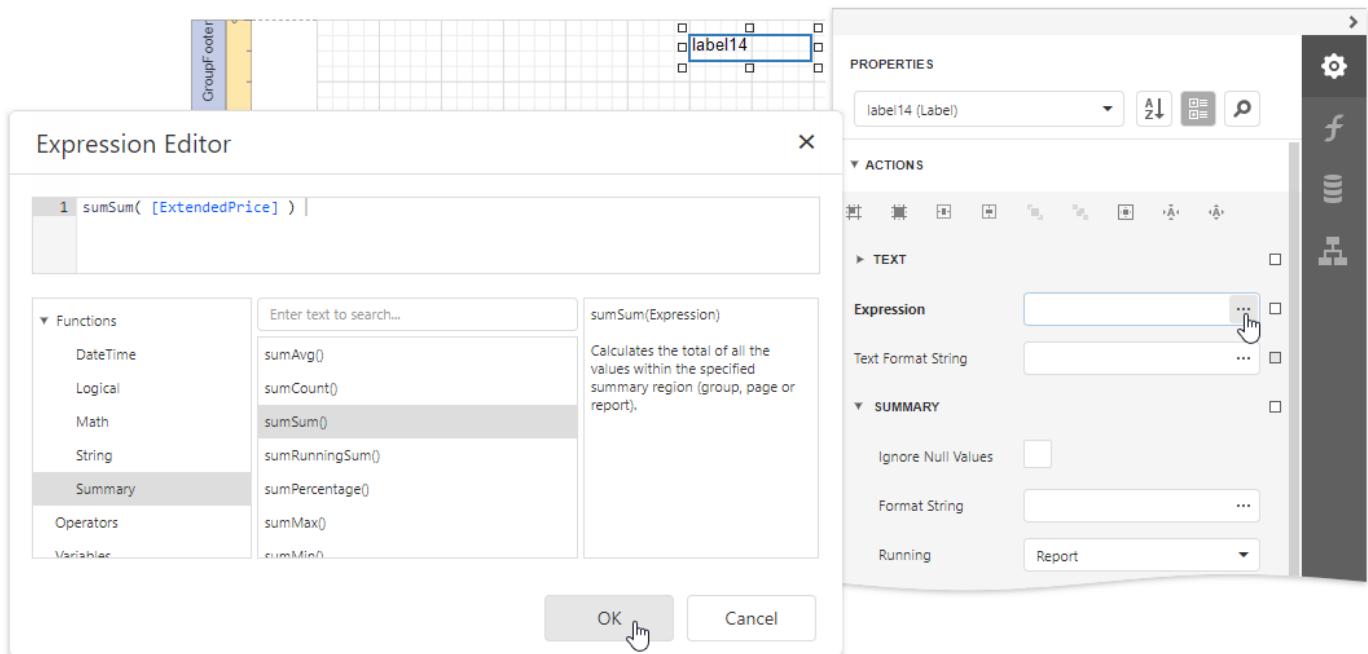


3. In the detail report's Detail band, select the cells bound to the **UnitPrice** and **ExtendedPrice** fields. Invoke the **Format String Editor** once again and choose the format preset from the **Currency** category (for instance, **c2**).

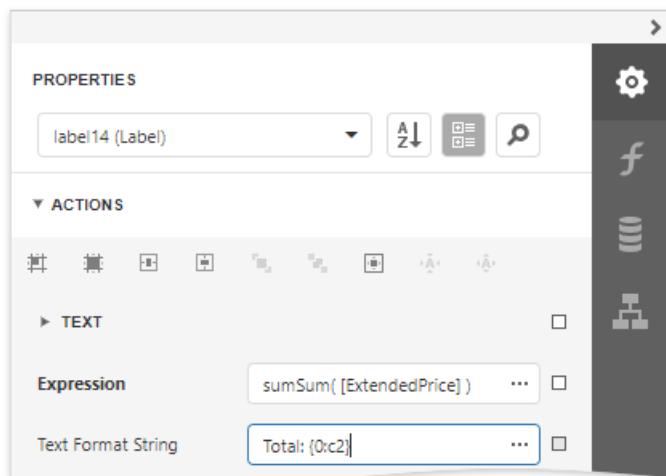
# Calculate a Summary

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 expand the **Label Tasks** category in the Properties panel. Select the **Summary** section and set the **Running** property to **Report** to calculate the summary for the entire detail report and click the **Expression** property's ellipsis button. In the invoked **Expression Editor**, specify the following expression to calculate the total price:



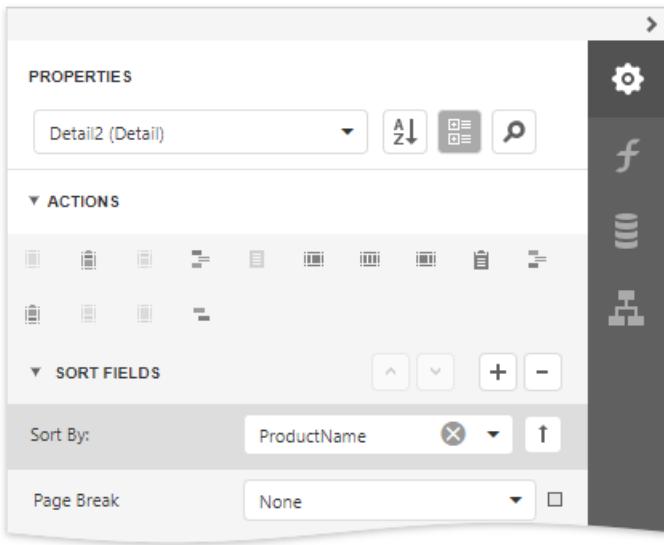
3. Use the **Text Format String** property to format the summary's value (for instance, set it to **Total: {0:c2}**).



# Sort Data

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

1. Select the **Detail** band in the detail report. Select the **Sort Fields** section in the **Detail Tasks** category and add a new sort field to sort the detail report's data by the required data field.

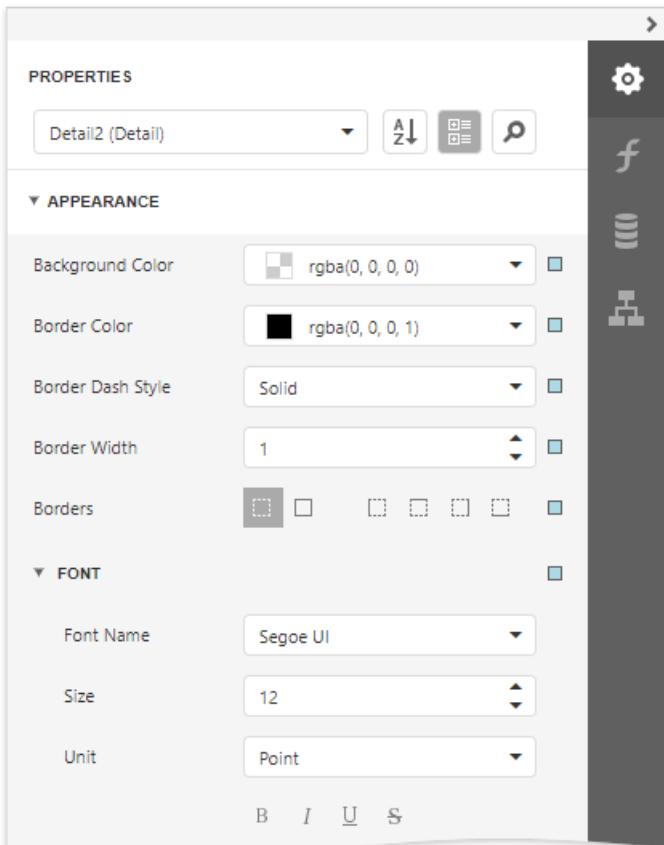


2. Click the or buttons to define the sort order within the group (ascending or descending). Use the button to disable sorting in grouped data.

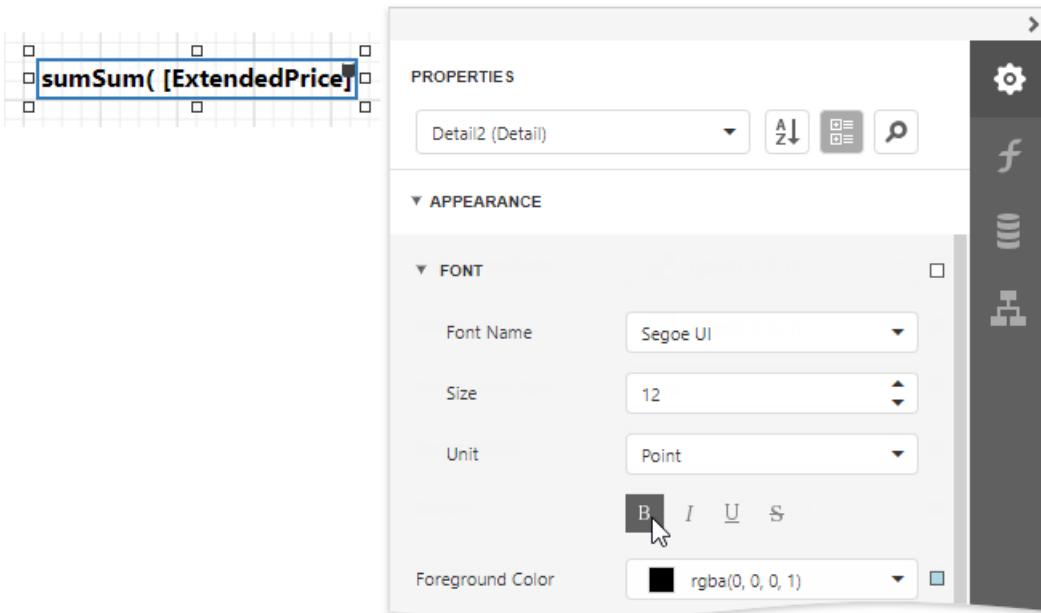
## Customize the Report Appearance

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

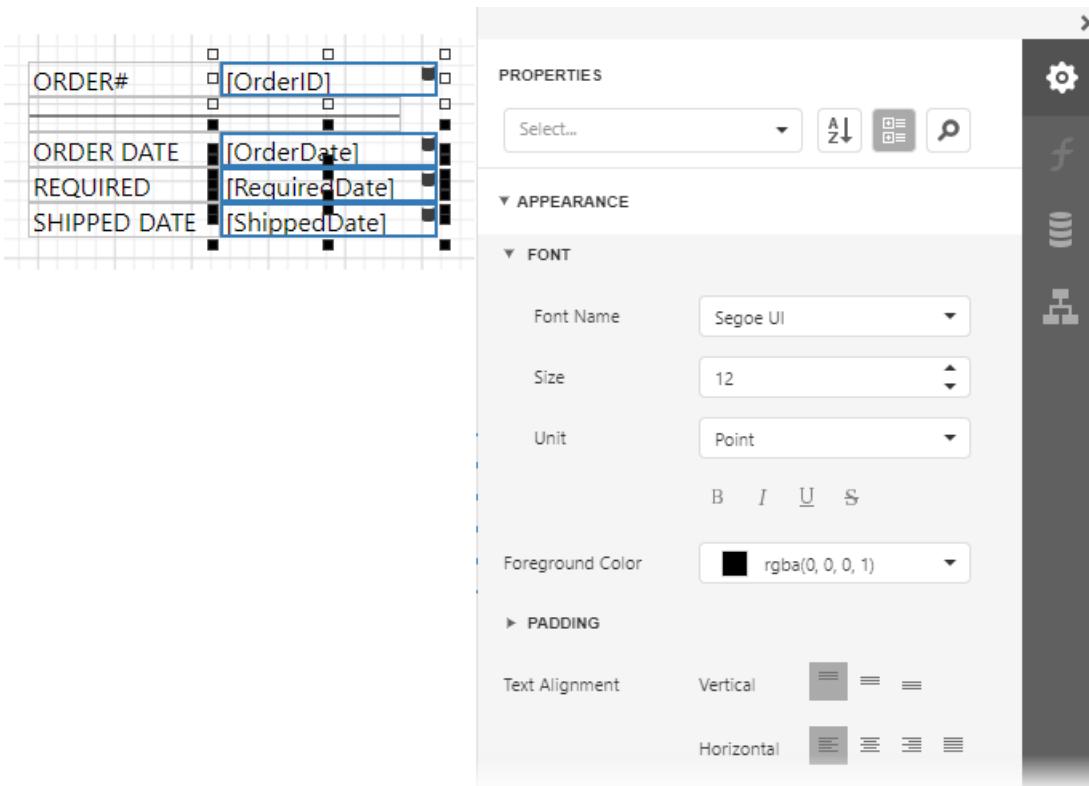
1. Click the gray area around the design surface to select the report, and in the [Properties](#) panel, specify the font settings. These settings are distributed to all report elements.



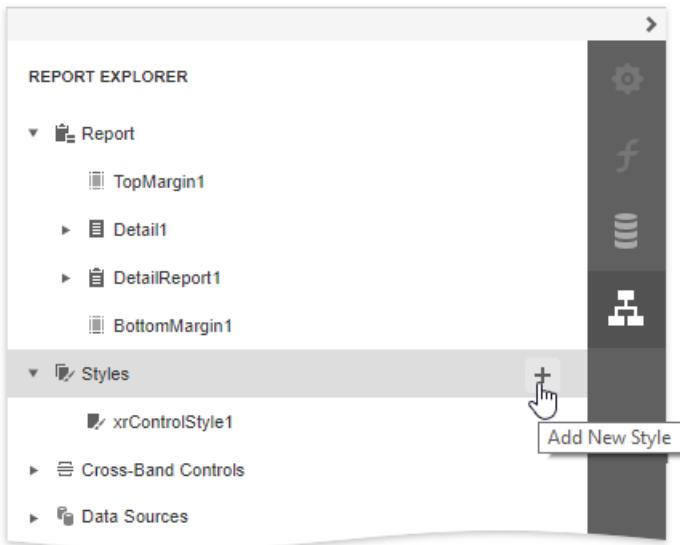
2. You can adjust a control's font independently from its parent (for instance, make summary values bold).



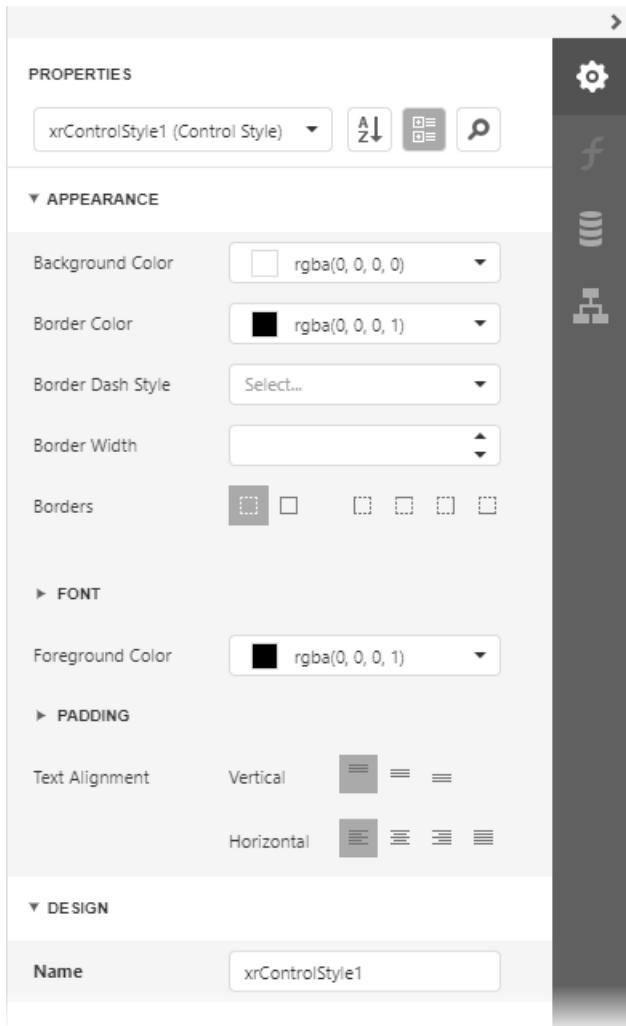
3. Change specific controls' (bound to date fields, price fields, etc.) text alignment using the **Text Alignment** property.



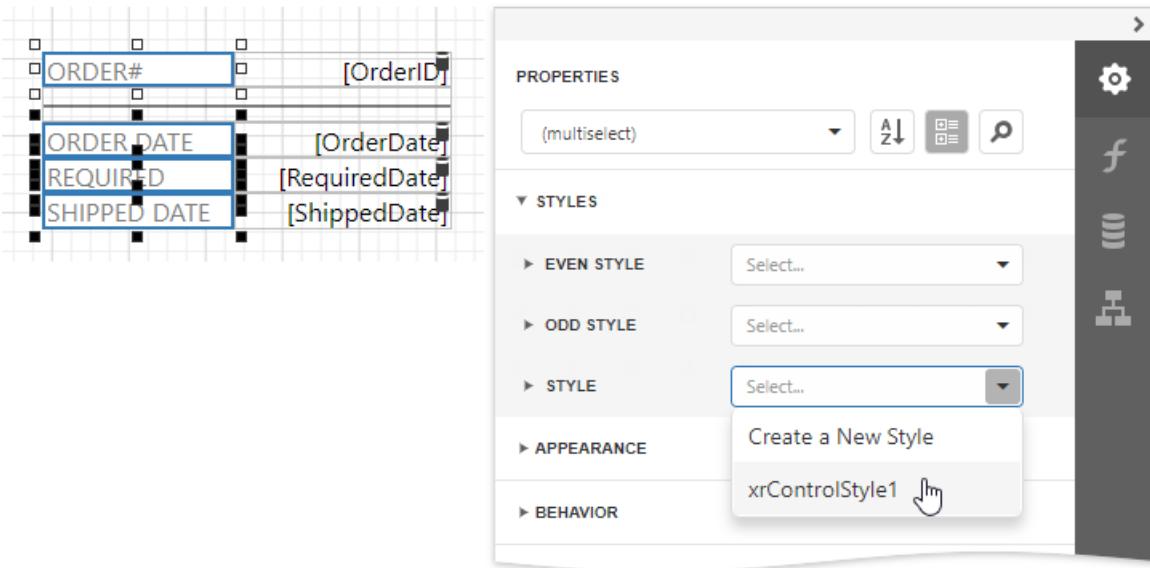
4. Create a global **visual style** to apply it afterwards to multiple controls. Switch to the **Report Explorer** panel, select the **Styles** node and click the plus button to add a new report visual style.



5. Select the created style and click the **Properties**  button in the Report Explorer. This opens the Properties panel where you can adjust the settings of the selected style.



6. Select report elements, expand the **Styles** category and choose a style in the **Style** property's drop-down list to apply the style to the selected elements.



7. 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).

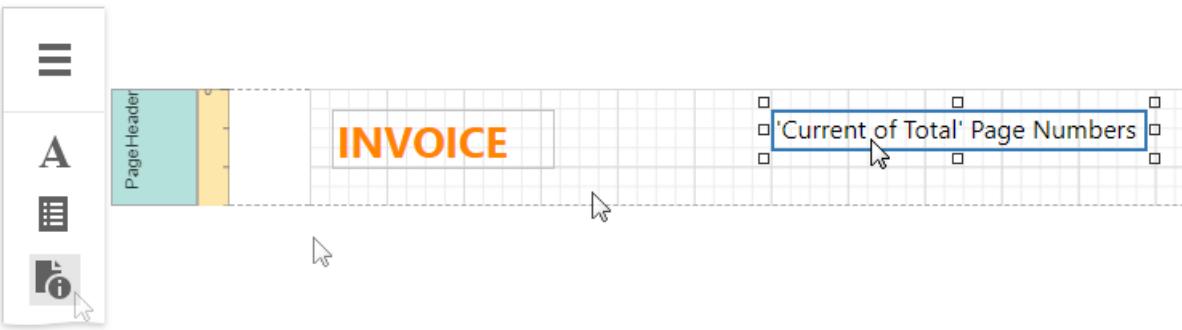
## Add Additional Information

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

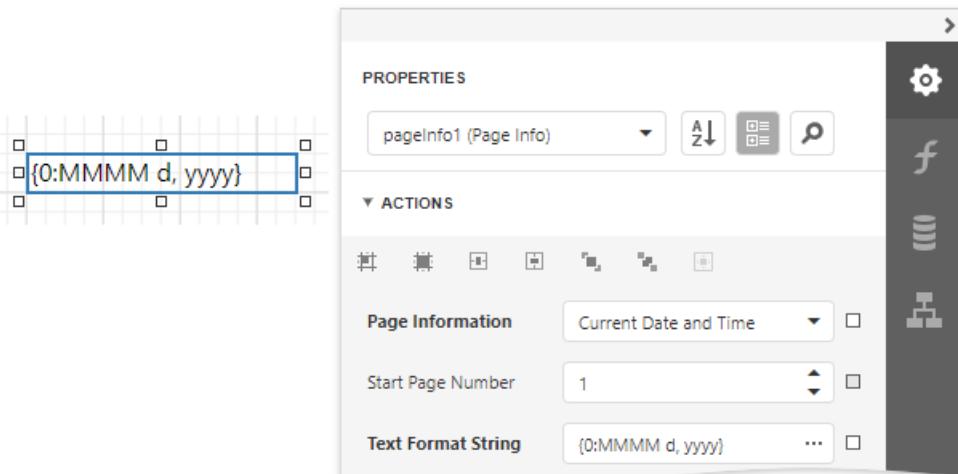
1. Add the Page Header band to the master report to display the required information on each invoice page.
2. Drop the Label control from the **Toolbox** onto the Page Header, double-click the control and type "**Invoice**". Specify the required appearance settings (font, foreground color, etc.).



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



4. Expand the **Page Info Tasks** category and set the **Page Information** property to **Current Date and Time**. 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

# Cross-Tab Reports

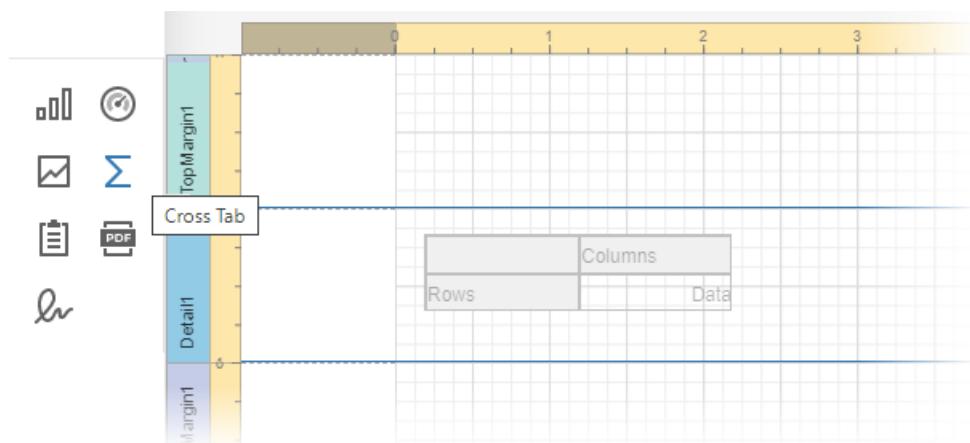
A cross-tab report displays complex multi-dimensional data, such as summary statistics, surveys, and market research information. This report uses a Cross Tab control that calculates automatic summaries and grand totals across grouped rows and columns.

## Sales Summary by Year

Order Date	Category Name	UK				Total UK	USA	
		Anne Dodsworth	Michael Suyama	Robert King	Steven Buchanan		Andrew Fuller	Jane English
Quarter 1	Beverages	\$12,809.70	\$1,952.30	\$12,734.95	\$1,957.65	\$29,454.61	\$19,256.00	\$1,952.30
	Condiments	\$5,646.29	\$1,637.58	\$2,047.90	\$1,050.45	\$10,382.22	\$2,010.98	\$1,637.58
	Confections	\$6,114.25	\$1,936.49	\$4,742.85	\$2,014.31	\$14,807.90	\$7,933.38	\$1,936.49
	Dairy Products	\$2,855.47	\$3,375.00	\$8,506.50	\$9,904.52	\$24,641.49	\$4,946.00	\$3,375.00
	Grains/Cereals	\$224.00	\$1,211.70	\$4,754.50	\$3,101.56	\$9,291.76	\$2,223.05	\$1,211.70
	Meat/Poultry	\$3,565.76	\$573.68	\$876.00	\$813.00	\$5,826.44	\$8,108.31	\$573.68
	Produce		\$2,052.00	\$3,012.72	\$984.40	\$6,049.12	\$1,670.00	\$3,012.72
	Seafood	\$2,860.15	\$57.90	\$1,378.39	\$2,176.40	\$6,472.84	\$2,747.40	\$57.90
Total Quarter 1		\$34,073.62	\$12,796.65	\$38,053.82	\$22,002.29	\$106,926.38	\$48,905.08	
Quarter 2	Beverages	\$1,414.00	\$1,382.40	\$4,833.75	\$720.00	\$8,350.15	\$11,673.60	\$1,382.40
	Condiments	\$598.00	\$857.05	\$4,231.58	\$263.40	\$5,949.83	\$4,047.62	\$857.05
	Confections	\$578.80	\$567.60	\$3,176.34	\$250.00	\$4,572.74	\$7,504.77	\$567.60
	Dairy Products	\$8,691.05	\$1,134.20	\$8,364.70	\$3,208.37	\$21,398.32	\$13,001.05	\$1,134.20
	Grains/Cereals	\$997.50	\$3,401.00	\$815.60		\$5,214.10	\$3,030.00	
	Meat/Poultry	\$149.00	\$4,866.84	\$15,123.38	\$336.00	\$20,475.22	\$5,606.40	\$4,866.84
	Produce		\$5,407.31	\$4,092.40	\$2,162.40	\$11,662.11	\$5,050.00	\$4,092.40
	Seafood	\$1,260.25	\$1,436.56	\$1,719.77	\$807.50	\$5,224.08	\$7,380.98	\$1,436.56
Total Quarter 2		\$13,688.60	\$19,052.96	\$42,357.32	\$7,747.67	\$82,846.55	\$57,294.42	
Quarter 3	Beverages	\$4,164.55	\$2,009.50	\$910.80	\$1,291.27	\$8,376.12	\$2,117.90	

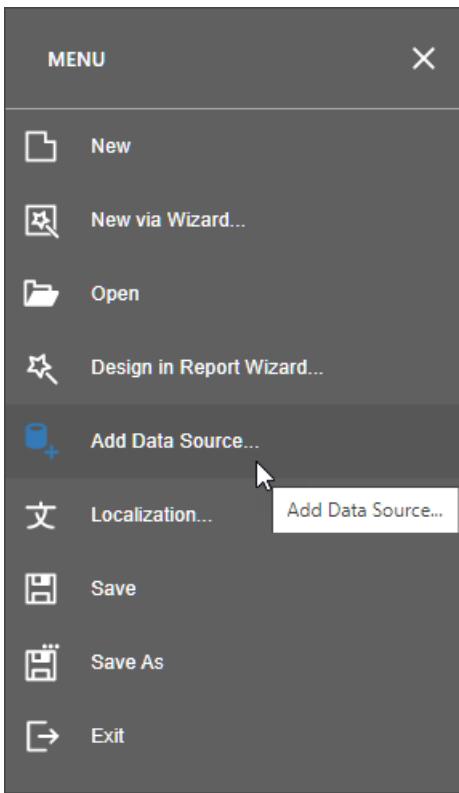
## Add a Cross Tab Control and Bind to Data

- Create a new report or open an existing one.
- Drop the **Cross Tab** control from the **Toolbox** onto the **Detail** band.



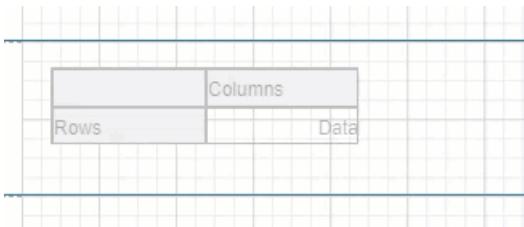
You cannot place a Cross Tab in another report control ([Table Cell](#) or [Panel](#)).

- Invoke the designer menu and click **Add Data Source....**

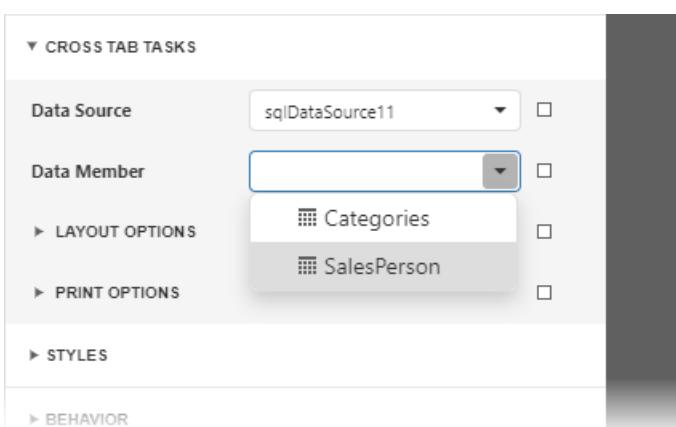


Navigate through the invoked [Data Source Wizard](#)'s pages to set up the data source. See the [Bind to Data](#) section for more information.

4. Select the entire Cross Tab control. For this, click the designer surface outside the control and drag the mouse to the control until the entire control is selected.



5. Bind the Cross Tab control to the data source. In the [Properties Panel](#) expand the **CROSS TAB TASKS** section and specify the **Data Source** and **Data Member** properties.

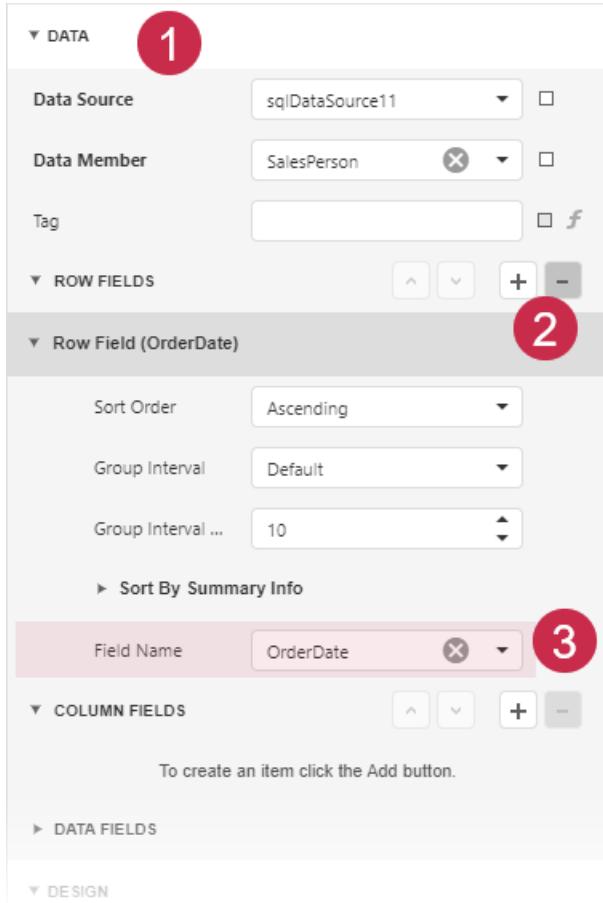


#### NOTE

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

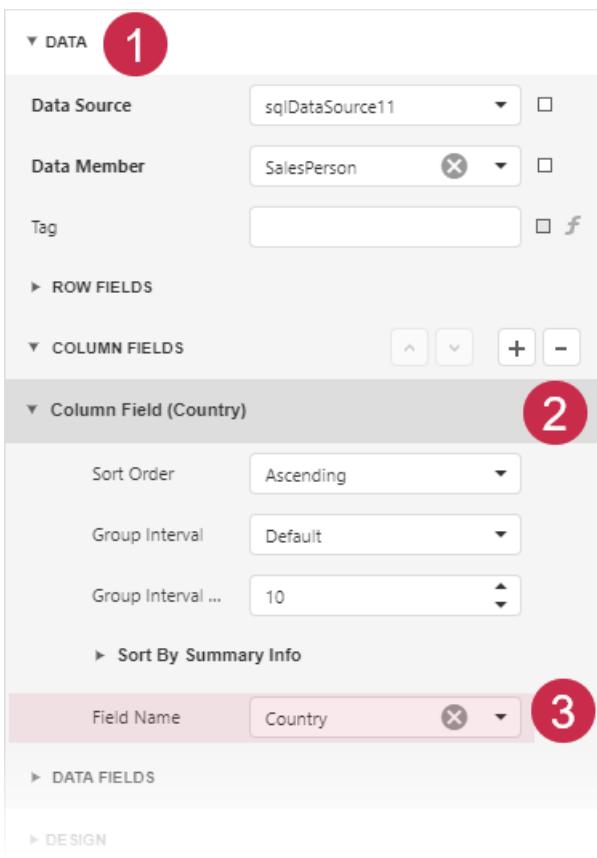
## Define Cross Tab Fields

1. In the **Properties Panel**, expand the **DATA** section and click **plus** in the **ROW FIELDS** section to add a Row Field. Select the field name from the drop-down list:



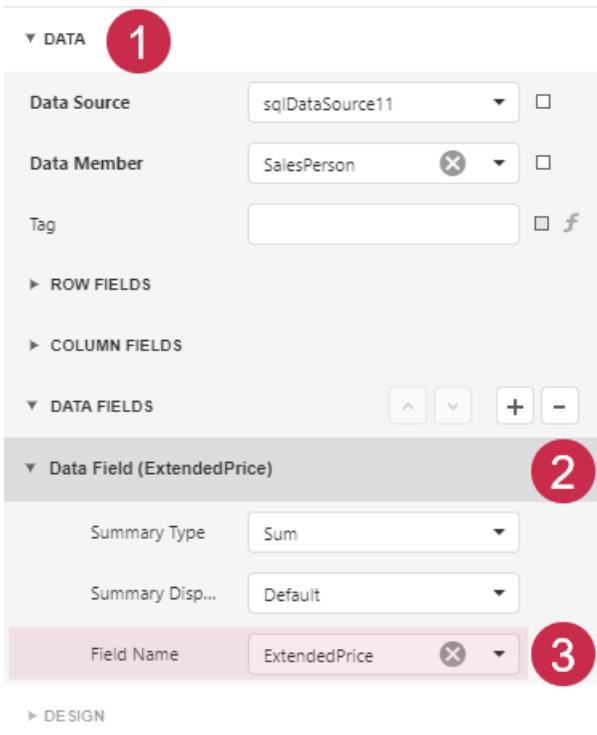
You can repeat these steps to add another row field.

2. In the **Properties Panel**, expand the **DATA** section and click **plus** in the **COLUMN FIELDS** section to add a Column Field. Select the field from the drop-down list:



You can repeat these steps to add another column field.

- In the **Properties Panel**, expand the **DATA** section and click **plus** in the **DATA FIELDS** section to add a Data Field. Select the field from the drop-down list:



The resulting cross-tab control looks as follows:

OrderDate	CategoryName	[Country] [FullName]	Total [Country]	Grand Total
[OrderDate]	[CategoryName]	[ExtendedPrice]		
Total [OrderDate]				
Grand Total				

## Specify Group Settings

Select the Cross Tab cell bound to the `OrderDate` field and click its smart tag. Set the **GroupInterval** property to `DateQuarter` to group data by quarters.

▼ DATA

Accessible Description	<input type="text"/>	<input type="checkbox"/>
Field Name	OrderDate	<input type="checkbox"/>
Null Value Text	<input type="text"/>	<input type="checkbox"/>
Sort Order	Ascending	<input type="checkbox"/>
Tag	<input type="text"/>	<input type="checkbox"/>
Text	<input type="text"/> [OrderDate]	<input type="checkbox"/>
Text Format String	<input type="text"/> ...	<input type="checkbox"/>
Group Interval	Quarter	<input type="checkbox"/>
Group Interval Numer...	10 	<input type="checkbox"/>
► SORT BY SUMMARY INFO <input type="checkbox"/>		

► DESIGN

Switch to the **Report Viewer** to preview the result:

OrderDate	CategoryName	UK				Total
		Anne Dodsworth	Michael Suyam	Robert King	Steven Buchanan	
1	Beverages	12809.70	1952.30	12734.96	1957.66	
	Condiments	5646.29	1637.58	2047.9	1050.45	
	Confections	6114.25	1936.49	4742.85	2014.31	
	Dairy Products	2855.47	3375.00	8506.5	9904.52	
	Grains/Cereals	224	1211.7	4754.5	3101.56	
	Meat/Poultry	3563.76	573.68	876	813	
	Produce		2052	3012.72	984.4	
	Seafood	2860.15	57.9	1378.39	2176.4	
Total 1		34073.62	12796.65	38053.82	22002.29	
2	Beverages	1414	1382.4	4833.75	720	
	Condiments	598	857.05	4231.38	263.4	
	Confections	578.8	567.6	3176.34	250	
	Dairy Products	8691.05	1134.2	8364.7	3208.37	
	Grains/Cereals	997.5	3401	815.6		

## Format Data

1. Format the currency data. Hold down CTRL, and select the following cells:

- o the cell bound to the `ExtendedPrice` field
- o the cells that display column and row totals
- o the cells that display column and row grand totals

OrderDate	CategoryName	[Country]	Total [Country]	Grand Total
[OrderDate]	[CategoryName]	[Country]	[ExtendedPrice]	
Total [OrderDate]				
Grand Total				

Switch to the Properties window and set the `TextFormatString` property to `{0:c}`.

▼ DATA

Accessible Description

Null Value Text

Tag

Text

Text Format String `{0:c}` ...

► DESIGN

2. Select the cell bound to the `OrderDate` field:

OrderDate	CategoryName	[Country]	Total [Country]	Grand Total
[OrderDate]	[CategoryName]	[Country]	[ExtendedPrice]	
Total [OrderDate]				
Grand Total				

Set the **Text Format String** option to `Quarter {0}`.

▼ DATA

Accessible Description	<input type="text"/>	<input type="checkbox"/>
Field Name	OrderDate	<input type="checkbox"/>
Null Value Text	<input type="text"/>	<input type="checkbox"/>
Sort Order	Ascending	<input type="checkbox"/>
Tag	<input type="text"/>	<input type="checkbox"/>
Text	[OrderDate]	
Text Format String	Quarter {0}	<input type="checkbox"/>
Group Interval	Quarter	<input type="checkbox"/>
Group Interval Numeri...	10	
<input type="checkbox"/>		

Switch to the Report Viewer to observe the result:

OrderDate	CategoryName	UK			
		Anne Dodswort	Michael Suyam	Robert King	Steven Buchan
Quarter 1	Beverages	\$12,809.70	\$1,952.30	\$12,734.96	\$1,957.65
	Condiments	\$5,646.29	\$1,637.58	\$2,047.90	\$1,050.45
	Confections	\$6,114.25	\$1,936.49	\$4,742.85	\$2,014.31
	Dairy Products	\$2,855.47	\$3,375.00	\$8,506.50	\$9,904.52
	Grains/Cereals	\$224.00	\$1,211.70	\$4,754.50	\$3,101.56
	Meat/Poultry	\$3,563.76	\$573.68	\$876.00	\$813.00
	Produce		\$2,052.00	\$3,012.72	\$984.40
	Seafood	\$2,860.15	\$57.90	\$1,378.39	\$2,176.40
Total Quarter 1		\$34,073.62	\$12,796.65	\$38,053.82	\$22,002.29
Quarter 2	Beverages	\$1,414.00	\$1,382.40	\$4,833.75	\$720.00
	Condiments	\$598.00	\$857.05	\$4,231.38	\$263.40
	Confections	\$578.80	\$567.60	\$3,176.34	\$250.00
	Dairy Products	\$8,691.05	\$1,134.20	\$8,364.70	\$3,208.37
	Grains/Cereals	\$207.50	\$2,401.00	\$815.00	

## Customize Appearance

1. Select the entire Cross Tab control, switch to the Properties window, and expand the **STYLES** section. Expand the **GENERAL STYLE** section and set the Border Color to 160, 160, 160. This value applies to all Cross Tab cells.

## ▼ STYLES

▼ GENERAL STYLE   

Name   

► FONT

Text Alignment    Vertical   

Horizontal   

Background Color   

Foreground Color   

Border Color   

Borders   

Border Width   

Border Dash Style   

► PADDING

► HEADER AREA STYLE   

► DATA AREA STYLE   

► TOTAL AREA STYLE   

2. Expand sections for the **HEADER AREA**, **DATA AREA** and **TOTAL AREA** styles and adjust the appearance as your needs dictate.

## Adjust the Content Size

Select the column bound to the **FullName** field and set the `ColumnAutoWidthMode` property to **ShrinkAndGrow**. The column width varies depending on the content.

The screenshot shows a report design interface with a grid of cells. The first two columns of the grid contain data from the 'Order' table, while the third column contains calculated values from the 'Customer' table. The properties panel on the right is open, showing the selected cell is 'crossTabHeaderCell9 (Cross Tab Cell)'. The 'BEHAVIOR' section is expanded, displaying settings for 'Angle' (0), 'Can Publish' (checked), 'Column Auto Width Mode' (Shrink and Grow), 'Row Auto Height Mode' (None), 'Row Visible' (checked), 'Column Visible' (checked), and 'Keep Together' (checked).

## Adjust the Report Layout

Specify the **Landscape** page orientation and set the **Vertical Content Splitting** option to **Smart** to prevent content from being split across pages.

The properties panel for the report shows the following settings:

- Display Name:** CrossTabReport
- Measure Units:** Hundredths of an Inch
- Request Parameters:** Checked
- Show Margin Lines in Preview:** Checked
- Vertical Content Splitting:** Smart (highlighted in pink)
- Visible:** Checked
- EXPORT OPTIONS**: Sub-section with 'Horizontal Content Splitting' set to 'Exact'.
- PAGE SETTINGS**: Sub-section with 'Landscape' checked.

## Observe the Result

Switch to the **Report Viewer**. The resulting report is shown below:

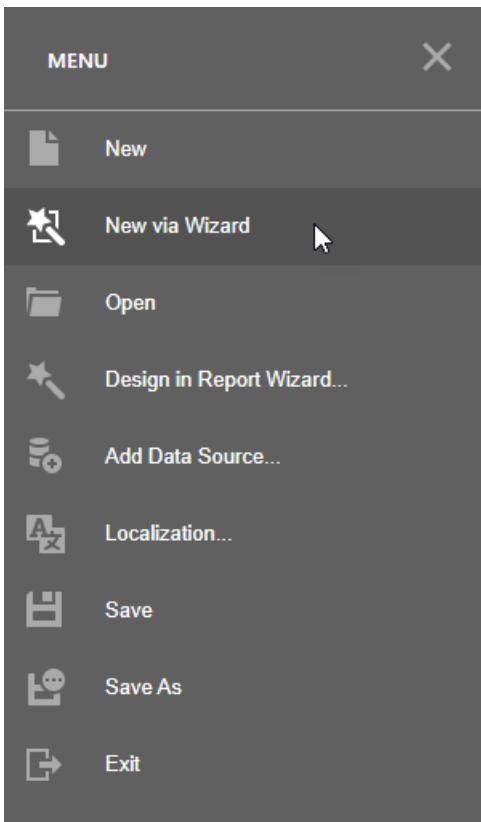
OrderDate	CategoryName	UK				Total UK	USA	
		Anne Dodsworth	Michael Suyama	Robert King	Steven Buchanan		Andrew Fuller	
Quarter 1	Beverages	\$12,809.70	\$1,952.30	\$12,734.96	\$1,957.65	\$29,454.61	\$19,266.00	
	Condiments	\$5,646.29	\$1,637.58	\$2,047.90	\$1,050.45	\$10,382.22	\$2,010.96	
	Confections	\$6,114.25	\$1,936.49	\$4,742.85	\$2,014.31	\$14,807.90	\$7,933.36	
	Dairy Products	\$2,855.47	\$3,375.00	\$8,506.50	\$9,904.52	\$24,641.49	\$4,946.00	
	Grains/Cereals	\$224.00	\$1,211.70	\$4,754.50	\$3,101.56	\$9,291.76	\$2,223.05	
	Meat/Poultry	\$3,563.76	\$573.68	\$876.00	\$813.00	\$5,826.44	\$8,108.31	
	Produce		\$2,052.00	\$3,012.72	\$984.40	\$6,049.12	\$1,670.00	
	Seafood	\$2,860.15	\$57.90	\$1,378.39	\$2,176.40	\$6,472.84	\$2,747.40	
Total Quarter 1		\$34,073.62	\$12,796.65	\$38,053.82	\$22,002.29	\$106,926.38	\$48,905.08	
Quarter 2	Beverages	\$1,414.00	\$1,382.40	\$4,833.75	\$720.00	\$8,350.15	\$11,673.60	
	Condiments	\$598.00	\$857.05	\$4,231.38	\$263.40	\$5,949.83	\$4,047.62	
	Confections	\$578.80	\$567.60	\$3,176.34	\$250.00	\$4,572.74	\$7,504.77	
	Dairy Products	\$8,691.05	\$1,134.20	\$8,364.70	\$3,208.37	\$21,398.32	\$13,001.05	
	Grains/Cereals	\$997.50	\$3,401.00	\$815.60		\$5,214.10	\$3,030.00	
	Meat/Poultry	\$149.00	\$4,866.84	\$15,123.38	\$336.00	\$20,475.22	\$5,606.40	

# Labels and Badges

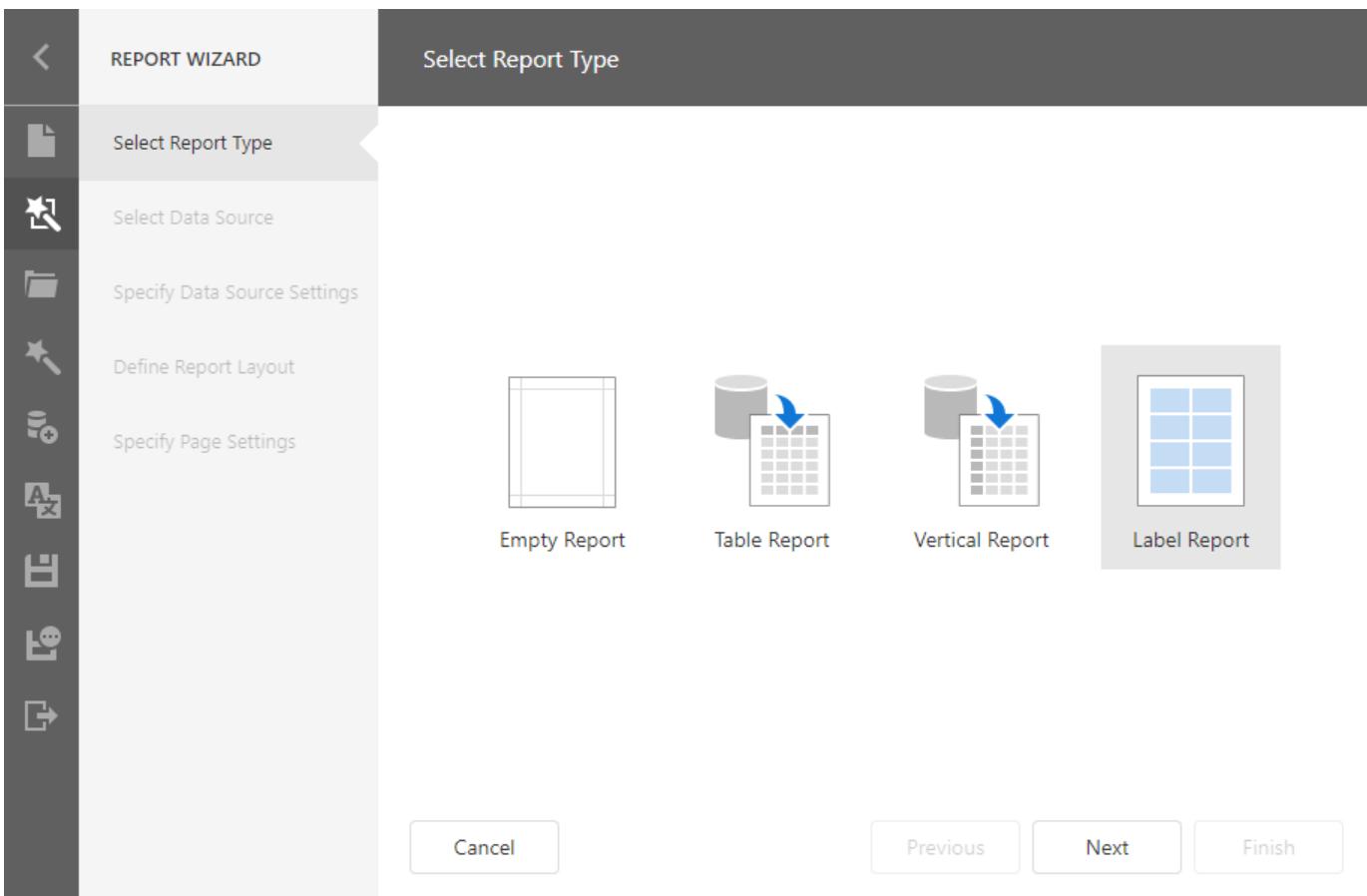
This tutorial describes the steps to create a label report that contains employee badges.



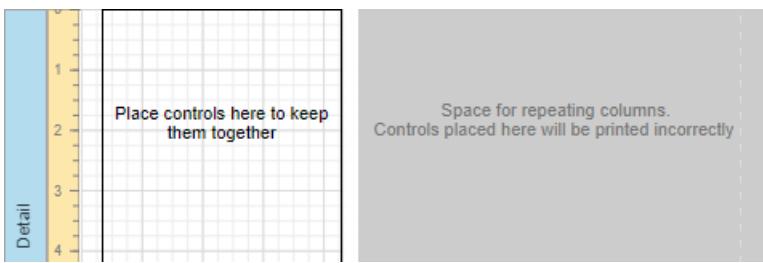
1. [Create a new report](#) and [bind it](#) to a required data source (for instance, to a table that contains information about employees).
2. Open the designer [menu](#) and click **New via Wizard**.



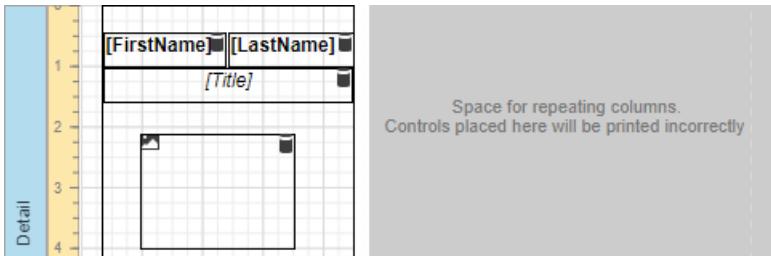
3. The wizard guides you through the process of creating a label report. Refer to [Label Report](#) for detailed instructions on the wizard's steps.



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.



- 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.



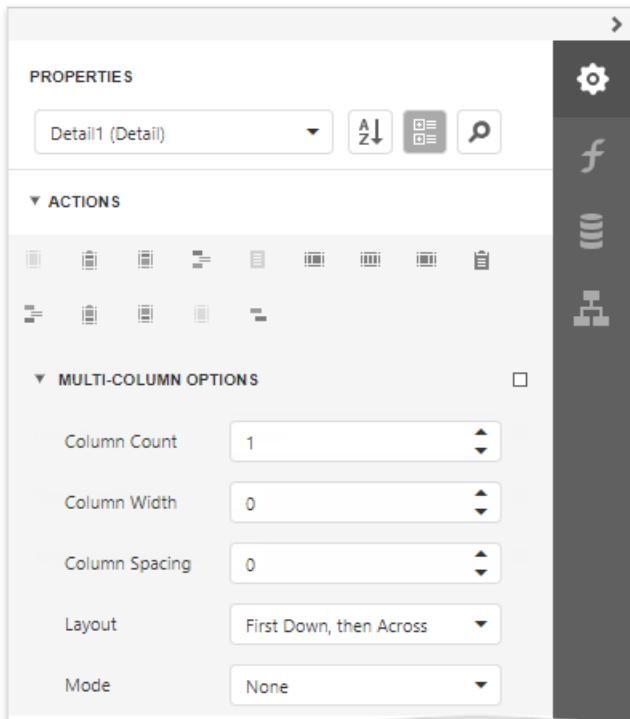
# Multi-Column Reports

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.

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		

## Settings

To access the multi-column settings of a report's Detail band, switch to the [Properties](#) panel and expand the **Detail Tasks** or the **Behavior** category.



## 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](#).

## 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

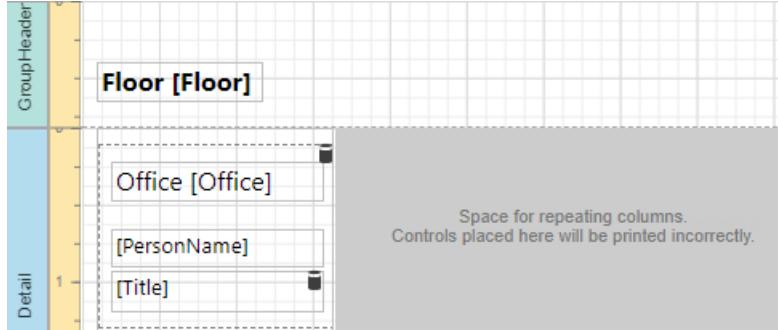
Office 301  
Mr. Antonio Moreno  
Sales Representative

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

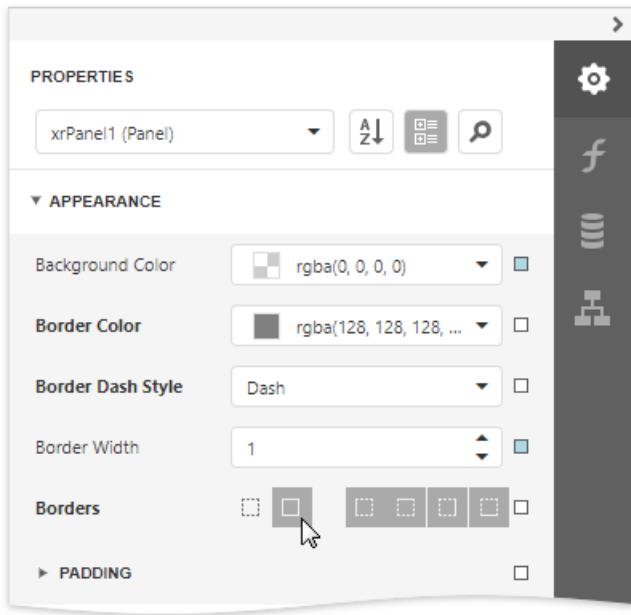
The following image illustrates a report designer with a multi-column layout applied to the report:



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.

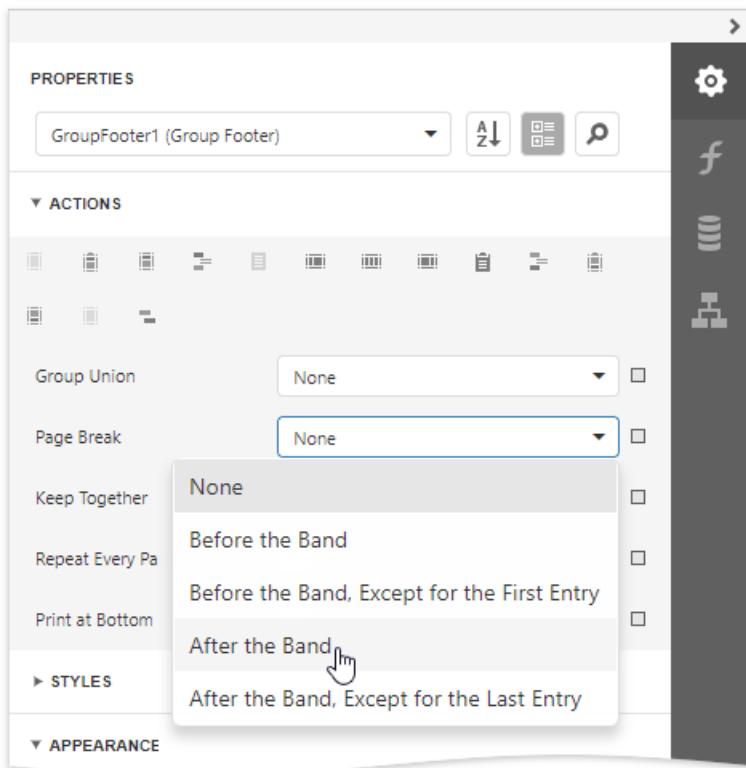
The rest of this surface defines the space on a page remaining for printing columns and column spacing area.

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.



# Interactive E-Forms

This tutorial describes how to create an electronic form and make it fillable directly in Print Preview before printing or exporting it.

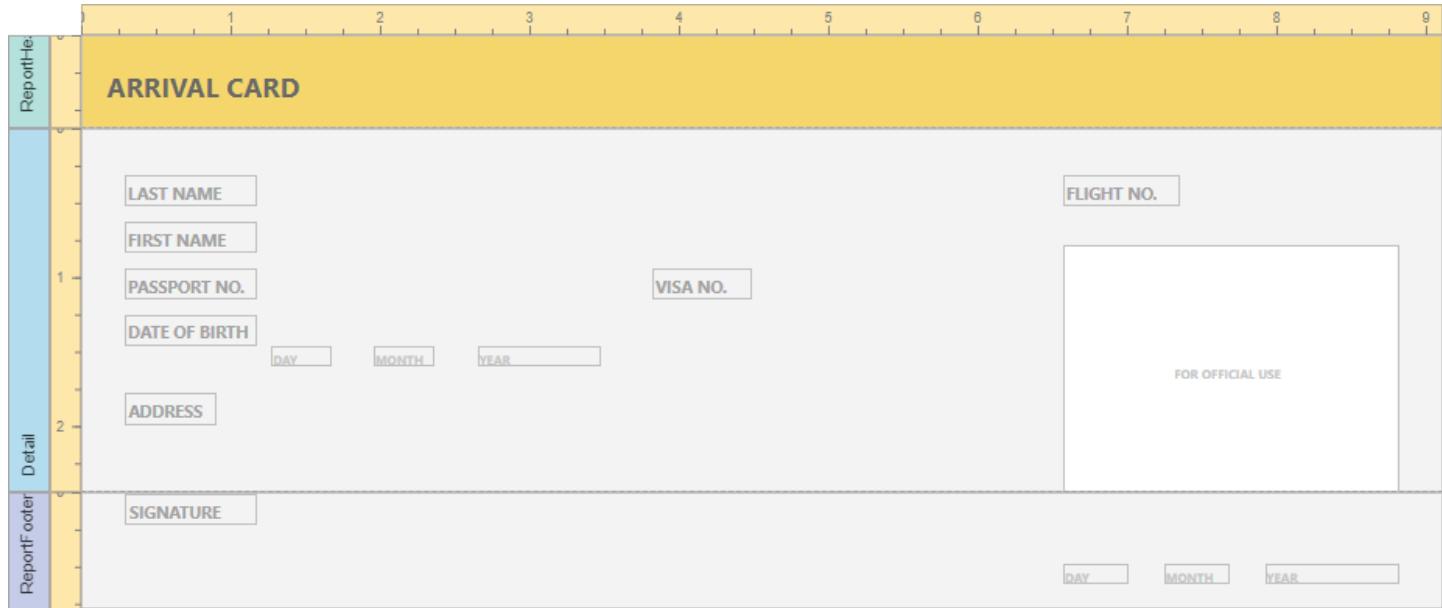
The screenshot shows a digital form titled "ARRIVAL CARD". The form fields include:

- LAST NAME: THOMAS (in a character comb field)
- FIRST NAME: MARK (in a character comb field)
- PASSPORT NO.: 7336093410 (in a character comb field)
- VISA NO.: 10924155 (in a character comb field)
- DATE OF BIRTH: 1902 1975 (Day: 19, Month: 02, Year: 1975) (in a date comb field)
- SEX: MALE (selected checkbox)
- ADDRESS: 480 LINDA RD. YUMA, AZ, USA (in a character comb field)
- SIGNATURE: A handwritten signature is shown over a signature box.
- FLIGHT NO.: S01207 (in a character comb field)
- FOR OFFICIAL USE: A large empty rectangular box.
- Below the form are buttons for editing (pencil icon), deleting (trash icon), and a date comb field showing 1 10 2018 (Month: 10, Year: 2018).

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

## Add Form Fields

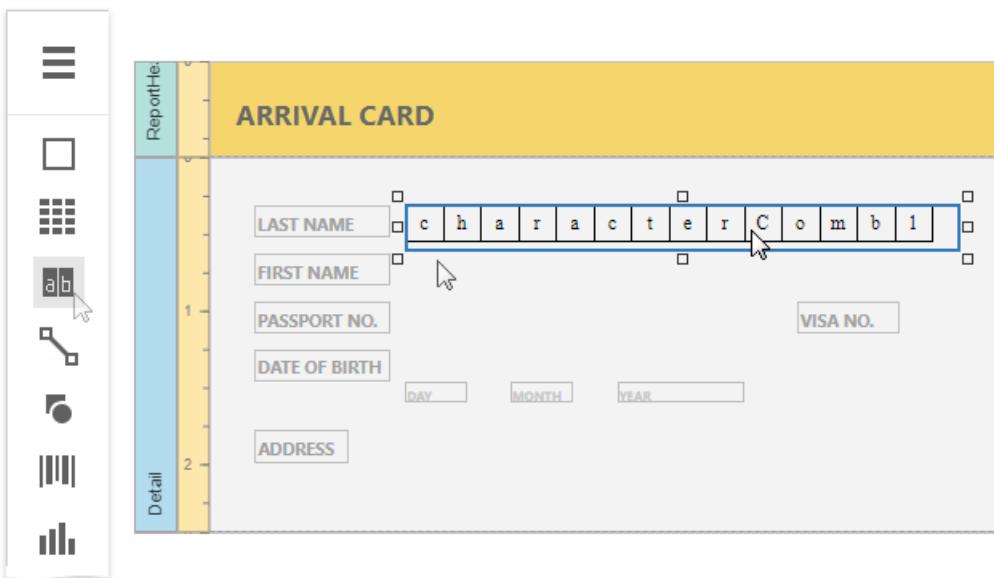
Add the **Label** controls to the report and arrange them according to the form's template. Set the labels' **Text** property to the form's field names.



## Add Fillable Cells

Use the **Character Comb** control for the form's text fields. This control displays letters in individual cells and allows end users to fill these cells in Print Preview.

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



2. Select all the added controls, clear their text, switch to the **Properties** panel and expand the **Layout** category. Adjust cell settings, such as **Cell Width**, **Cell Height**, **Cell Horizontal Spacing**, etc.

**PROPERTIES**

(multiselect)

**LAYOUT**

- Cell Height: 21
- Cell Horizontal Spacing: 2
- Cell Size Mode: Custom
- Cell Vertical Spacing:
- Cell Width: 21

**LOCATION**

**SIZE**

3. Expand the **Behavior** category, select the **Edit Options** section and set the controls' **Enabled** property to **Yes** to enable content editing in Print Preview.

**PROPERTIES**

(multiselect)

**BEHAVIOR**

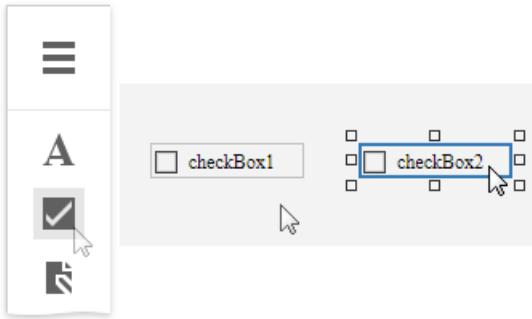
**EDIT OPTIONS**

- Enabled: Yes
- ID:
- Read Only: No

**INTERACTIVE SORTING**

## Add Check Box Editors

1. Add two **Check Box** controls to the report for selecting a gender (*Male/Female* fields). Then, change their text and appearance settings.

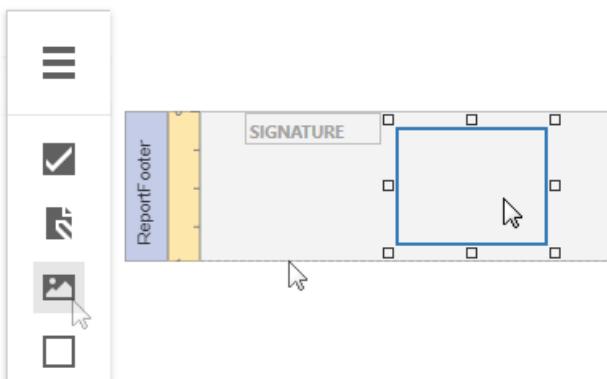


2. To enable switching check box states in Print Preview, expand the **Behavior** category, select the **Edit Options** section and set the **Enabled** property to **Yes** as you did before. To allow selecting only one option at a time, combine these check boxes into a logical group by specifying the same value for the **Group ID** property.

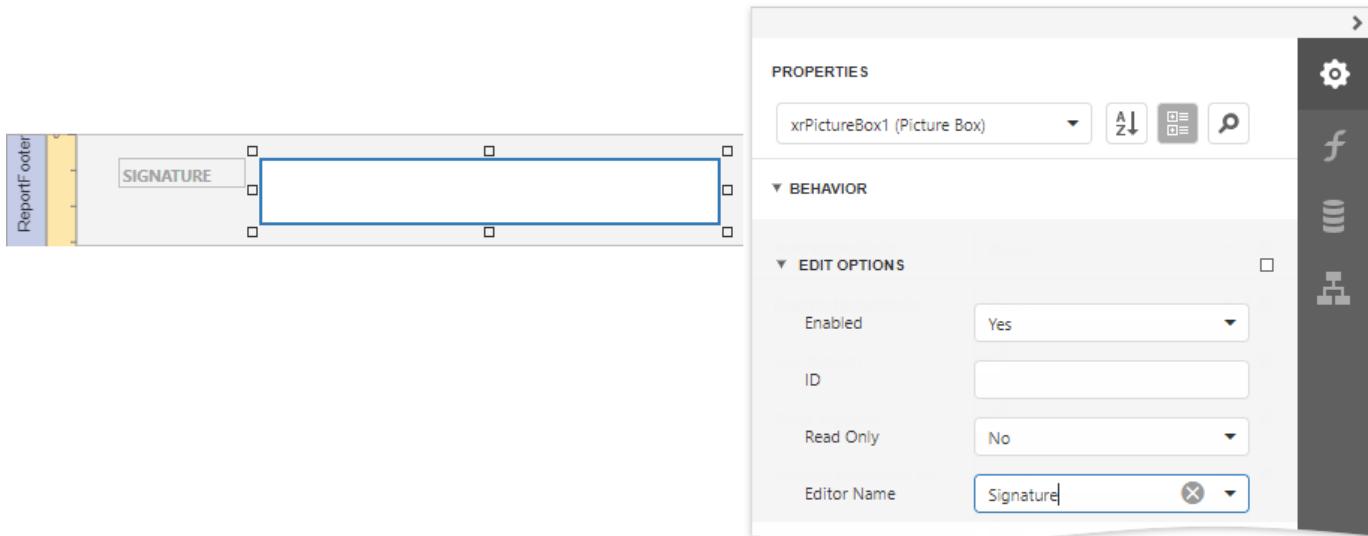
**PROPERTIES**  
(multiselect)     
▼ BEHAVIOR  
▼ EDIT OPTIONS  
Enabled: Yes  
ID:  
Read Only: No  
Group ID: Group1

## Add the Signature Editor

1. Add the **Picture Box** control for the form's *Signature* field.



2. Switch to the **Properties** panel and adjust control's appearance settings. Expand the **Behavior** category and select the **Edit Options** section. Set the **Enabled** property to **Yes** and the **Editor Name** property to *signature* to enable drawing in Print Preview.



## Get the Result

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

To highlight all editing fields available in the form, click the **Highlight Editing Fields** button on the Print Preview toolbar. Clicking a field invokes the appropriate editor.

**ARRIVAL CARD**

LAST NAME T H O M A S

FIRST NAME M A R K

PASSPORT NO. 7 3 3 6 0 9 3 4 1 0      VISA NO. 1 0 9 2 4 1 5 5

DATE OF BIRTH 1 9 0 2 1 9 7 5       MALE       FEMALE  
DAY MONTH YEAR

ADDRESS 4 8 0 L I N D A R D .  
Y U M A , A Z , U S A

SIGNATURE

FLIGHT NO. S 0 1 2 0 7

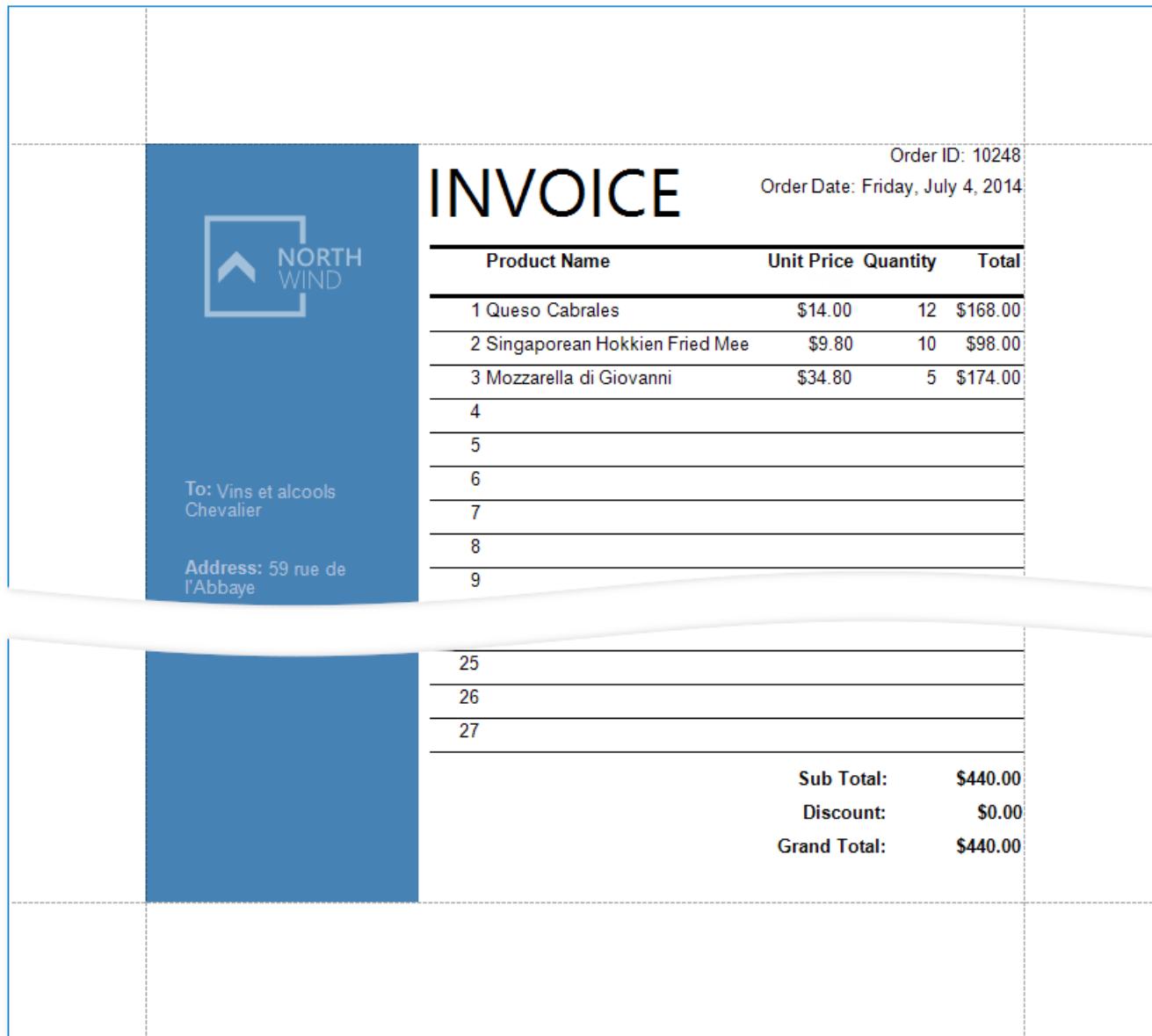
FOR OFFICIAL USE

1 1 0 2 0 1 8  
MONTH YEAR

# Reports 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.



## Initial Report

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

The screenshot shows the Microsoft Report Designer interface with the report structure visible. The report has a header band with the word "INVOICE", a detail band with a table, and a group footer band at the bottom. The group footer contains summary calculations for Sub Total, Discount, and Grand Total. The "GROUP FIELDS" pane on the right shows "Group By: OrderID". The "ACTIONS" pane on the right contains various report design tools.

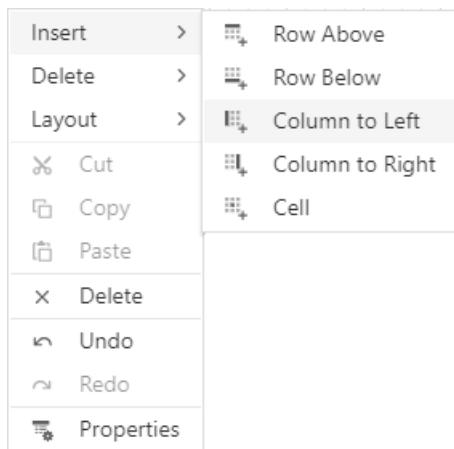
The **GroupFooter** band is displayed at the bottom of the page (the **Print At Bottom** property is enabled). There is an empty space

between the **Detail** band's data and the footer.

INVOICE																			
Order ID: 10248			Order Date: Friday, July 4, 2014																
<table border="1"><thead><tr><th>Product Name</th><th>Unit Price</th><th>Quantity</th><th>Total</th></tr></thead><tbody><tr><td>Queso Cabrales</td><td>\$14.00</td><td>12</td><td>\$168.00</td></tr><tr><td>Singaporean Hokkien Fried Mee</td><td>\$9.80</td><td>10</td><td>\$98.00</td></tr><tr><td>Mozzarella di Giovanni</td><td>\$34.80</td><td>5</td><td>\$174.00</td></tr></tbody></table>				Product Name	Unit Price	Quantity	Total	Queso Cabrales	\$14.00	12	\$168.00	Singaporean Hokkien Fried Mee	\$9.80	10	\$98.00	Mozzarella di Giovanni	\$34.80	5	\$174.00
Product Name	Unit Price	Quantity	Total																
Queso Cabrales	\$14.00	12	\$168.00																
Singaporean Hokkien Fried Mee	\$9.80	10	\$98.00																
Mozzarella di Giovanni	\$34.80	5	\$174.00																
Sub Total: \$440.00																			
Discount: \$0.00																			
Grand Total: \$440.00																			

## Add Line Numbers

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



2. Select the new cell and set **Summary/Running** to **Group**.

**PROPERTIES**

tableCell15 (Table Cell) ▾ A Z grid 🔍

Null Value Text  □

▼ SUMMARY □

Running None ▾

Ignore Null Values None

Treat Strings As Numerics Group Report Page

Tag Tag

▶ TEXT f

3. Switch to the **Expressions** tab and click the **Text** property's ellipsis button. Specify the `sumRecordNumber()` expression in the invoked Expression Editor.

**EXPRESSIONS**

tableCell15 (Table Cell) ▾

Visible  ...

Bookmark  ...

Tag  ...

▶ APPEARANCE

▶ LAYOUT

Style Name  ...

Text  ... ...

Navigation URL  ...

**Expression Editor** X

```
1 sumRecordNumber()
```

Report Items Enter text to search...

- Fields
- Constants
- Functions
- Operators
- Variables

- Report
  - TopMargin1
  - GroupHeader1
  - Detail1

OK Cancel

Each row now includes a number.

The screenshot shows a report design with two main sections. The top section is labeled "INVOICE" and contains a table of items with numbered rows. The bottom section contains a summary of totals.

**INVOICE**

	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

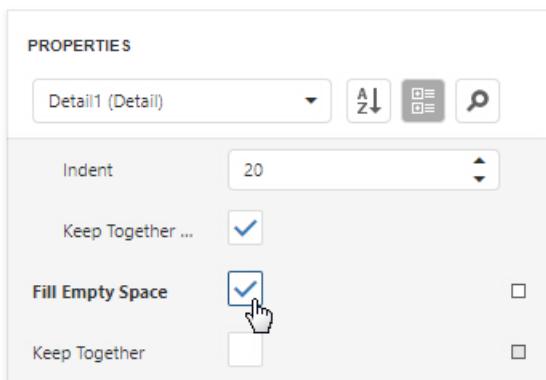
Order ID: 10248  
Order Date: Friday, July 4, 2014

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 the footer.

Select the *Detail* band 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

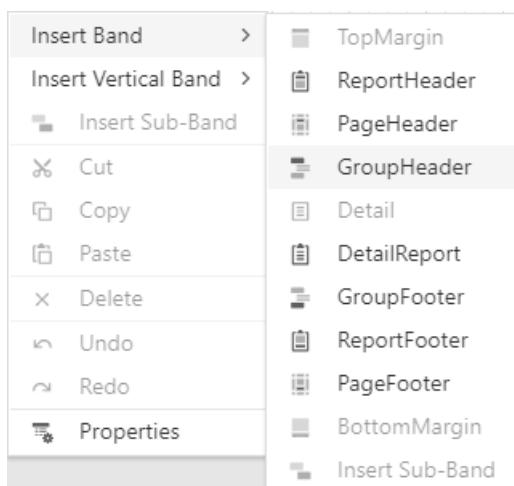
## NOTE

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

## Add Cross-Band Data

Add a panel with recipient details across the entire group. Place the panel on a separate *Group Header* band that is printed on the background of other bands.

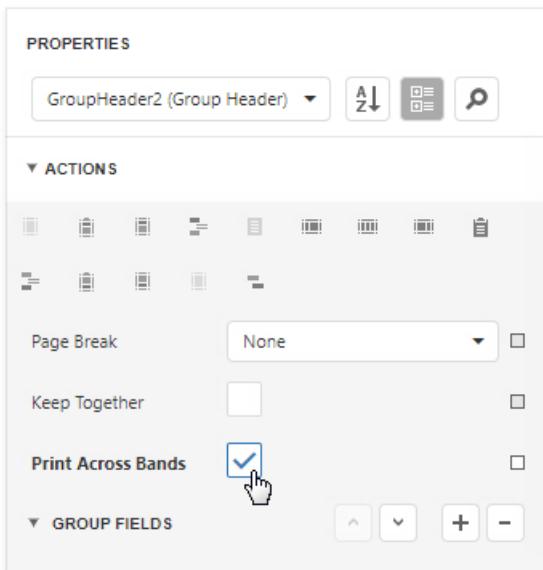
1. Select the report and select **Insert Group Header** from the report's context menu



**TIP**

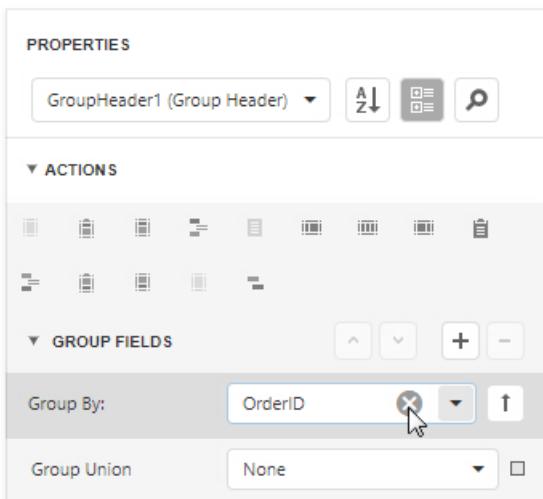
Choose a *Page Header* band instead of the *Group Header* to display the cross-band content on an entire page.

2. Select the added band and enable the **Print Across Bands** property. This displays the band content on the background of the *GroupHeader1*, *Detail*, and *GroupFooter1* bands.

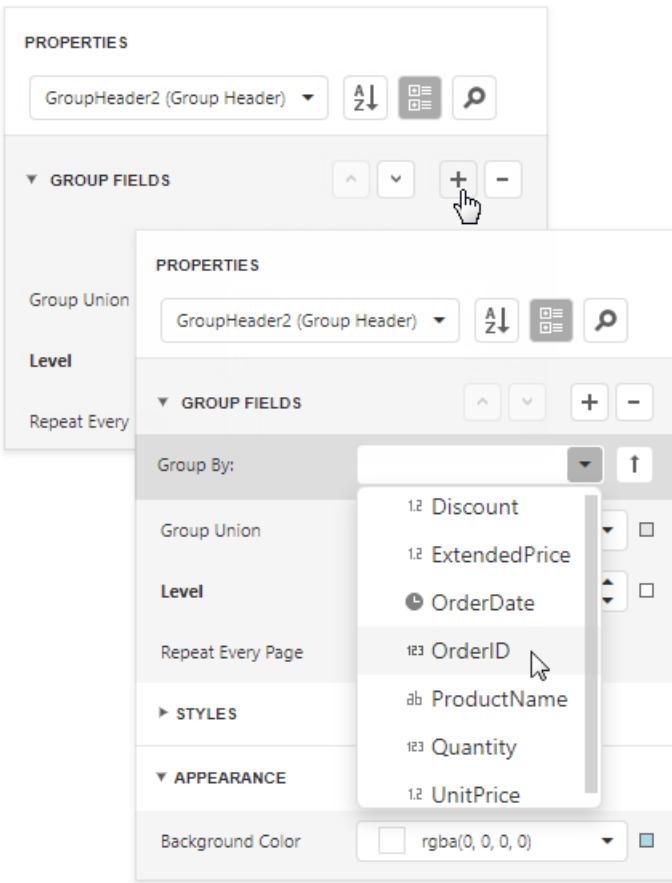


3. The report's group field is in the *GroupHeader1* band's **Group Fields** collection. The new band is above **GroupHeader1** and does not participate in the report's group. Move the group field to the new band.

- o Select *GroupHeader1* and remove the group field from **Group Fields**.



- o Select the new band and add the group field to **Group Fields**.



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

The screenshot shows the Report Designer interface with the following details:

- Layout View:** The report structure is visible with sections: TopMargin1, GroupHeader1, GroupFooter1, and BottomMargin1.
- Panel Control:** A blue Panel control is positioned within the GroupHeader1 section.
- Fields Dropped onto Panel:**
  - [Orders.ShipName]
  - [Orders.ShipAddress]
  - [Orders.ShipCity]
  - [Orders.ShipPostalCode]
  - [Product Name]
  - Unit Price
  - [Shipped Date]
- Field List:** On the right, the Field List pane shows the following items:
  - sqlDataSource1
  - Order Details Extended
  - Orders
  - CustomerID
  - EmployeeID
  - Freight
  - OrderID
  - RequiredDate
  - ShipAddress
  - ShipCity
  - ShipCountry
  - ShipName
  - ShippedDate
  - ShipPostalCode
  - ShipRegion
  - ShipVia

- 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 *Group Footer*'s **Print At Bottom** property is enabled).

	 <p><b>NORTH WIND</b></p> <p>[Orders.ShipName]  [Orders.ShipAddress]  [Orders.ShipCity]  [Orders.ShipPostalCode]</p>									
1										
2										
3										
4										
5										
6										
7										
8										
GroupHeader2										
0	<p><b>INVOICE</b></p> <p><b>NORTH WIND</b></p> <table border="1"> <thead> <tr> <th>Product Name</th> <th>Unit Price</th> <th>Quantity</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>sum([ProductName])</td> <td>[UnitPrice]</td> <td>[Quantity]</td> <td>[ExtendedPrice]</td> </tr> </tbody> </table> <p>[OrderID]  [OrderDate]</p>	Product Name	Unit Price	Quantity	Total	sum([ProductName])	[UnitPrice]	[Quantity]	[ExtendedPrice]	
Product Name	Unit Price	Quantity	Total							
sum([ProductName])	[UnitPrice]	[Quantity]	[ExtendedPrice]							
GroupHeader1										
0										
Detail										
0										
GroupFooter1										
0										
1										

6. 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
1	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.

NORTH WIND	INVOICE	[OrderID]								
		[OrderDate]								
	<table border="1"> <thead> <tr> <th>Product Name</th> <th>Unit Price</th> <th>Quantity</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>[ProductName]</td> <td>[UnitPrice]</td> <td>[Quantity]</td> <td>[ExtendedPrice]</td> </tr> </tbody> </table>	Product Name	Unit Price	Quantity	Total	[ProductName]	[UnitPrice]	[Quantity]	[ExtendedPrice]	
Product Name	Unit Price	Quantity	Total							
[ProductName]	[UnitPrice]	[Quantity]	[ExtendedPrice]							
[Orders.ShipName] [Orders.ShipAddress] [Orders.ShipCity]	Sub Total: sum Sum([Qua titu1 * [UnitPrice] * [Quantity]) Discount: sum Sum([Qua titu1 * [UnitPrice] * [Quantity]) * [Discount] Total: sum Sum([Ext endedPrice])									

See the final report in Print Preview.



NORTH  
WIND

To: Vins et alcools  
Chevalier

Address: 59 rue de  
l'Abbaye

# 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			
8			
9			

25

26

27

Sub Total: \$440.00

Discount: \$0.00

Grand Total: \$440.00

# Reports Merged with PDF

This tutorial describes how to add PDF content to a report.

**Invoice # 243817**  
07/16/17

**Billing Address**  
Premier Buy  
Home Office  
7601 Penn Avenue South  
Richfield, MN 55423

**Shipping Address**  
Premier Buy  
Salt Lake City Store  
261 W 2100  
Salt Lake City, UT 84115

Sales Rep.	PO #	Ship Date	Ship Via	FOB	Terms
Harv Mudd	124084		Ground	-	15 Days

Description	Unit Price	Quantity	Discount	Total
SuperLED 42	\$1,050	2	\$50	\$2,050
SuperLED 50	\$1,100	5	\$500	\$5,000
Projector PlusHD	\$600	5	\$250	\$2,750
HD Video Player	\$220	10	\$200	\$2,000

**Comments**

Sub Total	\$11,800
Shipping	\$375
<b>Total Due</b>	<b>\$12,175</b>

Page 1 of 5

**DX-H7700 SuperLED 42**



**42" SUPER BRIGHT LED TV**

The 42" DevAV LED TV is changing the way people watch TV. Its amazing build quality and high precision design means you get the best possible picture for the best possible price. It delivers crystal-clear images with mind-blowing video. The bottom-line is simple, this TV offers 1080p Full HD output with 120Hz refresh rate. A thin frame design with super thin profile makes mounting this TV a breeze. This super-smart remote includes a built-in keypad for straightforward channel surfing. The remote is also backlit so you can easily change channels in the dark. The 42" DevAV LED TV also includes six video input options so you can display any video signal with ease.

TV Specifications		Dimensions (WxHxD)	
Screen Size	42"	Product Dimensions	42" x 18" x 10"
Diagonal	39"	Product Weight	70 lbs
TV Type	LED	Product Dimensions without Stand	32.88" x 36.49" x 2.35"
Intelligent TV	Yes	Product Weight without Stand	65 lbs
Built-in WiFi	Yes	Shipping Dimensions	53" x 40" x 11"
Refresh Rate	120Hz	Shipping Weight	90 lbs
Maximum Resolution	1080p	WARRANTY	1 year
Dynamic Contrast Ratio	5 Million to 1	ENERGY STAR®	6.0
Remote Control Type	DV300		
Light Sensor	Yes		
Energy Star Qualified			

All trademarks or registered trademarks are property of their respective owners. This is not a real product.

## TIP

The [Master-Detail Reports with Subreports](#) topic describes another way to create a report that merges different documents.

## Create a Report Layout

Create a report that should include PDF content.

topMar

1 2 3 4 5 6 7

# Invoice #

[OrderDate!MM/dd/yy]



Billing Address	Shipping Address
[Customer.Name] Home Office [Customer.HomeOffice_Line] [Customer.HomeOffice_City], [Customer.HomeOffice_StateName] [Customer.HomeOffice_ZipCode]	[Customer.Name] [Store.Address_City] Store [Store.Address_Line] [Store.Address_City], [Store.Address_StateName] [Store.Address_ZipCode]

Sales Rep.	PO #	Ship Date	Ship Via	FOB	Terms
[Employee.FullName]	[PONumber]	[ShipDate]	iif([ShipMethod] = 0, 'Ground', -)	-	[OrderTerms]

	Description	Unit Price	Quantity	Discount	Total
Det	[Product_Name]	[ProductPrice]	[ProductUnits]	[Discount]	[Total]
Gro	Comments				
Det	[Comments]				

Sub Total	sum([OrderItems.Total])
Shipping	[ShippingAmount]
<b>Total Due</b>	<b>[TotalAmount]</b>

Report-Header1

OrdersDetailReport

GroupFooter2

bottomMar

Page {0} of {1}

In this tutorial, the report shows a purchase order. A **Detail Report** band displays order details and customer information. An inner **Detail Report** band lists products included in an order.

# Invoice # 243817

07/16/17



## Billing Address

Premier Buy  
Home Office  
7601 Penn Avenue South  
Richfield, MN 55423

## Shipping Address

Premier Buy  
Salt Lake City Store  
261 W 2100  
Salt Lake City, UT 84115

Sales Rep.	PO #	Ship Date	Ship Via	FOB	Terms
Harv Mudd	124084		Ground	-	15 Days

Description	Unit Price	Quantity	Discount	Total
Projector PlusHD	\$600	5	\$250	\$2,750
HD Video Player	\$220	10	\$200	\$2,000

## Comments

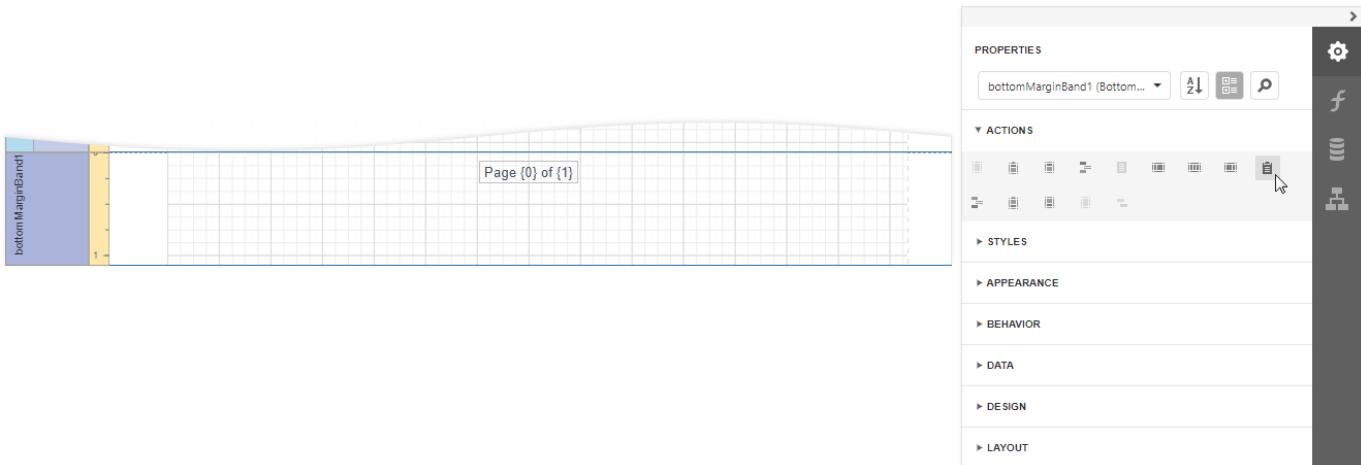
Sub Total	\$4,750
Shipping	\$375
<b>Total Due</b>	<b>\$12,175</b>

Page 1 of 1

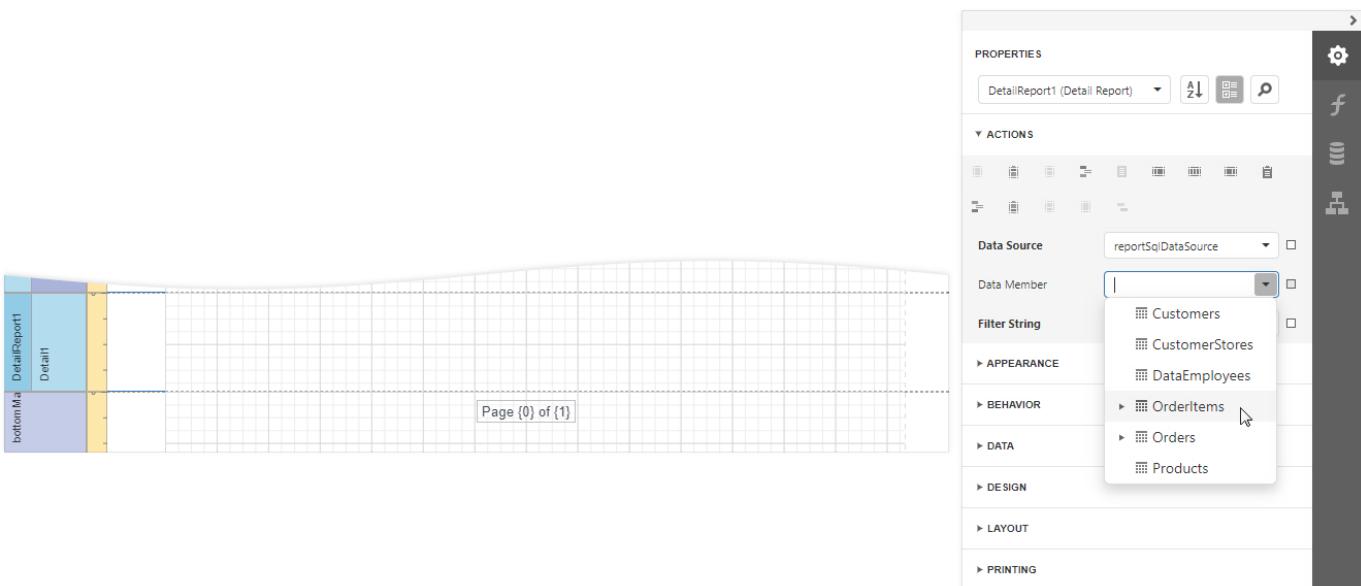
## Add PDF Content

Add a PDF document for each product listed in an order.

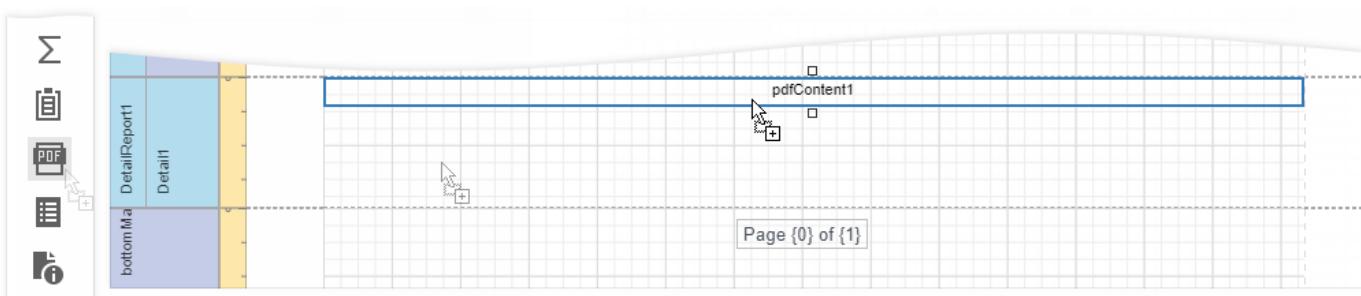
1. Add a **Detail Report** band at the location where you want to place PDF content. As PDF content is rendered on separate pages, the report from this tutorial includes this band at the bottom. Bind the new band to the same data member as in the [Create a Report Layout](#) section above.



2. Select the added **Detail Report** band and specify its **Data Source** and **Data Member**.



3. Drop the **PDF Content** item from the **Toolbox** onto the added band.



4. Bind the dropped control to the source of PDF data. Select the control, switch to the **Properties Panel**, click the **Source** property's marker, and select **Source Expression**. In the invoked **Expression Editor**, select the data source field that stores PDF documents and click **OK**.

The screenshot shows the Report Studio interface. At the top, the **PROPERTIES** panel is open, displaying the control's name as "pdfContent1 (PDF Content)". Below it, the **ACTIONS** panel shows various icons and settings. The "Name" field is set to "pdfContent1". The "Source" field is set to "(none)" and has a dropdown menu open labeled "SOURCE". The "Source URL" field is set to "Source Expression". A context menu is open over the "Source URL" field, with the "Reset" option highlighted. The "DATA" panel is also visible.

**Expression Editor**

The Expression Editor dialog box is open, showing a single item in the list: "[OrderItems.OrderItemsProducts.PDF]". The left sidebar contains links to "Report Items", "Fields" (which is selected), "Constants", "Functions", "Operators", and "Variables". The main area has a search bar with placeholder text "Enter text to search..." and a list of results. The result "101 PDF" is highlighted with a gray background. Other results include "123 Manufacturing", "ab Name", "123 PrimaryImageId", and "ProductionStart". At the bottom of the dialog are "OK" and "Cancel" buttons.

### TIP

Other options are available to bind the **PDF Content** control to PDF data:

- **Bind to a PDF file**

Specify the file's URL in the control's **Source URL** property. The specified file should be available when a report is generated.

- **Save the PDF content in the report**

Click the **Source** property's ellipsis button and select the file from which to load the content.

The report is ready and can be viewed in the **Preview** tab. Each PDF document is printed on a separate page and uses its own page settings.

# Invoice # 243817

07/16/17



Billing Address  
Premier Buy  
Home Office  
7601 Penn Avenue  
Richfield, MN 55423

Sales Rep.  
Harv Mudd

Description  
Projector PlusHD  
HD Video Player

## DX-XR750 Projector PlusHD



### SUPER HD PROJECTOR

The Super HD Projector is both easy to install and gives you hours of entertainment with just a push of a single button. It can tune picture quality, brightness, and color.

#### Specifications

Projection System

LCD 3 Chip

Projection Method

Ceiling Mount

Driving Method

Active Matrix

Pixel Number

Too many to count

Color Brightness

3500 Lumens

White Brightness

3500 Lumens

Aspect Ratio

16:9

Throw Ratio Range

4-5

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## DX-RX809 HD Video Player



### Precision HD

Get ready to be blown away by the upscaling and incredible build of the DX-RX809 HD Video Player. It can play DVDs, standard Blu-ray media, and compressed MP3s, among other things.

#### ADVANCED FEATURES

- THX® Certified
- Supports Blu-ray 3D and have a 3D monitor
- 8 HDMI® Output DeepColor™, xvYCC support.
- Dolby® TrueHD and DTS-HD Master Audio Decoding
- Supports DTS-HD Essential
- 1080p Upscaling of all sources (1080i, 720p, BBS Technology)
- Precision DAC for the best sound quality

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# Invoice # 246625

07/16/17

#### Billing Address

Braeburn  
Home Office  
1 Infinite Loop  
Cupertino, CA 95014

#### Shipping Address

Braeburn  
Las Vegas Store  
6671 Las Vegas Blvd  
Las Vegas, NV 89119

Sales Rep.	PO #	Ship Date	Ship Via	FOB	Terms
Harv Mudd	126892	07/17/2017	Ground	-	15 Days

Description	Unit Price	Quantity	Discount	Total
Projector PlusHD	\$600	5	\$250	\$2,750
HD Video Player	\$220	10	\$200	\$2,000

#### Comments

Sub Total	\$4,750
Shipping	\$375
Total Due	\$9,025

Page 1 of 3

# Reports with Embedded PDF Content

This tutorial explains how to use the [PDF Content](#) control to do the following:

- Append PDF file pages to a report and make their paper kind the same as in the initial report.
- Add sequential page numbers to the report and PDF file pages.
- Include additional information in the embedded PDF file pages.

The image below shows an invoice report that contains information about order items.

**Invoice # 241756**

04/23/18

**Billing Address**

Walters  
Home Office  
200 Wilmot Rd  
Deerfield, IL 60015

**Shipping Address**

Walters  
Anaheim Store  
1720 W La Palma Ave  
Anaheim, CA 83709

Sales Rep.	PO #	Ship Date	Ship Via	FOB	Terms
Harv Mudd	122023	05/23/2018	Ground	-	15 Days

Description	Unit Price	Quantity	Discount	Total
SuperLED 42	\$1,050	2	\$50	\$2,050
SuperLED 50	\$1,100	5	\$500	\$5,000
Projector PlusHD	\$600	5	\$250	\$2,750
HD Video Player	\$220	10	\$200	\$2,000

*[Handwritten signature]*

Digital signature details:  
Common name: your common name here  
Distinguished name: your distinguished name here  
Reason: your signing reason here  
Location: your signing location here  
Date: 12/9/2021 12:00:00 AM +03:00

Sub Total	\$11,800
Shipping	\$375
<b>Total Due</b>	<b>\$12,175</b>

Page 1 of 5

The following image illustrates the first PDF file page embedded to the invoice report. This page has the same paper kind as the initial report. [Report controls](#) are used to add item title, item price, line, logo image, and sequential page numbers to this page.

## SuperLED 42

\$1050



### 42" SUPER BRIGHT LED TV

The 42" DevAV LED TV is changing the way people watch TV. Its amazing build quality and high precision design means you get the best possible picture for the best possible price. It delivers crystal-clear images with mind-blowing video. The bottom-line is simple, this TV offers 1080p Full HD output with 120Hz refresh rate. A thin frame design with super thin profile makes mounting this TV a breeze. This super-smart remote includes a built-in keypad for straightforward channel surfing. The remote is also backlit so you can easily change channels in the dark. The 42" DevAV LED TV also includes six video input options so you can display any video signal with ease.

TV Specifications	
Screen Size	42"
Diagonal	39"
TV Type	LED
Intelligent TV	Yes
Built-in WiFi	Yes
Refresh Rate	120Hz
Maximum Resolution	1080p
Dynamic Contrast Ratio	5 Million to 1
Remote Control Type	DX300
Light Sensor	Yes
Energy Star Qualified	ENERGY STAR® 6.0

Dimensions (WxHxD)	
Product Dimensions	42" x 28" x 10"
Product Weight	70 lbs
Product Dimensions without Stand	52.56" x 36.49" x 2.35"
Product Weight without Stand	65 lbs
Shipping Dimensions	55" x 40" x 11"
Shipping Weight	90 lbs
WARRANTY	1 year

Page 2 of 5

To create the above report with PDF content, follow the steps described in these sections:

- [Create the Main Report](#)
- [Create a Report with PDF Content](#)
- [Add the Report with PDF content to the Main Report](#)

## Create the Main Report

1. Open the [Report Designer](#) and [add a new blank report](#).
2. Design the report layout. In this tutorial, we create an invoice report that contains information about order items.

TopMargin

Invoice # [OrderDate!MM/dd/yy]



Billing Address	Shipping Address
[Customer.Name] Home Office [Customer.HomeOffice_Line] [Customer.HomeOffice_City], [Customer.HomeOffice_StateName] [Customer.HomeOffice_ZipCode]	[Customer.Name] [Store.Address_City] Store [Store.Address_Line] [Store.Address_City], [Store.Address_StateName] [Store.Address_ZipCode]

Sales Rep.	PO #	Ship Date	Ship Via	FOB	Terms
[Employee.FullName]	[PONumber]	GetDate([ShipDate])	iif([ShipMethod] = 0, 'Ground',	-	[OrderTerms]

Description		Unit Price	Quantity	Discount	Total
DETAIL					
Data	[ProductName]	[ProductPrice]	[ProductUnits]	[Discount]	[Total]

GroupHeader

GroupFooter

Digitally signed by your common name here  
DN: your distinguished name here  
Reason: your signing reason here

Sub Total	sum([OrderItems.Total])
Shipping	[ShippingAmount]
Total Due	[TotalAmount]

To supply the report with data, use the following JSON string:

```
{
    "InvoiceNumber": 241756,
    "OrderDate": "2018-04-23T18:25:43.511Z",
    "Customer": {
        "Name": "Walters",
        "HomeOffice_Line": "200 Wilmot Rd",
        "HomeOffice_City": "Deerfield",
        "HomeOffice_StateName": "IL",
        "HomeOffice_ZipCode": "60015"
    },
    "Store": {
        "Address_City": "Anaheim",
        "Address_Line": "1720 W La Palma Ave",
        "Address_StateName": "CA",
        "Address_ZipCode": "83709"
    },
    "Employee": {
        "FullName": "Harv Mudd"
    },
    "PONumber": "122023",
    "ShipMethod": 0,
    "OrderTerms": "15 Days",
    "OrderItems": [
        {
            "ProductName": "SuperLED 42",
            "ProductPrice": 1050,
            "ProductUnits": 2,
            "Discount": 50,
            "Total": 2050
        },
        {
            "ProductName": "SuperLED 50",
            "ProductPrice": 1100,
            "ProductUnits": 5,
            "Discount": 500,
            "Total": 5000
        },
        {
            "ProductName": "Projector PlusHD",
            "ProductPrice": 600,
            "ProductUnits": 5,
            "Discount": 250,
            "Total": 2750
        },
        {
            "ProductName": "HD Video Player",
            "ProductPrice": 220,
            "ProductUnits": 10,
            "Discount": 200,
            "Total": 2000
        }
    ],
    "ShippingAmount": 375,
    "TotalAmount": 12175
}
```

The following image illustrates the main report's **Preview**:

# Invoice # 241756

04/23/18



## Billing Address

Walters  
Home Office  
200 Wilmot Rd  
Deerfield, IL 60015

## Shipping Address

Walters  
Anaheim Store  
1720 W La Palma Ave  
Anaheim, CA 83709

Sales Rep.	PO #	Ship Date	Ship Via	FOB	Terms
Harv Mudd	122023	05/23/2018	Ground	-	15 Days

Description	Unit Price	Quantity	Discount	Total
SuperLED 42	\$1,050	2	\$50	\$2,050
SuperLED 50	\$1,100	5	\$500	\$5,000
Projector PlusHD	\$600	5	\$250	\$2,750
HD Video Player	\$220	10	\$200	\$2,000

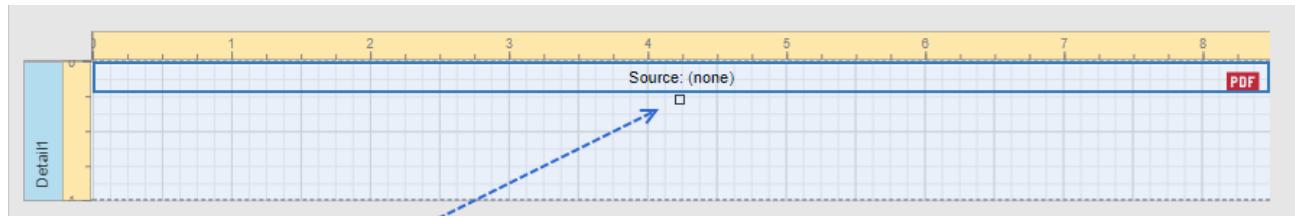
Digitally signed by your common name here  
DN: your distinguished name here  
Reason: your signing reason here  
Location: your signing location here  
Date: 12/9/2021 12:00:00 AM +03:00

Sub Total	\$11,800
Shipping	\$375
<b>Total Due</b>	<b>\$12,175</b>

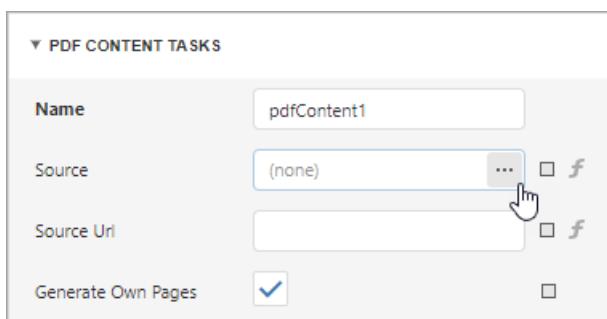
## Create a Report with PDF Content

1. Create a new blank report. Remove the report's margins.

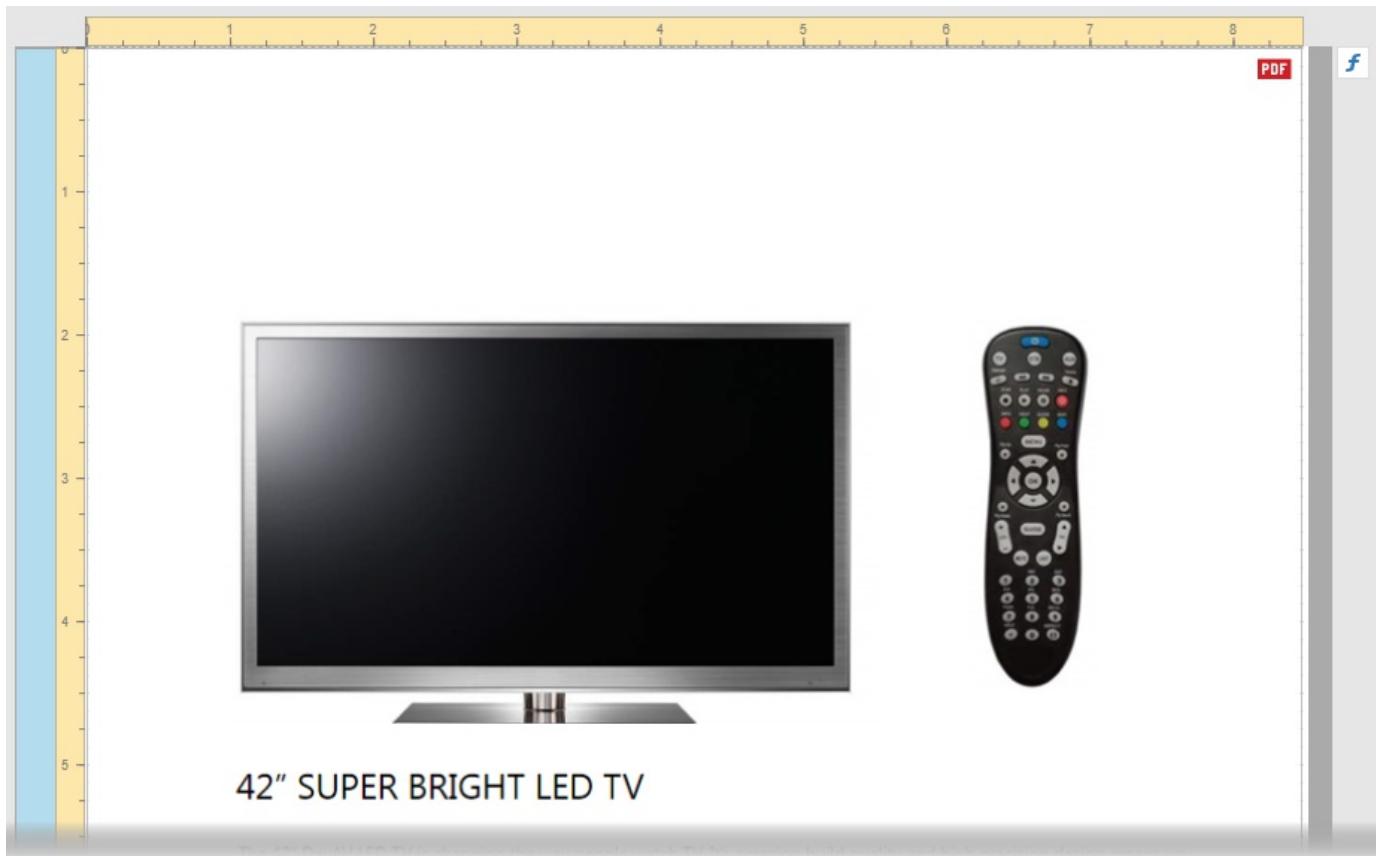
2. Drop the **PDF Content** control from the **Toolbox** onto the *Detail* band.



3. Select the control, navigate to the [Properties panel](#), click **Source** or **Source URL** property's ellipsis button, and select PDF file. In this demo, we use the following PDF specification: [Specification.pdf](#).



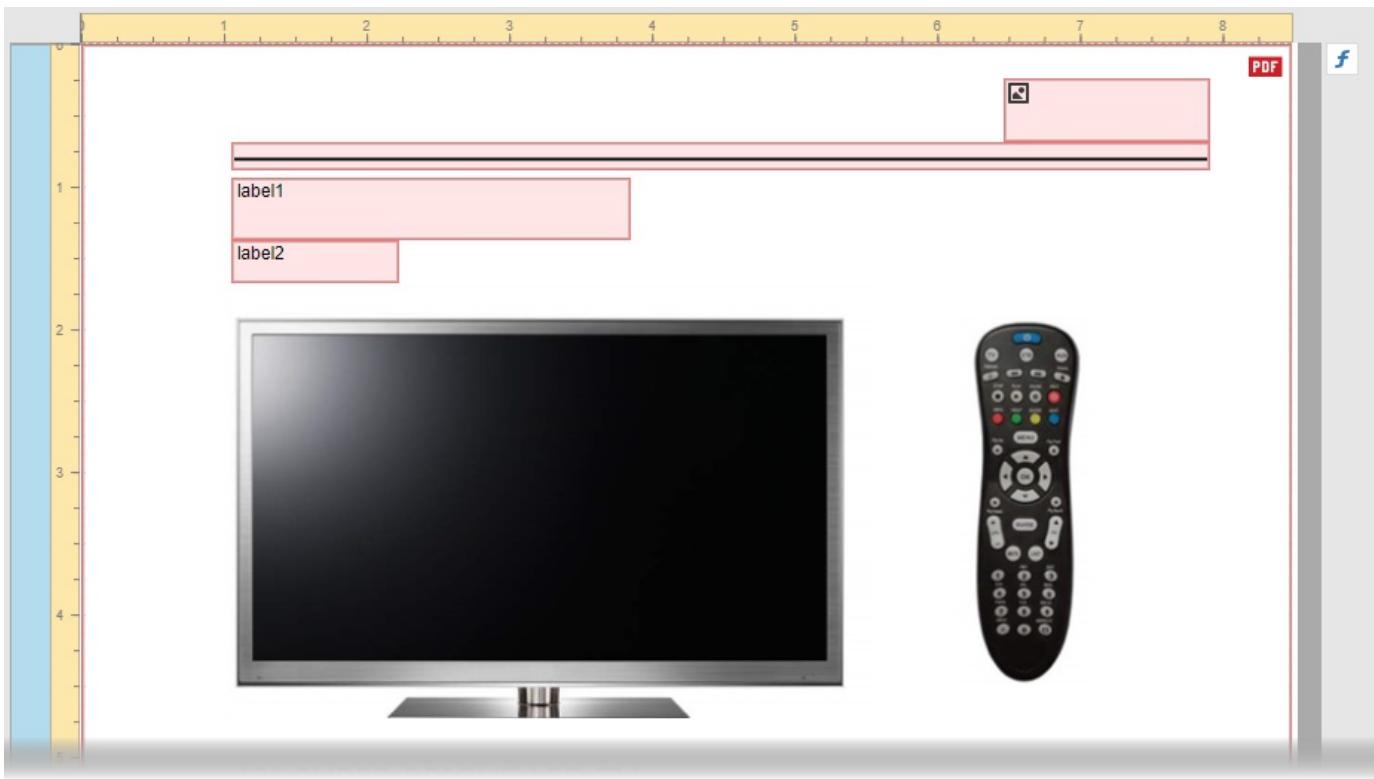
4. Disable the control's **Generate Own Pages** property. Adjust the control size to make PDF content fit the entire *Detail* band. For this, set the *Detail* band's **Height** to 1095 and the control's **Width** and **Height** to 849 and 1095.



5. [Bind](#) the report to the JSON data below and set the report's **Data Member** property to *OrderItems*.

```
{
    "InvoiceNumber": 241756,
    "OrderDate": "2018-04-23T18:25:43.511Z",
    "Customer": {
        "Name": "Walters",
        "HomeOffice_Line": "200 Wilmot Rd",
        "HomeOffice_City": "Deerfield",
        "HomeOffice_StateName": "IL",
        "HomeOffice_ZipCode": "60015"
    },
    "Store": {
        "Address_City": "Anaheim",
        "Address_Line": "1720 W La Palma Ave",
        "Address_StateName": "CA",
        "Address_ZipCode": "83709"
    },
    "Employee": {
        "FullName": "Harv Mudd"
    },
    "PONumber": "122023",
    "ShipMethod": 0,
    "OrderTerms": "15 Days",
    "OrderItems": [
        {
            "ProductName": "SuperLED 42",
            "ProductPrice": 1050,
            "ProductUnits": 2,
            "Discount": 50,
            "Total": 2050
        },
        {
            "ProductName": "SuperLED 50",
            "ProductPrice": 1100,
            "ProductUnits": 5,
            "Discount": 500,
            "Total": 5000
        },
        {
            "ProductName": "Projector PlusHD",
            "ProductPrice": 600,
            "ProductUnits": 5,
            "Discount": 250,
            "Total": 2750
        },
        {
            "ProductName": "HD Video Player",
            "ProductPrice": 220,
            "ProductUnits": 10,
            "Discount": 200,
            "Total": 2000
        }
    ],
    "ShippingAmount": 375,
    "TotalAmount": 12175
}
```

6. Place two **labels**, a **line**, and a **picture box** on the PDF page header as shown below:



Use the following locations and sizes:

CONTROL NAME	LOCATION	SIZE
label1	105, 94	280, 44
label2	105, 138	118, 30
line1	105, 69	687, 20
pictureBox1	647, 24	145, 45

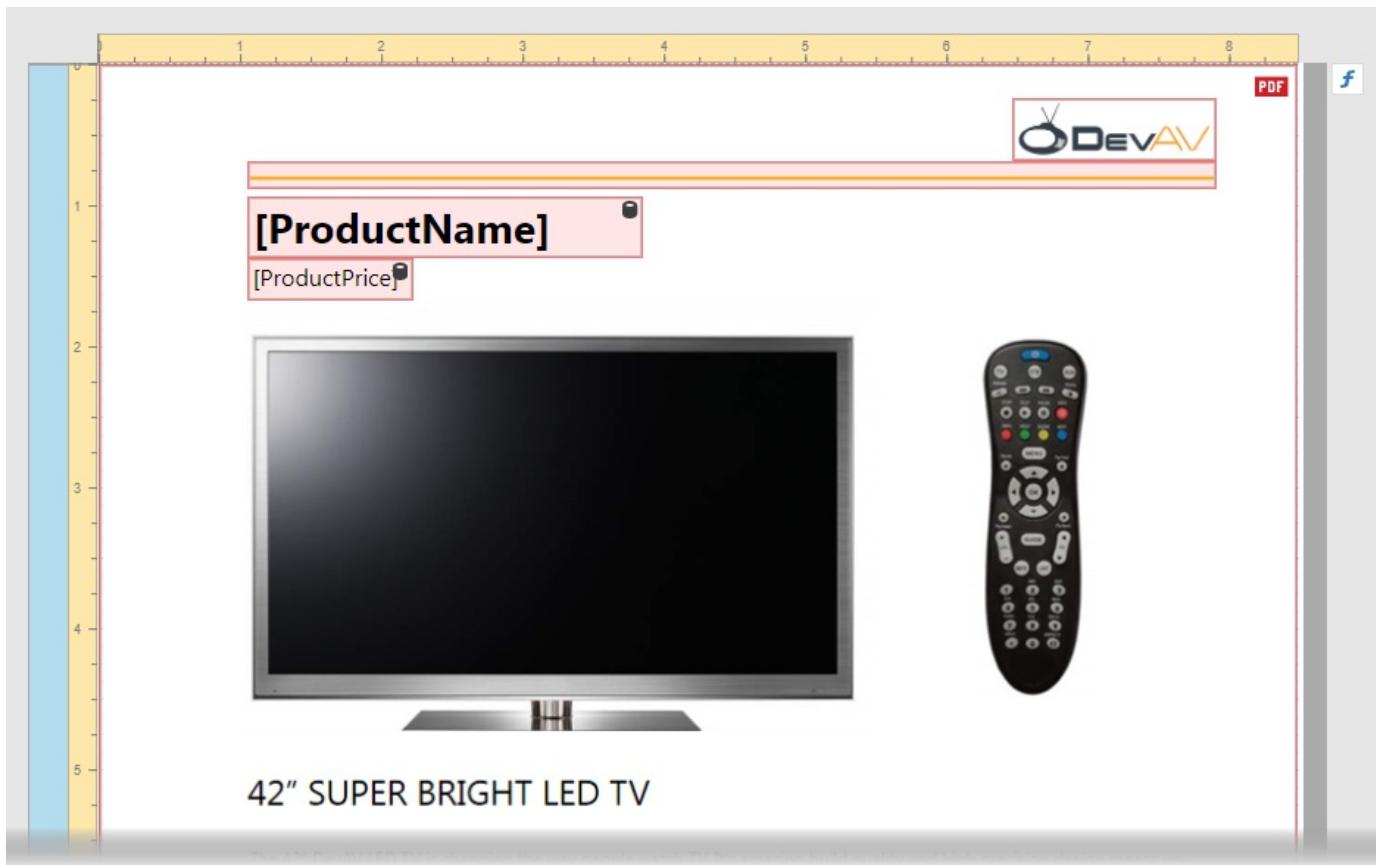
7. Set the line's **Width** and **Fore Color** to 2 and orange (`rgb(255,165,0)`) respectively. Assign the following image to the picture box's **Image Source** property:



Set the image's **Sizing** property to *Stretch Image*.

Make the label1's font bold. Set up label appearance as shown in the table below:

CONTROL NAME	FONT	FONT SIZE	TEXT PROPERTY'S EXPRESSION	TEXT FORMAT STRING
label1	Segoe UI	21	<i>ProductName</i>	-
label2	Segoe UI	12	<i>ProductPrice</i>	{0:\$0}



To display a product name and price of each order item on a corresponding PDF file page, set the PDF Content **Page Range** property's **expression** to `[DataSource.CurrentRowIndex] + 1`.

- Add the **Page Info** control to the PDF page footer. Use the following settings for this control:

LOCATION	SIZE	FONT	FONT SIZE	TEXT ALIGNMENT	TEXT FORMAT STRING
0, 1045	849, 50	Segoe UI	12	Middle Center	Page {0} of {1}

TV Specifications		Dimensions (WxHxD)	
Screen Size	42"	Product Dimensions	42" x 28" x 10"
Diagonal	39"	Product Weight	70 lbs
TV Type	LED	Product Dimensions without Stand	52.56" x 36.49" x 2.35"
Intelligent TV	Yes	Product Weight without Stand	65 lbs
Built-in WiFi	Yes	Shipping Dimensions	55" x 40" x 11"
Refresh Rate	120Hz	Shipping Weight	90 lbs
Maximum Resolution	1080p	WARRANTY	1 year
Dynamic Contrast Ratio	5 Million to 1		
Remote Control Type	DX300		
Light Sensor	Yes		
Energy Star Qualified	ENERGY STAR® 6.0		

Detail1

Page {0} of {1}

Open **Preview** to show the result. The image below shows the report's first page:

## SuperLED 42

\$1050



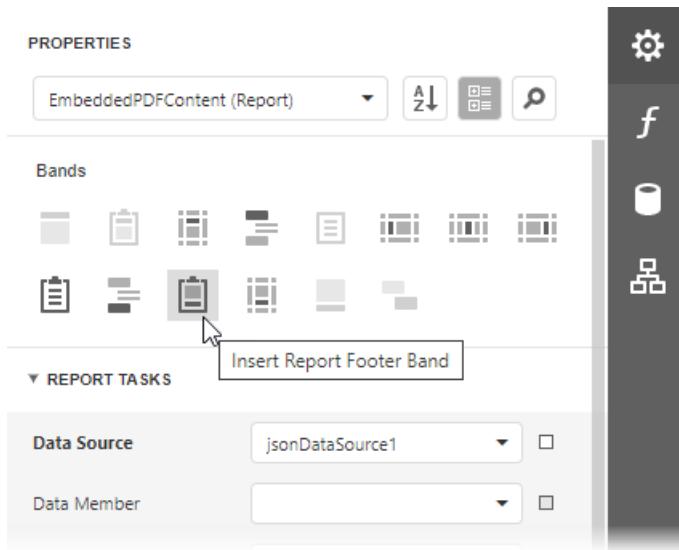
### 42" SUPER BRIGHT LED TV

The 42" DevAV LED TV is changing the way people watch TV. It's amazing build quality and high precision design means you get the best possible picture for the best possible price. It delivers crystal-clear images with mind-blowing video. The bottom-line is simple, this TV offers 1080p Full HD output with 120Hz refresh rate. A thin frame design with super thin profile makes mounting this TV a breeze. This super-smart remote includes a built-in keypad for straightforward channel surfing. The remote is also backlit so you can easily change channels in the dark. The 42" DevAV LED TV also includes six video input options so you can display any video signal with ease.

TV Specifications		Dimensions (WxHxD)	
Screen Size	42"	Product Dimensions	42" x 28" x 10"
Diagonal	39"	Product Weight	70 lbs
TV Type	LED	Product Dimensions without Stand	52.56" x 36.49" x 2.35"
Intelligent TV	Yes	Product Weight without Stand	65 lbs
Built-in WiFi	Yes	Shipping Dimensions	55" x 40" x 11"
Refresh Rate	120Hz	Shipping Weight	90 lbs
Maximum Resolution	1080p	WARRANTY	1 year
Dynamic Contrast Ratio	5 Million to 1		
Remote Control Type	DX300		
Light Sensor	Yes		
Energy Star Qualified	ENERGY STAR® 6.0		

## Add the Report with PDF Content to the Main Report

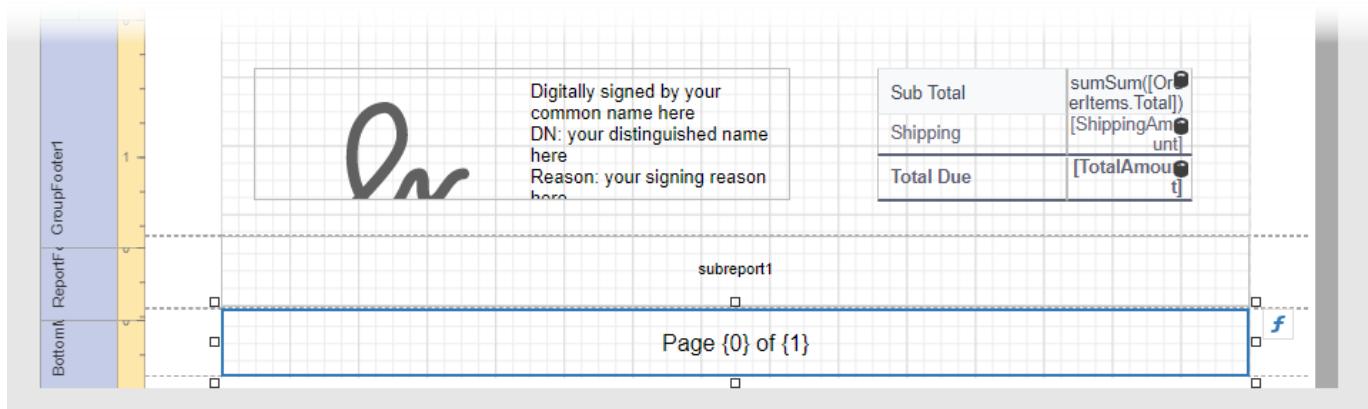
1. Add a footer to the main report.



2. Add the **Subreport** control to the footer. Assign the report with PDF content to the control's **Report Source URL** property. Enable the control's **Generate Own Pages** property.

Name	subreport1
Report Source Url	Report1
▼ BEHAVIOR	
Can Shrink	<input type="checkbox"/>
Generate Own Pages	<input checked="" type="checkbox"/>
Visible	<input checked="" type="checkbox"/> f
▼ DATA	
Report Source Url	Report1

3. Add the **Page Info** control to the report's **Bottom Margin** band. Set the control's **Text Alignment** property to **Middle Center** and the **Text Format String** property to **Page {0} of {1}**.



Open **Preview** to show the result.

# Invoice # 241756

04/23/18



## Billing Address

**Walters**  
Home Office  
200 Wilmot Rd  
Deerfield, IL 60015

## Shipping Address

**Walters**  
Anaheim Store  
1720 W La Palma Ave  
Anaheim, CA 83709

Sales Rep.	PO #	Ship Date	Ship Via	FOB	Terms
Harv Mudd	122023	05/23/2018	Ground	-	15 Days

Description	Unit Price	Quantity	Discount	Total
SuperLED 42	\$1,050	2	\$50	\$2,050
SuperLED 50	\$1,100	5	\$500	\$5,000
Projector PlusHD	\$600	5	\$250	\$2,750
HD Video Player	\$220	10	\$200	\$2,000

Digitally signed by your common name here  
DN: your distinguished name here  
Reason: your signing reason here  
Location: your signing location here  
Date: 12/9/2021 12:00:00 AM +03:00

Sub Total	\$11,800
Shipping	\$375
<b>Total Due</b>	<b>\$12,175</b>

## SuperLED 42

\$1050



### 42" SUPER BRIGHT LED TV

The 42" DevAV LED TV is changing the way people watch TV. It's amazing build quality and high precision design means you get the best possible picture for the best possible price. It delivers crystal-clear images with mind-blowing video. The bottom-line is simple, this TV offers 1080p Full HD output with 120Hz refresh rate. A thin frame design with super thin profile makes mounting this TV a breeze. This super-smart remote includes a built-in keypad for straightforward channel surfing. The remote is also backlit so you can easily change channels in the dark. The 42" DevAV LED TV also includes six video input options so you can display any video signal with ease.

TV Specifications		Dimensions (WxHxD)	
Screen Size	42"	Product Dimensions	42" x 28" x 10"
Diagonal	39"	Product Weight	70 lbs
TV Type	LED	Product Dimensions without Stand	52.56" x 36.49" x 2.35"
Intelligent TV	Yes	Product Weight without Stand	65 lbs
Built-in WiFi	Yes	Shipping Dimensions	55" x 40" x 11"
Refresh Rate	120Hz	Shipping Weight	90 lbs
Maximum Resolution	1080p	WARRANTY	1 year
Dynamic Contrast Ratio	5 Million to 1		
Remote Control Type	DX300		
Light Sensor	Yes		
Energy Star Qualified	ENERGY STAR® 6.0		

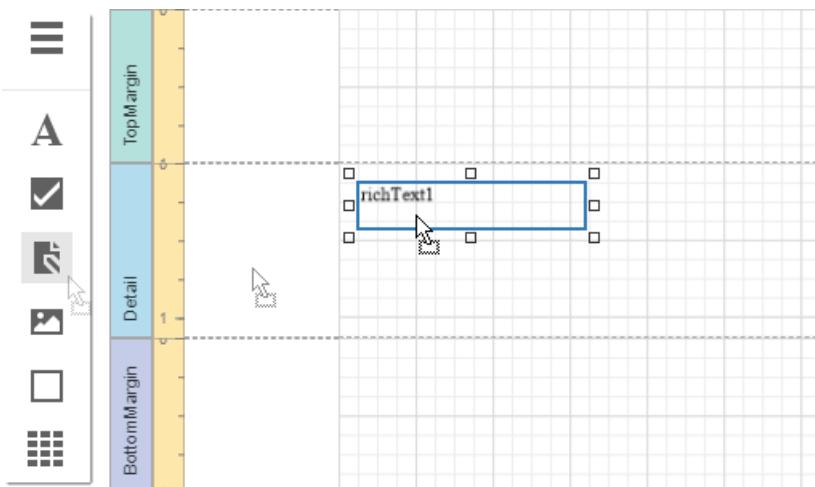
# Reports with a Visual PDF Signature

This tutorial describes how to create a report with a visual PDF signature.

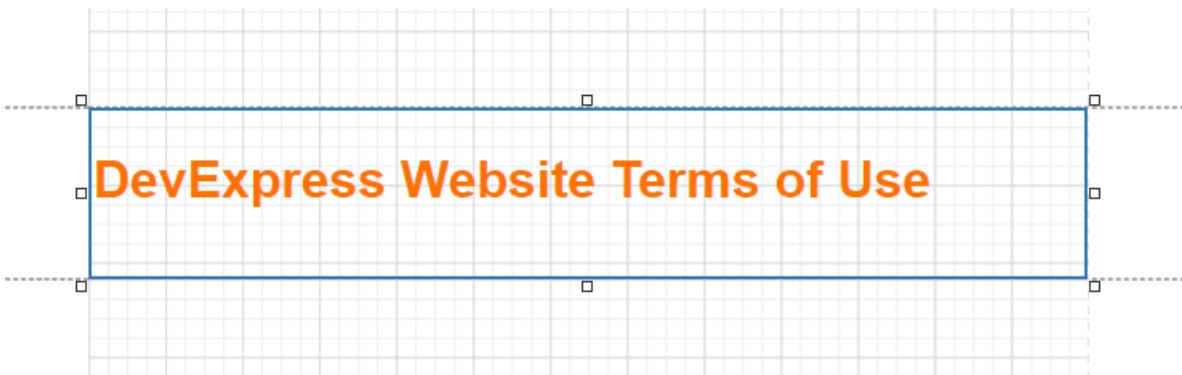


## Create a Report Layout

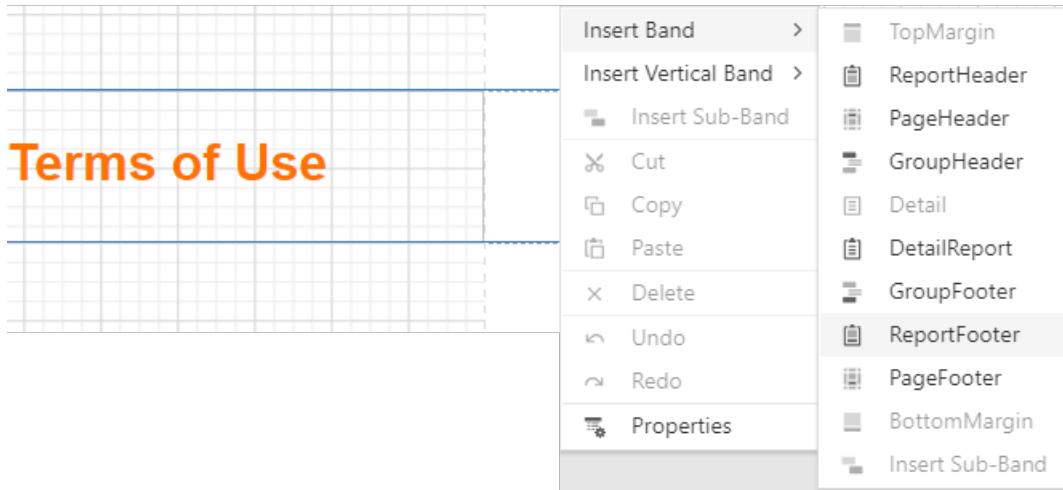
1. Drop the **Rich Text** control from the report controls Toolbox tab onto the **Detail** band.



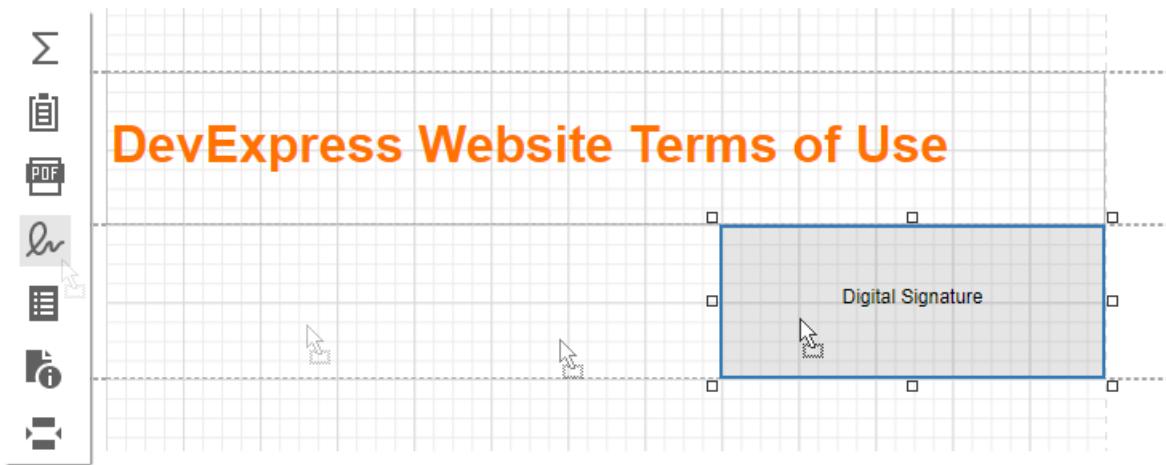
2. Double-click the control and insert the [DevExpress Website Terms of Use](#) text.



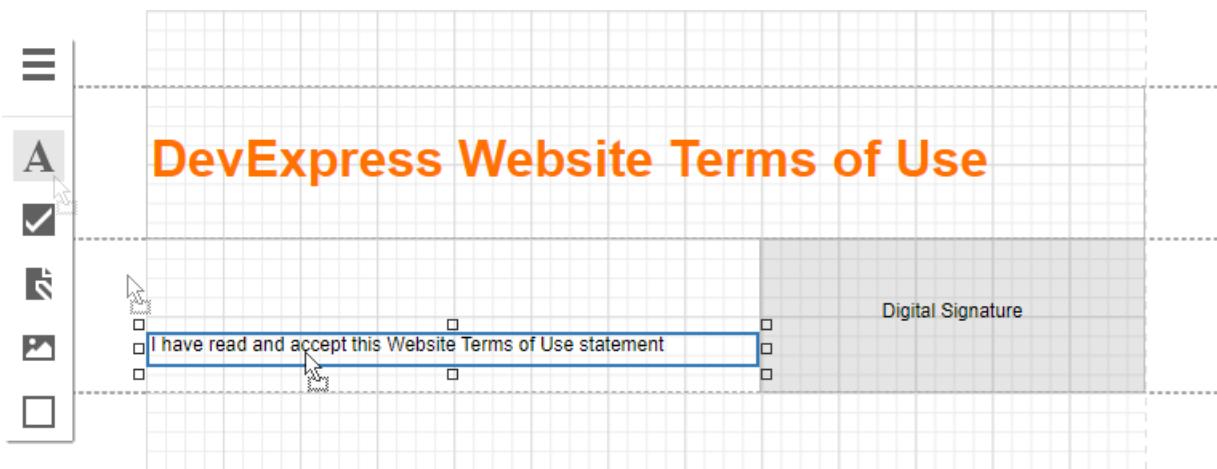
3. Select the **Detail** band. From the context menu, select the **Insert Report Footer Band** command. Enable the footer band's **Print at Bottom** property.



4. Drop the **Pdf Signature** control from the report controls Toolbox tab onto the **Report Footer** band.



5. Place the **Label** control to the left of the **Pdf Signature** control and add the following text: *I have read and accept this Website Terms of Use statement.*



Open **Preview** to show the result.

# DevExpress Website Terms of Use

## 1. INTRODUCTION

PLEASE READ THESE WEBSITE TERMS OF USE AND PRIVACY STATEMENT CAREFULLY BEFORE USING ANY DEVELOPER EXPRESS INC WEBSITE (THE "WEBSITE"). THESE WEBSITE TERMS OF USE (THE "TERMS OF USE") GOVERN YOUR ACCESS TO AND USE OF THE WEBSITE. IF YOU DO NOT AGREE TO ALL OF THE TERMS OF USE AND PRIVACY STATEMENT SET FORTH BELOW, DO NOT USE THE WEBSITE. BY ACCESSING OR USING THE WEBSITE, YOU AND THE BUSINESS ENTITY OR THE ORGANIZATION YOU REPRESENT ("YOU" OR "YOUR") INDICATE YOUR AGREEMENT TO BE BOUND BY THE TERMS OF USE.

## 2. SCOPE

The Website Terms of Use govern your use of the Website and all applications, content, software, online localization and services (collectively, "Content") available via the Website, except to the extent such Content is the subject of a separate agreement.

Digital Signature

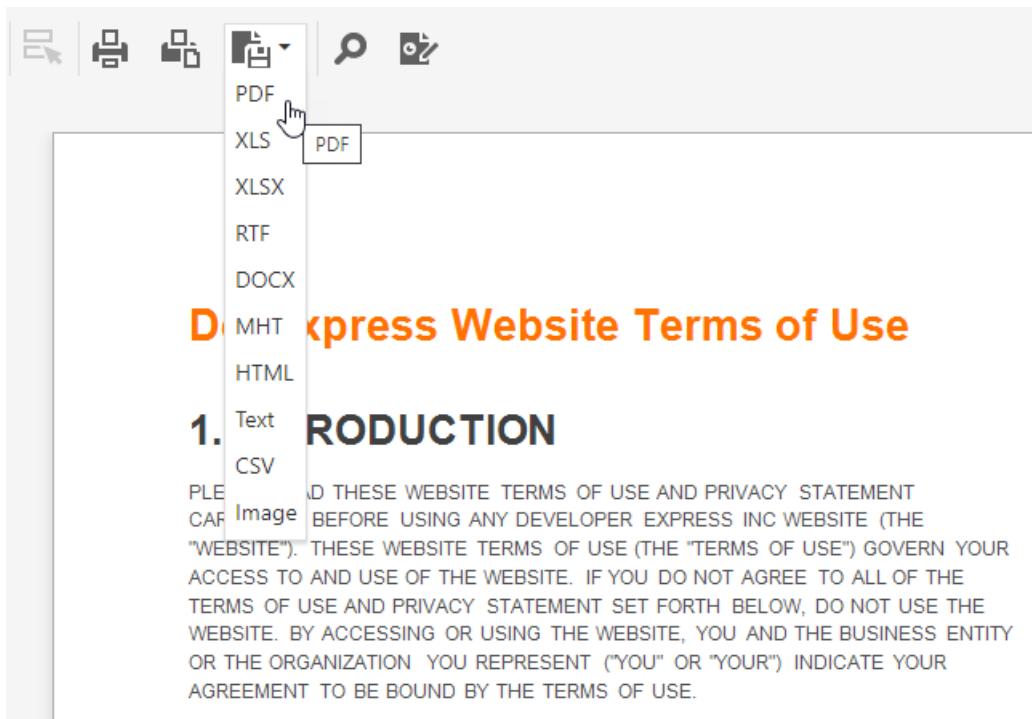
I have read and accept this Website Terms of Use statement

## Export and Sign the Report

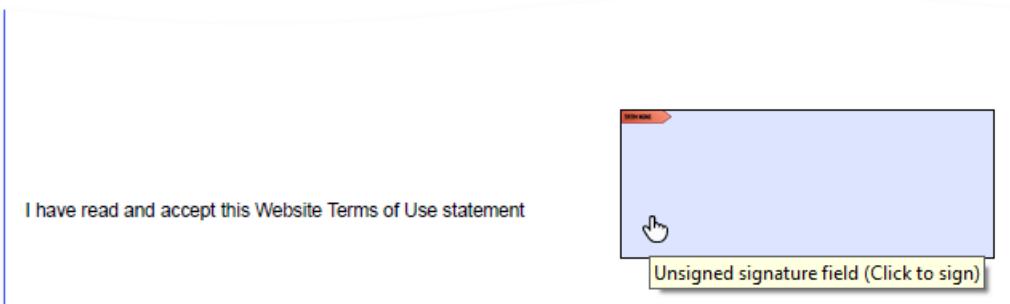
You can sign a report with a visual signature on export to PDF if an application contains an available signature. To sign the report on export, select a signature from the **Signature** drop-down list in [PDF Export Options](#).

You can also sign the exported document in a PDF editor. To do this, follow the steps below:

1. In **Preview**, expand the list with export formats and select **PDF**.



2. Open the exported document in a PDF editor and sign it.



Save and reopen the document to show the final result.

## DevExpress Website Terms of Use

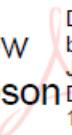
### 1. INTRODUCTION

PLEASE READ THESE WEBSITE TERMS OF USE AND PRIVACY STATEMENT CAREFULLY BEFORE USING ANY DEVELOPER EXPRESS INC WEBSITE (THE "WEBSITE"). THESE WEBSITE TERMS OF USE (THE "TERMS OF USE") GOVERN YOUR ACCESS TO AND USE OF THE WEBSITE. IF YOU DO NOT AGREE TO ALL OF THE TERMS OF USE AND PRIVACY STATEMENT SET FORTH BELOW, DO NOT USE THE WEBSITE. BY ACCESSING OR USING THE WEBSITE, YOU AND THE BUSINESS ENTITY OR THE ORGANIZATION YOU REPRESENT ("YOU" OR "YOUR") INDICATE YOUR AGREEMENT TO BE BOUND BY THE TERMS OF USE.

### 2. SCOPE

The Website Terms of Use govern your use of the Website and all applications, content, software, online localization and services (collectively, "Content") available via the Website, except to the extent such Content is the subject of a separate agreement.

I have read and accept this Website Terms of Use statement

Andrew Jacobson  Digitally signed  
by Andrew Jacobson  
Date: 2020.11.23  
17:56:53 +03'00'

# 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 Report Measurement Units

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

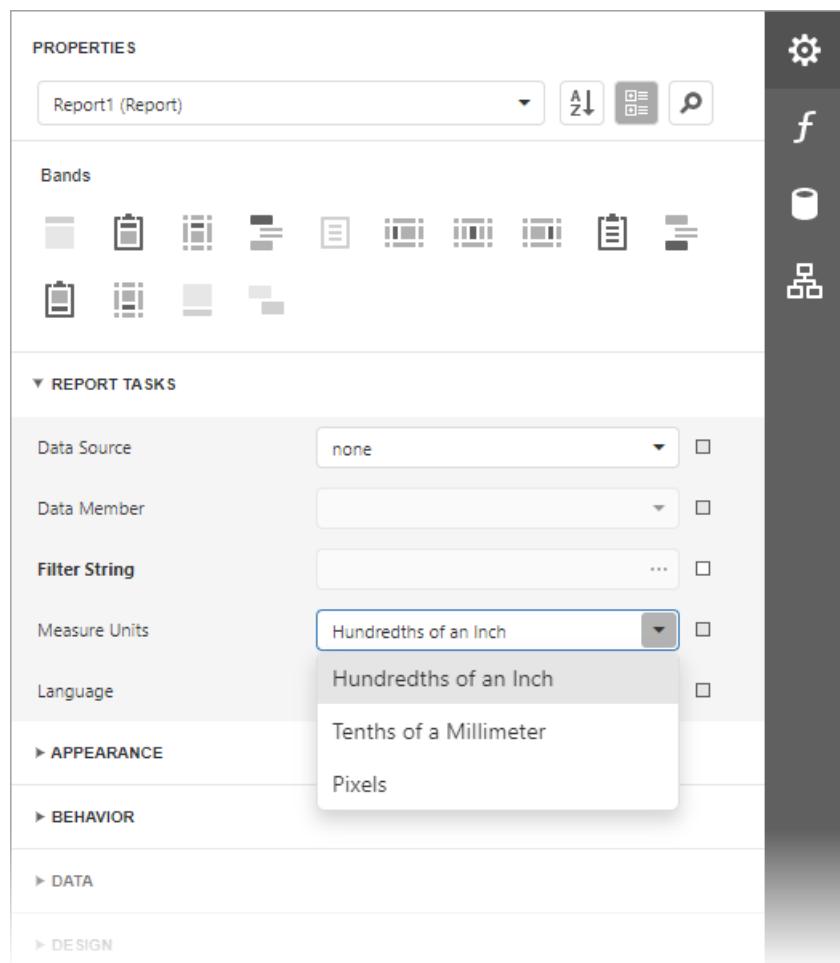
- **Imperial system** (hundredths of an inch)

This is the default system for a new report.

- **Metric system** (tenths of a millimeter)

- **Screen coordinates** (pixels)

To assign a system of measurements to a report, use its **Measure Units** property. You can specify this property in the [Properties](#) panel.



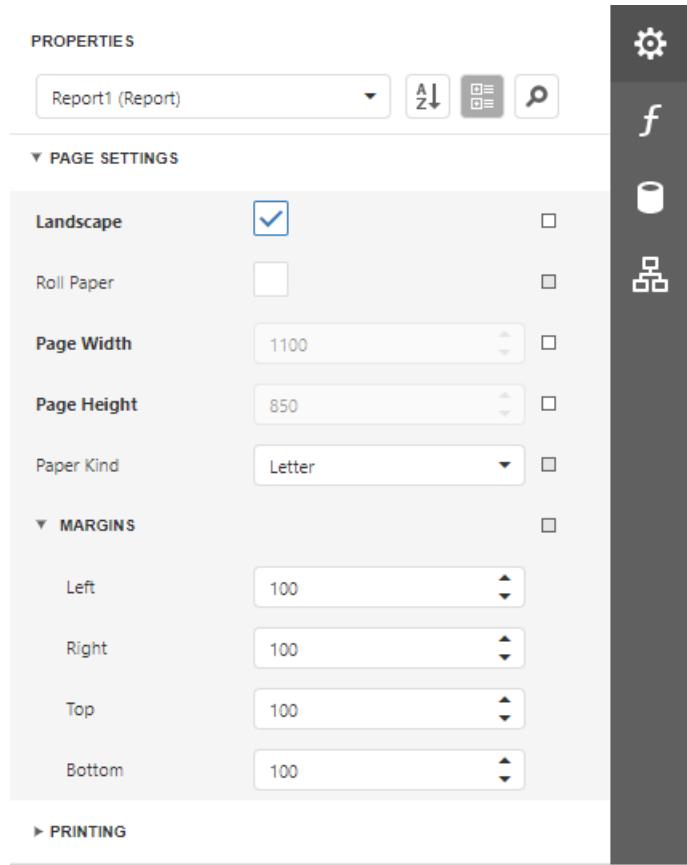
When system of measurement changes, the Report Designer recalculates property values, and updates the layout of all report elements. The system of measurement determines the minimum increment with which an element's [location and size](#) can be changed.

# Change Report Page Settings

You can use default printer settings or specify page settings in Report Designer.

## Specify the Report Page Settings

You can specify the report page settings in the [Properties](#) panel. Expand the **Page Settings** category to access the options:



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.

These settings affect the report layout. After the settings change, you may notice red highlights which indicate that the controls go beyond the page width.

2 3 4 5

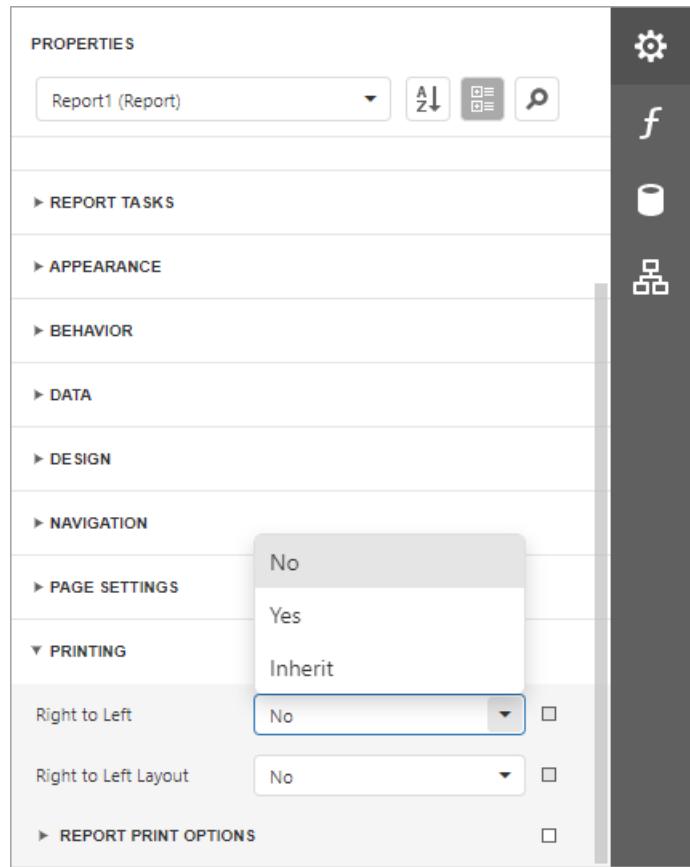
products

 NORTH WIND

Category Name	Quantity Per Unit	Units In Stock
categoryName	QuantityPerUnit	UnitsInStock

# Enable the Right-To-Left Layout

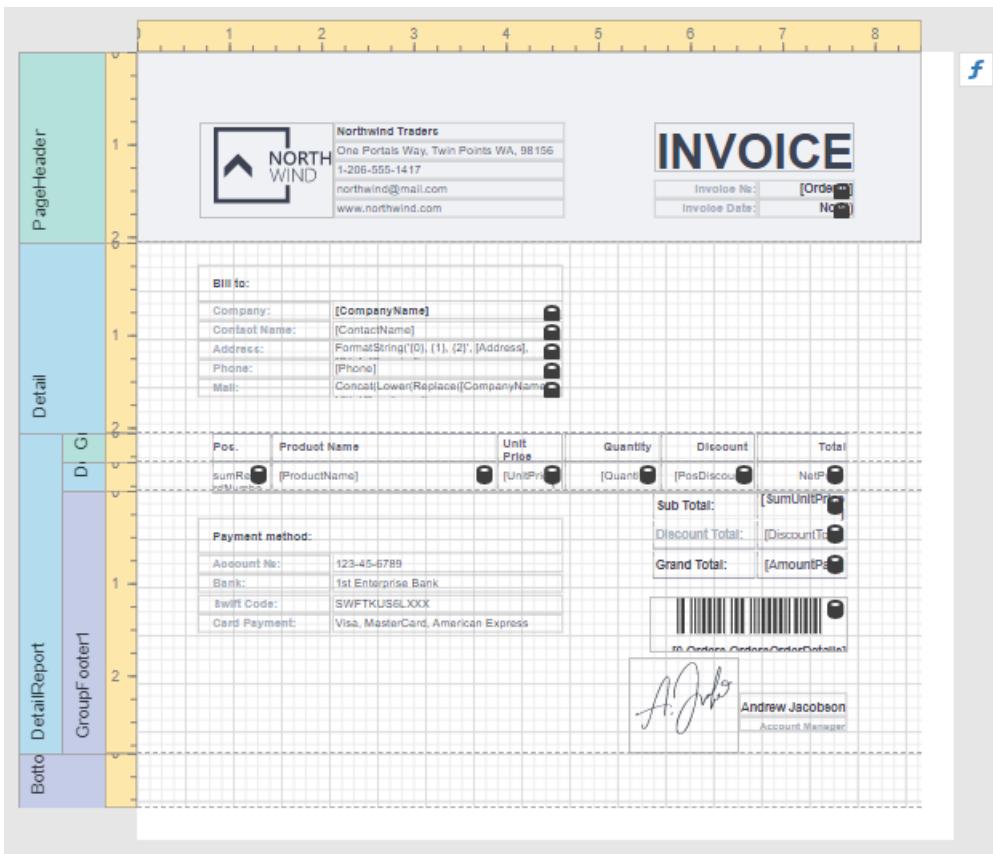
The report and most of the report controls provide the **Right to Left** and **Right to Left Layout** property.



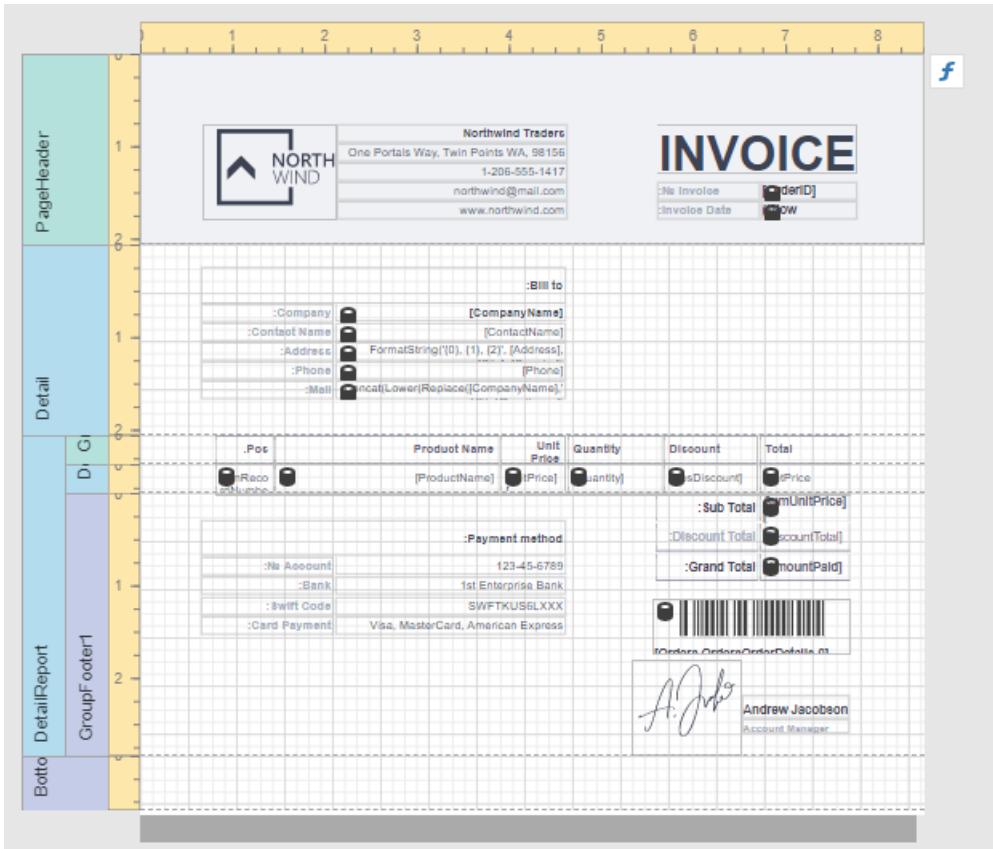
## Right to Left

The 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).

- **Disabled**



- **Enabled**



Initially all report controls have this property set to **Inherit**, and when you enable it for a report, the setting is enabled for all report controls.

The following controls support this feature:

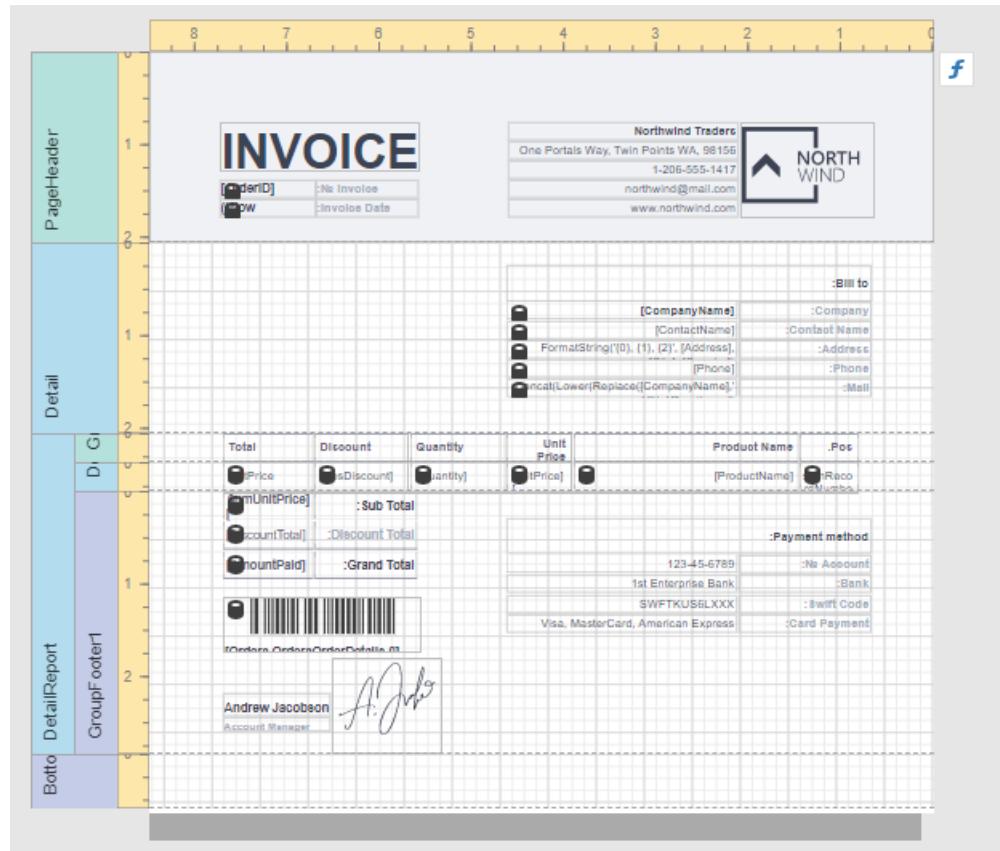
- [Label](#)
- [Check Box](#)

- [Page Info](#)
- [Panel](#)
- [Cross Tab](#)
- [Pivot Grid \(deprecated\)](#)
- [Table](#)
- [Table of Contents](#)

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

## Right to Left Layout

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 (you are not allowed to place controls outside the right page margin).



The coordinates of report controls remain unchanged, only the point and direction of reference change (the X coordinate is calculated based on the top right corner).

The right-to-left layout is preserved when exporting a report to any [supported format](#).

# 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](#)
- [Bind Controls to Data](#)
- [Use Embedded Fields \(Mail Merge\)](#)
- [Validate Report Data Bindings](#)
- [Use Basic Report Controls](#)
- [Use Tables](#)
- [Use Barcodes](#)
- [Use Charts](#)
- [Use Cross Tab](#)
- [Use Gauges and Sparklines](#)
- [Draw Lines and Shapes](#)

# Manipulate Report Elements

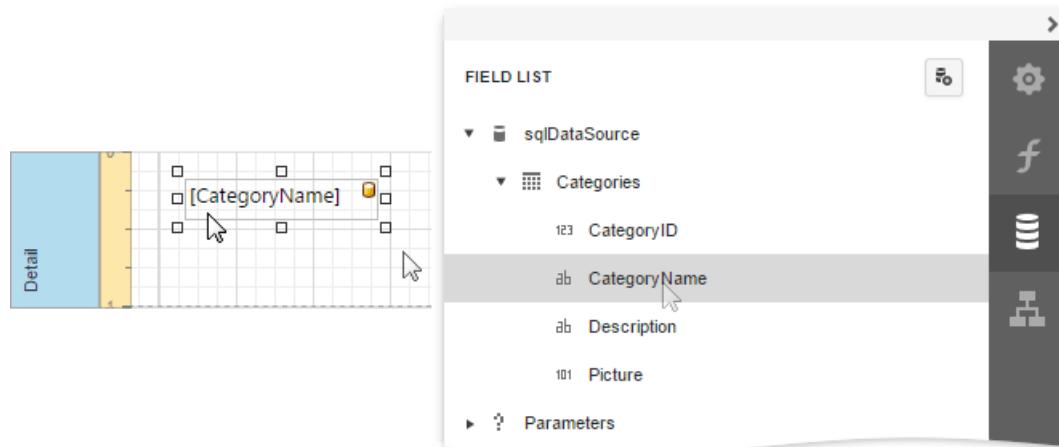
The following topics describe how to add various controls to a report, manipulate report elements and customize the report layout:

- [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](#)
- [Arrange Report Controls](#)
- [Add Report Controls to Containers](#)
- [Validate the Report Layout](#)

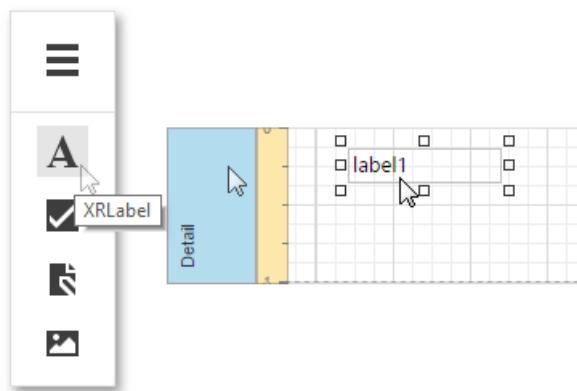
# Add Controls to a Report

## Add Report Controls

To display a data field's value in your report, drag the corresponding item from the [Field List](#) and drop it onto the report's detail band. This creates a new report control bound to the corresponding field.



You can also use the [Toolbox](#) to add other controls to your report and display content such as text, images, charts, barcodes, and so on.



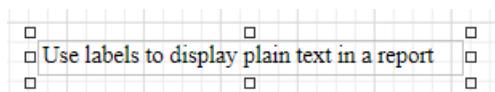
This document describes how to add the most commonly used controls to a report. See [Use Report Elements](#) for a complete list of available controls.

## Display Text

Use the following controls to display text in a report:

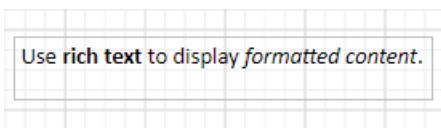
- [Label](#)

Displays plain text in a report.



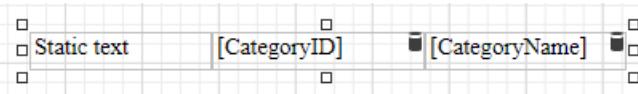
- [Rich Text](#)

Displays rich text in a report. You can apply different font settings to the control's content and load content from an external HTML file.



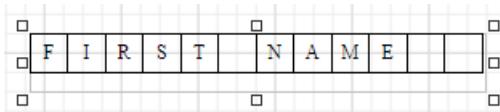
- [Table](#)

Contains any number of cells arranged in one or more rows. Each table cell can display plain text or contain other controls.



- [Character Comb](#)

Displays each character in a separate cell and can be used to create printed forms.

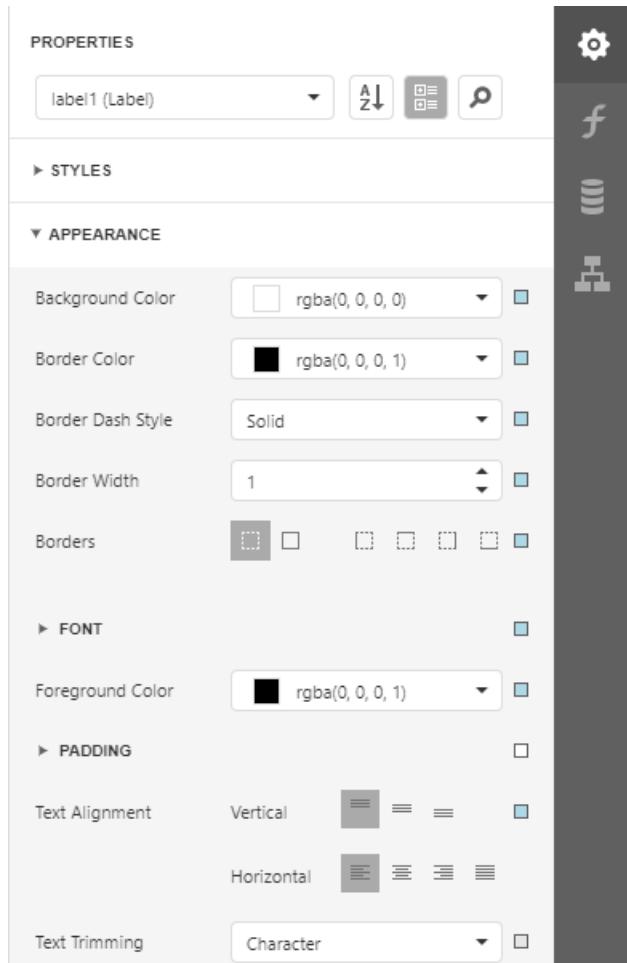


Double-click any of these controls to invoke an in-place editor where you can enter text.



