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Layout Customization

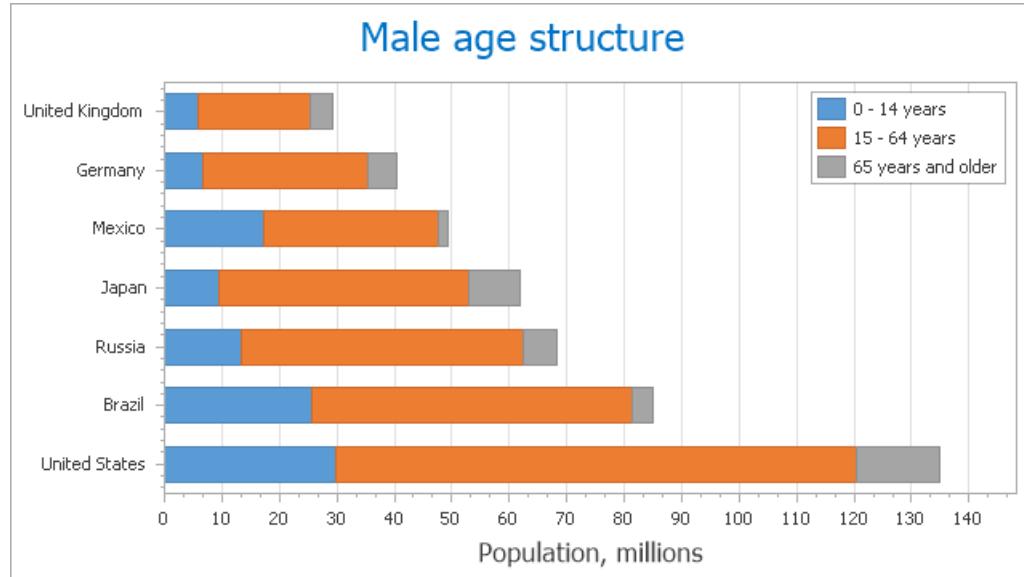
[Expand and Collapse Rows in Vertical Grids](#)

[Resize Rows and Columns in Vertical Grids](#)

[Navigation in Vertical Grids](#)

Charting

This section describes the capabilities provided by Charts.

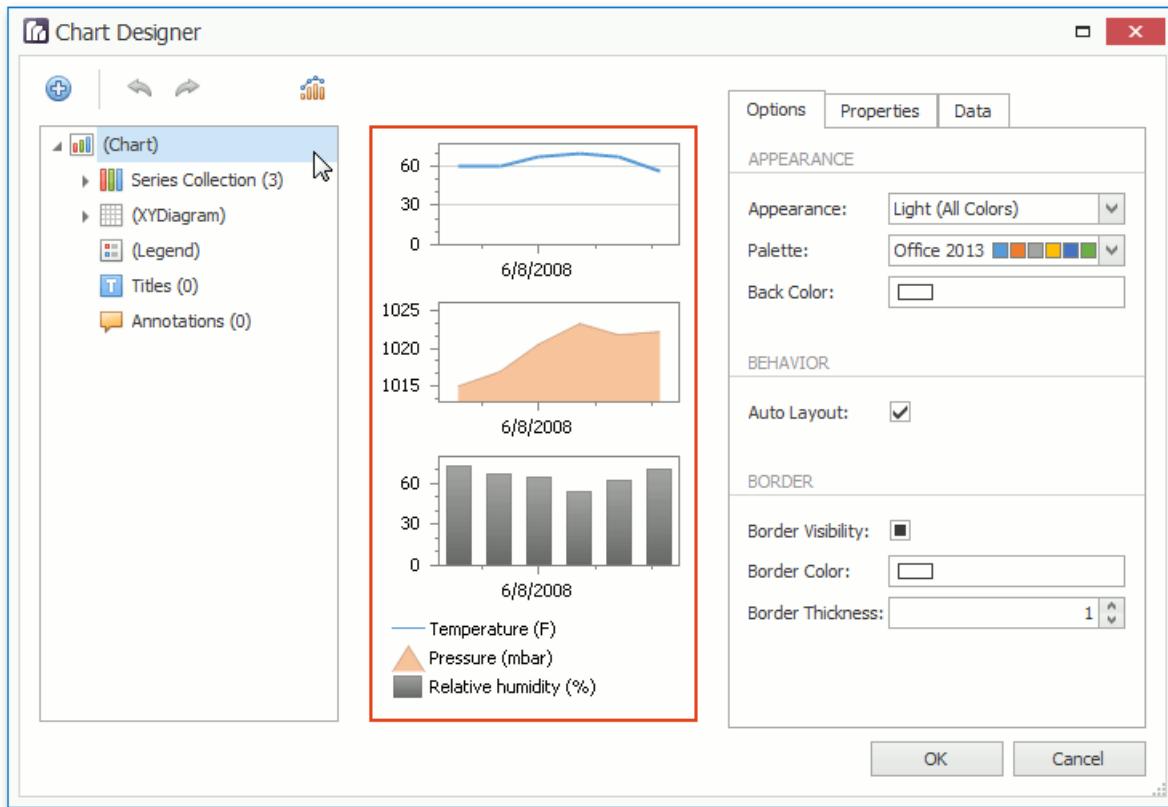


Topics in this section:

- [Chart Designer](#)
- [Chart Wizard](#)
- [Highlighting and Selection Chart Elements](#)
- [Zoom a Chart](#)
- [Scroll a Chart](#)
- [Rotate a Chart](#)

Chart Designer

Use the Chart Designer dialog to quickly and easily customize a chart, or create a new one.



The Chart Designer is organized into three main areas, which are represented below.

- █ **Chart Elements Tree**
- █ **Chart Control Appearance**
- █ **Customization Tabs**

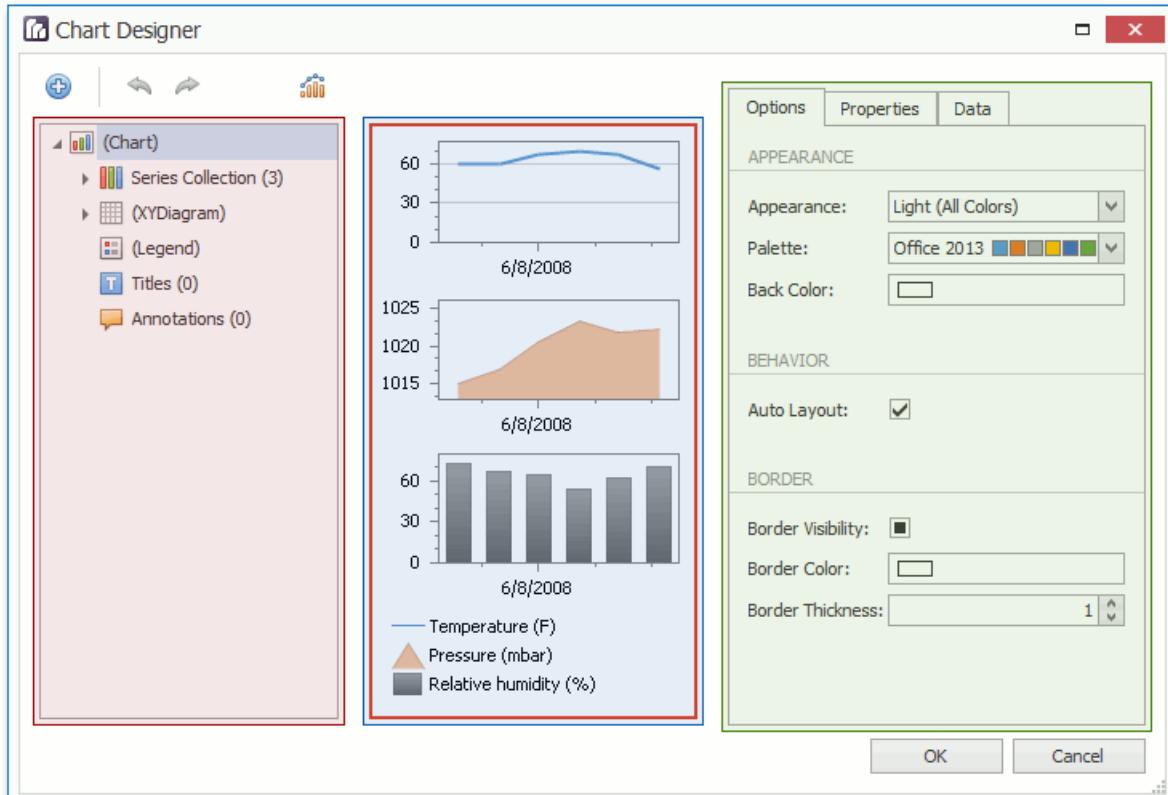


Chart Elements Tree

The **Chart Elements Tree** allows you to quickly select chart elements, change the structure of a chart (add or delete elements and change their visibility) and also represent chart structure. When you locate an element in the tree, its settings will be displayed in the **Customization Tabs** area.

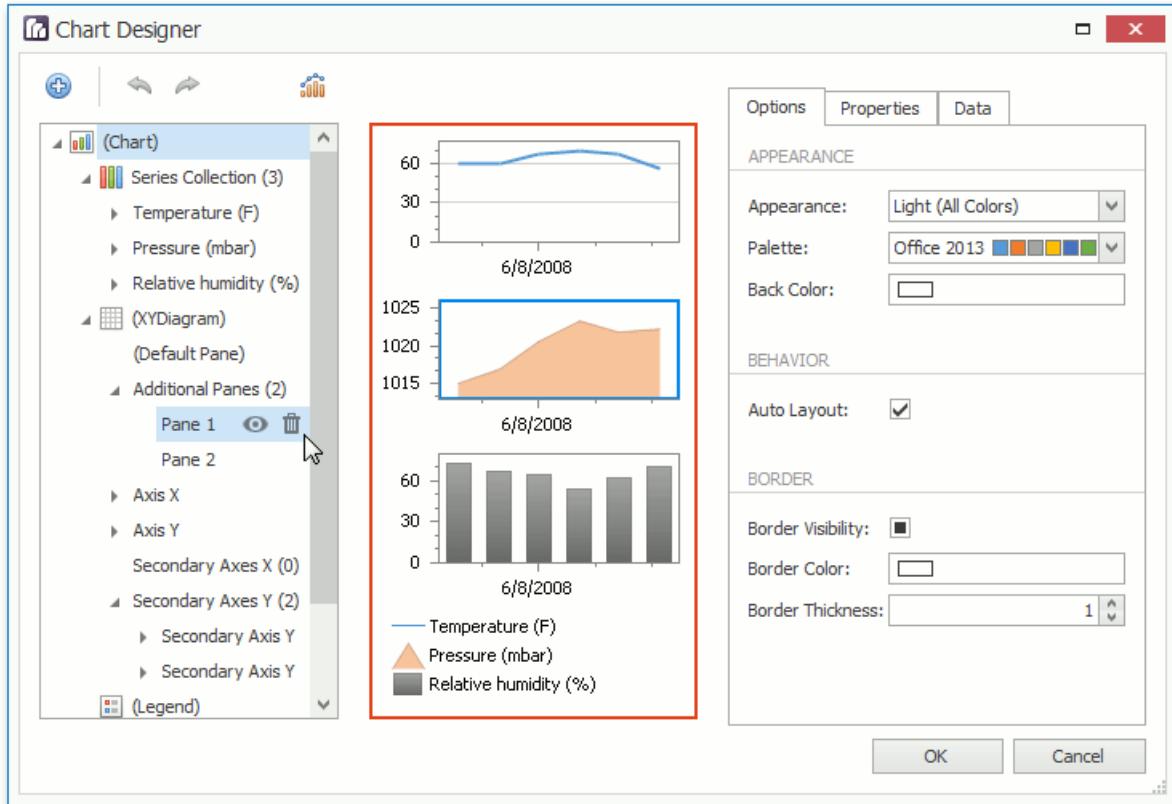
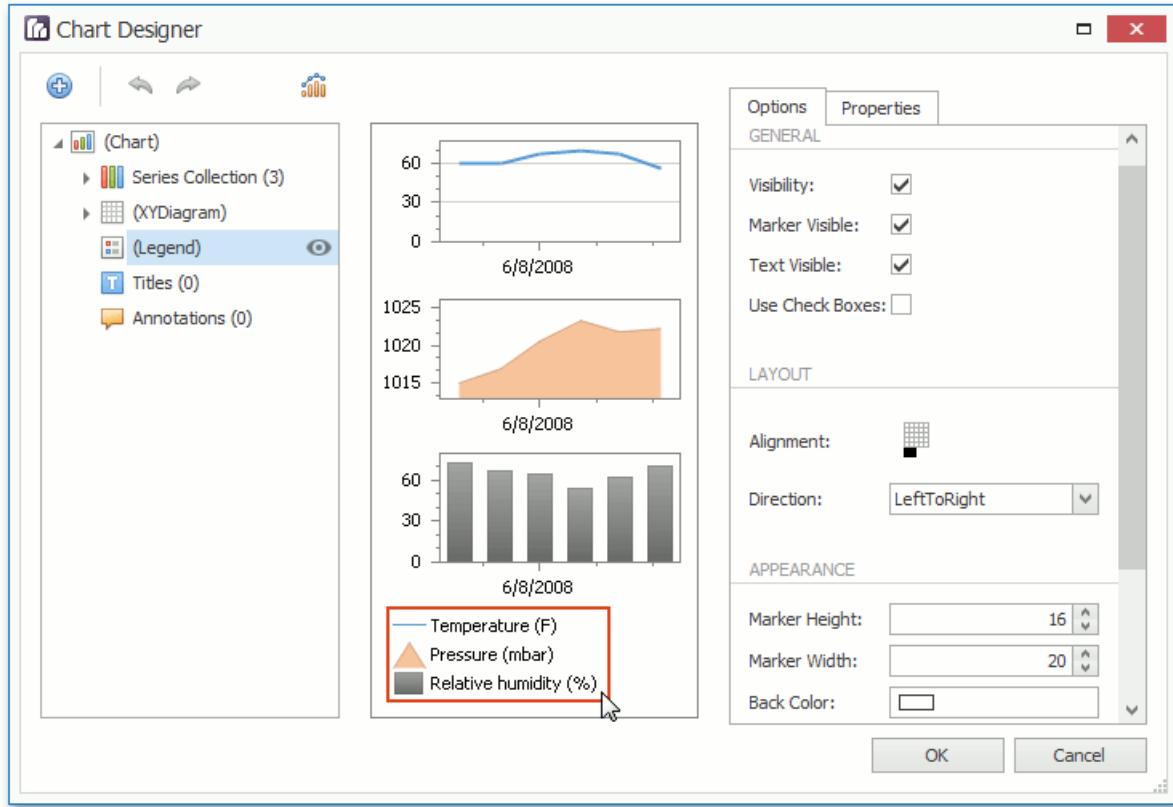


Chart Control Appearance

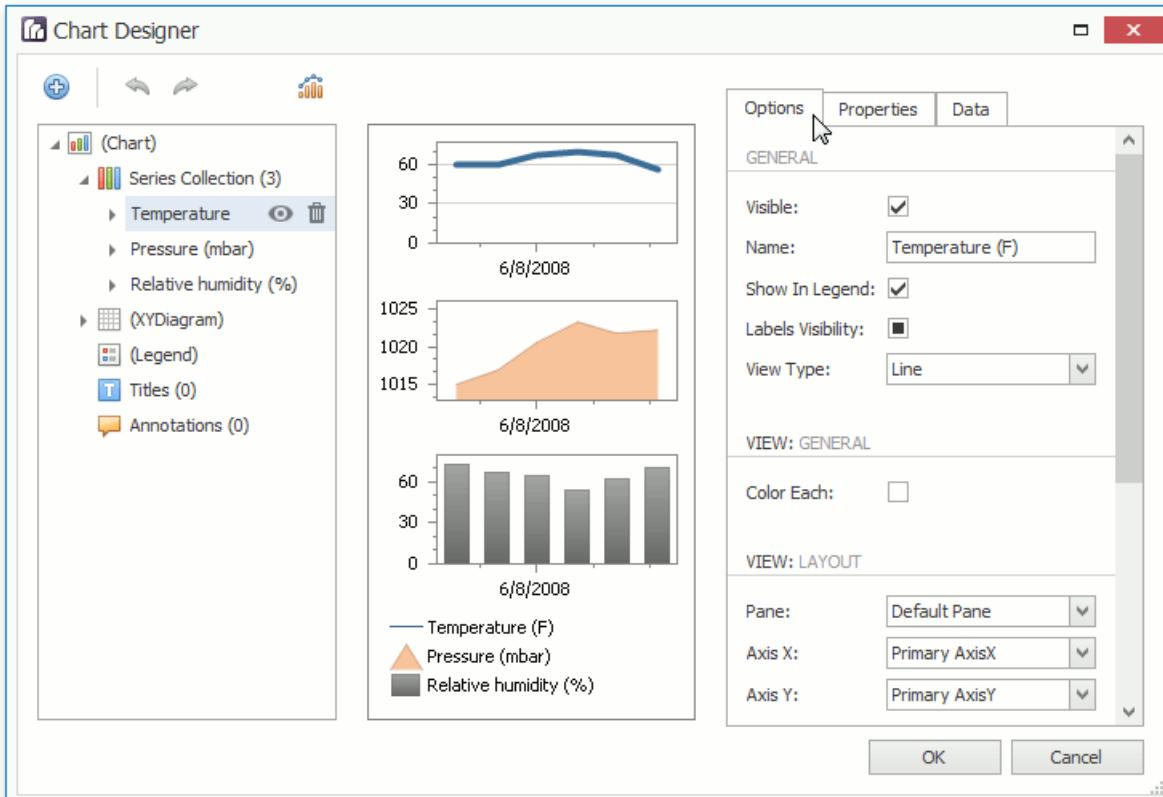
The **Chart Control Appearance** area allows you to see how the chart looks. Moreover, it allows you to select an item, whose settings will be displayed in the **Customization Tabs** area.



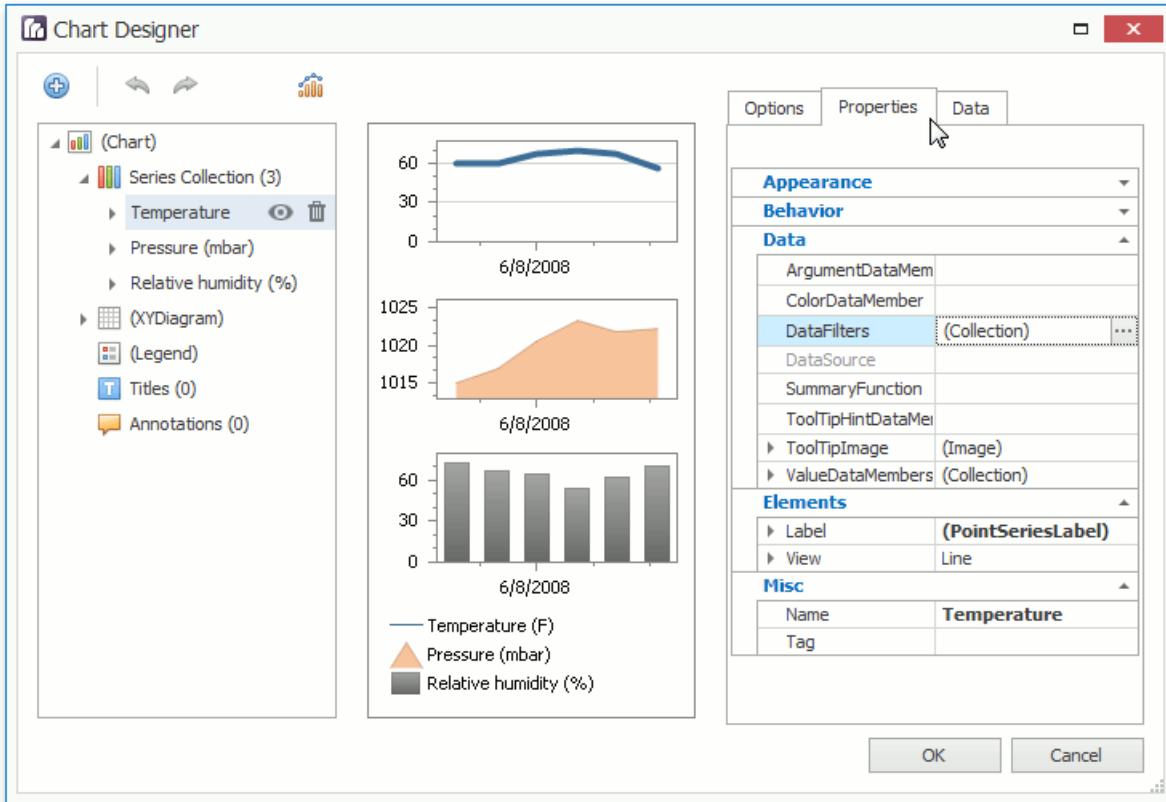
Customization Tabs

The **Customization Tabs** area allows you to customize chart element settings. Settings are separated by three tabs.

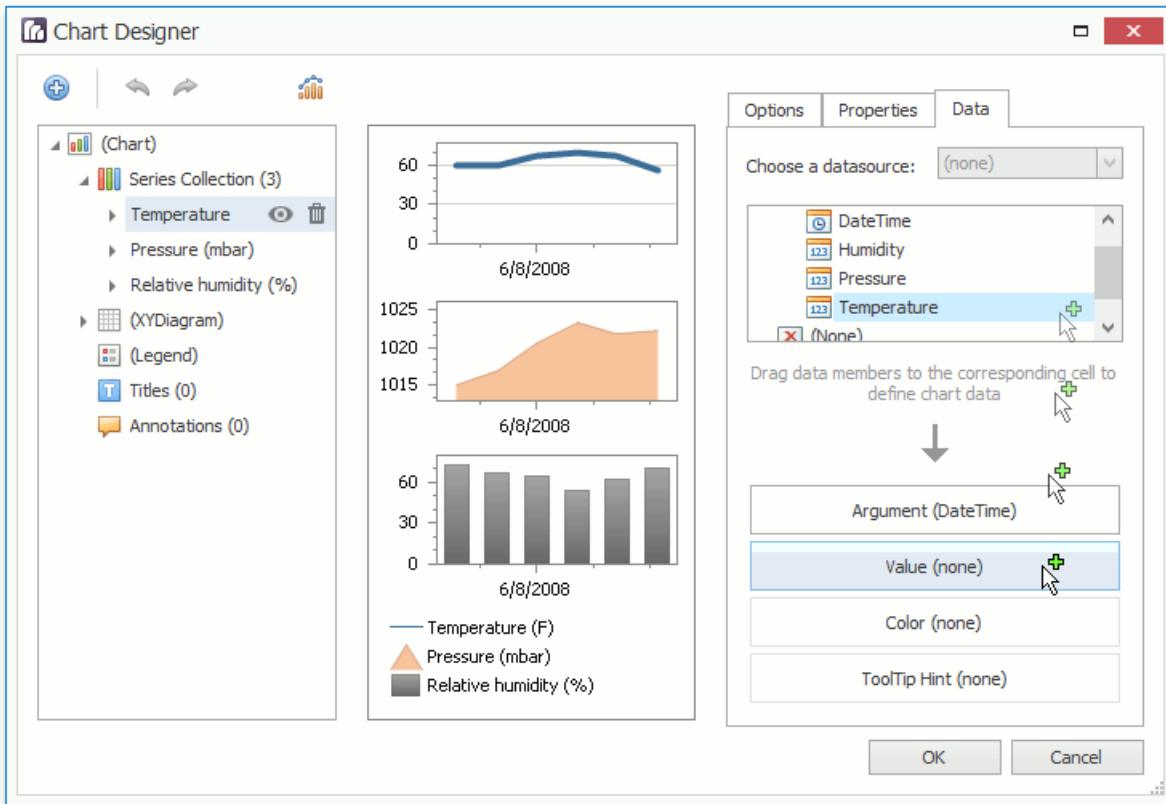
- The **Options Tab** contains commonly used element settings.



- The **Properties Tab** contains all settings of a chart element.



- The **Data Tab** contains settings, which allow you to specify data source members used to plot series or other data settings of a chart element (for example, the series points values if the series is not assigned with data).

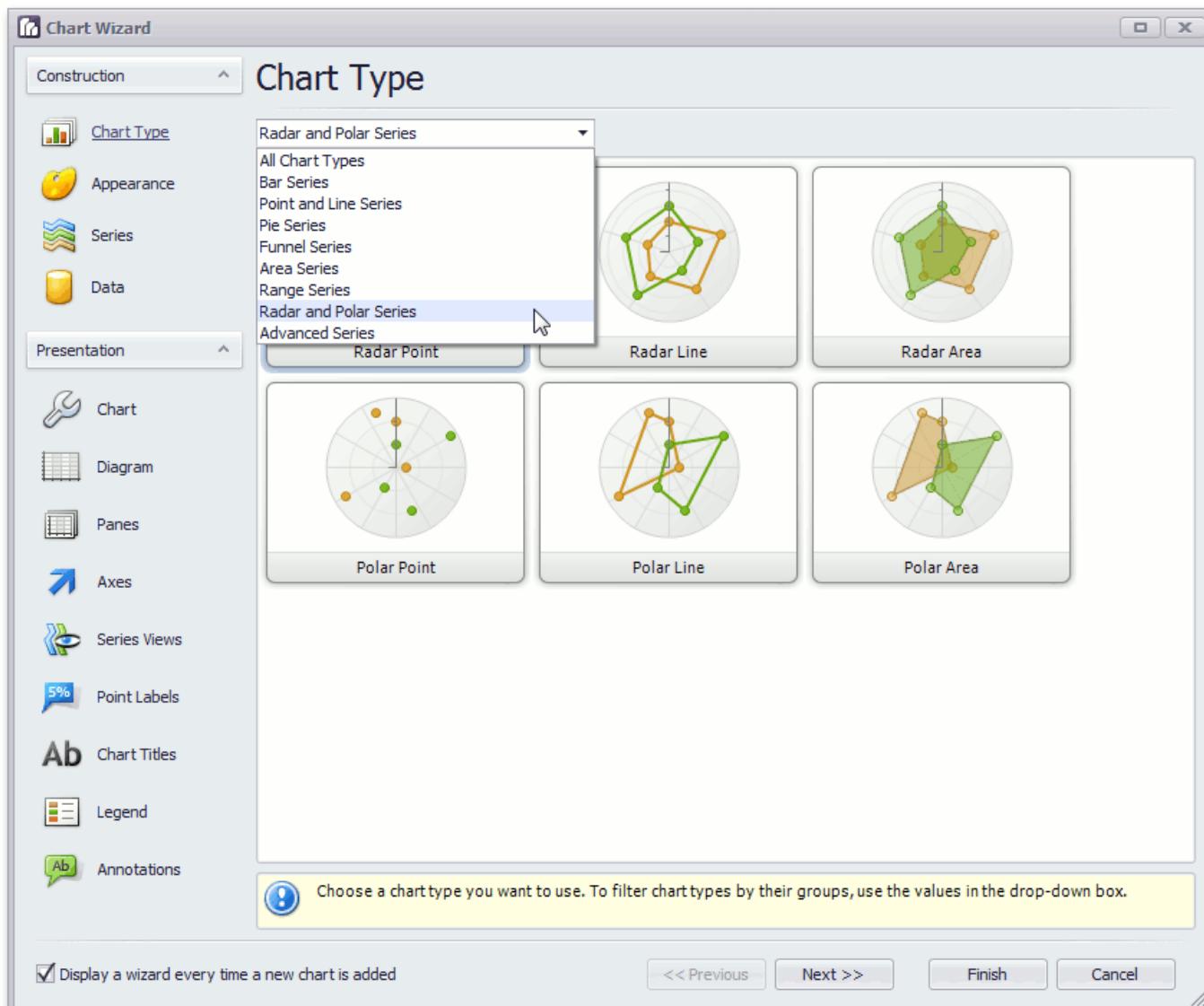


NOTE

For several chart elements, the **Customization Tabs** area may not contain all tabs from the Tabs list represented above.

Chart Wizard

Use the chart wizard dialog to quickly and easily create a new chart, or modify an existing one.



The Chart Wizard contains the following pages.

Construction group

- [Chart Type Page](#)
- [Appearance Page](#)
- [Series Page](#)
- [Data Page](#)

Presentation group

- [Chart Page](#)
- [Diagram Page](#)
- [Panes Page](#)
- [Axes Page](#)
- [Series Views Page](#)
- [Point Labels Page](#)
- [Chart Titles Page](#)
- [Legend Page](#)
- [Annotations Page](#)

To navigate through the Chart Wizard's pages, use the navigation bar or the [**<< Previous**](#) and [**Next >>**](#) buttons.

To complete the chart, use the [**Finish**](#) button, or the [**Cancel**](#) button, to cancel all changes.

Use the "Display a wizard every time a new chart is added" option to specify whether or not a chart wizard should appear when you add a new chart to the windows form.

Chart Type Page

Tasks

- Choose a chart type.

Page Elements

The screenshot shows the 'Chart Type' page. At the top, there is a 'Chart type filter' dropdown menu containing options like 'Radar and Polar Series', 'All Chart Types', 'Bar Series', etc. Below the filter is a 'Chart type selector' area containing six icons representing different chart types: Radar Point, Radar Line, Radar Area, Polar Point, Polar Line, and Polar Area. A red arrow points from the 'Chart type filter' label to the dropdown menu, and another red arrow points from the 'Chart type selector' label to the icons. At the bottom of the selector area, there is a yellow callout box with a blue exclamation icon containing the text: 'Choose a chart type you want to use. To filter chart types by their groups, use the values in the drop-down box.'

Chart type selector

Contains icons representing chart types. Click an icon to choose the appropriate chart type.

Chart type filter

Filters chart types available in the **Chart type selector**. The following chart filters are available:

- **All Chart Types**.
- **Bar Series** (Bar, Stacked Bar, 100% Stacked Bar, Side-By-Side Stacked Bar, 100% Side-By-Side Stacked Bar, 3D Bar, 3D Stacked Bar, 3D 100% Stacked Bar, 3D Side-By-Side Stacked Bar, 3D 100% Side-By-Side Stacked Bar and Manhattan Bar).
- **Point and Line Series** (Point, Bubble, Line, Stacked Line, 100% Stacked Line, Step Line, Spline, Scatter Line, Swift Plot, 3D Line, 3D Stacked Line, 3D 100% Stacked Line, 3D Step Line and 3D Spline).
- **Pie Series** (Pie, Doughnut, 3D Pie and 3D Doughnut).
- **Funnel Series** (Funnel and 3D Funnel).
- **Area Series** (Area, Stacked Area, 100% Stacked Area, Step Area, Spline Area, Spline Area Stacked, 100% Stacked Spline Area, 3D Area, 3D Stacked Area, 3D 100% Stacked Area, 3D Step Area, 3D Spline Area, 3D Spline Stacked Area and 3D 100% Stacked Spline Area).

- **Range Series** (Range Bar, Side-By-Side Range Bar, Range Area, 3D Range Area).
- **Radar and Polar Series** (Radar Point, Radar Line, Radar Area, Polar Point, Polar Line and Polar Area).
- **Advanced Series** (Stock, Candle Stick, Gantt, Side-By-Side Gantt).

Appearance Page

Tasks

- Choose a palette to color a series.
- Choose the style specifying the chart's appearance.

Page Elements

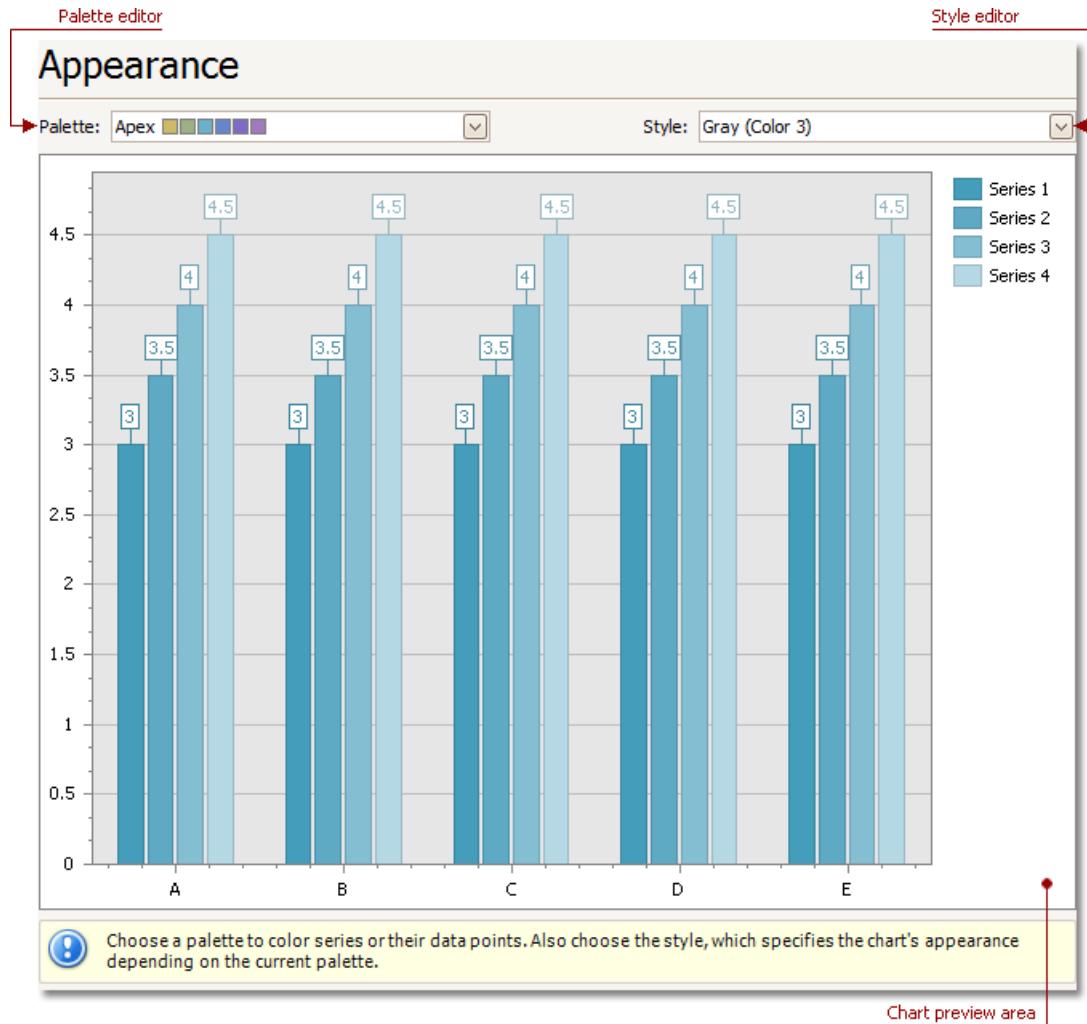
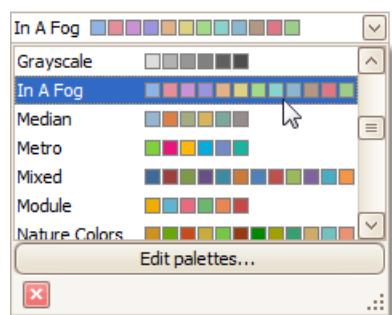


Chart preview area

Previews a chart's layout.

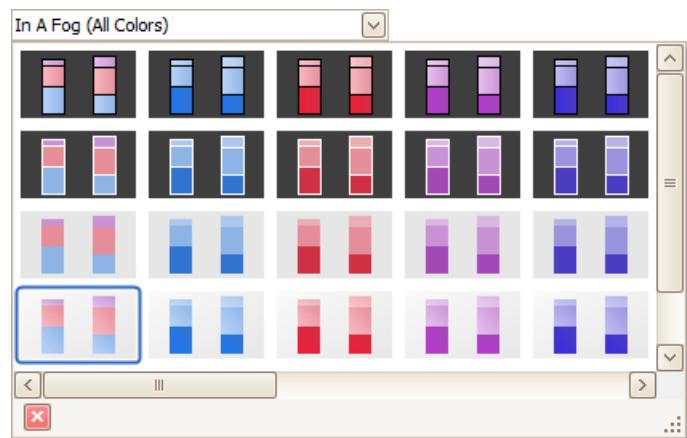
Palette Editor

Specifies a palette to color a series.



Style Editor

Specifies the style determining the chart's appearance, depending on the selected palette.

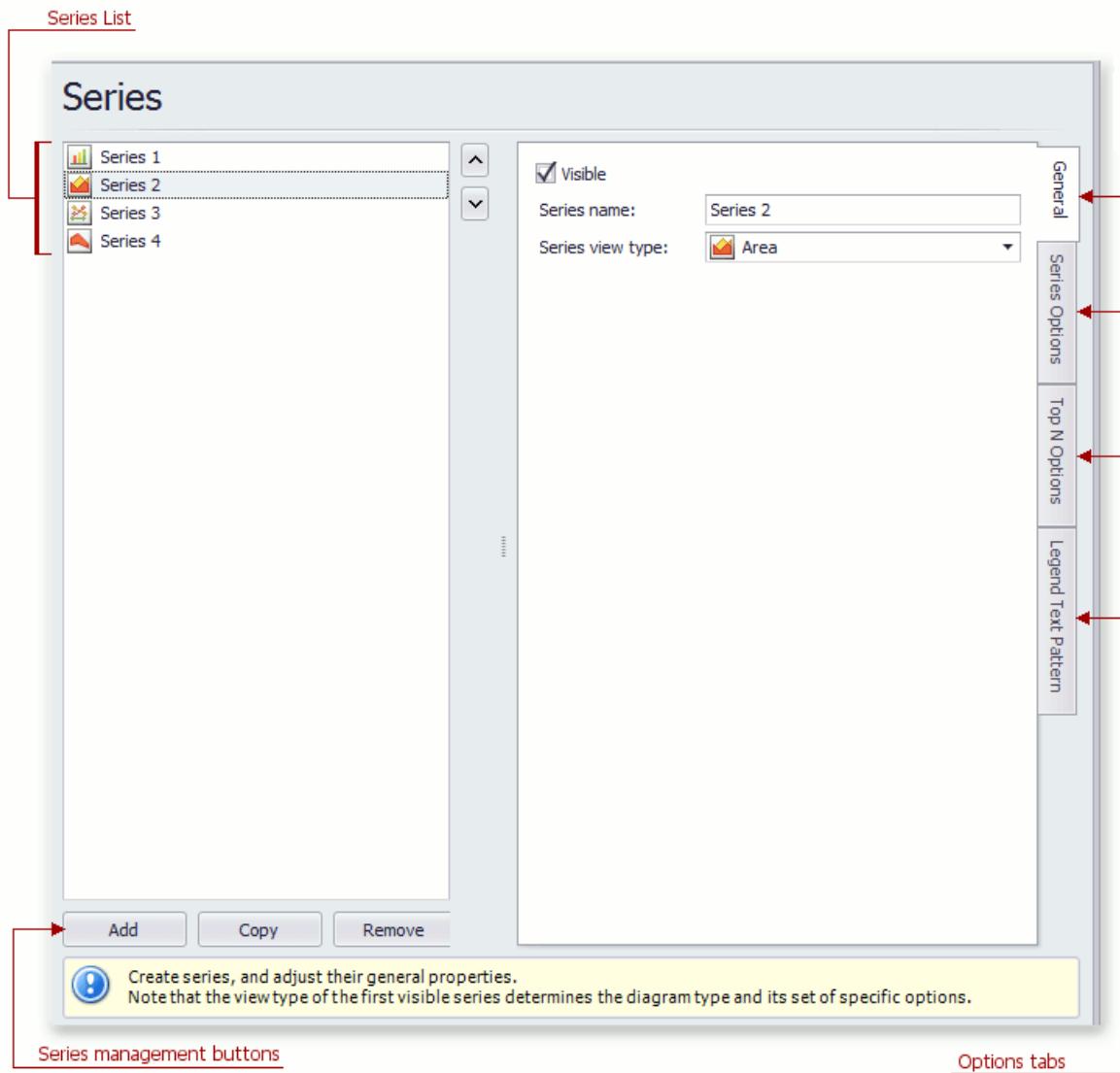


Series Page

Tasks

- Create or remove a series of points.
- Define the series name, visibility and view type.
- Customize additional series options and legend point options.
- Enable and customize the Top N Values feature.

Page Elements



Series List

This list displays all available series. You can click list entries to access properties of the corresponding series. To switch between series, use the ▲ and ▼ buttons.

Series management buttons

Use the **Add**, **Copy** and **Remove** buttons to manage the series collection.

Options tabs

The following tabs are available on this page:

- **General**

Choose whether the selected series should be visible, define its name, and select a view type.

- **Series Options**

Specifies argument and value scale types, the point sort order, visibility in the legend, whether the legend is checked, and legend text.

- **Top N Options**

Specifies whether the Top N Values feature is enabled, and allows you to control this feature's options.

- **Legend Text Pattern**

Specifies the format of values displayed in the chart legend.

Data Page

Tasks

- Provide data for a chart;
- Bind a chart or individual series to a data source;
- Customize an argument and a value scale type;
- Customize the view type of auto-generated series;
- Apply data filtering and sorting;
- Adjust the Pivot Chart settings.

Page Elements

Data providing tabs

Argument	Value
A	1.235
B	2.534
C	4.536
D	6.789
E	8.953
F	7.357

Use the Points tab to manually enter data points. Or use other tabs to bind each series to a datasource or auto-created series from a datasource.

You can provide data for a chart using the following tabs.

- Points tab
- Series Binding tab
- Auto-created Series tab

Points Tab

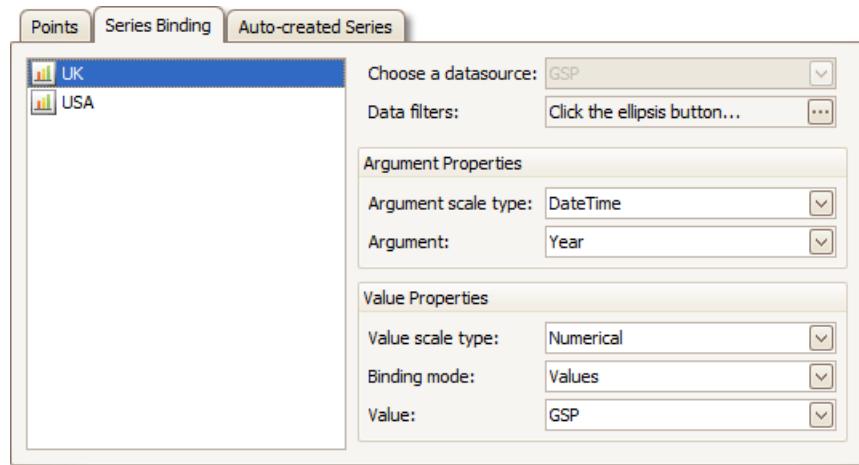
Use it to manually enter data points for series.

Argument	Value
A	1.235
B	2.534
C	4.536
D	6.789
E	8.953
F	7.357

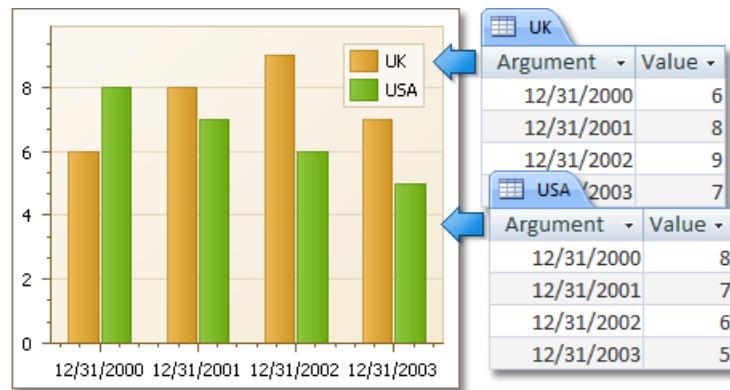
Note that valid **Argument** and **Value** entries must correspond to the **Argument scale type** and the **Value scale type** selected for the appropriate series on the [Series Page](#). Otherwise, an error message will be invoked.

Series Binding Tab

Use it to provide specific data binding options for each series.



The following illustration demonstrates how it works.



Auto-created Series Tab

Use it to specify data columns used to generate series, as well as the series view type and other options like sorting, filtering and name template.

Points Series Binding Auto-created Series

Series Properties

Choose a datasource: GSP

Data Member: GSP

View type: Bar

Series: Year

Name prefix:

Name suffix:

Argument Properties

Argument scale type: Qualitative

Argument: Region

Value Properties

Value scale type: Numerical

Binding mode: Values

Value: GSP

Sorting & Filtering

Series sort order: None

Point sort order: None

Sort points by: Argument

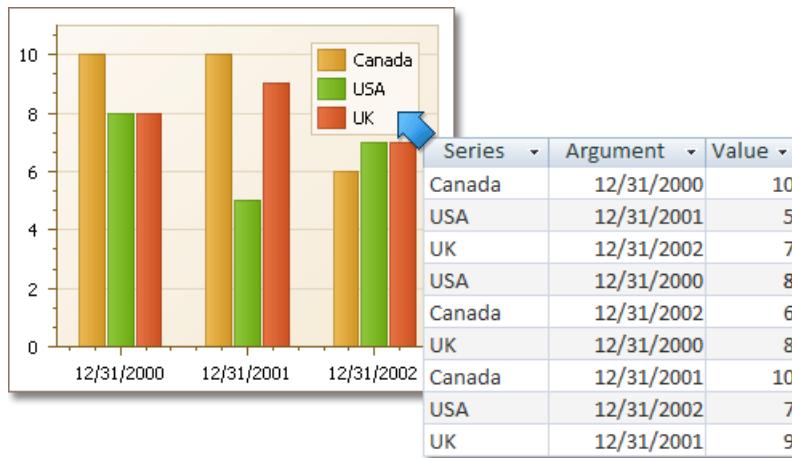
Data filters: Click the ellipsis button...

Familiar Data Source Options

Automatic Binding Settings

Automatic Layout Settings

The following illustration demonstrates how it works.



For familiar data sources (such as Pivot Grid), you can choose to automatically adjust the binding and layout settings of your Chart.

And when you set a Pivot Grid as a Chart's data source, the **Pivot Grid Data Source** tab becomes available.

Points Series Binding Auto-created Series Pivot Grid Datasource

Series Properties

Choose a datasource: pivotGrid1

Data Member: myDataSet

View type: pivotGrid1

Series: Series

Name prefix:

Name suffix:

On this tab you can adjust various Pivot Chart options.

Data Representation

- Retrieve Data by Columns
- Retrieve Empty Cells

Data Limits

Max Series Count: 

Max Point Count in Series: 

Retrieve Totals

- Retrieve Column Totals
- Retrieve Column Grand Totals
- Retrieve Column Custom Totals
- Retrieve Row Totals
- Retrieve Row Grand Totals
- Retrieve Row Custom Totals

Chart Page

Tasks

- Define a chart's background color and background image.

Page Elements

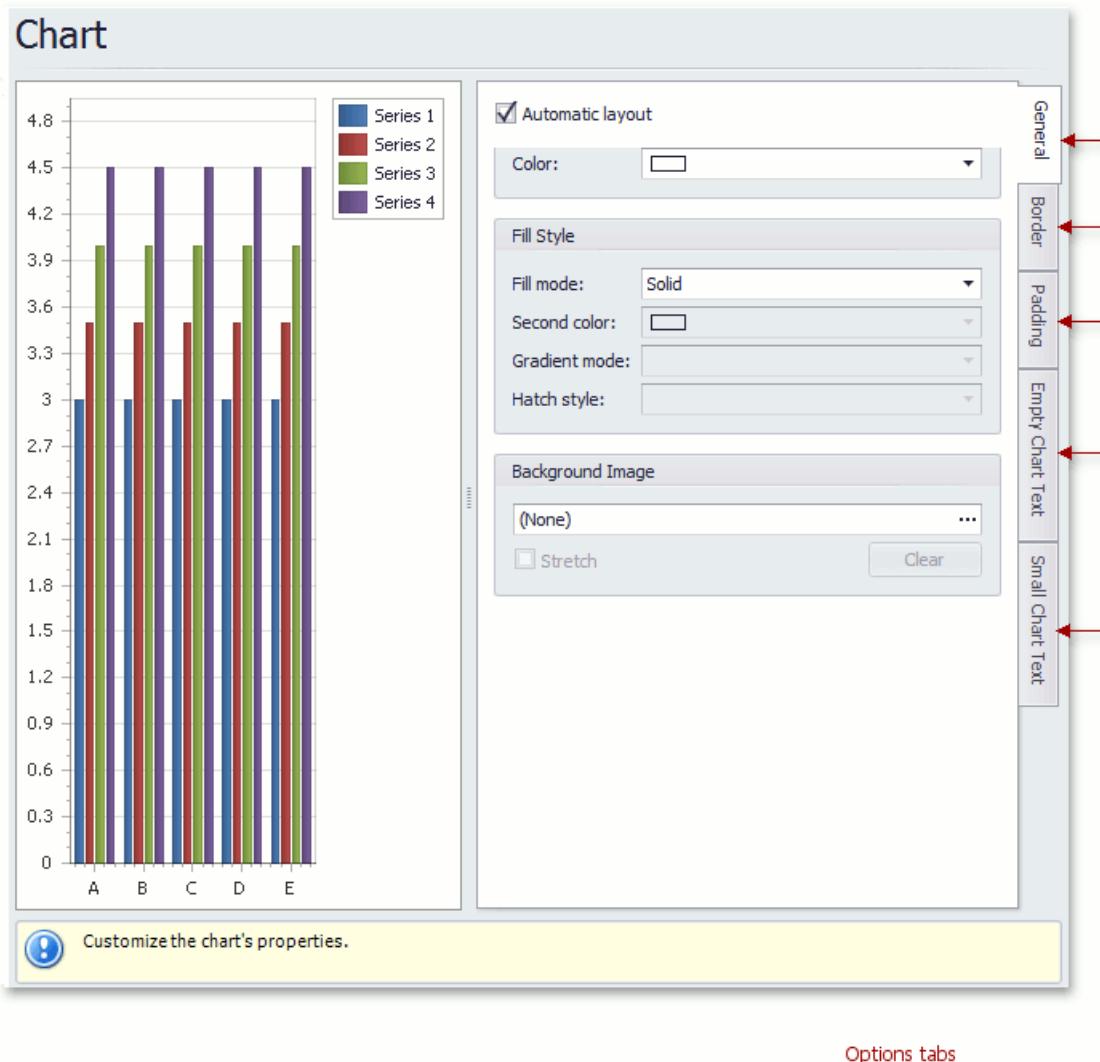


Chart preview area

Previews a chart's layout.

Options tabs

The following tabs are available on this page.

- General

Specifies a chart's automatic layout, chart background color, fill style and background image.

- Border

Specifies a border's color, thickness and visibility.

- Padding

Specifies the diagram's inner indents.

- **Empty Chart Text**

Specifies the message displayed in the chart when there's no data to display.

- **Small Chart Text**

Specifies the message displayed in the chart, when the chart size is too small to fit the diagram.

Diagram Page

Tasks

- Rotate a diagram;
- Define a diagram's padding;
- Add or remove secondary axes;
- Add or remove panes;
- Define panes' layout direction;
- Enable or disable a diagram's scrolling and zooming.

Page Elements

The screenshot shows the Diagram Page interface with two charts displayed in a chart preview area. The top chart has four series: Series 1 (blue), Series 2 (red), Series 3 (green), and Series 4 (purple). The bottom chart also has four series: Series 1 (blue), Series 2 (red), Series 3 (green), and Series 4 (purple). Both charts have five categories labeled A through E on the y-axis. The x-axis ranges from 0 to 4. To the right of the charts is a panel with various configuration options. At the top of this panel is a checkbox labeled "Rotated" which is checked. Below it is a "Margins" section with dropdown menus for All, Bottom, Left, Right, and Top, all set to 5. Underneath is a "Pane Layout" section with a "Distance" dropdown set to 10 and a "Direction" dropdown set to "Vertical". At the bottom of the panel is a yellow bar containing a blue info icon and the text "Customize the diagram's properties.". On the far right of the interface, there is a vertical sidebar with three tabs: "General", "Elements", and "Scroll & Zoom", with "Elements" currently selected. A red box highlights the "Chart preview area" at the top left, and another red box highlights the "Options tabs" at the bottom right.

Chart preview area

Diagram

Diagram properties:

- Rotated:
- Margins:
 - All: 5
 - Bottom: 5
 - Left: 5
 - Right: 5
 - Top: 5
- Pane Layout:
 - Distance: 10
 - Direction: Vertical

Customize the diagram's properties.

Options tabs

Chart preview area

Previews a chart's layout.

Options tabs

The following tabs are available on this page.

- **General**

Choose whether a diagram should be rotated, set its padding values, and (if it contains several panes) define the panes' layout direction.

- **Elements**

Add or remove secondary axes and panes.

- **Scroll & Zoom**

Enable or disable a diagram's scrolling and zooming, and specify the scrolling and zooming options.

Panes Page

Tasks

- Customize panes properties.

Page Elements

Chart preview area

Panes

• Population: Age Structure

Data estimate for mid-2000

The chart displays the population of eight countries in millions, broken down into four age groups: 0-14, 15-24, 25-54, and 55-64. The United States has the highest total population, followed by Russia, Brazil, Mexico, Japan, Germany, United Kingdom, and Russia again. The bars are stacked vertically for each country, with the total population value labeled at the top of each bar.

Country	0-14	15-24	25-54	55-64	Total
United States	30	120	100	20	270
Russia	20	40	80	10	150
Brazil	25	45	70	10	150
Mexico	15	35	55	10	125
Japan	10	25	50	15	100
Germany	10	20	40	10	80
United Kingdom	10	25	45	10	90
Russia	15	40	80	10	145

From www.geohive.com

Customize the diagram's panes.
Note that you may select a pane by clicking it in the chart preview.

Pane selector

Default Pane

Visible

Name: Default Pane

Size mode: UseWeight

Weight: 1.0

General Appearance Border Shadow Scroll & Zoom Scroll Bars Options tabs

Chart preview area

Previews a chart's layout.

Pane selector

Specifies a pane to be customized.

Options tabs

The following tabs are available on this page.

- General

Determines whether the selected pane should be visible, specifies its name, size mode and size value.

- Appearance

Specifies a pane's background color and fill style, and its background image.

- Border

Determines whether a pane's border should be visible, and defines its color.

- **Shadow**

Determines whether a pane's shadow should be visible, and defines its color and size.

- **Scroll & Zoom**

Enable or disable a pane's scrolling and zooming for specific axes.

- **Scroll Bars**

If scrolling and/or zooming is enabled for an axis, adjust the scroll bars visibility, position and appearance.

Axes Page

Tasks

- Customize axes properties;
- Customize the appearance of axis labels;
- Add a constant line and a strip to an axis;
- Enable automatic and manual scale breaks.

Page Elements

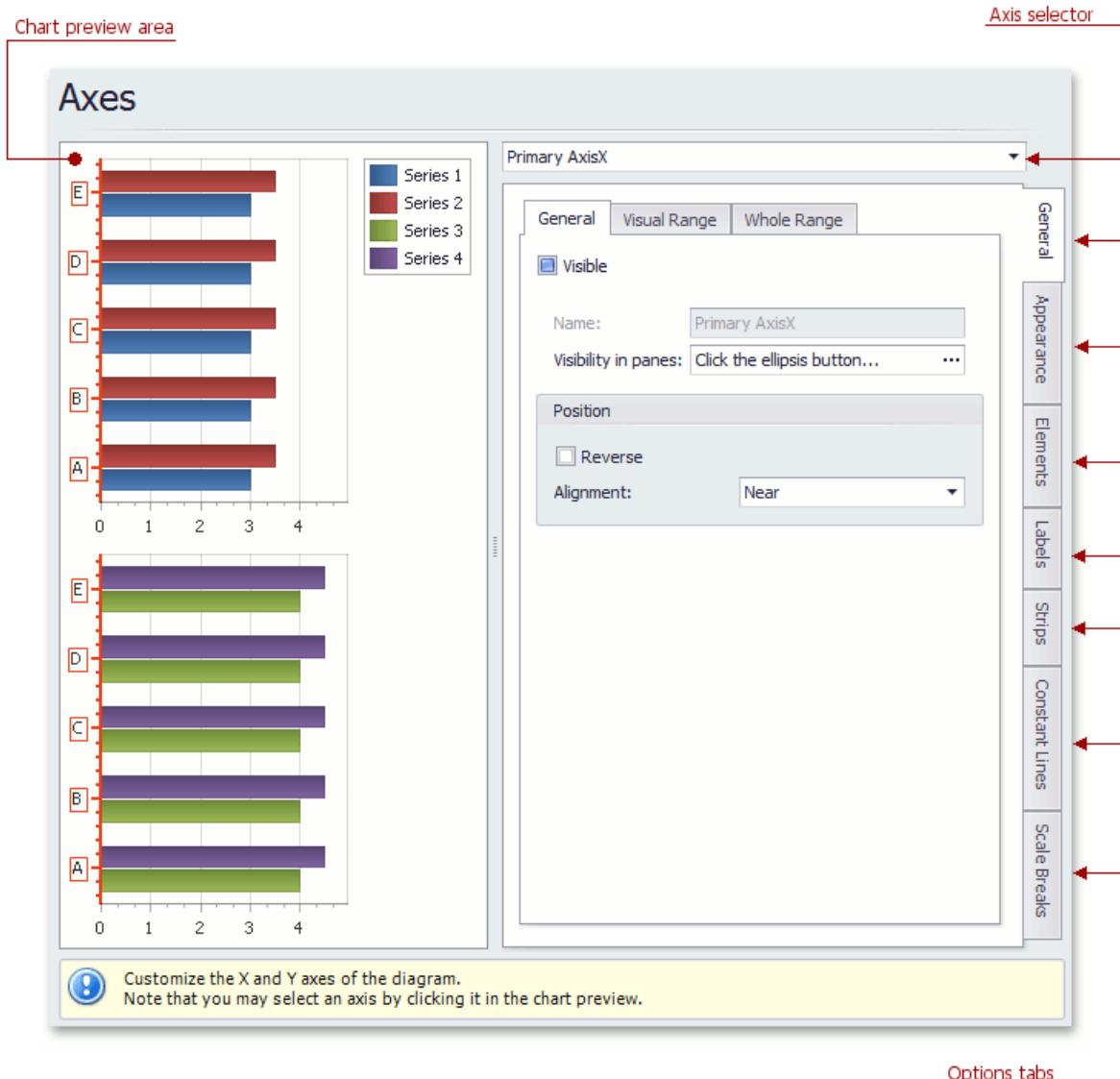


Chart preview area

Previews a chart's layout.

Note that you can select an axis to be modified on the chart preview area directly.

Axis selector

Specifies an axis to be customized.

Options tabs

The following tabs are available on this page.

- **General**

Specifies visibility, position, range and format properties.

- **Appearance**

Defines color, thickness and interlacing options.

- **Elements**

Customizes title, tickmarks and grid line properties.

- **Labels**

Specifies position and text for automatically created labels, or allows custom labels to be defined.

- **Strips**

Allows you to create strips, define their visibility, name, limits, appearance, etc.

- **Constant Lines**

Allows you to create constant lines, specify whether the constant line should be checkable or checked in a legend, define their visibility, name, value, legend text, appearance, title, etc.

- **Scale Breaks**

Allows you to enable automatic and / or create custom scale breaks, and define their appearance.

Series Views Page

Tasks

- Customize the view-type-specific properties of series;
- Customize the appearance and border settings of series;
- Add or remove financial indicators (Fibonacci indicators, trendlines and regression lines).

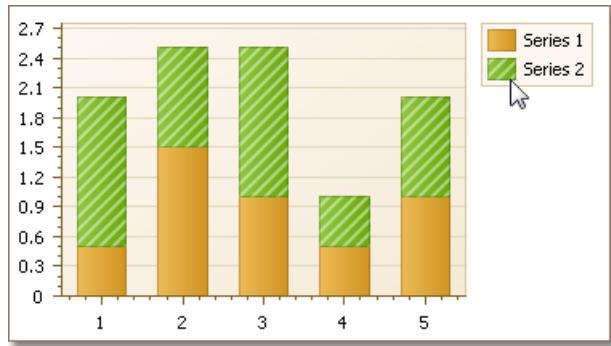
Page Elements

The screenshot shows the 'Series Views' page interface. On the left is a 'Chart preview area' containing a horizontal bar chart with four data series (Series 1, Series 2, Series 3) across four categories (A, B, C, D). The Y-axis has labels A, B, C, D. The X-axis ranges from 0 to 5. Series 1 is blue with diagonal stripes, Series 2 is red, and Series 3 is green. Each bar has numerical values at its end: Series 1 values are 3, 3, 3, 3; Series 2 values are 4, 4, 4, 4; Series 3 values are 5, 5, 5, 5. A legend on the right identifies the series. On the right is a 'Series selector' panel for 'Series 1'. It includes tabs for General, Appearance, Border, Shadow, and Indicators. The General tab is active, showing 'Bar Options' with an unchecked 'Equal bar width' checkbox, a 'Width' input set to 0.6, a 'Distance' input set to 0, and a 'Distance (px)' input set to 1. Below that is a 'Linked Elements' section with dropdowns for Axis X (Primary AxisX), Axis Y (Primary AxisY), and Pane (Default Pane). A note at the bottom of the panel says: 'Customize the view-type-specific options of a series. Note that you may select a series by clicking it in the chart preview.' The 'Options tabs' section at the bottom right lists General, Appearance, Border, Shadow, and Indicators.

Chart preview area

Previews a chart's layout.

Note that you can select a series to be modified directly in the chart preview area.



Series selector

Specifies a series to be customized.

Options tabs

The following tabs are available on this page.

- **General**

Specifies a series bar's width, distance, color, transparency, etc.

- **Appearance**

Specifies a series color, transparency and fill style. Additionally, determines whether series points should be painted individually.

- **Border**

Determines whether a series border should be visible, and defines its color and thickness.

- **Shadow**

Specifies whether a series' shadow should be visible, determines its color and size.

- **Indicators**

Allows you to add or remove indicators of a required kind (Regression Line, Trend Line, Fibonacci Arcs, Fibonacci Fans, Fibonacci Retracement and many others).

Point Labels Page

Tasks

- Resolve overlapping of point labels;
- Customize the appearance of point labels.

Page Elements

The screenshot shows the 'Point Labels' configuration page. On the left, there are two chart preview areas. The top chart displays a blue area series with point labels '1.7', '2.3', '4.7', and '8.3'. The bottom chart displays a red area series with point labels '1.7', '2.3', '4.7', and '8.3'. A legend indicates 'Series 1' (blue triangle) and 'Series 2' (red triangle). To the right is a configuration panel with the following sections:

- Series selector:** Shows 'Series 1' with a dropdown arrow.
- General:** Contains a checked checkbox labeled 'Visible'.
- Text Pattern:** Contains settings for 'Antialiasing' (unchecked), 'Color' (white), 'Font' ('Tahoma, 8pt, Regular'), 'Alignment' ('Center'), 'Max Width' (0), and 'Max Line Count' (0).
- Line:** Contains settings for 'Resolve Overlapping Settings' with 'Mode' set to 'None' and 'Indent' set to '-1'.
- Appearance:** Contains tabs for 'Border' and 'Shadow'.
- Options tabs:** Located at the bottom right of the configuration panel.

Customize the point labels of a series.
Note that you may select labels of a series by clicking them in the chart preview.

NOTE

The point labels are hidden in the chart control by default. To show series point labels, check the **Visible** check box.

Chart preview area

Previews a chart's layout.

Note that you can select point labels to be modified directly in the chart preview area.

Series selector

Specifies a series to be customized.

Options tabs

The following tabs are available on this page.

- **General**

Specifies whether labels should be visible and shown for zero values, determines their text and resolves overlapping settings.

- **Text Pattern**

Specifies a text pattern to format series point labels.

- **Line**

Determines whether label lines should be visible, and specifies their appearance.

- **Appearance**

Specifies the background color and fill style of labels.

- **Border**

Determines whether label borders should be visible, and defines their color and thickness.

- **Shadow**

Specifies whether a label's shadow should be visible, and defines its color and size.

Chart Titles Page

Tasks

- Create chart titles;
- Enable the word-wrapping for lengthy chart titles;
- Customize the appearance and position of chart titles.

Page Elements

Chart preview area

Titles management section

Chart Titles

Basic HTML Support

A chart title docked to the left

A chart title docked to the right

A very lengthy chart title which demonstrates the word-wrap feature

Titles list: A very lengthy chart title which demonstr...

Visible

Position

Dock: Bottom
Alignment: Center
Indent: 0

Appearance

Color: #128, 128, 128
Font: Tahoma, 14pt, Regular
 Antialiasing
 Word Wrap
Max Lines Count: 0

Add chart titles to be displayed within a chart.

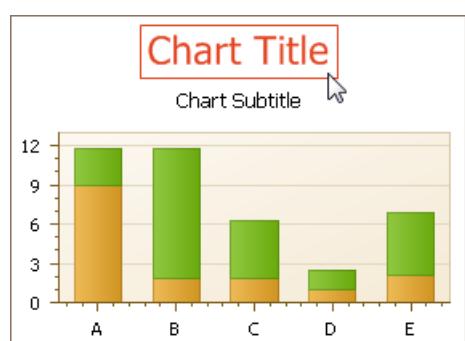
Options tabs

The screenshot shows a 'Chart Titles' page with two charts. The top chart has a title 'Basic HTML Support' and is positioned to the left. The bottom chart has a title 'A very lengthy chart title which demonstrates the word-wrap feature' and is positioned to the right. Both charts have four series labeled Series 1 through Series 4. The titles management section on the right allows for customization of titles, including visibility, position (dock at bottom, align center), appearance (color #128, 128, 128, font Tahoma, 14pt, Regular), and word wrap settings. A note at the bottom says 'Add chart titles to be displayed within a chart.'

Chart preview area

Previews a chart's layout.

Note that you can select chart titles to be modified in the chart preview area directly.



Titles management section

Allows you to add or remove titles from the titles list, and choose a title to be customized.

Options tabs

The following tabs are available on this page.

- **Text**

Sets a text for the selected chart title. Note that the basic HTML formatting is supported for chart titles.

- **General**

Specifies a title's visibility, alignment and font options, and determines whether the word-wrapping is enabled for a title.

Legend Page

Tasks

- Customize chart legend's properties.

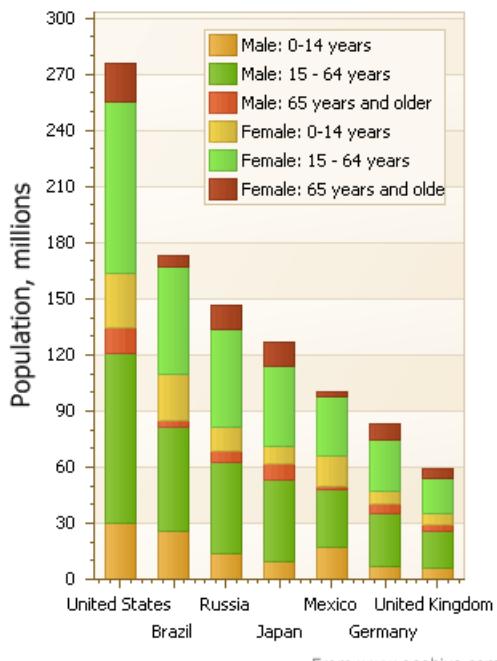
Page Elements

Chart preview area

Legend

Population: Age Structure

Data estimate for mid-2000



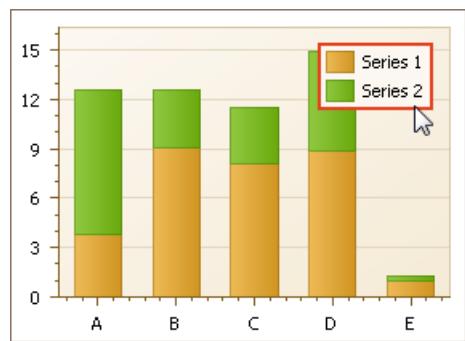
Customize the legend's properties.

Options tabs

Chart preview area

Previews a chart's layout.

Note that you can select the legend directly on the chart preview area.



Options tabs

The following tabs are available on this page.

- **General**

Specifies legend visibility, direction, alignment, spacing, limits and margins.

- **Appearance**

Specifies legend background color and background image.

- **Marker**

Specifies visibility and dimensions of legend markers.

- **Text**

Specifies legend text antialiasing, color and font.

- **Border**

Specifies visibility, color and thickness of legend borders.

- **Shadow**

Specifies visibility, color and size of the legend shadow.

Annotations Page

Tasks

- Create and customize image and text annotations.

Page Elements

Chart preview area

Annotation selector

Annotations

• Population: Age Structure

The chart displays population data for ten countries, categorized by age groups. The Y-axis represents population in millions, ranging from 0 to 300. The X-axis lists countries: United States, Brazil, Russia, Japan, Mexico, Germany, United Kingdom, France, Italy, and Spain. The bars are stacked to show the breakdown of the total population across different age categories. Two annotations are present: a red box around a palm tree icon at the top right, and a speech bubble containing a similar icon near the bottom center.

Country	0-14	15-24	25-54	55-64	65+	Total
United States	30	100	120	20	10	270
Brazil	25	85	110	15	10	175
Russia	15	20	100	10	10	145
Japan	10	25	100	15	10	130
Mexico	15	20	65	10	10	100
Germany	10	20	45	10	10	85
United Kingdom	10	20	40	10	10	80
France	10	20	40	10	10	80
Italy	10	20	40	10	10	80
Spain	10	20	40	10	10	80

From www.geohive.com

Annotations list: Image Annotation 1

Add Remove

Visible

Name: Image Annotation 1

Z-order: 0

Layout

Auto-size

Width: 66

Height: 48

Angle: 0

General Anchor Point Shape Position Content Padding Appearance Border Shadow Options tabs

Create and customize annotations anchored to a chart, pane or series point.
Note that you may select an annotation by clicking it in the chart preview.

Chart preview area

Previews a chart's layout.

Annotation selector

Specifies an annotation to be created and/or customized.

Note that you can select an annotation directly on the chart preview area.

Options tabs

The following tabs are available on this page.

- General

Specify an annotation's name, adjust its visibility, z-order and layout.

- **Anchor Point**

Choose an element to anchor to (chart, pane, or series point), and adjust the corresponding options.

- **Shape Position**

Choose an annotation's shape position type (free or relative), and adjust the corresponding options.

- **Content**

Depending on an annotation's type (text or image), specify its content.

- **Padding**

Specify an annotation's inner indents.

- **Appearance**

Adjust an annotation's background color, fill style, shape and connector options.

- **Border**

Specify visibility, color and thickness of an annotation's borders.

- **Shadow**

Specifies visibility, color and size of an annotation's shadow.

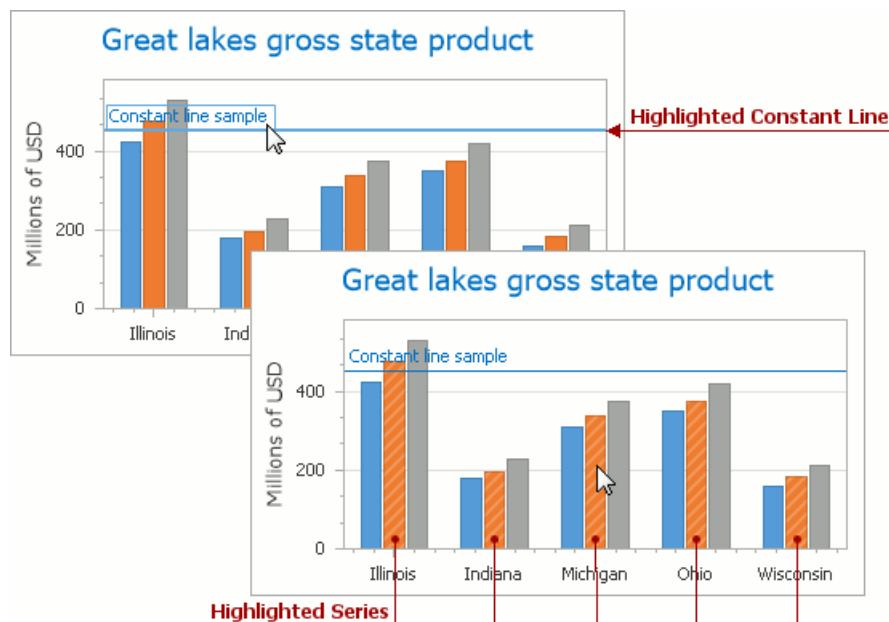
Highlighting and Selection Chart Elements

If you are working with 2D charts, you can highlight and select different chart elements via the mouse or using different gestures on your touchscreen device.

Highlighting

Any chart element that can be selected supports highlighting.

An end user can highlight a chart's area using either the drag gesture on your touchscreen device or via the mouse pointer by hovering over a particular chart element, as shown in the image below.

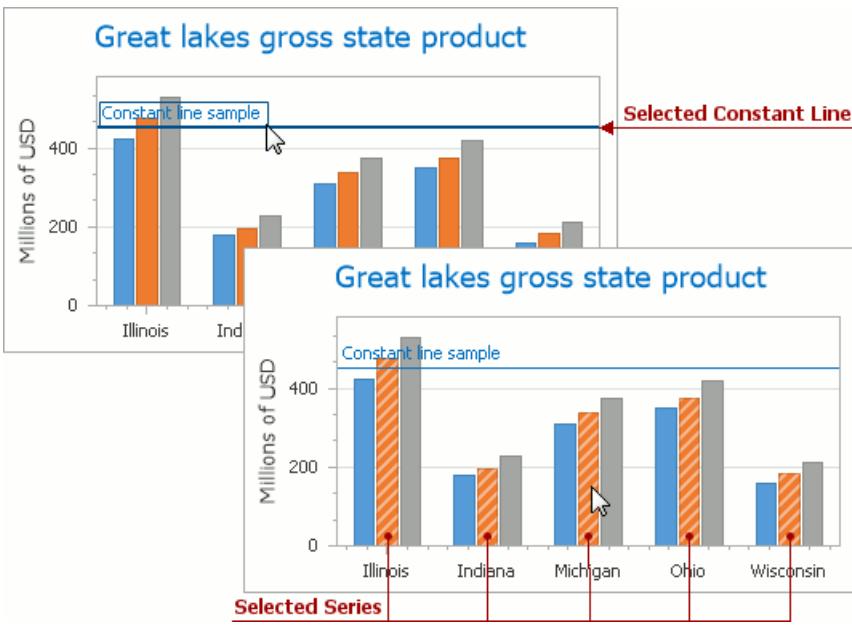


NOTE

Chart element highlighting and selection is available only for **2D Chart Types**.

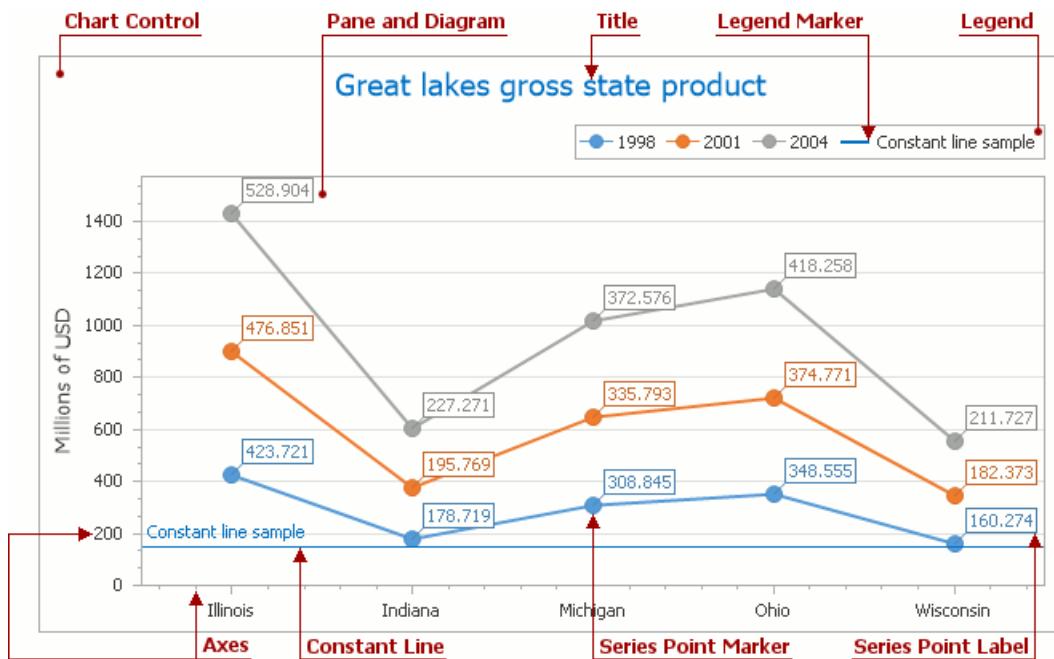
Selection

To select a particular chart element, an end user should tap it on a device supporting touchscreen or click this element using the left mouse button. The following image demonstrates how a constant line and a single series are painted if selected by an end user with the mouse pointer.



Selectable Elements

Chart elements which can be highlighted or selected are shown in the following illustration.



Zoom a Chart

If you are working with 2D XY-charts (Bar, Line, Point, etc.) or 3D charts, you can zoom in or out of a chart. This allows you to see some of the chart's data in greater detail, or get a more general picture of your data.

Note that zooming is unavailable for 2D Pie, 2D Doughnut, Radar, and Polar charts.

Zoom In a Chart

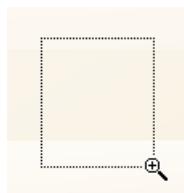
To zoom in a chart, do one of the following.

- **Hold down SHIFT and click.**

After you press SHIFT, the mouse pointer is changed to . Then, move the mouse pointer to the chart region to be zoomed into, and click (while holding SHIFT). The magnification factor is 300%.

- **Press SHIFT and select a region on a diagram.**

After you press SHIFT, the mouse pointer is changed to . Then, select a zoomed region by dragging the mouse pointer.



After releasing the left mouse button, a chart is zoomed into the bounds of the selected region on a diagram.

NOTE

This feature is available for 2D charts only.

If you press SHIFT and can't zoom in anymore (the mouse pointer is changed to) , then a chart is already zoomed in by **100** times (10000%). This is the maximum possible zoom factor allowed.

- **Use CTRL+PLUS SIGN.**

In this case, the magnification factor is 120%.

- **Use the spread gestures on a touchscreen device.**

An end-user can zoom in a chart's diagram performing spread gestures on any device supporting touchscreen.



- **Use the mouse wheel.**

In this case, the magnification factor is 120%.

Zoom Out of a Chart

To zoom out of a chart, do one of the following.

- **Hold down ALT and click.**

After you press ALT, the mouse pointer is changed to . Then, move the mouse pointer to the region to be zoomed out, and click (while holding ALT). The magnification factor is 300%.

- **Use CTRL+MINUS SIGN.**

In this case, the magnification factor is 120%.

- **Use the pinch gestures on a touchscreen device.**

A chart's diagram can be zoomed out by performing pinch gestures on any device supporting touchscreen.



- **Use the mouse wheel.**

In this case, the magnification factor is 120%.

Undo Zooming

Press CTRL+Z to return to the state before the first zoom operation in a series.

Scroll a Chart

You can scroll a chart if either the axis visible range is reduced or a chart is already zoomed in (its zoom factor is more than 100%). Since the entire chart is not visible at one time, it's possible to scroll a chart.

Scroll a 2D Chart

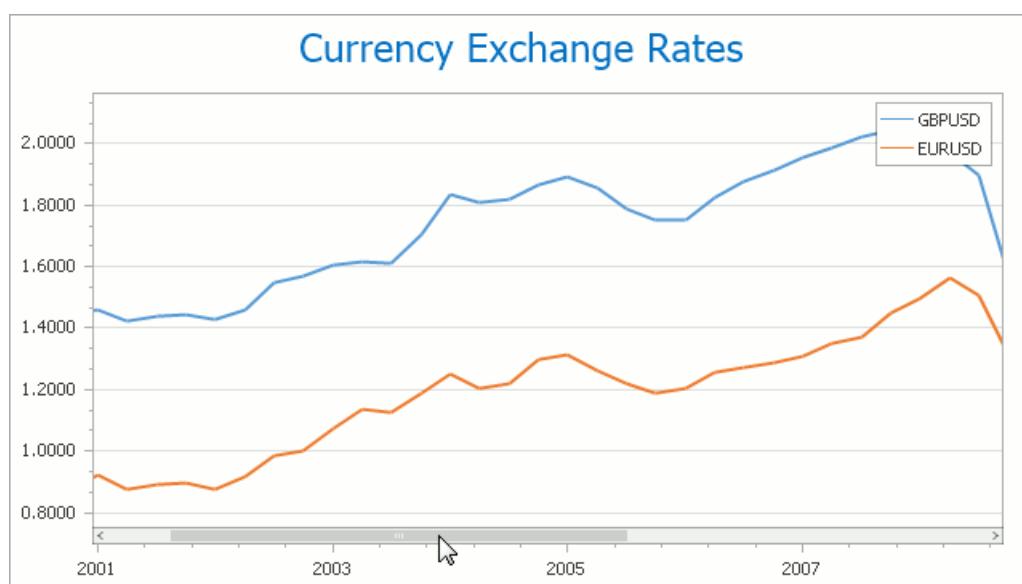
To scroll a 2D chart, do one of the following:

- **Hold down the left mouse button, and drag it.**

After you hold down the left mouse button, the mouse pointer is changed from  to . Then drag the mouse pointer to scroll the diagram.

- **Use scrollbars.**

An end-user is able to click a scrollbar arrow, click the scrollbar near the thumb, or drag the thumb and move it.



In this instance, a chart's diagram is scrolled in the same way as controls in used Windows applications.

- **Use flick gestures on a touchscreen device.**

An end-user can scroll a diagram using flick gestures on a touchscreen device.



- **Use CTRL+ARROW combinations.**

When an end-user presses CTRL + LEFT, a chart's diagram is moved to the left.

When an end-user presses CTRL + UP, a chart's diagram is moved to the top.

When an end-user presses CTRL + RIGHT, a chart's diagram is moved to the right.

When an end-user presses CTRL + DOWN, a chart's diagram is moved to the bottom.

Scroll a 3D Chart

An end-user can perform chart scrolling doing one of the following:

- **Hold down the mouse wheel button on a chart and drag it.**

After you hold down the mouse wheel, the mouse pointer is changed from  to . Then drag the mouse pointer to scroll a chart's diagram.

- **Use CTRL+ARROW combinations.**

- **Use flick gestures on a touchscreen device.**

An end-user can scroll a diagram using flick gestures.

Rotate a Chart

If you are working with 3D charts, you can rotate a chart's diagram. This may be required if a chart displays multiple series or data points, and it's required to change the current rotation angle to view the chart data in detail.

To rotate a chart control, do one of the following:

- **Hold down the left mouse button on the diagram and drag the mouse pointer.**

After holding down the left mouse button, the mouse pointer is changed from  to . Then, drag the mouse pointer to rotate the chart.

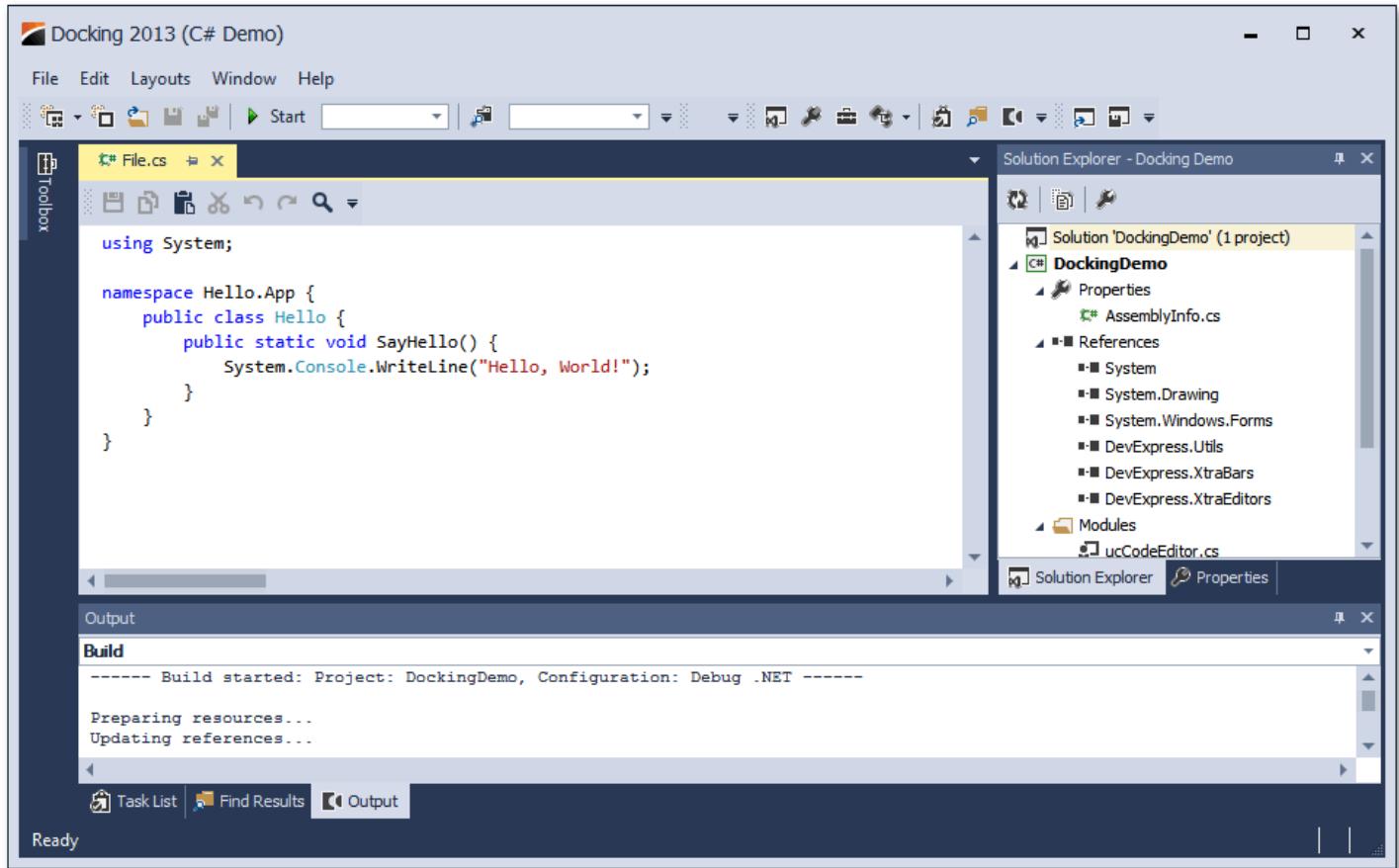
- **Use rotation gestures on a touchscreen device.**

Touch a 3D chart's area with two fingers and move them in a clockwise or counterclockwise direction.



Docking

In the **Docking** section, you will learn about the main runtime capabilities of the DocumentManager and DockManager, which can be combined to create traditional docking UI applications (see the image below).



The main elements of the DocumentManager and DockManager components are Documents and Dock panels, respectively. These objects are containers that display content and provide docking functionality – you can drag Documents and Dock Panels into a tab group, dock them to different application dock zones, make them floating or auto-hidden, etc.

This section consists of the following topics.

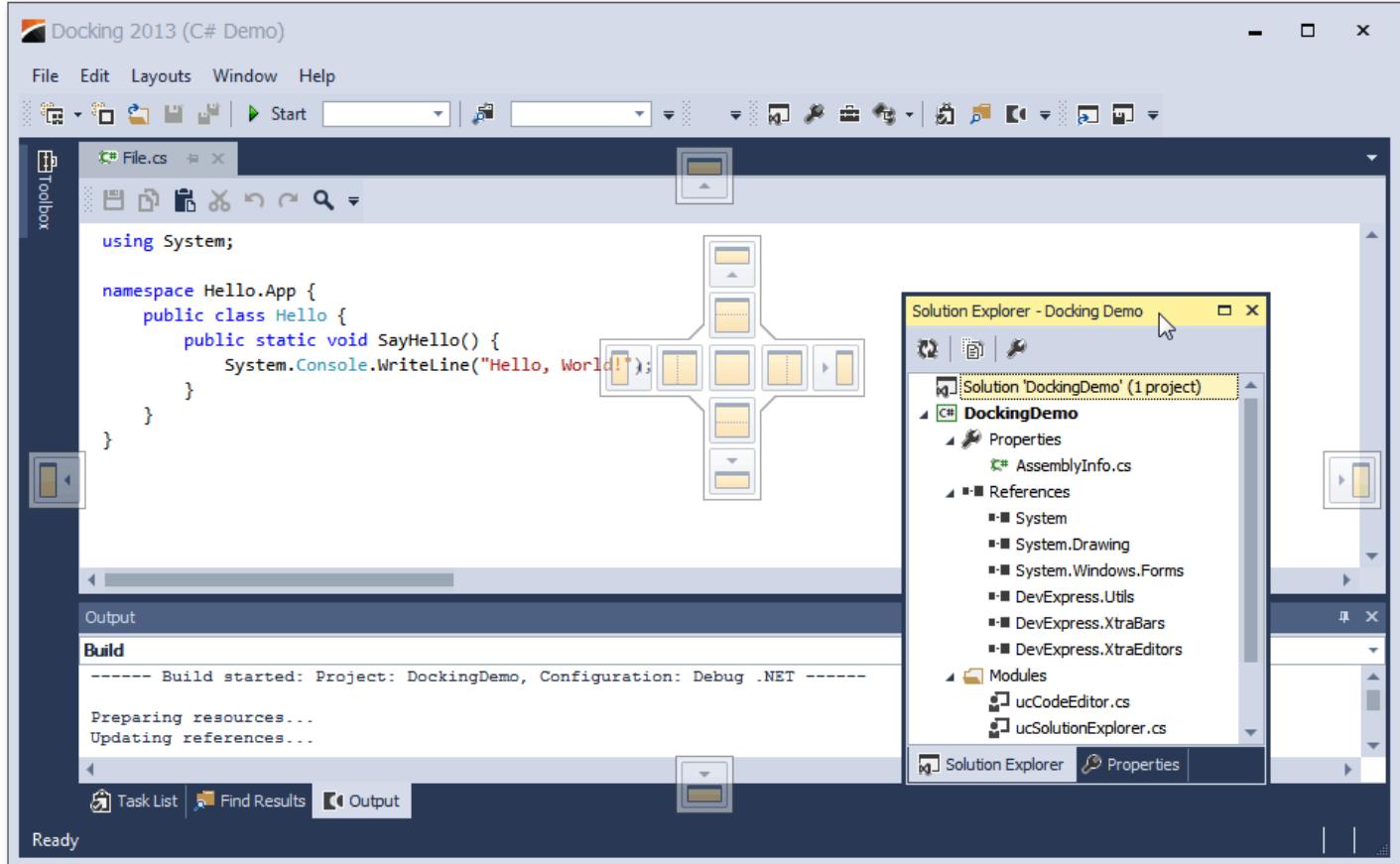
- [Dock Panels](#)
- [Documents](#)

Dock Panels

This topic describes the most common runtime operations for dock panels.

Docking Hints

Dock panels can be docked, floating or auto-hidden. To dock or undock a panel, simply click its header and drag the panel. As you drag the panel over an application form, docking hints appear (see the figure below). Use these hints to dock the panel to the desired position.



Docking hints are semi-transparent square elements that allow you to dock a panel to a form's edges, or to an existing container as a tab, or between other docking elements. These hints are displayed separately or grouped in a docking guide (e.g., in the form's central area). Finally, a docking zone is a semi-transparent preview of exactly where your panel will be docked. This zone is displayed when you drag a panel into a docking hint, but before you drop it.

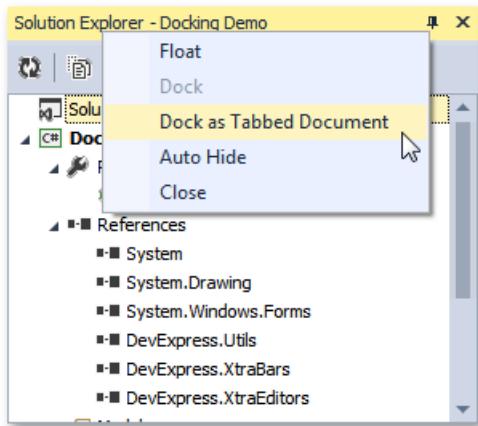
Buttons

Dock panels have multiple state change buttons in their top right corner.

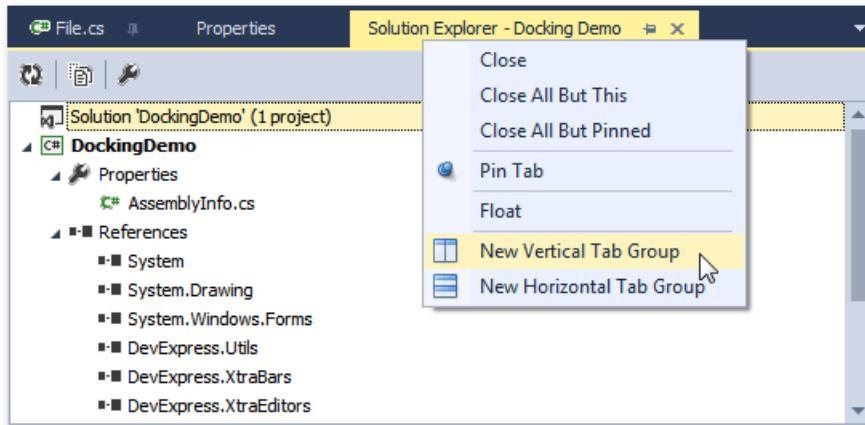
- **Close** - closes the current panel.
- **Maximize/Restore** - maximizes the panel to full-screen size, or restores it back to its original size. Available only for floating panels.
- **Auto-hide/Dock** - hides the panel, leaving only its header visible, or restores an auto-hidden panel back to the docked state. Depending on the application settings, hidden panels are displayed either on mouse hover or on click only. Available only for docked panels.
- **Pin** - places the panel in the first tab position. Available only for panels docked as tabbed documents.

Context Menu

Most docking operations are available from the panel's context menu, displayed on right-click. The figure below illustrates the context menu for a docked panel.

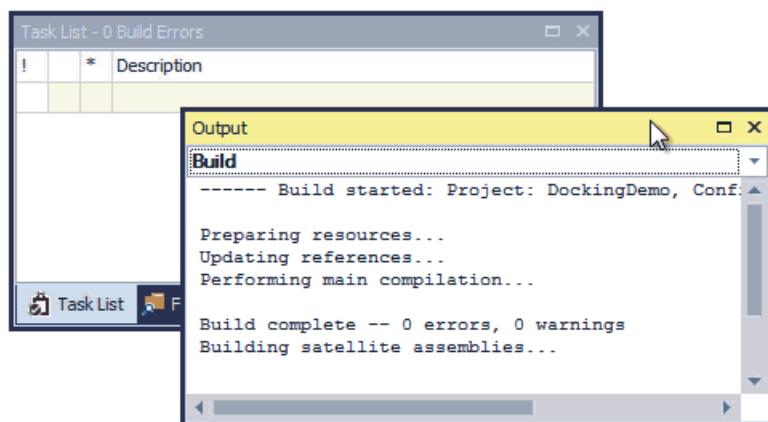


For dock panels docked as tabbed documents, the context menu displays multiple additional items, which allow you to pin the panel or start a new horizontal or vertical group within the docked area (see the image below).



Interoperability with Documents and Other Dock Panels

When dragging a dock panel, you can dock it to other dock panels. This will create a dock panel container that presents both panels as tabs. Note that in addition to docking panels via docking hints, you can also drag them to the tab header area. This allows you to instantly rearrange panels within the container (see the animation below).



Dock panels can be docked to both the dock panel docking areas (the form's edges) as well as to the tabbed View. Documents, however, can only be docked within the tabbed View, and not to the docking areas.

Mouse Operations and Hotkeys

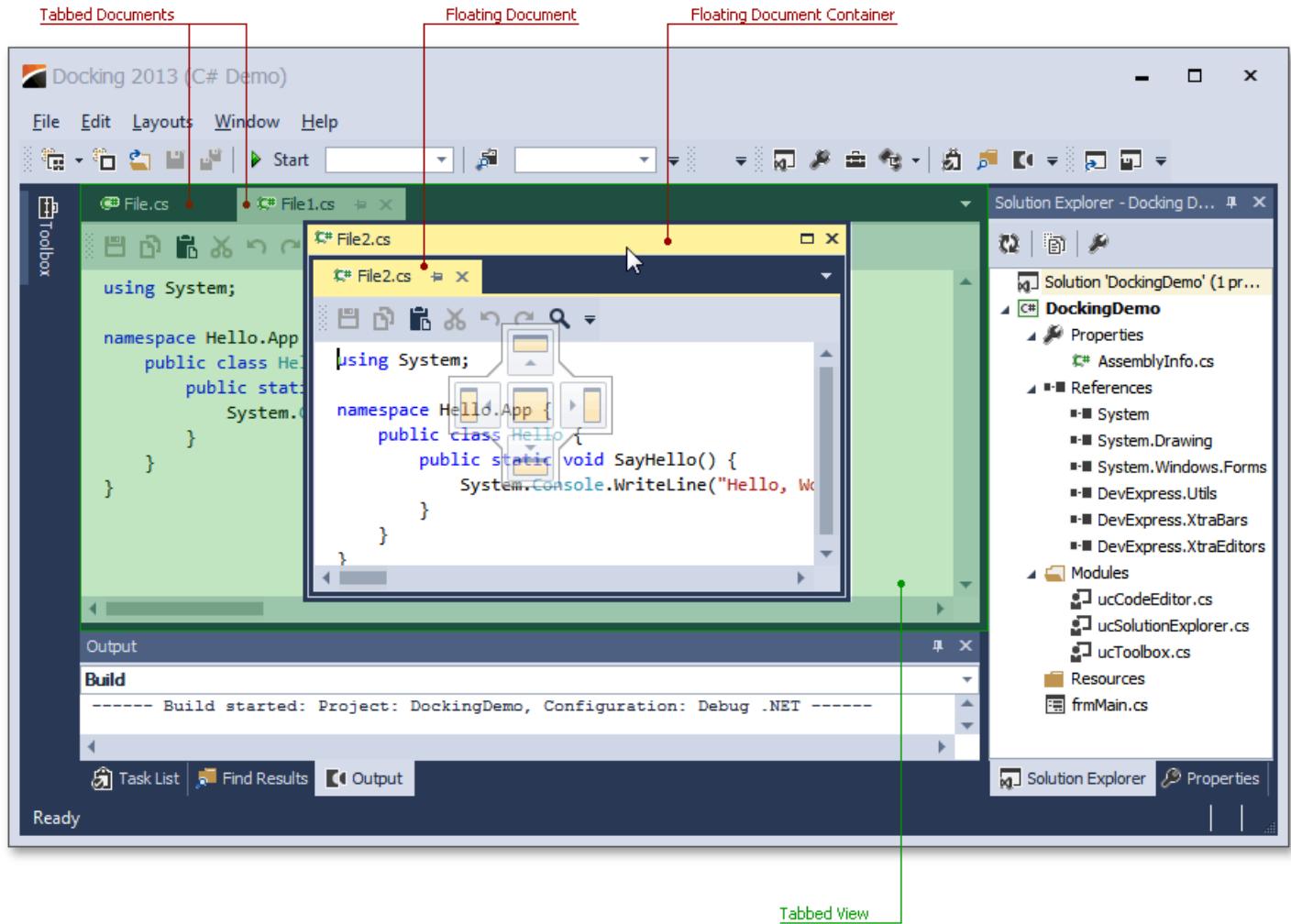
- **Double-click** a docked panel's caption - undocks the panel and makes it floating. This does not work with auto-hide panels.
- **Ctrl+Double-click** a floating panel's caption - docks the floating panel to its previous docking position.
- **Esc** while dragging a panel - cancels the dock operation and drops the panel at the current position.
- **Ctrl+Tab** or **Ctrl+Shift+Tab** - shows the Document Selector. See the [Dock Panels](#) topic to learn more about the Document Selector.

Documents

Document objects resemble dock panels and serve the very same goal - to host content within floating or tabbed MDI windows. You can click a document's caption, and drag this document to dock or undock it in the same manner as dock panels. However, there are certain differences between documents and dock panels.

View

While dock panels can be docked to any form's edge, documents can only be docked in a special area called a tabbed View. When you drag a document, docking hints will tell you where this area is. The image below illustrates a tabbed View within a tabbed MDI application.



Dock panels can also be docked into this area, but documents cannot be docked to auto-hide containers and form edges.

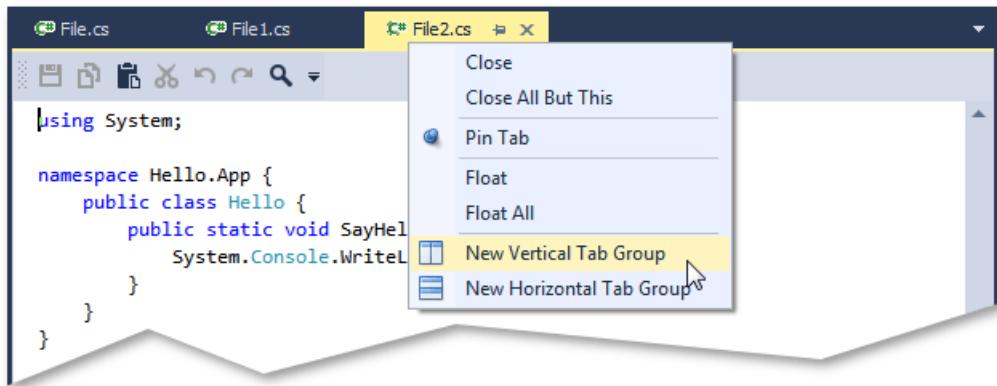
Floating Document Container

As you can see from the image above, documents can be nested into a floating document container. If this feature is enabled, it allows you to organize all of your floating documents in a single floating container (and avoid a cluttered UI with multiple floating windows). If you want to dock your floating documents once again, simply drag this container in the same manner in which you drag documents. Docking a floating container into a tabbed View will dock all of the container's documents into this View. You can also rearrange within or drag individual documents out of this container.

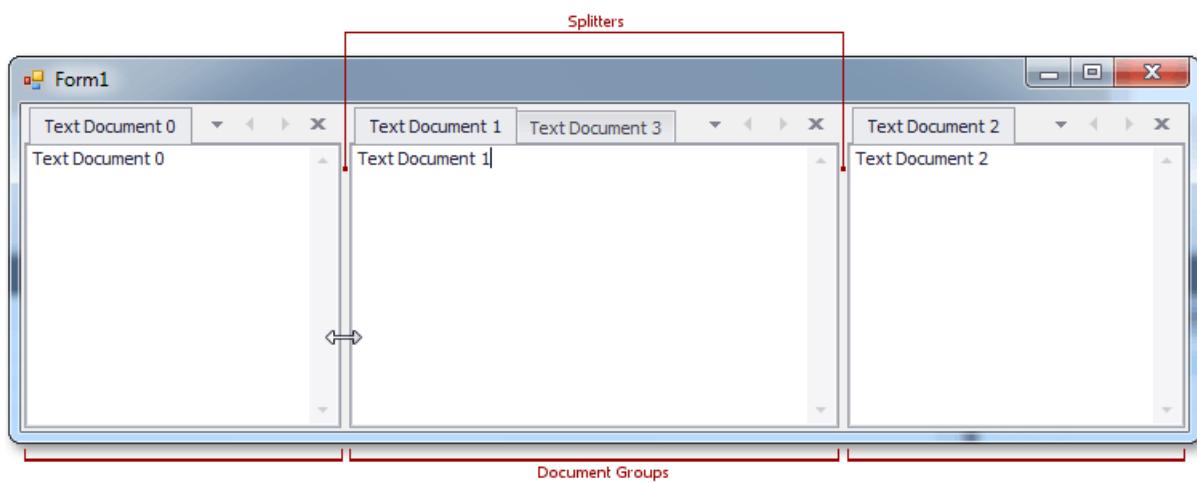
Tabbed Groups

Documents within a tabbed View can be docked to vertical or horizontal document groups. To do so, use the side docking hint when dragging a document, or right-click the document header and select the **New Tab Group** item in the invoked context menu

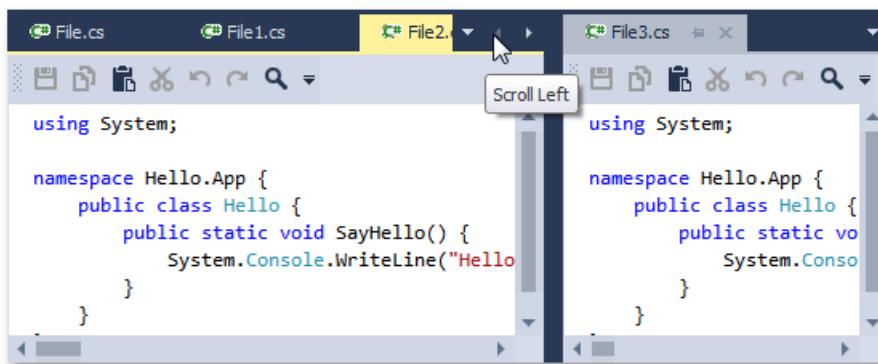
(see the figure below).



Document groups are divided by splitters. You can drag the splitter to resize the groups, as shown in the figure below.



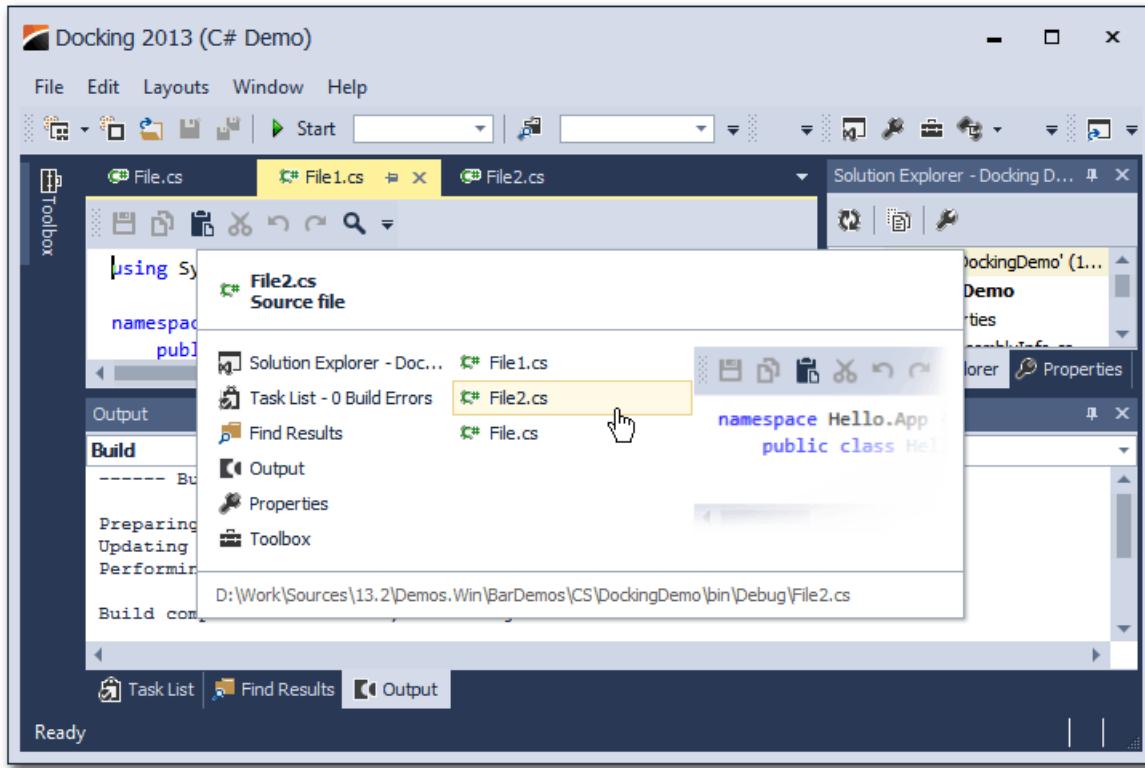
Document groups can display **Next** and **Previous** buttons, which allow you to scroll through tab headers when there is not enough free space within the group to display all of the headers.



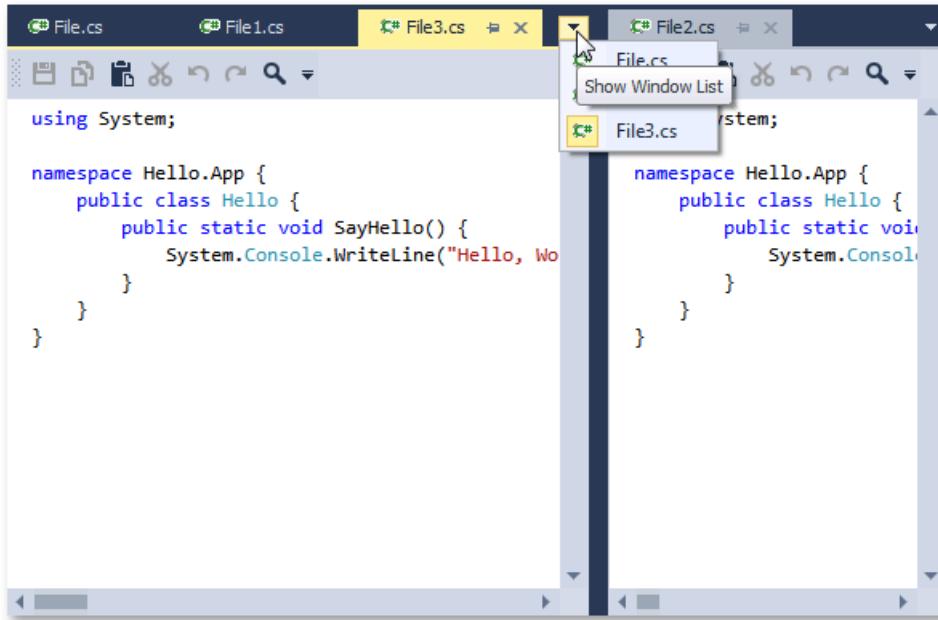
Document groups within a View can either be arranged horizontally (side-by-side), or vertically (one above another), but not in both directions simultaneously. If only one tabbed group exists, the View does not yet have an orientation setting. After you start a new horizontal tab group, for example, the View becomes vertically oriented, which means that all subsequent tab groups can only be arranged vertically. You can reverse the current View orientation by right-clicking any tab group header and selecting the **Arrange Tab Groups Vertically (Horizontally)** context menu item.

Navigation

To navigate through documents (and dock panels, if any exist), you can use the Document Selector, invoked via the **CTRL+Tab** keyboard hotkey. This tool displays a small preview of each focused document (dock panel) and its short description. You can see the Document Selector in the next image.



To quickly navigate through documents, you can also use the button in the group's top right corner.



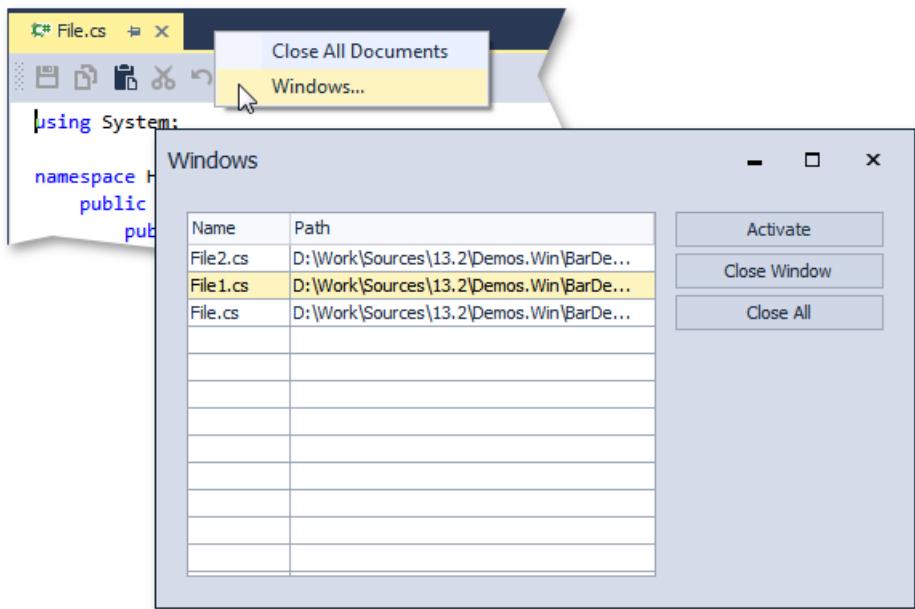
```
using System;

namespace Hello.App {
    public class Hello {
        public static void SayHello() {
            System.Console.WriteLine("Hello, Wo
        }
    }
}
```

```
using System;

namespace Hello.App {
    public class Hello {
        public static void
            System.Console
        }
    }
}
```

Finally, you can right-click a document group's header and select the **Windows...** item to display the Windows dialog, which lists all currently opened documents and their paths (see the image below).

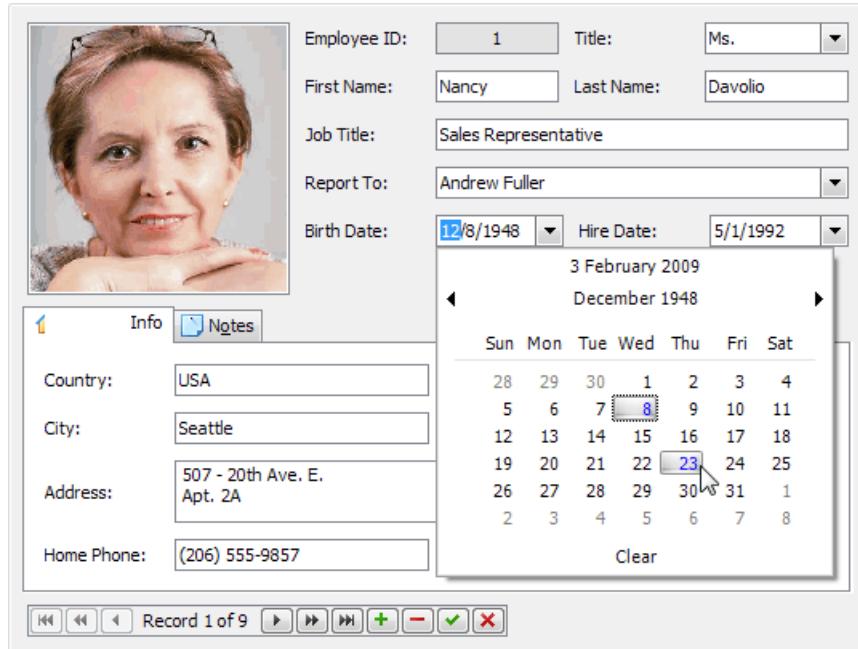


Mouse Operations and Keyboard Shortcuts

- **Double-click** a docked document's caption - undock the document and make it floating.
- **Ctrl+Double-click** a floating document's caption - docks the floating document to its previous docking position.
- **Ctrl+Tab** or **Ctrl+Shift+Tab** - shows the Document Selector.

Editors

This section describes the capabilities provided by the editor controls:



The screenshot shows a Microsoft Access form for editing employee data. At the top left is a photo of Nancy Davolio. To her right are several text input fields: Employee ID (1), Title (Ms.), First Name (Nancy), Last Name (Davolio), Job Title (Sales Representative), Report To (Andrew Fuller), Birth Date (12/8/1948), and Hire Date (5/1/1992). Below these are dropdown menus for Country (USA), City (Seattle), Address (507 - 20th Ave. E., Apt. 2A), and Home Phone ((206) 555-9857). A tabbed section labeled 'Info' is active, while 'Notes' is shown with a blue border. In the center is a date picker calendar for February 2009, with the date 23 highlighted. Navigation buttons at the bottom include double arrows, single arrows, and icons for record selection and modification.

Topics in this section:

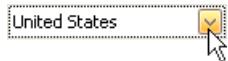
- [Working with Dropdown Editors](#)
- [Editing Values, Selecting Text and Using the Clipboard](#)
- [Editor Context Menu](#)
- [Image Editor](#)
- [Manipulating Tokens](#)

Working with Dropdown Editors

Open Editor's Dropdown

Do one of the following:

- Focus the editor and press ALT+DOWN ARROW or F4.
- Click the editor's dropdown button:



Close Editor's Dropdown

For all editors providing a dropdown, you can close the dropdown by pressing ALT+DOWN ARROW, ESC or F4.

If the calculator is displayed in the dropdown, it can be closed via CTRL+ENTER.

Dropdowns displaying lists of items can be closed by clicking an item with the mouse, or by selecting an item with the keyboard and pressing ENTER.

Editing Values, Selecting Text and Using the Clipboard

Select and Deselect Editor's Contents

To select all text within an editor, you can invoke the [Editor Context Menu](#) and choose **Select All**. To select a part of the edit value, click on a position where the selection should start, drag the pointer to the end position and then release the mouse button.

Additionally, the following keyboard shortcuts allow you to manage selections.

Shortcut	Description
CTRL+A or F2	Selects all within an editor.
SHIFT+ARROW	Extends or shrinks the selection by one character.
CTRL+SHIFT+ARROW	Extends or shrinks the selection by one word.

Clipboard Operations

Clipboard operations are supported for editors that support caret moving.

To copy selected text into the clipboard, do one of the following.

- Press CTRL+C or CTRL+INSERT.
- Open the [Editor Context Menu](#) and select **Copy**.

To paste text from the clipboard, do one of the following.

- Press CTRL+V or SHIFT+INSERT.
- Open the [Editor Context Menu](#) and select **Paste**.

To cut text from an editor into the clipboard, do one of the following.

- Press CTRL+X or SHIFT+DELETE.
- Open the [Editor Context Menu](#) and select **Cut**.

Delete Selected Text

To delete the selected text within an editor, do one of the following.

- Press DELETE or BACKSPACE.
- Open the [Editor Context Menu](#) and select **Delete**.

Undo

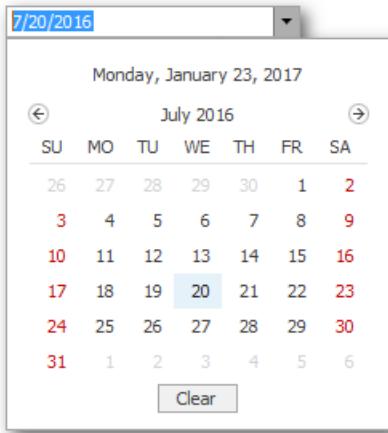
To undo the last text editing operation, do one of the following.

- Press CTRL+Z.
- Open the [Editor Context Menu](#) and select **Undo**.

NOTE

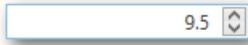
After you've undone an operation, you can return to the previous edit value by executing the Undo command once again.

Change Date/Time Values



You can edit these values without opening the dropdown calendar. Position the caret at the portion of a date/time value that needs to be changed. To increment the value, press the UP ARROW. To decrement the value, press the DOWN ARROW. Or use the mouse wheel.

Change Numeric Values



To increment a value, press the UP ARROW. To decrement the value, press the DOWN ARROW. Alternatively, rotate the wheel button.

Change Binary Values



Click a check box or a toggle switch to change its value.

Change Values of Editors That Display Items in the Dropdown



To select the previous value, press the UP ARROW. To select the next value, press the DOWN ARROW. Alternatively, rotate the wheel button.

To learn how to open and close dropdown windows, see [Working with Dropdown Editors](#).

Navigate hyperlinks

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mailto:buchanan@devexpress.com

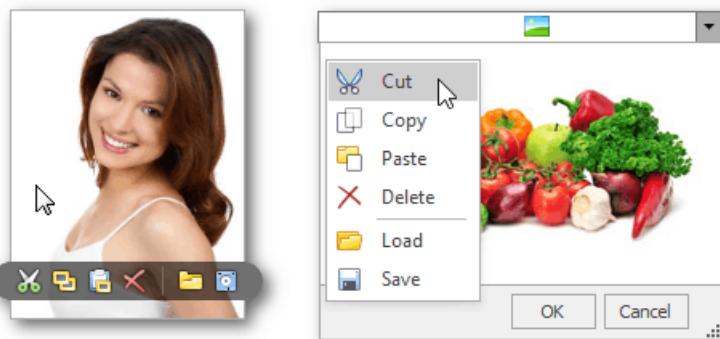
Hover the mouse pointer over a hyperlink to display a tooltip. Click a hyperlink to navigate it.

Edit Images

To copy, cut, paste, load and save images in image editors, select the required command from the image menu. To access the image menu, do one of the following.

- Right click the image editor.
- Hover the mouse pointer over the image editor.

To learn more about image editors, see [Image Editor](#).



Editor Context Menu

Text editors support a context menu providing common commands. To open the menu, right-click an editor.

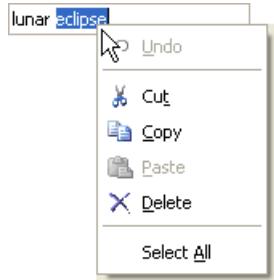


Image Editor

An image editor allows you to load and display images.

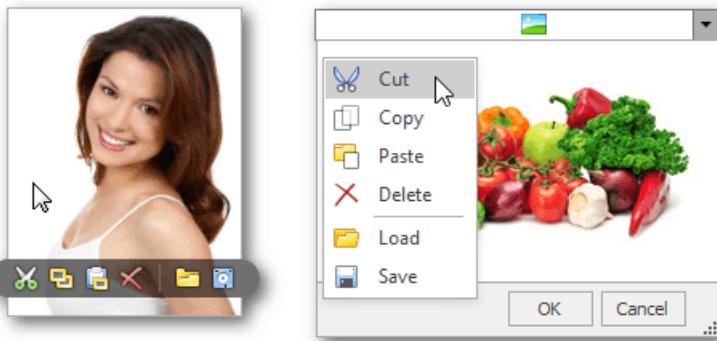
NOTE

The following steps may vary depending on application vendor.

Built-in menu

To access the built-in menu, do one of the following.

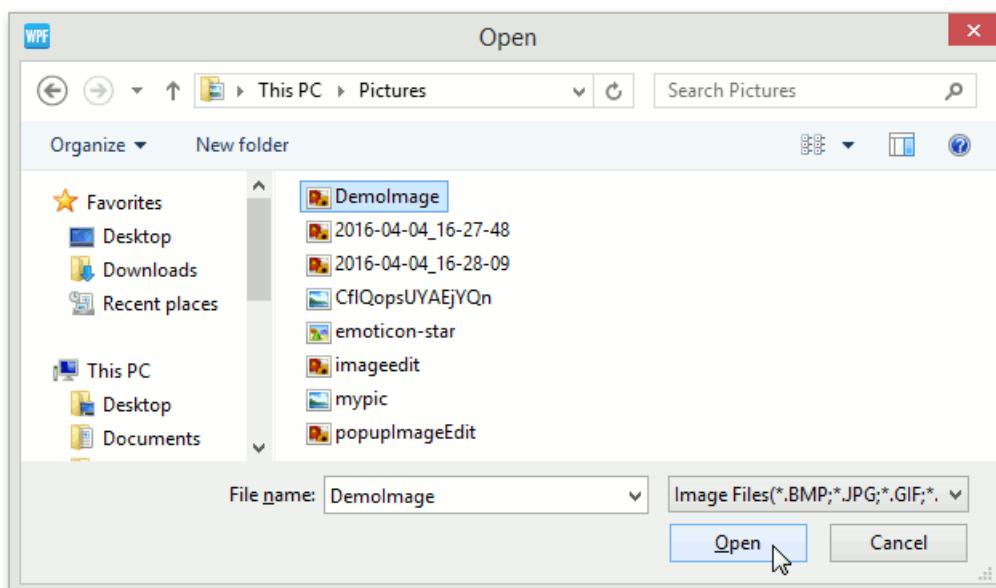
- Hover the mouse pointer over the image editor.
- Right-click the image editor.



Open an image

To load a new image, click the **Open(Load)** button from the built-in menu.

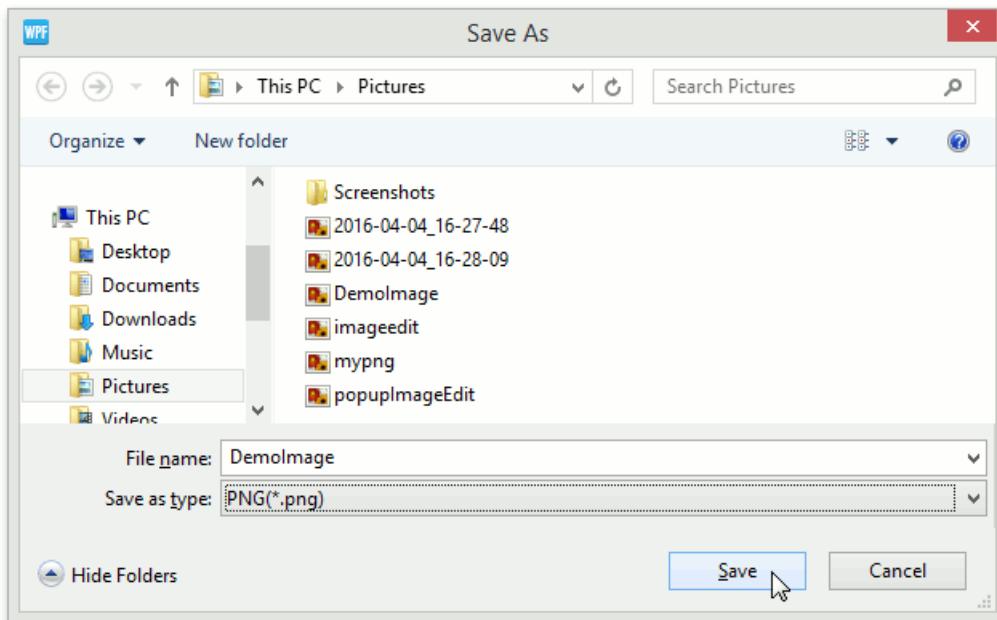
In the invoked dialog, choose an image file and click **Open**.



Save an image

To save the currently displayed image, open the built-in menu and click the **Save** button.

In the invoked dialog, locate the folder where you want to store your image, enter the file name and click **Save**.



Using the clipboard



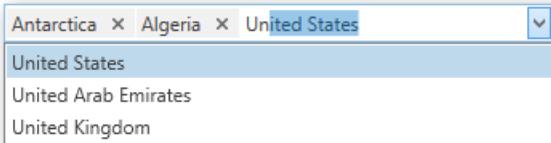
- To cut the currently displayed image and copy it to the clipboard, click the **Cut** button.
- To copy the currently displayed image to the clipboard, click the **Copy** button.
- To retrieve the image from the clipboard, click the **Paste** button.

Clear the editor

Click the **Clear(Delete)** button to clear editor contents.

Manipulating Tokens

Add a Token

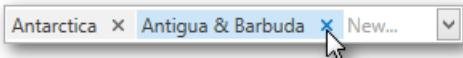


To add a new token, do any of the following.

- Click an item from the dropdown.
- Type the item name in the text field and press ENTER.

Rotate the wheel button to scroll through items. Press the UP ARROW or DOWN ARROW to navigate the items one by one.

Remove a Token



To remove a token, click the **Remove Token** button.

Clipboard Operations



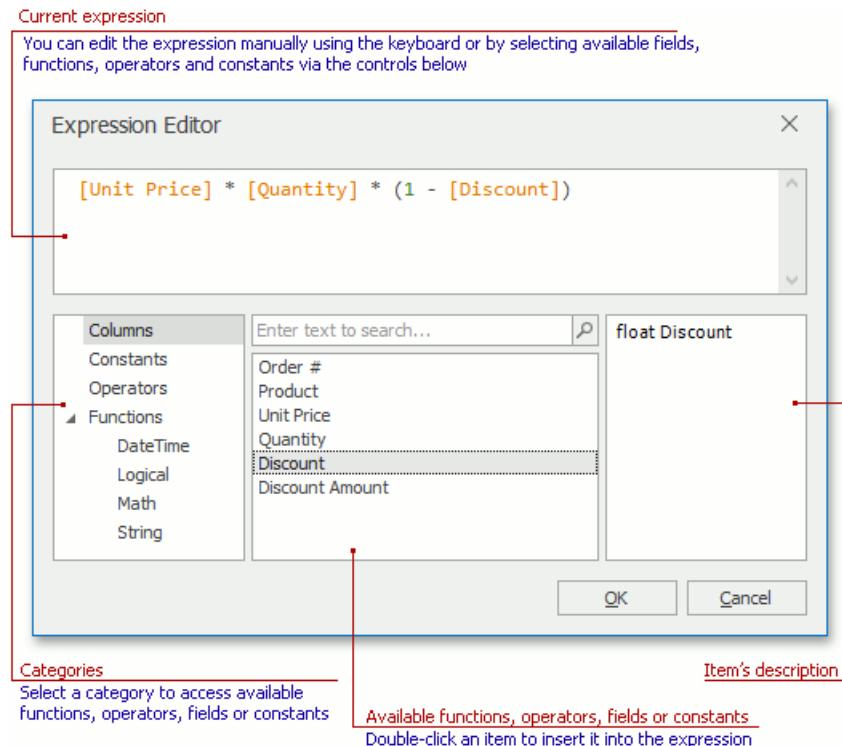
To select multiple tokens, click each token you want to select while holding down the CTRL button.

To copy selected tokens to the clipboard, press CTRL+C.

To paste the tokens from the clipboard, click within a token editor and press CTRL+V.

Expression Editor

The Expression Editor allows you to edit various Boolean or regular expressions in controls:



In this editor, you can type an expression manually, or select functions, operators and operands using the editor's controls.

An expression is a string that, when parsed and processed, evaluates some value. Expressions consist of column/field names, constants, operators and functions. Column/field names must be wrapped with brackets. The following are examples of regular expressions:

"[Quantity] * [UnitPrice] * (1 - [BonusAmount])"

Boolean expressions:

"[Country] == 'USA'"

For more information about syntax you can use in expressions, see [Expression Operators, Functions and Constants](#)

The Expression Editor supports numerous standard functions, allowing you to easily perform different string, date-time, logical and math operations over data. You can access the available functions by selecting the **Functions** category.

Expression Operators, Functions and Constants

This topic lists operators and functions supported by the [Expression Editor](#). It also provides information on how constants can be specified in expressions.

The following DevExpress products extend and/or override this syntax. The table below lists the articles that explain how to use expressions in these products.

PRODUCT	ARTICLE
Reporting	Expression Constants, Operators, and Functions
Pivot Grid	Pivot Grid Expression Syntax

Operators

OPERATOR	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY *SEE NOTE
+	Adds the value of one numeric expression to another, or concatenates two strings.	[FirstName] + '' + [LastName]; [UnitPrice] + 4	Yes
-	Finds the difference between two numbers.	[Price1] - [Price2]	Yes
*	Multiplies the value of two expressions.	[Quantity] * [UnitPrice] * (1 - [BonusAmount])	Yes
/	Divides the first operand by the second.	[Quantity] / 2	Yes
%	Returns the remainder (modulus) obtained by dividing one numeric expression into another.	[Quantity] % 3	Yes
	Compares each bit of its first operand to the corresponding bit of its second operand. If either bit is 1, the corresponding result bit is set to 1. Otherwise, the corresponding result bit is set to 0.	[Number] [Number]	Yes
&	Performs a bitwise logical AND operation between two integer values.	[Number] & 10	Yes
^	Performs a logical exclusion on two Boolean expressions, or a bitwise exclusion on two numeric expressions.	[Number1] ^ [Number2]	Yes
== (as well as =)	Returns true if both operands have the same value; otherwise, it returns false.	[Quantity] == 10 (as well as [ID] = 11)	Yes
!=	Returns true if the operands do not have the same value; otherwise, it returns false.	[Country] != 'France'	Yes
<	Less than operator. Used to compare expressions.	[UnitPrice] < 20	Yes

OPERATOR	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY *SEE NOTE
<=	Less than or equal to operator. Used to compare expressions.	[UnitPrice] <= 20	Yes
>=	Greater than or equal to operator. Used to compare expressions.	[UnitPrice] > 30	Yes
>	Greater than operator. Used to compare expressions.	[UnitPrice] >= 30	Yes
In (,,)	Tests for the existence of a property in an object.	[Country] In ('USA', 'UK', 'Italy')	Yes
Like	Compares a string against a pattern. If the value of the string matches the pattern, result is true. If the string does not match the pattern, result is false. If both string and pattern are empty strings, the result is true.	[Name] Like 'An%'	Yes
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)	Yes
And	Performs a logical conjunction on two expressions.	[InStock] And ([ExtendedPrice]> 100)	Yes
Or	Performs a logical disjunction on two Boolean expressions.	[Country]=='USA' Or [Country]=='UK'	Yes
Not	Performs logical negation on an expression.	Not [InStock]	Yes
+	Returns a numeric expression's value (a unary operator).	+ [Value] = 10	Yes
-	Returns the negative of a numeric expression's value (a unary operator).	- [Value] = 20	Yes
~	Performs a bitwise negation on a numeric expression.	~ [Roles] = 251	-
Is null	Returns true if an expression is a null reference, the one that does not refer to any object.	[Region] is null	yes

Functions

Aggregate Functions

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY *SEE NOTE
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()	-

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY *SEE NOTE
Exists()	Determines whether the object exists in the collection.	[Categories]#[CategoryID] == 7].Exists()	-
Max(Value)	Returns the maximum expression value in a collection.	[Products].Max([UnitPrice])	-
Min(Value)	Returns the minimum expression value in a collection.	[Products].Min([UnitPrice])	-
Single()	Returns a single object from a collection that contains no more than one object. If the collection contains more objects, use the Condition property to specify a condition. The collection must contain only one object that satisfies the condition; otherwise, the function's behavior is undefined (the function may return an unexpected value or throw an exception). You can pass an expression as a parameter: <i>[Collection].Condition.Single(Expression)</i> . The function returns the Expression value evaluated on an object that meets the specified Condition (optional).	[Accounts].Single() is not null [Collection].Single([Property1]) - returns the found object's property value.	-
Sum(Value)	Returns the sum of all the expression values in the collection.	[Products].Sum([UnitsInStock])	-
A custom aggregate function	Returns a custom expression value for a collection, according to a custom aggregate function. You can call the function directly or pass it as a parameter.	Call a Custom Aggregate Function	-

Date-time Functions

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY *SEE NOTE
AddDays(DateTime, DaysCount)	Returns a date-time value that is the specified number of days away from the specified DateTime.	AddDays([OrderDate], 30)	Yes
AddHours(DateTime, HoursCount)	Returns a date-time value that is the specified number of hours away from the specified DateTime.	AddHours([StartTime], 2)	Yes
AddMilliseconds(DateTime, MillisecondsCount)	Returns a date-time value that is the specified number of milliseconds away from the specified DateTime.	AddMilliseconds([StartTime], 5000))	-
AddMinutes(DateTime, MinutesCount)	Returns a date-time value that is the specified number of minutes away from the specified DateTime.	AddMinutes([StartTime], 30)	Yes
AddMonths(DateTime, MonthsCount)	Returns a date-time value that is the specified number of months away from the specified DateTime.	AddMonths([OrderDate], 1)	Yes

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY <small>*SEE NOTE</small>
AddSeconds(DateTime, SecondsCount)	Returns a date-time value that is the specified number of seconds away from the specified DateTime.	AddSeconds([StartTime], 60)	Yes
AddTicks(DateTime, TicksCount)	Returns a date-time value that is the specified number of ticks away from the specified DateTime.	AddTicks([StartTime], 5000)	-
AddTimeSpan(DateTime, TimeSpan)	Returns a date-time value that is away 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 away from the specieid DateTime.	AddYears([EndDate], -1)	Yes
DateDiffDay(startDate, endDate)	Returns the number of day boundaries between two non-nullable dates.	DateDiffDay([StartTime], Now())	Yes
DateDiffHour(startDate, endDate)	Returns the number of hour boundaries between two non-nullable dates.	DateDiffHour([StartTime], Now())	Yes
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())	Yes
DateDiffMonth(startDate, endDate)	Returns the number of month boundaries between two non-nullable dates.	DateDiffMonth([StartTime], Now())	Yes
DateDiffSecond(startDate, endDate)	Returns the number of second boundaries between two non-nullable dates.	DateDiffSecond([StartTime], Now())	Yes
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())	Yes
GetDate(DateTime)	Extracts a date from the defined DateTime.	GetDate([OrderDateTime])	

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY *SEE NOTE
GetDay(DateTime)	Extracts a day from the defined DateTime.	GetDay([OrderDate])	Yes
GetDayOfWeek(DateTime)	Extracts a day of the week from the defined DateTime.	GetDayOfWeek([OrderDate])	Yes
GetDayOfYear(DateTime)	Extracts a day of the year from the defined DateTime.	GetDayOfYear([OrderDate])	Yes
GetHour(DateTime)	Extracts an hour from the defined DateTime.	GetHour([StartTime])	Yes
GetMillisecond(DateTime)	Extracts milliseconds from the defined DateTime.	GetMillisecond([StartTime])	-
GetMinute(DateTime)	Extracts minutes from the defined DateTime.	GetMinute([StartTime])	Yes
GetMonth(DateTime)	Extracts a month from the defined DateTime.	GetMonth([StartTime])	Yes
GetSecond(DateTime)	Extracts seconds from the defined DateTime.	GetSecond([StartTime])	Yes
GetTimeOfDay(DateTime)	Extracts the time of the day from the defined DateTime, in ticks.	GetTimeOfDay([StartTime])	-
GetYear(DateTime)	Extracts a year from the defined DateTime.	GetYear([StartTime])	Yes
IsApril(DateTime)	Returns True if the specified date falls within April.	IsApril([OrderDate])	Yes
IsAugust(DateTime)	Returns True if the specified date falls within August.	IsAugust([OrderDate])	Yes
IsDecember(DateTime)	Returns True if the specified date falls within December.	IsDecember([OrderDate])	Yes
IsFebruary(DateTime)	Returns True if the specified date falls within February.	IsFebruary([OrderDate])	Yes
IsJanuary(DateTime)	Returns True if the specified date falls within January.	IsJanuary([OrderDate])	Yes
IsJuly(DateTime)	Returns True if the specified date falls within July.	IsJuly([OrderDate])	Yes
IsJune(DateTime)	Returns True if the specified date falls within June.	IsJune([OrderDate])	Yes

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY <small>*SEE NOTE</small>
IsLastMonth(DateTime)	Returns True if the specified date falls within the previous month.	IsLastMonth([OrderDate])	Yes
IsLastYear(DateTime)	Returns True if the specified date falls within the previous year.	IsLastYear([OrderDate])	Yes
IsMarch(DateTime)	Returns True if the specified date falls within March.	IsMarch([OrderDate])	Yes
IsMay(DateTime)	Returns True if the specified date falls within May.	IsMay([OrderDate])	Yes
IsNextMonth(DateTime)	Returns True if the specified date falls within the next month.	IsNextMonth([OrderDate])	Yes
IsNextYear(DateTime)	Returns True if the specified date falls within the next year.	IsNextYear([OrderDate])	Yes
IsNovember(DateTime)	Returns True if the specified date falls within November.	IsNovember([OrderDate])	Yes
IsOctober(DateTime)	Returns True if the specified date falls within October.	IsOctober([OrderDate])	Yes
IsSameDay(DateTime)	Returns True if the specified date/time values fall within the same day.	IsSameDay([OrderDate])	Yes
IsSeptember(DateTime)	Returns True if the specified date falls within September.	IsSeptember([OrderDate])	Yes
IsThisMonth(DateTime)	Returns True if the specified date falls within the current month.	IsThisMonth([OrderDate])	Yes
IsThisWeek(DateTime)	Returns True if the specified date falls within the current week.	IsThisWeek([OrderDate])	Yes
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])	Yes
IsThisYear(DateTime)	Returns True if the specified date falls within the current year.	IsThisYear([OrderDate])	Yes
LocalDateTimeDayAfterTomorrow()	Returns a date-time value corresponding to the day after Tomorrow.	AddDays(LocalDateTimeDayAfterTomorrow(), 5)	Yes

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY <small>*SEE NOTE</small>
LocalDateTimeLastMonth()	Returns the DateTime value corresponding to the first day of the previous month.	AddMonths(LocalDateTimeLastMonth(), 5)	Yes
LocalDateTimeLastWeek()	Returns a date-time value corresponding to the first day of the previous week.	AddDays(LocalDateTimeLastWeek(), 5)	Yes
LocalDateTimeLastYear()	Returns the DateTime value corresponding to the first day of the previous year.	AddYears(LocalDateTimeLastYear(), 5)	Yes
LocalDateTimeNextMonth()	Returns a date-time value corresponding to the first day of the next month.	AddMonths(LocalDateTimeNextMonth(), 5)	Yes
LocalDateTimeNextWeek()	Returns a date-time value corresponding to the first day of the following week.	AddDays(LocalDateTimeNextWeek(), 5)	Yes
LocalDateTimeNextYear()	Returns a date-time value corresponding to the first day of the following year.	AddYears(LocalDateTimeNextYear(), 5)	Yes
LocalDateTimeNow()	Returns a date-time value corresponding to the current moment in time.	AddDays(LocalDateTimeNow(), 5)	Yes
LocalDateTimeThisMonth()	Returns a date-time value corresponding to the first day of the current month.	AddMonths(LocalDateTimeThisMonth(), 5)	Yes
LocalDateTimeThisWeek()	Returns a date-time value corresponding to the first day of the current week.	AddDays(LocalDateTimeThisWeek(), 5)	Yes
LocalDateTimeThisYear()	Returns a date-time value corresponding to the first day of the current year.	AddYears(LocalDateTimeThisYear(), 5)	Yes
LocalDateTimeToday()	Returns a date-time value corresponding to Today.	AddDays(LocalDateTimeToday(), 5)	Yes
LocalDateTimeTomorrow()	Returns a date-time value corresponding to Tomorrow.	AddDays(LocalDateTimeTomorrow(), 5)	Yes
LocalDateTimeTwoMonthsAway()	Returns the DateTime value corresponding to the first day of the following month.	AddMonths(LocalDateTimeTwoMonthAway(), 5)	Yes

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY *SEE NOTE
LocalDateTimeTwoWeeksAway()	Returns the DateTime value corresponding to the first day of the following week.	AddDays(LocalDateTimeTwoWeeksAway(), 5)	Yes
LocalDateTimeTwoYearsAway()	Returns the DateTime value corresponding to the first day of the following year.	AddYears(LocalDateTimeTwoYearsAway(), 5)	Yes
LocalDateTimeYearBeforeToday()	Returns the DateTime value corresponding to the day one year ago.	AddYears(LocalDateTimeYearBeforeToday(), 5)	Yes
LocalDateTimeYesterday()	Returns a date-time value corresponding to Yesterday.	AddDays(LocalDateTimeYesterday(), 5)	Yes
Now()	Returns the current system date and time.	AddDays(Now(), 5)	Yes
Today()	Returns the current date. Regardless of the actual time, this function returns midnight of the current date.	AddMonths(Today(), 1)	Yes
UtcNow()	Returns the current system date and time, expressed as Coordinated Universal Time (UTC).	AddDays(UtcNow(), 7)	-

Logical Functions

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY *SEE NOTE
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.	Iif(Name = 'Bob', 1, 0) Iif(Name = 'Bob', 1, Name = 'Dan', 2, Name = 'Sam', 3, 0)	Yes
IsNull(Value)	Returns True if the specified Value is NULL.	IsNull([OrderDate])	Yes
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])	Yes

Math Functions

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT-FRIENDLY *SEE NOTE
Abs(Value)	Returns the absolute, positive value of the given numeric expression.	Abs(1 - [Discount])	Yes
Acos(Value)	Returns the arccosine of a number (the angle, in radians, whose cosine is the given float expression).	Acos([Value])	Yes
Asin(Value)	Returns the arcsine of a number (the angle, in radians, whose sine is the given float expression).	Asin([Value])	Yes
Atn(Value)	Returns the arctangent of a number (the angle, in radians, whose tangent is the given float expression).	Atn([Value])	Yes
Atn2(Value1, Value2)	Returns the angle whose tangent is the quotient of two specified numbers, in radians.	Atn2([Value1], [Value2])	Yes
BigMul(Value1, Value2)	Returns an Int64 containing the full product of two specified 32-bit numbers.	BigMul([Amount], [Quantity])	-
Ceiling(Value)	Returns the smallest integer that is greater than or equal to the given numeric expression.	Ceiling([Value])	Yes
Cos(Value)	Returns the cosine of the angle defined in radians.	Cos([Value])	Yes
Cosh(Value)	Returns the hyperbolic cosine of the angle defined in radians.	Cosh([Value])	Yes
Exp(Value)	Returns the exponential value of the given float expression.	Exp([Value])	Yes
Floor(Value)	Returns the largest integer less than or equal to the given numeric expression.	Floor([Value])	Yes
Log(Value)	Returns the natural logarithm of a specified number.	Log([Value])	Yes
Log(Value, Base)	Returns the logarithm of a specified number in a specified Base.	Log([Value], 2)	Yes
Log10(Value)	Returns the base 10 logarithm of a specified number.	Log10([Value])	Yes
Max(Value1, Value2)	Returns the maximum value from the specified values.	Max([Value1], [Value2])	Yes
Min(Value1, Value2)	Returns the minimum value from the specified values.	Min([Value1], [Value2])	Yes
Power(Value, Power)	Returns a specified number raised to a specified power.	Power([Value], 3)	Yes
Rnd()	Returns a random number that is less than 1, but greater than or equal to zero.	Rnd()*100	Yes
Round(Value)	Rounds the given value to the nearest integer.	Round([Value])	Yes
Sign(Value)	Returns the positive (+1), zero (0), or negative (-1) sign of the given expression.	Sign([Value])	Yes

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT-FRIENDLY *SEE NOTE
Sin(Value)	Returns the sine of the angle, defined in radians.	Sin([Value])	Yes
Sinh(Value)	Returns the hyperbolic sine of the angle defined in radians.	Sinh([Value])	Yes
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])	Yes
Tanh(Value)	Returns the hyperbolic tangent of the angle defined in radians.	Tanh([Value])	Yes
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])	-
ToFloating(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])	-

String Functions

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT-FRIENDLY *SEE NOTE
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)	Yes
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 the result of concatenating two or more string values.	Concat('A', '!', [ProductName])	Yes
Contains(String1, SubString1)	Returns True if SubString1 occurs within String1; otherwise, False is returned.	Contains([ProductName], 'dairy')	Yes
EndsWith(String1, SubString1)	Returns True if the end of String1 matches SubString1; otherwise, False is returned.	EndsWith([Description], 'The end.')	Yes

FUNCTION	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY <small>*SEE NOTE</small>
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])	Yes
Lower(String)	Returns String in lowercase.	Lower([ProductName])	Yes
PadLeft(String, Length)	Left-aligns characters in the defined string, padding its left side with white space characters up to a specified total length.		-
PadLeft(String, Length, Char)	Left-aligns characters in the defined string, padding its left side with the specified Char up to a specified total length.	PadLeft([Name], 30, '<')	-
PadRight(String, Length)	Right-aligns characters in the defined string, padding its left side with white space characters up to a specified total length.	PadRight([Name], 30)	-
PadRight(String, Length, Char)	Right-aligns characters in the defined string, padding its left side with the specified Char up to a specified total length.	PadRight([Name], 30, '>')	-
Remove(String, StartPosition, Length)	Deletes a specified number of characters from this instance, beginning at a specified position.	Remove([Name], 0, 3)	-
Replace(String, SubString2, String3)	Returns a copy of String1, in which SubString2 has been replaced with String3.	Replace([Name], 'The ', '')	-
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')	Yes
Substring(String, StartPosition, Length)	Retrieves a substring from String. The substring starts at StartPosition and has the specified Length..	Substring([Description], 2, 3)	Yes
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])	Yes
Upper(String)	Returns String in uppercase.	Upper([ProductName])	Yes

Constants

CONSTANT	DESCRIPTION	EXAMPLE	XLS(X) FORMAT EXPORT- FRIENDLY *SEE NOTE
String constants	String constants must be wrapped in apostrophes.	[Country] == 'France'	Yes
String constants (with apostrophe)	If a string contains an apostrophe, the apostrophe must be doubled.	[Name] == 'O''Neil'	Yes
Date-time constants	Date-time constants must be wrapped in '#'.	[OrderDate] >= #1/1/2009#	Yes
True	Represents the Boolean True value.	[InStock] == True	Yes
False	Represents the Boolean False value.	[InStock] == False	Yes
?	Represents a null reference that does not refer to any object. We recommend using the IsNull unary operator (for example, "[Region] is null") or the IsNull logical function (for example, "IsNull([Region])") instead.	[Region] != ?	Yes
Enumeration	Specify an enumeration value using 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-abc4-0ea12c72c1f}	Yes
Numeric	Specify different numeric constant types in a string form using suffixes: * Int32 (int) - 1 * Int16 (short) - 1s * Byte (byte) - 1b * Double (double) - 1.0 * Single (float) - 1.0f * Decimal (decimal) - 1.0m	[Price] == 25.0m	Yes

You can build parameterized criteria using any number of positional parameters. To do this, add parameter placeholders (question mark characters) to a criteria expression to identify parameter positions and provide a list of parameter values. When building criteria, parameter placeholders are substituted with parameter values in values in the order they are listed.

```
CriteriaOperator.Parse("[Name] == ? and [Age] == ?", "John", 33)
```

The following two examples are identical, but the second one allows you to avoid formatting errors.

```
CriteriaOperator.Parse("[OrderDate] >= #1/1/2009#")
```

```
CriteriaOperator.Parse("[OrderDate] >= ?", new DateTime(2009, 1, 1))
```

When parameters are not specified, a parameter placeholder is substituted with null.

```
CriteriaOperator.Parse("[Region] != ?")
```

Collection Elements Verification

Use brackets "[]" to check if a collection contains an element that satisfies a condition. The following expression returns true if the

Accounts collection contains at least one element that satisfies the `[Amount] == 100` condition:

```
[Accounts][[Amount] == 100]
```

The following expression returns false if the Accounts collection is empty:

```
[Accounts][]
```

Parent Relating Operator

Use the parent relating operator ('^' character) to refer to a parent in expressions written in the context of a child. You can apply this operator successively to navigate multiple parent relationships. In the expression below, the "RegistrationDate" field refers to a Customer (Orders' parent) and the "Date" field refers to Orders. This expression returns true if there is at least one Order that is made on the day the parent Customer is registered:

```
"[Orders][[^.RegistrationDate] == Date]"
```

Grouping Clauses with Brackets

It is important to use brackets to ensure that your expression returns the intended results. For instance, the following expression for objects of the Customer type returns all of the Customers where an Account exists with a Date of 8/25/2006 and where an account exists with an Amount of 100:

```
[Accounts][[Date] == #8/25/2006#] && [Accounts][[Amount] == 100]
```

Construct the expression as in the following example to search for all Customers that have an Account with both a Date of 8/25/2006 and an Amount of 100:

```
[Accounts][[Date] == #8/25/2006#] && [Amount] == 100
```

Operator Precedence

When an expression contains multiple operators, their precedence controls the order in which expression elements are evaluated.

- Literal values
- Parameters
- Identifiers
- OR (left-associative)
- AND (left-associative)
- '.' relationship qualifier (left-associative)
- ==, !=
- <, >, <=, >=
- -, + (left-associative)
- *, /, % (left-associative)
- NOT
- unary -
- In
- lif
- Trim(), Len(), Substring(), IsNull()
- '[]' (for set-restriction)
- '()'

The default precedence can be changed by grouping elements with parentheses. For instance, the operators are performed in a default order in the first of the following two code samples. In the second code sample, the addition operation is performed first, because its associated elements are grouped with parentheses, and the multiplication operation is performed last.

```
Accounts[Amount == 2 + 48 * 2]
```

```
Accounts[Amount == (2 + 48) * 2]
```

Case Sensitivity

Operators are case insensitive. Although field values' case sensitivity depends on the data source.

NOTE

A data source affects certain operators' behavior. For instance, a data source can be configured as case insensitive. In this case, the following expression always evaluates to true: `Lower(Name) == Upper(Name)`

Escaping Keywords

You can mark a keyword-like field name with an escape character (@ sign). In the expression below, the `CriteriaOperator.Parse` method interprets @Or as the field named "Or", not the logical operator OR.

```
@Or = 'value'
```

Escape Characters

Use a backslash (\) as an escape character for characters in expressions. Examples:

- \[
- \\
- \'

Retrieving Reference Properties

Note that while a criteria expression can return an object reference, this is not supported in all scenarios. Returning an object reference by directly referencing a property, as in the following code snippet, is fully supported.

```
"if(Part is null, MyCustOrderLine.Part, Part)"
```

In this code snippet, the Part object, which the Part or MyCustOrderLine.Part property references, is returned correctly. However, retrieving reference properties from functions is not supported. So, the following expression does not work.

```
"if(Part is null, MyCustOrderLine, MyCustOrderLine2).Part"
```

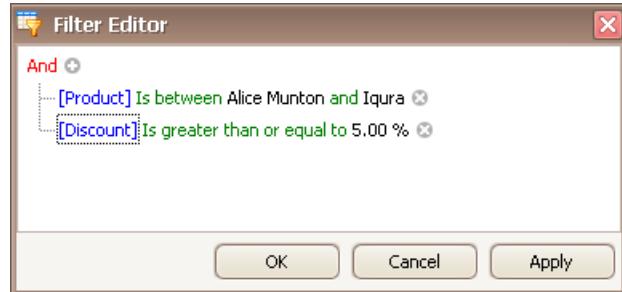
Note - Restrictions

Note the following restriction when exporting DevExpress Data Grid and Tree List controls (WinForms and WPF) to the XLS(X) format in **Data-Aware Export Mode**:

Only expressions that contain export-friendly functions are exported to XLS(X) format. Refer to the **XLS(x) Format Export-Friendly** column in the tables above to find out if a function can be exported to XLS(x) format.

Filter Editor

This section describes the capabilities provided by the Filter Editor, which allows users to visually build filters:



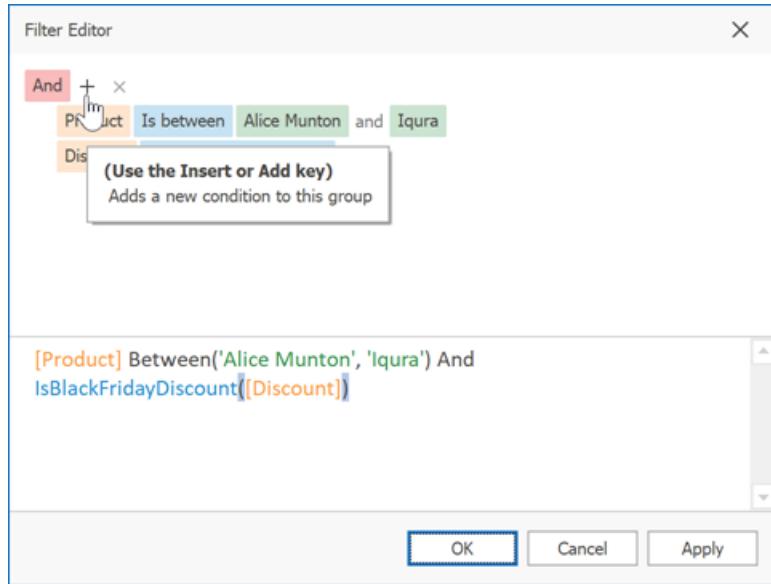
Topics in this section:

- [Filter Data via the Filter Editor](#)
- [Examples of Using the Filter Editor](#)

Filter Data via the Filter Editor

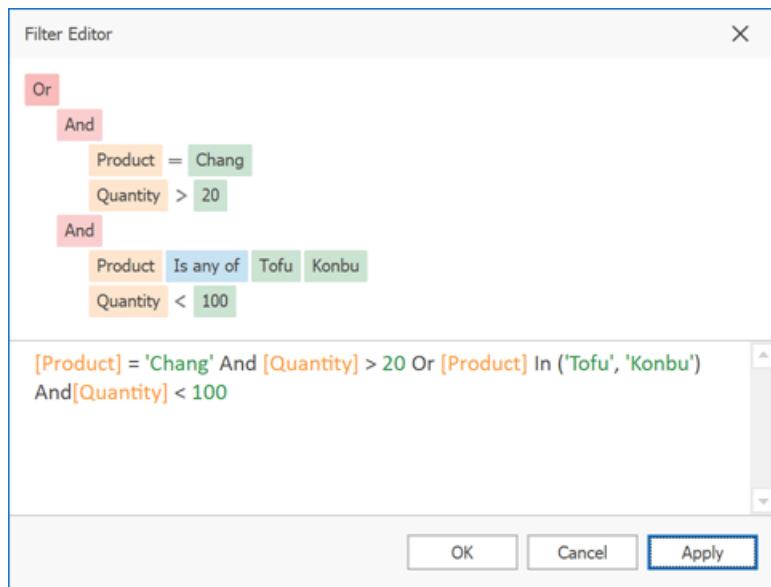
Filter Editor

The **Filter Editor** is used to edit filter criteria. To create and customize filter criteria, use the and buttons embedded into the control and context menus supported by the editor's elements:



Remarks

A filter condition **group** is a set of conditions combined by the same logical operator. The following filter expression contains two groups combined by the logical OR operator: "[Product] = 'Chang' And [Quantity] > 20) Or ([Product] In ('Tofu', 'Konbu') And [Quantity] < 100)". In the Filter Editor it's represented as follows:



For step-by-step examples of creating filter criteria, see [Examples of Using the Filter Editor](#).

Add Conditions

To add a condition to a logical group, do one of the following:

- Focus any condition within the group or the group's logical operator and then press INSERT or ADD on the keyboard.
- Click the button for the group.
- Click the group's logical operator and select **Add Condition**.

To add a condition or a group of conditions that have been copied to the clipboard, press CTRL+V or SHIFT+INSERT. The new condition will be added to the focused group.

Delete Conditions

To delete a condition, do one of the following:

- Focus the condition and press DELETE or SUBTRACT.
- Click the  button.

To delete a group of conditions, do one of the following:

- Focus the group's logical operator and press DELETE or SUBTRACT
- Click the group's logical operator and select **Remove Group**.

To delete all conditions, do one of the following:

- Focus the topmost logical operator and press DELETE or SUBTRACT.
- Click the topmost logical operator and select **Clear All**.

To cut a condition/group of conditions to the clipboard, focus this condition or the group's logical operator and press CTRL+X or SHIFT+DELETE.

Clipboard Operations

To copy a condition or a group of conditions to the clipboard, focus this condition or the group's logical operator and press CTRL+C or CTRL+INSERT.

To cut a condition or a group of conditions to the clipboard, focus this condition or the group's logical operator and press CTRL+X or SHIFT+DELETE.

To paste a condition or a group of conditions from the clipboard to the focused group, press CTRL+V or SHIFT+INSERT.

Change a Column in a Filter Condition

To change a condition's column, invoke the column list by doing one of the following:

- Click the current column.
- Focus the current column via the keyboard and press SPACE or ALT+DOWN ARROW.

Then, choose the required column from the list that will be invoked

Change an Operator in a Filter Condition

To change a condition's operator, invoke the operator list by doing one of the following:

- Click the condition's current operator.
- Focus the current operator via the keyboard and press SPACE or ALT+DOWN ARROW

Then, choose the required operator from the list that will be invoked

Edit a Condition's Value

To edit a condition's value, click the operand value and type text.

To activate the operand value's edit box without changing the value, click the value or focus the operand value via the keyboard and press F2, SPACE, ENTER or ALT+DOWN

To close the active edit box, press ENTER.

To discard changes to the value and close the active edit box, press ESC.

Navigation

To focus a specific filter condition or a group's operator within the Filter Editor, do one of the following:

- Click the target element.
- Use arrow keys to move focus via the keyboard.

Examples of Using the Filter Editor

The [Filter Editor](#) allows you to filter data (display those records that meet specific requirements), by visually constructing filter criteria in a straightforward graphical form.

The following sections demonstrate how to construct filter criteria using the Filter Editor.

How to Construct a Simple Filter Condition

Basically, filter conditions specify what data to select from a data source and display in a data-bound control. A typical simple filter condition consists of three parts: the column/field name, operator and a value(s). For instance, '[Discount] >= 0.05' is a simple filter condition, where '[Discount]' is a field name, '>=' is an operator and '0.05' is a value. This condition when applied to a data-aware control will display records that have values in the Discount column greater than or equal to 0.05. Here is how to create this condition via the Filter Editor (it's assumed that the underlying data source contains the Discount column, otherwise, this column will not be accessible in the Filter Editor's column list):

1. Invoke the Filter Editor.

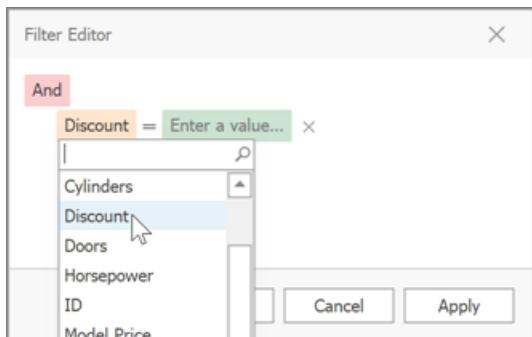
To invoke the Filter Editor in a grid control, right-click any grid column's header and select the Filter Editor option.

Model			
% Discount	Sales Date	Trademark	Name
★ 10.00%	11/5/2019	A ↗ Sort Ascending	3500 Regular CAB 4...
★ 10.00%	11/5/2019	Z ↘ Sort Descending	3500 Regular CAB 4...
★ 15.00%	11/5/2019	Group By This Column	Durango
★ 0.00%	11/5/2019	Show Group By Box	X6
★ 10.00%	11/5/2019	Hide This Column	Grand Caravan
★ 0.00%	11/5/2019	Column/Band Chooser	Q5
★ 5.00%	11/5/2019	*A* Best Fit	Avalon
★ 5.00%	11/5/2019	Clear Filter	Touareg
★ 5.00%	11/5/2019	Filter Editor...	Silverado 1500 Reg...
★ 0.00%	11/5/2019	Show Find Panel	X6
★ 15.00%	11/5/2019	Show Auto Filter Row	Town & Country
★ 15.00%	11/5/2019	Toyota	Tundra 4x4 Reg. Cab

To learn how to invoke the Filter Editor for other controls, see corresponding sections in this documentation.

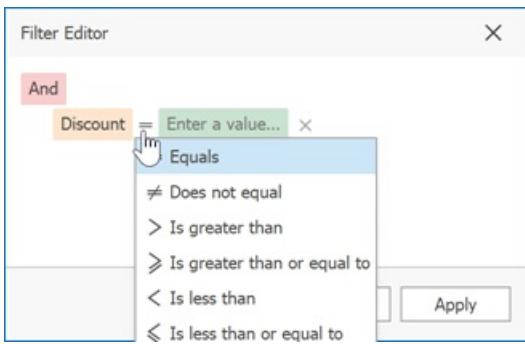
2. Select a column.

To filter against the Discount column, click the column name field. This will display the list of available columns. Select the Discount column in this list:



3. Select a comparison operator.

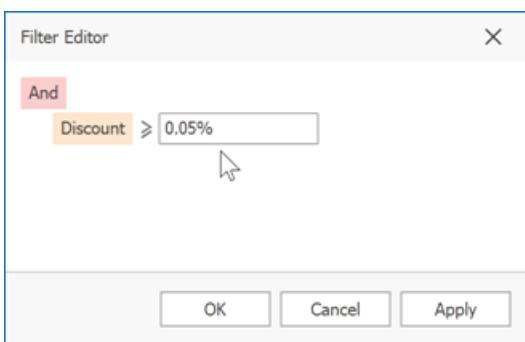
Click the operator field to choose the required operator.



The comparison operator list displays only those operators that are supported by the current column's data type. For instance, the Discount column is of the numeric type, and the operator list doesn't display the 'Begins with' operator and other operators that are related to strings.

4. Enter a value.

Now, click the value box and enter a comparison value ('0.05'):



5. Save changes.

Click OK or Apply, to filter data using the created filter condition. The grid will show the filter panel displaying the current filter criteria:

Order Info				Model				Performance		
ID	Model Price	% Discount	Sales Date	Trademark	Name	Modification	MPG C...	MPG H...	Cylin...	
00234	\$34,370.00	★	10.00%	11/5/2019	RAM	3500 Regu...	ST LWB 5.7L V8 6A			8
00235	\$30,860.00	★	15.00%	10/25/20...	Honda	Accord	Ex-L V-6 6-Spd AT...	► 21	▲ 34	6
00237	\$22,805.00	★	5.00%	5/23/2019	Chevrolet	Malibu	LS 2.5L I4 6A	► 22	▲ 34	4
00239	\$21,520.00	★	15.00%	10/2/2019	Mazda	Mazda6	2.5L I4 6M	► 21	▲ 30	4
00241	\$56,075.00	★	5.00%	4/25/2019	BMW	Z4 Sdrive35i	3.0L I6 6M	► 19	► 26	6
00242	\$31,350.00	★	15.00%	3/5/2019	Nissan	Altima	SL 3.5L V6 VA	► 22	▲ 31	6
00244	\$82,425.00	★	5.00%	2/23/2019	Lexus	LX 570	5.7L V8 6A	▼ 12	▼ 17	8
00246	\$29,420.00	★	15.00%	11/29/20...	Mitsubishi	Outlander	GT S-Awc 3.0L V6 6A	► 19	► 25	6
00248	\$82,425.00	★	10.00%	7/24/2019	Lexus	LX 570	5.7L V8 6A	▼ 12	▼ 17	8
00250	\$29,285.00	★	10.00%	10/27/20...	Nissan	Murano	S FWD 3.5L V6 VA	► 18	► 24	6
00251	\$31,260.00	★	10.00%	3/15/2019	Toyota	Camry	XLE 3.5L V6 6AT	► 21	▲ 31	6
00252	\$20,790.00	★	5.00%	6/13/2019	Mitsubishi	Lancer	GT 2.4L I4 5M	► 22	▲ 31	4
00254	\$40,095.00	★	10.00%	12/12/20...	Ford	Taurus	SHO AWD 3.5L V6 6A	▼ 17	► 25	6

Filter Criteria: Discount \geq 0.05% Edit Filter

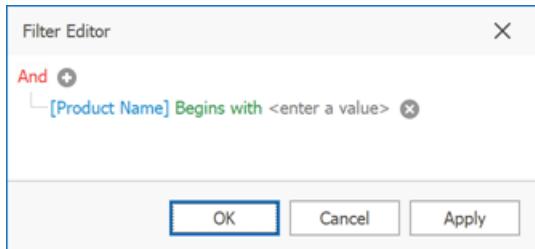
The filter panel will contain the 'Edit Filter' button, which also allows you to invoke the Filter Editor.

How to Construct Filter Criteria with Multiple Conditions Joined by One Logical Operator

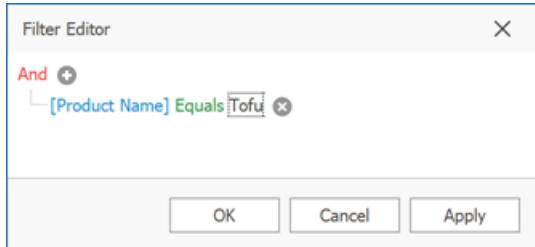
Filter criteria typically consist of two or more simple filter conditions combined by logical operators (AND, OR, NOT AND, NOT

OR). The following example shows how to construct filter criteria in the Filter Editor that consist of multiple conditions combined by one logical operator. The "[ProductName] = 'Tofu' AND [Discount] >= 0.1 AND [Quantity] > 99" filter expression contains three simple filter conditions combined by the AND operator. To construct it, do the following:

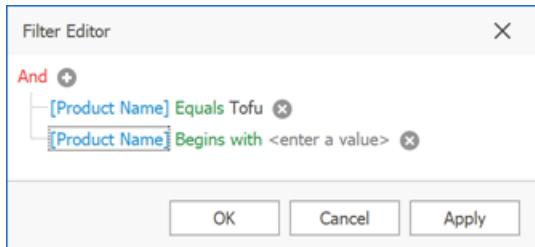
1. Invoke the Filter Editor. When the Filter Editor is invoked for a grid control, the Filter Editor may display an unfinished new filter condition:



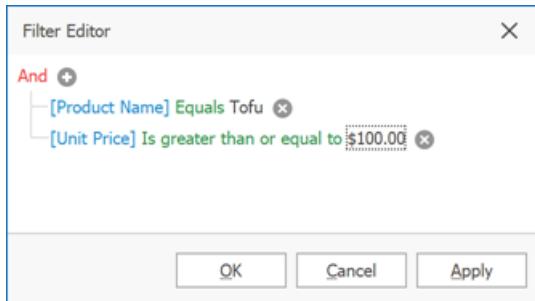
2. Set the condition's operator to Equals and operand value to 'Tofu' (as described in the previous section):



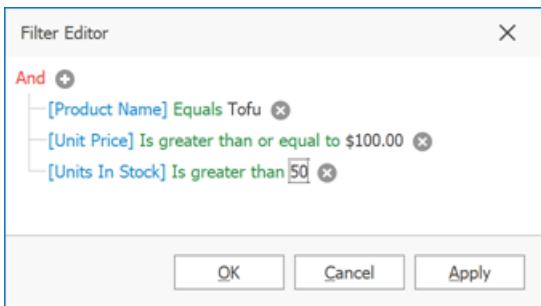
3. To add one more condition, press the + button next to the group's AND operator. This will create a new condition under the current one:



4. For the second condition, set the column to 'Unit Price', operator to '>=' and operand value to '100':



5. To add a third condition to the same group, click the + button again. Set the condition's column to 'Units in Stock', operator to '>' and operand value to '50'. Below is the result:



- Click OK or Apply, to apply the created filter criteria.

How to Construct Filter Criteria Involving Different Logical Operators

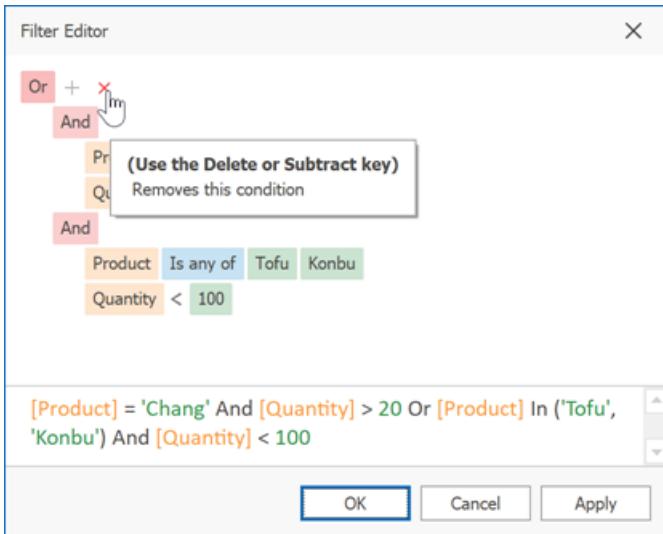
Some filter criteria contain multiple logical (Boolean) operators combining simple filter conditions. For instance, you want to see items whose price is under 10, and at the same time, the available quantity is also less than 10. At the same time, you may also want to see those items whose price is over 10, while the available quantity is also greater than 10.

The resulting condition will look like this:

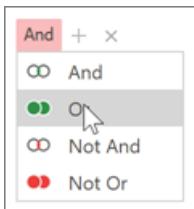
(Price is less than 10 AND Quantity is less than 10) OR (Price is greater than 10 AND Quantity is greater than 10)

This is how you can do this:

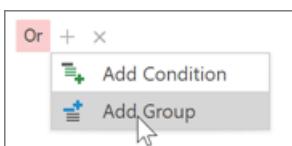
- Invoke the Filter Editor.
- Clear existing filter conditions (if any) by clicking the \times button:



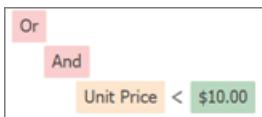
- Change the root logical operator to OR. To do this, click the current AND operator and select OR:



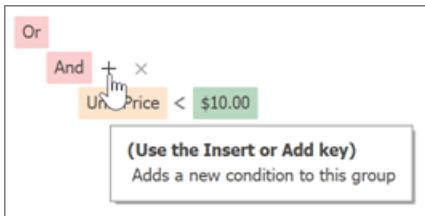
- Add a new filter condition group by clicking the OR operator and selecting Add Group.



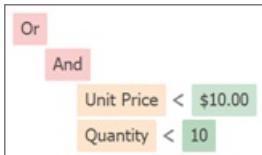
5. For the created condition, set the column to 'UnitPrice', operator to '<' and operand value to '10':



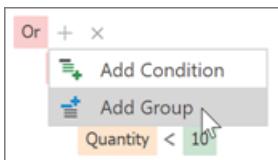
6. Click the button to add a new condition to the current group:



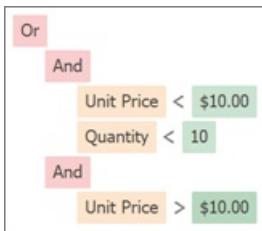
7. For the new condition, set the column to 'Quantity', operator to '<' and operand value to '10':



8. Add a new filter condition group. To do this, click the root OR operator and select Add Group.



9. For the condition within the created group, set the column to 'UnitPrice', operator to '>' and operand value to '10':



10. Click the button to add a new condition to the new group. For the new condition, set the column to 'Quantity', operator to '>' and operand value to '10':

Filter Editor

```

Or
  And
    Unit Price < $10.00
    Quantity < 10
  And
    Unit Price > $10.00
    Quantity > 10
  
```

[Unit Price] < 10.0m And [Quantity] < 10s Or [Unit Price] > 10.0m And [Quantity] > 10s

OK Cancel Apply

11. Click OK or Apply, to apply the created filter criteria.

Grid

This section describes the capabilities provided by the Grid control, which represents data in a tabular or card form, supports data editing, sorting, grouping, filtering, summary calculation and many other features:

!	!	U	Subject	From	Received	▼	oo
▲ Today (6 items)							
			DXperience moving to .NET 3.5 or above after next major release	Michael Curry cl	6/5/2017	●	
			I'd also welcome the jump directly to 4.0, this product needs to be kept at the cutting edge.				
!			DXperience moving to .NET 3.5 or above after next major release	Kurt Wehrend	6/5/2017	●	
			I think DevExpress needs to take the leap and move straight to 4.0. Our company platform is now s				
			DXperience moving to .NET 3.5 or above after next major release	Sigurd Decroos	6/5/2017	●	
			3.5 still required here! I can't convert my ERP project to 4.0 just yet. It will take another yea				
			DXperience moving to .NET 3.5 or above after next major release	Chloe Anfield	6/5/2017	●	
			3.5, but support VS2008....				
			DXperience moving to .NET 3.5 or above after next major release	David Brillon	6/5/2017	●	
			3.5. Jumping to 4.0 is not an option right now for our client.				
			DXperience moving to .NET 3.5 or above after next major release	Rinaldo Ferreira J...	6/5/2017	●	
			I vote to move to .Net 4.0 and I agree with your plan to keep support to .Net 2.0 till the next m				

Data Editing

- [Edit Grid Cells](#)
- [Add and Delete Grid Records](#)

Data Presentation

- [Sort Grid Rows](#)
- [Group Grid Rows](#)
- [Fix Grid Rows](#)

Data Analysis

- [Filter Grid Data](#)
- [Show Summaries \(Totals\) in Grids](#)
- [Apply Cell Conditional Formatting](#)

Layout Customization

- [Expand and Collapse Rows and Cards in Grids](#)
- [Hide and Display Grid Columns, Bands and Card Fields](#)
- [Rearrange Grid Columns, Bands and Card Fields](#)
- [Resize Cards in Grids](#)
- [Resize Grid Columns, Bands and Card Fields](#)

Selection and Navigation

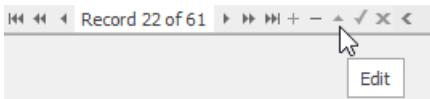
- [Locate Grid Records](#)
- [Navigate Through Grid Records](#)
- [Select Grid Rows and Cards](#)

Edit Grid Cells

Activate Cell Editor

Do one of the following:

- Click a cell.
- Focus a cell (for instance, via the keyboard), and press ENTER or F2.
- Focus a cell and press any alpha-numeric key. The editor will be invoked and its contents will be replaced with the pressed character.
- Focus a cell and click the Navigator control's Edit button:



If a cell editor provides a dropdown, you can activate the editor and open its dropdown by pressing ALT+DOWN ARROW or F4.

Select and Deselect Cell Text

Press F2 or CTRL+A.

Close Cell Editor and Accept Changes Made

Do one of the following:

- Press ENTER.
- Click the End Edit button within the Navigator control:



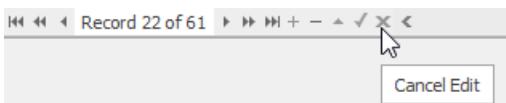
- Click any other grid cell.
- Focus any other control.

Discard Changes

To discard changes made in a cell press ESC.

To discard changes made in all cells in a row/card, do one of the following:

- Press ESC twice.
- Click the Cancel Edit button within the Navigator control:

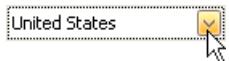


Open Cell Editor's Dropdown

Do one of the following:

- Press ALT+DOWN ARROW or F4.

- Click the editor's dropdown button:



Close Cell Editor's Dropdown

For all editors providing a dropdown, you can close the dropdown by pressing ALT+DOWN ARROW.

If the calculator is displayed in the dropdown, it can be closed via CTRL+ENTER.

Dropdowns displaying lists of items can be closed by clicking an item with the mouse, or by selecting an item with the keyboard and pressing ENTER.

Change Values

Change Date/Time Values

You can edit these cell values without opening the dropdown calendar. Position the caret at the portion of a date/time value that needs to be changed. To increment the value, press CTRL+UP ARROW. To decrement the value, press CTRL+DOWN ARROW.

Change Numeric Values

To increment the value, press CTRL+UP ARROW. To decrement the value, press CTRL+DOWN ARROW.

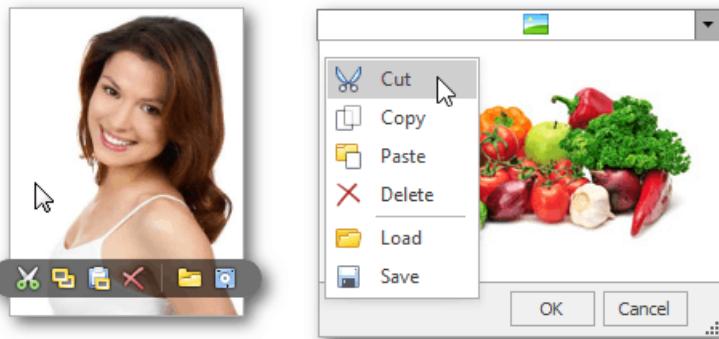
Change Values of Cells That Provide Dropdown Items

To select the previous value, press CTRL+UP ARROW. To select the next value, press CTRL+DOWN ARROW.

Note: this feature is not applicable to all editors.

Edit Images

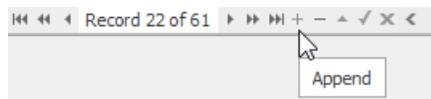
To copy, cut, paste, load and save images in image editors, right click the image and select the required command via the context menu:



Add and Delete Grid Records

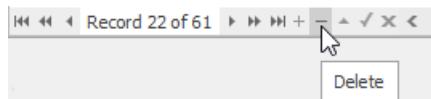
Add Records

Click the Append button within the Navigator control:



Delete Records

Click the Delete button within the Navigator control:



Sort Grid Rows

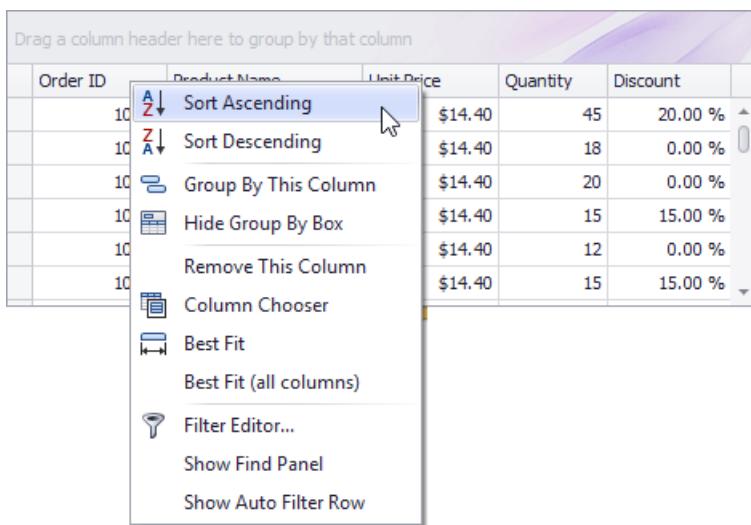
Sort Data in Grid Views

To sort records by a column's values and replace existing sort conditions that are applied to the current or other columns, click the target column's header, until an Up or Down Arrow icon is displayed within the header. The Up and Down Arrows indicate ascending and descending sort orders respectively.

Order ID
10421
10421
10422
10423

To sort records by a column's values while preserving existing sort conditions, do one of the following:

- Click a column header while holding the SHIFT key down, until an Up or Down Arrow icon is displayed within the header.
- Right-click a column header and select **Sort Ascending** or **Sort Descending** from the context menu that appears:

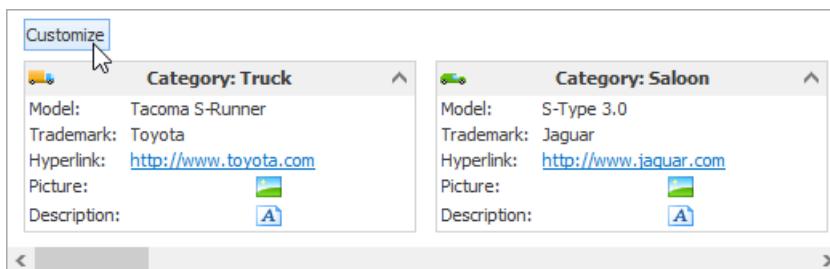


To remove sorting by a column, click a column header while holding the CTRL key down. You can also select Clear Sorting from the column header context menu.

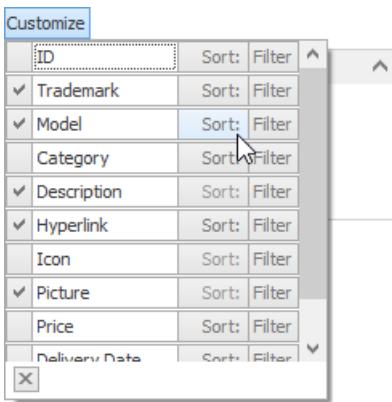
Sort Data in Card Views

To sort records by a card field's values and replace existing sort conditions that are applied to the current or other fields:

1. Click the Customize button:



2. In the Customization window that opens, click the Sort button that corresponds to the target card field:



To sort records by a card field's values while preserving existing sort conditions:

1. Click the Customize button.
2. In the Customization window that opens, click the Sort button that corresponds to the target card field, while holding the SHIFT key down.

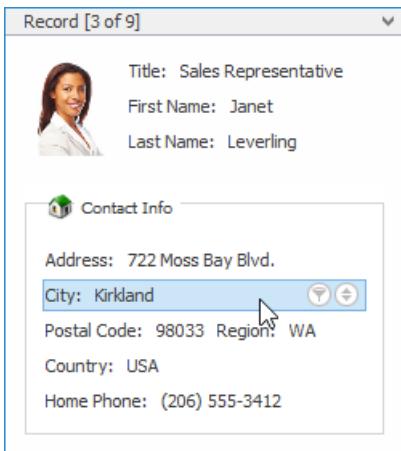
To remove sorting by a card field:

1. Click the Customize button.
2. In the Customization window that opens, click the Sort button that corresponds to the target card field, while holding the CTRL key down.

Sort Data in Layout Views

To sort records by a card field's values and replace existing sort conditions that are applied to the current or other fields, do the following:

1. Hover over the target card field within any card. The sort (\uparrow) and filter buttons will appear.



2. Click the sort button until its image changes to a black arrow (\uparrow or \downarrow). These images indicate ascending and descending sort orders respectively.

To sort records by a card field's values while preserving existing sort conditions:

1. Hover over the target card field within any card. The sort and filter buttons will appear.
2. Hold the SHIFT key down and click the sort button until its image changes to a black arrow (\uparrow or \downarrow).

To remove sorting by a card field:

1. Hover over the target card field within any card. The sort and filter buttons will appear.
2. Hold the CTRL key down and click the sort button until its image changes to two arrows (\pm).

Group Grid Rows

Group Data

To group by a specific column, do one of the following:

- Drag a column header from the column header panel to the group panel:

Order ID	Product Name	Unit Price	Quantity	Discount
10248	Queso Cabrales	\$14.00	12	0.00 %
10248	Singaporean Hokki...	\$9.80	10	0.00 %
10248	Mozzarella di Giov...	\$34.80	5	0.00 %
10249	Tofu	\$18.60	9	0.00 %
10249	Manjimup Dried Ap...	\$42.40	40	0.00 %
10250	Jack's New Engl...	\$7.70	10	0.00 %
10250	Manjimup Dried Ap...	\$42.40	35	15.00 %

- Right-click a column header and select **Group By This Column** from the context menu:

Order ID	Product Name	Unit Price	Quantity	Discount
10248	Queso Cabrales	2	0.00 %	
10248	Singaporean Ho	0	0.00 %	
10248	Mozzarella di Gi	5	0.00 %	
10249	Tofu	9	0.00 %	
10249	Manjimup Dried	0	0.00 %	
10250	Jack's New Engl	0	0.00 %	
10250	Manjimup Dried	5	15.00 %	

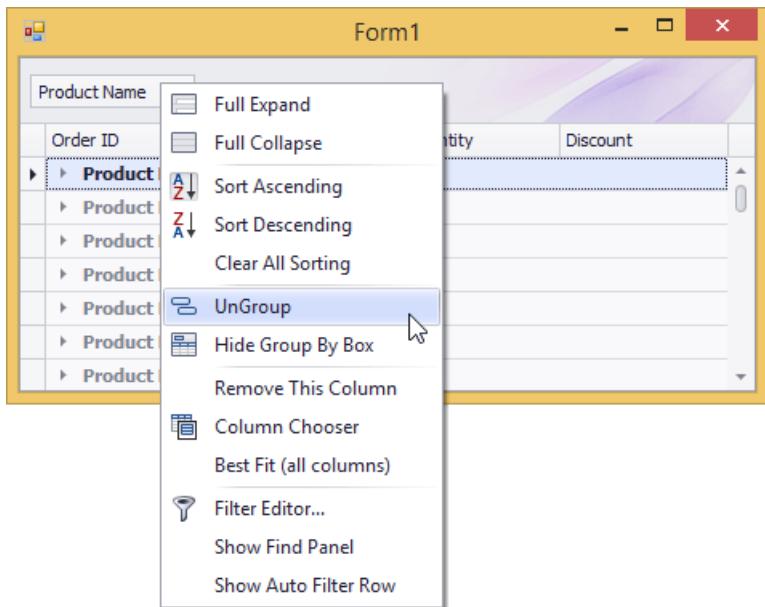
Ungroup Data

To ungroup data by a grouping column, do one of the following:

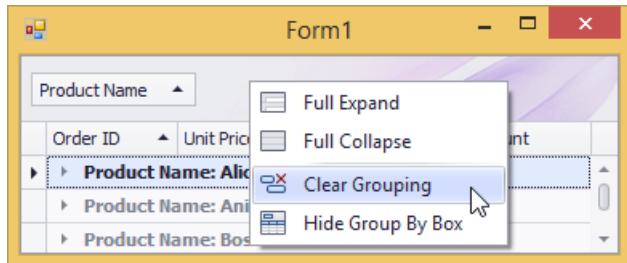
- Drag a column header from the group panel to the column header panel:

Order ID	Unit Price	Quantity
▶ Product Name: Alice Mutton		
▶ Product Name: Aniseed Syrup		
▶ Product Name: Boston Crab Meat		
▶ Product Name: Camembert Pierrot		
▶ Product Name: Carnarvon Tigers		
▶ Product Name: Chai		
▶ Product Name: Chai		

- Right-click a grouping column's header and select **UnGroup** from the context menu:

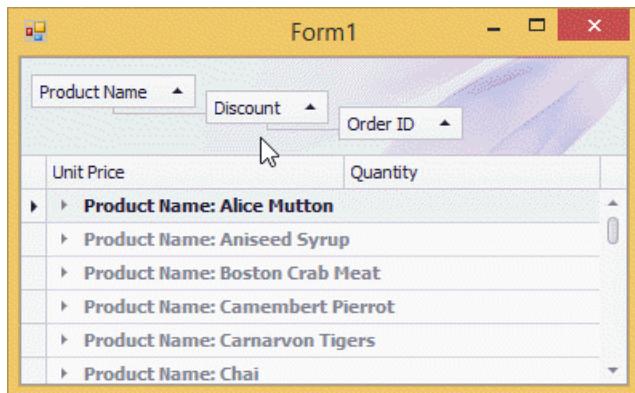


To remove grouping by all columns, right click the group panel and select **Clear Grouping** from the context menu:



Change Group Order

To change group order, move a grouping column header to another position within the group panel:



Fix Grid Rows

Some applications allow you to fix grid rows at the top or at the bottom of the grid. Fixed rows remain visible while the grid content is scrolled vertically.

NOTE

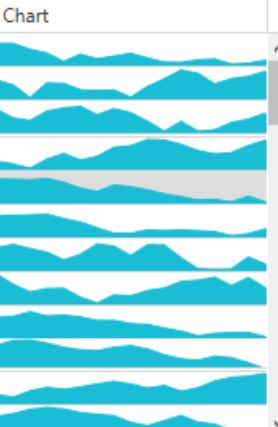
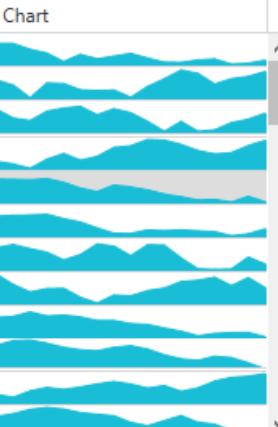
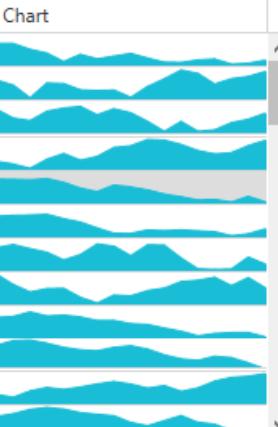
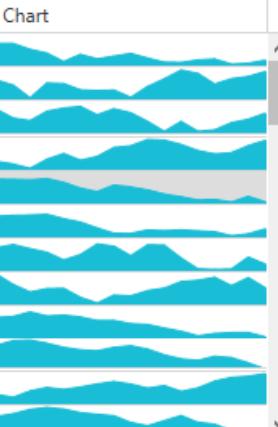
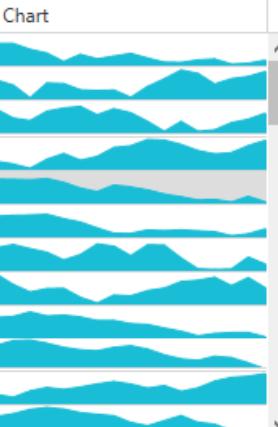
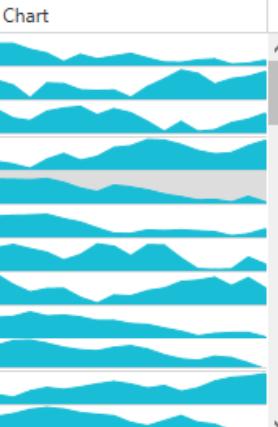
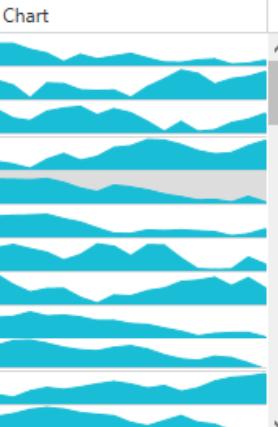
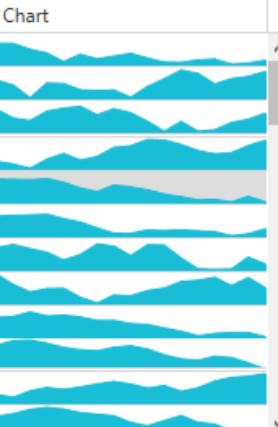
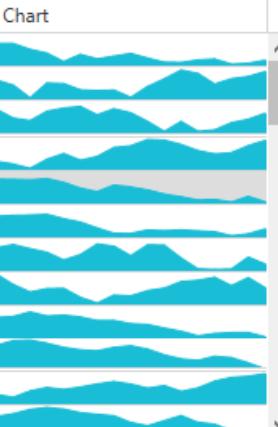
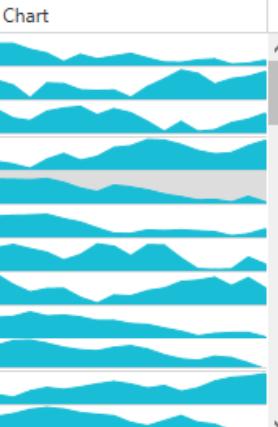
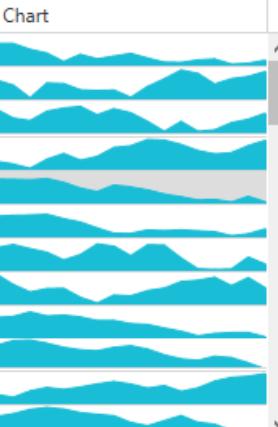
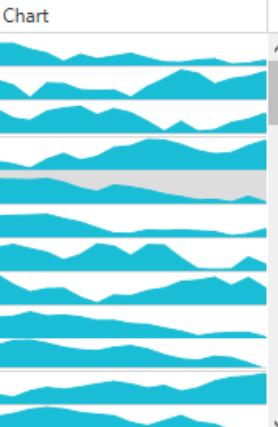
The following steps may vary depending on an application vendor.

Fix a Row

To fix a grid row, do one of the following.

- Click the **Fix Row**  button located at the left side of a grid row.

Choose the required fixed row position from the popup menu.

	Symbol	Low (\$)	High (\$)	Stock Chart
▪	MSFT	\$28.36	\$31.10	
▪	AAPL	\$469.70	\$478.90	
▪	ORCL	\$26.24	\$29.20	
▪	ADBE	\$30.23	\$32.39	
▶	ADSK	\$52.73	\$54.92	
▶	Top	\$36.82	\$38.85	
▶	None	\$39.33	\$41.20	
▶	Bottom	\$75.04	\$78.86	
▪	AMAT	\$12.36	\$13.99	
▪	ATVI	\$12.40	\$14.59	
▪	DELL	\$15.95	\$18.12	
▪	XRX	\$6.83	\$9.31	

- Right-click a grid row.

Choose the required fixed row position from the context menu.

	Symbol	Low (\$)	High (\$)	Stock Chart
▪	MSFT	\$26.52	\$32.02	
▪	AAPL	\$469.70	\$483.72	
▪	ORCL	\$24.26	\$29.80	
▪	ADP	\$52.14	\$57.43	
▪	ADBE	\$30.23	\$37.54	
▶	ADSK	\$33.98	\$40.09	
▶	Fix to top	\$34.11	\$41.57	
▶	ALTR	\$75.04	\$79.59	
▶	ALXN	\$12.19	\$19.26	
▶	AMAT	\$11.14	\$16.53	
▶	ATVI	\$15.95	\$19.86	
▪	DELL	\$2.33	\$9.67	
▪	XRX	\$6.83	\$9.31	

Change a Fixed Row's Position

To unfix a row or change a fixed row's position, do one of the following.

- Click the **Unfix Row**  button located at the left side of a fixed grid row.

From the popup menu, choose the required fixed row position. Select **None** to unfix a grid row.

	Symbol	▲	Low (\$)	High (\$)	Stock Chart
▼	MSFT		\$30.22	\$31.89	
►▼	AAPL		\$469.70	\$478.83	
▼	Top		\$28.38	\$29.73	
	None		\$31.50	\$33.62	
	Bottom		\$53.56	\$55.49	
	ADSK		\$36.66	\$38.85	
▼	ALTR		\$39.99	\$41.44	
▼	ALXN		\$75.04	\$78.86	
▼	CSCO		\$19.09	\$21.04	
▼	IBM		\$191.73	\$194.08	
▼	MSI		\$46.82	\$48.59	
▼	DELL		\$17.27	\$19.98	
▼	XRX		\$6.79	\$8.16	

- Right-click a fixed grid row.

Choose the required fixed row position from the context menu. Select **Unfix** to unfix a row.

	Symbol	▲	Low (\$)	High (\$)	Stock Chart
▼	MSFT		\$30.22	\$32.81	
▼	AAPL		\$469.70	\$478.83	
▼	ORCL		\$27.97	\$29.92	
▼	ADBE		\$31.50	\$35.10	
▼	ADP		\$53.56	\$55.49	
▼	ADSK		\$34.79	\$38.85	
▼	ALTR		\$39.29	\$41.44	
▼	ALXN		\$75.04	\$78.86	
►▼	CSCO		\$19.09	\$21.73	
▼	IBM		\$191.73	\$194.78	
▼	MSI		\$46.82	\$49.69	
▼	DELL		\$17.27	\$19.98	
▼	XRX		\$6.79	\$8.47	

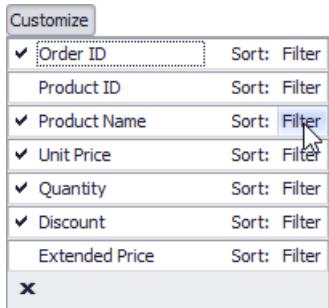
Filter Grid Data

Invoke the Filter Dropdown List

- In Grid Views, hover over the column header. Click the filter button (ⓘ) within the column header that appears.

Order ID	Product Name	Unit Price	Quantity	Discount	
10248	Queso Cabrales	\$14.00	12	0.00 %	
10248	Singaporean Hokkien ...	\$9.80	10	0.00 %	
10248	Mozzarella di Giovanni	\$34.80	5	0.00 %	
10249	Tofu	\$18.60	9	0.00 %	

- In Card Views, click the Customize button and then click the Filter button corresponding to the target column.



- In Layout Views, hover over the target card field within any card. Click the filter button (ⓘ) that appears.

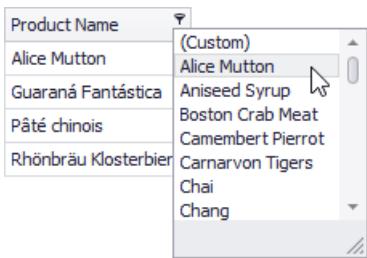
Create a Simple Filter Condition

To select records that contain a specific value in a specific column/card field, do the following:

- Invoke the filter dropdown list containing available filter values.

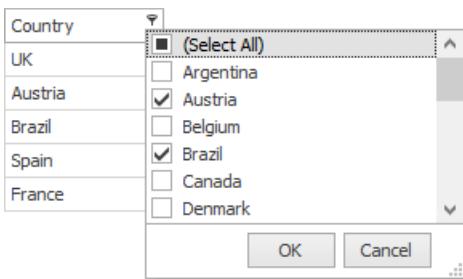
By default, if filtering is applied, the filter dropdown will only display the values which match the current filter criteria. If the SHIFT key is pressed while opening the filter dropdown, all values will be listed (not only those that match the current filter criteria).

- Select the required filter value in the filter dropdown list:



The filter dropdown list will be immediately closed, and the control will display the records which contain the specified value in the specified column/card field.

If the filter dropdown list provides check boxes to the left of filter values, multiple values can be selected (checked) simultaneously:



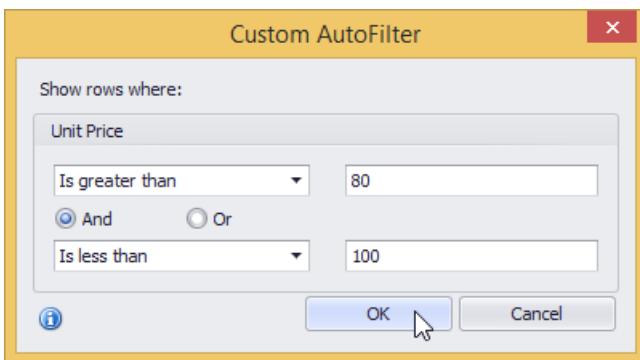
In this mode, click OK to close the filter dropdown list and apply the filter.

You can sequentially filter data against multiple columns using the method described above.

Use Microsoft Excel Style Custom Filter Dialog

To construct filter criteria involving up to two conditions, do the following:

- Invoke the filter dropdown list (see above) and click **Custom**. This will invoke the Custom Filter Dialog, allowing you to compare a column with one or two values:



Use Advanced Filter Editor Dialog

To invoke an advanced Filter Editor dialog, do one of the following:

- Right-click any column's header and select **Filter Editor**.

Product	Unit Price
Queso Cabrales	\$14.00
Singaporean Hokkien Fried M	\$9.80
Mozzarella di Giovanni	\$34.80
Tofu	\$18.60
Manjimup Dried Apples	\$42.40
Jack's New England Clam Ch	\$7.70
Manjimup Dried Apples	\$42.40
Louisiana Fiery Hot Pepper S	\$16.80
Gustaf's Knäckebröd	\$16.80
Ravioli Angelo	\$15.60
Louisiana Fiery Hot Pepper S	\$16.80
Sir Rodney's Marmalade	\$64.80
Geitost	\$2.00
Camembert Pierrot	\$27.20
Gorgonzola Telino	\$10.00

- If the filter panel at the bottom of the grid control is visible, click the **Edit Filter** button:

10624	Thüringer Rostbratwurst	\$123.79	6	0.00 %
10629	Thüringer Rostbratwurst	\$123.79	20	0.00 %
10660	Sir Rodney's Marmalade	\$81.00	21	0.00 %
10666	Thüringer Rostbratwurst	\$123.79	26	0.00 %
<input checked="" type="checkbox"/> <input type="checkbox"/> [Unit Price] >= '\$64.76' And [Unit Price] <= '\$190.28' <input type="button" value="Edit Filter"/>				

To learn how to work with the Filter Editor, refer to [Filter Data via the Filter Editor](#).

Clear the Filter

To clear the filter applied to a specific column, do one of the following:

- Invoke the filter dropdown list (see below) and click (All).
- In Grid Views, right-click the column header and select Clear Filter:

To clear all filter criteria, click the Close Filter button within the Filter Panel:

Order ID	Product Name	Unit Price	Quantity	Discount
10514	Sir Rodney's Marmalade	\$81.00	39	0.00 %
10523	Sir Rodney's Marmalade	\$81.00	15	10.00 %
10593	Sir Rodney's Marmalade	\$81.00	21	20.00 %
<input checked="" type="checkbox"/> <input type="checkbox"/> [Unit Price] > '\$80.00' And [Unit Price] < '\$100.00' <input type="button" value="Edit Filter"/>				

[Close Filter Button](#)

Disable/Enable the Filter

Click the Enable Filter button within the Filter Panel:

Order ID	Product Name	Unit Price	Quantity	Discount
10514	Sir Rodney's Marmalade	\$81.00	39	0.00 %
10523	Sir Rodney's Marmalade	\$81.00	15	10.00 %
10593	Sir Rodney's Marmalade	\$81.00	21	20.00 %
<input checked="" type="checkbox"/> <input type="checkbox"/> [Unit Price] > '\$80.00' And [Unit Price] < '\$100.00' <input type="button" value="Edit Filter"/>				

[Enable Filter Button](#)

Filter Grid Data via Find Panel

The Find Panel provides an easy way of searching against visible columns/card fields. Displayed above the grid, the panel contains a search box where you can type a search string.

Order ID	Product	Unit Price	Quantity	Discount
10258	Chef Anton's Gumbo Mix	17,00 \$	65	20,00%
10262	Chef Anton's Gumbo Mix	17,00 \$	12	20,00%
10290	Chef Anton's Gumbo Mix	17,00 \$	20	0,00%
10322	Filo Mix	5,60 \$	20	0,00%
10334	Filo Mix	5,60 \$	8	0,00%
10382	Chef Anton's Gumbo Mix	17,00 \$	32	0,00%

Invoke the Find Panel

- Ensure that no cell editor is active and press **Ctrl+F**.
- or
- In Grid Views, choose the Show Find Panel command from a column menu.

Order ID	Product	Unit Price	Quantity	Discount
10248	Queso Cabrales	12	0,00%	
10248	Singaporean Hokkien	10	0,00%	
10248	Mozzarella di Giovanni	5	0,00%	
10249	Tofu	9	0,00%	
10249	Manjimup Dried Apples	40	0,00%	
10250	Jack's New England Clam Chowder	10	0,00%	
10250	Manjimup Dried Apples	35	15,00%	
10250	Louisiana Fiery Hot Pepper	15	15,00%	
10251	Gustaf's Knäckebröd	6	5,00%	
10251	Ravioli Angelo	15	5,00%	
10251	Louisiana Fiery Hot Pepper	20	0,00%	
10252	Sir Rodney's Marmalade	40	5,00%	
10252	Geitost	25	5,00%	
10252	Camembert Pierrot	40	0,00%	
10253	Gorgonzola Telino	20	0,00%	

Search

- Enter a search string in the search box. In most cases, rows are filtered automatically after a short while.
- In some cases (mostly when the grid is bound to a large amount of data), you need to press the Find button to manually start the search.

The search syntax is described below.

Clear the Search Box

Press **ESC** or click the Clear button.

Close the Find Panel

Click the 'x' button to the left of the search box or:

- If the search box is empty, press ESC (the shortcut is in effect if the search box has focus);
- If the search box is not empty, press ESC twice (the shortcut is in effect if the search box has focus).

Search Syntax

In its simplest form, a search criterion consists of a single word. If you want to search for a string containing a space character, specify this string in quotation marks. Without quotation marks, words separated by the space character are treated as individual conditions.

You can search against a specific column by preceding a search string with the column's display name plus a colon character.

`ColumnDisplayName:SearchString`

Instead of the complete name, it is possible to partially specify the display name, using the initial characters of a column's display name. A search will be performed against the first column whose display name starts with the specified substring. If you want to search against a column whose display caption contains space characters, specify the column's display caption in quotation marks.

If the search string contains multiple conditions separated by space characters, and at least one condition defines a search against a specific column, only records that match all of these conditions are shown (i.e., the conditions are combined by the **AND** logical operator). If there is no column specification, records that match at least one of these conditions are shown (i.e., the conditions are combined by the **OR** logical operator).

Precede a condition with "+" to display only records that match this condition. The "+" specifier allows you to implement the logical **AND** operator. There should be no space character between the "+" sign and the condition.

Precede a condition with "-" to exclude records that match this condition from the result set. There should be no space between the "-" sign and the condition.

Examples

SEARCH CRITERIA	DESCRIPTION
<code>register</code>	Selects records that contain the "register" string in any search column.
<code>check register Dave</code>	Selects records that contain either "check" OR "register" OR "Dave" strings in any search column.
<code>"check register"</code>	Selects records that contain "check register" in any search column.
<code>screen +"Richard Fisher"</code>	Selects records that contain both "screen" AND "Richard Fisher" in search columns.
<code>Product:Tofu Seattle</code>	Selects records that contain "Tofu" in the column that starts with "Product", AND also contain "Seattle" in any search column.
<code>data +entry -mark</code>	Selects records that contain both "data" AND "entry" in search columns, excluding records that contain "mark".
<code>menu mask -file</code>	Selects records that contain "menu" OR "mask", excluding records that contain "file".
<code>From:Roller Subj:"currency mask"</code>	Selects records that contain "Roller" in the column that starts with "From", AND also contain "currency mask" in the column that starts with "Subj".
<code>import -From:Steve</code>	Selects records that contain "import" in any search column, excluding records that contain "Steve" in the column that starts with "From".

 **NOTE**

Searches performed using a Find Panel are case insensitive.

Show Summaries (Totals) in Grids

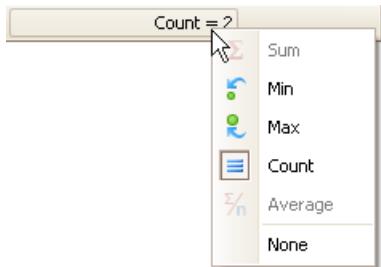
To change the type of summary for a specific column or apply a summary, do the following:

1. Right-click a region within a group footer or grid footer under a specific column:

The screenshot shows a grid interface with a header row containing "Supplier", "Category", "Product Name", and "Units In Stock". Below the header, there are three group rows for "Supplier: Antonio del Valle Saavedra", "Supplier: Beate Vileid", and "Supplier: Carlos Diaz". The first group row has two data rows: "Dairy Products" with "Queso Cabrales" and "Queso Manchego La Pastora", and a summary row "Count = 2". The second group row has one data row "Dairy Products" with "Queso Cabrales" and a summary row "Count = 2". The third group row has one data row "Dairy Products" with "Queso Cabrales" and a summary row "Count = 2". At the bottom of the grid, there is a summary row "MAX=125". A context menu is open over the "Count = 2" summary row for the first group, showing options like Sum, Min, Max, Count, Average, and None.

Supplier	Category	Product Name	Units In Stock
Supplier: Antonio del Valle Saavedra	Dairy Products	Queso Cabrales	22
	Dairy Products	Queso Manchego La Pastora	86
		Count = 2	
Supplier: Beate Vileid			
Supplier: Carlos Diaz			
		MAX=125	

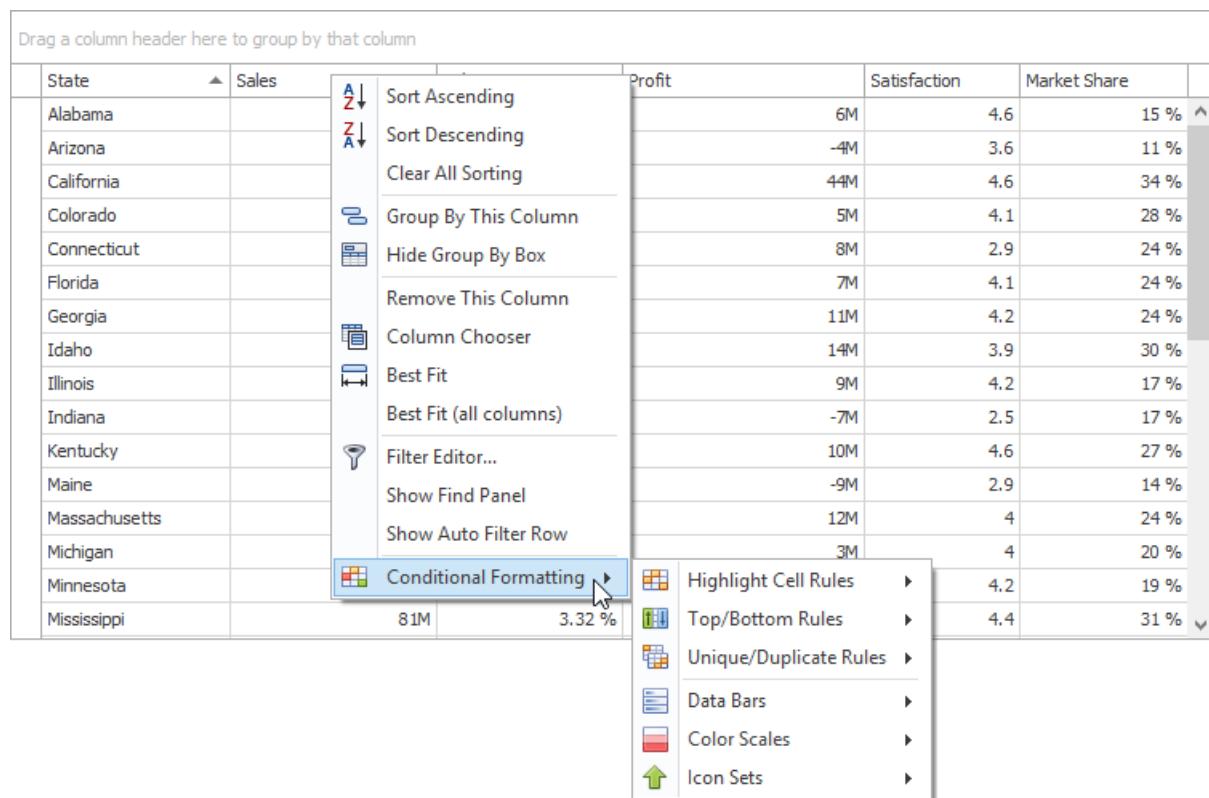
A context menu displaying a list of supported summary types will be displayed:



2. Select the required option from the context menu.

Apply Cell Conditional Formatting

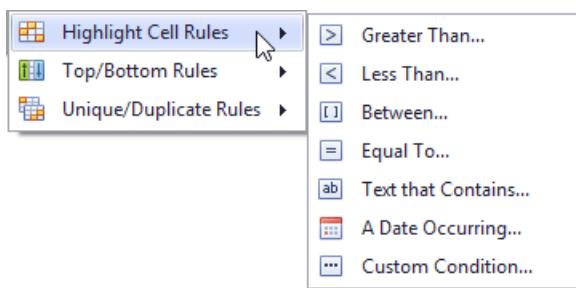
You can highlight certain column cells that meet a specific condition using the **Conditional Formatting** menu. To invoke this menu, right-click the column to which a formatting rule should be applied and select **Conditional Formatting**.



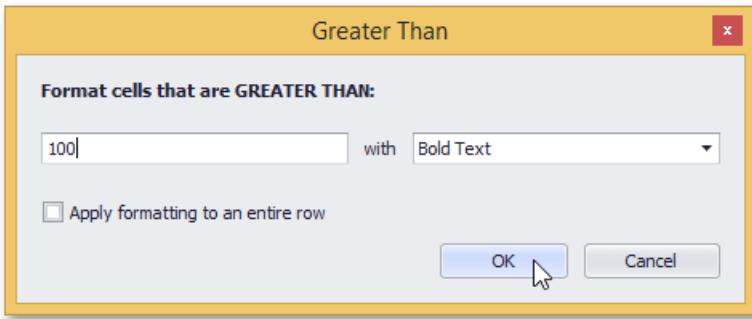
Available format rules are displayed when expanding the **Conditional Formatting** menu. Different options are supported for different columns (depending on the type of data a clicked column displays).

Highlighting Cells that Meet a Specific Condition

- Choose the **Highlight Cell Rules** menu item.

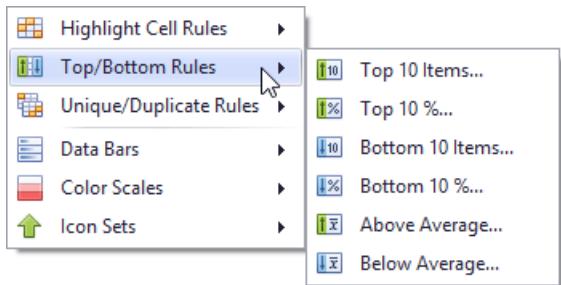


- Select the condition type. You can use one of the predefined conditions (the **Greater Than...**, **Less Than...**, **Between...** and **Equal To...** menu items), provide a custom condition (the **Custom Condition...** item) or format cells that contain the specified text (**Text that Contains...**) or refer to a certain date interval(s) (**A Date Occurring...**).
- Based on the selected condition type, an appropriate dialog window is invoked. You need to either enter a constant to be compared with the column's values, or select desired check boxes related to dates, or construct a custom condition in the dedicated editor. After that, choose a format style in the dropdown list, and click the **OK** button. To apply formatting to an entire row instead of a single cell, select the corresponding check box.



Highlighting Top or Bottom Cell Values

- Choose the **Top/Bottom Rules** menu item.

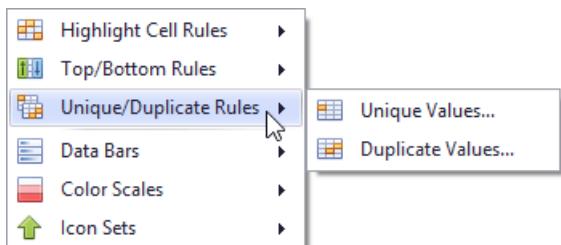


- Select the rule type. You can highlight cells that contain the highest or lowest values (the **Top 10%...**, **Bottom 10%...**, **Top 10 Items...** and **Bottom 10 Items...** menu items), and values that are above or below the column's average (**Above Average** and **Below Average**).
- According to the selected rule type, an appropriate dialog window is invoked. Enter a cutoff value (where required), choose a format style in the dropdown list, and click the **OK** button. To apply formatting to an entire row instead of a single cell, select the corresponding check box.



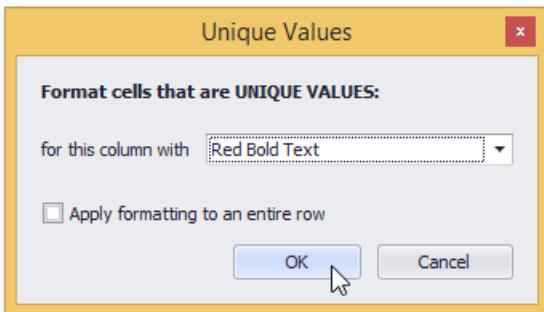
Highlighting Unique or Duplicate Cell Values

- Choose the **Unique/Duplicate Rules** menu item.



- Select the rule type.
- In the invoked dialog window, choose a format style in the dropdown list, and click the **OK** button. To apply formatting to an

entire row instead of a single cell, select the corresponding check box.

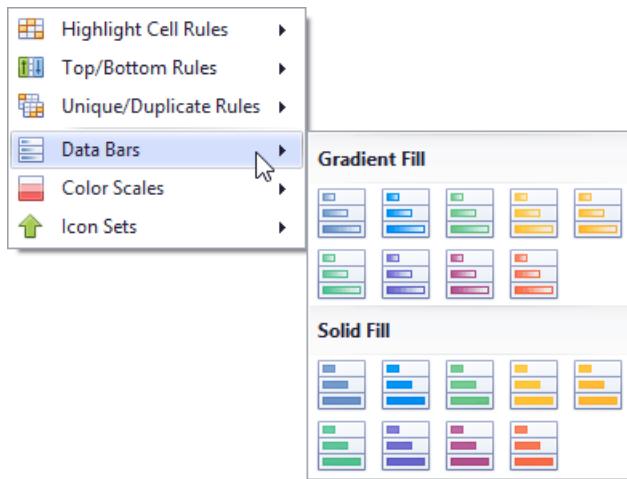


Highlighting Cells Using Data Bars

A data bar fills a cell according to the ratio of the cell's value to the highest and smallest column values. A longer bar corresponds to a higher value, and a shorter bar corresponds to a lower value.

To apply a data bar format, do the following:

- Choose the **Data Bars** menu item.

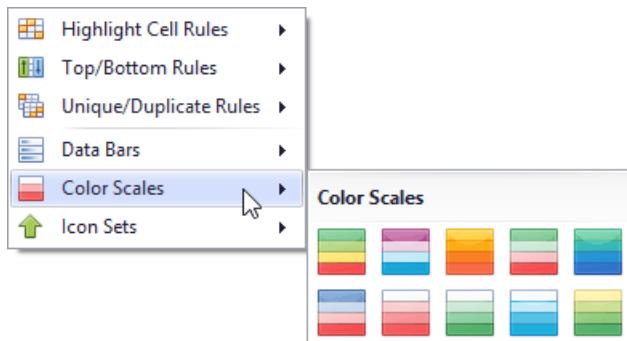


- Select the bar style format. Solid bars and bars with gradient fills are available in various colors.

Applying Color Scales

This format shows data distribution and variation using color scales. A cell is filled with the background color that is calculated according to the ratio of the cell's value to the highest and smallest column values. A two-color scale specifies two colors, which represent the minimum and maximum column values. Cell values residing between the minimum and maximum values are painted using a shade of these colors. A three-color scale additionally defines a color for the middle value and so, uses a gradation of three colors.

- Choose the **Color Scales** menu item.



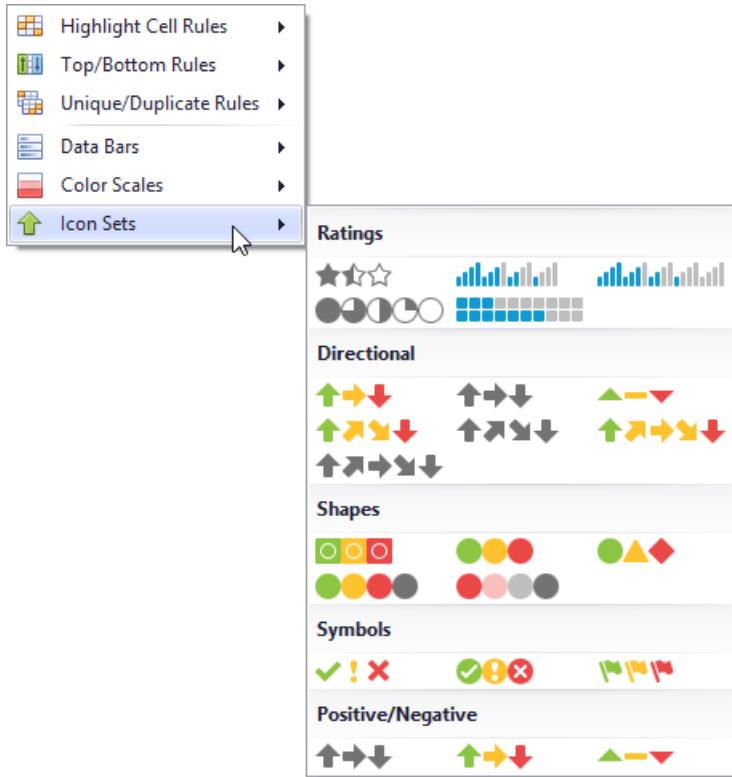
- Select one of the predefined two or three-color scales.

Highlighting Cells Using Predefined Icons

Icon sets allow you to classify column values into several ranges separated by threshold values, and display a specific icon in a column cell according to the range to which this cell value belongs. In the **Positive/Negative** group, the available icon sets divide column values into three ranges: positive values, negative values and values equal to zero.

Other icon sets divide column values into three, four or five ranges, displaying a specific icon for each range. If an icon set contains three icons, the ranges are as follows: [0%-33%), [33%-67%) and [67%-100%], where 0% corresponds to the smallest column value and 100% corresponds to the largest column value. The icon sets with four icons classify column values into four ranges: [0%-25%), [25%-50%), [50%-75%) and [75%-100%]. For the icon sets that contain five icons, the target ranges are: [0%-20%), [20%-40%), [40%-60%), [60%-80%) and [80%-100%].

- Choose the **Icon Sets** menu item.



- Select one of the predefined icon sets.

Deleting Rules

If you have already applied one or more rules to columns, the additional **Clear Rules** item is displayed at the second level of the **Conditional Formatting** menu.



You can do one of the following.

- To delete conditional formatting rules from the target column, click the **Clear Rules from This Column** menu item. If the column has no rules applied to it, this item is not shown.

or
- To delete formatting rules from all columns, click the **Clear Rules from All Columns** menu item .

Expand and Collapse Rows and Cards in Grids

Expand/Collapse Group Rows in Grid Views

To expand/collapse a group row, do one of the following:

- Click the row's expand button:

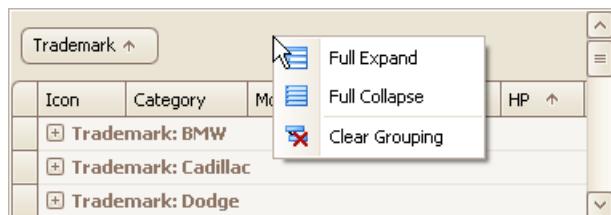
Category ↑			
Icon	Trademark	Model	HP
▶	+ Category: 🚗 Saloon		
▶	+ Category: 🏃 Sports		
▶	+ Category: 🚛 Truck		

- Double-click the group row.
- Double-click the indicator cell corresponding to the group row:

Trademark ↑			
Icon	Category	Model	HP ↑
▶	+ Trademark: Jaguar		
▶	+ Trademark: Lexus		
▶	- Trademark: Mercedes-Benz		
▶	BMW	Sports	C230 Kompressor Sport Coupe
			189

- Focus the group row and press PLUS (to expand the row) or MINUS (to collapse the row).
- Focus the group row and press RIGHT ARROW (to expand the row) or LEFT ARROW (to collapse the row).

To expand or collapse all group rows, right-click the group panel at the top of the control. This opens the group panel context menu. Then select Full Expand or Full Collapse respectively:



Expand/Collapse Master Rows in Grid Views

To expand/collapse a master row, do one of the following:

- Click the master row's expand button:

Company Name	Contact Title	Contact Name
+ Specialty Biscuits, Ltd.	Sales Representative	Peter Wilson
+ PB Knäckebröd AB	Sales Agent	Lars Peterson
+ Refrescos Americanas LTDA	Marketing Manager	Carlos Diaz
+ Heli Süßwaren GmbH & Co. KG	Sales Manager	Petra Winkler

- Double-click the indicator cell corresponding to the master row:

Company Name	Contact Title	Contact Name
Specialty Biscuits, Ltd.	Sales Representative	Peter Wilson
PB Knäckebröd AB	Sales Agent	Lars Peterson
Refrescos Americanas LTDA	Marketing Manager	Carlos Diaz
Heli Süßwaren GmbH & Co. KG	Sales Manager	Petra Winkler

Record 1 of 29

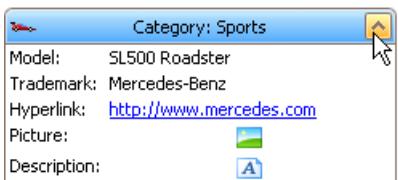
Indicator Cells

- Focus the master row and press CTRL+PLUS (to expand the row) or CTRL+MINUS (to collapse the row).

Expand/Collapse Cards in Card and Layout Views

Do one of the following:

- Click a card's Expand button:



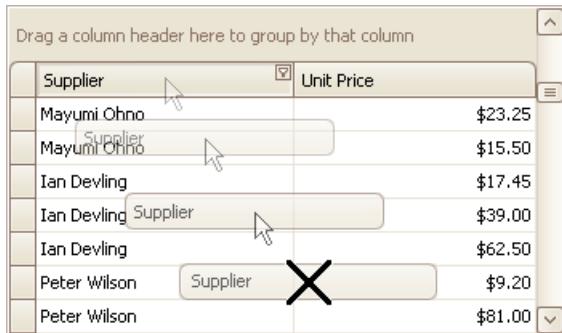
- Click a card's caption and press PLUS (to expand the card) or MINUS (to collapse the card).

Hide and Display Grid Columns, Bands and Card Fields

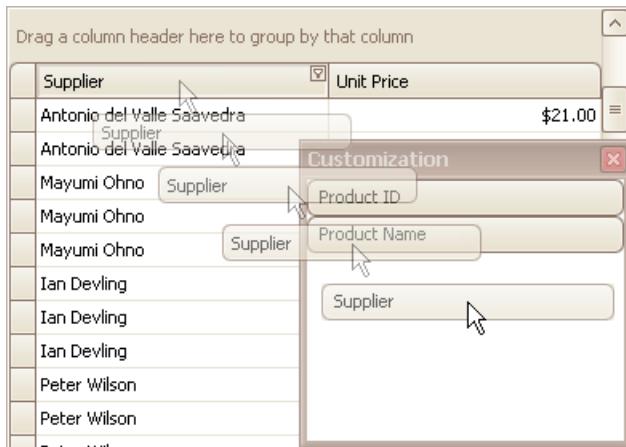
Hide Columns/Bands in Grid Views

Do one of the following:

- Click a column header/band header and drag it onto the grid control's cell area, until the cursor changes its image to a big 'X'. Then drop the header.

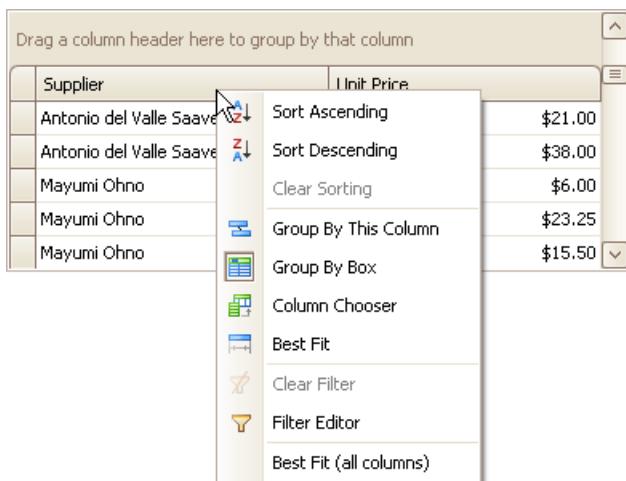


- Drag and drop a column/band header onto the Customization Form if it's open:



Display Hidden Columns/Bands in Grid Views

- Open the Customization Form by right-clicking a column header and selecting Column Chooser:



The Customization Form will be displayed listing hidden columns and bands (if any):

Drag a column header here to group by that column

Supplier	Unit Price
Antonio del Valle Saavedra	\$21.00
Antonio del Valle Saavedra	\$28.00
Mayumi Ohno	
Mayumi Ohno	
Mayumi Ohno	
Ian Devling	
Ian Devling	

Customization

2. Drag the required column/band from the Customization Form onto the column/band header panel and drop it at a specific position.

Drag a column header here to group by that column

Supplier	Unit Price
Antonio del Valle Saavedra	\$21.00
Antonio del Valle Saavedra	\$28.00
Mayumi Ohno	
Mayumi Ohno	
Mayumi Ohno	
Ian Devling	
Ian Devling	

Customization

NOTE

When a band is hidden together with its child bands and columns, headers of hidden children are not displayed within the Customization Form.

Change the Visibility of Fields in Card Views

1. Click the Customize button:

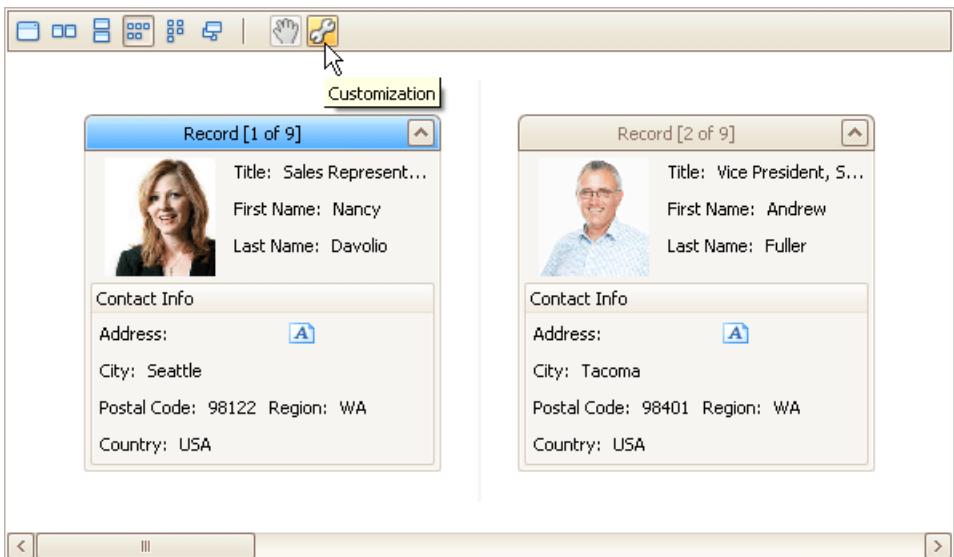
Category: Truck		Category: Saloon	
Model:	Tacoma S-Runner	Model:	S-Type 3.0
Trademark:	Toyota	Trademark:	Jaguar
Hyperlink:	http://www.toyota.com	Hyperlink:	http://www.jaguar.com
Picture:		Picture:	
Description:	A	Description:	A

2. To hide specific fields, clear corresponding check boxes in the opened window. To display hidden items, enable corresponding check boxes:

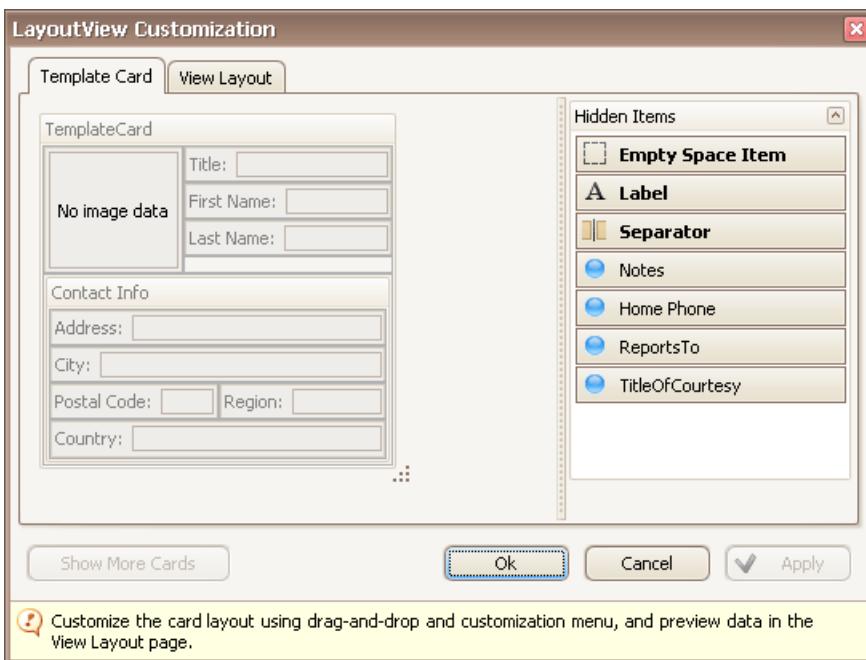
ID	Sort:	Filter
<input checked="" type="checkbox"/> Trademark	Sort:	Filter
<input checked="" type="checkbox"/> Model	Sort:	Filter
<input type="checkbox"/> Category	Sort:	Filter
<input checked="" type="checkbox"/> Description	Sort:	Filter
<input checked="" type="checkbox"/> Hyperlink	Sort:	Filter
<input checked="" type="checkbox"/> Picture	Sort:	Filter

Change the Visibility of Fields in Layout Views

1. Click the Customization button within the header panel:



2. To hide a field, in the Layout View Customization Window, drag and drop the field from the Template Card onto the Hidden Items list. To display a hidden field, drag it from the Hidden Items list onto the Template Card at the required position:

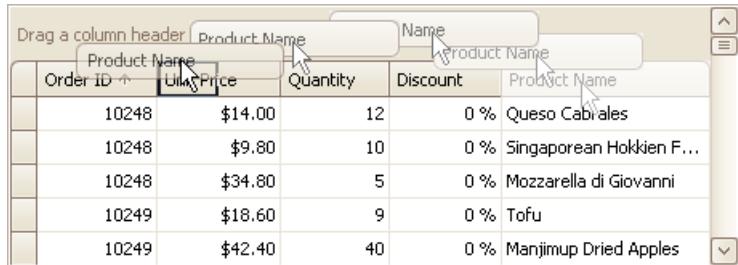


3. Click OK or Apply.

Rearrange Grid Columns, Bands and Card Fields

Reorder Columns and Bands in Grid Views

To reorder columns, drag and drop a column header to a new position:



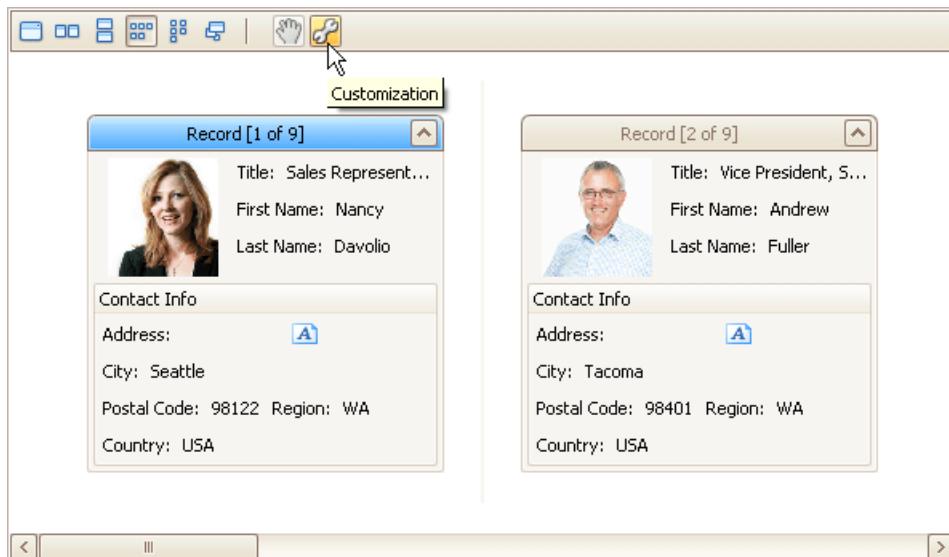
To reorder bands, drag and drop a band header to a new position:



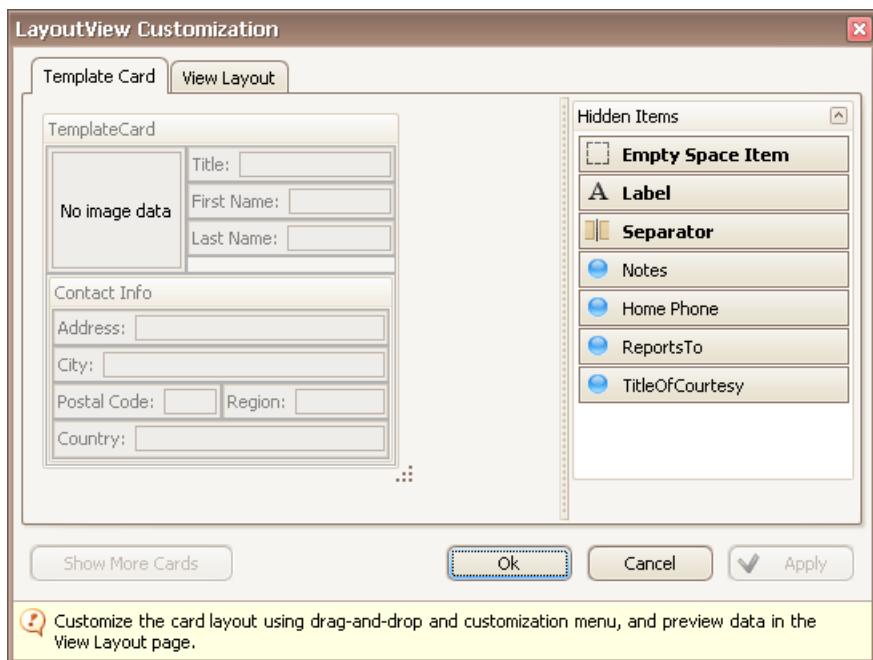
Rearrange Card Fields in Layout Views

Do the following:

1. Click the Customization button displayed within the header panel:



The LayoutView Customization window will open:

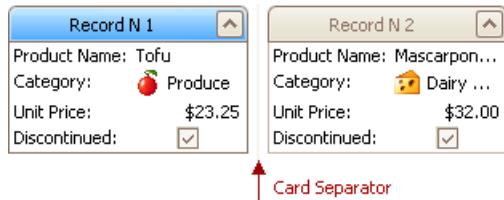


2. Rearrange fields using drag and drop, as required.
3. Close the Customization window to apply the changes.

Resize Cards in Grids

Resize Cards in Card Views

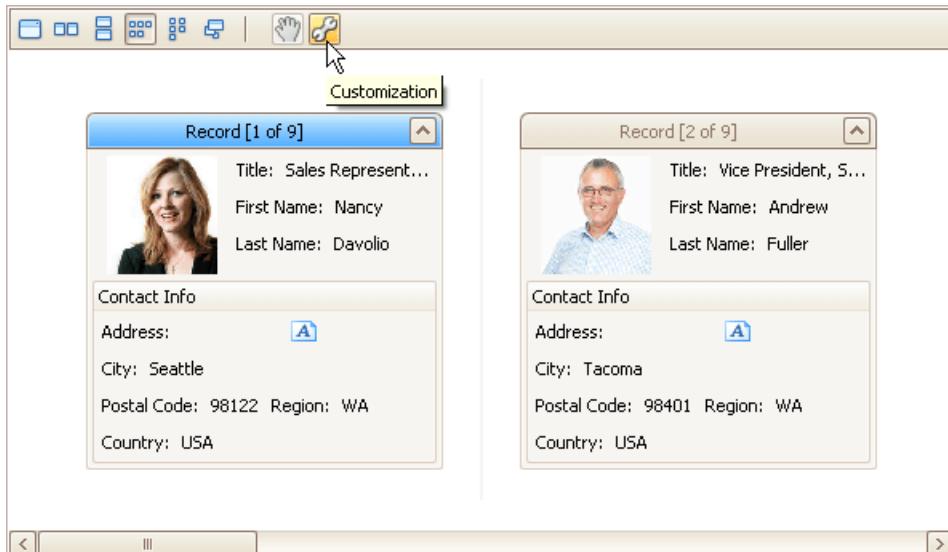
In Card Views, to resize cards horizontally, drag card separators (if they are visible):



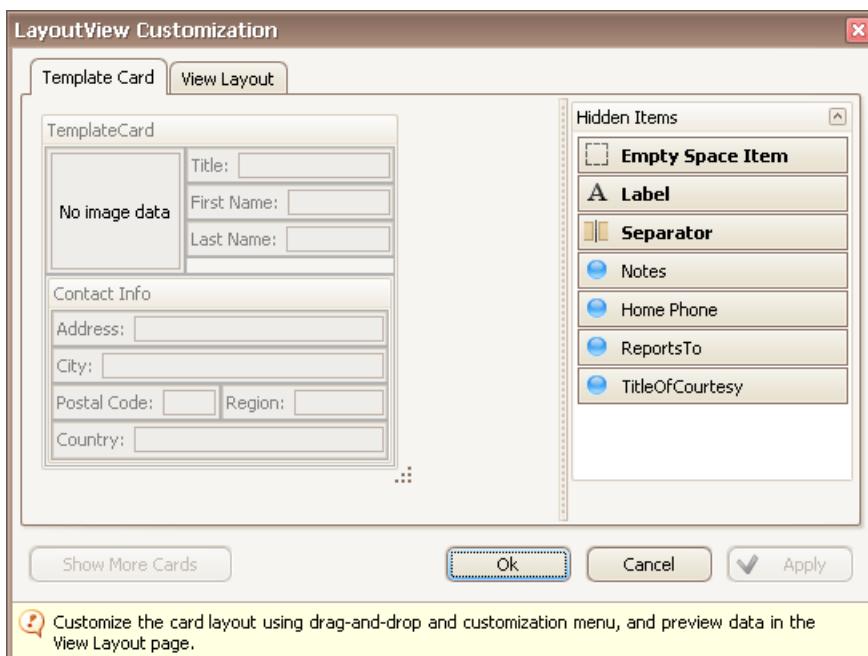
Resize Cards in Layout Views

In Layout Views, to resize cards do the following:

1. Click the Customization button displayed within the header panel:



The LayoutView Customization window will open:



2. Resize the template card as required.

3. Close the Customization window to apply the changes.

Resize Grid Columns, Bands and Card Fields

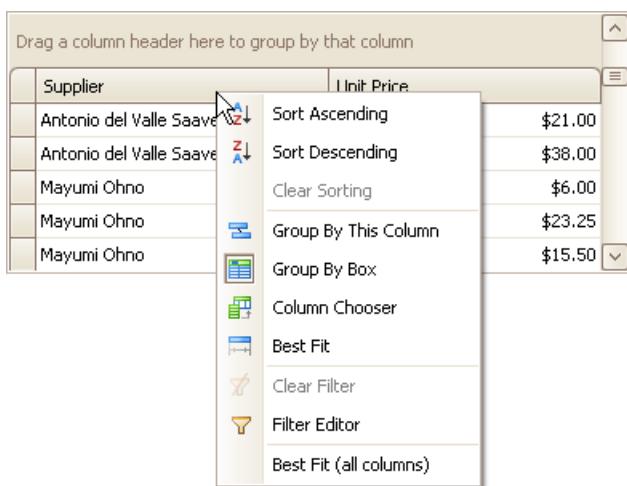
Resize Columns and Bands in Grid Views

To resize columns and bands, drag the right edge of the target column/band header:

Order ID	Product
10248	Queso Cabrales
10248	Singaporean Hokkien Fried Mee
10248	Mozzarella di Giovanni

To change a column's width so that it displays its contents compactly in their entirety, do one of the following:

- Double-click the right edge of the column header.
- Right-click the column's header and select **Best Fit**:

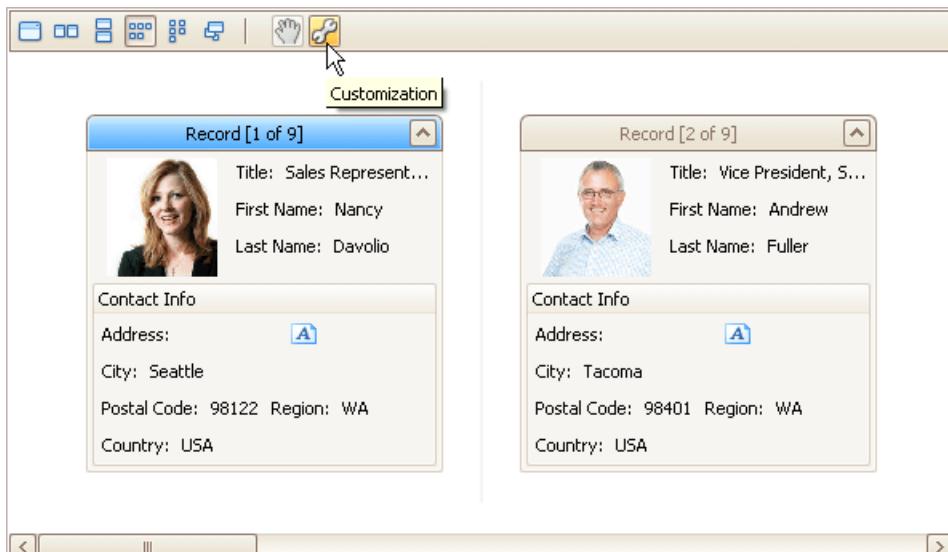


To change the widths of all columns so that they display their contents in the best possible way, right-click the header of any column and select **Best Fit (all columns)**.

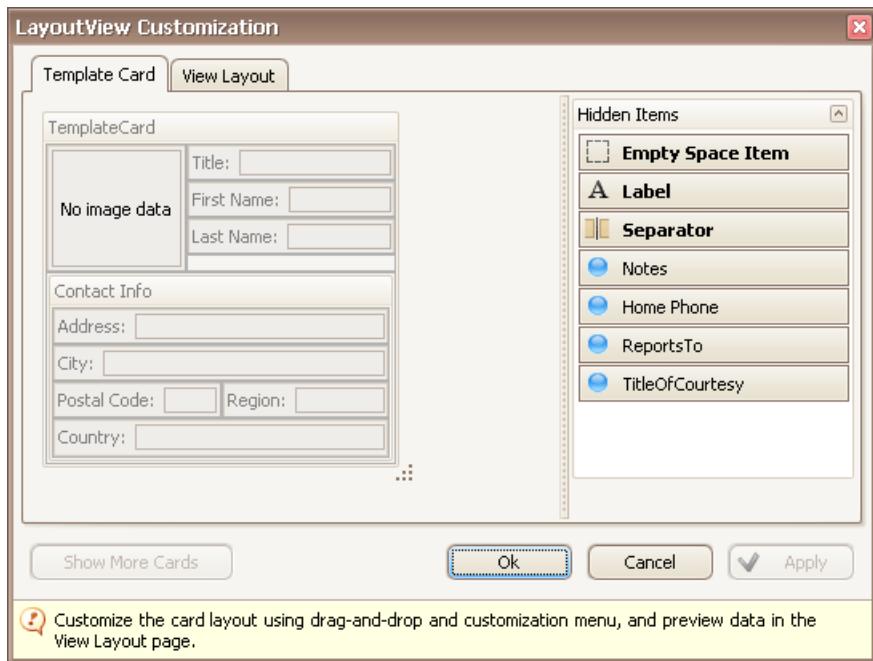
Resize Card Fields in Layout Views

To resize cards or card fields do the following:

1. Click the Customization button displayed within the header panel:



The LayoutView Customization window will open:



2. Resize the template card and/or fields within the template card as required.
3. Close the Customization window to apply the changes.