Press CTRL+Enter to submit changes and close this mode.

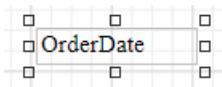
You can use corresponding properties of the **Appearance** category to access the selected control's font and alignment settings.



Labels and other text-oriented controls can display the following content:

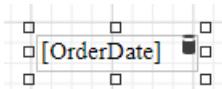
- **Static content**

A control's content does not change once it is specified in a published document.

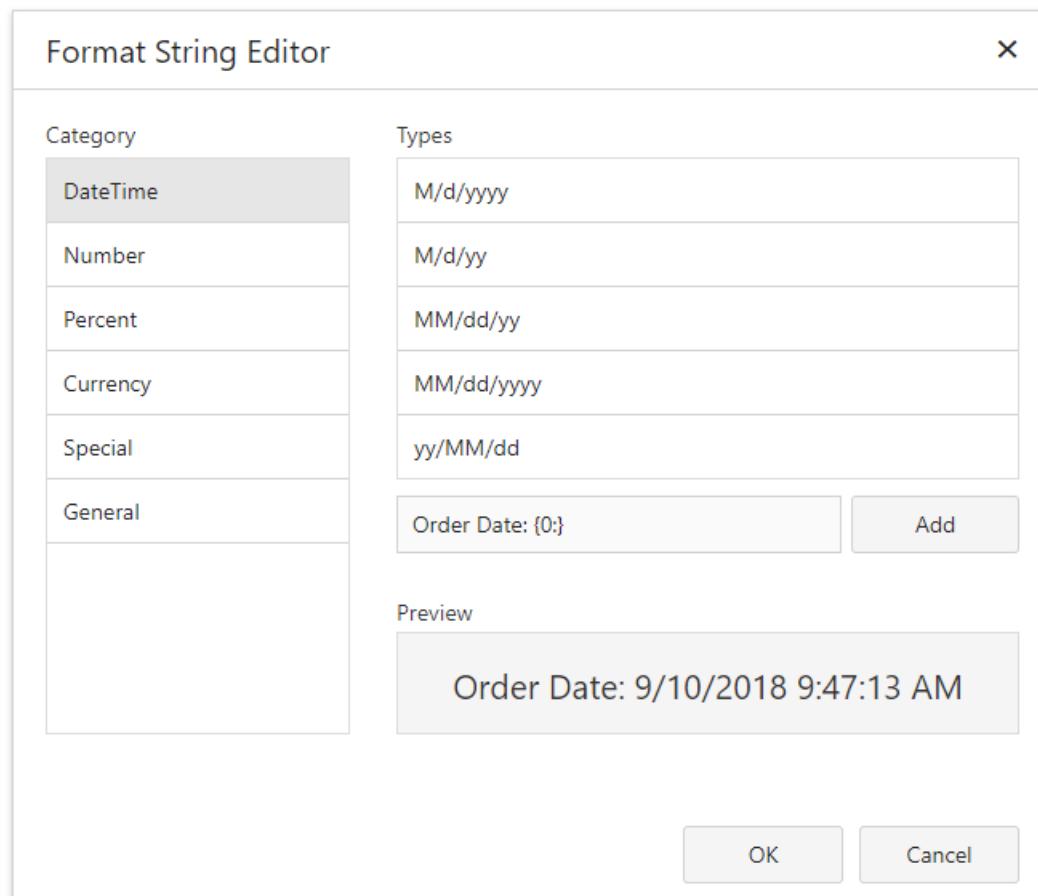


- **Dynamic content**

A connected data source supplies this content. In a published document, it changes according to the printed data source record.



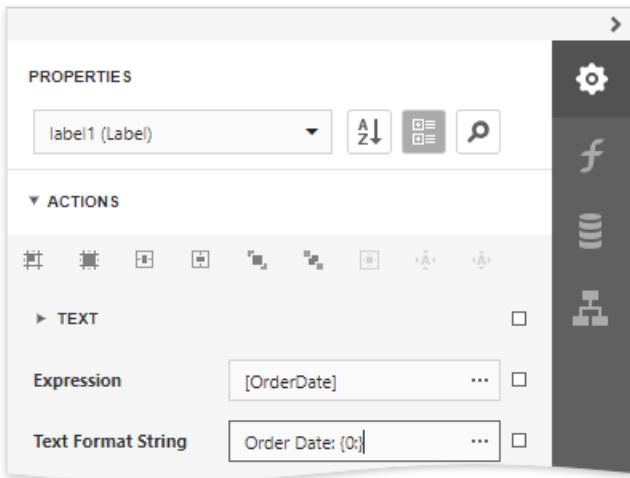
You can use the [Format String Editor](#) to format dynamic content.



- **Mixed content**

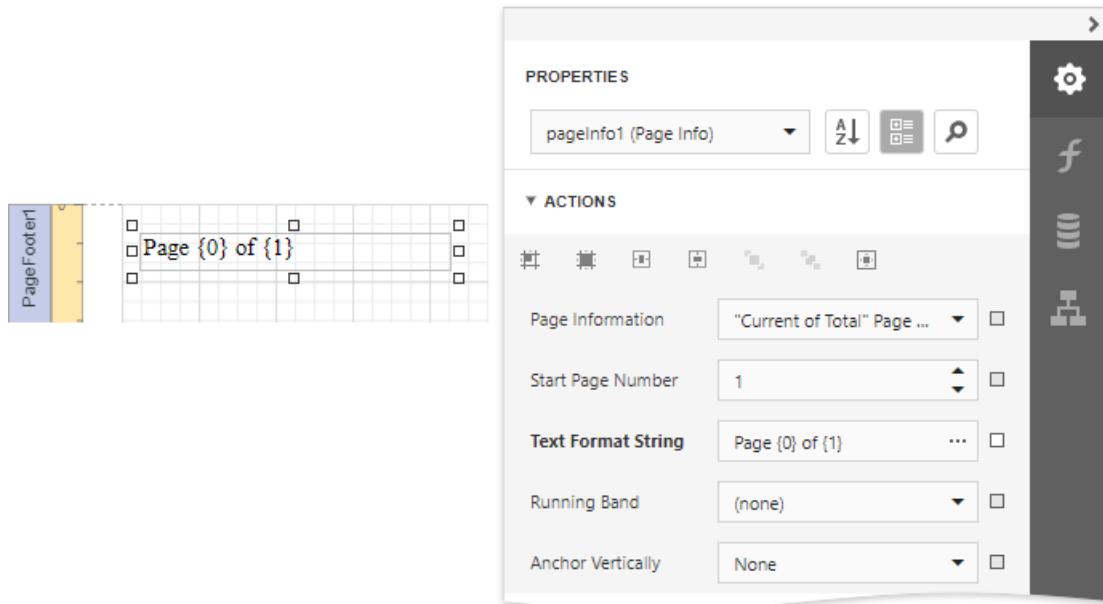
You can combine labels' and other text-oriented controls' static and dynamic content within the same control.

Use the **Format String** property in the **Action** category to format this field's value.



## Display Page Information

Use the [Page Info](#) control to display information about document pages, such as the current page number and/or total number of pages.



You can also use this control to add information about a report's author and the document's creation date.

See the following tutorials for detailed instructions:

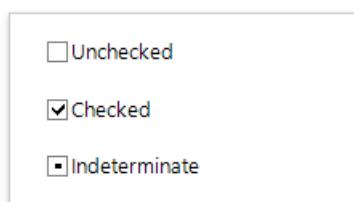
- [Add Page Numbers](#)
- [Display the User Name in a Report](#)
- [Display the Current Date and Time in a Report](#)

## Display Check Boxes, Images and Barcodes

Drop a Boolean data field from the Field List onto a report to create a [Check Box](#) control bound to that field.

The screenshot shows the 'FIELD LIST' pane of a reporting tool. A data source named 'sqlDataSource1' is expanded, revealing its fields. The field 'Description' is currently selected, indicated by a grey background. Other fields visible in the list include CategoryID, CategoryName, Description, Icon17, Icon25, and Picture.

Check boxes can display different states depending on the underlying data values.

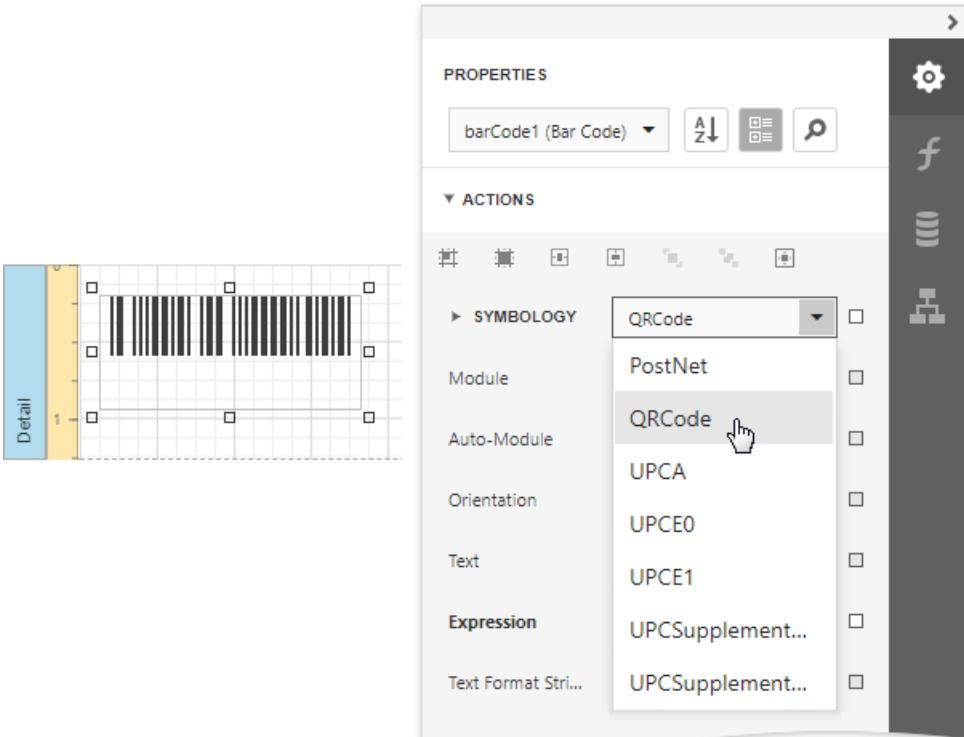


Use the [Picture Box](#) control to display images in a report. You can load an image from an external file, from a bound data source, or from a web location using the specified URL.

The screenshot shows the 'PROPERTIES' pane for a 'Picture Box' control named 'pbLargeLogo'. The 'ACTIONS' section is expanded, displaying various properties:

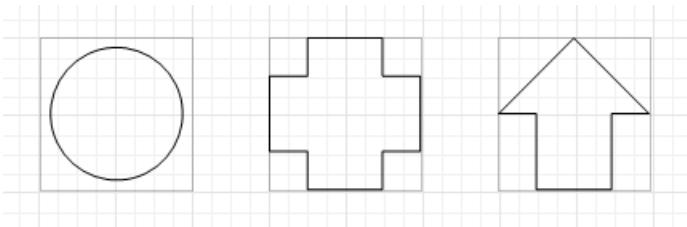
- Image Source: Set to 'Image'.
- Image Url: An empty text input field.
- Sizing: Set to 'Auto-Size'.
- Alignment: Set to 'Default'.
- Bookmark: An empty text input field.
- Parent Bookmark: An empty text input field.

To display barcodes, use the [Barcode](#) control.

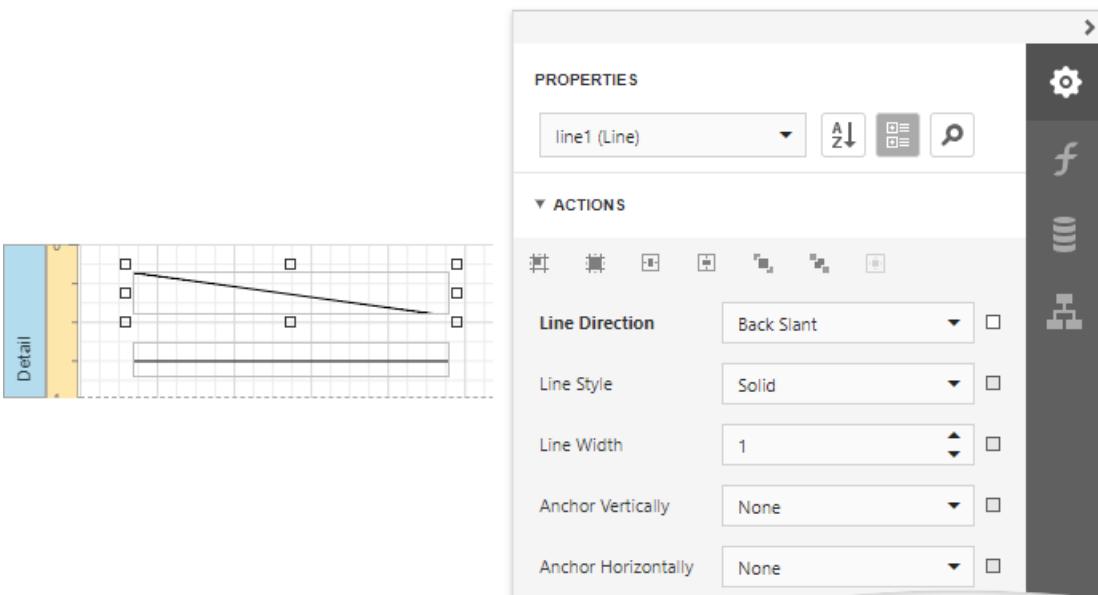


## Drawing Lines and Shapes

Use the [Shape](#) control to draw simple graphics in a report (circles, crosses or arrows).



The [Line](#) control enables you to draw straight or slanted lines in a single band.



The [Cross-Band Line and Box](#) controls enable you to draw lines and boxes spanning multiple report bands.

# Bind Report Controls to Data

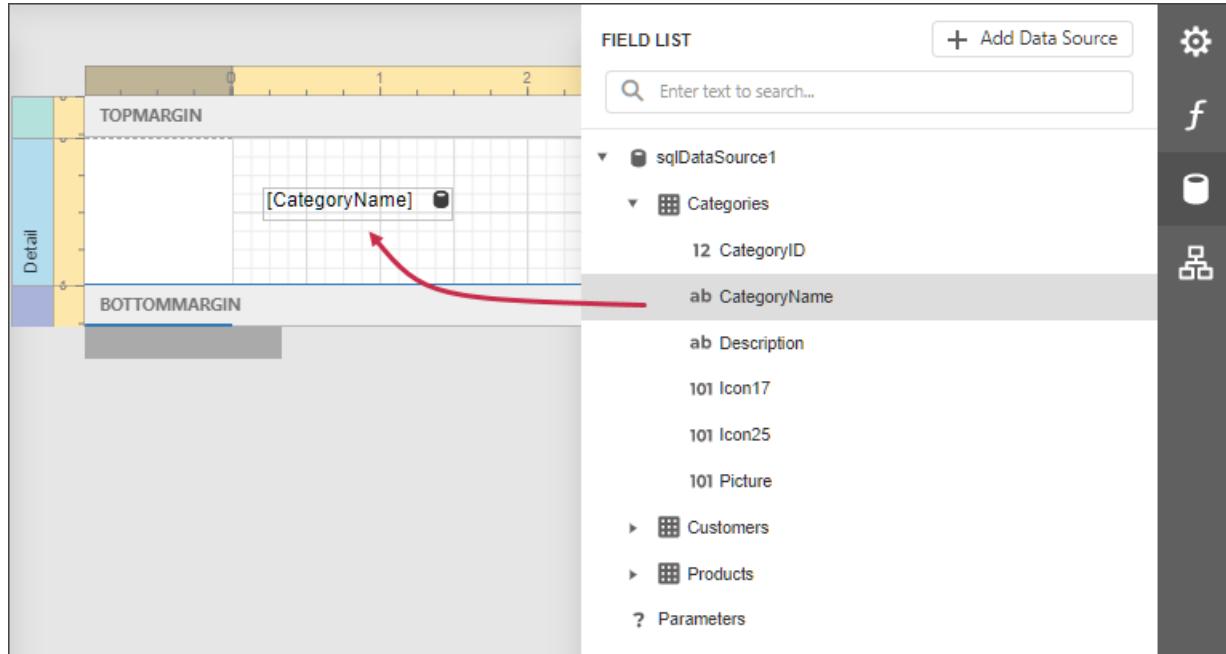
You can use the following approaches to include a data source's information in your report:

- [Use the Field List](#)
- [Use the Properties Panel](#)

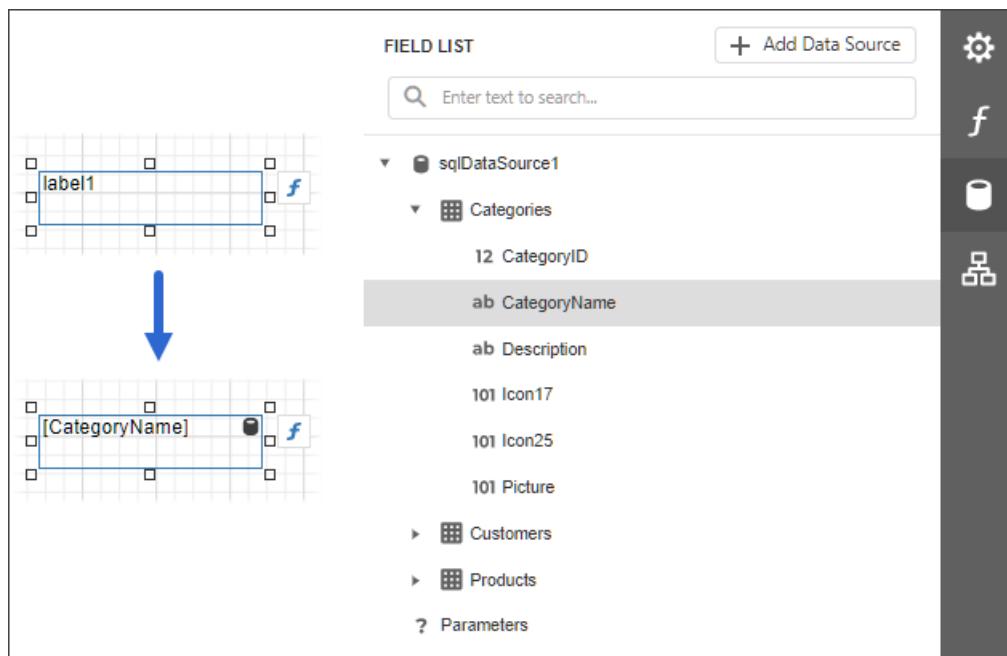
## Use the Field List

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.

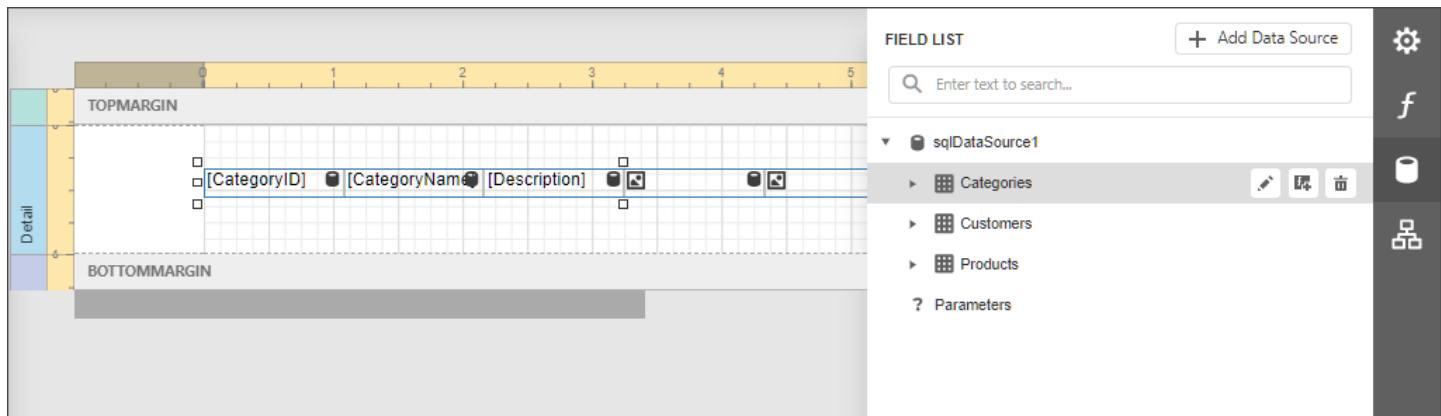
Drop a data field from this panel onto a report's surface to create a new report control bound to the corresponding field.



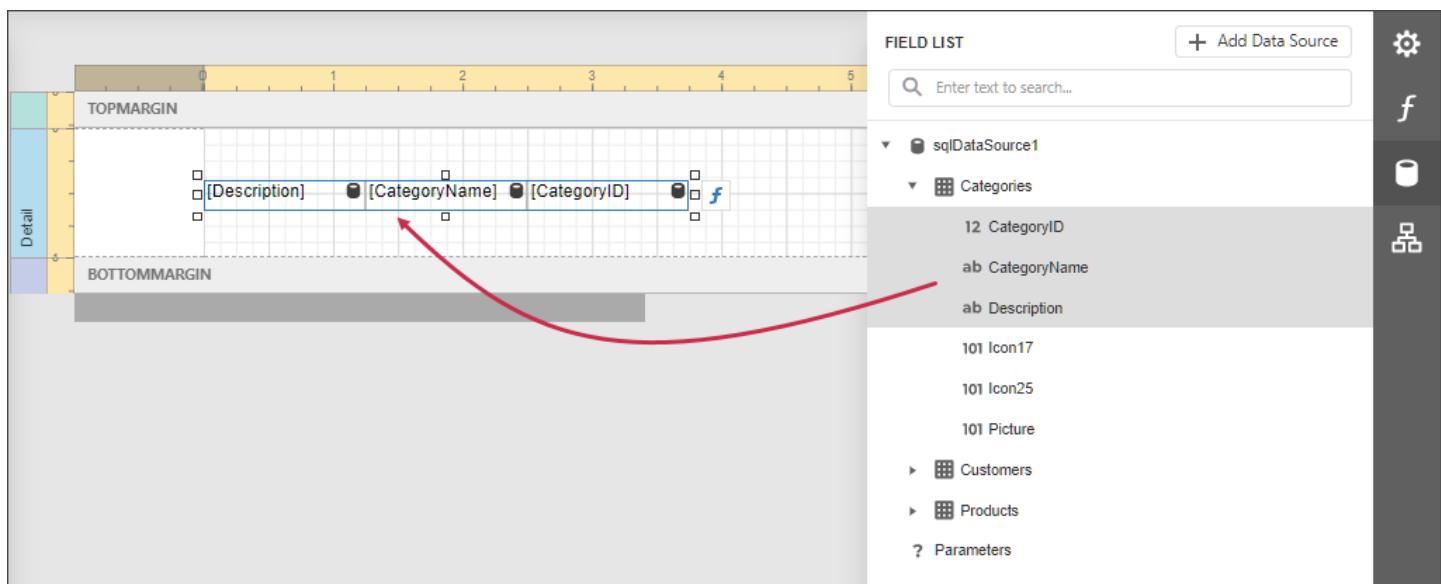
Drop a data field onto an existing control to bind this control to the corresponding field.



You can 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 Properties Panel

Select a report control and switch to the [Properties](#) panel. Click the **Text** property's marker and select **Text Expression** from the popup menu. Select a data field or construct a binding [expression](#) in the invoked [Expression Editor](#).

## Expression Editor



AccessibleDescription  
Background Color  
Bookmark  
Border Color  
Border Dash Style  
Border Width  
Borders  
▶ Font  
Foreground Color  
Height  
Left  
Navigation URL  
▶ Padding  
Style Name  
Tag  
**Text**  
Text Alignment  
Top  
Visible  
Width

1 [UnitPrice] \* [Quantity] \* (1 - [Discount])

Report Items
Fields
Constants
▶ Functions
Operators
Variables

Enter text to search...

▼ Report

- TopMargin
- ▶ PageHeader
- ▶ Detail
- ▶ DetailReport
- BottomMargin

OK Cancel Apply

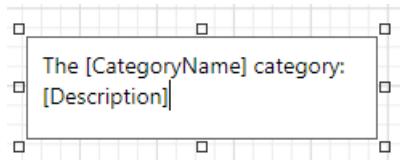
You can use the same approach to specify expressions for all the control properties. See [Shape Report Data](#) for more tutorials.

# Use Embedded Fields (Mail Merge)

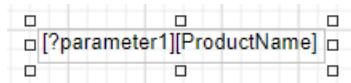
This topic describes how to provide data to report controls using the advanced **Mail Merge** binding method. This feature allows you to create templates in which data source values populate specific fields while other text remains constant (that is, allows you to combine static and dynamic content within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

## Embed Fields in a Control Text

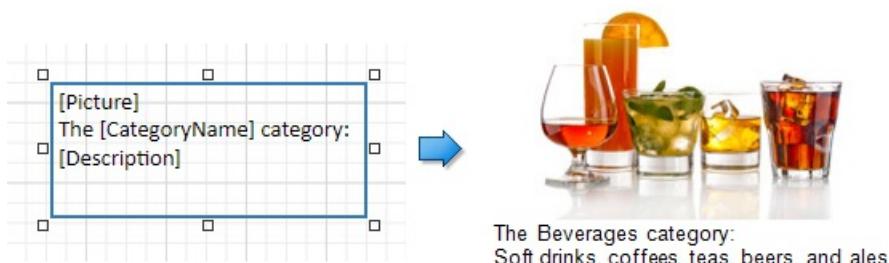
You can apply mail merge to the control's **Text** property only. Double-click the required control on the design surface to invoke the in-place editor. Insert data field names with square brackets to create embedded fields and use any prefixes or postfixes.



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



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

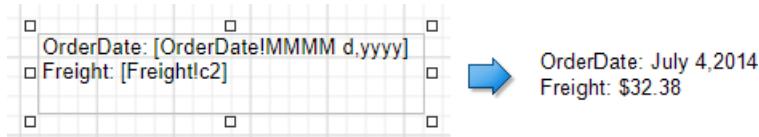


Consider the following specifics and limitations when using embedded fields:

- Field names should not use 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

You can add a format to the target data field by separating it from the field name with the **!** symbol and apply 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:

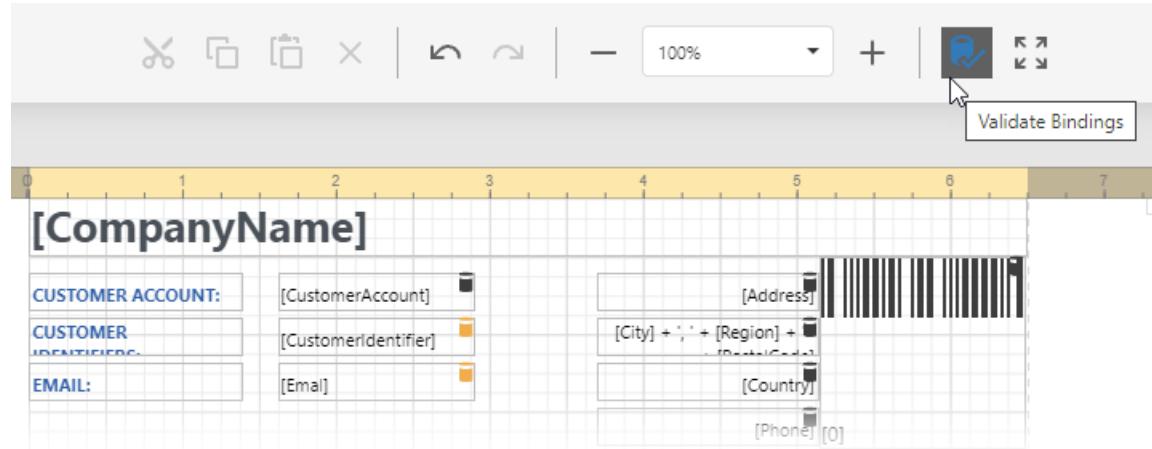
- [Barcode](#)
- [Character Comb](#)
- [Check Box](#)

- [Label](#)
- [Rich Text](#)
- [Table Cell](#)

# Validate Report Data Bindings

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

To do this, click the **Main Toolbar's Validate Bindings** command. Report controls with invalid bindings are marked with the  icon in the **Design surface**.

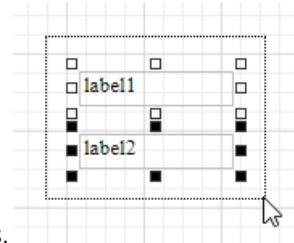


# Select Report Elements and Access Their Settings

You can click a report control or band to select it.

Do one of the following to select multiple report controls:

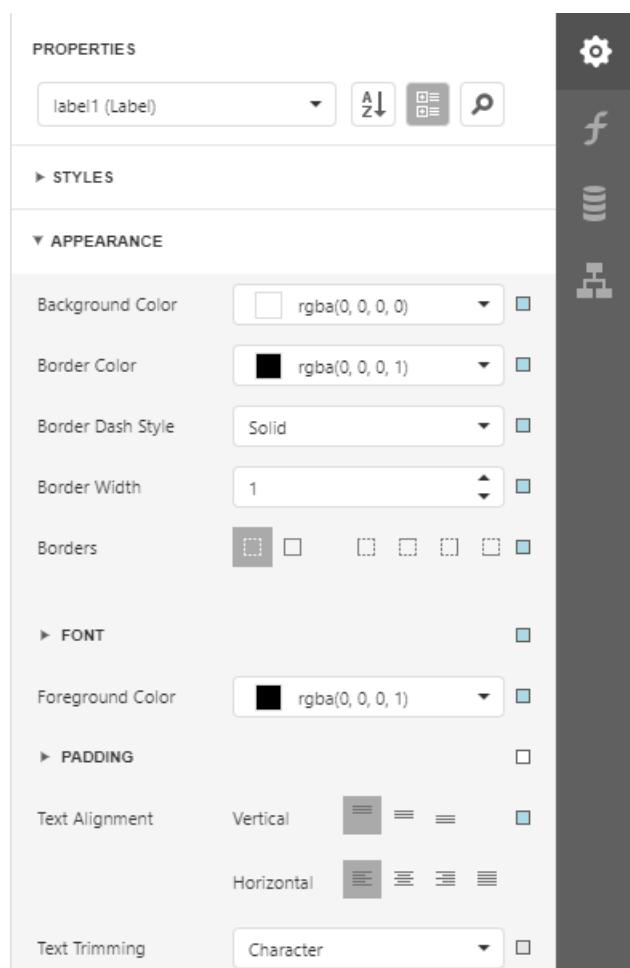
- Press and hold the CTRL key and click the controls.



- Click an empty place on a report's surface and draw a rectangle around the controls.

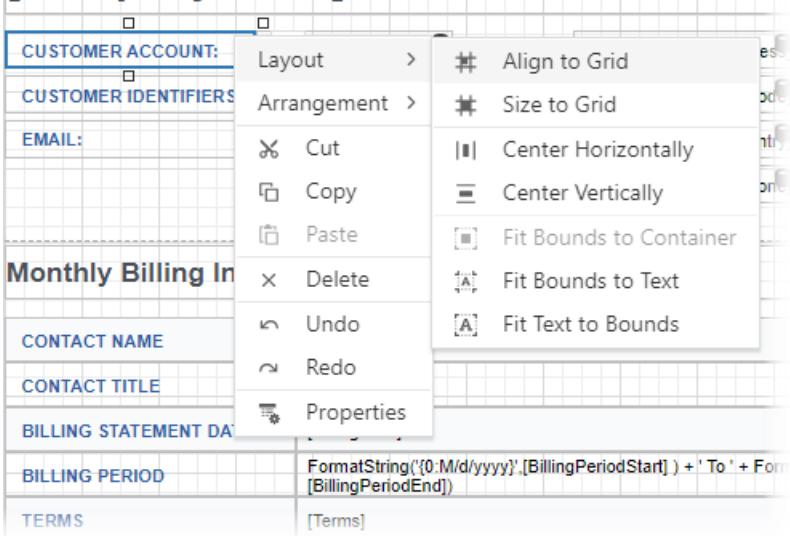
Click the gray area around the design surface to select a report.

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

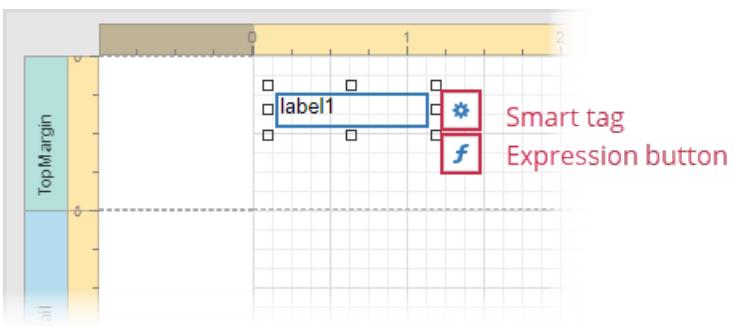


Context menus provide quick access to actions for the selected report element. Right-click a report element to invoke the context menu:

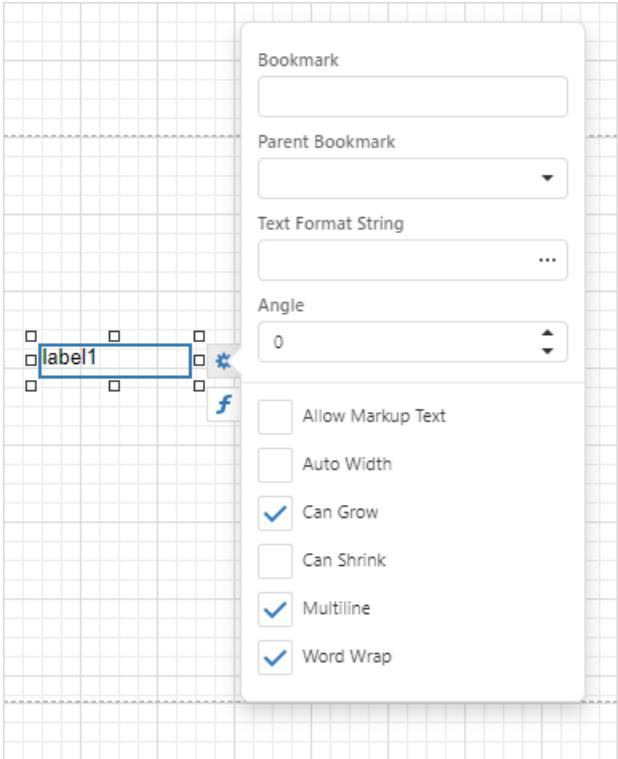
# [CompanyName]



When you select a report element (report, band, or report control), a smart tag and expression button are displayed next to the element on the Design Surface:



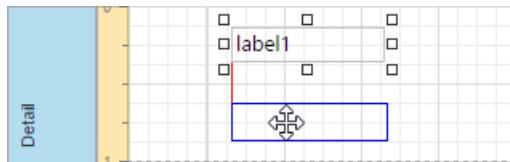
The smart tag opens a panel with the element's most commonly used properties:



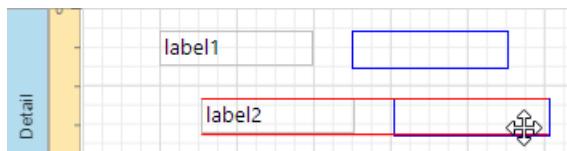
The smart tag contains properties from the element's **Task** group of the Properties Panel. Note that complex properties (for example, **Symbology** for a **Barcode** control) need to be configured in the Properties Panel.

# Move and Resize Report Elements

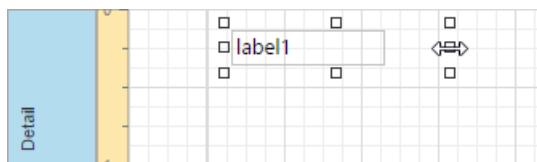
You can use the mouse or keyboard to move a report control to a new location.



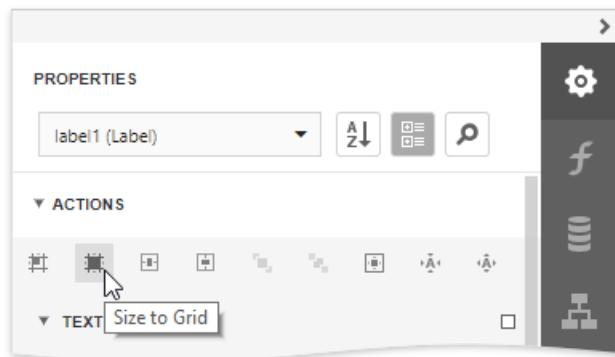
You can also [select multiple controls](#) and move them in the same way as individual report controls.



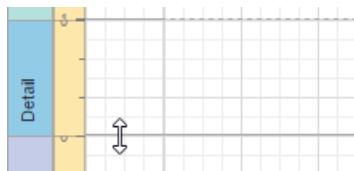
Select a control and then drag a rectangle drawn on its edge or corner to resize it.



Use the **Size to Grid** button to resize a control to the report's **Snap Grid**.



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



You can also use the [Report Explorer](#) to move a control to other bands (except **Detail Report Band**), or into a **Panel** or **Table Cell** controls. Select a control and drag it within the Report Explorer. The drop targets are highlighted when you drag the control over them.

ReportHeader1

**Suppliers**

{0:"Current Date: " dddd, dd MMMM yyyy}

Company **[CompanyName]**

Contact Name:	[ContactName]	Country:	[Country]
Contact Title:	[ContactTitle]	Region:	[Region]
Phone:	[Phone]	City:	[City]
Fax:	[Fax]	Postal Code:	[PostalCode]
Home Page:	Replace([HomePage], '#', '')		
Address:	[Address]		

Detail

DetailReportBand

DetailReport1

Product Name	Product ID	Category	Quantity per Unit	Unit Price	Discontinued
[ProductName]	[ProductID]	[CategoryName]	[QuantityPerUnit]	[UnitPrice]	

DetailReport2

OrderID	Quantity	Discount	Total
Unit price:	[UnitPrice]		
[OrderID]	[Quantity]	[Discount]	[OrderDetailsTotal]

Grand total:

[CompanyName]  
{0} of {1} pages

Total  
{0} of {1} page.

**DevExpress™**

xrLine1

lbTitle

xrPageInfo2

Detail

DetailReportBand

BottomMargin

xrPictureBox4

xrPageInfo1

xrPageInfo3

xrLabel1

xrLabel2

Styles

Cross-Band Controls

Components

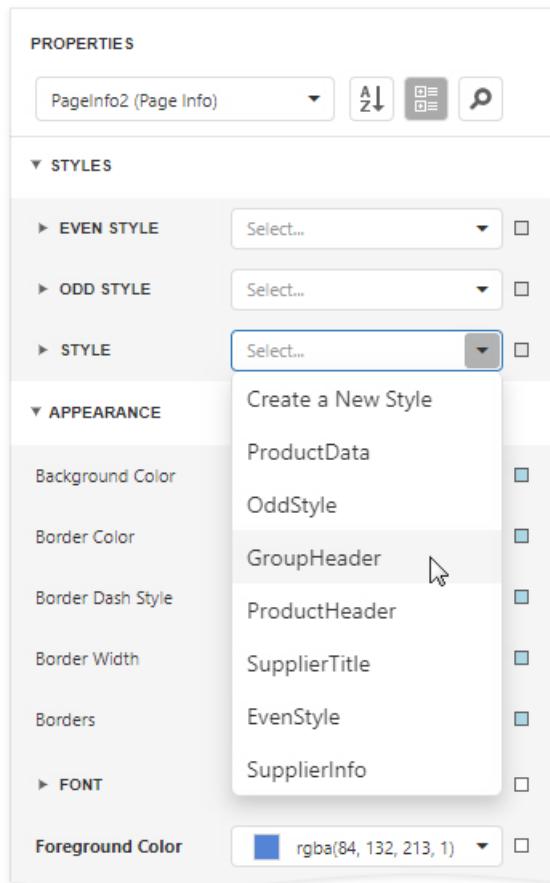
**NOTE**

You can drag the **Table Of Contents** only to the **Report Header Band** and **Report Footer Band**.

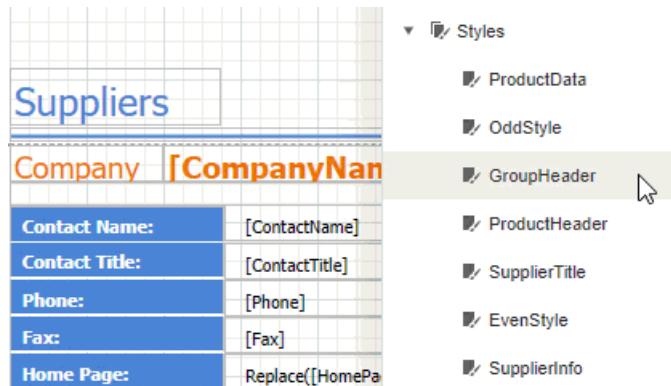
See [Arrange Report Controls](#) for information about tools that help you align report controls to each other and layout edges.

# Apply Styles to Report Elements

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



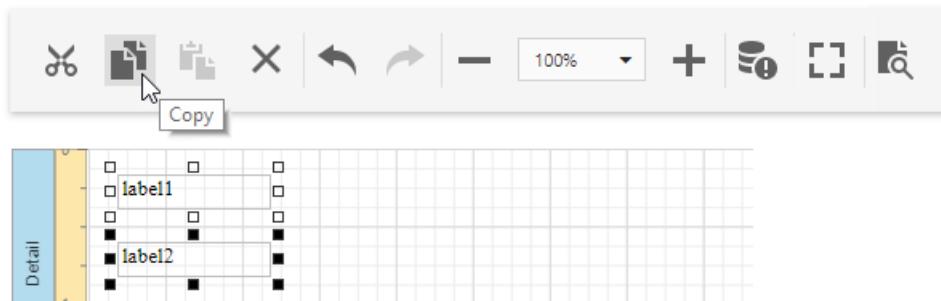
As an alternative, you can drag a style from the [Report Explorer](#) onto a control.



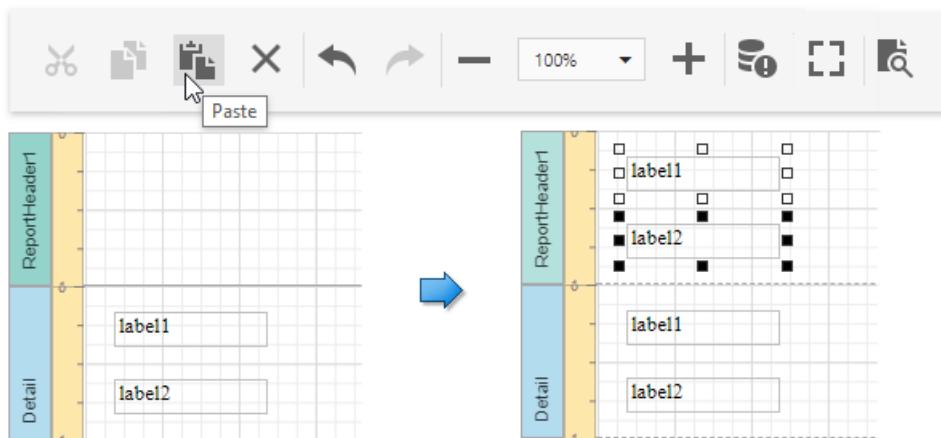
# Copy Report Controls

You can use the [Main Toolbar](#)'s commands or keyboard shortcuts to clone an existing report control. A cloned control has the same settings as the initial control.

Select report controls and click the **Copy** button or press CTRL + C to copy report controls to the clipboard.

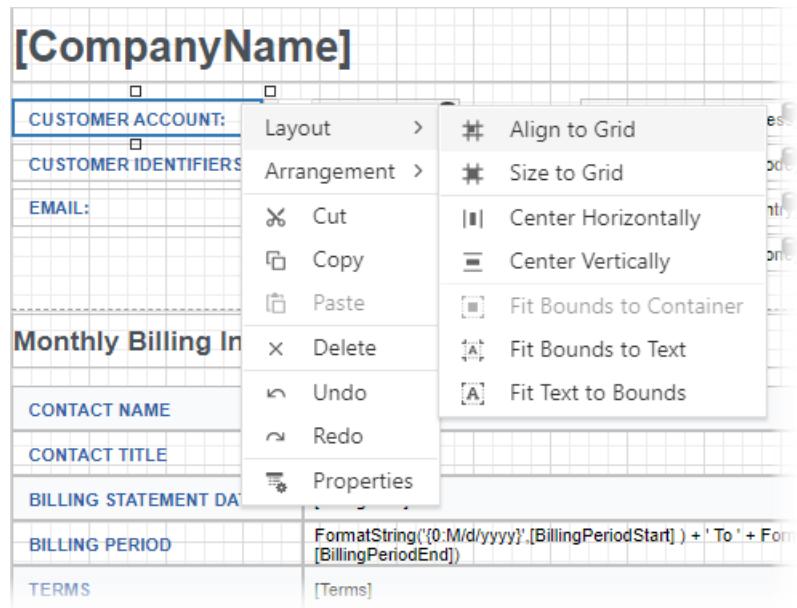


Select a new container or band and click the **Paste** button or press CTRL+V to paste these controls.

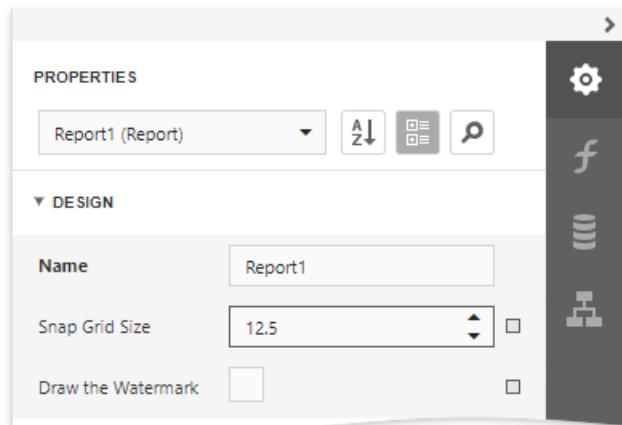


# Arrange Report Controls

You can align report controls to each other, change the report element's size, change the stacked elements' order, and so on. Select a command from the control's context menu:



The design surface displays a visual grid that allows you to determine elements' size and location in a report. Use the **Snap Grid Size** property to customize the grid's size.



You can use the **Align to Grid** action to align the selected controls to the grid's cells.

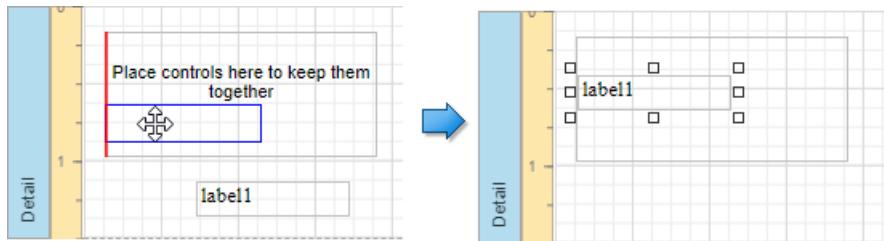
The Report Designer displays snap lines when you move or resize report controls. These lines appear around the report controls and indicate the distance to other report elements (controls and bands).



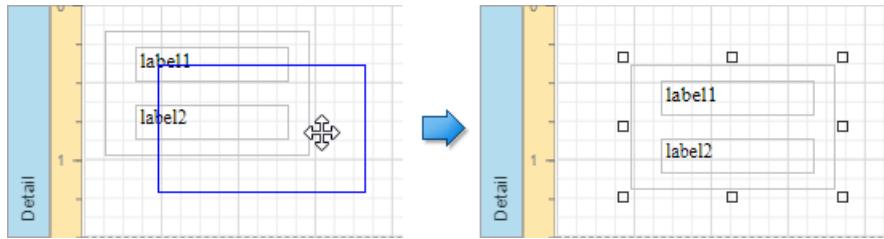
To avoid snapping controls, hold down ALT if you move or resize controls using the mouse.

# Add Report Controls to Containers

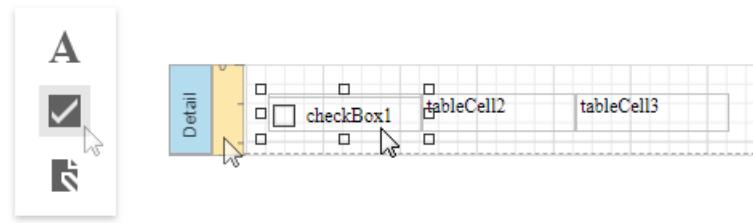
The [Panel](#) control allows you to place various report controls on it to combine them into a group.



You can use this panel to move, copy, change appearance settings, etc. instead of adjusting individual controls.



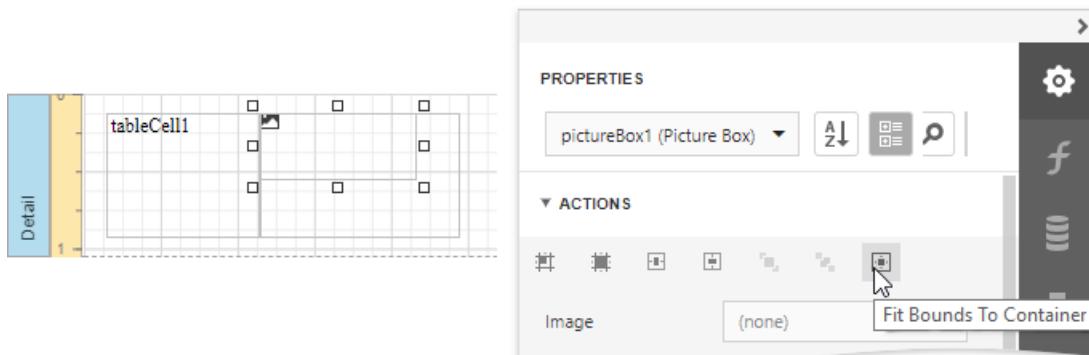
A [table cell](#) can also act as a container for other controls.



Both panel and table cell cannot contain the following report controls:

- [Cross Tab](#)
- [Subreport](#)
- [Page Break](#)
- [Table of Contents](#)
- [Cross-Band Line and Box](#)

If a panel or table cell includes only one control, you can position it within the container using the **Fit Bounds to Container** command. This command resizes the control so that it occupies all the available space (excluding borders).



# Validate the Report Layout

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

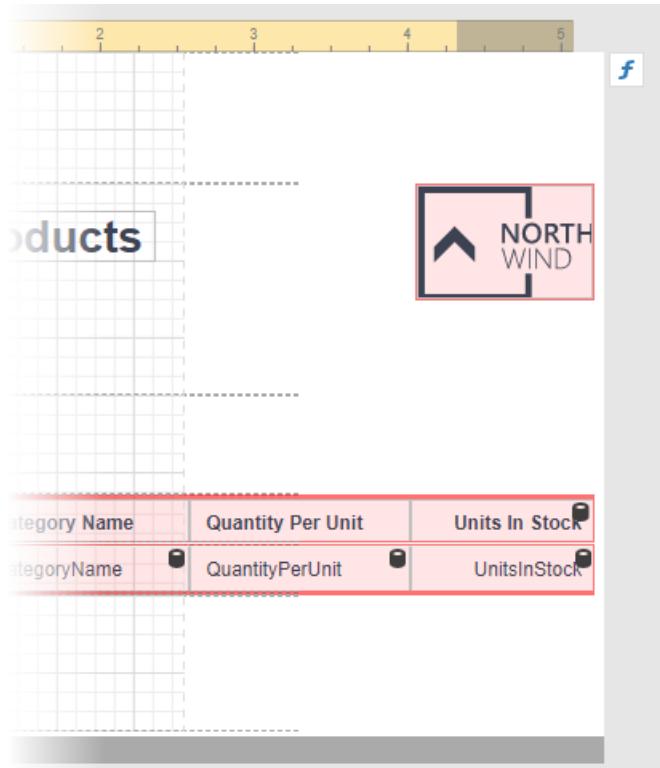
- **Avoid intersecting controls**

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.



- **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.



# 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](#)

The following controls add PDF-specific features to reports:

- [PDF Content](#)
- [PDF Signature](#)

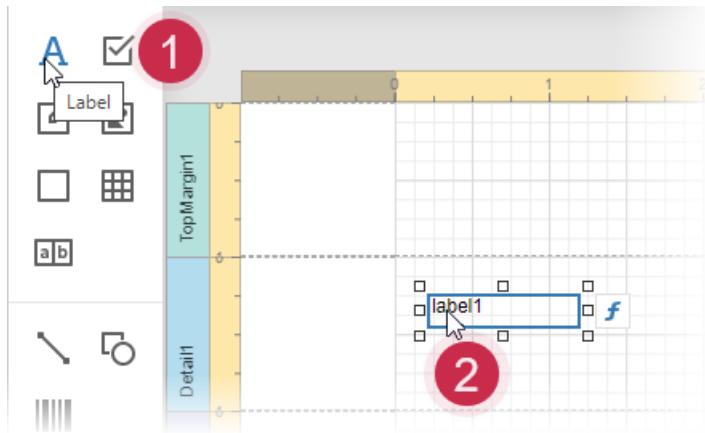
Use the following controls to display auxiliary information in a report:

- [Table of Contents](#)
- [Page Info](#)

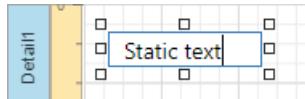
# Label

## 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 desired static text.



Press **CTRL+Enter** to submit text changes and exit the label's in-place editing 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. Switch to the [Properties](#) panel, expand the **Label Tasks** category and click the **Text** property's marker. Select **Text Expression** from the popup menu. Then select a data field or construct a binding [expression](#) in the invoked [Expression Editor](#).

A screenshot of the Report Designer showing the 'label1' control selected. To the right is the 'Properties' panel with the 'label1 (Label)' selected. Under the 'Text' section, the 'Text Expression' dropdown is open, indicated by a red circle. Below it is a 'Reset' button. At the bottom of the properties panel is an 'Angle' input set to 0. To the left is the 'Expression Editor' window. It has a title bar 'Expression Editor' and a main area with a table:

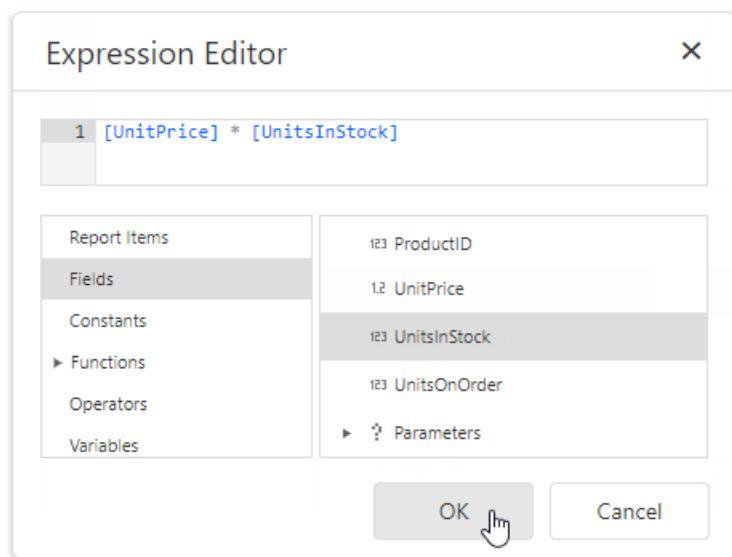
1 [ProductName]
-----------------

Below this is a list of available fields:

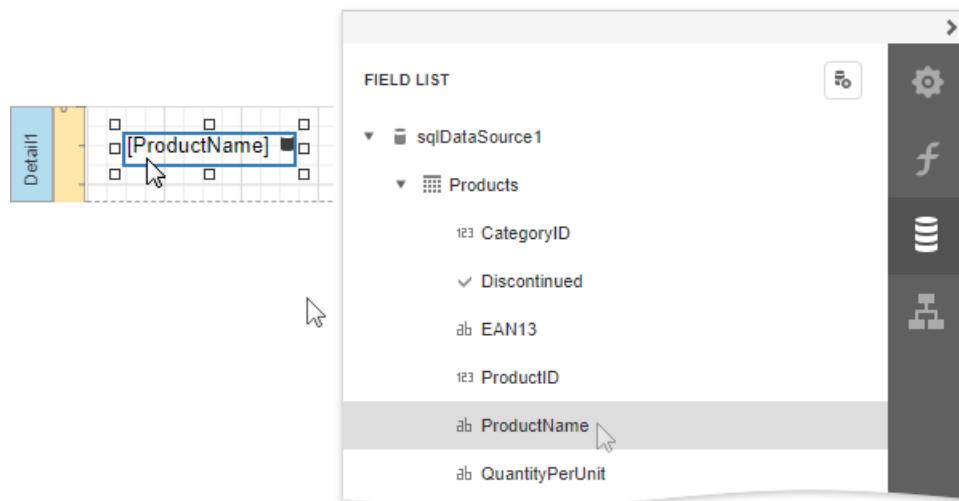
Report Items	123 ProductID
Fields	ab ProductName
Constants	ab QuantityPerUnit
► Functions	123 ReorderLevel
Operators	123 SupplierID
Variables	

At the bottom of the Expression Editor are 'OK' and 'Cancel' buttons, with 'OK' being highlighted with a red circle.

You can use the Expression Editor to construct a complex binding expression that involves two or more data fields.

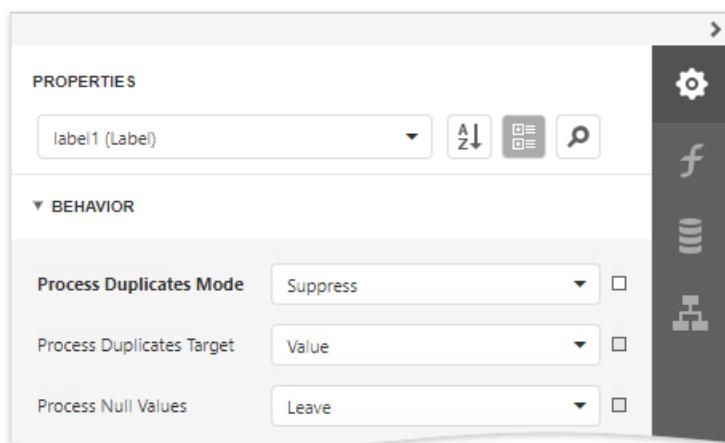


You can also drag and drop a numeric or text field from the [Field List](#) to create a new label bound to this field.

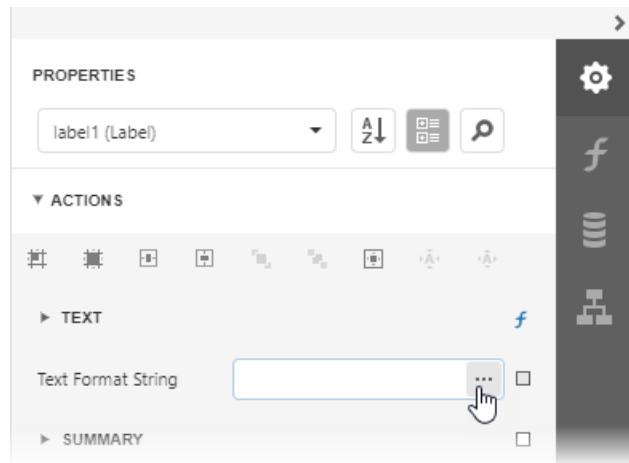


See the [Bind Controls to Data](#) topic for more information.

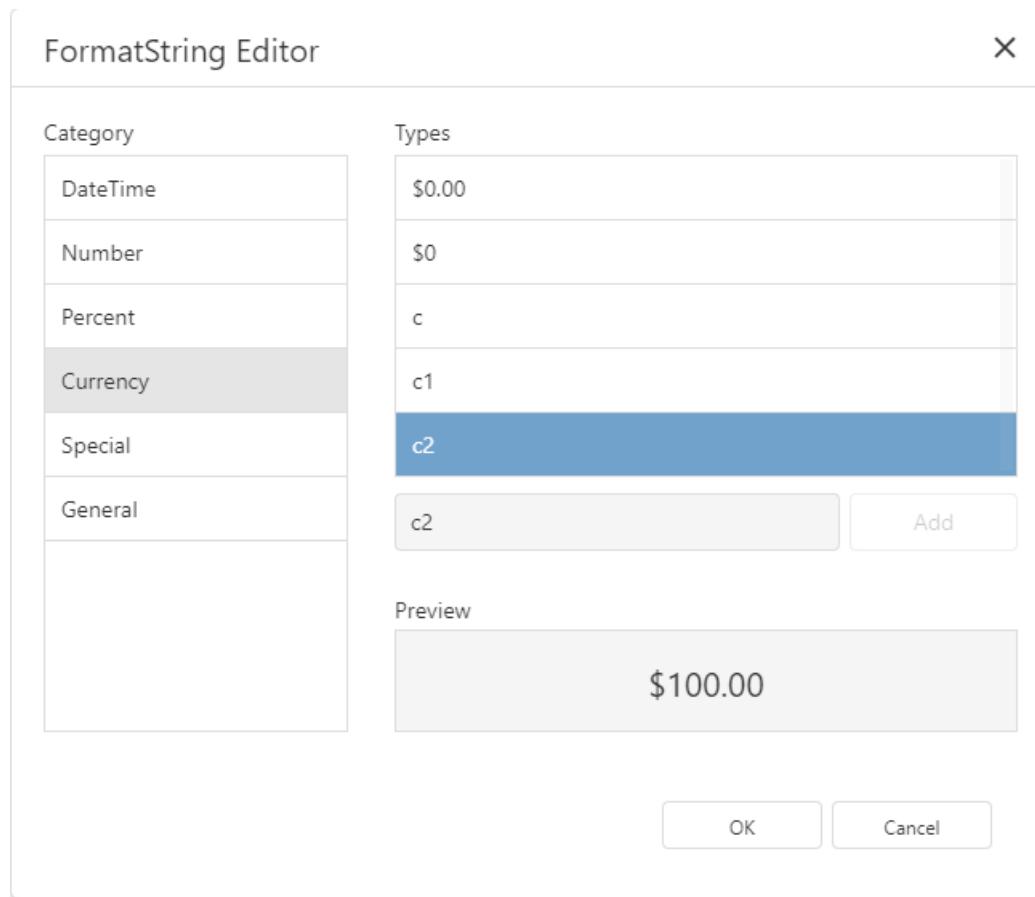
The **Process Duplicates Mode**, **Process Duplicates Target** and **Process Null Values** options enable you to hide a control when a duplicated or null value appears in an assigned data source.



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

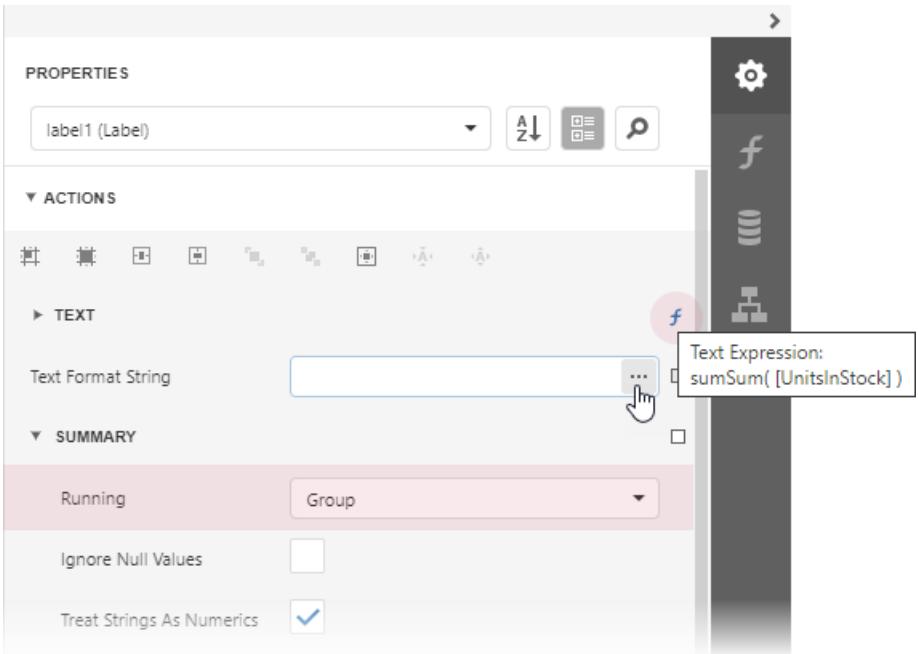


The ellipsis button invokes the **FormatString** editor:

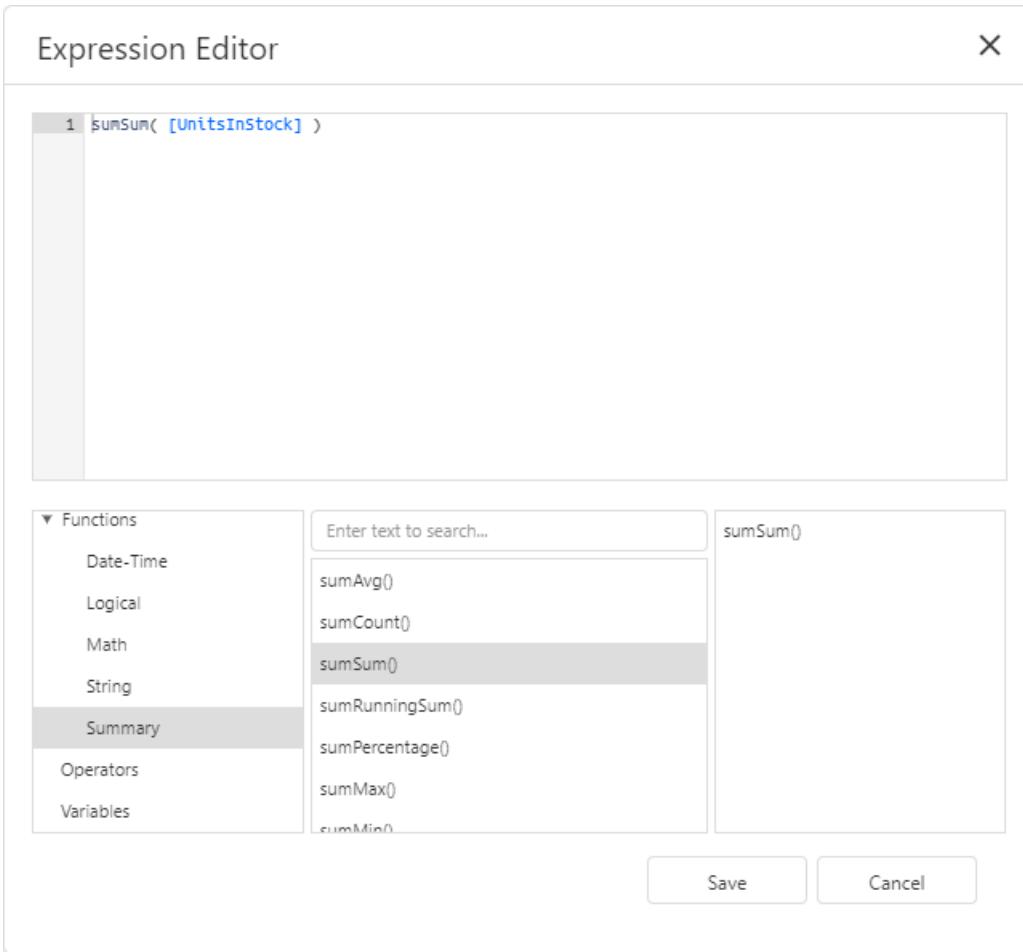


## Display Summaries

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



The ellipsis button invokes the Expression Editor:

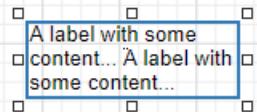
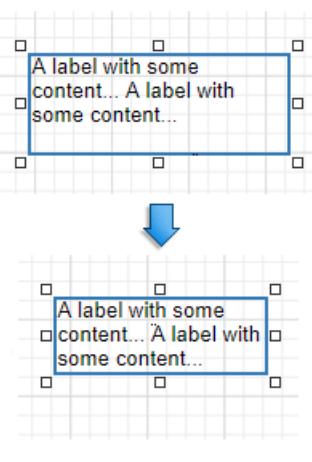


## Adjust the Label Size and Content

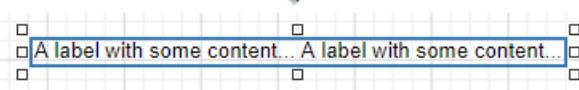
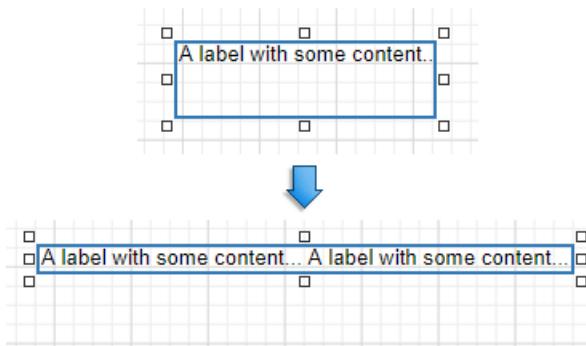
### Static Content

You can change a label's size to fit its static text using the **Fit Bounds To Text** command from the label's context menu:

- If the **Word Wrap** option is enabled, the command displays control content in multiple lines. It reduces control height and adjusts its width to fit its content.

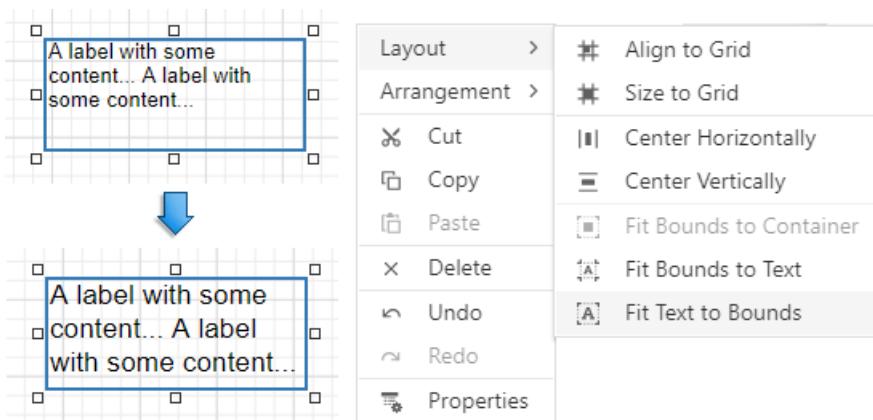


- If the **Word Wrap** option is disabled and the control's content is partially visible, the command adjusts the control's size to display this content.



This 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

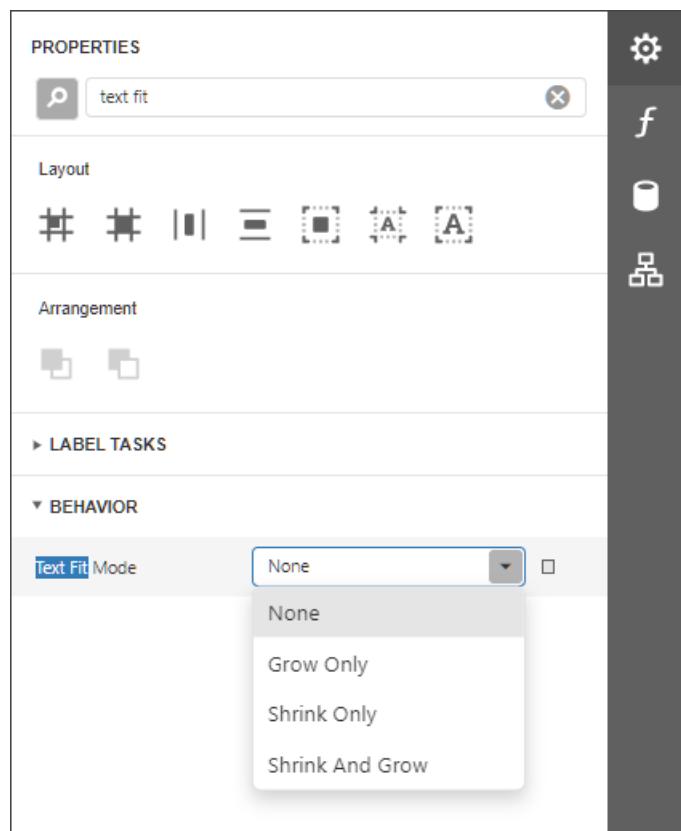
The **Can Grow** and **Can Shrink** properties allow you to increase or decrease the control's height according to its content in Print

Preview mode.

CAN GROW IS ENABLED	CAN GROW IS DISABLED
A control with some lengthy content...	A control with some lengthy content... A control with some lengthy content... A control with some lengthy content...
CAN SHRINK IS ENABLED	CAN SHRINK IS DISABLED
A control with some content...	A control with some content...

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

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.

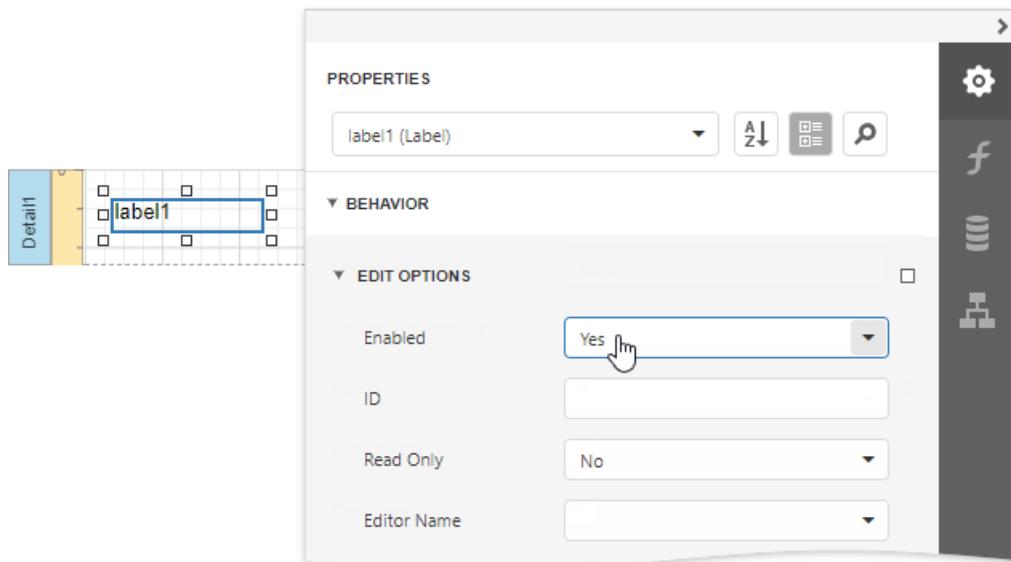


TEXT FIT MODE = NONE	TEXT FIT MODE = GROW ONLY	TEXT FIT MODE = SHRINK ONLY	TEXT FIT MODE = SHRINK AND GROW
A label with some lengthy content...			
A label with some lengthy content...			

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

## Interactivity

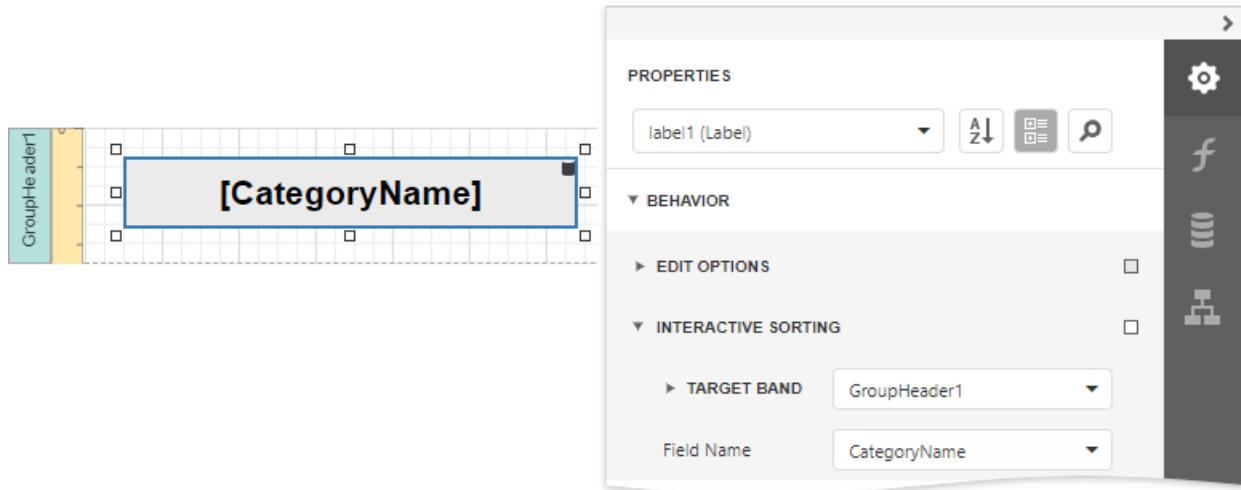
Set the **Enabled** option in the **Edit Options** category section to **Yes** to edit a label's content in Print Preview mode.



Clicking this label in a previewed document invokes the appropriate editor.



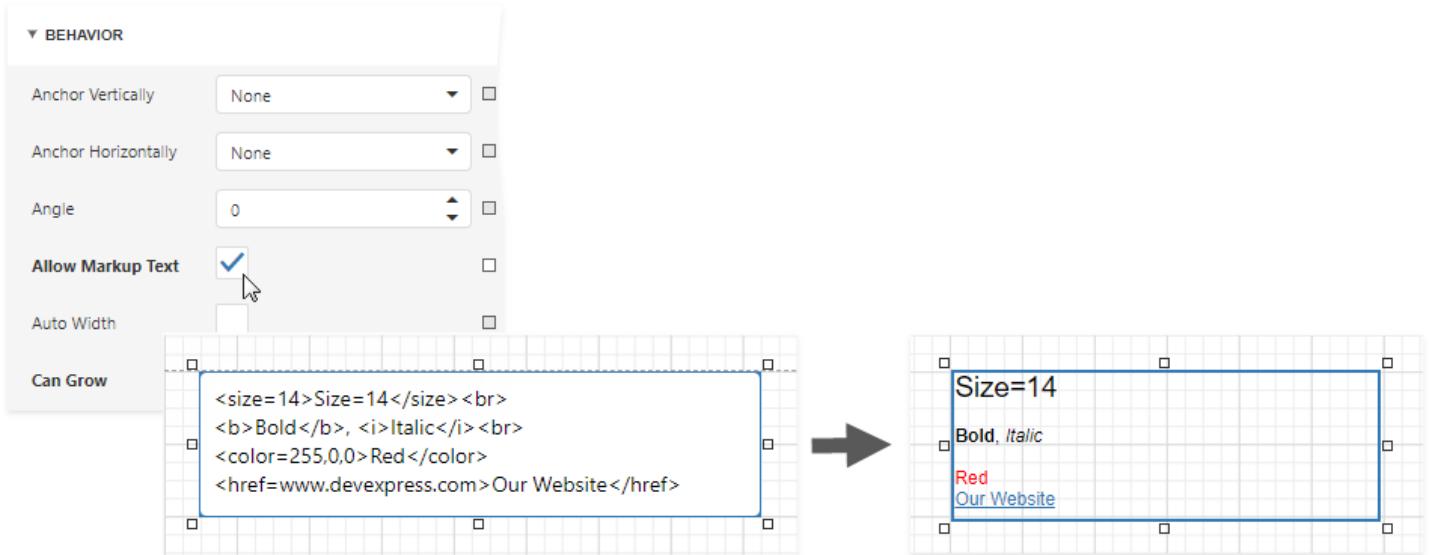
Use the label's **Interactive Sorting** option to click this label in Print Preview to sort report data. Set the **Target Band** property to the Group Header or Detail band, and specify the data field in the **Field Name** property.



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 <b>WordWrap</b> property to use this tag.
<nbsnbsp>	-	Inserts a space.
<color=value>	</color>	Specifies the text color.
<backcolor=value>	</backcolor>	Specifies the background color.
<size=value>	</size>	Specifies the font size.
<b>	</b>	Defines bold text.
<i>	</i>	Defines italic text.
<s>	</s>	Defines strikethrough text.
<u>	</u>	Defines underlined text.
<image=value>	-	Inserts an image from the report's named image collection. Supports both raster images and SVG images. Use the report's <b>Image Resources</b> property to provide images and reference them by their <b>Id</b> . The <b>image</b> tag's <b>size</b> 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 <b>size</b> attribute after the tag's value followed by the ";" character.
<href=value>	</href>	Displays a hyperlink. The value string specifies the hyperlink source, and the string between the opening and closing tags is the text to display.

When a report is exported to XLS or XLSX, the following rich-text content is converted from labels into Excel-native rich-text content:

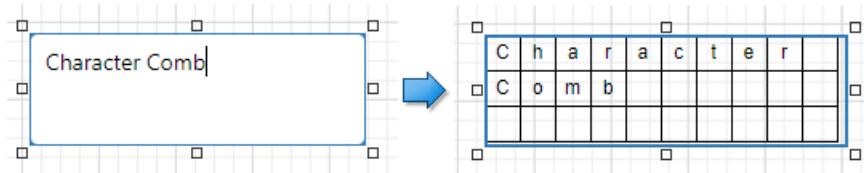
Text format	<b>, <i>, <u>, <s>
-------------	--------------------

Line break	 
Non-breaking space	<nbsp>
Font	<font=[ <b>font name</b> ]>
Font size	<size=[ <b>font size</b> ]>
Foreground color	<color=[ <b>color</b> ]>

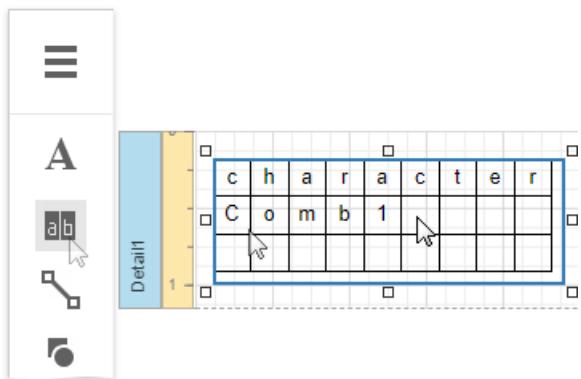
# Character Comb

## 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.



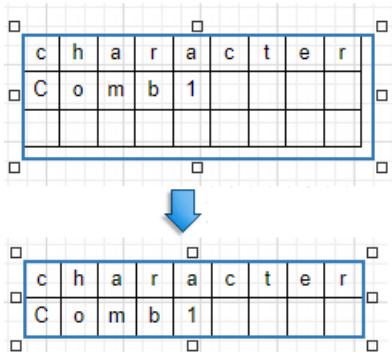
The number of cells displayed by the control in Print Preview depends on the **Can Shrink** and **Auto Width** settings.

- 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.

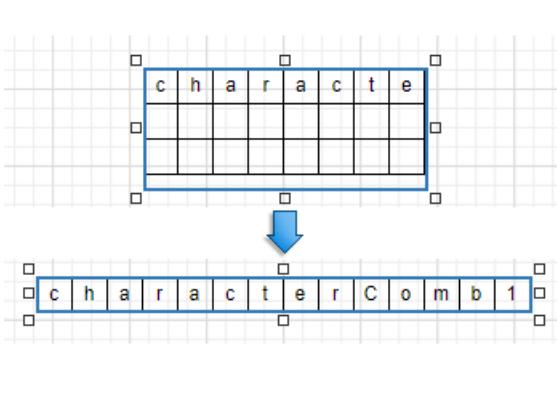
See the [Content Layout and Position](#) section to learn more on using these properties.

You can also adjust the character comb's size to match its characters using the **Fit Bounds To Text** command from the control's context menu:

- 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.

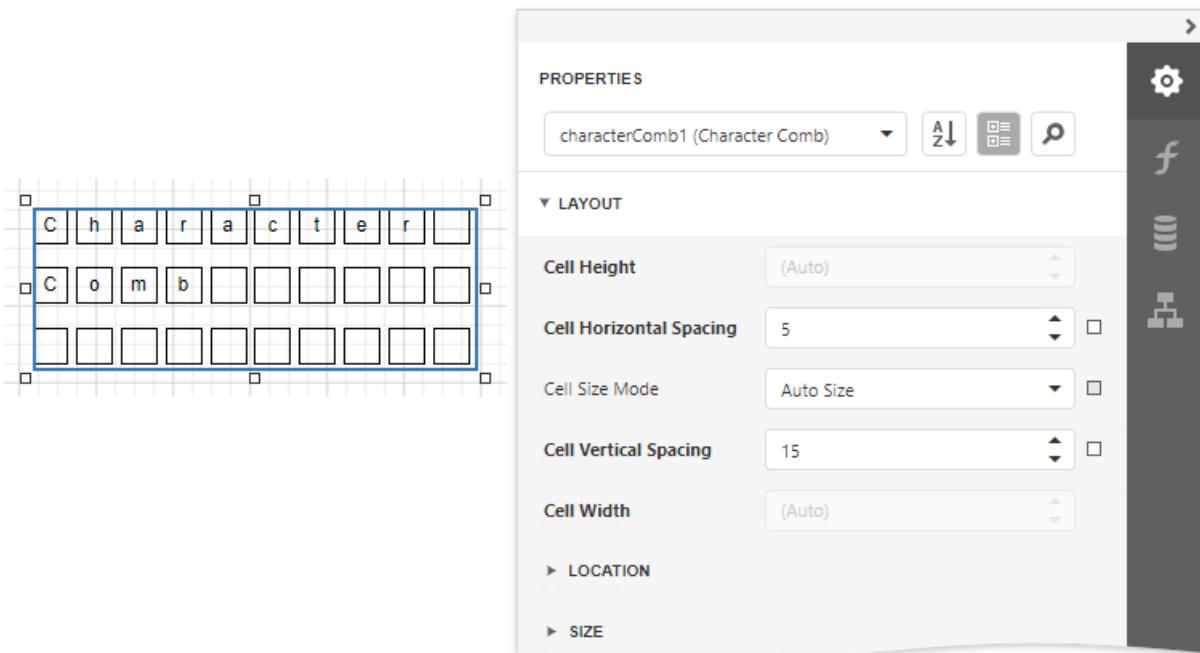
## Main Options

The following properties are specific to the Character Comb control:

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

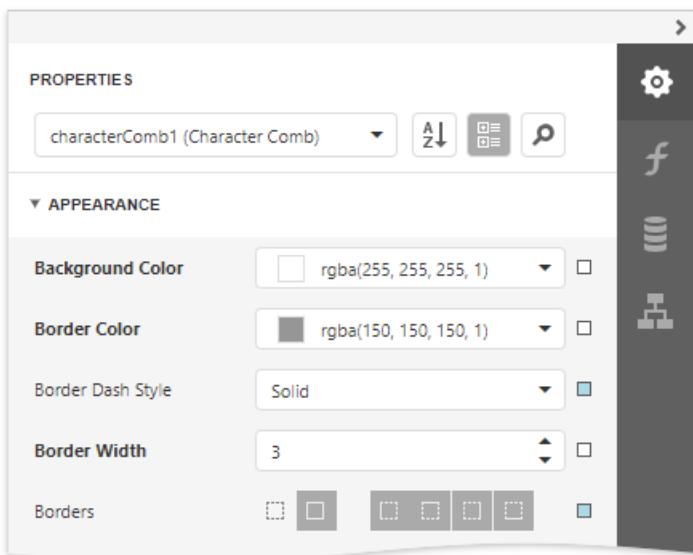
Specify the spacing between adjacent cells (measured in [report units](#)). These values do not depend on the specified border width of a control.

The following image illustrates a Character Comb with **Cell Vertical Spacing** set to **15** and **Cell Horizontal Spacing** set to **5**.



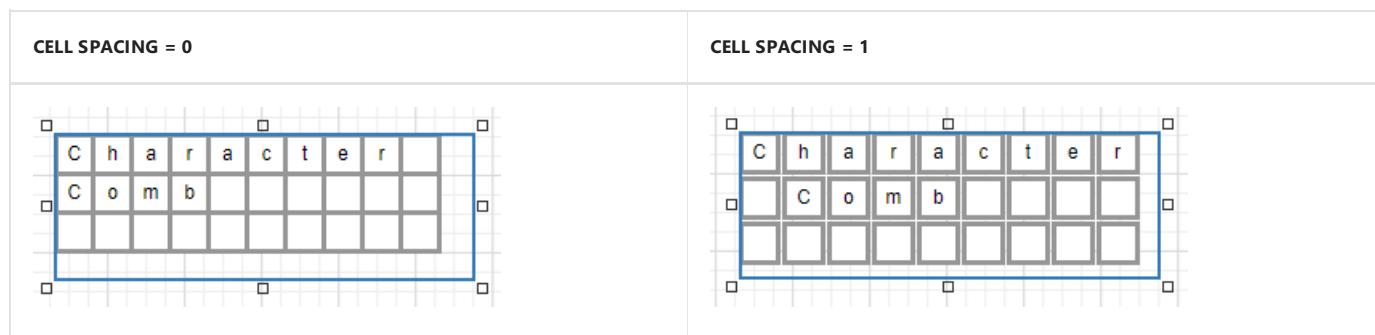
- **Border Width**

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

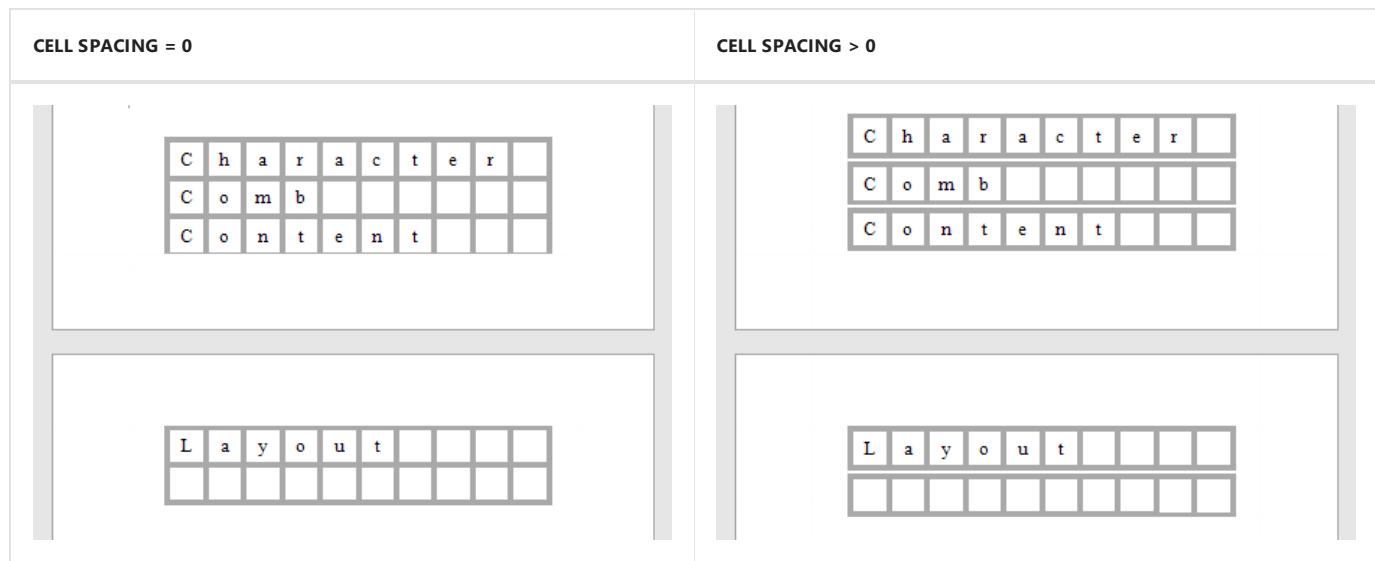


When the cell spacing is set to zero, the borders of adjacent cells are merged (i.e., the actual border width is not doubled).

The following images illustrate how cell spacing affects the **Border Width** property behavior:



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.

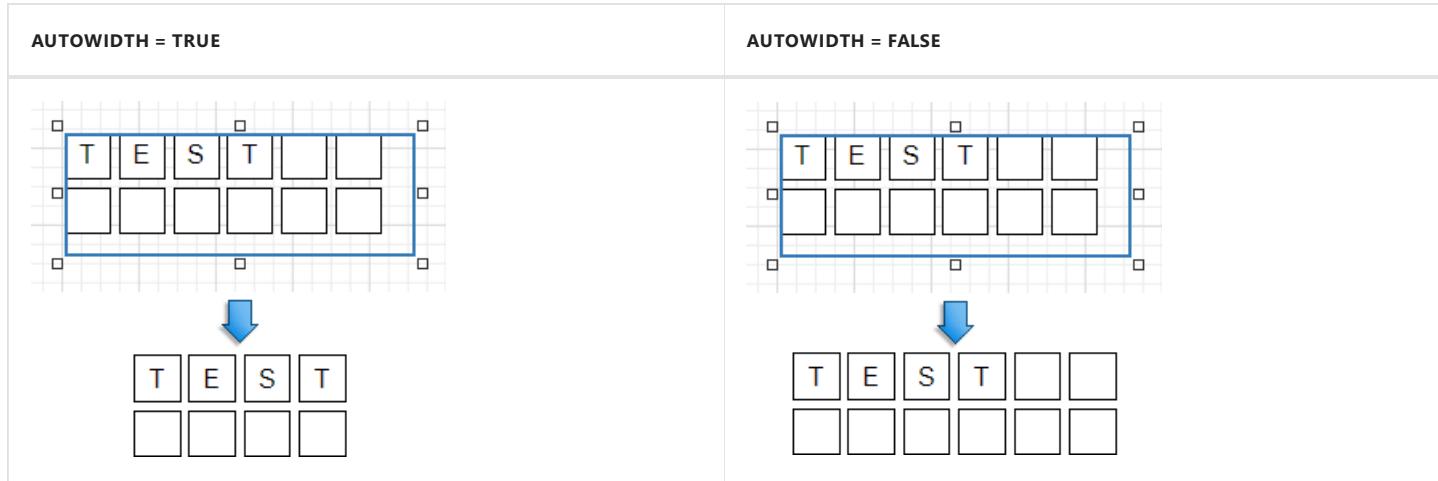
With this setting, the following behavior is expected:

- 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.

## Content Layout and Position

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

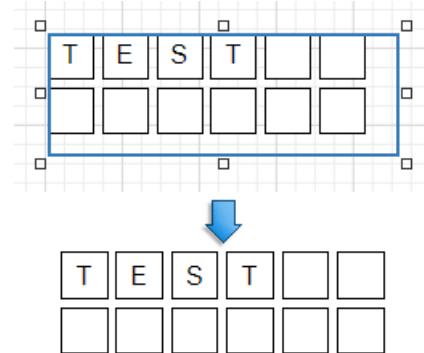
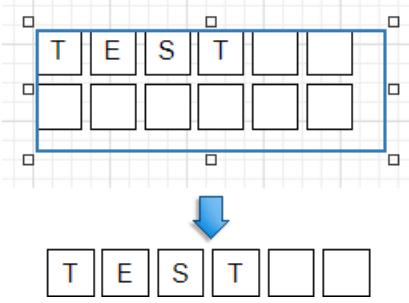
The following image illustrates the behavior of the **Auto Width** property that specifies whether or not the width of a control depends on its text. Expand the **Character Comb Tasks** or **Behavior** category to specify this property.



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. Expand the **Character Comb Tasks** or **Behavior** category to specify this property.

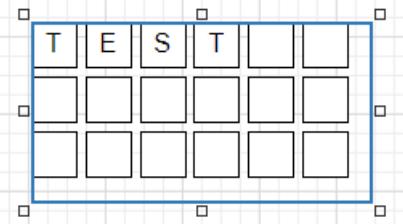
CANSHRINK = TRUE

CANSHRINK = FALSE

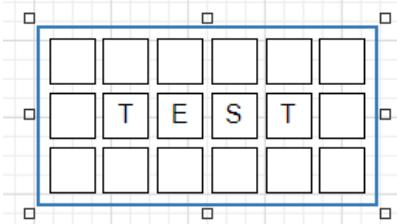


The **Text Alignment** property specifies the alignment of text within a control. Expand the **Appearance** category to specify this property.

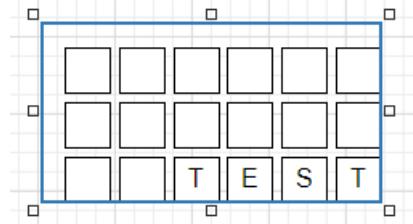
TEXTALIGNMENT = TOP LEFT



TEXTALIGNMENT = MIDDLE CENTER



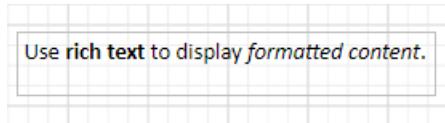
TEXTALIGNMENT = BOTTOM RIGHT



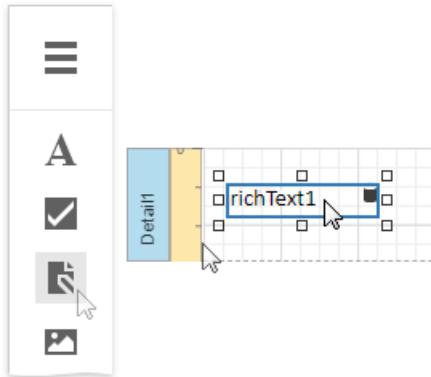
# Rich Text

## Overview

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

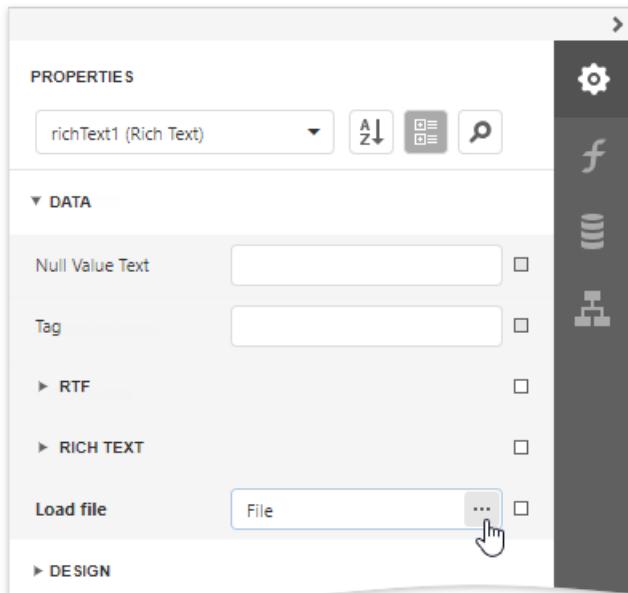


To add this control to a report, drag the **Rich Text** item from the [Toolbox](#) onto the report's [Design Surface](#).



## Load Content from a File

You can load RTF or HTML content from an external file. Expand the **Data** category and click the **Load file** property's ellipsis button.



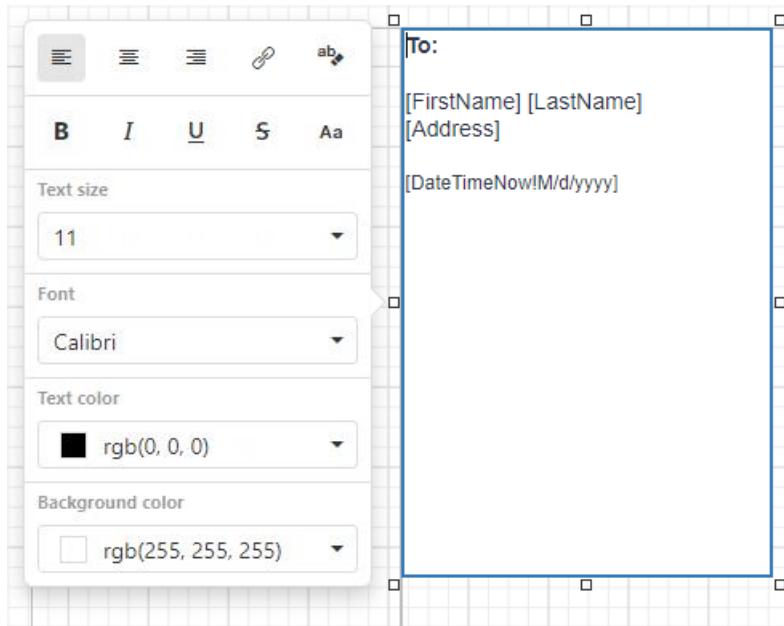
In the invoked **Open** dialog, select the file and click **Open**.

Rich Text supports the following file formats:

- RTF
- DOCX
- TXT
- HTML

## Edit Content in Place

Double-click a Rich Text control and type text in the invoked in-place editor. A ribbon with text format options appears next to the editor.



Rich Text supports the following edit operations:

- **Undo/Redo History**

The undo/redo history contains the last 100 operations and is available until you exit the in-place edit mode.

- **Clipboard Operations**

You can use clipboard operations (Cut, Copy, and Paste) to manipulate text and images.

- **Hyperlinks**

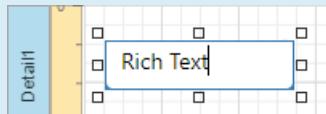
You can create and modify hyperlinks.

- **Drag and Drop**

Use Drag and Drop to move images and text within the editor.

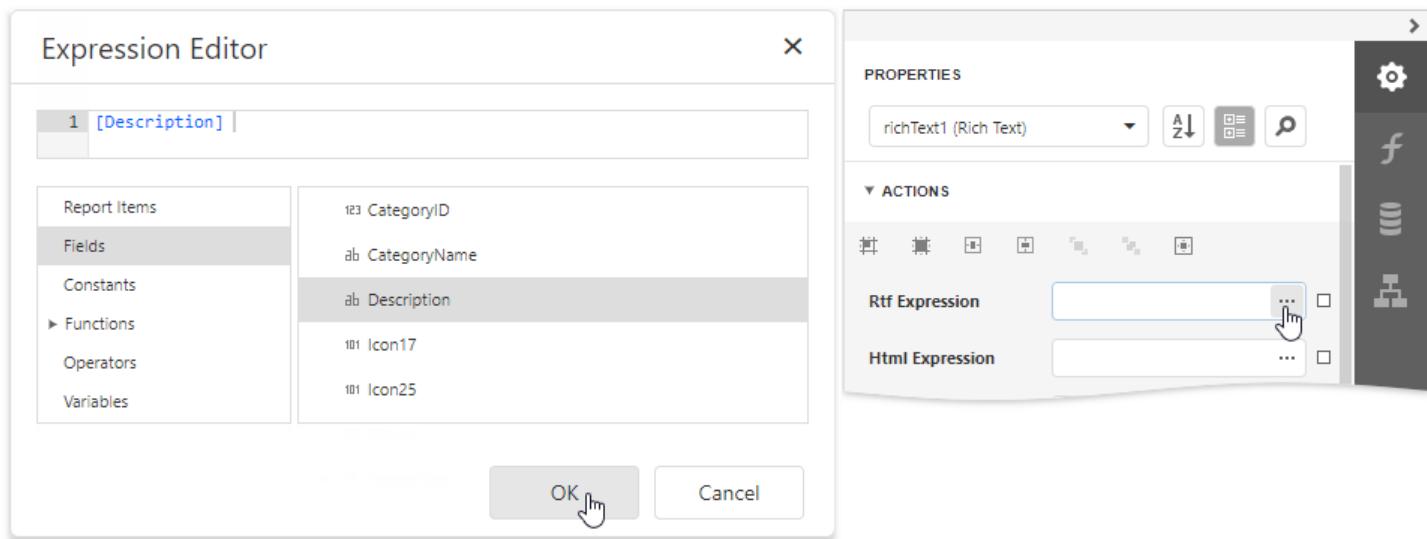
### NOTE

The legacy Rich Text does not provide a ribbon with text format options. Its in-place editor allows you to enter only plain text. Bind the control to a data field that provides RTF or HTML content to display formatted text.



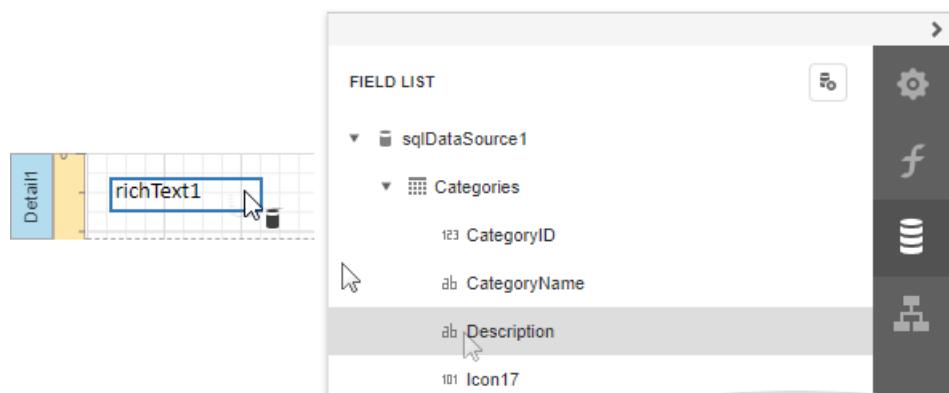
## Bind to Data

Click the **Rtf Expression** or **Html Expression** option's ellipsis button to invoke the [Expression Editor](#). Use this editor to bind the control to a data field or construct a complex binding expression with two or more data fields.

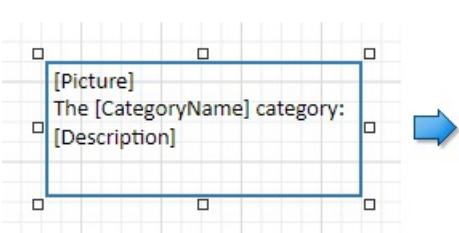


You can use HTML formatted text that contains markup tags to define text appearance. Click the **Html Expression** option's ellipsis button and enter this text in ' quotes ' in the invoked [Expression Editor](#).

Drag and drop a numeric or text field from the [Field List](#) onto the **Rich Text** control to bind it 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.

## Markup Text

### Supported Tags

The table below lists the supported HTML tags. External links are processed for inline pictures and style sheets (CSS files). The ID and Class attributes are interpreted for all tags, including the unlisted ones. These attributes are used to specify a style for content within a certain tag

TAG	ATTRIBUTES	NOTES
a	dir	
b	dir	
base		
basefont	size color face dir	
big	dir	
blockquote	dir	
br	dir	
center	dir	
code	dir	
del	cite datetime	
div	page-break-before page-break-after page-break-inside background-color border (CSS) dir	Only the <b>always</b> property value is supported for the <b>page-break-before</b> tag.
em	dir	

TAG	ATTRIBUTES	NOTES
font	size color face dir	
h1-h6	align dir	
head		
html		
hr	align color noshade size width	
i	dir	
ins	cite datetime	
img	align src height width	If the <b>align</b> attribute is not specified, the image is considered as inline.
li	type value dir	
link	href type media dir	
meta		
ol	type value align dir	
p	align dir	
script		Text inside this tag is ignored.
small		
span		
strike	dir	

TAG	ATTRIBUTES	NOTES
strong	dir	
style		
sub	dir	
sup	dir	
table	align bgcolor border bordercolor cellpadding cellspacing dir width	The <b>dir</b> attribute reorders table columns.
td	align bgcolor bordercolor colspan height nowrap rowspan text-align valign width	The <b>align</b> tag is supported in the Internet Explorer only. The <b>Rich Text</b> control's interpretation of the <b>bordercolor</b> attribute is different from the HTML browser.
th	any allowed	
tr	align bgcolor bordercolor height text-align valign	The <b>align</b> attribute is supported in the Internet Explorer only.
title		Text inside this tag is ignored.
u	dir	
ul	dir	

## Unsupported Tags

- <base> tag with *href* attribute;
- <div> tag with *border*, *align* and *float* CSS attribute;
- <li> tag with *list-style-image* CSS attribute;
- <margin> tag;
- <tab> tag;
- <table> tag with *cols* attribute;
- <td> tab with *bordercolor* and *nowrap* attributes;
- *!important* declaration;
- *word-wrap* and *break-word* css properties;
- css3 shapes;

- <ui> tag with *type* attribute.

## Export to Excel

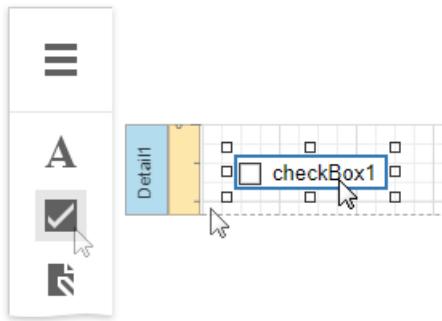
When a report is exported to XLS or XLSX, the following rich-text content is converted from **Rich Text** controls into Excel-native rich-text content:

	<b>HTML TAGS AND RTF EQUIVALENTS</b>
Text format	<b>, <i>, <u>, <s>, <strong>, <em>
Line break	 
Non-breaking space	&nbsp;
Font	<font face=[ <b>font name</b> ]>
Font size	<font size=[ <b>font size</b> ]>
Foreground color	<font color=[ <b>color</b> ]>

# Check Box

The **Check Box** control displays the checkbox's state.

You can add this control by dragging the **Check Box** item from the [Toolbox](#) onto the report's area.

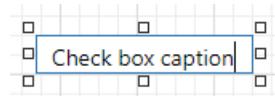


Use one of the following properties to set the checkbox's state:

- **Checked** - indicates whether the checkbox is selected (displays a check mark) or not (is empty).
- **Check State** - specifies one of the following checkbox states:

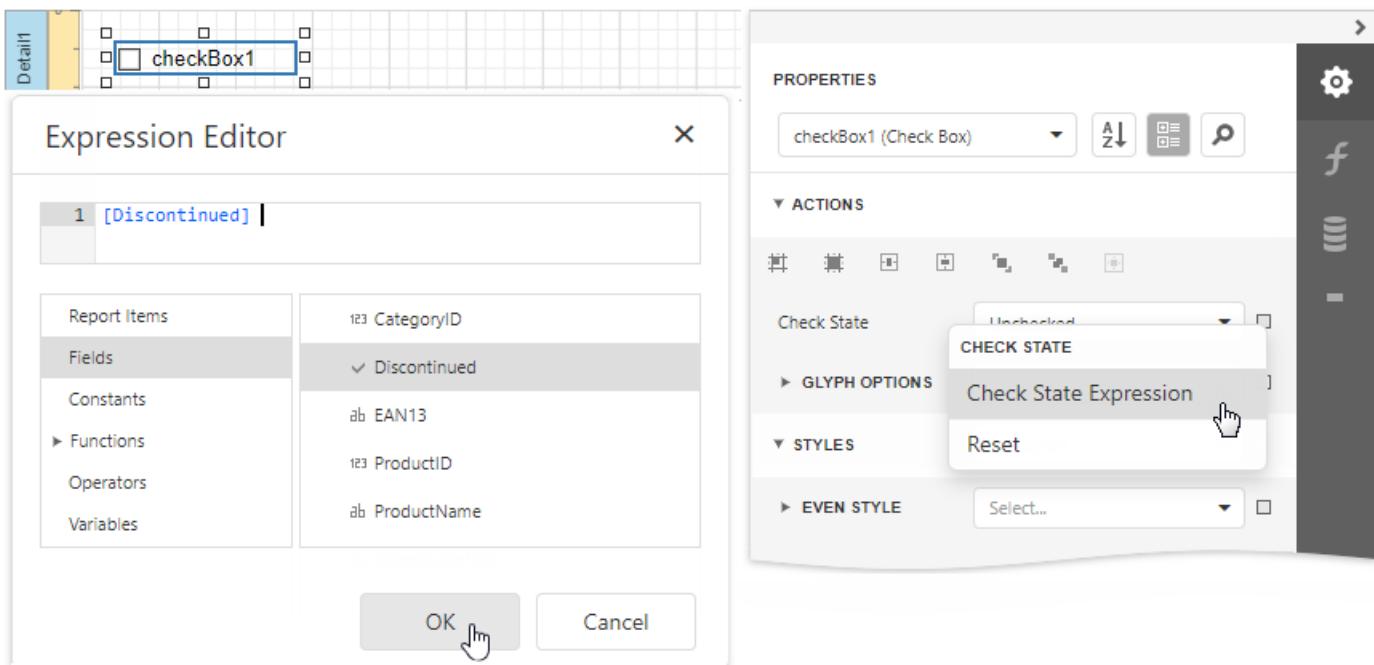
ICON	CHECK STATE
<input type="checkbox"/>	Unchecked
<input checked="" type="checkbox"/>	Checked
<input type="checkbox"/>	Indeterminate

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



## Bind to Data

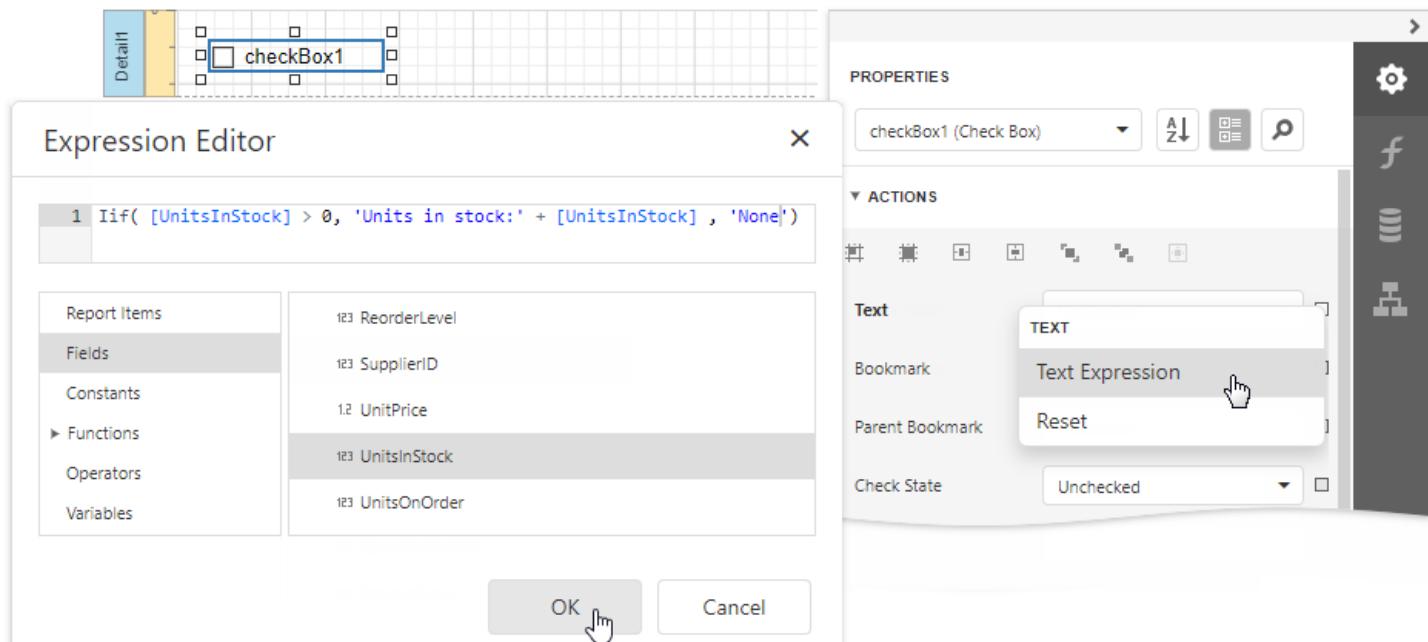
You can [bind](#) the **Check State** property to a data field obtained from a report's data source. Switch to the [Properties](#) panel, expand the **Check Box Tasks** category and click the **Check State** property's marker. Select **Check State Expression** from the popup menu. Then select a data field in the invoked [Expression Editor](#).



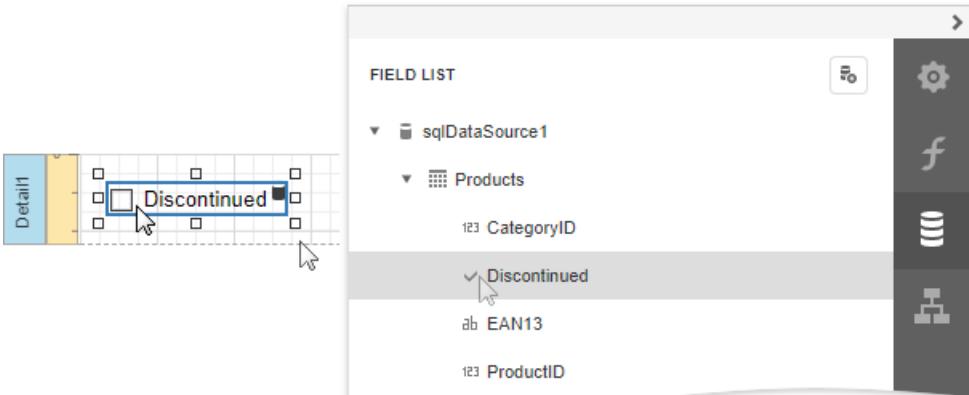
The data field value determines the checkbox state in the following manner:

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

In the same way, click the **Text** property's marker, select **Text Expression**, then select a data field or construct a complex binding expression that involves two or more data fields.



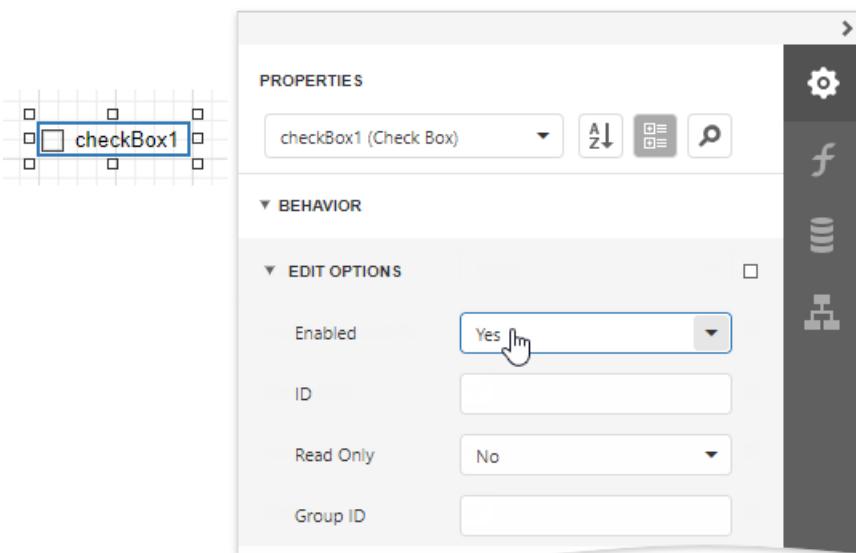
You can also drag and drop a Boolean type data field from the **Field List** to create a new checkbox bound to this field.



See the [Bind Report Controls to Data](#) topic to learn more about creating data-aware controls.

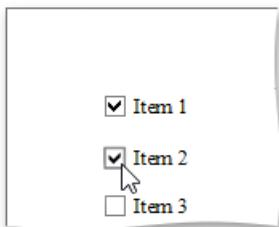
## Interactivity

Set the **Edit Options | Enabled** option to **Yes** to enable [changing the checkbox state](#) in Print Preview.



The **Group ID** setting defines the checkbox's behavior in Print Preview:

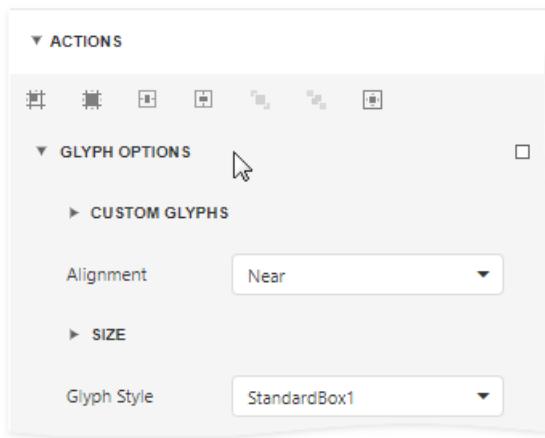
- When you set this property to an empty string value, a checkbox can be switched to either the "checked" and "unchecked" state independently on other available check boxes.



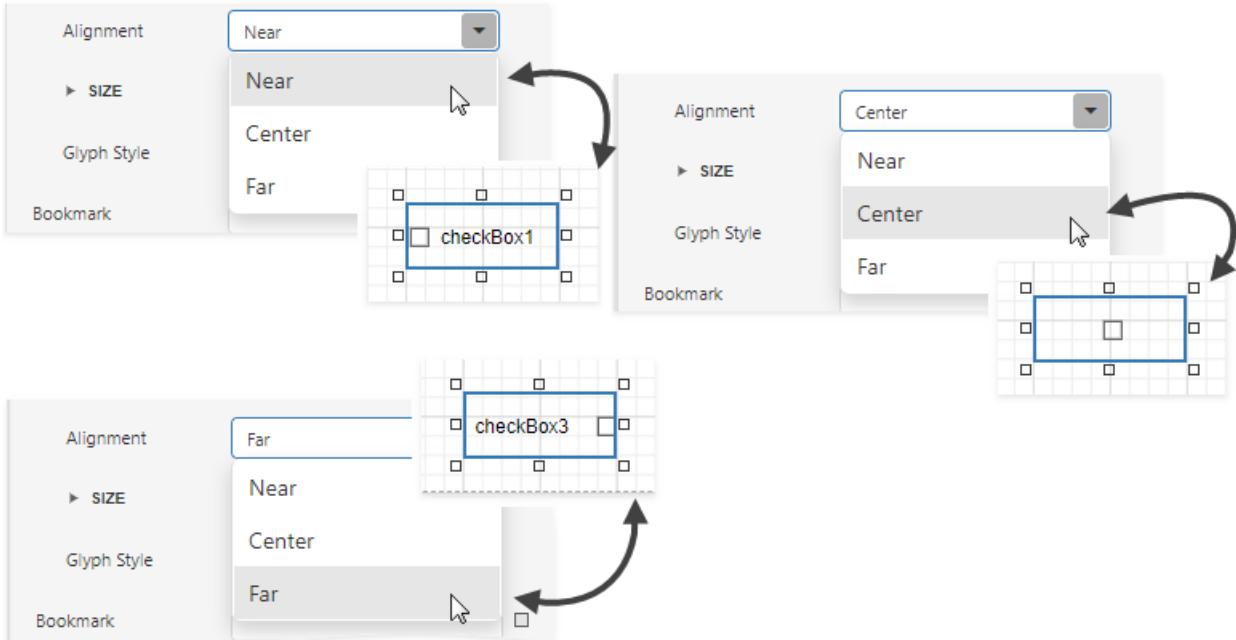
- Otherwise, the field editor behaves like a radio button, and editors that have the same ID belong to a single logical group (that is, only one option can be selected in a group at a time).

## Glyph Customization

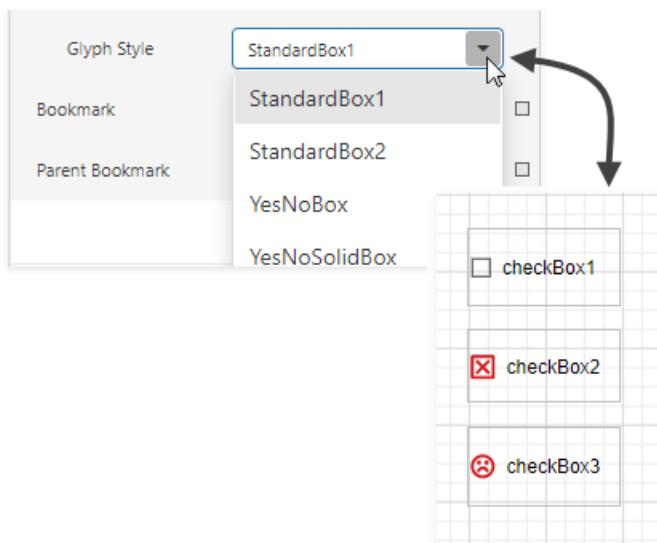
The **Glyph Options** property provides access to glyph settings.



- **Alignment** - specifies the glyph's alignment within the control.



- **Size** - specifies the glyph size.
- **Glyph Style** - specifies a predefined glyph style.



- **Custom Glyphs** - specifies a custom glyph image for each checkbox state (Checked/Unchecked/Indeterminate).

▼ CUSTOM GLYPHS

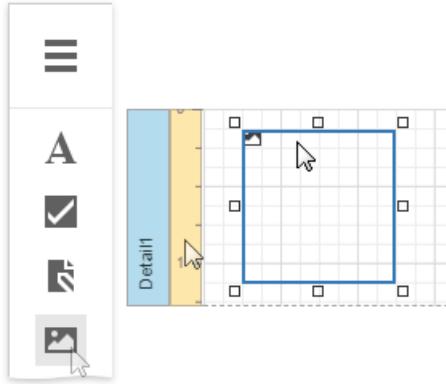
Checked	Image	...
Unchecked	Image	...
Indetermina...	Image	...

# Picture Box

## Overview

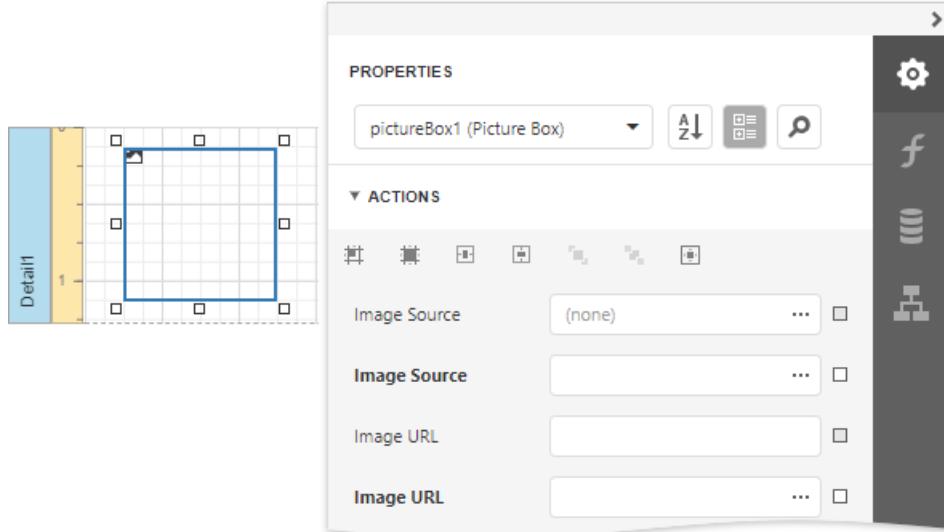
The **Picture Box** control allows you to embed *static* (stored with the report) or *dynamic* (obtained from a data source) images into a report.

To add this control to a report, drag the **Picture Box** item from the [Toolbox](#) onto the report's area.



The Picture Box can display images with the following formats: BMP, JPG, JPEG, GIF, TIF, TIFF, PNG, ICO, DIB, RLE, JPE, JFIF, EMF, WMF, SVG.

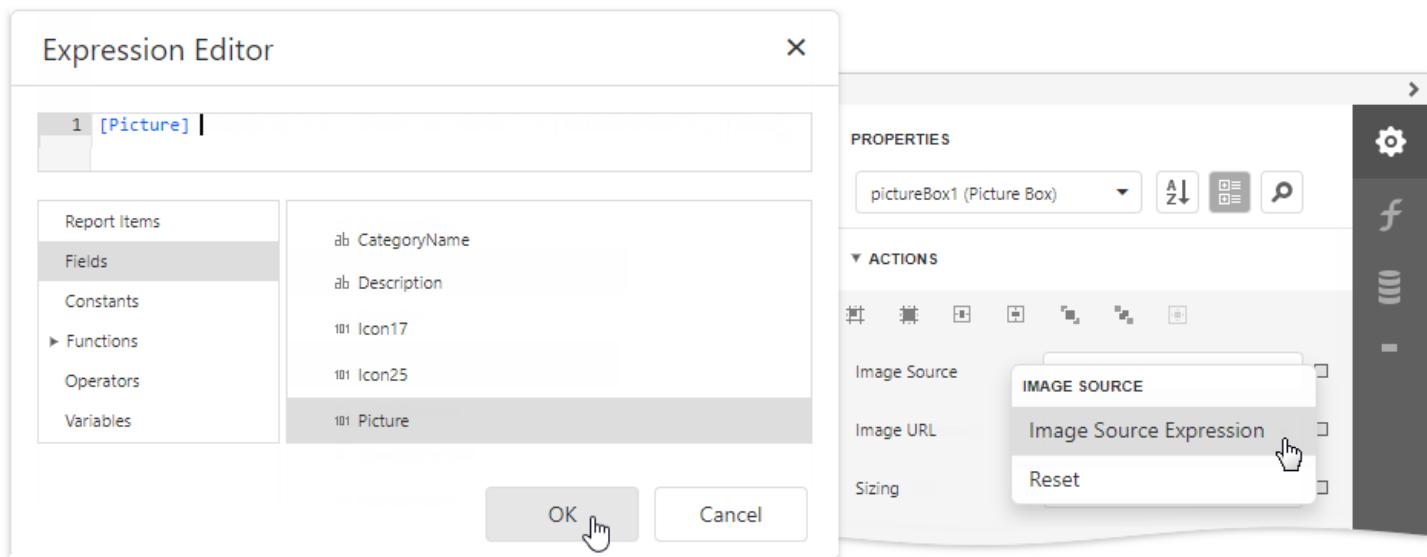
Use the **Image Source** or **Image URL** property to specify the image the Picture Box displays. You can access these properties in the **Picture Box Tasks** category.



The specified image is [saved](#) with the report if you use the **Image Source** property. If you use the **Image URL** property, only the path to the image is stored.

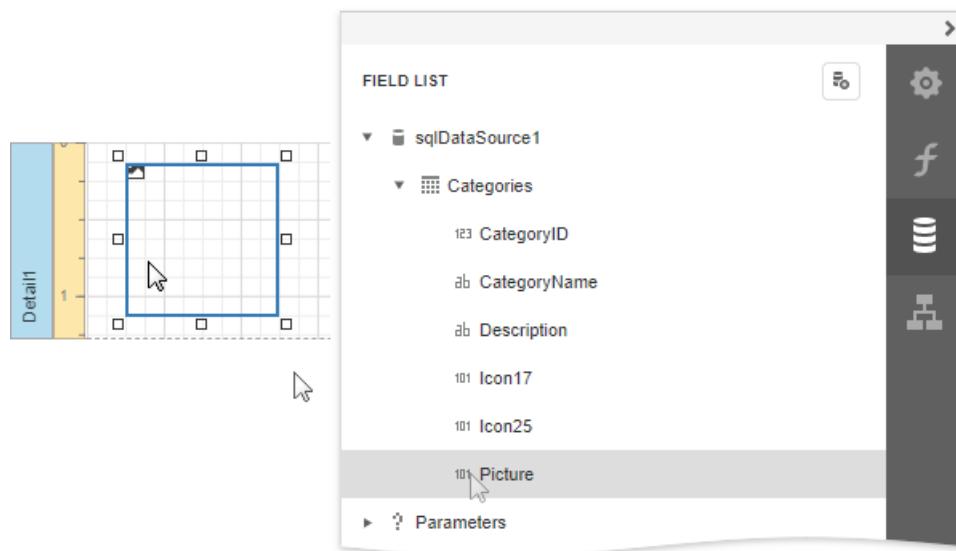
## Bind to Data

You can use the Picture Box to display an image [dynamically obtained](#) from a data source. Click the **Image Source** property's marker and select **Image Source Expression** from the popup menu. Then select the data field in the invoked [Expression Editor](#). You can use this editor to construct a binding expression that can include two or more data fields.



You can bind the **Image URL** property to data in the same way.

You can also drag and drop a field that contains image data from the [Field List](#) to create a new Picture Box bound to this field.



See the [Bind Report Controls to Data](#) topic for more information about how to create data-aware controls.

## SVG Support Limitations

The Picture Box does not support the following SVG content:

- Gradient colors
- Text (you can convert text to curves as a workaround)
- Animations
- External .css styles

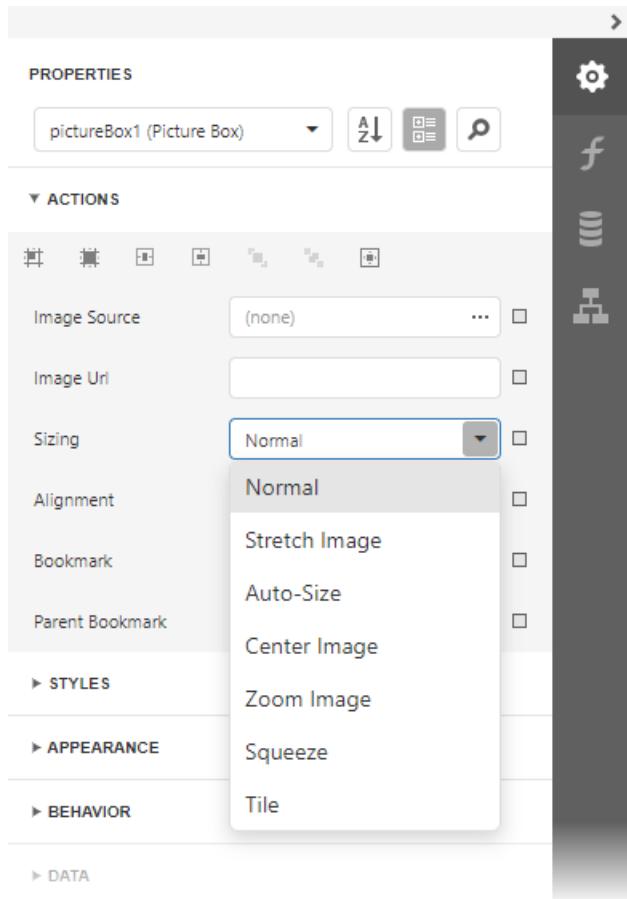
Export (except for PDF) has the following limitations:

- 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.



The screenshot shows the RadPropertiesManager interface. On the left, there's a tree view with nodes like PROPERTIES, ACTIONS, STYLES, APPEARANCE, BEHAVIOR, and DATA. Under ACTIONS, the Sizing property is selected, displaying a dropdown menu with several options: Normal (which is highlighted), Stretch Image, Auto-Size, Center Image, Zoom Image, Squeeze, and Tile. The rest of the interface includes fields for Image Source and Image Url, and various icons for actions like copy, paste, and search.

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**

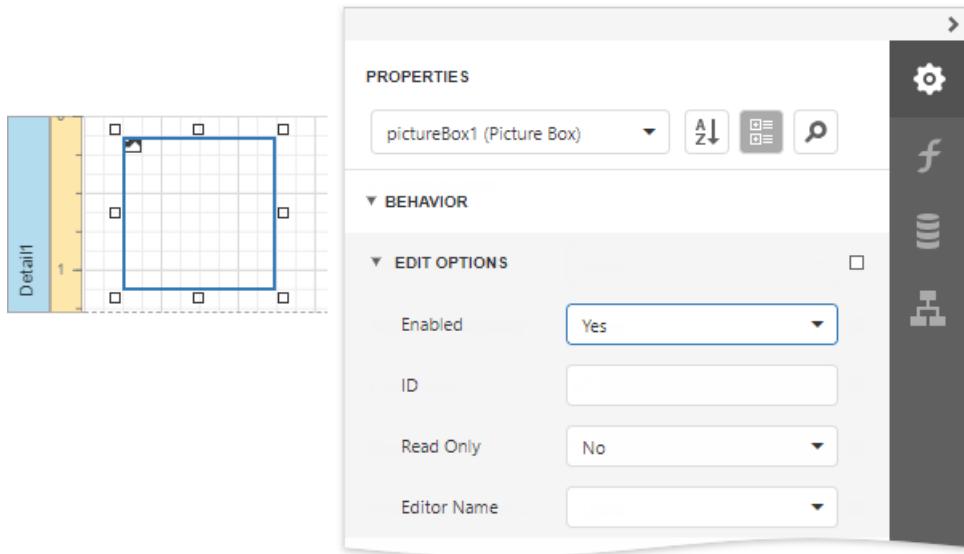
The original image is replicated within the control starting from the top left corner. The replicated image is clipped if it does not fit the control's boundaries.



You can also use the **Image Alignment** property in the **Normal**, **Zoom Image** and **Squeeze** 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, expand the **Behavior** category, select the **Edit Options** section and set the **Enabled** property to **Yes**.



Click the Picture Box in a previewed document and an editor invokes.



#### TIP

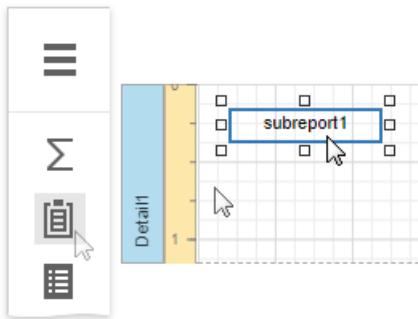
You can draw borders for the Picture Box to make the editor visible in Print Preview, if an image is not specified.

Refer to the [Edit Content in Print Preview](#) and [Interactive E-Forms](#) topics to see how use this Picture Box mode.

# Subreport

The **Subreport** control is used to embed other reports into the current report.

To add this control to the 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**

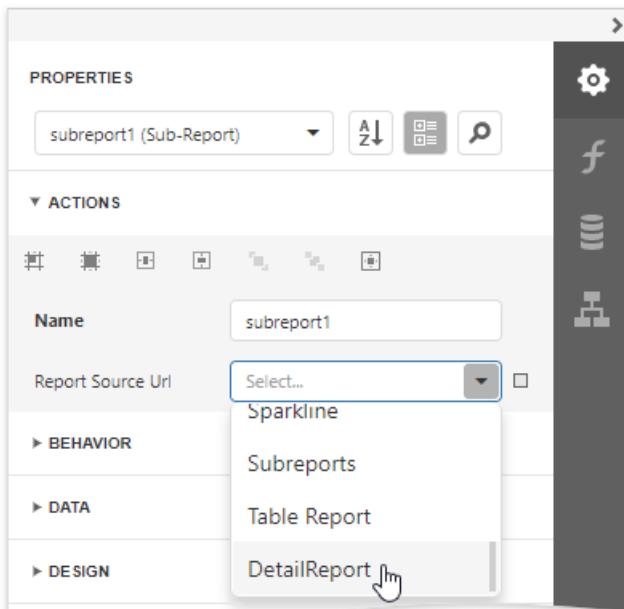
This can be useful if there is a particular report structure (template) that needs to be included in many reports, and the report must have consistent appearance and functionality. A good example is a report header that always contains the same information (the company information, logo, date, etc.).

- **Create master-detail reports**

Another reason for using subreports is to create master-detail reports (reports with hierarchically linked data). For more details on this, see [Master-Detail Reports with Subreports](#).

- [Merge Reports](#)

You can use an already existing report in the report storage as a report source. Select the Subreport control, open the **Subreport Tasks** category, expand the **Report Source URL** property's drop-down list and select the required report.

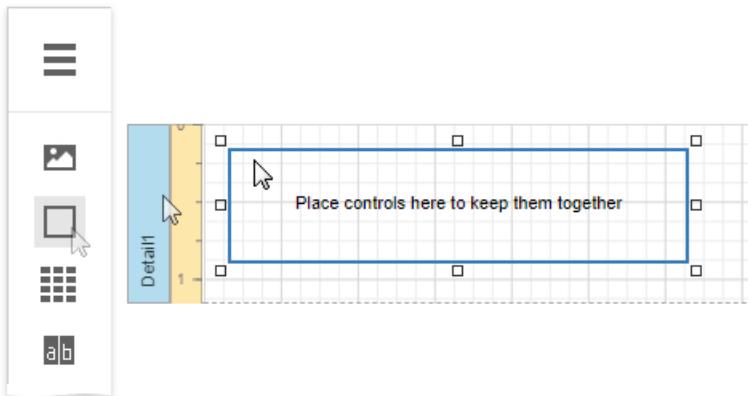


Double-clicking a subreport opens its associated report in a new Report Designer tab.

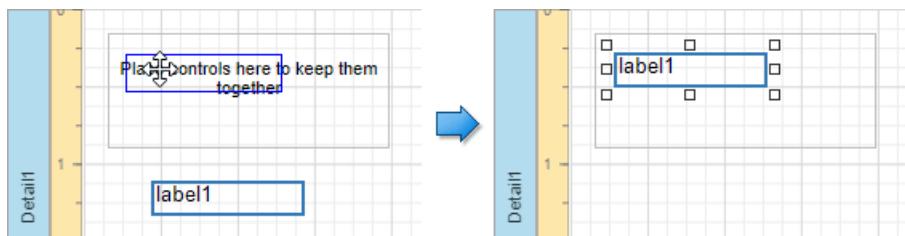
# Panel

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).

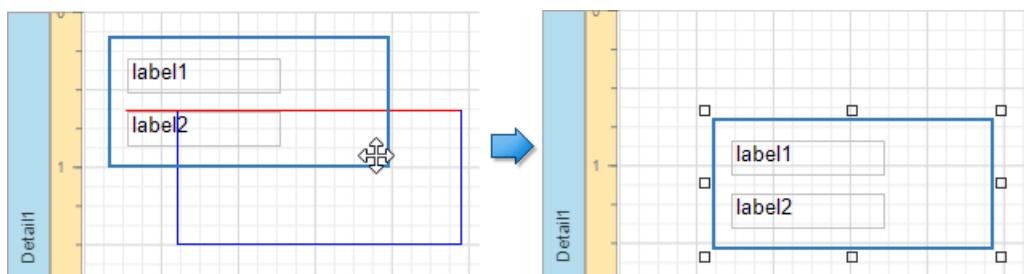
To add a panel to a report, drag the **Panel** item from the [Toolbox](#) and drop it onto the required report band.



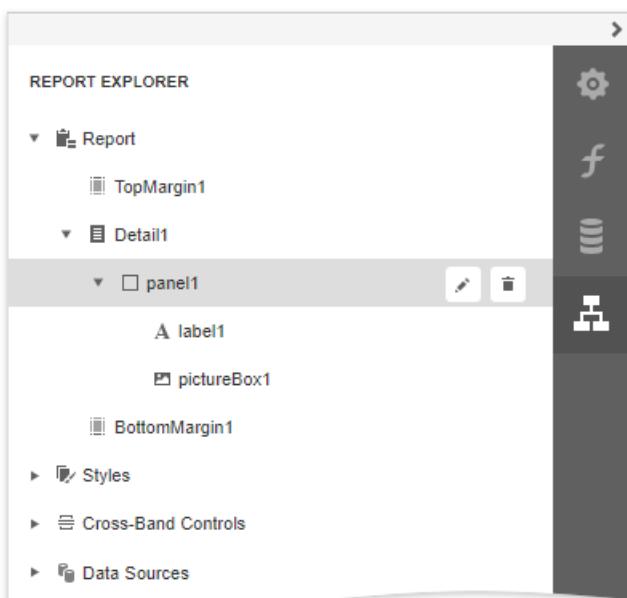
Drop the desired report controls onto the panel to combine them to a group.



You can use this panel to move, copy, change appearance settings, etc. instead of adjusting individual controls.



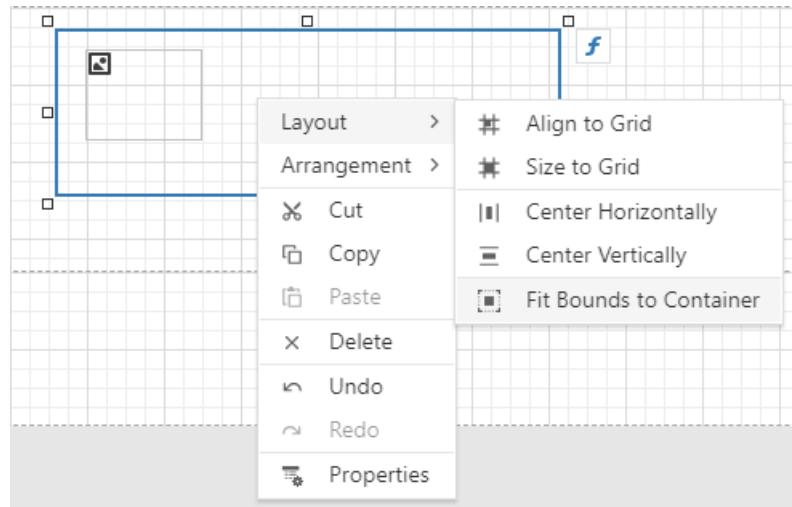
The [Report Explorer](#) displays controls placed onto a panel as its subordinate nodes.



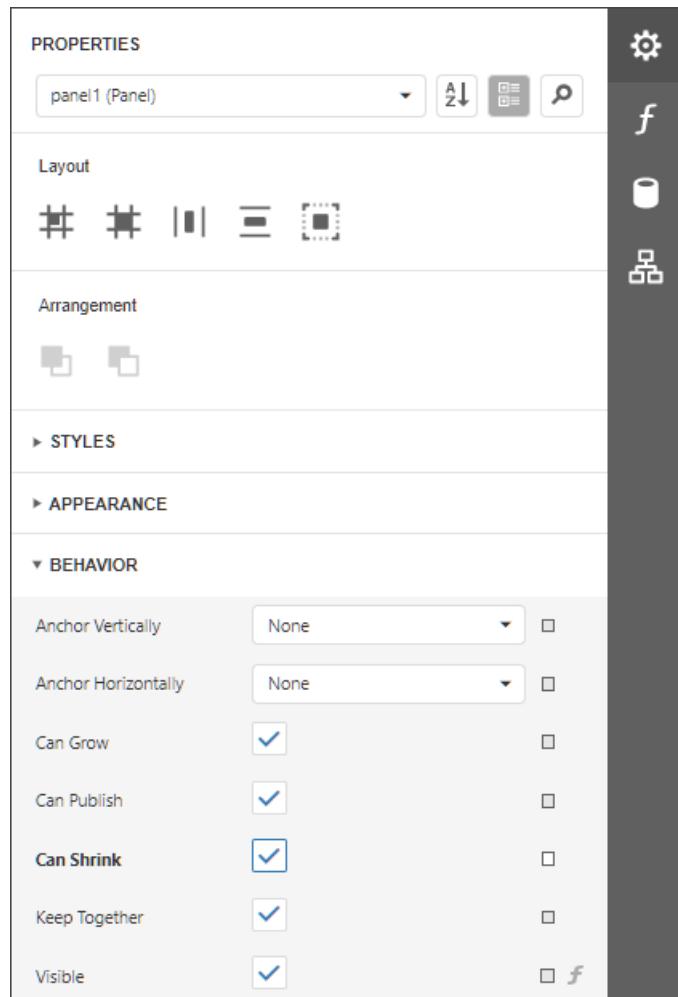
The panel cannot contain the following report controls:

- [Cross Tab](#)
- [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** from the panel's context menu. 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 adjusts the panel's size to fit all the inner controls. For instance, this allows preventing blank areas when you [conditionally hide specific controls](#).



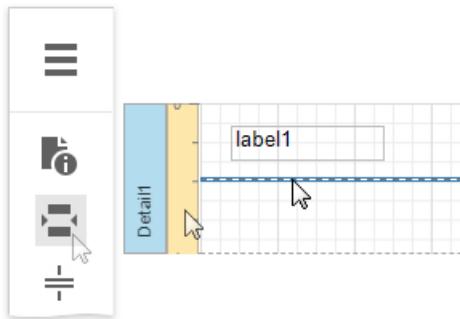
**NOTE**

The Panel control cannot span several report bands as cross-band controls can.

# Page Break

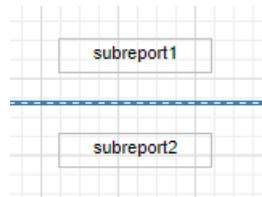
The **Page Break** control's sole purpose is to insert a page delimiter at any point within a report.

You can add this control by dragging the **Page Break** item from the [Toolbox](#) onto the report's area.

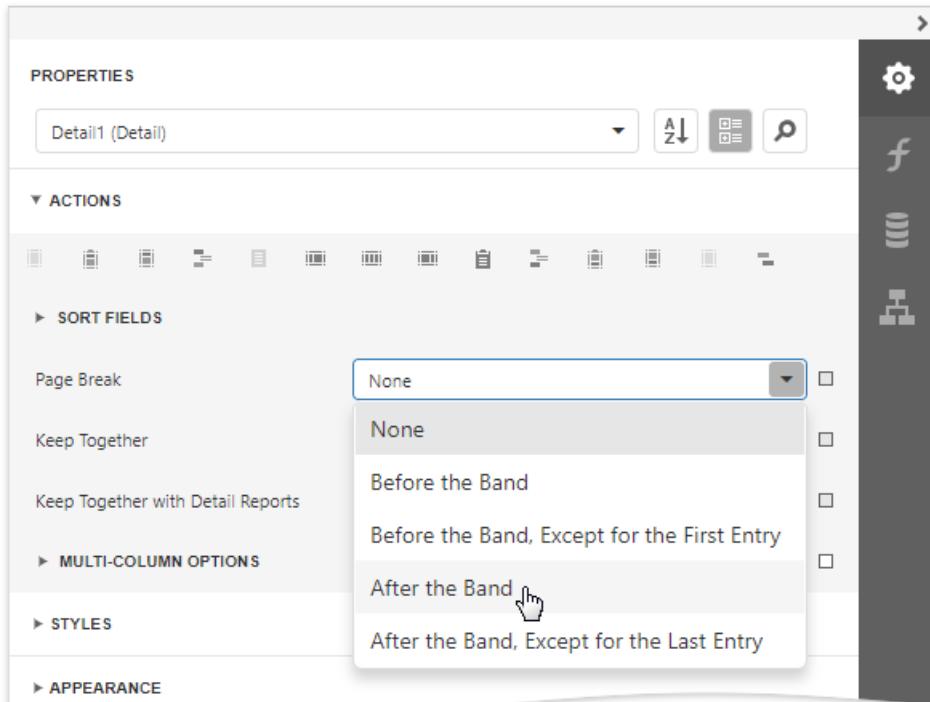


This control is visually represented by a short line attached to the report's left margin.

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.

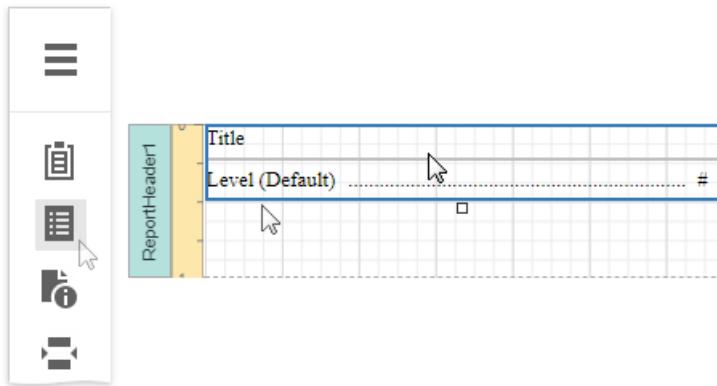


# Table of Contents

## 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.

The diagram shows the Report Designer interface at the top and a published report at the bottom. In the Report Designer, a 'ReportHeader1' section contains a 'Table Of Contents' control with three levels: Level 1, Level 2, and Level (Default). A blue arrow points downwards from this section to a published report below. The published report has a title 'Products By Category' and a table of contents. The table of contents lists categories and their corresponding page numbers:

<b>Beverages</b> .....	4
Chai .....	4
Chang .....	5
Guaraná Fantástica .....	6
Sasquatch Ale .....	7
Steeleye Stout .....	8
Côte de Blaye .....	9
Chartreuse verte .....	10
Ipoh Coffee .....	11
Laughing Lumberjack Lager .....	12
Outback Lager .....	13
Rhönbräu Klosterbier .....	14
Lakkalikööri .....	15
<b>Condiments</b> .....	16
Aniseed Syrup .....	16
Chef Anton's Cajun Seasoning .....	17

## 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.

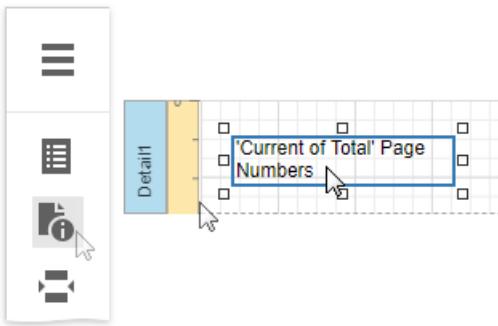
Unless levels have been added to a table of contents, a single default level is used to provide common settings to the elements of a document map for which no specific level has yet been assigned.

Refer to the [Add a Table of Contents](#) topic for a step-by-step tutorial.

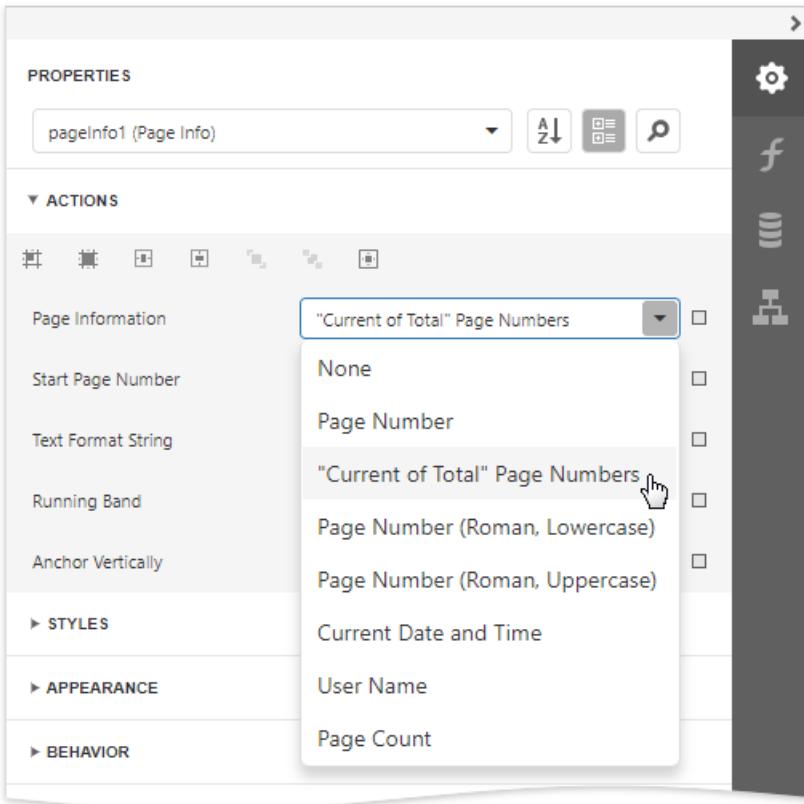
# Page Info

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.



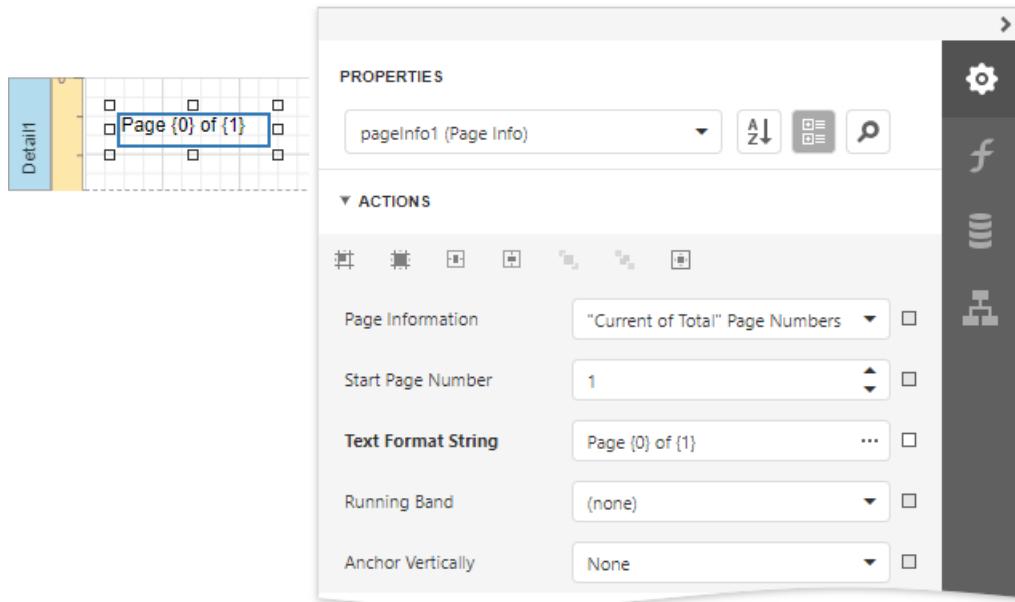
For examples of different uses of this control, see the corresponding tutorials:

- [Add Page Numbers](#)
- [Display the User Name in a Report](#)
- [Display the Current Date and Time in a Report](#)

## NOTE

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.

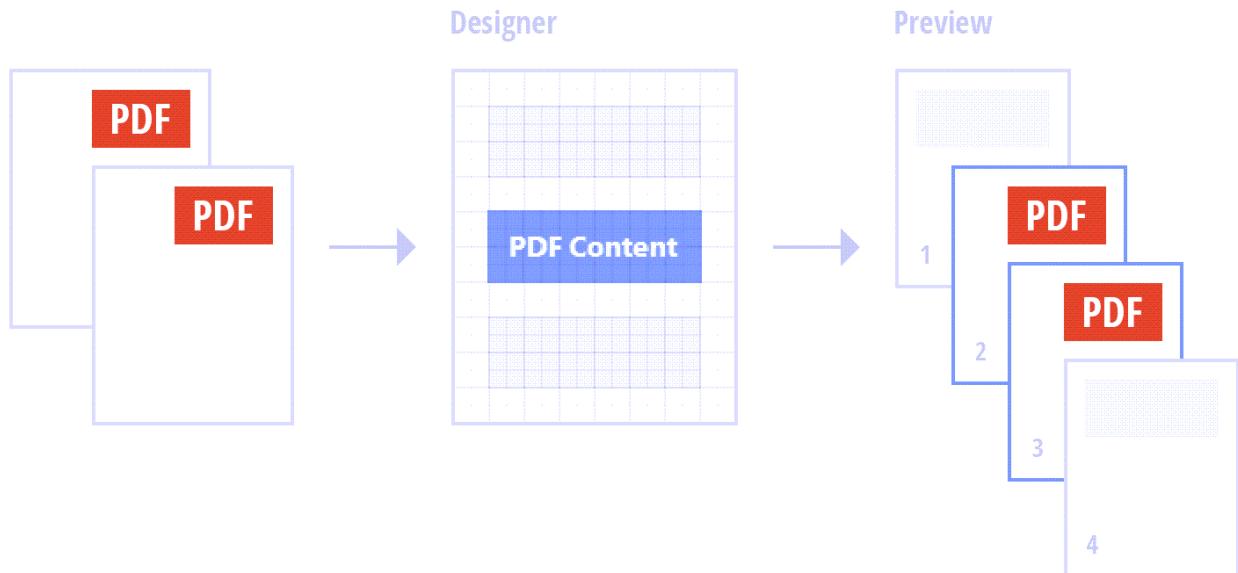


When a report contains at least one [group](#), you can specify individual page numbers for report groups by setting the **Running Band** property to the name of the required group.

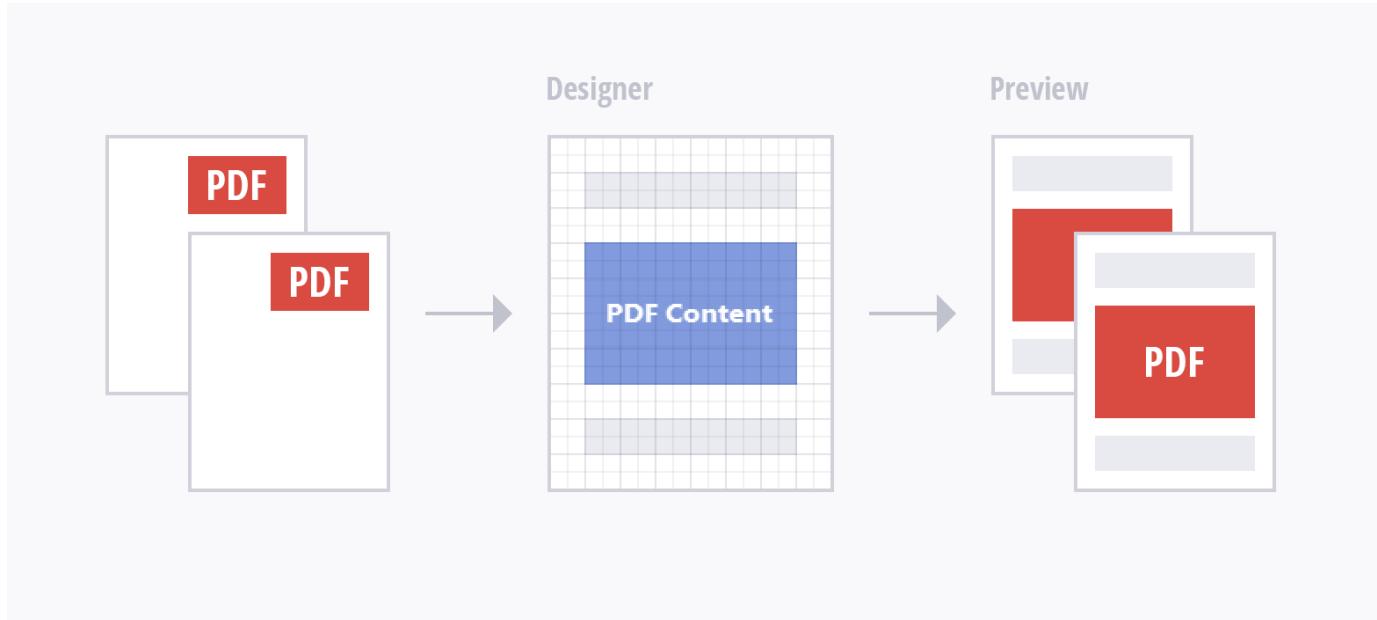
# PDF Content

The **PDF Content** control allows you to render PDF file content in two ways:

- *Default.* Render each PDF file page as a separate report page.



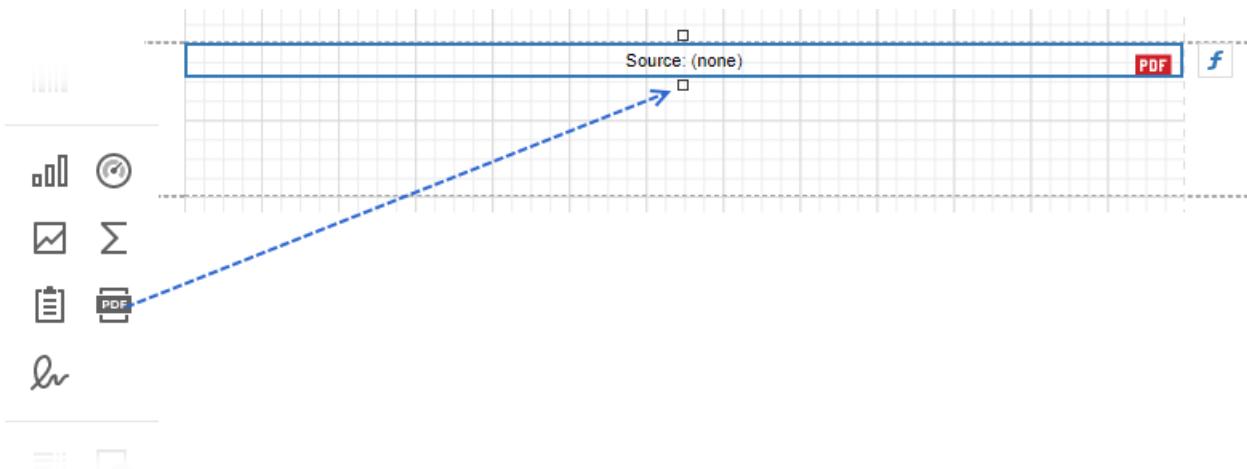
- Embed PDF content into a report.



Refer to the following documentation section for more details: [Embedded PDF File Content into a Report](#).

## Add the PDF Content Control to a Report

Drop the **PDF Content** item from the Toolbox onto a **band** on the design surface.



## Specify PDF Content

Use one of the following methods:

- [Specify binary PDF data](#)

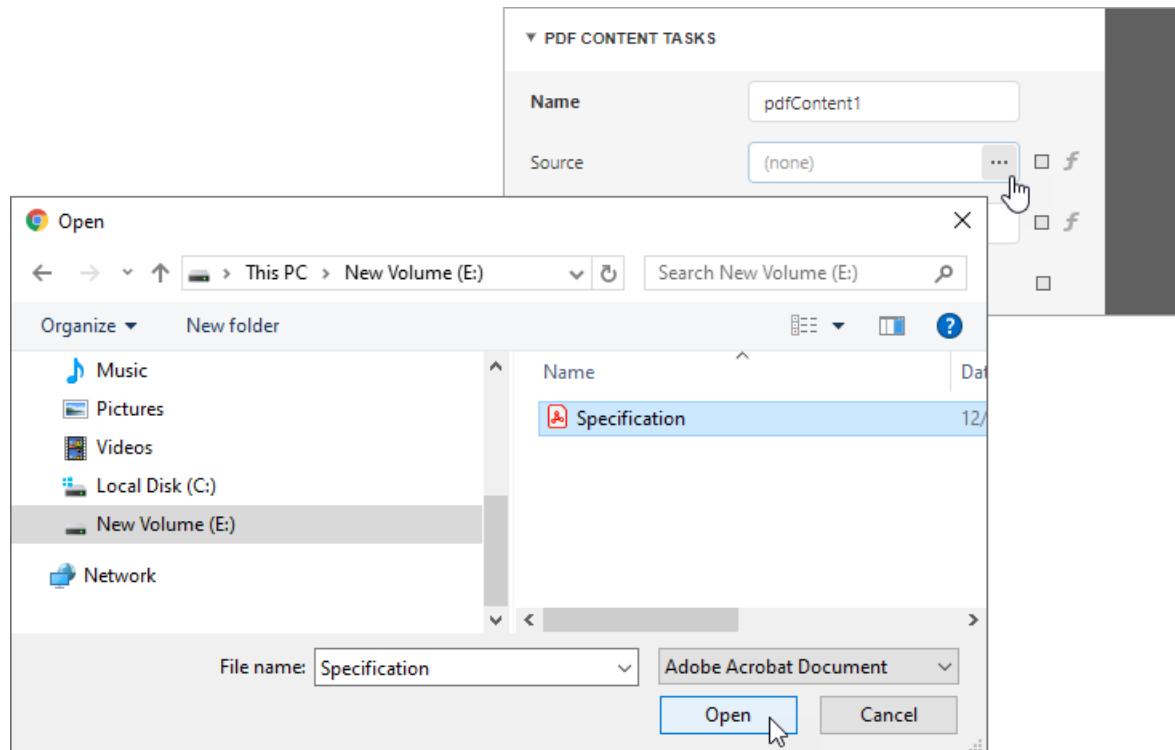
This data is stored in the report file. The source of this data does not need to be available when the report is rendered.

- [Specify a reference to a PDF document](#)

The reference to the document is stored in the report definition file. The referenced document should be available when the report is rendered.

### Specify PDF Data

Select the **PDF Content** control, navigate to the [Properties panel](#), click the **Source** property's ellipsis button, and select a PDF file.

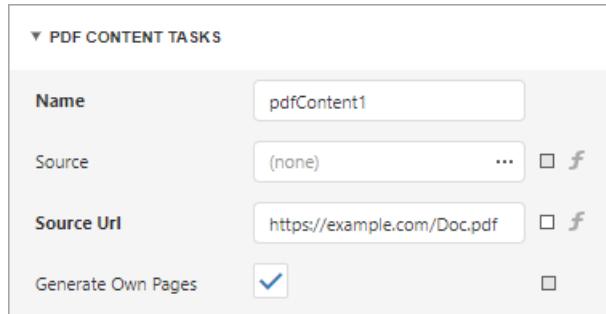


When users save a report, the **Source** property value persists in the report file.

You can also use [report parameters](#) to conditionally specify the **Source** property value or bind the property to a data source field. Refer to the following section for details: [Use Expressions](#).

### Specify a Reference to a PDF Document

Select the **PDF Content** control, navigate to the [Properties panel](#), and assign a path to a PDF file to this property.



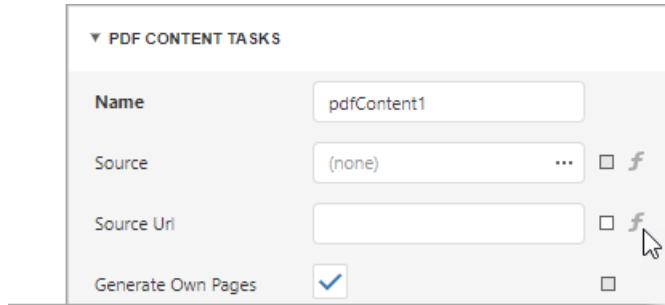
You can also use [report parameters](#) to conditionally specify the **Source Url** property value or bind the property to a data source field. Refer to the following section for details: [Use Expressions](#).

When users save a report, the URL or path specified in the **Source URL** property is included in the report file. The PDF document should be available at the specified location when a report is printed or rendered in Preview.

The **Source Url** property value takes precedence over the **Source** property value. If you specify both properties, **PDF Content** includes the content specified by **Source Url**. If the file specified in the **Source Url** property cannot be loaded, the PDF data from the **Source** property is used.

### Use Expressions

Select the **PDF Content** control and navigate to the [Properties panel](#). Click the **f** symbol right to the **Source** or **Source URL** property.

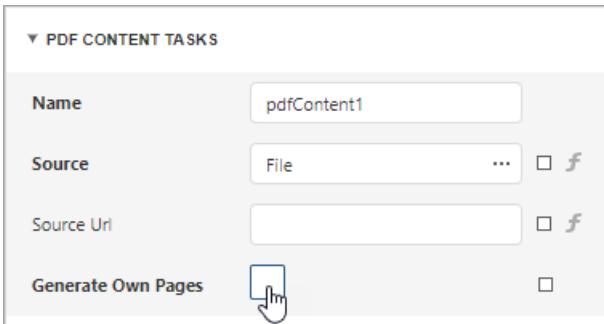


The screenshot shows the Expression Editor interface. On the left, a tree view lists properties: AccessibleDescription, Bookmark, Data (with PageRange and Source), SourceUrl (which is selected and highlighted in grey), Style Name, Top, and Visible. On the right, there is a large, empty text area where an expression would be entered. The number '1' is visible at the top of the text area.

Use the invoked **Expression Editor** to create an expression that identifies the source of a PDF file.

## Embed PDF File Content into a Report

Add the **PDF Content** control to a report, [specify](#) a PDF file location, and disable the control's **Generate Own Pages** property.



## Use Cases

- Create a report with PDF file content and headers / footers that are printed on PDF file pages.
- Print pictures, bar codes, page numbers, a report watermark, and other elements over the content of a PDF file.
- Create a report document with paper kind that differs from PDF pages paper kind. Refer to the following section for instructions: [Fit PDF File's Page Size to Report's Page Size](#).
- Append PDF file content to report content and add sequential numbering to all report pages. For this, add PDF file content as a subreport to your report as described in the following section: [Fit PDF File's Page Size to Report's Page Size](#). Then, [add page numbers](#) to both the subreport and main report.
- Design a pre-printed form and use PDF file as a watermark.

If your PDF file contains one page, follow the steps below:

1. Embed this page into a report's *Detail* band.
2. Remove the report's margins to prevent duplication with PDF page margins.
3. Adjust the page size to make it fit the entire *Detail* band.

If your PDF file contains multiple pages, do the following:

- Create a subreport for each of the pages. Follow the instructions in this section: [Fit PDF File's Page Size to Report's Page Size](#). Use the **PDF Content** control's **Page Range** property to specify the PDF file page that should be included to a subreport.
- Include each of these subreports to one report.

## Fit PDF File's Page Size to Report's Page Size

A PDF file and a report to which you embed PDF file content might have different paper kind. PDF file pages can also be generated with double margins: page margins and report margins.

This section explains how to set the same paper kind for a report and its embedded PDF file and how to include only the PDF file's page margins to the report. The main idea is to create a subreport that includes PDF pages in embedded mode, and then, add this subreport to the main report that contains initial content.

1. Create a blank report. Set the report's **Paper Kind** property to the paper kind of the main report to which you want to embed PDF content.
2. Drop the **PDF Content** control from the **Toolbox** onto the created report's *Detail* band, specify a PDF file source, and disable the control's **Generate Own Pages** property.
3. Remove the report's margins and adjust the **PDF Content** control size to make PDF content fit the entire *Detail* band.

1 2 3 4 5 6 7 8

**PDF** **f**

## Profit and Loss

January - June 2018

	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
<b>INCOME</b>							
Construction Income	\$75,035.31	\$81,479.21	\$84,874.68	\$75,634.84	\$80,369.13	\$79,730.35	\$477,123.52
Sales Income	\$27.00	\$770.00	\$950.00	\$979.00	\$31.00	\$111.00	\$2,868.00
<b>TOTAL INCOME</b>	<b>\$75,062.31</b>	<b>\$82,249.21</b>	<b>\$85,824.68</b>	<b>\$76,613.84</b>	<b>\$80,400.13</b>	<b>\$79,841.35</b>	<b>\$479,991.52</b>
<b>COST OF GOODS SOLD</b>							
Cost of Goods Sold	\$672.75	\$3,325.23	\$2,637.83	\$2,244.60	\$3,361.05	\$2,942.65	\$15,184.11
Job Expenses	\$10,679.04	\$11,661.17	\$12,210.41	\$8,783.42	\$13,181.33	\$6,535.93	\$63,051.30
<b>TOTAL COST OF GOODS SOLD</b>	<b>\$11,351.79</b>	<b>\$14,986.40</b>	<b>\$14,848.24</b>	<b>\$11,028.02</b>	<b>\$16,542.38</b>	<b>\$9,478.58</b>	<b>\$78,235.41</b>
<b>GROSS PROFIT</b>	<b>\$63,710.52</b>	<b>\$67,262.81</b>	<b>\$70,976.44</b>	<b>\$65,585.82</b>	<b>\$63,857.75</b>	<b>\$70,362.77</b>	<b>\$401,756.11</b>
<b>EXPENSE</b>							
Automobile	\$710.49	\$830.06	\$656.85	\$512.30	\$420.57	\$848.60	\$3,978.87
Bank Service Charges	\$60.00	\$79.00	\$62.00	\$76.00	\$12.00	\$45.00	\$334.00
Insurance	\$2,164.00	\$2,646.00	\$2,547.00	\$2,410.00	\$4,313.00	\$1,444.00	\$15,524.00
Payroll Expenses	\$17,922.00	\$10,630.00	\$13,854.00	\$9,992.00	\$15,521.00	\$14,687.00	\$82,606.00
Repairs	\$77.00	\$232.00	\$52.00	\$49.00	\$76.00	\$128.00	\$614.00
Tools and Machinery	\$242.00	\$363.00	\$51.00	\$992.00	\$210.00	\$399.00	\$2,717.00
<b>TOTAL EXPENSE</b>	<b>\$21,175.49</b>	<b>\$14,780.06</b>	<b>\$17,682.85</b>	<b>\$14,031.30</b>	<b>\$20,552.57</b>	<b>\$17,551.60</b>	<b>\$105,773.87</b>
<b>NET INCOME</b>	<b>\$42,535.03</b>	<b>\$52,482.75</b>	<b>\$53,293.59</b>	<b>\$51,554.52</b>	<b>\$43,305.18</b>	<b>\$52,811.17</b>	<b>\$295,982.24</b>

Detail1

4. Add the report as a subreport to your main report. Use the **Subreport** control with the **Generate Own Pages** property enabled.

0 1 2 3 4 5 6 7

**f**

Top Margin1

Main report content goes here...

Detail1

Bottom Margin1

subreport1

Open the main report's Preview to show the result.

## Limitations

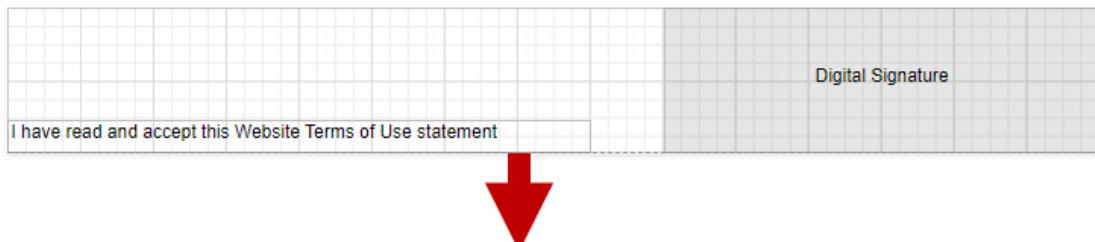
- PDF content is displayed as an image in Preview. Users cannot select text in PDF content. To allow users to select text, export the report to PDF.
- You cannot add the **PDF Content** control to the following bands:
  - **Top Margin / Bottom Margin**
  - **Page Header / Page Footer**
  - **Group Header / Group Footer** bands (if their **Repeat Every Page** properties are enabled).
  - **Vertical Header / Vertical Detail / Vertical Total**

# PDF Signature

**PDF Signature** is a control that allows users to add a visual signature to a report exported to PDF.

The **PDF Signature** control visualizes the document signature information:

- Certificate name
- Distinguished name
- Location
- Signature date
- Signature reason

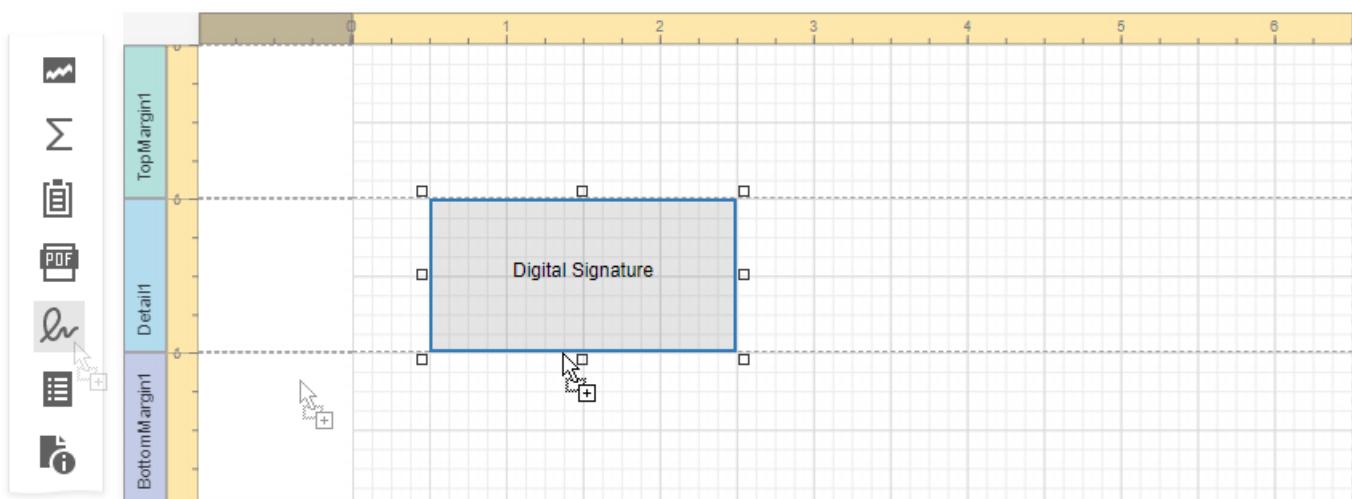


## TIP

For more information on how to create, export, and sign a report, refer to the following tutorial: [Reports with a Visual PDF Signature](#).

## Add a Signature Control to a Report

Drop the **PDF Signature** control from the **Toolbox** onto a report.



# 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](#)

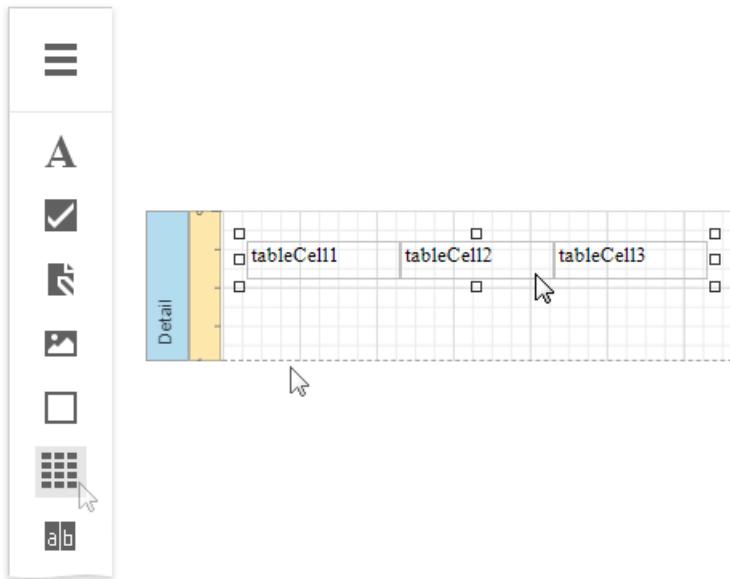
## NOTE

Refer to [Table Reports](#) tutorial for instructions on how to create a data-bound table report.

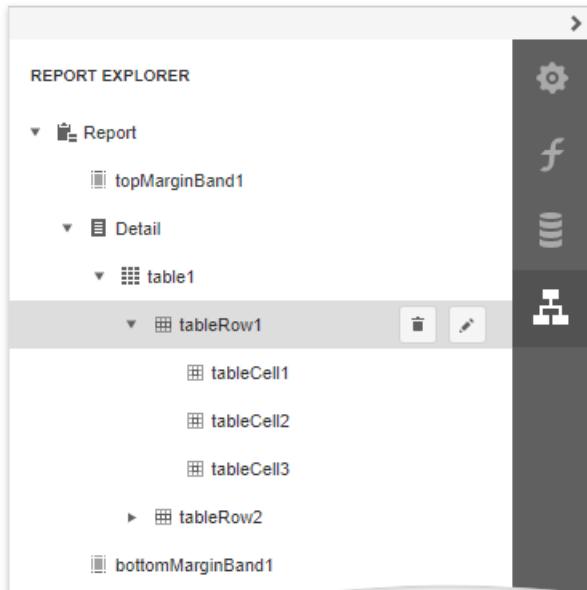
# Table Overview

The **Table** control displays information in a tabular format and allows you to create [table reports](#).

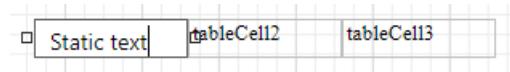
You can add a table control by dragging the **Table** item from the [Toolbox](#) onto the report's area.



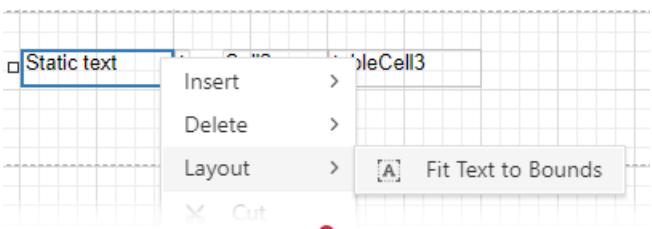
The table control contains one or more rows. Each row contains one or more cells. See the [Report Explorer](#) for a table structure example.



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** command from the cell's context menu.

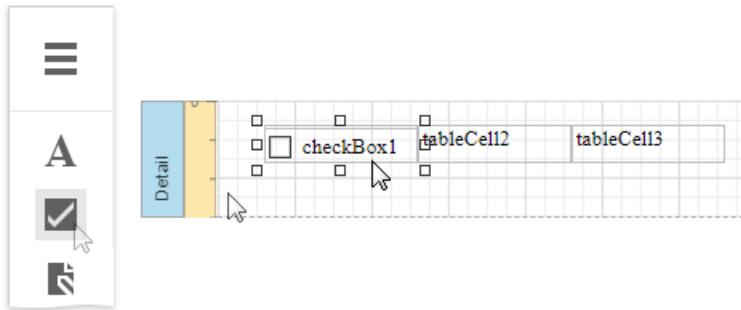


Static text	tableCell2	tableCell3
-------------	------------	------------

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. This command resizes the control so that it occupies all the available cell space (excluding borders).

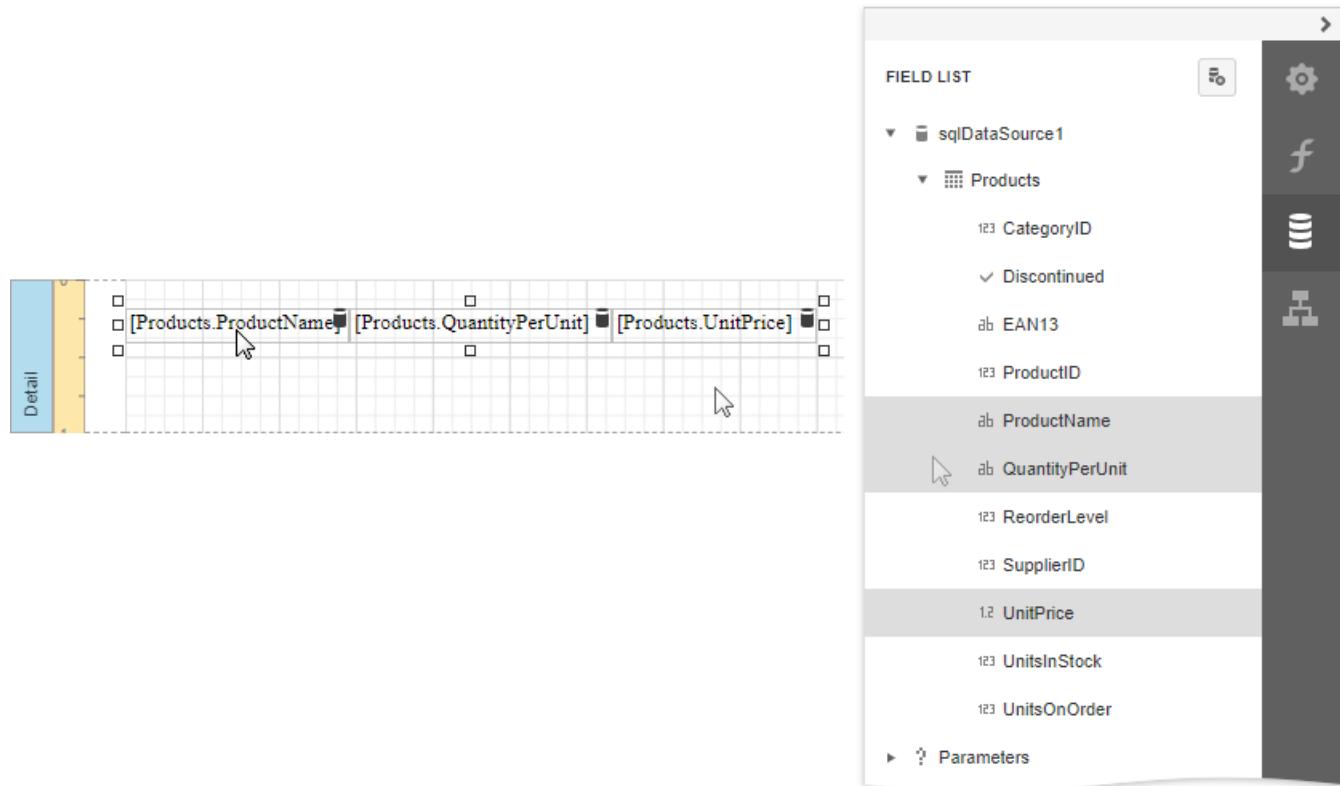
The screenshot shows a report design interface with a table containing three cells. The first cell, 'tableCell1', contains a picture box control ('pictureBox1'). The Properties panel is open, displaying the 'ACTIONS' section. Within this section, there is a button labeled 'Fit Bounds To Container' with a small icon of a square with rounded corners. A cursor is hovering over this button, indicating it is being selected.

You can assign different [visual styles](#) for even and odd table rows to improve readability.

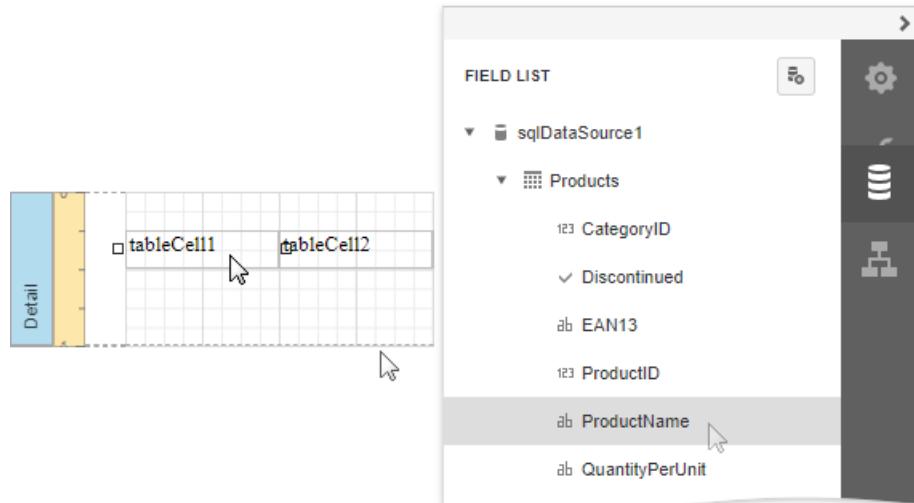
# Bind Table Cells to Data

Use the [Field List](#) to create a table control with cells [bound](#) to data fields obtained from a report's data source.

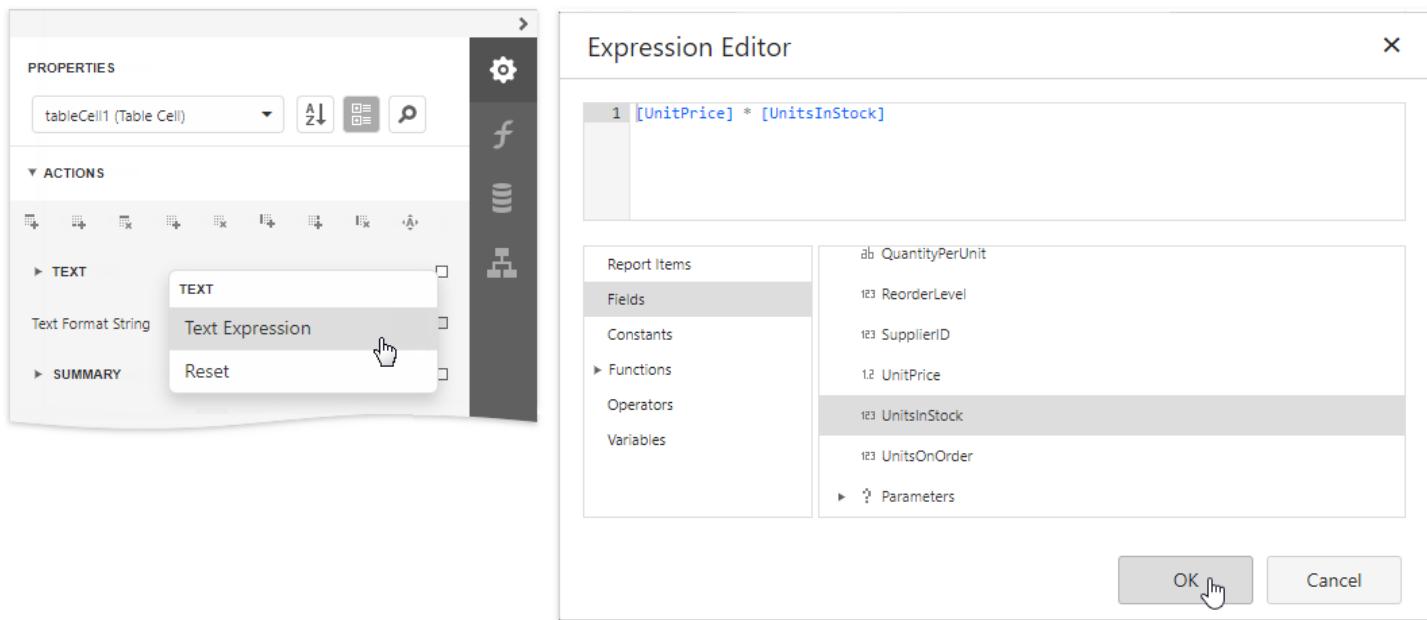
Hold CTRL or SHIFT and click multiple data fields to select them. Drop the selected data fields onto the Detail band.



You can bind individual table cells to data in the same ways as [Label](#) controls. Drop a data field onto an existing cell to bind this cell to the corresponding field.

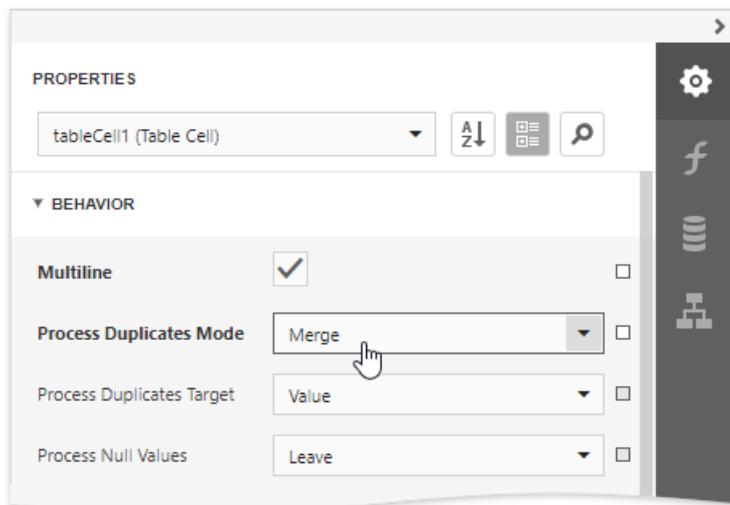


Use the [Expression Editor](#) to construct a complex binding expression with two or more data fields. Click the **Text** property's marker and select **Text Expression** from the popup menu to invoke the Expression Editor.



See the [Bind Report Controls to Data](#) topic for information on how to create data-aware controls.

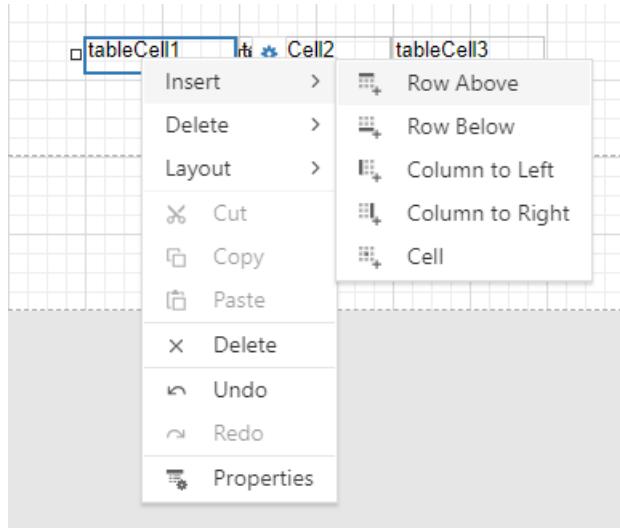
The **Process Duplicates Mode** and **Process Duplicates Target** options enable you to merge cells with identical values.



# Manage Table Structure

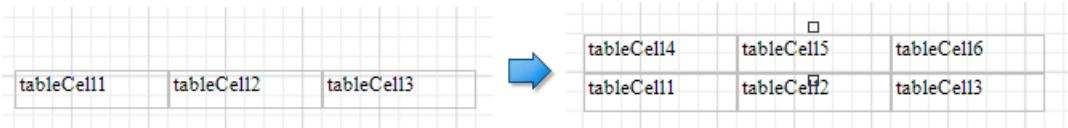
## Insert Table Elements

Use **Insert** commands from the table's context menu to add new rows and columns. The added cells inherit the source cells' size and appearance settings.



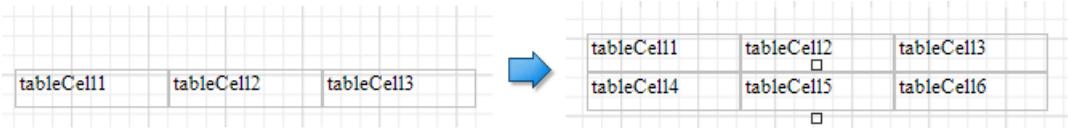
- **Insert Row Above**

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).



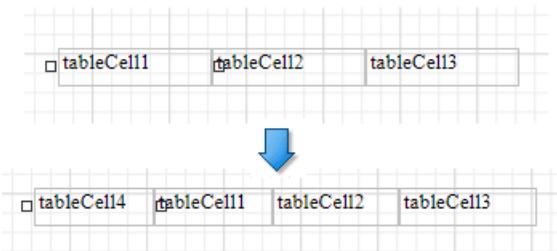
- **Insert Row Below**

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.



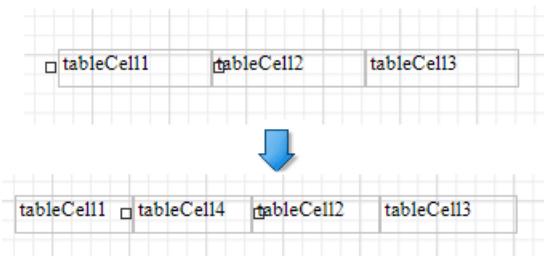
- **Insert Column to Left**

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).



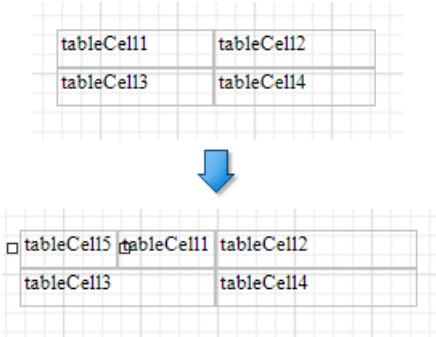
- **Insert Columns to Right**

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.



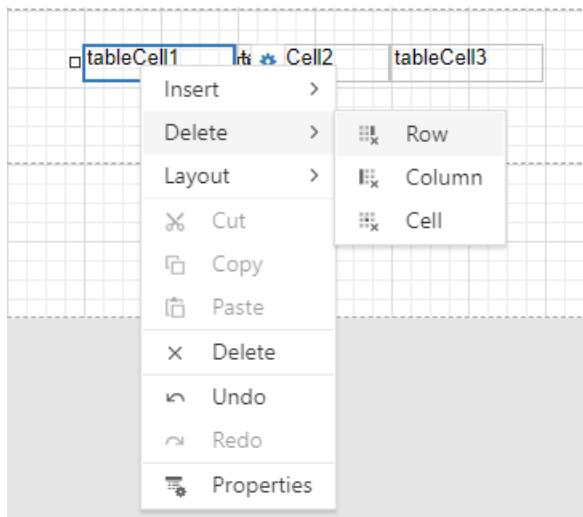
- **Insert Cell**

Divides the current cell width in half and inserts a new cell to the left. The added cell copies the source cell's appearance settings.



## Delete Table Elements

Use **Delete** commands from the table's context menu to remove table elements.



- **Delete Cell**

Deletes a table cell and stretches the next cell to occupy the remaining space. If this cell is the last in the row, the previous cell is stretched.

tableCell1	tableCell2	tableCell3
tableCell4	<input type="checkbox"/> tableCell5	tableCell6
tableCell7	tableCell8	tableCell9



tableCell1	tableCell2	tableCell3
tableCell4	<input type="checkbox"/> tableCell6	<input type="checkbox"/>
tableCell7	tableCell8	tableCell9

- **Delete Row**

Deletes a row and shifts the existing rows up.

tableCell1	tableCell2	tableCell3
tableCell4	<input type="checkbox"/> tableCell5	tableCell6
tableCell7	tableCell8	tableCell9



tableCell1	tableCell2	tableCell3
tableCell7	tableCell8	tableCell9

- **Delete Column**

Deletes a column and stretches the next column to the left. If this column is the last in the table, the previous column is stretched.

tableCell1	tableCell2	tableCell3
tableCell4	tableCell5	tableCell6
tableCell7	tableCell8	tableCell9



tableCell1	tableCell13
tableCell4	<input type="checkbox"/> tableCell16
tableCell7	tableCell9

# 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 CTRL key and click cells.

tableCell1	tableCell2	tableCell3
tableCell4	tableCell5	tableCell6

Use the arrow that appears when a mouse cursor hovers over the table edges to select an entire row or column.



tableCell1	tableCell2	tableCell3
tableCell4	tableCell5	tableCell6

Draw a rectangle around the table to select the whole control.

The [Properties](#) panel enables you to select the table element or the entire table and access their properties.

## Resize Table Elements

You can resize a table or its cell by dragging the rectangle drawn on its edge or corner.

Resizing a column changes the next column's width without affecting the other columns (keeps the table dimensions intact).



tableCell1	tableCell2	tableCell3
tableCell4	tableCell5	tableCell6

tableCell1	tableCell2	tableCell3
tableCell4	tableCell5	tableCell6

Resizing a row changes the next row's width without affecting the other rows (keeps the table dimensions intact).

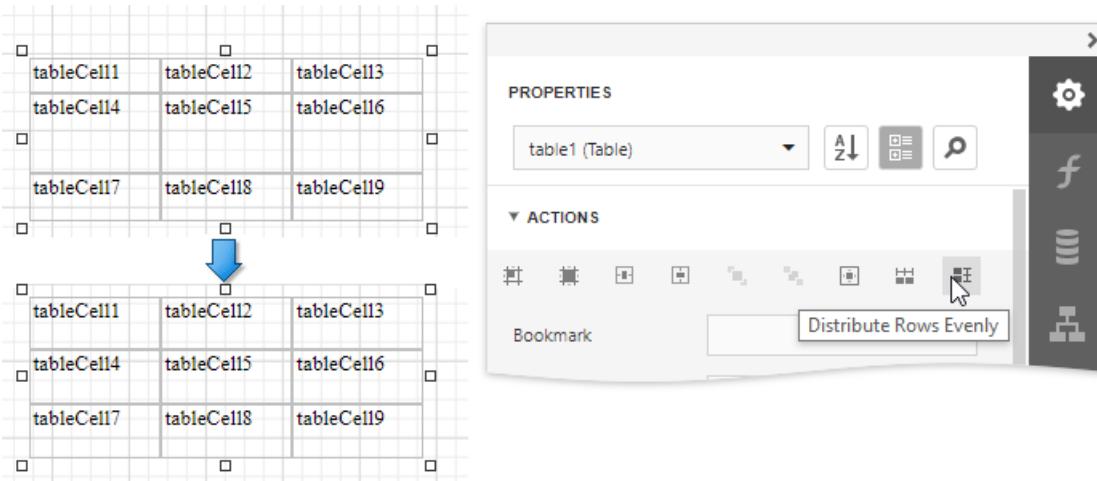


tableCell1	tableCell2	tableCell3
tableCell4	tableCell5	tableCell6
tableCell7	tableCell8	tableCell9

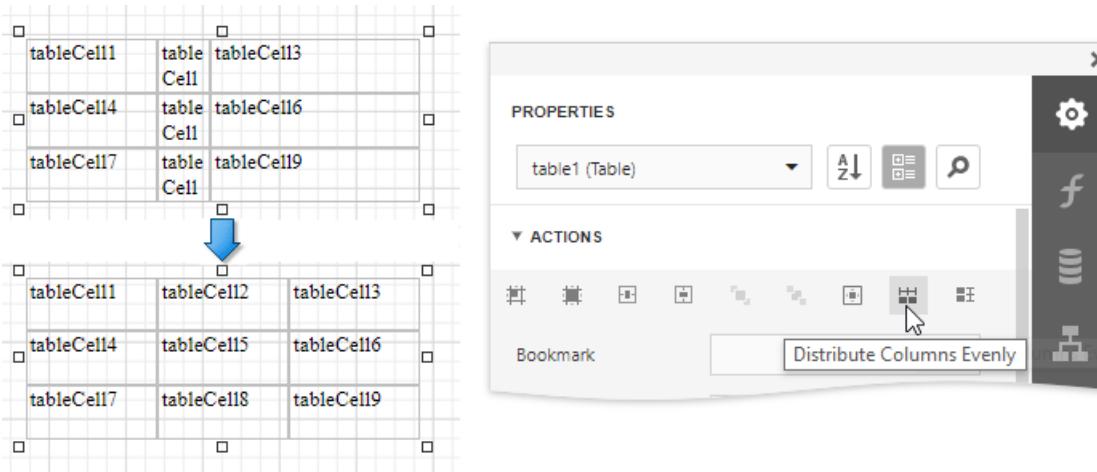
tableCell1	tableCell2	tableCell3
tableCell4	tableCell5	tableCell6
tableCell7	tableCell8	tableCell9

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](#), select a row or cell and drag it to a new position.

- ▼ xrTable1
  - ▶ xrTableRow1
  - ▶ xrTableRow5
  - ▶ xrTableRow7
  - ▶ xrTableRow10
  - ▶ xrTableRow11
  - ▶ xrTableRow12
  - ▶ xrTableRow13
  - ▶ xrTableRow16

The Report Explorer highlights the possible drop targets when you drag an element over them.

### NOTE

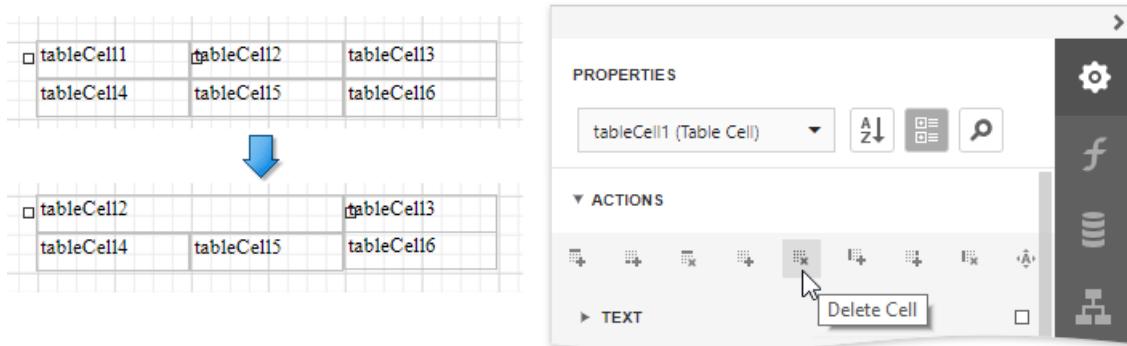
You can move table rows and cells only within the same parent control.

# Stretch Table Cells

You can stretch a cell to occupy several rows and columns.

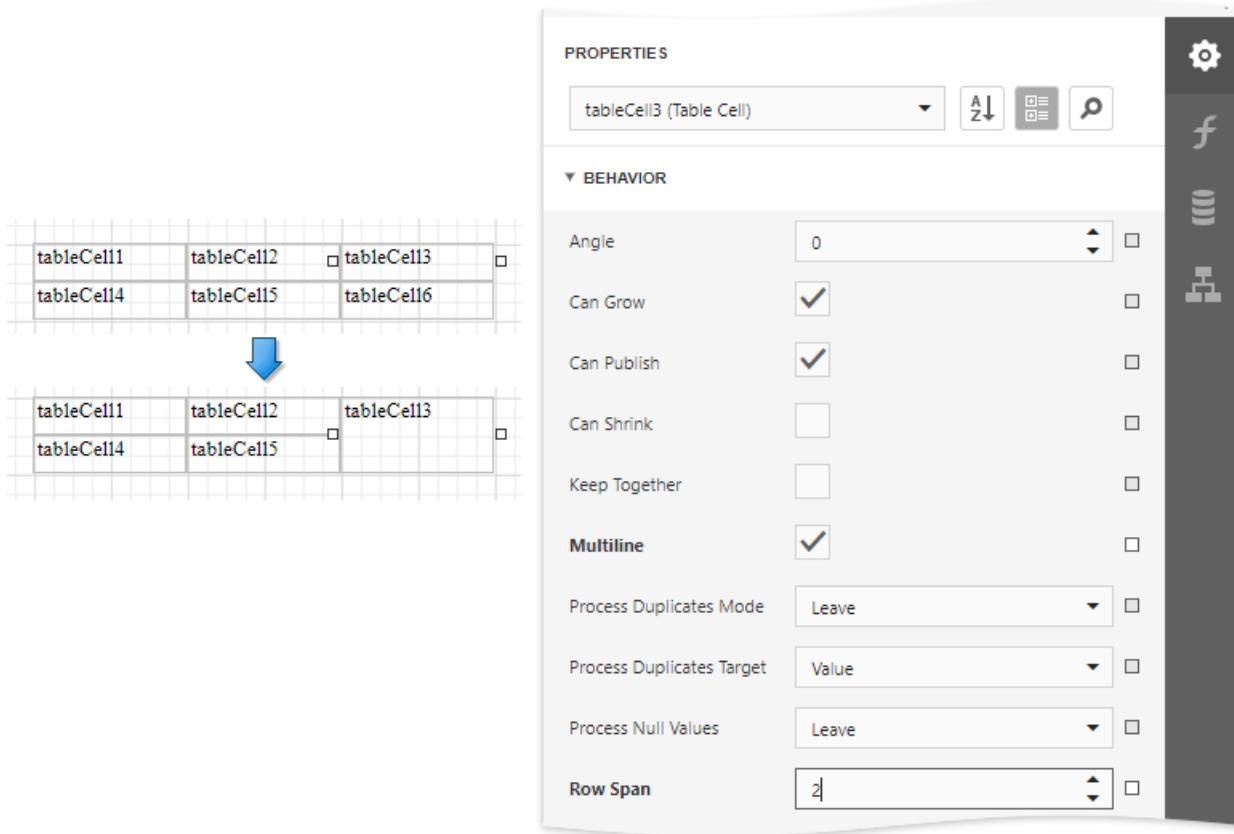
- Stretch a cell across several columns

Press **DELETE** or select the **Delete Cell** command in the **Action** category to remove a neighboring cell.



- Stretch a cell across several rows

Use a table cell's **Row Span** property to specify the number of rows the table cell spans.



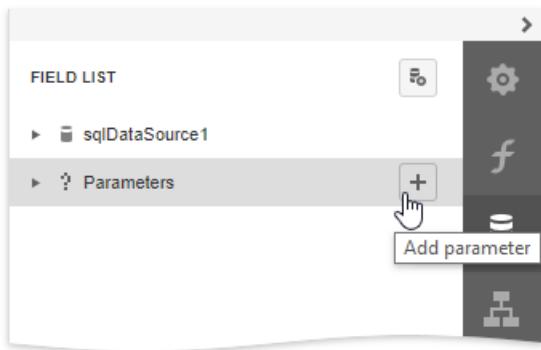
## NOTE

For the **RowSpan** property to work properly, the spanned cells should have the same width.

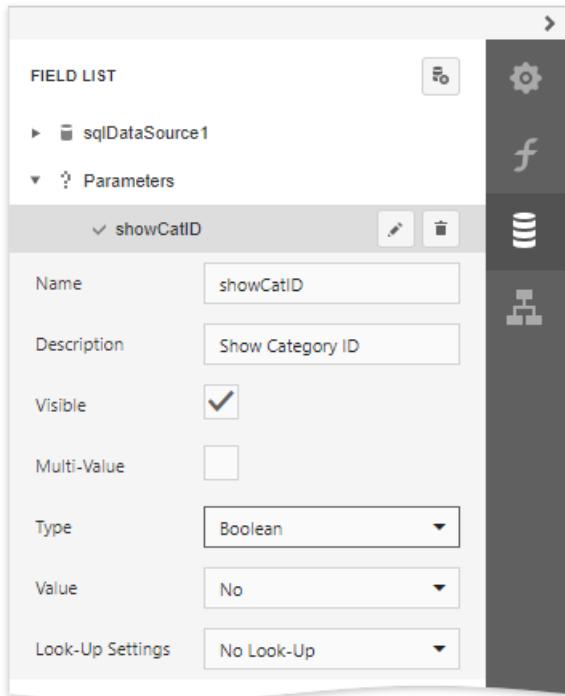
# Hide Table Cells

You can hide a specific table cell conditionally, for instance, based on a [report parameter](#) value.

Select the **Parameters** node in the [Field List](#) and click the **Add parameter** button.



Click the **Edit** button to expand the property list and specify the parameter's name and description for Print Preview, and set the type to **Boolean**.



Open the [Expressions](#) panel and specify an [expression](#) for the cell's **Visible** property to define a logical condition for displaying or hiding this cell.

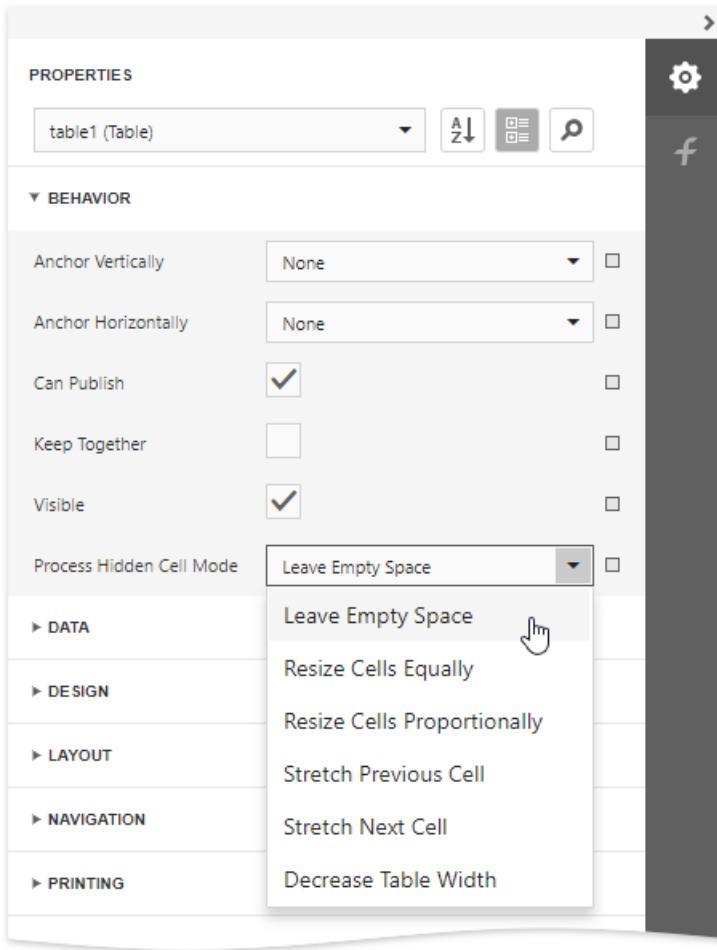
The image below demonstrates how to provide the visibility expression for the cell bound to the **CategoryID** field. For a report to display correctly, you should specify the same expression for the cell that displays the field caption in the Page Header.

The screenshot shows the Microsoft Report Designer's Expression Editor. At the top, there's a preview area with a table structure. The first row has two columns labeled "Product Name" and "Category ID". The second row contains two text boxes with the expressions "[ProductName]" and "[CategoryID]". Below this is the "EXPRESSIONS" pane, which is expanded to show the properties for "tableCell6 (Table Cell)". The "Visible" property is currently set to the expression "[CategoryID]". To the right of the expression editor is a toolbar with icons for gear, function, database, and report. The main editor window has a title bar "Expression Editor" and a close button "X". The code editor shows the following C# code:

```
1 IIf(?showCatID, true, false)
```

The left sidebar of the editor lists various report items and functions. Under "Fields", "SupplierID" and "UnitPrice" are listed. Under "Functions", "Aggregate", "DateTime", "Logical", and "Math" are listed. Under "Parameters", "? showCatID" is selected. At the bottom are "OK" and "Cancel" buttons.

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 Barcodes

The following topics provide basic information about using barcodes:

- [Add Barcodes to Reports](#)
- [Barcode Recognition Specifics](#)

See the following topics to learn about the supported one-dimensional barcodes:

- [Codabar](#)
- [Code 11 \(USD-8\)](#)
- [Code 128](#)
- [Code 39 \(USD-3\)](#)
- [Code 39 Extended](#)
- [Code 93](#)
- [Code 93 Extended](#)
- [EAN 8](#)
- [Deutsche Post Leitcode](#)
- [Deutsche Post Identcode](#)
- [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](#)
- [Pharmacode](#)
- [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 barcodes:

- [ECC200 - Data Matrix](#)
- [GS1- Data Matrix](#)
- [Intelligent Mail](#)
- [PDF417](#)
- [QR Code](#)
- [QR Code](#)
- [EPC QR Code](#)

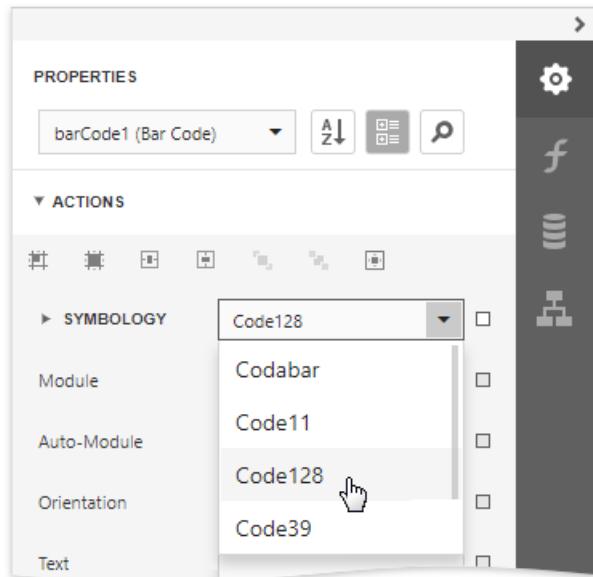
# Add Barcodes to a Report

## Overview

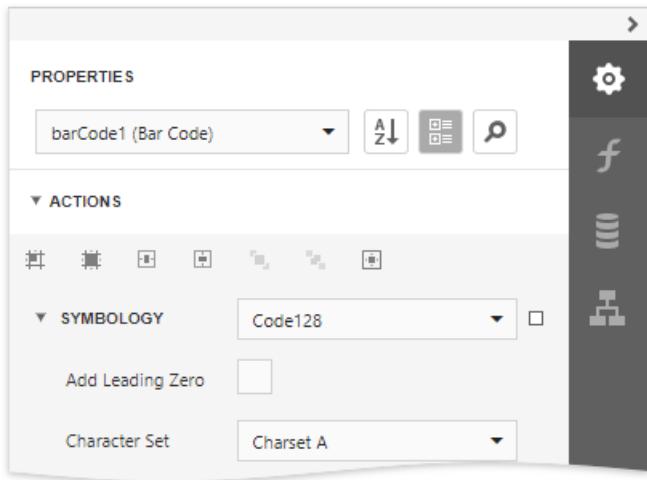
To insert a barcode into a report, drag the **Barcode** item from the **Toolbox** onto the report's area.



After creating the barcode, expand the **Bar Code Tasks** category and select the barcode type (symbology) in the **Symbology** property's drop-down list.



After specifying the symbology, you can customize the type-specific options of the barcode, which are listed under the **Symbology** property.



## Main Options

To specify the bar width (a barcode's resolution), use the following options:

- Automatically calculate the bar width according to a barcode's dimensions by enabling the **Auto Module** option;
- Provide a fixed bar width value using the **Module** property.

The following are some additional barcode options:

- Use the barcode'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 barcode.
- Use the **Padding** property to specify the indent between bars and the barcode's inner boundaries.

## Frames for QR Codes

For QR Codes ([QR Code](#), [GS1 QR Code](#), and [EPC QR Code](#)), you can use the **Frame Options** property to configure the frame around the barcode. The Corner and Rectangle frames are available for all types of QR Codes.

### Corner Frame

The corner frame looks as follows:



You can specify the following properties for corner frames:

- **Frame Color**

Specifies the frame color.

- **Frame Width**

Specifies the frame width in pixels.

- **Padding**

Specifies the distance between the frame and QR code.

- **Text**

Specifies the text that displayed in the frame.

- **Text Alignment**

Specifies how the text is aligned with the frame line.

- **Text Color**

Specifies the color of the text in the frame.

- **Text Position**

Specifies how the text is positioned against the QR code.

## Rectangular Frame

The rectangular frame looks as follows:



You can specify the following properties for corner frames:

- **Corner Radius**

Specifies rounded corners for the rectangular frame in pixels.

- **Frame Color**

Specifies the frame color.

- **Frame Width**

Specifies the frame width in pixels.

- **Padding**

Specifies the distance between the frame and QR code.

- **Text**

Specifies the text that displayed in the frame.

- **Text Alignment**

Specifies how the text is aligned with the frame line.

- **Text Color**

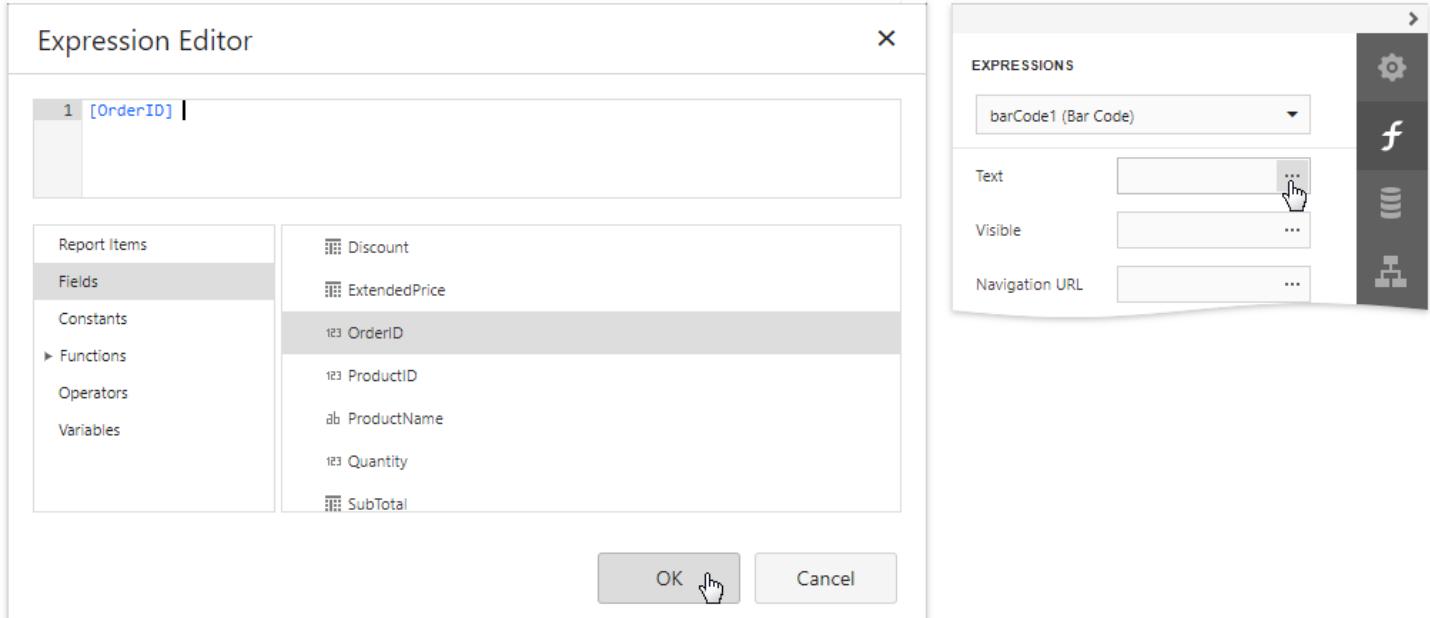
Specifies the color of the text in the frame.

- **Text Position**

Specifies how the text is positioned against the QR code.

## 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 **Text** property's ellipsis button in the **Expressions** panel. The invoked **Expression Editor** allows you to select a data field or 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 barcodes.

- The following error message is shown in place of the barcode if the control's dimensions are too small to fit the barcode with its specified resolution.

Control's boundaries  
are too small for the  
barcode

To get rid of this error, enable the **Auto Module** property and/or increase the barcode's dimensions.

- The following error message appears when the data supplied to a barcode contains characters that are not supported by this barcode type.

There are invalid  
characters in the text

To avoid this error, supply data that applies to a particular barcode specification.

# Barcode Recognition Specifics

This document describes the main specifics of barcode recognition and how to resolve the most frequently encountered issues when working with barcodes.

## Choose an Appropriate Barcode Type

Selecting an appropriate barcode type (symbology) depends on your specific business requirements and the applied industrial standards.

In general, consider using [Barcode 2 of 5 Interleaved](#) for encoding digits and [Barcode 39](#) for encoding the full range of ASCII characters.

## Insert the Function Code Characters (FNC) or the Application Identifier into a Barcode

Some encodings enable you to insert a special **FNC1** character for separating application identifiers from the rest of the barcode.

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.

For the [Code 128](#) symbology, you can also define **FNC2-4** characters.

For the list of the available application identifiers, refer to the official documentation at [www.gs1.org](http://www.gs1.org).

## Specify the Barcode Resolution on Export to Third-Party Formats

At present, only [export to PDF](#) preserves the original barcode in its vector form. Export to other formats will keep only the rasterized version of a barcode (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.

## Specify the DPI of the Device Used to Print the Bar Code

The **Target Device Dpi** property allows you to specify the DPI of the device on which you wish to print your barcode. The `XRBarCode` control automatically adjusts bar density based on this property's value.

Use the **Target Device Dpi** property to ensure that the bar code is scanned correctly on the target device. This is especially important if your printing device has a non-standard DPI setting.

## Common Issues

This document section provides solutions to the most common issues that you may encounter when creating barcodes.

- **The barcode is too "dense"**

The more information you wish to encode, the more bars should be drawn and the larger the barcode should become.

The barcode's **Module** property specifies the width of the narrowest bar in a barcode. Although you can set this property to a very small value, the actual value is determined by the maximum resolution of your barcode printer device. Alternatively, consider using the **Auto Module** option to automatically calculate the optimal bar size based on the current barcode dimensions.

#### **NOTE**

When barcodes are "dense" and you are manually specifying the Module value, make sure that multiplying this value by the barcode 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 barcode 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 barcode 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 barcode. If you are not certain about how to operate the scanner properly, please refer to its product manual.

Avoid scanning barcodes 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 barcode 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 barcode symbologies define different ranges of allowed characters under different character sets. To avoid this error, please check the barcode specification.

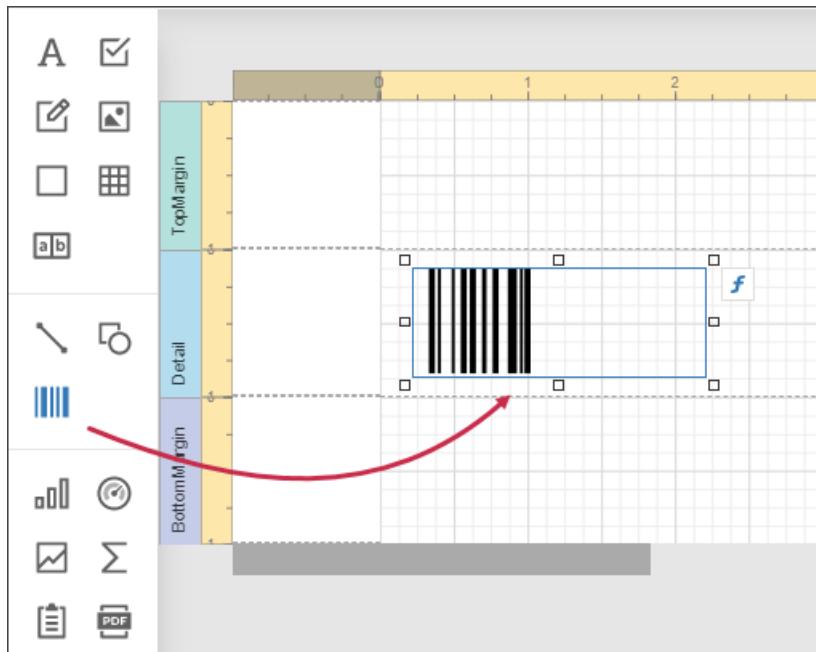
# Codabar

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.

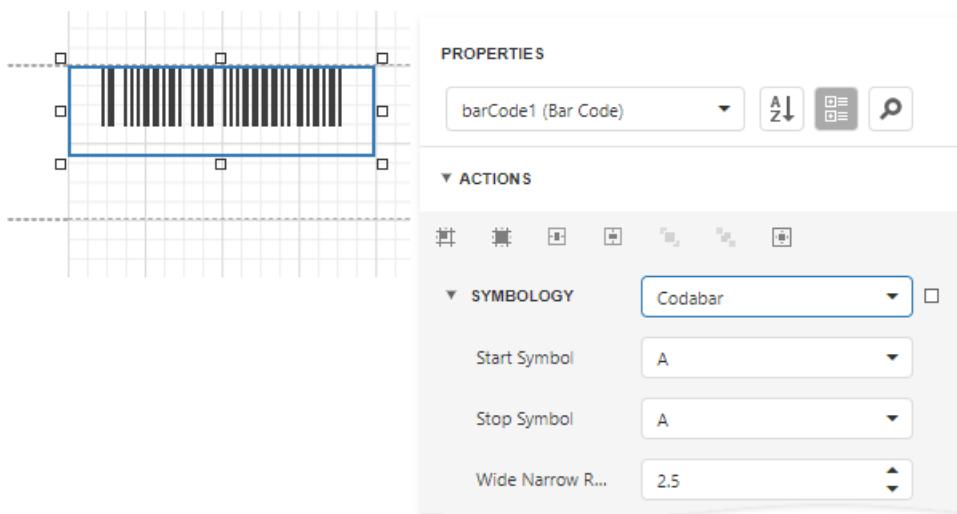


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **Codabar**.



3. Specify common barcode properties and properties **specific** to **Codabar**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **Codabar**:

- **StartSymbol**

Gets or sets the first (start) symbol used to code the barcode's structure.

- **StopSymbol**

Gets or sets the last (stop) symbol used to code the barcode's structure.

- **Wide Narrow Ratio**

Specifies the density of a barcode's bars.

# Code 11 (USD-8)

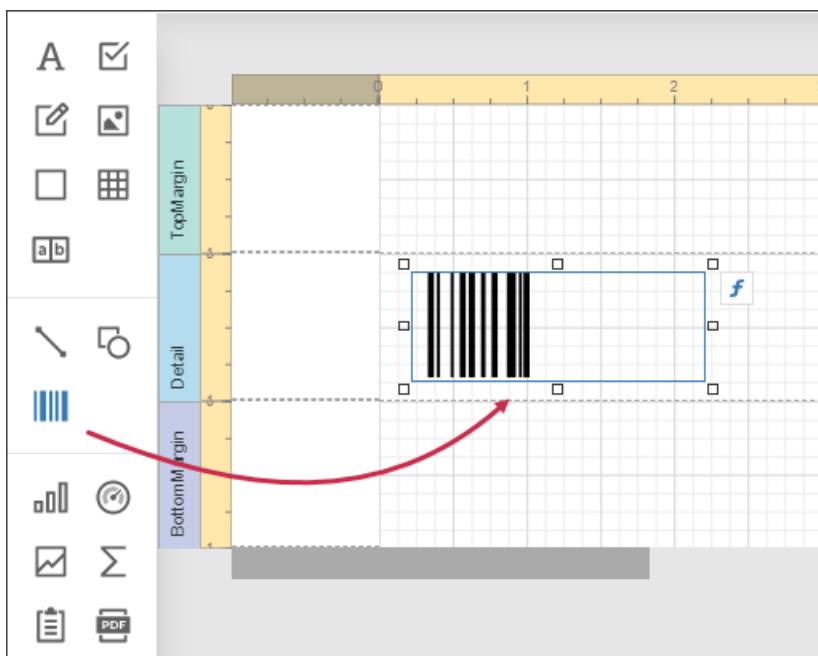
**Code 11**, also known as **USD-8**, was developed as a high-density numerical-only symbology. It is used primarily in labeling telecommunications equipment.

The symbology is discrete and is able to encode the numbers **0** through to **9**, the dash symbol (-), and start/stop characters.

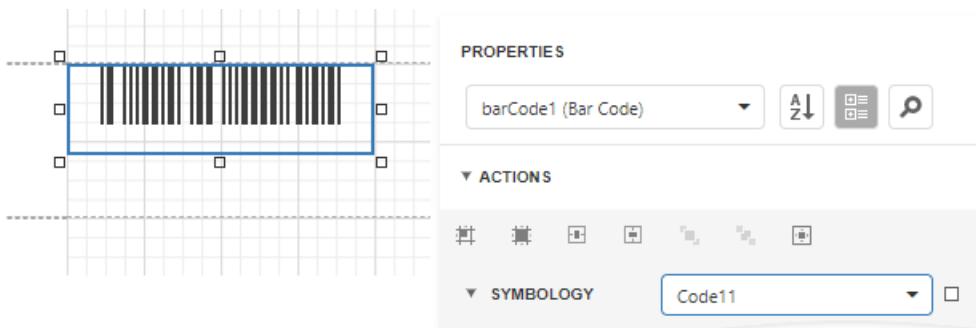


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **Code11**.

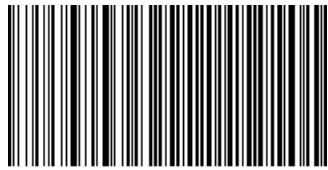


3. Specify common barcode properties.

# 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 barcode can also be verified character-by-character, allowing the parity of each data byte to be verified.

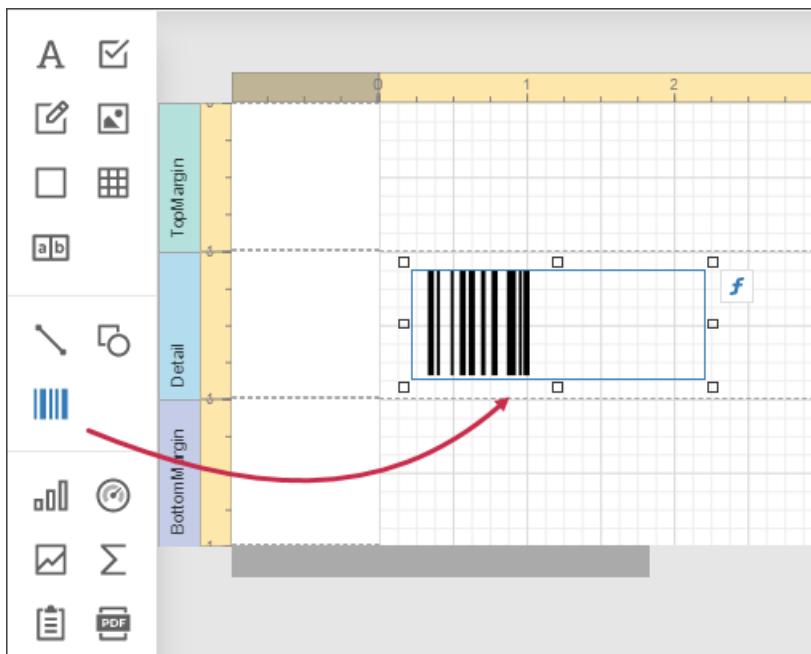
This symbology has been widely implemented in many applications where a relatively large amount of data must be encoded in a relatively small amount of space. Its specific structure also allows numerical data to be effectively encoded at double-density.



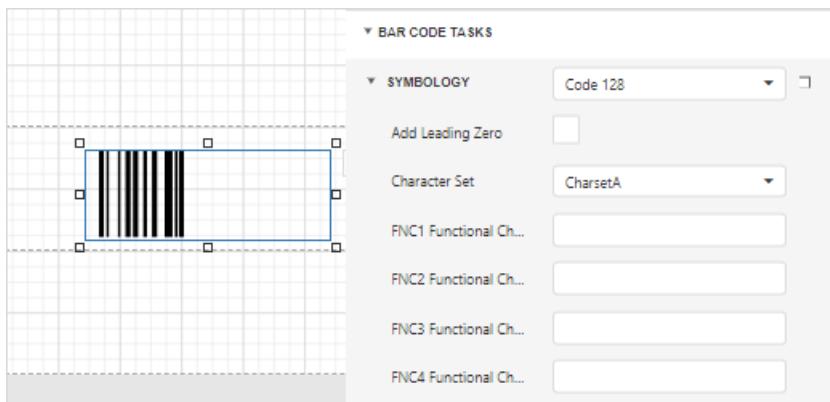
BarCode 0123456

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **Code128**.



3. Specify common barcode properties and properties [specific](#) to **Code 128**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **Code 128**:

- **Character Set**

Specifies the set of symbols which can be used when setting the barcode's text.

- **FNC1 Functional Character**

A substring/character that serves as the placeholder for the FNC1 functional character.

- **FNC2 Functional Character**

A substring/character that serves as the placeholder for the FNC2 functional character.

- **FNC3 Functional Character**

A substring/character that serves as the placeholder for the FNC3 functional character.

- **FNC4 Functional Character**

A substring/character that serves as the placeholder for the FNC4 functional character.

# Code 39 (USD-3)

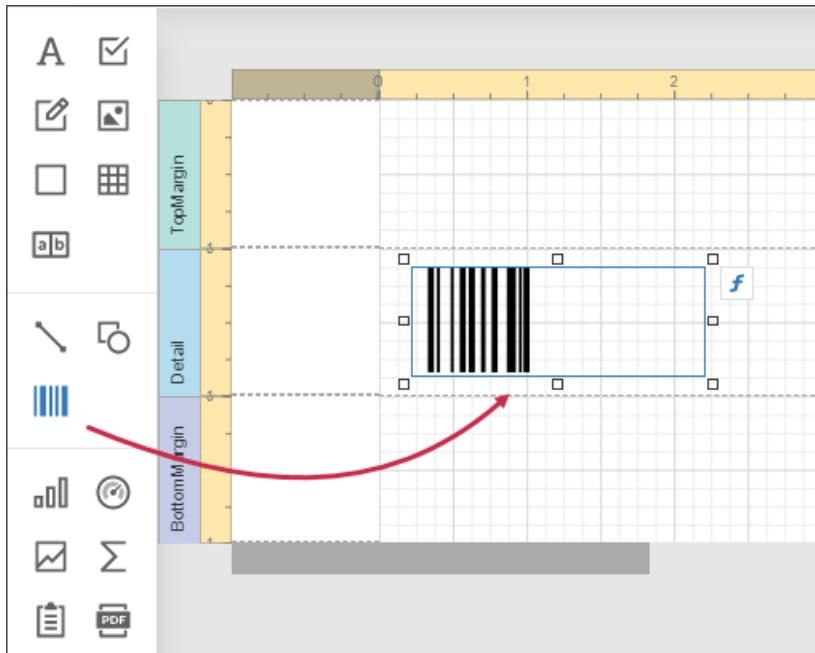
**Code 39**, the first alpha-numeric symbology to be developed, is still widely used, particularly in non-retail environments. It is the standard barcode used by the United States Department of Defense, and is also used by the Health Industry Barcode Council (HIBCC). **Code 39** is also known as "**3 of 9 Code**" and "**USD-3**".



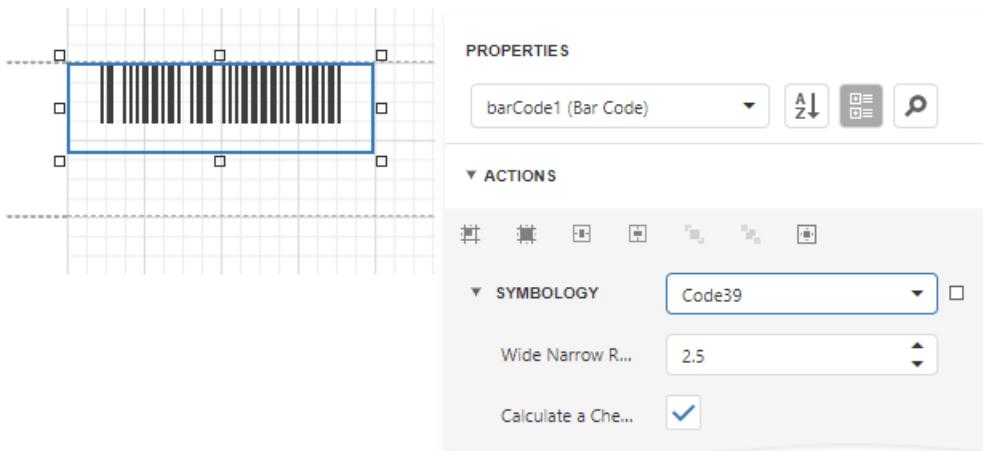
BARCODE

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **Code39**.



3. Specify common barcode properties and properties specific to **Code 39**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **Code 39**:

- **Calculate a Checksum**

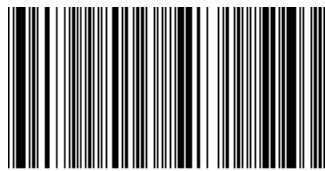
Specifies whether to calculate a checksum for the barcode.

- **Wide Narrow Ratio**

Specifies the density of a barcode's bars.

# Code 39 Extended

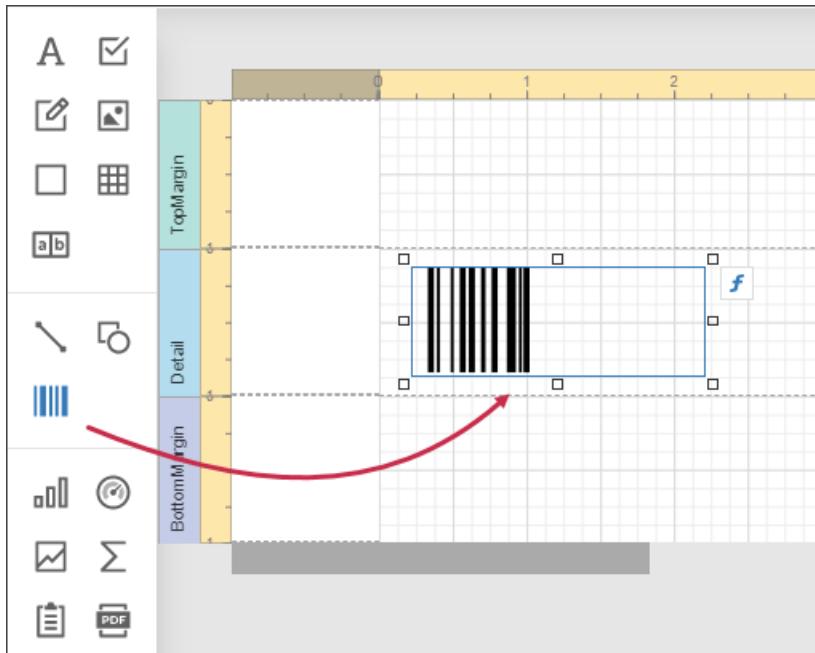
Using **Code 39**'s "Full ASCII Mode", it is possible to encode all **128** ASCII characters. This is accomplished by using the **( \$ ) ( / ) ( % )**, and **( + )** symbols as "shift" characters. These characters combined with the single character that follows indicate which Full ASCII character is to be used.



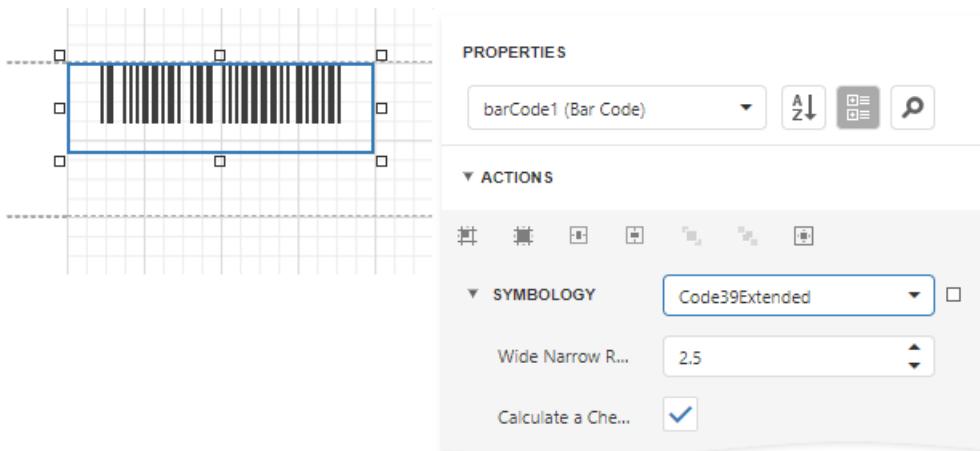
BarCode

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **Code39Extended**.



3. Specify common barcode properties and properties [specific](#) to **Code 39 Extended**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **Code 39 Extended**:

- **Calculate a Checksum**

Specifies whether to calculate a checksum for the barcode.

- **Wide Narrow Ratio**

Specifies the density of a barcode's bars.

The **Code 39 Extended** barcode, 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 barcode's text, use "\t", which will be replaced by "\$I" for coding, and then into "TAB" after scanning:

PROPERTY	VALUE
Barcode's text:	"12345\t678"
Coded text:	"12345\$I678"
Scanned text:	"12345[TAB]678"

The checksum is not considered to be part of a barcode's text and checksum characters are never replaced. When the barcode's **Show Text** and **Calculate a Checksum** properties are enabled, the barcode will not display a checksum character. This is required to avoid mistakenly treating a checksum as part of barcode text.

# Code 93

**Code 93** was designed to supplement and improve upon **Code 39**.

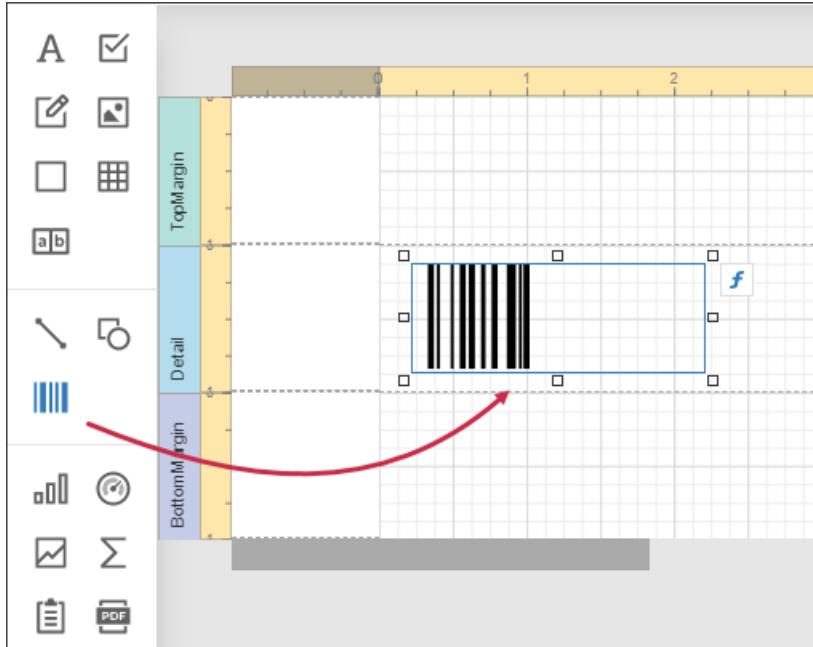
**Code 93** is similar in that, like **Code 39**, can represent the full ASCII character set by using combinations of **2** characters. It differs in that **Code 93** is a continuous symbology and produces denser code. It also encodes **47** characters (compared to **Code 39**'s **43** characters).



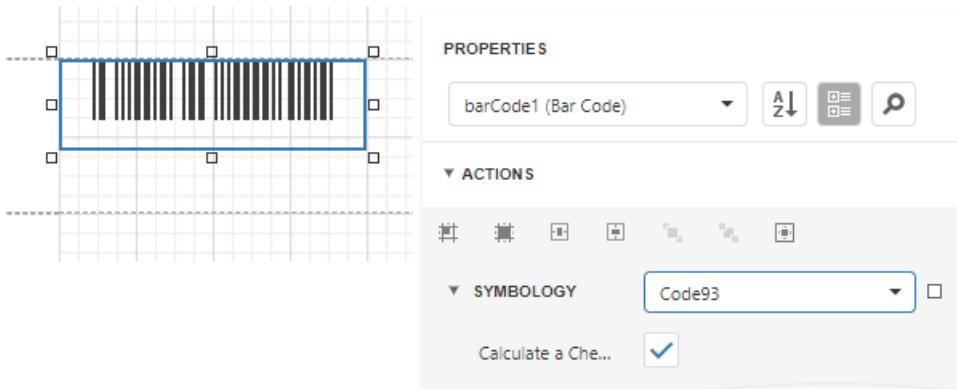
BARCODE

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **Code93**.



3. Specify common barcode properties and properties specific to **Code 93**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **Code 93**:

- **Calculate a Checksum**

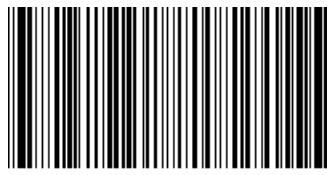
Specifies whether to calculate a checksum for the barcode.

**NOTE**

A checksum of a **Code 93** barcode can contain characters that are not supported by this barcode symbology. For this reason, the checksum is not included in the **Code 93** barcode's displayed text.

# Code 93 Extended

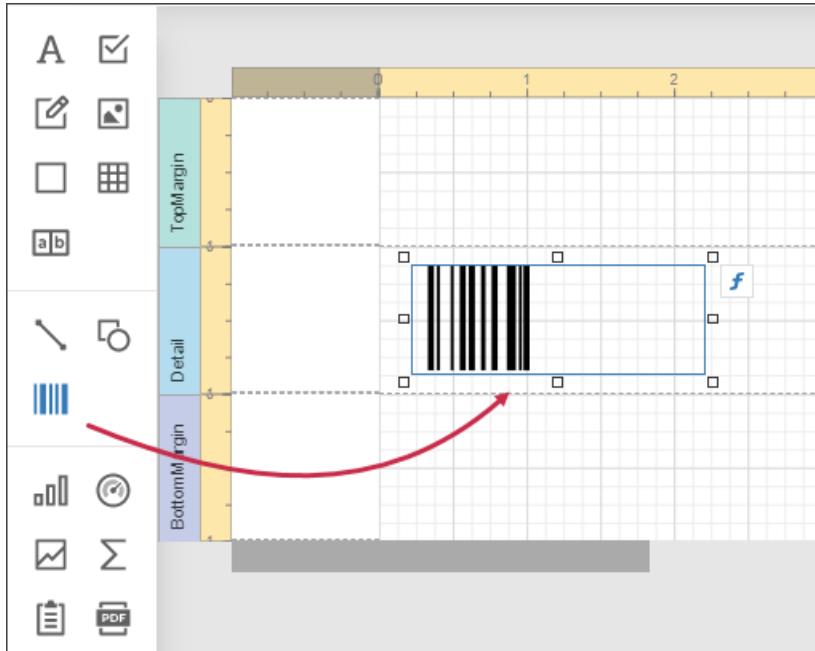
Using **Code 93's** "Full ASCII Mode", it is possible to encode all **128** ASCII characters. This is accomplished by using the **( \$ ), ( / ), ( % ),** and **( + )** symbols as "shift" characters. These characters combined with the single character that follows indicate which Full ASCII character is to be used.



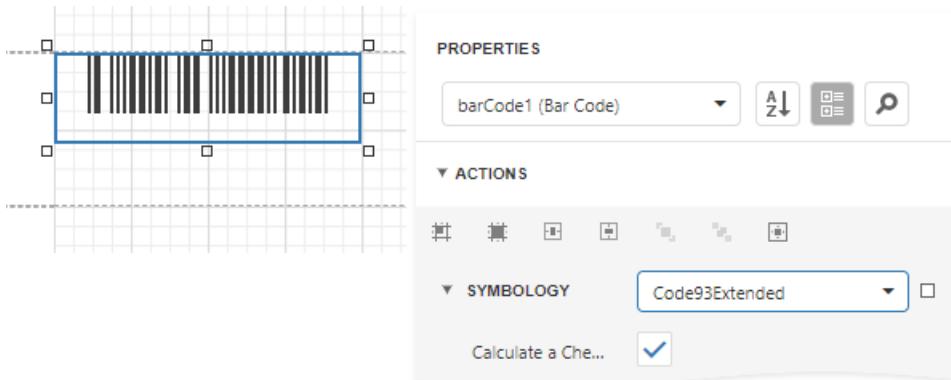
BarCode

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **Code93Extended**.



3. Specify common barcode properties and properties **specific** to **Code 93 Extended**.

## Specific Properties

In the **property grid**, expand the **Symbology** list and specify the following properties specific to **Code 93 Extended**:

- **Calculate a Checksum**

Specifies whether to calculate a checksum for the barcode.

**NOTE**

A checksum of a **Code 93 Extended** barcode can contain characters that are not supported by this barcode symbology. For this reason, the checksum is not included in the **Code 93 Extended** barcode's displayed text.

# Deutsche Post Leitcode

The *Deutsche Post Leitcode* symbology, or German Postal 2 of 5 LeitCode, LeitCode, or CodeLeitcode, is used by Deutsche Post AG (Deutsche Frachtpost). This barcode identifies the destination.



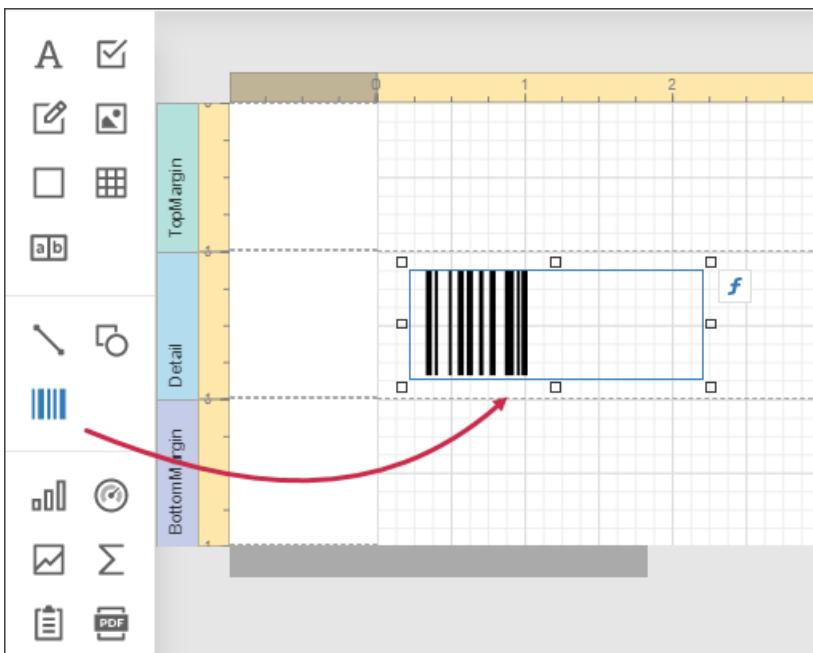
A value that the barcode encodes should consist of 13 or 14 digits:

- 5 digits for a Postal Code (Postleitzahl, PLZ);
- 3 digits for a Street ID/number;
- 3 digits for a House number;
- 2 digits for a Product code;
- 1 digit for a checksum (optional).

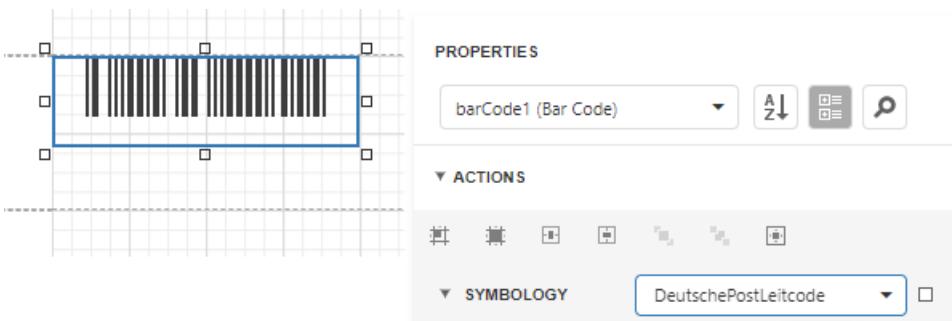
When you specify 13 digits, the barcode generates a checksum digit automatically. If you add a checksum digit, the barcode ignores this digit and also generates it automatically to ensure the encoded value is valid.

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **DeutschePostLeitcode**.



3. Specify [common barcode properties](#).

# Deutsche Post Identcode

The *Deutsche Post Identcode* symbology, also referred to as Deutsche Post AG IdentCode, German Postal 2 of 5 IdentCode, Deutsche Frachtpost IdentCode, or Deutsche Post AG (DHL), is used by German Post (Deutsche Post AG).



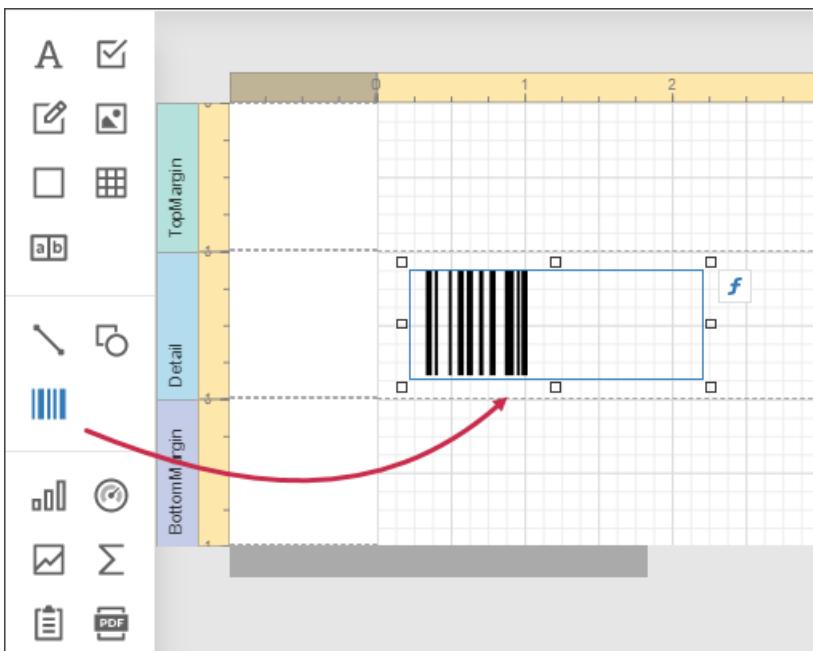
The barcode contains a tracking number that identifies a customer (sender) and a mail item. A value that the barcode encodes should consist of 11 or 12 digits:

- 2 digits for a distribution center ID;
- 3 digits for a customer ID;
- 6 digits for a mailing number;
- 1 digit for a checksum (optional).

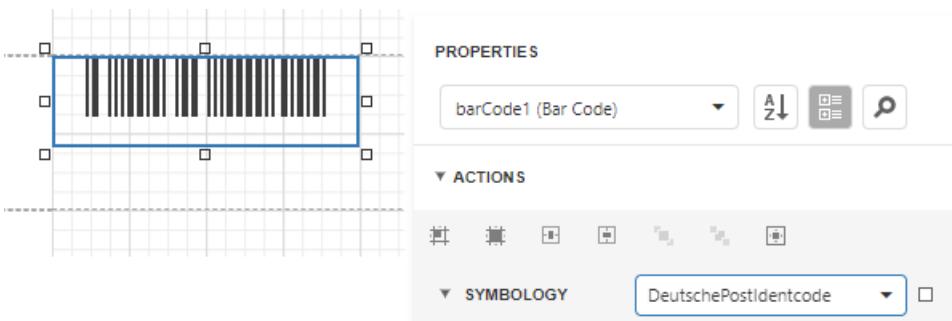
When you specify 11 digits, the barcode generates a checksum digit automatically. If you add a checksum digit, the barcode ignores this digit and also generates it automatically to ensure the encoded value is valid.

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **DeutschePostIdentcode**.



3. Specify [common barcode properties](#).

# 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 barcode standards.

The **EAN-13** barcode 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 barcode is constructed. So, for the correct **EAN-13** code, you should specify only the first **12** digits.

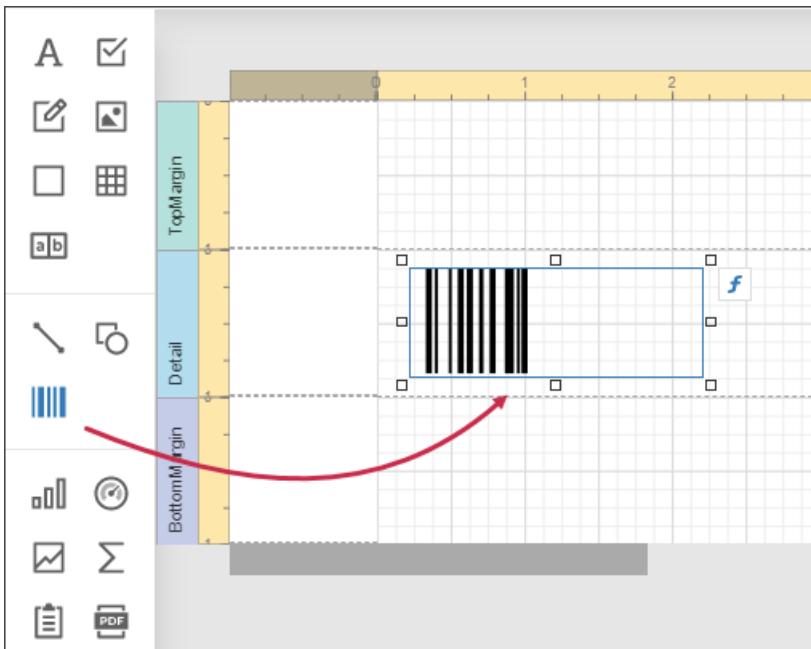
The recommended dimensions are shown in the following image. The standard allows magnification up to **200%**, and reduction of up to **80%** of the recommended size.



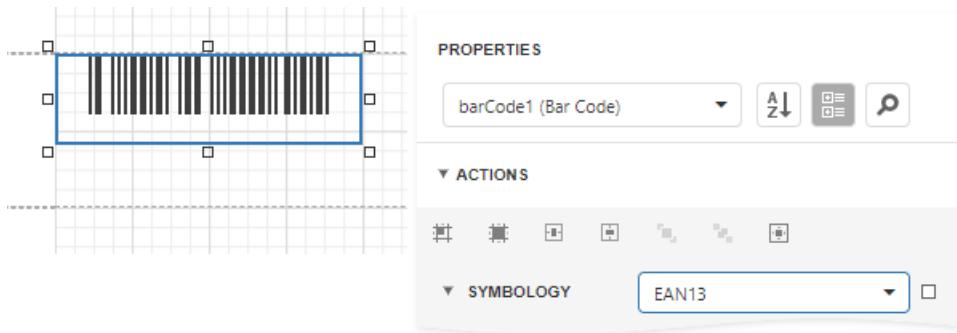
There should be two quiet zones before and after the barcode. They provide reliable operation of the barcode scanner. The quiet zone recommended length is **3.63** mm for the left zone and **2.31** mm for the right zone.

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **EAN13**.



3. Specify common barcode properties.

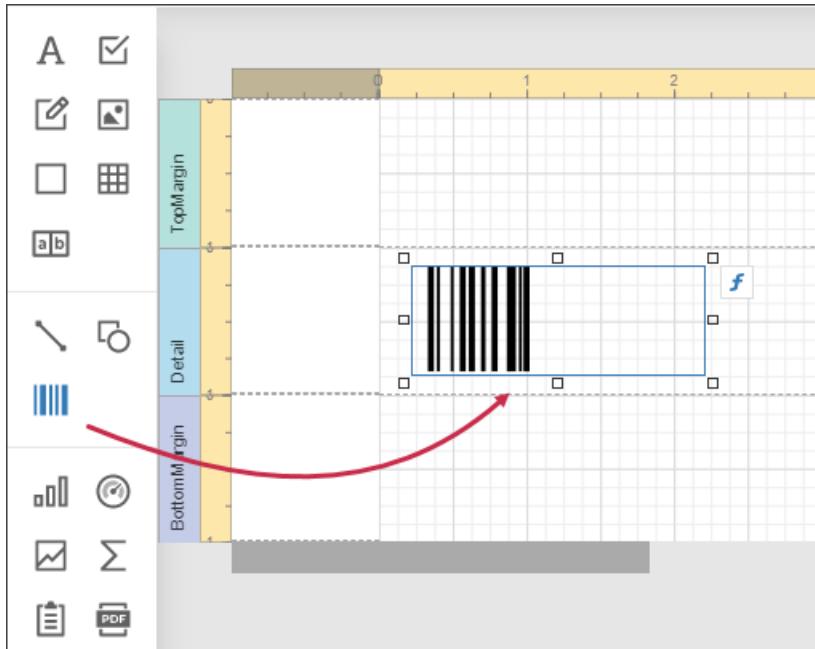
# EAN 8

**EAN-8** is the **EAN** equivalent of **UPC-E** in the sense that it provides a "short" barcode for small packages.

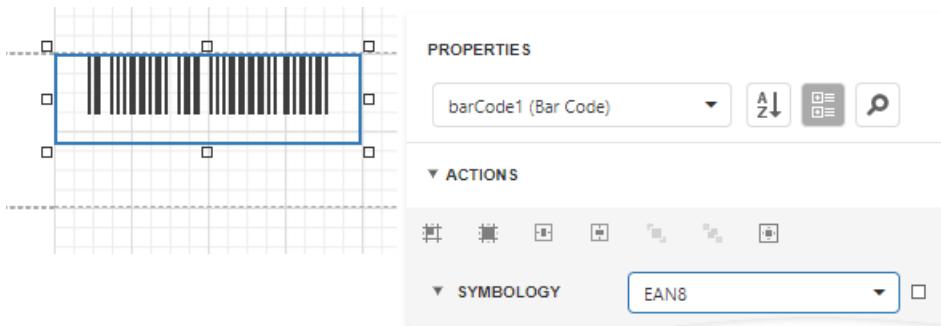


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **EAN8**.

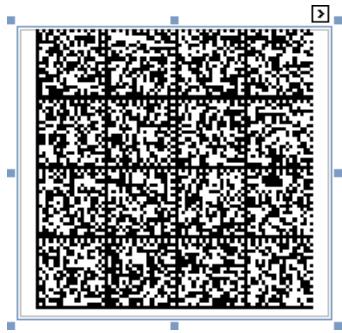


3. Specify common barcode properties.

# ECC200 - Data Matrix

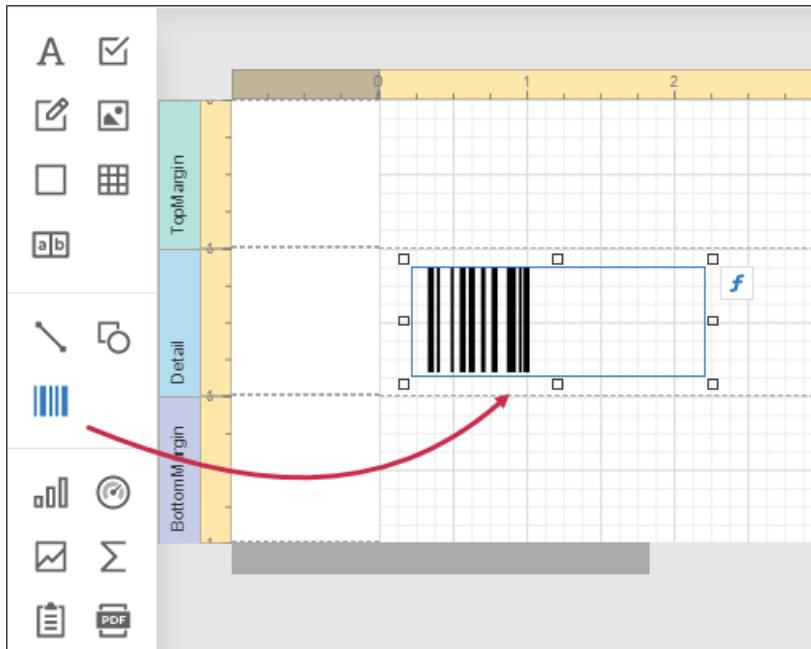
**Data Matrix** code (**ISO/IEC 16022** international standard) is a two-dimensional matrix barcode consisting of black and white "cells" arranged in a rectangular pattern. The information to be encoded can be text or raw data.

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.

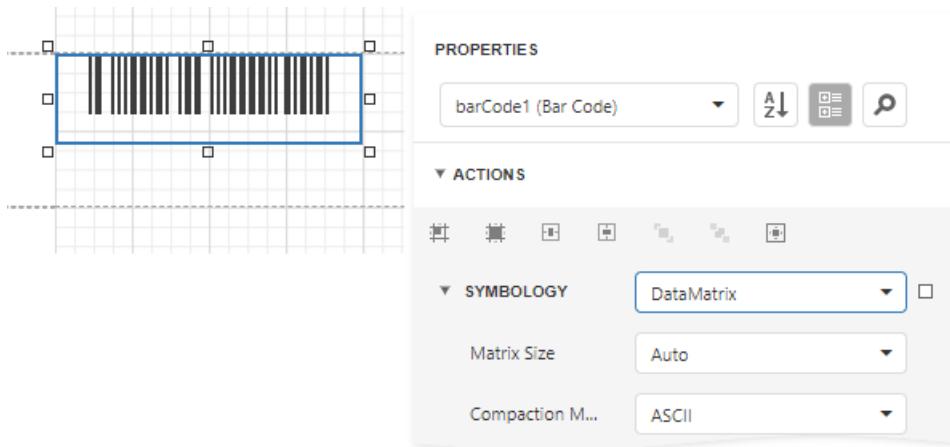


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **DataMatrix**.



3. Specify common barcode properties and properties specific to **Data Matrix**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **Data Matrix**:

- **Compaction Mode**

Specifies whether textual information or a byte array should be used as the barcode's data, as well as its encoding.

- **Matrix Size**

Specifies the barcode matrix size.

# GS1 - DataBar

The **GS1 DataBar** barcode is based on a family of symbols often used in the **GS1 DataBar Coupon** (coupon codes commonly used in retail).

These barcodes can encode up to **14** digits, which makes them suitable for **GTIN 8, 12, 13** and **14**.

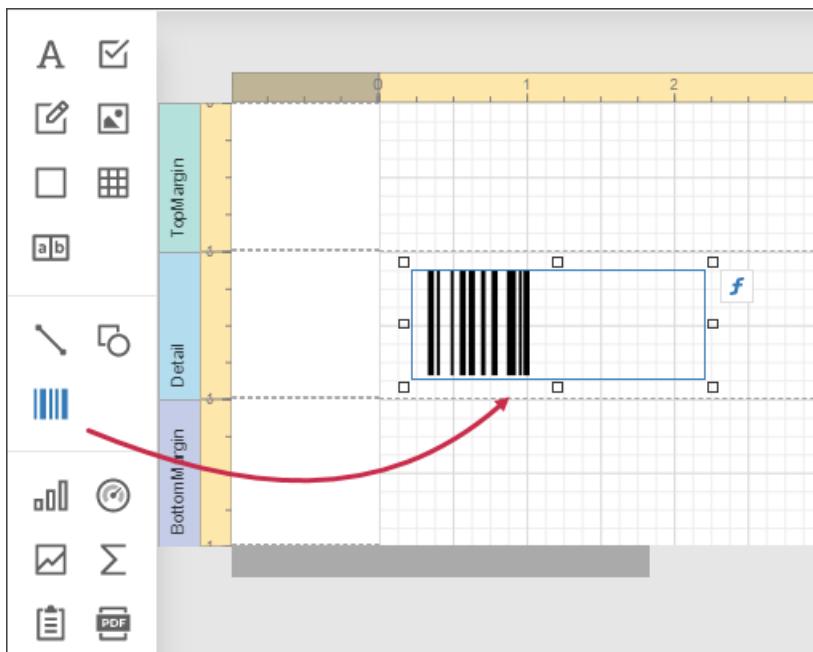
**GS1 DataBar Expanded** and **GS1 DataBar Expanded Stacked** can encode up to **74** numeric or **41** alphanumeric characters, and provide the capability to utilize all **GS1 Application Identifiers** (e.g., expiration date, batch and serial number). These barcodes are often used in manufacturer coupons.



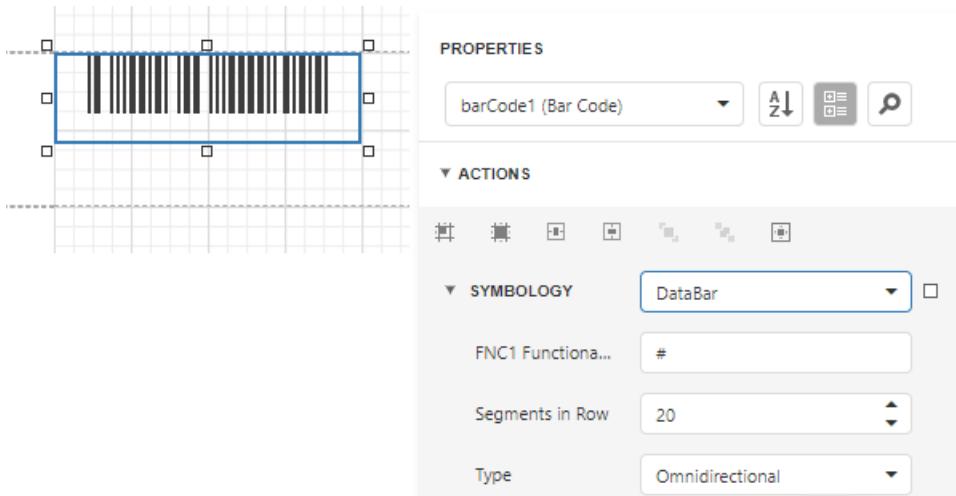
(01)90614141000015(3202)000150

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **DataBar**.



3. Specify common barcode properties and properties specific to **Data Bar**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **Data Bar**:

- **FNC1 Functional Character**

Specifies the symbol (or set of symbols) in the barcode text that will be replaced with the **FNC1** functional character when the barcode's bars are drawn.

- **Segments In Row**

Specifies the number of data segments per row in the Expanded Stacked type of a GS1 DataBar barcode.

- **Type**

Specifies the type of a GS1 DataBar barcode.

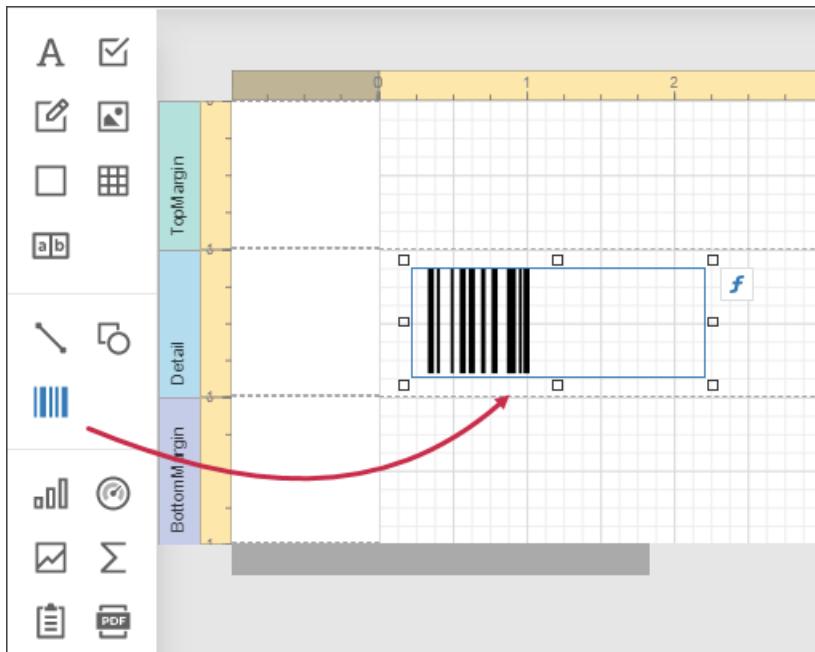
# GS1 - Data Matrix

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**.

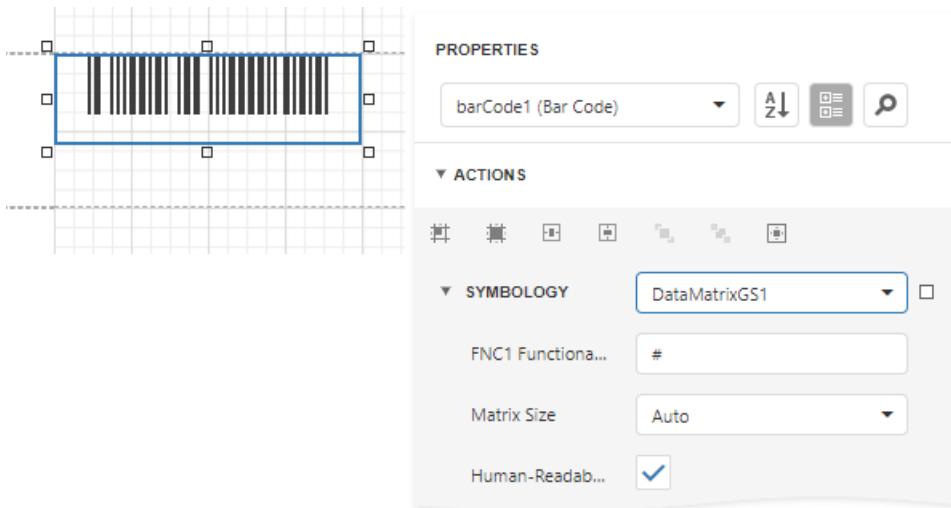


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **DataMatrixGS1**.



3. Specify common barcode properties and properties specific to **GS1 Data Matrix**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **GS1 Data Matrix**:

- **FNC1 Functional Character**

Specifies the symbol (or set of symbols) in the barcode text that will be replaced with the **FNC1** functional character when the barcode's bars are drawn.

- **Human-Readable Text**

Specifies whether or not parentheses should be included in the barcode's text to improve the readability of the barcode's text.

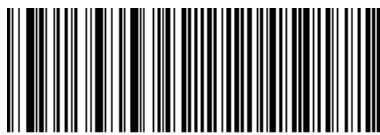
- **Matrix Size**

Specifies the barcode matrix size.

# GS1-128 - EAN-128 (UCC)

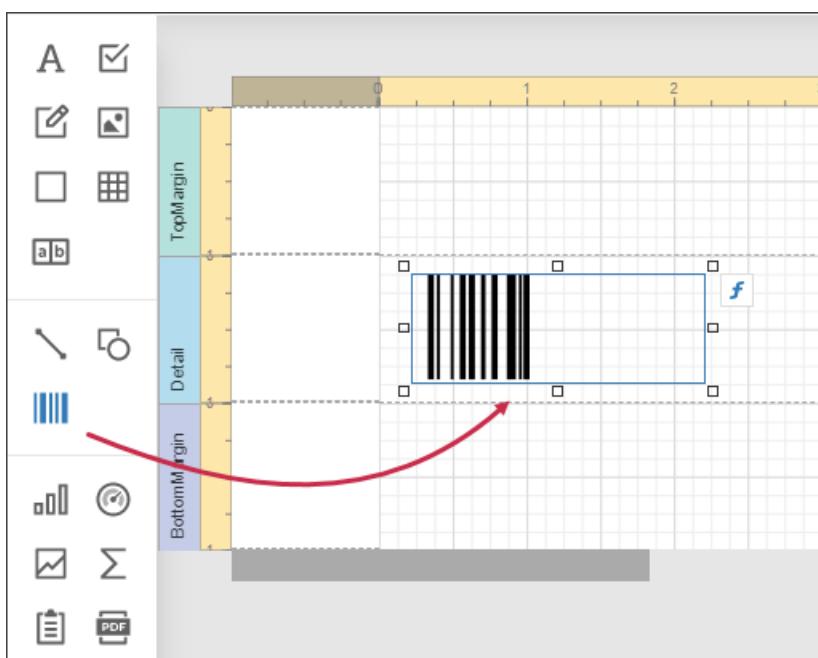
**GS1-128 (EAN-128)** was developed to provide a worldwide format and standard for exchanging common data between companies.

While other barcodes simply encode data with no respect for what the data represents, **GS1-128** encodes data and encodes what that data represents.

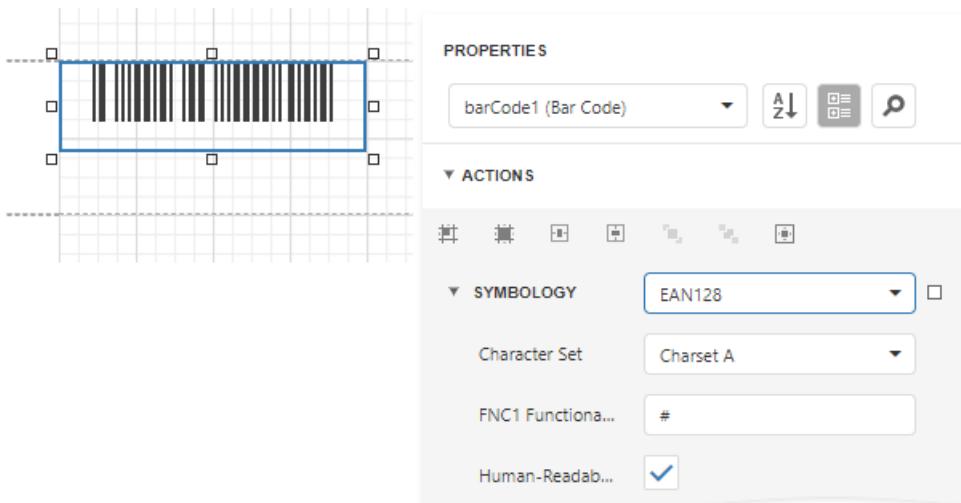


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **EAN128**.



3. Specify [common](#) barcode properties and properties [specific](#) to **EAN 128**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **EAN 128**:

- **Character Set**

Specifies the set of symbols which can be used when setting the barcode's text.

- **FNC1 Functional Character**

Specifies the symbol (or set of symbols) in the barcode text that will be replaced with the **FNC1** functional character when the barcode's bars are drawn.

- **Human-Readable Text**

Specifies whether or not parentheses should be included in the barcode's text to improve the readability of the barcode's text.

# Industrial 2 of 5

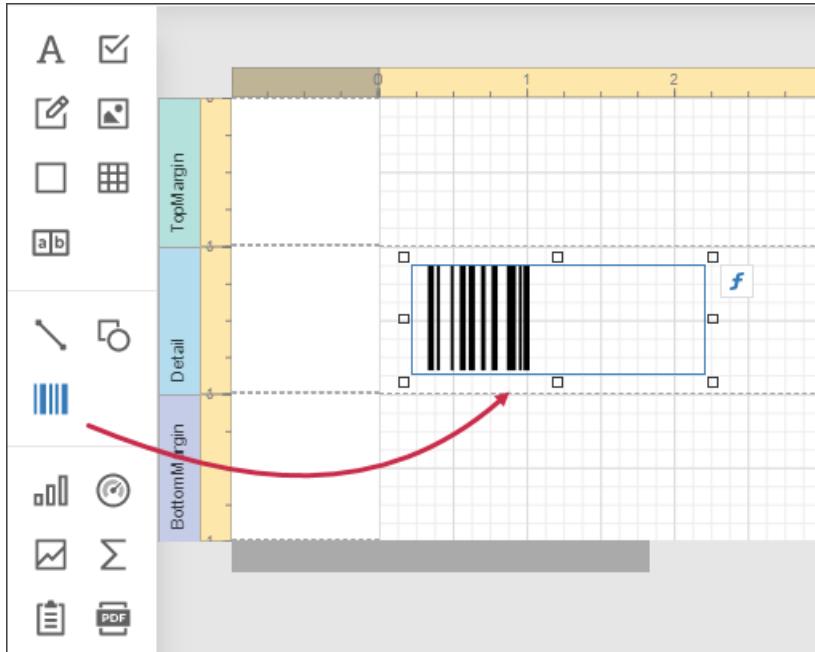
**Industrial 2 of 5** is a low-density numerical barcode that is used in the photofinishing and warehouse sorting industries, as well as to sequentially number airline tickets.



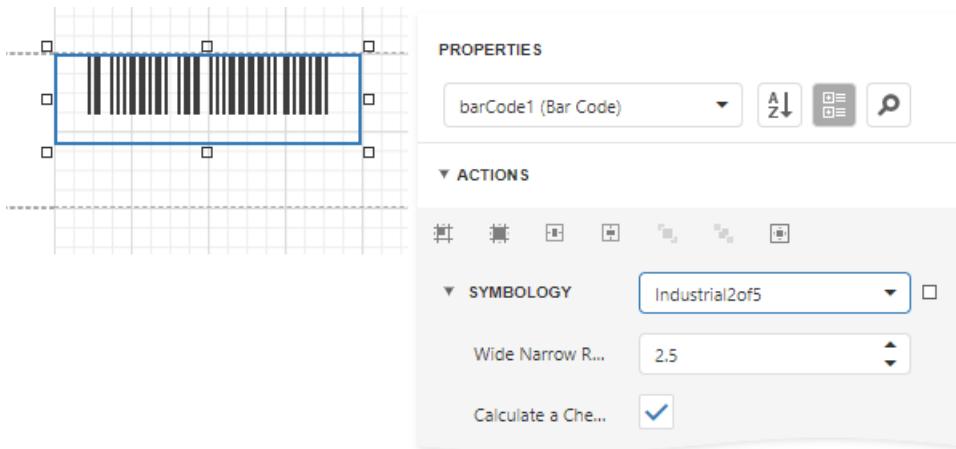
0123456789

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **Industrial2of5**.



3. Specify common barcode properties and properties **specific** to **Industrial 2 of 5**.

## Specific Properties

In the **property grid**, expand the **Symbology** list and specify the following properties specific to **Industrial 2 of 5**:

- **Calculate a Checksum**

Specifies whether to calculate a checksum for the barcode.

- **Wide Narrow Ratio**

Specifies the density of a barcode's bars.

# Intelligent Mail

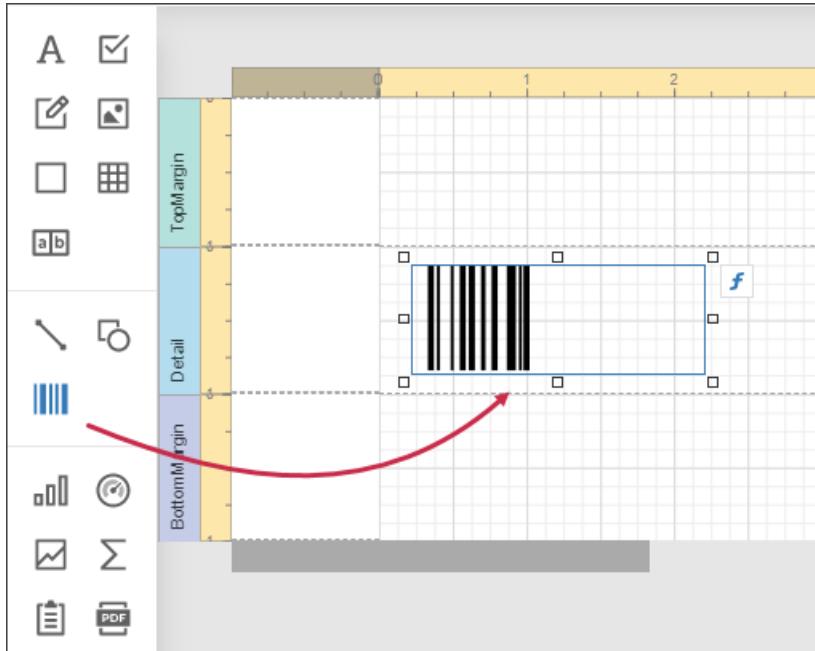
The **Intelligent Mail (IM)** code is a **65**-barcode for use on mail in the United States. This barcode is intended to provide greater information and functionality than its predecessors POSTNET and PLANET.

The **Intelligent Mail** barcode has also been referred to as **One Code Solution** and **4-State Customer** barcode abbreviated **4CB**, **4-CB** or **USPS4CB**.

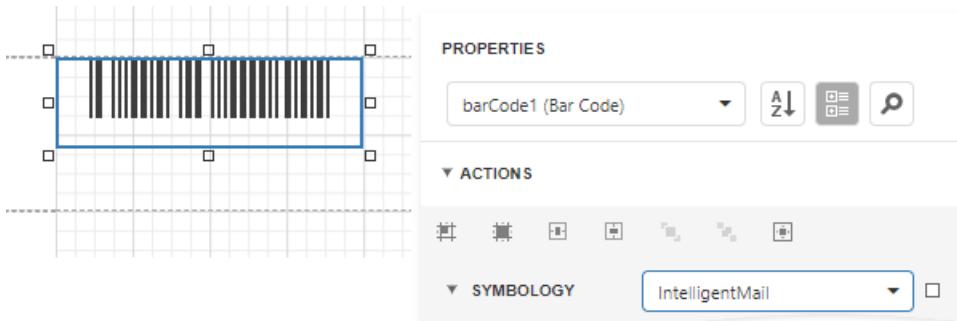


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **IntelligentMail**.



3. Specify common barcode properties.

# Intelligent Mail Package

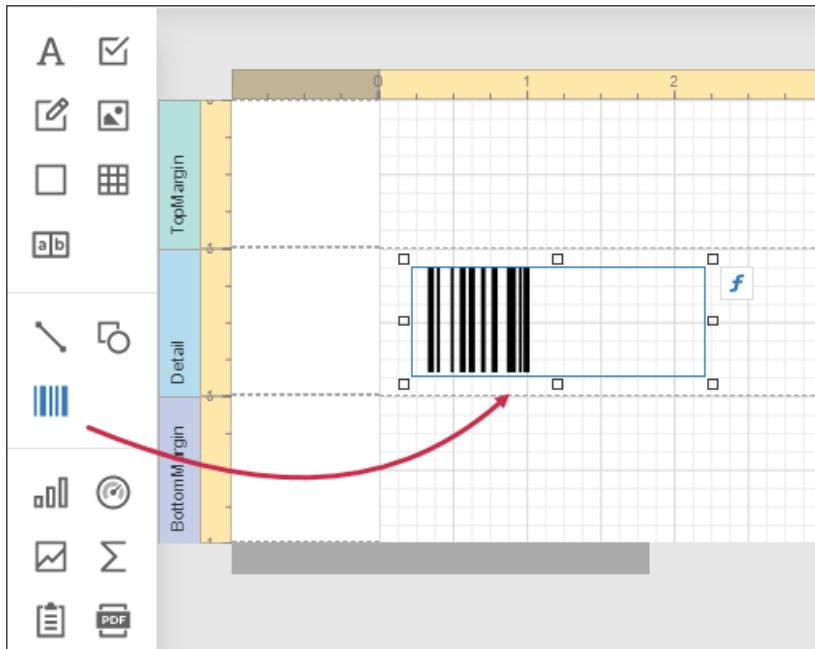
The **Intelligent Mail Package Barcode (IMPB)** was developed for the use on mail in the United States. Barcodes of this symbology are used only for packages as opposed to [Intelligent Mail](#) barcodes, which are used for postcards, letters, and flats.

This barcode is capable of encoding package tracking information required for more efficient sorting and delivering of packages with the capability of piece-level tracking.

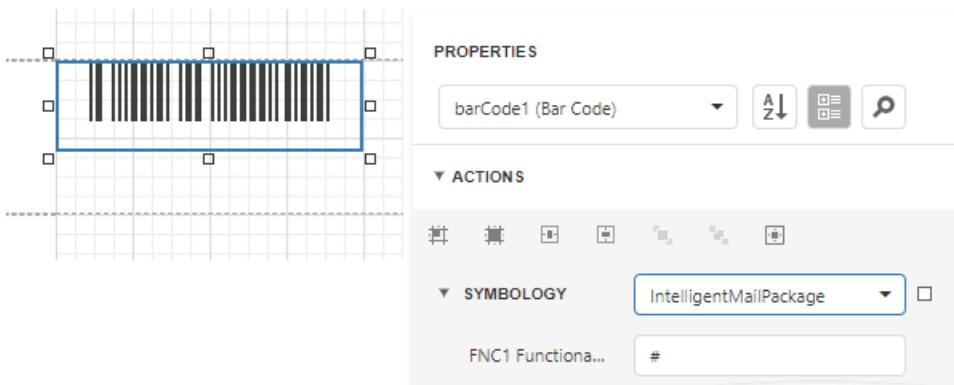


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **IntelligentMailPackage**.



3. Specify common barcode properties and properties [specific](#) to **Intelligent Mail Package**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following property specific to **Intelligent Mail Package**:

- **FNC1 Functional Character**

Specifies the symbol (or set of symbols) in the barcode text that will be replaced with the **FNC1** functional character when the barcode's bars are drawn.

# Interleaved 2 of 5

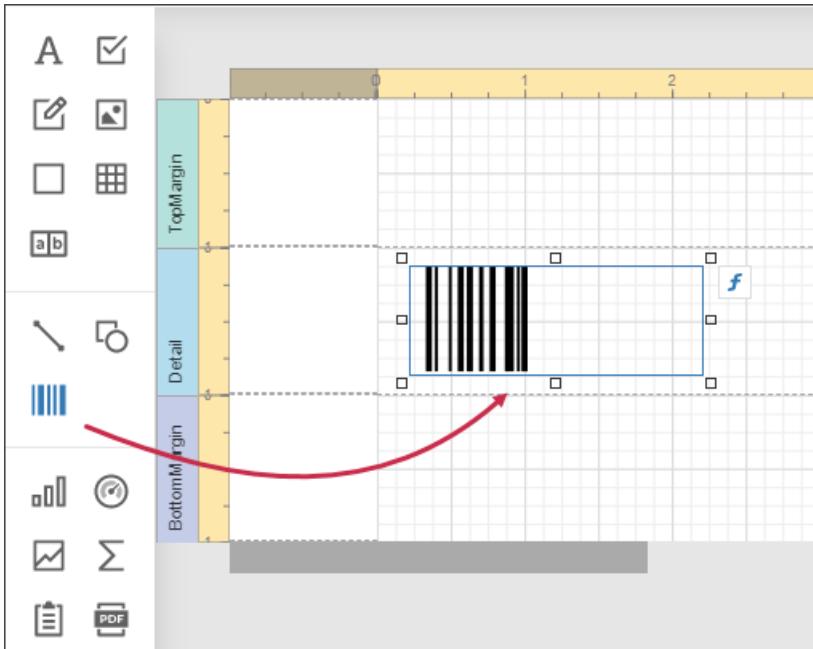
**Interleaved 2 of 5** is a higher-density numerical barcode based upon the **Standard 2 of 5** symbology. It is used primarily in the distribution and warehouse industry.



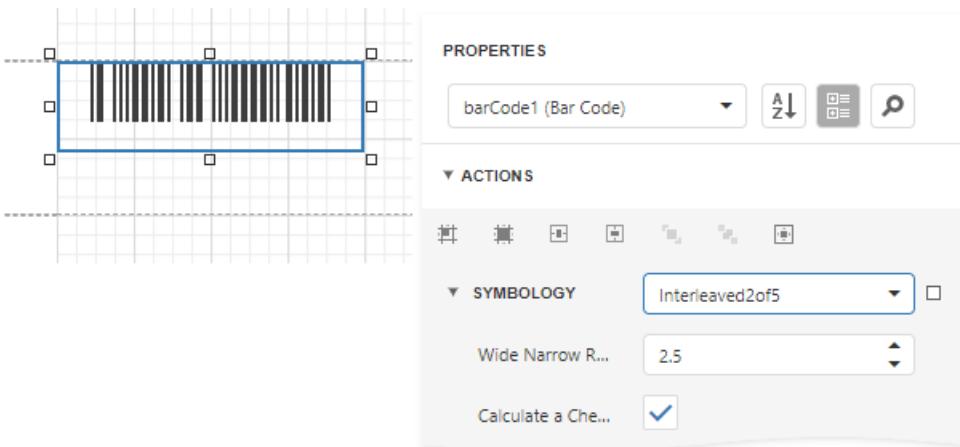
0123456789

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **Interleaved2of5**.



3. Specify common barcode properties and properties specific to **Interleaved 2 of 5**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **Interleaved 2 of 5**:

- **Calculate a Checksum**

Specifies whether to calculate a checksum for the barcode.

- **Wide Narrow Ratio**

Specifies the density of a barcode's bars.

## Matrix 2 of 5

**Matrix 2 of 5** is a linear one-dimensional barcode. **Matrix 2 of 5** is a self-checking numerical-only barcode.

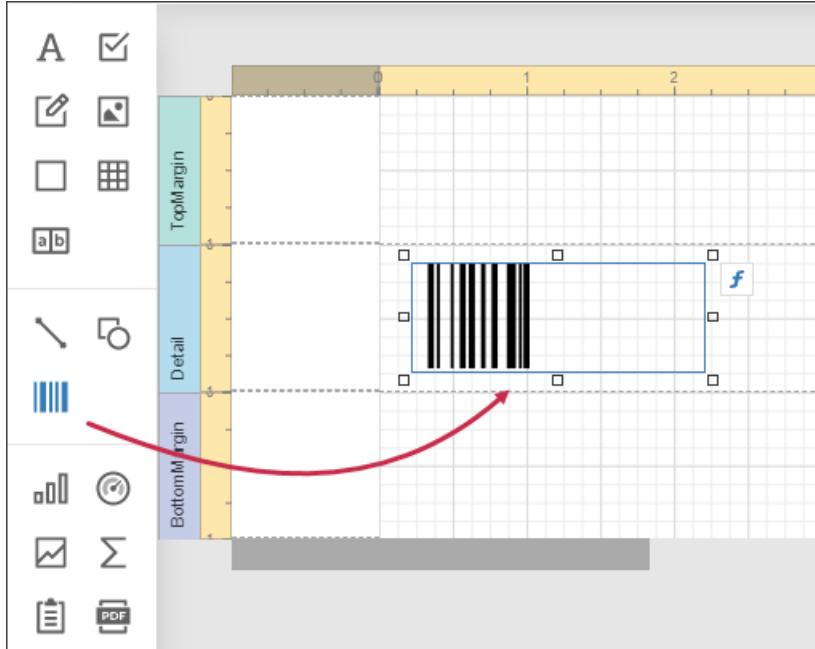
Unlike the **Interleaved 2 of 5**, all of the information is encoded in the bars; the spaces are of a fixed width and used only to separate the bars. **Matrix 2 of 5** is used primarily for warehouse sorting, photo finishing, and airline ticket marking.



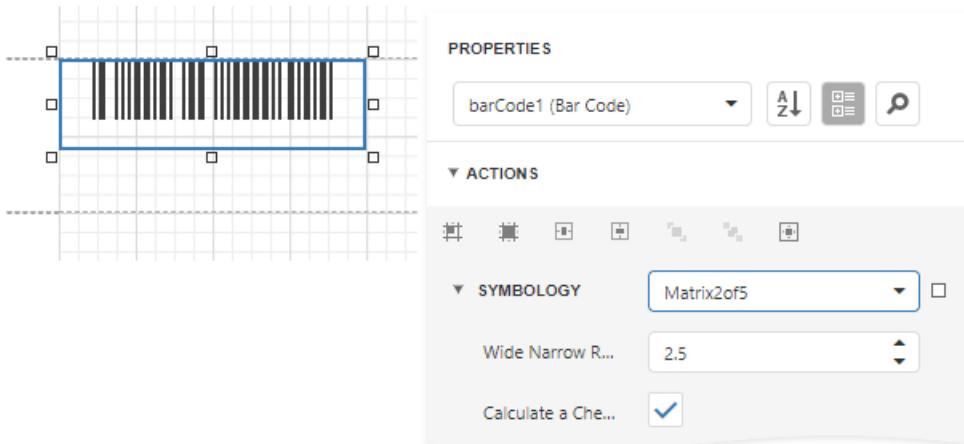
00123456789

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **Matrix2of5**.



3. Specify common barcode properties and properties specific to **Matrix 2 of 5**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **Matrix 2 of 5**:

- Calculate a Checksum

Specifies whether to calculate a checksum for the barcode.

- **Wide Narrow Ratio**

Specifies the density of a barcode'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.

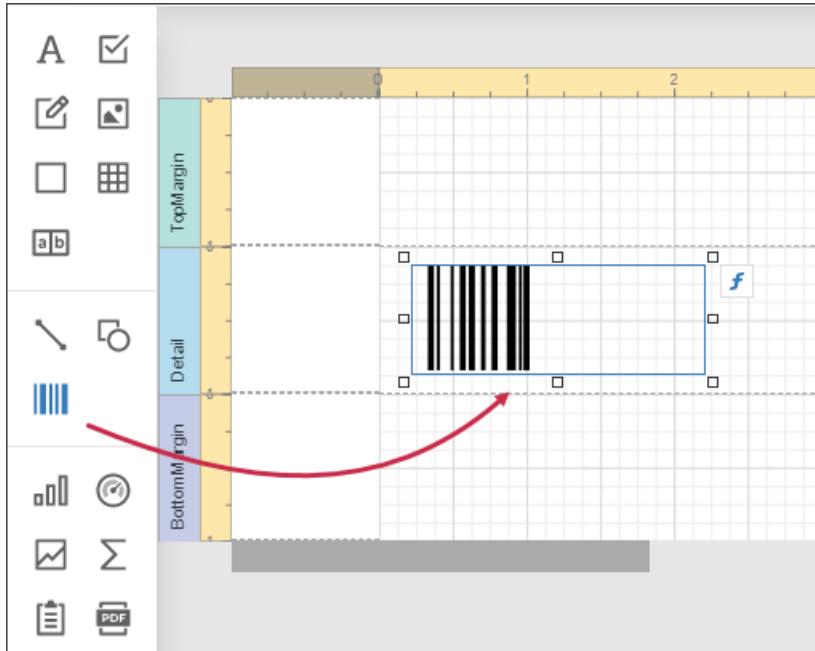
**MSI** is a continuous, non-self-checking symbology. While an **MSI** barcode can be of any length, a given application usually implements a fixed-length code.



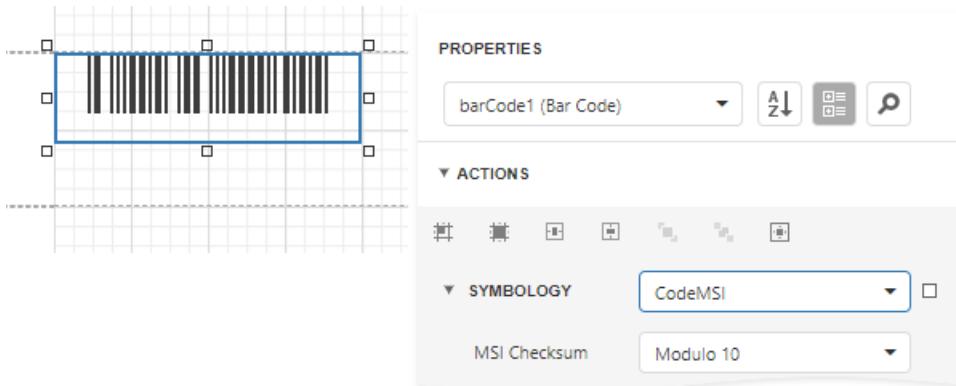
0123456789

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **CodeMSI**.



3. Specify common barcode properties and properties specific to **MSI**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following property specific to **MSI**:

- **MSI Checksum**

Specifies the barcode's checksum type, which defines the appearance of checksum bars added to the barcode.

# PDF417

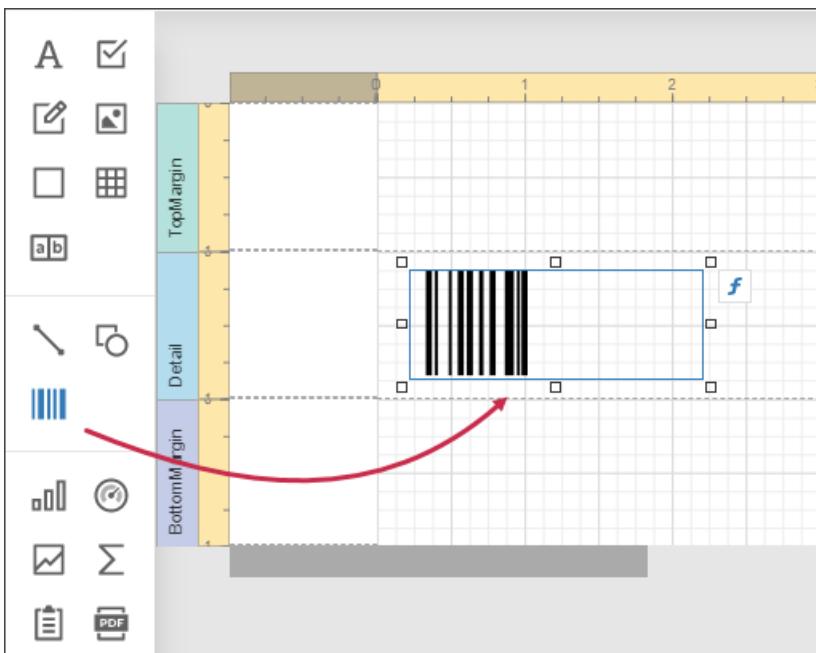
**PDF417 (Portable Data File)** is a stacked linear two-dimensional barcode used in a variety of applications; primarily transport, postal, identification card and inventory management. It has spawned an Open Source decoder project together with an Open Source encoder.

The **PDF417** barcode is also called a **symbol** barcode and usually consists of **3** to **90** rows, each of which is like a small linear barcode.

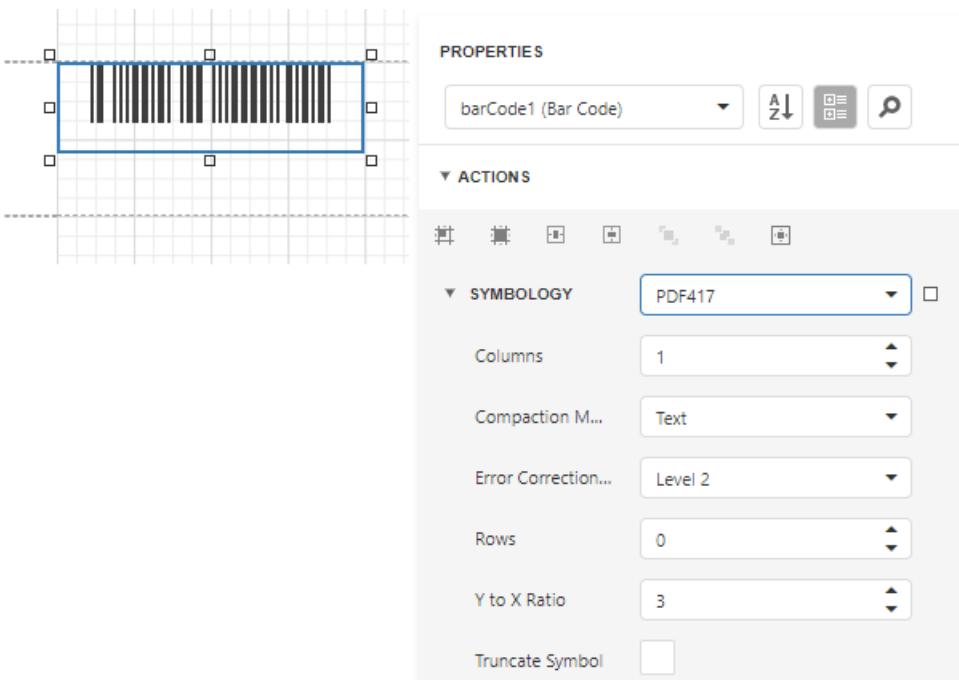


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **PDF417**.



3. Specify common barcode properties and properties specific to **PDF417**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **PDF417**:

- **Columns**

Specifies the number of barcode columns, which allows you to control the logic width of the barcode.

- **Compaction Mode**

Specifies whether textual information or a byte array should be used as the barcode's data.

- **Error Correction Level**

Specifies the amount of redundancy built into the barcode's coding, to compensate for calculation errors.

- **Rows**

Specifies the number of barcode rows, which allows you to control the logic height of the barcode.

- **Truncate Symbol**

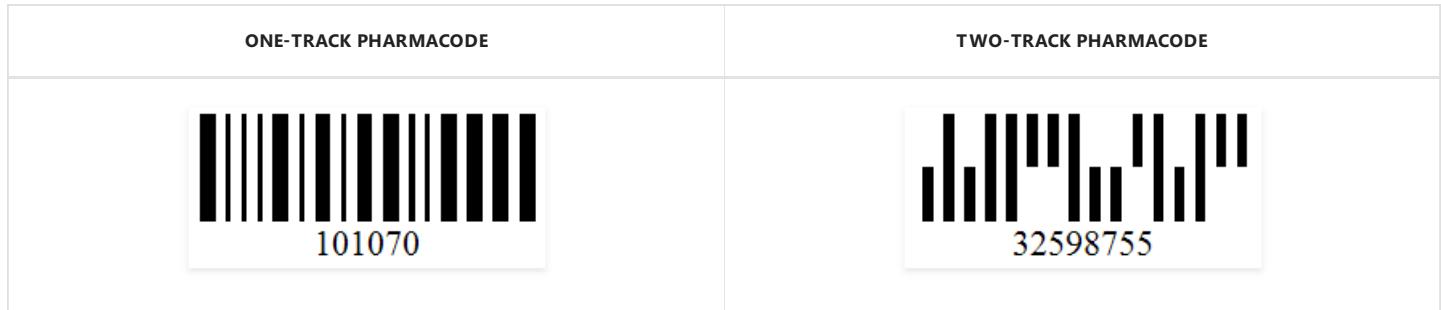
Specifies whether the special end-symbol should be appended to the barcode.

- **Y to X Ratio**

Specifies the height-to-width ratio of a logical unit's graphic representation.

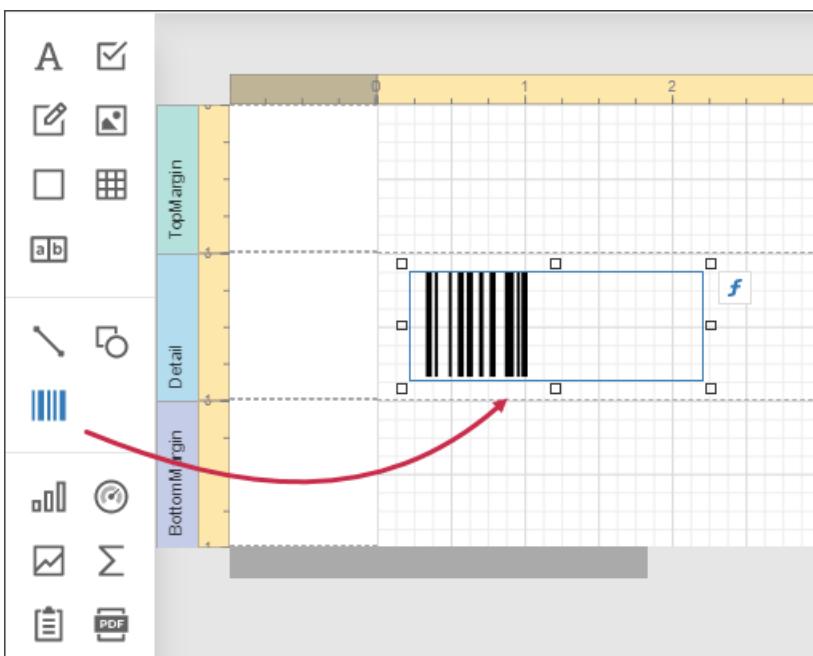
# Pharmacode

**Pharmacode** is a binary code developed by the German LAETUS GMBH company. The code is widely used in the pharmaceutical industry as a packaging control system. It can be either one-track or two-track.

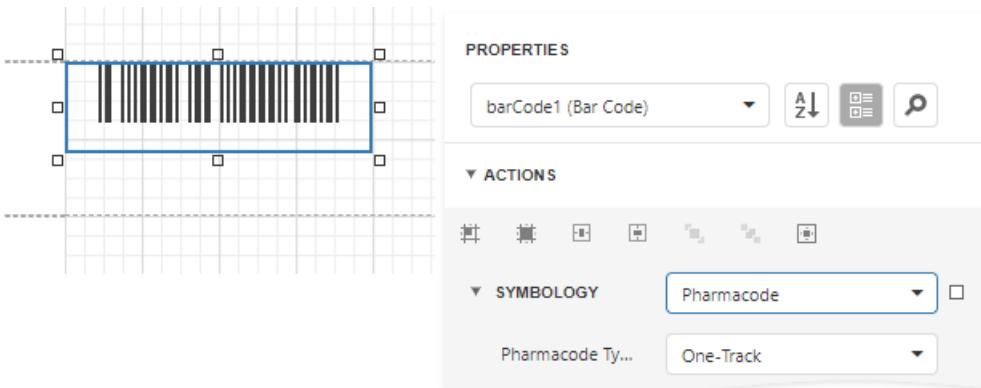


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **Pharmacode**.



3. Specify common barcode properties and properties **specific** to **Pharmacode**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following property specific to **Pharmacode**:

- **Pharmacode Type**

Specifies whether the **Pharmacode** has one or two tracks.

# PostNet

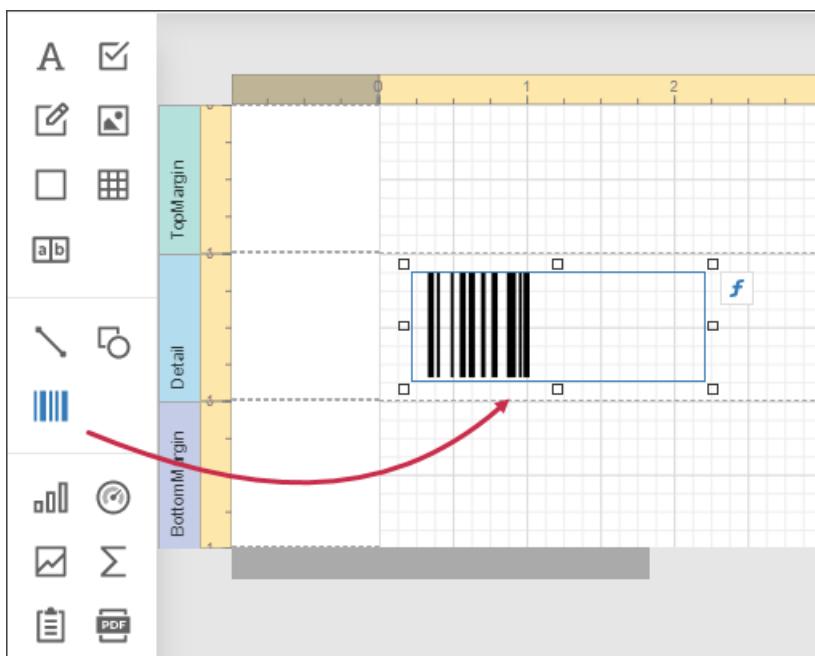
**PostNet** was developed by the United States Postal Service (USPS) to allow faster mail sorting and routing. **PostNet** codes are the familiar and unusual looking barcodes often printed on envelopes and business return mail.

Unlike most other barcodes, 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.

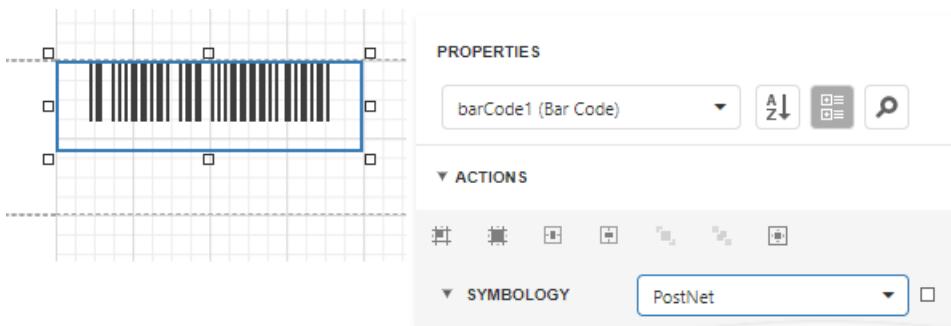


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **PostNet**.



3. Specify common barcode properties.

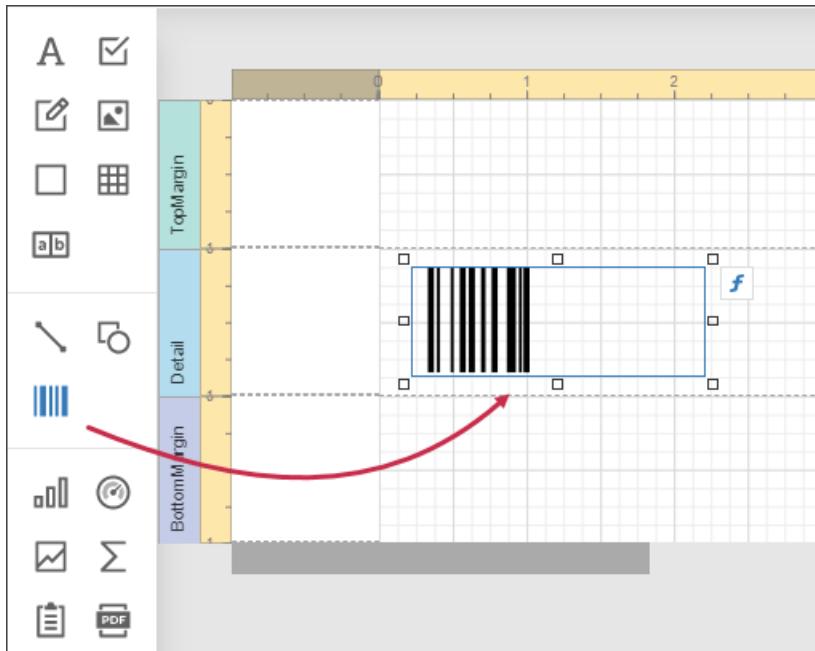
# QR Code

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.

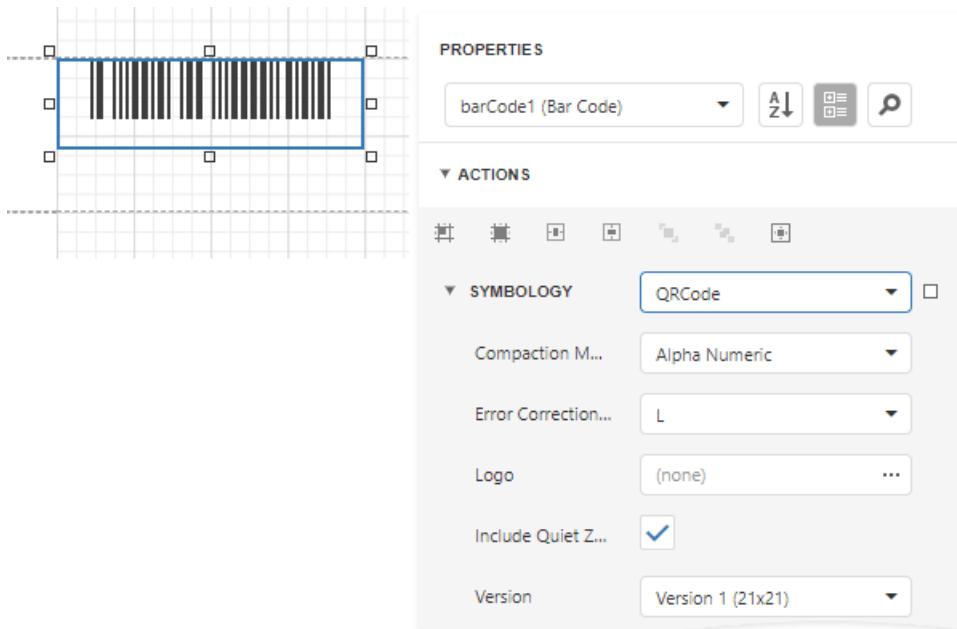


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **QRCode**.



3. Specify common barcode properties and properties specific to **QRCode**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **QRCode**:

- **Compaction Mode**

Specifies whether numeric, alpha-numeric or byte information should be used as the barcode's data.

- **Error Correction Level**

Specifies the amount of redundancy built into the barcode's coding, to compensate for calculation errors.

- **Logo**

Specifies the image that overlays the QR code.

- **Version**

Specifies the barcode's size.

- **Frame Options**

Gets or sets the [frame for QR codes](#).

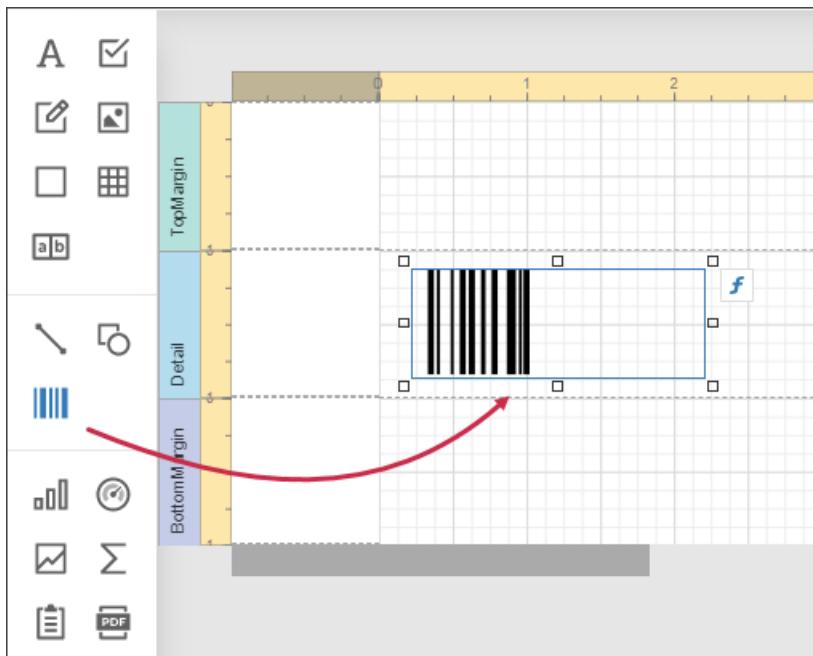
# GS1 QR Code

GS1 QR Code is a variant of the [QR Code](#) symbology that conforms to [GS1 General Specification](#).

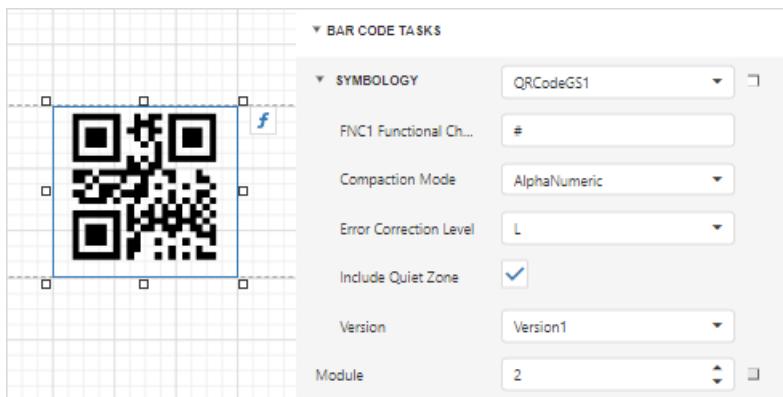


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **QR Code GS1**.



3. Specify common barcode properties and properties [specific](#) to **GS1 QR Code**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **GS1 QR Code**:

- **Compaction Mode**

Specifies whether numeric, alpha-numeric or byte information should be used as the barcode's data.

- **Error Correction Level**

Specifies the amount of redundancy built into the barcode's coding, to compensate for calculation errors.

- **FNC1 Functional Character**

A substring/character that serves as the placeholder for the FNC1 functional character.

- **Logo**

Specifies the image that overlays the QR code.

- **Version**

Specifies the barcode's size.

- **Frame Options**

Gets or sets the [frame for QR codes](#).

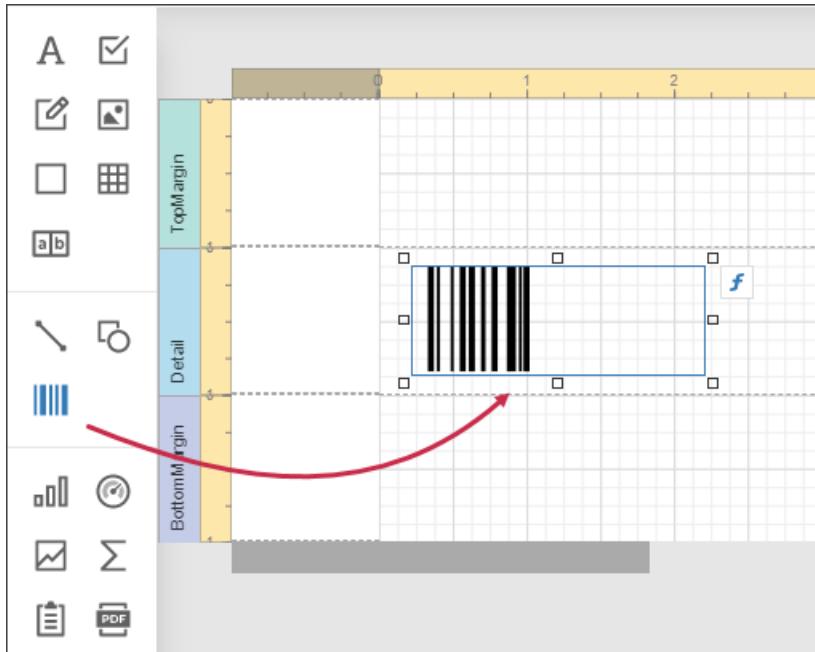
# EPC QR Code

An EPC QR Code (European Payments Council Quick Response Code) is a two-dimensional barcode used to initiate a [SEPA credit transfer \(SCT\)](#). The following guideline contains general information about this type of barcode and defines the data format for EPC QR Codes: [Quick Response Code - Guidelines to Enable the Data Capture for the Initiation of a SEPA Credit Transfer](#).

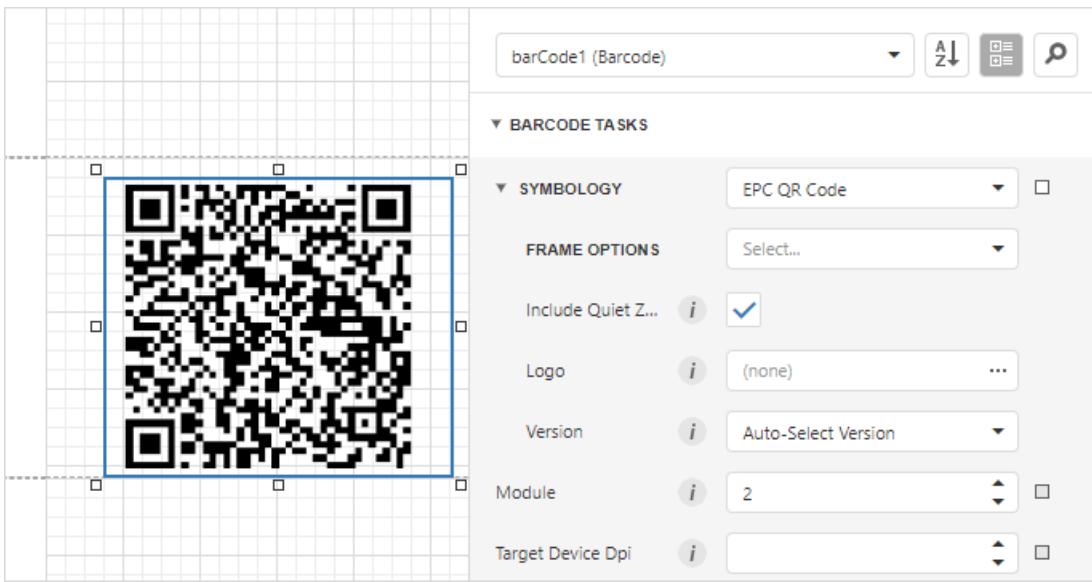


## Add a Bar Code to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **EPC QR Code**.



3. Specify common barcode properties and properties specific to **EPC QR Code**.

## Specific Properties

- **Auto Module**

Gets or sets whether the Module property value should be calculated automatically based on the barcode size.

- **Version**

Gets or sets the bar code's size.

- **Include Quiet Zone**

Gets or sets whether to add a blank space around the QR code.

- **Logo**

Specifies the image that overlays the QR code.

- **Frame Options**

Gets or sets the frame for QR codes.

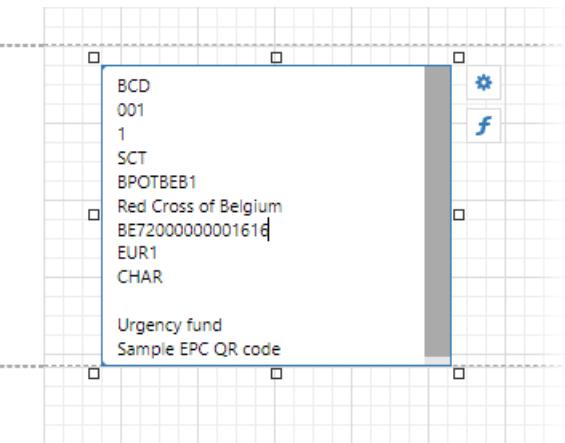
## Specify the Data

EPC QR Codes require data in a specific format. For more information, refer to the following European Payments Council guideline: [Quick Response Code - Guidelines to Enable the Data Capture for the Initiation of a SEPA Credit Transfer](#).

You can specify the barcode data in the following ways:

The **Text** property.

Pass the data string to **Text** property. Each data element should be on a new line. Double-click the control to specify the content (editors in the Property grid do not support multi-line text):



In the image above, the following data elements are specified:

DATA ELEMENT	VALUE
Service Tag:	BCD
Version:	001
Encoding:	1
Identification:	SCT
BIC:	BPOTBEB1
Beneficiary Name:	Red Cross of Belgium
IBAN:	BE7200000001616
Transfer Amount:	EUR1
Transfer Reason:	CHAR
Creditor Reference:	Empty line
Remittance Information:	Urgency fund
Information:	Empty line

This field is bindable. For more information on data binding, review the following help topic: [Bind Report Controls to Data](#).

The `ConvertDataToEPC` function.

Use the `ConvertDataToEPC` function from the Expression Editor to bind to the `Text` property.

You can specify the data as shown below:

```
ConvertDataToEPC('Red Cross of Belgium', 'BE7200000001616', 'BPOTBEB1','20.0', '', 'Urgency fund', 'CHAR',
'Sample EPC QR code')
```

## Expression Editor

The screenshot shows the Expression Editor interface. On the left, a sidebar lists various properties: Accessible Description, Background Color, Binary Data, Bookmark, Border Color, Border Dash Style, Border Width, Borders, Font, Foreground Color, Height, Left, Navigation URL, Padding, Style Name, Tag, **Text** (which is selected), Text Alignment, Top, Visible, and Width. In the main area, there is a code editor with the following expression:

```
1 ConvertDataToEPC('Red Cross of Belgium', 'BE7200000001616', 'BPOTBEB1', '20.0', '', 'UI')
```

Below the code editor is a search bar labeled "Enter text to search...". To the right of the search bar is a list of functions under the heading "Functions". The "Reporting" category is selected, and the function "ConvertDataToEPC()" is highlighted. A tooltip provides the following description:

ConvertDataToEPC(Beneficiary Name, IBAN, BIC, TransferAmount, CreditorReference, RemittanceInformation, TransferPurpose, Information)  
Converts the specified data elements into a formatted string for the EPC QR Code. Two last arguments are optional (TransferPurpose and Information).