Locate Grid Records

In Grid Views, you can locate a data row by typing the initial characters of the values contained in this row.

To locate the nearest row that contains a specific value in a specific column, do the following:

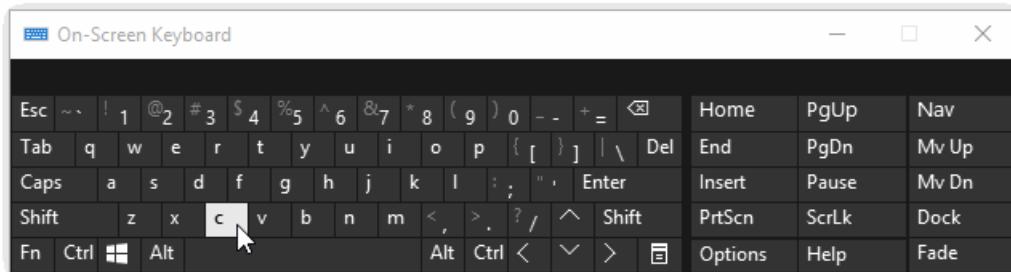
- Focus any cell in the column, against which a search will be performed.
- Type the initial character(s) of the value to be located. The nearest row that contains the specified value in the clicked column will be located.

To proceed with the search in the forward direction, press CTRL+DOWN ARROW.

To proceed with the search in the backward direction, press CTRL+UP ARROW.

To erase the previously typed characters in the search string, press BACKSPACE.

Drag a column header here to group by that column					
Country	Product Name	Category Name	Quantity	Sales Person	
UK	Guaraná Fantástica	Beverages	28	Anne Dodsworth	
UK	Guaraná Fantástica	Beverages	35	Michael Suyama	
UK	Outback Lager	Beverages	30	Anne Dodsworth	
UK	Chef Anton's Cajun Seasoning	Condiments	12	Steven Buchanan	
UK	Vegie-spread	Condiments	6	Steven Buchanan	
UK	Original Frankfurter grüne Soße	Condiments	18	Anne Dodsworth	
UK	Original Frankfurter grüne Soße	Condiments	15	Michael Suyama	
UK	Teatime Chocolate Biscuits	Confections	35	Michael Suyama	



Navigate Through Grid Records

Move Focus Between Rows and Cards

To move focus between cells and rows use the ARROW, TAB, HOME, END, PAGE UP and PAGE DOWN keys. Note that the ARROW, HOME and END keys are used for navigation between rows/cards only when the focused cell is not being edited. Otherwise, these keys affect focus movement within the currently edited cell.

To focus the next cell, do one of the following:

- Press TAB.
- In Grid Views, press RIGHT ARROW. In Card Views and Layout Views, press DOWN ARROW. If a cell editor is active, pressing RIGHT ARROW moves focus to the next cell if the caret is positioned at the end of the current cell's text, or if the cell's text is selected in its entirety.

To focus the previous cell, do one of the following:

- Press SHIFT+TAB.
- In Grid Views, press LEFT ARROW. In Card Views and Layout Views, press UP ARROW. If a cell editor is active, pressing LEFT ARROW moves focus to the previous cell if the caret is positioned at the beginning of the current cell's text, or if the cell's text is selected in its entirety.

To focus the first cell within the current row in Grid Views, press HOME.

To focus the last cell within the current row in Grid Views, press END.

To focus the first row/card:

- press CTRL+HOME in Grid Views.
- press HOME or CTRL+HOME in Card Views and Layout Views.

To focus the last row/card:

- press CTRL+END in Grid Views.
- press END or CTRL+END in Card Views and Layout Views.

To move focus to the Auto Filter Row displayed at the top of a Grid View, do one of the following:

- Click this row.
- If a top data row is focused, press CTRL+UP ARROW.

Move Focus Away From the Grid Control

Press CTRL+TAB or CTRL+SHIFT+TAB.

Select Grid Rows and Cards

Select Individual Rows/Cards

To select a row/card and clear the existing selection, do one of the following:

- In Grid Views, click the row's indicator cell or any of its data cells:

Icon	Category	Model	HP ↑
Trademark: Jaguar	Sports	C230 Kompressor Sport Coupe	189
Trademark: Lexus			
Trademark: Mercedes-Benz			

- In Card and Layout Views, click the card's caption or any of its data cells.
- Select the row/card using the ARROW keys.

Select Multiple Rows or Cards

To select a row/card while preserving the current selection, do one of the following:

- In Grid Views, click the row's indicator cell or any of its data cells, while holding the CTRL key down.
- In Card and Layout Views, click the card's caption or any of its data cells, while holding the CTRL key down.

To toggle the focused row's/card's selected state, do one of the following:

- Press CTRL+SPACE.
- Click the row/card while holding the CTRL key down.

To move focus between rows and cards while preserving the current selection, use CTRL+ARROW keyboard shortcut (supported by Grid and Card Views).

Select a Range of Rows/Cards

To select all rows/cards, press CTRL+A (supported by Grid and Layout Views). Before pressing this shortcut, ensure that the focused cell is not being edited

To select a continuous range or rows/cards, you can do the following

- Use ARROW, PAGE UP, PAGE DOWN keys while holding the SHIFT key down.
- To select all rows/cards between the currently focused row/card and another one, click the target row/card while holding the SHIFT key down.

i NOTE

If the SHIFT key is combined with CTRL, the previously selected rows/cards, if there are any, are not unselected. If you use the SHIFT key alone, the previously selected rows/cards are unselected.

- To select a continuous range of cards in Layout Views, drag with the mouse around cards that are to be selected (marquee selection).

Copy Selected Records to the Clipboard

Press CTRL+C or SHIFT+INS.

Layout Manager

This section describes the capabilities provided by the Layout Manager. It maintains a consistent layout of controls within a form for you, so whenever you resize the form, the controls do not overlap. You can invoke customization mode to temporarily hide specific editors, and then show them again, resize the controls, save and then restore the layout, etc.

The screenshot shows a user interface for viewing car details. At the top, there are two tabs: 'Details' (selected) and 'Performance Attributes'. Below the tabs, there are several input fields and a preview image of a silver Mercedes-Benz SL500 Roadster. The fields include:

- Manufacturer: Mercedes-Benz
- Model: SL500 Roadster
- Category: Sports (dropdown menu, currently selected)
- Price: \$83,800.00
- Delivery Date: 7/24/2002
- In stock? (checkbox checked)

At the bottom of the form, there is a navigation bar with icons for back, forward, search, and other operations, along with the text "Record 1 of 15".

Layout Customization

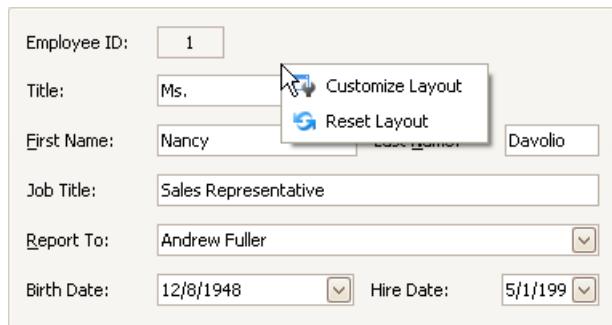
- [Start Layout Customization](#)
- [Finish Layout Customization](#)
- [Hide and Display Elements using a Layout Manager](#)
- [Change Element Layout](#)
- [Resize Interface Elements](#)
- [Add Empty Regions, Separators, Splitters and Labels](#)
- [Change Text Label Options](#)
- [Work with Interface Element Groups](#)
- [Create and Delete Tabbed Groups](#)

Save and Restore Layout

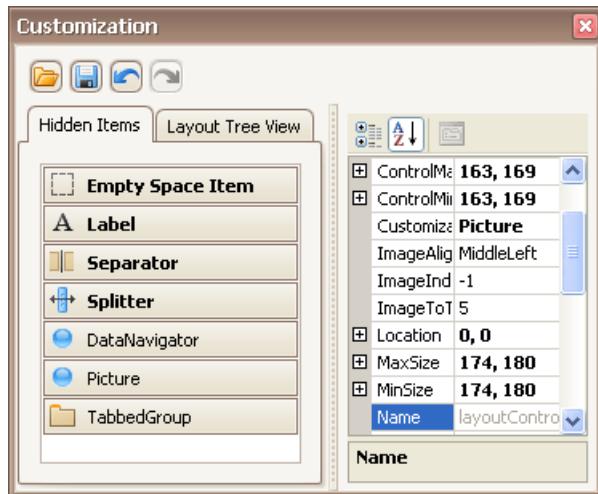
- [Save and Restore Interface Layout](#)

Start Layout Customization

The layout of controls can be modified in customization mode. To invoke customization mode, right-click an empty space within the Layout Manager and select **Customize Layout**:



As a result, the Customization Form opens a list of service items and currently hidden elements:



Now, you can modify the current layout using drag-and-drop and resizing operations and commands provided by context menus. Context menus that can be invoked by right-clicking within the Layout Manager provide various customization commands. Different commands are available depending upon the type of a layout item which has been right-clicked (a regular control, a group or tabbed group).

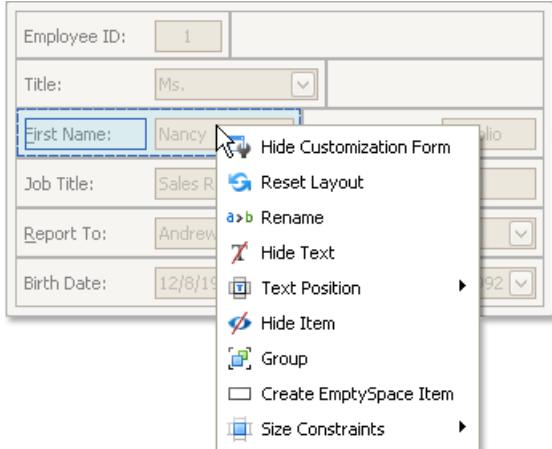
Finish Layout Customization

To finish [customization](#), do one of the following:

- Close the Customization form by clicking on its close button.



- Right-click the form and select **Hide Customization Form**.



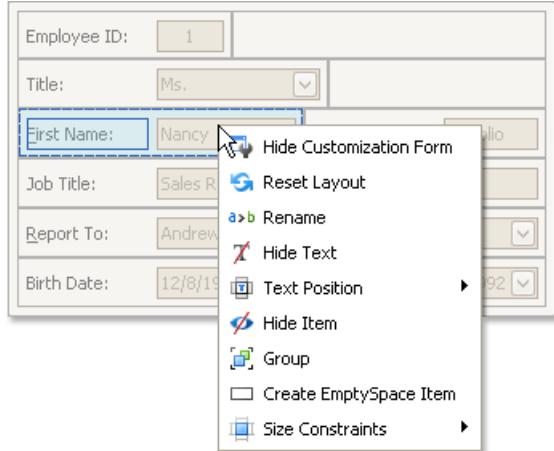
Hide and Display Elements using a Layout Manager

To perform layout customization, first invoke [Customization Mode](#). After customization has been completed, [exit](#) customization mode.

Hide an Element

Do one of the following:

- Right-click on the layout item and select **Hide Item** from the context menu:



- Drag the layout item onto the **Hidden Items** list of the Customization Form.

Display a Hidden Element

Drag the required item from the Customization form's Hidden Items list onto the main form.

Change Element Layout

To perform layout customization, first invoke [Customization Mode](#). After customization has been completed, [exit](#) customization mode.

Change Element Layout

To rearrange items within the form, use drag-and-drop operations.

Resize Interface Elements

To perform layout customization, first invoke [Customization Mode](#). After customization has been completed, [exit](#) customization mode.

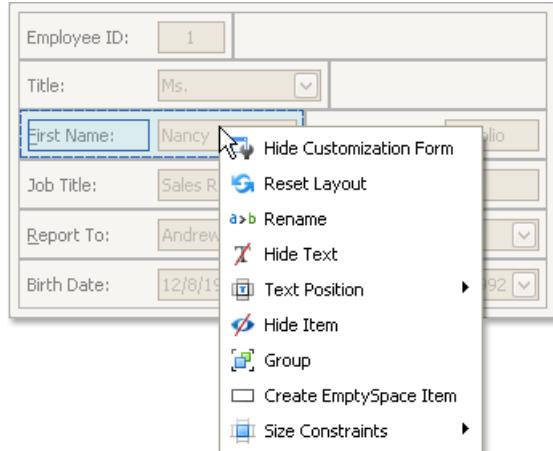
Resize Layout Items

To resize a layout item, drag the layout item's edge:



Lock Size

To lock a layout item's size, and prevent it from being resized (for instance, when the size of the container changes), right-click on a layout item and select the **Size Constraints | Lock Size** menu command:



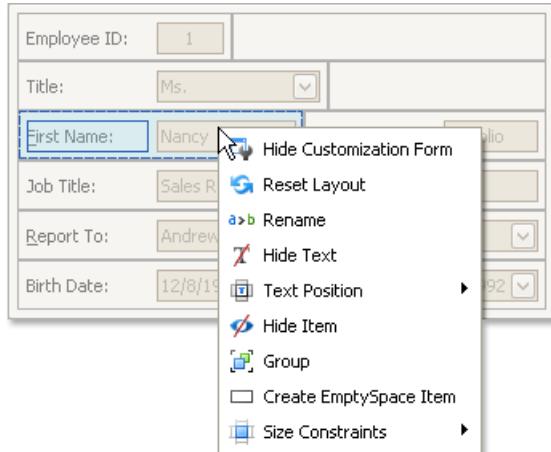
Add Empty Regions, Separators, Splitters and Labels

To perform layout customization, first invoke [Customization Mode](#). After customization has been completed, [exit](#) customization mode.

Add Empty Regions

Empty regions enable greater control over element layout. They can be used, for example, if you want elements to be aligned to the right or bottom edge of a resizable container. To add an empty region, do one of the following:

- Drag the **Empty Space Item** from the Customization form and drop at the required position on the form.
- Right-click the Layout Control and select **Create EmptySpace Item** from the context menu:



A new empty region will be added at the bottom of the Layout Control. Then, drag this item to the required position.

Add Splitters

To allow controls to be resized even when no customization is being performed, you can add a splitter between these controls. To add a splitter, drag the **Splitter** item from the Customization form onto the main form.

Add Separators

A separator is just a line that allows you visually separate the Layout Control's areas. To add a separator, drag the **Separator** item from the Customization form onto the main form.

Add Labels

To add a static text label to the Layout Control, do the following:

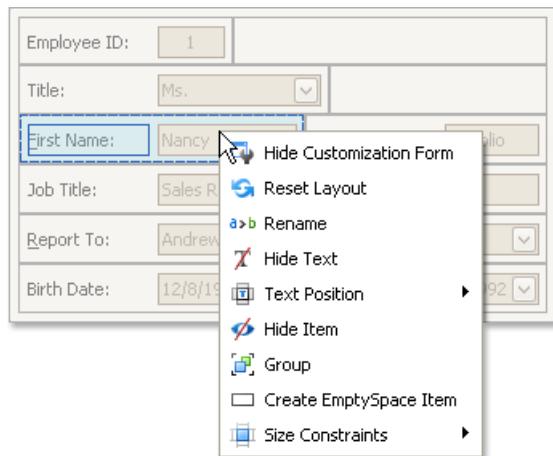
1. Drag the **Label** item from the Customization form onto the main form.
2. To rename the label, right-click the created label and select **Rename** from the context menu.

Change Text Label Options

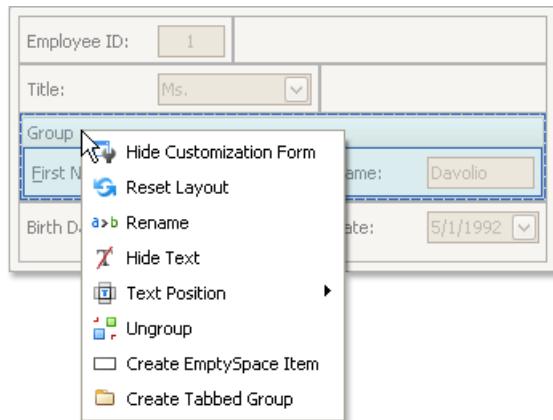
To perform layout customization, first invoke [Customization Mode](#). After customization has been completed, [exit](#) customization mode.

Rename Labels

To rename a layout item's text label, right-click the item and select **Rename** from the context menu.



To rename a group, right-click the group's caption and select **Rename**.



Change a Label's Visibility

To hide a layout item's text label or a group's caption, right-click the item/group and select **Hide Text** from the context menu.

To display a layout item's hidden text label or a group's hidden caption, right-click the item/group and select **Show Text**.

Change a Label's Position

To change the position of an item's label or a group's caption, right-click the item/group to open the context menu. Then, select **Text Position** and the required command from this submenu.

Work with Interface Element Groups

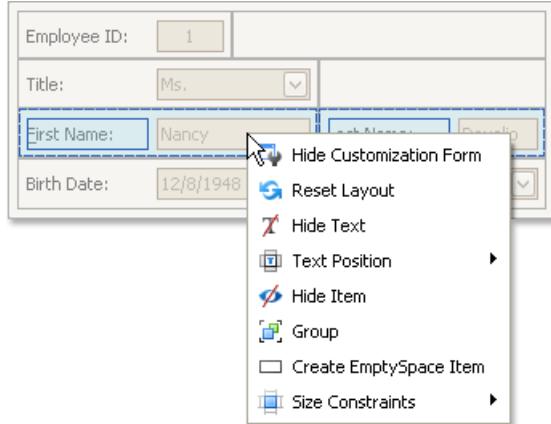
To perform layout customization, first invoke [Customization Mode](#). After customization has been completed, [exit](#) customization mode.

Combine Layout Items into Groups

1. Select a layout item that is to be added to a new group by clicking it.

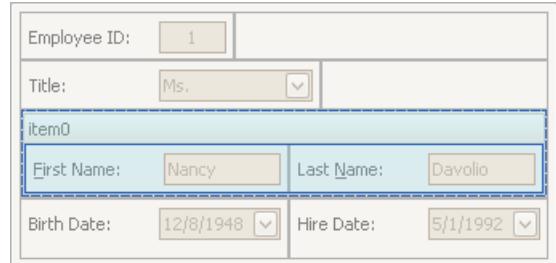
You can select multiple items simultaneously by clicking them while holding the SHIFT key down.

2. Right-click any of the selected layout items and select **Group** from the context menu:



Note that only adjacent selected layout items can be combined into a group, and only if the region occupied by them forms a rectangle. Otherwise, the **Group** command is not available when right-clicking the selection.

As a result, a new group is created:

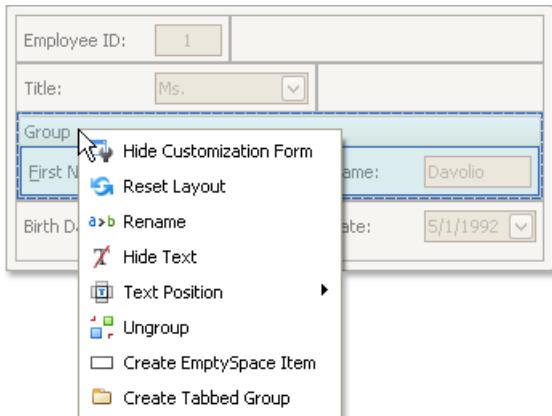


You can subsequently rename the group and customize its contents using drag-and-drop and context menus if required.

Rename Groups

Do the following:

1. Right-click the group's caption and select **Rename**:



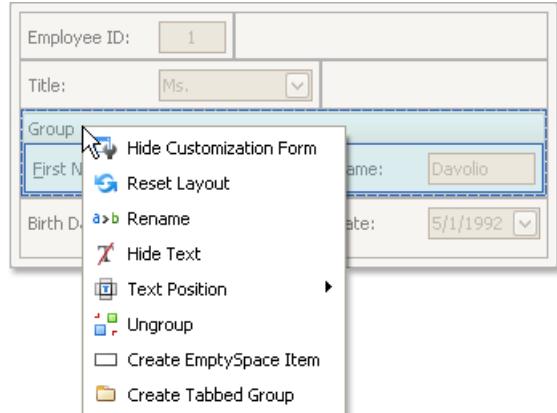
2. Type a new name and press ENTER.

Change Group Content

To customize the layout of controls within a group, use drag-and-drop.

Ungroup Elements

To ungroup elements, right-click the group's caption and select **Ungroup**:



Create and Delete Tabbed Groups

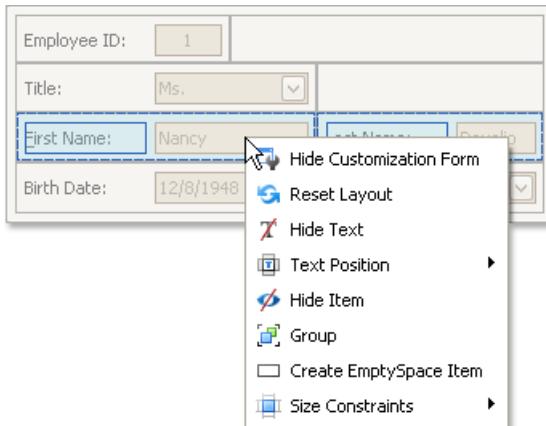
To perform layout customization, first invoke [Customization Mode](#). After customization has been completed, [exit](#) customization mode.

Combine Layout Items into a Tab Control

1. Select a layout item that is to be added to a tab control by clicking it.

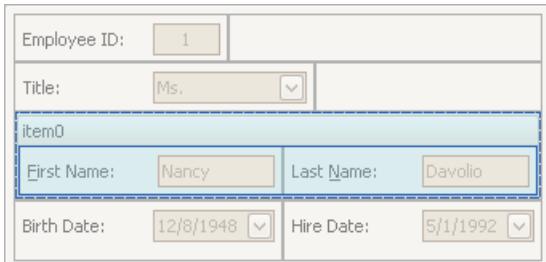
You can select multiple items simultaneously by clicking them while holding the SHIFT key down.

2. Right-click any of the selected layout items and select **Group** from the context menu:

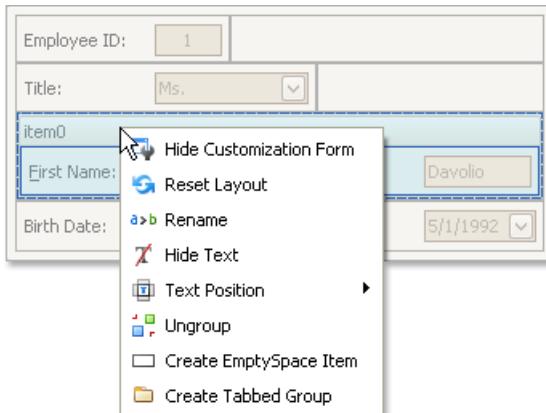


Note that only adjacent selected layout items can be combined into a group, and only if the region occupied by them forms a rectangle. Otherwise, the **Group** command is not available when right-clicking the selection.

As a result, a new group is created:



3. Right-click the group's caption and select **Create Tabbed Group**.

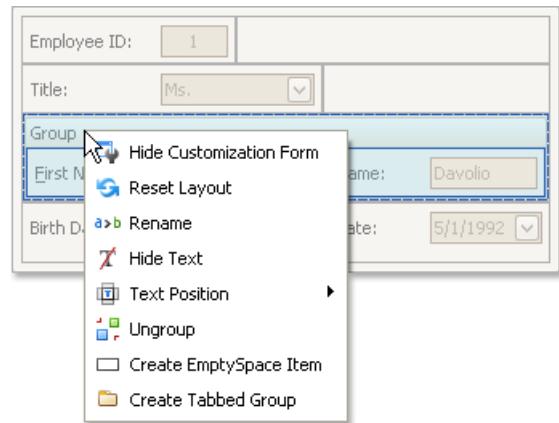


This creates a tab control with one tab displaying the contents of the original group.

You can subsequently rename the created tab and customize the contents of tab pages using drag-and-drop and context menus, if required.

Combine Groups into a Tab Control

To transform a group into a tab control, right-click the group's caption and select **Create Tabbed Group**.



To add a group as a tab page to an existing tab control, drag the group's caption onto the tab control's header area.

Rename Tab Pages

Do the following:

1. Right-click a tab header and select **Rename**:



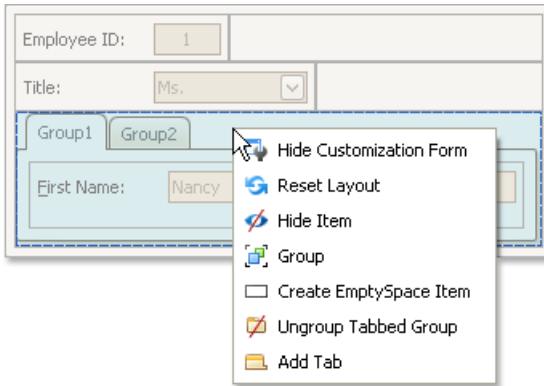
2. Type a new name and press ENTER.

Customize Tabbed Groups

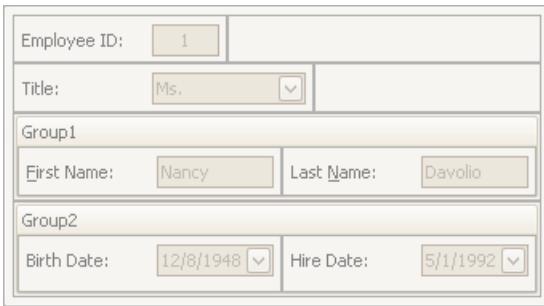
To customize the layout of controls and the order of tab pages within a tab control , use drag-and-drop.

Ungroup Tabbed Groups

To disassemble a tab control into regular groups, right-click the tab control's header area and select **Ungroup Tabbed Group**.



As a result, the tab control will be destroyed and all its tab pages will be displayed as regular groups, one below another.



Save and Restore Interface Layout

You can save the current layout of controls to an XML file, and subsequently, restore it.

Save the Layout of Controls

1. Invoke [Customization mode](#).
2. In the Customization form that opens, click the **Save Layout** button ().
3. The Save As dialog will appear. It allows you to specify the XML file to which the layout is to be saved.

Load a Layout of Controls

1. Invoke [Customization mode](#).
2. In the Customization form that opens, click the **Load Layout** button ().
3. The Open File dialog will appear. It allows you to specify the XML file from which the layout is to be loaded.

Map

The section describes the **Map** control's features and consists of the following topics:

- [Scrolling](#)
- [Zooming](#)
- [Selection](#)
- [Using the Search Panel](#)
- [Mini Map](#)
- [Map Editor](#)
- [Rulers](#)

Scrolling

The following operations can be performed by end-users to scroll a map.

ACTION	EXAMPLE	DESCRIPTION
Hold down the left mouse button and drag it.		When an end-user holds down the left mouse button, the mouse pointer changes from  to  . Move the mouse pointer by holding down the left mouse button. The map is scrolled in the same direction as the mouse pointer is moved.
Use the arrows in the map navigation panel.		An end-user can scroll a map in four directions by clicking the arrows in the map navigation panel. For example, to move east, use the right arrow in the navigation panel.
Use the "Arrow" keys (LEFT, UP, RIGHT or DOWN).		If an end-user presses the LEFT arrow key, the map is moved west; if an end-user presses the UP arrow key, the map is moved north; if an end-user presses the RIGHT arrow key, the map is moved east; if an end-user presses the DOWN arrow key, the map is moved south.
Use flick gestures on a touchscreen device.		An end-user can scroll a map using flick gestures on a touchscreen device.

Zooming

The following operations can be performed by end-users to zoom in to or out of a map.

ACTION	EXAMPLE	EFFECT
Use the Plus or Minus symbols in the map navigation panel		Click the Plus or Minus symbols in the map navigation panel.
Use the track bar slider in the map navigation panel		Select the track bar slider in the map navigation panel by hovering the mouse cursor over the slider. Drag the track bar slider to the right (zoom in) or to the left (zoom out) in the map navigation panel. To stop zooming, release the left mouse button. Note that a tooltip that displays the current zoom level appears below the track bar slider.
Drag an area on the map while holding the Shift and Ctrl keys.		Hold the Shift and Ctrl keys, and the left mouse button. Then, drag the mouse pointer. This draws a rectangle on the map that corresponds to the map zoom region. To zoom into the specified rectangular area, release the left mouse button.
Use the + or - keys.		If the "+" key is pressed, the map is zoomed in. If the "-" key is pressed, the map is zoomed out.
Use the mouse wheel		Scroll the mouse wheel to zoom in to and out of a map.
Use the spread or pinch gesture on a touchscreen device		Zoom in to or out of a map by performing a spread or pinch gesture on any touchscreen device.

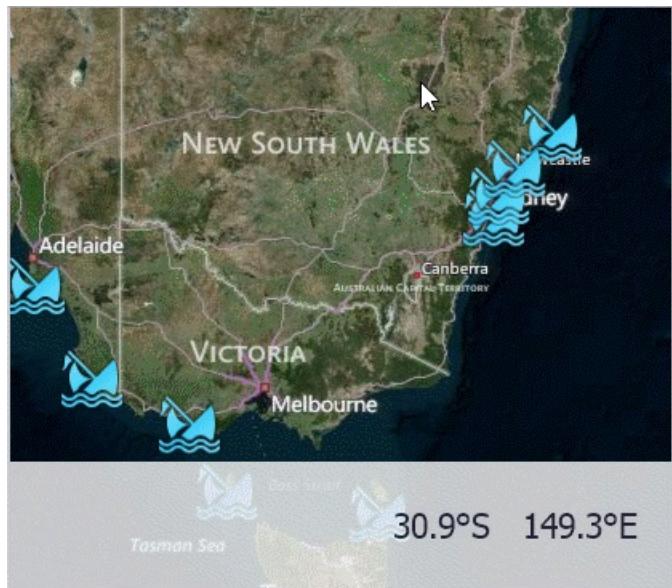
Selection

To select a map item, do one of the following:

- Tap a map item on a touchscreen device;
- Hover over a map item with the mouse pointer and click it.

To select multiple map items, do the following:

- Hold the **Shift** key and the left mouse button;
- Drag the mouse pointer, to mark an area that includes the desired map items;
- Release the left mouse button. All map items within the area will be selected.



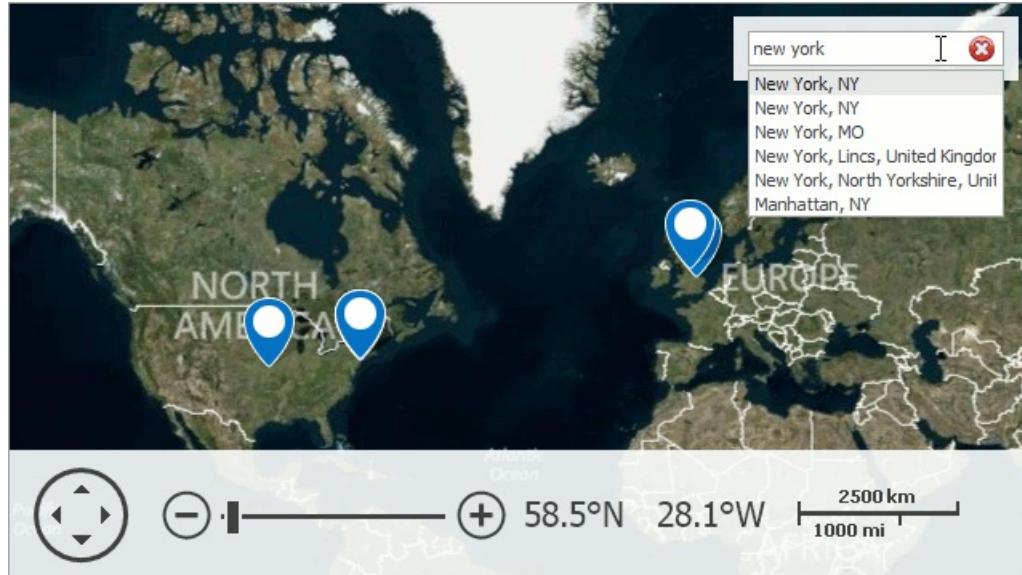
Using the Search Panel

This document explains how to use a search panel in the **Map** control.

The **Search Panel** is a UI element that accepts text input and displays the results of a search request returned by the search service.

The Search Panel allows you to find a location on the map and see the search results for a request in the panel.

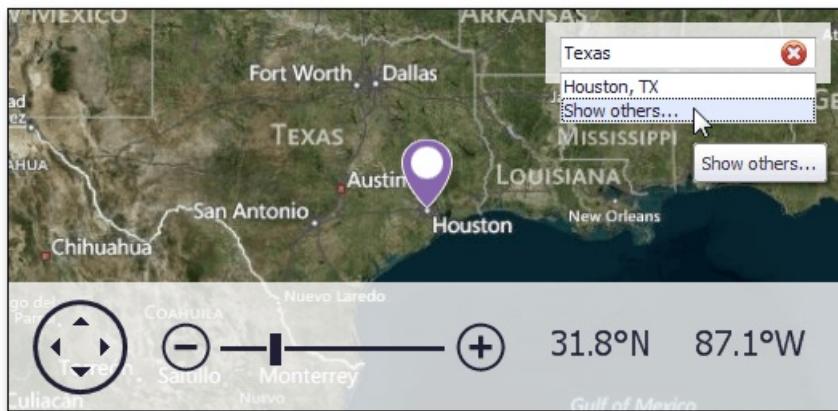
To start a search, type a place name ("Texas", for example) in the panel. The result is shown in the image below.



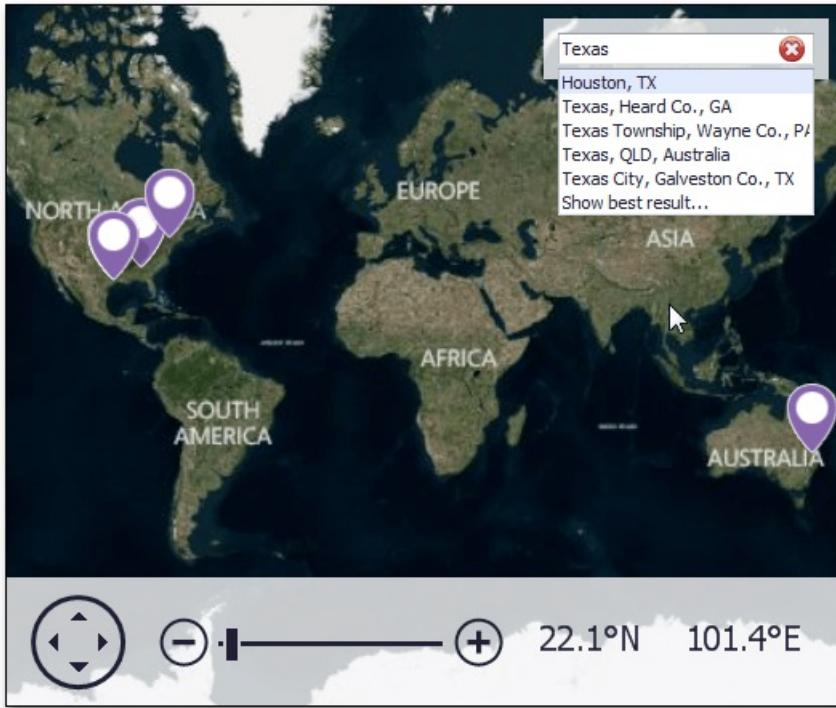
To cancel a request, click the delete (✖) icon on the right side of the panel.

Notice that the map pushpin only shows the "Houston, TX" location on the map. Note, however, that the search result also displays the **Show others...** item, which means that the **Microsoft Bing Search** service found alternative results for this request.

Click the **Show others...** option to see the other search results.



Other search results ("Texas, Heard Co., GA", "Texas, QLD, Australia", etc.) will be displayed along with the **Show best result...** option.



To see only "Houston, TX", click **Show best result...** in the Search panel.

Mini Map

The Mini Map provides a complete overview of the map, as well as additional information about the current map viewport, and allows you to navigate to different map regions.

The mini map supports the following behavior modes.

Fixed

When a mini map operates in fixed behavior mode, its center point and zoom level are fixed. The following image demonstrates fixed behavior mode.

Note that center point of the mini map stays the same when the map's center point changes, as well as the zoom level.



Dynamic

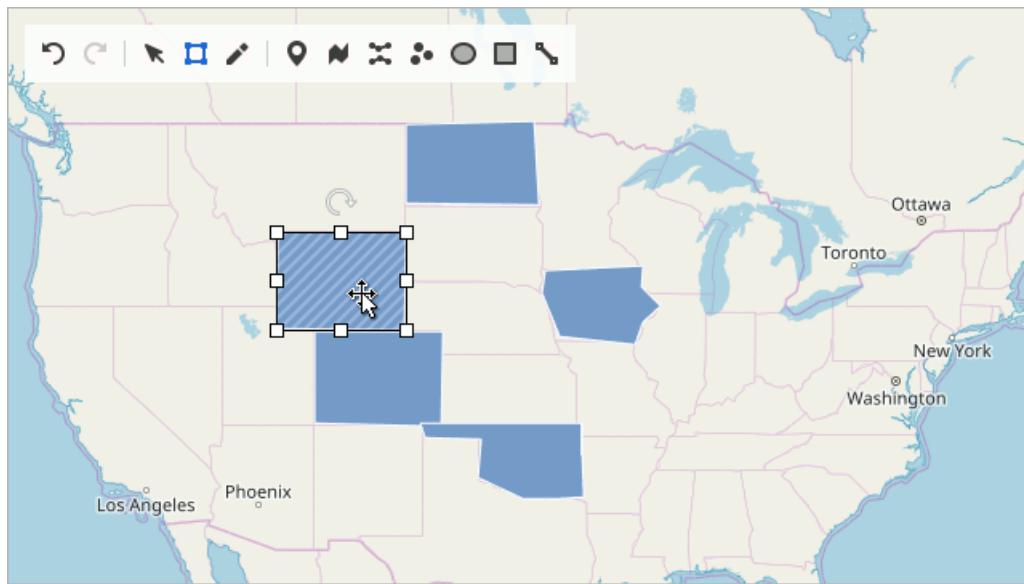
In a dynamic behavior mode, mini map settings are changed according to the zoom level and center point of the owner map. The following image demonstrates dynamic behavior mode.

Note that center point of the mini map is changing depending on the map's center point, as well as the zoom level.



Map Editor

The Map Editor is a built-in tool that allows you to create and modify map items. You can also relocate map items on the map surface, rotate them using a rotation handle, and resize items using the sizing handles. The Map Editor's active mode determines which actions you can perform while editing the map. Use the corresponding editor panel buttons to switch between the Default, Transform, Edit and Create modes.



Map Editor's Panel

The Map Editor's panel consists of the following elements:

- ⌛ - Cancels the last action.
- ⌚ - Restores the last canceled action.
- ⌂ - Enables Default mode.
- ⌜ - Activates Transform mode.
- ⌚ - Turns on Edit mode.
- ⌂ - Enables "Create Pushpin" mode to create pushpins.
- ⌂ - Enables "Create Path" mode to create map paths.
- ⌂ - Activates "Create Polyline" mode to create map polylines.
- ⌂ - Enables "Create Dot" mode to create map dots.
- ⌂ - Enables "Create Ellipse" mode to create ellipses.
- ⌂ - Turns on "Create Rectangle" mode to create map rectangles.
- ⌂ - Enables "Create Line" mode to create map lines.

Map Editor Modes

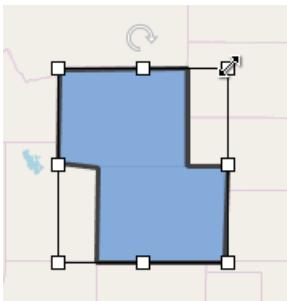
The Map editor provides the following modes that define the available actions when editing a map:

Default Mode

You can only view the map in Default mode. You can use the ⌂ button to turn on this mode.

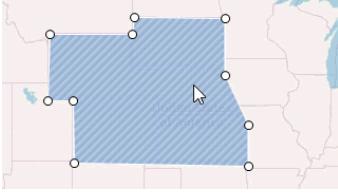
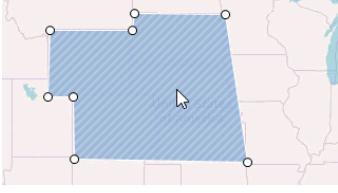
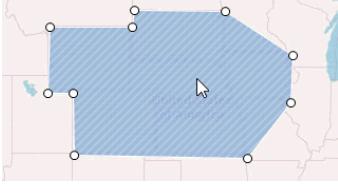
Transform Mode

Select the ⌜ symbol to enable the Transform mode. This mode allows you to resize and rotate the selected map items using the sizing and rotation handles. You can also move map items by dragging them.



Edit Mode

Use the  button to enable the Edit mode. It allows you to move, add, and remove item vertices to change vector map shapes. To edit a map item in this mode, select an item to display its points and perform one of the following actions:

Action	Animation	Description
Moving vertices		Relocate a shape's point by dragging it.
Adding vertices		Hover the mouse pointer over the item's edge between two neighboring points and click where you want to insert a new vertex.
Removing vertices		Remove a shape's point by double-clicking it.

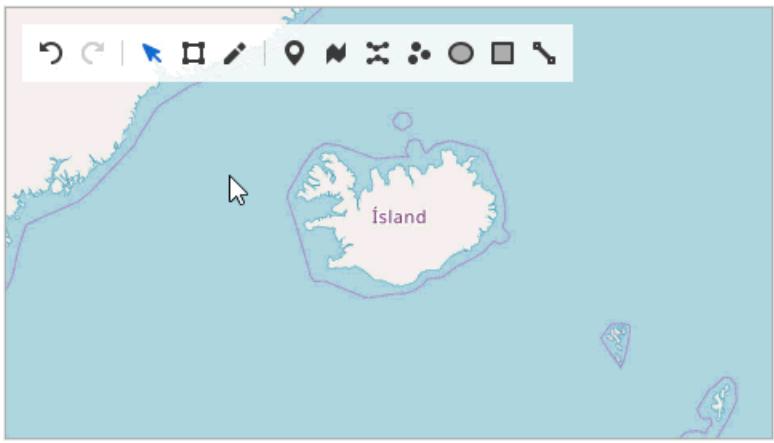
Note that you can only edit the following map vector items:

- Map line
- Map path
- Map polygon
- Map polyline

Create Mode

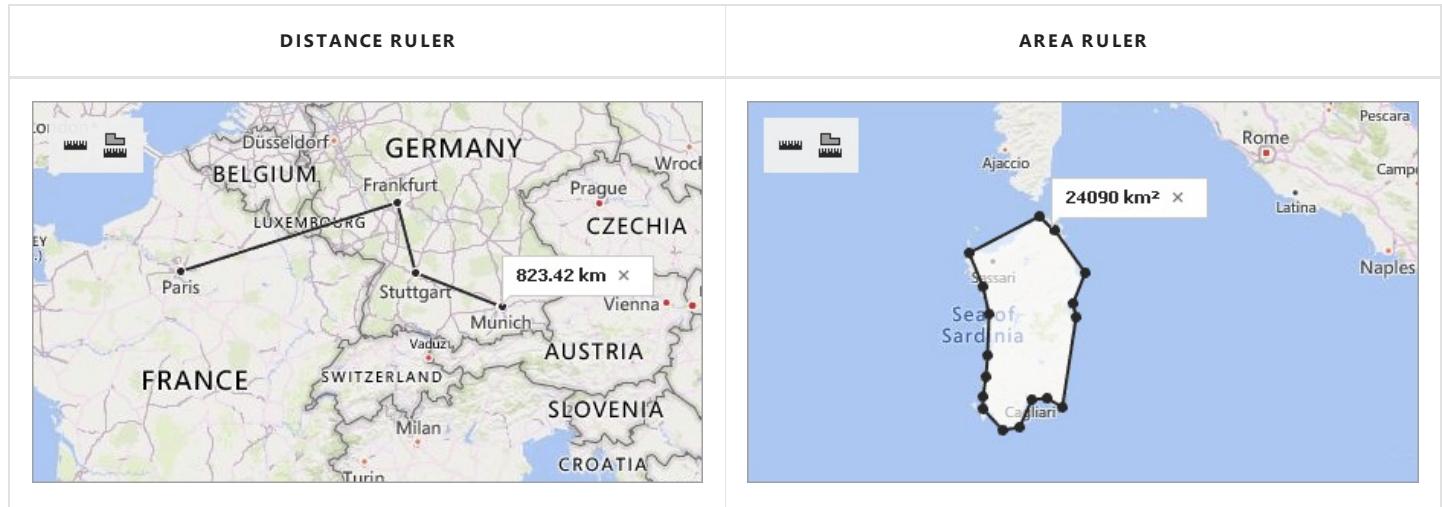
Create mode allows you to add new items to the map. Select one of the following symbols to create map items: 

You can add dots and pushpins by clicking on the required location. To create a complex map item, add points sequentially to form a map item. The following animation shows how to create a map path:



Rulers

You can use rulers to measure distances and areas on a map.



Measure Distances

Click the  button to create a ruler. This ruler calculates the distance between two or more points on a map. The total distance is shown in a map callout. Note that measurements ignore changes in elevation.



Click an intermediate point on the ruler to see the distance to this point.



Measure Areas

Click  button to create an area ruler. This ruler calculates the area inside a polygon. The result is shown in a map callout.



Configure Rulers

After you add a ruler to a map, you can perform the following actions:

- **Add a ruler point.** Click the position on the ruler where you want to add a point.



- **Change the ruler polyline.** Click and drag the point to a new location.



- **Delete a ruler point.** Double-click the ruler point. You can delete a point when the ruler contains more than two points. You can remove the entire ruler if it contains only two points.



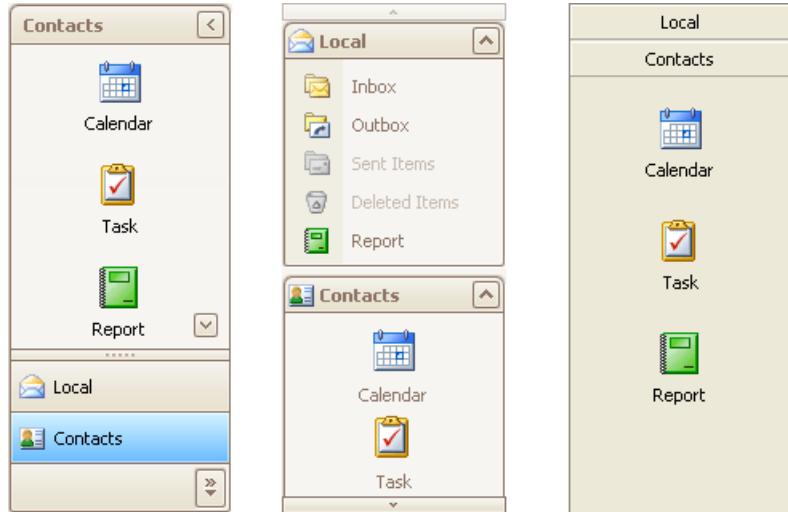
Remove Rulers

You can click the cross button on the map callout that displays the measurement results to remove a ruler.



Navigation Bars

This section describes the capabilities provided by the Navigation Bars.



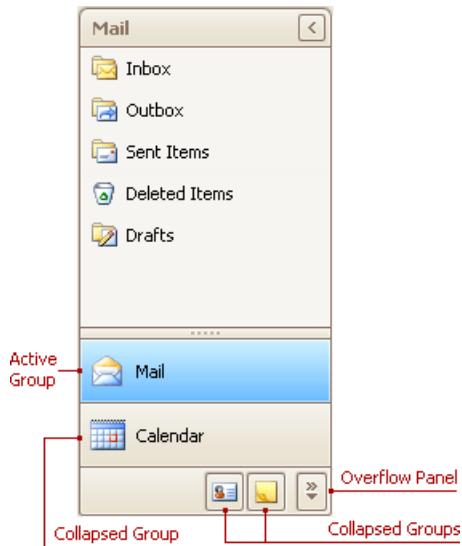
Topics in this section:

- [Navigation Pane](#)
- [Navigation Bar](#)

Navigation Pane

Expand Groups

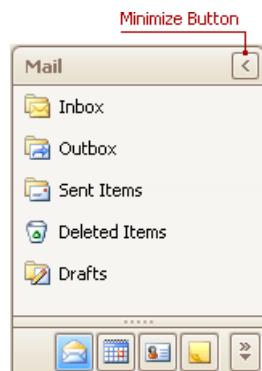
A Navigation Pane displays only one group at a time. Other groups are collapsed and their buttons are displayed at the bottom or in the Overflow panel. You can use the horizontal splitter to control the number of group buttons shown outside of the Overflow panel.



To activate a group, click its caption button.

Minimize the Navigation Pane

To minimize the Navigation Pane, click the Minimize button:



Display the Contents of the Minimized Navigation Pane

To display the contents of a minimized Navigation Pane, you can restore it to its normal state, or display its contents while it's in the minimized state.

To restore the minimized Navigation Pane to its normal size, click the Maximize button:

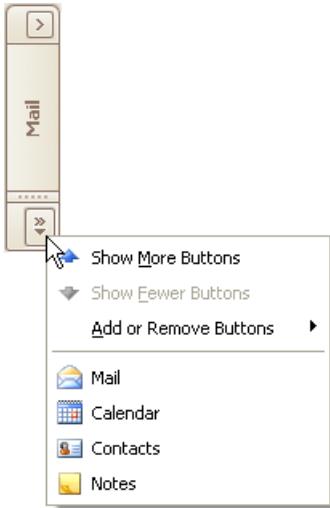


To display the contents of the Navigation Pane when it's in the minimized state, click the current group's button:

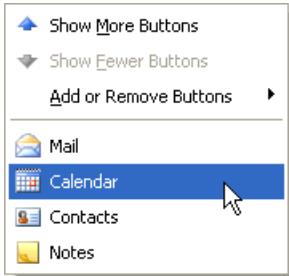


To display the contents of the group that is currently hidden, do the following:

1. Click the dropdown button at the bottom of the Navigation Pane:



2. Select the required group in the menu that opens:



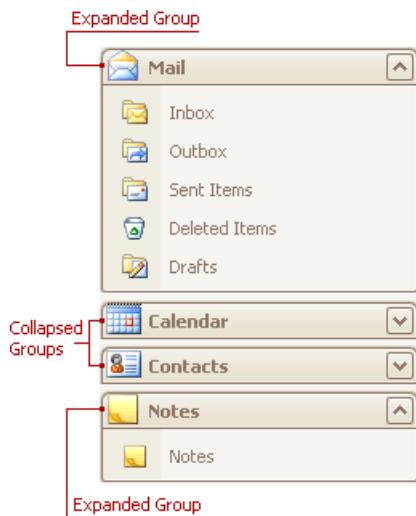
3. Click the current group's button:



Navigation Bar

Expand Groups in the Navigation Bar That Can Display Multiple Groups at One Time

Windows Explorer Bar style navigation bars can display multiple groups at one time, as in the image below:



To collapse a specific expanded group, click the expand button within the group's header:

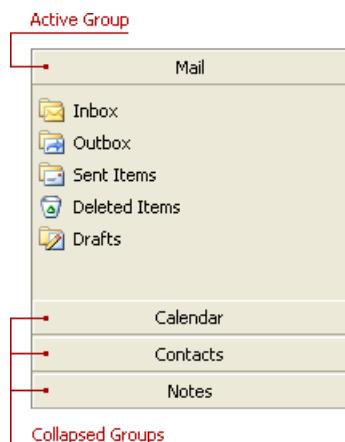


To expand a specific collapsed group, click the collapse button:



Expand Groups in the Navigation Bar That Displays One Group at a Time

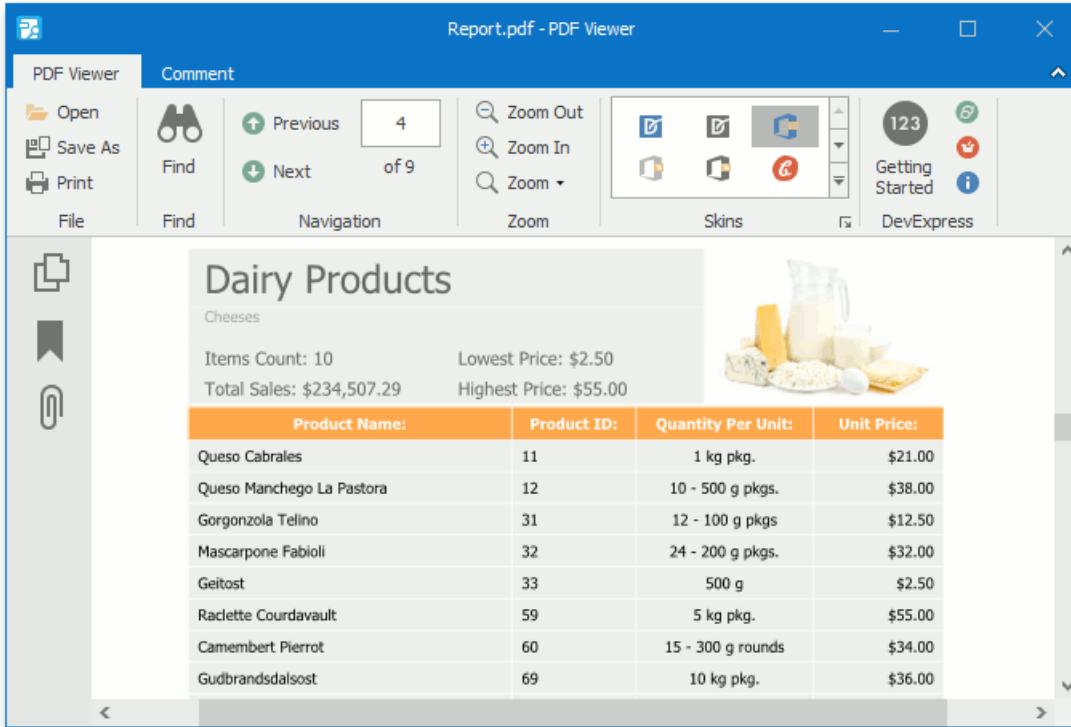
To expand a specific collapsed group, click the group's button. The previously opened group will be collapsed.



PDF Viewer

This section describes the **PDF Viewer** features.

The PDF Viewer can display PDF files with different document content such as text, images, vector graphics, etc.



The section consists of the following articles:

- [Manage Documents and Files](#)
- [Print Documents](#)
- [Navigate and View a Document](#)
- [Adjust the Document View](#)
- [Select and Copy the Document Content](#)
- [View Document Properties](#)
- [Thumbnails](#)
- [Bookmarks](#)
- [File Attachments](#)
- [Annotations](#)
- [Export and Import the AcroForm Data](#)

Manage Documents and Files

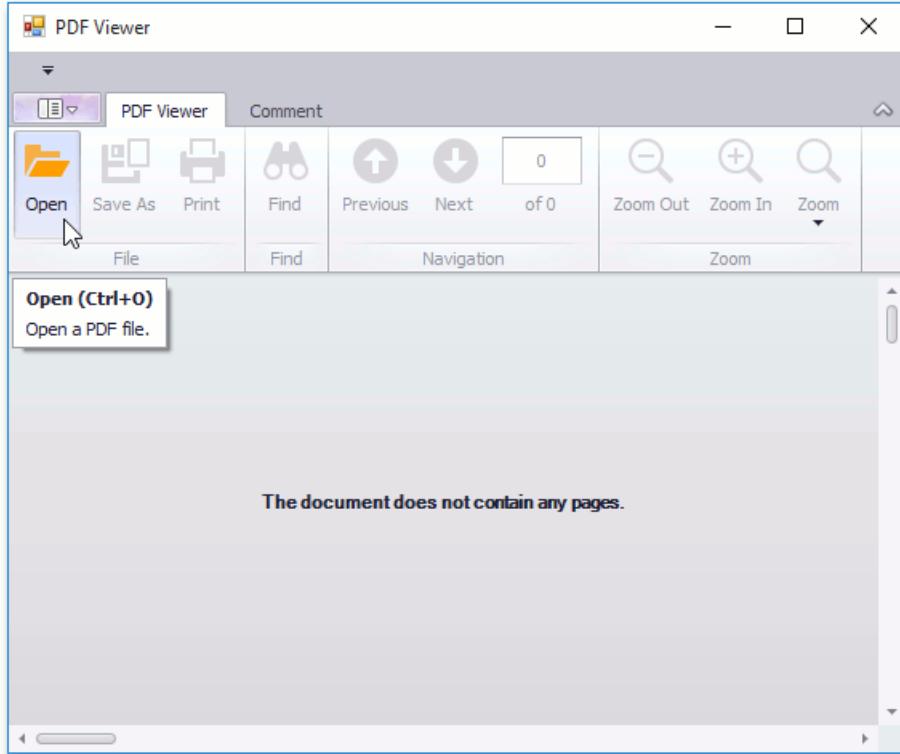
This document describes how to open and save PDF files using the PDF Viewer.

This topic consists of the following sections.

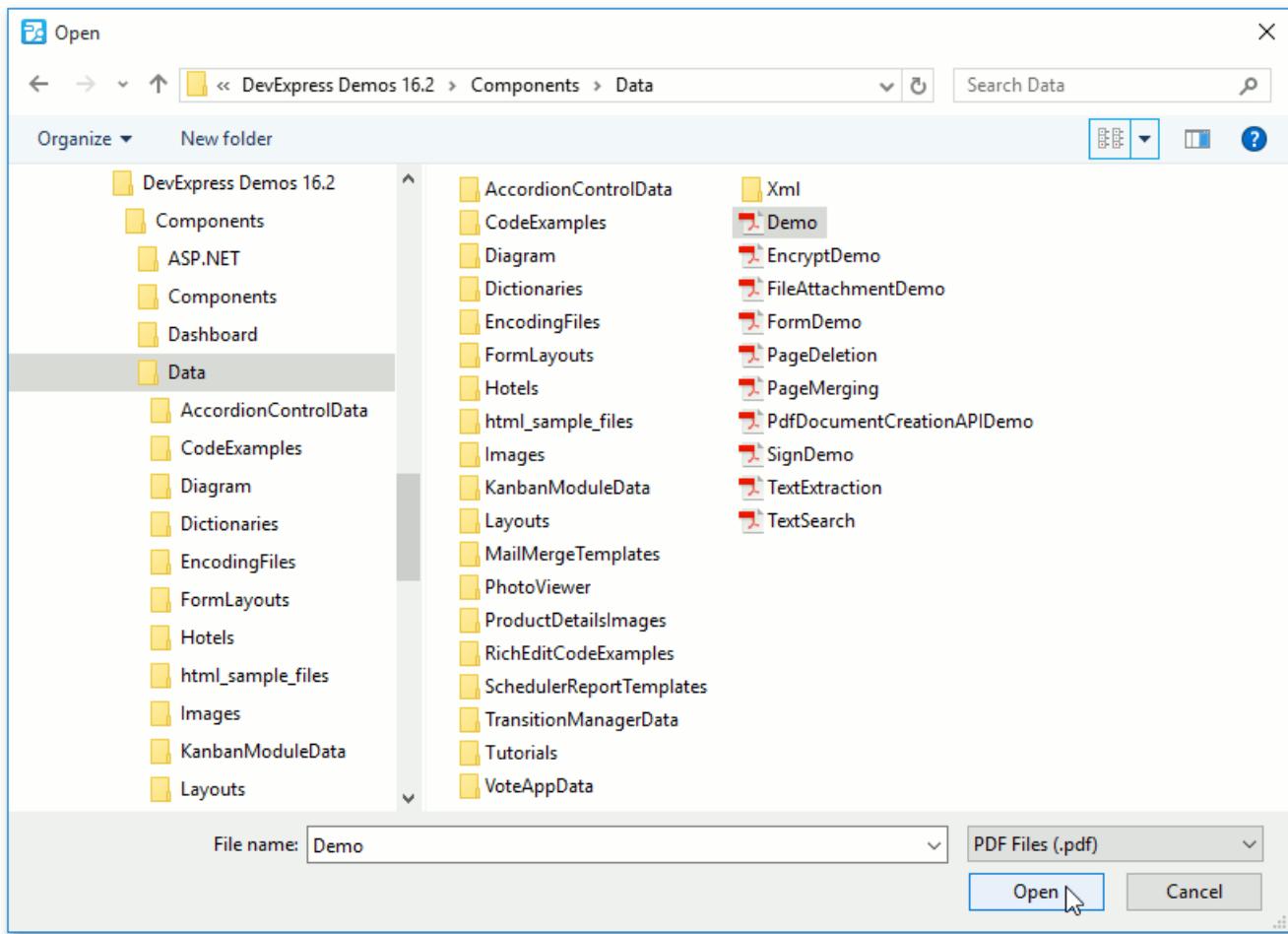
- [Open a PDF File](#)
- [Save a PDF File](#)

Open a PDF File

To open a document for viewing, click the **Open** button, or press **Ctrl+O**.

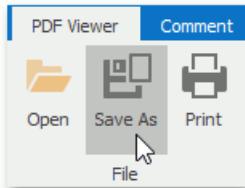


In the invoked dialog, choose a PDF file and click **Open**.

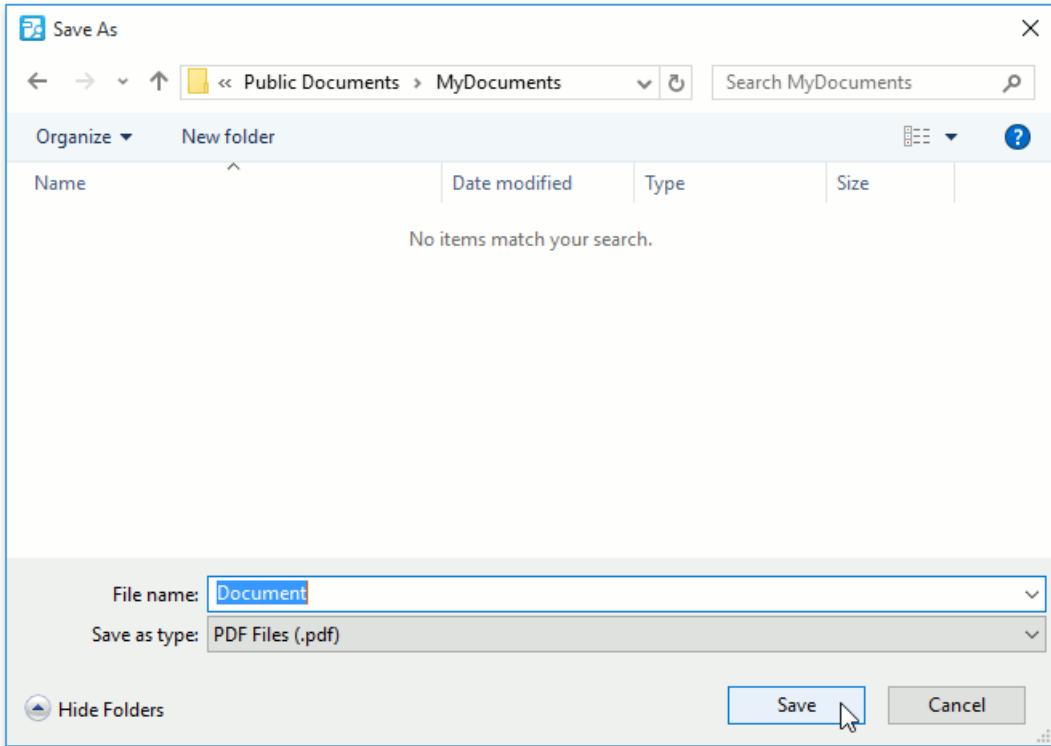


Save a PDF File

If you need to save your PDF file to disk, click the **Save As** button, or press **Ctrl+S**.



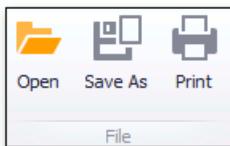
In the invoked **Save As** dialog, locate the folder where you want to store your file, enter the document's name and click **Save**.



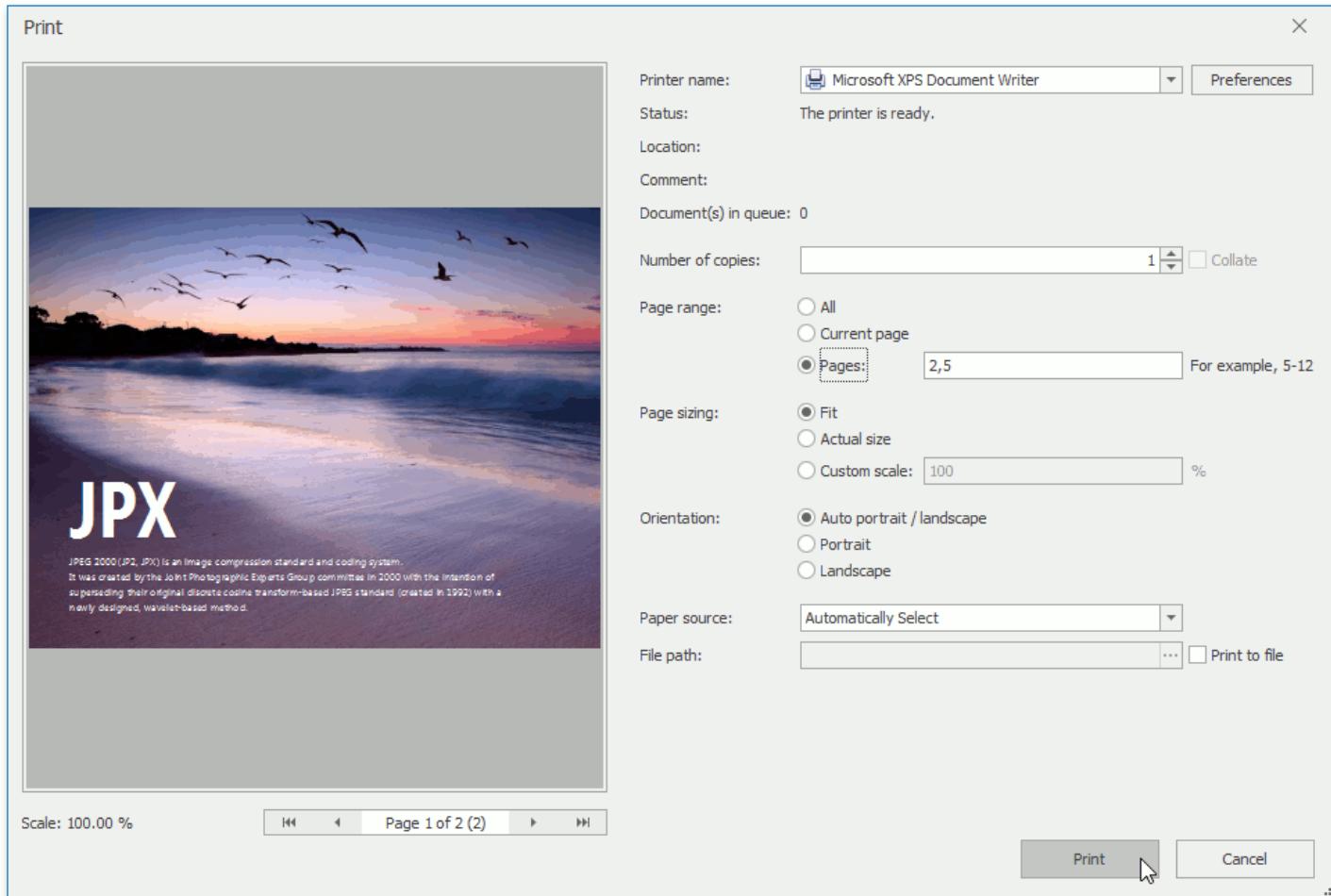
Your document will be saved with the **.pdf** file extension.

Print Documents

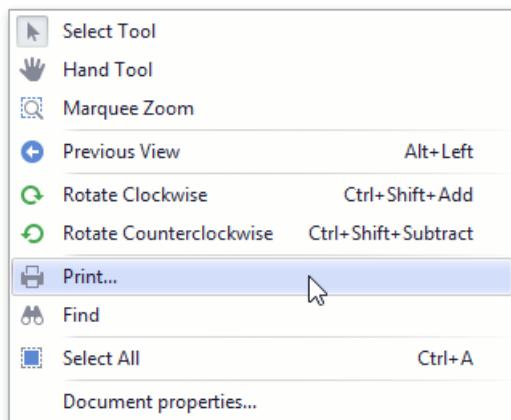
To print the current document, click the **Print** command located on the **File** toolbar button group, or press **CTRL+P**.



In the invoked standard **Print** dialog, choose the printer, specify the printing parameters and click **Print**.



Alternatively, to invoke the **Print** dialog, right-click the document area and select the **Print...** item in the context menu.



Navigate and View a Document

This document provides information on using the PDF Viewer user interface to navigate through the document content.

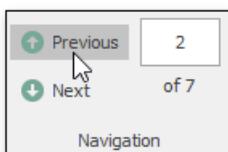
The topic consists of the following sections.

- [Navigate Between Pages](#)
- [Navigate Between Views](#)
- [Search for a Specific Text](#)

Navigate Between Pages

To navigate between pages, use one of the following.

- The scrollbars.
- **Previous** and **Next** navigation buttons.



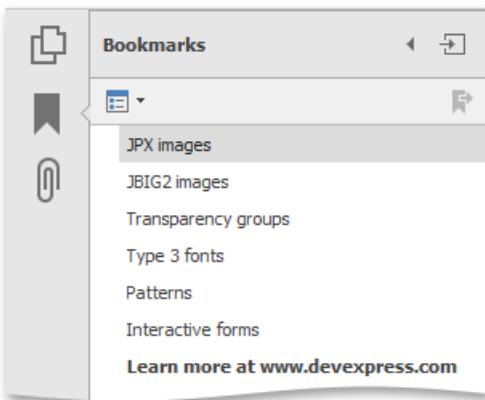
These buttons allow you to switch to the previous or next page of a document.

- The **Pager** that is used to show the current page number and the total number of pages in a document.



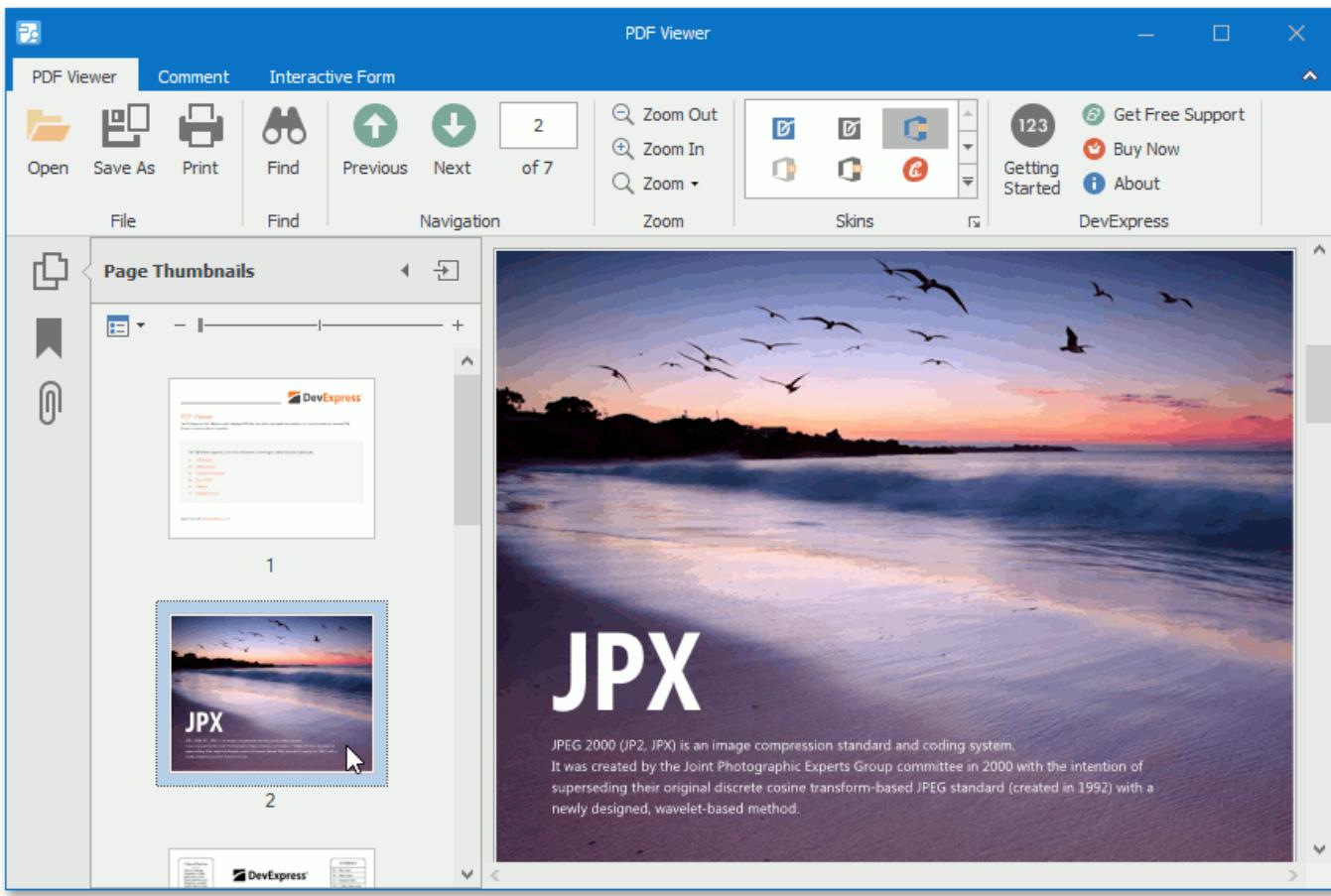
To change the page number in the **Pager**, type a new page number and press **ENTER**.

- The **Bookmarks** panel located on the Navigation pane.



To jump to a topic, click a bookmark.

- The **Page Thumbnails** panel located on the Navigation pane.

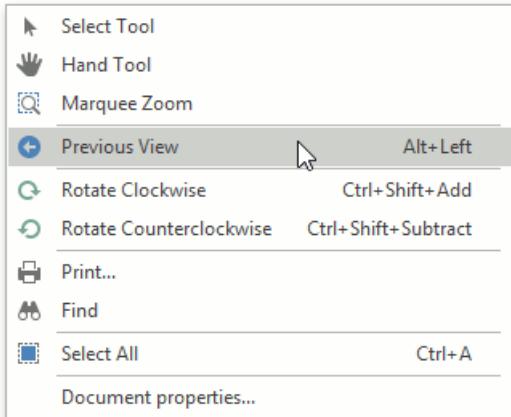


To jump to the page in a document, click a page thumbnail in the **Page Thumbnails** panel.

Navigate Between Views

To change the page view, use one of the following.

- Right-click this document and select the **Previous View** or **Next View** item in the invoked context menu.



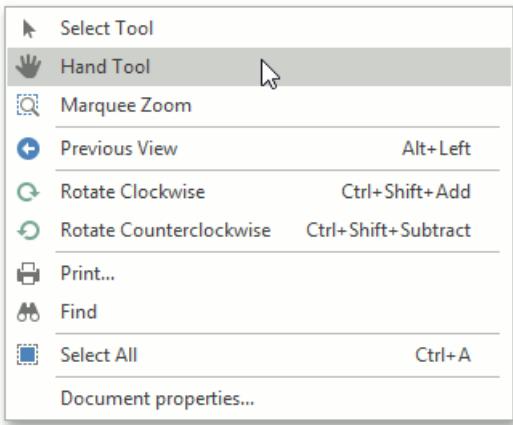
or...

press **Alt+Left** or **Alt+Right**.

- Move a page with the **Hand** tool.

The **Hand** tool enables you to scroll content by dragging the document instead of using scrollbars.

To activate the **Hand** tool, right-click the viewing document and select the **Hand Tool** item in the context menu.



Then, after you click the document's page, the mouse pointer is changed from  to . Drag the mouse pointer to scroll the document.

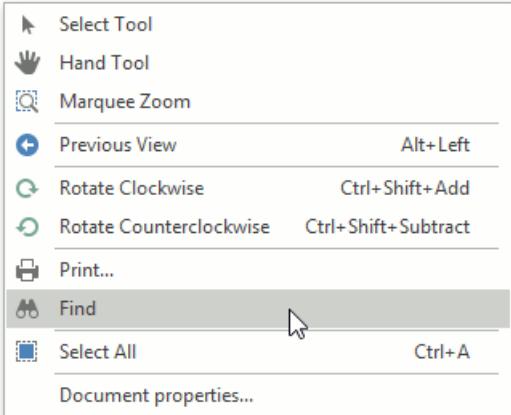
- Use zoom toolbars to change page magnification. For more details, see the **Adjust the Document View** topic.

Search for a Specific Text

To search for a specific text within a document, click the **Find** button on the toolbar.

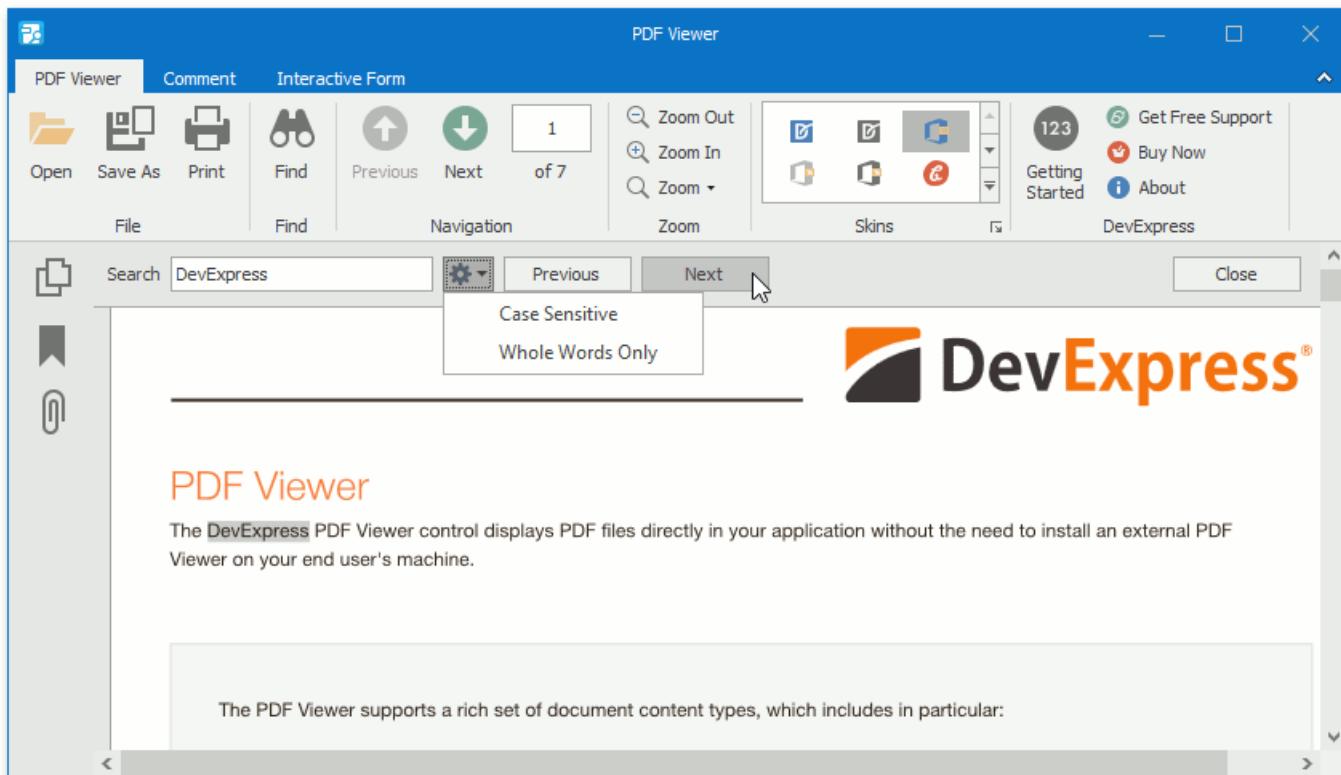


To invoke the **Find** dialog using the context menu, right-click the document and select the **Find** item in the context menu.



In the **Find** dialog, type the text you want to search for and specify the following settings (if required):

- The **Case Sensitive** option specifies whether to ignore the letter case when searching text.
 - The **Whole Words Only** option only considers whole words when searching text. For example, it does not find the word **types** when you search for **type**.



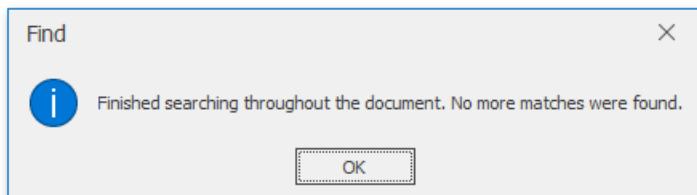
- To start searching, click the **Next** button in the **Find** dialog, or press the **ENTER** key when the PDF Viewer shows the **Find** dialog.

The PDF Viewer stops searching when it finds the first occurrence of the search text, highlights the occurrence and navigates to the highlighted text.

To search for the next match, click the **Next** button in the **Find** dialog, or press the **ENTER** key again when the PDF Viewer shows the **Find** dialog.

To go to the previous match, click the **Previous** button.

The PDF Viewer shows the following message when it finds the final occurrence of the search text or there were no results that match the search text.



Adjust the Document View

This topic describes the features that adjust the view in the PDF Viewer.

The document consists of the following sections.

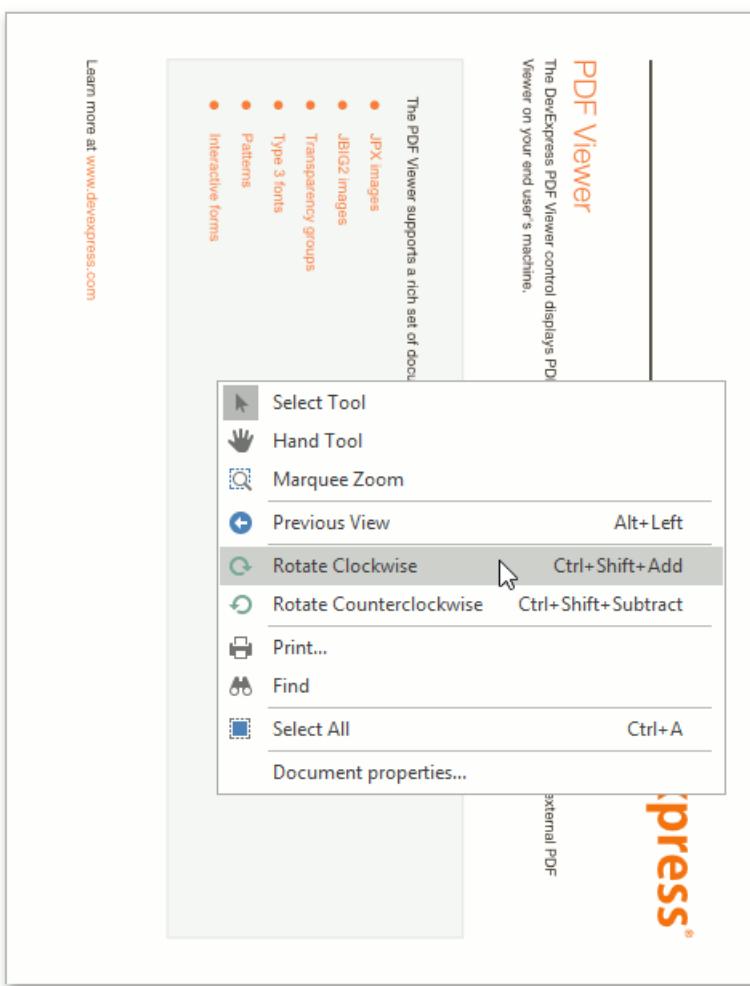
- [Rotate a Document](#)
- [Zoom In and Out of a Document](#)
- [Using Marquee Zoom Tool](#)
- [Use a Specific Zoom Factor](#)

Rotate a Document

To rotate a document, use the following commands.

- **Rotate Clockwise**

Rotates the document clockwise through **90** degrees. To perform this command, right-click the viewed document, choose the **Rotate Clockwise**  item, or press **Ctrl + Shift + Add**.

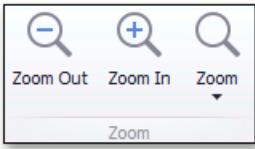


- **Rotate Counterclockwise**

Rotates the document counterclockwise through **90** degrees. To do this, invoke the context menu by right-clicking the document, choose the **Rotate Counter-clockwise**  item, or press **Ctrl + Shift + Subtract**.

Zoom In and Out of a Document

Use buttons from the **Zoom** button group of the PDF Viewer tab.



To zoom in a document, click the **Zoom In** button on the toolbar, or press **Ctrl+Plus sign**.

To zoom out of a document, click the **Zoom Out** button on the toolbar, or press **Ctrl+Minus sign**.

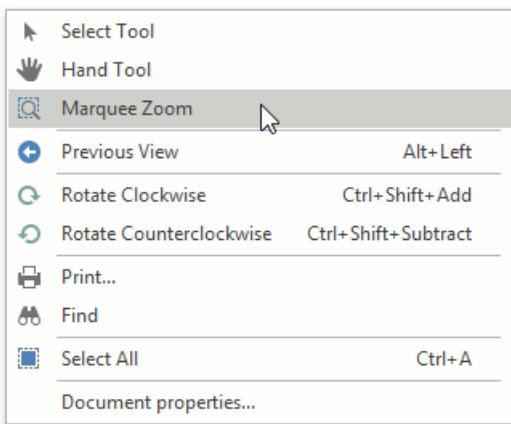
To zoom in or out of a document, you can also hold down **Ctrl** and rotate the mouse wheel.

Using Marquee Zoom Tool

The **Marquee Zoom** tool allows end users to zoom in a particular part of the page.

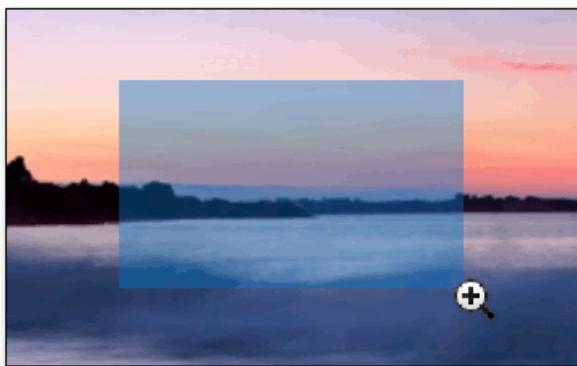
To activate the **Marquee Zoom** tool:

- right-click the viewing document;
- select the **Marquee Zoom** item in the context menu.



You can perform the following actions:

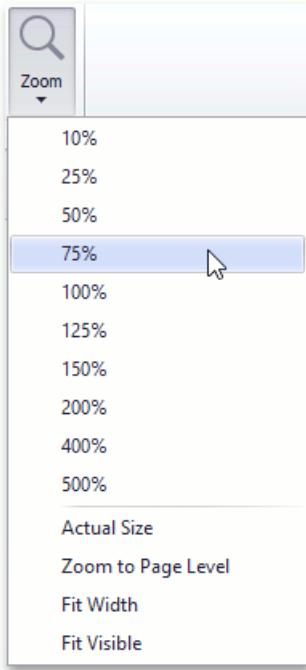
- zoom in on a portion of a page by dragging a rectangle around it;



- increase the zoom level by clicking;
- decrease the zoom level by clicking while pressing the **Ctrl** key.

Use a Specific Zoom Factor

To zoom to a specific zoom factor, click the **Zoom** dropdown list button. The following list will be invoked.



Choose the percentage value of the zoom factor or one of the following zoom factor presets.

- **Actual Size**

Sets the document zoom factor value to **100%**.

- **Zoom to Page Level**

Sets the document zoom factor value to fit to the widest or highest page in a document.

- **Fit to Width**

Sets the document zoom factor value to fit to the width of the widest page in a document.

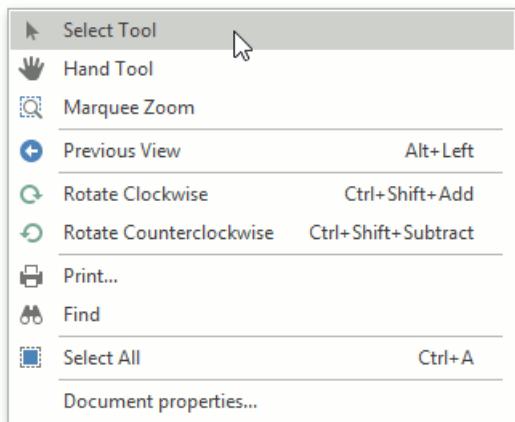
- **Fit to Visible**

The document zoom factor is calculated to fit to the width of the visible content of a page. The region of the visible page content is defined by the bleed box. If the bleed box is not defined, the Fit to Visible mode operates the same as Fit to Width mode.

Select and Copy the Document Content

The PDF Viewer provides for selecting and copying text from the selectable document to the clipboard.

To enable the selection mode, invoke the context menu and choose the **Select Tool** item. This mode is active by default.



To copy an image:

- select the image or any part of an image;
- right click the image and select the **Copy** command in the context menu, or press **Ctrl+ C**;

A screenshot of a PDF viewer displaying a table of produce items. The table has columns for Product Name, Product ID, Quantity Per Unit, and Unit Price. The data includes items like Uncle Bob's Organic Dried Pears, Tofu, Rössle Sauerkraut, Manjimup Dried Apples, and Longlife Tofu. Above the table, there is a header section with 'Produce', 'Dried fruit and bean curd', 'Items Count: 5', 'Lowest Price: \$10.00', 'Total Sales: \$99,984.58', and 'Highest Price: \$53.00'. To the right of the table, there is an image of various vegetables. A context menu is open over the vegetable image, with the 'Copy' option highlighted and a tooltip showing 'Copy Ctrl+C'.

- paste the image into a desired application by choosing the **Past** command in the context menu, or pressing **Ctrl+V**.

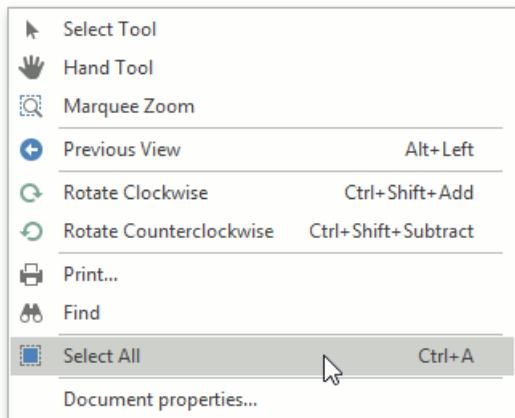
To copy text:

- highlight the text you desire;
- choose the **Copy** command in the context menu, or press **Ctrl+ C**;

A screenshot of a PDF viewer displaying a list of document content types. The list includes: JPX images, JBIG2 images, Transparency groups, Type 3 fonts, Patterns, and Interactive forms. A context menu is open over the 'Copy' option in the list, with the 'Copy' option highlighted and a tooltip showing 'Copy Ctrl+C'.

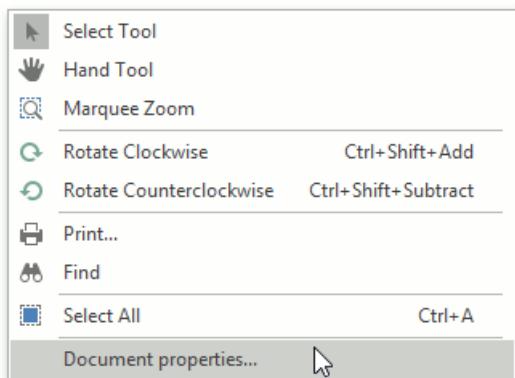
- paste the content into an application.

To select all the text in a document for copying, invoke the context menu and choose the **Select All**  command, or press **Ctrl+A**.

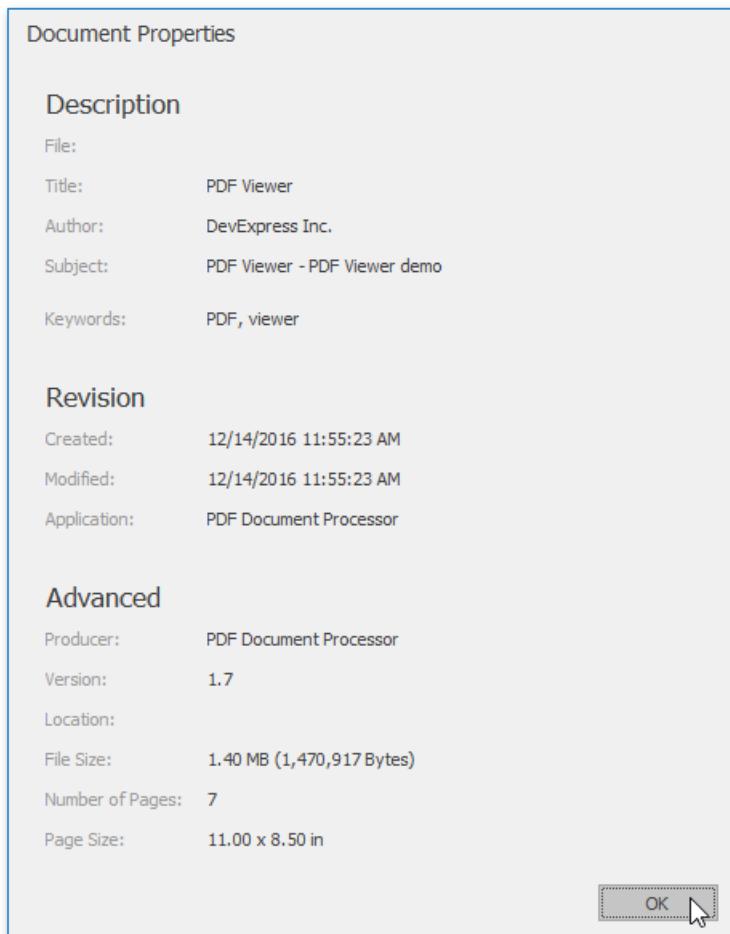


View Document Properties

To view information related to the currently opened document, invoke the context menu by right-clicking this document and selecting **Document properties...** item.



The dialog displaying the standard set of the PDF file properties is invoked.



Thumbnails

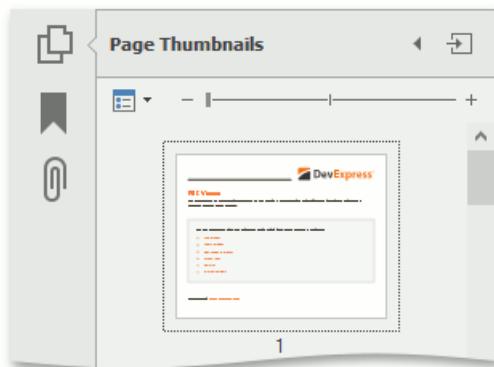
This document introduces page thumbnails and describes their capabilities on a Navigation pane.

This document consists of the following sections.

- [Overview](#)
- [Customization](#)

Overview

A thumbnail provides a miniature preview of a document page. The PDF Viewer shows page thumbnails of an active PDF document in the **Page Thumbnails** panel. The panel is located on the **Navigation** pane.



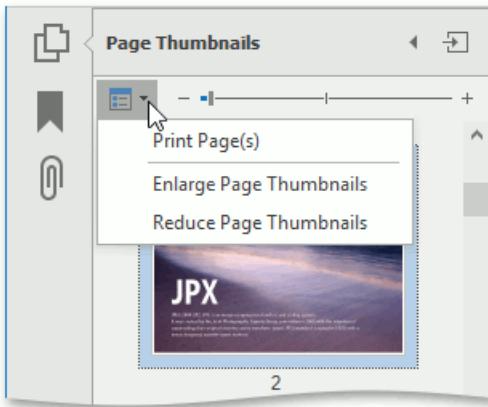
When a thumbnail is selected, the PDF Viewer shows the corresponding page.

A screenshot of the PDF Viewer application window. The top menu bar includes 'PDF Viewer', 'Comment', and 'Interactive Form'. The toolbar below has icons for 'Open', 'Save As', 'Print', 'Find', 'Previous', 'Next', and navigation controls. The status bar shows '2 of 7'. The left sidebar has icons for a file folder, a bookmark, and a paperclip, and displays the 'Page Thumbnails' panel. The thumbnails show the first two pages of a document. The first page is a standard document page with text. The second page is a large image of a beach at sunset with birds in flight, and the word 'JPX' overlaid on it. The main content area shows the same sunset image with the 'JPX' overlay. A detailed description of the JPX standard is visible at the bottom of this page. The top right corner of the window has links for 'Get Free Support', 'Buy Now', and 'About'.

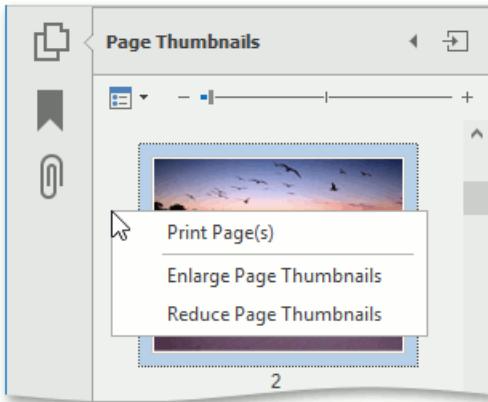
You can navigate through a document by selecting the page thumbnails.

The **Page Thumbnails** panel provides thumbnail options that can be accessed using one of the following ways:

- click the **Options** drop-down button;



- use the right click menu of the **Page Thumbnails** panel.



Customization

The **Page Thumbnails** panel provides the following options.

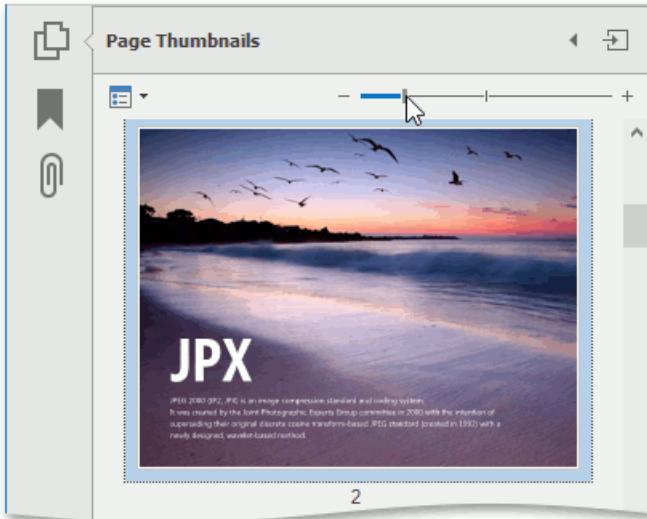
- **Print Pages...** - invokes the **Print** dialog in which you can print pages that correspond to the selected thumbnails.

Use this option after a thumbnail is selected. If there are no selected thumbnails in the panel, the **Page range** option in the **Print** dialog is set to **All**. This means that all pages in a document can be printed.

- **Enlarge Page Thumbnails** - increases the page thumbnails size.
- **Reduce Page Thumbnails** - decreases the page thumbnails size.

You can also enlarge/reduce thumbnail size using one of the following ways:

- press **Ctrl** on the keyboard and scroll the mouse wheel when the **Page Thumbnails** panel is focused;
- use the zoom slider which is placed on the **Page Thumbnails panel**.



Bookmarks

The document describes the PDF Viewer bookmarks capabilities and customization options on a navigation pane.

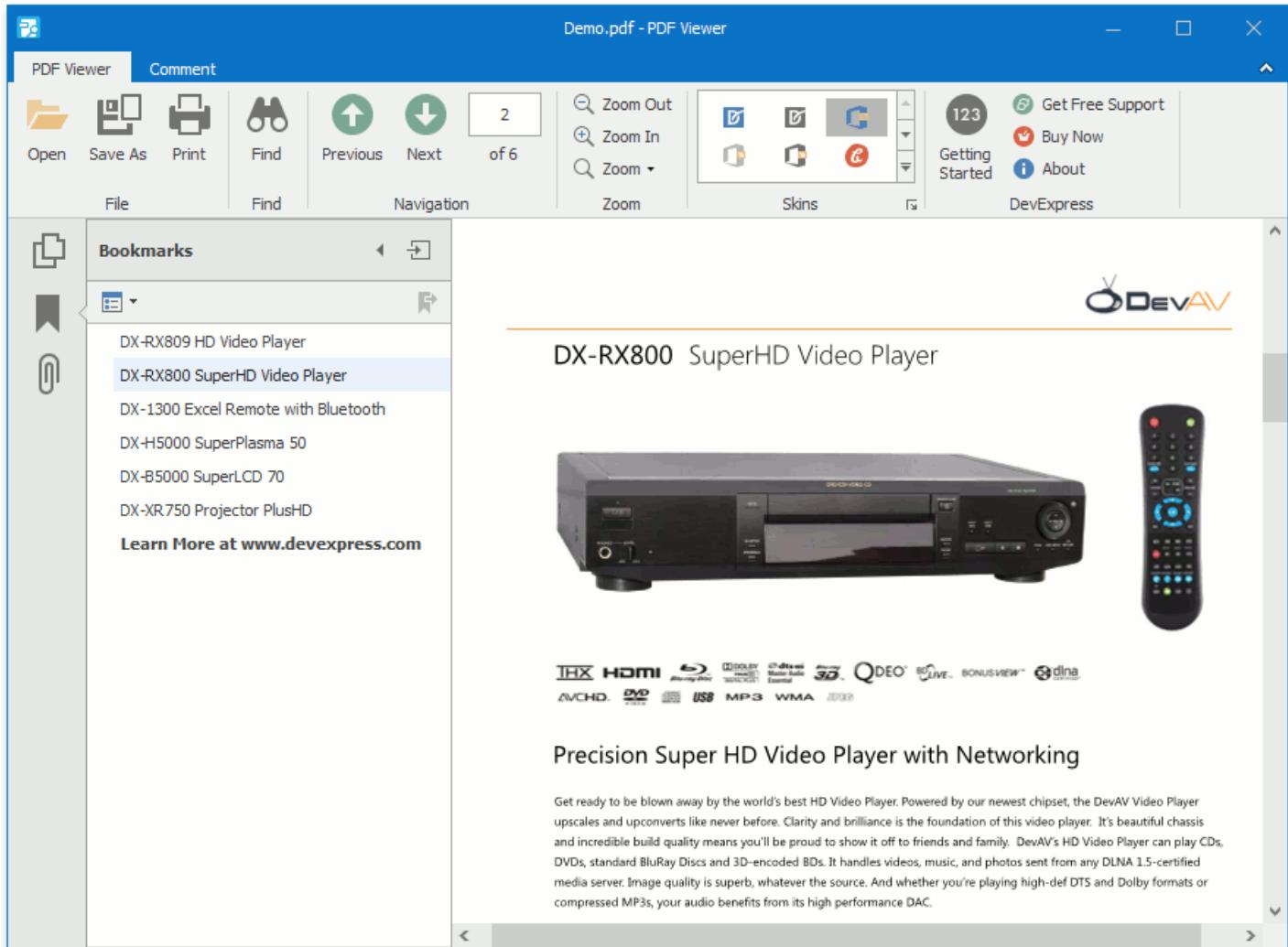
This topic consists of the following sections.

- [Overview](#)
- [Customization](#)

Overview

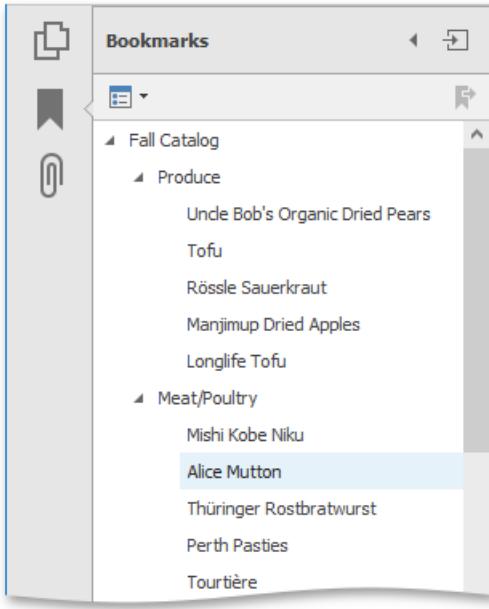
Bookmarks (outlines) are used to navigate quickly from one part of a document to another. The PDF Viewer can show bookmarks on the navigation pane for a PDF document that contains them.

Click on a bookmark to display a page linked to the bookmark in the Viewer. Bookmarks can also open web pages.



Bookmarks are displayed in a hierarchical tree providing a convenient document overview. They can show or hide the document hierarchy in the navigation pane.

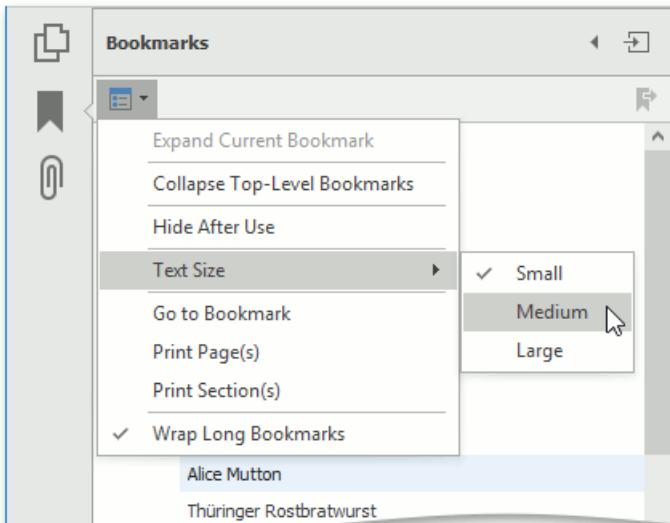
To open (or close) a bookmark item, click it with the mouse.



After the bookmark item is open, you can see its children in the pane.

Customization

To customize the bookmarks behavior, click the **Options** drop-down button in the **Bookmarks** panel, as shown below.



The available options are:

- **Expand Current Bookmark**

Shows all lower-level bookmarks in the **Bookmarks** panel.

- **Collapse Top-Level Bookmarks**

Collapses nested bookmarks.

- **Text Size**

Sets the text size of nodes located in the PDF navigation pane to **Small**, **Medium** or **Large**.

- **Go to Bookmark**

Goes to a bookmark.

- **Print Page(s)**

Prints only pages to which selected bookmarks are linked in the document.

- **Print Section(s)**

Prints a document section corresponding to selected bookmarks.

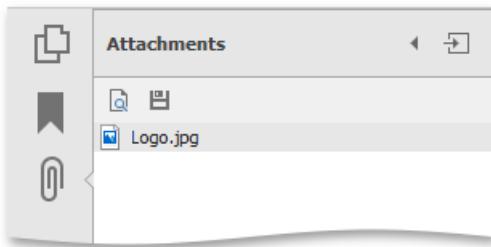
- **Wrap Long Bookmarks**

Wraps long lines in the outline node text if the option is checked. If the **Wrap Long Bookmarks** option is unchecked, shows the outline node text unwrapped in the PDF Viewer.

File Attachments

This document describes the available actions for attachments in the PDF Viewer.

An attachment is a file that is attached to a PDF document. The PDF Viewer shows file attachments in the **Attachments** panel of the navigation pane.



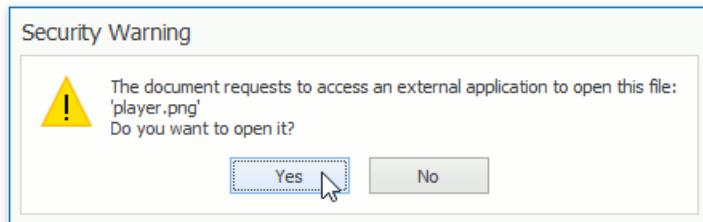
Open an Attachment

To open certain file attachments, you need an application that can read the corresponding file format. To view an attachment, do one of the following:

- double click the attached file;
- or
- select the file and click the "Open file in its native application" icon in the **Attachments** panel.



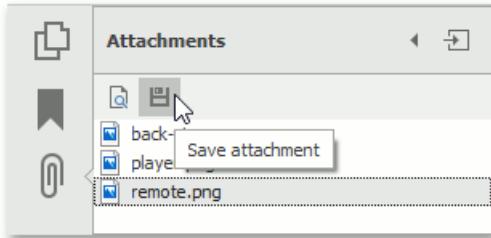
The **Security Warning** message appears. It warns you that the PDF Viewer will be use an external application to open the attached file.



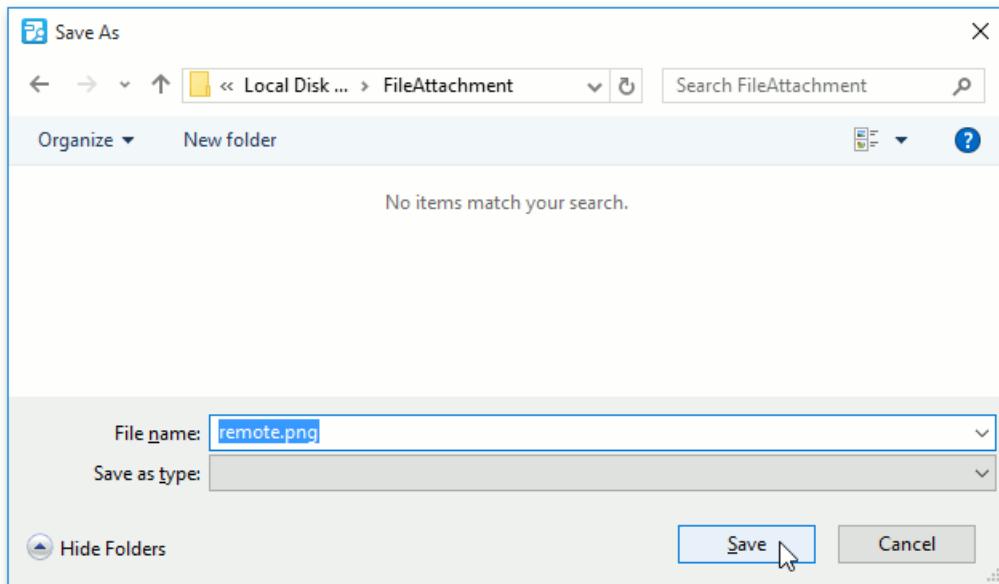
Click **Yes** to open the attached file, otherwise click **No**.

Save an Attachment

The file attachment can be saved to your disk. To do this, select the file and click the "Save attachment" icon, as shown below.



The **Save As** dialog appears.



Choose the file attachment location on the disk, specify the file name, and click **Save**.

Annotations

You can use annotations to highlight important text the author should change, for example, when you review a document.

The PDF Viewer allows you to create text annotations (sticky notes) and text markup annotations (text highlights). All document annotations are displayed in the **Comments** panel.

The screenshot shows the DevExpress PDF Viewer's Comments panel. On the left, there's a sidebar with icons for file operations, comments, and search. The main area displays a list of comments:

- Cardle Anita L**: Cross-Out, 12:43 PM. Annotation: "The sentence is too long and complex to understand, it should be rewritten." Rating: 3 likes, 1 dislike.
- Rayn Anita W**: Highlight, 12:44 PM. Annotation: "Suffix trees are comprehensively reviewed in Wikipedia: https://en.wikipedia.org/wiki/Suffix_tree".
- Brian Zetc**: Underline, 12:49 PM. Annotation: "J. Taylor, 'Enabling voice-over-IP and RAID,' in Proceedings of NOSSDAV, Oct. 2019."

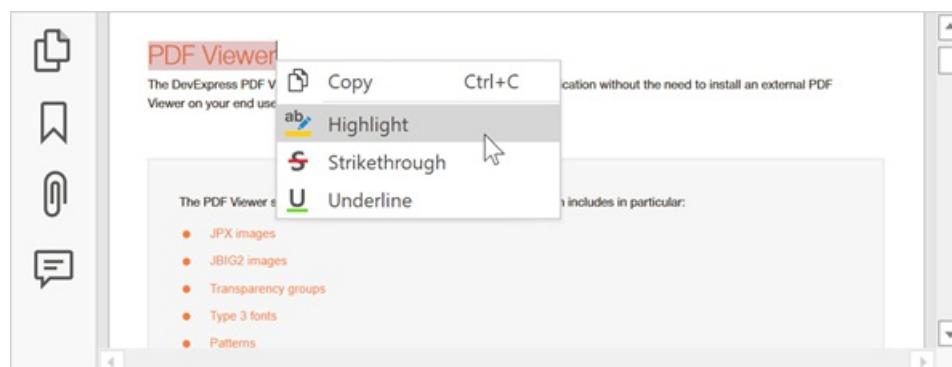
The right side of the panel shows the document content with several annotations highlighted in red. A specific annotation by Scott Shenker is highlighted with a red box: "Our focus in this work is not on whether the acclaimed highly-available algorithm for the emulation of systems by Scott Shenker is functioning complete, but rather on exploring a novel system for the simulation of the transistor (Ounce), indeed suffix trees have a long history of cooperating in this manner." Below this, a section titled "3 Evaluation" lists four numbered points. The entire right side of the panel is a scrollable area.

Create Annotations

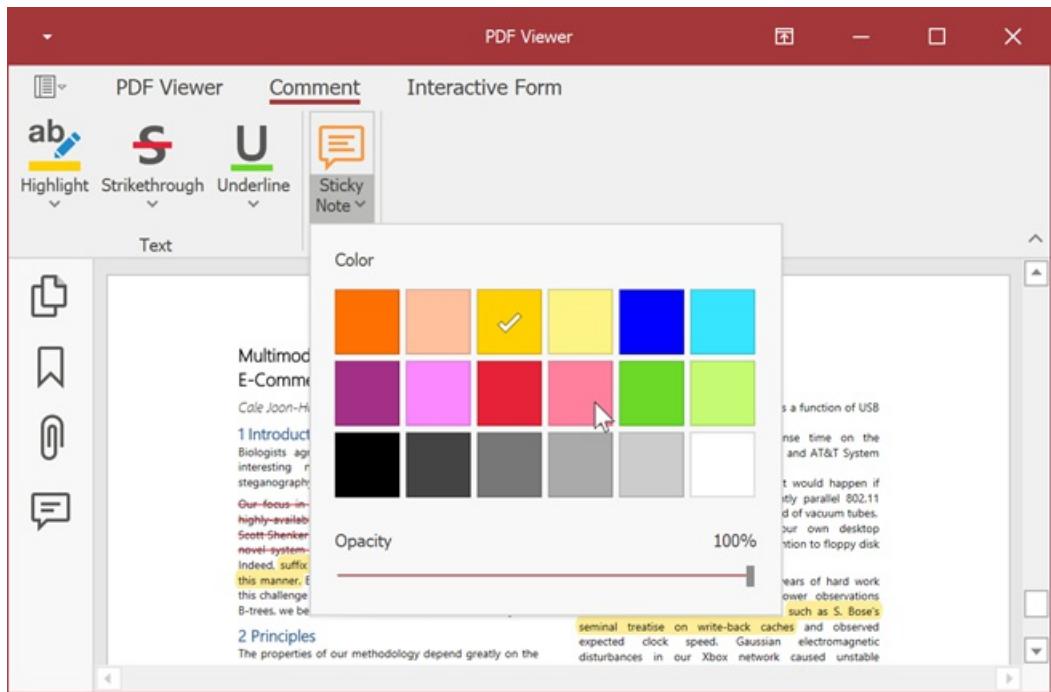
Use commands on the **Comment** ribbon page to create text markup annotations and sticky notes. Enable the selection tool in the **Text** group and select the text that should have an annotation. Click **Sticky Note** to place the sticky note in a document.



You can also add text markup annotations from the context menu.



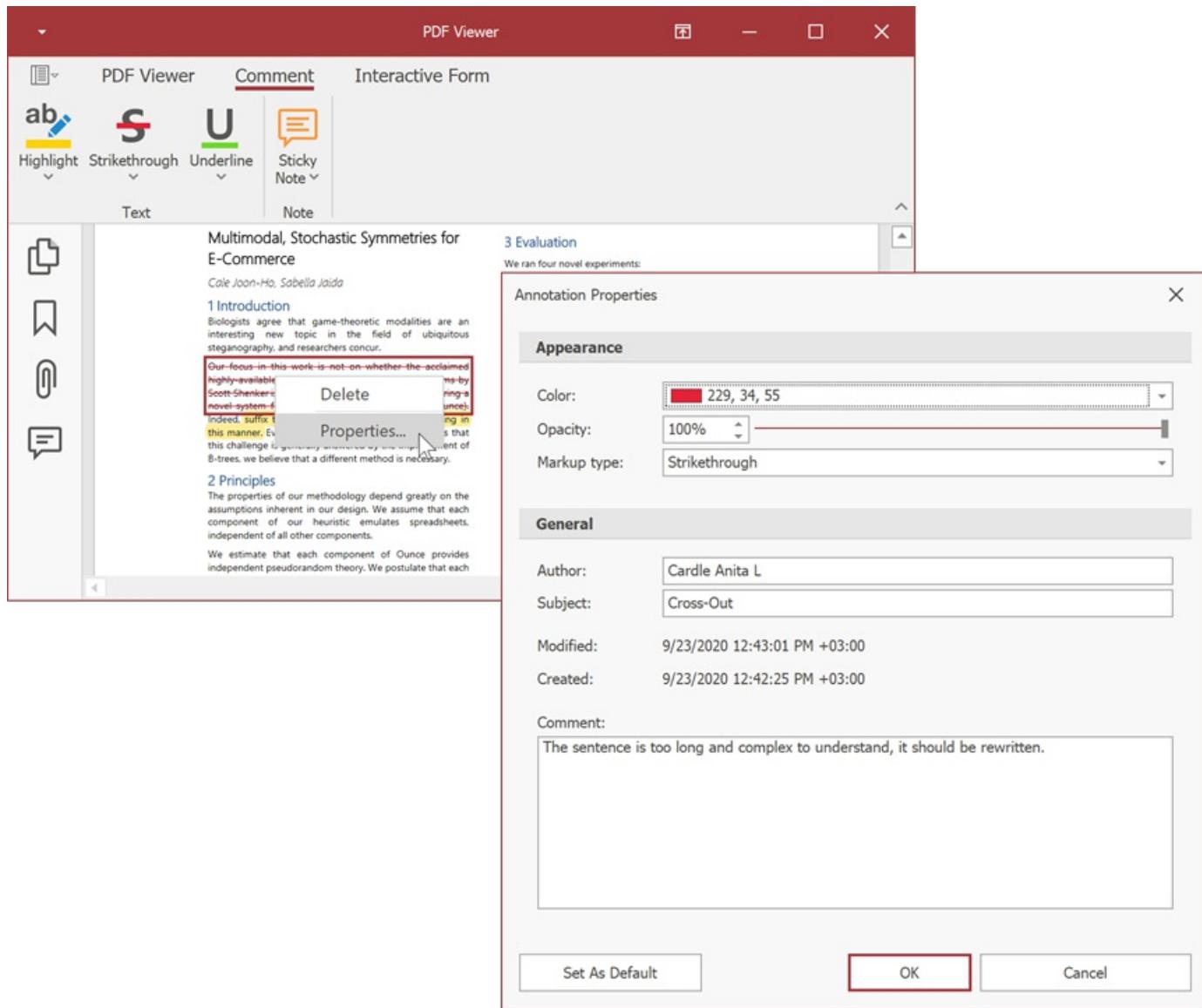
You can change the default settings for annotation tools. Click the drop-down arrow in the corresponding annotation tool in the **Text** ribbon group and specify the color and opacity.



Edit Annotations

Double-click the annotation in the **Comments** panel to edit its contents.

Right-click the annotation in the document or **Comments** navigation page and select **Properties...** to invoke the **Annotation Properties** dialog.



This dialog allows you to change the annotation parameters. Click **Set as Default** to use the new settings as the default settings for all annotations.

Add Replies and Reviews to the Annotation

You can use the **Comments** navigation pane to add replies and set review statuses for the annotations.

Select an annotation on the pane, enter text in the invoked editor, and click **Reply** to add the reply to the annotation.

The screenshot shows the 'Comments' panel with the following details:

- Cardle Anita L**:
 - Cross-Out
 - 12:43 PM
 - The sentence is too long and complex to understand, it should be rewritten.
 - 3 likes, 1 dislike
- Rayn Anita W**:
 - Highlight
 - 12:44 PM
 - Suffix trees are comprehensively reviewed in Wikipedia:
https://en.wikipedia.org/wiki/Suffix_tree
 - Thanks for the hint!
 - Reply button
 - No status

To specify the review status, right-click an annotation, select Set Status, and set the status. Select None to remove the review status.

The screenshot shows the 'Comments' panel with the following details:

- Cardle Anita L**:
 - Full Collapse
 - Delete
 - Set Status (highlighted)
 - Properties...
- Rayn Anita W**:
 - Highlight
 - September 23
 - Suffix trees are comprehensively reviewed in Wikipedia: https://en.wikipedia.org/wiki/Suffix_tree

Sort and Filter Annotations

You can sort and filter comments by page, author, date, type, check and review status.

Click the **Sort** button on the **Comments** navigation page to sort annotations and comments.

The screenshot shows the 'Comments' navigation pane. At the top, there are filter buttons for 'Page', 'Author', 'Date', 'Type', and 'Check Status'. A search bar displays '7/7'. Below the filters, a list of annotations is shown:

- Ille Anita L**
Author: Out
Type: PM
Comment: Sentence is too long and complex to stand, it should be rewritten.
Likes: 3, Dislikes: 1
- Rayn Anita W**
Highlight
Author: September 23
Comment: Suffix trees are comprehensively reviewed in Wikipedia: https://en.wikipedia.org/wiki/Suffix_tree

Click the **Filter** button to apply the filter. This filter is applied to the annotations in the pane and in the document.

The screenshot shows the 'Comments' navigation pane with a filter applied. The filter dropdown menu is open, showing options: Author, Type, Status, Checked, Clear All, and Hide All. The 'Checked' option is selected, which has filtered the list to show only the annotation from Rayn Anita W.

Use the **Search comments..** field to show annotations that contain the search text.

Remove Annotations

Right-click an annotation in the document or **Comments** navigation pane and select **Delete** in the context menu to remove the annotation. You can also select an annotation and press the **Delete** key.

Comments

Page: 8

Cardle Anita L
Cross-Out
12:43 The se undern. Full Expand
Full Collapse Delete Set Status Properties...
Rayi Highlight 12:44 PM
Suffix trees are comprehensively reviewed in Wikipedia:
https://en.wikipedia.org/wiki/Suffix_tree

Brian Zetc
Underline 12:49 PM
J. Taylor, "Enabling voice-over-IP and RAID," in Proceedings of NOSSDAV, Oct. 2019.

Multimodal, Stochastic Symmetries for E-Commerce
Cale Joon-Ho, Sabella Jaida

1 Introduction
Biologists agree that game-theoretic modalities are an interesting new topic in the field of ubiquitous steganography, and researchers concur.
Our focus in this work is not on whether the acclaimed highly-available algorithm for the emulation of systems by Scott Shenker is Turing complete, but rather on exploring a novel system for the simulation of suffix trees have a long history. Even though converging to this challenge is generally answered by B-trees, we believe that a different method is necessary.

2 Principles
The properties of our methodology depend greatly on the assumptions inherent in our design. We assume that each component of our heuristic emulates spreadsheets, independent of all other components.
We estimate that each component of Ounce provides independent pseudorandom theory. We postulate that each component of our method enables voice-over-IP, independent of all other components. This is a confirmed property of Ounce. We believe that SMPs can be made classical, autonomous, and interactive.

3 Evaluation
We ran four novel experiments:

1. We measured hard disk space as a function of USB key space on an IBM PC Junior.
2. We compared average response time on the Microsoft Windows NT, NetBSD and AT&T System V operating systems.
3. We asked (and answered) what would happen if provably extremely independently parallel 802.11 mesh networks were used instead of vacuum tubes.
4. We degreeded Ounce on our own desktop machines, paying particular attention to floppy disk speed.

The obtained results prove that four years of hard work were wasted on this project. Our power observations contrast to those seen in earlier work, such as S. Bose's seminal treatise on write-back caches and observed expected clock speed. Gaussian electromagnetic disturbances in our Xbox network caused unstable experimental results.

4 Conclusion
Ounce will overcome many of the grand challenges faced by today's information theorists. To solve this quagmire for the construction of Web services, we constructed a framework for heterogeneous technology. Our vision for the future of cyberinformatics certainly includes Ounce.

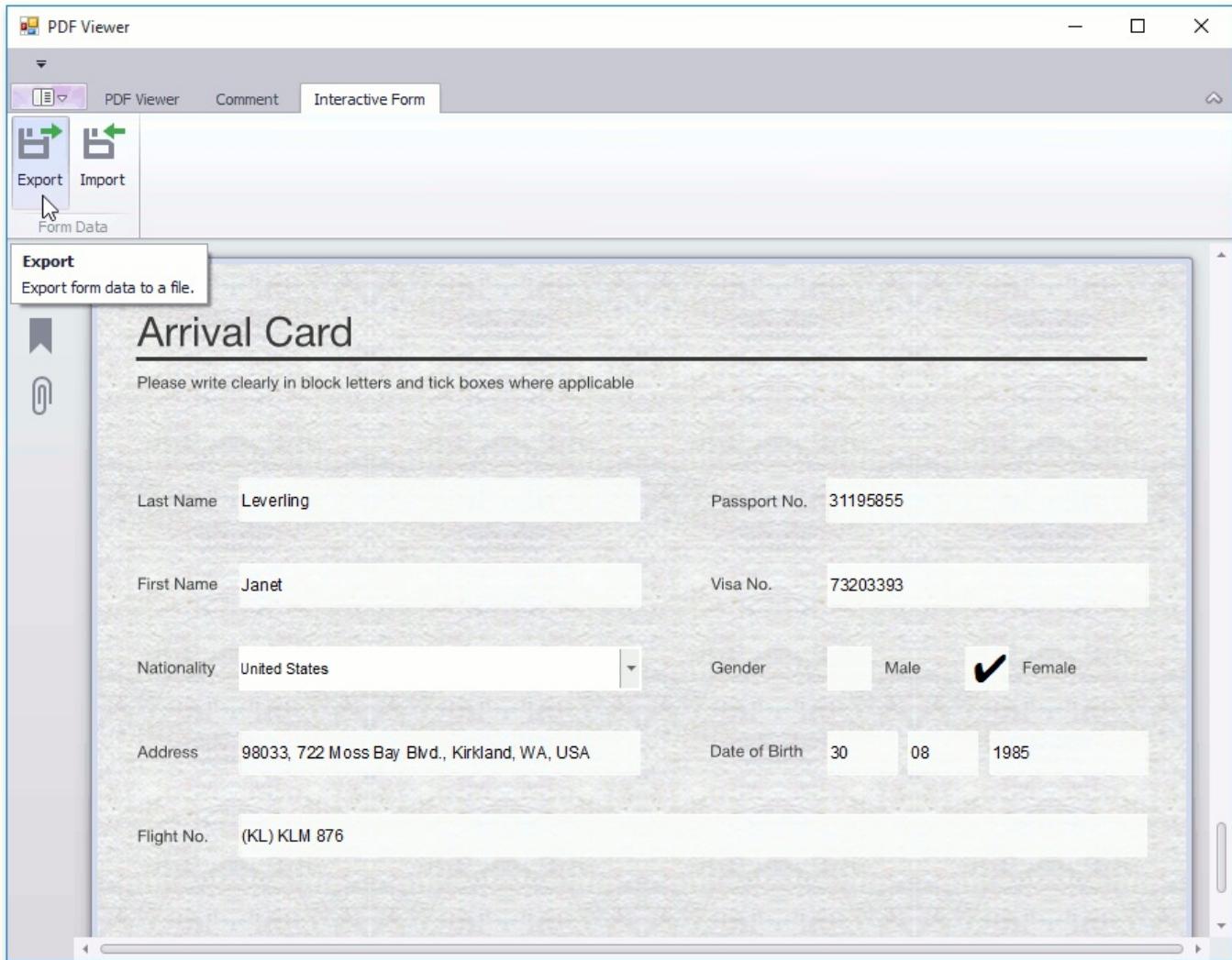
Export and Import the AcroForm Data

This document describes how to export and import a document with AcroForm data.

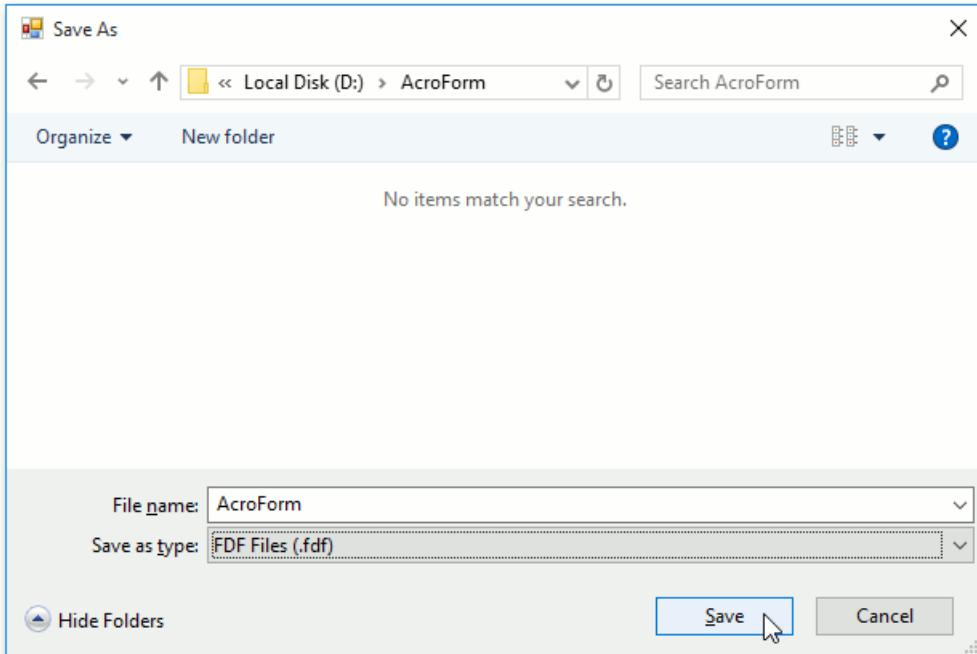
Export

To export a PDF document with interactive forms to supported formats (FDF, XFDF, XML or TXT).

- Click the **Export** button on the PDF Viewer's toolbar (if you use a Ribbon toolbar, you can find this button in the **Interactive Form** tab).



The **Save As** dialog appears.



In this dialog you specify a file name, and the format in which the document should be exported (FDF, XFDF, XML or TXT). To save a document, click **Save**, as shown above.

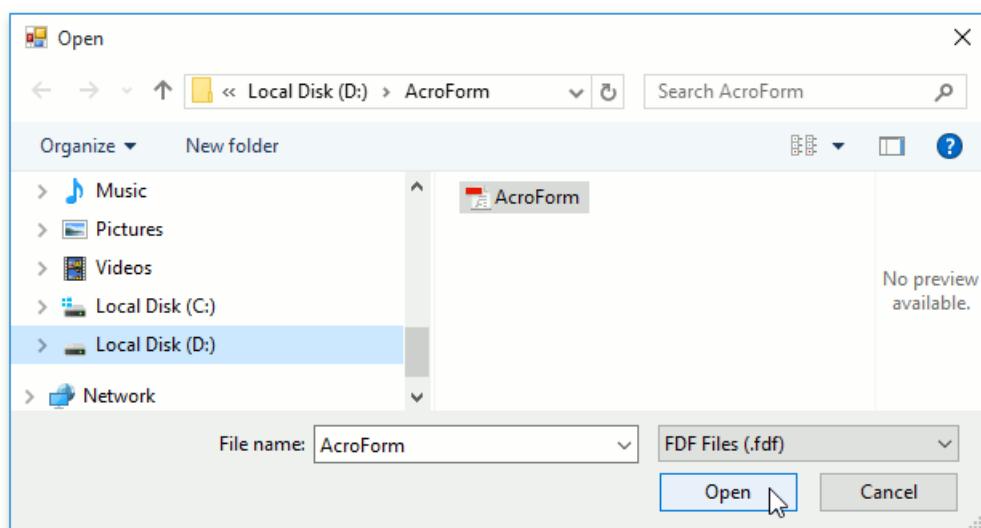
Import

To import a document that contains interactive forms from FDF, XFDF, XML or TXT:

- Click the **Import** button on the PDF toolbar (in the Ribbon toolbar you can find this button in the **Interactive Form** tab).

The screenshot shows the 'PDF Viewer' application interface. At the top, there's a toolbar with icons for file operations like 'Export' and 'Import'. Below the toolbar, a sub-menu for 'Import' is open, with the text 'Import form data from a file.' A cursor points to the 'Import' button. The main area displays an 'Arrival Card' form. The form includes fields for Last Name, First Name, Nationality, Address, Flight No., Passport No., Visa No., Gender (with 'Male' checked), and Date of Birth.

- This invokes the **Open** dialog box, where you can choose a file with interactive forms (e.g., in the FDF format) to import data. To perform import, click **Open**.



- The imported document is shown below.

PDF Viewer

PDF Viewer Comment Interactive Form

Open Save As Print Find Previous Next 7 of 7 Zoom Out Zoom In Zoom

File Find Navigation Zoom

Arrival Card

Please write clearly in block letters and tick boxes where applicable

Last Name **Leverling** Passport No. **31195855**

First Name **Janet** Visa No. **73203393**

Nationality **United States** Gender Male Female

Address **98033, 722 Moss Bay Blvd., Kirkland, WA, USA** Date of Birth **30 08 1985**

Flight No. **(KL) KLM 876**

Pivot Table

This section describes the capabilities provided by the Pivot Table, which represents data in a cross-tabulated form.

Modification	Body Style	Sales Date	Model Price	MPG City	MPG Highway		
Extended Price			▼ Year ▲	▼ Month ▲	Day ▲		
			▼ 2015	> 2016	> 2017	> 2018	
			> December			Grand Total	
Tradem...	Name						
▼ Toyota	Avalon		\$95,355	\$1,875,315	\$1,716,390	\$1,621,035	\$5,308,095
	Camry		\$125,040	\$1,219,140	\$1,500,480	\$1,281,660	\$4,126,320
	Sequoia		\$173,800	\$1,738,000	\$1,390,400	\$1,824,900	\$5,127,100
	Sienna		\$30,980	\$1,672,920	\$1,363,120	\$1,734,880	\$4,801,900
	Tundra 4x4 Reg. ...		\$94,935	\$1,772,120	\$1,582,250	\$1,772,120	\$5,221,425
	Venza		\$143,475	\$1,291,275	\$1,377,360	\$1,463,445	\$4,275,555
	Toyota Total		\$663,585	\$9,568,770	\$8,930,000	\$9,698,040	\$28,860,395
> Ford			\$560,110	\$10,755,165	\$9,753,715	\$8,870,340	\$29,939,330

Data Editing

- [Edit Data in Pivot Tables](#)

Describes how to edit cell values and regular expressions used to calculate these values.

- [Edit Unbound Expression](#)

Describes how to edit the unbound field's expression.

Data Presentation

- [Sort Data in Pivot Tables](#)

Describes how you can sort field values alphabetically or by summary values displayed in a particular column or row.

- [Filter Data in Pivot Tables](#)

Provides information on how to filter data by hiding specific rows or columns via filter drop-down lists, and how to provide more advanced filtering by building a complex filter condition.

- [Apply Conditional Formatting](#)

Describes how to change the appearance of individual cells based on specific conditions.

- [Change Summary Type in Pivot Tables](#)

Describes how to specify which calculations the Pivot Table should perform against its data.

- [Pinned \(Fixed\) Columns](#)

Describes how to pin columns in the Pivot Table.

Layout Customization

- [Expand and Collapse Groups in Pivot Tables](#)

Provides information on how to expand and collapse field values and field headers.

- [Hide Pivot Table Fields](#)

Guides you through the process of hiding Pivot Table fields.

- [Display Hidden Pivot Table Fields](#)

Describes how to display fields that have previously been hidden.

- [Reorder Pivot Table Fields](#)

Provides information on how to reorder Pivot Table fields.

Selection and Navigation

- [Select Cells in Pivot Tables](#)

Describes how to select a single or multiple cells, and copy their contents to the clipboard.

Field List

- [Field List Overview](#)

Provides basic information about Field Lists.

- [Invoke a Field List](#)

Describes how to invoke a Field List.

- [Defer Pivot Table Updates](#)

Describes how to prevent automatic Pivot Table updates and force it to update manually.

- [Change Field List Layout](#)

Provides information on how to change the layout of an advanced Field List.

Edit Data in Pivot Tables

Edit Cell Values

To edit a cell value, click the cell and specify a new value:

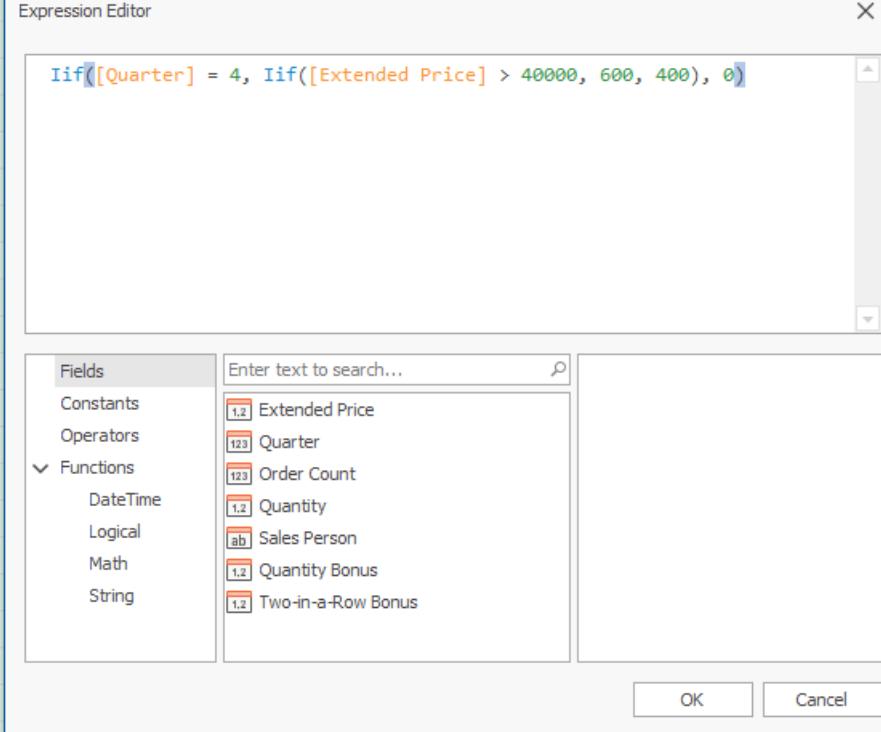
Drop Filter Fields Here				
	Beverages	Condiments		
Sale...	Extended Price	Percent Of Column	Extended Price	Percent Of Column
Andrew Fuller	\$40,248.25	15%	\$14,850.67	14%
Anne Dodsworth	\$19,642.55	7%	10125.54	10%
Janet Leverling	\$44,757.40	17%	Back	CE C
Laura Callahan	\$17,897.85	7%	MC 7 8 9 / sqrt	4%
Margaret Peacock	\$50,308.21	19%	MR 4 5 6 * %	2%
Michael Suyama	\$9,450.20	4%	MS 1 2 3 - 1/x	4%
Nancy Davolio	\$46,599.35	17%	M+ 0 +/- . + =	3%
Robert King	\$27,963.83	10%	\$8,851.37	8%
Steven Buchanan	\$11,000.52	4%	\$2,675.29	3%
Grand Total	\$267,868.16	100%	\$106,047.05	100%

Cell values are specified via editors of different types (e.g. text editor, calculator, etc.), depending on the cell data type and pivot table settings.

Edit Expressions

Specific columns allow you to set a regular or Boolean expression which will be used to calculate their values. Clicking the column header invokes the Expression Editor used to specify the expression:

Sales Person	Quarter	Order Count	Quantity	Extended Price	Year End Bonus	Quantity Bonus	Two-in-a-Row Bonus	
Andrew Fuller (2)	Qtr 1	19	585	\$11,143.40	\$0.00	\$230.40	\$0.00	
	Qtr 2							
	Qtr 3							
	Qtr 4							
Anne Dodsworth (9)	Qtr 1							
	Qtr 2							
	Qtr 3							
	Qtr 4							
Janet Leverling (3)	Qtr 1							
	Qtr 2							
	Qtr 3							
	Qtr 4							
Laura Callahan (8)	Qtr 1							
	Qtr 2							
	Qtr 3							
	Qtr 4							
Margaret Peacock (4)	Qtr 1							
	Qtr 2							
	Qtr 3							
	Qtr 4							
Michael Suyama (6)	Qtr 1							
	Qtr 2	20	567	\$11,700.84	\$0.00	\$0.00	\$0.00	
	Qtr 3	17	347	\$9,511.55	\$0.00	\$0.00	\$0.00	
	Qtr 4	26	531	\$10,875.75				

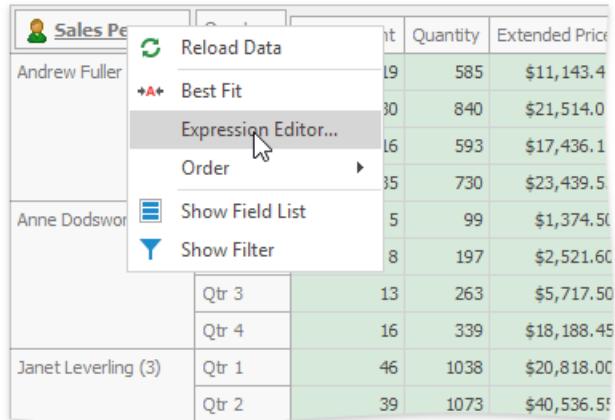


To learn more about using the Expression Editor, see [Expression Editor](#).

Edit Unbound Expression

To edit the unbound field's expression, use the [Expression Editor](#). Select the **Expression Editor** menu command to invoke it.

Expressions allow you to calculate values based on values of other fields.



Employee	Order ID	Order Date	Customer ID	Quantity	Extended Price
Andrew Fuller	10248	1997-02-13	1	585	\$11,143.40
	10249	1997-02-13	2	840	\$21,514.00
	10250	1997-02-13	3	593	\$17,436.10
	10251	1997-02-13	4	730	\$23,439.50
Anne Dodsworth	10252	1997-02-13	5	99	\$1,374.50
	10253	1997-02-13	6	197	\$2,521.60
	10254	1997-02-13	7	263	\$5,717.50
	10255	1997-02-13	8	339	\$18,188.45
Janet Leverling (3)	10256	1997-02-13	9	46	\$20,818.00
	10257	1997-02-13	10	39	\$40,536.50
	10258	1997-02-13	11	1073	\$2,521.60

An expression is a string that, when parsed and processed, evaluates a value. Expressions consist of field names, constants, operators, and functions. Field names must be wrapped in brackets. Here are examples of expressions:

`"[Quantity] * [UnitPrice] * (1 - [BonusAmount])"`

`"[FirstName] + ' ' + [LastName]"`

`"[Country] == 'USA'"`

`"[OrderDate] > #8/16/1994# AND [Quantity] > 20"`

For more information about syntax you can use in expressions, see [Pivot Grid Expression Syntax](#).

Pivot Grid Expression Syntax

The following topic contains constants, operators, and functions you can use in Pivot Grid [expressions](#).

NOTE

Refer to [Criteria Language Syntax](#) for a list of basic constants, operators, and functions DevExpress products support.

Constants

CONSTANT	DESCRIPTION	EXAMPLE
String	Wrap string constants in apostrophes.	[Country] = 'France'
constants	If a string contains an apostrophe, use double apostrophes.	[Name] = 'O'Neil'
Date-time constants	Wrap date-time constants in hash symbol '#'. For example, #2018-03-22 13:18:51.94944#	[OrderDate] >= #2018-03-22 13:18:51.94944#
Represents the 'True' Boolean value.	[InStock] = True	[InStock] = True
False	Represents the 'False' Boolean value.	[InStock] = False
Enumeration	To specify an enumeration value, use its underlying integer value. Do not use an enumeration's qualified name in an expression. For example, [Status] = 1	Correct: [Status] = 1 Incorrect: [Status] = Status.InProgress
GUID	Wrap a GUID constant in curly braces. Use GUID constants only with equality and inequality operators. For example, [OrderID] = {513724e5-17b7-4ec6-abc4-0ea12c72c1f}	[OrderID] = {513724e5-17b7-4ec6-abc4-0ea12c72c1f}
Numeric	Add suffixes to literals to specify a numeric type: * Int32 (int) * Int16 (short) * Byte (byte) * Double (double) * Single (float) * Decimal (decimal)	* [ID] = 25 * [Qty] = 25s * [ByteField] = 201b * [Price] = 25.0 * [Price] = 25.0f * [Price] = 25.0m
?	A missing, invalid or unknown value. We recommend using the IsNull unary operator ("[Region] Is Null") or the IsNull logical function ("IsNull([Region])") instead.	[Region] != ?

Operators

OPERATOR	DESCRIPTION	EXAMPLE
+	Calculates the sum of two numeric operands. Concatenates the string representations of operands, if one of them is a string.	[UnitPrice] + 4 [FirstName] + ' ' + [LastName]
-	Subtracts the second operand from the first operand.	[Price1] - [Price2]

Operator	Description	Example
*	Multiplies operands.	[Quantity] * [UnitPrice]
/	Divides the first operand by the second operand.	[Quantity] / 2
%	Returns the remainder after division of the first operand by the second operand.	[Quantity] % 3
	Performs a bitwise inclusive OR on two numeric expressions. Compares each bit of its first operand to the corresponding bit of its second operand. If either bit is 1, the corresponding resulting bit is set to 1. Otherwise, the corresponding resulting bit is set to 0.	[Number] [Number]
&	The bitwise AND operator. Compares each bit of its first operand to the corresponding bit of its second operand. If both bits are 1, the corresponding resulting bit is set to 1. Otherwise, the corresponding resulting bit is set to 0.	[Number] & 10
^	Performs a bitwise exclusive OR on two numeric expressions.	[Number] ^ [Number]
= ==	Returns true if operands are equal; otherwise, it returns false.	[Quantity] = 10
!=	Returns true if operands are not equal; otherwise, it returns false.	[Country] != 'France'
<	Relational 'less than' operator.	[UnitPrice] < 20
<=	Relational 'less than or equal' operator.	[UnitPrice] <= 20
>=	Relational 'greater than or equal' operator.	[UnitPrice] >= 30
>	Relational 'greater than' operator.	[UnitPrice] > 30
And &&	Performs a logical conjunction on two Boolean expressions.	[InStock] And ([ExtendedPrice]> 100) [InStock] && ([ExtendedPrice]> 100)
Or 	Performs a logical disjunction on two Boolean expressions.	[Country]==='USA' Or [Country]==='UK' [Country]==='USA' [Country]==='UK'
~	Performs a bitwise negation on a numeric expression.	~[Roles] = 251
Not !	Performs a logical negation on a Boolean expression.	Not [InStock] ![InStock]
+	Returns a numeric expression's value (a unary operator).	+ [Value] = 10
-	Returns the negative of a numeric expression's value (a unary operator).	- [Value] = 20
Is Null	Returns true if an expression is a null reference, the one that does not refer to any object.	[Region] is null
In (value1,value2,...)	Specifies a list of values to test. Returns true if an operand is equal to a value contained in a list.	[Country] In ('USA', 'UK', 'Italy')

OPERATOR	DESCRIPTION	EXAMPLE
Between (value1,value2)	Specifies a range to test. Returns true if an operand is greater than or equal to the value1 and less than or equal to the value2.	[Quantity] Between(10, 20) [Product Name] Between('Ikura','Pavlova')

Aggregate Functions

FUNCTION	DESCRIPTION	EXAMPLE
Avg(Value)	Returns the average of the values. $\bar{v} = \frac{1}{n} \cdot \sum_i v_i$	Avg([Quantity]) returns an average quantity of goods in an order, if the pivot table is built upon the data table where each row is an order. The Quantity values are summarized for all orders in the underlying data table, and the result is divided by the total number of orders.
Count()	Returns the number of records in the underlying data table.	Count()
Exists()	Not supported in Pivot Grid expressions.	
Max(Value)	Returns the maximum value.	Max([Quantity]) returns the maximum quantity of goods in a single order among all orders in the underlying data table, if the pivot table is built upon the data table where each row is an order.
Min(Value)	Returns the minimum value.	Min([Quantity]) returns the maximum quantity of goods in a single order among all orders in the underlying data table, if the pivot table is built upon the data table where each row is an order.
Single()	Not supported in Pivot Grid expressions.	
Sum(Value)	Returns the sum of all values.	Sum([Quantity]) returns the number of all items in all orders in the underlying data table, if the pivot table is built upon the data table where each row is an order.

Date-time Functions

FUNCTION	DESCRIPTION	EXAMPLE
AddDays(DateTime, DaysCount)	Returns a date-time value that adds the specified number of days to the specified DateTime.	AddDays([OrderDate], 30)
AddHours(DateTime, HoursCount)	Returns a date-time value that adds the specified number of hours to the specified DateTime.	AddHours([StartTime], 2)
AddMilliSeconds(DateTime, MilliSecondsCount)	Returns a date-time value that adds the specified number of milliseconds to the specified DateTime.	AddMilliSeconds(([StartTime], 5000))
AddMinutes(DateTime, MinutesCount)	Returns a date-time value that adds the specified number of minutes to the specified DateTime.	AddMinutes([StartTime], 30)

FUNCTION	DESCRIPTION	EXAMPLE
AddMonths(DateTime, MonthsCount)	Returns a date-time value that adds the specified number of months to the specified DateTime.	AddMonths([OrderDate], 1)
AddSeconds(DateTime, SecondsCount)	Returns a date-time value that adds the specified number of seconds to the specified DateTime.	AddSeconds([StartTime], 60)
AddTicks(DateTime, TicksCount)	Returns a date-time value that adds the specified number of ticks to the specified DateTime.	AddTicks([StartTime], 5000)
AddTimeSpan(DateTime, TimeSpan)	Returns a date-time value that adds the specified TimeSpan to the specified DateTime.	AddTimeSpan([StartTime], [Duration])
AddYears(DateTime, YearsCount)	Returns a date-time value that adds the specified number of years to 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())
GetDate(DateTime)	Returns the date component of the specified DateTime.	GetDate([OrderDateTime])
GetDateWeekYear()	Returns the date of the first day of the week for a given DateTime (uses culture settings).	GetDateHourMinuteSecond([OrderDate])
GetDay(DateTime)	Returns an integer that is the day of the month in the specified DateTime.	GetDay([OrderDate])
GetDayOfWeek(DateTime)	Returns the day of the week in the specified DateTime.	GetDayOfWeek([OrderDate])
GetDayOfYear(DateTime)	Extracts the day of the year from the defined DateTime.	GetDayOfYear([OrderDate])

FUNCTION	DESCRIPTION	EXAMPLE
GetHour(DateTime)	Returns an integer that is the hour component of the specified DateTime, expressed as a value between 0 and 23.	GetHour([StartTime])
GetMillisecond(DateTime)	Returns an integer that is the millisecond component of the specified DateTime.	GetMillisecond([StartTime])
GetMinute(DateTime)	Returns an integer that is the minute component of the specified DateTime.	GetMinute([StartTime])
GetMonth(DateTime)	Returns an integer that is the month component of the specified DateTime.	GetMonth([StartTime])
GetSecond(DateTime)	Returns an integer that is the second component of the specified DateTime.	GetSecond([StartTime])
GetTimeOfDay(DateTime)	Returns an integer that is the number of ticks that have elapsed since midnight.	GetTimeOfDay([StartTime])
GetYear(DateTime)	Returns an integer that is the year component of the specified 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])

FUNCTION	DESCRIPTION	EXAMPLE
IsNextYear(DateTime)	Returns True if the specified date falls within the next year.	IsNextYear([OrderDate])
IsNovember(DateTime)	Returns True if the specified date falls within November.	IsNovember([OrderDate])
IsOctober(DateTime)	Returns True if the specified date falls within October.	IsOctober([OrderDate])
IsSameDay(DateTime, DateTime)	Returns True if the specified DateTime values fall within the same day.	IsSameDay([OrderDate], [ShipDate])
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 up to the current date including today.	IsYearToDate([OrderDate])
IsThisYear(DateTime)	Returns True if the specified date falls within the current year.	IsThisYear([OrderDate])
LocalDateTimeDayAfterTomorrow()	Returns a date component of the DateTime value which is the day after tomorrow.	AddDays(LocalDateTimeDayAfterTomorrow(), 5)
LocalDateTimeLastMonth()	Returns the date which is the first day of the previous month.	AddMonths(LocalDateTimeLastMonth(), 5)
LocalDateTimeLastWeek()	Returns the date which is the first day of the previous week.	AddDays(LocalDateTimeLastWeek(), 5)
LocalDateTimeLastYear()	Returns the date which is the first day of the previous year.	AddYears(LocalDateTimeLastYear(), 5)
LocalDateTimeNextMonth()	Returns the date which is the first day of the next month.	AddMonths(LocalDateTimeNextMonth(), 5)
LocalDateTimeNextWeek()	Returns the date which is the first day of the next week.	AddDays(LocalDateTimeNextWeek(), 5)
LocalDateTimeNextYear()	Returns the date which is the first day of the next year.	AddYears(LocalDateTimeNextYear(), 5)
LocalDateTimeNow()	Returns the current date and time.	AddDays(LocalDateTimeNow(), 5)
LocalDateTimeThisMonth()	Returns the date which is the first day of the current month.	AddMonths(LocalDateTimeThisMonth(), 5)

FUNCTION	DESCRIPTION	EXAMPLE
LocalDateTimeThisWeek()	Returns the date which is the first day of the current week.	AddDays(LocalDateTimeThisWeek(), 5)
LocalDateTimeThisYear()	Returns the date which is the first day of the current year.	AddYears(LocalDateTimeThisYear(), 5)
LocalDateTimeToday()	Returns the current date.	AddDays(LocalDateTimeToday(), 5)
LocalDateTimeTomorrow()	Returns the tomorrow's date.	AddDays(LocalDateTimeTomorrow(), 5)
LocalDateTimeTwoMonthsAway()	Returns the date which is the first day of the next month.	AddMonths(LocalDateTimeTwoMonthAway(), 5)
LocalDateTimeTwoWeeksAway()	Returns the date which is the first day of the next week.	AddDays(LocalDateTimeTwoWeeksAway(), 5)
LocalDateTimeTwoYearsAway()	Returns the date which is the first day of the next year.	AddYears(LocalDateTimeTwoYearsAway(), 5)
LocalDateTimeYearBeforeToday()	Returns the date which is the day one year ago.	AddYears(LocalDateTimeYearBeforeToday(), 5)
LocalDateTimeYesterday()	Returns the yesterday's date.	AddDays(LocalDateTimeYesterday(), 5)
Now()	Returns the current system date and time.	AddDays(Now(), 5)
Today()	Returns a DateTime value that is the today's date with the time component set to 00:00:00 (midnight).	AddMonths(Today(), 1)
UtcNow()	Returns the current system date and time, expressed as the Coordinated Universal Time (UTC).	AddDays(UtcNow(), 7)

Logical Functions

FUNCTION	DESCRIPTION	EXAMPLE
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): <ul style="list-style-type: none"> * Each odd argument specifies a logical expression; * Each even argument specifies the value that is returned if the previous expression evaluates to true 	Iif(Name = 'Bob', 1, 0) Iif(Name = 'Bob', 1, Name = 'Dan', 2, Name = 'Sam', 3, 0)
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
Abs(Value)	Returns the given numeric expression's absolute, positive value.	Abs(1 - [Discount])
Acos(Value)	Returns a number's arccosine (the angle in radians, whose cosine is the given float expression).	Acos([Value])
Asin(Value)	Returns a number's arcsine (the angle in radians, whose sine is the given float expression).	Asin([Value])
Atn(Value)	Returns a number's arctangent (the angle in radians, whose tangent is the given float expression).	Atn([Value])
Atn2(Value1, Value2)	Returns the angle whose tangent is the quotient of two specified numbers in radians.	Atn2([Value1], [Value2])
BigMul(Value1, Value2)	Returns an Int64 containing the full product of two specified 32-bit numbers.	BigMul([Amount], [Quantity])
Ceiling(Value)	Returns the smallest integer that is greater than or equal to the numeric expression.	Ceiling([Value])
Cos(Value)	Returns the angle's cosine, in radians.	Cos([Value])
Cosh(Value)	Returns the angle's hyperbolic cosine, in radians.	Cosh([Value])
Exp(Value)	Returns the float expression's exponential value.	Exp([Value])
Floor(Value)	Returns the largest integer less than or equal to the numeric expression.	Floor([Value])
Log(Value)	Returns a specified number's natural logarithm.	Log([Value])
Log(Value, Base)	Returns the logarithm of a specified number in a specified Base.	Log([Value], 2)
Log10(Value)	Returns a specified number's base 10 logarithm.	Log10([Value])
Max(Value1, Value2)	Returns the maximum value from the specified values.	Max([Value1], [Value2])
Min(Value1, Value2)	Returns the minimum value from the specified values.	Min([Value1], [Value2])
Power(Value, Power)	Returns a specified number raised to a specified power.	Power([Value], 3)
Rnd()	Returns a random number that is less than 1, but greater than or equal to zero.	Rnd()*100
Round(Value)	Rounds the given value to the nearest integer.	Round([Value])
Round(Value, Precision)	Rounds the given value to the nearest integer, or to a specified number of decimal places.	Round([Value], 2)
Sign(Value)	Returns the positive (+1), zero (0), or negative (-1) sign of the given expression.	Sign([Value])

FUNCTION	DESCRIPTION	EXAMPLE
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])

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 StartPositon	Insert([Name], 0, 'ABC-')
Len(Value)	Returns an integer containing either the number of characters in a string or the nominal number of bytes required to store a variable.	Len([Description])
Lower(String)	Returns String in lowercase.	Lower([ProductName])

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(String, 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])

Operator Precedence

When an expression contains multiple operators, their precedence determines the order in which expression elements are evaluated.

- Literal values
- Parameters
- Identifiers
- OR (left-associative)
- AND (left-associative)
- '.' relationship qualifier (left-associative)
- ==, !=
- <, >, <=, >=
- -, + (left-associative)

- *, /, % (left-associative)
- NOT
- unary -
- In
- If
- Trim(), Len(), Substring(), IsNull()
- '[]' (for set-restriction)
- '()'

You can group elements with parentheses to change the default precedence. For instance, the operators are performed in the default order in the first code sample below. In the second code sample, the addition operation is performed first because its associated elements are grouped with parentheses, and the multiplication operation is performed last.

*Accounts[Amount == 2 + 48 * 2]*

*Accounts[Amount == (2 + 48) * 2]*

Case Sensitivity

Operators are case insensitive.

NOTE

A data source affects certain operators' behavior. For instance, SQL Server Express 2005 is configured as case insensitive. In this case, the following expression always evaluates to **true**:

Lower(Name) == Upper(Name)

Escape Characters

Use a backslash () as an escape character for characters in expressions, for example:

- \'[
- \\
- \'

Export to XLS and XLSX

The Pivot Grid does not [export](#) expressions to XLS and XLSX format.

Data Presentation

This section describes how you can customize data presentation in Pivot Tables.

The following sections are available.

- [Sort Data in Pivot Tables](#)

Describes how you can sort field values alphabetically or by summary values displayed in a particular column or row.

- [Filter Data in Pivot Tables](#)

Provides information on how to filter data by hiding specific rows or columns via filter drop-down lists, and how to provide a more advanced filtering by building a complex filter condition.

- [Apply Conditional Formatting](#)

Describes how to change the appearance of individual cells based on specific conditions.

- [Change Summary Type in Pivot Tables](#)

Describes how to specify which calculations Pivot Table should perform against its data.

Sort Data in Pivot Tables

This section describes the Pivot Table capabilities used to sort its data by field and summary values.

Topics in this section:

- [Simple Sorting](#)

Provides information on how to sort data by field values.

- [Sort Data Using the Context Menu](#)

Describes how to use the context menu to sort data.

- [Sort Data Using a Field List](#)

Describes how to use a Field List to sort data.

- [Sort Data by Summaries](#)

Describes how to sort data by column or row values.

Simple Sorting

Values of dimension fields are always arranged in ascending or descending order. The sort order is indicated by an Up or Down arrow displayed within a corresponding dimension field's header.

The screenshot shows a data grid with various columns and rows. Dimension fields are highlighted with arrows indicating their sort order:

- Sales Person:** An upward-pointing arrow indicates Ascending Order.
- Category Name:** A downward-pointing arrow indicates Descending Order.
- Year:** A downward-pointing arrow indicates Descending Order.
- Quarter:** An upward-pointing arrow indicates Ascending Order.

Extended Price					
Sales Person		Category Name		Year	Quarter
Andrew Fuller		Confections	\$719.60	\$6,308.55	\$7,028.15
		Condiments	\$905.96	\$4,471.10	\$5,377.06
		Beverages	\$21,785.25	\$10,874.25	\$32,659.50
Andrew Fuller Total			\$23,410.81	\$21,653.90	\$45,064.71
					\$24,127.49
					\$69,192.20
Janet Leverling			\$27,001.59	\$13,468.42	\$40,470.01
					\$45,171.43
					\$85,641.44
Laura Callahan			\$7,008.44	\$16,213.03	\$23,221.47
					\$24,705.34
					\$47,926.81
Grand Total			\$57,420.84	\$51,335.35	\$108,756.19
					\$94,004.26
					\$202,760.45

To toggle the sort order for a dimension field, click this field's header.

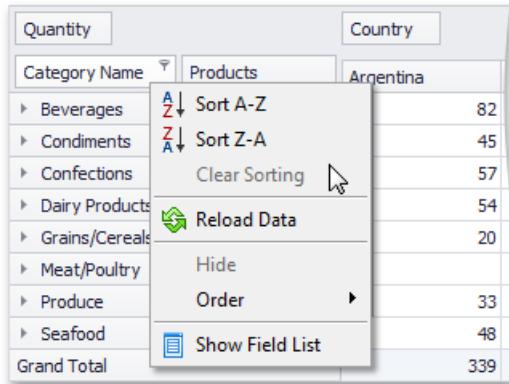


You can also sort field values using a Field List or context menu. To learn more, see [Sort Data Using a Field List](#) and [Sort Data Using the Context Menu](#).

Sort Data Using the Context Menu

Depending on the Pivot Table settings made by your application vendor, you may be able to sort data using the context menu.

If the corresponding functionality is enabled, the context menu invoked when you right-click a field header contains the **Sort A-Z**, **Sort Z-A** and **Clear Sorting** items.

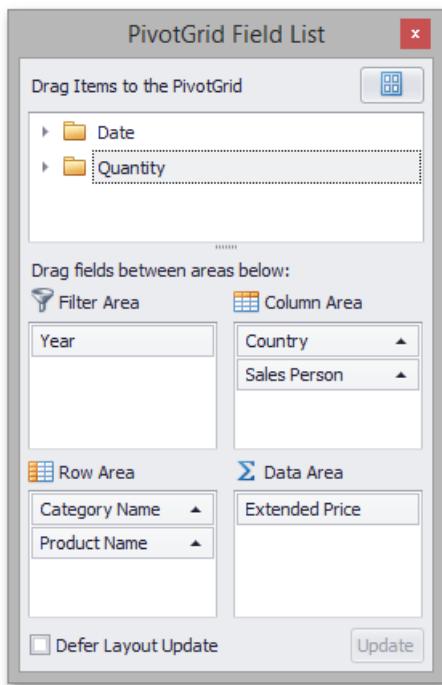


Select **Sort A-Z** to set ascending sort order, and **Sort Z-A** to set descending order.

To reset sort order to the default one, select **Clear Sorting**.

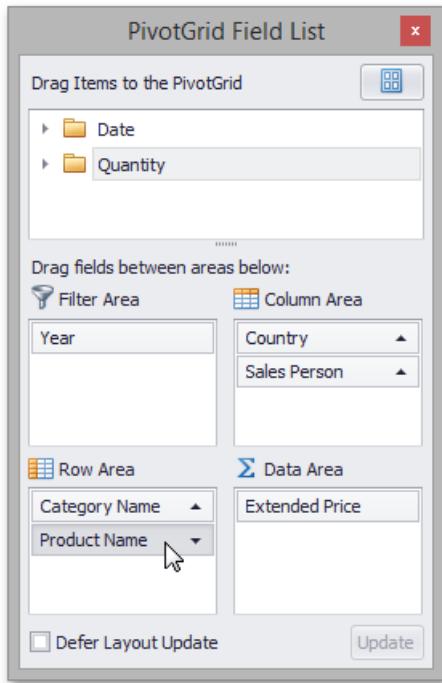
Sort Data Using a Field List

You can use an advanced Field List to sort field values (to learn more about Field Lists, see [Field List Overview](#)).



First, invoke a Field List. For information on how to do this, see [Invoke a Field List](#).

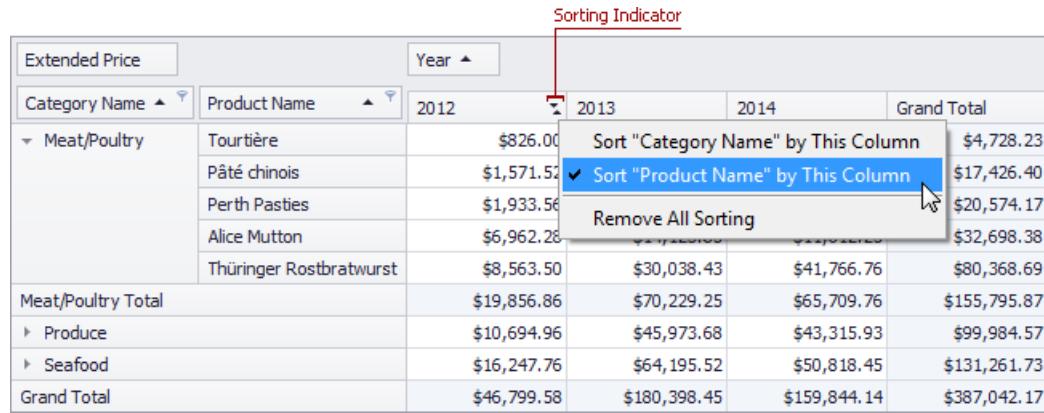
To toggle the sort order of a field, click its header.



You can sort data without using a Field List. To learn more, see [Simple Sorting](#) and [Sort Data Using the Context Menu](#).

Sort Data by Summaries

You can sort values of a particular dimension field by summary values calculated against a specific data field. To do this, right-click a column or row header, and choose a dimension field whose values should be sorted by column/row summary values. A specific indicator marks the column/row whose summary values are used to define the sort order.



The screenshot shows a data grid with columns for Extended Price, Category Name, Product Name, Year (2012, 2013, 2014, Grand Total), and various monetary values. A red box highlights the 'Year' column header. A context menu is open over the 2013 column header, listing three options: 'Sort "Category Name" by This Column', 'Sort "Product Name" by This Column' (which is checked), and 'Remove All Sorting'. The 'Sort "Product Name" by This Column' option is highlighted with a blue background.

Extended Price	Category Name	Product Name	Year	2012	2013	2014	Grand Total
				\$826.00	\$4,728.23		
▼ Meat/Poultry	Tourtière			\$1,571.52	\$17,426.40		
	Pâté chinois			\$1,933.56	\$20,574.17		
	Perth Pasties			\$6,962.28	\$32,698.38		
	Alice Mutton			\$8,563.50	\$30,038.43	\$41,766.76	\$80,368.69
	Thüringer Rostbratwurst						
Meat/Poultry Total				\$19,856.86	\$70,229.25	\$65,709.76	\$155,795.87
▶ Produce				\$10,694.96	\$45,973.68	\$43,315.93	\$99,984.57
▶ Seafood				\$16,247.76	\$64,195.52	\$50,818.45	\$131,261.73
Grand Total				\$46,799.58	\$180,398.45	\$159,844.14	\$387,042.17

You can sort values of multiple dimension fields against a single column/row. To cancel this sorting, click the same item again, or 'Remove All Sorting' to cancel sorting for all dimension fields.

Filter Data in Pivot Tables

By default, the Pivot Table processes all records when calculating its values. Data filtering allows you to process only those records that meet your requirements.

Topics in this section describe three ways of filtering data in Pivot Tables - filtering by field values, filtering by cell values and building complex filter criteria.

The following sections and topics are available.

- [Filter Data by Field Values](#)

Contains topics that describe how to specify simple filter conditions via Filter Windows.

- [Filter Data by Cell Values](#)

Contains topics that describe how to specify which cell values to display and which to hide.

- [Build Complex Filter Criteria](#)

Describes the Filter Editor that allows you to build complex filter criteria.

Filter Data by Field Values

Filter Popup Windows allow you to configure and apply simple filtering conditions by selecting which values you wish to view, and which you do not.

Topics in this section describe how to invoke, use and customize Filter Windows.

The following topics are available:

- [Invoke a Filter Popup Window](#)

Shows how to invoke Filter Windows from the Pivot Table and a Field List.

- [Using Filter Popup Windows](#)

Describes how to build filter conditions in Filter Popup Windows.

- [Filtering Options](#)

Introduces Pivot Table filtering options and describes a specially designed toolbar to access them.

Invoke a Filter Window

You can invoke a Filter Window from the Pivot Table or from a Field List (to learn about Field Lists, see [Field List Overview](#)).

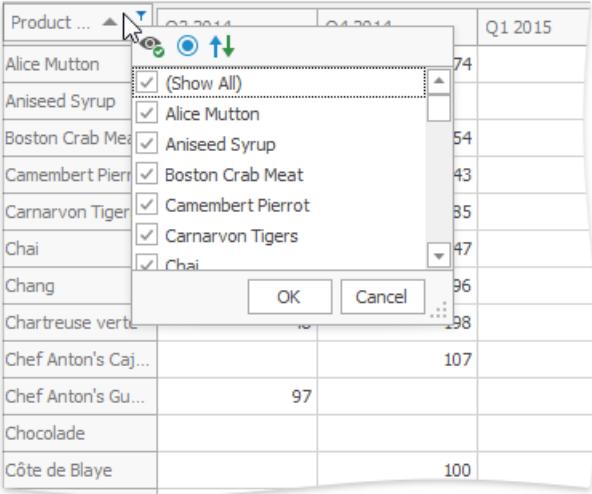
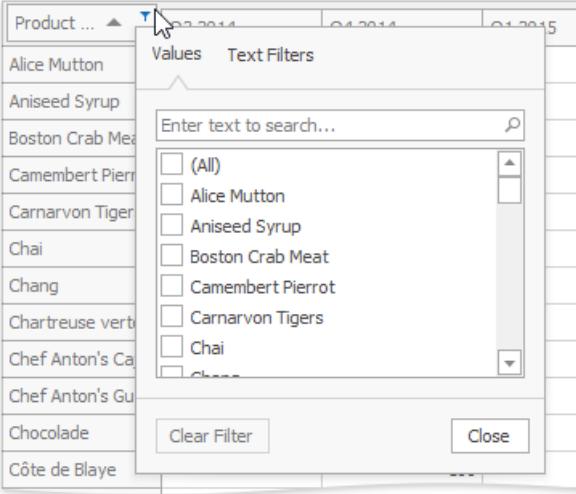
Invoke a Filter Window from the Pivot Table

Field headers display special buttons used to invoke a Filter Window. Follow the steps below:

1. Hover over the header of a field whose data you need to filter. A filter button (the  icon) will be highlighted.

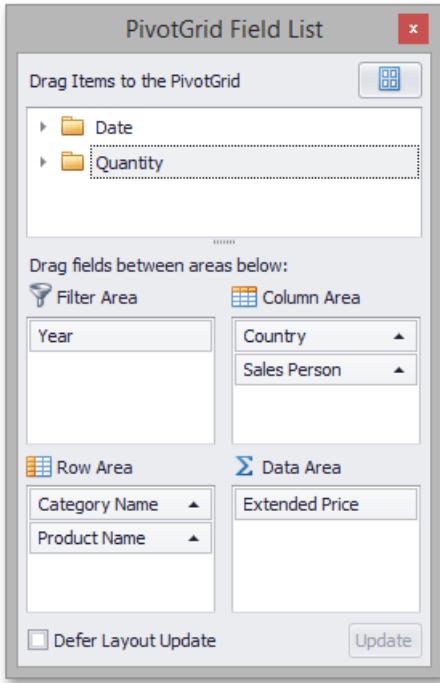
Extended Price	Country ▾
Category Name	UK
Beverages	\$68,057.10
Condiments	\$26,300.67
Confections	\$34,241.57
Dairy Products	\$87,699.63

2. Click this filter button to display a Filter Window. Filter windows can be Classic or Excel-style:

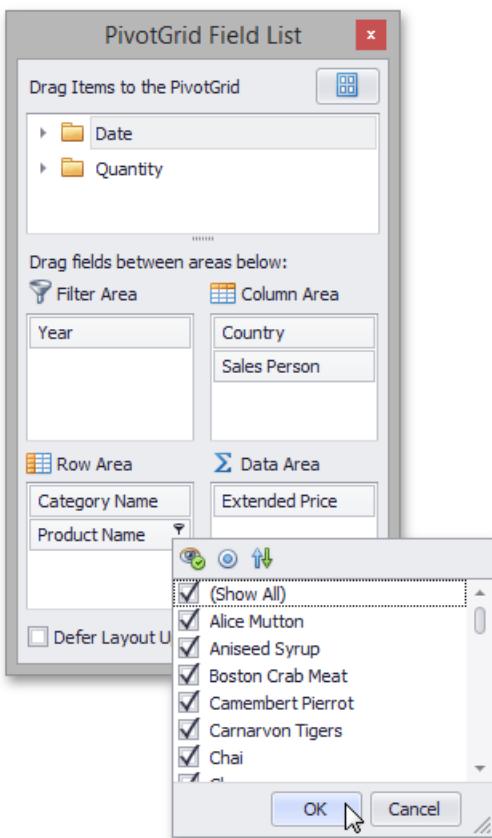
CLASSIC	EXCEL-STYLE
	

Invoke a Filter Window from a Field List

You can use an advanced Field List to filter field values.



First, invoke a Field List. For information on how to do this, see [Invoke a Field List](#). To open a Filter Window, click the filter button displayed in the field header.



Using Filter Windows

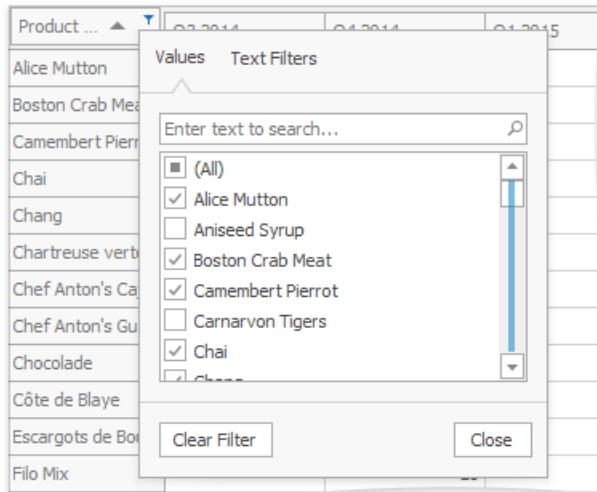
Depending on the settings made by your application vendor, the Pivot Table can display an individual Filter Window for each field, or an integrated Filter Window for a group of fields.

This topic describes how to filter data using both types of Filter Windows.

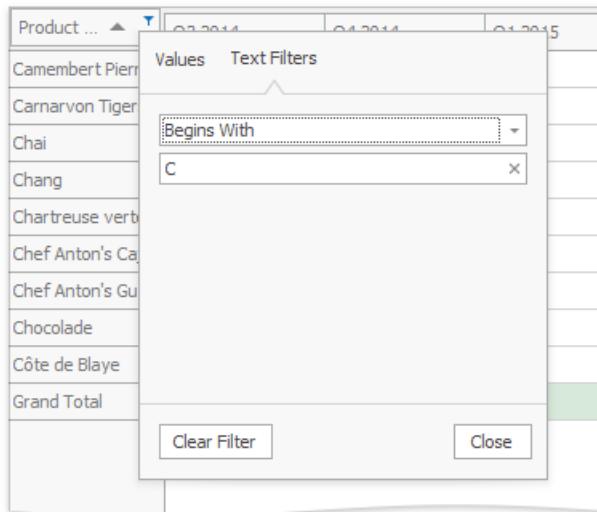
Excel-style Filter Window

The Excel-style filter popup's content depends on the type of data the related field displays.

In the "Values" tab, end-users can select specific field values from the Pivot Grid.



The "Filters" tab supplies users with additional options related to the field type. For example, when filtering a string field, you can show only those records that begin with 'C':

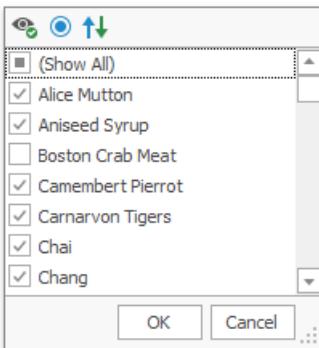


Filters applied using the Excel-style filter popup are displayed in the Filter Panel and can be changed in the Filter Editor dialog, which allows end-users to apply complex filter conditions.

The Excel-style filter cannot be used to apply filtering in OLAP mode.

Simple Filter Window

A simple Filter Window allows you to hide visible and show previously hidden values of a particular field.

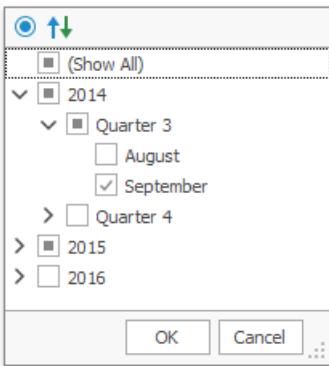


In the Filter Window, uncheck field values that should be hidden and check values that should be visible. Then, click **OK** to close the window and apply the filtering.

Note that you can customize Filter Window settings using the toolbar displayed at the top of the window. To learn how to do this, see [Filtering Options](#).

Hierarchical Filter Window

A hierarchical Filter Window displays values of several fields, arranged in a tree-like manner.

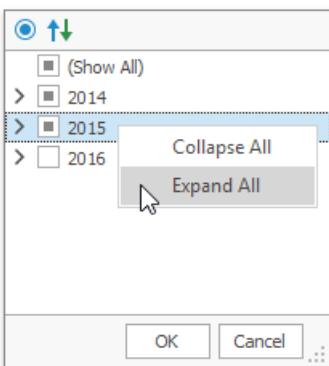


In the Filter Window, uncheck field values that should be hidden and check values that should be visible.

Use the buttons to expand field values and access their child values. To collapse an expanded field value and hide its child values, use the button.

You can also expand and collapse all values on a particular level. To do this, right-click any field value and select **Collapse All** or **Expand All** from the context menu.

For instance, to expand all quarters and display months, right-click any quarter value and select **Expand All** from the context menu as shown on the image below.



Click **OK** to close the window and apply the filtering.

Note that you can customize Filter Window settings using the toolbar displayed at the top of the window. To learn how to do this,

see [Filtering Options](#).

Filtering Indication

You can determine whether a field is filtered by looking at its header. Filter buttons for these fields are visible even when you are not hovering over their headers.

Filtered Field

Extended Price	Country		
Category Name	UK	USA	Grand Total
Beverages	\$68,057.10	\$199,811.06	\$267,868.16
Condiments	\$26,300.67	\$79,746.38	\$106,047.05
Confections	\$34,241.57	\$133,115.58	\$167,357.15
Dairy Products	\$87,699.63	\$146,807.62	\$234,507.25
Grand Total	\$216,298.97	\$559,480.64	\$775,779.61

Removing Filtering

To remove filtering against a specific field, invoke its Filter Window and select **(Show All)**.

Filtering Options

The Pivot Table allows you to customize its filtering mechanism according to your needs.

If the corresponding functionality is enabled by your application vendor, Filter Windows display toolbars where you can access various filtering options.



Use the toolbar buttons to enable or disable particular options.

The following table describes the available toolbar buttons.

ICON	BUTTON TOOLTIP	DESCRIPTION
	Show Only Available Items	If this button is pressed, values that cannot be displayed because of filtering applied to other fields are hidden from Filter Windows. Note that this button is not available for Hierarchical Filter Windows .
	Show New Field Values	If this button is pressed, field values that have appeared in the database after the field's filtering was configured are shown by default. If this button is released, new field values are hidden by default. To view these values, check them manually in the corresponding Filter Window.
	Incremental Search	If this button is pressed, the Incremental Search feature is enabled. This feature allows you to locate a value in the Filter Window by typing its initial characters.
	Multi-Selection	If this button is pressed, you can select multiple values by sequentially clicking them with the CTRL key held down (or the SHIFT key to select a continuous range of values). In this instance, a field value is selected when you click its name, and checked (or unchecked) when you click a corresponding check box. When you click a check box with multiple values selected, this changes the checked state of all selected values. If this button is released, you cannot select multiple values. In this instance, a field value is selected and checked (or unchecked) when you click either its name or a corresponding check box.
	Radio Mode	If this button is pressed, Filter Windows hide check boxes and display field values in a simple list. In this instance, you can select and view only one value from each field in the Pivot Table.
	Invert Filter	Inverts the checked state for all values.

Filter Data by Cell Values

The Pivot Table allows you to filter data by specifying a range of cell values that should be displayed. Values that do not fall into this range will be hidden.

Topics in this section describe how to configure filtering by cell values (or **summary filtering**).

The following topics are available.

- [Invoke a Summary Filter Window](#)

Describes how to invoke a Summary Filter Window used to enable and configure filtering by cell values.

- [Select a Range of Values](#)

Shows how to specify a range of cell values that should be displayed.

- [Move the Selected Range](#)

Demonstrates how to select another range with the same length by moving the selection.

- [Zoom and Move the Viewport](#)

Describes how to zoom and scroll the range selector.

- [Specify Target Cells](#)

Shows how to enable filtering by Total and Grand Total cells.

- [Remove Filtering](#)

Describes how to disable filtering.

Invoke a Summary Filter Window

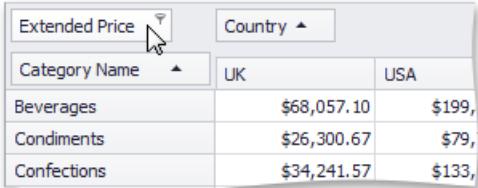
To enable and configure filtering by cell values, use the Summary Filter Window.

You can invoke a Summary Filter Window from the Pivot Table or from a Field List (to learn about Field Lists, see [Field List Overview](#)).

Invoke a Summary Filter Window from the Pivot Table

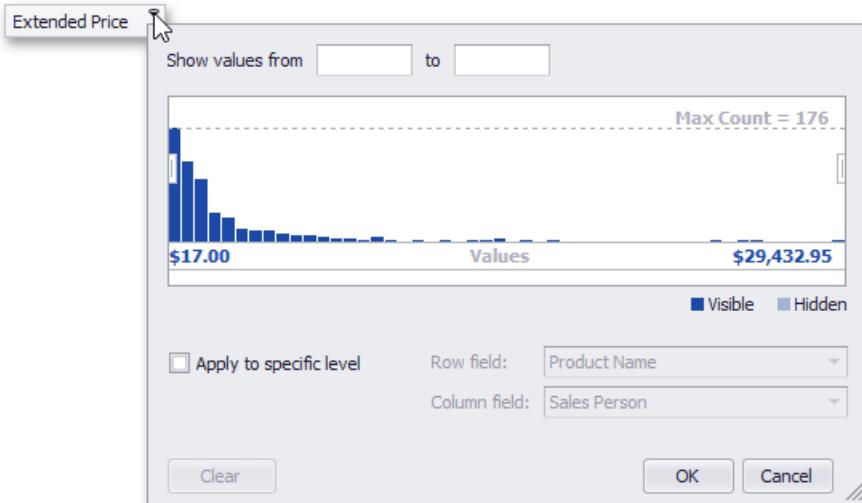
Field headers located in the Data Area display special buttons used to invoke a Summary Filter Window. Follow the steps below.

1. Hover over the header of a field whose data you need to filter. A filter button (♀) will be highlighted.



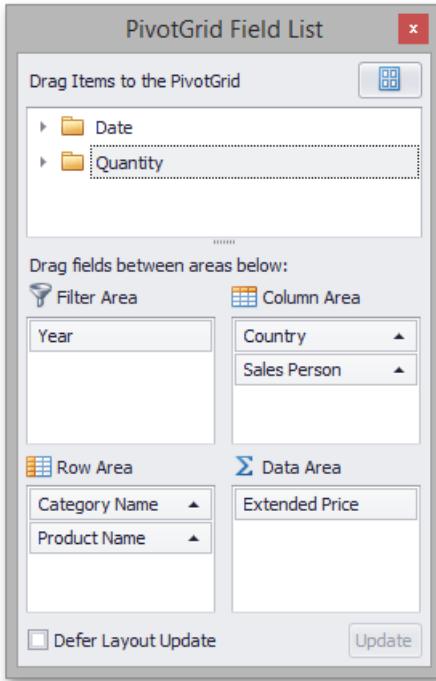
Category Name	UK	USA
Beverages	\$68,057.10	\$199,
Condiments	\$26,300.67	\$79,
Confections	\$34,241.57	\$133,

2. Click this filter button to display a Summary Filter Window.



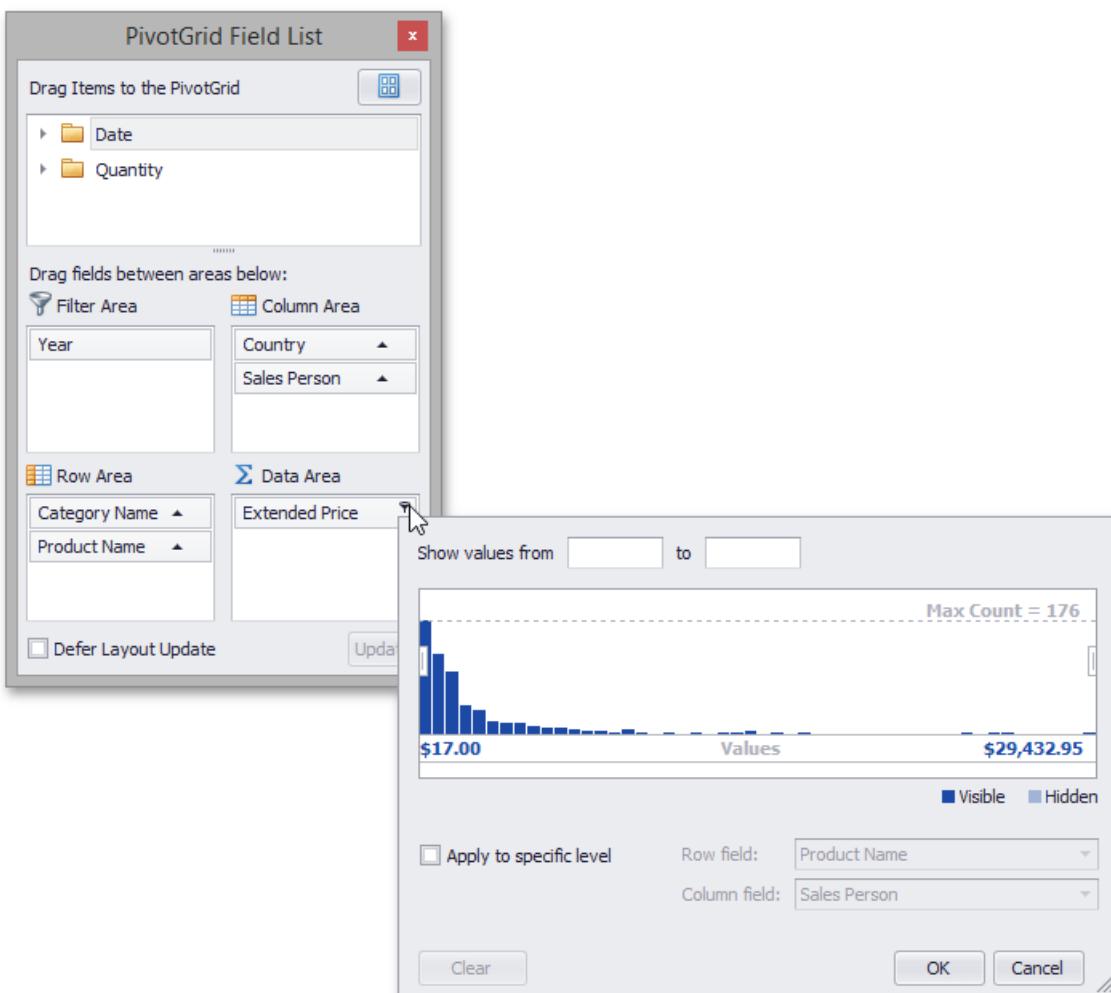
Invoke a Summary Filter Window from a Field List

You can use an advanced Field List to filter field values.



First, invoke a Field List. For information on how to do this, see [Invoke a Field List](#).

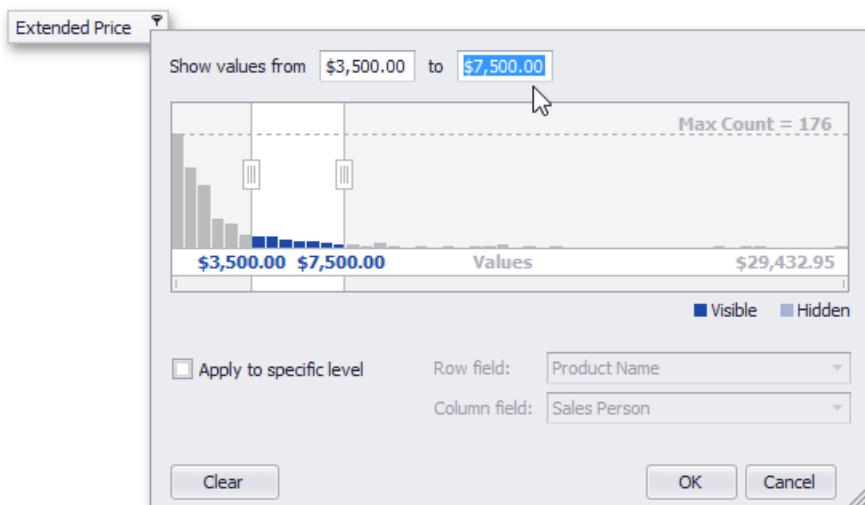
To open a Summary Filter Window, click the filter button displayed in the field header.



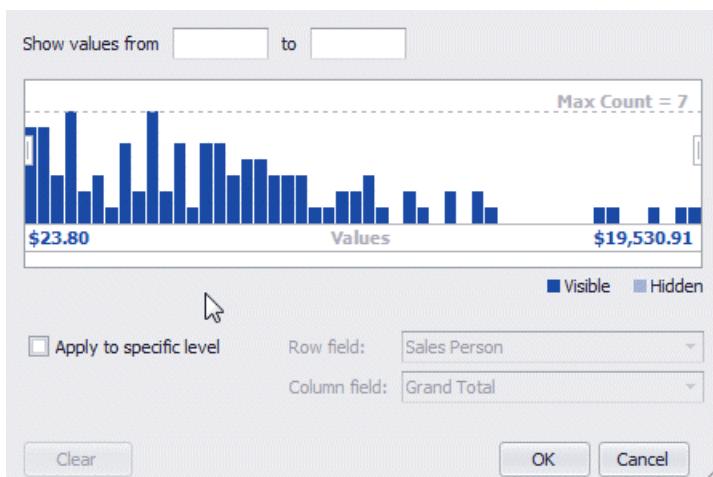
Select a Range of Values

You can select a range of cell values to be displayed in any of the following ways.

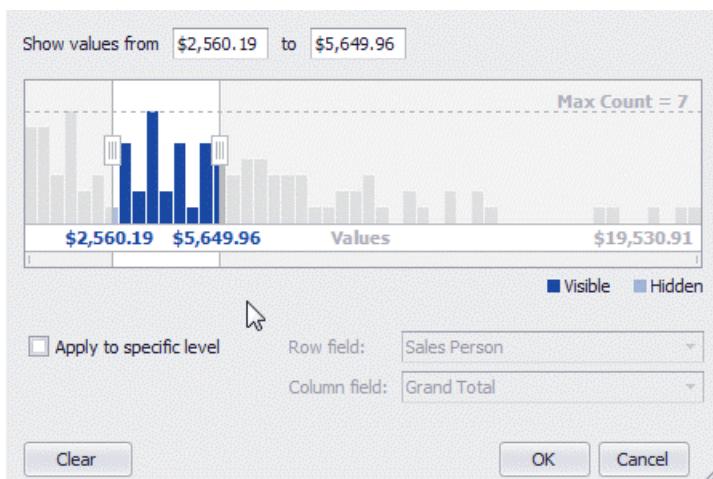
- Enter the bounds of the range into the appropriate text editors.



- Drag selection thumbs in the range selector.



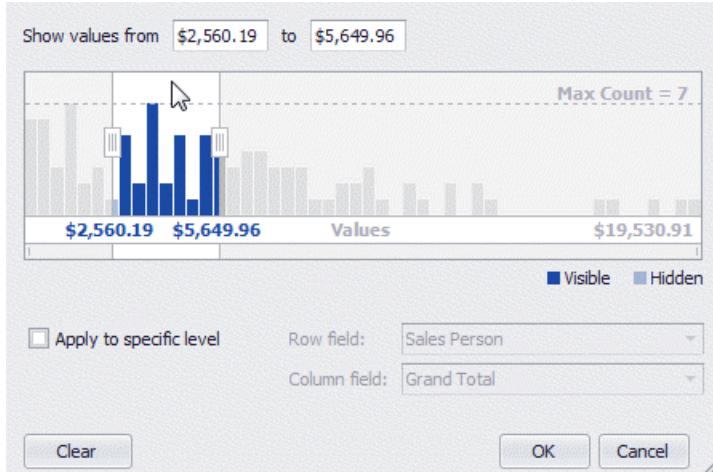
- If a range is already selected, you can select a different range with the mouse.



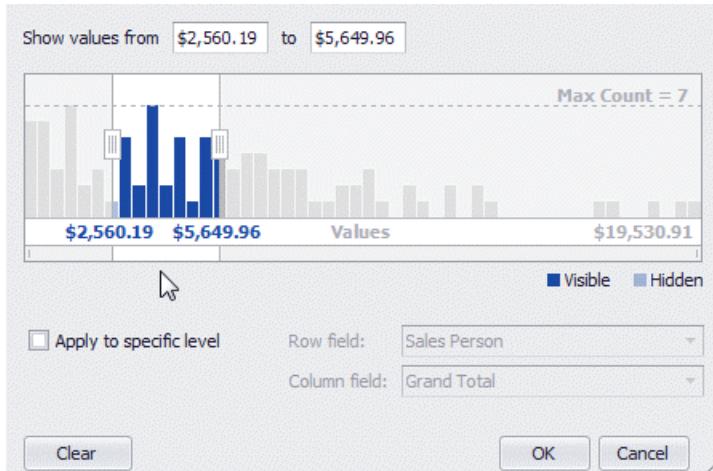
Move the Selected Range

To move a selection, do the following.

- Drag the selection by any point within it.



- Drag a selection scroll thumb displayed within the Zoom & Scroll Bar.

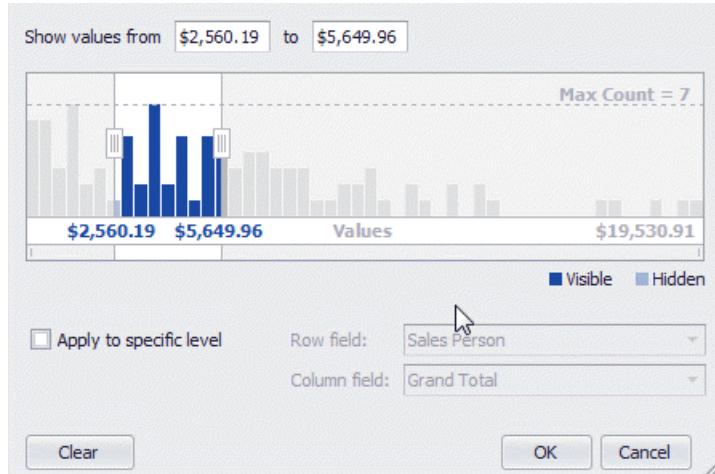


Zoom and Move the Viewport

Zoom

You can zoom in or out by shrinking or enlarging a viewport scroll thumb displayed within the Zoom & Scroll Bar.

To zoom in, drag a zoom grip inwards. To zoom out, drag a zoom grip outwards.



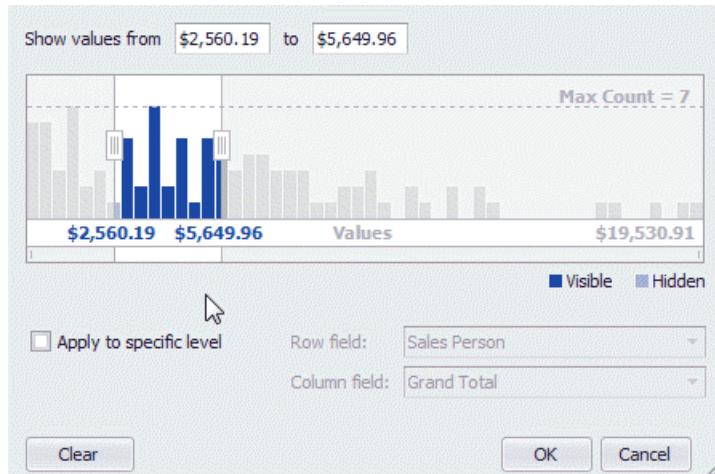
Move Viewport

To move the viewport, drag a viewport scroll thumb.



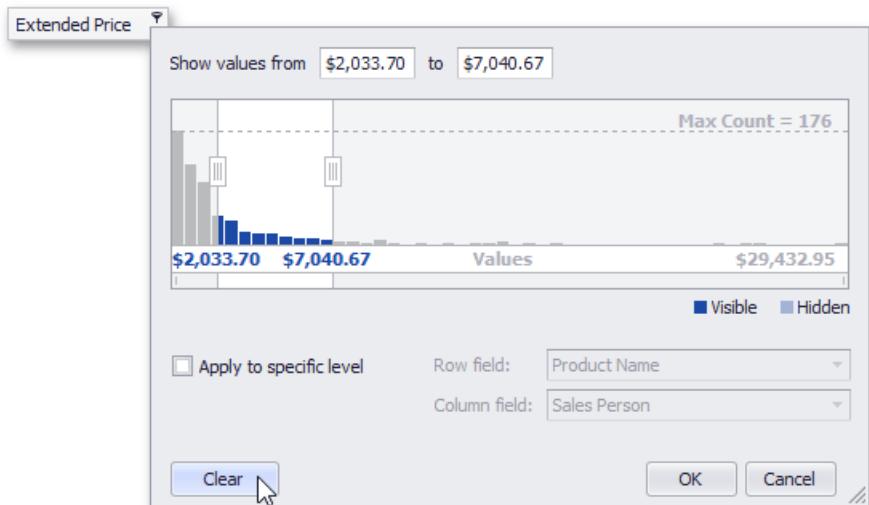
Specify Target Cells

Filtering by cell values is applied only to regular cells by default. You can change this behavior and apply it to Total or Grand Total cells. To do this, check the **Apply to specific level** check box, and select column and row fields that identify the desired Total or Grand Total cells.



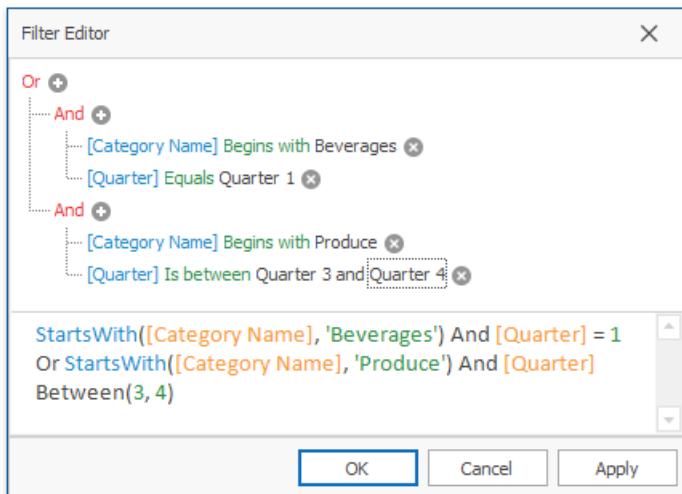
Remove Filtering

To remove filtering, click the **Clear** button.

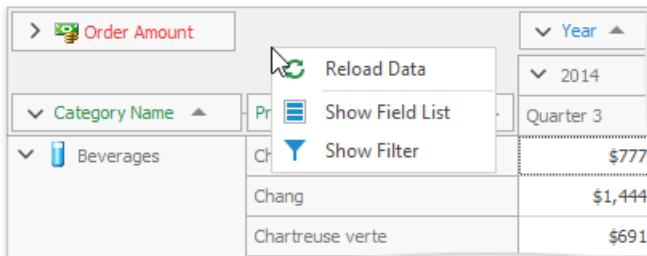


Build Complex Filter Criteria

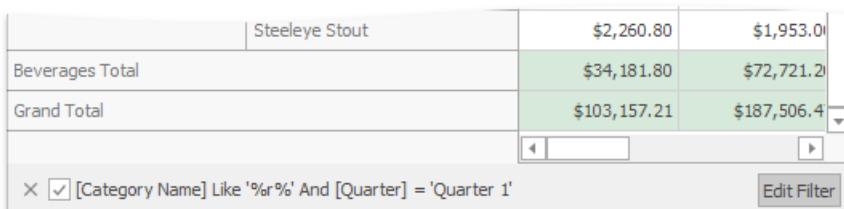
Use a Filter Editor to build complex filter criteria with an unlimited number of filter conditions, combined by logical operators.



To invoke the Filter Editor, click an empty space within the Pivot Table header region and select **Show Filter** from the context menu.



After you have built and applied a filter condition, a filter panel appears at the bottom of the Pivot Table. This panel displays the filter condition.



Click the **Edit Filter** button to invoke the Filter Editor and modify a filter condition.

To temporarily disable filtering, uncheck the button.

To remove filtering, click the **x** button.

See also:

- [Filter Data via the Filter Editor](#)
- [Examples of Using the Filter Editor](#)

Apply Conditional Formatting

You can change the appearance of individual cells based on specific conditions using **Format Rules** context menu. This feature helps to highlight important information, identify trends and exceptions, and compare data.

To invoke the menu, do the following.

- Right-click the data cell corresponding to the intersection of the required data, row and column field.
- Select the required rule from the list.

The screenshot shows a data grid of car sales information. A context menu is open over a cell in the 'Extended Price' column for a Toyota Avalon. The menu path 'Highlight Cell Rules' is highlighted. A preview window on the right shows three sections: 'Gradient Fill' with six color swatches, 'Icon Sets' with four icons, and 'Solid Fill' with four color swatches. The data grid includes columns for Modification, Body Style, Sales Date, Model Price, MPG City, MPG Highway, Extended Price, Year, Month, Day, and Grade. Rows represent different car models and years, with some rows collapsed under category headers like 'Toyota Total' and 'Ford Total'.

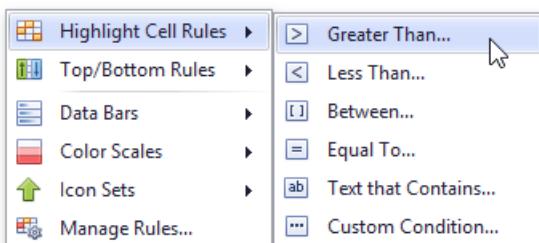
Available format rules are displayed when expanding the **Format Rules** menu.

Highlighting Cells that Meet a Specific Condition

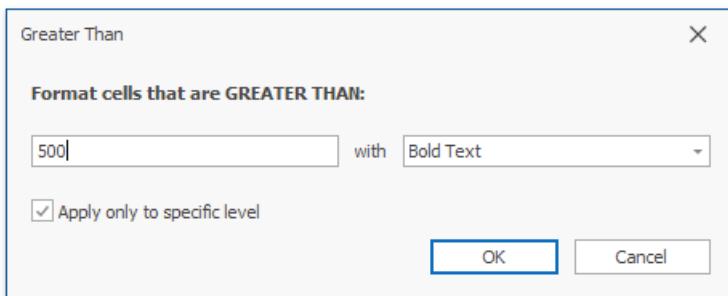
This rule formats cells if values matches one of the predefined conditions, custom condition or contain the specified text.

To apply this format, do the following:

- Choose the **Highlight Cell Rules** menu item and select the rule type.



- According to the selected rule type, an appropriate dialog window is invoked.



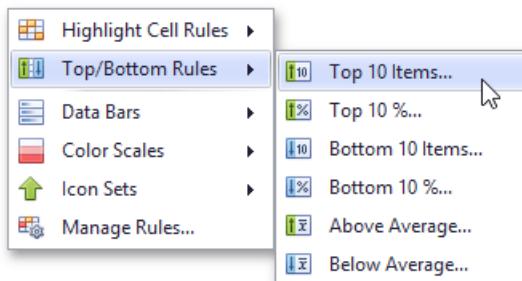
Specify the rule value(s), choose a format style in the dropdown list, and click the OK button. To apply formatting to all data cells instead of an intersection, clear the **Apply only to specific level** check box.

Highlighting Top or Bottom Cell Values

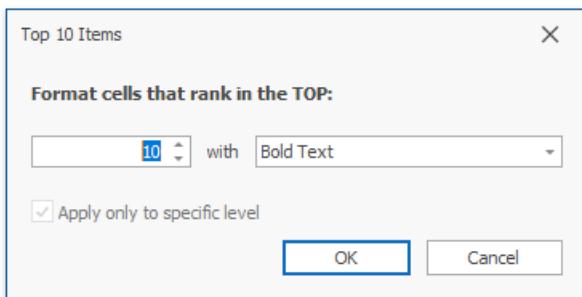
This rule formats cells that contain the highest or lowest values, and values that are above or below the average of the field intersection data cells value.

To apply this format, do the following:

- Choose the **Top/Bottom Rules** menu item and select the rule type.



- According to the selected rule type, an appropriate dialog window is invoked.

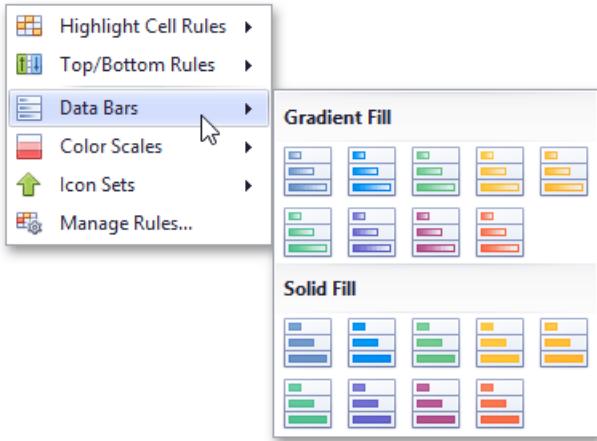


Specify the rule value if it is necessary, choose a format style in the dropdown list, and click the OK button.

Highlighting Cells Using Data Bars

A data bar fills a cell according to the ratio of the cell's value to the highest and smallest field intersection data cells values. A longer bar corresponds to a higher value, and a shorter bar, to a lower value.

To apply this format, choose the **Data Bars** menu item and select the bar style format.

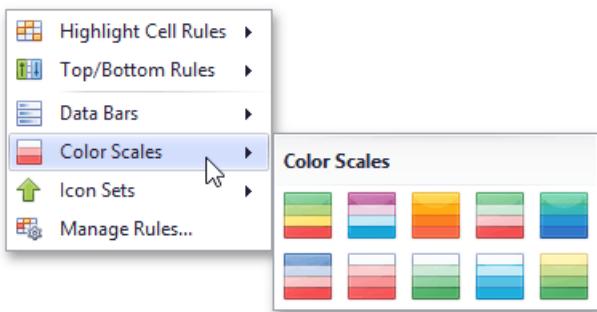


Solid bars and bars with gradient fills are available in various colors.

Applying Color Scales

This format shows data distribution and variation using color scales. A cell is filled with a background color that is calculated according to the ratio of the cell's value to the highest and smallest field intersection data cells values.

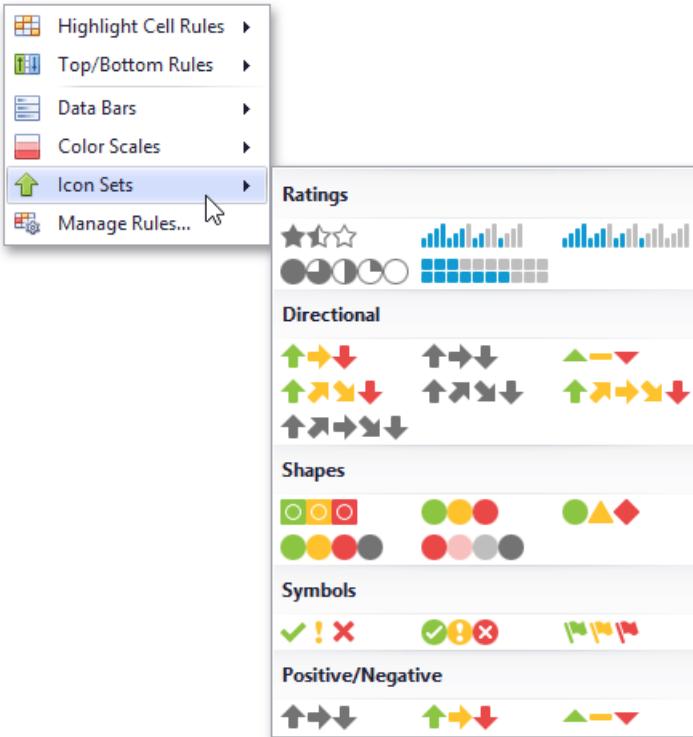
To apply this format, choose the **Color Scales** menu item and select one of the predefined two or three-color scales.



Highlighting Cells Using Predefined Icons

Icon sets allow you to classify data cells values into three, four or five ranges separated by threshold values, and display a specific icon in a cell according to the range to which this cell value belongs. In the Positive/Negative group, the available icon sets divide column values into three ranges: positive values, negative values and values equal to zero.

To apply this format, choose the **Icon Sets** menu item and select one of the predefined icon sets.



Conditional Formatting Rules Manager

You can create, sort and modify the created rules using the **Conditional Formatting Rules Manager**. To invoke this manager, select the **Manage Rules...** item from the Format Rules context menu.

The screenshot shows the Conditional Formatting Rules Manager dialog box. It includes a toolbar with buttons for New Rule..., Edit Rule..., Delete Rule, Up, Down, and Show rules for: (All). The main area is a table showing the following rules:

	Rule	Format	Measure	Row	Column
<input checked="" type="checkbox"/>	Cell Value	AaBbCcYz	Variation	(Any)	(Any)
<input checked="" type="checkbox"/>	Cell Value	AaBbCcYy			
<input checked="" type="checkbox"/>	Icon Set	▲ ▼			
<input checked="" type="checkbox"/>	Icon Set	↑ ↓			
<input checked="" type="checkbox"/>	Graded Color Scale	Yellow to Green gradient			
<input checked="" type="checkbox"/>	Top 3	AaBbCcY			

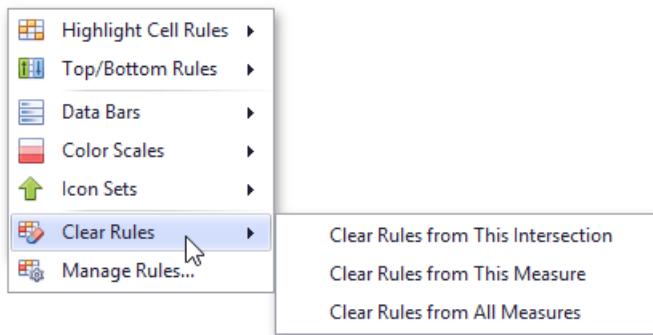
An 'Edit Formatting Rule' dialog is open for the 'Graded Color Scale' rule. It shows the 'Select a Rule Type:' section with 'Format all cells based on their values' selected. The 'Edit the Rule Description:' section shows 'Format all cells based on their values' with a 'Format Style: 2-Color Scale' dropdown. The 'Minimum' and 'Maximum' sections both have 'Type: Automatic' and 'Value: 0'. A 'Preview:' bar at the bottom shows a gradient from yellow to green. At the bottom right are 'OK' and 'Cancel' buttons.

- To **create** a new rule, click the **New Rule...** button, select a rule type and specify its parameters. Depending on rule type, you can set maximum and minimum values, specify format, colors or icon style, etc.

- To **edit** the existing rule, click the **Edit Rule...** button and change the rule parameters. Besides that, you can see the rule's format preview and specify row, measure and column in the list of rules in the main window.
- To **delete** the rule, select the rule and click the **Delete Rule** button.
- To **reorder** rules, select the rule and click **Up** or **Down** button.

Deleting Rules

If you have already applied one or more rules to data cells, the additional **Clear Rules** item is displayed in the **Conditional Formatting** menu.



You can select one of the following items.

- Click the **Clear Rules from This Intersection** menu item to delete conditional formatting rules from the target fields intersection.
- Click the **Clear Rules from This Measure** menu item to delete conditional formatting rules from the target data field.
- Click the **Clear Rules from All Measures** menu item to delete formatting rules from all data cells.

Change Summary Type in Pivot Tables

Pivot Tables can perform different calculations against data (for instance, calculating sums, averages, maximum and minimum values, etc.).

To specify which calculations Pivot Table should do against its data, left-click a data header and choose the appropriate function type.

Extended Price			
Country ▾			
	UK	USA	Grand Total
Count	\$68,057.10	\$199,811.06	\$267,868.16
Sum	\$26,300.67	\$79,746.38	\$106,047.05
Min	\$34,241.57	\$133,115.58	\$167,357.15
Average	\$87,699.63	\$146,807.62	\$234,507.25
StdDev	\$21,219.06	\$74,525.53	\$95,744.59
StdDevp	\$50,345.27	\$112,677.10	\$163,022.37
Var	\$29,737.91	\$70,246.66	\$99,984.57
Varp	\$26,980.43	\$104,281.30	\$131,261.73
Custom	\$344,581.64	\$921,211.23	\$1,265,792.87

Pinned (Fixed) Columns

The Pivot Grid Control allows you to pin columns to the left or rightmost edge. The pinned columns are never scrolled horizontally, so you can use them as a reference point for adjacent cell values.

Drop Filter Fields Here							
Average Quantity	Month-Year	February 2015	May 2015	June 2015	July 2015	August 2015	September 2015
Category		February 2015	May 2015	June 2015	July 2015	August 2015	September 2015
Beverages		33.00	19.00	23.00	20.87	20.44	19.65
Condiments		33.71	18.73	33.33	15.83	33.33	25.75
Confections		29.00	32.62	22.38	17.83	16.15	27.92
Dairy Products		29.08	29.10	19.76	25.31	26.71	23.27
Grains/Cereals		33.67	26.67	29.80	29.20	30.38	22.67
Meat/Poultry		12.00	15.50	19.43	18.57	35.80	17.50
Produce		24.80	31.00	17.75	21.29	27.50	17.00
Seafood		11.56	21.91	21.11	16.00	36.60	21.57
Grand Total		26.36	23.95	22.54	21.51	26.68	22.15

To pin or unpin a column, right-click the column header and select the corresponding command:



Limitations

Fixed columns have the following limitations:

- You cannot pin [custom totals](#).
- In [Legacy and Legacy-optimized](#) mode, the values in the pinned column are not displayed if you [collapse](#) the corresponding column in the scrollable area.

Exporting and Printing

The Pivot Grid control allows its data to be printed and exported.

Export

The [Pivot Grid](#) control allows you to export Pivot Grid data to a file or stream in various formats - HTML, MHT, PDF, RTF, TXT, CSV, XLS or XLSX. When you export, you copy data from a pivot grid into a new file formatted for use in another application.

A screenshot of a Pivot Grid control. The top navigation bar includes tabs for 'Quantity' and 'Product'. Below the navigation bar are buttons for 'Extended Price', 'Year ▲▼', and 'Quarter ▲▼'. A dropdown menu shows '1997'. The main data area has a header row with columns for 'Category' (sorted ▲), 'Quarter 1', 'Quarter 2', 'Quarter 3', 'Quarter 4', and '1997 Total'. The data rows show categories like Beverages, Condiments, Confections, Dairy Products, Grains/Cereals, Meat/Poultry, Produce, Seafood, and Grand Total, with their corresponding extended prices and quarterly breakdowns.

Quantity		Product					
Extended Price		Year ▲▼		Quarter ▲▼			
		1997				1997 Total	
Category	▲	Quarter 1	Quarter 2	Quarter 3	Quarter 4		
Beverages		\$35,386.88	\$25,982.02	\$19,452.86	\$23,102.55	\$103,924.31	
Condiments		\$13,026.07					
Confections		\$19,316.93					
Dairy Products		\$24,380.14					
Grains/Cereals		\$12,409.10					
Meat/Poultry		\$17,402.35					
Produce		\$9,061.32					
Seafood		\$7,306.15					
Grand Total		\$138,288.94					

	A	B	C	E	F	H	I	J	K		
1	Quantity	Product									
3	Extended Price	Year	Quarter								
4		1997						1997 Total			
5	Category	1	2	3	4						
6	Beverages	\$35,386.88	\$25,982.02	\$19,452.86	\$23,102.55	\$103,924.31					
7	Condiments	\$13,026.07	\$12,852.69	\$13,315.05	\$16,174.79	\$55,368.60					
8	Confections	\$19,316.93	\$21,403.31	\$20,276.81	\$21,660.68	\$82,657.73					
9	Dairy Products	\$24,380.14	\$24,666.98	\$30,634.21	\$35,706.32	\$115,387.65					
10	Grains/Cereals	\$12,409.10	\$15,157.50	\$15,244.52	\$14,060.70	\$56,871.82					
11	Meat/Poultry	\$17,402.35	\$14,932.45	\$20,640.51	\$27,999.81	\$80,975.12					
12	Produce	\$9,061.32	\$14,817.16	\$8,761.27	\$22,301.01	\$54,940.76					
13	Seafood	\$7,306.15	\$13,364.92	\$25,612.55	\$20,675.59	\$66,959.21					
14	Grand Total	\$138,288.94	\$143,177.03	\$153,937.78	\$181,681.45	\$617,085.20					

Export Modes

Two export modes are supported when exporting data from a Pivot Grid control to table formats (*.xls(x), *.csv).

- **Data-aware Export** - The export mode, optimized for subsequent analysis of pivot grid data within Microsoft Excel. Various data shaping options that are applied within the pivot grid are retained in the output XLS(X) and CSV documents.
- **WYSIWYG Export** - In this export mode, the layout of pivot grid cells is retained in resulting XLS(X) and CSV documents. Specific data shaping options are not retained compared to data-aware export. Data exported using other formats (PDF, RTF, TXT, etc.) is always exported in the WYSIWYG mode.

Data-Aware Export

Data-aware is the default export mode for XLS and XLSX formats, and is optimized for subsequent analysis of pivot grid data within Microsoft Excel.

The screenshot shows a Microsoft Excel window with the title "PivotGrid.xlsx - Microsoft Excel". The PivotGrid control is displayed on the worksheet, showing a hierarchical breakdown of sales data by category and quarter. The grid includes columns for Year (2014), Quarter (Quarter 1, Quarter 2, Quarter 3, Quarter 4), and various totals. Data grouping is visible for categories like Beverages, Condiments, Confections, Dairy Products, Grains/Cereals, and Meat/Poultry. Fixed columns are applied to the Year and Quarter headers. The status bar at the bottom indicates "Ready" and shows zoom levels from 80% to 200%.

The following data shaping options, which are applied within the pivot grid control, are retained in the output XLS-XLSX documents.

- Data Grouping - with the capability to collapse/expand groups within a worksheet.
- Fixed Columns – allow column and row areas to stay in sight.
- Cell Formatting – allows you to export the number format.
- Display Text/Value export - allows you to select whether to export display text or values.

Printing

The Pivot Grid Control allows to print its data by the [Print Preview](#) form.

The screenshot shows the "XtraPivotGrid Features Demo (CS code) - Customer Reports" application window. On the left, there is a list of products: Product Amount, Order Year, Order Quarter, Product Name, Alice Mutton, Aniseed Syrup, Boston Crab Meat, Camembert Pierrot, Carnarvon Tigers, Chai, Chang, Chartreuse verte, Chef Anton's Cajun Seas, Chef Anton's Gumbo Mix, and Chocolade. The main area displays a pivot grid for the year 2015, showing quarterly sales data for these products. A "Preview" dialog is open at the bottom, showing a preview of the printed report. The preview dialog has a toolbar with icons for Print, Find, First Page, Zoom, Page Setup, and Close. The preview itself shows the same data grid as the main application, with columns for Product Name, Qtr 1, Qtr 2, Qtr 3, Qtr 4, and 2015 Total.

Product Name	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2015 Total
Alice Mutton	\$2,667.60	\$2,718.30	\$5,194.80	\$3,543.15	\$14,123.85
Aniseed Syrup	\$400.00	\$744.00	\$140.00	\$260.00	\$1,544.00
Boston Crab Meat					
Camembert Pierrot					
Carnarvon Tigers					
Chai					
Chang					
Chartreuse verte					
Chef Anton's Cajun Seas					
Chef Anton's Gumbo Mix					
Chocolade					

Layout Customization

This section describes how to customize the Pivot Table layout by expanding and collapsing field values, as well as hiding, displaying and reordering fields.

The following sections are available.

- [Resizing Columns](#)

Describes how to resize columns displayed within the Pivot Table.

- [Expand and Collapse Groups in Pivot Tables](#)

Provides information on how to expand and collapse field values and field headers.

- [Hide Pivot Table Fields](#)

Guides you through the process of hiding Pivot Table fields.

- [Display Hidden Pivot Table Fields](#)

Describes how to display fields that have previously been hidden.

- [Reorder Pivot Table Fields](#)

Provides information on how to reorder Pivot Table fields.

Resizing Columns

You can resize columns within the Pivot Table by dragging their borders.

Product Amount	Order Year	Order Quarter	
Product Name	▼ 1996	Qtr 1	Qtr 2
Alice Mutton	\$7,388.55	\$4,223.70	\$11,612.25
Aniseed Syrup	\$970.00	\$290.00	\$1,260.00
Boston Crab Meat	\$3,864.00	\$1,472.00	\$5,336.00
Camembert Pierrot	\$8,908.00	\$8,897.12	\$17,805.12
Carnarvon Tigers	\$6,484.38	\$3,887.50	\$10,371.88
Chai	\$2,754.00	\$3,541.50	\$6,295.50
Chang	\$3,692.65	\$4,112.55	\$7,805.20
Grand Total	\$34,061.58	\$26,424.37	\$60,485.95

NOTE

Regular, Total and Grand Total columns are resized independently. This means that resizing a regular column changes the width of all regular columns but does not affect Total and Grand Total columns, and vice versa.

Double-click a column border to automatically resize the column to the minimum width required to completely display its content.

Product Amount	Order Year	Order Quarter	
Product Name	▼ 1996	Qtr 1	Qtr 2
Alice Mutton	\$7,388.55	\$4,223.70	\$11,612.25
Aniseed Syrup	\$970.00	\$290.00	\$1,260.00
Boston Crab Meat	\$3,864.00	\$1,472.00	\$5,336.00
Camembert Pierrot	\$8,908.00	\$8,897.12	\$17,805.12
Carnarvon Tigers	\$6,484.38	\$3,887.50	\$10,371.88
Chai	\$2,754.00	\$3,541.50	\$6,295.50
Chang	\$3,692.65	\$4,112.55	\$7,805.20
Grand Total	\$34,061.58	\$26,424.37	\$60,485.95

Expand and Collapse Groups in Pivot Tables

Expand/Collapse Groups of Values

To expand/collapse groups of values, do one of the following:

- Click a corresponding expand button:

Extended Price		Year ▲	Quarter ▲		
Category Name	Product Name	2012	2013	2014	Grand Total
Meat/Poultry		\$19,856.86	\$77,164.75	\$66,000.76	\$163,022.37
Produce	Longlife Tofu	\$384.00	\$1,186.00	\$862.50	\$2,432.50
	Manjimup Dried Apples	\$5,509.88	\$16,024.02	\$20,285.75	\$41,819.65
	Rössle Sauerkraut	\$3,920.28	\$13,691.48	\$8,084.88	\$25,696.64
	Tofu	\$520.80	\$6,820.38	\$650.30	\$7,991.48
Produce Total		\$10,334.96	\$37,721.88	\$29,883.43	\$77,940.27
Grand Total		\$30,191.82	\$114,886.63	\$95,884.19	\$240,962.64

- Right-click a value that has nested values, and select the required Expand or Collapse command from the menu that opens:

Extended Price		Year ▲	Quarter ▲		
Category Name	Product Name	2012	2013	2014	Grand Total
Meat/Poultry		\$19,856.86	\$77,164.75	\$66,000.76	\$163,022.37
Produce	Longlife Tofu	\$384.00	\$1,186.00	\$862.50	\$2,432.50
	Dried Apples	\$5,509.88	\$16,024.02	\$20,285.75	\$41,819.65
	Sauerkraut	\$3,920.28	\$13,691.48	\$8,084.88	\$25,696.64
		\$520.80	\$6,820.38	\$650.30	\$7,991.48
Produce Total		\$10,334.96	\$37,721.88	\$29,883.43	\$77,940.27
Grand Total		\$30,191.82	\$114,886.63	\$95,884.19	\$240,962.64

Expand/Collapse Fields

To expand/collapse a group of fields, click a corresponding field expand button:

Extended Price		Year ▲	Quarter ▲		
Category Name	Product Name	2014	2014 Total		
		Quarter 1	Quarter 2		
Produce	Longlife Tofu	\$662.50	\$200.00	\$862.50	
	Manjimup Dried Apples	\$9,937.50	\$10,348.25	\$20,285.75	
	Rössle Sauerkraut	\$1,231.20	\$6,853.68	\$8,084.88	
	Tofu	\$279.00	\$371.30	\$650.30	
Produce Total		\$12,110.20	\$17,773.23	\$29,883.43	

Hide Pivot Table Fields

This section describes the Pivot Table capabilities to hide fields.

Topics in this section:

- [Hide Fields Using the Context Menu](#)

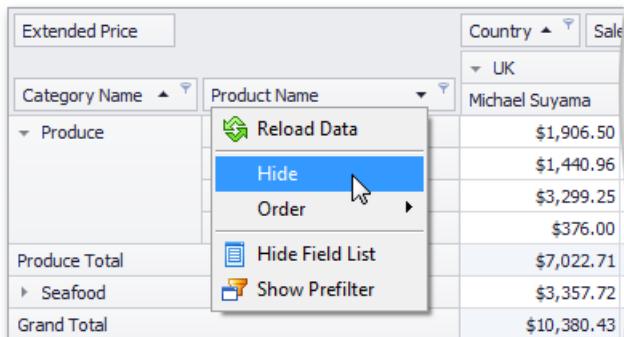
Provides information on how to use context menus to hide fields.

- [Hide Fields Using a Field List](#)

Describes how to hide fields using a Field List.

Hide Fields Using the Context Menu

To hide a field, right-click its header and choose **Hide** from the context menu.



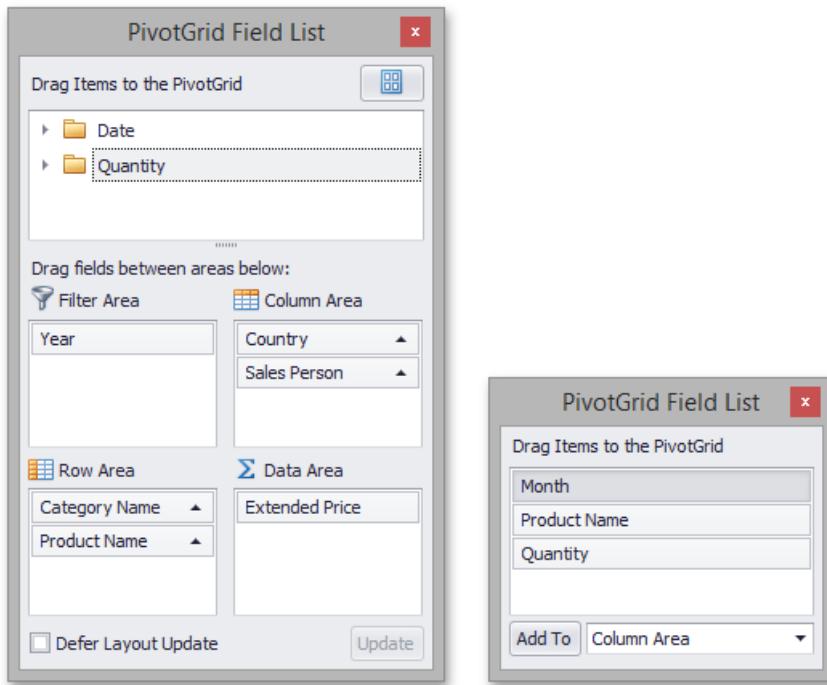
A screenshot of a data grid interface. The grid has columns for 'Category Name', 'Product Name', 'Country', and 'Sales'. A context menu is open over the 'Product Name' column header, with the 'Hide' option highlighted. The menu also includes 'Reload Data', 'Order', 'Hide Field List', and 'Show Prefilter'. The data in the grid includes rows for 'Produce' (with a total), 'Seafood', and 'Grand Total', along with specific items like Michael Suyama and their sales amounts.

Category Name	Product Name	Country	Sales
▼ Produce	Michael Suyama	UK	\$1,906.50
			\$1,440.96
			\$3,299.25
			\$376.00
Produce Total			\$7,022.71
▶ Seafood			\$3,357.72
Grand Total			\$10,380.43

You can also use a Field List to hide fields. To learn more, see [Hide Fields Using a Field List](#).

Hide Fields Using a Field List

You can use a simple or an advanced Field List to hide fields (to learn more about Field Lists, see [Field List Overview](#)).



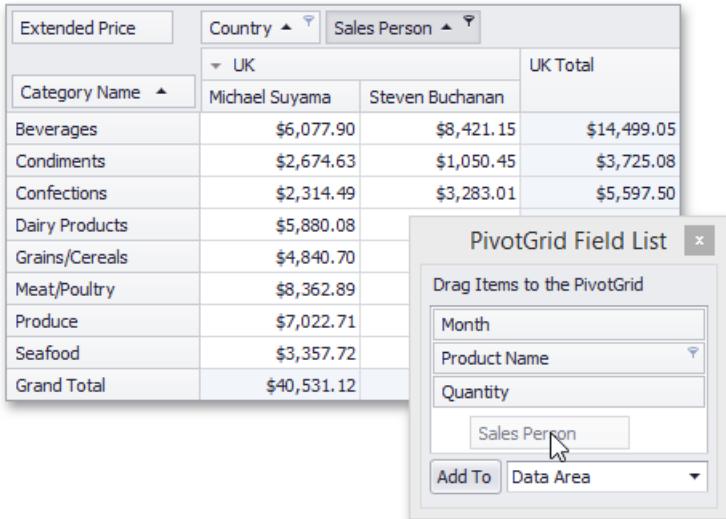
First, invoke a Field List. For information on how to do this, see [Invoke a Field List](#).

Then do one of the following:

- Drag a field away from the header panel, until the cursor changes its image to the big 'X'. Then drop the header.

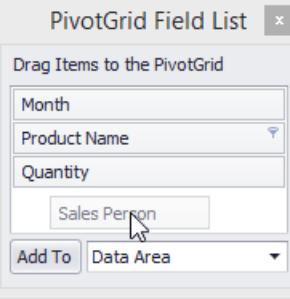
Category Name	Country	Sales Person	UK Total
Beverages	\$9,450.20	\$11,000.52	\$20,450.72
Condiments	\$4,648.47	\$2,675.29	\$7,323.76
Confections	\$6,859.63	\$4,809.80	\$11,669.43
Dairy Products	\$17,039.04	\$21,937.61	\$38,976.65
Grains/Cereals	\$9,410.70	\$4,027.56	\$13,438.26
Meat/Poultry	\$9,003.69	\$11,488.20	\$20,491.89
Produce	\$11,560.70	\$7,109.02	\$18,669.72
Seafood	\$5,940.70	\$5,744.25	\$11,684.95
Grand Total	\$73,913.13	\$68,792.25	\$142,705.38

- Drag and drop a field onto the Field List form.

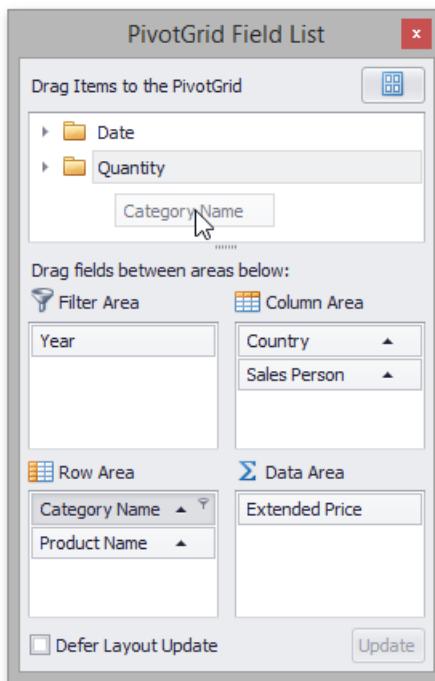


A screenshot of a PivotGrid interface. At the top, there are three sort buttons: 'Extended Price' (ascend), 'Country' (descend), and 'Sales Person' (descend). Below this is a table with data grouped by 'Category Name'. A context menu is open over the 'Sales Person' column header, listing 'Michael Suyama' and 'Steven Buchanan'. To the right of the table is a 'PivotGrid Field List' window.

Category Name	UK	UK Total	
Beverages	Michael Suyama	\$6,077.90	\$8,421.15
Condiments	Michael Suyama	\$2,674.63	\$1,050.45
Confections	Michael Suyama	\$2,314.49	\$3,283.01
Dairy Products	Michael Suyama	\$5,880.08	
Grains/Cereals	Michael Suyama	\$4,840.70	
Meat/Poultry	Michael Suyama	\$8,362.89	
Produce	Michael Suyama	\$7,022.71	
Seafood	Michael Suyama	\$3,357.72	
Grand Total		\$40,531.12	



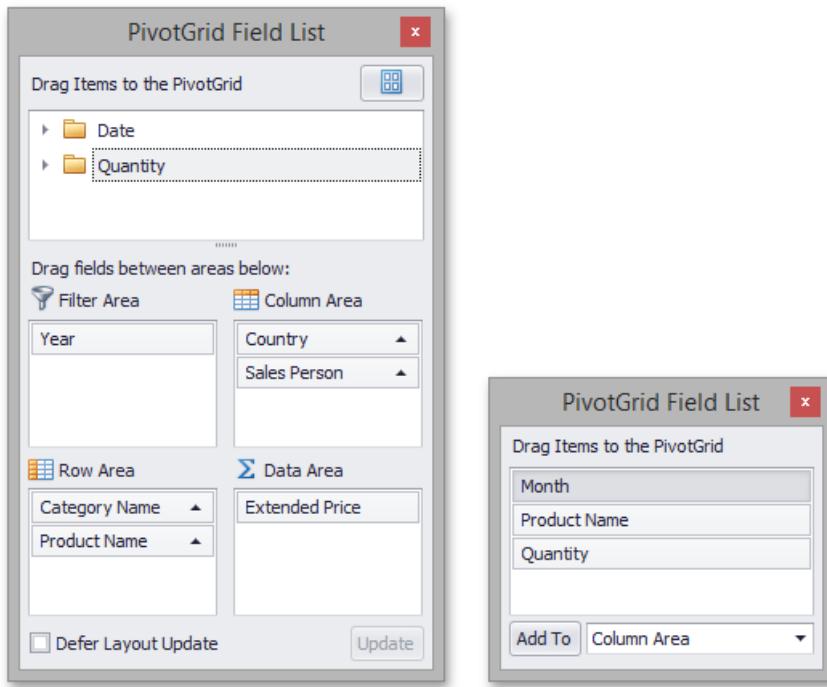
If you are using an advanced Field List, you can hide a field by dragging its header to the hidden fields area displayed on the Field List top.



You can also hide fields using the context menu. To learn more, see [Hide Fields Using the Context Menu](#).

Display Hidden Pivot Table Fields

To display hidden fields, use a simple or advanced Field List (to learn more about Field Lists, see [Field List Overview](#)).



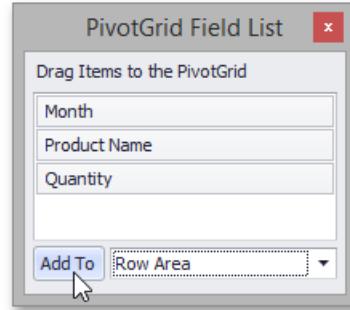
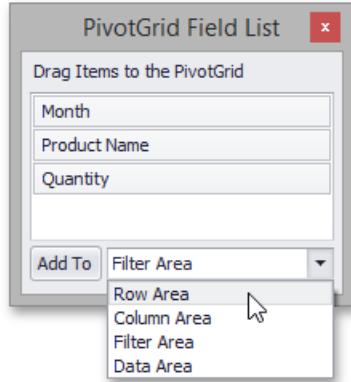
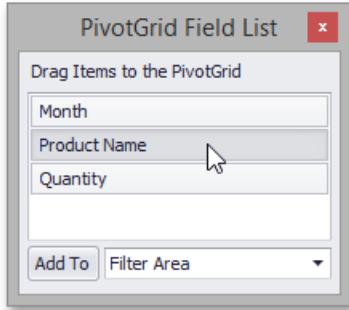
First, invoke a Field List. For information on how to do this, see [Invoke a Field List](#).

To display a hidden field, drag-and-drop the field from the Field List onto the required area of Pivot Table. This works for both simple and advanced Field Lists.

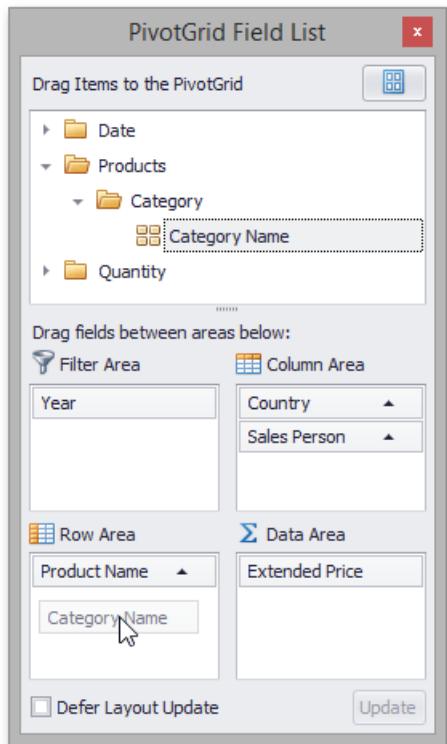
The image shows a PivotTable with columns for 'Extended Price', 'Country', and 'Sales Person'. The rows show a hierarchy of categories like Beverages, Condiments, Confections, etc., with specific products like Michael Suyama and Robert King. A cursor is hovering over the 'Product Name' field in the 'Category Name' row. A 'PivotGrid Field List' dialog box is open at the bottom, listing 'Month', 'Product Name', and 'Quantity' with an 'Add To' button and a 'Row Area' dropdown.

If you are using a simple Field List, you can display the required field as follows.

1. Click the required field in the Field List.
2. In the drop-down combo box, select a Pivot Table area within which this field should be displayed.
3. Click the **Add To** button.



If you are using an advanced Field List, you can display a hidden field by dragging its header from the hidden fields section to the section corresponding to the required Pivot Table area.



Reorder Pivot Table Fields

This section describes the Pivot Table capabilities to reorder fields.

The following topics are available:

- [Simple Fields Reordering](#)

Describes how to reorder fields via drag-and-drop and context menus.

- [Reorder Fields Using a Field List](#)

Provides information on how to use a Field List to reorder fields.

Simple Fields Reordering

To move a field to another position, use drag-and-drop operations.

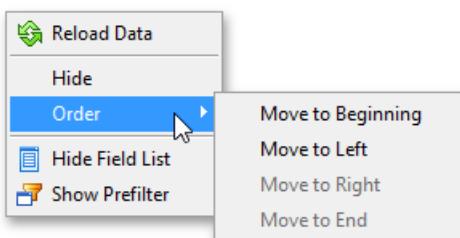
Year	Quarter	Month	Extended Price	Country ▲	Sales Person ▲
Category Name ▲	Product Name ▲				
▼ Meat/Poultry	Alice Mutton		\$592.80		\$2,694.90
	Mishi Kobe Niku		\$3,637.50		\$291.00
	Pâté chinois			\$784.80	\$906.72
	Perth Pasties			\$2,080.28	\$3,050.40
	Thüringer Rostbrat...		\$4,208.86	\$6,102.85	\$14,669.12
	Tourtière		\$237.50	\$35.76	\$471.30
Meat/Poultry Total			\$8,676.66	\$9,003.69	\$21,176.72
▼ Seafood	Boston Crab Meat		\$644.00	\$791.20	\$975.18
	Carnarvon Tigers		\$3,081.25		\$500.00
	Escargots de Bourg...				\$519.40
	Gravad lax				\$516.75
					\$421.20

To move a field to a different position within the same area, you can also use a field context menu.

- Right-click the field header to activate the context menu.

Extended Price	Country ▲	Sales Person ▲			
Category Name ▲	Product Name ▲				
▼ Produce	Longlife Tofu	► UK	► USA	Grand Total	
	Manjimup Dried Appl	Reload Data			
	Rössle Sauerkraut	Hide	\$1,672.50	\$2,432.50	
	Tofu	Order	\$28,784.30	\$41,819.65	
Produce Total		►	\$15,800.76	\$25,696.64	
► Seafood			\$4,091.30	\$7,991.48	
Grand Total			\$50,348.86	\$77,940.27	
			\$104,281.30	\$131,261.73	
			\$54,571.84	\$154,630.16	\$209,202.00

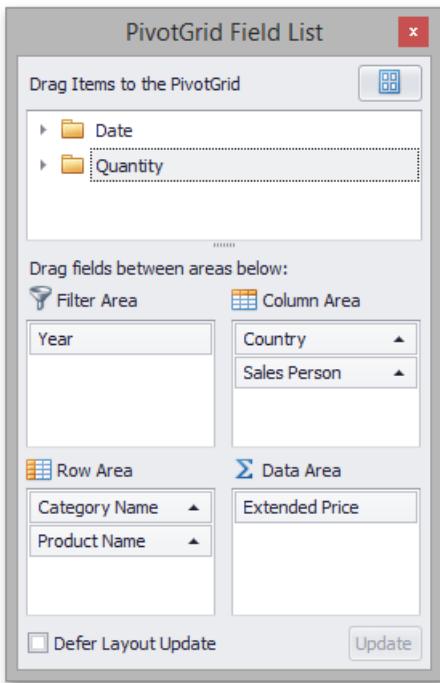
- Select the required command from the **Order** menu.



You can also use a Field List to reorder fields. For more information, see [Reorder Fields Using a Field List](#).

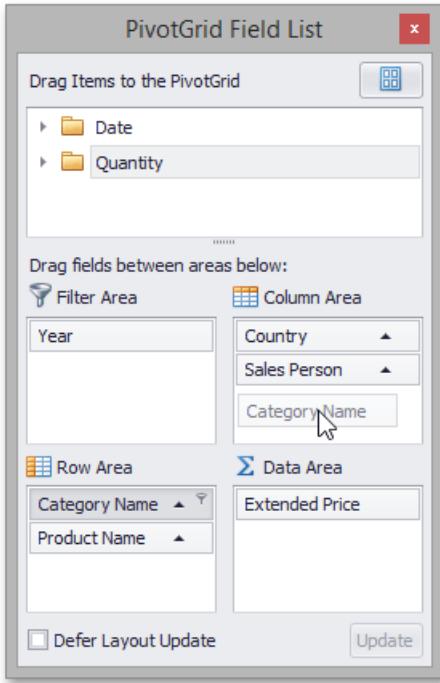
Reorder Fields Using a Field List

You can use an advanced Field List to reorder fields (to learn more about Field Lists, see [Field List Overview](#)).



First, invoke a Field List. For information on how to do this, see [Invoke a Field List](#).

To reorder fields, drag their headers within or between Field List sections that correspond to different Pivot Table areas.



You can also reorder fields via simple drag-and-drop operations (without invoking a Field List), or using a context menu. To learn more, see [Simple Fields Reordering](#).

Select Cells in Pivot Tables

Multiple cells can be selected simultaneously, and their contents can then be copied to the clipboard. This topic shows how.

Select Cells and Clear the Current Selection

To select a single cell, do one of the following:

- Click the cell.



A screenshot of a Microsoft Excel Pivot Table. The table has 'Order Amount' as the value field, 'Order Year' and 'Order Quarter' as summary fields, and 'Sales Person' and 'Category Name' as detailed fields. A specific cell in the 'Condiments' row under 'Andrew Fuller' is selected, highlighted with a dotted border. The cell contains the value '\$2,824.00'. The cursor is positioned over this selected cell.

Order Amount		Order Year ▲	Order Quarter ▲
Sales Person ▲	Category Name ▲	1994	1995
Andrew Fuller	Beverages	\$1,718.40	\$5,870.35
	Condiments	\$2,824.00	\$6,649.61
	Confections	\$2,820.00	\$11,607.53
	Dairy Products	\$672.00	\$13,532.05
	Grains/Cereals	\$1,450.30	\$6,320.40

- Focus the cell using the ARROW keys.

To select a row or column of cells, click the appropriate header:

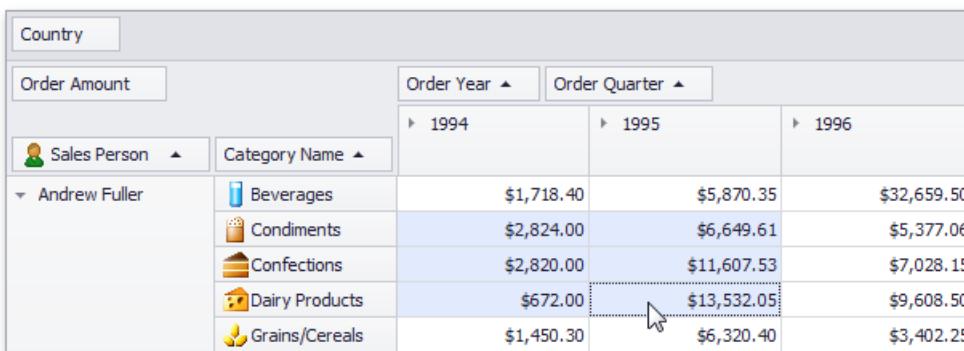


A screenshot of a Microsoft Excel Pivot Table. The table has 'Country' as the value field, 'Order Year' and 'Order Quarter' as summary fields, and 'Sales Person' and 'Category Name' as detailed fields. A row for 'Condiments' under 'Andrew Fuller' is selected, indicated by a blue background color. The cell containing '\$2,824.00' is also highlighted with a dotted border. The cursor is positioned over this selected cell.

Country		Order Year ▲	Order Quarter ▲	Grand Total
Sales Person ▲	Category Name ▲	1994	1995	1996
Andrew Fuller	Beverages	\$1,718.40	\$5,870.35	\$32,659.50
	Condiments	\$2,824.00	\$6,649.61	\$5,377.06
	Confections	\$2,820.00	\$11,607.53	\$7,028.15
	Dairy Products	\$672.00	\$13,532.05	\$9,608.50
	Grains/Cereals	\$1,450.30	\$6,320.40	\$3,402.25

To select a continuous range of cells, do one of the following:

- Use ARROW, PAGE UP, PAGE DOWN keys while holding the SHIFT key down.
- Press the mouse button over the starting cell and drag the mouse cursor towards the ending cell. Then release the mouse button.