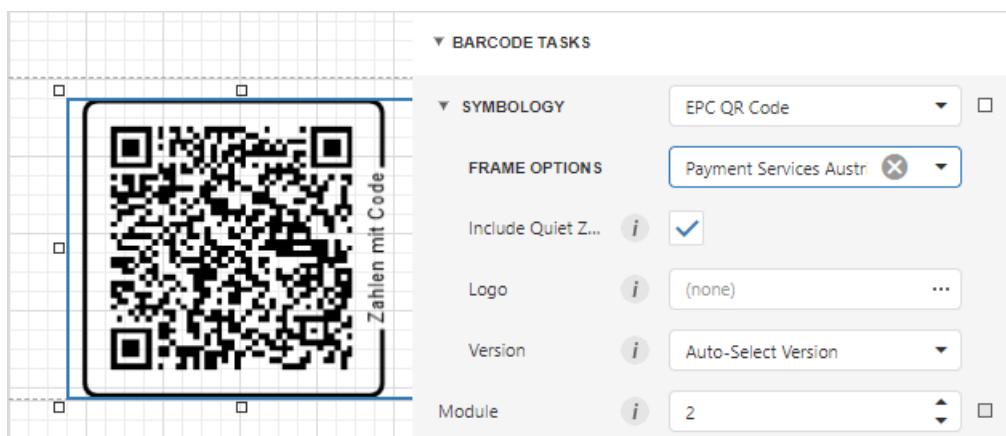
At the bottom right are three buttons: OK, Cancel, and Apply.

You can not change the default values for Version and Encoding with this function. The default value for the Version data element is `002` and `UTF-8` for the Encoding.

## Display a “Zahlen mit Code” Frame

You can also apply a frame with the words “Zahlen mit Code” (to the right from the bottom to the top) to an EPC QR Code. The frame is used to highlight the function of the codes and to secure the identification. For more information, refer to the following Payment Services Austria (PSA) document: [Application of QR-Code for initiating of credit transfers](#).

This frame already contains predefined settings according to the standard. To set this frame, go to Behavior → Symbology → FrameOptions, and select **Payment Services Austria Frame**.



# Serial Shipping Container Code (SSCC)

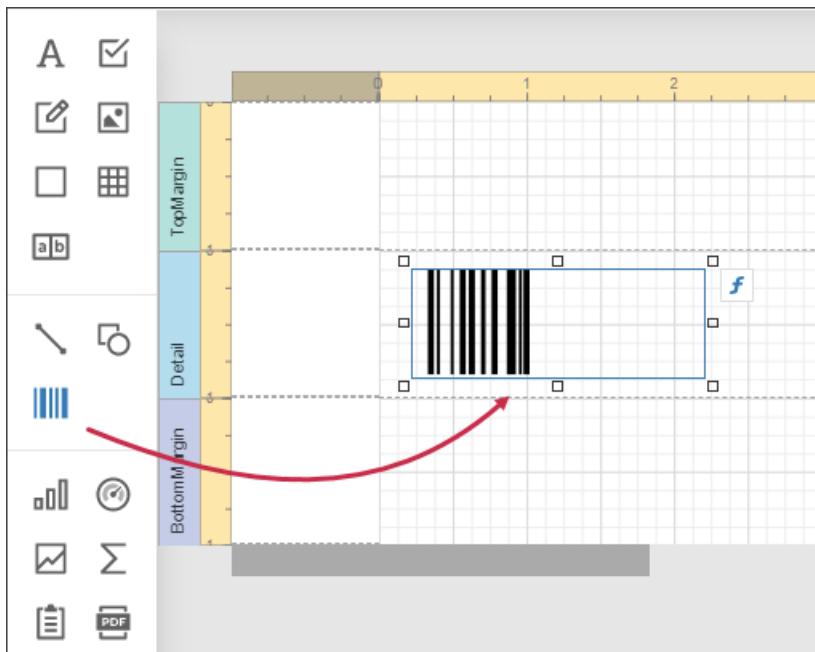
The **Serial Shipping Container Code** (SSCC) is the GS1 Identification Key used to identify a logistic unit. This unique identifier is composed of an Extension Digit, a GS1 Company Prefix, a Serial Reference, and a Check Digit.



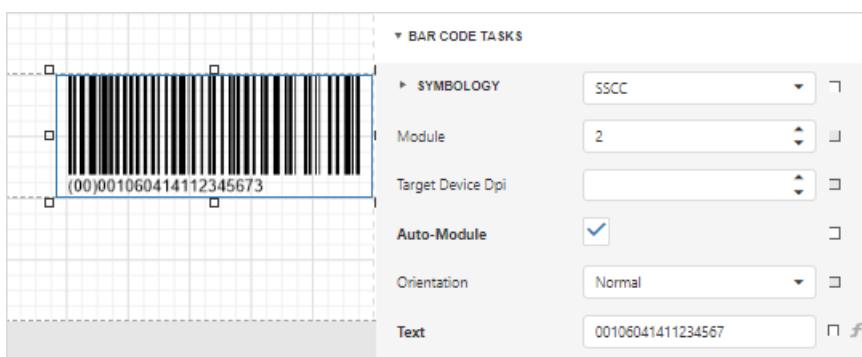
(00)001061414112345672

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **SSCC**.



3. Assign a numeric value composed of 17 digits to the **Text** property. If the numeric value contains less than 17 digits, it is padded with zeros at the beginning so that the string value of the **Text** property contains exactly 17 characters. A numeric value with 17 digits is left intact. If 18 digits are specified, the last digit is truncated. A value with more than 18 digits causes an error.
4. Specify [common barcode properties](#).

# UPC Shipping Container Symbol (ITF-14)

The **UPC Shipping Container Symbol (ITF-14)** barcode is used to mark packaging materials that contain products labeled with a **UPC** or **EAN** product identification number.

This barcode provides a **GS1** implementation of an **Interleaved 2 of 5** barcode for encoding a **Global Trade Item Number** (an identifier for trade items developed by **GS1**). This barcode always uses a total of **14** digits.

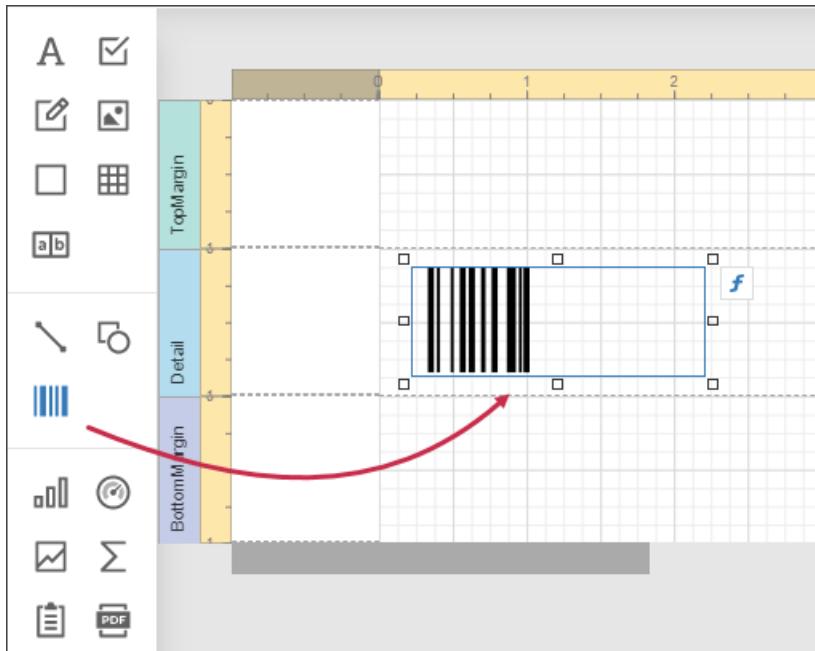
The thick black border around the symbol (the **Bearer Bar**) is intended to improve barcode reading reliability.



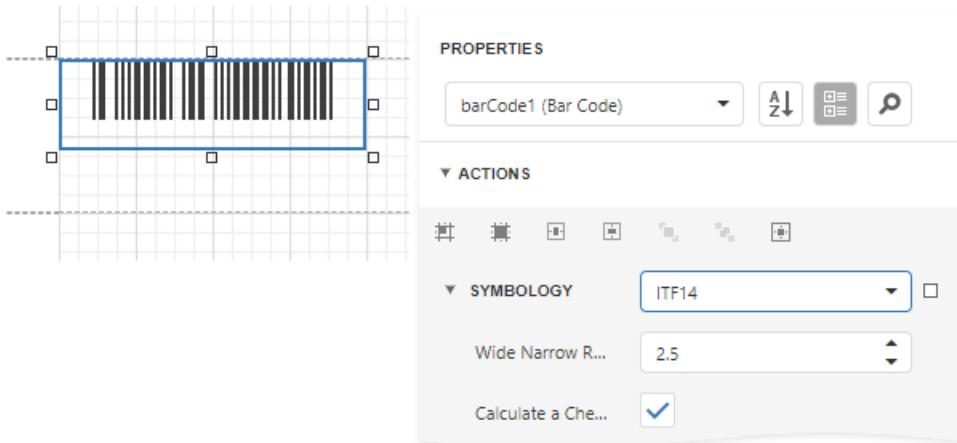
1 23 45678 90123 1

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **ITF14**.



3. Specify common barcode properties and properties specific to **ITF14**.

## Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **ITF14**:

- **Calculate a Checksum**

Specifies whether to calculate a checksum for the barcode.

- **Wide Narrow Ratio**

Specifies the density of a barcode's bars.

# UPC Supplemental 2

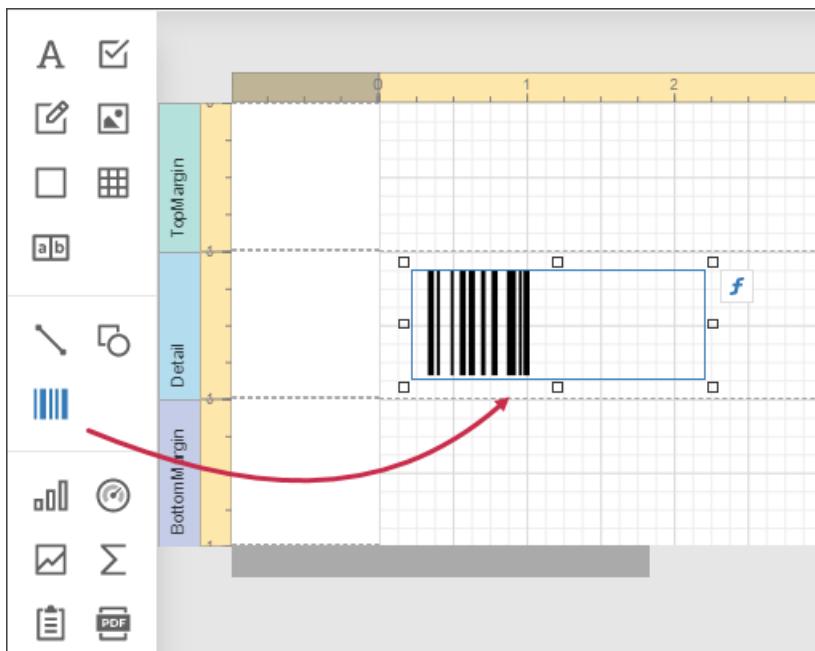
2-digit supplemental barcodes should only be used with magazines, newspapers and other periodicals.

The **2**-digit supplement represents the issue number of the magazine. This is useful so that the product code itself (contained in the main barcode) is constant for the magazine, so that each issue of the magazine doesn't have to have its own unique barcode. 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.

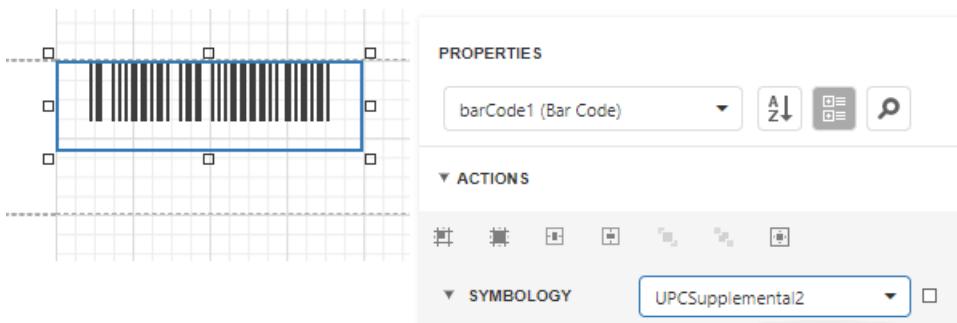


## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **UPCSupplemental2**.



3. Specify common barcode properties.

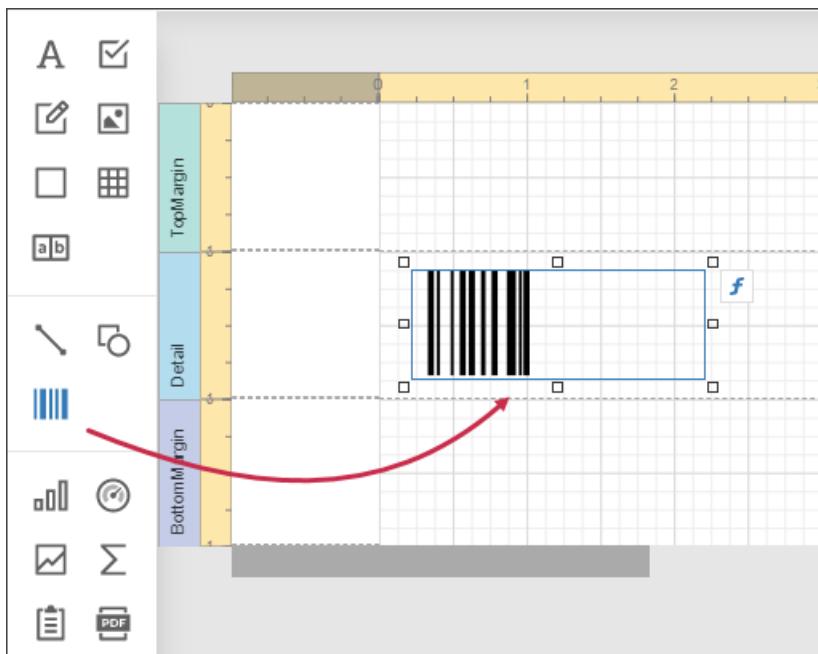
# UPC Supplemental 5

5-digit supplemental barcodes are used on books to indicate the suggested retail price.



## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **UPCSupplemental5**.



3. Specify [common barcode properties](#).

# UPC-A

The **UPC-A** barcode is by far the most common and well-known symbology, especially in the United States. A **UPC-A** barcode is the barcode 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 barcode" or "UPC Symbol."



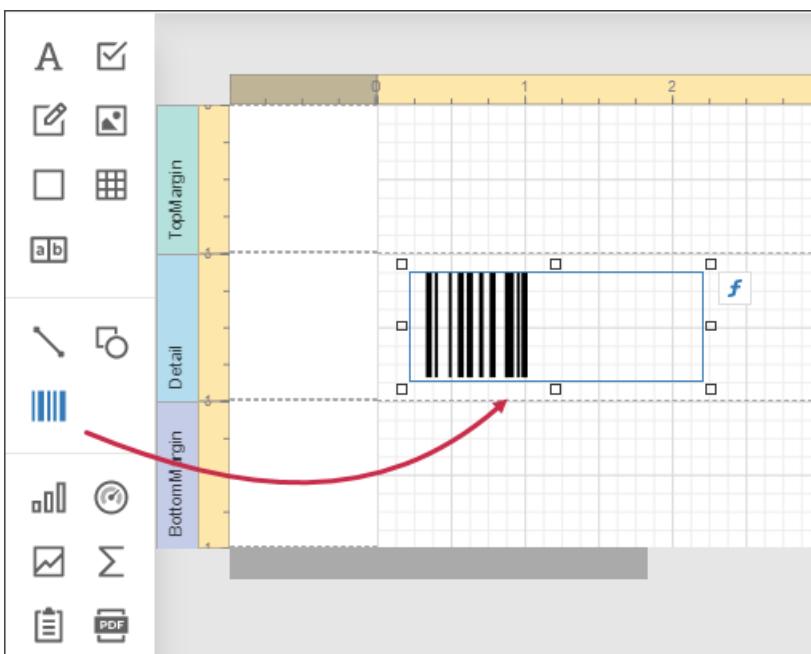
The **UPC-A** barcode contains **12** digits, no letters or other characters. The first digit is the prefix signifying the product type. The last digit is the "check digit". The check digit is calculated using first eleven figures when the barcode is constructed. So, for the correct **UPC-A** you should 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.

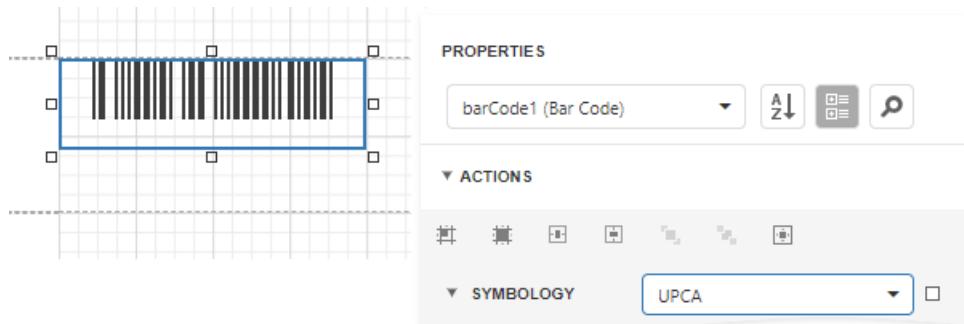
There should be two quiet zones before and after the barcode. They provide reliable operation of the barcode scanner. The quiet zone recommended length is **2.97** mm for the barcode of standard width and height.

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **UPCA**.



3. Specify [common](#) barcode properties.

# UPC-E0

**UPC-E** is a variation of **UPC-A** which allows for a more compact barcode by eliminating "extra" zeros. Since the resulting **UPC-E** barcode is about half the size as an **UPC-A** barcode, **UPC-E** is generally used on products with very small packaging, where a full **UPC-A** barcode 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 barcode 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.

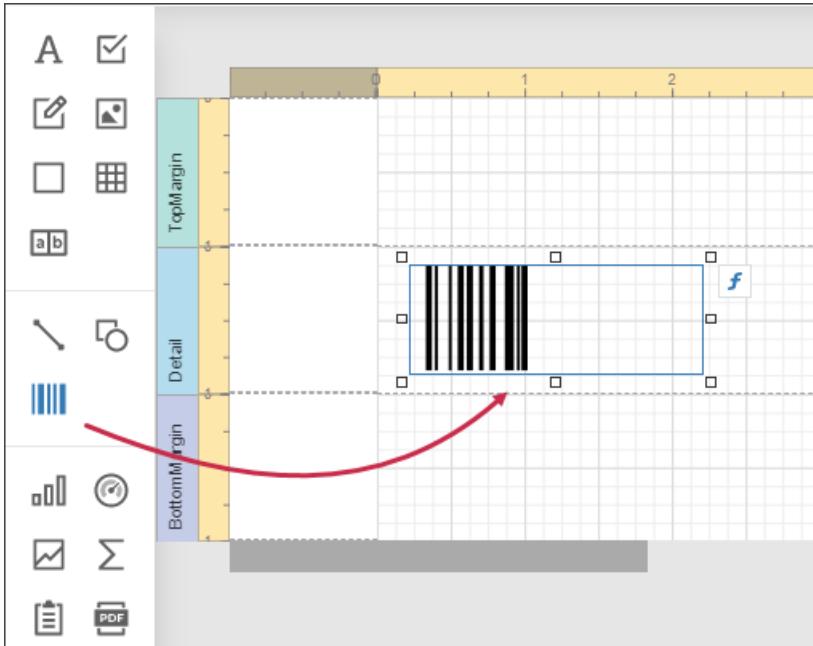
In the example below, the original **UPC-A** code is "**04210000526**". We should remove the leading zero when assigning the string to the control's property, since the code format itself implies its presence. The checksum digit (**4**) is calculated automatically, and the symbology algorithm transforms 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.



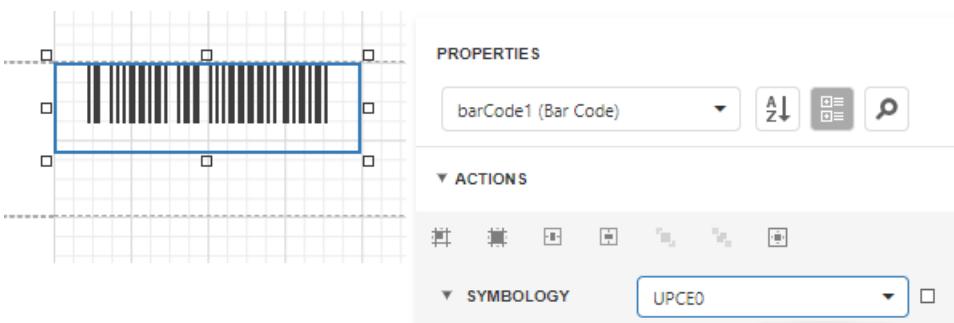
Not every **UPC-A** code can be transformed into the **UPC-E0** (it must meet special requirements).

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **UPCE0**.



3. Specify common barcode properties.

# UPC-E

**UPC-E** is a kind of **UPC-A**, which allows a more compact barcode by eliminating "extra" zeros. Since the resulting **UPC-E** barcode is about half the size of the **UPC-A** barcode, **UPC-E** is generally used on products with a very small packaging where a full **UPC-A** barcode 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 barcode 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.

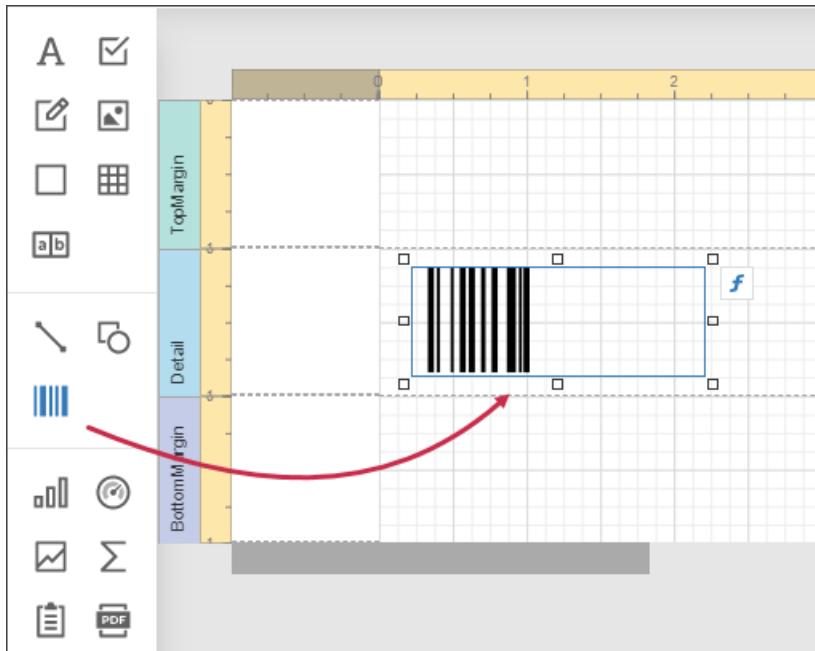
In the example below, the original **UPC-A** code is "**14210000526**". We should remove the leading "1" when assigning the string to the control's property, since the code format itself implies its presence. The checksum digit (1) is calculated automatically, and the symbology algorithm transforms the 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.



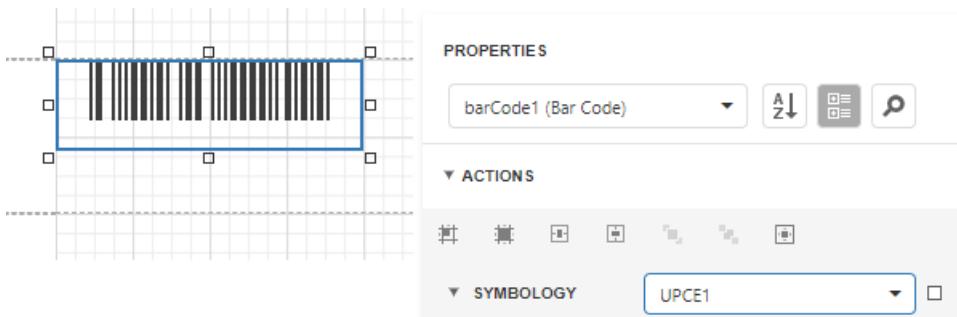
Not every **UPC-A** code can be transformed into the **UPC-E1** (it must meet special requirements).

## Add the Barcode to a Report

1. Drag the **Barcode** item from the report controls toolbox tab and drop it onto the report.



2. Set the control's **Symbology** property to **UPCE1**.



3. Specify common barcode properties.

# Use Charts

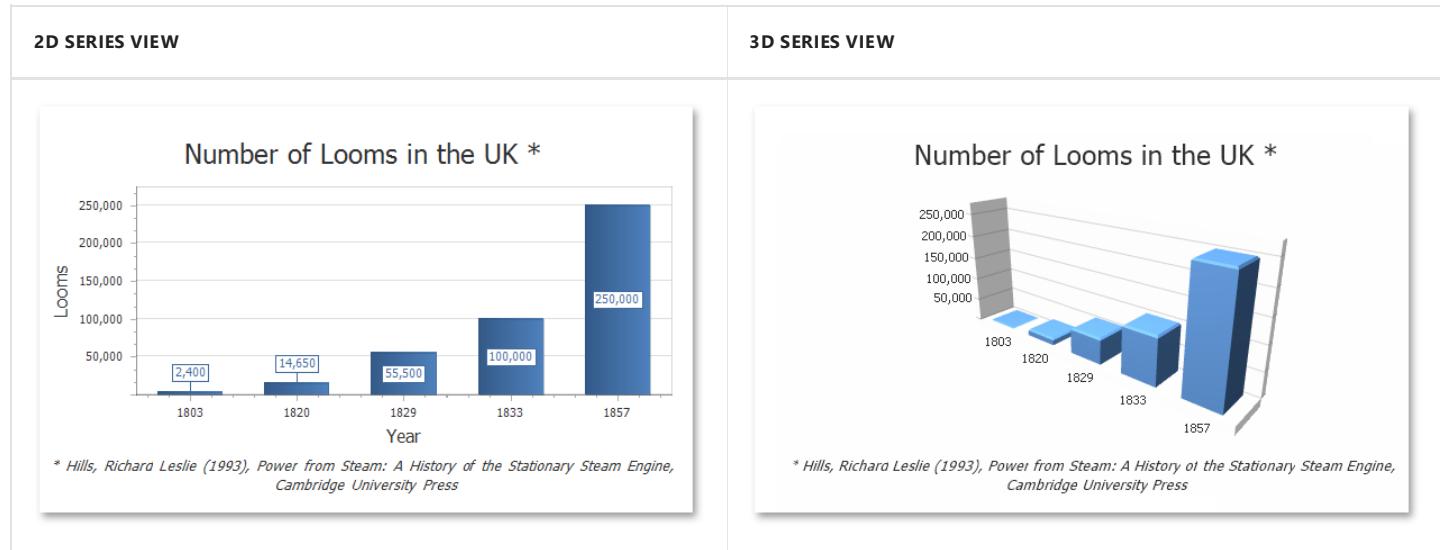
Refer to the following topics for instructions on how to add charts to reports:

- [Use Charts in Reports](#)
- [Add a Chart \(Set Up Series Manually\)](#)
- [Add a Chart \(Use a Series Template\)](#)
- [Use Charts to Visualize Grouped Data](#)

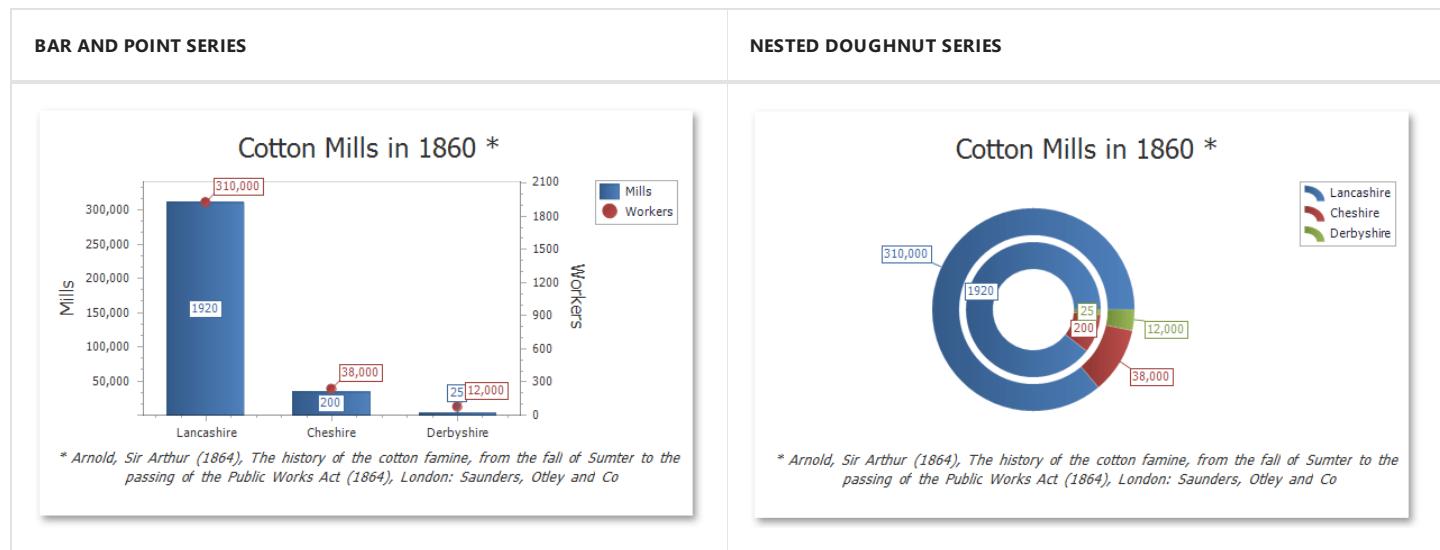
# Use Charts in Reports

## Overview

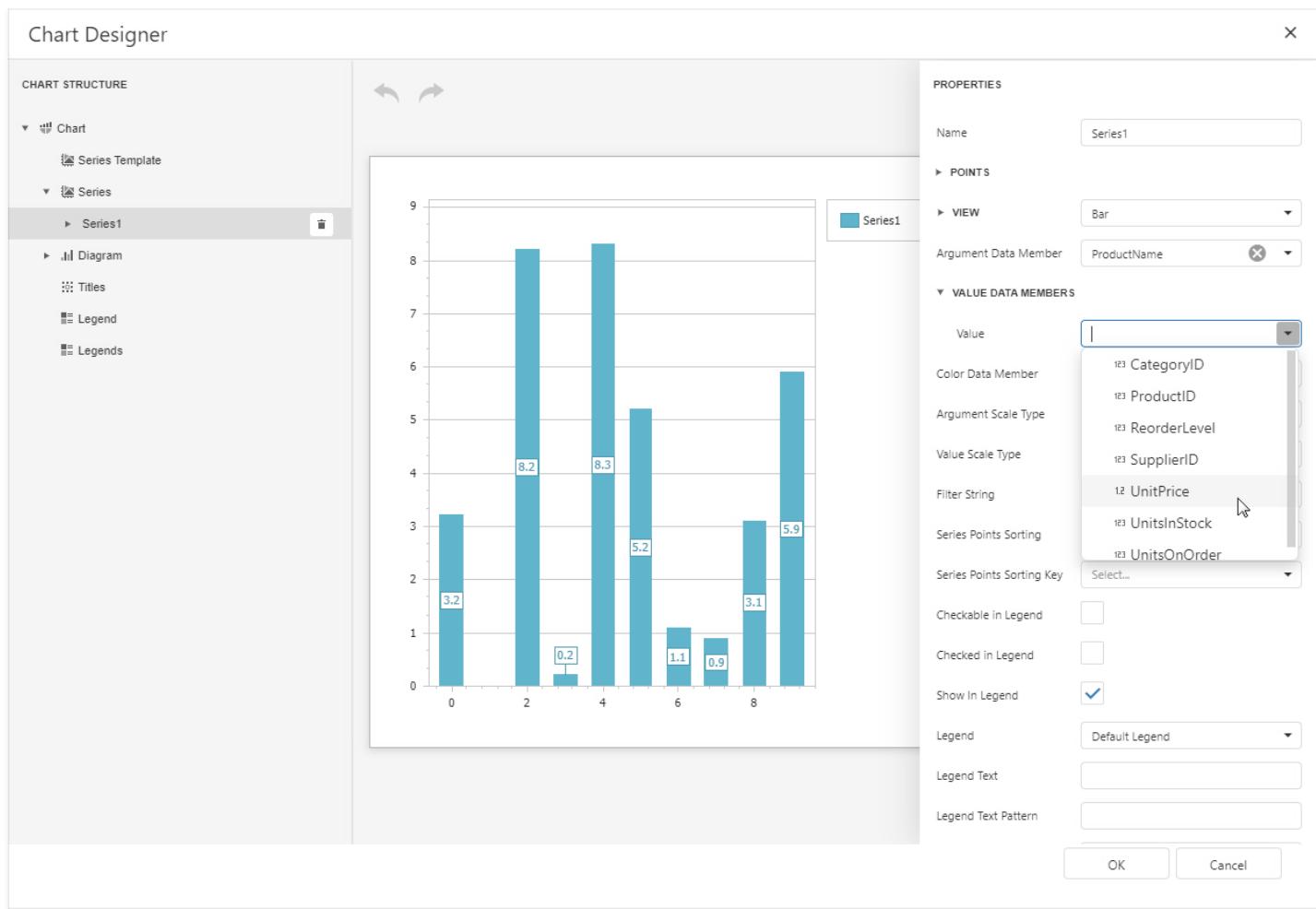
You can use the **Chart** control to add a chart to a report. This control provides 2D or 3D views to visualize data series (for instance, Bar, Point, Line, Pie and Doughnut, Area, etc.).



The **Chart** control can display multiple series.



The **Chart Designer** allows you to create and set up the **Chart** control and customize its visual elements (diagrams, series, legends, primary and secondary axes, titles and labels, etc.).



## Bind to Data

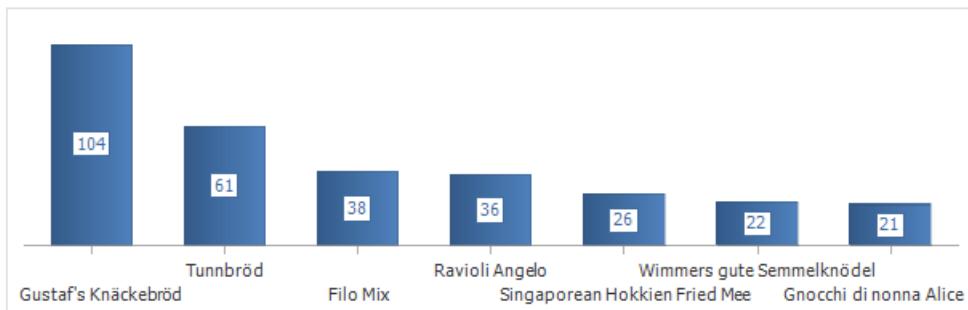
To provide data to a chart, use the **Data Source** property.

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:

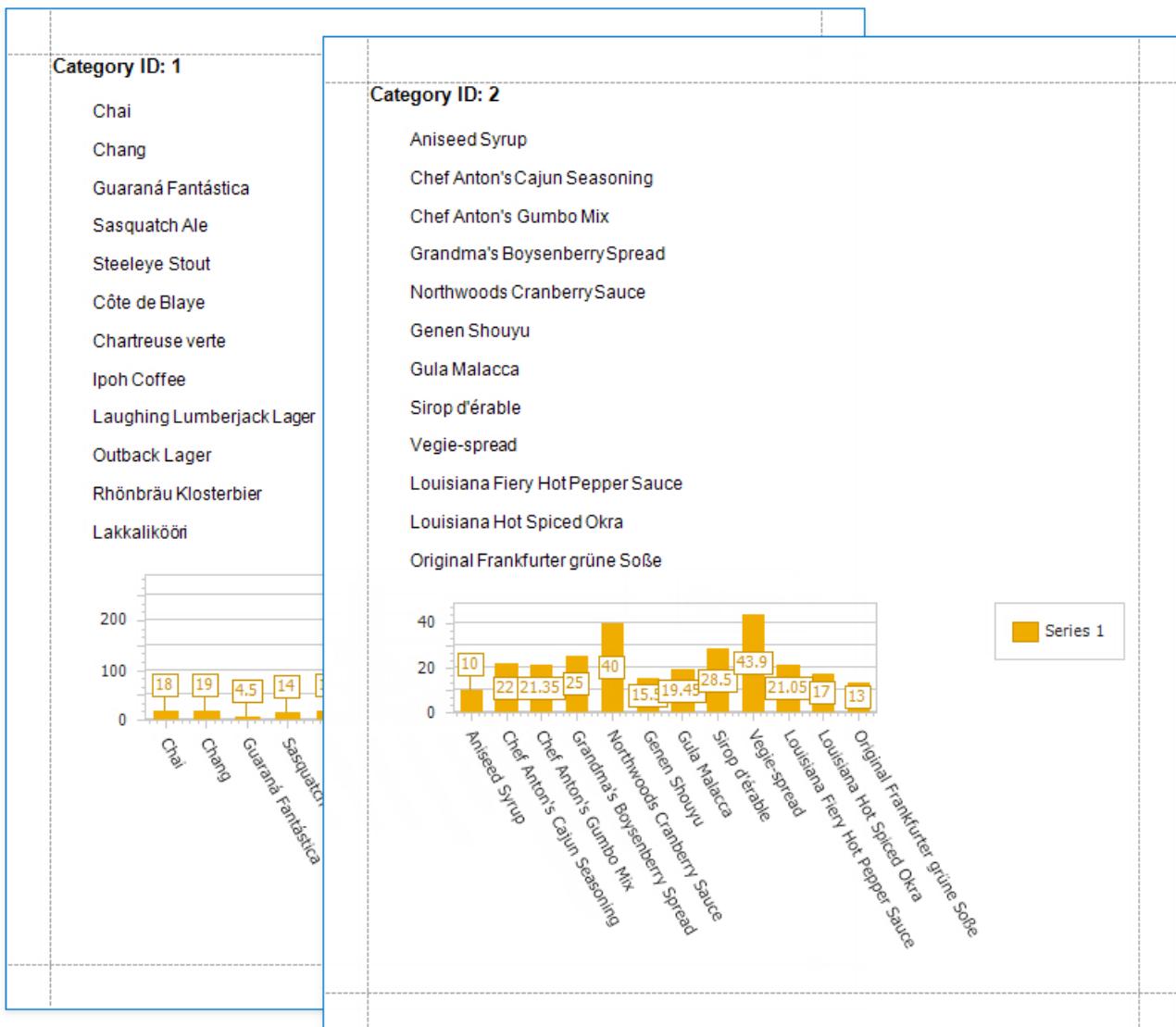
- Place a chart on the report header/footer band to display a summary for the detail report data.

## Grains/Cereals



Gustaf's Knäckebröd	104
Tunnbröd	61
Filo Mix	38
Ravioli Angelo	36
Singaporean Hokkien Fried Mee	26
Wimmers gute Semmelknödel	22
Gnocchi di nonna Alice	21

- 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**

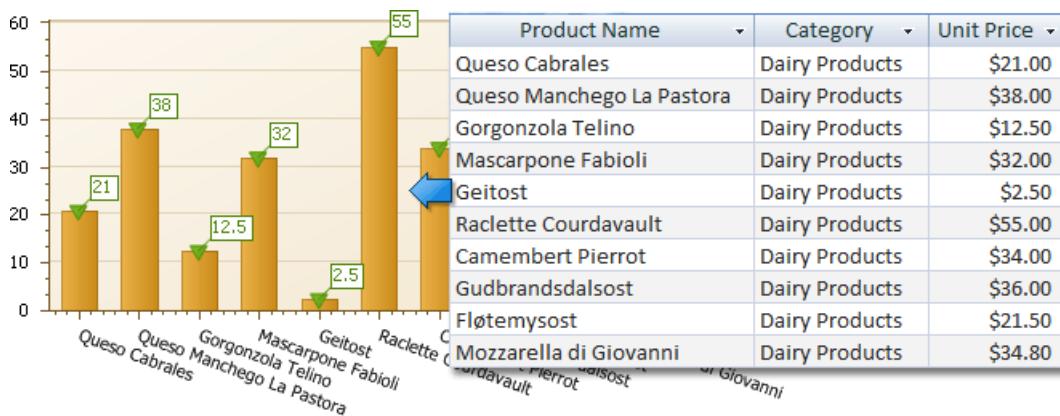
Add a new series to the chart and specify the argument and value data members. Refer to the [Add a Chart \(Set Up Series Manually\)](#) step-by-step tutorial for details.

- 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.

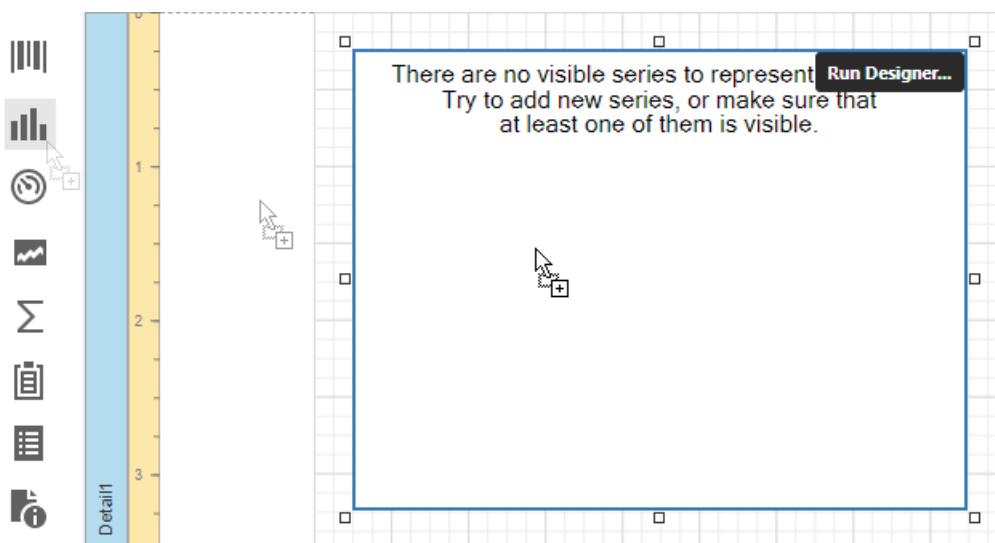
# Add a Chart (Set Up Series Manually)

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.

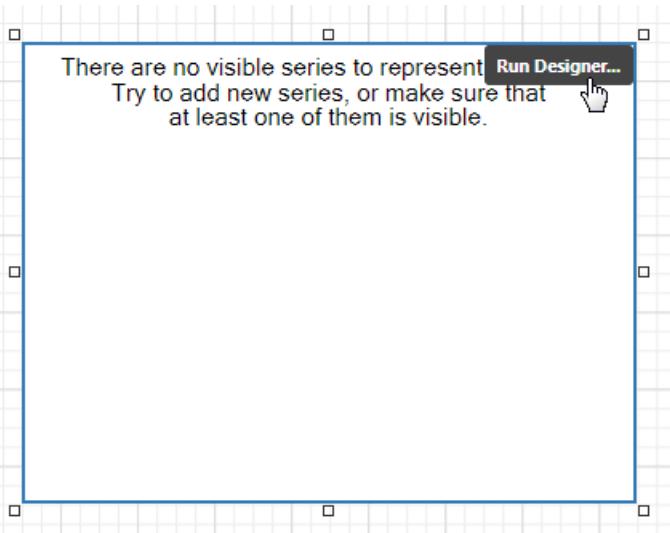


## Add a Chart to a Report

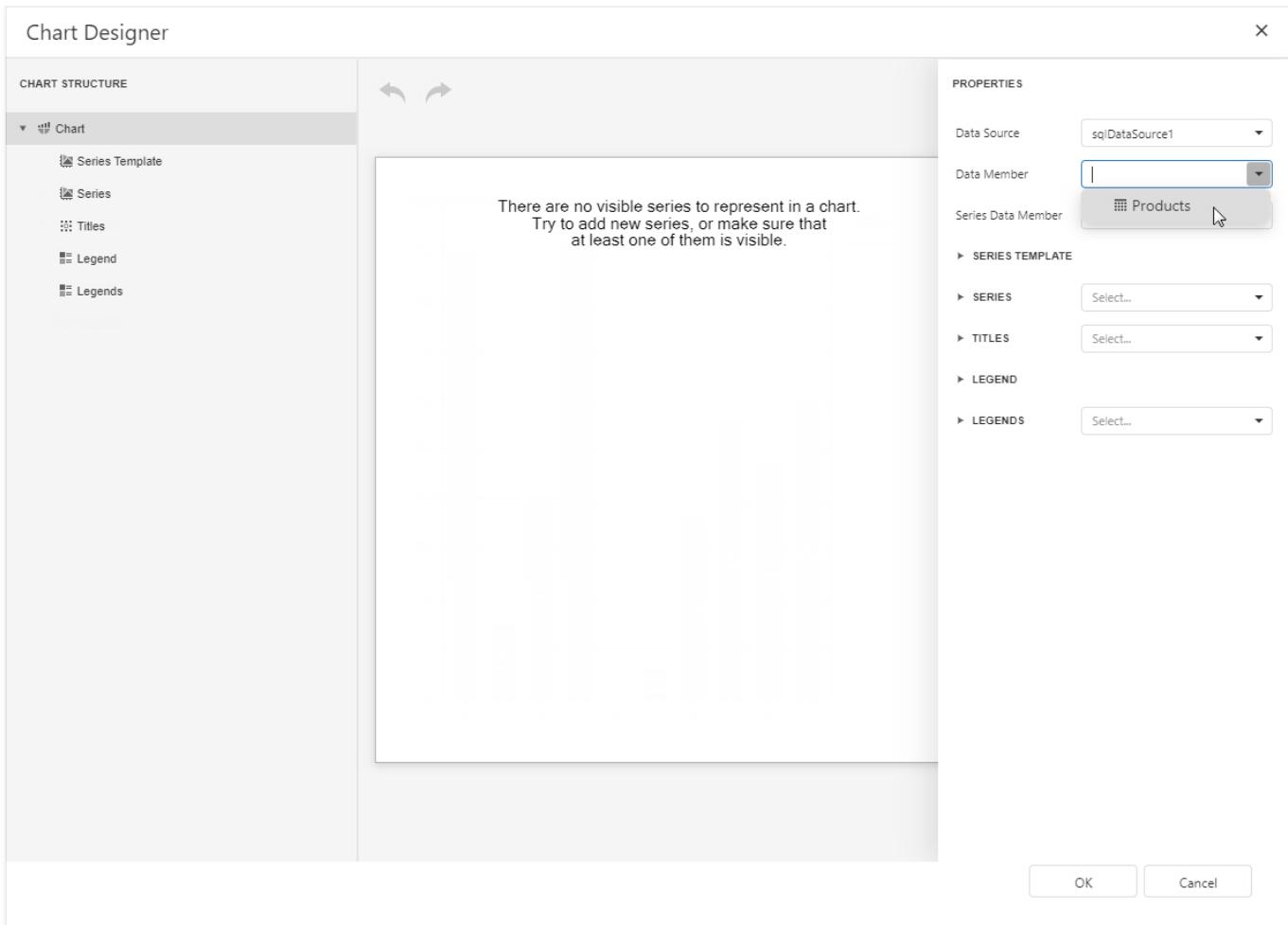
1. Bind a report to data.
2. Drop the **Chart** control from the **Toolbox** onto the **Detail** band.



3. Click **Run Designer**.



#### 4. Specify the **Data Source** and **Data Member** properties to bind the chart to data.

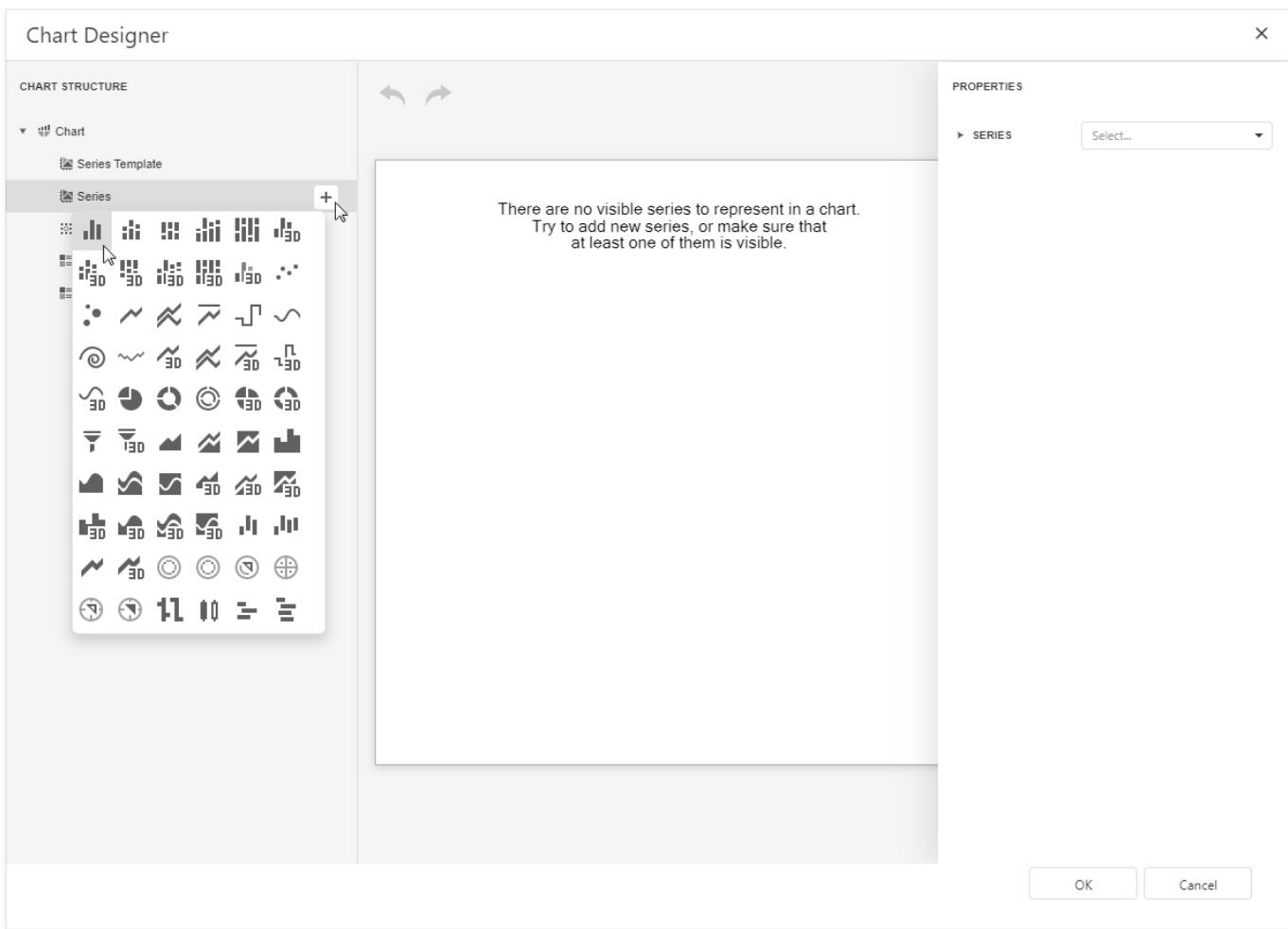


#### NOTE

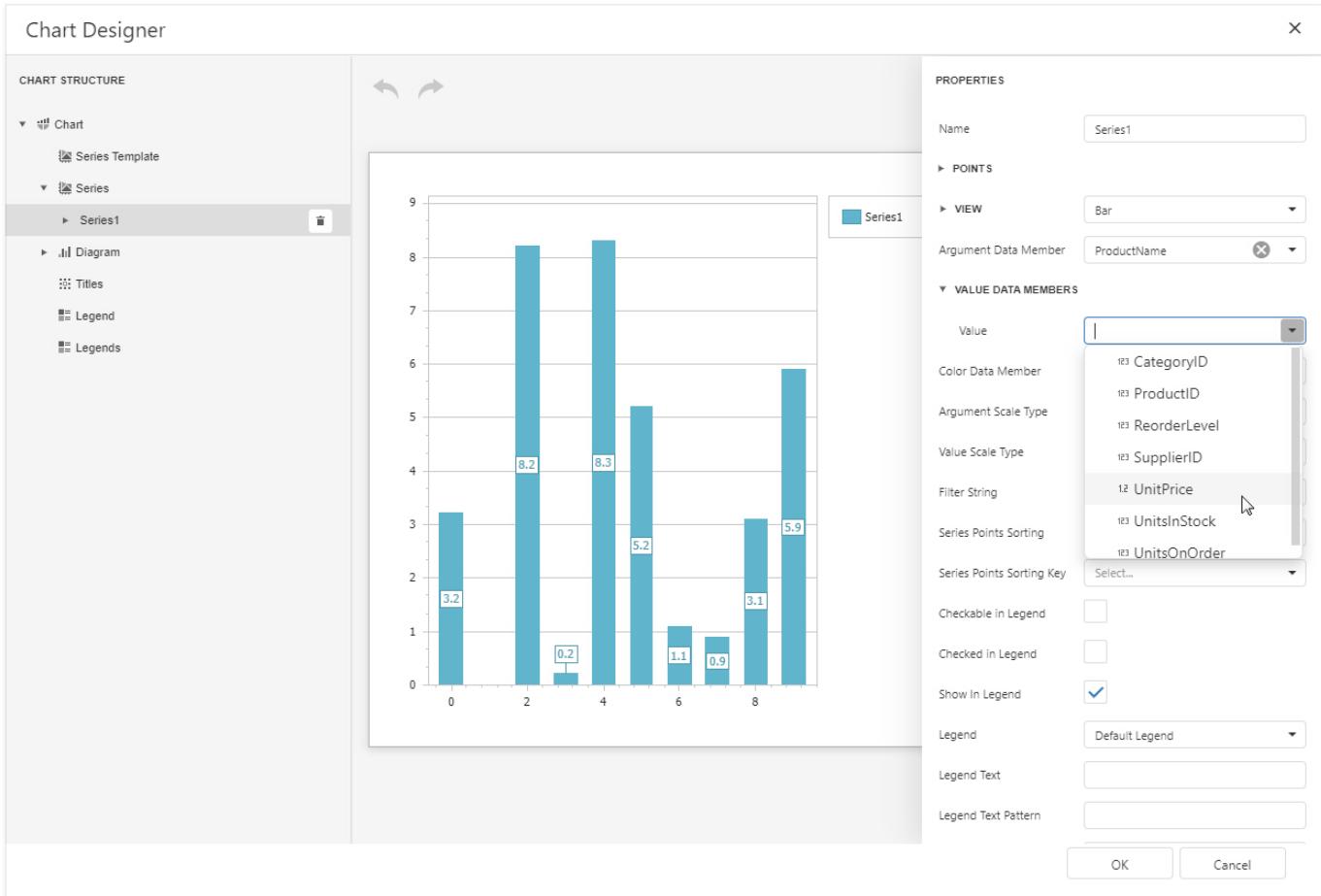
Ensure that the report's **Data Source** property is set to **None** when you place a chart into the **Detail** band. Otherwise, the chart is repeated as many times as there are records in the report's data source.

## Add Series to the Chart

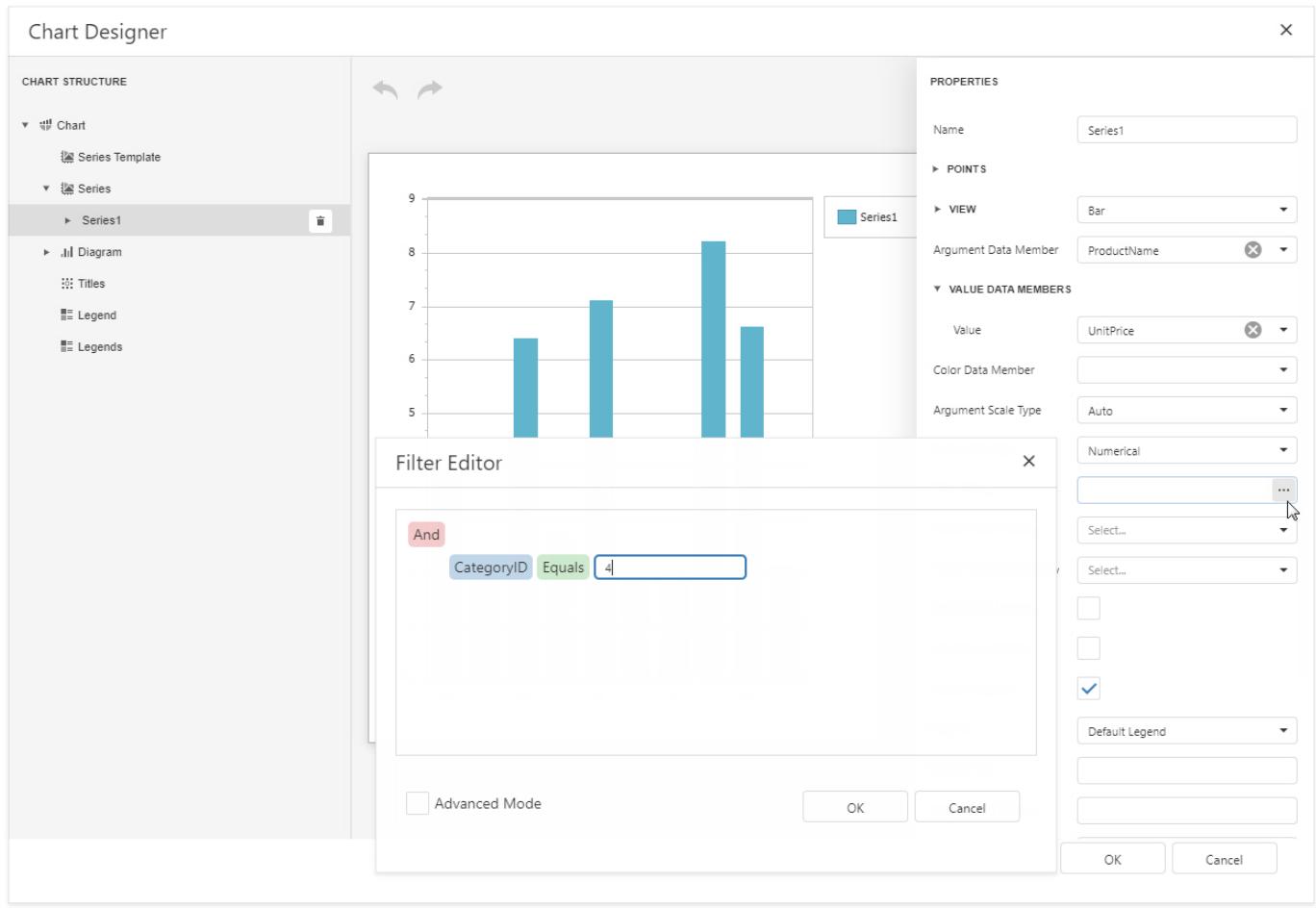
1. Locate **Series** in the chart elements tree and click the plus button. Select the series type (for example, **Bar**) from the invoked list.



2. Populate the created series with points. Specify the **Argument Data Member** and **Value** properties.



3. Filter series data. Click the **Filter String** property's ellipsis button. Construct filter criteria in the invoked FilterString Editor and click **OK**.

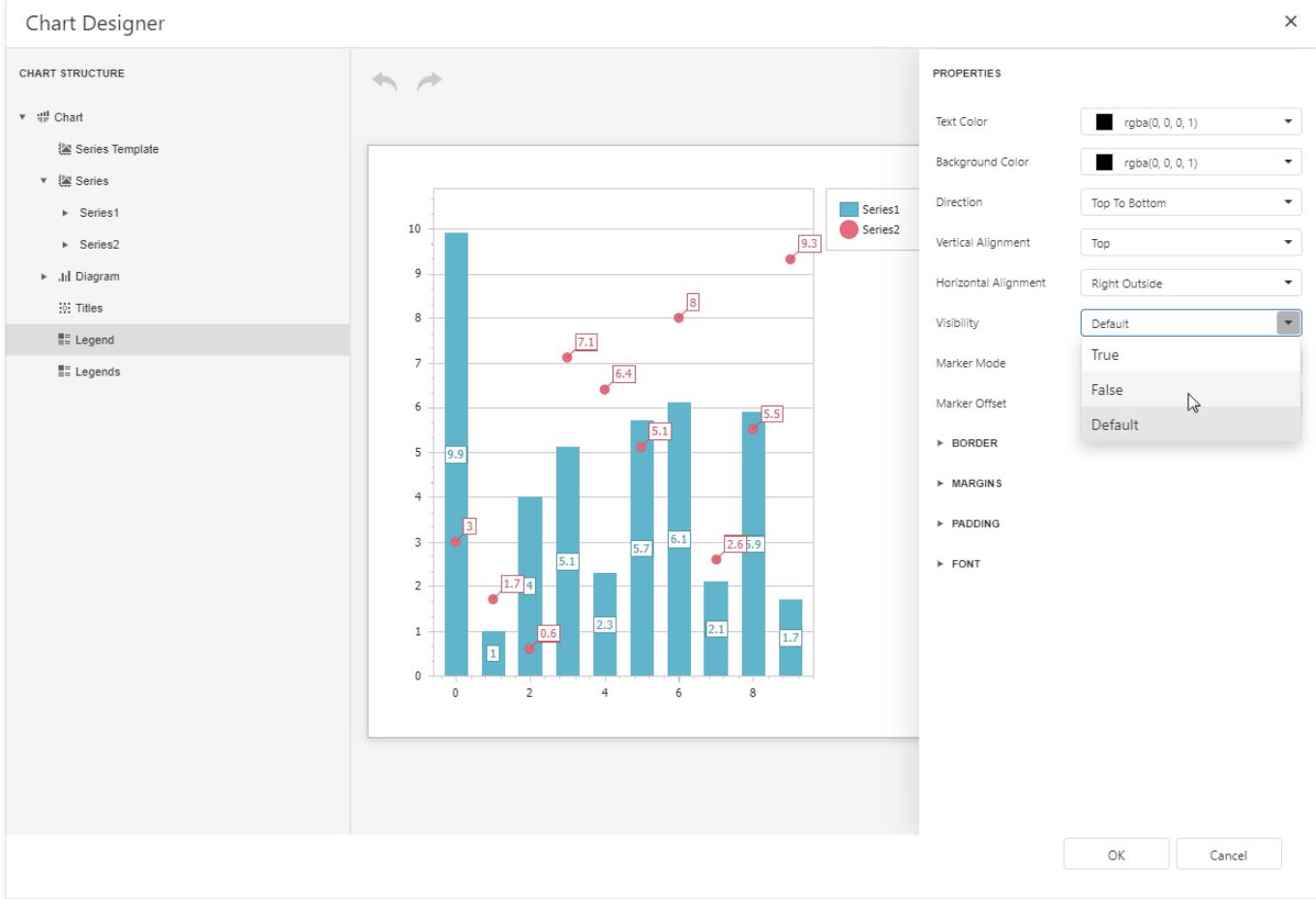


4. Create another series with the same settings. Select the **Point** view type for this series.

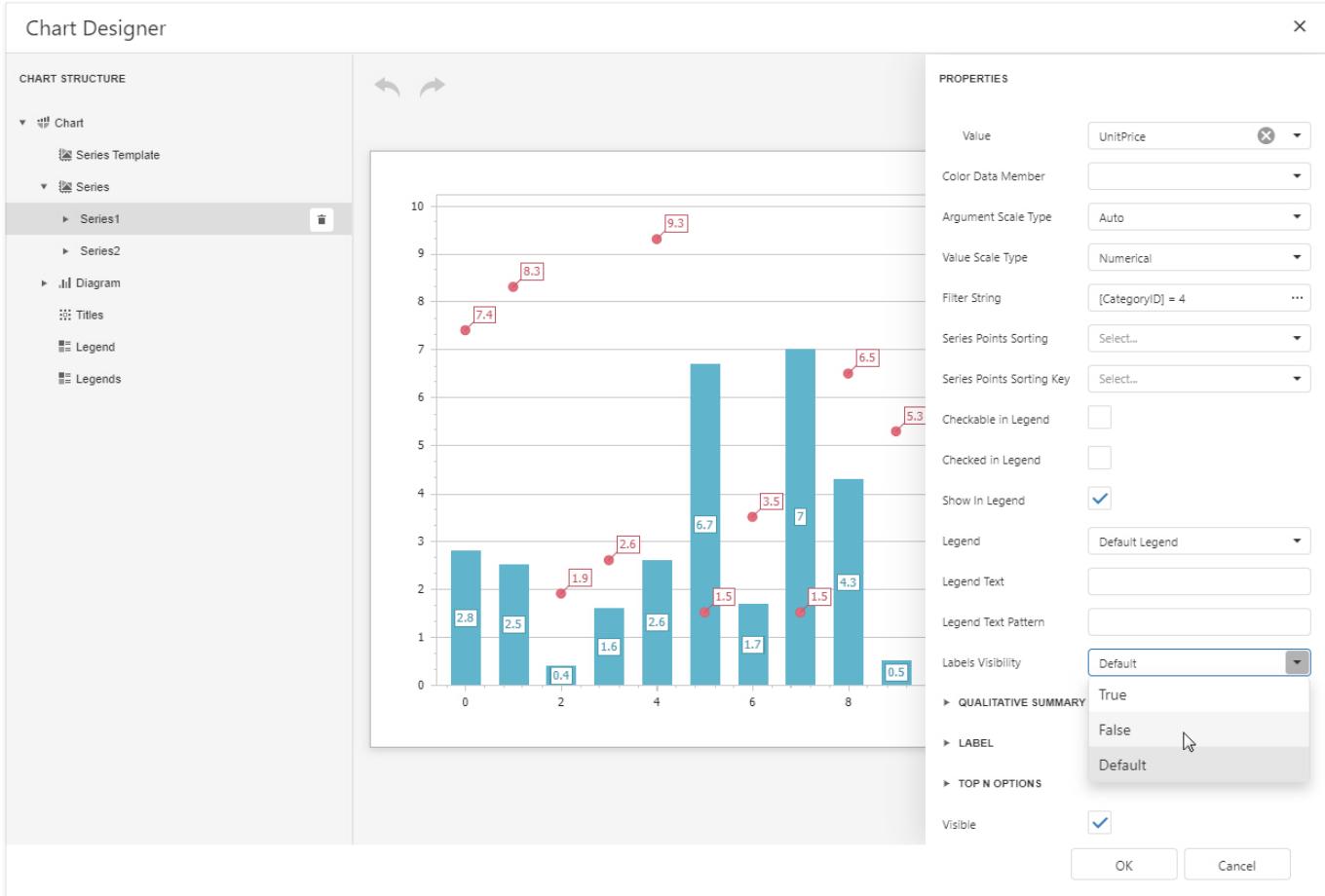
## Customize the Chart

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 set the **Visibility** property to **False**.

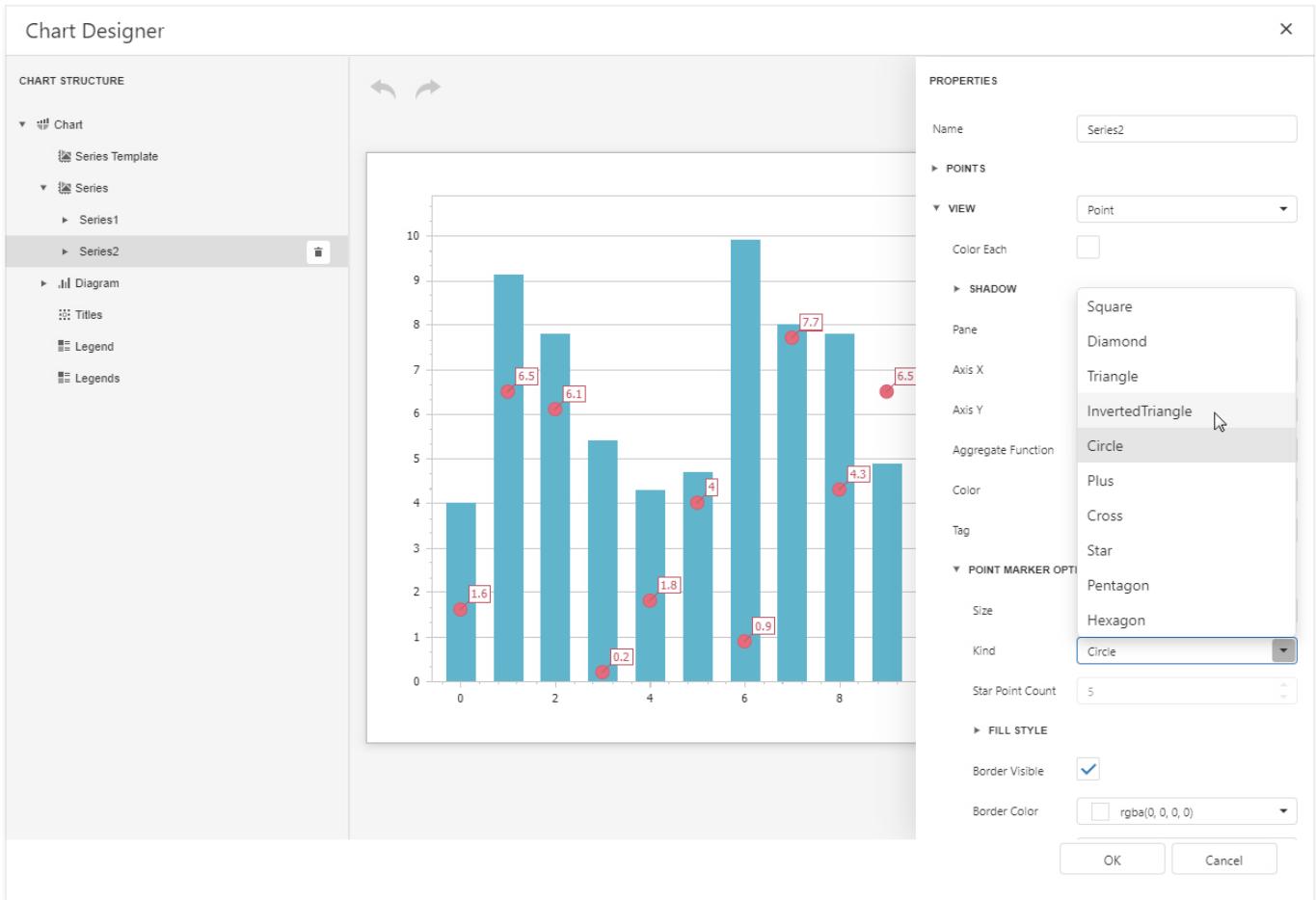


- Hide point labels. Select **Series1** and set the **Labels Visibility** property to **False**.



- Customize the **Series2** markers' appearance. Select **Series2** and expand the **View/Point Marker Options** categories. Set

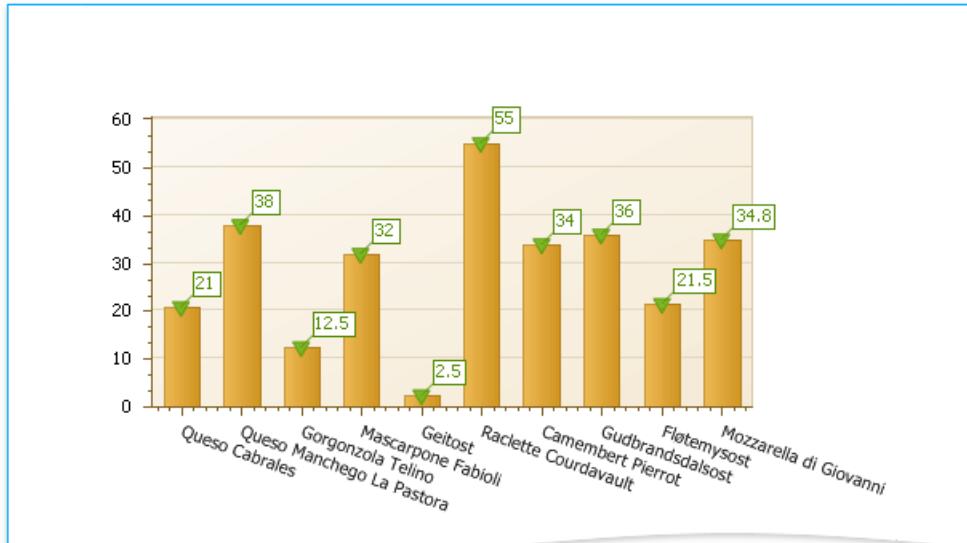
**Size** to 12 and **Kind** to **InvertedTriangle** to replace the default circle with an upside down triangle.



- Customize the chart's appearance settings. For instance, set chart elements' colors.

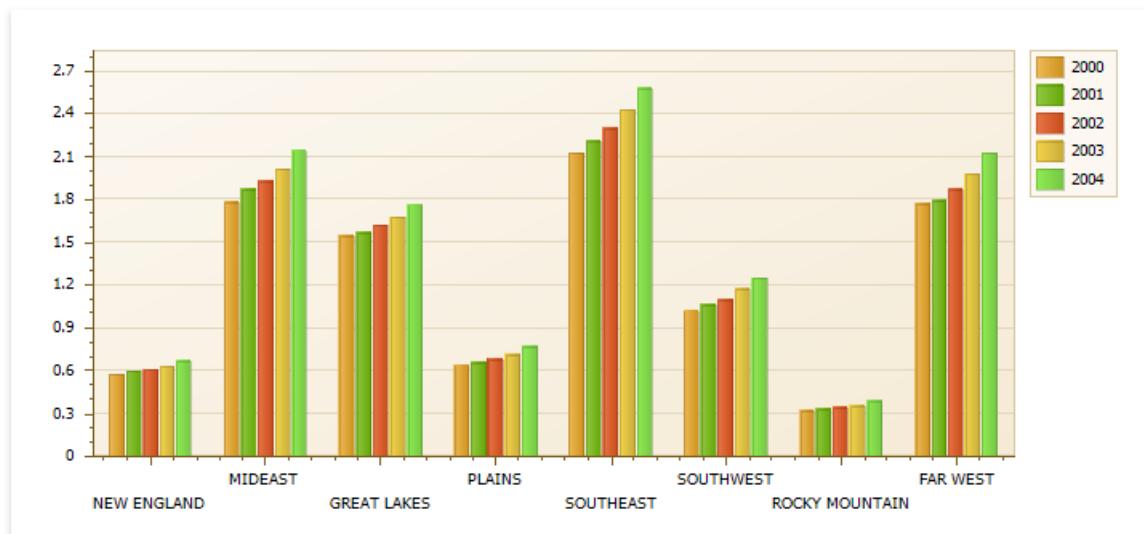
## View the Result

Switch to [Print Preview](#) to preview your report.



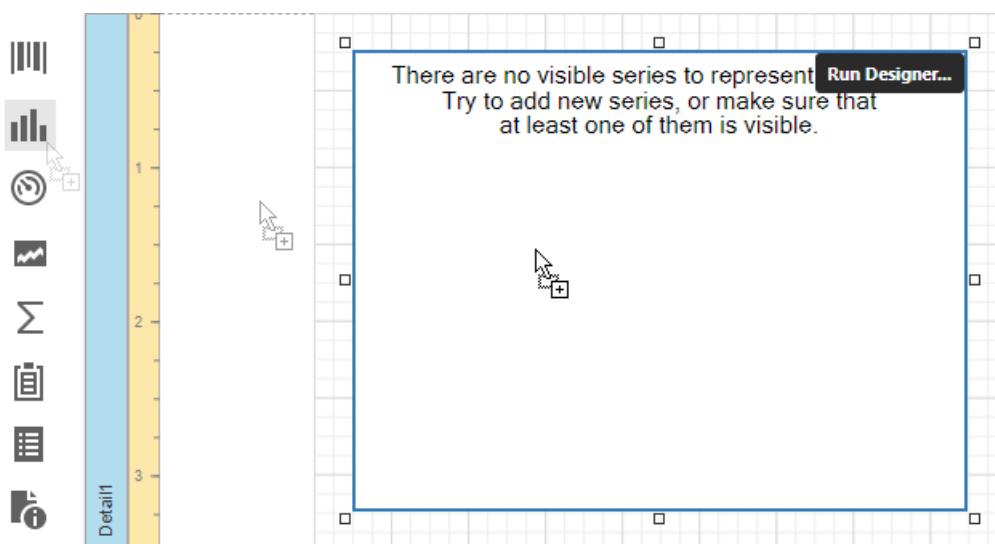
# Add a Chart (Use a Series Template)

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.

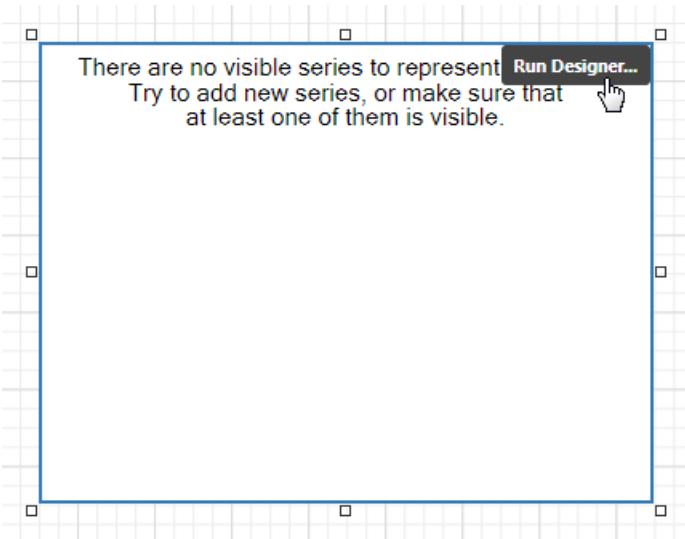


## Add a Chart to a Report

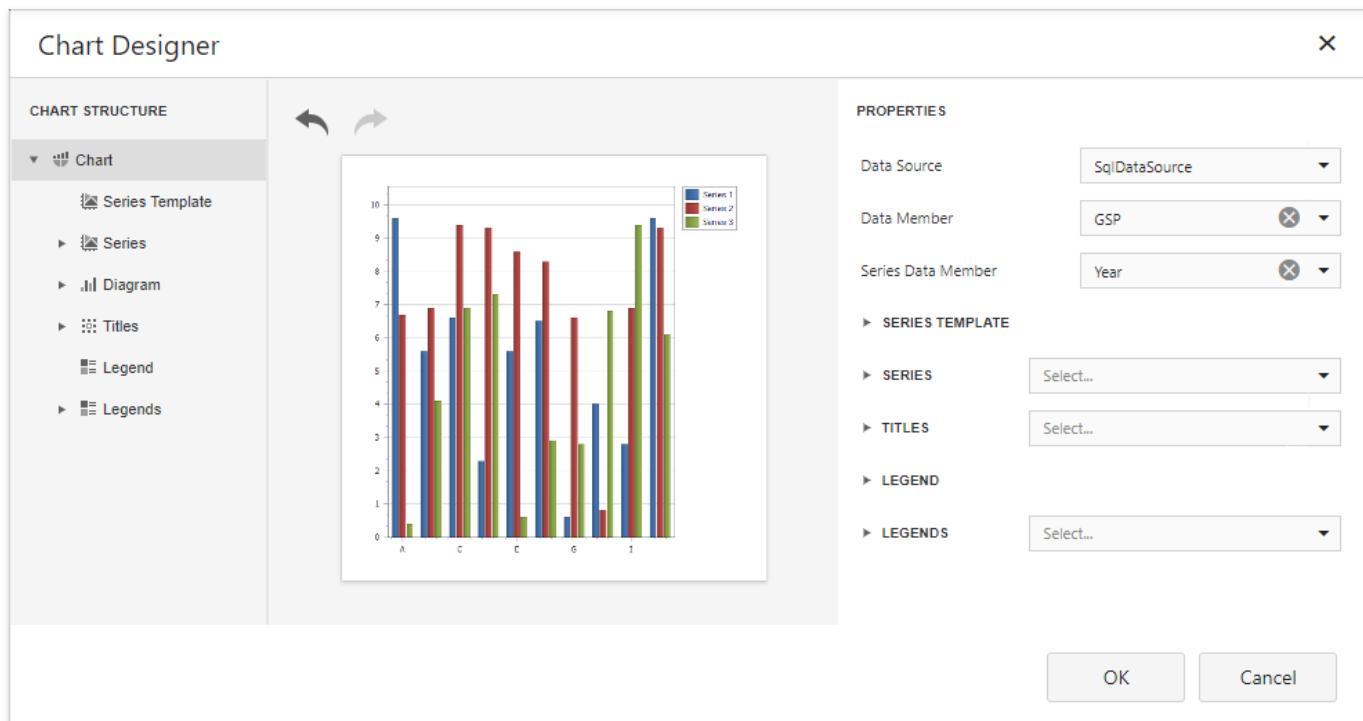
1. Drop the **Chart** control from the **Toolbox** onto the **Detail** band.



2. Click **Run Designer...** to invoke the Chart Designer.



3. Specify the **Data Source** and **Data Member** properties to bind the chart to data. The chart's **Series Data Member** property specifies a data field that should provide data for series names. A new series should be created for each record in this data field.



#### 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.

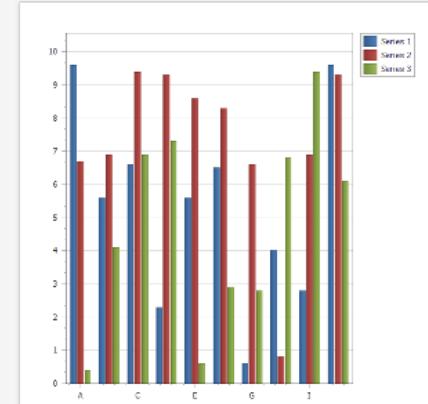
## Adjust the Series Template

1. Use the **Argument Data Member** and **Value Data Members** properties to define where to get data for point arguments and values.

Chart Designer

**CHART STRUCTURE**

- ▼ **Chart**
  - Series Template**
  - **Series**
  - **Diagram**
  - **Titles**
  - **Legend**
  - **Legends**



**PROPERTIES**

► **VIEW** Bar

Argument Data Member Region X

▼ **VALUE DATA MEMBERS**

Value	GSP	X
Color Data Member		
Argument Scale Type	Qualitative	
Series Points Sorting	Select...	
Series Points Sorting Key	Select...	
Value Scale Type	Numerical	

OK
Cancel

Make sure that the **Argument Scale Type** and **Value** properties are set to appropriate values.

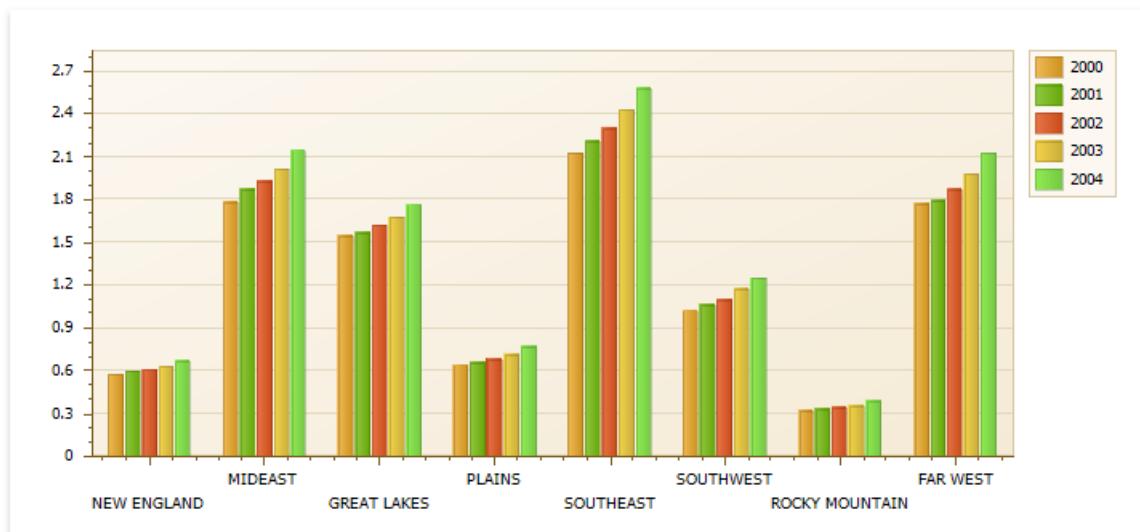
## Customize the Chart

Perform the following customization to improve the chart's appearance:

- 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.

**The Detail Band**

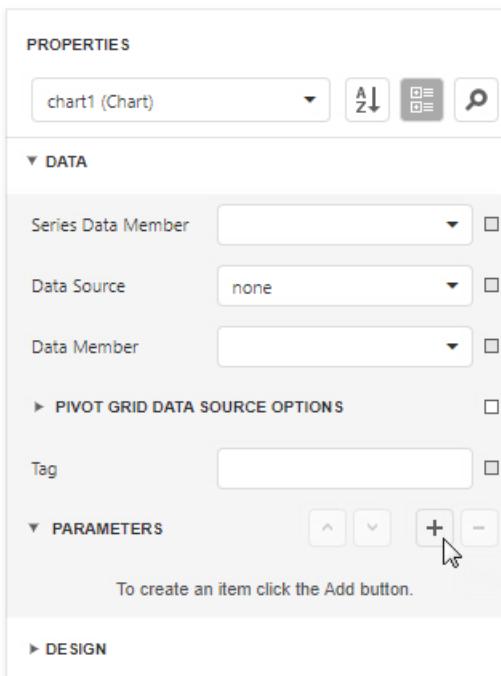
**The Group Header Band**

The screenshot shows the Report Designer interface with the 'Group Header Band' selected. The band contains three fields: '[CategoryID]', '[ProductName]', and '[UnitPrice]'. A message box in the center states: '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.' To the right, the 'GROUP FIELDS' panel is open, showing 'Group By: CategoryID' and 'Level: 0'. The 'APPEARANCE' panel shows a 'Background Color' set to 'rgba(0, 0, 0, 0)'.

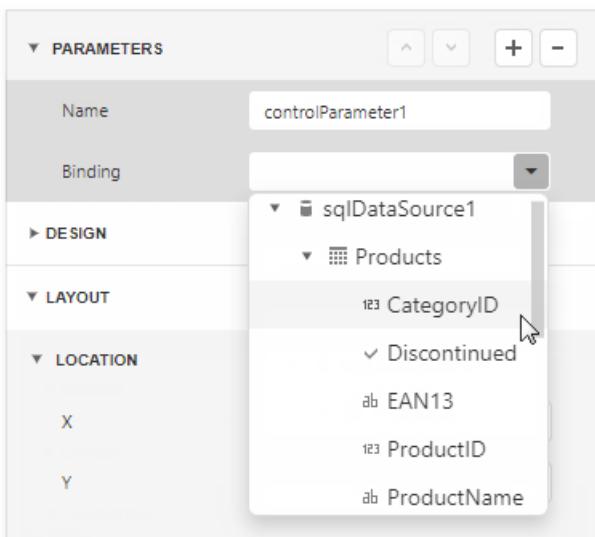
Follow the steps below to make each chart instance display data for its group.

1. Create a chart parameter to pass a group value from the report's group field to the chart.

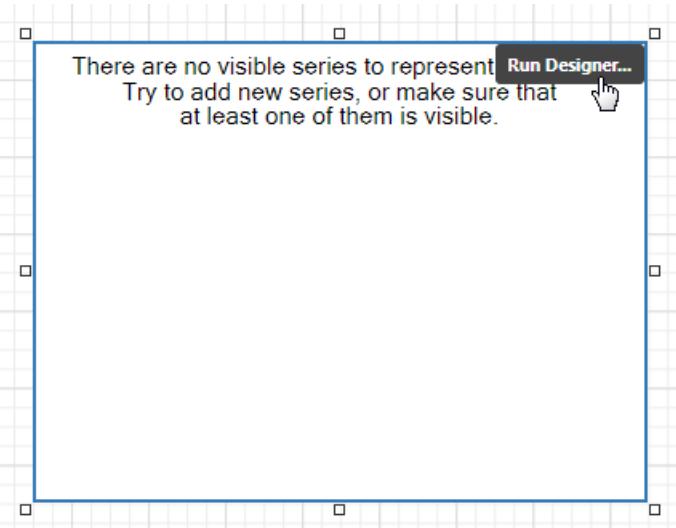
Select the chart and expand the **Data** group in the **Properties** panel. Click the plus button next to the **Parameters** property.



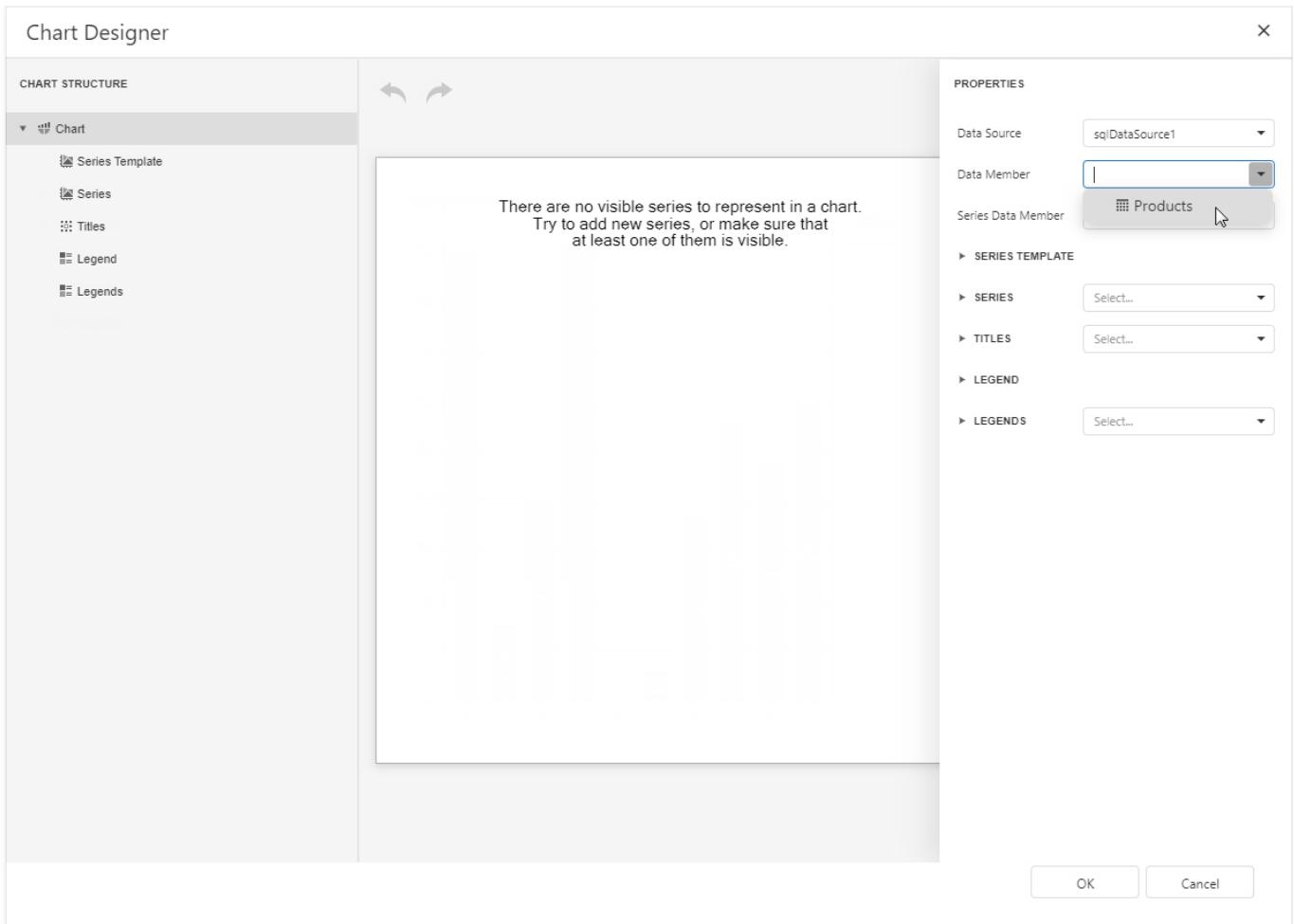
Set the parameter's **Binding** property to the report's group field.



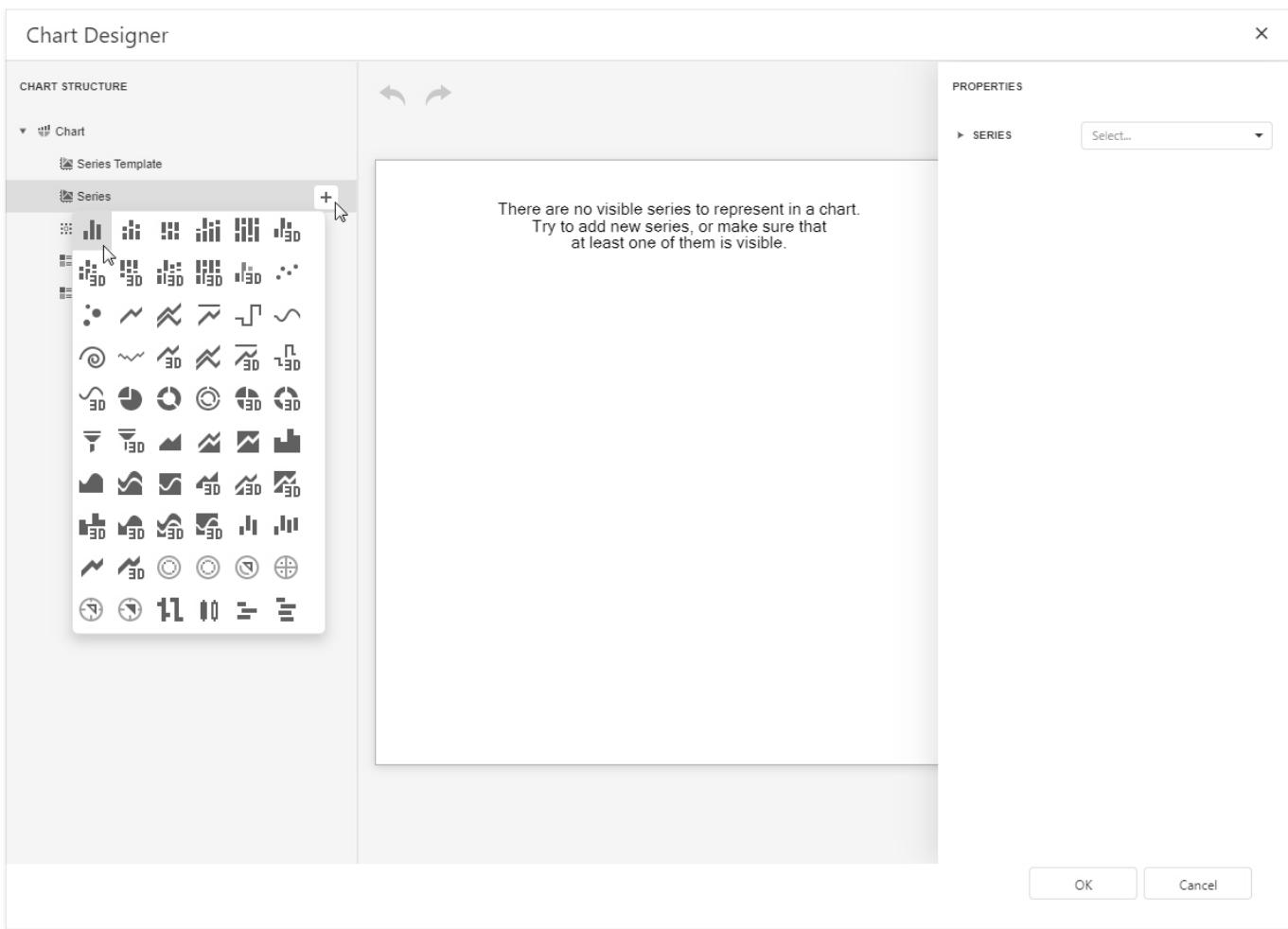
2. Click **Run Designer** to invoke the Chart Designer.



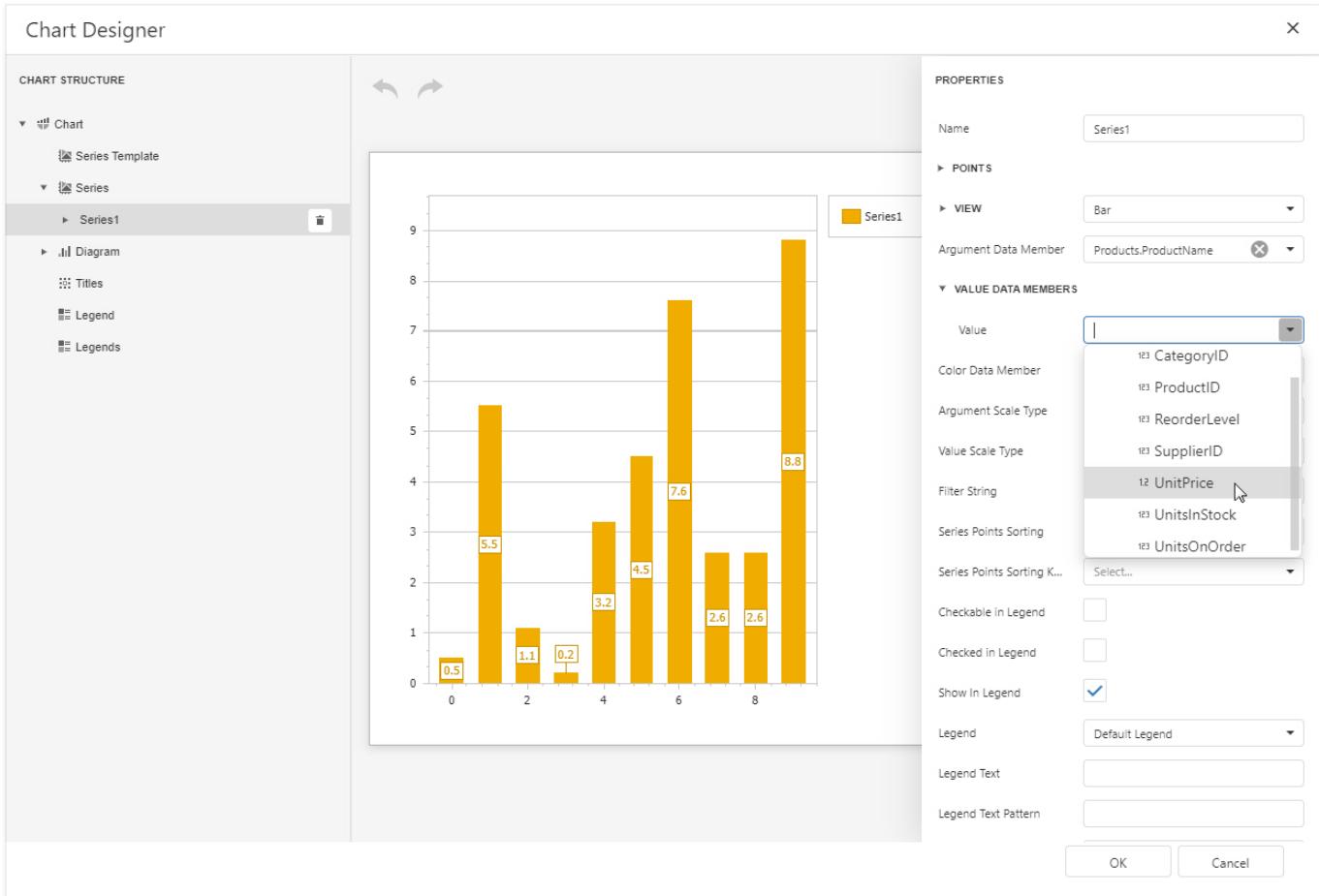
3. Bind the chart to data. Specify the **Data Source** and **Data Member** fields.



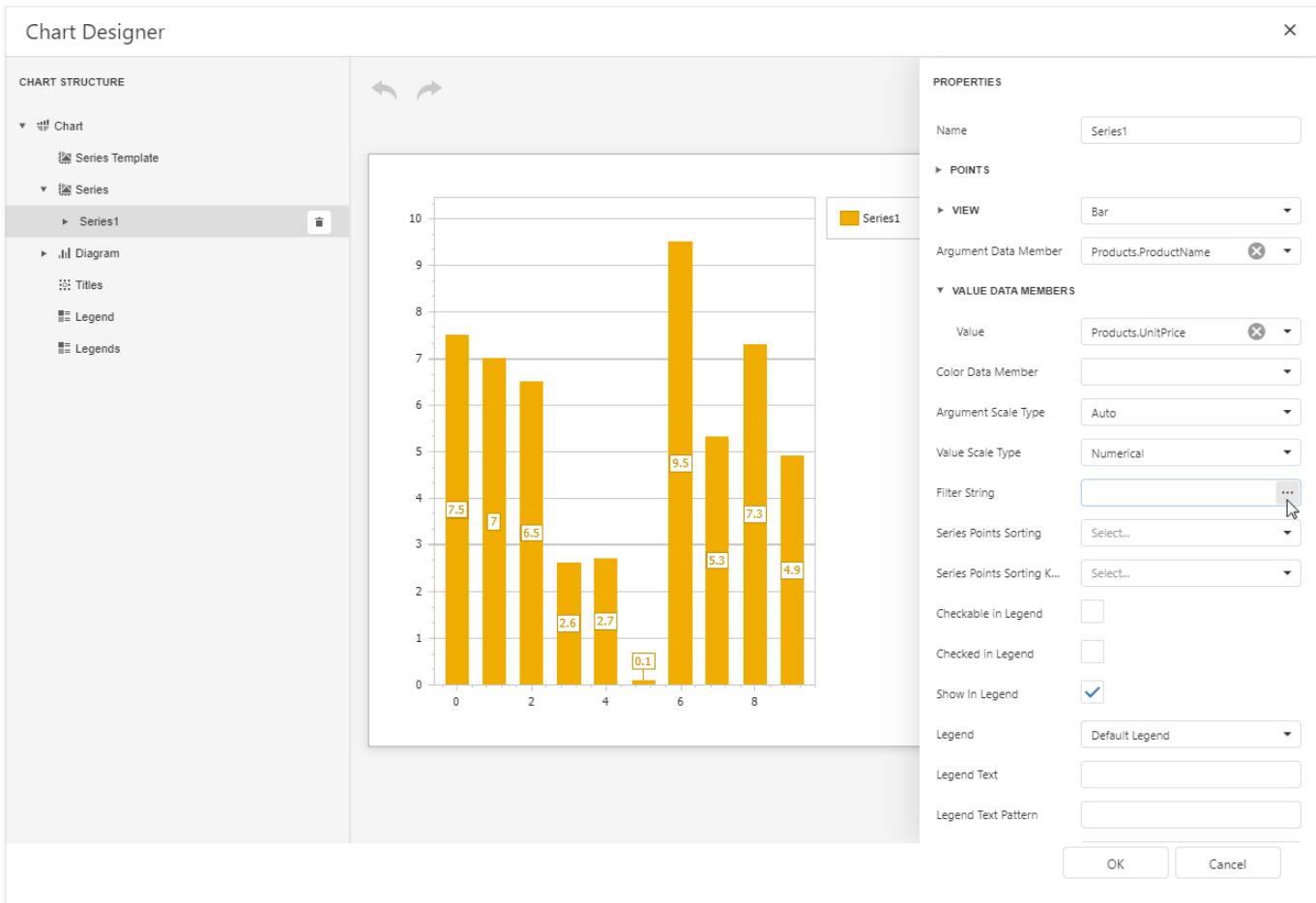
4. Add a new series. Click the plus button next to the Series item in the Chart Designer.



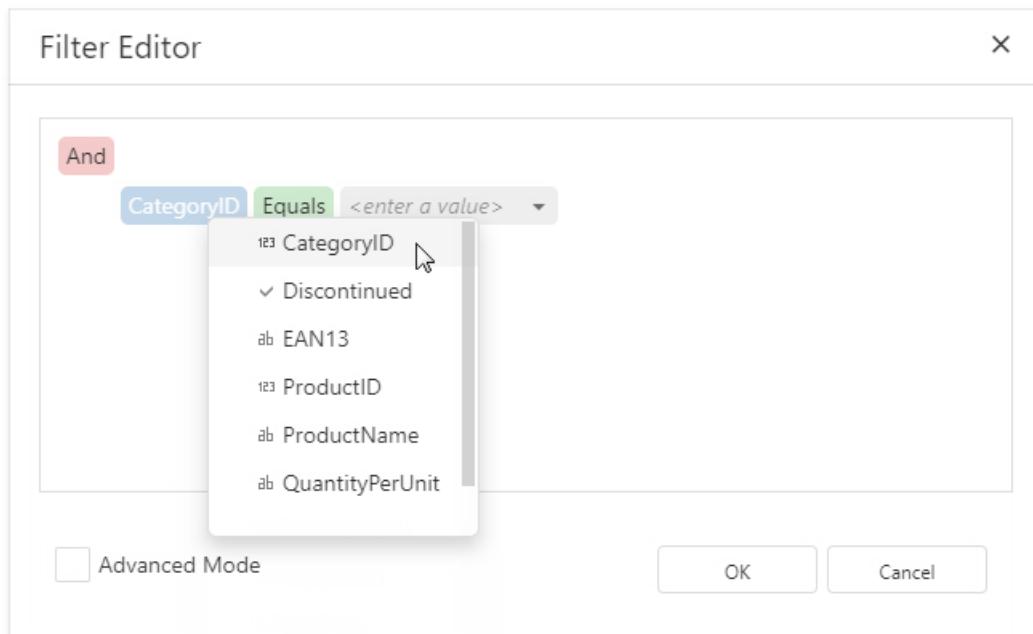
5. Provide data for the argument and value axes. Set the **Argument Data Member** and **Value** properties.



6. Filter the chart. Click the **Filter String** property's ellipsis button.

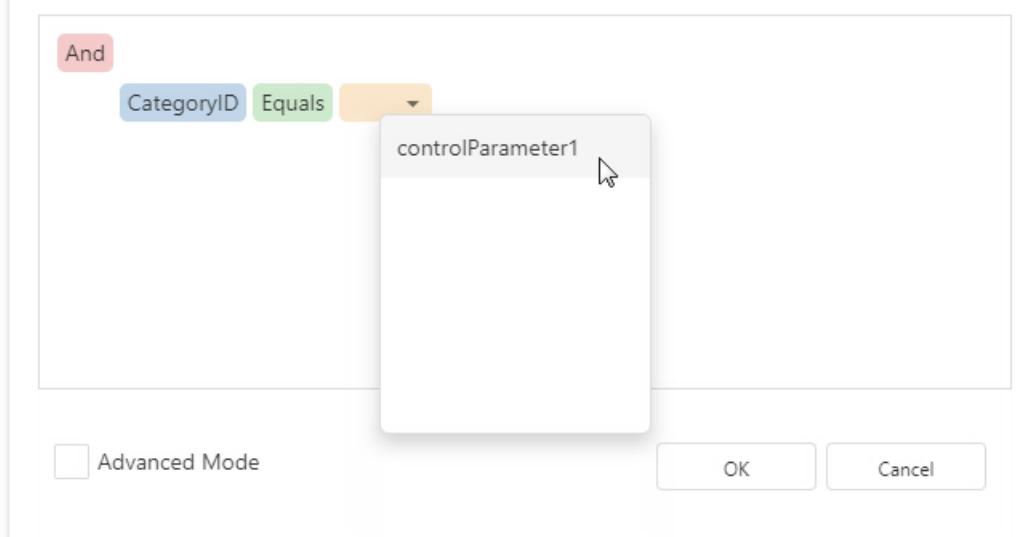


Add a filter condition. On the left side, specify the field by which chart data should be filtered.



On the right side, use the chart parameter to obtain a group value from the report's group field. Click the right side's down arrow and select **Parameter**. Then select the chart parameter from the context menu.

## Filter Editor



Click **OK** in the Filter Editor and in the Chart Designer to apply changes.

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



# Use Gauges and Sparklines

The topics in this section describe how to add graphical content to your reports:

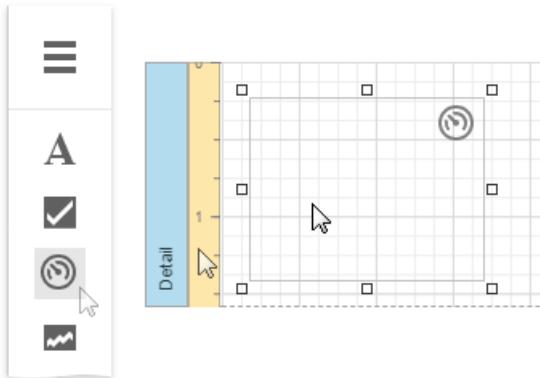
- [Add Gauges to a Report](#)
- [Add Sparklines to a Report](#)

# Add Gauges to a Report

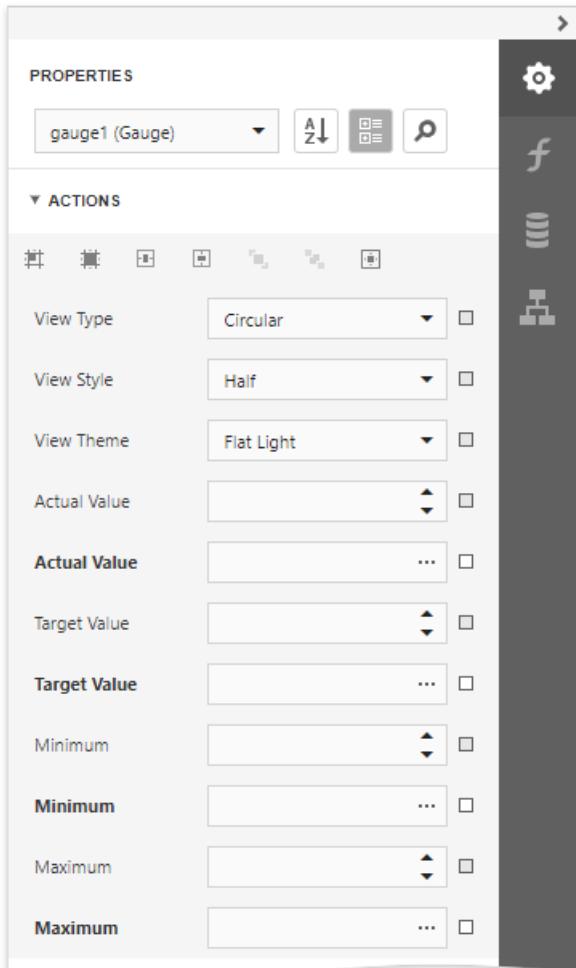
## Gauge Overview

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.



Specify properties in the **Gauge Tasks** category to set up 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**.

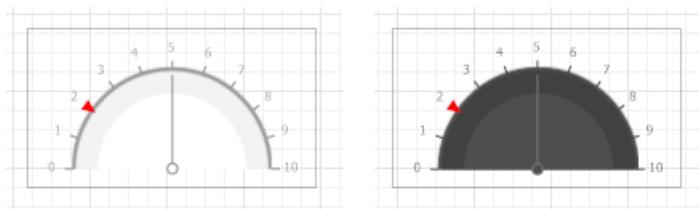
- **Circular**



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.



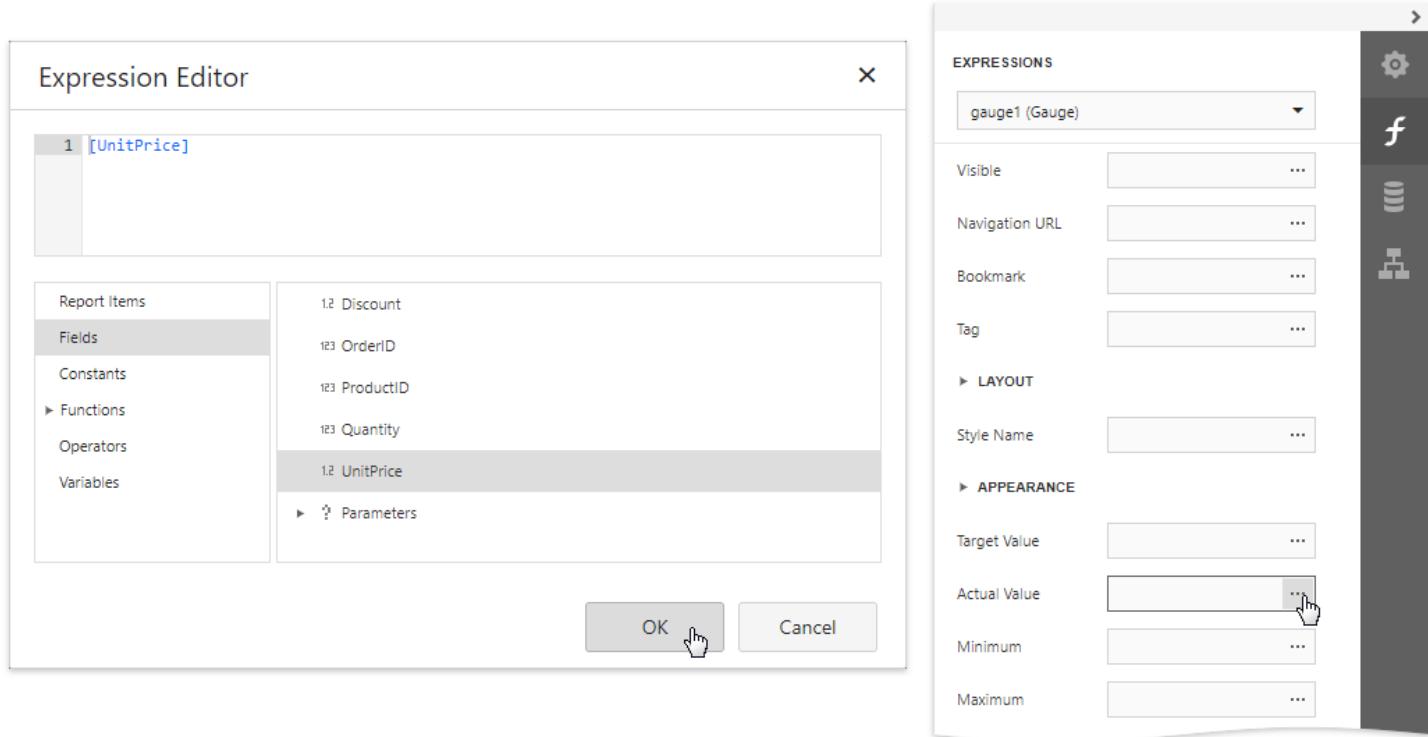
The following properties allow you to customize the gauge scale and specify its displayed values.

- **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.

A screenshot of a UI builder's properties panel for a 'gauge1 (Gauge)' component. The panel is divided into sections: 'PROPERTIES' (containing dropdowns for 'View Type' (Circular), 'View Style' (Half), and 'View Theme' (Flat Light)) and 'ACTIONS' (containing input fields for 'Actual Value', 'Target Value', 'Minimum', and 'Maximum'). A vertical toolbar on the right contains icons for settings, file, database, and other actions.

## Bind a Gauge to Data

To bind the gauge's displayed value to data, open the [Expressions](#) panel and click the **Actual Value** property's ellipsis button. Select the required data field or construct a complex binding expression involving two or more data fields in the invoked [Expression Editor](#).



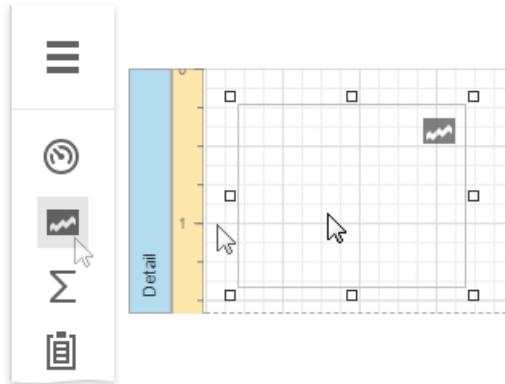
In the same way, you can bind the **Target Value**, **Minimum** and **Maximum** properties to data.

# Add Sparklines to a Report

## Sparkline Overview

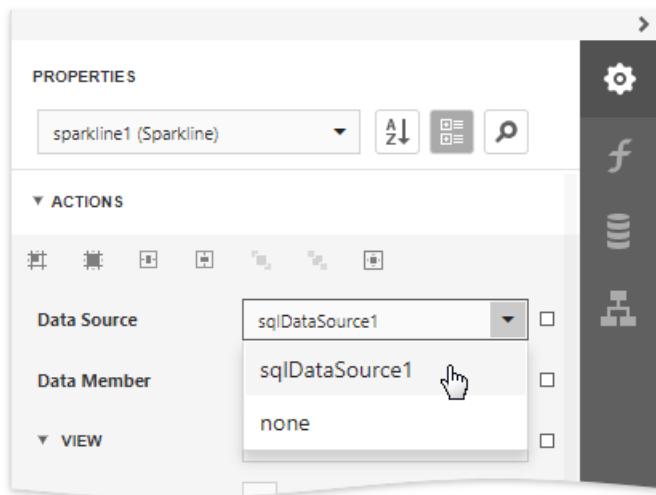
The **Sparkline** control displays a compact chart that is commonly used to illustrate the data flow for every row in a report.

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 **Data Source** property's 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.

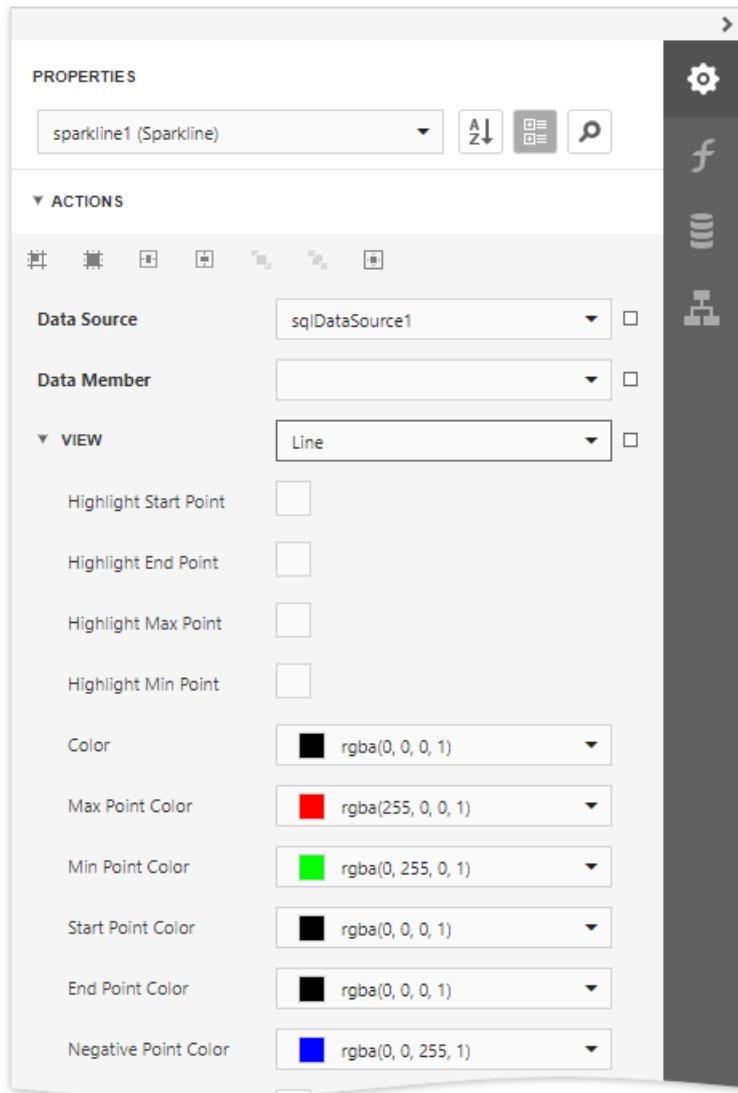
After that, specify the **Data Member** property and set the **Value Member** property to a data field that provides point values for the sparkline.

To create a new data source for a sparkline, click **Add Data Source...** in the [Menu](#). This invokes the [Data Source Wizard](#) that allows you to set up a required data source.

## Adjust the Sparkline View

The sparkline supports the **Line**, **Area**, **Bar** and **WinLoss** view types.

The **View** property provides access to options that change the sparkline's appearance.

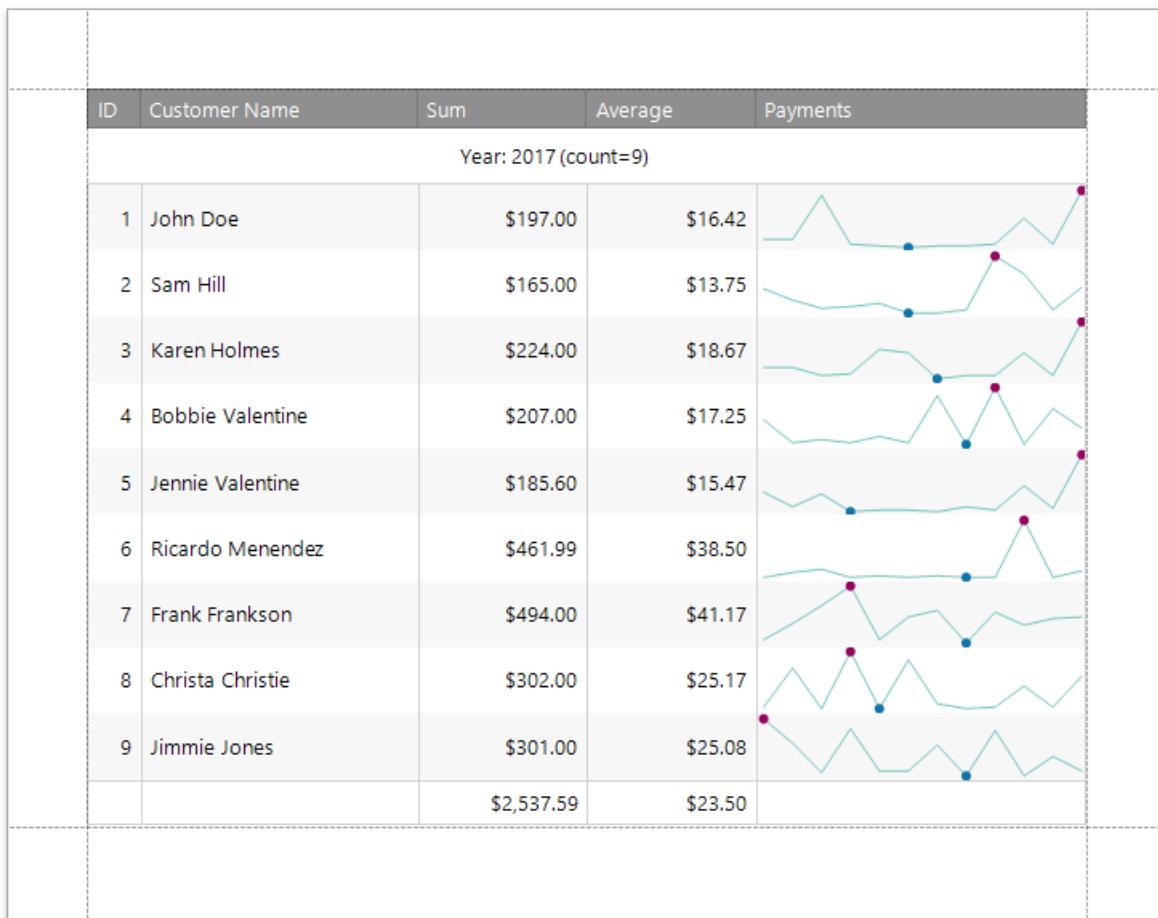


Each view type has properties that define the extreme values' visibility:

- **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:



# Draw Lines and Shapes

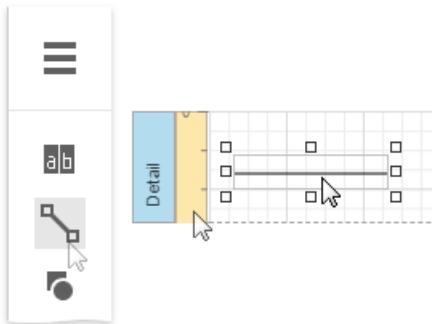
The topics in this section describe how to draw various lines and shapes in a report:

- [Draw Lines](#)
- [Draw Shapes](#)
- [Draw Cross-Band Lines and Boxes](#)

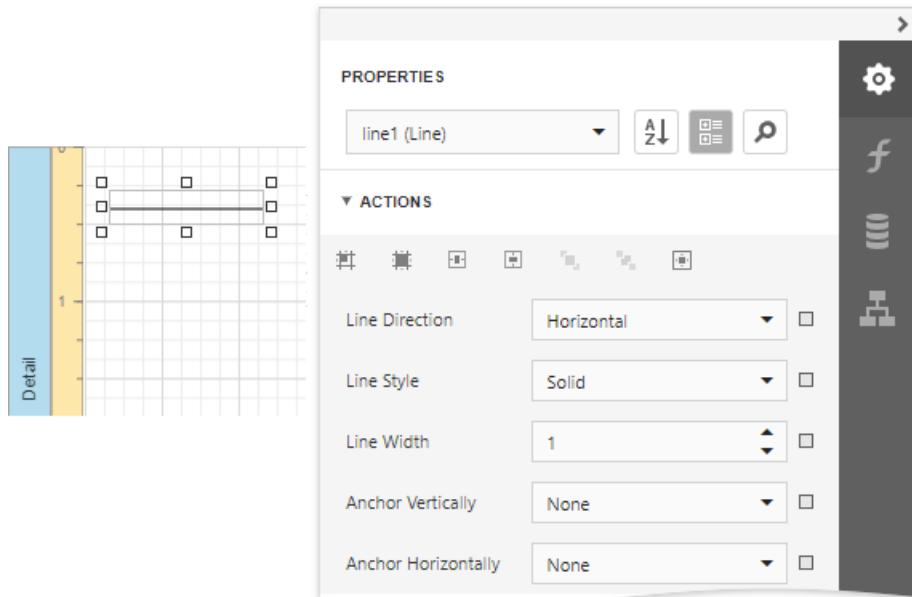
# Draw Lines

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 **Line Tasks** category of the **Properties** panel 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.

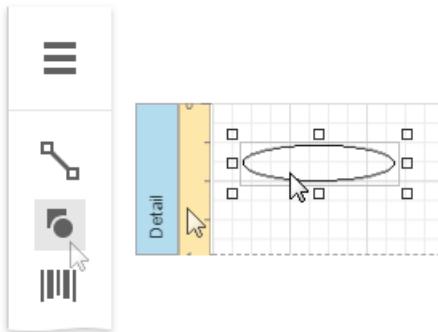
**NOTE**

The **Line** control cannot span several bands. See [Draw Cross-Band Lines and Boxes](#) to learn about drawing lines through several bands.

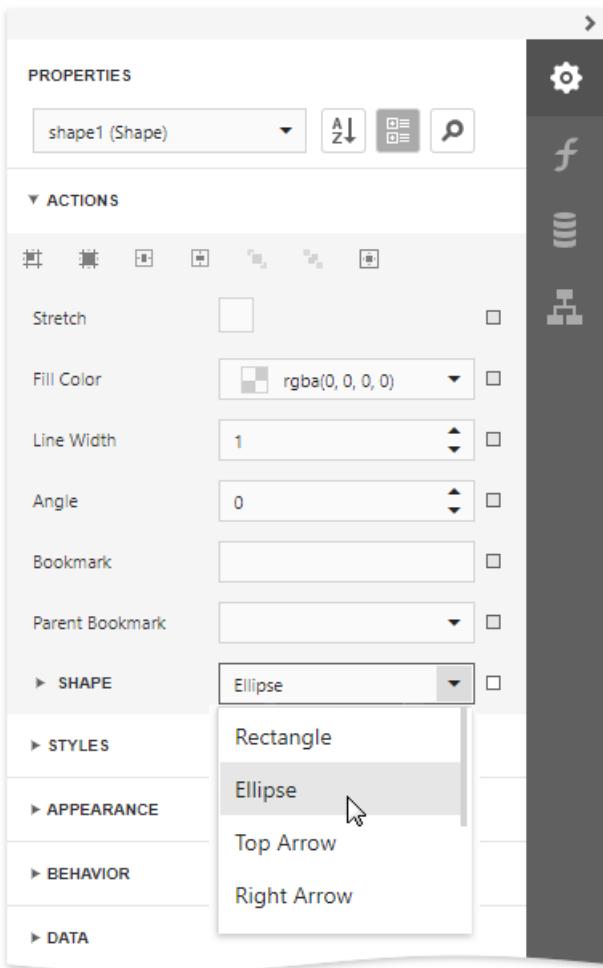
# Draw Shapes

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.



Expand the **Tasks** category and use the **Shape** property to select the shape type.



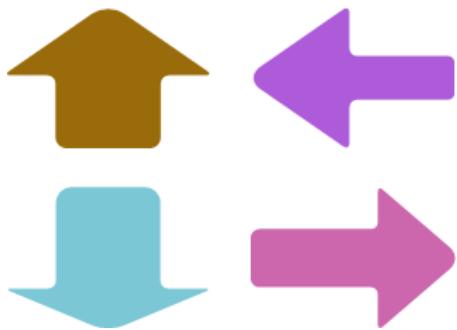
The **Tasks** category provides the following main properties common to all shape types:

- **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.

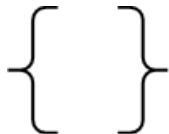


This shape type has the following additional properties:

- **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.

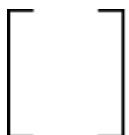


Use the following properties to set up a brace:

- **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**.

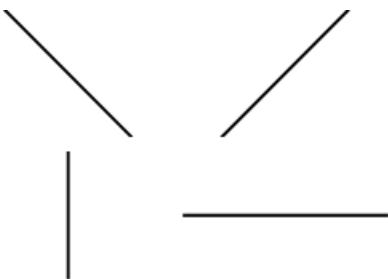
## Ellipse

The image below shows **Ellipse** type shapes.



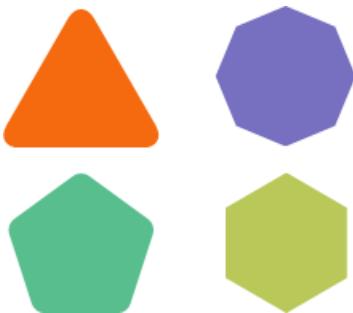
## Line

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**.

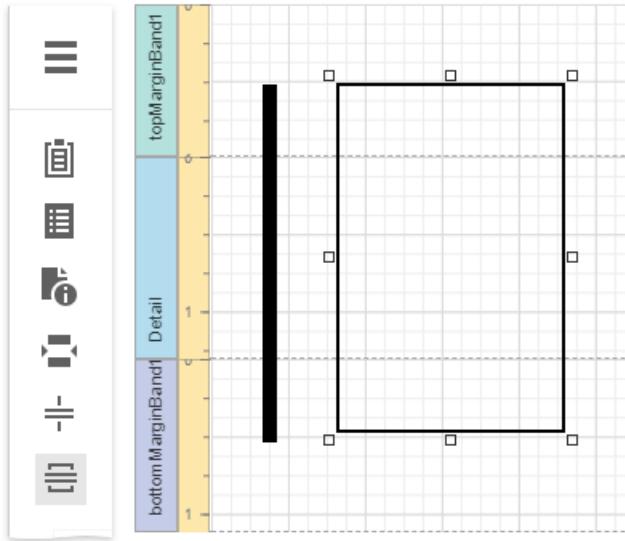
# Draw Cross-Band Lines and Boxes

Cross-band controls allow you to draw lines and rectangles through several [report bands](#).

The Report Designer provides the following two cross-band controls:

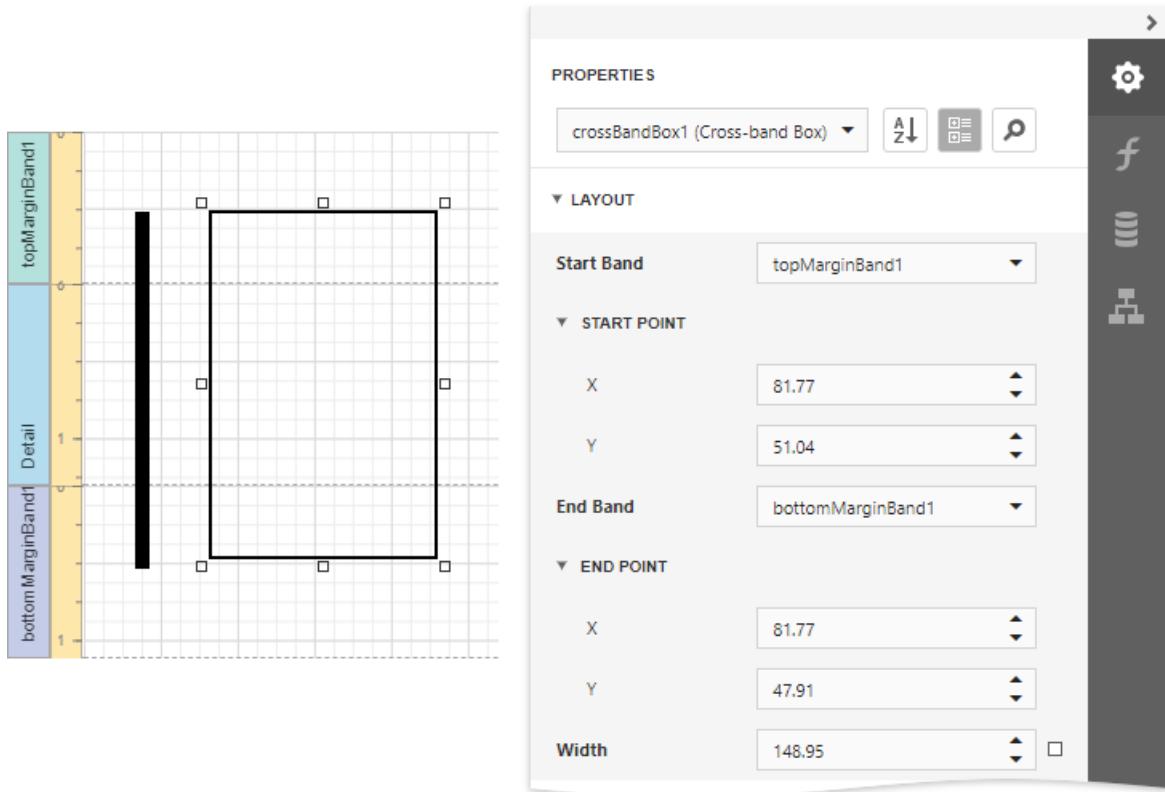
- The **Cross-Band Line** control draws vertical lines that can span multiple report bands. You can use this control to emphasize a report area that consists of different bands.
- The **Cross-Band Box** control draws rectangles through several report bands. You can use this control to encompass a report 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.

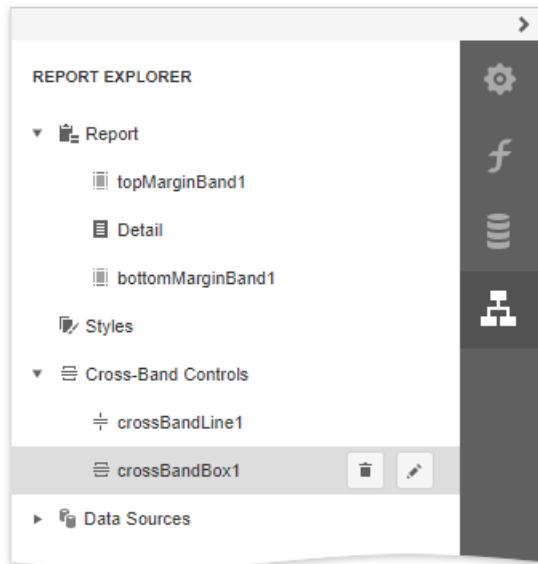


The following properties define a cross-band control's location in a report:

- **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.



The following image illustrates how the [Report Explorer](#) reflects cross-band controls:



# Use Report Parameters

Report parameters allow you to filter report data dynamically.

The screenshot displays a report titled "Employee Comparison". On the left, there are two portraits: one of a man (Steven Buchanan) and one of a woman (Anne Dodsworth). Below each portrait is a table with personal information:

Full Name:	Steven Buchanan
Birth Date:	04 March 1955
Hire Date:	17 October 1993

Full Name:	Anne Dodsworth
Birth Date:	27 January 1980
Hire Date:	15 November 2004

Below these tables are two sections labeled "Total Gain":

Total Gain:	\$55,430.27
-------------	-------------

Total Gain:	\$67,264.53
-------------	-------------

At the bottom of the report area is a table showing a list of orders:

Order ID	Company Name	Extended Price
10372	Queen Cozinha	\$6,324.00
10711	Save-a-lot Markets	\$3,938.00
10607	Save-a-lot Markets	\$3,900.00
10841	Suprèmes délices	\$2,790.00
10831	Ricardo Adesinas	\$2,184.30
10549	QUICK-Stop	\$2,162.40
10399	Seven Seas Imports	\$2,067.20
10823	LILA-Supermercado	\$1,980.00
10372	Queen Cozinha	\$1,428.00
10607	Save-a-lot Markets	\$1,350.00

On the right side of the interface, there is a sidebar titled "PREVIEW PARAMETERS". It contains two dropdown menus: "Left Side:" set to "Steven Buchanan" and "Right Side:" set to "Anne Dodsworth". Below these are "RESET" and "SUBMIT" buttons. The sidebar also features three icons: a magnifying glass, a gear, and a search icon.

## Supported Features/Capabilities

- Built-in parameter types (String, Date, Number, Boolean, and GUID)

The screenshot shows the configuration of a report parameter. The parameter is named "leftSideParameter". The configuration fields include:

Name	leftSideParameter
Description	Left Side:
Type	Number (64 bit integer)
Visible	String Date
Enabled	Number (16 bit integer) Number (32 bit integer) Number (64 bit integer) <span style="background-color: #e0e0e0;">Number (64 bit integer)</span> Number (floating-point) Number (double-precision floating...)
Tag	Number (decimal)
Expression	Boolean
Value	Guid

- Multi-value parameters (filter report data against multiple criteria)

**PREVIEW PARAMETERS**

Company: Antonio Moreno Taqueria

Select All

Alfreds Futterkiste

Ana Trujillo Emparedados y...  
...lado

Antonio Moreno Taqueria

Around the Horn

Berglunds snabbköp

Blauer See Delikatessen

- **Cascading parameters** (filter a parameter's value list against selections made in a different parameter)

**Products by Categories**

**Category: Confections**

Pavlova  
Sir Rodney's Marmalade  
Sir Rodney's Scones

**PREVIEW PARAMETERS**

Category: Confections

Products: Pavlova, Sir Rodney's Marmalade

- **Date-range parameters** (filter report data against a specified time period)

**PREVIEW PARAMETERS**

Date Range: 8/1/2020 - 8/5/2020

Today	AUGUST 2020							AUGUST 2020						
Yesterday	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT
Current Week	26	27	28	29	30	31	1	26	27	28	29	30	31	1
Last Week	2	3	4	5	6	7	8	2	3	4	5	6	7	8
Previous Week	9	10	11	12	13	14	15	9	10	11	12	13	14	15
Current Month	16	17	18	19	20	21	22	16	17	18	19	20	21	22
Last Month	23	24	25	26	27	28	29	23	24	25	26	27	28	29
Previous Month	30	31	1	2	3	4	5	30	31	1	2	3	4	5
Current Quarter														
Previous Quarter														

- **Static parameter values** (create pre-defined (static) parameter value lists)

Name	parameter1	Value Source	Static List
Description	Parameter1	Filter String	...
Type	String	Values	
Visible	Yes	Description	One
Enabled	Yes	Value	1
	<input type="checkbox"/> Allow Null Value	Description	Two
	<input type="checkbox"/> Allow Multiple Value	Value	2
	<input type="checkbox"/> Select All Values	Description	Three
Tag		Value	3
Expression	...		
Value			

- [Dynamic parameter values \(load parameter values from a data source dynamically\)](#)

Name	paramCompany	Value Source	Dynamic List
Description	Company:	Filter String	...
Type	String	Data Source	sqlDataSource1
Visible	Yes	Data Member	Customers
Enabled	Yes	Value Member	CustomerID
	<input type="checkbox"/> Allow Null Value	Display Member	CompanyName
	<input checked="" type="checkbox"/> Allow Multiple Value	Sort Member	
	<input type="checkbox"/> Select All Values	Sort Order	None
Tag			
Expression	...		
Value	<input type="button" value="^"/>	<input type="button" value="v"/>	<input type="button" value="+"/>
Value	ALFKI		

Refer to the following documentation section for more details: [Create a Report Parameter](#).

## Reference Report Parameters

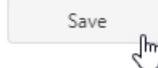
Once you [create](#) a parameter, you can reference it in your report's [filter string](#) to filter underlying report data.

## Filter Editor

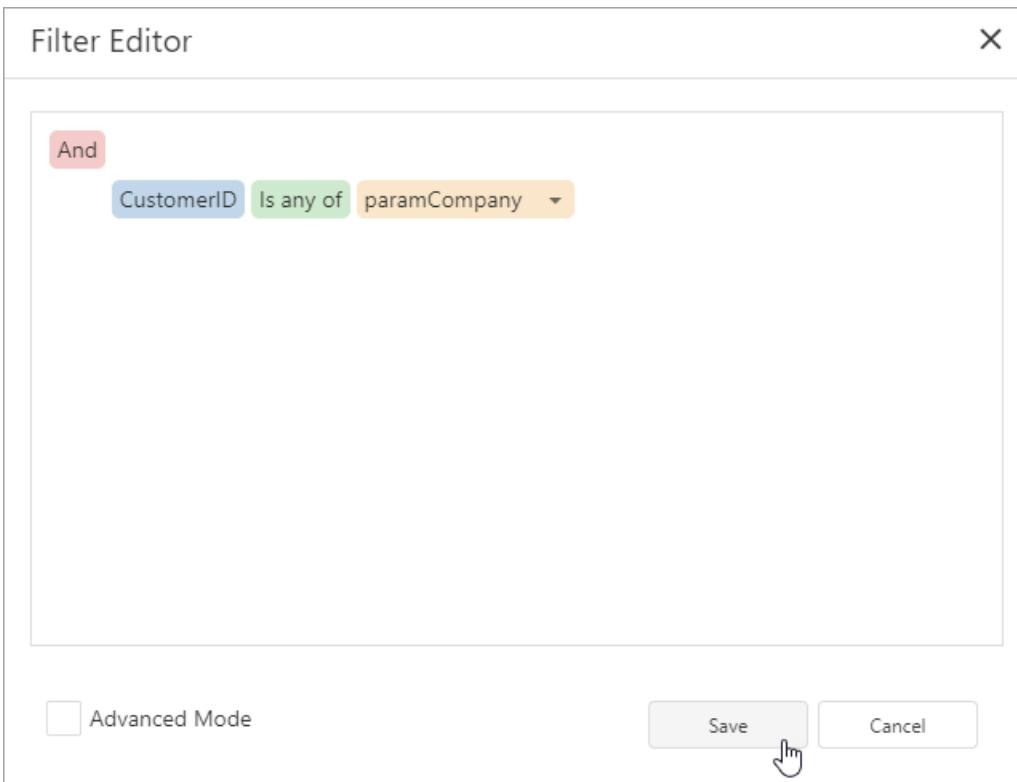
And

CustomerID Is any of paramCompany ▾

Advanced Mode

 Save

Cancel



You can also reference the parameter in a report control's [expression](#) or its **Text** property.

## Expression Editor

AccessibleDescription  
Background Color  
Bookmark  
Border Color  
Border Dash Style  
Border Width  
Borders  
► Font  
Foreground Color  
Navigate Url  
► Padding  
Style Name  
Tag  
**Text**   
Text Alignment  
Visible  
Width

iif(?param  
paramCompany field

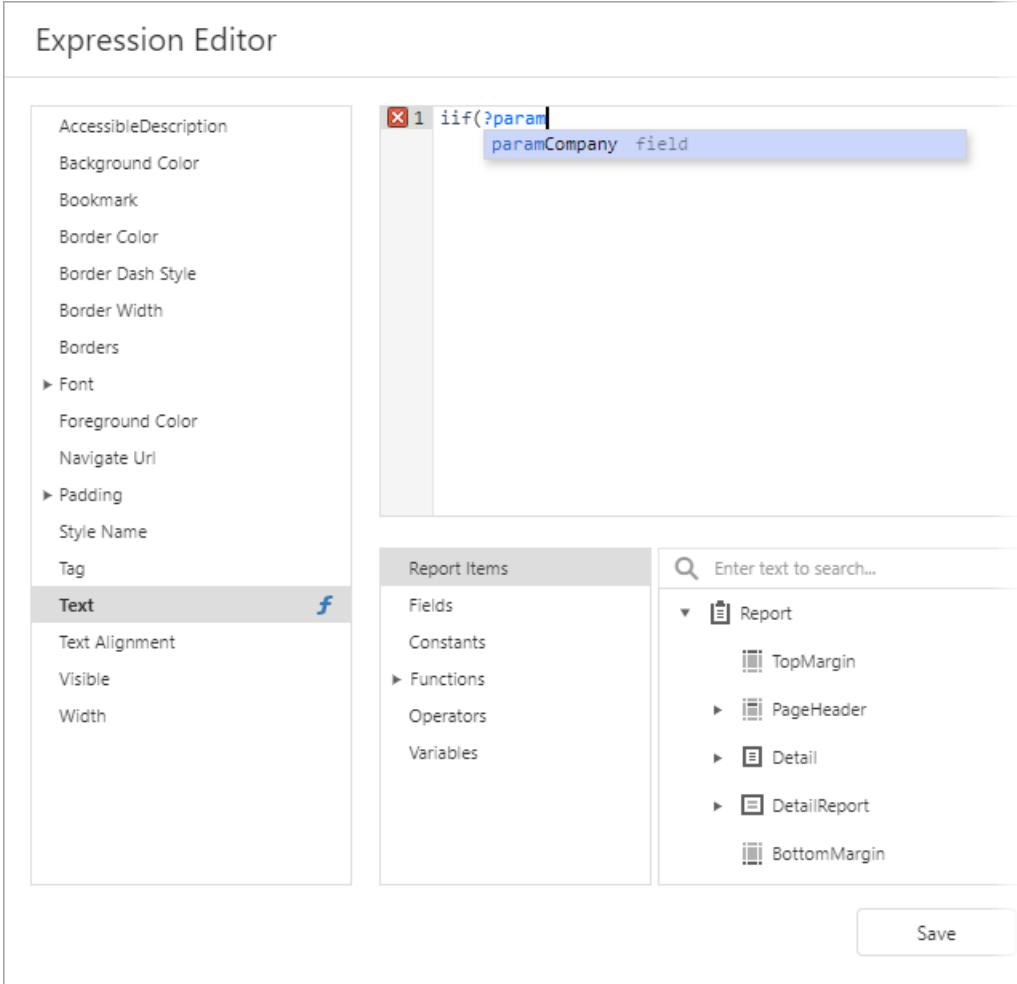
Report Items

Enter text to search...

Fields  
Constants  
► Functions  
Operators  
Variables

Report  
TopMargin  
PageHeader  
Detail  
DetailReport  
BottomMargin

Save



When used in this manner, you can filter data displayed within an individual report control (such as [Label](#)) conditionally.

You can also bind data source parameters to report parameters and filter data at the data source level. Refer to the following help topic for more information: [Reference Report Parameters](#).

# Specify Parameter Values

Available report parameters appear within a report's **Print Preview** window (inside the [Parameters panel](#)). Use this panel to specify desired parameter values:

The screenshot shows a 'Print Preview' window with a toolbar at the top. Below the toolbar is the 'Employee Comparison' report. The report features two employee portraits: Steven Buchanan on the left and Anne Dodsworth on the right. Below each portrait is a summary table with personal information. To the right of the report is the 'PREVIEW PARAMETERS' panel, which contains dropdown menus for 'Left Side:' (set to 'Steven Buchanan') and 'Right Side:' (set to 'Anne Dodsworth'). It also includes 'RESET' and 'SUBMIT' buttons, with 'SUBMIT' being highlighted by a mouse cursor. A vertical sidebar on the far right contains icons for filter, settings, and search.

Full Name:	Steven Buchanan
Birth Date:	04 March 1955
Hire Date:	17 October 1993

Full Name:	Anne Dodsworth
Birth Date:	27 January 1980
Hire Date:	19 November 2004

Total Gain:	\$55,430.27
-------------	-------------

Total Gain:	\$67,264.53
-------------	-------------

Order ID	Company Name	Extended Price
10372	Queen Cozinha	\$6,324.00
10711	Save-a-lot Markets	\$3,936.00
10607	Save-a-lot Markets	\$3,900.00

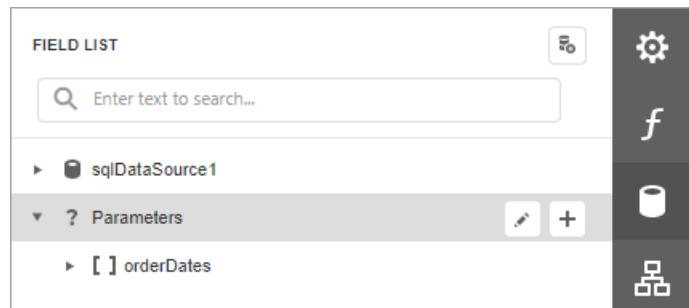
Order ID	Company Name	Extended Price
10889	Rattlesnake Canyon Grocery	\$10,540.00
11017	Ernst Handel	\$6,090.00
10933	Around the Horn	\$3,847.50

# Create a Report Parameter

This topic demonstrates how to create a report parameter in the [Report Designer](#). The topic also describes the [options](#) you can specify for a report parameter.

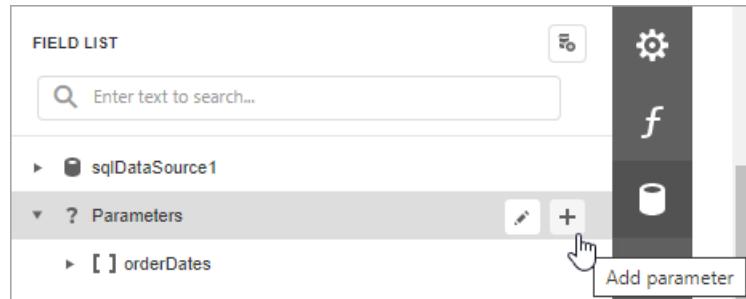
## Create a Report Parameter in the Report Designer

In the **Report Designer**, you can create a parameter from the [Field List](#) and [Properties panel](#). The created parameter appears in the [Field List's Parameters](#) node.



### Create From the Field List

Click the plus button in the [Field List's Parameters](#) node.



Specify [parameter options](#) in the invoked **Add New Parameter** dialog and click **OK**.

## Add Parameter



Name	parameter1	Value Source	(none)
Description	Parameter1		
Type	String		
Visible	Yes	<input type="button" value="f"/>	
Enabled	Yes	<input type="button" value="f"/>	
<input type="checkbox"/> Allow Null Value			
<input type="checkbox"/> Allow Multiple Value			
<input type="checkbox"/> Select All Values			
Tag			
Expression	...		
Value			
<input type="button" value="OK"/> <input type="button" value="Cancel"/>			

## Create From the Properties Panel

Select a report, navigate to the [Properties panel](#) *Data* section, and click the plus button right to the *Parameters* node.

The screenshot shows the Properties panel with the following sections expanded:

- BEHAVIOR**: Contains the **On Error** dropdown set to **Break**.
- DATA**: Contains fields for **Data Source** (sqlDataSource1), **Data Member** (Customers), **Filter String**, and **Tag** (with a checked checkbox).
- CALCULATED FIELDS**: An expandable section.
- PARAMETERS**: An expandable section containing the **orderDates** parameter. To the right of the parameter list is a toolbar with up/down arrows, a plus sign (+), a minus sign (-), and an **Add** button, with the mouse cursor hovering over the plus sign.
- DESIGN**: An expandable section.
- NAVIGATION**: An expandable section.

Specify [parameter options](#) in the invoked **Add New Parameter** dialog and click **OK**.

## Add Parameter



Name	parameter1	Value Source	(none)
Description	Parameter1		
Type	String		
Visible	Yes	<input type="button" value="f"/>	
Enabled	Yes	<input type="button" value="f"/>	
<input type="checkbox"/> Allow Null Value			
<input type="checkbox"/> Allow Multiple Value			
<input type="checkbox"/> Select All Values			
Tag			
Expression	...		
Value			
<input type="button" value="OK"/> <input type="button" value="Cancel"/>			

## Parameter Options

### Name

The name by which you can [reference a parameter in a report](#). Note that report parameters should have unique names.

### Description

A parameter description that appears on a report's **Print Preview** in the [Parameters panel](#).



### Visible

Specifies whether a parameter is visible in the [Parameters panel](#).

You can assign an [expression](#) to this option. The example below specifies an expression that shows/hides a parameter based on a value of another parameter.

Name	company
Description	Company
Type	String
Visible	<code>!IsNullOrEmpty(?customer)</code>
Enabled	Yes
	<input type="checkbox"/> Allow Null Value
	<input type="checkbox"/> Allow Multiple Value
	<input type="checkbox"/> Select All Values
Tag	
Expression	
Value	

## Enabled

Specifies whether a parameter editor is enabled or disabled in the [Parameters panel](#). You can set this option to **No** to make a parameter's [default value](#) read-only.

The screenshot shows a 'PREVIEW PARAMETERS' dialog with two input fields. The first field is labeled 'Customer' and contains 'John'. The second field is labeled 'Company' and contains 'ALFKI'. Below the fields are 'RESET' and 'SUBMIT' buttons. To the right of the dialog is a sidebar with a filter icon and a gear icon.

You can also assign an [expression](#) to this option. The example below specifies an expression that enables/disables a parameter's editor based on a value of another parameter.

Name	company
Description	Company
Type	String
Visible	Yes
Enabled	<code>!IsNullOrEmpty(?customer)</code>
	<input type="checkbox"/> Allow Null Value
	<input type="checkbox"/> Allow Multiple Value

## Type

The type of parameter values. The following types are available:

- String;
- Date;
- Number (16-bit integer);

- Number (32-bit integer);
- Number (64-bit integer);
- Number (floating point);
- Number (double-precision floating point);
- Number (decimal);
- Boolean;
- GUID (Globally Unique Identifier).

## Default Value

A parameter's default value. This value is displayed in the [Parameters panel](#) when you open a report's **Print Preview**.

You can specify an [expression](#) for this option. For example, set this option to **Now()** to use the current date as a date parameter's default value.

The screenshot shows the 'Parameters panel' configuration for a parameter named 'date'. The fields are as follows:

- Name:** date
- Description:** Date
- Type:** Date
- Visible:** Yes
- Enabled:** Yes
- Allow Null Value:** Unchecked
- Allow Multiple Value:** Unchecked
- Select All Values:** Unchecked
- Tag:** (empty)
- Expression:** Now()
- Value:** 12/12/2021, 12:00 AM

### NOTE

You can use only constants, operators, and date-time / logical / math / string functions in an expression for a parameter's default value.

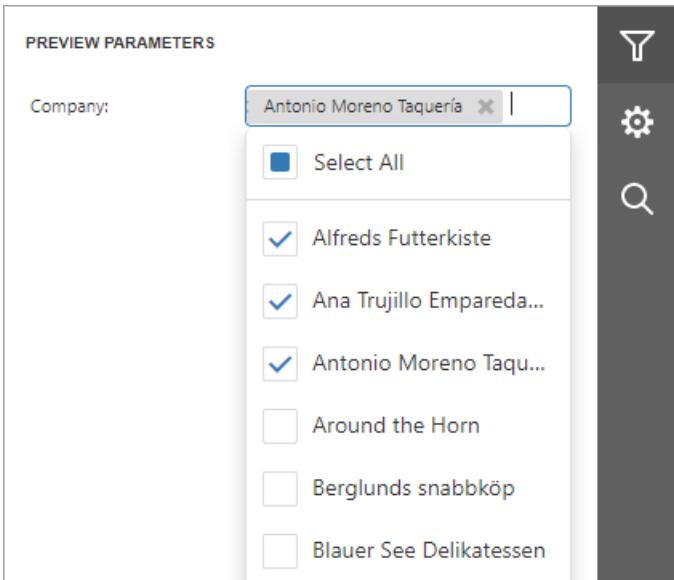
## Allow Null Value

When the **Allow Null Value** option is enabled, you can leave the parameter's value unspecified.

The screenshot shows the 'Preview Parameters' dialog. A dropdown menu for a 'Boolean Parameter' is open, showing two options: 'Yes' and 'No'. To the right of the dropdown is a vertical toolbar with a filter icon and a gear icon.

## Allow Multiple Values

When the **Allow Multiple Values** option is enabled, you can specify multiple values for a report parameter.



## Select All Values

Enable the **Select All Values** option to use all elements from a custom set of values as a parameter's [default value](#).

### NOTE

You can specify the **Select All Values** option only when the **Allow Multiple Values** option is enabled.

## Value Source

Use the **Value Source** option to specify a custom set of values a parameter can accept. You can create a static list of values, load values from a data source, or specify a date range. Refer to the following topics for more details:

- [Report Parameters with Predefined Static Values](#)
- [Report Parameters with Predefined Dynamic Values](#)
- [Date Range Report Parameters](#)

# Report Parameters with Predefined Static Values

You can create a list of predefined values for a report parameter.

The screenshot shows the 'Add New Parameter' dialog box. On the left, the parameter settings are listed: Name (parameter1), Description (Parameter1), Type (String), Visible (Yes), Enabled (Yes), Tag (empty), Expression (empty), and Value (empty). On the right, under 'Value Source', 'Static List' is selected. Below it, the 'Values' section displays three entries: One (Description: One, Value: 1), Two (Description: Two, Value: 2), and Three (Description: Three, Value: 3). A blue box highlights the 'Values' section.

When you open a report's **Print Preview**, you can select a value from this list in the **Parameters** panel.



## Create a List of Predefined Values in the Report Designer

Follow the steps below to create a parameter with a list of predefined static values in the [Report Designer](#):

1. Create a report parameter as described in this topic: [Create a Report Parameter](#).
2. Set the parameter's **Value Source** option to **Static List**. A grid appears in the **Add New Parameter** dialog and allows you to specify a list of static parameter values.

The screenshot shows the 'Add New Parameter' dialog. Under 'Value Source', 'Static List' is selected. In the 'Values' section, there are two rows: one for 'Description' (empty) and one for 'Value' (empty). A hand cursor is hovering over the 'Add' button, which is highlighted with a blue box.

Each value should have a description. This description is displayed in the [Parameters panel](#).

# Report Parameters with Predefined Dynamic Values

You can create a report parameter that uses a list of values from a data source.

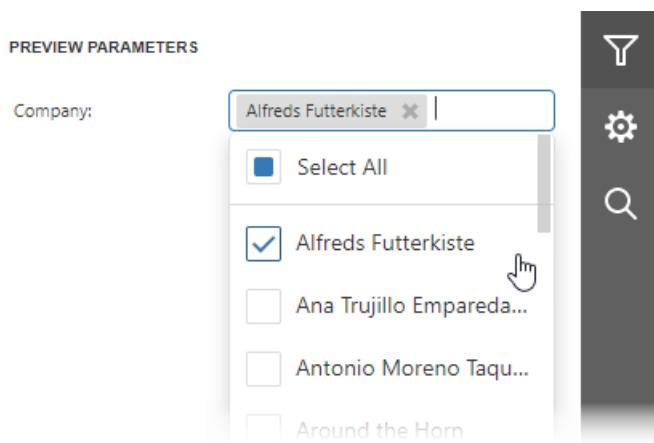
The screenshot shows the 'Add New Parameter' dialog box. On the left, the parameter settings are listed:

- Name: paramCompany
- Description: Company:
- Type: String
- Visible: Yes
- Enabled: Yes
- Checkboxes: Allow Null Value (unchecked), Allow Multiple Value (checked), Select All Values (unchecked)
- Tag: (empty)
- Expression: (empty)
- Value: ALFKI

On the right, the 'Value Source' section is expanded, showing the configuration for a dynamic list:

- Value Source: Dynamic List
- Filter String: (empty)
- Data Source: sqlDataSource1
- Data Member: Customers
- Value Member: CustomerID
- Display Member: CompanyName
- Sort Member: (empty)
- Sort Order: None

When you open a report's **Print Preview**, you can select a value from this list in the **Parameters panel**.



## Create a List of Predefined Values in the Report Designer

Follow the steps below to create a parameter with a list of dynamic values in the [Report Designer](#):

1. Create a report parameter as described in this topic: [Create a Report Parameter](#).
2. Set the parameter's **Value Source** option to **Dynamic List**. Additional fields appear in the **Add New Parameter** dialog and allow you to specify a data source for parameter values.

Value Source	Dynamic List
Filter String	...
Data Source	none
Data Member	
Value Member	
Display Member	
Sort Member	
Sort Order	None

3. Specify the **Data Source**, **Data Adapter** (for a **DataSet** only), and **Data Member** options. **Value Member** defines a data field that supplies values to the parameter. **Display Member** defines a data field that stores value descriptions displayed in the [Parameters panel](#).

Value Source	Dynamic List
Filter String	...
Data Source	sqlDataSource1
Data Member	Customers
Value Member	Id
Display Member	Name
Sort Member	
Sort Order	None

#### NOTE

The data member's value type should match the specified parameter **Type**.

Use the **Filter String** property to filter parameter values or implement [cascading parameters](#). Specify the **Sort Order** and **Sort Member** properties to sort parameter values in the [Parameters panel](#)'s editor.

# Multi-Value Report Parameters

This document describes how to create a multi-value parameter and use this parameter to [filter report data](#).

The screenshot shows the Report Designer interface. On the left, there's a preview area displaying a table of product categories and names. On the right, under 'PREVIEW PARAMETERS', there are two buttons: 'Beverages' and 'Condiments'. Below these buttons are 'RESET' and 'SUBMIT' buttons. A cursor is hovering over the 'SUBMIT' button. To the right of the preview area is a vertical toolbar with icons for filter, settings, and search.

Category	Product Name
Beverages	Chai
Beverages	Chang
Condiments	Aniseed Syrup
Condiments	Chef Anton's Cajun Seasoning
Condiments	Chef Anton's Gumbo Mix
Condiments	Grandma's Boysenberry Spread
Condiments	Northwoods Cranberry Sauce
Condiments	Genen Shouyu
Beverages	Guaraná Fantástica

## TIP

Refer to this help article for information on how to use multi-value parameters in an SQL query: [Specify Query Parameters](#).

## Create a Multi-Value Parameter in the Report Designer

Follow the steps below to create a multi-value parameter in the [Report Designer](#):

1. [Create a report parameter](#) and enable the **Allow multiple values** option.

The screenshot shows the 'Parameter Properties' dialog box. It contains fields for Name (parameter1), Description (Parameter1), Type (String), Visible (Yes), Enabled (Yes), and several checkboxes. The 'Allow Null Value' checkbox is unchecked. The 'Allow Multiple Value' checkbox is checked, and a hand cursor icon is pointing at it. Below it is a 'Select All Values' link. There are also fields for Tag, Expression, Value, and Value.

Name	parameter1
Description	Parameter1
Type	String
Visible	Yes
Enabled	Yes
<input type="checkbox"/> Allow Null Value	
<input checked="" type="checkbox"/> Allow Multiple Value	
Select All Values	
Tag	
Expression	...
Value	<input type="button"/> <input type="button"/> <input type="button"/> <input type="button"/>
Value	

2. Specify a list of predefined values for the parameter. You can create a static list of values or load values from a data source. Refer to the following topics for instructions on how to do it:

- [Report Parameters with Predefined Static Values](#)
- [Report Parameters with Predefined Dynamic Values](#)

## Filter a Report's Data by a Multi-Value Parameter

To filter a report's data by a multi-value parameter, use the **Is any of** operator for this parameter in the report's [filter string](#):

The screenshot shows the 'Filter Editor' dialog box, which is part of a larger interface for managing report parameters. The main window has a toolbar with icons for properties, actions, and search. Below the toolbar, there are several parameter settings:

- Data Source:** sqlDataSource1
- Data Member:** Products
- Filter String:** A dropdown menu is open, indicated by a mouse cursor hovering over the ellipsis button.
- Measure Units:** Hundredths of an Inch
- Language:** (Default)

The 'Filter String' dropdown menu contains the following options:

- And
- CategoryName Is any of categories

Below the dropdown menu, there is a preview area containing the expression: [CategoryName] In (?categories). At the bottom of the dialog box, there are two buttons: 'Advanced Mode' (checked) and 'OK'.

## Specify Default Values for a Multi-Value Parameter

A multi-value parameter's default values are selected automatically when you open a report's **Print Preview**:

The screenshot shows a software interface with a toolbar at the top containing icons for back, forward, search, and whole page view. Below the toolbar is a 'PREVIEW PARAMETERS' section titled 'Categories'. It contains two buttons: 'Beverages' and 'Confections', each with a delete icon. Below these buttons are 'RESET' and 'SUBMIT' buttons. A vertical sidebar on the right features a magnifying glass icon and a gear icon.

Waiting for parameter values...

Use one of the following methods to specify default values:

- Click the **Add** button right to the **Value** option and specify a value in a new editor.

This screenshot shows a configuration dialog for a parameter. It includes the following fields:

- Allow Null Value**: Unchecked checkbox.
- Allow Multiple Value**: Checked checkbox.
- Select All Values**: Unchecked checkbox.
- Tag**: An empty input field.
- Expression**: An empty input field with a '...' button.
- Value**: A list editor with buttons for moving items up (^), down (v), adding (+), and removing (-). It currently contains the value 'ALFKI'. A mouse cursor is hovering over the 'Add' button.
- Value**: A list editor showing the values 'ALFKI' and 'ANATR'.

- Enable the **Select all values** property to populate the parameter value with all items from the parameter's value source (static or dynamic).

This screenshot shows the same configuration dialog as the previous one, but with the **Select All Values** checkbox checked. A hand cursor is pointing at this checked checkbox.

**TIP**

Disable a report's **Request Parameters** property to avoid the **Waiting for parameter values** message on the report's **Print Preview** and display the report with default parameter values.

#### NOTE

Ensure that the type of default values match the parameter type when you specify these values for the parameter.

## Create an Optional Multi-Value Parameter

Optional parameters allow you to filter report data only if parameter values are specified. Otherwise, if parameter values are not set, the parameter is ignored.