A screenshot of a Microsoft Excel Pivot Table. The table has 'Country' as the value field, 'Order Year' and 'Order Quarter' as summary fields, and 'Sales Person' and 'Category Name' as detailed fields. A range of cells from '\$2,824.00' to '\$13,532.05' in the 'Condiments' row under 'Andrew Fuller' is selected, indicated by a blue background color. The cursor is positioned over the selected range.

Country		Order Year ▲	Order Quarter ▲	
Sales Person ▲	Category Name ▲	1994	1995	1996
Andrew Fuller	Beverages	\$1,718.40	\$5,870.35	\$32,659.50
	Condiments	\$2,824.00	\$6,649.61	\$5,377.06
	Confections	\$2,820.00	\$11,607.53	\$7,028.15
	Dairy Products	\$672.00	\$13,532.05	\$9,608.50
	Grains/Cereals	\$1,450.30	\$6,320.40	\$3,402.25

- Click the starting cell. Then click the ending cell while holding the SHIFT key down.

To select a continuous range of columns or rows, do one of the following:

- Press the mouse button over the starting column/row header and drag the mouse cursor towards to the ending column or

row header. Then release the mouse button.

Country		Order Amount	Order Year ▲	Order Quarter ▲
Sales Person ▲	Category Name ▲		1994	1995
Andrew Fuller	Beverages	\$1,718.40	\$5,870.35	\$32,659.50
	Condiments	\$2,824.00	\$6,649.61	\$5,377.06
	Confections	\$2,820.00	\$11,607.53	\$7,028.15
	Dairy Products	\$672.00	\$13,532.05	\$9,608.50
	Grains/Cereals	\$1,450.30	\$6,320.40	\$3,402.25

- Click the starting column or row header. Then click the ending column/row header while holding the SHIFT key down.

To select all the cells, press CTRL+A.

Select Cells While Preserving the Current Selection

Hold the CTRL key down while selecting cells.

Copy Selected Cells to the Clipboard

Press CTRL+C or SHIFT+INS.

Field List Overview

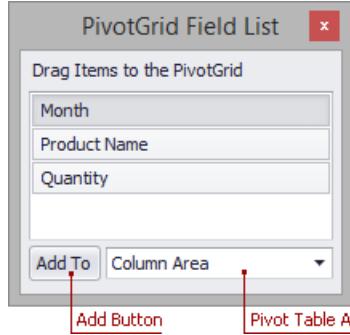
Pivot Table provides a Field List form used to reorder and hide fields, sort and filter data, etc. For more information on how to invoke a Field List, see [Invoke a Field List](#).

This topic describes Field List visual elements and layout.

Depending on Pivot Table settings made by your application vendor, Pivot Table can display either a simple or advanced Field List.

Simple Field List

The following picture shows a simple Field List.



A simple Field List contains the following visual elements:

- **Hidden Fields Section** - contains headers of fields hidden from Pivot Table. Use it to display hidden fields.
- **Add Button** - used to display a selected field in a specified Pivot Table area.
- **Pivot Table Area Combo Box** - used to choose a Pivot Table area where the selected field will be displayed after you click the **Add** button.

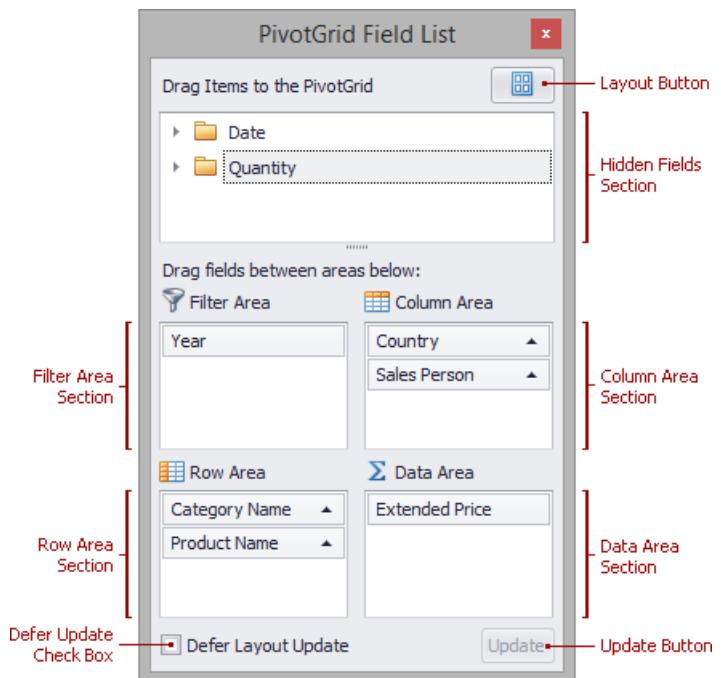
Use a simple Field List to hide fields from Pivot Table and display hidden fields again.

For more information on operations available in a simple Field List, refer to the following topics:

- [Hide Fields Using a Field List](#)
- [Display Hidden Pivot Table Fields](#)

Advanced Field List

The following picture shows an advanced Field List.



An advanced Field List contains the following visual elements:

- **Hidden Fields Section** - contains headers of fields hidden from Pivot Table. Use it to display hidden fields.
- **Filter, Column, Row and Data Area Sections** - contains headers located in respective Pivot Table areas.
- **Defer Updates Check Box** - used to enable/disable automatic Pivot Table updates (see [Defer Pivot Table Updates](#)).
- **Update Button** - used to force Pivot Table to update (see [Defer Pivot Table Updates](#)).
- **Layout Button** - used to invoke the *Layout* menu and change the Field List layout (see [Change Field List Layout](#)).

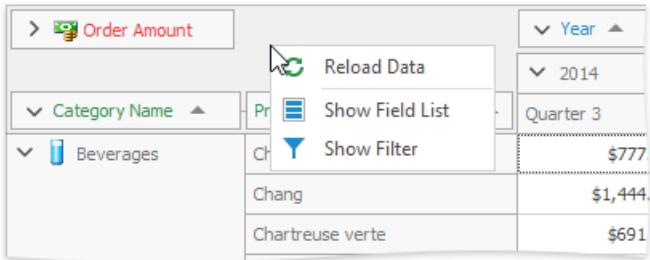
Use an advanced Field List to sort and filter data, reorder and hide visible fields, and show fields that have been hidden.

For more information on operations available in an advanced Field List, refer to the following topics:

- [Sort Data Using a Field List](#)
- [Invoke a Filter Popup Window](#)
- [Hide Fields Using a Field List](#)
- [Display Hidden Pivot Table Fields](#)
- [Reorder Fields Using a Field List](#)

Invoke a Field List

To invoke a Field List, right-click on an empty space within the Pivot Table header region, and select **Show Field List** from the context menu.



A simple or advanced Field List (similar to one of those shown below) will be displayed.

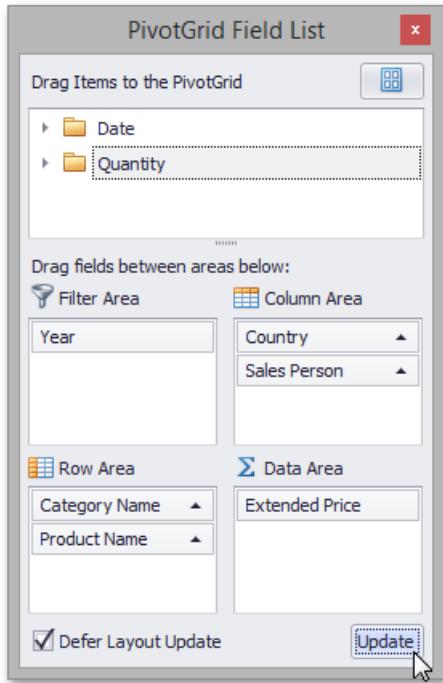
Two screenshots of the 'PivotGrid Field List' dialog box. The left screenshot shows a 'Drag Items to the PivotGrid' area with 'Date' and 'Quantity' selected. Below it, the 'Filter Area' contains 'Year', 'Country', and 'Sales Person'. The 'Row Area' contains 'Category Name' and 'Product Name'. The 'Column Area' is empty. The right screenshot shows a similar dialog with 'Month', 'Product Name', and 'Quantity' in the 'Data Area'. The 'Add To' dropdown is set to 'Column Area'.

To learn more about Field Lists, see [Field List Overview](#).

Defer Pivot Table Updates

When you perform several sequential operations like hiding, displaying or reordering fields using an advanced Field List, Pivot Table is updated after each operation.

You can disable automatic Pivot Table updates by checking the **Defer Layout Update** check box. In this instance, use the **Update** button to force Pivot Table to update.

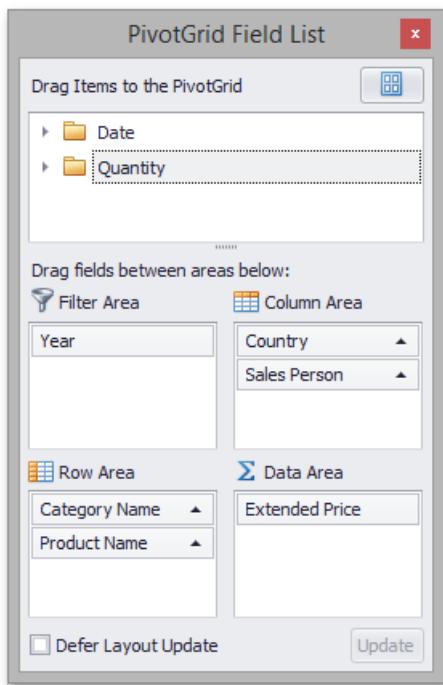


Note that if the **Defer Layout Update** check box is checked, you cannot sort or filter data in the Field List.

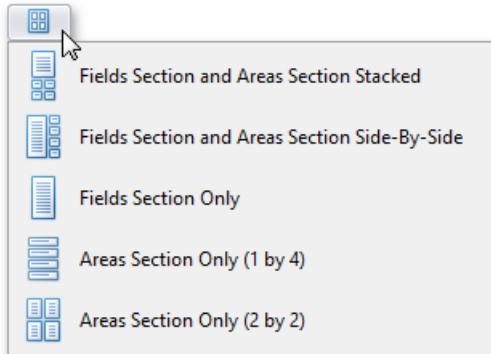
To learn more about Field Lists, see [Field List Overview](#).

Change Field List Layout

By default, an advanced Field List displays a hidden fields section on the top, and four sections that correspond to Pivot Table areas at the bottom (see [Field List Overview](#) for details).



You can use the *Layout* menu to control which sections are displayed and where they are displayed. To do this, click the button and select the required layout from the drop-down menu.



To learn more about Field Lists, see [Field List Overview](#).

Print Preview

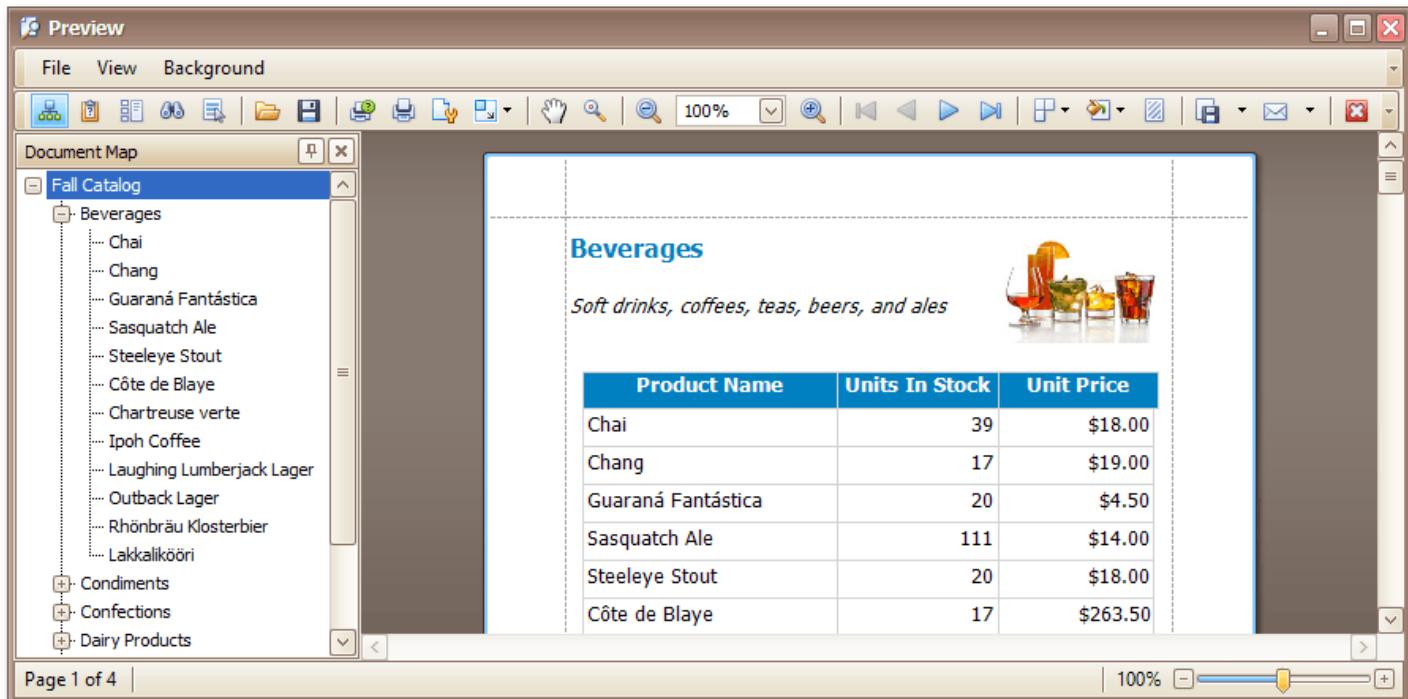
The Print Preview user interface may vary depending on your application platform.

The following topics are available in this section.

- [Print Preview for WinForms](#)
- [Print Preview for WPF](#)

Print Preview for WinForms

This section describes the capabilities provided by the Print Preview form.



File Management

- [Save a Print Preview to a File](#)
- [Load a Print Preview from a File](#)

Printing and Page Setup

- [Print a Document via the Print Dialog](#)
- [Print a Document Using Default Settings](#)
- [Change Printing Settings via the Page Setup Dialog](#)
- [Specify Page Margins in Print Preview](#)

Headers and Footers

- [Insert Page Header and Page Footer into Printed Documents](#)
- [Insert Page Numbers into Printed Documents](#)
- [Insert Date and Time into Printed Documents](#)
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Scaling

- [Scale Print Preview by Entering a Zoom Factor](#)
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Zooming

- [Zoom Print Preview In or Out](#)
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Viewing and Navigating

- [Navigate Between Pages in Print Preview](#)
- [Use the Hand Tool in Print Preview](#)
- [Navigate in Print Preview Using Bookmarks](#)
- [Navigate in Print Preview Using Thumbnails](#)
- [Search for a Specific Text in Print Preview](#)
- [Switch Print Preview Display Mode](#)

Interactivity

- [Content Editing in Print Preview](#)

Watermark and Background

- [Change Watermark and Background Settings in Print Preview](#)
- [Remove a Watermark in Print Preview](#)

Exporting

- [Exporting from Print Preview](#)
- [PDF-Specific Export Options](#)
- [HTML-Specific Export Options](#)
- [MHT-Specific Export Options](#)
- [RTF-Specific Export Options](#)
- [DOCX-Specific Export Options](#)
- [XLS-Specific Export Options](#)
- [XLSX-Specific Export Options](#)
- [CSV-Specific Export Options](#)
- [TXT-Specific Export Options](#)
- [Image-Specific Export Options](#)

Passing Parameters

- [Passing Parameters in Print Preview](#)

Miscellaneous

- [Customize Printing Settings of Charts](#)
- [Customize Printing Settings of Grids](#)
- [Customize Printing Settings of Pivot Tables](#)
- [Customize Printing Settings of Tree Views](#)

Warnings and Error Messages

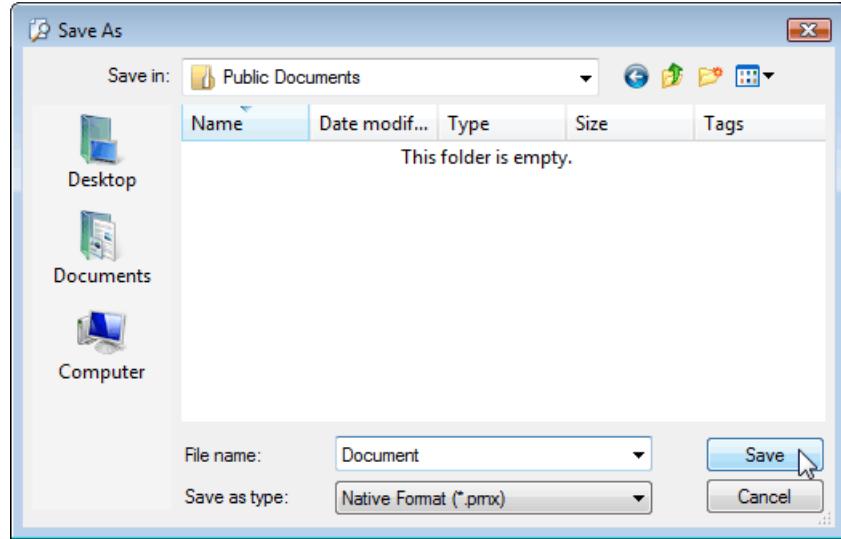
- [Warnings and Error Messages in Print Preview](#)

Save a Print Preview to a File

If you've modified your document, and there's a chance you'll need to print out this document version more than once, you can save the document to a file on disk. After that, you can simply load your document and print it out, without having to apply the same changes again.

To save a document to the file, click the **Save**  button on the toolbar, or press CTRL+S.

On the invoked **Save As** dialog, locate a folder where you want to store your file, enter the document's name and click **Save**.



Your document will be saved with the **.prnx** file extension. Note that this extension will be added to the file name even if you enter another one.

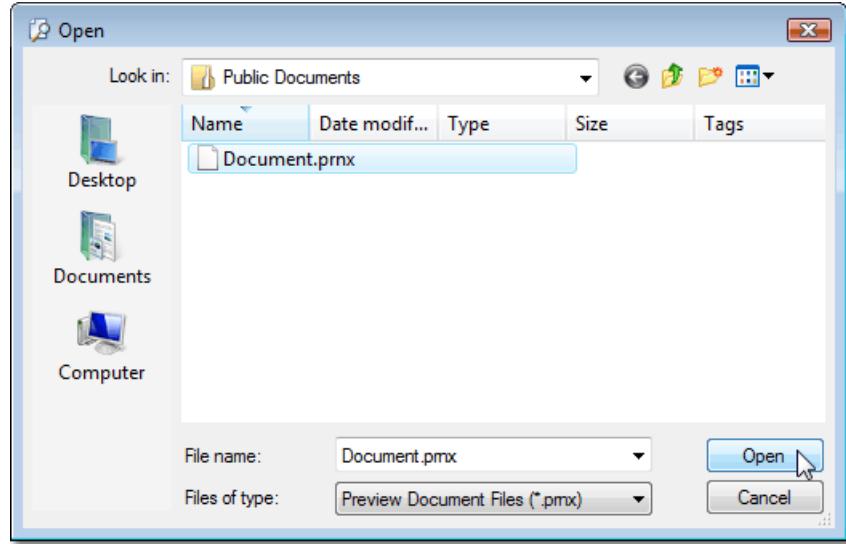
NOTE

If you open a document which was previously saved to the hard drive, it is impossible to change its page settings (e.g. page size, orientation, margins, etc.). So, the **Page Setup** and the **Scale** buttons will be disabled.

Load a Print Preview from a File

To open a previously saved document, click the **Open**  button on the toolbar, or press CTRL+O.

On the invoked **Open** dialog, define the file and click **Open**.



NOTE

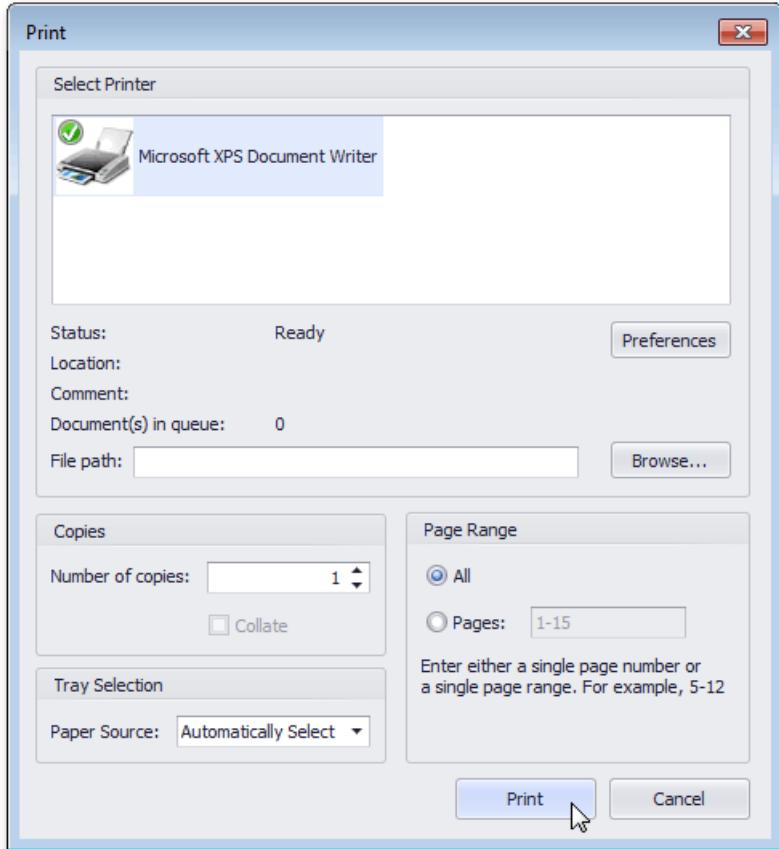
If you open a document previously saved to the hard drive, it is impossible to change its page settings (e.g. page size, orientation, margins, etc.). So, the **Page Setup** and **Scale** buttons will be disabled.

Print a Document via the Print Dialog

To print a document, do one of the following.

- Click the **Print**  button on the toolbar, or press CTRL+P.
- On the **File** menu, click **Print....**

The **Print** dialog will be invoked.



Specify the necessary settings and click **Print**.

To print a document without invoking the **Print** dialog, see the [Print a Document Using Default Settings](#) topic.

NOTE

If you try to print a document whose margins are outside of the printable area, you'll see a warning message. Click **Yes** to print the document anyway, if you are sure that your printer supports the specified page margins.

Print a Document Using Default Settings

To send a document directly to the default printer without customizing print settings, do one of the following.

- Click the **Quick Print**  button on the toolbar.
- On the **File** menu, click **Print**.

To learn how to select a printer, number of copies, and other printing options, refer to the [Print a Document via the Print Dialog](#) topic.

NOTE

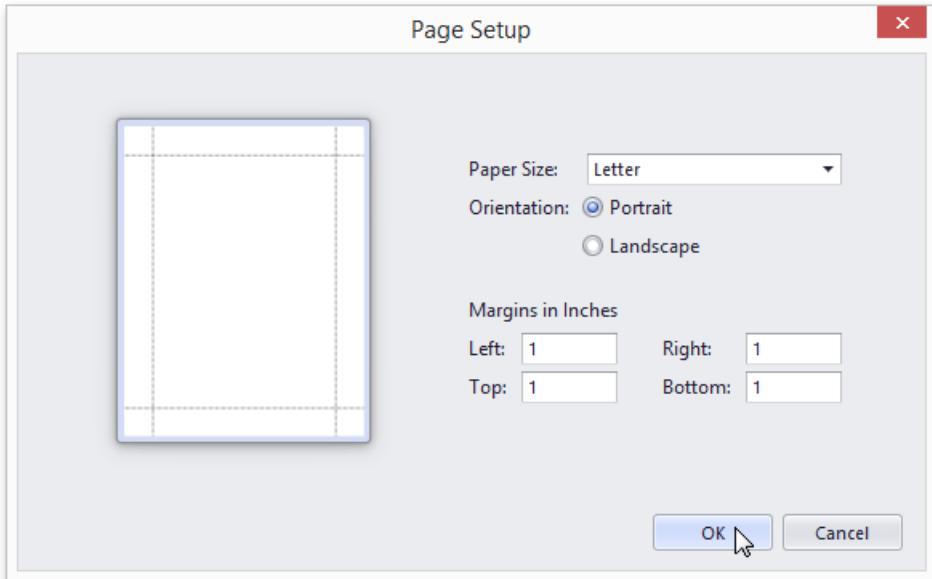
If you try to print a document whose margins are outside of the printable area, you'll see a [warning message](#). Click **Yes** to print the document anyway, if you're sure that your printer supports the specified page margins.

Change Printing Settings via the Page Setup Dialog

To start the page setup dialog box, do one of the following.

- Click the **Page Setup**  button on the toolbar.
- On the **File** menu, click **Page Setup...**

The following dialog will be invoked.



This dialog allows you to do the following:

- Change page orientation (choose Portrait or Landscape).
- Select paper size.
- Change page margins. (This can also be done [in the Print Preview dialog](#))

NOTE

If you're working with a document that was [loaded from file](#), the **Page Setup** commands on the toolbar and main menu will be disabled.

Specify Page Margins in Print Preview

To set document page margins, do one of the following.

- **Use the Page Setup dialog**

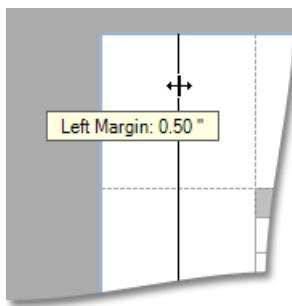
In the [Page Setup dialog](#), enter the required top, left, bottom and right page margins' values into the appropriate editors.



Then, click OK to save changes.

- **Use drag-and-drop in the Print Preview window**

To use this approach, point to the dotted line indicating the margin's border. When the pointer changes to drag the pointer to move the margin.



NOTE

If you're working with a document that was [loaded from file](#), it is impossible to change its page settings (e.g. page size, orientation, margins, etc.).

Print Selection

To print only the selected content of the previewed document, do the following.

1. Select the content of the previewed document by holding the left mouse button and dragging the mouse pointer to create a selection box. Expand the selection box to fit all of the content you wish to print. The selected document elements are highlighted.

The screenshot shows a Microsoft Word document titled "Products by Category". It contains two tables: "Beverages" and "Condiments". The entire document is highlighted with a blue selection box, indicating it has been selected for printing.

Beverages		
Chai	10 boxes x 20 bags	\$18.00
Guaraná Fantástica	12 - 355 ml cans	\$4.50
Côte de Blaye	12 - 75 cl bottles	\$263.50
Ipoh Coffee	16 - 500 g tins	\$46.00

Condiments		
Aniseed Syrup	12 - 550 ml bottles	\$10.00
Grandma's Boysenberry Spread	12 - 8 oz jars	\$25.00
Northwoods Cranberry Sauce	12 - 12 oz jars	\$40.00
Vegie-spread	15 - 625 g jars	\$43.90
Original Frankfurtergrüne Soße	12 boxes	\$13.00

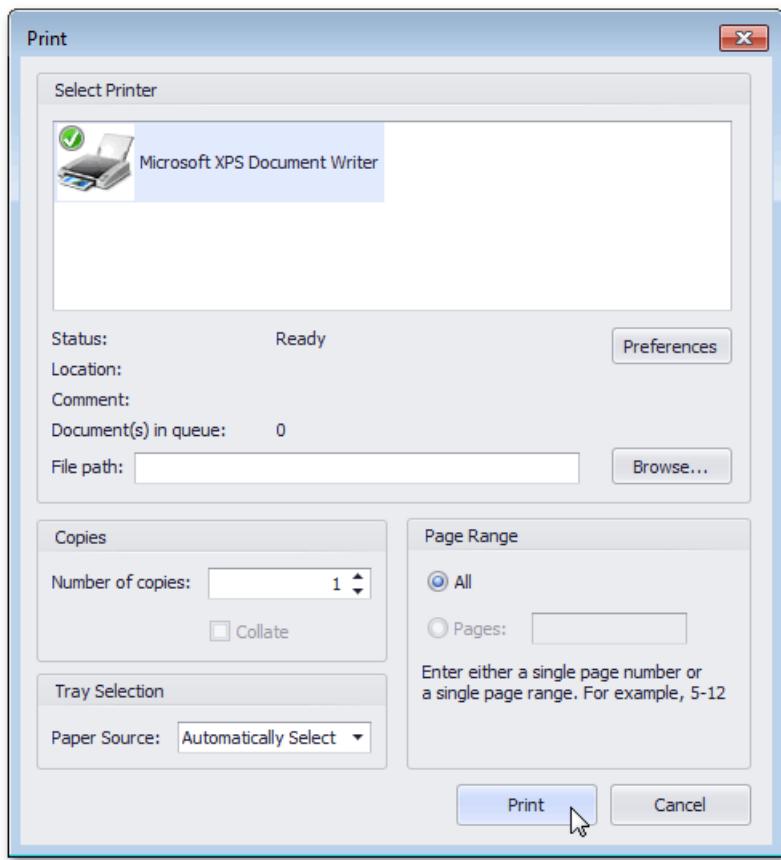
2. Right-click anywhere within the highlighted area of the document and select **Print...** in the context menu.

The screenshot shows the same "Products by Category" document with a context menu open over the selected area. The menu includes options like "Copy" and "Print ...". The "Print ..." option is highlighted with a blue selection box.

Beverages		
Chai	10 boxes x 20 bags	\$18.00
Guaraná Fantástica	12 - 355 ml cans	\$4.50
Côte de Blaye	12 - 75 cl bottles	\$263.50
Ipoh Coffee	16 - 500 g tins	\$46.00

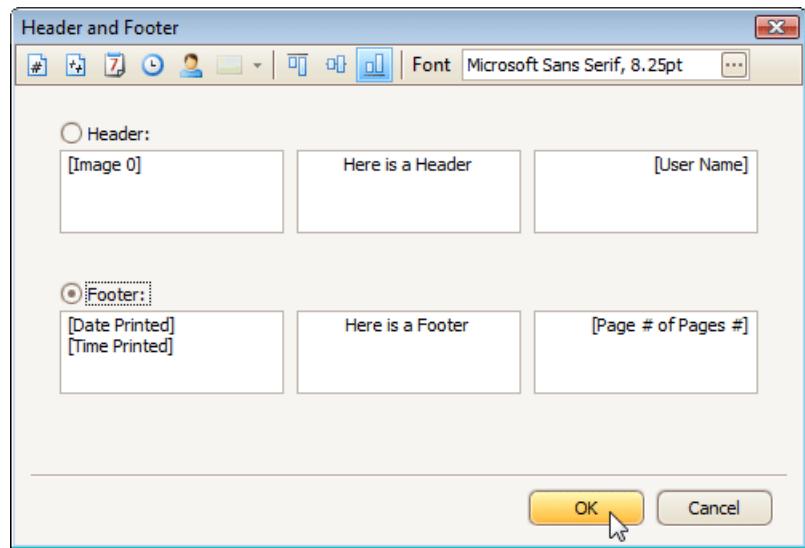
Condiments		
Aniseed Syrup	12 - 550 ml bottles	\$10.00
Grandma's Boysenberry Spread	12 - 8 oz jars	\$25.00
Northwoods Cranberry Sauce	12 - 12 oz jars	\$40.00
Vegie-spread	15 - 625 g jars	\$43.90
Original Frankfurtergrüne Soße	12 boxes	\$13.00

3. In the invoked **Print** dialog, specify the required settings and click **Print**.



Insert Page Header and Page Footer into Printed Documents

To insert a page header and page footer into a document, click the **Header and Footer** button on the toolbar. This will invoke the **Header and Footer** dialog.



Specify header and footer content using the appropriate text boxes, depending on the required alignment.

If needed, you can also adjust vertical alignment and font settings.

Click OK to save changes and close the dialog.

Insert Page Numbers into Printed Documents

To insert or remove page numbers from a document, first [invoke the Header and Footer dialog](#).

Focus a text box, depending on the required alignment, and do one of the following:

- If you need to simply display the current page number, click the **Page Number**  button.
- If you need to display the page number out of the total number of pages, click the **Page # of Pages #**  button.

When you click one of these buttons, the dialog adds an alias within square brackets at the current cursor position. You can surround this alias with any text you like. If you no longer need page numbers in your document, delete this alias.

Click OK to save changes and close the dialog.

Insert Date and Time into Printed Documents

If you need to display the date and time when a document is printed, first [invoke the Header and Footer dialog](#).

Then, click on the appropriate text box, depending on the required alignment, and do the following:

- To add a date stamp, click the **Date Printed**  button.
- To add a time stamp, click the **Time Printed**  button.

When you click one of these buttons, the dialog adds an alias within square brackets at the current cursor position. You can surround this alias with any text you like. If you no longer need to display date and time in your document, delete this alias.

Click OK to save changes and close the dialog.

Insert the User Name into Printed Documents

To insert user name into a document's header or footer, first [invoke the Header and Footer dialog](#).

Then, focus an appropriate text box, depending on the required alignment, and click the **User Name**  button.

When you click this button, the dialog adds an alias within square brackets at the current cursor position. You can surround this alias with any text you like. If you no longer need to display user name in your document, delete this alias.

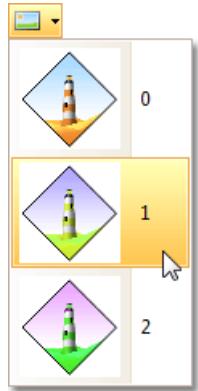
Click OK to save changes and close the dialog.

Insert a Logo into Printed Documents

To insert a logo into a document's header or footer, first [invoke the Header and Footer dialog](#).

Then, focus an appropriate text box, depending on the required alignment, and click the **Image**  button.

Select the image from the dropdown list.



Click OK to save changes and close the dialog.

NOTE

If the **Image** button is disabled, then logo insertion is not supported by your software vendor.

Scale Print Preview by Entering a Zoom Factor

To scale a document, click the **Scale**  button on the toolbar. The **Scaling** dialog will be invoked.

Set the required percentage value in the editor.



Click **OK** to save changes and close the dialog.

NOTE

If you're working with a document [loaded from file](#), you cannot use scaling.

Scale Print Preview by Specifying Width in Pages

To scale a document to fit into X pages, click the **Scale**  button on the toolbar. The **Scaling** dialog will be invoked.

Set the required number of pages in the editor.



Click **OK** to save changes and close the dialog.

NOTE

If you're working with a document [loaded from file](#), you cannot use scaling.

Zoom Print Preview In or Out

Zoom In and Out of a Document

- To zoom in a document, click the **Zoom In**  button on the toolbar, or press CTRL+PLUS SIGN.
- To zoom out of a document, click the **Zoom Out**  button on the toolbar, or press CTRL-MINUS SIGN.

To zoom in or out of a document, you can also hold down CTRL and rotate the mouse wheel.

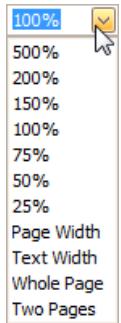
Use the Magnifier Tool

Use the **Magnifier Tool**  to switch between 100% and "fit whole page" views. Simply click anywhere in the document, to toggle views.

Zoom Print Preview by Entering a Zoom Factor

To zoom to a specific zoom factor, do one of the following.

- Click the **Zooming** dropdown list button. The following list will be invoked.



Choose one of the zoom factor presets.

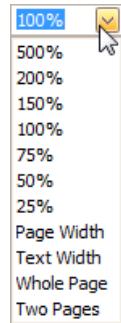
- You can manually enter any value into the **Zooming** box.



Zoom Print Preview to Show Whole Pages or Fit Content

Zoom Documents to Fit Page Content

To zoom to the page or text width, click the **Zooming** box. The following list will be invoked.



- To zoom to the page width, click **Page Width**.
- To zoom to the text width, click **Text Width**.

NOTE

If the preview window will be resized later, the current zoom factor will also be changed, to fit the current page or text width.

Zoom Documents to Display Whole Pages

First, invoke the zooming dropdown (see above).

- To display one whole page at a time, click **Whole Page**.
- To fit two pages into the current view, click **Two Pages**.

NOTE

If the preview window will be resized later, the current zoom factor will be also changed in order to fit one or two pages.

If you want to preview more pages simultaneously, refer to the [Show Two or More Pages in Print Preview](#) topic.

Show Two or More Pages in Print Preview

To preview two or more pages at one time, click the **Multiple Pages**  button on the toolbar.

Then, in the invoked dialog, hover over the page icons, depending on the required number of pages to preview.



When the required number of pages has been selected, click the popup window to close it and apply changes to the document view.

Navigate Between Pages in Print Preview

To navigate between pages, use the scrollbars or navigation buttons on the toolbar. These buttons allow you to switch to the first, previous, next, or last page of a document.

Use the Hand Tool in Print Preview

The **Hand Tool** enables you to scroll content by dragging the document instead of using scrollbars.

To activate the **Hand Tool**, click the **Hand Tool**  button on the toolbar.

Then, after you click a document's page, the mouse pointer is changed from  to . Drag the mouse pointer to scroll the document.

Navigate in Print Preview Using Bookmarks

If a document contains bookmarks, you can use the **Document Map** panel for navigation purposes.

To toggle this panel's visibility, use the **Docuemnt Map**  button on the toolbar. To go to a specific bookmark, click it in the Document Map. As a result, the Print Preview navigates to a document element associated with the bookmark.

The screenshot shows a Microsoft Word document window with the 'Document Map' panel open on the left side. The 'Document Map' panel lists a hierarchical structure of the document's content, with 'Tofu' selected and highlighted in blue. The main content area displays a table of food products and a section titled 'Meat/Poultry' with a sub-section 'Prepared meats'. An image of a roasted chicken is shown. Below this, there are summary statistics and another table.

Document Map

- Fall Catalog
 - + Produce
 - ... Uncle Bob's Organic Dried...
 - Tofu**
 - ... Rössle Sauerkraut
 - ... Manjimup Dried Apples
 - ... Longlife Tofu
 - + Meat/Poultry
 - + Grains/Cereals
 - + Dairy Products
 - + Beverages
 - + Condiments
 - + Seafood
 - + Confections

Navigate in Print Preview Using Thumbnails

You can use thumbnails to quickly navigate between document pages.

To show report thumbnails, click the **Thumbnails** button on the toolbar.



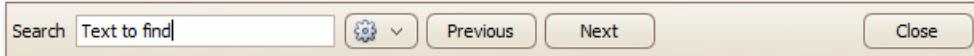
Click a thumbnail to navigate to the corresponding document page.

The screenshot shows a software interface with a "Thumbnails" window open. The window displays two document thumbnails. The top thumbnail is labeled "1" and the bottom one is labeled "2". To the right of the thumbnails is a main content area titled "Condiments" with the subtitle "Sweet and savory sauces, relishes, spreads, and seasonings". Below the subtitle is a decorative image of various condiments like a mortar and pestle, herbs, and a citrus fruit. A table lists nine products with their details:

Product Name	Quantity Per Unit	Unit Price
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
Northwoods Cranberry Sauce	12 - 12 oz jars	\$40.00
Genen Shouyu	24 - 250 ml bottles	\$15.50
Gula Malacca	20 - 2 kg bags	\$19.45
Sirop d'érable	24 - 500 ml bottles	\$28.50

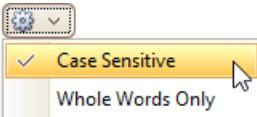
Search for a Specific Text in Print Preview

To search for a specific text throughout a document, click the **Search**  button on the toolbar, or press CTRL+F. This invokes the Search panel.



To start searching for the terms, click **Next** or press ENTER. To find the next occurrence of the terms, do the same. To find the previous occurrence of the terms, click **Previous**.

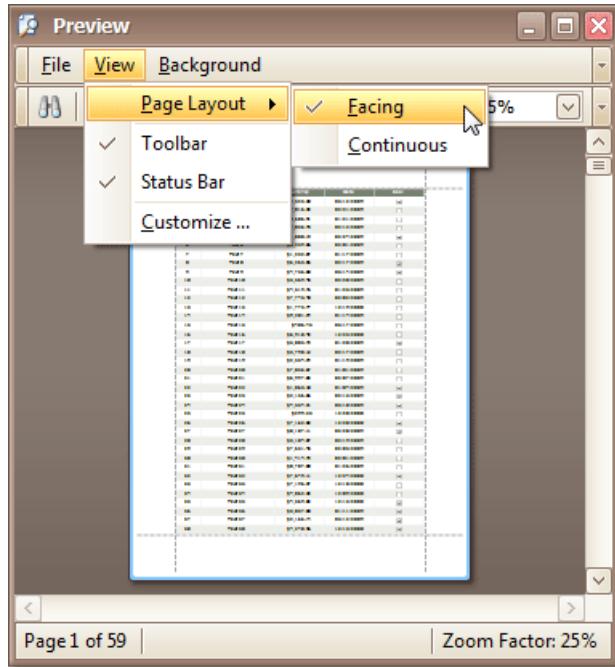
The Search panel also provides the settings button, which invokes the dedicated submenu allowing you to specify whether or not to use a case-sensitive search and whether or not you need to match the whole word during the search.



Switch Print Preview Display Mode

Enable the Facing Layout View

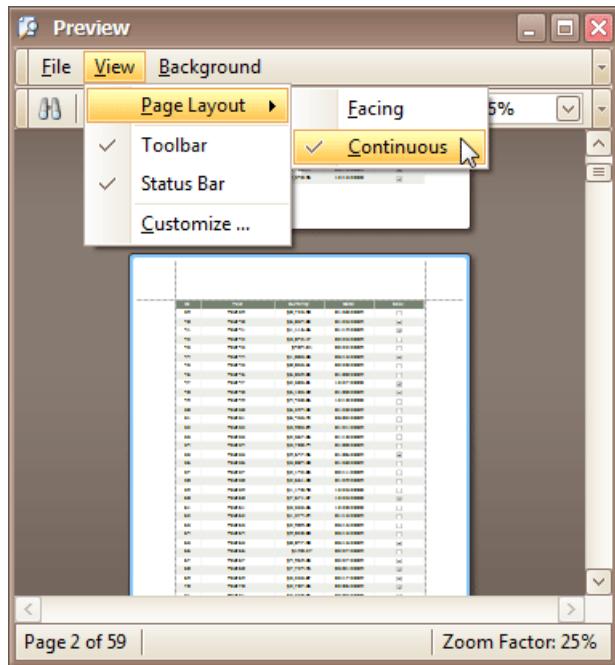
To enable the facing layout view, on the **View** menu, point to **Page Layout**, and then click **Facing**.



This allows you to preserve an entire page view, whether you resize the preview window, scroll a document or choose a multiple page view mode.

Enable the Continuous Layout View

To enable the continuous layout view, on the **View** menu, point to **Page Layout**, and then click **Continuous**.



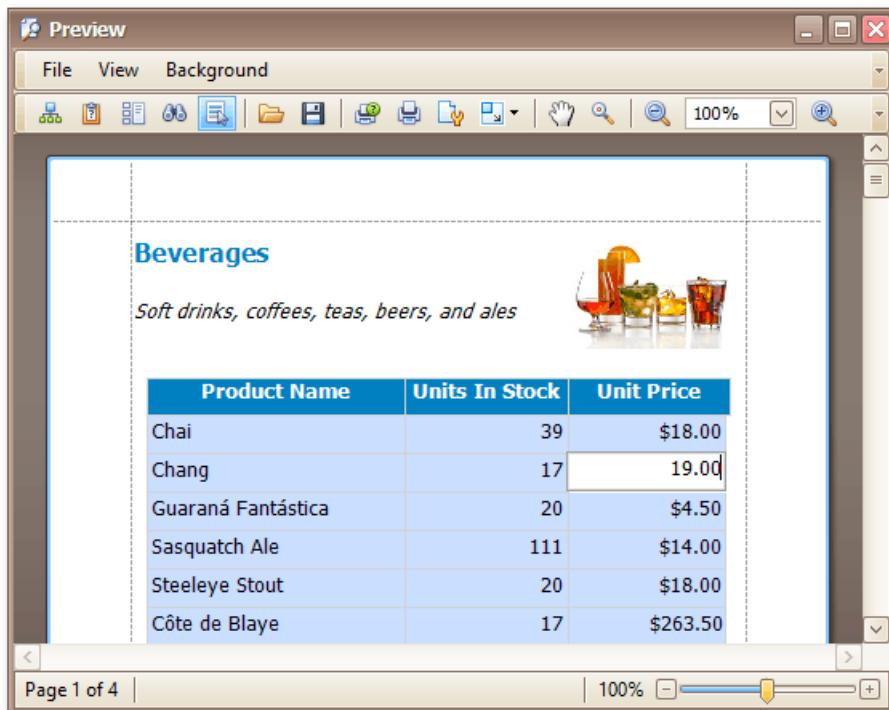
This allows you to continuously scroll a page layout view.

Content Editing in Print Preview

If content editing is enabled for document elements, it is possible to customize the corresponding field values in Print Preview.

To highlight all editing fields available in the document, click the **Editing Fields**  button on the toolbar. This button is not available when there are no such fields in the document.

Clicking a field will invoke an appropriate editor. To apply the entered values and navigate between editing fields, use the TAB and SHIFT+TAB keys. In addition to editing text, you can switch check box states.



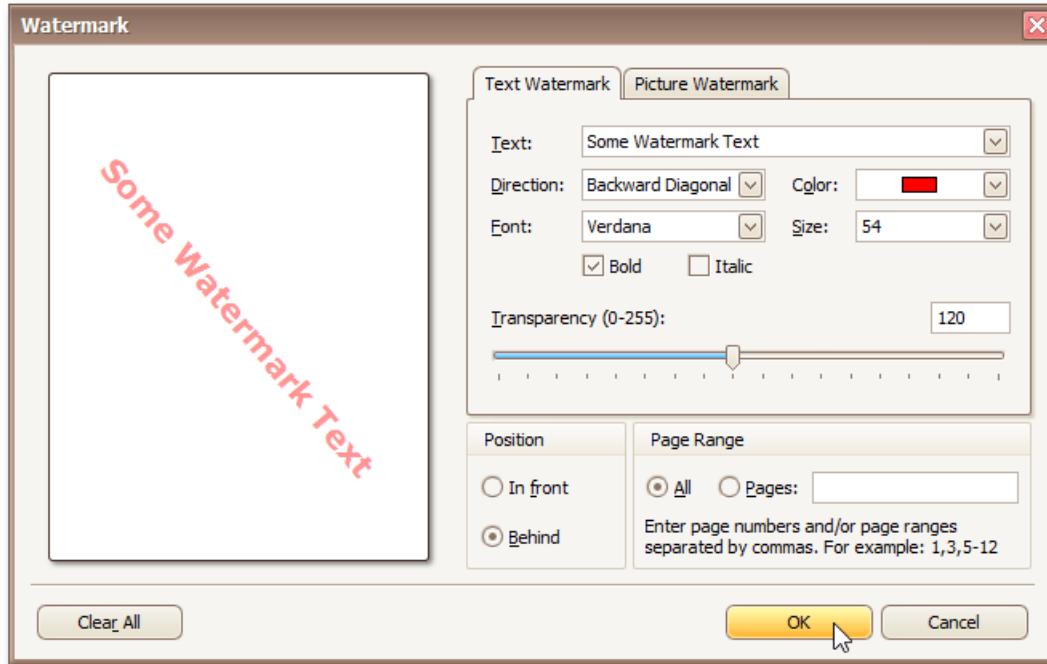
Change Watermark and Background Settings in Print Preview

Invoke the Watermark Dialog

To add a watermark to a document, click the **Watermark**  button on the toolbar, or click **Watermark...** on the **Background** menu. The **Watermark** dialog will be invoked.

Add a Text Watermark

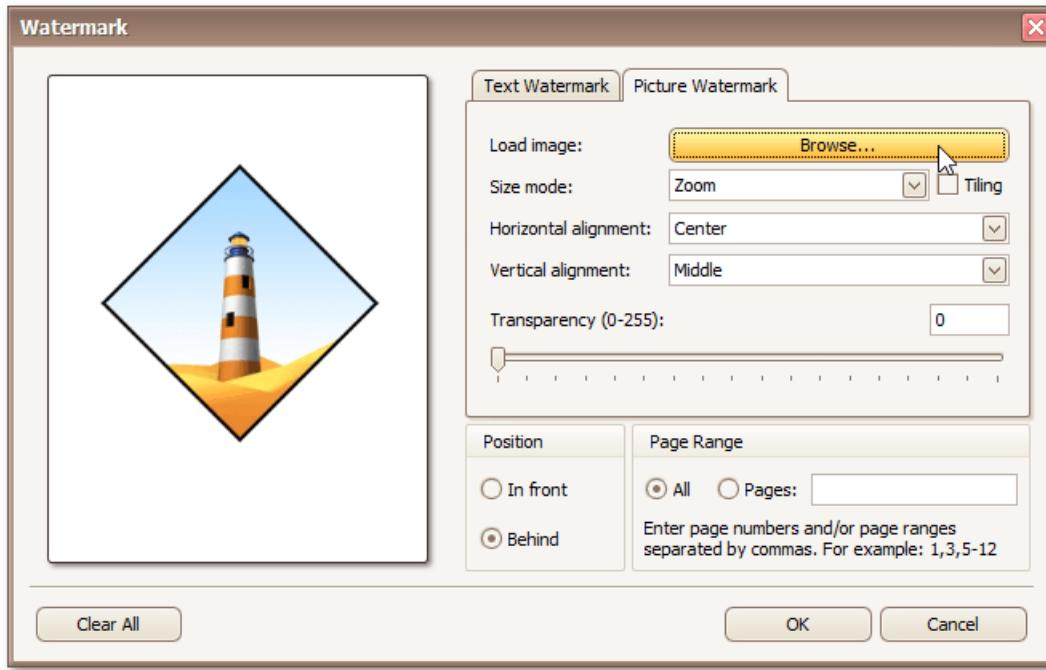
To add a text watermark, open the **Text Watermark** tab.



Input the required text, or choose one from the provided options. If required, define other text properties, such as direction, color, font, size, transparency, etc.

Add an Image Watermark

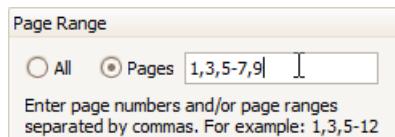
To add a picture watermark, open the **Picture Watermark** tab.



Load the image and customize its properties, such as size mode, horizontal and vertical alignment, tiling, transparency, etc.

Specify the Pages Where you will Display Your Watermark

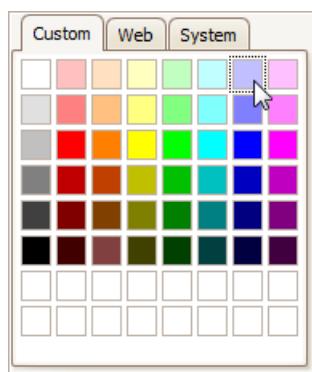
Specify the required pages to apply a watermark in the **Page Range** section of the dialog.



Separate page numbers with commas, or specify page ranges using a dash.

Add a Background Color to a Document

To add a background color to a document, click the **Background Color**  button on the toolbar, or click **Color...** on the **Background** menu. The **Background Color** dialog will be invoked.



Then, choose a color from the **Custom**, **Web** or **System** palettes.

Remove a Watermark in Print Preview

To remove a watermark from a document, invoke the [Watermark dialog](#). Click **Clear All**, then click OK to save changes and close the dialog.

Exporting from Print Preview

There are two options available for a document being exported to.

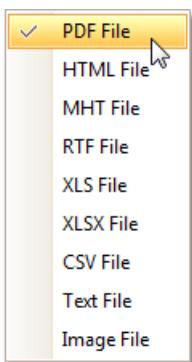
- [Export Document to a File on Disk](#)
- [Send Exported File via E-Mail](#)

Export Document to a File on Disk

To export a document and save the resulting file on your hard drive, do one of the following.

- On the toolbar, click the arrow near the **Export Document...** button .
- On the **File** menu, choose the **Export Document...** item.

Choose the required format from the invoked list.



Then, you may be prompted to define format-specific options. See corresponding help topics in this documentation for details, e.g. PDF-Specific Export Options.

Once you've specified exporting options, the **Save As** dialog appears, allowing you to enter the file name. Then, the following message will be invoked.



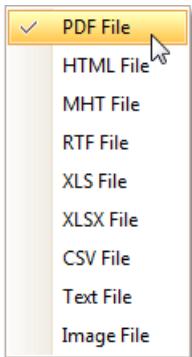
Click **Yes**, if you want to preview the exported file.

Send Exported File via E-Mail

To send the resulting PDF file via e-mail, do one of the following.

- On the toolbar, click the arrow near the **Send via E-Mail...** button .
- On the **File** menu, choose the **Send via E-Mail...** item.

Choose the required format in the invoked list.



Then, you may be prompted to define format-specific options. See corresponding help topics in this documentation for details, e.g. PDF-Specific Export Options.

Once you've specified exporting options, the **Save As** dialog appears, allowing you to enter the file name.

Finally, the created document will be attached to a new empty message, created in your default mail program.

Copy to the Clipboard

Aside from exporting a document to a third-party formatted file, you can copy a portion of the document content to the clipboard, and paste it into an editor compatible with one of the supported third-party formats.

To copy document content to the clipboard, do the following.

1. Select the content of the previewed document by holding down the left mouse button and dragging the mouse pointer, to create a selection box. Expand the selection box to fit all of the content you wish to print. The selected document elements are highlighted.

Beverages		
Chai	10 boxes x 20 bags	\$18.00
Guarana Fantástica	12 - 355 ml cans	\$4.50
Côte de Blaye	12 - 75 cl bottles	\$263.50
Ipoh Coffee	16 - 500 g tins	\$46.00

Condiments		
Aniseed Syrup	12 - 550 ml bottles	\$10.00
Grandma's Boysenberry Spread	12 - 8 oz jars	\$25.00
Northwoods Cranberry Sauce	12 - 12 oz jars	\$40.00
Vegie-spread	15 - 625 g jars	\$43.90
Original Frankfurtergrüne Soße	12 boxes	\$13.00

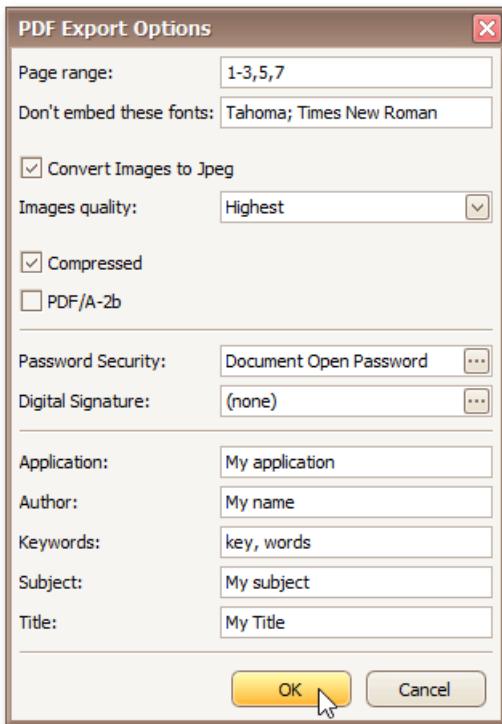
2. To copy the selected content, press **CTRL + C** or right-click anywhere within the highlighted area of the document, and select **Copy** in the context menu.

Products by Category			
Beverages			
Chai	10 boxes x20 bags	\$18.00	
Guaraná Fantástica	12 - 355 ml cans	\$4.50	
Côte deBlaye	12 - 75 cl bottles		 Copy
Ipoh Coffee	16 - 500 g tins		 Print ...
Condiments			
Aniseed Syrup	12 - 550 ml bottles	\$10.00	
Grandma's Boysenberry Spread	12 - 8 oz jars	\$25.00	
Northwoods Cranberry Sauce	12 - 12 oz jars	\$40.00	
Vegie-spread	15 - 625 g jars	\$43.90	
Original Frankfurtergrüne Soße	12 boxes	\$13.00	

When pasted to a third-party editor from the clipboard, the report content will automatically be converted to the target format.

PDF-Specific Export Options

When [exporting a document](#), you can define PDF-specific exporting options using the following dialog.



General Options

- **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.

- **Don't embed these fonts**

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

- **Convert Images to Jpeg**

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

- **Images quality**

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

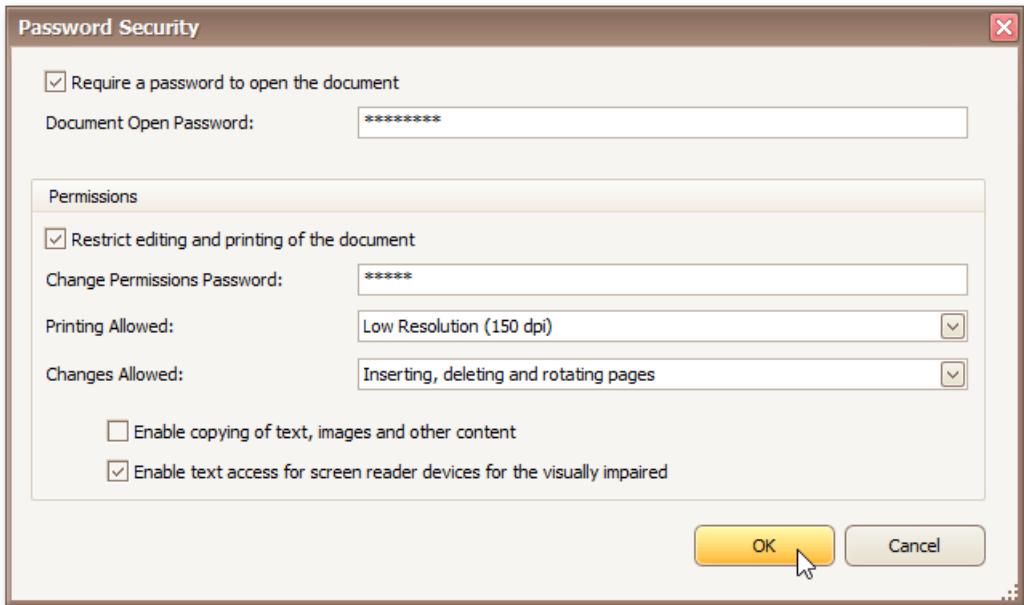
- **Compressed**

Specifies whether the resulting file should be compressed.

- **PDF/A-2b**

Specifies whether to enable document compatibility with the **PDF/A-2b** specification.

Password Security Options



These options allow you to adjust the security options of the resulting PDF file (e.g. enable open document, editing, printing and copying protection, and specify which changes are allowed).

Signature Options

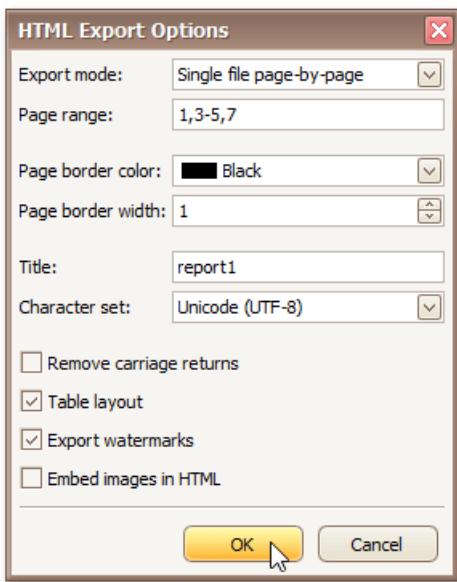
If an X.509 certificate is applied to your report, you can maintain its options using the **Signature Options** property of the report **PDF Export Options**.

Additional Options

You can also fill the **Application**, **Author**, **Keywords**, **Subject**, and **Title** fields. These options specify the **Document Properties** of the created PDF file.

HTML-Specific Export Options

When [exporting a document](#), you can define HTML-specific exporting options using the following dialog.



• Export Mode

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

- The **Single file** mode allows export of a document to a single file, without preserving the page-by-page breakdown.
- The **Single file page-by-page** mode allows export of a document to a single file, while preserving page-by-page breakdown. In this mode, the **Page range**, **Page border color** and **Page border width** options are available.
- The **Different files** mode allows export of a document to multiple files, one for each document page. In this mode, the **Page range**, **Page border color** and **Page border width** 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.

• Page border color

Specifies the color of page borders from the available palettes.

• Page border width

Specifies the width (in pixels) of page borders.

• Title

Specifies the title of the created document.

• Character set

Specifies the character set for the HTML document.

• Remove carriage returns

Specifies whether to remove carriage returns.

• Table layout

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

- **Export watermarks**

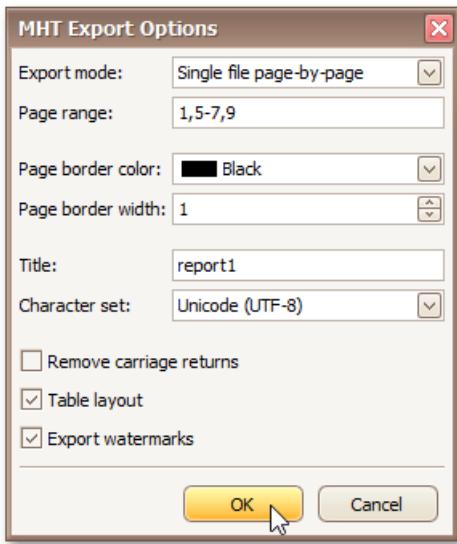
Specifies whether to export watermarks to HTML along with the rest of the document content.

- **Embed images in HTML**

Specifies whether to embed images in HTML content.

MHT-Specific Export Options

When [exporting a document](#), you can define MHT-specific exporting options using the following dialog.



- **Export mode**

Specifies how a document is exported to MHT. 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**, **Page border color** and **Page border width** options are available.
- The **Different files** mode allows export of a document to multiple files, one for each document page. In this mode, the **Page range**, **Page border color** and **Page border width** 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.

- **Page border color**

Specifies the color of page borders from the available palettes.

- **Page border width**

Specifies the width (in pixels) of page borders.

- **Title**

Specifies the title of the created document.

- **Character set**

Specifies the character set for the HTML document.

- **Remove carriage returns**

Specifies whether to remove carriage returns.

- **Table layout**

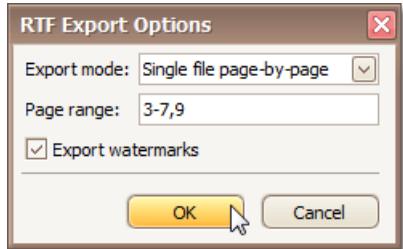
Specifies whether to use table or non-table layout in the resulting document.

- **Export watermarks**

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

RTF-Specific Export Options

When [exporting a document](#), you can define RTF-specific export options using the following dialog.



- **Export mode**

Specifies how a document is exported to RTF. 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**

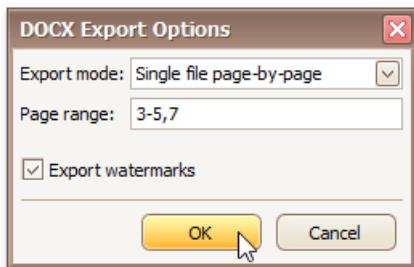
Specifies a range of pages which will be included in the resulting file. To separate page numbers, use commas. To set page ranges, use hyphens.

- **Export watermarks**

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

DOCX-Specific Export Options

When [exporting a document](#), you can define DOCX-specific export options using the following dialog:



- **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.

- **Export watermarks**

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

XLS-Specific Export Options

When [exporting a document](#), you can define XLS-specific export options using the following dialog.



- **Export mode**

Specifies how a document is exported to XLS. 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.
- The **Different files** mode allows export of a document to multiple files, one for each document page.

- **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.

- **Sheet name**

Specifies the name of the sheet in the created 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.

- **Show grid lines**

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

- **Export hyperlinks**

Specifies whether hyperlinks should be exported to the XLS document.

- **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.

XLSX-Specific Export Options

When [exporting a document](#), you can define XLSX-specific export options using the following dialog.



- **Export mode**

Specifies how a document is exported to XLSX. 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, with each shown in a separate sheet.
- The **Different files** mode allows export of a document to multiple files, one for each document page.

- **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.

- **Sheet name**

Specifies the name of the sheet in the created 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.

- **Show grid lines**

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

- **Export hyperlinks**

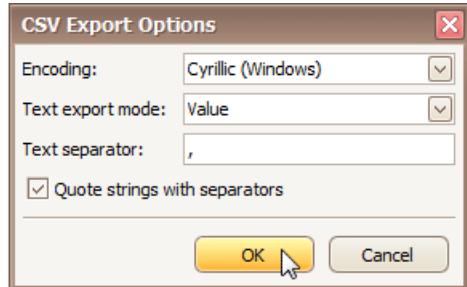
Specifies whether to include hyperlinks into the resulting file.

- **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.

CSV-Specific Export Options

When [exporting a document](#), you can define CSV-specific exporting options using the following dialog.



- **Encoding**

Specifies the encoding used in the exported document.

- **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.

- **Text separator**

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

- **Quote strings with separators**

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

TXT-Specific Export Options

When [exporting a document](#), you can define TXT-specific exporting options using the following dialog.



- **Encoding**

Specifies the encoding used in the exported document.

- **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.

- **Text separator**

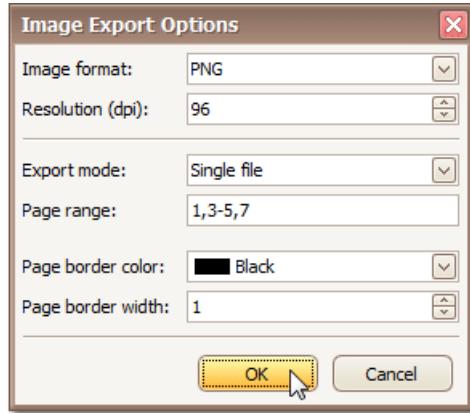
Specifies a symbol to separate text elements (TAB by default).

- **Quote strings with separators**

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

Image-Specific Export Options

When [exporting a document](#), you can define image-specific exporting options using the following dialog.



- **Image format**

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

- **Resolution (dpi)**

Specifies the required image resolution (in dpi).

- **Export mode**

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

- The **Single file** mode allows export of a document to a single file, without dividing the output 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**, **Page border color** and **Page border width** options are available.
- The **Different files** mode allows export of a document to multiple files, one for each document page. In this mode, the **Page range**, **Page border color** and **Page border width** 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.

- **Page border color**

Specifies the color of page borders.

- **Page border width**

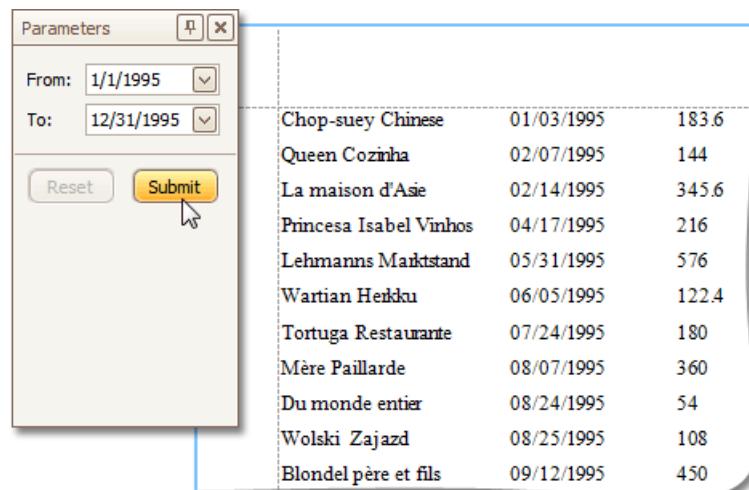
Specifies the width (in pixels) of page borders.

Passing Parameters in Print Preview

Some documents or reports allow you to control data display, and what data is to be displayed by specifying parameter values.

To show the Parameters window, click the **Parameters**  button on the main toolbar. A window allowing you to change parameter values will be invoked.

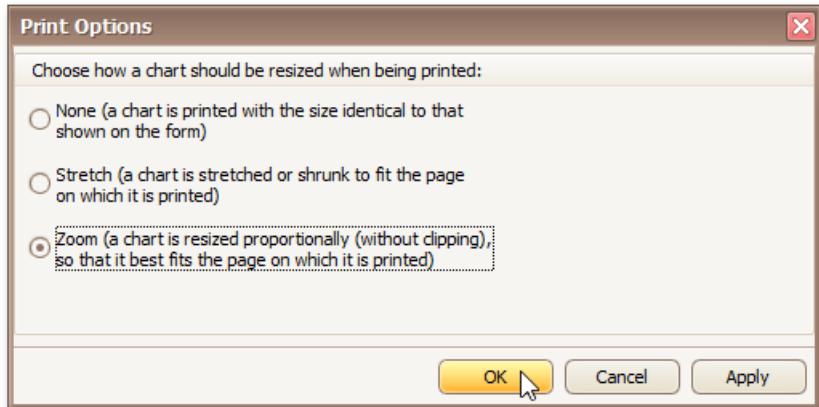
Enter the required values and click **Submit**. After changing the current values, you can revert back the previously selected values by clicking **Reset**.



Customize Printing Settings of Charts

If allowed by your application vendor, you can customize additional print settings of a document. For example, if you are about to print out a chart, you may be able to customize the chart's printing options.

To do this, click the **Customize**  button on the toolbar. The **Print Options** dialog will be invoked.



- **None**

A chart is printed in the same size identical to that shown on the form.

- **Stretch**

A chart is stretched or shrunk to fit the page on which it is printed.

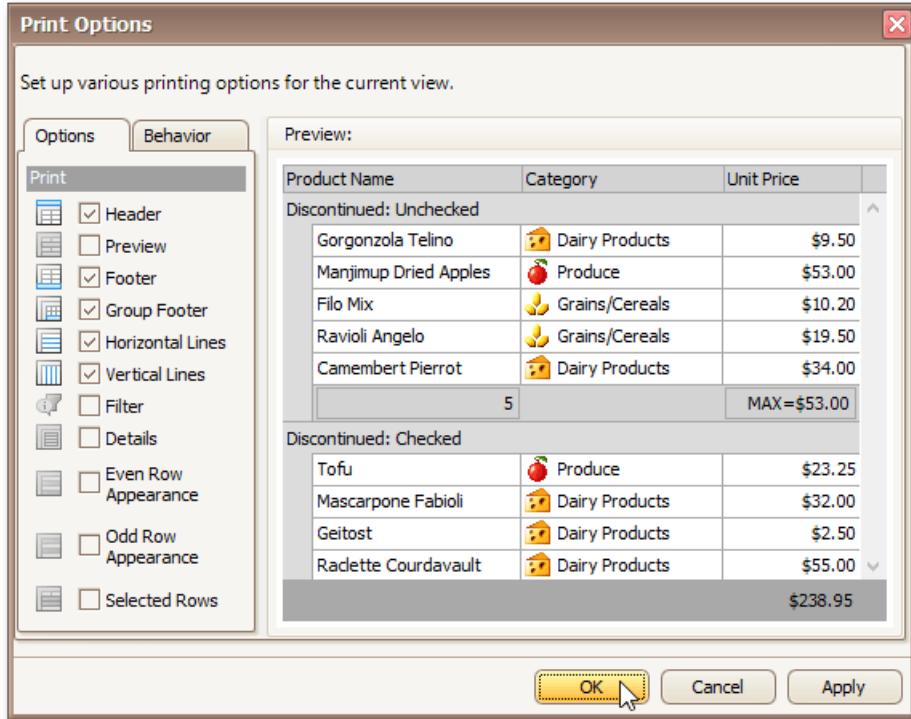
- **Zoom**

A chart is resized proportionally (without clipping), so that it best fits the page on which it is printed.

Customize Printing Settings of Grids

If allowed by your application vendor, you can customize additional print settings of a document. For example, if you are about to print out a grid, you may be able to customize grid printing options.

To do this, click the **Customize**  button on the toolbar. The **Print Options** dialog will be invoked.



- **Options tab**

Allows you to uncheck elements that you don't want to print.

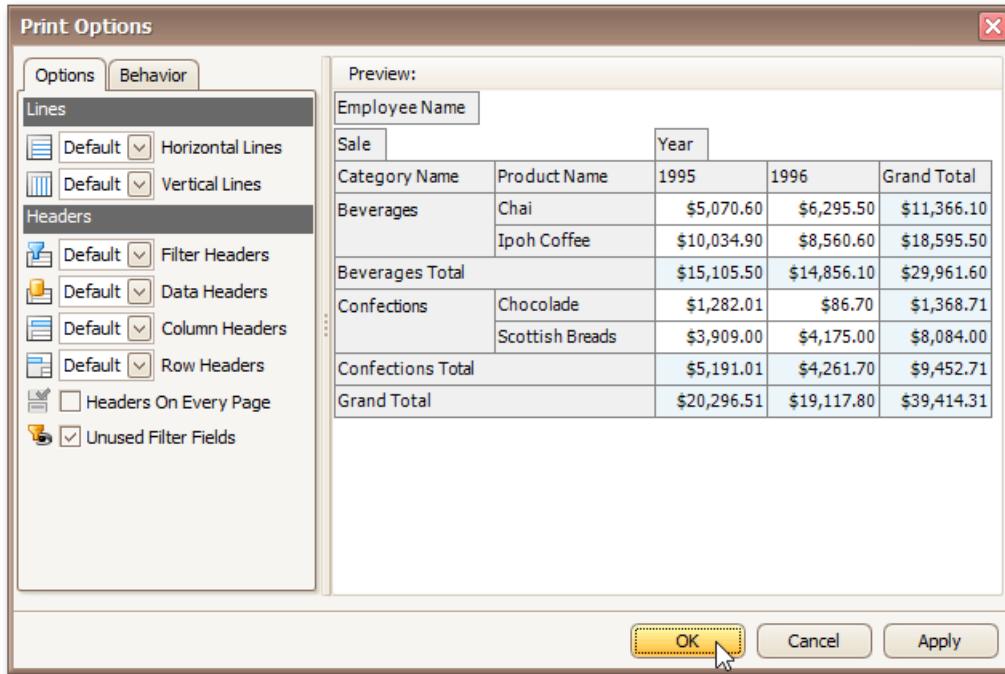
- **Behavior tab**

Allows you to pre-process a grid before printing it. For instance, you can enable automatic column width calculation, or automatic group row expansion.

Customize Printing Settings of Pivot Tables

If allowed by your application vendor, you can customize additional print settings of a document. For example, if you are about to print out a Pivot Table, you may be able to customize its printing options.

To do this, click the **Customize**  button on the toolbar. The **Print Options** dialog will be invoked.



- **Options tab**

Allows you to specify which elements are to be printed.

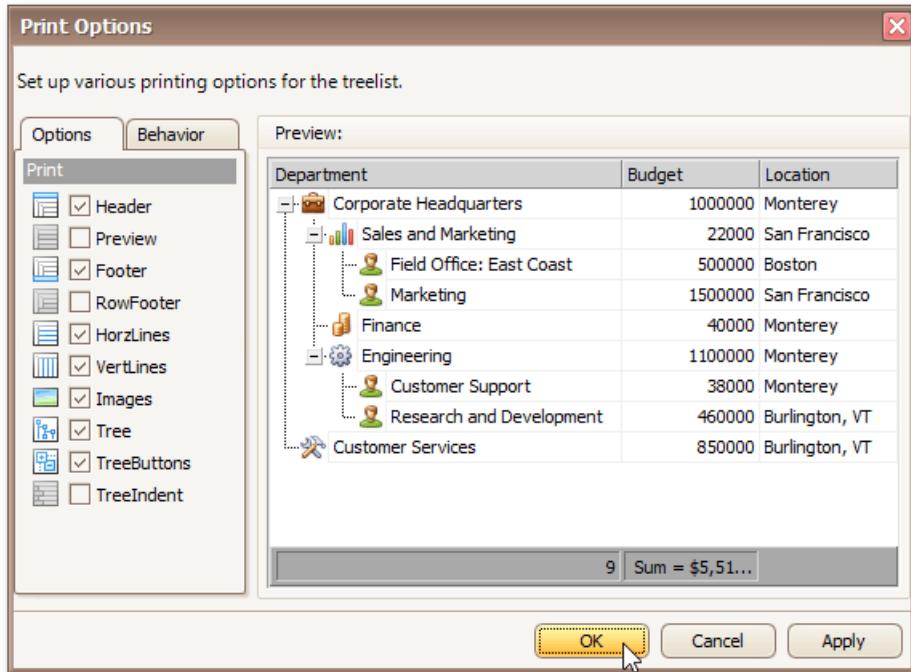
- **Behavior tab**

Allows you to pre-process a Pivot Table before printing it. For instance, you can enable field value merging.

Customize Printing Settings of Tree Views

If allowed by your application vendor, you can customize additional print settings of a document. For example, if you are about to print out a tree view, you may be able to customize its printing options.

To do this, click the **Customize**  button on the toolbar. The **Print Options** dialog will be invoked.



- **Options tab**

Allows you to specify which elements are to be printed.

- **Behavior tab**

Allows you to pre-process a tree view before printing it. For instance, you can enable automatic column width or row height calculation.

Warnings and Error Messages in Print Preview

Warnings

- **One or more margins are set outside the printable area of the page.**

This message is invoked when you try to [print a document](#) whose margins are outside of the printable area of the page.

Click **Yes** if you are sure that your printer supports the specified page margins. Otherwise, click **No**.

Errors

- **The specified file cannot be loaded, because it either does not contain valid XML data or exceeds the allowed size.**

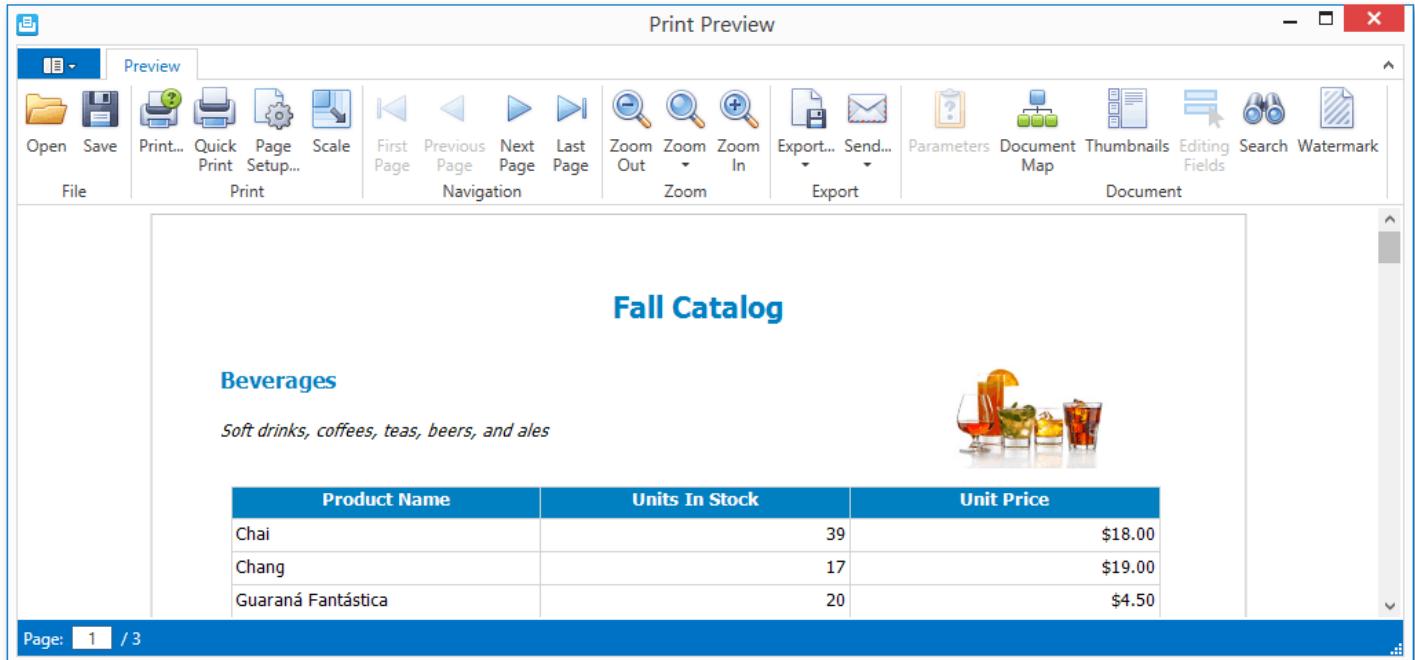
This message is invoked if you try to [open a file](#) with an incompatible markup or a file whose size exceeds the allowed size.

These files cannot be loaded in the Print Preview. Try to open a file with a compatible markup and/or a smaller size.

Print Preview for WPF

The documents in this section provide information on the capabilities of the **Print Preview**, which is used to display an interactive document preview.

The Print Preview provides a toolbar and menu that contain commands related to document viewing, navigating, exporting and printing. It also provides the **Document Map** for navigating throughout a document using bookmarks, the **Parameters** panel for editing report parameters, the **Search** panel for locating required data, etc.



File Management

- [Save a Print Preview to a File](#)
- [Load a Print Preview from a File](#)

Printing and Page Setup

- [Print a Document Using the Print Dialog](#)
- [Print a Document Using Default Settings](#)
- [Change Print Settings Using the Page Setup Dialog](#)
- [Scaling](#)

Navigating

- [Navigate Between Pages](#)
- [Navigate Using Bookmarks](#)
- [Navigate Using Thumbnails](#)
- [Navigate Using the Hand Tool](#)
- [Search for a Specific Text](#)

Interactivity

- [Content Editing in Print Preview](#)

Zooming

- [Zooming](#)

Passing Parameters

- [Passing Parameter Values](#)

Watermark

- [Changing a Watermark](#)

Exporting

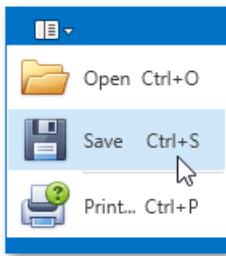
- [Exporting](#)
- [Copying to the Clipboard](#)
- [PDF-Specific Export Options](#)
- [HTML-Specific Export Options](#)
- [MHT-Specific Export Options](#)
- [RTF-Specific Export Options](#)
- [DOCX-Specific Export Options](#)
- [XLS-Specific Export Options](#)
- [XLSX-Specific Export Options](#)
- [CSV-Specific Export Options](#)
- [Text-Specific Export Options](#)
- [Image-Specific Export Options](#)

Save a Print Preview to a File

If you've modified your document, and there's a chance you'll need to print out this document version more than once, you can save the document to a file on disk. After that, you can simply load your document and print it out, without having to apply the same changes again.

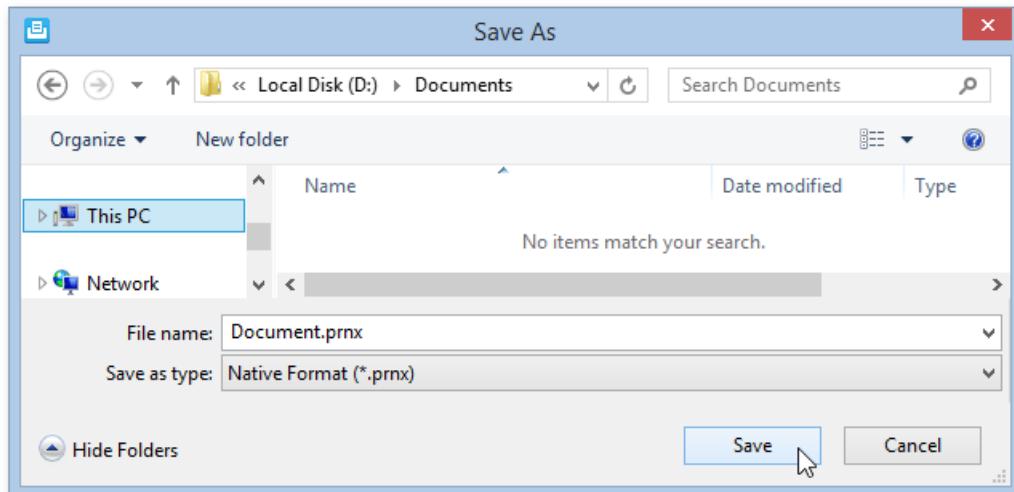
To save a document to the file, do one of the following.

- Click the **Save**  button on the toolbar.
- On the menu, click **Save**.



- Press CTRL+S.

In the invoked **Save As** dialog, locate a folder where you want to store your file, enter the document name and click **Save**.



The document is saved with the **.prnx** file extension. Note that this extension will be added to the file name even if you enter another one.

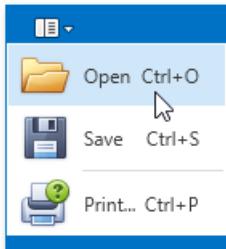
NOTE

If you [open a document](#) that was previously saved to the hard drive, it is impossible to change its page settings (e.g., page size, orientation, margins, etc.). So, the **Page Setup** and the **Scale** buttons will be disabled.

Load a Print Preview from a File

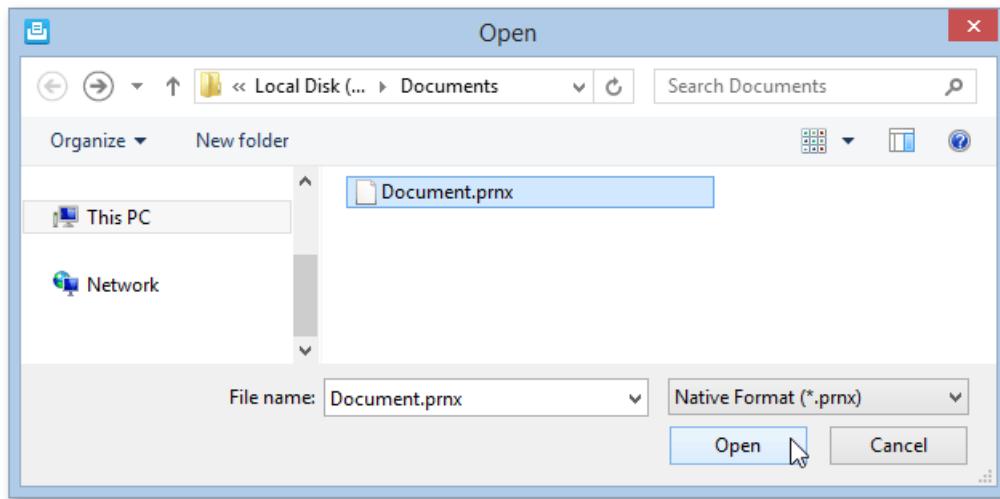
To open a [previously saved](#) document, do one of the following.

- Click the **Open**  button on the toolbar.
- On the menu, click **Open**.



- Press **CTRL+O**.

In the invoked **Open** dialog, select the required file and click **Open**.



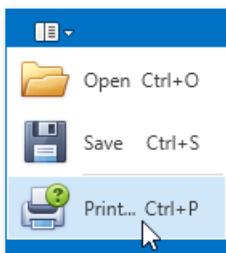
NOTE

If you open a document which was previously saved to the hard drive, it is impossible to change its page settings (e.g., page size, orientation, margins, etc.). So, the **Page Setup** and the **Scale** buttons will be disabled.

Print a Document Using the Print Dialog

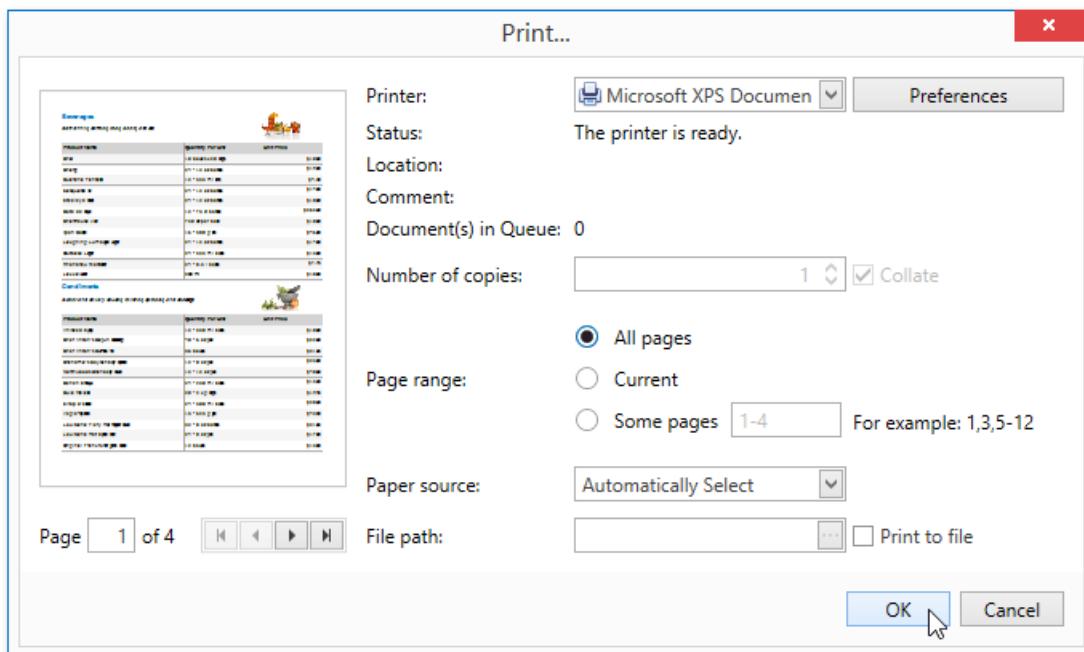
To print a document, do one of the following.

- Click the **Print...**  button on the toolbar.
- On the menu, click **Print...**



- Press **CTRL+P**.

In the invoked **Print** dialog, specify the necessary settings (the printer name, number of copies, page range, etc.) and click **OK**.



To learn how to print the document without invoking the **Print** dialog, see the [Print a Document Using Default Settings](#) topic.

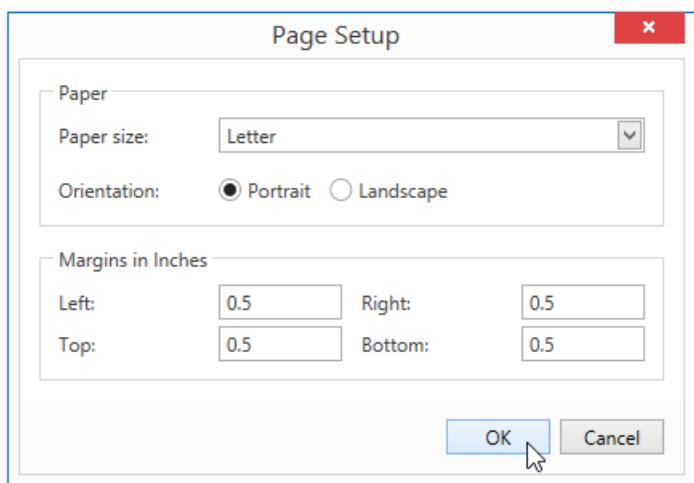
Print a Document Using Default Settings

To send a document directly to the default printer without customizing print settings, click the **Quick Print**  button on the Preview's toolbar.

To learn how to select a printer, number of copies and other printer options, refer to the [Print a Document Using the Print Dialog](#) topic.

Change Print Settings Using the Page Setup Dialog

To invoke the **Page Setup** dialog, click the **Page Setup...**  button on the Print Preview's toolbar.



The **Page Setup** dialog allows you to do the following.

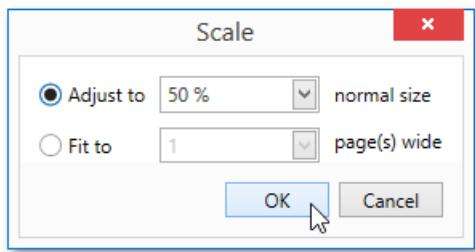
- Change the paper size using the dedicated drop-down.
- Select page orientation (Portrait or Landscape).
- Specify page margins by entering the required top, left, bottom and right page margin values into the appropriate editors.

NOTE

If you're working with a document that was [loaded from a file](#), the **Page Setup** button on the toolbar is disabled.

Scaling

To scale a document, click the **Scale**  button on the Print Preview's toolbar. This invokes the **Scale** dialog.



The dialog provides two ways for scaling the document.

- **Scaling by entering a zoom factor.**

Select the first option and set the required percentage value in the dedicated editor.

- **Scaling to fit into X pages.**

Choose the second option and specify the required number of pages.

Click **OK** to save changes and close the dialog.

 **NOTE**

If you're working with a document [loaded from a file](#), you cannot use scaling.

Navigate Between Pages

To navigate between document pages, use the scrollbars or navigation buttons on the Print Preview's toolbar. These buttons allow you to switch to the first, previous, next, or last page of a document.



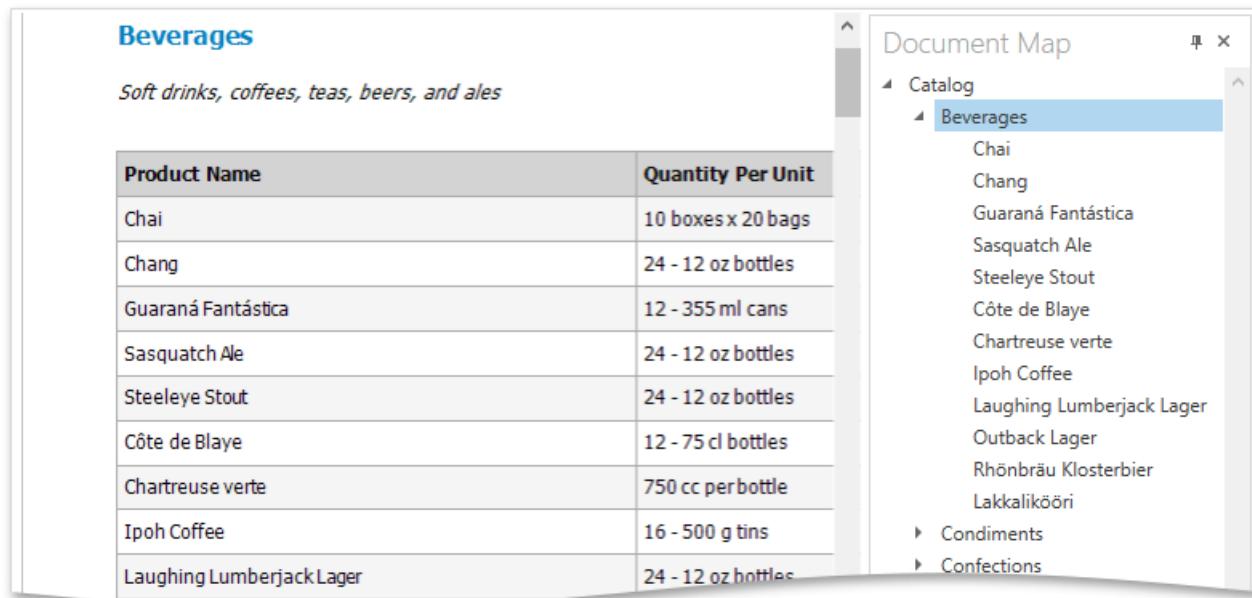
To navigate to a specific page of a document, enter the required page in the dedicated editor in the Print Preview's status bar.



Navigate Using Bookmarks

If a document contains bookmarks, you can use the **Document Map** panel for navigation purposes.

To switch to this panel, click the **Document Map**  button on the Print Preview's toolbar. To go to a specific bookmark, click it in the Document Map. As a result, the Print Preview navigates to a document element associated with the bookmark.



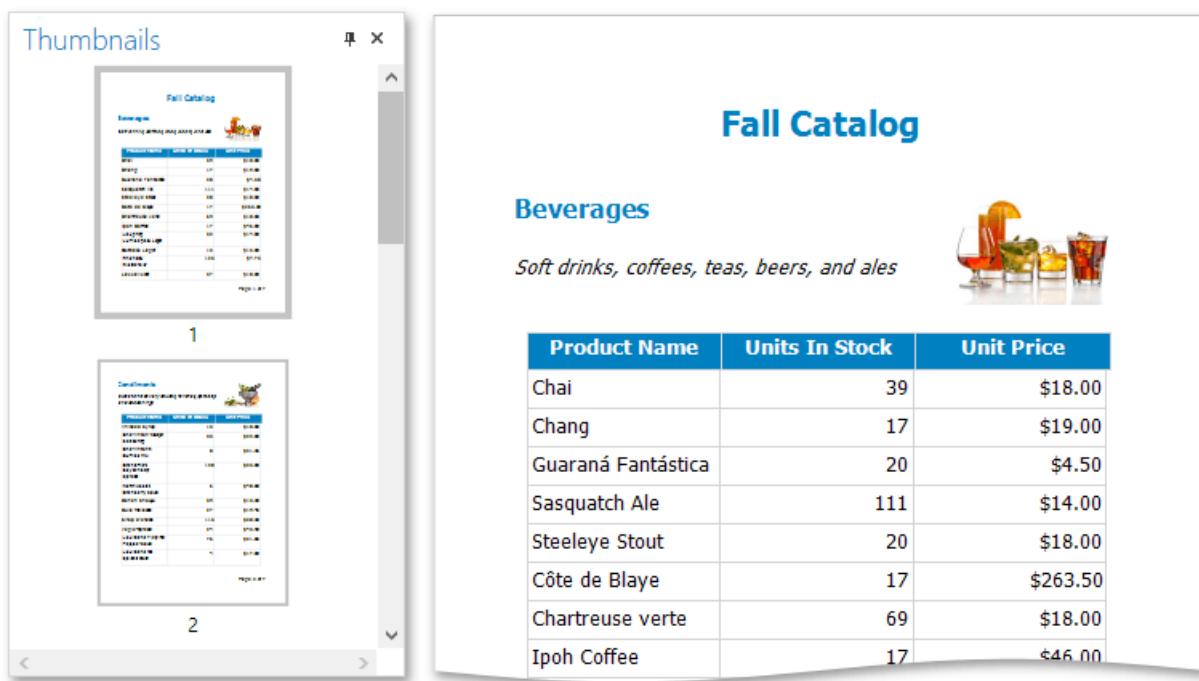
The screenshot illustrates the 'Document Map' panel and the 'Print Preview' window side-by-side. The 'Document Map' panel on the right shows a hierarchical tree structure under the 'Catalog' heading. The 'Beverages' category is selected, highlighted with a blue background. Below it, a list of product names is displayed. The 'Print Preview' window on the left shows a table titled 'Beverages' with nine rows of product information, including 'Product Name' and 'Quantity Per Unit'. The first few rows of the table are:

Product Name	Quantity Per Unit
Chai	10 boxes x 20 bags
Chang	24 - 12 oz bottles
Guaraná Fantástica	12 - 355 ml cans
Sasquatch Ale	24 - 12 oz bottles
Steeleye Stout	24 - 12 oz bottles
Côte de Blaye	12 - 75 cl bottles
Chartreuse verte	750 cc per bottle
Ipoh Coffee	16 - 500 g tins
Laughing Lumberjack Lager	24 - 12 oz bottles

Navigate Using Thumbnails

You can use thumbnails to quickly navigate between document pages.

To show thumbnails, click the **Thumbnails**  button on the Print Preview's toolbar. Click a thumbnail to navigate to the corresponding document page.



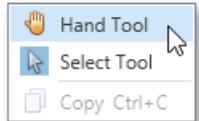
The screenshot illustrates the 'Thumbnails' feature in the Print Preview window. On the left, a sidebar titled 'Thumbnails' contains two page thumbnails. The top thumbnail, labeled '1', shows the 'Fall Catalog' title and a 'Beverages' section. The bottom thumbnail, labeled '2', shows a continuation of the catalog content. The main preview area on the right shows the full 'Fall Catalog' page with a title 'Fall Catalog', a 'Beverages' section featuring a soft drink advertisement, and a table of products with columns for Product Name, Units In Stock, and Unit Price.

Product Name	Units In Stock	Unit Price
Chai	39	\$18.00
Chang	17	\$19.00
Guaraná Fantástica	20	\$4.50
Sasquatch Ale	111	\$14.00
Steeleye Stout	20	\$18.00
Côte de Blaye	17	\$263.50
Chartreuse verte	69	\$18.00
Ipoh Coffee	17	\$46.00

Navigate Using the Hand Tool

The **Hand Tool** enables you to scroll content by dragging the document instead of using scrollbars.

To activate the Hand Tool, right-click anywhere within the document, and in the invoked context menu, select **Hand Tool**.



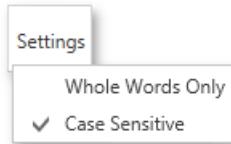
Then, after you click a document's page, the mouse pointer is changed from  to . Drag the mouse pointer to scroll the document.

Search for a Specific Text

To search for a specific text throughout a document, click the **Search**  button on the Print Preview's toolbar, or press CTRL+F. This invokes the **Search** panel.



In the search box on the left, input the text to find. Click the **Settings** button to invoke the dedicated submenu allowing you to specify whether or not to use a case-sensitive search, and specify if you are required to match the whole word during the search.



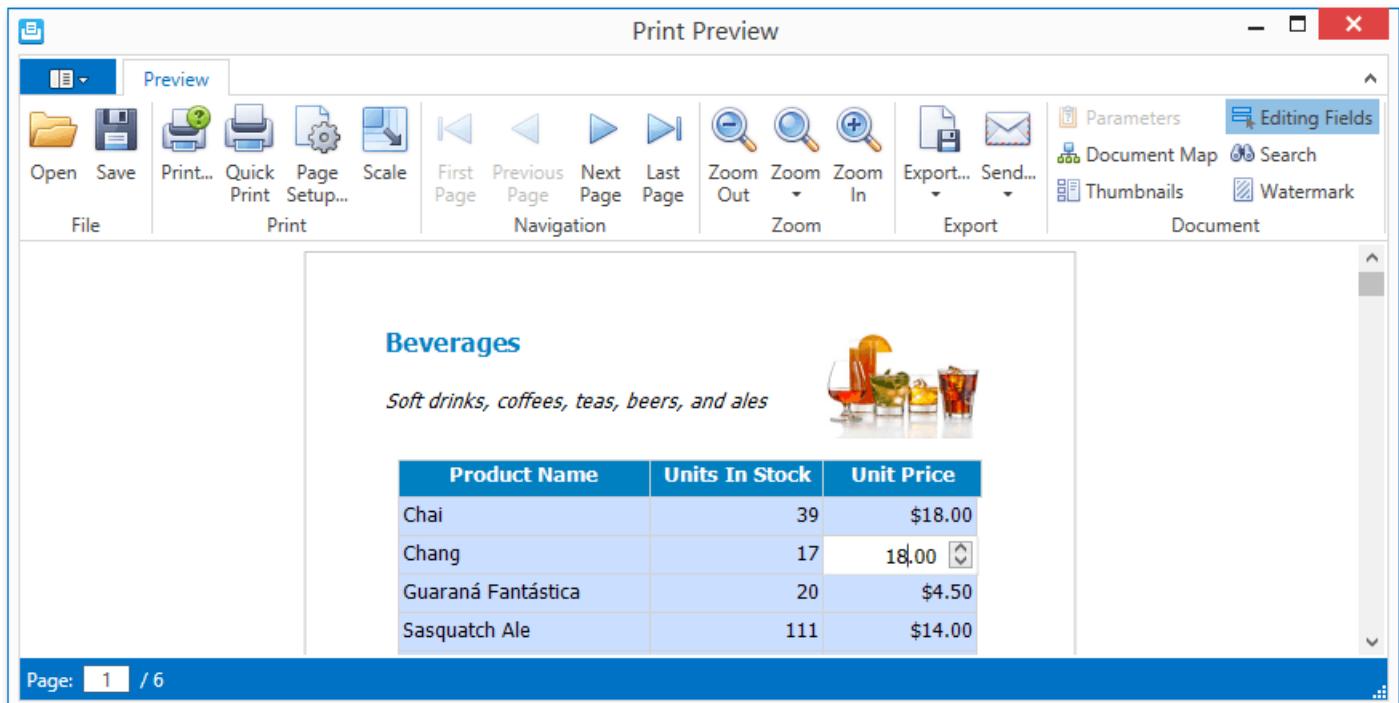
To start searching, or search down again, click **Next**, or press ENTER or CTRL+G. To search backward, click **Previous** or press CTRL+SHIFT+G.

Content Editing in Print Preview

If content editing is enabled for document elements, it is possible to customize the corresponding field values in Print Preview.

To highlight all editing fields available in the document, click the **Editing Fields**  button on the toolbar. This button is not available when there are no such fields in the document.

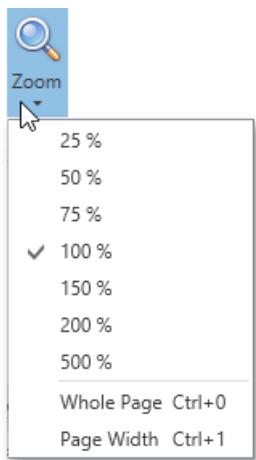
Clicking a field will invoke an appropriate editor. To apply the entered values and navigate between editing fields, use the TAB and SHIFT+TAB keys. In addition to editing text, you can switch check box states.



Zooming

To zoom in or out a document, click the **Zoom In**  or **Zoom Out**  button on the Print Preview's toolbar. The alternative way to zoom in and out the document is to hold down CTRL and rotate the mouse wheel.

You can also zoom the document to a specific zoom factor. To do this, click the **Zoom** button and choose one of the zoom factor presets from the invoked list.



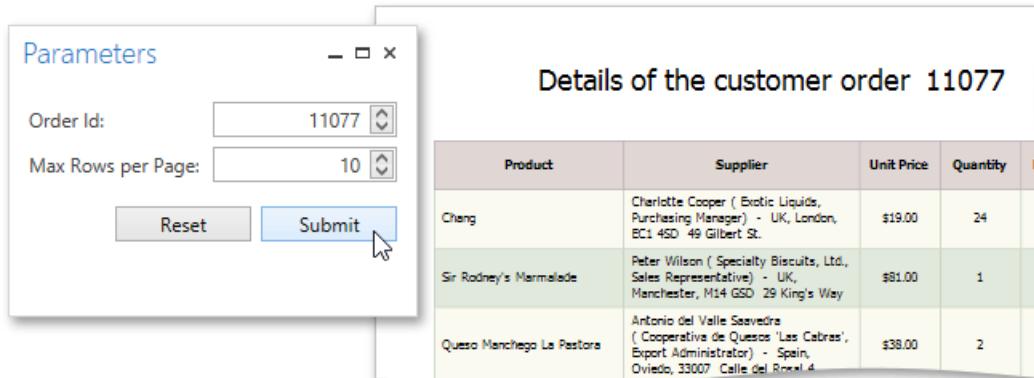
In addition, this list provides items allowing you to display one whole page at a time and fit the document to the page width. If the preview window will be resized later, the current zoom factor will also be changed in order to fit one page or the current page width, respectively.

Passing Parameter Values

Certain documents or reports allow you to control what data is to be displayed by specifying parameter values.

To show the **Parameters** panel, click the **Parameters**  button on the Print Preview's toolbar. This panel allows you to specify parameter values before document preview generation is started.

Enter the required values using the corresponding parameter editors and click **Submit**. After changing the current values, you can revert back the previously selected values by clicking **Reset**.



The screenshot illustrates the process of passing parameter values from a dialog box to a report. On the left, a 'Parameters' dialog box is open, containing two input fields: 'Order Id:' with the value '11077' and 'Max Rows per Page:' with the value '10'. Below these fields are two buttons: 'Reset' and 'Submit', with a cursor pointing over the 'Submit' button. On the right, a report titled 'Details of the customer order 11077' is displayed. The report has a header row and three data rows. The first row shows 'Cheng' as the product and 'Charlotte Cooper (Exotic Liquids, Purchasing Manager) - UK, London, EC1 4SD 49 Gilbert St.' as the supplier information. The second row shows 'Sir Rodney's Marmalade' as the product and 'Peter Wilson (Specialty Biscuits, Ltd., Sales Representative) - UK, Manchester, M14 GSD 29 King's Way' as the supplier information. The third row shows 'Queso Manchego La Pastor' as the product and 'Antonio del Valle Saavedra (Cooperativa de Quesos 'Les Cabras', Export Administrator) - Spain, Oviedo, 33007 Calle del Rosal,4' as the supplier information. The 'Unit Price' and 'Quantity' columns are also visible for each item.

Product	Supplier	Unit Price	Quantity
Cheng	Charlotte Cooper (Exotic Liquids, Purchasing Manager) - UK, London, EC1 4SD 49 Gilbert St.	\$19.00	24
Sir Rodney's Marmalade	Peter Wilson (Specialty Biscuits, Ltd., Sales Representative) - UK, Manchester, M14 GSD 29 King's Way	\$81.00	1
Queso Manchego La Pastor	Antonio del Valle Saavedra (Cooperativa de Quesos 'Les Cabras', Export Administrator) - Spain, Oviedo, 33007 Calle del Rosal,4	\$38.00	2

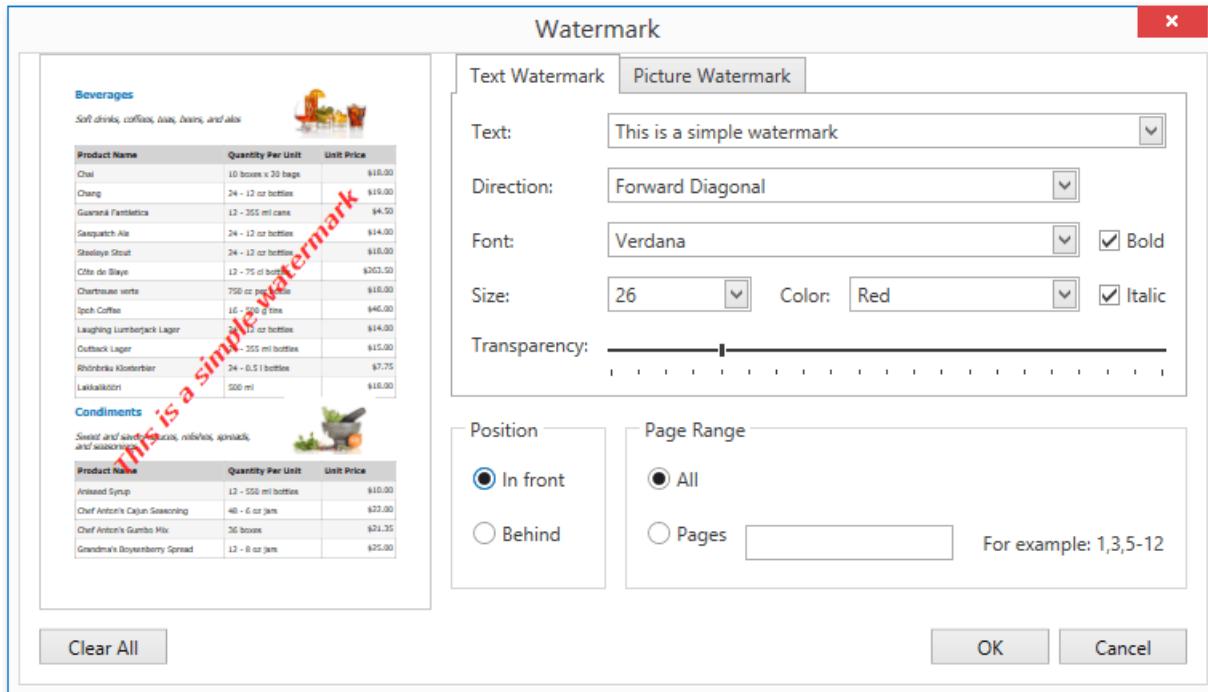
Changing a Watermark

With the Print Preview, you can add a text watermark in a document, or turn a picture into a document's background. It is also possible to use both textual and image watermarks simultaneously.

To invoke the **Watermark** dialog, click the **Watermark**  button on the toolbar.

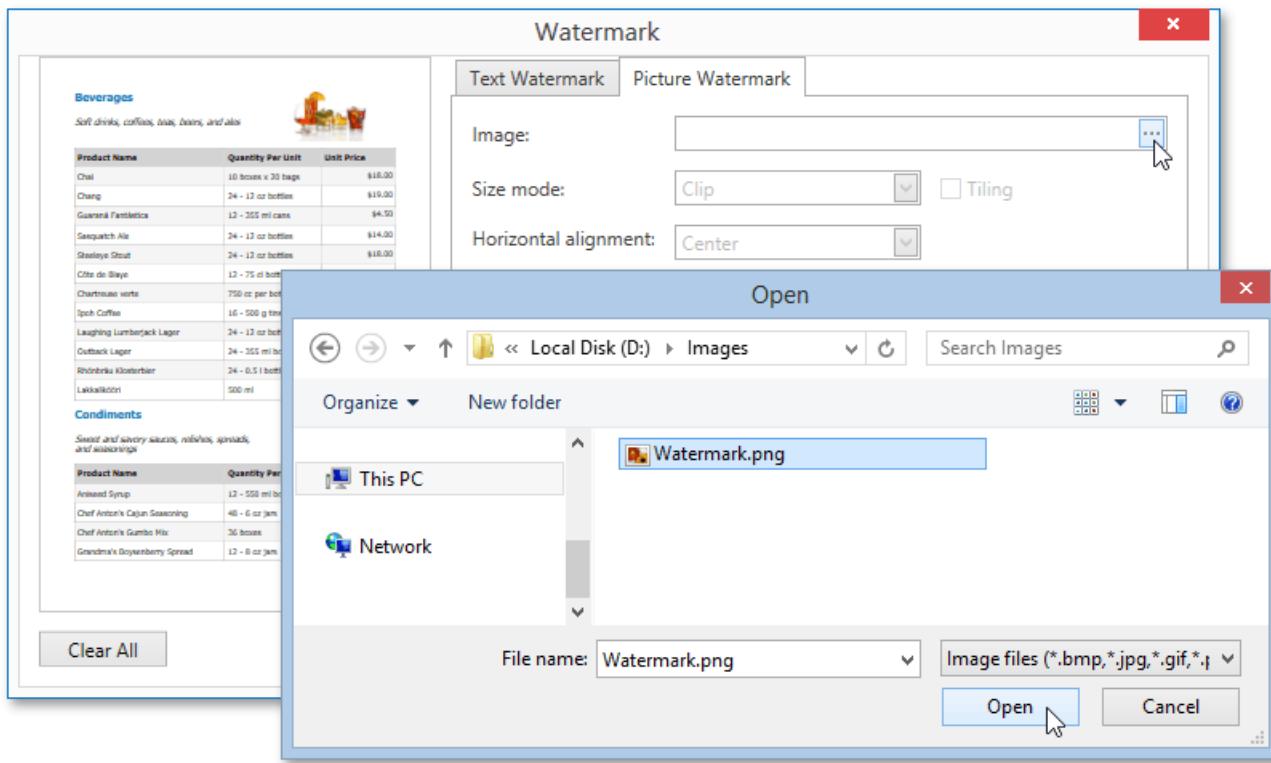
Adding a Text Watermark

To add a text watermark, open the **Text Watermark** tab. Input the required watermark's text or choose one of the provided options in the **Text** drop-down list. Then, define other text properties, such as direction, color, font, size, transparency, etc.



Adding an Image Watermark

To add a picture watermark, switch to the **Picture Watermark** tab. To load the image to be used as a watermark, click the ellipsis button for the **Image** property. In the invoked dialog, select the file containing the image that you wish to load and click **Open**.



Then, you can specify the picture's properties, such as the size mode, alignment, transparency, etc.

Specifying Watermark Properties

At the bottom of the **Watermark** dialog, you can select a watermark position behind or in front of the document, and specify the page range in which the watermark will be printed.

These settings are in effect both for text and image watermarks.

Removing a Watermark

To remove watermarks from a document, click **Clear All** in the **Watermark** dialog. Then, click **OK** to save changes and close the dialog.

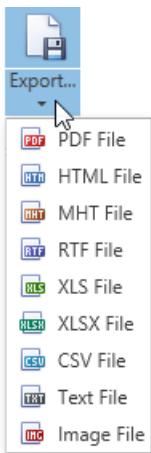
Exporting

There are two options available for exporting a document to one of the supported third-party formats.

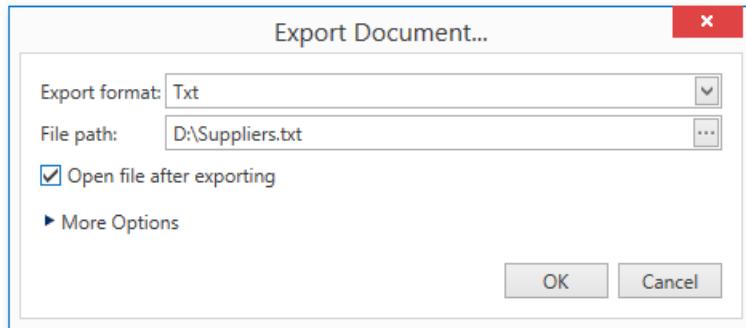
- [Export Document to a File on Disk](#)
- [Send Exported File Using E-Mail](#)

Export Document to a File on Disk

To export a document and save the resulting file on your hard drive, click the arrow for the **Export...** button and select the required format from the list.



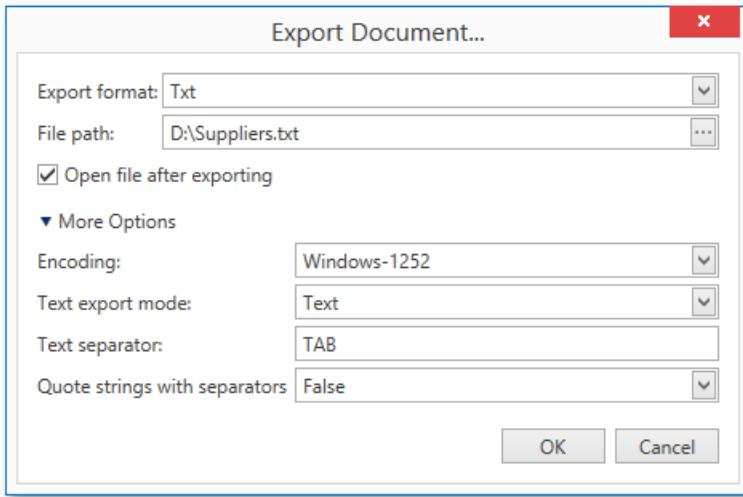
This invokes the **Export Document...** dialog with options for the selected format.



If you simply click the **Export...** button, the dialog will provide settings for the PDF format. Then, you can always change the export format directly in the dialog using the dedicated **Export format** drop-down list.

In the **Export Document...** dialog, you should specify the path where the resulting file should be saved and choose whether or not to open the file after exporting.

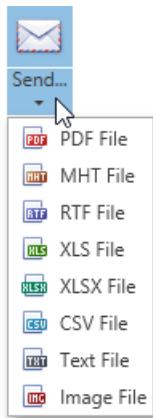
To access and customize advanced export options for the selected format, click the **More Options** link.



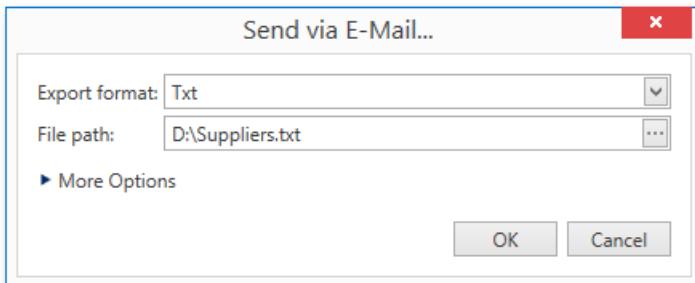
Specify the required format-specific options and click **OK** to initiate export of a report and save the resulting file.

Send Exported File Using E-Mail

To export a document and send the resulting file using e-mail, click the arrow for the **Send...** button and select one of the supported formats.



This invokes the **Send via E-Mail...** dialog with options for the selected format.



If you simply click the **Send...** button, the dialog will provide settings for the PDF format. Then, you can always change the export format directly in the dialog using the dedicated **Export Format** drop-down list.

In the **Send via E-Mail...** dialog, you should specify the path where the resulting file should be saved. The dialog also allows you to specify advanced export options for the selected format. To access and customize these format-specific options, click the **More Options** link.

Specify the required options and click **OK** to initiate export of a report and save the resulting file. The saved file will be then attached to a new empty message in the default mail program.

Copying to the Clipboard

Besides [exporting a document](#) to a third-party formatted file, you can copy a portion of the document content to the clipboard, and paste it into an editor compatible with one of the supported third-party formats.

To copy document content to the clipboard, do the following.

1. Select the content of the previewed document by holding down the left mouse button and dragging the mouse pointer. The selected document elements are highlighted.

The screenshot shows a report titled "Beverages" with the subtitle "Soft drinks, coffees, teas, beers, and ales". Below the subtitle is a decorative graphic of several glasses filled with different beverages. A table follows, with the first row serving as the header. The entire table is highlighted with a blue selection box, indicating it has been selected for copying.

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

2. To copy the selected content, press CTRL+C or right-click anywhere within the highlighted area of the document, and select **Copy** in the context menu.

The screenshot shows the same report with a context menu open over the selected table. The menu items are: "Hand Tool", "Select Tool", and "Copy Ctrl+C". The "Copy Ctrl+C" option is highlighted with a blue selection box, indicating it is the chosen action.

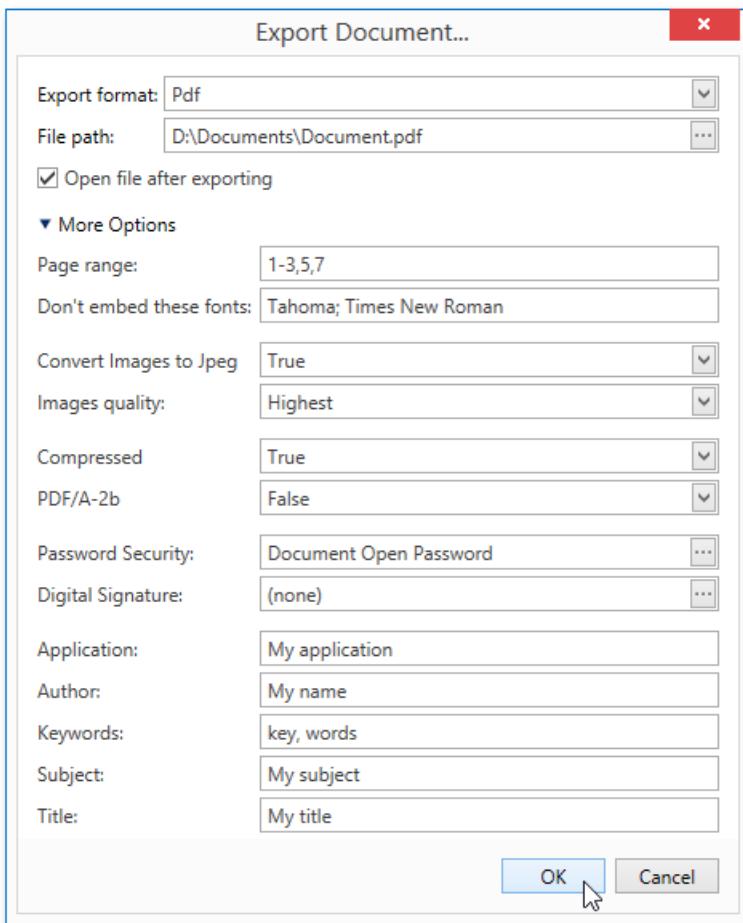
Beverages
Soft drinks, coffees, teas, beers, and ales

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

When pasted to a third-party editor from the clipboard, the report content will automatically be converted to the target format.

PDF-Specific Export Options

When [exporting a document](#), you can define the following PDF-specific export options.



General Options

- **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.

- **Don't embed these fonts**

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

- **Convert Images to Jpeg**

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

- **Images quality**

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

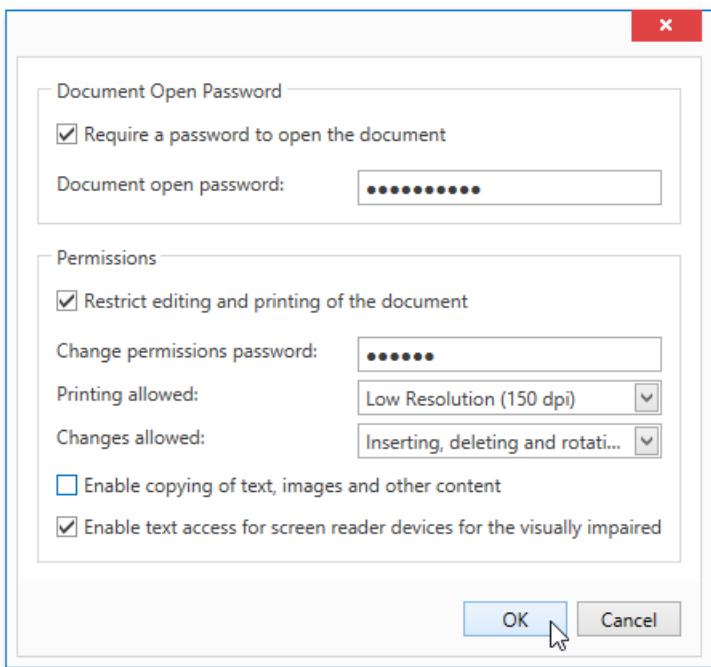
- **Compressed**

Specifies whether the resulting file should be compressed.

- **PDF/A-2b**

Specifies whether to enable document compatibility with the **PDF/A-2b** specification.

Password Security Options



These options allow you to adjust the security options of the resulting PDF file (e.g. enable open document, editing, printing and copying protection, and specify what changes are allowed).

Signature Options

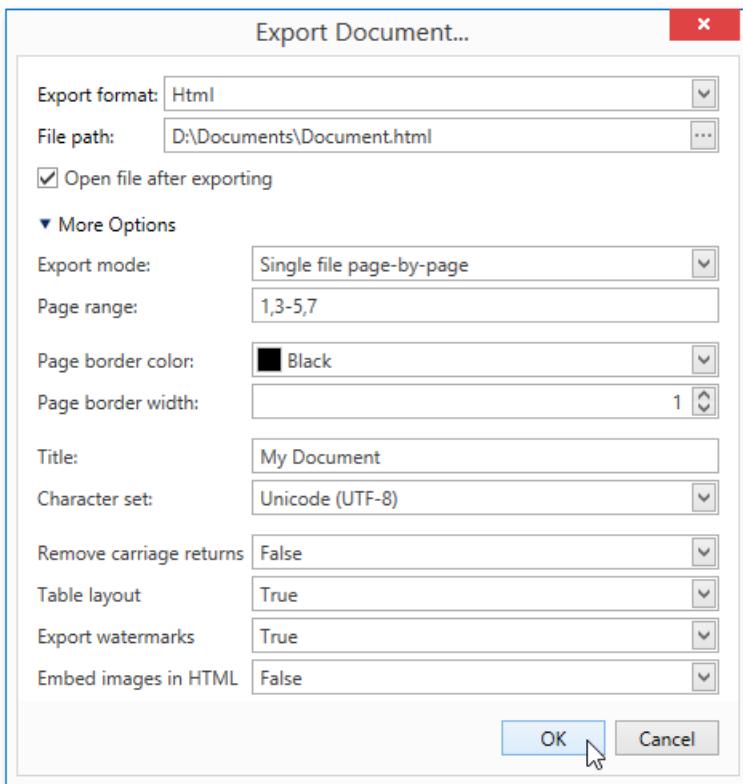
If an X.509 certificate is applied to your report, you can maintain its options using the **Signature Options** property of the report **PDF Export Options**.

Additional Options

You can also fill the **Application**, **Author**, **Keywords**, **Subject**, and **Title** fields. These options specify the **Document Properties** of the created PDF file.

HTML-Specific Export Options

When [exporting a document](#), you can define the following HTML-specific export options.



- **Export Mode**

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

- The **Single file** mode allows export of a document to a single file, without preserving the page-by-page breakdown.
- The **Single file page-by-page** mode allows export of a document to a single file, while preserving page-by-page breakdown. In this mode, the **Page range**, **Page border color** and **Page border width** options are available.
- The **Different files** mode allows export of a document to multiple files, one for each document page. In this mode, the **Page range**, **Page border color** and **Page border width** 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.

- **Page border color**

Specifies the color of page borders from the available palettes.

- **Page border width**

Specifies the width (in pixels) of page borders.

- **Title**

Specifies the title of the created document.

- **Character set**

Specifies the character set for the HTML document.

- **Remove carriage returns**

Specifies whether to remove carriage returns.

- **Table layout**

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

- **Export watermarks**

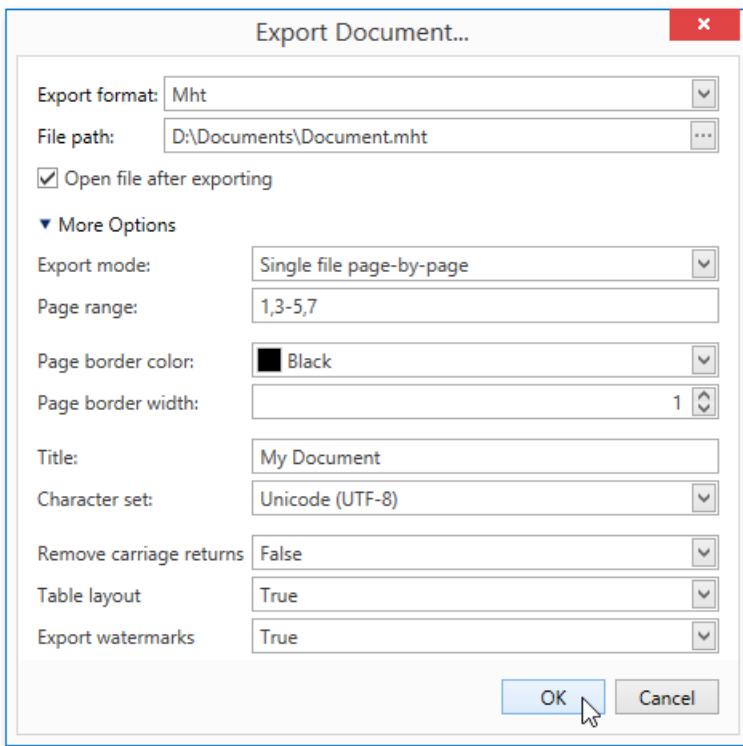
Specifies whether to export watermarks to HTML along with the remaining document content.

- **Embed images in HTML**

Specifies whether to embed images in HTML content.

MHT-Specific Export Options

When [exporting a document](#), you can define the following MHT-specific export options.



• Export mode

Specifies how a document is exported to MHT. 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**, **Page border color** and **Page border width** options are available.
- The **Different files** mode allows export of a document to multiple files, one for each document page. In this mode, the **Page range**, **Page border color** and **Page border width** 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.

• Page border color

Specifies the color of page borders from the available palettes.

• Page border width

Specifies the width (in pixels) of page borders.

• Title

Specifies the title of the created document.

• Character set

Specifies the character set for the HTML document.

• Remove carriage returns

Specifies whether to remove carriage returns.

- **Table layout**

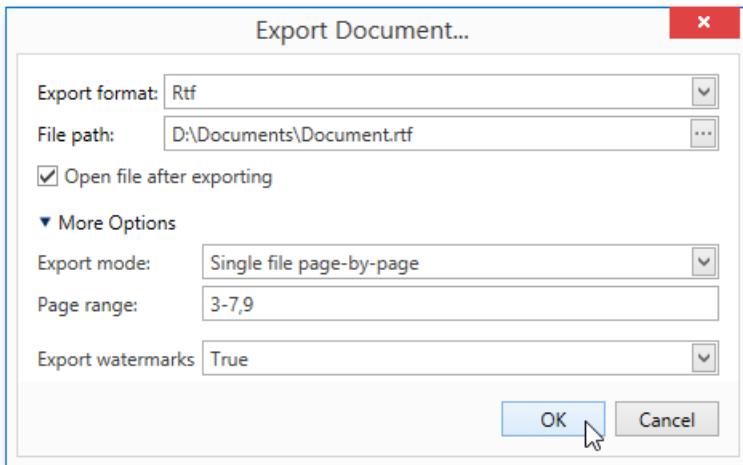
Specifies whether to use table or non-table layout in the resulting document.

- **Export watermarks**

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

RTF-Specific Export Options

When [exporting a document](#), you can define the following RTF-specific exporting options.



- **Export mode**

Specifies how a document is exported to RTF. 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**

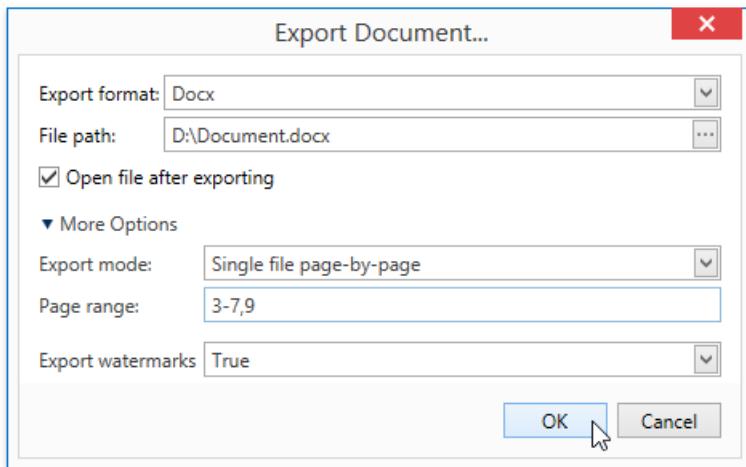
Specifies a range of pages which will be included in the resulting file. To separate page numbers, use commas. To set page ranges, use hyphens.

- **Export watermarks**

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

DOCX-Specific Export Options

When [exporting a document](#), you can define DOCX-specific export options using the following dialog:



- **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**

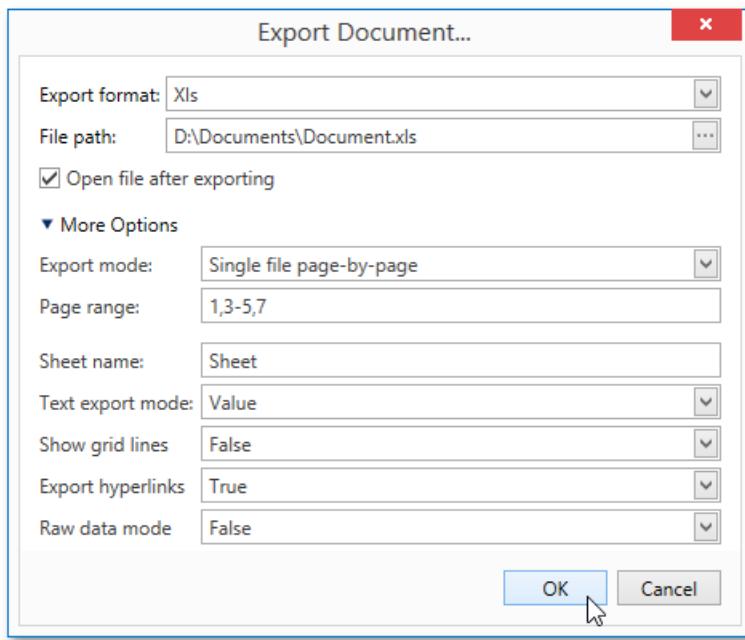
Specifies a range of pages which will be included in the resulting file. Use commas to separate page numbers. Use hyphens to set page ranges.

- **Export watermarks**

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

XLS-Specific Export Options

When [exporting a document](#), you can define the following XLS-specific exporting options.



- **Export mode**

Specifies how a document is exported to XLS. 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.
- The **Different files** mode allows export of a document to multiple files, one for each document page. In this mode, the **Page range** option is 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.

- **Sheet name**

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

- **Text export mode**

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

- **Show grid lines**

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

- **Export hyperlinks**

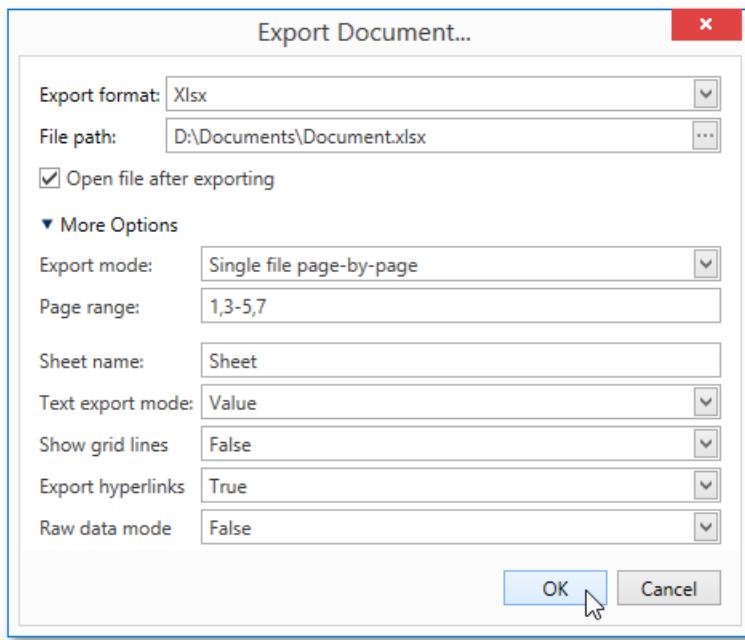
Specifies whether hyperlinks should be exported to the XLS document.

- **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.

XLSX-Specific Export Options

When [exporting a document](#), you can define the following XLSX-specific exporting options.



- **Export mode**

Specifies how a document is exported to XLSX. 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.
- The **Different files** mode allows export of a document to multiple files, one for each document page. In this mode, the **Page range** option is 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.

- **Sheet name**

Specifies the name of the sheet in the created 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.

- **Show grid lines**

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

- **Export hyperlinks**

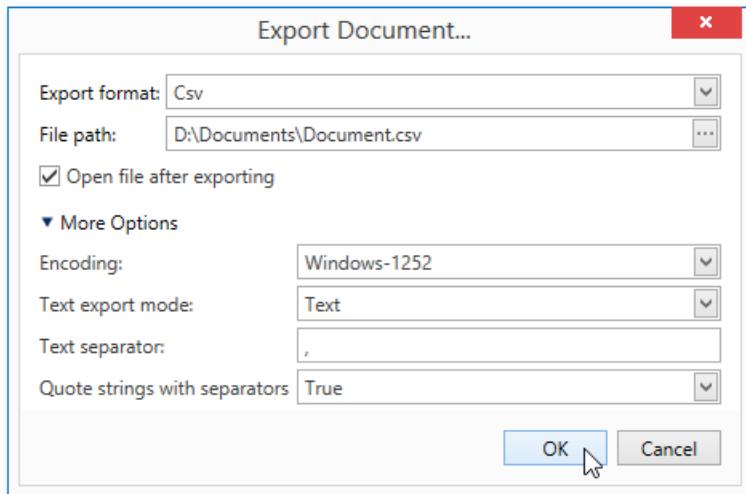
Specifies whether to include hyperlinks into the resulting file.

- **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.

CSV-Specific Export Options

When [exporting a document](#), you can define the following CSV-specific exporting options.



- **Encoding**

Specifies the encoding used in the exported document.

- **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.

- **Text separator**

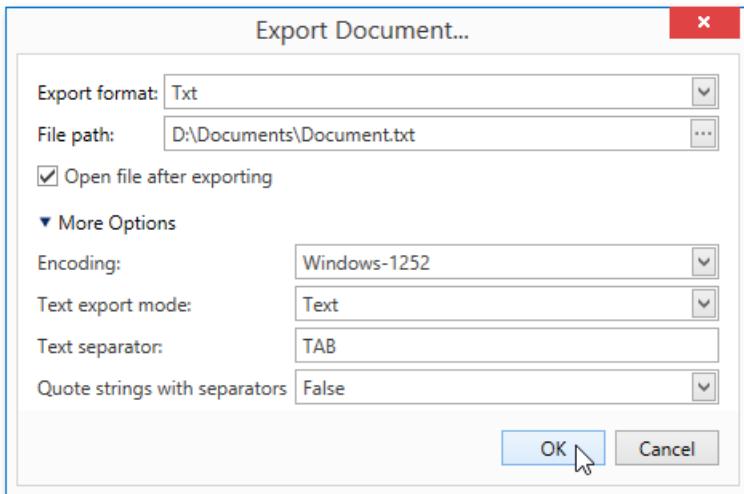
Specifies a symbol used to separate text elements (comma by default).

- **Quote strings with separators**

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

Text-Specific Export Options

When [exporting a document](#), you can define the following TXT-specific exporting options.



- **Encoding**

Specifies the encoding used in the exported document.

- **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.

- **Text separator**

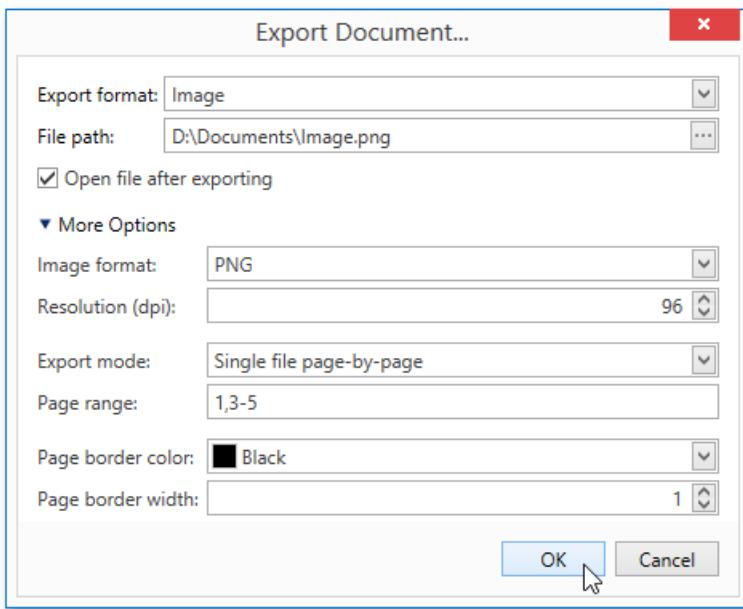
Specifies a symbol to separate text elements (TAB by default).

- **Quote strings with separators**

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

Image-Specific Export Options

When [exporting a document](#), you can define the following Image-specific exporting options.



- **Image format**

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

- **Resolution (dpi)**

Specifies the required image resolution (in dpi).

- **Export mode**

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

- The **Single file** mode allows export of a document to a single file, without dividing the output 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**, **Page border color** and **Page border width** options are available.
- The **Different files** mode allows export of a document to multiple files, one for each document page. In this mode, the **Page range**, **Page border color** and **Page border width** 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.

- **Page border color**

Specifies the color of page borders.

- **Page border width**

Specifies the width (in pixels) of page borders.

Report Designer

This documentation section contains information about the basic principles of creating reports with Report Designers.

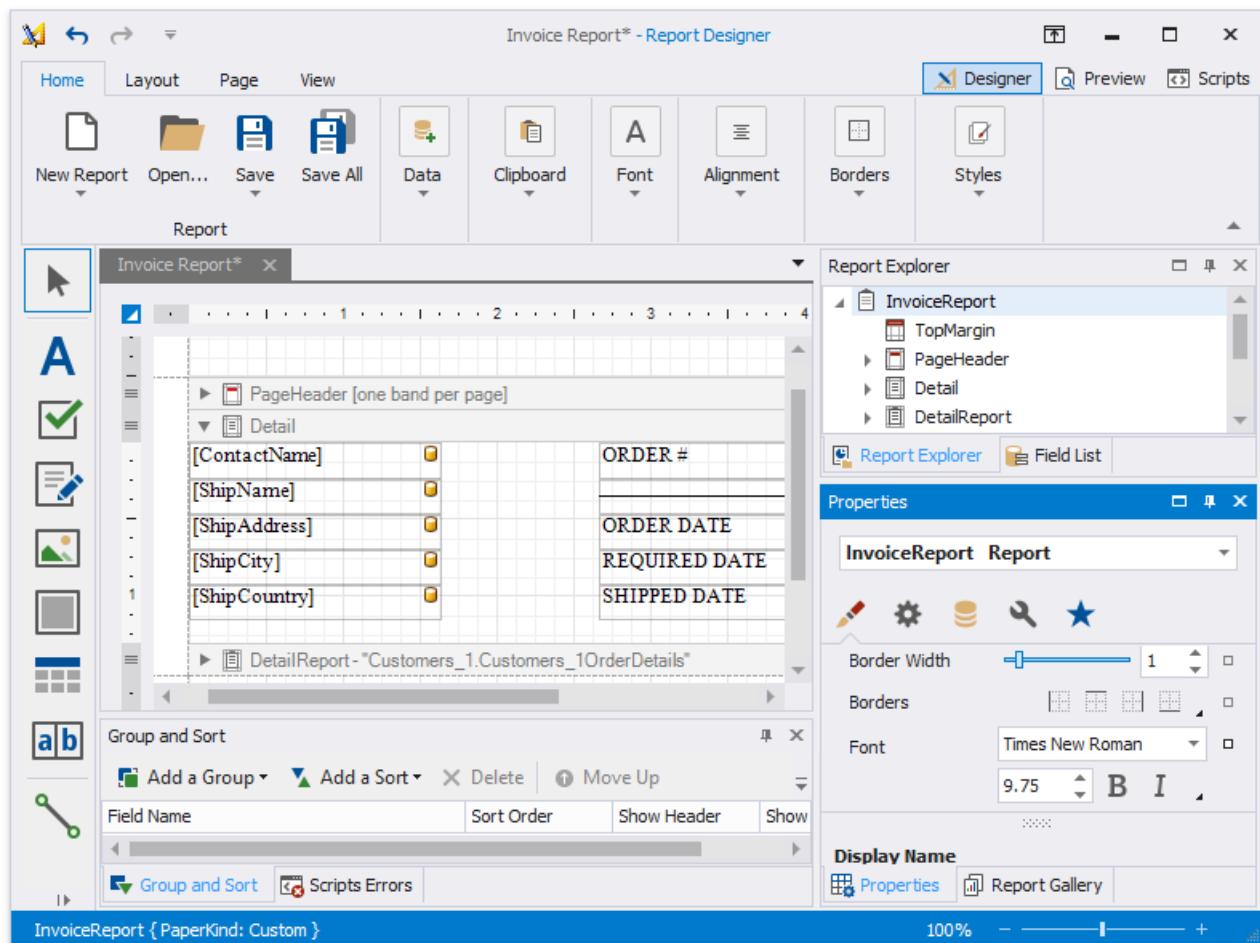
The Report Designer user interface may vary depending on your application platform.

The following topics are available in this section.

- [Report Designer for WinForms](#)
- [Report Designer for WPF](#)

Report Designer for WinForms

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

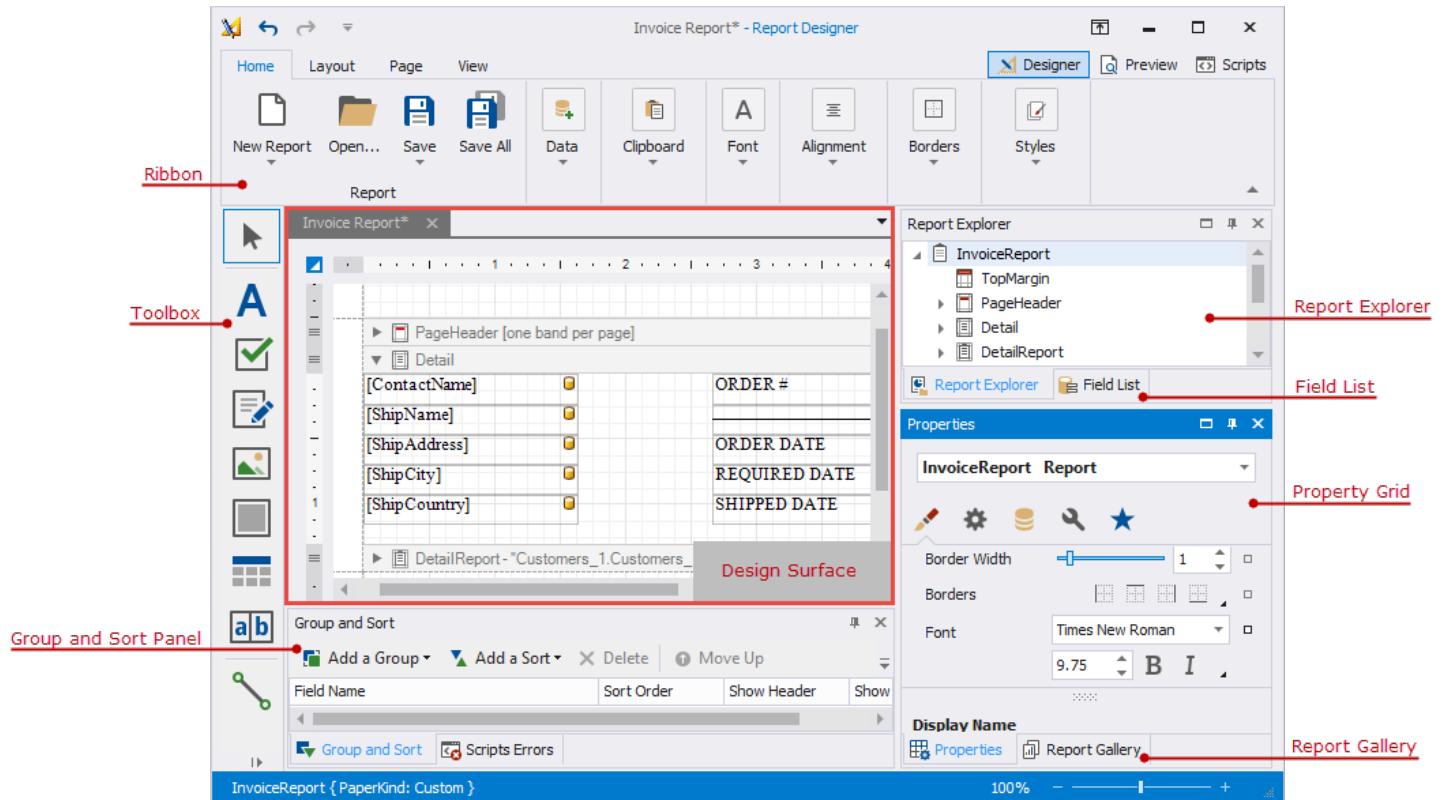


- [First Look at the Report Designer](#)
- [Add New Reports](#)
- [Open Reports](#)
- [Save Reports](#)
- [Introduction to Banded Reports](#)
- [Bind to Data](#)
- [Create Reports](#)
- [Configure Design Settings](#)
- [Use Report Elements](#)
- [Shape Report Data](#)
- [Lay out Dynamic Report Content](#)
- [Customize Appearance](#)
- [Add Navigation](#)
- [Provide Interactivity](#)
- [Add Extra Information](#)
- [Use Expressions](#)
- [Use Report Scripts](#)
- [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.

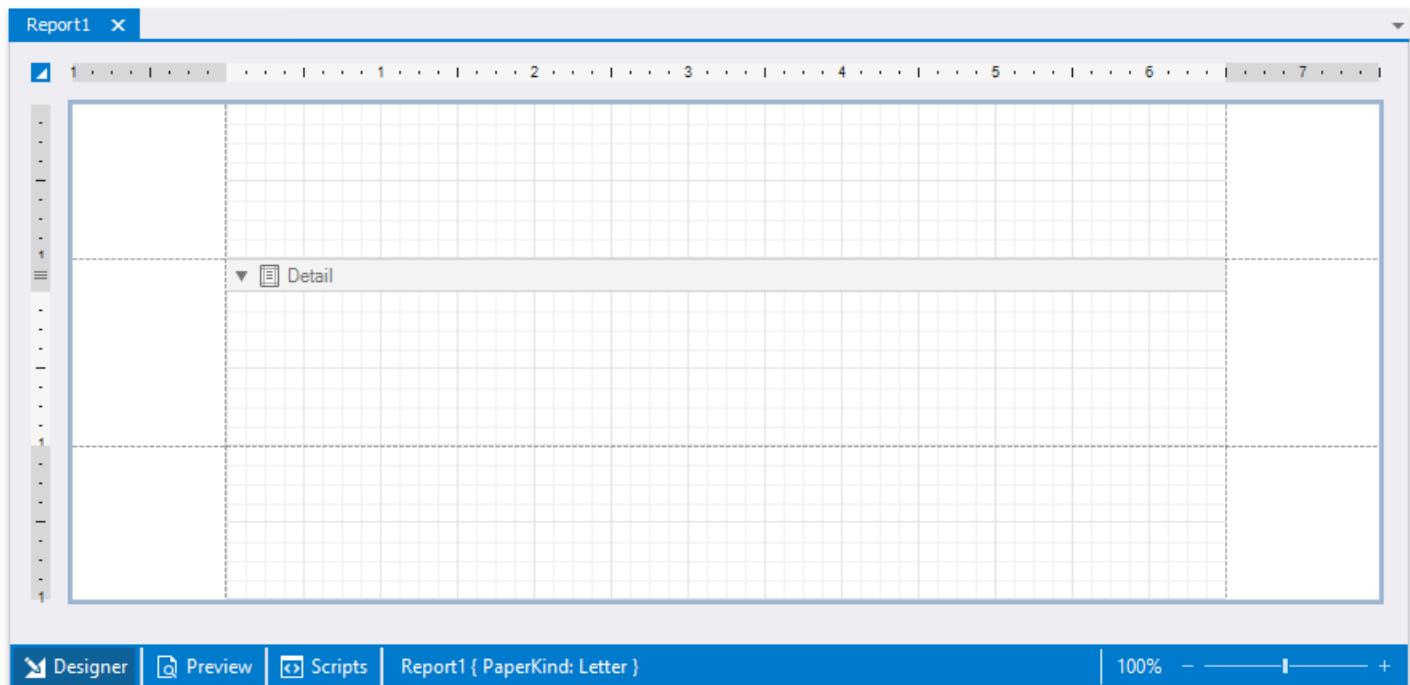
First Look at the Report Designer



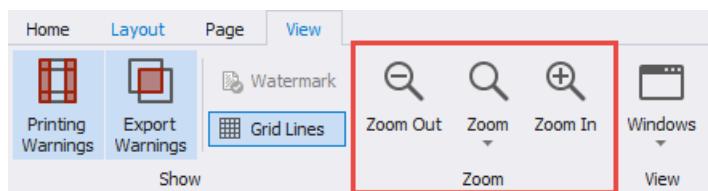
The **design surface** displays a report's structure and contents. You can use the tools on the Report Designer's panels to design the report:

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

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



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



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

A screenshot of the Report Designer showing the 'Preview' tab selected. The interface has two main panes: a top-level ribbon and a detailed preview pane below. The top ribbon has tabs for 'Home', 'Layout', 'Page', and 'View'. The 'Preview' tab is highlighted with a red box. The detailed preview pane shows a report titled 'Employees' with a table of employee data. The table has columns for 'Last Name', 'First Name', and 'Address'. The data includes rows for Davolio, Fuller, Leverling, Peacock, and Buchanan. At the bottom of the preview pane, there's a status bar with 'Page 1 of 1' and a zoom control panel with a '100%' label and plus/minus buttons.

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

Add New Reports

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

TIP

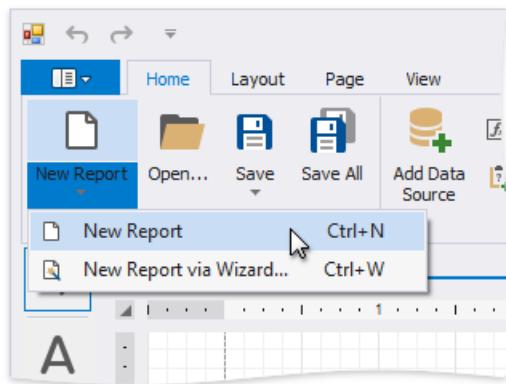
Before you start, make sure to [back up the current report](#).

Create a New Blank Report

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

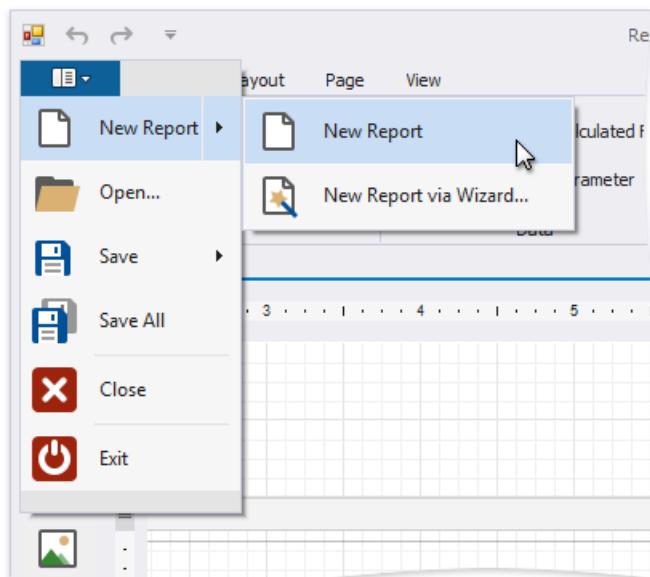
Use the Ribbon's Home Tab

Click **New Report**.



Use the Ribbon Application Menu

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



Use a Shortcut

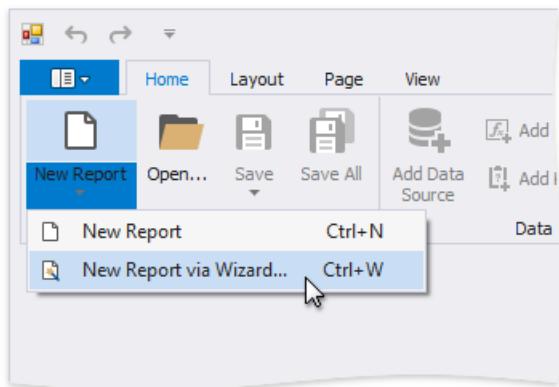
You can also use the CTRL+N shortcut to create a new report.

Create a New Report Using the Report Wizard

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

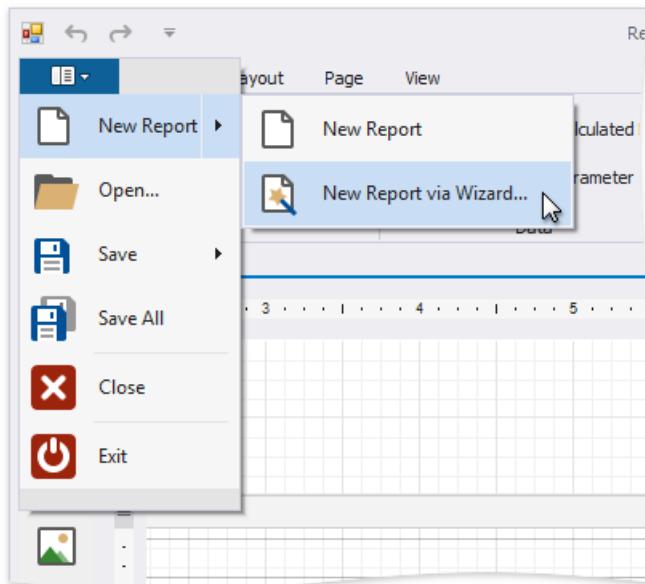
Use the Ribbon's Home Tab

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



Use the Ribbon Application Menu

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



Use a Shortcut

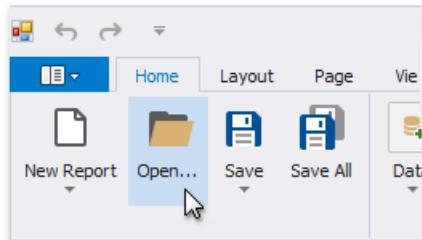
You can also use the CTRL+W shortcut to run the [Report Wizard](#).

Open Reports

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

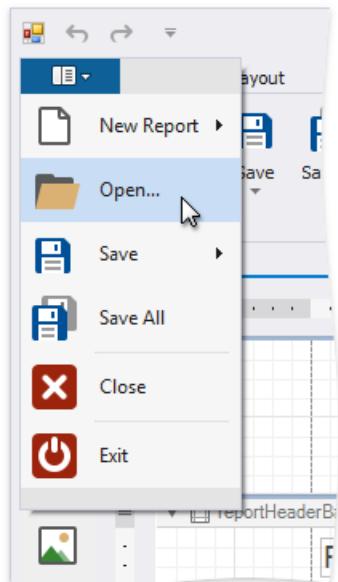
Use the Ribbon Application Menu

Click **Open...**



Use the Ribbon Application Menu

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



Use a Shortcut

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

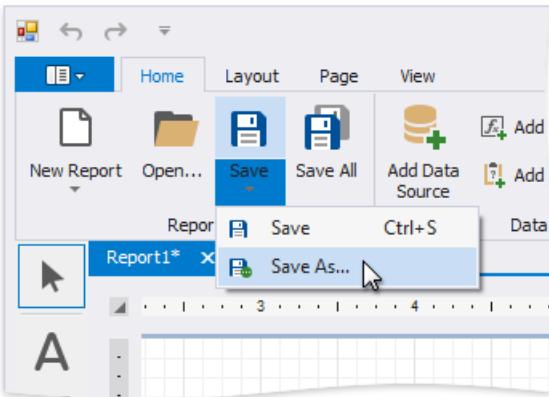
Save Reports

Reports are saved as a file with an REPX extension. This file stores information about the report layout.

You can use one of the following commands to save reports:

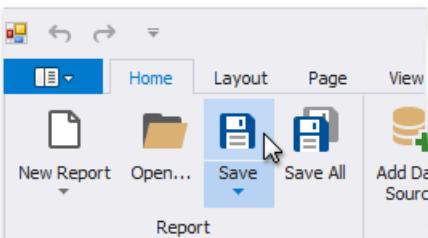
Use the Ribbon's Home Tab

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



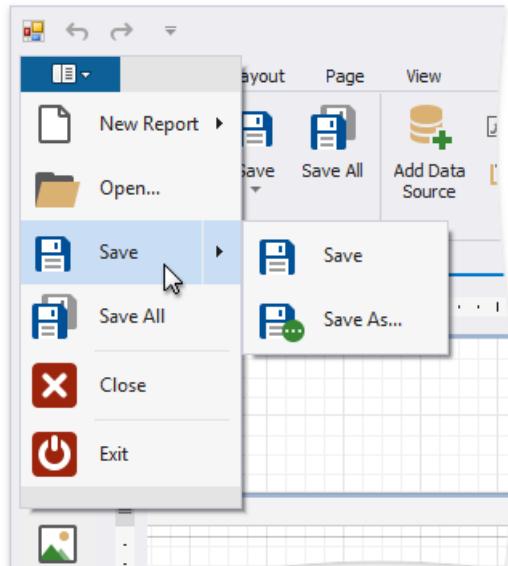
Specify the folder and file name in the invoked **Save As** dialog.

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



Use the Ribbon Application Menu

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



Introduction to Banded Reports

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

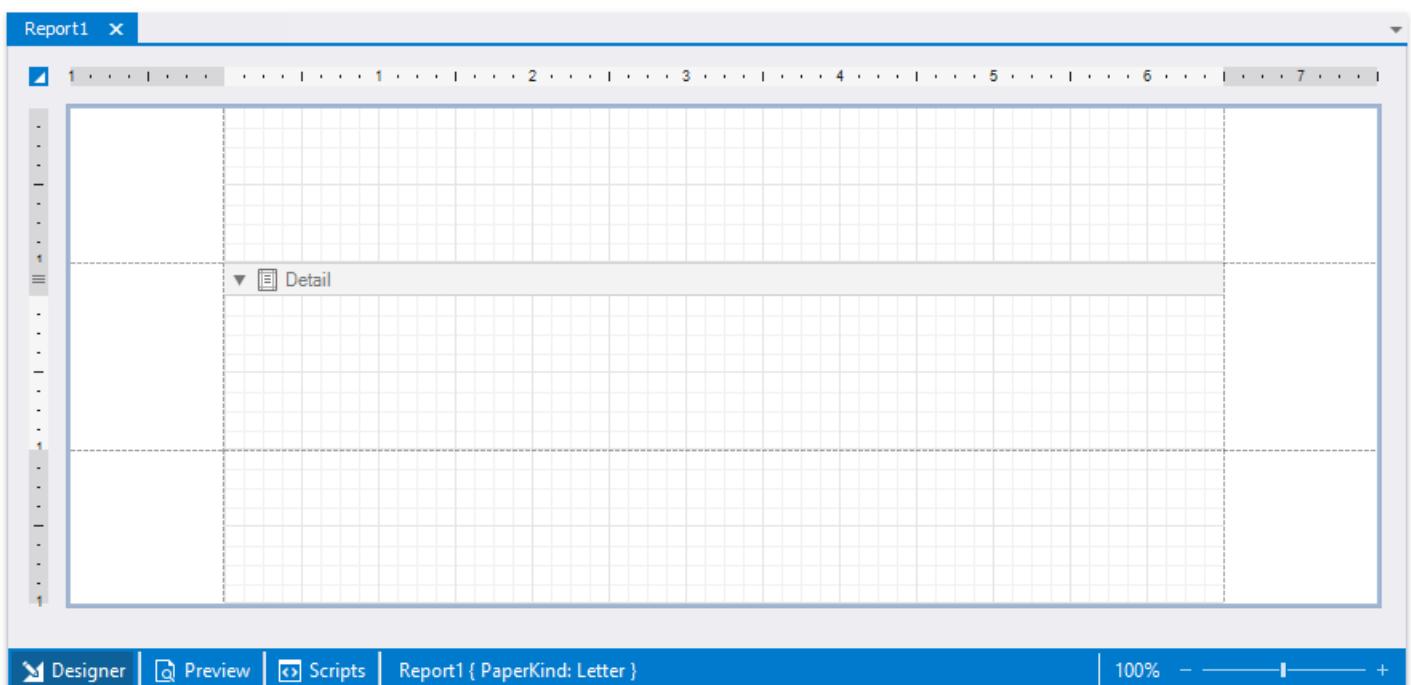
Report Bands

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

- The **Detail Band** is printed for every record in a data source unless you filtered the data.

Every report should have a detail band, and you cannot delete it.

- The **Top Margin** and **Bottom Margin** bands. These bands are repeated once on every document page.



You can also add the following bands:

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

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

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

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

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

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

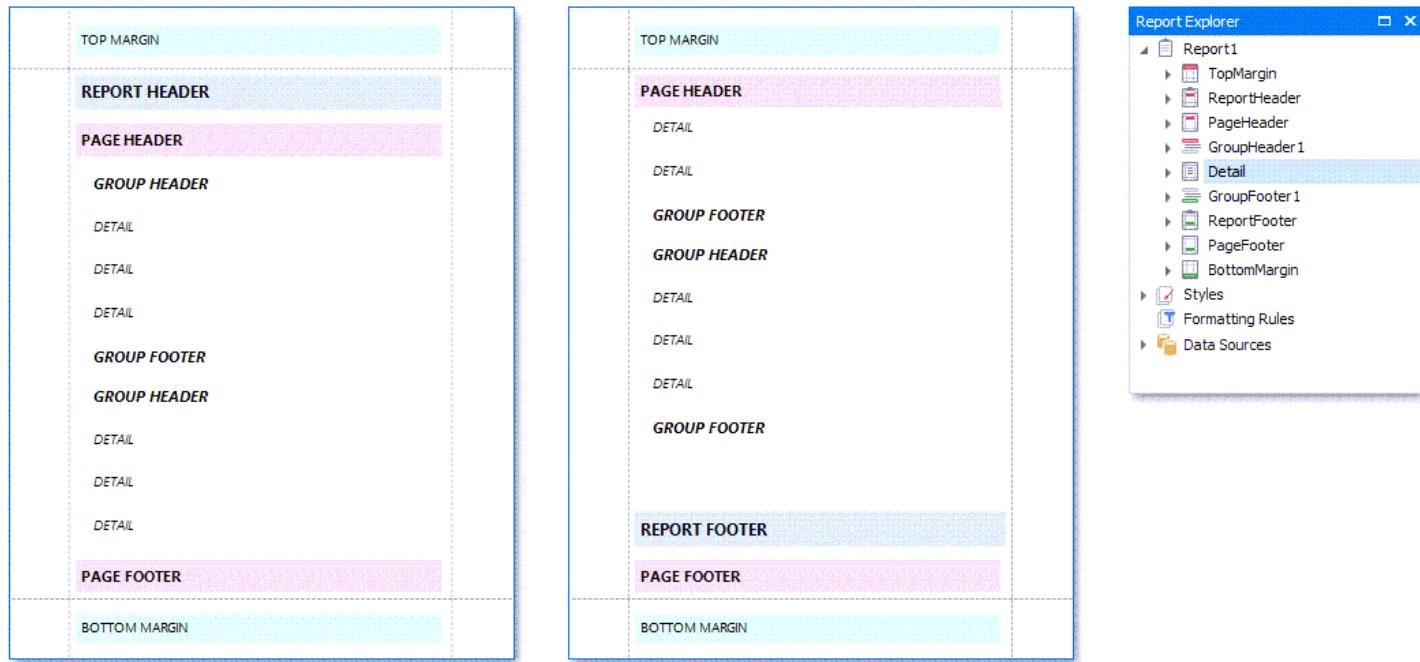
These bands are above and below each [group](#). The [Group and Sort Panel](#) create these bands automatically.

TIP

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

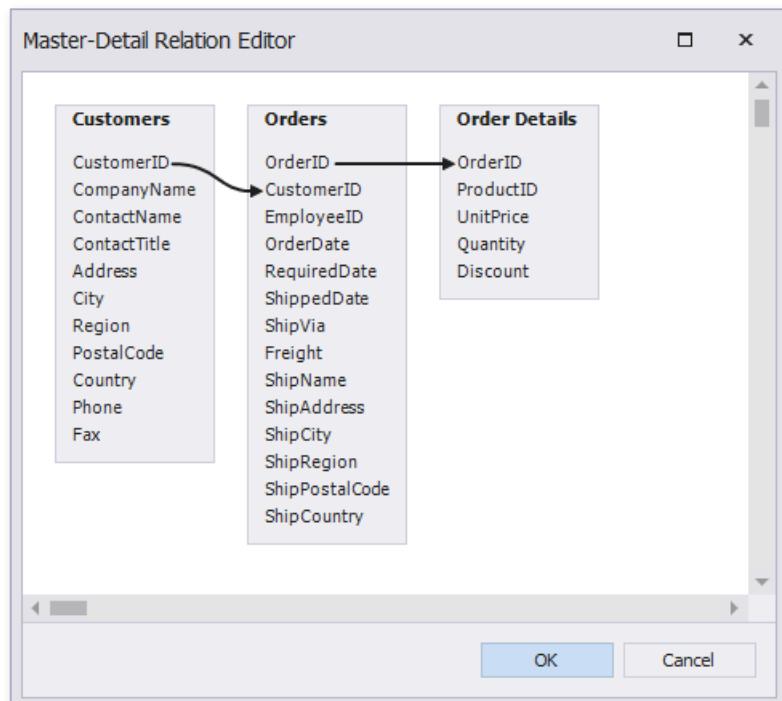
information.

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



Add a Detail Band to a Master-Detail Band

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



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

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

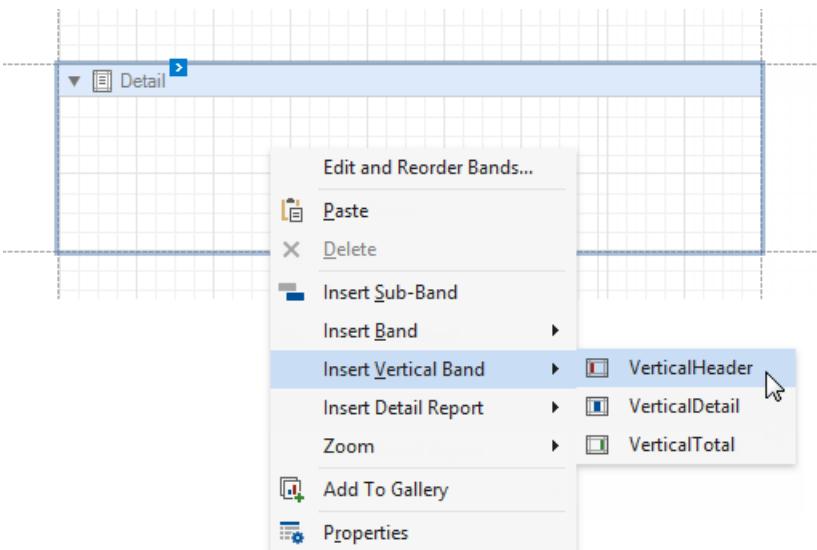


Vertical Bands

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

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

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



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 vertically.

- **Vertical Details**

This band is printed for every record in a data source unless you filtered the data. The records are displayed one after another in a horizontal direction.

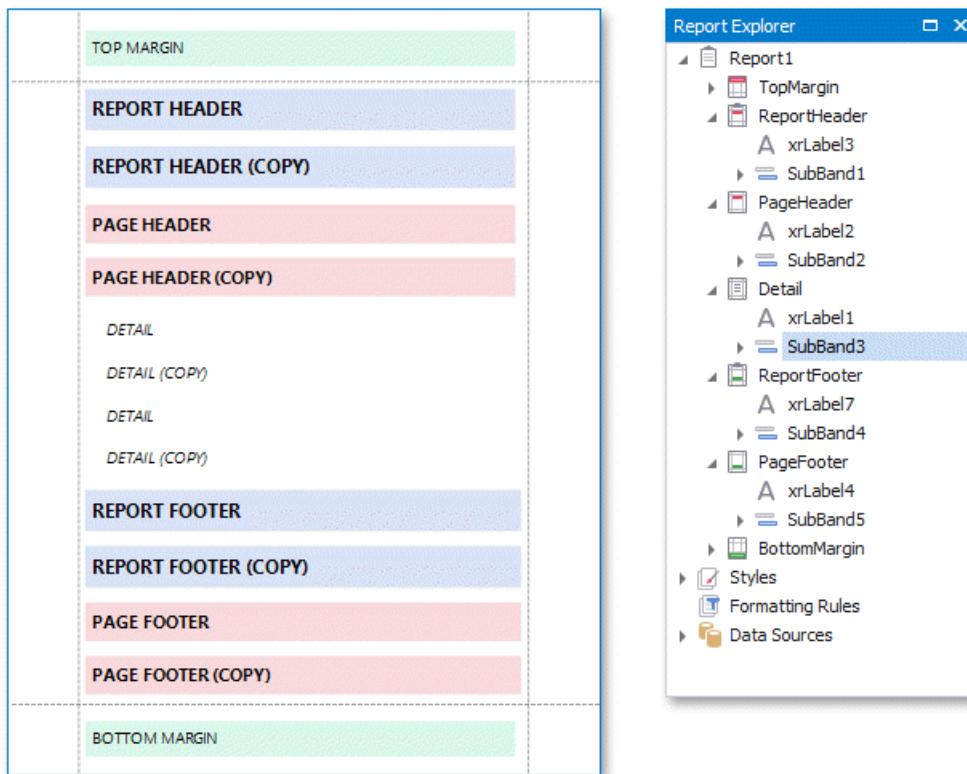
- **Vertical Total**

This band is placed at the rightmost position (leftmost when RTL is enabled). You can use the Vertical Total band for report [summaries](#) or conclusions.

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

Create Band Copies

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



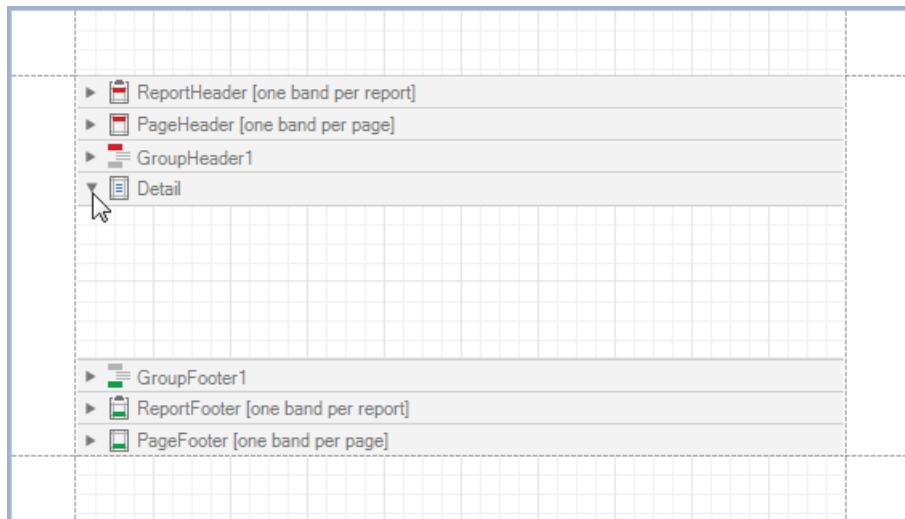
Tip

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

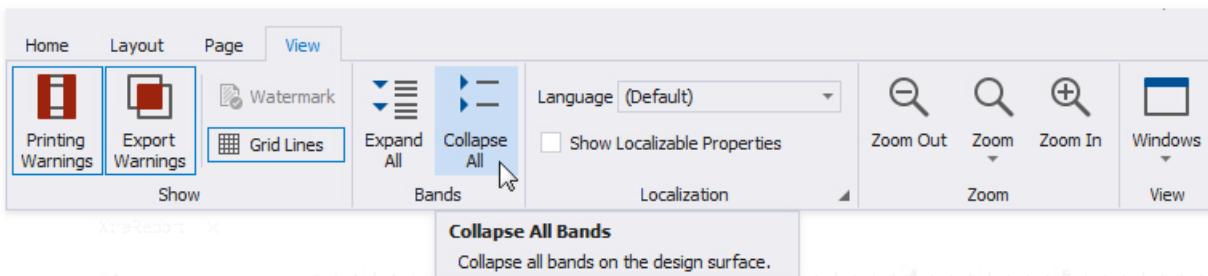
Manage Report Bands

Expand or Collapse Bands in the Report Designer

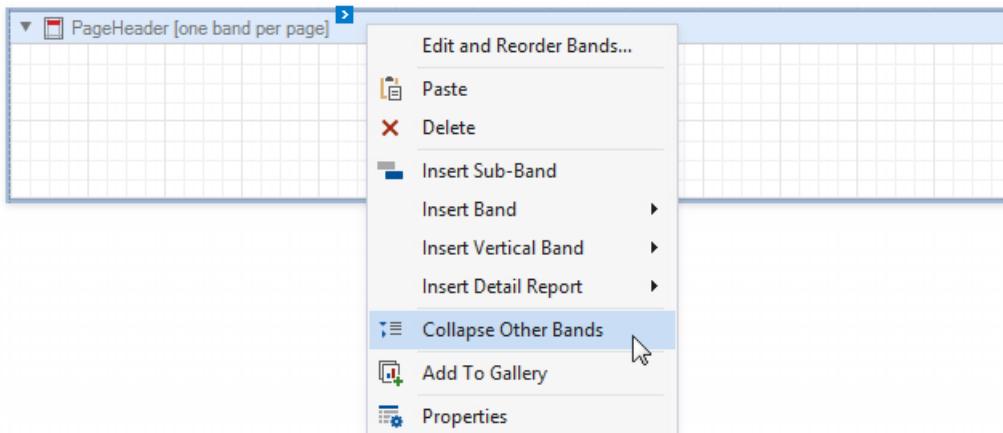
Click the arrow button on a band's title to collapse or expand that band.



Click **Collapse All** on the [Toolbar's View Tab](#) to collapse all bands in a report. Click **Expand All** to expand all report bands.

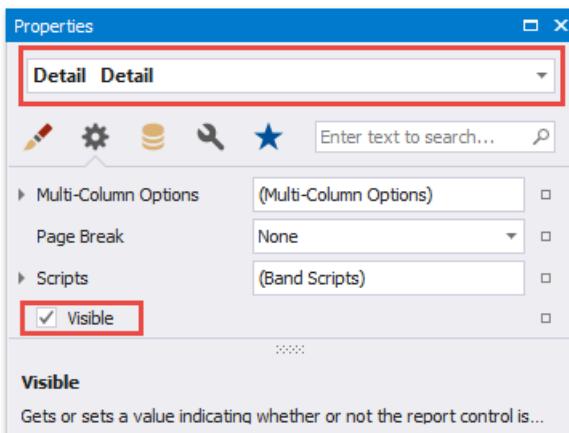


Right-click a band and select **Collapse Other Bands** from the context menu to collapse all bands except the clicked band.



Hide Bands in the Report Document

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

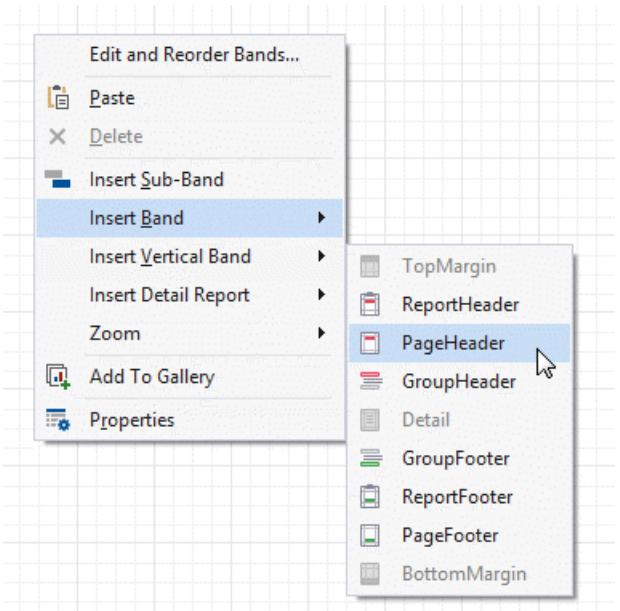


Remove Bands

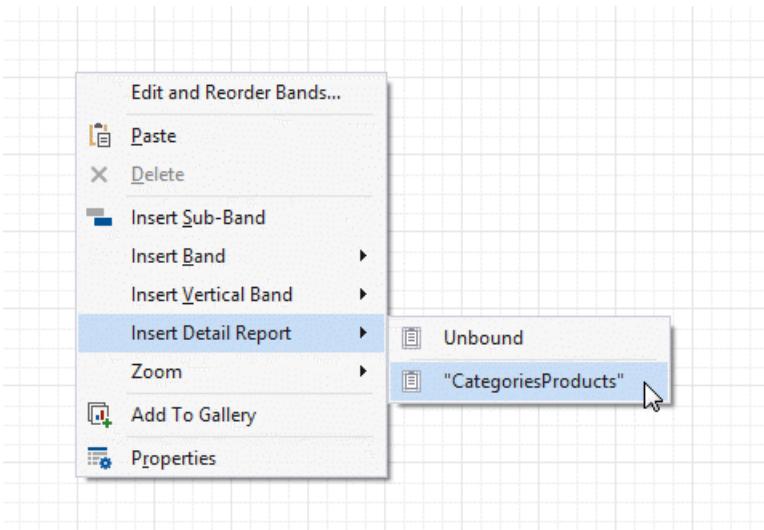
Select a band on the report design surface and press **DELETE**. This removes the band and all its content.

Add Bands

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

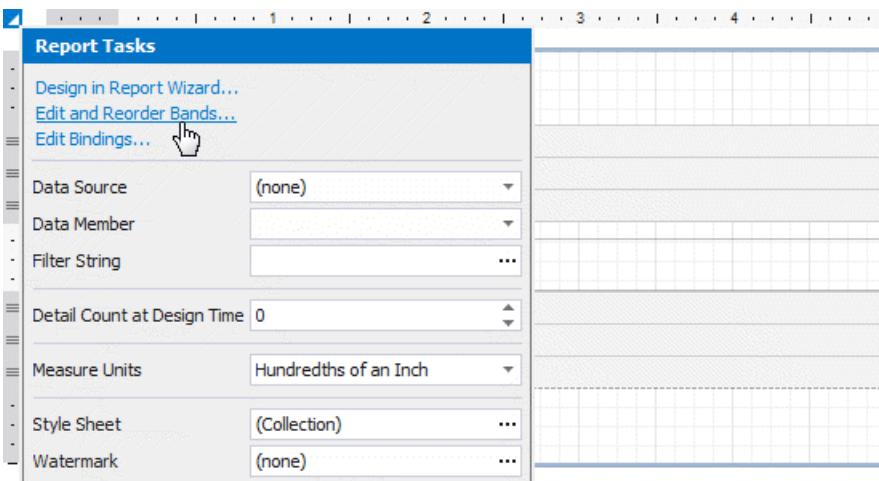


You can insert a detail report band if the report's data source has [master-detail relations](#).

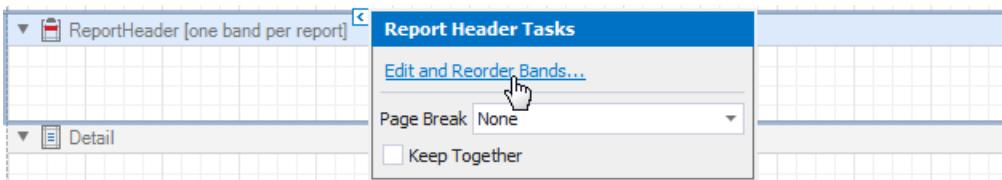


Access the Bands Collection

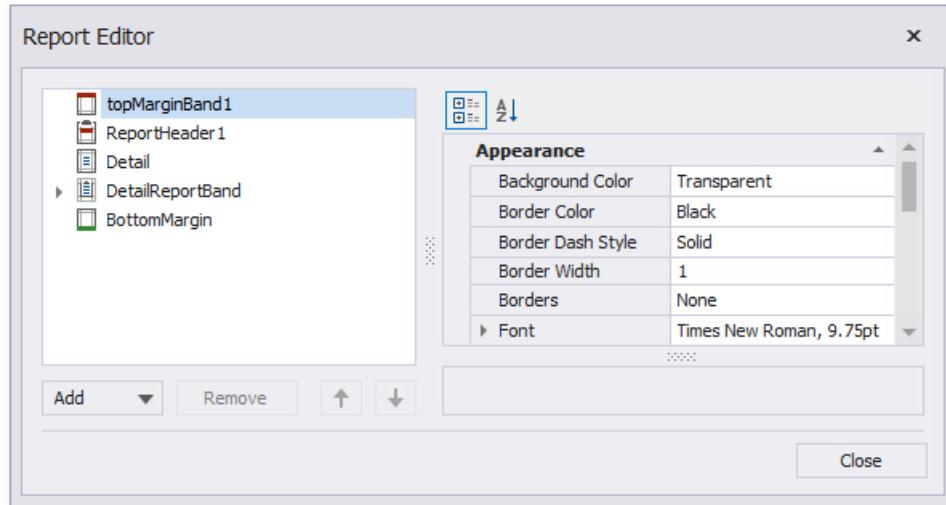
Click the **Edit and Reorder Bands** context link in a report's smart tag to access the report's bands collection.



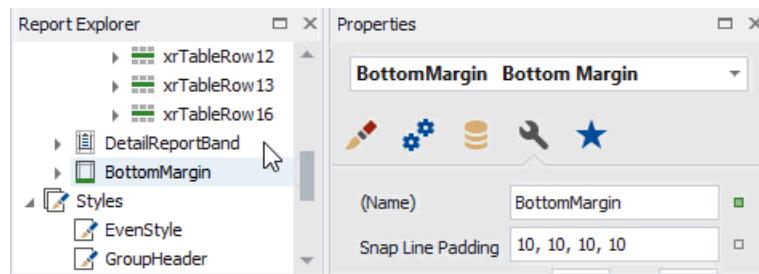
This command is also available in a band's context and smart tag menus.



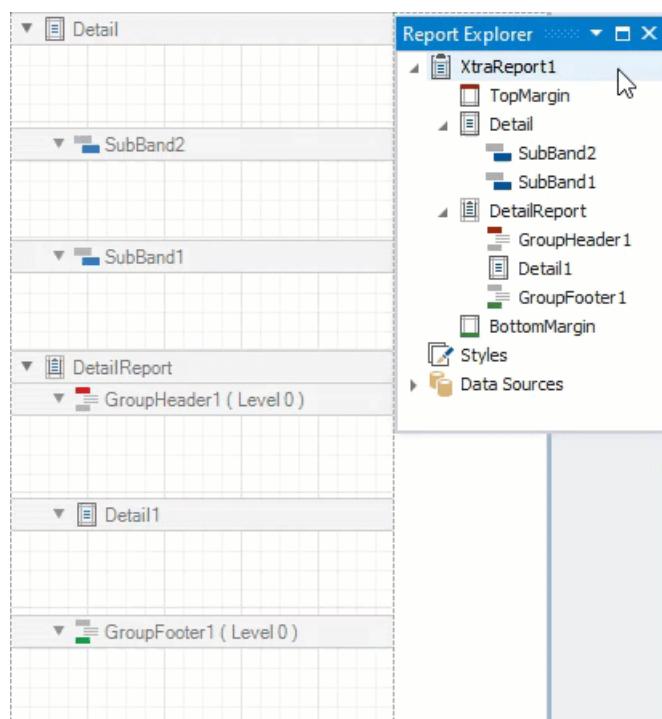
The invoked editor allows you to reorder bands and change their properties.



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



Drag a band to change its order or move inside/outside of another band. The drop targets are highlighted when you drag a band over them.



You can drag bands to the following targets:

DRAGGED BAND	DROP TARGETS
SubBand	All bands except TopMargin and BottomMargin
GroupHeader, GroupFooter	XtraReport (root node), DetailReport
DetailReport	XtraReport (root node), DetailReport

Apply Styles to Bands

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

The screenshot shows the XtraReport designer interface. On the left is the report preview window displaying a company information form with fields like Contact Name, Contact Title, Phone, Fax, Home Page, and Address. Below the preview is the report structure tree showing nodes like "DetailReportBand - 'Suppliers.SuppliersProducts'" and "Detail1". On the right is the "Properties" panel. In the "Style" section, the "Style" dropdown menu is open, showing options like (none), (New), EvenStyle, OddStyle, ProductData, and GroupHeader. The "GroupHeader" option is highlighted with a blue selection bar.

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

The screenshot shows the XtraReport designer with a report structure tree on the left containing nodes like "XtraReport1", "topMarginBand1", "detailBand1", "bottomMarginBand1", and "Styles". Under "Styles", there are five items: "Footers", "Headers", "ReportTitleCaption", and "SummaryTitles", with "Headers" being the one currently selected and highlighted with a blue selection bar. The main preview area shows a report with several text boxes containing placeholder text like "[CompanyName]", "[CustomerAccount]", and "[Address]".

Bind to Data

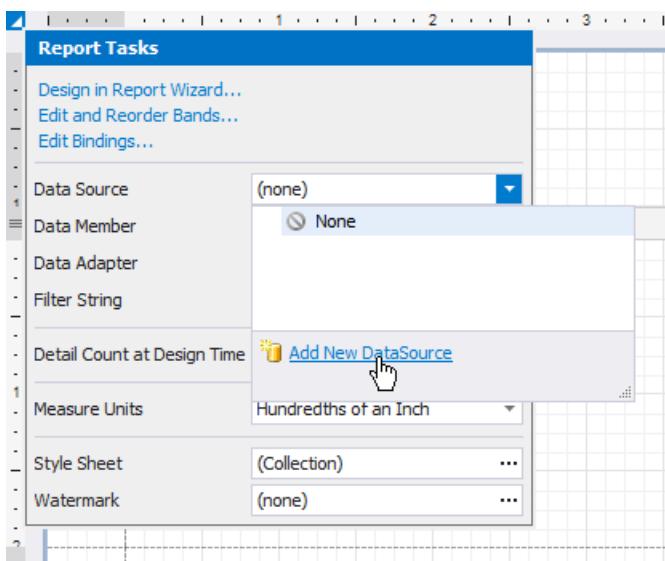
The following tutorials illustrate how to bind a report to various data sources:

- [Bind a Report to a Database](#)
- [Bind a Report to a Stored Procedure](#)
- [Specify Query Parameters](#)
- [Bind a Report to an XML File](#)
- [Bind a Report to an Entity Framework Data Source](#)
- [Bind a Report to an Object Data Source](#)
- [Bind a Report to an Excel Workbook](#)
- [Bind a Report to a CSV File](#)
- [Bind a Report to JSON Data](#)
- [Bind a Report to a MongoDB Instance](#)
- [Bind a Report to XPO Persistent Object](#)
- [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 Federated Master-Detail Data Source](#)

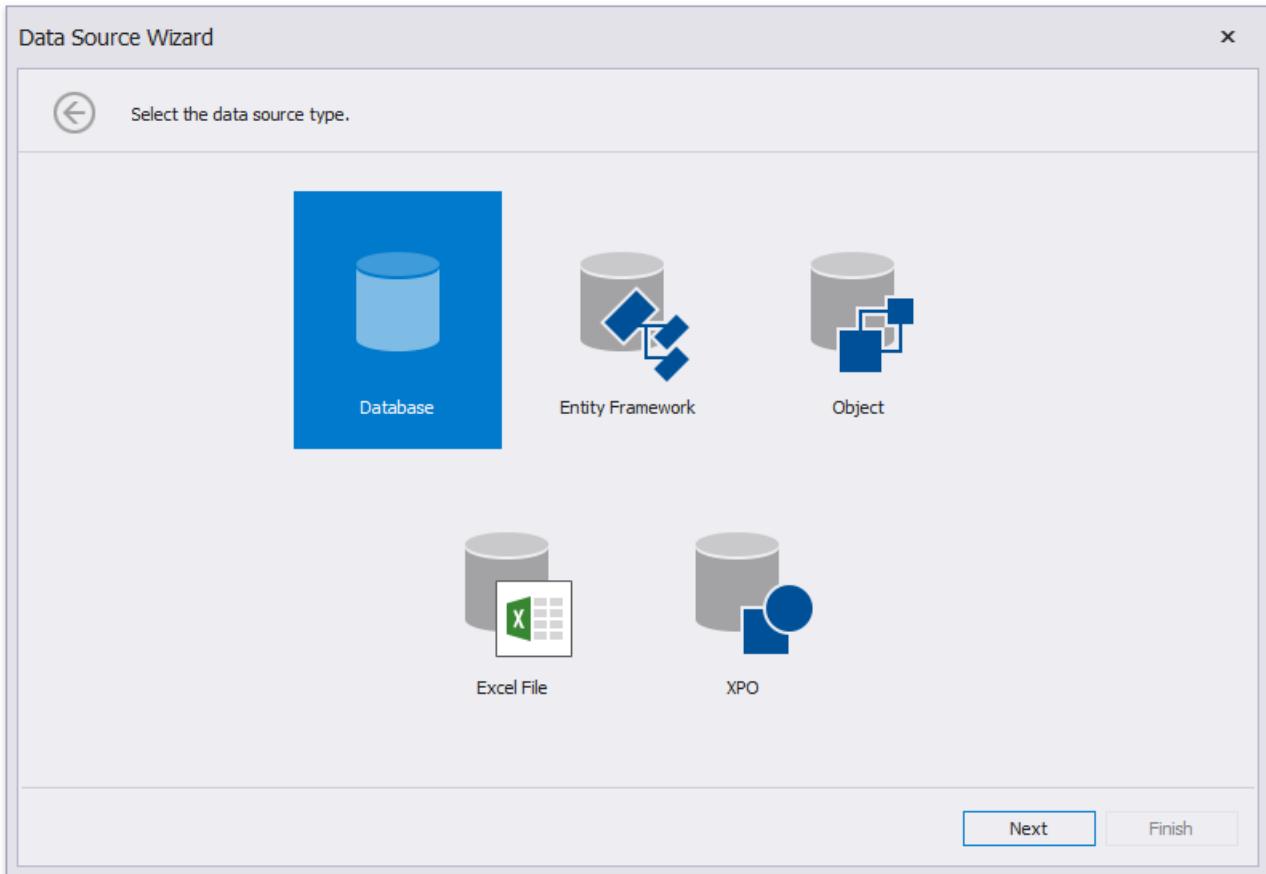
Bind a Report to a Database

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

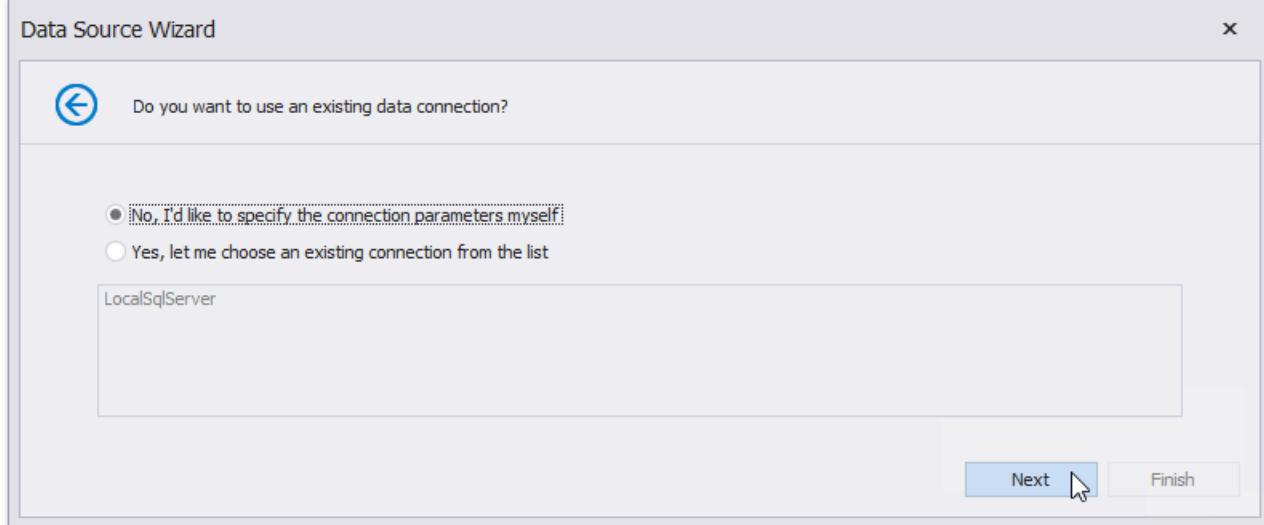
1. [Create a new report.](#)
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



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

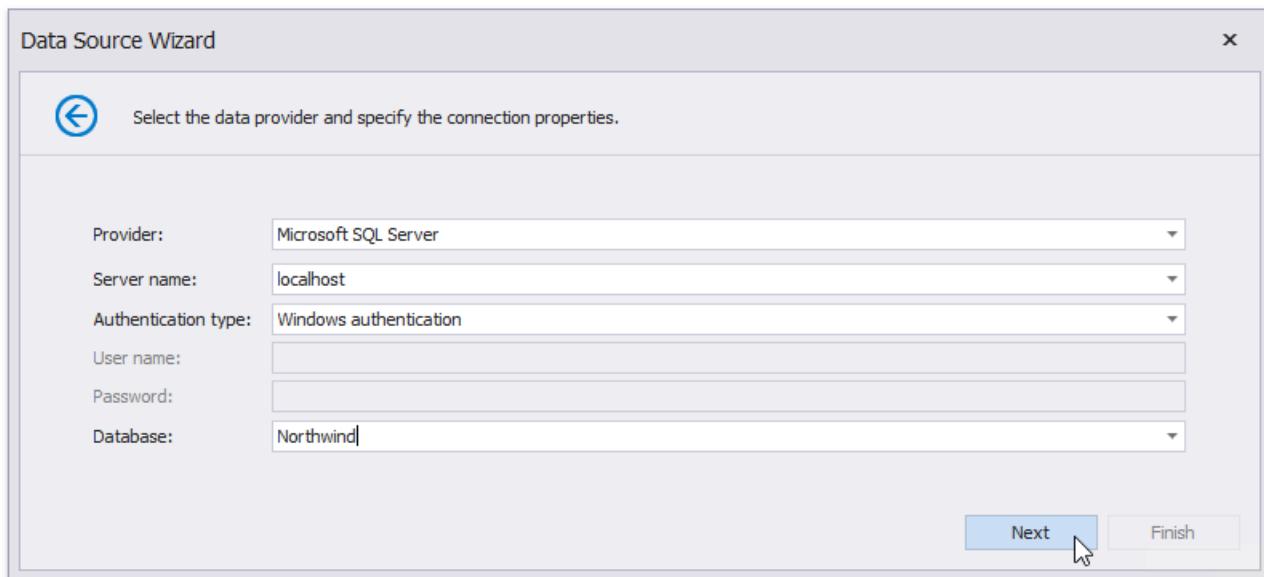


4. The next page allows you to specify whether you want to use an existing data connection or create a new data connection from scratch. Select the first option to create a new connection and click **Next**.



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

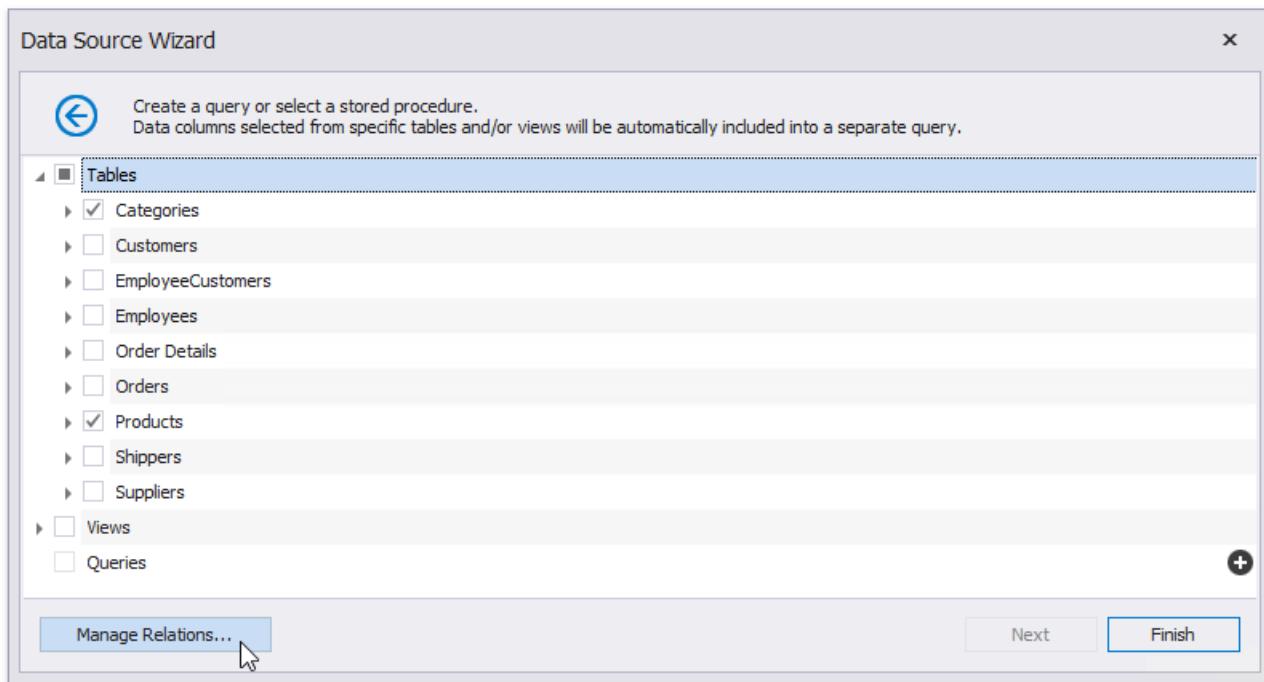
Depending on the data provider selected, it may be necessary to specify additional connection options (such as the authentication type and database name) on this page.



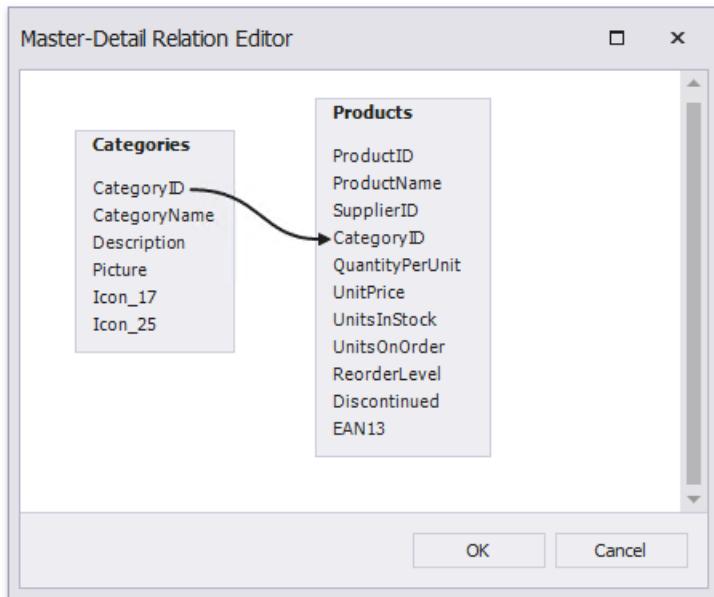
To proceed to the next wizard page, click **Next**.

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

To create a master-detail report, select two or more tables and click **Manage Relations**.



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



Click **OK** to close the editor.

NOTE

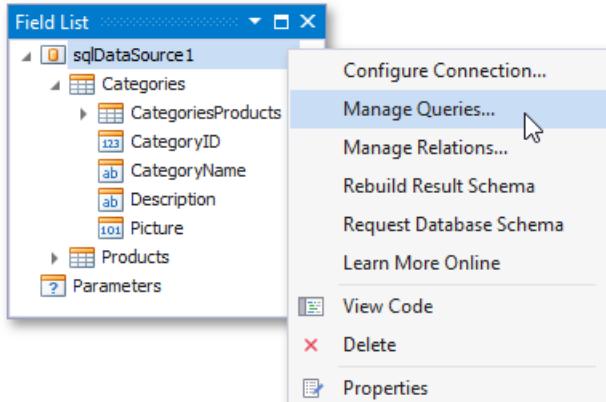
When you are required to shape data at the level of a data source, you can create **custom queries** by expanding the **Queries** category and clicking the plus button.

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

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

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

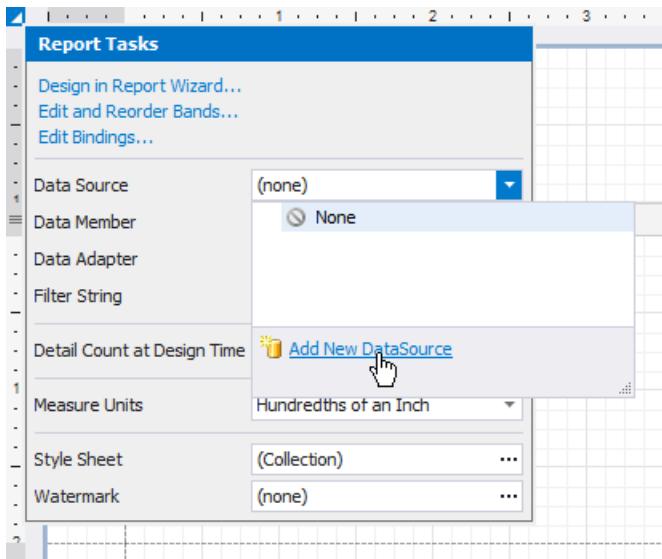
The newly created SQL data source will be displayed in the **Data Sources** node of the [Report Explorer](#). Additionally, the hierarchy of the data source will be reflected by the [Field List](#). In both panels, you can right-click the data source to access its settings.



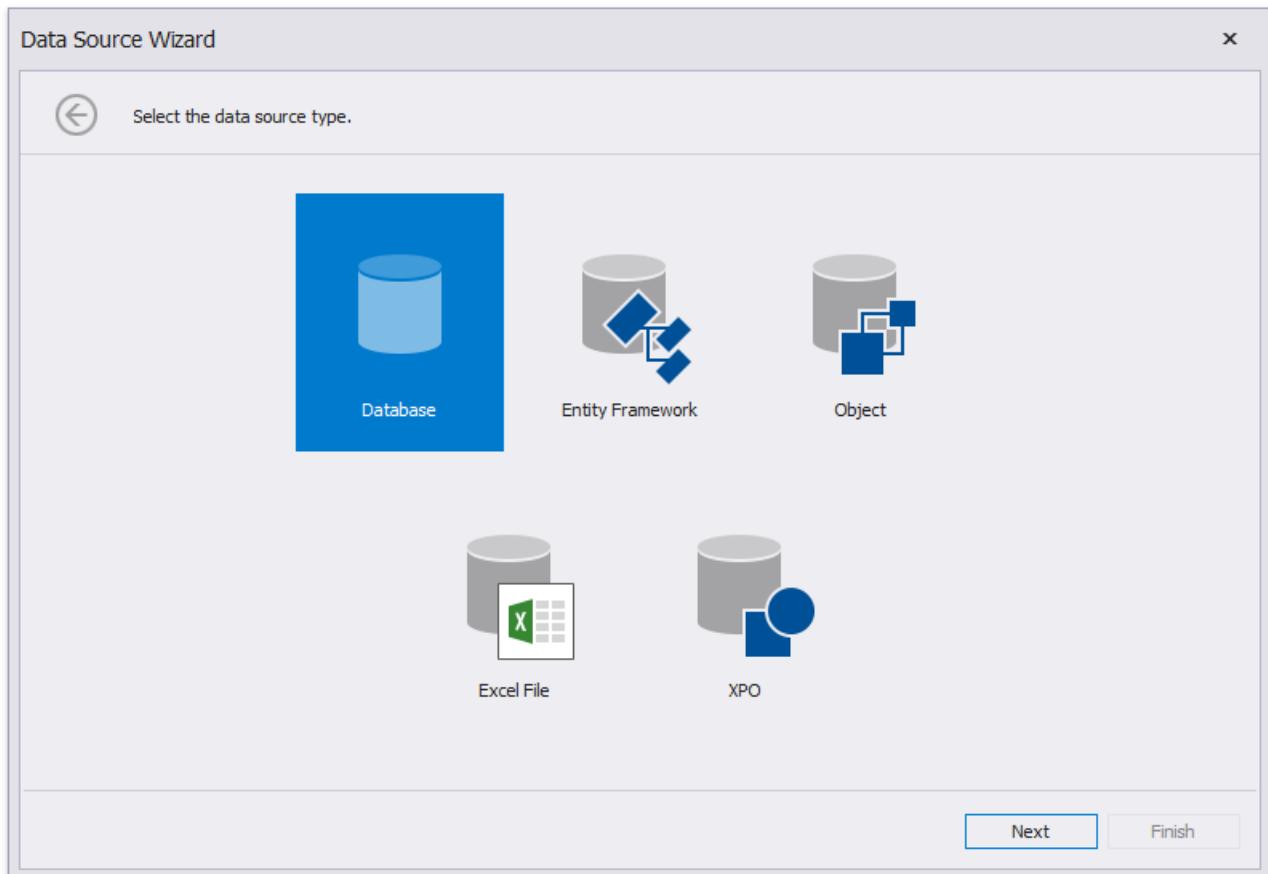
Bind a Report to a Stored Procedure

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

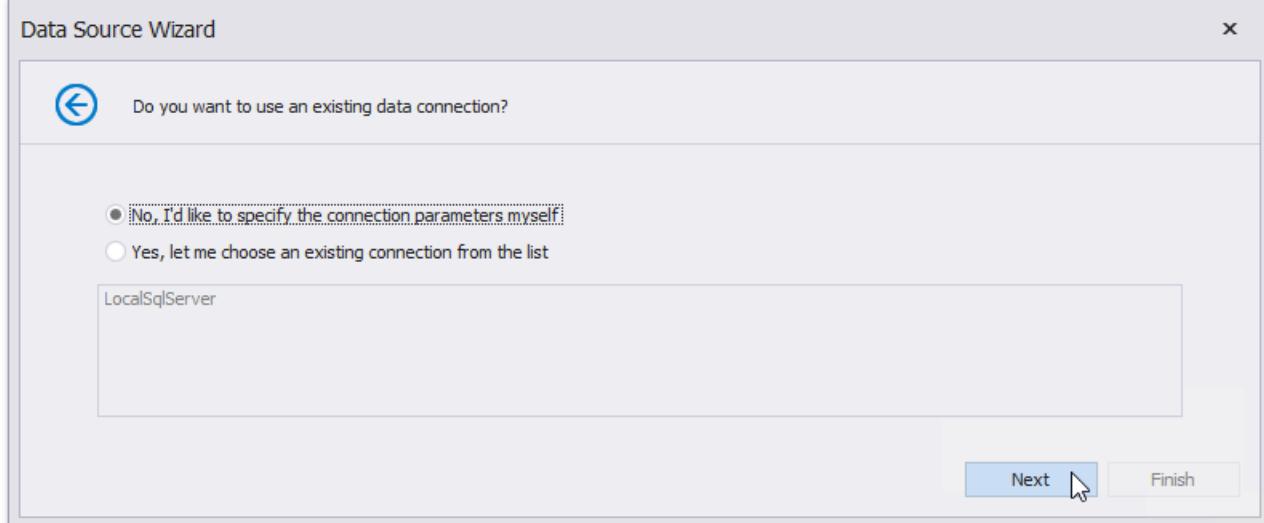
1. [Create a new report.](#)
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



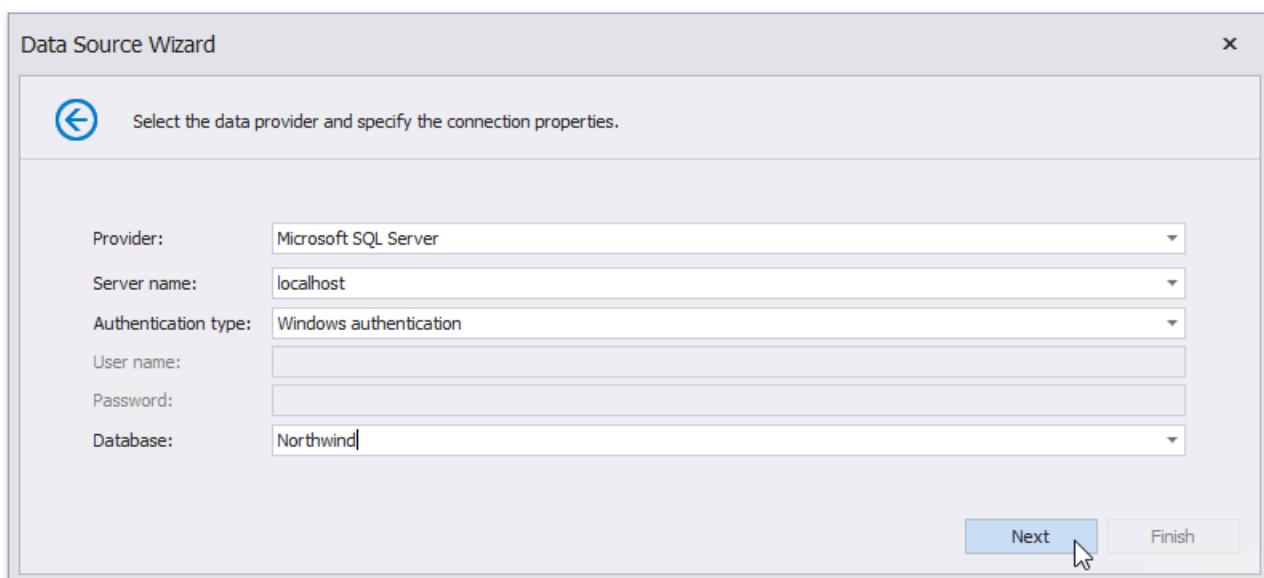
3. On the first page of the invoked [Data Source Wizard](#), select **Database** and click **Next**.



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

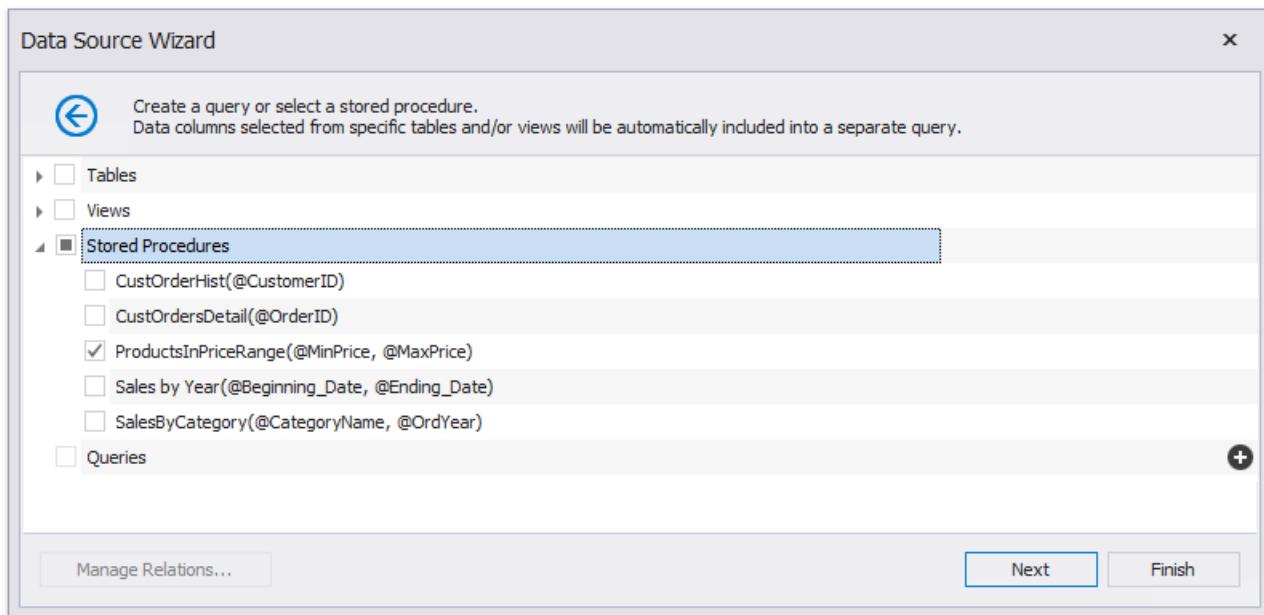


5. On the next page, you can define a custom connection string or select from the list of [supported data providers](#). Depending on the data provider selected, it may be necessary to specify additional connection options (such as authentication type and database name) on this page.



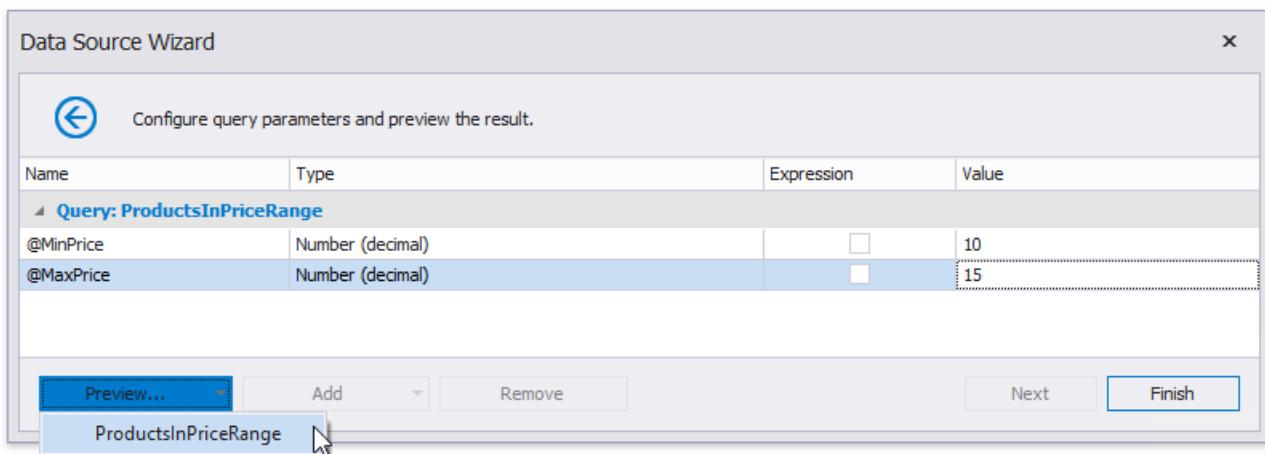
To proceed to the next wizard page, click **Next**.

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



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

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



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

Data Preview						
Product ID	Product Name	Quantity Per Unit	Unit Pr...	Units On Order	Units In Stock	
46	Spegesild	4 - 450 g glasses	12.0000	0	95	
31	Gorgonzola Telino	12 - 100 g pkgs	12.5000	70	0	
68	Scottish Longbreads	10 boxes x 8 pieces	12.5000	10	6	
48	Chocolade	10 pkgs.	12.7500	70	15	
77	Original Frankfurter grüne Soße	12 boxes	13.0000	0	32	
58	Escargots de Bourgogne	24 pieces	13.2500	0	62	
25	NuNuCa Nuß-Nougat-Creme	20 - 450 g glasses	14.0000	0	76	
34	Sasquatch Ale	24 - 12 oz bottles	14.0000	0	111	

Click **Finish** to exit the wizard.

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

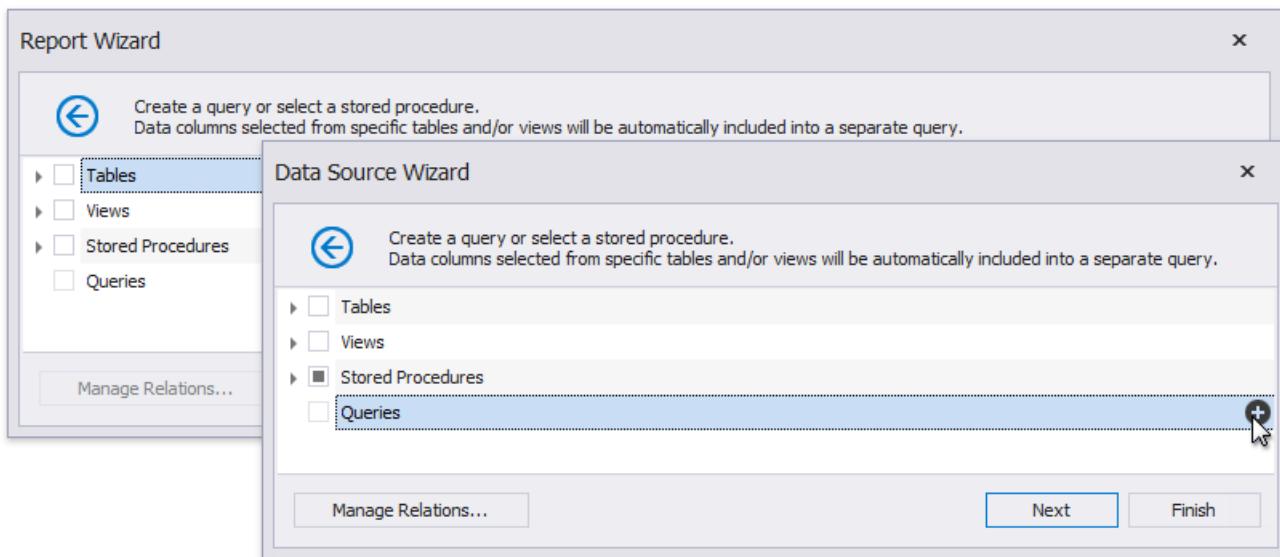
A query parameter holds an external value that is inserted into an SQL statement before query execution. This value can be either static or dynamically generated by an associated expression.

The query parameter value is inserted into the resulting SQL query string in the "@QueryParameterName" placeholder's position.

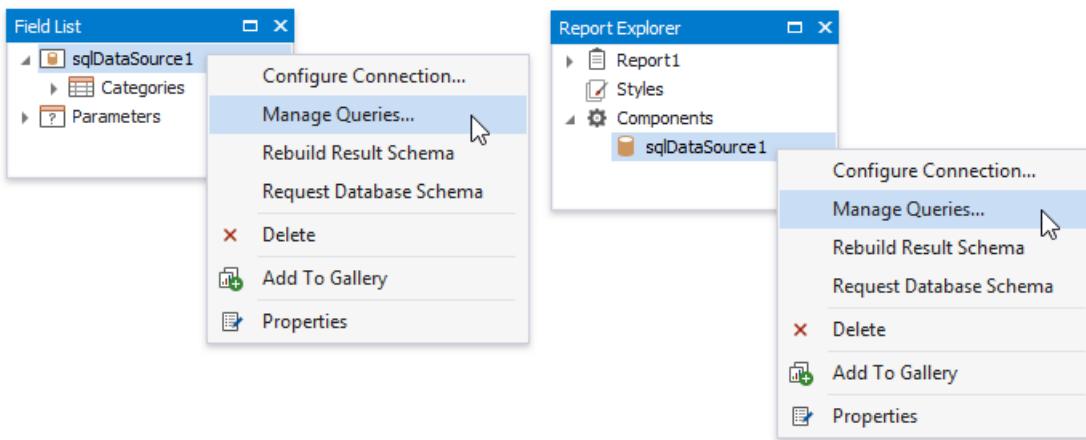
Query parameters are used in the following scenarios:

- When filtering report data at the data source level using the [Query Builder](#).

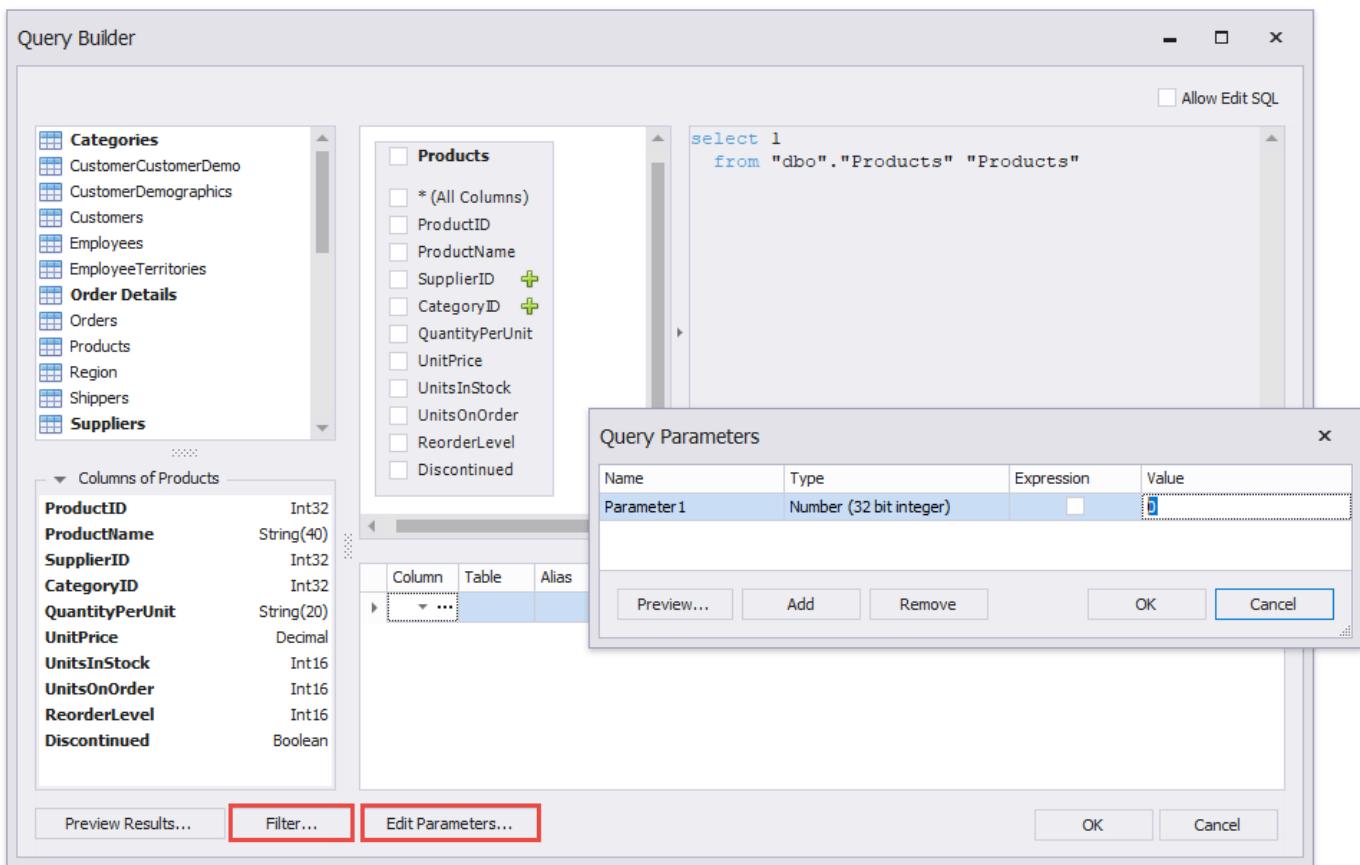
The Query Builder helps you construct SQL queries when creating a new data-bound report or [binding an existing report to an SQL data source](#),



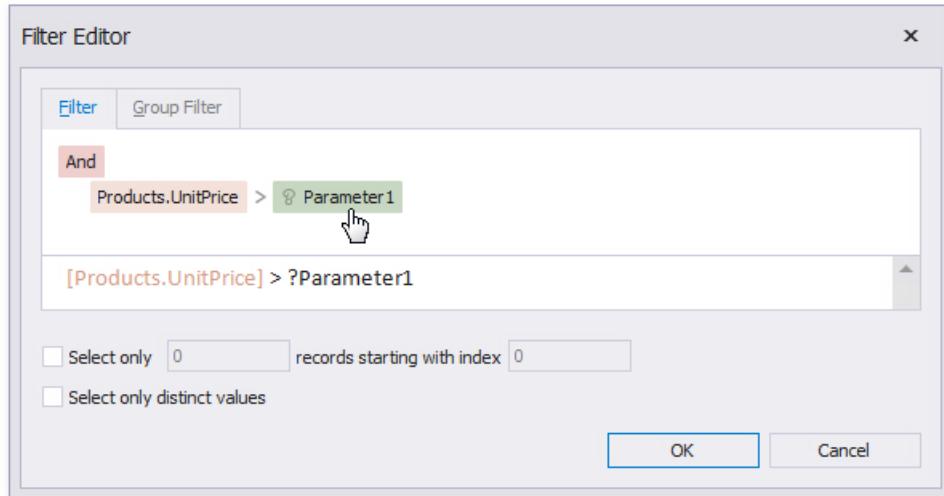
... or when adding queries to an existing SQL data source or editing existing queries.



You can filter the constructed queries using query parameters. Press the **Edit Parameters...** button to invoke the **Query Parameters** dialog.



Press the **Filter...** button to invoke the Filter Editor and filter data using the created query parameters.



The criteria based on the specified query parameters are added as an SQL statement's WHERE part.

- When [binding a report to a stored procedure](#) provided by an SQL data source.

The Report Wizard, as well as the Data Source Wizard, include the **Create a query or select a stored procedure** page. If you select a stored procedure, the wizard creates a query parameter for each procedure parameter and allows you to configure the query parameters in the next **Configure query parameters and preview the result** page.

The screenshot shows two windows of the Data Source Wizard. The top window displays a list of database objects: Tables, Views, Stored Procedures, and Queries. The 'Stored Procedures' section is expanded, showing several options like 'CustOrderHist(@CustomerID)' and 'ProductsInPriceRange(@MinPrice, @MaxPrice)'. The 'ProductsInPriceRange' option is checked. The bottom window shows the configuration of this query, with parameters '@MinPrice' and '@MaxPrice' set to 20 and 30 respectively. Both windows have 'Next' and 'Finish' buttons at the bottom.

You can access query parameters using the **Parameters** property of the query the report's **SqlDataSource** component exposes. These parameters include the ones you created within the Query Builder or that were generated for the data source's stored procedure. You can also access the query's filter string using the **Filter String** property. This filter string includes the filter that you specified in the Query Builder.

The screenshot shows the Properties window for a 'sqlDataSource1' component. Under the 'Queries' section, there is a single entry named 'Products'. The 'Filter String' property is set to '[Products.UnitPrice] > ?Parameter1 ...'. The 'Parameters' collection is listed below, showing a single parameter 'Parameter1' which is a 'Number (32 bit integer)' type. The 'Name' field is set to 'Products'.

You can add new query parameters in the Query Parameters dialog and modify the filter within the Filter Editor.

Configure Query Parameters

The following properties are available for each query parameter:

- **Name** - specifies the parameter's name.

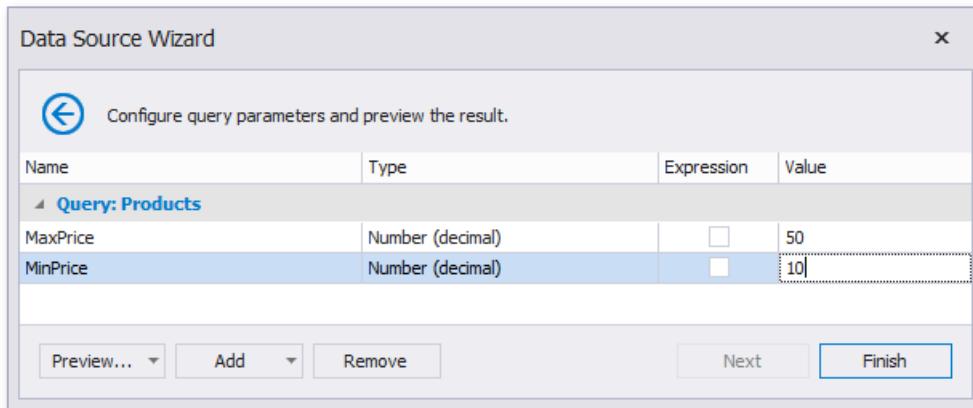
- **Type** - specifies the parameter value's data type.
- **Expression** - determines whether the actual parameter value is static or generated dynamically.
- **Value** - determines the query parameter's actual value. If the **Expression** option is enabled, the actual parameter value is produced dynamically by calculating an associated expression. This is useful when you map the query parameter value to the [report parameter](#) value. Refer to the next document section for more information.

Provide the Query Parameter Value

Below, you can see how a value is specified for a query parameter within the Data Source Wizard's page. You can also specify query parameter values in the Report Wizard or the Query Parameters dialog in the same way.

- **Specifying a static value**

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

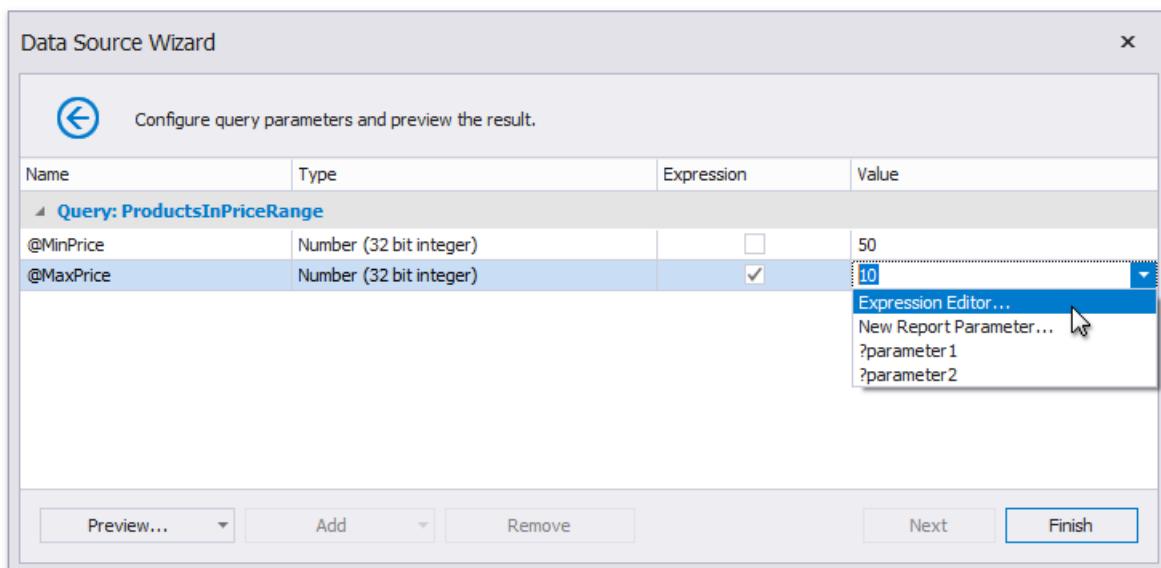


- **Providing a dynamic value**

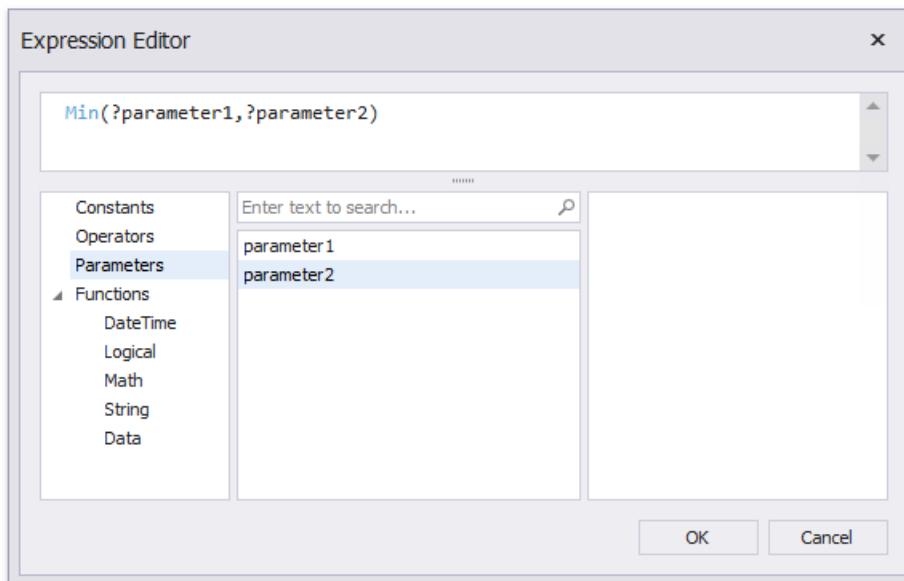
Activate the **Expression** checkbox for a parameter.

The following three options are used to dynamically calculate the parameter's actual value:

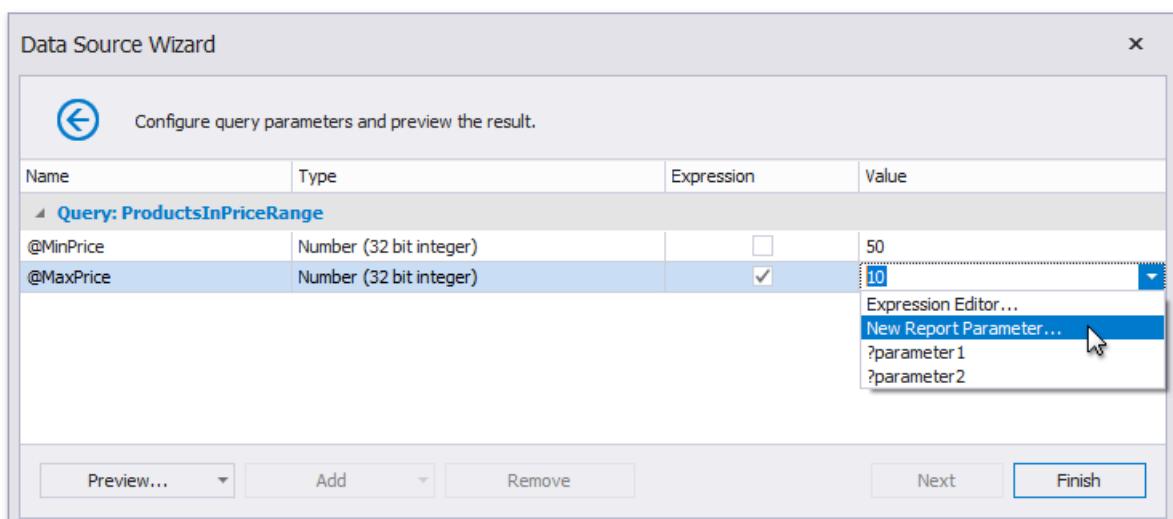
- Create a complex expression by expanding the **Value** property's drop-down list and selecting **Expression Editor**.



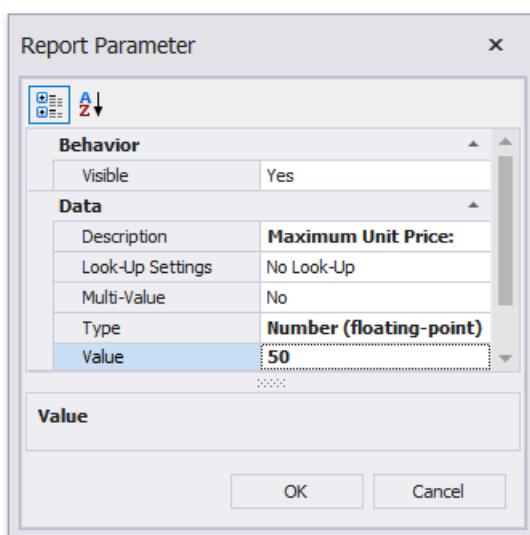
Construct an expression in the invoked **Expression Editor**.



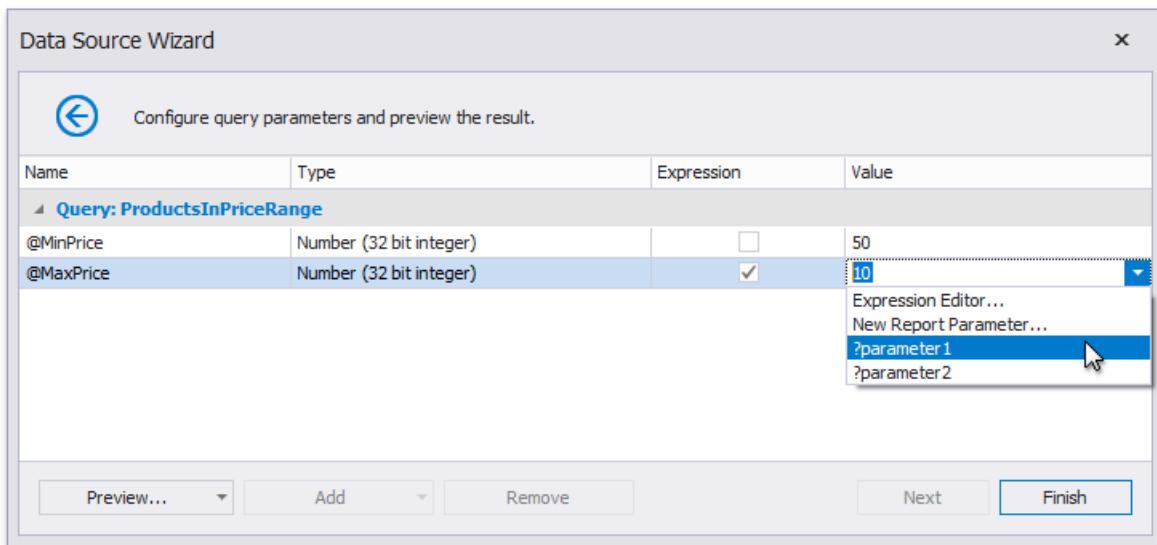
- Map a new report parameter to a query parameter by expanding the **Value** property's drop-down list and selecting **New Report Parameter**.



Specify report parameter settings in the invoked **Report Parameter** dialog. Remember to specify the report parameter type according to the type of the corresponding query parameter. Click **OK** to exit the dialog.



- Map a report parameter that already exists in a report to a query parameter by expanding the **Value** property's drop-down list and selecting the parameter you want to use. An appropriate expression string is generated automatically.



Pass a Multi-Value Parameter Value to a Query

You can map [multi-value parameters](#) to query parameters. For instance, the following query selects the orders whose IDs can be found within the values the @OrderID query parameter provides.

Report Parameter

- Behavior:** Visible Yes
- Data:**
 - Description:
 - Look-Up Settings: No Look-Up
 - Multi-Value:** Yes
 - Type: Number (32 bit)

Filter Editor

And

Orders.OrderID Is any of ?OrderID

[Orders.OrderID] In (?OrderID)

Query Builder

```
select "Orders"."OrderID", "Orders"."CustomerID",
"Orders"."EmployeeID",
"Orders"."OrderDate",
"Orders"."RequiredDate",
"Orders"."ShippedDate", "Orders"."ShipVia",
"Orders"."Freight", "Orders"."ShipName",
"Orders"."ShipAddress",
"Orders"."ShipCity", "Orders"."ShipRegion",
"Orders"."ShipPostalCode",
"Orders"."ShipCountry"
from "dbo"."Orders" "Orders"
where "Orders"."OrderID" in (@OrderID)
```

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.

The screenshot shows three windows from a reporting tool:

- Report Parameter**: A dialog for configuring parameters. It shows a **Behavior** section with **Visible** set to **True**, a **Data** section with **LookUpSettings** set to **StaticListLookUpSettings**, and a **Design** section with a parameter named **OrderID**.
- Data Source Wizard**: A window for configuring query parameters. It lists a parameter **@OrderID** of type **Number (32 bit integer)**. The **Value** dropdown menu is open, showing options: **?OrderID**, **Expression Editor...**, **New Report Parameter...**, and **?OrderID** again.
- Expression Editor**: A window for building expressions. It contains the expression **JOIN(?OrderID)**. On the left, there's a sidebar with categories: **Constants**, **Operators**, **Parameters** (which is selected), and **Functions** (with **DateTime** listed). A search bar at the top right says **Enter text to search...**.

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

Report Parameter

Visible	True
Data	
↳ (ApplicationSettings)	
Description	
↳ LookUpSettings	StaticListLookUpSettings
FilterString	
LookUpValues	(Collection)
MultiValue	True
Type	Number (32 bit integer)
Value	
Design	
(Name)	parameter1

Data Source Wizard

Configure query parameters and preview the result.

Name	Type	Expression	Value
↳ Query: GetOrdersByID			
@OrderID	Number (32 bit integer)	<input checked="" type="checkbox"/> ?OrderID	Expression Editor...
			New Report Parameter...

Expression Editor

```
CREATETABLE(?parameter1,?parameter2)
```

Preview... ▾

Enter text to search... 🔎

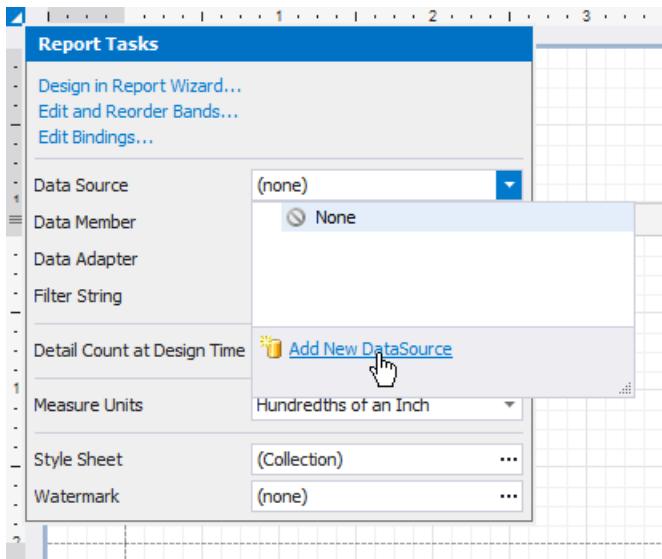
- Constants
- Operators
- Parameters**
- Functions
 - DateTime
 - Logical

OrderID
parameter1
parameter2

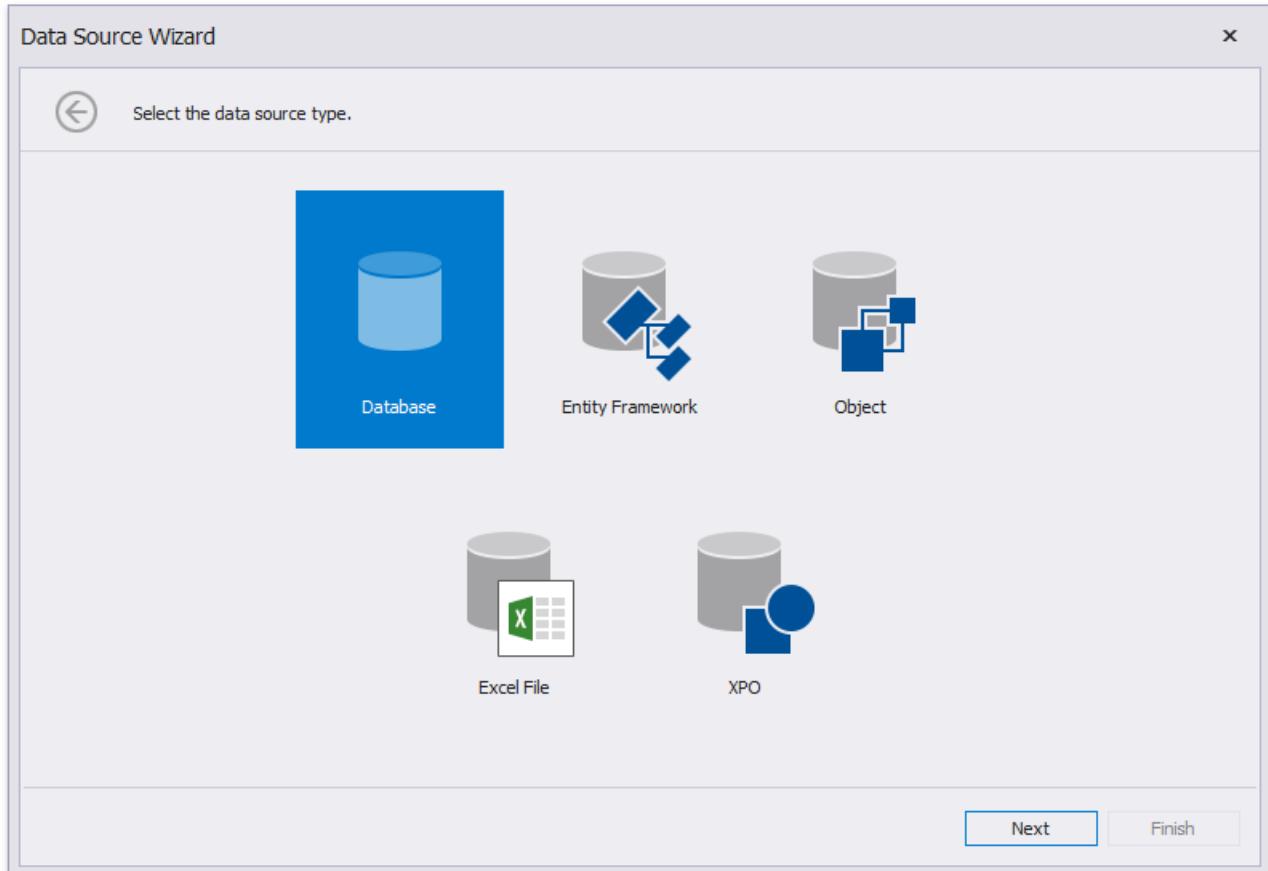
Bind a Report to an XML File

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

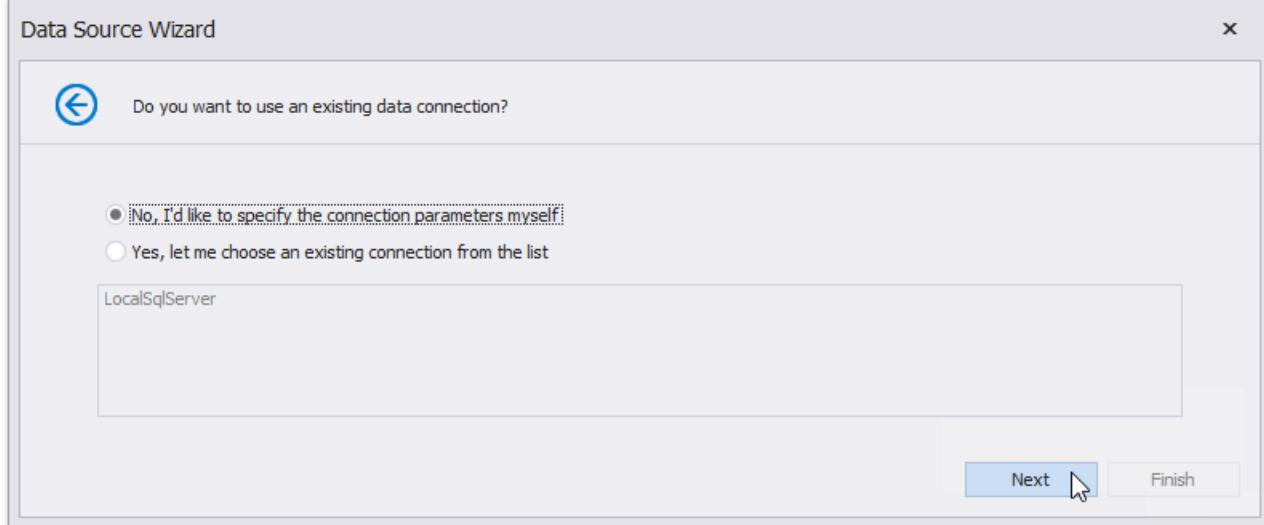
1. [Create a new report.](#)
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



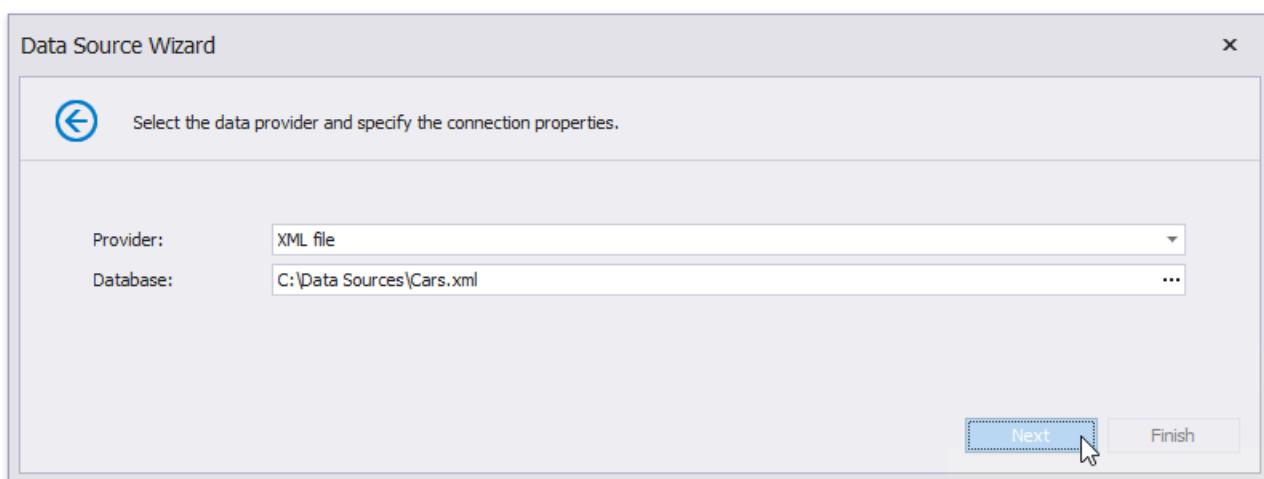
3. On the first page of the invoked [Data Source Wizard](#), select **Database** and click **Next**.



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

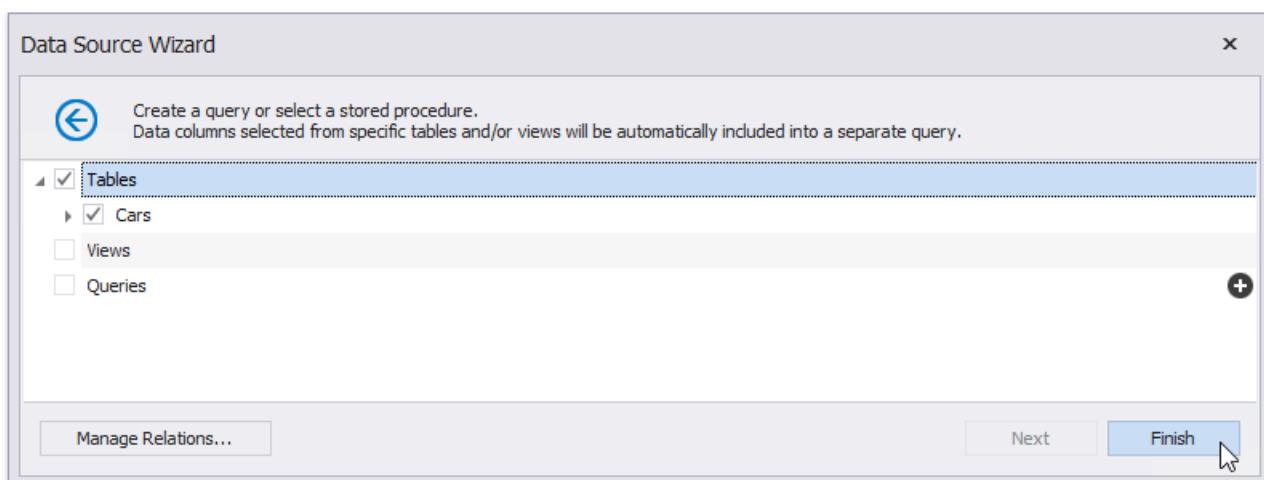


5. On the next page, specify the data provider (**XML file**) and the path to the database file.



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

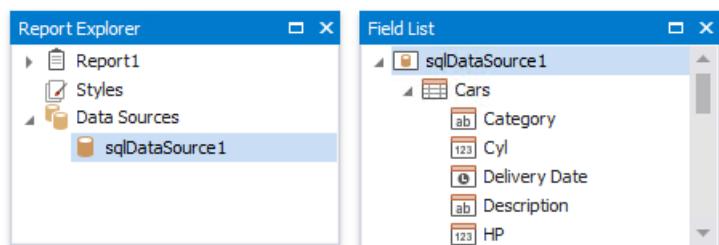
6. On the next page, you can choose which tables, views and/or stored procedures to add to the report. You can also construct custom queries using the [Query Builder](#). Click **Finish** to exit the wizard.



i NOTE

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

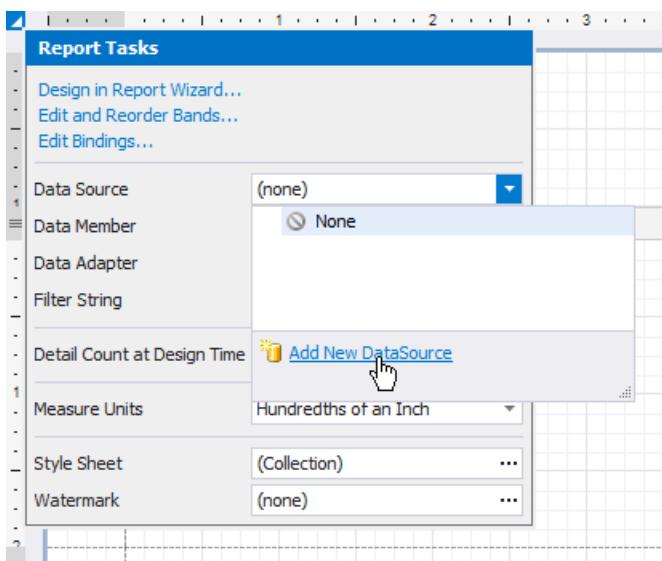
The newly created SQL data source will be displayed in the **Data Sources** node of the [Report Explorer](#). Additionally, the hierarchy of the data source will be reflected by the [Field List](#).



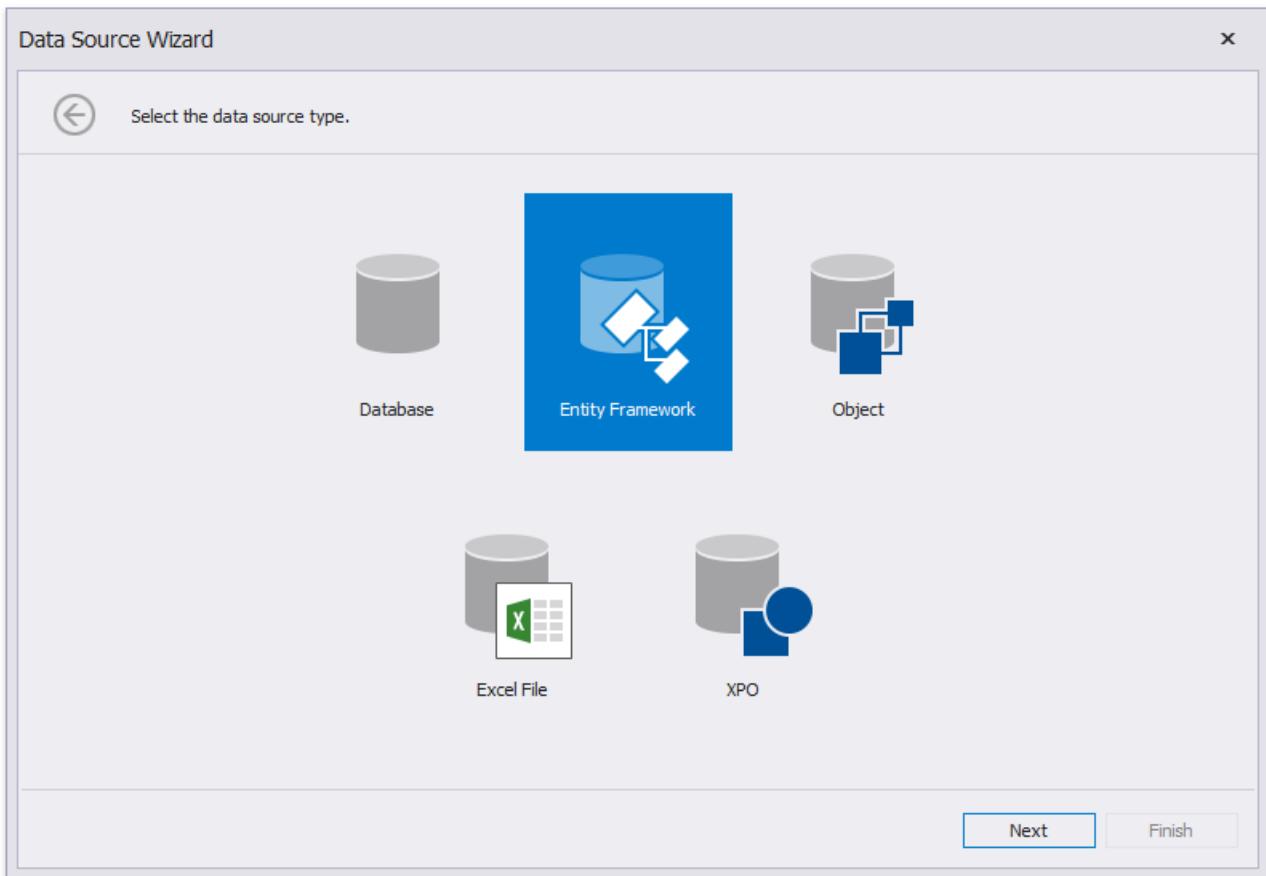
Bind a Report to an Entity Framework Data Source

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

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

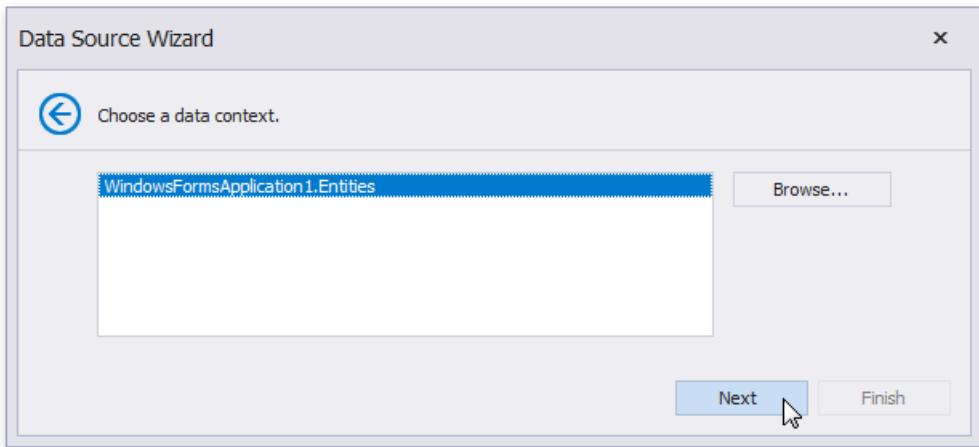


3. On the first page of the invoked [Data Source Wizard](#), select the **Entity Framework** and click **Next**.



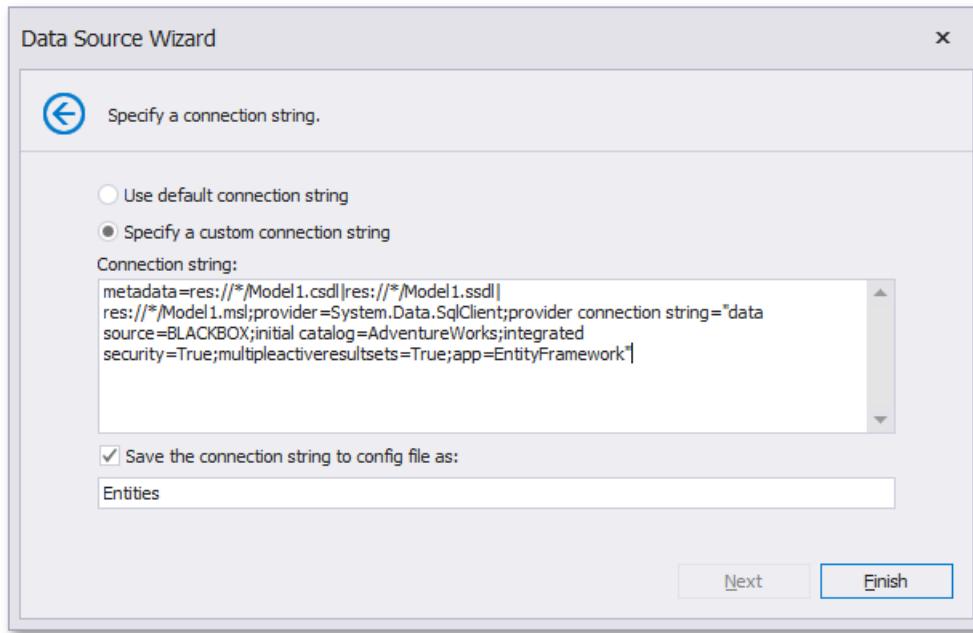
4. On the next page, select the required data context. You can bind it to an Entity Framework data context that is contained in either the current project assembly or a separate assembly.

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

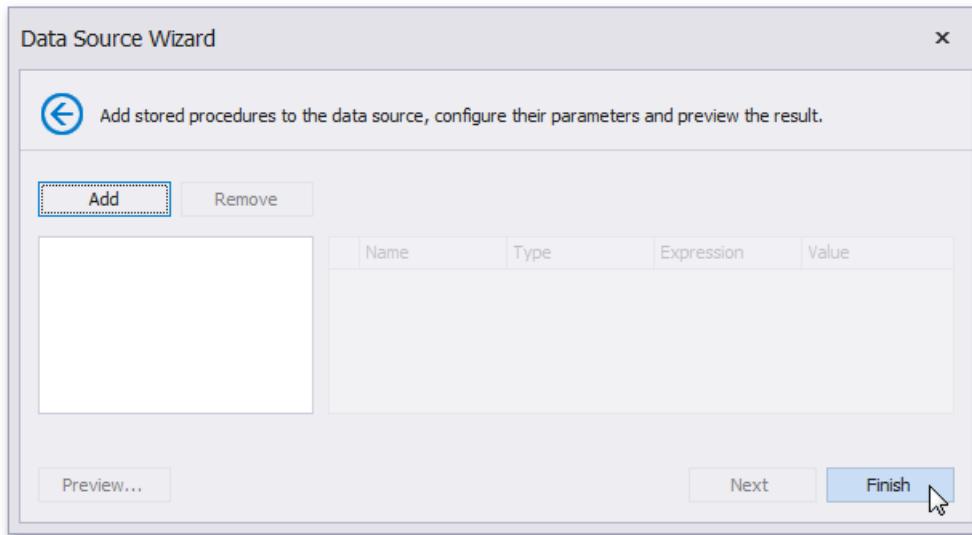


Select the required data context and click **Next**.

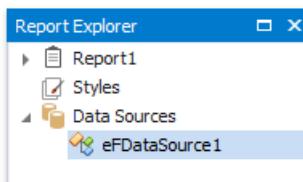
5. On the next page, specify a connection string to be used to establish a data connection using one of the following two options.
 - o Use an existing connection string available in the current project. To do this, select **Yes, let me choose from the list**. Next, select the required connection string from the list of available connection strings.
- A screenshot of the 'Data Source Wizard' window. The title bar says 'Data Source Wizard'. The main area has a blue header bar with the text 'Do you wish to select a connection string from the list of available settings?'. Below this is a list of connection strings:
 - No, specify a custom connection string
 - Yes, let me choose from listA list box shows two items: 'LocalSqlServer' and 'Entites'. The 'Entites' item is highlighted with a blue selection bar. At the bottom are 'Next' and 'Finish' buttons. A cursor arrow is pointing at the 'Next' button.
- o Specify a connection string manually. To do this, select **No, specify a custom connection string** and click **Next**. On the next page, specify a connection string. You can choose to use the default connection string or specify a custom connection string.



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



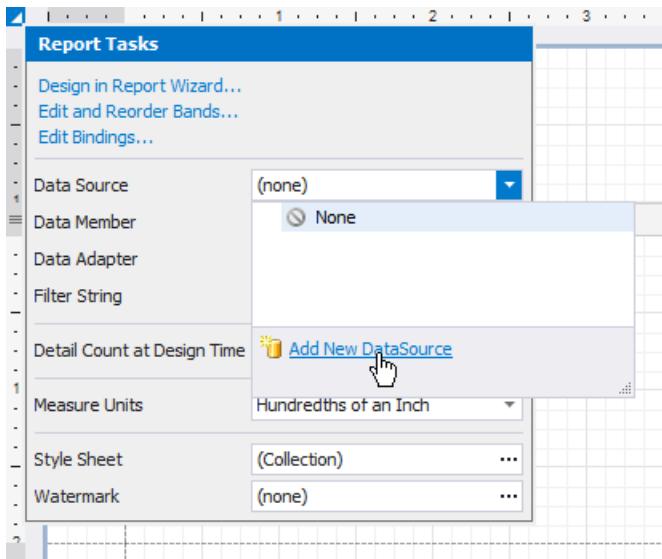
The newly created data source will be displayed in the **Data Sources** node of the [Report Explorer](#). Additionally, the hierarchy of the data source will be reflected by the [Field List](#).



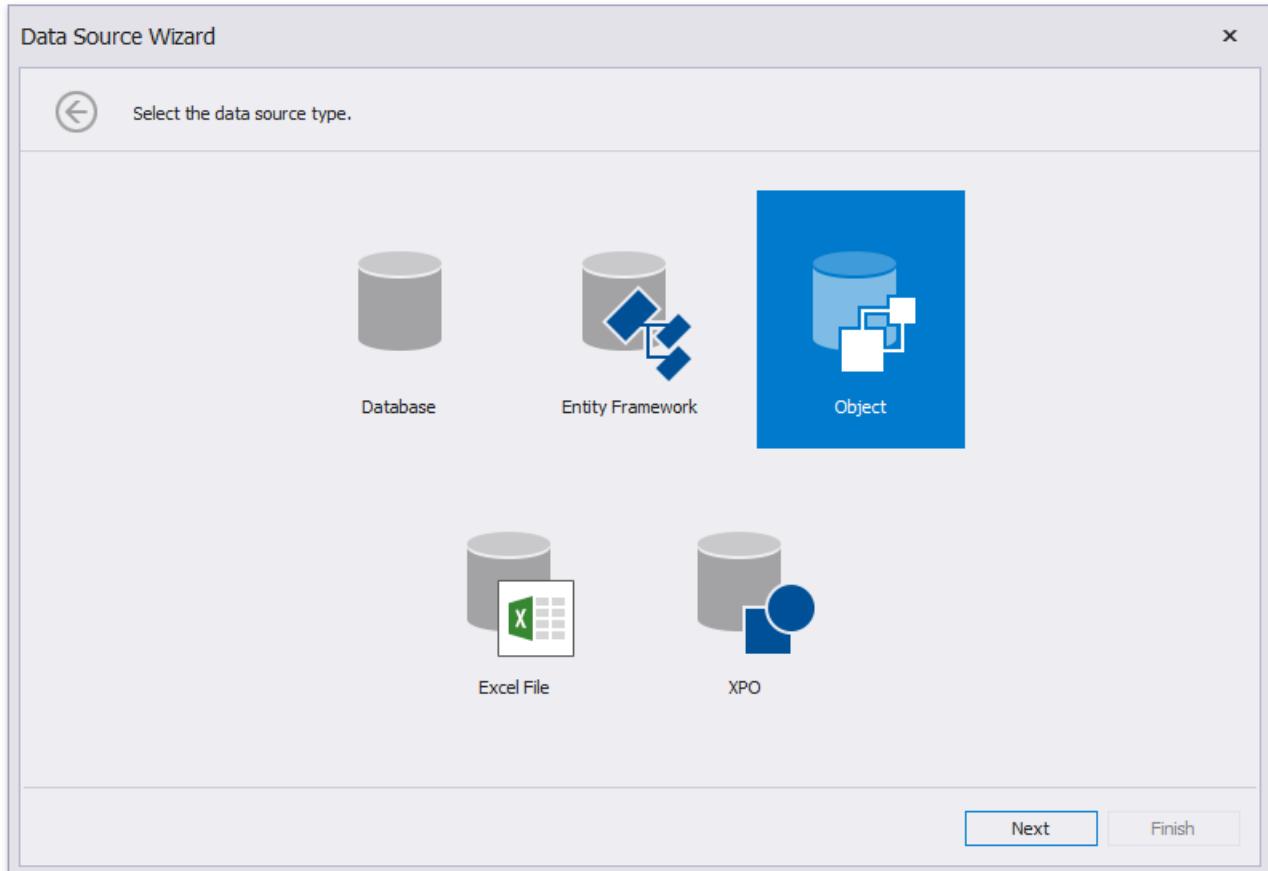
Bind a Report to an Object Data Source

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

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

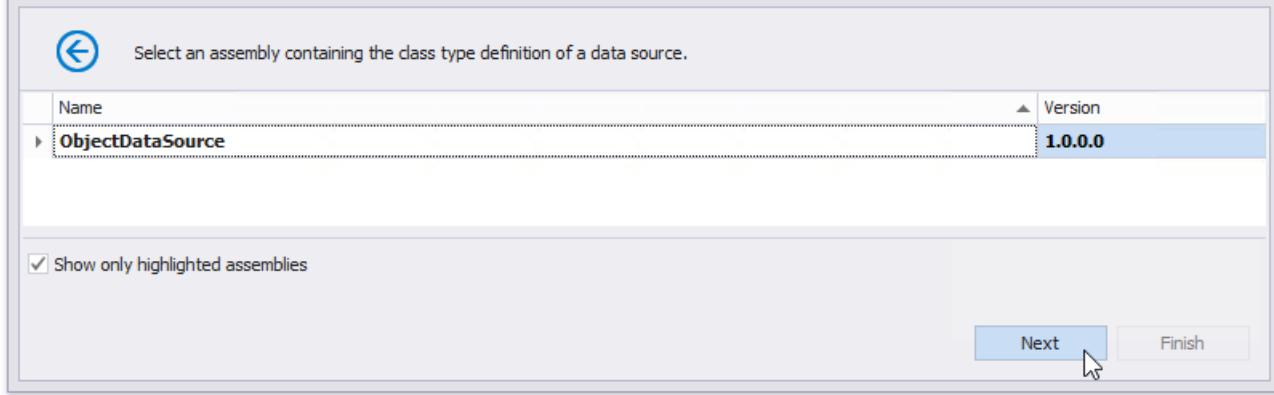


3. On the next wizard page, choose the **Object Binding** option and click **Next**.

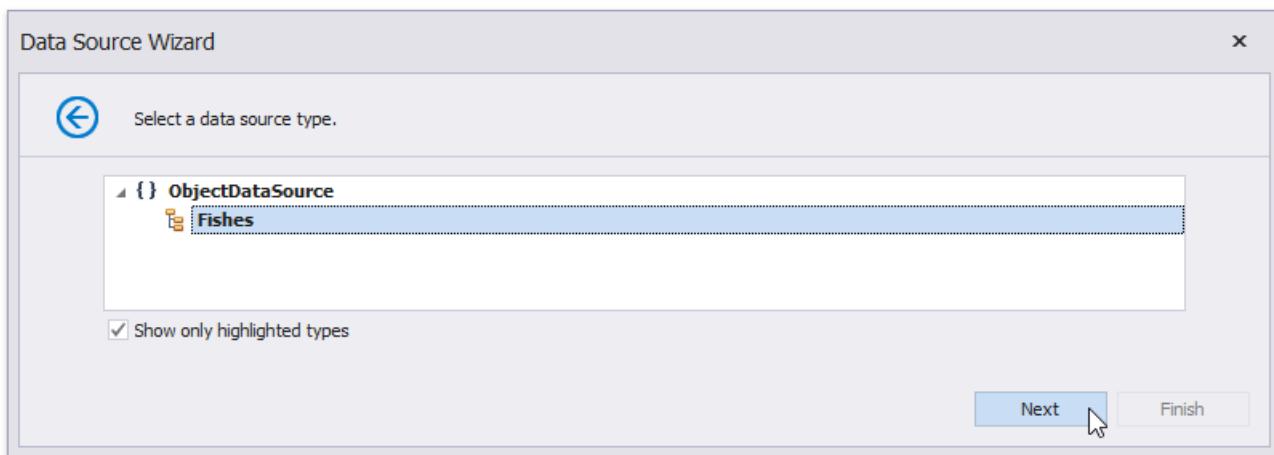


4. The following wizard page allows you to select an assembly that contains the data source's class type definition. Use the **Show only highlighted assemblies** checkbox to exclude irrelevant assemblies from this list.

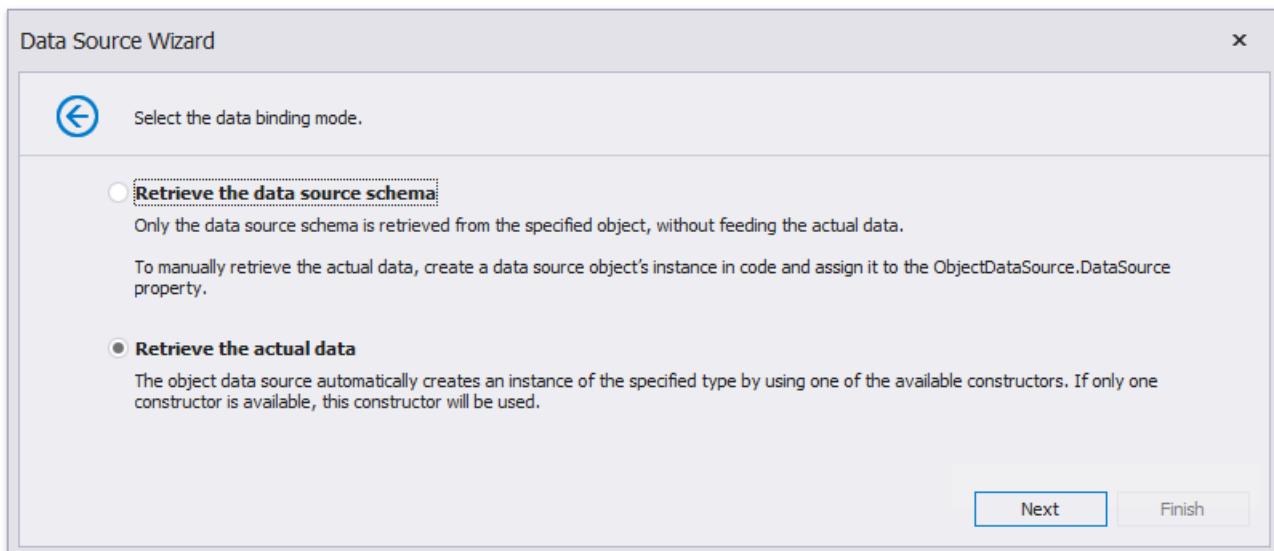
Data Source Wizard



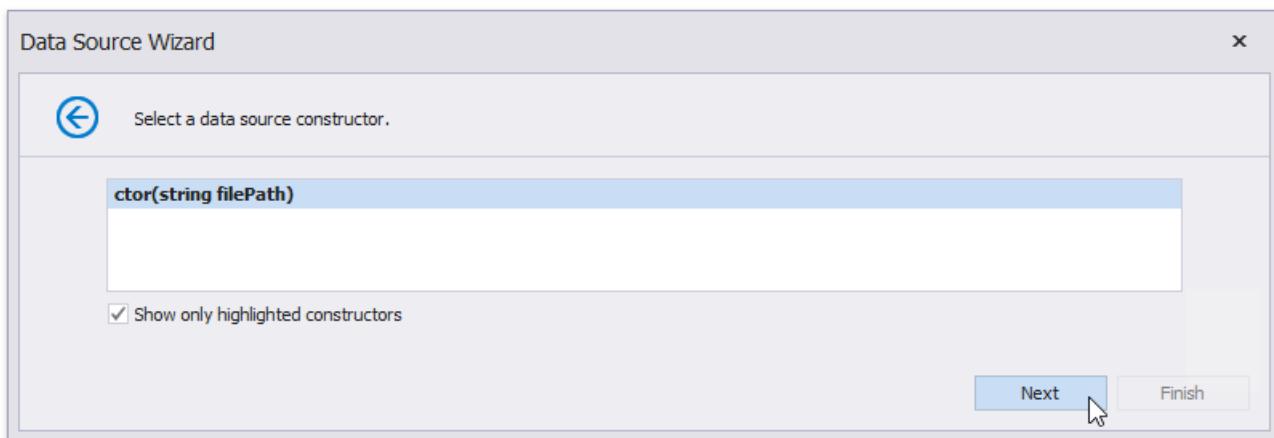
5. On the next wizard page, select a data source type. Enable the **Show only highlighted types** checkbox to hide irrelevant classes from this list.



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

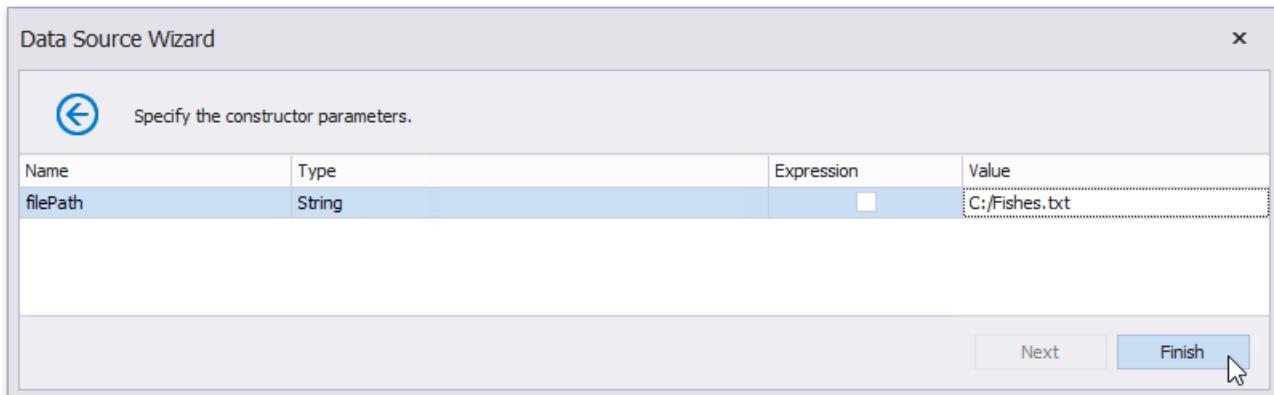


7. On the following wizard page, select a data source constructor and click **Next**. Use the **Show only highlighted constructors** checkbox to exclude irrelevant constructors from this list.



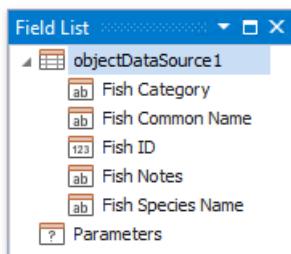
8. The next wizard page allows you to specify the constructor parameters.

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



Click **Finish** to complete the wizard.

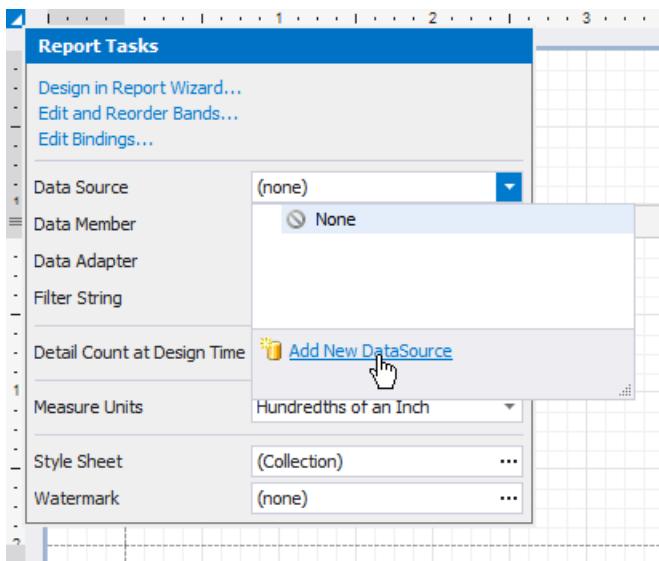
The newly created data source will be displayed in the **Data Sources** node of the [Report Explorer](#). Additionally, the hierarchy of the data source will be reflected by the [Field List](#).



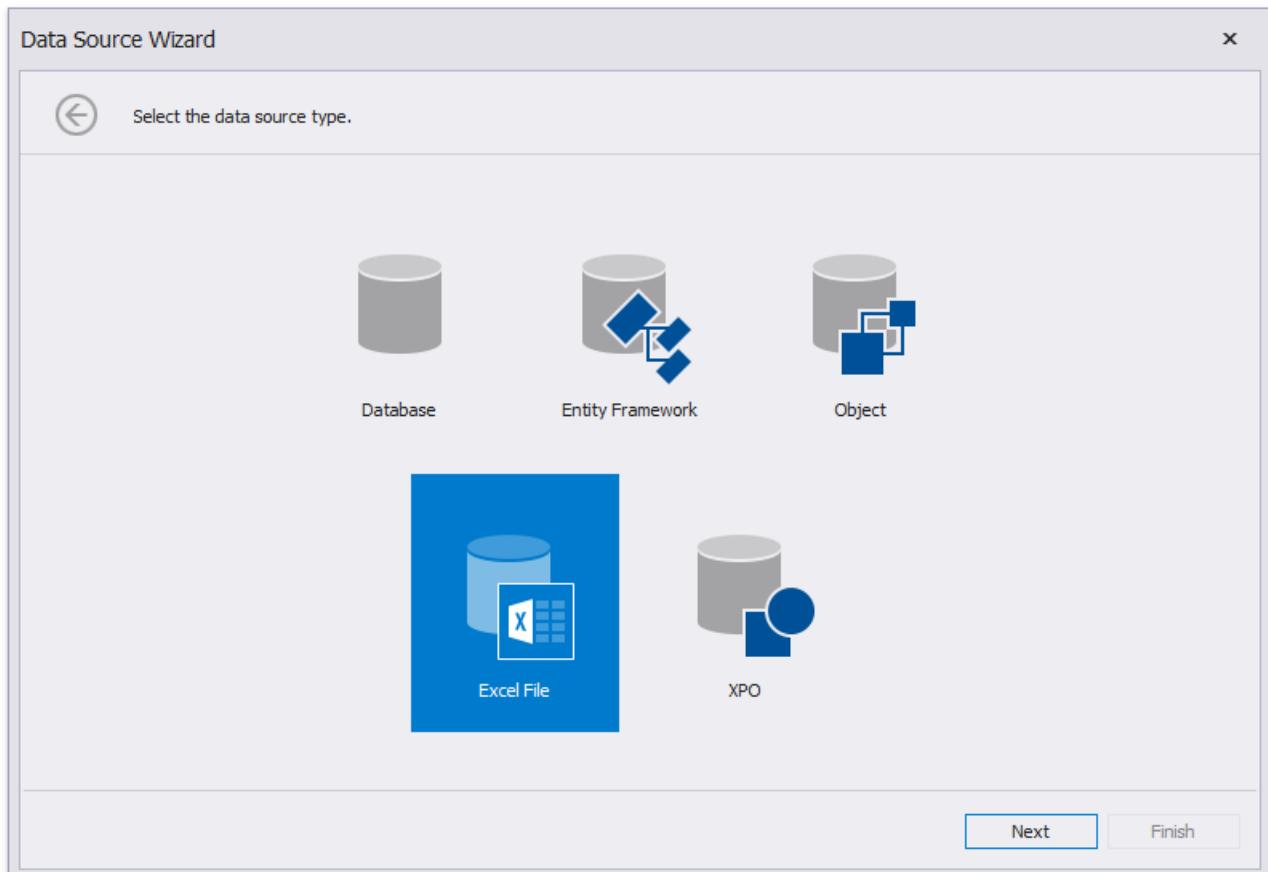
Bind a Report to an Excel Workbook

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

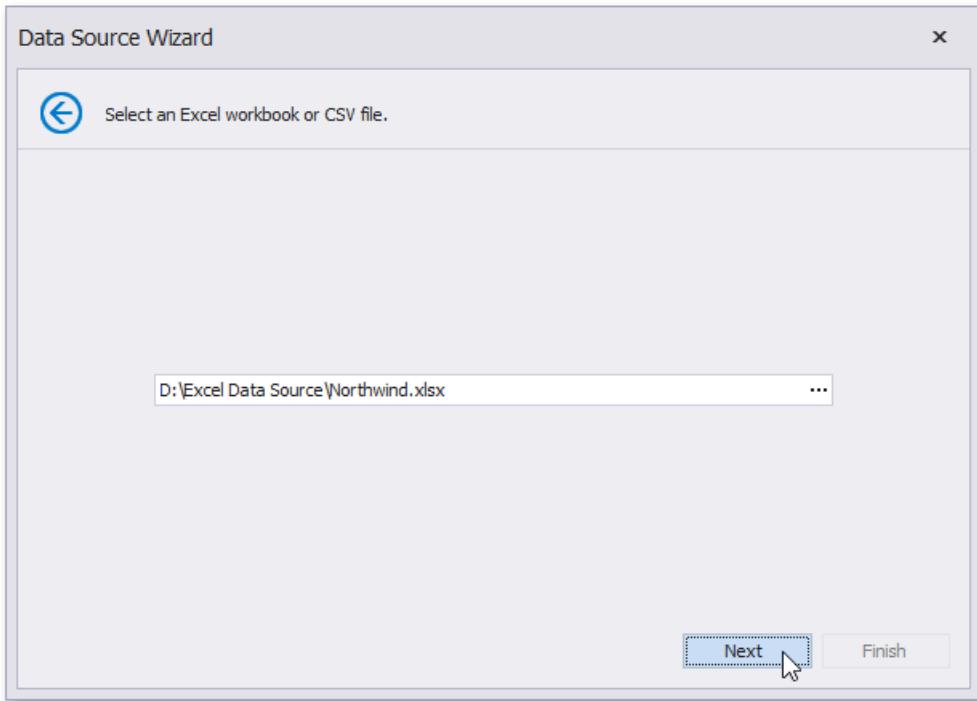
1. [Create a new report.](#)
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



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



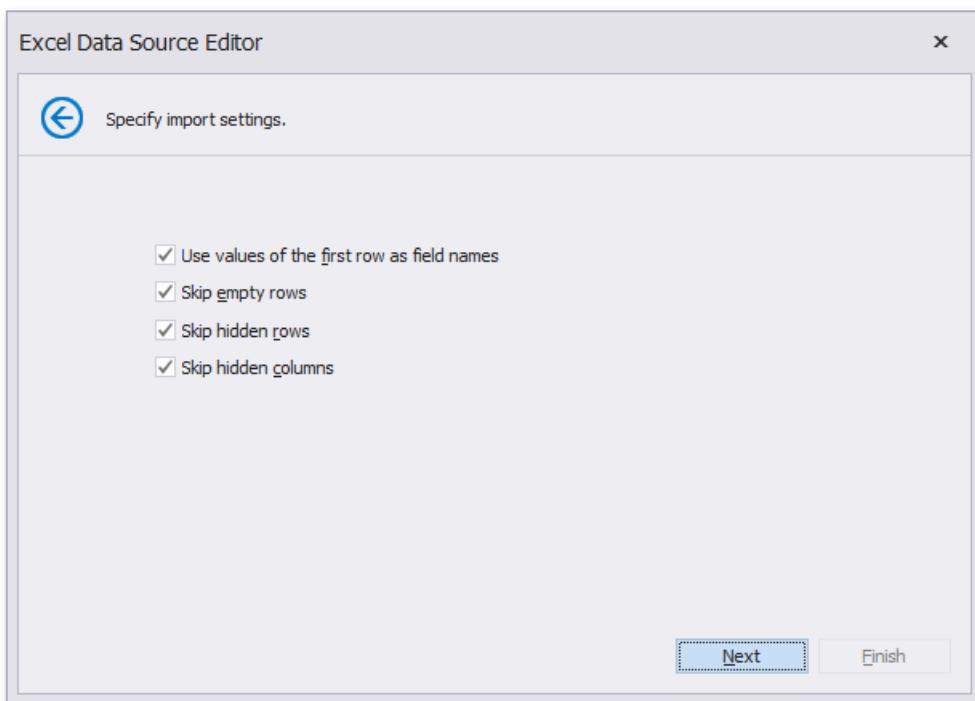
4. On the next wizard page, select a required Excel workbook. To do this, click the ellipsis button and locate the source file or enter the full path to this file. The XLS, XLSX and XLSM formats are supported.



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

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

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



Specify required settings and click **Next**.

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

Data Source Wizard

x



Select the required worksheet, table or defined name referring to the specified range.

Sheet_Categories
Sheet_Products
Sheet_Orders
Range_Categories
Table_Categories
Table_Products
Table_Orders

Next

Finish

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

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

Data Source Wizard

x

Select required columns and specify their settings.

Selected	Name	Type
<input checked="" type="checkbox"/>	ProductID	Double
<input checked="" type="checkbox"/>	ProductName	String
<input type="checkbox"/>	SupplierID	Double
<input checked="" type="checkbox"/>	CategoryID	Double
<input type="checkbox"/>	QuantityPerUnit	String
<input checked="" type="checkbox"/>	UnitPrice	Double
<input checked="" type="checkbox"/>	UnitsInStock	Double
<input type="checkbox"/>	UnitsOnOrder	Double
<input type="checkbox"/>	ReorderLevel	Double
<input checked="" type="checkbox"/>	Discontinued	Boolean
<input type="checkbox"/>	EAN13	String

Preview... Next Finish

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

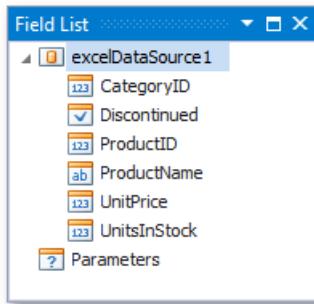
Data Preview (First 1000 Rows Displayed)

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

Close

Click **Finish** to complete the wizard.

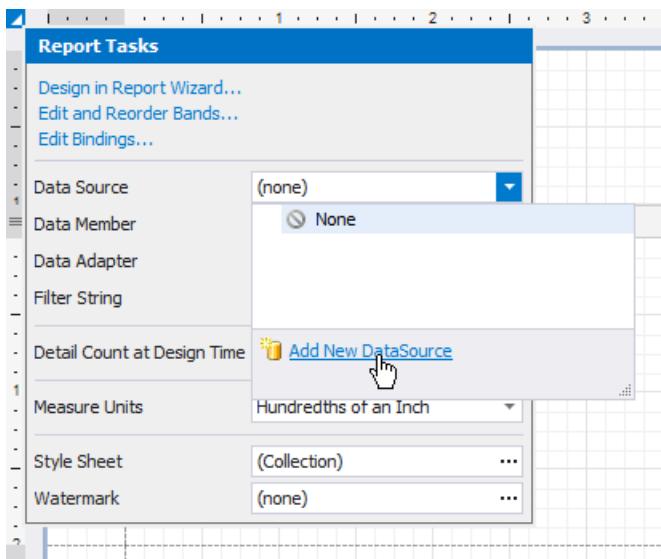
The created data source becomes displayed in the [Report Explorer](#)'s **Data Sources** node. The [Field List](#) reflects the data source's hierarchy.



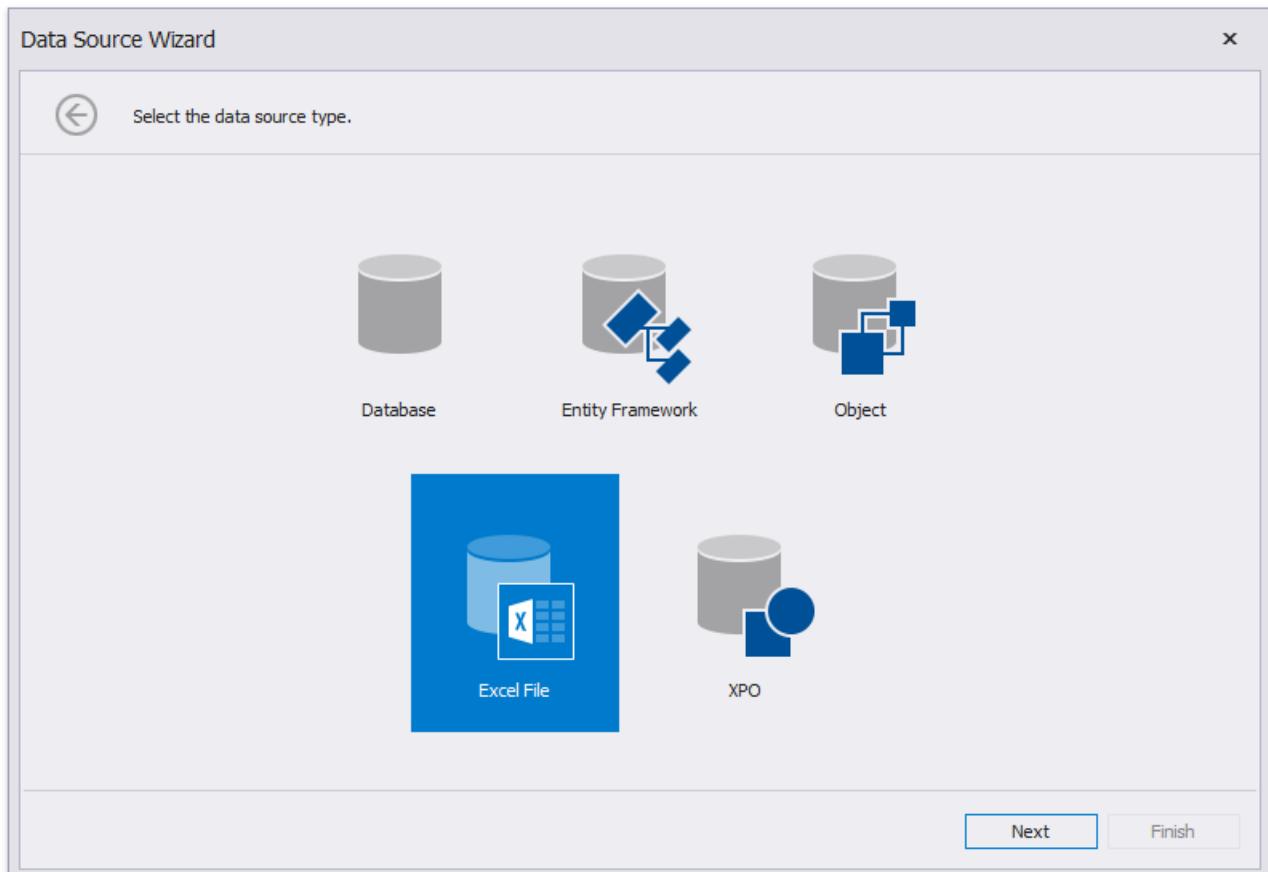
Bind a Report to a CSV File

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

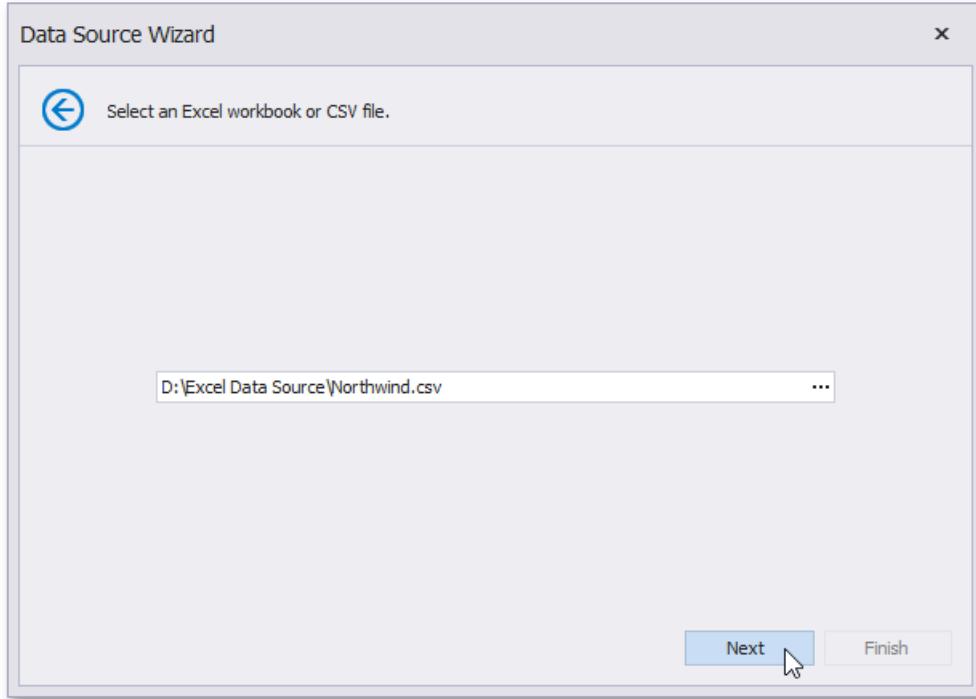
1. [Create a new report.](#)
2. Click the report's smart tag. In the invoked actions list, expand the drop-down menu for the **Data Source** property and click **Add New DataSource**.



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



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



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

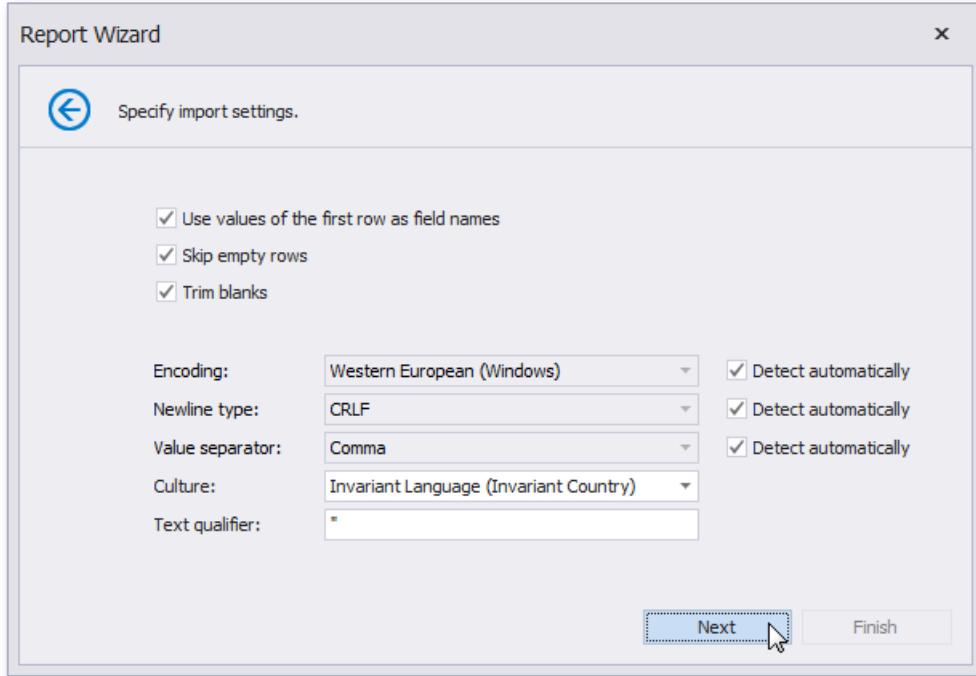
5. The next wizard page allows you to specify the import settings.

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

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

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

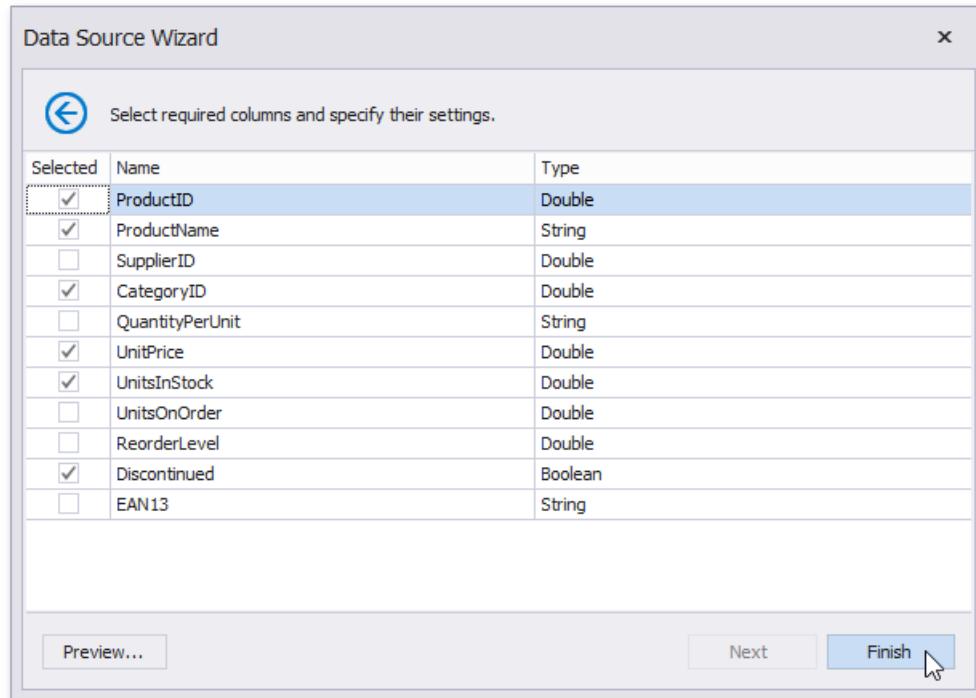
Enable the **Trim Blanks** check box to delete all leading and trailing empty spaces from each value in the CSV file.



Specify required settings and click **Next**.

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

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



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

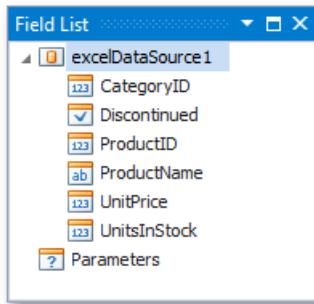
Data Preview (First 1000 Rows Displayed)

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

Close

Click **Finish** to complete the wizard.

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

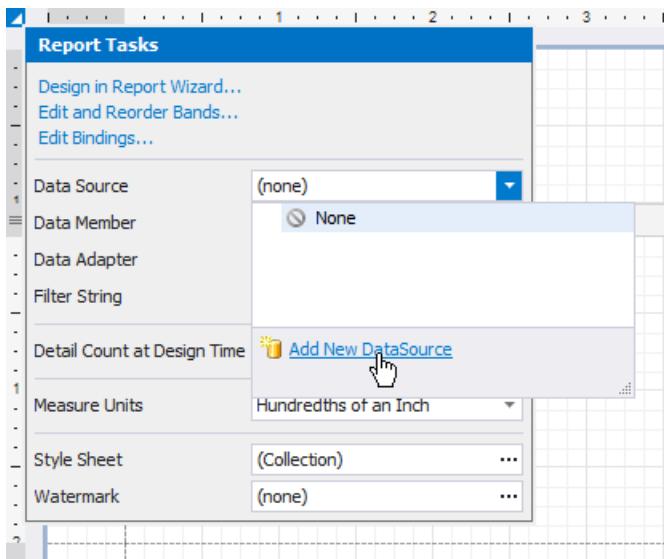


Bind a Report to JSON Data

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

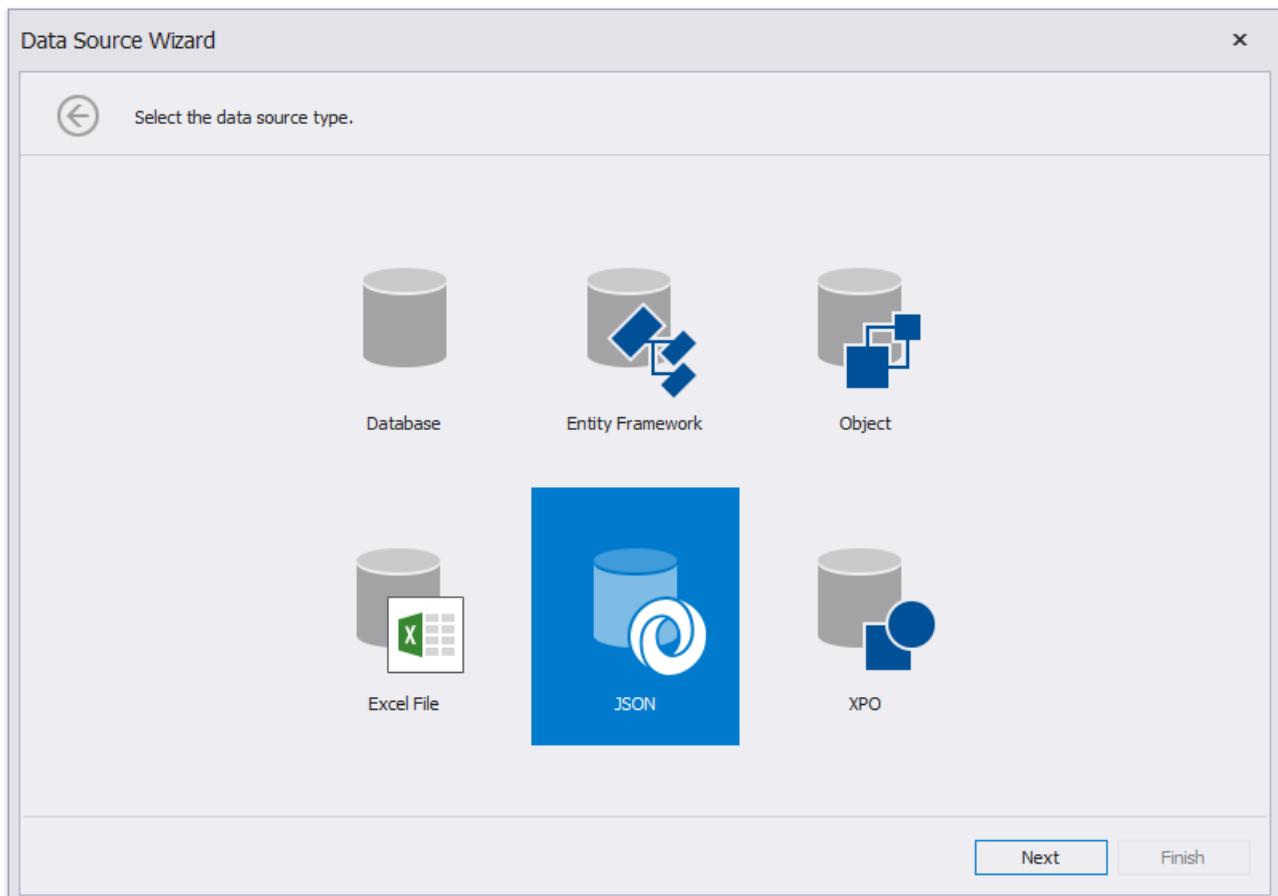
Create JsonDataSource

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



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

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

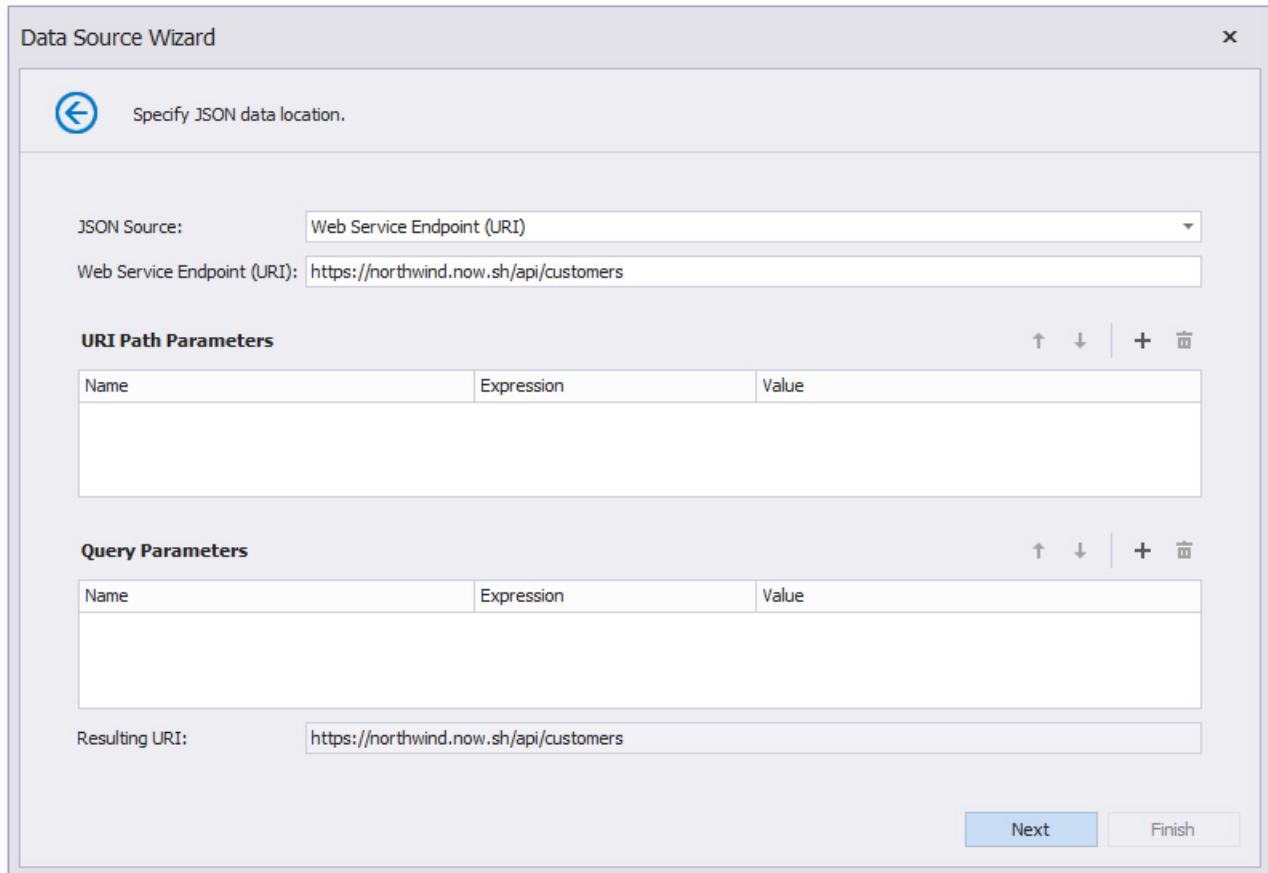


NOTE

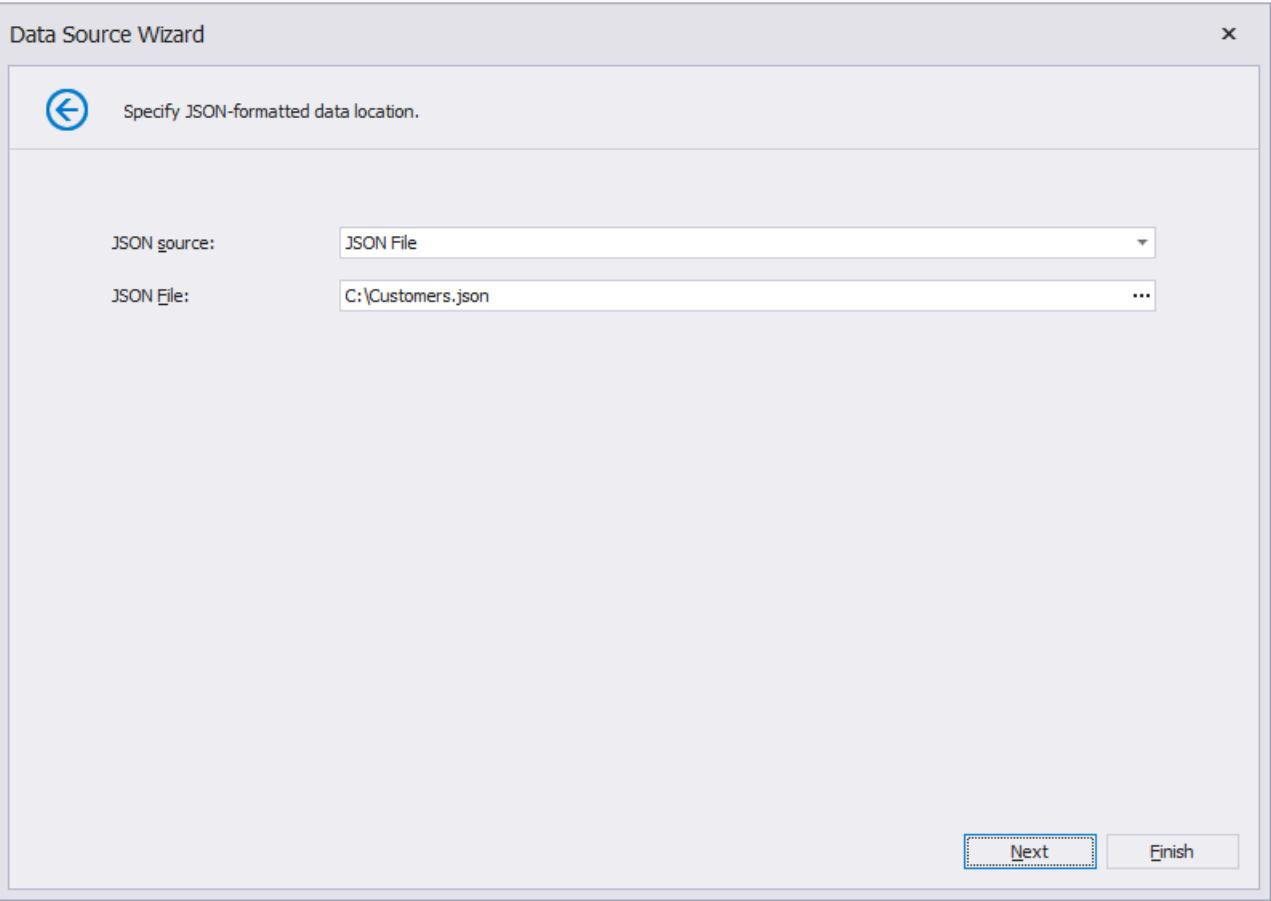
The Report Designer's Report Wizard provides the JSON option if the application has a reference to the open-source Newtonsoft.Json library.

4. The next wizard page allows you to specify 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](#).

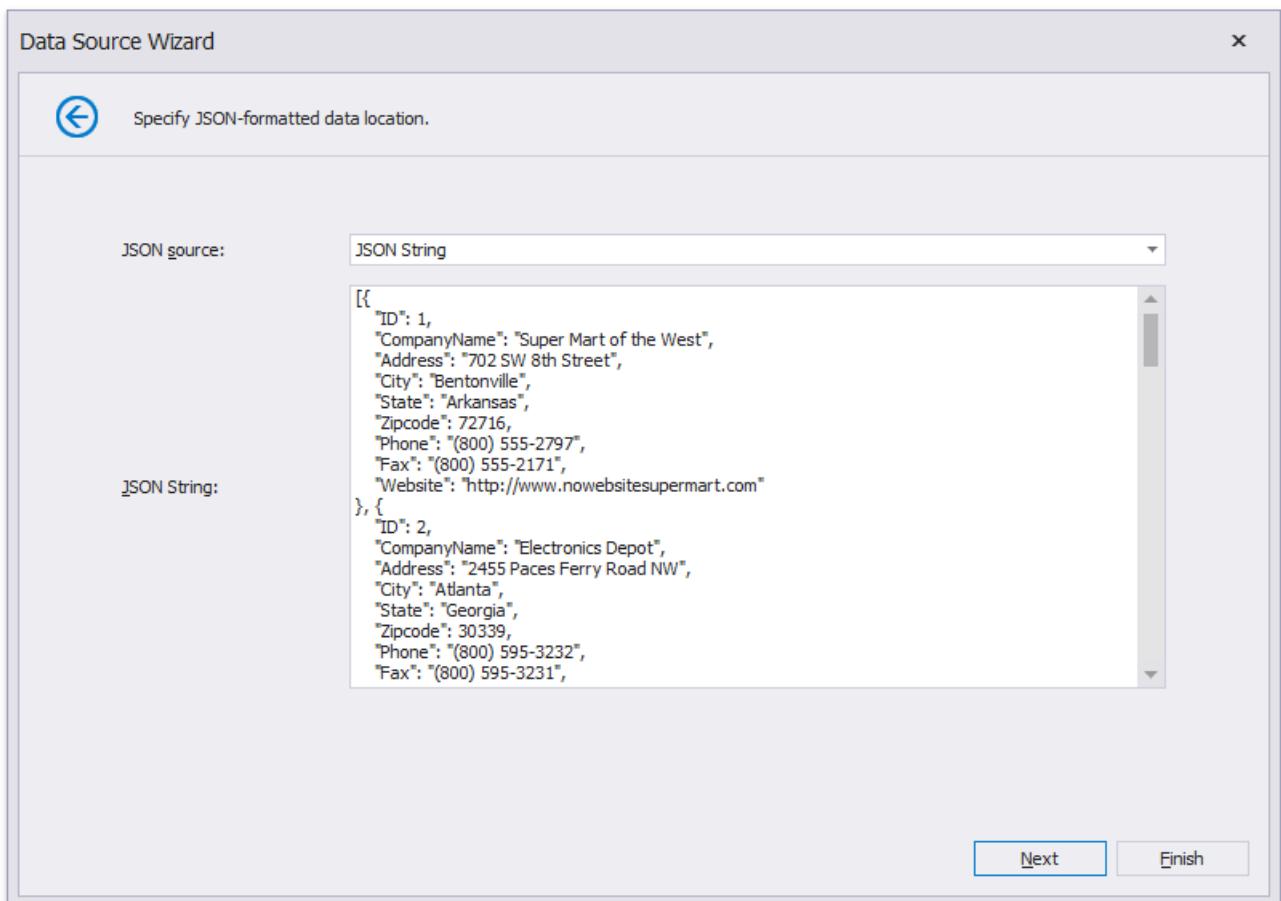
- o Choose **Web Service Endpoint** and specify the endpoint data.



- o Choose **JSON File** and specify the JSON file location.



- Choose **JSON String** and provide the JSON data string.



If you choose the **Web Service Endpoint** option, you can configure a web service endpoint, URI path parameters, query parameters, and header parameters.

4.1. Specify path parameters and query parameters.

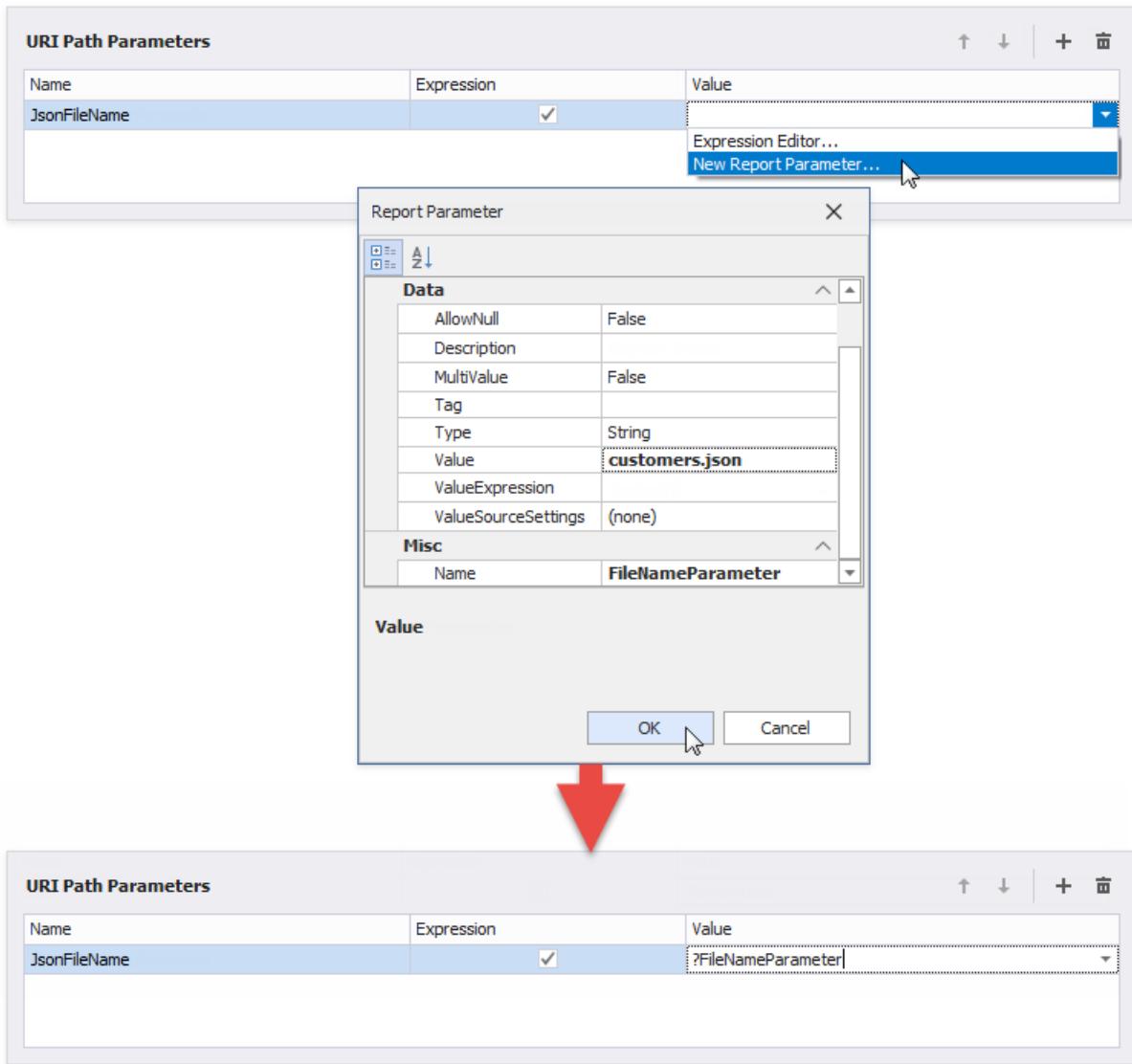
The screenshot shows two tables side-by-side. The top table is titled 'URI Path Parameters' and has columns for 'Name', 'Expression', and 'Value'. The bottom table is titled 'Query Parameters' and also has columns for 'Name', 'Expression', and 'Value'. Both tables are currently empty. Below these tables is a text input field labeled 'Resulting URI:'.

You can enable the new parameter's **Expression** property and [use expressions](#) to set path parameter and query parameter values.

- Select **Expression Editor** from the Value property's drop-down list, specify the expression in the invoked [Expression Editor](#), and click **OK**.

The screenshot shows the 'URI Path Parameters' dialog with one item named 'JsonDate'. The 'Value' column for this item has a dropdown menu open, with 'Expression Editor...' highlighted. A modal window titled 'Expression Editor' is displayed, containing the expression 'FormatString('{0:yyyy-MM-dd}', Today())'. On the left of the editor is a sidebar with categories like Functions, DateTime, Logical, Math, String, and Data. On the right, the 'Today()' function is detailed: 'Returns the current date. Regardless of the actual time, this function returns midnight of the current date.' At the bottom of the editor are 'OK' and 'Cancel' buttons, with 'OK' being clicked.

- Expressions can include [report parameters](#). Select **New Report Parameter** from the Value property's drop-down list, configure the report parameter in the invoked [Report Parameter](#) dialog, and click **OK**.



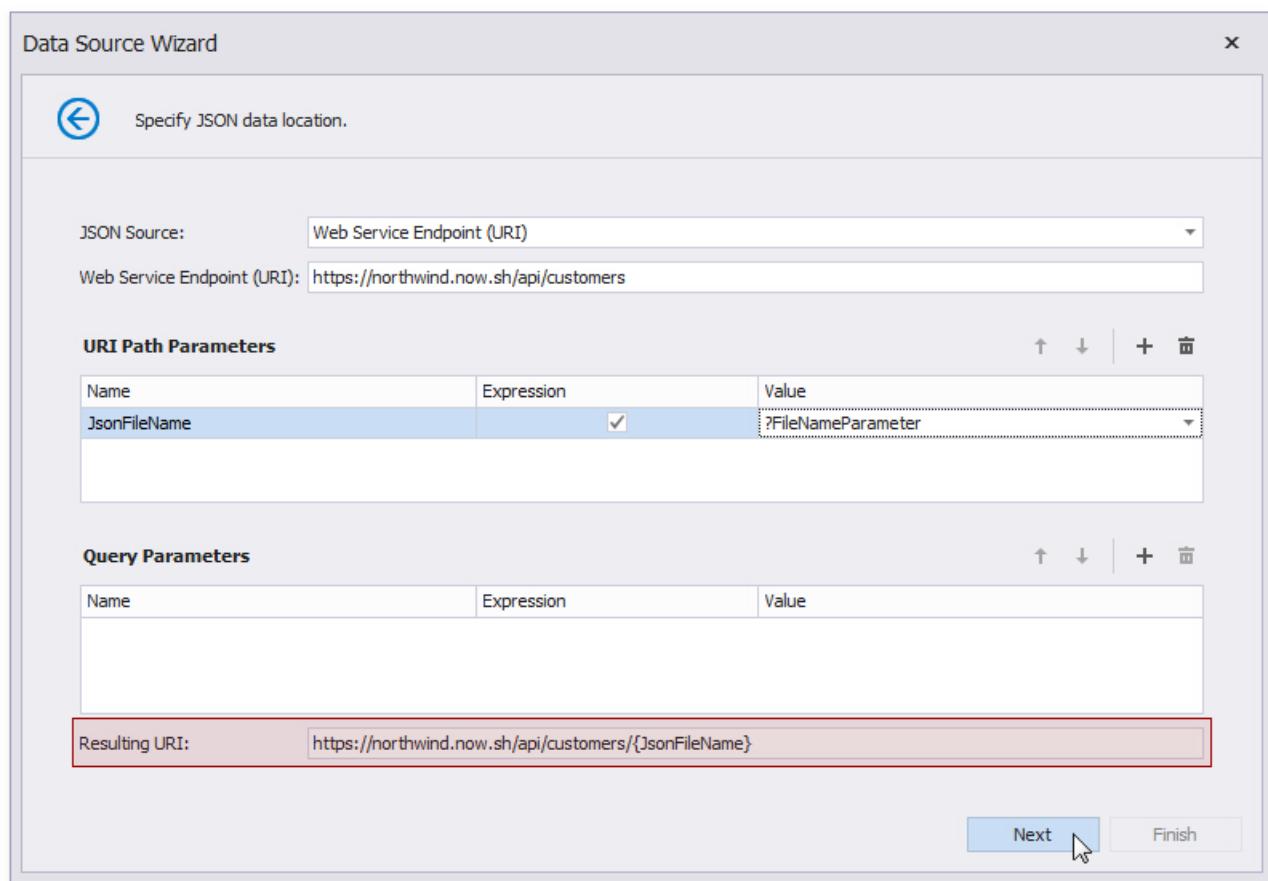
NOTE

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 the *File Not Found* error.

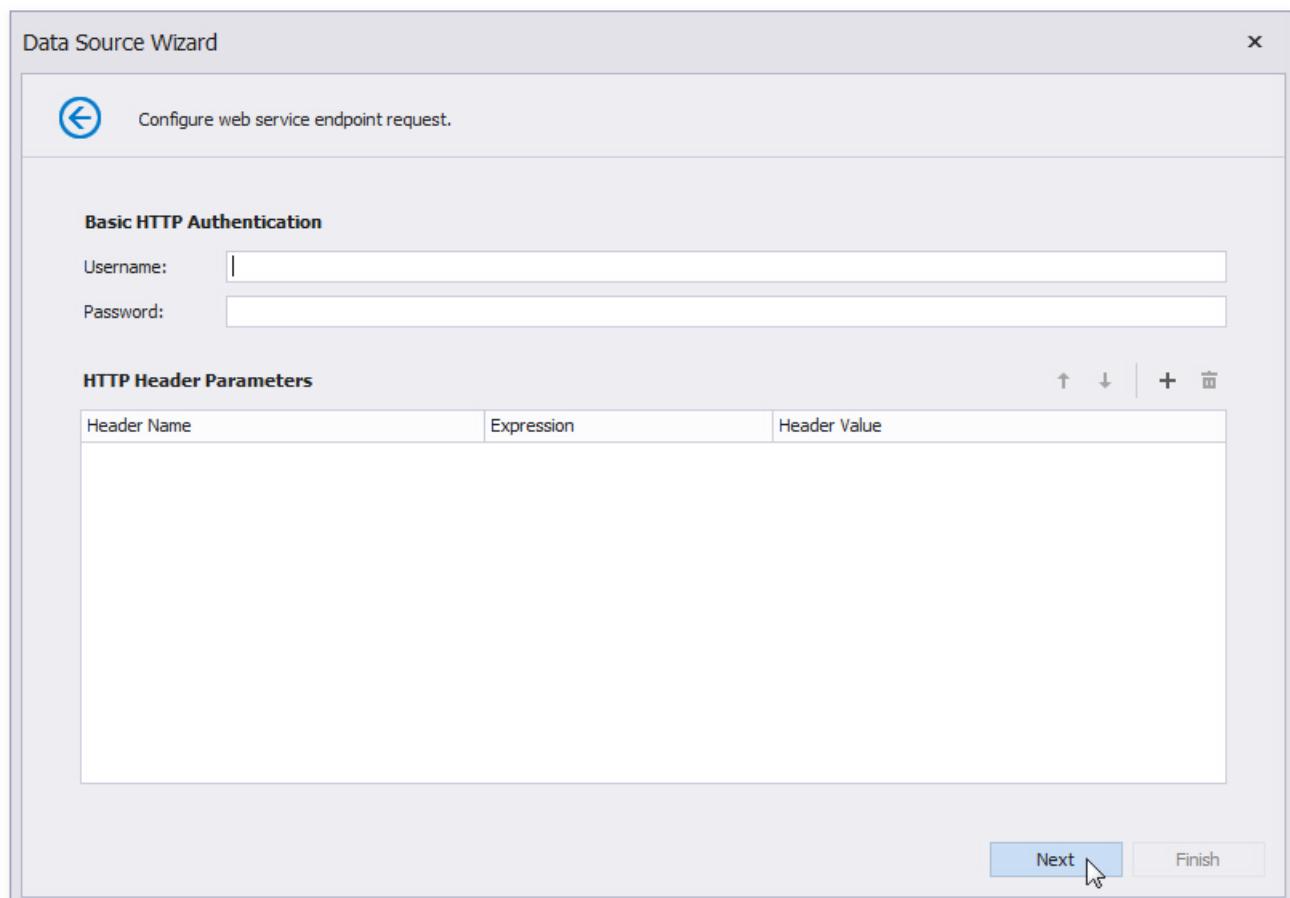
Path parameters and query parameters are included in endpoint requests in the same order as they are listed. Move a parameter up or down in the list to change its position in endpoint requests.

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



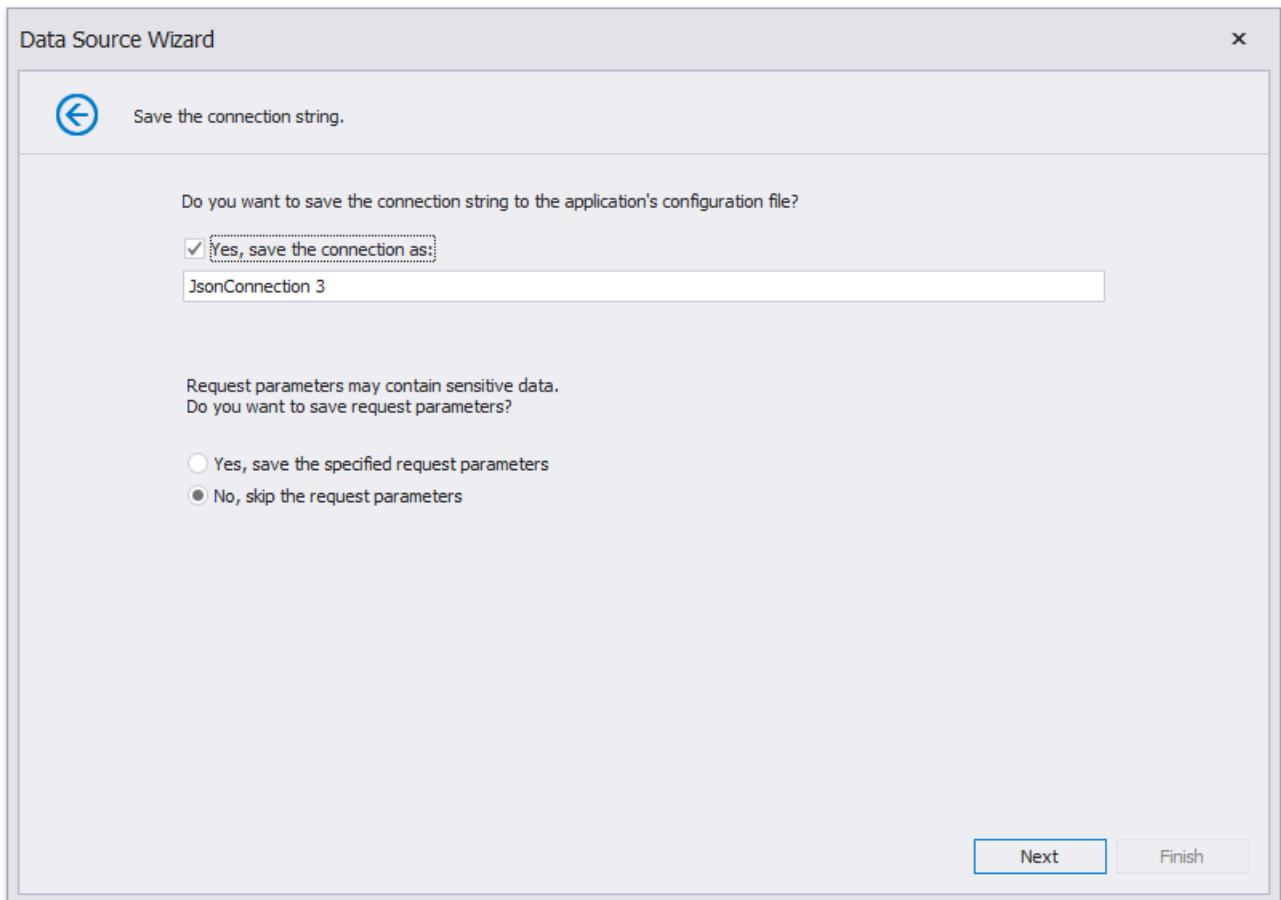
Click **Next** to proceed to the Wizard's next page.

4.2. Configure the Basic HTTP Authentication credentials and HTTP header parameters. Use the same steps as in P.4.1. above to configure a header parameter.



4.3. Choose whether to save the created connection string to the application's configuration file. If not, the connection

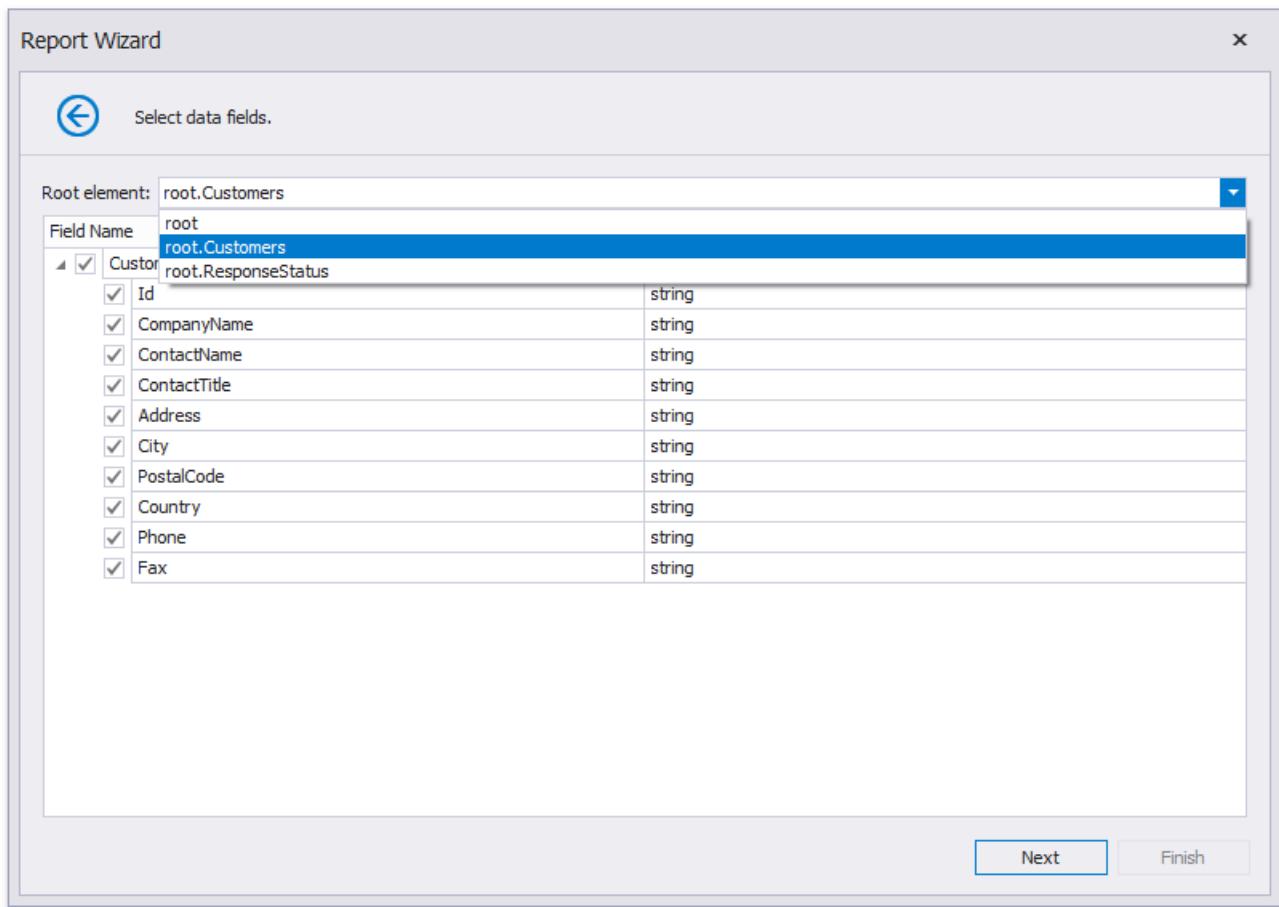
parameters are saved to the report's definition.



TIP

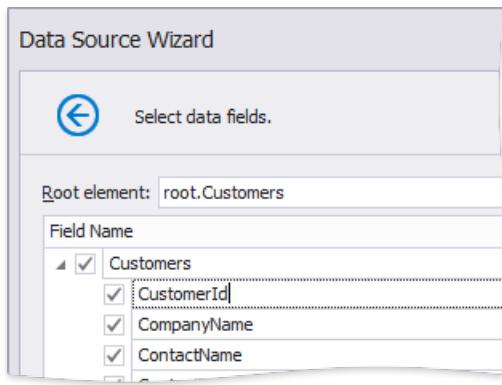
If the path parameters, query parameters, and header parameters you specified do not contain sensitive data, you can save them along with the connection parameters. Otherwise, the path parameters, query parameters, and header parameters are used once to retrieve JSON data to an object in memory. This object is accessible until you close the Report Designer.

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

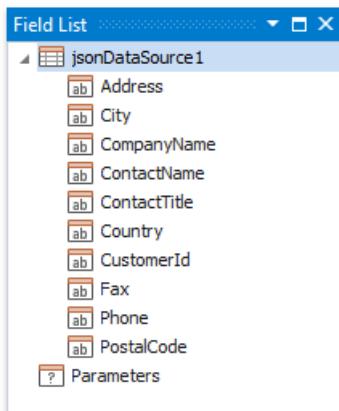


Uncheck the data fields that your report does not require.

You can rename data fields if necessary.

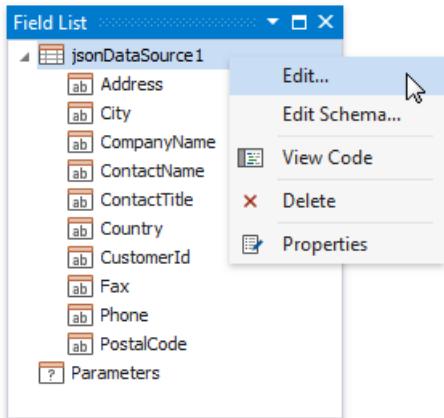


After you finish the wizard, it creates the **JsonDataSource** component. This component retrieves the checked data fields that the selected JSON element includes. The [Field List](#) reflects the data source structure.



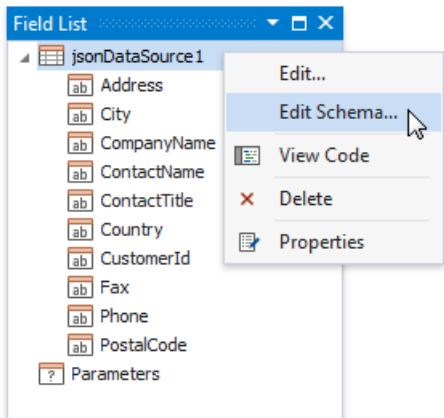
Customize the JSON Data Source

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



Customize the JSON Data Source Schema

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

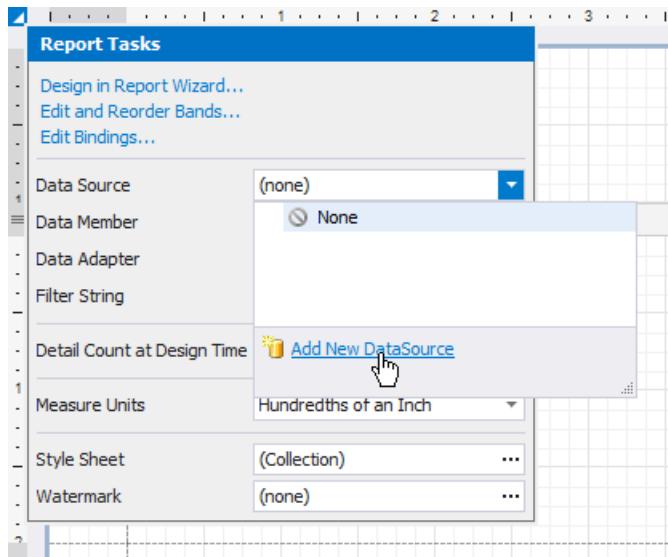


Bind a Report to a MongoDB Instance

Create a new project and add a blank report to this project. Follow the steps below to bind the report to a MongoDB instance.

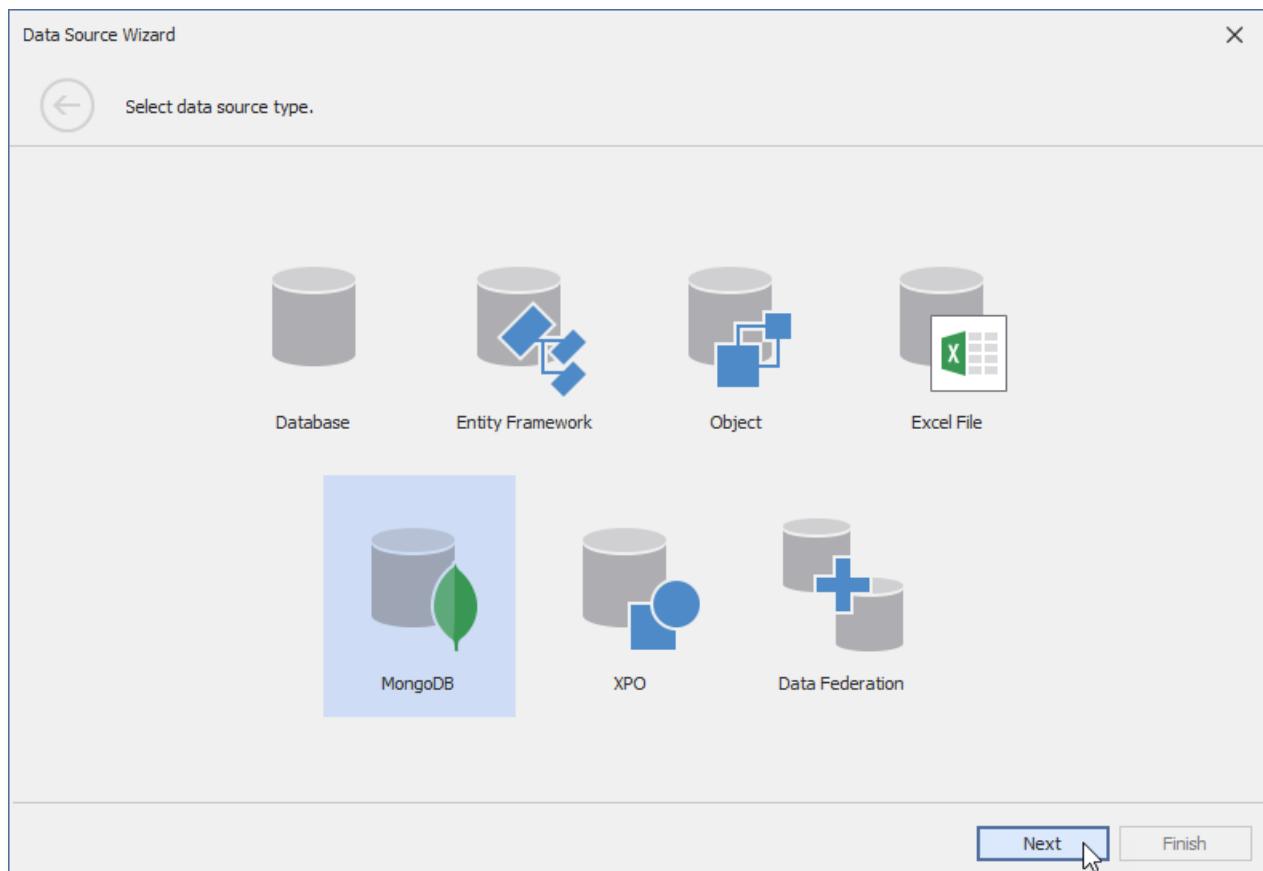
Invoke the Data Source Wizard

Click the report's smart tag, expand the drop-down menu for the **Data Source** property in the "Report Tasks" list, and click **Add Report Data Source**.



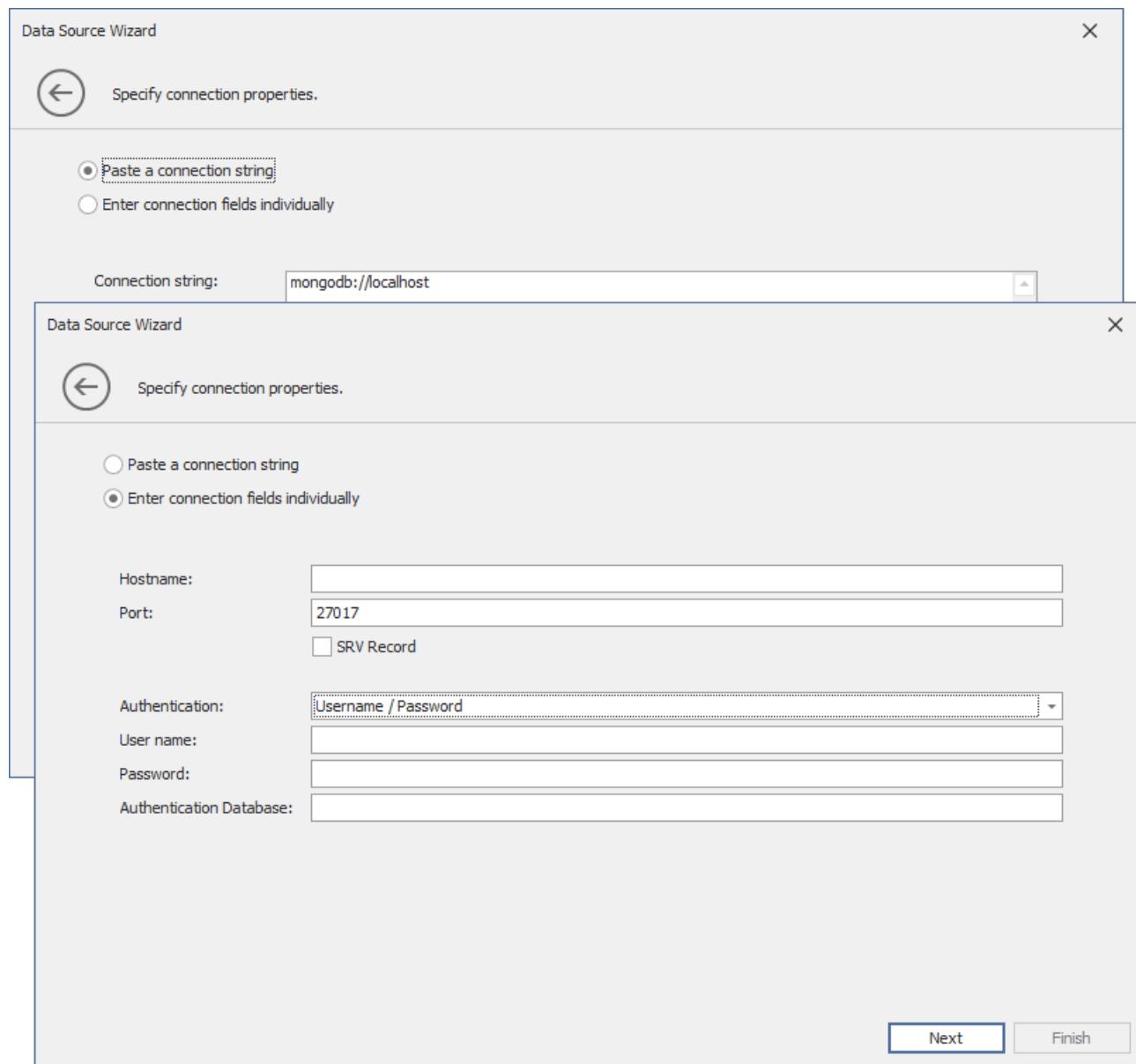
Select the MongoDB Data Source

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



Specify Connection Properties

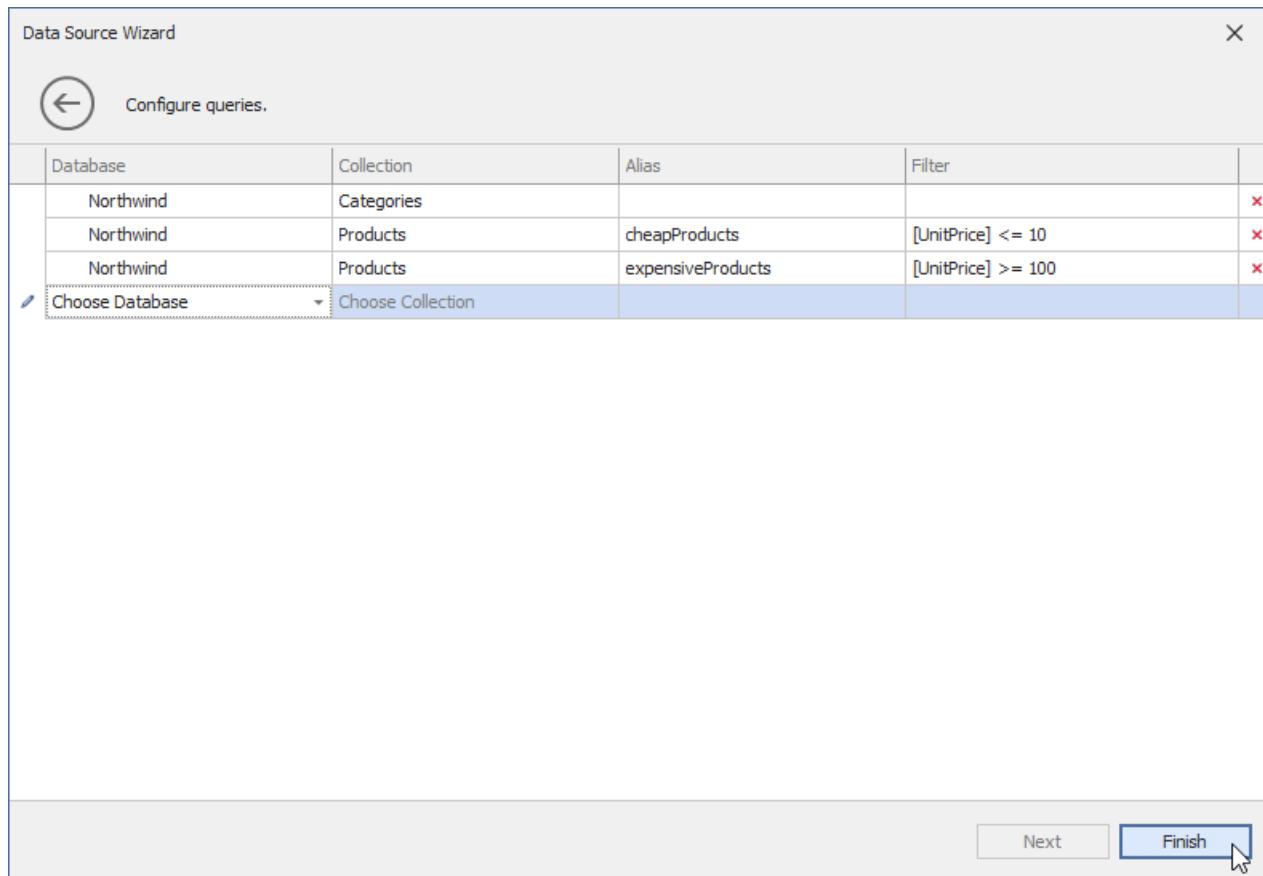
Paste the entire string or enter connection fields individually. Refer to the following topic for information on connection string format and options: [Connection String URI Format](#).



Specify Data Queries

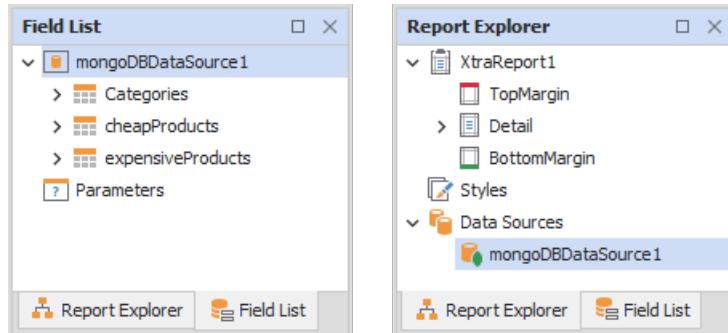
On the next page, choose database collections that you want to load from the MongoDB instance. Specify the name of the database and database collection in the **Database** and **Collection** columns. You can use the **Filter** column to specify filter conditions for items of the database collections.

The names of queries to database collections should be unique. A string stored in a query's **Collection** column is the default name for this query. To create several queries to the same database collection, use the **Alias** column to specify different names for these queries.



Use the Created MongoDB Data Source

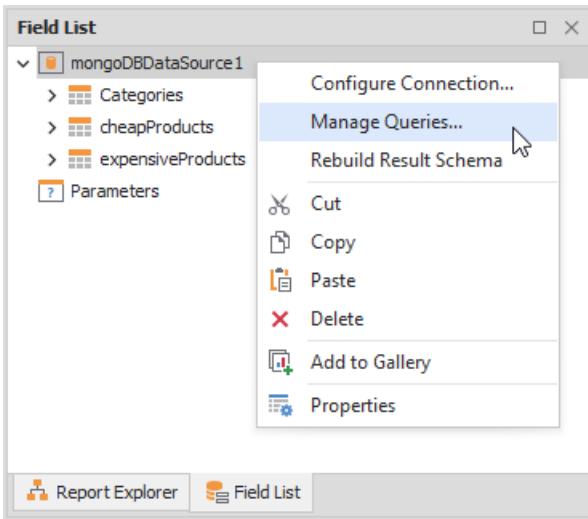
The created data source appears in the [Field List](#) and [Report Explorer](#).



You can bind report controls to the fields from this data source. Refer to the following topic for more information: [Bind Report Controls to Data](#)

Modify the Created MongoDB Data Source

You can change connection parameters and modify queries for the created data source. Right-click the data source node in the [Field List](#) or [Report Explorer](#) and select **Configure Connections** or **Manage Queries**.



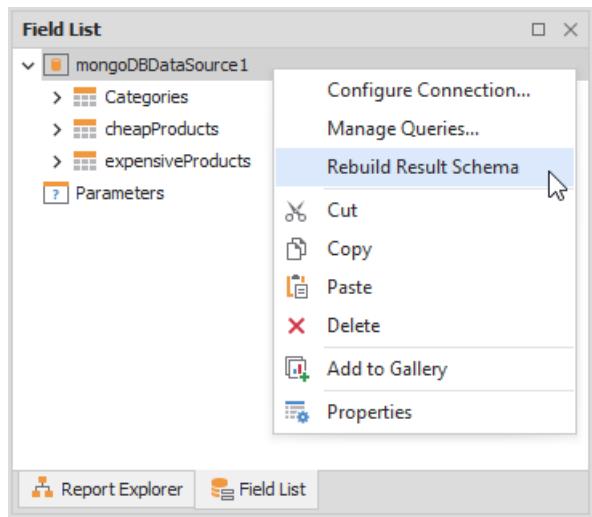
Reconfigure the connection parameters or queries in the invoked **Connection Editor** and click *Finish*.

The 'Connection Editor' dialog is displayed. It shows a table with four columns: Database, Collection, Alias, and Filter. There are four rows:

	Database	Collection	Alias	Filter
	Northwind	Categories		
	Northwind	Products	cheapProducts	[UnitPrice] <= 10
*	Northwind	Products	expensiveProducts	[UnitPrice] >= 50
*	Choose Database	Choose Collection		

At the bottom right of the dialog, there are 'Next' and 'Finish' buttons. The 'Finish' button is highlighted with a mouse cursor.

Right-click the data source node and select **Rebuild Result Schema** to apply the changes.

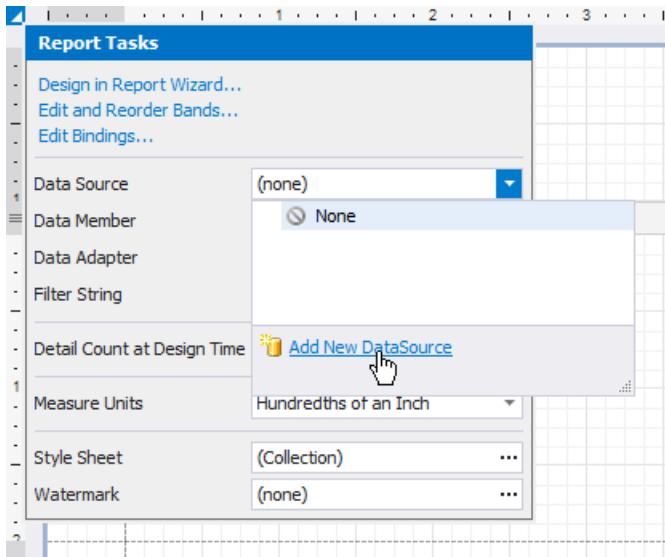


Bind a Report to an XPO Persistent Object

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

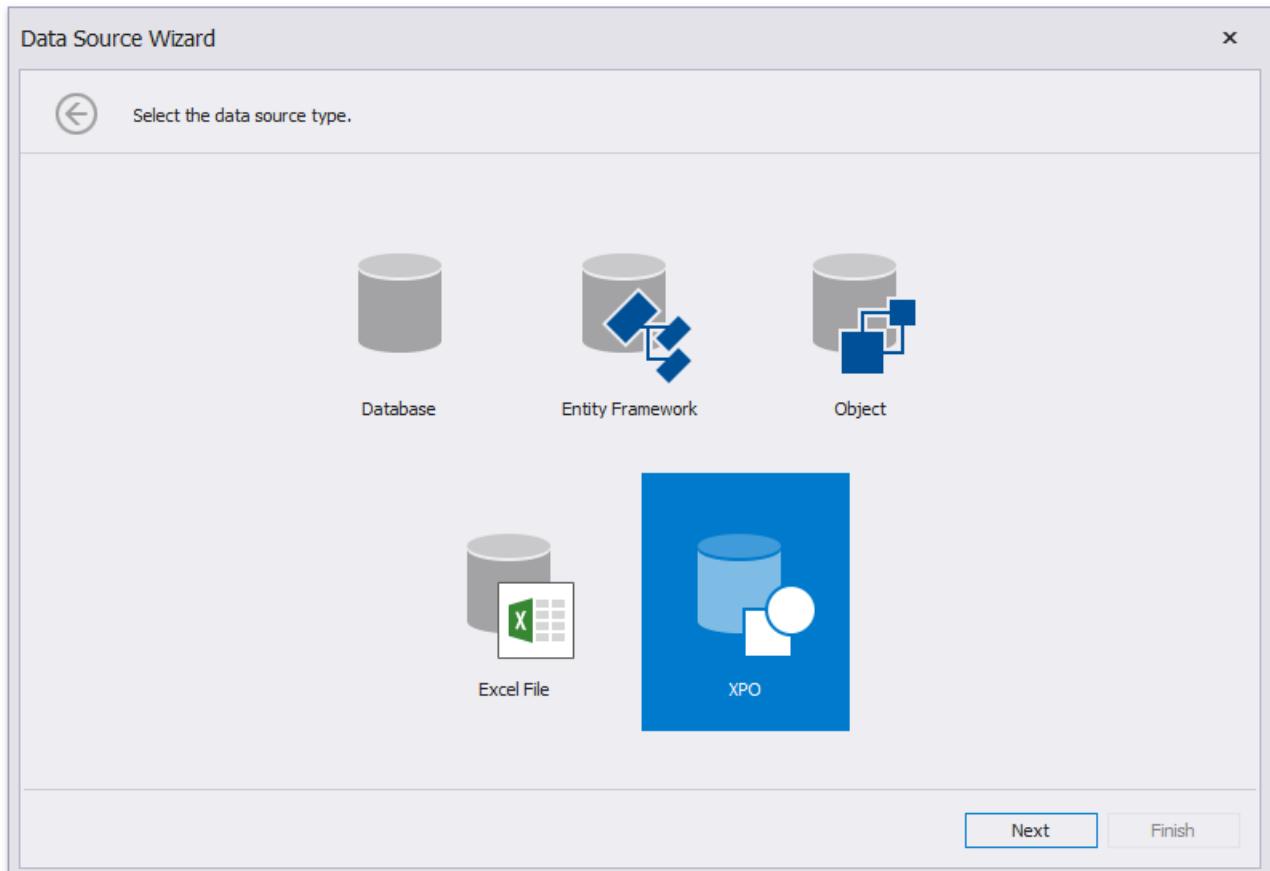
Create XPOObjectSource

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

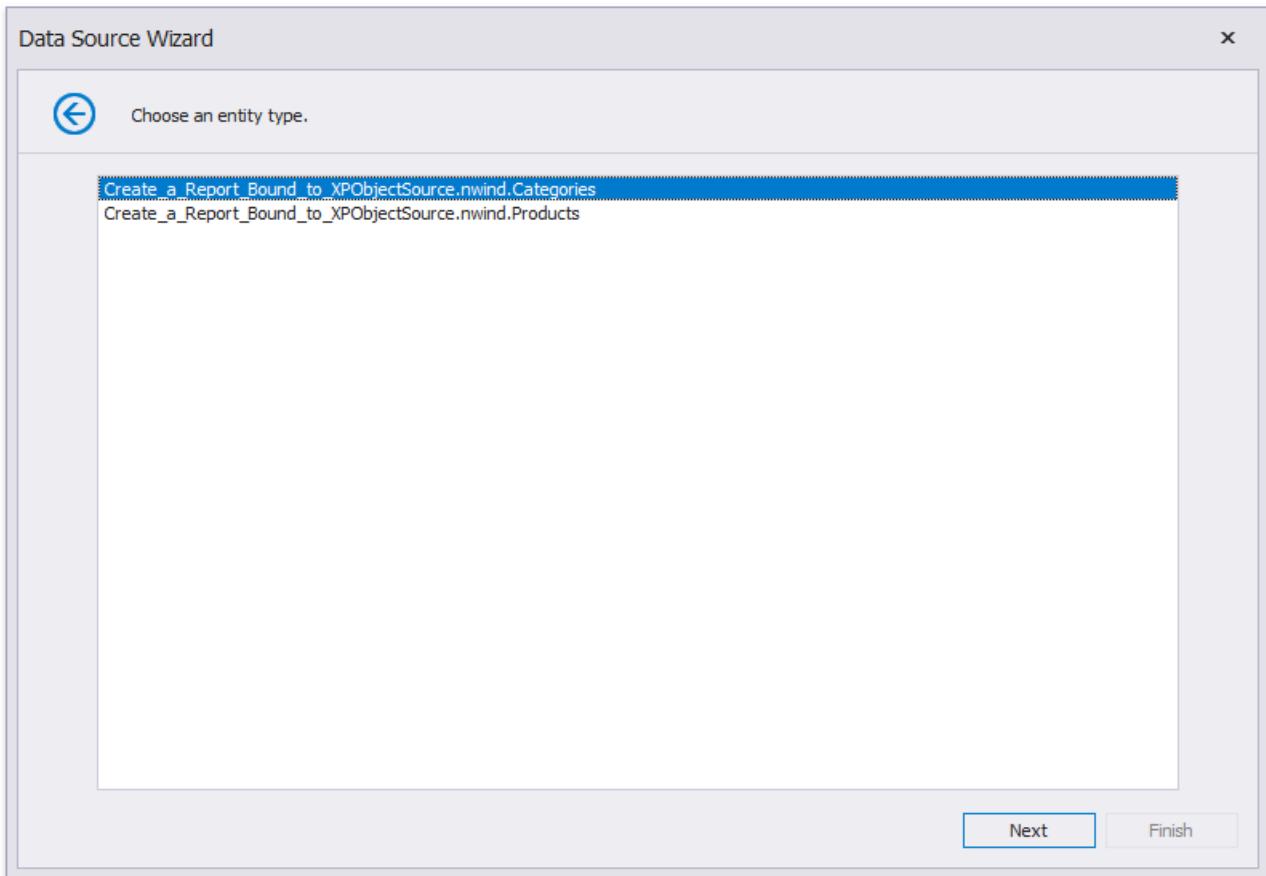


This invokes the [Data Source Wizard](#).

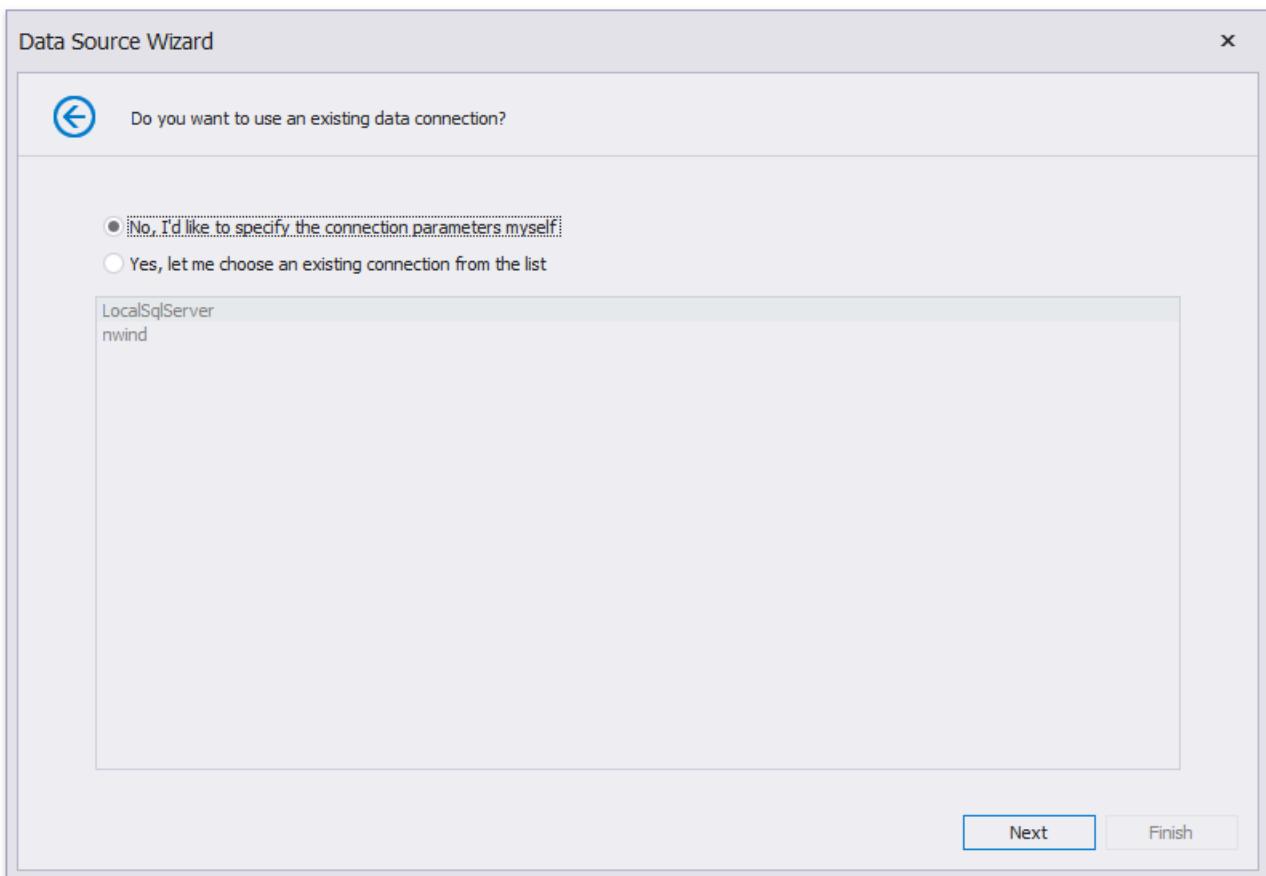
3. Choose the **XPO** option and click **Next**.



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

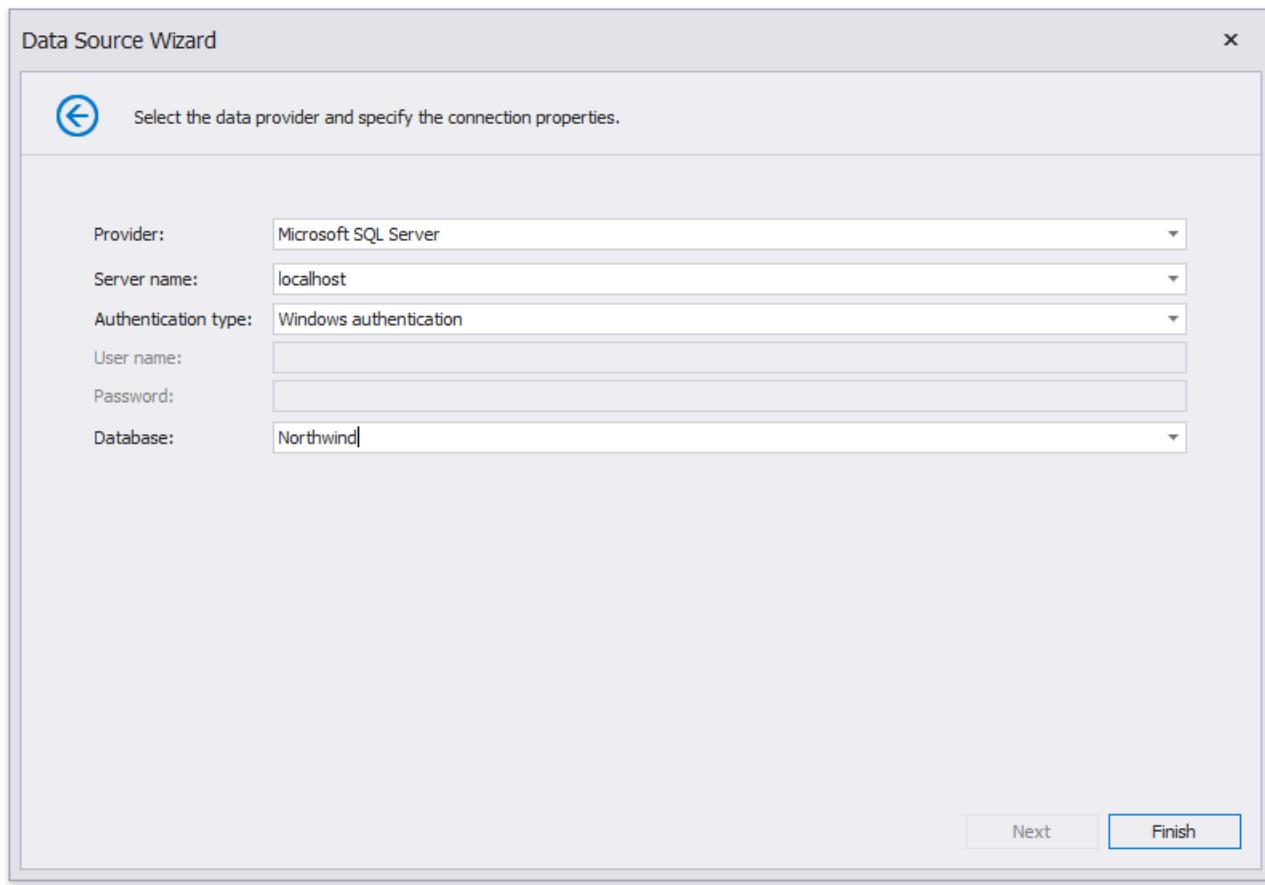


5. On the next page, specify whether to use an existing data connection or create a new data connection.

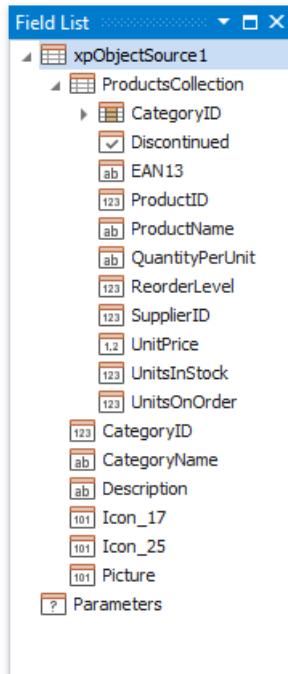


6. To create a new data connection, select a data provider or define a custom connection string.

Specify provider-specific connection options (for example, the authentication type and database name).



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



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

Customize Data Source Settings

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

The screenshot shows the Report Explorer window on the left and the Properties window on the right. In the Report Explorer, under 'Data Sources', 'xpObjectSource1' is selected. In the Properties window, the 'xpObjectSource1 DevExpress.Xpo.XPObjectSo...' tab is active. The properties listed are:

Property	Value
(Name)	xpObjectSource1
ConnectionString	...
ConnectionStringName	nwind
EntityType	Create_a_Report_Bound...
Filter	...
GroupFilter	...
Parameters	(Collection)
Properties	(Collection)
SkipReturnedRecords	0
Sorting	(Collection)
Tag
TopReturnedRecords	0

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

NOTE

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

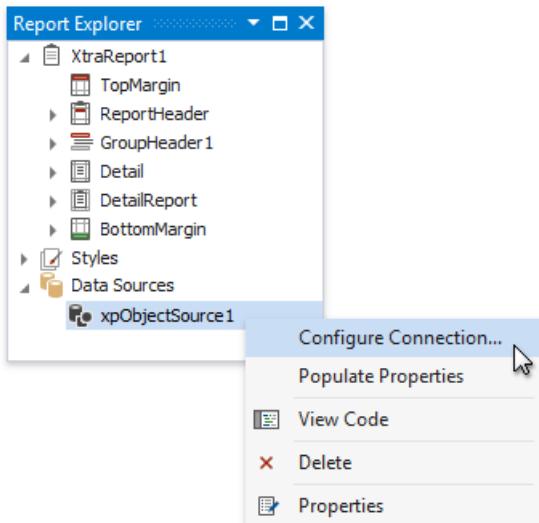
Change the Connection Parameters

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

The screenshot shows the Properties window for 'xpObjectSource1'. The 'ConnectionString' and 'ConnectionStringName' properties are highlighted with a red box. The properties listed are:

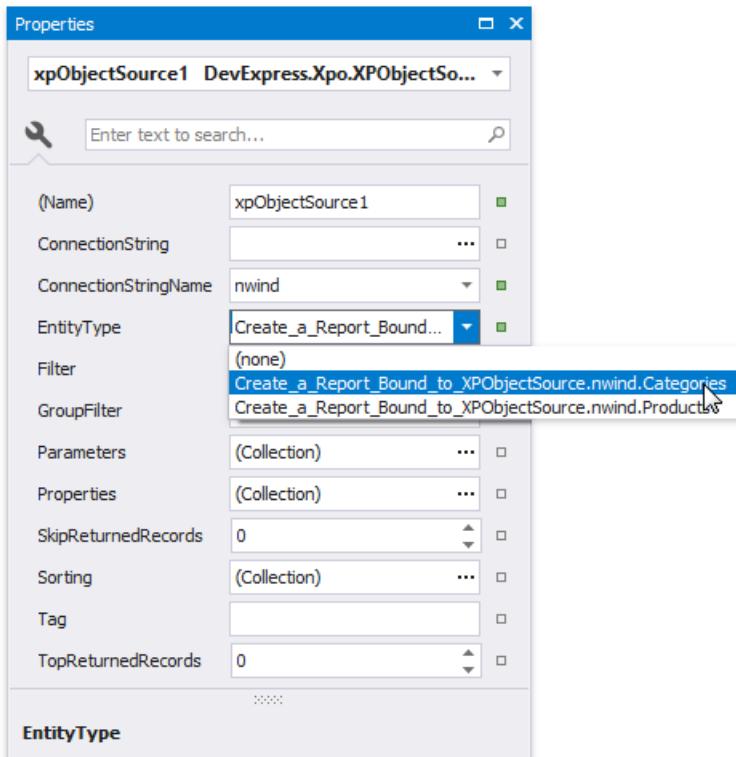
Property	Value
(Name)	xpObjectSource1
ConnectionString	...
ConnectionStringName	nwind
EntityType	Create_a_Report_Bound...
Filter	...

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



Change the Entity Type

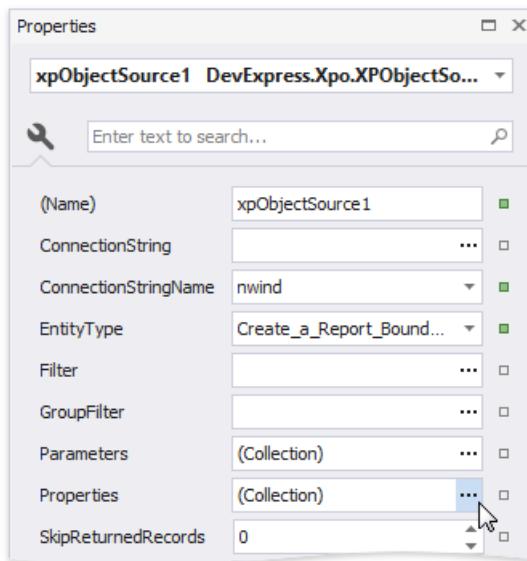
Use the **EntityType** property to specify another persistent object class.



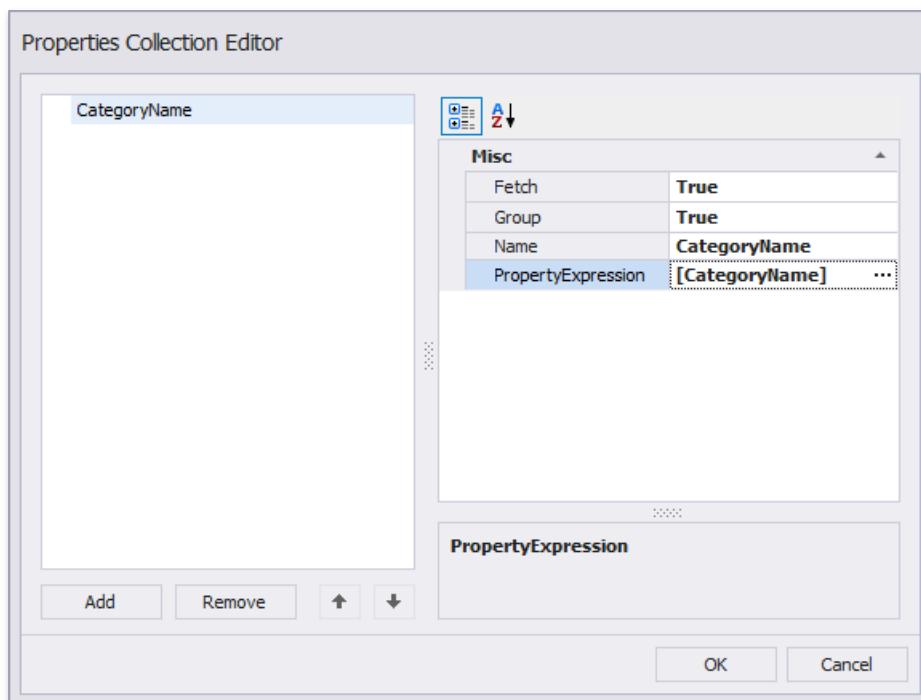
This reloads the Field List. It displays the fields that correspond to the the newly specified type. You can bind report elements to these fields.

Change the Property Set

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



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



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

- **Name**

The name that you use to access the property in the report.

- **PropertyExpression**

The entity's persistent property or an expression that you can construct using several properties. The expression is calculated on the server.

- **Group**

Indicates whether to use this property to group data that XPO retrieves from the server.

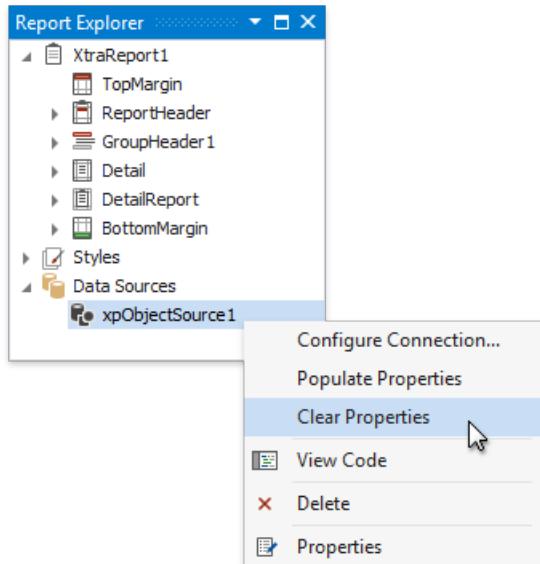
- **Fetch**

Indicates whether to retrieve data for this property from the server.

NOTE

At least one property in the **Properties** collection must have an enabled **Fetch** property.

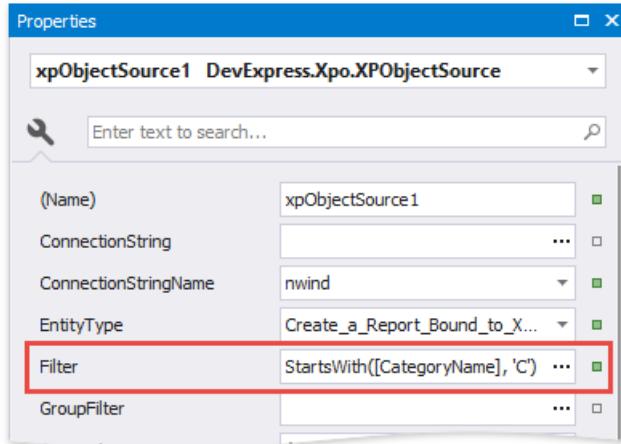
Use the **Clear Properties** command to clear the **Properties** collection and the **Populate Properties** command to add all the properties the entity type exposes.



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

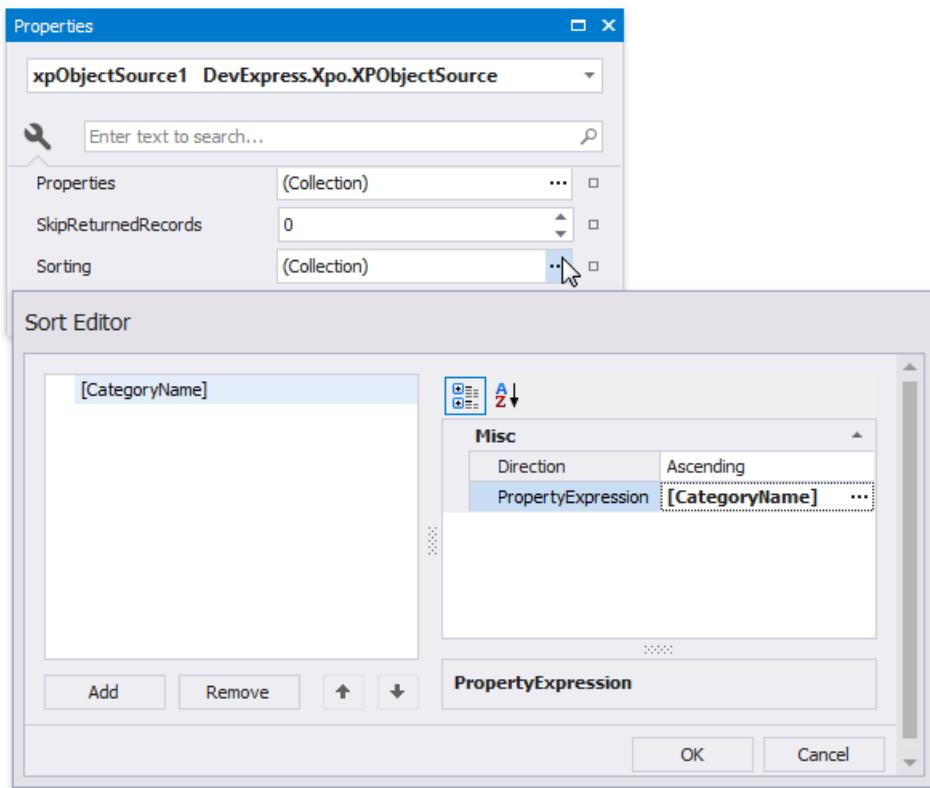
Retrieve Filtered Data

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



Retrieve Sorted Data

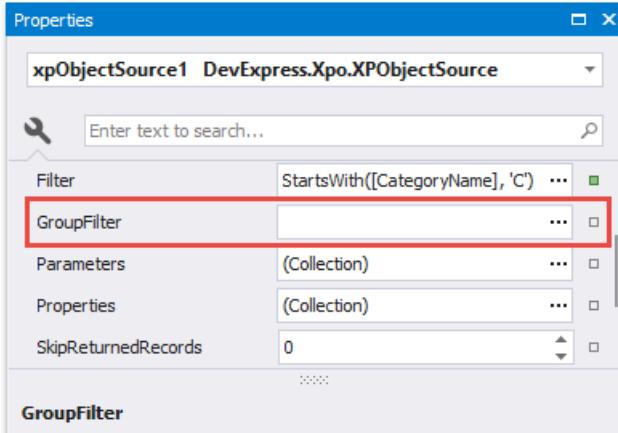
Use the **XPOBJECTSOURCE**'s **Sorting** property to specify sort settings for the retrieved data.



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

Retrieve Filtered Groups

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

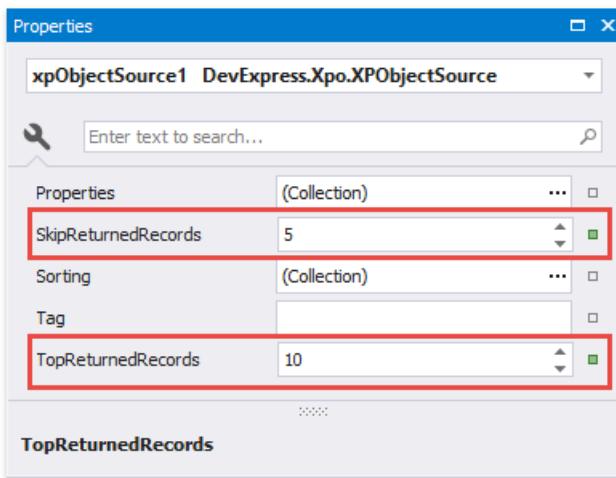


NOTE

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

Limit the Retrieved Records' Number

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



- **Top Returned Records**

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

- **Skip Returned Records**

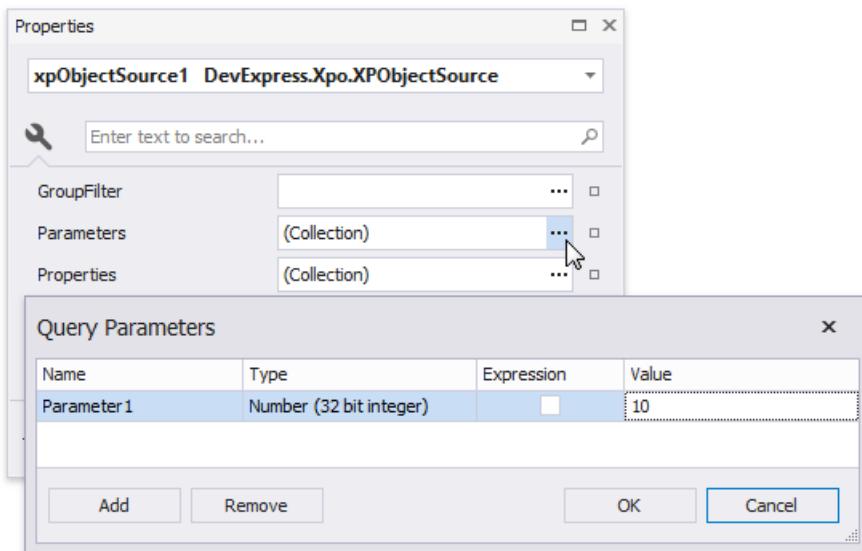
Specifies the number of top records in the data source XPO skips when it retrieves data for the report.

NOTE

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

Specify Query Parameters

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



The following properties are available for each query parameter:

- **Name**

Specifies the parameter's name.

- **Type**

Specifies the parameter value's data type.

- **Expression**

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

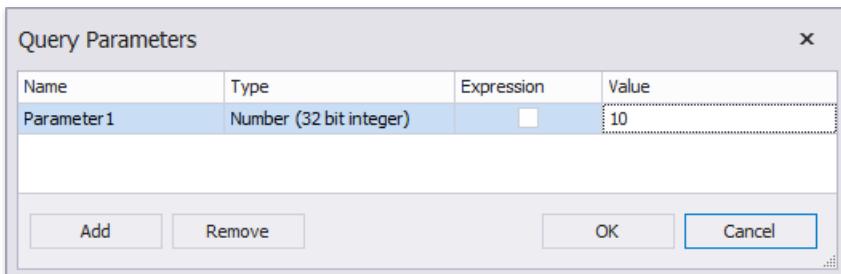
- **Value**

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

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

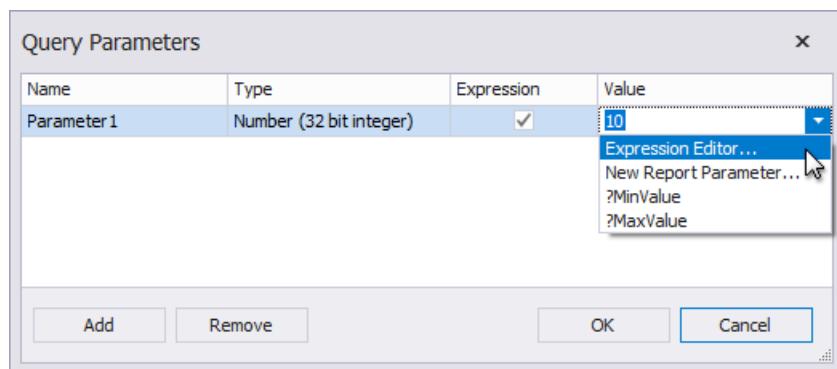
- *Specify a static value*

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



- *Provide a dynamic value*

Activate the Expression checkbox for a parameter.



The following three options are available to dynamically calculate the parameter's actual value:

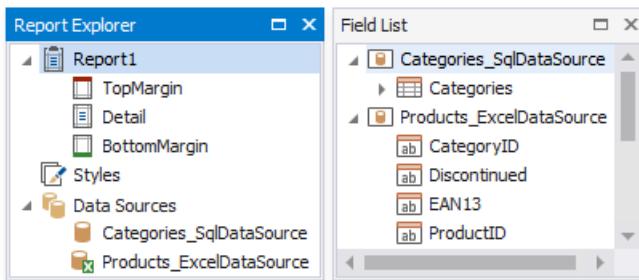
- Select **Expression Editor** to construct an expression in the invoked Expression Editor.
- Selecting **New Report Parameter** to create a new report parameter and map it to the query parameter. Ensure the report parameter's type corresponds to the query parameter's type.
- Select an existing report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

Bind a Report to a Join-Based Federated Data Source

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

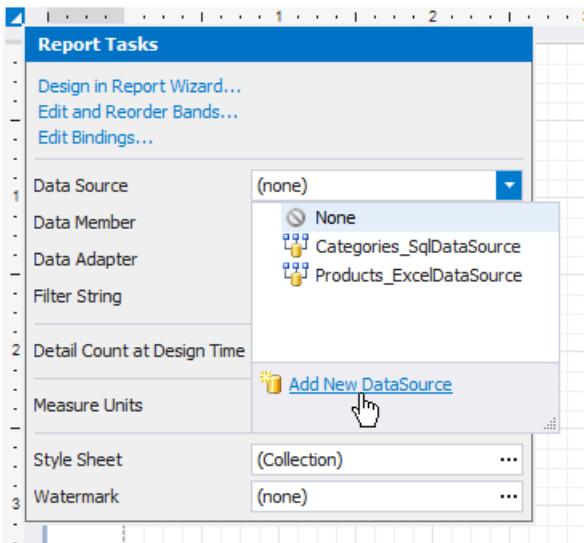
Create a Report and Data Sources

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

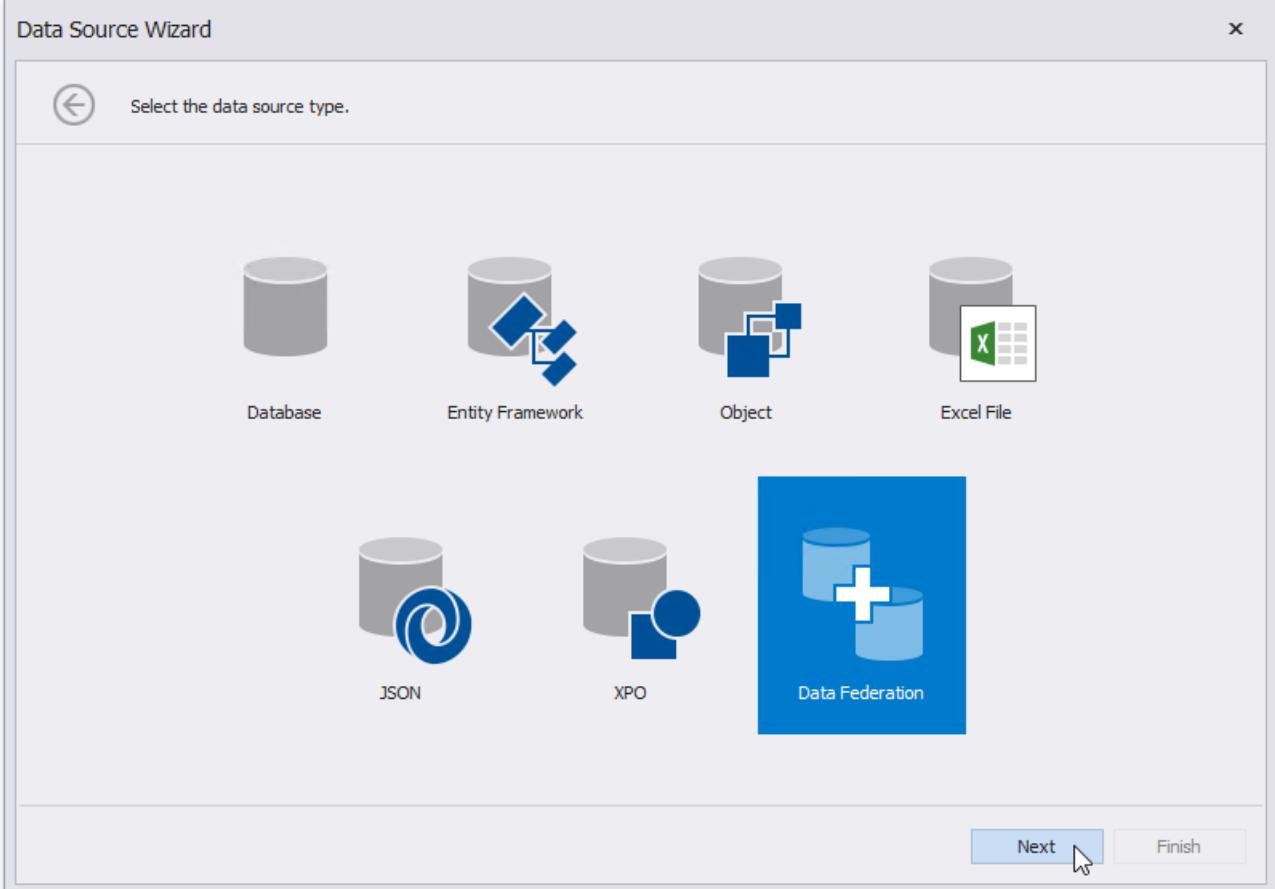


Create Data Federation and Bind the Report to It

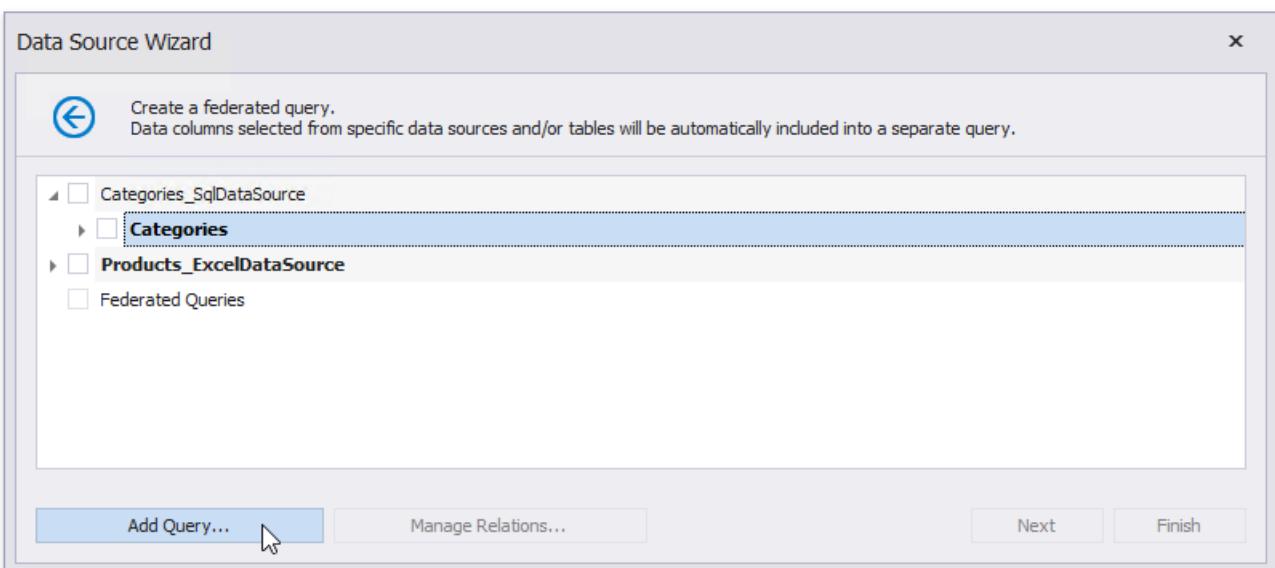
1. Click the report's smart tag, expand the **Data Source** property's drop-down menu, and click **Add New DataSource**.



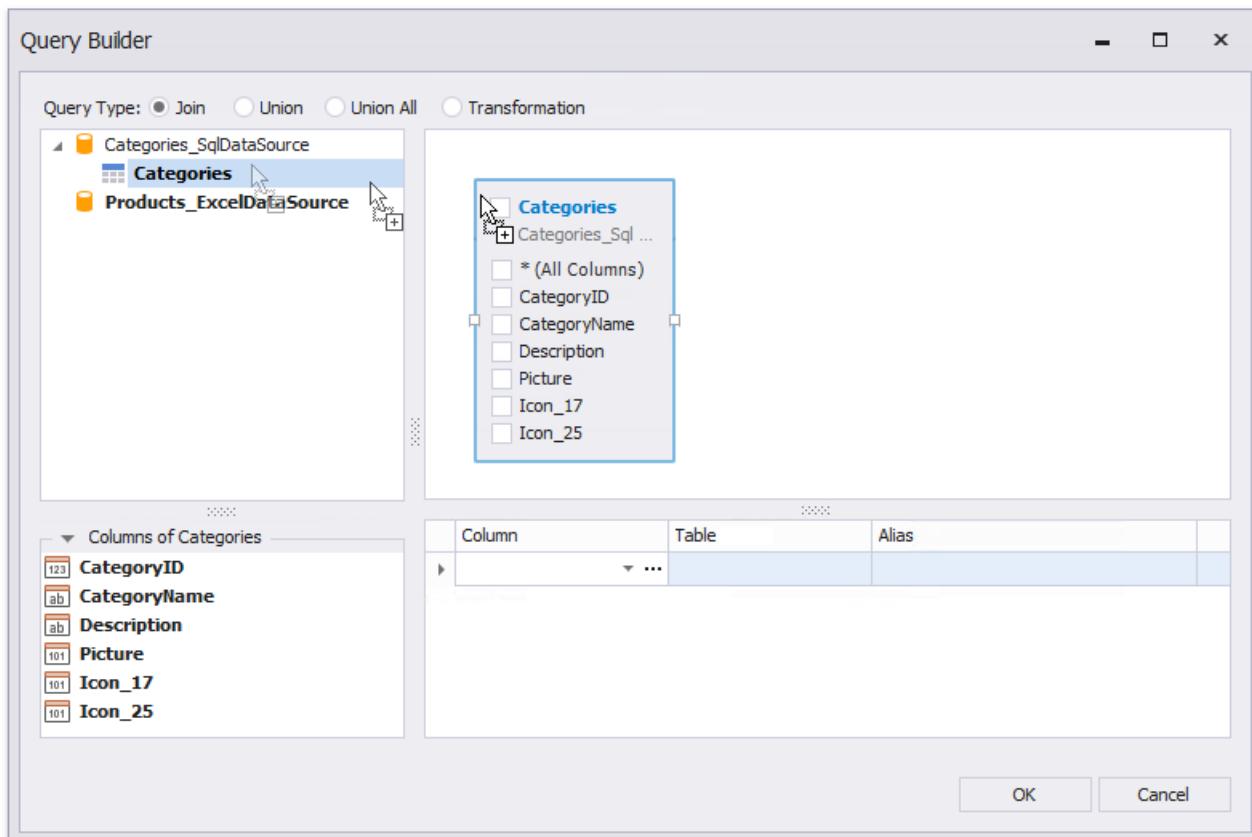
2. In the invoked [Data Source Wizard](#), select **Data Federation** and click **Next**.



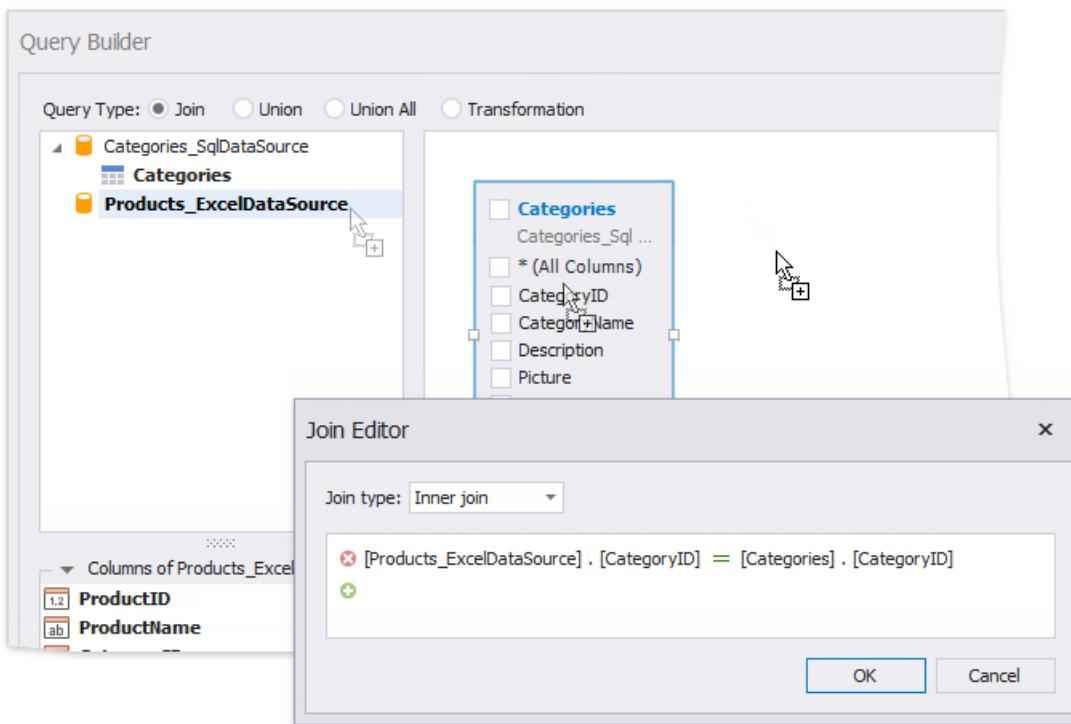
3. On the next page, click **Add Query**.



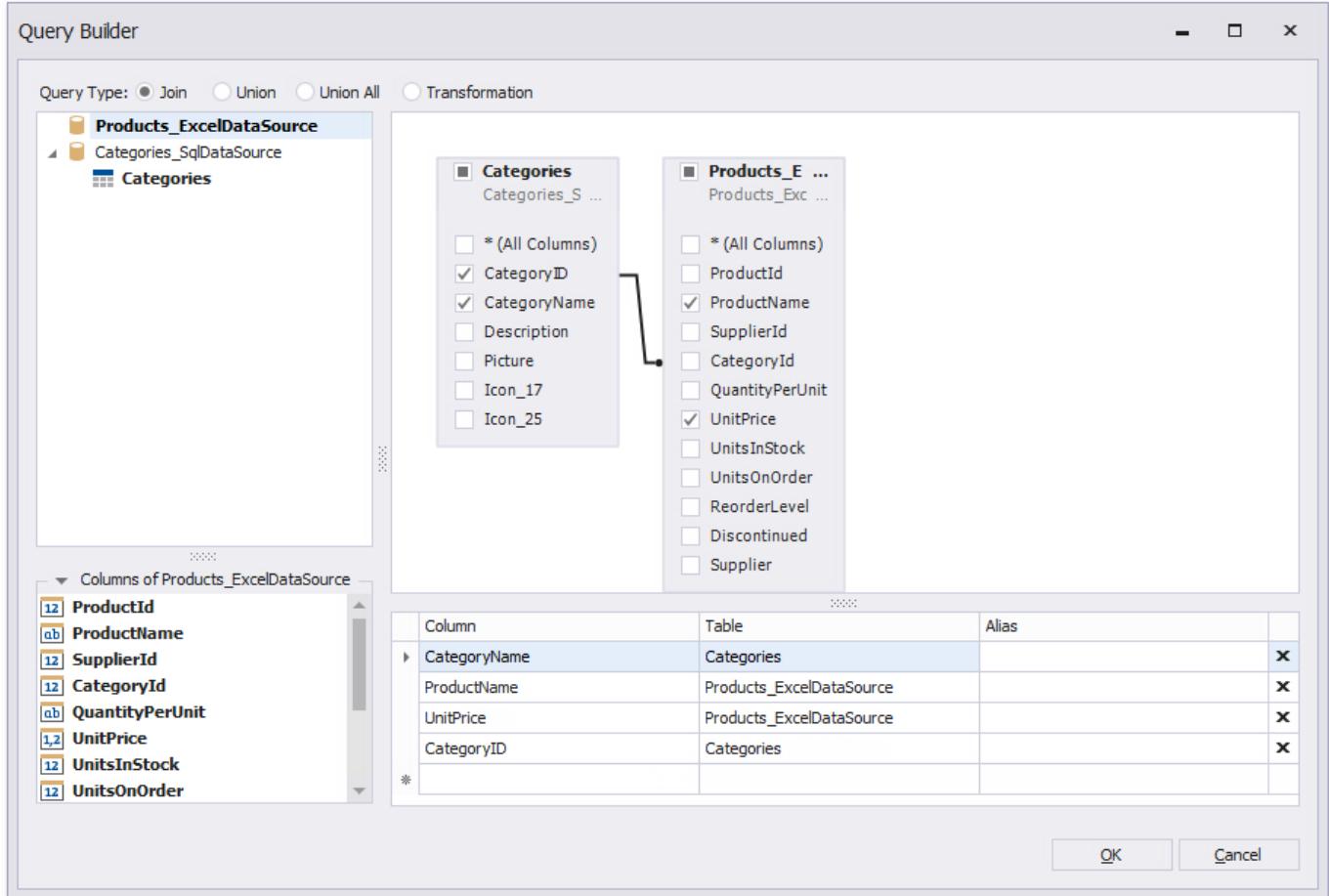
4. In the invoked [Query Builder](#), drag and drop the table from the SQL data source onto the design surface.



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



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



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

Column	Table	Alias	
CategoryName	Categories	Category	X
ProductName	Products_ExcelDataSource		X
UnitPrice	Products_ExcelDataSource		X
CategoryID	Categories		X
*			

Use the grid's empty line to add an unbound field to a query. Click the field's ellipsis button to invoke the [Expression Editor](#) and construct an expression that specifies the field's value.

Column	Table	Alias	
CategoryName	Categories	Category	X
ProductName	Products_ExcelDataSource		X
UnitPrice	Products_ExcelDataSource		X
CategoryID	Categories		X

Expression Editor

```
[Products_ExcelDataSource.UnitPrice] * [Products_ExcelDataSource.UnitsInStock]
```

Columns

- Constants
- Operators
- Functions
 - DateTime
 - Logical
 - Math
 - String

Enter text to search...

Products_ExcelDataSource

- ProductId
- ProductName
- SupplierId
- CategoryId
- QuantityPerUnit
- UnitPrice
- UnitsInStock
- UnitsOnOrder
- ReorderLevel
- Discontinued
- Supplier

long? UnitsInStock

OK Cancel

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

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

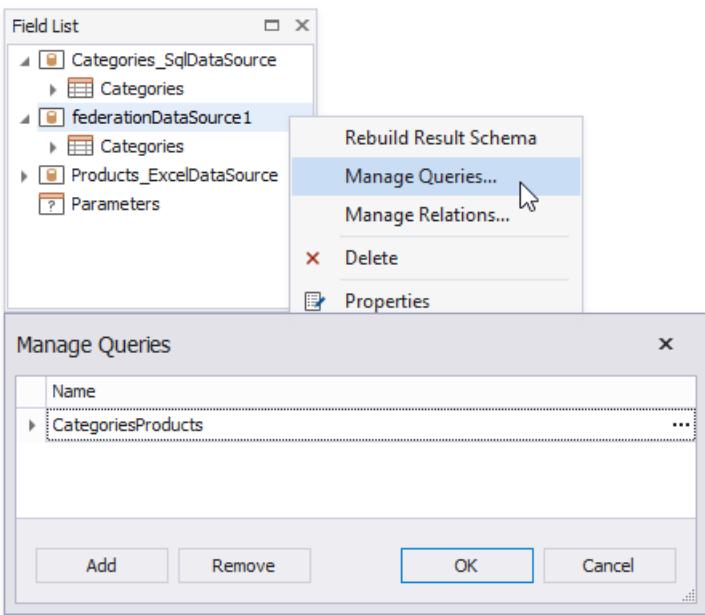
Report Explorer

- Report1
 - TopMargin
 - Detail
 - BottomMargin
- Styles
- Data Sources
 - Categories_SqlDataSource
 - federationDataSource1**
 - Products_ExcelDataSource

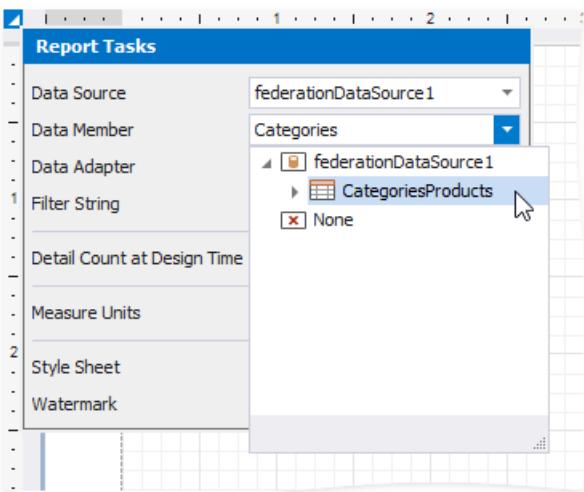
Field List

- Categories_SqlDataSource
 - Categories
- federationDataSource1**
 - Categories
 - CategoryID
 - CategoryName
 - ProductName
 - UnitPrice

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

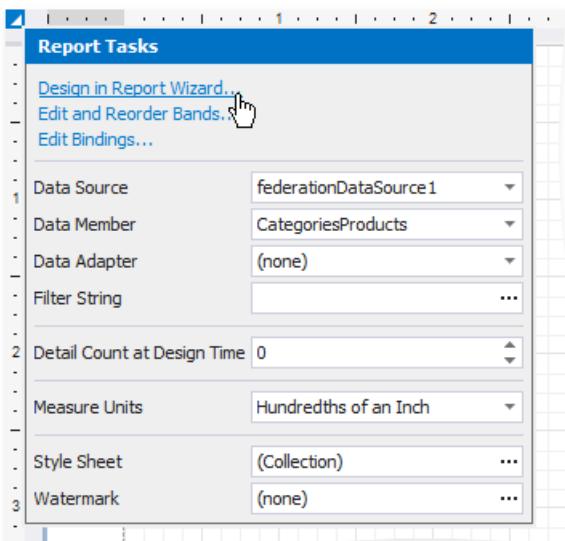


Once you rename the query, update the report's **Data Member** property.

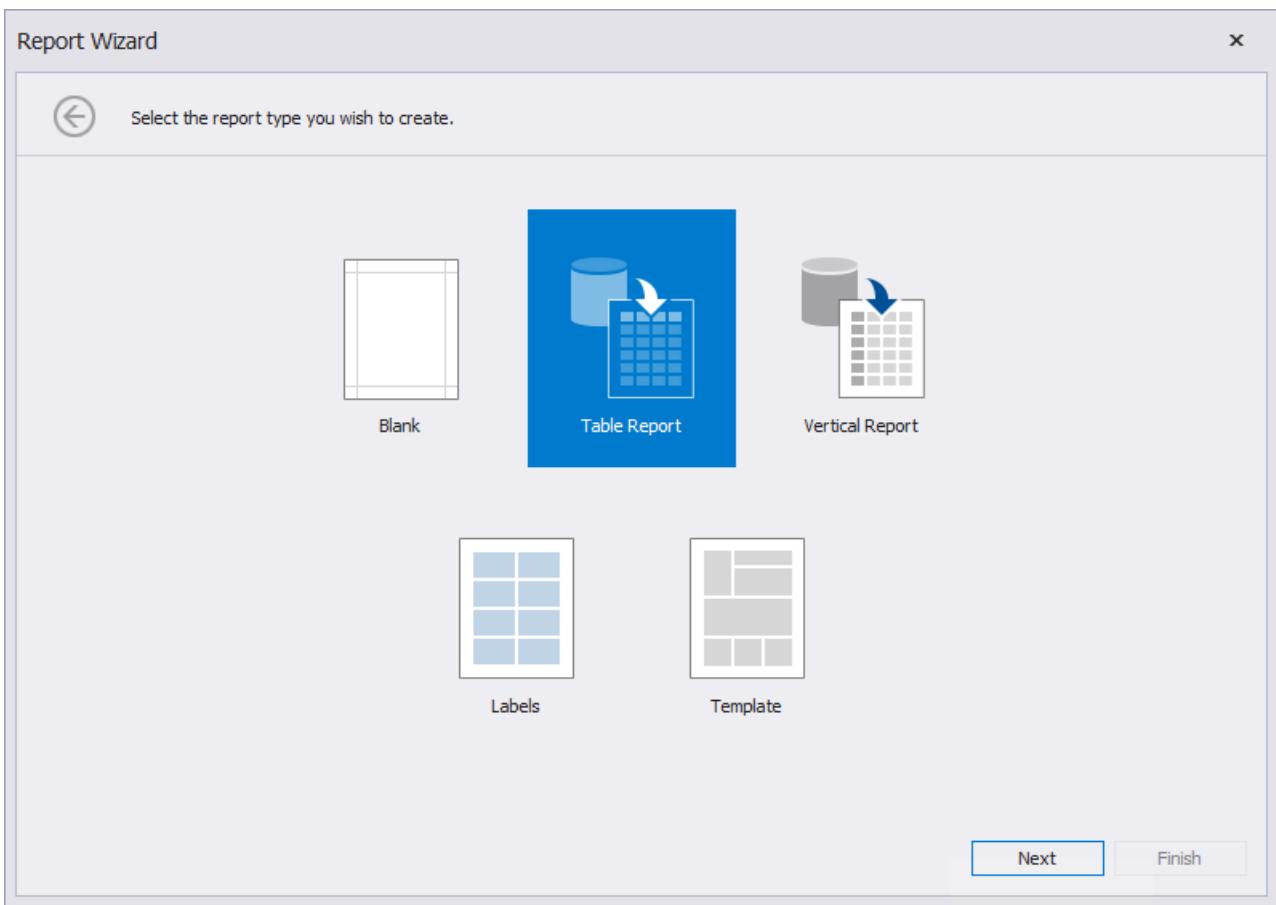


Design the Report Layout

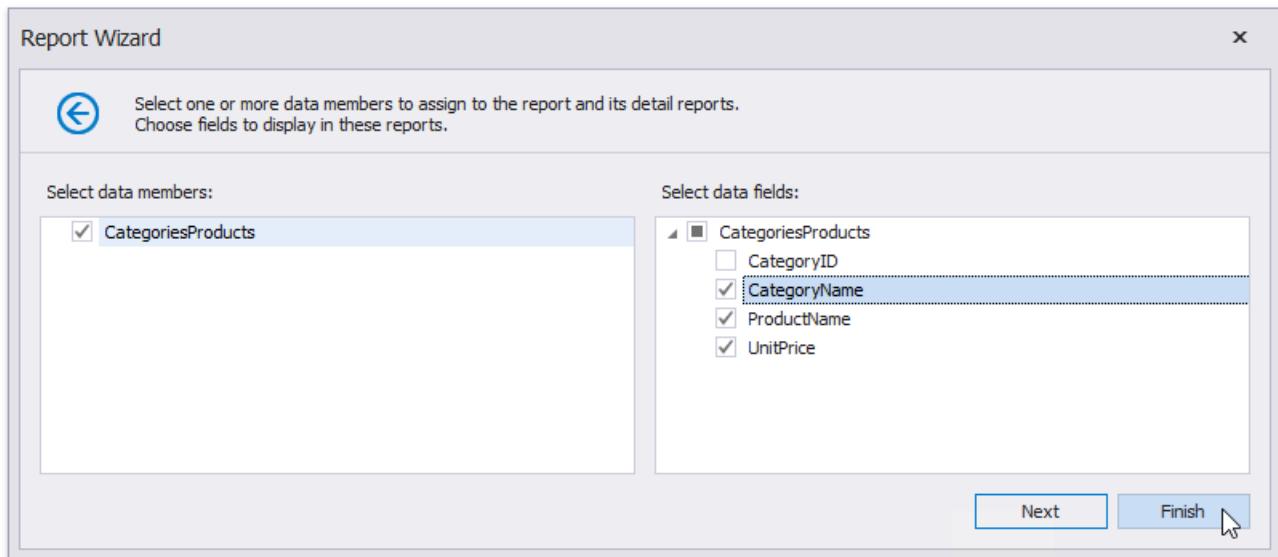
1. Click the report's smart tag and select **Design in Report Wizard**.



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



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



The resulting layout looks similar to the following image:

A screenshot of a report layout in design mode. It shows a hierarchical structure on the left: 'ReportHeader [one band per report]', 'Products' (under ReportHeader), 'GroupHeader1' (under Products), and 'Detail' (under GroupHeader1). The 'Detail' section contains a table with three columns: 'Category Name', 'Product Name', and 'Unit Price'. The 'Category Name' column has a value '[CategoryName]'. The 'Product Name' column has a value '[ProductName]'. The 'Unit Price' column has a value '[UnitPrice]'. The entire layout is enclosed in a dashed border.

Switch to the Preview mode to see the report document.

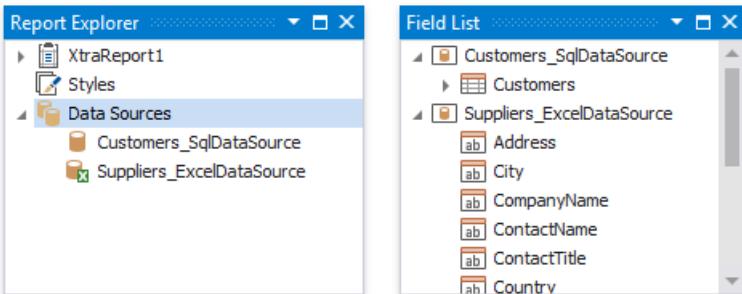
Products		
Category Name	Product Name	Unit Price
Beverages	Côte de Blaye	\$263.50
Beverages	Ipoх Coffee	\$46.00
Condiments	Northwoods Cranberry Sauce	\$40.00
Condiments	Vegie-spread	\$43.90
Confections	Sir Rodney's Marmalade	\$81.00
Confections	Gumbär Gummibärchen	\$31.23
Confections	Schoggis Schokolade	\$43.90
Confections	Tarte au sucre	\$49.30
Dairy Products	Queso Manchego La Pastora	\$38.00
Dairy Products	Mascarpone Fabioli	\$32.00
Dairy Products	Raclette Courdavault	\$55.00
Dairy Products	Camembert Pierrot	\$34.00
Dairy Products	Gudbrandsdalsost	\$36.00
Dairy Products	Mozzarella di Giovanni	\$34.80
Grains/Cereals	Gnocchi di nonna Alice	\$38.00
Grains/Cereals	Wimmers gute Semmelknödel	\$33.25

Bind a Report to Union-Based Federated Data Source

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

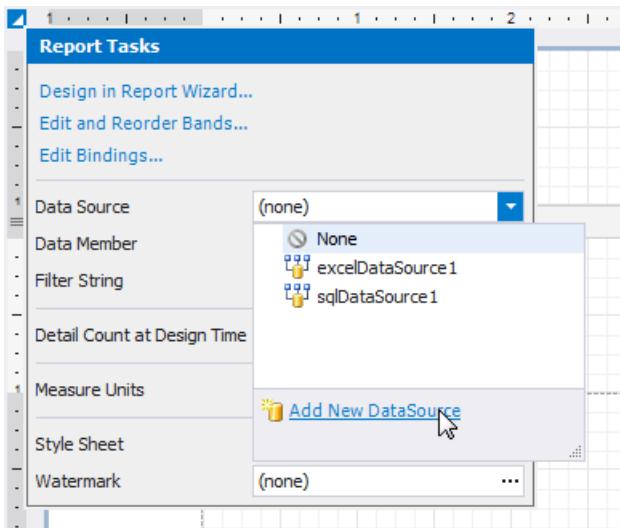
Create a Report and Data Sources

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

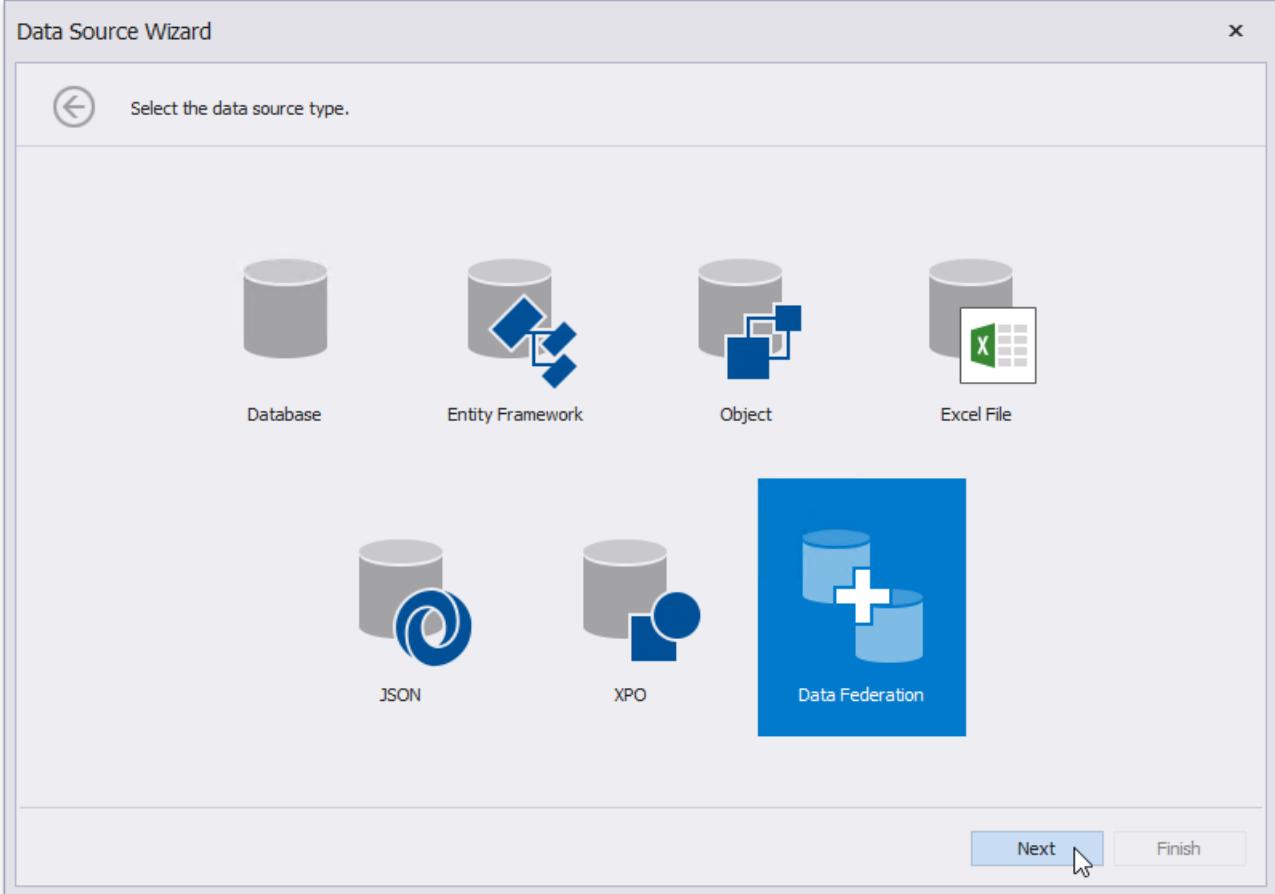


Create Data Federation and Bind the Report to It

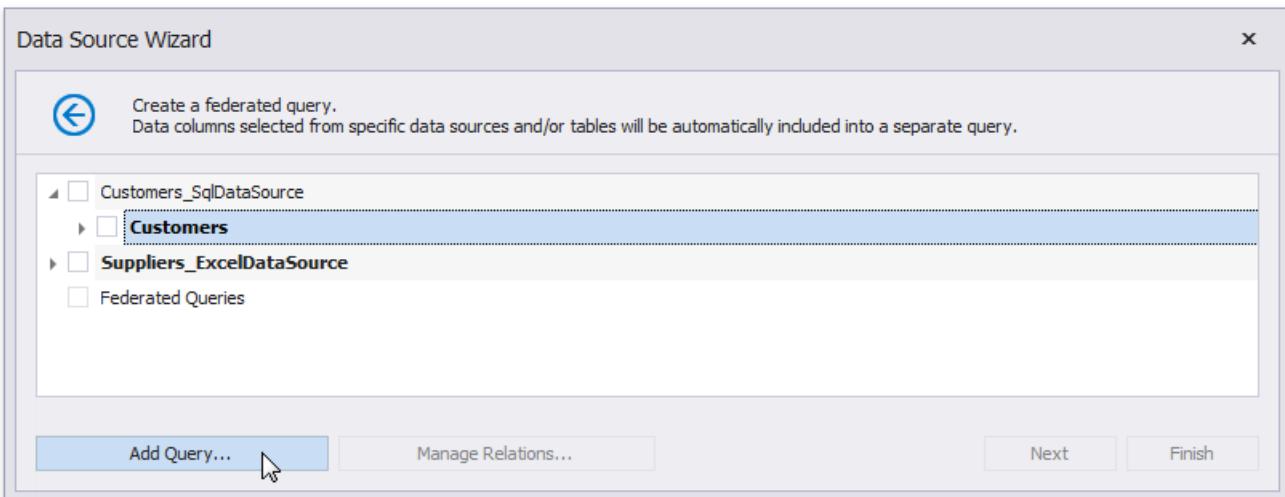
1. Click the report's smart tag, expand the **DataSource** property's drop-down menu and click **Add Report Data Source**.



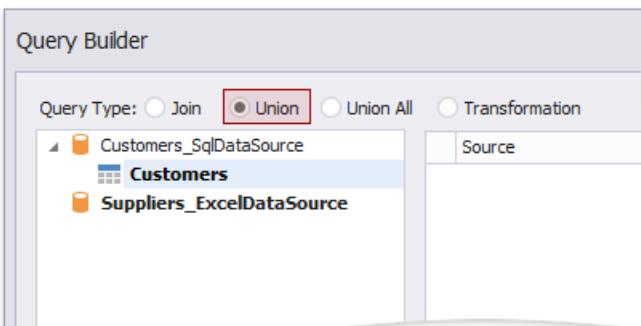
2. In the invoked [Data Source Wizard](#), select **Data Federation** and click **Next**.



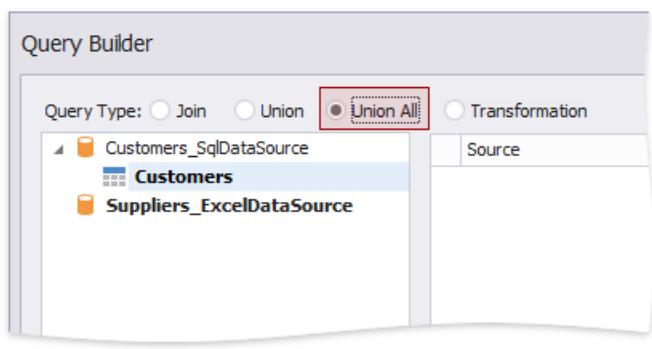
3. On the next page, click **Add Query**.



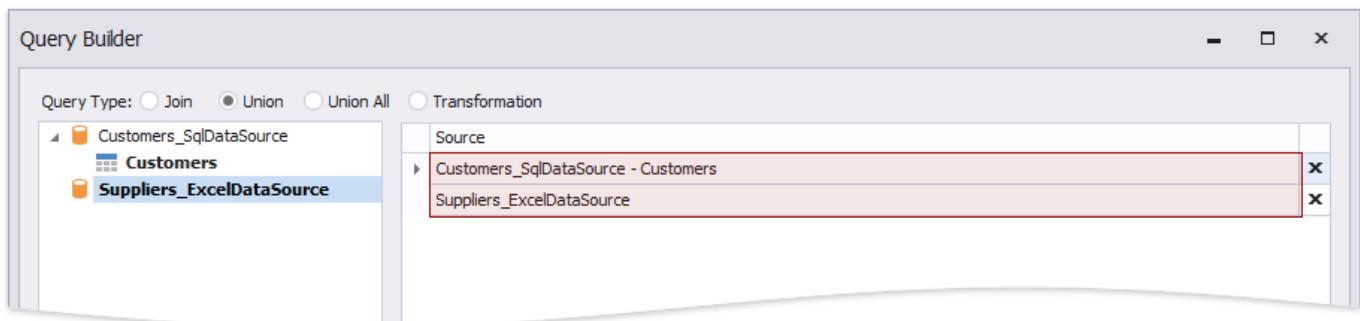
4. In the invoked **Query Builder** (adapted to federated data sources), choose **Union** as a query type.



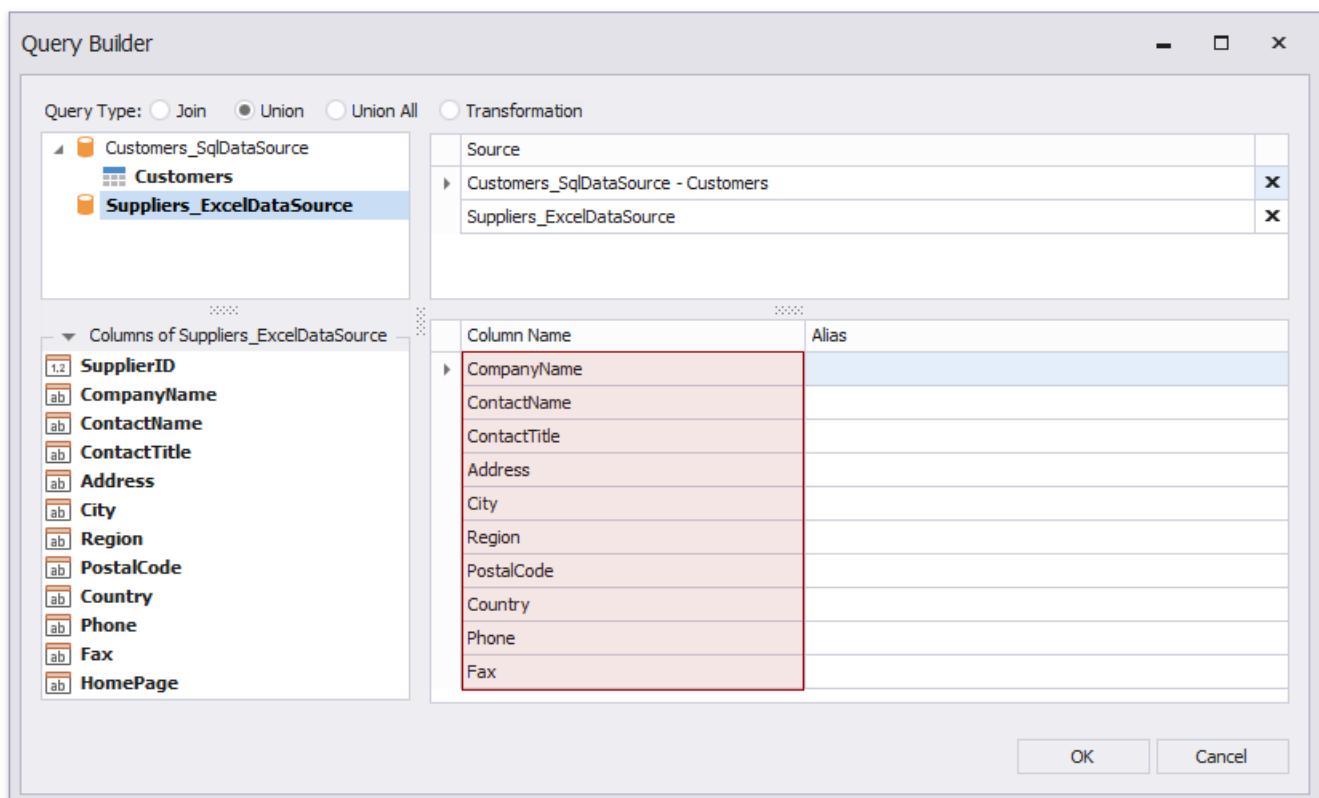
Or you can choose **Union All**.



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



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

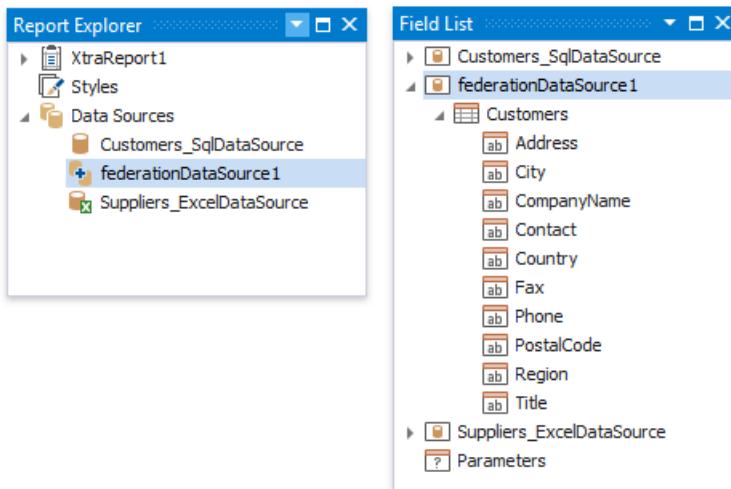


6. Rename fields.

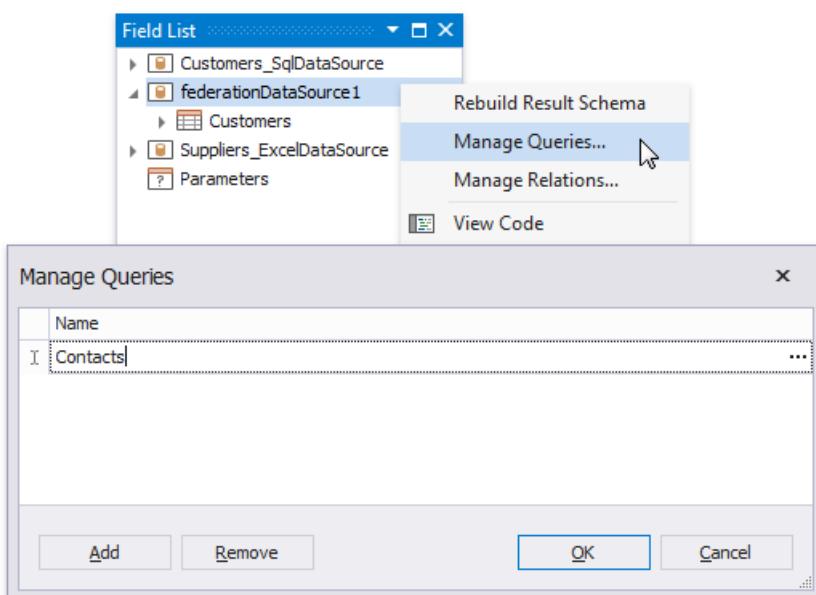
Column Name	Alias
CompanyName	
ContactName	Contact
I ContactTitle	Title
Address	
City	
Region	
PostalCode	
Country	
Phone	
Fax	

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

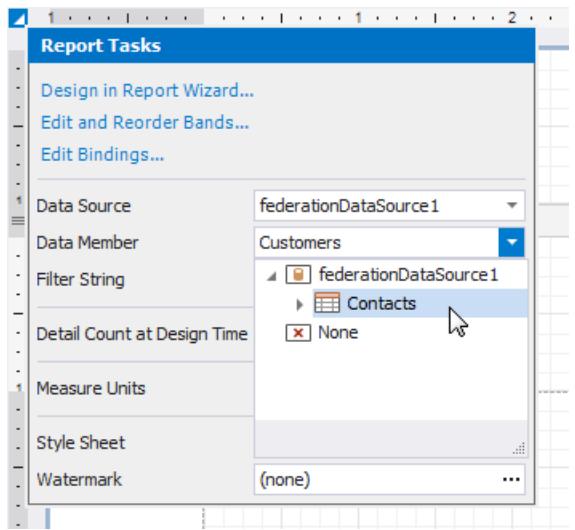
The Wizard creates a new **FederationDataSource** that includes the single **Customers** query. This data source becomes available in the **Report Explorer's Data Sources** node. The **Field List** reflects the data source structure.



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

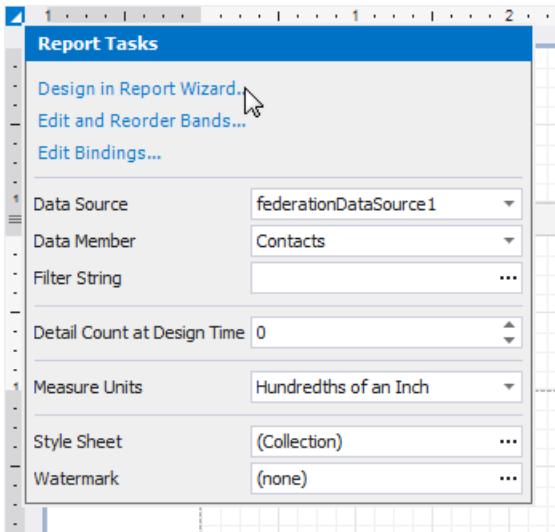


Once you rename the query, update the report's **DataMember** property.

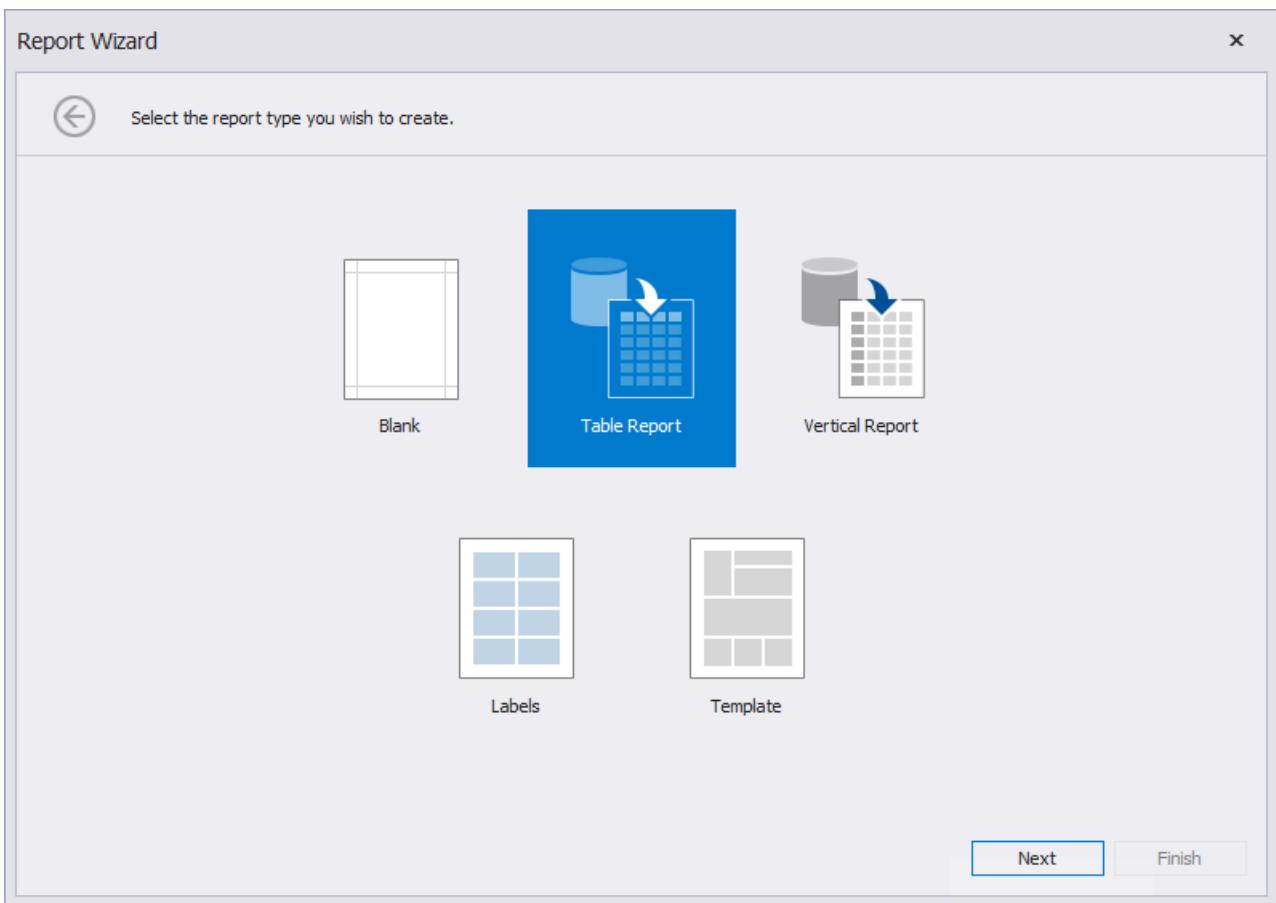


Design the Report Layout

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



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



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

The Report Wizard window shows the second step: 'Select one or more data members to assign to the report and its detail reports. Choose fields to display in these reports.'

Select data members: A list box contains a single checked item: Contacts.

Select data fields: A tree view shows the 'Contacts' data member expanded, with several fields listed:
- CompanyName (unchecked)
- Contact (checked)
- Title (unchecked)
- Address (unchecked)
- City (checked)
- Region (unchecked)
- PostalCode (unchecked)
- Country (unchecked)
- Phone (checked)
- Fax (unchecked)

At the bottom right are 'Next' and 'Finish' buttons, with 'Finish' being clicked.

The resulting layout looks similar to the following image:

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

- ReportHeader [one band per report]:** Contains the title "Contacts".
- GroupHeader1:** Contains a table with columns "Contact", "City", and "Phone".
- Detail:** Contains three fields: "[Contact]", "[City]", and "[Phone]".
- Page Footer:** Displays the date "Friday, August 30, 2019" and the page number "Page 1 of 1".

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

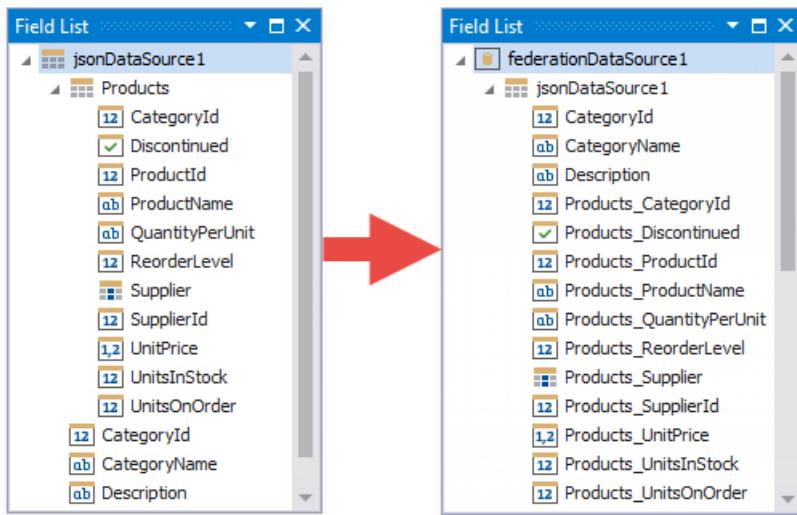
Contacts		
Contact	City	Phone
Maria Anders	Berlin	030-0074321
Ana Trujillo	México D.F.	(5) 555-4729
Antonio Moreno	México D.F.	(5) 555-3932
Thomas Hardy	London	(171) 555-7788
Christina Berglund	Luleå	0921-12 34 65
Hanna Moos	Mannheim	0621-08460
Frédérique Citeaux	Strasbourg	

NOTE

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

Bind a Report to a Transformation-Based Data Source

If you bind a report to a [JSON](#), [Object](#), [Entity Framework](#), or [XPO](#) data source that contains a collection property, you can flatten the data source structure:



This tutorial illustrates how to use the **Federation Data Source's Transformation** mode to flatten a JSON Data Source that contains a collection property.

Create a Report and Bind it to a Data Source

1. [Create a new blank report](#)
2. [Add a JSON data source](#)

This tutorial uses the following JSON string:

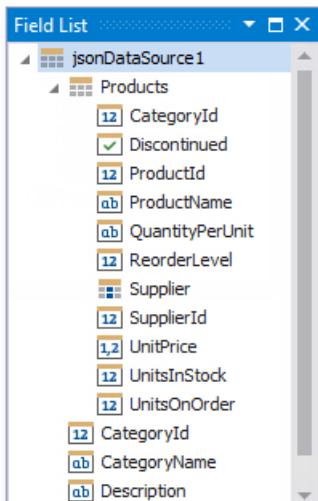
```
[  
{  
    "CategoryId": 1,  
    "CategoryName": "Beverages",  
    "Description": "Soft drinks, coffees, teas, beers, and ales",  
    "Products": [  
        {  
            "ProductId": 1,  
            "ProductName": "Chai",  
            "SupplierId": 1,  
            "CategoryId": 1,  
 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

```

        "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
    }
]
}
]