The screenshot shows a report preview interface. On the left, there is a table listing products categorized by their category. On the right, there is a 'PREVIEW PARAMETERS' section with a 'Categories' dropdown menu and 'RESET' and 'SUBMIT' buttons. A vertical toolbar on the far right includes icons for filter, settings, and search.

Category	Product Name
Beverages	Chai
Beverages	Chang
Condiments	Aniseed Syrup
Condiments	Chef Anton's Cajun Seasoning
Condiments	Chef Anton's Gumbo Mix
Condiments	Grandma's Boysenberry Spread
Produce	Uncle Bob's Organic Dried Pears
Condiments	Northwoods Cranberry Sauce

Do the following to make a multi-value parameter optional.

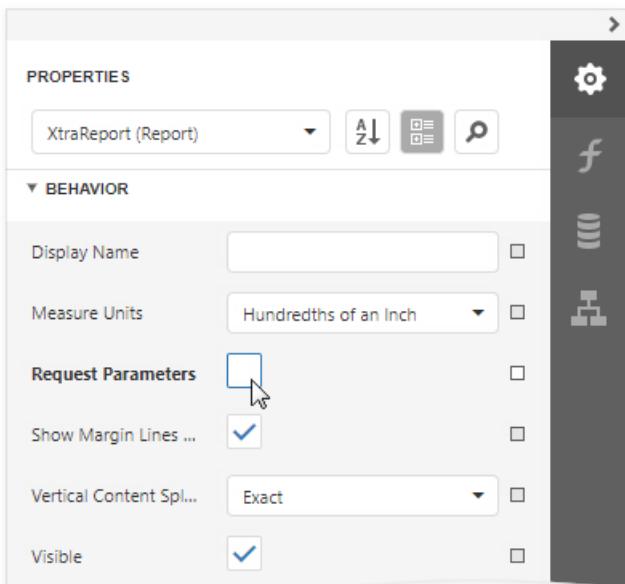
1. Create a multi-value report parameter and specify its **Allow null value**, **Value**, and **Select all values** options as shown below:

The screenshot shows the 'Create Parameter' dialog box. It has several configuration options:

- Allow Null Value
- Allow Multiple Value
- Select All Values
- Tag: An empty text input field.
- Expression: An empty text input field with an ellipsis (...).
- Value: A list box with four buttons: up, down, add (+), and remove (-). Below it is a note: 'To create an item click the Add button.'

OPTION	VALUE
Allow null value	true
Value	Not specified
Select all values	false

2. Disable the report's **Request Parameters** property.



3. Assign the following filter condition to the report's filter string:

```
?category Is Null or [Category ID] In (?category)
```

The screenshot displays a report designer interface. At the top, there is a toolbar and a properties panel on the right. Below is a preview area showing a grid with columns 'Category' and 'Product Name'. A red arrow points from the properties panel down to the preview area. The preview area shows a table of data and a 'PREVIEW PARAMETERS' section with a 'Categories' dropdown and 'RESET' and 'SUBMIT' buttons. The data table contains the following rows:

Category	Product Name
Beverages	Chai
Beverages	Chang
Condiments	Aniseed Syrup
Condiments	Chef Anton's Cajun Seasoning
Condiments	Chef Anton's Gumbo Mix
Condiments	Grandma's Boysenberry Spread
Produce	Uncle Bob's Organic Dried Pears
Condiments	Northwoods Cranberry Sauce

**TIP**

You can also use the filter string shown above to filter report data at the data source level. Refer to this help article for more information: [Filter Data at the Data Source Level](#).



# Cascading Report Parameters

You can create cascading parameters to filter a list of predefined parameter values based on values in another parameter.

The screenshot shows a report titled "Products by Categories". On the left, under "Category: Confections", three products are listed: Pavlova, Sir Rodney's Marmalade, and Sir Rodney's Scones. On the right, the "PREVIEW PARAMETERS" section shows "Category" set to "Confections" and "Products" set to "Pavlova" and "Sir Rodney's Marmalade". There are "RESET" and "SUBMIT" buttons. A sidebar on the right has icons for filter, settings, and search.

## TIP

Refer to the following topics for information on how to create a list of predefined parameter values:

- [Report Parameters with Predefined Static Values](#)
- [Report Parameters with Predefined Dynamic Values](#)

Follow the steps below to create cascading parameters in the [Report Designer](#):

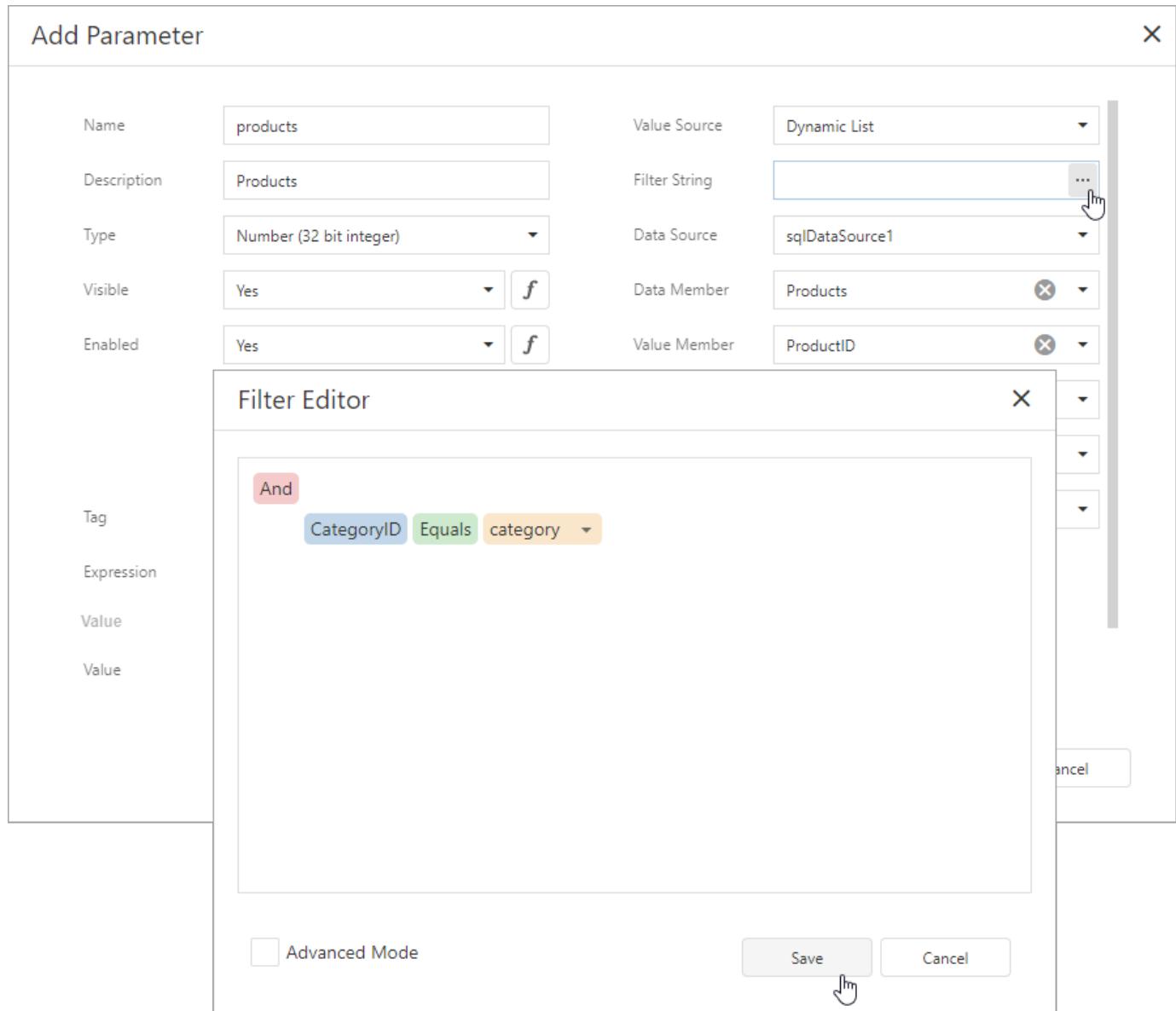
1. [Create a report parameter](#) you want to use to filter values of another parameter.

The "Add Parameter" dialog box is shown with the following settings:

Add Parameter	
Name	categories
Description	Categories
Type	Number (32 bit integer)
Visible	Yes
Enabled	Yes
Allow Null Value	<input type="checkbox"/>
Allow Multiple Value	<input type="checkbox"/>
Select All Values	<input type="checkbox"/>
Tag	
Expression	...
Value	0
Value Source	Dynamic List
Filter String	...
Data Source	sqlDataSource1
Data Member	Categories
Value Member	CategoryID
Display Member	CategoryName
Sort Member	
Sort Order	None

At the bottom right are "OK" and "Cancel" buttons.

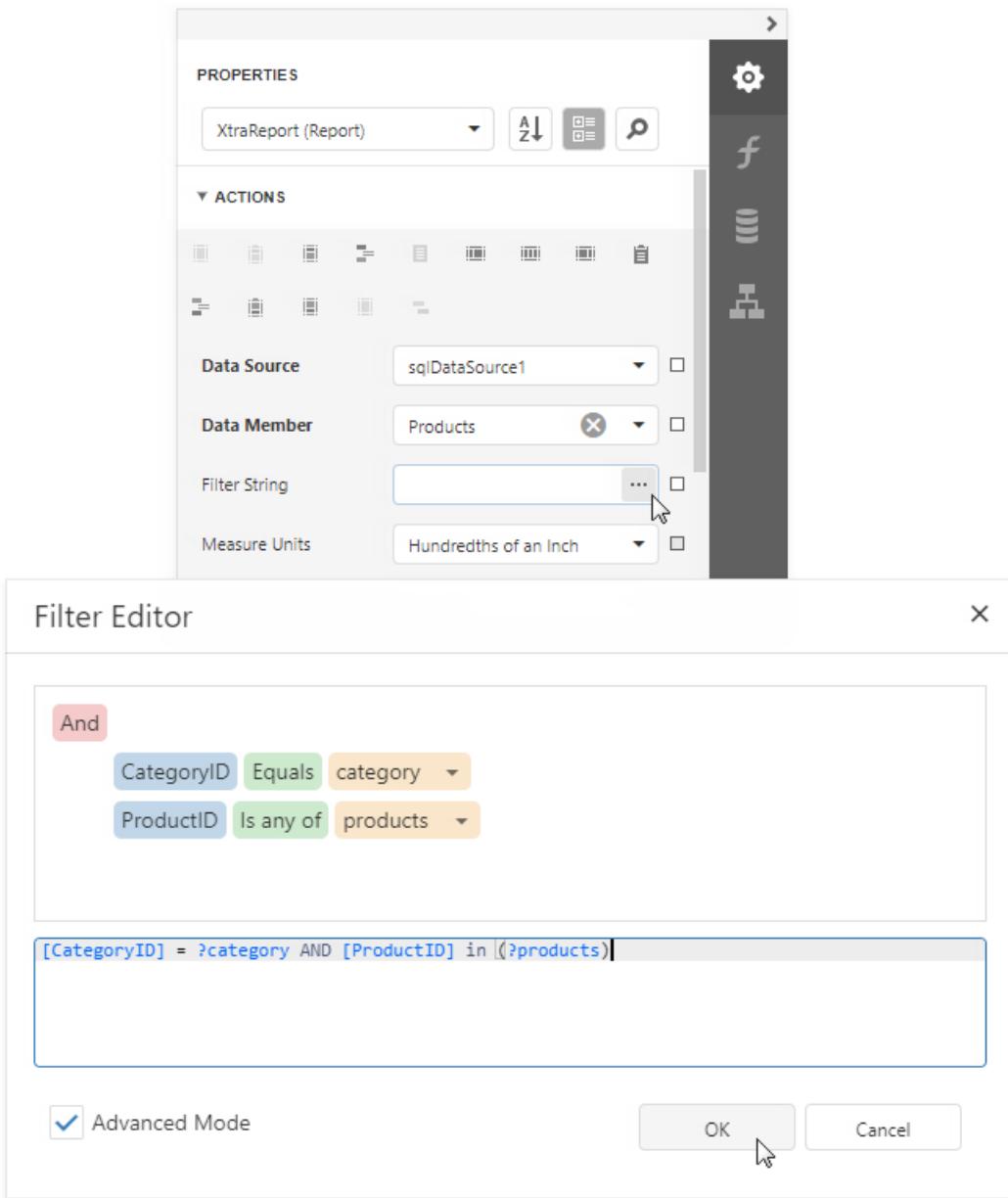
2. Create a report parameter whose values you want to filter. Click the **Filter String** property's ellipsis button in the **Add New Parameter** dialog and specify a filter string that references the parameter you created in the first step.



#### NOTE

In a filter string for a parameter's look-up values, you can reference only those parameters that you created before the parameter whose look-up values you want to filter. You can use the **Report Parameters Editor** to change the order in which you created the parameters. To invoke the editor, right-click the **Parameters** node in the **Field List** and select **Edit Parameters**.

3. In the report's smart tag, click the **Filter String** property's ellipsis button. In the invoked **FilterString Editor**, specify an expression that uses both parameters to filter report data:



The following image illustrates cascading parameters where the **Product** parameter values are filtered by the selected **Category**.

This screenshot shows a report preview titled 'Products by Categories'. The report content area displays a list of products under the heading 'Category: Confections', specifically listing 'Pavlova', 'Sir Rodney's Marmalade', and 'Sir Rodney's Scones'. To the right of the report, there is a 'PREVIEW PARAMETERS' panel. It contains two dropdown menus: 'Category' set to 'Confections' and 'Products' containing 'Pavlova' and 'Sir Rodney's Marmalade'. Below these dropdowns are 'RESET' and 'SUBMIT' buttons. The overall interface includes standard navigation buttons (back, forward, search, etc.) at the top.

# Date Range Report Parameters

This topic describes how to create a date range parameter and filter a report's data by the specified dates.

The screenshot shows the Report Designer interface with two main sections: a parameter configuration area at the top and a report preview below it.

**Parameter Configuration Area:**

- Top navigation: Back, Forward, Print, Whole Page, Add Parameter (+).
- Preview Parameters: Date Range, 5/18/2020 - 5/25/2020.
- Left sidebar: Today, Yesterday, Current Week, **Last Week**, Previous Week, Current Month, Last Month, Previous Month, Current Quarter, Previous Quarter.
- Two date selection calendars for "MAY 2020". The left calendar shows the week from May 26 to May 30, with May 18 highlighted. The right calendar shows the week from May 25 to May 30, with May 25 highlighted.

**Report Preview Area:**

- Top navigation: Back, Forward, Print, Whole Page, Add Parameter (+).
- Preview Parameters: Date Range, 5/18/2020 - 5/25/2020.
- Buttons: RE SET, SUBMIT.
- Report Title: Order List.
- Data Table:

Order Date	Order ID	Customer Name
5/20/2020	10267	Frankenversand
5/21/2020	10268	GROSELLA-Restaurante
5/22/2020	10269	White Clover Markets
5/23/2020	10270	Wartian Herkku
5/23/2020	10271	Split Rail Beer & Ale
5/24/2020	10272	Rattlesnake Canyon Grocery

## Create a Date Range Parameter in the Report Designer

Follow the steps below to add a date range parameter to a report in the [Report Designer](#):

1. [Create a report parameter](#) and set the **Value Source** option to **Range Parameters**. The **Start Parameter** and **End Parameter** sections appear, and you can configure options in these sections to create a date range.

### Add Parameter

Name	dateRange	Value Source	Range Parameters
Description	Date Range:	Start Parameter	
Type	Date	Name	dateRange_Start
Visible	Yes	Value	12/12/2021
Enabled	Yes	Expression	...
<input type="checkbox"/> Allow Null Value <input type="checkbox"/> Allow Multiple Value <input type="checkbox"/> Select All Values		End Parameter	
Tag		Name	dateRange_End
Expression	...	Value	12/12/2021
<input style="float: right; margin-right: 10px;" type="button" value="OK"/> <input type="button" value="Cancel"/>			

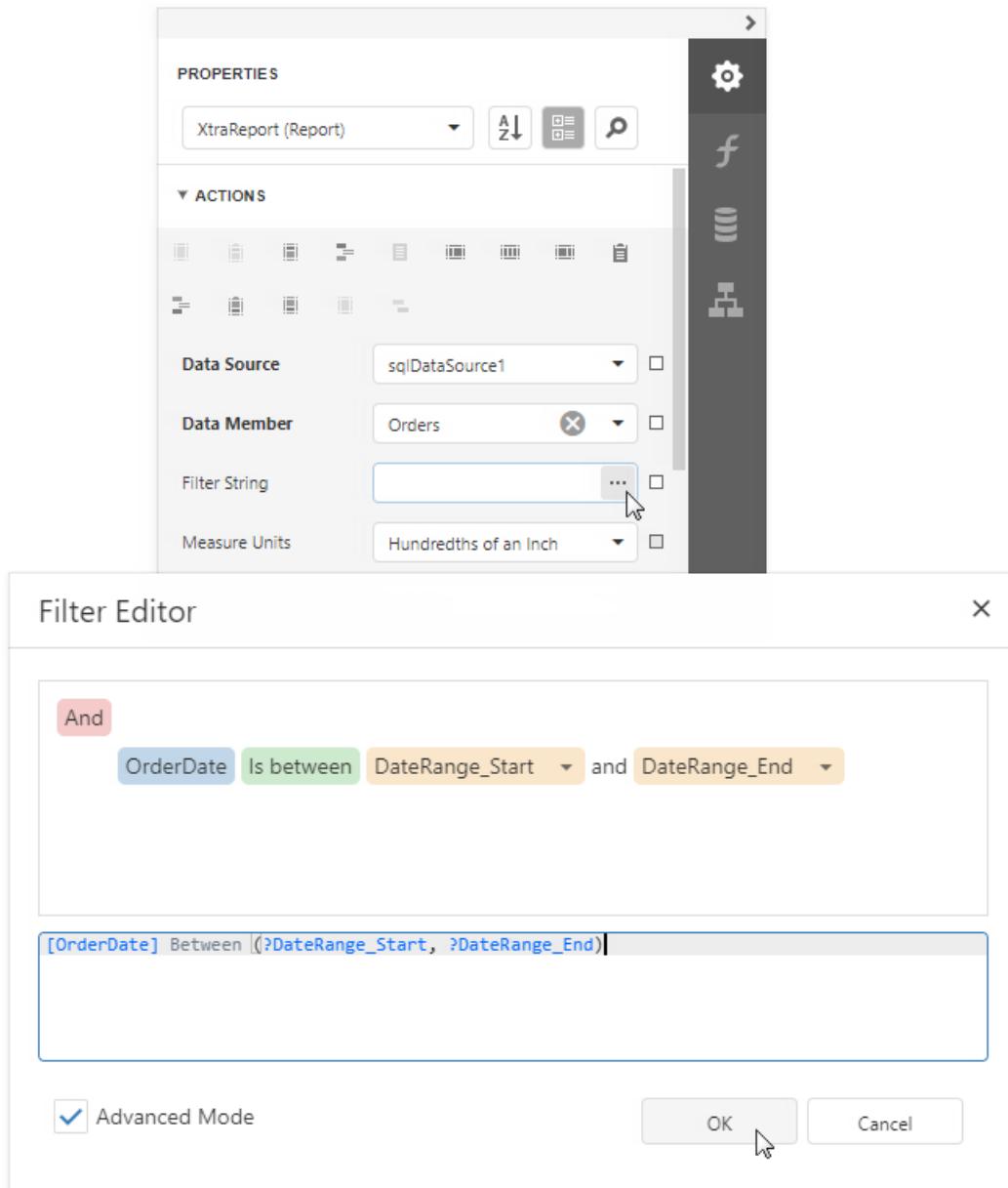
2. Set the name and initial value for the **Start Parameter** and **End Parameter**. To specify an [expression](#) instead of a static value, click the **Value** option's ellipsis button and use the **Expression Editor** dialog.

### Expression Editor

1 Now()

<b>Constants</b> Functions Operators	<b>?</b> False True	
<input style="margin-right: 10px;" type="button" value="Save"/> <input type="button" value="Cancel"/>		

After you create a date range parameter, you can reference the names of the **Start Parameter** and **End Parameter** in the report's filter string to [filter the report's data](#) by the created date range. Select the report, click the **FilterString**'s ellipsis button in the **Properties window**, and construct a filter condition in the invoked **FilterString Editor**.



When you switch to the report's **Print Preview** tab, the [Parameters panel](#) displays the date range parameter. After you submit a start and end date, the report document shows filtered data.

**PREVIEW PARAMETERS**

Date Range 5/18/2020 - 5/25/2020 ...

Today	MAY 2020							MAY 2020						
Yesterday	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT
Current Week	26	27	28	29	30	1	2	26	27	28	29	30	1	2
Last Week	3	4	5	6	7	8	9	3	4	5	6	7	8	9
Previous Week	10	11	12	13	14	15	16	10	11	12	13	14	15	16
Current Month	17	18	19	20	21	22	23	17	18	19	20	21	22	23
Last Month	24	25	26	27	28	29	30	24	25	26	27	28	29	30
Previous Month	31	1	2	3	4	5	6	31	1	2	3	4	5	6
Current Quarter														
Previous Quarter														

**Order List**

Order Date	Order ID	Customer Name
5/20/2020	10267	Frankenversand
5/21/2020	10268	GROSELLA-Restaurante
5/22/2020	10269	White Clover Markets
5/23/2020	10270	Wartian Herkku
5/23/2020	10271	Split Rail Beer & Ale
5/24/2020	10272	Rattlesnake Canyon Grocery

The start and end parameter values store the selected day's midnight time. For instance, if you choose *10/15/2019*, the *DateTime* value is *10/15/2019 12:00:00 AM*. If your date fields include non-midnight times, records for the end date *10/15/2019* are excluded from the report. To include data for the *10/15/2019* date, use the **GetDate()** function in the **FilterString Editor**.

**Filter Editor**

**And**

OrderDate Is between DateRange\_Start and DateRange\_End

```
GetDate([OrderDate]) Between (?DateRange_Start, ?DateRange_End)
```

Advanced Mode

OK Cancel

# Reference Report Parameters

After you [create a report parameter](#), you can reference this parameter in the [report's filter string](#), [in expressions](#), and [in a control's Text property](#). You can also bind control and data source parameters to report parameters. Refer to the sections below for more details.

## Reference in a Report's Filter String

You can reference a report parameter in the report's filter string. This allows you to conditionally filter the report's data loaded from a data source.

The screenshot shows the Report Designer interface. On the left, the Properties panel displays the report name as "ProductListReport (Report)". Below it, the Bands section contains icons for various report components like tables, charts, and sections. Under the REPORT TASKS section, there are fields for Data Source (set to "sqlDataSource1"), Data Member (set to "Categories"), and Filter String. A hand cursor is hovering over the ellipsis button next to the Filter String field. To the right, a vertical toolbar has icons for settings, filters, and data. At the bottom, the Filter Editor window is open, showing a logical operator "And" followed by a condition: "CategoryID Equals category".

### TIP

When you use a report's filter string to filter data, all the data is loaded from a data source before the filter is applied. If you use a large dataset, filter data at the data source level. Refer to the following topic for more information: [Filter Data at the Data Source Level](#).

## Reference in Expressions

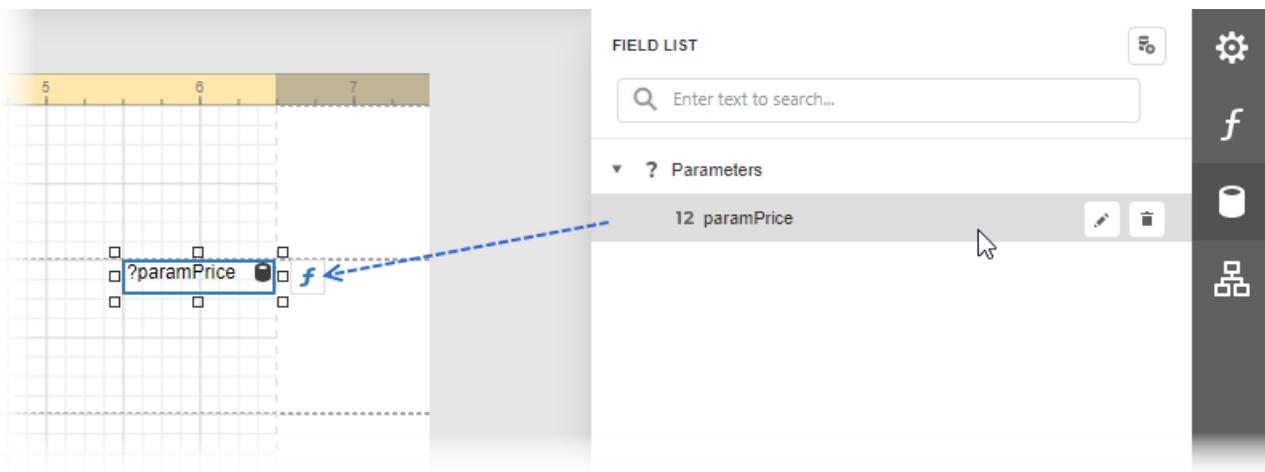
You can reference a report parameter in [expressions](#) of [controls](#) and [calculated fields](#).

## Expression Editor

The screenshot shows the Expression Editor interface. On the left, a sidebar lists properties: AccessibleDescription, Background Color, Bookmark, Border Color, Border Dash Style, Border Width, Borders, Font, Foreground Color, Height, Left, Navigate Url, Padding, Style Name, Tag, **Text**, Text Alignment, Top, Visible, and Width. The 'Text' property is selected. The main area contains a code editor with the expression `iif(?paramPrice > 40, "Expensive", "Average")`. Below the code editor is a 'Report Items' pane with sections for Fields, Constants, Functions, Operators, and Variables. Under 'Report' in the 'Fields' section, items like topMarginBand1, ReportHeader, GroupHeader0, GroupHeader1, and Detail are listed. At the bottom are Save, Cancel, and Apply buttons.

This allows you to conditionally change the data a control or calculated field displays.

You can use the [Field List](#) to create an [Label](#) control that displays only a parameter value. To do this, drag the parameter from the **Field List** and drop it onto the report's band.

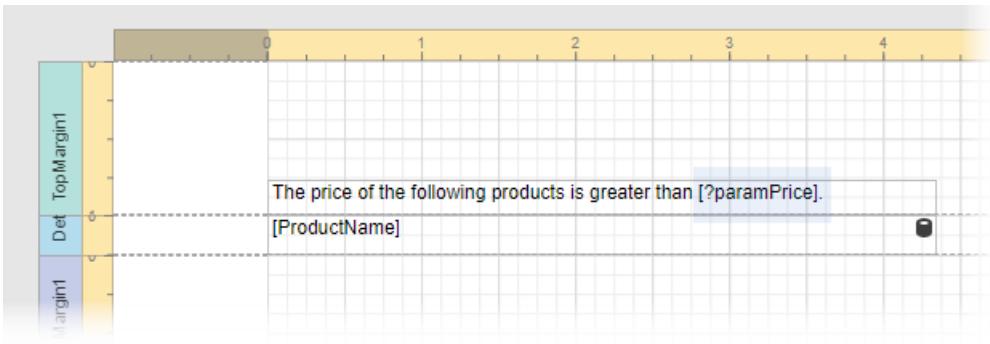


You can also use parameters in expressions to specify the visibility of a report's bands or conditionally change a control's appearance. Refer to the following topics for more information:

- [Conditionally Change a Band's Visibility](#)
- [Conditionally Change a Control's Appearance](#)

## Reference in a Control's Text Property

You can use a report parameter in a control's **Text** property.



This allows you to create a placeholder (embedded field) that is substituted by a parameter value.

The screenshot shows a report preview window. On the right, there is a sidebar with icons for preview, settings, and search. In the center, there is a "PREVIEW PARAMETERS" section with a "Price" input field containing "20", a "RESET" button, and a "SUBMIT" button being clicked. On the left, a list of products is displayed, filtered by the price parameter. The products listed are: Chef Anton's Cajun Seasoning, Chef Anton's Gumbo Mix, Grandma's Boysenberry Spread, Uncle Bob's Organic Dried Pears, Northwoods Cranberry Sauce, Mishi Kobe Niku, Ikura, Queso Cabrales, Queso Manchego La Pastora, Tofu, Alice Mutton, Camarvon Tigers, and Sir Rodney's Marmalade. The preview window has a bounding box of approximately [46, 228, 904, 500].

Refer to the following topic for information on embedded fields: [Use Embedded Fields \(Mail Merge\)](#).

## Bind Control Parameters to Report Parameters

You can create parameters for the **CrossTab** and **Chart** controls and bind these parameters to report parameters. This allows you to conditionally filter data at the control level. Refer to the following topic for details on how to filter data for the **Chart** control: [Use Charts to Visualize Grouped Data](#).

You can also specify a parameter for the **Subreport** control and bind this parameter to report parameters. This allows you to pass parameter values from the main report to the subreport and conditionally change the subreport's data and appearance.

## Bind Data Source Parameters to Report Parameters

You can create parameters for data sources and bind them to report parameters. The table below contains information about which tasks this allows you to solve, a data source for which the task can be solved, and links to documentation sections you can reference for details.

TASK	DATA SOURCE	DOCUMENTATION
<b>Filter data at the data source level</b>	SQL Data Source	<a href="#">Bind a Report to a Database</a>
<b>Pass report parameters to a stored procedure</b>	SQL Data Source	<a href="#">Specify Query Parameters</a>
<b>Pass report parameters to a method that loads data</b>	Object Data Source	<a href="#">Bind a Report to an Object Data Source</a>

When you bind a report to the JSON Data Source, you can specify a URI from which a JSON file should be loaded. You can bind path parameters, query parameters, and header parameters to report parameters to conditionally configure HTTP requests to the web service endpoint. Refer to the following topic for details: [Bind a Report to JSON Data](#).

# The Parameters Panel

The **Parameters** panel allows you to specify parameter values in a report's **Print Preview**.

The screenshot shows a report titled "Employee Comparison" with two employee portraits and their details. On the right, the "PREVIEW PARAMETERS" panel is open, showing dropdowns for "Left Side" (set to "Steven Buchanan") and "Right Side" (set to "Anne Dodsworth"), and buttons for "RESET" and "SUBMIT". A hand cursor is over the "SUBMIT" button. The interface includes standard print preview controls at the top.

## Submit Parameter Values

When you open a report's **Print Preview**, the **Parameters** panel displays default parameter values and descriptions.

The screenshot shows the "PREVIEW PARAMETERS" panel with a message "Waiting for parameter values...". It has dropdowns for "Category" (set to "Condiments") and "Price" (set to "20"), and buttons for "RESET" and "SUBMIT". A hand cursor is over the "SUBMIT" button. The interface includes standard print preview controls at the top.

Specify parameter values and click **Submit** to generate the report's **Print Preview**. Set the report's **RequestParameters** property to **false** to display a report document for the default parameter values when you open the **Print Preview**.

## Reset Parameter Values to Defaults

Click the **Reset** button to reset parameter values to defaults.

The screenshot shows the "PREVIEW PARAMETERS" panel with dropdowns for "Left Side" (set to "Steven Buchanan") and "Right Side" (set to "Anne Dodsworth"), and buttons for "RESET" and "SUBMIT". A hand cursor is over the "RESET" button. The interface includes standard print preview controls at the top.

## Hide the Parameters Panel

To remove the **Parameters** panel from a report's **Print Preview**, disable the **Visible** option for all report parameters in the **Report Parameters Editor**.

The screenshot shows the 'Report Parameters Editor' interface. A parameter named 'leftSideParameter' is selected. In the 'Visible' dropdown, the 'Yes' option is currently chosen, but the 'No' option is highlighted with a mouse cursor, indicating it is being selected. Other fields shown include 'Description' (Left Side:), 'Type' (Number (64 bit integer)), 'Enabled' (Yes), 'Tag' (empty), 'Expression' (empty), and 'Value' (5).

When you hide the **Parameters** panel, the report's **Print Preview** is generated with the default parameter values.

## Customize the Parameters Panel

You can unite report parameters into expandable groups, place parameters side-by-side, add separators, and more.

The image compares two parameter panel configurations. The 'DEFAULT PANEL' on the left shows three parameters stacked vertically: 'Order Dates' (dropdown), 'Company Name' (text input), and 'Customer Name' (text input). Below them are 'RESET' and 'SUBMIT' buttons. The 'CUSTOMIZED PANEL' on the right shows the same parameters but with different layout and grouping. 'Order Dates' is grouped under 'Select Dates'. 'Company Name' and 'Customer Name' are side-by-side in a single row. A '▼ Select Customer:' button is positioned between them. Below these are 'Company Name' and 'Customer Name' inputs, followed by 'RESET' and 'SUBMIT' buttons.

Use the Report Parameters Editor

Select the **Parameters** item in the **Field List** and click the **Edit parameters** button.

## Field List

Enter text to search...

- > sqlDataSource1
- > ? Parameters

Edit parameter

This action invokes the **Report Parameters Editor**.

### Edit Parameters

Name	Description	Value Source	Orientation
orderDates	Order Dates:	No Look-Up	Horizontal
companyName			
customerName			

Allow null value  
 Allow multiple values  
 Select all values

Tag:

Expression:  ...

Value:  7/13/2022, 12:00 AM

OK CANCEL

Use the menu on the left to create and customize parameters, groups, and separators.

### Customize a Parameter

Specify the **Orientation** property to choose the position of a parameter label relative to an editor.

## Edit Parameters

The screenshot shows the 'Edit Parameters' interface. On the left, there's a list of parameters with a delete icon. A specific parameter, 'companyName', is selected and highlighted in grey. To the right of the list, detailed configuration settings are shown:

Name	companyName
Description	Company Name:
Orientation	Horizontal
Type	Horizontal
Visible	Vertical
Enabled	Yes

Below these settings are three checkboxes:

- Allow null value
- Allow multiple values
- Select all values

At the bottom, there are two preview sections:

**LABEL ORIENTATION = HORIZONTAL (DEFAULT)**

**Preview Parameters**  
Company Name:   
**RESET** **SUBMIT**

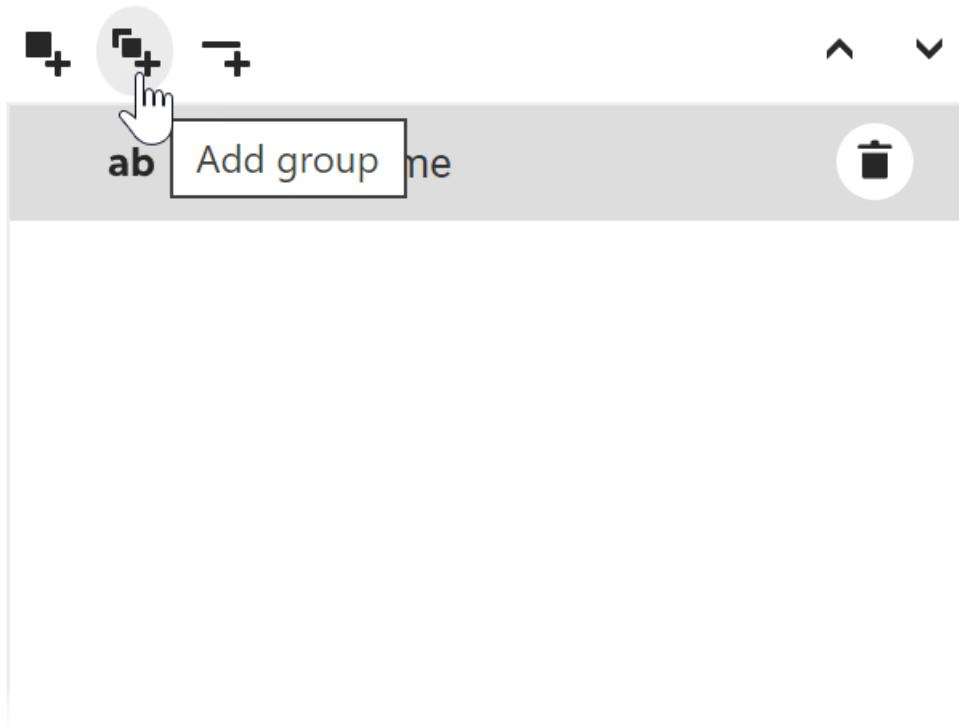
**LABEL ORIENTATION = VERTICAL**

**Preview Parameters**  
Company Name:   
**RESET** **SUBMIT**

### Create and Customize a Group

Click the **Add group** button to create a new group.

# Edit Parameters



Use the **Up** and **Down** buttons to change the order of parameters and groups, and place parameters inside or outside a group.

## Edit Parameters

The screenshot shows a user interface for managing parameters. At the top left are three icons: a plus sign inside a square, a plus sign inside a rounded rectangle, and a minus sign inside a square. To the right is a vertical toolbar with a circular arrow icon, an upward-pointing arrow, a downward-pointing arrow, and a trash can icon. Below this is a menu bar with a 'Move Up' button, which has a hand cursor icon pointing at it. The main area contains a list of parameters:

- ▼  Select dates:
  - ⌚ orderDates
- ab** companyName ✖
- ab** customerName

You can also drag-and-drop parameters and groups inside the menu to achieve the same result.

# Edit Parameters

The screenshot shows a user interface for editing parameters. At the top, there are icons for adding (+), removing (-), and moving up/down (^, v). Below this, a list of parameters is shown:

- ✓  Select dates:
  - ⌚ orderDates
  - ab companyName
- ab customerName

A mouse cursor is hovering over the "customerName" parameter, which is highlighted with a blue border. A trash can icon is visible next to the "customerName" entry.

To customize a group, select it and use its editors on the right to set up the group appearance. The following example unites the **customerName** and **companyName** parameters into a group called **Select a customer**.

# Edit Parameters

The screenshot shows the same list of parameters as the previous screenshot, but with a different grouping. The "customerName" and "companyName" parameters are now grouped together under a title "Select customer:".

On the right side, there are configuration options for the group:

- Title: Select customer:
- Orientation: Vertical
- Show expand/collapse button
- Expanded
- Show title
- Show borders

DEFAULT PANEL	PANEL WITH A GROUP
<p><b>Preview Parameters</b></p> <p>Order Dates: <input type="text" value="7/13/2022, 12:00 AM"/></p> <p>Company Name: <input type="text"/></p> <p>Customer Name: <input type="text"/></p> <p><b>RESET</b> <b>SUBMIT</b></p>	<p><b>Preview Parameters</b></p> <p>Order Dates: <input type="text" value="7/13/2022, 12:00 AM"/></p> <p>Select Customer:</p> <p>Company Name: <input type="text"/></p> <p>Customer Name: <input type="text"/></p> <p><b>RESET</b> <b>SUBMIT</b></p>

Besides a title, you can also specify the following properties to customize the group appearance:

- Orientation (specifies whether to place parameters inside the group vertically or horizontally).
- Show title
- Show borders
- Show expand/collapse button
- Expanded

#### Add a Separator

Click the **Add separator** button to create a separator.

## Edit Parameters

The screenshot shows the 'Edit Parameters' interface. At the top, there's a toolbar with icons for adding (+), deleting (-), and moving items (up and down arrows). Below the toolbar is a list of parameters. The first parameter is 'order', which has a circular icon with a 'L' and a 'Select customer:' dropdown menu. The second parameter is 'companyName', and the third is 'customerName', both preceded by 'ab' labels. The 'Add separator' button is highlighted with a hand cursor.

order  
Select customer:  
ab companyName  
ab customerName

Similar to parameters and groups, you can use the **Up** and **Down** buttons or drag-and-drop separators inside the menu to specify the location for these separators relative to other elements.

## Edit Parameters

The screenshot shows a list of items in the 'Edit Parameters' interface:

- orderDates** (radio button icon)
- Select customer:** (checkbox icon)
- Separator** (with a trash bin icon)
- ab companyName** (bolded ab icon)
- ab customerName** (bolded ab icon)

At the top, there are icons for adding items: a plus sign with a square, a plus sign with a circle, and a minus sign. On the right side, there are up and down arrows with a hand cursor icon, and a button labeled 'Move Down'.

The example below shows the **Parameters** panel with a separator between the **Company Name** and **Customer Name** parameters.

DEFAULT PANEL	PANEL WITH A SEPARATOR
<p><b>Preview Parameters</b></p> <p>Company Name: <input type="text"/></p> <p>Customer Name: <input type="text"/></p> <p><b>RESET</b> <b>SUBMIT</b></p>	<p><b>Preview Parameters</b></p> <p>Company Name: <input type="text"/></p> <p>Customer Name: <input type="text"/></p> <p><b>RESET</b> <b>SUBMIT</b></p>

# Shape Report Data

The topics in this section describe the data shaping features reports support:

- [Filter Data](#)
- [Group and Sort Data](#)
- [Format Data](#)
- [Specify Conditions for Report Elements](#)
- [Calculate Summaries](#)
- [Count Elements and Values](#)
- [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.

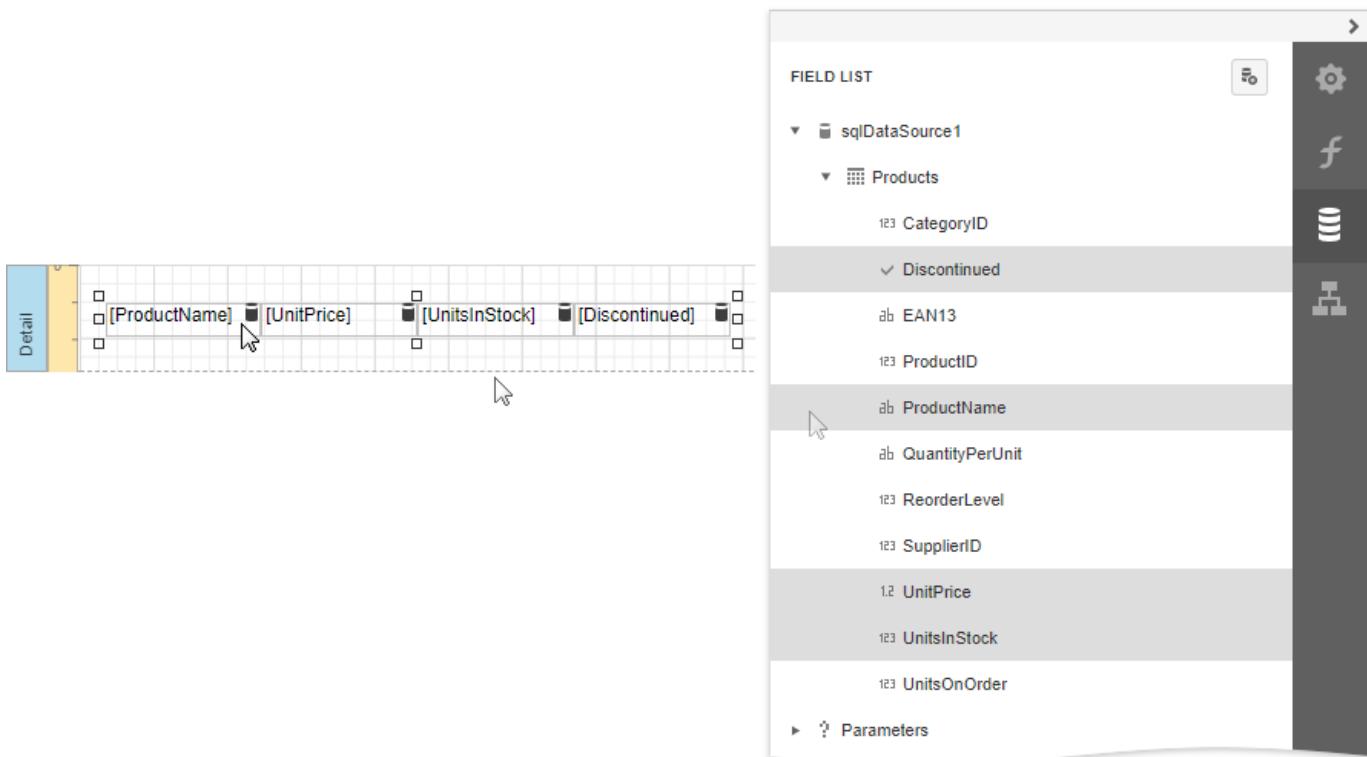
- [Limit the Number of Records to Display](#)

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](#) panel and drop the required fields onto the report's [Detail](#) band.



4. Expand the **Tasks** category and click the **Filter String** property's ellipsis button.

In the invoked [Filter Editor](#), construct an expression in which the data fields are compared with the required values.

A screenshot showing two panels of the Report Designer. On the left is the 'Filter Editor' dialog, which displays a logical 'And' condition with three criteria: 'UnitPrice Is greater than parameter1', 'ProductName Contains c', and 'Discontinued Does not equal True'. Below this, the resulting filter expression is shown: '[UnitPrice] &gt; ?parameter1 And Contains([ProductName], 'c') And [Discontinued] &lt;&gt; True'. At the bottom of the dialog are 'Advanced Mode' (checked), 'OK', and 'Cancel' buttons. On the right is the 'Properties' panel, which includes sections for 'Report1 (Report)', 'Actions', 'Data Source' (set to 'sqlDataSource1'), 'Data Member' (set to 'Products'), 'Filter String' (with an ellipsis button highlighted with a cursor), and 'Measure Units' (set to 'Hundredths of an Inch'). The top right corner of the interface features a vertical toolbar with icons for settings, filters, and other report-related functions.

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 Fabiolí	\$32.00	9	False
Côte de Blaye	\$263.50	17	False
Ipoh Coffee	\$46.00	17	False
Gnocchi dinonna Alice	\$38.00	21	False
Raclette Courdavault	\$55.00	79	False
Camembert Pierrot	\$34.00	19	False
Tarte au sucre	\$49.30	17	False

PREVIEW PARAMETERS

Parameter1

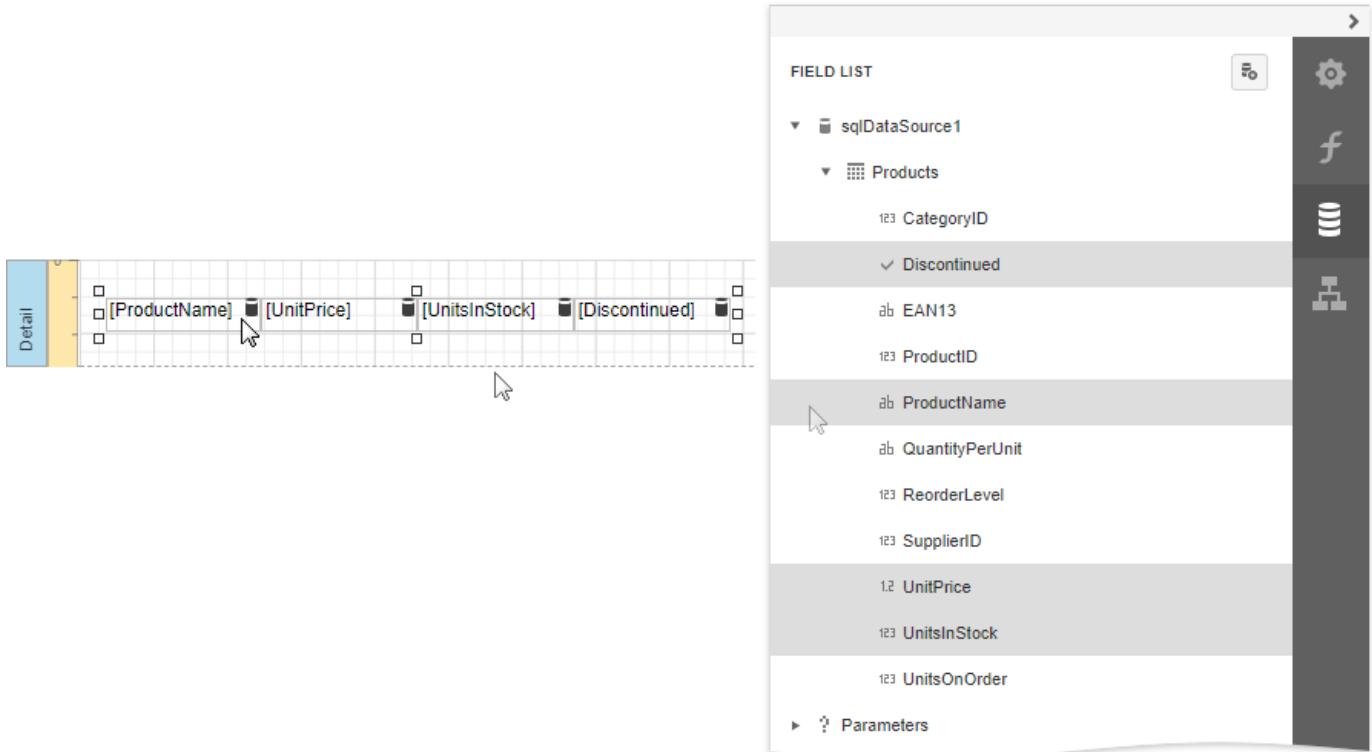
RESET
SUBMIT



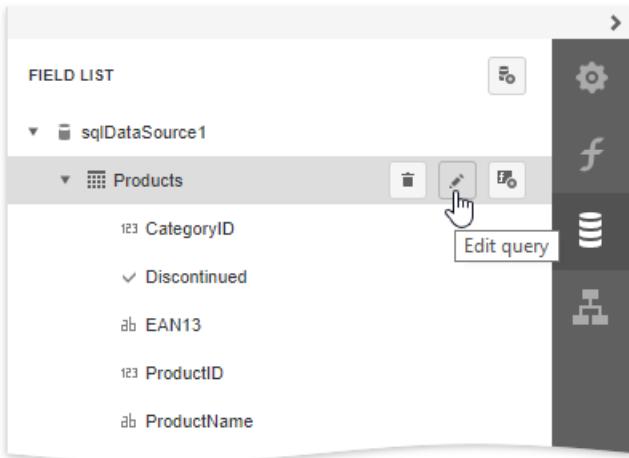
# Filter Data at the Data Source Level

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 and click **Edit query**.



Click **Run Query Builder** in the invoked [Data Source Wizard](#).

## Data Source Wizard

Create a query or select a stored procedure.

- Query  
 Stored Procedure

SQL string:

```
select [Orders].[OrderID],[Orders].[CustomerID],[Orders].[EmployeeID],[Orders]
.[OrderDate],[Customers].[CustomerID] as [Customers_CustomerID],[Customers]
.[CompanyName],[Customers].[ContactName],[Products].[ProductID],[Products]
.[ProductName],[OrderDetails].[OrderID] as [OrderDetails_OrderID],[OrderDetail
s].[ProductID] as [OrderDetails_ProductID] from [Customers] [Customers]
inner join [Orders] [Orders] on ([Orders].[CustomerID] = [Customers].[Custome
rID])
inner join [OrderDetails] [OrderDetails] on ([OrderDetails].[OrderID] =
```

Run Query Builder...

Cancel

Previous

Next

Finish

5. Expand the **Query Properties** section in the invoked **Query Builder**. Click the ellipsis button for the **Filter** property to construct a filtering expression in the invoked **Filter Editor**.

Query Builder

PRODUCTS

\* (All Columns)

Filter Editor

And

Products.UnitPrice Is greater than 30.0

Products.ProductName Does not contain c

Products.Discontinued Does not equal True

[UnitPrice] > 30.0 And Contains([ProductName], 'c')  
And [Discontinued] <> True

QUERY PROPERTIES

Name: Products

Filter: ...

Group Filter:

Select All (\*): No

Select Top: 0

Offset: 0

Select dist...: No

TABLE PROPERTIES

AVAILABLE TABLES AND VIEWS

PARAMETERS

Preview Results... OK Cancel

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 [Specify 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.

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

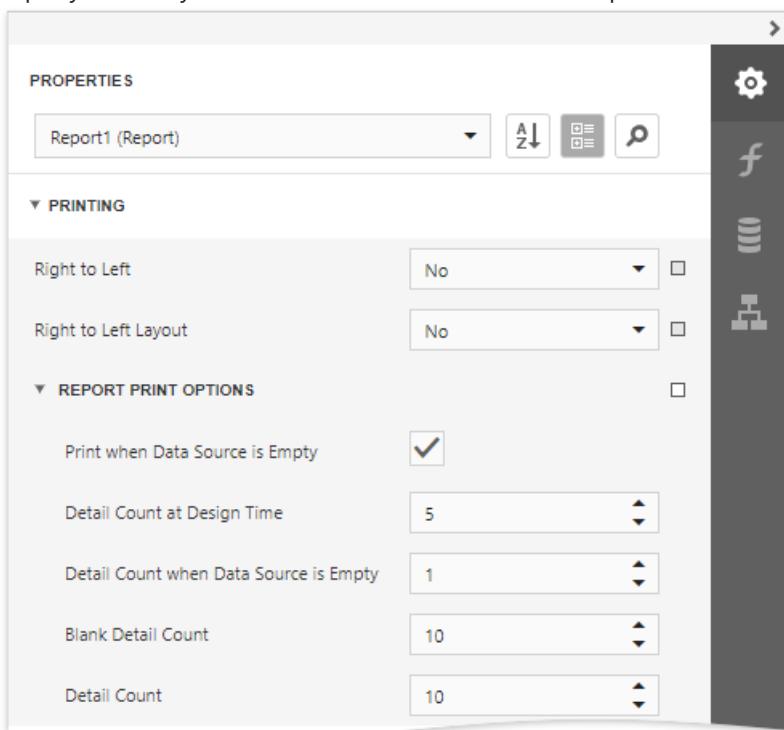
Product Name	Unit Price	Units In Stock	Discontinued
Northwoods Cranberry Sauce	\$40.00	6	False
Queso Manchego La Pastora	\$38.00	86	False
Camarvon Tigers	\$62.50	42	False
Gumbär Gummibärchen	\$31.23	15	False
Schoggi Schokolade	\$43.90	49	False
Mascarpone Fabiolí	\$32.00	9	False
Côte de Blaye	\$263.50	17	False
Ipoh Coffee	\$46.00	17	False
Gnocchi dinonna Alice	\$38.00	21	False
Raclette Courdavault	\$55.00	79	False
Camembert Pierot	\$34.00	19	False
Tarte au sucre	\$49.30	17	False

# Limit the Number of Records to Display

Use **Report Print Options** to filter records displayed in [Print Preview](#). You can specify them in the [Properties](#) panel.

## 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.

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

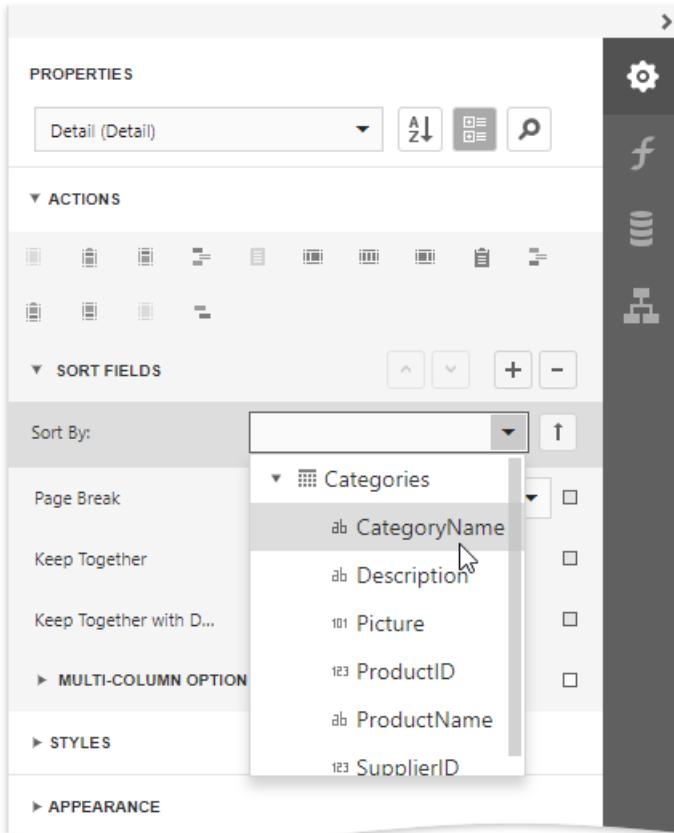
## Sort a Report's Data

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 **Properties** panel and select the **Detail** band. Select the **Sort Fields** section in the **Detail Tasks** category and add a new sort field to sort the report's data by the required data field.

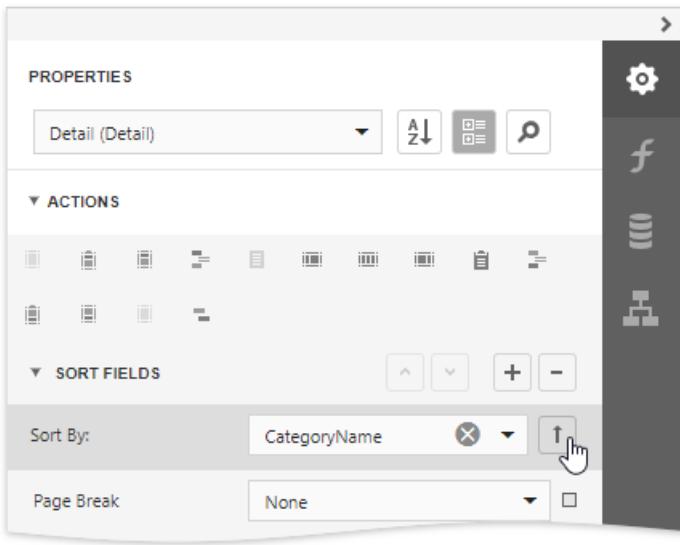


### NOTE

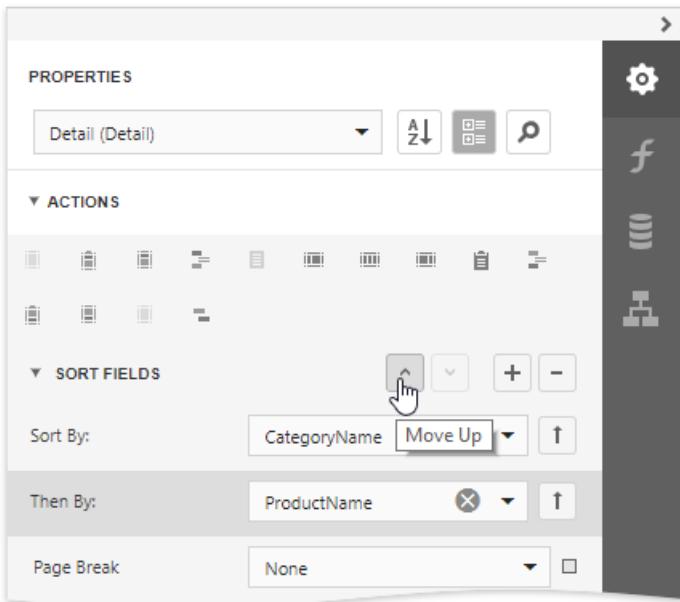
See the [Sort Data by a Custom Field](#) tutorial to learn how to sort a report's data by a custom field.

This adds a corresponding sort field to the **Sort Fields** collection. You can access this collection by expanding the sort field section.

3. Click the or buttons to define the sort order within the group (ascending or descending). Use the button to disable sorting in grouped data.



- When a report has multiple sort fields, you can change their order by clicking **Move Up** or **Move Down**.



- 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

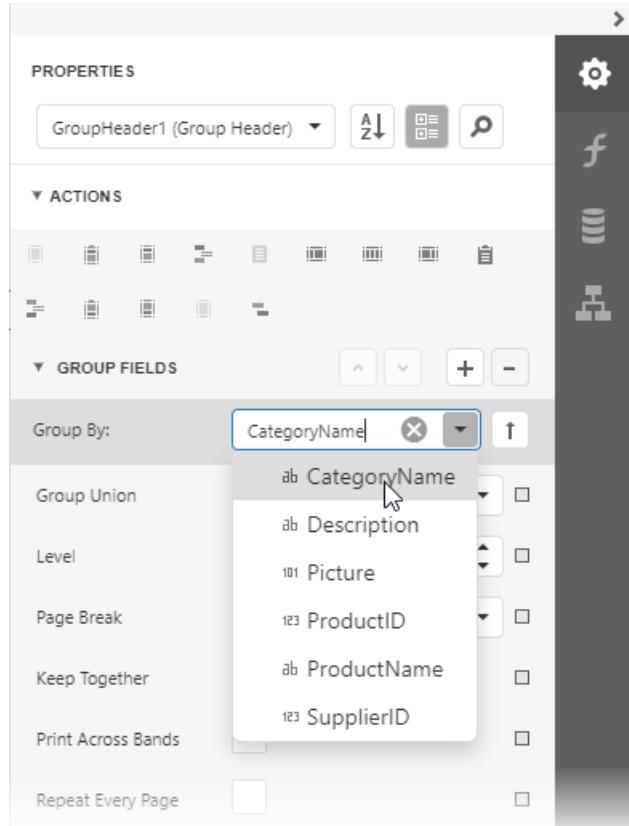
## Group a Report's Data

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. Insert the **Group Header** band, select the **Group Fields** section in the **Group Header Tasks** category and add a new group field to group the report's data by the required data field.

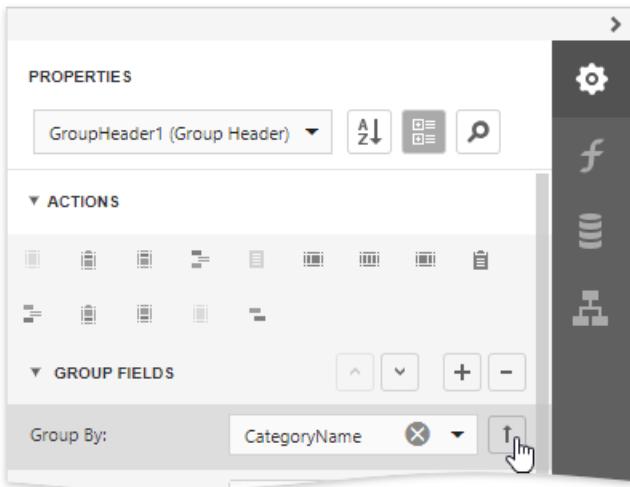


### NOTE

See the [Group Data by a Custom Field](#) tutorial to learn how to group a report's data by a custom field.

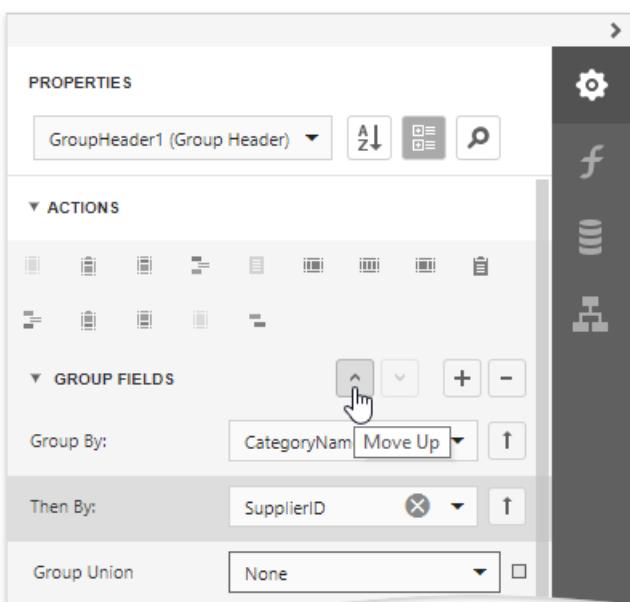
3. Click the or buttons to define the sort order within the group (ascending or descending).

Use the button if your groups are already ordered in the data source, and you do not need to sort them in the report.



4. Click the plus button for the **Group Fields** section to create a new group field and specify its **Field Name** property.

Use the **Move Up** and **Move Down** buttons to specify the order in which these criteria are applied to the report's data.



The following images illustrate how a report looks when it is grouped by multiple criteria:

A SINGLE GROUP WITH MULTIPLE GROUP FIELDS	NESTED GROUP HEADER BANDS

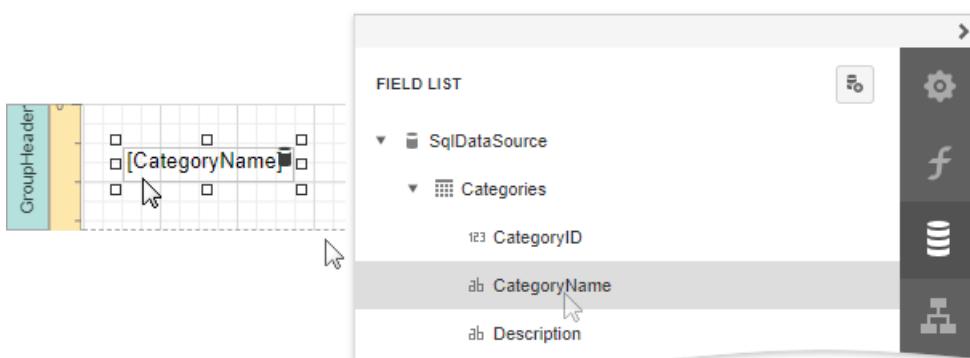
#### A SINGLE GROUP WITH MULTIPLE GROUP FIELDS

Beverages	Supplier ID: 1
Chai	
Chang	
Condiments	Supplier ID: 1
Aniseed Syrup	
Condiments	Supplier ID: 2
Chef Anton's Cajun Seasoning	
Chef Anton's Gumbo Mix	
Louisiana Fiery Hot Pepper Sauce	
Louisiana Hot Spiced Okra	
Condiments	Supplier ID: 3
Grandma's Boysenberry Spread	
Northwoods Cranberry Sauce	
Meat/Poultry	Supplier ID: 4
Mishi Kobe Niku	

#### NESTED GROUP HEADER BANDS

Beverages	Supplier ID: 1
Chai	
Chang	
Condiments	Supplier ID: 1
Aniseed Syrup	
Condiments	Supplier ID: 2
Chef Anton's Cajun Seasoning	
Chef Anton's Gumbo Mix	
Louisiana Fiery Hot Pepper Sauce	
Louisiana Hot Spiced Okra	
Condiments	Supplier ID: 3
Grandma's Boysenberry Spread	
Northwoods Cranberry Sauce	
Meat/Poultry	Supplier ID: 4
Mishi Kobe Niku	

5. Drag the corresponding field from the **Field List** panel and drop it onto the group header to display the group field's value in the report.



The resulting report looks as follows:

**Beverages**

- Côte de Blaye
- Ipo Coffee

**Condiments**

- Chef Anton's Cajun Seasoning
- Chef Anton's Gumbo Mix
- Grandma's Boysenberry Spread
- Northwoods Cranberry Sauce
- Sirop d'érible
- Vegie-spread
- Louisiana Fiery Hot Pepper Sauce

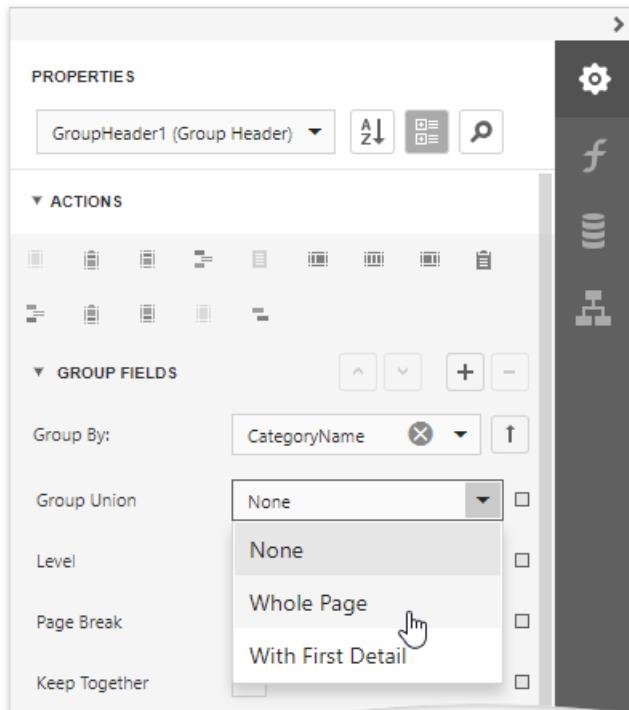
**Confections**

- Sir Rodney's Marmalade
- Gumbär Gummibärchen
- Schoggi Schokolade
- Tarte au sucre

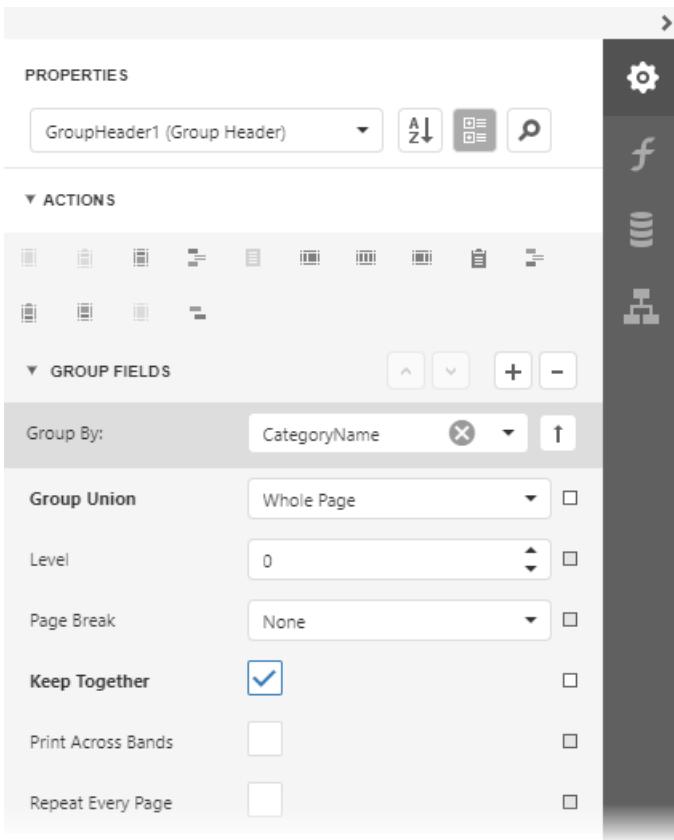
## Specify the Group's Settings

Expand the **Group Fields** section to customize the group's layout settings:

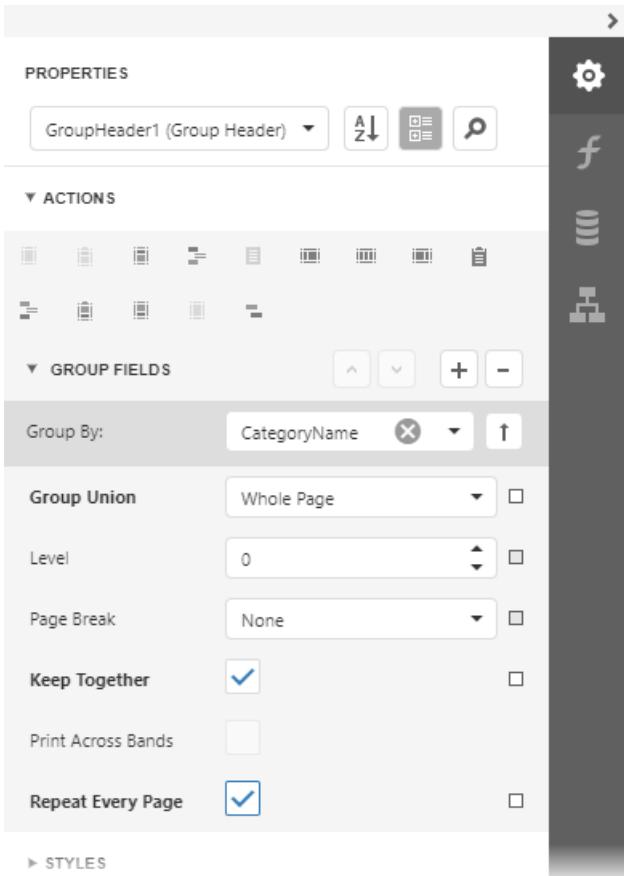
- Use the **Group Union** property to keep a group's content on the same page when possible.



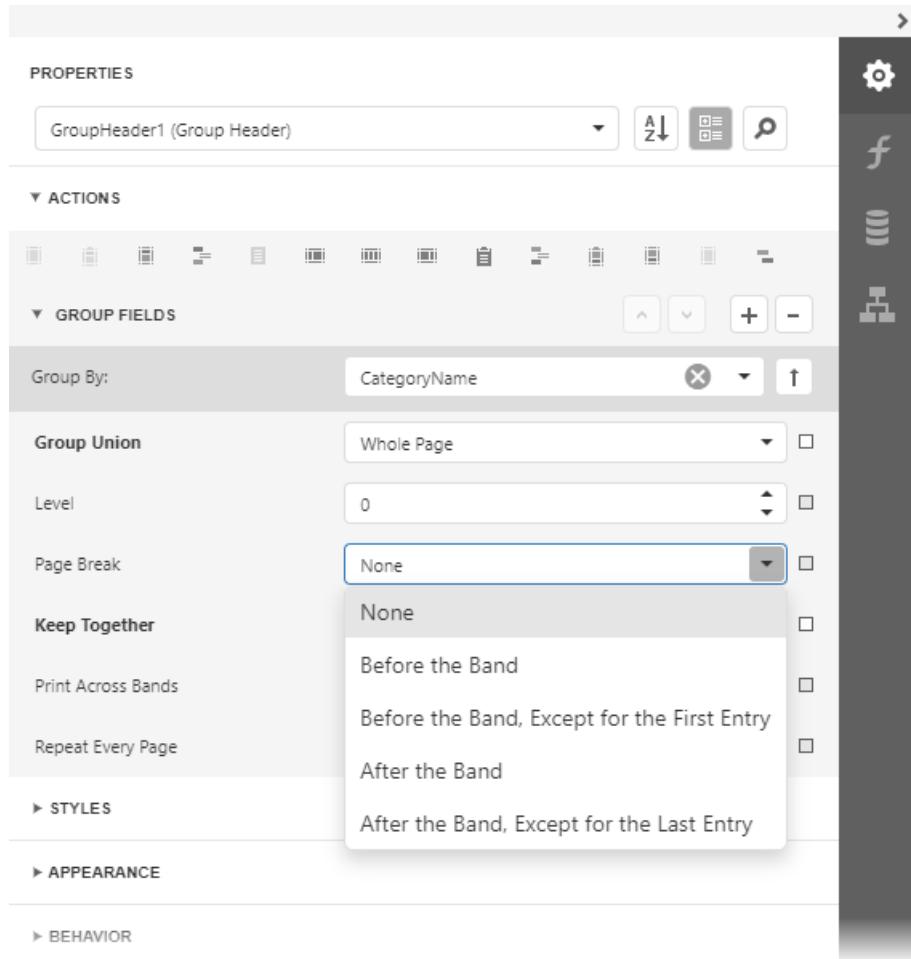
- Use the **Keep Together** property to print the Group Header/Footer on the same page as the group's contents.



- 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.

Beverages

Côte de Blaye  
Chartreuse verte  
Ipoh Coffee  
Laughing Lumberjack Lager  
Outback Lager  
Rhönbräu Klosterbier  
Lakkalikööri

Group Page: 2 of 2

Accurate page numbering requires that different groups do not appear on the same page. For this reason, you need to set the Group Footer's **Page Break** property to **After Band**, or place the **Page Break** control at the band's bottom.

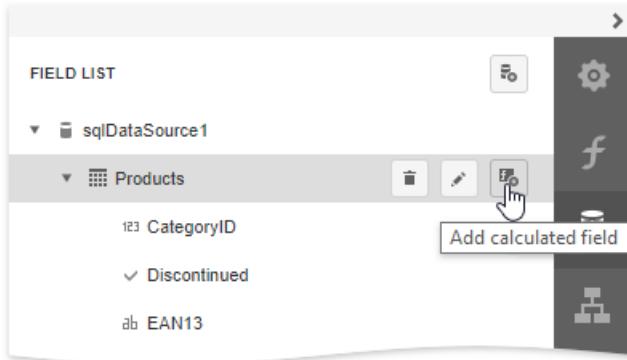
# Sort Data by a Custom Field

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.

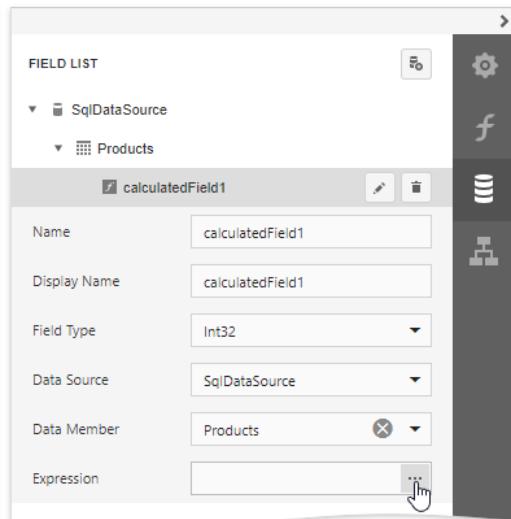
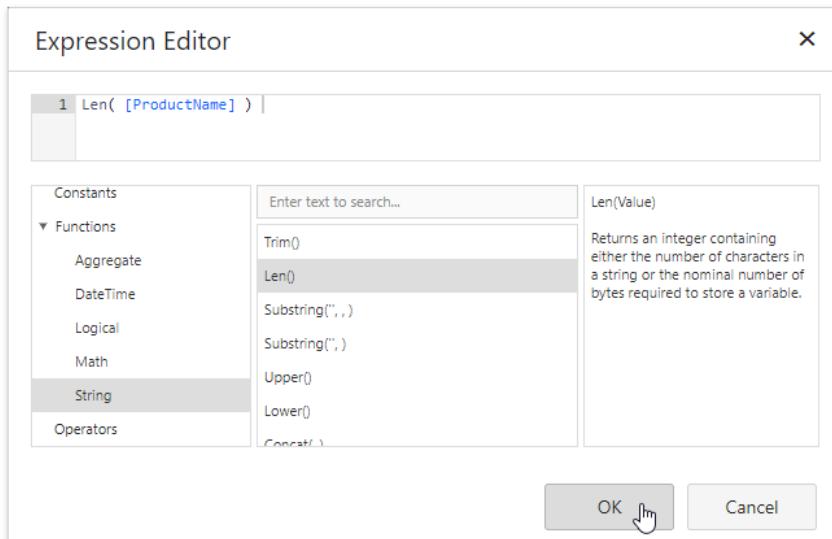
1. Create a new or open an existing data-bound report.

You cannot apply grouping unless your report is bound to a data source.

2. Create a **calculated field**. Switch to the **Field List** panel, select the data source or a table inside it and click **Add Calculated Field**.



3. Click the **Edit** button for the calculated field and then click the **Expression** property's ellipsis button. 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.

4. Switch to the **Properties** panel and select the **Detail** band. Select the **Sort Fields** section in the **Detail Tasks** category and add a new sort field to sort the report's data by the calculated field.

The screenshot shows the 'Properties' pane of the Microsoft Report Designer. In the 'ACTIONS' section, there are several icons for report navigation and management. Below that is the 'SORT FIELDS' section. Under 'Sort By', the 'calculatedField1' field is selected and highlighted with a blue border. A context menu is open over this field, listing other fields: 'CategoryID', 'Discontinued', 'EAN13', 'ProductID', 'ProductName', and 'QuantityPerUnit'. Each item in the menu has a small checkbox to its left and a square icon to its right.

Click the or buttons to define the sort order within the group (ascending or descending). Use the button to disable sorting in grouped data.

5. 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
Ipoх Coffee
Flotemysost

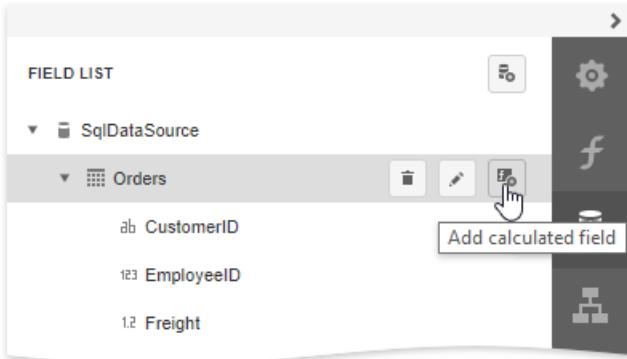
# Group Data by a Custom Field

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** panel, select the data source or a table inside it and click **Add Calculated Field**.

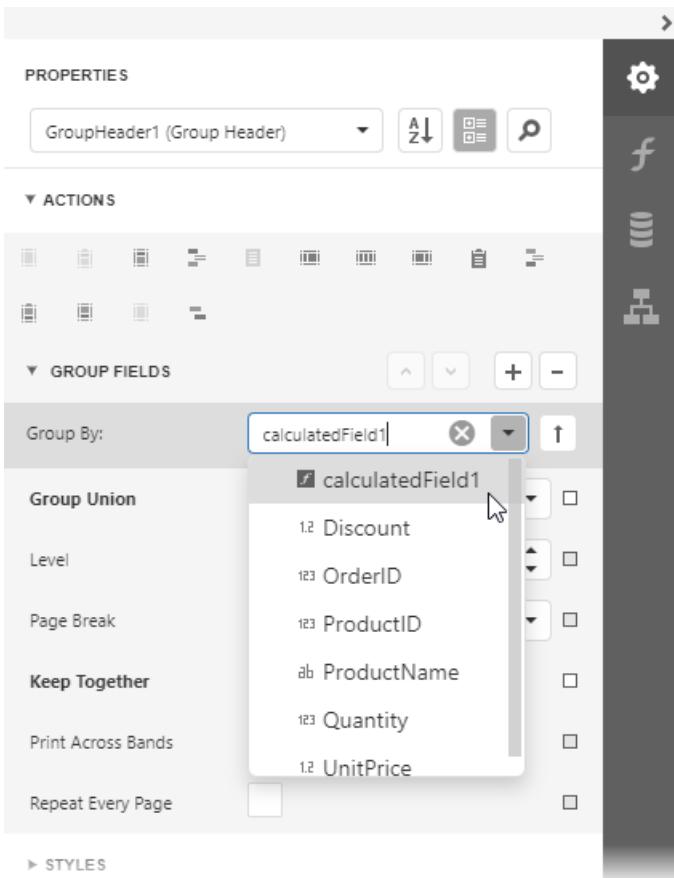


3. Click the **Edit** button for the calculated field and then click the **Expression** property's ellipsis button. In the invoked **Expression Editor**, select the required date-time function and define the data field's name in **[square brackets]**. For example, use the **GetDayOfWeek([OrderDate])** function to return a zero-based index of the day of the week, extracted from the **OrderDate** data field.

Two screenshots of a reporting tool interface. The left screenshot shows the 'Expression Editor' dialog. It has a text input field containing '1 GetDayOfWeek([OrderDate])'. Below it is a sidebar with categories like 'Constants', 'Functions', 'Aggregate', and 'DateTime'. The 'DateTime' category is expanded, showing functions such as 'GetMonth()', 'GetYear()', 'GetDayOfWeek()', 'GetDayOfYear()', 'GetTimeOfDay()', 'Now()', and 'UtcNow()'. To the right of the editor is a detailed description of the 'GetDayOfWeek()' function. The right screenshot shows the 'FIELD LIST' panel. It lists a 'calculatedField1' under the 'Orders' table. The properties for this field are shown in a grid: Name (calculatedField1), Display Name (calculatedField1), Field Type (Int32), Data Source (SqlDataSource), Data Member (Orders), and Expression (an empty text input field). The 'Expression' field has an ellipsis button at the end, which is highlighted with a mouse cursor.

Click **OK** to close the editor and save the changes.

4. Insert the **Group Header** band, select the **Group Fields** section in the **Group Header Tasks** category and add a new group field to group the report's data by the calculated field.



Click the or buttons to define the sort order within the group (ascending or descending). Use the button to disable sorting in grouped data.

5. Switch to the **Field List** and drop the required data fields onto the report's area.

6. Select the label in the Group Header and set the **Text Format String** property to **{0:dddd}**. This makes the label only display the day of the week, and not the date.

The screenshot shows a report designer interface with a table structure. The table has three columns: [OrderID], [OrderDate], and [Freight]. A label control named 'label1' is selected, and its properties are displayed in the Properties panel. The 'Expression' property is set to '[OrderDate]' and the 'Text Format String' is set to '{0:ddd}'.

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

Monday		
11034	4/20/2017	\$40.32
11035	4/20/2017	\$0.17
11036	4/20/2017	\$149.47
11050	4/27/2017	\$59.41
11051	4/27/2017	\$2.79
11052	4/27/2017	\$67.26
11053	4/27/2017	\$53.05
11067	5/4/2017	\$7.98
11068	5/4/2017	\$81.75
11069	5/4/2017	\$15.67
Tuesday		
11037	4/21/2017	\$3.20
11038	4/21/2017	\$29.59
11039	4/21/2017	\$65.00
11054	4/28/2017	\$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.

The screenshot shows a report editor interface. On the left, there are two bands: 'GroupHeader' and 'Detail'. In the 'GroupHeader' band, there is a single text box containing the expression '[CategoryID]' followed by a summary function 'sumCount([UnitsInStock])'. In the 'Detail' band, there is another text box containing the expression '[ProductName]'. To the right of the report area is the 'Properties' panel for the 'GroupHeader1 (Group Header)' item. The 'Actions' section is expanded, showing various icons for modifying the group. Below it, the 'GROUP FIELDS' section is expanded, showing 'Group By: CategoryID' and other settings like 'Group Union: None' and 'Level: 0'.

3. Expand the **Behavior** category and select the **Sorting Summary** node. Turn on the **Enabled** option, set the **Field** option to the data field from the Detail band, and set the **Function** to **Count**.

The screenshot shows the same report editor interface as before, but the 'Behavior' category in the Properties panel is now expanded. Under the 'Sorting Summary' node, the 'Enabled' checkbox is checked. The 'Function' dropdown is set to 'Count'. The 'Field Name' dropdown is set to 'ProductName'. The 'Ignore Null Values' checkbox is checked. The 'Sort Order' dropdown is set to 'Ascending'.

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.

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

Category ID: 7

Product Count: 5

- Uncle Bob's Organic Dried Pears
- Tofu
- Rössle Sauerkraut
- Manjimup Dried Apples
- Longlife Tofu

Category ID: 6

Product Count: 6

- Mishi Kobe Niku
- Alice Mutton
- Thüringer Rostbratwurst
- Perth Pasties
- Tourtière
- Pâté chinois

Category ID: 5

Product Count: 7

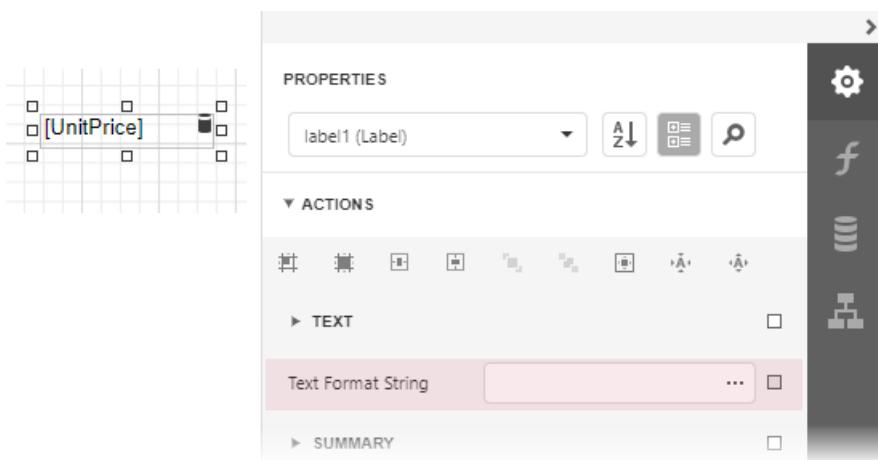
- Gustaf's Knäckebrot

# Format Data

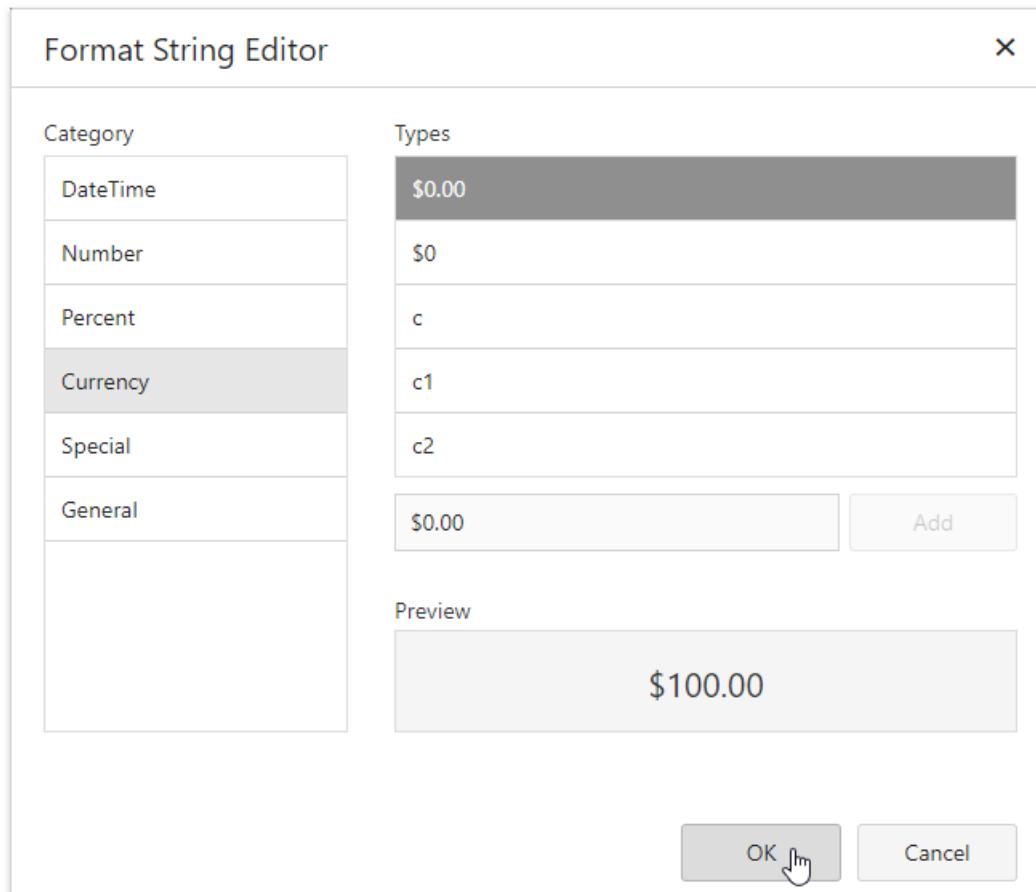
This document demonstrates how to specify value formatting for report elements (for instance, format numeric values as a currency or apply a percent format).

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.

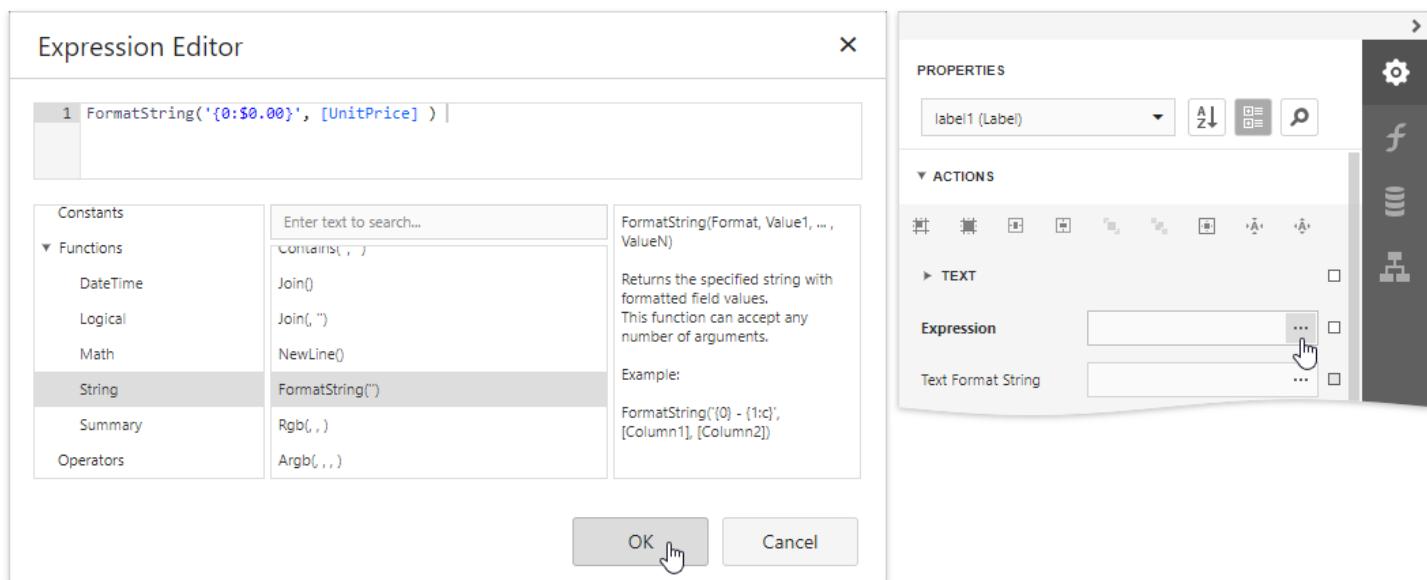
1. Expand the control's **Tasks** category and click the **Text Format String** property's ellipsis button.



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

# Specify Conditions for Report Elements

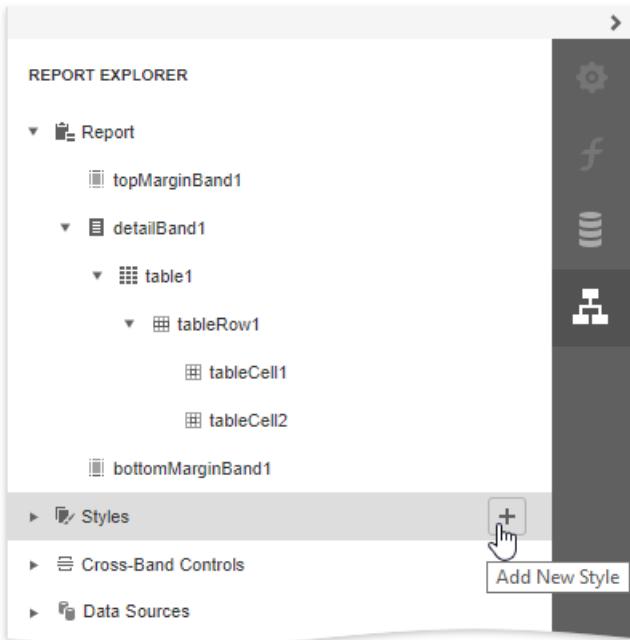
Topics in this section demonstrate how to conditionally change report data and elements.

- [Conditionally Change a Control's Appearance](#)
- [Conditionally Change a Label's Text](#)
- [Conditionally Change a Band's Visibility](#)
- [Conditionally Filter Report Data](#)
- [Conditionally Suppress Controls](#)
- [Limit the Number of Records per Page](#)

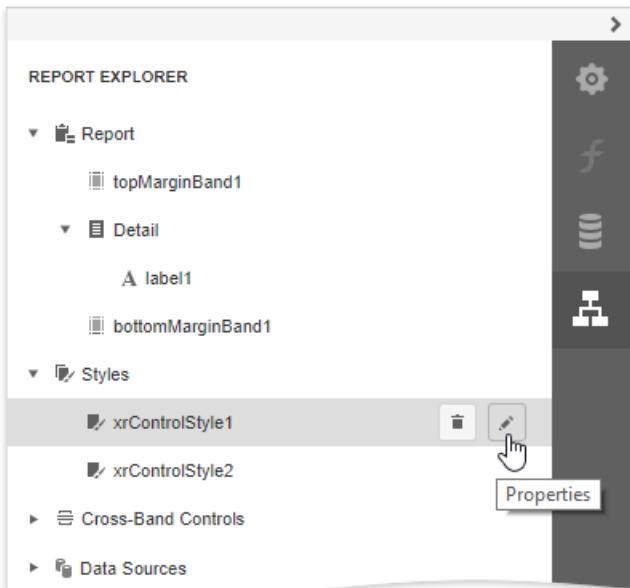
# Conditionally Change a Control's Appearance

This document describes how to change a report control's appearance based on a specific condition.

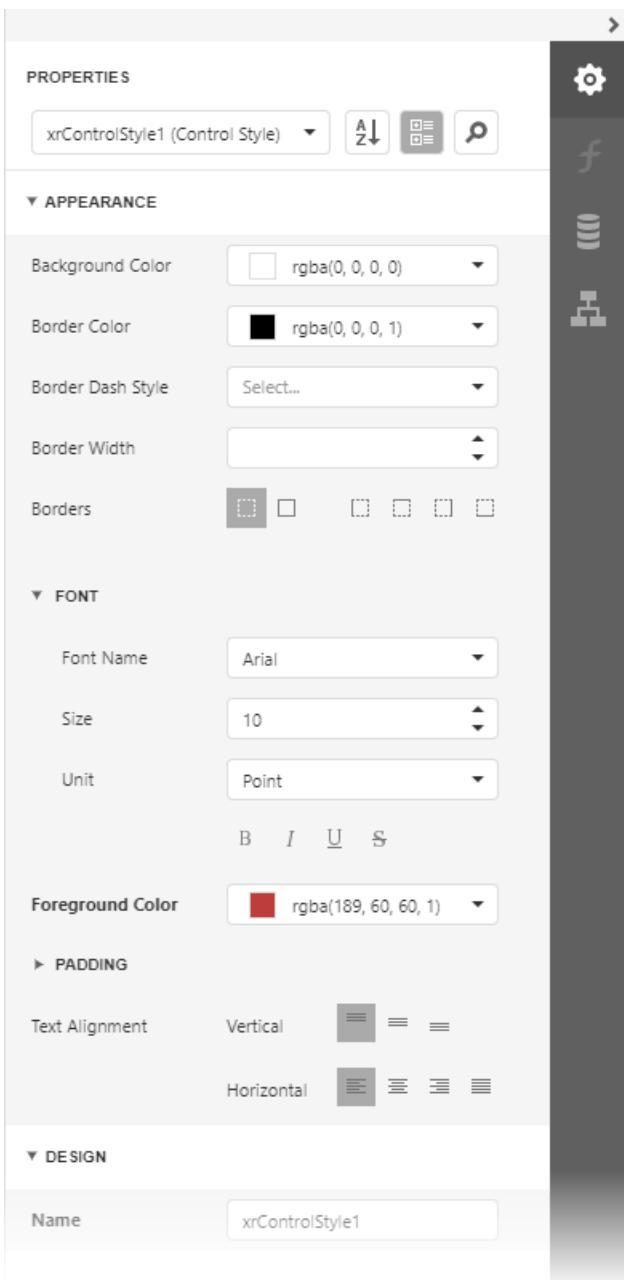
1. Switch to the [Report Explorer](#) panel, select the **Styles** node and click **Add New Style** to create a new visual style.



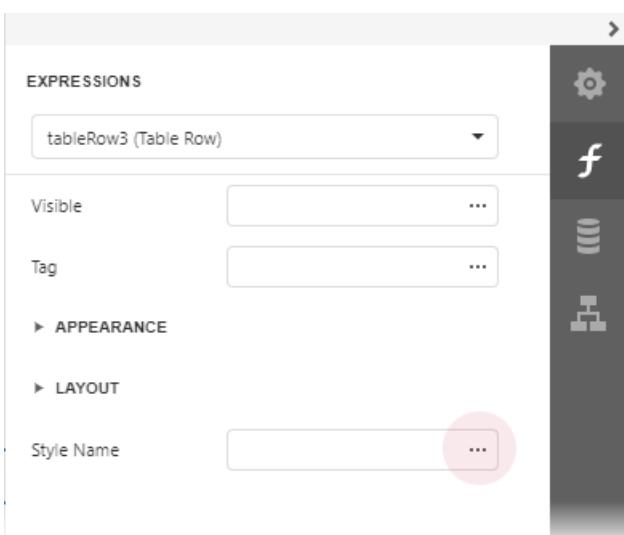
2. Click the created style and select **Properties**.



3. In the **Properties** panel, customize the created style's appearance settings.

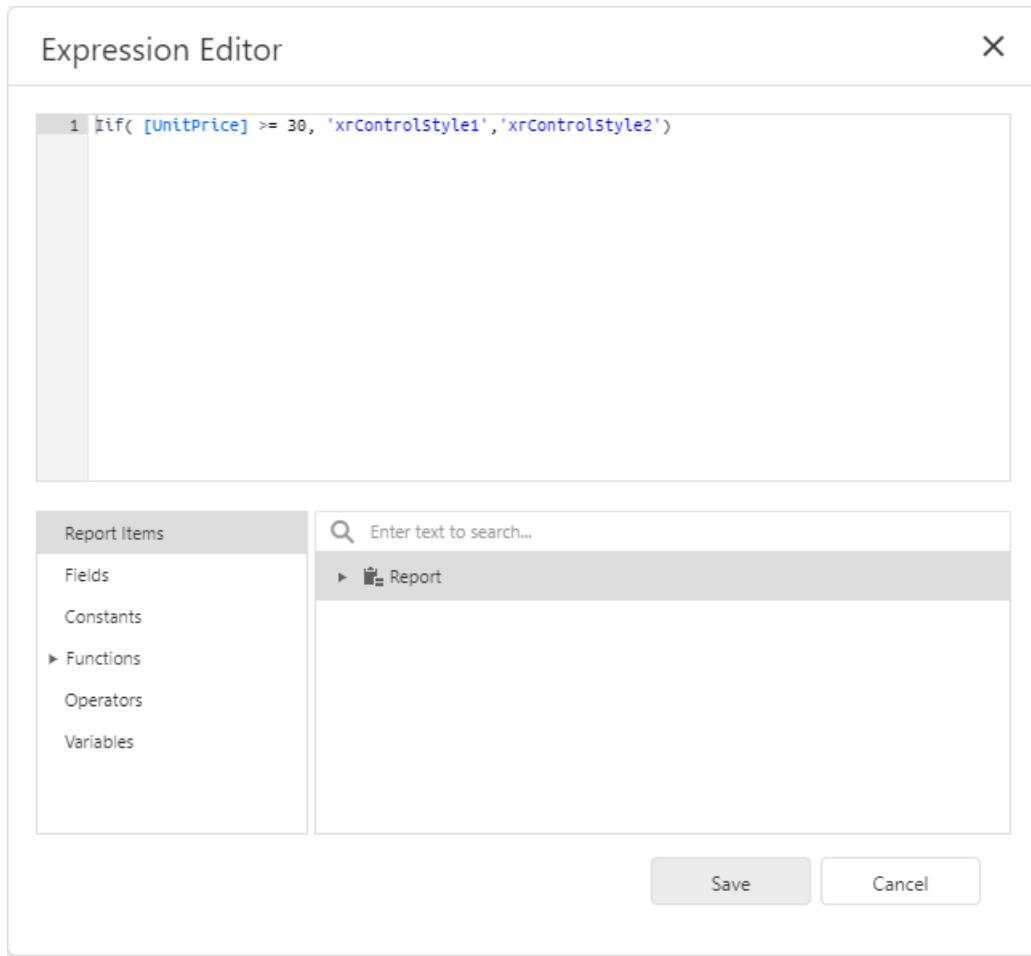


4. Create another style 'xrControlStyle2' with default settings.
5. Select a report element to which you wish to specify a style selection rule (a table row with a cell bound to the 'UnitPrice' field), switch to the **Expressions** panel, and click the ellipsis button next to the **Style Name** property.



6. In the invoked [Expression Editor](#), specify the style switch condition:

```
Iif( [UnitPrice] >= 30, 'xrControlStyle1','xrControlStyle2')
```



7. Switch to [Print Preview](#) to view the results.

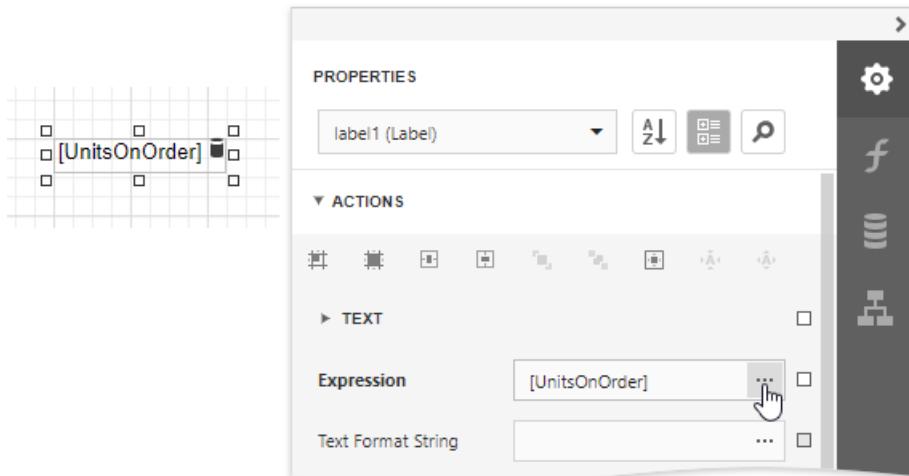
PRODUCT/SUPPLIER	UNIT PRICE	QUANTITY	DISCOUNT	SUBTOTAL
<b>Spegesild</b> Niels Petersen ( Lyngbysild, Sales Manager) - Denmark, Lyngby, 2800 Lyngbysild Fiskebakken 10	\$12.00	3	2%	\$36.00
<b>Chartreuse verte</b> Guylène Nodier ( Aux joyeux ecclésiastiques, Sales Manager) - France, Paris, 75004 203, Rue des Francs-Bourgeois	\$18.00	2	5%	\$36.00
<b>Pavlova</b> Ian Devling ( Pavlova, Ltd, Marketing Manager) - Australia, Melbourne, 3058 74 Rose St. Moonie Ponds	\$17.45	2	3%	\$34.90
<b>Mascarpone Fabioli</b> Elio Rossi ( Formaggi Fortini s.r.l, Sales Representative) - Italy, Ravenna, 48100 Viale Dante, 75	\$32.00	1	0%	\$32.00
<b>Ikura</b> Yoshi Nagase ( Tokyo Traders, Marketing Manager) - Japan, Tokyo, 100 9-8 Sekimai Musashino-shi	\$31.00	1	0%	\$31.00
<b>Rhönbräu Klosterbier</b> Martin Bein ( Plutzer Lebensmittelgroßmärkte AG, International Marketing Mgr.) - Germany, Frankfurt, 60439 Bogenallee 51	\$7.75	4	0%	\$31.00

# Conditionally Change a Label's Text

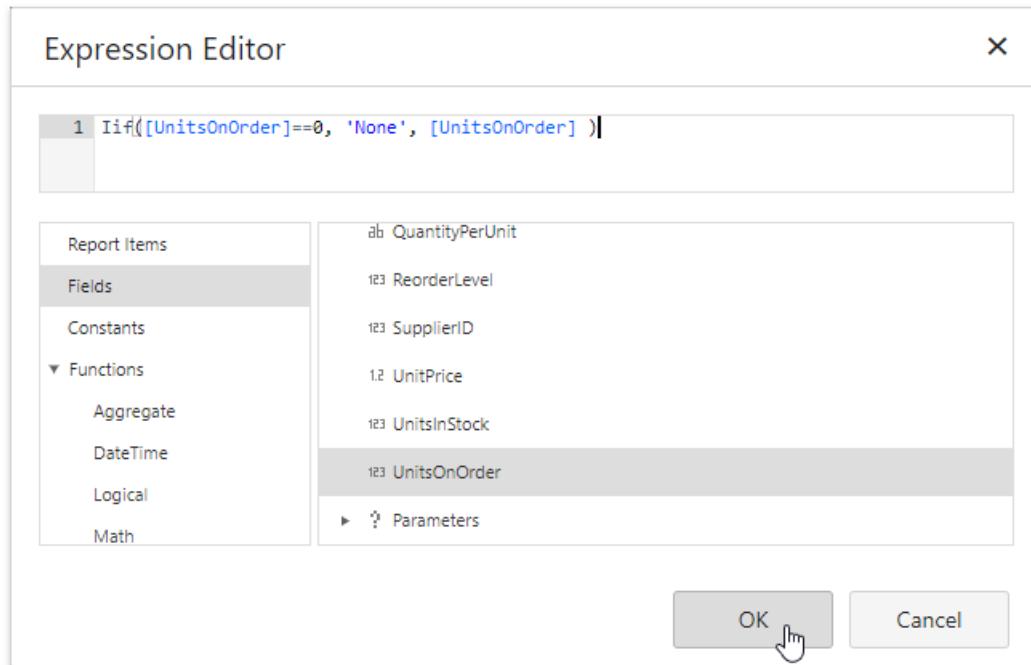
This document describes how to display different values in a report control based on a specified logical condition.

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. Expand the **Label Tasks** category and click the **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.

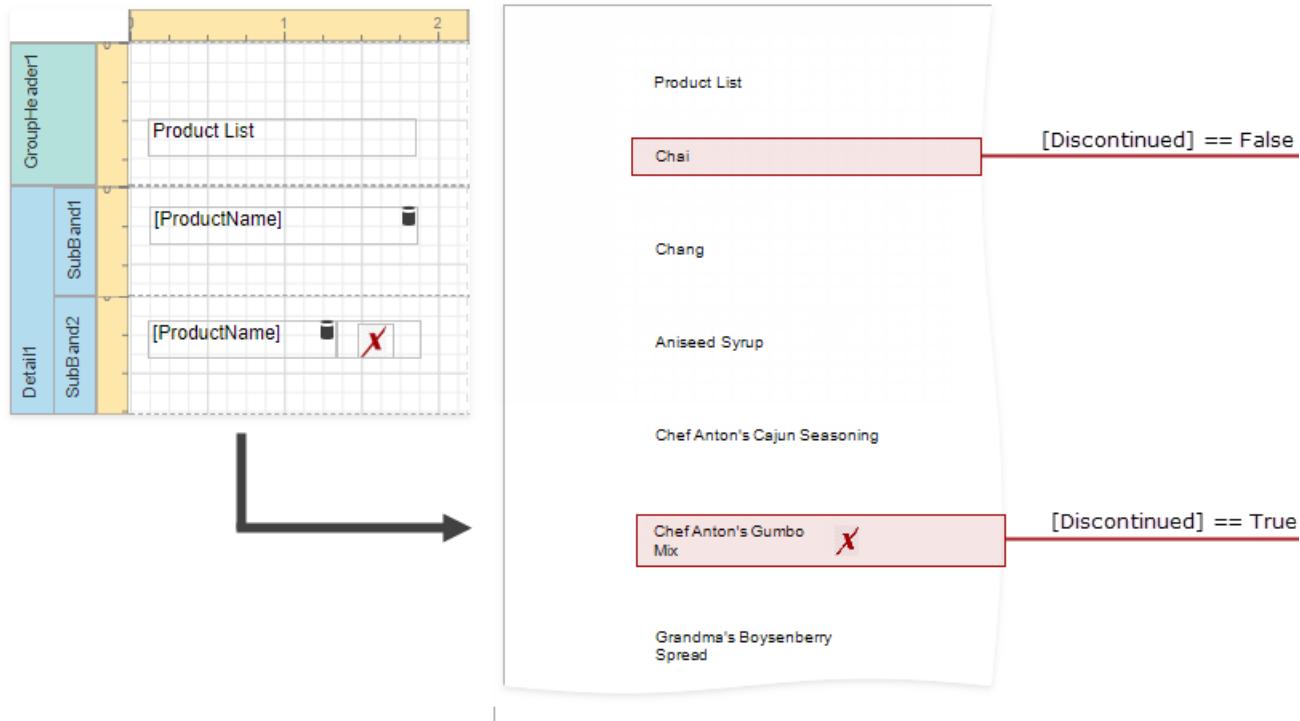
Chai	None
Chang	40
Guaraná Fantástica	None
Sasquatch Ale	None
Steeleye Stout	None
Côte de Blaye	None
Chartreuse verte	None
Ipoh Coffee	10
Laughing Lumberjack Lager	None
Outback Lager	10

# Conditionally Change a Band's Visibility

This topic describes how to change report band 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.



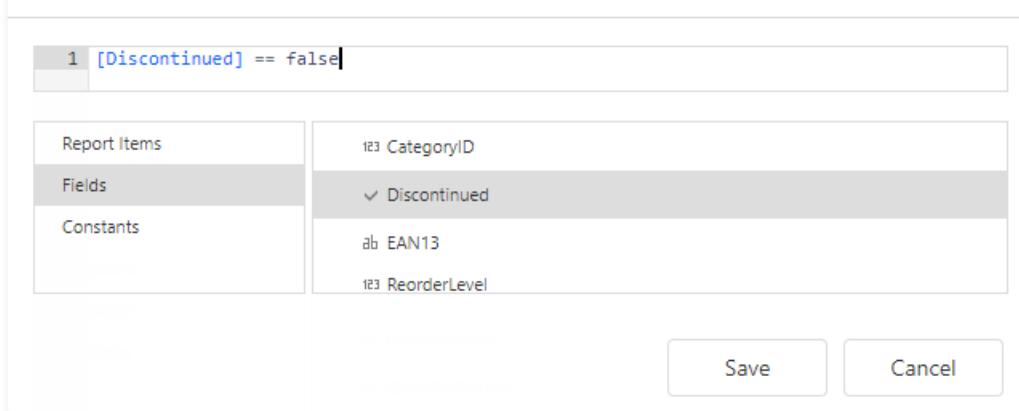
The steps below demonstrate how to change a band's visibility based on a field's value.

1. Select the required band and switch to the **Expressions** panel. Click the **Visible** property's ellipsis button.



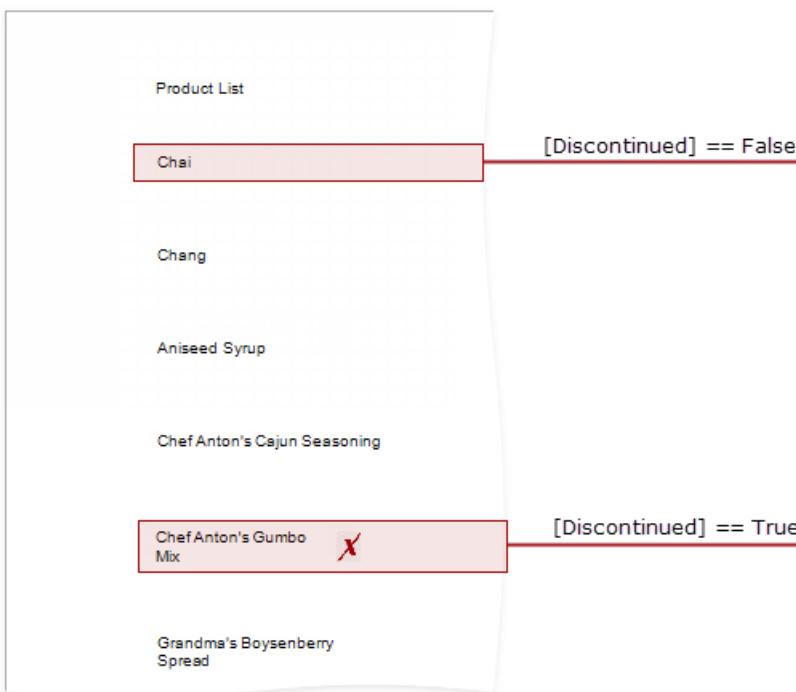
2. In the invoked **Expression Editor**, specify the required expression.

## Expression Editor



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.

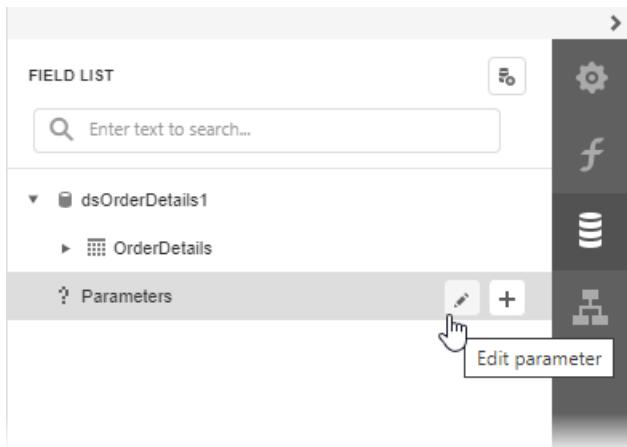
The **Preview** below displays how changes to band visibility influence the Product List. The **SubBand1** is used to display products that have the **Discontinued** field set to **false**, and the **SubBand2** is used to display discontinued products.



# Conditionally Filter Report Data

This document describes how to filter a report's data based on a specific condition.

1. Switch to the [Field List](#) panel, select the **Parameters** node and click **Add parameter**.



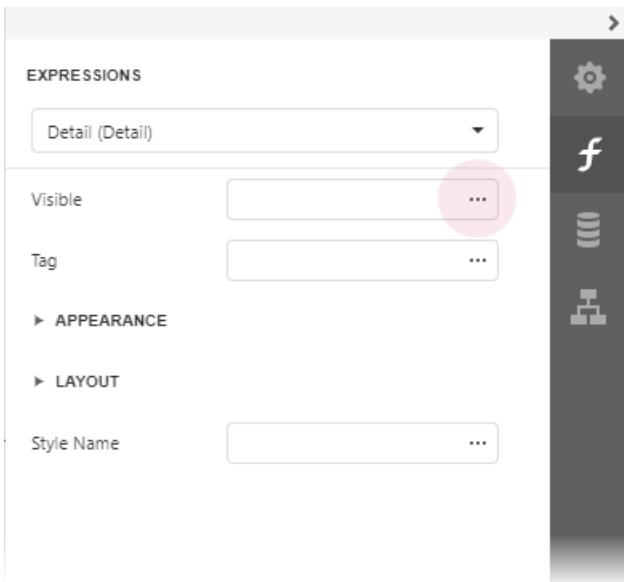
2. Specify the parameter name and description, set its type to **Number (decimal)**.

Edit Parameters

Parameters	Name	Description	Type	Options
minUnitPrice	minUnitPrice	Min Unit Price	Number (decimal)	<input checked="" type="checkbox"/> Show In Parameters Panel <input type="checkbox"/> Allow Null Value <input type="checkbox"/> Allow Multiple Value <input type="checkbox"/> Select All Values
	Tag			
	Expression			...
	Value	0		
	Value Source	(none)		▼

OK Cancel

3. Select the report's detail band, switch to the [Expressions](#) panel and click the **Visible** property's ellipsis button.



4. In the invoked [Expression Editor](#), specify the visibility condition:

```
Iif( [UnitPrice] >= ?minUnitPrice, true, false)
```

The screenshot shows the Expression Editor dialog with the following details:

- Code Area:** Displays the expression: `Iif( [UnitPrice] >= ?minUnitPrice, true, false)`.
- Search Bar:** Contains the placeholder "Enter text to search...".
- Result List:** Shows a list of items:
  - 123 Quantity
  - 1.2 SubTotal
  - Supplier
  - 1.2 UnitPrice
  - Parameters
    - 1.2 minUnitPrice
- Left Sidebar:** Lists Report Items categories: Fields (selected), Constants, Functions, Operators, and Variables.
- Buttons:** Save and Cancel.

The expression above makes the **Visible** property return **True** or **False** depending on whether the field value is greater or equal to the specified parameter value.

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

The screenshot shows a software interface for previewing a customer order. At the top, there are navigation icons for back, forward, search, and zoom (set to 81%). Below this is a section titled "PREVIEW PARAMETERS" with fields for "Order Id" (11077) and "Min Unit Price" (35), along with "RESET" and "SUBMIT" buttons. The main content area is titled "Customer Order # 11077". It displays a table of items with columns: UNIT PRICE, QUANTITY, DISCOUNT, and SUBTOTAL. The items listed are:

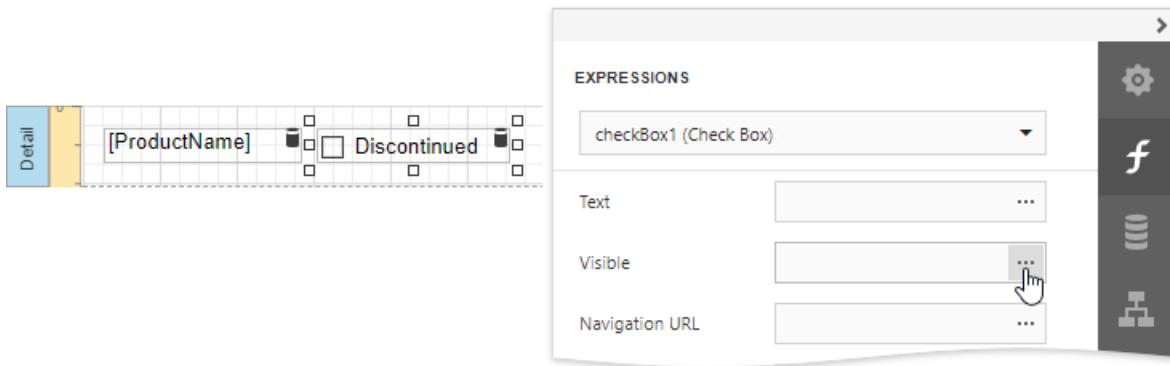
	UNIT PRICE	QUANTITY	DISCOUNT	SUBTOTAL
ormalade Quality Biscuits, Ltd., Sales Representative M14 GSD 29 King's Way	\$81.00	1	4%	\$81.00
to La Pastor Medra (Cooperativa de Quesos 'Las Cabras', Spain - Oviedo, 33007 Calle del Rosal 4	\$38.00	2	5%	\$76.00
anberry Sauce Grandma Kelly's Homestead, Sales USA, Ann Arbor, 48104 707 Oxford Rd.	\$40.00	2	10%	\$80.00

Page 1 of 1 pages

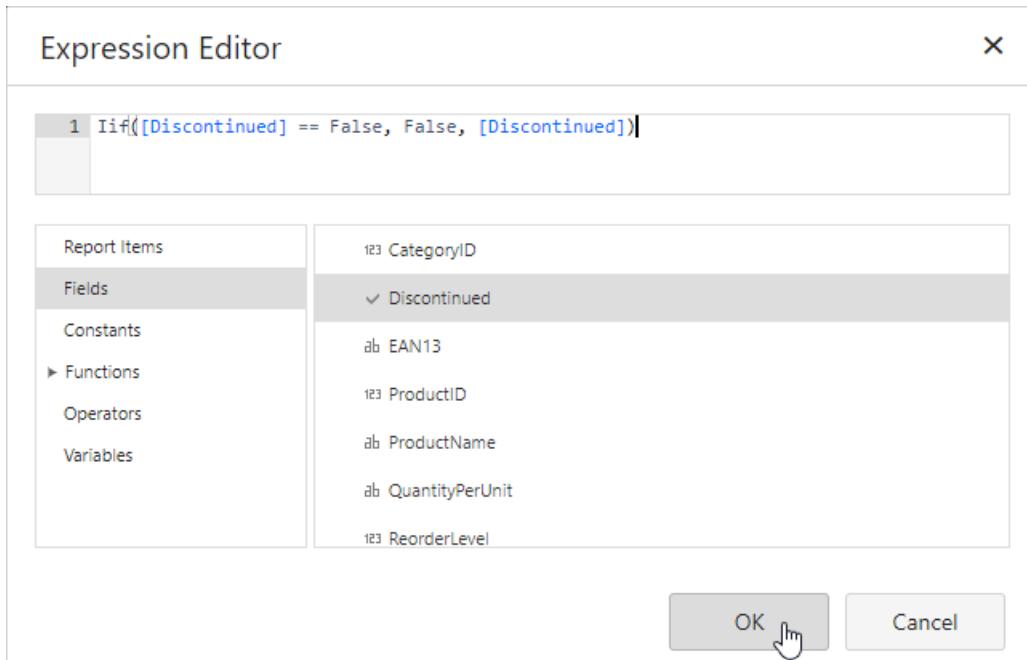
# Conditionally Suppress Controls

This document describes how to display or hide a report control in a published document based on a specified logical condition.

1. [Create a new report](#) or open an existing one and prepare the report layout.
2. Select the required control, switch to the **Expressions** panel and click the **Visible** property's ellipsis button.



3. In the invoked [Expression Editor](#), specify the required [expression](#).



Use the **if** function to define the required condition. For example:

**if([Discontinued] == False, False, [Discontinued])**

This expression means that if the data field's value is **False**, the control's **Visible** property's value is also **False**.

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	

#### NOTE

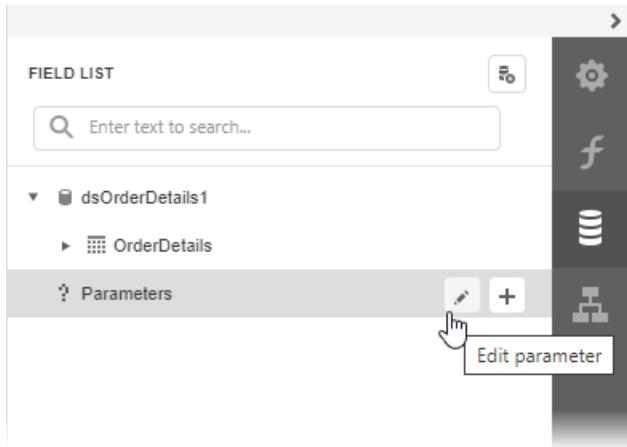
See [Hide Table Cells](#) to learn how to conditionally suppress table cells and define the mode for processing them.

# Limit the Number of Records per Page

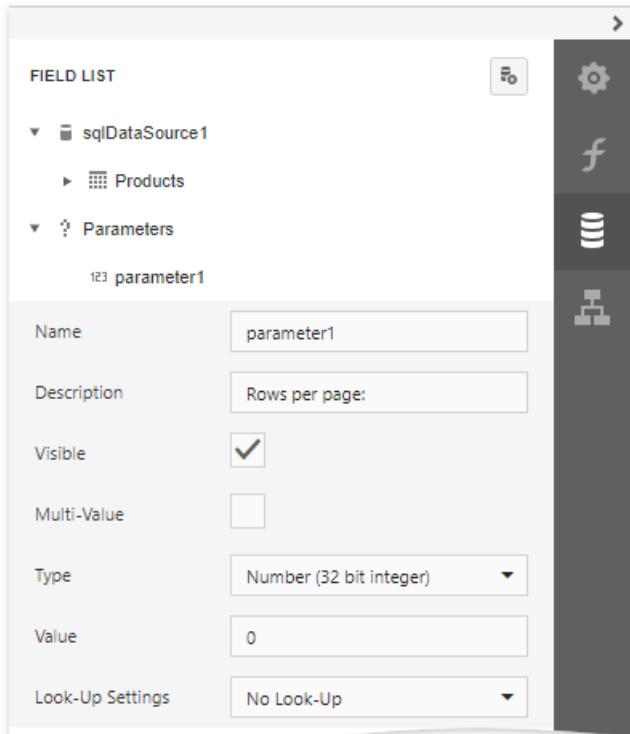
This document describes how to specify the number of data source records displayed on report pages.

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](#) panel, select the **Parameters** node and click **Add parameter** to add a new report parameter.



2. Specify the parameter's description displayed in Print Preview and set its type to **Number (Integer)**.



3. Drop a [Page Break](#) control onto the report's detail band.

4. Switch to the [Expressions](#) panel and click the **Visible** property's ellipsis button. In the invoked [Expression Editor](#), specify the required expression.

For example:

**([DataSource.CurrentRowIndex] % [Parameters.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 x20 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 Summaries

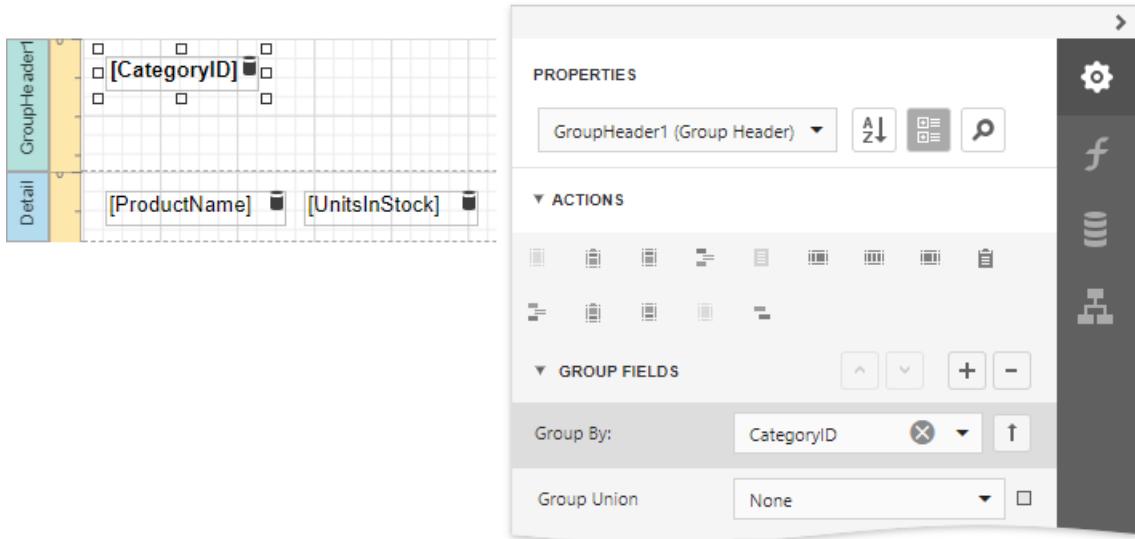
Topics in this section describe how to calculate summaries in a report.

- [Calculate a Summary](#)
- [Calculate an Advanced Summary](#)

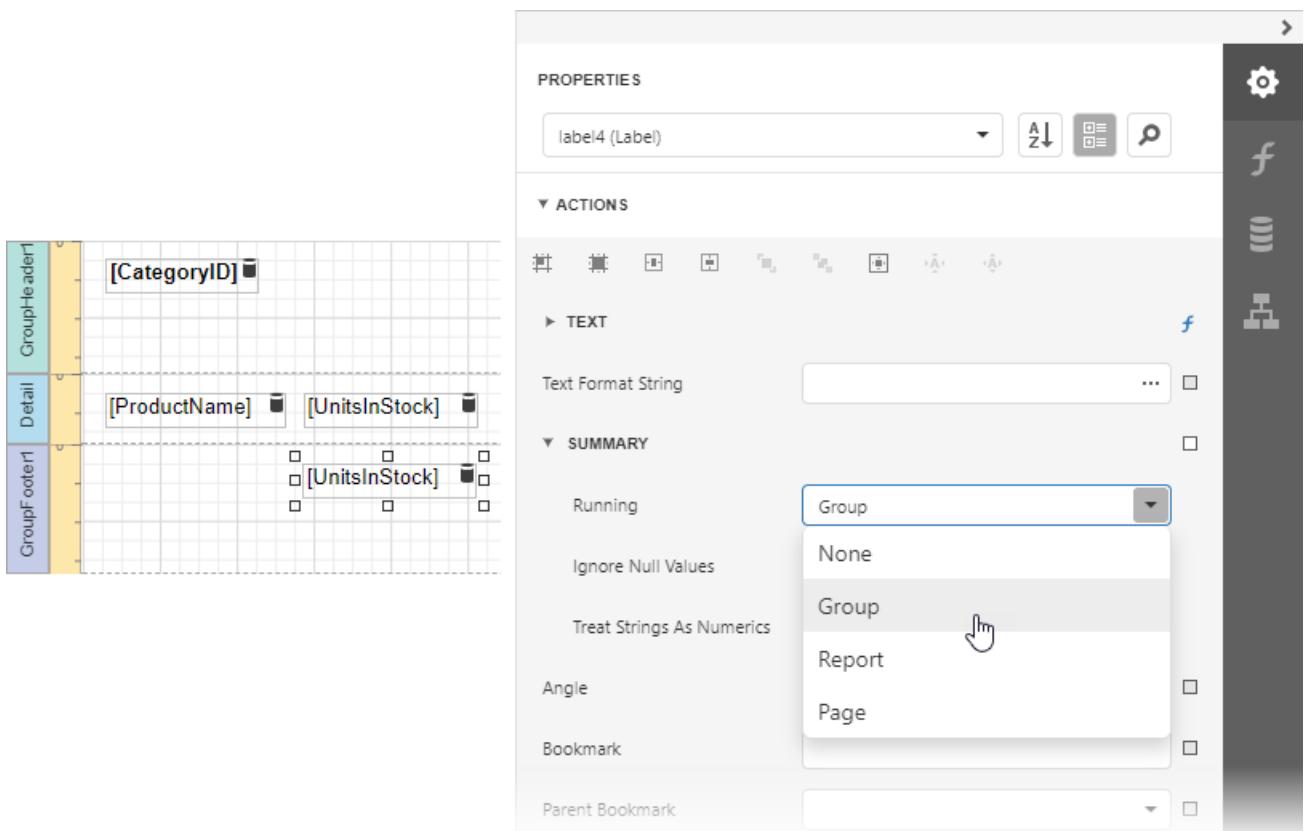
# Calculate a Summary

This document describes how to calculate various summaries across a report and its groups.

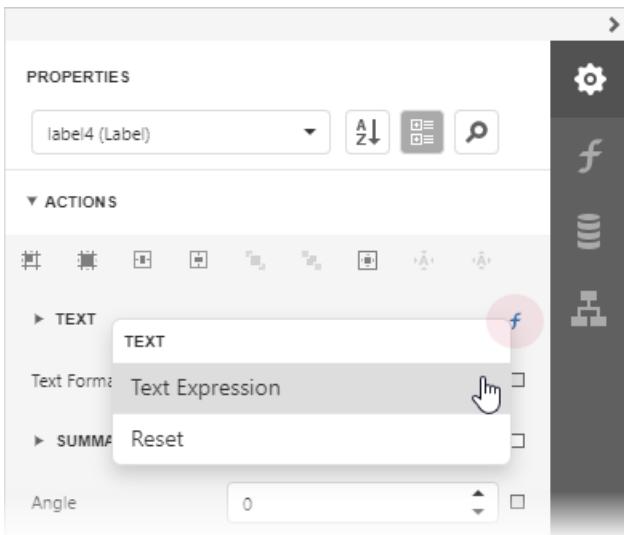
1. [Create a new report](#) or open an existing one and [bind it to a data source](#).
2. Insert the **Group Header** band, select the **Group Fields** section in the **Group Header Tasks** category and add a new group field to group the report's data by the required field.



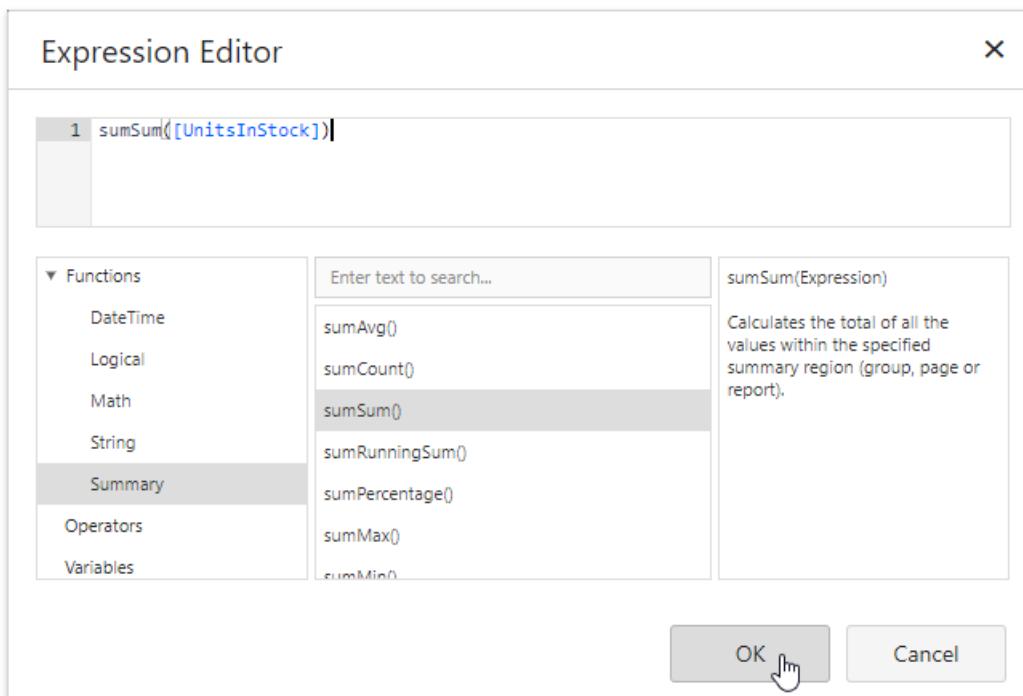
3. Insert the Group Footer band. Prepare the report layout and drop a required data field onto the group footer to display the summary result.
4. Select the label, expand the **Summary** section and invoke the **Running** drop-down list. Select the range for which to calculate a summary (the entire report, a specific report group or document page).



5. Click the **Text** property's marker to invoke a menu. Select **Text Expression**.



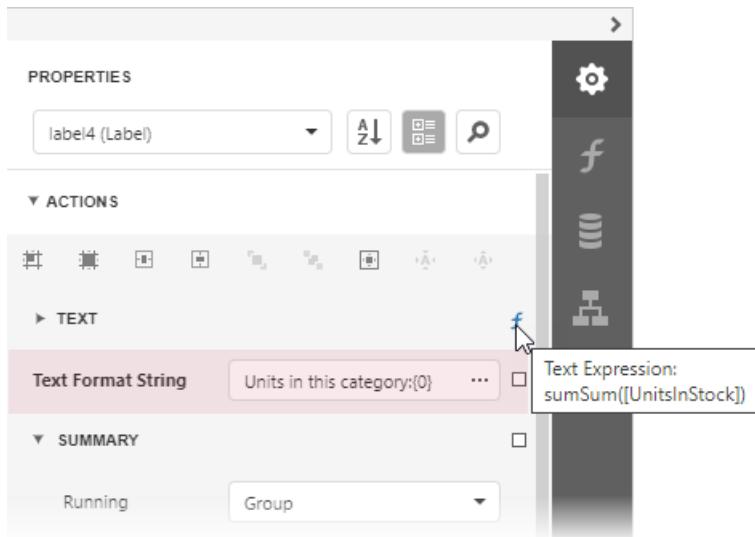
6. This invokes the [Expression Editor](#) where you can select the required summary in the **Functions | Summary** section. Report summary functions start with the "sum" prefix to make it easy to differentiate them from aggregate functions.



#### TIP

See the [Functions in Expressions](#) topic for a complete list of supported summary functions.

7. You can use the **Text Format String** property to format the summary's value.



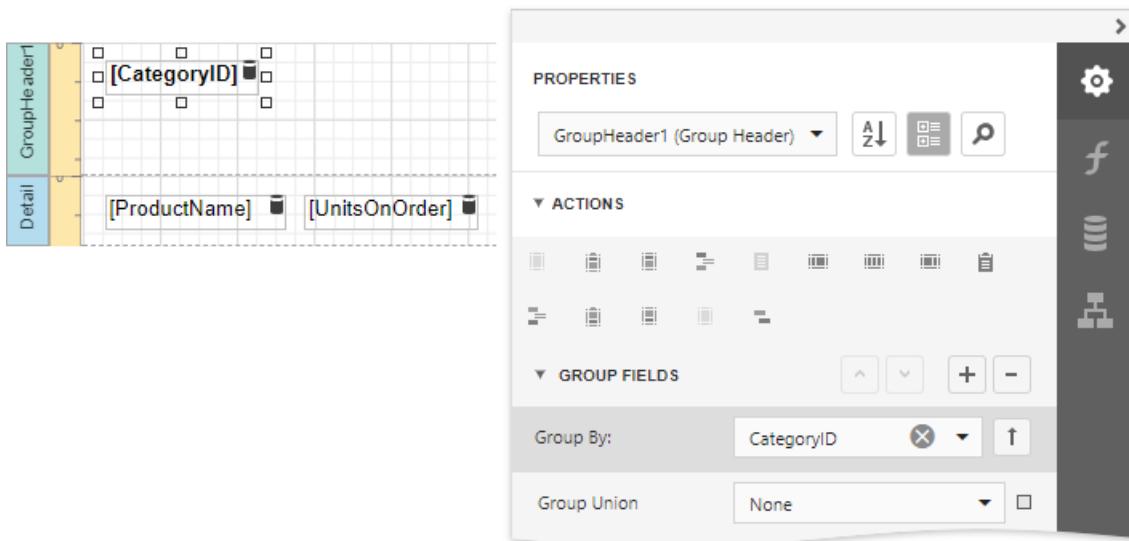
Switch to [Print Preview](#) to see the result.

Category ID: 1	
Chai	39
Chang	17
Guaraná Fantástica	20
Sasquatch Ale	111
Steeleye Stout	20
Côte de Blaye	17
Chartreuse verte	69
Ipoh Coffee	17
Laughing Lumberjack Lager	52
Outback Lager	15
Rhönbräu Klosterbier	125
Lakkalikööni	57
Units in this category: 559	

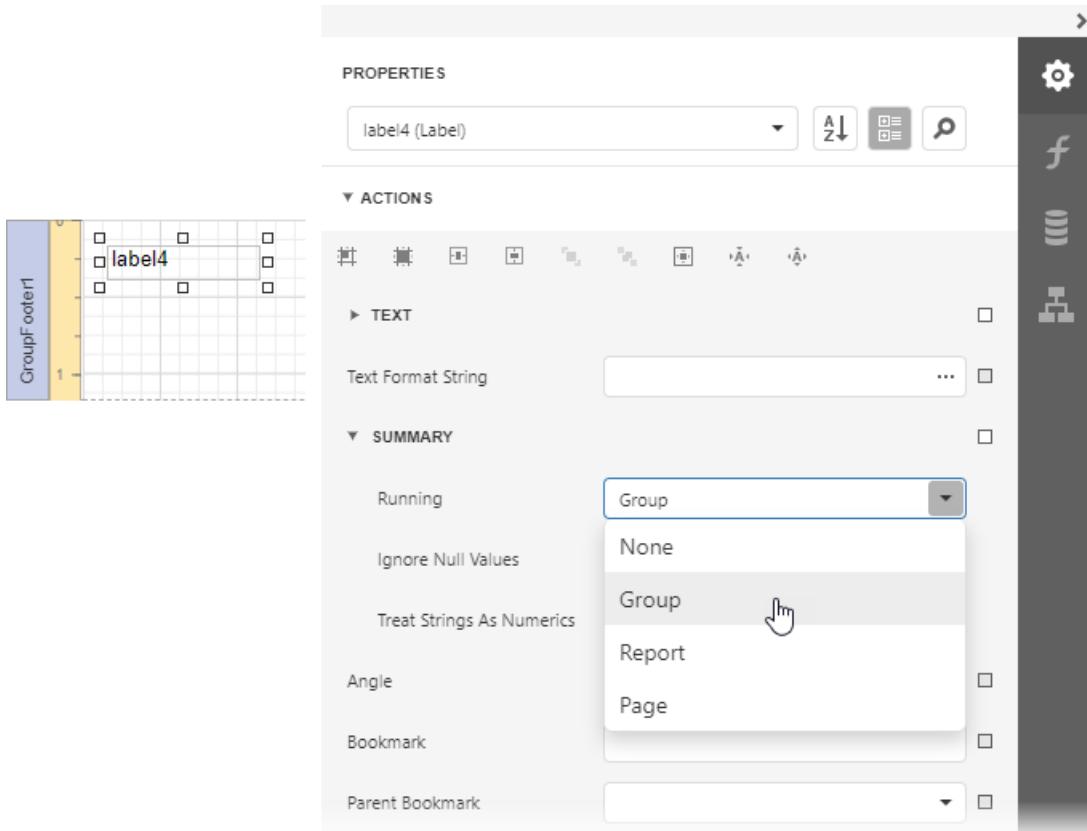
# Calculate an Advanced Summary

This document describes how to calculate an advanced summary for report groups using a built-in summary function and arithmetical or logical functions.

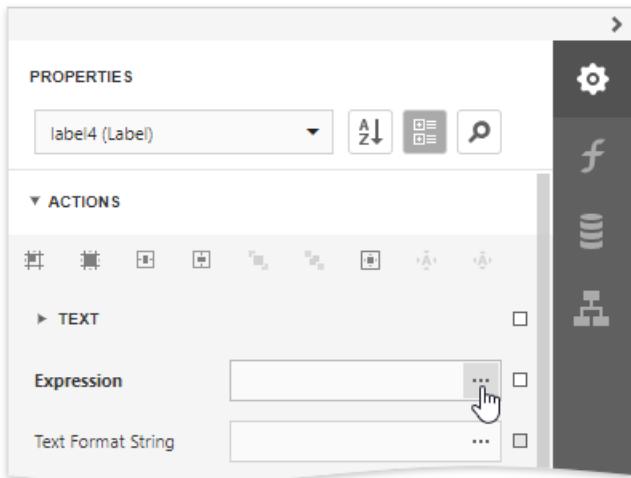
1. [Create a new report](#) or open an existing one and [bind it to a data source](#).
2. Insert the **Group Header** band, select the **Group Fields** section in the **Group Header Tasks** category and add a new group field to group the report's data by the required field.



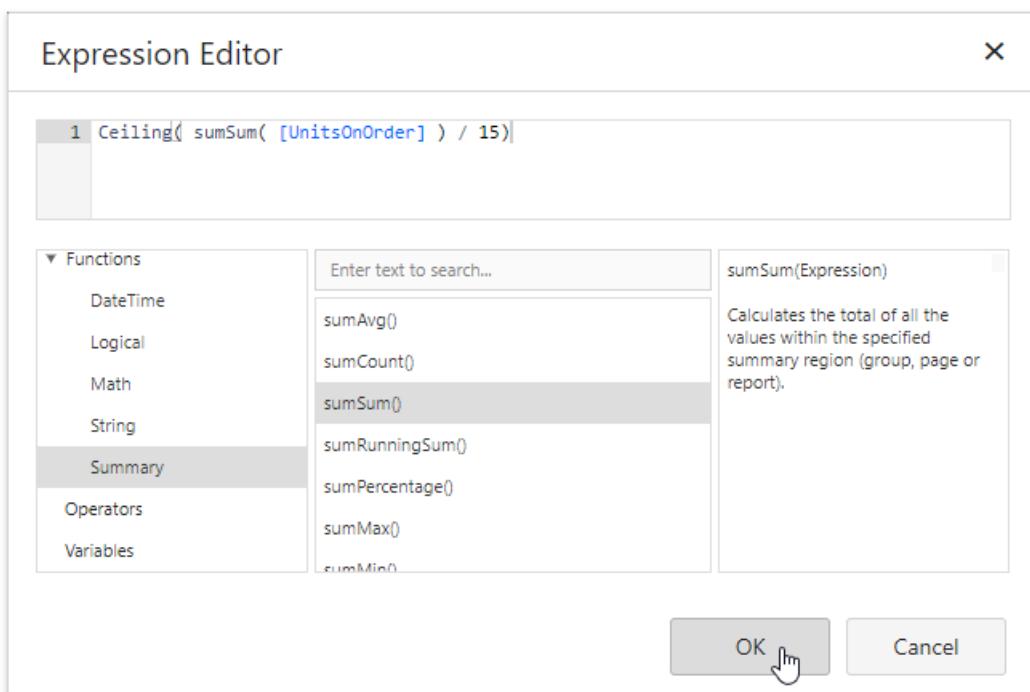
3. Insert the Group Footer band and drop a [Label](#) onto it to display the summary result. Expand the **Summary** section in the **Label Tasks** category and set the **Running** property to **Group**.



4. Click the ellipsis button for the label's **Expression** property.



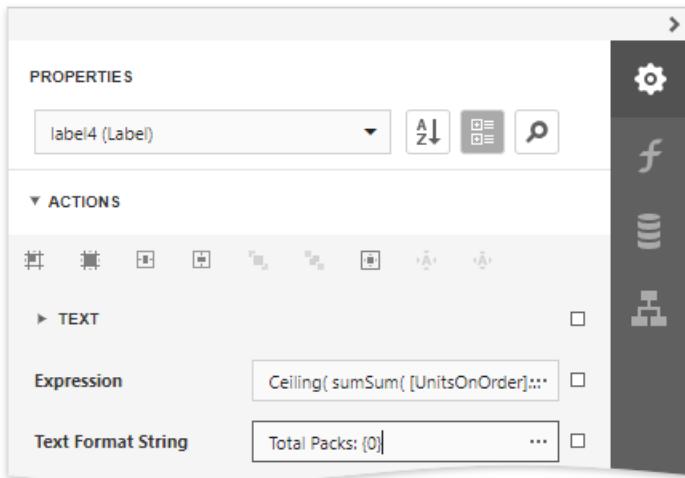
5. This invokes the [Expression Editor](#) where you can specify a custom expression with the required summary functions and other logical or arithmetical functions. For example:



#### TIP

See the [Functions in Expressions](#) topic for a complete list of supported summary functions.

6. You can use the **Text 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
Ipooh Coffee	10
Outback Lager	10
<b>Total Packs: 4</b>	
Product Category ID: 2	
Product Name	Units On Order
Aniseed Syrup	70
Louisiana Hot	100
Spiced Okra	
<b>Total Packs: 12</b>	

# Count Elements and Values

Topics in this section show how to count report elements or data source values.

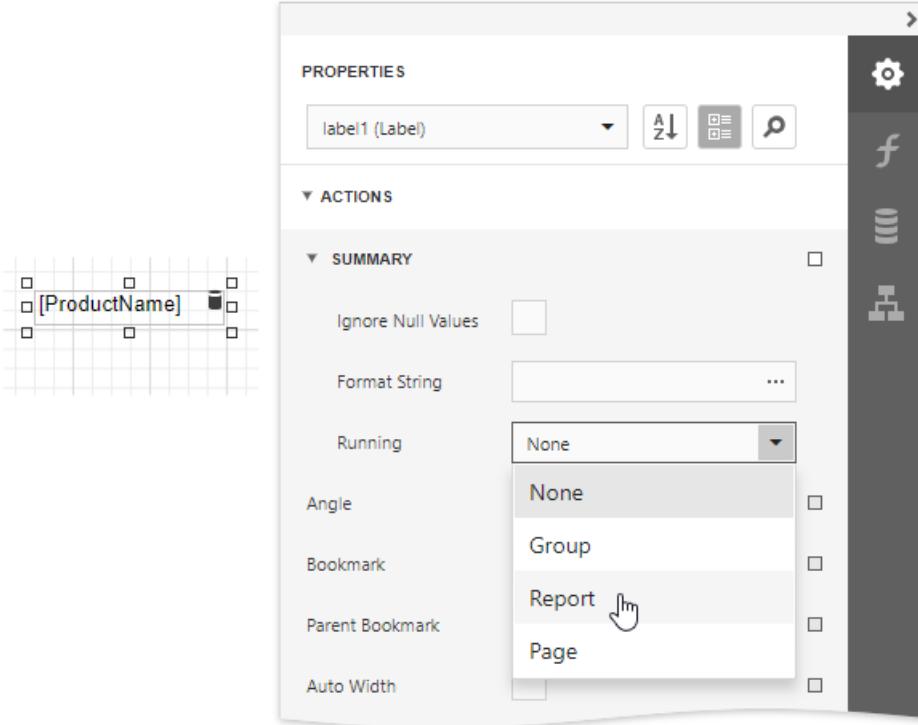
- [Count the Number of Records in a Report or Group](#)
- [Count the Number of Groups in a Report](#)
- [Display Row Numbers in a Report, Group or Page](#)

# Display Row Numbers in a Report, Group or Page

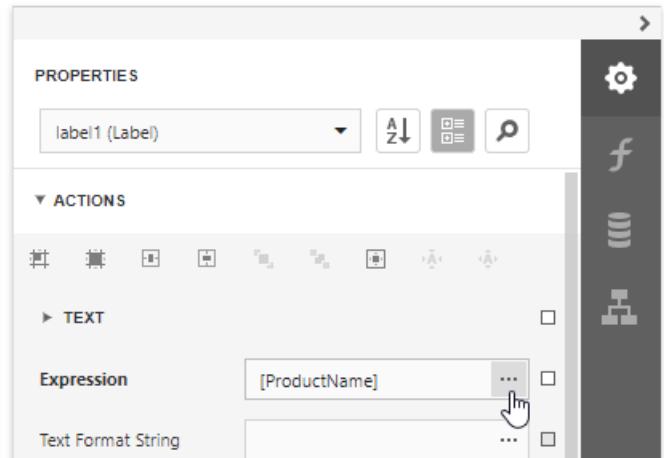
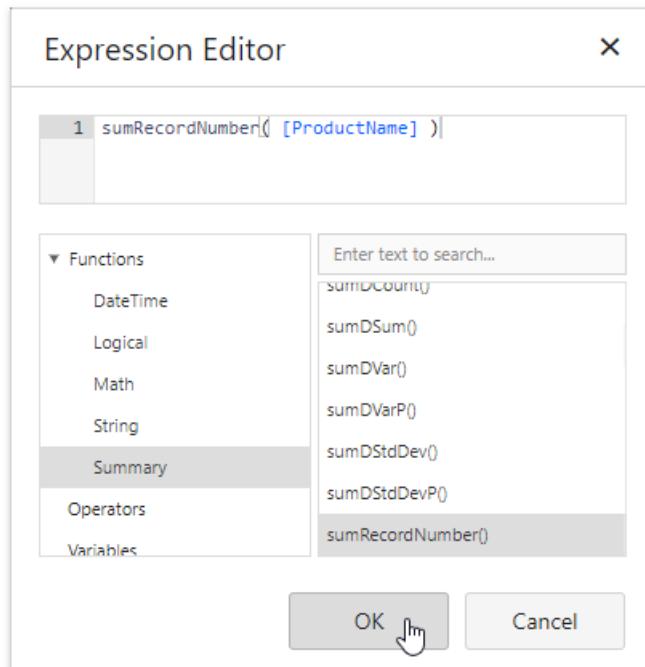
This document describes how to show the current row number for each data source value displayed in a report.

A label can display row numbers after [binding your report to data](#) and specifying a bound data field in the Label's **Expression** property.

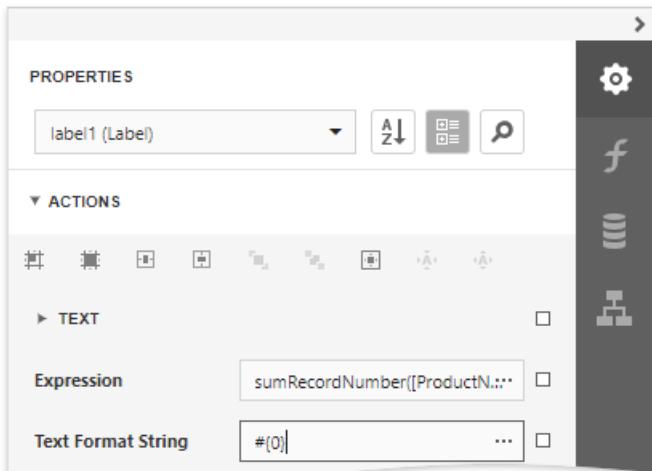
1. Expand the **Summary** section in the **Label Tasks** category and invoke the **Running** drop-down list. Select **Report** to increment the row numbers throughout the entire report, or select **Group** or **Page** to reset the row numbers for every group or page.



2. Click the ellipsis button for the **Expression** property. In the invoked [Expression Editor](#), select the **sumRecordNumber** function in the **Functions | Summary** section.



3. Use the **Text Format String** property to format the resulting value.



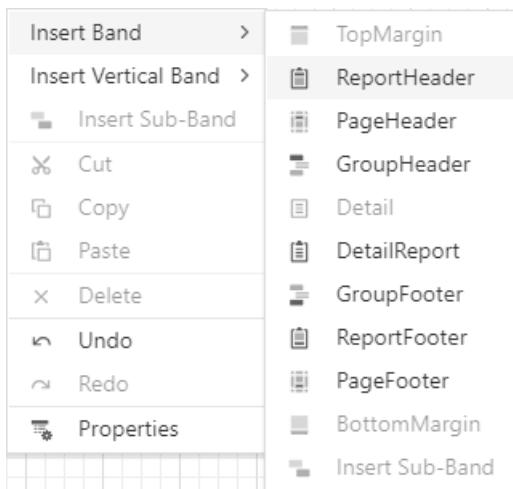
You can switch to [Print Preview](#) to see the record numbers displayed for the specified range.

#	Product Name
#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.

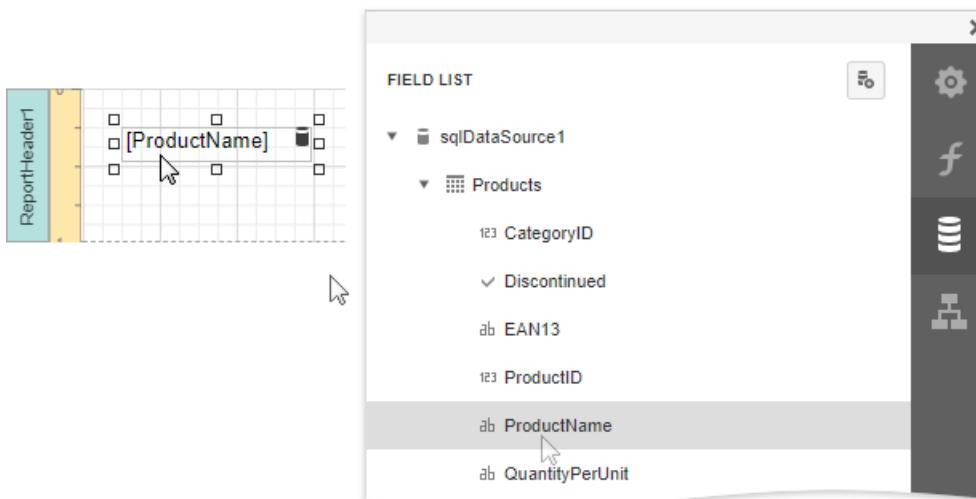
1. Select the corresponding command from the and insert a [Report Header](#) or Footer to display the record count for the entire report.



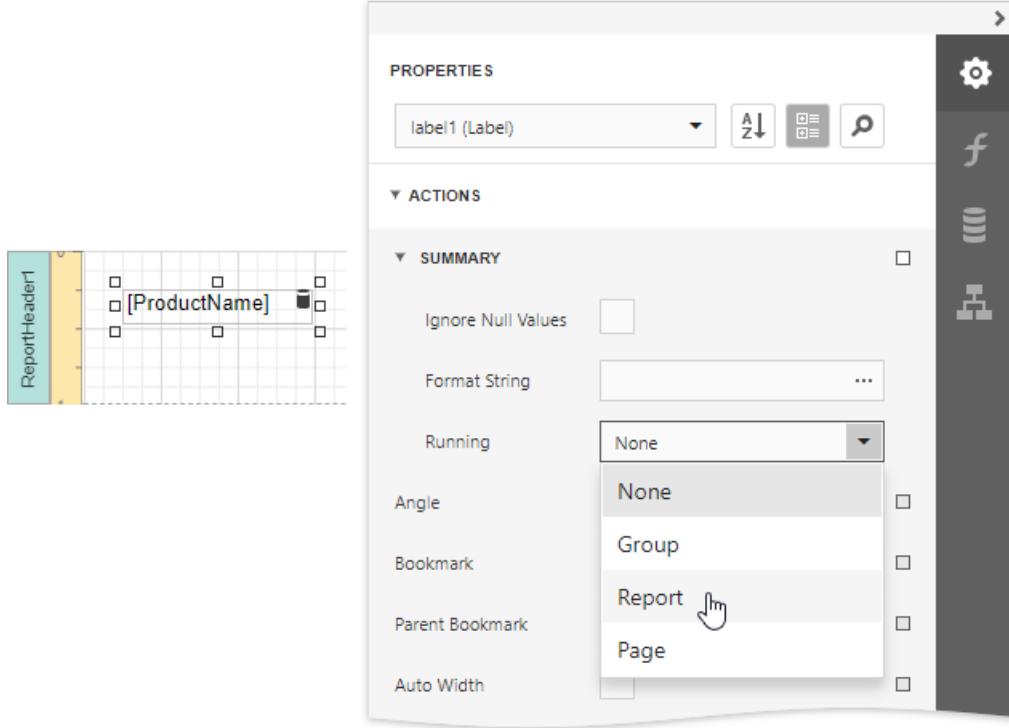
## NOTE

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](#) panel and drop the corresponding data table field onto the created band to create a data-bound label.



3. Expand the **Summary** section in the **Tasks** category and invoke the **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. Click the **Expression** property's ellipsis button. In the invoked **Expression Editor**, select the **sumCount** function in the **Functions | Summary** section.

**Expression Editor**
X

```
1 sumCount( [ProductName] )
```

**Functions**

- DateTime**
- Logical**
- Math**
- String**
- Summary**
- Operators**
- Variables**

OK
Cancel

**Properties**

**label1 (Label)**

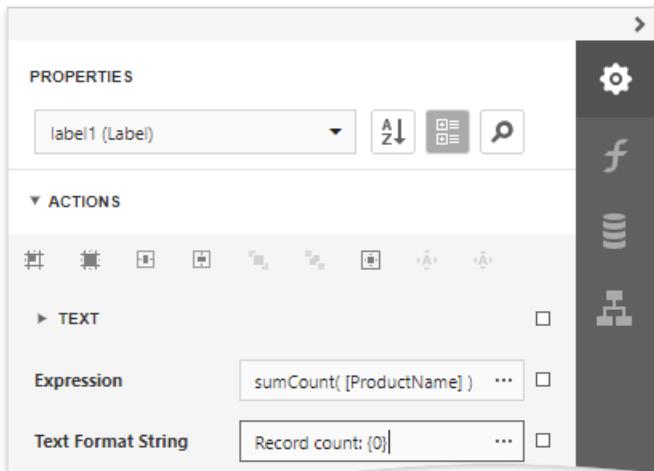
**ACTIONS**

**TEXT**

**Expression**

**Text Format String**

5. Use the **Text Format String** property to format the resulting value.



You can switch to [Print Preview](#) to see the resulting report.

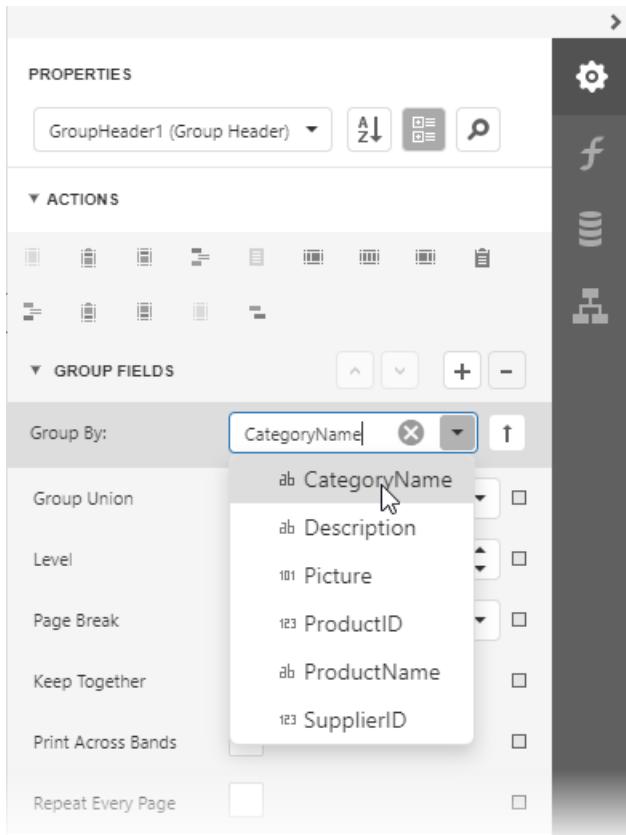
Record count: 77

Chai  
Chang  
Aniseed Syrup  
Chef Anton's Cajun Seasoning  
Grandma's Boysenberry Spread  
Uncle Bob's Organic Dried Pears  
Northwoods Cranberry Sauce  
Ikura

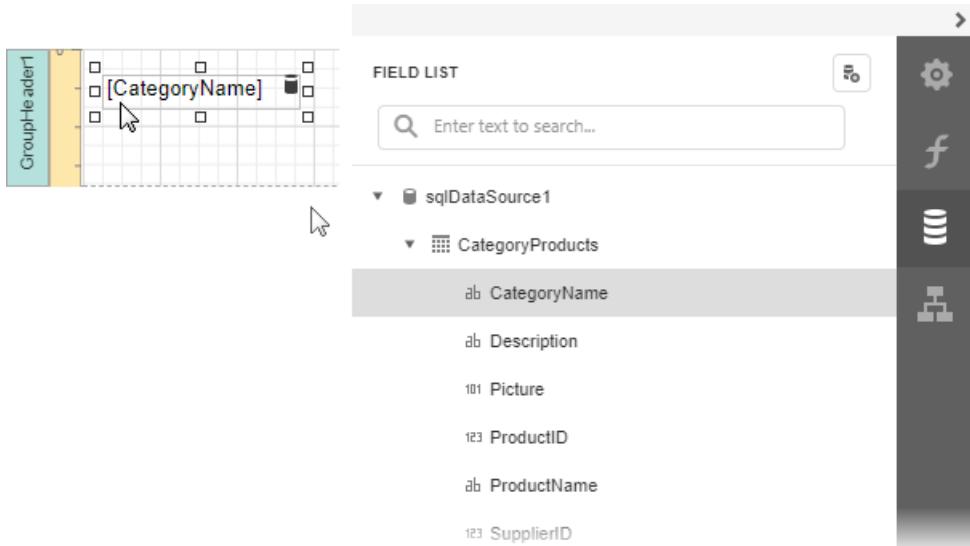
# Count the Number of Groups in a Report

This document describes how to count the number of groups in a report.