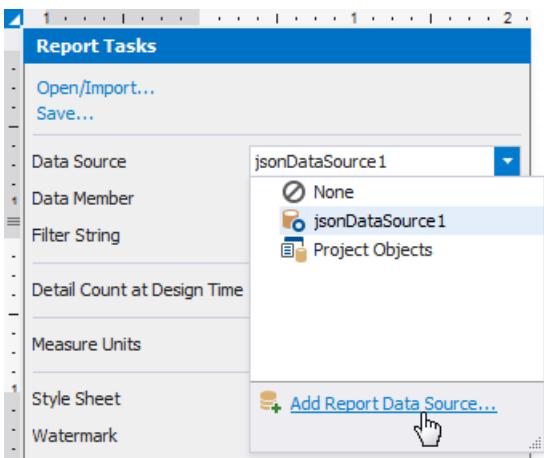
```

The **Field List** displays the created JSON data source.

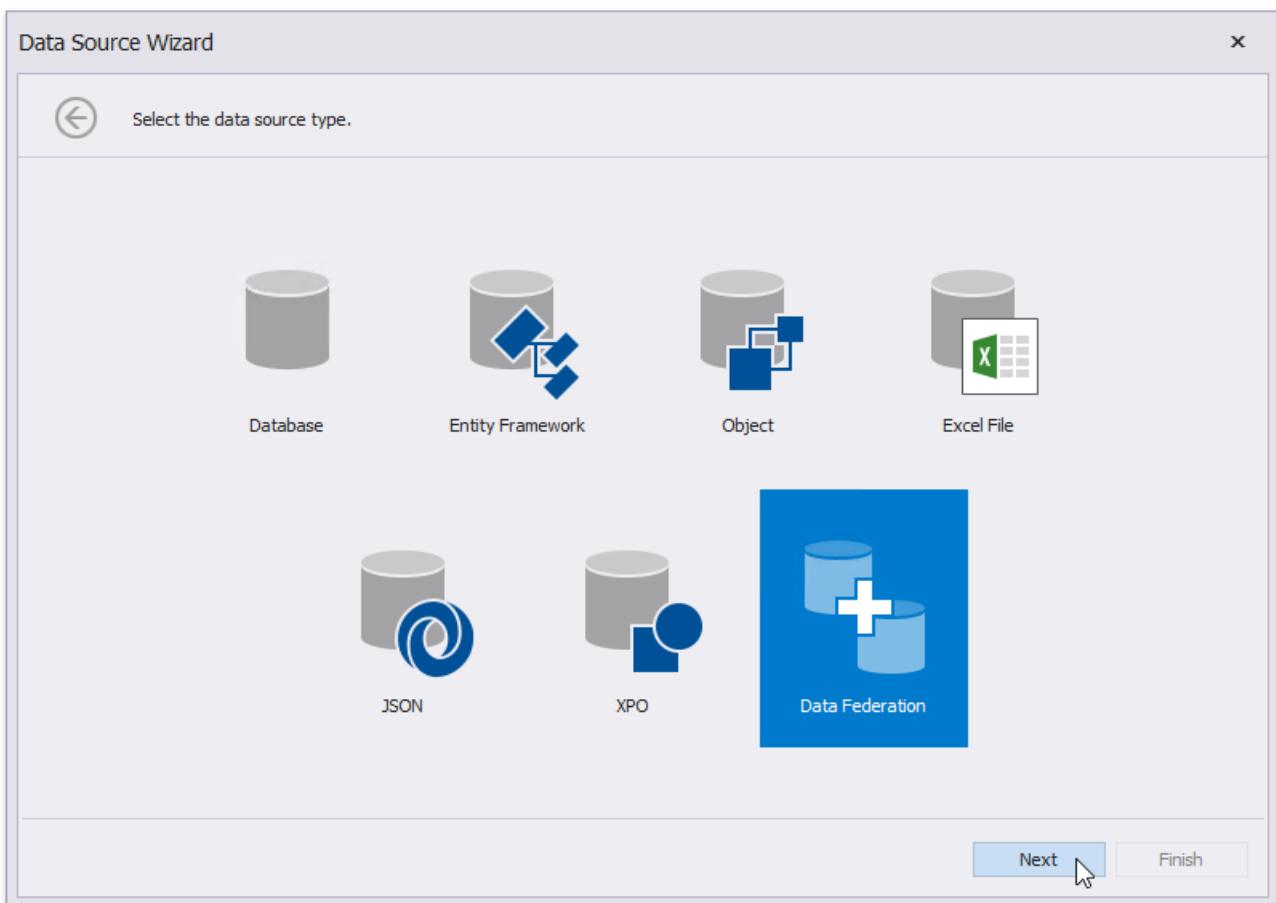


Create Data Federation and Transform the Data Source

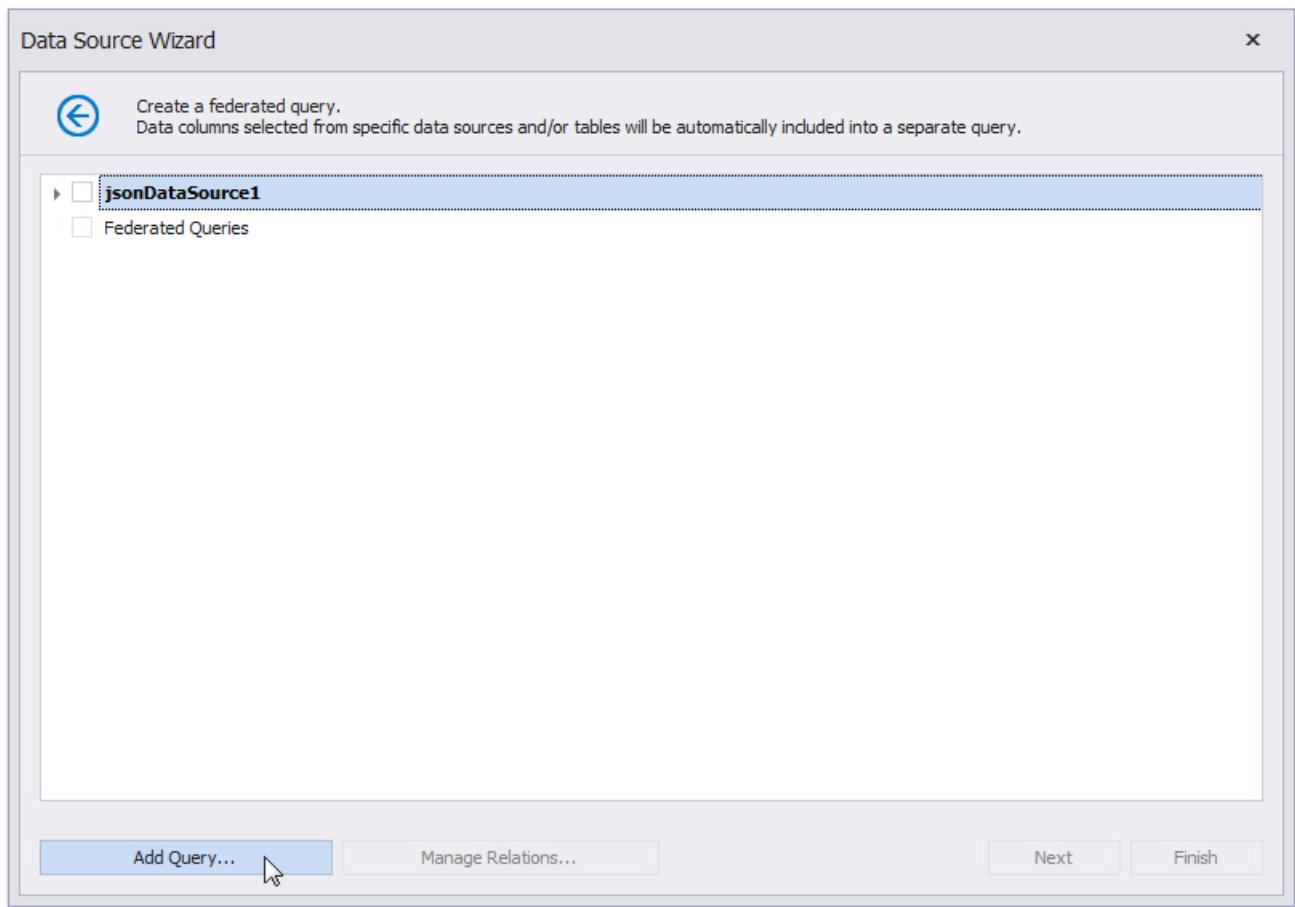
1. Click the report's smart tag, expand the **DataSource** property's drop-down menu, and click **Add Report Data Source**.



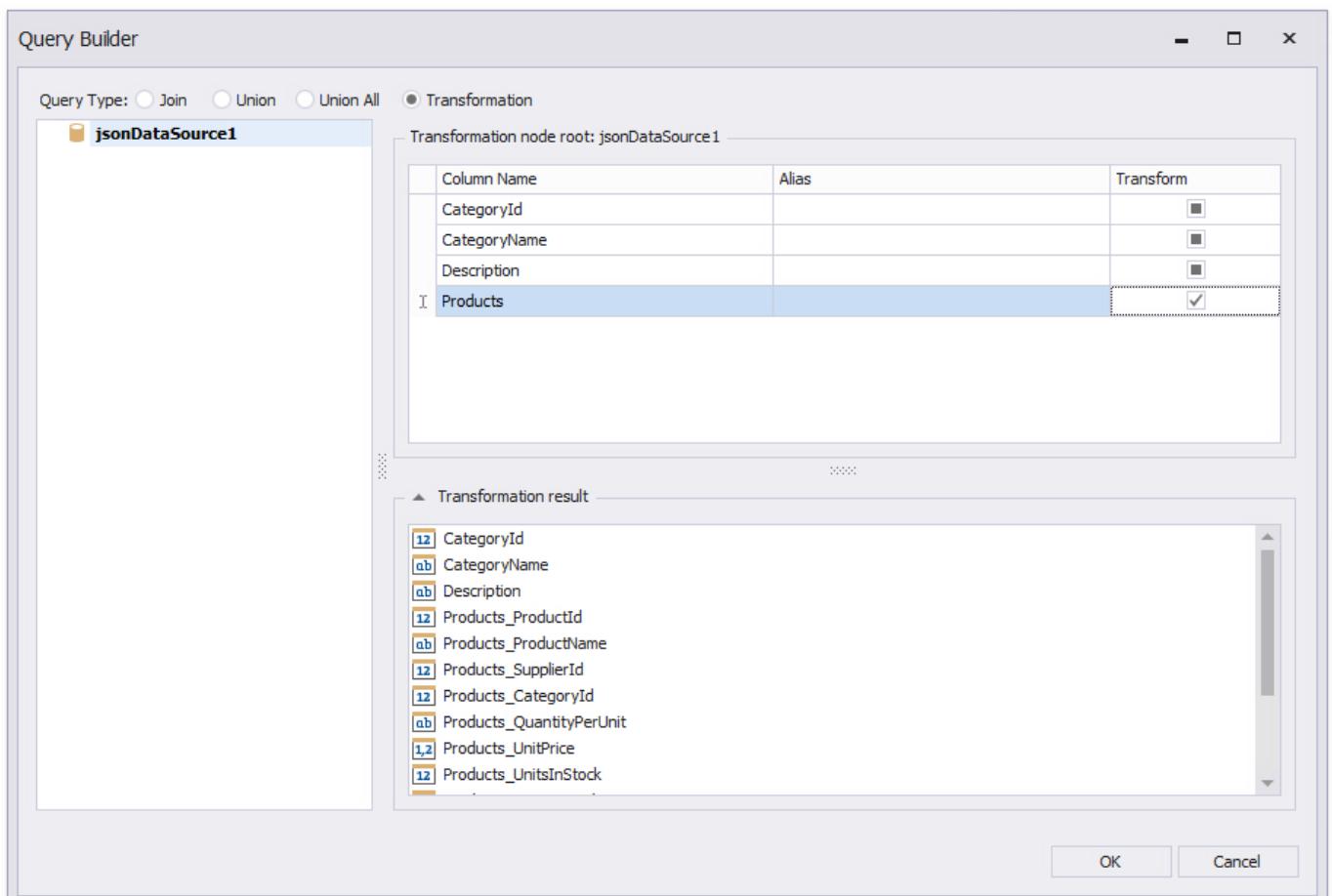
2. In the invoked **Data Source Wizard**, select **Data Federation** and click **Next**.



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

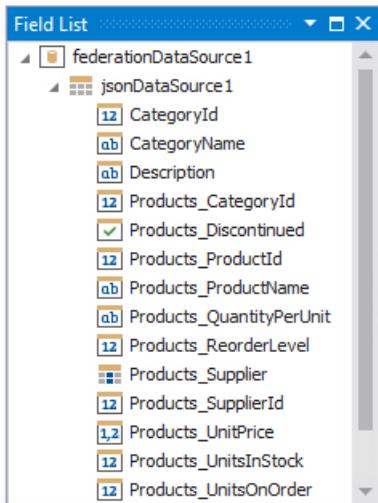


4. In the invoked **Query Builder**, select the **Transformation** query type. Select the data source or query that contains columns you want to transform. Select the **Transform** check box next to the column you need to unfold and flatten. The bottom pane allows you to specify the aliases for the generated columns.



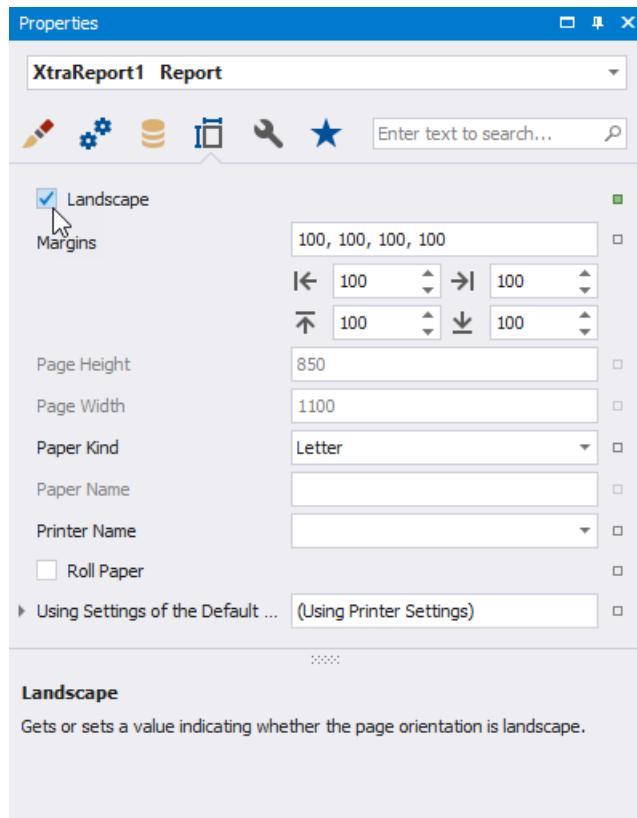
Click **OK** to create the query and click **Finish** to create the data source.

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

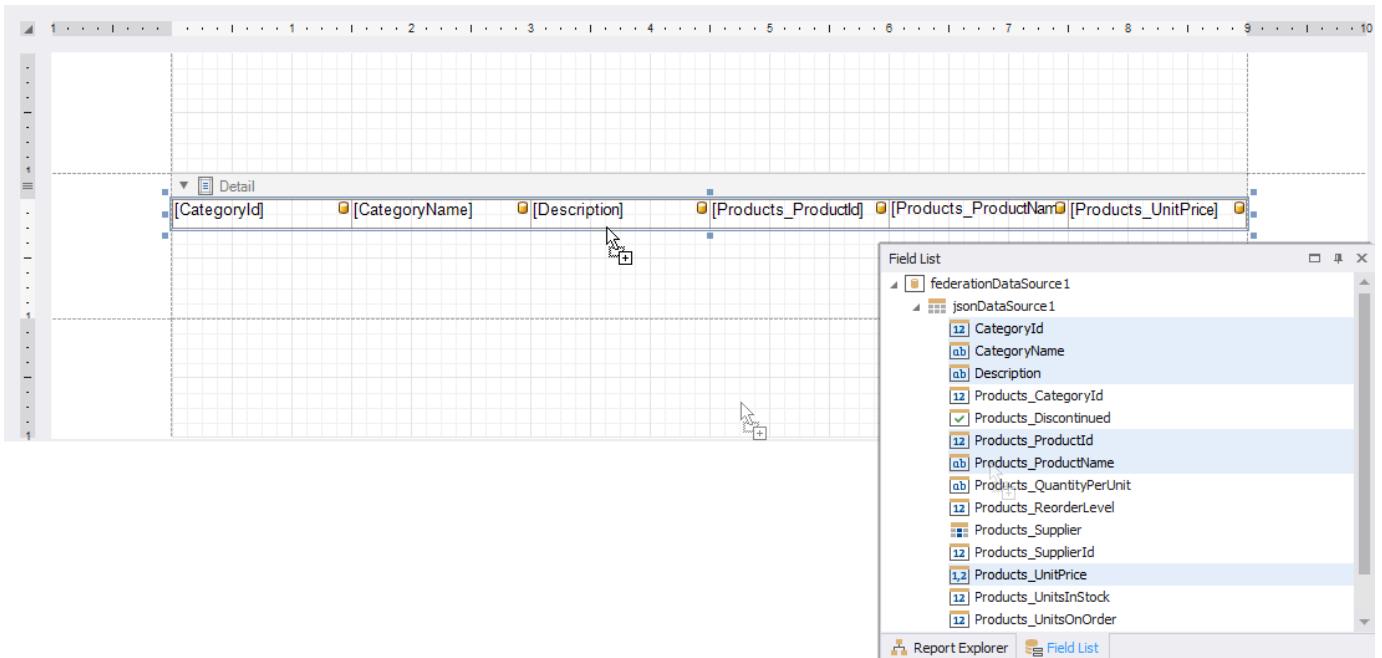


Prepare the Report Layout

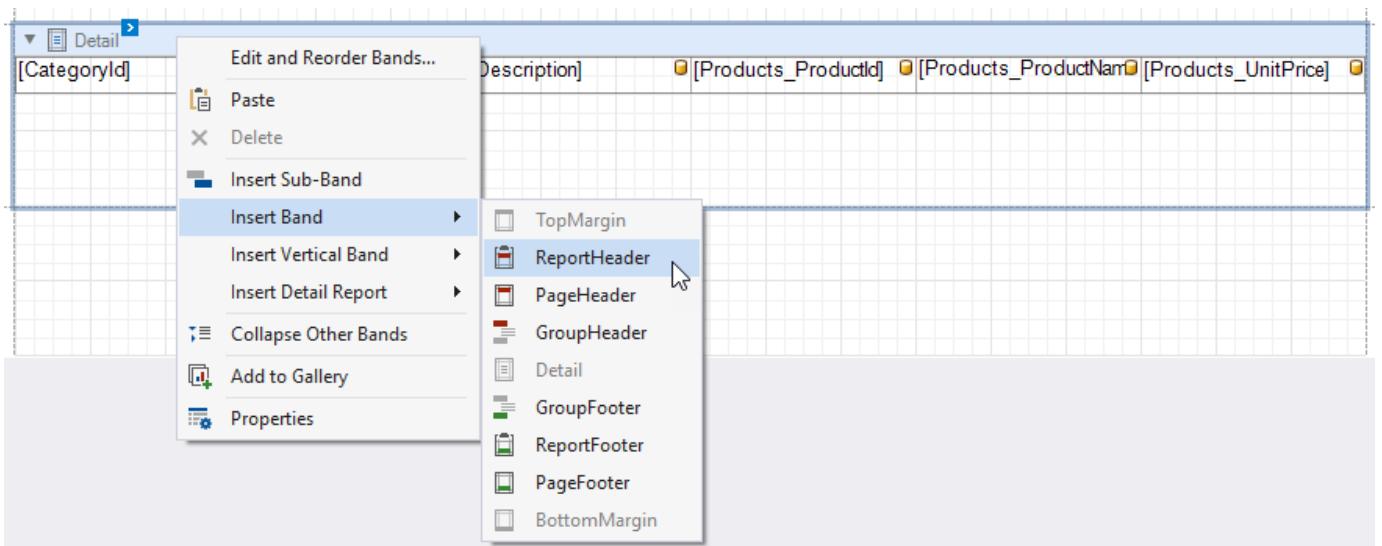
1. Set the **Landscape** orientation for report pages. Select the report and switch to the **Properties** panel. Enable the **Landscape** property.



2. Drop data fields from the **Field List** onto the report's **Detail** band. Hold CTRL or SHIFT and click the fields to select multiple fields.



3. Add a **ReportHeader** band to the report. Right-click the report and select **Insert Band / ReportHeader**.



4. Create headers for the report columns. Select data fields and drop them onto the added **ReportHeader** band with the right mouse button.

The screenshot shows the Microsoft Report Designer interface. At the top, there is a header band with columns for Category Id, Category Name, Description, Products Product Id, Products Product Name, and Products Unit Price. Below it, a detail band contains fields for CategoryId, CategoryName, Description, Products_ProductId, Products_ProductName, and Products_UnitPrice. To the right, a 'Field List' pane is open, showing a hierarchy of data sources: federationDataSource1, jsonDataSource1, and Products. Under Products, various fields are listed: CategoryId, CategoryName, Description, Products_CategoryId, Products_Discontinued, Products_ProductId, Products_ProductName, Products_QuantityPerUnit, Products_ReorderLevel, Products_Supplier, Products_SupplierId, Products_UnitPrice, Products_UnitsInStock, and Products_UnitsOnOrder. The 'Field List' tab is selected at the bottom of the pane.

5. Change header titles as necessary. Double-click a cell and type the new title.

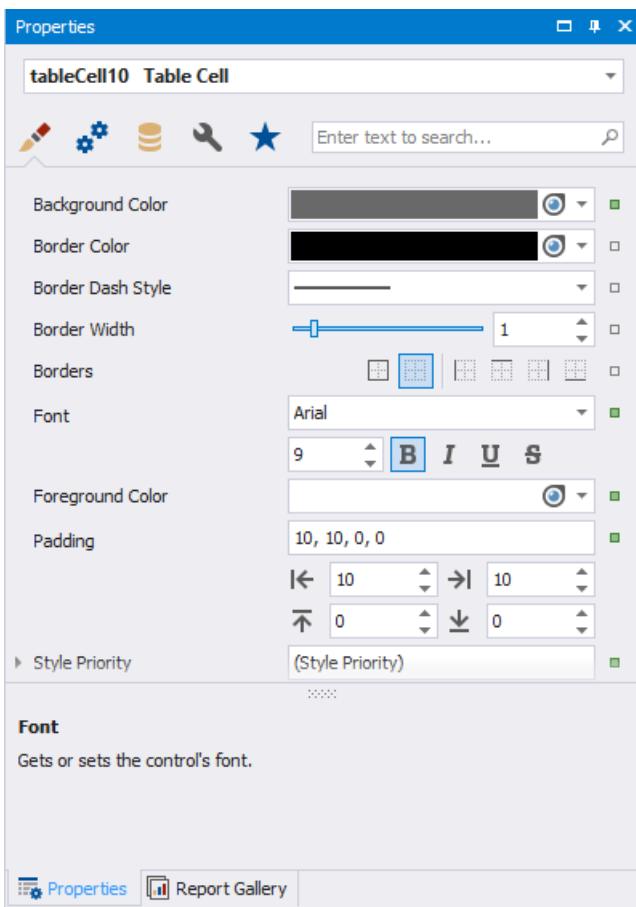
A screenshot of a report cell. The text 'Products Product Id' is displayed inside a blue-bordered box, indicating it has been selected or is being edited.

6. Resize report columns. Select cells and drag their edges.

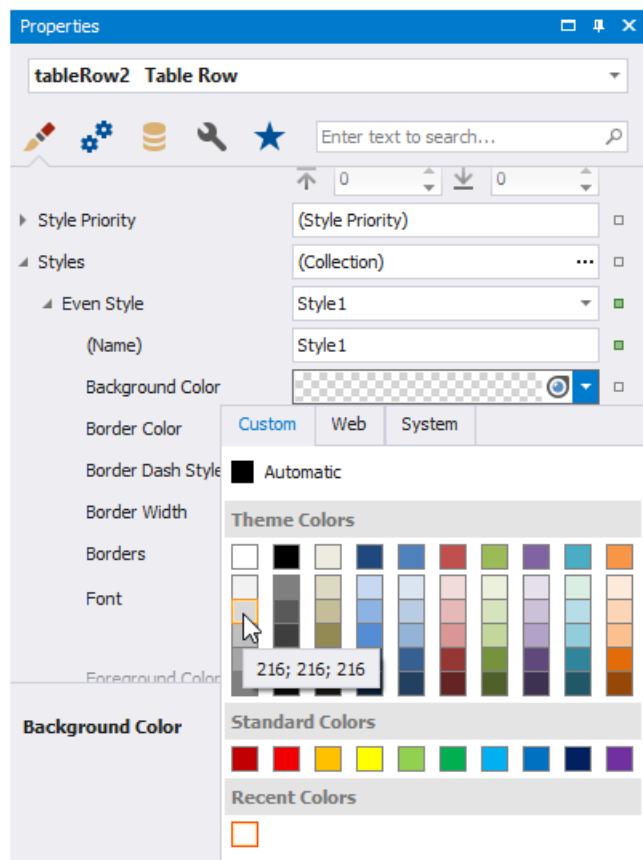
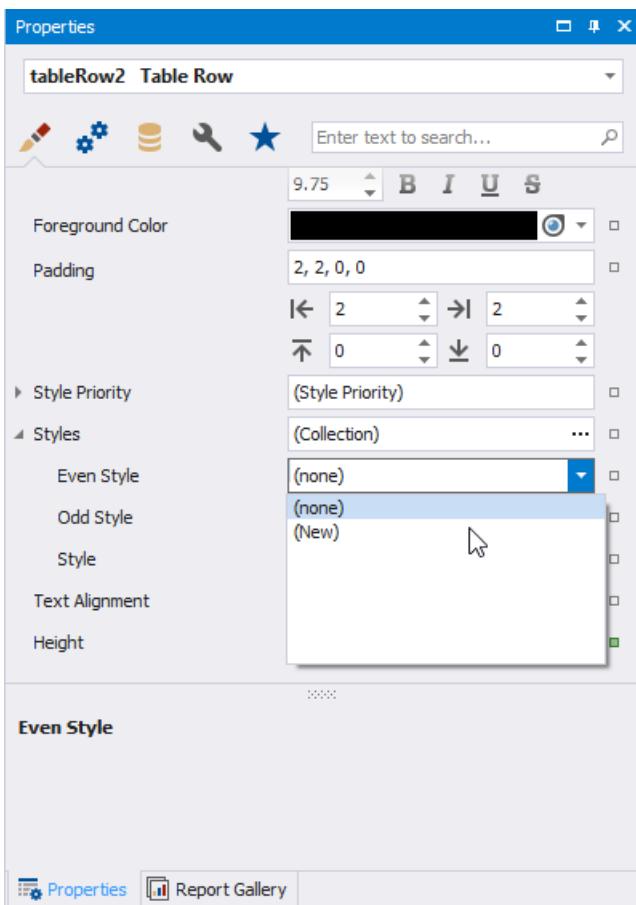
A screenshot of a report cell. The cell is highlighted with a purple border, and its resize handles are visible, showing that it is currently being resized.

7. Change the header cells' appearance. Select cells and specify the following properties:

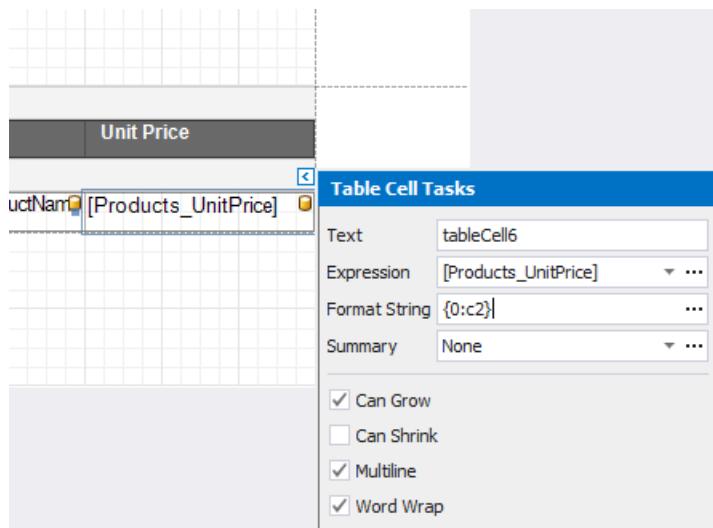
PROPERTY	VALUE
Foreground Color	White
Background Color	DimGray
Padding	10, 10, 0, 0
Font	Arial, 9pt, style=Bold



8. Change the band heights to match the table rows. Select the bands and drag their edges the same way as for the table cells.
9. Add a style for the table's even rows. Select **TableRow2** in the **Properties** window, expand the **Styles** property, and select **New** for the **Even Style** property. Then select **Style1** and set the **Background Color** property to **216, 216, 216**.



10. Format the price values. Select the cell that displays the **Products_UnitPrice** value and set its [Format String] to **{0:c2}**.



The report is ready. Upper-level data source records are repeated as many times as there are flattened records:

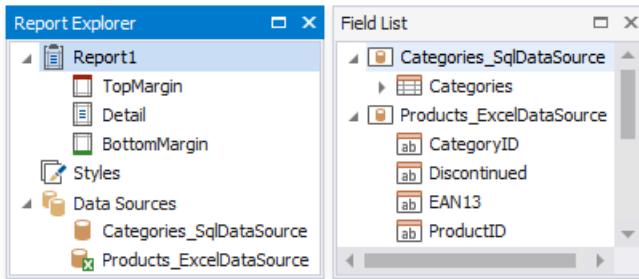
Category ID	Category Name	Category Description	Product ID	Product Name	Unit Price
1	Beverages	Soft drinks, coffees, teas, beers, and ales	1	Chai	\$18.00
1	Beverages	Soft drinks, coffees, teas, beers, and ales	2	Chang	\$19.00
2	Condiments	Sweet and savory sauces, relishes, spreads, and seasonings	3	Aniseed Syrup	\$10.00
2	Condiments	Sweet and savory sauces, relishes, spreads, and seasonings	4	Chef Anton's Cajun Seasoning	\$22.00

Bind a Report to a Federated Master-Detail Data Source

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

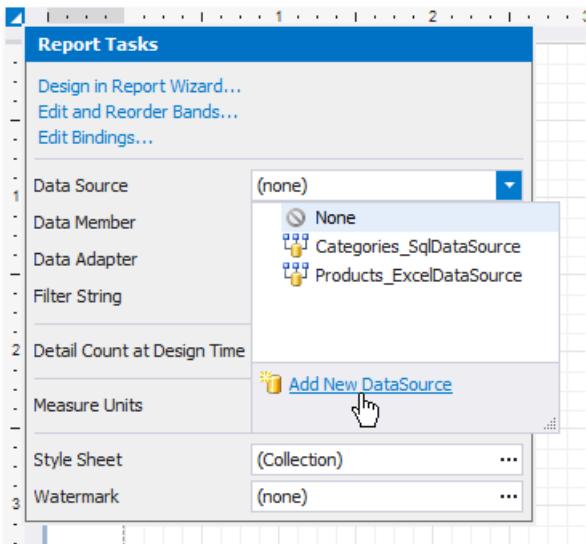
Create a Report and Data Sources

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

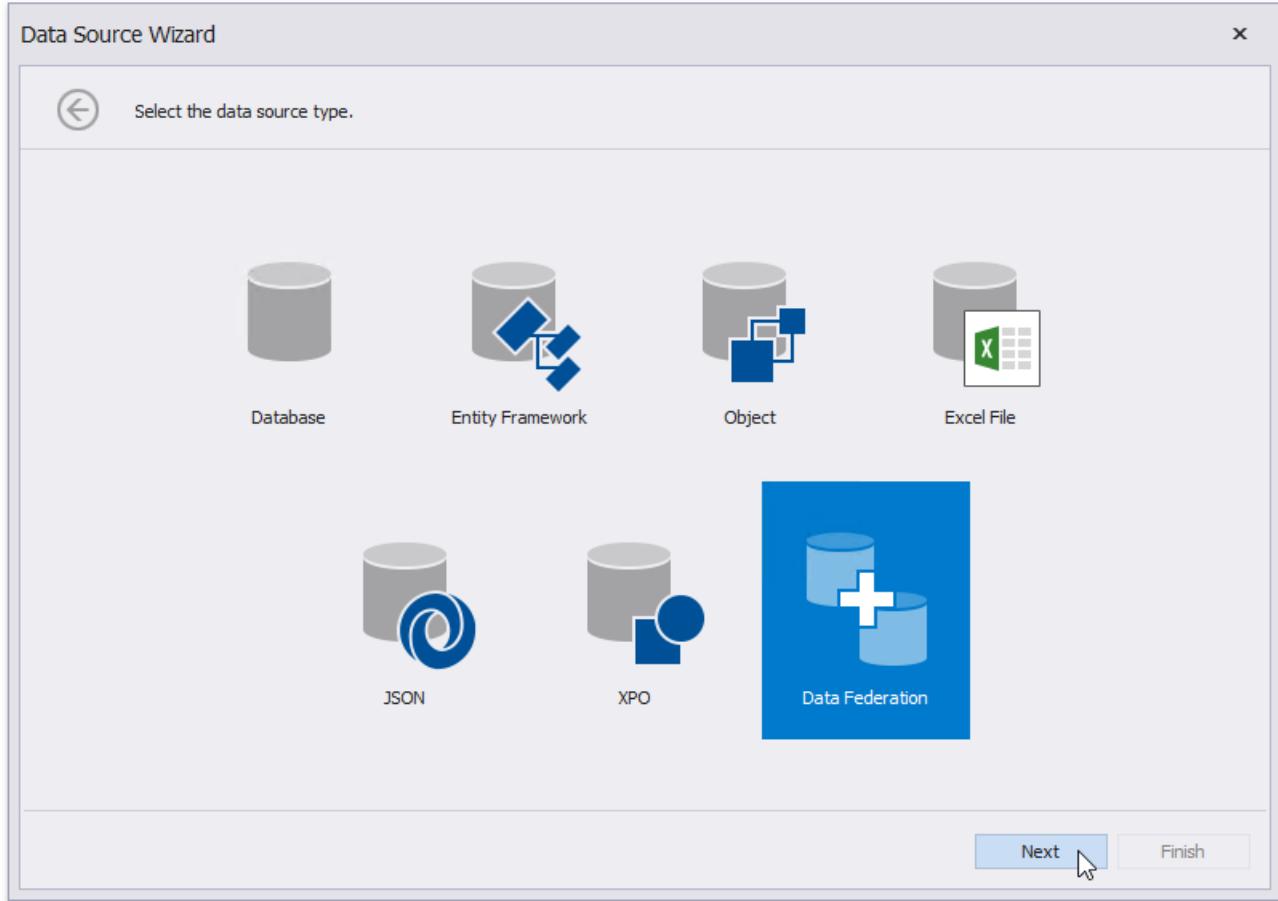


Create Data Federation and Bind the Report to It

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

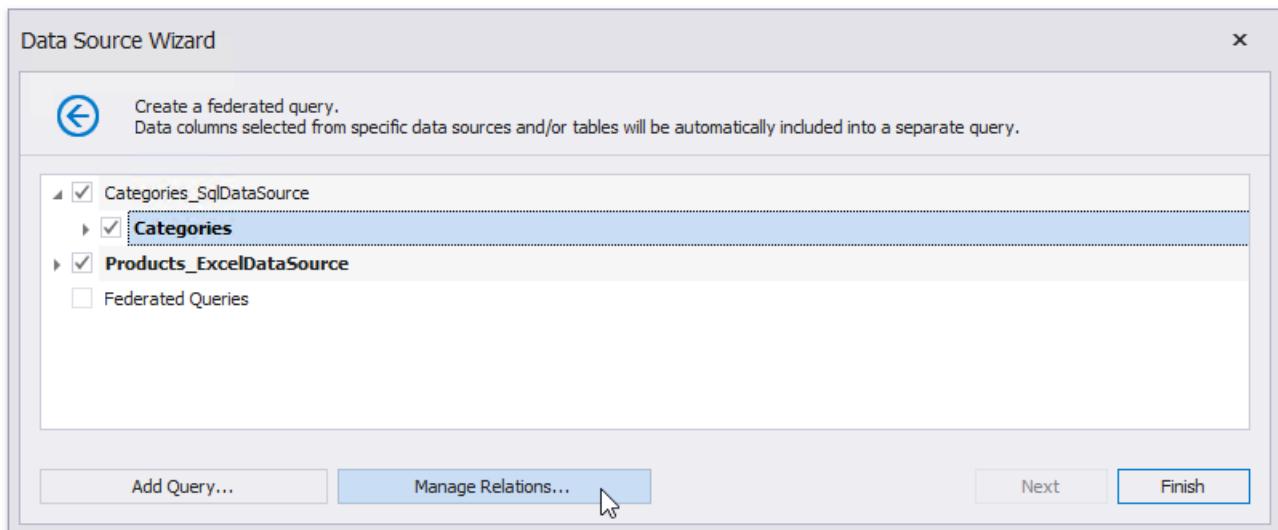


2. In the invoked **Data Source Wizard**, select **Data Federation** and click **Next**.

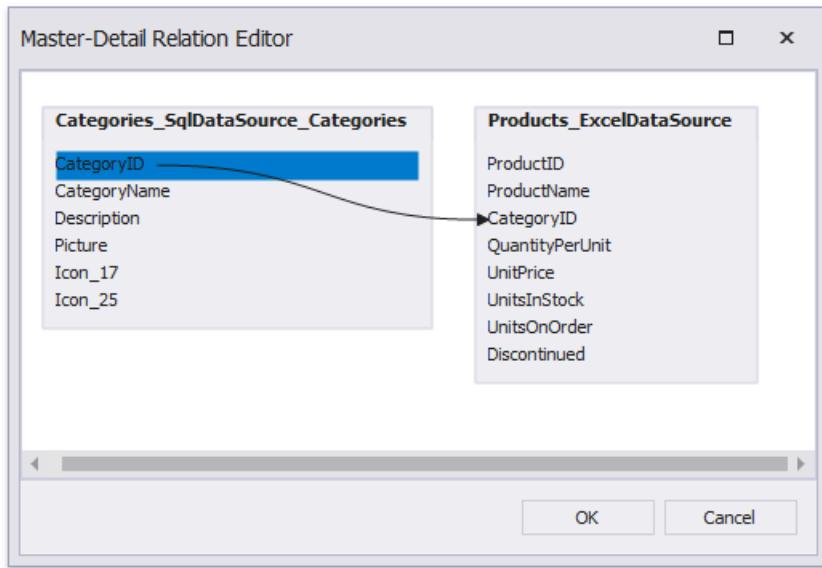


3. On the next page, enable check boxes for the SQL data source's table and the Excel data source. The selected items are included in data federation as separate queries.

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

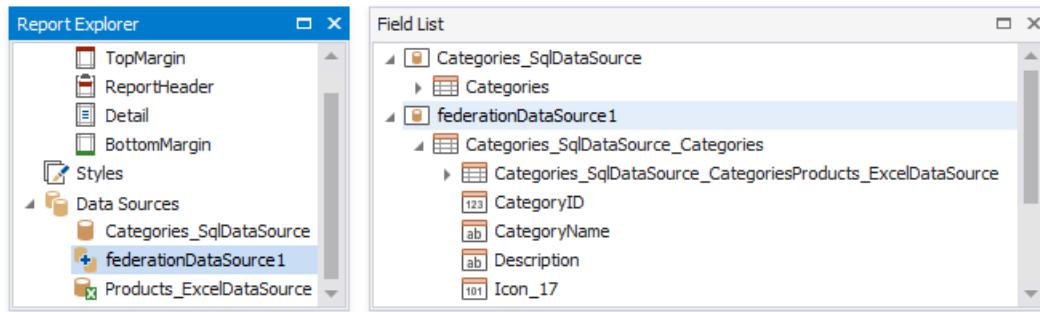


4. In the invoked editor, drag and drop the key field from the master query to the detail query.



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

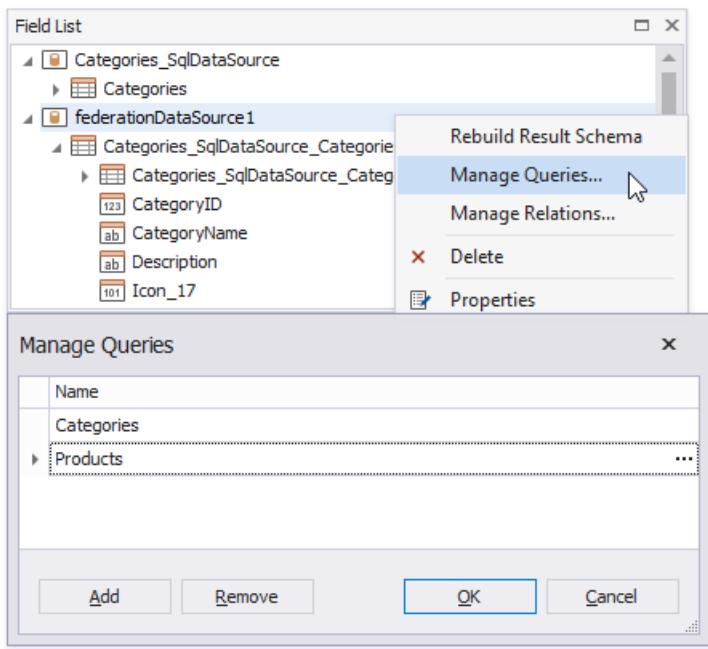
The Data Source Wizard creates a new **FederationDataSource** that includes two queries with a master-detail relationship. This data source becomes available in the Report Explorer's **Data Sources** node. The **Field List** reflects the data source's structure.



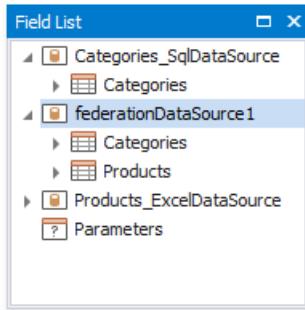
The Data Source Wizard specifies query names as follows:

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

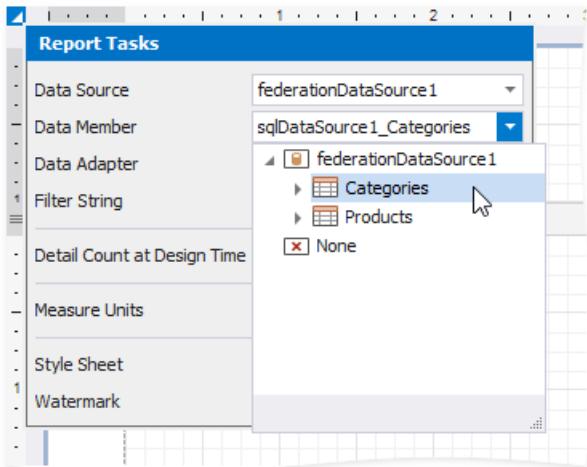
You can rename queries in the **Manage Queries** dialog. To invoke it, right-click the data source in the Field List or Report Explorer and select **Manage Queries** in the context menu.



The master-detail relationship's name changes accordingly.

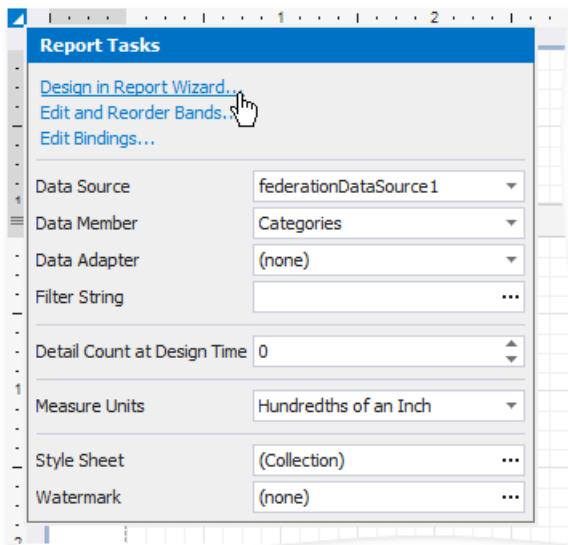


Once you rename the query, update the report's **Data Member** property.

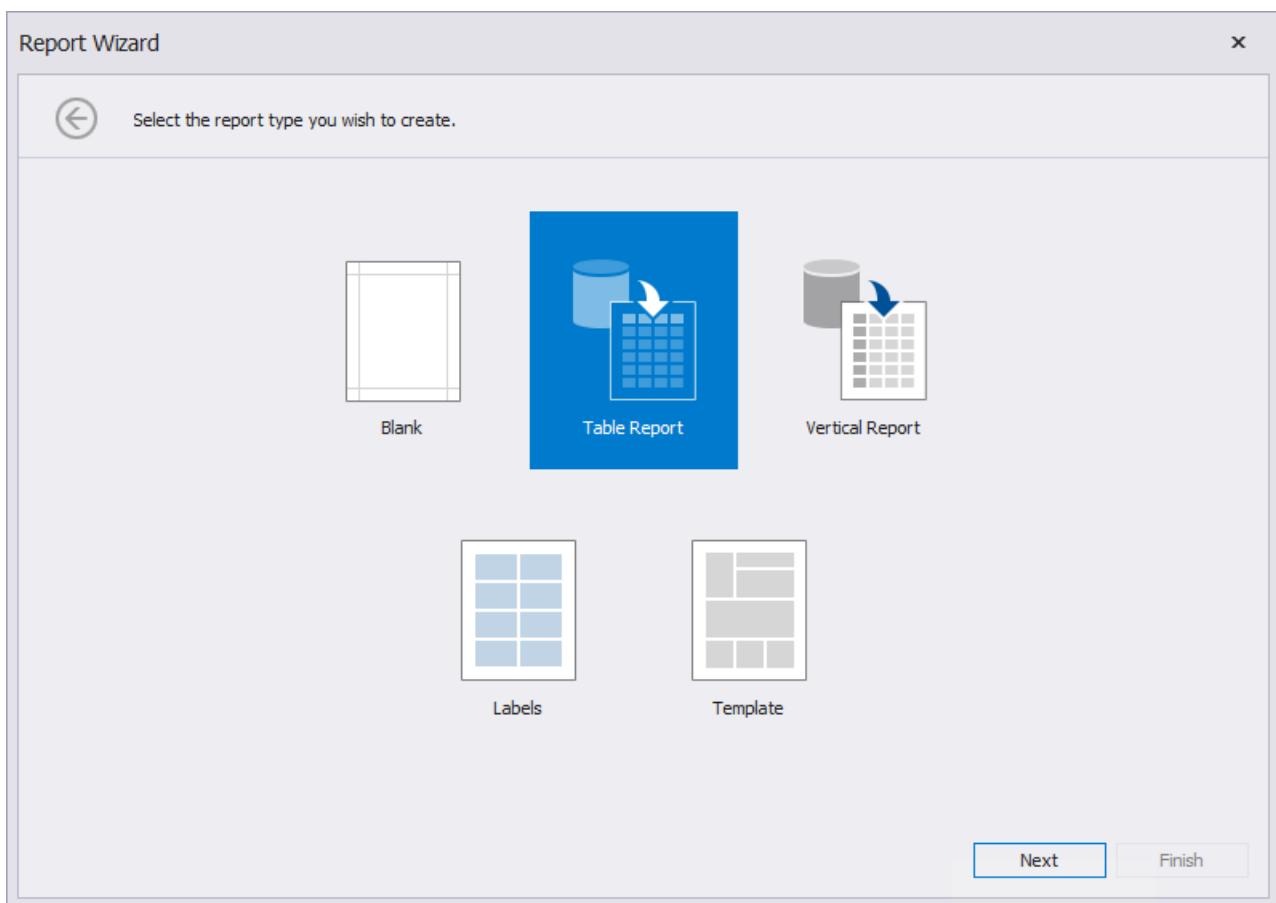


Design the Report Layout

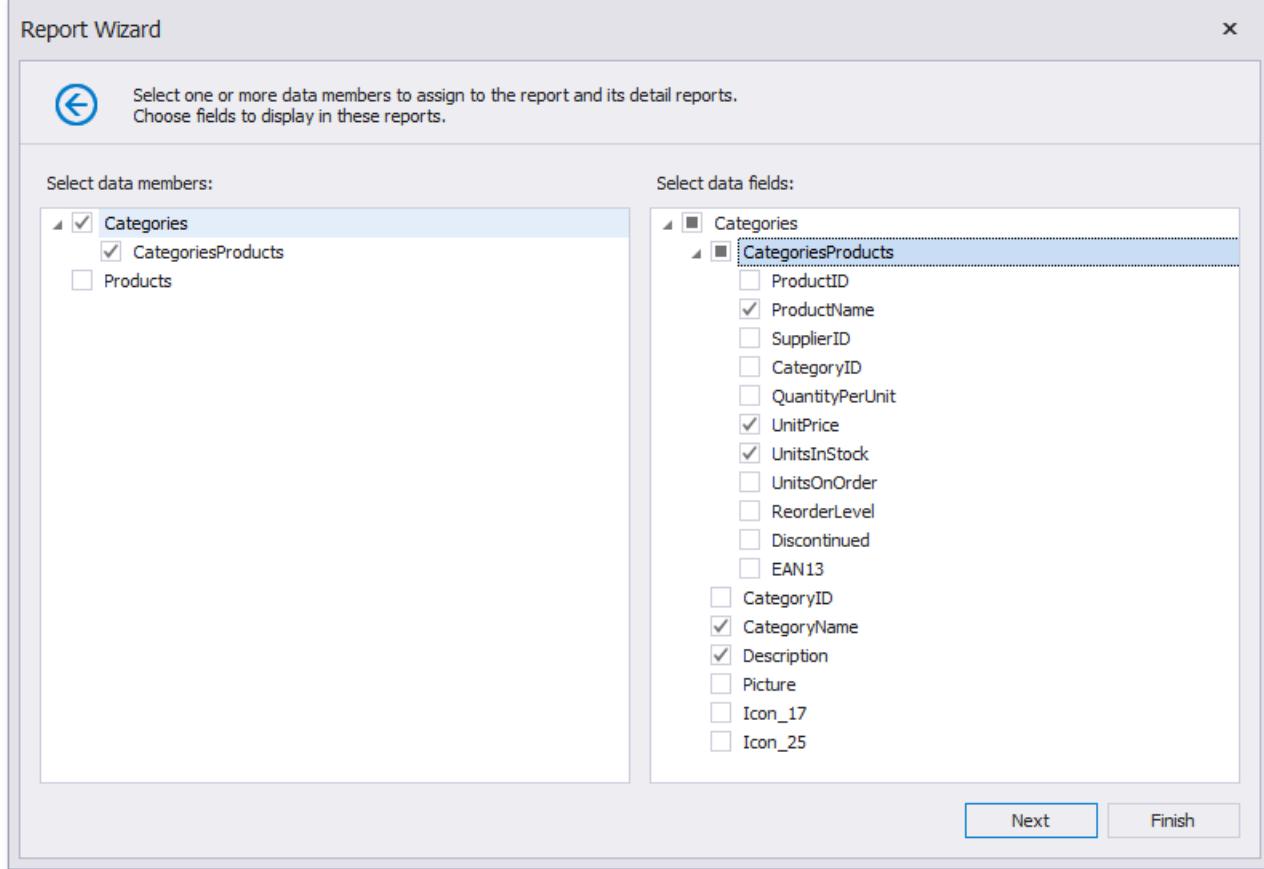
1. Click the report's smart tag and select **Design in Report Wizard**.



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



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



The resulting layout looks similar to the following image:

The report structure is as follows:

- ReportHeader [one band per report]**
- Products by Categories** (Section header)
- Detail** (Section)
 - Category Name** (Table)

Category Name	Description
[CategoryName]	[Description]
 - DetailReport - "Categories.CategoriesProducts"** (Section)
 - GroupHeader1** (Section)

Product Name	Unit Price	Units In Stock
[ProductName]	[UnitPrice]	[UnitsInStock]

Switch to the Preview mode to see the report document.

Products by Categories

Category Name		Description	
Product Name		Unit Price	Units In Stock
Beverages		Soft drinks, coffees, teas, beers, and ales	
Chai		\$18.00	39
Chang		\$19.00	17
Steeleye Stout		\$18.00	20
Côte de Blaye		\$263.50	17
Chartreuse verte		\$18.00	69
Ipoh Coffee		\$46.00	17
Lakkalikööri		\$18.00	57
Category Name		Description	
Condiments		Sweet and savory sauces, relishes, spreads, and seasonings	
Product Name		Unit Price	Units In Stock
Chef Anton's Cajun Seasoning		\$22.00	53
Chef Anton's Gumbo Mix		\$21.35	0
Grandma's Boysenberry Spread		\$25.00	120
Northwoods Cranberry Sauce		\$40.00	6

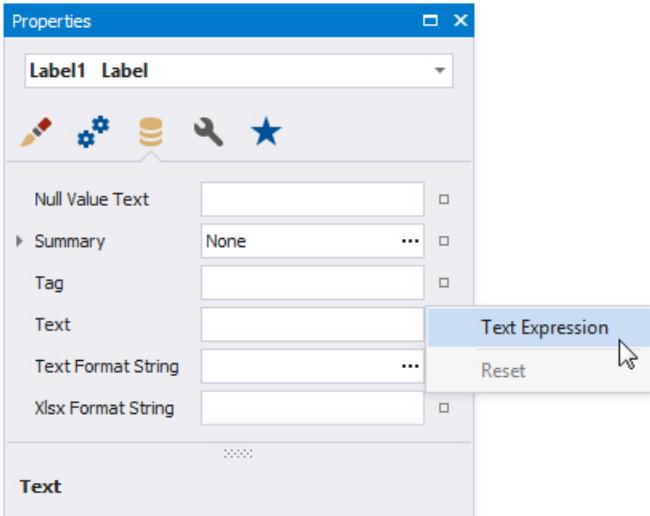
Data Binding Modes

The Report Designer works in one of the following data binding modes:

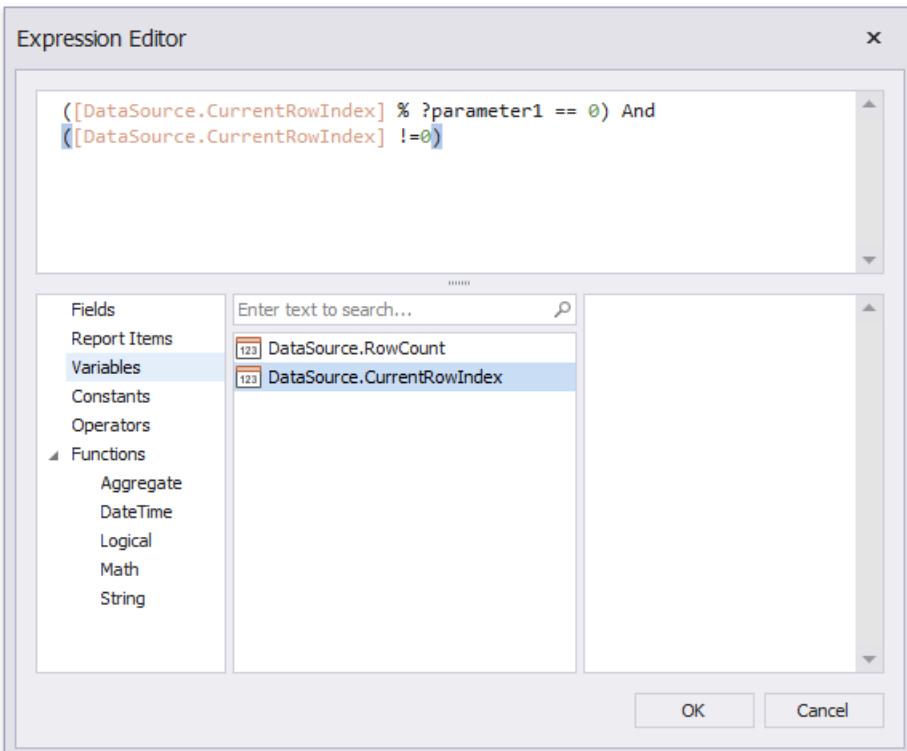
- **Expressions** is the default binding mode.

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**.

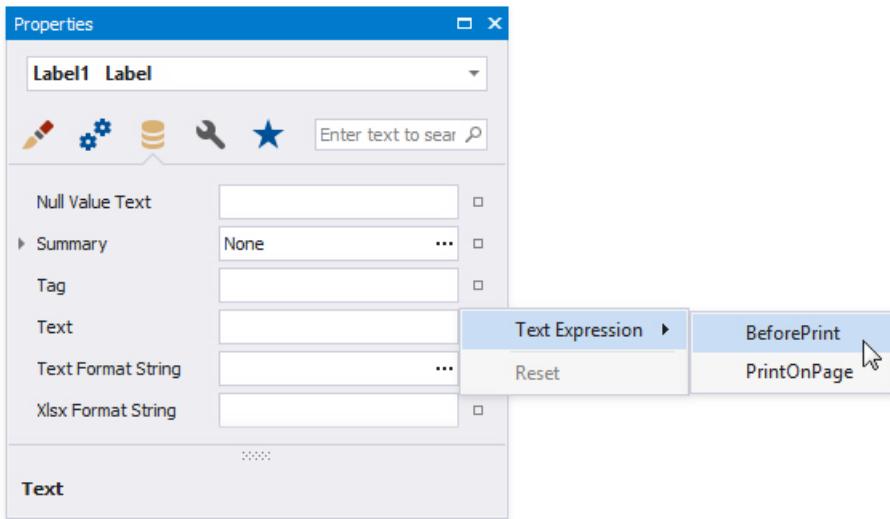


The **Expression Editor** allows you to use functions, access report bands and controls, and reference data source values in the constructed expression.



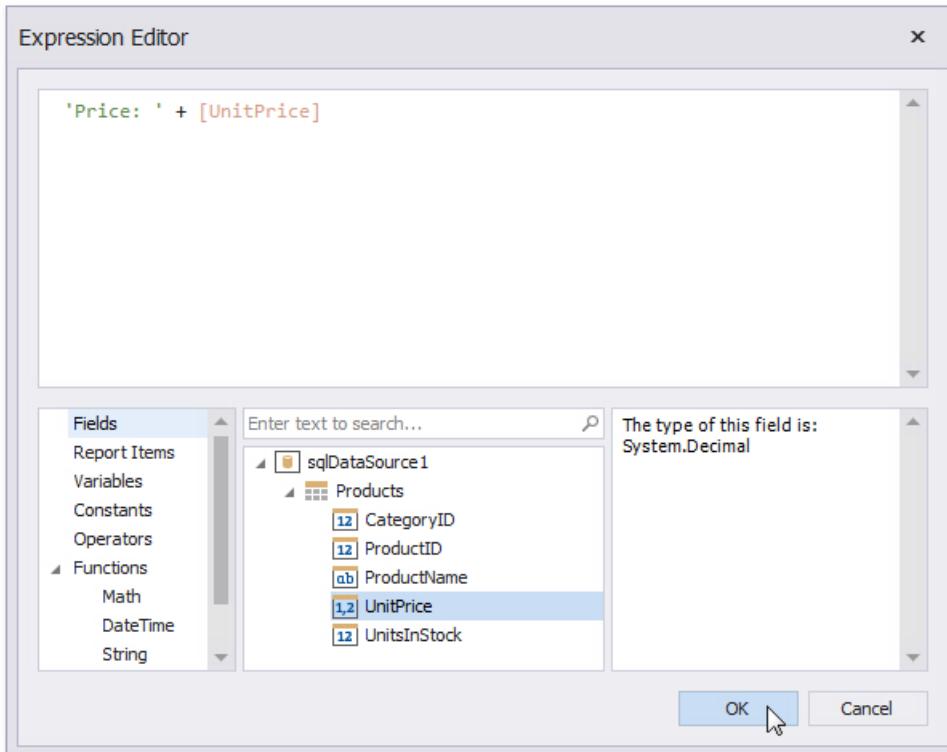
- **Expressions Advanced** is the advanced Expression mode.

This mode enables you to specify an expression that is evaluated within a control's specific event.

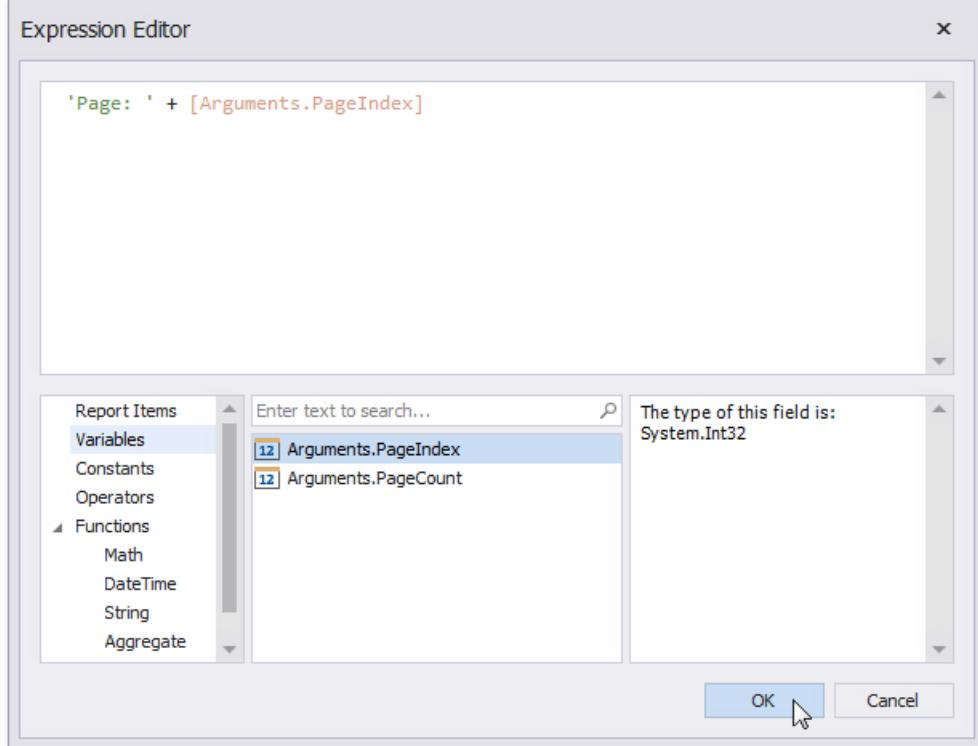


The **Expression Editor** allows you to use event argument values in the constructed expressions. Event arguments are available in the [Variables](#) section.

In the **BeforePrint** event, you can use data fields from all queries in the data source.



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.



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
Chang Charlotte Cooper (Exotic Liquids, Purchasing Manager) - UK, London, EC1 4SD 49 Gilbert St.	\$19.00	24	20%	\$456.00
Sir Rodney's Marmalade Peter Wilson (Specialty Biscuits, Ltd., Sales Representative) - UK, Manchester, M14 GSD 29 King's Way	\$81.00	1	4%	\$81.00
Queso Manchego La Pastora Antonio del Valle Saavedra (Cooperativa de Quesos 'Las Cabras', Export Administrator) - Spain, Oviedo, 33007 Calle del Rosal 4	\$38.00	2	5%	\$76.00
Northwoods Cranberry Sauce Regina Murphy (Grandma Kelly's Homestead, Sales Representative) - USA, Ann Arbor, 48104 707 Oxford Rd.	\$40.00	2	10%	\$80.00
Wimmers gute Semmelknödel 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
INCOME						
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
TOTAL INCOME	\$120,641.16	\$96,461.45	\$123,281.75	\$99,102.04	\$124,922.33	\$564,408.73
EXPENSE						
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
TOTAL EXPENSE	\$598.96	\$925.09	\$652.21	\$909.33	\$635.46	\$3,721.05
NET INCOME	\$120,042.20	\$95,536.36	\$122,629.54	\$98,192.71	\$124,286.87	\$560,687.68

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					

Invoices from Templates

Paul Henriot
59 rue de l' Abbaye
Reims
France

Vins et alcools Chevalier
59 rue de l' Abbaye
Reims
France

Logo

4 August 2014

Invoice

Invoice No.
10248

Qty	Description	Price	Discount	Tax	LineTotal
12	Queso Cabrales	\$14.00	0%	10%	\$184.80
10	Singaporean Hokkien Fried Mee	\$9.80	0%	10%	\$107.80
5	Mozzarella di Giovanni	\$34.80	0%	10%	\$191.40
<hr/>					\$484.00
Discount					\$0.00
Tax					

Cross-Tab Reports

[Cross-Tab Reports](#)

Sales Summary by Year

Order Date	Category Name	UK			
		Anne Dodsworth	Michael Suyama	Robert King	Steven Buchanan
Quarter 1	Beverages	\$12,809.70	\$1,952.30	\$12,734.96	\$1,9
	Condiments	\$5,646.29	\$1,637.57	\$2,047.90	\$1,0
	Confections	\$6,114.25	\$1,936.49	\$4,742.85	\$2,0
	Dairy Products	\$2,855.47	\$3,375.00	\$8,506.50	\$9,9
	Grains/Cereals	\$224.00	\$1,211.70	\$4,754.50	\$3,11
	Meat/Poultry	\$3,563.76	\$573.68	\$876.00	\$81
	Produce		\$2,052.00	\$3,012.72	\$98
	Seafood	\$2,860.15	\$57.90	\$1,378.89	\$2,17
Total Quarter 1		\$34,073.62	\$12,796.64	\$38,053.82	\$22,002
Quarter 2	Beverages	\$1,414.00	\$1,382.40	\$4,833.75	\$720
	Condiments	\$598.00	\$857.05	\$4,231.37	\$263
	Confections	\$578.80	\$567.60	\$3,176.34	\$250.
	Dairy Products	\$8,691.05	\$1,134.20	\$8,364.70	\$3,208.
	Grains/Cereals	\$997.50	\$3,401.00	\$815.60	
	Meat/Poultry	\$149.00	\$4,866.84	\$15,123.37	\$336.
	Produce		\$5,407.31	\$4,092.40	\$2,162.
	Seafood	\$1,260.25	\$1,436.56	\$1,719.77	\$807.
Total Quarter 2		\$13,688.60	\$19,052.96	\$42,357.30	\$7,747.
Quarter 3	Beverages	\$4,164.55	\$2,009.50	\$910.80	\$1,291
	Condiments	\$341.25	\$824.94	\$1,562.18	\$237
	Confections	\$1,112.00	\$2,327.04	\$6,219.79	
	Dairy Products				

Balance Sheets

Balance Sheet

(Dollars in Millions)

	2018	2019	2020
Assets			
Current assets			
Cash and cash equivalents	13,692.56	17,532.10	11,910.76
Marketable securities	24,187.44	14,629.48	21,956.18
Accounts receivable trade, less allowances for doubtful accounts	11,155.68	10,363.31	10,260.00
Inventories	7,139.41	8,398.09	7,128.75
Total Current assets	56,175.09	50,922.98	51,255.69
Long-term assets			
Property, plant and equipment, net	16,244.50	13,576.09	13,911.89
Intangible assets, net	28,199.35	24,374.22	28,860.46
Goodwill	20,982.49	22,112.28	20,378.70
Equity and long-term investments	6,225.03	6,071.37	6,592.01
Deferred taxes on income	12,139.94	11,442.37	11,928.68
Other assets	3,777.55	5,015.98	4,372.08
Total Long-term assets	87,568.86	82,592.31	86,043.82
Total Assets	143,743.95	133,515.29	137,299.51
Liabilities and Shareholders Equity			
Current liabilities			
Loans and notes payable			

Multi-Column Reports

Labels and Badges



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			<input checked="" type="checkbox"/> MALE	<input type="checkbox"/> FEMALE						
NATIONALITY							ADDRESS	4	8	0	L	I	N	D	A	R	D	.		
								Y	U	M	A	.	A	Z	.	U	S	A		
SIGNATURE													FOR OFFICIAL USE							
	2	8		0	8		2	0	2	0										
	DAY	MONTH	YEAR	DAY	MONTH	YEAR														

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 mean you hours of enjoyment without a big blow to your wallet. New for this year's model of a single button, the HD Projector automatically focuses and adjusts colors as needed. Once you press the button, the HD Projector begins a series of internal tests based on ambient light within your home theater.

Specifications	
Projection System DLP Chip	Native Resolution 1920x1080
Projection Method Mount	Standard Resolution 640 x 480 (VGA), 1024 x 768 (SVGA)
Driving Method Active Matrix	800 x 600 (XGA), 1152 x 864 (SXGA)
Pixel Number	1280 x 960 (UXGA), 1600 x 1200 (UXGA)
Too Many to Count	1600 x 1200 (UXGA), 1600 x 1200 (UXGA)
Color Brightness Lumens	1600 lumens
White Brightness Lumens	1600 lumens
Aspect Ratio	Lamp Type Unknown
16:9	Lamp Life S Up to 16000 hours (ECO mode)
Throw Ratio Range 0-6	Up to 16000 hours (Normal mode)
Type Zoom	
Zoom Ratio 1.5	
Length of Lamp 5	
Focal Length Realized	
Zoom Type Optical	
Other	
Power 220W	
Weight 2.75 W (user mode)	
Notes None	
Alert	

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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 up-converts 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 3D-animated BDs. It handles videos, music, and photos sent from any DLNA 1.5-certified media server. 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 | | AUDIO & VIDEO FEATURES |
|---|--|--|
| • THX® Certified | • Plays AVCHD®, MP4, WMV, and JPEG | • Dolby® TrueHD and Dolby® Digital Plus Decoding |
| • 1080p Blu-ray® 3D Playback (must have a 3D monitor) | • Blu-ray™ Part for BD-Video, BD-Audio, and BD-Subtitles | • 3D-Link® 3D Video Output (HDMI, Component, and RGB) |
| • 4K/HDR Outputs with 128,000:1 Dynamic Contrast, eColor™, and CEC support | • Certified for Blu-ray Version 1.2 for Deep Color, x.v.Color™, Maxis, and Native Conversion with HDMI 1.4, MPEGS2, PGS, MP3, DTS-HD, LPCM, MP4, WMV, and JPEG formats | • 3D-Link® 3D Audio Output (HDMI, CEC, and CEC-RIN) |
| • Dolby® TrueHD and Dolby® Digital Plus Decoding | • A/V Port for Media Sharing | • 3D-Link® Parallelism for Interactive Content |
| • Supports 3D-Link™ Video Output™ Essential | • 1080p (10-bit) Dual Outputs for High-Gloss Connection | • 1080p/24p Video Output for Full-HD Movie |
| • 100dB Linearizing of Standard Video Sources (100dB, 72dB, and 48dB) with XBR Technology by Sony®/Vizio® | • CinemaV™ Engine | • 2 Digital Audio Outputs (Digital and Coaxial) |
| • Precision Tuning for superior sound quality | • Deep-Panel™ HDMi, Analog Audio, Digital Audio (Coaxial Only), and Analog Video Outputs | • Analog Audio, Component Video, and Old School Connectors |
| | • Independent circuitry for Audio, Digital, and Video processing | • Digital Signal Processing for better HD Picture Quality |
| | | • Super cooling fan |

AUDIO & VIDEO FEATURES

- Plays Blu-Ray™ (BD-ROM, BD-R/RD), DVD+/-R/+RW, DVD-RAM, DVDRW, DVDR (S), audio CDs, MP3 CDs, WMA CDs, CD-R/RW and CS-R/RW™
 - 3D-Ulti Functionality for Interactive Content
 - 1080p HD Video Output for Full-HD Movie
 - 2 Digital Audio Outputs (Optical and Coaxial)
 - Analog Audio, Component Video, and Old School Composite
 - Digital Noise Reduction for better HD Picture Quality

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Reports with a Visual PDF Signature

DevExpress Website Terms of Use

1. INTRODUCTION

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I have read and accept this Website Terms of Use statement

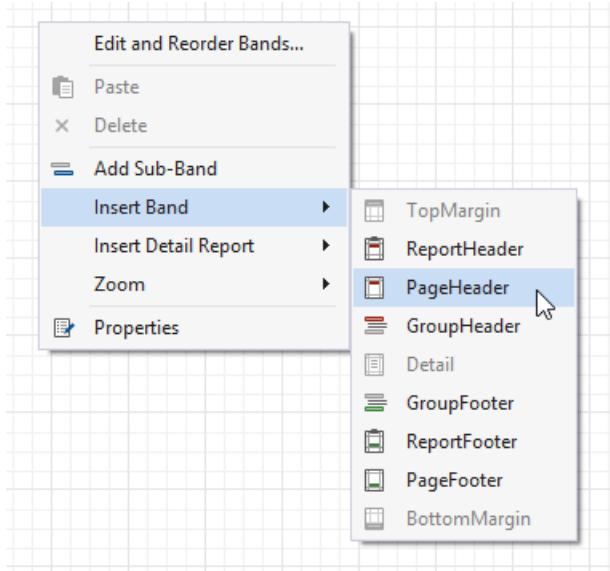
Andrew Jacobson

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

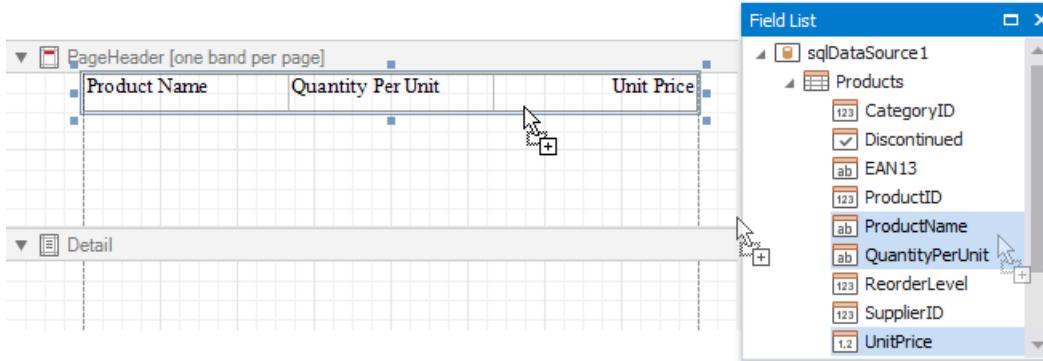
Table Reports

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](#).

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



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



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

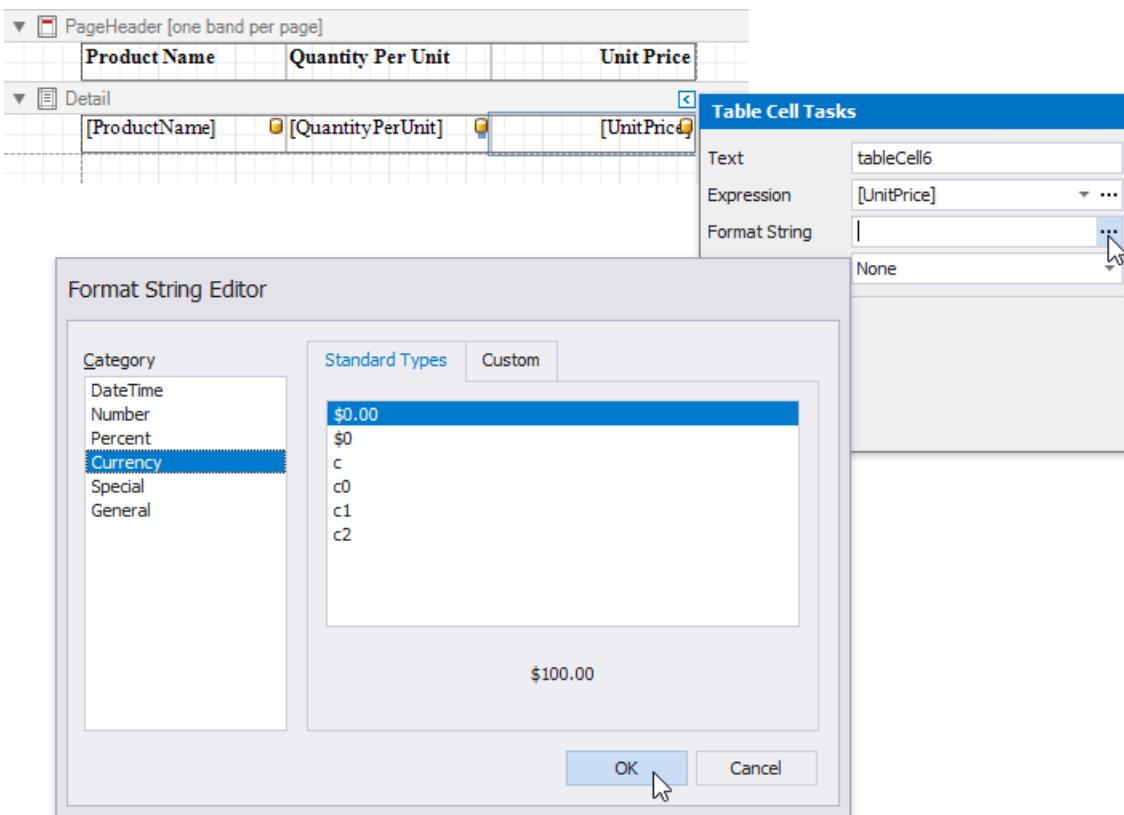
5. To provide dynamic content to the report, switch to the Field List again and select the same fields. Click the selected fields and drag-and-drop them onto the Detail band.

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

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

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

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



- 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 structure. The 'Properties' panel is open on the right, showing the properties for 'table2 Table'. Under the 'Styles' section, 'Even Style' is set to 'Style1'. Below it, '(Name)', 'Background Color', and 'Border Color' are also listed. The 'Border Color' section is currently active, indicated by a red border around its controls.

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.

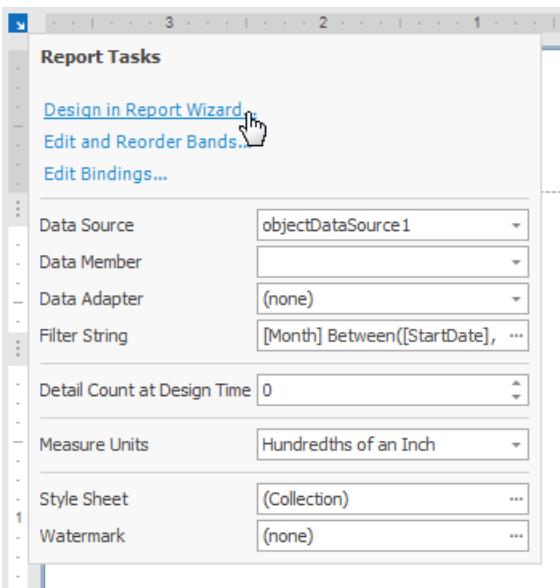
Product Name	Quantity Per Unit	Unit Price
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Aniseed Syrup	12 - 550 ml bottles	\$10.00
Chef Anton's Cajun Seasoning	48 - 6 oz jars	\$22.00
Chef Anton's Gumbo Mix	36 boxes	\$21.35
Grandma's Boysenberry Spread	12 - 8 oz jars	\$25.00
Uncle Bob's 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

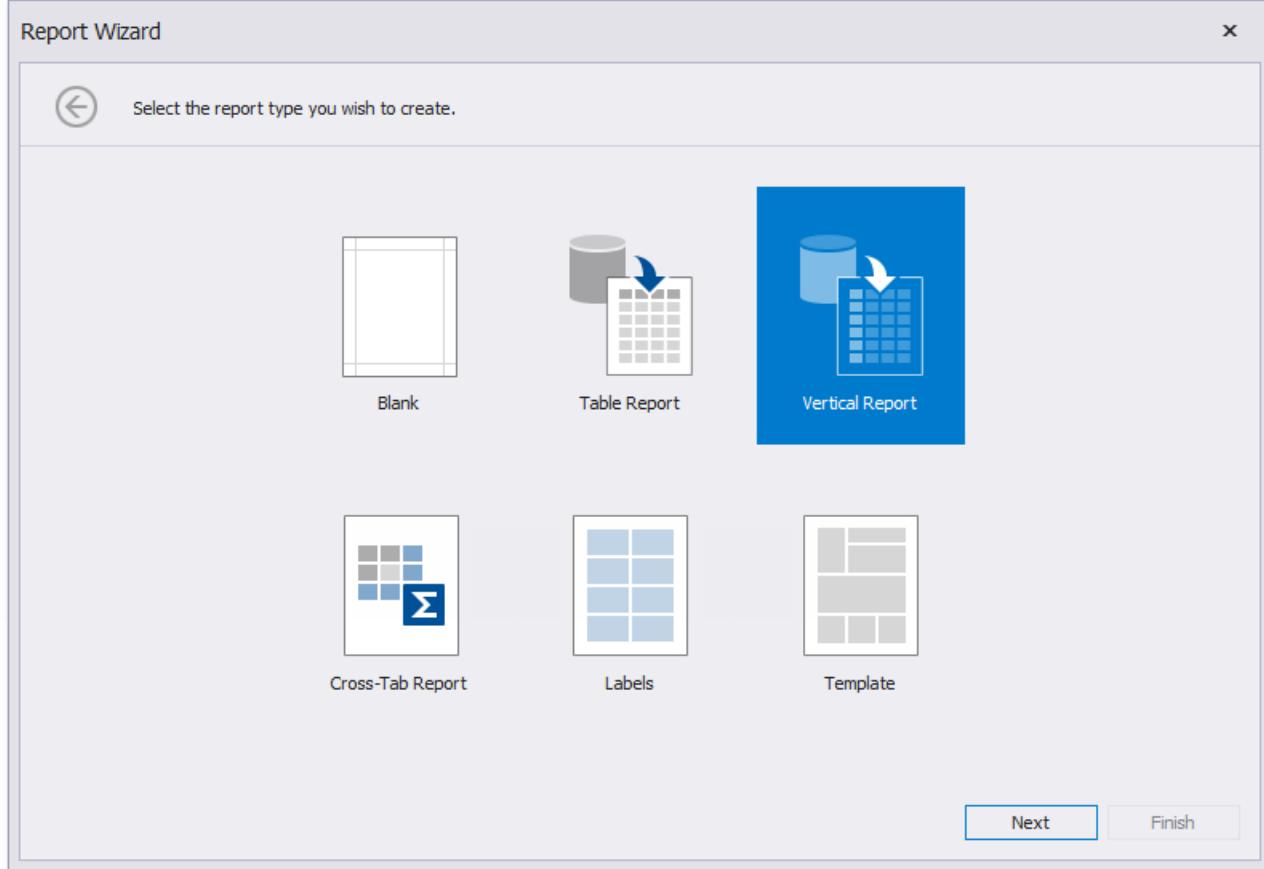
This tutorial describes how to use vertical bands to create a report where record fields are arranged vertically and data records are printed horizontally.

Profit and Loss						
	JAN	FEB	MAR	APR	MAY	
INCOME						
Construction Income	\$93,031.04	\$109,426.43	\$112,756.76	\$85,633.29	\$115,542.44	
Sales Income	\$966.00					
TOTAL INCOME	\$93,997.04					
EXPENSE						
Automobile	\$312.57					
Bank Service Charges	\$63.00					
TOTAL EXPENSE	\$375.57					
NET INCOME	\$93,621.47					
	NOV	DEC	TOTAL			
INCOME						
Construction Income	\$101,822.47	\$92,279.50	\$1,269,589.25			
Sales Income	\$231.00	\$156.00	\$6,930.00			
TOTAL INCOME	\$102,053.47	\$92,435.50	\$1,276,519.25			
EXPENSE						
Automobile	\$864.84	\$888.81	\$7,317.45			
Bank Service Charges	\$23.00	\$68.00	\$591.00			
TOTAL EXPENSE	\$887.84	\$956.81	\$7,908.45			
NET INCOME	\$101,165.63	\$91,478.69	\$1,268,610.79			

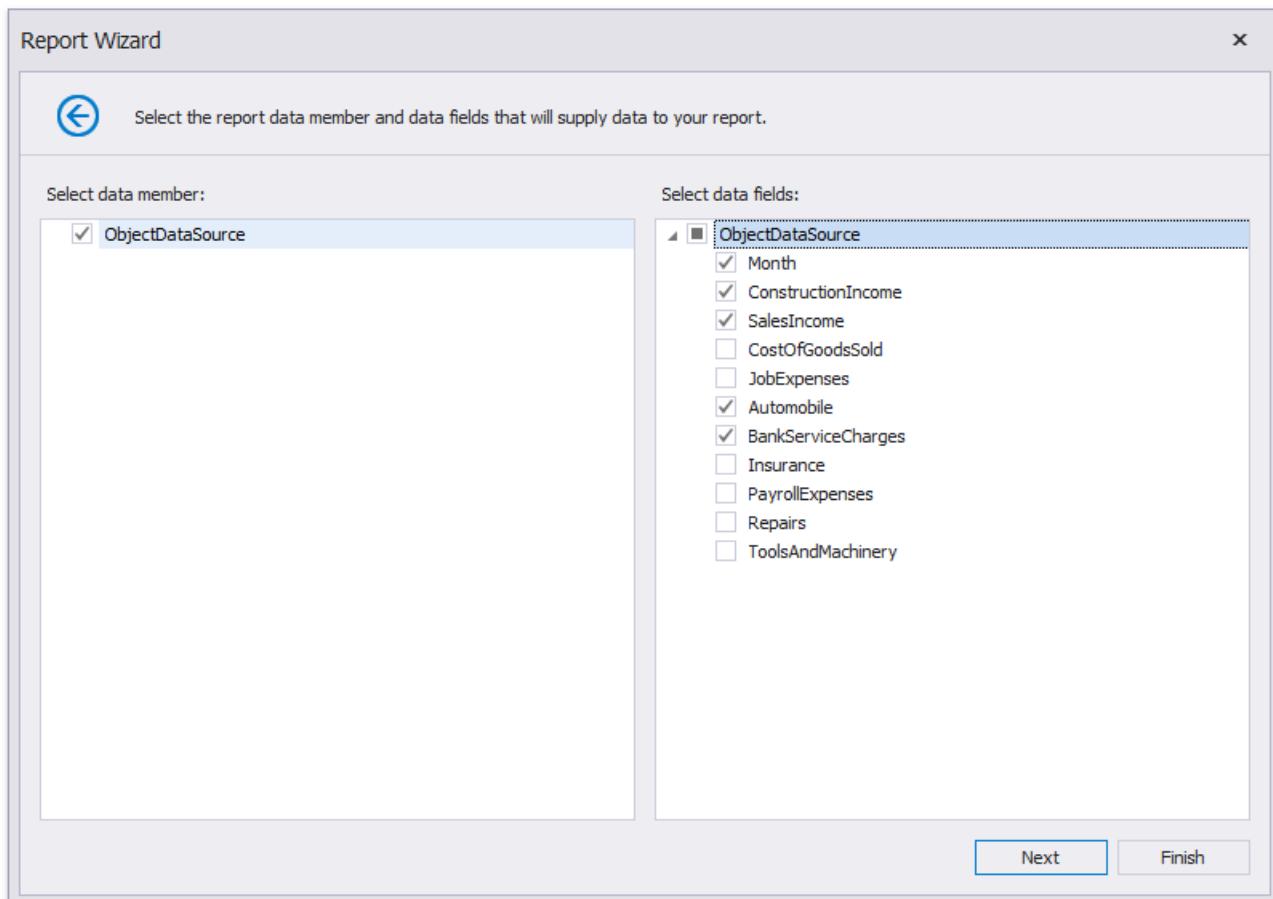
1. [Create a new report](#) or [open an existing one](#).
2. [Bind the report](#) to a required data source.
3. Click the report's smart tag and choose **Design in Report Wizard...**



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



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



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

Report Wizard

Choose summary functions to calculate in reports.

Select the report: ObjectDataSource

Select fields and assign summary functions to them:

Fields	Summary functions
ConstructionIncome	Sum
SalesIncome	Sum
Automobile	Sum
BankServiceCharges	Sum

Ignore null values

Next Finish

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

Report Wizard

Specify a report's page settings.

Paper

Size: Letter
Unit: Inch
Width: 11.00 "
Height: 8.50 "

Landscape

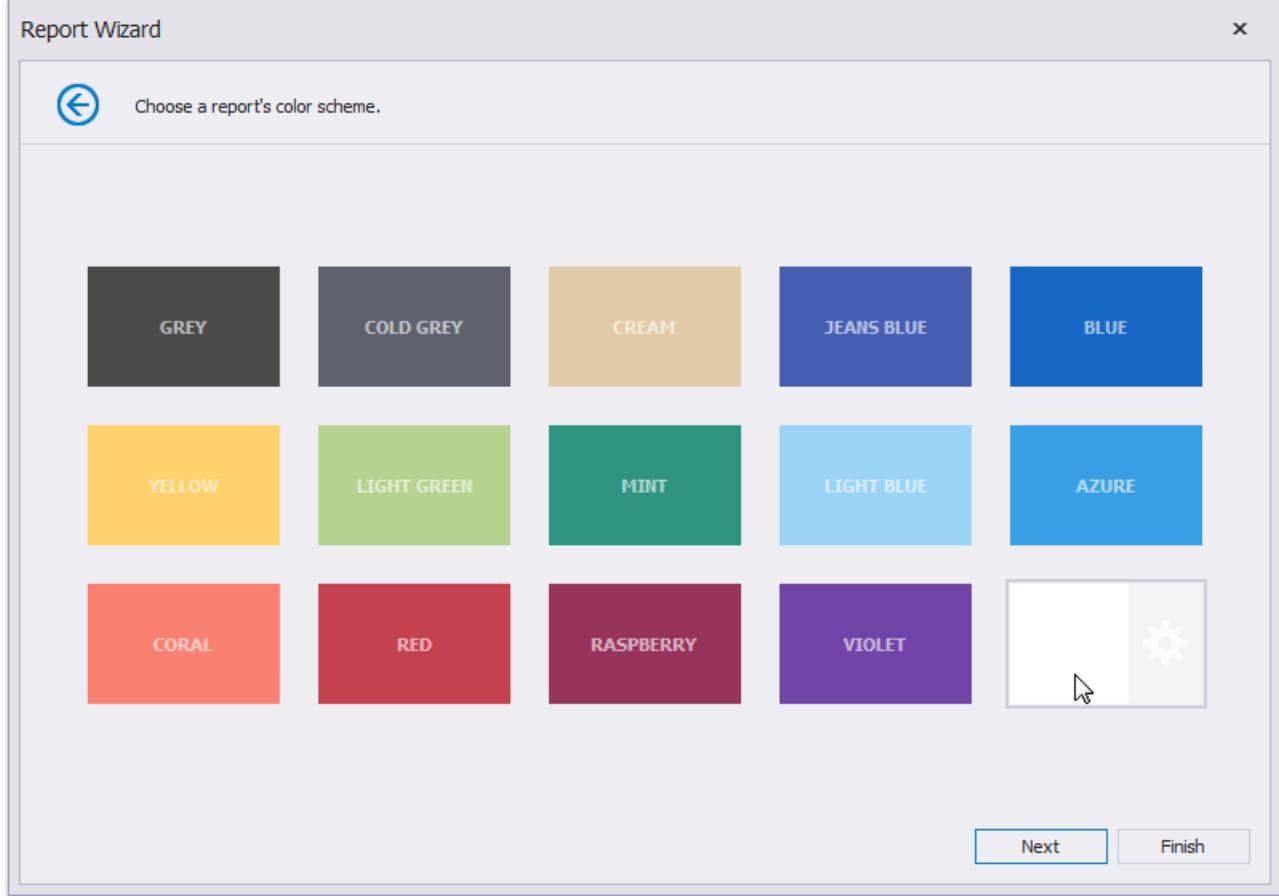
Portrait

Page Margins

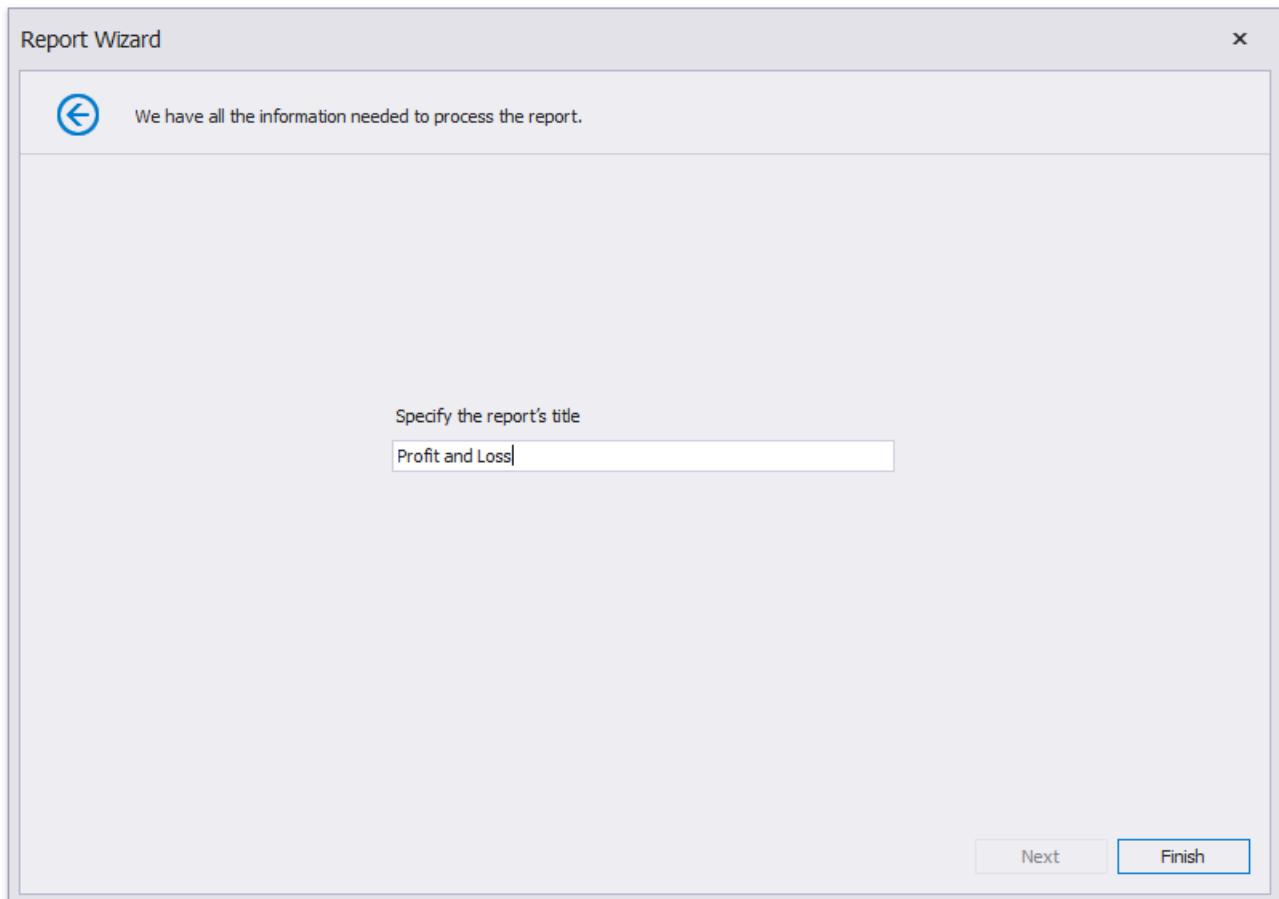
Left: 1.00 " Right: 1.00 "
Top: 1.00 " Bottom: 1.00 "

Next Finish

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



10. Specify the report's title.



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

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

- Vertical Header band**
- Vertical Details band**
- Vertical Total band**

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

- Vertical Header band**

Contains a table with a single column that displays headers of the report's data fields.

- Vertical Details band**

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

- Vertical Total band**

Contains a table with a single column that has so many labels in cells as there are summary functions you specified for each field in the Report Wizard (only the **sum** function for each field in this demo).

Switch to the Preview tab to see the result.

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

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

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

TIP

You can create a vertical report without using the Report Wizard. Right-click the report in the Report Designer and choose **Insert Vertical Band** in the invoked context menu. Refer to the [Introduction to Banded Reports](#) topic for more information.

Set Vertical Table Options

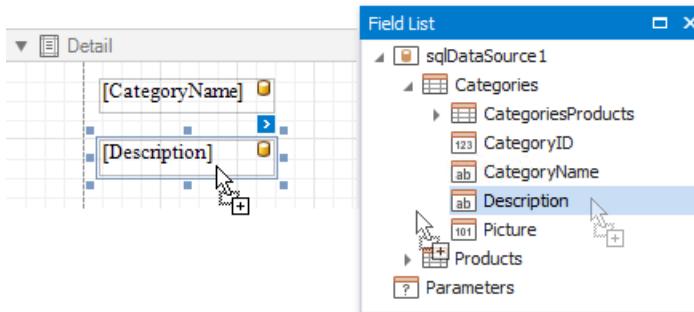
You can set the following options in the [Property Grid](#) to modify the vertical table:

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

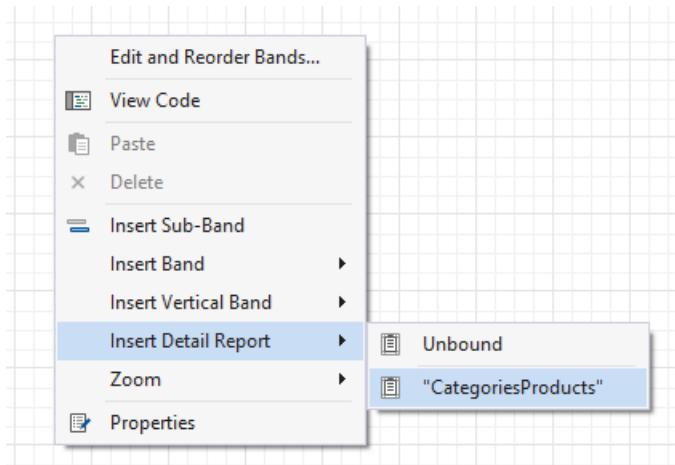
Master-Detail Reports with Detail Report Bands

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

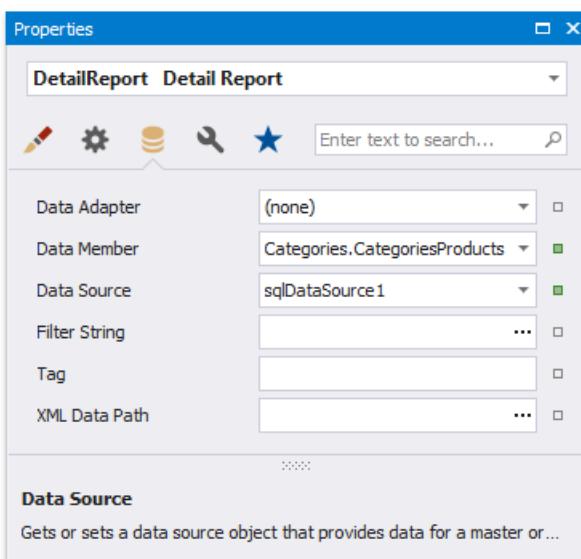
1. [Create a new report or open an existing one](#).
2. [Bind the report](#) to a required data source and provide it with a master-detail relationship as described in the [Bind a Report to a Database](#) topic.
3. Drop the required data fields from the [Field List](#) onto the [Detail](#) band.



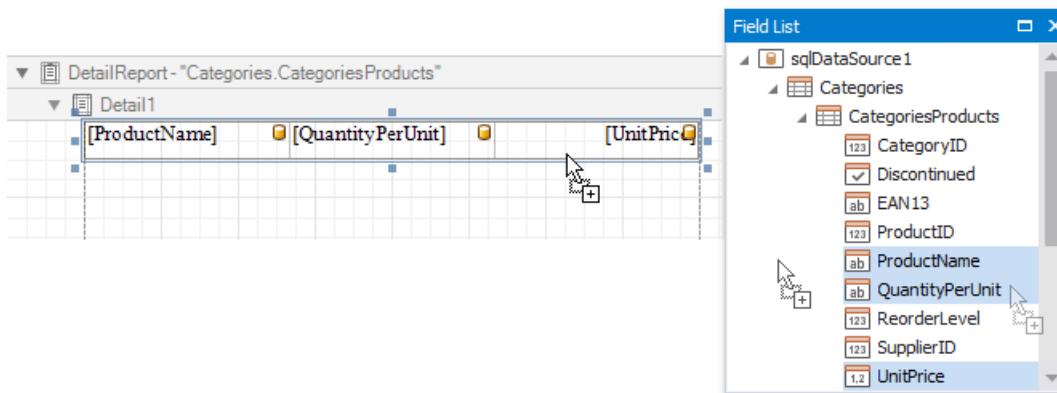
4. Create a [Detail Report Band](#) by right-clicking the report's surface. In the invoked context menu, select **Insert Detail Report**, and then, select the master-detail relationship's name.



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



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



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

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

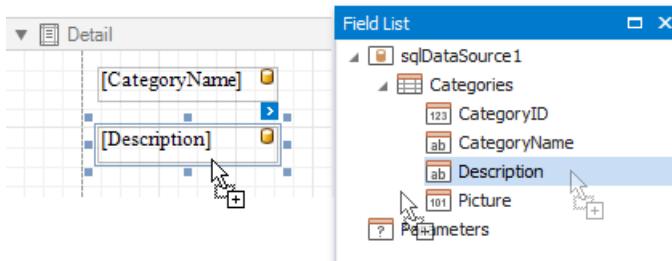
Beverages		
<i>Soft drinks, coffees, teas, beers, and ales</i>		
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Steeleye Stout	24 - 12 oz bottles	\$18.00
Côte de Blaye	12 - 75 cl bottles	\$263.50
Chartreuse verte	750 cc per bottle	\$18.00
Ipoх Coffee	16 - 500 g tins	\$46.00
Lakkaliköön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

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 \(Use Detail Report Bands\)](#).

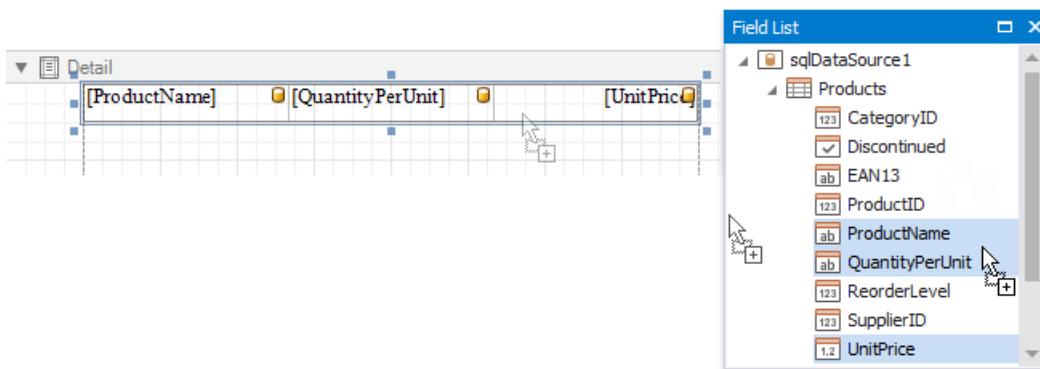
Create a Master Report

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

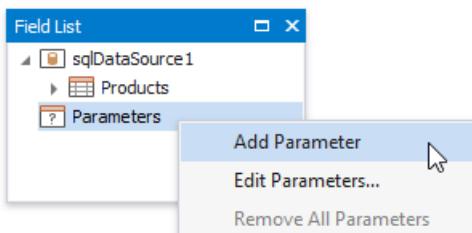


Create the Detail Report

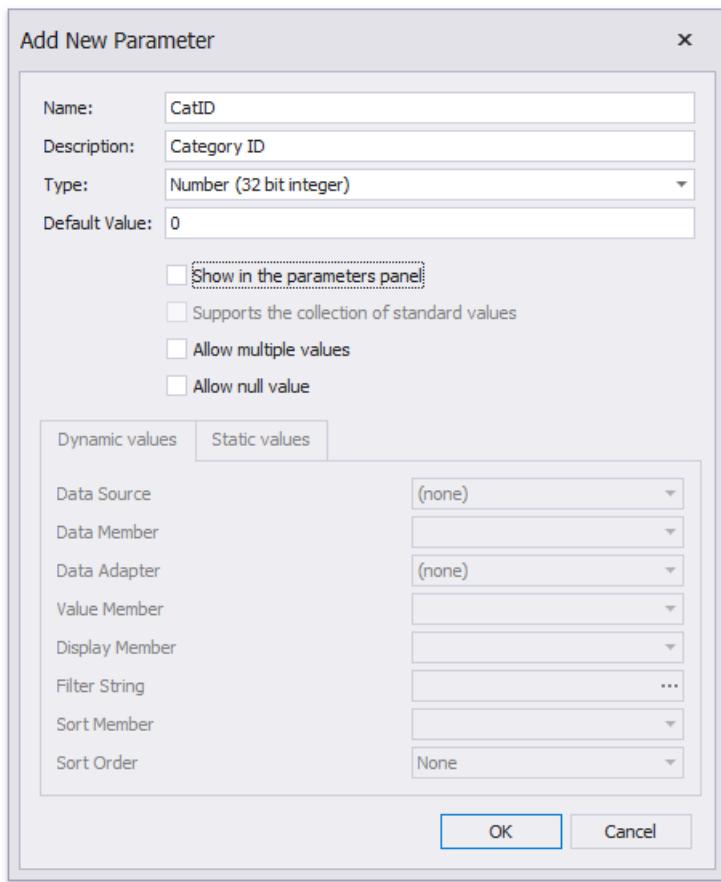
1. [Add one more blank report](#) to use it as a detail report.
2. [Bind it to data](#). For instance, use another table of the same database as for the master report.
3. Switch to the **Field List**, select the data fields while holding down CTRL or SHIFT and drag-and-drop them onto the Detail band.



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

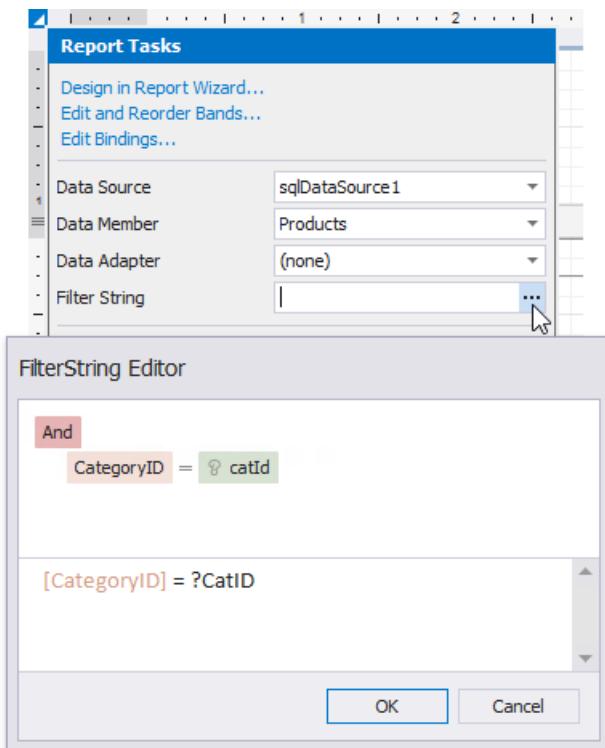


5. In the invoked **Add New Parameter** dialog, specify the parameter's **Name** and **Type** as well as disable the **Show in the parameters panel** option.

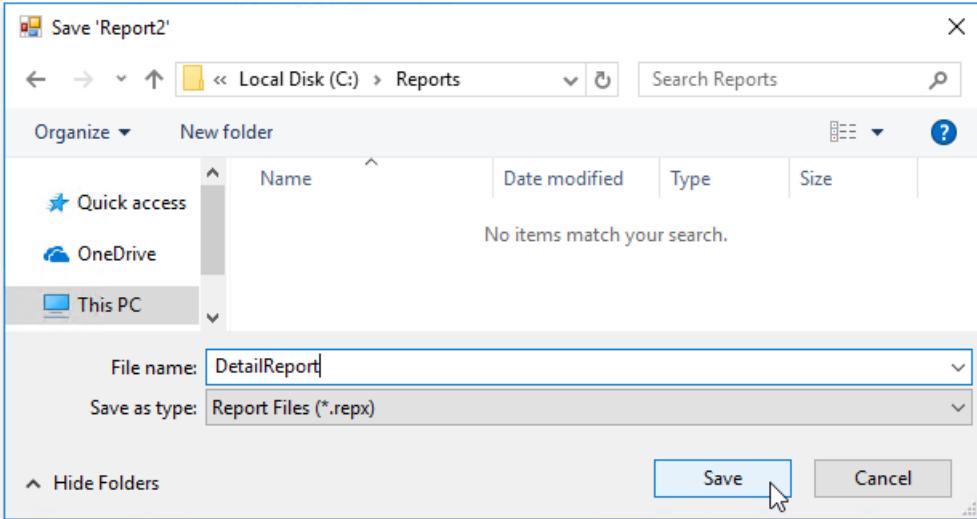


6. Click the report's smart tag, and in its actions list, click the **Filter String** property's ellipsis button.

In the invoked **FilterString Editor**, construct an expression where the required data field is compared to the created parameter. To access the parameter, click the icon on the right until it turns into a question mark.

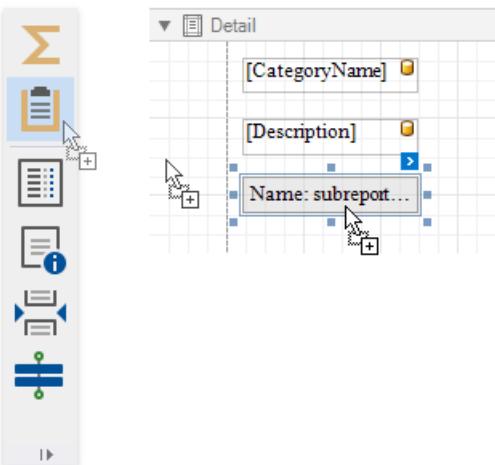


7. Save the detail report by selecting **Save | Save As** in the toolbar. In the invoked standard **Save** dialog, specify the folder and file name.

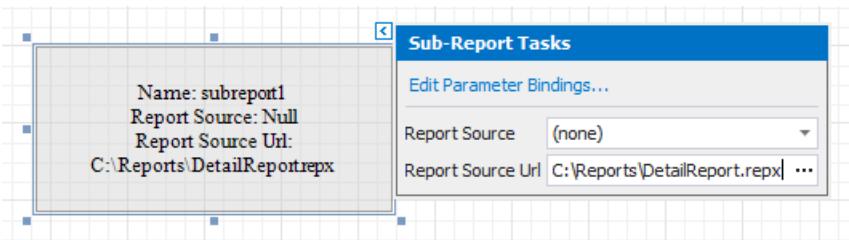


Embed the Subreport

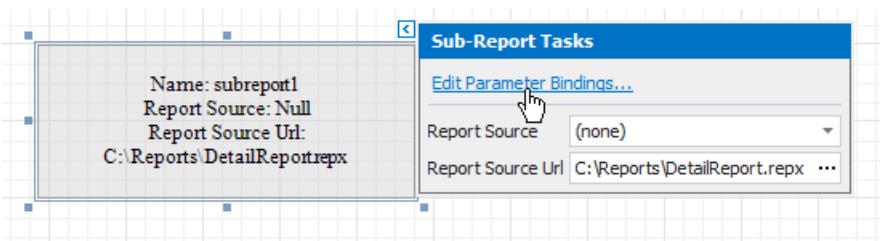
1. Switch back to the master report and drop the **Subreport** control from the **Toolbox** onto the **Detail** band.



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

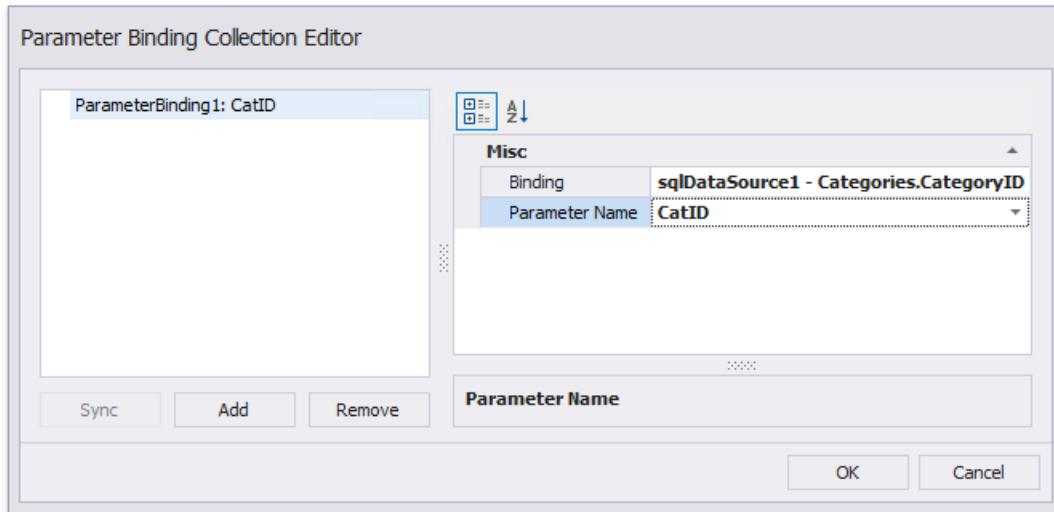


3. Bind the subreport's parameter used as a filter criterion to the master report's corresponding data field, which serve as a source of the parameter value. To do this, click the subreport's smart tag and select **Edit Parameter Bindings** in the invoked actions list.



4. In the invoked **Parameter Binding Collection Editor**, click **Add** to add new binding. In the property list, specify the data

field to which you want to bind a subreport parameter and the name of the parameter that you want to bind.



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

View the Result

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

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

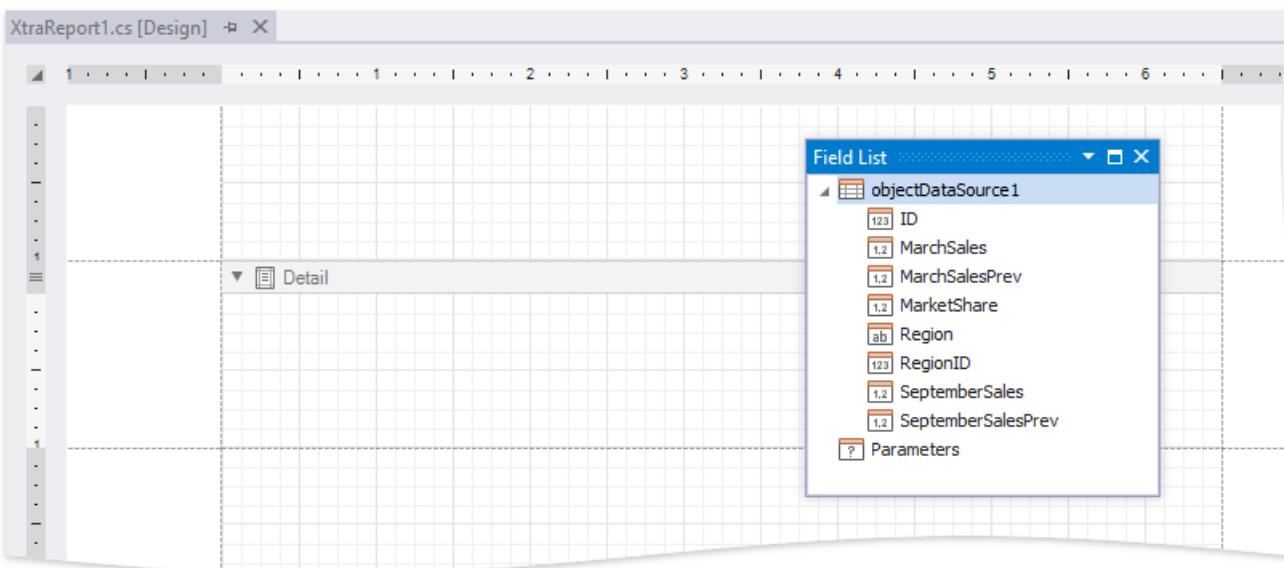
Hierarchical Reports

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

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	
▶ North America	\$31,400.00	\$32,800.00	
▶ South America	\$16,380.00	\$17,590.00	
▶ Western Europe	\$30,540.00	\$33,000.00	

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

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



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

3. Arrange controls on the report.

- 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)

- Add **data-bound labels** to the **Detail** band.

The screenshot shows a report design interface with the following structure:

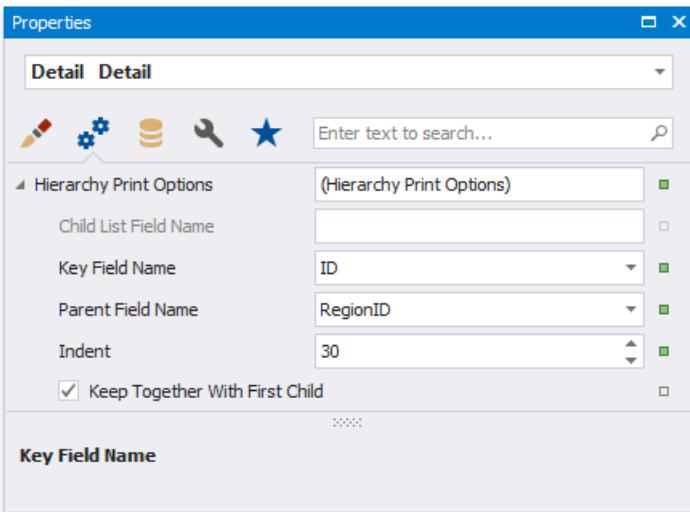
- ReportHeader:** Contains the title "Market Share Report".
- PageHeader:** Contains a section labeled "Sales".
- Detail:** A table with three columns: "Region", "March", and "September". The "Region" column contains the label "[Region]". The "March" column contains the label "[MarchSales]". The "September" column contains the label "[SeptemberSales]".

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

The report preview displays the following data:

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

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



Set the following options:

- **Key Field Name** and **Parent Field Name**, or **Child List Field Name**

Set the **Key Field Name** and **Parent Field Name** properties if your report's data has the Id-ParentID related fields.

Set the **Child List Field Name** property if your report's data is recursive. Assign the collection of child objects (records) if they have the same type as the parent objects (records).

- **Indent**

Specify the child level node offset.

- **Keep Together with First Child**

Specify whether to print a parent node together with its first child node on the next page if these nodes do not fit at the end of a page.

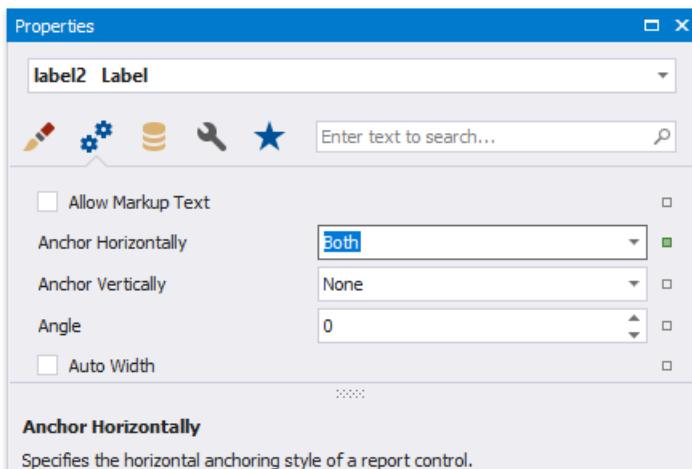
The report title is 'Market Share Report'. The table has a header row 'Sales' with columns 'Region', 'March', and 'September'. The data rows show sales for Western Europe, Austria, Belgium, Denmark, and Finland.

Sales		
Region	March	September
Western Europe	\$30,540.00	\$33,000.00
Austria	\$22,000.00	\$28,000
Belgium	\$13,000.00	\$9,640
Denmark	\$21,000.00	\$18,100
Finland	\$17,000.00	\$17,420

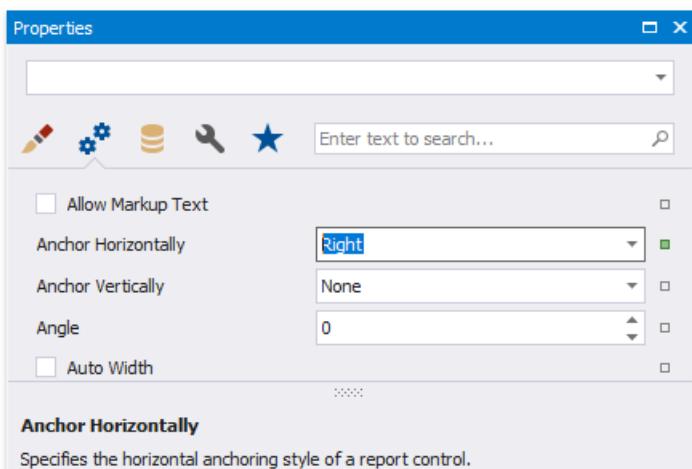
As you can see in the image above, the **Detail** band that contains child rows is printed with the specified indent. However, the row (the sum of the label widths) does not fit the page now.

5. Align labels.

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



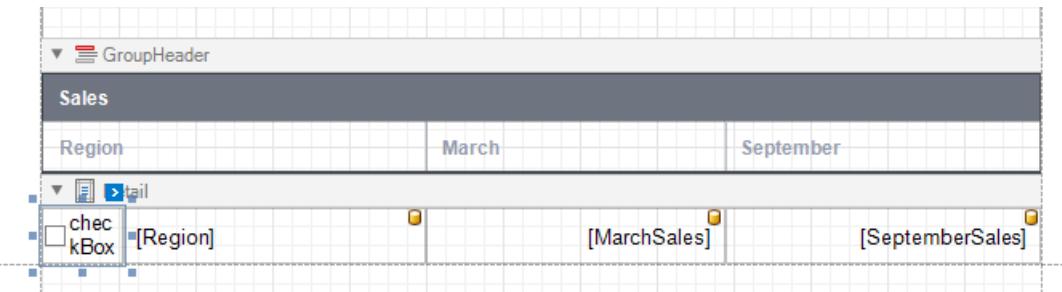
- o Anchor the rest of the data-bound labels to the right edge of the Detail band (their container). Set their **Anchor Horizontal** property to **Right**.



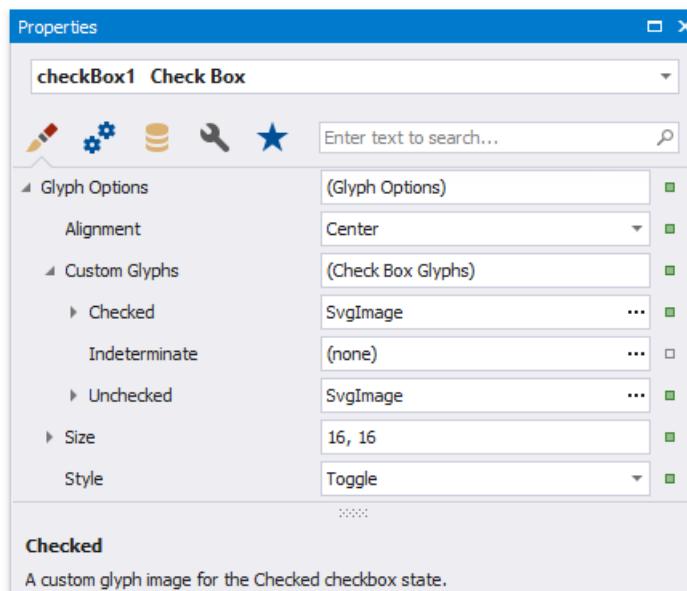
Sales		
Region	March	September
Western Europe	\$30,540.00	\$33,000.00
Austria	\$22,000.00	\$28,000.00
Belgium	\$13,000.00	\$9,640.00
Denmark	\$21,000.00	\$18,100.00
Finland	\$17,000.00	\$17,420.00

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

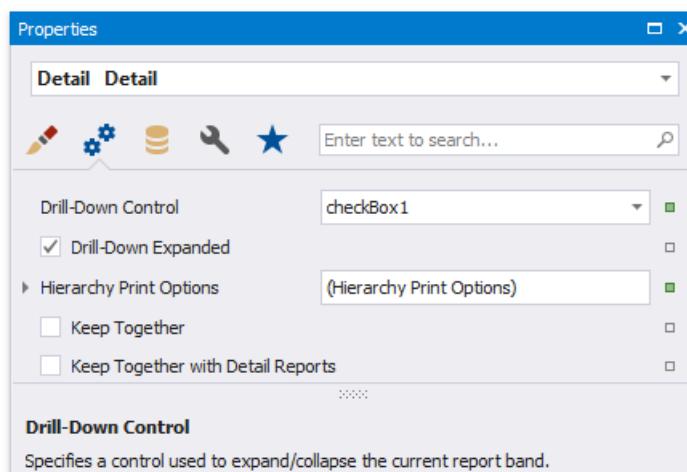
- o Add the **Check Box** control to the **Detail** band at the left-most position.



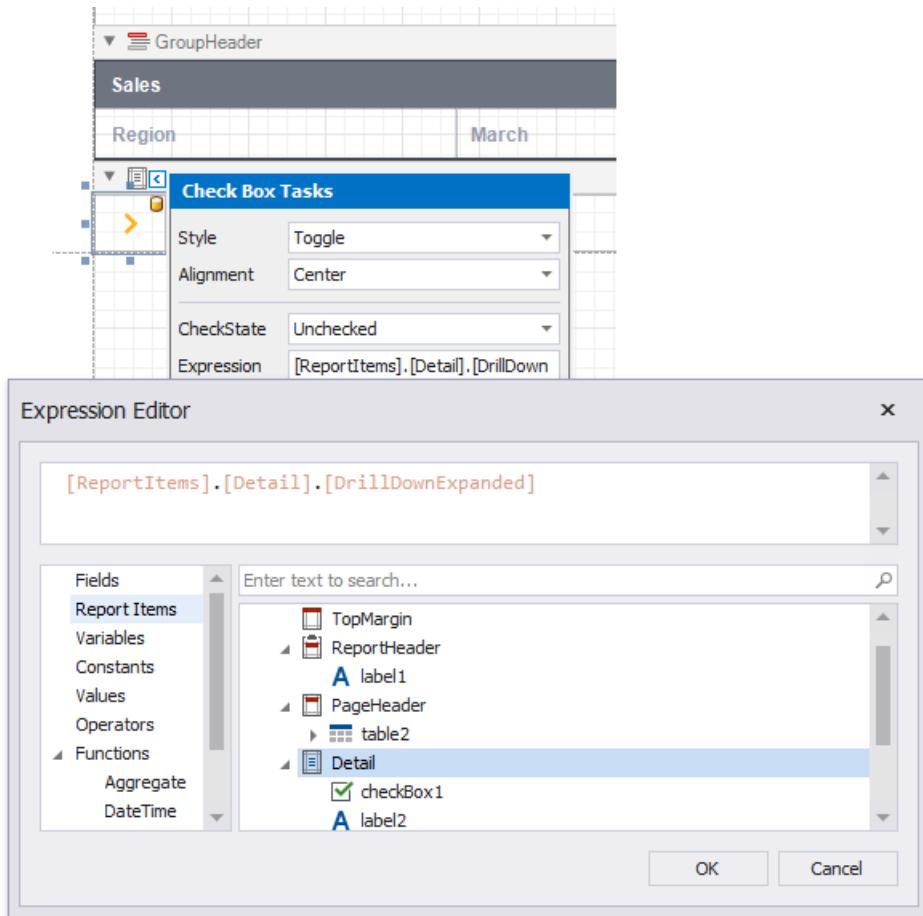
- Set the **Check Box** control's **Glyph Options**. Use custom glyphs for the *checked* and *unchecked* checkbox states.



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



- Set the **Check Box**'s **Check State** property to the following expression: `[ReportItems].[Detail].[DrillDownExpanded]` (in the control's Smart Tag or the **Property Grid**'s Expressions tab).

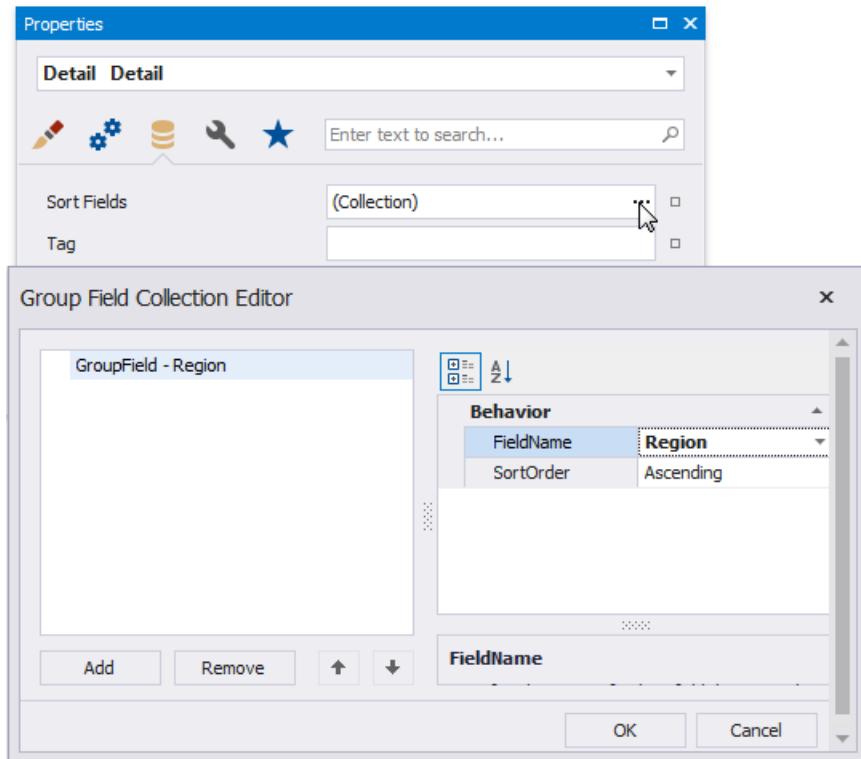


The screenshot shows a report titled "Market Share Report". The main title is "Market Share Report". Below it is a table with a header row "Sales" and sub-headers "Region", "March", and "September". The first row under "Region" has a yellow arrow icon and the text "Western Europe". The second row has a yellow arrow icon and the text "Eastern Europe". Under "Eastern Europe", there are four rows: "Belarus", "Bulgaria", "Croatia", and "Czech Republic". The data values for each row are: Western Europe (\$30,540.00, \$33,000.00), Eastern Europe (\$22,500.00, \$24,580.00), Belarus (\$7,315.00, \$18,800.00), Bulgaria (\$6,300.00, \$2,821.00), Croatia (\$4,200.00, \$3,890.00), and Czech Republic (\$19,500.00, \$15,340.00).

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

7. Sort report data.

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



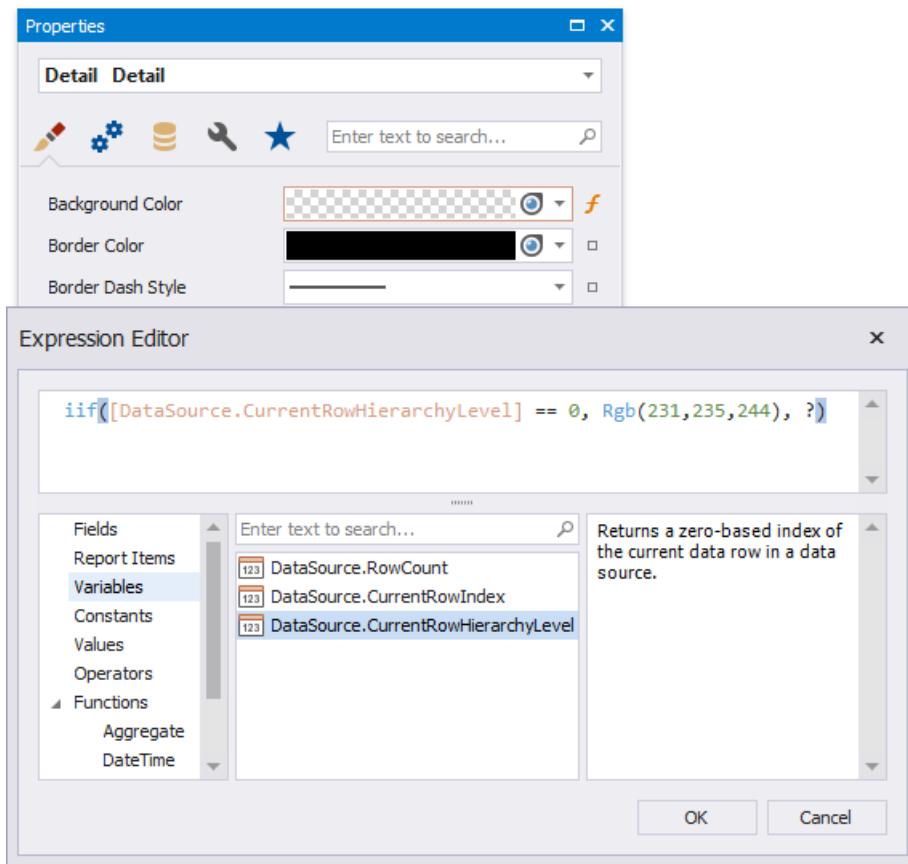
Market Share Report

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

8. Highlight root nodes.

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

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



Market Share Report

Sales		
Region	March	September
Asia	\$20,388.00	\$22,547.00
Eastern Europe	\$22,500.00	\$24,580.00
North America	\$31,400.00	\$32,800.00
Canada	\$25,390.00	\$27,000.00
USA	\$31,400.00	\$32,800.00
South America	\$16,380.00	\$17,590.00
Argentina	\$16,380.00	\$17,590.00
Brazil	\$4,560.00	\$9,480.00
Western Europe	\$30,540.00	\$33,000.00
Austria	\$22,000.00	\$28,000.00
Belgium	\$13,000.00	\$9,640.00

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.

NOTE

See the [Invoices from Templates](#) topic for information on how to create an invoice report based on a predefined layout.

The screenshot shows a report titled "INVOICE" dated August 22, 2018. The customer information is as follows:

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

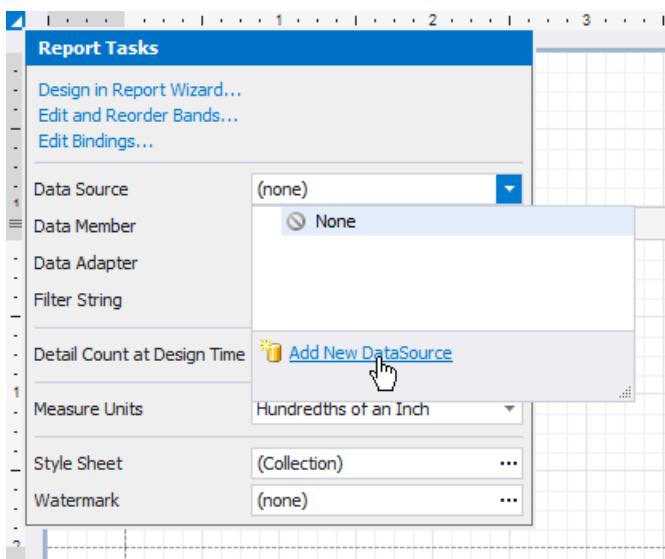
The product list is as follows:

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

Total: \$440.00

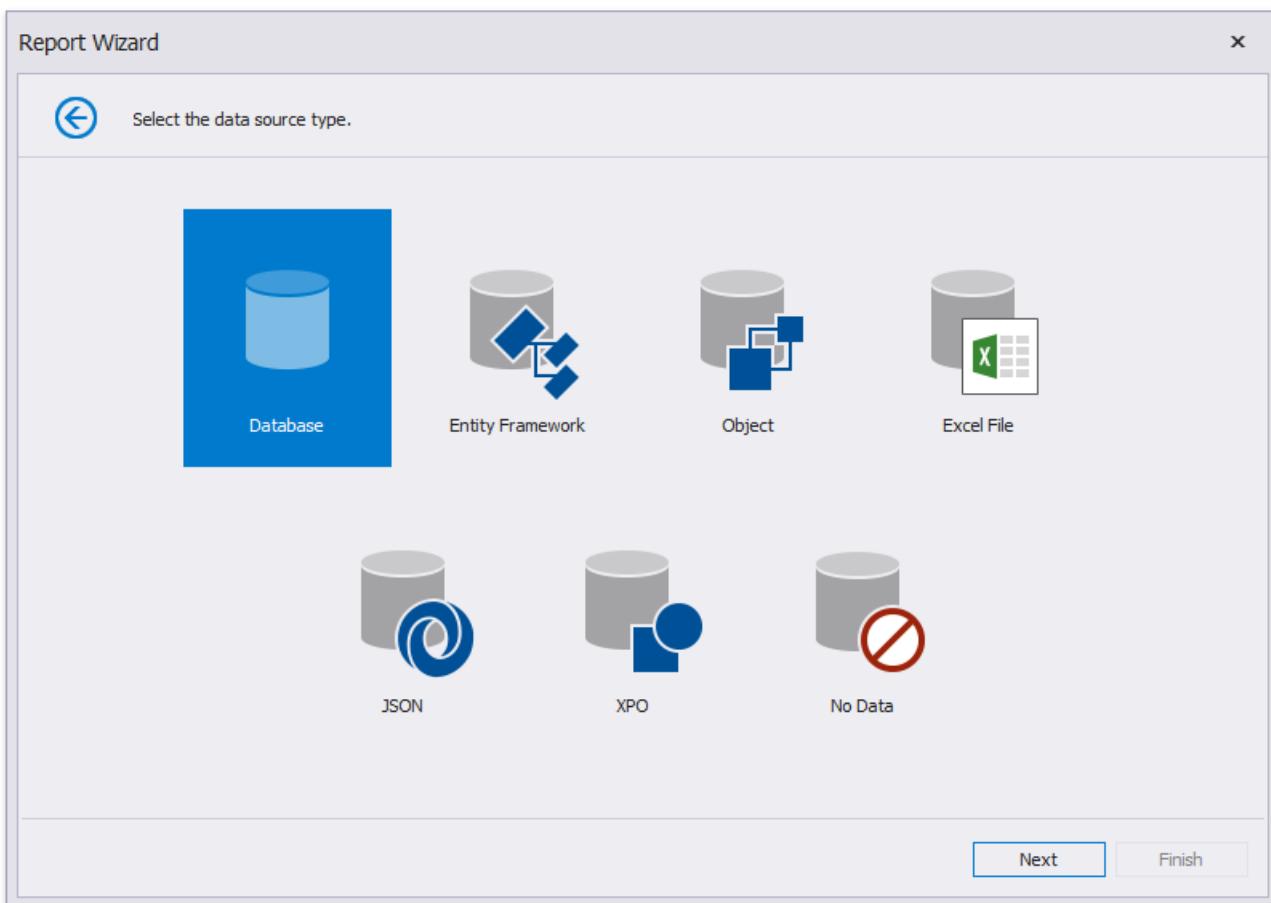
Create a Report and Bind It to Data

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

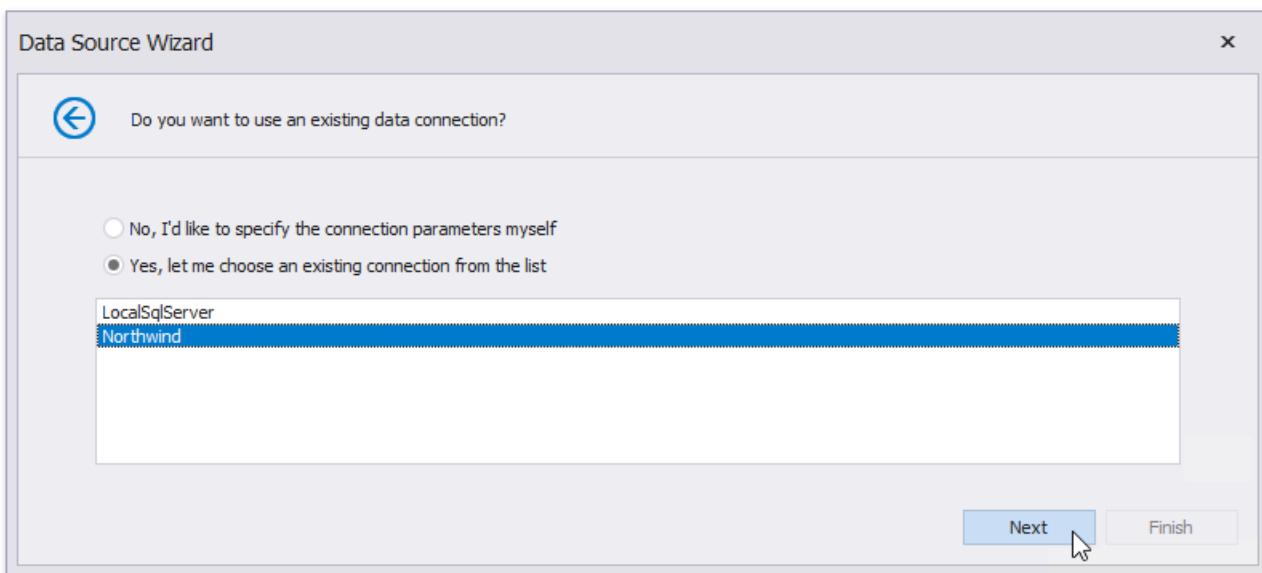


3. On the first page of the invoked **Data Source Wizard**, you can choose the required data source type. Select **Database** and

click **Next** to proceed.



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



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

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

Data Source Wizard

Create a query or select a stored procedure.
Data columns selected from specific tables and/or views will be automatically included into a separate query.

Tables

Views

Stored Procedures

Queries

Query Builder

Manage Relations...

Alphabetical list of products

Categories

Category Sales for 1997

Current Product List

Customer and Suppliers by City

CustomerCustomerDemo

CustomerDemographics

Customers

Employees

EmployeeTerritories

Order Details

Order Details Extended

Order Subtotals

Orders

Orders Qry

Customers

* (All Columns)

CustomerID

CompanyName

ContactName

ContactTitle

Address

City

Region

PostalCode

Country

Phone

Fax

Orders

* (All Columns)

OrderID

CustomerID

EmployeeID

OrderDate

RequiredDate

ShippedDate

ShipVia

Freight

ShipName

ShipAddress

ShipCity

ShipRegion

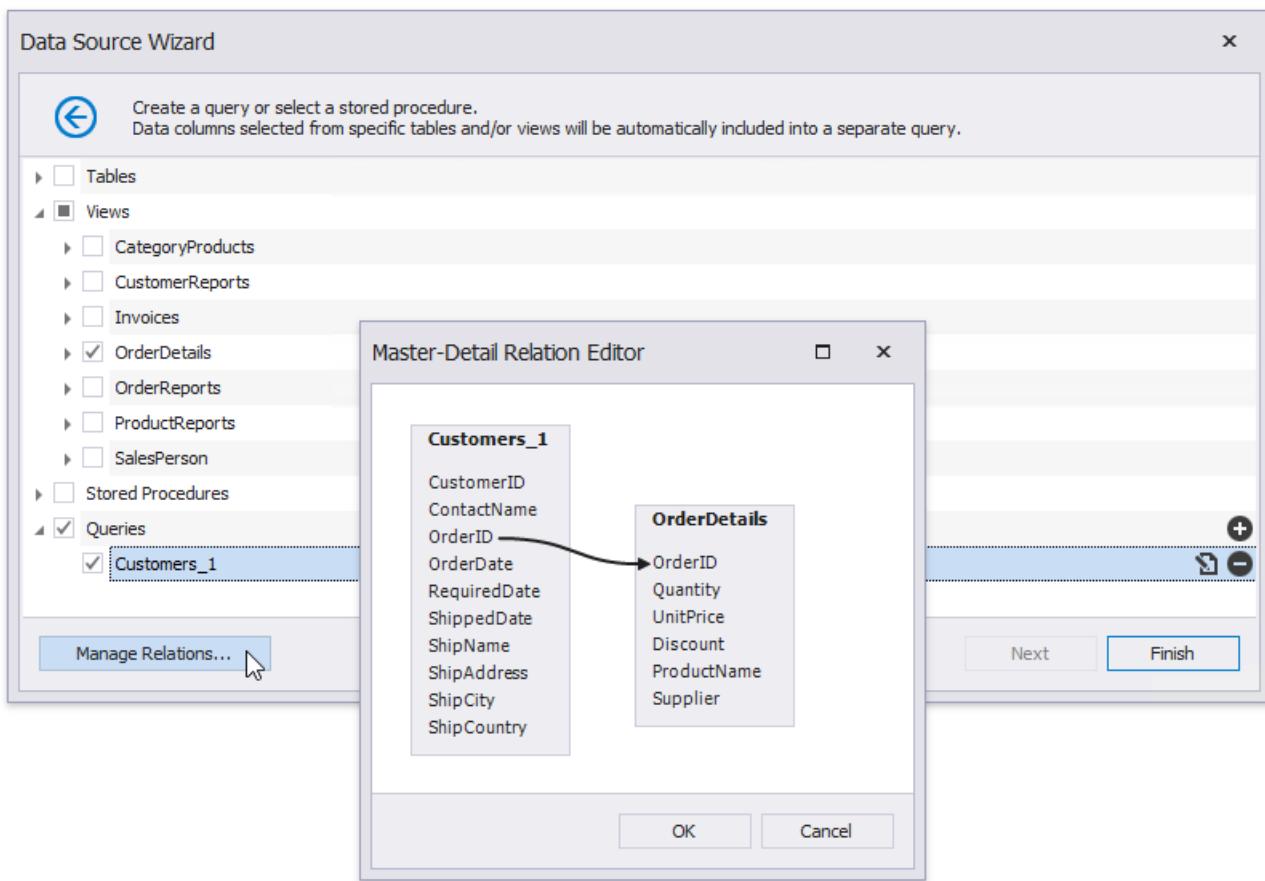
ShipPostalCode

ShipCountry

Columns of Orders

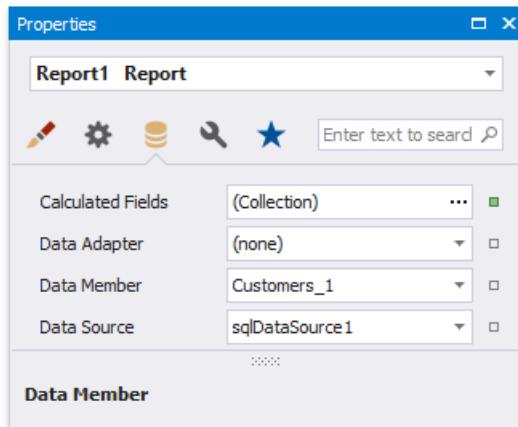
OrderID	Int32
CustomerID	String(5)
EmployeeID	Int32

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



7. 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, there's a toolbar with icons for text, checkmark, list, image, and rectangle. The main area shows a 'Detail' band with five text boxes containing fields like [ContactName], [ShipName], [ShipAddress], [ShipCity], and [ShipCountry]. To the right is a 'Field List' pane titled 'Field List'. It shows a tree structure: 'sqlDataSource1' has a child 'Customers_1', which has children 'Customers_1OrderDetails' (containing 'ContactName', 'CustomerID', 'OrderDate', 'OrderID', 'RequiredDate', 'ShipAddress', 'ShipCity', 'ShipCountry', 'ShipName', 'ShippedDate') and 'OrderDetails'. Below 'OrderDetails' is a 'Parameters' section.

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

This screenshot shows the same report design as above, but now with additional labels. A new label control, 'label10', is placed next to the [OrderID] text box. Other labels like 'label11', 'label12', and 'label13' are also visible, likely representing static captions for other data fields.

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

This screenshot shows the report after the labels have been edited. The labels now contain static text: 'ORDER #', 'ORDER DATE', 'REQUIRED DATE', and 'SHIPPED DATE'. These labels are positioned next to their corresponding data fields in the Detail band.

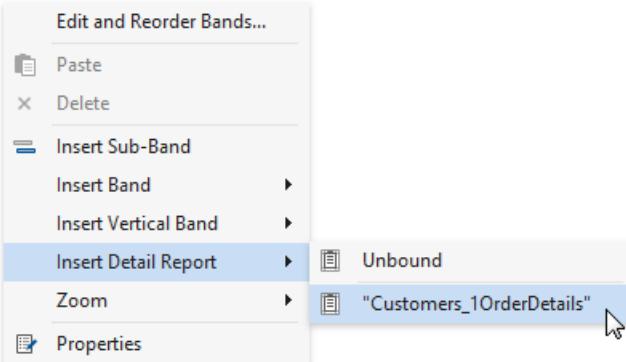
- Use the **Line** control to separate data.

This screenshot shows the report with a horizontal line drawn between the 'ORDER #' and 'ORDER DATE' labels. This line serves as a visual separator to group related data fields together.

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:

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



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

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

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

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

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

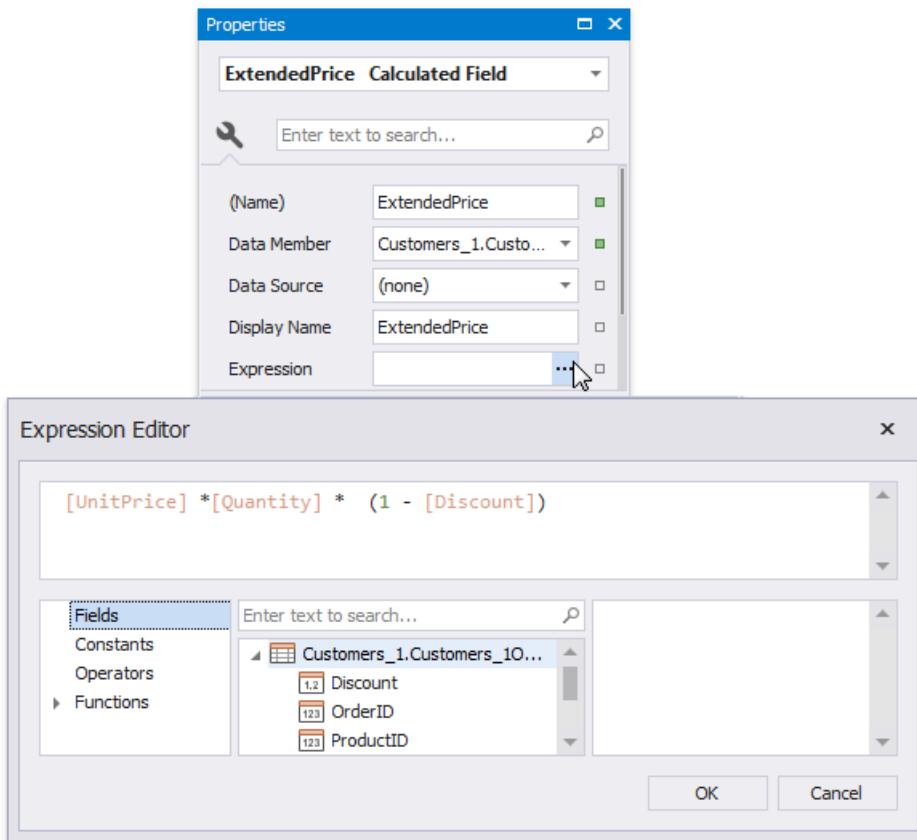
Create a Calculated Field

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

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

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

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

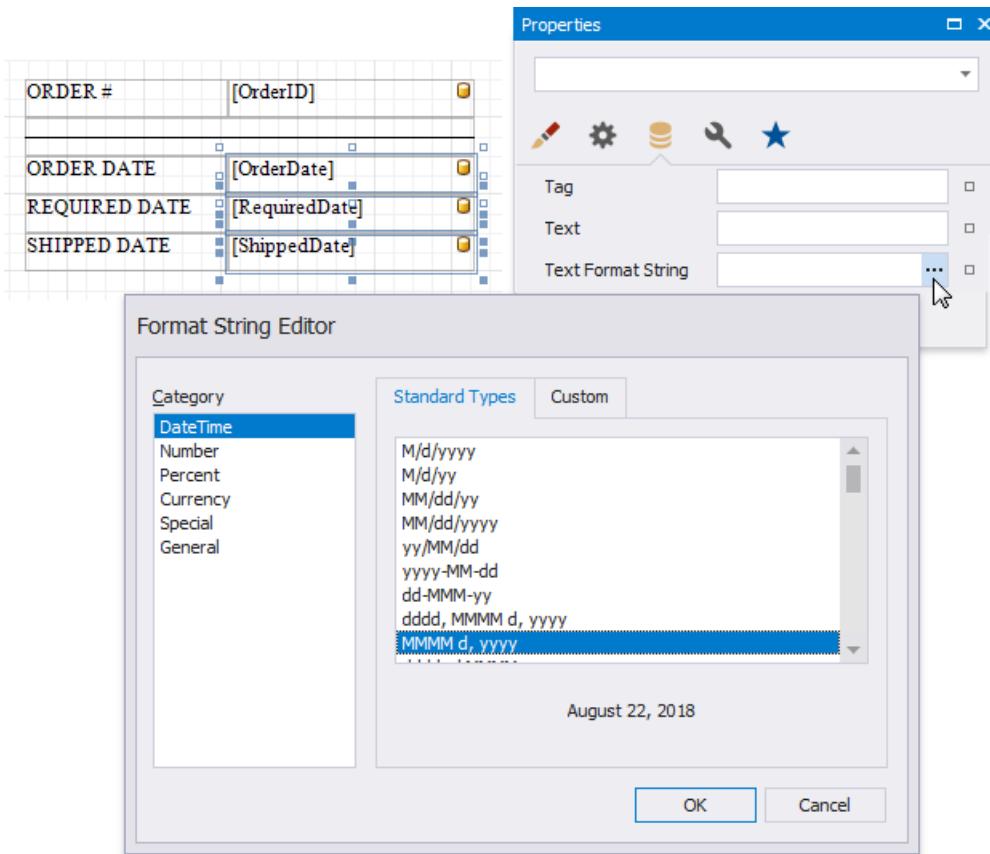


3. You can use the created calculated field as an ordinary data field. Add a cell to a table in the Detail band and drop the calculated field onto this cell. Additionally, create one more table cell in the Group Header for displaying the corresponding caption.

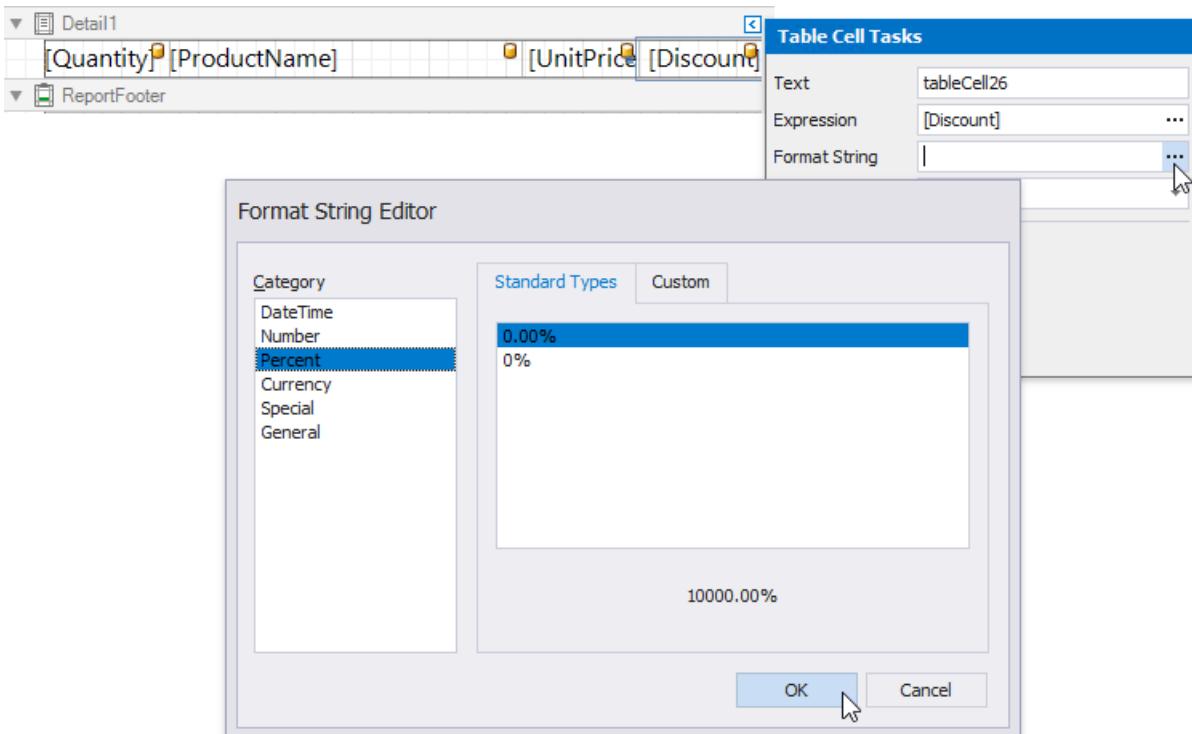
Format Data

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

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



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

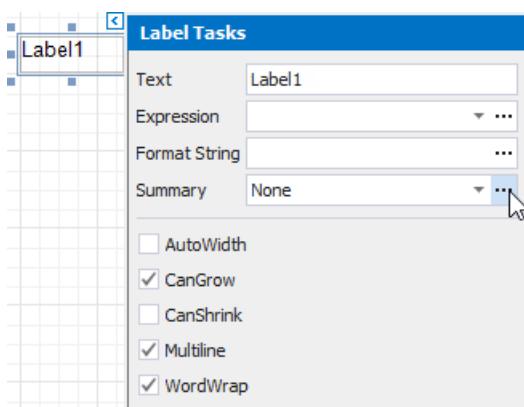


3. In the detail report's Detail band, select the cells bound to the **UnitPrice** and **ExtendedPrice** fields. Invoke the **Format String Editor** once again and choose the format preset from the **Currency** category (for instance, **c2**).

Calculate a Summary

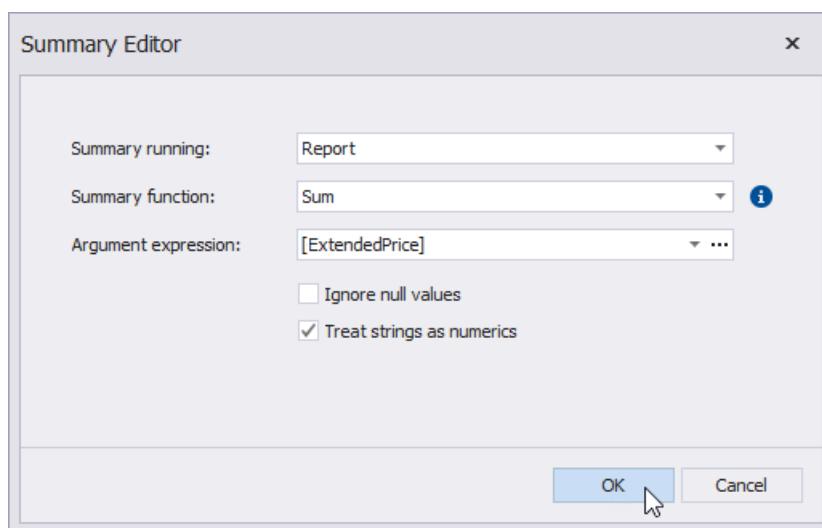
Do the following to calculate a total price for each order as a sum of **Extended Price** values:

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

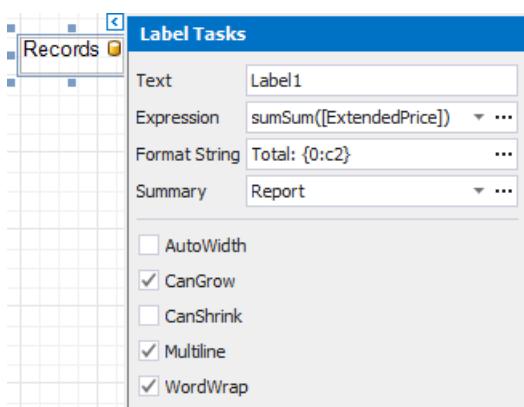


- In the **Summary Editor** window:

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



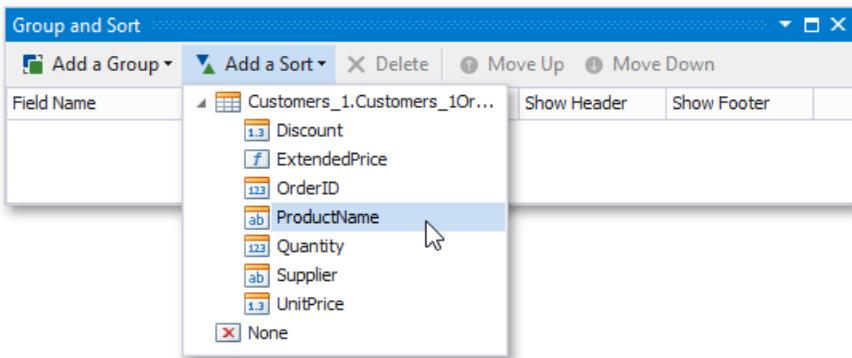
1. Back in the **Label Tasks** window, use the **Format String** property to format the summary's value (for instance, set it to **Total: {0:c2}**).



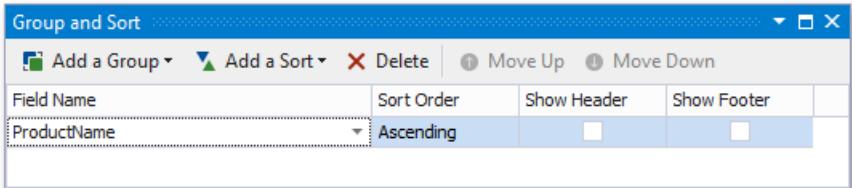
Sort Data

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

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



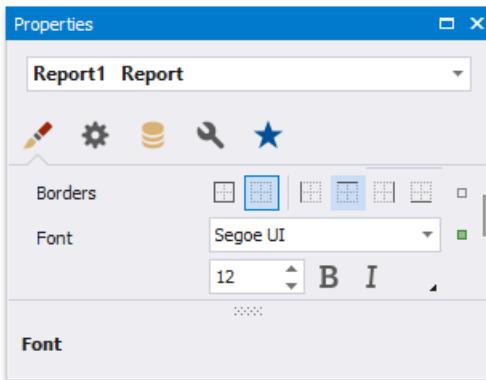
2. Use the **Sort Order** drop-down list to define the sort order.



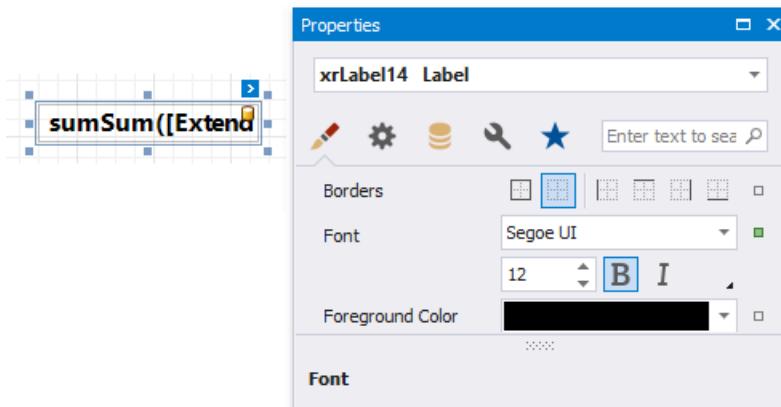
Customize the Report Appearance

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

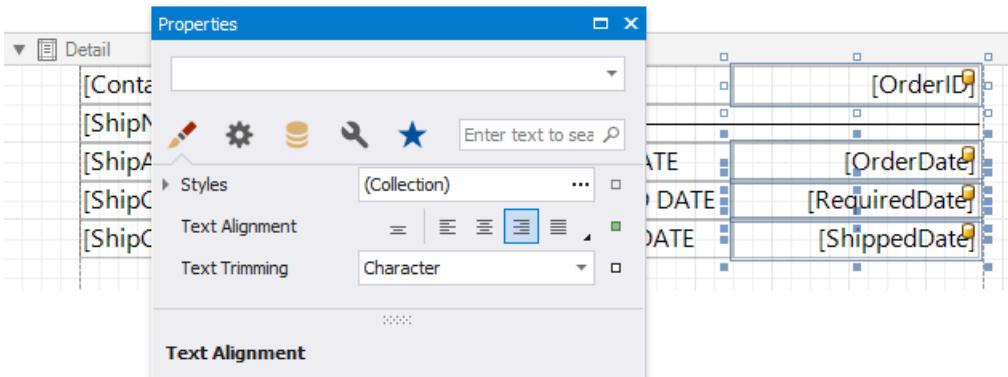
1. Click the gray area around the design surface to select the report, and in the [Property Grid](#), specify the font settings. These settings are distributed to all report elements.



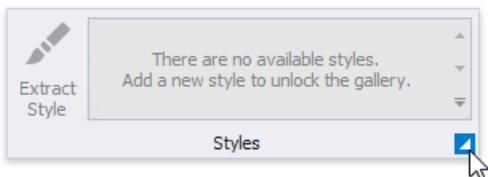
2. You can adjust a control's font independently from its parent (for instance, make summary values bold).



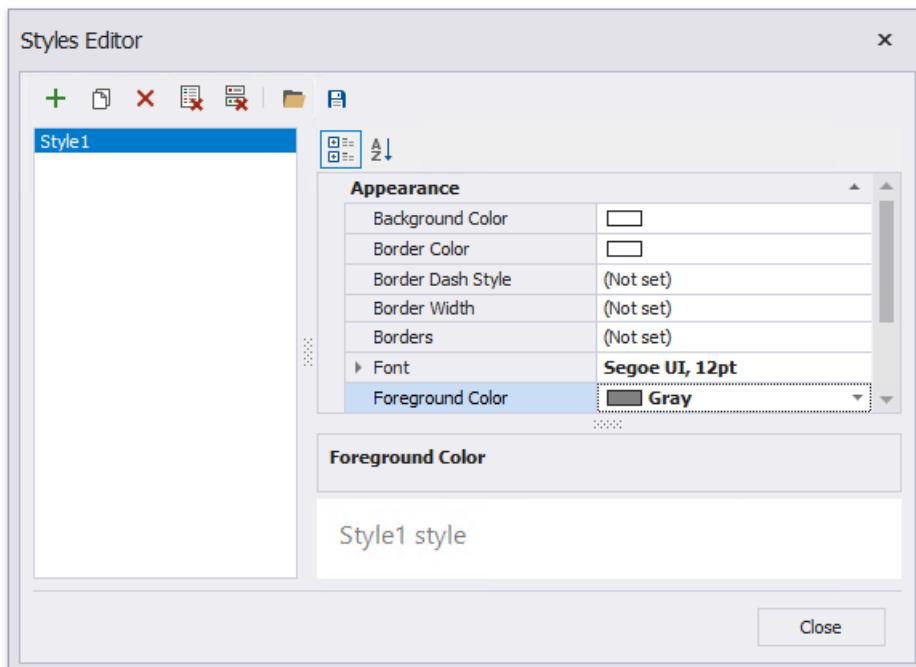
3. Change specific controls' (bound to date fields, price fields, etc.) text alignment using the **Text Alignment** property.



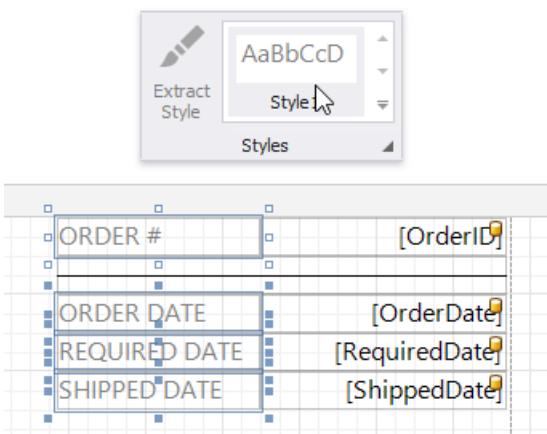
4. Create a global **visual style** to apply it afterwards to multiple controls. Click the caption button in the **Toolbar's Styles** section.



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



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



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**.

The screenshot shows the Report Designer interface. A table is selected in the 'Detail1' band. In the Properties panel, under the 'Table1 Table' section, the 'Even Style' dropdown is open, displaying three options: '(none)', '(New)', and 'Style1'. The '(New)' option is highlighted with a blue selection bar.

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.).

The screenshot shows a 'PageHeader [one band per page]' band. Inside the band, there is a single label control with the text 'INVOICE' displayed in orange.

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

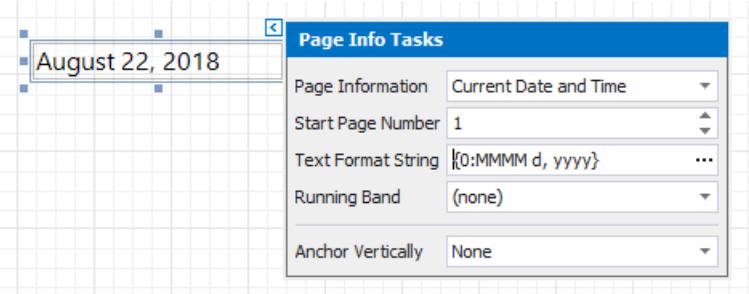
The screenshot shows the same 'PageHeader [one band per page]' band. A 'Page Info' control has been added to the right side of the header. It displays the text '1/1'.

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

The screenshot shows the 'Page Info Tasks' dialog box for the 'Page Info' control. The 'Page Information' dropdown is set to 'Current Date and Time'. Other options listed include 'None', 'Page Number', 'Page Number (Roman, Lowercase)', 'Page Number (Roman, Uppercase)', and 'User Name'.

5. Click the **Text Format String** property's ellipsis button, and in the invoked **Format String Editor**, select a date format as in

the [Format Data](#) section above.



View the Result

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

INVOICE

August 22, 2018

Paul Henriot
Vins et alcools Chevalier
59 rue de l'Abbaye
Reims
France

	ORDER #			
	10248			
ORDER DATE	August 4, 2014			
REQUIRED DATE	September 1, 2014			
SHIPPED DATE	August 16, 2014			

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

Invoices from Templates

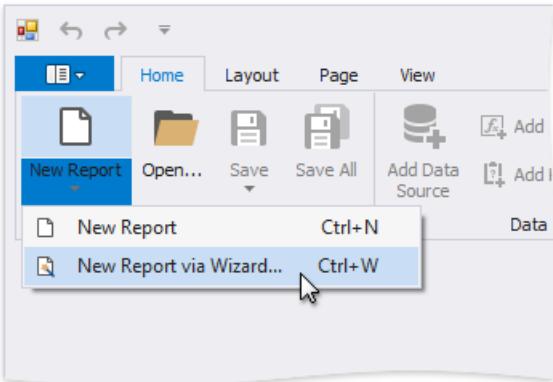
This document describes how to create an invoice report based on a predefined template using the [Report Wizard](#).

NOTE

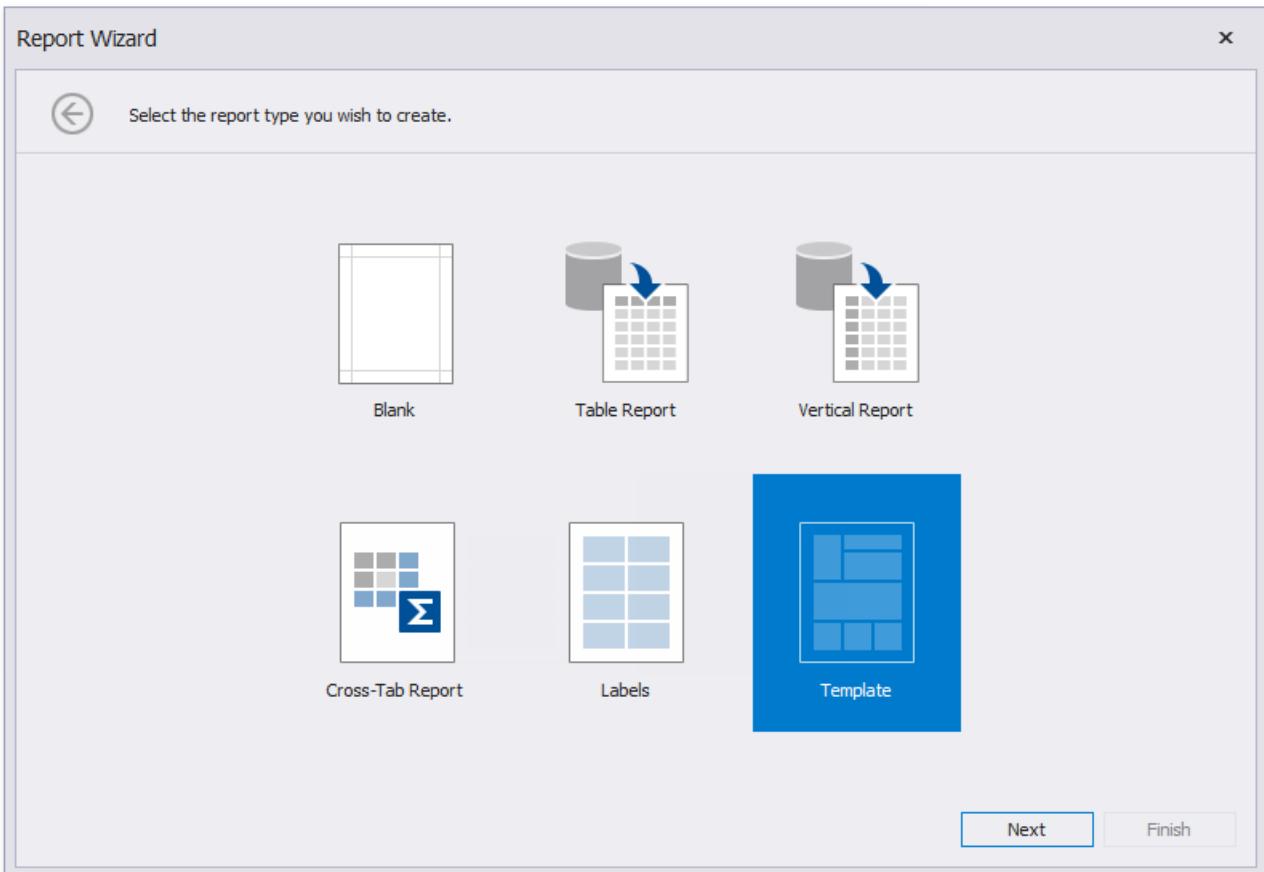
See the [Invoices](#) topic for information on how to create an invoice report with a custom layout from scratch.

Do the following to select an invoice template and configure its settings:

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



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



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

Report Wizard

Choose a template for your report.

Invoices

Invoice
Invoice No. 00123
24 October 2017

Qty	Description	Price	Discount	Tax	LineTotal
2	Product1	\$450.00	10	5%	\$810.00
2	Product2	\$320.00	10	5%	\$640.00
1	Product3	\$250.00	10	5%	\$225.00
2	Product4	\$100.00	10	5%	\$180.00
2	Product5	\$400.00	10	5%	\$720.00

Subtotal: \$4720.00
Discount: \$120.00
Tax: \$180.00
Total: \$4950.00

ClientName: CompanyName
ClientAddress: CompanyAddress
ClientCity: CompanyCity
ClientCountry: CompanyCountry

INVOICE
INVOICE # 00123
October 24, 2017

QUANTITY	DESCRIPTION	UNIT PRICE	DISCOUNT	TAX	TOTAL
2	Product1	\$450.00	10	5%	\$810.00
2	Product2	\$320.00	10	5%	\$640.00
1	Product3	\$250.00	10	5%	\$225.00
2	Product4	\$100.00	10	5%	\$180.00
2	Product5	\$400.00	10	5%	\$720.00

TOTAL DUE: \$4970.00

THANK YOU FOR YOUR BUSINESS!

CompanyLogo

INVOICE
Date issued: 24 October 2017
Invoice No.: 00123

Product	QTY	UNIT PRICE	DISCOUNT	TAX	TOTAL
Product1	2	\$450.00	10	5%	\$810.00
Product2	2	\$320.00	10	5%	\$640.00
Product3	1	\$250.00	10	5%	\$225.00
Product4	2	\$100.00	10	5%	\$180.00
Product5	2	\$400.00	10	5%	\$720.00

TOTAL DUE: \$4950.00

24 November, 2017 **\$4950.00**

Thank you! CompanyLogo

Next Finish

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

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

Select the data source type.

Database

Entity Framework

Object

Excel File

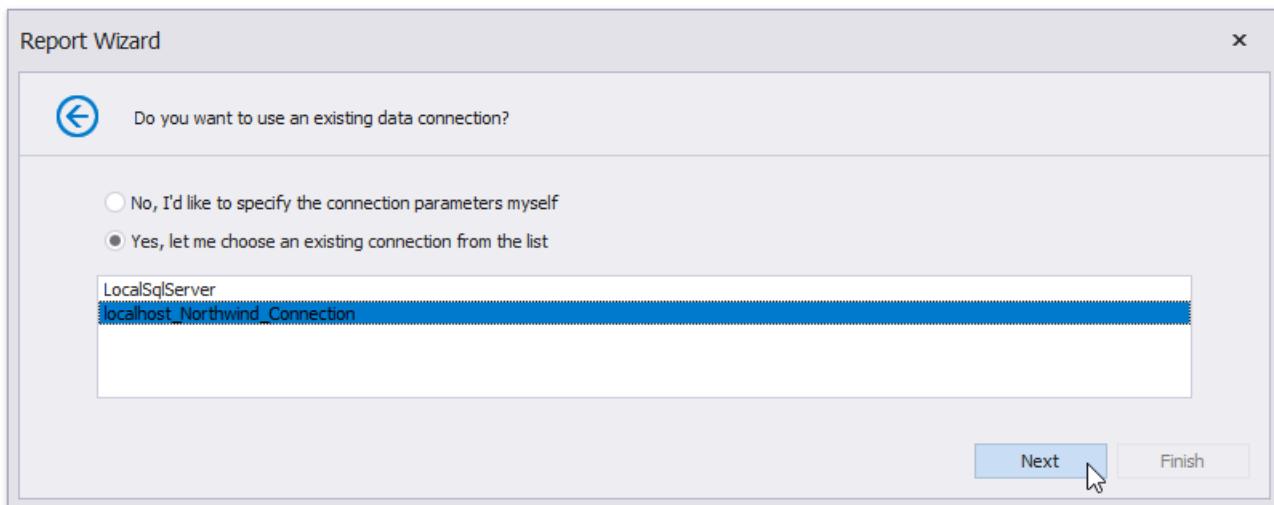
JSON

XPO

No Data

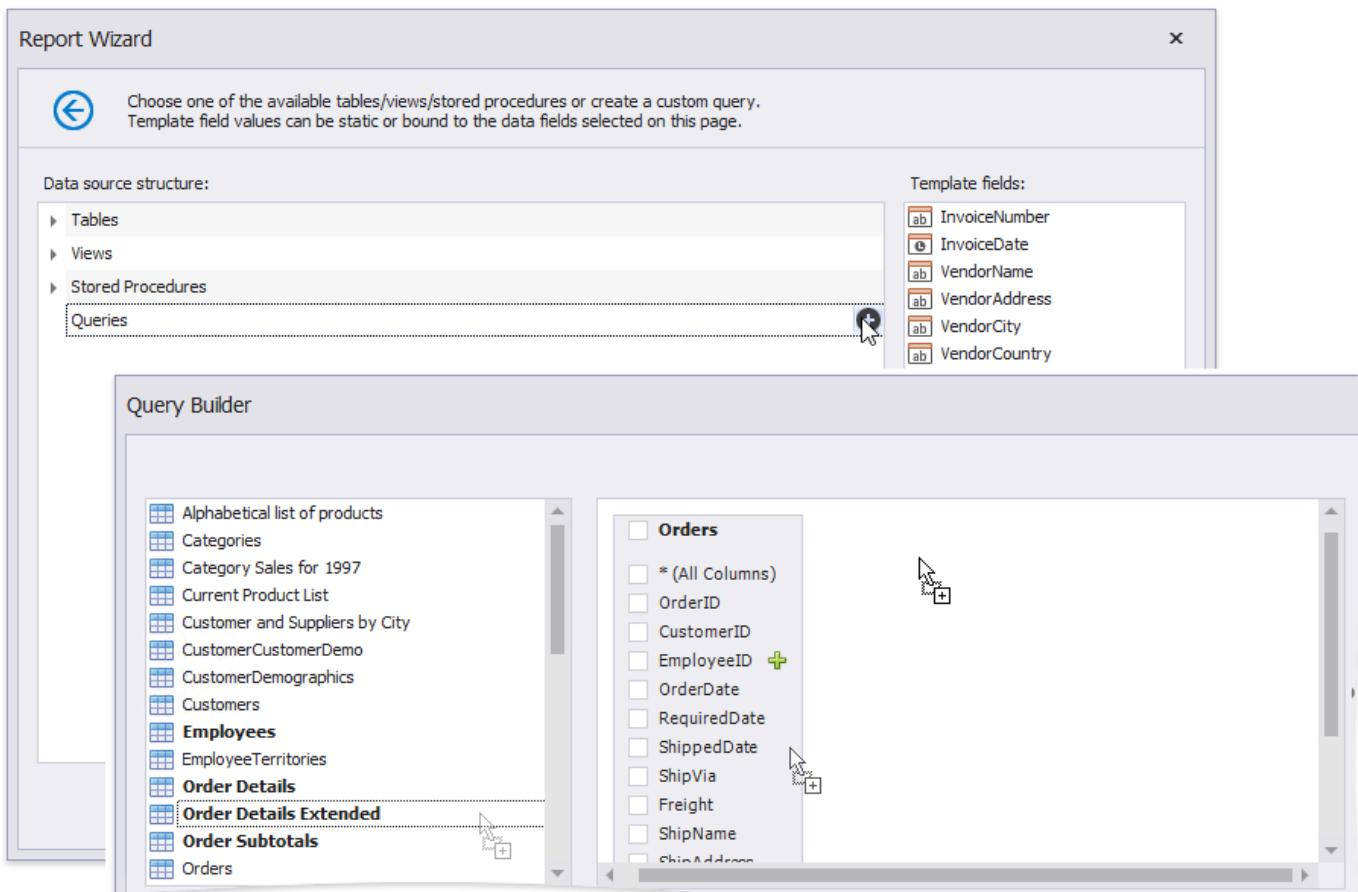
Next Finish

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



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

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



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

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

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

Report Wizard

Template Field Name	Template Field Value
InvoiceInfo	
[ab] InvoiceNumber	[Orders_1.OrderID]
[ab] InvoiceDate	[Orders_1.OrderDate]
Vendor	
[ab] VendorName	[Orders_1.VendorName]
[ab] VendorAddress	[Orders_1.VendorAddress]
[ab] VendorCity	[Orders_1.VendorCity]
[ab] VendorCountry	[Orders_1.VendorCountry]
[ab] VendorWebsite	
[ab] VendorEmail	
[ab] VendorPhone	[Orders_1.VendorPhone]
Customer	
[ab] CustomerName	[Orders_1.CustomerName]
[ab] CustomerAddress	[Orders_1.CustomerAddress]
[ab] CustomerCity	[Orders_1.CustomerCity]
[ab] CustomerCountry	[Orders_1.CustomerCountry]
OrderDetails	
[ab] ProductName	[Orders_1.ProductName]
[ab] Quantity	[Orders_1.Quantity]

Next **Finish**

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

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

Click **Next** to proceed.

8. On the last wizard page, select the currency symbol and price values' format.

You can also specify the following discount/tax options:

- **Range** - Defines whether the discount/tax value should not be taken into account (**None**), or should be used for individual items (**Unit**) or the entire order (**Total**).
- **Value** - Specifies the discount/tax value that can be static or bound to the data source field.
- **Type** - Specifies the type of the discount/tax value (flat, fixed or percentage).
- **Inclusive** (for the tax only) - Indicates whether the tax value is included in product prices.

Report Wizard

Specify the report options.

Currency

Symbol: \$

Format: \$1.1

Discount

Range: Unit None Total

Value: [Orders_1.Discount]

Type: DecimalPercentage

Tax

Range: Unit None Total

Value: 10.00%

Type: Percentage

Inclusive

Next **Finish** 

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

GroupHeader1

[CustomerName]	[VendorName]
[CustomerAddress]	[VendorAddress]
[CustomerCity]	[VendorCity]
[CustomerCountry]	[VendorCount]

SubBand1

Invoice

Invoice No.	Qty	Description	Price	Discount	Tax	LineTotal
[OrderID]						

Detail

Qu	[ProductName]	[UnitPric]	[Discount]	[Para]	[LineTotal]
----	---------------	------------	------------	--------	-------------

GroupFooter1

Subtotal	[Subtotal]
Discount	sumSum([DiscountLineTotal])
Tax	sumSum([TaxLineTotal])
Total	[Total]

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

Paul Henriot
59 rue de l'Abbaye
Reims
France

Vins et alcools Chevalier
59 rue de l'Abbaye
Reims
France

Logo

4 July 2017

Invoice

Invoice No.
10248

Qty	Description	Price	Discount	Tax	LineTotal
12	Queso Cabrales	\$14.00	0%	10%	\$184.80
10	Singaporean Hokkien Fried Mee	\$9.80	0%	10%	\$107.80
5	Mozzarella di Giovanni	\$34.80	0%	10%	\$191.40
<hr/>					Subtotal \$484.00
<hr/>					Discount \$0.00
<hr/>					Tax \$44.00
<hr/>					Total \$484.00

VendorWebsite

VendorEmail

2647.15.10

Cross-Tab Reports

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

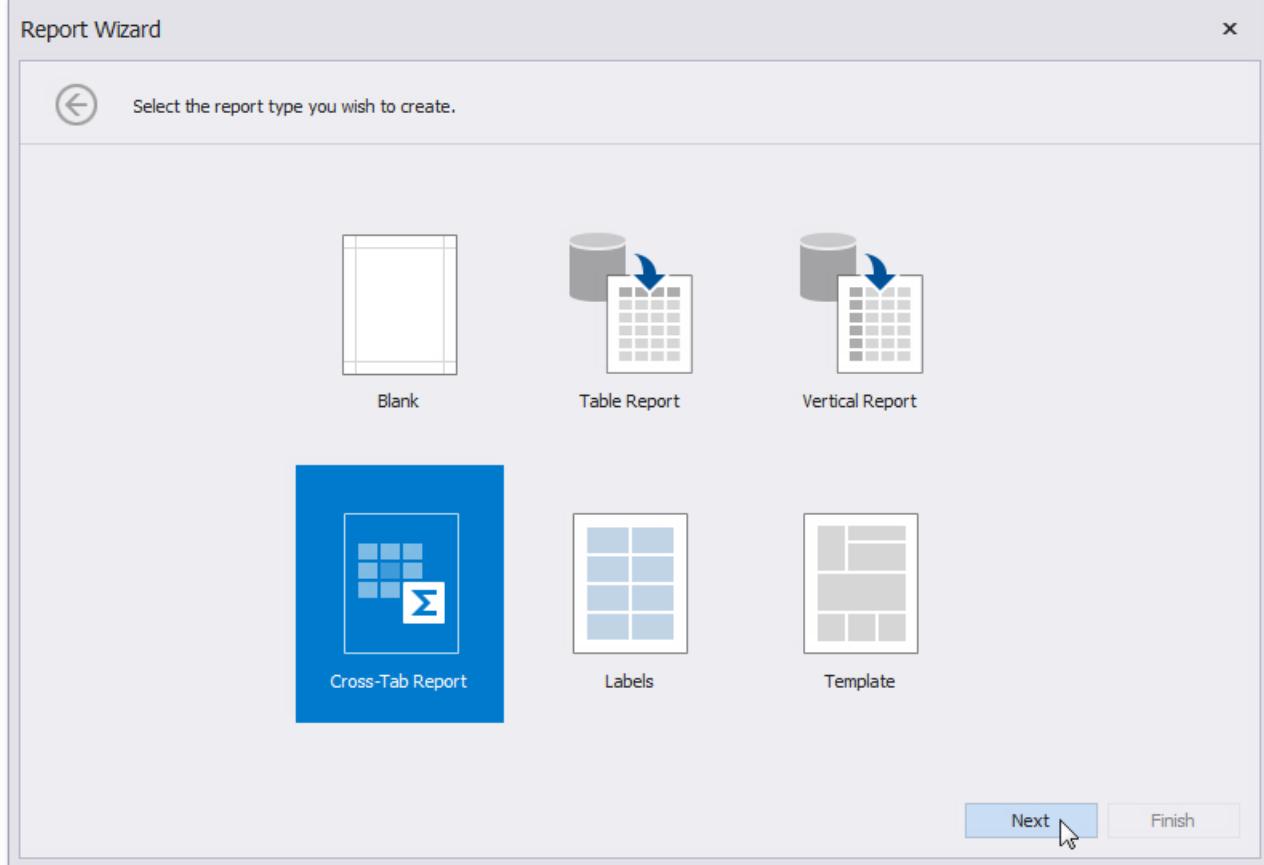
Sales Summary by Year									
Order Date	Category Name	UK				Total UK	USA		
		Anne Dodswort	Michael Suyama	Robert King	Steven Buchana		Andrew Fuller	Janet Leverling	
Quarter 1	Beverages	\$12,170.00	\$4,171.30	\$11,264.56	\$7,769.65	\$35,375.51	\$22,217.25	\$16,053.64	
	Condiments	\$4,173.50	\$505.00	\$1,324.50	\$1,050.45	\$7,053.45	\$1,713.80	\$5,707.26	
	Confections	\$1,366.75	\$517.14	\$2,583.60	\$2,338.40	\$6,805.89	\$2,059.88	\$16,197.20	
	Dairy Products	\$3,602.30	\$3,950.13	\$3,960.00	\$11,352.20	\$22,864.63	\$5,411.00	\$9,358.80	
	Grains/Cereals		\$1,971.70	\$4,866.50	\$2,541.56	\$9,379.76	\$1,868.95	\$8,871.75	
	Meat/Poultry	\$3,563.76	\$3,840.85	\$876.00	\$228.00	\$8,508.61	\$11,526.54	\$15,226.12	
	Produce		\$2,365.90	\$2,467.92	\$754.72	\$5,588.54	\$700.00	\$2,369.70	
	Seafood	\$2,723.15	\$1,973.27	\$1,564.39	\$1,582.70	\$7,843.51	\$203.04	\$11,049.88	
Total Quarter 1									
Quarter 2		Sales Summary by Year							
		Order Date	Category Name	USA			Total USA	Grand Total	
				Laura Callahan	Margaret Peaco	Nancy Davolio			
Quarter 1	Beverages	\$2,444.00	\$25,434.25	\$5,378.35	\$71,527.49	\$106,903.00			
	Condiments	\$5,818.00	\$6,705.63	\$2,736.30	\$22,680.99	\$29,734.44			
	Confections	\$8,433.96	\$12,229.54	\$5,939.92	\$44,860.50	\$51,666.39			
	Dairy Products	\$2,298.77	\$14,450.40	\$10,211.00	\$41,729.97	\$64,594.60			
	Grains/Cereals	\$5,609.20	\$3,317.30	\$3,713.73	\$23,380.93	\$32,760.69			
	Meat/Poultry	\$7,000.55	\$14,007.89	\$6,703.64	\$54,464.74	\$62,973.35			
	Produce	\$1,317.60	\$4,644.10	\$8,812.10	\$17,843.50	\$23,432.04			
	Seafood	\$2,730.12	\$7,292.89	\$8,833.19	\$30,109.12	\$37,952.63			
Total Quarter 1		\$35,652.20	\$88,082.00	\$52,328.23	\$306,597.24	\$410,017.14			
Quarter 2	Beverages	\$8,081.30	\$7,848.90	\$25,581.05	\$77,343.35	\$87,313.80			
	Condiments	\$6,027.30	\$6,086.38	\$3,633.85	\$25,427.60	\$34,388.79			
	Confections	\$4,637.73	\$7,059.94	\$6,930.35	\$43,139.79	\$56,543.64			
	Dairy Products	\$13,842.00	\$5,951.20	\$6,266.47	\$48,507.69	\$74,933.40			
	Grains/Cereals	\$1,562.40	\$10,810.85	\$789.51	\$20,680.66	\$25,261.26			
	Meat/Poultry	\$2,941.73	\$2,782.80	\$5,460.51	\$20,202.09	\$39,395.51			
	Produce	\$6,933.28	\$3,521.75	\$5,379.75	\$28,178.18	\$41,129.49			
	Seafood	\$3,092.97	\$5,806.43	\$4,370.68	\$28,333.56	\$33,381.98			
Total Quarter 2		\$47,118.71	\$49,868.25	\$58,412.17	\$291,812.92	\$392,347.87			
Quarter 3	Beverages	\$3,210.05	\$5,370.85	\$8,884.01	\$21,184.47	\$25,260.94			
	Condiments	\$2,513.85	\$3,133.12	\$3,364.50	\$13,698.39	\$15,769.92			
	Confections	\$4,486.92	\$5,841.72	\$5,473.25	\$17,802.89	\$26,525.02			
	Dairy Products	\$1,112.70	\$7,697.70	\$9,360.92	\$26,790.83	\$39,269.73			
	Grains/Cereals	\$2,932.65	\$2,580.95	\$1,502.00	\$12,300.66	\$17,746.36			
	Meat/Poultry	\$2,826.00	\$5,316.24	\$2,384.66	\$13,597.80	\$20,775.42			

TIP

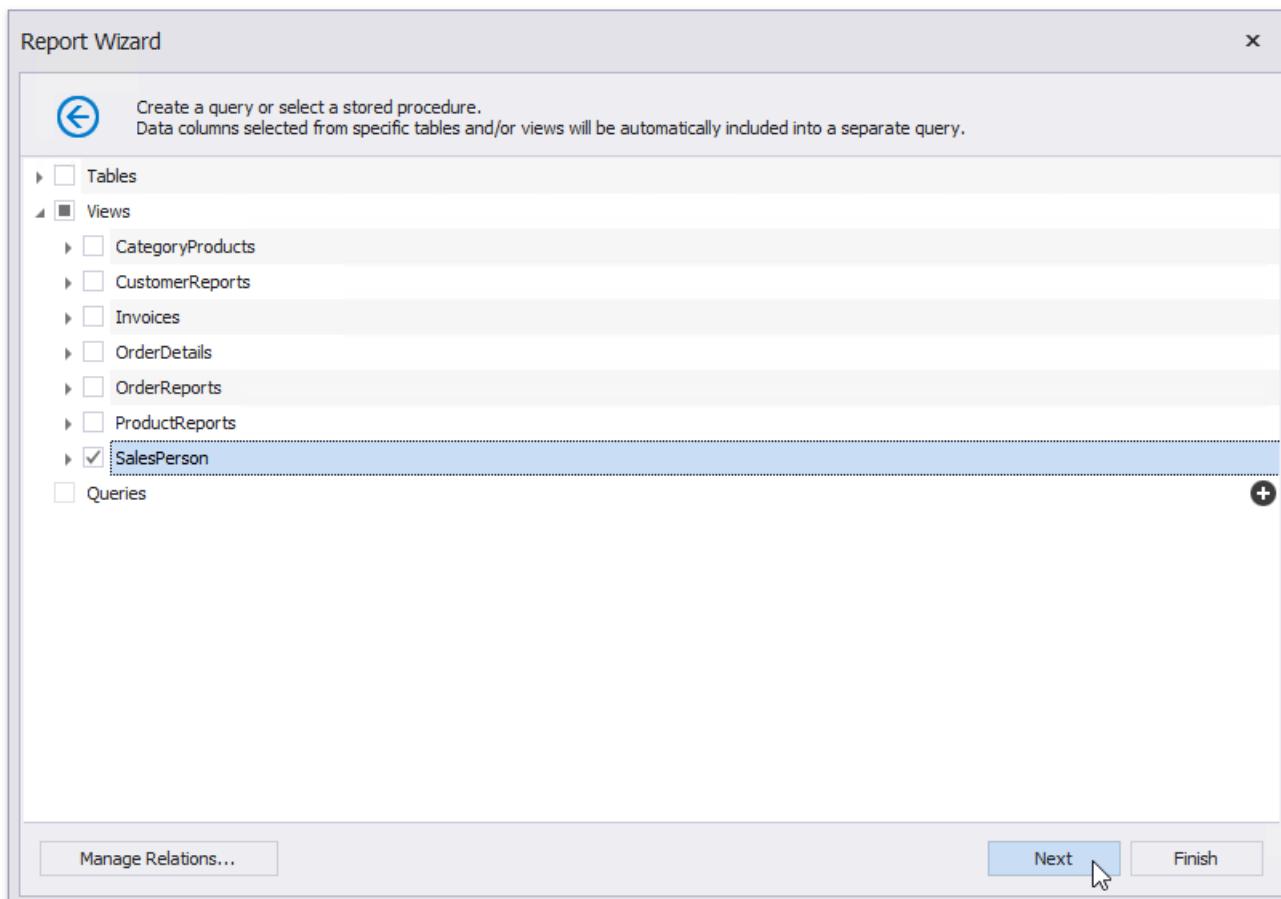
This tutorial demonstrates how to use the Cross-Tab Report Wizard. See [Balance Sheets](#) tutorial for information on how to configure a Cross Tab on the Design Surface.

Add a Cross-Tab Report

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



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



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

Report Wizard

Drop fields onto cross-tab areas to define the report's layout.

Available Fields:

- CategoryName
- Country
- Discount
- Extended Price
- FirstName
- LastName
- OrderDate
- OrderID
- ProductName

Columns:

Field Name	Sort Order
Country	Ascending
Sales Person	Ascending

Rows:

Field Name	Sort Order
OrderDate	Ascending
CategoryName	Ascending

Data:

Field Name	Summary Type
Extended Price	Sum

Next Finish

The screenshot shows the 'Report Wizard' window with the title 'Drop fields onto cross-tab areas to define the report's layout.' On the left, there is a list of 'Available Fields' including CategoryName, Country, Discount, Extended Price, FirstName, LastName, OrderDate, OrderID, and ProductName. To the right, there are three main sections: 'Columns', 'Rows', and 'Data'. The 'Columns' section contains two fields: 'Country' (Sort Order: Ascending) and 'Sales Person' (Sort Order: Ascending). The 'Rows' section contains two fields: 'OrderDate' (Sort Order: Ascending) and 'CategoryName' (Sort Order: Ascending). The 'Data' section contains one field: 'Extended Price' with a summary type of 'Sum'. At the bottom right are 'Next' and 'Finish' buttons.

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

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

Report Wizard

Specify report page settings.

Paper:

Size: Letter
Unit: Inch
Width: 11 "
Height: 8.5 "

Landscape button is selected.

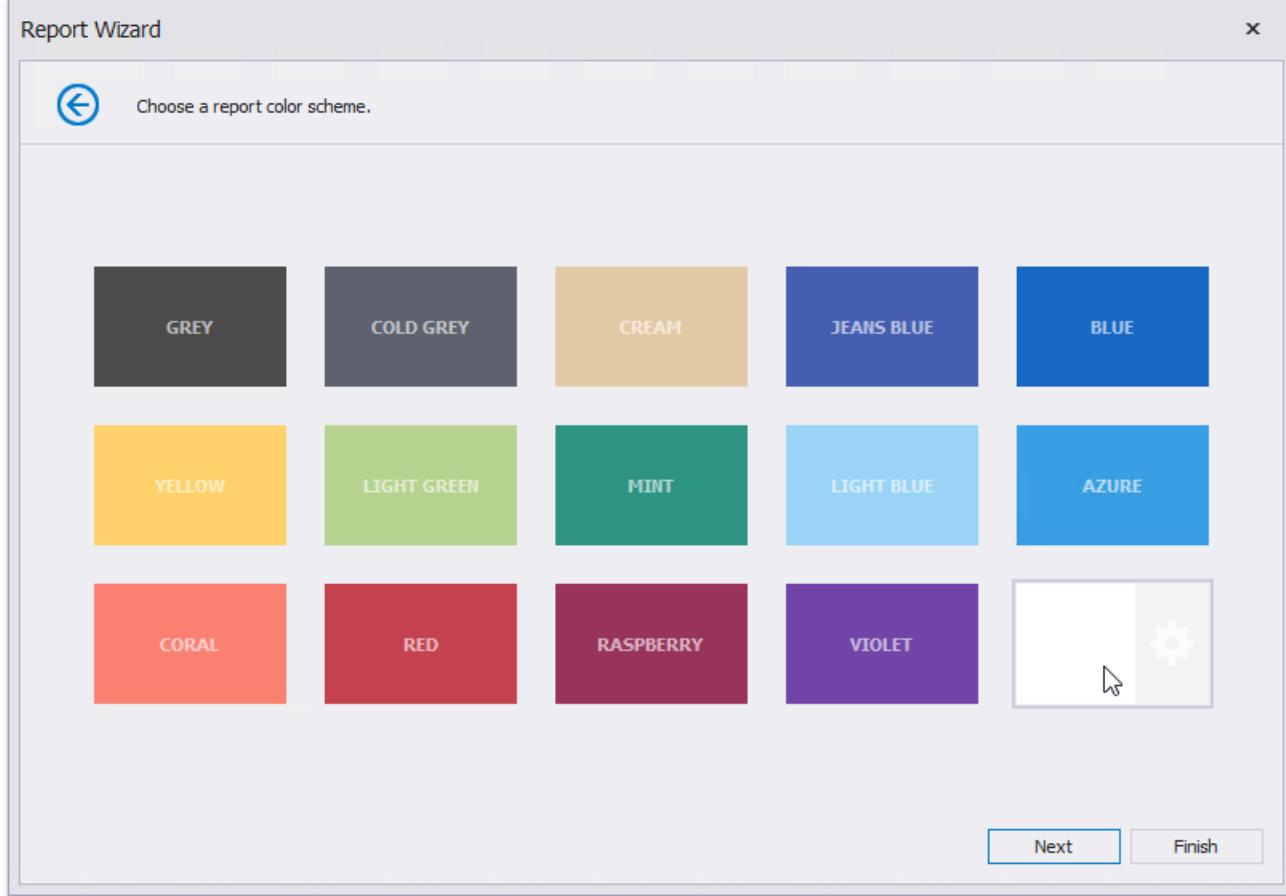
Page Margins:

Left: 1 "
Right: 1 "
Top: 1 "
Bottom: 1 "

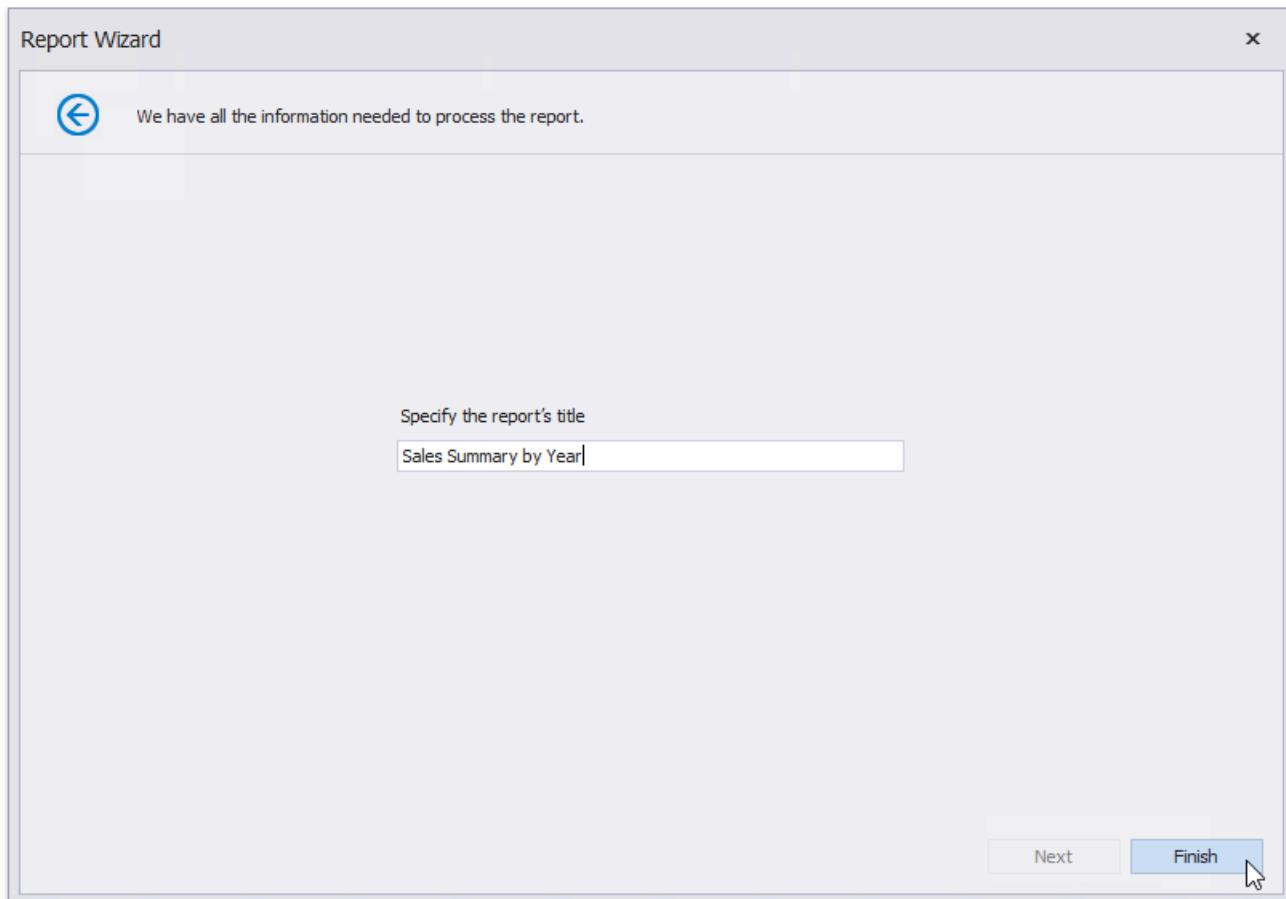
Next Finish

The screenshot shows the 'Report Wizard' window with the title 'Specify report page settings.' It features a preview area on the left showing a grid layout with dashed lines. On the right, there are settings for 'Paper' and 'Page Margins'. Under 'Paper', the size is set to 'Letter' and the unit to 'Inch', with width at 11" and height at 8.5". The 'Landscape' button is highlighted with a blue border. Under 'Page Margins', the top, bottom, left, and right margins are all set to 1". At the bottom right are 'Next' and 'Finish' buttons.

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



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



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

The screenshot shows the Microsoft Report Designer window. At the top, there's a toolbar with various icons. Below the toolbar is a navigation pane on the left containing several report items. The main area displays a report titled "Sales Summary by Year". The report has a "ReportHeader" band with the title and a "Detail" band containing a cross-tab. The cross-tab has columns for "Order Date", "Category Name", "[Country] [Sales Perso]", "Total [Countr]", and "Grand Total". The rows include "[OrderDate]", "[CategoryNa]", "[Extended P]", "Total [OrderDate]", and "Grand Total".

TIP

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

Switch to the Preview tab to see an intermediate result.

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

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

Specify Group Settings

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

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

Format Data

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

Order Date	Category Name	[Country]	Total [Count]	Grand Total
[OrderDate]	[CategoryName]	[Sales Perso]		
Total [OrderDate]		[Extended Pr]		
Grand Total				

Customize Appearance

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

The screenshot shows a report header band with a cross tab titled "Sales Summary by Year". The cross tab has a header row with columns for Order Date, Category Name, [Country], Total [Countr], and Grand Total. Below the header are four rows: [OrderDate], [CategoryNa], [Extended Pr], Total [OrderDate], and Grand Total. The Properties panel on the right is focused on the "crossTab1 Cross Tab" item. Under the "Styles" section, the "Header Area Style" is selected. The "Background Color" dropdown is open, showing a list of Windows system colors. The "Control" color is highlighted with a cursor.

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

- o Background Color to **Control**
- o Font to **Calibri 9 Bold**

The screenshot shows the same report header band and cross tab as before, but now the header area has a white background and bold text. The Properties panel shows the "Header Area Style" expanded, with the "Background Color" set to "Control" and the "Font" set to "Calibri 9 Bold". The color picker dropdown is still visible, showing the "Control" color selected.

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

Sales Summary by Year

Order Date	Category Name	[Country]	Total [Country]	Grand Total
[OrderDate]	[CategoryName]	[Extended Price]		
Total [OrderDate]				
Grand Total				

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

Sales Summary by Year

Order Date	Category Name	[Country]	Total [Country]	Grand Total
[OrderDate]	[CategoryName]	[Extended Price]		
Total [OrderDate]				
Grand Total				

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

Sales Summary by Year

Order Date	Category Name	[Country]	Total [Country]	Grand Total
[OrderDate]	[CategoryName]	[Extended Price]		
Total [OrderDate]				
Grand Total				

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

The screenshot shows the Report Designer interface with a 'ReportHeader' band selected. A 'Cross Tab Cell' is being edited, and its properties are shown in the 'Properties' panel. The 'Text Alignment' section is expanded, showing various alignment options. The 'Horizontal' alignment button is selected.

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

Adjust the Content Size

- Use a cell's **Column Auto Width Mode** property to specify a cell width calculation method. The Report Wizard sets this property to **Shrink And Grow** for row headers and to **None** for other cells.

The screenshot shows the Report Designer interface with a 'Cross Tab Cell' selected. A context menu titled 'Cross Tab Cell Tasks' is open, and the 'Column Auto Width Mode' dropdown is highlighted, showing the 'Shrink and Grow' option.

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

Detail

Order Date	Category Name	[Country] [Sales Person]	Total [Country]	Grand Total	
[OrderDate]	[CategoryName]	[Extended Price]			
Total [OrderDate]					
Grand Total					

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

Sales Summary by Year

Detail

Order Date	Category Name	[Country] [Sales Person]	Total [Country]	Grand Total
[OrderDate]	[CategoryName]	[Extended Price]		
Total [OrderDate]				
Grand Total				

Sales Summary by Year

Order Date	Category Name	UK				Total UK	USA	
		Anne Dodswort	Michael Suyana	Robert King	Steven Buchana		Andrew Fuller	Janet Leverling
Quarter 1	Beverages	\$12,170.00	\$4,171.30	\$11,264.56	\$7,769.65	\$35,375.51	\$22,217.25	\$16,053.64
	Condiments	\$4,173.50	\$505.00	\$1,324.50	\$1,050.45	\$7,053.45	\$1,713.80	\$5,707.26
	Confections	\$1,366.75	\$517.14	\$2,583.60	\$2,338.40	\$6,805.89	\$2,059.88	\$16,197.20
	Dairy Products	\$3,602.30	\$3,950.13	\$3,960.00	\$11,352.20	\$22,864.63	\$5,411.00	\$9,358.80
	Grains/Cereals		\$1,971.70	\$4,866.50	\$2,541.56	\$9,379.76	\$1,868.95	\$8,871.75
	Meat/Poultry	\$3,563.76	\$3,840.85	\$876.00	\$228.00	\$8,508.61	\$11,526.54	\$15,226.12
	Produce		\$2,365.90	\$2,467.92	\$754.72	\$5,588.54	\$700.00	\$2,369.70
	Seafood	\$2,723.15	\$1,973.27	\$1,564.39	\$1,582.70	\$7,843.51	\$203.04	\$11,049.88

Total Quarter 1

Quarter 2

Sales Summary by Year

Order Date	Category Name	USA			Total USA	Grand Total
		Laura Callahan	Margaret Peaco	Nancy Davolio		
Quarter 1	Beverages	\$2,444.00	\$25,434.25	\$5,378.35	\$71,527.49	\$106,903.00
	Condiments	\$5,818.00	\$6,705.63	\$2,736.30	\$22,680.99	\$29,734.44
	Confections	\$8,433.96	\$12,229.54	\$5,939.92	\$44,860.50	\$51,666.39
	Dairy Products	\$2,298.77	\$14,450.40	\$10,211.00	\$41,729.97	\$64,594.60
	Grains/Cereals	\$5,609.20	\$3,317.30	\$3,713.73	\$23,380.93	\$32,760.69
	Meat/Poultry	\$7,000.55	\$14,007.89	\$6,703.64	\$54,464.74	\$62,973.35
	Produce	\$1,317.60	\$4,644.10	\$8,812.10	\$17,843.50	\$23,432.04
	Seafood	\$2,730.12	\$7,292.89	\$8,833.19	\$30,109.12	\$37,952.63
	Total Quarter 1	\$35,652.20	\$88,082.00	\$52,328.23	\$306,597.24	\$410,017.14
Quarter 2	Beverages	\$8,081.30	\$7,848.90	\$25,581.05	\$77,343.35	\$87,313.80
	Condiments	\$6,027.30	\$6,086.38	\$3,633.85	\$25,427.60	\$34,388.79
	Confections	\$4,637.73	\$7,059.94	\$6,930.35	\$43,139.79	\$56,543.64
	Dairy Products	\$13,842.00	\$5,951.20	\$6,266.47	\$48,507.69	\$74,933.40
	Grains/Cereals	\$1,562.40	\$10,810.85	\$789.51	\$20,680.66	\$25,261.26
	Meat/Poultry	\$2,941.73	\$2,782.80	\$5,460.51	\$20,202.09	\$39,395.51
	Produce	\$6,933.28	\$3,521.75	\$5,379.75	\$28,178.18	\$41,129.49
	Seafood	\$3,092.97	\$5,806.43	\$4,370.68	\$28,333.56	\$33,381.98
	Total Quarter 2	\$47,118.71	\$49,868.25	\$58,412.17	\$291,812.92	\$392,347.87
Quarter 3	Beverages	\$3,210.05	\$5,370.85	\$8,864.01	\$21,184.47	\$25,260.94
	Condiments	\$2,513.85	\$3,133.12	\$3,364.50	\$13,698.39	\$15,769.92
	Confections	\$4,486.92	\$5,841.72	\$5,473.25	\$17,802.89	\$26,525.02
	Dairy Products	\$1,112.70	\$7,697.70	\$9,360.92	\$26,790.83	\$39,269.73
	Grains/Cereals	\$2,932.65	\$2,580.95	\$1,502.00	\$12,300.66	\$17,746.36
	Meat/Poultry	\$2,826.00	\$5,316.24	\$2,384.66	\$13,597.80	\$20,775.42

Balance Sheets

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

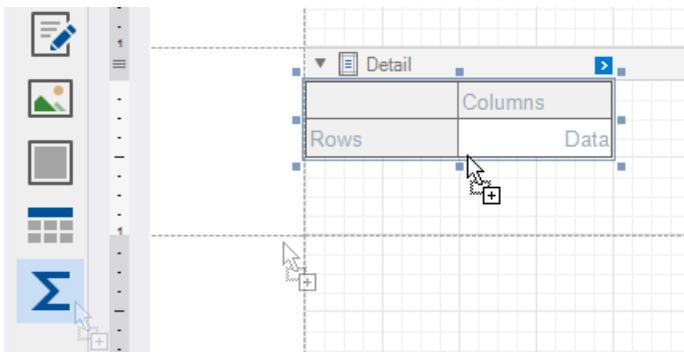
Balance Sheet			
	2017	2018	2019
Assets			
Current assets			
Cash and cash equivalents	13,692.56	17,532.10	11,910.76
Marketable securities	24,187.44	14,629.48	21,956.18
Accounts receivable trade, less allowances for doubtful accounts	11,155.68	10,363.31	10,260.00
Inventories	7,139.41	8,398.09	7,128.75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

TIP

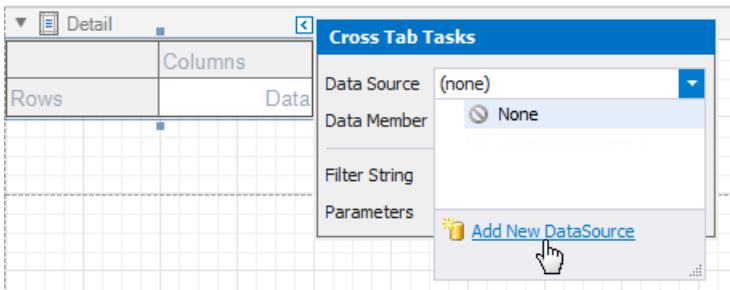
This tutorial shows how to configure a Cross Tab using the Report Wizard. See the [Cross-Tab Reports](#) tutorial for information on how to use the Cross-Tab Report Wizard.

Add a Cross Tab and Bind It to Data

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

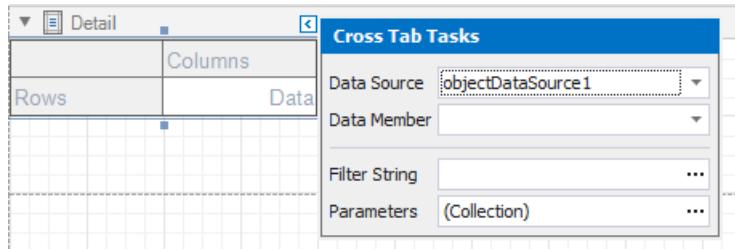


- Click the Cross Tab's smart tag, expand the **Data Source** property's drop-down menu and click **Add New Data Source**.

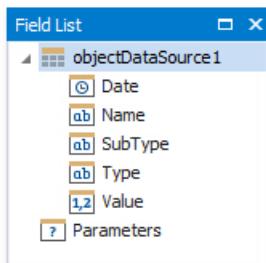


- Use the invoked **Data Source Wizard** to bind the Cross Tab to a data source.

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



The data source structure becomes available in the **Field List**.



NOTE

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

Define the Cross Tab Layout

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

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

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

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

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

Specify Group Settings

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

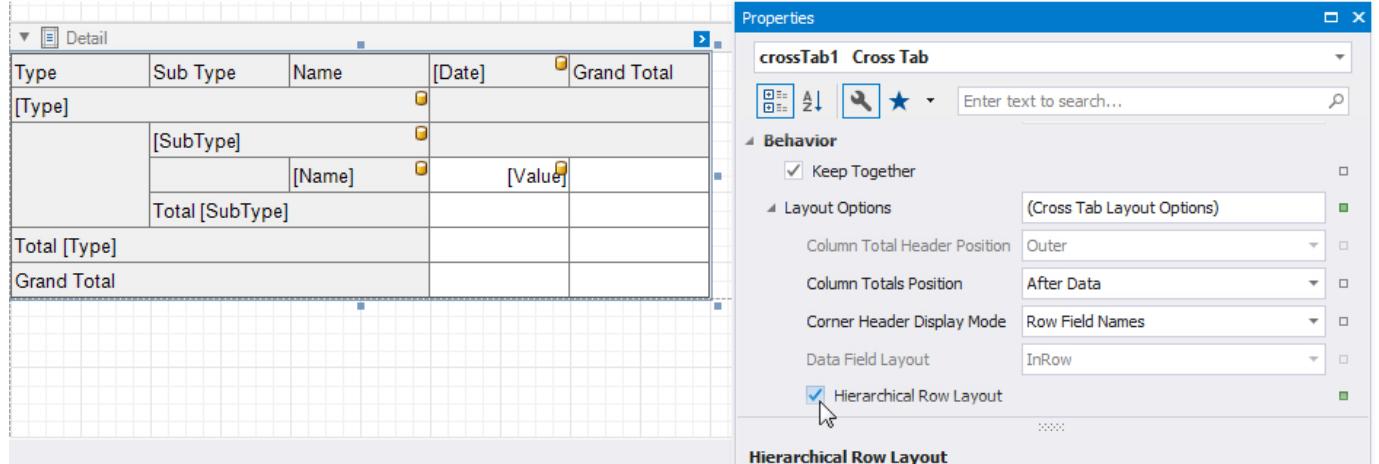
Select the column header cell and click its smart tag. Set the **Group Interval** property to group data.

Type	Sub Type	Name	2017	2018	2019	Grand Total		
Assets	Current assets	Accounts rece	11155.68	10363.31	10260	31778.99		
		Cash and cas	13692.56	17532.1	11910.76	43135.42		
		Inventories	7139.41	8398.09	7128.75	22666.25		
		Marketable se	24187.44	14629.48	21956.18	60773.1		
	Total Current assets		56175.09	50922.98	51255.69	158353.76		
	Long-term assets	Deferedtaxes	12139.94	11442.37	11928.68	35510.99		
		Equity and lon	6225.03	6071.37	6592.01	18888.41		
		Goodwill	20982.49	22112.28	20378.7	63473.47		
		Intangible ass	28199.35	24374.22	28860.46	81434.03		
		Other assets	3777.55	5015.98	4372.08	13165.61		
	Property, plan		16244.5	13576.09	13911.89	43732.48		
Total Long-term assets			87568.86	82592.31	86043.82	256204.99		
Total Assets			143743.95	133515.29	137299.51	414558.75		
		Accounts pay	7737.25					

Specify Layout Options

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

Select the Cross Tab and switch to the [Property Grid](#). Expand the **Layout Options** group and enable the **Hierarchical Row Layout** property.



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

The screenshot shows the 'Properties' window for a 'Cross Tab' named 'crossTab1'. In the 'Corner Header Display Mode' section, the 'Data Field Layout' dropdown is set to 'None'. Other options include 'Column Field Names' and 'Row Field Names'.

Switch to Print Preview to see the result.

A screenshot of a financial statement showing a cross-tab structure. The main table has columns for 2017, 2018, 2019, and Grand Total. The table is organized into sections: Assets, Liabilities and Shareholders Equity. The Assets section is further divided into Current assets and Long-term assets. A red box highlights the header row of the table.

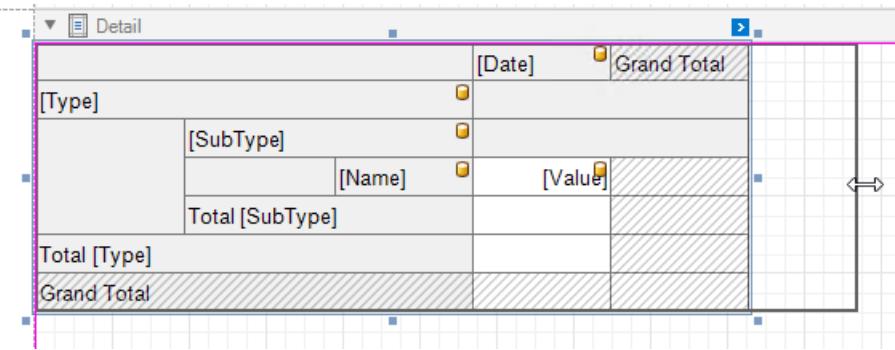
	2017	2018	2019	Grand Total
Assets				
Current assets				
Accounts rec	11155.68	10363.31	10260	31778.99
Cash and cas	13692.56	17532.1	11910.76	43135.42
Inventories	7139.41	8398.09	7128.75	22666.25
Marketable s	24187.44	14629.48	21956.18	60773.1
Total Current assets	56175.09	50922.98	51255.69	158353.76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

Hide Grand Totals

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

The screenshot shows the 'Properties' window for a 'Cross Tab' named 'crossTab1'. In the 'Cross Tab Cell Tasks' panel, the 'Row Visible' checkbox is unchecked, indicating it is disabled.

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

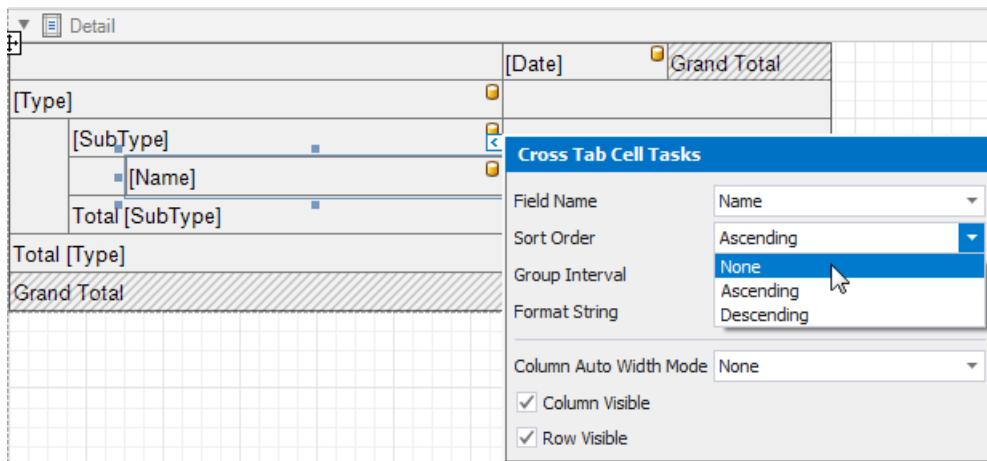


The Cross Tab control no longer displays grand total values.

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

Sort and Format Data

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



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

A screenshot of a report designer interface. On the left is a preview area showing a cross-tabulation grid with columns for [Date] and Grand Total, and rows for [Type], [SubType], [Name], Total [SubType], Total [Type], and Grand Total. A specific cell in the grid, labeled [Value], is selected. On the right is a 'Properties' panel with the following settings under the 'Data' section:

- Null Value Text: (empty)
- Tag: (empty)
- Text Format String: {0:#,##0.00;(#,##0.00);-} (with a green checkmark)
- Xlsx Format String: (empty)

The 'Text Format String' field is highlighted with a red box.

	2017	2018	2019
Assets			
Current assets			
Cash and cash equivalents	13,692.56	17,532.10	11,910.76
Marketable securities	24,187.44	14,629.48	21,956.18
Accounts receivable trade, less allowances for doubt	11,155.68	10,363.31	10,260.00
Inventories	7,139.41	8,398.09	7,128.75
Total Current assets	56,175.09	50,922.98	51,255.69
Long-term assets			
Property, plant and equipment, net	16,244.50	13,576.09	13,911.89
Intangible assets, net	28,199.35	24,374.22	28,860.46
Goodwill	20,982.49	22,112.28	20,378.70
Equity and long-term investments	6,225.03	6,071.37	6,592.01
Deferred taxes on income	12,139.94	11,442.37	11,928.68
Other assets	3,777.55	5,015.98	4,372.08
Total Long-term assets	87,568.86	82,592.31	86,043.82
Total Assets	143,743.95	133,515.29	137,299.51
Liabilities and Shareholders Equity	30,140.70	32,453.05	30,571.20
Shareholders equity			
Preferred stock - without par value	-	-	-
Common stock - par value \$1.00 per share	8,440.18	8,123.28	6,597.07
Accumulated other comprehensive income	(5,531.59)	(5,683.68)	(5,117.93)
Retained earnings	17,461.54	19,101.24	21,816.32
Total Shareholders equity	20,370.13	21,540.84	23,295.46
Total Liabilities and Shareholders Equity	75,406.80	75,695.15	75,210.42

Customize Appearance

1. Select the Cross Tab, switch to the **Properties** window and expand the **Styles** property. Use the **General Style** property to specify common appearance settings that apply to all Cross Tab cells. Set the following properties:
 - **Background Color** to White
 - **Border Color** to SlateGray
 - **Font** to Tahoma 8.25
 - **Foreground Color** to SlateGray

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

- o reset the **Background Color** property value to inherit the color from the general style;
- o set the **Foreground Color** property to **MidnightBlue** to override the general foreground color;
- o set the **Font** property to **Tahoma 8.25** to override the general font.

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

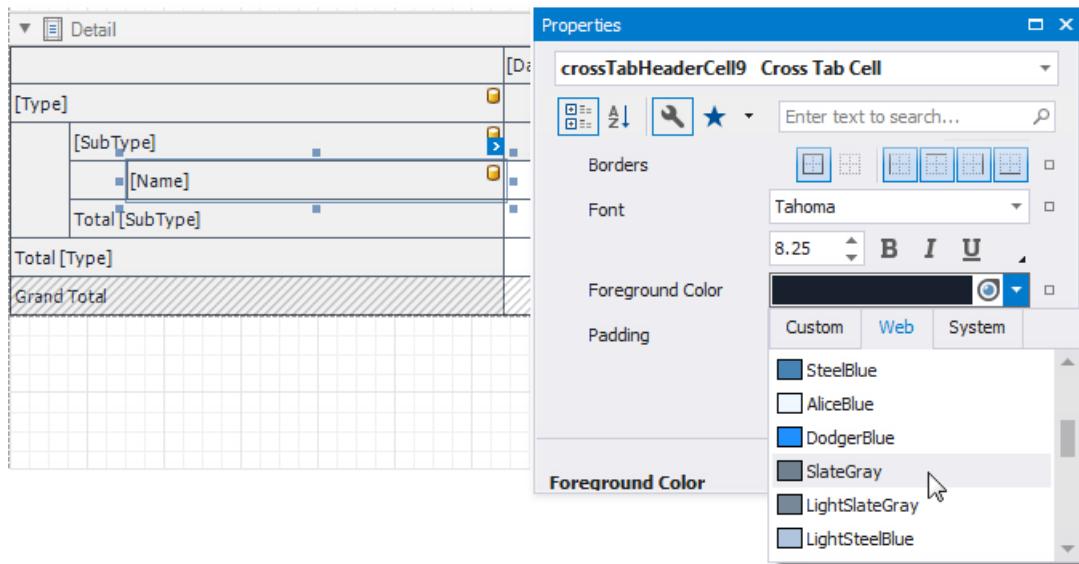
- o **Font** to **Tahoma 8.25 Bold**
- o **Foreground Color** to **MidnightBlue**

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

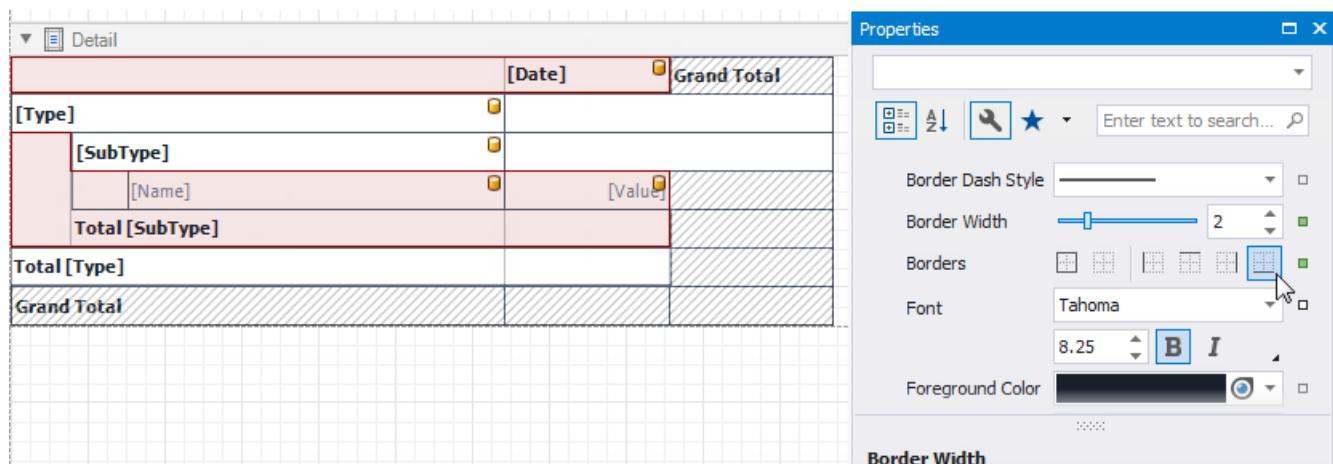
- **Foreground Color** to **SlateGray**

- **Font** to **Tahoma 8.25**

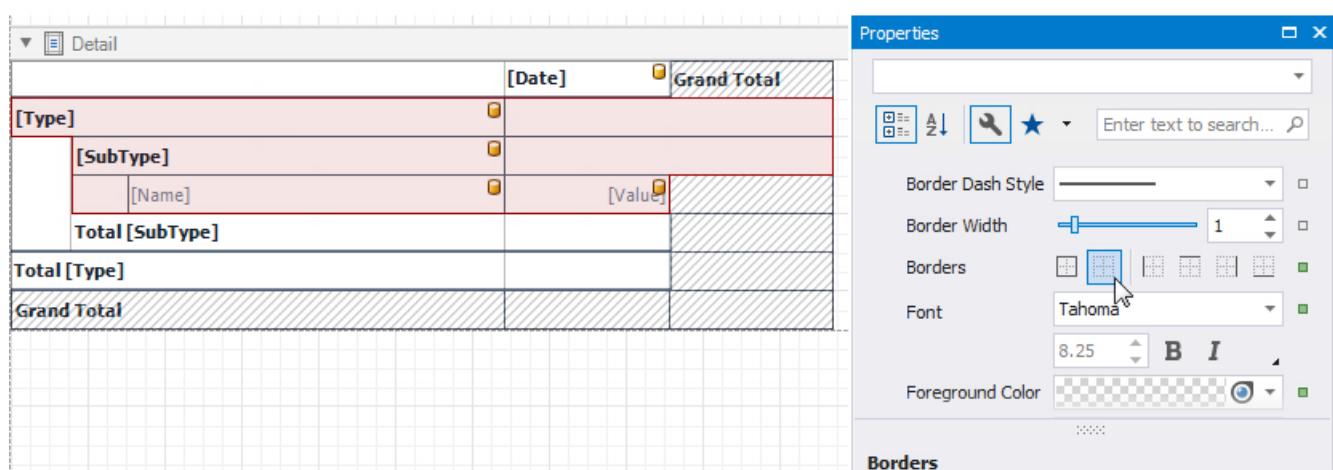
These values apply to the selected cell only and override values specified for the entire header area.



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



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



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

The screenshot shows a report designer interface with a table structure. The table has columns for [Date] and Grand Total. The rows include header cells for [Type], [SubType], and [Name], followed by data cells for Value. A context menu is open over the first data row, showing options like Cut, Copy, Paste, Insert Row Above, Insert Row Below, Insert Column Left, Insert Column Right, Delete Row, Delete Column, Insert Row, Insert Column, and Insert Cell.

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

The screenshot shows the same report designer interface after applying the AliceBlue background color. The first data row now has a light blue background. The Properties panel shows the Background Color dropdown set to AliceBlue.

	2017	2018	2019
Assets			
Current assets			
Cash and cash equivalents	13,692.56	17,532.10	11,910.76
Marketable securities	24,187.44	14,629.48	21,956.18
Accounts receivable trade, less allowances for doubtful account	11,155.68	10,363.31	10,260.00
Inventories	7,139.41	8,398.09	7,128.75
Total Current assets	56,175.09	50,922.98	51,255.69
Long-term assets			
Property, plant and equipment, net	16,244.50	13,576.09	13,911.89
Intangible assets, net	28,199.35	24,374.22	28,860.46
Goodwill	20,982.49	22,112.28	20,378.70
Equity and long-term investments	6,225.03	6,071.37	6,592.01
Deferred taxes on income	12,139.94	11,442.37	11,928.68
Other assets	3,777.55	5,015.98	4,372.08
Total Long-term assets	87,568.86	82,592.31	86,043.82
Total Assets	143,743.95	133,515.29	137,299.51
Liabilities and Shareholders Equity			

Apply Odd and Even Row Styles

Use the **GroupRowIndex** variable in [expressions](#) to identify odd and even rows.

Select the row sub-header cell and the next cell in the data area. Go to the **Properties** window and open the **Expressions** tab. Click the **Background Color** property's marker, select **Background Color Expression** and specify the following expression:

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

The screenshot shows the SSRS Properties window with the 'Detail' view selected. A row sub-header cell is selected, and its properties are displayed in the Properties pane. The 'Background Color' property is set to 'Background Color Expression'. An 'Expression Editor' dialog is open, displaying the expression: `iif([Arguments.GroupRowIndex] % 2 == 1, Rgb(235, 241, 252), ?)`. The 'Variables' section of the Expression Editor shows the available variables: `[Date]`, `[Type]`, `[SubType]`, `[Name]`, `Total [SubType]`, `Total [Type]`, and `Grand Total`. The 'Arguments' section shows `Arguments.GroupColumnIndex` and `Arguments.GroupRowIndex`. The 'OK' button is visible at the bottom right of the Expression Editor.

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

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

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

The screenshot shows the 'Cross Tab Cell Tasks' dialog box. On the left, there's a tree view of cells categorized by [Type] (with [SubType] and Total branches) and [Date]. On the right, there are fields for 'Text' and 'Value'. Below these, there's a dropdown for 'Column Auto Width Mode' set to 'None', and at the bottom, there are checkboxes for 'Column Visible' (which is checked) and 'Row Visible'.

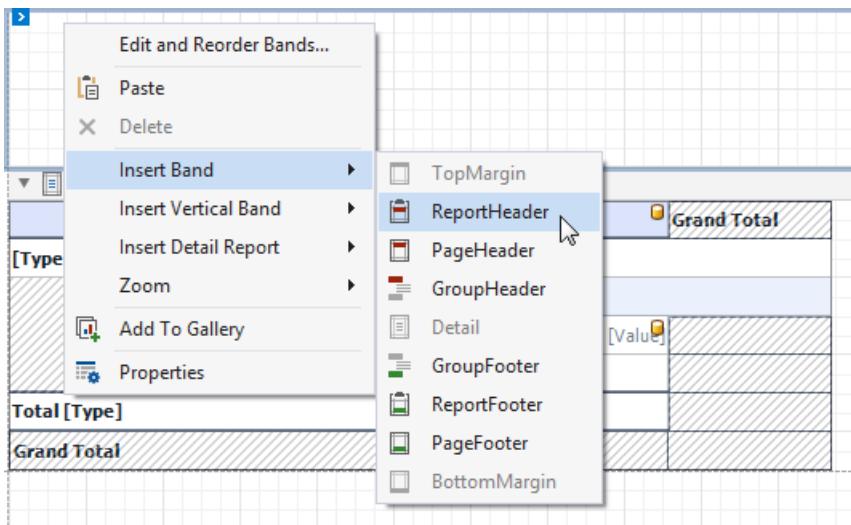
To add indents to row field values and imitate a tree-like view, set the **Padding** property for the Cross Tab's cells.

The screenshot shows the Oracle Reports Designer interface with a cross-tab structure. The properties panel on the right is open for a cell named 'crossTabHeaderCell6'. The 'Padding' property is set to '24, 2, 0, 0'. The padding values are displayed in a grid: top-left (24), top-right (2), bottom-left (0), and bottom-right (0).

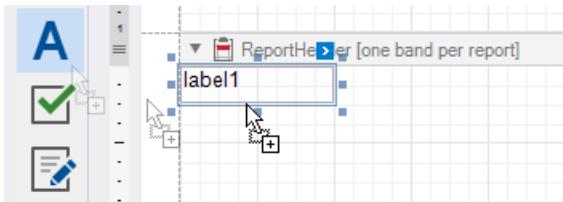
	2017	2018	2019
Assets			
Current assets			
Cash and cash equivalents	13,692.56	17,532.10	11,910.76
Marketable securities	24,187.44	14,629.48	21,956.18
Accounts receivable trade, less allowances for doubtful accounts	11,155.68	10,363.31	10,260.00
Inventories	7,139.41	8,398.09	7,128.75
Total Current assets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

Add a Report Title

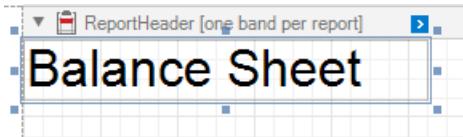
1. Right-click the report and select **Insert Band / ReportHeader** from the context menu.



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



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



Switch to Print Preview to see the final result.

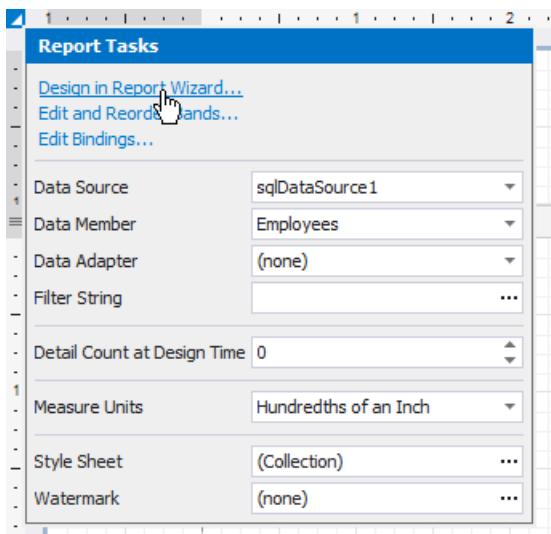
Balance Sheet

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

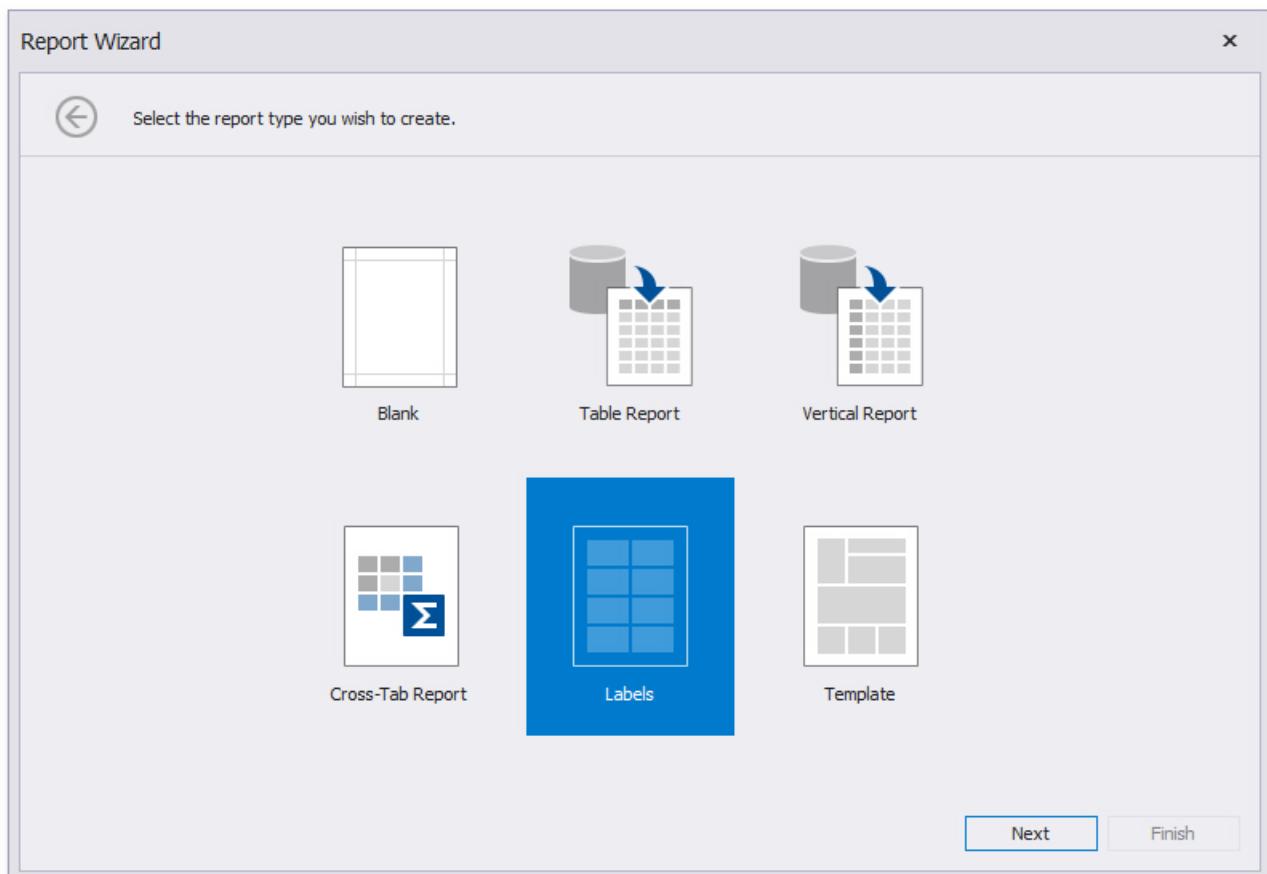
Labels and Badges

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

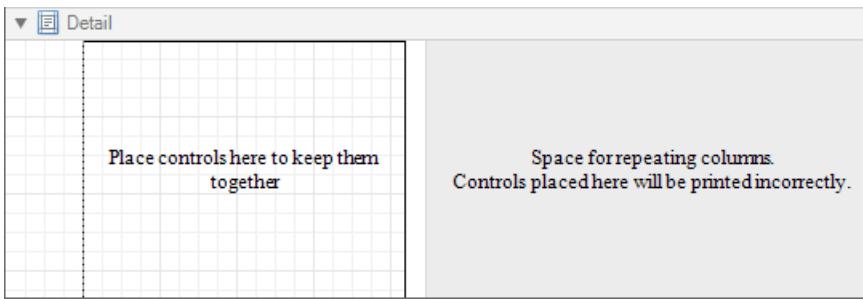
1. [Create a new report](#) and [bind it](#) to a required data source (for instance, to a table that contains information about employees).
2. Click the report's smart tag, and in the invoked actions list, click **Design in Report Wizard**.



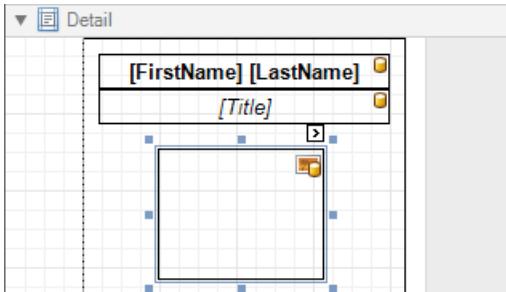
3. The wizard guides you through the process of creating a label report. Refer to [Label Report](#) for detailed instructions on the wizard's steps.



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



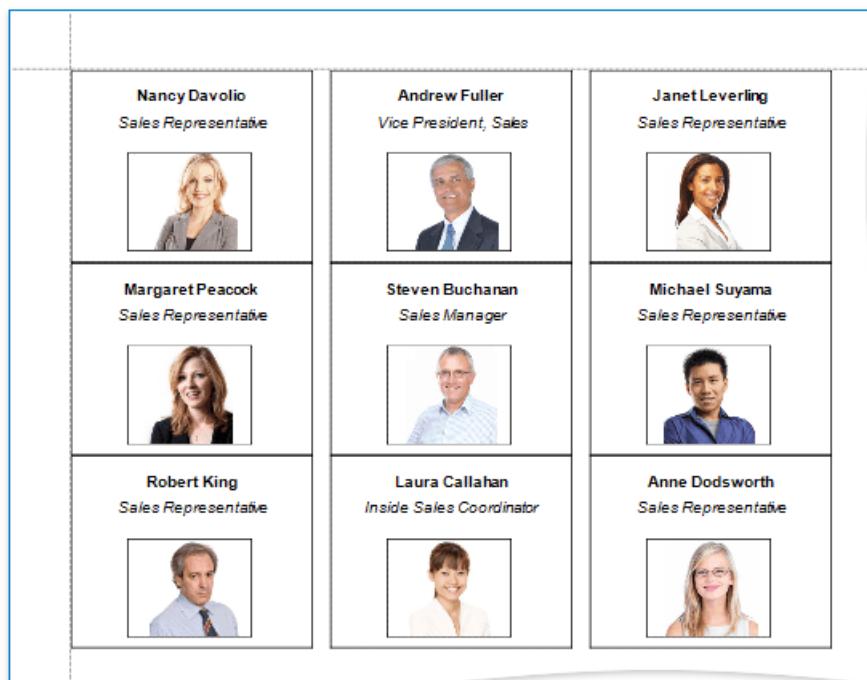
5. Drop the required fields from the [Field List](#) onto the available Detail band's area and adjust the layout.



If required, you can apply [mail merge](#) to combine several fields within the same **Label** control.

For the **Picture Box** control, you can set its **Sizing** property to **Zoom Image**.

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

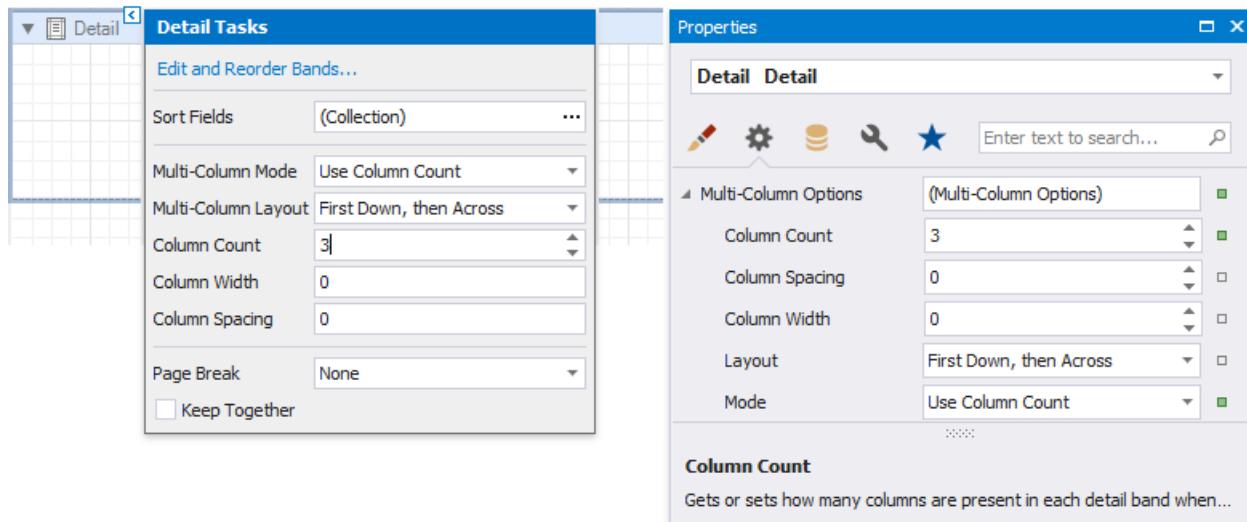


Multi-Column Reports

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.

Settings

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



Multi-Column Mode

Enables you to select one of the following modes:

- **None**

Disables the multi-column layout.

- **Use Column Count**

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

- **Use Column Width**

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

Column Spacing

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

Multi-Column Layout

Specifies the preferred direction for arranging report data within columns.

- **First Across, then Down**

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

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

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

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

- **First Down, then Across**

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

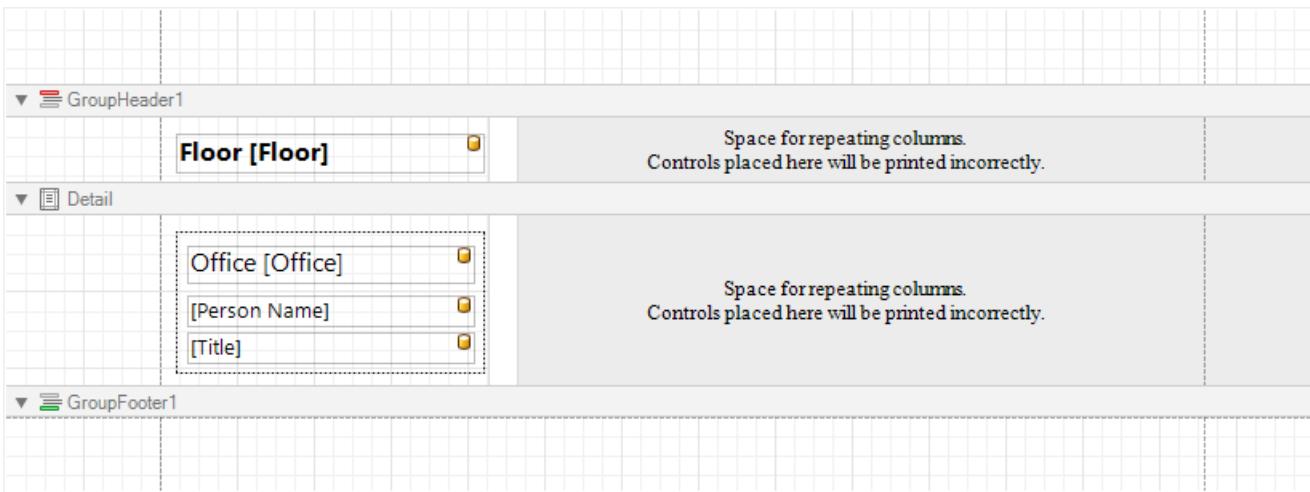
Office 101 Dr. Andrew Fuller Vice President, Sales	Office 201 Ms. Nancy Davolio Sales Representative	Office 302 Mr. Thomas Hardy Sales Representative
Office 102 Ms. Anne Dodsworth Sales Representative	Office 202 Mr. Steven Buchanan Sales Manager	Office 303 Ms. Christina Berglund Sales Manager
Office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

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

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

How It Works

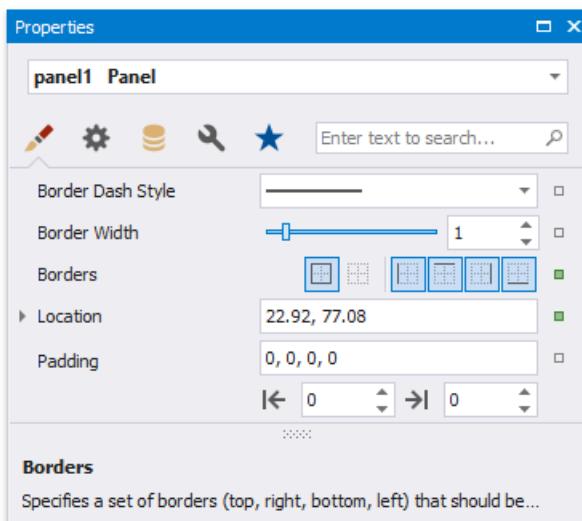
The following image illustrates a report designer with a multi-column layout applied to the report:



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

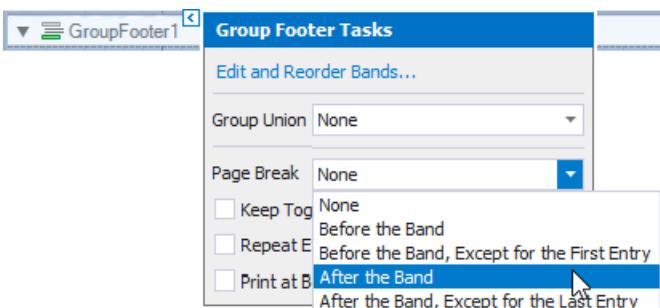
The rest of this surface defines the space on a page remaining for printing columns and column spacing area.

In the above image, the report data in the Detail band is contained within a **Panel** that provides borders around the enclosed content.



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

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



Interactive E-Forms

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

The screenshot shows an "ARRIVAL CARD" form. It includes fields for LASTNAME (T H O M A S), FIRSTNAME (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), ADDRESS (4 8 0 L I N D A R D . Y U M A , A Z , U S A), and FLIGHTNO. (S 0 1 2 0 7). There are checkboxes for MALE and FEMALE, with MALE checked. A signature field contains a handwritten signature, and a date field shows 5 1 2 (MONTH YEAR). A "FOR OFFICIAL USE" section is also present.

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

Add Form Fields

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

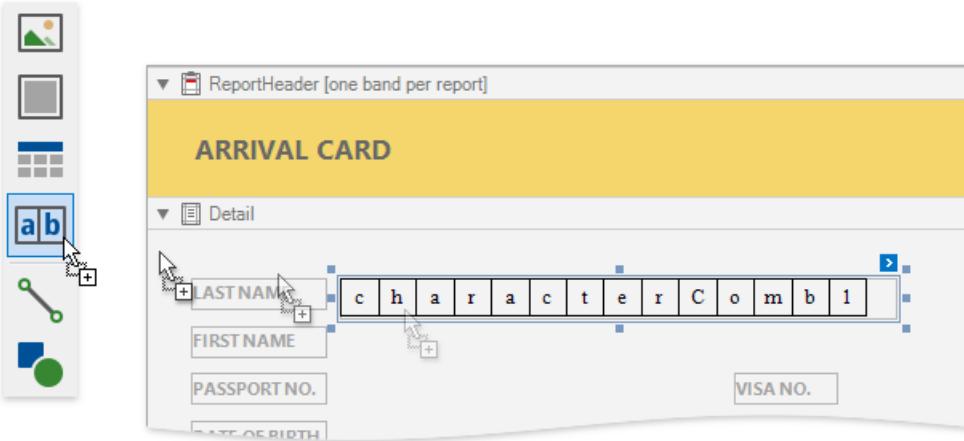
The report structure is as follows:

- ReportHeader [one band per report]:** Contains a yellow header band labeled "ARRIVAL CARD".
- Detail:** Contains fields for LAST NAME, FIRST NAME, PASSPORT NO., VISA NO., DATE OF BIRTH (with DAY, MONTH, YEAR components), ADDRESS, and FLIGHT NO.
- ReportFooter [one band per report]:** Contains a SIGNATURE field and three empty boxes for DAY, MONTH, and YEAR.

Add Fillable Cells

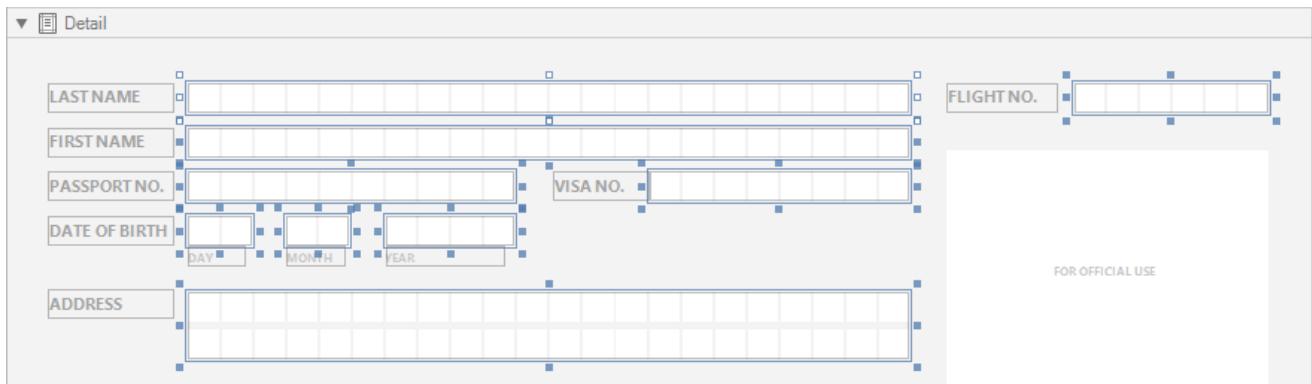
Use the **Character Comb** control for the form's text fields. This control displays letters in individual cells and allows you to fill these cells in Print Preview.

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

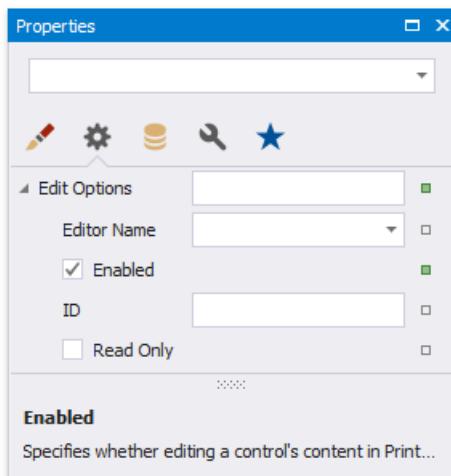


2. Select all the added Character Combs and set their properties in the **Property Grid**:

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

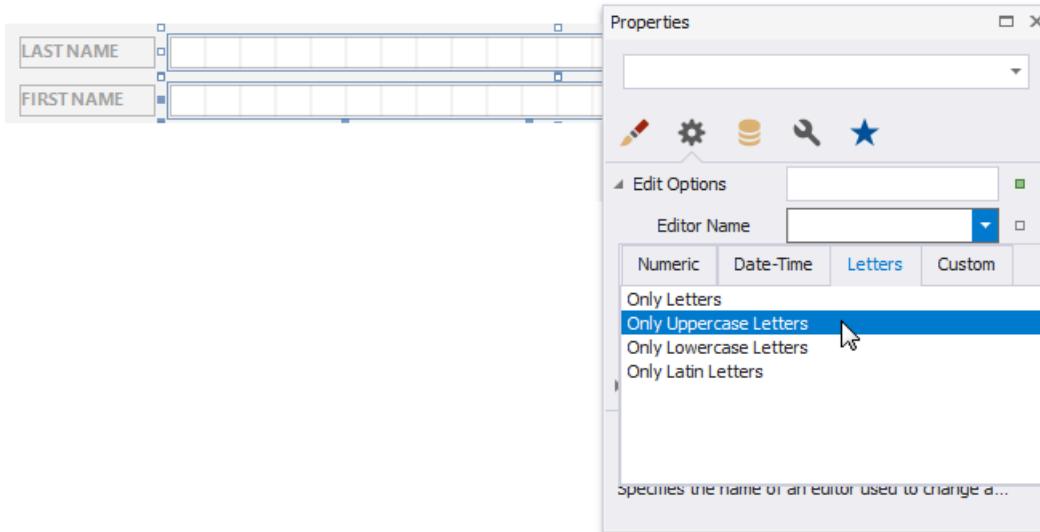


3. Enable the Character Combs' **Edit Options | Enabled** property.



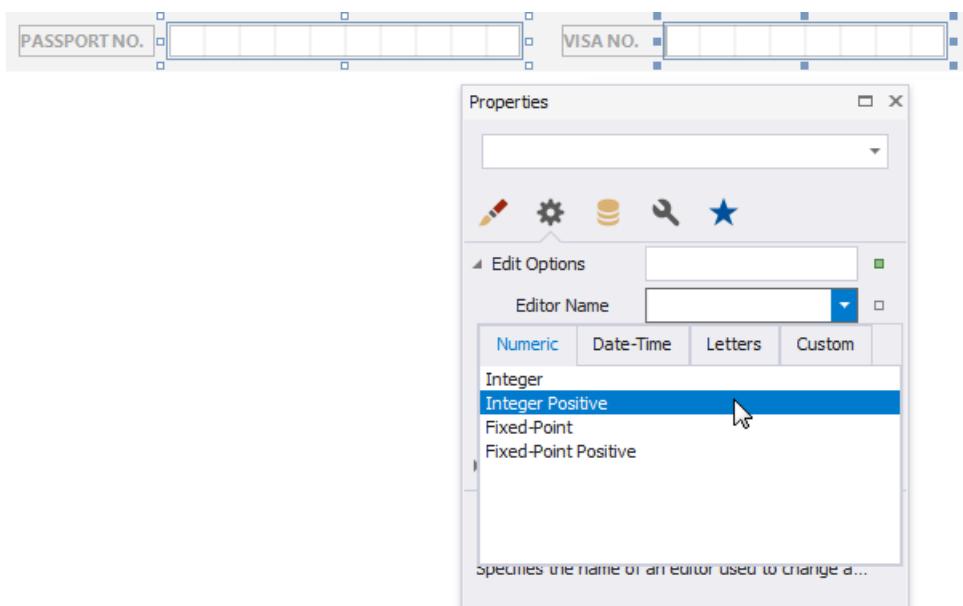
4. Choose editors for the Character Comb controls' edit mode.

- Controls that allow you to enter letters
- Invoke a drop-down list for the **Editor Name** property and select the **Only Uppercase Letters** item in the **Letters** category.



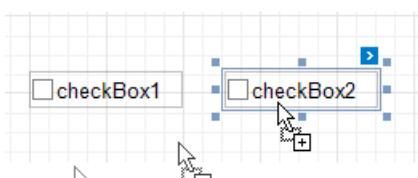
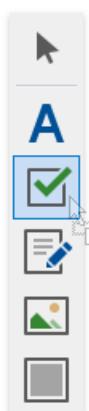
- Controls that allow you to enter integers

Invoke a drop-down list for the **Editor Name** property and select the **Positive Integer** item in the **Numeric** category.



Add Check Box Editors

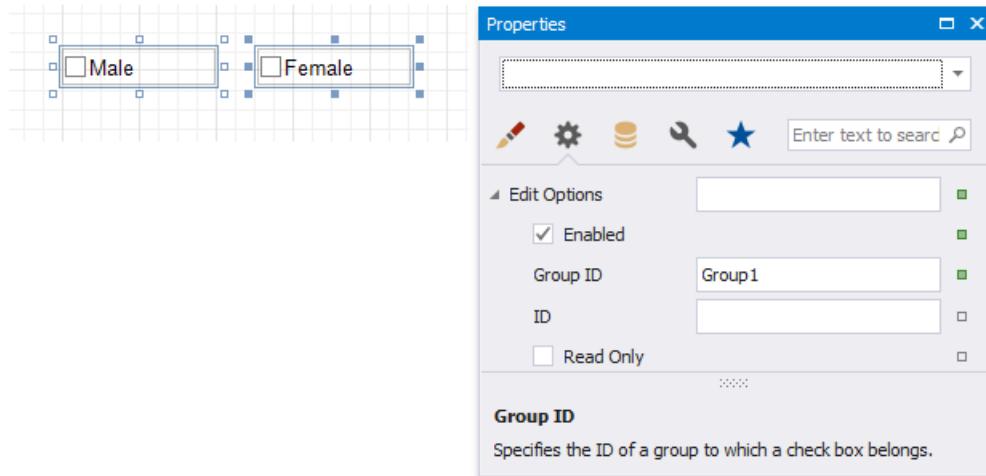
Add [Check Box](#) controls for the *Male/Female* fields.



Use the following properties to set up these controls:

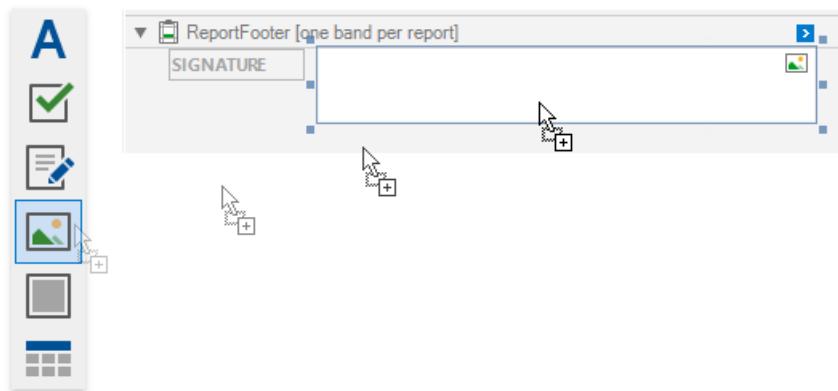
- Set the **Text** property.

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



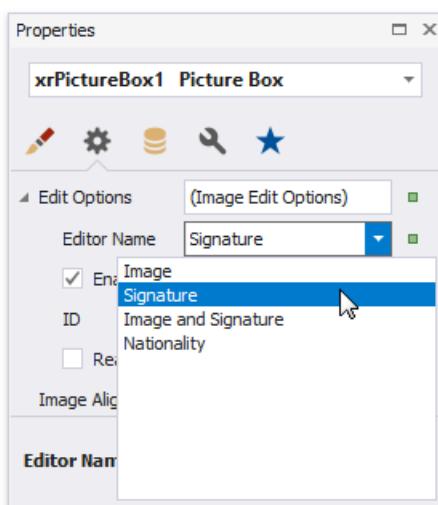
Add the Signature Editor

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



Do the following to enable drawing in Print Preview:

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



Get the Result

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

ARRIVAL CARD

LAST NAME													FLIGHT NO.							
FIRST NAME																				
PASSPORT NO.							VISA NO.													
DATE OF BIRTH	DAY	MONTH	YEAR	<input type="checkbox"/> Male			<input type="checkbox"/> Female			FOR OFFICIAL USE										
ADDRESS													0	5	1	2	2	0	1	8
SIGNATURE													DAY	MONTH	YEAR					

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

ARRIVAL CARD

LAST NAME													FLIGHT NO.							
FIRST NAME																				
PASSPORT NO.							VISA NO.													
DATE OF BIRTH	DAY	MONTH	YEAR	<input type="checkbox"/> Male			<input type="checkbox"/> Female			FOR OFFICIAL USE										
ADDRESS													0	5	1	2	2	0	1	8
SIGNATURE													DAY	MONTH	YEAR					

Click a field to invoke its editor.

ARRIVAL CARD

LASTNAME

FLIGHTNO.

FIRSTNAME

PASSPORT NO. VISA NO.

DATE OF BIRTH
DAY MONTH YEAR

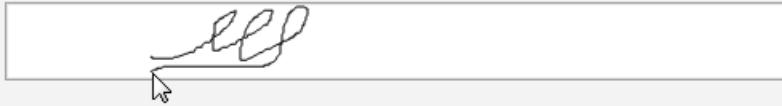
MALE

FEMALE

FOR OFFICIAL USE

ADDRESS

SIGNATURE



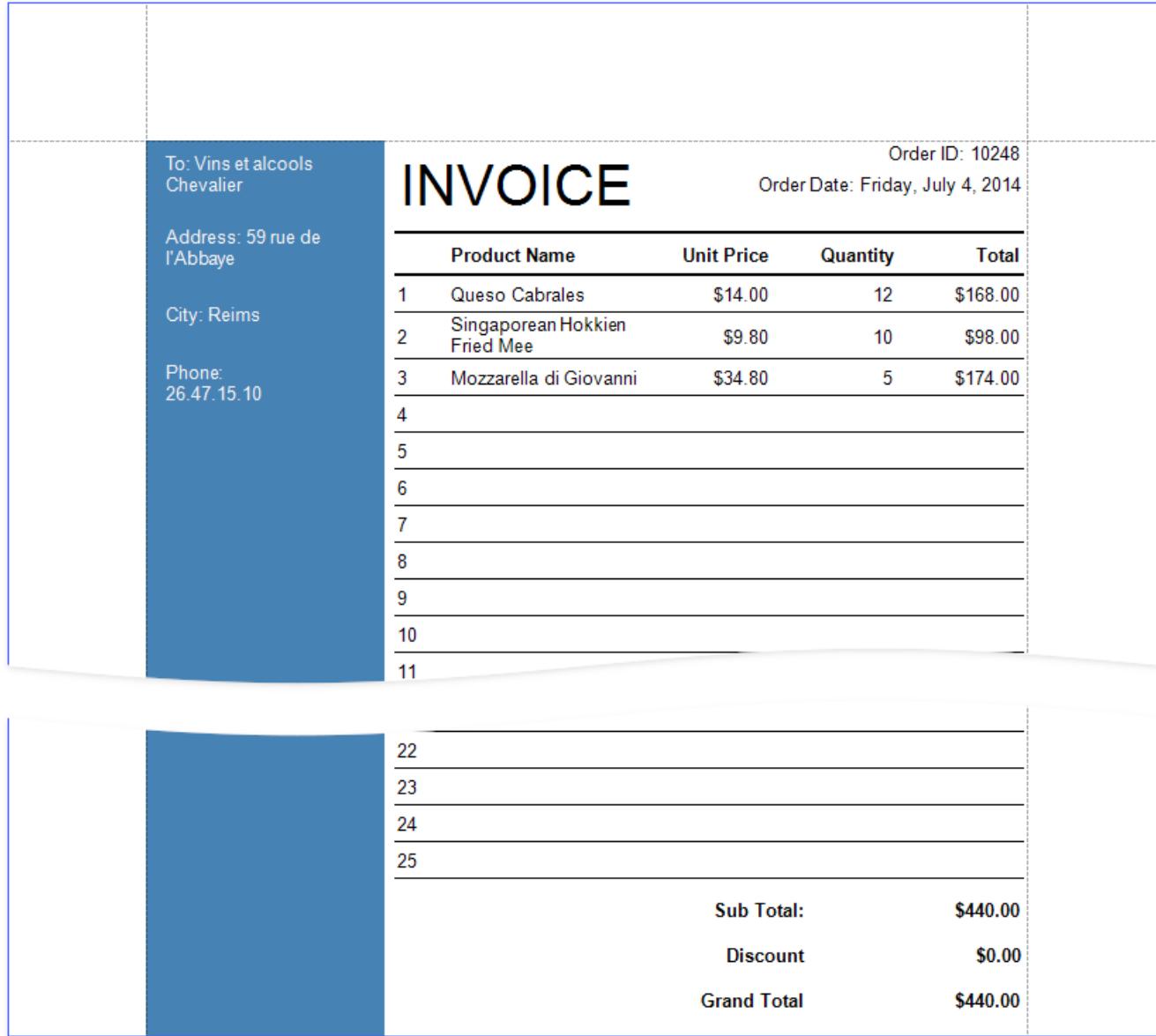
MONTH YEAR

Use TAB and SHIFT+TAB to navigate between editable fields.

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).

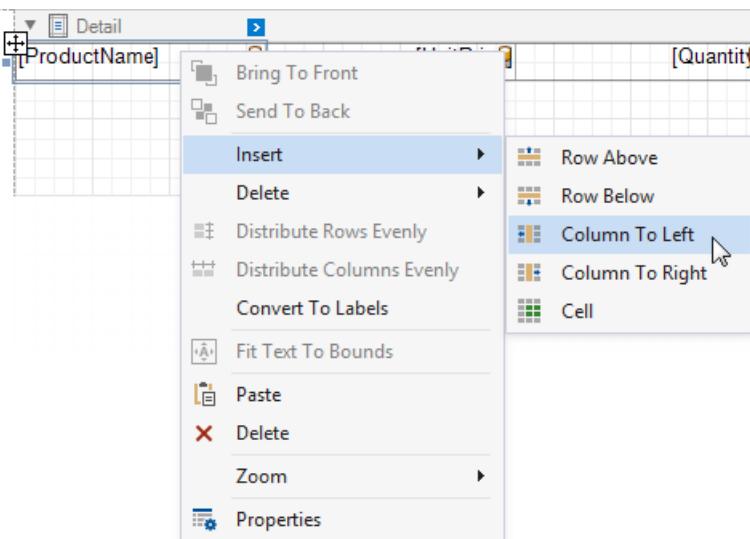
The **GroupFooter** band is displayed at the bottom of the page (the **Print At Bottom** property is enabled). There is an empty space between the **Detail** band's data and the footer.

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.

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

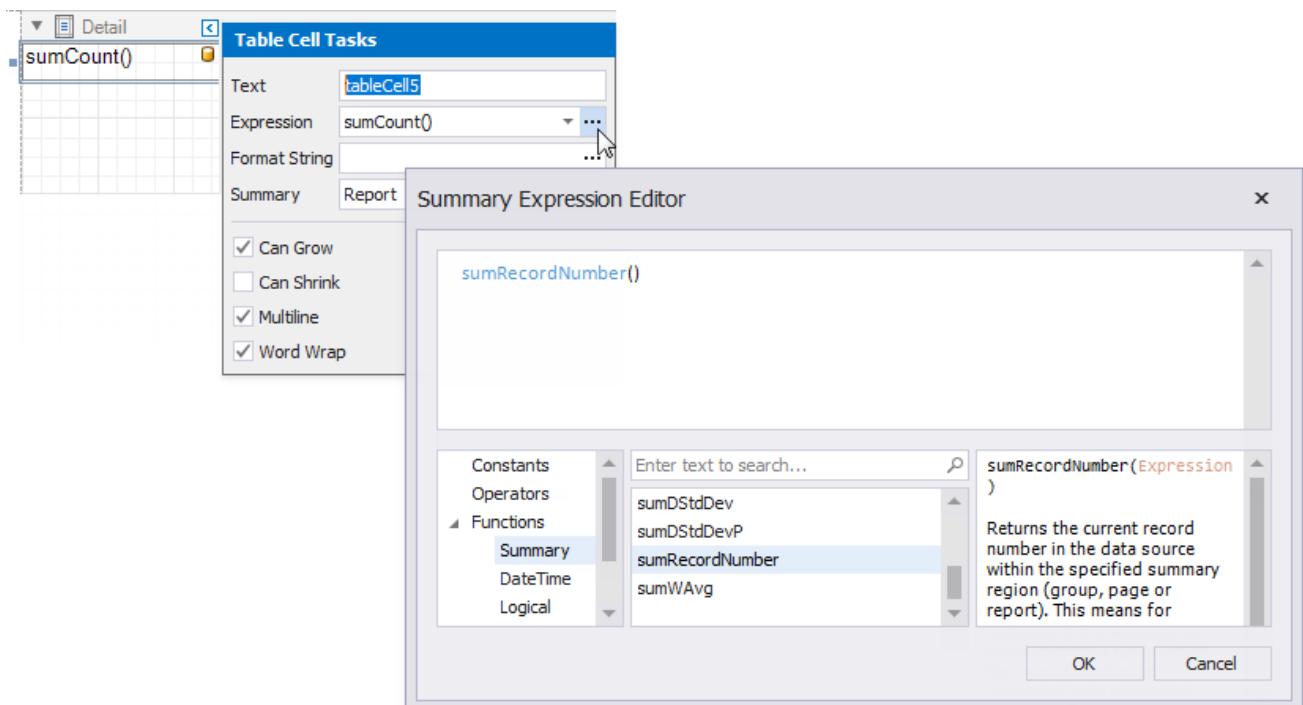
Add Line Numbers

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

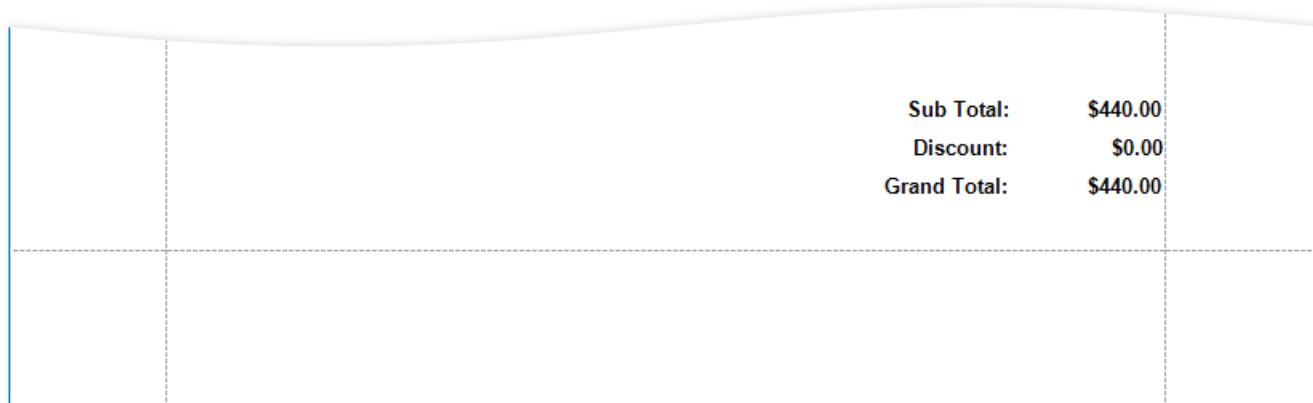
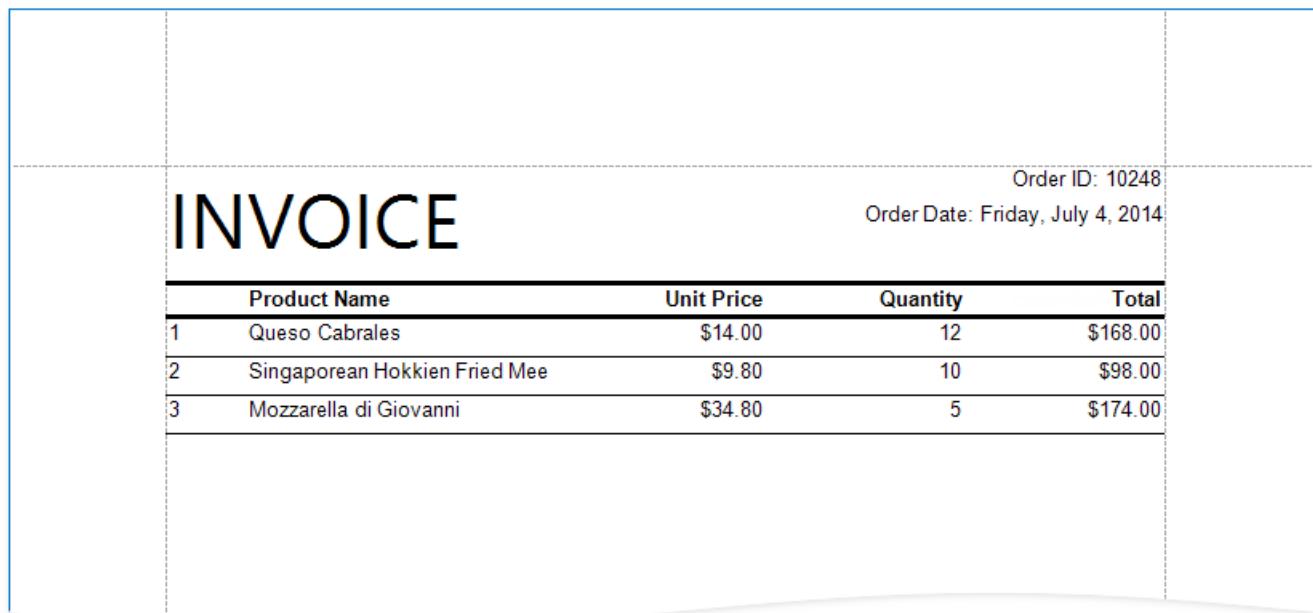


2. Select the new cell and specify the following property values:

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



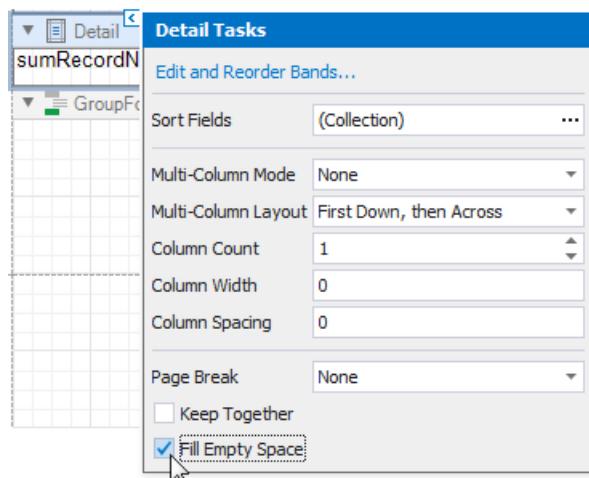
Each row now includes a number.



Populate the Empty Space

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

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



The empty space is now populated with numbered lines.

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			

25
26
27

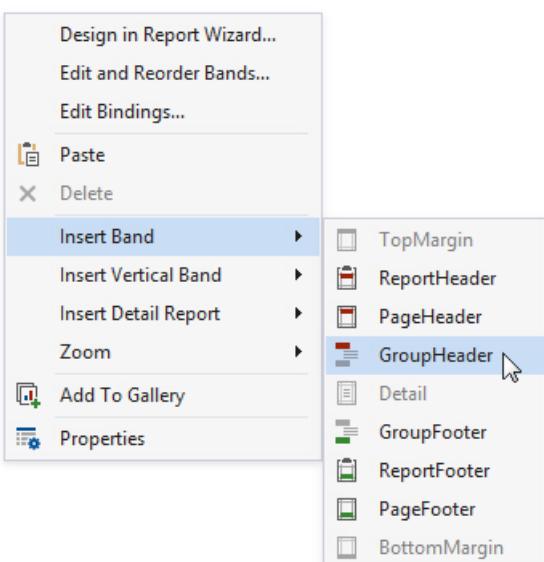
Sub Total: \$440.00
Discount: \$0.00
Grand Total: \$440.00

NOTE

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

Add Cross-Band Content to Report Groups

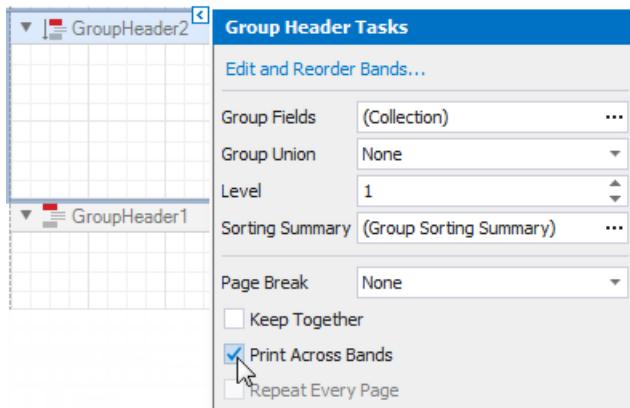
1. Right-click the design surface. Select **Insert Band / GroupHeader** from the context menu.



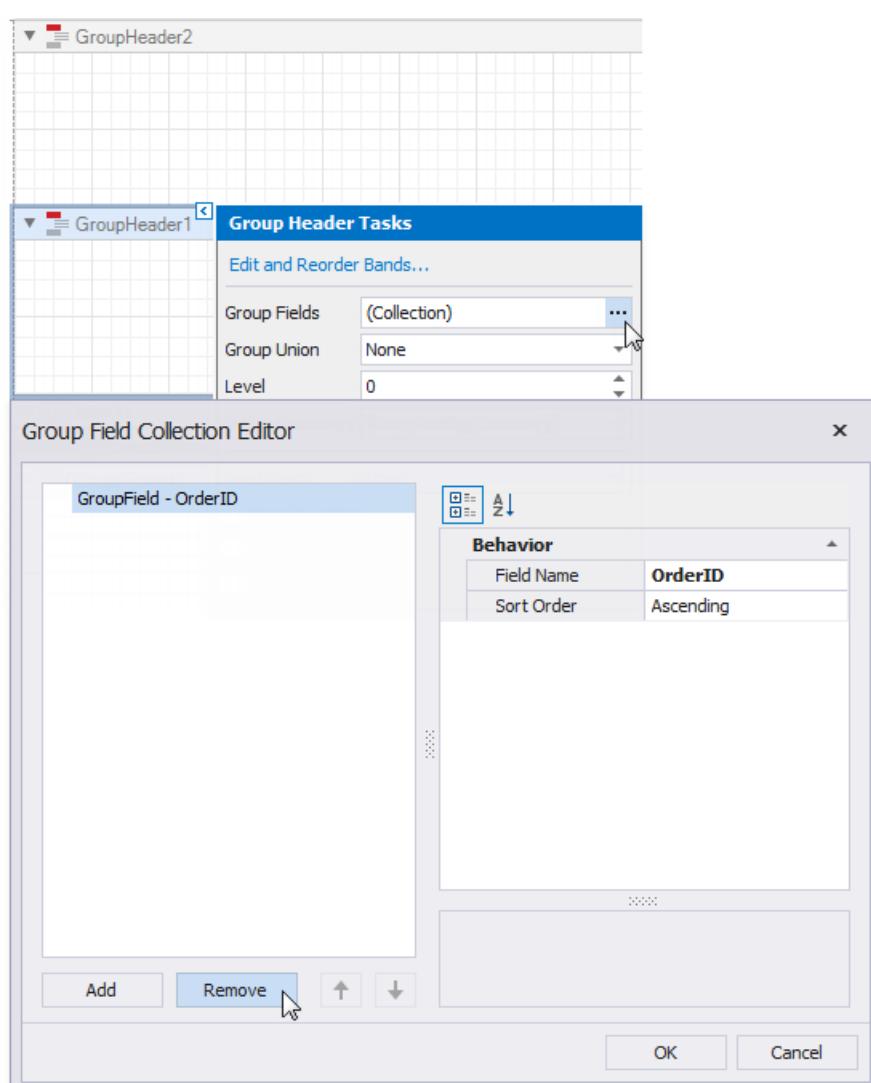
TIP

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

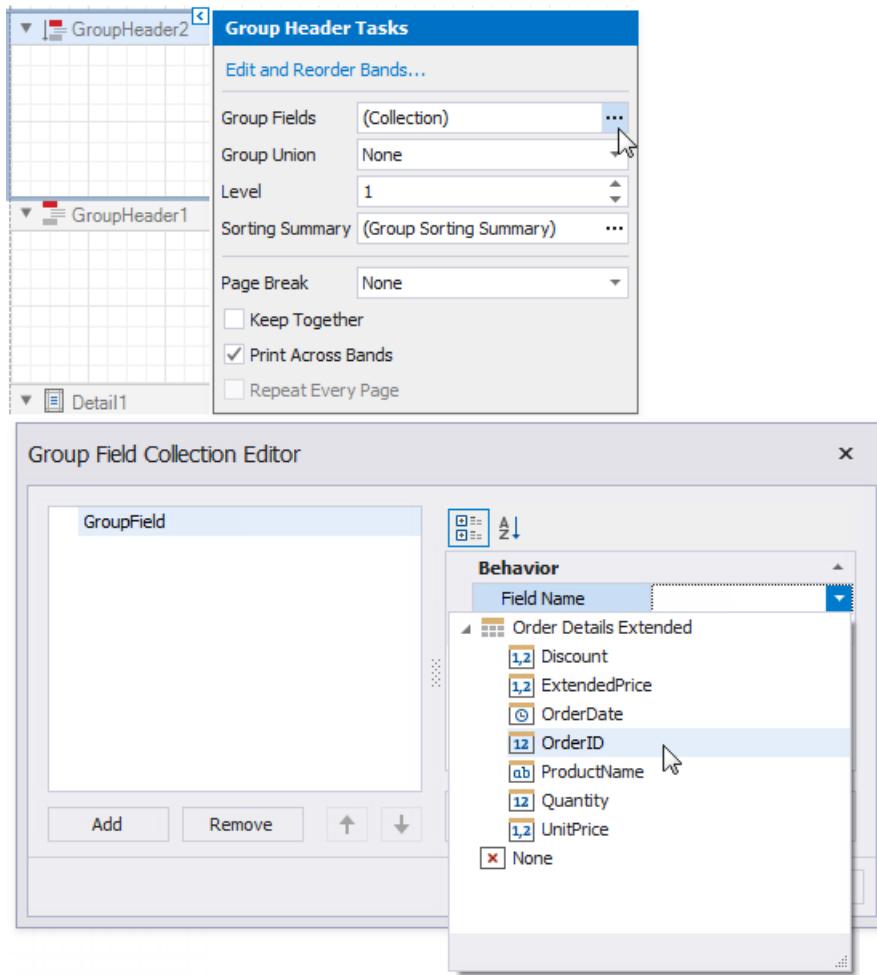
2. Click the added band's smart tag and enable the **Print Across Bands** property. This displays the band content on the background of the *GroupHeader1*, *Detail*, and *GroupFooter1* bands.



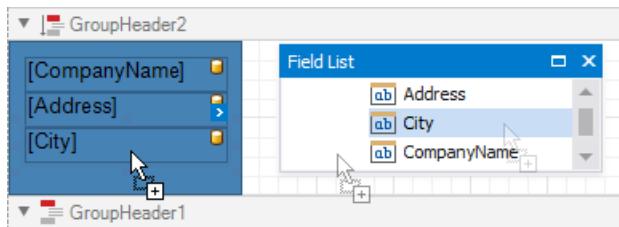
3. The report's group field is in the *GroupHeader1* band's **Group Fields** collection. The new band is above *GroupHeader1* and does not participate in the report's group. Move the group field to the new band.
 - o Click *GroupHeader1*'s smart tag, click the **Group Fields** property's ellipsis button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



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



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



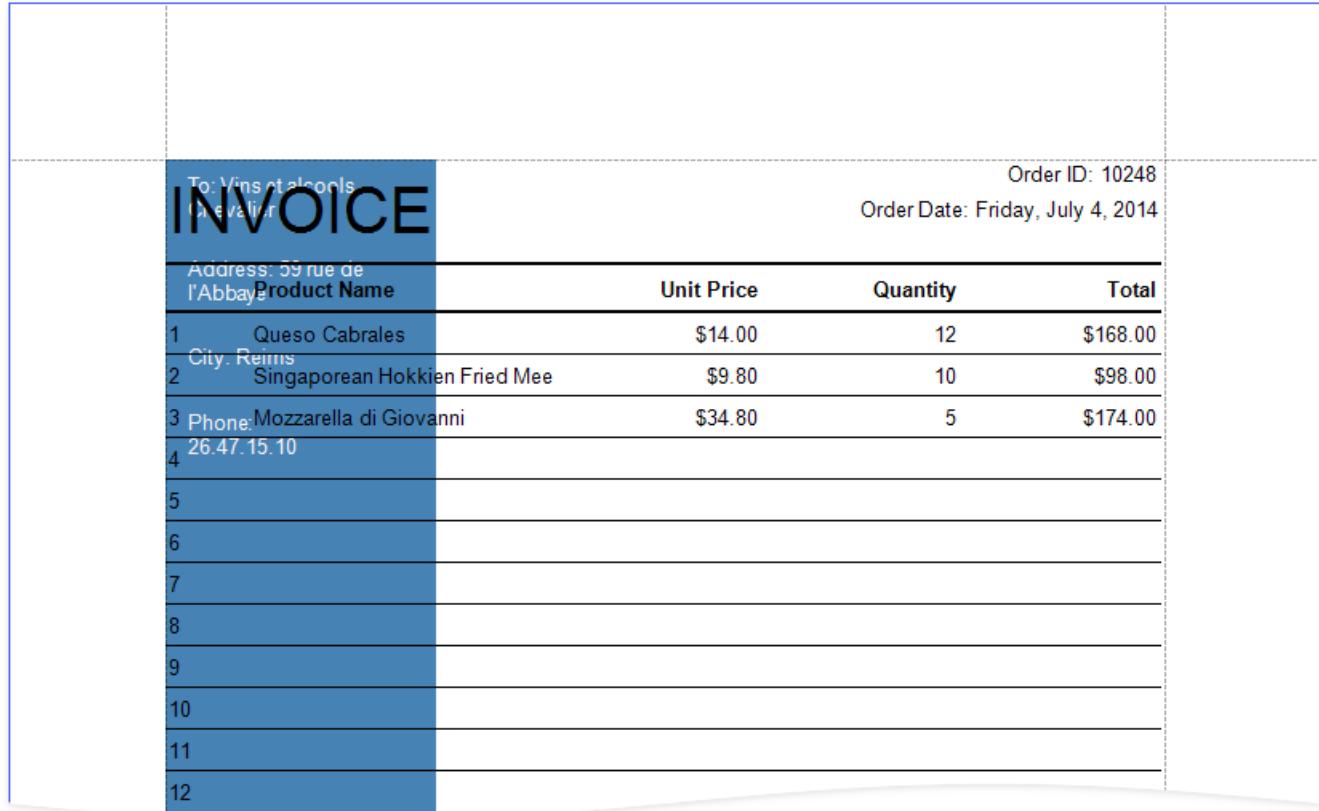
- Adjust the panel's width and height. The height should match the page height, as the footer is printed at the bottom of the page (the *GroupFooter*'s **Print At Bottom** property is enabled).

The screenshot shows a report design interface with two group headers and a table.

- GroupHeader1:** Located at the bottom left, it contains the word "INVOICE" in large, bold, black capital letters.
- GroupHeader2:** Located at the top left, it contains four text fields:
 - To: [CompanyName]
 - [Address]
 - [City]
 - [Phone]
- Table:** A table with five columns and one header row.

Product Name	Unit Price	Quantity	Total
--------------	------------	----------	-------
- Text Labels:** To the right of the table, there are two labels:
 - Order ID: [OrderID]
 - Order Date: [OrderDate]

6. Switch to Print Preview. The panel is printed on the background of the group content.



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

The screenshot shows the report structure in the designer:

- GroupHeader1:** Contains the title "INVOICE".
- Detail:** A table with columns: Product Name, Unit Price, Quantity, Total. The "Product Name" column contains the expression "[ProductName]".
- GroupFooter1:** Contains the expressions "Order ID: [OrderID]" and "Order Date: [OrderDate]".

See the final report in Print Preview.

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				

22

23

24

25

Sub Total: \$440.00

Discount \$0.00

Grand Total \$440.00

Reports with PDF Content

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
Total Due	\$12,175

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			

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TIP

The [Create a Master-Detail Report \(Use Subreports\)](#) topic describes another way to create a report that merges different documents.

Create a Report Layout

Create a report that should include PDF content.

detailBand1

OrdersDetailReport - "Orders"

ReportHeader1

Invoice # [InvoiceNumber]

[OrderDate!MM/dd/yy]



Billing Address	Shipping Address
[Customer.Name] Home Office [Customer.HomeOffice_Line] [Customer.HomeOffice_City], [Customer.HomeOffice_StateName] [Cu	[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, 'G',	-	[OrderTerms]

GroupHeader2

Description	Unit Price	Quantity	Discount	Total
[Product_Name]	[ProductPrice]	[ProductUnits]	[Discount]	[Total]

GroupFooter2

Comments	
[Comments]	

Sub Total	sumSum([Ord
Shipping	[ShippingAmo
Total Due	[TotalAmount]

Page 1 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

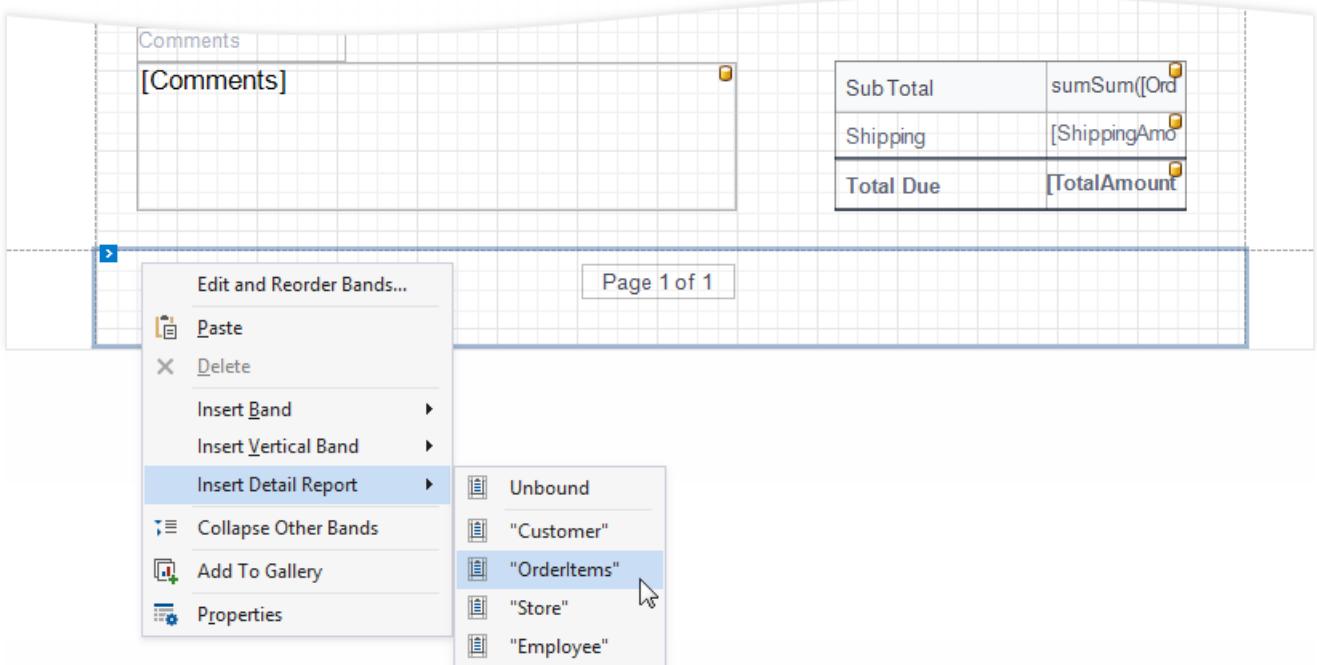
Sub Total	\$4,750
Shipping	\$375
Total Due	\$12,175

Page 1 of 1

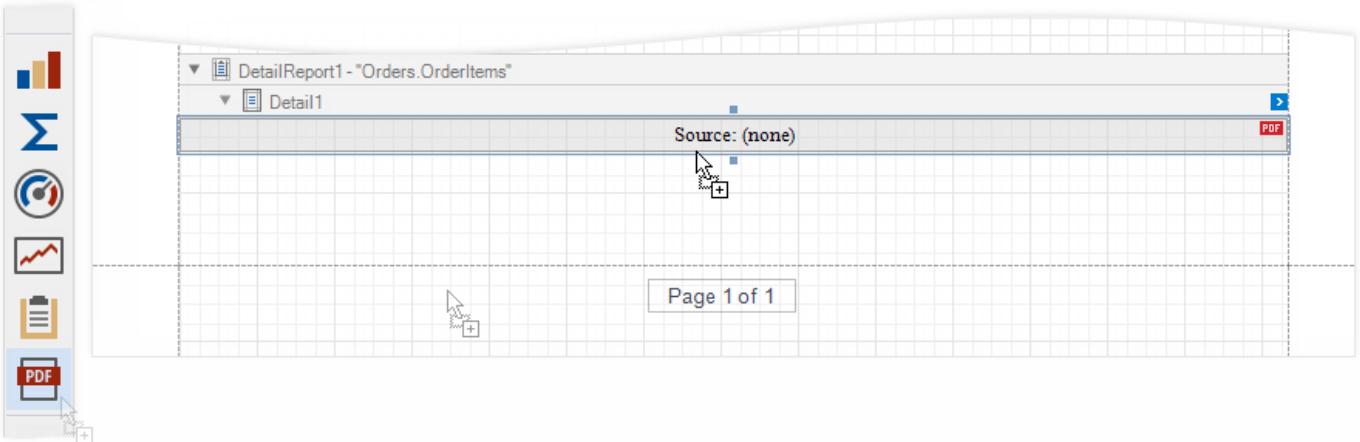
Add PDF Content

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

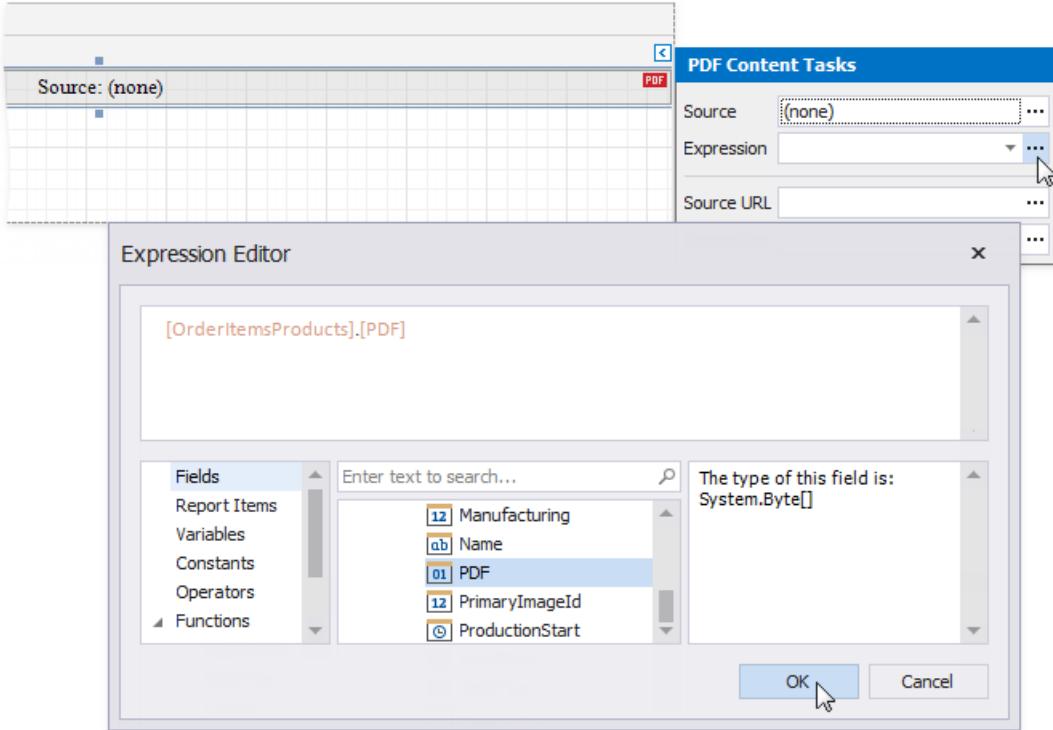
1. Add a **Detail Report** band at the location where you want to place PDF content. As PDF content is rendered on separate pages, the report from this tutorial includes this band at the bottom. Bind the new band to the same data member as in the [Create a Report Layout](#) section above.



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



3. Bind the dropped control to the source of PDF data. Expand the control's smart tag and click the **Expression** property's ellipsis button below the **Source** property. In the invoked **Expression Editor**, select the data source field that stores PDF documents and click **OK**.



TIP

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

- **Bind to a PDF file**

Specify the file's path or 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 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

All trademarks or registered trademarks are the property of their respective owners.

DX-RX809 HD Video Player



Precision HD Media Player

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, 1080p) BBS Technology included
- Precision DAC for the best sound quality

All trademarks or registered trademarks are the property of their respective owners.

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

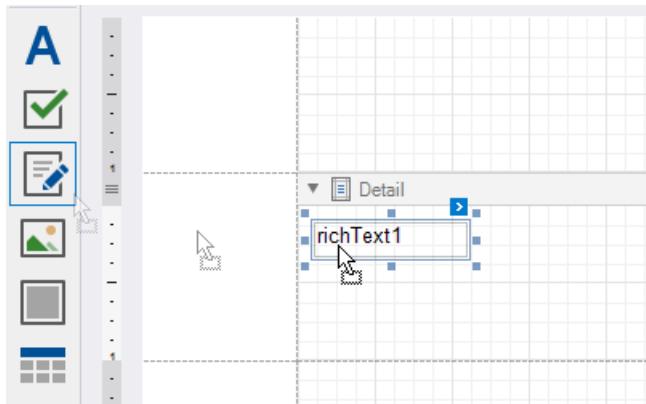
Reports with a Visual PDF Signature

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



Create a Report Layout

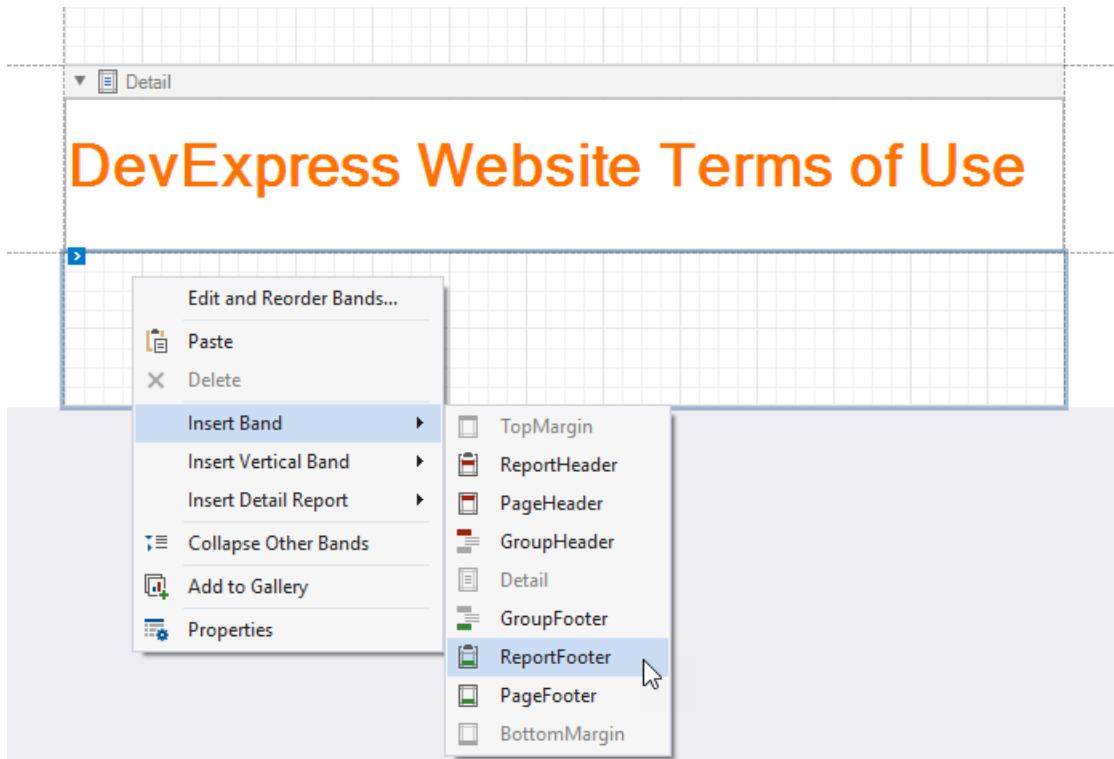
1. Drop the **RichText** control from the report controls Toolbox tab onto the **Detail** band.



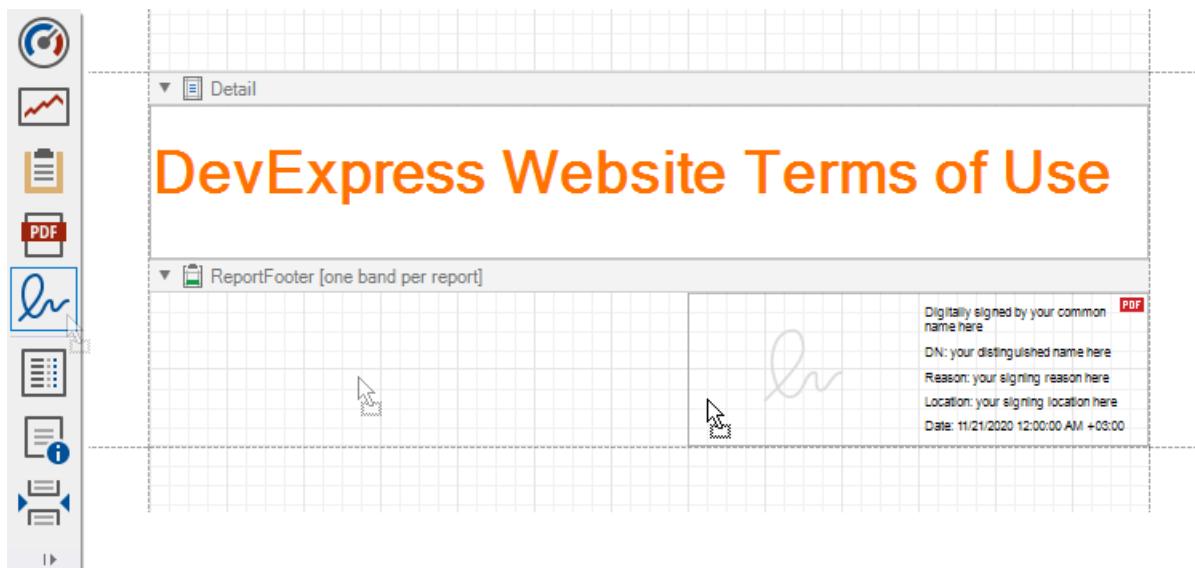
2. Double-click the control and insert the [DevExpress Website Terms of Use](#) text.



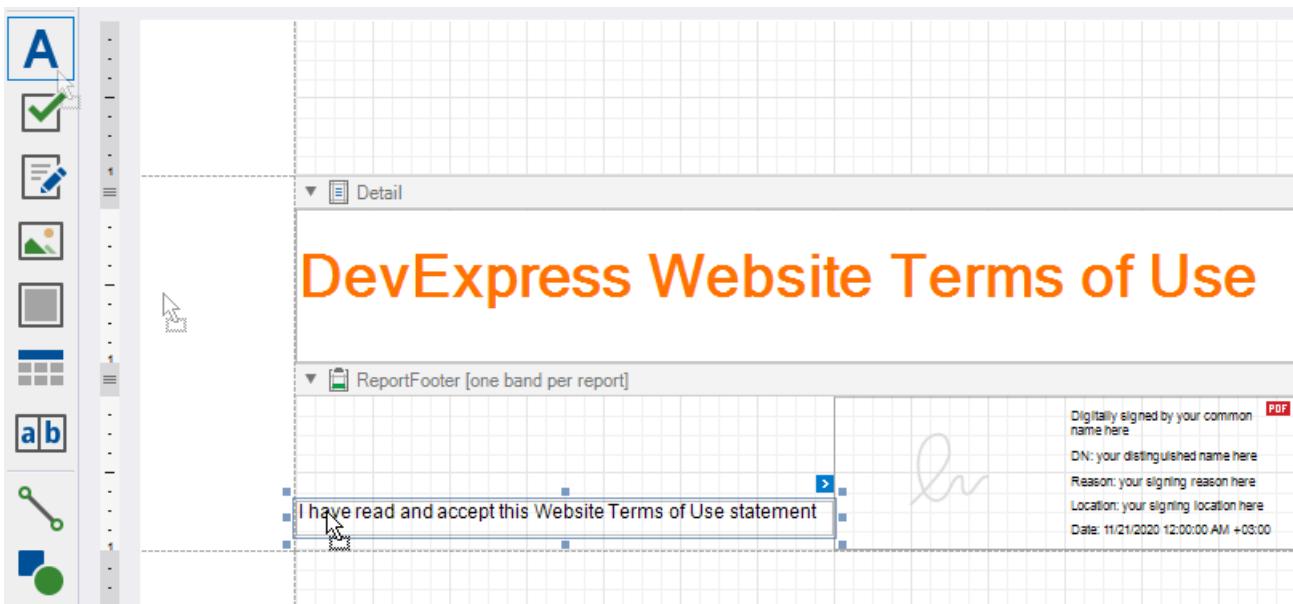
3. Right-click the design surface. Select **Insert Band / ReportFooter** from the context menu. Enable the footer band's **Print at Bottom** property.



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



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



Click the **Preview Tab** to show the result.

DevExpress Website Terms of Use

1. INTRODUCTION

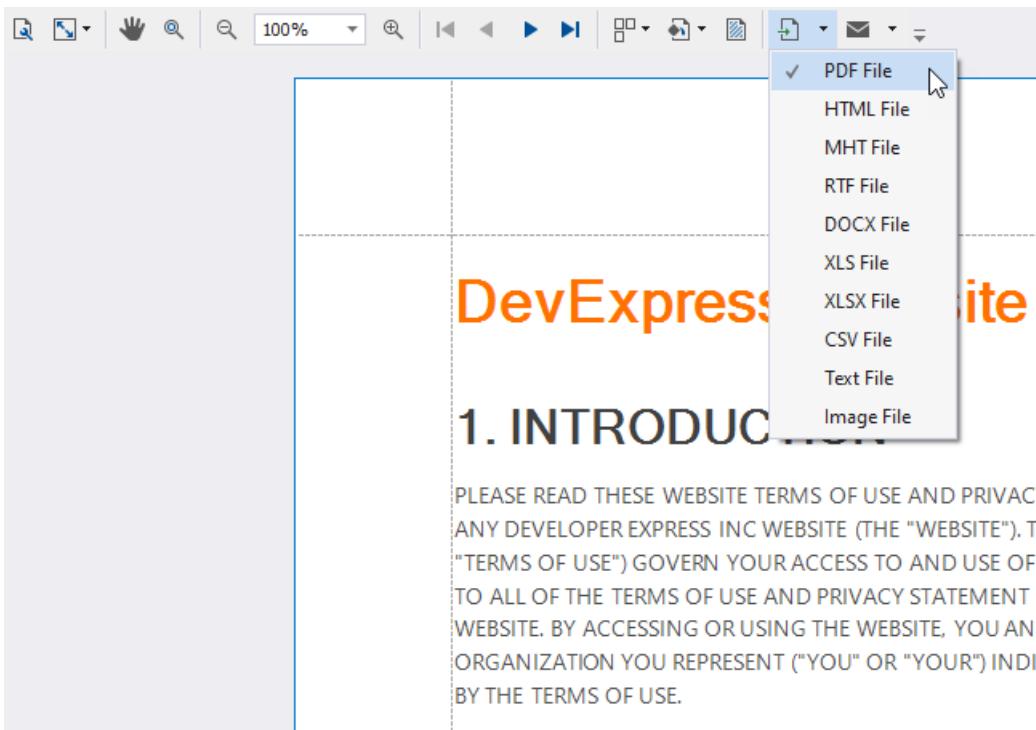
PLEASE READ THESE WEBSITE TERMS OF USE AND PRIVACY STATEMENT CAREFULLY BEFORE USING ANY DEVELOPER EXPRESS INC WEBSITE (THE "WEBSITE"). THESE WEBSITE TERMS OF USE (THE "TERMS OF USE") GOVERN YOUR ACCESS TO AND USE OF THE WEBSITE. IF YOU DO NOT AGREE TO ALL OF THE TERMS OF USE AND PRIVACY STATEMENT SET 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.

I have read and accept this Website Terms of Use statement

Digitally signed by your common name here
DN: your distinguished name here
Reason: your signing reason here
Location: your signing location here
Date: 11/21/2020 12:00:00 AM +03:00

Export and Sign the Report

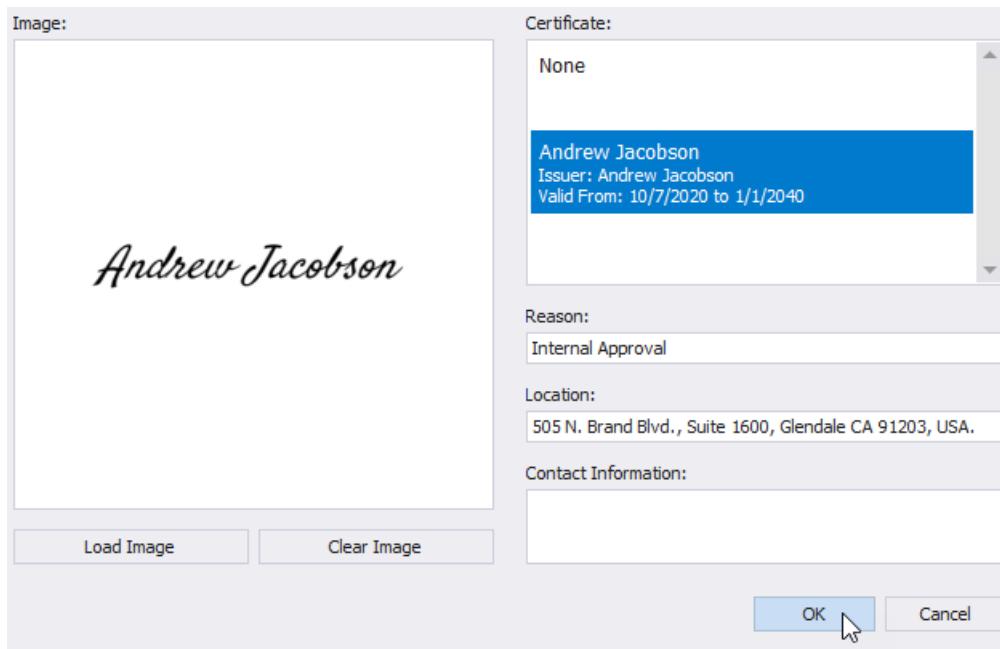
1. In **Preview**, click **Export Document** and select **PDF File**.



2. In the invoked **PDF Export Options** dialog, click the **Digital Signature** option's ellipsis button.

A screenshot of a web browser window. The page content includes the text "DevExpress Web" and "1. INTRODUCTION". Below this is a large block of legal text about website terms of use and privacy. A "PDF Export Options" dialog box is overlaid on the page. The dialog has various settings: "Page range:" (empty), "Don't embed these fonts:" (empty), "Export editing fields to AcroForms" (unchecked), "Convert images to JPEG" (checked), "Image quality:" set to "Highest", "PDF/A compatibility:" set to "None", "Password security:" set to "(none)", "Digital signature:" (button with "..."), "Application:" (empty), "Author:" (empty), "Keywords:" (empty), "Subject:" (empty), and "Title:" (empty). The "Digital signature:" button is highlighted with a red box and has a cursor pointing at its ellipsis (...).

3. In the invoked **Signature Options** dialog, choose a certificate and specify signature details.



Save and open 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
DN: CN=Andrew Jacobson
Reason: Internal Approval
Location: 505 N. Brand Blvd., Suite 1600, Glendale CA 91203, USA.
Date: 11/21/2020 4:58:17 PM +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 a Report's Measurement Units

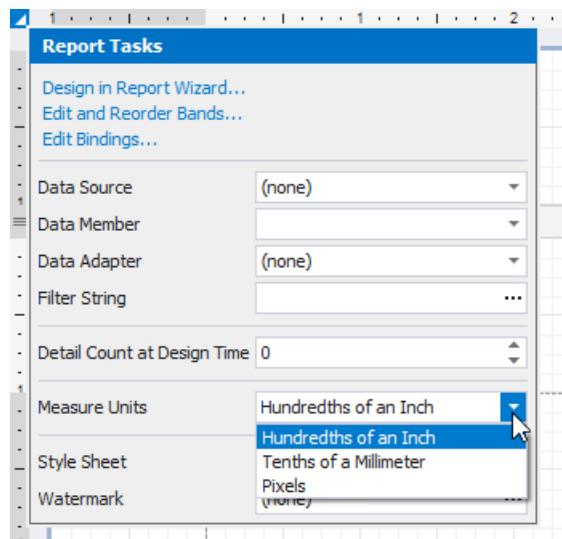
Most metrics of report elements (i.e., element locations, dimensions and margins) can be expressed in units that correspond to one of the following systems of measurement.

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

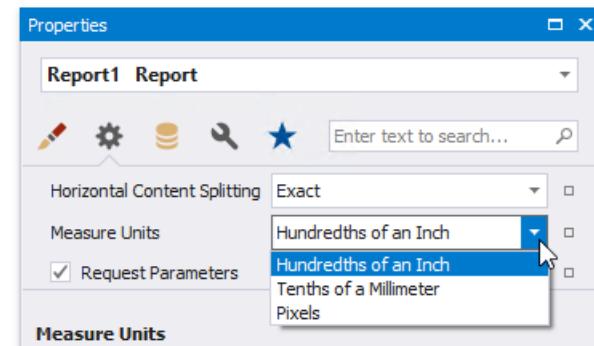
This is the default system that is assigned to each new report.

- **Metric system** (in tenths of a millimeter)
- **Screen coordinates** (in pixels)

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



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



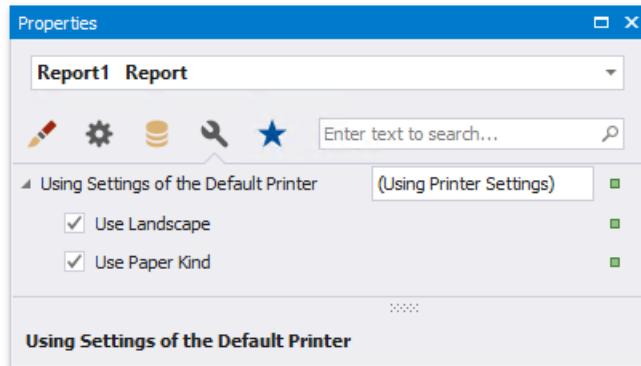
Changing the system of measurement results in converting the corresponding property values and updating the layout of all report elements in the Report Designer. Notably, the system of measurement determines the minimum increment with which an element's [location and size](#) can be changed.

Change a Report's Page Settings

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

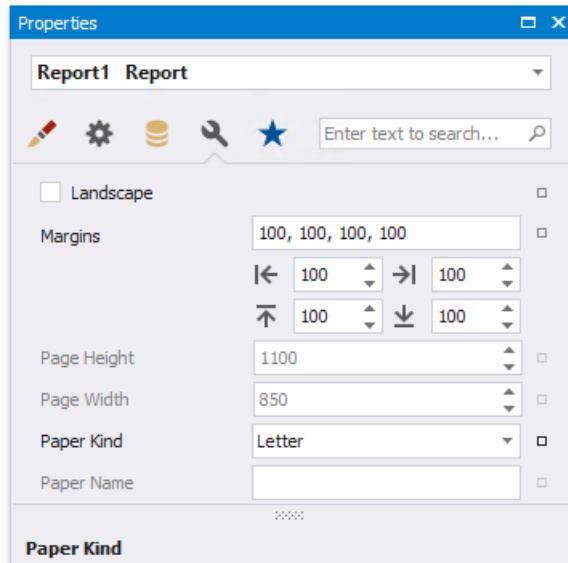
Use Settings of the Default Printer

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



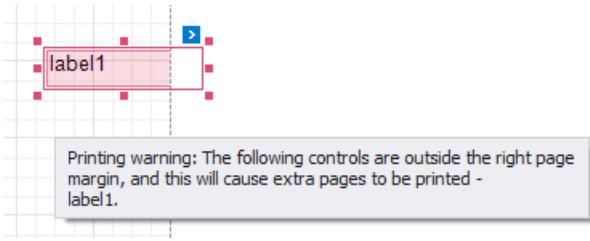
Specify the Report's Page Settings

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



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

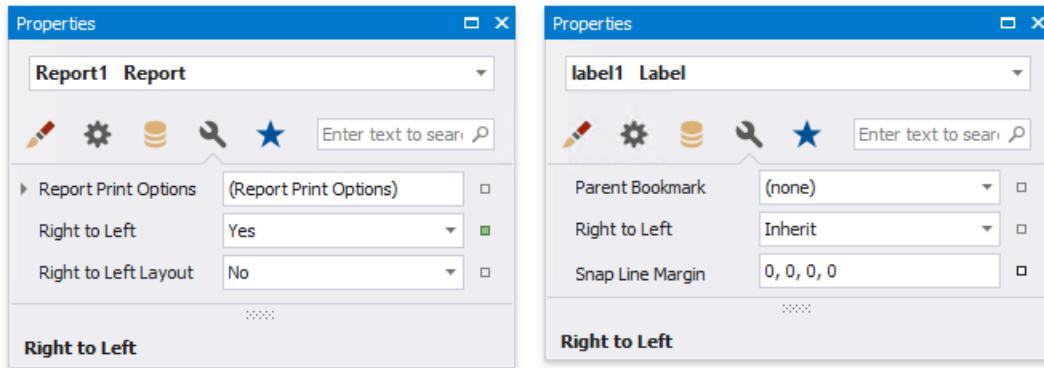
These settings affect the layout of the report's design surface. After their modification, you may notice red warning marks, indicating that the controls go beyond the page width. These warnings can be switched off by setting the **Show Printing Warnings** property of the report to **No**.



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

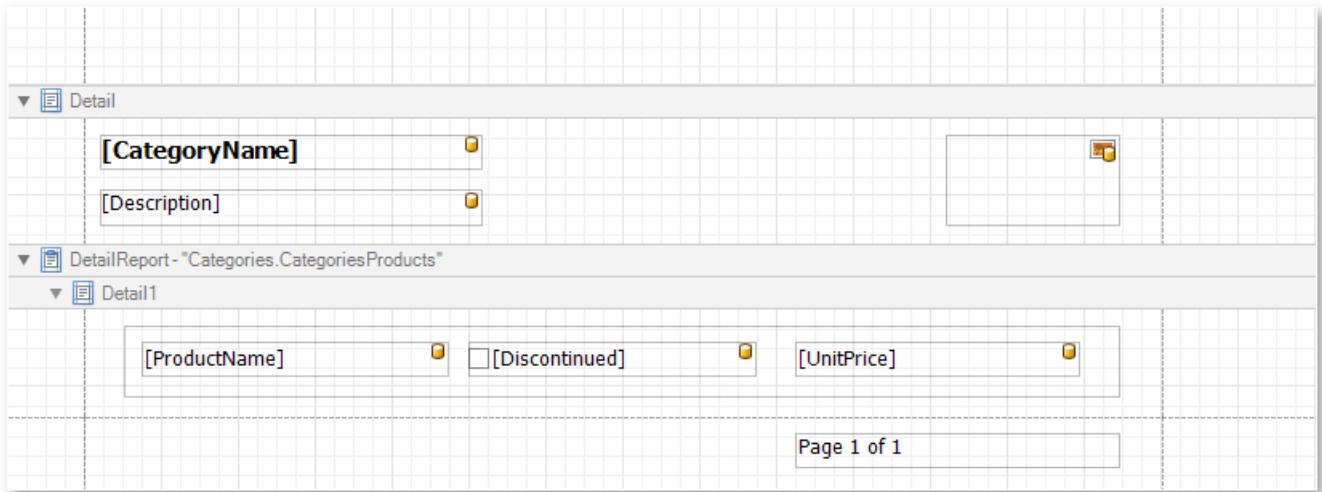
Enable the Right-To-Left Layout

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

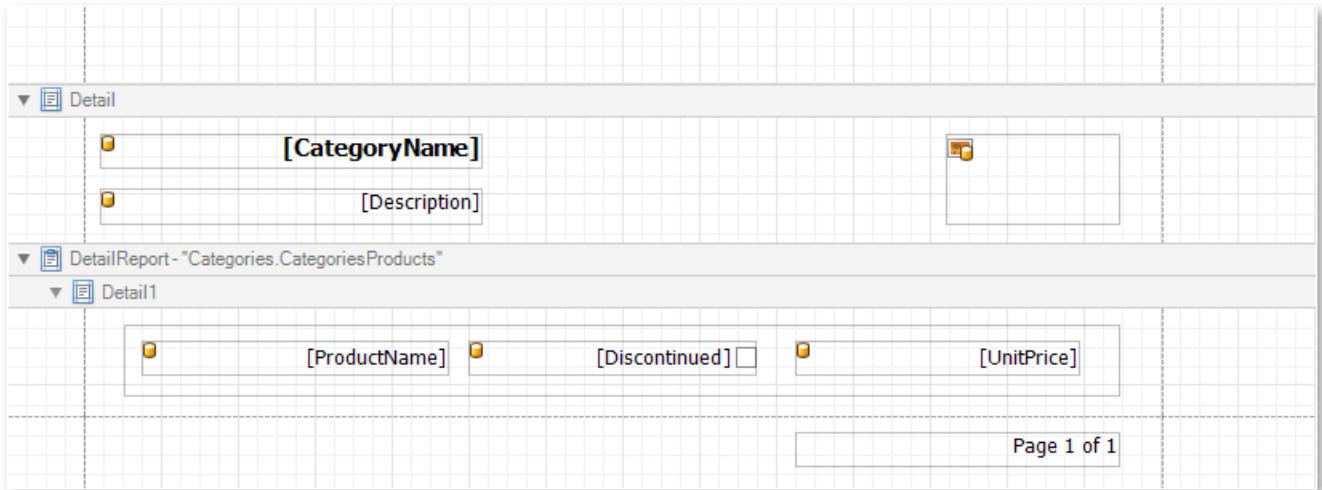


This property specifies content layout within a control (for most controls, this property affects the direction of their text, and for the [Check Box](#), this property also affects the check box position within the control).

- **Left-To-Right**



- **Right-To-Left**



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

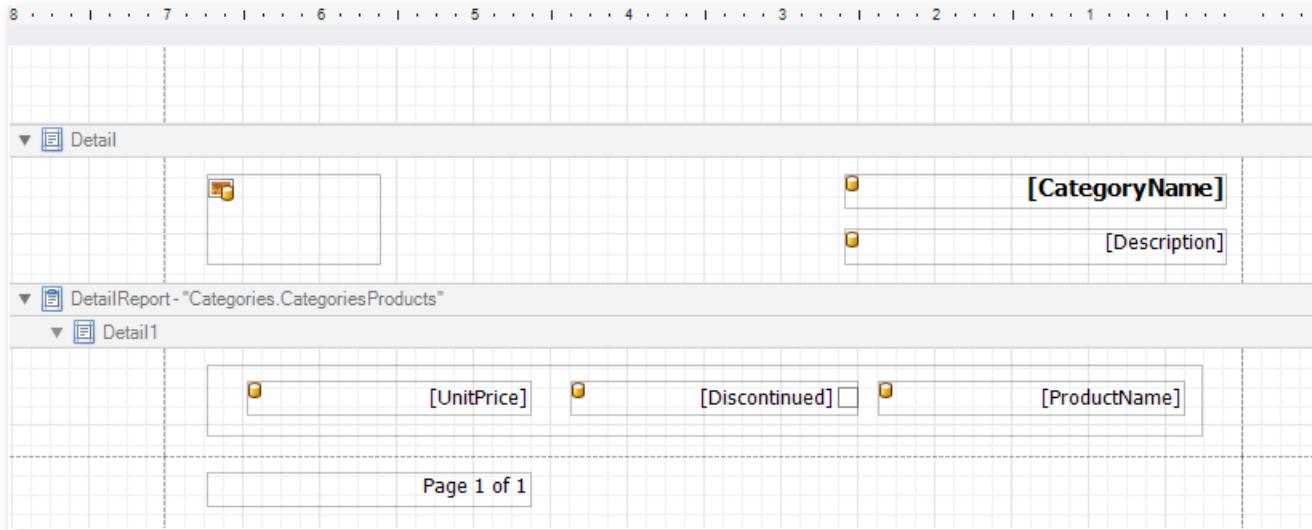
The following controls support this feature:

- **Label**

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

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

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



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

The right-to-left layout is preserved when exporting a report to any of the [supported formats](#) (e.g., PDF, Excel, or RTF).

Use Report Elements

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

- [Manipulate Report Elements](#)
- [Bind Controls to Data](#)
- [Use Embedded Fields \(Mail Merge\)](#)
- [Update Report Data Bindings](#)
- [Use Basic Report Controls](#)
- [Use Tables](#)
- [Use Barcodes](#)
- [Use Charts and Pivot Grids](#)
- [Use Gauges and Sparklines](#)
- [Draw Lines and Shapes](#)

Manipulate Report Elements

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

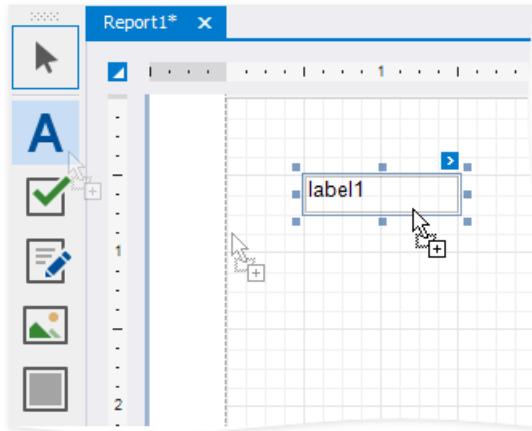
- [Add Controls to a Report](#)
- [Select Report Elements and Access Their Settings](#)
- [Move and Resize Report Elements](#)
- [Apply Styles to Report Elements](#)
- [Copy Report Controls](#)
- [Reuse Report Controls](#)
- [Arrange Report Controls](#)
- [Convert Labels to Table](#)
- [Add Report Controls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

Add Controls to a Report

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

Add Controls from the Standard Controls Bar

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

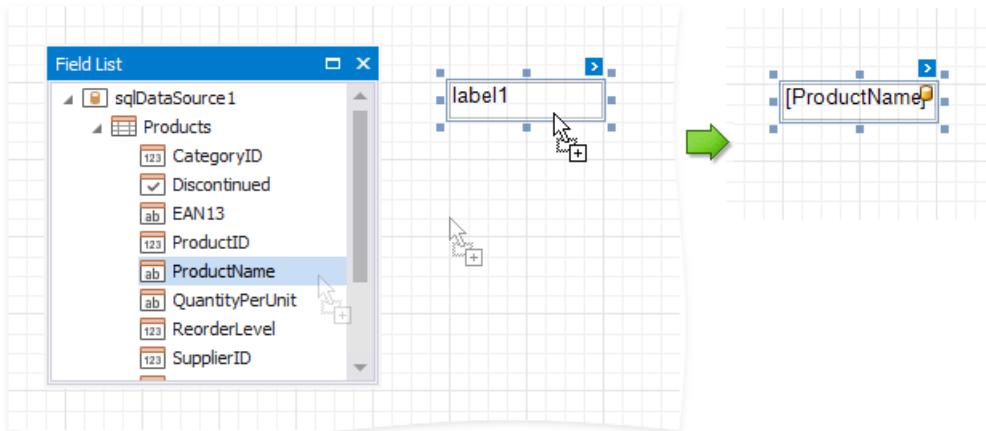


Add Data-Bound Controls from the Field List

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

Add a Control

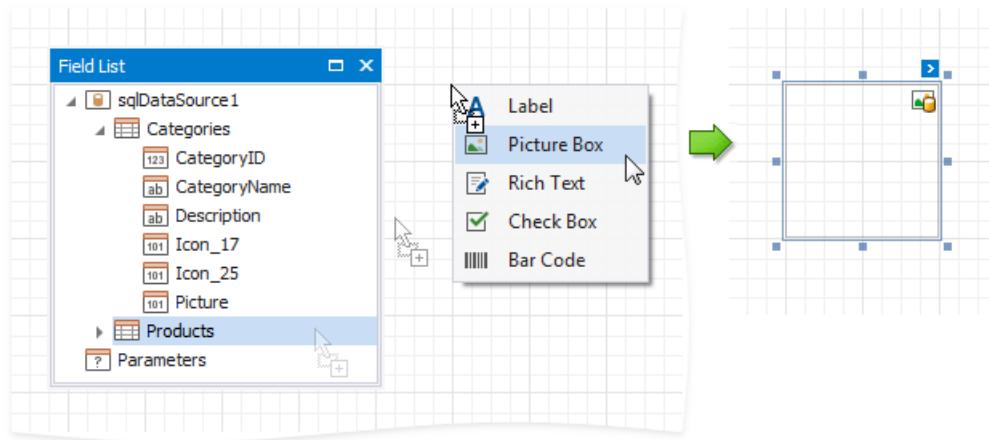
Drag a field from the [Field List](#) and drop it onto the report's surface.



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

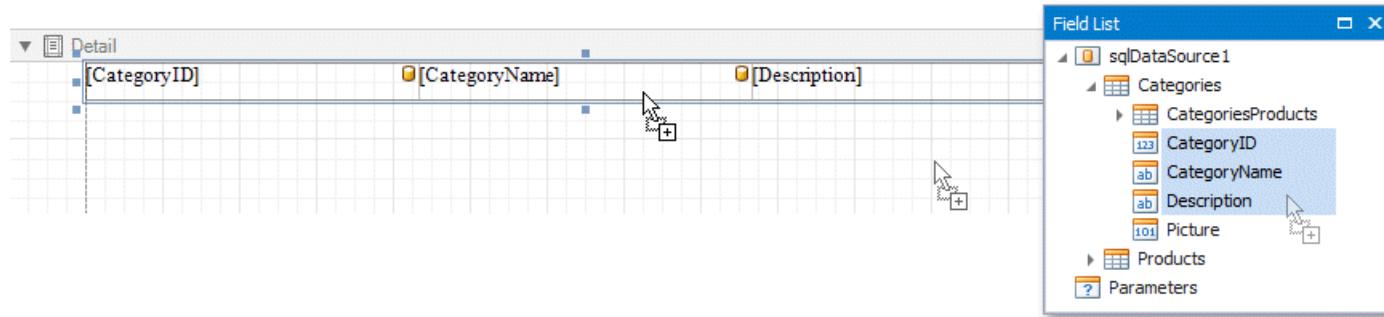
- Hold down the SHIFT key and drop a data field onto a report's surface.
- Right-click a data field and drop it onto a report's surface.

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

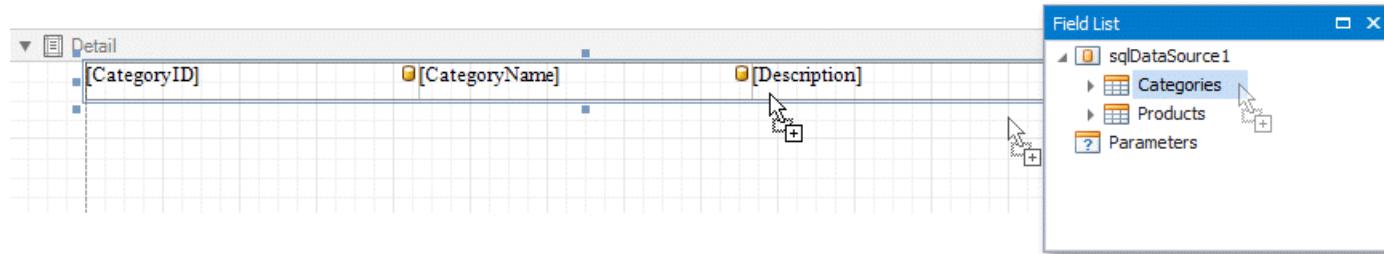


Add a Table

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

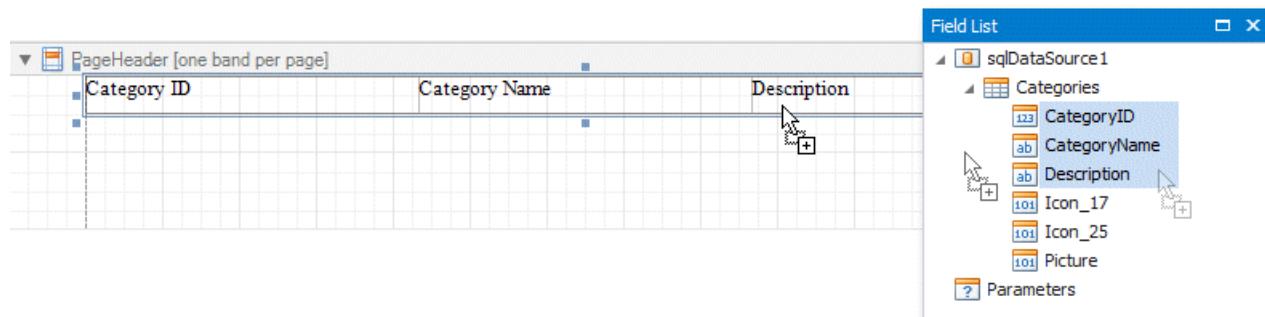


Drop an entire data table from the [Field List](#) to add a report table with columns bound to the data table's fields.



To add column headers, do either of the following:

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

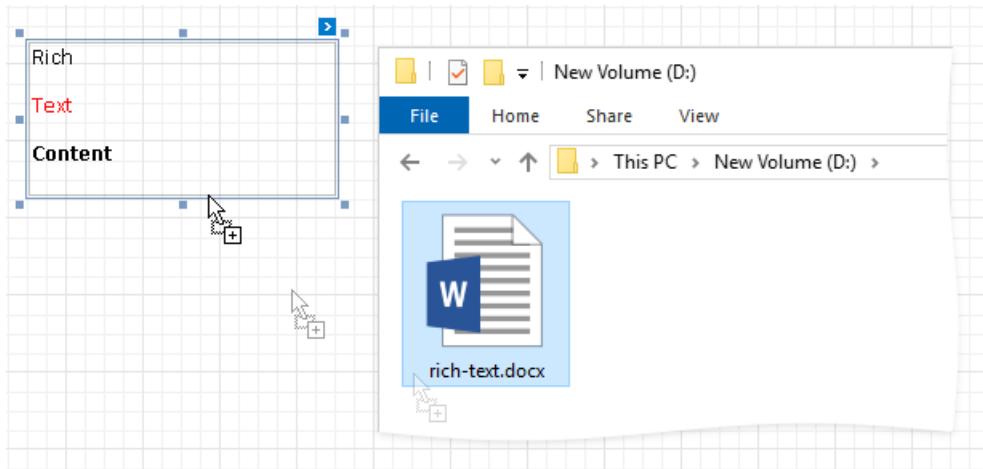


This adds a new table whose cells display the field names.

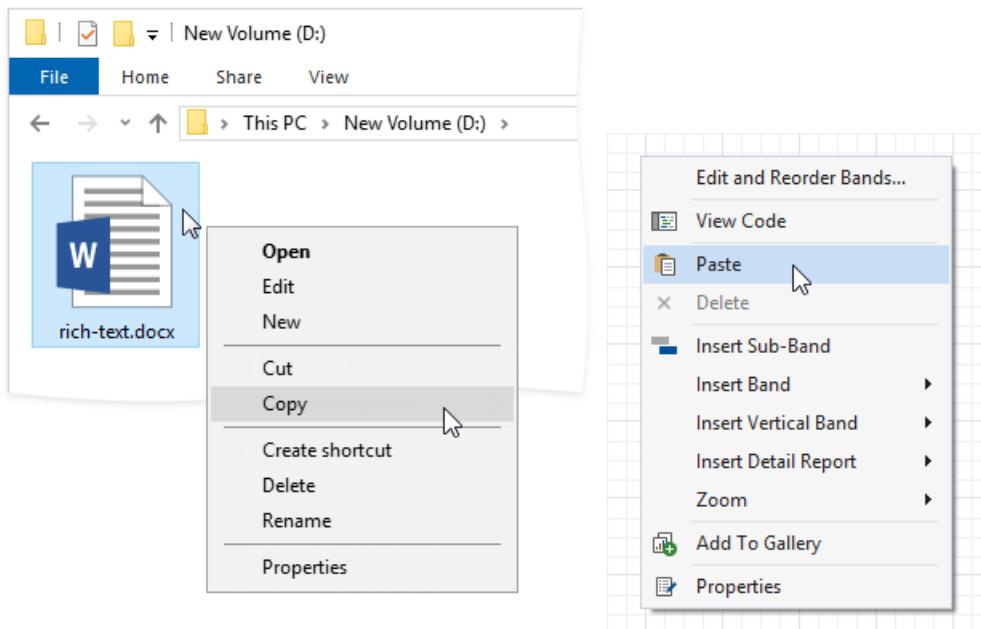
Add Content from External Sources

You can add text and graphics from external applications to your reports:

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



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



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

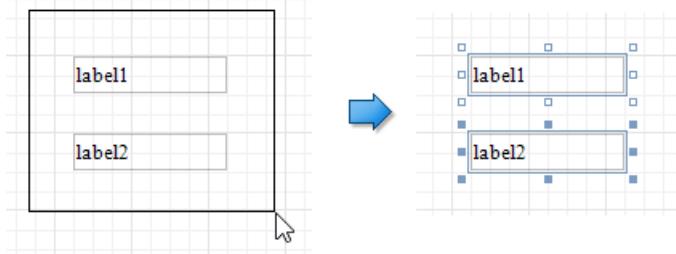
FILE TYPE	CONTROL
.TXT	A Label control that contains file contents.
.DOC, .DOCX, .RTF, .HTM, .HTML	A Rich Text control that contains file content.
.JPG, .PNG, .BMP, .GIF, .TIF, .SVG	A Picture Box control that contains the image.

Select Report Elements and Access Their Settings

You can click a report control or band to select it, and press TAB/SHIFT+TAB to select the next/previous control.

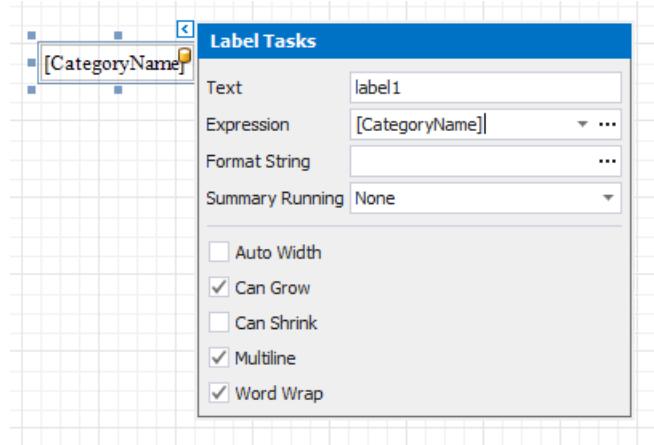
Do one of the following to select multiple report controls:

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

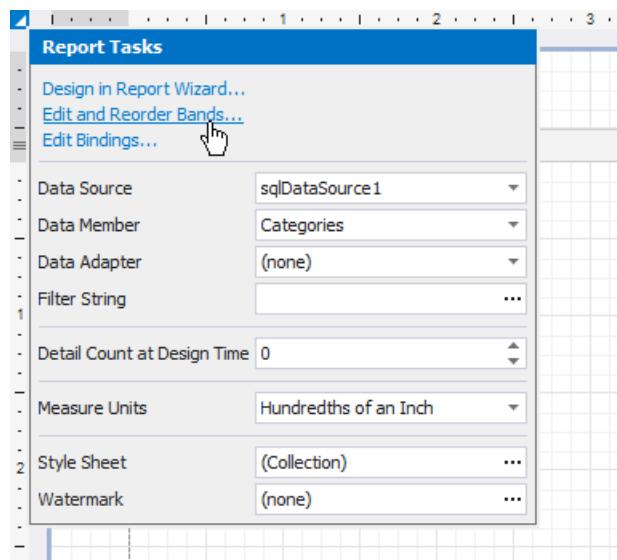


Click the gray area around the design surface to select a report.

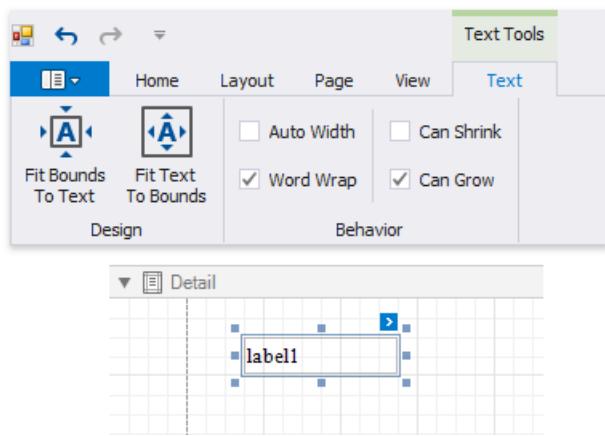
You can use smart tags to access the most commonly used element properties. Smart tags are available for reports and most report controls and bands.



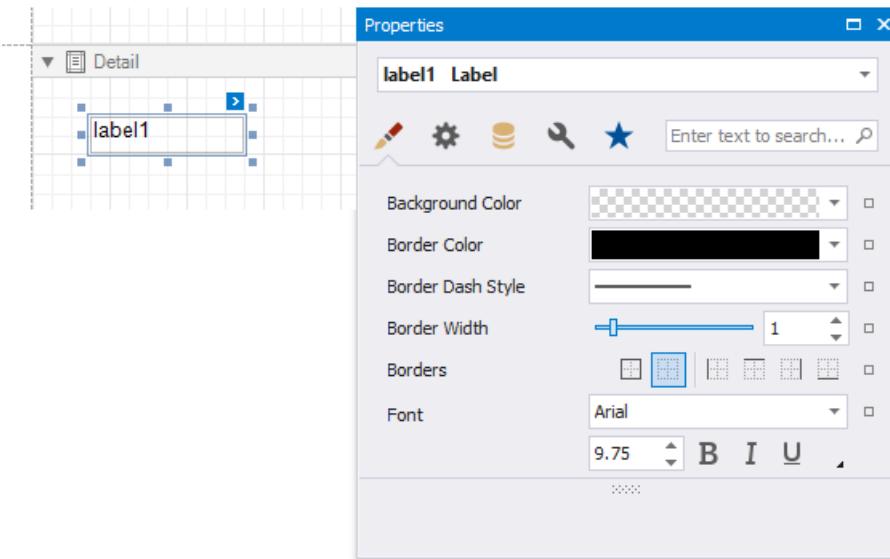
Smart tags can also contain context links that enable you to perform various actions.



The [Toolbar](#) provides a corresponding contextual tab when you select a report control. This tab allows you to specify settings and perform actions applicable to the selected element's type.



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

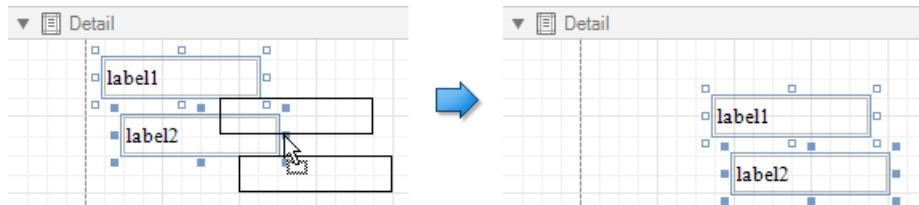


Move and Resize Report Elements

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



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



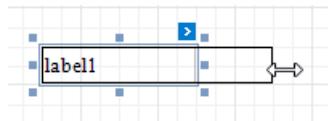
You can also use the [Report Explorer](#) to move a control. You can move controls to other bands (except the **DetailReport** band), or into a **Panel** or **TableCell** controls. Select a control and drag it (either within the Report Explorer or to the design surface). The drop targets are highlighted when you drag the control over them.

A screenshot of the DevExpress Report Designer interface. The main area shows a table with columns for Contact Name, Contact Title, Phone, Fax, Home Page, and Address, each containing a placeholder expression like '[ContactName]'. To the right, the 'Report Explorer' window is open, showing the hierarchical structure of the report. The 'lbTitle' control is selected and highlighted with a blue border. The 'Report Explorer' tree view includes nodes for XtraReport1, topMarginBand1, ReportHeader1, Detail, DetailReportBand, and Detail. Under 'Detail', 'lbTitle' is listed under 'Detail1'. Other items like xrTable4, xrTableRow4, xrTableCell55, xrTableCell11, etc., are also visible under 'xrTable4'. The 'Report Explorer' tab is active at the bottom of the window.

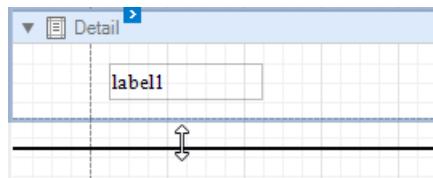
NOTE

You can drag the TableOfContents control only to the **ReportHeader** and **ReportFooter** bands.

To resize a control, select it and then drag a rectangle drawn on its edge or corner.



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

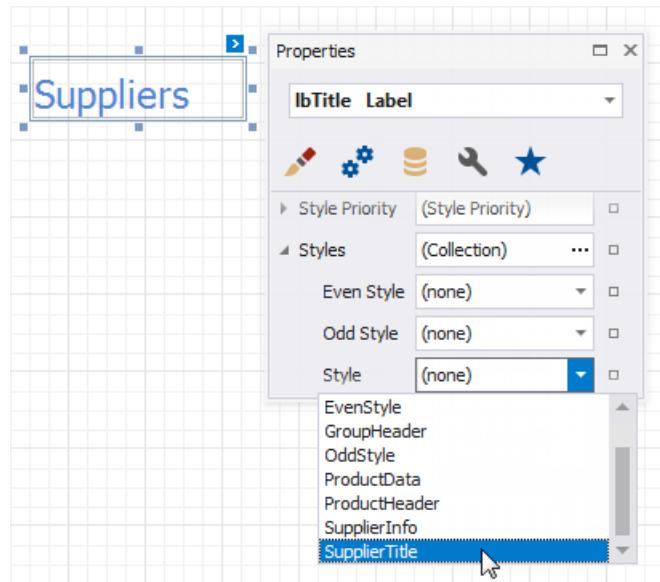


You can also press SHIFT+ARROW or CTRL+SHIFT+ARROW to resize a selected element.

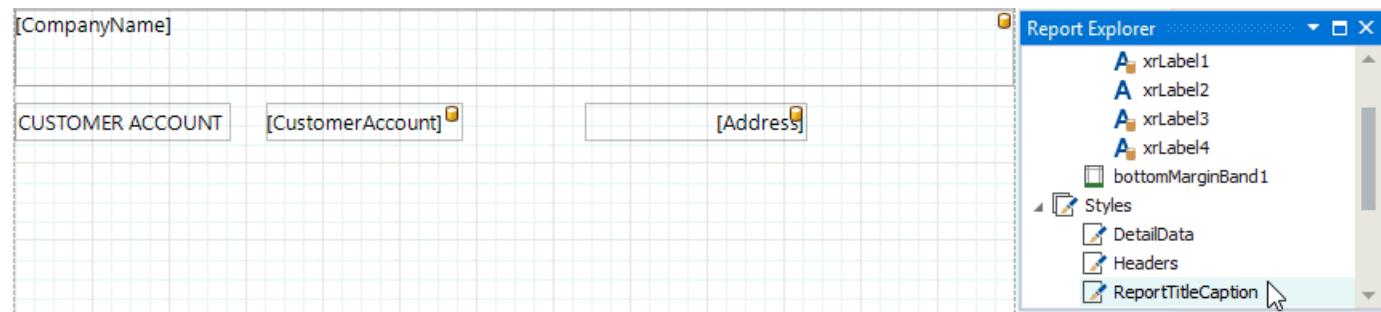
See [Arrange Report Controls](#) for information about tools that help you align report controls to each other and layout edges.

Apply Styles to Report Elements

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

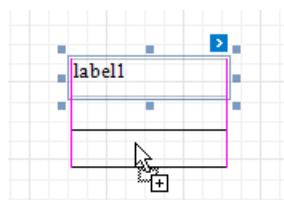


As an alternative, you can drag a style from the [Report Explorer](#) onto a control.



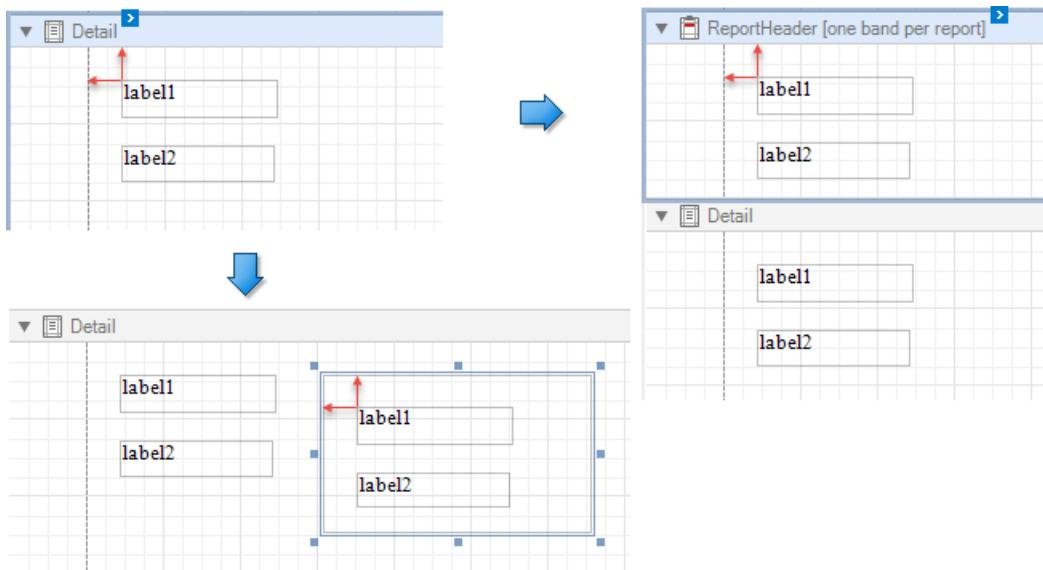
Copy Report Controls

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



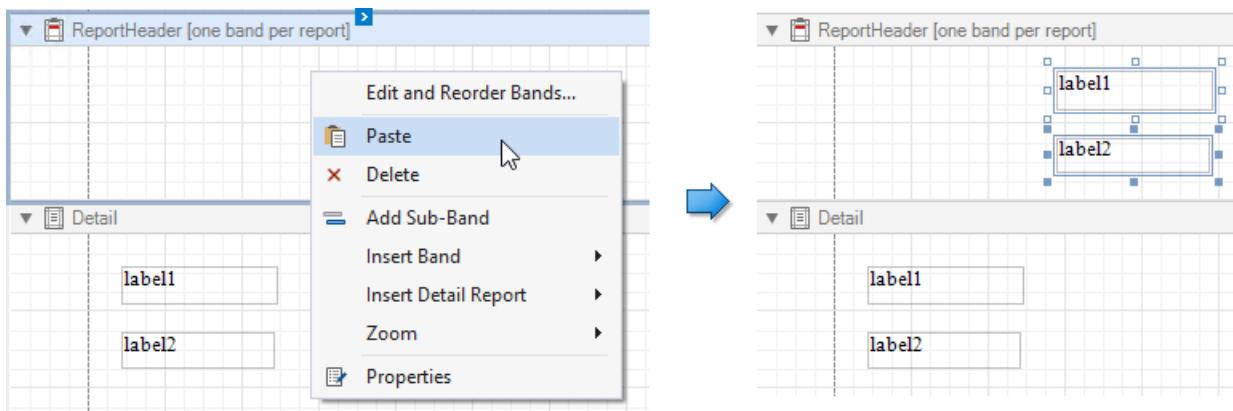
You can also copy report controls to the clipboard using CTRL + C or the **Copy** command, and then paste these controls to a new container or band.

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



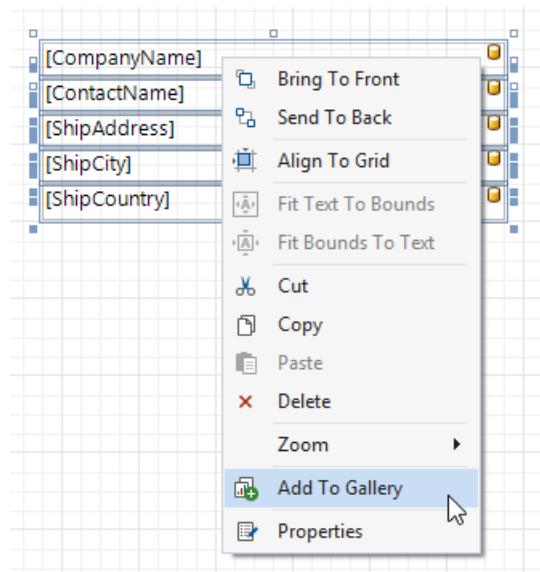
The pasted controls are repositioned by an offset of 10 units on both axes if another control already occupies the target position.

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

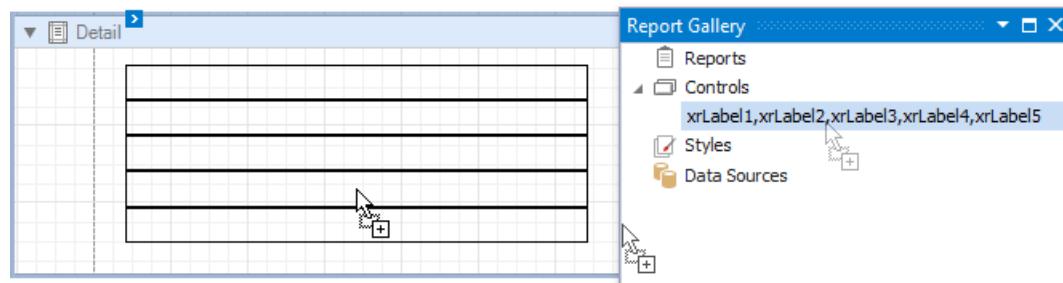


Reuse Report Controls

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



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



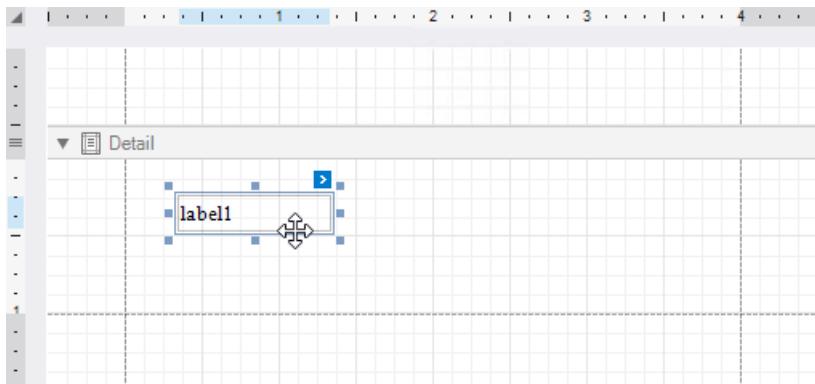
A template stores various settings related to its controls, such as binding information and appearance options. All these settings are restored after you add controls to a report.

Arrange Report Controls

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

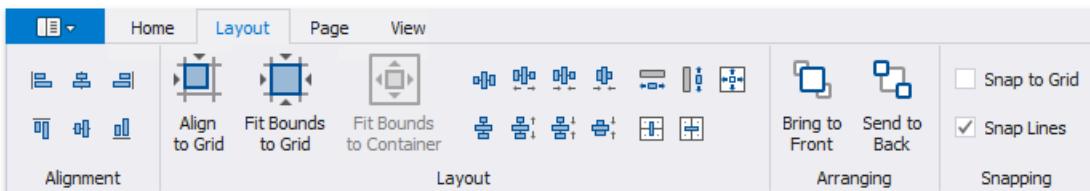
- **Rulers**

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



- **Layout Toolbar**

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

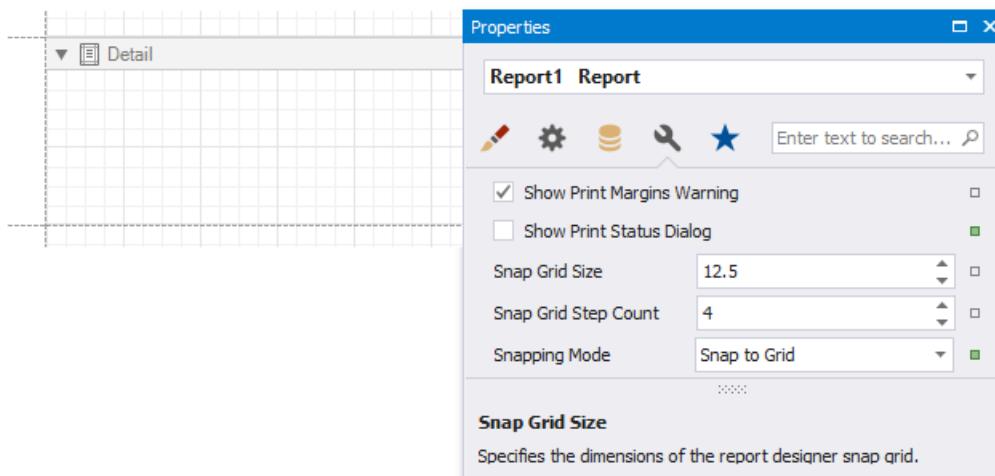


- **Snapping**

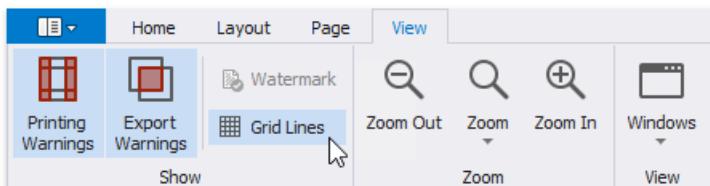
Use the **Snapping** toolbar group or a report's **Snapping Mode** property to enable automatic report control snapping to a grid and/or snap lines.

- **Snap Grid**

The design surface displays a visual grid that allows you to determine elements' size and location in a report. Use the **Snap Grid Size** and **Snap Grid Step Count** properties to customize the grid's settings.

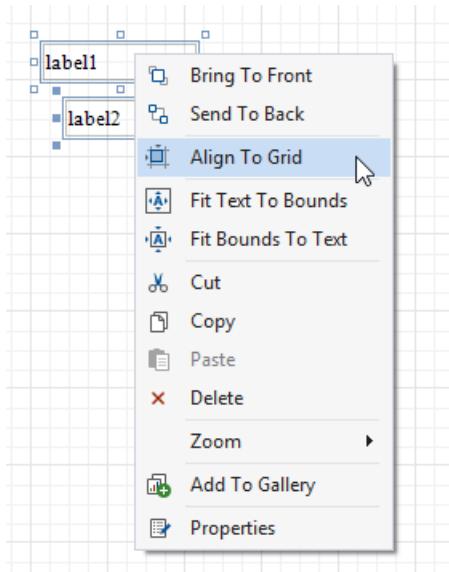


To hide the grid, disable the **Grid Lines** option in the toolbar's **View** tab or disable a report's **Draw the Grid** property.



A report control is aligned to the nearest grid cell when moved with the mouse or ARROW keys.

You can use the **Align to Grid** toolbar button or context menu item to align the selected controls to the grid cells.

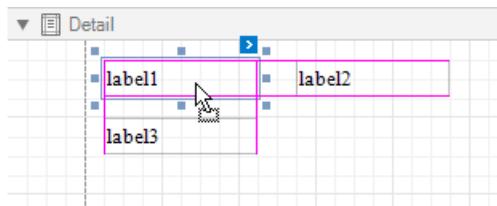


You can temporarily ignore snapping when you move and resize controls:

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

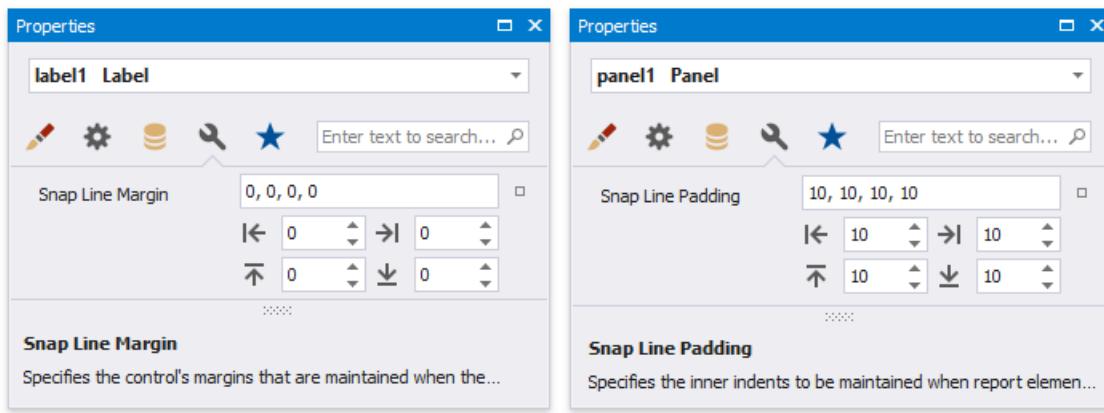
o **Snap Lines**

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



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

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



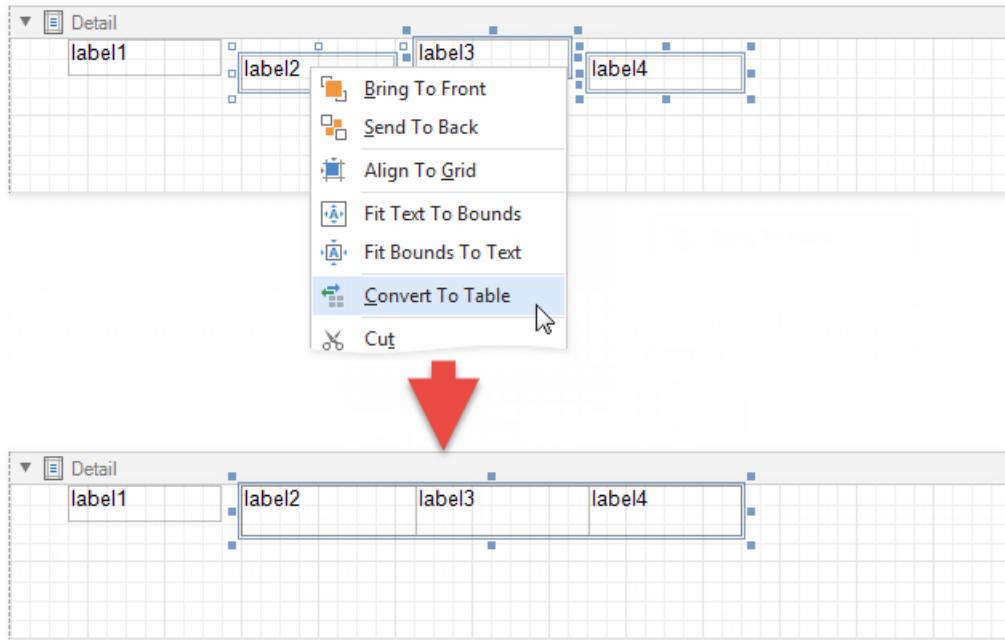
To avoid snapping controls, do the following:

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

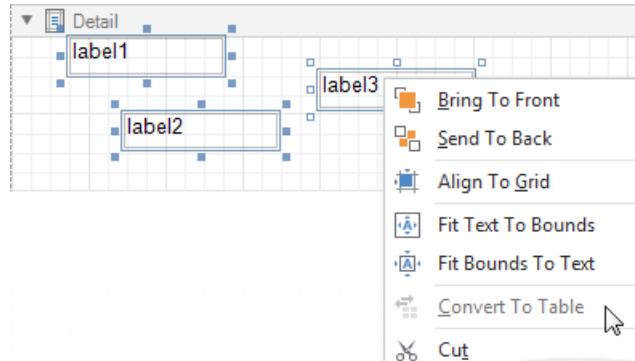
Convert Labels to Table

You can convert multiple [labels](#) to a [table](#) to simplify control alignment.

Hold CTRL or SHIFT and click labels to select them. Right-click any of the selected labels and select **Convert To Table** from the context menu. A table with one row is added to the report instead of the selected labels.

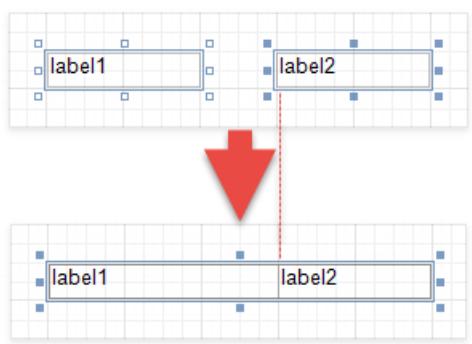


The **Convert To Table** option is not available if any of the selected labels overlap horizontally.



The created table occupies horizontal space from the leftmost label's left edge to the rightmost label's right edge, and vertical space from the topmost label's top edge to the lowest label's bottom edge.

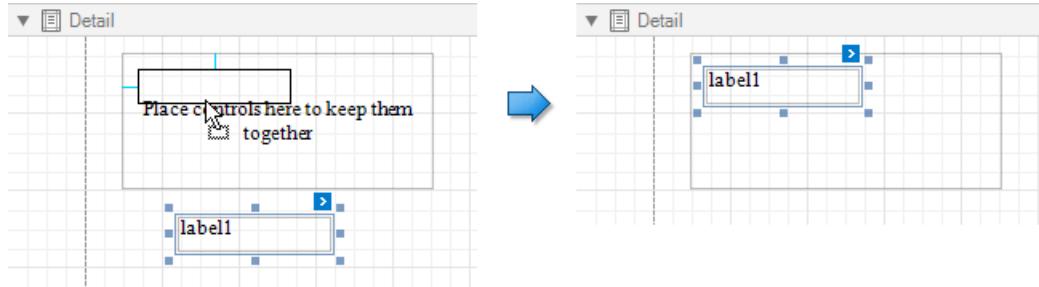
The horizontal gap between labels is included in the left cell.



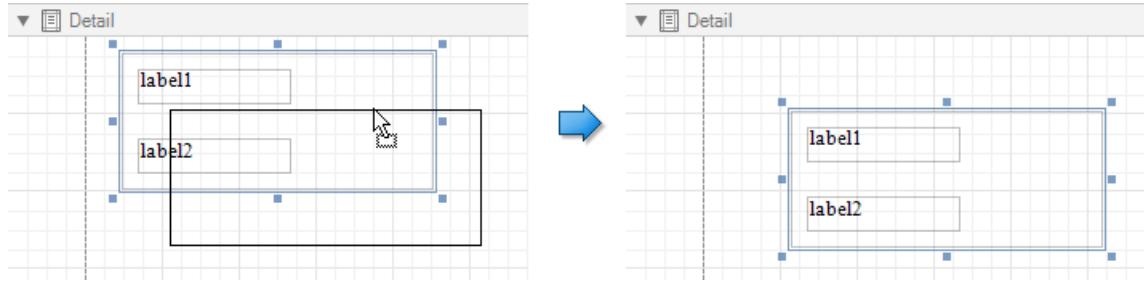
The table cells copy all property values from the labels.

Add Report Controls to Containers

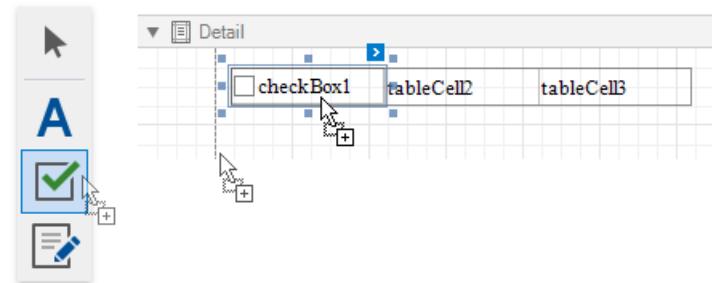
The [Panel](#) control allows you to place various report controls on it to combine them into a group.



You can use this panel to move, copy, change appearance settings, etc. instead of adjusting individual controls.



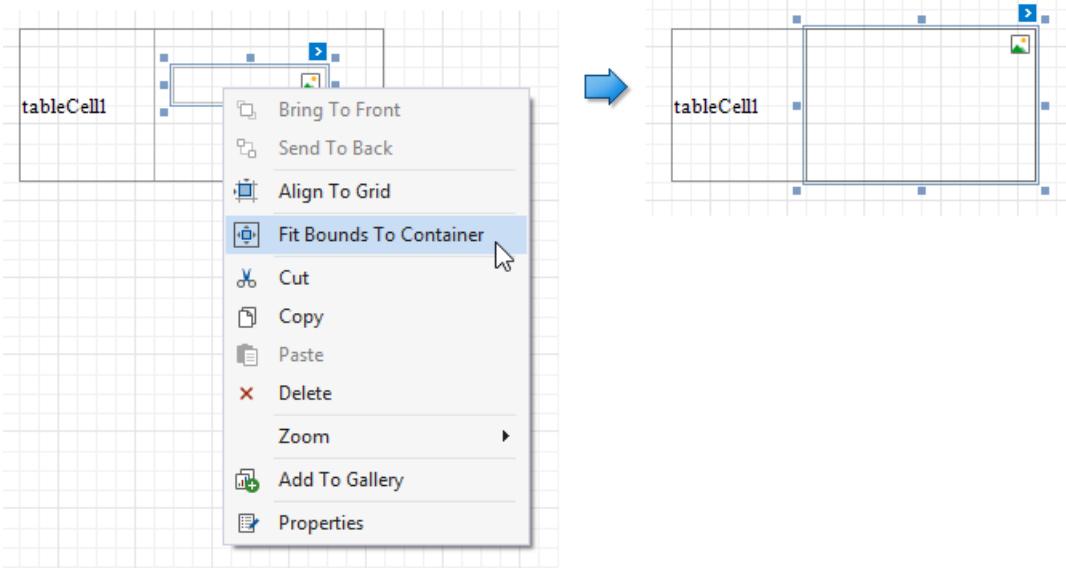
A [table cell](#) can also act as a container for other controls.



Both panel and table cells cannot contain the following report controls:

- [Pivot Grid](#)
- [Subreport](#)
- [Page Break](#)
- [Table of Contents](#)
- [Cross-Band Line and Box](#)

If a panel or table cell includes only one control, you can use the **Fit Bounds to Container** command in the context menu to position the control within the container. This command resizes the control so that it occupies all the available space (except borders).



Validate the Report Layout

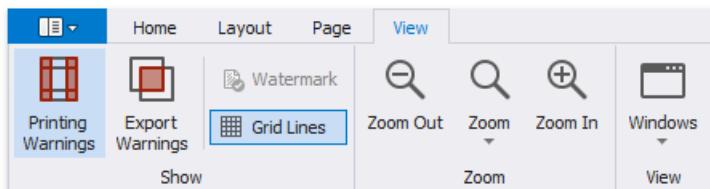
Your report layout should meet the following requirements to correctly print and export it:

- **Avoid overlapping controls**

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

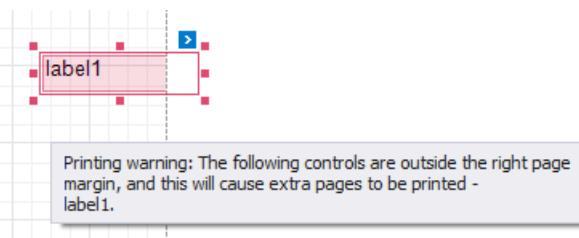


Disable the **Export Warnings** option in the toolbar to ignore this rule and not highlight intersecting controls.

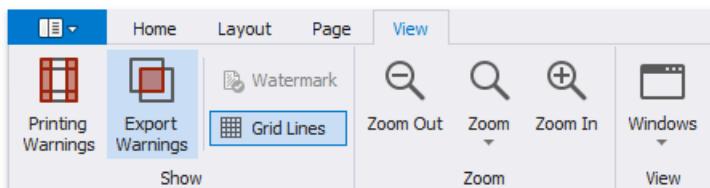


- **Do not place controls outside page margins**

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



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



Bind Report Controls to Data (Expression Bindings)

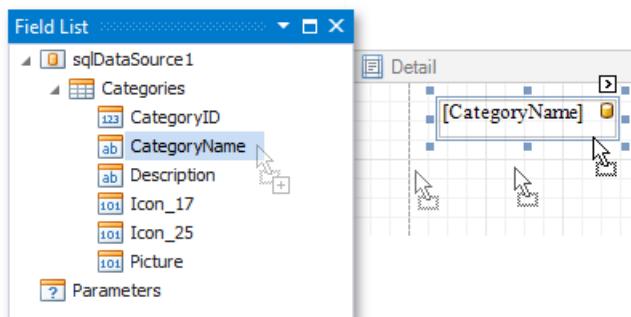
You can use the following approaches to include a data source's information in your report:

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

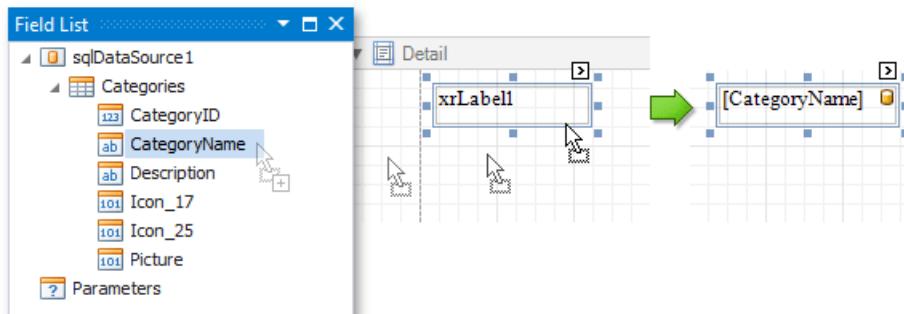
Use the Field List

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

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



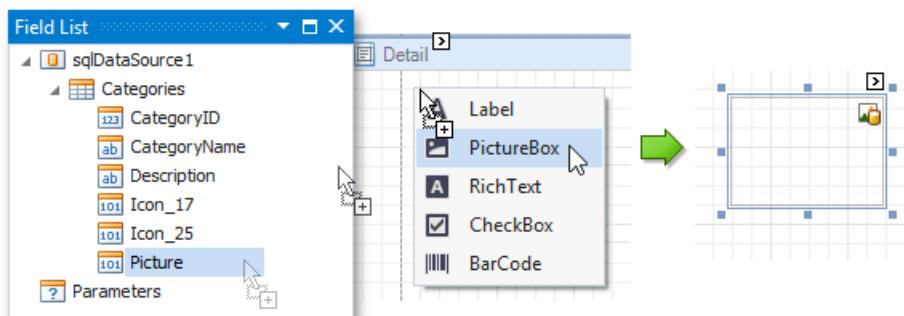
Drop a data field onto an existing control to bind this control to the corresponding field.



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

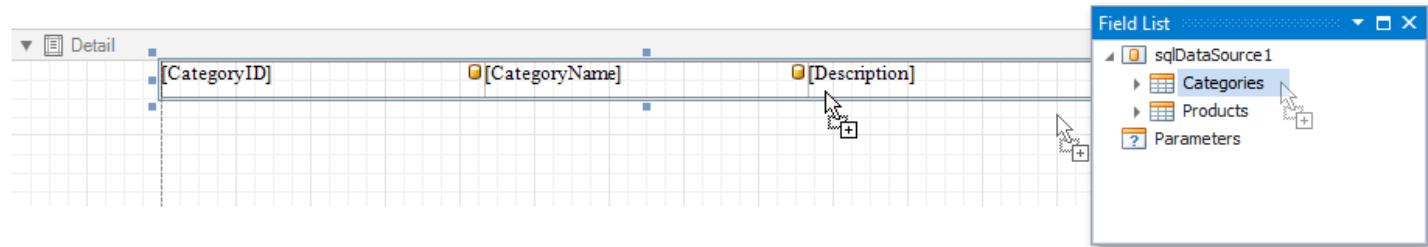
- Hold down the SHIFT key and drop a data field onto a report's surface.
- Right-click a corresponding data field and drop it onto a report's surface.

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

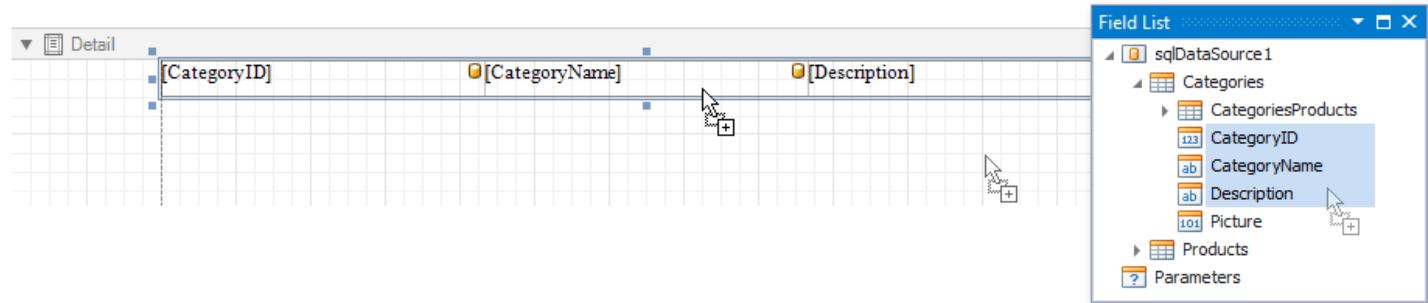


You can also drop an entire data table onto a report to create a [Table](#) control with its cells bound to the corresponding data table

fields.

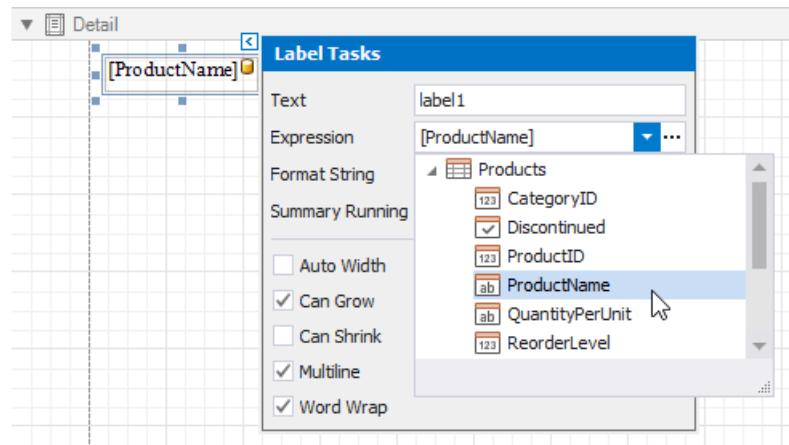


To select multiple fields in the Field List, hold CTRL or SHIFT and click the fields. Drop these fields onto a report to create a new table.

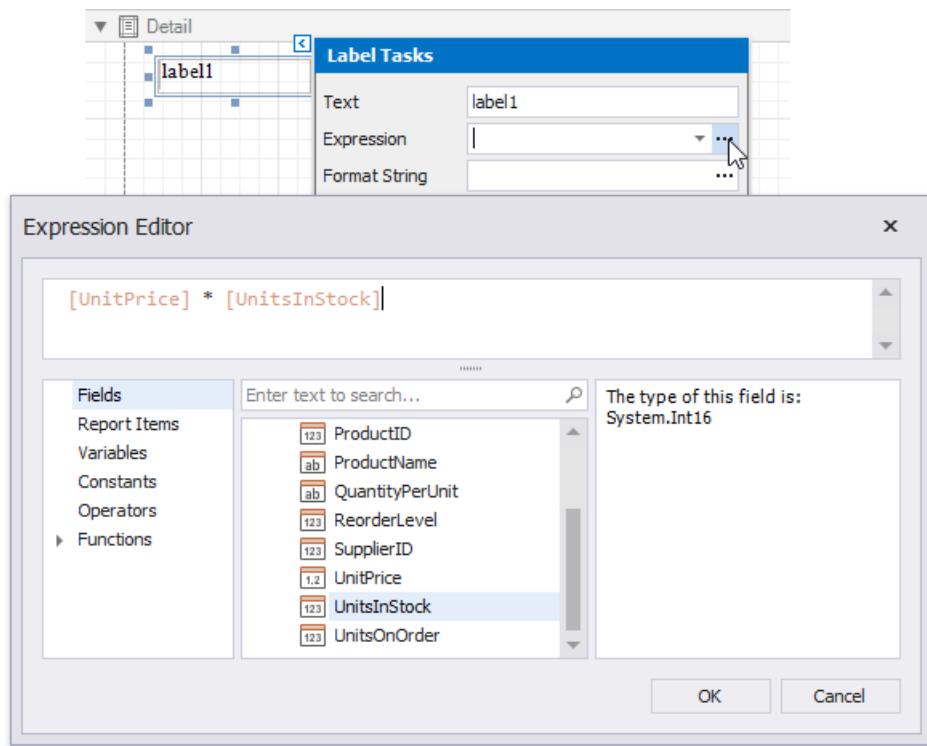


Use the Smart Tag

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

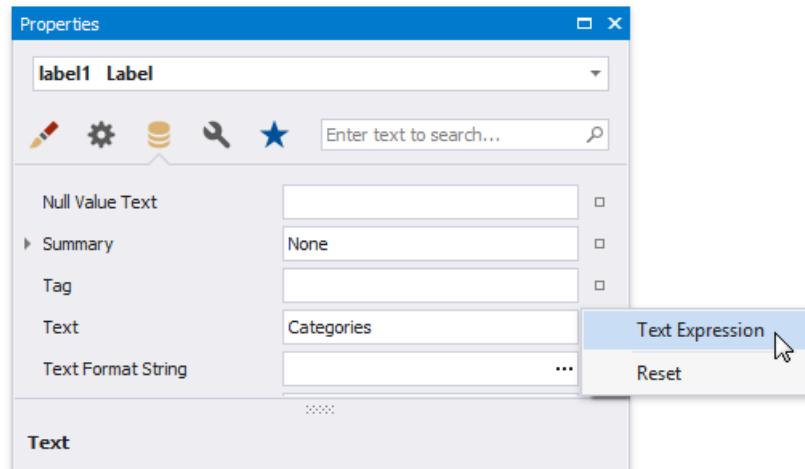


You can also click the **Expression** option's ellipsis button to invoke the **Expression Editor**. This editor allows you to construct a complex binding expression with two or more data fields and various functions. See [Expression Syntax](#) for more information.

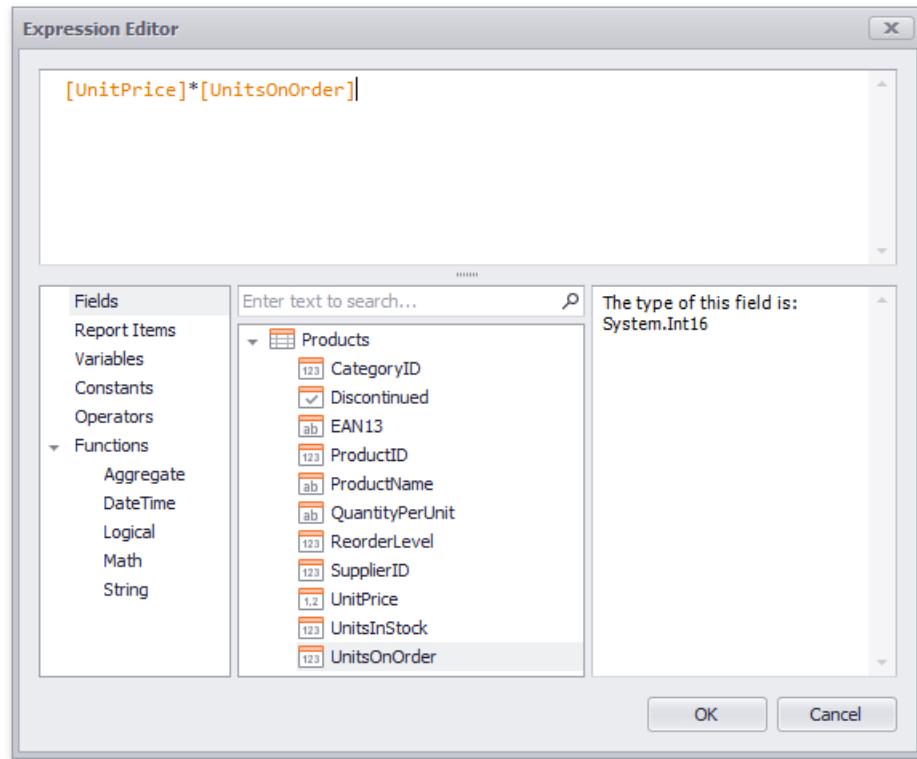


Use the Property Grid

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



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



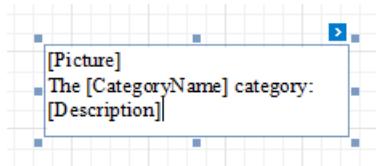
You can use the same approach to specify expressions for all the control properties. See [Shape Report Data](#) for more tutorials.

Use Embedded Fields (Mail Merge)

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

Embed Fields in a Control Text

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

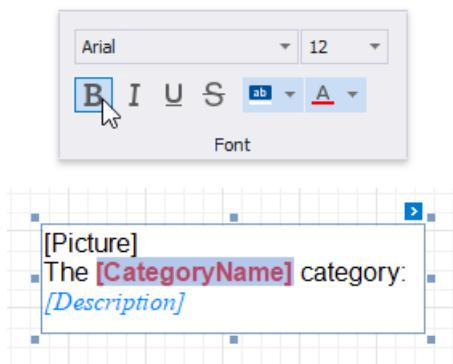


You can embed a [parameter](#)'s value into a control's content using the **[?ParameterName]** syntax.



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

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



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

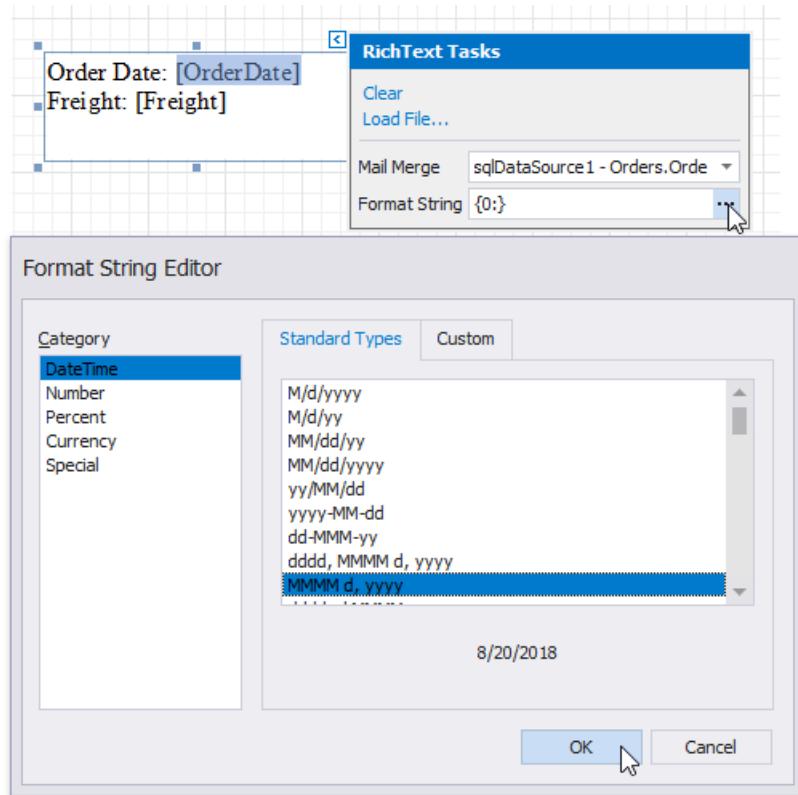


Consider the following specifics and limitations when using embedded fields:

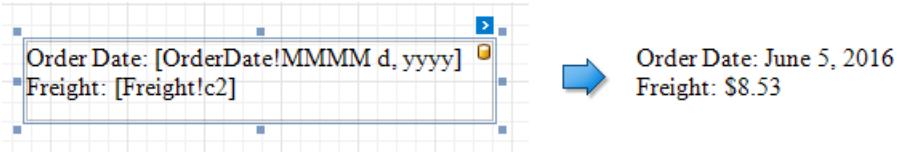
- Field names should not use spaces to be interpreted correctly.
- Mail Merge is not available for a table's nested fields in a master-detail hierarchy.
- Embedded fields cannot be exported to [XLS](#) and [XLSX](#) as values; they are always exported as plain text. We recommend using [text formats](#)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

Format Embedded Fields

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



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



Supported Controls

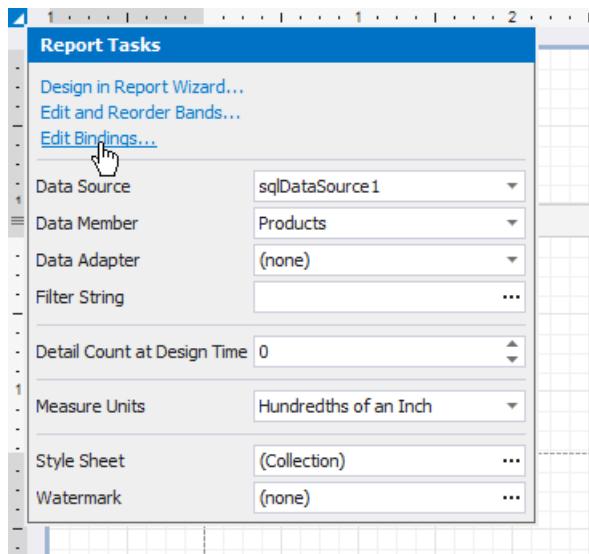
You can apply the mail merge feature to the **Text** of the following report controls:

- [Barcode](#)
- [Character Comb](#)
- [Check Box](#)
- [Label](#)
- [Rich Text](#)
- [Table Cell](#)

Update Report Data Bindings

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

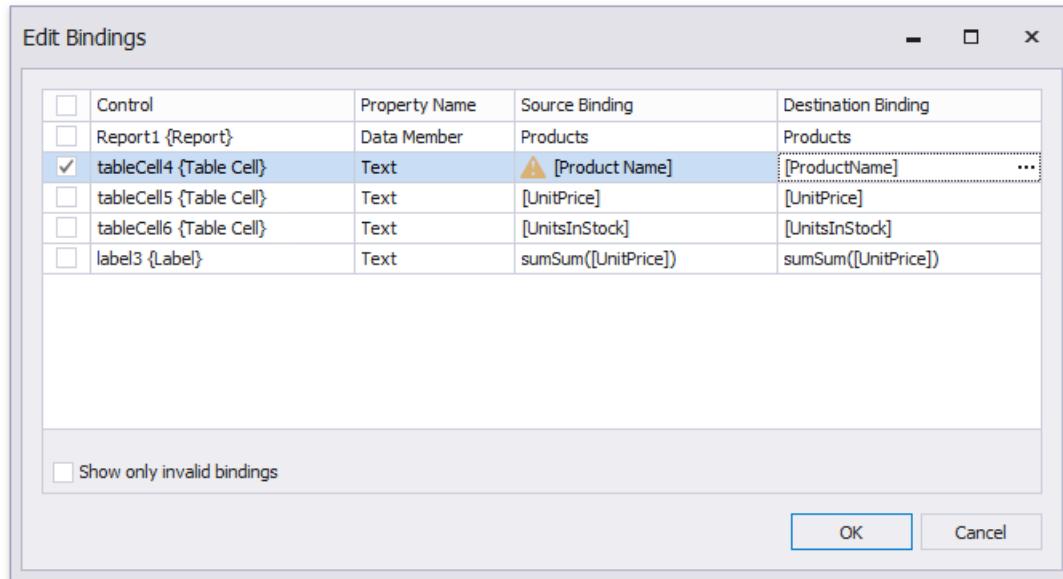
To do this, click the report's smart tag and in the invoked actions list, select the **Edit Bindings** link.



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

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

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



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

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](#)

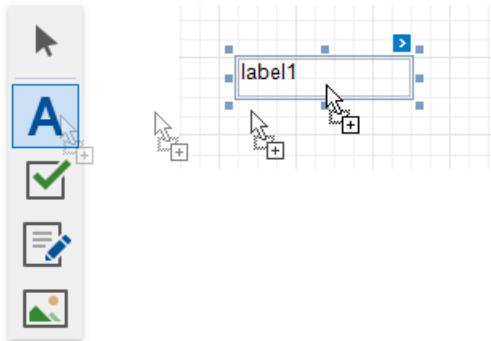
Use the following controls to display auxiliary information in a report:

- [Table of Contents](#)
- [Page Info](#)

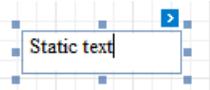
Label

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 static text.

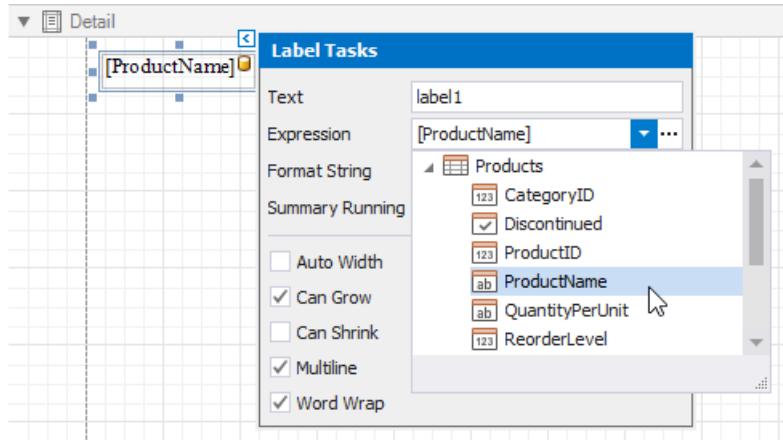


Press **CTRL+Enter** to submit text changes and exit the label's in-place edit mode.

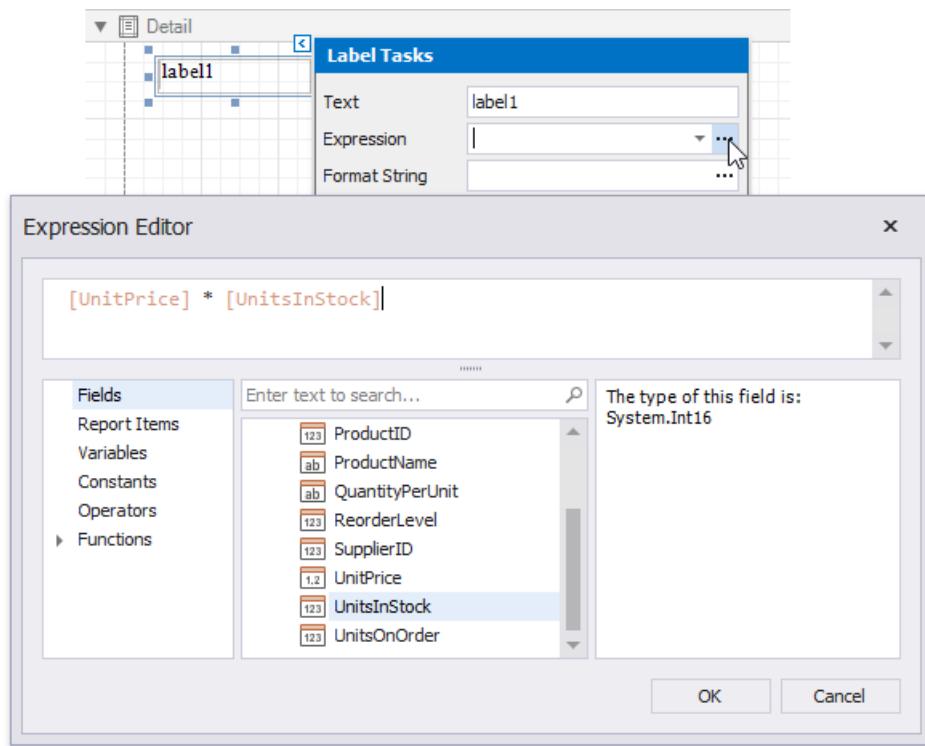
Bind to Data

Display Field Values

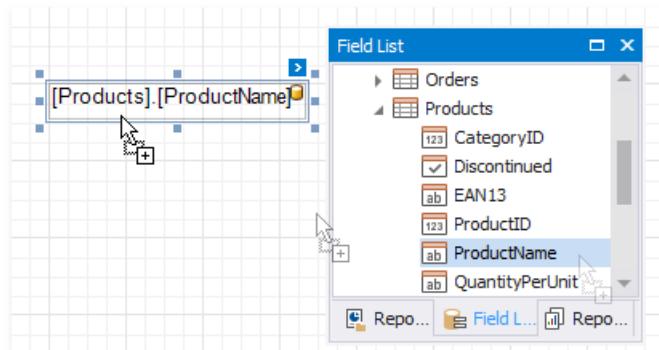
You can [bind](#) the label's **Text** property to a data field obtained from a report's data source. Click the control's smart tag, expand the **Expression** drop-down list and select the data field.



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

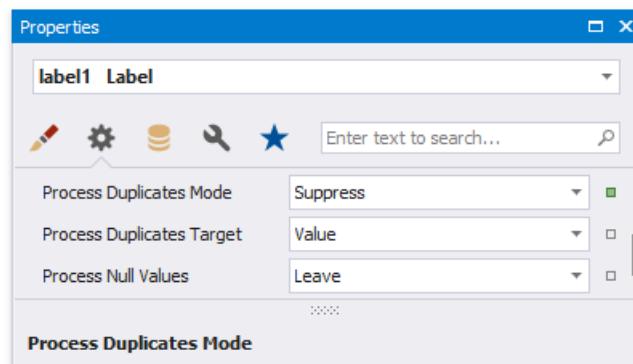


You can also drag and drop a numeric or text field from the [Field List](#) to create a new label bound to this field.

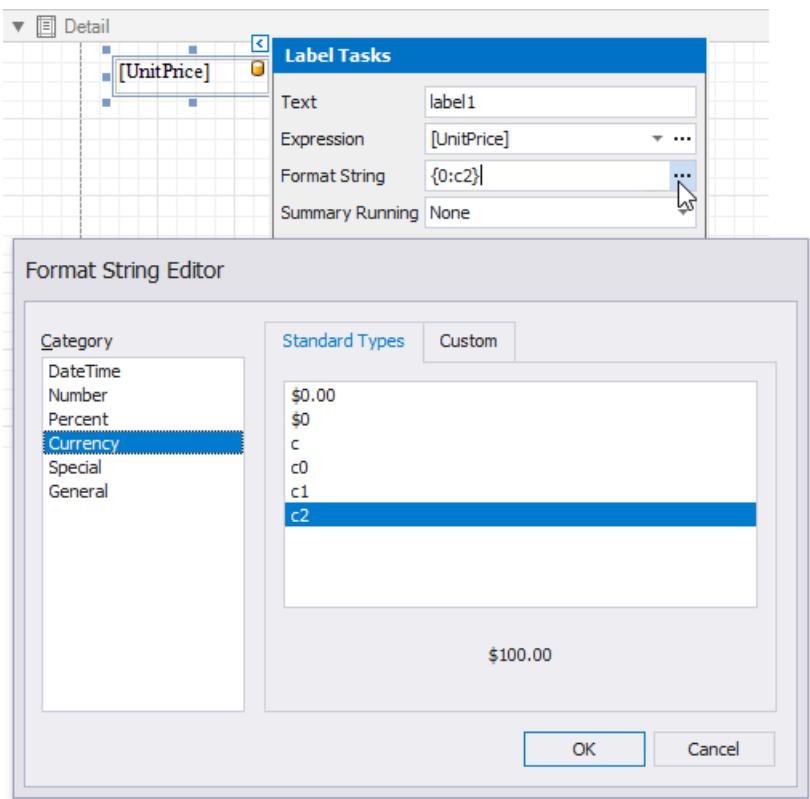


See the [Bind Controls to Data](#) topic for more information.

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

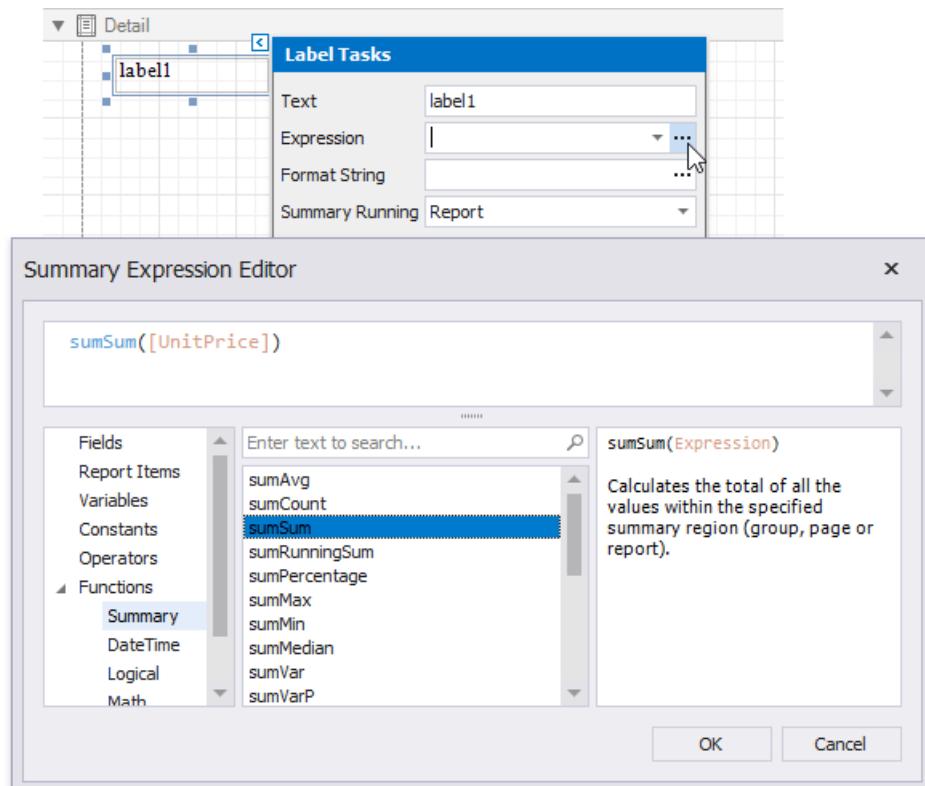


You can also use the **Format String** property to specify output values' [format](#).



Display Summaries

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



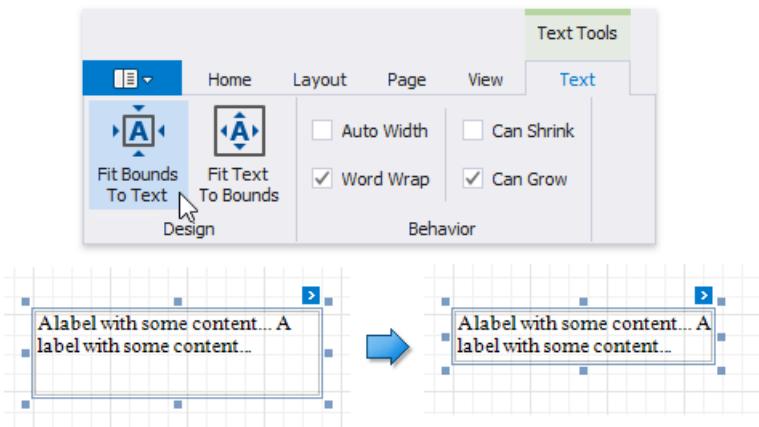
Adjust the Label Size and Content

Static Content

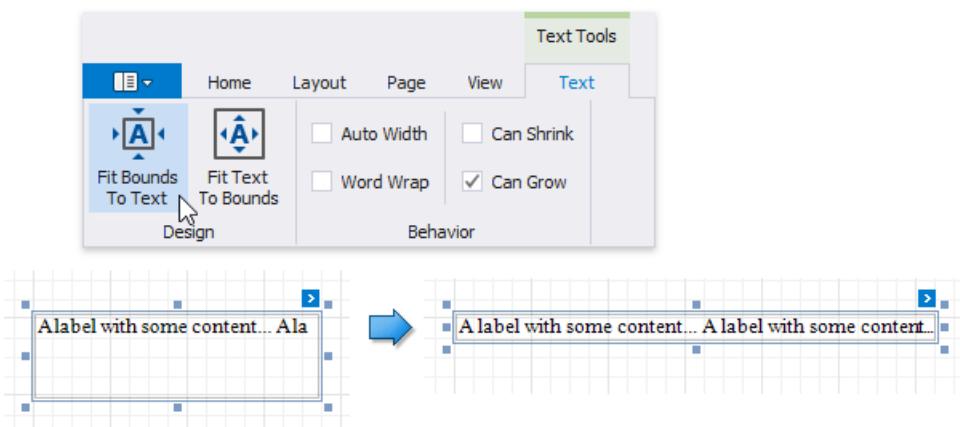
You can change label size at design time to fit its static text. Right-click the label and select the **Fit Bounds To Text** toolbar button:

- If the **Word Wrap** option is enabled, the command displays control content on multiple lines. It reduces control height and

adjusts its width to fit its content.

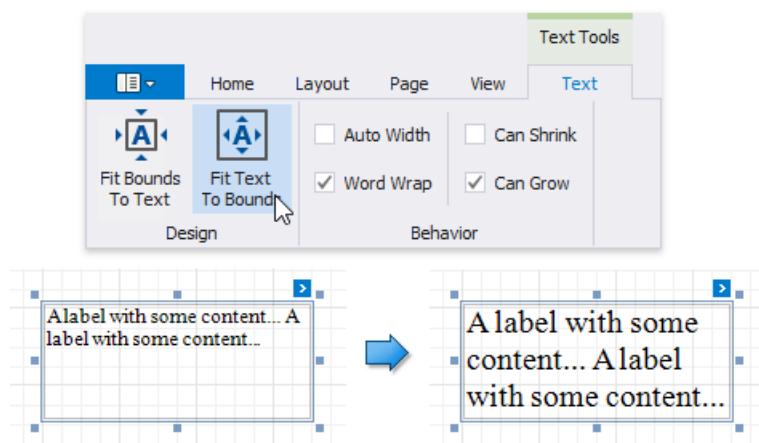


- If the **Word Wrap** option is disabled and the control's content is partially visible, the command adjusts the control size to display this content.



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

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



These commands are not available in the following cases:

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

Data-Bound Labels

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

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

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

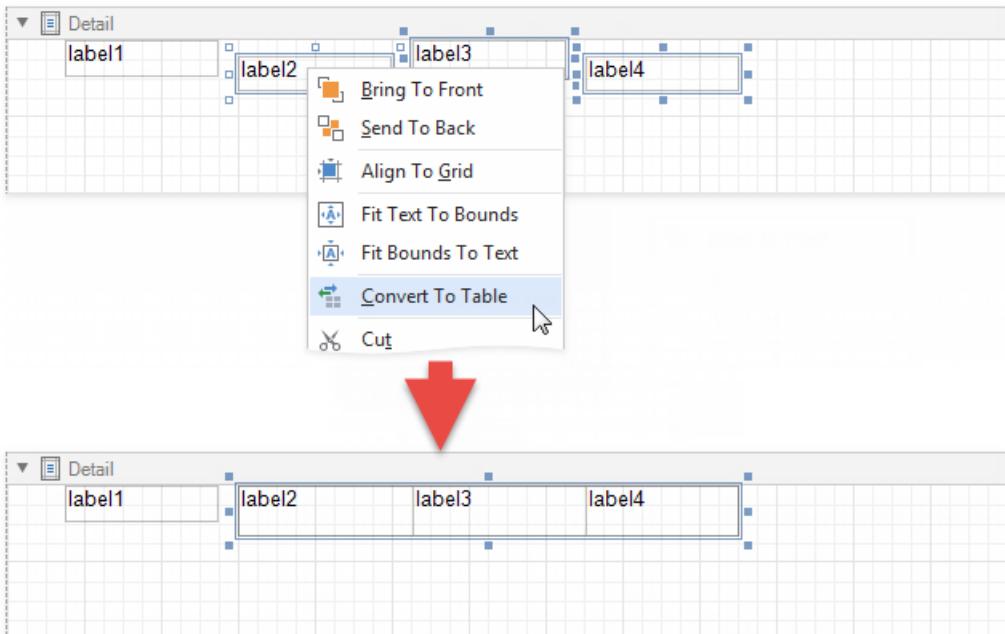
TEXT FIT MODE = NONE	TEXT FIT MODE = GROW ONLY	TEXT FIT MODE = SHRINK ONLY	TEXT FIT MODE = SHRINK AND GROW
A label with some lengthy content...			
A label with some lengthy content...			

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

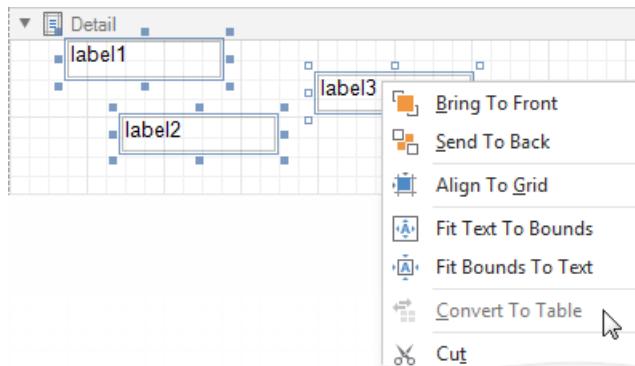
Convert Labels to Table

You can convert multiple labels to a [table](#) to simplify control alignment.

Hold CTRL or SHIFT and click labels to select them. Right-click any of the selected labels and select **Convert To Table** from the context menu. A table with one row is added to the report instead of the selected labels.

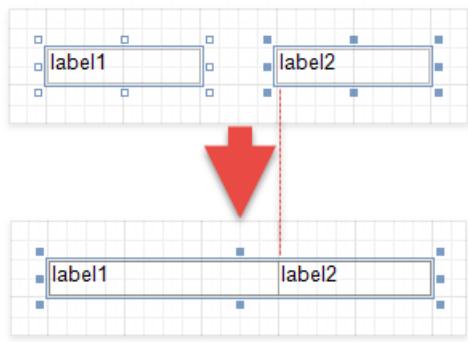


The **Convert To Table** option is not available if any of the selected labels overlap horizontally.



The created table occupies horizontal space from the leftmost label's left edge to the rightmost label's right edge, and vertical space from the topmost label's top edge to the lowest label's bottom edge.

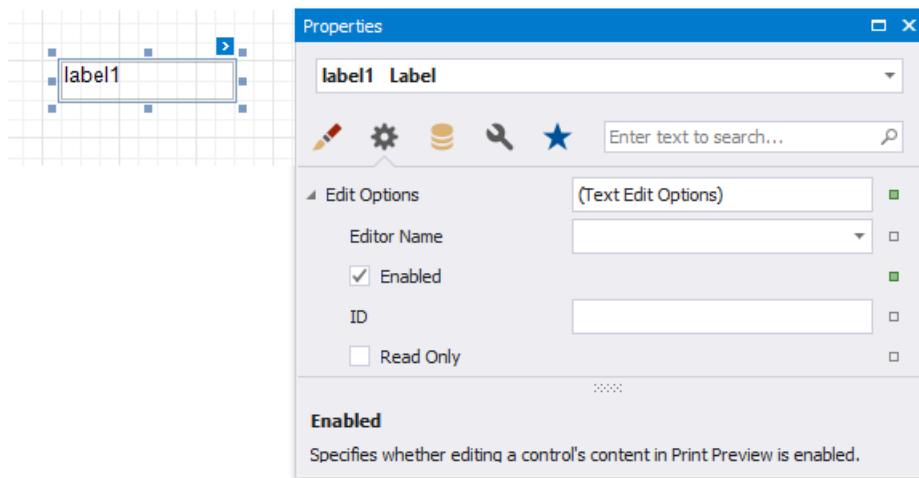
The horizontal gap between labels is included in the left cell.



The table cells copy all property values from the labels.

Interactivity

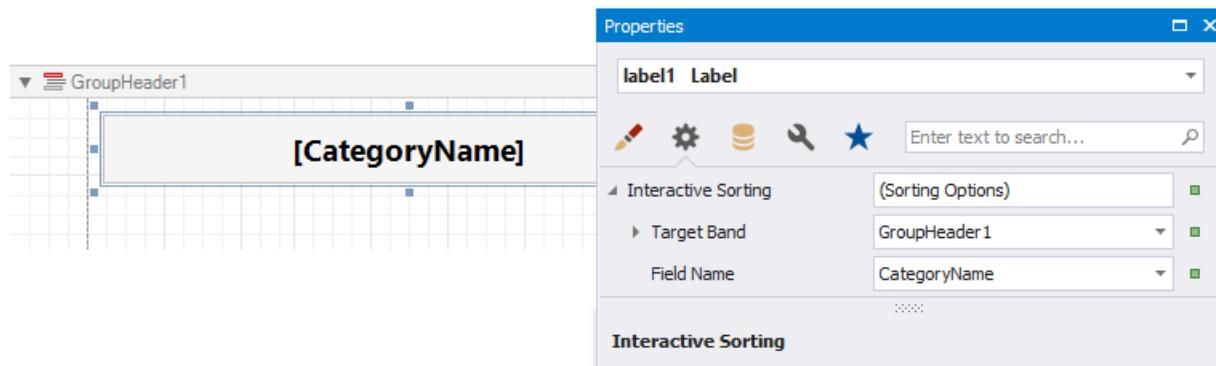
Check the **Enabled** option in the **Edit Options** category to allow users to edit a label's content in Print Preview mode.



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

	Chai	\$18.00
	Chang	\$19.00
	Aniseed Syrup	\$10.00

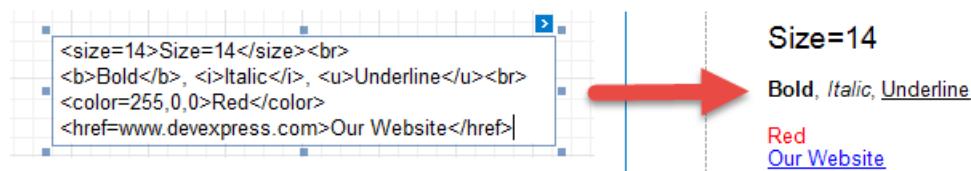
Use the label's **Interactive Sorting** option to allow users to click this label in Print Preview to sort report data. Set the **Target Band** property to the Group Header or Detail band, and specify the data field in the **Field Name** property.



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

Markup Text

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



Label supports the following tags:

TAG	END TAG	DESCRIPTION
 		Inserts a single line break. Enable the WordWrap property to use this tag.
<nbs>	-	Inserts a space.
<color=value>	</color>	Specifies the text color.
<backcolor=value>	</backcolor>	Specifies the background color.
<size=value>	</size>	Specifies the font size.
		Defines bold text.
<i>	</i>	Defines italic text.
<s>	</s>	Defines strikethrough text.
<u>	</u>	Defines underlined text.
<image=value>	-	Inserts an image from the report's named image collection. Supports both raster images and SVG images. Use the report's Image Resources property to provide images and reference them by their Id . The image tag's size attribute sets the image display pixel size. If the specified width/height exceeds the label's width/height, it is reduced to display the entire image. Specify the size attribute after the tag's value followed by the ";" character.

TAG	END TAG	DESCRIPTION
<code><href=value></code>	<code></href></code>	Displays a hyperlink. The value string specifies the hyperlink source, and the string between the opening and closing tags is the text to display.

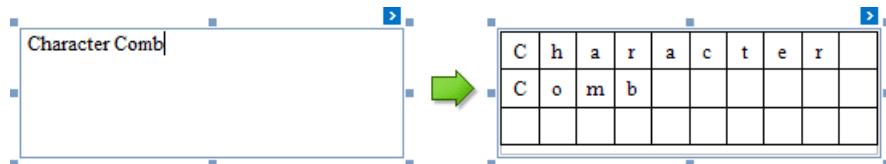
When a report is exported to XLS or XLSX, the following rich-text content is converted from labels into Excel-native rich-text content:

Text format	<code>, <i>, <u>, <s></code>
Line break	<code>
</code>
Non-breaking space	<code><nbsp></code>
Font	<code><font=[font name]></code>
Font size	<code><size=[font size]></code>
Foreground color	<code><color=[color]></code>

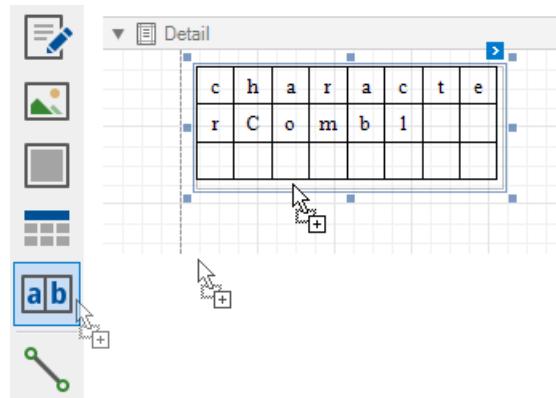
Character Comb

Overview

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



To add a Character Comb to the report, drag the **Character Comb** item from the **Toolbox** onto the report's area.



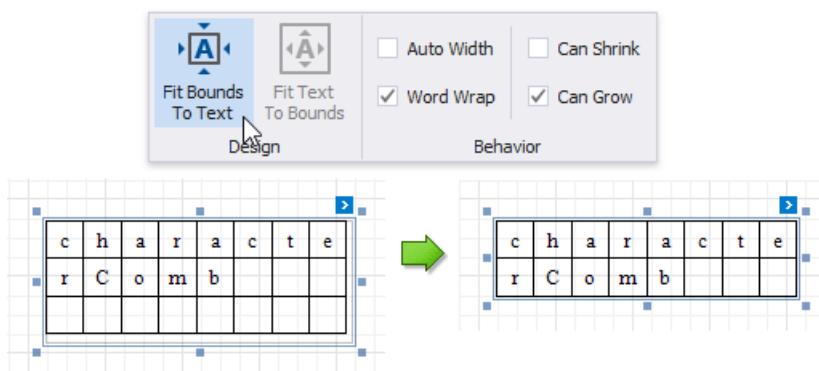
The number of cells displayed by the control in Print Preview depends on the **Can Shrink** and **Auto Width** settings.

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

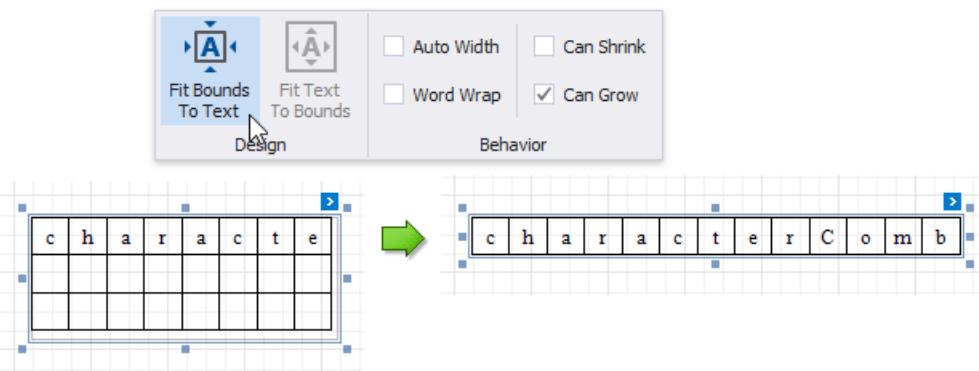
See the [Content Layout and Position](#) section to learn more on using these properties.

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

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



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



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

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

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

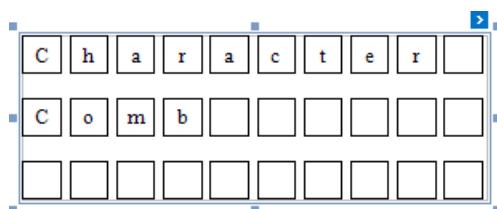
Main Options

The following properties are specific to the Character Comb control:

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

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

The following image illustrates a Character Comb with **Cell Vertical Spacing** set to **15** and **Cell Horizontal Spacing** set to **5**.

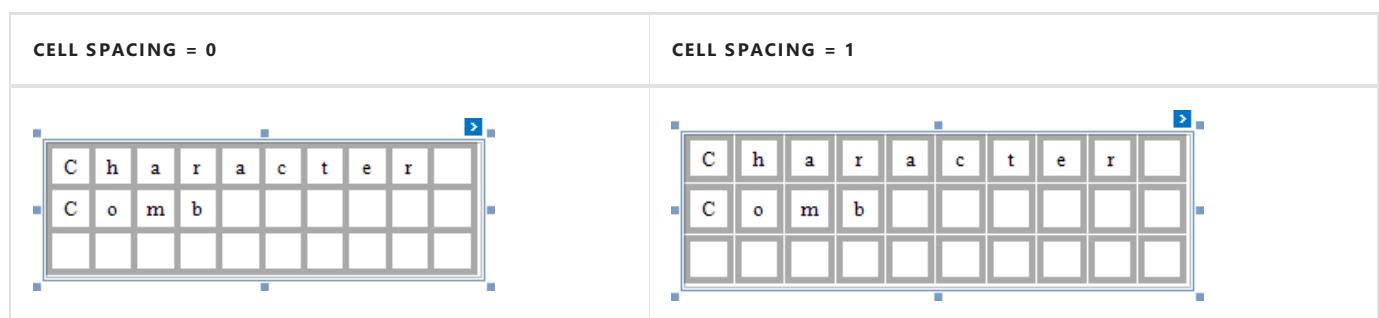


- **Border Width**

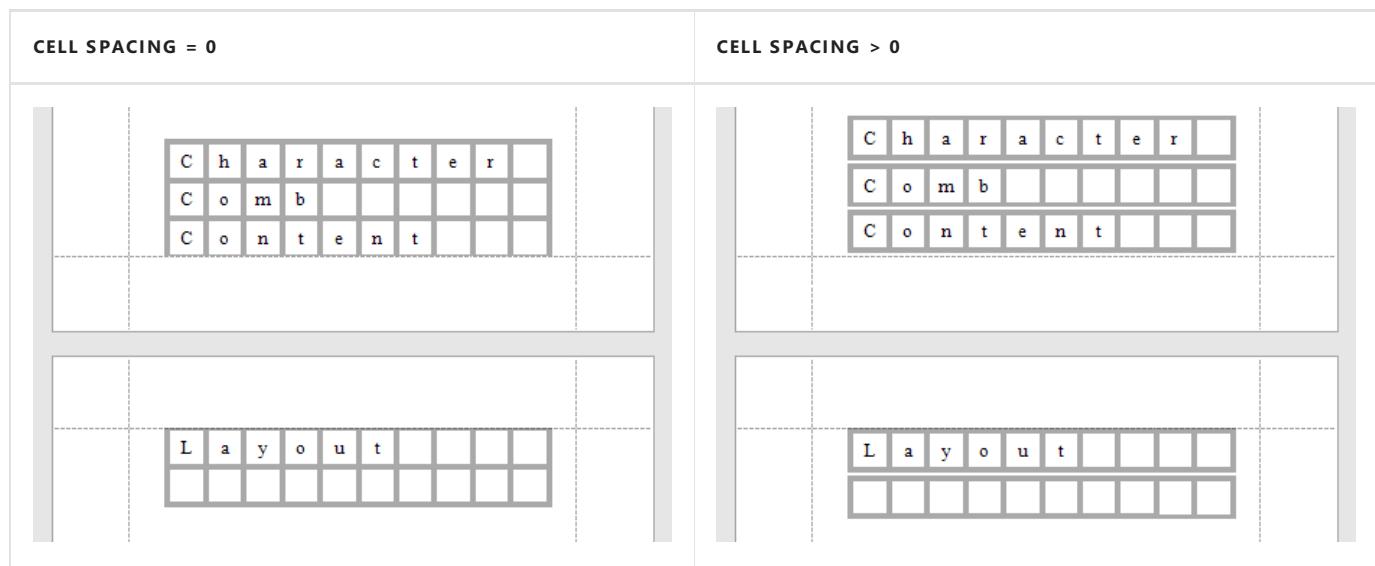
Specifies the width of cell borders in pixels, as a floating point value.

When the cell spacing is set to zero, the borders of adjacent cells are merged (i.e., the actual border width is not doubled).

The following images illustrate how cell spacing affects the **Border Width** property behavior:



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.

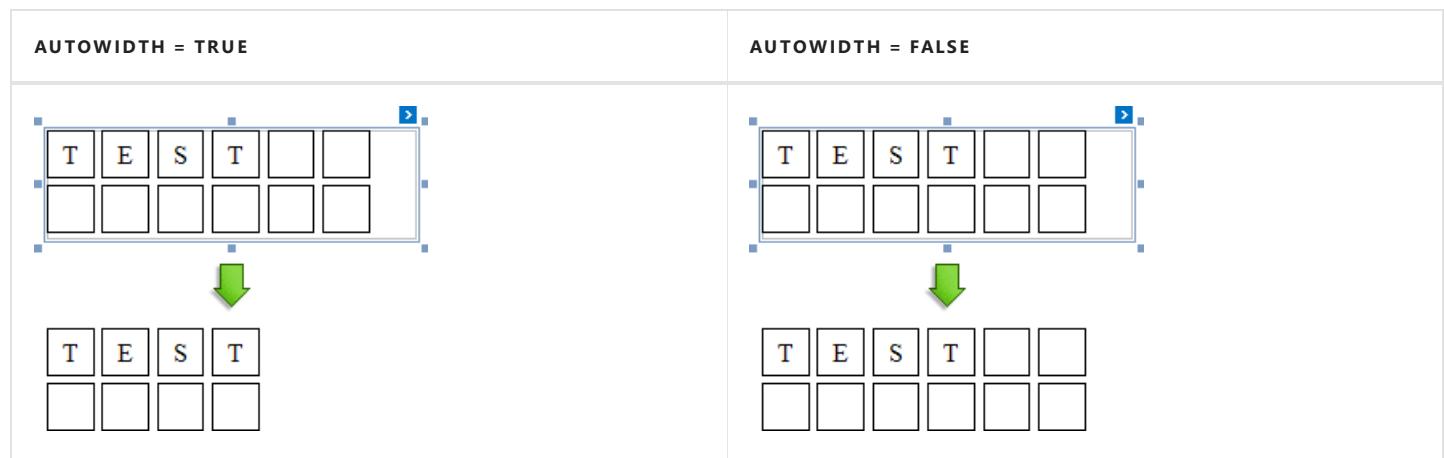
With this setting, the following behavior is expected:

- 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.

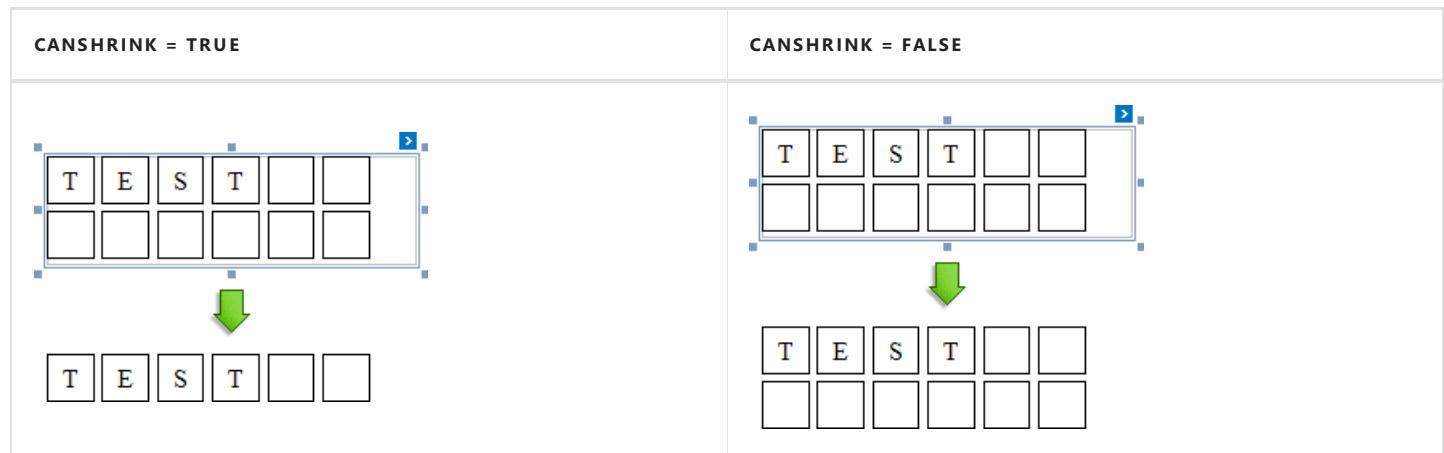
Content Layout and Position

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

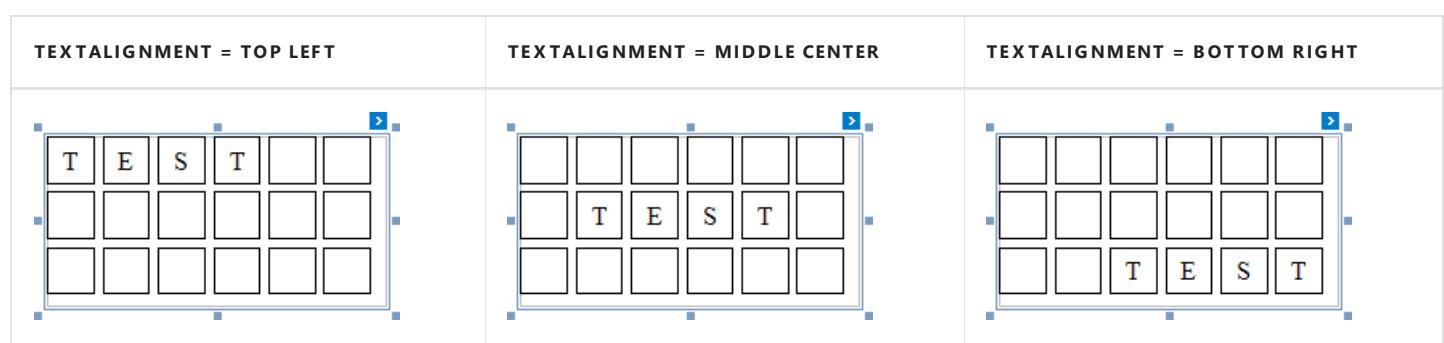
The following image illustrates the behavior of the **Auto Width** property that specifies whether or not the width of a control depends on its text.



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



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

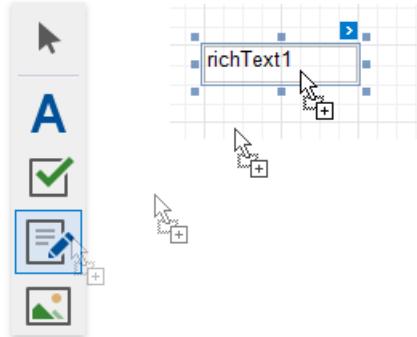


Rich Text

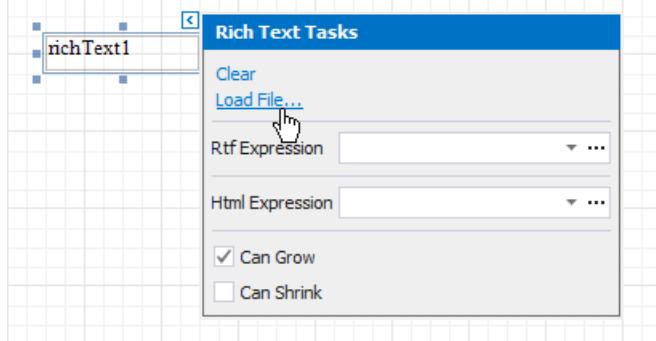
Overview

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

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

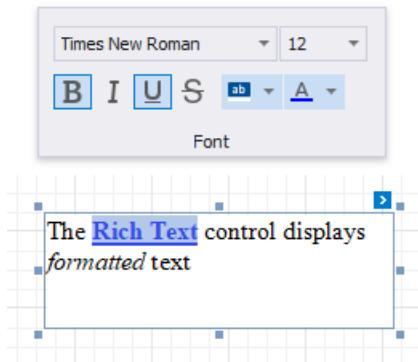


You can load RTF or HTML content from an external file. Click the control's smart tag and select **Load File**.



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

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



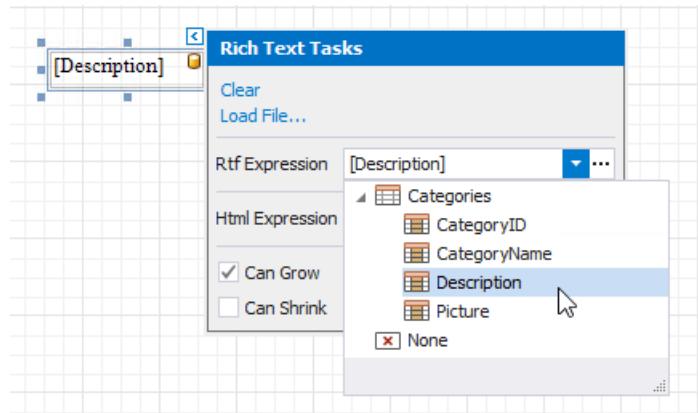
Press CTRL+Enter to submit changes and exit the in-place editor.

NOTE

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

Bind to Data

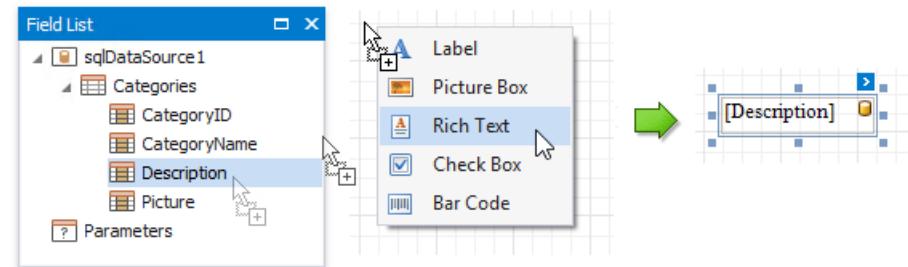
You can bind the control's **RTF** property to a data field obtained from a report's data source. Click the control's smart tag, expand the **Rtf Expression**'s drop-down list and select the data field.



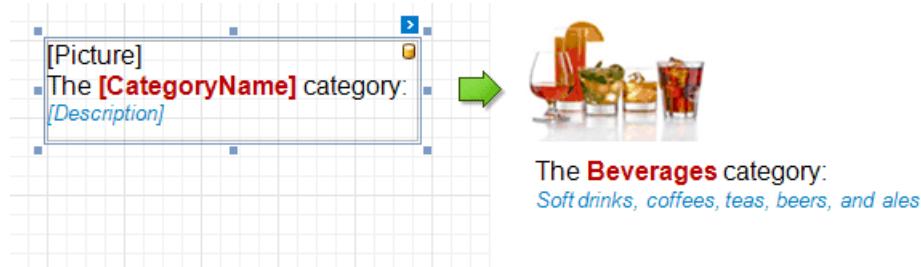
You can bind the control to a data field that provides HTML content in the same way. To do this, click the control's smart tag and use the **Html Expression**'s drop-down list.

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

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



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



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

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	

TAG	ATTRIBUTES	NOTES
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 always property value is supported for the page-break-before tag.
em	dir	
font	size color face dir	
h1-h6	align dir	
head		
html		
hr	align color noshade size width	
i	dir	
ins	cite datetime	

TAG	ATTRIBUTES	NOTES
img	align src height width	If the align 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	
strong	dir	
style		
sub	dir	
sup	dir	
table	align bgcolor border bordercolor cellpadding cellspacing dir width	The dir attribute reorders table columns.

TAG	ATTRIBUTES	NOTES
td	align bgcolor bordercolor colspan height nowrap rowspan text-align valign width	The align tag is supported in the Internet Explorer only. The Rich Text control's interpretation of the bordercolor attribute is different from the HTML browser.
th	any allowed	
tr	align bgcolor bordercolor height text-align valign	The align 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;
- 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

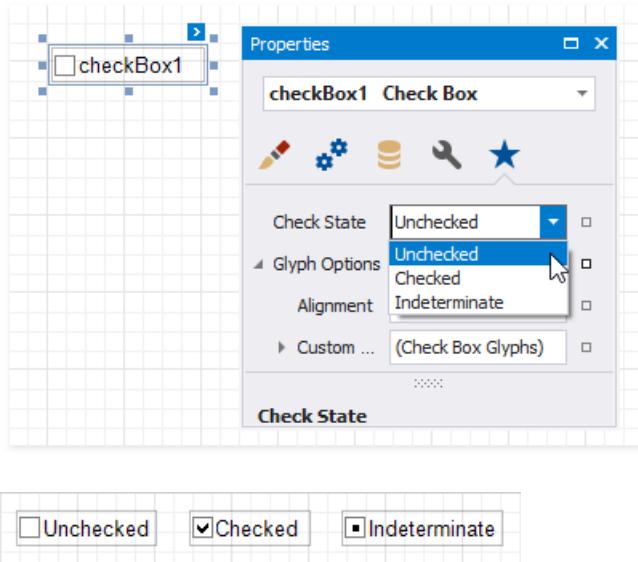
When a report is exported to XLS or XLSX, the following rich-text content is converted from **Rich Text** controls into Excel-native rich-text content:

	HTML TAGS AND RTF EQUIVALENTS
Text format	, <i>, <u>, <s>, ,
Line break	
Non-breaking space	
Font	

	HTML TAGS AND RTF EQUIVALENTS
Font size	
Foreground color	

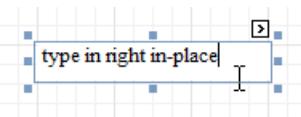
Check Box

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



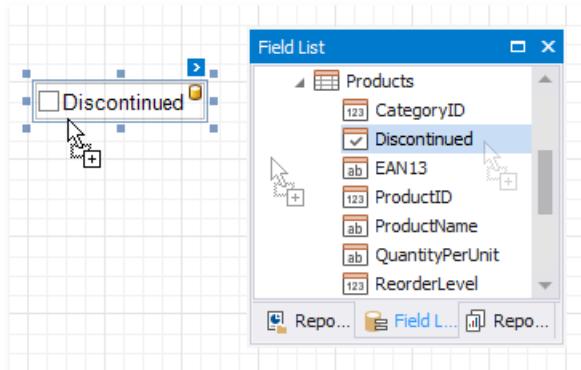
The **Checked** property indicates whether the checkbox is checked (displays a check mark) or not (is empty).

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

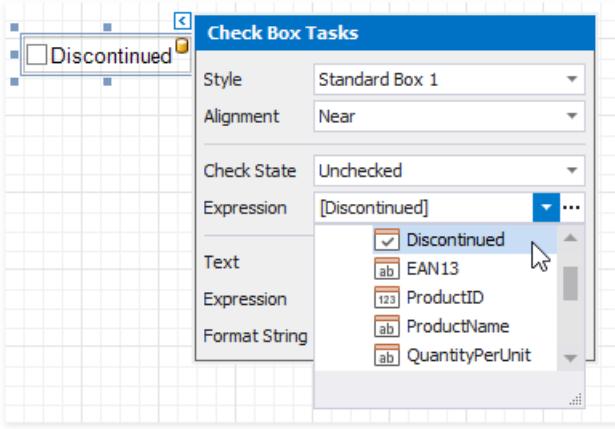


Bind to Data

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



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

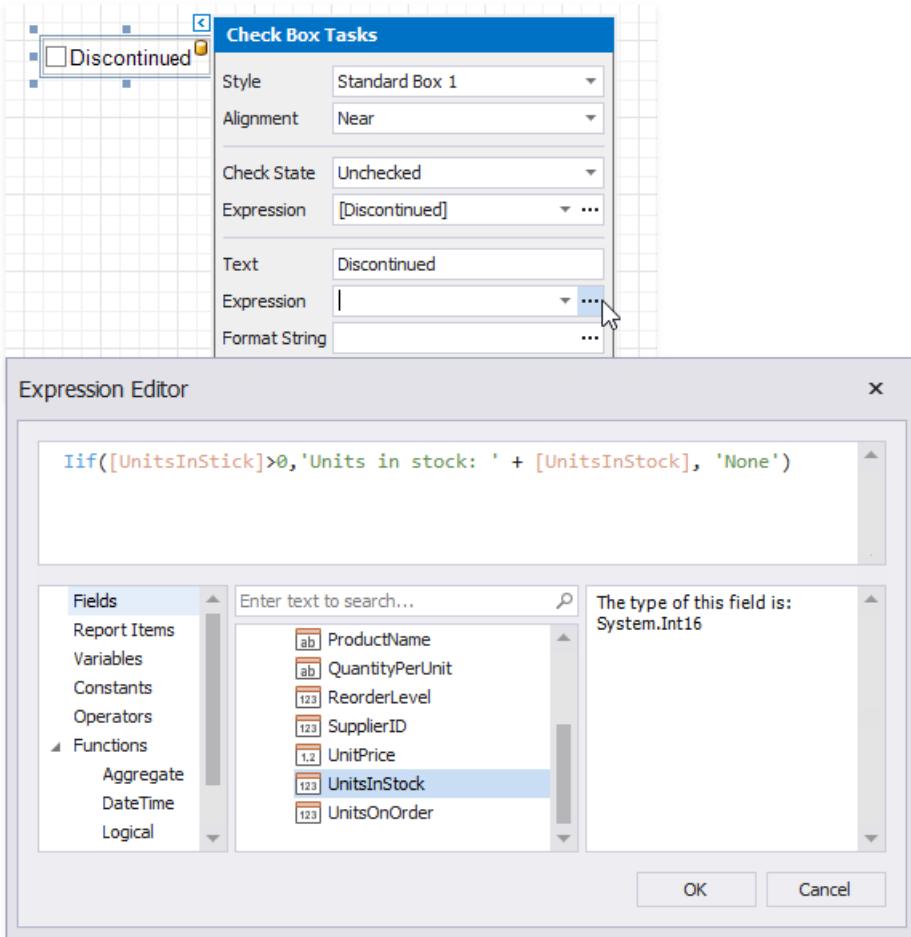


The data field value specifies the checkbox's state:

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

You can bind your control's **CheckState** the checkbox caption to a data source field. Click the control's [smart tag](#), expand the **Expression** drop-down list and select the data field.

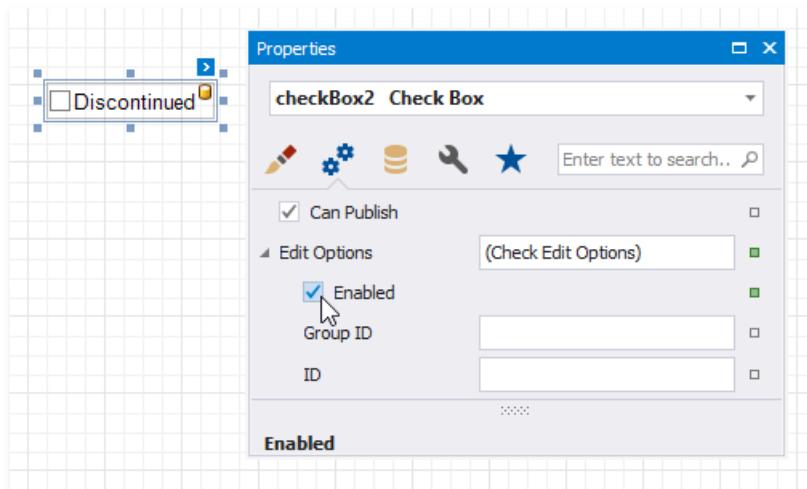
The **Expression** option's ellipsis button invokes the **Expression Editor**. This Editor allows you to construct a complex binding expression with two or more fields.



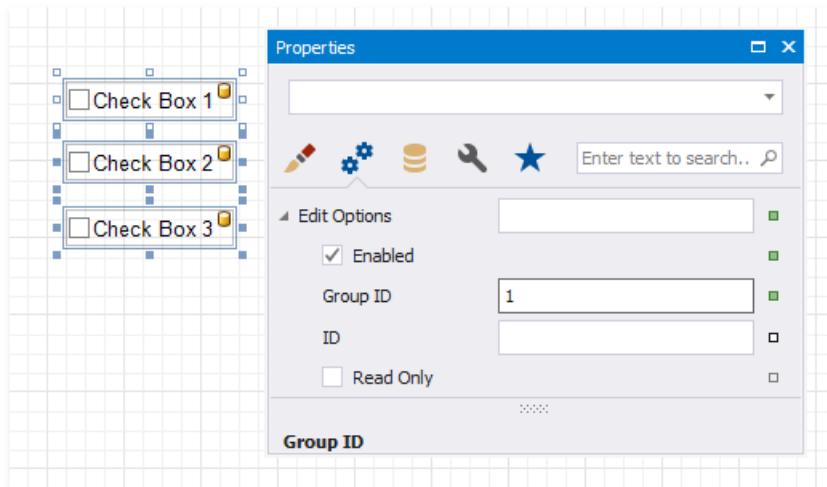
Refer to the [Bind Controls to Data](#) topic for more information about the available data binding modes and how to create data-aware controls.

Interactivity

Change the **Enabled** checkbox within the **Edit Options** group to specify if users can [change the checkbox state](#) in Print Preview.



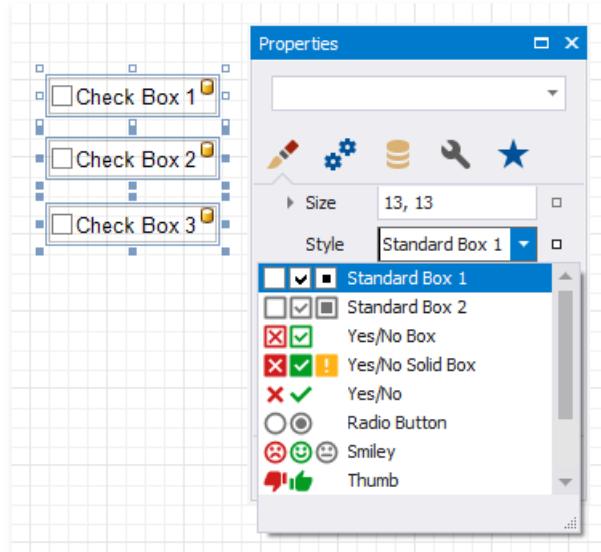
You can create checkbox groups to make them behave like radio lists. To group checkboxes, set their **Group ID** option within the **Edit Options** group a group ID value.



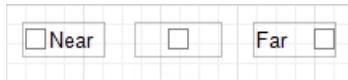
Customization

The **Glyph Options** property provides access to glyph settings.

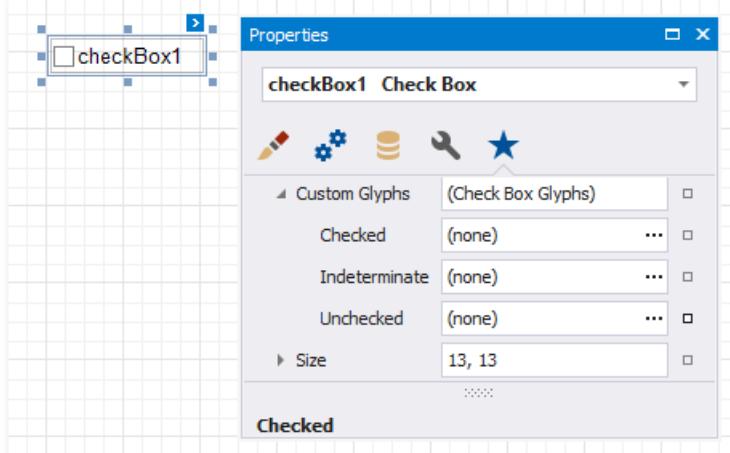
- **Style** - specifies a predefined glyph style.



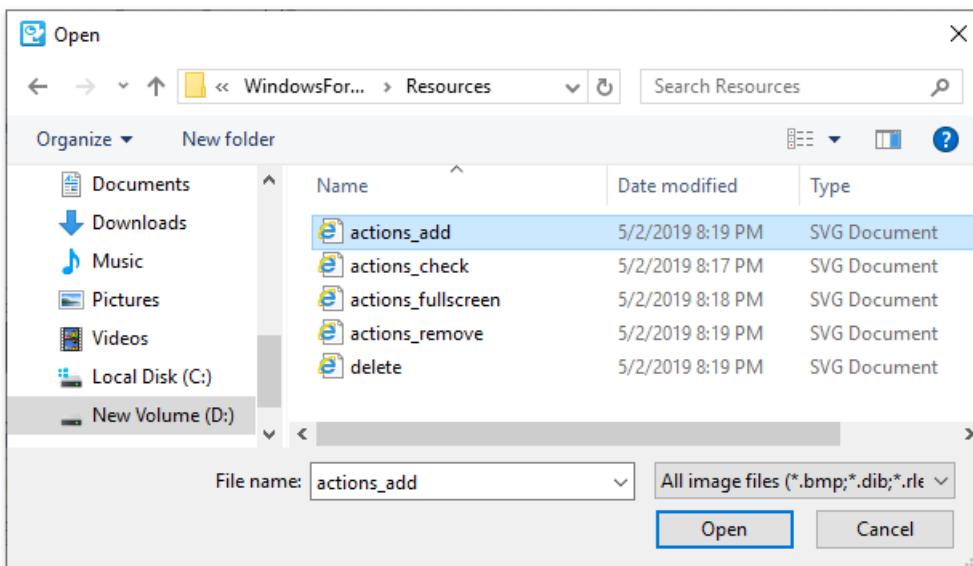
- **Alignment** - specifies the glyph's alignment within the control.



- **Size** - specifies the glyph size.
- **Custom Glyphs** - specifies a custom glyph image for each checkbox state (Checked/Unchecked/Indeterminate).



The **Open File** dialog is invoked when you specify custom glyphs.



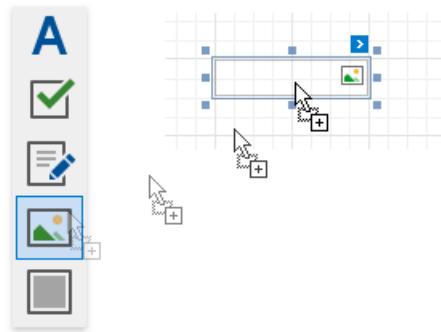
The selected glyph image is saved to the report definition .rpx file.

Picture Box

Overview

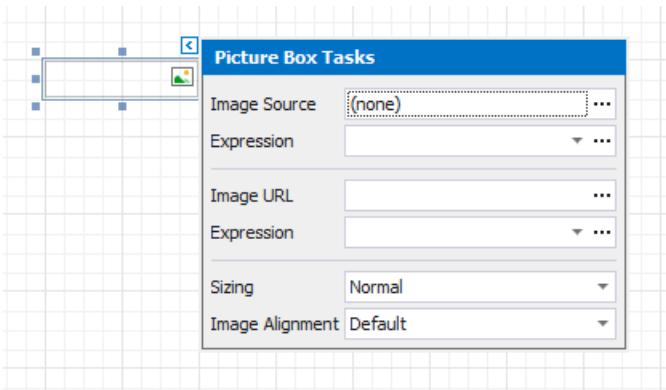
Use the **Picture Box** control to add images to a report. The images can have one of the following formats: BMP, JPG, JPEG, GIF, TIF, TIFF, PNG, ICO, DIB, RLE, JPE, JFIF, EMF, WMF, SVG.

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



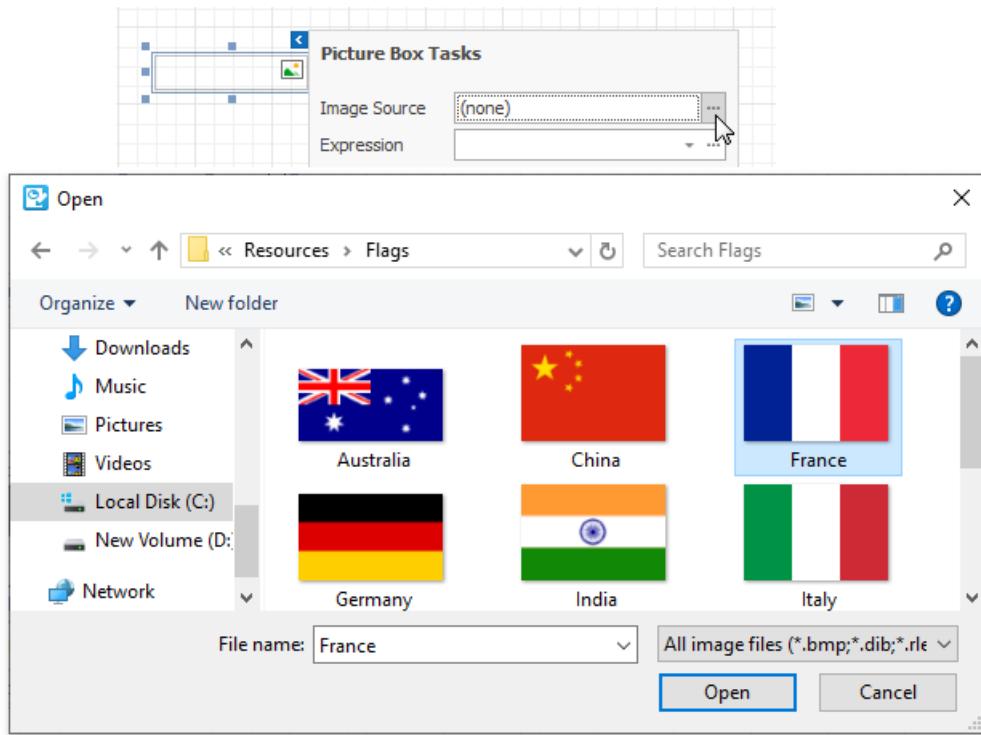
Specify one of the following properties to set an image:

- **Image Source**
Save the image to the report definition.
- **Image Url**
Only save a path to the image.



Assign an External Image

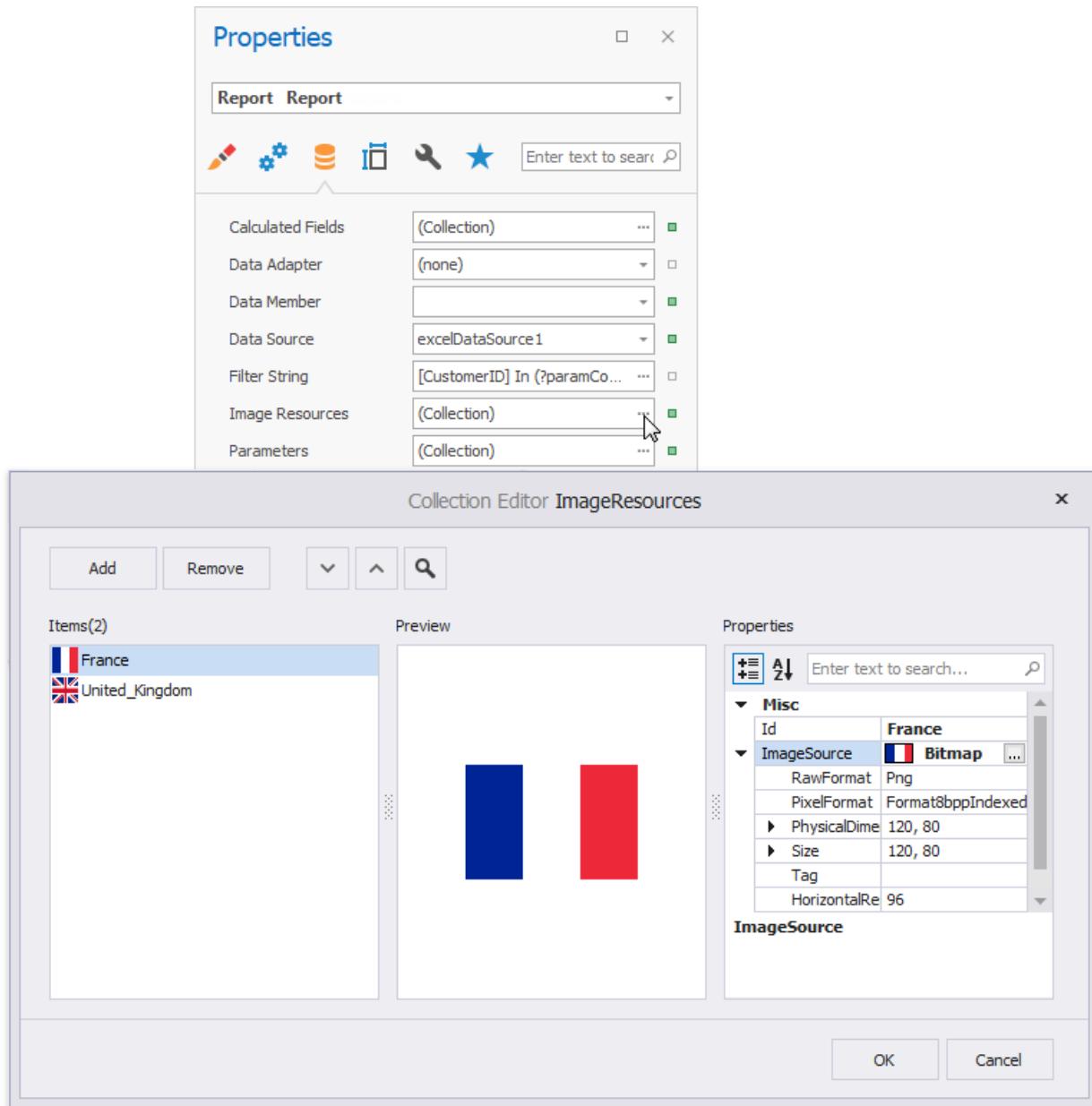
Click the **Image Source / Image URL** property's ellipsis button to invoke the [Open File](#) dialog.



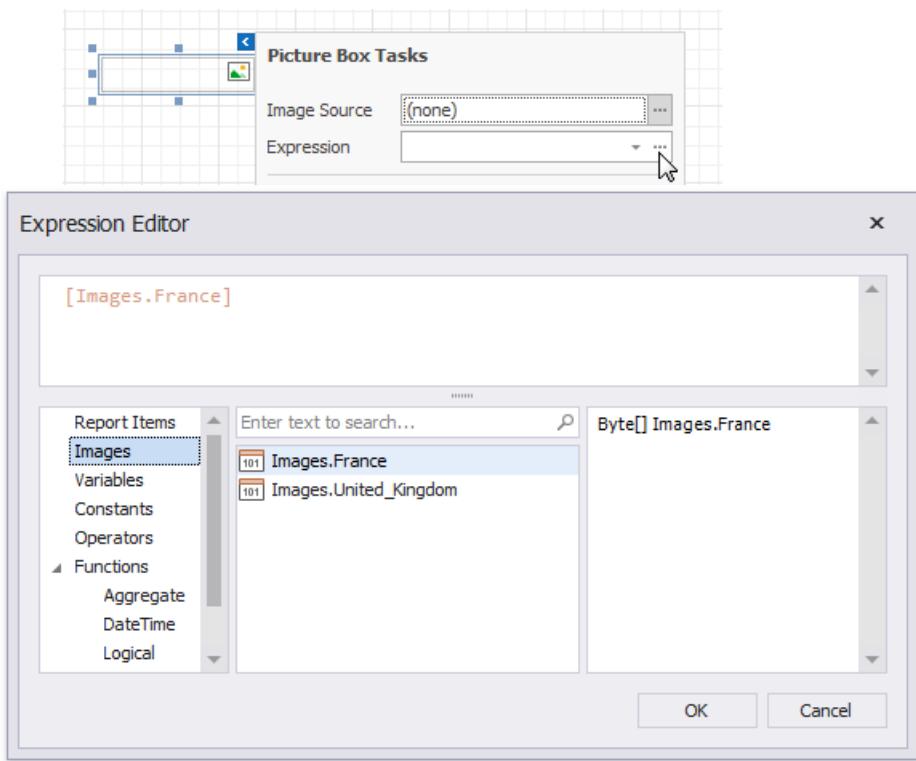
The selected image or its URL is saved to the report definition **.repx** file.

Assign an Image from the Report's Image Collection

Set the report's **Image Resources** property.



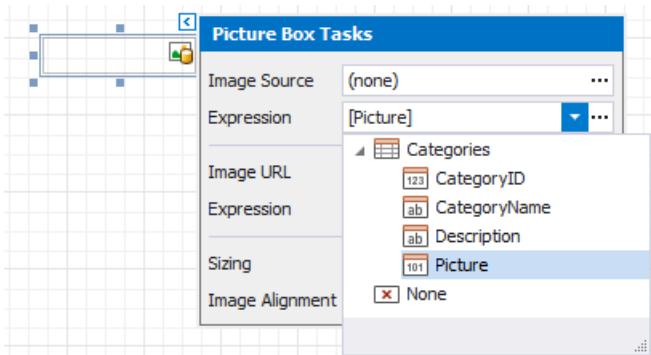
Click the **Picture Box**'s smart tag. In the invoked menu, click the **Expression** option's ellipsis button to open the **Expression Editor**. Choose an image from the **Images** collection:



Bind a Picture Box to Data

Use one of the following techniques to add the **Picture Box** control that obtains an image from a data source.

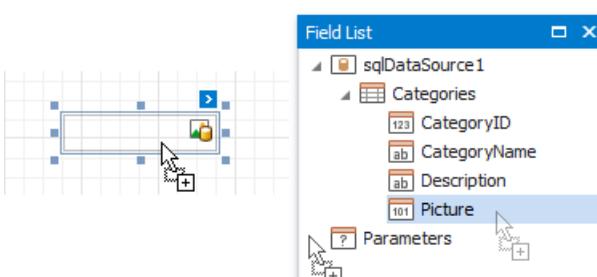
- Click the control's smart tag. In the invoked menu, expand the **Expression** drop-down list for the **Image Source** property and select a data field.



You can bind the **Image Url** property to data in a similar way. In this instance, the URL that specifies the image location is obtained from the data source.

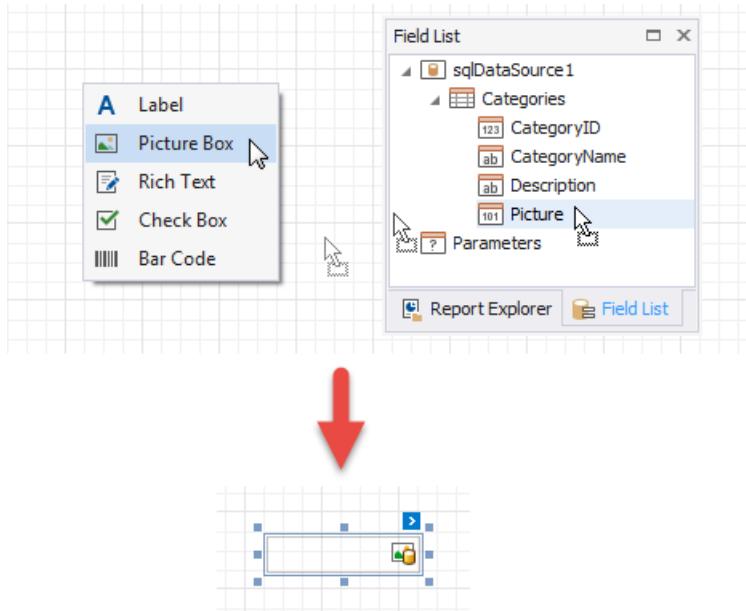
Click the **Expression** option's ellipsis button to invoke the **Expression Editor**. Use this editor to construct a [binding expression](#) that can include two or more data fields.

- Drag an image data field from the report's [Field List](#) and drop it onto a report band.



- Right-click a data field in the [Field List](#) and drop it onto a report band. Select the **Picture Box** item in the invoked context

menu.



See the [Bind Report Controls to Data](#) topic for more information about how to create data-aware controls.

SVG Support Limitations

The **Picture Box** control does not support the following SVG content:

- Gradient colors
- Text (you can convert text to curves as a workaround)
- Animations
- External .css styles

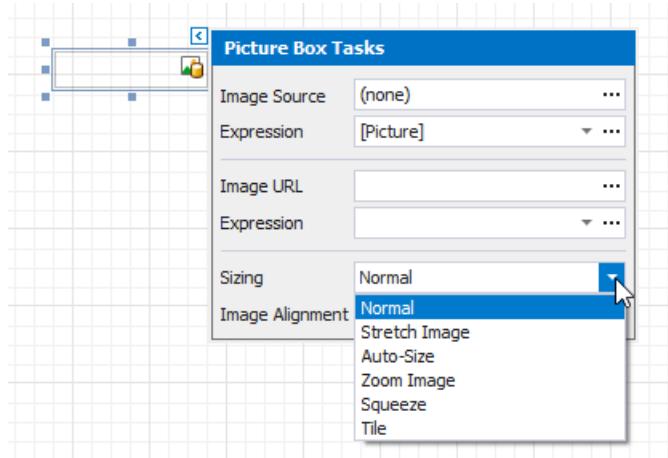
Export (except for PDF) has the following limitations:

- SVG images are converted to metafiles because document viewers may not support SVG format.
- SVG images are exported as PNG in the Microsoft Azure environment.

The **Medium Trust** permission level does not support SVG.

Image Size Modes

Use the **Sizing** property to specify an image's position in the Picture Box.



This control supports the following image size modes:

- **Normal**

The image is displayed at the top left corner with its original dimensions. The image is clipped if it does not fit the control's boundaries.



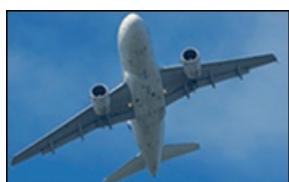
- **Stretch Image**

The image is stretched or shrunk to fill the control's width and height.



- **Auto Size**

The control's dimensions are adjusted to the image's size.



- **Zoom Image**

The image is resized proportionally without clipping it to fit the control dimensions.



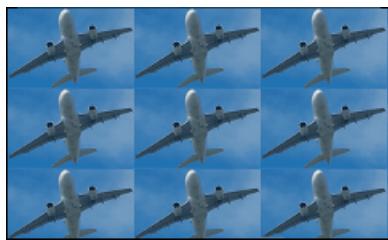
- **Squeeze**

The image is centered and shown full-size if the control dimensions exceed the image size. Otherwise, the image is resized to fit the control's boundaries.



- **Tile**

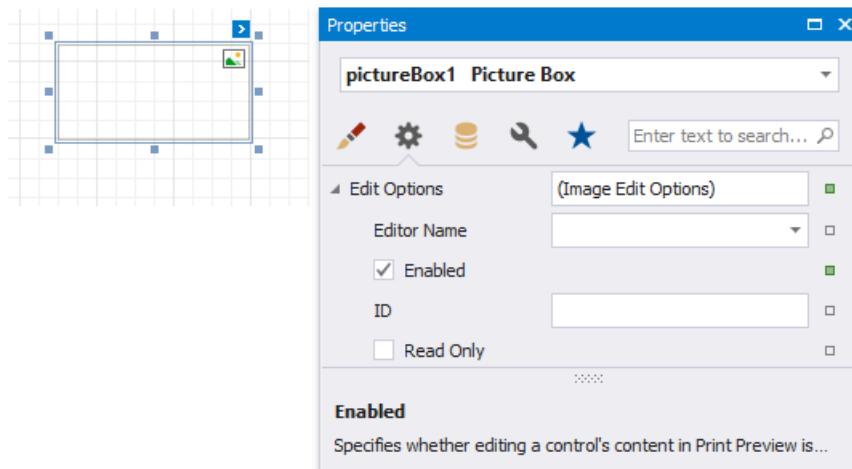
The original image is replicated within the control starting from the top left corner. The replicated image is clipped if it does not fit the control's boundaries.



You can also use the **Image Alignment** property in the **Normal**, **Squeeze** and **Zoom Image** modes to specify the alignment in relation to the control's boundaries.

Interactivity

You can add a possibility to load/change an image and/or draw a signature in a picture box when it is displayed in Print Preview. To do this, enable the **Edit Options | Enabled** property.



Click the picture box in a previewed document and an editor invokes.



TIP

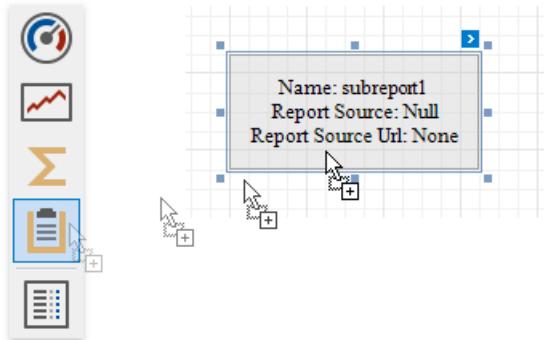
You can draw borders for the picture box to make the editor visible in Print Preview, if an image is not specified.

Refer to the [Content Editing in Print Preview](#) topic for details and to the [Interactive E-Forms](#) tutorial to see how the E-Form demo report uses this picture box mode.

Subreport

The **Subreport** control is used to embed other reports into the current report.

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



The Subreport control allows you to solve the following tasks:

- **Reuse reports**, if there is a particular report structure (template) that needs to be included in many reports; for instance, a report header that always contains the same information (the company information, logo, date, etc.).
- [Create master-detail reports](#)
- [Merge reports](#)

Use one of the following properties to provide the report source:

- **Report Source**

Determines a report to be included as a subreport.

If report classes of the application that invoked the Report Designer are compiled into one assembly, then they are available as items in this combo box.

- **Report Source URL**

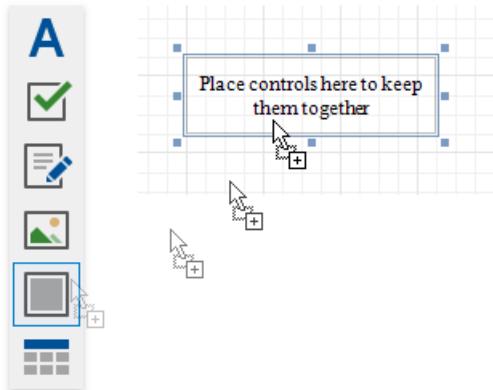
Defines a URL of a report file (*.REPX), to use as a report source.

Double-click a subreport to open its associated report in a new Report Designer tab.

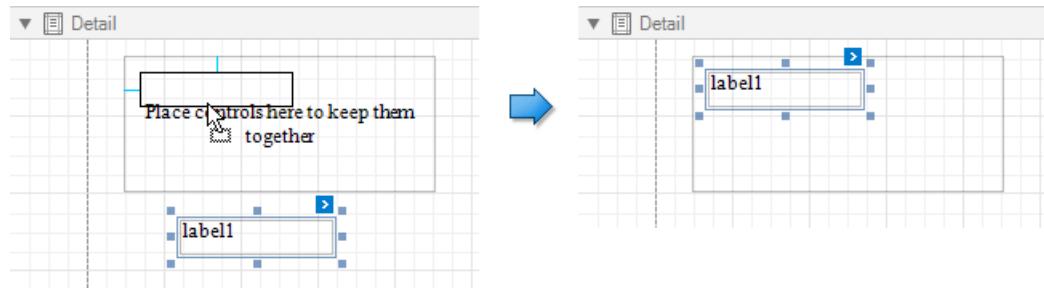
Panel

The **Panel** control is a container that frames separate report controls and allows you to move, copy and paste them. The panel also visually unites report controls in Print Preview (for instance, with borders or a uniform color background).

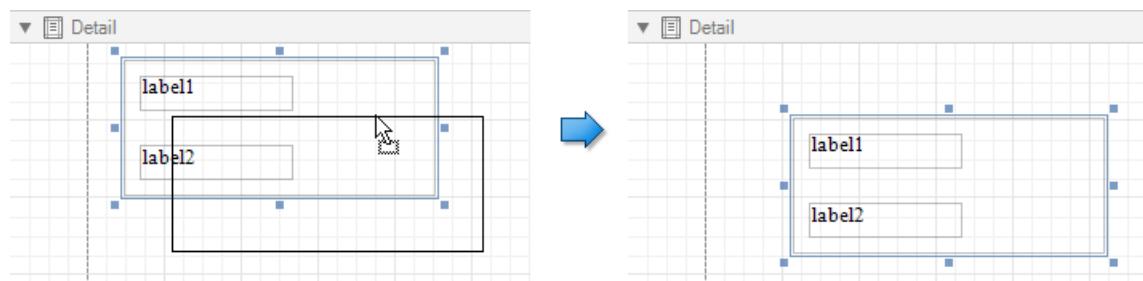
To add a panel to a report, drag the **Panel** item from the [Toolbox](#) and drop it onto the required report band.



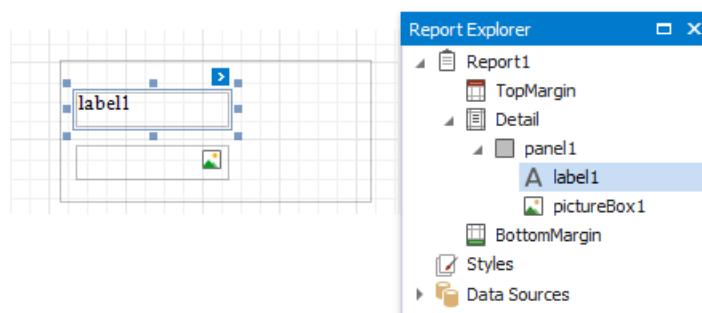
Drop the desired report controls onto the panel to combine them to a group.



You can use this panel to move, copy, change appearance settings, etc. instead of adjusting individual controls.



The [Report Explorer](#) displays controls placed onto a panel as its subordinate nodes.

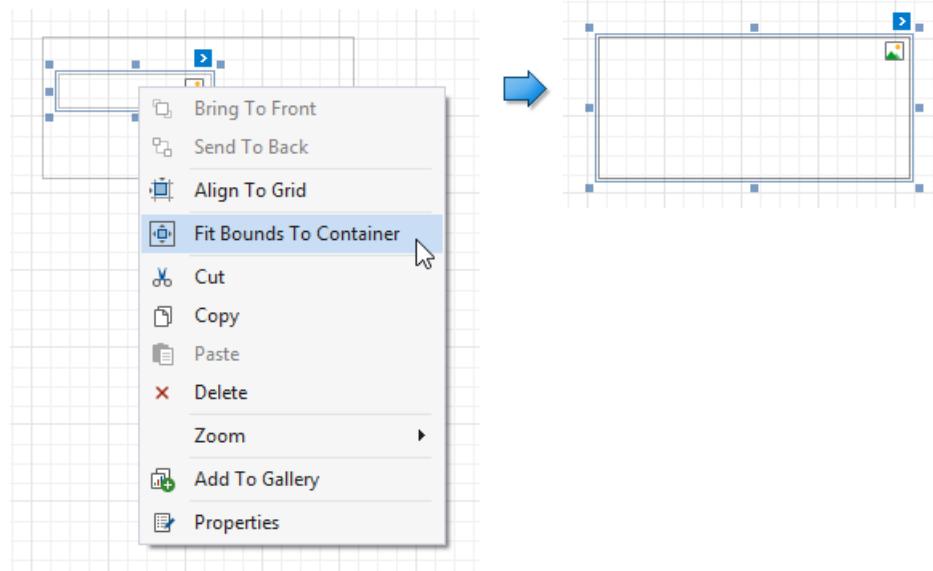


The panel cannot contain the following report controls:

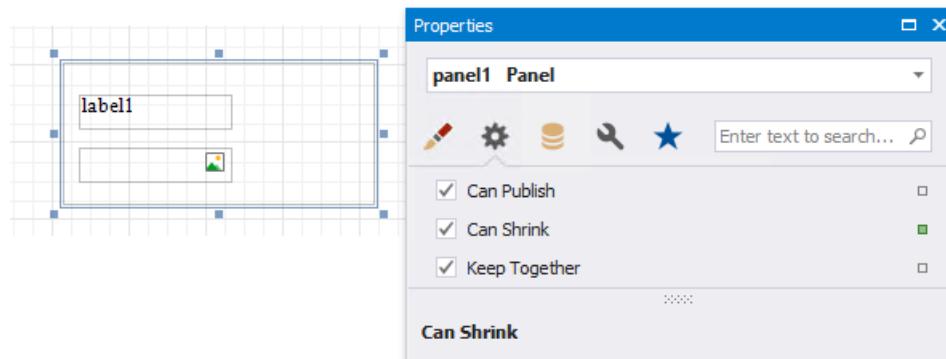
- [Pivot Grid](#)
- [Subreport](#)
- [Page Break](#)

- [Table of Contents](#)
- [Cross-Band Line and Box](#)

If a panel includes only one control, you can use the **Fit Bounds to Container** command in the context menu or in the **Layout** toolbar tab. This command resizes the control so that it occupies all the available container space (excluding borders).



You can also enable the panel's **Can Shrink** property to automatically adjust the panel's size to fit all the inner controls. For instance, this allows preventing blank areas when you [conditionally hide specific controls](#).



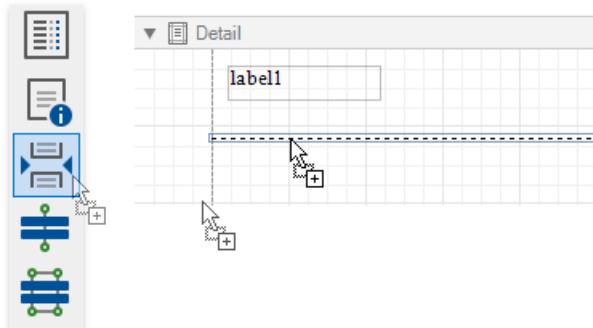
NOTE

The Panel control cannot span several report bands as cross-band controls can.

Page Break

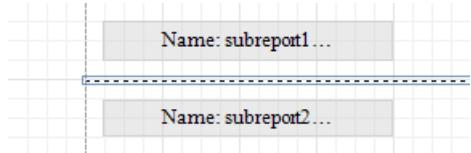
The **Page Break** control's sole purpose is to insert a page delimiter at any point within a report.

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.

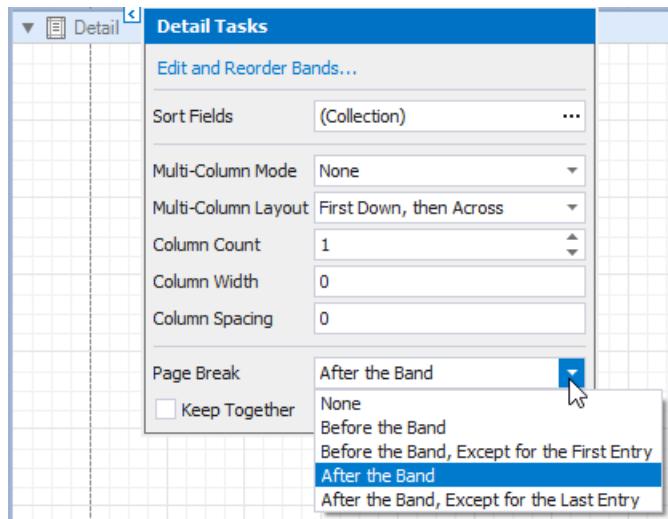
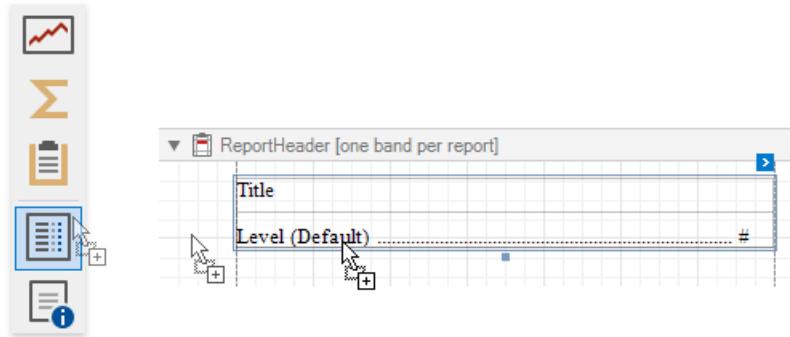


Table of Contents

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 a comparison between the design view and the published output. At the top, a screenshot of the Report Designer shows the 'ReportHeader [one band per report]' with a table containing 'Products By Category' and three levels of hierarchy. Below this, a large blue arrow points down to a separate window representing the published document. This window contains a 'Products By Category' title followed by a detailed table of contents. The table lists categories like 'Beverages' and 'Condiments' with their corresponding page numbers.

Category	Item	Page Number
Beverages	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
Condiments		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.

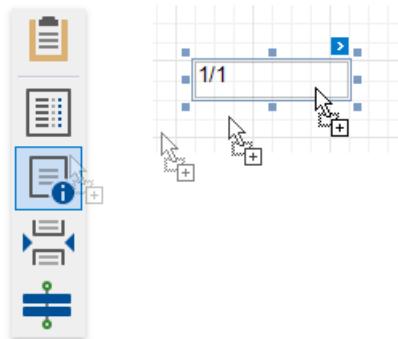
Unless levels have been added to a table of contents, a single default level is used to provide common settings to the elements of a document map for which no specific level has yet been assigned.

Refer to the [Add a Table of Contents](#) topic for a step-by-step tutorial.

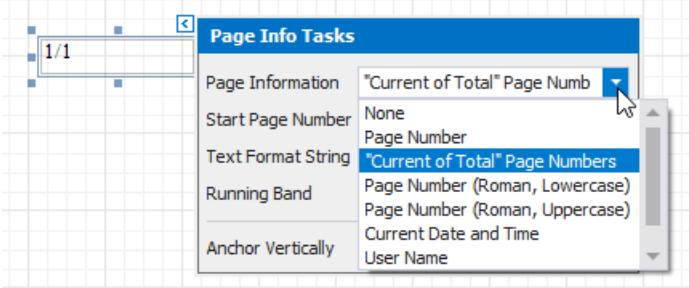
Page Info

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.



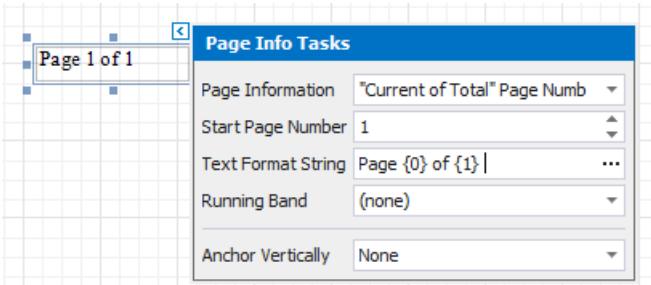
For examples of different uses of this control, see the corresponding tutorials:

- [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.

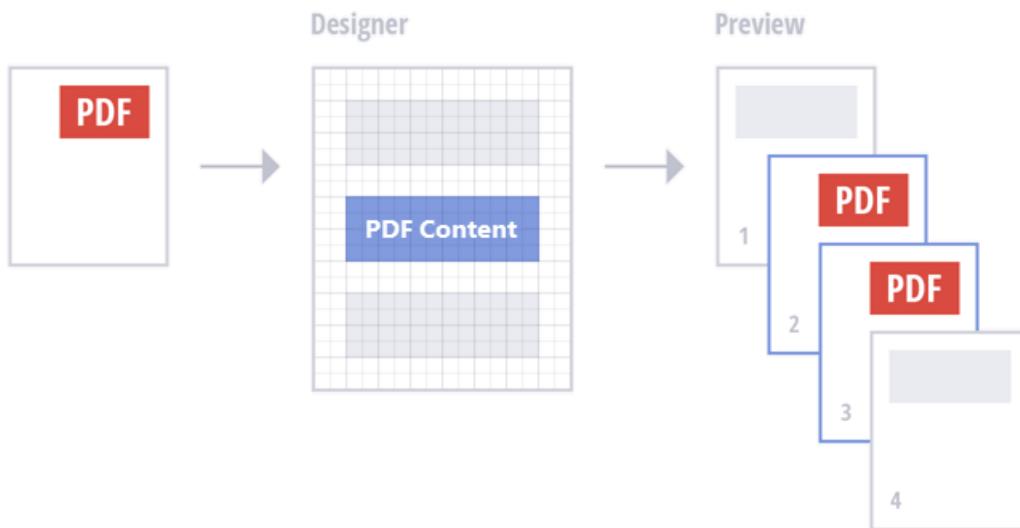


When a report contains at least one **group**, you can specify individual page numbers for report groups by setting the **Running Band** property to the name of the required group.

PDF Content

PDF Content is a control that renders PDF content in a report.

PDF content is rendered on separate pages and uses its own page settings.



Use one of the following options to specify PDF content:

- [Specify PDF data](#).

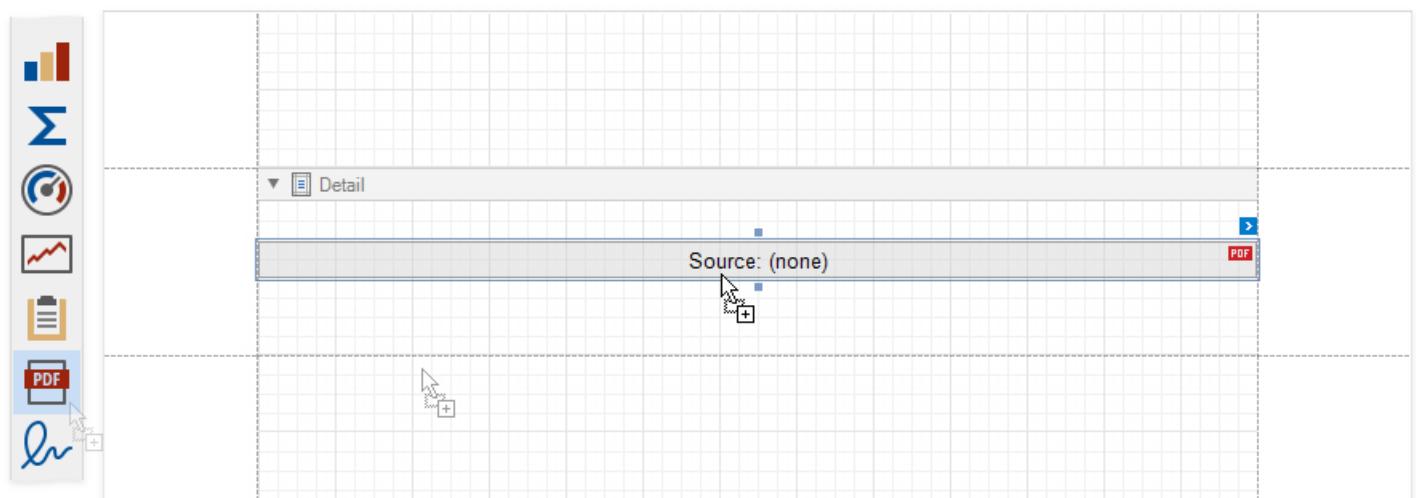
This data is stored in the report file. The source of this data does not need to be available when the report is rendered.

- [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.

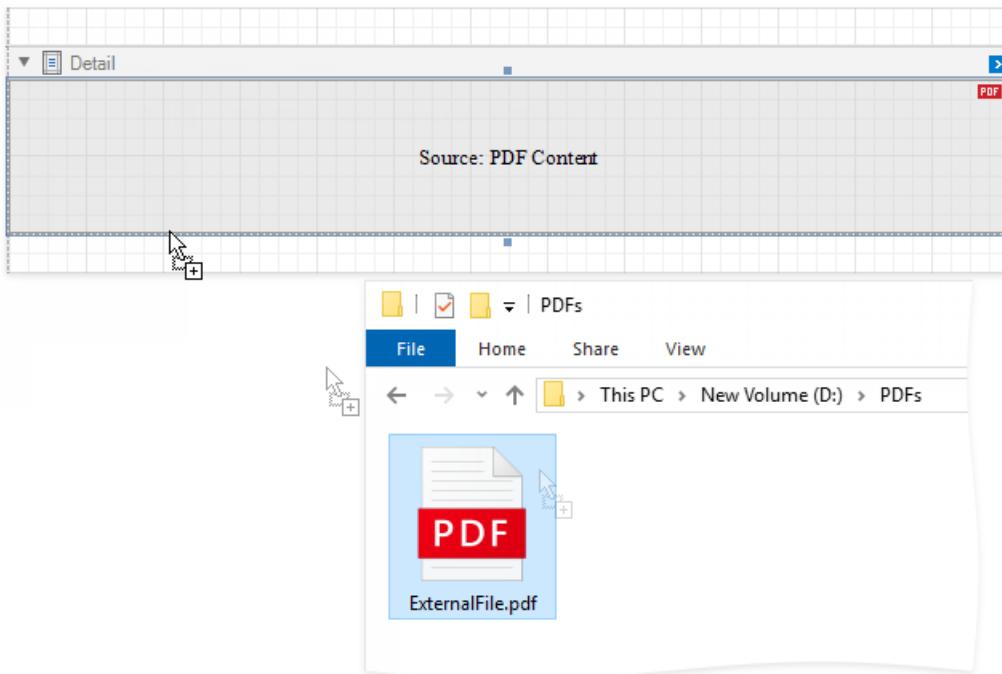
Add a PDF Content Control to a Report

Drop the **PDF Content** item from the Toolbox onto a **band** on the design surface.



You can also copy a PDF document from an external application and paste it in your report, or drag a document and drop it onto

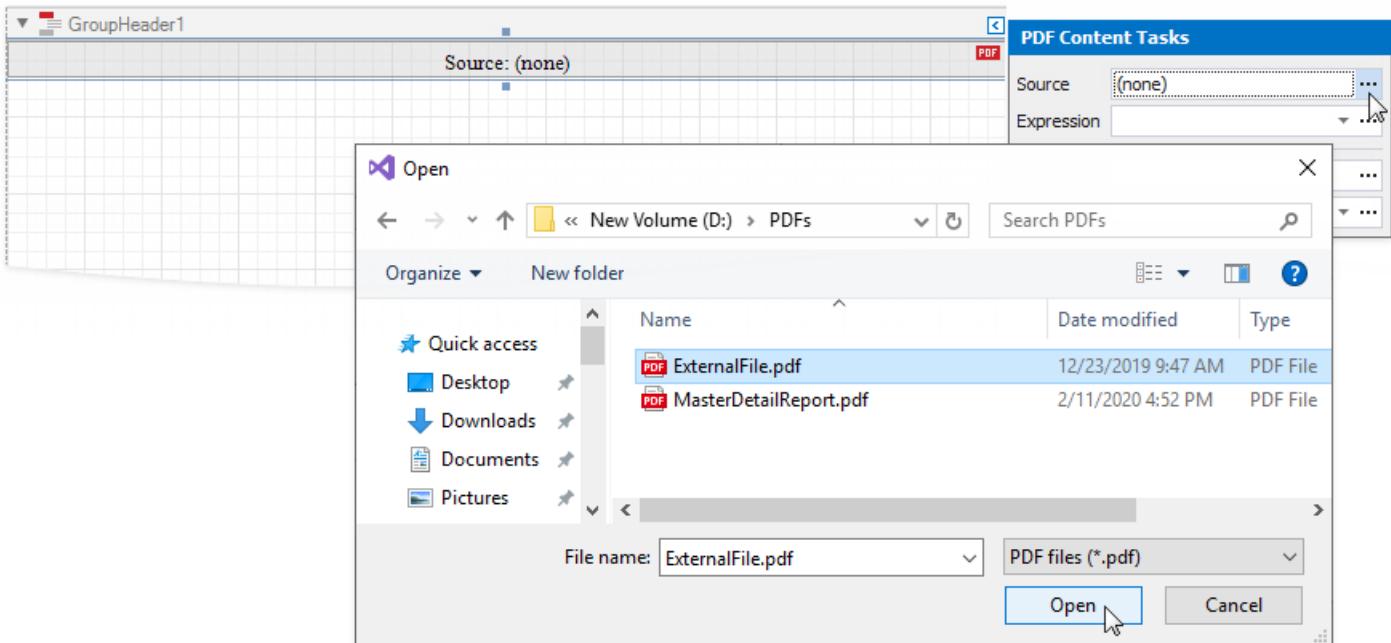
the design surface. The dragged file's content is assigned to the control's **Source** property as **PDF data**.



Specify PDF Data

You can assign PDF data to the control's **Source** property.

Expand the **PDF Content**'s smart tag and click the **Source** property's ellipsis button to obtain the binary data from a file.



When users save a report, the **Source** property value persists in the report file.

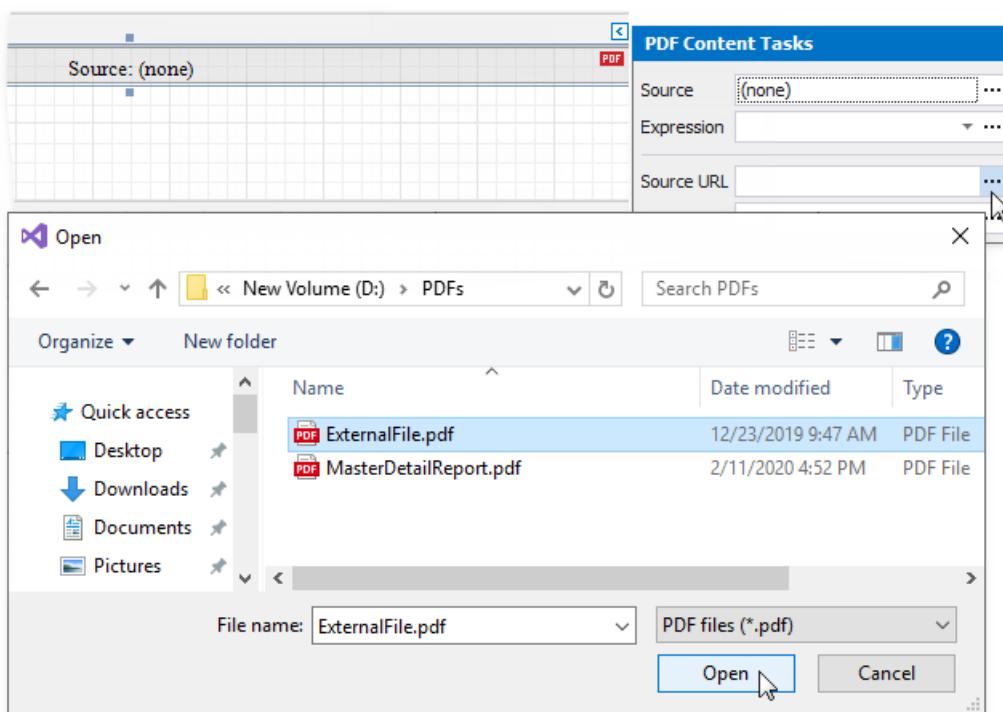
TIP

See the [Use Expressions](#) section below for information on how to conditionally specify the **Source** property value, or bind it to a report parameter or data source field.

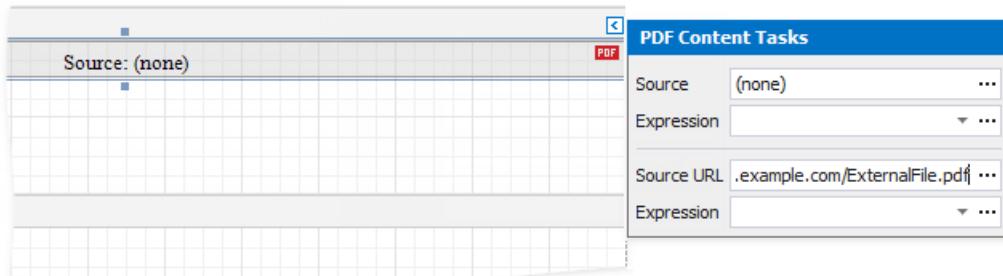
Specify a Reference to a PDF Document

You can use an external PDF document as a source of PDF data. Set the **Source URL** property to a local file system path or URL.

Expand the **PDF Content**'s smart tag and click the **Source URL** property's ellipsis button to specify the PDF document location in the file system.



To specify the PDF document's location on the Web, use the URL as the **Source URL** property's value.



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.

TIP

See the [Use Expressions](#) section for information on how to conditionally specify the **Source URL** property value, or bind it to a report parameter or data source field.

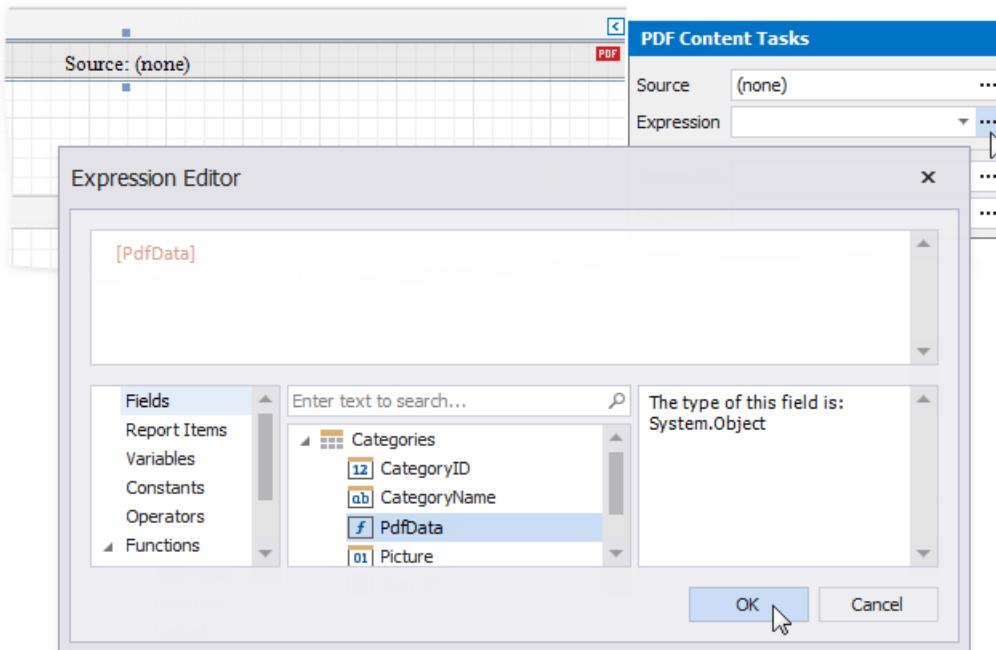
The **Source URL** property value takes precedence over the **Source** property value. If you specify both properties, **PDF Content** includes the content specified by **Source URL**. However, if the file specified in the **Source URL** property cannot be loaded, the binary data from the **Source** property is used.

Use Expressions

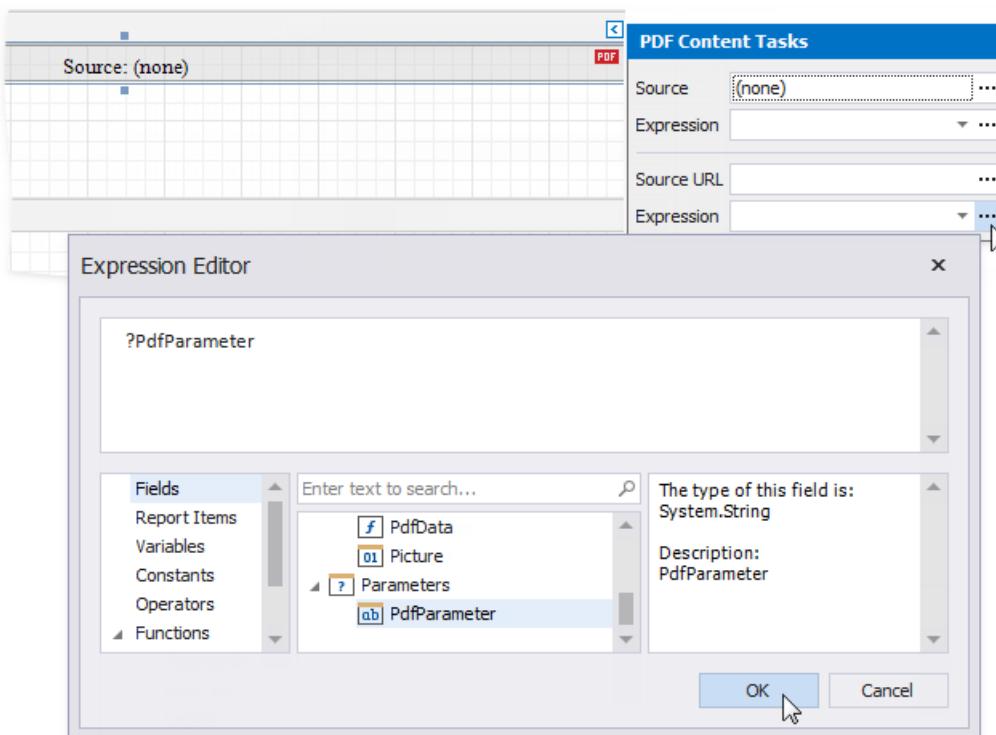
You can specify an expression that specifies the **Source** or **Source URL** property value. An expression can include [report parameters](#) or [data source](#) fields, or it can conditionally specify a property value.

Expand the **PDF Content**'s smart tag.

- Click the **Expression** property's ellipsis button below the **Source** property. Use the invoked **Expression Editor** to create an expression that identifies the source of binary PDF data.



- Click the **Expression** property's ellipsis button below the **Source URL** property. Use the invoked **Expression Editor** to create an expression the value of which identifies a URL or path to a PDF document.



Limitations

- PDF content always starts on a new page. Report content is printed?on a new page after the PDF content is finished.
- 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 adds a visual signature to a report exported to PDF.

You can sign a report document when you [export it to PDF](#). The signature information you specify is saved to the document's **PDF**

Signature Options. The **PDF Signature** control visualizes the document signature information:

- Certificate name
- Distinguished name
- Location
- Signature date
- Signature reason

The screenshot shows a report design interface with a 'Detail' section. At the top left is a 'Detail' button. Below it is a large rectangular area containing a grid pattern. In the bottom-left corner of this area, there is a text input field containing the text 'I have read and accept this Website Terms of Use statement'. To the right of this input field is a red arrow pointing downwards. To the right of the grid area is a signature placeholder with a handwritten signature 'Dr.' and a timestamp '10/20/2020 12:00:00 AM +03:00'. To the right of the timestamp is a small 'PDF' icon. To the right of the signature is a table with the following data:

Digitally signed by your common name here	PDF
DN: your distinguished name here	
Reason: your signing reason here	
Location: your signing location here	
Date: 10/20/2020 12:00:00 AM +03:00	

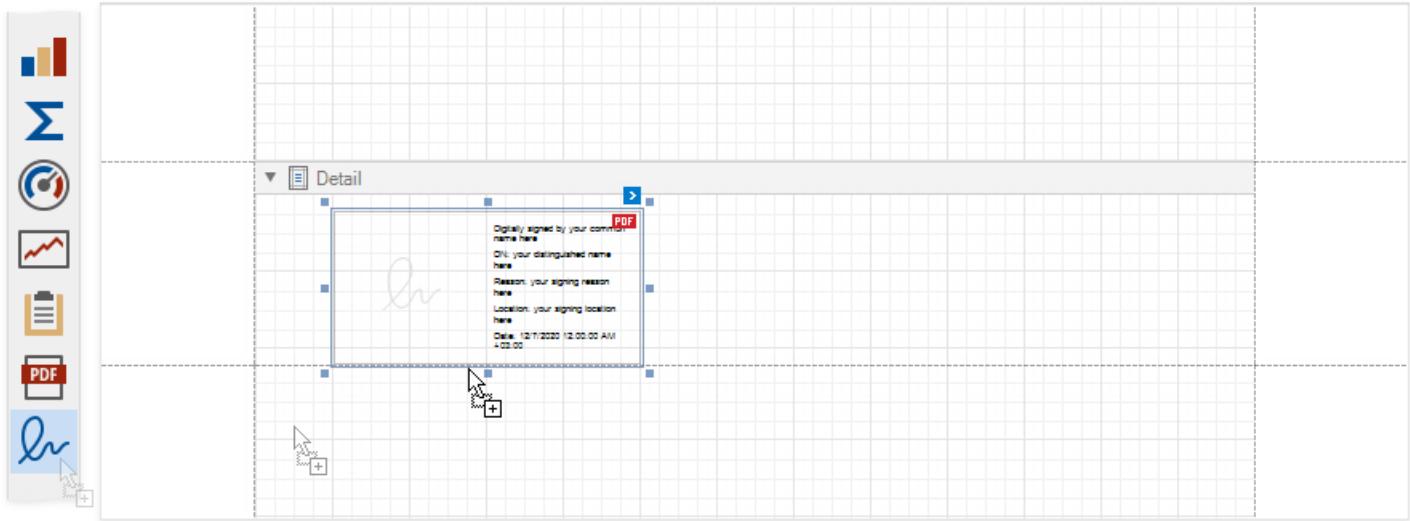
Below this is another section with a signature 'Nancy Davolio' and the same timestamp and table data. A text input field below the signature contains the text 'I hereby approve this document:'.

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

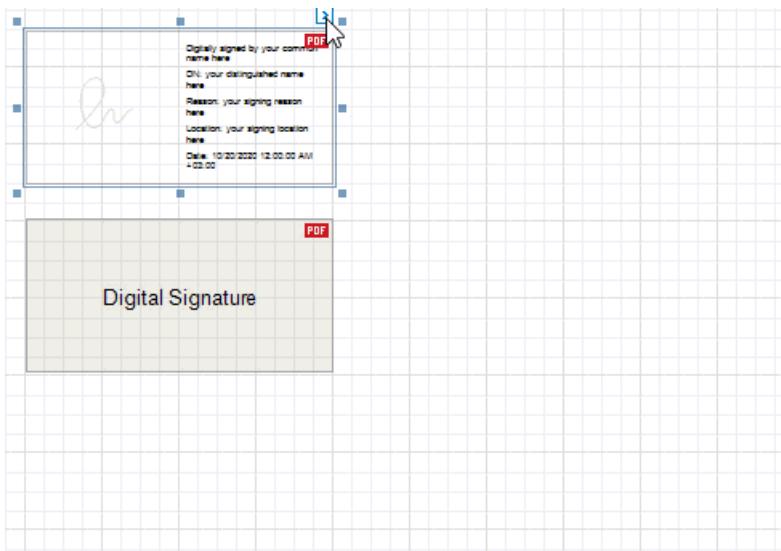
Drop the **PDF Signature** control from the **Toolbox** onto a report.



Report with Multiple Signatures

The first **PDF Signature** control is added to a report with the **Display Document Signature** property enabled. This control visualizes the document signature information.

Other **PDF Signature** controls are added with the **Display Document Signature** property disabled. When a report is exported to PDF, these controls are converted to signature form fields. Users can open an exported file in a PDF editor and put their signatures in these fields.



Enable a control's **Display Document Signature** property to make it visualize the document's signature information. This property becomes disabled for all other signature controls.

If all signature controls have the **Display Document Signature** property disabled, the signature information is added to an exported file but is not displayed.

Specify Signature Options

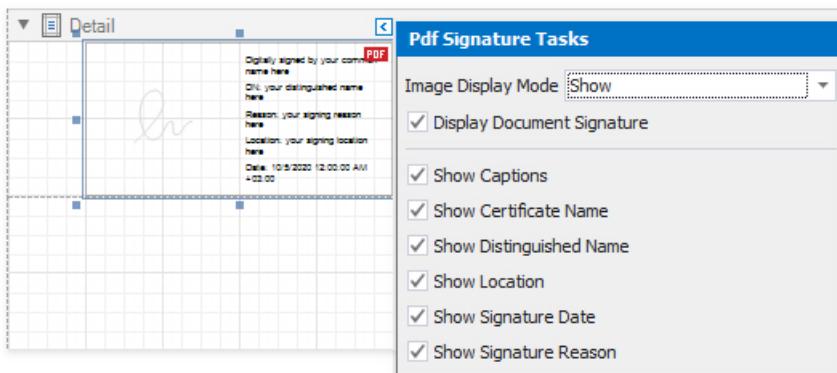
Expand the control's smart tag and enable check boxes for the signature fields that you want to display.

- **Image Display Mode**

Specifies whether the control shows the signature image. The following property values are available:

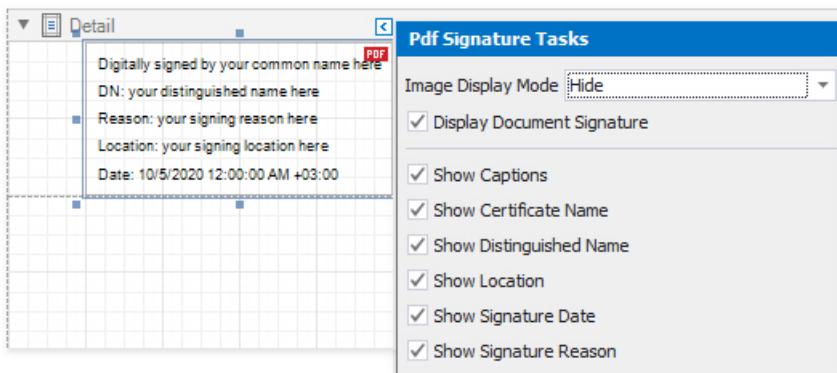
- **Show**

The control shows a sample signature image. If an exported document is signed, the converted PDF form field shows the actual signature image.



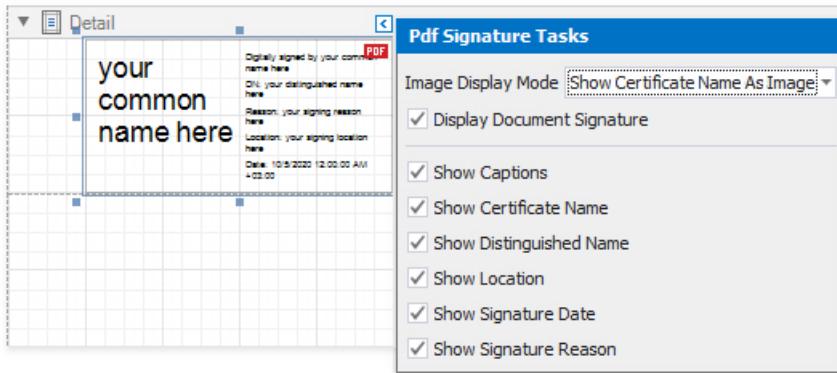
- **Hide**

The control does not show a signature image.



- **Show Certificate Name As Image**

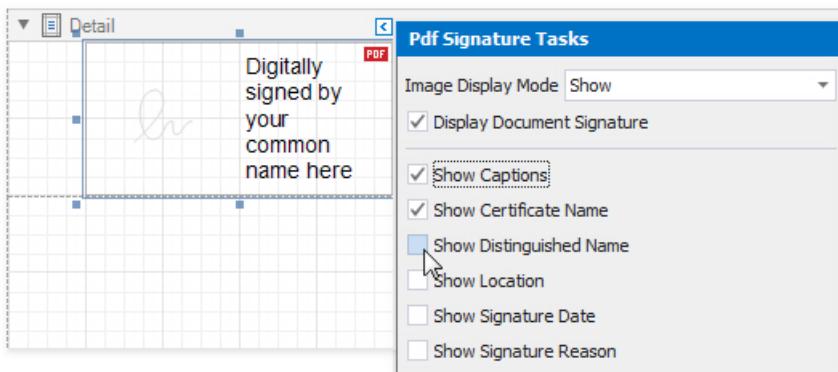
The control shows a sample certificate name in place of a signature image. When an exported document is signed, the converted PDF form field shows the actual certificate name.



- **Display Document Signature**

Specifies whether the control displays the document signature information. For more information, refer to the following section: [Report with Multiple Signatures](#).

The signature control shows the **certificate name**, **distinguished name**, **location**, **signature date**, and **signature reason**. Disable the corresponding options in the control's smart tag to hide these fields.



Disable the **Show Captions** property to exclude captions from the fields listed above.

SHOW CAPTIONS ENABLED	SHOW CAPTIONS DISABLED
<p>The screenshot shows the 'Pdf Signature Tasks' dialog box with 'Show Captions' checked. The 'Caption for Certificate Name' field contains the text 'Digitally signed by your common name here', which is highlighted with a red box. The 'Show Captions' checkbox is checked and has a cursor pointing at it.</p>	<p>The screenshot shows the 'Pdf Signature Tasks' dialog box with 'Show Captions' unchecked. The 'Caption for Certificate Name' field contains the text 'your common name here', which is displayed without the surrounding box.</p>

Limitations

The **PDF Signature** control is not exported to non-PDF formats. A placeholder is added to exported documents instead.

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](#)
- [Convert Labels to Table](#)
- [Hide Table Cells](#)

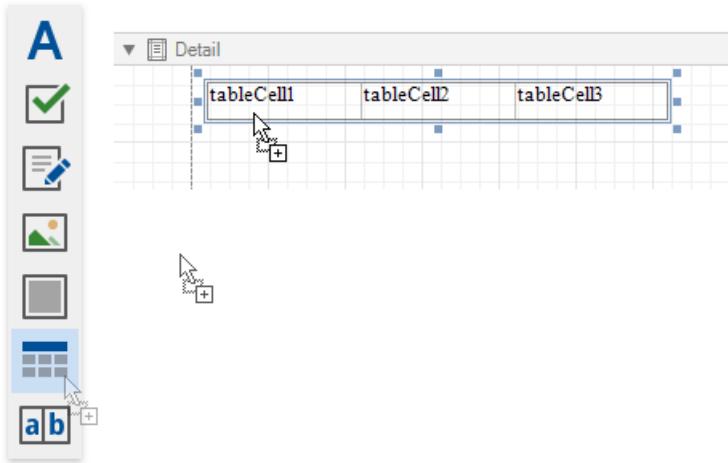
NOTE

Refer to the [Table Reports](#) tutorial for information on how to create a data-bound table report.

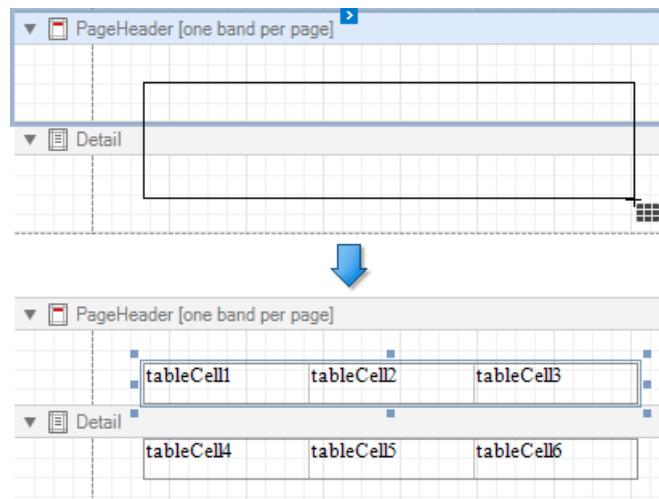
Table Overview

The **Table** control displays information in a tabular format and allows you to create [table reports](#).

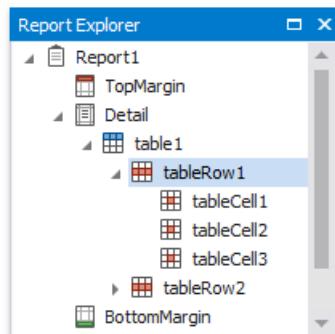
You can add a table control by dragging the **Table** item from the [Toolbox](#) onto the report's area.



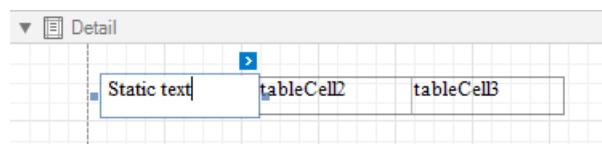
You can also create two tables simultaneously, for instance, one that shows column titles in the Page Header and one that shows regular information in the Detail band. Select the **Table** item in the Toolbox and draw a rectangle across these bands.



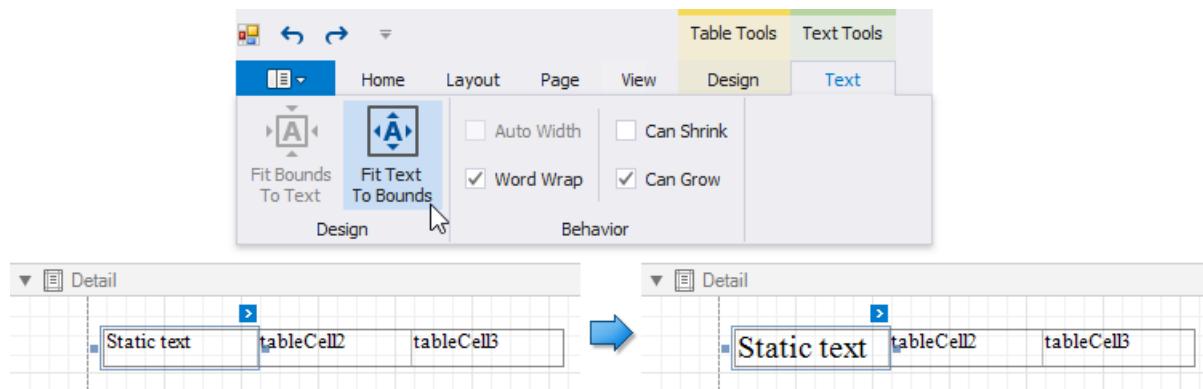
The table control contains one or more rows. Each row contains one or more cells. See the [Report Explorer](#) for a table structure example.



You can double-click the cell to invoke its in-place editor and type the desired static text.



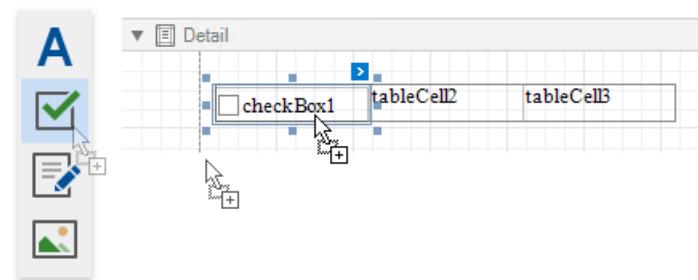
You can adjust the font size of a cell's static text to fit into the cell's boundaries. Use the **Fit Text to Bounds** button in the toolbar's **Text** contextual tab, or right-click this cell and select **Fit Text to Bounds** in the context menu.



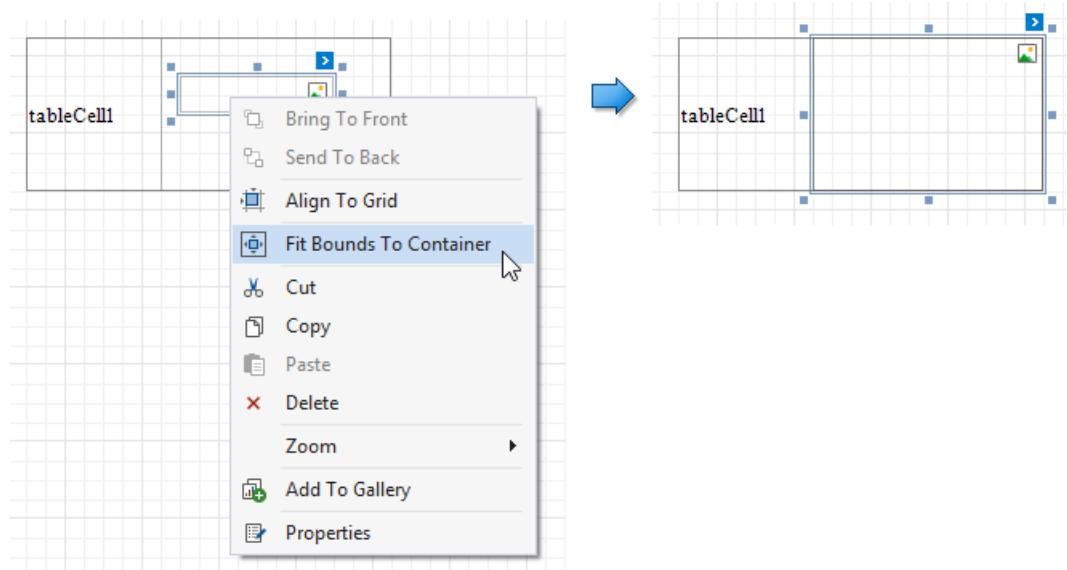
Refer to [Bind Table Cells to Data](#) to learn about providing dynamic content to table cells.

A table cell is like an **Label** control - it provides the same options for text formatting, alignment, appearance, interactivity, etc.

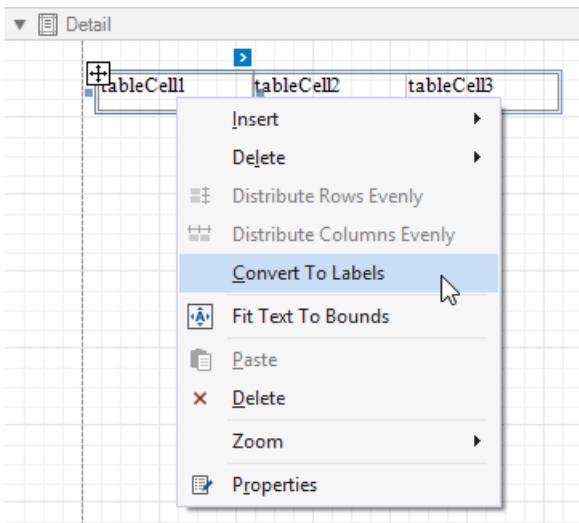
You can also make a table cell act as a container for other report controls by dropping the required control from the toolbox on this cell.



If a table cell includes only one control, you can right-click this control and use the **Fit Bounds to Container** command in the context menu. The same command is available in the toolbar's **Layout** tab. This command resizes the control so that it occupies all the available cell space (excluding borders).



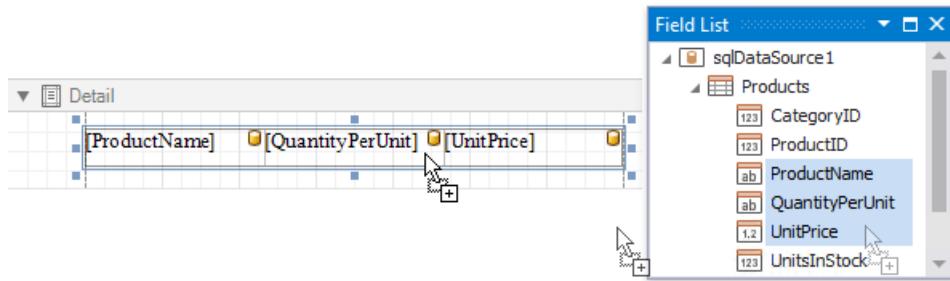
To transform a table into a set of **Label** controls, right-click a table or any of its cells and select **Convert To Labels**. Table cells containing other controls are converted to **Panel** controls.



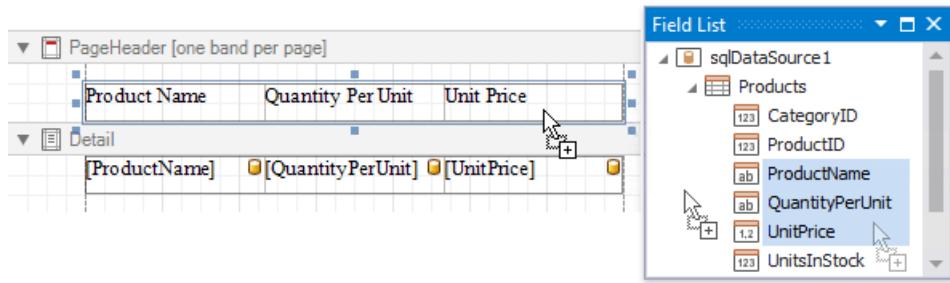
You can assign different [visual styles](#) for even and odd table rows to improve readability.

Bind Table Cells to Data

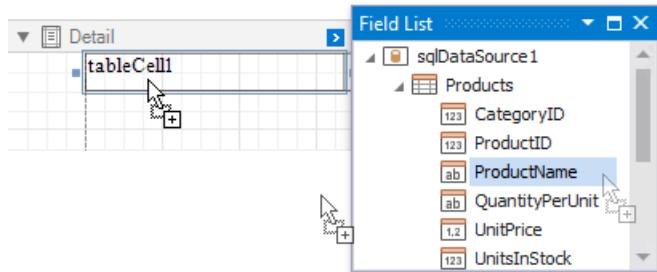
You can create a table control with cells **bound** to data fields obtained from a report's data source using the [Field List](#). Select data fields by clicking them while holding the CTRL or SHIFT key and drop them onto the Detail band.



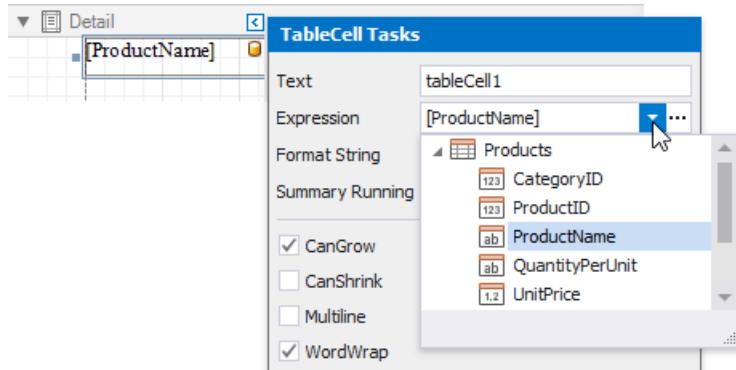
Drag and drop the same fields with the right mouse button to create column headers with the corresponding field names.



You can bind individual table cells to data in the same ways as [Label](#) controls. Dropping a data field onto an existing cell binds this cell to a corresponding field.



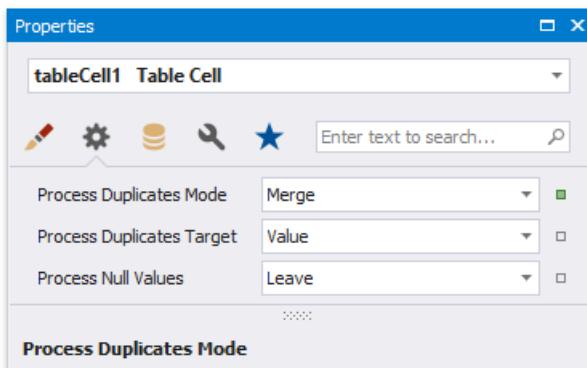
Alternatively, click the cell's smart tag, expand the **Expression** drop-down list and select the required data field



Clicking the **Expression** option's ellipsis button invokes the Expression Editor. This allows you to construct a complex binding expression involving two or more data fields.

See the [Bind Report Controls to Data](#) topic to learn more about creating data-aware controls.

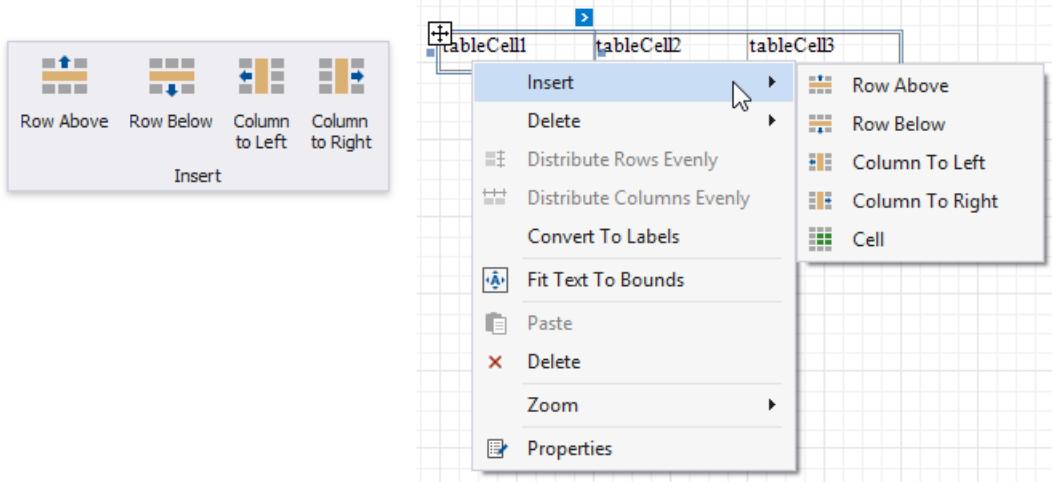
The **Process Duplicates Mode** and **Process Duplicates Target** options enable you to merge cells with identical values.



Manage Table Structure

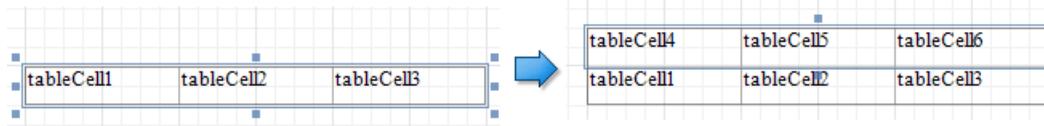
Insert Table Rows and Columns

You can use the **Insert** group in the toolbar's **Table Tools** contextual tab or the **Insert** context menu items to add new rows and columns. The added cells inherit the source cells' size and appearance settings.



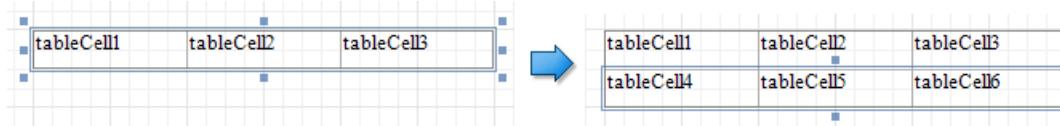
- **Insert Row Above**

Inserts a row above the current cell and shifts the existing rows up if there is enough space above the table (otherwise, shifts the existing rows down).



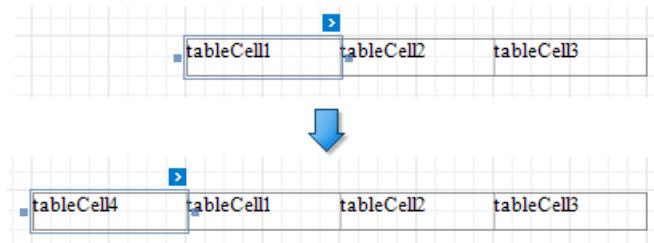
- **Insert Row Below**

Inserts a row below the current cell and shifts the existing rows down. This command increases the band height to accommodate all the rows if there is not enough space under the table.



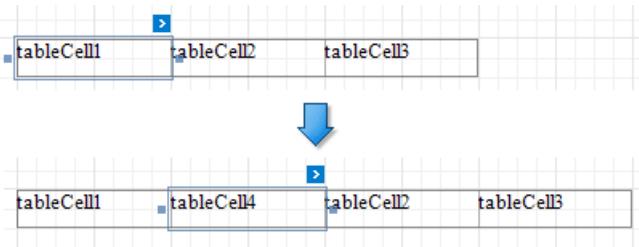
- **Insert Column to Left**

Inserts a new column to the left of the current cell and shifts the leftmost columns to the left (otherwise, shifts these columns to the right).



- **Insert Columns to Right**

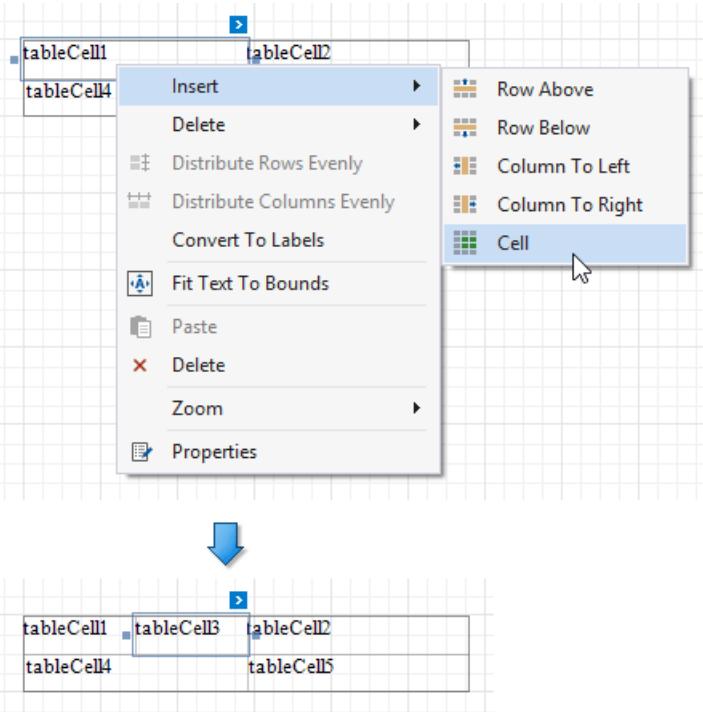
Inserts a new column to the right of the current cell and shifts the rightmost columns to the right. This command decreases all columns' width proportionally to accommodate all the columns if there is not enough space to the right of the table.



Insert, Split and Merge Table Cells

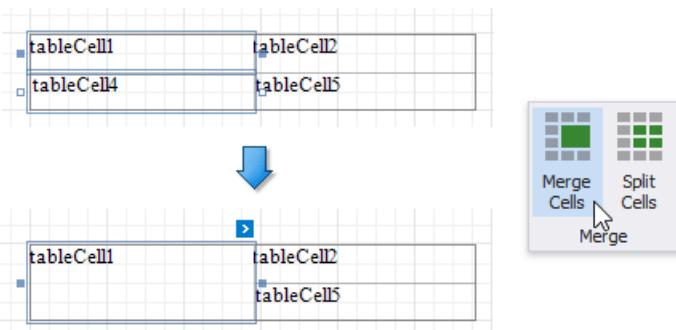
- **Insert Cell** (context menu item)

Divides the current cell width in half and inserts a new cell to the right. The added cell copies the source cell's appearance settings.



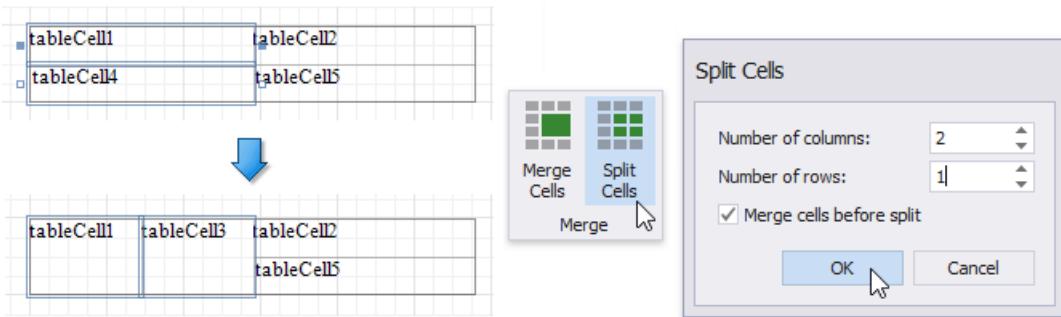
- **Merge Cells**

Merges the selected cells. This command is available if the selection has a rectangle form.



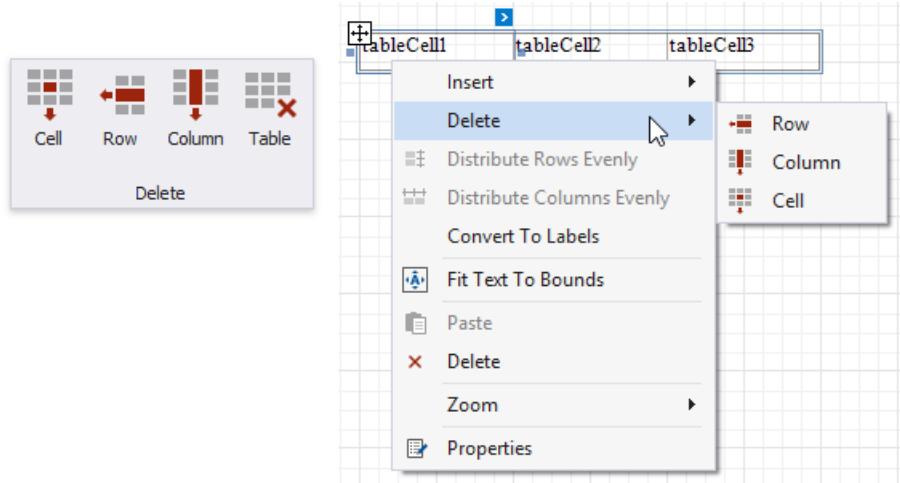
- **Split Cells**

Invokes the **Split Cells** dialog where you can specify the number of columns and rows to split the selected cells. You can apply this change to each selected cell individually, or merge the cells and then split the resulting cell.



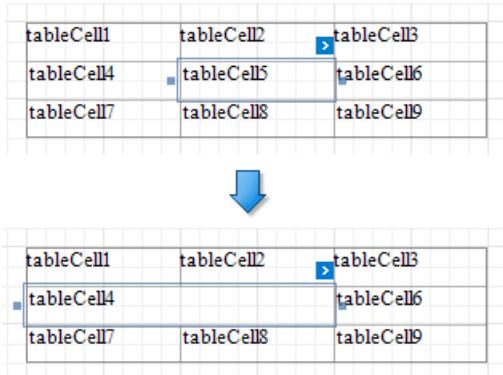
Delete Table Elements

Use the **Delete** group in the **toolbar's Table Tools** contextual tab or the **Delete** context menu items to remove table elements.



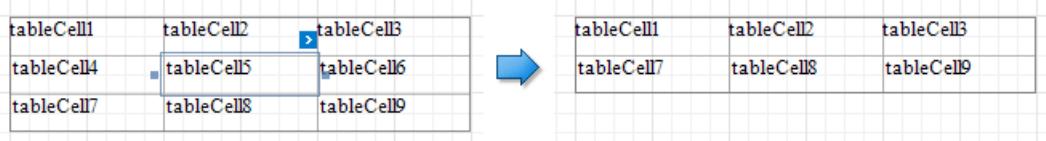
- **Delete Cell**

Deletes a table cell and stretches the previous cell to occupy the remaining space. If this cell is the first in the row, the next cell is stretched.



- **Delete Row**

Deletes a row and shifts the existing rows up.



- **Delete Column**

Deletes a column and shifts the existing columns to the left.

tableCell1	tableCell2	tableCell3
tableCell4	tableCell5	tableCell6
tableCell7	tableCell8	tableCell9



tableCell1	tableCell2	tableCell3
tableCell4	tableCell5	tableCell6
tableCell7	tableCell8	tableCell9

- **Delete Table**

Deletes the entire table.

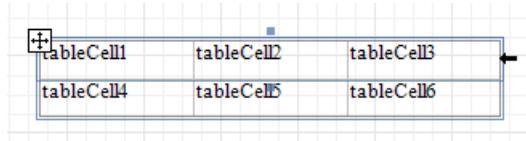
Manipulate Table Elements

Select Table Elements

You can click a table cell to select it and [access its settings](#). To select multiple cells, hold the SHIFT or CTRL key and click cells.

tableCell1	tableCell2	tableCell3
tableCell4	tableCell5	tableCell6

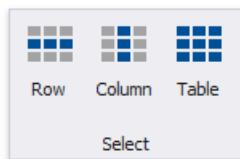
Use the arrow that appears when a mouse cursor hovers over the table edges to select an entire row or column.



A diagram of a 2x3 table with six cells labeled tableCell1 through tableCell6. A small blue square selection handle is located at the bottom-left corner of the table area. A horizontal arrow points to the right from the handle, indicating it can be used to select the entire row.

Click the  button at the table's left bottom corner to select the whole table. You can also use this button to move the table.

The **Select** group in the [toolbar](#)'s **Table Tools** contextual tab also enables you to select the current row, the current column or the entire table.

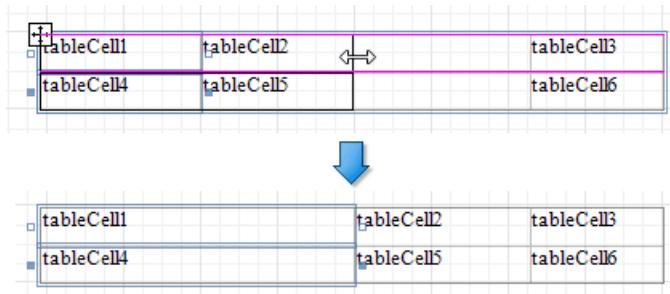


Resize Table Elements

You can resize a table or its cell by dragging the rectangle drawn on its edge or corner.

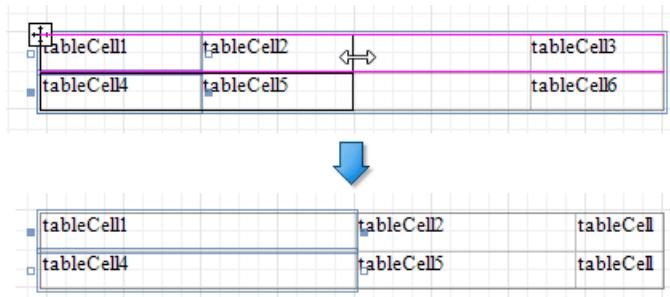
The following column resizing modes are supported:

- Resizing a column changes the next column's width without affecting the other columns (keeps the table dimensions intact).



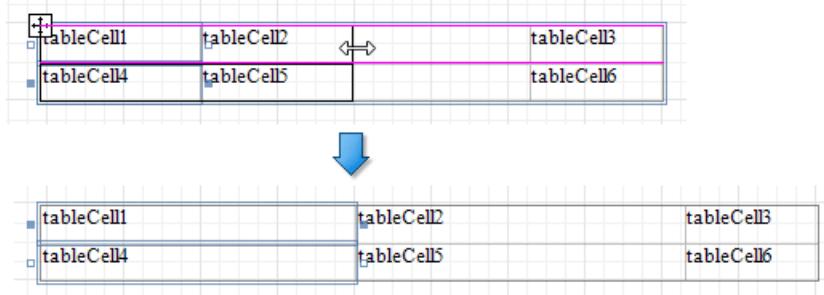
A diagram showing a 2x3 table with a horizontal double-headed arrow at the top center of the second column, indicating it is being resized. The table has six cells labeled tableCell1 through tableCell6. Below this, a large blue downward-pointing arrow indicates the result of the resize: the second column is wider than the first, and the third column is narrower than the second, while the first column remains the same width.

- Resizing a column while holding the CTRL key changes the next columns' width while maintaining their proportion to the overall table (keeps the table dimensions intact).



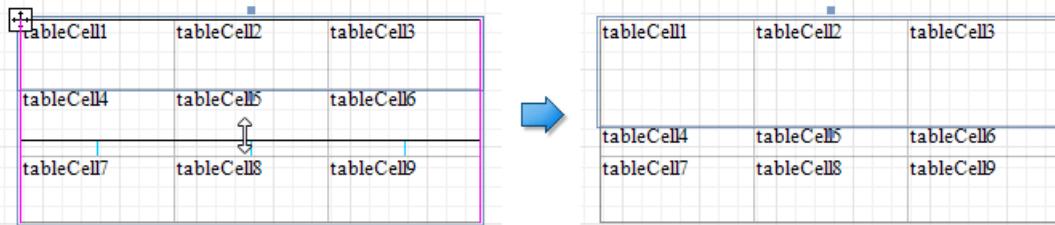
A diagram showing a 2x3 table with a horizontal double-headed arrow at the top center of the second column, indicating it is being resized. The table has six cells labeled tableCell1 through tableCell6. Below this, a large blue downward-pointing arrow indicates the result of the resize: the second column is wider than the first, and the third column is narrower than the second, but all three columns maintain the same relative width proportion as they did in the original table.

- Resizing a column while holding the SHIFT key shifts the next columns without changing their size.

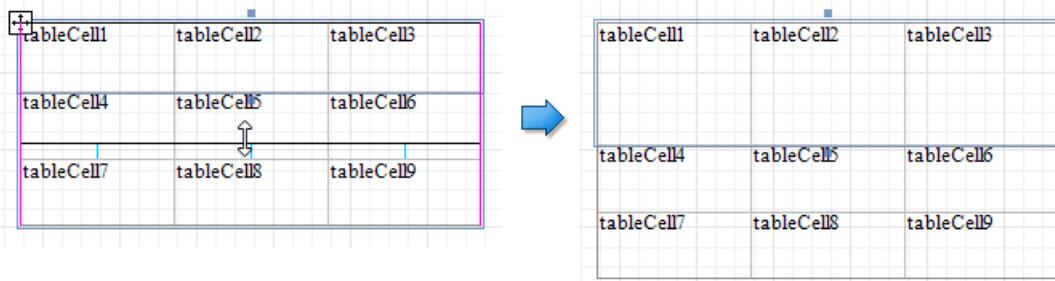


The following row resizing modes are supported:

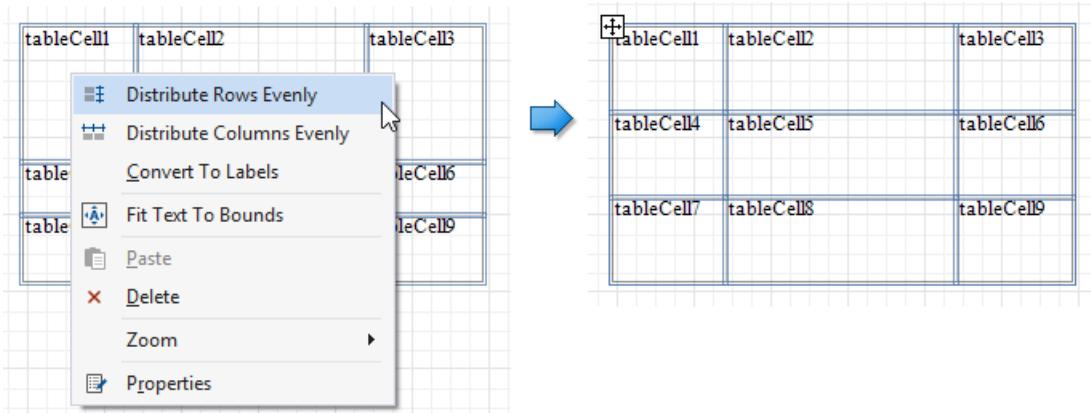
- Resizing a row changes the next row's width without affecting the other rows (keeps the table dimensions intact).



- Resizing a row while holding the SHIFT key shifts the next rows without changing their size.

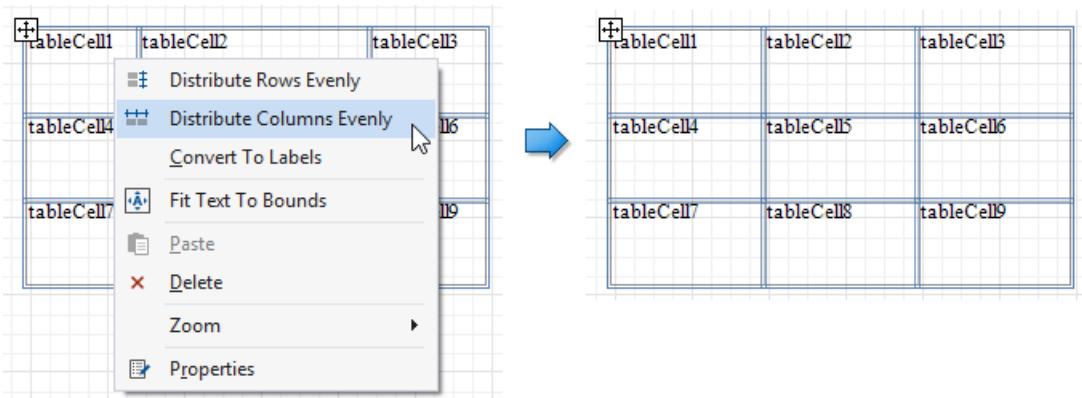


You can set the same size for multiple table columns or rows. Select the required rows or the whole table, right-click the selected area and choose **Distribute Rows Evenly**.



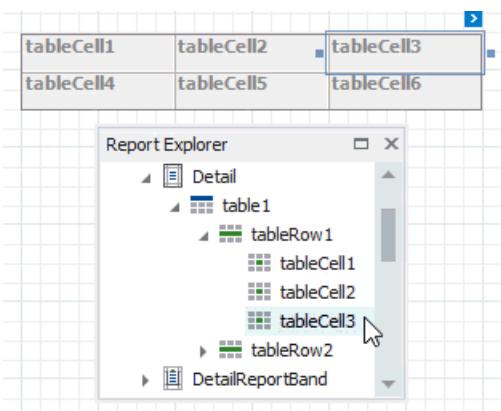
If the cell's content is partially visible in the resulting row, this row automatically increases its height to fit its content and also adjusts the other rows accordingly.

You can resize columns equally in a similar way by selecting the columns or the table itself and choosing **Distribute Columns Evenly** in the context menu.



Reorder Table Rows and Cells

You can change the order of table rows and cells. Switch to the [Report Explorer](#) window, select a row or cell and drag it to a new position.



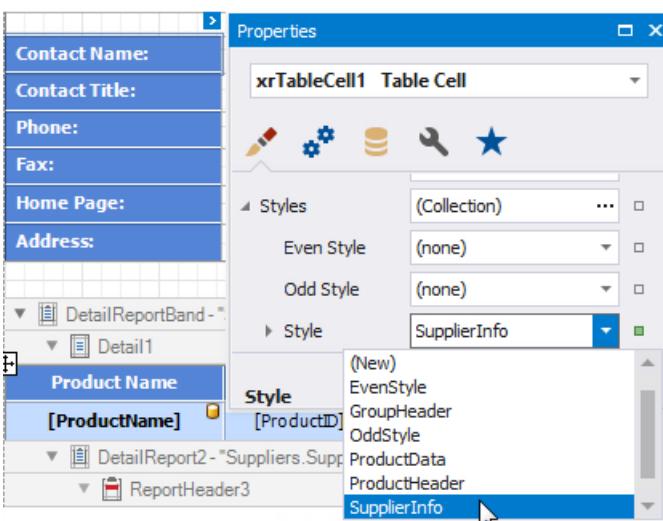
The Report Explorer highlights the possible drop targets when you drag an element over them.

NOTE

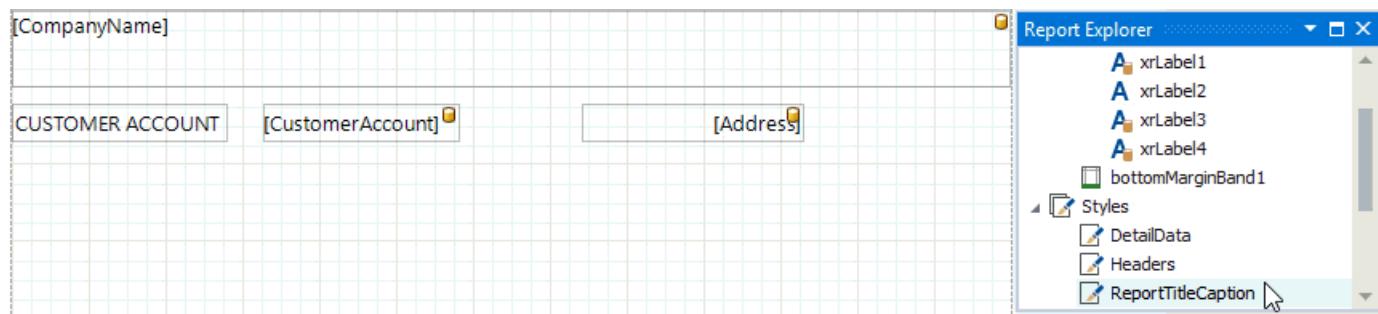
You can move table rows and cells only within the same parent control.

Apply Styles to Table Elements

Select a table element and switch to the [Property Grid](#). Expand the **Styles** group and set the **Style** property to the style name.



As an alternative, you can drag a style from the Report Explorer onto an element.

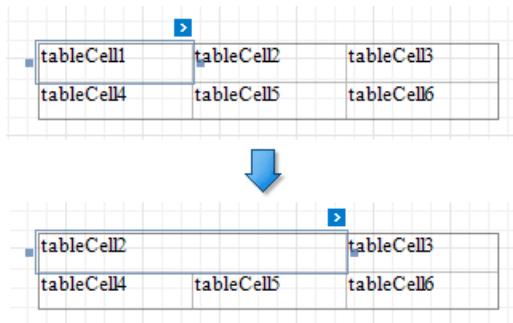


Stretch Table Cells

You can stretch a cell so that it occupies several rows and columns.

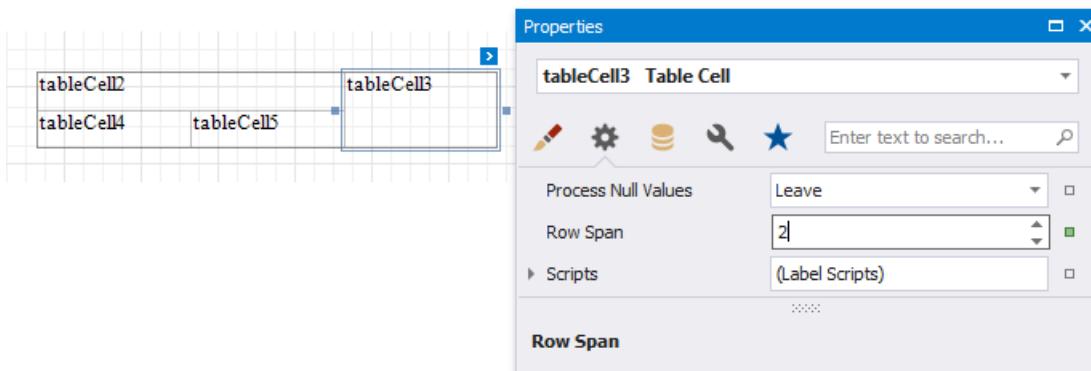
- Stretch a cell across several columns

Remove a neighboring cell by pressing **DELETE** or selecting **Delete | Cell** in the context menu and resize the remaining cells.



- Stretch a cell across several columns

Use a table cell's **Row Span** property to specify the number of rows the table cell spans.



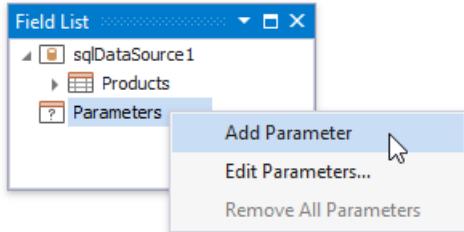
NOTE

For the **RowSpan** property to work properly, the spanned cells should have the same width.

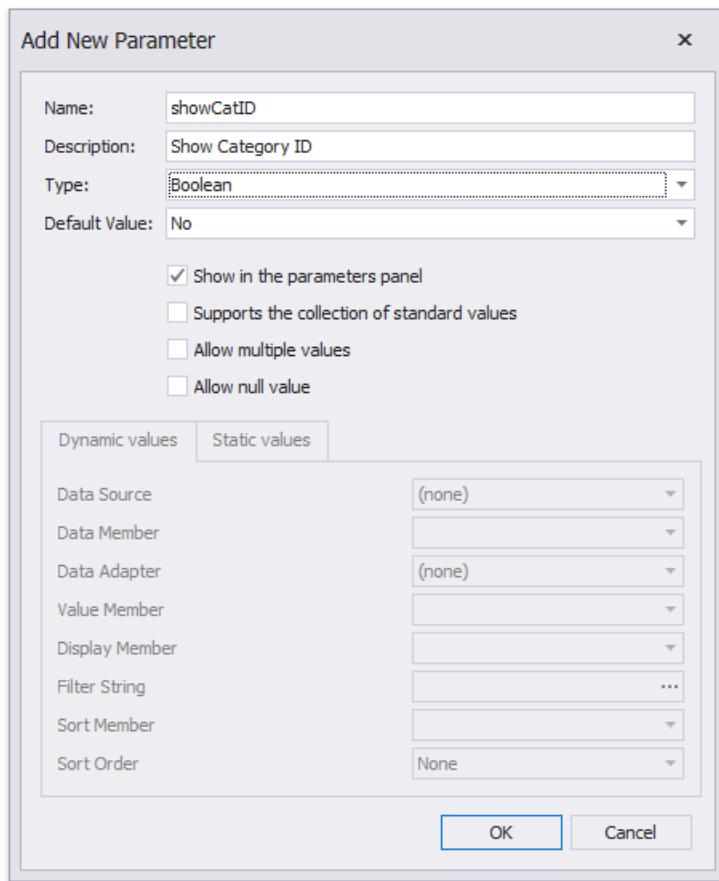
Hide Table Cells

You can hide a specific table cell conditionally, for instance, based on a [report parameter](#) value.

Right-click the **Parameters** section in the [Field List](#) and select **Add Parameter**.

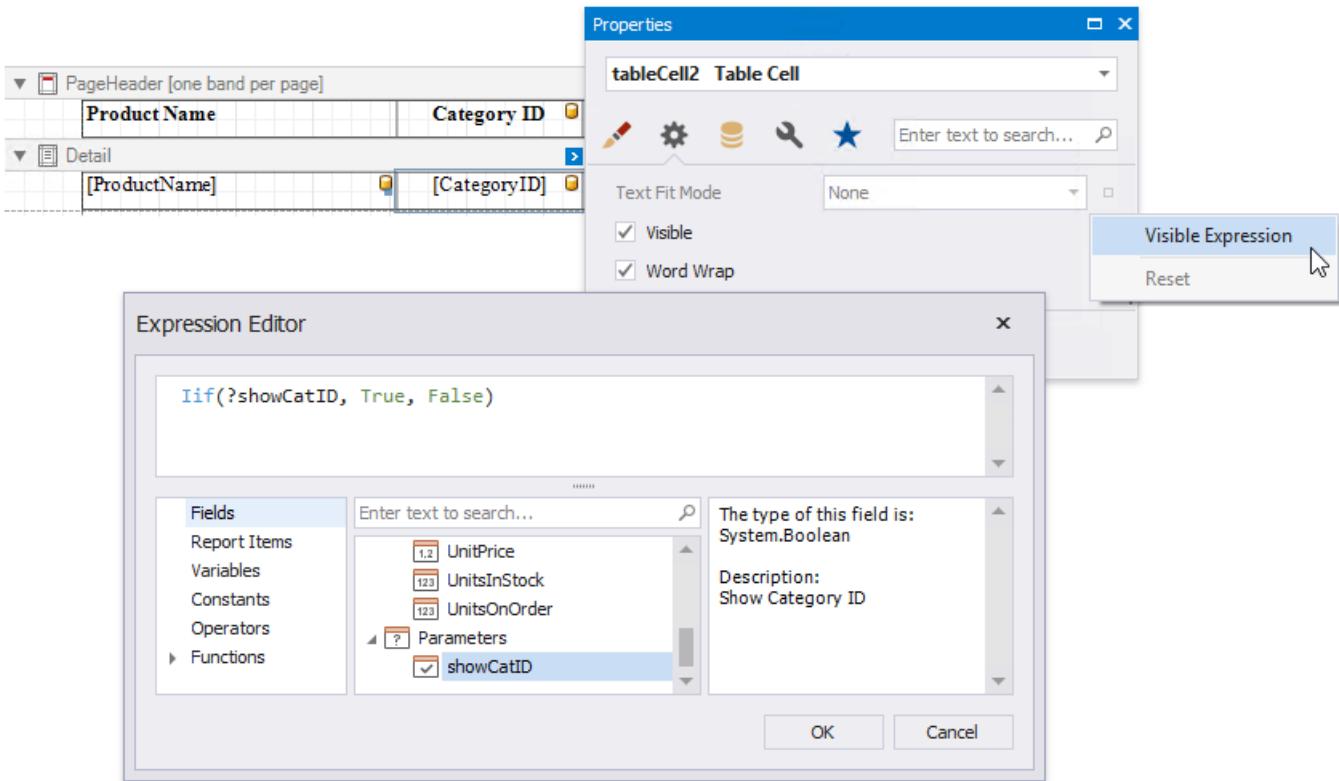


In the invoked **Add New Parameter** dialog, specify the parameter's name and description for Print Preview, and set the type to **Boolean**.

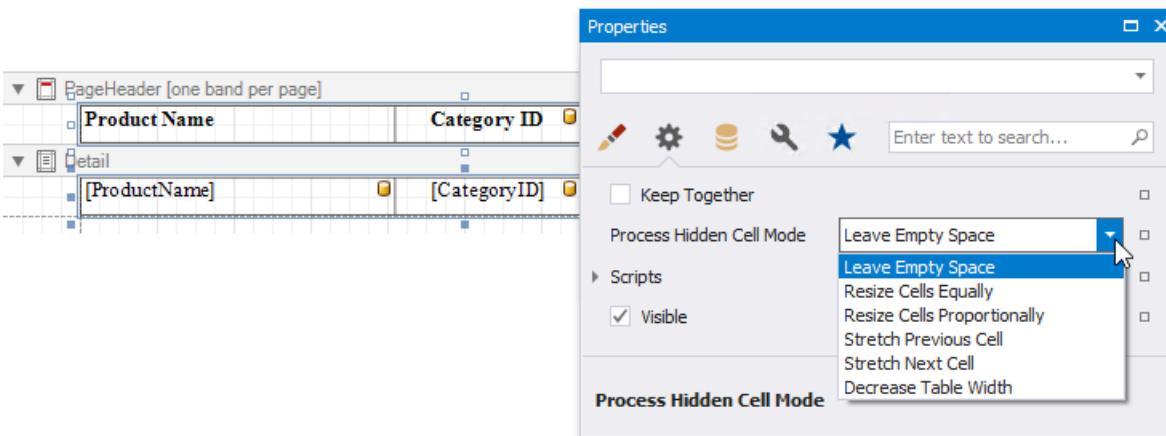


Specify an [expression](#) for the cell's **Visible** property to define a logical condition for displaying or hiding this cell.

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 **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](#)

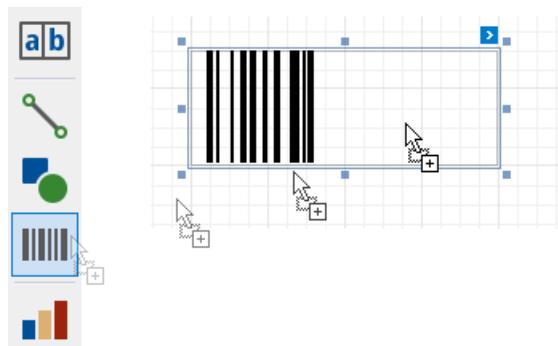
See the following topics to learn about the supported two-dimensional barcodes:

- [ECC200 - Data Matrix](#)
- [GS1- Data Matrix](#)
- [Intelligent Mail](#)
- [PDF417](#)
- [QR Code](#)

Add Barcodes to a Report

Overview

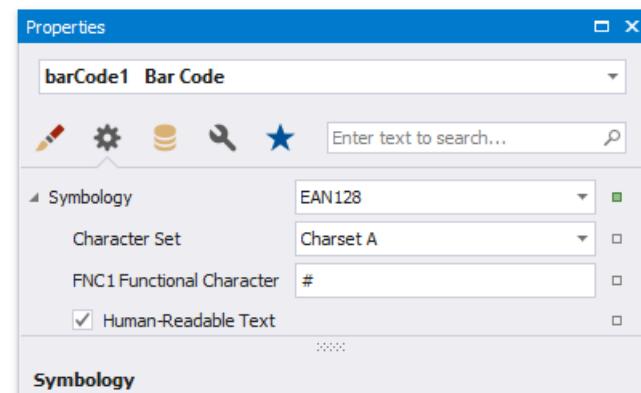
To insert a barcode into a report, drag the **Barcode** item from the [Toolbox](#) onto the report's area.



After creating the barcode, select the barcode type (symbology) in the **Barcode Tools** toolbar tab's **Symbology** gallery.



After specifying the symbology, you can customize the type-specific options of the barcode, which are listed in the [Property Grid](#) under the **Symbology** property.



Main Options

You can use the **Binary Data** property to supply the data that a barcode should encode.

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.

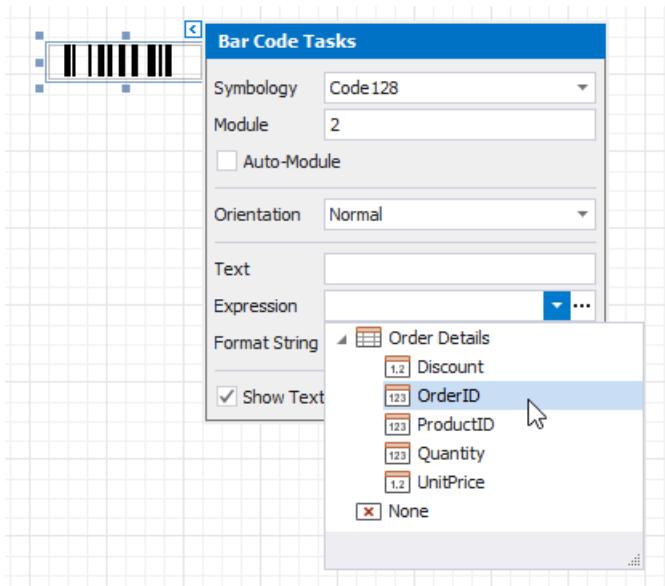
The following are some additional barcode options:

- 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.

Bind to Data

You can [bind](#) the bar code's **Text** property to a data field obtained from a report's data source. Click the control's smart tag, expand the **Expression** drop-down list and select the data field.

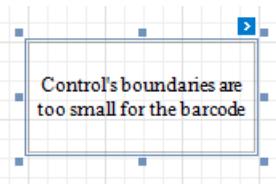


You can also click the **Expression** option's ellipsis button to invoke the **Expression Editor**. This editor allows you to construct a complex binding expression with two or more data fields.

Common Errors

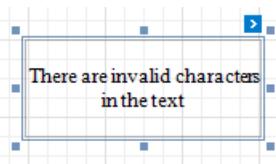
The following section explains how to work around the most frequently encountered errors related to the incorrect use of barcodes.

- 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.



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.



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 One Character (FNC1) 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.

NOTE

For the [Code 128](#) symbology, only **FNC1** characters are currently supported. At present, there is no way to define **FNC2 - 4** characters for this barcode.

For the list of the available application identifiers, refer to the official documentation at 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.

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.

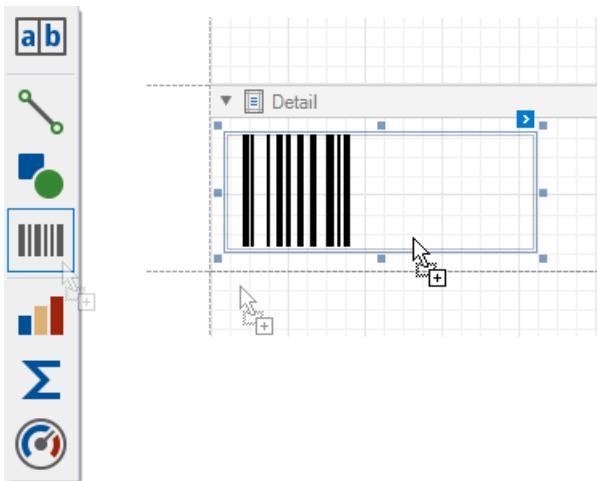
Codabar

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.

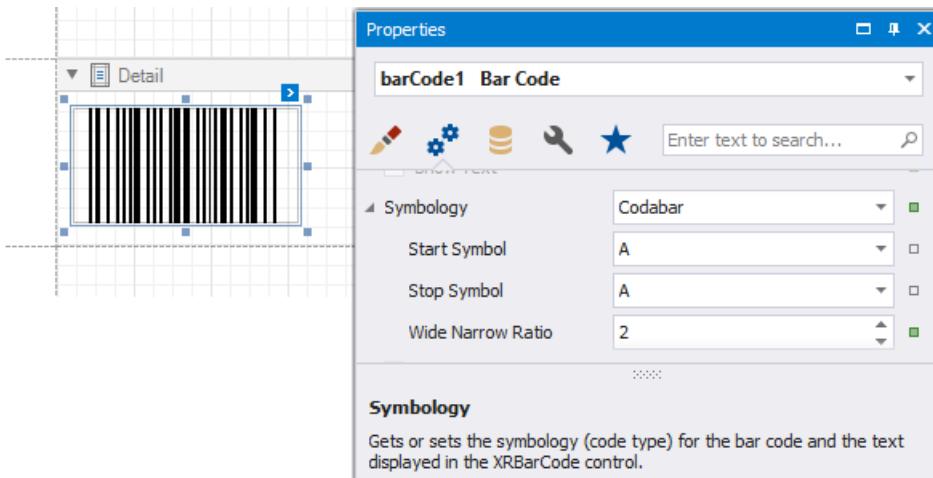


Add the Barcode to a Report

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)

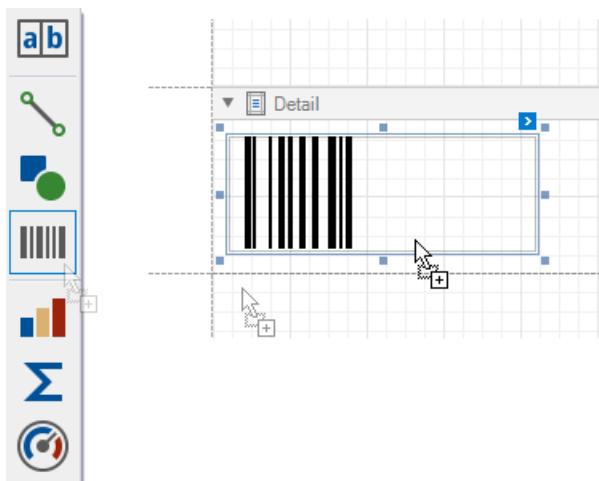
Code 11, also known as **USD-8**, was developed as a high-density numerical-only symbology. It is used primarily in labeling telecommunications equipment.

The symbology is discrete and is able to encode the numbers **0** through to **9**, the dash symbol (-), and start/stop characters.

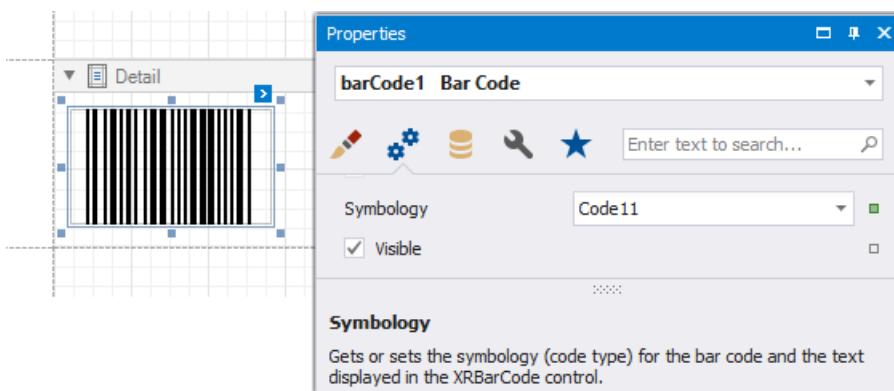


Add the Barcode to a Report

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**.

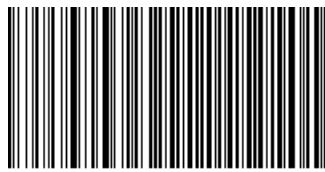


3. Specify common barcode properties.

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.

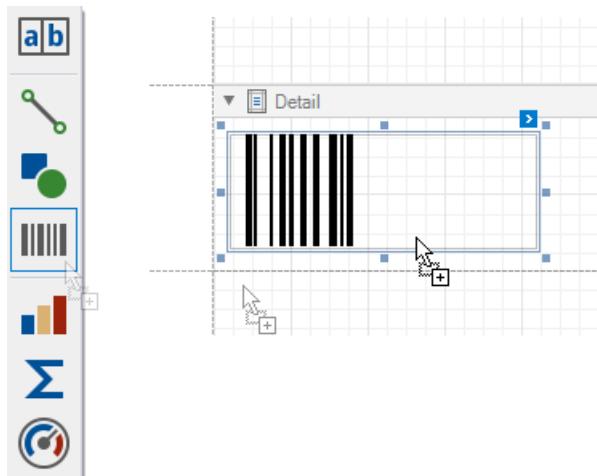
This symbology has been widely implemented in many applications where a relatively large amount of data must be encoded in a relatively small amount of space. Its specific structure also allows numerical data to be effectively encoded at double-density.



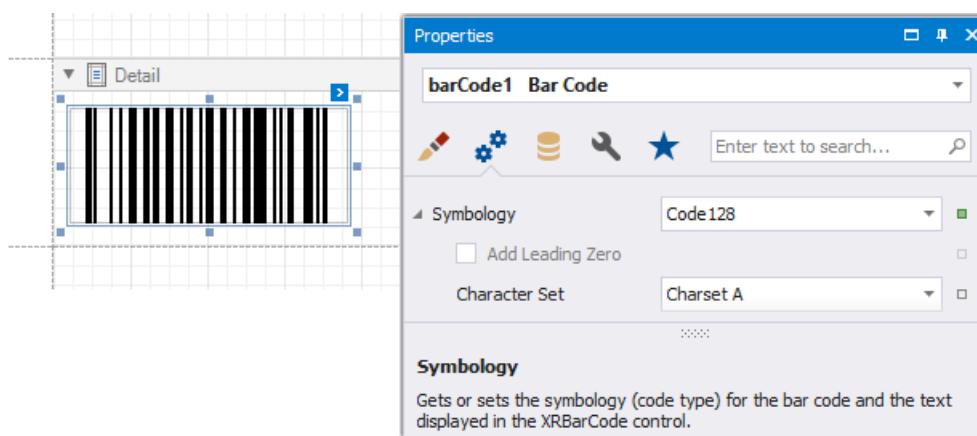
BarCode 0123456

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 property specific to **Code 128**:

- **Character Set**

Specifies the set of symbols which can be used when setting the barcode's text.

Code 39 (USD-3)

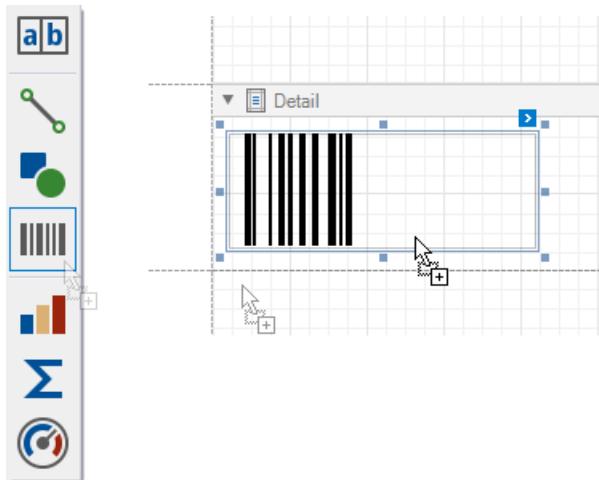
Code 39, the first alpha-numeric symbology to be developed, is still widely used, particularly in non-retail environments. It is the standard barcode used by the United States Department of Defense, and is also used by the Health Industry Barcode Council (HIBCC). **Code 39** is also known as "**3 of 9 Code**" and "**USD-3**".



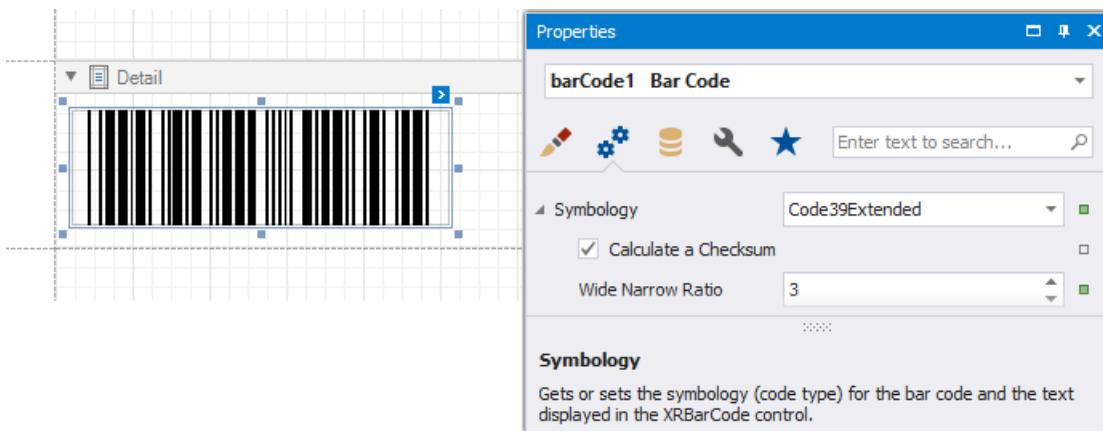
BARCODE

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**

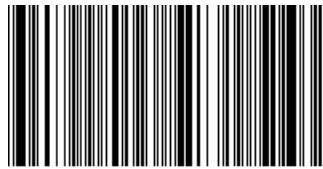
Specifies whether to calculate a checksum for the barcode.

- **Wide Narrow Ratio**

Specifies the density of a barcode's bars.

Code 39 Extended

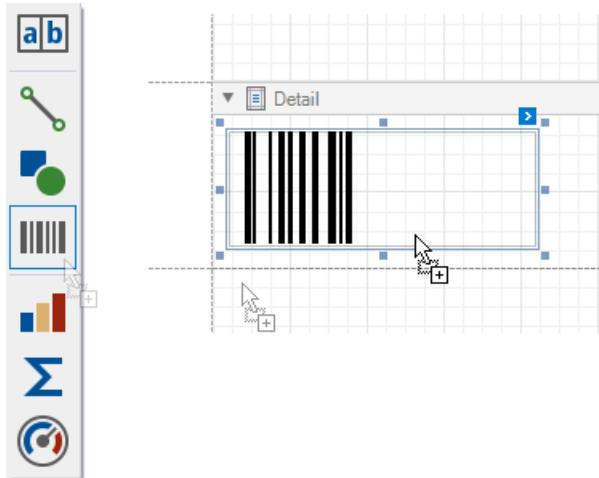
Using **Code 39**'s "Full ASCII Mode", it is possible to encode all **128** ASCII characters. This is accomplished by using the **(\$) (/) (%)**, and **(+)** symbols as "shift" characters. These characters combined with the single character that follows indicate which Full ASCII character is to be used.



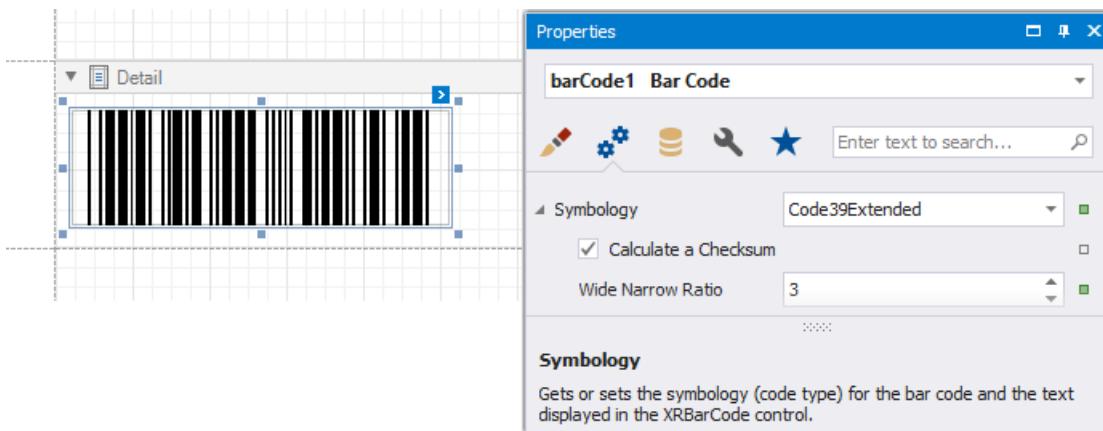
BarCode

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

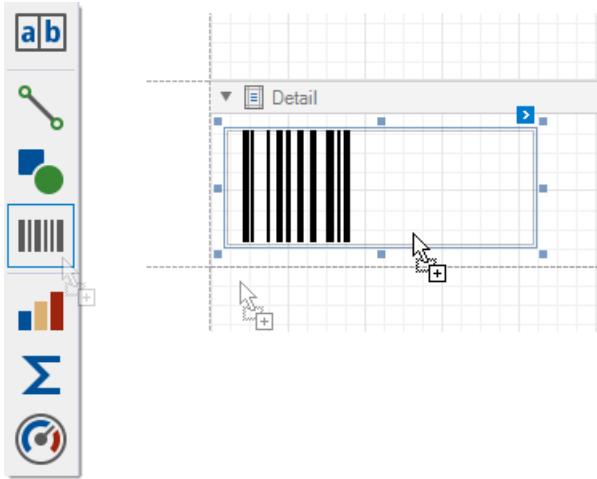
Code 93 was designed to supplement and improve upon **Code 39**.

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).

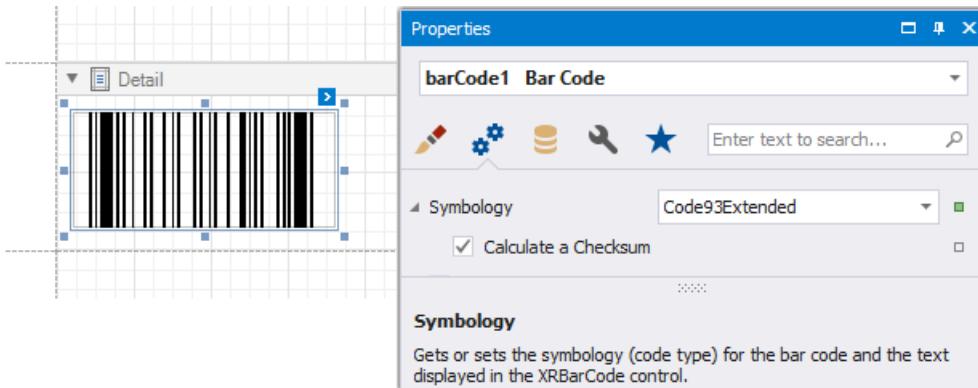


Add the Barcode to a Report

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 property 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

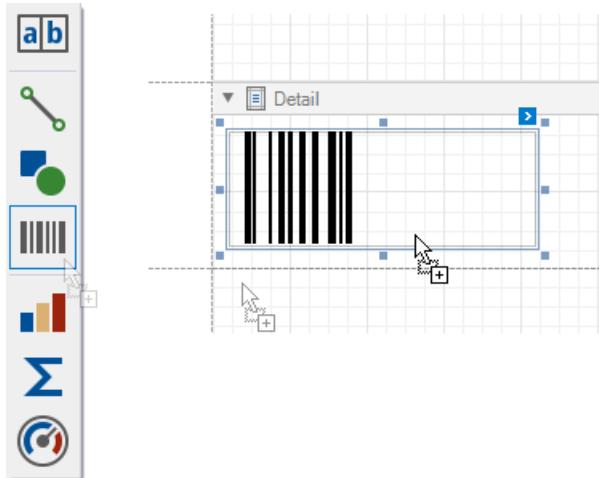
Using **Code 93**'s "Full ASCII Mode", it is possible to encode all **128** ASCII characters. This is accomplished by using the (\$), (/), (%), and (+) symbols as "shift" characters. These characters combined with the single character that follows indicate which Full ASCII character is to be used.



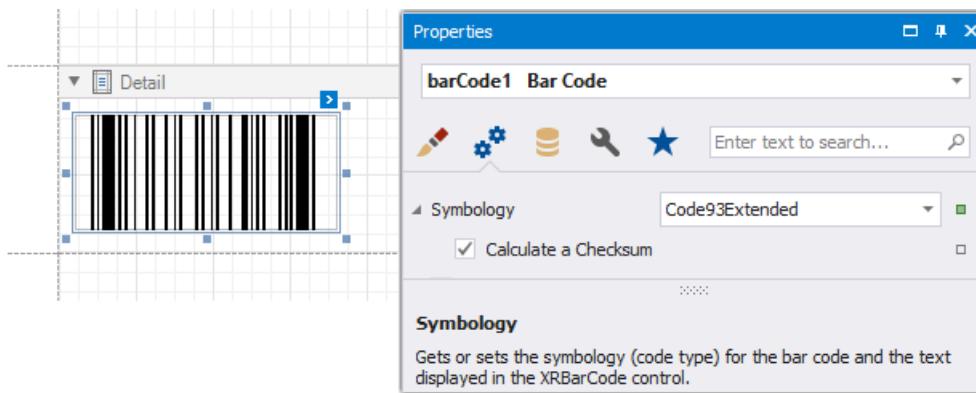
BarCode

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 property 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.



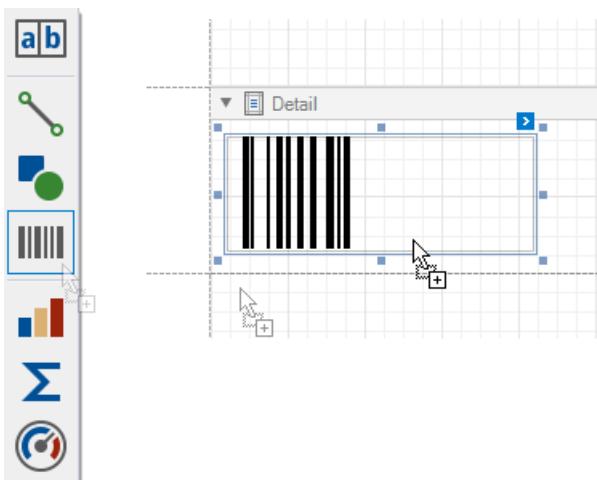
A value that the barcode encodes should consist of 13 or 14 digits:

- 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).

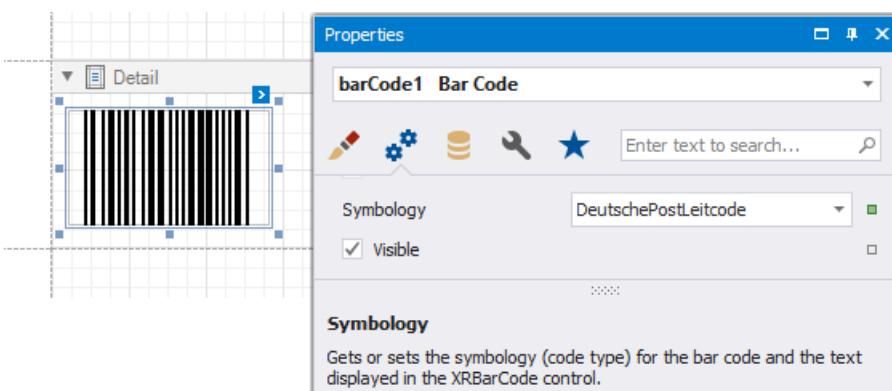
When you specify 13 digits, the barcode generates a checksum digit automatically. If you add a checksum digit, the barcode ignores this digit and also generates it automatically to ensure the encoded value is valid.

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).



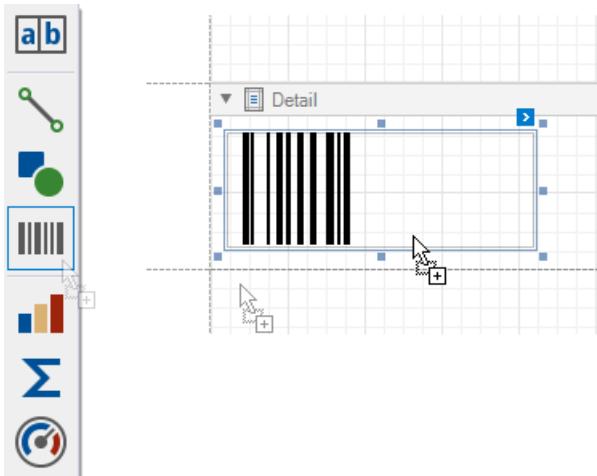
The barcode contains a tracking number that identifies a customer (sender) and a mail item. A value that the barcode encodes should consist of 11 or 12 digits:

- 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).

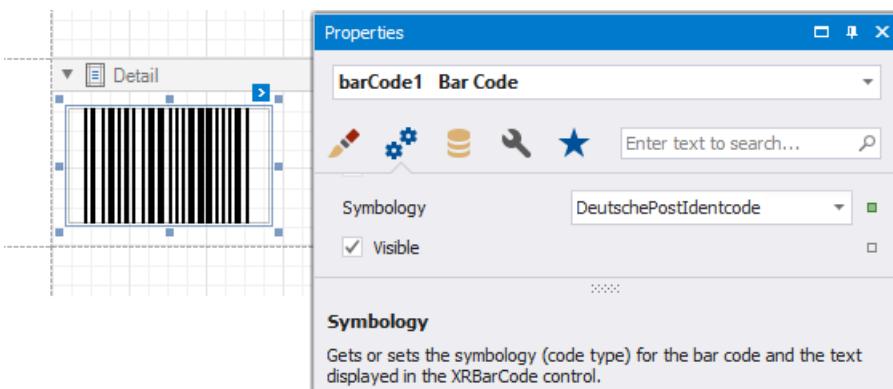
When you specify 11 digits, the barcode generates a checksum digit automatically. If you add a checksum digit, the barcode ignores this digit and also generates it automatically to ensure the encoded value is valid.

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.

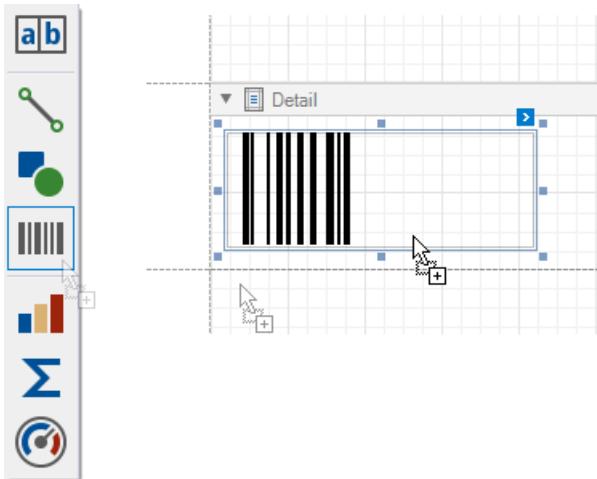
The recommended dimensions are shown in the following image. The standard allows magnification up to **200%**, and reduction of up to **80%** of the recommended size.



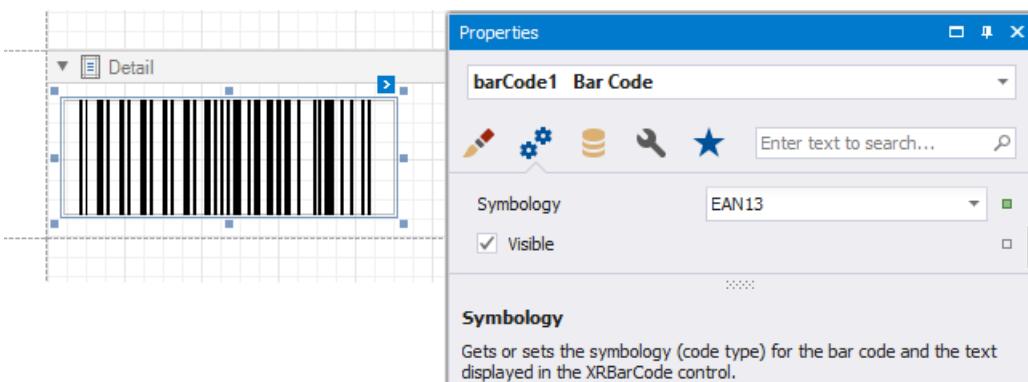
There should be two quiet zones before and after the barcode. They provide reliable operation of the barcode scanner. The quiet zone recommended length is **3.63** mm for the left zone and **2.31** mm for the right zone.

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](#).

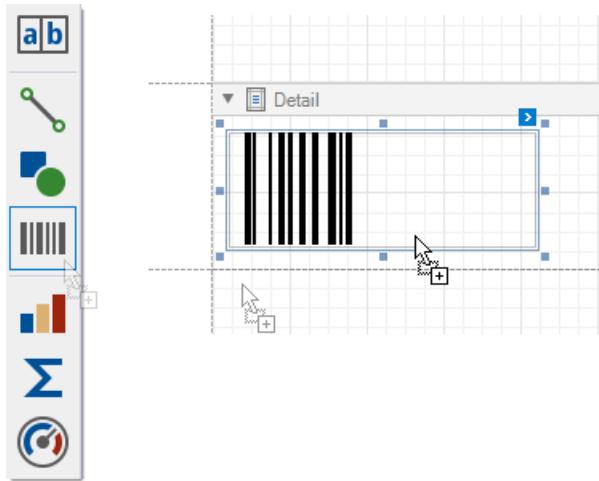
EAN 8

EAN-8 is the **EAN** equivalent of **UPC-E** in the sense that it provides a "short" barcode for small packages.

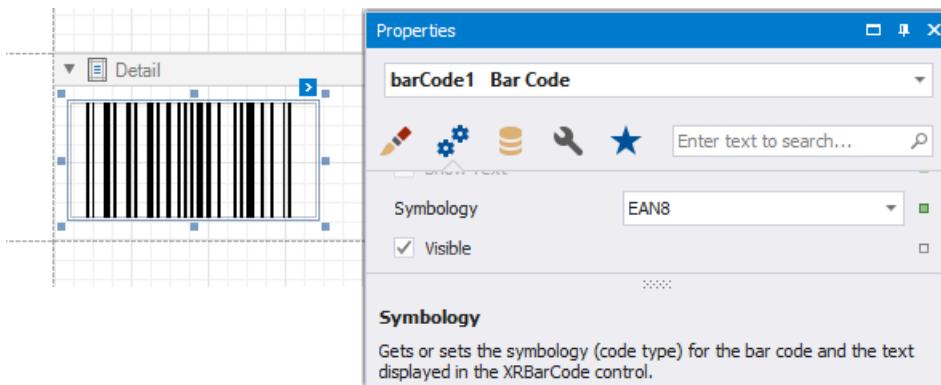


Add the Barcode to a Report

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**.

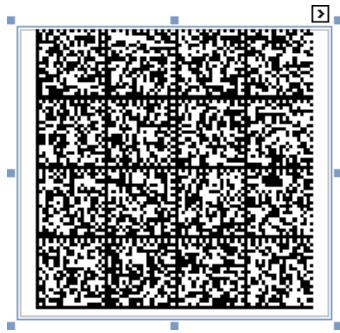


3. Specify common barcode properties.

ECC200 - Data Matrix

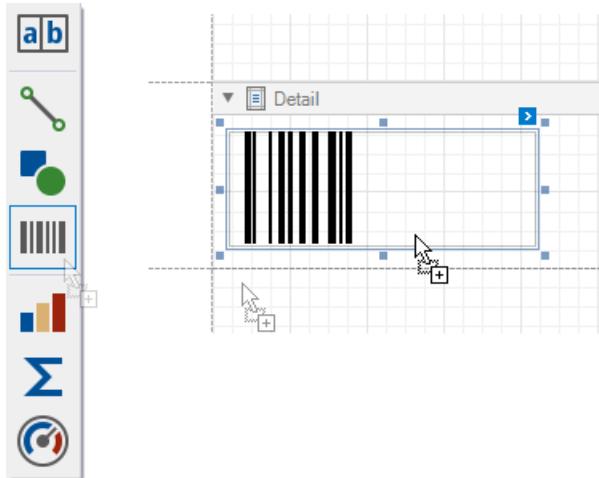
Data Matrix code (**ISO/IEC 16022** international standard) is a two-dimensional matrix barcode consisting of black and white "cells" arranged in a rectangular pattern. The information to be encoded can be text or raw data.

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.

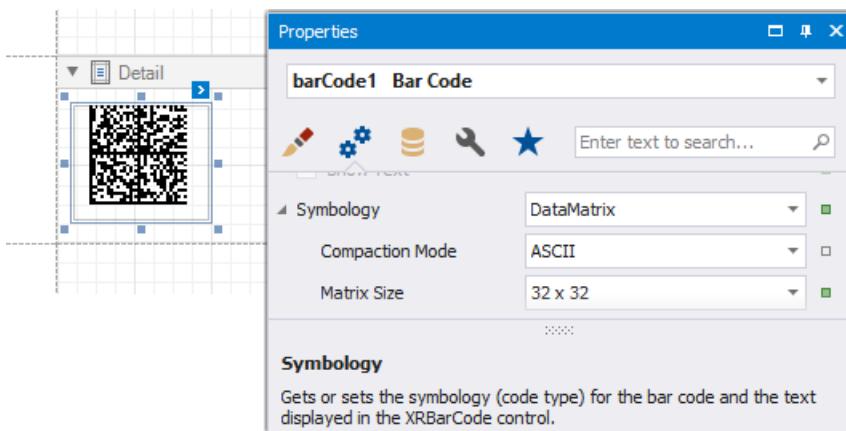


Add the Barcode to a Report

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).

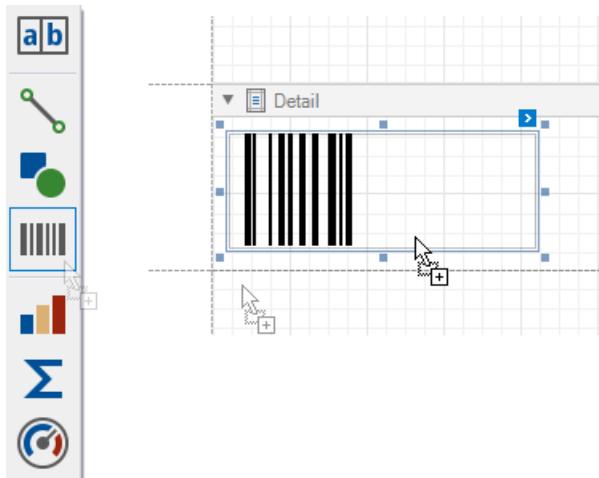
These barcodes can encode up to **14** digits, which makes them suitable for **GTIN 8, 12, 13** and **14**.

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.

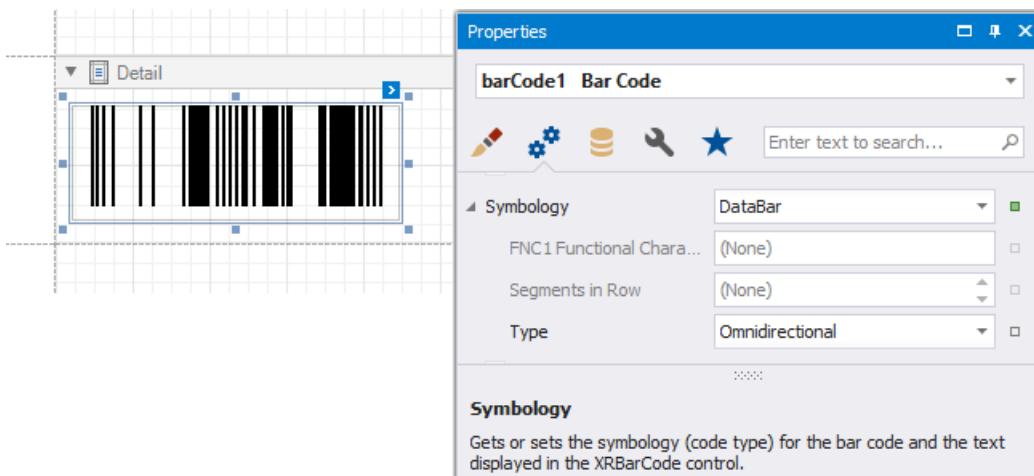


Add the Barcode to a Report

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.

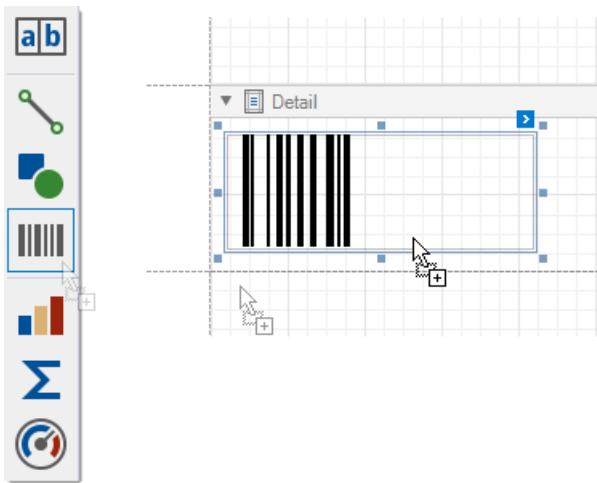
GS1- Data Matrix

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**.

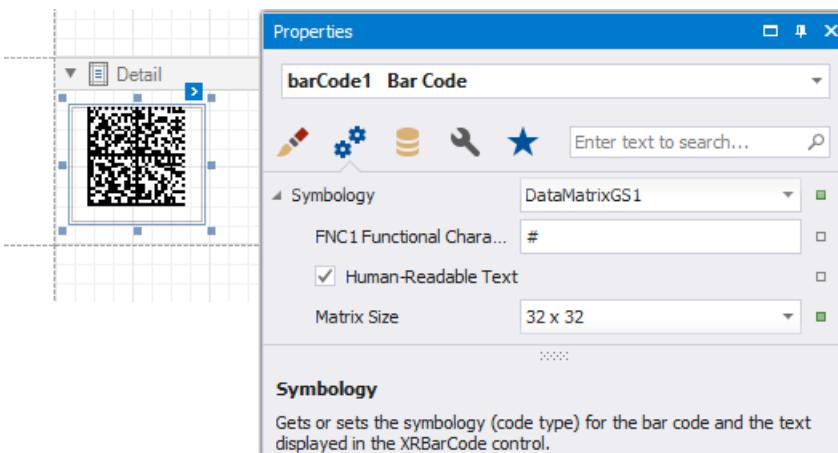


Add the Barcode to a Report

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)

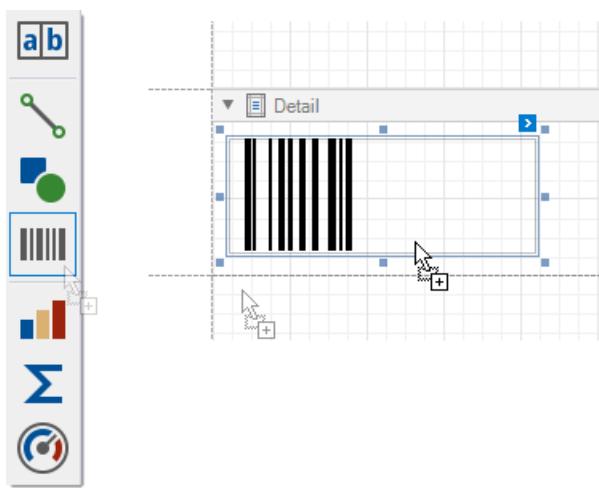
GS1-128 (EAN-128) was developed to provide a worldwide format and standard for exchanging common data between companies.

While other barcodes simply encode data with no respect for what the data represents, **GS1-128** encodes data and encodes what that data represents.

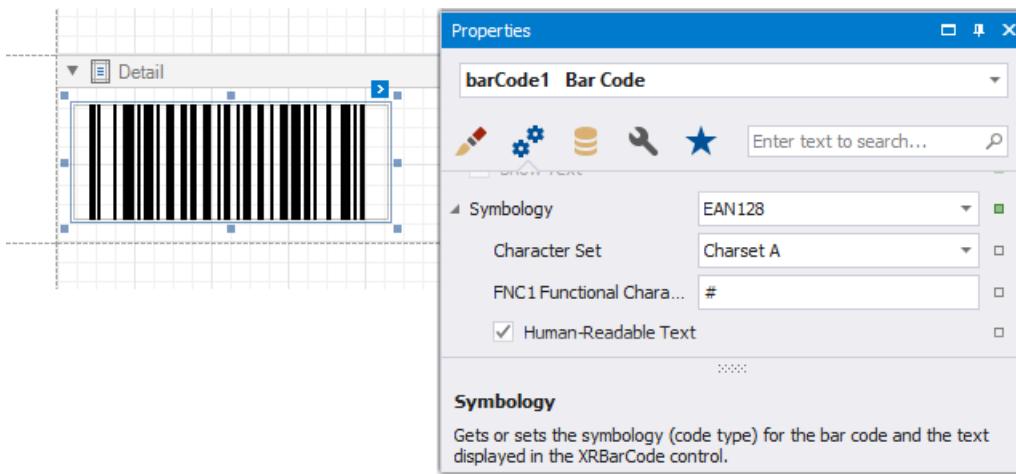


Add the Barcode to a Report

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

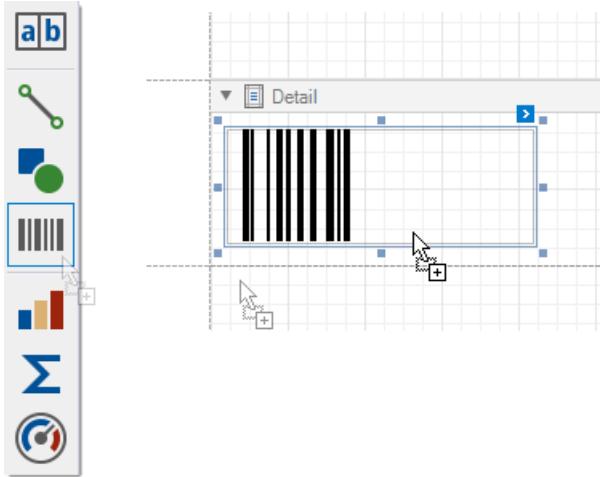
Industrial 2 of 5 is a low-density numerical barcode that is used in the photofinishing and warehouse sorting industries, as well as to sequentially number airline tickets.



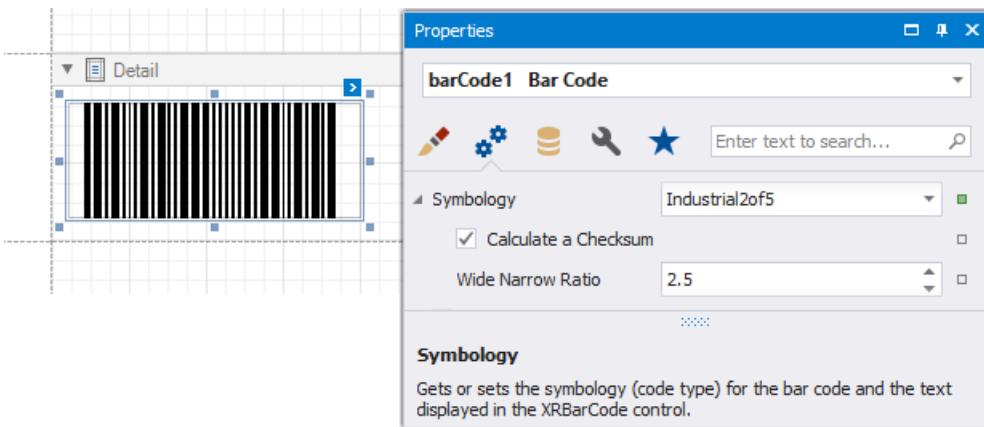
0123456789

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 **Industrial2of5**.

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

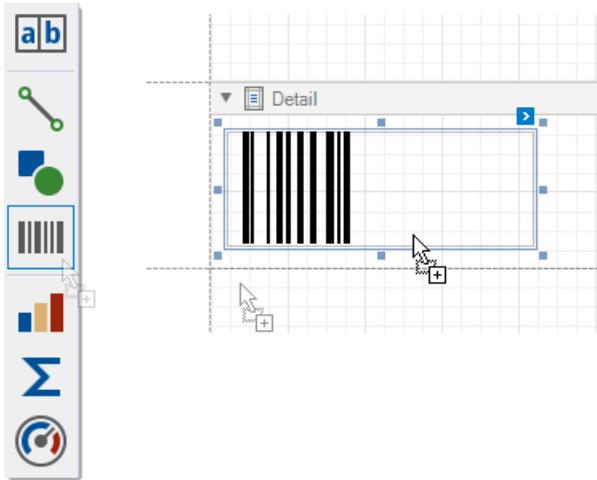
The **Intelligent Mail (IM)** code is a **65**-barcode for use on mail in the United States. This barcode is intended to provide greater information and functionality than its predecessors POSTNET and PLANET.

The **Intelligent Mail** barcode has also been referred to as **One Code Solution** and **4-State Customer** barcode abbreviated **4CB**, **4-CB** or **USPS4CB**.

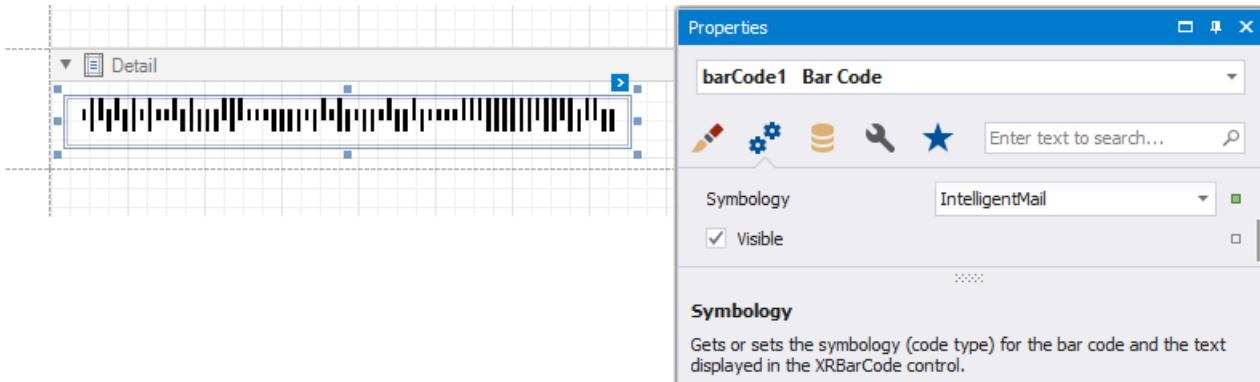


Add the Barcode to a Report

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

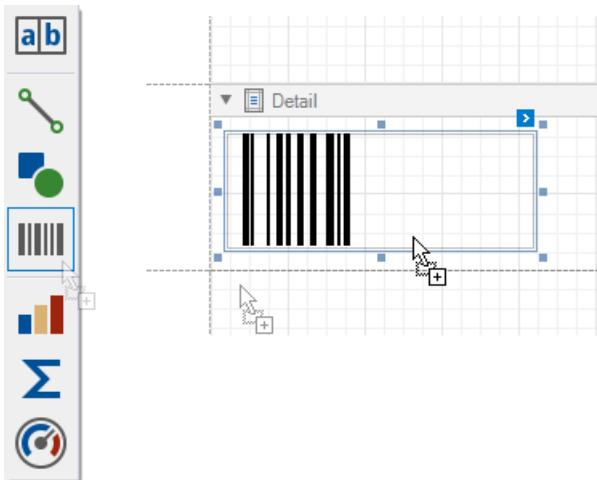
The **Intelligent Mail Package Barcode (IMPB)** was developed for the use on mail in the United States. Barcodes of this symbology are used only for packages as opposed to [Intelligent Mail](#) barcodes, which are used for postcards, letters, and flats.

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.

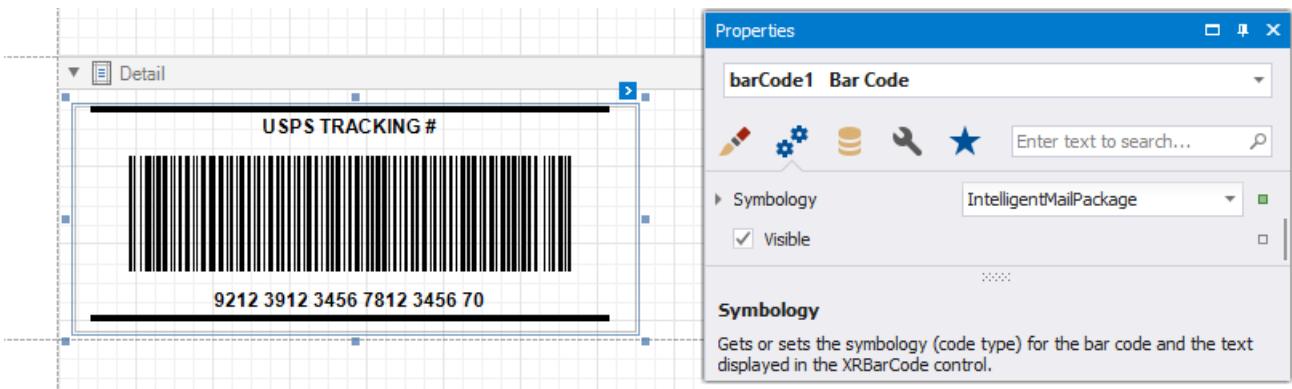


Add the Barcode to a Report

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

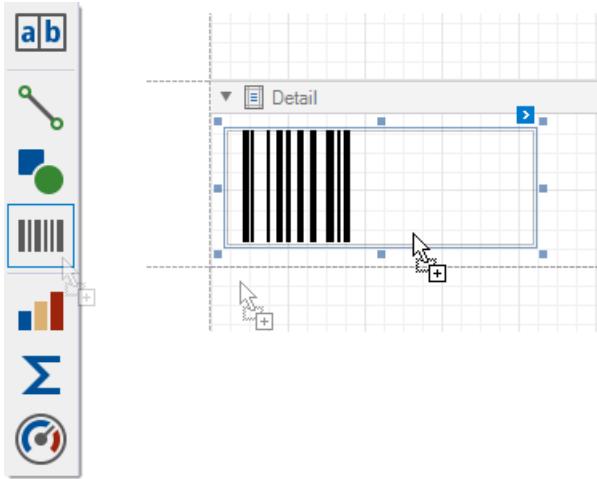
Interleaved 2 of 5 is a higher-density numerical barcode based upon the **Standard 2 of 5** symbology. It is used primarily in the distribution and warehouse industry.



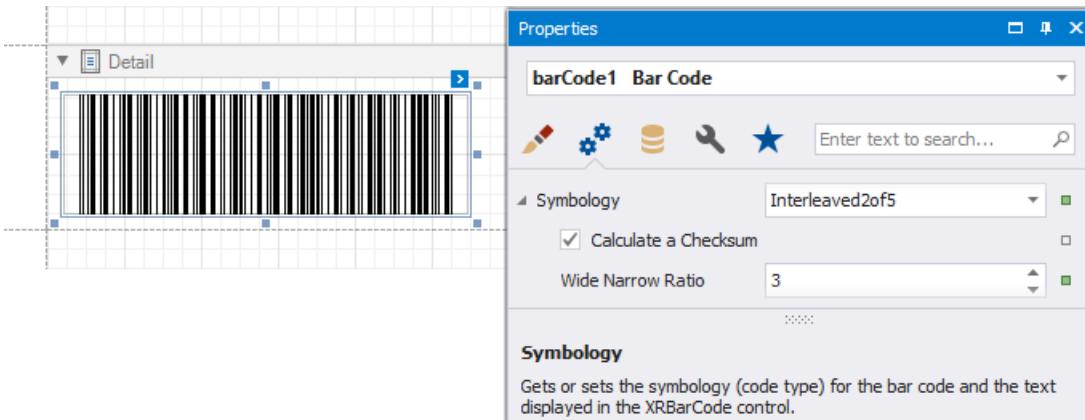
0123456789

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

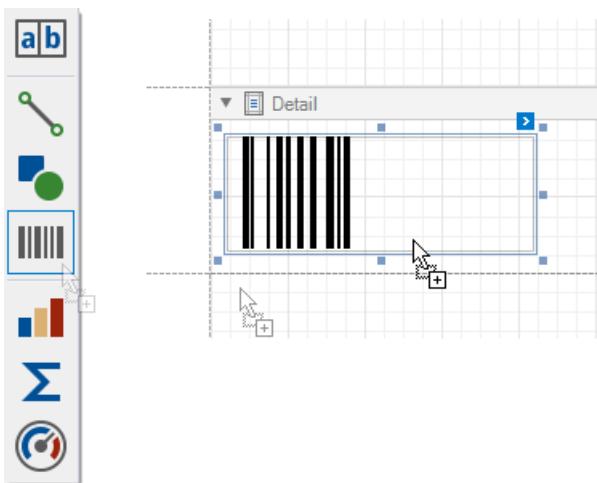
Matrix 2 of 5 is a linear one-dimensional barcode. **Matrix 2 of 5** is a self-checking numerical-only barcode.

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.

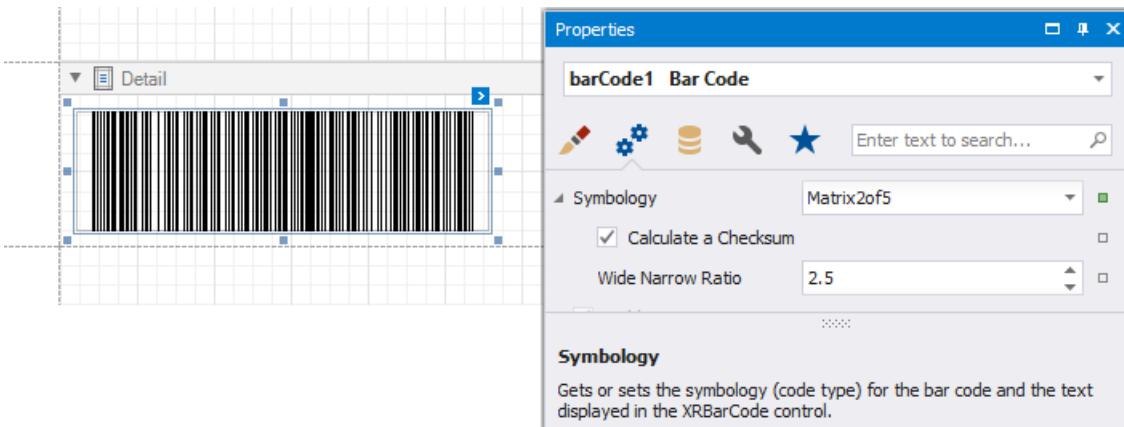


Add the Barcode to a Report

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.

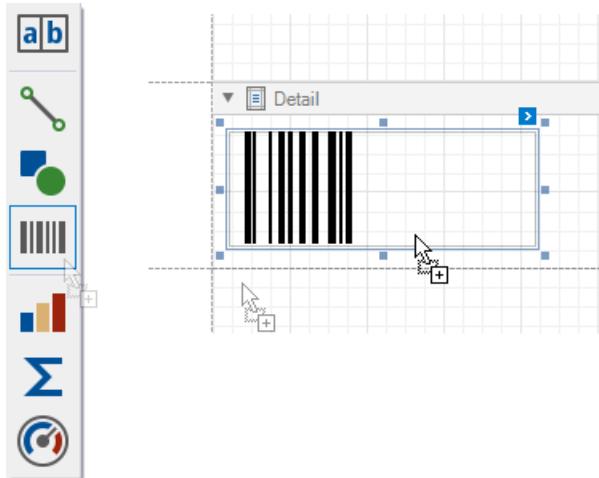
MSI is a continuous, non-self-checking symbology. While an **MSI** barcode can be of any length, a given application usually implements a fixed-length code.



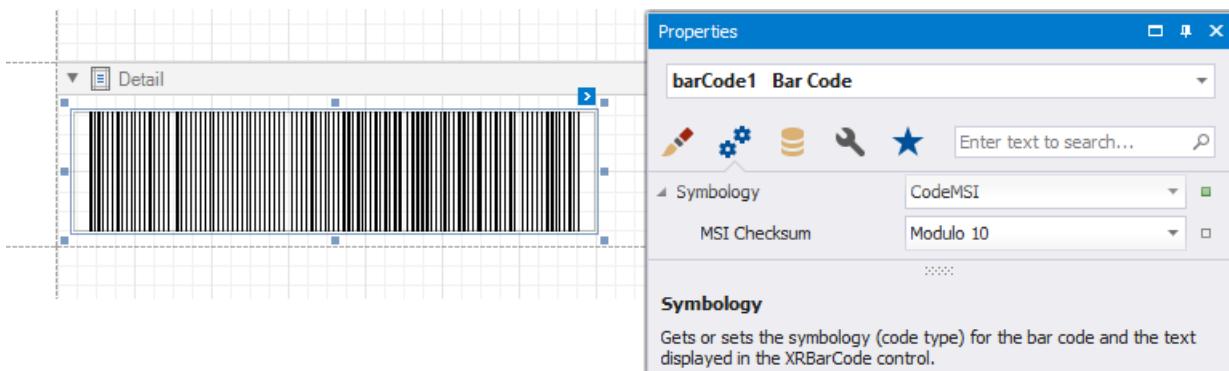
0123456789

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

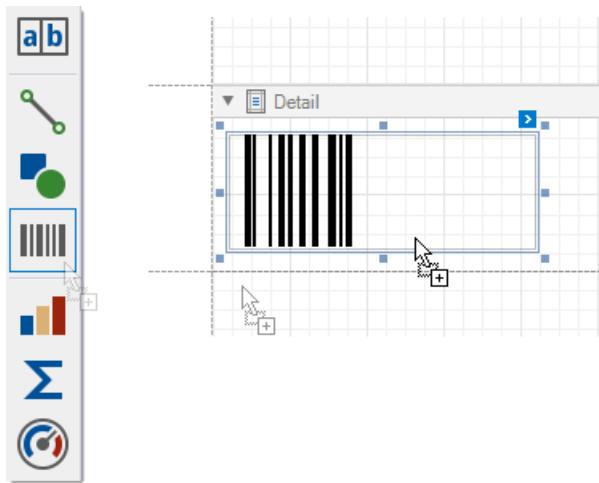
PDF417 (Portable Data File) is a stacked linear two-dimensional barcode used in a variety of applications; primarily transport, postal, identification card and inventory management. It has spawned an Open Source decoder project together with an Open Source encoder.

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.