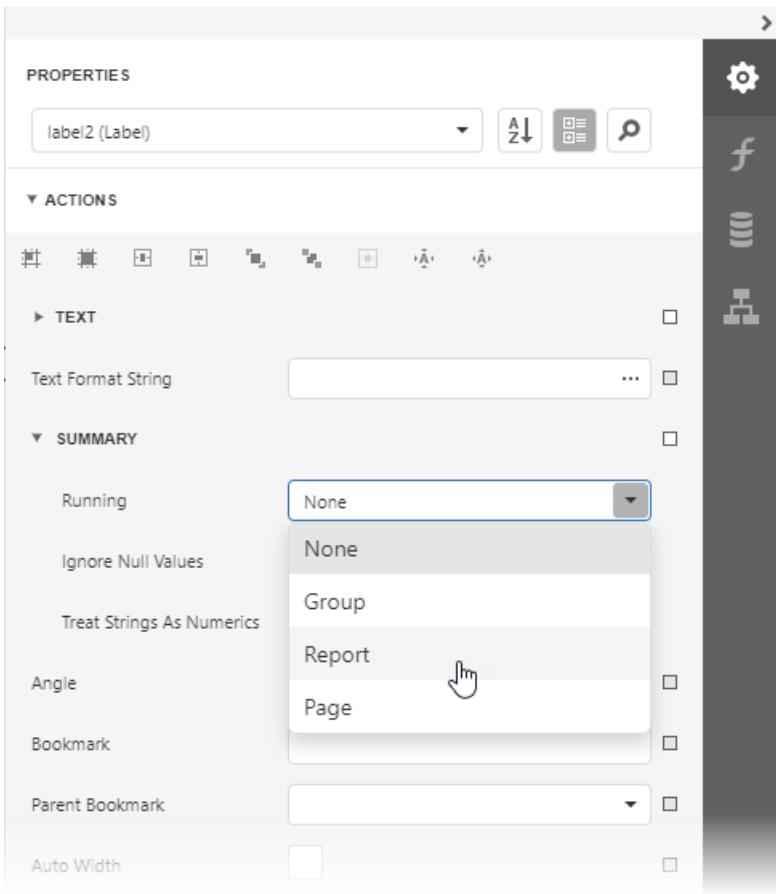
1. Insert the **Group Header** band, select the **Group Fields** section in the **Group Header Tasks** category and add a new group field to group the report's data by the required field.



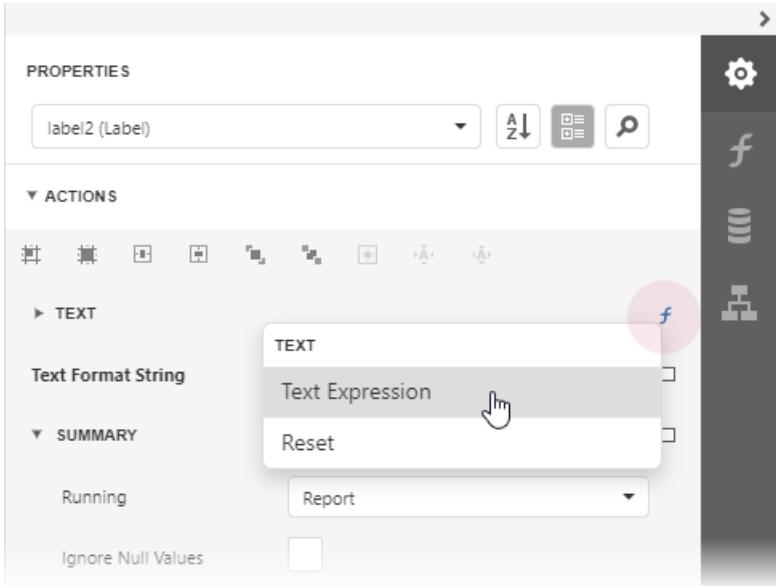
2. Switch to the **Field List** and drop the group field onto the created Group Header.



3. Drop a label onto the Report Footer, expand the **Summary** section in the **Label Tasks** category and set the **Running** property to **Report**.

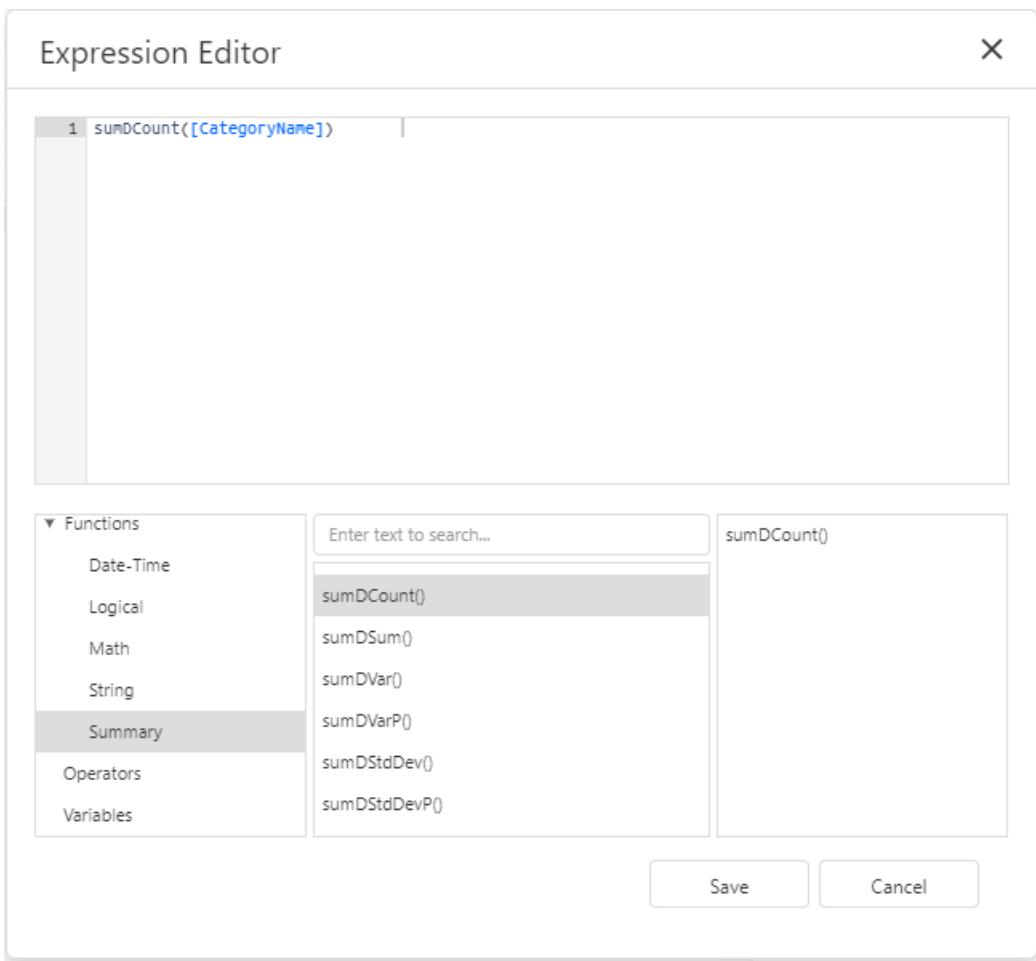


4. Click the **Text** property marker to invoke the menu. Select **Text Expression** to invoke the [Expression Editor](#).

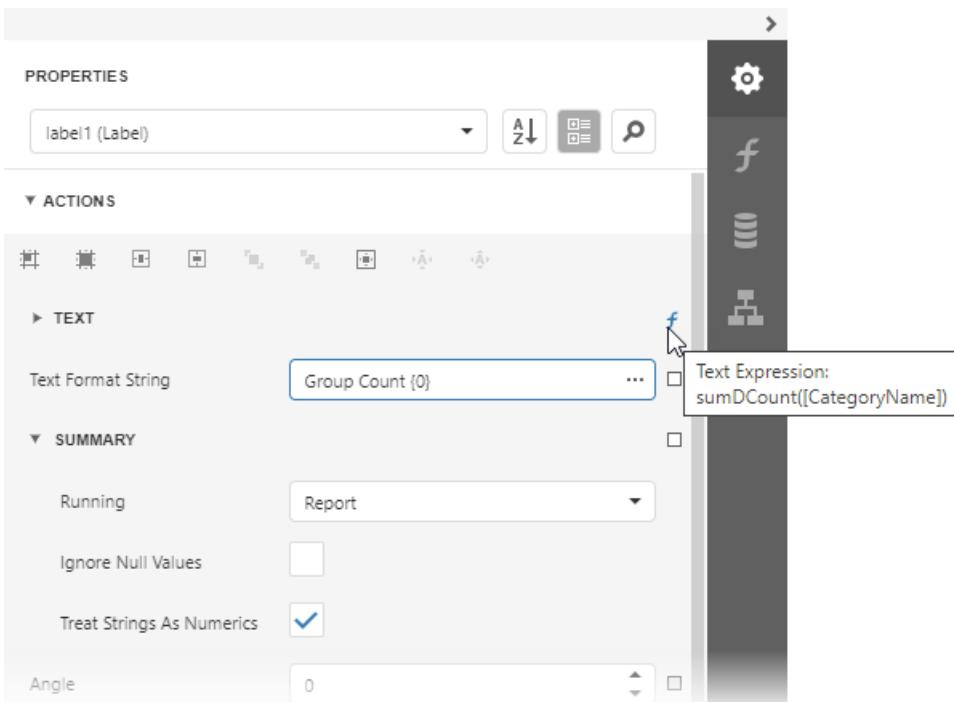


5. In the Expression Editor select the **sumDCount** summary function in the **Functions | Summary** section:

```
sumDCount([CategoryName])
```



6. Use the **Text Format String** property to format the summary's value.



7. Switch to [Print Preview](#) and see the group count in the report footer:

**Meat/Poultry**

Mishi Kobe Niku  
Alice Mutton  
Thüringer Rostbratwurst  
Perth Pasties  
Tourtière  
Pâté chinois

**Produce**

Uncle Bob's Organic Dried Pears  
Tofu  
Rössle 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:

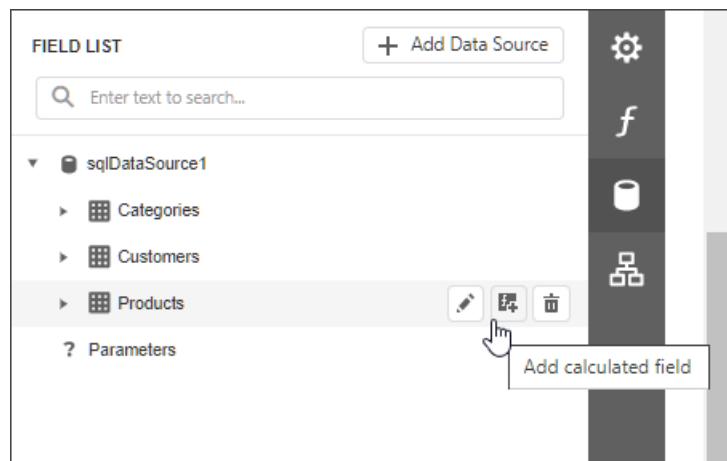
- [Calculated Fields Overview](#)
- [Calculate an Aggregate Function](#)
- [Calculate a Weighted Average Function](#)

# Calculated Fields Overview

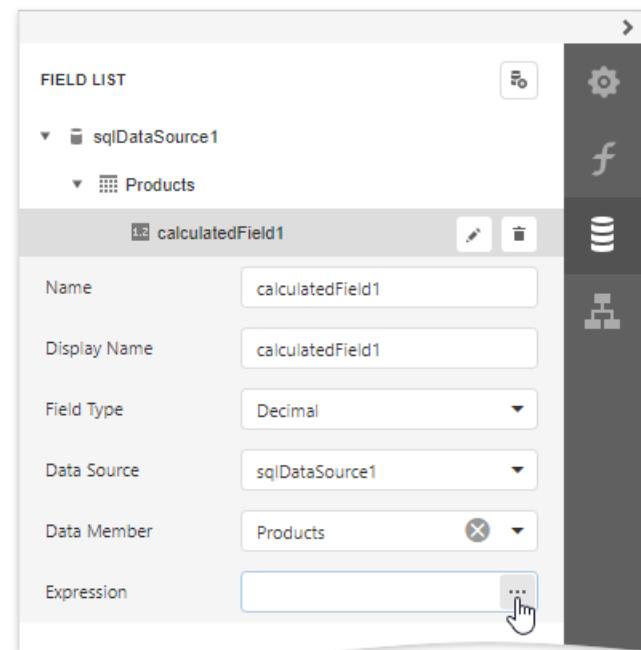
Calculated fields allow you to pre-process a report's input data, based on a certain expression. So, using calculated fields allows you to apply complex expressions to one or more data fields that are obtained from your report's underlying data source. Moreover, you can both [group](#) and [sort](#) your report data based on a calculated field's value.

## Calculated Fields Overview

To create a calculated field, switch to the [Field List](#), select a data table and click **Add calculated field**.



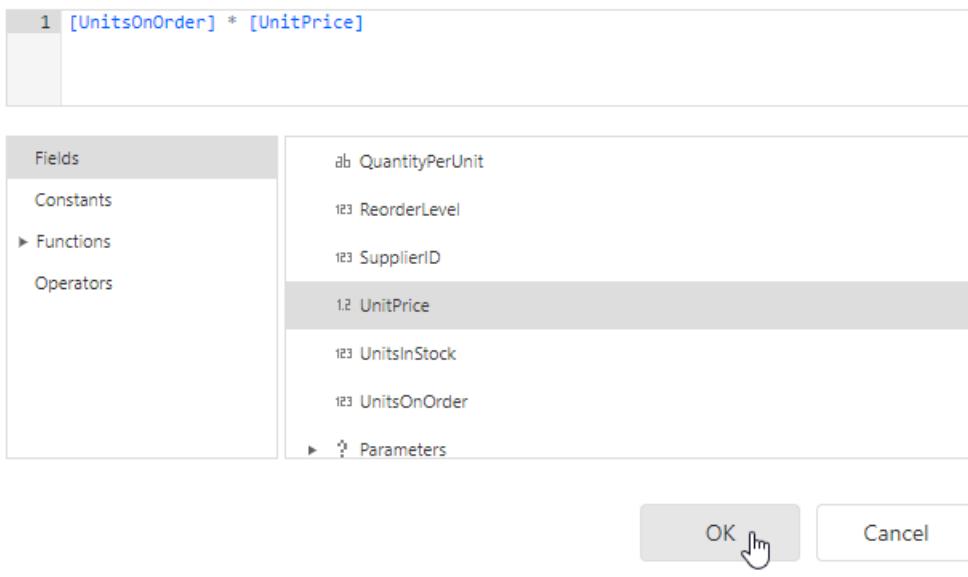
Click the **Edit** button for the calculated field to display calculated field properties. Click the **Expression** property's ellipsis button.



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.

## Expression Editor

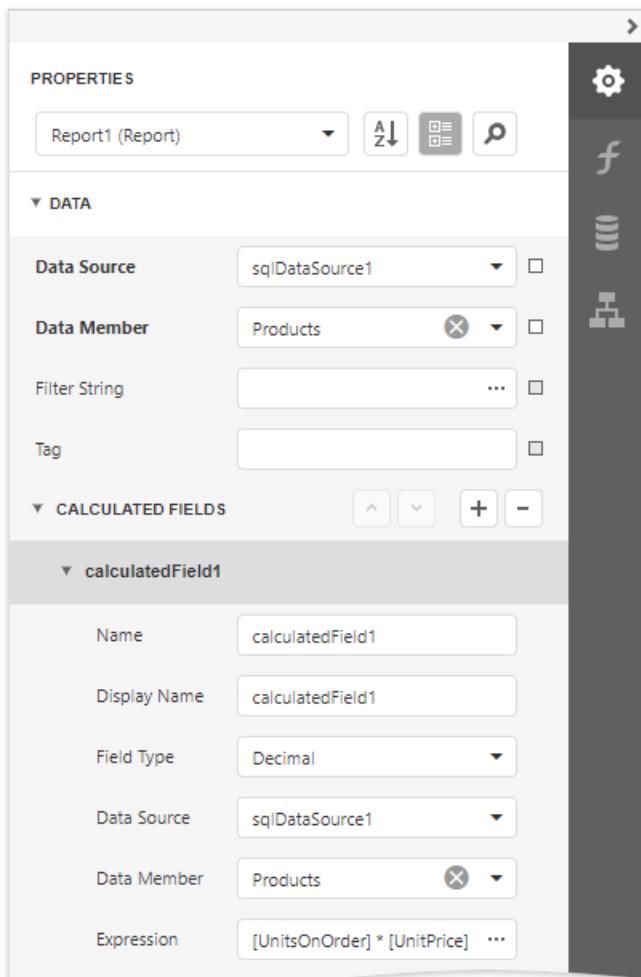
X



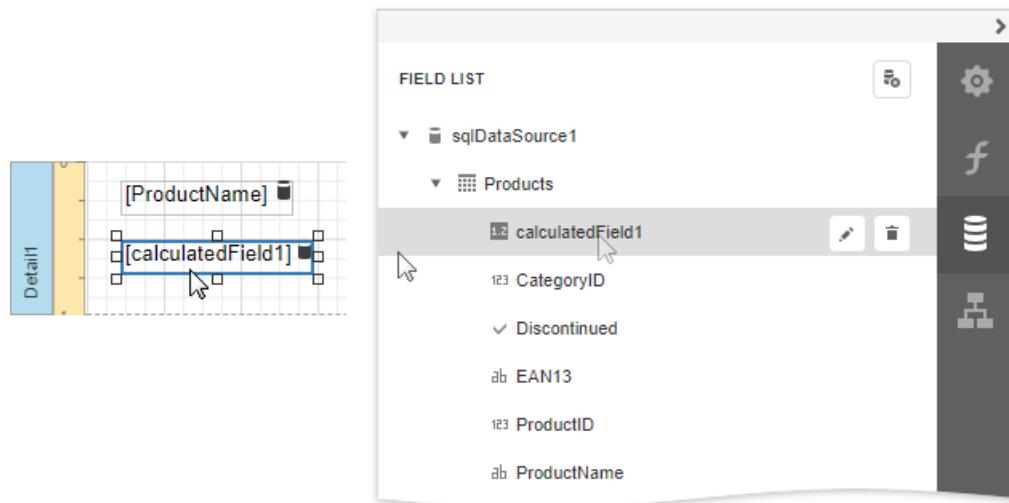
### NOTE

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.

Switch to the [Properties Panel](#), select the **Data** category and expand the **Calculated Fields** section to display the calculated fields collection and manage its items.



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 the "**?**" prefix before their names.

A calculated field's expression can evaluate the values of other calculated fields if you make sure to avoid circular references.

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 Language](#).

## Examples

The following tutorials demonstrate the use of calculated fields in various environments:

- [Calculate an Aggregate Function](#)
- [Calculate a Weighted Average Function](#)
- [Sort Data by a Custom Field](#)
- [Group Data by a Custom Field](#)

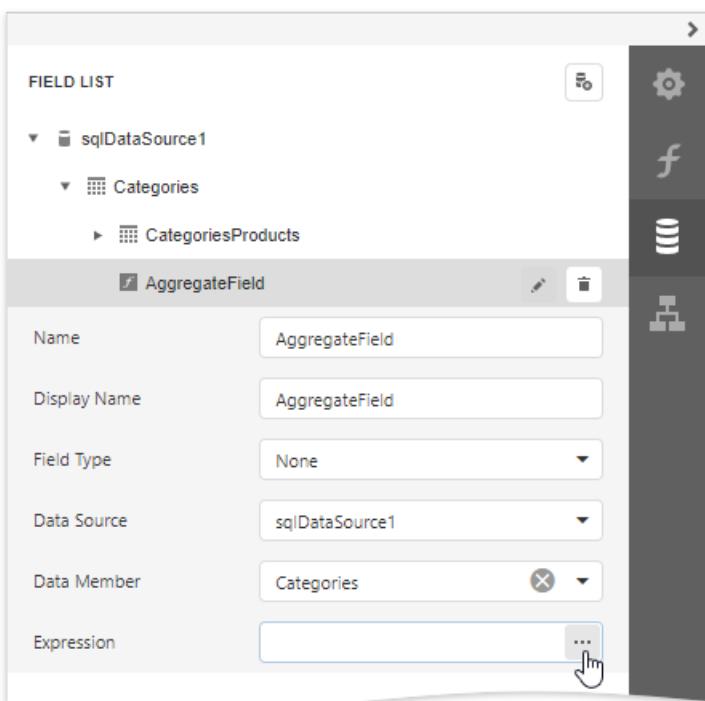
# Calculate an Aggregate Function

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.

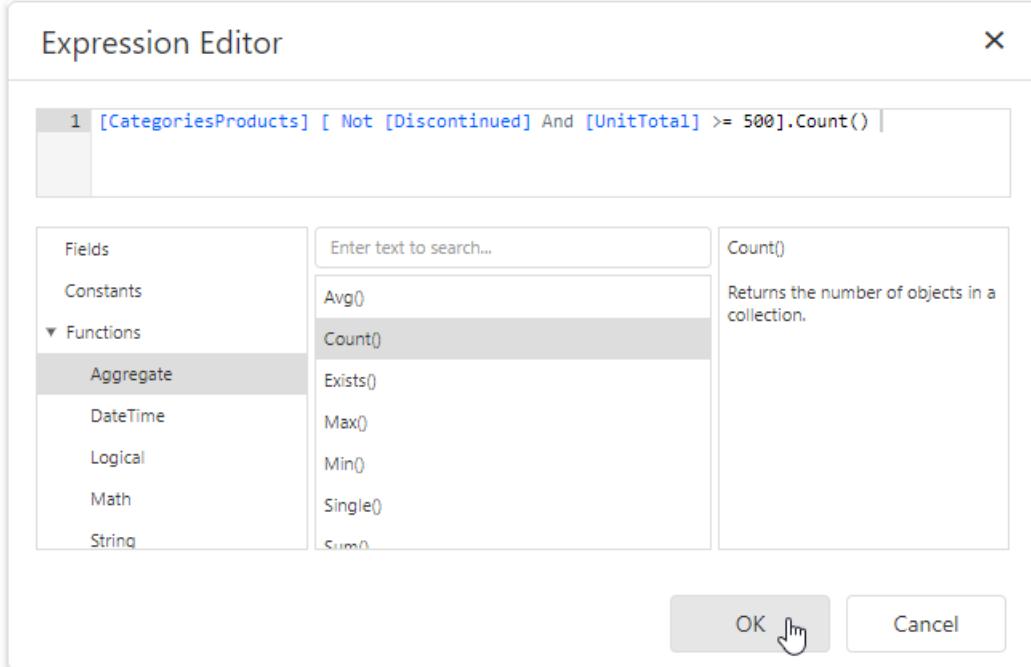
1. Create a new or open an existing data-bound report. This tutorial starts with the following report layout:

Product Name	Units In Stock	Unit Price	Total Unit Value	Discontinued
[ProductName]	[UnitsInStock]	[UnitPrice]	[UnitTotal]	[Discontinued]

2. Create a new **calculated field** and set the field name to "AggregateField".
3. Click the **Edit** button for the calculated field and click the **Expression** property's ellipsis button.



4. 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 Language](#).

5. Click **OK** to close the dialog and save the expression.
6. Add three **Labels** to the **Detail Band** and customize their content as shown in the following image:

Detail1	<b>[CategoryName]</b> <b>Aggregated value* for this category: [AggregateField]</b>				
	<i>* The number of entries in this category that are not discontinued and have a total unit value greater than \$500 (in the following report, these entries are highlighted in red).</i>				
	Product Name	Units In Stock	Unit Price	Total Unit Value	Discontinued
DetailReport1	[ProductName]	[UnitsInStock]	[UnitPrice]	[UnitTotal]	[Discontinued]
Detail2					

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

## Beverages

### Aggregated value\* for this category: 8

\* The number of entries in this category that are not discontinued and have a total unit value greater than \$500 (in the following report, these entries are highlighted in red).

Product Name	Units in Stock	Unit Price	Total Unit Value	Discontinued
Chai	39	\$18.00	\$702.00	False
Chang	17	\$19.00	\$323.00	False
Guaraná Fantástica	20	\$4.50	\$90.00	True
Sasquatch Ale	111	\$14.00	\$1554.00	False
Steeleye Stout	20	\$18.00	\$360.00	False
Côte de Blaye	17	\$263.50	\$4479.50	False
Chartreuse verte	69	\$18.00	\$1242.00	False
Ipoh Coffee	17	\$46.00	\$782.00	False
Laughing Lumberjack Lager	52	\$14.00	\$728.00	False
Outback Lager	15	\$15.00	\$225.00	False
Rhönbräu Klosterbier	125	\$7.75	\$968.75	False
Lakkalikööri	57	\$18.00	\$1026.00	False

# Calculate a Weighted Average Function

This tutorial demonstrates how to calculate a weighted average function in a report, for instance, calculate a weighted average price for the units in stock within each product category:  $\text{Sum}(\text{Unit Price} * \text{Units In Stock}) / \text{Sum}(\text{Units In Stock})$ .

## Beverages

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
Lakkaliköön	\$18.00	57	\$1,026.00

**Weighted Average Price: \$22.33**

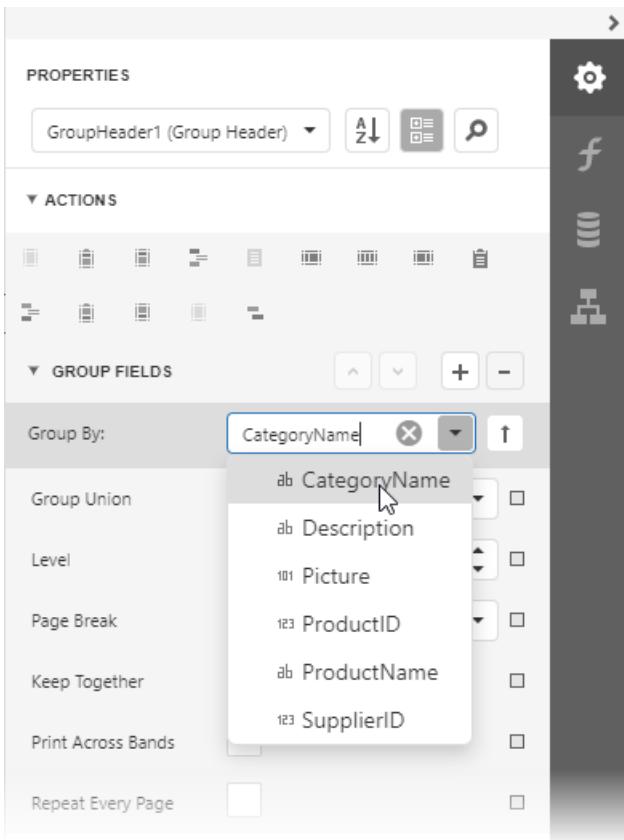
## Use Report Summary Functions (Recommended)

You can calculate a weighted average by specifying a control's expression using several built-in report summary functions.

### NOTE

You can use this approach if expression bindings **are enabled** in the Report Designer (the Designer provides the **Expressions** panel).

1. Open an existing report or create a new one from scratch.
2. Bind a report to a required data source.
3. Insert the **Group Header** band, select the **Group Fields** section in the **Group Header Tasks** category and add a new group field to group the report's data by the required data field.

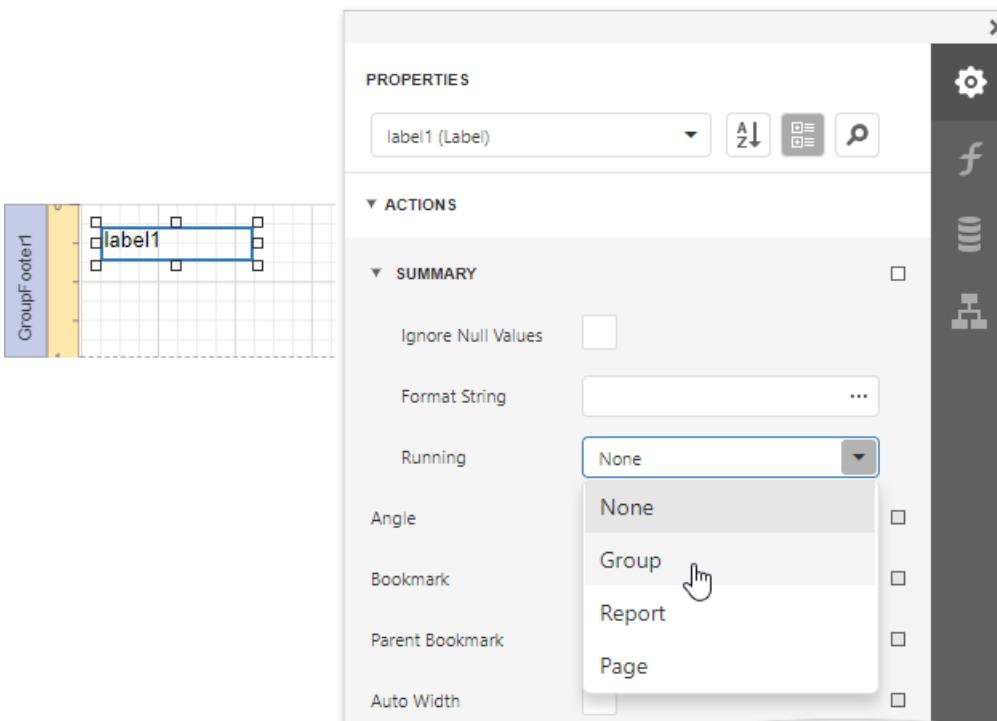


4. Construct a layout like the following:

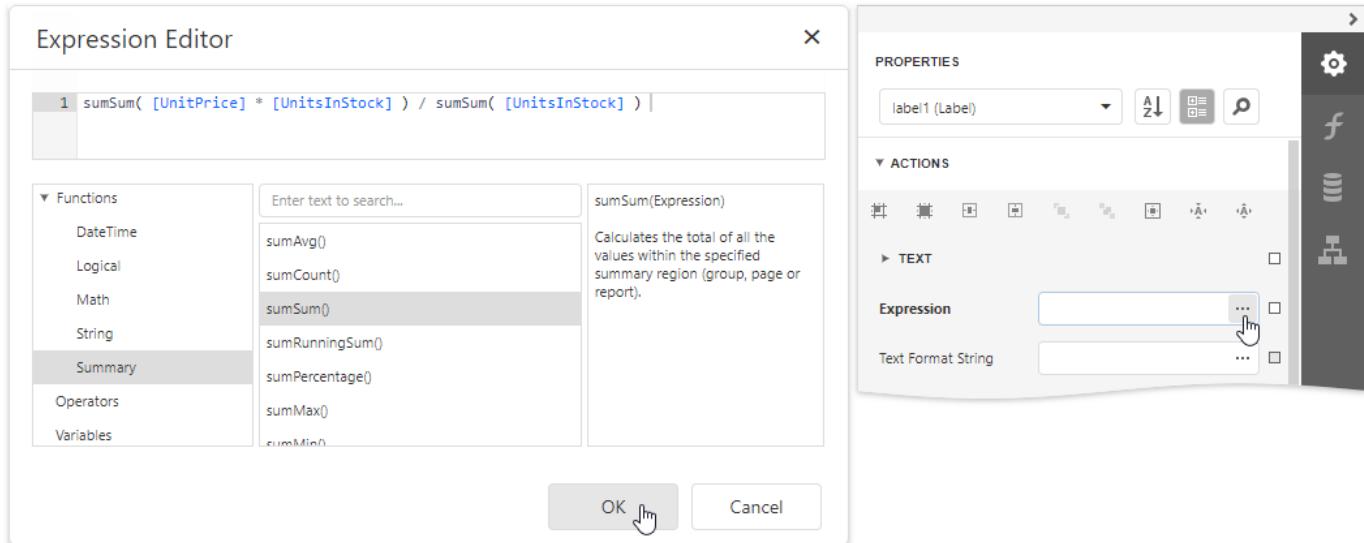
[CategoryName]				
	Product Name	Unit Price	Units In Stock	Extended Price
Detail1	[ProductName]	[UnitPrice]	[UnitsInStock]	[ExtendedPrice]

5. Add the **Group Footer** band to the report and drop a **Label** control on this band to display the summary result.

Expand the **Summary** section in the **Label Tasks** category and set the **Running** property to **Group**.



6. Click the **Expression** property's ellipsis button. This invokes the **Expression Editor** where you can specify a custom expression with multiple built-in functions from the **Functions | Summary** section. Report summary functions start with the "sum" prefix to help differentiate them from aggregate functions.

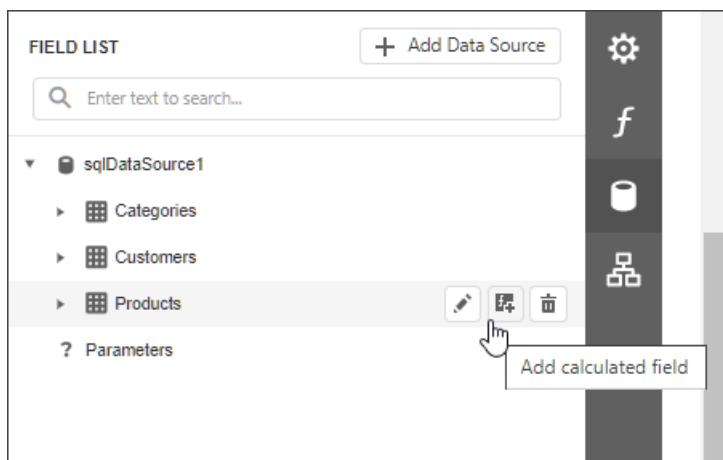


7. You can also use the control's **Format String** property to format the summary's value. For instance, set this property to **Weighted Average Price: {0:c2}**.

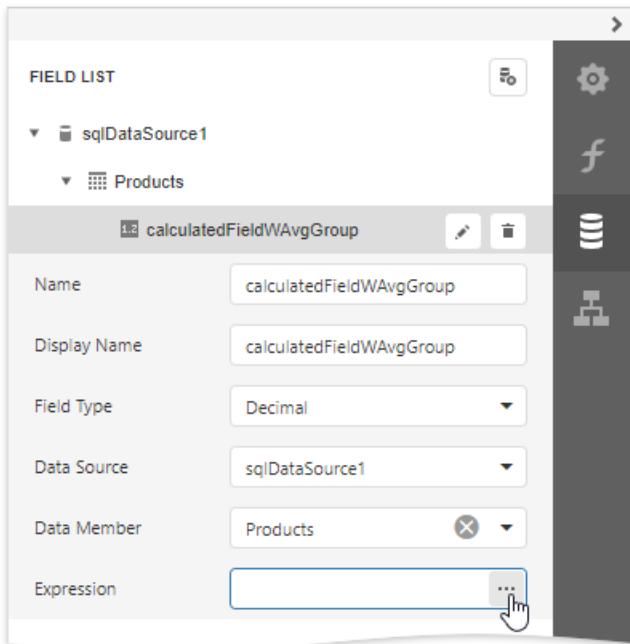
## Use Aggregate Functions

You can create a **calculated field** and use a standard aggregate function in its expression to evaluate a weighted average.

1. [Open an existing report](#) or [create a new one from scratch](#).
2. [Bind a report](#) to a required data source and construct the required report layout.
3. Switch to the [Field List](#), select a data table and click **Add calculated field**.

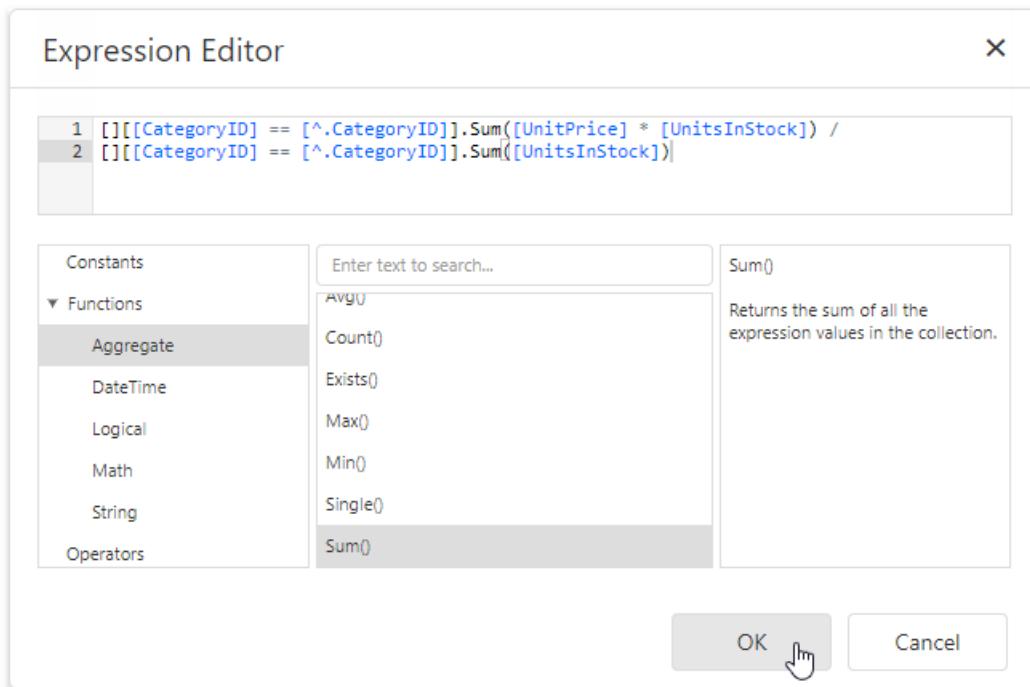


4. Click the **Edit** button for the calculated field to display calculated field properties. Specify the **Name** property, set the **Field Type** to **Decimal** and click the **Expression** property's ellipsis button.



5. In the invoked [Expression Editor](#), specify the expression using the **Sum** aggregate function. For example:

```
[[[CategoryID] == [^.CategoryID]].Sum([UnitPrice] * [UnitsInStock]) / [[CategoryID] ==  
[^.CategoryID]].Sum([UnitsInStock])
```



To construct a valid aggregate expression, use the following format, which consists of four parts.

*[<Collection>][<Condition>].<Aggregate>(<Expression>)*

- o <*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.
- o <*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()).
- o <*Aggregate*> - Specifies one of the available aggregate functions.
- o <*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 Language](#).

6. Add the created calculated field to the report as an ordinary data field and format its value.

# Lay out Dynamic Report Content

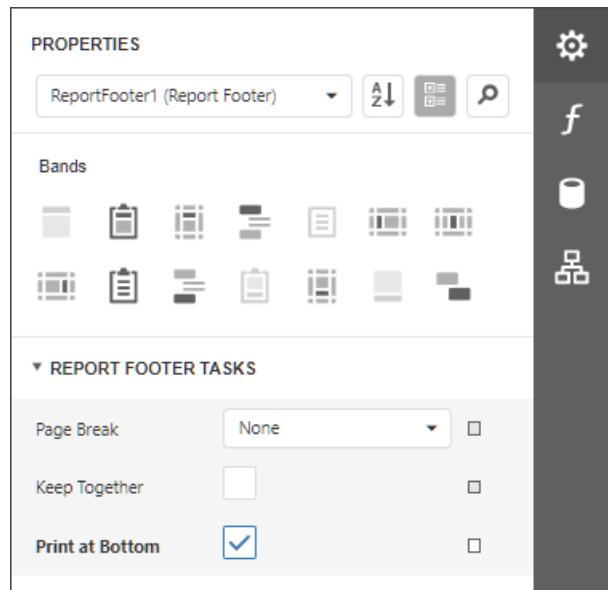
You can use [Print Preview](#) to see what the resulting document looks like because data-aware controls' contents are not available at design time.

This section contain topics 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.



PRINT AT BOTTOM = NO	PRINT AT BOTTOM = YES
<p>This layout shows a series of eight identical text items labeled 'A sample report' arranged vertically. Below them is a horizontal bar labeled 'Report Footer'. The 'Report Footer' bar is positioned below the last of the eight text items, indicating it is not at the bottom of the page.</p>	<p>This layout shows the same series of eight text items. The 'Report Footer' bar is placed directly below the eighth text item, demonstrating that the footer is now at the bottom of the page.</p>

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.

**PROPERTIES**

PageHeader1 (Page Header)

Bands

**PAGE HEADER TASKS**

Print Across Bands

Print On

**STYLES**

All Pages

Not with Report Header

Not with Report Footer

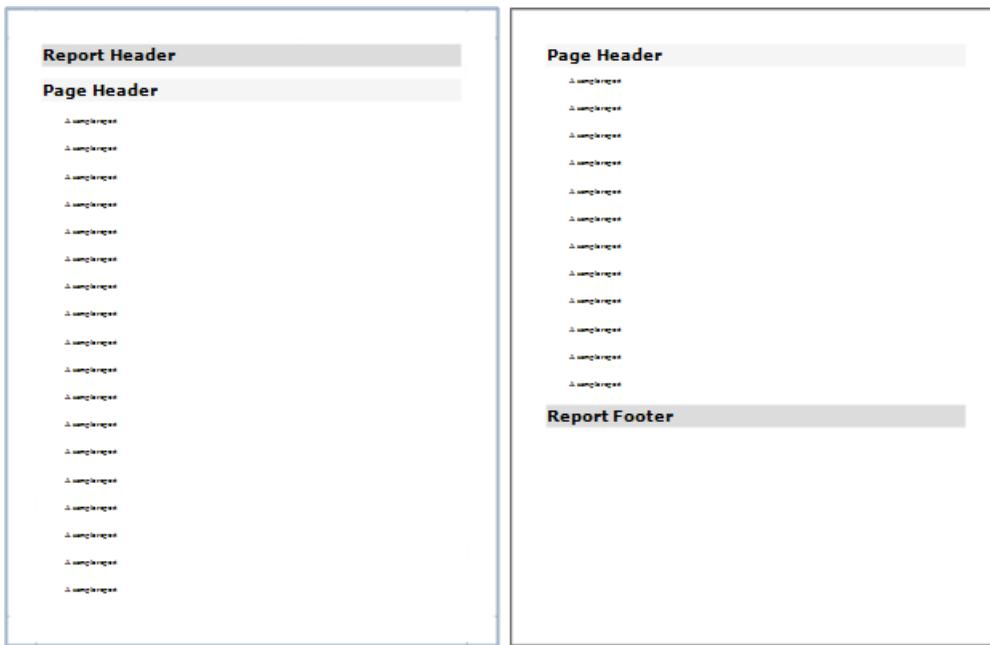
Not with Report Header...

Background Color

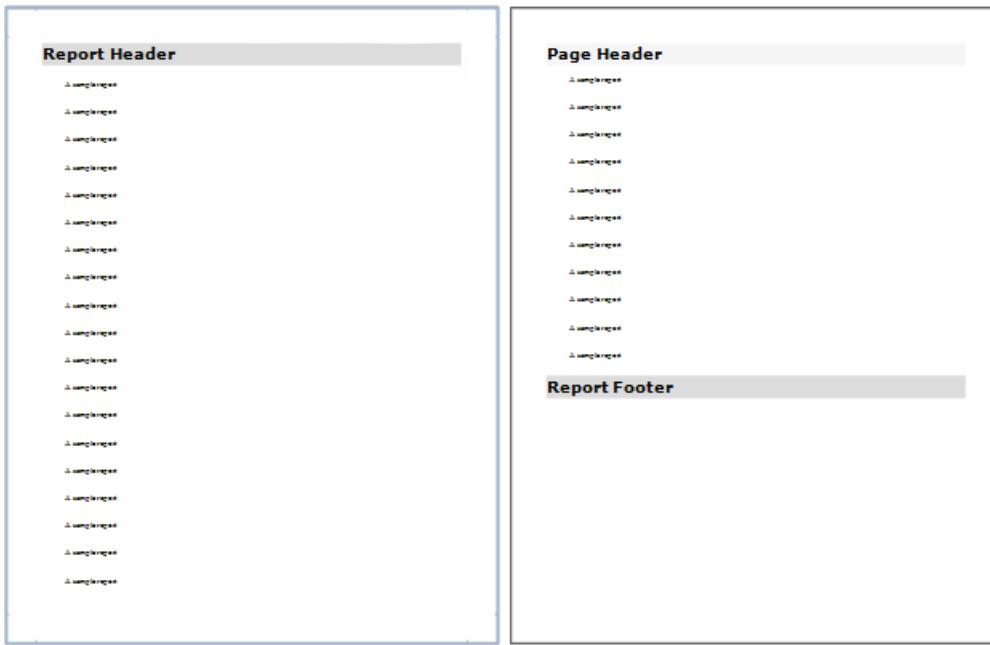
Border Color   rgba(0, 0, 0, 1)

Border Dash Style

- 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.

**PROPERTIES**

GroupHeader1 (Group Header)

**Bands**

**GROUP HEADER TASKS**

- Page Break: None
- Keep Together:
- Print Across Bands:

**GROUP FIELDS**

- Group Union: None
- Level: 0
- Repeat Every Page:

- **Repeat Every Page = No**

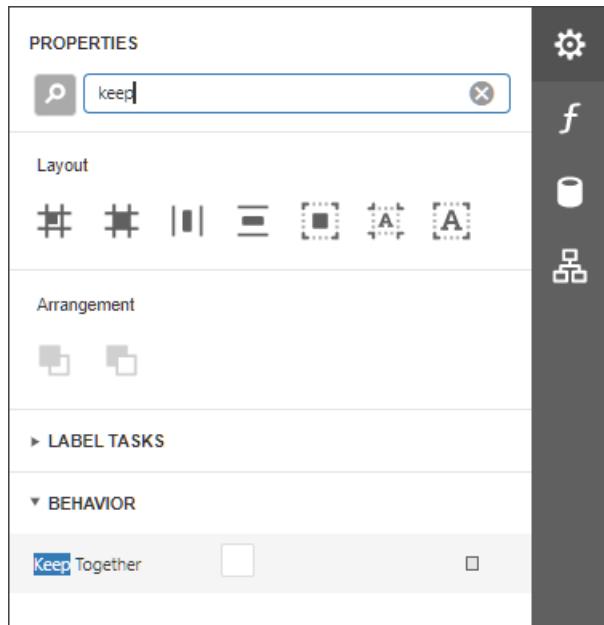
<b>Category ID: 1</b>	
One	Output Log
Two	Database Cluster
Three	Database
<b>Category ID: 2</b>	
Four	Input Log
Five	Output Log
Six	Output Log
Seven	Output Log
Eight	Output Log
Nine	Output Log
Ten	Output Log

- Repeat Every Page = Yes

<b>Category ID: 1</b>	
One	Output Log
Two	Database Cluster
Three	Database
<b>Category ID: 1</b>	
Four	Input Log
Five	Output Log
Six	Output Log
Seven	Output Log
Eight	Output Log
Nine	Output Log
Ten	Output Log

# 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.

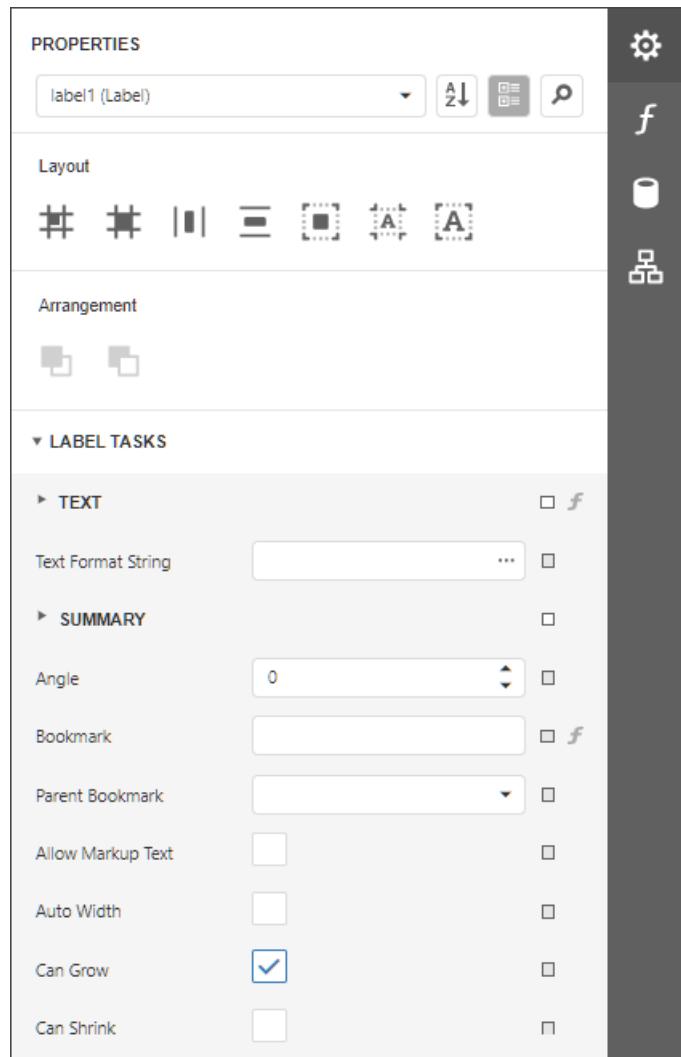
NOTE

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.

## Maintain the Size and Content of Data-Bound Controls

Use the control's **Can Grow** and **Can Shrink** properties to make a data-bound control automatically adjust its height to its contents.



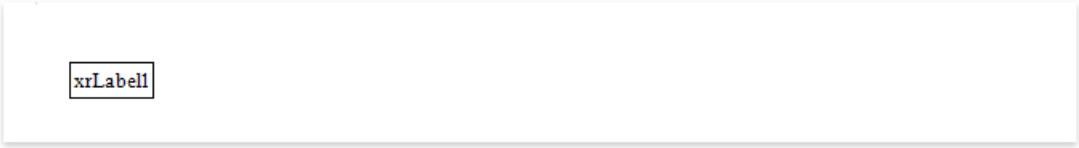
CAN GROW = NO	CAN GROW = YES
A control with some lengthy content... A control with some lengthy content... A control with some le	A control with some lengthy content...
CAN SHRINK = NO	CAN SHRINK = YES
A control with some content...	A control with some content...

## NOTE

This feature does not work with anchoring enabled, as well as for labels that are used to display summary function results.

Use the **Auto Width** property to make a data-bound [Label](#) or [Character Comb](#) automatically adjust its width to its content. This option behavior depends on the control's current horizontal alignment (**Text Alignment** property value).

- **Text Alignment = Left**



xrLabel1

- **Text Alignment = Right**



xrLabel1

- **Text Alignment = Center**

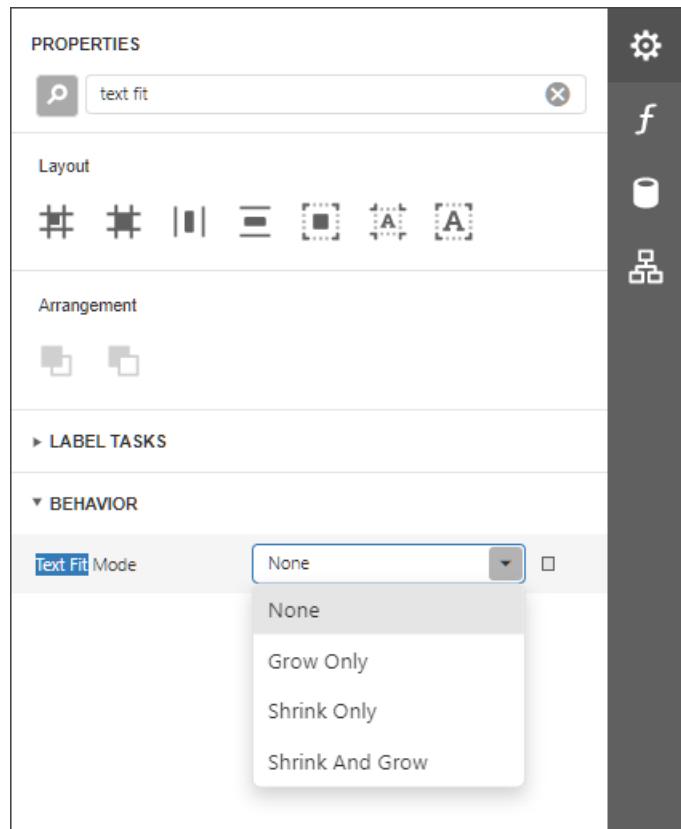


xrLabel1

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 label.	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. Images below show how the **Text Fit Mode** property affects the label's font size.



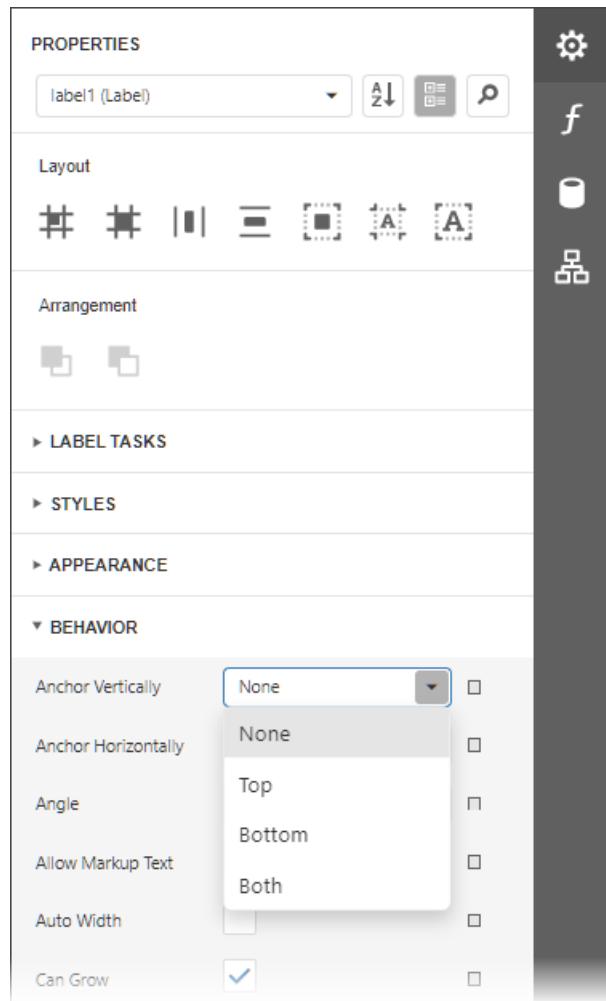
TEXT FIT MODE = NONE	TEXT FIT MODE = GROW ONLY	TEXT FIT MODE = SHRINK ONLY	TEXT FIT MODE = SHRINK AND GROW
A label with some lengthy content...			
A label with some lengthy content...			

This property is not available in the following cases:

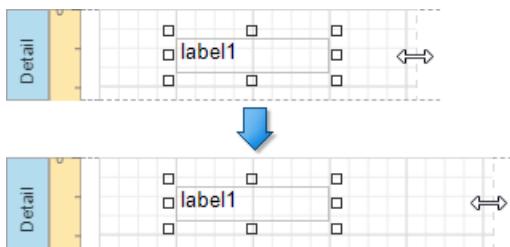
- The **Can Grow**, **Can Shrink** or **Auto Width** option is enabled;
- The label's **Angle** property is specified;
- The control's **Anchor Horizontally** or **Anchor Vertically** property is set to **Both**.

# Anchor Controls

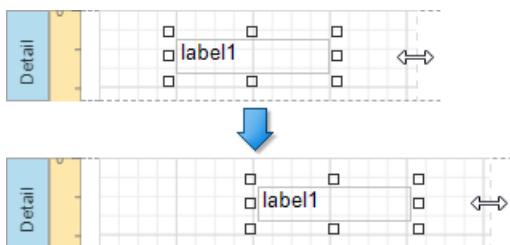
You can anchor a control to the top, bottom, or both edges of its parent container using the **Anchor Horizontally** and **Anchor Vertically** properties.



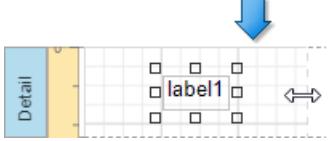
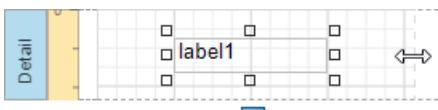
- **Anchor Horizontally = None**



- **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**

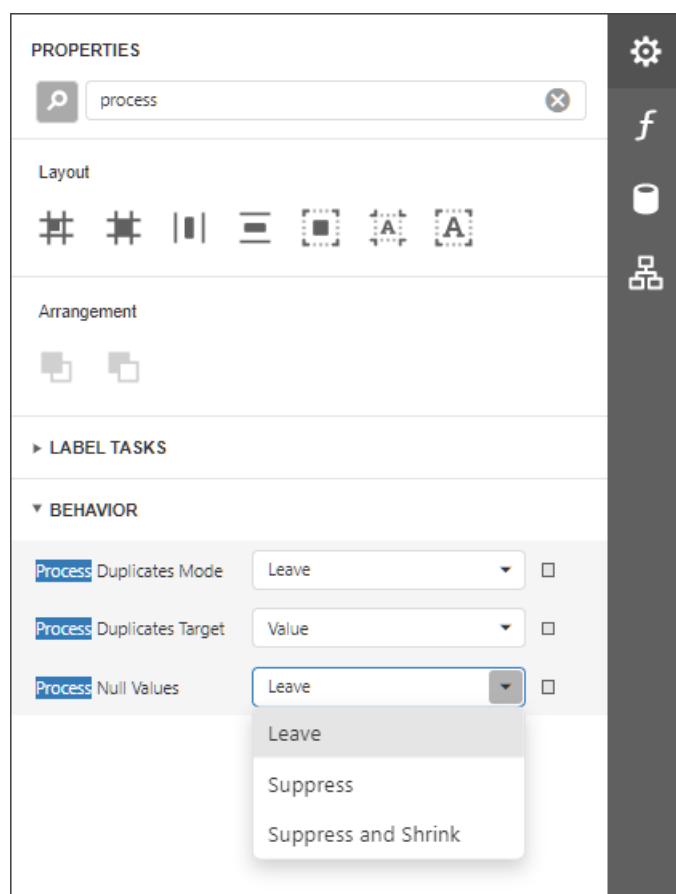
Specifies how to process report controls with identical values (leave them as is, merge, suppress, or suppress and shrink).

- **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.



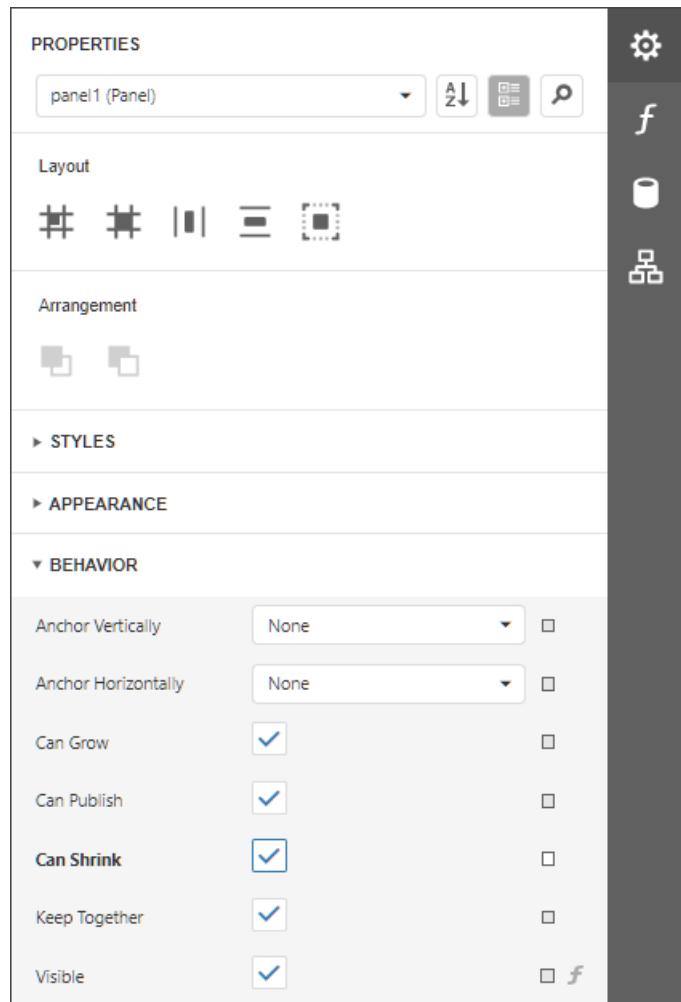
These properties are available for the following controls:

- [Barcode](#)
- [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 setting its **Can Shrink** property to **true**.



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](#)

# 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.

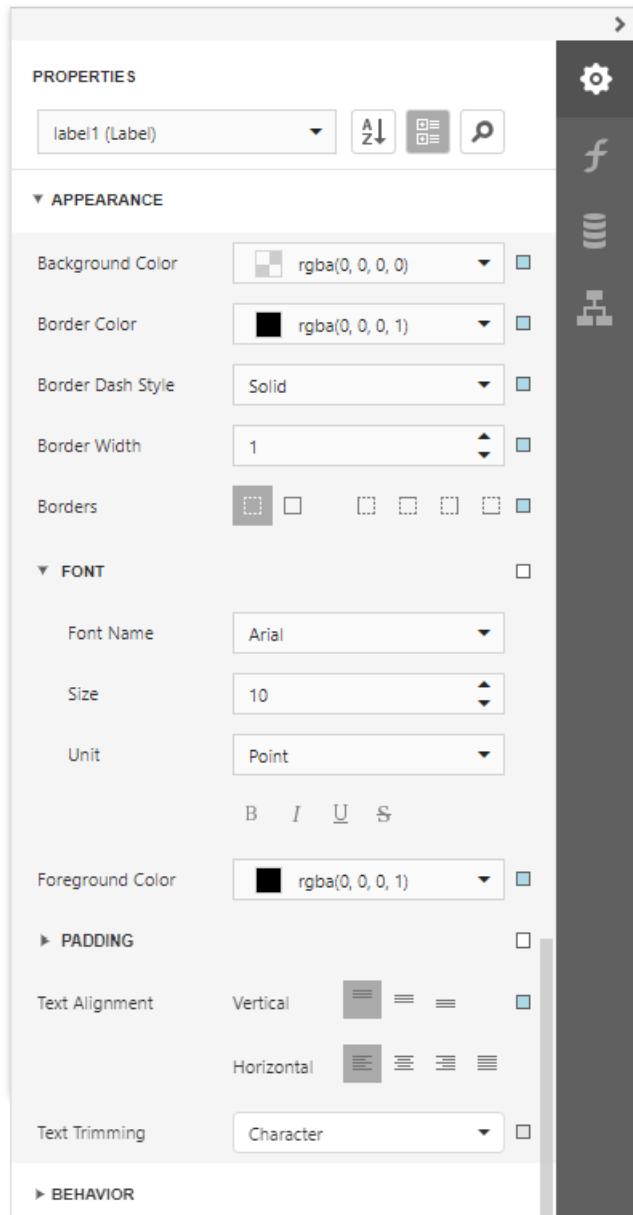
## Properties Overview

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
<b>BackgroundColor</b>	Gets or sets a background color to a report element and its child controls.
<b>BorderColor</b>	Gets or sets a border color to a report element and its child controls.
<b>BorderDashStyle</b>	Gets or sets a border dash style to a report element and its child controls.
<b>Borders</b>	Gets or sets borders (top, right, bottom, left), which should be visible for a report element and its child controls.
<b>BorderWidth</b>	Gets or sets a border width to a report element and its child controls.
<b>Font</b>	Gets or sets the font options (its name, size, etc.) to a report element and its child controls.
<b>ForegroundColor</b>	Gets or sets the foreground color to a report element and its child controls.
<b>Padding</b>	Gets or sets the indent values which are used to render the contents of a report element and its child controls.
<b>TextAlignment</b>	Gets or sets the text alignment to a report element and its child controls.

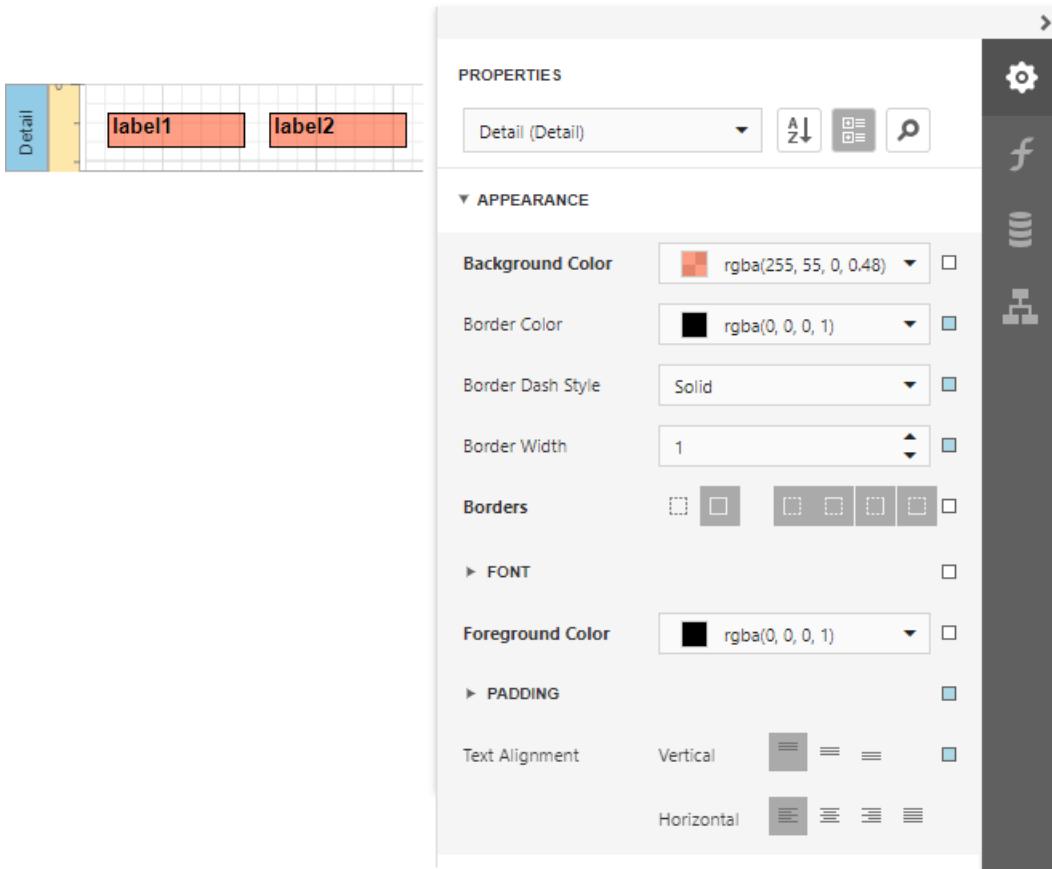
## Access Appearance Properties

Use the Report Designer's [Properties](#) panel to access the appearance properties.



## Property Value Inheritance

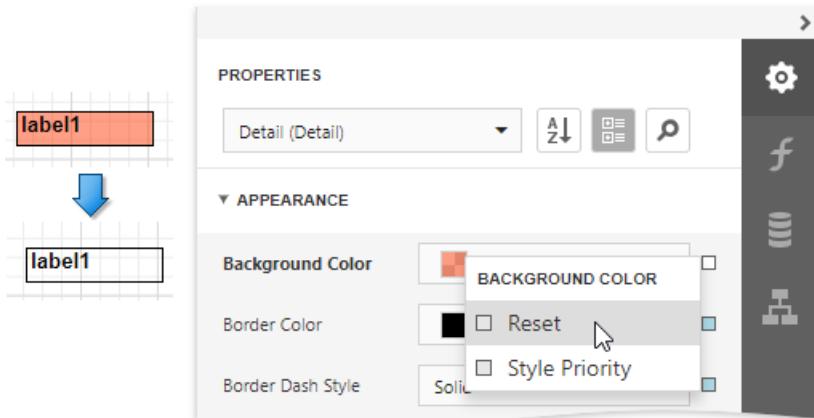
By default, appearance properties for every control or a band are set to empty values, which means that their real values are obtained from a control's parent, or a parent of its parent and so on.



#### NOTE

The appearance properties may not be used by all descendants of the current report element for which they are defined. For example, the **PageBreak** element ignores the **BackColor** property.

To reset values of these properties, click the button to the right of the editor, and in the invoked popup menu, select **Reset**. 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

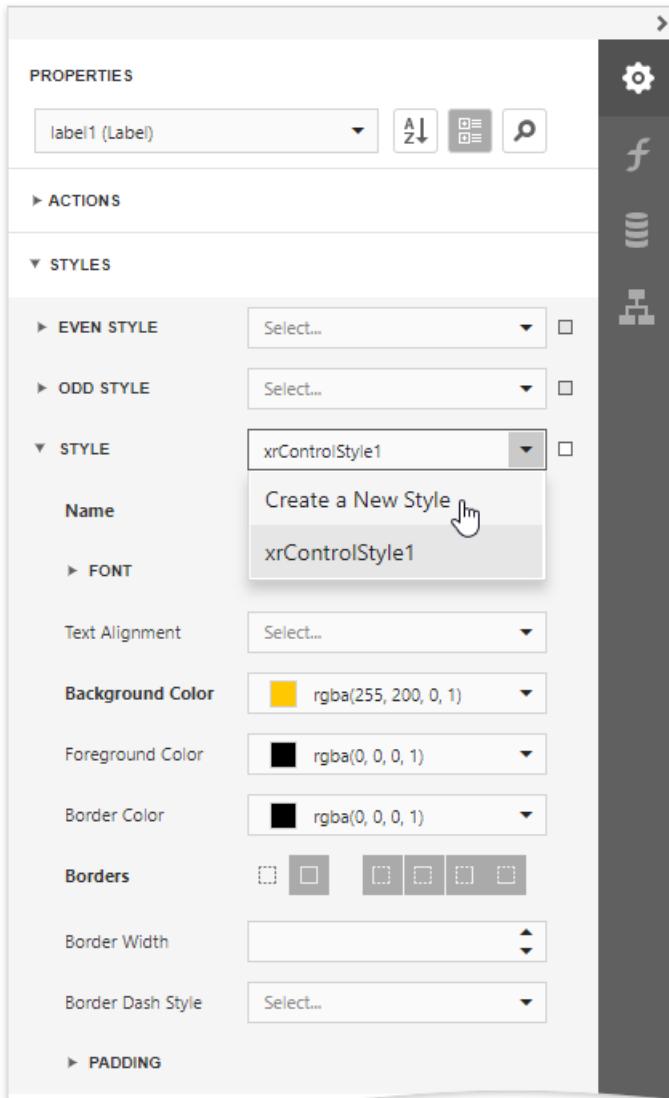
This topic describes how to combine [appearance properties](#) into styles and apply them to report elements.

## Create a Report Style

Use the following approaches to create a visual style in your report:

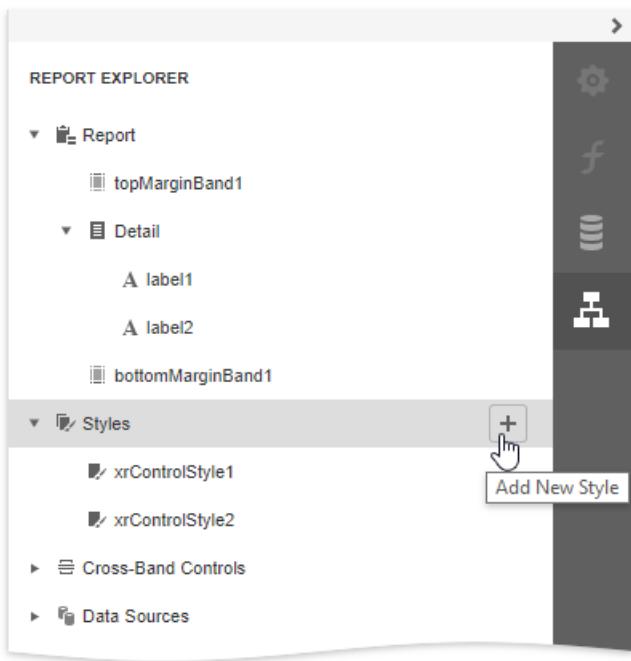
- **Use the Properties Panel**

Expand the [Properties](#) panel's **Styles** category, click the drop-down list for the **Style** property and select **Create a New Style**.



- **Use the Report Explorer**

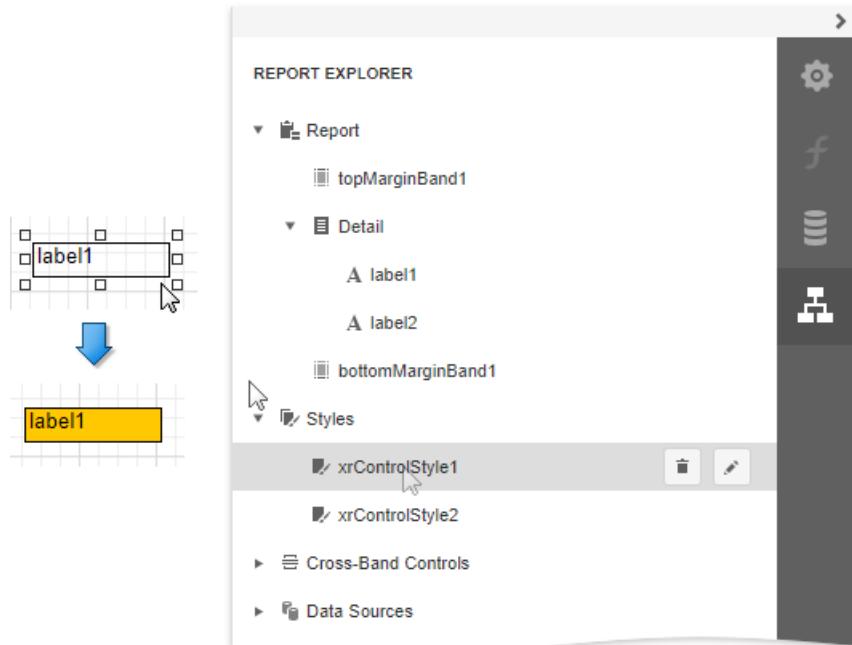
Switch to the [Report Explorer](#) panel, select the **Styles** node and click the plus button to add a new report visual style.



To access the collection of added report visual styles, expand the **Styles** category in the [Report Explorer](#).

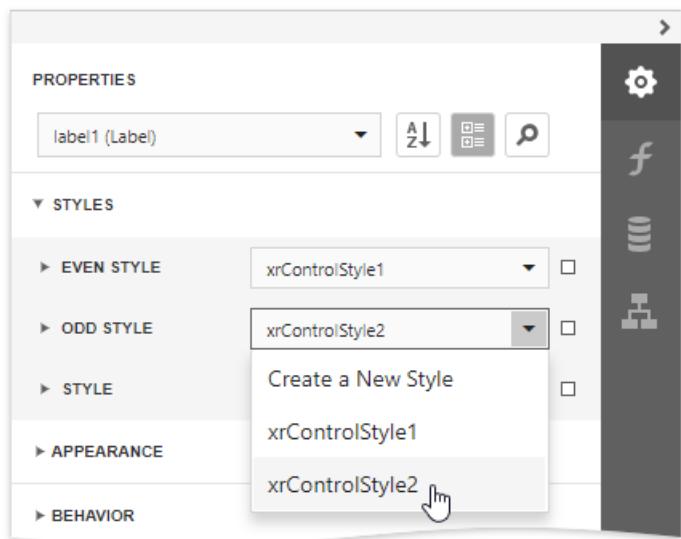
## Assign a Style to a Report Element

Drag a report style from the Report Explorer onto a report control. This assigns the style to the report element's **Style** property.



## Assign Odd and Even Styles

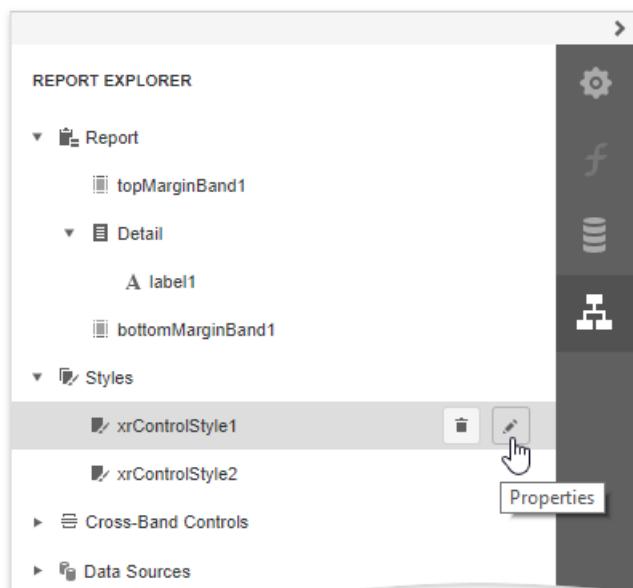
You can use the **Odd Style** and **Even Style** properties to apply different styles to alternating rows in a report.



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

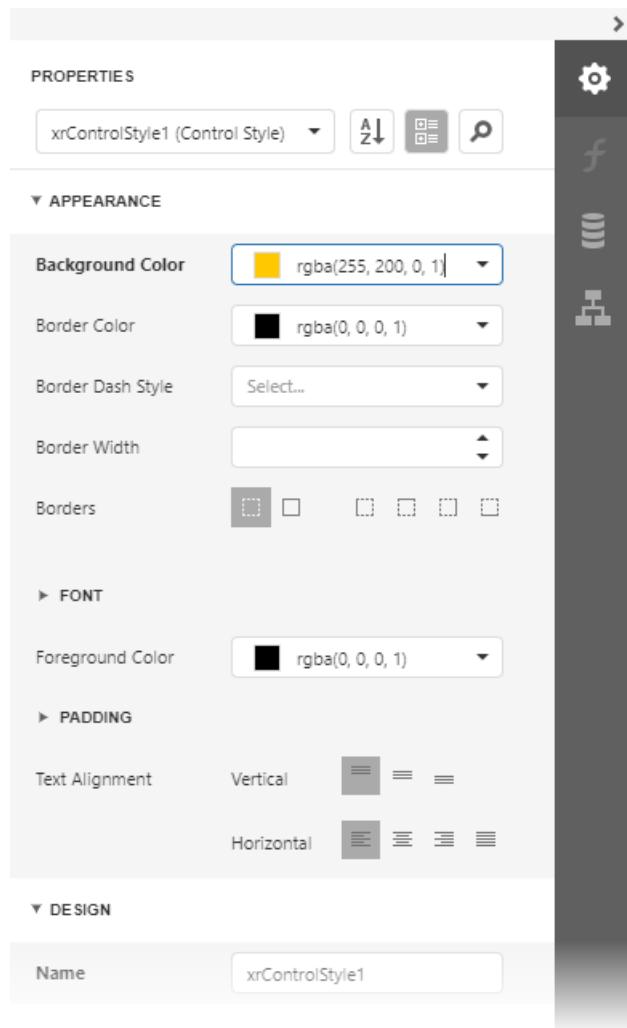
## Customize a Style

Select a style and click the **Properties** button in the Report Explorer.



This opens the Properties panel where you can adjust the settings of the selected style. 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.

### NOTE

If you apply [conditional formatting](#), its appearance property values have a higher priority than both the individually specified properties and the style's properties.

# 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.

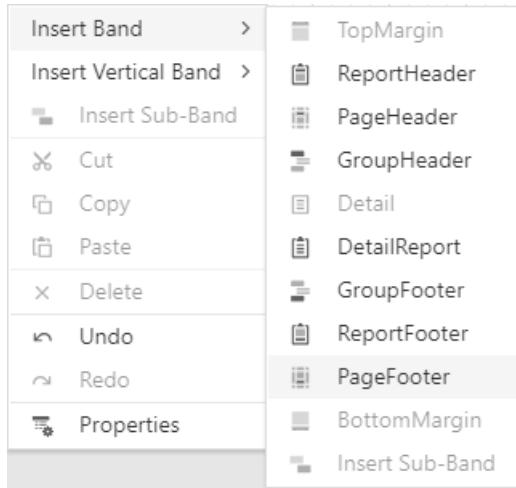
# Add Page Numbers

The tutorial describes how to add page numbers to your reports.

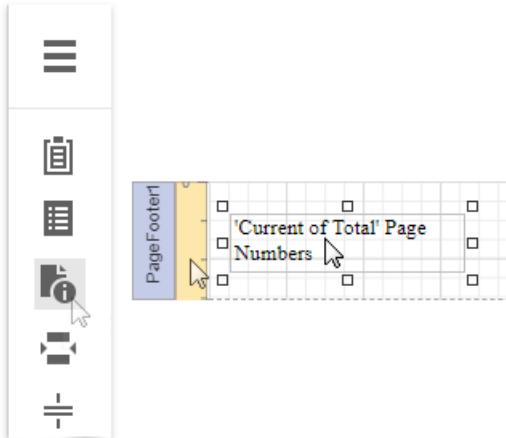
## Add Page Numbers

Do the following to add page numbers to a report:

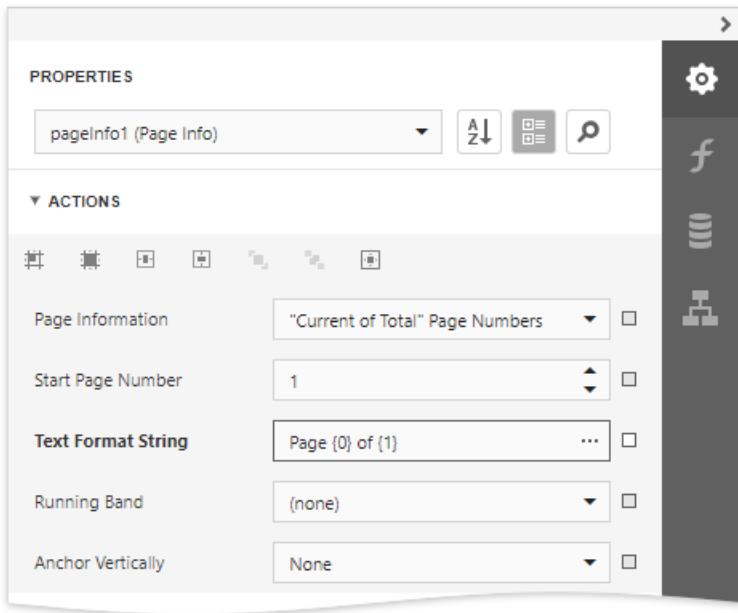
- Create a [PageFooterBand](#) in your report. To do this, select **Insert Page Footer Band** in the context menu.



- Drop the [PageInfo](#) control from the [Toolbox](#) to the **Page Footer** band.



- To change the control's display format, 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) in the **Page Info Tasks** category.



The following image illustrates the resulting report:

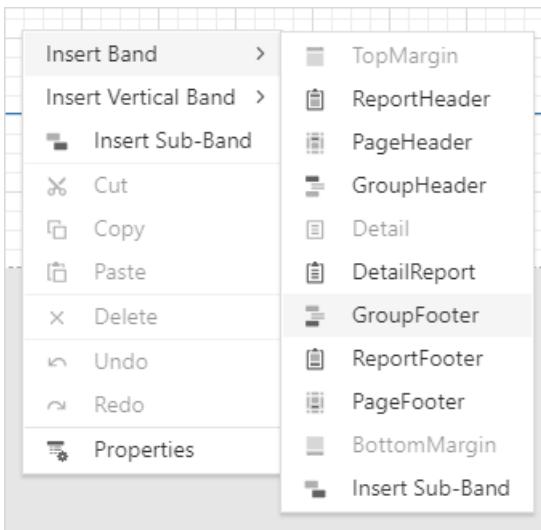
Gula Malacca	\$19.45
Røgede sild	\$9.50
Spegesild	\$12.00
Zaanse koeken	\$9.50
Chocolade	\$12.75
Maxilaku	\$20.00
Valkoinen suklaa	\$16.25
Manjimup Dried Apples	\$53.00
Filo Mix	\$7.00
Perth Pasties	\$32.80
Tourtière	\$7.45
Pâté chinois	\$24.00
Gnocchi di nonna Alice	\$38.00
Ravioli Angelo	\$19.50
Escargots 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:

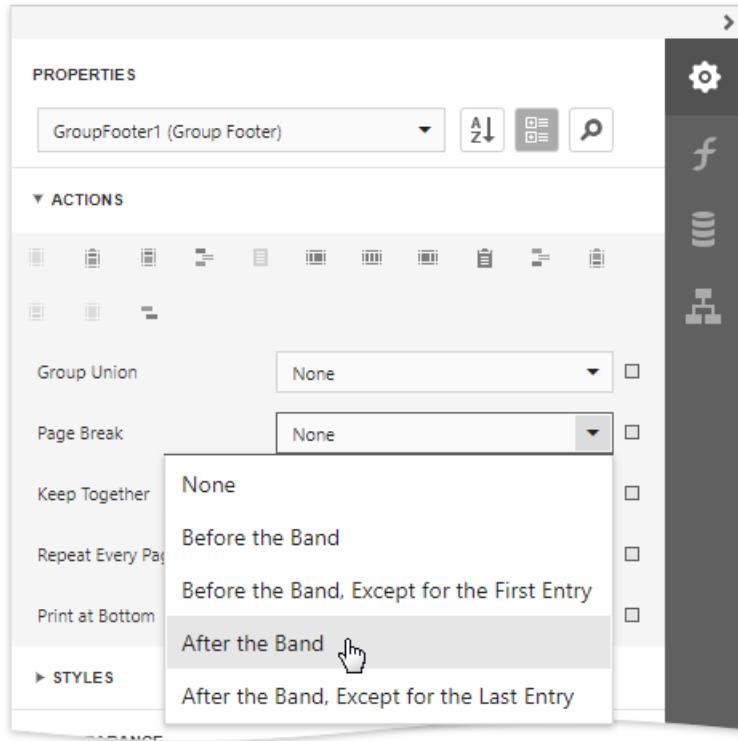
- Add the **Group Footer** band. To do this, select **Insert Group Footer Band** in the context menu.



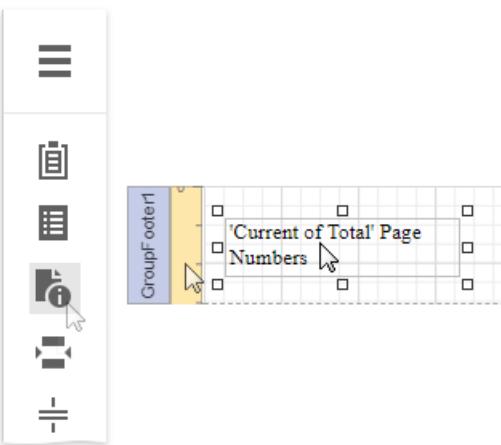
#### NOTE

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.

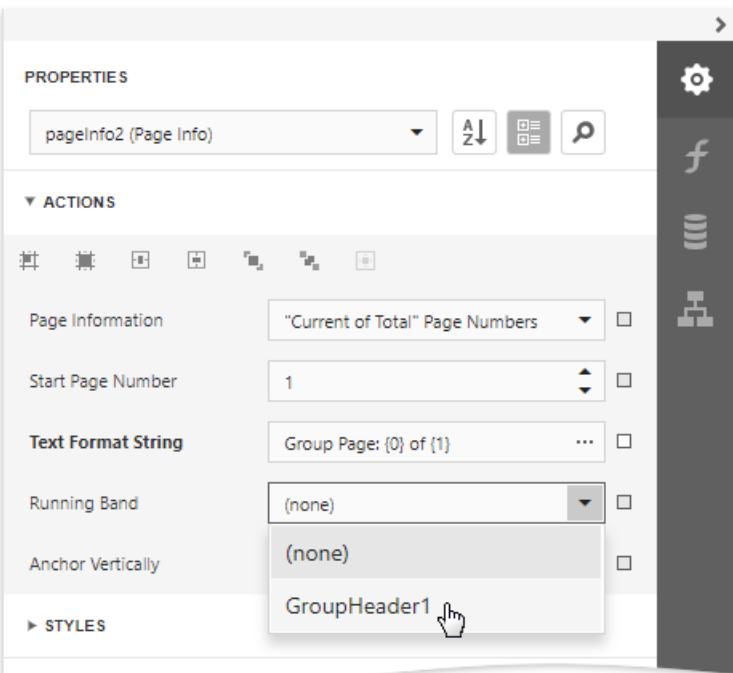
- Next, force each new group to start on a separate page. Otherwise, group page numbers will be calculated incorrectly.  
To do this, select the Group Footer, and set its **Page Break** property to *After the Band*.



- Drop the **PageInfo** control from the **Toolbox** onto the **Group Footer** (or **Group Header**) 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:

## Beverages

Côte de Blaye  
Chartreuse verte  
Ipoh Coffee  
Laughing Lumberjack Lager  
Outback Lager  
Rhönbräu Klosterbier  
Lakkalikööri

Group Page: 2 of 2

# Add Cross-References and Hyperlinks

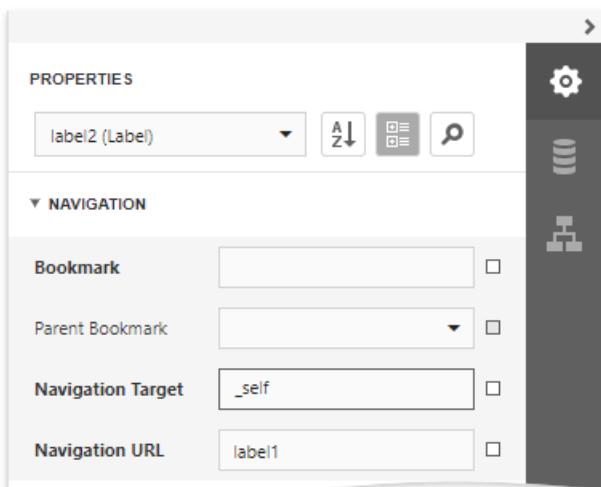
This document describes how to make an element navigate to other elements in a report or external resources by clicking it in a Print Preview.

## Add Cross-References

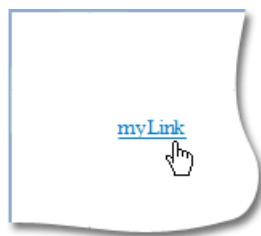
You can improve report navigation using a cross-reference because the link's target is in the same document.

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.

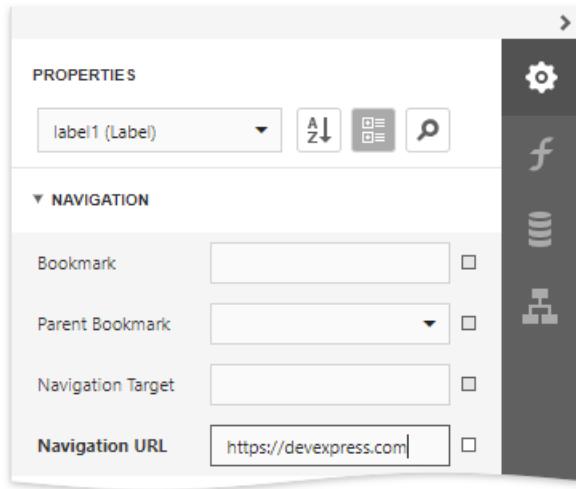
### TIP

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.).

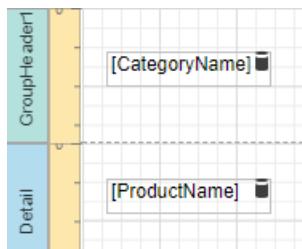
#### TIP

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:



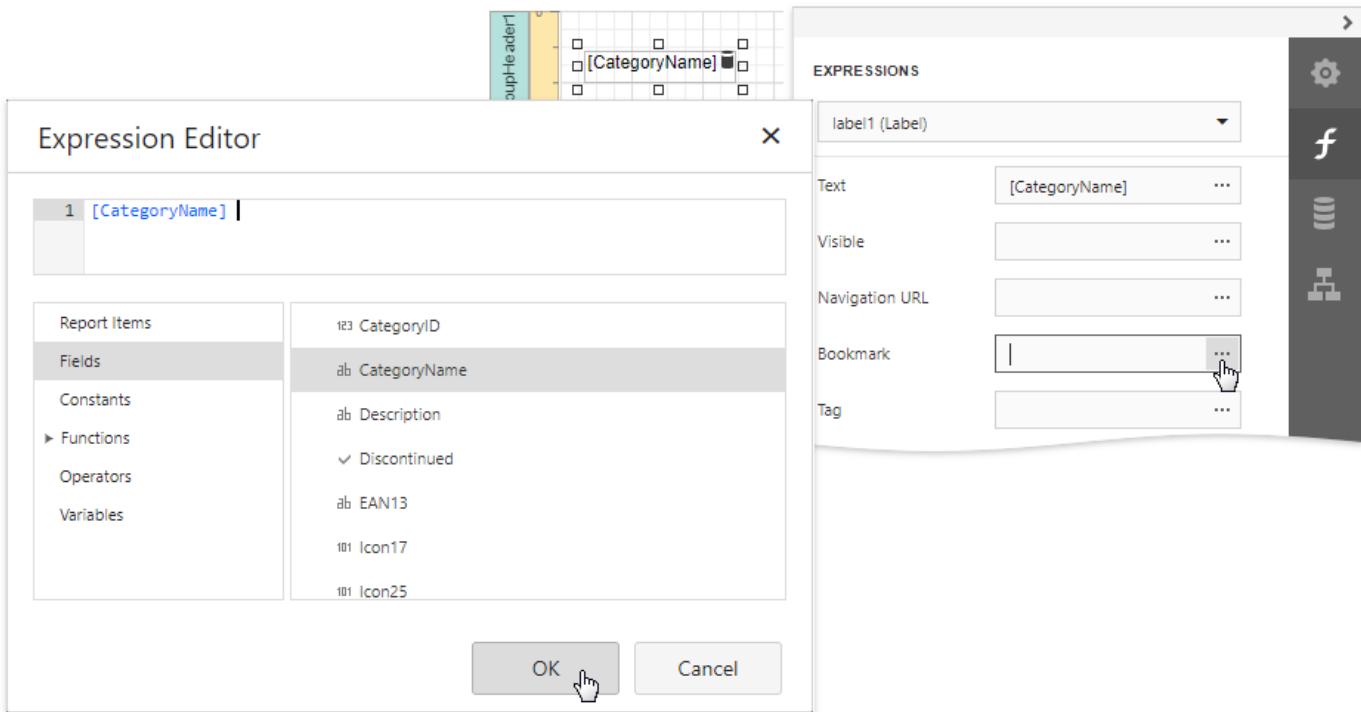
This report displays products that are [grouped](#) by the **CategoryName** field.

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.

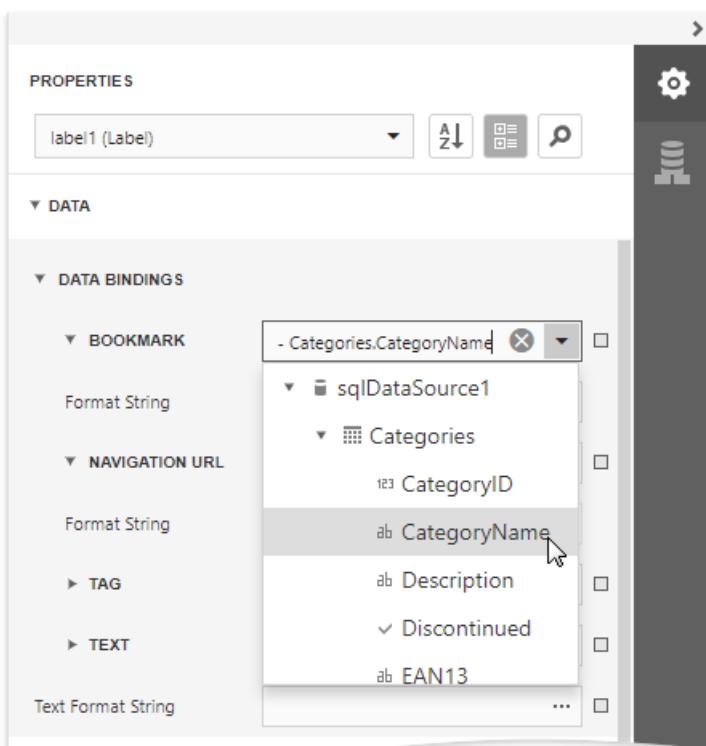
A screenshot of a report preview window. On the left, the report content is displayed in two sections: 'Beverages' and 'Condiments'. The 'Beverages' section lists products like Chai, Chang, etc. The 'Condiments' section lists products like Aniseed Syrup, Chef Anton's Cajun Seasoning, etc. On the right, a 'DOCUMENT MAP' sidebar is open, showing a hierarchical tree structure. The root node is 'Table of Contents', which branches into 'Beverages' and 'Condiments'. Under 'Beverages', all the product names from the report content are listed. Under 'Condiments', the same product names are listed. The sidebar also includes icons for settings, search, and refresh.

Use the following steps to generate a Document Map in your grouped report.

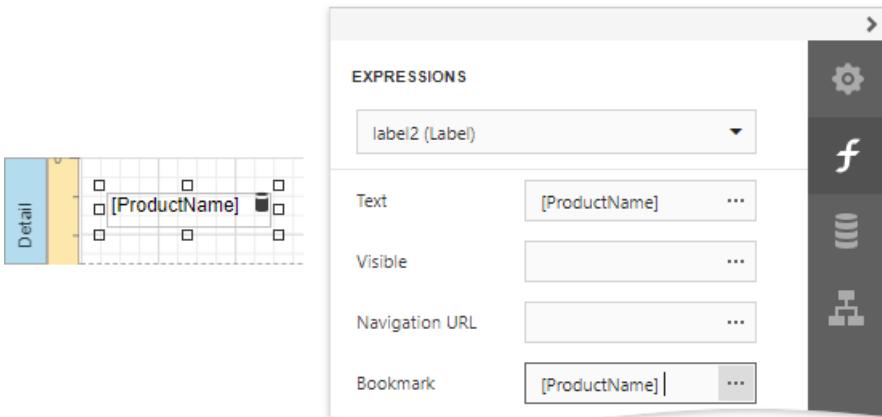
1. Select the label placed in the **Group Header** band and switch to the [Expressions](#) panel. Click the **Bookmark** property's ellipsis button, and in the invoked [Expression Editor](#), select the **CategoryName** data field.



In the legacy binding mode (if the Designer does not provide the **Expressions** panel), you can specify this property in the **Properties** panel's **Data Bindings** category.

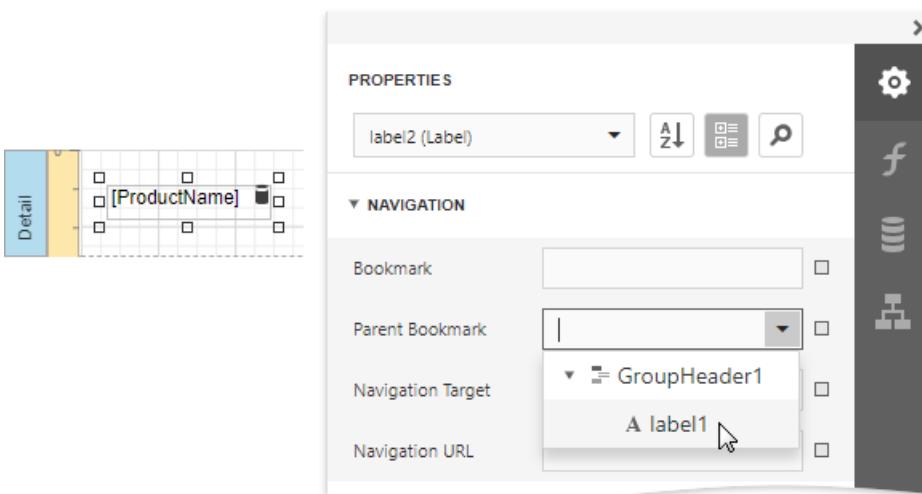


2. In the same way, select the label in the **Detail** band and bind its **Bookmark** property to the **ProductName** data field.



Most of the reporting controls (for example, [Table](#), [TableCell](#), [CheckBox](#), etc.) supports the **Bookmark** property.

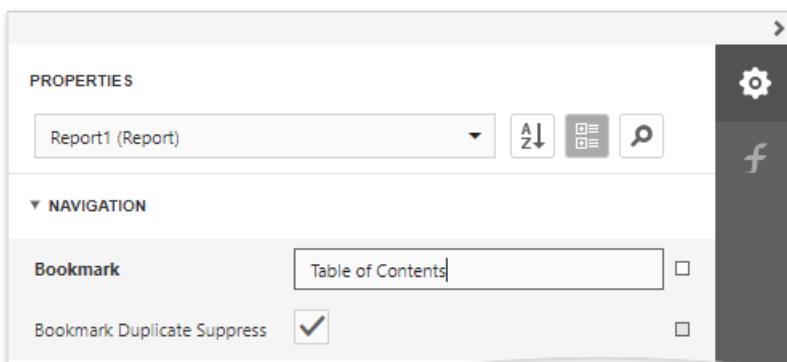
- Set the same label's **Parent Bookmark** property to the label in the group band. This arranges bookmarks into a parent-child structure reflecting the report elements' hierarchy in the Document Map.



#### NOTE

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

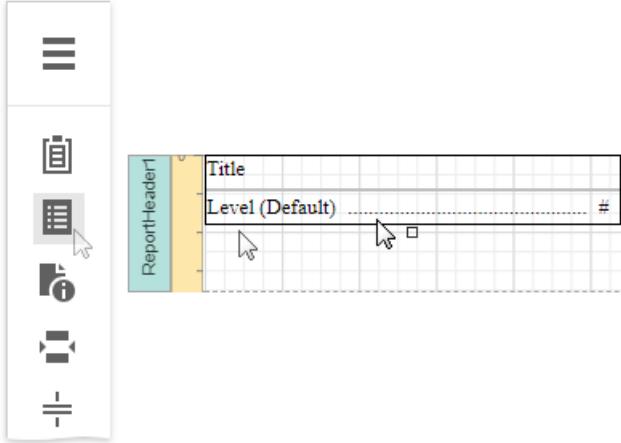
Duplicated bookmarks are suppressed to prevent adding multiple bookmarks with the same name to a final document. You can disable the report's **Bookmark Duplicate Suppress** property to allow duplicated bookmarks.

# Create a Table of Contents

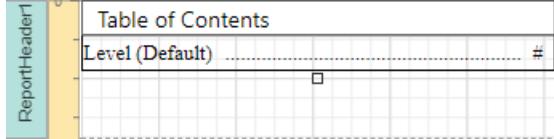
This tutorial describes the steps to create a report with a table of contents. A table of contents is automatically created based on the [bookmarks](#) existing in a report.

To create a table of contents in a report, do the following.

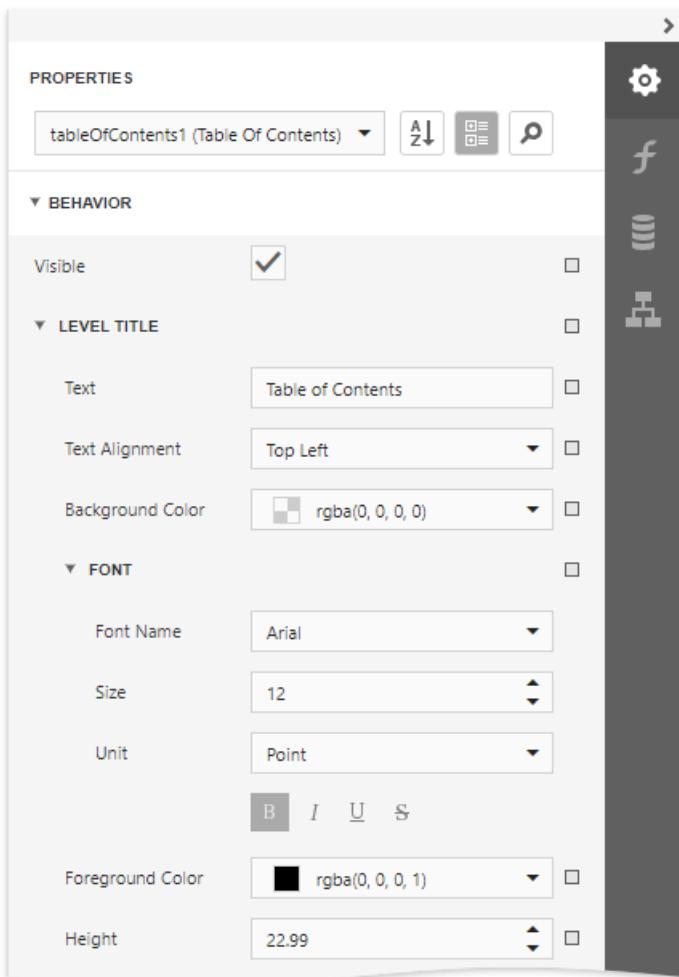
1. From the [Toolbox](#), drop the [Table of Contents](#) control onto the [Report Header](#) band.



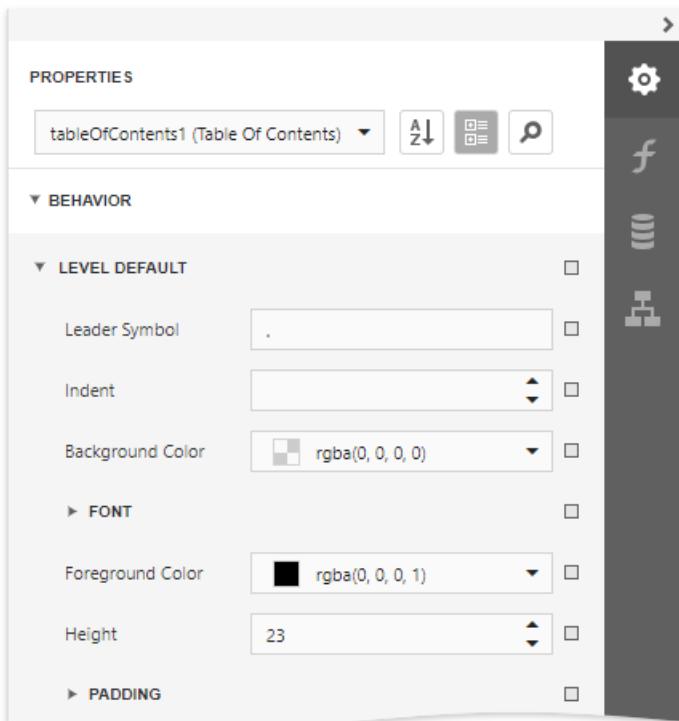
2. Double-click the title of the table of contents and specify its text.



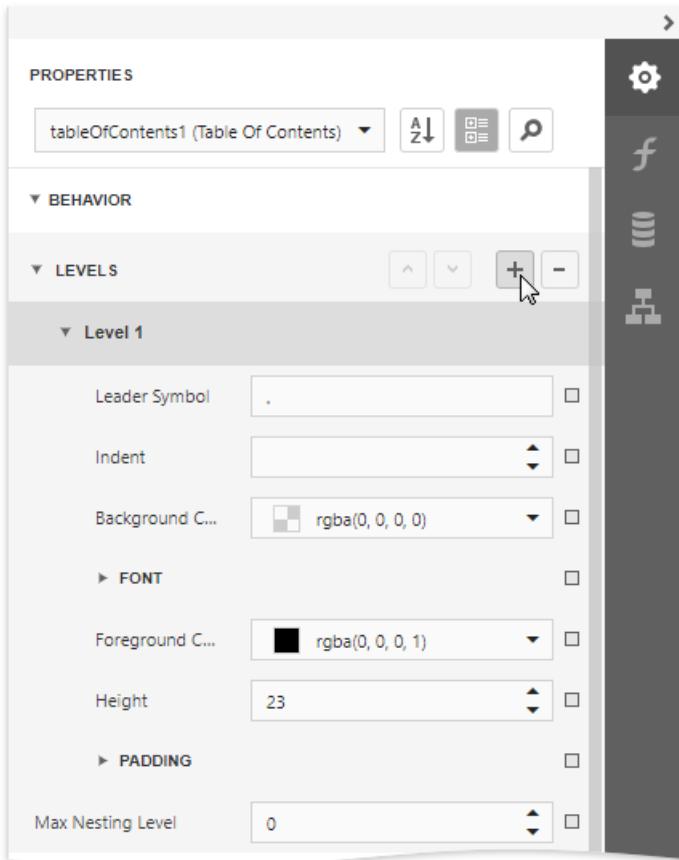
3. To customize the title appearance, use the **Level Title** option's settings available in the [Properties](#) panel.



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	
<b>Beverages .....</b>	<b>4</b>
Chai .....	4
Chang .....	4
Guaraná Fantástica .....	5
Sasquatch Ale .....	5
Steeleye Stout .....	5
Côte de Blaye .....	6
Chartreuse verte .....	6
Ipoh Coffee .....	6
Laughing Lumberjack Lager .....	7
Outback Lager .....	7
Rhönbräu Klosterbier .....	7
Lakkalikööri .....	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](#)
- [Create Drill-Through Reports](#)
- [Sort a Report in Print Preview](#)
- [Edit Content 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**

Soft drinks, coffees, teas, beers, and ales

Show Details 

**Condiments**

Sweet and savory sauces, relishes, spreads, and seasonings

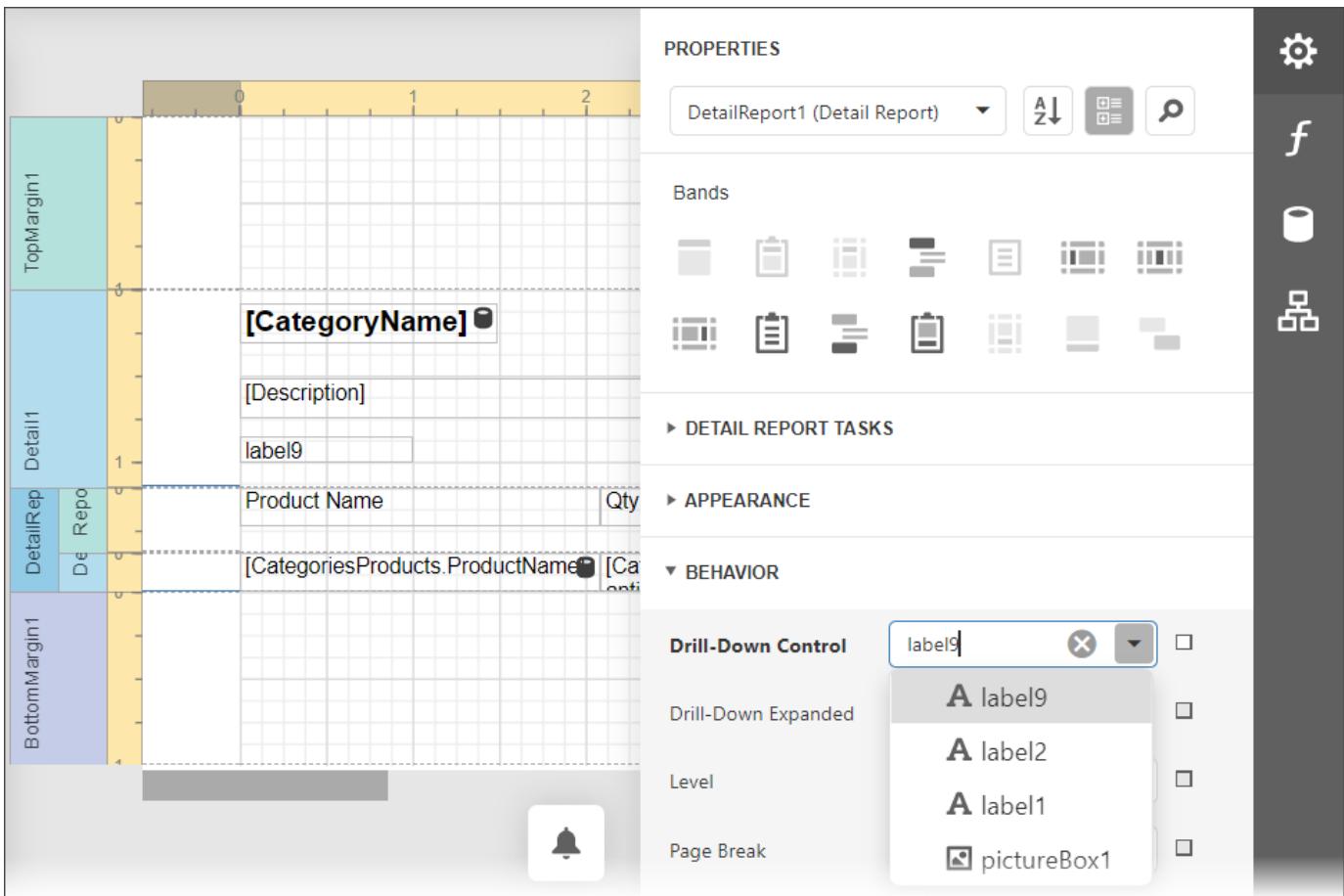
Hide Details

Product Name	Qty 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

Do the following to create a drill-down report:

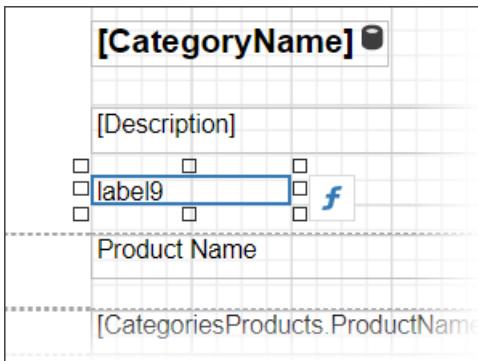
1. Create a master-detail report using **Detail Report bands**.
2. Drop a label onto the report's detail band. Clicking this label should expand or collapse the hidden report details.
3. Select the **detail report band**, open the **Behavior** category and expand the drop-down menu for the band's **Drill-Down Control** property in the **Properties** panel.

This menu displays all report controls located in the report band that is one level above the current band. Select the 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. Select the label and click the **f-button** to invoke the [Expression Editor](#).



The Expression Editor allows you to enter an expression that displays different text based on the detail report's `DrillDownExpanded` property value.

```
Iif( [ReportItems.Detail1.DrillDownExpanded], 'Hide Details' , 'Show Details' )
```

## Expression Editor

X

- AccessibleDescription
- Background Color
- Bookmark
- Border Color
- Border Dash Style
- Border Width
- Borders
- ▶ Font
- Foreground Color
- Height
- Left
- Navigation URL
- ▶ Padding
- Style Name
- Tag
- Text**
- Text Alignment
- Top
- Visible
- Width

```
1 IIf( [ReportItems.Detail1.DrillDownExpanded], 'Hide Details' , 'Show Details' )
```

Report Items

- Fields
- Constants
- ▶ Functions
- Operators
- Variables

Enter text to search...

- ▼ Report
  - TopMargin1
  - ▶ Detail1
    - DetailReport1
    - BottomMargin1

OK

Cancel

Apply

5. Preview the report.

# Create Drill-Through Reports

Follow this tutorial to create a *drill-through report* (a user can click a Category entry to invoke a detail report with Products). This report type keeps the original report compact while still allowing access to more detailed information.

The tutorial involves two main steps:

- Add a master-detail relationship between "Categories" and "Products" reports within one project.
- Use detail report parameters to filter records based on the selected category.

## Add a Master-Detail Relationship between Reports

Define a master-detail relationship between *Category* and *Product* reports within a single project:

- Select the XRControl's element (**Table Cell** in this example) in the main report.
- Set its **Action** property to **Navigate to Report**.
- Assign the **Report Source URL** property to a detail report instance.

The screenshot shows the 'PROPERTIES' panel of a report builder. At the top, there is a dropdown menu set to 'tableCell6 (Table Cell)' and several icons: a search icon, a sort icon (A↓), and two other icons. Below this, there are sections for 'Accessible Description' (with an info icon and a text input field), 'Accessible Role' (with an info icon and a dropdown menu set to 'Default'), and 'ACTION'. Under 'ACTION', there is a section for 'Action' (info icon, dropdown menu set to 'Navigate to Report') and 'Report Source ...' (info icon, dropdown menu set to 'Products'). At the bottom left, there is a section labeled 'PARAMETER BINDINGS' with a right-pointing arrow icon.

If you switch to **Preview**, you can click on a *Category* value in the table. The **Preview** window navigates to the detail report that contains all *Product* entries. The next step explains how to filter this list.

## Categories

Category Name	Description	Picture
Beverages	Soft drinks, coffees, teas, beers, and ales	
Condiments	Sweet and savory sauces, relishes, spreads, and seasonings	
Confections	Desserts, candies, and sweet breads	
Dairy Products	Cheeses	
Grains/Cereals	Breads, crackers, pasta, and cereal	
Meat/Poultry	Prepared meats	
Produce	Dried fruit and bean curd	
Seafood	Seaweed and fish	

You can click "Categories Report" below the Document Viewer toolbar and navigate back to the original report.

[Categories Report](#) → Products List Report

## Products by Category

Product Name	Quantity Per Unit	Unit Price	Units In Stock
Queso Cabrales	1 kg pkg.	\$21.00	22
Queso Manchego La Pastora	10 - 500 g pkgs.	\$38.00	86
Gorgonzola Telino	12 - 100 g pkgs.	\$12.50	0
Mascarpone Fabio	24 - 200 g pkgs.	\$32.00	9
Geitost	500 g	\$2.50	112
Raclette Courdavaut	5 kg pkg.	\$55.00	79
Camembert Pierrot	15 - 300 g rounds	\$34.00	19
Gudbrandsdalost	10 kg pkg.	\$36.00	26
Flotemysost	10 - 500 g pkgs.	\$21.50	26
Mozzarella di Giovanni	24 - 200 g pkgs.	\$34.80	14

## Specify Parameter Binding to Display Required Data

You can specify parameters during detail report navigation. Use the **Parameter Bindings** property to limit displayed records (such as products) to a selected category.

Click the **Parameter Bindings** property and select the detail report parameter. Set **Binding** to the data field or parameter of the original report. In this example, **Binding** is set to the *CategoryID* field.

**PROPERTIES**

tableCell6 (Table Cell)	<input type="button" value="▼"/>	<input type="button" value="A↓"/>	<input type="button" value="≡"/>	<input type="button" value="🔍"/>
Accessible Description	i	<input type="text"/>		
Accessible Role	i	<input type="button" value="Default"/>		
<b>▼ ACTION</b>				
Action	i	<input type="button" value="Navigate to Report"/>		
Report Source URL	<input type="button" value="Products"/>			
<b>▼ PARAMETER BINDINGS</b>				
Parameter Name	i	<input type="button" value="categoryId"/>		
Binding	<input type="button" value="sqlDataSource2 - Categories.CategoryID"/> <input type="button" value="X"/>			

Set the following filter string in the detail report to display product records for the selected category.

**PROPERTIES**

Report (Report)	<input type="button" value="▼"/>	<input type="button" value="A↓"/>	<input type="button" value="≡"/>	<input type="button" value="🔍"/>
<b>▼ REPORT TASKS</b>				
Data Source	i	<input type="button" value="sqlDataSource2"/>		
Data Member	i	<input type="button" value="Products"/> <input type="button" value="X"/>		
Filter String	i	<input type="button" value="*[CategoryID] = ?categoryId"/>		
Measure Units	i	<input type="button" value="Hundredths of an Inch"/>		
Language	<input type="button" value="(Default)"/>			

## Result

Switch to **Preview** and click on a category entry in the master report. The **Preview** navigates to the detail report that displays only products related to the selected category.

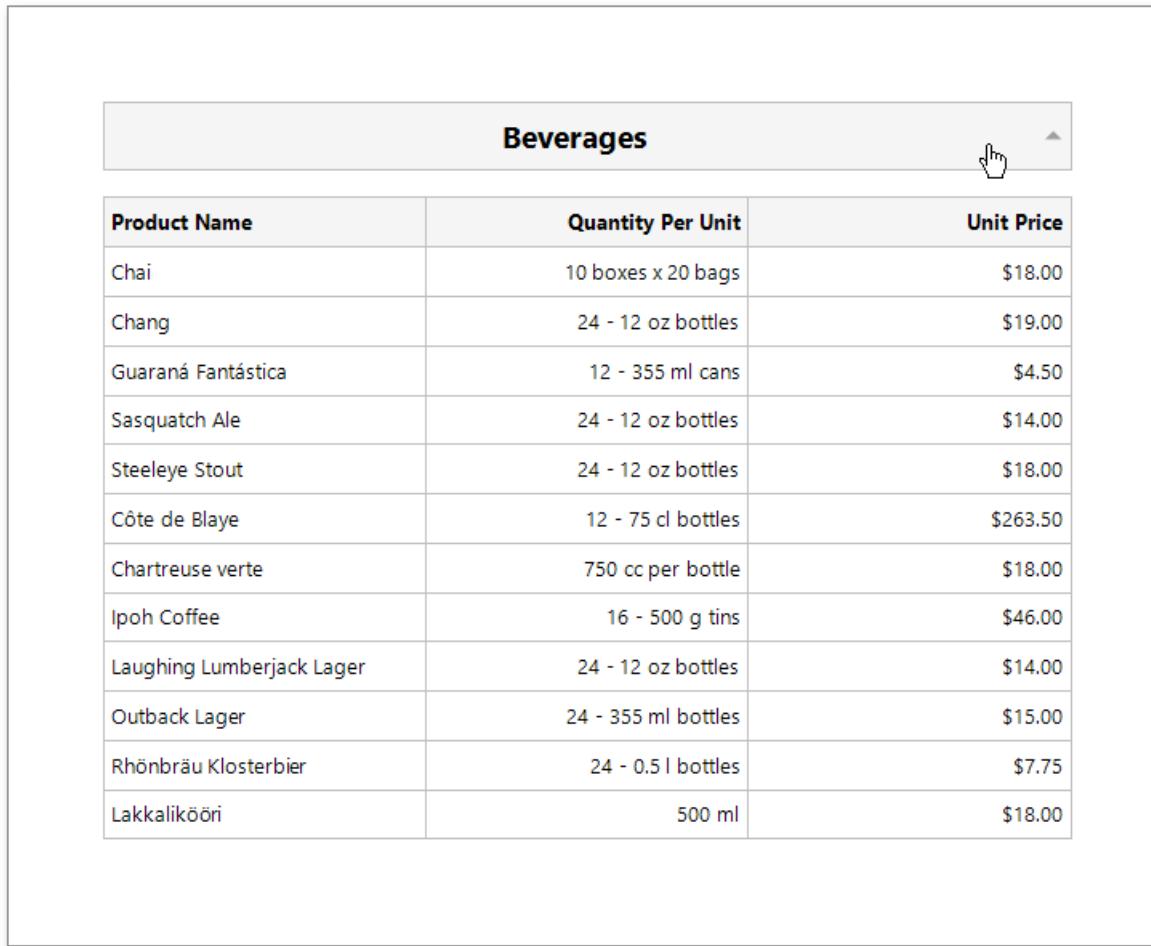
[Categories Report](#) → Products List Report

Products by 'Beverages' Category

Product Name	Quantity Per Unit	Unit Price	Units In Stock
Chai	10 boxes x 20 bags	\$18.00	39
Chang	24 - 12 oz bottles	\$19.00	17
Guaraná Fantástica	12 - 355 ml cans	\$4.50	20
Sasquatch Ale	24 - 12 oz bottles	\$14.00	111
Steeleye Stout	24 - 12 oz bottles	\$18.00	20
Côte de Blaye	12 - 75 cl bottles	\$263.50	17
Chartreuse verte	750 cc per bottle	\$18.00	69
Ipoh Coffee	16 - 500 g tins	\$46.00	17
Laughing Lumberjack Lager	24 - 12 oz bottles	\$14.00	52
Outback Lager	24 - 355 ml bottles	\$15.00	15
Rhönbräu Klosterbier	24 - 0.5 l bottles	\$7.75	125
Lakkaliköön	500 ml	\$18.00	57

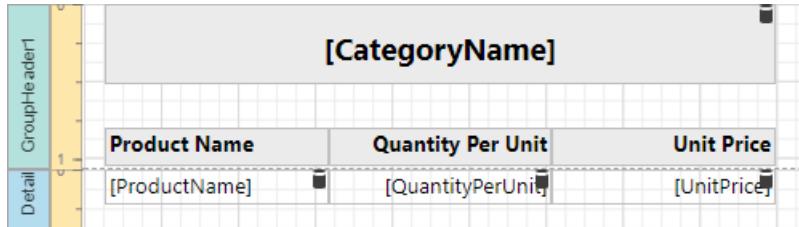
# Sort a Report in Print Preview

This tutorial illustrates how to enable sorting report data in Print Preview.



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
Ipooh 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

In this tutorial, we will start with the following report displaying products [grouped](#) by category names.

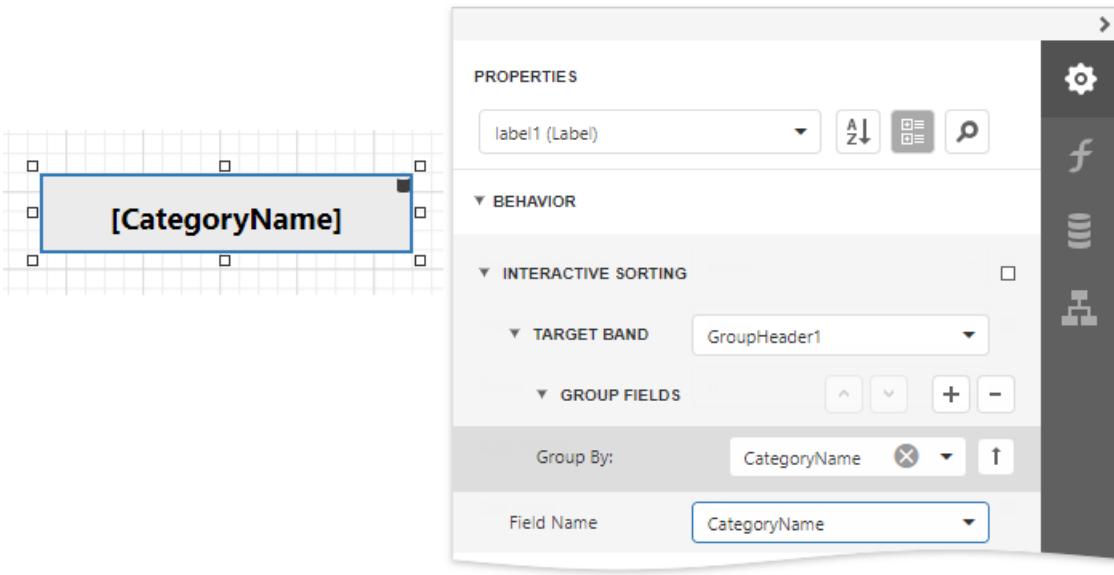


The screenshot shows the Microsoft Report Designer interface. On the left, there's a navigation pane with 'GroupHeader1' and 'Detail'. The main area has a 'CategoryName' label in the Group Header and a table with three columns ('Product Name', 'Quantity Per Unit', 'Unit Price') in the Detail section. Fields like '[ProductName]', '[QuantityPerUnit]', and '[UnitPrice]' are visible within the table cells.

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 [Properties](#) panel.



Expand the **Behavior** category, select the **Interactive Sorting** section, and set the **Target Band** property to *GroupHeader1*. Set the **Field Name** property 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.

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
Ipoх 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

To enable sorting data in the Detail band, select the table cell displaying the **Product Name** title and switch to the **Properties** panel.

The screenshot shows the Report Designer's Properties panel for a table cell named 'tableCell1 (Table Cell)'. The 'TARGET BAND' dropdown is set to 'Detail1'. In the 'INTERACTIVE SORTING' section, 'Sort By:' is set to 'ProductName' and 'Field Name' is also set to 'ProductName'. The table cell itself contains three columns: 'Product Name', 'Quantity Per Unit', and 'Unit Price', each with its respective field name '[ProductName]', '[QuantityPerUnit]', and '[UnitPrice]'.

Set the **Target Band** property to *Detail* and expand the **Sort Fields** section and add a new sort field to sort detail data by the product name. Set the table cell's **Field Name** 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 the Report Preview tab. A table titled 'Beverages' is displayed with 13 rows of data. The columns are 'Product Name', 'Quantity Per Unit', and 'Unit Price'. The 'Product Name' column is currently sorted in ascending order, as indicated by the sorting icon in the header. The data includes various products like Steeleye Stout, Sasquatch Ale, Rhönbräu Klosterbier, etc., with their respective quantities and unit prices.

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.

#### NOTE

Reports embedded into the current report using the [Subreport control](#) do not support interactive data sorting.



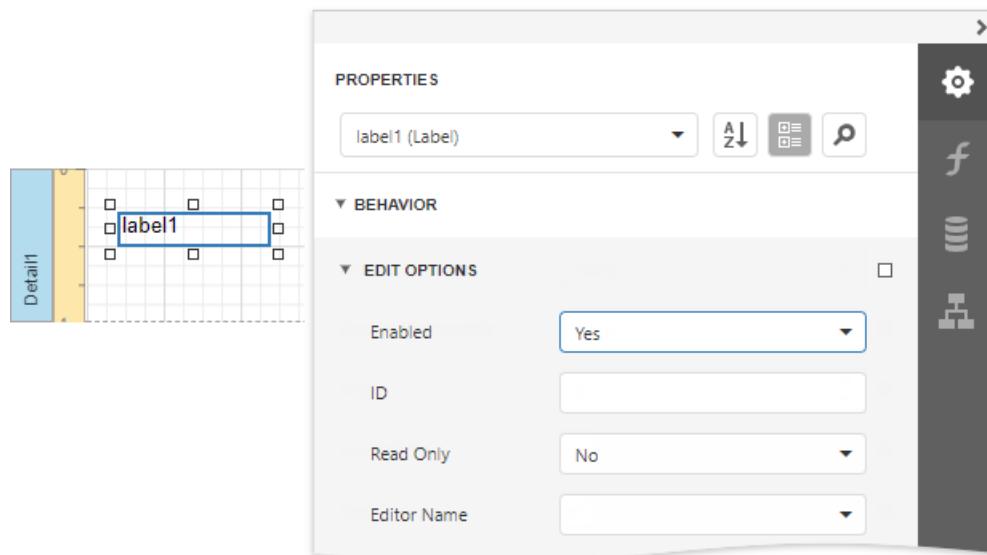
# Edit Content in Print Preview

This document provides information about interactive document editing in Print Preview that enables you to customize field values directly in a previewed document before printing or exporting it.

## Content Editing Overview

When content editing is enabled for a report control (either unbound or data-aware), it is possible to customize the corresponding field values in Print Preview.

To enable content editing for a report control, expand the **Behavior** category, select the **Edit Options** section and set the **Enabled** property to **Yes**.



When the **Enabled** property is set to **Yes** and the **ReadOnly** property is set to **No**, the control's content can be edited in Print Preview (clicking a field will invoke the appropriate editor).

To highlight all editing fields available in a document, click the **Editing Fields** button on the Print Preview toolbar. This button is disabled when there are no such fields in a document.

A screenshot of the Print Preview toolbar. The 'Highlight Editing Fields' button is highlighted with a cursor. Below the toolbar, a form is displayed with several input fields. The 'First Name' field contains 'N A N C Y'. The 'Last Name' field contains 'D A V O L I O'. The 'Phone' field contains '(206) 555-9857'. The 'Date of Birth' field contains '12/8/1976'. On the left, there's a 'Gender' section with 'Female' checked and 'Male' unchecked. On the right, there's a 'Skills' section with 'WinForms', 'ASP.NET', 'WPF', 'C#', 'HTML', and 'CSS' listed, with 'WinForms', 'ASP.NET', and 'C#' checked.

When enabling content editing in your report, consider the following.

- The changes made to a control's content in Print Preview have no effect on other parts of the document (e.g., the related summary results, grouping, sorting, bookmarks and other settings that have already been processed before generating the document).
  - A control's **Can Grow** setting is ignored for editing fields.
- Multi-line values can only be entered when no mask is applied to an editing field. The editing area of a field cannot exceed the original dimensions of a control.
- Values entered into editing fields are reset back to their defaults after refreshing the document (e.g., when submitting [report parameter](#) values and expanding or collapsing data in a [drill-down report](#)).
  - It is impossible to edit content of a control that has its **Drill-Down Control** property specified.
  - Field values entered in Print Preview for controls placed onto the Top Margin and Bottom Margin bands are not preserved when the report is exported to TXT or CSV, as well as the following formats as a single file.
    - HTML
    - MHT
    - RTF
    - XLS
    - XLSX
    - image

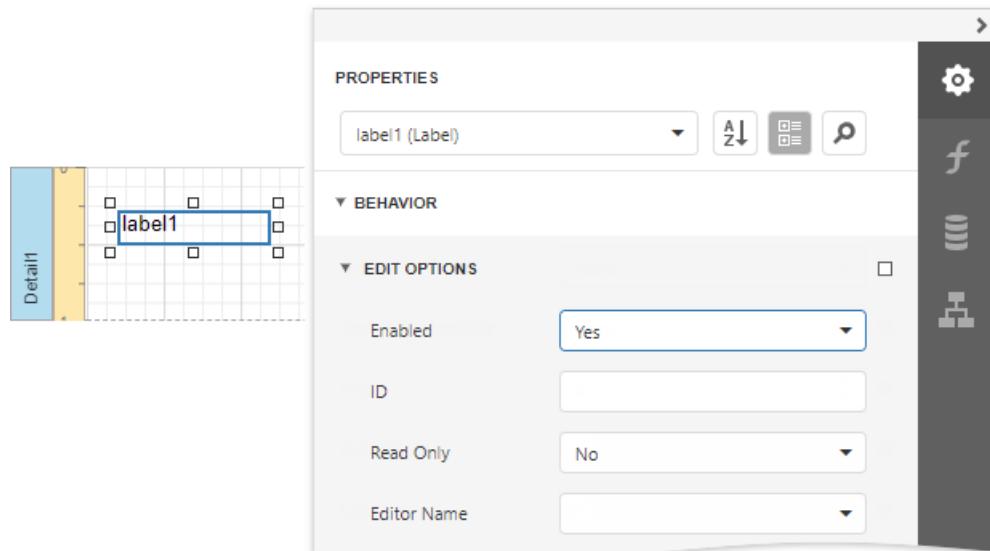
To learn about the specifics of editing different kinds of content, see the following sections in this document.

- [Text Editors](#)
- [Character Comb Editors](#)
- [Check Box Editor](#)
- [Image Editors](#)

## Text Editors

The [Label](#), [Table Cell](#) and [Character Comb](#) controls can be assigned editors to customize their content in Print Preview.

To enable content editing for these controls, expand the **Behavior** category, select the **Edit Options** section and set the **Enabled** property to **Yes**.



The following editors can be used to customize a field's content in Print Preview.

- **Default Editor**

By default, the **Editor Name** property is not specified, and a memo edit is used as a standard editor.

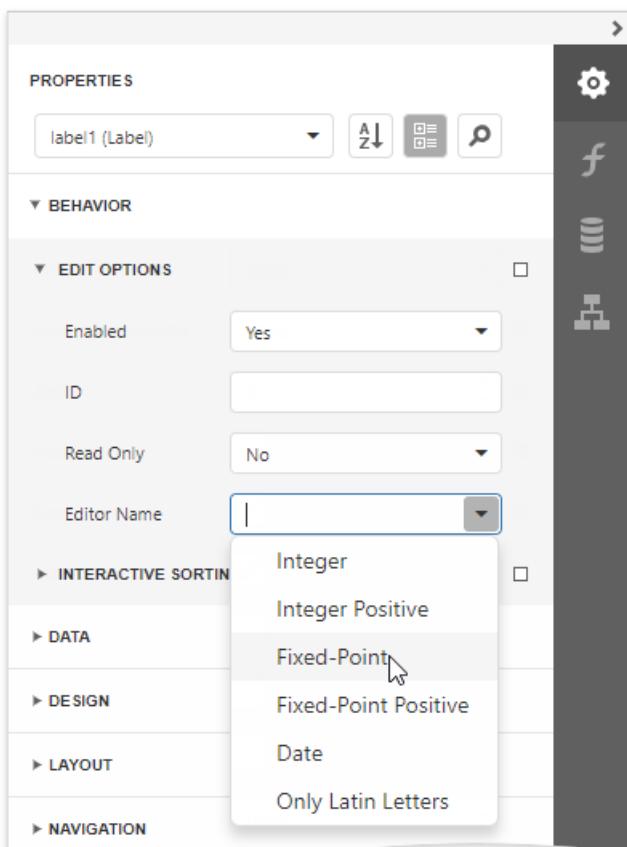
Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00

- **Specific Value Editors**

You can assign a specific editor to a control using its **Editor Name** property.

**NOTE**

This option is disabled for the **Character Comb** control.



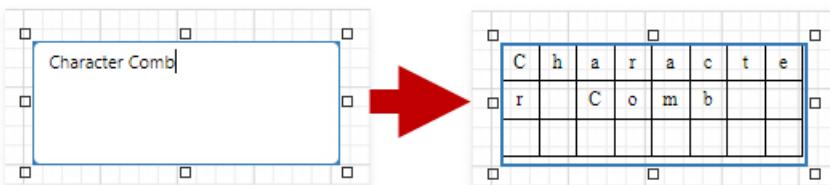
**NOTE**

If a table cell contains other controls, its editing is disabled (but not the editing of the controls contained in this cell), which is illustrated in the following image.

Employee	Status
First Name: Nancy	<input checked="" type="checkbox"/> Employed
Last Name: Davolio	<input type="checkbox"/> Retired

## Character Comb Editors

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

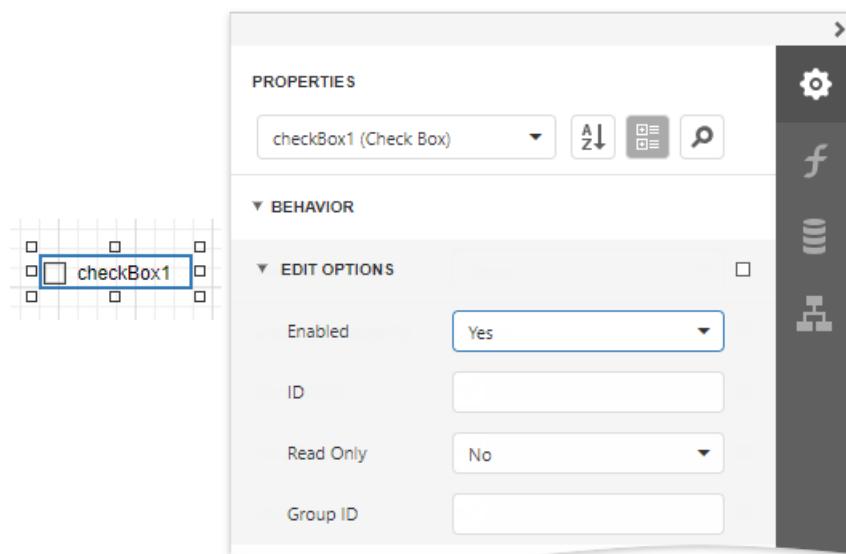


Specify the Character Comb's **Edit Options | Editor Name** property to use a text editor, as described in the [Text Editors](#) section above.

## Check Box Editor

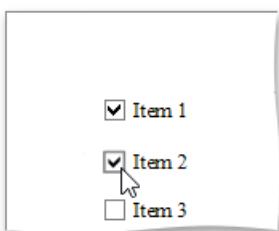
The [Check Box](#) control's value can be edited in Print Preview.

To enable content editing for a check box, expand the **Behavior** category, select the **Edit Options** section and set the **Enabled** property to **Yes**.



In Print Preview, the control's behavior depends on the **Group ID** setting.

- When this property is set to **null** or an empty string value, a check box can be switched either to the "checked" or "unchecked" state (the "intermediate" state is not supported) independently on other available check boxes.

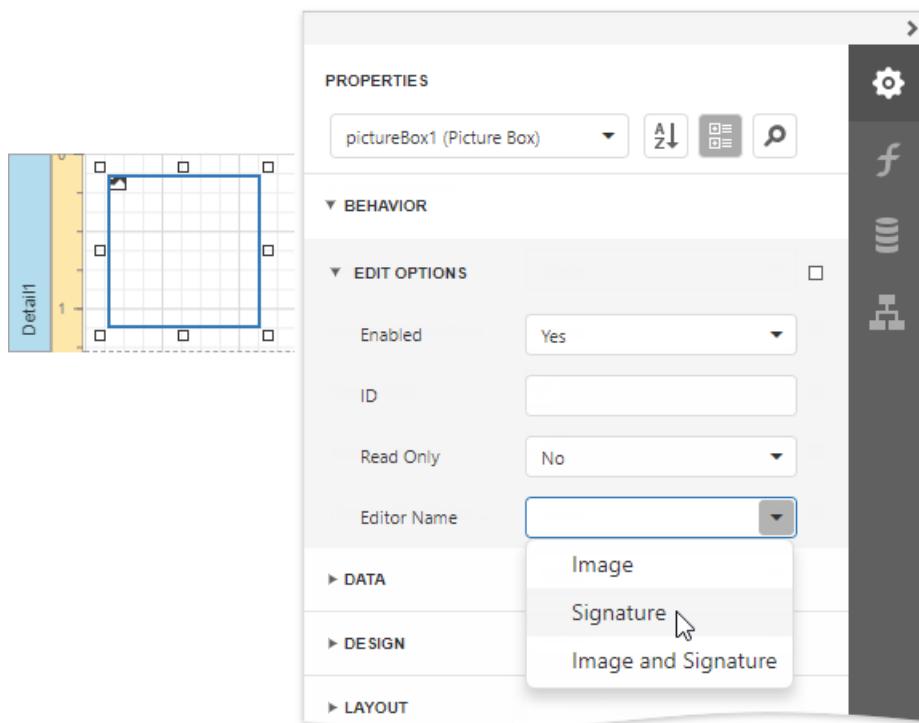


- Otherwise, the field editor behaves like a radio button, and editors with the same **Group ID** value belong to a single logical group (i.e., only one option can be selected within a group at a time).

## Image Editors

Image editors are used to customize the [Picture Box](#) report control's content in Print Preview.

To enable content editing for a picture box, expand the **Behavior** category, select the **Edit Options** section and set the **Enabled** property to **Yes**.



Use the control's **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 the image editors listed above can include the **Edit** menu item. This item is available only when the Picture Box control has an original image.

## Export Editable Fields to PDF AcroForms

Enable the report's **Export Options | PDF Export Options | Export Editing Fields to AcroForms** property to export [text fields](#), [check boxes](#), [character combs](#), and [image editors](#) to PDF as editable form fields (**AcroForms**).

PROPERTIES

Report (Report)

▼ PDF EXPORT OPTIONS

Convert Images to Jpeg

Show Print Dialog on Open

Never Embedded Fonts

Export Editing Fields To AcroForms

Image Quality  Highest

PDF A Compatibility  None

PDF UA Compatibility  None

Page Range

Rasterization Resolution  96

Rasterize Images

► DOCUMENT OPTIONS

► PDF PASSWORD SECURITY OPTIONS

## Print Preview

## PDF Export

Text Field:

Check Box:

Character Comb:

C	h	a	r	a
C	o	m	b	



Text Field:

Check Box:

Character Comb:

C	h	a	r	a	c	t	e	r
C	o	m	b					



# 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](#)

## NOTE

See [Add Navigation](#) to learn how to add page numbers and a table of contents to your reports.

# Add Watermarks to a Report

DevExpress Reporting allows you to display text and picture watermarks on report pages. You can also specify an expression that assigns different watermarks to pages.

This tutorial includes information about the following tasks:

- How to add watermarks.
- How to specify watermark settings.
- How to use pre-printed forms.



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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.

*SAMPLE*

## Add a Watermark to a Report

Switch to the **Properties** panel and expand the **Watermark** node in the **Appearance** category. Click the Add button to create a watermark.

The screenshot shows a software interface for managing watermarks. At the top, there's a header with a dropdown menu labeled "WATERMARKS" and four small buttons: up, down, plus, and minus. Below this is a section titled "watermark1". Inside "watermark1", there's a "Watermark Id" field containing "watermark1" with an info icon (i). A "Font" section is expanded, showing settings for Foreground color (rgba(255, 0, 0, 1) with a red square preview), Text Transparency (50), Text (Select...), Text Direction (Forward Diagonal), Text Position (Behind), Image Source ((none)), Image Position (Behind), Image Transparency (0), Image Tiling (unchecked), Image Align (Middle Center), Image View (Clip), and Page Range (empty input field).

Specify watermark options, depending on the type of watermark you wish to add.

#### Specify Text Watermark Settings

- Watermark Id

The unique identifier of a watermark used to specify the watermark in the WatermarkId property (See the Manage Watermark Collection section for details).

- Font Name

The font of the watermark's text.

- Size

The size of the watermark's text.

- Unit

Specifies text measurement system.

- Bold

Formats the watermark's text as bold.

- **Italic**

Formats the watermark's text as italic.

- **Foreground Color**

The foreground color of the watermark's text.

- **Text**

The watermark's text.

- **Text Transparency**

The transparency of the watermark's text.

- **Text Direction**

The incline of the watermark's text.

- **Text Position**

Specifies whether a watermark should be printed behind or in front of page content.

- **Page Range**

The range of pages which contain a watermark.

The added watermark is automatically displayed in the report in Preview mode.

### Specify Picture Watermark Settings

- **Watermark Id**

The unique identifier of a watermark used to specify the watermark in the WatermarkId property (See the Manage Watermark Collection section for details).

- **Image Source**

Specifies the image that you wish to use as a watermark.

- **Image Position**

Specifies whether a watermark should be printed behind or in front of page content.

- **Image Transparency**

The transparency of the watermark's image. The **Transparency** property is unavailable when you specify an SVG image.

- **Image View Mode**

The mode in which a picture watermark is displayed.

- **Image Tiling**

Specifies whether a picture watermark should be tiled.

- **Image Alignment**

Specifies the horizontal or vertical alignment of the watermark.

- **Page Range**

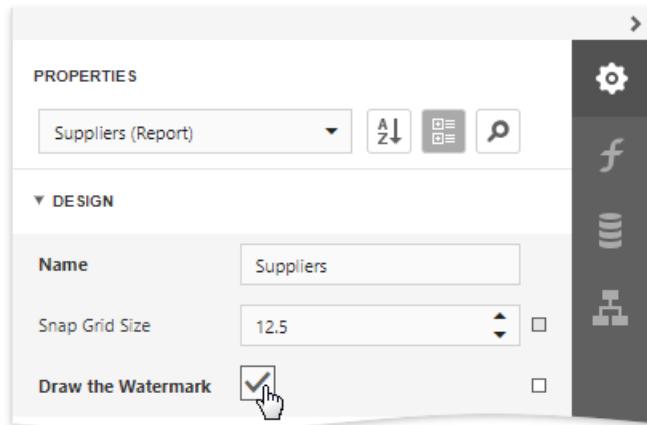
The range of pages which contain a watermark.

The added watermark is automatically displayed in the report in Preview mode.

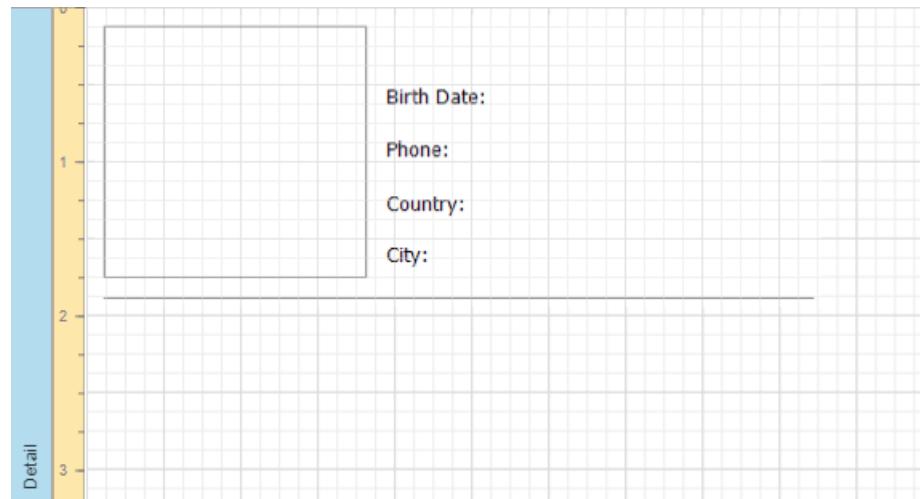
## Supply a Preprinted Form

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, expand the **Design** category and enable the **Draw the Watermark** property.



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.

The screenshot shows a reporting tool's interface. On the left, there is a table design view with three rows labeled 1, 2, and 3. Row 1 contains four text input fields: 'Birth Date: [BirthDate]', 'Phone: [HomePhone]', 'Country: [Country]', and 'City: [City]'. Row 2 contains a single text input field '[Notes]'. Row 3 is empty. To the right of the table is a 'FIELD LIST' panel. It shows a tree structure under 'sqlDataSource1' and 'Employees'. The 'Notes' field is selected, indicated by a gray background. Other visible fields include 'Address', 'BirthDate', 'City', 'Country', 'HomePhone', 'LastName', and 'Photo'.

## Supported Image Formats

A picture watermark supports the following formats:

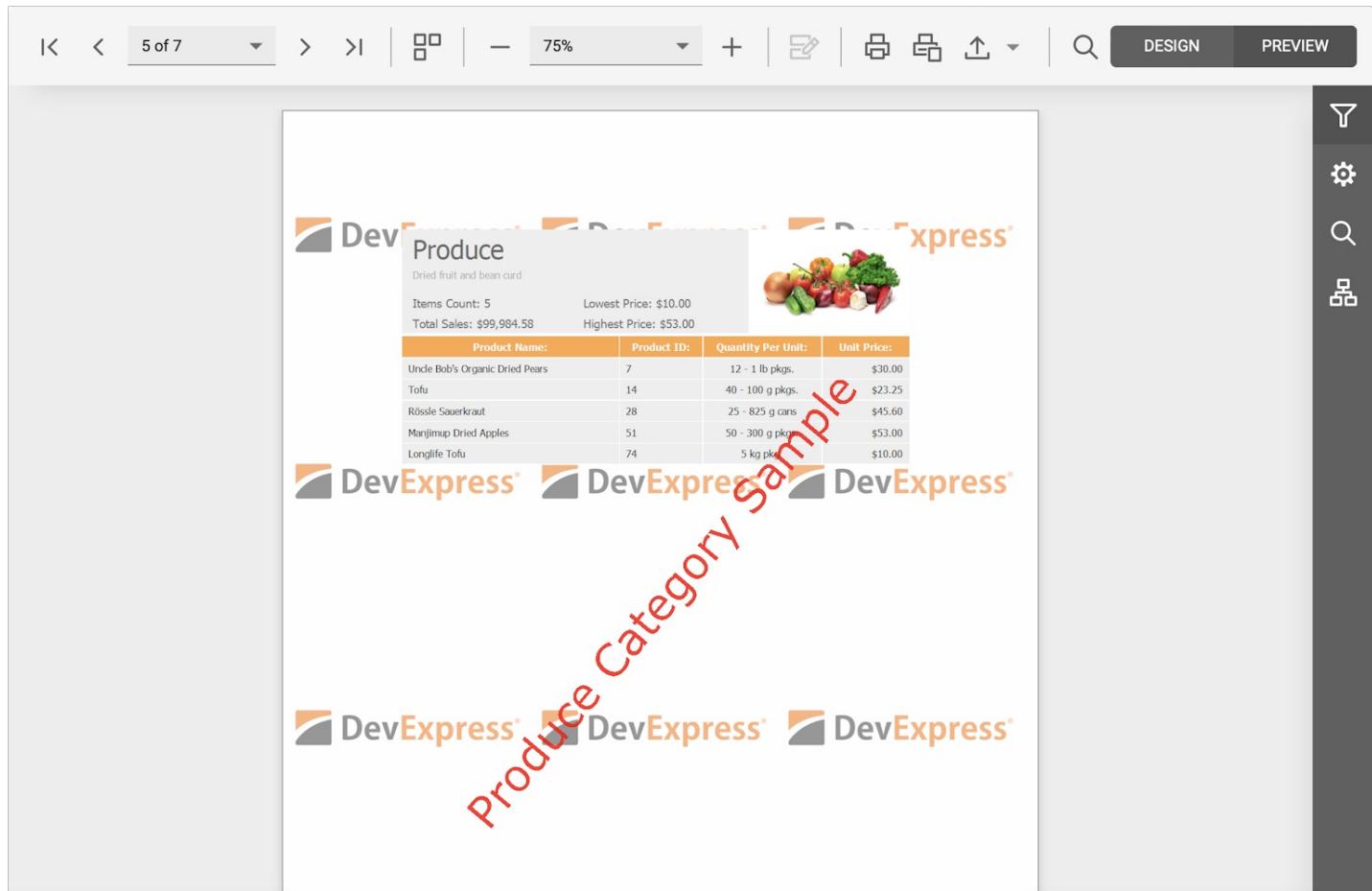
- BMP
- JPG / JPEG / JPE / JFIF
- GIF
- TIF / TIFF
- PNG
- ICO
- DIB
- RLE
- EMF / WMF
- SVG

## Combine Text and a Picture in One Watermark

You can display both text and a picture in one Watermark. Use the **Text Position** and **Image Position** options of the watermark to specify whether the text and picture should be displayed behind or in front of page content.

For example, create a watermark and specify its text and picture settings. Set position of the text to **InFront** and position of the picture to **Behind**:

As a result, the image is displayed behind the table, while the text is in front of the content:



## Display Watermarks According to the Specified Condition

Bind the report's **Watermark Id** options to an expression to apply watermarks stored in the collection to specific report pages. This option allows you to apply a specific watermark to a page based on the **Watermark Id** or expression binding.

**PROPERTIES**

InvoiceReport (Report) ▾ AZ grid 🔍

Watermark Id i text input checkbox link

▼ WATERMARKS up down plus minus

- ▶ watermark1
- ▶ watermark2
- ▶ watermark3

For example, the following expression adds the created "First page watermark", "Even page watermark", and "Odd page watermark" watermarks to the first, odd, and even pages of a report:

```
Iif([ArgumentsPageIndex]=0,'watermark1',Iif([ArgumentsPageIndex] % 2=0,'watermark2','watermark3'))
```



# 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 [PageInfo](#) control.

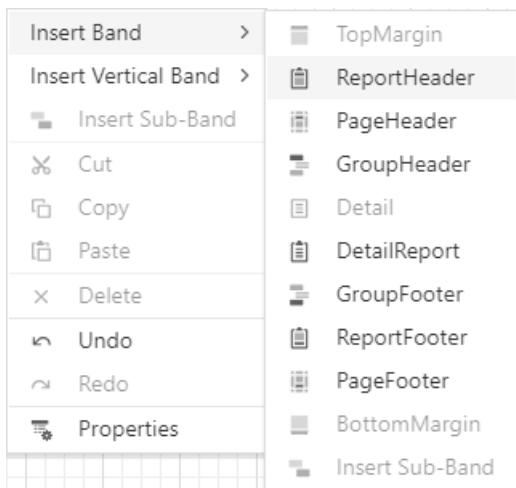


The screenshot shows a report with a single row of data. The first column contains product names and the second column contains their prices. In the top-left corner of the report area, there is a small rectangular box containing the text "Created at 6:57 PM 06 Jun 2013".

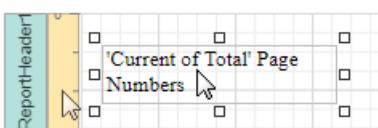
Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$21.35
Grandma's Boysenberry Spread	\$25.00
Uncle Bob's Organic Dried Pears	\$30.00
Northwoods Cranberry Sauce	\$40.00
Mishi Kobe Niku	\$97.00
Ikura	\$31.00
Queso Cabrales	\$21.00
Queso Manchego La Pastora	\$38.00
Konbu	\$6.00
Tofu	\$23.25
Genen Shouyu	\$15.50

Do the following to include information about the current date and time into a report:

1. The current date and time are usually displayed in the **Report Header** band. To add it to the report, click **Insert Report Header Band** in the context menu.



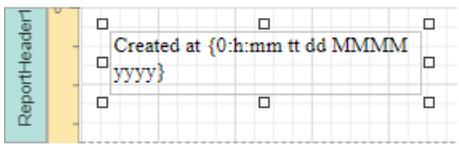
2. Drop the [PageInfo](#) control from the **Toolbox** onto the **Report Header** band.



3. Set the control's **Page Information** property to *Current Date and Time*.

A screenshot of the Report Designer Properties pane. The 'pageInfo1 (Page Info)' item is selected in the list. Under the 'ACTIONS' section, the 'Page Information' dropdown is open, showing several options: 'None', 'Page Number', 'Current of Total' Page ..., 'Page Number (Roman, ...)', 'Page Number (Roman, ...)', 'Current Date and Time' (which is highlighted with a mouse cursor), 'User Name', and 'Page Count'. The 'Page Information' section also contains other properties like 'Start Page Number', 'Text Format String', 'Running Band', and 'Anchor Vertically'. The 'STYLES', 'APPEARANCE', and 'BEHAVIOR' sections are also visible.

4. To apply a format string to the control's contents, type **Created at {0:h:mm tt dd MMMM yyyy}** into its **Text Format String** property.



REPORT HEADER

Properties

pageInfo1 (Page Info)

ACTIONS

Page Information: Current Date and Time

Start Page Number: 1

Text Format String: Created at {0:h:mm tt dd MMMM yyyy}

Running Band: (none)

Anchor Vertically: None

Report Header

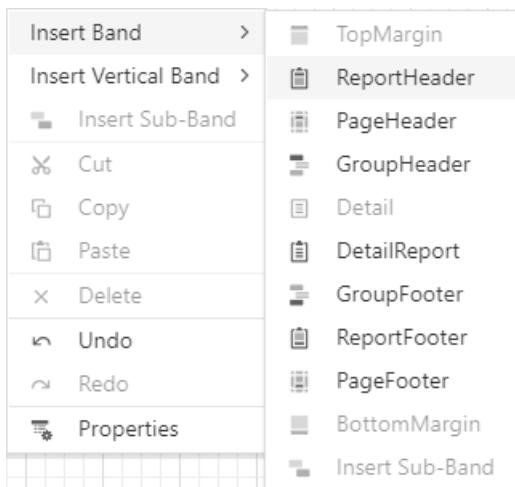
# Display the User Name in a Report

This tutorial demonstrates how to insert the current user name in a report using the [PageInfo](#) control.

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
Carnarvon Tigers	\$62.50

Do the following to insert the user name into a report:

1. The user name is usually displayed in the **Report Header** band. To add it to the report, click **Insert Report Header Band** in the context menu.



2. Drop the [PageInfo](#) control from the [Toolbox](#) onto the **Report Header** band.



3. Set the control's **Page Information** property to **User Name**.

The screenshot shows the Report Designer interface. On the left, there is a visual representation of a report structure with a 'ReportHeader1' band highlighted in blue. In the center, a 'User Name' text box is placed within this header band. To the right, the 'Properties' window is open for the 'pageInfo1 (Page Info)' control. The 'Page Information' dropdown menu is expanded, showing options like 'User Name', 'None', 'Page Number', and 'Page Number (Roman, Up...'. The 'User Name' option is selected and highlighted with a mouse cursor.

4. Next, to apply a format string to the control's contents, type **Current User: {0}** into its **Text Format String** property.

The screenshot shows the 'Properties' window for the 'pageInfo1 (Page Info)' control. The 'Text Format String' property is set to 'Current User: {0}'. Other properties visible include 'Start Page Number' (set to 1), 'Page Information' (set to 'User Name'), 'Running Band' (set to '(none)'), and 'Anchor Vertically' (set to 'None').

# 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.

The image displays a 2x3 grid of report pages from the Northwind Traders database. The top row contains a logo page, a title page, and a table page. The bottom row contains a table page, a chart page, and another table page.

**Logo Page:** Shows the Northwind Traders logo featuring a lighthouse and the company name.

**Title Page:** Displays the title "Tourists' Gunpowder Worldwide" and a note about the report being generated for the month of April.

**Table Page:** Shows a table titled "Produce" with columns for Product Name, Supplier ID, and Supplier Name, along with a small image of fresh produce.

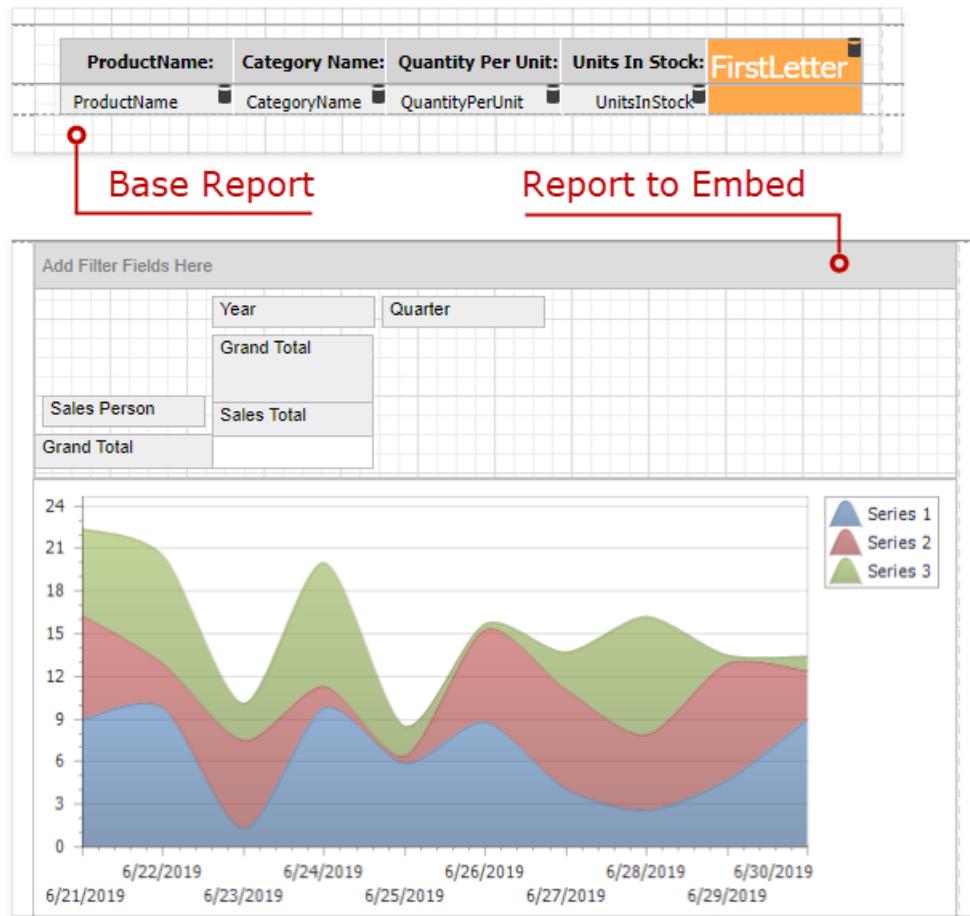
**Table Page:** Shows a table titled "Grains/Cereals" with columns for Product ID, Product Name, Supplier ID, and Supplier Name, along with a small image of grains.

**Chart Page:** A bar chart titled "Category: Grains/Cereals" showing the quantity sold for various categories. The categories on the x-axis are: Wheat, Oats, Barley, Rye, Corn, Millet, and Buckwheat. The y-axis shows quantity sold from 0 to 30.

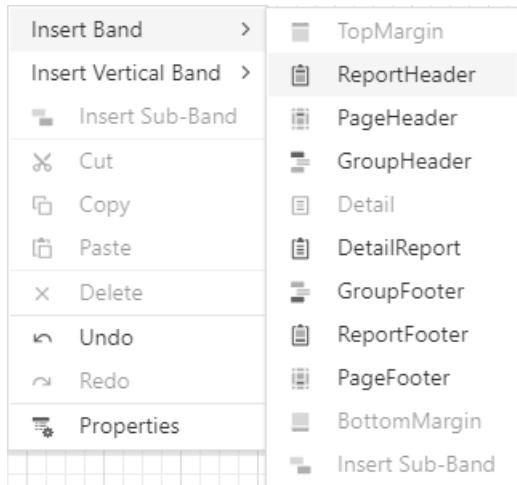
**Table Page:** Shows a table titled "Dairy Products" with columns for Product ID, Product Name, Supplier ID, and Supplier Name, along with a small image of dairy products.

# Add a Report to the End/Beginning

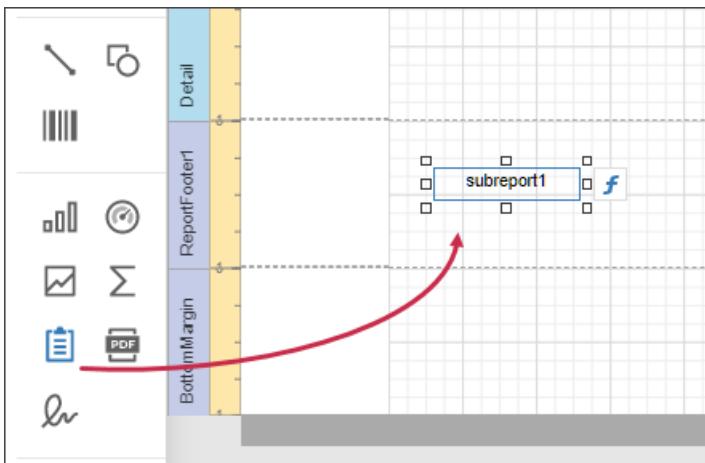
Follow the steps below to add a separate report to the end of another report and print it as a single job.



1. From the context menu, select the **Insert Report Footer Band**.



2. Drag a **Subreport** item from the Toolbox onto the created Report Footer band.



#### TIP

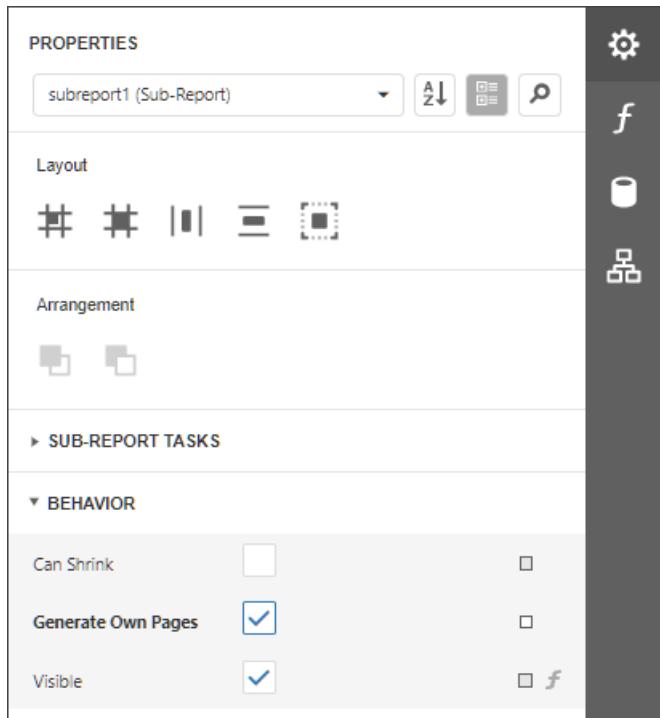
To add a report to the beginning of another report (for instance, to add a title page), use the **Report Header** band instead.

3. In the Subreport's **Tasks** group, set the **Report Source Url** parameter to the report that you want to insert.

The screenshot shows the 'Properties' panel for a sub-report named 'subreport1'. The 'Report Source Url' field has a dropdown menu open, displaying a list of report names:

- MasterDetailReport
- Subreports.MasterReport
- MultiColumnReport
- ProductLabelsReport
- ReportMerging.Merged...
- SideBySideReports.Emp...
- PivotGridAndChart
- HiddenColumns
- CalculatedFieldsReport
- NorthwindTraders.Prod...
- NorthwindTraders.Catal...
- NorthwindTraders.Invoi...
- ProfitAndLossReport
- ShrinkGrow

4. Enable the **Generate Own Pages** option in the Subreport's **Behavior** group to print the embedded report on separate pages and use its own page settings.



5. Switch to Preview mode to see the combined report.

## Alphabetical List of Products



4/26/2019

ProductName	Category Name	Quantity Per Unit	Units In Stock	
Alice Mutton	Meat/Poultry	20 - 1 kg tins	0	
Aniseed Syrup	Condiments	12 - 350 ml bottles	13	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Boston Crab Meat	Seafood	24 - 4 oz cans	123	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Cameroun Pierrot	Dairy Products	15 - 300 g pouches	19	
Carribean Trollers	Seafood	16 kg pck.	42	
Chai	Beverages	10 boxes x 20 bags	39	
Chang	Beverages	24 - 12 oz bottles	17	
Chartreuse verte	Beverages	730 cc per bottle	69	
Chef Anton's Cajun Seasoning	Condiments	48 - 6 oz jars	53	
Chef Anton's Gumbo Mix	Condiments	36 boxes	0	
Chocolate	Confetions	10 pcks.	15	
Côte de Boeuf	Beverages	12 - 75 cl bottles	17	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Escarpolette de Bourgogne	Seafood	24 pieces	62	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Filo Mix	Grains/Cereals	16 - 2 kg boxes	38	
Flottmanns	Dairy Products	10 - 300 g pcks.	26	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Gelato	Dairy Products	300 g	112	
Genen Shouyu	Condiments	24 - 250 ml bottles	39	
Gnocchi di nonna Alice	Grains/Cereals	24 - 250 g pcks.	21	
Gorgonzola Telmo	Dairy Products	12 - 100 g pcks.	0	
Grandma's Boysenberry Spread	Condiments	12 - 8 oz jars	120	
Granita Iaxi	Seafood	12 - 300 g pcks.	11	
Guaraná Fandango	Beverages	12 - 335 ml cans	20	
Guanbaracatocot	Dairy Products	10 kg pck.	26	
Gula Melaka	Condiments	20 - 1 kg bags	27	
Gumbor Gummibärchen	Confetions	100 - 230 g bags	19	
Gus's Kitchens	Grains/Cereals	24 - 300 g pcks.	104	

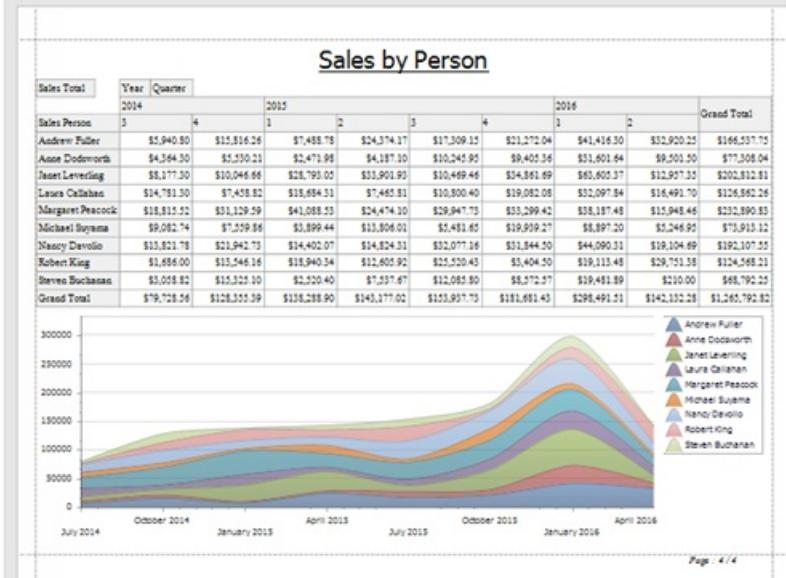
Page : 1 / 4

ProductName	Category Name	Quantity Per Unit	Units In Stock	
Jura	Seafood	12 - 200 ml jars	31	
Ingrid Bill	Seafood	24 - 230 g jars	112	
Zonk Coffee	Beverages	16 - 300 g tins	17	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Zaps New England Dam Chocicer	Seafood	12 - 12 oz cans	83	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Korbu	Seafood	2 kg box	24	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Lakalauhi	Beverage	300 ml	37	
Laughing Lumberjack Lager	Beverage	24 - 12 oz bottles	32	
Longlife Tofu	Produce	5 kg pck.	4	
Louisiana Fiery Hot Pepper Sauce	Condiments	32 - 8 oz bottles	76	
Louisiana Hot Spiced Oregano	Condiments	24 - 8 oz jars	4	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Mangimbo Dried Apples	Produce	30 - 300 g pcks.	20	
Mascarpone Patisserie	Dairy Products	24 - 200 g pcks.	9	
Miette	Confetions	24 - 50 g pcks.	10	
Monk Kobe Niku	Meat/Poultry	18 - 300 g pcks.	29	
Mozzarella di Giovanni	Dairy Products	24 - 200 g pcks.	14	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Mon-Dot Hegenberg	Seafood	10 - 200 g glasses	10	
Northwoods Cranberry Sauce	Condiments	12 - 12 oz jars	6	
Mullica Nut-Nougat Crème	Confetions	20 - 450 g glasses	76	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Original Frankfurter grüne Soße	Condiments	12 boxes	32	
Outback Lager	Beverage	24 - 335 ml bottles	15	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Pâté chinois	Meat/Poultry	24 boxes x 2 pks	113	
Pavlova	Confetions	32 - 300 g boxes	29	
Pork Rentes	Meat/Poultry	48 pieces	0	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Queso Cabrales	Dairy Products	1 kg pck.	32	

Page : 2 / 4

Queso Manchego La Pastora	Dairy Products	10 - 300 g pcks.	86	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Raclette Courteau	Dairy Products	5 kg pck.	79	
Ravioles Angelo	Grains/Cereals	24 - 250 g pcks.	36	
Ribondu Kusterbier	Beverages	24 - 0.5 l bottles	123	
Rod Kavir	Seafood	24 - 150 g jars	101	
Rogede Aard	Seafood	1kg pck.	3	
Rosie's Sauvignon	Product	25 - 825 g cans	26	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Sasquatch Ale	Beverages	24 - 12 oz bottles	111	
Schöppi Schokolade	Confetions	100 - 100 g pieces	49	
Scottish Longnoseads	Confetions	10 boxes x 8 pieces	6	
Singaporean Hoiisin Fried Rice	Grains/Cereals	32 - 1 kg pcks.	26	
Sir Rooney's Hamelaise	Confetions	30 gift boxes	40	
Sir Rooney's Scones	Confetions	24 pcks. x 4 pieces	3	
Slop' erable	Confetions	24 - 300 ml bottles	113	
Soposol	Seafood	4 - 450 g glasses	95	
SteelEye Stout	Beverages	24 - 12 oz bottles	20	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Tarte au sucre	Confetions	48 pks.	17	
Teatime Chocolate Blaumilch	Confetions	10 boxes x 12 pieces	29	
Thüringer Rostbratwurst	Meat/Poultry	30 bags x 30 sausages	0	
Tofu	Produce	40 - 100 g pcks.	35	
Tourtière	Meat/Poultry	16 pks.	21	
Tunabrod	Grains/Cereals	12 - 250 g pcks.	61	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Uncle Bob's Organic Dried Pears	Product	12 - 1 lb pcks.	19	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Valkonen suklaa	Confetions	12 - 100 g bars	69	
Vegan-spread	Condiments	15 - 625 g jars	24	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Wimmer gute Semmelknödels	Grains/Cereals	20 bags x 4 pieces	22	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Zitronen lecken	Confetions	10 - 4 oz boxes	36	

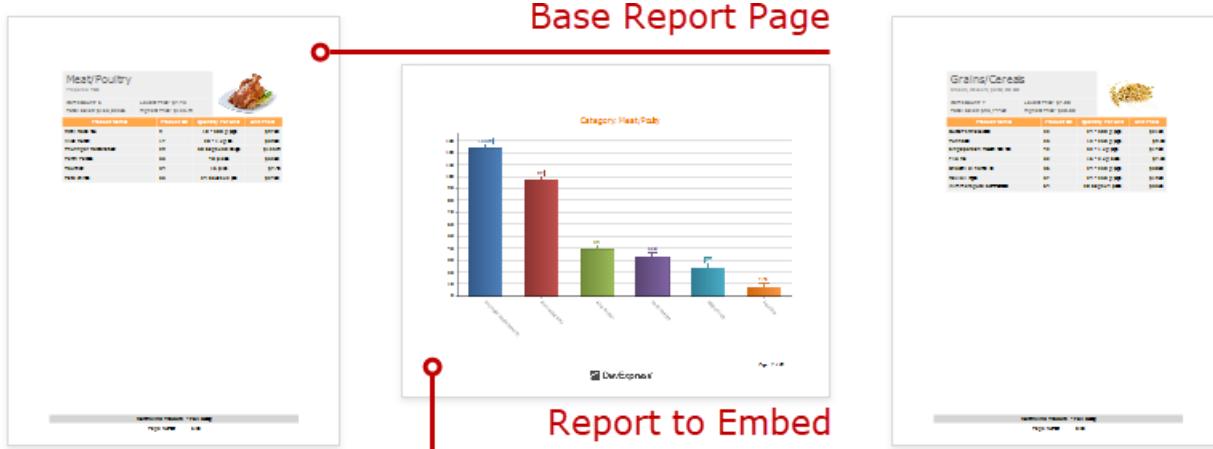
Page : 2 / 4



Page : 4 / 4

# Use Data-Driven Page Sequence

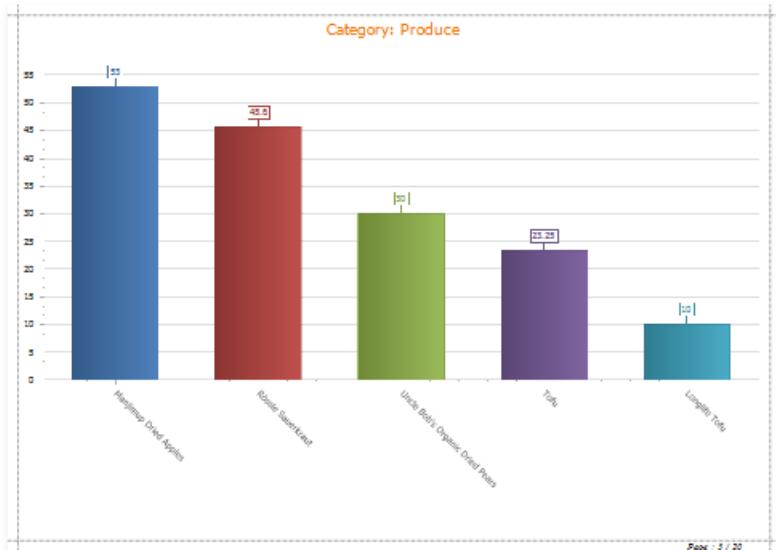
This topic describes how to combine a table report that uses Portrait page orientation and a chart report that uses Landscape page orientation.



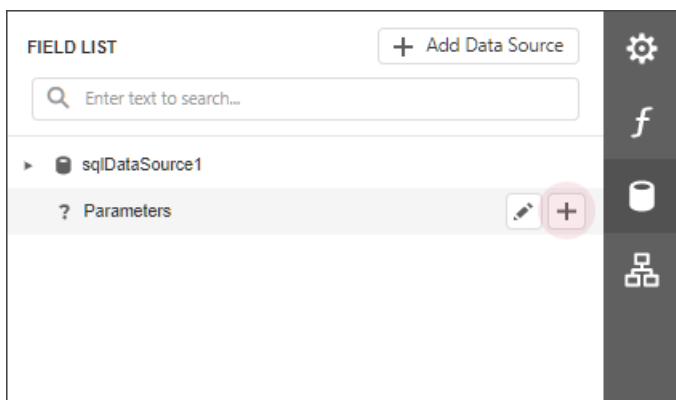
Follow the steps below to create a combined report:

## Create a Chart Report

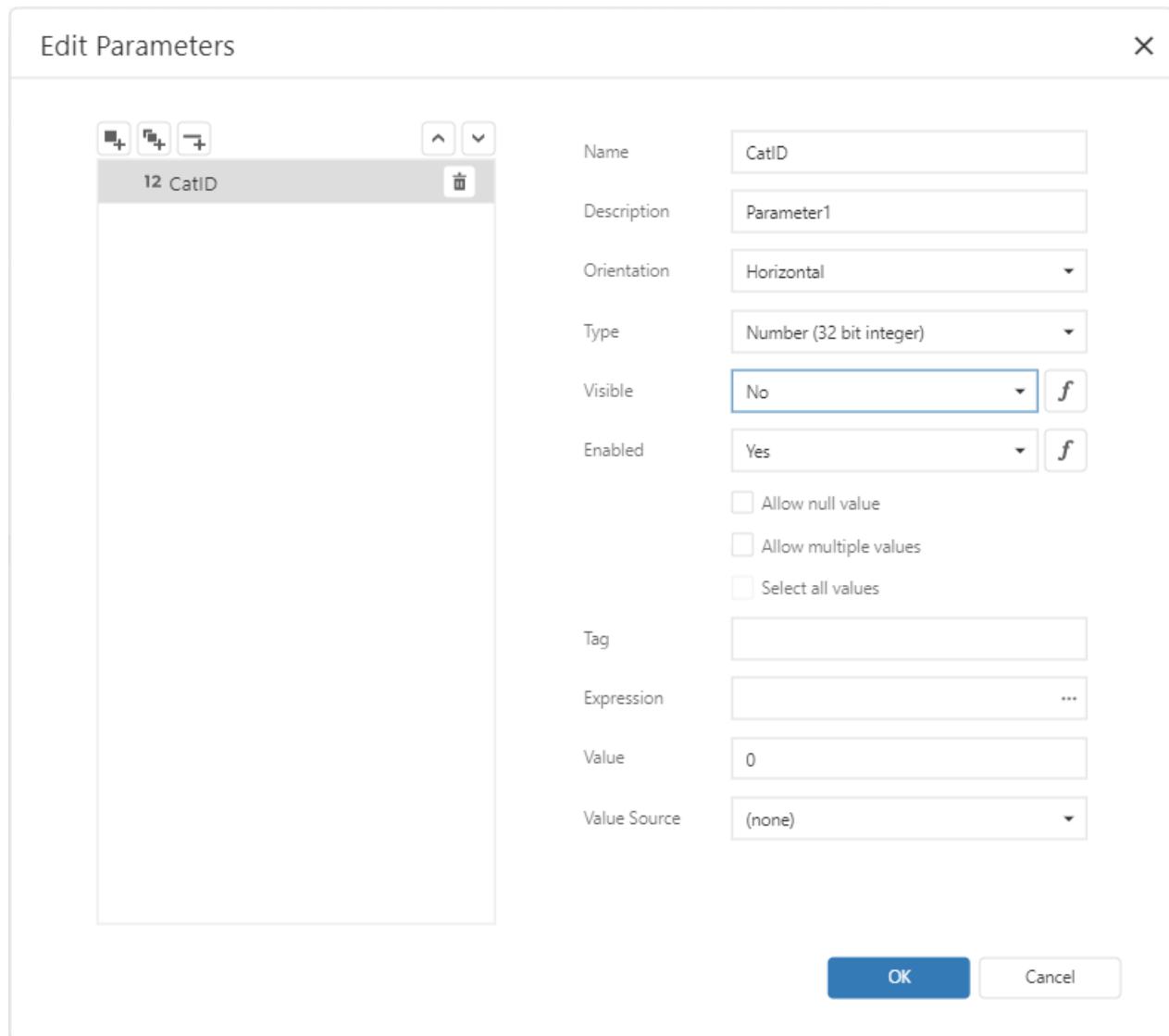
1. Create a report that shows data in the chart form. **Bind** the report to a data source. Set the report's **Landscape** property to **true** to enable the Landscape page orientation.



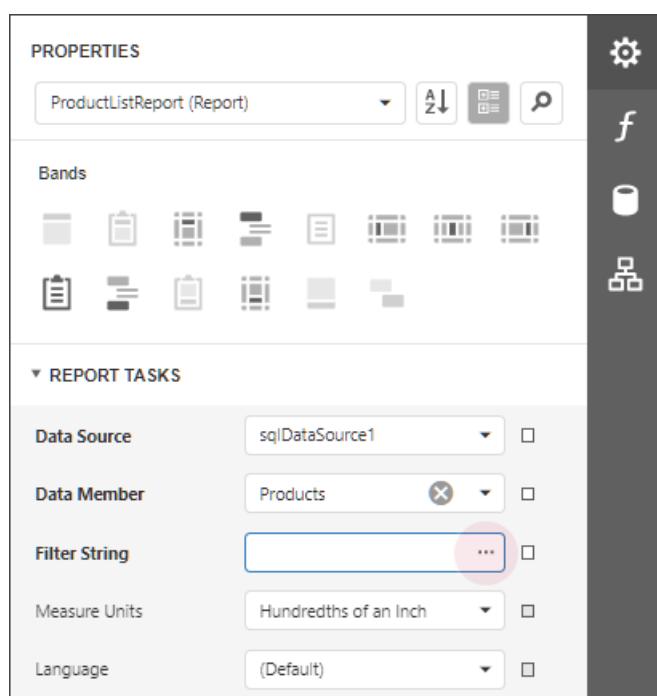
2. Add a parameter to your chart report to identify which data to use for the chart. Switch to the **Field List** tab and click the **Parameters** node's plus button.



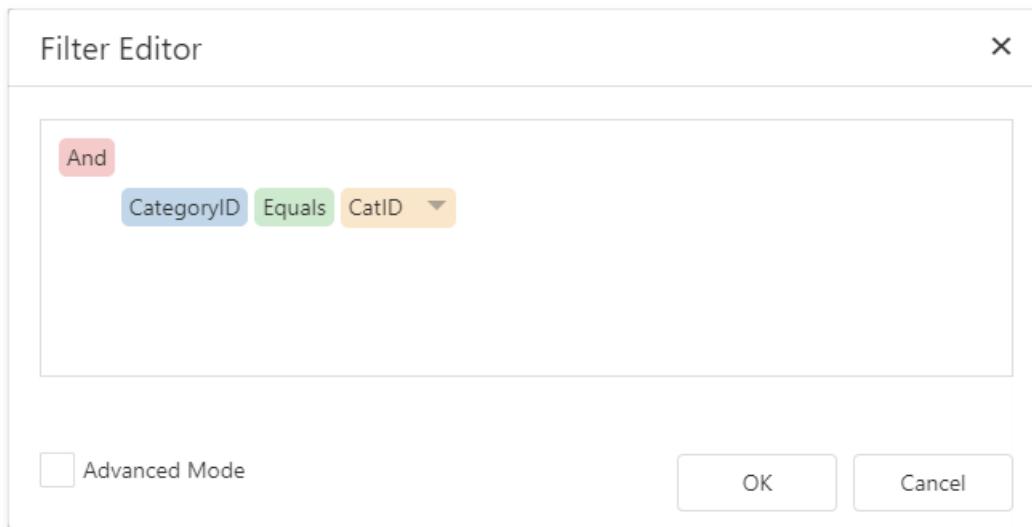
3. Click the created parameter's edit button and set its **Name** and **Type**, and uncheck the **Visible** option.



4. Switch to the report's **Properties** tab. Click the **Filter String** option's ellipsis button.



5. In the **Filter Editor** dialog, construct an expression to compare the key data field to the created parameter.



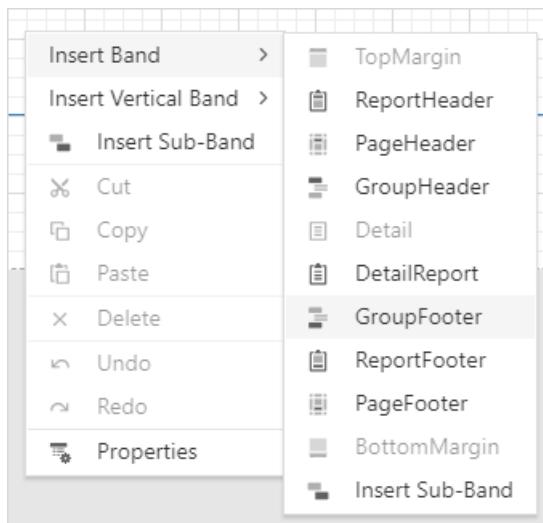
6. Save the report.

## Create the Base Report

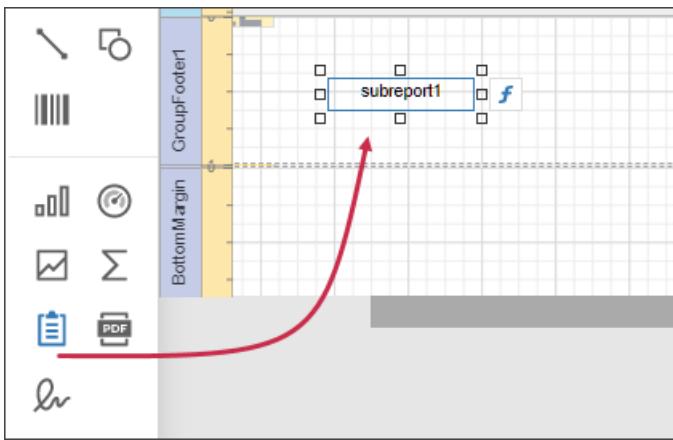
1. Create a report **bound** to the same data source as the chart report, and arrange a layout like the one shown below:

The screenshot shows a report design with a group header for 'CategoryName'. Inside the group header, there are summary expressions: 'sumCount([ProductID])', 'sumMin(UnitPrice)', and 'sumMax(UnitPrice)'. Below the group header is a detail table with four columns: 'Product Name:', 'Product ID:', 'Quantity Per Unit:', and 'Unit Price:'. Each column is bound to a specific field: 'ProductName', 'ProductID', 'QuantityPerUnit', and 'UnitPrice' respectively. The table has a dashed border around its header row.

2. Invoke the context menu and click **Insert Group Footer Band**.



3. Drag a **Subreport** item from the Toolbox onto the added group footer band.



4. Select the subreport control. In the **Subreport Tasks** group, set the **Report Source Url** parameter to the chart report.

PROPERTIES

subreport1 (Sub-Report)

Layout

# # || = ☐

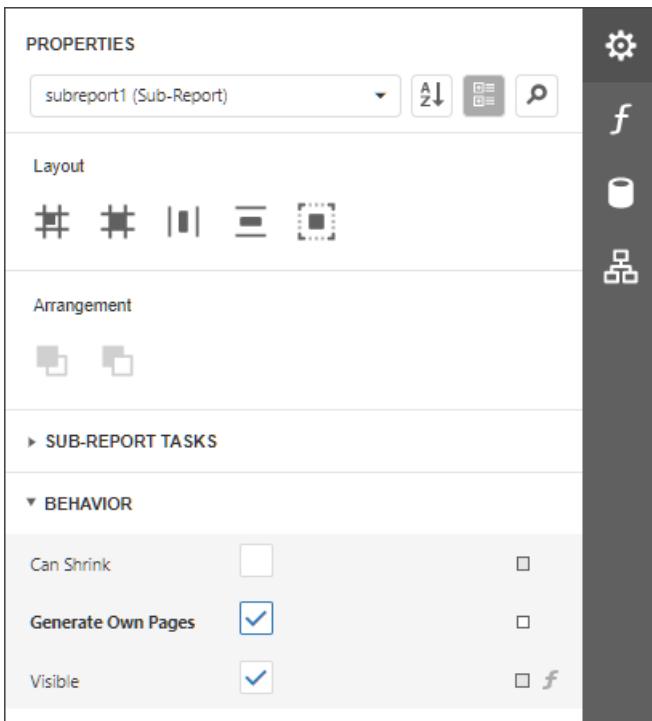
Arrangement

□ □

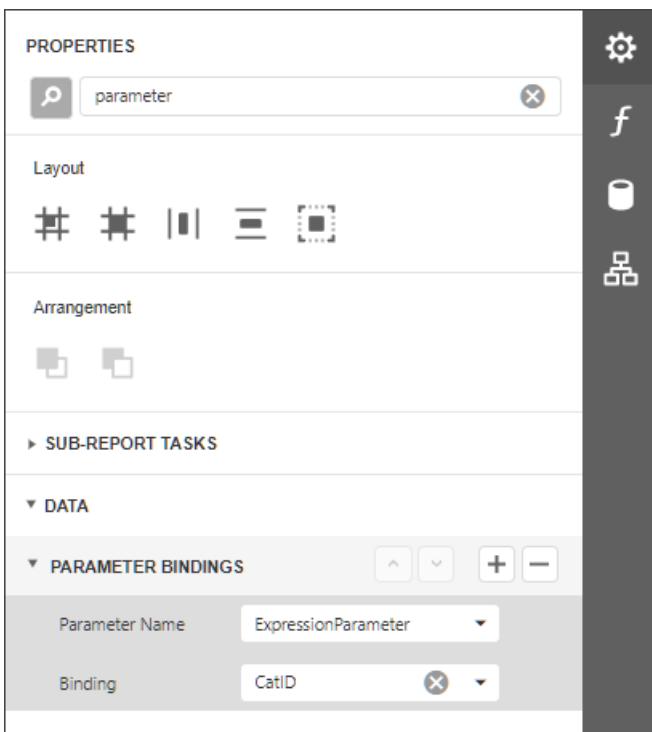
▼ SUB-REPORT TASKS

Name	subreport1
Report Source Url	<input type="button" value="Select..."/> ☐
► BEHAVIOR	
MasterDetailReport	
Subreports.MasterRep...	
MultiColumnReport	
ProductLabelsReport	
ReportMerging.Merge...	
SideBySideReports.Em...	
PivotGridAndChart	
HiddenColumns	
CalculatedFieldsReport	
NorthwindTraders.Cat...	
NorthwindTraders.Inv...	
ProfitAndLossReport	
ShrinkGrow	
MailMerge	

5. Enable the **Generate Own Pages** option to print the embedded report on separate pages and use its own page settings.

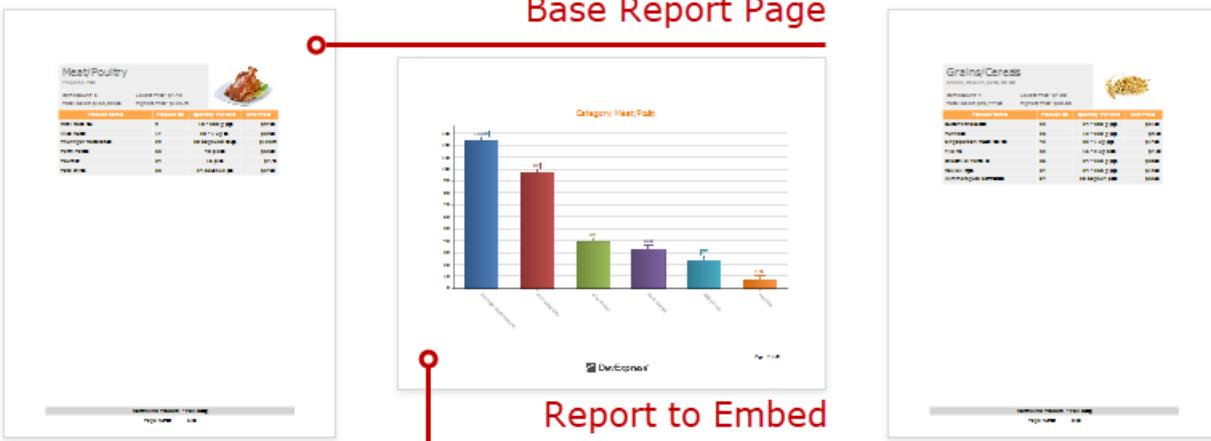


- Bind the subreport's parameter used as a filter criterion to the master report's data field that serves as a source of the parameter value. Expand the **Data** category, select the **Parameter Bindings** section and add a new parameter binding. In the binding properties list, specify the data field to bind a subreport parameter to, and the parameter you want to bind.



- Switch to Preview mode to see the combined report.

## Base Report Page



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

Topics in this section describe how to use expressions in a report:

- [Expressions Overview](#)
- [Expression Language](#)
- [Functions in Expressions](#)
- [How to: Use Expressions](#)
- [Data Binding Modes](#)

# Expressions Overview

Use expressions to accomplish the following tasks:

- [Retrieve data](#)
- [Format data values](#)
- [Create calculated fields](#)
- [Calculate summaries](#)
- [Specify conditions for report elements](#)
- [Specify conditions for data source queries](#)

## How to Specify an Expression

In the Report Designer, properties that support expressions have an  button in the [Properties](#) panel. Click this button to specify an expression in the invoked Expression Editor.



In **Expressions Advanced** mode, the Report Designer allows you to specify expressions that are evaluated within specific events:

- The **BeforePrint** event where you can use data fields from all queries in the data source.
- The **PrintOnPage** event fetches the number of pages in the report and the current page. You can use these variables to specify conditions for report items.

See the following topic for more information: [Data Binding Modes](#).

## Expression Editor

The Report Designer's Expression Editor has a graphical interface that allows you to create and edit expressions.

## Expression Editor



AccessibleDescription  
Background Color  
Bookmark  
Border Color  
Border Dash Style  
Border Width  
Borders  
▶ Font  
Foreground Color  
Height  
Left  
Navigation URL  
▶ Padding  
Style Name  
Tag  
**Text**  
Text Alignment  
Top  
Visible  
Width

1 `[UnitPrice] * [Quantity] * (1 - [Discount])`

Report Items

Fields
TopMargin
PageHeader
Detail
DetailReport
BottomMargin

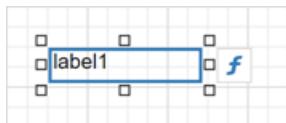
Enter text to search...

Report

OK Cancel Apply

Use one of the following ways to invoke the Expression Editor:

- Select a report, band, or control. The button appears next to the selection. Click this button to invoke the Expression Editor.



- In the **Properties** window, if an expression can be set for a property, the button appears near the value editor. Click this button to invoke the Expression Editor.



The button changes its color to blue to indicate that an expression is set for a property.



The Editor lists all properties for which you can specify an expression.

Click a property to specify an expression.

## Expression Editor



AccessibleDescription  
Background Color  
Bookmark  
Border Color  
Border Dash Style  
Border Width  
Borders  
▶ Font  
Foreground Color  
Height  
Left  
Navigation URL  
▶ Padding  
Style Name  
Tag  
**Text**  
Text Alignment  
Top  
Visible  
Width

1 [UnitPrice] \* [Quantity] \* (1 - [Discount])

Report Items
Fields
Constants
▶ Functions
Operators
Variables

Enter text to search...

▼ Report

- TopMargin
- ▶ PageHeader
- ▶ Detail
- DetailReport
- BottomMargin

OK Cancel Apply

An icon appears next to a property where an expression is set.

## Expression Editor



The screenshot shows the Expression Editor interface. On the left, a sidebar lists various properties: AccessibleDescription, Background Color, Bookmark, Border Color, Border Dash Style, Border Width, Borders, ▶ Font, Foreground Color, Height, Left, Navigation URL, ▶ Padding, Style Name, Tag, **Text**, Text Alignment, Top, Visible, and Width. The 'Text' property is currently selected, indicated by a blue italicized 'f' icon to its right. The main area displays a search interface with a search bar containing 'Enter text to search...' and a tree view under the heading 'Report Items'. The tree includes 'Fields', 'Constants', ▶ Functions, Operators, Variables, and a expanded 'Report' node which contains 'TopMargin', ▶ 'PageHeader', ▶ 'Detail', ▶ 'DetailReport', and 'BottomMargin'. At the bottom are three buttons: 'OK', 'Cancel', and 'Apply'.

The Editor highlights an expression's syntax and supports intelligent code completion (which suggests functions and available data elements as you type).

## Expression Editor

X

The screenshot shows the Expression Editor interface. On the left, there is a sidebar with various properties listed under the 'Text' category, which is currently selected. In the main area, a context menu is open over a field named '[UnitPrice] \* [D]'. The menu contains several options: 'Discount field', 'OrderID field', 'ProductID field', 'ProductName field', and 'ExtendedPrice field'. Below the menu, there is a 'Report Items' pane with sections for Fields, Constants, Functions, Operators, and Variables. A search bar at the top of the pane allows for searching report items. To the right of the search bar, there are three buttons: 'OK', 'Cancel', and 'Apply'.

AccessibleDescription  
Background Color  
Bookmark  
Border Color  
Border Dash Style  
Border Width  
Borders  
► Font  
Foreground Color  
Height  
Left  
Navigation URL  
► Padding  
Style Name  
Tag  
**Text**

Text Alignment  
Top  
Visible  
Width

1 [UnitPrice] \* [D]

Discount field  
OrderID field  
ProductID field  
ProductName field  
ExtendedPrice field

Report Items

Enter text to search...

Fields  
Constants  
► Functions  
Operators  
Variables

Report

TopMargin  
► PageHeader  
► Detail  
► DetailReport  
BottomMargin

OK Cancel Apply

The Expression Editor displays all the errors it finds in the specified expression.

## Expression Editor



AccessibleDescription  
Background Color  
Bookmark  
Border Color  
Border Dash Style  
Border Width  
Borders  
▶ Font  
Foreground Color  
Height  
Left  
Navigation URL  
▼ Padding  
All  
Bottom  
Left  
Right  
Top  
Style Name  
Tag  
**Text** 

1 [UnitPrice] \*\*

[UnitPrice] \*\*

Report Items

Enter text to search...

Fields  
Constants  
► Functions  
Operators  
Variables

Report

TopMargin  
PageHeader  
Detail  
DetailReport  
BottomMargin

OK Cancel Apply

The Editor lists a tree with language elements and items that you can use in an expression.

## Expression Editor



The screenshot shows the Expression Editor interface. On the left, there is a sidebar with various properties listed: AccessibleDescription, Background Color, Bookmark, Border Color, Border Dash Style, Border Width, Borders, Font (expanded), Foreground Color, Height, Left, Navigation URL, Padding (expanded), All, Bottom, Left, Right, Top, Style Name, Tag, and Text (selected). Below the sidebar is a blue 'f' icon. The main area contains a tree view of report items under the 'Report Items' tab. The tree structure is as follows:

- Report
  - TopMargin
  - PageHeader
    - panel1
      - pictureBox1
      - table2

At the bottom right of the editor are three buttons: OK, Cancel, and Apply.

## FilterString Editor

You can use the Report Designer's **FilterString Editor** to specify the **FilterString** property of a report, Cross Tab, or Chart Series.

The **FilterString Editor**'s visual interface allows you to use an unlimited number of conditions and combine them with logical operators to create filter criteria. You can also switch to Text mode and type a filter string.

## Filter Editor

X

And

CustomerID Is any of paramCompany ▾

[CustomerID] In (?paramCompany)

Advanced Mode

OK

Cancel

The **FilterString Editor** highlights an expression's syntax and supports intelligent code completion (which suggests functions and available data elements as you type).

## Filter Editor

X

Cannot create a tree for this expression

[CustomerID] i|

In() function

Is Not Null operator

Is Null operator

Like operator

Not Like operator

Is any of

Advanced Mode

OK

Cancel

## Expression Syntax

An expression can include field names, constants, operators, functions, data fields, and parameters.

See the following topic for more information: [Expression Language](#).

# Expression Language

This section describes the report-specific expression syntax.

## Expression Syntax

An expression is a text string that specifies what data to take and how to process it to obtain a value. For instance, the following expression returns an integer value of 5:

```
3 + 2
```

An expression string can consist of multiple lines that include constants, operators, function calls, fields or parameters, report items, and comments:

```
/*
This expression is set for the Visible property of a control
to show/hide the control based on the ShowTotalAmount parameter value.
*/
If (
?ShowTotalAmount == True,
True,
False
)
```

## Constants

- 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] &gt;= #2018-03-22 13:18:51.94944#
```

- True

The Boolean True value.

```
[InStock] == True
```

- False

The Boolean False value.

```
[InStock] == False
```

- Enumeration

Specify an enumeration value by its underlying integer value.

```
[Status] == 1
```

- 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 numeric constant types in a string form by suffixes:

- Int32 (int) - *1*
- Int16 (short) - *1s*
- Byte (byte) - *1b*
- Double (double) - *1.0*
- Single (float) - *1.0f*
- Decimal (decimal) - *1.0m*

VALUE	SUFFIX	EXAMPLE
32-bit integer	No suffix	[CategoryID] == 1
16-bit integer	s	[CategoryID] == 1s
Byte	b	[CategoryID] == 1b
Double-precision floating-point number	No suffix	[Length] == 1.0
Single-precision floating-point number	f	[Length] == 1.0f
Decimal floating-point number	m	[Price] == 25.0m

- ?

A null reference that does not refer to any object.

We recommend that you use the **IsNull** unary operator (for example, "[Region] is null") or the **IsNull** logical function (for example, "IsNull([Region])") instead of ?.

```
[Region] != ?
```

## Operators

- +

Adds the value of one numeric expression to another or concatenates two strings.

```
[UnitPrice] + 4  
[FirstName] + ' ' + [LastName]
```

- -

Finds the difference between two operands.

```
[Price1] - [Price2]
```

- \*

Multiplies the value of two operands.

```
[Quantity] * [UnitPrice]
```

- /

Divides the first operand by the second.

```
[Quantity] / 2
```

- %

Divides one numeric operand by the other and returns the remainder (modulus).

```
[Quantity] % 3
```

- |

Performs a bitwise inclusive OR operation 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 the two 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 operation on two numeric expressions.

```
[Number] ^ [Number]
```

- ==

Returns **True** if both operands are equal; otherwise, it returns **False**.

```
[Quantity] == 10
```

- !=

Returns **True** if the operands are not equal; 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 (one that does not refer to any object).

```
[Region] is null
```

## Operator Precedence

When an expression contains multiple operators, these operators are evaluated in the following sequence:

- Literal values

- Parameters
- Identifiers
- OR (left-associative)
- AND (left-associative)
- The '.' relationship qualifier (left-associative)
- ==, !=
- <, >, <=, >=
- -, + (left-associative)
- \*, /, % (left-associative)
- NOT
- Unary -
- In
- If
- Trim(), Len(), Substring(), IsNull()
- '[]' (for set-restriction)
- '()'

Group elements with parentheses to change operator precedence. For instance, operators are applied in the default order in the following expression:

```
Accounts[Amount == 2 + 48 * 2]
```

In the next expression, the addition operation is applied first, because its associated elements are grouped with parentheses, and the multiplication operation is applied last.

```
Accounts[Amount == (2 + 48) * 2]
```

## Functions

The expression language includes a set of functions that extend an expression's capabilities:

- Logical functions
- Date and time functions
- Math functions
- String functions
- Functions for expression bindings and calculated fields
- Functions for stored procedures
- Functions for the Summary Expression Editor

You can also implement custom functions.

See the following topic for a complete list of functions that are available in expressions: [Functions in Expressions](#).

## Case Sensitivity

Operators are case-insensitive. Case sensitivity of values can depend on the data source. For instance, SQL Server Express 2005 is configured as case-insensitive. In this case, the following [filter expression](#) always evaluates to **True**:

```
Lower(Name) == Upper(Name)
```

## Escape Keywords

You can mark a keyword-like field name with the @ escape character. In the expression below, the **CriteriaOperator.Parse** method interprets `@Or` as a field named **Or**, not the logical operator OR.

```
@Or = 'value'
```

## Escape Characters

Use a backslash (\) as an escape character for characters in an expression, as shown below:

```
\[
```

```
\\\
```

```
\'
```

Use an apostrophe ('') as an escape character for string literals:

```
'A parameter''s value is:' + ?parameter1
```

## Data Fields and Calculated Fields

Enclose a data field or calculated field's name in square brackets ([ ] and [ ]):

```
/*
This expression is set for a control's Text property
to bind the control to the UnitPrice data field.
*/
[UnitPrice]
```

Ensure that the field with the specified name exists in the report's data source and data member.

You can refer to data fields from a data member that is not specified as the report's data member (only the first record is returned):

```
/*
This expression is set for a control's Text property
to bind the control to the UnitPrice data field from the Products data member
(the report is not bound to Products).
*/
[Products].[UnitPrice]
```

## Report Parameters

Use the following syntax to insert [report parameters](#) in an expression:

- Type a question mark before a parameter's name.

```
?parameter1
```

- (*Obsolete*) Use the "Parameters." prefix in front of a report parameter's name.

```
[Parameters.parameter1]
```

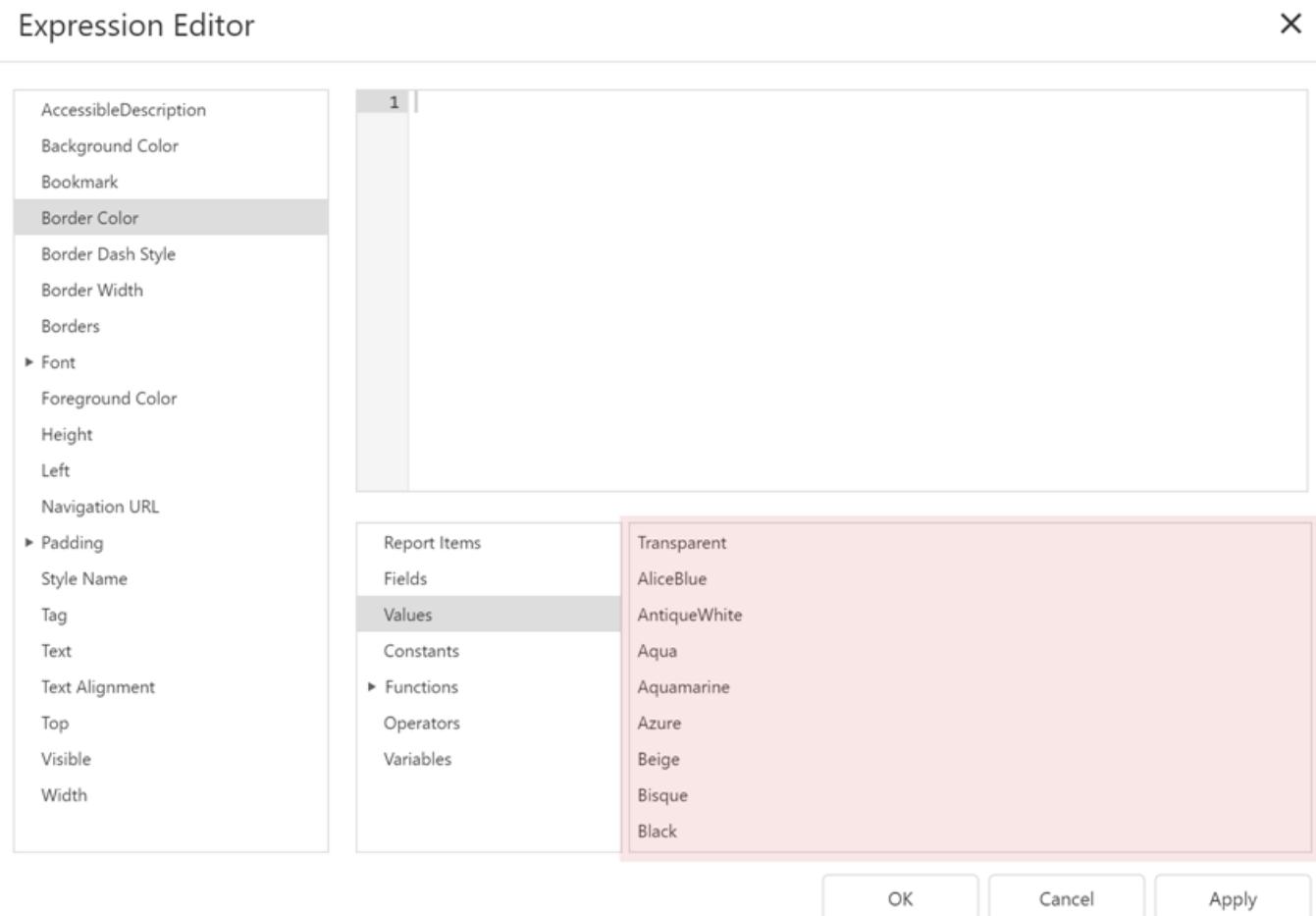
## Enumerations

Do one of the following to assign an enumeration value to a property:

- Specify an enumeration value by its underlying integer value.

```
[Borders] = 1
```

- The **Expression Editor** can help you specify a string value for built-in enumerations:



## Comments

The expression language supports comments. For example:

```
/*
This is a comment within an expression.
*/
```

Comments start with the `/*` sequence and end at the matching `*/` sequence.

# Functions in Expressions

This topic lists the functions that you can use in an [expression](#).

## Aggregate Functions

FUNCTION	DESCRIPTION	EXAMPLE
Avg(Value)	Evaluates the average of the values in the collection.	[Products].Avg([UnitPrice])
Count()	Returns the number of objects in a collection.	[Products].Count()
Exists()	Determines whether the object exists in the collection.	[Categories][[CategoryID] == 7].Exists()
Join()	Concatenates all Expression values in the <i>Collection</i> based on the specified <i>Condition</i> (optional) into a single string separated by the specified <i>Separator</i> (optional). If you do not specify a <i>Separator</i> , the function uses a comma. The function has the following overloads: <code>[Collection][Condition].Join(Expression)</code> <code>[Collection][Condition].Join(Expression, Separator)</code>	The following expression concatenates <i>CompanyName</i> field values within a report grouped by the <i>CategoryID</i> field into a single string separated by a semicolon: <code>[][[CategoryID] == ^.CategoryID].Join([CompanyName], ';')</code>
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 an object if it is the only element in a collection.	[Accounts].Single() is not null
Single(Expression)	You can pass an expression as a parameter: <code>[Collection][Condition].Single(Expression)</code> . This function returns the <i>Expression</i> if the <i>Collection</i> contains only one object that meets the specified <i>Condition</i> (optional).	[Collection].Single([Property1]) - returns the found object's property value.
Sum(Value)	Returns the sum of all expression values in the collection.	[Products].Sum([UnitsInStock])

## Date and Time Functions

FUNCTION	DESCRIPTION	EXAMPLE
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))

FUNCTION	DESCRIPTION	EXAMPLE
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())
DateDiffMinute(startDate, endDate)	Returns the number of minute boundaries between two non-nullable dates.	DateDiffMinute([StartTime], Now())
DateDiffMonth(startDate, endDate)	Returns the number of month boundaries between two non-nullable dates.	DateDiffMonth([StartTime], Now())
DateDiffSecond(startDate, 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())
DateTimeFromParts(Year, Month, Day, Hour, Minute, Second, Millisecond)	Returns a date value constructed from the specified Year, Month, Day, Hour, Minute, Second, and Millisecond.	DateTimeFromParts(2018, 5, 5, 20)
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])

FUNCTION	DESCRIPTION	EXAMPLE
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 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])
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])

FUNCTION	DESCRIPTION	EXAMPLE
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 a DateTime value corresponding to the first day of the previous month.	AddMonths(LocalDateTimeLastMonth(), 5)
LocalDateTimeLastWeek()	Returns a date-time value corresponding to the first day of the previous week.	AddDays(LocalDateTimeLastWeek(), 5)
LocalDateTimeLastYear()	Returns a 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)

FUNCTION	DESCRIPTION	EXAMPLE
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 a DateTime value corresponding to the first day of the following month.	AddMonths(LocalDateTimeTwoMonthAway(), 5)
LocalDateTimeTwoWeeksAway()	Returns a DateTime value corresponding to the first day of the following week.	AddDays(LocalDateTimeTwoWeeksAway(), 5)
LocalDateTimeTwoYearsAway()	Returns a DateTime value corresponding to the first day of the following year.	AddYears(LocalDateTimeTwoYearsAway(), 5)
LocalDateTimeYearBeforeToday()	Returns a DateTime value corresponding to the same date 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)
UtcNow()	Returns the current system date and time, expressed as Coordinated Universal Time (UTC).	AddDays(UtcNow(), 7)

## Logical Functions

- **Iif(Expression1, True\_Value1, ..., ExpressionN, True\_ValueN, False\_Value)**

Returns one of several specified values depending upon the values of logical expressions.

The function can take  $2N+1$  arguments ( $N$  - the number of specified logical expressions):

- Each odd argument specifies a logical expression.
- Each even argument specifies the value that is returned if the previous expression evaluates to **True**.
- ...
- The last argument specifies the value that is returned if the previously evaluated logical expressions yielded **False**.

```
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	EXAMPLE
<code>Abs(Value)</code>	Returns the given numeric expression's absolute, positive value.	<code>Abs(1 - [Discount])</code>
<code>Acos(Value)</code>	Returns a number's arccosine (the angle in radians, whose cosine is the given float expression).	<code>Acos([Value])</code>
<code>Asin(Value)</code>	Returns a number's arcsine (the angle in radians, whose sine is the given float expression).	<code>Asin([Value])</code>
<code>Atn(Value)</code>	Returns a number's arctangent (the angle in radians, whose tangent is the given float expression).	<code>Atn([Value])</code>
<code>Atn2(Value1, Value2)</code>	Returns the angle whose tangent is the quotient of two specified numbers in radians.	<code>Atn2([Value1], [Value2])</code>
<code>BigMul(Value1, Value2)</code>	Returns an Int64 containing the full product of two specified 32-bit numbers.	<code>BigMul([Amount], [Quantity])</code>
<code>Ceiling(Value)</code>	Returns the smallest integer that is greater than or equal to the numeric expression.	<code>Ceiling([Value])</code>
<code>Cos(Value)</code>	Returns the angle's cosine, in radians.	<code>Cos([Value])</code>
<code>Cosh(Value)</code>	Returns the angle's hyperbolic cosine, in radians.	<code>Cosh([Value])</code>
<code>Exp(Value)</code>	Returns the float expression's exponential value.	<code>Exp([Value])</code>
<code>Floor(Value)</code>	Returns the largest integer less than or equal to the numeric expression.	<code>Floor([Value])</code>
<code>Log(Value)</code>	Returns a specified number's natural logarithm.	<code>Log([Value])</code>
<code>Log(Value, Base)</code>	Returns the logarithm of a specified number in a specified Base.	<code>Log([Value], 2)</code>
<code>Log10(Value)</code>	Returns a specified number's base 10 logarithm.	<code>Log10([Value])</code>
<code>Max(Value1, Value2)</code>	Returns the maximum value from the specified values.	<code>Max([Value1], [Value2])</code>
<code>Min(Value1, Value2)</code>	Returns the minimum value from the specified values.	<code>Min([Value1], [Value2])</code>

FUNCTION	DESCRIPTION	EXAMPLE
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])
ToLong(Value)	Converts Value to an equivalent 64-bit signed integer.	ToLong([Value])

## Reporting Functions

- 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: '1,200,30,200' */
```

- GetDisplayText(?parameterName)

Returns a Display Text for a parameter's lookup value.

For **non-lookup parameters**, this function returns a value converted to string.

```
/* ?employeeParameter stores static or dynamic predefined values
where EmployeeID is a parameter value
and EmployeeName is a display text. */
GetDisplayText(?employeeParameter)
```

- Rgb(Red, Green, Blue)

Returns a string defining a color using the Red, Green, and Blue color channel values.

```
Rgb(30,200,150)
/* Result: '30,200,150' */
```

- CurrentRowIndexInGroup()

Returns the current row's index within the group.

The following expression adds row indexes in the group:

```
CurrentRowIndexInGroup(0) + 1
```

- GroupIndex(level)

Locates the parent group row at the specified nesting level and returns that row's index.

The following expression displays indexes of root-level groups:

```
GroupIndex(1) + 1
```

- NextRowColumnValue(columnName)

Obtains the next row and returns the value from the specified column.

- PrevRowColumnValue(columnName)

Obtains the previous row and returns the value from the specified column.

## String Functions

FUNCTION	DESCRIPTION	EXAMPLE
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 StartPosition	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])

FUNCTION	DESCRIPTION	EXAMPLE
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(String1, SubString2, String3)	Returns a copy of String1, in which SubString2 has been replaced with String3.	Replace([Name], 'The ', '')
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](#):

- **NewLine()**  
Returns the newline string defined for the current environment.

```
[CategoryName]+NewLine()+[Description]
/*
Result:
Beverages
Soft drinks, coffees, teas, beers and ales.
/*
```

- **FormatString(Format, Value1, ... , ValueN)**

Returns the specified string with formatted field values.

See the following topic for details: [Format Data](#).

```
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: '30,200,150'
*/
```

- **Join()**

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.

This function has two overloads:

- **Join(parameter)** - concatenates the specified parameter's values using a comma as a separator.
- **Join(parameter, separator)** - concatenates the specified parameter's values using the specified separator.

```
Join(?CategoriesParameter)
/*
Result: Beverages, Condiments
*/
Join(?CategoriesParameter, newline())
/*
Result:
Beverages
Condiments
*/
```

## Functions for Stored Procedures

The following functions are used to bind a report to a stored procedure:

- **Join()**

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 following topic for more information: [Query Parameters](#).

This function has two overloads:

- **Join(parameter)** - concatenates the specified parameter's values using a comma as a separator.
- **Join(parameter, separator)** - concatenates the specified parameter's values using the specified separator.

```
Join(?Parameter1)
```

- **CreateTable(Column1, ..., ColumnN)**

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 following topic for more information: [Query Parameters](#).

```
CreateTable(?Parameter1, ..., ?ParameterN)
```

## Functions for Summary Expression Editor

Use the following functions when you [calculate a summary](#) across a report and its groups:

- `sumAvg(Expression)`

Calculates the average of all values within the specified summary region (group, page, or report).

```
sumAvg([UnitPrice])
```

- `sumCarryoverSum(Expression)`

Calculates the carried forward and brought forward totals.

```
sumCarryoverSum([Amount])
```

- `sumCount(Expression)`

Counts the number of values within the specified summary region (group, page, or report). In a simple scenario, you may not pass a parameter.

When using this function in a [master-detail report](#)'s master band and passing a detail field as a parameter, the function counts the number of records within the detail band.

See also:

- [Count the Number of Records in a Report or Group](#)
- [Count the Number of Groups in a Report](#)

```
sumCount([UnitPrice])
```

- `sumDAvg(Expression)`

Calculates the average of all **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 **distinct** values within the specified summary region (group, page, or report).

```
sumDStdDev([UnitPrice])
```

- `sumDStdDevP(Expression)`

Calculates the standard population deviation of all **distinct** values within the specified summary region (group, page, or report).

```
sumDStdDevP([UnitPrice])
```

- `sumDSum(Expression)`

Calculates the total of all **distinct** values within the specified summary region (group, page, or report).

```
sumDSum([UnitPrice])
```

- **sumDVar(Expression)**

Calculates the amount of variance for all **distinct** values within the specified summary region (group, page, or report).

```
sumDVar([UnitPrice])
```

- **sumDVarP(Expression)**

Calculates the population variance of all **distinct** values within the specified summary region (group, page, or report).

```
sumDVarP([UnitPrice])
```

- **sumMax(Expression)**

Calculates the maximum of all values within the specified summary region (group, page, or report).

```
sumMax([UnitPrice])
```

- **sumMedian(Expression)**

Finds the middle number within a sequence.

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 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: [Display Row Numbers on a Report, Group, or Page](#)

```
sumRecordNumber()
```

- **sumRunningSum(Expression)**

Calculates the sum of all previous values displayed before the current data row with the current data row value.

```
sumRunningSum([UnitPrice])
```

- **sumStdDev(Expression)**

Calculates the standard deviation of all values within the specified summary region (group, page, or report).

```
sumStdDev([UnitPrice])
```

- **sumStdDevP(Expression)**

Calculates the standard population deviation of all values within the specified summary region (group, page, or report).

```
sumStdDevP([UnitPrice])
```

- **sumSum(Expression)**

Calculates the total of all values within the specified summary region (group, page, or report).

```
sumSum([UnitsInStock])
```

- **sumVar(Expression)**

Calculates the amount of variance for all values within the specified summary region (group, page, or report).

```
sumVar([UnitPrice])
```

- **sumVarP(Expression)**

Calculates the population variance of all values within the specified summary region (group, page, or report).

```
sumVarP([UnitPrice])
```

- **sumWAvg(Expression, Expression)**

Calculates the weighted average of all values within the specified summary region (group, page, or report). This summary type returns the result of the following operation: Sum(Expression1 \* Expression2) / Sum(Expression2).

```
sumWAvg([UnitPrice])
```

# How to: Use Expressions

This topic lists solutions to common [expression](#)-related tasks.

## Group Clauses with Brackets

Use square brackets to specify a condition under which the expression should return the result.

For instance, the following expression returns all Customers that have an account Date of 8/25/2006 and an account Amount of 100:

```
[Accounts][[Date] == #8/25/2006#] && [Accounts][[Amount] == 100]
```

Construct an 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]
```

## Calculate Group Summaries

Use the ^ operator to specify an expression that calculates a group summary.

- Sum up the **EFC** field values in a group:

```
[]|[GroupFieldName] == [^.GroupFieldName]].Sum([EFC])
```

- Specify the group header value:

```
[]|[CategoryID] == [^.CategoryID] and [ProductID] == []|[CategoryID] == [^.CategoryID]].Max([ProductID]).Max([ProductName])
```

- Count the number of times a value occurs:

The following expression counts how many times the value 12 occurs in the data source:

```
[]|[FootSize]='12'].Count()
```

The following expression counts the number of records with non-zero values:

```
[]|[FootSize]!>0].Avg([FootSize])
```

## Reference Report Items

A report's elements are displayed in the Report Designer's Report Explorer. You can access these elements and their properties in an expression. The following example demonstrates how to set a label's BackColor property to another label's BackColor property value:

```
[ReportItems].[xrLabel2].[BackColor]
```

### NOTE

- [ReportItems]** is a plain list that provides access to all report items at one level.
- You cannot use the ReportItems collection in a [Calculated Field](#)'s expression.

## Specify Images for Picture Boxes

When you specify an expression for the [Picture Box](#)'s **Image Source** property, you can use image **Ids** from the report's

**ImageResources** collection.

`IIf([MarchSales]>20, [Images.ArrowUp],[Images.ArrowDown])`

## Use Row/Column Indexes for Cross Tab Cells

Use the following variables to change a Cross Tab cell's appearance settings:

- `Arguments.GroupColumnIndex`

Returns the index of a cell's column within a group.

```
iif([Arguments.GroupColumnIndex] % 2 == 1, Rgb(235, 241, 252), ?)
/*
Result: The specified color applies an odd-even color style to the Cross Tab's columns.
*/
```

- `Arguments.GroupRowIndex`

Returns the index of a cell's row within a group.

```
iif([Arguments.GroupRowIndex] % 2 == 1, Rgb(235, 241, 252), ?)
/*
Result: The specified color applies an odd-even color style to cross tab rows.
*/
```

## Use Variables for Event-Related Expressions

- `DataSource.RowCount`

Returns the total amount of data rows in a data source.

```
[DataSource.RowCount] != 0
/*
Result: When this expression is applied to a control's Visible property, the control is hidden if the
data source contains no data.
*/
```

- `DataSource.CurrentRowIndex`

Returns an index of the current data row in a data source.

```
Iif([DataSource.CurrentRowIndex] % 2 = 0, 'red', 'green')
/*
Result: When this expression is used for a table row's BackColor property, odd rows are colored in red,
even rows are colored in green.
*/
```

- `DataSource.CurrentRowHierarchyLevel`

Returns a zero-based level of the current row in a [hierarchical report](#).

```
Iif([DataSource.CurrentRowHierarchyLevel] == 0, Rgb(231,235,244), ?)
/*
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.
*/
```

### NOTE

These variables are not valid when the report includes a [table of contents](#).

## Specify Parent Relations

Use the '^' parent relation operator to refer to a parent in expressions that are written in the context of a child. You can apply this operator successively to span multi-level parent relationships.

You can use this operator to refer to the currently processed report group. This allows you to calculate aggregates within groups, as shown in the following expression:

```
[[][^.CategoryID] == [CategoryID]].Sum([UnitPrice])
```

## Test Collection Elements

Use brackets to check if a collection contains an element that meets a condition. The following expression returns *true* if the Accounts collection contains at least one element that meets the *[Amount] == 100* condition:

```
[Accounts][[Amount] == 100]
```

The following expression returns *false* if the Accounts collection is empty:

```
[Accounts][]
```

Refer to the following topic for an example on how to use this syntax: [Calculate an Aggregate Function](#).

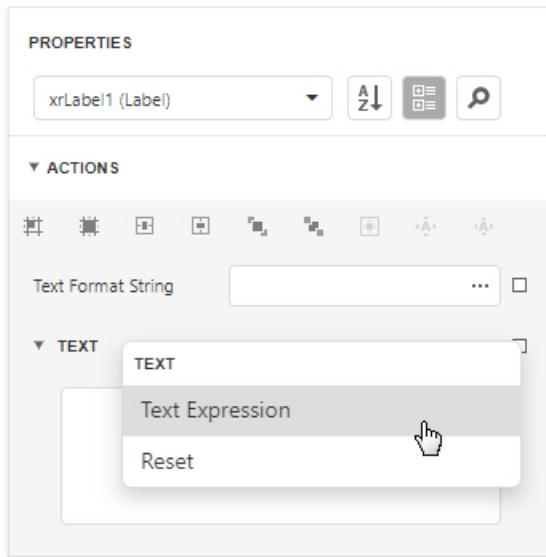
# Data Binding Modes

The Report Designer works in one of the following data binding modes:

- **Expressions** is the default binding mode.

This mode enables you to specify complex [expressions](#) that include two or more data fields, [report parameters](#), or [functions](#). You can also use expressions to [calculate summaries](#) of any complexity or [conditionally shape your data](#).

Click a property's marker to see whether the invoked context menu has the **PropertyName Expression** item that invokes the **Expression Editor**.

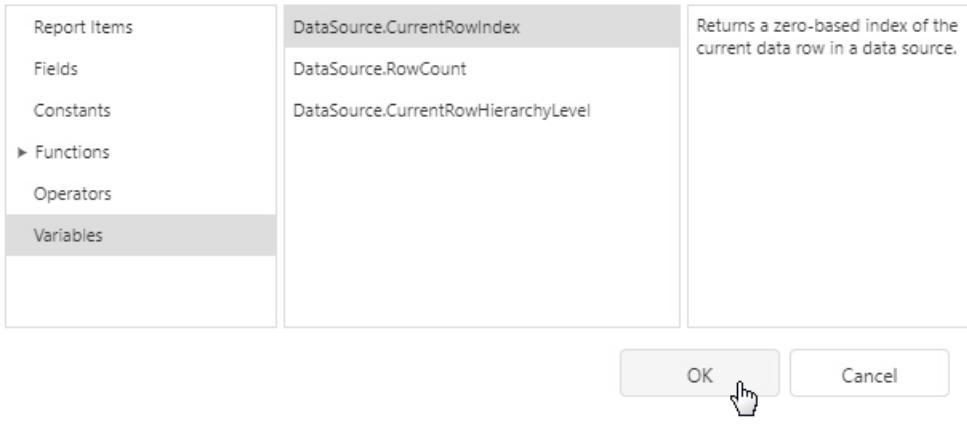


The **Expression Editor** allows you to use functions, access report bands and controls, and reference data source values in the constructed expression.

## Expression Editor

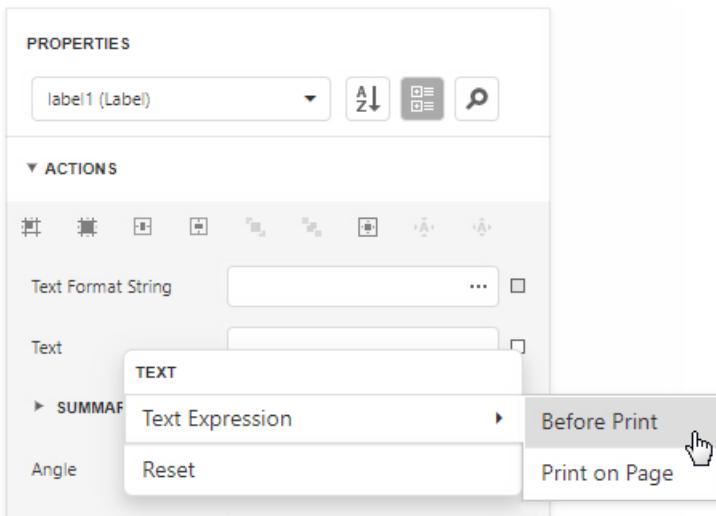
X

```
1 ([DataSource.CurrentRowIndex] % ?parameter1 == 0) And  
2 ([DataSource.CurrentRowIndex] != 0)
```



- **Expressions Advanced** is the advanced Expression mode.

This mode enables you to specify an expression that is evaluated within a control's specific event.



The **Expression Editor** allows you to use event argument values in the constructed expressions. Event arguments are available in the [Variables](#) section.

In the **BeforePrint** event, you can use data fields from all queries in the data source.

Expression Editor

```
1 'Price: ' + [UnitPrice]
```

Report Items

Fields

Constants

► Functions

Operators

Variables

Enter text to search...

CategoryID  
ProductID  
ProductName  
**UnitPrice**  
UnitsInStock  
Parameters

OK Cancel

In the **PrintOnPage** event, data source fields are not available because data was fetched when this event occurs. You can use the event arguments that are available in the [Variables](#) section.

Expression Editor

```
1 ([DataSource.CurrentRowIndex] % ?parameter1 ==0) And
2 ([DataSource.CurrentRowIndex] != 0)
```

Report Items

Fields

Constants

► Functions

Operators

Variables

DataSource.CurrentRowIndex

DataSource.RowCount

DataSource.CurrentRowHierarchyLevel

ArgumentsPageIndex

ArgumentsPageCount

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

OK Cancel

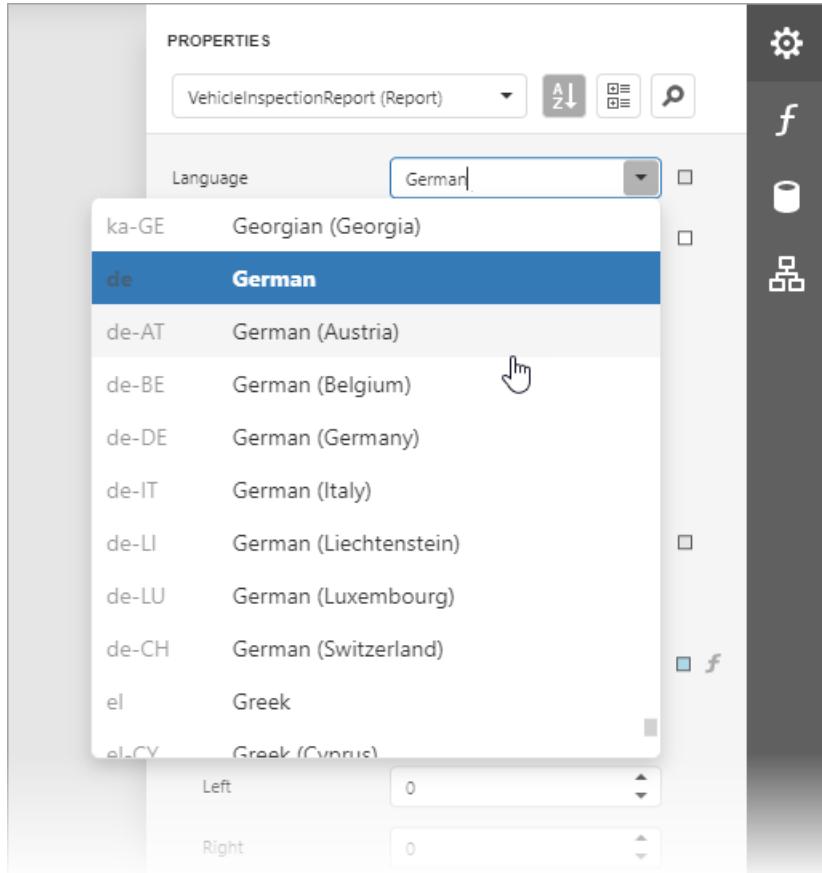
# Localize Reports

The Report Designer enables you to localize a report for different languages and cultures and save localized values to the report file.

## Use Properties Panel

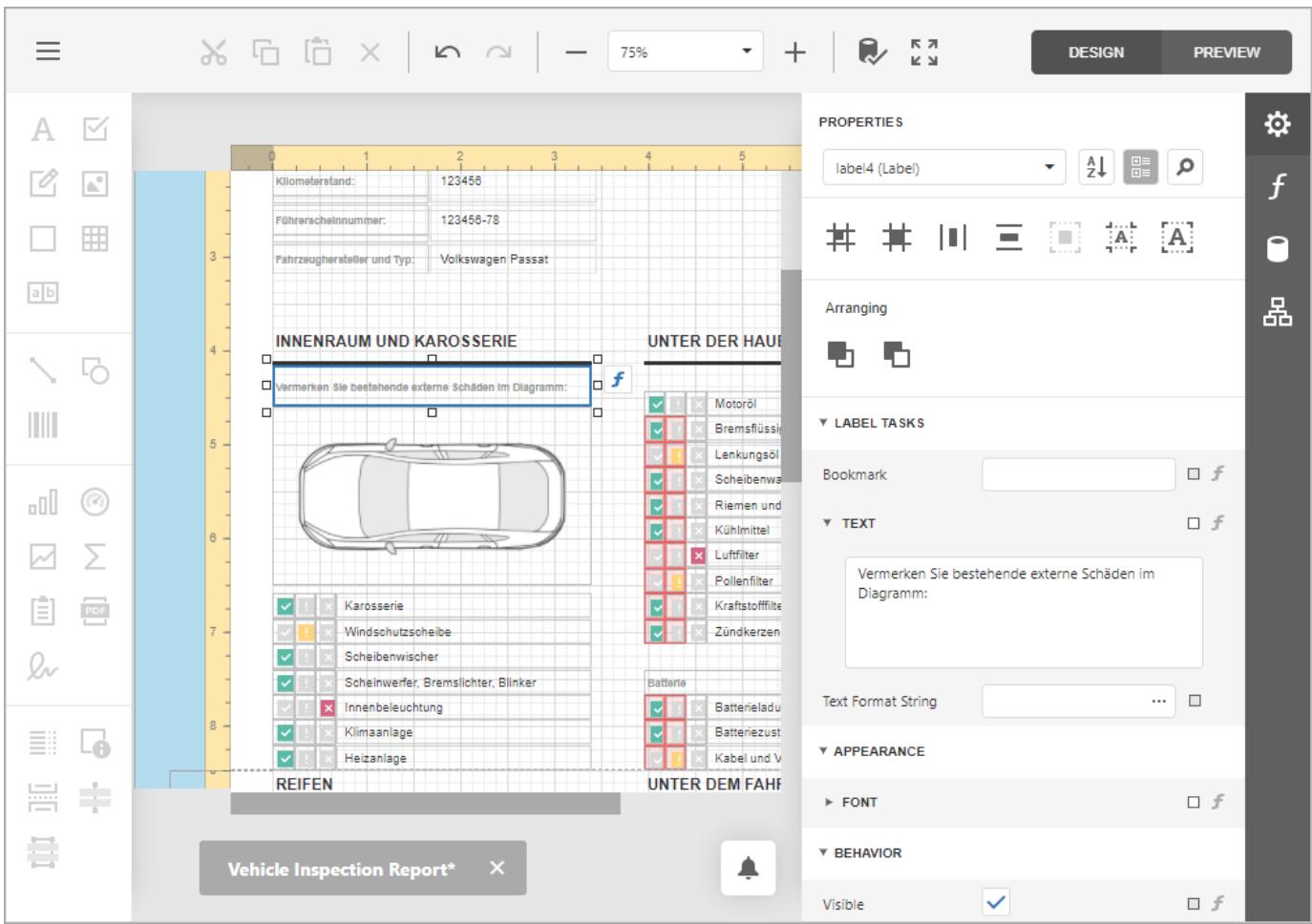
Perform the following actions to localize a report:

1. Specify a report language other than *Default*:



The **Language** drop-down list contains all available locales. The report's languages are highlighted in bold.

2. Change the controls' property values. You can move and resize a control.



### 3. Save the report.

When you load a localized report, use the **Language** drop-down list to switch to the localized version.

## Use Localization Editor

The [Localization Editor](#) allows you to change text strings in the report and expedite the translation process.

### LOCALIZATION

Language: German German

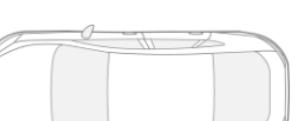
(DEFAULT)	GERMAN
Vehicle Inspection Report	KFZ-Inspektionsbericht
Battery Charge	Batterieladung
Battery Condition	Batteriezustand
Cables & Connections	Kabel und Verbindungen
BATTERY	Batterie
Engine Oil	Motoröl
Brake Fluid	Bremsflüssigkeit
Power Steering Fluid	Lenkungsöl
Washer Fluid	Scheibenwaschflüssigkeit
Belts & Hoses	Riemen und Schläuche
Antifreeze / Coolant	Kühlmittel
Air Filter	Airfilter
Cabin Filter	Pollenfilter

0 1 2 3 4 5 6 7 8

Führerscheinnummer:	123456-78
Fahrzeughersteller und Typ:	Volkswagen Passat

### INNENRAUM UND KAROSERIE

Vermerken Sie bestehende externe Schäden im Diagramm:



<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Karosserie
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Windschutzscheibe
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Scheibenwischer
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Scheinwerfer, Bremslichter, Blinker
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Innenbeleuchtung
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Klimaanlage
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Heizanlage

### UNTER DER HAUBE

<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Motoröl
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Bremsflüssigkeit
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Lenkungsöl
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Scheibenwaschflüssigkeit
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Riemen und Schläuche
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Kühlmittel
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Airfilter
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Pollenfilter
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Kraftstofffilter
<input checked="" type="checkbox"/> ! <input type="checkbox"/> X	Zündkerzen / -kabel

# Preview, Print and Export Reports

## Preview a Report

To switch a report to the print preview mode, click the **Preview** button on the toolbar. You will see your report populated with data and broken down into pages.

The screenshot shows a 'Profit and Loss' report for the period January - June 2018. The report is displayed in a print preview window with a toolbar at the top. The toolbar includes navigation buttons (back, forward, first, last), a search bar, and various document-related icons. The report itself is a table with columns for JAN, FEB, MAR, APR, MAY, JUN, and TOTAL. It is divided into sections: INCOME, COST OF GOODS SOLD, GROSS PROFIT, EXPENSE, and NET INCOME. The data is as follows:

	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
<b>INCOME</b>							
Construction Income	\$75,035.31	\$81,479.21	\$84,874.68	\$75,634.84	\$80,369.13	\$79,730.35	\$477,123.52
Sales Income	\$27.00	\$770.00	\$950.00	\$979.00	\$31.00	\$111.00	\$2,868.00
<b>TOTAL INCOME</b>	<b>\$75,062.31</b>	<b>\$82,249.21</b>	<b>\$85,824.68</b>	<b>\$76,613.84</b>	<b>\$80,400.13</b>	<b>\$79,841.35</b>	<b>\$479,991.52</b>
<b>COST OF GOODS SOLD</b>							
Cost of Goods Sold	\$672.75	\$3,325.23	\$2,697.83	\$2,244.60	\$3,361.05	\$2,942.65	\$15,184.11
Job Expenses	\$10,679.04	\$11,661.17	\$12,210.41	\$9,783.42	\$13,161.33	\$6,535.93	\$63,051.30
<b>TOTAL COST OF GOODS SOLD</b>	<b>\$11,351.79</b>	<b>\$14,986.40</b>	<b>\$14,848.24</b>	<b>\$11,028.02</b>	<b>\$16,542.38</b>	<b>\$9,478.58</b>	<b>\$78,235.41</b>
<b>GROSS PROFIT</b>	<b>\$63,710.52</b>	<b>\$67,262.81</b>	<b>\$70,976.44</b>	<b>\$65,585.82</b>	<b>\$63,857.75</b>	<b>\$70,362.77</b>	<b>\$401,756.11</b>
<b>EXPENSE</b>							
Automobile	\$710.49	\$830.06	\$656.85	\$512.30	\$420.57	\$848.60	\$3,978.87
Bank Service Charges	\$60.00	\$79.00	\$62.00	\$76.00	\$12.00	\$45.00	\$334.00
Insurance	\$2,164.00	\$2,646.00	\$2,547.00	\$2,410.00	\$4,313.00	\$1,444.00	\$15,524.00
Payroll Expenses	\$17,922.00	\$10,630.00	\$13,854.00	\$9,992.00	\$15,521.00	\$14,687.00	\$82,606.00
Repairs	\$77.00	\$232.00	\$52.00	\$49.00	\$76.00	\$128.00	\$614.00
Tools and Machinery	\$242.00	\$363.00	\$511.00	\$992.00	\$210.00	\$399.00	\$2,717.00
<b>TOTAL EXPENSE</b>	<b>\$21,175.49</b>	<b>\$14,780.06</b>	<b>\$17,682.85</b>	<b>\$14,031.30</b>	<b>\$20,552.57</b>	<b>\$17,551.60</b>	<b>\$105,773.87</b>
<b>NET INCOME</b>	<b>\$42,535.03</b>	<b>\$52,482.75</b>	<b>\$53,293.59</b>	<b>\$51,554.52</b>	<b>\$43,305.18</b>	<b>\$52,811.17</b>	<b>\$295,982.24</b>

### NOTE

To learn more about the options available in the print preview mode, refer to the [Document Viewer](#) section of this documentation.

## Print a Report

When in the Preview mode, you can use toolbar commands to print out your report.

The screenshot shows the same 'Profit and Loss' report in print preview mode. The toolbar is identical to the one in the previous screenshot, but the 'Print' icon is highlighted with a pink rectangle. This indicates that the print function has been selected or is active.

## Export a Report

When in the Preview mode, you can export your report to files in different formats.

1 of 1 | | | | | PDF | XLS | XLSX | RTF | DOCX | MHT | HTML | Text | CSV | Image

**Profit and Loss**  
January - June 2010

	JAN	FEB	MAR	JUN
<b>INCOME</b>				
Construction Income	\$72,032.21	\$61,479.21	\$64,871.08	\$74,616.08
Sale Income	\$17.00	\$77.00	\$92.00	\$97.00
<b>TOTAL INCOME</b>	<b>\$75,042.21</b>	<b>\$62,249.21</b>	<b>\$65,823.08</b>	<b>\$76,612.08</b>
<b>COST OF GOODS SOLD</b>				
Cost of Goods Sold	\$472.05	\$3,222.21	\$2,627.00	\$2,214.00
Job Expenses	\$10,479.04	\$11,691.17	\$12,210.01	\$8,791.02
<b>TOTAL COST OF GOODS SOLD</b>	<b>\$11,321.79</b>	<b>\$14,994.00</b>	<b>\$14,848.24</b>	<b>\$11,024.02</b>
<b>GROSS PROFIT</b>	<b>\$63,718.52</b>	<b>\$47,243.81</b>	<b>\$70,874.84</b>	<b>\$65,588.06</b>
<b>EXPENSE</b>				
Automobile	\$710.00	\$440.00	\$655.00	\$572.00
Bank Service Charges	\$60.00	\$79.00	\$63.00	\$76.00
Insurance	\$2,164.00	\$2,646.00	\$2,247.00	\$2,610.00
Payroll Expenses	\$17,412.00	\$16,630.00	\$12,851.00	\$16,991.00
Repairs	\$77.00	\$122.00	\$22.00	\$49.00
Tools and Machinery	\$212.00	\$349.00	\$211.00	\$99.00
<b>TOTAL EXPENSE</b>	<b>\$21,175.00</b>	<b>\$16,790.00</b>	<b>\$17,481.05</b>	<b>\$16,631.00</b>
<b>NET INCOME</b>	<b>\$42,543.52</b>	<b>\$32,453.75</b>	<b>\$53,392.59</b>	<b>\$51,554.06</b>

**EXPORT OPTIONS**

**CSV EXPORT OPTIONS**

Encoding: Windows-1252

Text Export Mode: Text

Quote Strings with Separators:

Separator: , (Using System Separator)

Skip Empty Rows:

Skip Empty Columns:

**HTML EXPORT OPTIONS**

**IMAGE EXPORT OPTIONS**

**MHT EXPORT OPTIONS**

**PDF EXPORT OPTIONS**

**RTF EXPORT OPTIONS**

**TEXT EXPORT OPTIONS**

**XLS EXPORT OPTIONS**

**XLSX EXPORT OPTIONS**

**DOCX EXPORT OPTIONS**

The following documents describe the basics of report exporting and format-specific export options.

- [Export a Document](#)
- [CSV-Specific Export Options](#)
- [HTML-Specific Export Options](#)
- [Image-Specific Export Options](#)
- [MHT-Specific Export Options](#)
- [PDF-Specific Export Options](#)
- [RTF-Specific Export Options](#)
- [Text-Specific Export Options](#)
- [XLS-Specific Export Options](#)
- [XLSX-Specific Export Options](#)
- [DOCX-Specific Export Options](#)

# Report Designer Tools

The topics in this section describe the main tools and features available in the [Web Report Designer](#).

The Web Report Designer provides the following two kinds of wizards that enable you to create new reports and bind them to data.

- [Report Wizard](#)
- [Data Source Wizard](#)

The following main elements make up the user interface of the Web Report Designer.

- [Design Surface](#)
- [Main Menu](#)
- [Main Toolbar](#)
- [Toolbox](#)
- [Query Builder](#)
- [Chart Designer](#)

The following editors are available in the Web Report Designer.

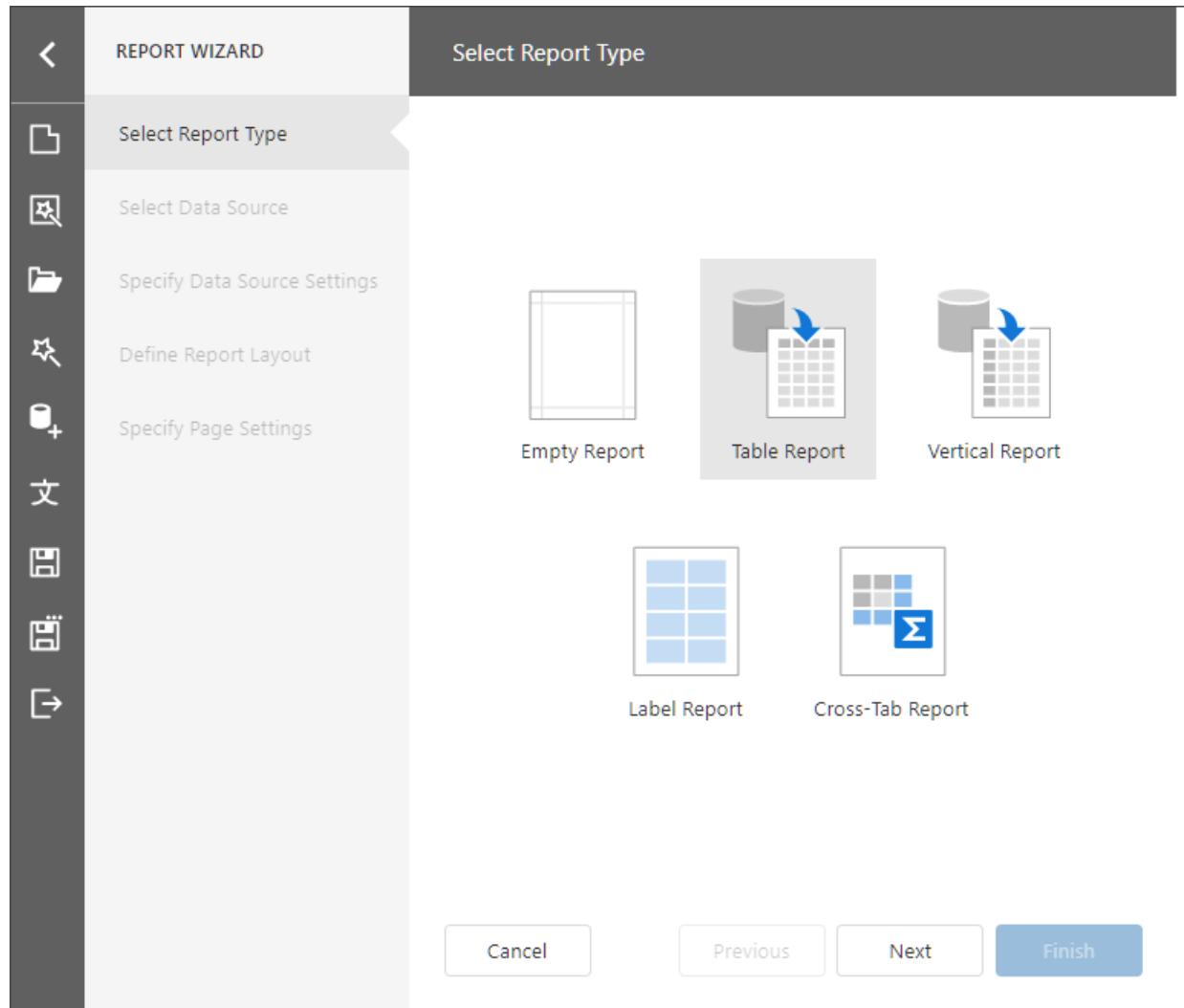
- [Expression Editor](#)
- [Filter Editor](#)
- [Format String Editor](#)
- [Master-Detail Relation Editor](#)
- [Script Editor](#)

The following panels are available in the Web Report Designer.

- [Properties Panel](#)
- [Expressions Panel](#)
- [Field List](#)
- [Report Explorer](#)

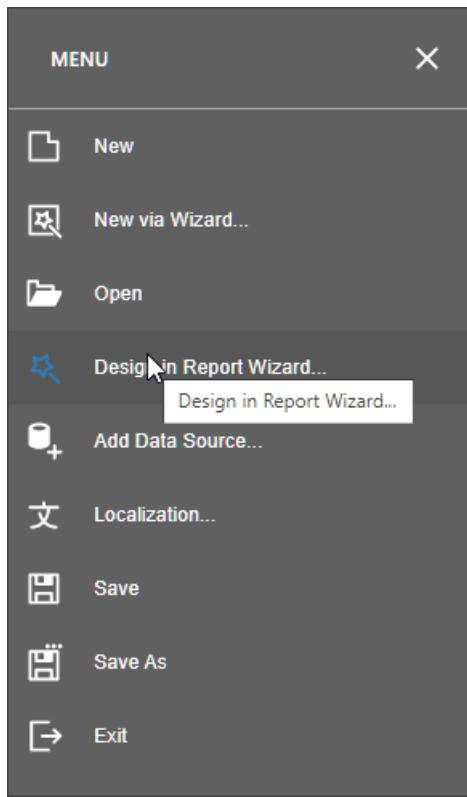
# Report Wizard

The Report Wizard enables you to create reports or modify existing reports based on predefined templates.



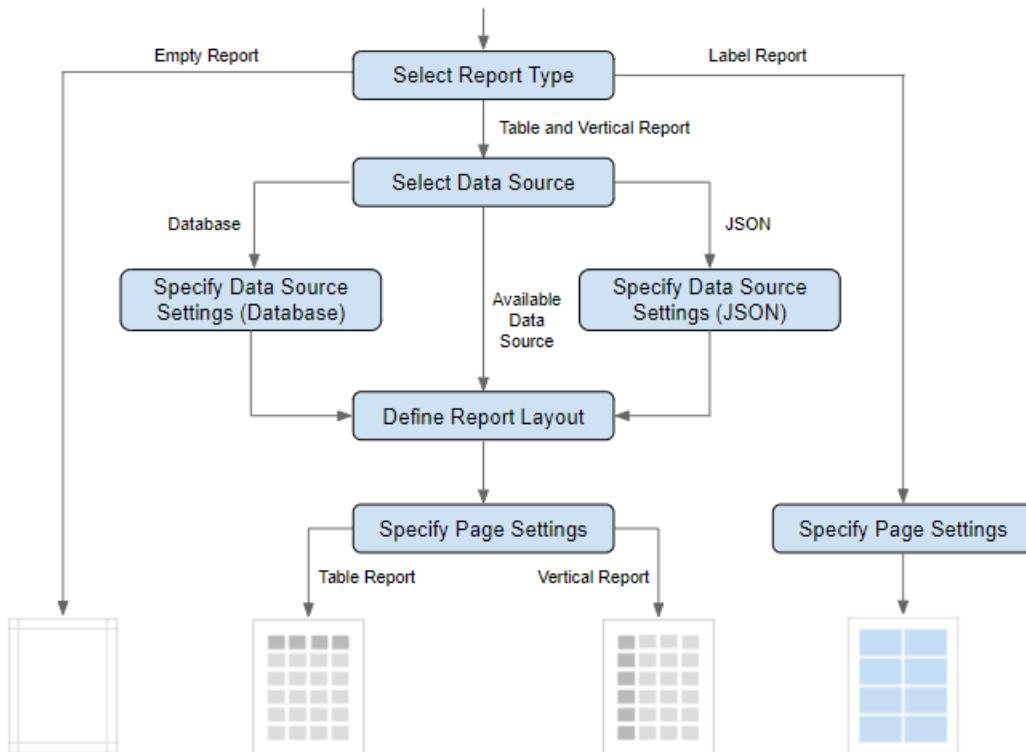
The Designer's Menu has the following commands:

- **New via Wizard** - runs the Report Wizard and creates a new report.
- **Design in Report Wizard** - runs the Report Wizard and modifies the current report.



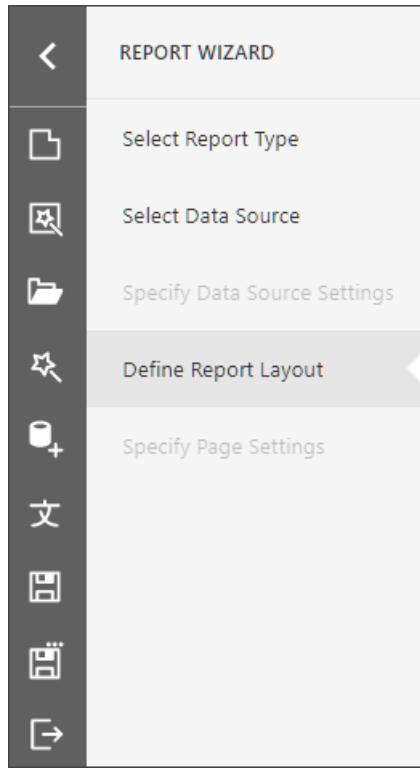
## Report Wizard Pages

The following image shows the wizard's navigation structure:



The Wizard has a navigation panel that does the following:

- displays the entire page list
- highlights the current page
- grays out disabled pages
- allows you to switch between pages



## Select the Report Type

On the start page, choose the report type you want to create.

- [Empty Report](#)

Creates a blank report that is not bound to a data source. Choose this option to design your report from scratch without the wizard.

- [Table Report](#)

Creates a [table report](#) and binds it to data.

- [Vertical Report](#)

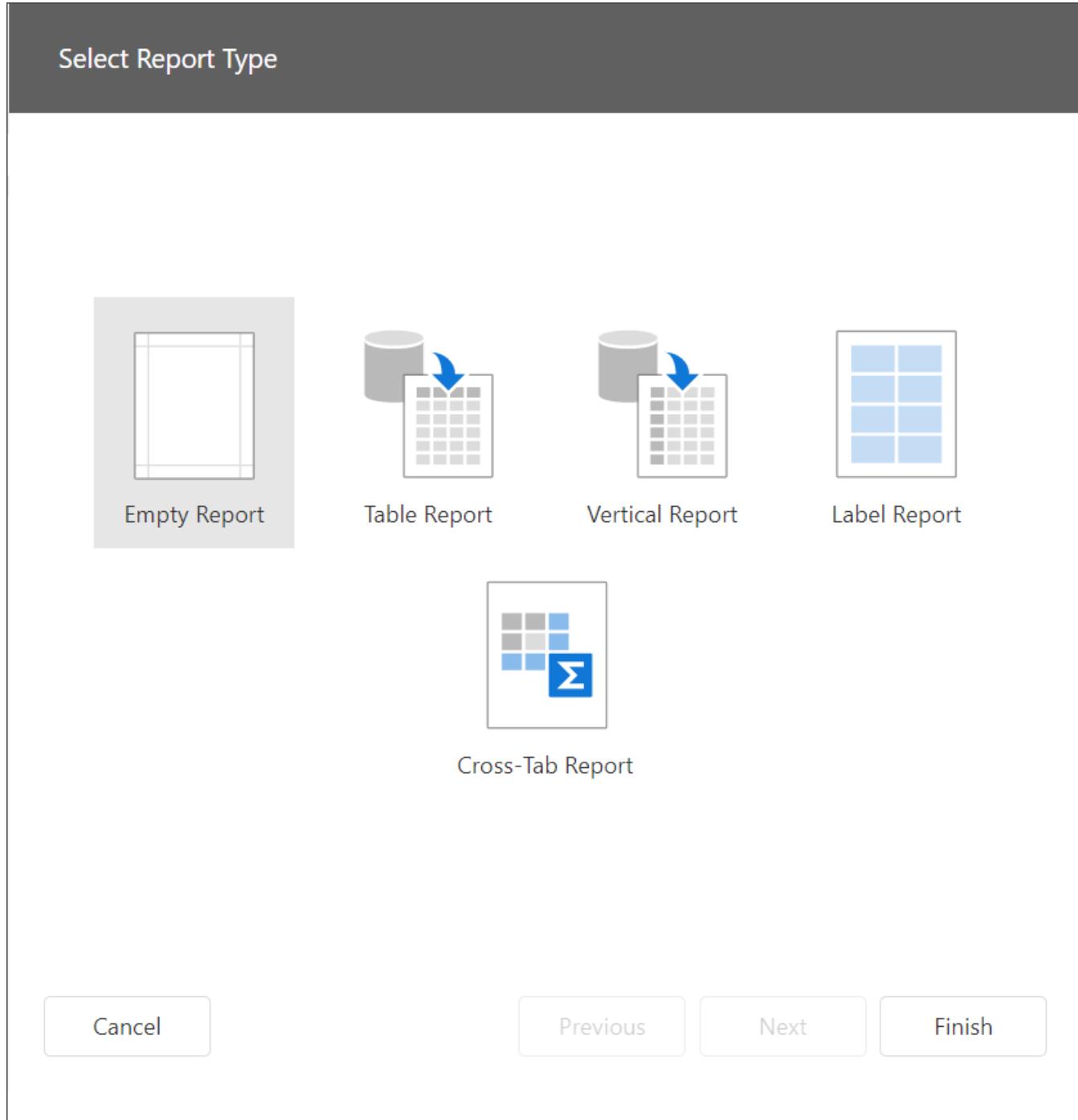
Creates a [vertical report](#) and binds it to data.

- [Label Report](#)

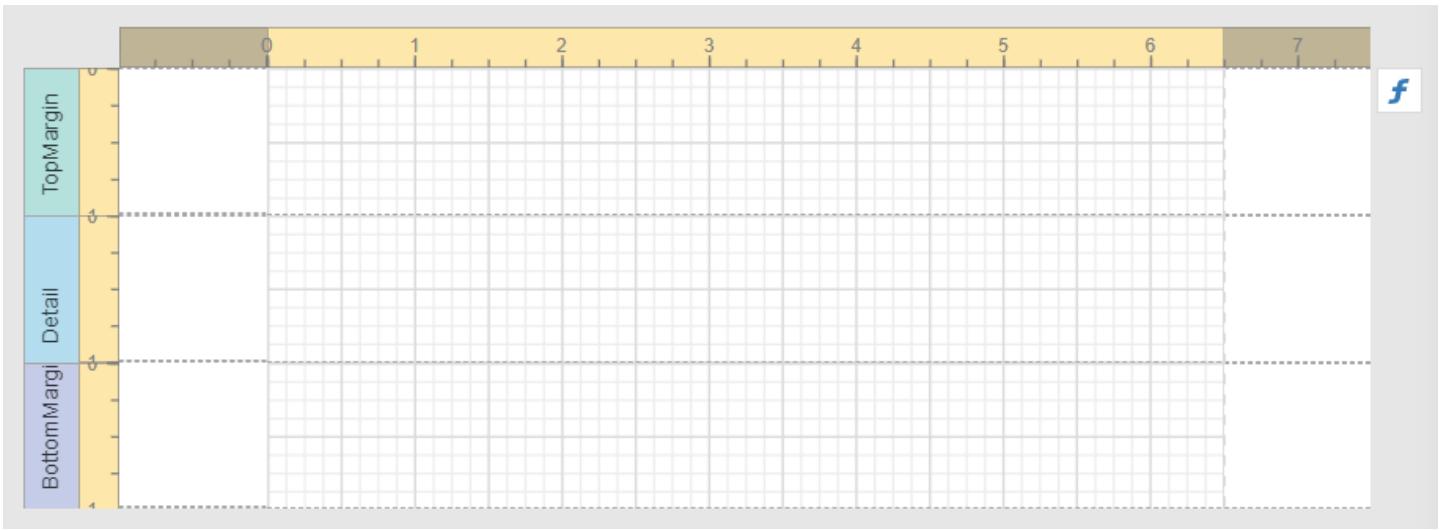
Creates badges, business cards, price tags and other label types.

# Empty Report

To create an empty report, [run the Report Wizard](#), select **Empty Report** and click **Finish**.



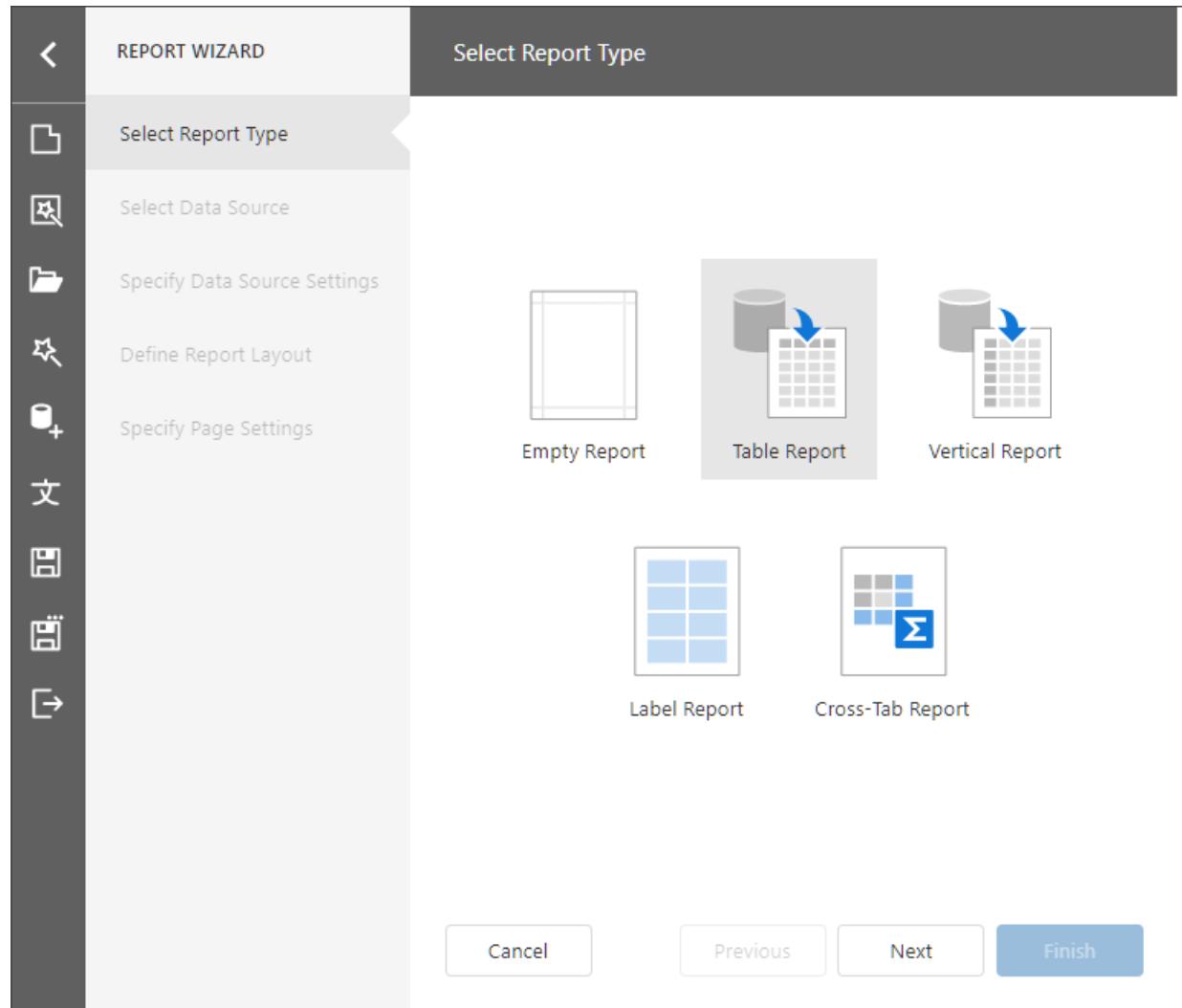
The following image illustrates the newly added empty report's layout.



Refer to the [Use Report Elements](#) section for details on how to add controls to the report, and the [Bind to Data](#) section for details on how to provide data.

# Table and Vertical Report

Select **Table Report/Vertical Report** on the start page to create a [table/vertical](#) report and bind it to data.



The wizard includes the following steps:

- [Select Data Source](#)
- [Specify Data Source Setting \(Database\)](#) / [Specify Data Source Settings \(JSON\)](#) / [Specify Data Source Settings \(Object\)](#)
- [Define Report Layout](#)
- [Specify Page Settings](#)

# Select Data Source

On this wizard page, you can select an existing data source or create a new data source.

## Select an Existing Data Source

Select the first option and choose a data source from the list.

The screenshot shows the 'Define Report Layout' page of the Report Wizard. On the left, there's a vertical toolbar with icons for back, forward, cancel, and finish. Below it, a sidebar lists steps: 'Select Report Type', 'Select Data Source' (which is highlighted), 'Specify Data Source Settings', 'Define Report Layout' (which is also highlighted), and 'Specify Page Settings'. The main area is titled 'Define Report Layout' and contains four numbered steps:

1. Select queries for the report and its details...  
A list shows 'Customers' (selected) and 'OrdersEmployees' (unchecked).
2. Select data fields to display in the report.  
A list shows 'Customers' expanded, with 'Id', 'Name', 'StateId', and 'City' listed as options.
3. Add group fields.  
Text: 'To add groups to the report, select data fields.'
4. Add summary fields.  
Text: 'To add a summary field to the report, select a data field (numeric, date-time or boolean) and ensure that it is not used in groups.'

At the bottom are buttons for 'Cancel', 'Previous', 'Next', and 'Finish'.

- If you create a new report, the list displays the Report Designer's predefined data sources.
- If you edit an existing report, the list contains the Report Designer's predefined data sources and data sources added to the current report with the [Data Source Wizard](#).

If the report and Report Designer have data sources with identical names, this list displays the report's data source.

Click **Next** to go to the [Define Report Layout](#) page.

## Create a New Data Source

Choose '*No, I'd like to create a new data source*' and select the data source type.

REPORT WIZARD

Select Data Source

Select Report Type

Select Data Source

Specify Data Source Settings

Define Report Layout

Specify Page Settings

Cancel

Previous

Next

Finish

1. Do you want to use an existing data source?

Yes, let me choose an existing data source from the list

No, I'd like to create a new data source

Enter text to search...

sqlDataSource1

2. Select the data source type.

Database

JSON

Object

No Data

The screenshot shows the 'Select Data Source' step of the Report Wizard. On the left, a vertical toolbar lists report settings: 'Select Report Type', 'Select Data Source' (which is highlighted in grey), 'Specify Data Source Settings', 'Define Report Layout', and 'Specify Page Settings'. The main panel has a title 'Select Data Source'. Step 1 asks if to use an existing data source, with two radio buttons: 'Yes, let me choose an existing data source from the list' (unselected) and 'No, I'd like to create a new data source' (selected). Step 2 asks to select the data source type, showing four options: 'Database' (cylinder icon), 'JSON' (cylinder with blue circle icon), 'Object' (cylinder with blue cube icon), and 'No Data' (cylinder with red slash icon). At the bottom are buttons for 'Cancel', 'Previous', 'Next', and 'Finish'.

#### NOTE

You can create new data sources only if corresponding data connections are registered in the Report Designer.

Click **Next** to proceed:

- [Specify Data Source Setting \(Database\)](#) if you selected **Database**;
- [Specify Data Source Setting \(JSON\)](#) if you selected **JSON**.

# Specify Data Source Settings (Database)

This page appears if you selected **Database** on the [previous page](#).

The screenshot shows the 'Specify Data Source Settings' wizard with the following interface:

- REPORT WIZARD** sidebar: Select Report Type, Select Data Source, **Specify Data Source Settings** (highlighted), Define Report Layout, Specify Page Settings.
- Specify Data Source Settings** main area:
  - 1. Choose a data connection.**: A search bar and a list of connections: Homes, Contacts, **Northwind** (selected), Vehicles.
  - 2. Choose predefined queries and/or create custom queries.**: A search bar and a list of query types: Tables, Views, Stored Procedures, **Queries** (selected).
  - 3. Configure master-detail relationships.**: A diagram showing a relationship between Categories, Products, and Customers tables.
  - 4. Configure query parameters.**: A section for defining parameters, showing 'Customers' and 'parameter1'.
- Buttons at the bottom: Cancel, Previous, Next, Finish.

## Choose a Data Connection

Select a data connection from the list.

The screenshot shows the 'Specify Data Source Settings' wizard with the following interface:

- DATA SOURCE WIZARD** sidebar: Select Data Source Type, **Specify Data Source Settings** (highlighted).
- Specify Data Source Settings** main area:
  - 1. Choose a data connection.**: A search bar and a list of connections: Homes, Contacts, **Northwind** (selected), Vehicles.

## Choose Queries

Check tables, views and/or stored procedures to include them in a data source as separated queries.

## 2. Choose predefined queries and/or create custom queries.

The screenshot shows a search bar at the top with placeholder text "Enter text to search...". Below it is a tree view under the "Tables" category. The "Categories" node is selected and has a checked checkbox next to it. Other nodes include "Customers", "EmployeeCustomers", and "Employees", each with an unchecked checkbox.

You can also check specific data fields.

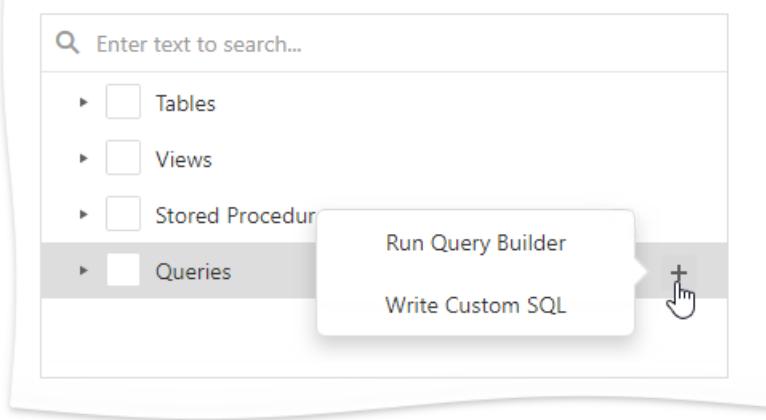
This screenshot shows a more detailed view of the Query Builder. The "Tables" category is expanded, and the "Categories" node is selected. Under "Categories", three fields are checked: "CategoryID", "CategoryName", and "Description".

To join multiple data tables and shape the resulting data, click the **Queries** category's plus button to invoke the [Query Builder](#) and create a custom query.

The screenshot displays the "Query Builder" dialog. On the left, there are two tables: "CATEGORIES" and "PRODUCTS". The "CATEGORIES" table has several columns listed: CategoryID, CategoryName, Description, Picture, Icon17, and Icon25. The "CategoryID" column is currently selected. The "PRODUCTS" table has columns: ProductID, ProductName, SupplierID, CategoryID, QuantityPerUnit, UnitPrice, UnitsInStock, UnitsOnOrder, ReorderLevel, Discontinued, and EAN13. The "QuantityPerUnit" column is currently selected. On the right side of the dialog, the "COLUMN PROPERTIES" panel is open, showing settings for the selected "QuantityPerUnit" column. The "Name" field is set to "QuantityPerUnit", "Type" is "String(20)", and "Output" is "Yes". The "Aggregate" dropdown is set to "None". At the bottom of the dialog, there are buttons for "Preview Results...", "OK", and "Cancel".

If you enabled custom SQL queries, the plus button invokes a context menu. You can choose whether to run the Query Builder or Custom SQL Editor.

2. Choose predefined queries and/or create custom queries.



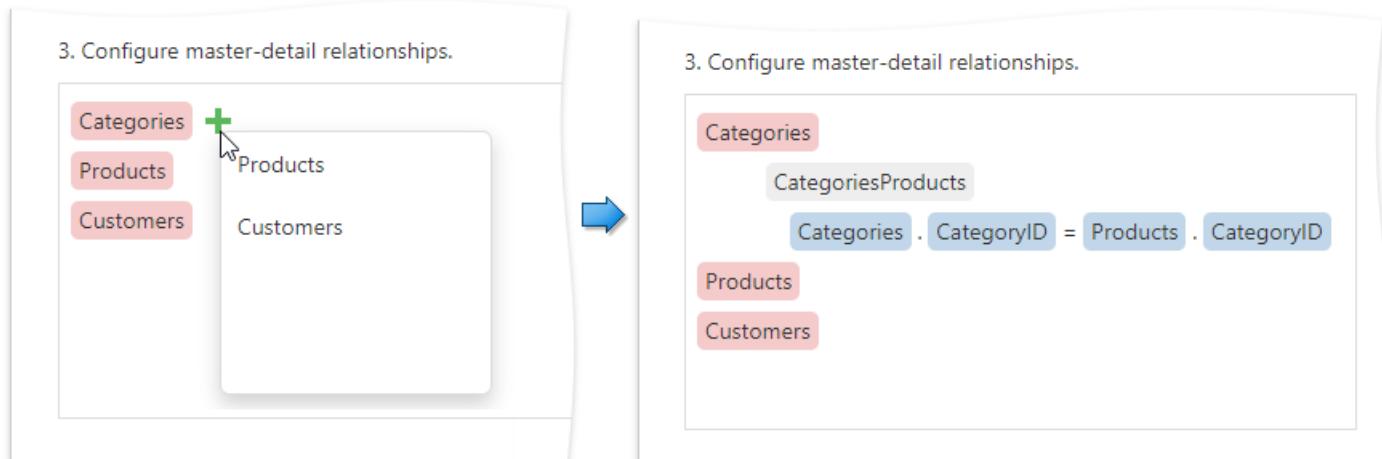
You can click the button to customize the query or the button to remove the query.

Once you finished the wizard, the data source becomes available in the [Report Explorer](#)'s **Data Sources** node. The **Field List** reflects the data source structure.

## Configure Master-Detail Relationships

This step is available when you selected two or more queries.

To create a master-detail relationship, click the master query's plus button, select the detail query in the invoked list, and connect the key fields.



After the wizard is completed, the Field List reflects the master-detail hierarchy.

**FIELD LIST**

+ Add Data Source

Enter text to search...

sqlDataSource1

Categories

- CategoriesProducts
- CategoryID
- CategoryName
- Description
- Icon17
- Icon25
- Picture

Products

Parameters

## Configure Query Parameters

This step is available if you selected a parameterized stored procedure or created a custom query.

Select a query and click the plus button to add a new parameter.

4. Configure query parameters.

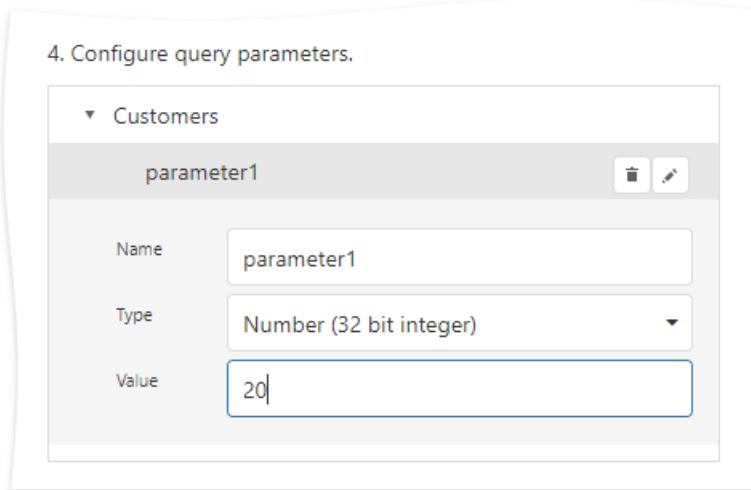
Customers

Click the button to customize the parameter or the button to remove it.

You can use the following approaches to specify a parameter value:

- **Assign a static value**

Select a query parameter's type from the **Type** drop-down list and specify a value based on the selected type.



- **Provide a dynamic parameter value**

Set the **Type** option to **Expression** and specify the **Result Type**. Click the **Value** option's ellipsis button and construct an expression in the invoked.

4. Configure query parameters.

Customers

parameter1

Name: parameter1

Type: Expression

Result Type: Date

Value: | ...

Expression Editor

1 LocalDateTimeNow()

Fields: Enter text to search...

Constants: LocalDateTimeLastWeek()

Functions: LocalDateTimeLastYear(), LocalDateTimeThisWeek(), LocalDateTimeYesterday(), LocalDateTimeToday()

Aggregate: LocalDateTimeNow()

Datetime: LocalDateTimeNow()

Logical:

Math:

Description: Returns a DateTime value corresponding to the current moment in time.

OK Cancel

If you design the current report in the wizard, you can map a query parameter to an existing report parameter. To do this, use the **?parameterName** syntax.

Expression Editor

1 ?reportParameter|

Fields: Parameters

Constants:

Functions: ab reportParameter

Operators:

OK Cancel

# Specify Data Source Settings (JSON)

This page appears if you selected **JSON** on the [previous page](#).

The screenshot shows the 'Specify Data Source Settings' step of a report wizard. On the left, a vertical toolbar has icons for Report Wizard, Select Report Type, Select Data Source, Specify Data Source Settings (which is highlighted), Define Report Layout, and Specify Page Settings. The main area has a title 'Specify Data Source Settings'. Step 1 asks if you want to use an existing data connection, with 'No, I'd like to create a new data connection' selected. Step 2 asks to select data fields, showing a list of fields from a 'Products' root element: CategoryID, Discontinued, EAN13, ProductID, ProductName, QuantityPerUnit, ReorderLevel, SupplierID, UnitPrice, UnitsInStock, and UnitsOnOrder. Most fields have checkboxes checked. At the bottom are 'Cancel', 'Previous', 'Next', and 'Finish' buttons.

## Select an Existing Data Connection

Select the first option and choose a data connection from the list.

The screenshot shows the 'Select an Existing Data Connection' step of the wizard. The left sidebar shows icons for Report Wizard, Select Report Type, Select Data Source, Specify Data Source Settings (highlighted), Define Report Layout, and Specify Page Settings. The main area has a title 'Specify Data Source Settings'. Step 1 asks if you want to use an existing data connection, with 'Yes, let me choose an existing data connection from the list' selected. A search bar at the top of the list says 'Enter text to search...' and shows a result 'Products (JSON)'. At the bottom are 'Cancel', 'Previous', 'Next', and 'Finish' buttons.

## Create a New Data Connection

Select the second option to create a new connection.

The screenshot shows the 'Report Wizard' interface. The title bar says 'Specify Data Source Settings'. On the left, there's a vertical toolbar with icons for Back, Select Report Type, Select Data Source, Specify Data Source Settings (which is highlighted in grey), and Define Report Layout. The main area has a question '1. Do you want to use an existing data connection?' with two radio button options: 'Yes, let me choose an existing data connection from the list' (unchecked) and 'No, I'd like to create a new data connection' (checked). Below this is a section for 'Connection Name:' with a text input field containing 'MyConnection'.

Specify the connection name and select the JSON source.

- **Web Service Endpoint (URI)**

This screenshot shows the configuration for a 'Web Service Endpoint (URI)'. It includes fields for 'Connection Name:' (Customers), 'JSON Source:' (set to 'Web Service Endpoint (URI)'), and 'Web Service Endpoint (URI):' (https://northwind.now.sh/api/customers). There are also sections for 'BASIC HTTP AUTHENTICATION' and 'PARAMETERS', and a 'Resulting URI:' field which displays the full URL https://northwind.now.sh/api/customers.

Connection Name: *	Customers
JSON Source:	Web Service Endpoint (URI)
Web Service Endpoint (URI): *	https://northwind.now.sh/api/customers
▶ BASIC HTTP AUTHENTICATION	
▶ PARAMETERS	
Resulting URI:	https://northwind.now.sh/api/customers

You can also specify the Web Service Endpoint's request parameters (username and password, HTTP headers, or query parameters)

### 1. Do you want to use an existing data connection?

- Yes, let me choose an existing data connection from the list
- No, I'd like to create a new data connection

Connection Name: \*

JSON Source:

Web Service Endpoint (URI): \*

► BASIC HTTP AUTHENTICATION

▼ PARAMETERS

Path Parameter	parameter1	Value	f
Re Path Parameter		<input type="text" value="https://raw.githubusercontent.com/DevExpress-E..."/>	
Query Parameter			
Header			

### • JSON String

Connection Name:

JSON Source:

JSON String

```
1 - [ {  
2   "Id": "ALFKI",  
3   "CompanyName": "Alfreds Futterkiste",  
4   "ContactName": "Maria Anders",  
5   "ContactTitle": "Sales Representative",  
6   "Address": "Obere Str. 57",  
7   "City": "Berlin",  
8   "PostalCode": "12209",  
9   "Country": "Germany",  
10  "Phone": "030-0074321",  
11  "Fax": "030-0076545"}, {  
12    "Id": "ANATR",  
13    "CompanyName": "Ana Trujillo Emparedados y helados",  
14    "ContactName": "Ana Trujillo",  
15    "ContactTitle": "Owner",  
16  } ]
```

You can also click the **Upload JSON** button to load the JSON string from a JSON file.

## Select Data Fields

At this step, the wizard shows JSON schema. Check the data fields you want to include in your report.

2. Select data fields.

Root element:  ▾

Products

- CategoryID
- Discontinued
- EAN13
- ProductID
- ProductName
- QuantityPerUnit
- ReorderLevel
- SupplierID
- UnitPrice
- UnitsInStock
- UnitsOnOrder

Click **Next** to proceed.

# Specify Data Source Settings (Object)

This page appears if you selected **Object** on the [previous page](#).

The screenshot shows the 'DATA SOURCE WIZARD' interface for specifying data source settings. The left sidebar lists steps: 'Select Data Source Type', 'Specify Data Source Settings' (which is selected and highlighted in grey), 'Define Report Layout', and 'Specify Page Settings'. The main panel has three sections:

- 1. Choose the type and its constructor.** This section contains a search bar ('Enter text to search...') and a list of constructor options:
  - Hierarchical Report Data Source: ctor()
  - Multi-Column Report Data Sorce: ctor()
  - Restaurant Menu Report Data Source**: ctor() (This option is currently selected, indicated by a grey background).
- 2. Choose the entire object or a data member to bind.** This section contains a search bar ('Enter text to search...') and a list of binding options:
  - Entire Object
  - GetMenuData(): IEnumerable<MenuItem>
  - GetMenuData(string categoryName): IEnumerable<MenuItem>
- 3. Configure constructor parameters and/or method parameters.** This section displays the selected method: 'GetMenuData(string categoryName) : IEnumerable<...>' and a parameter input field for 'categoryName' containing the letter 'f'.

At the bottom are 'Cancel', 'Previous', 'Next', and 'Finish' buttons.

## Choose an Object

Select a data object or constructor from the list. If you select a data object, its default constructor is used.

The screenshot shows the 'REPORT WIZARD' interface for specifying data source settings. The left sidebar lists steps: 'Select Report Type', 'Select Data Source', 'Specify Data Source Settings' (which is selected and highlighted in grey), 'Define Report Layout', and 'Specify Page Settings'. The main panel has three sections:

- 1. Choose the type and its constructor.** This section contains a search bar ('Enter text to search...') and a list of constructor options:
  - Balance Sheet Report Data Source: ctor()
  - Hierarchical Report Data Source: ctor()
  - Multi-Column Report Data Sorce: ctor()
  - Restaurant Menu Report Data Source**: ctor() (This option is currently selected, indicated by a grey background).

## Choose a Data Member

Select the method that should provide data or select **Entire Object** to bind to the object's fields.

2. Choose the entire object or a data member to bind.

Enter text to search...

Entire Object

`GetMenuData() : IEnumerable<MenuItem>`

`GetMenuData(string categoryName) : IEnumerable<MenuItem>`

## Configure Parameters

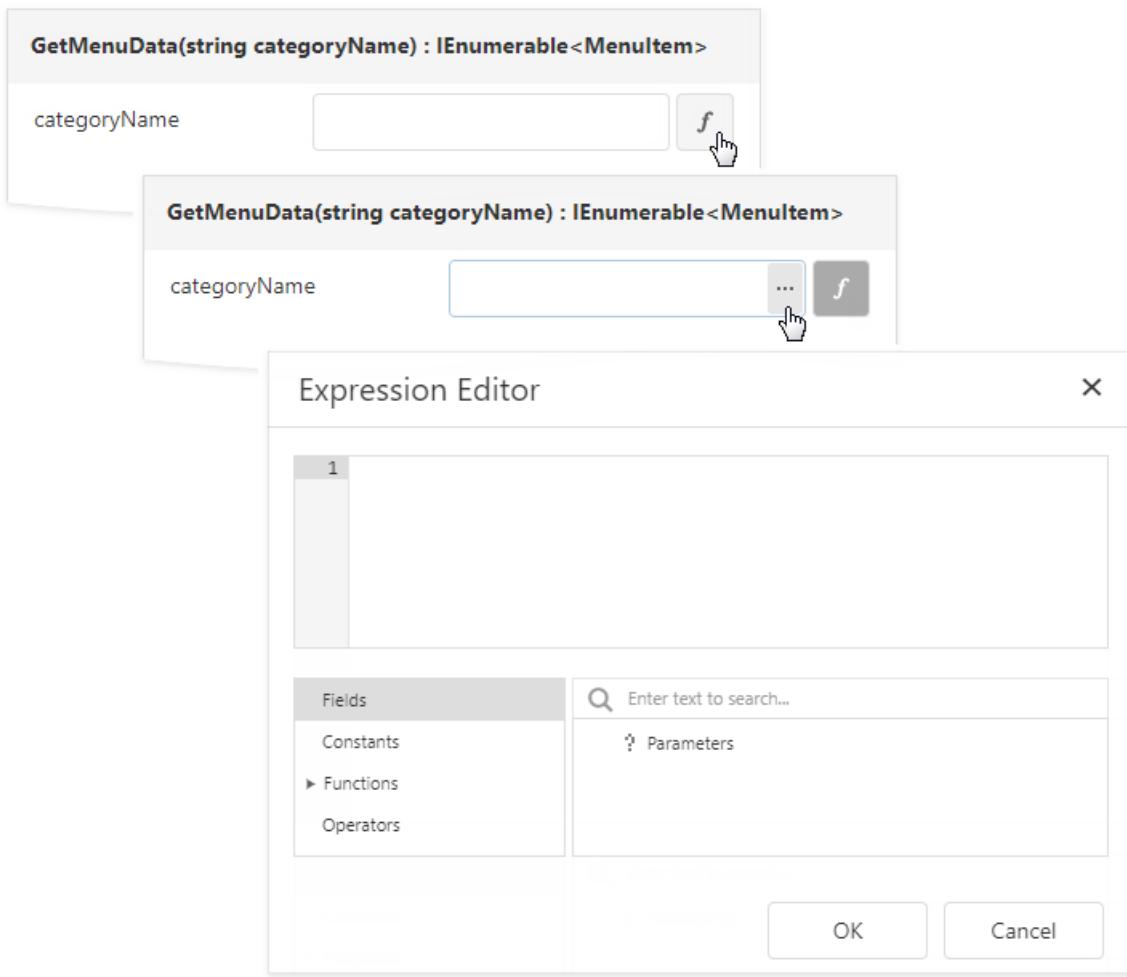
Specify constructor and/or data member parameters (optional).

3. Configure constructor parameters and/or method parameters.

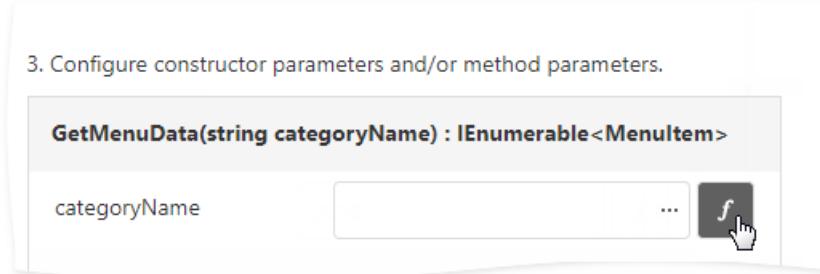
`GetMenuData(string categoryName) : IEnumerable<MenuItem>`

categoryName

You can use expressions to provide data source parameter values. Click the  button to switch the parameter's editor to the expression mode. Specify an expression in the parameter's editor or click the parameter's ellipsis button to launch the [Expression Editor](#). You can use [report parameters](#) in expressions to specify an input value for a data source parameter.



To return to the value mode, click the parameter's marker and select **Value** from the popup menu.



Click **Next** to proceed.

# Define Report Layout

On this page, you can specify options to generate the report layout.

The screenshot shows the 'Define Report Layout' step of a report wizard. On the left, a vertical toolbar lists icons for Report Wizard, Select Report Type, Select Data Source, Specify Data Source Settings, Define Report Layout (which is selected), and Specify Page Settings. The main area has a title bar 'Define Report Layout'. Step 1: 'Select queries for the report and its detail reports.' shows a list with 'Customers' checked and 'OrdersEmployees' unchecked. Step 2: 'Select data fields to display in the report.' shows a list for 'Customers' with 'Id', 'Name', 'StateId', and 'City' as options. Step 3: 'Add group fields.' and Step 4: 'Add summary fields.' are both empty. At the bottom are 'Cancel', 'Previous', 'Next', and 'Finish' buttons.

## Select Queries

Select queries for the report and its detail reports. If you selected the **Table Report** and bound it to a database, the query list can also contain master-detail relationships.

Table Report:

1. Select queries for the report and its detail reports.

A list of queries for a Table Report. 'OrdersEmployees' is unchecked. 'Customers' is checked. 'CustomersOrdersEmployees' is checked. This indicates a master-detail relationship where 'Customers' is the master table and 'OrdersEmployees' is the detail table.

- OrdersEmployees
- Customers
- CustomersOrdersEmployees

Vertical Report:

1. Select queries for the report and its detail reports.

The screenshot shows a dialog box with a light gray background. At the top left is a checked checkbox next to the text 'OrdersEmployees'. Below it is an unchecked checkbox next to the text 'Customers'. There is a large empty space at the bottom of the dialog box.

- If you select one query, the wizard assigns it to the report's **DataMember** property.
- If you select two or more queries, the wizard creates the **Detail Report Band** for each query at the same hierarchical level and assigns the band's **DataMember** property to the corresponding query.
- If you select a master-detail relationship, the wizard creates the **Detail Report Band** under the corresponding master report and assigns the band's **DataMember** property to this relationship's name.

## Select Data Fields

Choose data fields from the selected queries to display them in the report.

Table Report:

2. Select data fields to display in the report.

The screenshot shows a tree-view interface for selecting data fields. At the top is a collapsed node 'Customers'. Below it is an expanded node 'CustomersOrdersEmployees'. Underneath are several field names: 'OrderId' (checked), 'EmployeeId' (unchecked), 'InvoiceNumber' (unchecked), 'CustomerId' (unchecked), 'OrderDate' (checked), 'TotalAmount' (checked), 'ShipmentStatus' (unchecked), and 'EmployeeName' (checked). The 'EmployeeName' node is highlighted with a gray bar at the bottom.

Vertical Report:

2. Select data fields to display in the report.

OrdersEmployees

- OrderId
- EmployeeId
- InvoiceNumber
- CustomerId
- OrderDate
- TotalAmount
- ShipmentStatus
- EmployeeName
- EmployeeTitle

Click **Finish** if you do not need to group fields and/or display summaries. The created report looks similar to the image below.

Table Report:

TopMargin	ReportHe	Detail	DetailRe	De	Gr	BottomMargin	0	1	2	3	4	5	6	7
							Report Title							
							Name	City						
							[Name]	[City]						
							Order Id	Order Date	Total Amount	Employee Name				
							[OrderId]	[OrderDate]	[TotalAmount]	[EmployeeName]				
							Current Date and Time							Page {0} of {1}

Vertical Report:

		0	1	2	3	4	5	6	7	
ReportHeader	TopMargin									
Vertical Bands	ReportHeader	5	Report							
BottomMargin	VerticalMargin	6	VerticalHeader	VerticalDetail						
		7	Order Id	[OrderId]						
		8	Order Date	[OrderDate]						
		9	Total Amount	[TotalAmount]						
		10	Employee Name	[EmployeeName]						
		11	Current Date and Time							
		12								
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		100								

## Add Group Fields

Click the **Add Group** button and select data fields in the drop-down list.

Table Report:

3. Add group fields.

**Customers**

City

[Add Group](#)

**Customers.CustomersOrdersEmployees**

EmployeeName

- OrderId
- OrderDate
- TotalAmount
- EmployeeName

Vertical Report:

3. Add group fields.

OrdersEmployees

EmployeeName	X	▼	▲	▼	✖
<input type="checkbox"/> OrderId					
<input type="checkbox"/> OrderDate					
<input type="checkbox"/> TotalAmount					
<input checked="" type="checkbox"/> EmployeeName					

Use arrow buttons to change the group order.

The following image demonstrates group types:

No grouping					
BMW	525i	1/1/2009	1		
BMW	525i	1/2/2009	2		
BMW	740i	1/3/2009	3		
Toyota	Camry	1/4/2009	4		
Toyota	Prius	1/5/2009	5		
Toyota	Prius	1/6/2009	6		

One-level Grouping					
BMW					
525i	1/1/2009	1			
525i	1/2/2009	2			
740i	1/3/2009	3			

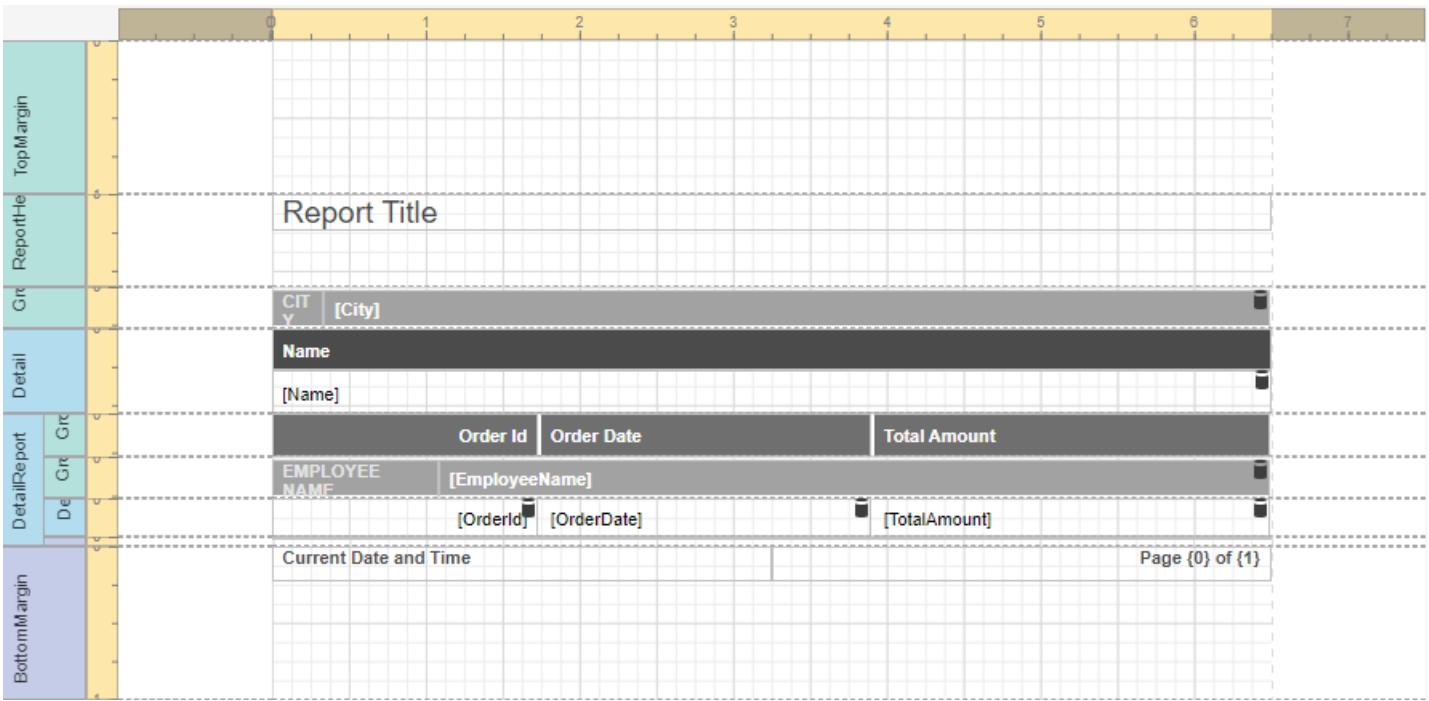
Nested Grouping					
BMW					
525i	1/1/2009	1			
525i	1/2/2009	2			
740i	1/3/2009	3			

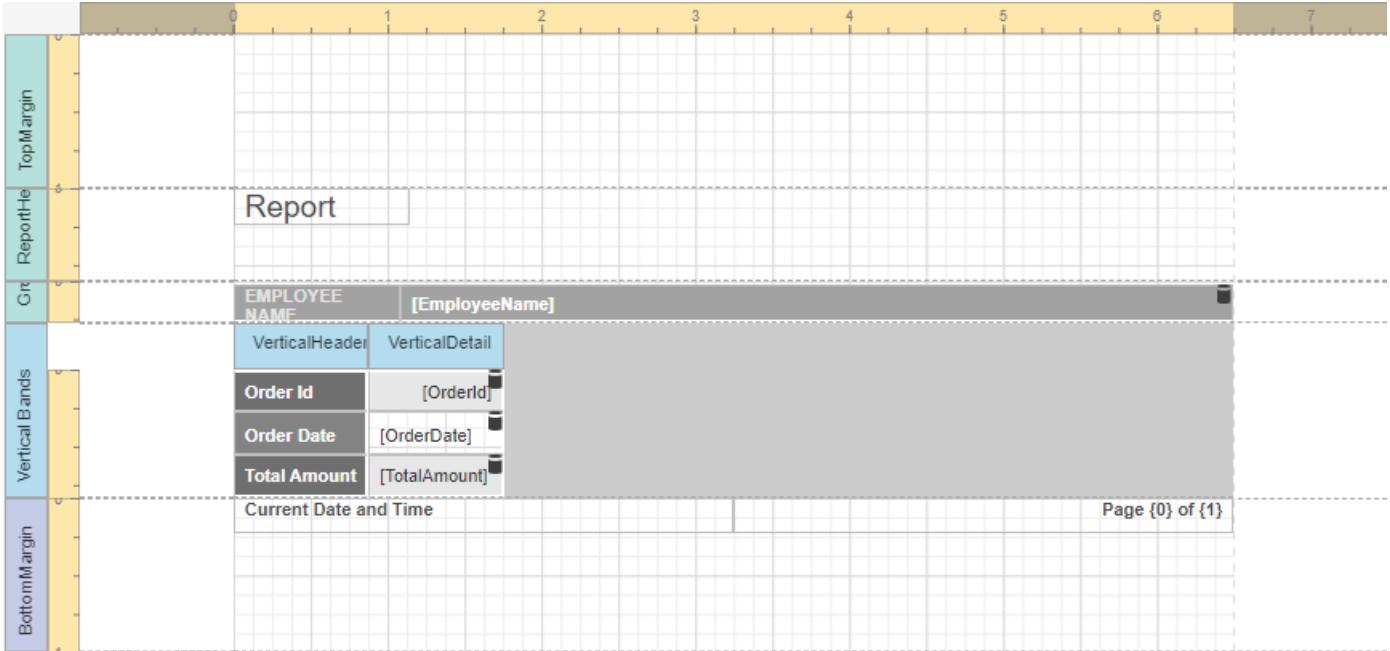
Multiple Fields					
BMW 525i					
1/1/2009	1				
1/2/2009	2				
BMW 740i					
1/3/2009	3				
Toyota					
Camry					
1/4/2009	4				
Prius					
1/5/2009	5				
1/6/2009	6				

You can stop the wizard at this step and get the report layout similar to the image below.

Table Report:



Vertical Report:



## Add Summary Fields

To add a summary, select a data field (numeric, date-time or Boolean) and summary function(s).

Table Report:

4. Add summary fields.

Field	Summary Functions
Select...	Count <span style="color: #ccc;">x</span>
▼ Customers.Custo...	
<span style="color: #ccc;">123</span> OrderId	
<span style="color: #ccc;">🕒</span> OrderDate	

Ignore null values

Vertical Report:

4. Add summary fields.

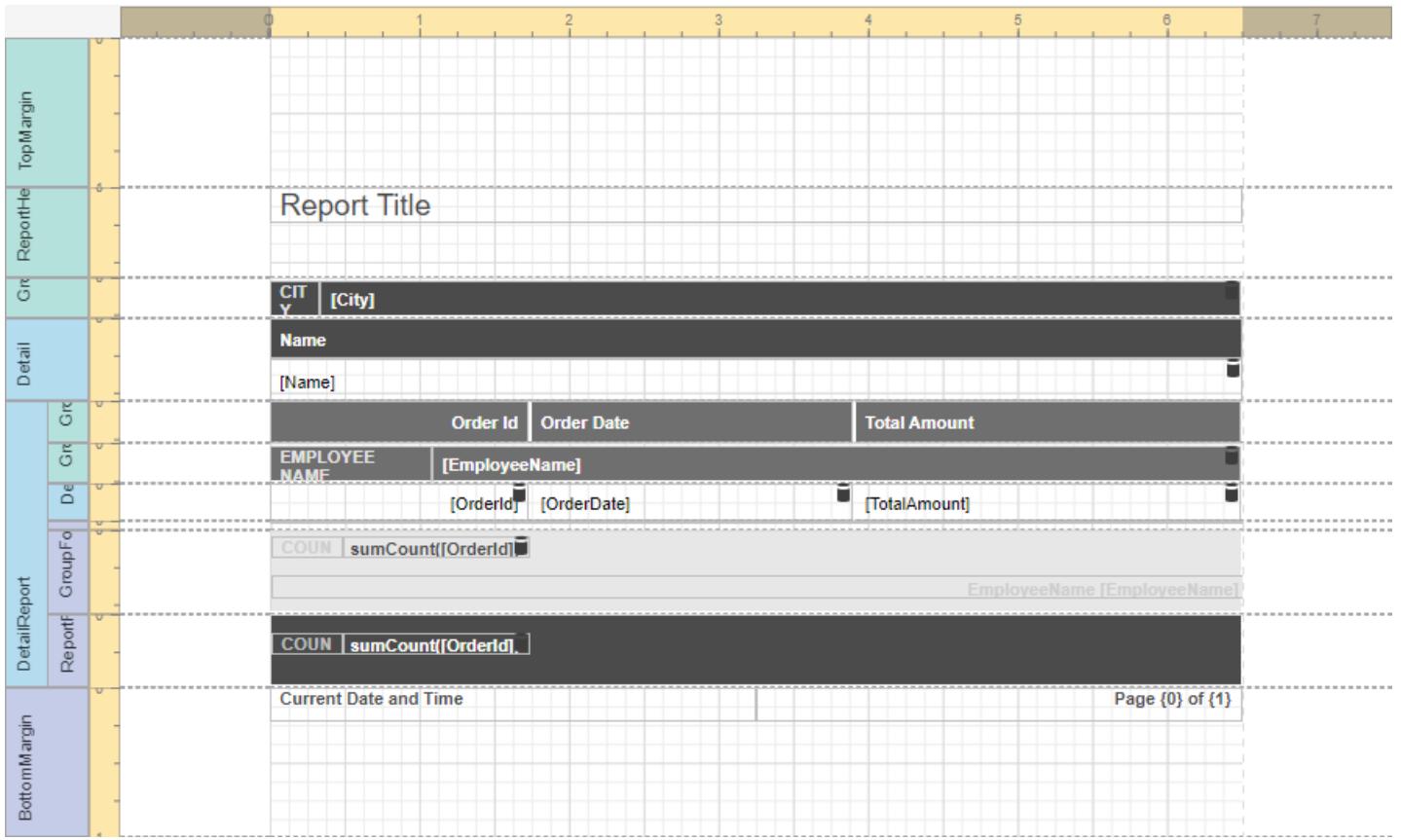
Field	Summary Functions
Select...	Count <span style="color: #ccc;">x</span>
▼ Customers.Custo...	
<span style="color: #ccc;">123</span> OrderId	
<span style="color: #ccc;">🕒</span> OrderDate	

Ignore null values

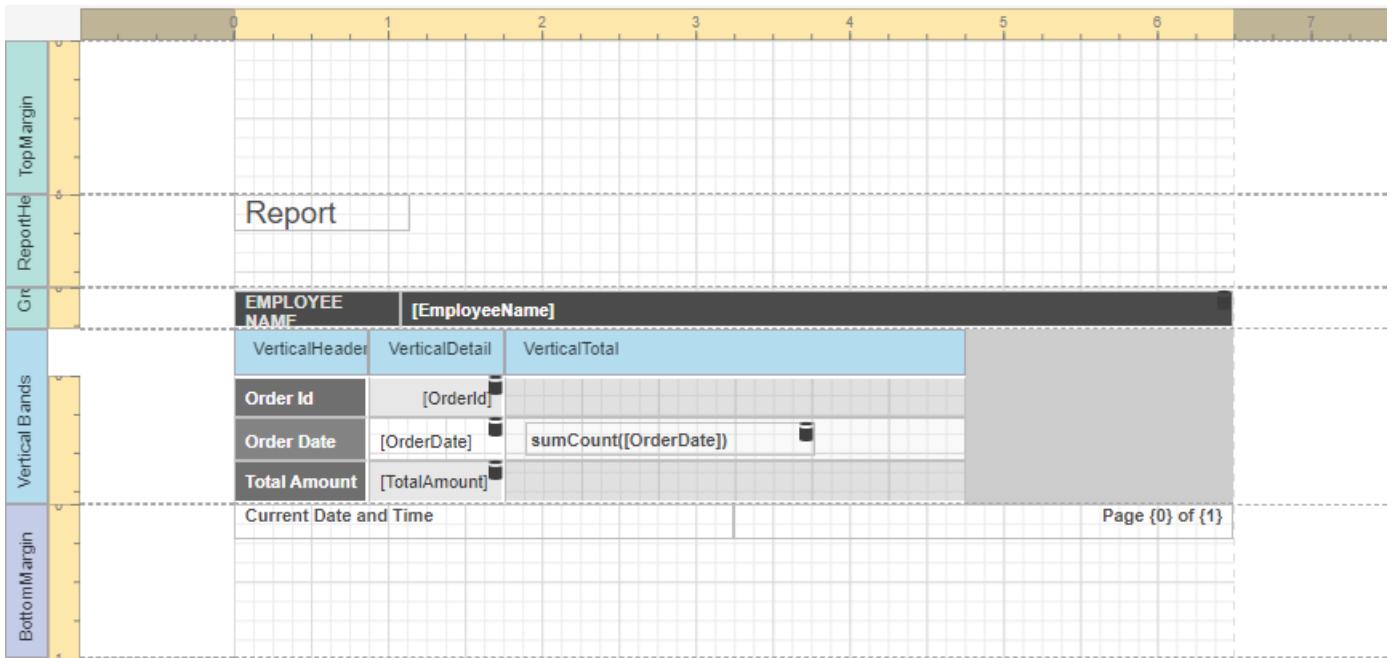
- Table Reports display summaries in the Report Footer and Group Footers.
- Vertical Reports display summaries in the Vertical Total band.

Select the **Ignore null values** checkbox to do not take data fields' empty values into account. Otherwise, these values are treated as zeros for numeric and Boolean fields and the earliest system date is used for date-time fields.

Table Report:



## Vertical Report:



# Specify Page Settings

This wizard page allows you to setup the report's page.

## Specify Page Settings

The screenshot shows the 'Specify Page Settings' step in the Report Wizard. On the left, a vertical toolbar lists steps: Select Report Type, Select Data Source, Specify Data Source Settings, Define Report Layout, Specify Page Settings (which is highlighted), and a preview icon. The main area is titled 'Specify Page Settings'. It contains three tabs: 'Paper', 'Page Margins', and 'Color Scheme'. Under 'Paper', the 'Size' dropdown is set to 'Letter', 'Unit' is 'Inch', 'Width' is '8.50"', and 'Height' is '11.00"'. There are two preview icons: a dark grey one showing horizontal lines and a light grey one showing vertical lines. Under 'Page Margins', 'Left', 'Right', 'Top', and 'Bottom' are all set to '1.00"'. Under 'Color Scheme', three options are shown: 'GREY' (selected and highlighted with a blue border), 'COLDGREY', and 'CREAM'.

You can specify the following report properties:

- **Size**

- **Unit**

Choose between *Inch*, *Millimeter* and *Pixel* to specify size options at this step. After you finish the wizard, the Report Designer transforms the specified units to *HundredthsOfAnInch*, *TenthsOfAMillimeter* or *Pixels*.

- **Width and Height**

These properties are read-only until you set the **Size** option to **Custom**.

- **Page Margins**

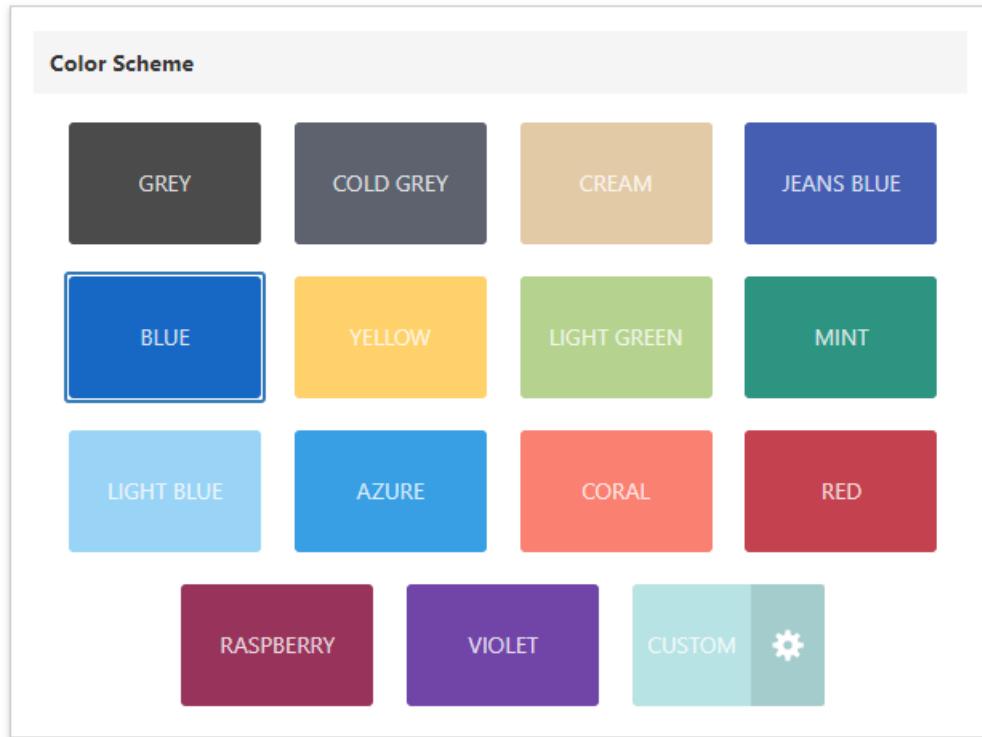
- **Orientation**

The wizard's right-hand side shows the page preview based on the specified settings.

After you complete the wizard, you can change these settings in the Report Designer's Properties Panel.

## Specify a Report Color Scheme

Choose the report's color scheme. The wizard creates [report styles](#) based on the selected color for the first-level report controls and applies styles with more transparent colors to controls at deeper levels.



## Specify the Report Title

Click the placeholder and enter the report title.

2. Specify the report title.

## Result

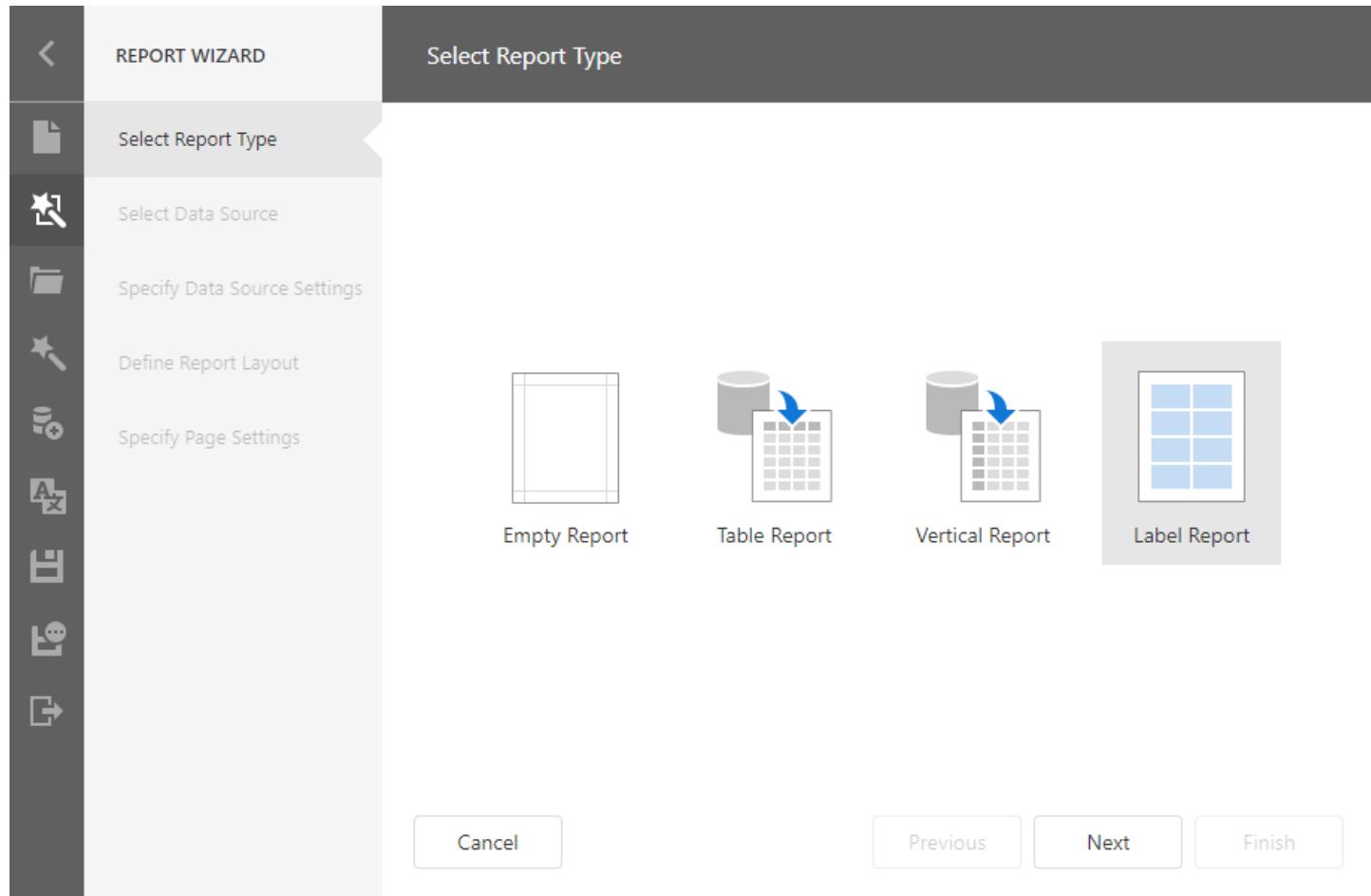
The following images show the resulting report layout:

TopMan	0	1	2	3	4	5	6
ReportHe	Products by Categories						
Detail	Category Name			Description		Picture	
[CategoryName]	[Description]			[Picture]		[Image]	
DetailReport	Product Name			Unit Price		Units In Stock	
DISCONTINUED	[ProductName]			[UnitPrice]		[UnitsInStock]	
ReportFc	MA sumMax([UnitPrice])			MI sumMin([UnitPrice])		[Discontinued]	
BottomM	[Discontinued]			MA sumMax([UnitPrice])		MI sumMin([UnitPrice])	
	Current Date and Time			Page {0} of {1}			

TopMan	0	1	2	3	4	5	6			
ReportHe	Products									
Detail	DISCONTINUED	□								
VerticalHeader	VerticalDetail	VerticalTotal								
Product Name	[ProductName]	sumMax([UnitPrice])			sumMin([UnitPrice])					
Unit Price	[UnitPrice]	[UnitPrice]			[UnitPrice]					
Units In Stock	[UnitsInStock]	[UnitsInStock]			[UnitsInStock]					
Vertical Bands	Current Date and Time			Page {0} of {1}						
BottomM	[UnitsInStock]			[UnitsInStock]						

# Label Report

Select **Label Report** on the start page to create a report with labels.



Click **Next** to go to the **Specify Page Settings** page.

## Select the Label Type

Choose a label standard from the **Label Product** drop-down list. Select a label type from the **Product Number** drop-down list. The type defines the label's default size, layout, and paper type.

**REPORT WIZARD**

- Select Report Type
- Select Data Source
- Specify Data Source Settings
- Define Report Layout
- Specify Page Settings**
- Save
- Print
- Cancel

### Specify Page Settings

1. Select the label type.

Label Product:	AOne
Product Number:	28171 - Address
Width:	90.2 mm
Height:	42.3 mm
Paper Type:	A4
Paper Size:	210.0 x 297.0 mm

## Customize Label Parameters

At this step, you can customize the page size and label settings.

**REPORT WIZARD**

- Select Report Type
- Select Data Source
- Specify Data Source Settings
- Define Report Layout
- Specify Page Settings**
- Save
- Print
- Cancel

### Specify Page Settings

2. Choose the page size and customize the label's parameters.

Page Size:	A4	<input type="radio"/> Inch	<input checked="" type="radio"/> Millimeter
210.0 x 297.0 mm			
Label Width:	90.2		
Label Height:	42.3		
Horizontal Pitch:	92.7		
Vertical Pitch:	42.3		
Top Margin:	20		
Left Margin:	13		
Right Margin:	14.1		
Bottom Margin:	23.2		

12 labels on the page, 2 x 6

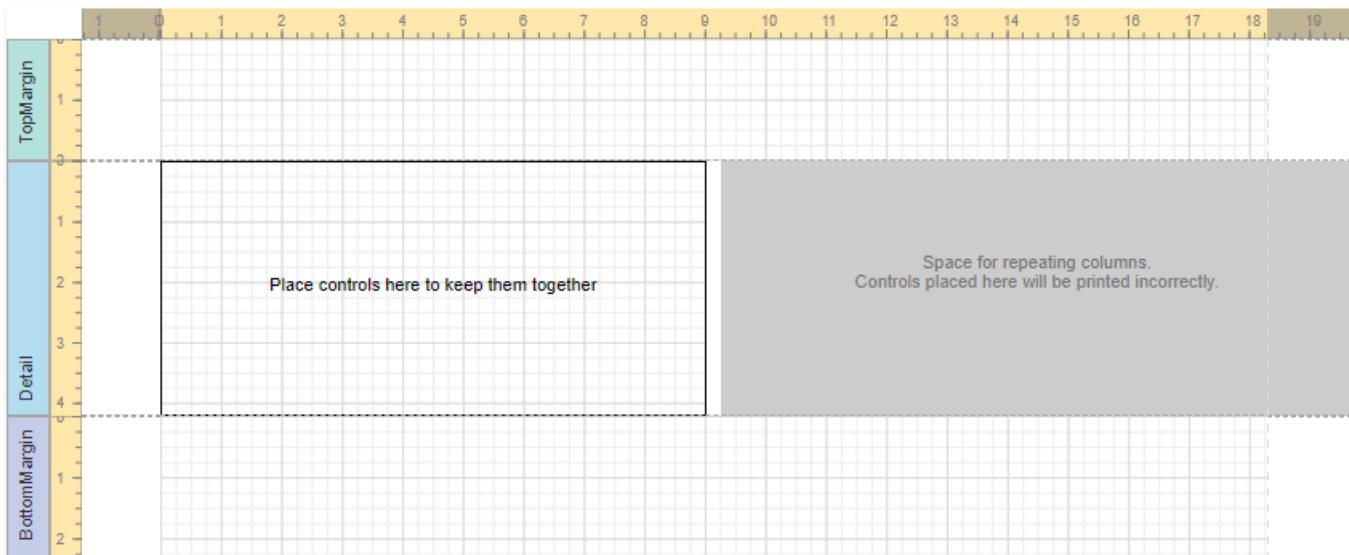
Click **Finish** to complete report creation.

## Result

After the wizard is finished, it divides the report's **Detail band** into three differently colored areas:

- The area at the left-hand side indicates the actual band area where you can place **controls**.

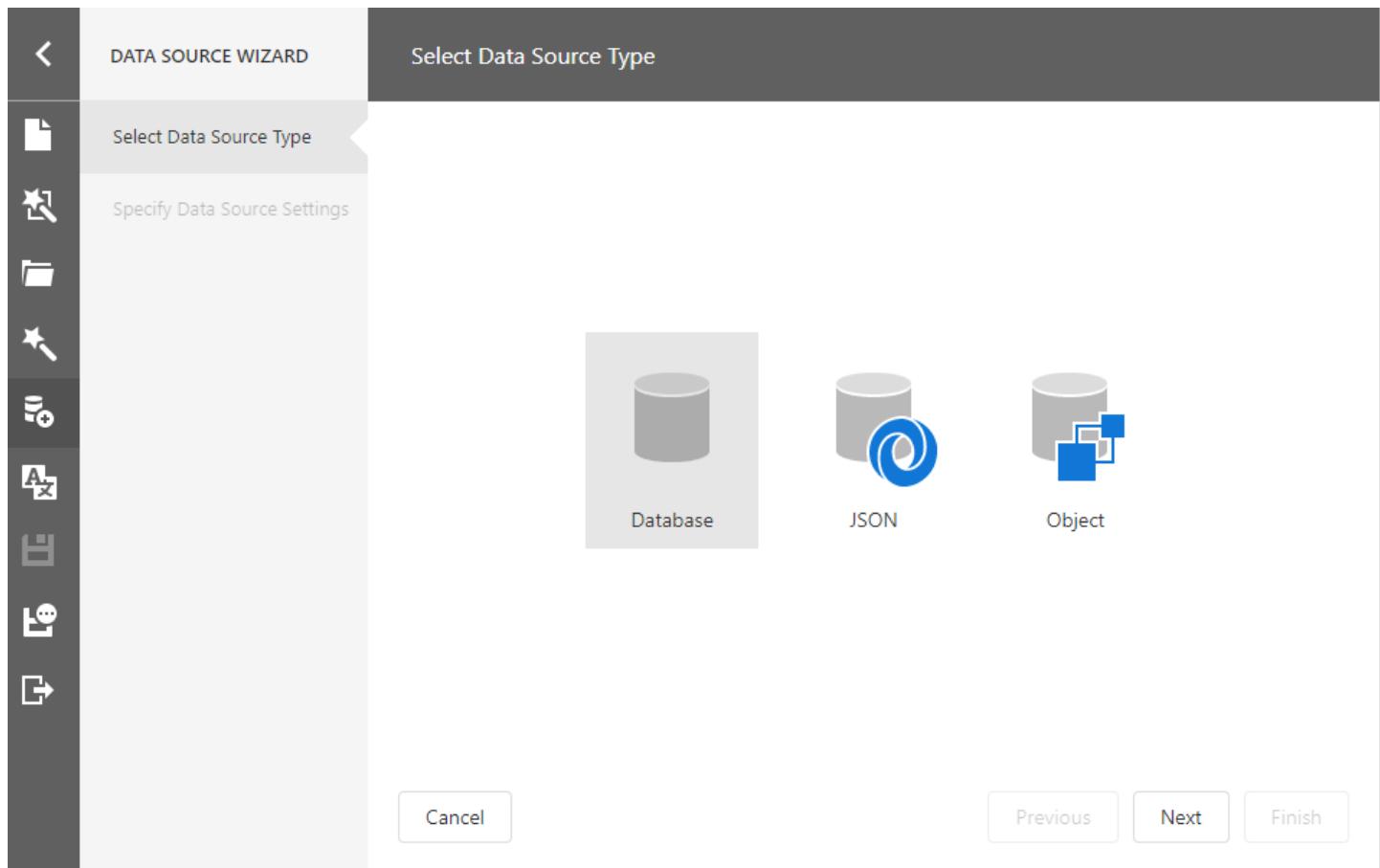
- The gray area at the right-hand side defines the space where label columns are repeated. Do not place controls in this area.
- The white space specifies the indent between labels.



To provide report data, use the [Data Source Wizard](#).

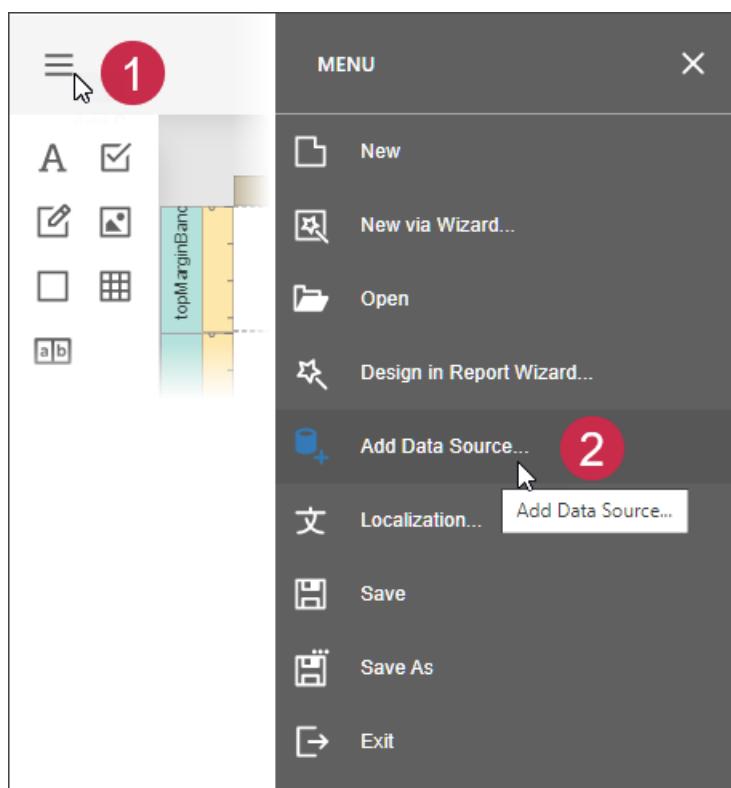
# Data Source Wizard

The Data Source Wizard enables you to add data sources to a report.



This wizard is available in the Report Designer if corresponding data connections are registered.

Click the **Add Data Source...** command in the Designer's menu to run the Data Source Wizard.



On the start page, choose the data source type and click **Next** to proceed:

- [Specify Data Source Setting \(Database\)](#) if you selected **Database**;
- [Specify Data Source Setting \(JSON\)](#) if you selected **JSON**.
- [Specify Data Source Setting \(Object\)](#) if you selected **Object**.

# Specify Data Source Settings (Database)

This page appears if you selected **Database** on the start page.

The screenshot shows the 'Specify Data Source Settings' step of the Data Source Wizard. On the left is a vertical toolbar with icons for back, forward, search, and other database operations. The main area has a title bar 'Specify Data Source Settings'. Step 1, 'Choose a data connection', shows a search bar with 'nor' and a list containing 'Northwind'. Step 2, 'Choose predefined queries and/or create c...', shows a search bar with 'Enter text to search...' and a list of options: 'Tables', 'Views', 'Stored Procedures', and 'Queries'. Step 3, 'Configure master-detail relationships.', contains a note: 'To create a master-detail relationship, select two or more queries.' Step 4, 'Configure query parameters.', contains a note: 'To specify query parameters, select a parameterized stored procedure or create a custom query.' At the bottom are 'Cancel', 'Previous', 'Next', and 'Finish' buttons.

## Choose a Data Connection

Select a data connection from the list.

The screenshot shows the 'Specify Data Source Settings' step of the Data Source Wizard, specifically the 'Choose a data connection' section. The interface is identical to the previous screenshot, showing a search bar with 'Enter text to search...' and a list of data sources: 'Homes', 'Contacts', 'Northwind', and 'Vehicles'. The 'Northwind' entry is highlighted.

## Choose Queries

Check tables, views and/or stored procedures to include them in a data source as separated queries.

2. Choose predefined queries and/or create custom queries.

Enter text to search...

Tables

- Categories
- Customers
- EmployeeCustomers
- Employees

You can also check specific data fields.

2. Choose predefined queries and/or create custom queries.

Enter text to search...

Tables

Categories

- CategoryID
- CategoryName
- Description

To join multiple data tables and shape the resulting data, click the **Queries** category's plus button to invoke the [Query Builder](#) and create a custom query.

Query Builder

CATEGORIES

- \* (All Columns)
- CategoryID
- CategoryName
- Description
- Picture
- Icon17
- Icon25

PRODUCTS

- \* (All Columns)
- ProductID
- ProductName
- SupplierID
- CategoryID
- QuantityPerUnit
- UnitPrice
- UnitsInStock
- UnitsOnOrder
- ReorderLevel
- Discontinued
- EAN13

QUERY PROPERTIES

COLUMN PROPERTIES

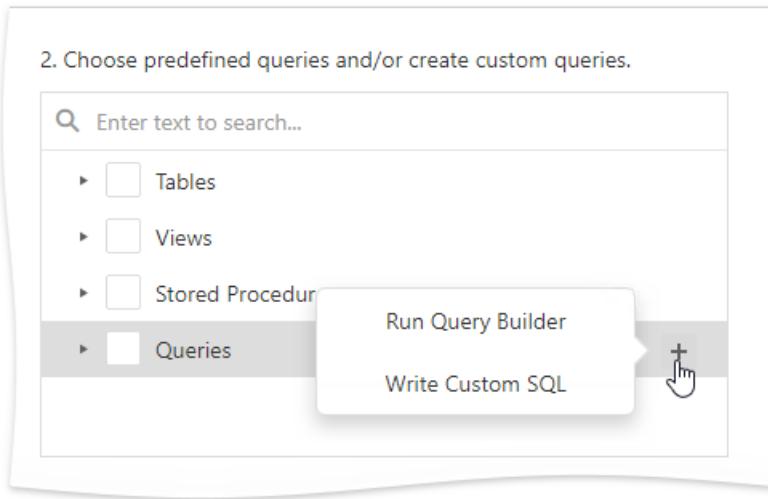
Name	QuantityPerUnit
Alias	
Type	String(20)
Output	Yes
Sort Type	Unsorted
Sort Order	
Group By	No
Aggregate	None

AVAILABLE TABLES AND VIEWS

PARAMETERS

Preview Results... OK Cancel

If you enabled custom SQL queries, the plus button invokes a context menu. You can choose whether to run the Query Builder or Custom SQL Editor.



You can click the button to customize the query or the button to remove the query.

Once you finished the wizard, the data source becomes available in the [Report Explorer](#)'s **Data Sources** node. The **Field List** reflects the data source structure.

The screenshot shows the 'FIELD LIST' tool window. It has a search bar at the top with placeholder text 'Enter text to search...'. Below the search bar is a button labeled '+ Add Data Source'. The main area displays a tree view of data sources and their fields. Under 'sqlDataSource1', there is a 'Categories' node with fields: CategoryID, CategoryName, Description, Icon17, Icon25, Picture. There are also 'Customers' and 'Products' nodes, and a 'Parameters' node. To the right of the list is a vertical toolbar with various icons: gear (settings), filter (f), cylinder (data source), and a stack of squares (other tools).

## Configure Master-Detail Relationships

This step is available when you selected several tables or queries.

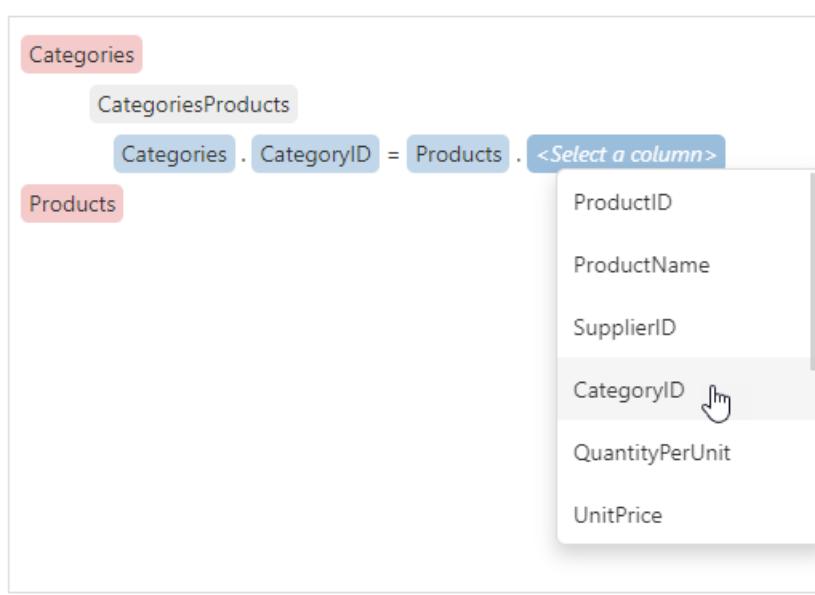
To create a master-detail relationship, hover the master table name, click the plus button and choose the detail table.

3. Configure master-detail relationships.



Select the required key fields (columns) to connect tables.

3. Configure master-detail relationships.



Click **OK** to close the **Master-Detail Relation Editor**.

After the wizard is completed, the Field List reflects the master-detail hierarchy.

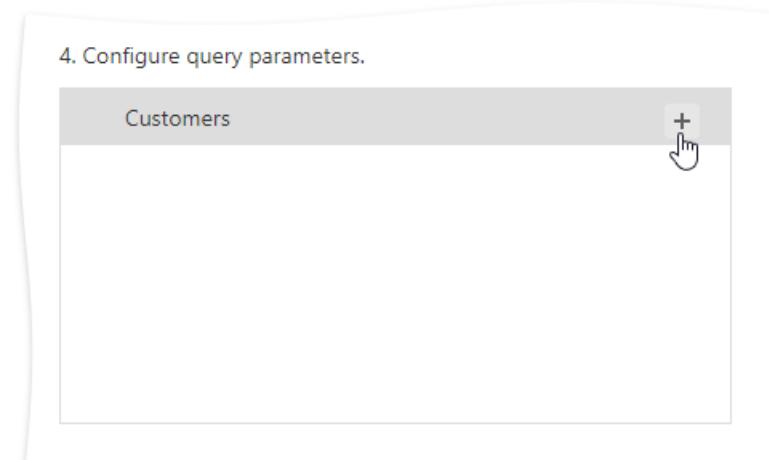
The screenshot shows the 'FIELD LIST' section of a software interface. At the top right is a search bar with the placeholder 'Enter text to search...' and a plus button labeled '+ Add Data Source'. Below the search bar is a tree view of data fields:

- sqlDataSource1
  - Categories
    - CategoriesProducts
      - CategoryID
      - CategoryName
      - Description
      - Icon17
      - Icon25
      - Picture
    - Products
  - Parameters

## Configure Query Parameters

This step is available if you selected a parameterized stored procedure or created a custom query.

Select a query and click the plus button to add a new parameter.



Click the button to customize the parameter or the button to remove it.

You can use the following approaches to specify a parameter value:

- **Assign a static value**

Select a query parameter's type from the **Type** drop-down list and specify a value based on the selected type.

#### 4. Configure query parameters.

The screenshot shows the 'Configure query parameters' dialog for a 'Customers' query. A single parameter named 'parameter1' is defined. Its 'Name' is 'parameter1', 'Type' is 'Number (32 bit integer)', and its 'Value' is '20'.

- **Provide a dynamic parameter value**

Set the **Type** option to **Expression** and specify the **Result Type**. Click the **Value** option's ellipsis button and construct an expression in the invoked.

The screenshot shows the 'Configure query parameters' dialog with a parameter named 'parameter1'. The 'Type' is set to 'Expression' and the 'Result Type' is 'Date'. The 'Value' field has an ellipsis button, which is highlighted with a mouse cursor, indicating it is being edited.

**Expression Editor**

1 LocalDateTimeNow()

Fields: Enter text to search... LocalDateTimeNow()  
Constants: LocalDateTimeLastWeek(), LocalDateTimeLastYear()  
Functions:

- ▼ Functions
- Aggregate: LocalDateTimeThisWeek()
- DateTime: LocalDateTimeYesterday()
- Logical: LocalDateTimeToday()
- Math: LocalDateTimeNow()

LocalDateTimeNow()  
Returns a DateTime value corresponding to the current moment in time.

OK Cancel

If you design the current report in the wizard, you can map a query parameter to an existing report parameter. To do this, use the **?parameterName** syntax.

## Expression Editor

X

1 ?reportParameter

Fields

- Constants
- Functions
- Operators

Parameters

- ab reportParameter

OK Cancel

# Specify Data Source Settings (JSON)

This page appears if you selected **JSON** on the start page.

The screenshot shows the 'Report Wizard' interface with the title 'Specify Data Source Settings'. On the left sidebar, 'Specify Data Source Settings' is highlighted. The main area has two sections: '1. Do you want to use an existing data connection?' and '2. Select data fields.'.

**1. Do you want to use an existing data connection?**

Yes, let me choose an existing data connection from the list  
 No, I'd like to create a new data connection

**2. Select data fields.**

Root element: root.Products

Products

- CategoryID
- Discontinued
- EAN13
- ProductID
- ProductName
- QuantityPerUnit
- ReorderLevel
- SupplierID
- UnitPrice
- UnitsInStock
- UnitsOnOrder

Cancel Previous Next Finish

## Select an Existing Data Connection

Select the first option and choose a data connection from the list.

The screenshot shows the 'Report Wizard' interface with the title 'Specify Data Source Settings'. On the left sidebar, 'Specify Data Source Settings' is highlighted. The main area has two sections: '1. Do you want to use an existing data connection?' and a search bar.

**1. Do you want to use an existing data connection?**

Yes, let me choose an existing data connection from the list  
 No, I'd like to create a new data connection

Enter text to search...  
Products (JSON)

## Create a New Data Connection

Select the second option to create a new connection.

The screenshot shows the 'Report Wizard' interface. The title bar says 'Specify Data Source Settings'. On the left, there's a vertical toolbar with icons for back, forward, report type, data source, settings, and report layout. The 'Specify Data Source Settings' icon is highlighted. The main area has a question '1. Do you want to use an existing data connection?' with two radio button options: 'Yes, let me choose an existing data connection from the list' (unchecked) and 'No, I'd like to create a new data connection' (checked). Below this is a section for 'Connection Name:' with a text input field containing 'MyConnection'.

Specify the connection name and select the JSON source type.

- **Web Service Endpoint (URI)**

This screenshot shows the configuration for a JSON source. It includes fields for 'Connection Name:' (Customers), 'JSON Source:' (Web Service Endpoint (URI)), and 'Web Service Endpoint (URI):' (https://northwind.now.sh/api/customers). Below these are sections for 'BASIC HTTP AUTHENTICATION' and 'PARAMETERS'. A 'Resulting URI:' field at the bottom contains the same URL as the endpoint field.

Connection Name: *	Customers
JSON Source:	Web Service Endpoint (URI)
Web Service Endpoint (URI): *	https://northwind.now.sh/api/customers
▶ BASIC HTTP AUTHENTICATION	
▶ PARAMETERS	
Resulting URI:	https://northwind.now.sh/api/customers

You can also specify the Web Service Endpoint's request parameters (username and password, path parameters, query parameters, or header parameters).

### 1. Do you want to use an existing data connection?

- Yes, let me choose an existing data connection from the list  
 No, I'd like to create a new data connection

Connection Name: \*

JSON Source:

Web Service Endpoint (URI): \*

► BASIC HTTP AUTHENTICATION

▼ PARAMETERS

Path Parameter	parameter1	Value	f
Re Path Parameter	https://raw.githubusercontent.com/DevExpress-E...		
Query Parameter			
Header			

### • JSON String

Connection Name:

JSON Source:

JSON String

```
1 [ {  
2   "Id": "ALFKI",  
3   "CompanyName": "Alfreds Futterkiste",  
4   "ContactName": "Maria Anders",  
5   "ContactTitle": "Sales Representative",  
6   "Address": "Obere Str. 57",  
7   "City": "Berlin",  
8   "PostalCode": "12209",  
9   "Country": "Germany",  
10  "Phone": "030-0074321",  
11  "Fax": "030-0076545"}, {  
12    "Id": "ANATR",  
13    "CompanyName": "Ana Trujillo Emparedados y helados",  
14    "ContactName": "Ana Trujillo",  
15    "ContactTitle": "Owner",  
16  } ]
```

You can also use the **Upload JSON** button to load content from the selected JSON file.

## Select Data Fields

At this step, the wizard shows the JSON schema. Check the data fields you want to include in your report.

2. Select data fields.

Root element:  ▾

Products

- CategoryID
- Discontinued
- EAN13
- ProductID
- ProductName
- QuantityPerUnit
- ReorderLevel
- SupplierID
- UnitPrice
- UnitsInStock
- UnitsOnOrder

Click **Next** to proceed.

# Specify Data Source Settings (Object)

This page appears if you selected **Object** on the wizard's start page.

The screenshot shows the 'Specify Data Source Settings' page of the Data Source Wizard. On the left is a vertical toolbar with various icons. The main area has a title bar 'Specify Data Source Settings'. Below it are two search boxes labeled 'Enter text to search...'. The left search box contains a list of data source types: 'Balance Sheet Report Data Source', 'Hierarchical Report Data Source', 'Multi-Column Report Data Sorce', and 'Restaurant Menu Report Data Source'. The 'Restaurant Menu Report Data Source' item is currently selected. The right search box contains a list of methods: 'GetMenuData() : IEnumerable<MenuItem>' and 'GetMenuData(string categoryName) : IEnumerable<MenuItem>'. Below the search boxes is a section titled '3. Configure constructor parameters and/or me...' with a note: 'To specify parameters, select a parameterized constructor or method.' At the bottom are buttons for 'Cancel', 'Previous', 'Next', and 'Finish'.

## Choose an Object

Select a data object or constructor from the list. If you select a data object, its default constructor is used.

DATA SOURCE WIZARD

Select Data Source Type

Specify Data Source Settings

### Specify Data Source Settings

1. Choose the type and its constructor.

Enter text to search...

- ▼ **Balance Sheet Report Data Source**
  - ☰ ctor()
- ▼ **Hierarchical Report Data Source**
  - ☰ ctor()
- ▼ **Multi-Column Report Data Source**
  - ☰ ctor()
- ▼ **Restaurant Menu Report Data Source**
  - ☰ ctor()

## Choose a Data Member

Select the method that should provide data or select **Entire Object** to bind the report to the object's fields.

2. Choose the entire object or a data member to bind.

Enter text to search...

Entire Object

GetMenuData() : IEnumerable<MenuItem>

GetMenuData(string categoryName) : IEnumerable<MenuItem>

## Configure Parameters

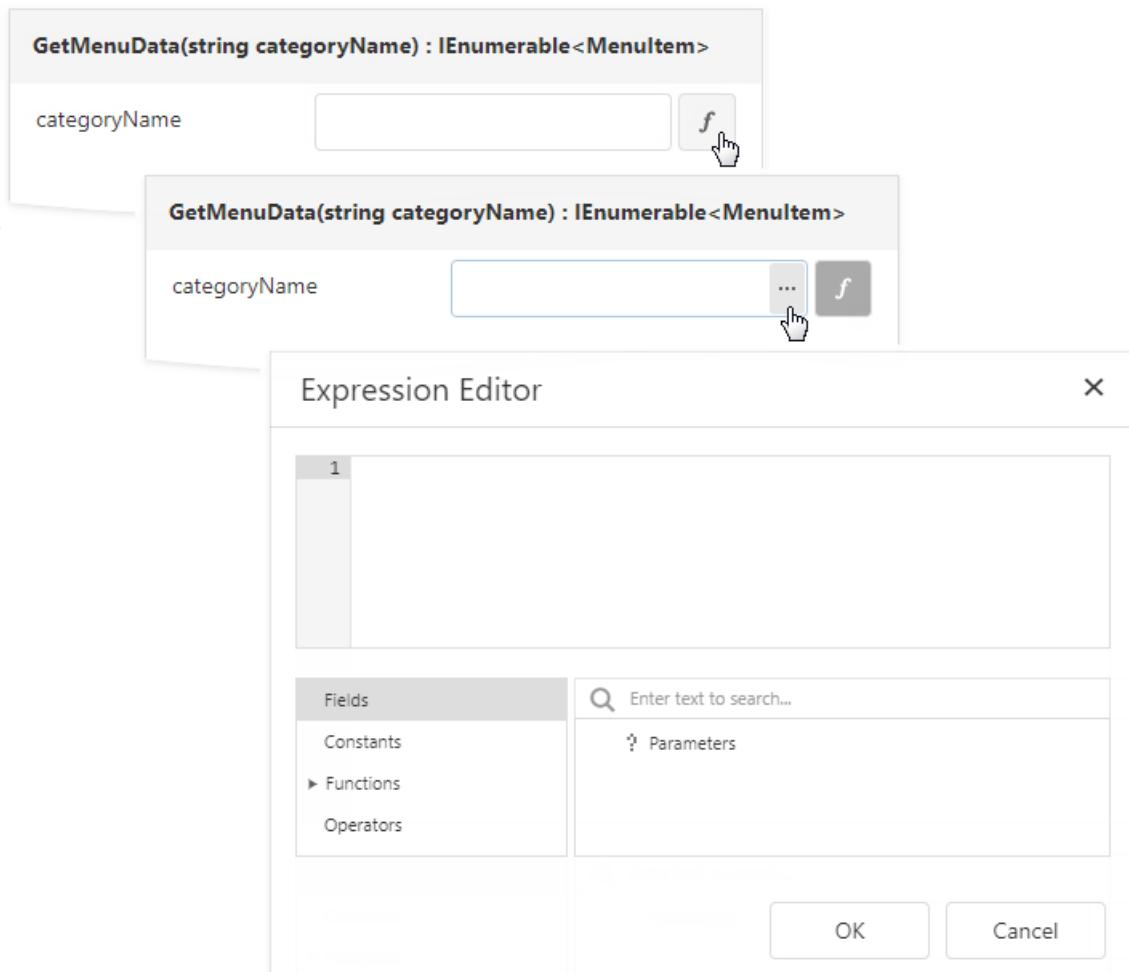
Specify constructor and/or data member parameters, if required.

3. Configure constructor parameters and/or method parameters.

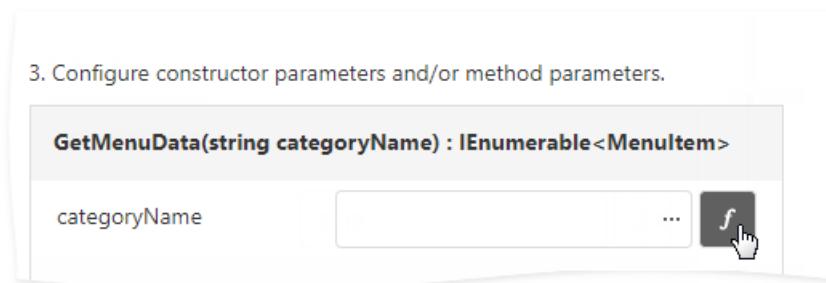
GetMenuData(string categoryName) : IEnumerable<MenuItem>

categoryName

You can use expressions to provide data source parameter values. Click the  button to switch the parameter's editor to the expression mode. Specify an expression in the parameter's editor, or click the parameter's ellipsis button to launch the [Expression Editor](#). You can use [report parameters](#) in expressions to specify an input value for a data source parameter.



To return to the value mode, click the button again.



Click **Finish** to close the Data Source Wizard.

Once you finished the wizard, the data source becomes available in the [Report Explorer's Data Sources node](#). The [Field List](#) reflects the data source structure.

**REPORT EXPLORER**

Enter text to search...

- Report
- Styles
- Cross-Band Controls
- Data Sources**

objectDataSource1

**FIELD LIST**

Enter text to search...

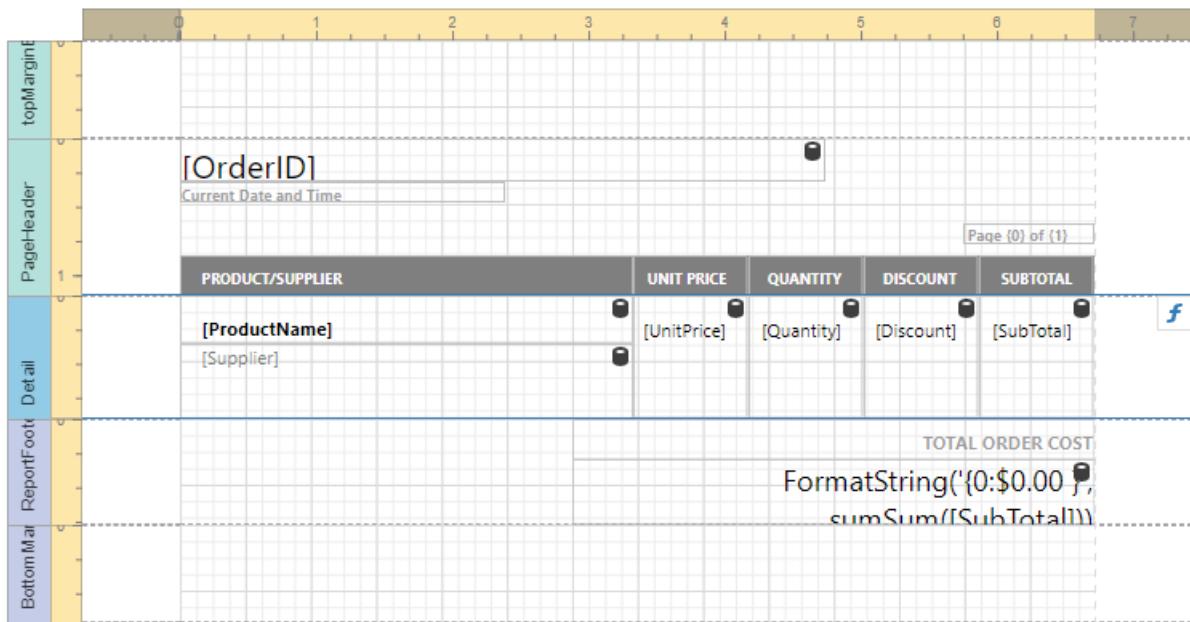
+ Add Data Source

objectDataSource1

- ab CategoryName
- ab Description
- ✓ IsNew
- ab Name
- 1.2 Price
- ab SubCategoryName
- ? Parameters

# Design Surface

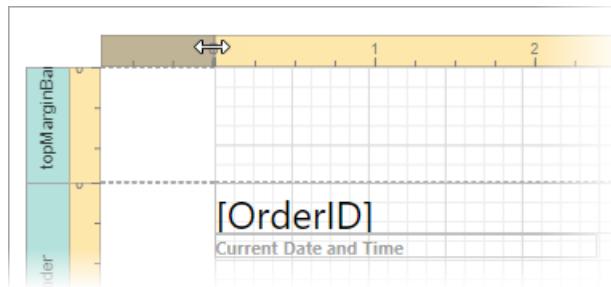
The **Design Surface** displays a report that is being edited in the [Web Report Designer](#).



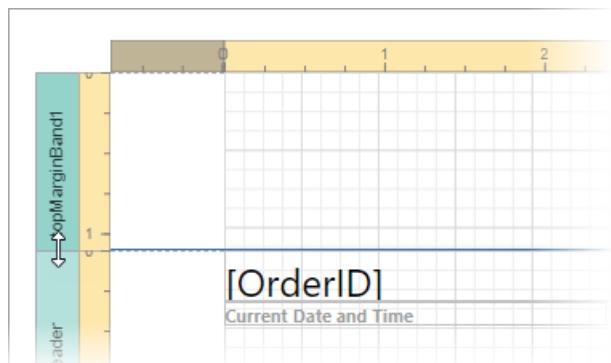
## Rulers

The horizontal and vertical rulers display tickmarks in your report's specified [measurement units](#). Click an element to evaluate its size and location using the rulers.

The horizontal ruler also allows you to modify the report's side margins (the report's **Margins** property value) by moving the left and right sliders on the ruler.



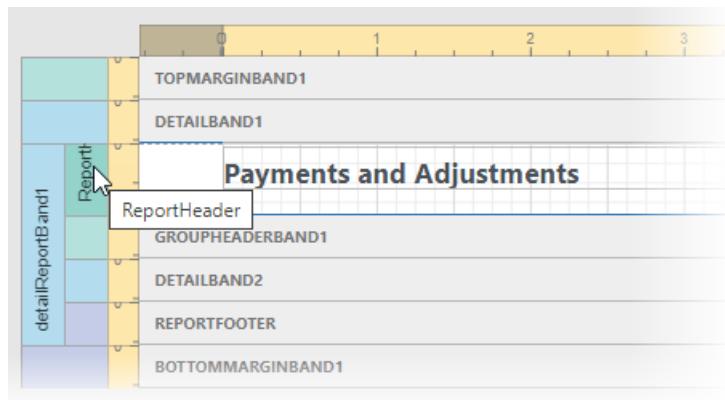
You can move a report band's vertical ruler resizing rectangles to change its height.



## Band Captions

In the Report Designer, each **report band** carries a caption, the tab title and color, which depends on the band kind. These captions are not printed in the resultant report document and are only visible at design time.

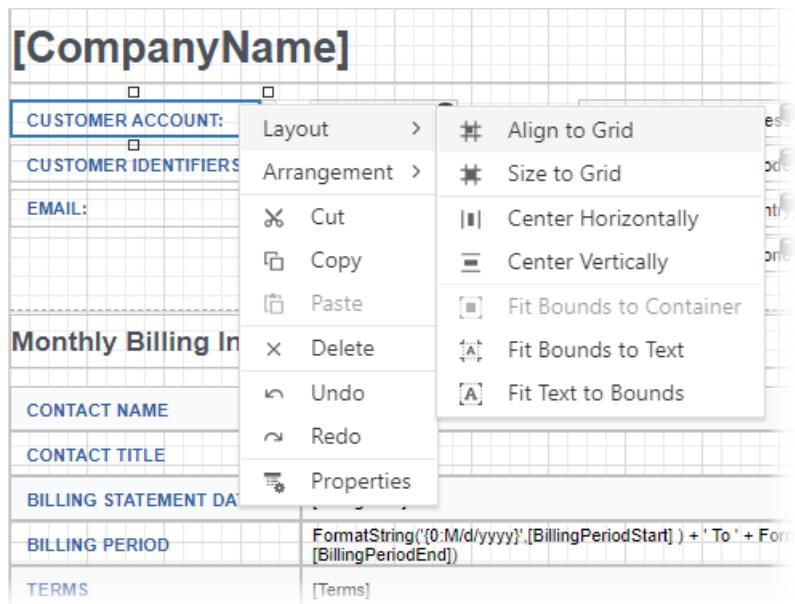
You can expand or collapse a band's content at design time by clicking the tab on the left side of the band.



To access a band's properties, click the band's caption and switch to the [Properties Panel](#).

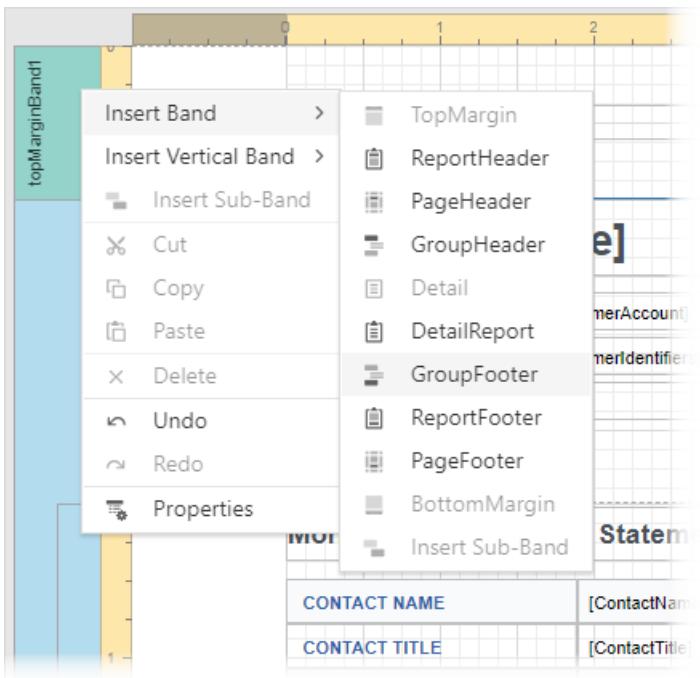
## Context Menus

Context menus provide quick access to actions for the selected report element. Right-click a report element to invoke the context menu:

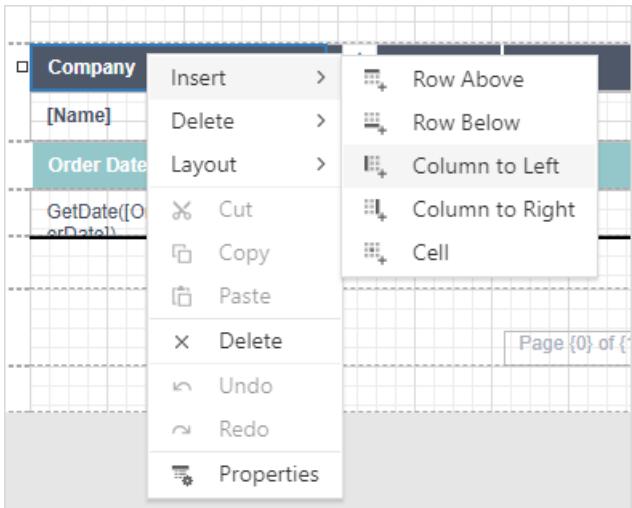


Context menus allow you to do the following:

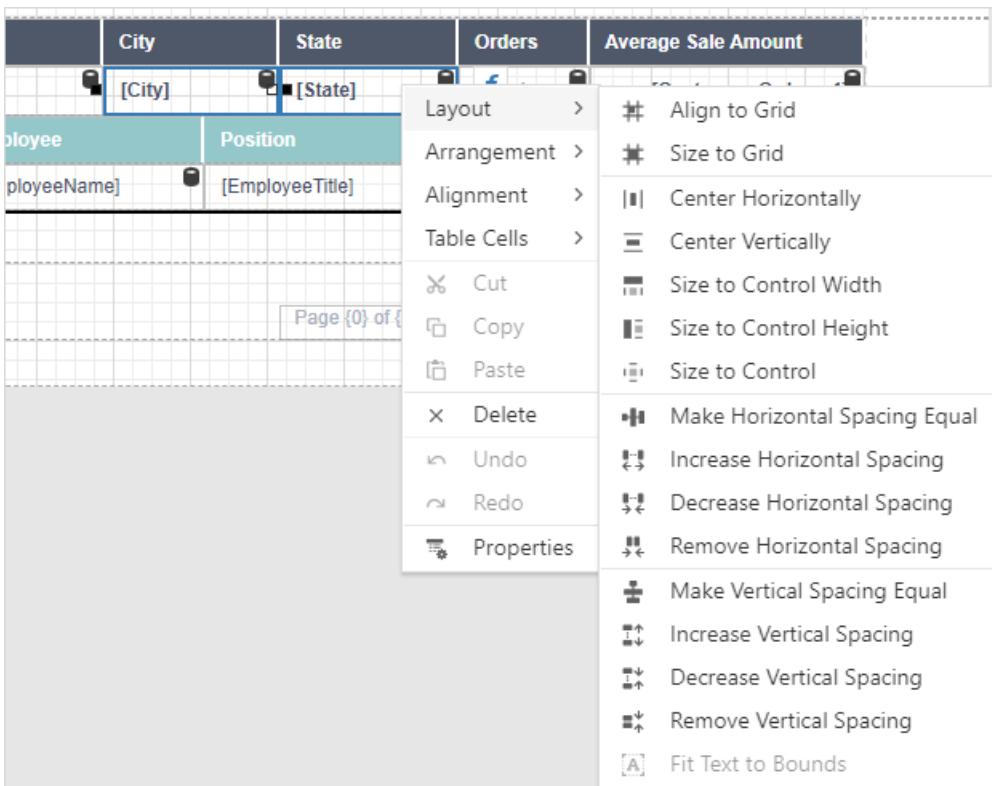
- Add new bands, if you selected a report.



- Manage cells, rows, and columns in a table.



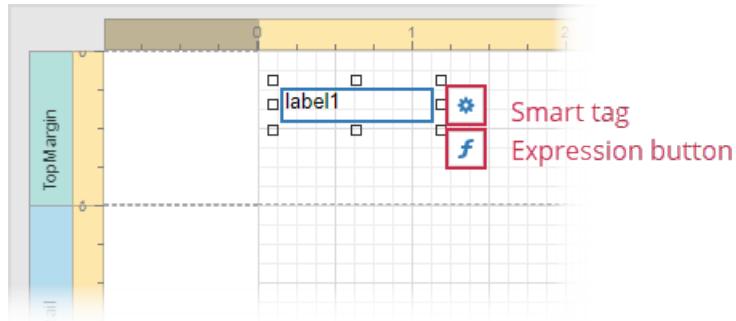
- Change element layout (for example, align elements to each other, snap to grid, change content alignment).



Context menus are also available in [Field List](#) and [Report Explorer](#) windows.

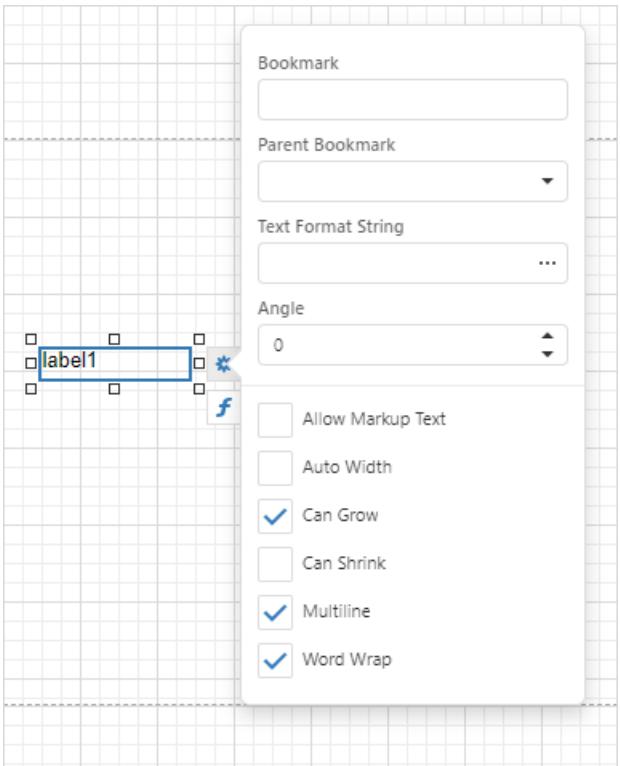
## Smart Tags

When you select a report element (report, band, or report control), a smart tag and expression button are displayed next to the element on the Design Surface:



The expression button invokes the [Expression Editor](#).

The smart tag opens a panel with the element's most commonly used properties:

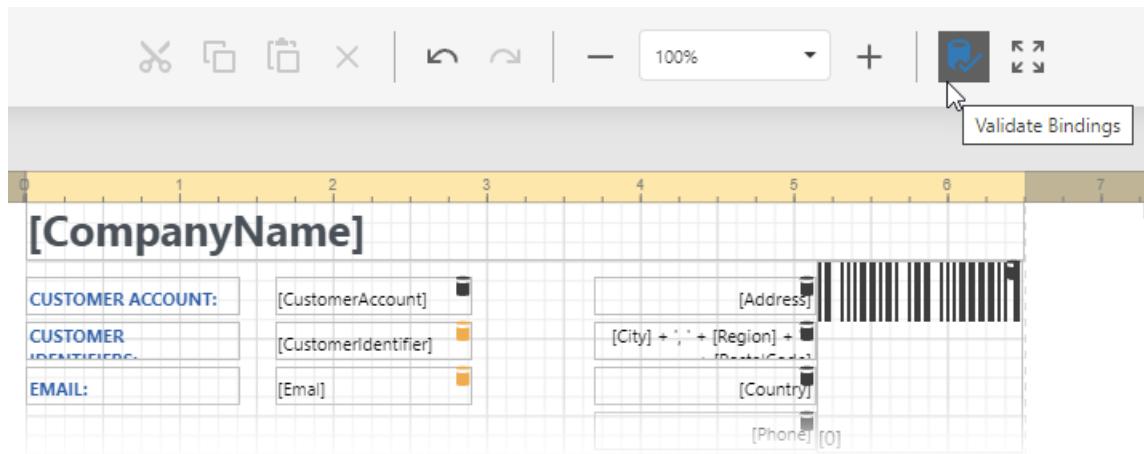


The smart tag contains properties from the element's **Task** group of the Properties Panel. Note that complex properties (for example, **Symbology** for a Barcode control) need to be configured in the **Properties Panel**.

## Data Binding Indication

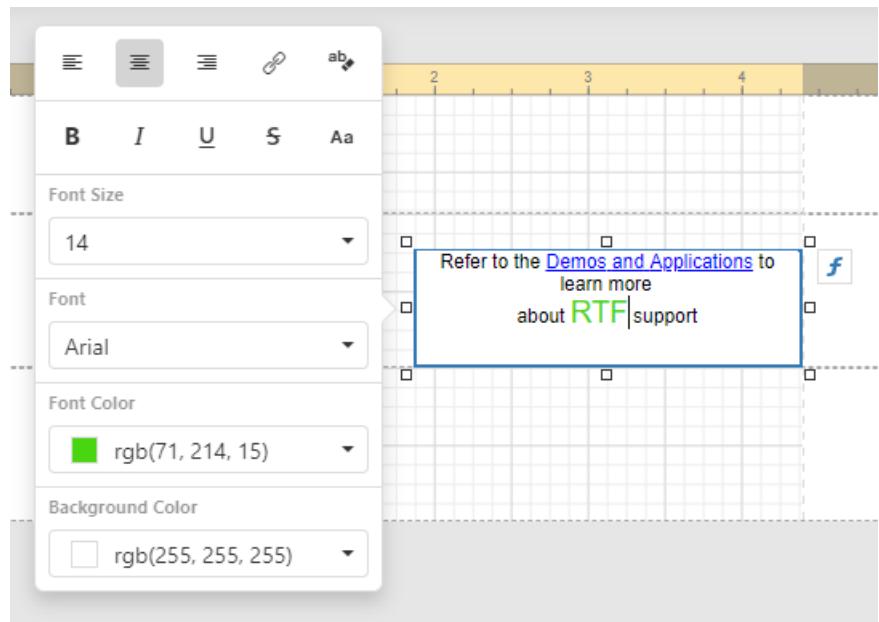
The Report Designer displays a database barrel icon above **data-bound** report controls.

You can click the **Validate Bindings** toolbar button to highlight report controls with invalid **expression/data bindings**. This allows you to determine if the specified expression has an incorrect syntax or uses non-existing data source fields.



## In-Place Editors

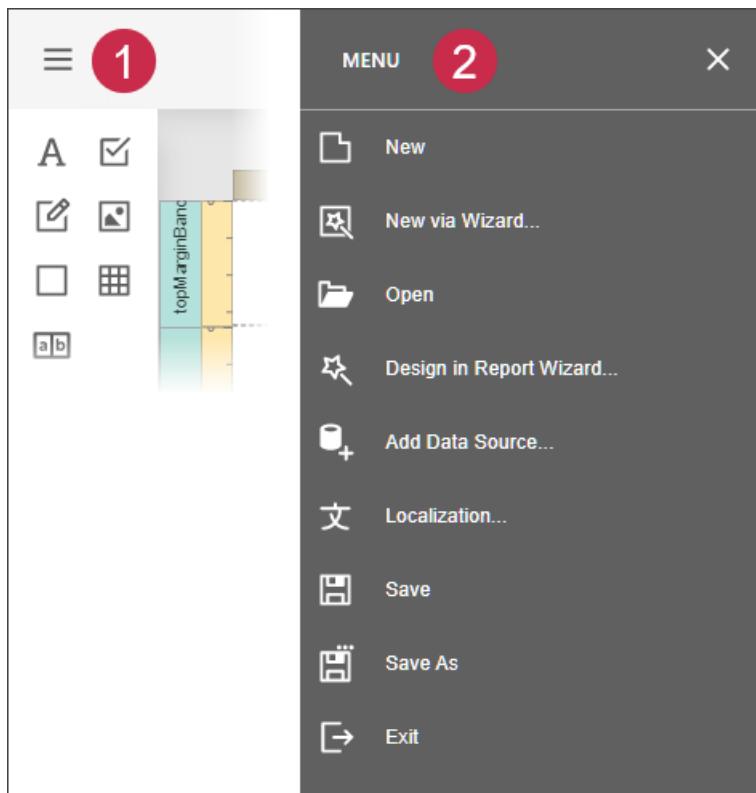
In-place editors allow you to edit the text-oriented controls' content (**Barcode**, **Character Comb**, **Check Box**, **Label**, **Table Cell**) by double-clicking them.



You can switch between a report's **Design** and **Preview** mode using the corresponding buttons in the [Main Toolbar](#).

# Main Menu

The Web Report Designer menu is invoked by clicking the menu button in the upper-left corner of the designer's user interfaces.



Note that some of the menu commands listed in this topic are only available when specific conditions are met. Visibility conditions for such commands are provided in the command description.

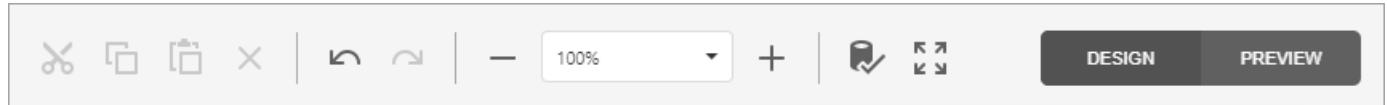
The menu contains the following commands.

COMMAND	ICON	DESCRIPTION
New		Creates a report and opens it in a new tab. This command is only available when the Report Designer is provided with a report storage.
New via Wizard		Invokes the <a href="#">Report Wizard</a> to create a new report. This command is only available when the Report Designer is provided with a report storage.
Open		Invokes the <b>Open Report</b> dialog to retrieve a report from the list of <a href="#">saved reports</a> and <a href="#">open</a> it in a new tab. This command is only available when the Report Designer is provided with a report storage.
Design in Report Wizard		Invokes the <a href="#">Report Wizard</a> to edit the current report and generate the report layout.
Add Data Source		Invokes the <a href="#">Data Source Wizard</a> to create a new data source and configure it. This command is only available when the Report Designer is provided with a set of default data connections.
Localization		Invokes the <a href="#">Localization Editor</a> that allows you to change the text of the localizable textual properties for all the controls in a report.
Save		<a href="#">Saves</a> the current report. This command is only available when the Report Designer is provided with a report storage.

COMMAND	ICON	DESCRIPTION
Save As		Invokes the <b>Save Report</b> dialog to save the current report to the report storage under a new URL. This command is only available when the Report Designer is provided with a report storage.
Exit		Closes the <a href="#">Web Report Designer</a> .

# Main Toolbar

The Main Toolbar provides access to the report editing commands in the [Web Report Designer](#).



COMMAND	ICON	DESCRIPTION
Cut		Cuts the selected control to the clipboard.
Copy		Copies the selected control to the clipboard.
Paste		Pastes a control from the clipboard onto the selected report band.
Delete		Deletes the selected control.
Undo		Cancels the last change made to the document.
Redo		Reverses the last undo action.
Zoom Out		Decreases the document's current zoom factor by 5 percent.
Zoom Factor	<input type="button" value="100%"/>	Zooms to a specific zoom factor selected from the dropdown list.
Zoom In		Increases the document's current zoom factor by 5 percent.
Validate Bindings		Highlights report controls with <a href="#">invalid data bindings</a> or incorrect expressions.
Full Screen		Toggles between the Report Designer's full screen and default size.
Preview	<input type="button" value="PREVIEW"/>	Switches to Preview Mode.
Design	<input type="button" value="DESIGN"/>	Switches to Design Mode.

# Toolbox

The **Toolbox** contains available [report controls](#) and allows you to add them to your report.



## Report Controls

The available report controls can be divided into the following categories:

### Common Controls

A	☒	✍	📷	□	grid	ab
Label	Check Box	Rich Text	Picture Box	Panel	Table	Character Comb

### Additional Controls

Line	Shape	Barcode
------	-------	---------

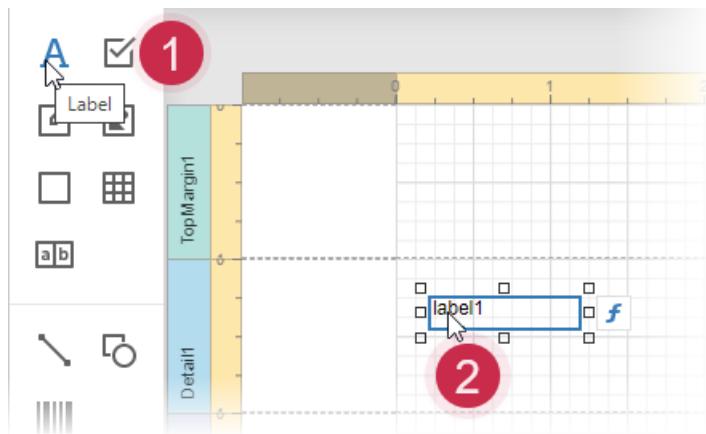
### Controls with Separate Data Sources

■■■	⌚	📈	Σ	📋	PDF	↳
Chart	Gauge	SparkLine	Cross Tab	Subreport	PDF Content	PDF Signature

Table of Contents	Page Info	Page Break	Cross-Band Line	Cross-Band Box

## Add a Control to a Report

To add a control from the Toolbox, drag and drop an item from the Toolbox onto the required location within a report.

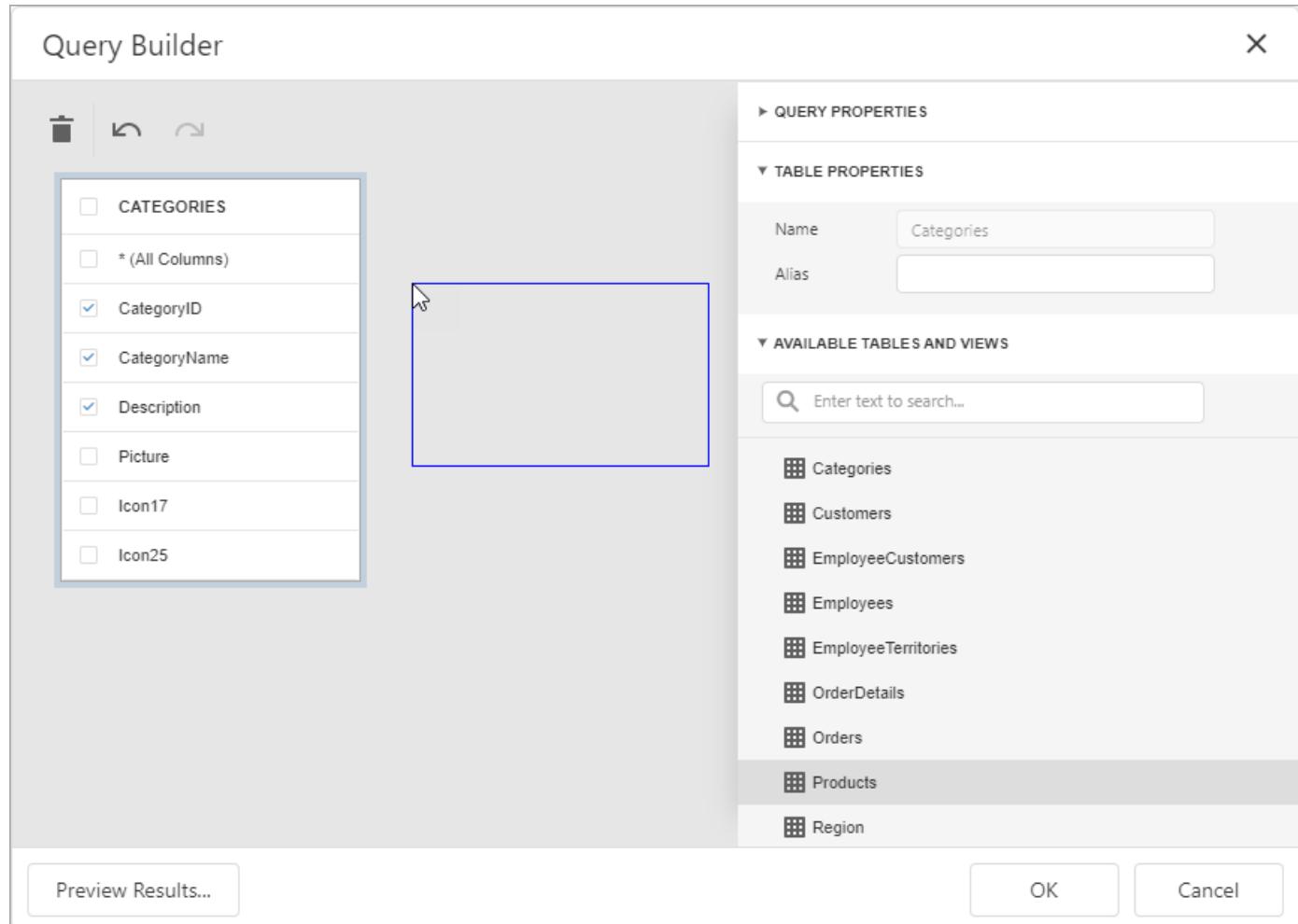


# Query Builder

The **Query Builder** is a visual queries editor. You can invoke it from the [Data Source Wizard](#).

## Select Tables

Drag and drop a specific table or view onto the Query Builder design surface to include it into a query result set.



The Query Builder provides a toolbar with the following commands:

ICON	DESCRIPTION
	Removes the selected table or view from the query.
	Reverses the most recent action.
	Performs the previously undone action.

Enable check boxes for the table columns you want to include into the query result set.

<input type="checkbox"/> CATEGORIES
<input type="checkbox"/> * (All Columns)
<input checked="" type="checkbox"/> CategoryID
<input checked="" type="checkbox"/> CategoryName
<input checked="" type="checkbox"/> Description
<input type="checkbox"/> Picture
<input type="checkbox"/> Icon17
<input type="checkbox"/> Icon25

Use the search box to find a table or view by name.

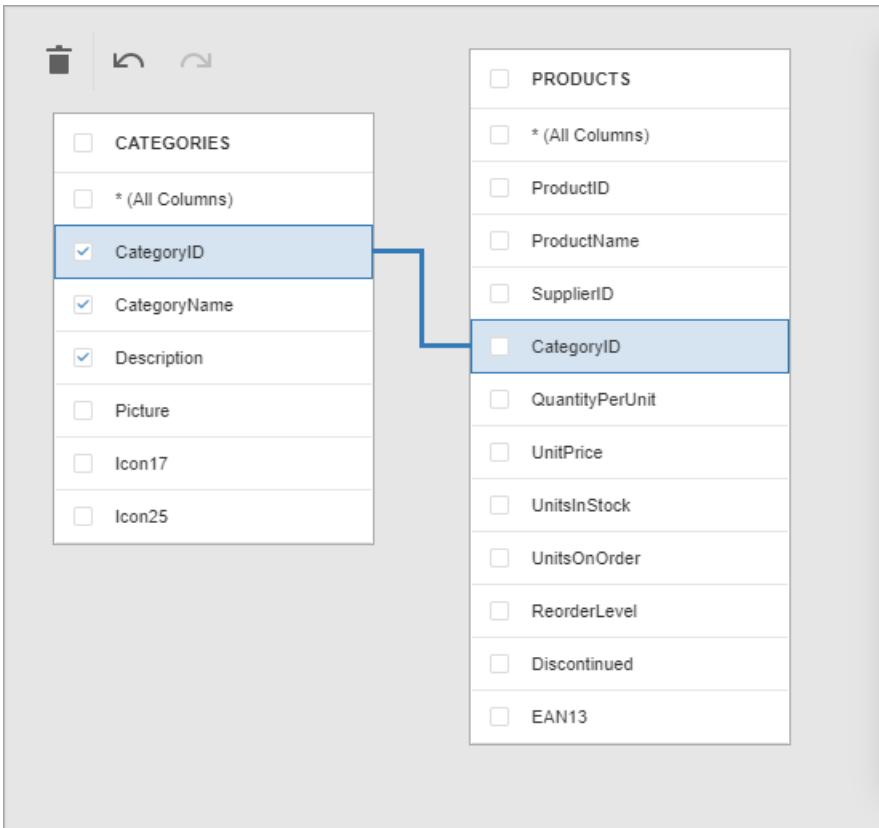
▼ AVAILABLE TABLES AND VIEWS

×

- [Categories](#)
- [CategoryProducts](#)
- [ProductsByCategory](#)
- [SalesByCategory](#)

## Join Tables

The Query Builder allows you to join tables and/or views. Use drag and drop to connect corresponding columns (key fields). The connected columns should have identical data types.



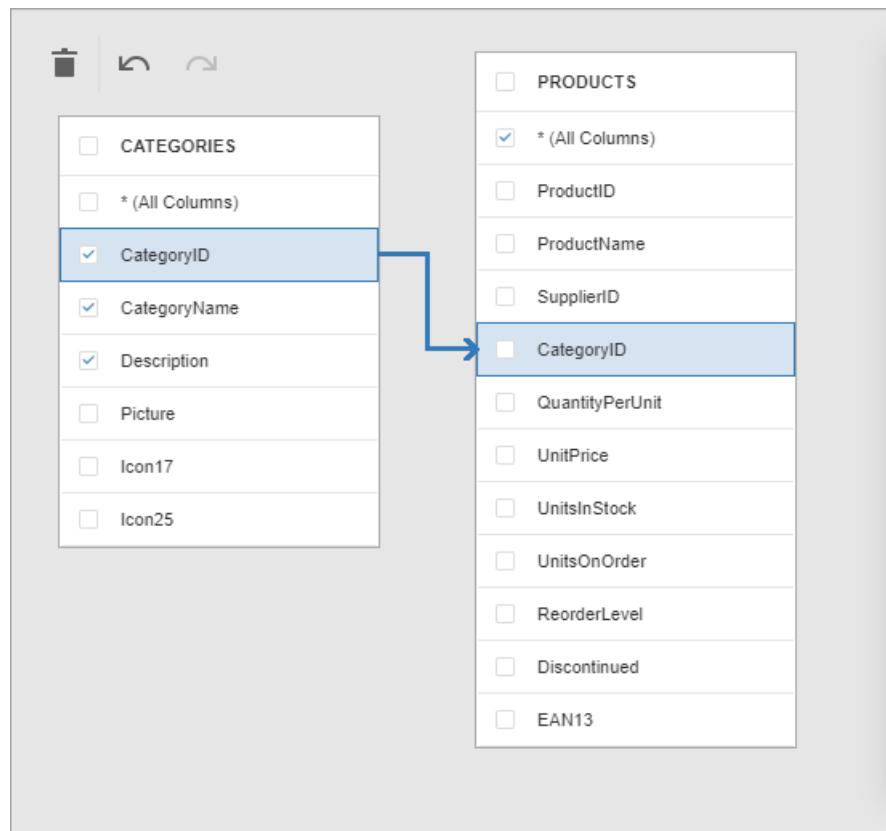
Click the data relation to display the **Relation Properties** section. Properties in this section define the join type (**Inner** or **Left Outer**) and applied logical operator.

**RELATION PROPERTIES**

Left Operand	Categories.CategoryID
Right Oper...	Products.CategoryID
Join Type	Inner join
Operator	Equals to
Equals to	
Does not equal to	
Is greater than	
Is greater than or equal to	
Is less than	
Is less than or equal to	

A left outer join returns all the values from an inner join along with all values in the "left" table that do not match to the "right" table and includes rows with NULL (empty) values in the key field.

If you select the left outer join, the relationship line displays an arrow which points at the "right" table of the join clause.



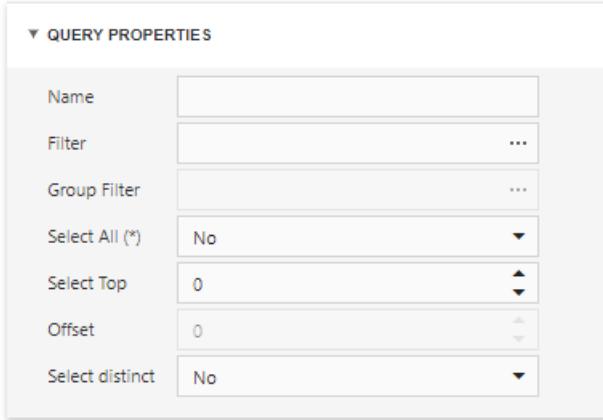
The executed query returns a "flat" table which joins different tables within a single query. The specified join options define which data records compose the query result set.

#### NOTE

We recommend you to use [hierarchical data sources](#) because the reporting engine generates master-detail reports faster than similar-looking reports which obtains data from "flat" data sources.

## Filter Data

Expand the **Query Properties** section to display the query options.



The query provides the following options:

- **Name**

Specifies a custom query name (alias).

- **Filter**

Runs the [Filter Editor](#) where you can specify filter conditions for the resulting data. Filter criteria may contain [query parameters](#).

- **Group Filter**

Runs the Filter Editor where you can specify filter conditions for grouped and aggregated data. This option is enabled only for grouped data.

- **Select All (\*)**

Specifies whether to include all columns from the selected tables and/or views to the query result set, regardless of their individual settings.

The default value is **No**.

- **Select Top**

Specifies the number of first records to include to the query result set. The default value is **0** and indicates that the query result set contains all records that meet all other filter conditions.

- **Offset**

Specifies the number of records to skip before the report engine retrieves data. This option is available only for sorted data.

- **Select distinct**

Specifies whether to include only distinct values to the result set.

The default value is **No**.

## Shape Data

Select a table or view and click a data column to display the data column options.

#### ▼ COLUMN PROPERTIES

Name	CategoryName
Alias	
Type	String(15)
Output	Yes
Sort Type	Unsorted
Sort Order	
Group By	No
Aggregate	None

The **Column Properties** section contains the following options:

- **Name**

Indicates the column name which the Query Builder obtains from the database.

- **Type**

Indicates the column's data type.

The Query Builder provides information about the maximum string length for string columns.

- **Alias**

Specifies a custom column name (alias).

Include a column into a query to enable this option.

- **Output**

Specifies whether to include the column into the query result set.

- **Sort Type**

Specifies whether to preserve the original data records' order within the column, or sort them (in an ascending or descending order).

- **Sort Order**

Apply sorting to the data column's records to enable this option.

It defines the sorting priority for multiple columns (the less this number is, the higher the priority).

For example, set the sort order to **1** for the column **A** and set it to **2** for the column **B**. The Query Builder first sorts the query by column **A** and then by the column **B**.

All columns' sort order automatically updates when you change this setting for one column. It allows you to avoid conflict of priorities.

- **Group By**

Specifies whether to group the query result set by this column.

**NOTE**

You should apply grouping and/or aggregation to each selected column.

- **Aggregate**

Specifies whether to aggregate the column's data records.

You can use the following aggregate functions: **Count**, **Max**, **Min**, **Avg**, **Sum**, **CountDistinct**, **AvgDistinct**, **SumDistinct**.

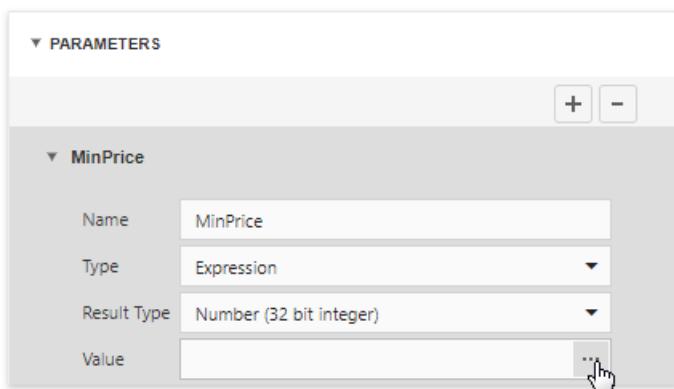
The Query Builder discards individual data records from the query result set and keep only the aggregate function result when you apply any of these functions.

**NOTE**

Use aggregation/grouping either for all selected columns or for none of them. The Query Builder applies grouping to all selected columns automatically if you apply the aggregation to one column. The Query Builder resets grouping against other columns when you remove all aggregation functions.

## Use Query Parameters

Use the **Parameters** section to add, remove and edit [query parameters](#).



Each query parameter provides the following properties:

- **Name**

Specifies the query parameter's name.

- **Type**

Specifies the parameter value's data type.

Set this property to **Expression** to generate parameter values dynamically.

- **Result Type**

Specifies the data type of the expression's result value.

This property is enabled if the query parameter's type is **Expression**.

- **Value**

Determines the query parameter's actual value.

You can specify a static actual value according to the selected value's data type.

Alternatively, construct an expression to generate actual parameter values dynamically. Click this property's ellipsis button to invoke the [Expression Editor](#) and create an expression. This ellipsis button is enabled if you set the query parameter's type to **Expression**.

## Preview Results

Click the **Preview Results** button to test a query on the actual data's limited subset at any time.

The opened **Data Preview** screen displays the first **100** data records of the query result set.

Data Preview (First 100 Rows Displayed)X

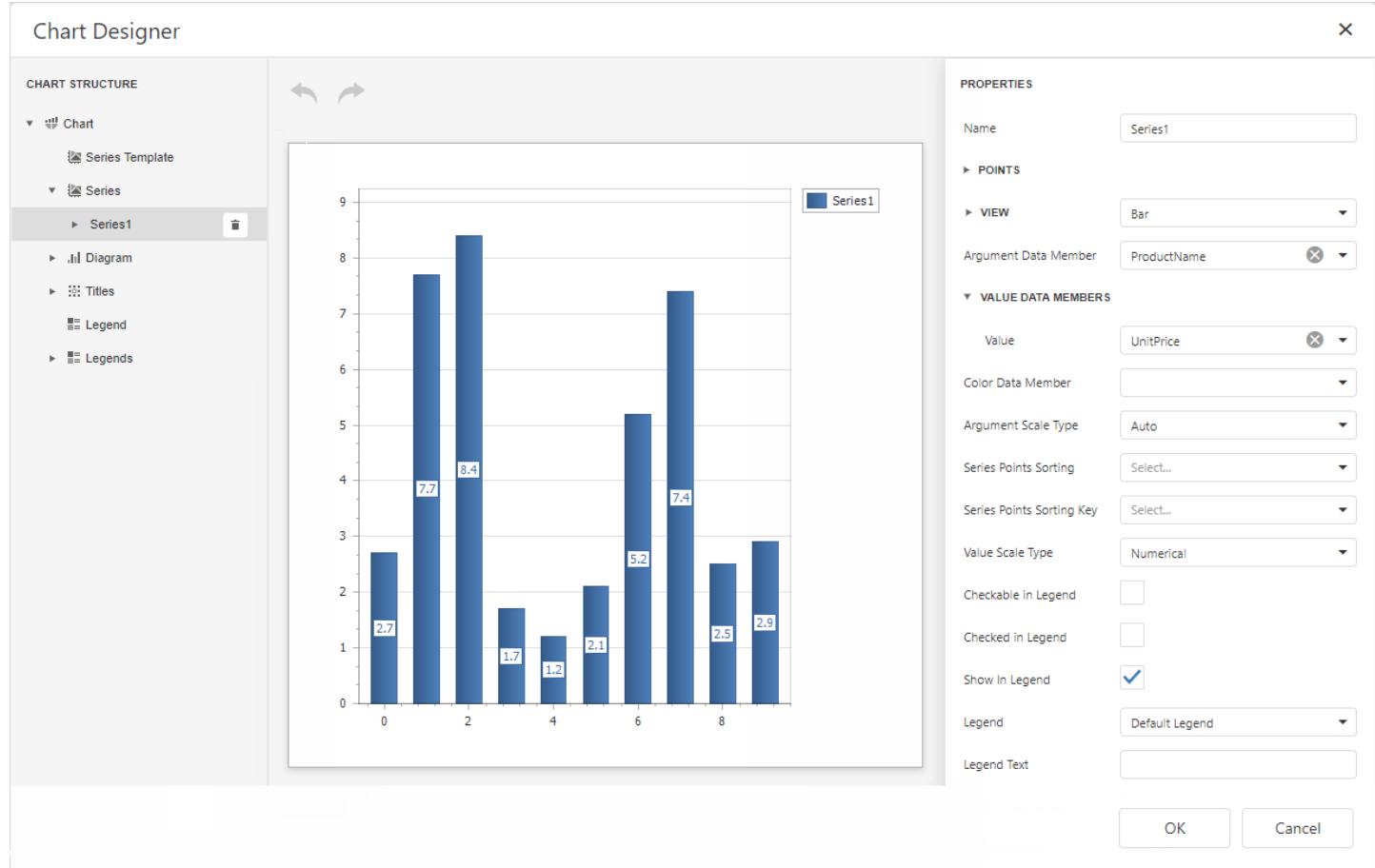
CategoryID	QuantityPerUnit	UnitPrice	ProductID	ProductName	SupplierID
1	10 boxes x 20 bags	18	1	Chai	1
1	24 - 12 oz bottles	19	2	Chang	1
1	12 - 355 ml cans	4.5	24	Guaraná Fantástica	10
1	24 - 12 oz bottles	14	34	Sasquatch Ale	16
1	24 - 12 oz bottles	18	35	Steeleye Stout	16
1	12 - 75 cl bottles	263.5	38	Côte de Blaye	18
1	750 cc per bottle	18	39	Chartreuse verte	18
1	16 - 500 g tins	46	43	Ipoh Coffee	20
1	24 - 12 oz bottles	14	67	Laughing Lumberjack Lager	16
1	24 - 355 ml bottles	15	70	Outback Lager	7
1	24 - 0.5 l bottles	7.75	75	Rhönbräu Klosterbier	12

OK

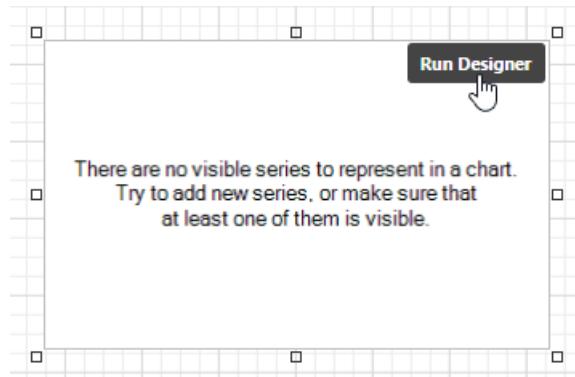
# Chart Designer

## Chart Designer Overview

The **Chart Designer** allows you to quickly create and customize [charts](#) in the [End-User Report Designer](#).



To invoke the Chart Designer, click the **Run Designer** button over the chart control.



The Chart Designer consists of three main parts that are described below.

## Chart Structure

The **Chart Structure** tree enables you to explore and manage a structure of a chart and its elements.

When you click a chart element in the tree, the designer's **Properties** panel displays settings of this element.

To create a new series, click the plus button for the **Series** collection and select a required series type in the invoked window.

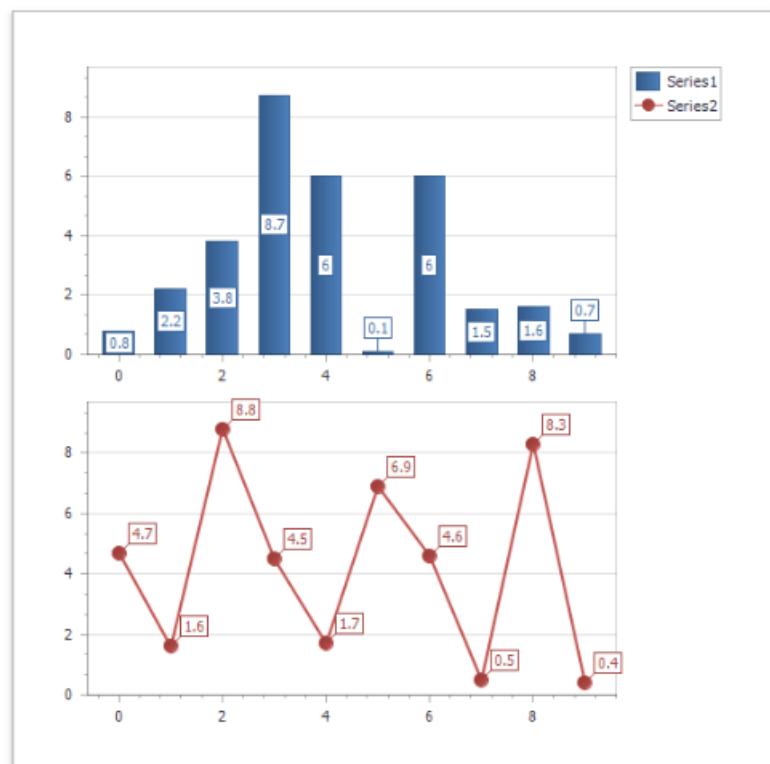


To add elements to other collections (**Titles**, **Legends**, etc.), simply click the plus button.

To delete an element, select it and click the **Remove** .

## Chart Layout

The **Chart Layout** area displays the preview of the created chart.

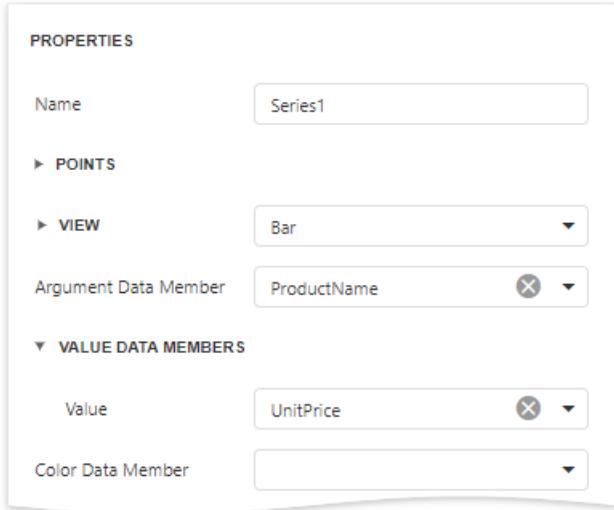


This part also provides the following buttons:

ICON	DESCRIPTION
↶	Reverses the most recent action.
↷	Performs the action you have previously undone.

## ##Chart Properties

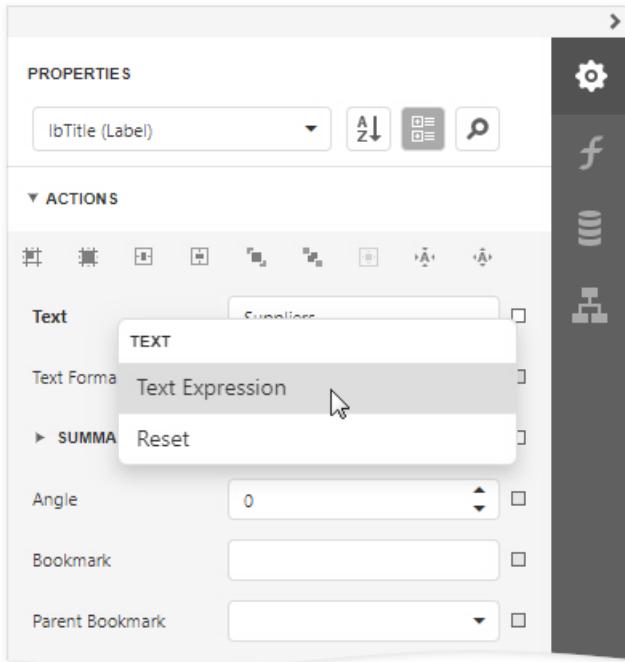
The **Properties** panel allows you to view and change settings of a chart and its elements. Changing any property updates the chart layout to display the current state.



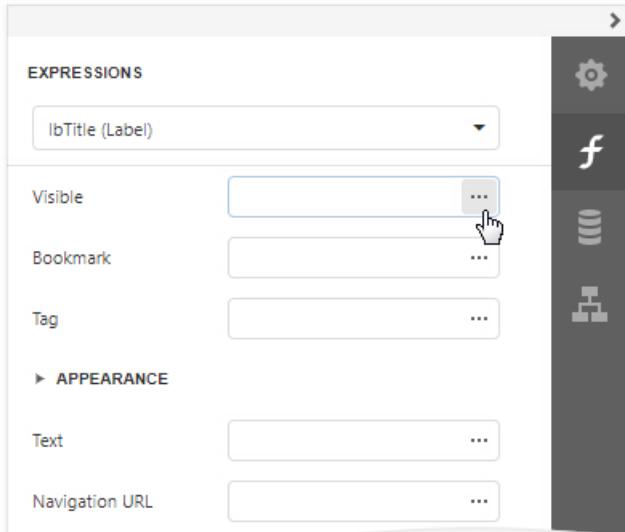
# Expression Editor

This document describes how to use the **Expression Editor** to specify expressions in the [Report Designer](#).

Invoke the **Expression Editor** from a property's popup menu in the [Properties Panel](#). Click the property's marker and select the **PropertyName Expression**.



If a property's editor displays an ellipsis button, you can click this button to invoke the **Expression Editor** and specify an expression that evaluates to the property's value.



The **Expression Editor** offers a choice of functions, operators, data source fields, report elements, constants, and variables to create an expression.

## Expression Editor

X

```
1 [UnitPrice] * [Quantity] * (1 - [Discount])
```

Report Items  
Fields  
Constants  
► Functions  
Operators  
Variables

+

-

\* **Multiples the value of two expressions.**

/

%

0

OK Cancel

An expression can span multiple lines.

## Expression Editor

X

```
1 [UnitPrice] *
2   [Quantity] *
3     (1 - [Discount])
```

Report Items  
Fields  
Constants  
► Functions  
Operators  
Variables

+

-

\* **Multiples the value of two expressions.**

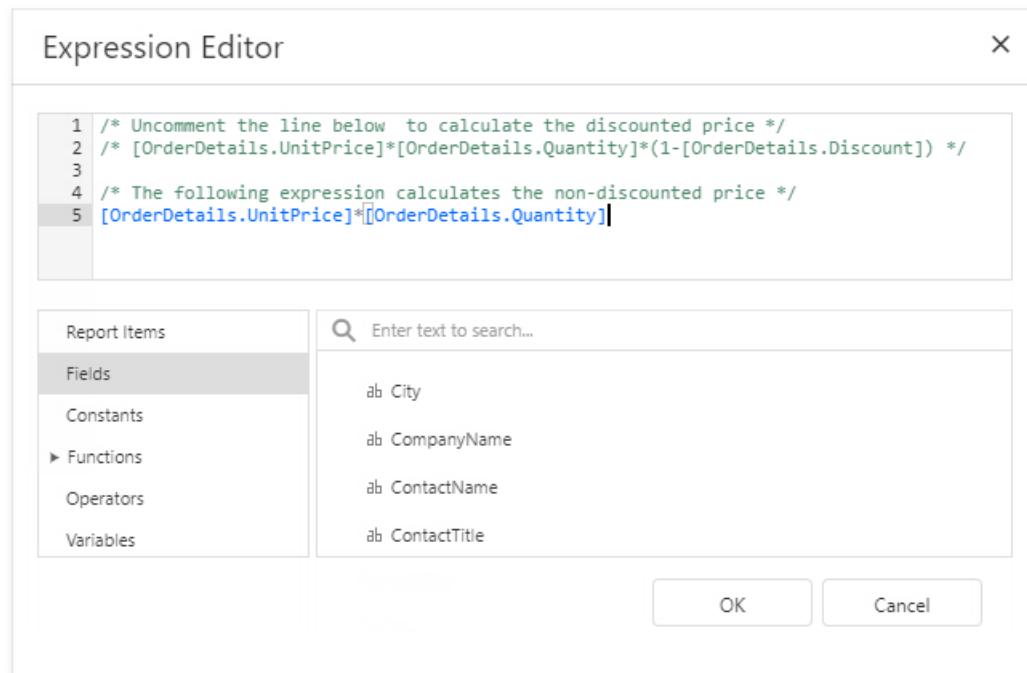
/

%

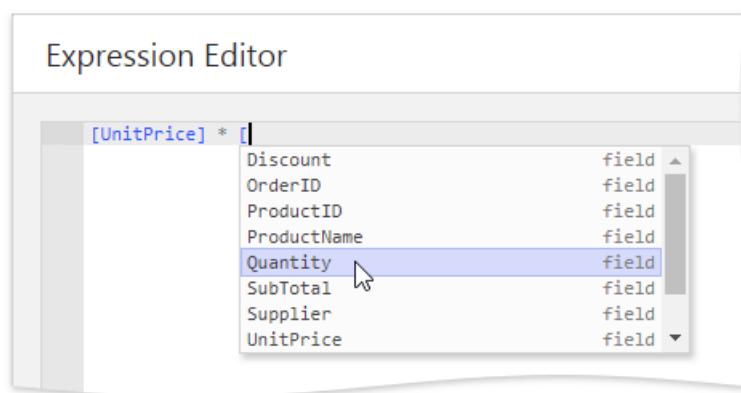
0

OK Cancel

You can add single-line or multi-line comments in the following format: `/* comment text */`.



The **Expression Editor** highlights an expression's syntax and supports intelligent code completion (it suggests functions and available data elements as you type).



An error icon appears if an expression contains errors. Hover the mouse pointer over this icon to invoke a pop-up notification that shows the location of the error.



See the [Expression Language](#) topic for the expression syntax description.

## Expression Syntax

Take into account the following syntax conventions when using the Expression Editor:

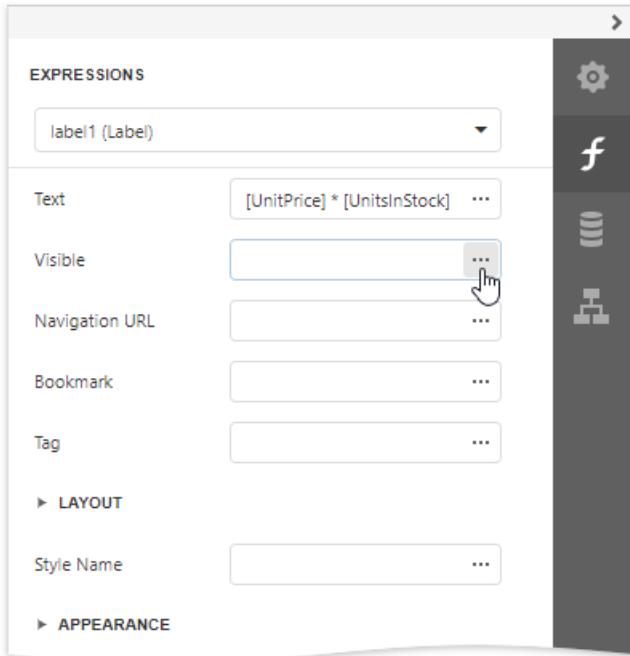
- Reference a data field in the expression by enclosing its name in the square brackets (for example, **[ProductName]**).
- Insert **report parameters** and **query parameters** by typing a question mark before their names (for instance, **?parameter1**).
- Denote string values with apostrophes. Type a double apostrophe to embed an apostrophe into an expression's text (for

example, 'It's sample text').

- Enclose date-time constants with hashtags (**[OrderDate]** >= #1/1/2016#).
- Use a question mark to specify a null reference (one that does not refer to any object) (**[Region] != ?**).
- If an expression involves the use of different types, you can convert them to the same type using dedicated functions (for instance, **Max.ToDecimal([Quantity]),[UnitPrice])**).

## Using the Expression Editor

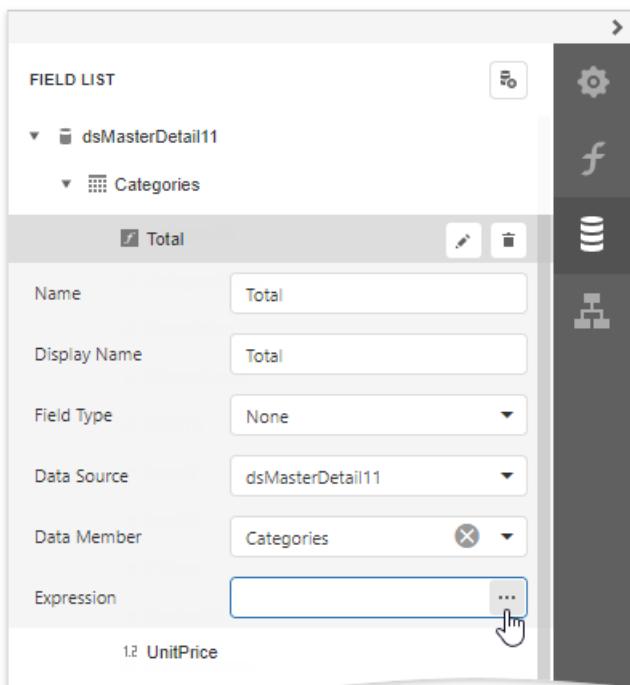
When [expression bindings](#) are enabled in your reports, the Report Designer contains the [Expressions](#) tab allowing you to assign values to various element properties. Clicking any property's ellipsis button invokes the Expression Editor, in which you can specify custom expressions with the available data fields.



In the [data binding](#) mode, you can use the Expression Editor in the following cases:

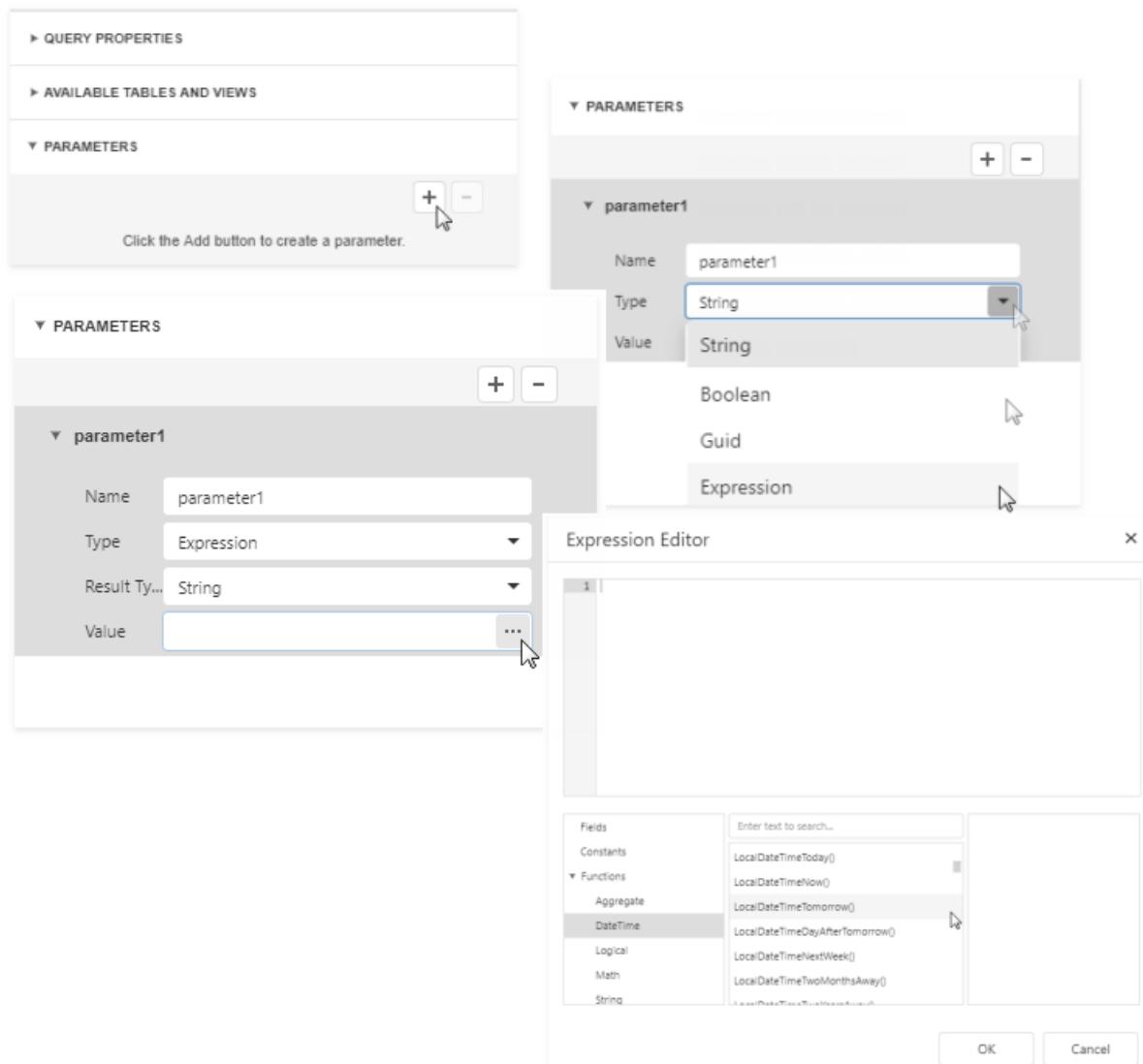
- **Edit a Calculated Field's Expression**

Access a [calculated field](#)'s settings in the Field List and click **Expression** property's ellipsis button.



## • Specify a Query Parameter's Value

In the [Configure Query Parameters](#) wizard page, set the parameter type to **Expression** and click the **Value** property's the ellipsis button.



- **Construct a Formatting Rule's Condition**

Access the [formatting rule](#)'s settings in the [Properties](#) panel and click the **Condition** property's ellipsis button.

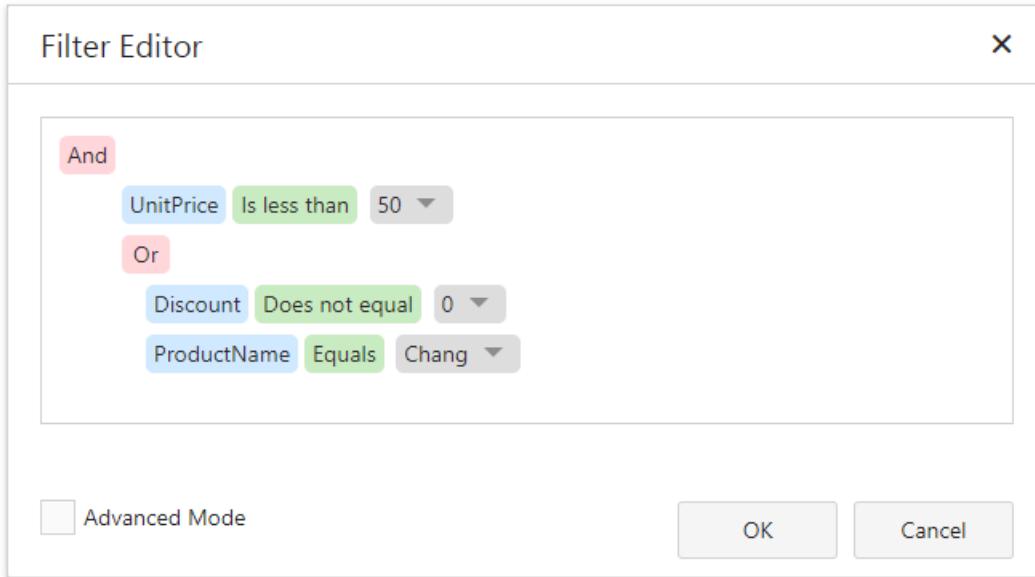
The screenshot shows two windows side-by-side. On the left is the 'Expression Editor' window, which contains a text input field with the expression '1 [UnitPrice] >= 30'. Below this field is a tree view under the 'Fields' category, listing various fields like 'QuantityPerUnit', 'ReorderLevel', 'SupplierID', 'UnitPrice', 'UnitsInStock', 'UnitsOnOrder', and 'Parameters'. The 'UnitPrice' node is currently selected. At the bottom of the Expression Editor are 'OK' and 'Cancel' buttons, with a hand cursor pointing at the 'OK' button. On the right is the 'Properties' panel for 'Report1 (Report)'. Under the 'FORMATTING RULES' section, there is a single rule named 'formattingRule1'. The 'Condition' property for this rule has an ellipsis button (...), which is highlighted with a hand cursor. Other properties shown include 'Data Source' set to 'sqlDataSource1' and 'Data Member' set to 'Products'. The 'APPEARANCE' and 'FORMATTING' sections are also visible in the Properties panel.

# Filter Editor

This document describes the Filter Editor available in the [End-User Report Designer](#).

## Filter Editor Overview

The **Filter Editor** provides a visual interface for constructing filter criteria of varying complexity with an unlimited number of filter conditions combined by logical operators.



A filter condition consists of three parts:

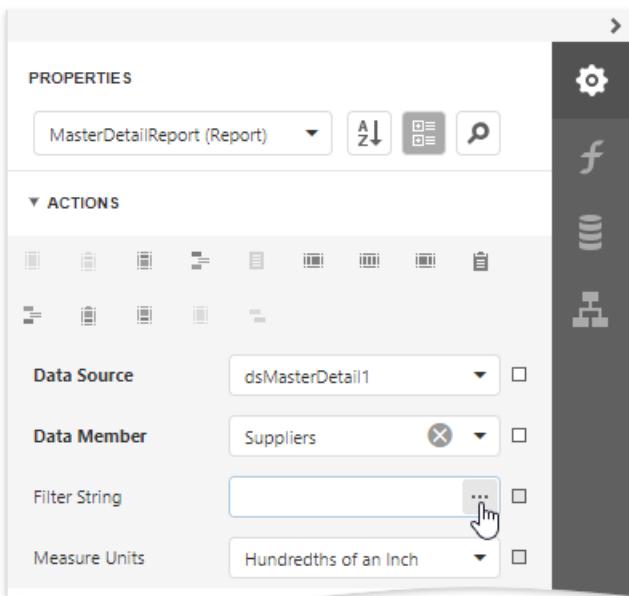
- A field of a data source to which a report is bound.
- Criteria operator, such as **Equals**, **Is less than**, **Is between**, etc.
- A static operand value, another data field or a report parameter.

You can arrange specific conditions into groups with **And**, **Or**, **No And**, and **Not Or** operators.

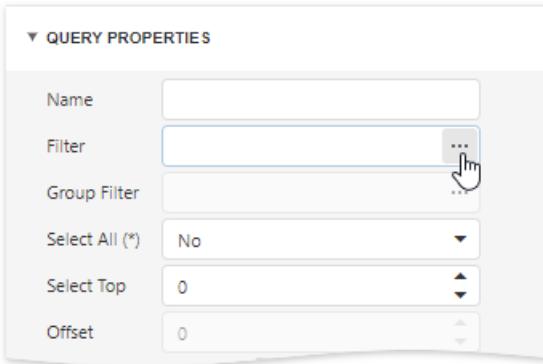
## Invoke the Filter Editor

You can invoke the Filter Editor in one of the following ways:

- In the [Properties](#) panel, click the ellipsis button for the report's **Filter String** property to filter data at the report level.



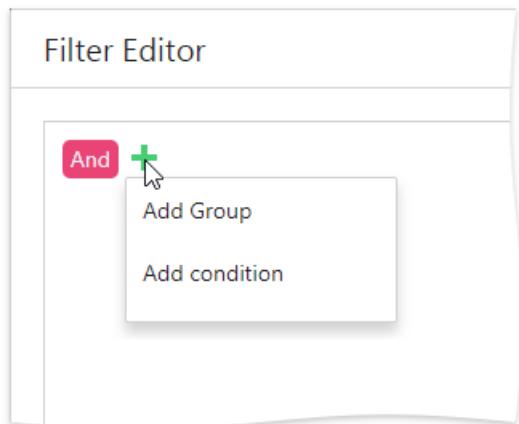
- In the [Query Builder](#), click the ellipsis button for the **Filter** or **Group Filter** property to filter data at the data source level.



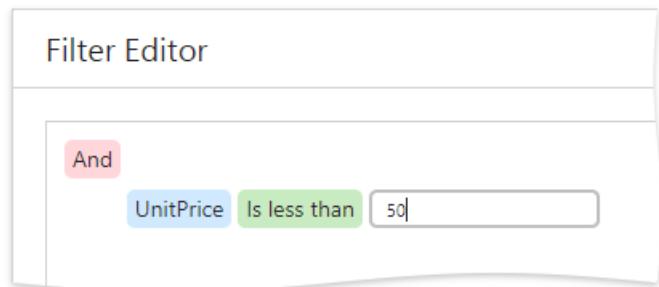
## Tree-Like Filtering

The Filter Editor displays filter criteria as a tree where individual nodes specify simple filter conditions. The root node is the logical operator combining all the conditions.

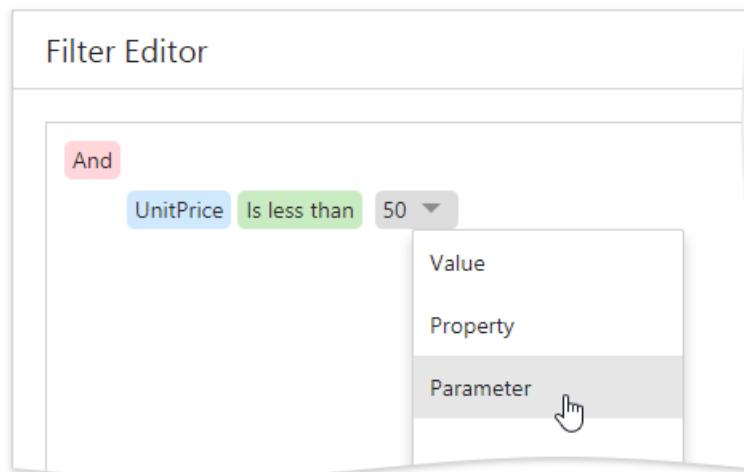
Click the plus button next to the operator to add a new condition or group.



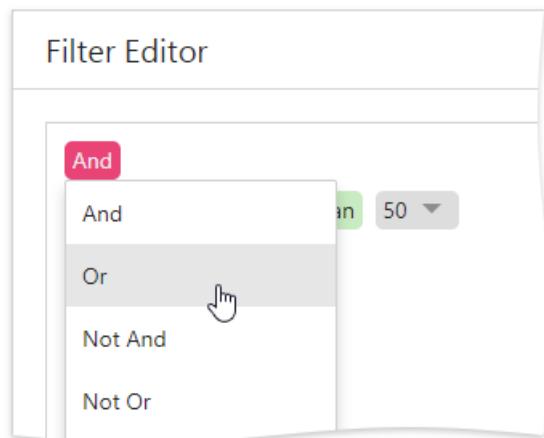
You can select the required data field and comparison operator from the corresponding drop-down lists and enter an operand value in the dedicated value box.



Expand the drop-down menu for a value placeholder and select **Property** or **Parameter** to compare a data field with another data field or a report parameter. Then, click the converted placeholder and select the required item.



You can change the logical operator by clicking it and selecting the desired type.



Click the filter condition's **X** button to delete it.

## Text-Based Filtering

In the advanced mode, the Filter Editor allows you to type a filter string manually.

## Filter Editor

X

And

UnitPrice Is less than 50

Or

Discount Does not equal 0

ProductName Equals Chang

```
[UnitPrice] < 50 And ([Discount] >> 0 Or [ProductName] = 'Chang')
```

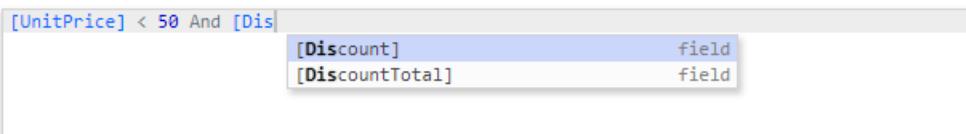
Advanced Mode

OK

Cancel

Refer to the [Expression Language](#) topic for the list of available operators and functions and for details on their usage.

This editor supports intelligent code completion (suggesting functions and available data columns as you type).



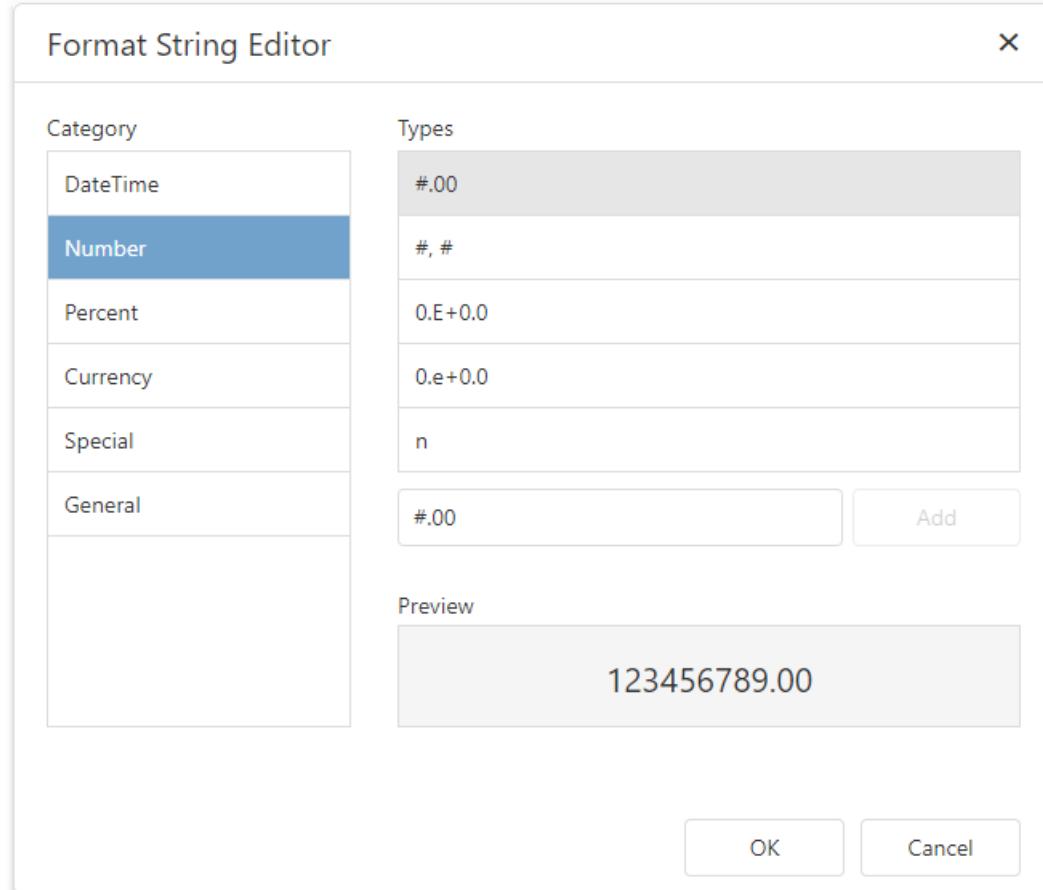
The  icon appears if a condition contains any errors.

# Format String Editor

The **Format String Editor** provides the capability to apply the required formatting for report elements to display their incoming data. It allows you to easily select one of the built-in formats or create your own. For instance, you can format a numeric value as currency, display a date/time value in one of the standard forms depending on the culture, etc.

## Use Standard Formats

The Format String Editor contains numerous built-in formatting presets grouped by categories.



All categories are displayed in the **Category** list on the left side. The **Types** list on the right side contains formats available within the selected category. The editor also allows you to see the preview of the selected format in the **Preview** section.

## Use General Formats

In the **General** category, you can enter the **Prefix** and **Suffix** specifying custom text that will be added before and after the output value, respectively.

## Format String Editor

X

Category
DateTime
Number
Percent
Currency
Special
General

Prefix  
()

Suffix  
)

Preview

(###)

OK

Cancel

## Create Custom Formats

To create a custom format, enter the format string in the dedicated editor and click **Add**. The format will be added to the end of the **Types** list and automatically selected.

## Format String Editor

X

Category
DateTime
Number
Percent
Currency
Special
General

Types

- #.00
- #, #
- 0.E+0.0
- 0.e+0.0
- n

#.000

Add



Preview

(###)

OK

Cancel

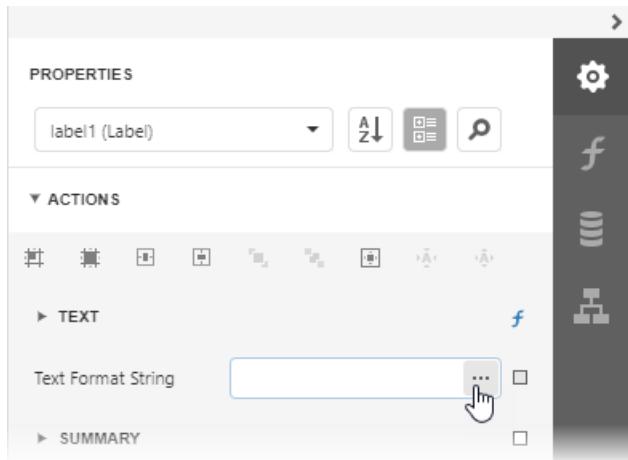
You can then remove a custom format by clicking the corresponding  button.

## Run the Format String Editor

You can invoke the Format String Editor to format values of a control's bindable properties (not the control's static content) and summary values.

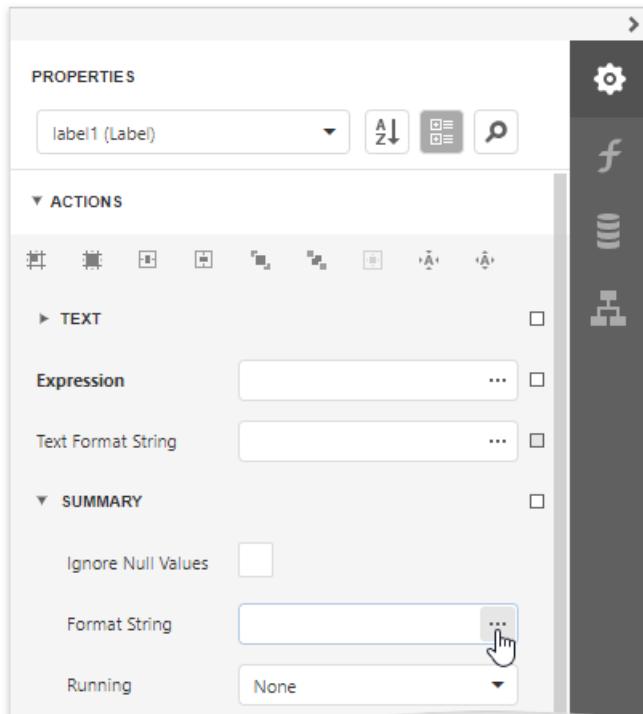
- **Basic Formatting**

It is common to format an [Label](#)'s **Label Text** property. To do this, expand the **Tasks** or **Data** category and click the ellipsis button for the **Text Format String** property.



- **Formatting Summaries**

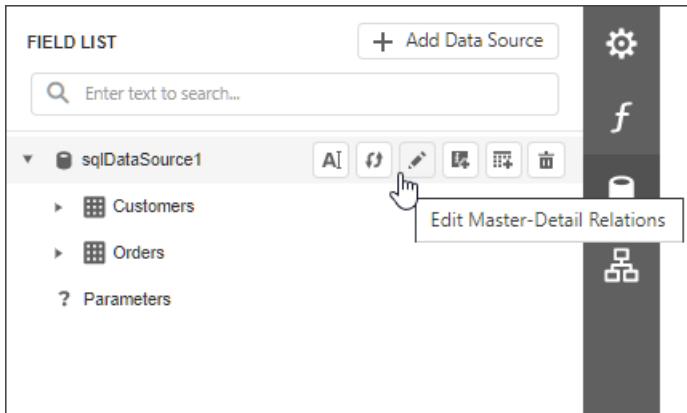
When a summary function is applied to a control's dynamic content, value formatting is specified separately. To do this, expand the **Label Tasks** or **Data** category. Then, in the **Summary** section, click the ellipsis button for the **Format String** property.



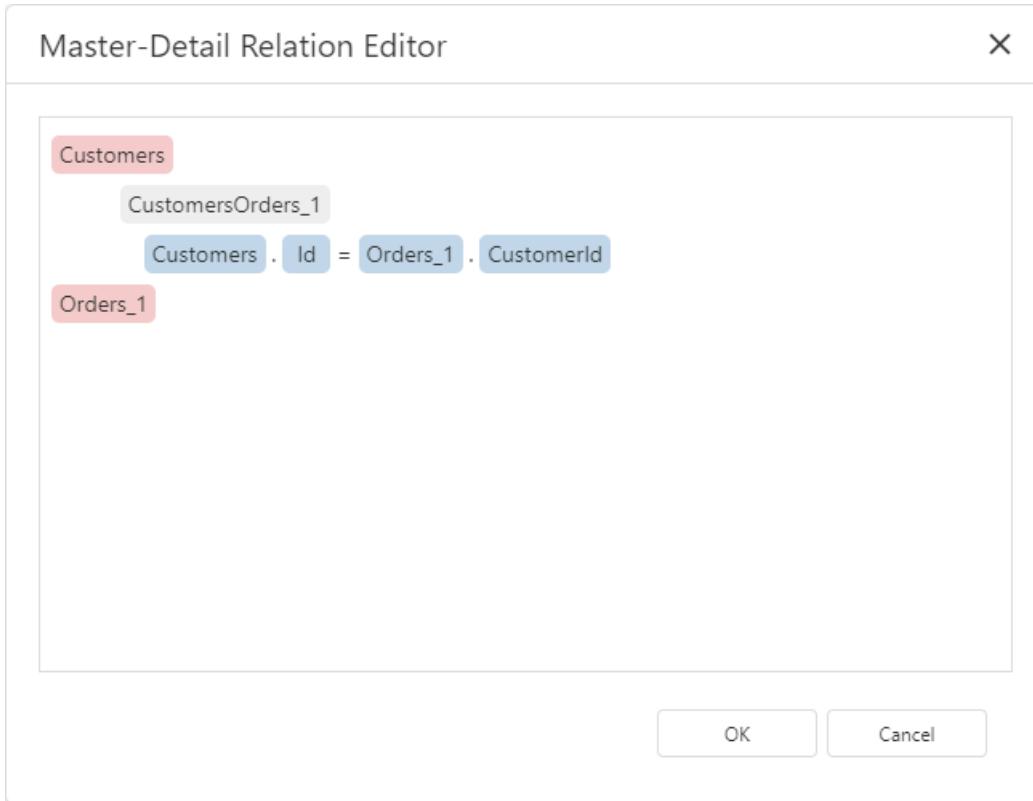
The summary format has priority over the general value format.

# Master-Detail Relation Editor

When a data source contains two or more [queries](#), clicking the  button in the [Field List](#) will invoke the **Master-Detail Relation Editor**.



Using this editor, you can define master-detail relationships between queries by specifying their corresponding key fields.



This allows you to create hierarchical data sources that are used to create nested [master-detail reports](#).

## NOTE

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).

# Script Editor

## IMPORTANT

Both the execution of all report scripts and the capability to view and edit scripts in the Web Report Designer are **disabled by default** for security reasons. Make sure that your software vendor allows you to use scripts.

The **Script Editor** allows you to write code for specific event handlers in the [End-User Report Designer](#) to adjust the behavior of report controls, bands, or a report itself. This topic describes the basic principles of using scripts, the Script Editor interface and shows how scripting can be used in a report.

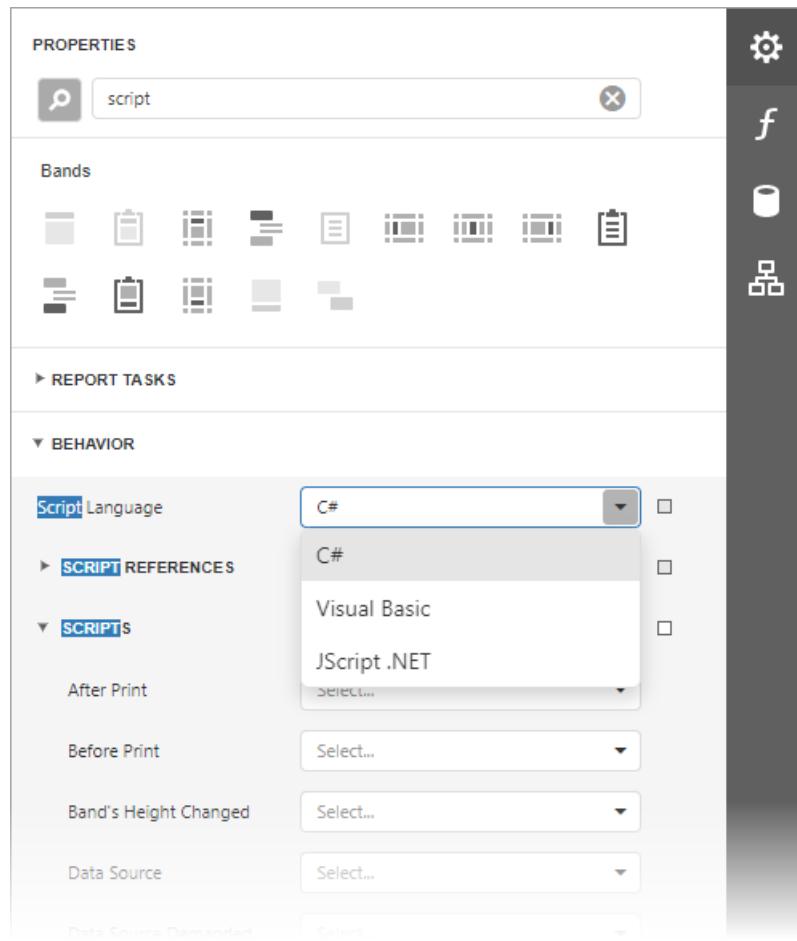
## Overview

*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](#).

The Script Editor provides you the capability to write and execute scripts. Use this editor if you want to slightly customize a report in the End-User Report Designer.

The Script Editor supports **C#**, **Visual Basic .NET** and **JScript .NET** scripting languages. This means that the scripting language is independent from the language used to create the report. The language is specified by the **Script Language** property. The selected scripting language must be the same for all scripts used in a report.



The Script Editor supports intelligent code completion that makes it easier and faster to write scripts. Context-aware hints are displayed on pressing CTRL+spacebar. This feature is only supported for the **C#** and **Visual Basic .NET** script languages.

```
1 private void label1_BeforePrint(object sender, System.Drawing.Printing.PrintEventArgs e) {  
2     (sender as XRLabel).Te  
3 }  
4     Text Property  
    TextAlignment Property  
    TextChanged Event  
    TextFitMode Property  
    TextFormatString Property  
    TextTrimming Property  
    AfterPrint Event  
    GetEffectiveBackColor Method
```

Intelligent code completion is available only for .NET Framework and DevExpress libraries deployed with the application and cannot be provided for custom assemblies.

## Maintaining Scripts

Each report element has its own set of events that can be handled by the Script Editor. To handle an event of a report element, do the following.

1. Click the **Scripts** button located on the End-User Report Designer's [Main Toolbar](#).
2. In the displayed Script Editor, specify the report control and its event by the toolbar. The toolbar 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.

```
1 private void Detail_BeforePrint(object sender, System.Drawing.Printing.PrintEventArgs e) {  
2     XRTableCell[] cells = new XRTableCell[] {pidcell, productNameCell, productPriceCell };  
3     System.Decimal price = (System.Decimal)GetCurrentColumnValue("UnitPrice");  
4     if (price == 0)  
5         ChangeCellColor(cells, Color.Red);  
6     else if (price > 60)  
7         ChangeCellColor(cells, Color.Red);  
8     else if (price > 60)  
9         ChangeCellColor(cells, Color.Red);  
10 }  
11  
12 private void xrLabel1_BeforePrint(object sender, System.Drawing.Printing.PrintEventArgs e)  
13 {  
14 }  
15
```

BeforePrint  
AfterPrint  
BeforePrint  
LocationChanged  
ParentChanged  
SizeChanged  
Draw  
EvaluateBinding

After the event is specified, a code template is generated in the current scripting language.

3. To check for errors in the report's script, click the **Validate** button.

If an error is found, the string containing this error is marked with an icon. When a mouse pointer hovers over this icon, the text of the error is displayed.

The screenshot shows a software interface with a code editor and a status bar. The code editor contains C# script for an 'BeforePrint' event:

```
1 private void Detail_BeforePrint(object sender, System.Drawing.Printing.PrintEventArgs e) {
2     XRTTableCell[] cells = new XRTTableCell[] { pidCell, productNameCell, productPriceCell };
3     System.Decimal price = (System.Decimal)GetCurrentColumnValue("UnitPrice");
4     if (price == 0)
5         CS1002 - ; expected !lColor(cells, Color.Red);
6     else if (price > 60)
7         ChangeCellColor(cells, Color.Red);
8     else if (price > 60)
9         ChangeCellColor(cells, Color.Red);
10    }
11 }
12 }
```

A red error message box at the bottom left displays:

The script contains error(s).

# Localization Editor

The Localization Editor allows you to change the text of the localizable textual properties for all the controls in a report.

The screenshot shows the Localization Editor window. On the left is a vertical toolbar with icons for back, forward, file operations, and search. The main area has a header "LOCALIZATION". A dropdown menu "Language" is set to "German". Below it is a grid comparing "DEFAULT" text on the left with "GERMAN" text on the right. The grid rows include:

(DEFAULT)	GERMAN
Vehicle Inspection Report	KFZ-Inspektionsbericht
Battery Charge	Batterieladung
Battery Condition	Batteriezustand
Cables & Connections	Kabel und Verbindungen
BATTERY	Batterie
Engine Oil	Motoröl
Brake Fluid	Bremsflüssigkeit
Power Steering Fluid	Lenkungsöl
Washer Fluid	Scheibenwaschflüssigkeit
Belts & Hoses	Riemen und Schläuche

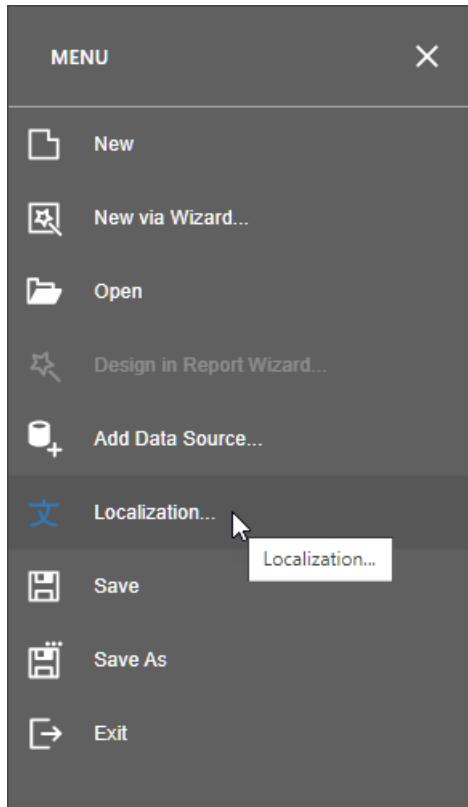
The top panel allows you to change the report's language, add a new language to start localization or delete a language.

The main panel contains a grid that displays the text in the default language and the corresponding text in the selected language. Each row represents the **Text** property of a report element. When you click a grid row, the Designer view navigates to the report element on the Report Designer surface and highlights the element

The text strings for the selected language are editable. When a user finishes editing text, the Report Designer displays the updated text.

## Invoke the Editor

Click **Localization** in the Report Designer menu:



## Use the Editor

1. Select the language in the combo box in the top panel. The languages with localization strings in the report are highlighted in bold.
2. Enter the text in the Search field in the top panel or scroll the main panel to find the text you want to change. The report's design surface scrolls to display the selected control and highlights it.
3. Enter the new text. The text is applied to the report control and reflected in the report layout.
4. Save the report.

### LOCALIZATION

Language: German

(DEFAULT)	GERMAN
Fuel Filter	Kraftstofffilter
Spark Plugs / Wires	Zündkerzen / -kabel
Exterior Body	Karosserie
Windshield / Glass	Windschutzscheibe
Wipers	Scheibenwischer
Lights (Head, Brake, Turn)	Scheinwerfer, Bremslichter, Blinker
Interior Lights	Innenbeleuchtung
AC Operation	Klimaanlage
Heating	Heizanlage
Note any existing exterior body damage or defects on diagram:	Vermern Sie bestehende externe Schäden im Diagramm:
UNDERHOOD	UNTER DER HAUBE
INTERIOR / EXTERIOR	INNENRAUM UND KAROSSERIE

Checked and OK

Geprüft und in Ordnung

0	1	2	3	4
Kilometerstand: 123456				
Führerscheinnummer: 123456-78				
Fahrzeughersteller und Typ: Volkswagen Passat				

INNENRAUM UND KAROSSERIE

Vermerken Sie bestehende externe Schäden im Diagramm:

Karosserie

- Windschutzscheibe
- Scheibenwischer
- Scheinwerfer, Bremslichter, Blinker
- Innenbeleuchtung
- Klimaanlage

Batterie

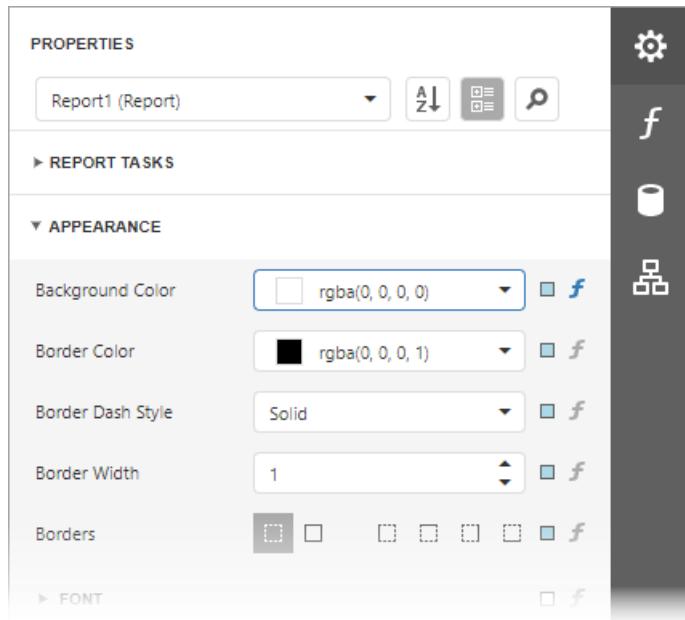
# UI Panels

The following panels are available in the Web Report Designer.

- [Properties Panel](#)
- [Expressions Panel](#)
- [Field List](#)
- [Report Explorer](#)
- [Report Design Analyzer](#)

# Properties Panel

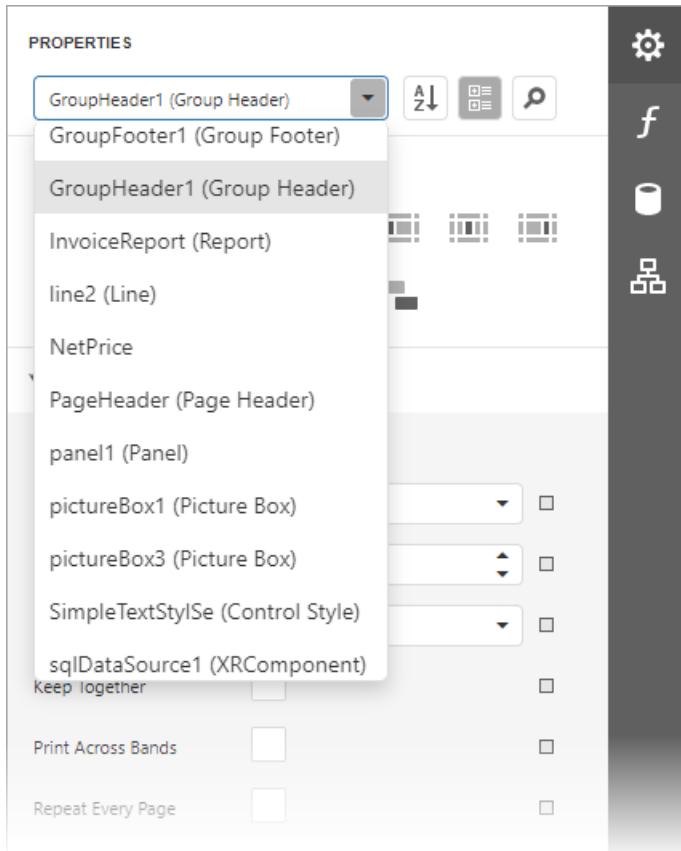
This document describes how to use the **Properties** panel to access and customize the report and report element properties.



## Select a Report Element

Do one of the following to access an element's properties:

- Select an element from the drop-down list at the top of the **Properties** panel.

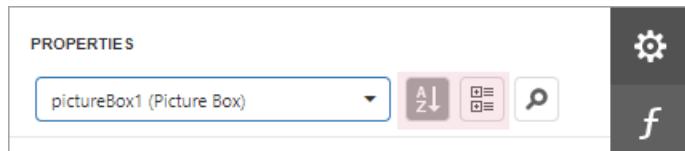


- Select an element on the [Design Surface](#) and click the tab on the side panel to invoke the **Properties** panel.
- Select an element in the [Report Explorer](#) panel and click the button.

- Click an element's smart tag to invoke a panel with the element's most commonly used properties.

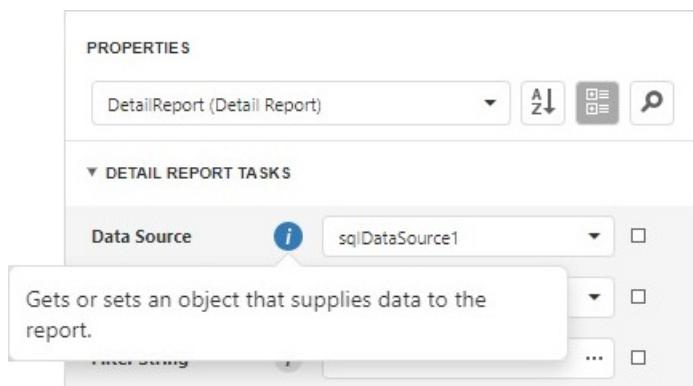
## Switch Between Display Modes

Element settings can appear in alphabetical order or in categories based on their purpose. Use the buttons next to the selected element to switch between these display modes.



## Display Property Descriptions

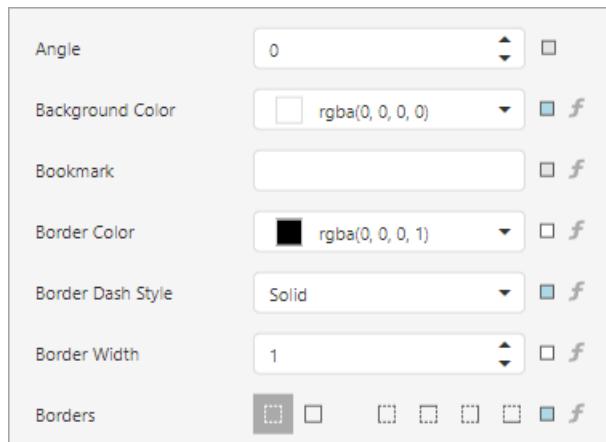
The Properties panel displays hints with property descriptions. To display the description, select the property and click the information symbol (**i**) to the left of the property editor:



If necessary, you can localize property descriptions.

## Change Property Values

Each record consists of a property's caption, a value editor, and an optional property marker. To change a property's value, select the property and specify its value in the editor.

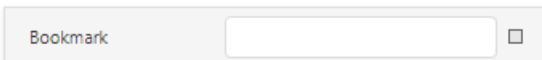


Certain properties contain nested properties which can be accessed when you click the header.

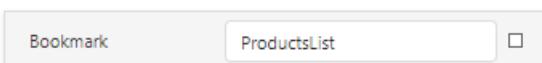


The property marker indicates if the property's value was changed:

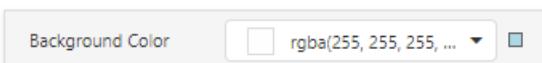
- If a property stores a default value, its property marker is gray.



- If a property's value was changed, the property marker becomes white.

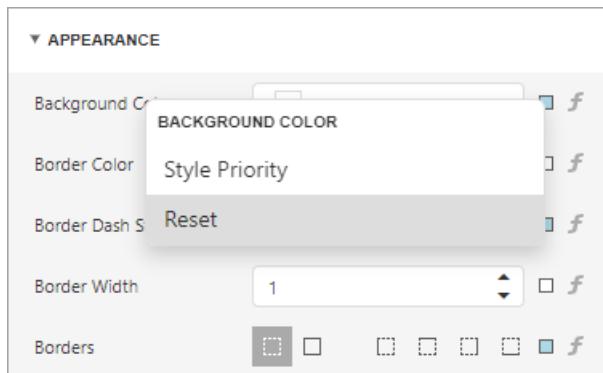


- If a [report style](#) supersedes a property's value, the marker is light blue. This applies to appearance properties (for instance, an element's **BackColor**, **Font**, **Borders**).



## Reset Property Values

Click the property marker to the right of the editor. Select **Reset** in the invoked popup menu to restore the default property values.

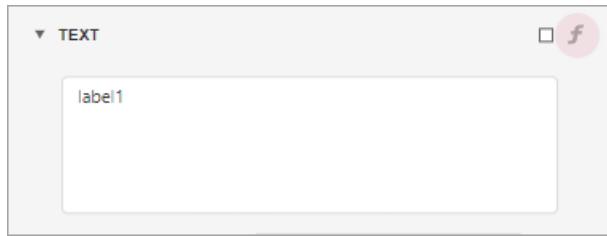


### NOTE

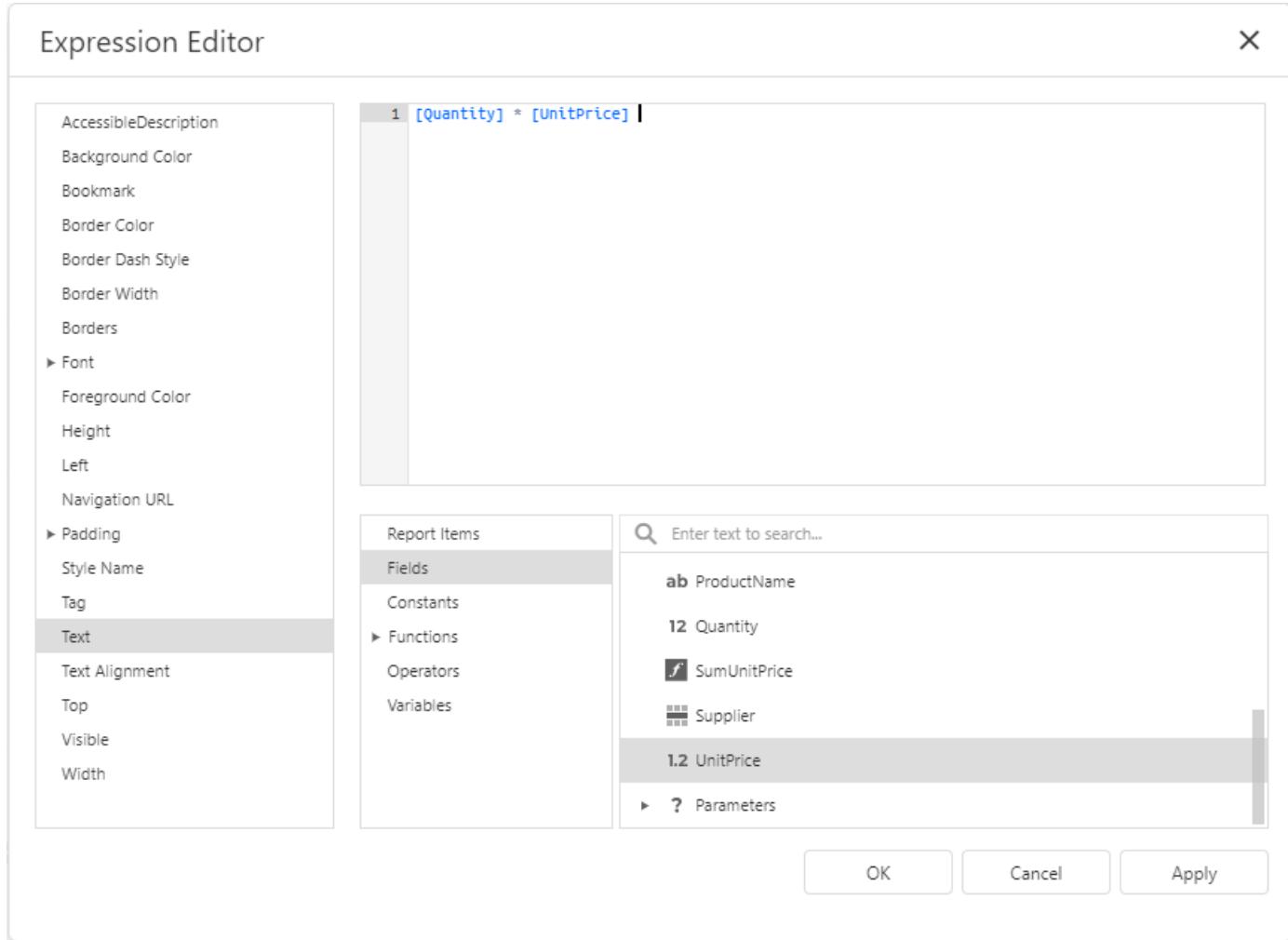
The **Reset** command resets the expression and the value you specified in the property's editor.

## Specify Expressions

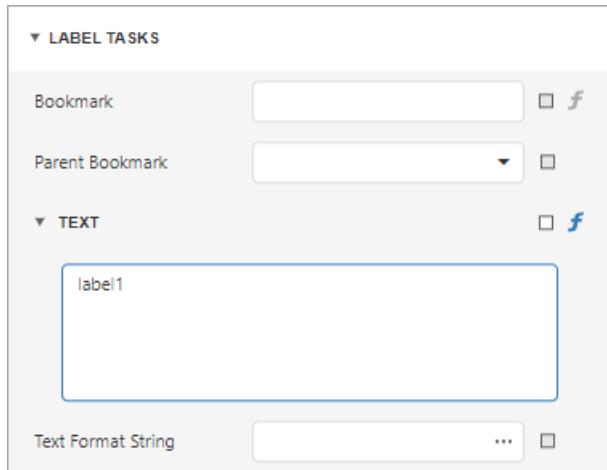
The **Properties** panel allows you to specify expressions that can calculate the value at runtime when a document is generated. Click the **f-marker** to invoke the [Expression Editor](#).



Specify an expression in the invoked Expression Editor.

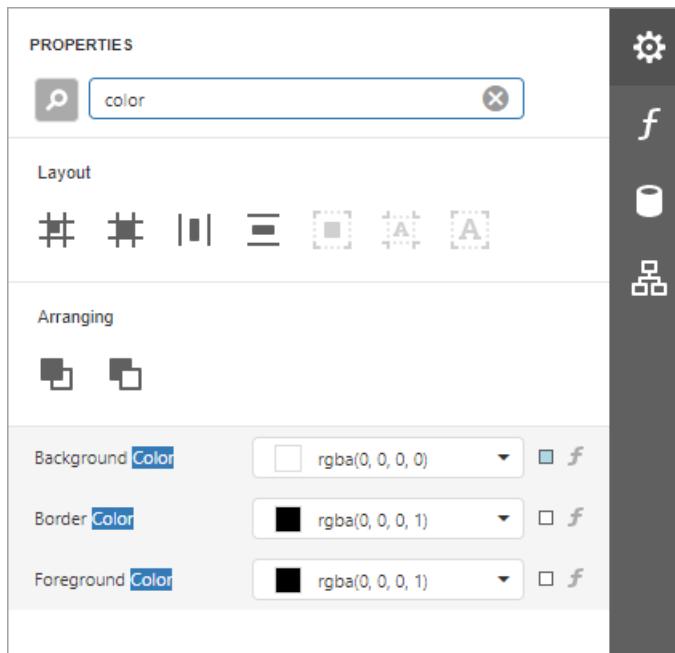


The **Properties** panel highlights properties that have an assigned expression.



## Search Properties

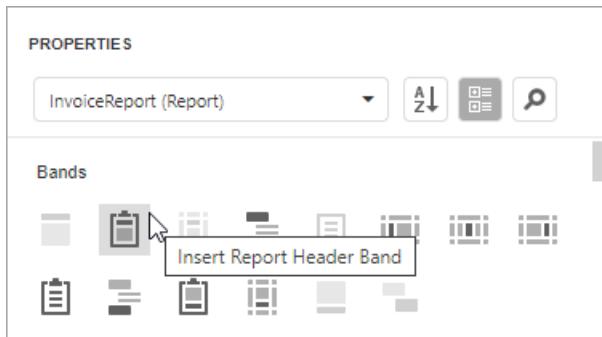
Click the  button to show the search box. When you type in the search box, the **Properties** panel filters the list of available properties and highlights the search string in the records.



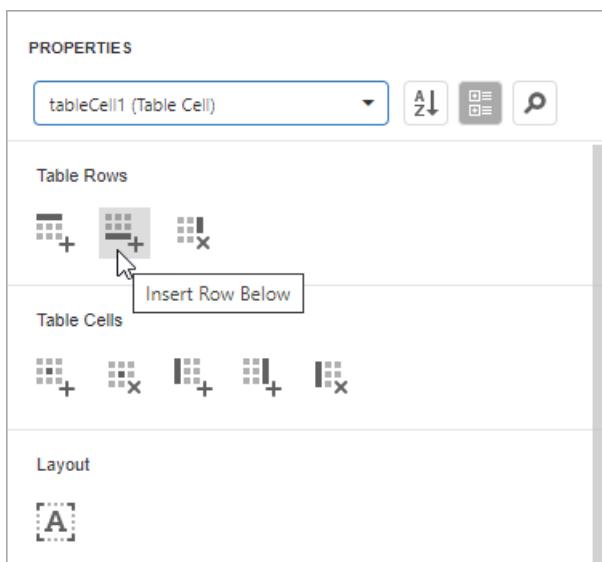
## Use Actions

In the categorized mode, the **Properties** panel contains the context-sensitive **Actions** group that provides the most commonly used actions for the selected report element:

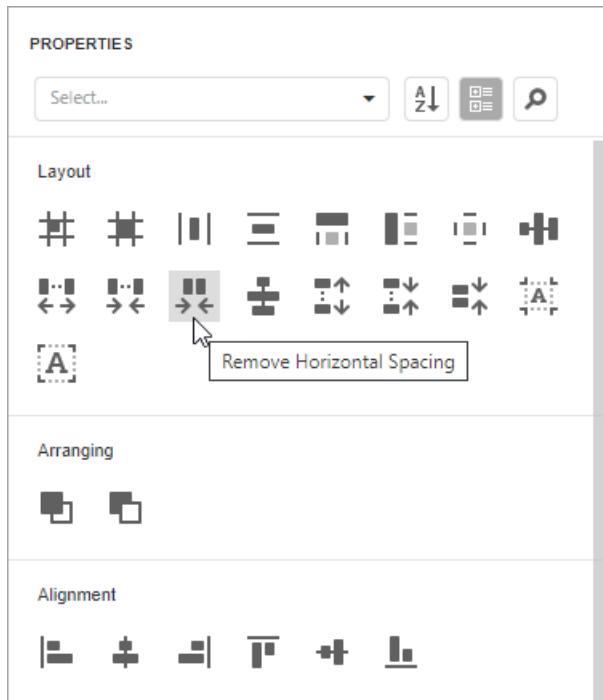
- Add new [bands](#), if you selected a report.



- Manage a table element's cells, rows, and columns.



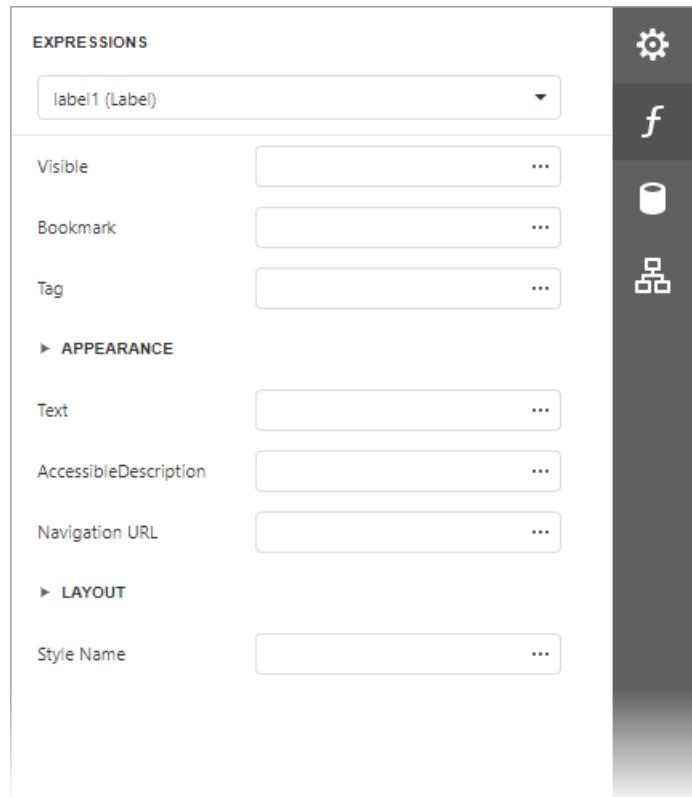
- Align and position report elements (for instance, align and resize elements to the snap grid, specify horizontal and vertical alignments) for individual and multiple selected report elements.



# Expressions Panel

The **Expressions Panel** allows you to assign expressions to various element properties. The expressions are evaluated at runtime before a document is generated. The Report Designer displays this panel if **expression bindings** are enabled.

Click the ellipsis button next to a property editor to invoke the [Expression Editor](#), that allows you to specify custom expressions.

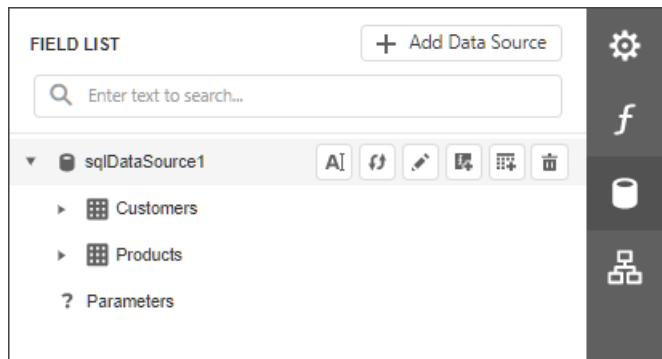


# Field List

The **Field List** displays the schema of a report's data sources. This panel enables you to manage report data sources and parameters, add calculated fields and create bound report controls.

## Manage Report Data Sources

The Field List shows available report data sources and their structure.



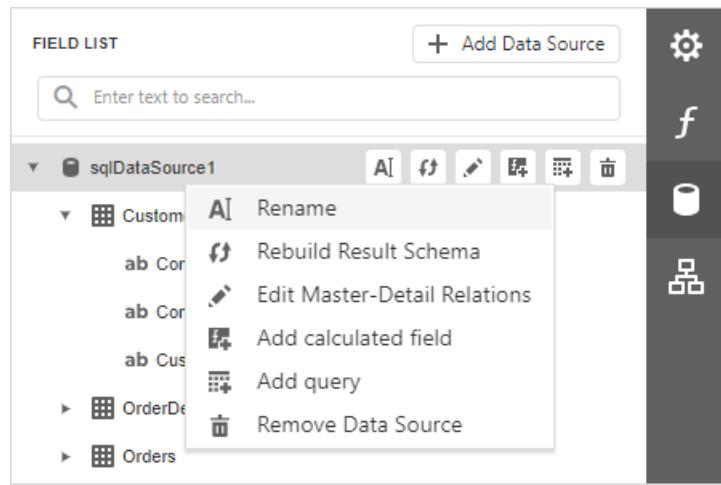
The following actions are available in the Field List for data source customization:

BUTTON	DESCRIPTION
+ Add Data Source	Invokes the Data Source Wizard.
AI	Renames the selected data source.
refresh	Rebuilds the result schema for the selected data source.
edit	Invokes the <a href="#">Master-Detail Relation Editor</a> .
calculated	Adds a calculated field.
query	Invokes the <b>Create a Query or Select a Stored Procedure</b> wizard page.
trash	Removes the selected data source.

The following actions are available for query customization:

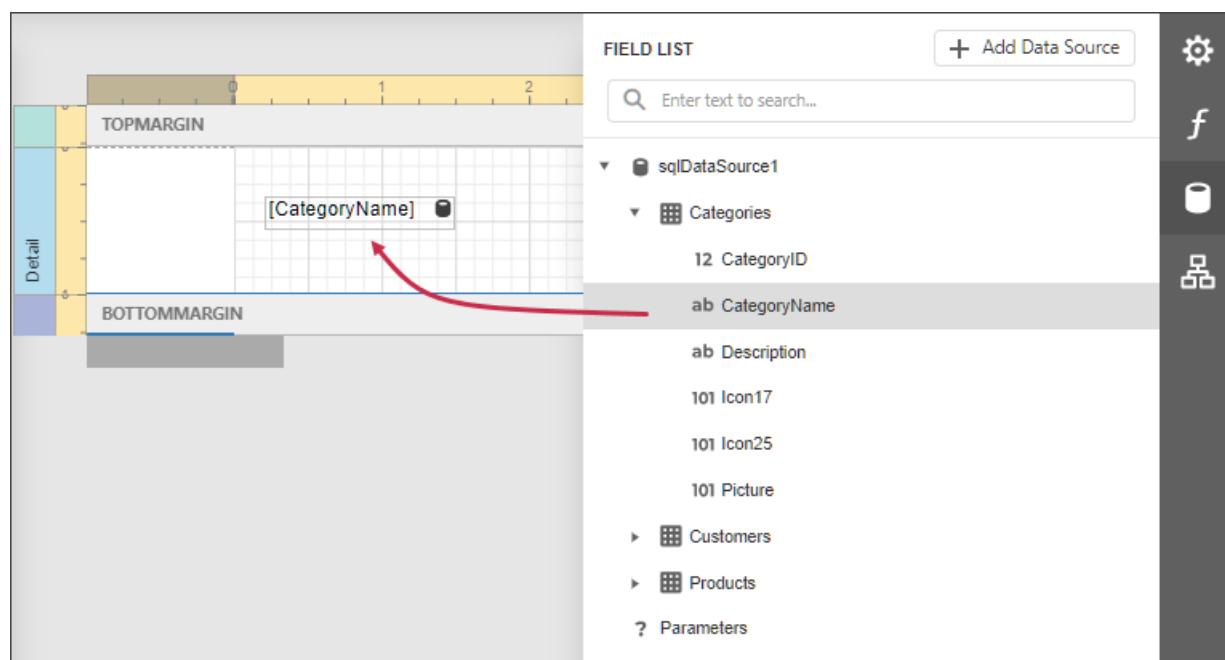
BUTTON	DESCRIPTION
trash	Removes the selected query.
edit	Invokes the <b>Create a Query or Select a Stored Procedure</b> wizard page.

You can also right-click a data source to access these actions in a context menu:

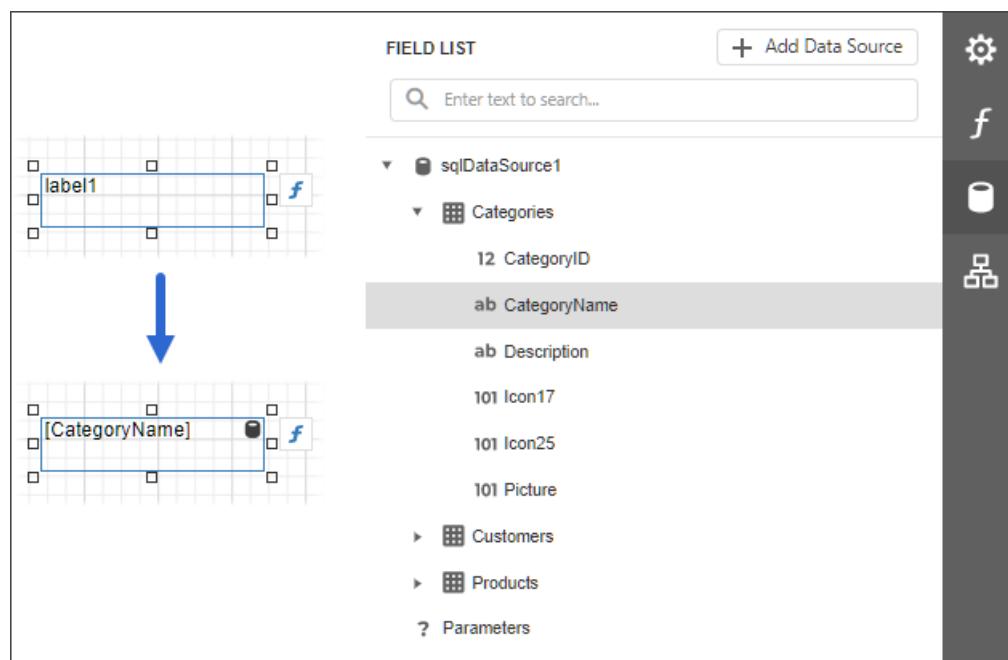


## Bind controls to data

Dropping a field onto a report's surface creates a new report control bound to a corresponding field.

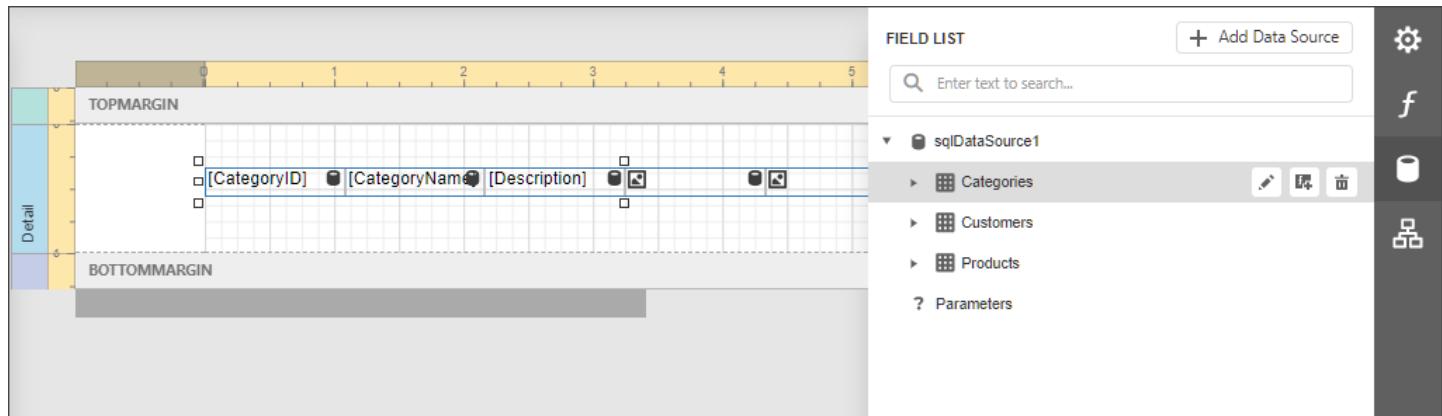


Dropping a field onto an existing control binds this control to a corresponding field.

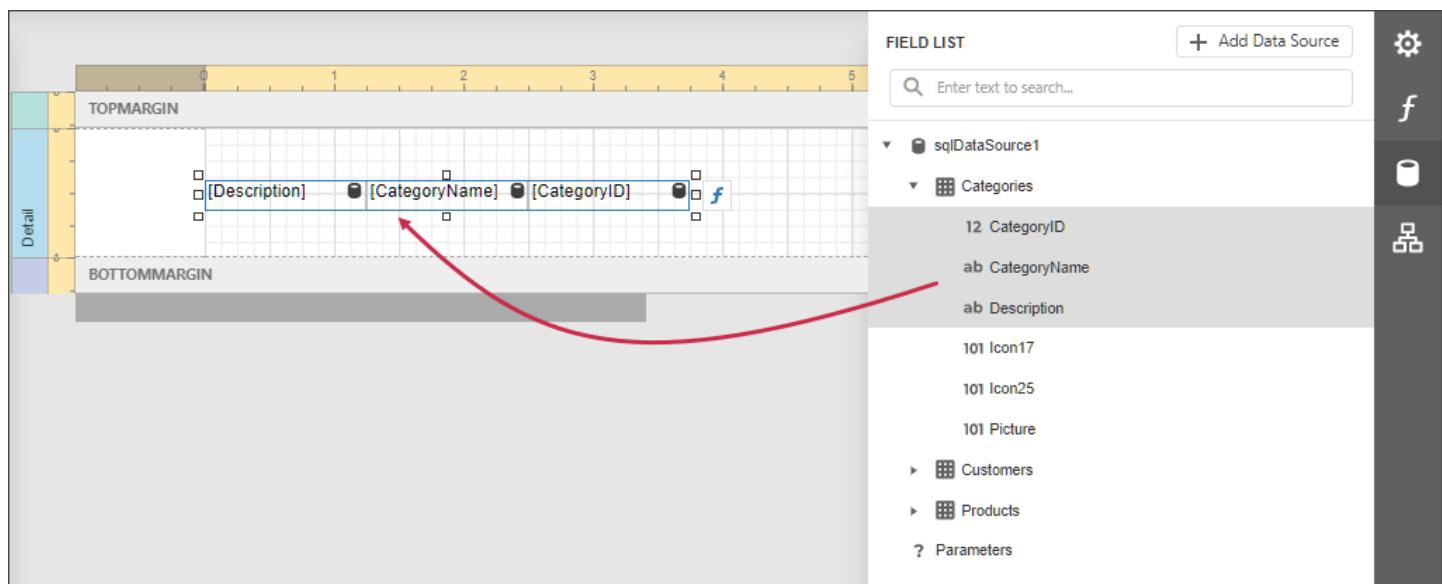


## Create tables

Dropping an entire data table onto a report creates a table with its columns bound to fields contained in the data table.



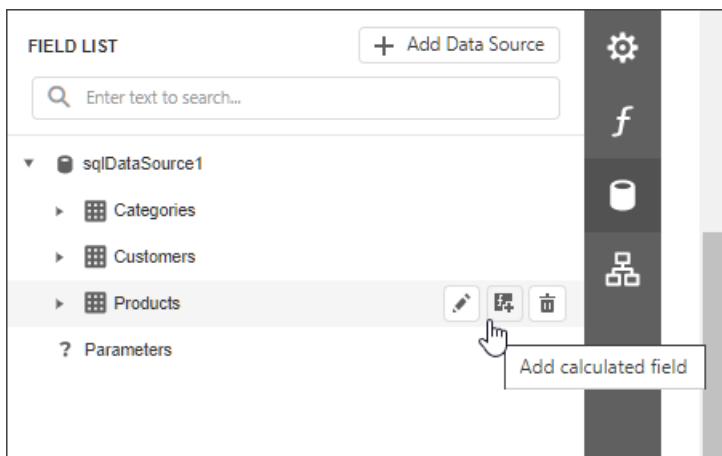
To select multiple fields, click them with holding the CTRL or SHIFT key. Dropping these fields onto a report creates a new table with its cells bound to the corresponding fields.



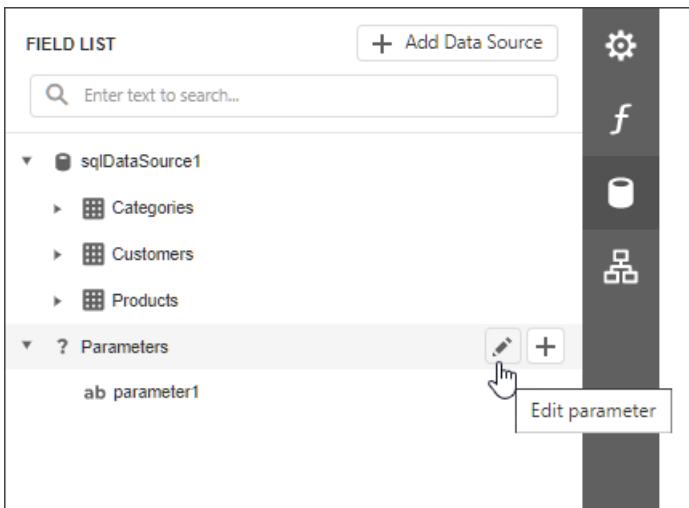
## Data shaping operations

In addition, the Field List can help you solve the following tasks:

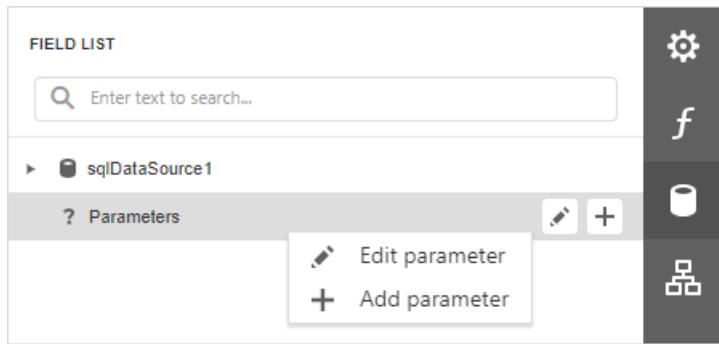
- Add [calculated fields](#) to data columns for performing various calculations in a report.



- Manage the collection of [report parameters](#).

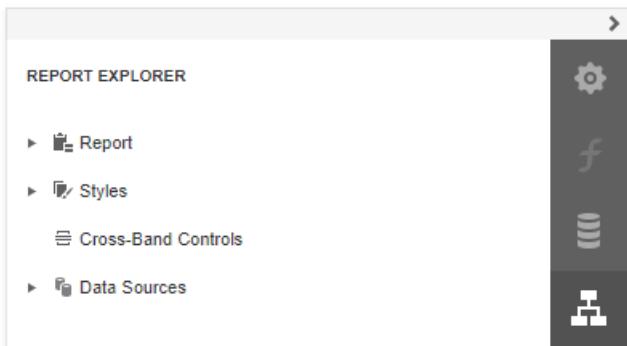


You can also right-click a parameter to access these actions in a context menu:



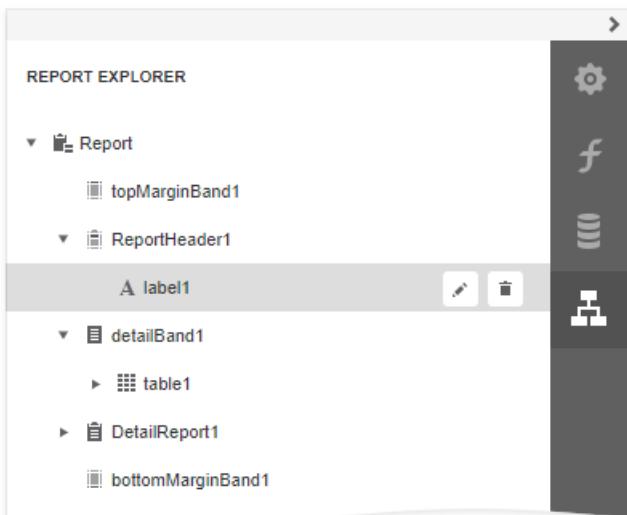
# Report Explorer

The **Report Explorer** panel shows a report's structure and provides access to report elements, styles, and data sources.



## Manage Report Elements

Report Explorer displays all **report controls** and **bands** in a tree-like form.

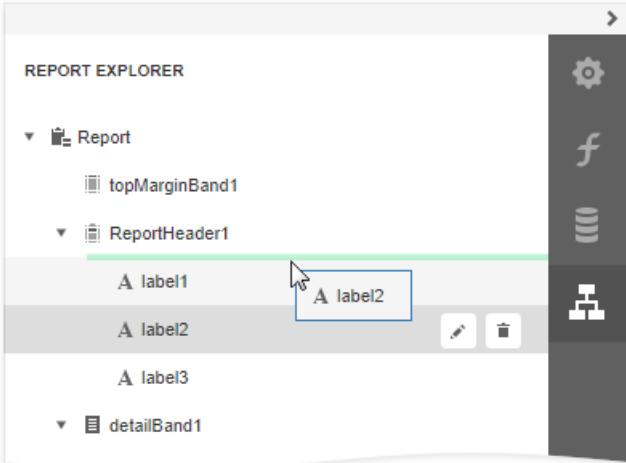


The following actions are available to customize report elements:

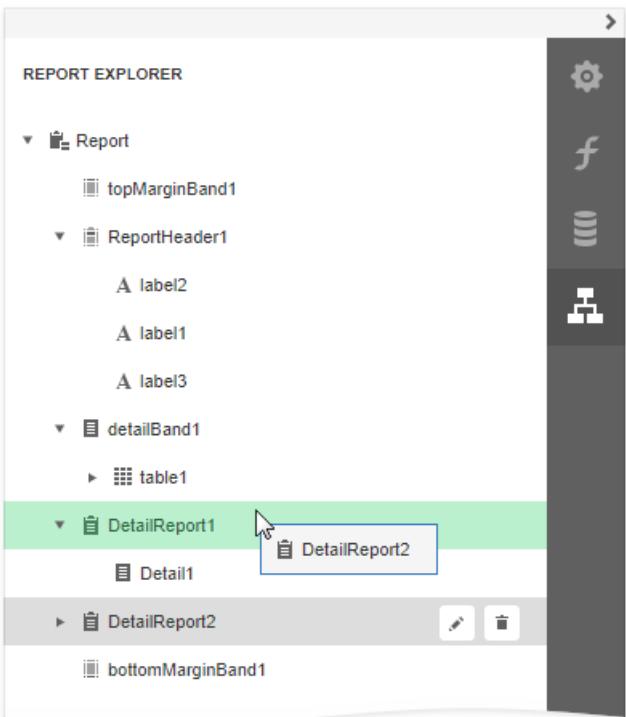
BUTTON	DESCRIPTION
	Switches to the <a href="#">Properties Panel</a> where you can adjust the selected report element's or the entire report's settings.
	Deletes the selected report element. Note that this button is not available for the <b>Detail</b> , <b>Top Margin</b> , and <b>Bottom Margin</b> bands.

You can use drag-and-drop for the following operations:

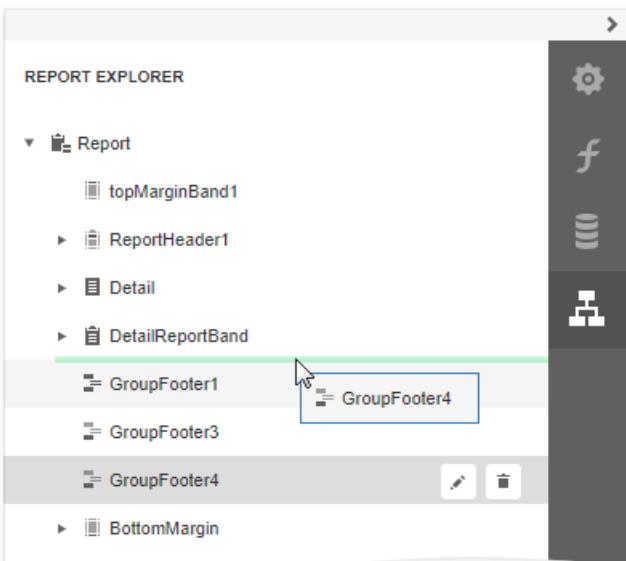
- Reorder report controls, or move them from one band to another.



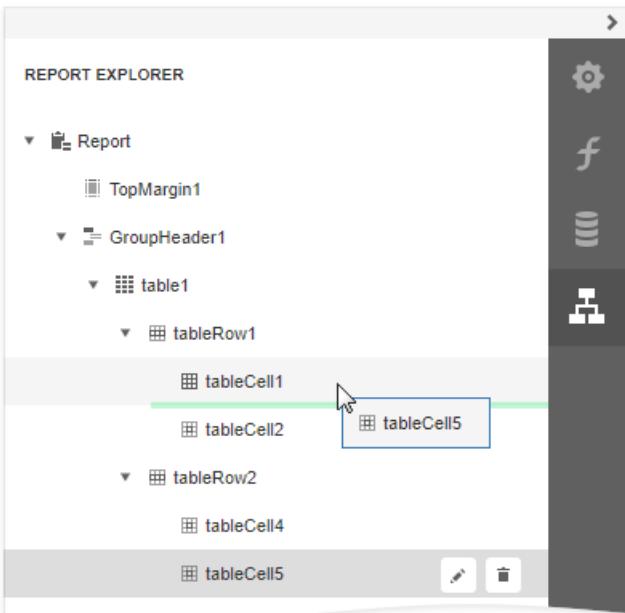
- Reorder **Detail Report** bands, or move them inside / outside other bands.



- Reorder **Group Header** and **Group Footer** bands.



- Reorder table cells, or move them between table rows. Reorder table rows.



An acceptable drop target is highlighted in green when you drag an item over it. An unacceptable target is highlighted in red.

## Manage Report Styles

Expand the **Styles** category in Report Explorer to access the [report style](#) collection.

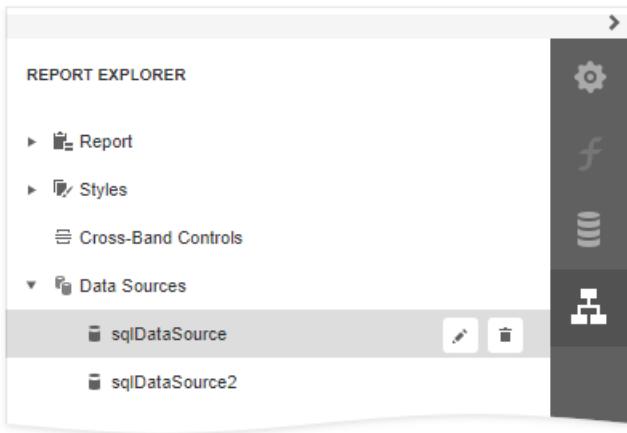
To apply a style to a report control, drag a style item from Report Explorer onto this control.

You can use the following actions to customize report styles:

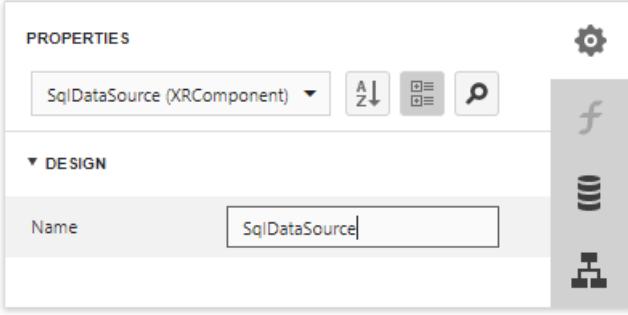
BUTTON	DESCRIPTION
	Creates a new style.
	Switches to the <a href="#">Properties Panel</a> where you can adjust the selected style's settings.
	Deletes the selected style.

## Manage Data Sources

The Report Explorer shows available report data sources in the **Data Sources** category. This list is synchronized with data sources from the [Field List](#) panel.



The following actions are available to customize data sources:

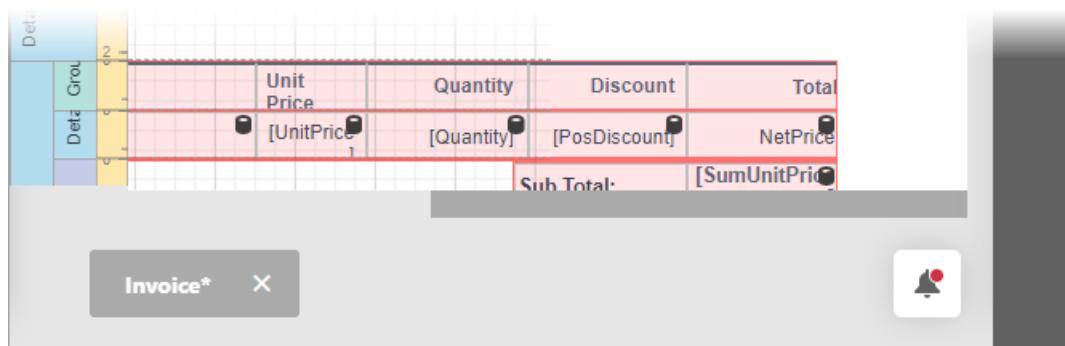
BUTTON	DESCRIPTION
	Deletes the selected data source.
	Switches to the <a href="#">Properties Panel</a> where you can rename the selected data source.  

The **Report Design Analyzer** shows errors, warnings, and information messages that help you to detect and fix issues in a report.

Report Design Analyzer		
All	0 Errors	2 Warnings
Code	Description	Source
▶ <span style="color: red;">!</span> XRE004	The control is overlapped	<a href="#">label2</a>
▶ <span style="color: red;">!</span> XRE004	The control is overlapped	<a href="#">label1</a>

## Invoke the Report Design Analyzer

Click the **bell tab** in the bottom.



## Fix Issues

Each message contains a recommendation on how to fix an issue. Click the Plus icon in front of the message to expand the recommendation.

Report Design Analyzer		
All	0 Errors	12 Warnings
Code	Description	Source
▶ <span style="color: red;">!</span> XRE004	The control is overlapped	<a href="#">label1</a>
		Ensure that report controls do not overlap each other. Overlapped controls may be exported incorrectly to HTML, RTF, DOCX, XLS, XLSX, CSV, and Text formats.
▶ <span style="color: red;">!</span> XRE002	The control is outside the right page margin	<a href="#">xrTable2</a>
		Ensure that the control is inside the report's margins to avoid printing extra pages.

The **Source** column contains a reference to the control or script that caused the issue. Click the reference to navigate to this control or script.

Report Design Analyzer			
All	0 Errors	11 Warnings	0 Messages
Code	Description	Source	
▼ XRE023	The Visible property's expression is invalid Switch to the Property Grid, invoke the property's Expression Editor, and specify a valid expression.	table1	
▶ XRE002	The control is outside the right page margin	table1	
▶ XRE002	The control is outside the right page margin	xrLabel17	
▶ XRE002	The control is outside the right page margin	panel1	

## Filter Messages by Source

Based on their source, report errors are divided into four groups:

- Report layout errors – occur, for example, when report controls overlap each other or extend beyond the report's printable area.
- Report creation errors – occur while the report document is created. For instance, it might include notifications about invalid property values or unreachable sources of content.
- Report export errors – happen while the report document is exported to PDF, XLSX, and other formats.
- Report script errors (this group is not displayed if report scripts are disabled in your application) – for example, errors in script syntax.

You can disable messages that belong to a particular source:

Report Design Analyzer				
1 selected	0 Errors	2 Warnings	0 Messages	
<input checked="" type="checkbox"/> Select All	Description			Source
<input type="checkbox"/> Report Creation	Report Creation		The control is overlapped	label1
<input checked="" type="checkbox"/> Report Layout	Overlap each other. Overlapped controls may be exported incorrectly to HTML, RTF, DOCX, XLS, XLSX, CSV, and			
<input type="checkbox"/> Report Export			The control is overlapped	barCode1

## Filter Messages by Type

You can enable/disable messages of each available type ("Error", "Warning", or "Information") or any combination of them. Click the panel in the UI as shown in the image below to enable/disable messages of a corresponding type.

## Report Design Analyzer



1 selected

0 Errors

2 Warnings

0 Messages



Collect Errors

Search...

Code

Description

Source

▼ XRE004

The control is overlapped

[label1](#)

Ensure that report controls do not overlap each other. Overlapped controls may be exported incorrectly to HTML, RTF, DOCX, XLS, XLSX, CSV, and Text formats.

▶ XRE004

The control is overlapped

[barCode1](#)