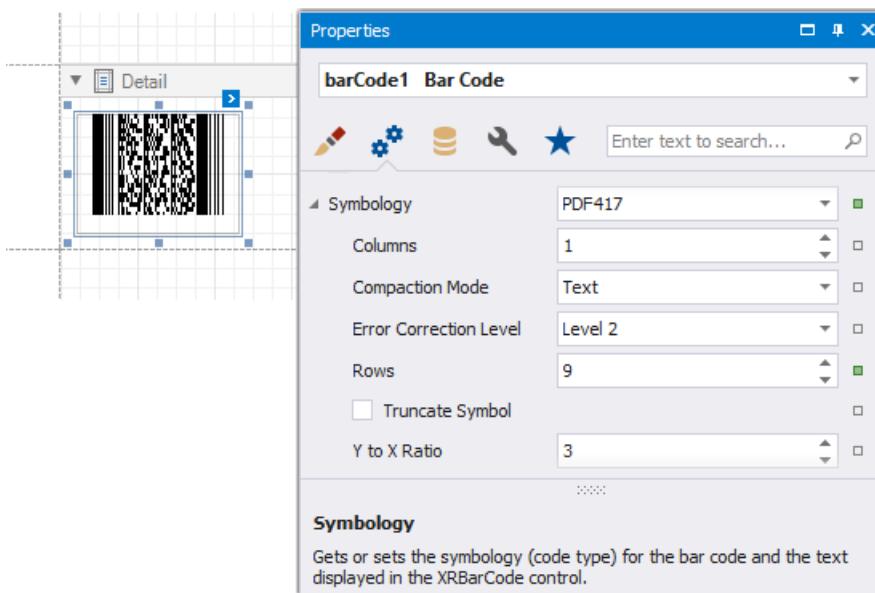


Add the Barcode to a Report

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**

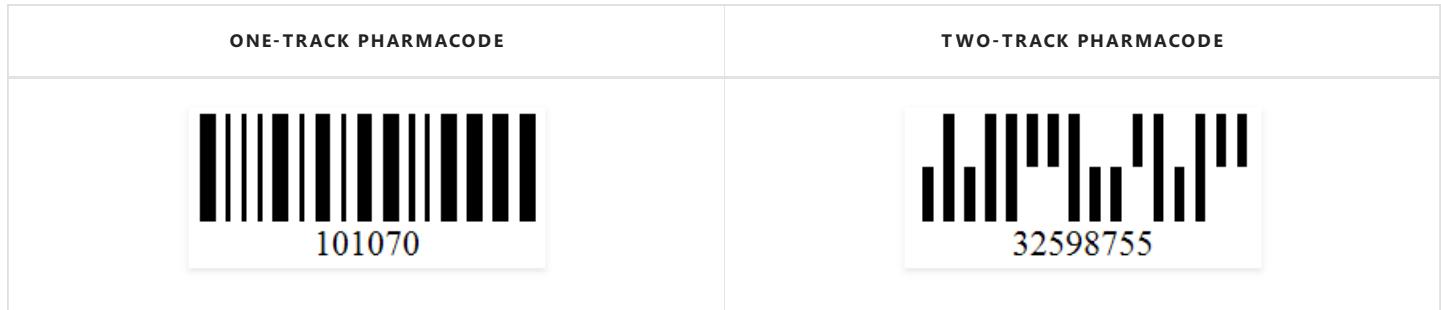
Specifies whether the special end-symbol should be appended to the barcode.

- **Y to X Ratio**

Specifies the height-to-width ratio of a logical unit's graphic representation.

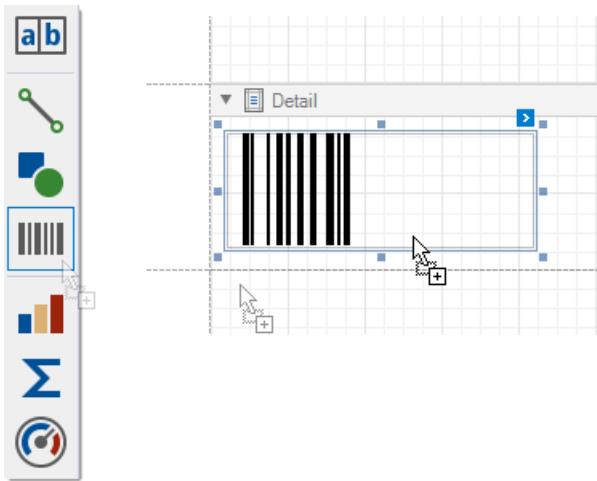
Pharmacode

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.

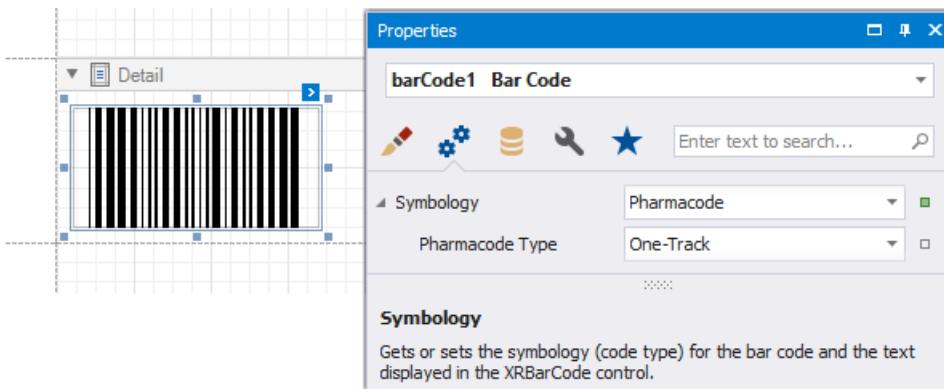


Add the Barcode to a Report

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

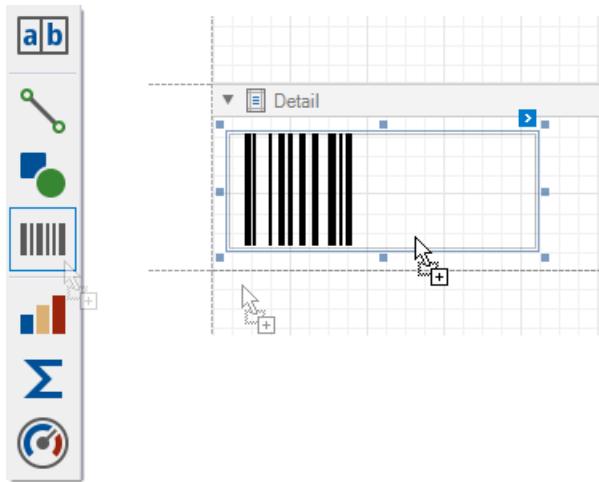
PostNet was developed by the United States Postal Service (USPS) to allow faster mail sorting and routing. **PostNet** codes are the familiar and unusual looking barcodes often printed on envelopes and business return mail.

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.

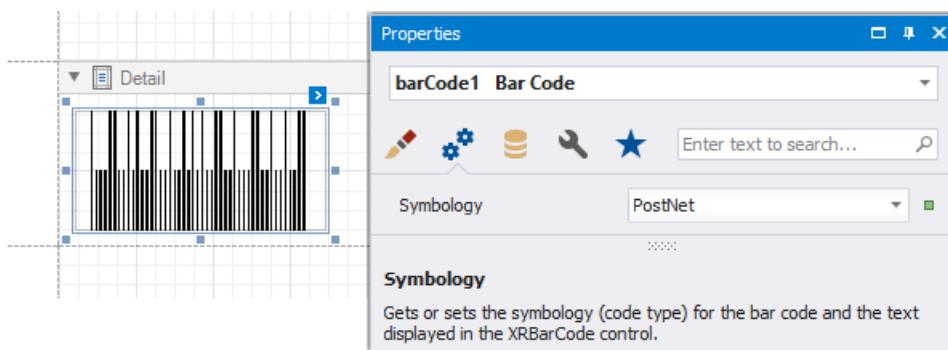


Add the Barcode to a Report

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.

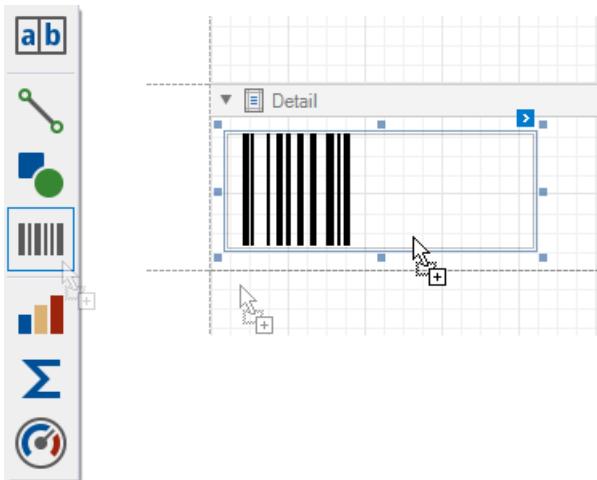
QR Code

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.

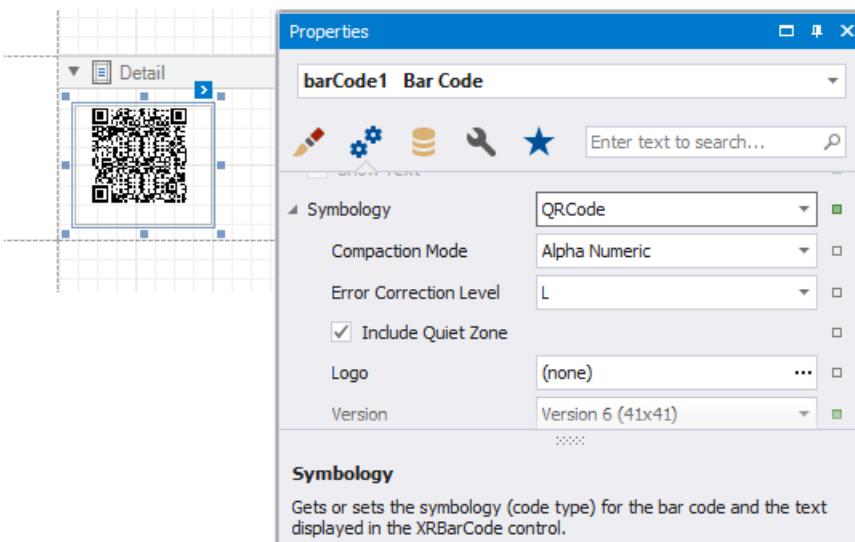


Add the Barcode to a Report

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 **QR Code**.

Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **QR Code**:

- **Auto Module** Gets or sets whether the Module property value should be calculated automatically based upon the barcode's size.

- **Compaction Mode**

Specifies whether numeric, alpha-numeric or byte information should be used as the barcode's data.

- **Error Correction Level**

Specifies the amount of redundancy built into the barcode's coding, to compensate for calculation errors.

- **Version**

Specifies the barcode's size.

- **Logo**

Specifies the image that overlays the QR code.

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.

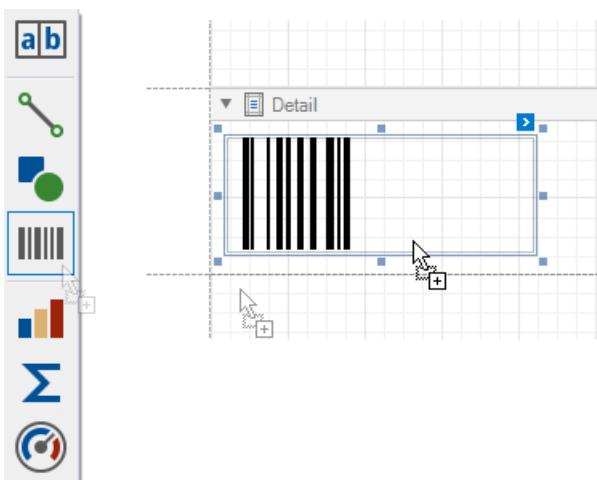
This barcode provides a **GS1** implementation of an **Interleaved 2 of 5** barcode for encoding a **Global Trade Item Number** (an identifier for trade items developed by **GS1**). This barcode always uses a total of **14** digits.

The thick black border around the symbol (the **Bearer Bar**) is intended to improve barcode reading reliability.

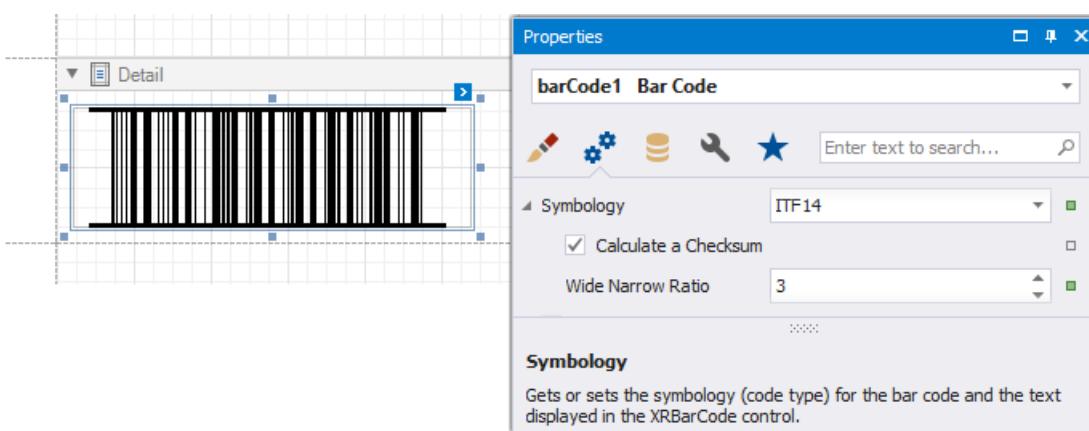


Add the Barcode to a Report

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 **ITF-14**.

Specific Properties

In the [property grid](#), expand the **Symbology** list and specify the following properties specific to **ITF-14**:

- **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

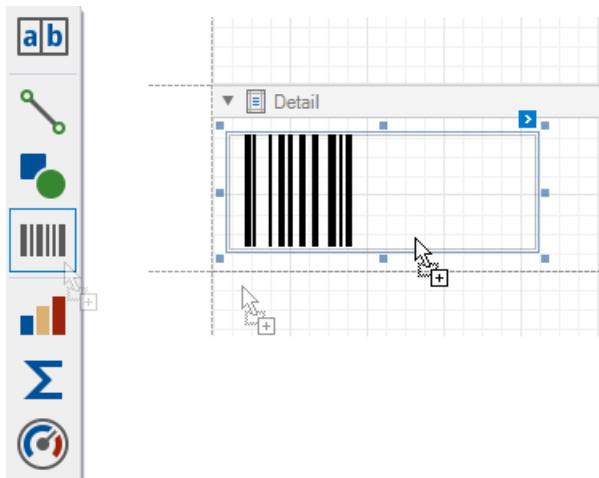
2-digit supplemental barcodes should only be used with magazines, newspapers and other periodicals.

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.

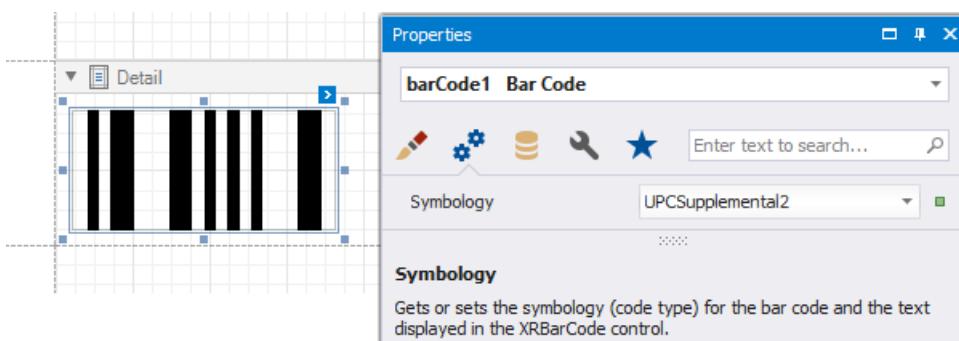


Add the Barcode to a Report

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.

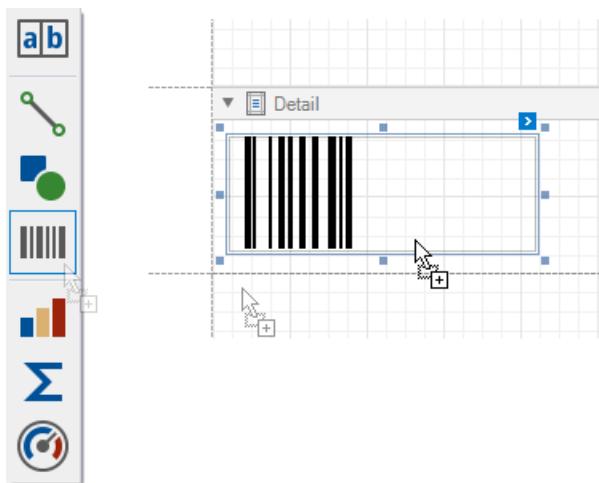
UPC Supplemental 5

5-digit supplemental barcodes are used on books to indicate the suggested retail price.

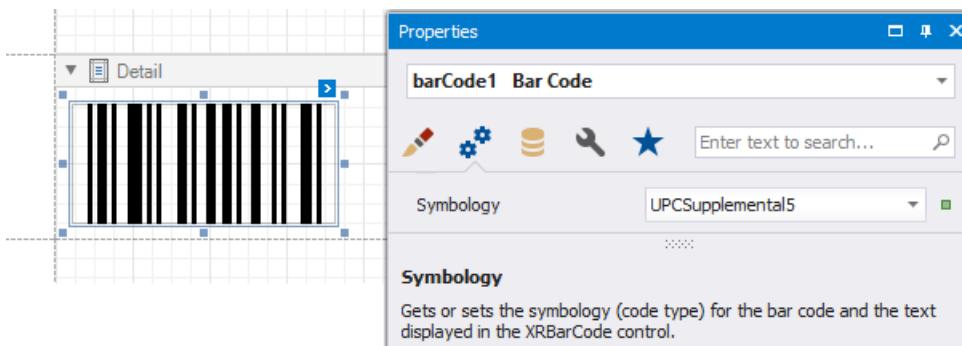


Add the Barcode to a Report

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."



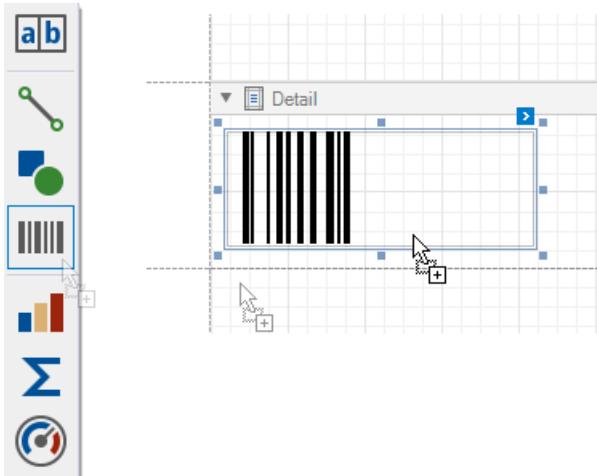
The **UPC-A** barcode contains **12** digits, no letters or other characters. The first digit is the prefix signifying the product type. The last digit is the "check digit". The check digit is calculated using first eleven figures when the barcode is constructed. So, for the correct **UPC-A** you should 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.

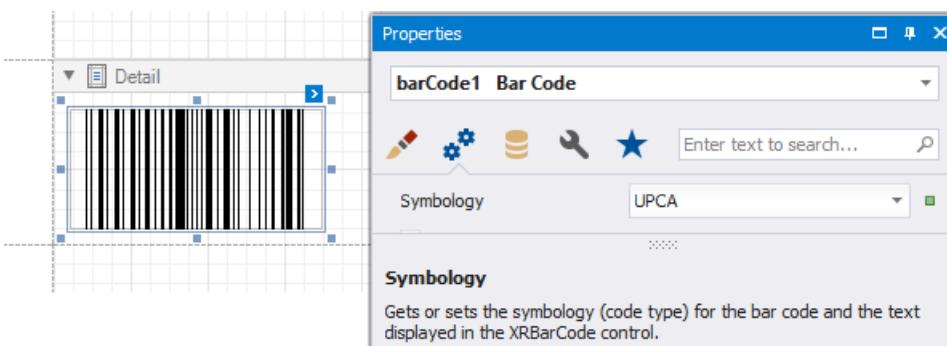
There should be two quiet zones before and after the barcode. They provide reliable operation of the barcode scanner. The quiet zone recommended length is **2.97** mm for the barcode of standard width and height.

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.

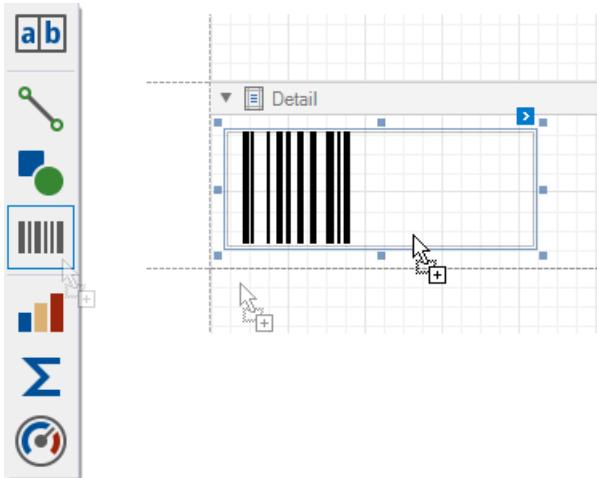
In the example below, the original **UPC-A** code is "**04210000526**". We should remove the leading zero when assigning the string to the control's property, since the code format itself implies its presence. The checksum digit (**4**) is calculated automatically, and the symbology algorithm transforms 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.



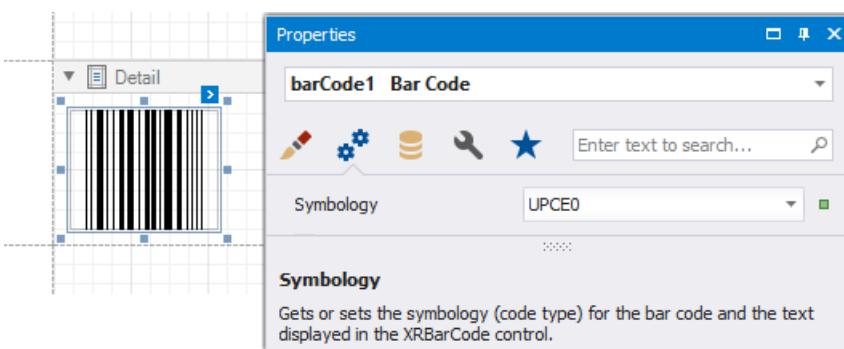
Not every **UPC-A** code can be transformed into the **UPC-E0** (it must meet special requirements).

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-E1

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.

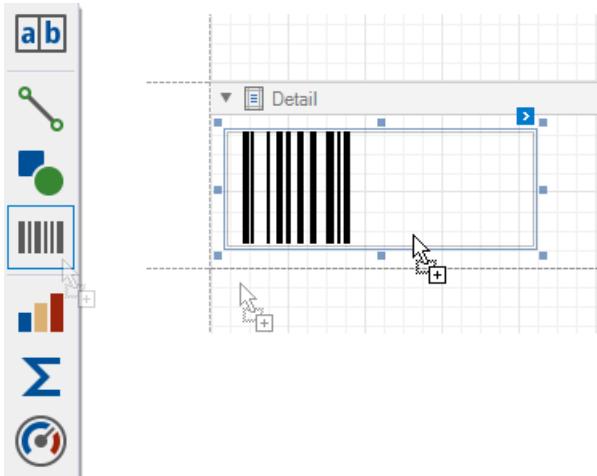
In the example below, the original **UPC-A** code is "**14210000526**". We should remove the leading "1" when assigning the string to the control's property, since the code format itself implies its presence. The checksum digit (1) is calculated automatically, and the symbology algorithm transforms the 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.



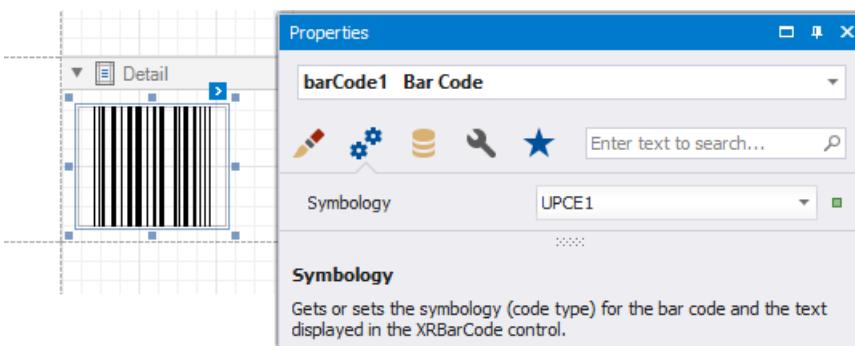
Not every **UPC-A** code can be transformed into the **UPC-E1** (it must meet special requirements).

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 and Pivot Grids

Refer to the following topics for instructions on how to add charts and pivot grids to reports:

Chart

Use the **Chart** control to add a chart to a report.

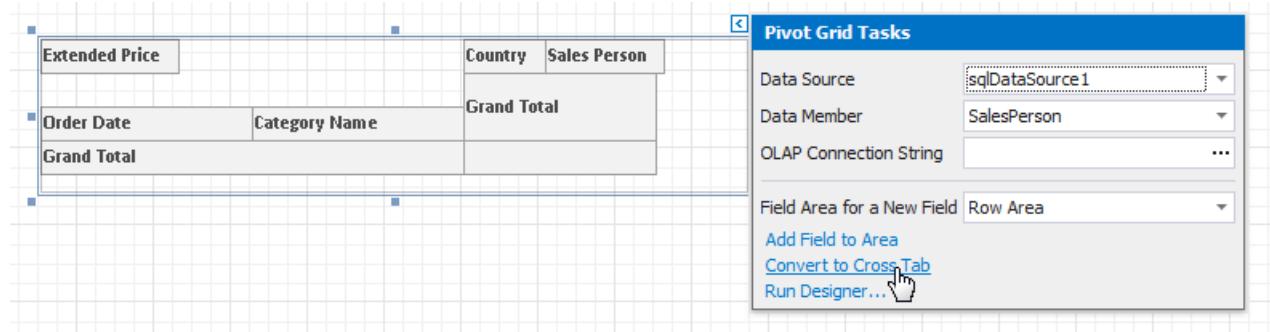
- [Use Charts in Reports](#)
- [Add a Chart \(Set Up Series Manually\)](#)
- [Add a Chart \(Use a Series Template\)](#)
- [Use Charts to Visualize Grouped Data](#)

Use Chart and Pivot Grid Linked Together

- [Link a Chart and a Pivot Grid](#)

Convert a Pivot Grid to a Cross Tab

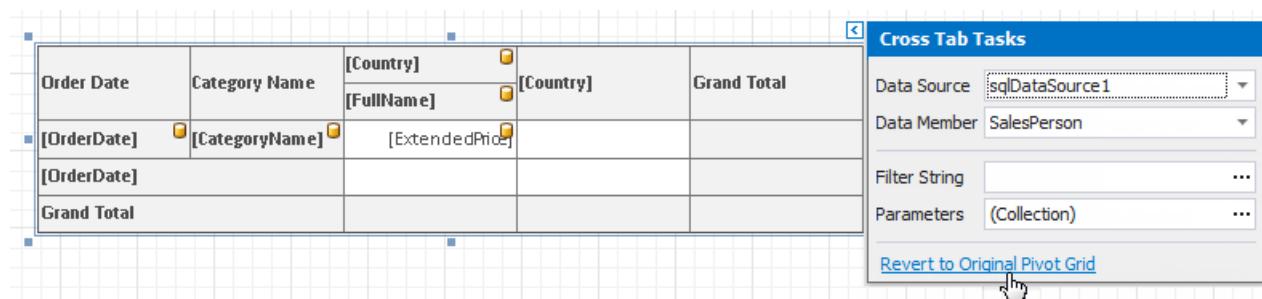
To migrate an existing Pivot Grid control to a new Cross Tab control, click the Pivot Grid's smart tag and select **Convert to Cross Tab**.



Note that the Cross Tab does not support specific Pivot Grid functionality:

- The Cross Tab cells cannot display pictures (both static and dynamic);
- The Chart control cannot use the Cross Tab as a data source;
- The Cross Tab does not support data headers that are used to manage location of data field headers;
- The Cross Tab does not support the Pivot Grid's predefined aggregate functions.

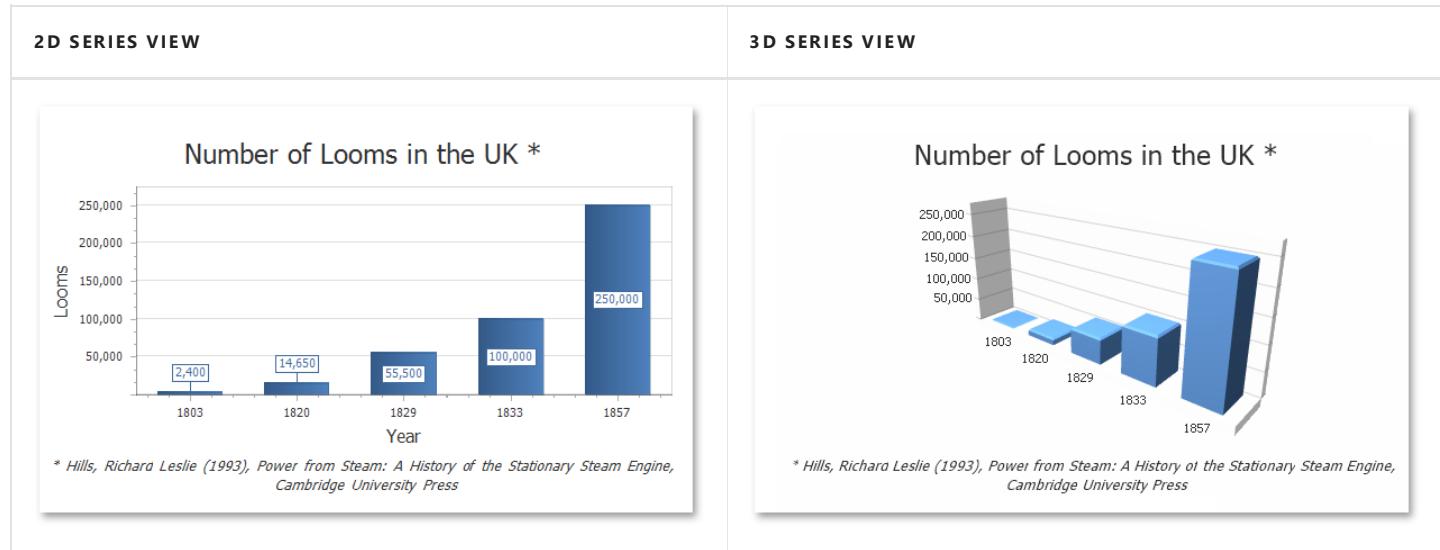
If the conversion result does not suit your requirements, you can restore the Pivot Grid. Click the Cross Tab's smart tag and select **Revert to Original Pivot Grid**.



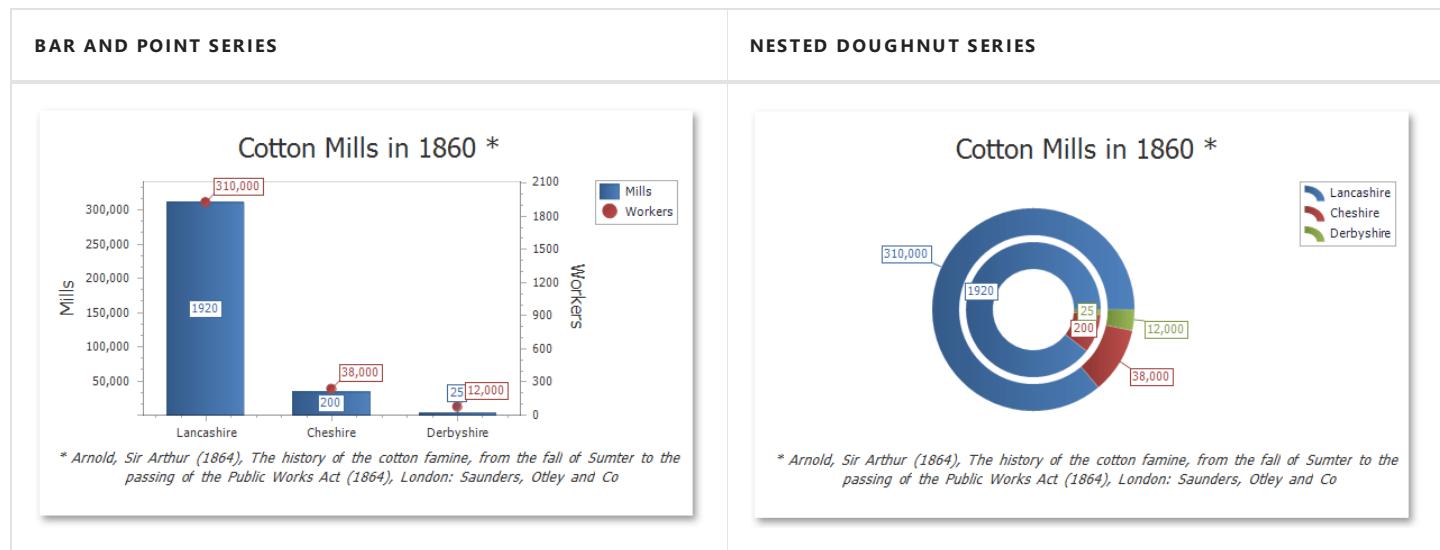
Use Charts in Reports

Overview

You can use the **Chart** control to add a chart to a report. This control provides 2D or 3D views to visualize data series (for instance, Bar, Point, Line, Pie and Doughnut, Area, etc.).

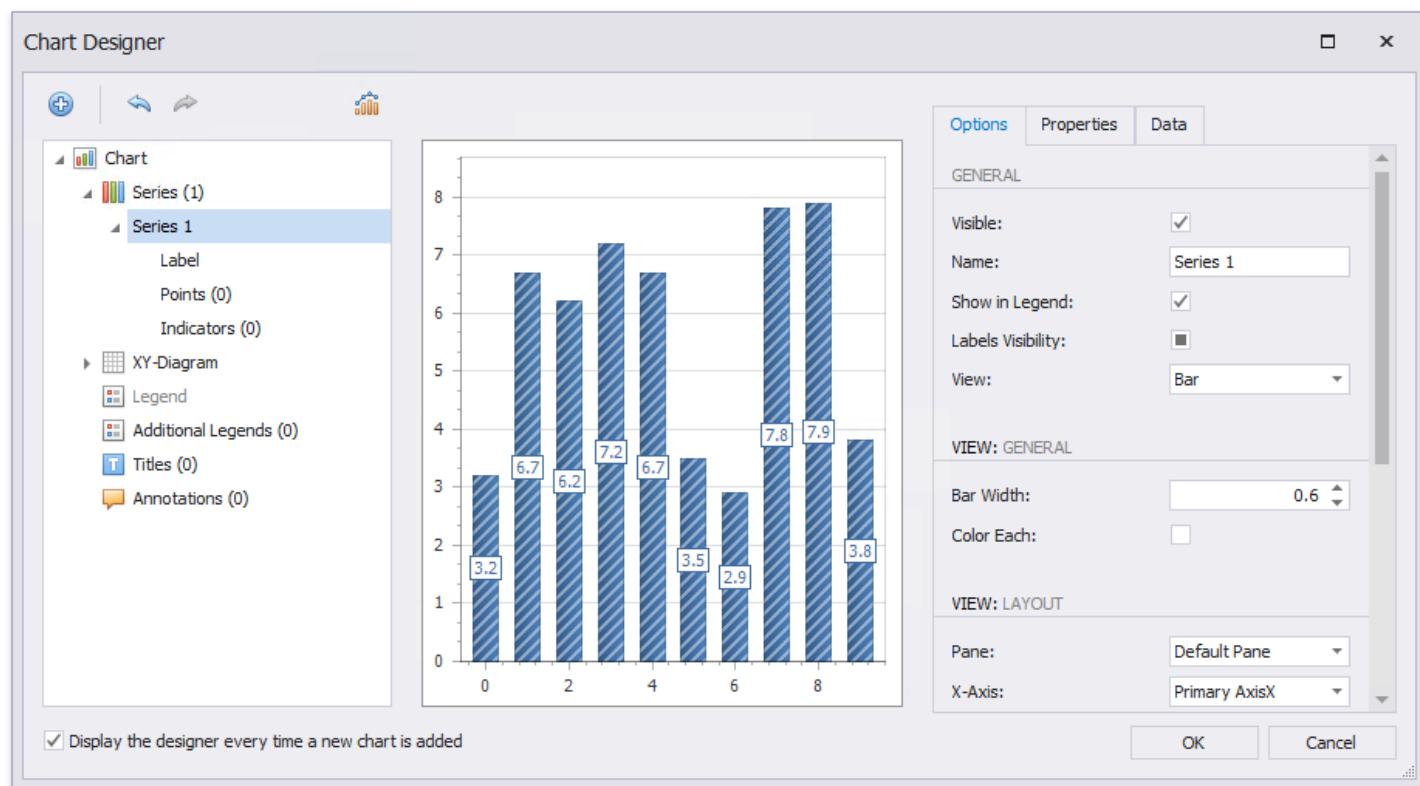


The **Chart** control can display multiple series.



The **Chart** control contains various visual elements (diagrams, series, legends, primary and secondary axes, titles and labels, etc.). You can select these elements in the **Report Designer** and customize their settings in the **Property Grid**.

The Report Designer provides the Chart Designer that allows you to create and customize charts.



Bind to Data

To provide data to a chart, use the **Data Source** property.

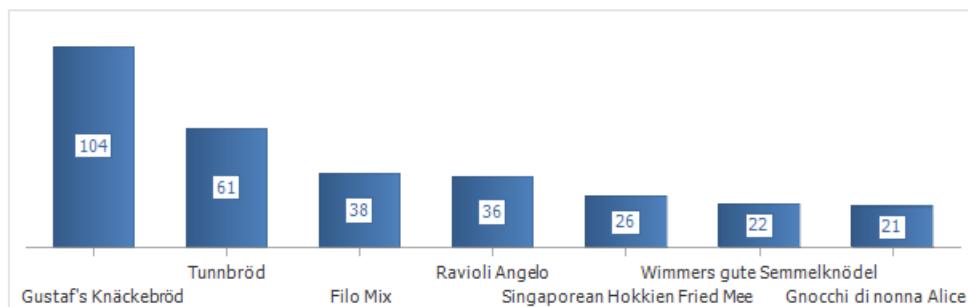
You can assign a **Pivot Grid** to a chart's data source. This allows the **Pivot Grid** to supply data to the chart. Refer to the [Link a Chart and a Pivot Grid](#) topic for details.

When the chart data source is not assigned, the chart obtains data from the report's data source

A chart can display report data in the following ways:

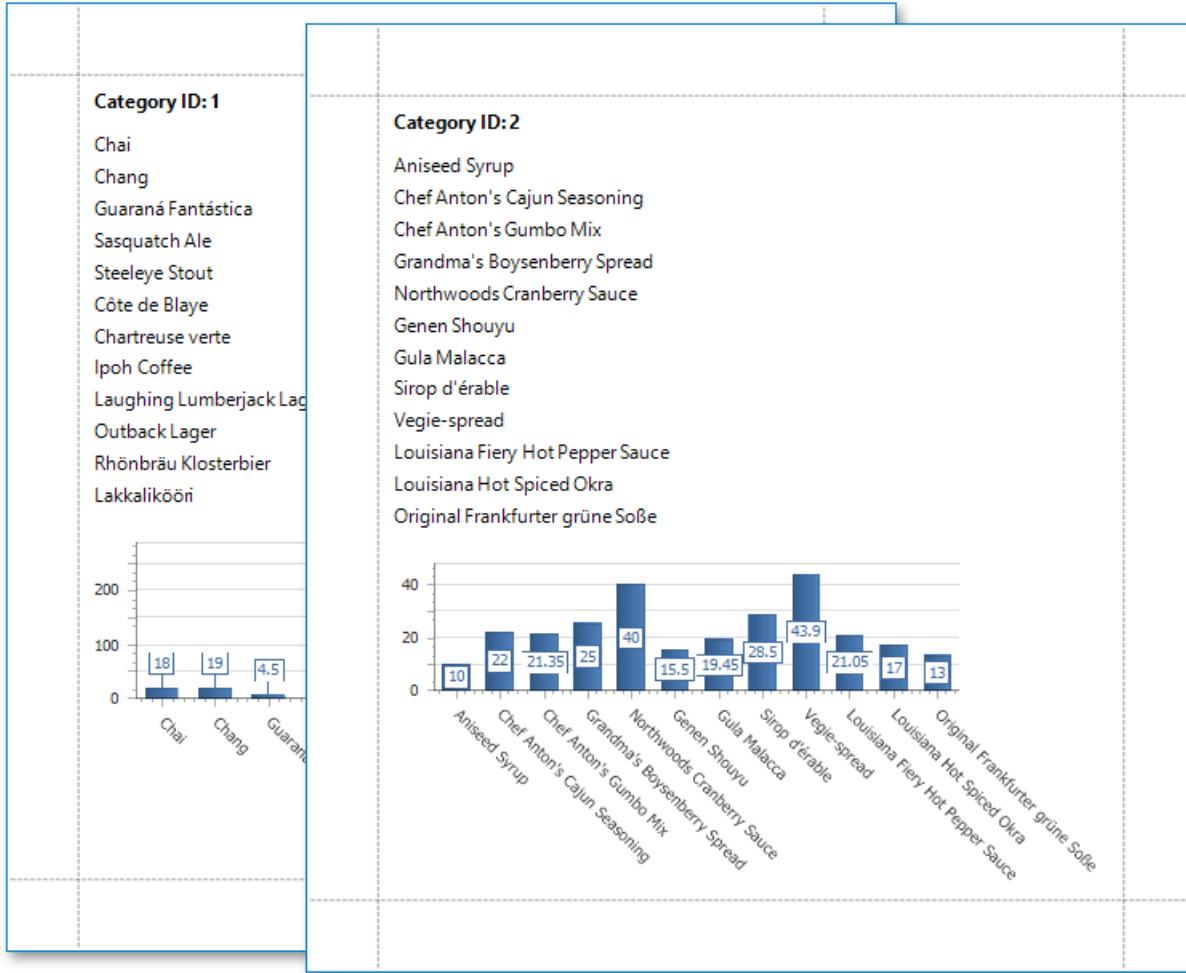
- Place a chart on the report header/footer band to display a summary for the detail report data.

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**

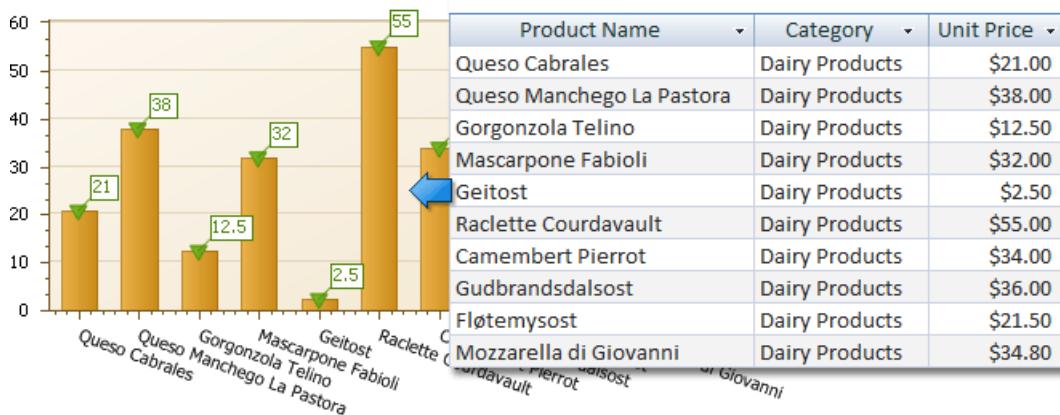
Add a new series to the chart and specify the argument and value data members. Refer to the [Add a Chart \(Set Up Series Manually\)](#) step-by-step tutorial for details.

- 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.

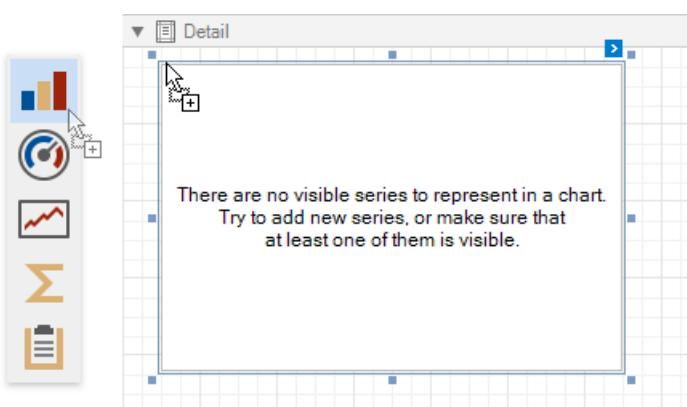
Add a Chart (Set Up Series Manually)

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.

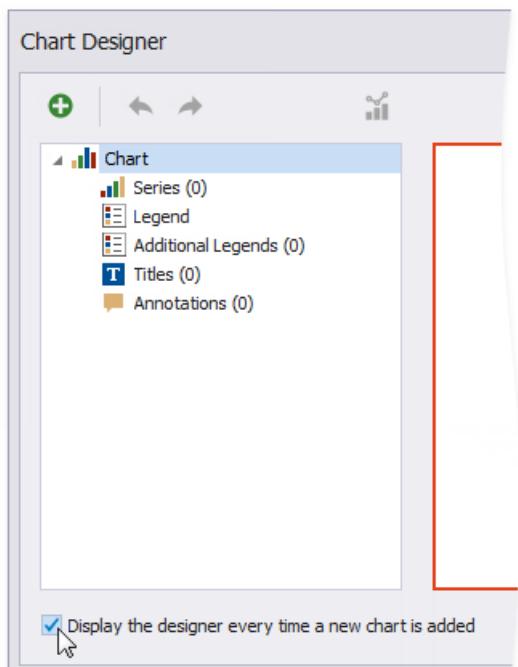


Add a Chart to a Report

1. Drop the **Chart** control from the **Toolbox** onto the **Detail** band.

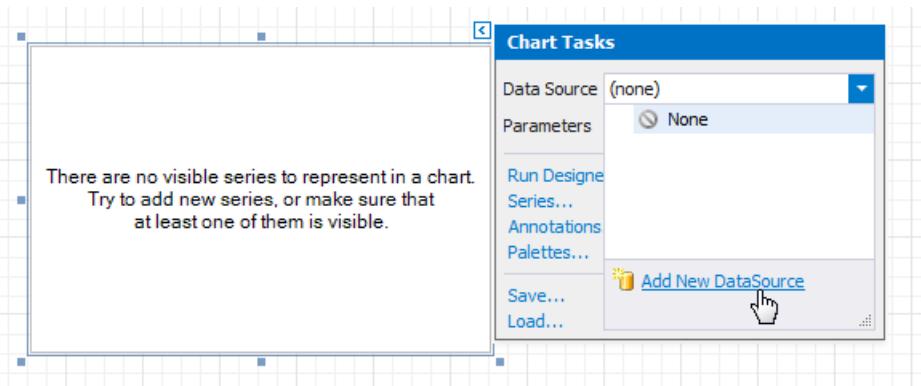


The **Chart Designer** wizard is invoked. Disable the **Display the designer every time a new chart is added** option if you do not want to trigger the wizard the next time you create a chart.



Close the wizard at this stage.

2. Click the chart's [smart tag](#) to bind the chart to data. Expand the **Data Source** property's drop-down and click **Add New Data Source**.



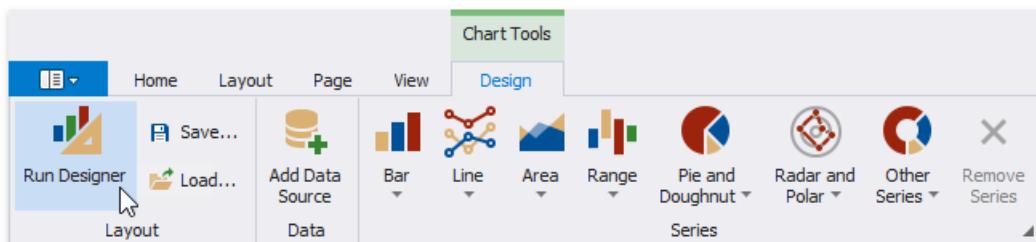
3. The invoked [Data Source Wizard](#) enables you to create a data source and [bind](#) the chart to it.

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.

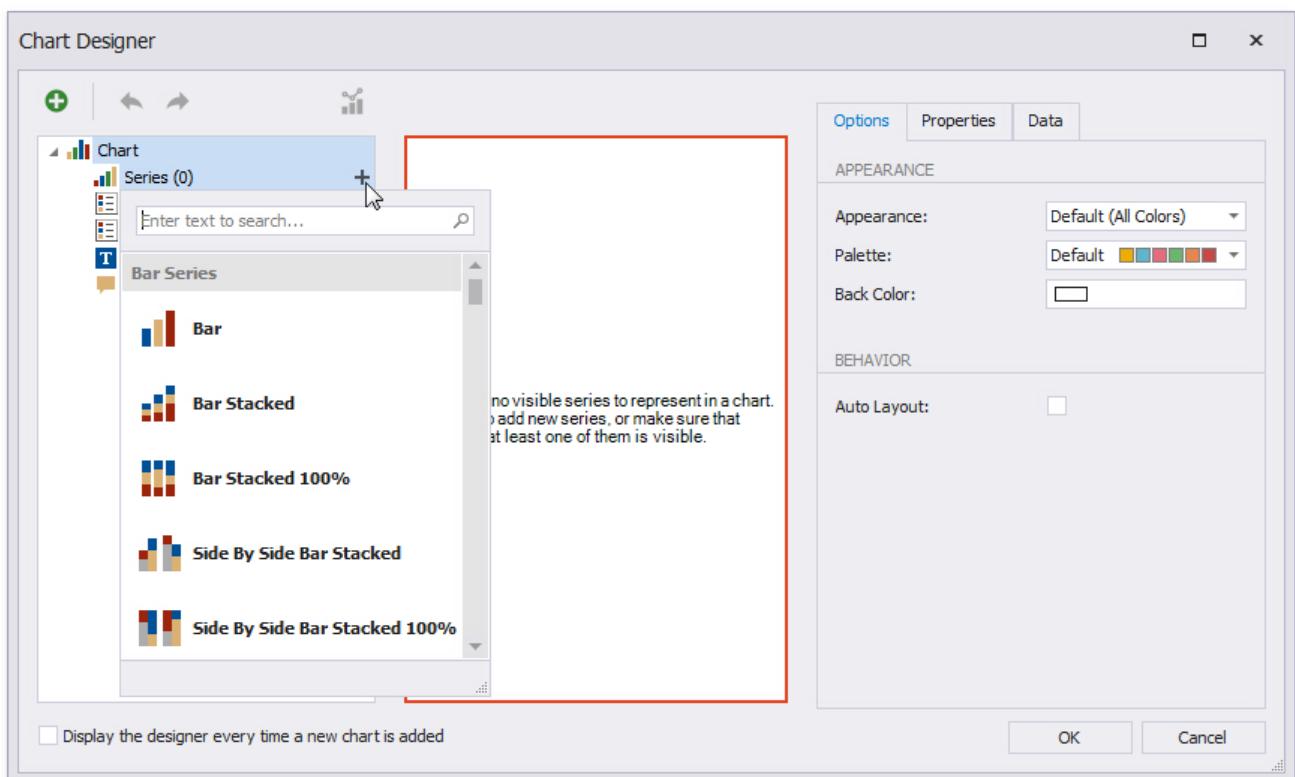
Add Series to the Chart

1. Select the chart. Switch to the **Chart Tools** toolbar tab and click **Run Designer**.



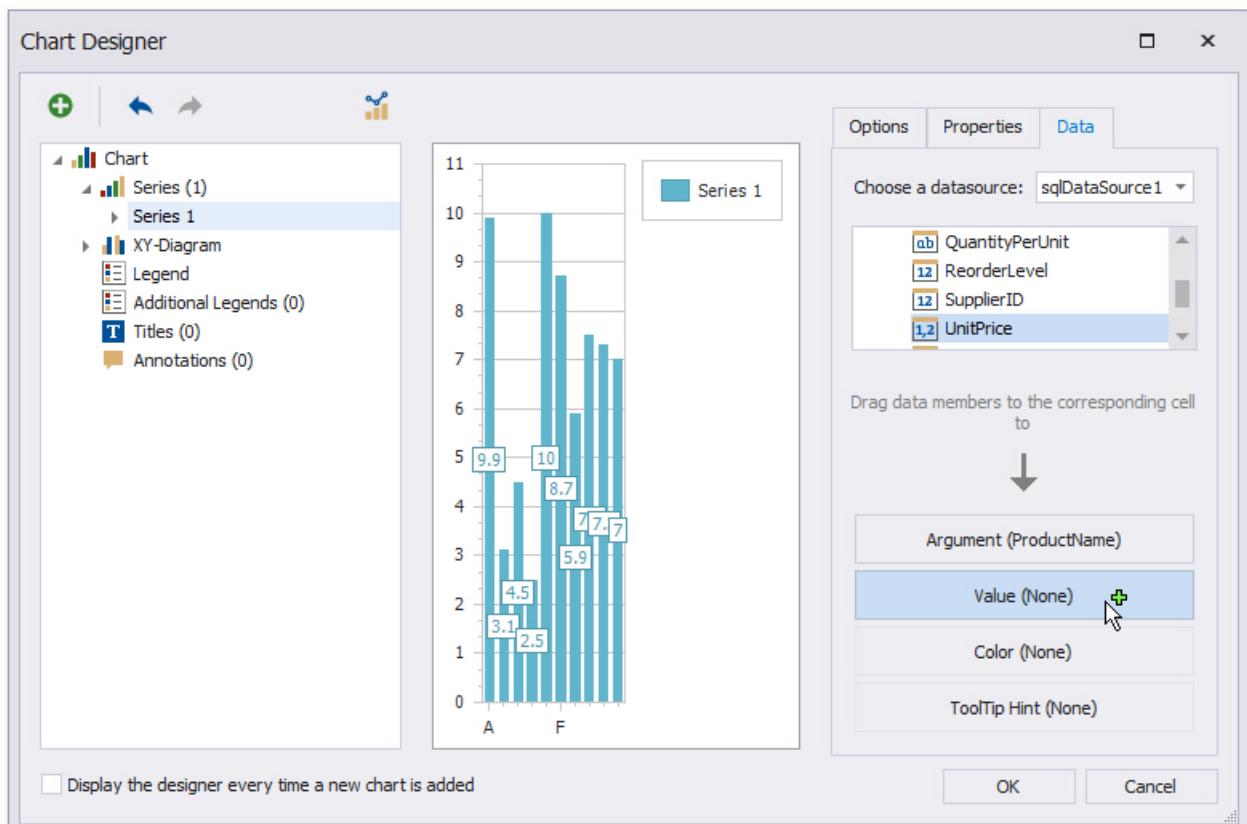
2. Add a new series to the chart.

- o Locate **Series** in the chart elements tree and click the plus button.
- o Select the series type (for example, **Bar**) from the invoked list.



3. Populate the created series with points.

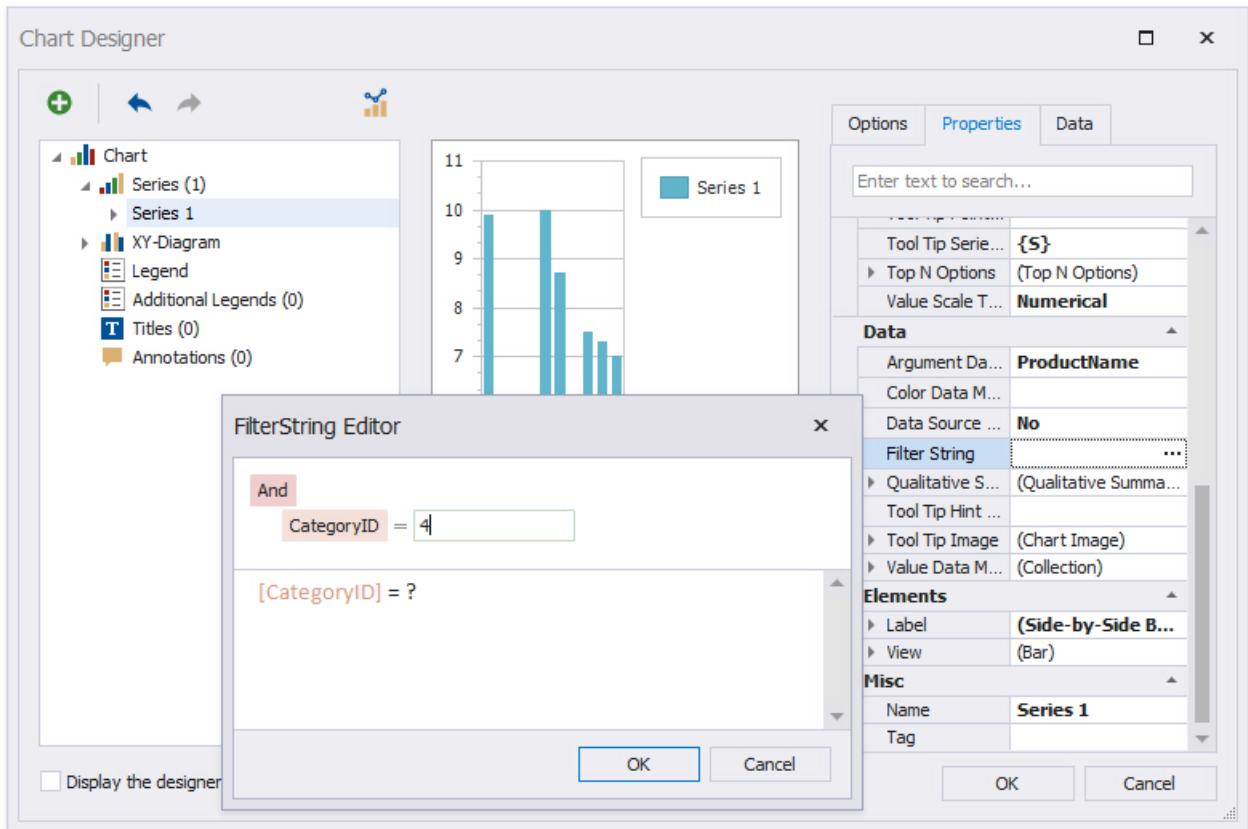
- Switch to the **Data** tab.
- Select a data source from the drop-down list.
- Drop data fields onto the **Argument** and **Value** cells to define the series' points.



4. Filter series data.

- Switch to the **Properties** tab.
- Click the **Filter String** property's ellipsis button.

- Construct filter criteria in the invoked **FilterString Editor** and click **OK**.

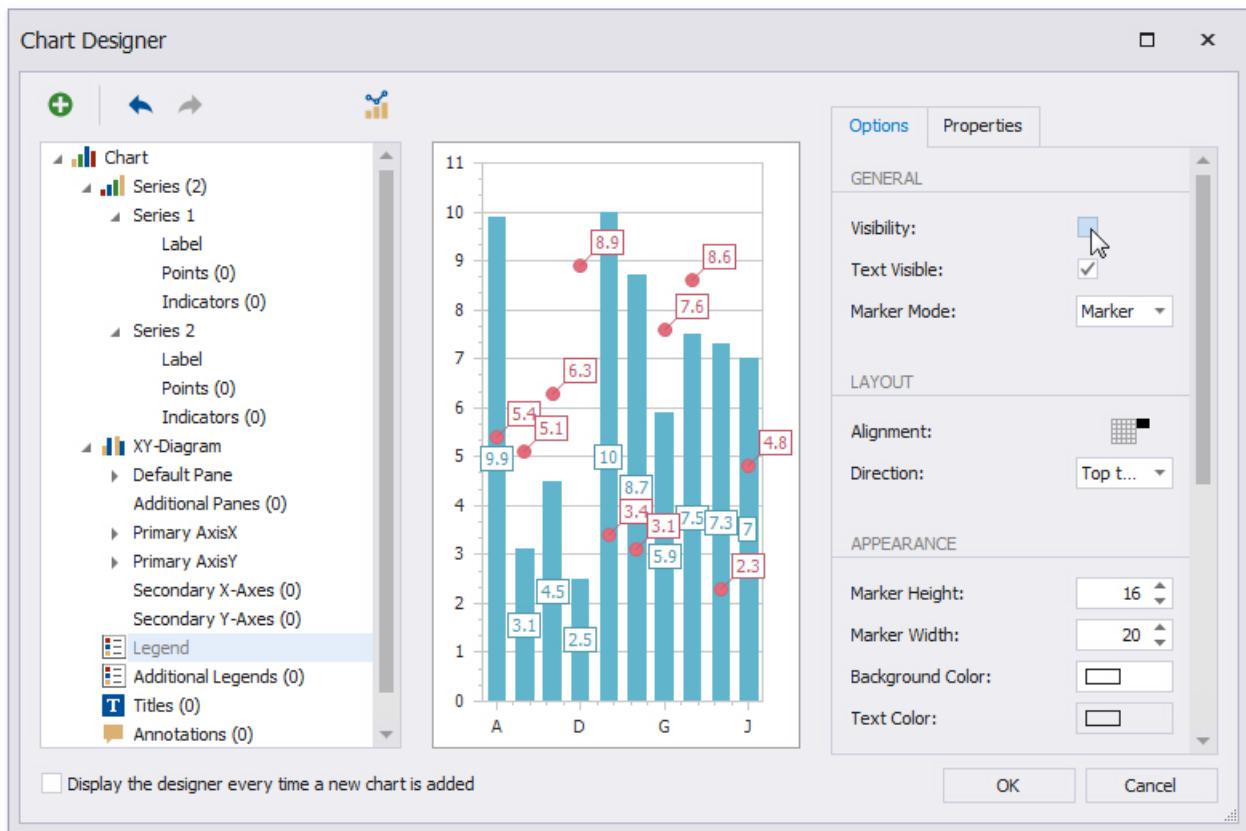


- Create another series with the same settings. Select the **Point** view type for this series.

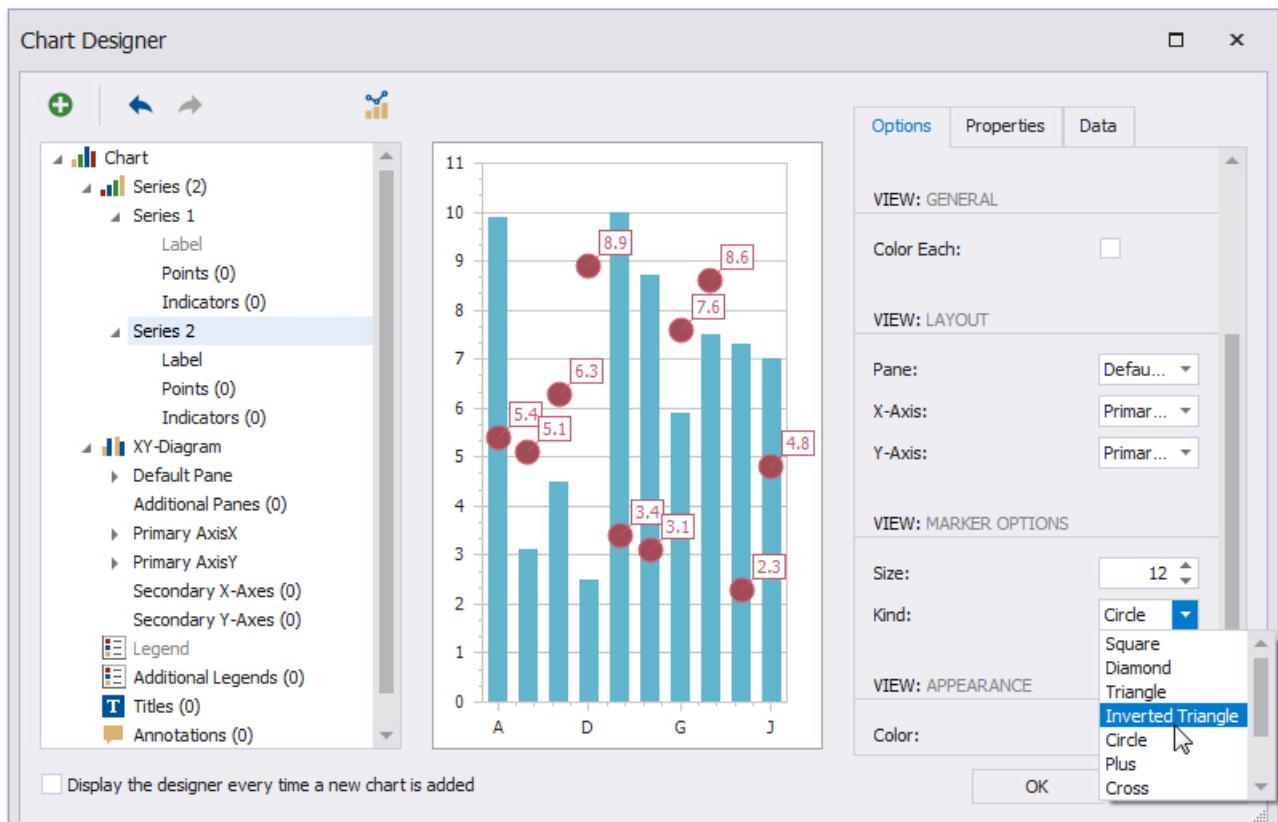
Customize the Chart

Improve the chart's appearance:

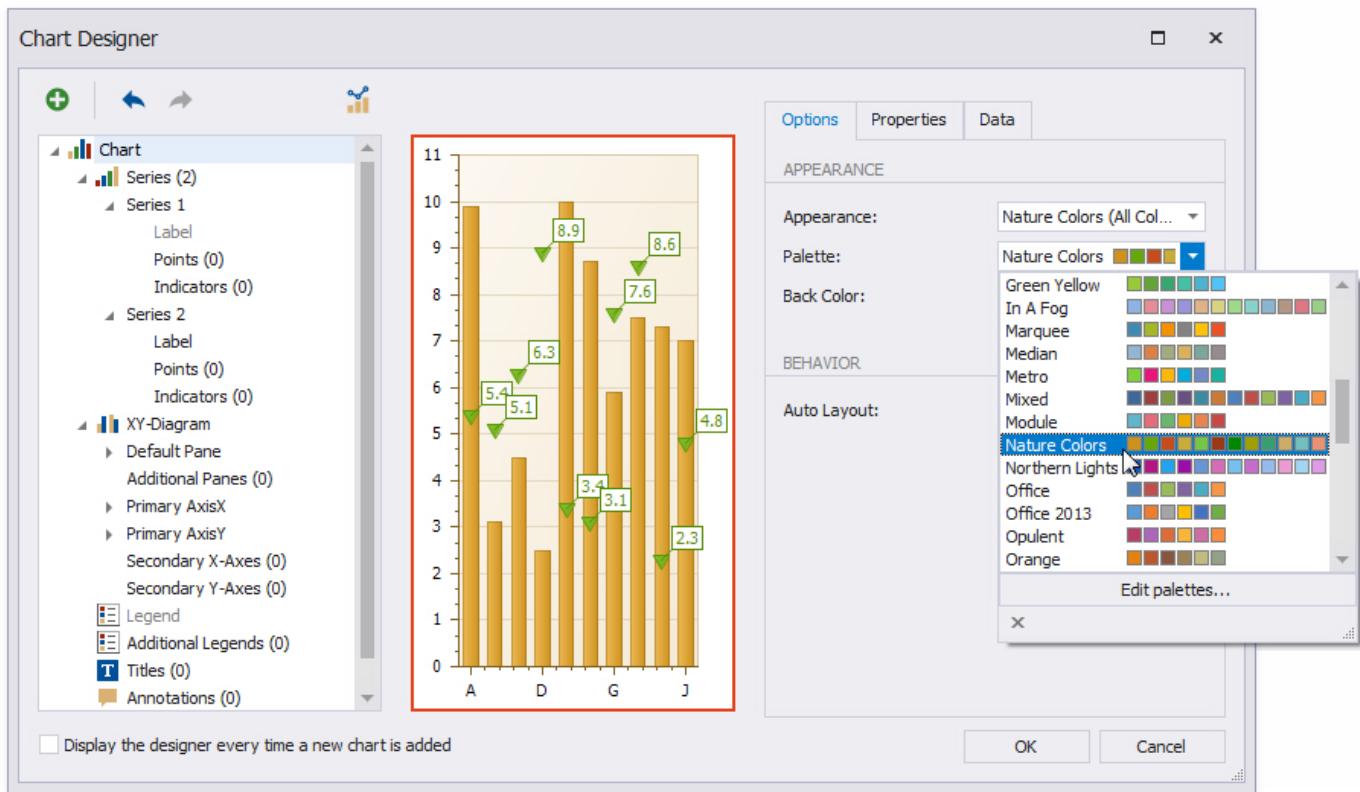
- Remove the chart legend, because the chart series are bound to the same data. Select **Legend** in the chart elements tree and disable the **Visibility** check box in the **Options** tab.



- Select the **Label** node under **Series 1** and disable the **Visibility** check box to hide point labels.
- Customize the **Series 2** markers' appearance. Set **Size** to **12** and **Kind** to **Inverted Triangle** to replace the default circle with an upside down triangle.

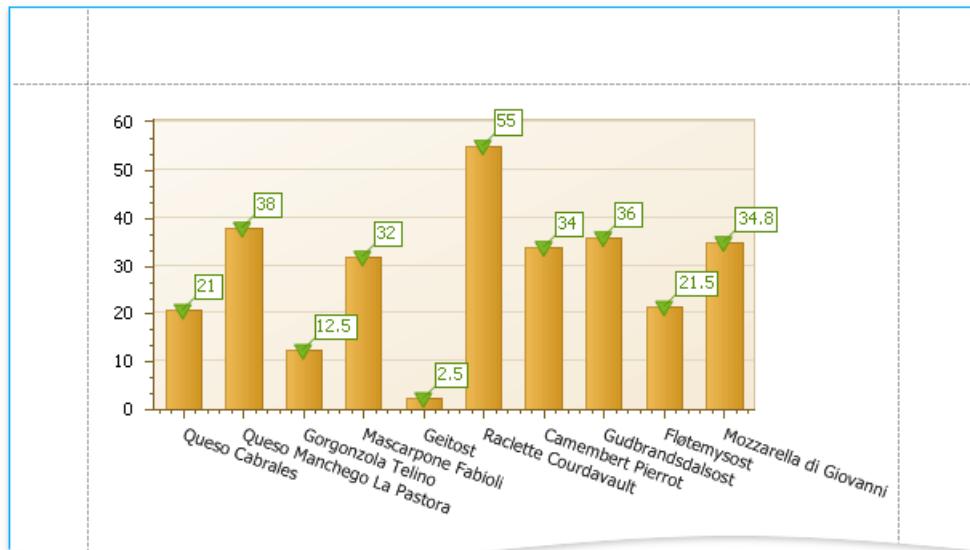


- Customize the chart's appearance settings. For instance, select **Nature Colors** from the drop-down **Palette** list.



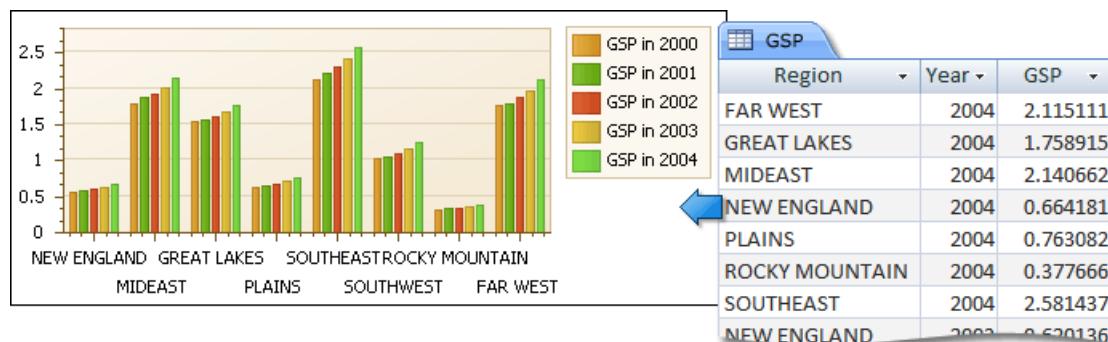
View the Result

Switch to [Print Preview](#) to preview your report.



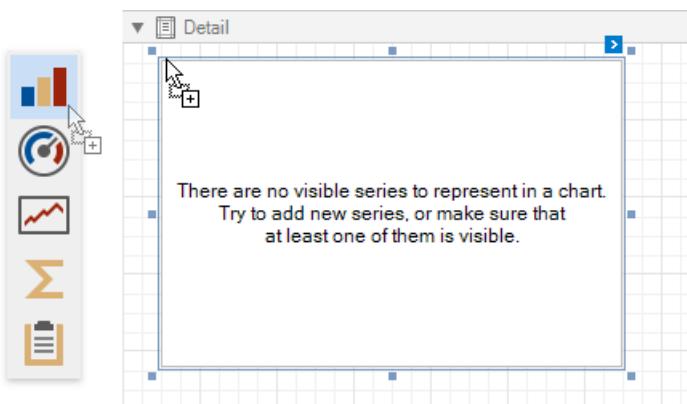
Add a Chart (Use a Series Template)

This document describes how to create a report with a **Chart** control bound to data and generate all series automatically based on a common template.



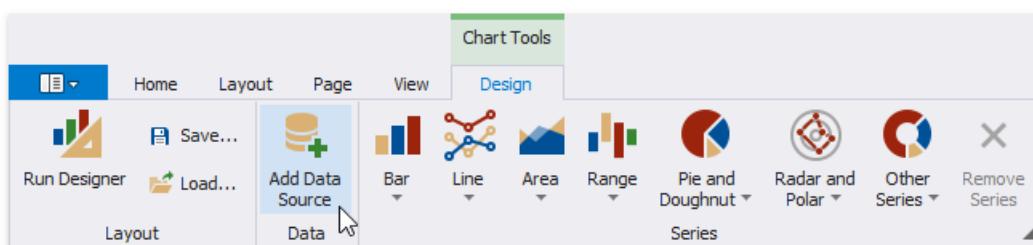
Add a Chart to a Report

1. Drop the **Chart** control from the **Toolbox** onto the **Detail** band.

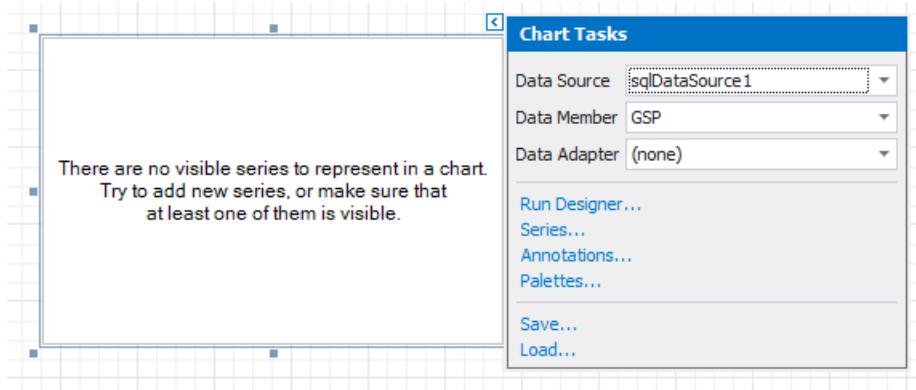


After you drop the chart, the **Chart Designer** is automatically invoked if its **Display the designer every time a new chart is added** option is enabled. Close the designer at this step.

2. Open the **Toolbar's Chart Tools** contextual tab and click **Add Data Source** to bind the chart to data.



3. The invoked **Data Source Wizard** enables you to assign a data source to the chart. Bind the chart to a data source as described in the [Bind to Data](#) section.
4. Click the chart's smart tag and make sure that the **Data Source** and **Data Member** properties were specified correctly.



NOTE

The report's **Data Source** property should be set to **None** because the Chart is in the Detail band. When a report has its **Data Source** property specified, the Chart is repeated in preview as many times as there are records in the report data source.

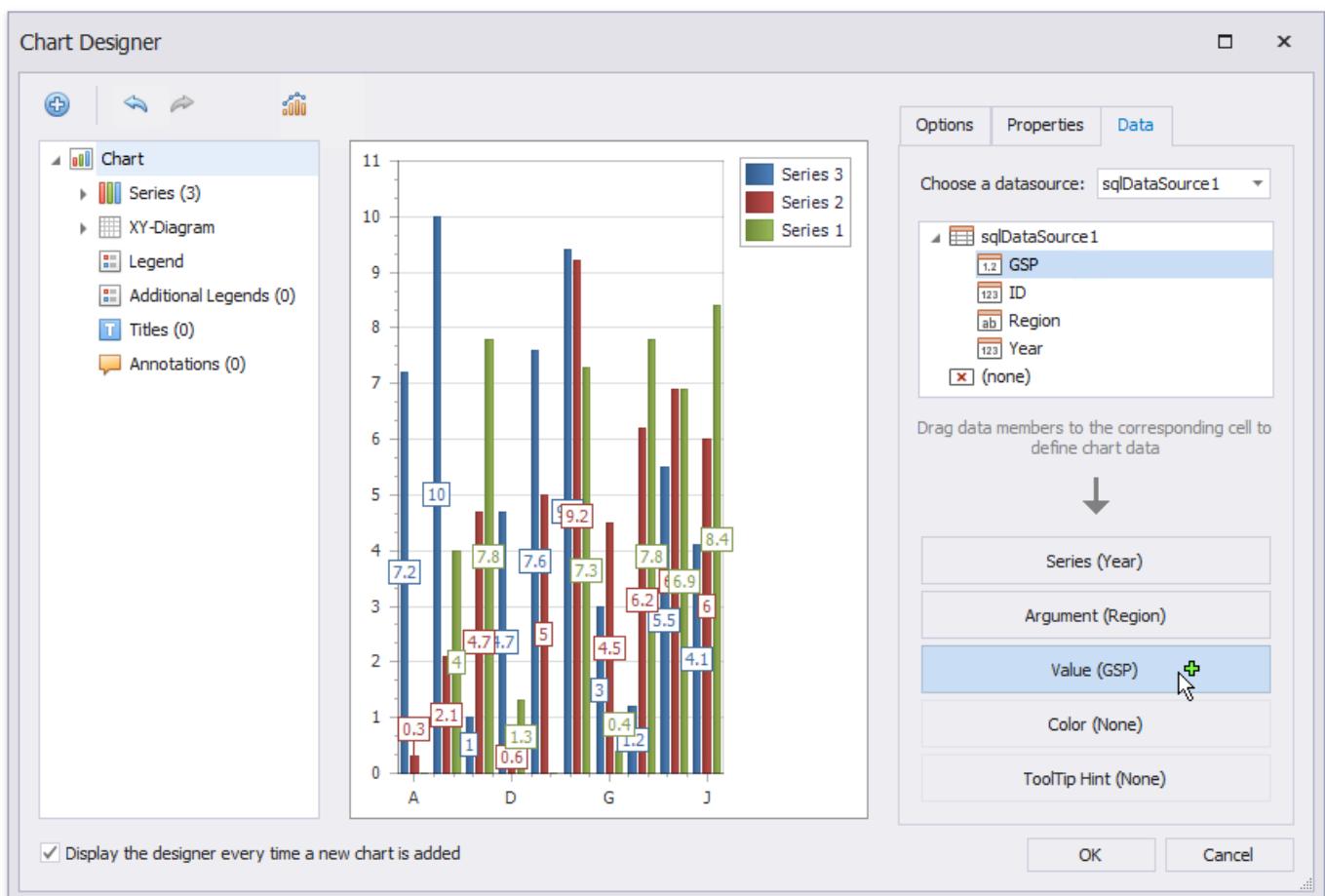
Adjust the Series Template

1. Switch to the **Chart Tools** toolbar tab and click **Run Designer**.

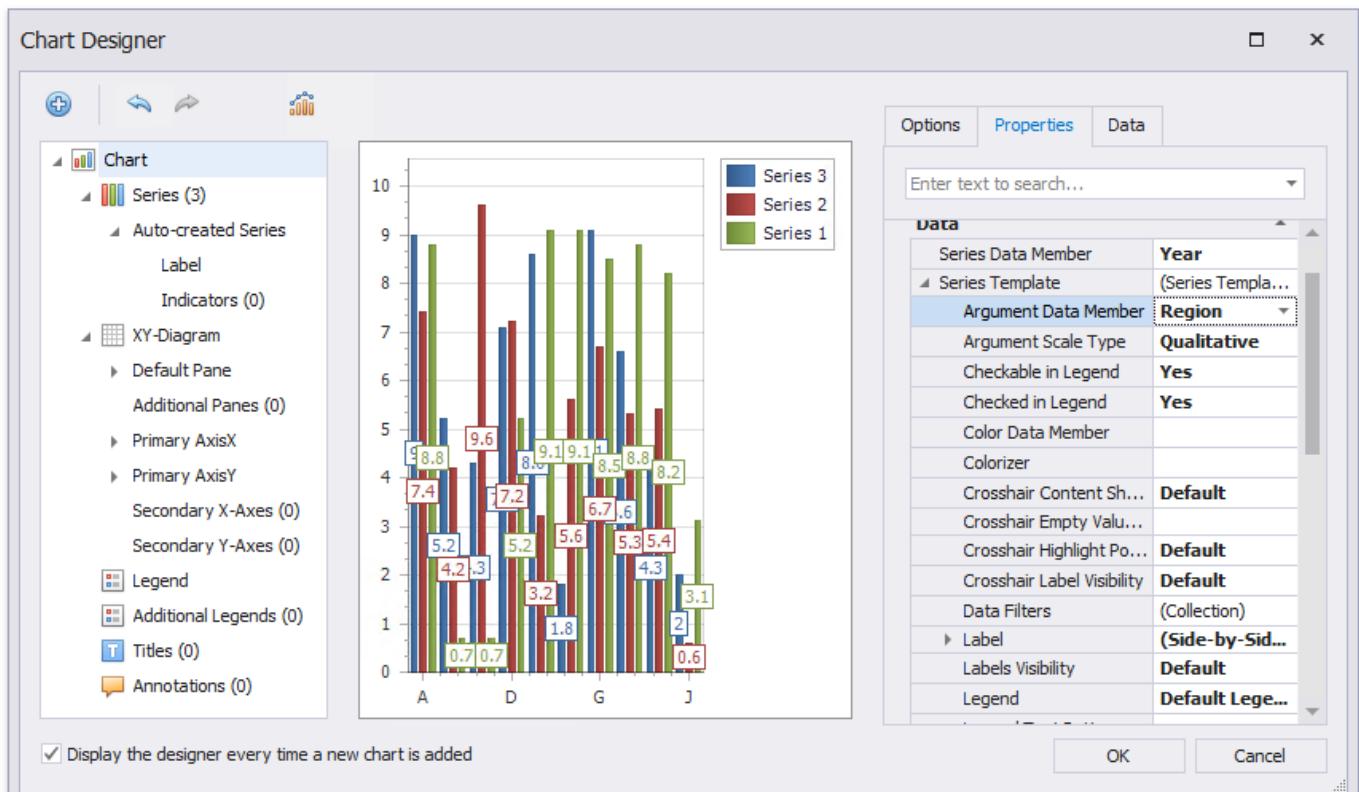


2. In the invoked **Chart Designer**, go to the **Data** tab to the right of the designer's window. Select a data source in the corresponding drop-down list and drag-and-drop the data fields onto the corresponding cells.

The **Series** cell specifies a data field that should provide data for series names. A new series should be created for each record in this data field. Use the **Argument** and **Value** cells to define where to get data for point arguments and values.



- Switch to the **Properties** tab and expand the **Series Template** option. The **Argument Data Member** and **Value Data Members** properties are automatically assigned to the corresponding data fields. Make sure that the **Argument Scale Type** and **Value Scale Type** properties are set to appropriate values.



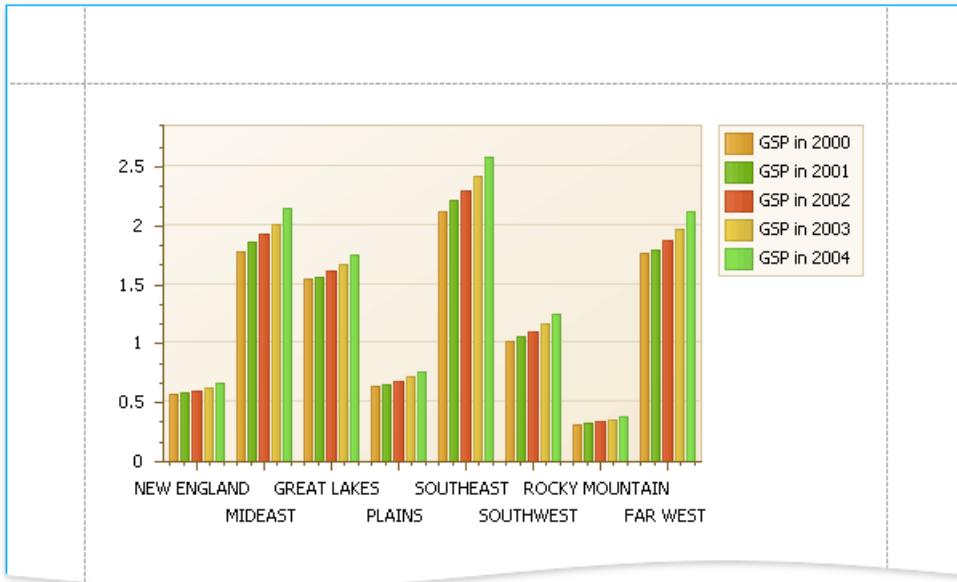
Customize the Chart

Perform the following customization to improve the chart's appearance:

- Use the chart's **Series Name Template** property to add text to the beginning or end of each series name. For example, set the **Begin Text** inner property to "GSP in ".
- Set the **Labels Visibility** property to **False** to avoid overlapping series labels.
- Specify the color settings used to draw the chart's series. For instance, select **Nature Colors** in the **Palette**'s drop-down list.

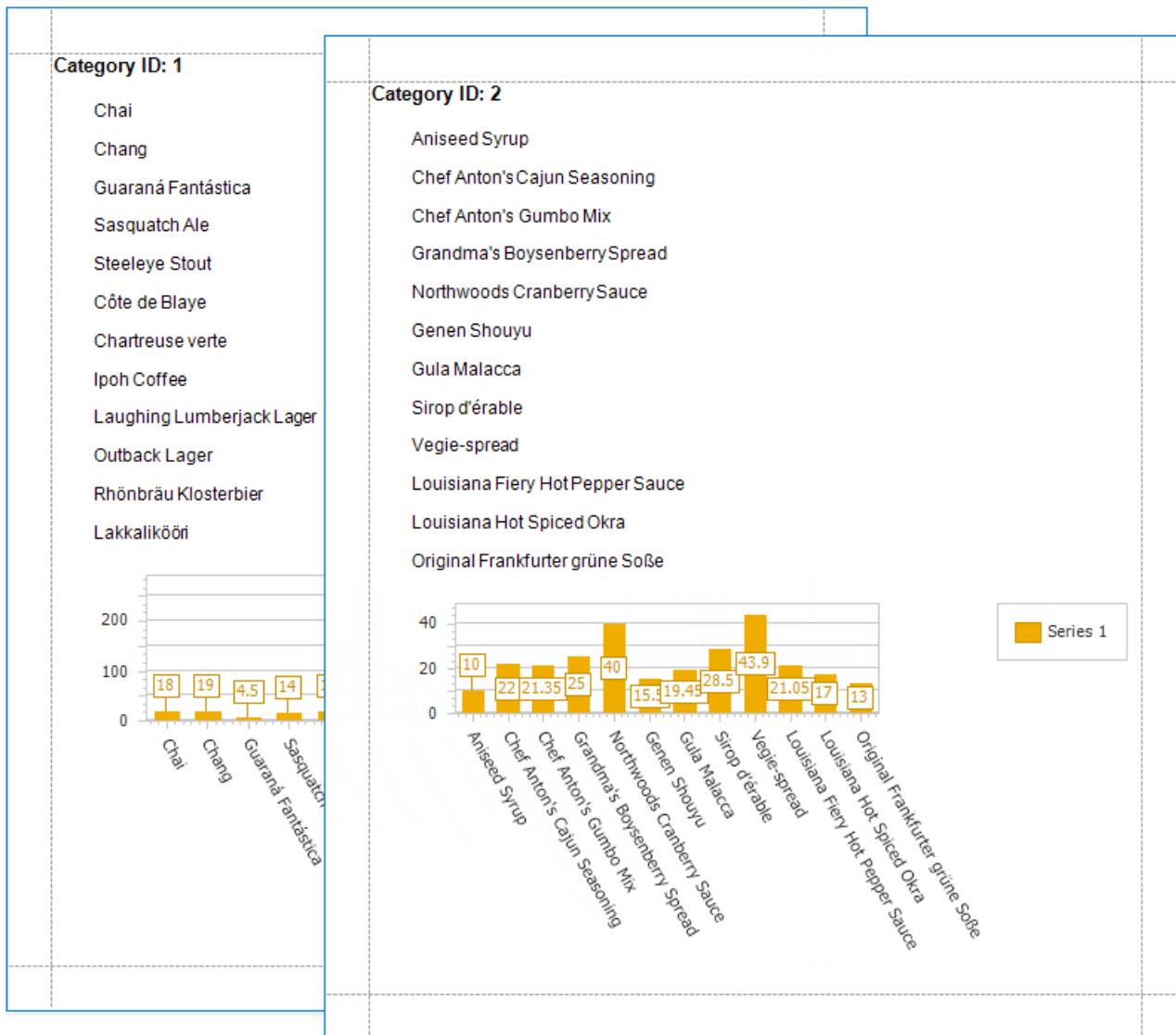
View the Result

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



Use Charts to Visualize Grouped Data

This topic describes how to use charts to visualize grouped data in a report.



In this tutorial, the report data is grouped against a data field (the report's group field). A chart is placed in the Group Footer band and is not bound to data. The report's data source is used to populate the chart with data.

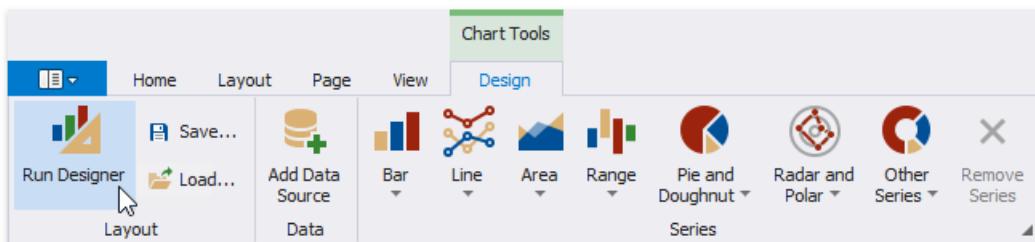
The screenshot shows the Report Designer interface with the following details:

- GroupHeader1:** Contains a label "Category ID: [CategoryID]".
- Detail:** Contains two text boxes: "[ProductName]" and "[UnitPrice]".
- GroupFooter1:** Contains a message: "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." A tooltip for this message says: "The chart does not have any visible series. You can add new series or make sure that at least one of them is visible." Below this is a "Group and Sort" dialog box.
- Group and Sort Dialog:**
 - Buttons: Add a Group, Add a Sort, Delete, Move Up, Move Down.
 - Table:

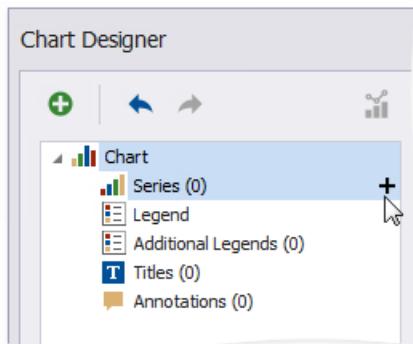
Field Name	Sort Order	Show Header	Show Footer
CategoryID	Ascending	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Follow the steps below to make each chart instance display data for its group.

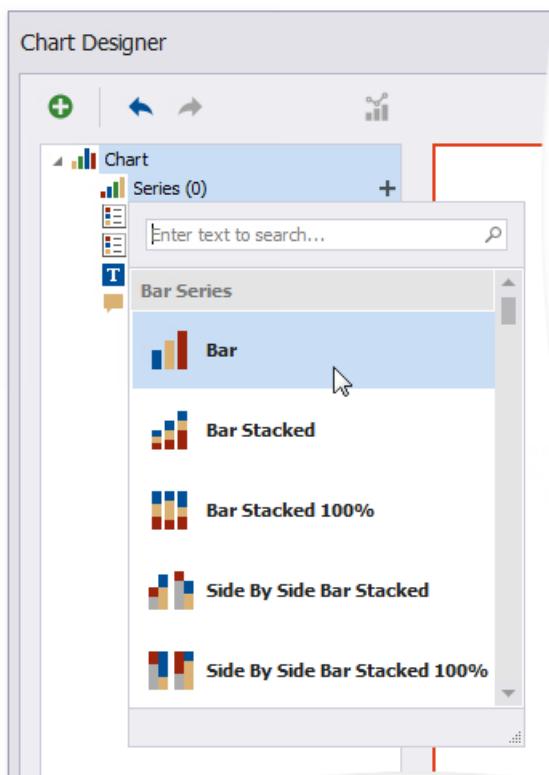
1. Select the chart. Open the **Toolbar**'s **Chart Tools** contextual tab and click **Run Designer**.



2. Add a new series. Click the plus button next to the **Series** item in the Chart Designer.

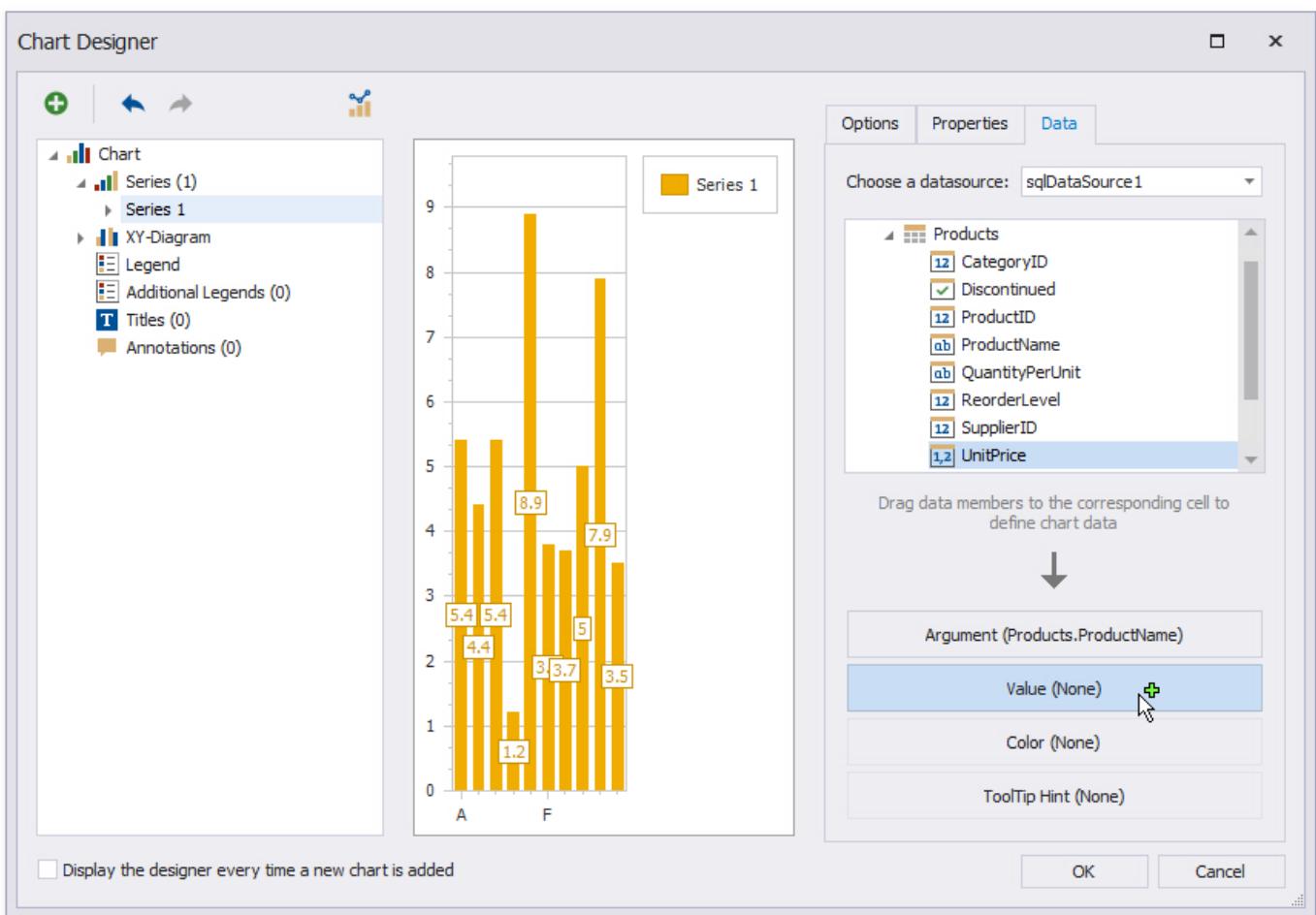


Select a series type.

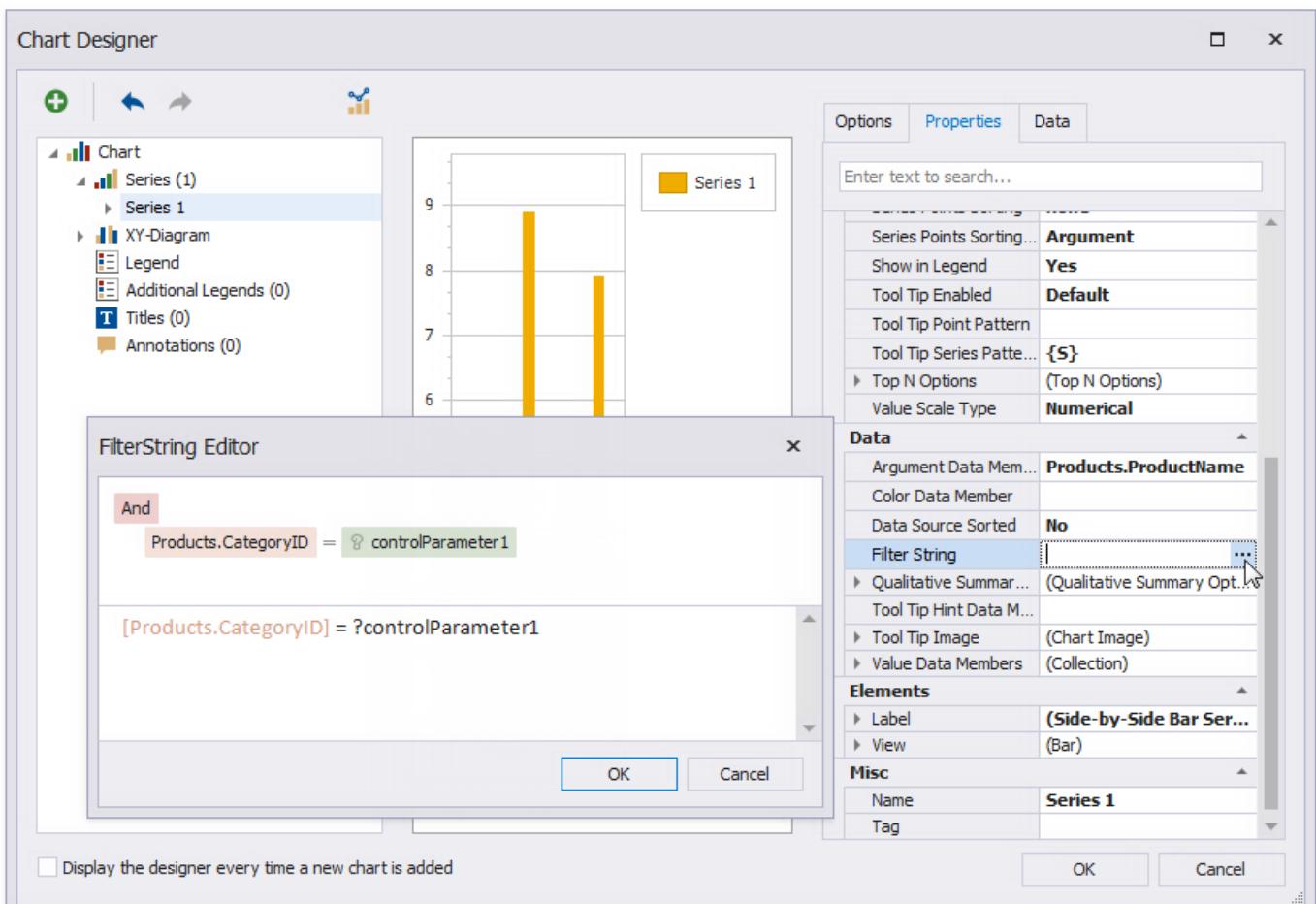


3. Provide data for the argument and value axes.

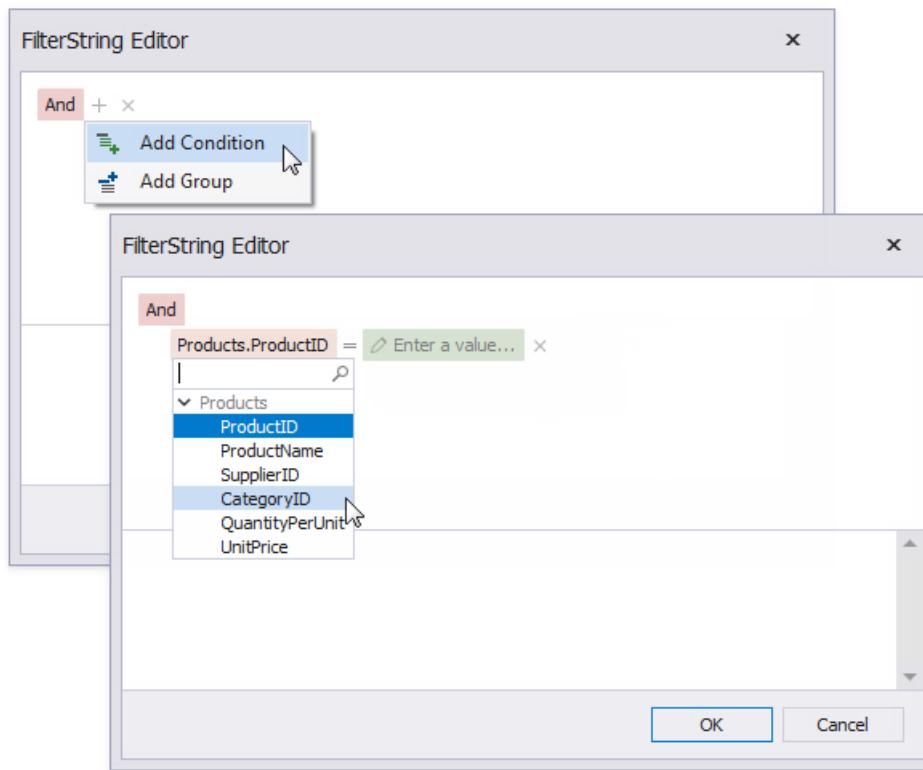
Switch to the created series' **Data** tab. Drop fields onto the **Argument** and **Value** areas.



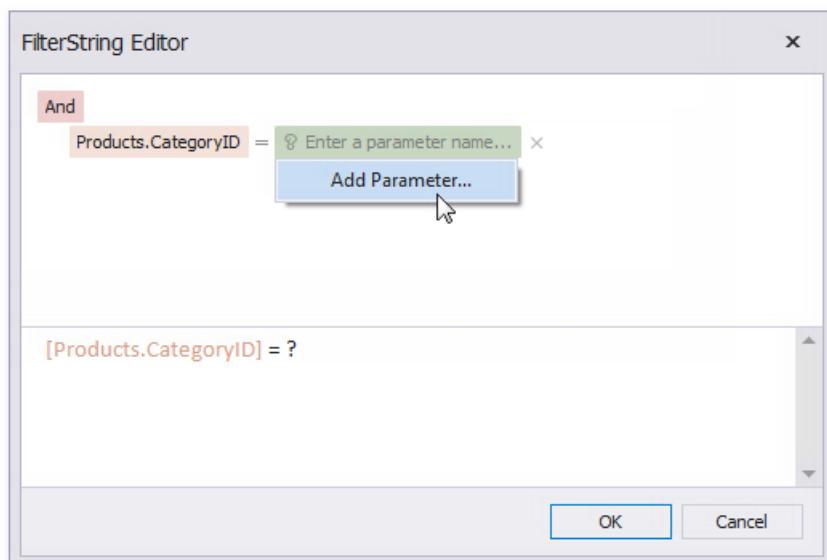
4. Filter the chart. Go to the **Properties** tab. Click the **Filter String** property's ellipsis button to invoke the **FilterString Editor**.



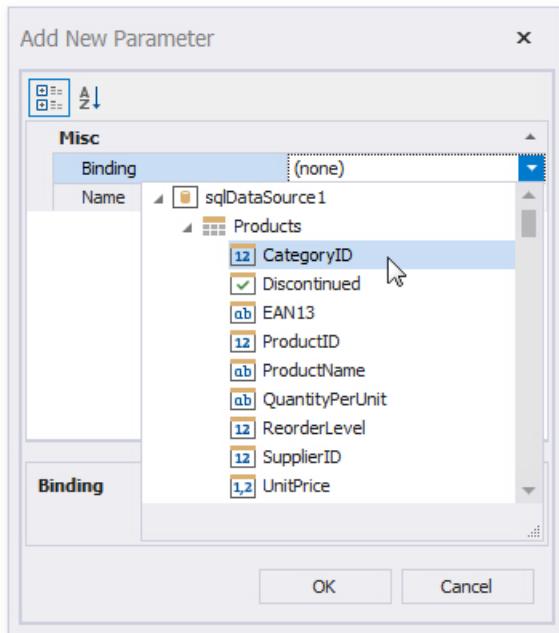
Add a filter condition. On the left side, specify the field by which chart data should be filtered.



On the right side, use a chart parameter to obtain a group value from the report's group field. Click the right side's icon until it turns into a question mark and select **Add Parameter** from the context menu to invoke the Add New Parameter dialog.

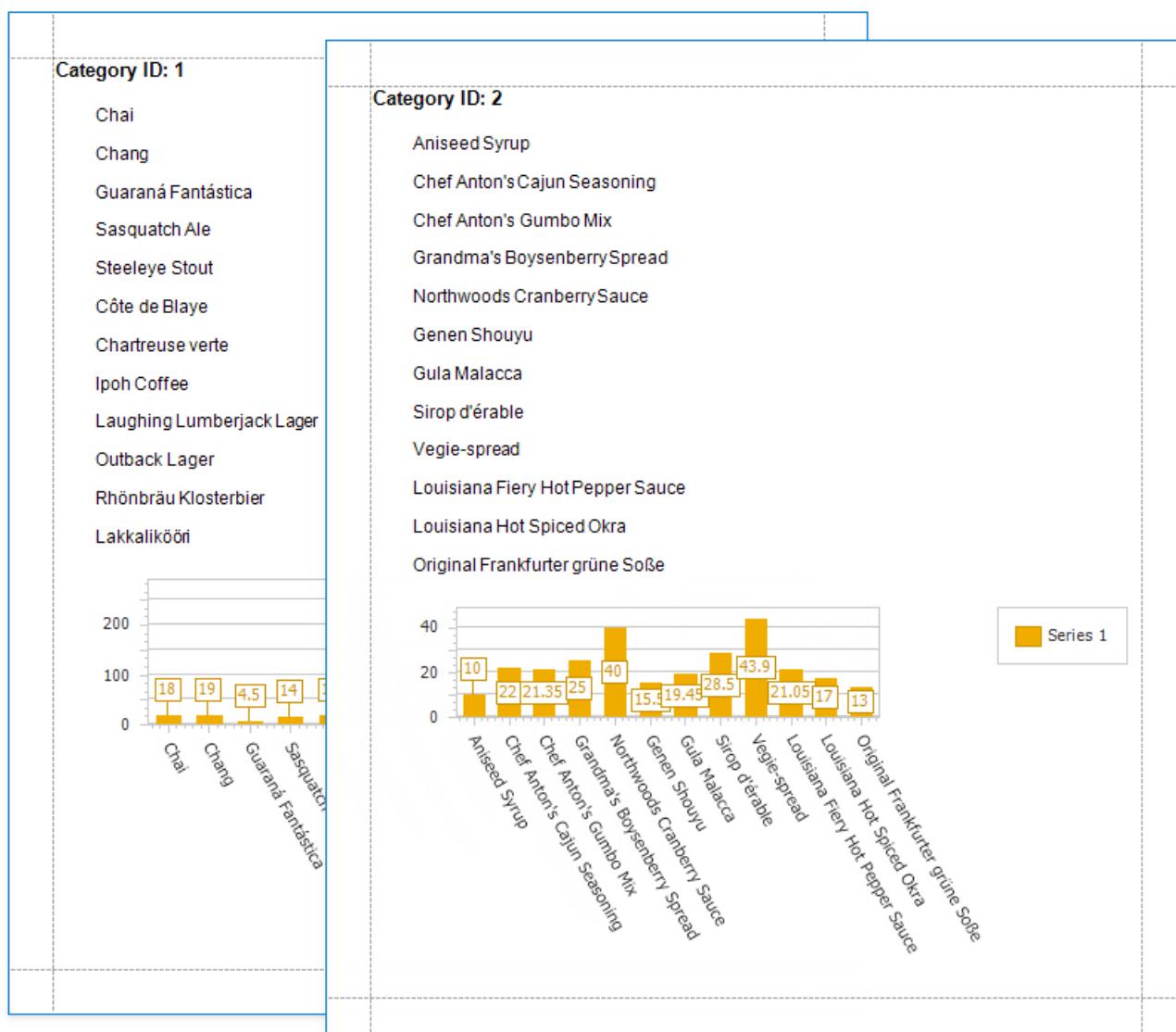


Set the **Binding** property to the report's group field and click **OK**.



Click OK in the FilterString Editor and in the Chart Designer to apply changes.

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

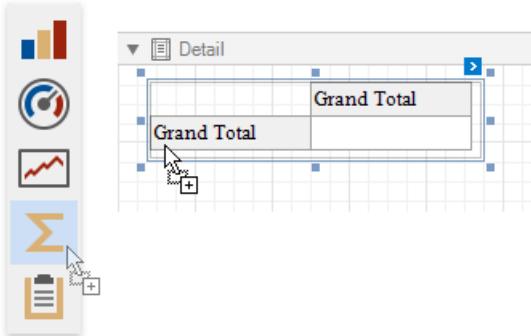


Link a Chart and a Pivot Grid

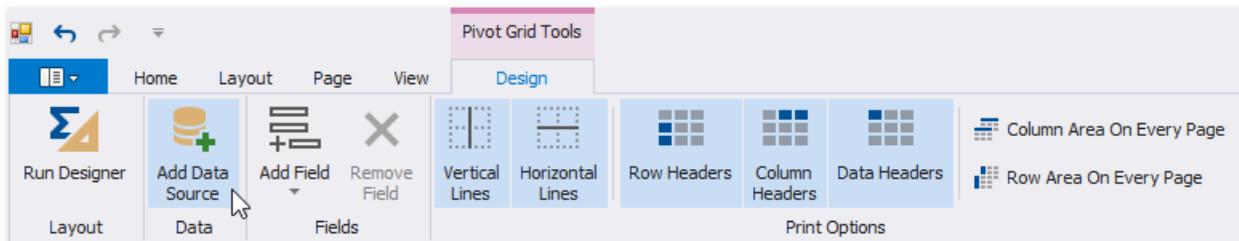
This tutorial demonstrates how to use the Chart control to visualize the Pivot Grid control's data.

Create a Pivot Grid

1. Drop the **Pivot Grid** control from the [Toolbox](#) onto the [Detail band](#).



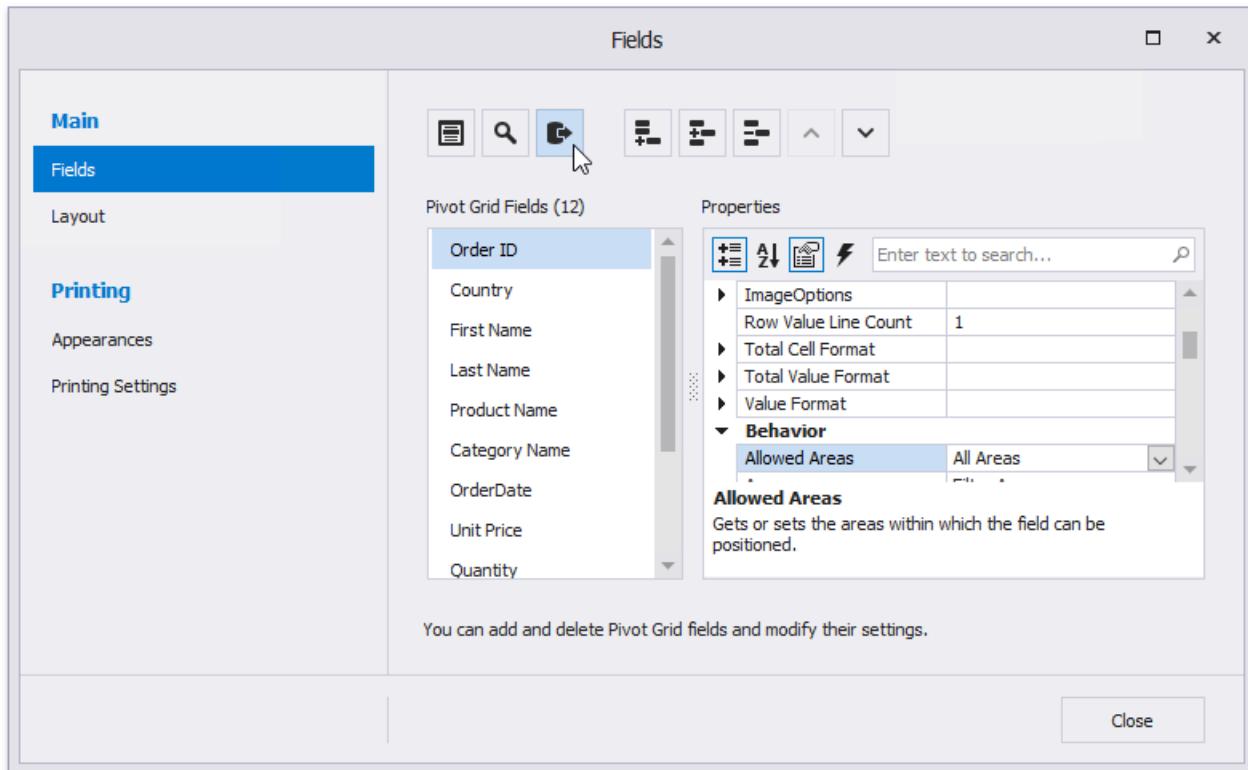
2. Open the [Toolbar's Pivot Grid Tools contextual tab](#) and click **Add Data Source** to bind the pivot grid to data.



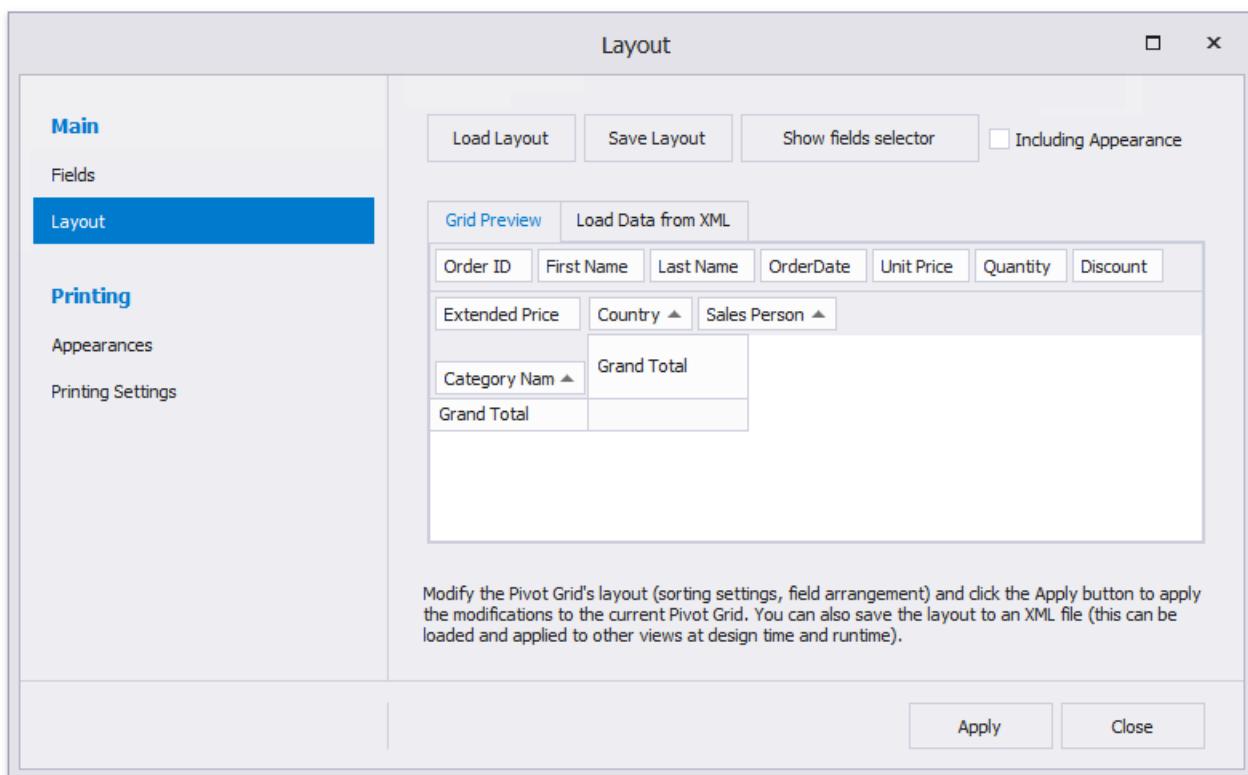
3. Navigate through the invoked [Data Source Wizard](#)'s pages to set up the data source. See the [Bind to Data](#) section for more information.

After the data source is created, the Pivot Grid's **Data Source** and **Data Member** properties are assigned automatically.

4. Switch the **Pivot Grid Tools** toolbar tab and click **Run Designer**. In the invoked Designer, click **Retrieve Fields** to obtain fields from the control's data source.



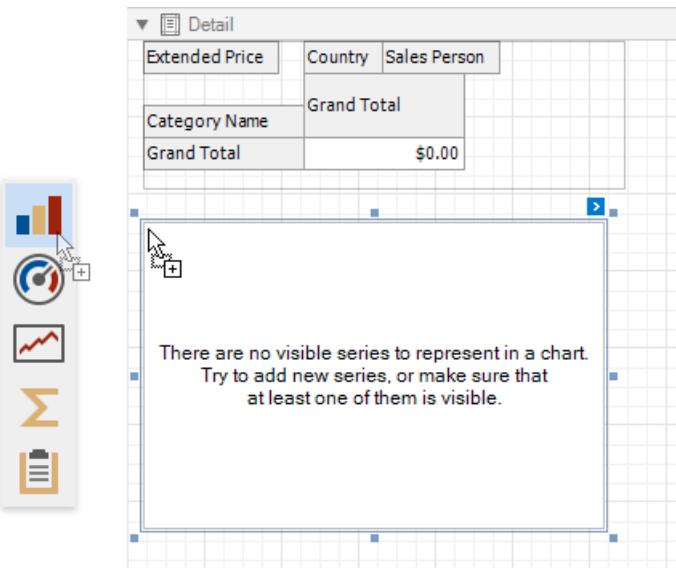
5. Switch to the **Layout** page and drag-and-drop the data fields onto the **Row Fields**, **Column Fields** and **Data Items** areas to define the Pivot Grid's layout.



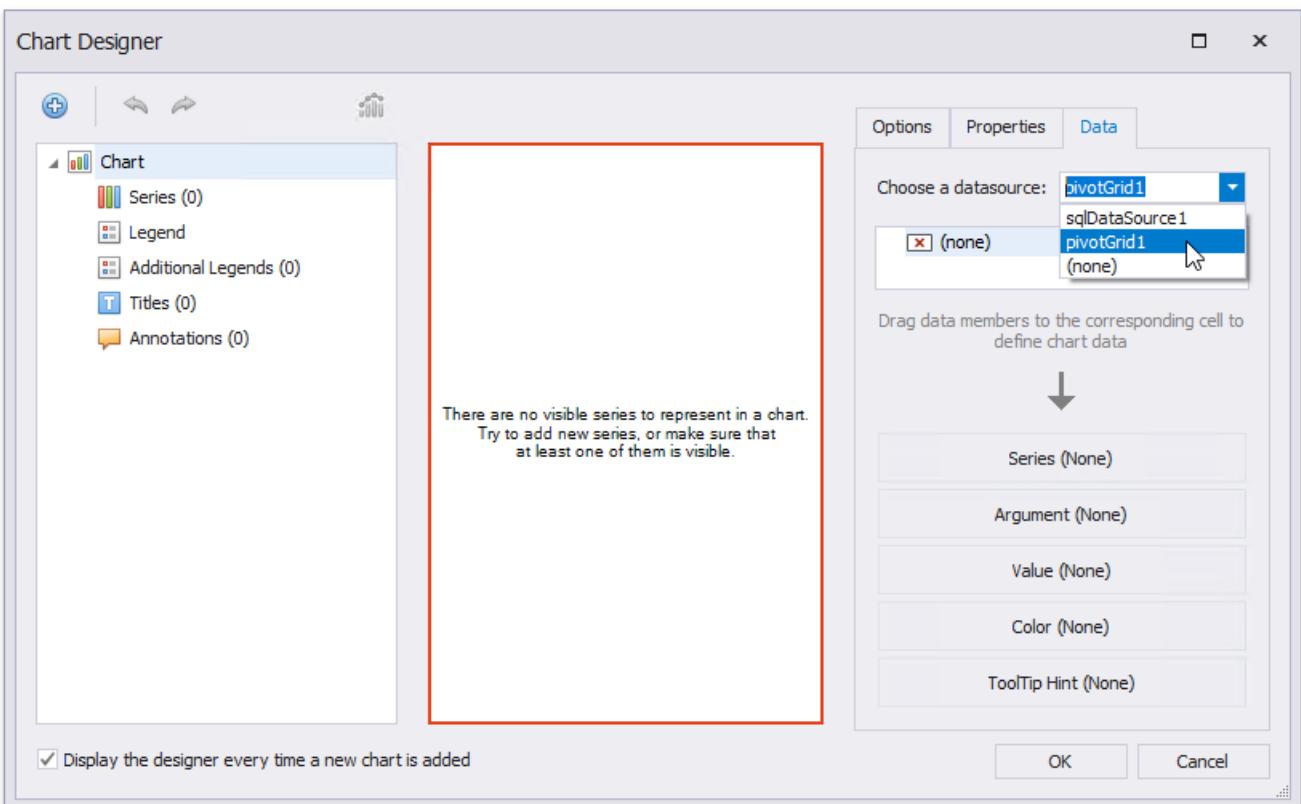
Click **Apply** and close the Designer.

Link a Chart with the Pivot grid

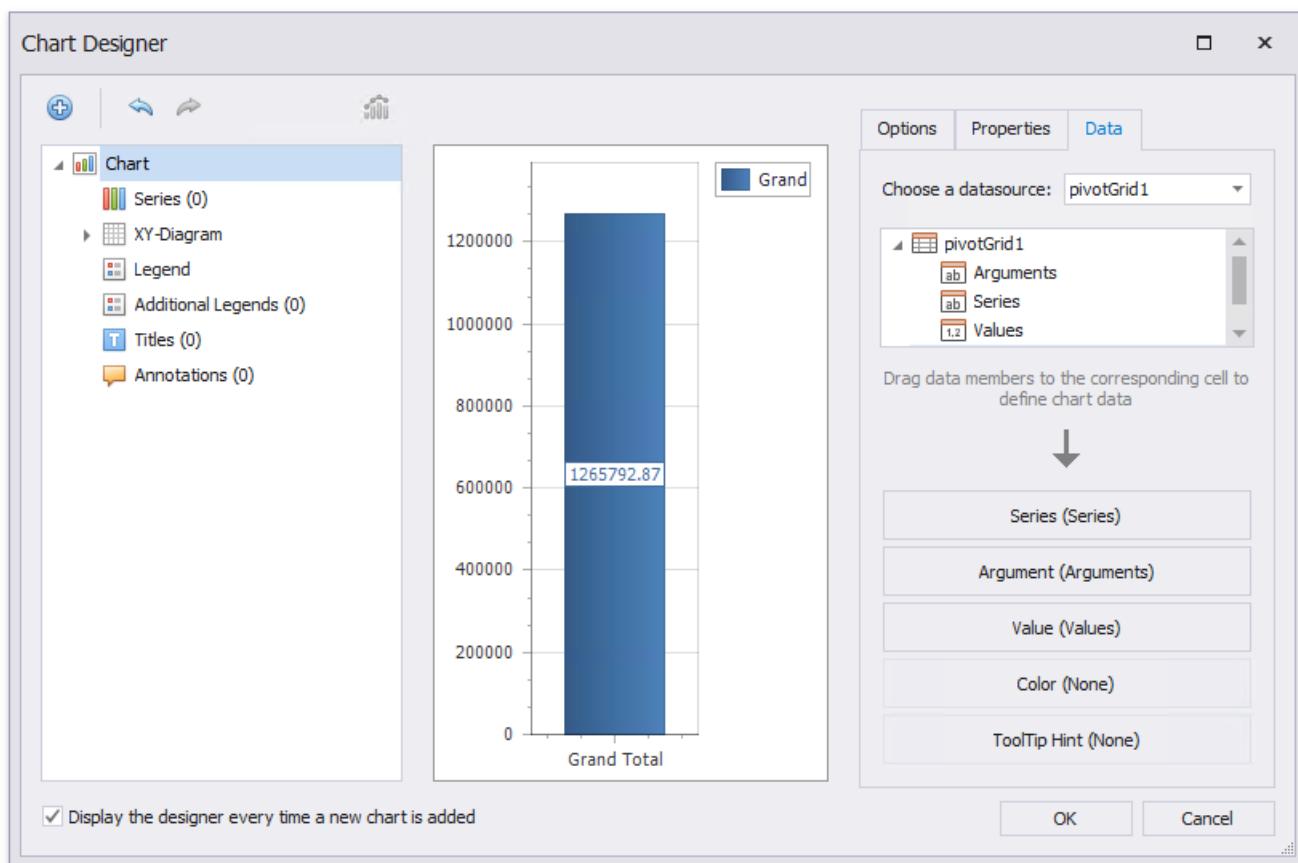
1. Drop the **Chart** control from the **Toolbox** onto the Detail band below the Pivot Grid.



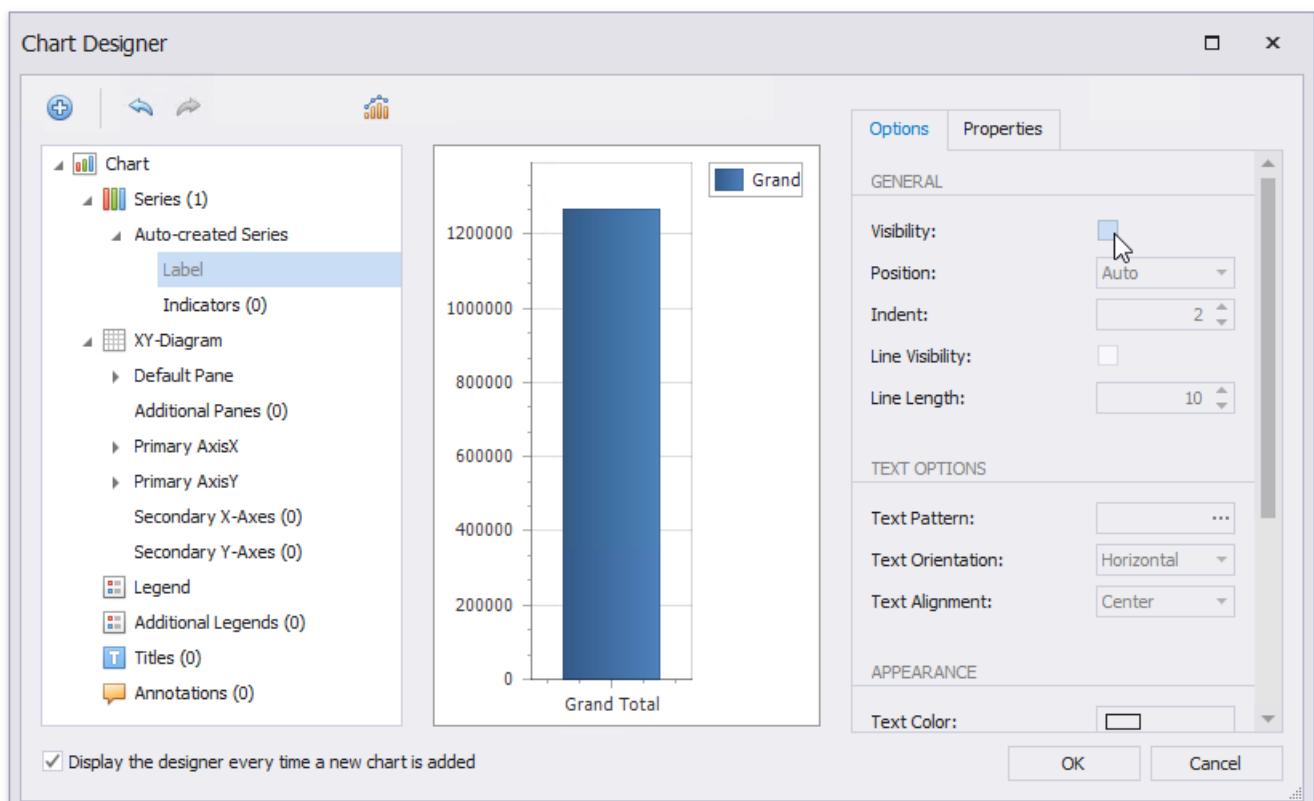
2. The **Chart Designer** is invoked automatically after you drop the Chart onto the Detail band. Switch to the **Data** tab at the right of the Designer's window and choose the Pivot Grid in the drop-down list.



This adjusts all the Chart's binding and layout settings automatically. Make sure that **Series**, **Argument** and **Value** cells are filled with the corresponding fields. Note that field values are generated based on the Pivot Grid's columns, rows, and data items.



3. Select the **Label** node under auto-generated series in the chart elements tree and switch to the **Options** tab. Disable the **Visibility** check box to avoid overlapping series labels.



4. (optionally) You can customize various settings that determine a linked Chart and Pivot Grid pair's common behavior. To do this, use the Chart's **Pivot Grid Data Source Options** property. This property is synchronized with the Pivot Grid's **Options Chart Data Source** property.

Properties

chart1 Chart

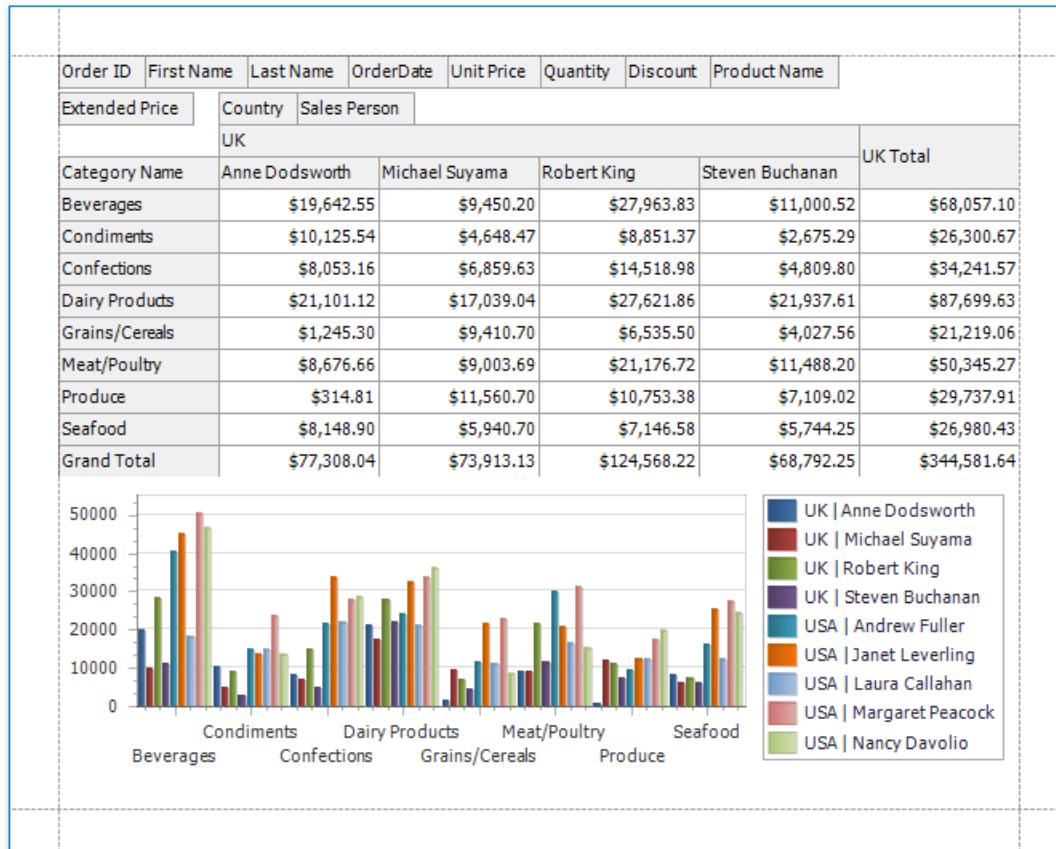
Pivot Grid Data Source Options (Pivot Grid Data Source Options)

- Automatic Binding Settings Enabled
- Automatic Layout Settings Enabled
- Max Allowed Point Count in Series: 100
- Max Allowed Series Count: 10
- Retrieve Column Custom Totals
- Retrieve Column Grand Totals
- Retrieve Column Totals
- Retrieve Data by Columns
- Retrieve Empty Cells
- Retrieve Row Custom Totals

Pivot Grid Data Source Options

View the Result

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



Use Cross Tabs

The Cross Tab control displays data in rows and columns. You can specify what data to use as row/column headers, and what data should be shown at row and column intersections. You can also determine how to group, sort, format and lay out data.

Order Date	Category Name	[Country] [Sales Person]	Total [Country]	Grand Total
[OrderDate]	[CategoryName]	[Extended Price]		
Total [OrderDate]				
Grand Total				

Order Date	Category Name	UK		Total UK	USA		Total USA	Grand Total
		Anne Dodsworth	Robert King		Andrew Fuller	Janet Leverlin		
2015	Grains/Cereal	\$1,021.30	\$1,271.60	\$2,292.90	\$6,320.40	\$14,146.80	\$20,467.20	\$22,760.10
	Meat/Poultry	\$5,024.40	\$7,524.24	\$12,548.64	\$12,730.30	\$5,975.73	\$18,706.03	\$31,254.67
	Produce	\$98.81	\$3,978.42	\$4,077.23	\$4,377.00	\$2,457.15	\$6,834.15	\$10,911.38
Total 2015		\$6,144.51	\$12,774.26	\$18,918.77	\$23,427.70	\$22,579.68	\$46,007.38	\$64,926.15
2016	Grains/Cereal	\$224.00	\$4,912.50	\$5,136.50	\$3,402.25	\$6,050.15	\$9,452.40	\$14,588.90
	Meat/Poultry	\$3,563.76	\$13,155.08	\$16,718.84	\$13,224.50	\$12,881.11	\$26,105.61	\$42,824.45
	Produce		\$4,637.20	\$4,637.20	\$3,700.00	\$8,655.70	\$12,355.70	\$16,992.90
Total 2016		\$3,787.76	\$22,704.78	\$26,492.54	\$20,326.75	\$27,586.96	\$47,913.71	\$74,406.25
Grand Total		\$9,932.27	\$35,479.04	\$45,411.31	\$43,754.45	\$50,166.64	\$93,921.09	\$139,332.40

Refer to the following topics for instructions on how to use cross tabs in reports:

- [Cross Tab Overview](#)

Explains how to add a Cross Tab to a report and bind a Cross Tab to data.

- [Cross Tab Fields](#)

Describes the Cross Tab row fields, column fields, data fields, and how to format field values.

- [Data Shaping](#)

Demonstrates how to group, sort and filter a Cross Tab.

- [Layout and Print Options](#)

Shows how to adjust Cross Tab size, change header text, and specify how the control is printed.

- [Cross Tab Appearance](#)

Explains how to change Cross Tab element appearance settings.

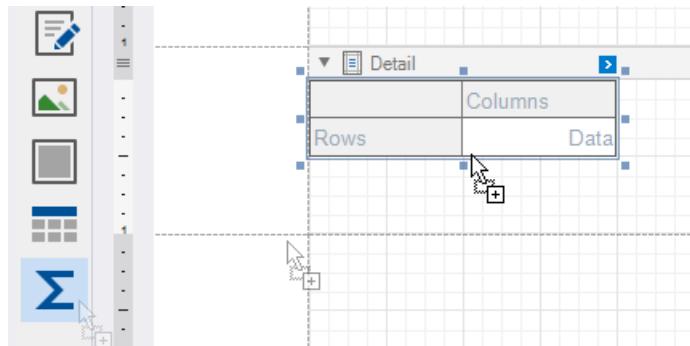
Cross Tab Overview

Use the **Cross Tab** control to display multi-dimensional data, such as summary statistics, surveys, and market research information.

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

Add a Cross Tab to a Report

Drag the **Cross Tab** item from the Toolbox onto a report.

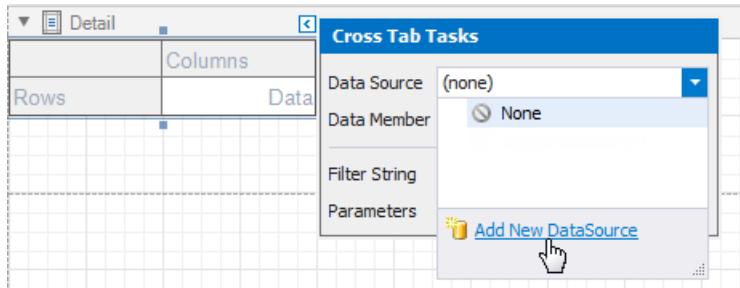


You cannot place the Cross Tab in another report control ([Table Cell](#) or [Panel](#)) because its width cannot be determined at design time.

Bind to Data

Use the Cross Tab's **Data Source** and **Data Member** properties to bind this control to data.

1. Click the Cross Tab's smart tag.
2. Expand the **Data Source** property's drop-down list and click **Add New Data Source**.
3. Follow the steps in the invoked **Data Source Wizard** to configure a data source.



If these properties are not set, the Cross Tab uses its parent report's data source (the report's **Data Source** and **Data Member** properties).

NOTE

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

The following step-by-step tutorials describe how to create reports that use the Cross Tab control:

- [Create a Cross-Tab Report](#) - Use the **Cross-Tab Report Wizard** to create a report.
- [Balance Sheets](#) - Configure a Cross Tab on the design surface.

Cross Tab Fields

Drop data fields from the [Field List](#) onto cross-tab areas to define the control layout. The Cross Tab supports three field types (areas):

- **Rows** (the **Row Fields** collection) - displays field values as row headers.
- **Columns** (the **Column Fields** collection) - displays field values as column headers.
- **Data** (the **Data Fields** collection) - uses field values to calculate summaries at row and column intersections.

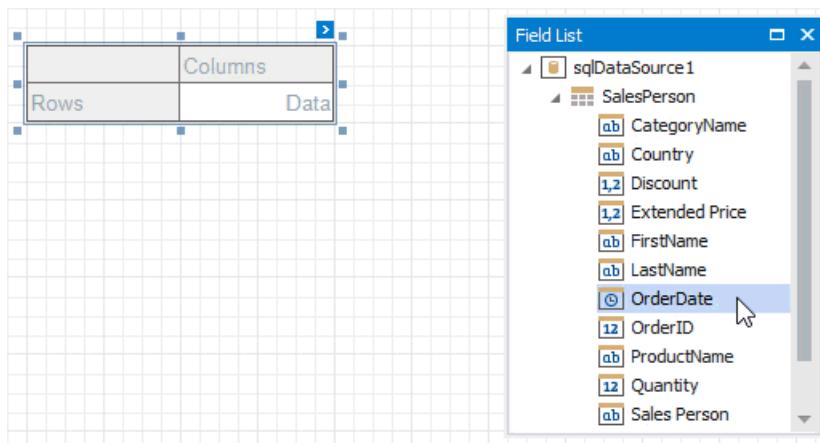
i TIP

You can also use [calculated fields](#) if data source fields do not suit your requirements and you need to pre-process data before it is shown in the Cross Tab.

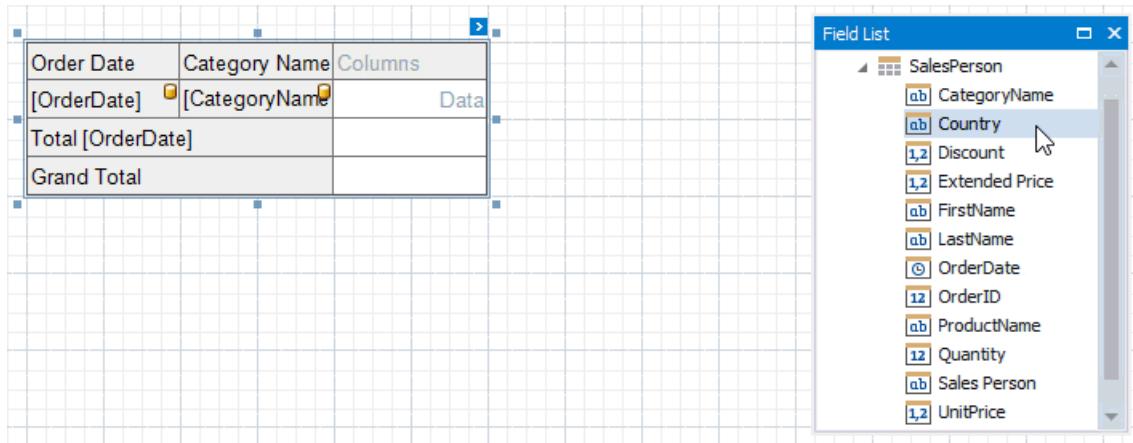
Row and Column Fields

You can drop two or more data fields onto the same area to create a hierarchy. The first field's values are displayed at the root level (the first column/row), the second field's values are grouped by the first field's values and displayed at the second hierarchy level (the second column/row), and so on.

- **Specify Row Fields**



- **Specify Column Fields**



Cross Tab cells marked with a database icon become bound to the dropped fields. The corresponding rows/columns are printed in the document as many times as there are field values in the data source. The top left corner displays headers for row data fields.

Additional rows/columns are added to the Cross Tab to display total values calculated against these fields. The last row/column displays grand total values calculated against all the rows/columns.

Data Fields

You can add two or more data fields and arrange them in two ways:

- in a column, one under the other (field headers are displayed as row headers);

The screenshot shows a report designer interface with a cross-tab and a field list. The cross-tab has columns for Order Date, Category Name, [Country], Total [Country], and Grand Total. The rows include [OrderDate], [CategoryName], Data, Total [OrderDate], and Grand Total. The field list on the right lists various fields: SalesPerson, CategoryName, Country, Discount, Extended Price, FirstName, LastName, OrderDate, OrderID, ProductName, Quantity, Sales Person, and UnitPrice.

- in a row, one after the other (field headers are displayed as column headers);

The screenshot shows a report designer interface with a cross-tab and a field list. The cross-tab has columns for Order Date, Category Name, [Country], Total [Country], and Grand Total. The rows include [OrderDate], [CategoryName], Data, Total [OrderDate], and Grand Total. The field list on the right lists various fields: SalesPerson, CategoryName, Country, Discount, Extended Price, FirstName, LastName, OrderDate, OrderID, ProductName, Quantity, Sales Person, and UnitPrice.

When the data area contains only one field, the field header is not displayed.

NOTE

- You cannot bind the top left corner, row/column totals, and row/column grand totals;
- You cannot bind Cross Tab cells to [report parameters](#);
- You can only bind Cross Tab cells to fields from a data source and data member assigned to the **Data Source** and **Data Member** properties.

Format Field Values

Use a cell's **Text Format String** property to format output data.

The screenshot shows a reporting interface with a cross-tab cell selected. The cell contains the value "[ExtendedPrice]". To the right, the "Properties" dialog is open for "crossTabCell3 Cross Tab Cell". The "Text Format String" field is set to "{0:c}". Other settings include "Summary Display Type: Default", "Summary Type: Sum", and "Text Format String" (Xlsx) field.

Order Date	Category Name	[Country]	Total
[OrderDate]	[CategoryName]	[SalesPerson]	[ExtendedPrice]
Total [OrderDate]			
Grand Total			

You can also use the **Null Value Text** property to specify the text shown when a data field's value is null or empty.

Data Shaping

Calculate Totals

The Cross Tab calculates the following automatic totals:

- **Row Totals** - against outer row fields;
- **Row Grand Totals** - against all the rows;
- **Column Totals** - against outer column fields;
- **Column Grand Totals** - against all the columns.

		UK		Total UK	USA		Total USA	Column Totals	Column Grand Totals
Order Date	Category Name	Robert King	Steven Buch		Andrew Fulle	Laura Callah			
Row Totals	2015	Dairy Products	Extended Price	\$15,586.90	\$6,415.49	\$22,002.39	\$13,532.05	\$10,149.22	\$23,681.27
		Quantity		523	304	827	534	373	907
		Meat/Poultry	Extended Price	\$7,524.24	\$10,332.48	\$17,856.72	\$12,730.30	\$5,913.95	\$18,644.25
		Quantity		147	332	479	311	214	525
		Produce	Extended Price	\$3,978.42	\$6,649.02	\$10,627.44	\$4,377.00	\$5,486.44	\$9,863.44
	Total 2015	Quantity		102	191	293	100	187	287
		Extended Price		\$27,089.56	\$23,396.99	\$50,486.55	\$30,639.35	\$21,549.61	\$52,188.96
	2016	Quantity		772	827	1599	945	774	1719
		Dairy Products	Extended Price	\$11,169.40	\$10,114.52	\$21,283.92	\$9,608.50	\$10,181.05	\$19,789.55
			Quantity	356	277	633	326	334	660
		Meat/Poultry	Extended Price	\$13,155.08	\$813.00	\$13,968.08	\$13,224.50	\$5,031.83	\$18,256.33
			Quantity	198	25	223	251	136	387
		Produce	Extended Price	\$4,637.20	\$106.00	\$4,743.20	\$3,700.00	\$6,170.08	\$9,870.08
			Quantity	104	2	106	160	209	369
	Total 2016	Extended Price		\$28,961.68	\$11,033.52	\$39,995.20	\$26,533.00	\$21,382.96	\$47,915.96
		Quantity		658	304	962	737	679	1416
Row Grand Totals	Grand Total		Extended Price	\$56,051.24	\$34,430.51	\$90,481.75	\$57,172.35	\$42,932.57	\$100,104.9
			Quantity	1430	1131	2561	1682	1453	3135

You can use the [layout options](#) to move rows and columns that display total values.

If you want to [hide specific totals](#), select any cell in the row/column and disable the **Row Visible/Column Visible** property.

The screenshot shows a 'Cross Tab Cell Tasks' dialog box overlaid on a Cross Tab editor. The dialog has a blue header and contains several settings:

- 'Format String' input field with a '...' button.
- 'Column Auto Width Mode' dropdown set to 'None'.
- A checkbox labeled 'Column Visible' which is checked.
- A checkbox labeled 'Row Visible' which is unchecked.

The background shows the Cross Tab structure with various data cells and summary rows like 'Grand Total' and 'Total [OrderDate]'.

Change the Summary Type

The Cross Tab summarizes values of [data fields](#) and displays the results "as is" at the intersection of the corresponding rows and columns.

Use the **Summary Type** property to specify the summary function calculated against a data field.

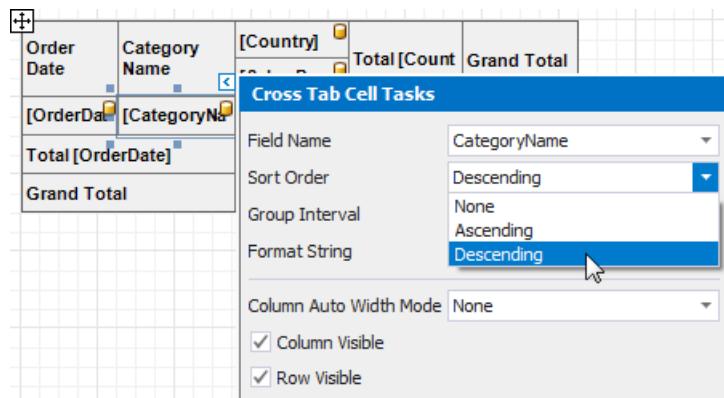
Order Date	Category Name	UK		Total UK	USA		Total USA	Grand Total
		Robert King	Steven Buc		Andrew Full	Laura Callah		
2015	Dairy Produ	\$974.18	\$534.62	\$785.80	\$712.21	\$563.85	\$640.03	\$702.83
	Meat/Poultry	\$1,074.89	\$1,291.56	\$1,190.45	\$1,273.03	\$492.83	\$847.47	\$986.51
	Produce	\$1,326.14	\$949.86	\$1,062.74	\$1,459.00	\$783.78	\$986.34	\$1,024.54
Total 2015		\$1,041.91	\$866.56	\$952.58	\$957.48	\$582.42	\$756.36	\$841.60
2016	Dairy Produ	\$1,241.04	\$1,011.45	\$1,120.21	\$600.53	\$727.22	\$659.65	\$838.23
	Meat/Poultry	\$2,631.02	\$406.50	\$1,995.44	\$1,102.04	\$718.83	\$960.86	\$1,239.40
	Produce	\$1,159.30	\$106.00	\$948.64	\$616.67	\$771.26	\$705.01	\$769.12
Total 2016		\$1,608.98	\$848.73	\$1,290.17	\$780.38	\$737.34	\$760.57	\$935.23
Grand Total		\$1,273.89	\$860.76	\$1,077.16	\$866.25	\$650.49	\$758.37	\$882.35

Use the **Summary Display Type** property to display results' contribution to other cell values, for example, as a percentage of grand total values.

Order Date	Category Name	UK		Total UK	USA		Total USA	Grand Total
		Robert King	Steven Buc		Andrew Full	Laura Callah		
2015	Dairy Produ	57.54%	27.42%	43.58%	44.17%	47.10%	45.38%	44.49%
	Meat/Poultry	27.78%	44.16%	35.37%	41.55%	27.44%	35.72%	35.55%
	Produce	14.69%	28.42%	21.05%	14.29%	25.46%	18.90%	19.96%
Total 2015		48.33%	67.95%	55.80%	53.59%	50.19%	52.13%	53.87%
2016	Dairy Produ	38.57%	91.67%	53.22%	36.21%	47.61%	41.30%	46.72%
	Meat/Poultry	45.42%	7.37%	34.92%	49.84%	23.53%	38.10%	36.66%
	Produce	16.01%	0.96%	11.86%	13.94%	28.86%	20.60%	16.62%
Total 2016		51.67%	32.05%	44.20%	46.41%	49.81%	47.87%	46.13%
Grand Total		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Sort Data

The Cross Tab displays row and column field values in the ascending order. Use the **Sort Order** property to change the current sort order. Set this property to **None** to keep the same order as records in the Cross Tab's data source.



Order Date	Category Name	UK		Total UK
		Robert King	Steven Buc	
2015	Produce	14.69%	28.42%	21.05%
	Meat/Poultry	27.78%	44.16%	35.37%
	Dairy Produ	57.54%	27.42%	43.58%
Total 2015		48.33%	67.95%	55.80%
2016	Produce	16.01%	0.96%	11.86%
	Meat/Poultry	45.42%	7.37%	34.92%
	Dairy Produ	38.57%	91.67%	53.22%
Total 2016		51.67%	32.05%	44.20%
Grand Total		100.00%	100.00%	100.00%

You can also use the **Sort By Summary Info** property to arrange row/column field values based on grand totals values.

1. Select a cell you want to sort and expand the **Sort By Summary Info** property in the [Property Grid](#).
2. Set the **Field Name** property to the name of an assigned data source's field. You can also define a field that is not currently displayed in the Cross Tab.
3. Use the **Summary Type** property to specify which summary function to calculate. The summary type can differ from the summary type currently used in the Cross Tab.
4. Use the **Sort Order** property to define the sort order.

The screenshot shows the 'Properties' window for a 'Cross Tab Cell'. The 'crossTabCell11' tab is selected. In the 'Sort By Summary Info' section, 'Sum' is chosen. In the 'Summary Type' section, the 'Sum' option is highlighted in blue, indicating it is selected.

Category Name	UK		Total UK	USA		Total USA	Grand Total
	Robert King	Steven Buc		Andrew Full	Laura Callah		
Grains/Cereal	2.13%	3.45%	2.66%	9.17%	10.44%	9.75%	6.64%
Condiments	6.41%	4.04%	5.46%	9.65%	12.63%	11.01%	8.57%
Produce	6.68%	16.52%	10.64%	6.35%	9.38%	7.74%	9.02%
Seafood	8.53%	8.92%	8.69%	11.39%	10.46%	10.96%	9.96%
Confections	16.34%	4.71%	11.65%	16.84%	17.62%	17.20%	14.76%
Beverages	21.13%	20.74%	20.97%	8.51%	12.00%	10.12%	14.89%
Meat/Poultry	12.62%	25.68%	17.89%	18.47%	10.11%	14.63%	16.06%
Dairy Product	26.15%	15.94%	22.04%	19.63%	17.36%	18.59%	20.10%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Group Data

The Cross Tab displays unique values of column and row fields and does not group their values.

The screenshot shows the 'Cross Tab Cell Tasks' dialog box. The 'Group Interval' dropdown is highlighted with a red box and contains the value 'Default'. Other settings visible include 'Field Name' set to 'OrderDate', 'Sort Order' set to 'Ascending', and 'Format String' set to 'None'. To the right of the dialog, a preview of the cross-tab data is shown, grouped by date-time intervals.

Country	UK	Total UK
Sales Person	Robert King Steven Buc	
1/2/2015 12:00:00 AM	Meat/Pou	
Total 1/2/2015 12:00:00 AM		
1/4/2015 12:00:00 AM	Dairy Pro	\$2,303.70
Total 1/4/2015 12:00:00 AM		\$2,303.70
1/10/2015 12:00:00 AM	Dairy Pro	\$103.20
Total 1/10/2015 12:00:00 AM		\$103.20
1/12/2015 12:00:00 AM	Dairy Pro	
Meat/Pou		
Total 1/12/2015 12:00:00 AM		
1/19/2015 12:00:00 AM	Meat/Pou	
Total 1/19/2015 12:00:00 AM		

Use the **Group Interval** property to combine original field values into categories (groups). For instance, you can group date-time values by year, month, quarter, day, hour.

The screenshot shows the 'Cross Tab Cell Tasks' dialog box with the 'Column Auto Width Mode' dropdown open, displaying options like Year, Month Age, Week Age, and Day Age. The 'Year' option is selected and highlighted with a red box. To the right, a screenshot of a Cross Tab report shows grouped data by year (2015 and 2016) with sub-items like Dairy Pro, Meat/Pou, and Produce.

To group numeric values, set the **Group Interval** property to **Numeric** and use the **Group Interval Numeric Range** property to specify the interval length. For instance, set the range to **100** to group records by 100 orders.

The screenshot shows the 'Properties' window for a 'crossTabCell10' cross tab cell. The 'Group Interval Numeric Range' property is set to '100'. To the left is a screenshot of a Cross Tab report showing grouped data by Order ID.

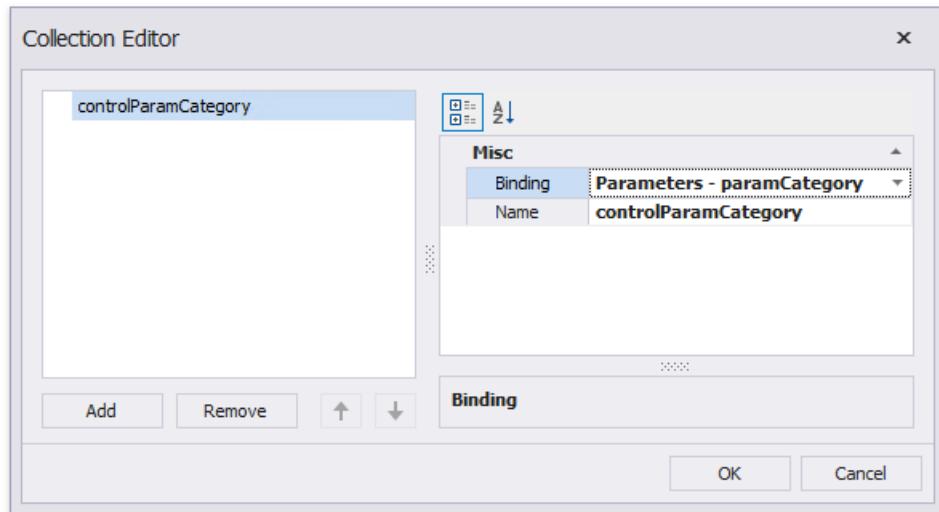
Use Parameters

The Cross Tab uses and displays values of data fields from an assigned data source. To provide values outside the data source, use internal Cross Tab parameters. Each parameter is stored in the **Parameters** collection.

You can access the **Parameters** property in the Cross Tab's smart tag or in the Properties window.

The screenshot shows the 'Cross Tab Tasks' dialog box. In the 'Parameters' section, the dropdown menu is set to '(Collection)'. A cursor is hovering over the ellipsis button next to '(Collection)'.

Click this property's ellipsis button and add parameters in the invoked Collection Editor. You can bind a Cross Tab parameter to a [report parameter](#) or to any data field available in a report.



You can then use the created parameters to [filter the Cross Tab](#).

Filter Data

Use the Cross Tab's **Filter String** property to invoke the **FilterString Editor** and specify the filter criteria.

The screenshot shows the 'Cross Tab Tasks' dialog box. The 'Filter String' property is currently active, opening the 'FilterString Editor' dialog box below it. The 'FilterString Editor' dialog box contains a complex logical expression involving 'And' conditions for 'Extended Price' (less than or equal to 500), 'Discount' (greater than 0), and 'OrderDate' (Is earlier this year). Below this, the resulting filter string is shown: '[Extended Price] <= 500.0m And [Discount] > 0.0f And IsOutlookIntervalEarlierThisYear([OrderDate])'. At the bottom of the 'FilterString Editor' are 'OK' and 'Cancel' buttons.

You can use the [Cross Tab's parameters](#) in filter criteria.

Layout and Print Options

Use the **Layout Options** property to change the cells' order and location.

The screenshot shows a 'Detail' view of a Cross Tab editor. On the left is a data grid with columns for Order ID, Category Name, [Country], [Sales Person], Total [Country], and Grand Total. Rows include [OrderID], [CategoryName], [Extended Price], Total [OrderID], and Grand Total. The Properties panel on the right is titled 'crossTab1 Cross Tab'. It contains sections for 'Layout Options' and 'Print Options'. Under 'Layout Options', settings include Column Total Header Position (Outer), Column Totals Position (After Data), Corner Header Display Mode (Row Field Names), Data Field Layout (InRow), Hierarchical Row Layout (unchecked), Row Total Header Position (Outer), and Row Totals Position (After Data). Under 'Print Options', it says '(Cross Tab Print Options)'.

- **Column Total Header Position, Row Total Header Position**

Specifies where to display column/row total headers:

- show in the same row/column as column/row field values against which totals are calculated (**Inner**);
- span across two rows/columns (**Outer**).

- **Column Totals Position, Row Totals Position**

Specifies the position of the column/row totals and column/row grand totals:

- after column/row field values (**After Data**);
- before column/row field values (**Before Data**).

- **Corner Header Display Mode**

Specifies what data the Cross Tab should display in the top left corner:

- split the corner into columns and display row field names (**Row Field Names**);
- split the corner into rows and display column field names (**Column Field Names**);
- do not split the corner and do not display any text (**None**).

- **Data Field Layout**

Specifies how to arrange two or more data fields in the Cross Tab layout:

- in a row one after another (**InRow**);
- in a column one under another (**InColumn**).

- **Hierarchical Row Layout**

Specifies how to display row headers:

- in a tree-like view one under another (**checked**)
- in a single line (**unchecked**).

Hide Specific Rows and Columns

Use a cell's **Row Visible** and **Column Visible** properties to specify row and column visibility. For instance, select the bottom

right cell and disable these options to hide grand totals. At design time, invisible cells are filled with a hatch brush.

The screenshot shows a 'Cross Tab Cell Tasks' dialog box overlaid on a cross-tab grid. The dialog has sections for 'Format String' (set to {0:c}), 'Column Auto Width Mode' (set to 'None'), and two checkboxes: 'Column Visible' and 'Row Visible'. The grid itself has several rows and columns labeled with fields like 'Country', '[Country]', 'Sales Person', '[Sales Pers]', 'Total [Country]', 'Grand Total', etc.

Country		UK		Total UK	USA		Total USA
Sales Person		Robert King	Steven Buc		Andrew Full	Laura Calla	
2015	Dairy Pro	\$15,586.90	\$6,415.49	\$22,002.39	\$13,532.05	\$10,149.22	\$23,681.27
	Meat/Pou	\$7,524.24	\$10,332.48	\$17,856.72	\$12,730.30	\$5,913.95	\$18,644.25
	Produce	\$3,978.42	\$6,649.02	\$10,627.44	\$4,377.00	\$5,486.44	\$9,863.44
Total 2015		\$27,089.56	\$23,396.99	\$50,486.55	\$30,639.35	\$21,549.61	\$52,188.96
2016	Dairy Pro	\$11,169.40	\$10,114.52	\$21,283.92	\$9,608.50	\$10,181.05	\$19,789.55
	Meat/Pou	\$13,155.08	\$813.00	\$13,968.08	\$13,224.50	\$5,031.83	\$18,256.33
	Produce	\$4,637.20	\$106.00	\$4,743.20	\$3,700.00	\$6,170.08	\$9,870.08
Total 2016		\$28,961.68	\$11,033.52	\$39,995.20	\$26,533.00	\$21,382.96	\$47,915.96

Print Options

Use the **Print Options** property to specify print options and define which Cross Tab elements to print.

The screenshot shows the 'Properties' panel for a 'crossTab1' component. The 'Print Options' section is expanded, showing settings for 'Print Layout' (set to 'Across Only') and three checked checkboxes: 'Print Totals For Single Values', 'Repeat Column Headers', and 'Repeat Row Headers'. There are also sections for 'Layout Options' and 'Scripts'.

- **Print Layout**

Specifies how to print the Cross Tab content that does not fit the page's width:

- on the next page (**Across Only**);
- on the same page below the previous content (**Across Then Down**).

- **Across Then Down Offset**

Specifies the vertical distance between parts of the Cross Tab content in the **Across Then Down** print layout.

- **Print Totals For Single Values**

Specifies when to print totals:

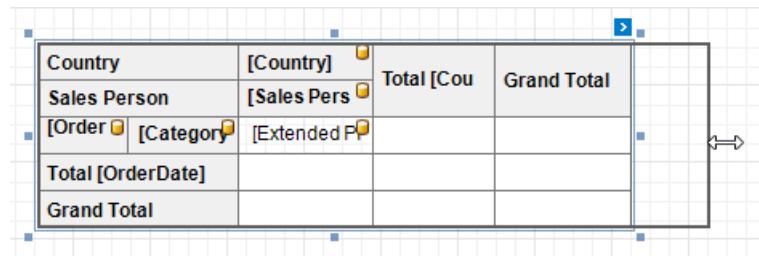
- for any field value even when it contains one nested value (**checked**);
 - for the field values that contain two and more nested values (**unchecked**).
- Repeat Row Headers, Repeat Column Headers** Specifies whether to repeat row/column headers when the Cross Tab content is split horizontally/vertically or print them only once.

NOTE

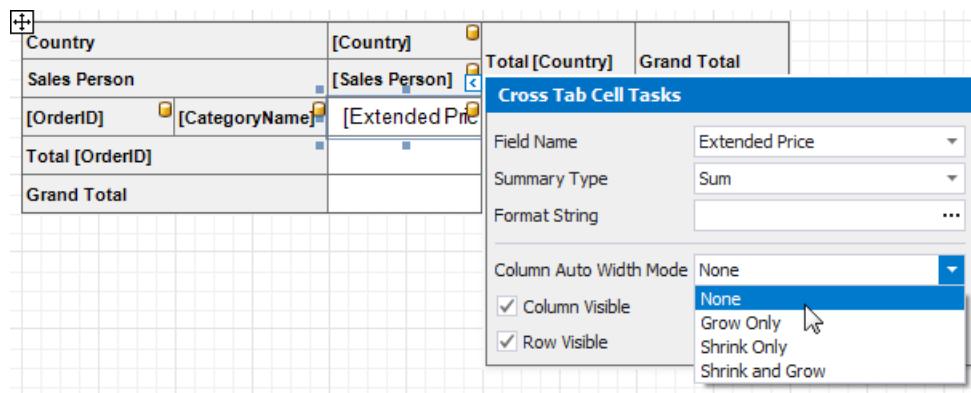
Cross tab cells are split between pages if they do not fit the page's width or height. Set the report's **Vertical Content Splitting** and **Horizontal Content Splitting** properties to **Smart Smart** to move cells to the next page (or to the Cross Tab's next part shown on the same page).

Adjust Control Size

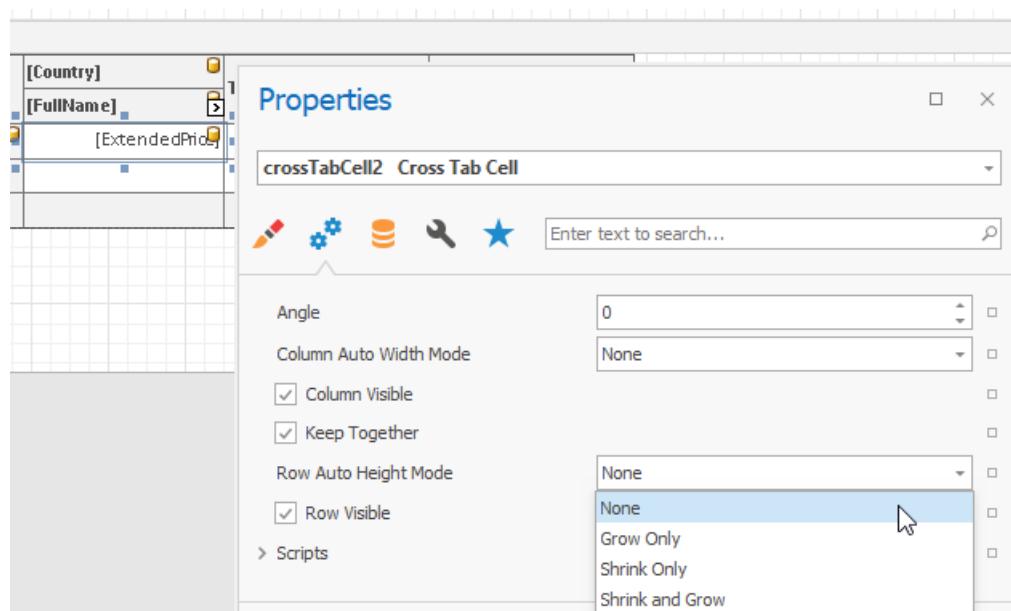
Drag the Cross Tab's handlers to change its size. You can also resize individual rows and columns.



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



Use a cell's **Row Auto Height Mode** property to specify whether and how a cell's height changes to fit its content.



Column widths are changed before row heights.

Adjust Header Text

You can double-click any cell that displays the header and use the in-place editor to enter text.

Country	[Country]	Total [Country]	Grand Total
Sales Person	[Sales Person]		
[OrderID]	[CategoryName]	[Extended Prc]	
Total [OrderID]			
Grand Total			

Each Cross Tab cell provides the **Angle** property that allows you to rotate the cell's text.

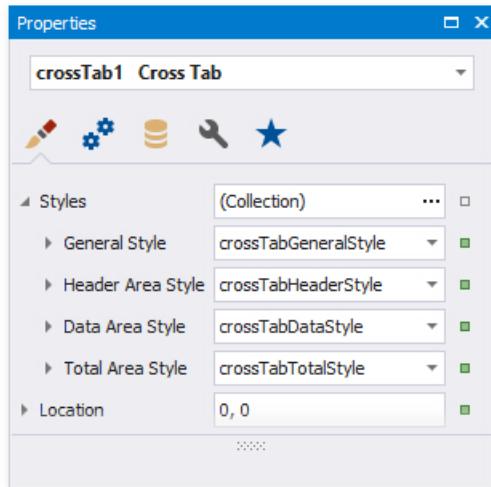
The screenshot shows a Cross Tab grid on the left and its properties on the right. The properties window is titled 'Properties' and shows 'crossTabCell10 Cross Tab Cell' selected. Under the 'Angle' section, the value is set to 90. Other settings include 'Column Auto Width Mode' set to 'Shrink and Grow' and a checked 'Column Visible' checkbox.

Country		UK		Total UK	USA		Total USA	Grand Total
Sales Person		Robert King	Steven Buch		Andrew Full	Laura Callah		
2015	Dairy Pro	\$15,586.90	\$6,415.49	\$22,002.39	\$13,532.05	\$10,149.22	\$23,681.27	\$45,683.66
	Meat/Poul	\$7,524.24	\$10,332.48	\$17,856.72	\$12,730.30	\$5,913.95	\$18,644.25	\$36,500.97
	Produce	\$3,978.42	\$6,649.02	\$10,627.44	\$4,377.00	\$5,486.44	\$9,863.44	\$20,490.88
Total 2015		\$27,089.56	\$23,396.99	\$50,486.55	\$30,639.35	\$21,549.61	\$52,188.96	\$102,675.51
2016	Dairy Pro	\$11,169.40	\$10,114.52	\$21,283.92	\$9,608.50	\$10,181.05	\$19,789.55	\$41,073.47
	Meat/Poul	\$13,155.08	\$813.00	\$13,968.08	\$13,224.50	\$5,031.83	\$18,256.33	\$32,224.41
	Produce	\$4,637.20	\$106.00	\$4,743.20	\$3,700.00	\$6,170.08	\$9,870.08	\$14,613.28
Total 2016		\$28,961.68	\$11,033.52	\$39,995.20	\$26,533.00	\$21,382.96	\$47,915.96	\$87,911.16
Grand Total		\$56,051.24	\$34,430.51	\$90,481.75	\$57,172.35	\$42,932.57	\$100,104.9	\$190,586.67

Cross Tab Appearance

Customize Appearance

After you drop the Cross Tab from the Toolbox onto a report or finish the Cross-Tab Report Wizard, 4 predefined [report styles](#) are created and assigned to the Cross Tab's **Styles**.



Use the **General Style** property to specify common appearance settings that apply to all Cross Tab cells.

Use the **Header Area Style**, **Data Area Style** and **Total Area Style** properties to customize appearance settings of specific areas shown below.

Category Name	UK			Total UK	USA			Total USA	Grand Total
	2014	2015	2016		2014	2015	2016		
Beverages	\$378.00	\$1,333.60	\$1,107.50	\$2,819.10	\$1,315.40	\$3,253.40	\$4,423.75	\$8,992.55	\$11,811.65
Condiments	\$120.20	\$614.15	\$483.85	\$1,218.20	\$506.10	\$1,463.05	\$1,417.95	\$3,387.10	\$4,605.30
Confections	\$204.70	\$756.13	\$710.29	\$1,671.12	\$843.20	\$2,632.37	\$2,402.61	\$5,878.18	\$7,549.30
Dairy Products	\$635.20	\$1,753.80	\$1,025.40	\$3,414.40	\$800.60	\$3,252.40	\$2,408.40	\$6,461.40	\$9,875.80
Grains/Cereals	\$57.60	\$396.80	\$463.50	\$917.90	\$364.80	\$1,795.35	\$1,086.25	\$3,246.40	\$4,164.30
Meat/Poultry	\$87.30	\$950.57	\$871.81	\$1,909.68	\$886.10	\$2,499.85	\$2,121.70	\$5,507.65	\$7,417.33
Produce	\$216.80	\$628.25	\$568.05	\$1,413.10	\$309.40	\$1,587.85	\$1,476.10	\$3,373.35	\$4,786.45
Seafood	\$103.10	\$733.98	\$479.52	\$1,316.60	\$652.40	\$2,366.06	\$1,955.72	\$4,974.18	\$6,290.78
Grand Total	\$1,802.90	\$7,167.28	\$5,709.92	\$14,680.10	\$5,678.00	\$18,850.33	\$17,292.48	\$41,820.81	\$56,500.91

 Header Area

 Data Area

 Total Area

If an area's appearance option is not set, its value is inherited from the general style.

You can also override appearance settings of each Cross Tab cell. These settings have a higher priority over style settings.

The screenshot shows a Microsoft SQL Server Reporting Services (SSRS) designer interface. A cross-tab report is displayed with three rows and four columns. The first row contains group headers: 'Category Name', '[Country]', 'Total [Country]', and 'Grand Total'. The second row contains data: '[CategoryName]', '[UnitPrice]', and two blank cells. The third row is a grand total row with three blank cells. A context menu is open over the cell containing '[UnitPrice]'. The menu includes icons for 'Background Color', 'Border Color', 'Border Dash Style', and 'Border Width'. A color palette dropdown is open under 'Background Color', showing a list of colors including Turquoise, LightSeaGreen, MediumTurquoise, DarkSlateGray, PaleTurquoise, Teal, and DarkCyan. The 'MediumTurquoise' color is currently selected.

Customize Appearance Conditionally

Specify [expression bindings](#) to change a cell's appearance based on a specific condition. You can use the **GroupRowIndex** and **GroupColumnIndex** arguments to identify group indexes (for instance, to define the background color for odd and even rows).

The screenshot shows the Microsoft SQL Server Reporting Services (SSRS) designer with the Expression Editor open for a cell. The cell is identified as 'crossTabDataCell1' and is a 'Cross Tab Cell'. In the Properties pane, the 'Background Color' field is set to 'Background Color Expression'. The expression itself is: `if([Arguments.GroupRowIndex] % 2 == 0, 'LemonChiffon', ?)`. Below the expression, the 'Variables' section of the Expression Editor shows two variables: `Arguments.GroupColumnIndex` and `Arguments.GroupRowIndex`. The 'Fields' section on the left lists 'Variables', 'Constants', 'Values', 'Operators', and 'Functions'. At the bottom right of the Expression Editor are 'OK' and 'Cancel' buttons.

Expressions are evaluated when a report is previewed. The calculated appearance settings have the highest priority. They override a cell's appearance settings and style settings.

Category Name	UK			Total UK	USA			Total USA	Grand Total
	2014	2015	2016		2014	2015	2016		
Beverages	\$378.00	\$1,333.60	\$1,107.50	\$2,819.10	\$1,315.40	\$3,253.40	\$4,423.75	\$8,992.55	\$11,811.65
Condiments	\$120.20	\$614.15	\$483.85	\$1,218.20	\$506.10	\$1,463.05	\$1,417.95	\$3,387.10	\$4,605.30
Confections	\$204.70	\$756.13	\$710.29	\$1,671.12	\$843.20	\$2,632.37	\$2,402.61	\$5,878.18	\$7,549.30
Dairy Products	\$635.20	\$1,753.80	\$1,025.40	\$3,414.40	\$800.60	\$3,252.40	\$2,408.40	\$6,461.40	\$9,875.80
Grains/Cereals	\$57.60	\$396.80	\$463.50	\$917.90	\$364.80	\$1,795.35	\$1,086.25	\$3,246.40	\$4,164.30
Meat/Poultry	\$87.30	\$950.57	\$871.81	\$1,909.68	\$886.10	\$2,499.85	\$2,121.70	\$5,507.65	\$7,417.33
Produce	\$216.80	\$628.25	\$568.05	\$1,413.10	\$309.40	\$1,587.85	\$1,476.10	\$3,373.35	\$4,786.45
Seafood	\$103.10	\$733.98	\$479.52	\$1,316.60	\$652.40	\$2,366.06	\$1,955.72	\$4,974.18	\$6,290.78
Grand Total	\$1,802.90	\$7,167.28	\$5,709.92	\$14,680.10	\$5,678.00	\$18,850.33	\$17,292.48	\$41,820.81	\$56500.91

Use Gauges and Sparklines

The topics in this section describe how to add graphical content to your reports:

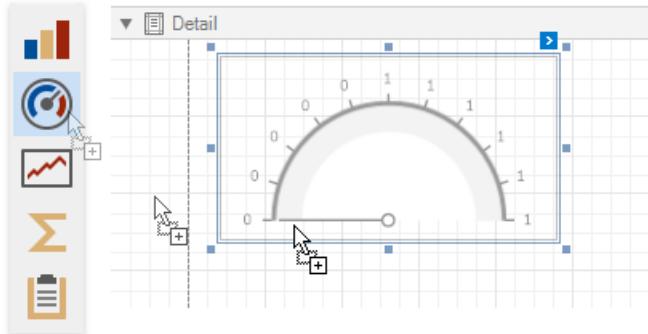
- [Add Gauges to a Report](#)
- [Add Sparklines to a Report](#)

Add Gauges to a Report

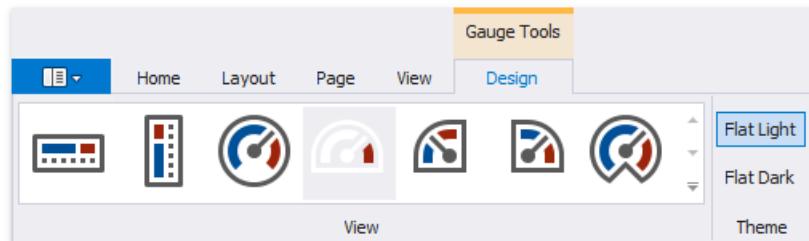
Gauge Overview

The **Gauge** control provides you with the capability to embed graphical gauges into your report.

To add this control to the report, drag the **Gauge** item from the [Toolbox](#) and drop it onto the report.



Use the [Toolbar](#)'s **Gauge Tools** contextual tab to select a gauge's appearance.



• View

Specifies the type of the displayed gauge. The following view types are available:

- **Linear**



Supported view styles: **Horizontal** and **Vertical**.

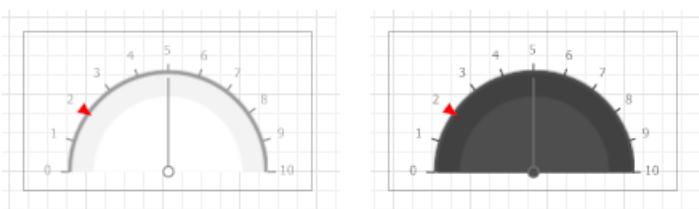
- **Circular**



Supported view styles: **Full**, **Half**, **Quarter Left**, **Quarter Right** and **Three Fourth**.

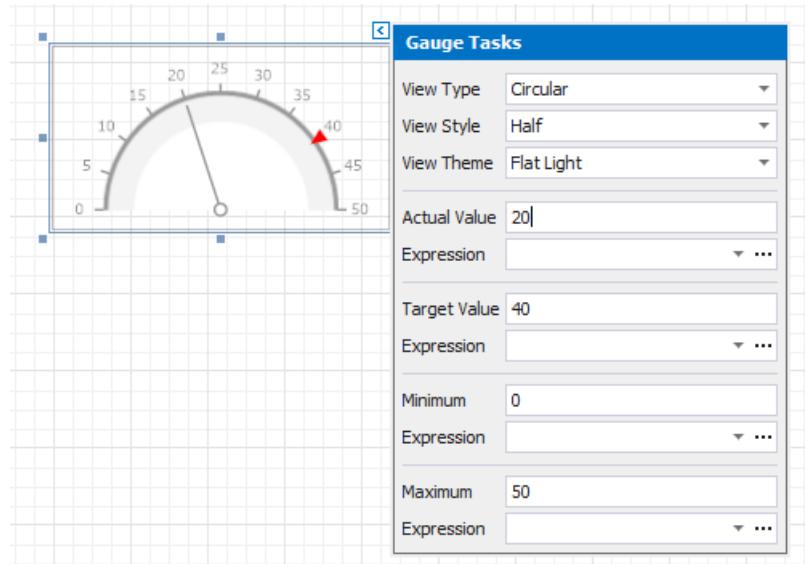
• Theme

Specifies the gauge's color theme. The **Flat Light** and **Flat Dark** view themes are supported.



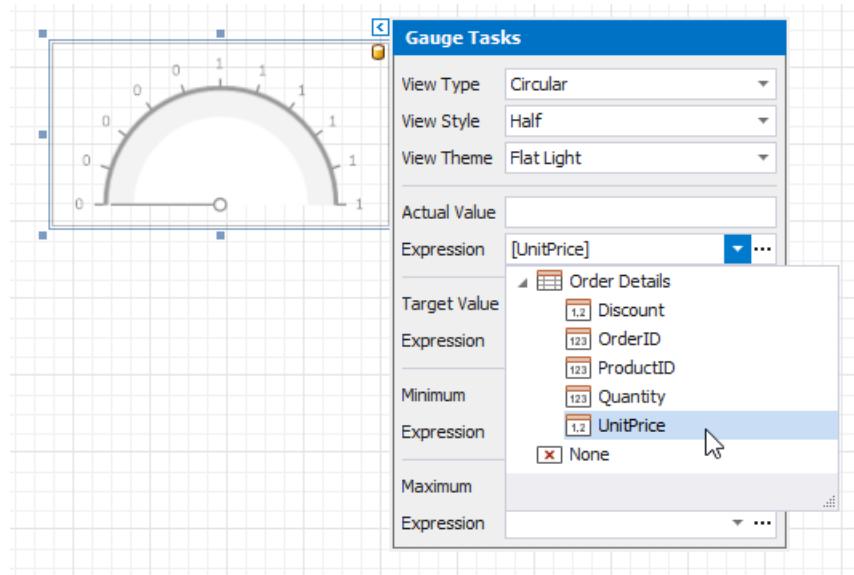
The following properties allow you to customize the gauge scale and specify its displayed values.

- **Actual Value** - specifies the value displayed by a gauge.
- **Target Value** - specifies the position of the target value marker.
- **Maximum** - specifies the gauge's maximum value.
- **Minimum** - specifies the gauge's minimum value.



Bind a Gauge to Data

To **bind** the gauge's displayed value to data, click the control's smart tag and in the invoked actions list, expand the **Expression** drop-down list for the **Actual Value** property and select the required data field.



In the same way, you can bind the **Target Value**, **Minimum** and **Maximum** properties to data. To do this, expand the **Expression** drop-down list for the corresponding property and select the required data field.

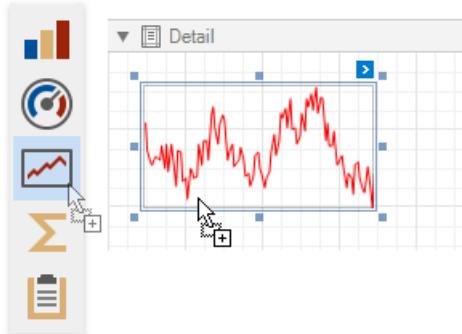
Clicking the **Expression** option's ellipsis button invokes the **Expression Editor**, in which you can construct a complex binding expression involving two or more data fields.

Add Sparklines to a Report

Sparkline Overview

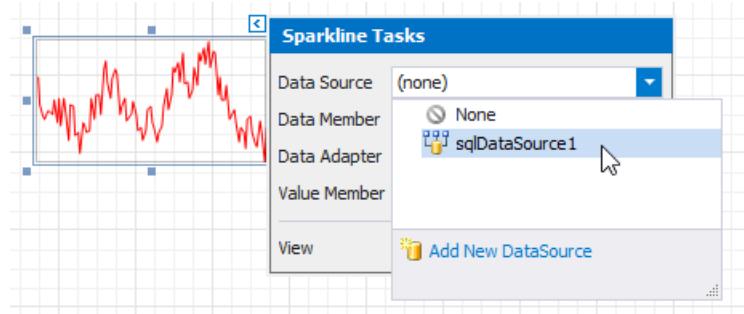
The **Sparkline** control displays a compact chart that is commonly used to illustrate the data flow for every row in a report.

To add this control to the report, drag the **Sparkline** item from the [Toolbox](#) and drop it onto the report.



Bind the Sparkline to Data

You can connect the sparkline to individual data without accessing a report's data source. Click the control's smart tag, expand the **Data Source** drop-down list and select the required data source.



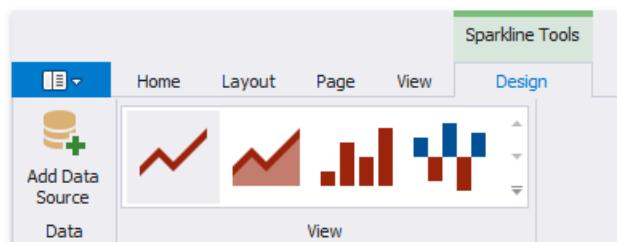
The sparkline uses the report's data source if you do not specify the **DataSource** property.

After that, specify the **Data Member** property and set the **Value Member** property to a data field that provides point values for the sparkline.

To create a new data source for a sparkline, open the [Toolbar](#)'s **Sparkline Tools** contextual tab and click the **Add Data Source** button. This invokes the [Data Source Wizard](#) that allows you to set up a required data source.

Adjust the Sparkline View

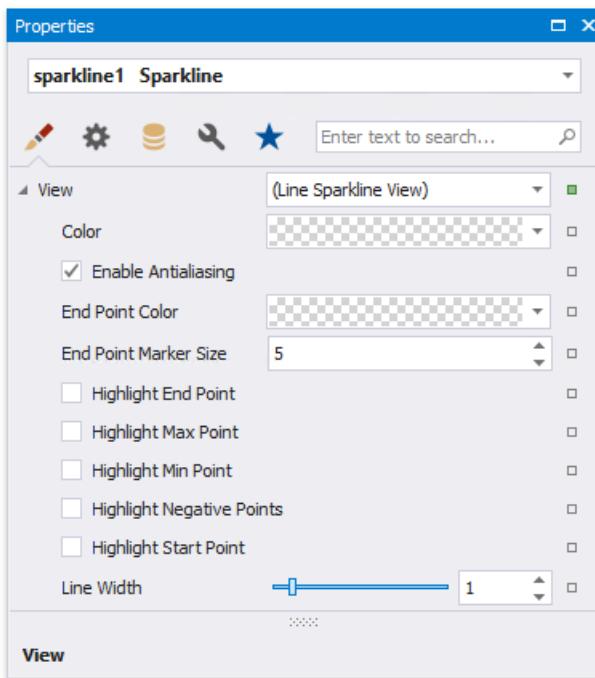
You can select the sparkline's view type in the **Sparkline Tools** toolbar tab's **View** gallery.



Alternatively, you can click the sparkline's smart tag and select the required view type in the **View** drop-down list.

The sparkline supports the **Line**, **Area**, **Bar** and **WinLoss** view types.

The **View** property provides access to options that change the sparkline's appearance.

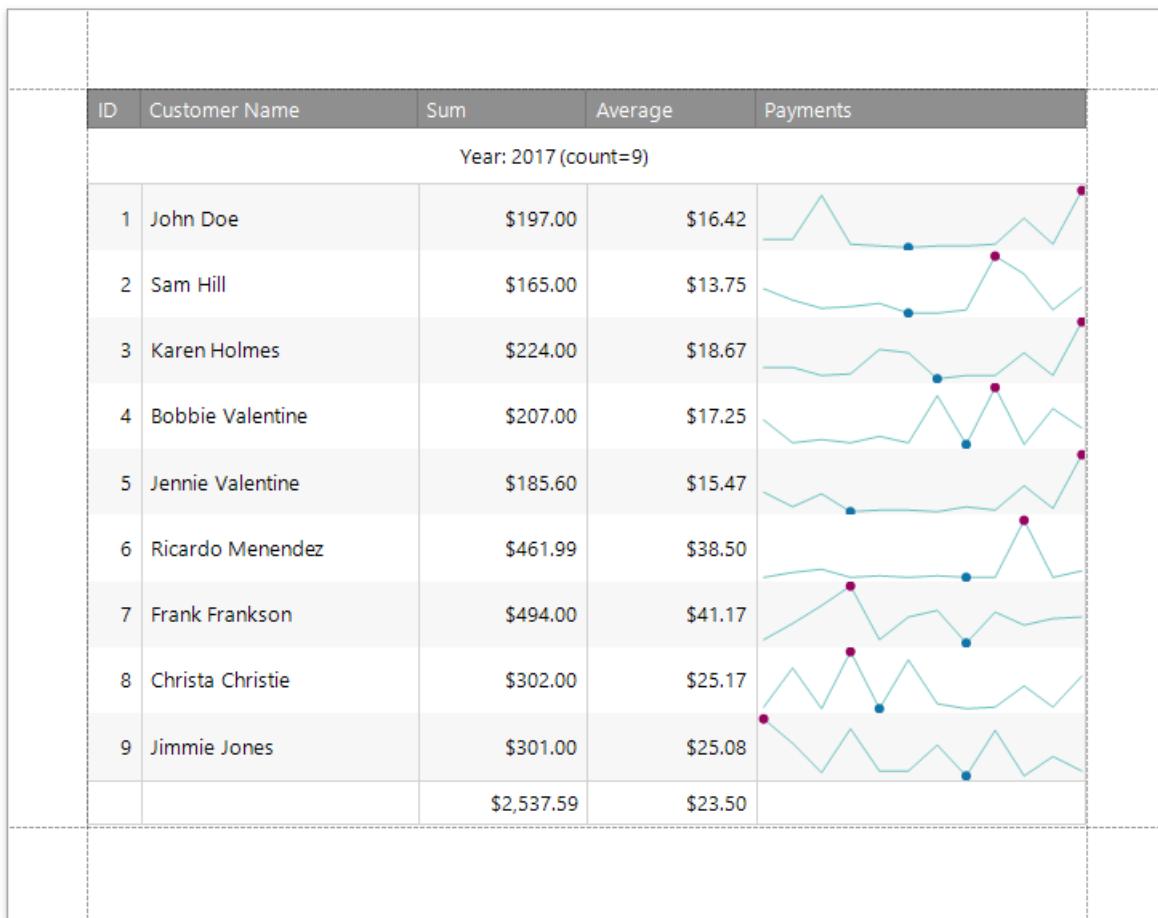


Each view type has properties that define the extreme values' visibility:

- **Highlight Start Point** and **Highlight End Point**;
- **Highlight Min Point** and **Highlight Max Point**.

Specific properties differ between view types, such as the **Highlight Negative Points** setting that is available only for the **Bar** sparkline.

The following image illustrates a [table report](#) containing sparklines that provide maximum and minimum value indicators in their data range:



Draw Lines and Shapes

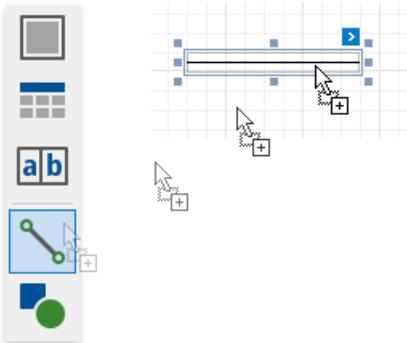
The topics in this section describe how to draw various lines and shapes in a report:

- [Draw Lines](#)
- [Draw Shapes](#)
- [Draw Cross-Band Lines and Boxes](#)

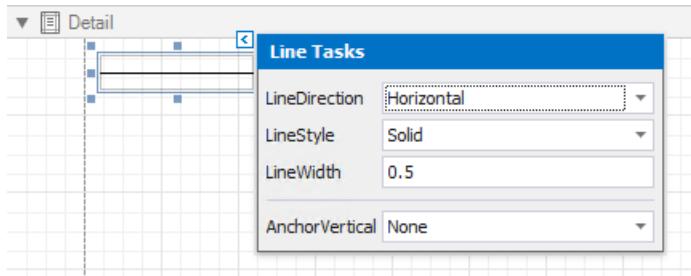
Draw Lines

The **Line** control draws a line in a specified direction, style, width, and color. You can use it to decorate and visually separate a report's sections.

To add a line to a report, drag the **Line** item from the **Toolbox** onto the report's area.



The actions list of the line's smart tag provides the main control properties:



- **Line Direction**

Enables you to draw a line horizontally, vertically, and across the rectangle the line occupies from one corner to another (**Horizontal**, **Vertical**, **Slant** and **Back Slant** types).



- **Line Style**

You can select the solid (by default), dashed, dotted, or mixed line style.



- **Line Width**

Specifies the line width in pixels as a floating point value.

- **Anchor Vertically**

Specifies the vertical anchoring style, so that after page rendering a control stays attached to the top control, bottom control, or both.

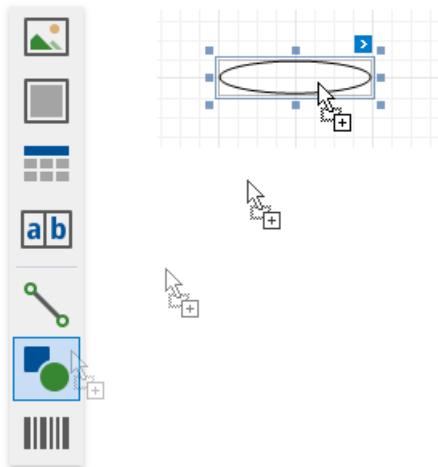
NOTE

The **Line** control cannot span several bands. See [Draw Cross-Band Lines and Boxes](#) to learn about drawing lines through several bands.

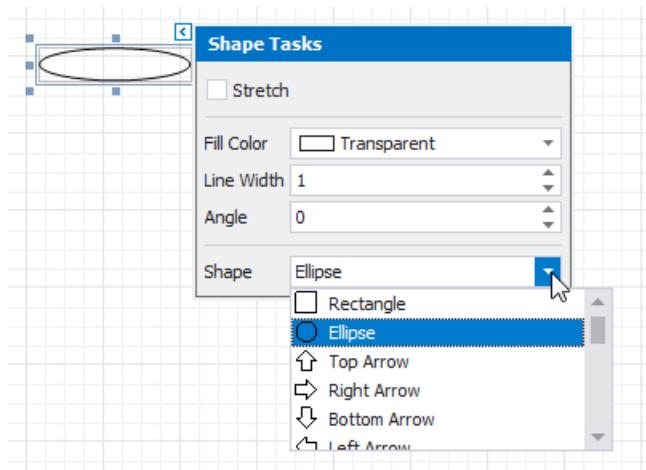
Draw Shapes

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.



Click a control's smart tag and use the **Shape** property to select the shape type. You can also choose the shape type in the [Toolbar](#)'s **Shape Tools** contextual tab.



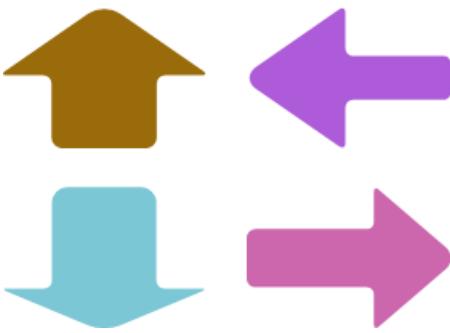
The smart tag provides the following main properties common to all shape types:

- **Fill Color** - specifies the the shape's color.
- **Stretch** - specifies whether to stretch a shape to fill its client rectangle area when it is rotated.
- **Line Width** - specifies the width of the line used to draw the shape.
- **Angle** - specifies the shape's rotation angle.

Each shape type provides its own specific set of properties which are detailed below.

Arrow

The image below illustrates the **Arrow** type's shape.

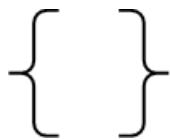


This shape type has the following additional properties:

- **Fillet** - specifies how the shape's corners are rounded (as a percentage). This value should be between **0** and **100**.
- **Arrow Height** - specifies the arrow's relative height (as a percentage). This value should be between **0** and **100**.
- **Arrow Width** - specifies the arrow's relative width (as a percentage). This value should be between **0** and **100**.

Brace

The image below illustrates the **Brace** type's shape.

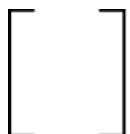


Use the following properties to set up a brace:

- **Tip's Length** - specify the length of a brace's tip.
- **Fillet** - specifies how the shape's corners are rounded (as a percentage). This value should be between **0** and **100**.
- **Tail's Length** specify the length of a brace's tail.

Bracket

The following image demonstrates the **Bracket** type's shape:



The **Tip's Length** property is specific to this shape type and defines the length of a bracket's tip.

Cross

The image below shows the **Cross** type's shape.



This shape type has the following properties:

- **Fillet** - specifies how the shape's corners are rounded (as a percentage). This value should be between **0** and **100**.
- **Horizontal Line Height** - specifies the relative width of a cross's horizontal line (as a percentage). This value should be between **0** and **100**.
- **Vertical Line Width** - specifies the relative width of a cross's vertical line (as a percentage). This value should be between **0** and **100**.

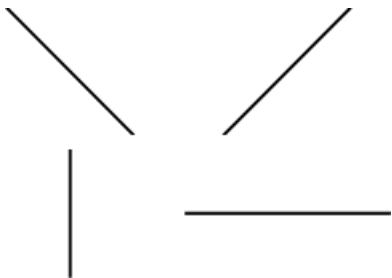
Ellipse

The image below shows **Ellipse** type shapes.



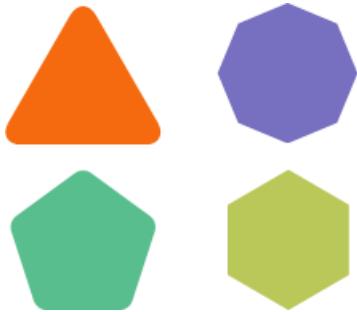
Line

The following image demonstrates **Line** type shapes:



Polygon

The image below illustrates the **Polygon** type's shape:



This shape type has the following properties:

- **Fillet** - specifies how the polygon's corners are rounded (as a percentage). This value should be between **0** and **100**.
- **Number Of Sides** - specifies the number of polygon sides.

Rectangle

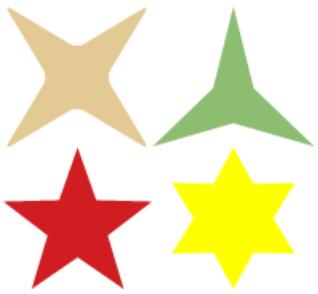
The image below illustrates **Rectangle** type shapes.



This shape type's **Fillet** property specifies the rectangle's relative roundness (as a percentage, between **0** and **100**).

Star

The following image shows a **Star** type shape:



This shape type has the following properties:

- **Fillet** - specifies the relative roundness of the star's points (as a percentage). This value should be between **0** and **100**.
- **Count of Star Points** - specifies the number of points that make up the star.
- **Concavity** - specifies the concavity level (as a percentage) between two neighboring start points. This value should be between **0** and **100**.

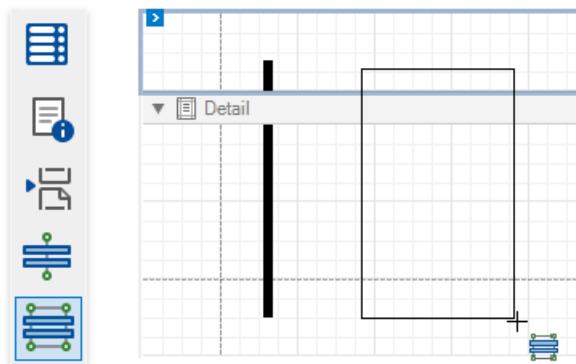
Draw Cross-Band Lines and Boxes

Cross-band controls allow you to draw lines and rectangles through several report bands.

The Report Designer provides the following two cross-band controls:

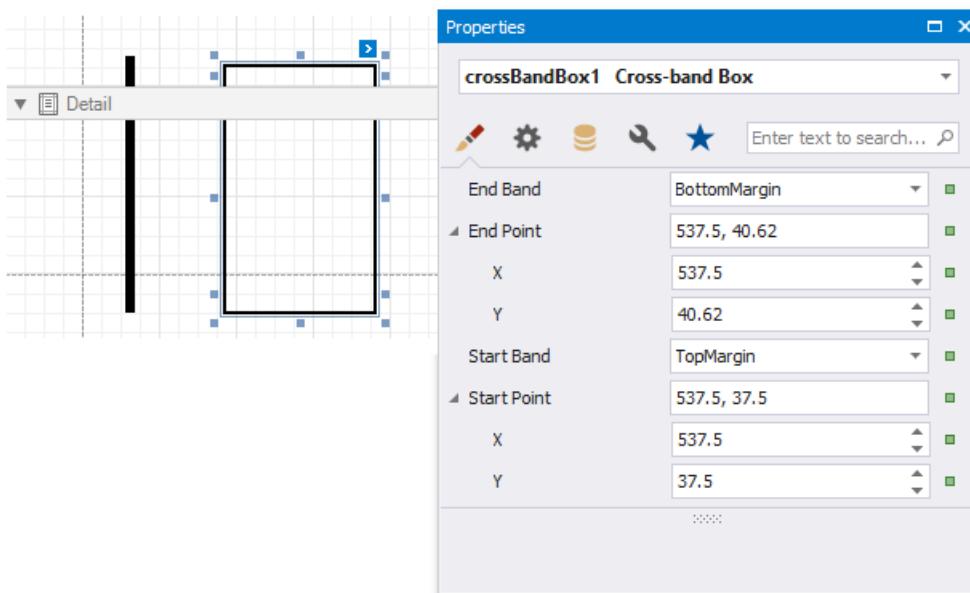
- The **Cross-Band Line** control draws vertical lines that can span multiple report bands. You can use this control to emphasize a report area that consists of different bands.
- The **Cross-Band Box** control draws rectangles through several report bands. You can use this control to encompass a report section that includes multiple band areas.

To add a cross-band control to a report, select the corresponding item in the [Toolbox](#) and draw a rectangle across required bands.

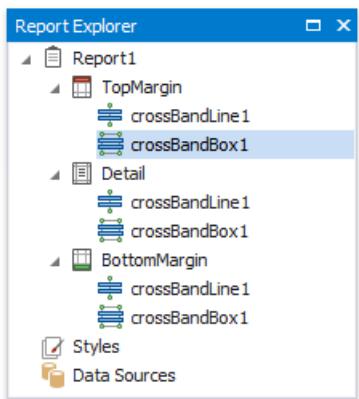


The following properties define a cross-band control's location in a report:

- **Start Band** - determines the band from which the control starts to draw;
- **Start Point** - specifies the exact coordinates (measured in [report units](#)) within the start band where the control starts to draw;
- **End Band** - determines the band where the cross-band control stops to draw;
- **End Point** - specifies the exact coordinates (measured in [report units](#)) within the end band where the control finishes to draw.



The following image illustrates how the [Report Explorer](#) reflects cross-band controls:



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.

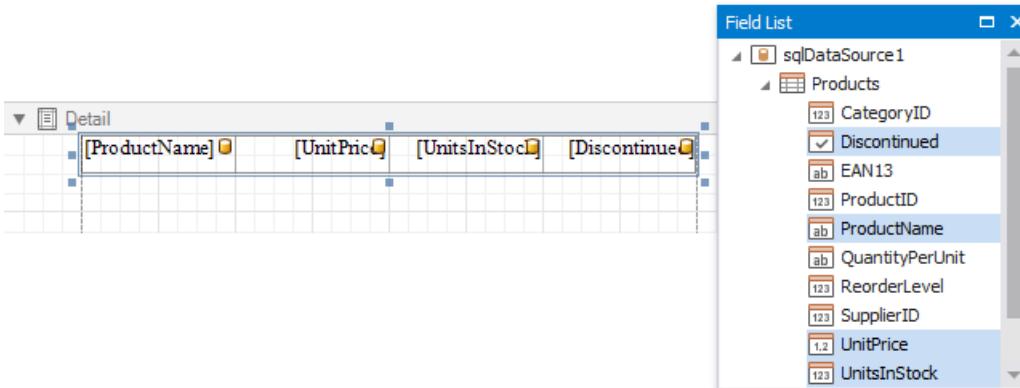
- [Limit the Number of Records to Display](#)

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

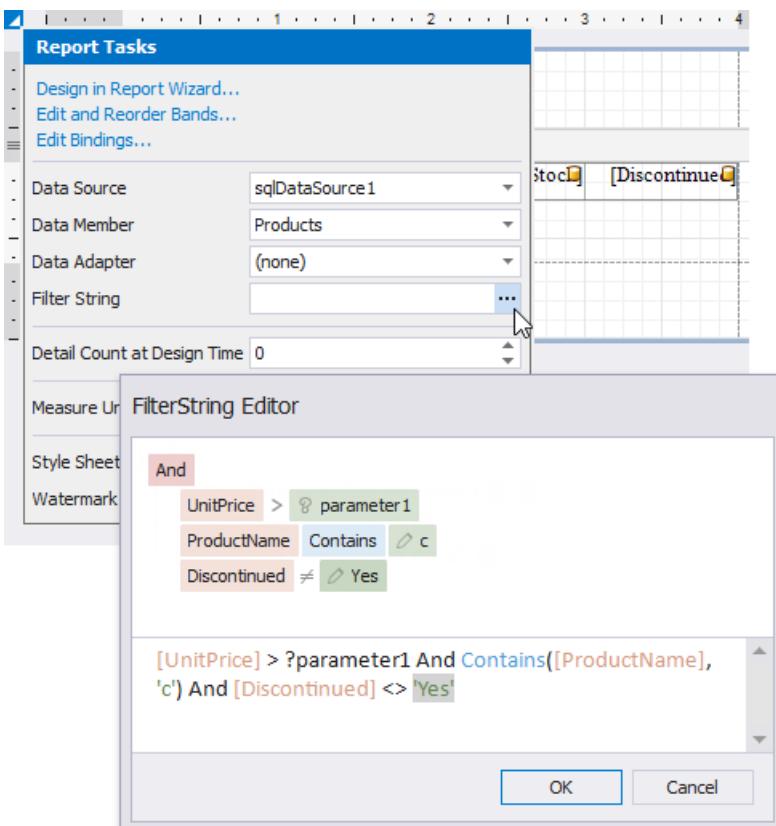
This tutorial illustrates how to filter data at the report level, as opposed to the [data source level](#). This approach is useful when dealing with relatively small data sources, when data load times are acceptable.

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](#) and drop the required fields onto the report's [Detail](#) band.



4. Click the report's smart tag and click the **Filter String** property's ellipsis button.

In the invoked [FilterString Editor](#), construct an expression in which the data fields are compared with the required values.



Every filter condition consists of three parts:

- A field of a data source to which a report is bound or the name of the [calculated field](#), which exists in this data source at the same level.
- Criteria operator, such as **Equals**, **Is less than**, **Is between**, etc.
- A static operand value, another data field or a [report parameter](#). To access parameters, click the icon on the right until

it turns into a question mark.

You can arrange specific conditions into groups with **And**, **Or**, **Not And**, and **Not Or** operators.

Your report is now ready to be generated. Switch to [Print Preview](#) to see the result.

Product Name	Unit Price	Units In Stock	Discontinued
Northwoods Cranberry Sauce	\$40.00	6	False
Queso Manchego La Pastora	\$38.00	86	False
Camarvon Tigers	\$62.50	42	False
Gumbär Gummibärchen	\$31.23	15	False
Schoggi Schokolade	\$43.90	49	False
Mascarpone Fabiolli	\$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 Pienot	\$34.00	19	False
Tarte au sucre	\$49.30	17	False

Parameters

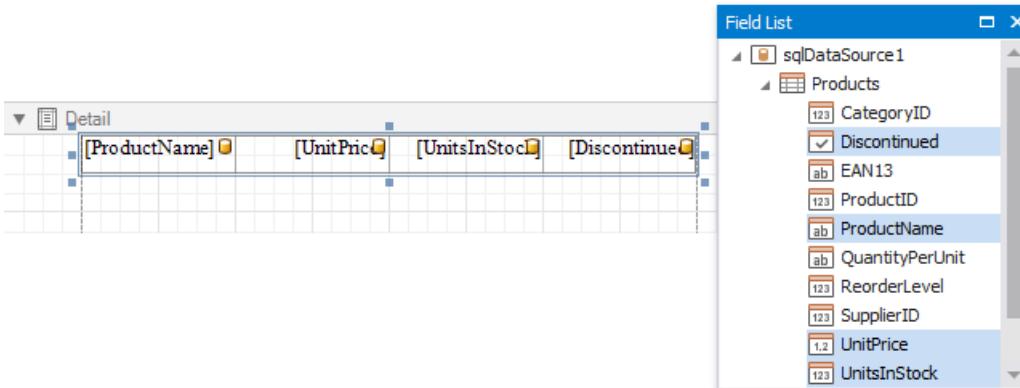
Parameter1 30

Reset Submit

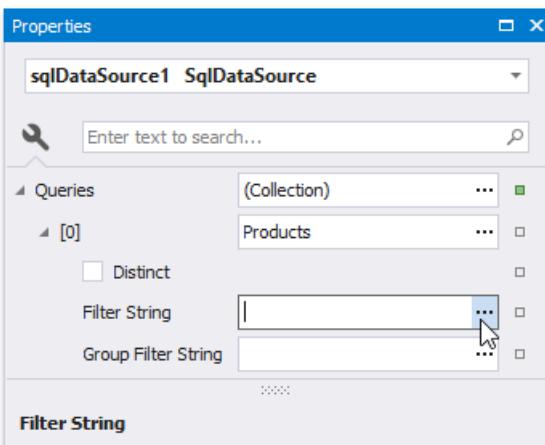
Filter Data at the Data Source Level

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.

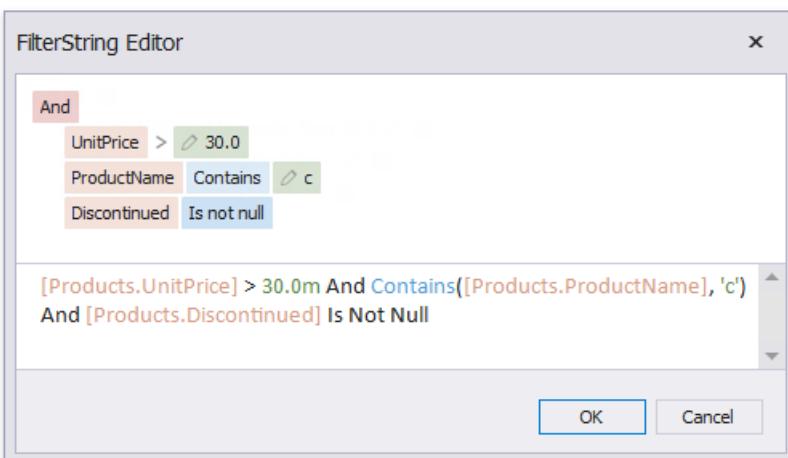
1. [Create a new report](#) or open an existing one.
2. Bind your report to a required data source. See the [Bind to Data](#) section to learn more about providing data to reports.
3. Switch to the [Field List](#) and drop the required fields onto the report's [Detail](#) band.



4. Select the data source in the [Report Explorer](#), expand its **Queries** collection property in the [Property Grid](#) and click the ellipsis for the **Filter String** property of the required query.



5. In the invoked [Filter Editor](#), construct an expression where the data fields are compared with the required values as shown below.



Every filter condition consists of three parts:

- A data field name.
- Criteria operator, such as **Equals**, **Is less than**, **Is between**, etc.
- A static operand value, another data field or a query parameter. See the [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.

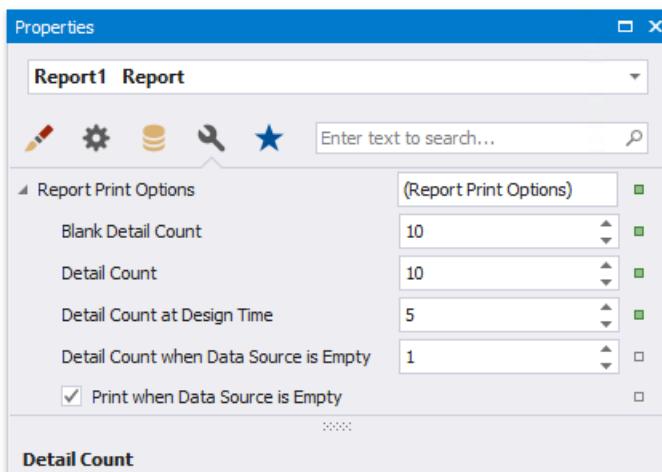
Alternatively, you can specify a filter expression when creating a query using the [Query Builder](#). To invoke the **Filter Editor** at this stage, click the **Filter...** button.

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

Product Name	Unit Price	Units In Stock	Discontinued
Northwoods Cranberry Sauce	\$40.00	6	False
Queso Manchego La Pastora	\$38.00	86	False
Camarvon Tigers	\$62.50	42	False
Gumbär Gummibärchen	\$31.23	15	False
Schoggi Schokolade	\$43.90	49	False
Mascarpone Fabioh	\$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 Pienot	\$34.00	19	False
Tarte au sucre	\$49.30	17	False

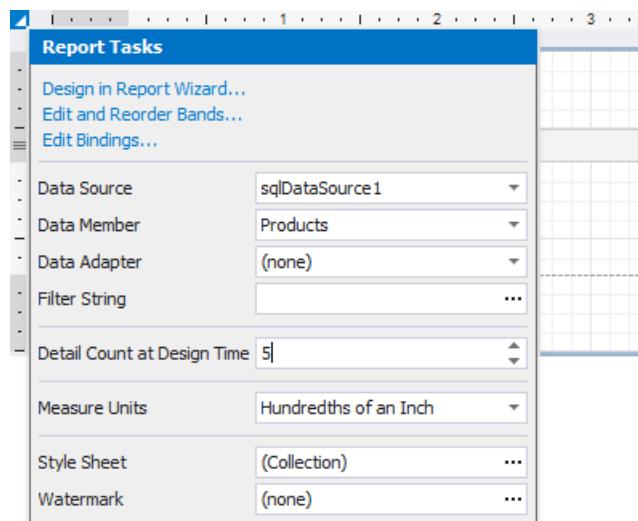
Limit the Number of Records to Display

You can filter records displayed in [Print Preview](#) using **Report Print Options**. You can specify them in the [Property Grid's Miscellaneous tab](#).



Limit the Number of Records

The **Detail Count at Design Time** property enables you to limit the number of records a report shows in Print Preview embedded into the Report Designer. This option is also available in the report's smart tag.



Use the **Detail Count** option to define how many times to print the Detail band when generating a report document to display in Print Preview.

Print on Empty Data Source

Disable the **Print when Data Source is Empty** option to avoid generating a report when its data source is empty. You can use this setting in [master-detail reports](#) to hide the detail report if its data source contains no records.

The **Detail Count when Data Source is Empty** property allows you to specify how many times to print the Detail band when a report does not have a data source. You can use this property to create static reports that are not connected to a data source and display the same static content several times.

Group and Sort Data

The following documents describe how to group and sort a report's data:

- [Sort Data](#)
- [Group Data](#)
- [Sort Data by a Custom Field](#)
- [Group Data by a Custom Field](#)
- [Sort Groups by a Summary Function's Result](#)

Sort Data

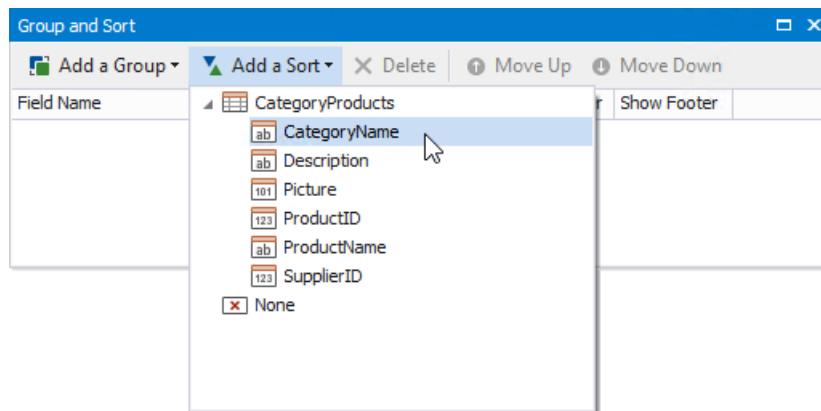
Sort a Report's Data

Do the following to sort data in your report:

1. Create a new or open an existing data-bound report.

You cannot apply sorting unless your report is bound to a data source.

2. Switch to the **Group and Sort** panel, click **Add a Sort** and select the required data field in the invoked drop-down menu.



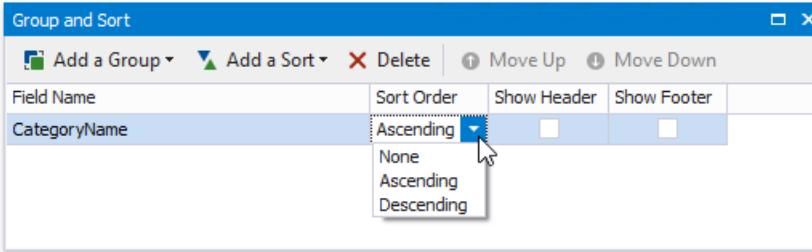
NOTE

See the [Sort Data by a Custom Field](#) tutorial to learn how to sort a report's data by a custom field.

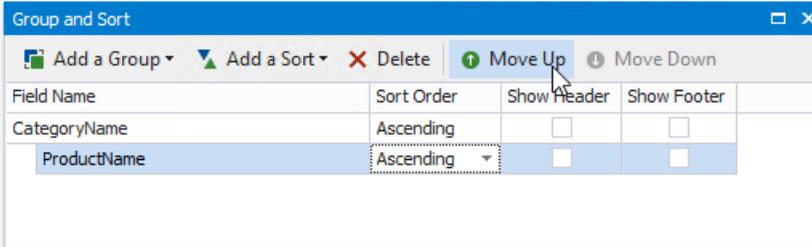
This adds a corresponding sort field to the **Sort Fields** collection. You can access this collection by clicking the Detail band's smart tag.

The screenshot shows the 'Detail Tasks' smart tag in the 'Detail' band of a report. The smart tag has a title 'Detail Tasks' and a list of options: 'Edit and Reorder Bands...', 'Sort Fields (Collection)', and an ellipsis (...). Below the smart tag is the 'Group Field Collection Editor' dialog box. The dialog box has a title 'Group Field Collection Editor' and a table titled 'Behavior'. The table has two rows: 'Field Name' with value 'CategoryName' and 'Sort Order' with value 'Ascending'. At the bottom of the dialog are buttons for 'Add', 'Remove', 'OK', and 'Cancel'.

3. Back in the **Group and Sort** panel, you can specify the sort order (ascending or descending).



4. When a report has multiple sort fields, you can change their order by clicking **Move Up** or **Move Down**.



5. Drag the corresponding field from the [Field List](#) onto the report area and switch to [Print Preview](#) to see the result.

Beverages	Chai
Beverages	Chang
Beverages	Chartreuse verte
Beverages	Côte de Blaye
Beverages	Guaraná Fantástica
Beverages	Lakkalikööri
Beverages	Laughing Lumberjack Lager
Beverages	Sasquatch Ale
Condiments	Aniseed Syrup
Condiments	Gula Malacca
Condiments	Vegie-spread
Confections	Gumbär Gummibärchen
Confections	Maxilaku

Interactive Sorting in Print Preview

You can allow sorting report data directly in Print Preview by clicking a designated element.

Beverages

Product Name	Quantity Per Unit	Unit Price
Steeleye Stout	24 - 12 oz bottles	\$18.00
Sasquatch Ale	24 - 12 oz bottles	\$14.00
Rhönbräu Klosterbier	24 - 0.5 l bottles	\$7.75
Outback Lager	24 - 355 ml bottles	\$15.00
Laughing Lumberjack Lager	24 - 12 oz bottles	\$14.00
Lakkalikööri	500 ml	\$18.00
Ipoh Coffee	16 - 500 g tins	\$46.00
Guaraná Fantástica	12 - 355 ml cans	\$4.50
Côte de Blaye	12 - 75 cl bottles	\$263.50
Chartreuse verte	750 cc per bottle	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Chai	10 boxes x 20 bags	\$18.00

See [Sort a Report in Print Preview](#) for more information.

Group Data

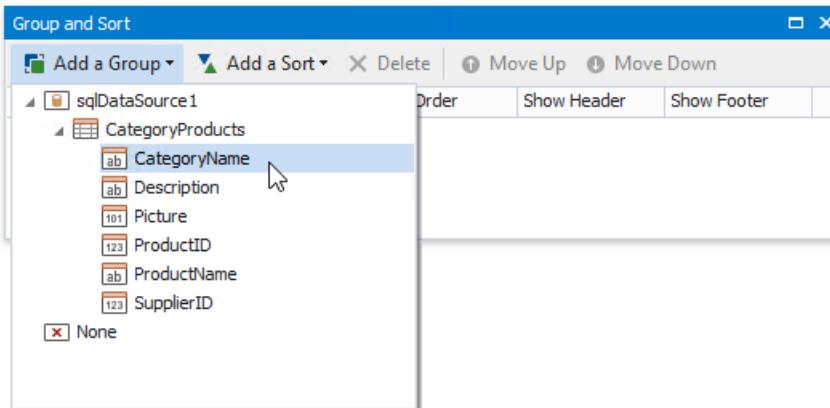
Group a Report's Data

Do the following to group data in your report:

1. Create a new or open an existing data-bound report.

You cannot apply grouping unless your report is bound to a data source.

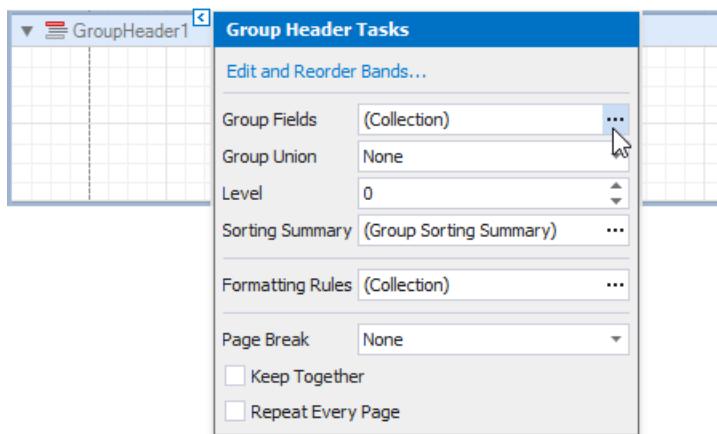
2. Switch to the [Group and Sort](#) panel, click **Add a Group** and select the required data field in the invoked drop-down menu.



NOTE

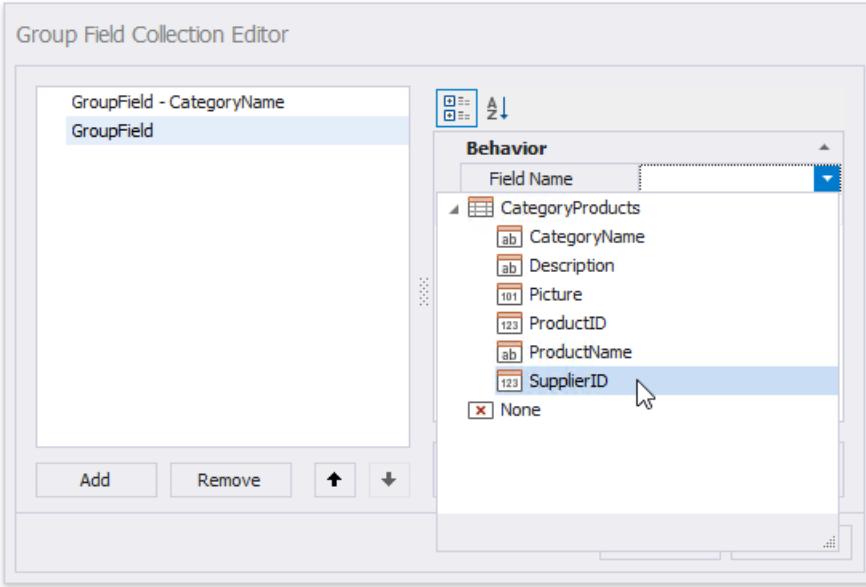
See the [Group Data by a Custom Field](#) tutorial to learn how to group a report's data by a custom field.

This creates an empty [Group Header](#) with a corresponding group field added to its **Group Fields** collection. You can access this collection by clicking the Group Header's smart tag.



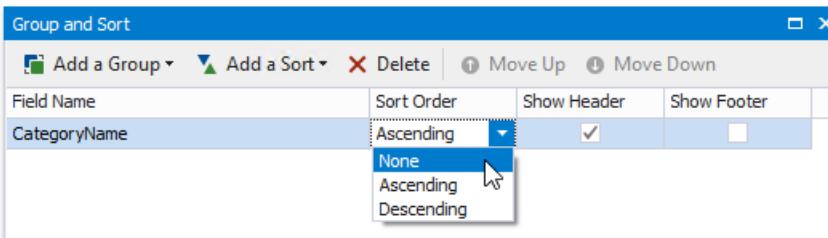
You can use the **Group Field Collection Editor** to group data by multiple criteria. Click **Add** to create a new group field and specify its **Field Name** property.

Use the up and down arrow buttons to specify the order in which these criteria are applied to the report's data.

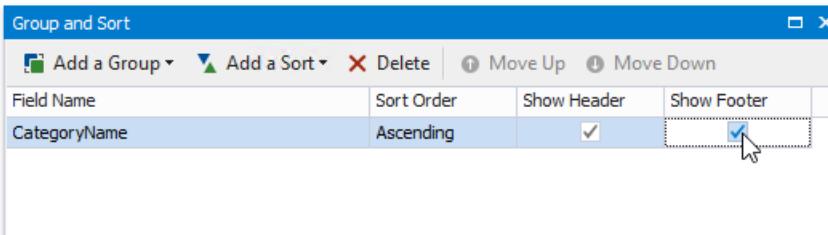


3. Back in the **Group and Sort** panel, you can specify the group fields' sorting order (ascending or descending).

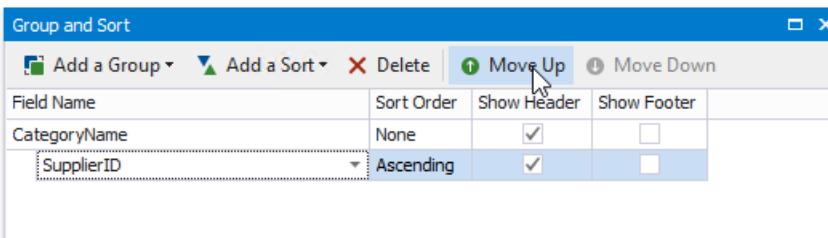
Select **None** if your groups are already ordered in the data source, and you do not need to sort them in the report.



4. Click **Show Footer** to create an empty footer for this group.



5. When a report has multiple groups, you can change their order by clicking **Move Up** or **Move Down**.



The following images illustrate how a report looks when it is grouped by multiple criteria:

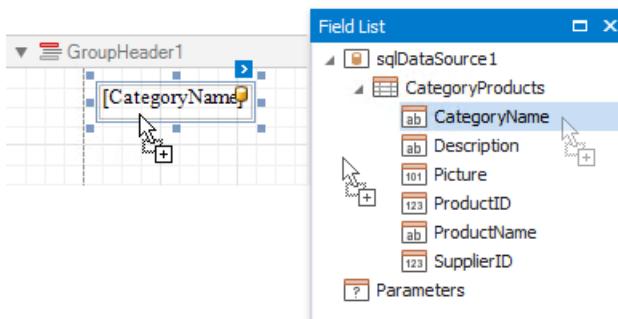
A SINGLE GROUP WITH MULTIPLE GROUP FIELDS

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	

6. Drag the corresponding field from the **Field List** and drop it onto the group footer to display the group field's value in the report.



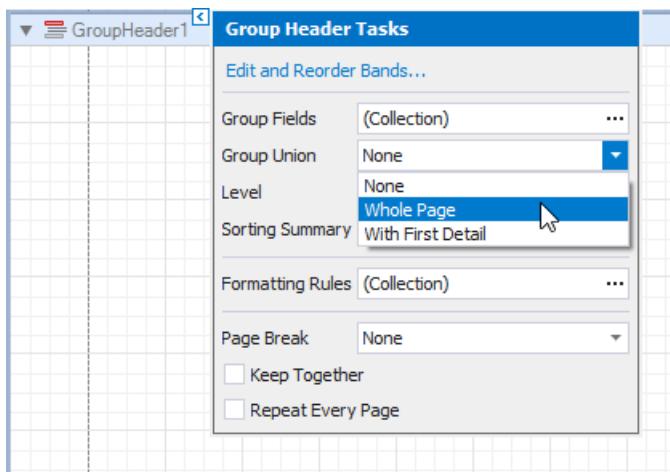
The resulting report looks as follows:

Beverages
Côte de Blaye
Ipoх Coffee
Condiments
Chef Anton's Cajun Seasoning
Chef Anton's Gumbo Mix
Grandma's Boysenberry Spread
Northwoods Cranberry Sauce
Sirop d'érable
Vegie-spread
Louisiana Fiery Hot Pepper Sauce
Confections
Sir Rodney's Marmalade
Gumbär Gummibärchen
Schoggi Schokolade
Tarte au sucre

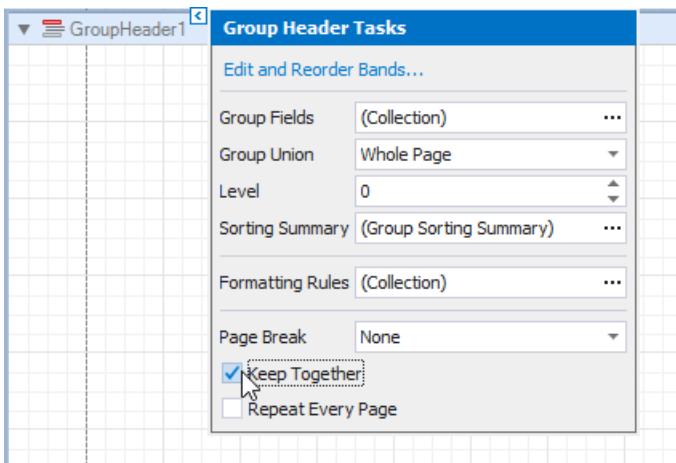
Specify the Group's Settings

You can use the group band's smart tag to customize the group's layout settings:

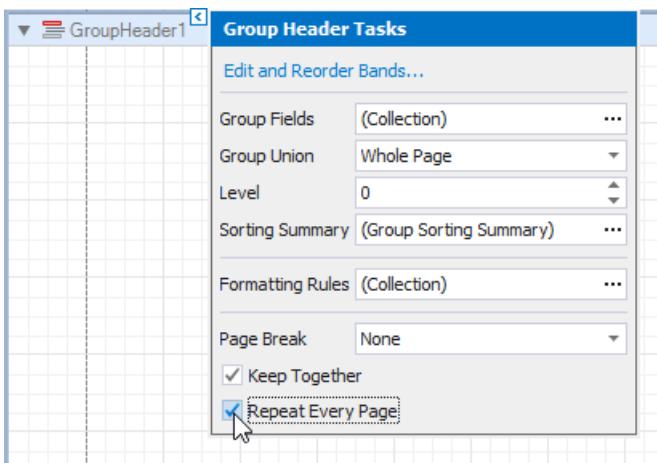
- Use the **Group Union** property to keep a group's content on the same page when possible.



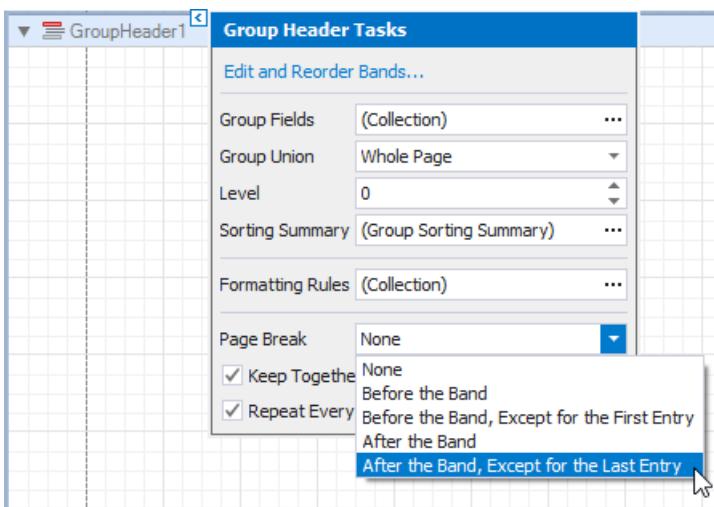
- Use the **Keep Together** property to print the Group Header/Footer on the same page as the group's contents.



- Use the **Repeat Every Page** property to print the group band on each page.



- Use the **Page Break** property to start a new page before or after each group.



When you need to display page numbers for individual groups, add the [Page Info](#) control to the Group Header or Footer and set its **Running Band** property to the Group Header's name.

<p>Beverages</p> <p>Côte de Blaye</p> <p>Chartreuse verte</p> <p>Ipoh Coffee</p> <p>Laughing Lumberjack Lager</p> <p>Outback Lager</p> <p>Rhönbräu Klosterbier</p> <p>Lakkalikööni</p> <p>Group Page: 2 of 2</p>

Accurate page numbering requires that different groups do not appear on the same page. For this reason, you need to set the Group Header's **Page Break** property to **After Band**, or place the **Page Break** control at the band's bottom.

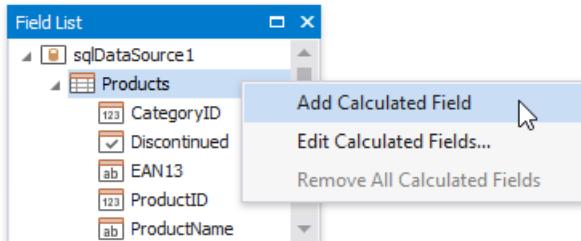
Sort Data by a Custom Field

This tutorial illustrates how to sort a report against a custom criteria, in particular, sort data by the number of characters in the data field value.

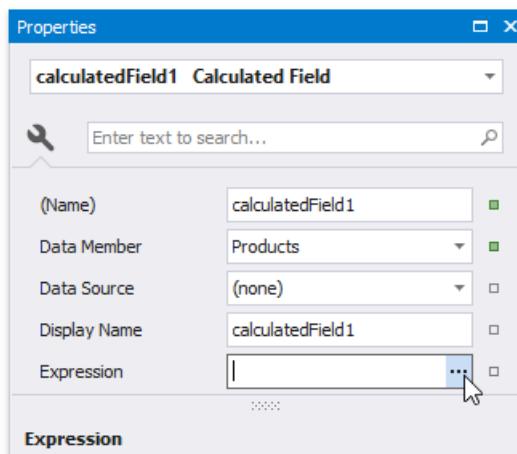
1. Create a new or open an existing data-bound report.

You cannot apply grouping unless your report is bound to a data source.

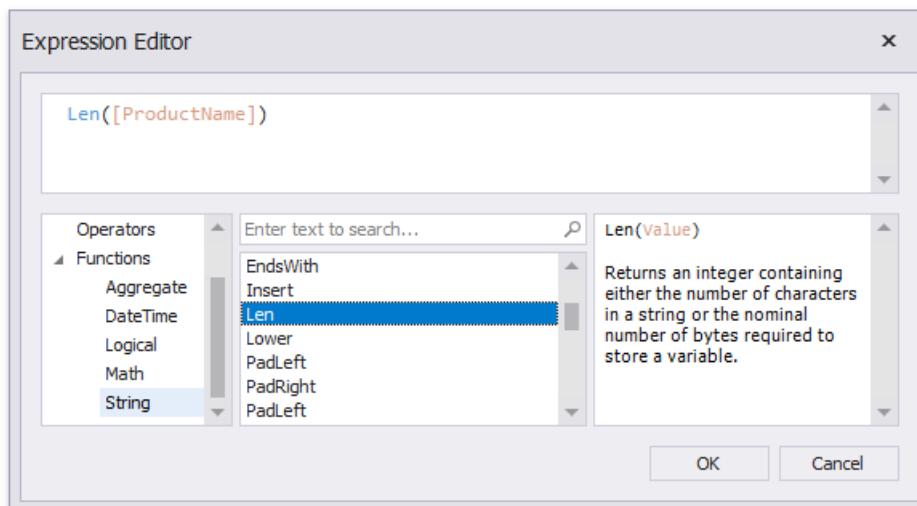
2. Create a **calculated field**. Switch to the **Field List**, right-click any item inside the data source and select **Add Calculated Field**.



3. Select the calculated field, and in the **Property Grid**, click the **Expression** property's ellipsis button.



4. In the invoked **Expression Editor**, select the required date-time function and define the data field's name in [square brackets]. For example, use the **Len([ProductName])** function to return the number of characters extracted from the **ProductName** data field.



Click **OK** to close the editor and save the changes.

5. In the **Group and Sort** panel, click **Add a Sort** and select the calculated field from the invoked drop-down menu.



The **Sort Order** drop-down list allows you to define the sort order within the group (ascending or descending).

6. 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

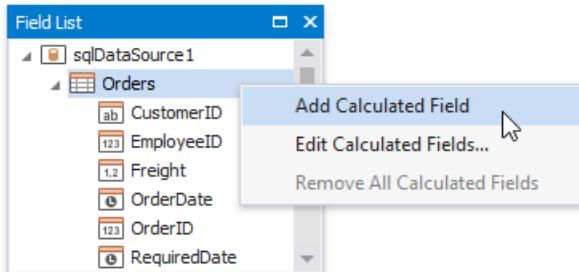
Group Data by a Custom Field

This tutorial illustrates how to group a report against a custom criteria, in particular, group data by days of the week.

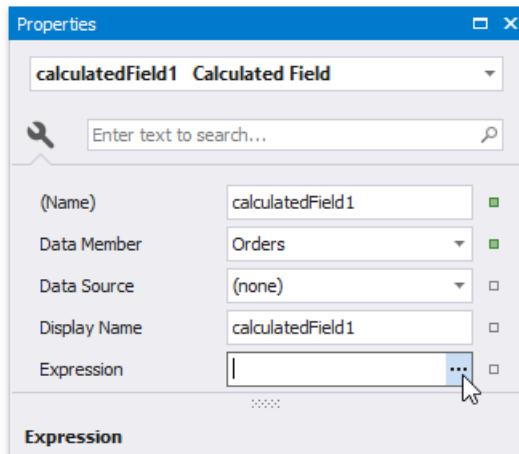
1. Create a new or open an existing data-bound report.

You cannot apply grouping unless your report is bound to a data source.

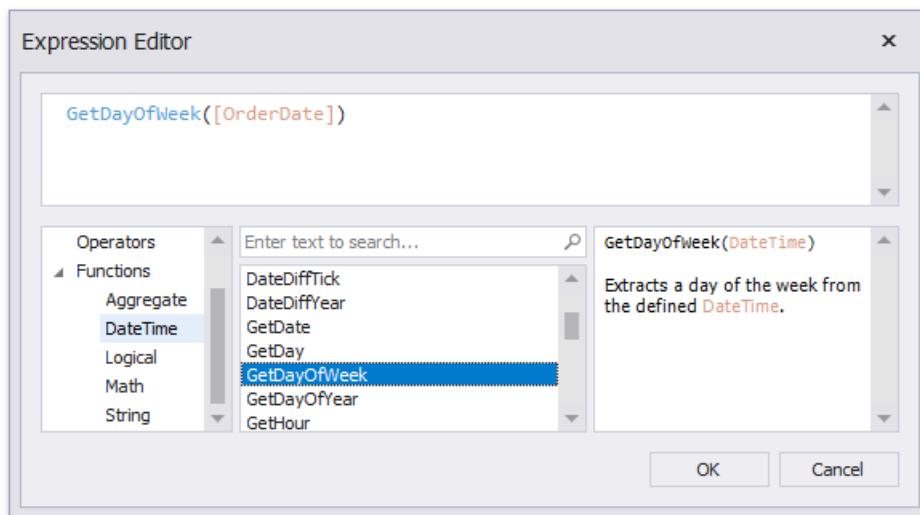
2. Create a [calculated field](#). Switch to the [Field List](#), right-click any item inside the data source and select **Add Calculated Field**.



3. Select the calculated field, and in the [Property Grid](#), click the **Expression** property's ellipsis button.



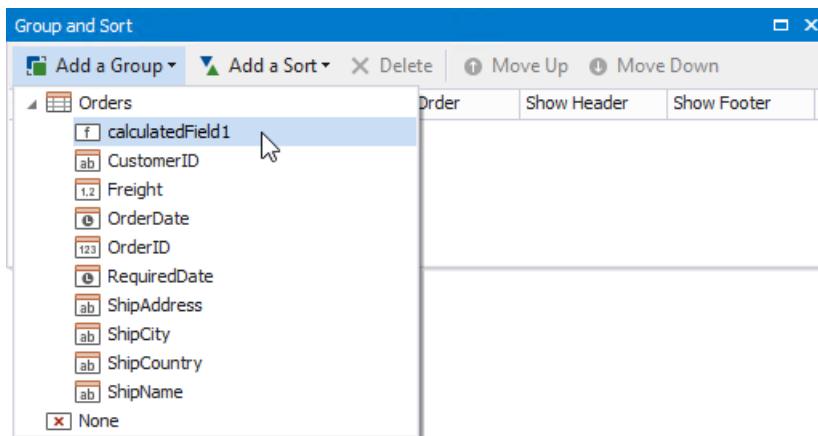
4. In the invoked **Expression Editor**, select the required date-time function and define the data field's name in [square brackets]. For example, use the **GetDayOfWeek([OrderDate])** function to return a zero-based index of the day of the week, extracted from the **OrderDate** data field.



Click **OK** to close the editor and save the changes.

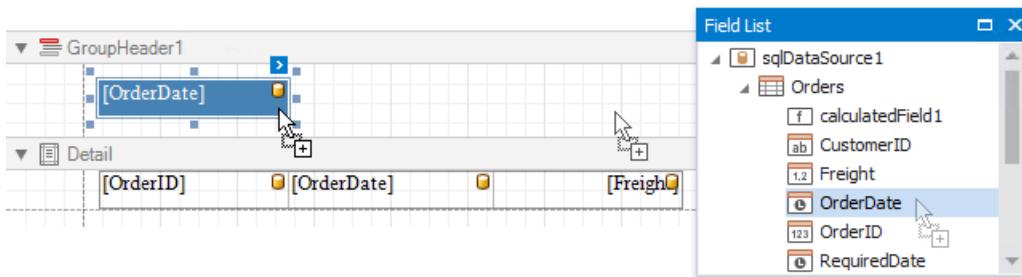
5. Use the **Group and Sort** panel to quickly create a **Group Header** band associated with the calculated field.

To create a group criteria, click **Add a Group** and select the calculated field from the invoked drop-down menu.

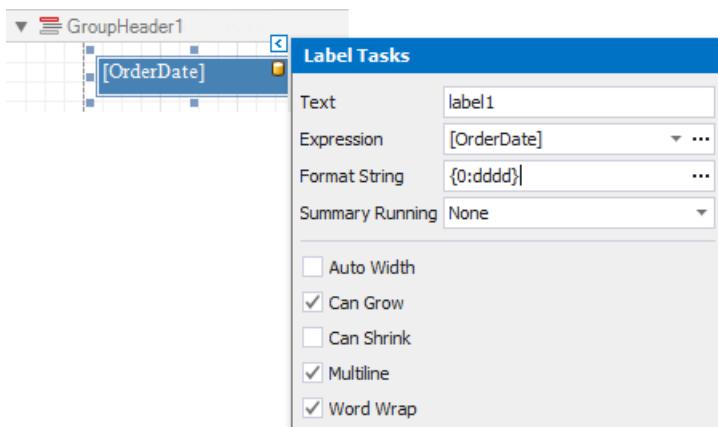


You can also use this panel to specify whether or not the corresponding Group Footer band should be visible. The **Sort Order** drop-down list allows you to define the sort order within the group (ascending or descending) or disable sorting in grouped data.

6. Switch to the **Field List** and drop the required data fields onto the report's area.



7. Click the smart tag of the label in the Group Header and set the **Format String** property to **{0:dddd}**. This makes the label only display the day of the week, and not the date.



Switch to **Print Preview** to see the result.

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

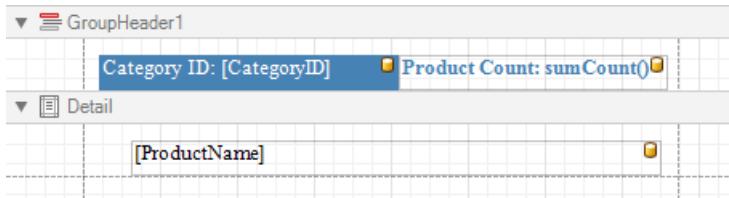
Sort Groups by a Summary Function's Result

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.

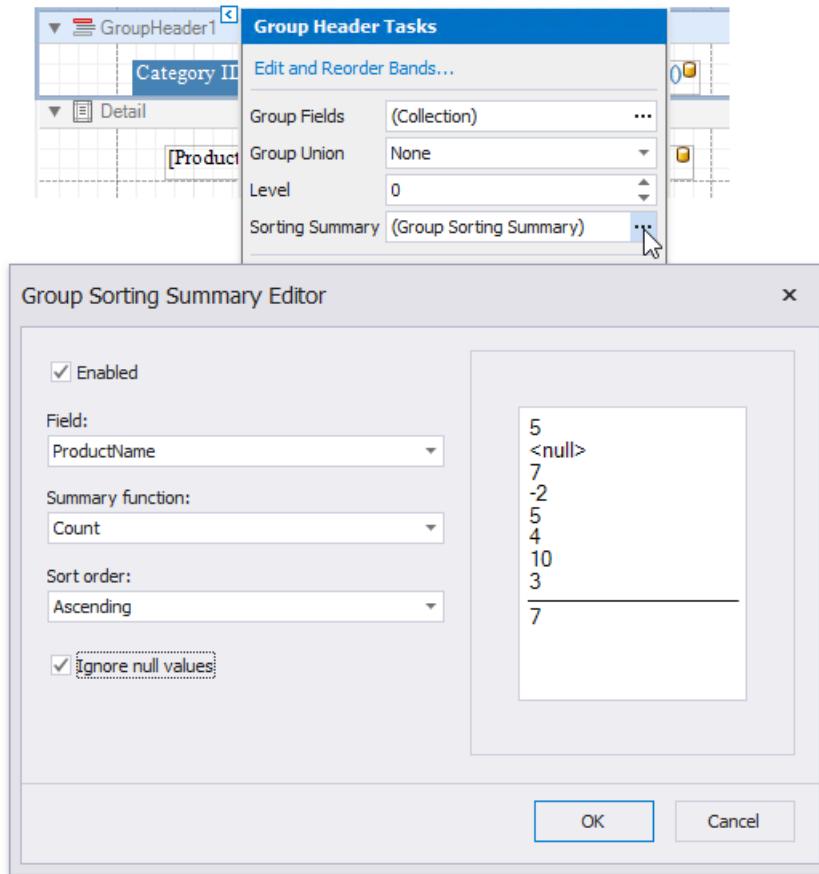
You cannot apply grouping unless your report is bound to a data source.

2. **Group** the report by the required data field, [calculate the record count](#) in each group and construct the required report layout.



3. Click the Group Header band's smart tag, and click the **Sorting Summary** property's ellipsis button.

In the invoked **Group Sorting Summary Editor**, turn on the **Enabled** option, set the **Field** option to the data field from the Detail band, and set the **Summary function** to **Count**.



In this editor, you can also define the sorting direction for the group, as well as specify whether or not the **Null** values should be ignored.

Click **OK** to apply the changes and close the dialog.

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

Category ID: 7

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

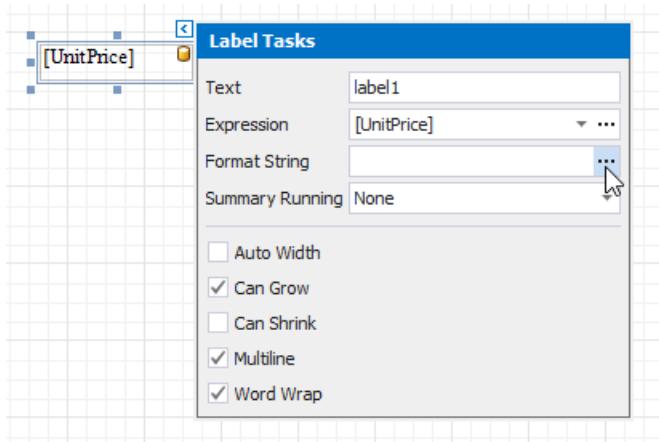
- Gustaf's Knäckebrot

Format Data

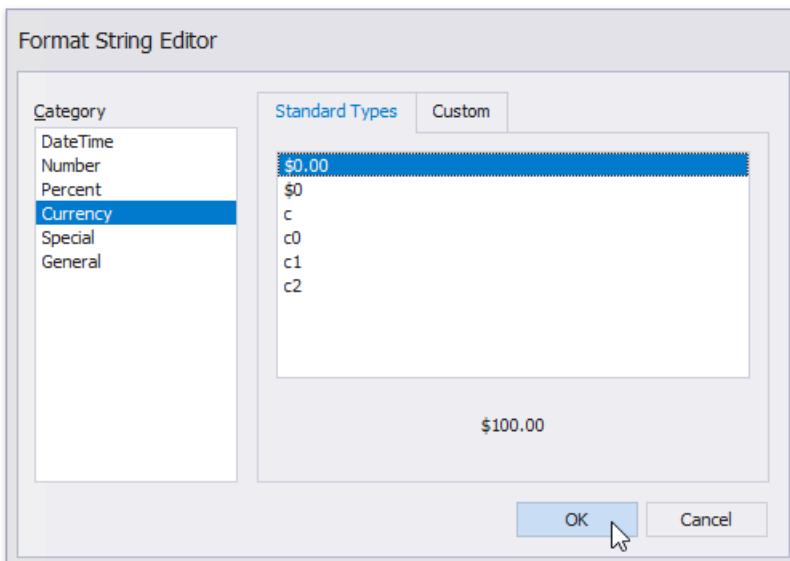
This document demonstrates how to specify value formatting for report elements (for instance, format numeric values as a currency or apply a percent format).

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.

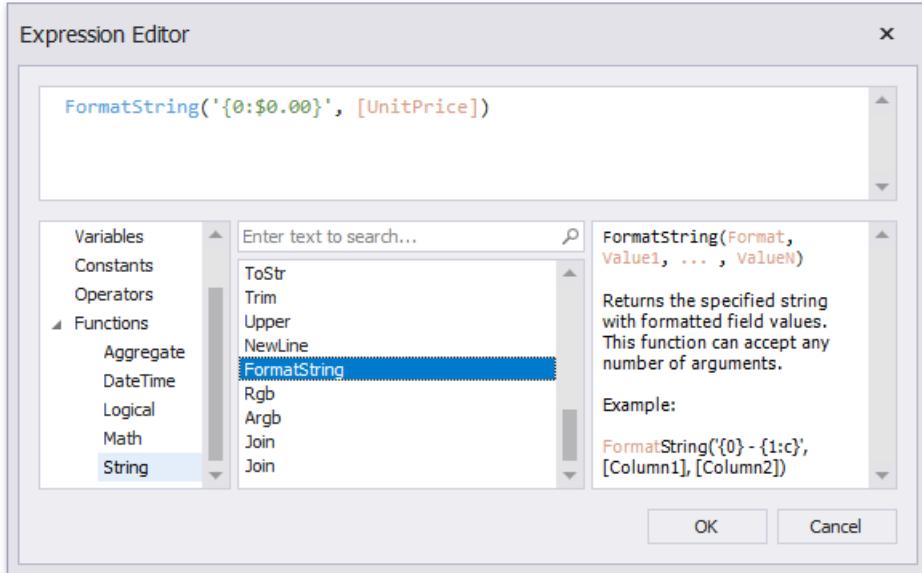
1. Invoke the control's smart tag and click the **Format String** property's ellipsis button.



2. This invokes the **Format String Editor** where you can specify the required format.



Alternatively, you can use the **FormatString** function within the expression you specified for the report control.



When switching to [Print Preview](#), you can view the report control displaying values with the specified format.

Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$21.35
Grandma's Boysenberry Spread	\$25.00
Uncle Bob's Organic Dried Pears	\$30.00
Northwoods Cranberry Sauce	\$40.00
Mishi Kobe Niku	\$97.00
Ikura	\$31.00
Queso Cabrales	\$21.00

You can use the control's **Xlsx Format String** property to assign a native Excel format that is used for exporting reports to [XLSX](#).

Specify Conditions for Report Elements

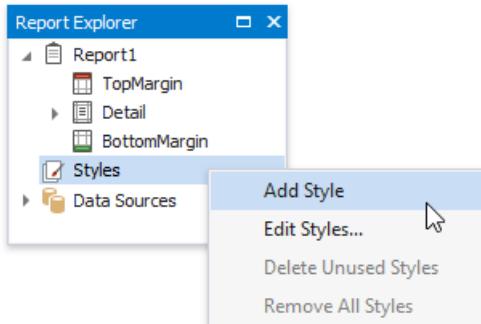
Topics in this section demonstrate how to conditionally change report data and elements.

- [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](#)

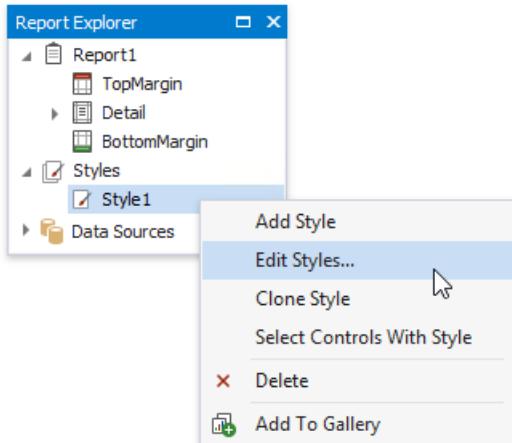
Conditionally Change a Control's Appearance

This document describes how to change a report control's appearance based on a specific condition.

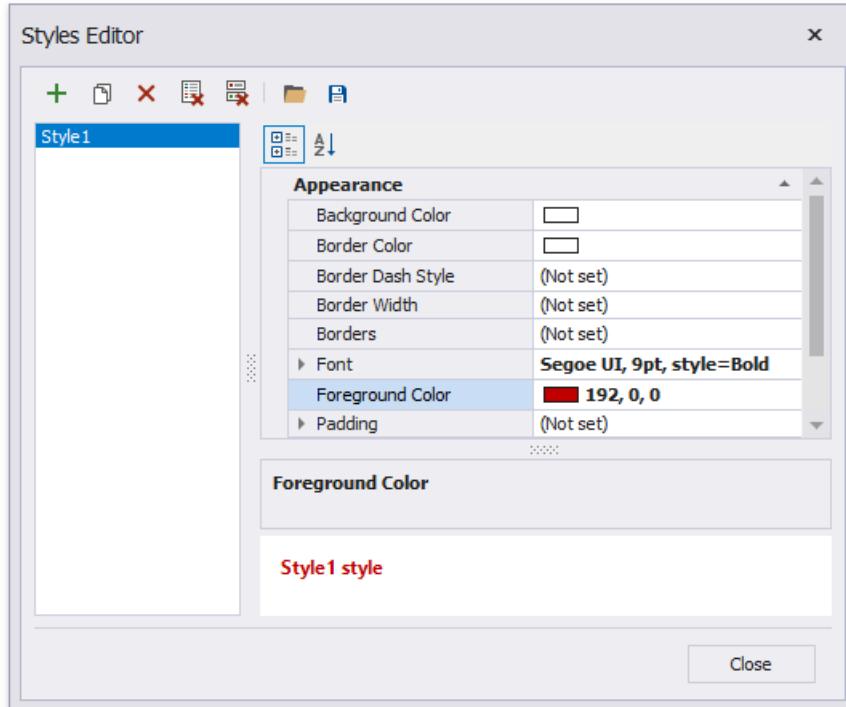
1. Switch to the [Report Explorer](#) and right-click the **Styles** category to create a new visual style.



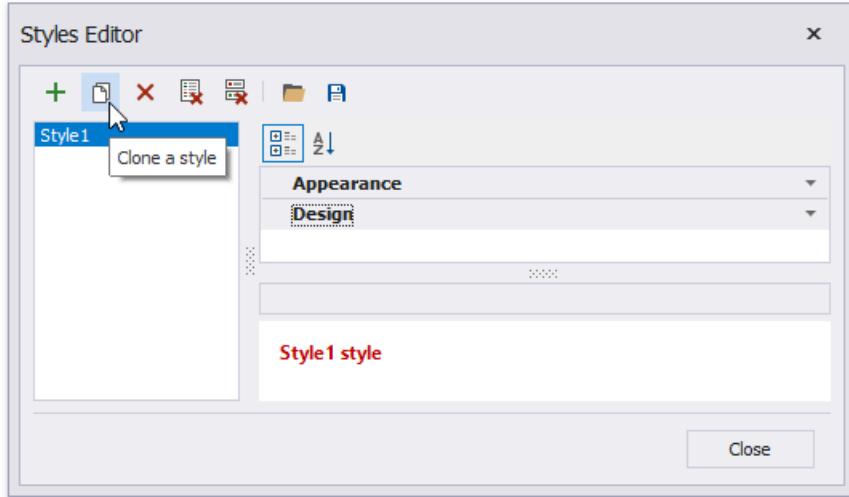
2. Right-click the created style and select **Edit Styles**.



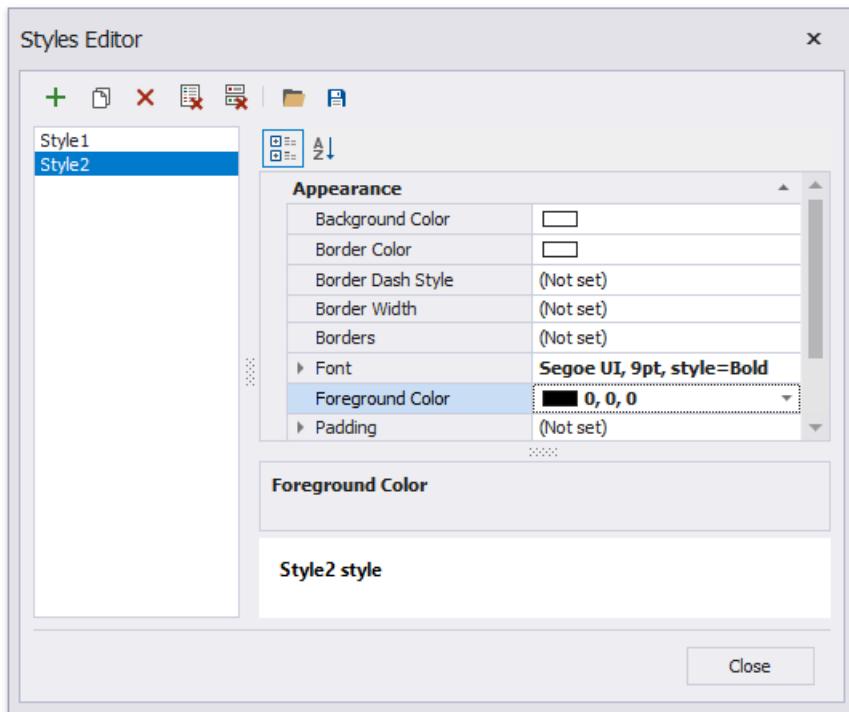
3. In the invoked **Styles Editor**, customize the created style's appearance settings.



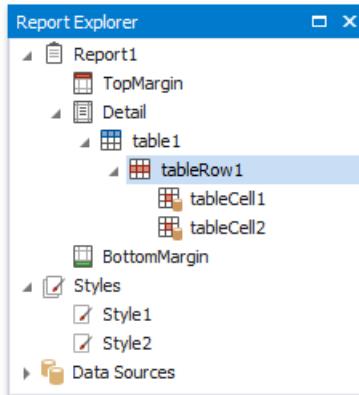
4. Create another style by cloning the existing one.



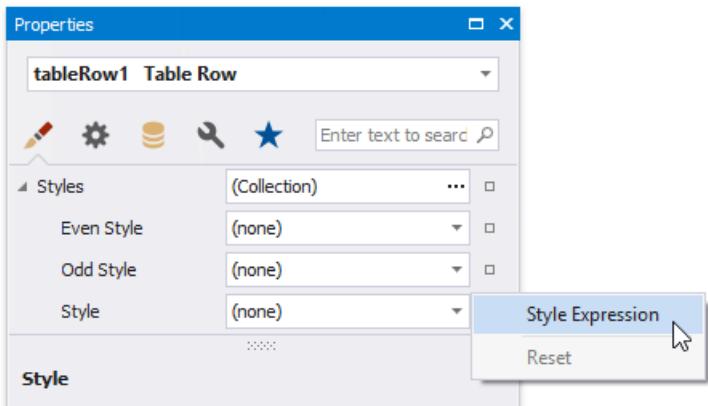
5. Customize the new style's appearance settings and close the editor.



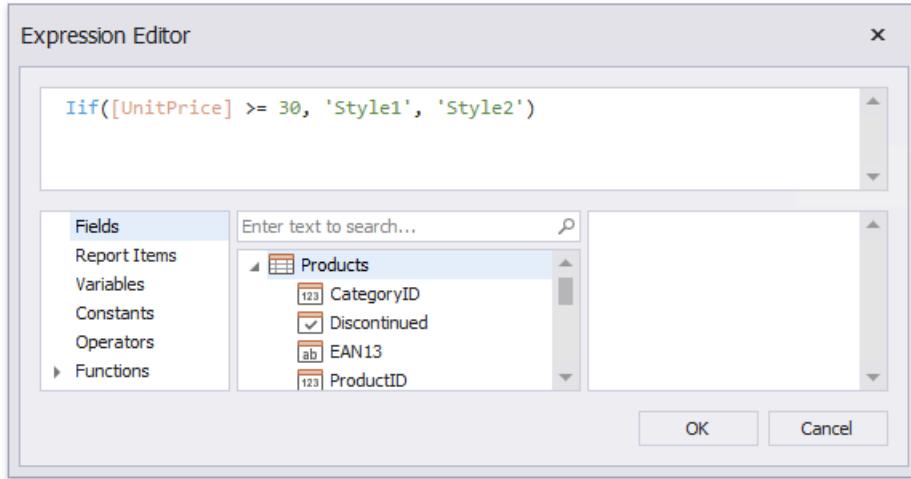
6. Back in the Report Explorer, select a report element to which you wish to assign the created styles.



7. Open the **Property Grid**'s **Appearance** tab, click the **Style** property's marker and select **Style Expression** in the context menu.



8. In the invoked **Expression Editor**, specify the required condition for switching between the created styles.



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

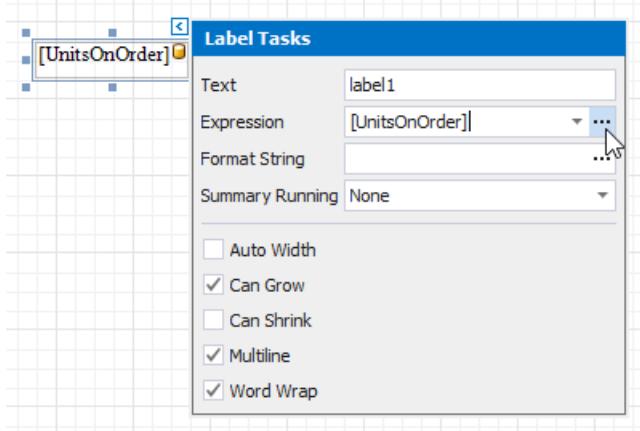
Chai		\$18.00
Chang		\$19.00
Aniseed Syrup		\$10.00
Chef Anton's Cajun Seasoning		\$22.00
Chef Anton's Gumbo Mix		\$21.35
Grandma's Boysenberry Spread		\$25.00
Uncle Bob's Organic Dried Pears		\$30.00
Northwoods Cranberry Sauce		\$40.00
Mishi Kobe Niku		\$97.00
Ikura		\$31.00
Queso Cabrales		\$21.00
Queso Manchego La Pastora		\$38.00
Konbu		\$6.00
Tofu		\$23.25
Genen Shouyu		\$15.50
Pavlova		\$17.45

Conditionally Change a Label's Text

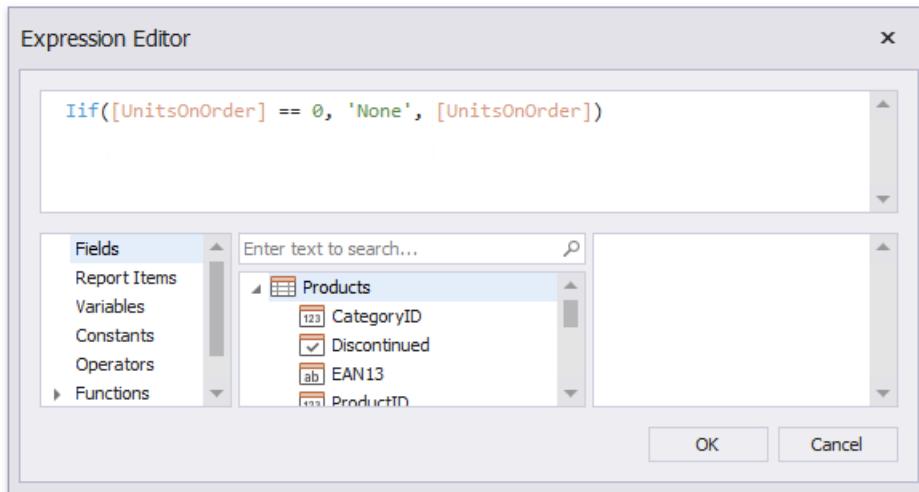
This document describes how to display different values in a report control based on a specified logical condition.

After you [bound your report to data](#) and specified a bound data field in a report control's **Expression** property, you can make this control display different values based on a specified logical condition:

1. Invoke the control's smart tag and click its **Expression** property's ellipsis button.



2. In the invoked **Expression Editor**, specify the required [expression](#).



Use the **Iif** function to define the condition. For example:

```
Iif([UnitsOnOrder] == 0, 'None', [UnitsOnOrder])
```

This expression means that if the data field's value is zero, the control's text is set to '**None**'; otherwise, it displays the actual field value.

When switching to [Print Preview](#), you can see the report control displaying the assigned values.

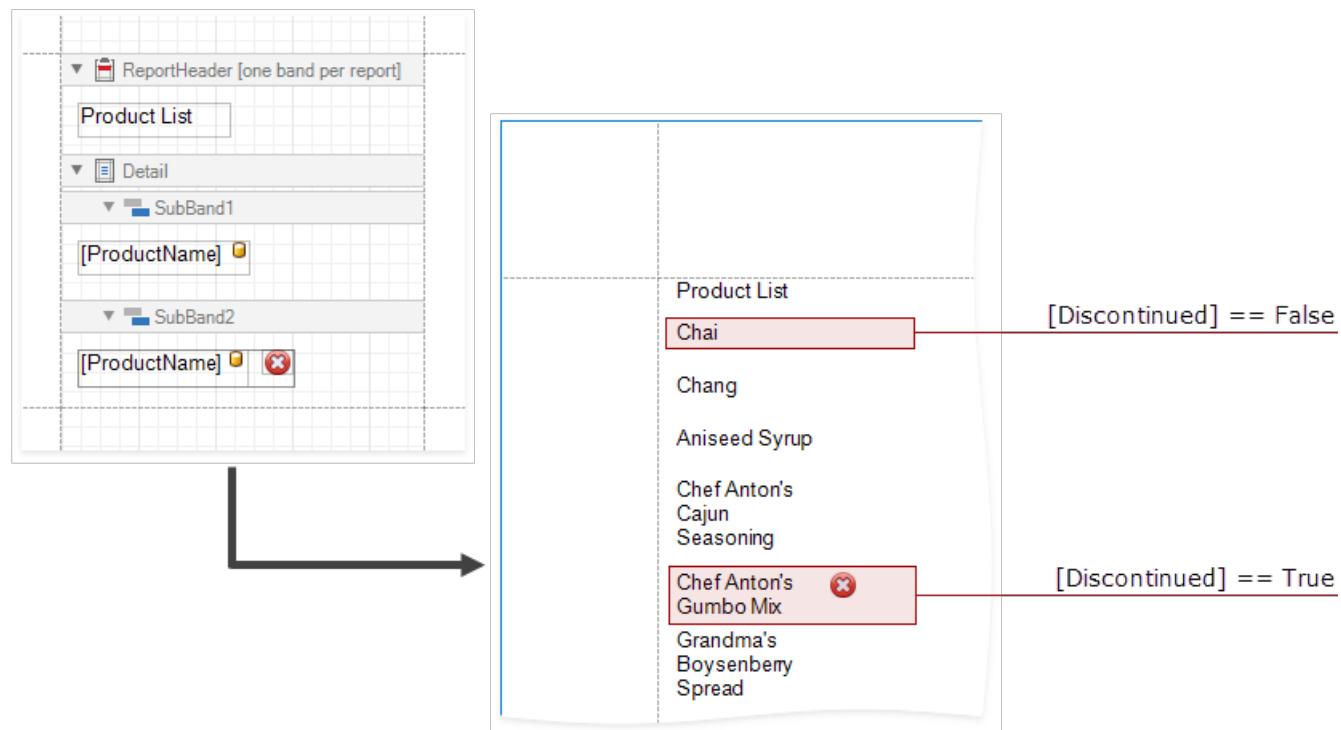
Chai	None
Chang	40
Guaraná Fantástica	None
Sasquatch Ale	None
Steeleye Stout	None
Côte de Blaye	None
Chartreuse verte	None
Ipoh Coffee	10
Laughing Lumberjack Lager	None
Outback Lager	10

Conditionally Change a Band's Visibility

This topic describes how to change the report band's visibility.

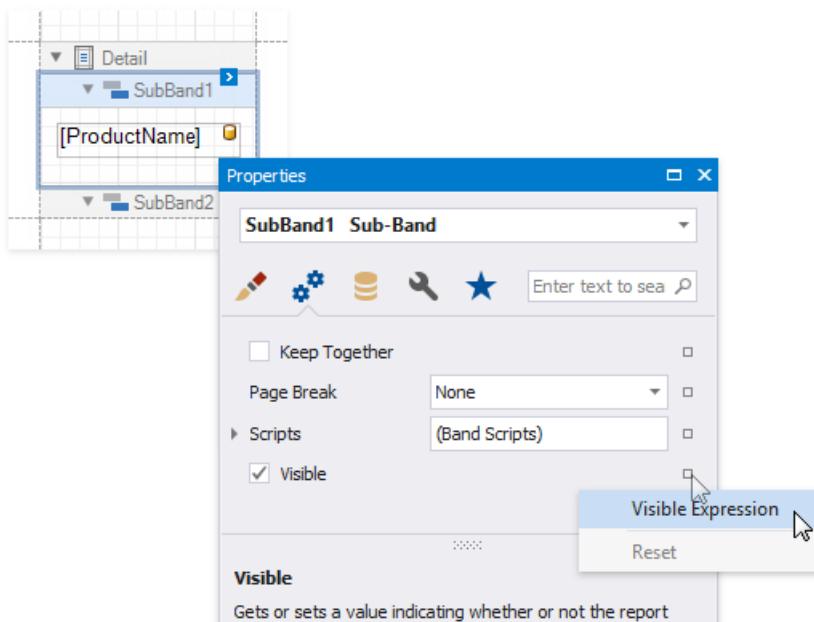
Set a band's **Visible** property to an expression to conditionally change the band's visibility based on a field's value or a parameter.

The report created in this tutorial contains two Detail **sub-bands** with different report controls. These sub-bands are used to display discontinued and current products.

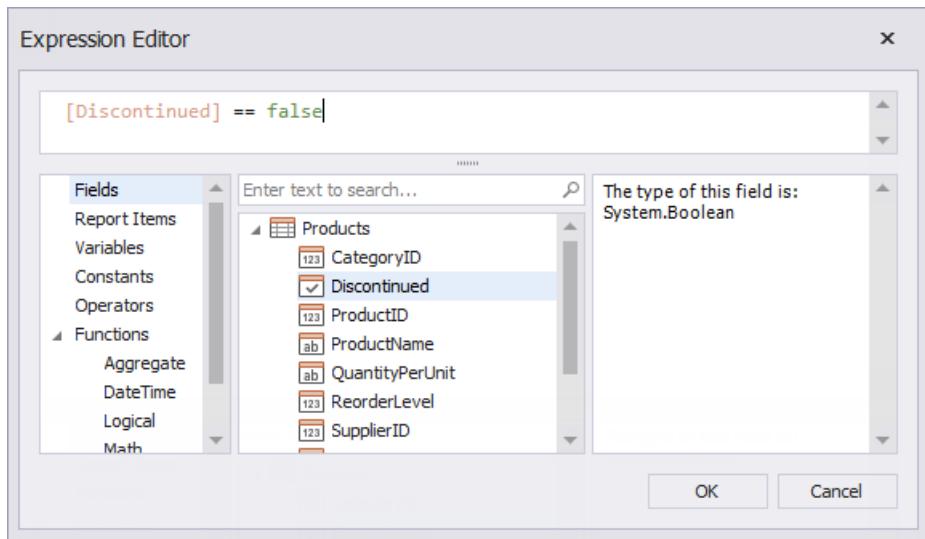


The steps below demonstrate how to change a band's visibility based on a field's value.

1. Select a band and switch to the **Properties** panel. Choose **Expressions** and click the **Visible** property's ellipsis button.



2. In the invoked **Expression Editor**, specify the expression.



Here, the **[Discontinued] == false** expression is set for the **SubBand1** and the **[Discontinued] == true** expression for the **SubBand2**. These expressions specify the **Visible** property based on the **Discontinued** data field's value.

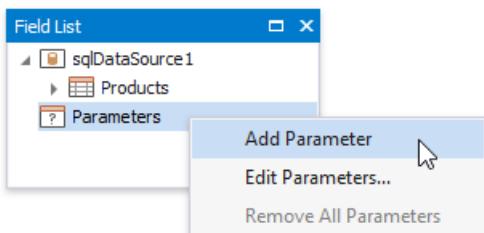
The **Preview** below displays how changes to band visibility influence the Product List. The **SubBand1** is used to display products that have the **Discontinued** field set to **false**, and the **SubBand2** is used to display discontinued products.

The screenshot shows a preview of a product list. The header is labeled "Product List". Below it, several product names are listed: Chai, Chang, Aniseed Syrup, Chef Anton's Cajun Seasoning, Chef Anton's Gumbo Mix (with a red X icon indicating it is hidden), and Grandma's Boysenberry Spread. The products with Discontinued = false are visible, while the one with Discontinued = true is hidden.

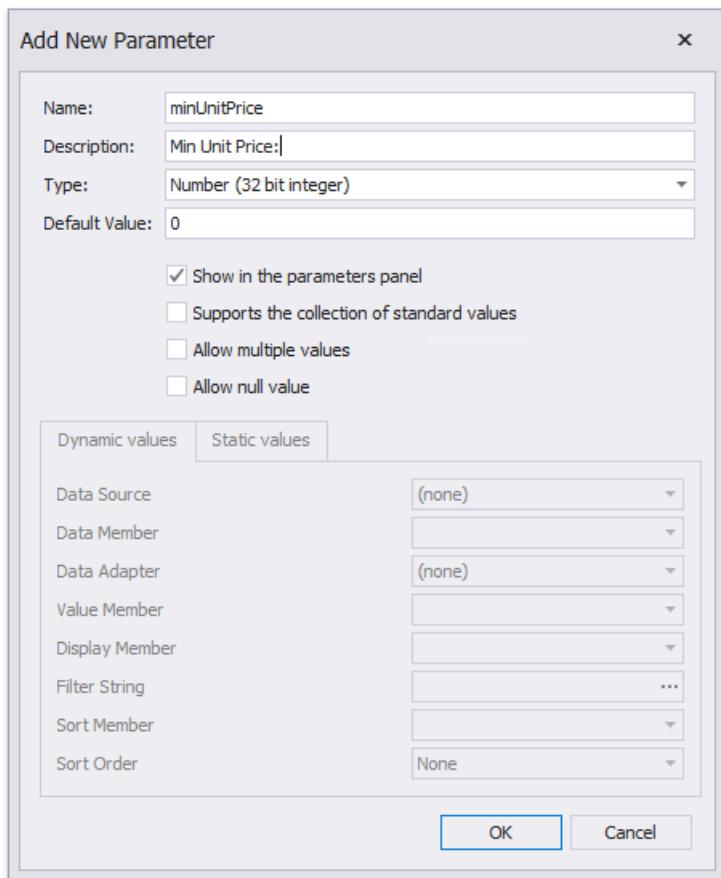
Conditionally Filter Report Data

This document describes how to filter a report's data based on a specific condition.

1. Switch to the [Field List](#), right-click the **Parameters** section and add a new report parameter.



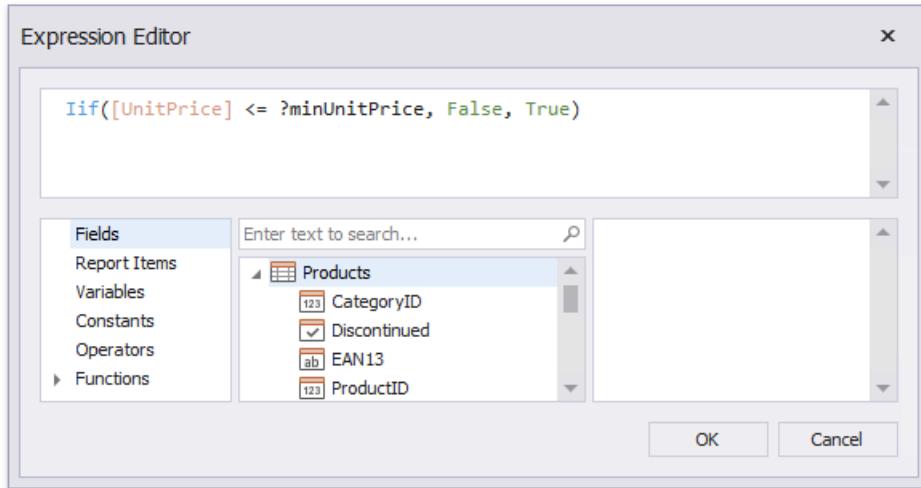
2. Specify the parameter's description in Print Preview and set its type to **Number (Integer)**.



3. Select the report's detail band and switch it to the [Property Grid](#). Navigate to its **Behavior** tab, click the **Visible** property's marker and select **Visible Expression** in the context menu.

A screenshot of the 'Properties' grid for the 'Detail' band. The 'Visible' property is selected, and a context menu is open over it, with the 'Visible Expression' option highlighted by a mouse cursor. Other options in the menu include 'Reset'. The 'Properties' grid shows other tabs like 'Detail' and 'Detail' (selected), and various properties such as 'Page Break', 'Scripts', and 'Visible'.

4. In the invoked **Expression Editor**, specify the required visibility condition. For example:



The expression above enables/disables the **Visible** property depending on whether the field value is below the specified parameter value.

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

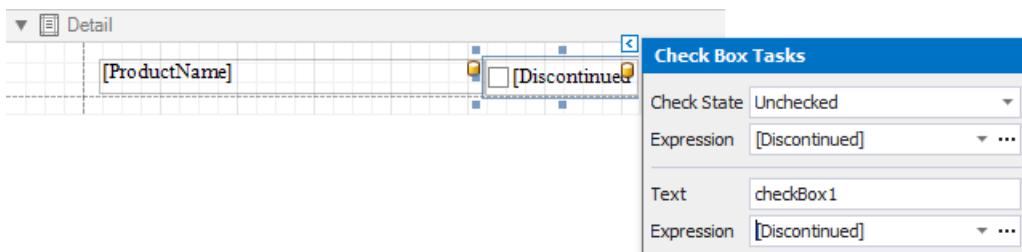
The screenshot shows a 'Parameters' dialog box on the left and a table preview on the right. The parameters dialog has a text input field 'Min Unit Price:' with '50' typed in, and a 'Submit' button being clicked. The table preview shows a list of products with their unit prices: Côte de Blaye (\$263.50), Sir Rodney's Marmalade (\$81.00), Raclette Courdavault (\$55.00), Mishi Kobe Niku (\$97.00), Thüringer Rostbratwurst (\$123.79), Manjimup Dried Apples (\$53.00), and Camarvon Tigers (\$62.50).

Côte de Blaye	\$263.50
Sir Rodney's Marmalade	\$81.00
Raclette Courdavault	\$55.00
Mishi Kobe Niku	\$97.00
Thüringer Rostbratwurst	\$123.79
Manjimup Dried Apples	\$53.00
Camarvon Tigers	\$62.50

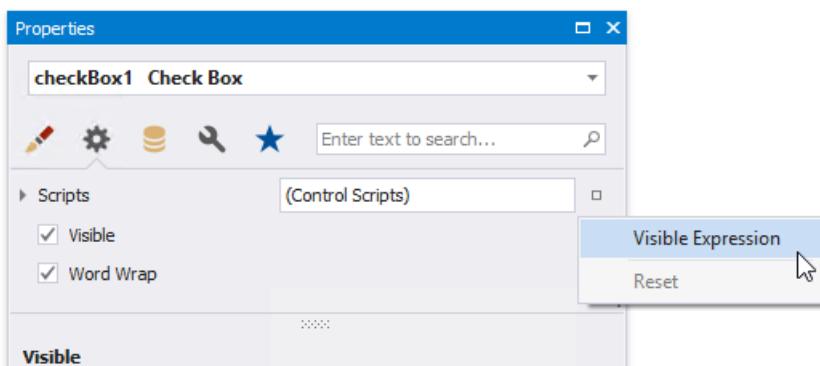
Conditionally Suppress Controls

This document describes how to display or hide a report control in a published document based on a specified logical condition.

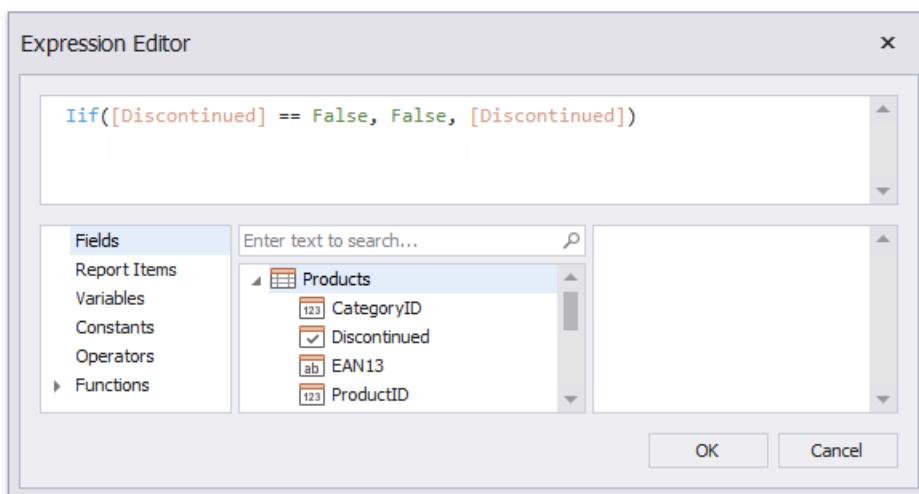
1. Create a new report or open an existing one and prepare the report layout.



2. Select the required control and switch to the **Property Grid**. Open the **Behavior** tab, click the **Visible** property's marker and select **Visible Expression** in the context menu.



3. In the invoked **Expression Editor**, specify the required expression.



Use the **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 is disabled.

When switching to **Print Preview**, you can view the report control's visibility changes according to the assigned condition.

Pavlova	
Mishi Kobe Niku	<input checked="" type="checkbox"/> True
Gula Malacca	
Flotemysost	
Gudbrandsdalost	
Singaporean Hokkien Fried Mee	<input checked="" type="checkbox"/> True
Rössle Sauerkraut	<input checked="" type="checkbox"/> True
Teatime Chocolate Biscuits	

NOTE

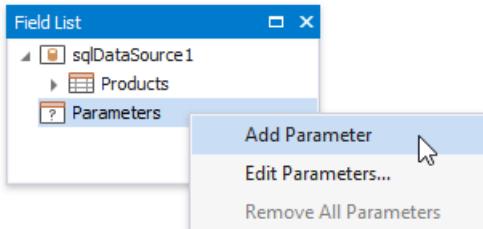
See [Hide Table Cells](#) to learn how to conditionally suppress table cells and define the mode for processing them.

Limit the Number of Records per Page

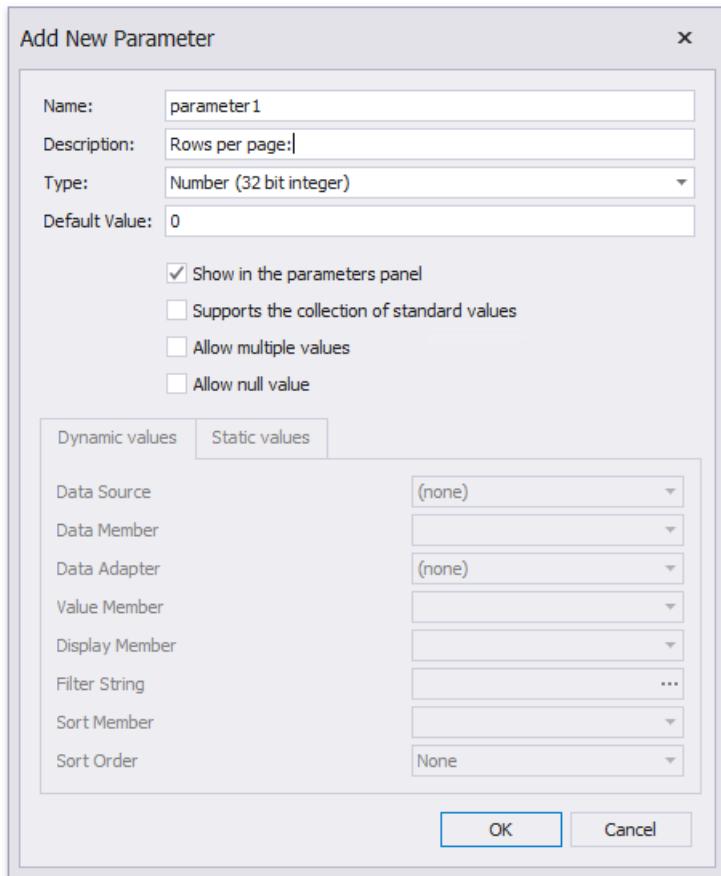
This document describes how to specify the number of data source records displayed on report pages.

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](#), right-click the **Parameters** section and add a new report parameter.

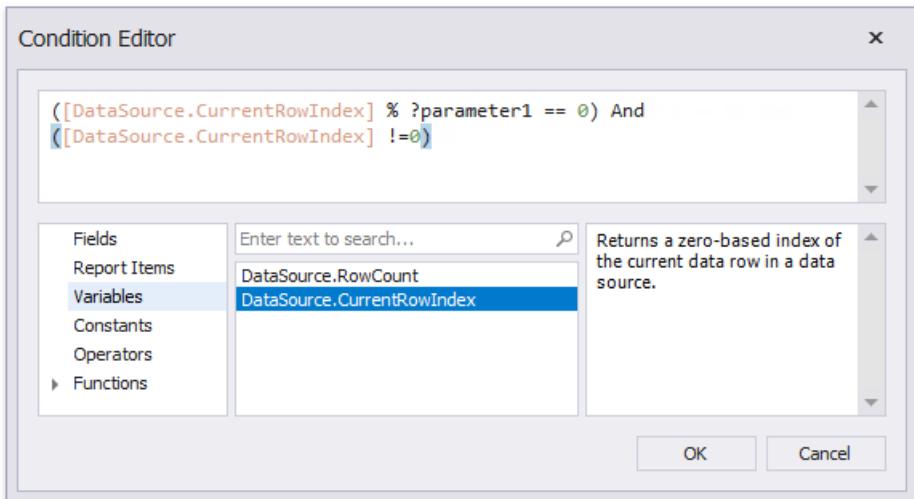


2. Specify the parameter's description displayed in Print Preview and set its type to **Number (Integer)**.



3. Drop a [Page Break](#) control onto the report's detail band and switch to the [Property Grid](#). Open the **Behavior** tab, click the **Visible** property's marker and select **Visible Expression** in the context menu.

4. In the invoked **Expression Editor**, specify the required [expression](#).



For example:

([DataSource.CurrentRowIndex] % ?parameter1 == 0) And ([DataSource.CurrentRowIndex] !=0)

When switching to [Print Preview](#), you can specify how many rows each report page should display by entering the corresponding parameter value:

Parameters

Rows per page:

Product Name	Quantity Per Unit	Unit Price
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Aniseed Syrup	12 - 550 ml bottles	\$10.00
Chef Anton's Cajun Seasoning	48 - 6 oz jars	\$22.00
Chef Anton's Gumbo Mix	36 boxes	\$21.35

Calculate Summaries

Topics in this section describe how to calculate summaries in a report.

- [Calculate a Summary](#)
- [Calculate a Weighted Average](#)
- [Calculate an Advanced Summary](#)

Calculate a Summary

This document shows how to use a report control's Expression property to calculate a group summary, as shown in the image below:

The screenshot shows a report designer interface. On the left, a table has two columns: "Unit Price" and "Units In Stock". The "Units In Stock" column contains two fields: "[UnitPrice]" and "[UnitsInStock]". A red arrow points from the "Label Tasks" panel to the preview area. The "Label Tasks" panel shows the following configuration:

Text	Label1
Expression	sumSum([UnitsInStock])
Format String	In Stock: {0} items
Summary	Group

AutoWidth
 CanGrow
 CanShrink
 Multiline
 WordWrap

The preview area shows a table of data with a summary row at the bottom:

Unit Price	Units In Stock
\$18.00	39
\$19.00	17
\$4.50	20
\$14.00	111
\$18.00	20
\$263.50	17
\$18.00	69
\$46.00	17
\$14.00	52
\$15.00	15
\$7.75	125
\$18.00	57
In Stock: 559 items	

Follow the steps below to calculate a summary:

1. Create a report [bound](#) to a data source.
2. Use the [Group and Sort Panel](#) to [group report data](#) by the key data field and construct a layout like the following:

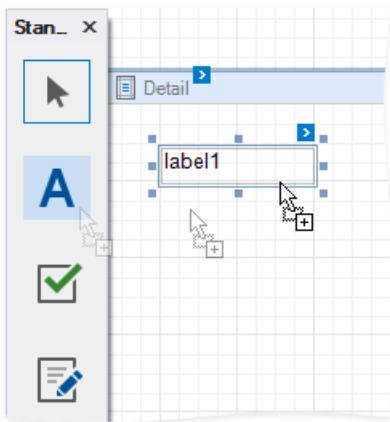
The screenshot shows a report design with a "GroupHeader1" containing a label with the text "[CategoryName]". Below it is a "Detail" section with three columns: "Product", "Unit Price", and "Units In Stock", each containing a field like "[ProductName]", "[UnitPrice]", and "[UnitsInStock]". At the bottom is a "Group and Sort" panel with the following configuration:

Add a Group	Add a Sort	Delete	Move Up	Move Down
Field Name	Sort Order	Show Header	Show Footer	
CategoryName	Ascending	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

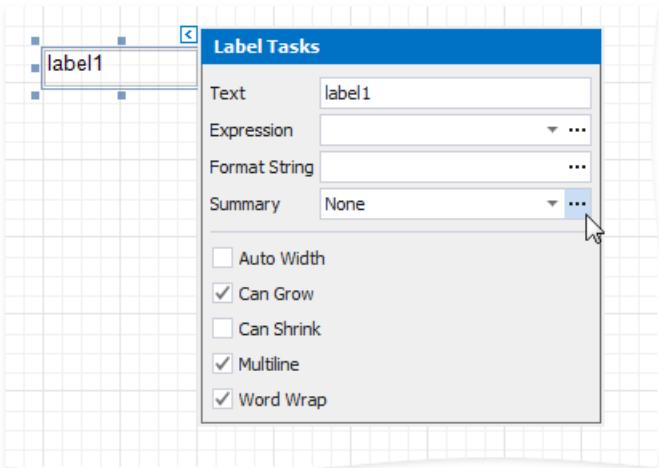
3. Right-click the report's **Detail** band and select **Insert Band / Group Footer** from the context menu.

The screenshot shows a context menu for the "Detail" band. The "Insert Sub-Band" option is highlighted. A secondary menu appears, listing "TopMargin", "ReportHeader", "PageHeader", "GroupHeader", "Detail", "GroupFooter", "ReportFooter", "PageFooter", and "BottomMargin". The "GroupFooter" option is also highlighted.

4. Drop a **Label** control onto the **Group Footer** band.

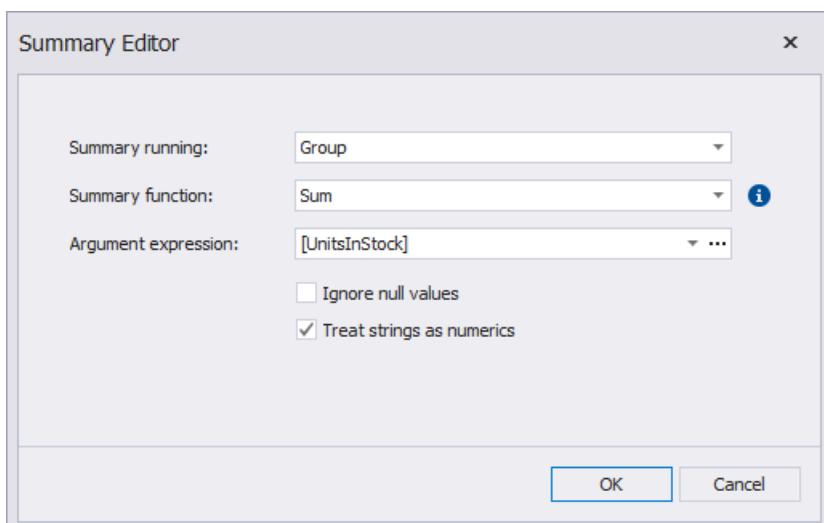


5. Click the label's smart tag, then click the **Summary** field's ellipsis button to open the **Summary Editor** form.



6. In the **Summary Editor** form, use the following options:

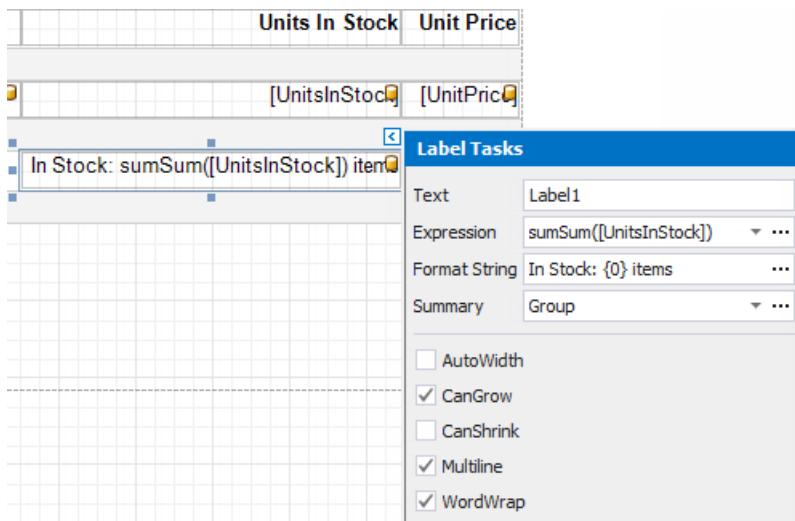
- **Summary running** - specifies summary calculation range (the entire report, current report group, or current document page).
- **Summary function** - specifies a summary function.
- **Argument expression** - specifies a data field or a complex expression.



TIP

See the [Expression Operators, Functions and Constants](#) topic for a complete list of supported summary functions.

7. You can use the **Format String** property to format the summary value:



Switch to Print Preview mode to see the result:

Beverages			
Product	Unit Price	Units In Stock	
Chai	\$18.00	39	
Chang	\$19.00	17	
Guaraná Fantástica	\$4.50	20	
Sasquatch Ale	\$14.00	111	
Steeleye Stout	\$18.00	20	
Côte de Blaye	\$263.50	17	
Chartreuse verte	\$18.00	69	
Ipoh Coffee	\$46.00	17	
Laughing Lumberjack Lager	\$14.00	52	
Outback Lager	\$15.00	15	
Rhönbräu Klosterbier	\$7.75	125	
Lakkalikööri	\$18.00	57	
In Stock: 559 items			

Calculate a Weighted Average

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
Lakkalikööni	\$18.00	57	\$1,026.00

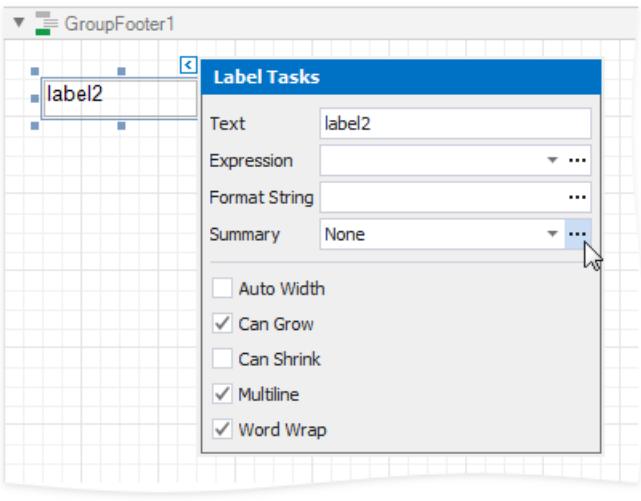
Weighted Average Price: \$22.33

Follow the steps below to calculate a weighted average:

1. Open an existing report or [create a new one from scratch](#).
2. Bind a report to a required data source.
3. Group the report's data using the [Group and Sort Panel](#) and construct a layout like the following:

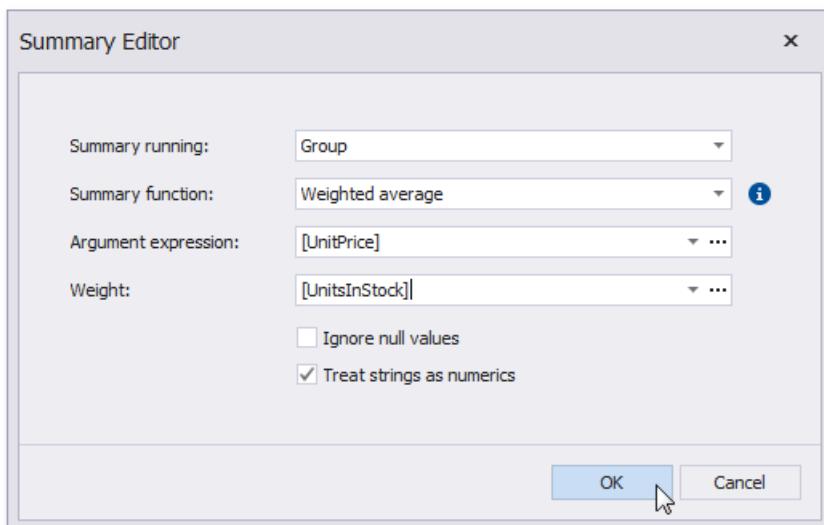
The screenshot shows the Report Designer interface. At the top is the Group Header section containing a label control with the placeholder text "[CategoryName]". Below it is the Detail section, which contains four text box controls labeled [ProductName], [UnitPrice], [UnitsInStock], and [ExtendedPrice]. At the bottom is the Group and Sort panel, which has a title bar "Group and Sort" and a table with columns for Field Name, Sort Order, Show Header, and Show Footer. A single row is selected in the table, showing "CategoryName" in the Field Name column and "Ascending" in the Sort Order column.

4. Add the [Group Footer](#) band to the report and drop a [Label](#) control on this band to display the summary result. Click the label's smart tag, then click the Summary field's ellipsis button.



5. In the invoked **Summary Editor** window:

- Set the **Summary Running** property to **Group**.
- Set the **Summary Function** property to **Weighed average**.
- Set the **Argument Expression** property to the field to count the weighted average on, and the **Weight** property to the field that provides weights.

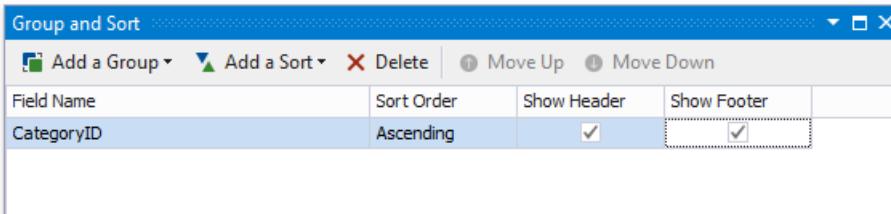


6. You can also use the control's **Format String** property to format the summary value. For instance, set this property to **Weighted Average Price: {0:c2}**.

Calculate an Advanced Summary

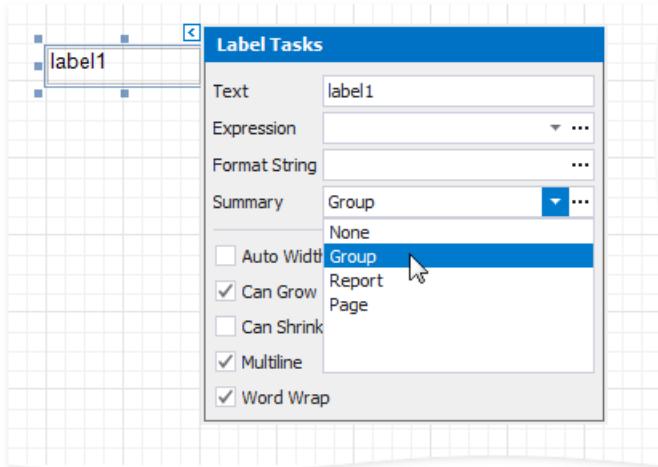
This document describes how to calculate an advanced summary for report groups using a built-in summary function and arithmetical or logical functions.

1. [Create a new report](#) or open an existing one and [bind it to a data source](#).
2. Switch to the [Group and Sort](#) panel and group the report's data by the required field. Display the footer for the created group.

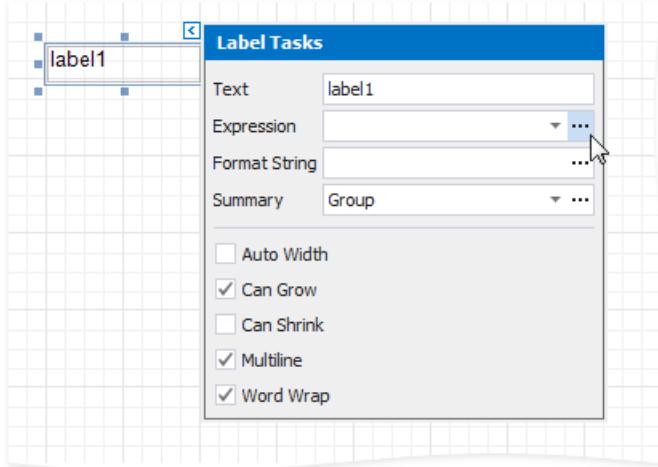


3. Drop a [Label](#) onto the group footer to display the summary result.

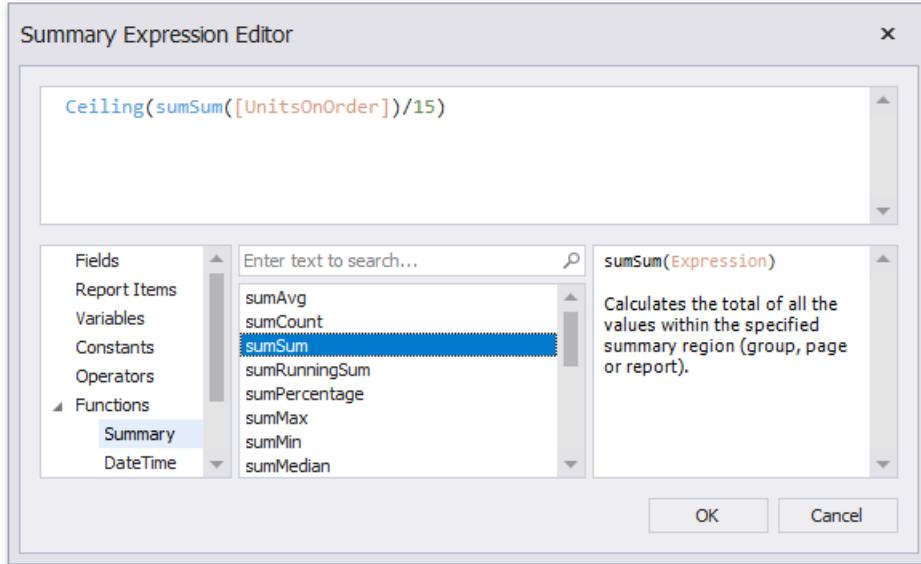
Click the label's smart tag and set its **Summary** property to **Group**.



4. Click the **Expression** property's ellipsis button.



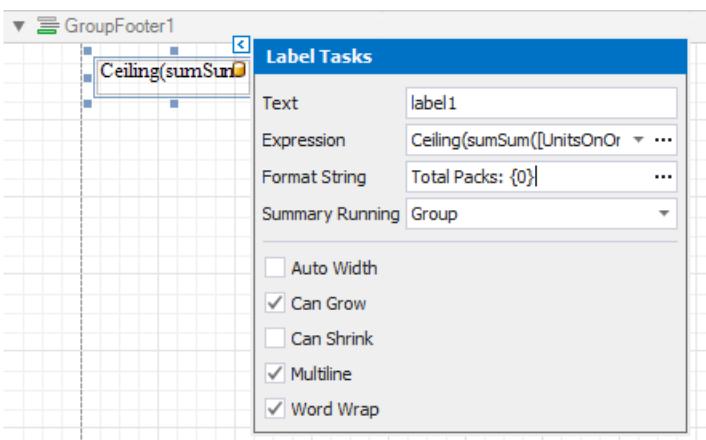
5. This invokes the **Summary Expression Editor** where you can specify a custom expression with the required summary functions and other logical or arithmetical functions. For example:



TIP

See the [Expression Constants, Operators, and Functions](#) topic for a complete list of supported summary functions.

6. You can use the **Format String** property to format the summary's value.



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

Product Category ID: 1

Product Name	Units On Order
---------------------	-----------------------

Chang	40
Ipooh Coffee	10
Outback Lager	10

Total Packs: 4

Product Category ID: 2

Product Name	Units On Order
---------------------	-----------------------

Aniseed Syrup	70
Louisiana Hot	100
Spiced Okra	

Total Packs: 12

Count Elements and Values

Topics in this section show how to count report elements or data source values.

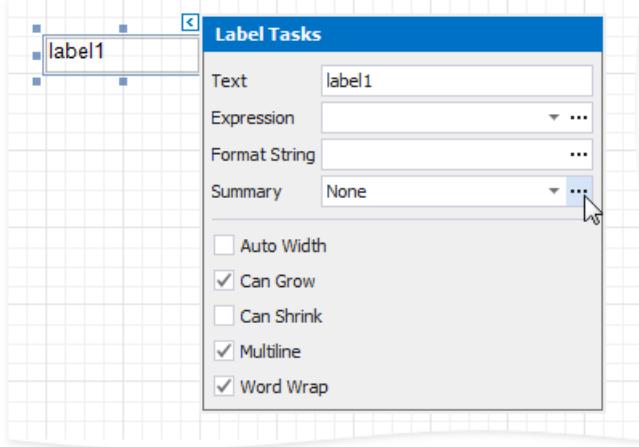
- [Count the Number of Records in a Report or Group](#)
- [Count the Number of Groups in a Report](#)
- [Display Row Numbers in a Report, Group or Page](#)

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.

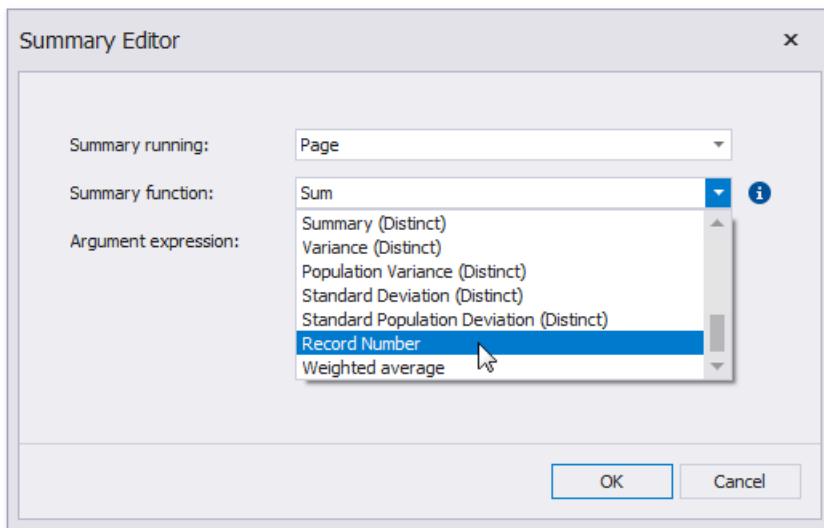
A label can display row numbers after [binding your report to data](#) and specifying a bound data field in the Label's **Expression** property.

1. Click the label's smart tag. In the invoked **Label Tasks** window, click the **Summary** property's ellipsis button.

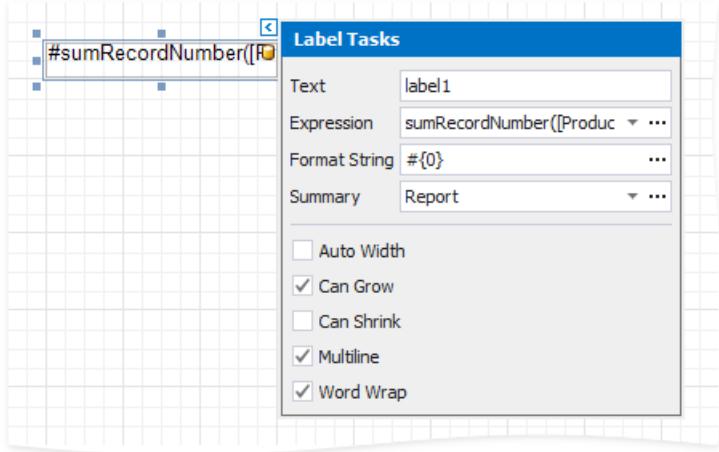


2. In the Summary Editor window:

- o Set the **Summary running** property. Select **Report** to increment the row numbers throughout the entire report, or select **Group** or **Page** to reset the row numbers for every group or page.
- o Set the **Summary function** property to **Record Number**.



3. Back in the **Label Tasks** window, you can use the **FormatString** property to format the resulting value:



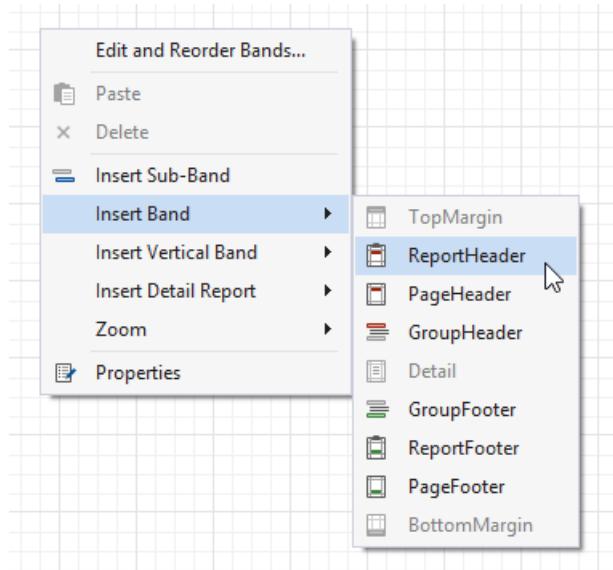
You can switch to [Print Preview](#) to see the record numbers displayed for the specified range.

#	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.

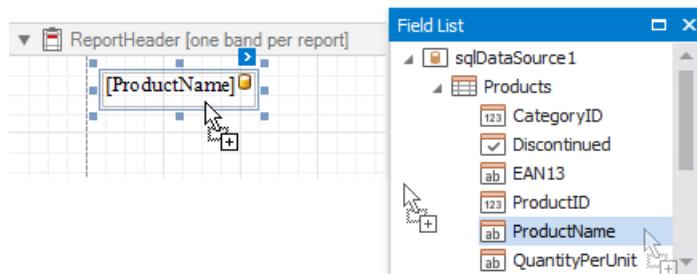
1. Right-click the report's design surface and add a Report Header or Footer to display the record count for the entire report.



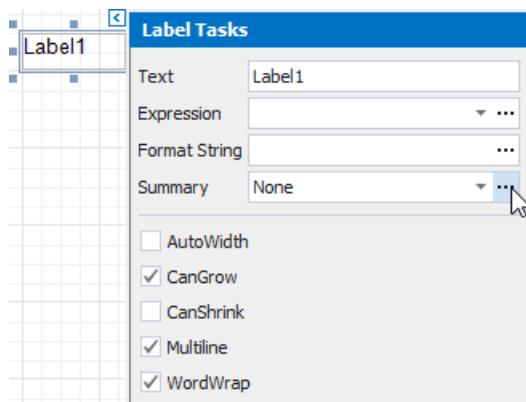
i NOTE

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](#) and drop the corresponding data table field onto the created band to create a data-bound label.



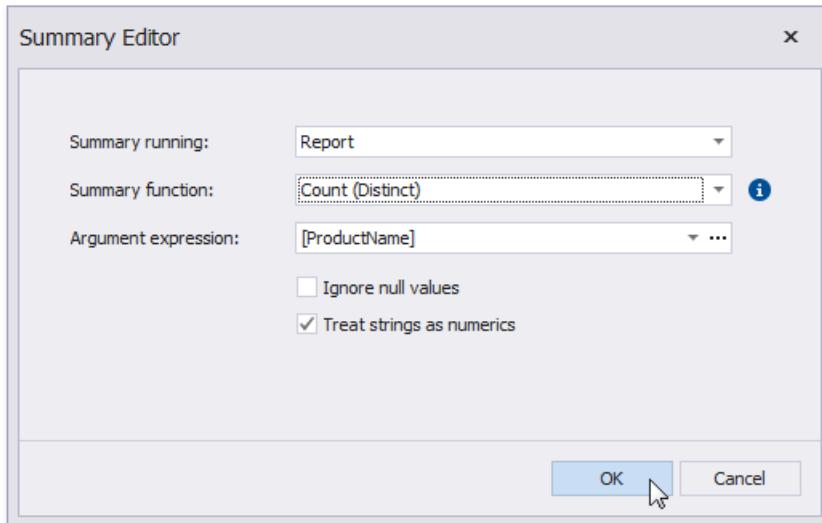
3. Click the label's smart tag. In the invoked Label Tasks window, click the **Summary** field's ellipsis button.



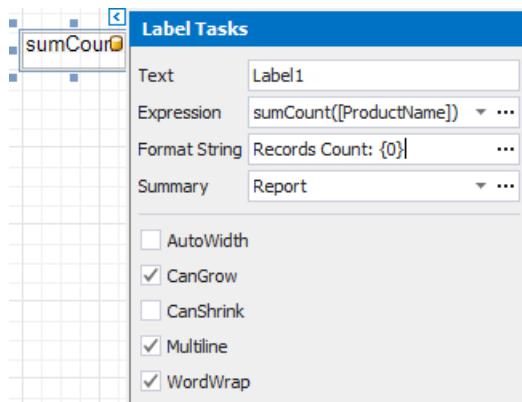
4. In the **Summary Editor** window:

- o Set the **Summary** property. Select **Report** to count the records throughout the entire report, or select **Group** or **Page** to reset the record count for every group or page.
- o Set the **Summary function** property to **DCount**.

- o Set the **Argument Expression** property to the data field you need to count.



5. Back in the **Label Tasks** window, you can use the **Format String** property to format the resulting value:



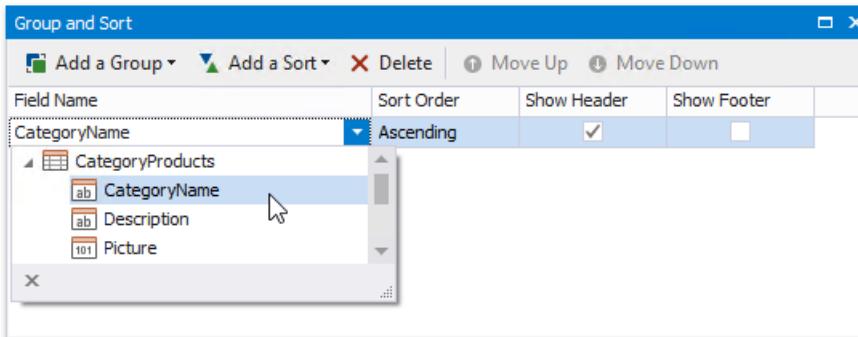
You can switch to [Print Preview](#) to see the resulting report.

The screenshot shows the 'Print Preview' window. It displays a list of product names. At the top, it says 'Record count: 77'. Below that is a list of products: Chai, Chang, Aniseed Syrup, Chef Anton's Cajun Seasoning, Grandma's Boysenberry Spread, Uncle Bob's Organic Dried Pears, Northwoods Cranberry Sauce, and Ikura.

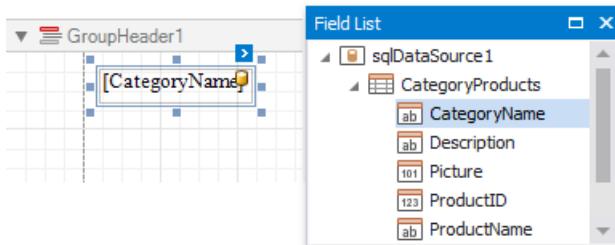
Count the Number of Groups in a Report

This document describes how to count the number of groups in a report.

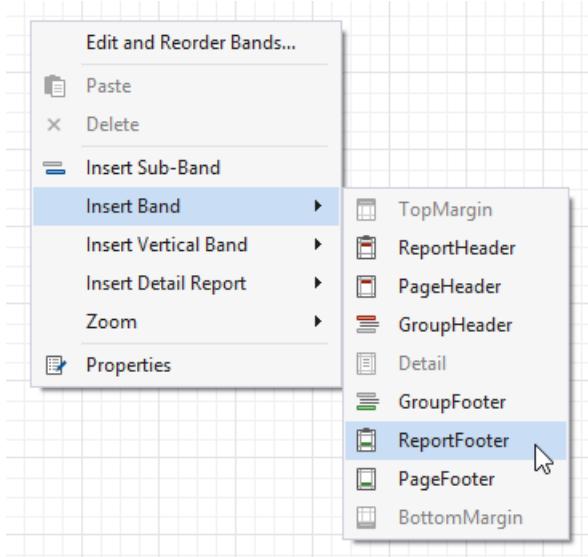
1. Switch to the [Group and Sort](#) panel and create a new group. Enable the **Show Header** option to display the Group Header in the report.



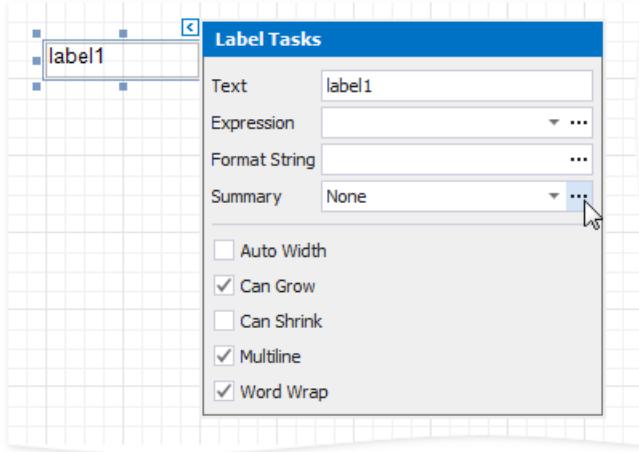
2. Switch to the [Field List](#) and drop the group field onto the created Group Header.



3. Right-click the report's surface and add a Report Footer to the report.

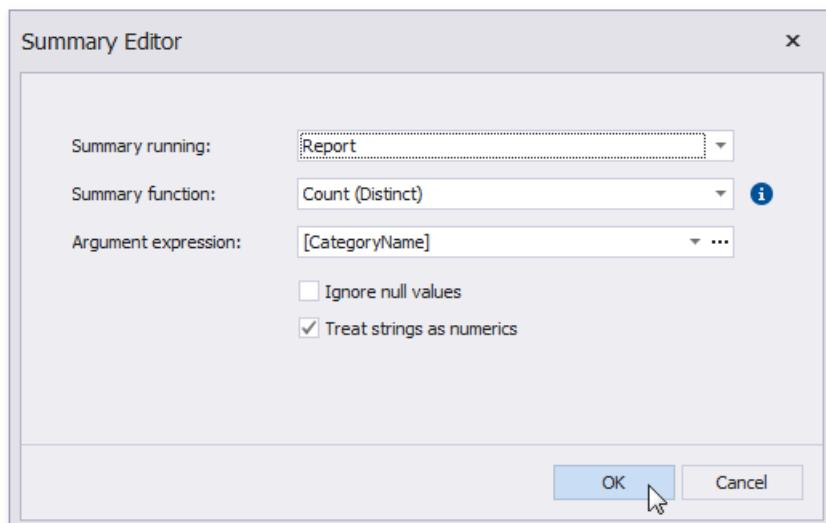


4. Drop a label onto the Report Footer and click its smart tag. In the invoked **Label Tasks** window, click the **Summary** property's ellipsis button.

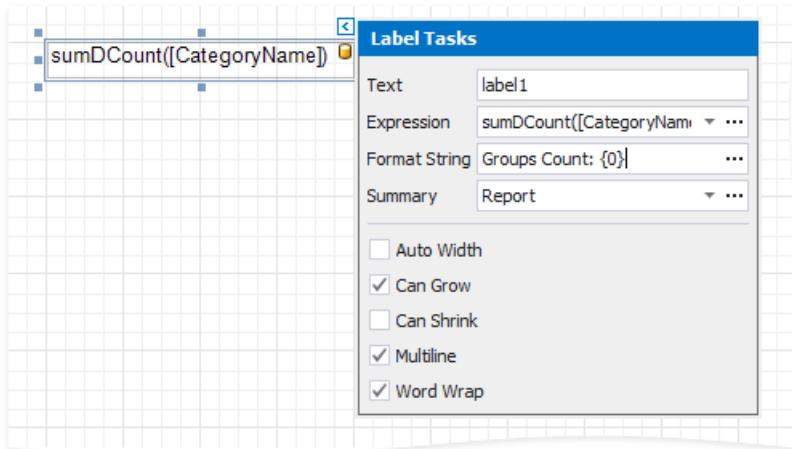


5. In the Summary Editor window:

- o Set the **Summary running** property to the **Report** value.
- o Set the **Summary function** property to **Count (Distinct)**.
- o Set the **Argument expression** property to the field you group the data by.



1. Back in the **Label Tasks** window, you can use the **Format String** property to format the summary's value:



You can see the group count in the report footer when switching to [Print Preview](#).

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:

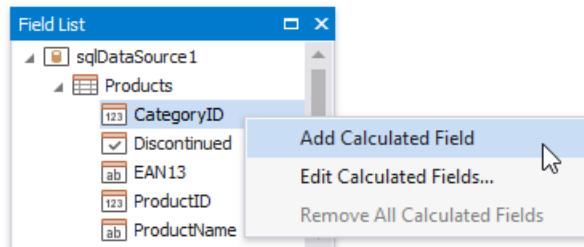
- [Calculated Fields Overview](#)
- [Calculate an Aggregate Function](#)

Calculated Fields Overview

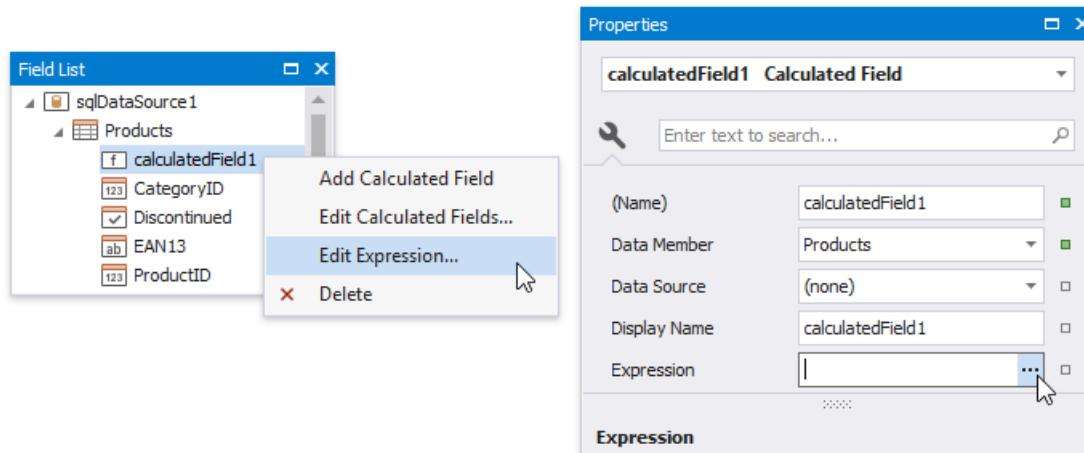
Calculated fields allow you to pre-process a report's input data, based on a certain expression. So, using calculated fields allows you to apply complex expressions to one or more data fields that are obtained from your report's underlying data source. Moreover, you can both [group](#) and [sort](#) your report data based on a calculated field's value.

Calculated Fields Overview

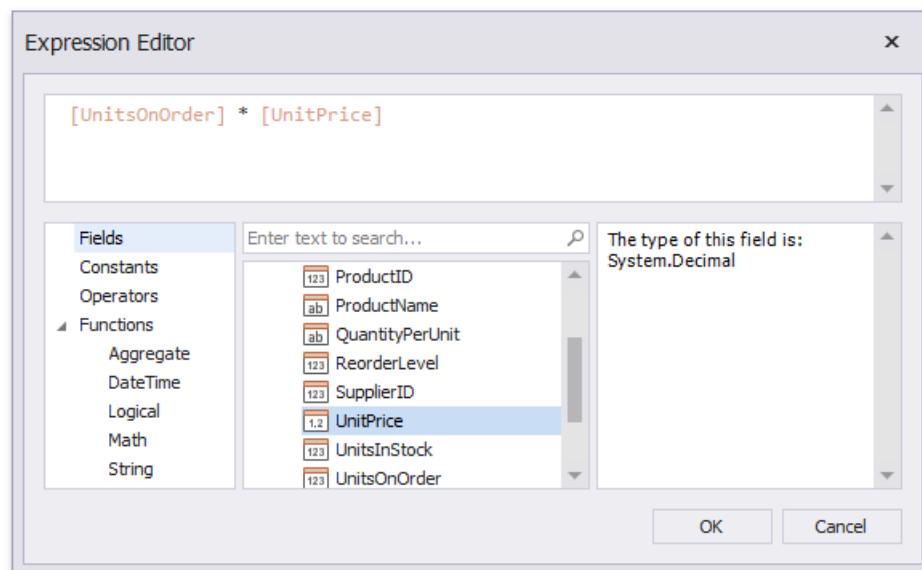
To create a calculated field, switch to the [Field List](#), right-click any item inside the data source and select **Add Calculated Field**.



Right-click the calculated field in the [Field List](#) and select **Edit Expression**. Alternatively, you can select the calculated field, and in the [Property Grid](#), click the **Expression** property's ellipsis button.



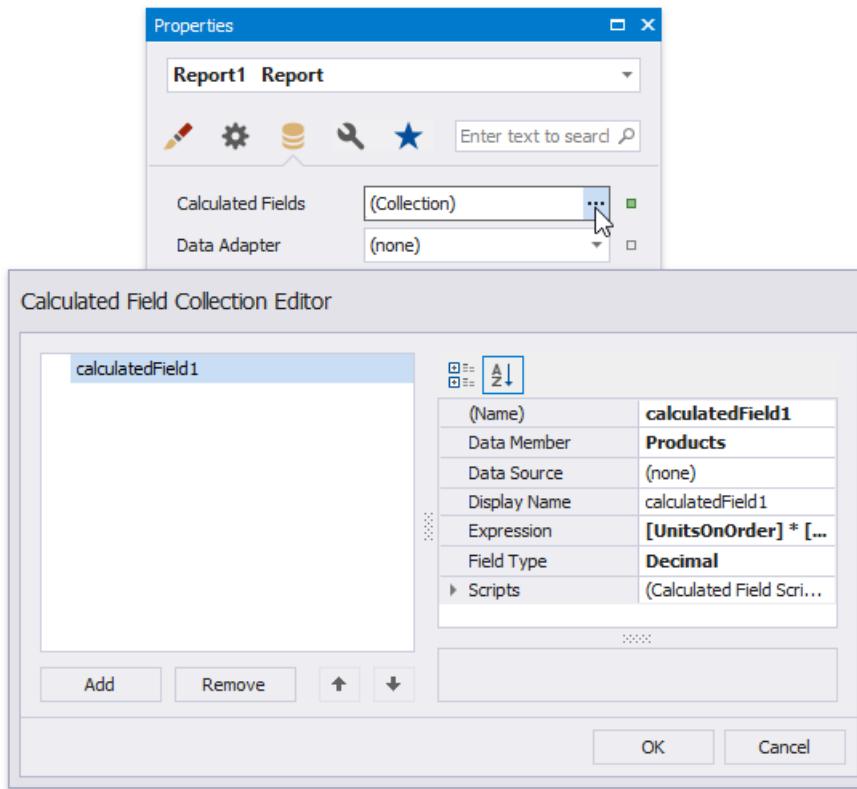
In the invoked **Expression Editor**, construct the required expression. You can use data fields, [report parameters](#), predefined constants as well as various date-time, logical, math and string functions. See the next document section for more information about expression syntax.



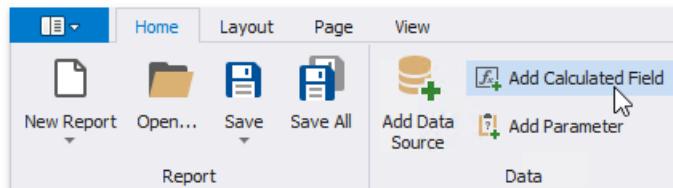
NOTE

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.

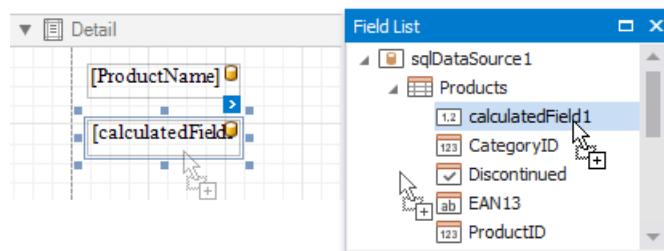
The report's **Calculated Fields** property provides access to the calculated field collection.



You can click the **Add Calculated Field** button in the **Toolbar's Home tab** to invoke the **Calculated Field Collection Editor**.



You can drag the calculated field from the **Field List** onto the required band like an ordinary data field.



You can also group and sort your report data based on the calculated field values.

Expression Syntax

A data field is inserted into the expression's text using its name in **[square brackets]**, and parameters are inserted using a question mark before their names.

A calculated field's expression can evaluate the values of other calculated fields if you make sure to avoid circular references.

Date-time constants must be wrapped in hashtags (#) (e.g., **[OrderDate]** >= #1/1/2009#). To represent a null reference (one that does not refer to any object), use a question mark (e.g., **[Region]** != ?). To denote strings, use apostrophes ('), otherwise an error will occur.

To embed an apostrophe into an expression's text, it should be preceded by another apostrophe (e.g., 'It''s sample text').

The type of a value returned by a calculated field is defined by its **Field Type** property.

If a calculated field expression involves the use of different types, it is necessary to convert them to the same type (e.g., **Max(ToDecimal([Quantity]),[UnitPrice])**)

Although a value that is returned by a calculated field is usually converted to a string (to be displayed in a text-aware report control), it can return a value of any kind. For example, if a database field contains an image, you can set a calculated field's expression to "=...", after which this calculated field can be bound to the [Picture Box](#) control.

To construct a valid aggregate expression, use the following format, which consists of four parts.

[<Collection>][<Condition>].<Aggregate>(<Expression>)

- <Collection> - Specifies a collection against which an aggregated value should be calculated. It can be the relationship name in a case of a master-detail relationship, or the name of a collection property exposed by the target class. For example, **[CategoriesProducts][[CategoryId]>5].Count()**. Empty brackets [] indicate the root collection.
- <Condition> - Specifies a condition defining which records should participate in calculating an aggregate function. To obtain an aggregated value against all records, delete this logical clause along with square brackets (for example, **[]**.Count()).
- <Aggregate> - Specifies one of the available aggregate functions.
- <Expression> - Specifies an expression evaluating values to be used to perform calculation. For example, **[[[CategoryID] > 5].Sum([UnitPrice]*[Quantity])**. The **Count** function does not require field values to count the records, so leave the round brackets empty for this function.

You can refer to the currently processed group using the Parent Relationship Traversal Operator (^). This allows you to calculate aggregates within groups using expressions like the following: **[[[^.CategoryID] == [CategoryID]].Sum([UnitPrice])**.

For more information, see [Expression Syntax](#).

Examples

The following tutorials demonstrate the use of calculated fields in various environments:

- [Calculate an Aggregate Function](#)
- [Calculate a Weighted Average Function](#)
- [Sort Data by a Custom Field](#)
- [Group Data by a Custom Field](#)

Calculate an Aggregate Function

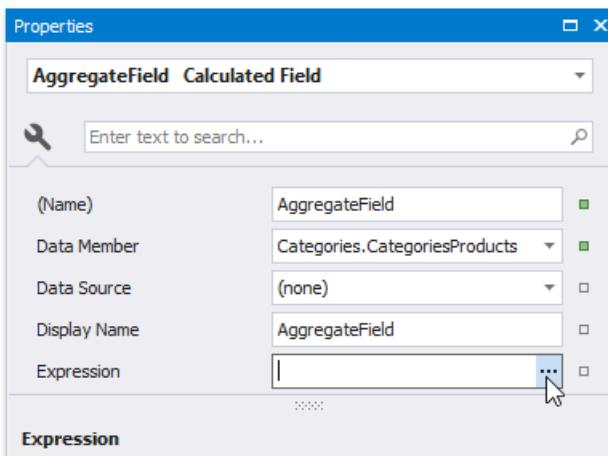
This tutorial describes the steps required to create a report with an *aggregate function*. In this example, products that are not discontinued and have a total unit value greater than \$500 will be displayed.

1. Create a new or open an existing data-bound report. This tutorial starts with the following report layout:

The screenshot shows a report layout with a table. The table has five columns: Product Name, Units in Stock, Unit Price, Total Unit Value, and Discontinued. The table is contained within a ReportHeader section and a Detail1 section. The table structure is as follows:

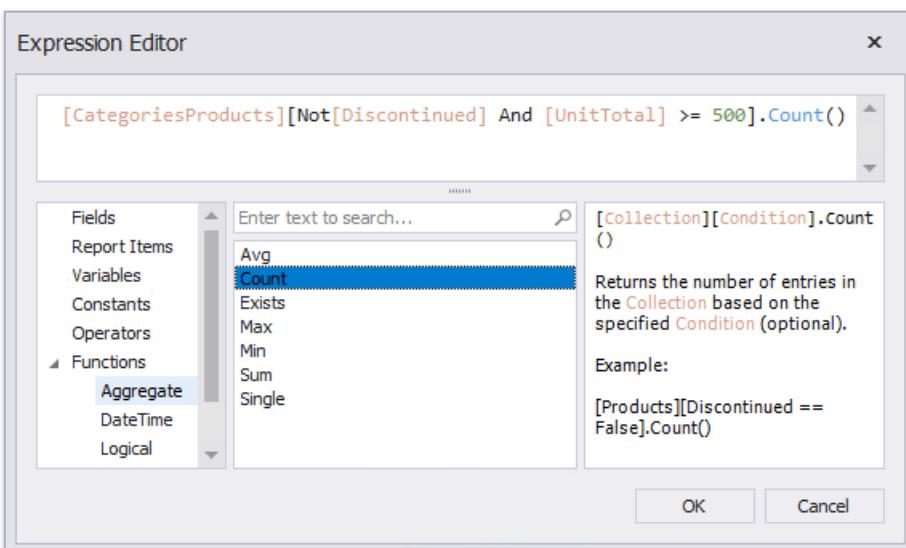
Product Name	Units in Stock	Unit Price	Total Unit Value	Discontinued
[CategoriesProducts.ProductName]	[CategoriesP]	[CategoriesProdu]	[CategoriesProd]	[CategoriesProd]

2. Create a new **calculated field** and set the field name to "AggregateField".
3. Select the calculated field, switch to the **Property Grid** and click the **Expression** property's ellipsis button.



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 Syntax](#).

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:

Product Name	Units in Stock	Unit Price	Total Unit Value	Discontinued
[CategoriesProducts.ProductName]	[CategoriesP]	[CategoriesProd]	[CategoriesProd]	[CategoriesProd]

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

Use Report Parameters

Report parameters pass data to a report before it is generated in **Preview**. You can specify parameter values.

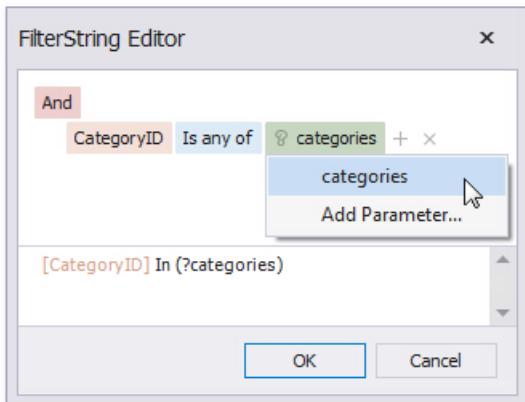
The topics in this section describe how to create report parameters of different types and specify their values:

- [Create a Report Parameter](#)
- [Report Parameters with Predefined Static Values](#)
- [Report Parameters with Predefined Dynamic Values](#)
- [Multi-Value Report Parameters](#)
- [Cascading Report Parameters](#)
- [Date Range Report Parameters](#)

Use report parameters in the following cases:

- **In Filter Strings**

Report parameters can be referenced in a filter string.



TIP

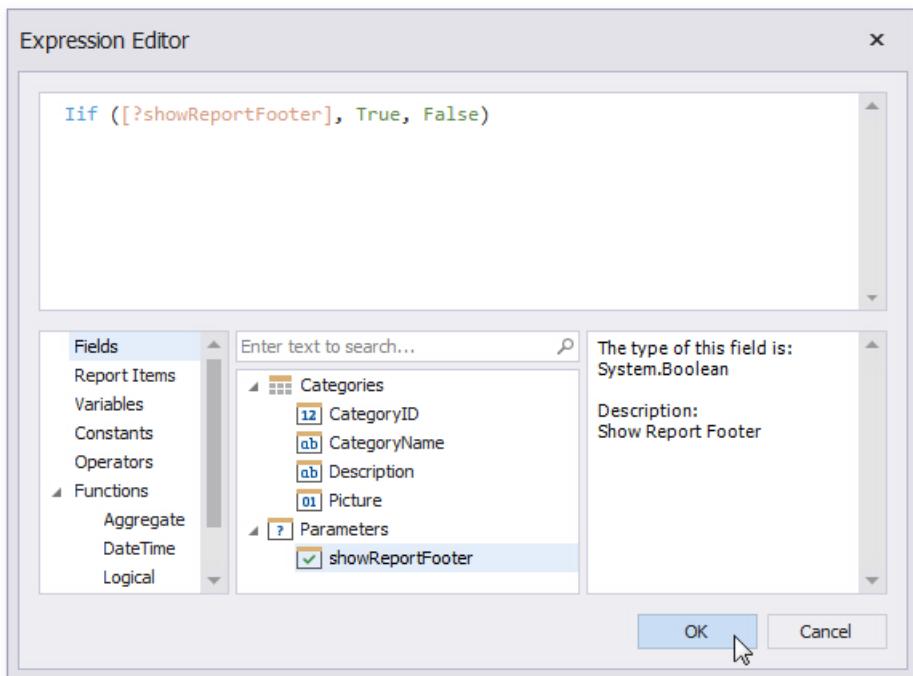
Data can be filtered:

- On the report level. All data is loaded from the data source before a filter is applied.
- On the data source level. Only the filtered data is loaded. See [Filter Data at the Data Source Level](#) for more information.

- **In Expressions**

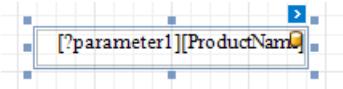
You can create a report parameter and use it in expressions. For instance, you can do the following:

- Specify a [calculated field](#)'s value.
- [Bind](#) a control to data.
- Conditionally change a band's [visibility](#) or a control's appearance.



- **In Mail Merge**

You can use a report parameter in a control's text.



- **As a Value Source for Control Parameters**

The following controls have internal collections of parameters. You can bind these internal parameters to report parameters.

- **Cross Tab**

Use [cross-tab parameters](#) to filter data or change control appearance.

- **Chart**

Filter chart data by parameters.

- **Subreport**

Use the control's parameters collection to specify parameter values in the report that the **Subreport** control references.

- **As a Value Source for Data Source Parameters**

The following data sources have internal collections of parameters. You can bind these internal parameters to report parameters to make them dependent on an external value.

- **Database**

Use [query parameters](#) to filter data on the database level or pass values to a stored procedure.

- **JSON**

Use path, query, and header parameters to configure HTTP requests to the web service endpoint.

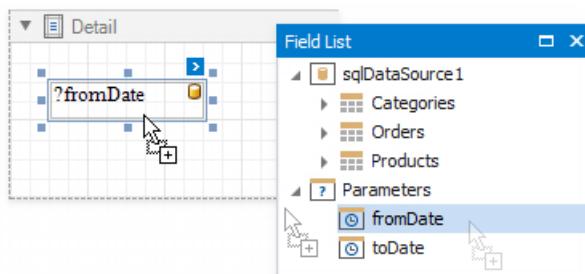
- **Object**

Use object data source parameters to pass variables to the method that fetches data.

- Entity Framework

Use Entity Framework data source parameters to pass variables to the method that fetches data.

- Display a Report Parameter Value in a Report Explicitly



Wherever you specify a parameter name, prefix it with the question mark character.

This screenshot displays two overlapping windows from the Report Designer. The top window is the 'FilterString Editor' with the title 'And' at the top. It contains two filter conditions: '[CategoryID] Is any of ?parameter1' and '[CategoryID] In (?parameter1)'. Both parts of the second condition are underlined in red, indicating they are being edited. Below these filters are 'OK' and 'Cancel' buttons. The bottom window is the 'Expression Editor' with the title 'Expression Editor'. It shows a code snippet: 'If ([?showReportFooter], True, False)'. A portion of the word 'showReportFooter' is also underlined in red. On the left side of the Expression Editor, there's a 'Fields' list containing 'Report Items', 'Variables', 'Constants', 'Operators', 'Functions' (with 'Aggregate', 'DateTime', and 'Logical' listed), and 'Parameters' (with 'showReportFooter' listed). The 'Parameters' section is expanded, showing 'Categories' (with 'CategoryID', 'CategoryName', 'Description', and 'Picture' listed) and 'Parameters' (with 'showReportFooter' listed). The 'showReportFooter' item is highlighted with a blue selection bar. To the right of the fields list, there's a search bar ('Enter text to search...') and a detailed description area: 'The type of this field is: System.Boolean' and 'Description: Show Report Footer'. At the bottom of the Expression Editor are 'OK' and 'Cancel' buttons.

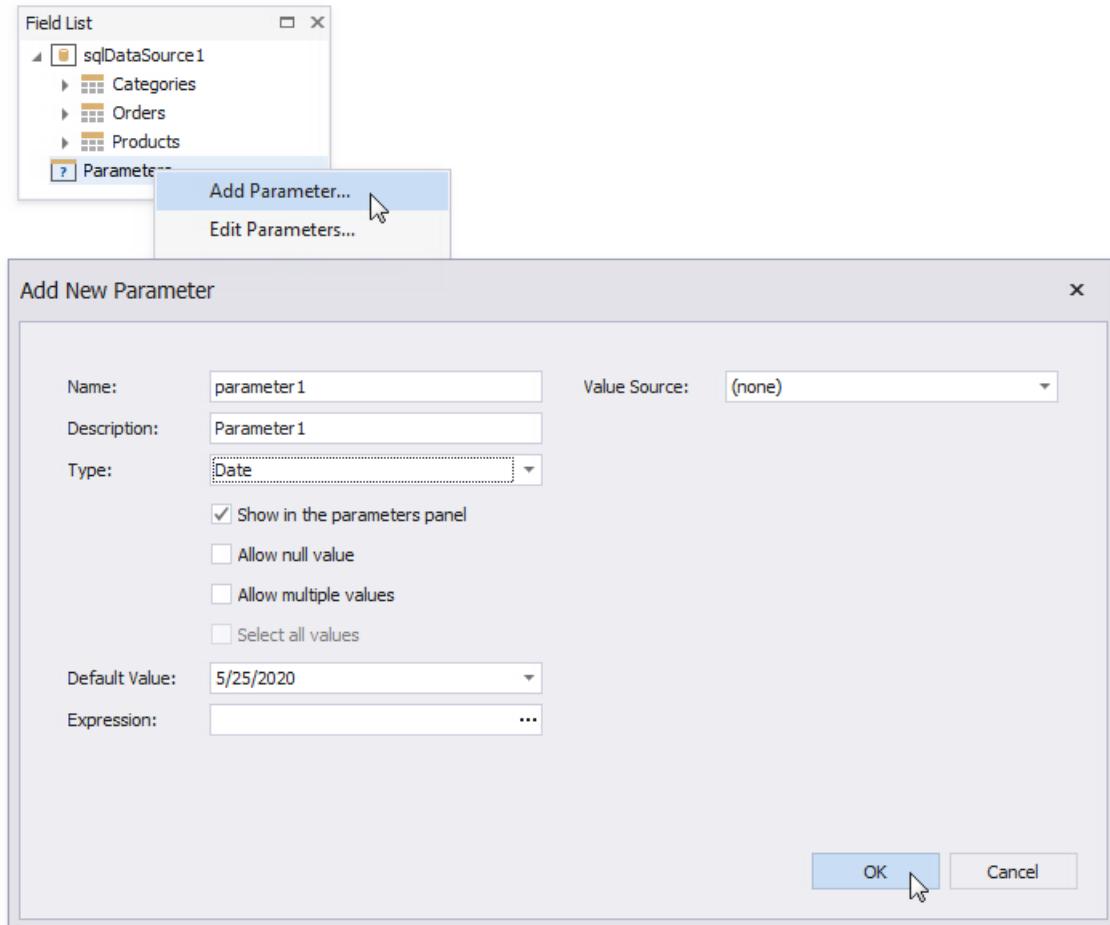
Create a Report Parameter

This topic describes how to create a basic report parameter and specify its value.

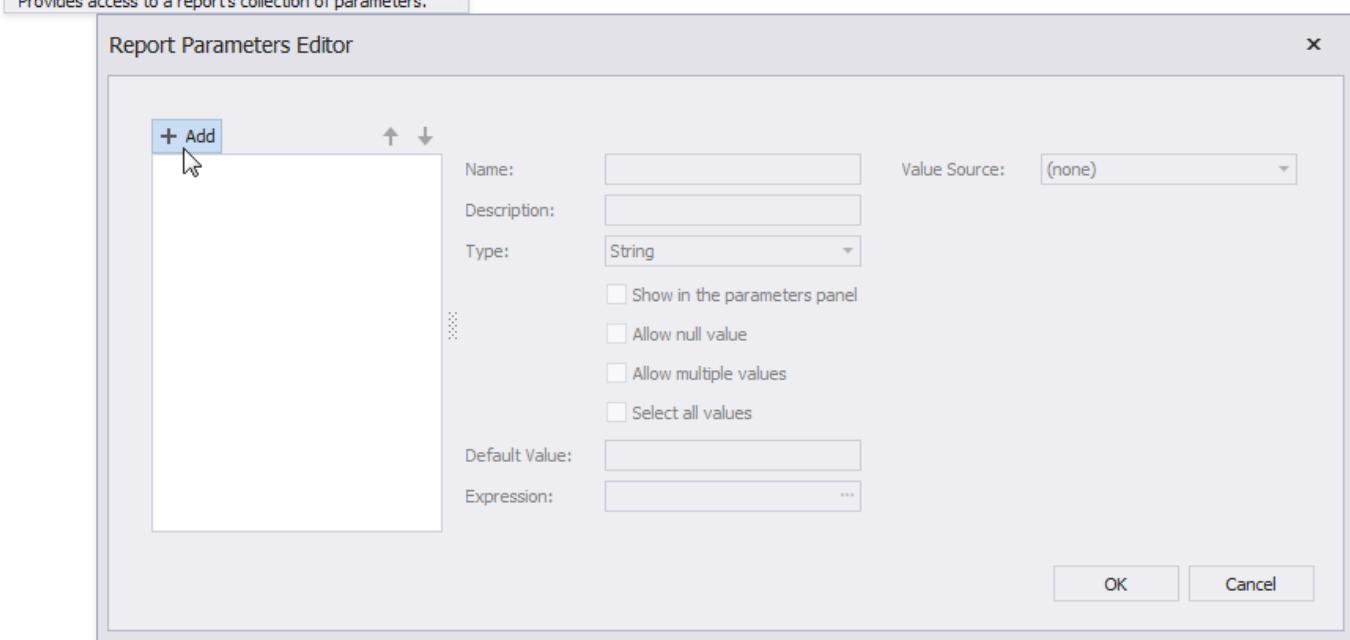
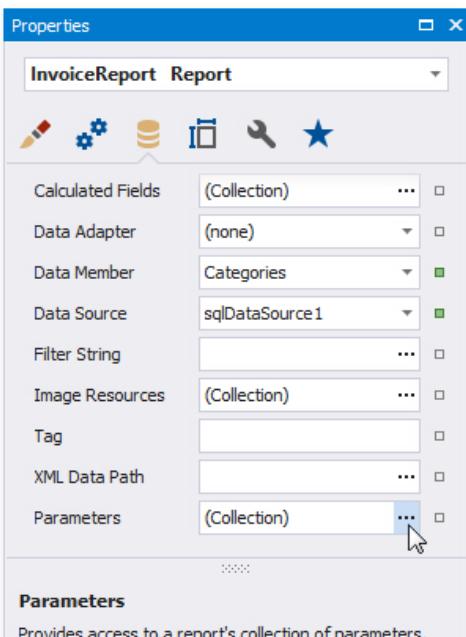
Create a Parameter

The Report Designer offers multiple ways to create a parameter:

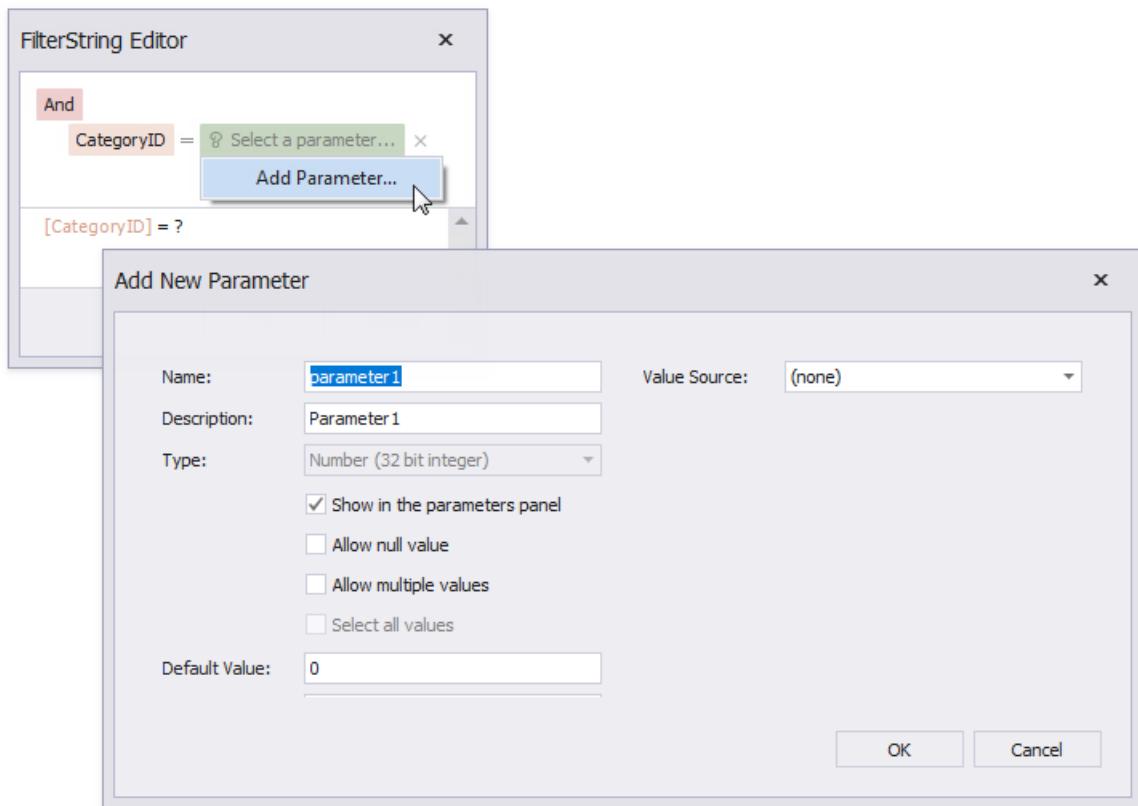
- Right-click **Parameters** in the the [Field List](#) and select **Add Parameter** from the context menu.



- Select the report and click the **Parameters** property's ellipsis button in the [Property Grid](#). Click **Add** in the invoked **Report Parameters Editor** dialog.



- Create a parameter in-place in dialogs and wizards. The image below shows how to create a parameter in a [FilterString Editor](#). Select **Add Parameter** from the context menu when you construct a condition.

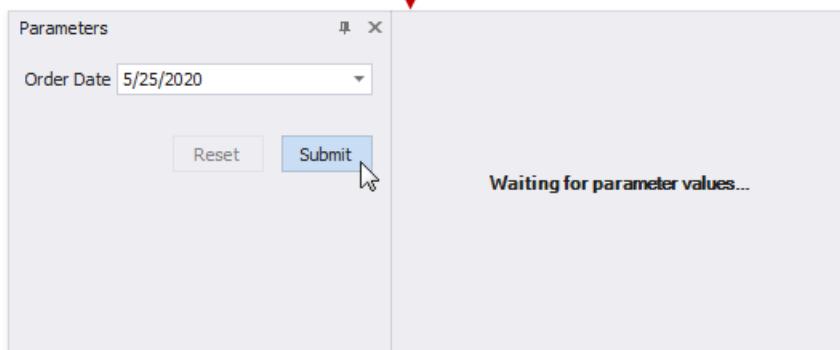
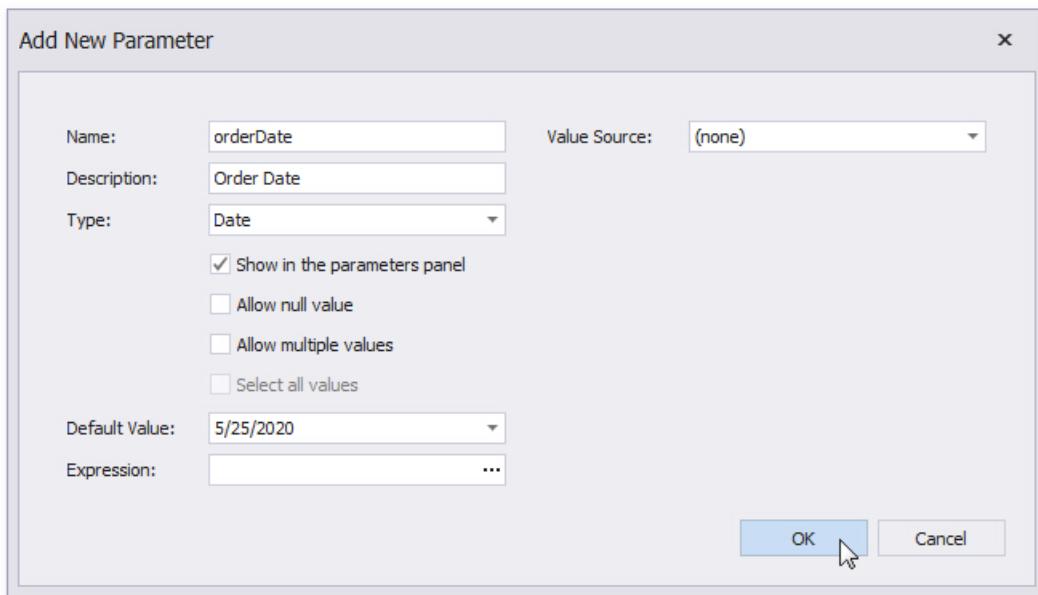


Specify the following basic options:

OPTION	DESCRIPTION
Name	A parameter should have a unique name. You can use this name to refer to this parameter in expressions and filter strings.
Type	Specifies which values a parameter can accept.
Default Value or Expression	Specifies a parameter's value. Expressions can include data source fields or other parameters. When evaluated, expressions are parsed and processed to obtain a value.

Use the Parameters Panel to Ask for User Input

Enable the **Show in the parameters panel** option to make your report interactive. The Preview displays the **Parameters** panel that shows editors for report parameters marked as visible. This allows you to specify a value before the report is rendered. Specify the parameter's **Description** to display the editor's caption in the **Parameters** panel.

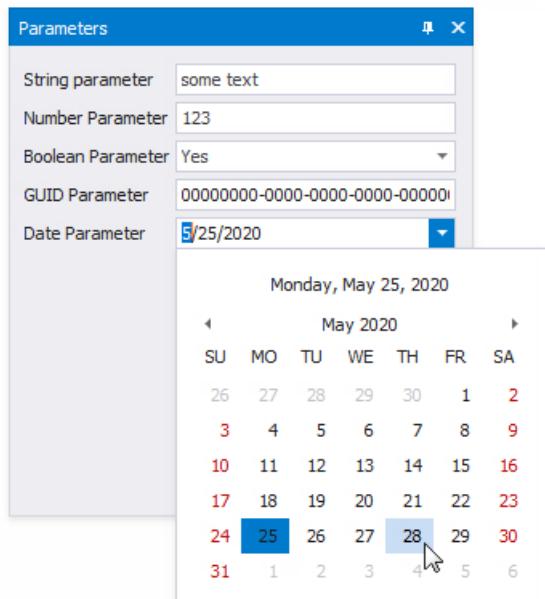


TIP

Disable the report's **Request Parameters** property to avoid the **Waiting for parameter values** message in **Preview** and display the report with default parameter values.

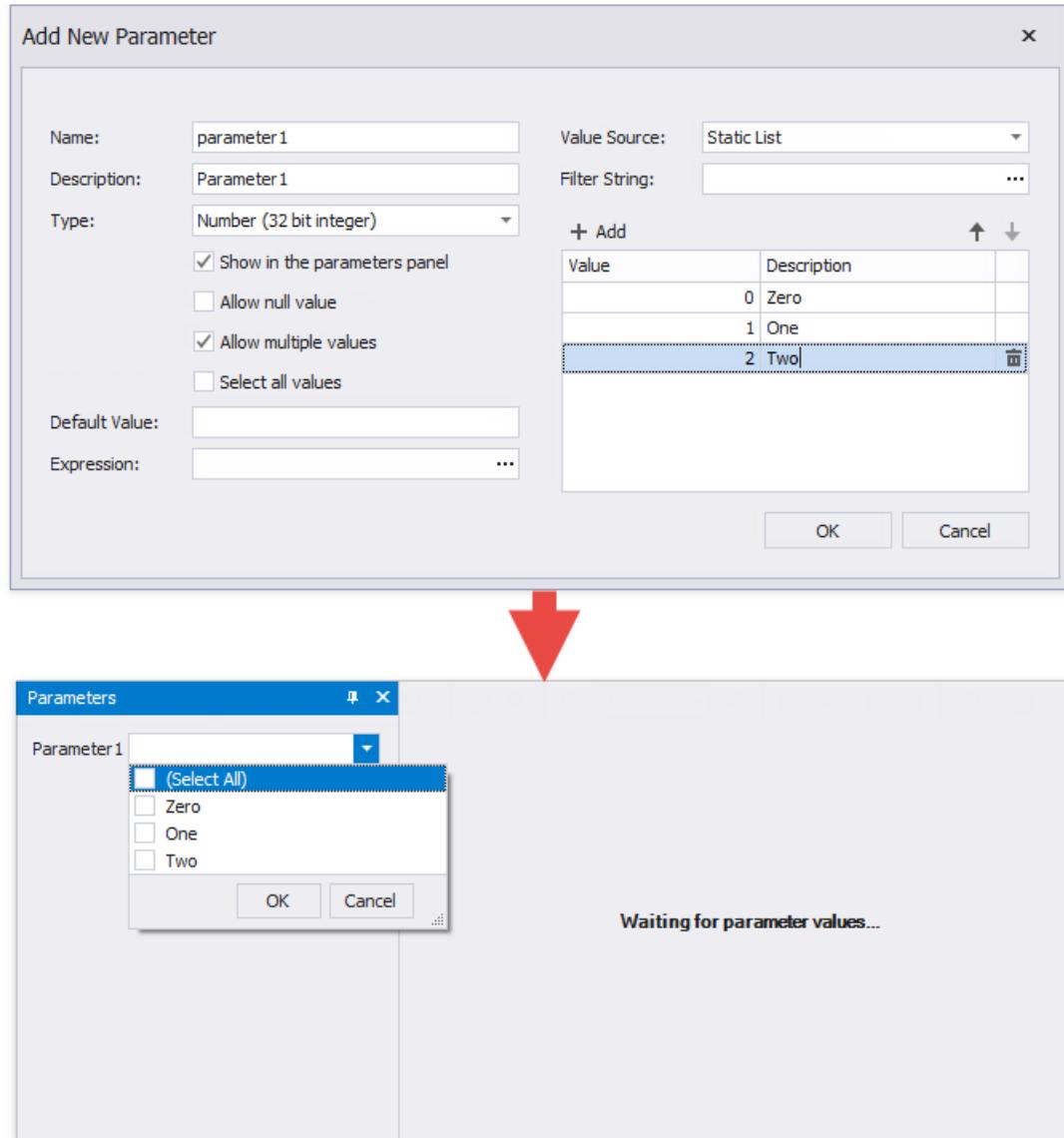
Enable the **Allow null value** property if the parameter's value can be unspecified.

The following image shows editors for different parameter types.



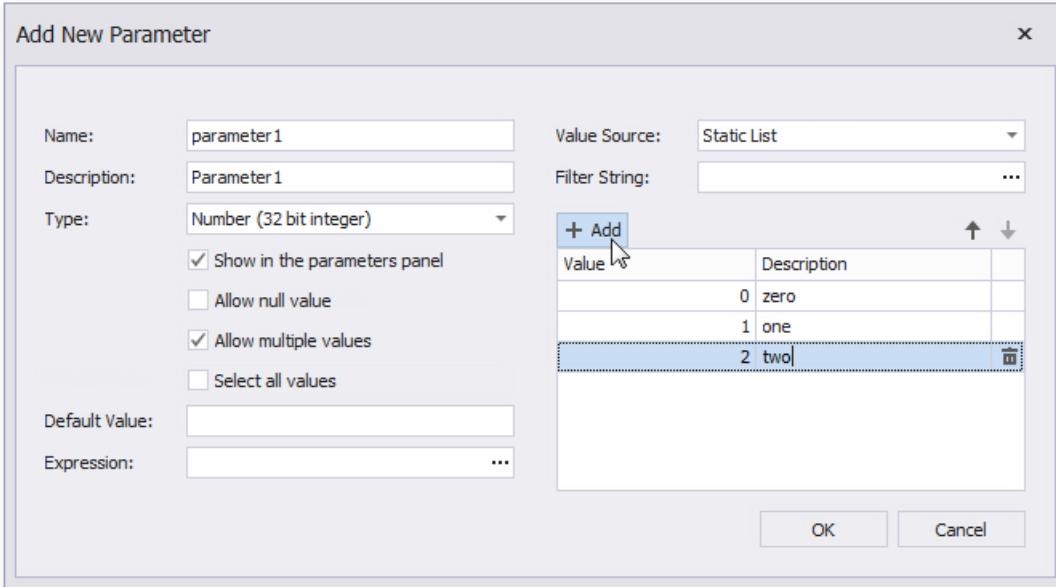
Report Parameters with Predefined Static Values

You can create a parameter with a list of predefined values. In the **Parameters** panel, such a parameter allows you to select a value from the predefined list.



Follow the steps below to create a parameter with a list of predefined static values.

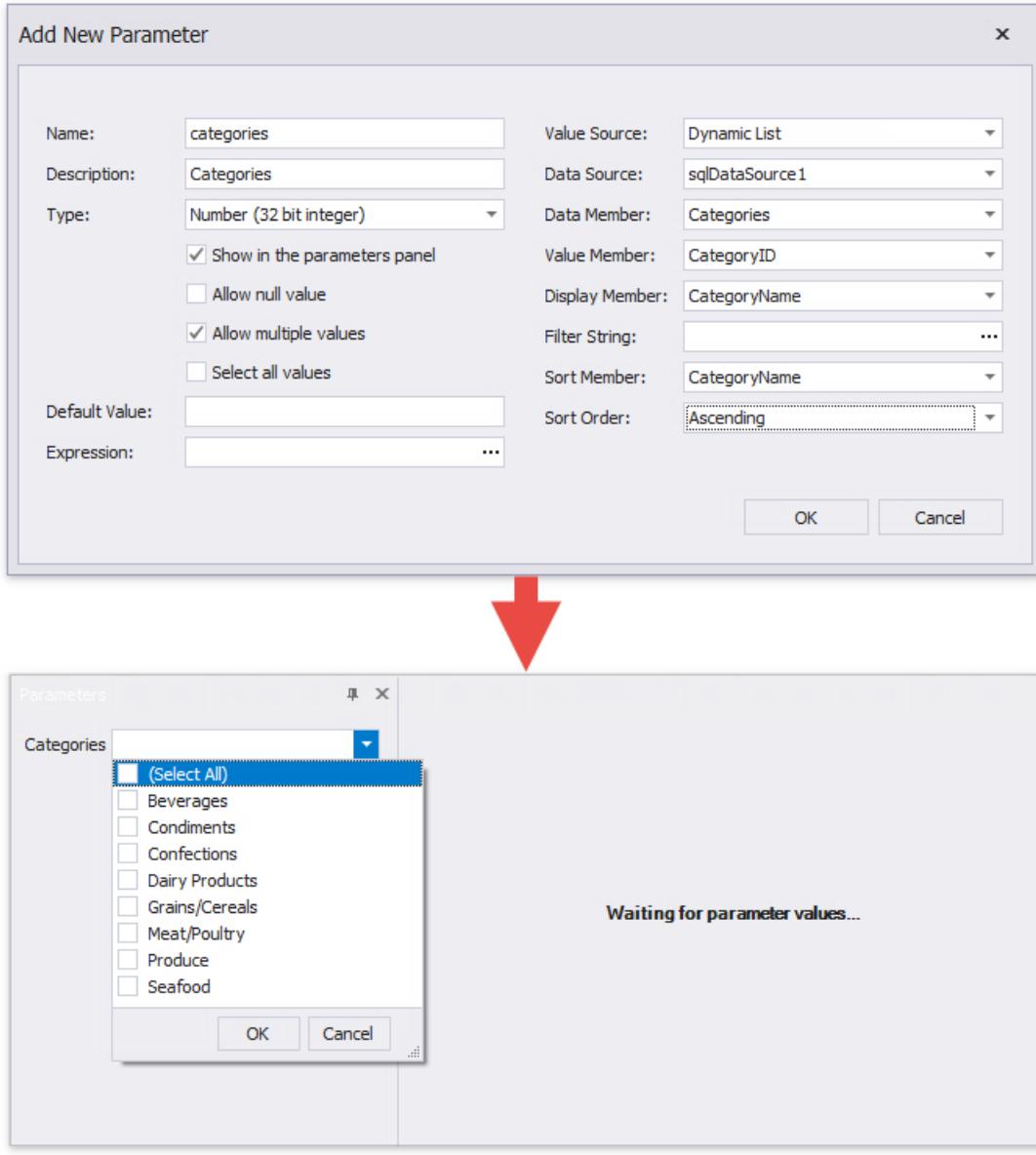
1. Create a report parameter as described in the [Create a Report Parameter](#) topic.
2. Set the parameter's **Value Source** property to **Static List**. A grid appears in the **Add New Parameter** dialog where you can specify a static list of values.



3. Specify a list of values. Each value should have a description that is displayed in the **Parameters** panel.

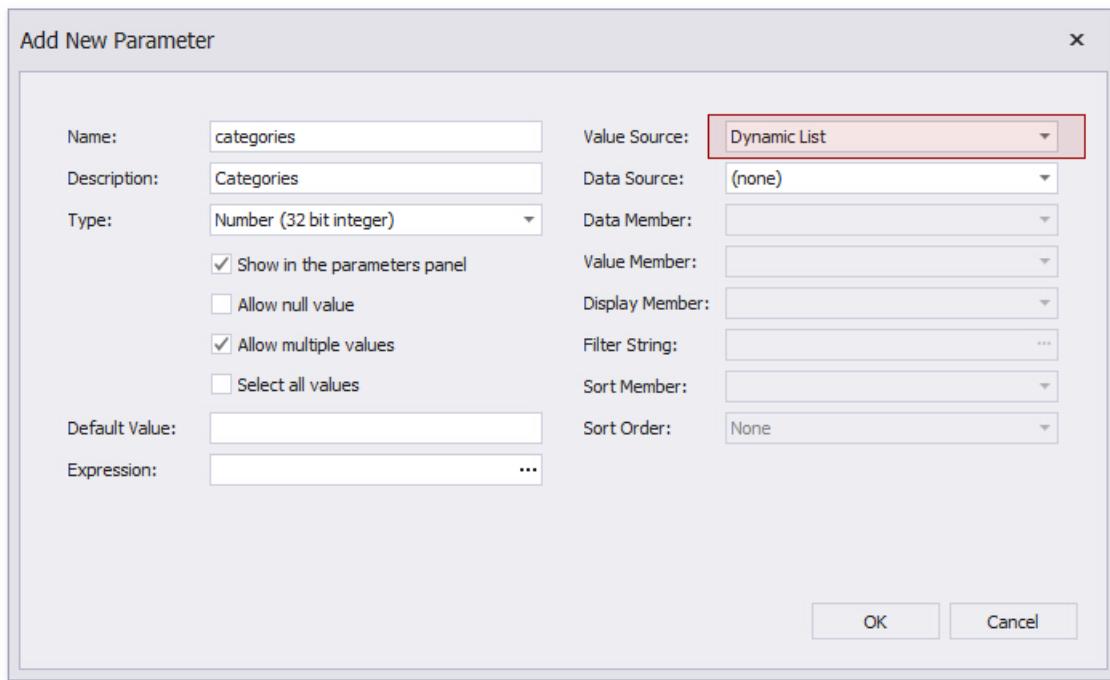
Report Parameters with Predefined Dynamic Values

You can create a parameter with a list of predefined values that are stored in a data source. In the **Parameters** panel, such a parameter allows you to select a value from the predefined list.

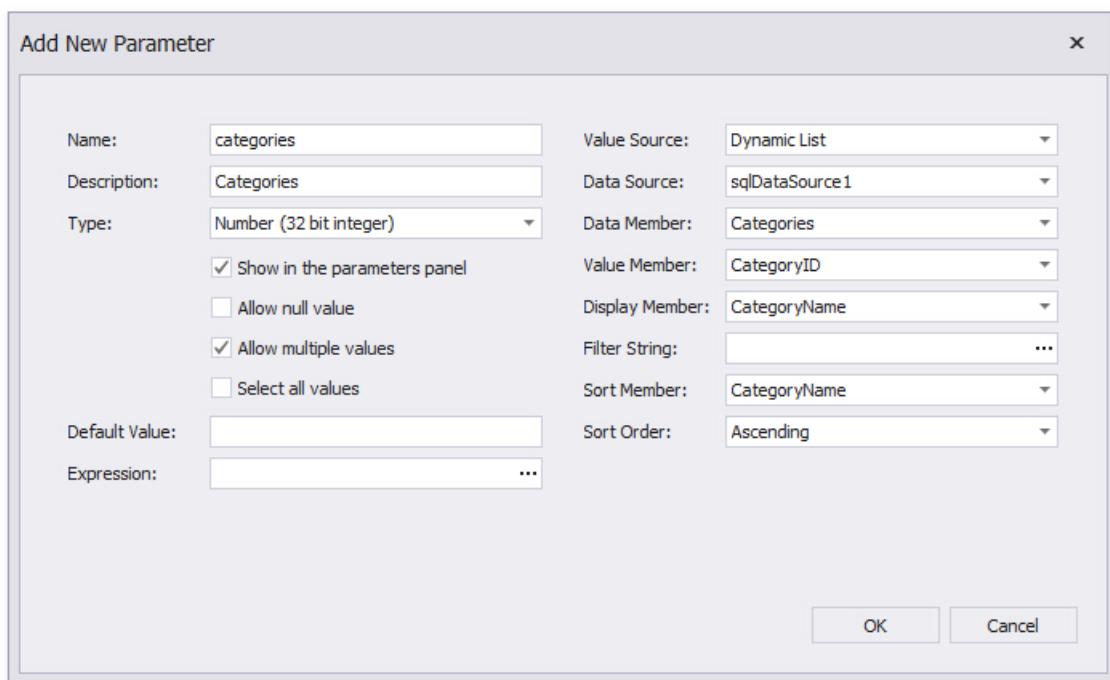


Follow the steps below to create a parameter with a list of predefined dynamic values.

1. Create a report parameter as described in the [Create a Report Parameter](#) topic.
2. Set the parameter's **Value Source** property to **Dynamic List**. Additional fields appear in the **Add New Parameter** dialog where you can specify the storage that contains the list of predefined parameter values.



3. Specify a **Data Source**, **Data Adapter** (for a **Data Set** only), and **Data Member** for the parameter values storage. **Value Member** defines a data field that fetches values to the parameter. **Display Member** defines a data field that stores values displayed in the **Parameters** panel.



The specified 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 [filter report data](#) by the specified parameter values.

The screenshot shows a 'Parameters' dialog box on the left and a report table on the right. The dialog box has a title bar 'Parameters' and a category dropdown set to 'Category'. It lists several product categories with checkboxes: Beverages (checked), Condiments (checked), Confections (unchecked), Dairy Products (unchecked), Grains/Cereals (unchecked), and Meat/Poultry (unchecked). A button 'Select All' is highlighted with a blue selection bar. Below the list are 'OK' and 'Cancel' buttons. To the right of the dialog is a table titled 'Category' and 'Product Name' with 20 rows of data. The data includes various products categorized as Beverages, Condiments, and Confections.

Category	Product Name
Beverages	Chai
Beverages	Chang
Beverages	Guaraná Fantástica
Beverages	Sasquatch Ale
Beverages	Steeleye Stout
Beverages	Côte de Blaye
Beverages	Chartreuse verte
Beverages	Ipoh Coffee
Beverages	Laughing Lumberjack Lager
Beverages	Outback Lager
Beverages	Rhönbräu Klosterbier
Beverages	Lakkaliköri
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

Create a Multi-Value Parameter

1. Create a report parameter and enable the **Allow multiple values** option.

The screenshot shows the 'Add New Parameter' dialog box. In the 'Type' section, 'Number (32 bit integer)' is selected. Under 'Options', the 'Allow multiple values' checkbox is checked and highlighted with a red rectangle. Other options like 'Show in the parameters panel', 'Allow null value', and 'Select all values' are also present. The 'Value Source' dropdown is set to 'Static List'. On the right, there is a table for defining static values with columns 'Value' and 'Description'. At the bottom are 'OK' and 'Cancel' buttons.

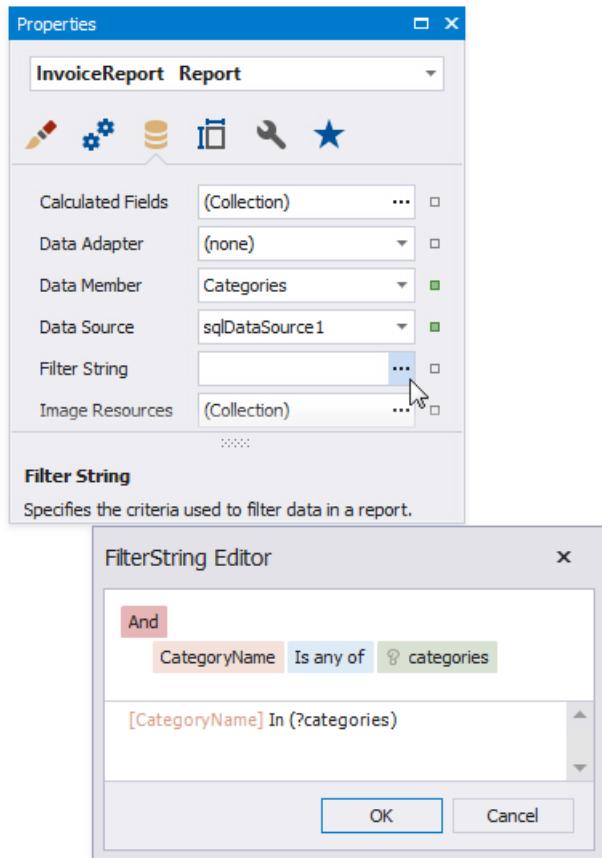
2. Specify a list of predefined values for the parameter. See the following topics for more information:

- o [Report Parameters with Predefined Static Values](#) - to directly specify the list of values.

- o Report Parameters with Predefined Dynamic Values - to specify the storage that contains the list of values.

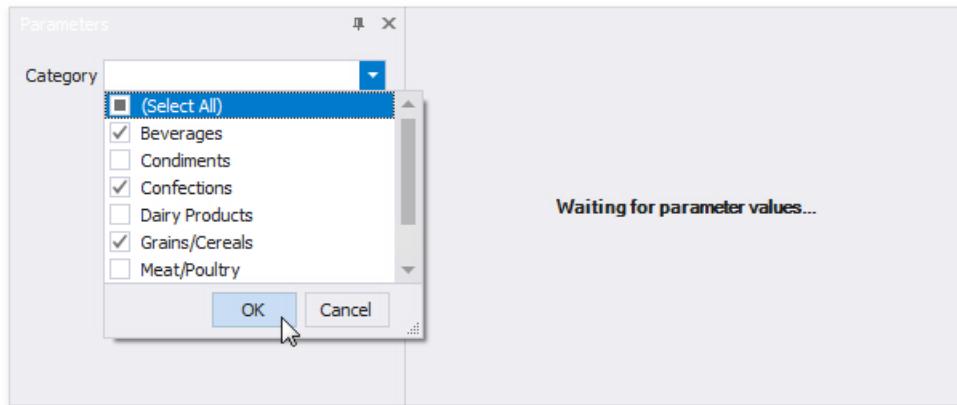
Filter a Report by a Multi-Value Parameter

Use the **Is any of** operator in the report's [filter string](#):

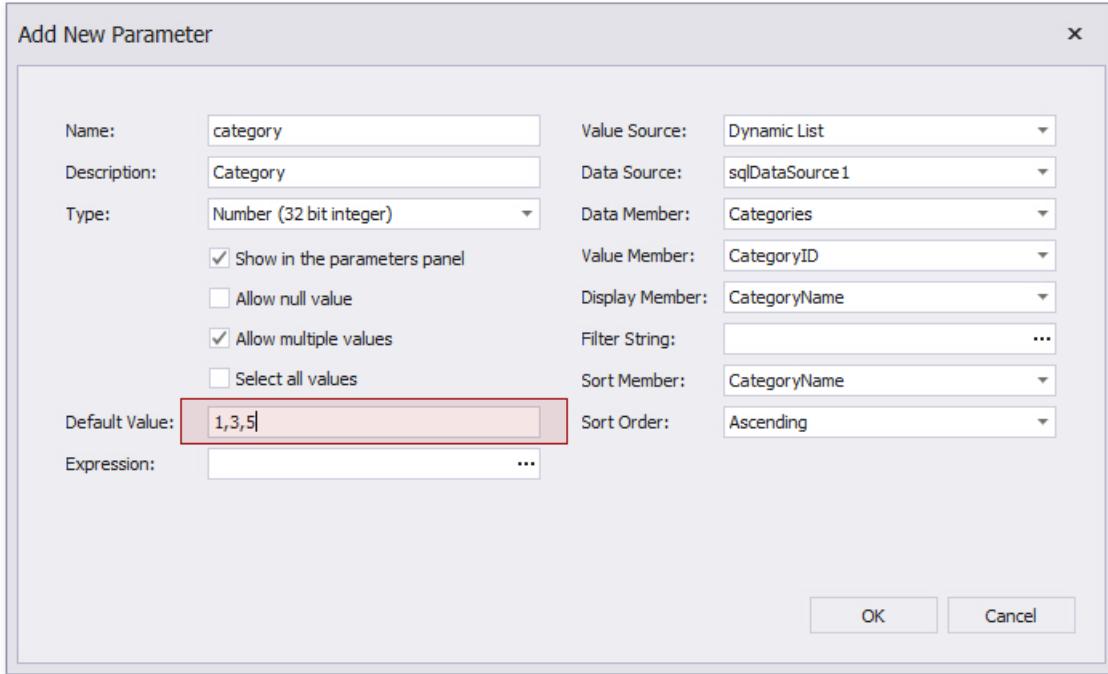


Pre-Select Parameter Values

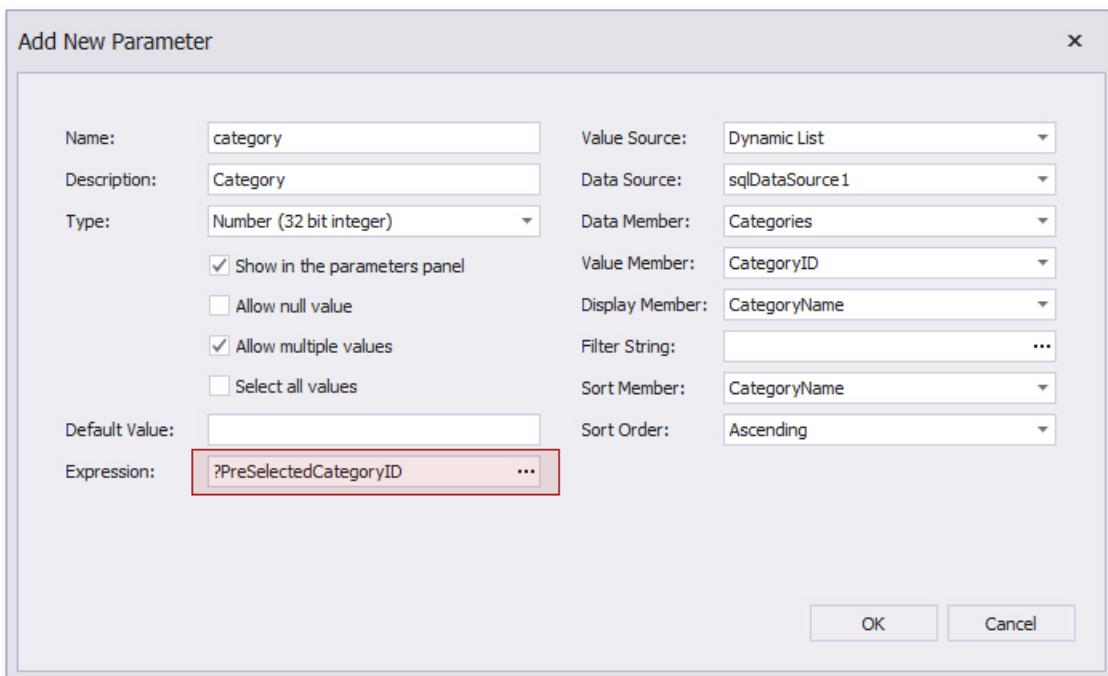
Use one of the following methods to pre-select multiple parameter values when a report is first rendered.



- Assign an array of values to the **Default Value** property.



- Set the **Expression** property to an expression that evaluates to an array of values. You can use data source fields and other parameters in expressions.



- Enable the **Select all values** property to populate the parameter value with all items from its data source (static or dynamic).

Add New Parameter

Name:	category	Value Source:	Dynamic List
Description:	Category	Data Source:	sqlDataSource1
Type:	Number (32 bit integer)	Data Member:	Categories
<input checked="" type="checkbox"/> Show in the parameters panel		Value Member:	CategoryID
<input type="checkbox"/> Allow null value		Display Member:	CategoryName
<input checked="" type="checkbox"/> Allow multiple values		Filter String:	...
<input checked="" type="checkbox"/> Select all values		Sort Member:	CategoryName
Default Value:		Sort Order:	Ascending
Expression:			
<input type="button" value="OK"/> <input type="button" value="Cancel"/>			

TIP

Disable the report's **Request Parameters** property to avoid the **Waiting for parameter values** message in **Preview** and display the report with pre-selected parameter values.

Optional Multi-Value Parameter

You can leave the parameter unspecified and display all report data, or choose parameter values to filter the report.

The screenshot shows a report viewer interface. On the left, there is a 'Parameters' pane with a dropdown menu labeled 'Category' set to '(none)'. Below it are 'Reset' and 'Submit' buttons. To the right of the parameters is a table listing various product categories with their descriptions:

Category	Description
Beverages	Soft drinks, coffees, teas, beers, and ales
Condiments	Sweet and savory sauces, relishes, spreads, and seasonings
Confections	Desserts, candies, and sweet breads
Dairy Products	Cheeses
Grains/Cereals	Breads, crackers, pasta, and cereal
Meat/Poultry	Prepared meats
Produce	Dried fruit and bean curd
Seafood	Seaweed and fish

Do the following to make a multi-value parameter optional.

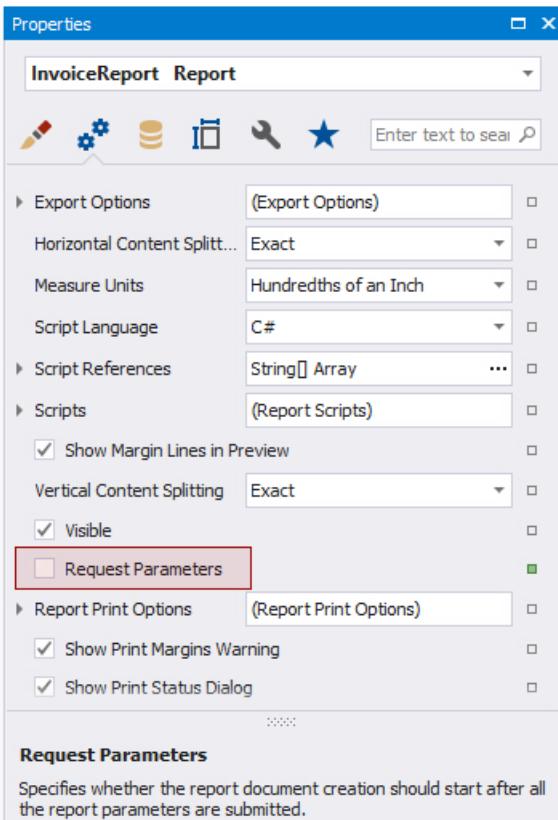
1. Configure the parameter:

Add New Parameter

Name:	category	Value Source:	Dynamic List
Description:	Category	Data Source:	sqlDataSource1
Type:	Number (32 bit integer)	Data Member:	Categories
<input checked="" type="checkbox"/> Show in the parameters panel		Value Member:	CategoryID
<input checked="" type="checkbox"/> Allow null value		Display Member:	CategoryName
<input checked="" type="checkbox"/> Allow multiple values		Filter String:	...
<input type="checkbox"/> Select all values		Sort Member:	CategoryName
Default Value:	(none)	Sort Order:	Ascending
Expression:	...		
<input type="button" value="OK"/> <input type="button" value="Cancel"/>			

PROPERTY	VALUE
Allow null value	Checked
Default Value	Not specified
Expression	Not specified
Select all values	Unchecked

2. Disable the report's **Request Parameters** property.



3. Use the following report filter string:

?category Is Null or [CategoryID] In (?category)

The screenshot shows the Report Designer interface. At the top left, the 'Report Tasks' pane is open, displaying options like 'Design in Report Wizard...', 'Edit and Reorder Bands...', 'Edit Bindings...', and 'Edit Localization...'. Below this, the 'Data Source' dropdown is set to 'sqlDataSource1', 'Data Member' to 'Categories', and 'Filter String' to '?category Is Null or [CategoryID] In (?category) ...'. The 'Detail Count at Design Time' field shows '0'. On the right, the report preview shows a 'Detail' band with two columns: '[CategoryName]' and '[Description]'. A red arrow points from the 'Filter String' editor down to the 'Parameters' dialog below. The 'Parameters' dialog has a 'Category' dropdown set to '(none)' with '(Select All)' selected. The list includes: Beverages, Condiments, Confections, Dairy Products, Grains/Cereals, Meat/Poultry, Produce, and Seafood. The 'OK' button is highlighted.

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

TIP

You can also use the filter string shown above to filter report data at the data source level.

Cascading Report Parameters

You can filter the list of predefined parameter values by another parameter's value to create **cascading parameters**.

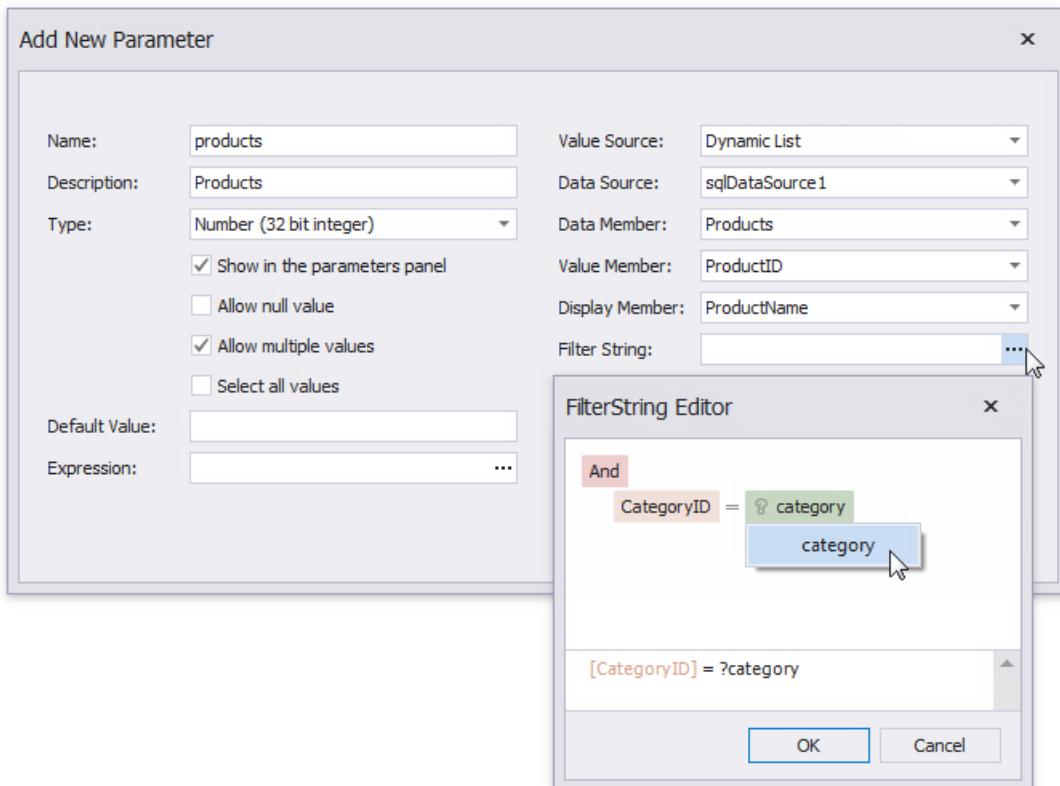
TIP

See the following topics for information on how to specify a predefined list of parameter values:

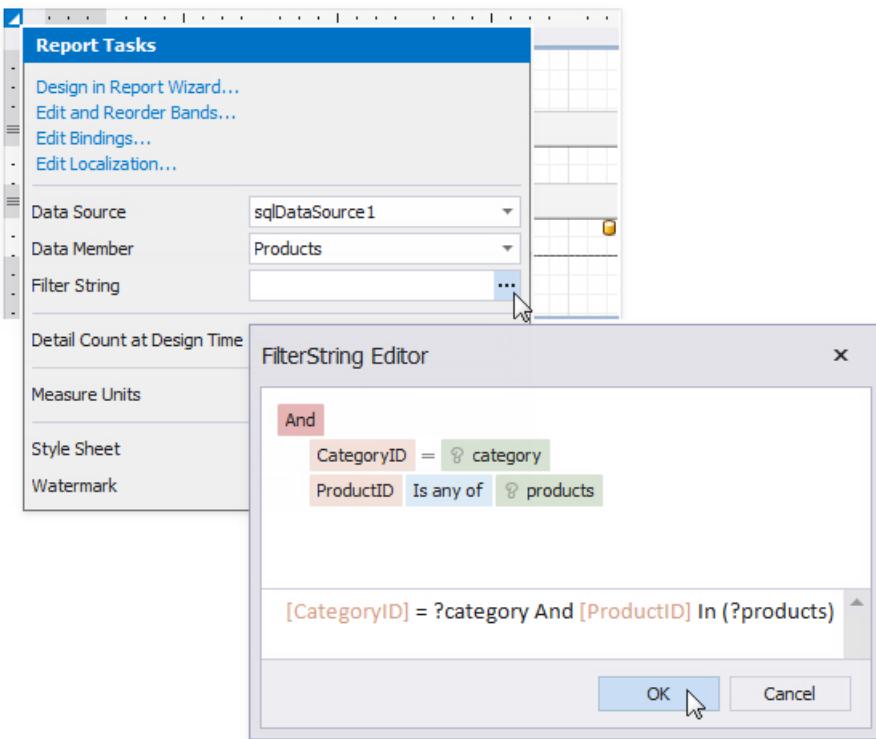
- [Report Parameters with Predefined Static Values](#) - to directly specify the list of values.
- [Report Parameters with Predefined Dynamic Values](#) - to specify the storage that contains the list of values.

Follow the steps below to filter the list of parameter values by another parameter's value.

1. Click the **Filter String** property's ellipsis button in the **Add New Parameter** dialog and specify a filter string that refers to another parameter.



2. 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:



The following image illustrates cascading parameters where the **Product** parameter values are filtered by the selected **Category**.

The screenshot shows a 'Parameters' dialog and a report preview. The dialog has two parameters: 'Category' set to 'Confections' and 'Products' set to 'Pavlova, Sir Rodne'. The 'Products' dropdown shows a list of items, with 'Pavlova' checked. The report preview shows the title 'Products by Categories' and 'Category: Confections'. Below it, the products listed are Pavlova, Sir Rodney's Marmalade, and Sir Rodney's Scones.

Date Range Report Parameters

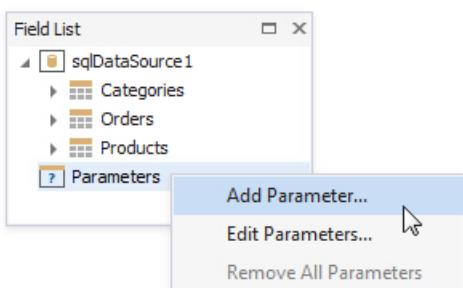
This document describes how to create a date range parameter and filter report data by the specified dates.

The screenshot shows a report application interface. At the top, there is a 'Parameters' dialog box with a 'Date Range' field set to '10/21/2019 - 10/28/2019'. Below this is a calendar for October 2019, with the date range highlighted. The 'Last 7 Days' option is selected in the left sidebar of the calendar. At the bottom of the calendar are 'Apply' and 'Cancel' buttons. Below the calendar is the main report area titled 'Orders List'. It features a table with columns: Order Date, Order ID, Ship Name, and Total. The rows show various orders from different customers with their respective dates and totals. The first four rows are highlighted with a red border.

Order Date	Order ID	Ship Name	Total
10/21/2019	11067	Drachenblut Delikatessen	\$86.85
10/21/2019	11068	Queen Cozinha	\$2027.08
10/21/2019	11069	Tortuga Restaurante	\$360.00
10/22/2019	11070	Lehmans Marktstand	\$1629.97
10/22/2019	11071	LILA-Supermercado	\$484.50
10/22/2019	11072	Ernst Handel	\$5218.00
10/22/2019	11073	Pericles Comidas clásicas	\$300.00
10/23/2019	11074	Simons bistro	\$232.08
10/23/2019	11075	Richter Supermarkt	\$498.10
10/23/2019	11076	Bon app'	\$792.75
10/23/2019	11077	Rattlesnake Canyon Grocery	\$1255.72

Perform the steps below to add a date range parameter to a report.

1. Switch to the **Field List** and right-click **Parameters**. Select **Add Parameter** from the context menu.



2. Specify the options below in the invoked **Add New Parameter** dialog and click **OK**.

- **Name**

The parameter's name.

- **Description**

The parameter's description displayed to users.

- **Type**

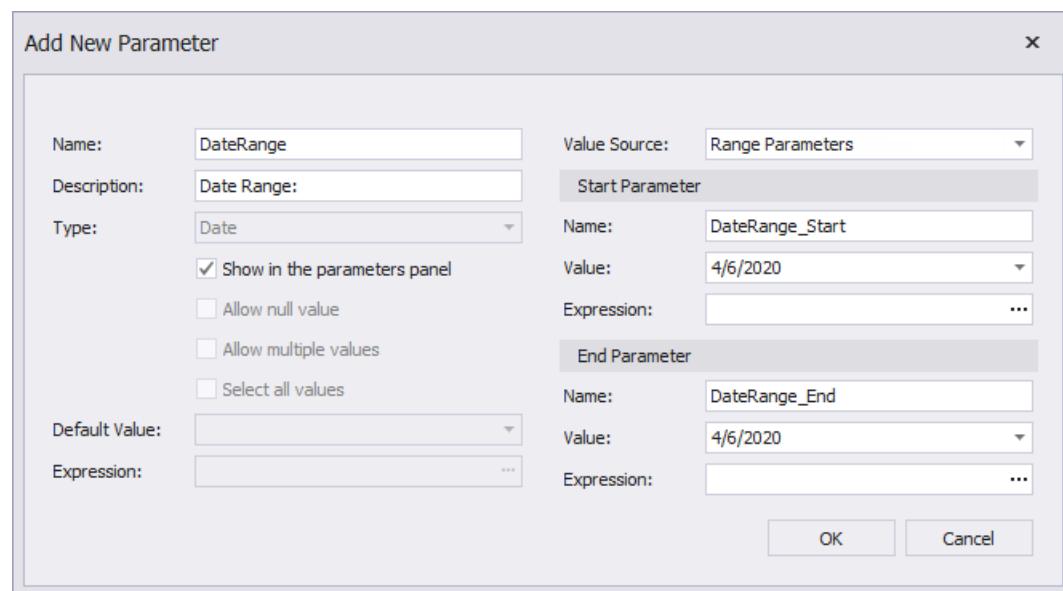
The parameter's data type. Set it to **Date** to create a date range.

- **Show in the parameters panel**

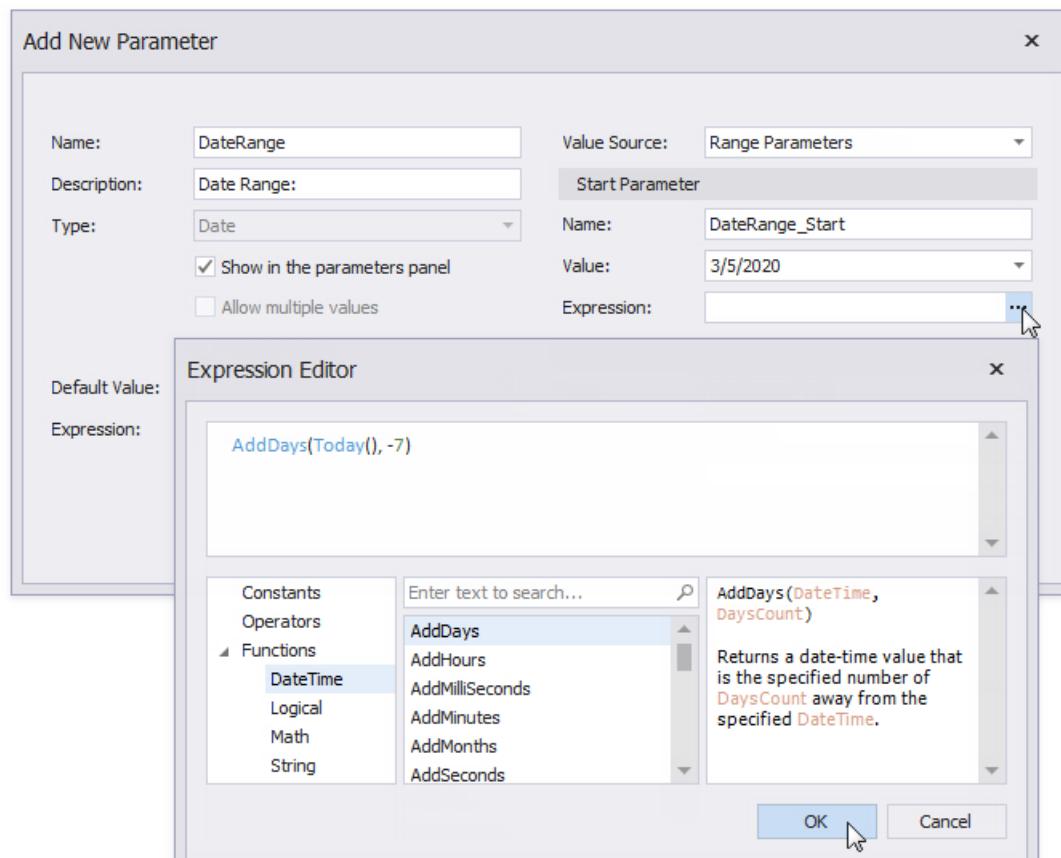
This option enables Preview to show the parameter's editor in the **Parameters** panel. See [Use the Parameters Panel to Ask for User Input](#) for more information.

- **Value Source**

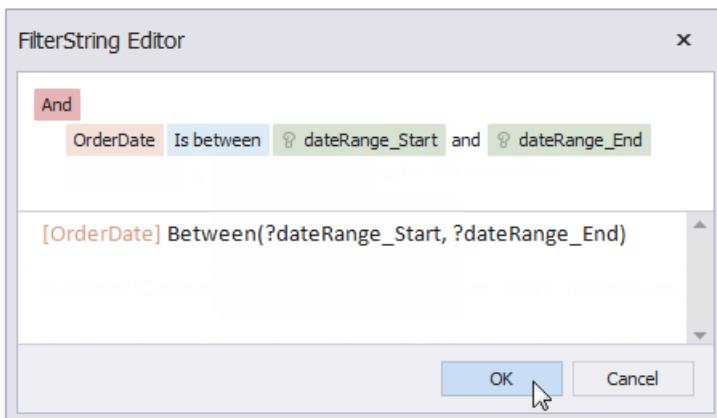
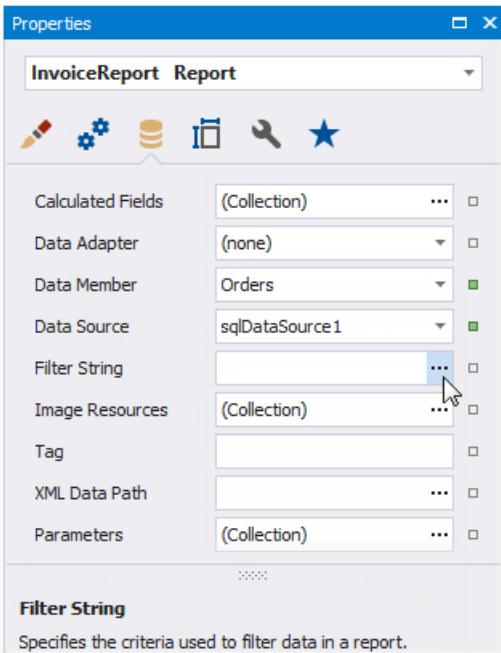
Settings that are used to generate the parameter's predefined values. Set this property to **Range Parameters**. The **Start Parameter** and **End Parameter** sections appear where you can configure the inner parameters.



- Use the **Start Parameter** and **End Parameter's Value** properties to specify default values. Use the **Expression** properties to conditionally specify parameter values or to bind them to fields or other parameters. Click the **Expression** property's ellipsis button and specify an expression in the invoked **Expression Editor**.

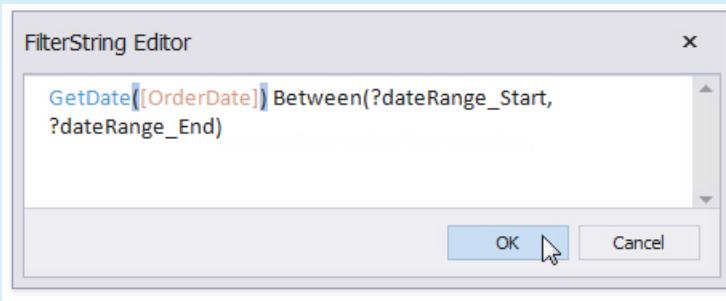


3. Use the start and end parameter names in the report's filter string to [filter data](#) by the created date range. Select the report, click the **Filter String** property's ellipsis button in the [Property Grid](#), and construct the filter string in the invoked **FilterString Editor**.



NOTE

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 time, records for the end date *10/15/2019* are excluded from a report. Use the [GetDate\(\)](#) function in the **FilterString Editor** to include data for the *10/15/2019* date.



When you switch to **Preview**, the **Parameters** panel displays the date range parameter. After you submit a start and end date, a report document is displayed with filtered data.

Parameters

Date Range: 10/21/2019 - 10/28/2019

Today
Yesterday
Current Week
Last Week
Last 7 Days
Current Month
Last Month
Current Quarter
Previous Quarter
Current Year
Last Year

SU	MO	TU	WE	TH	FR	SA
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

SU	MO	TU	WE	TH	FR	SA
21	22	23	24	25	26	
27	28	29	30	31	1	2
3	4	5	6	7	8	9

10/21/2019 10/28/2019

Apply **Cancel**

Parameters

Date Range: 10/21/2019 - 10/28/2019

Reset **Submit**

Orders List

Order Date	Order ID	Ship Name	Total
10/21/2019	11067	Drachenblut Delikatessen	\$86.85
10/21/2019	11068	Queen Cozinha	\$2027.08
10/21/2019	11069	Tortuga Restaurante	\$360.00
10/22/2019	11070	Lehmans Marktstand	\$1629.97
10/22/2019	11071	LILA-Supermercado	\$484.50
10/22/2019	11072	Ernst Handel	\$5218.00
10/22/2019	11073	Pericles Comidas clásicas	\$300.00
10/23/2019	11074	Simons bistro	\$232.08
10/23/2019	11075	Richter Supermarkt	\$498.10
10/23/2019	11076	Bon app'	\$792.75
10/23/2019	11077	Rattlesnake Canyon Grocery	\$1255.72

Lay out Dynamic Report Content

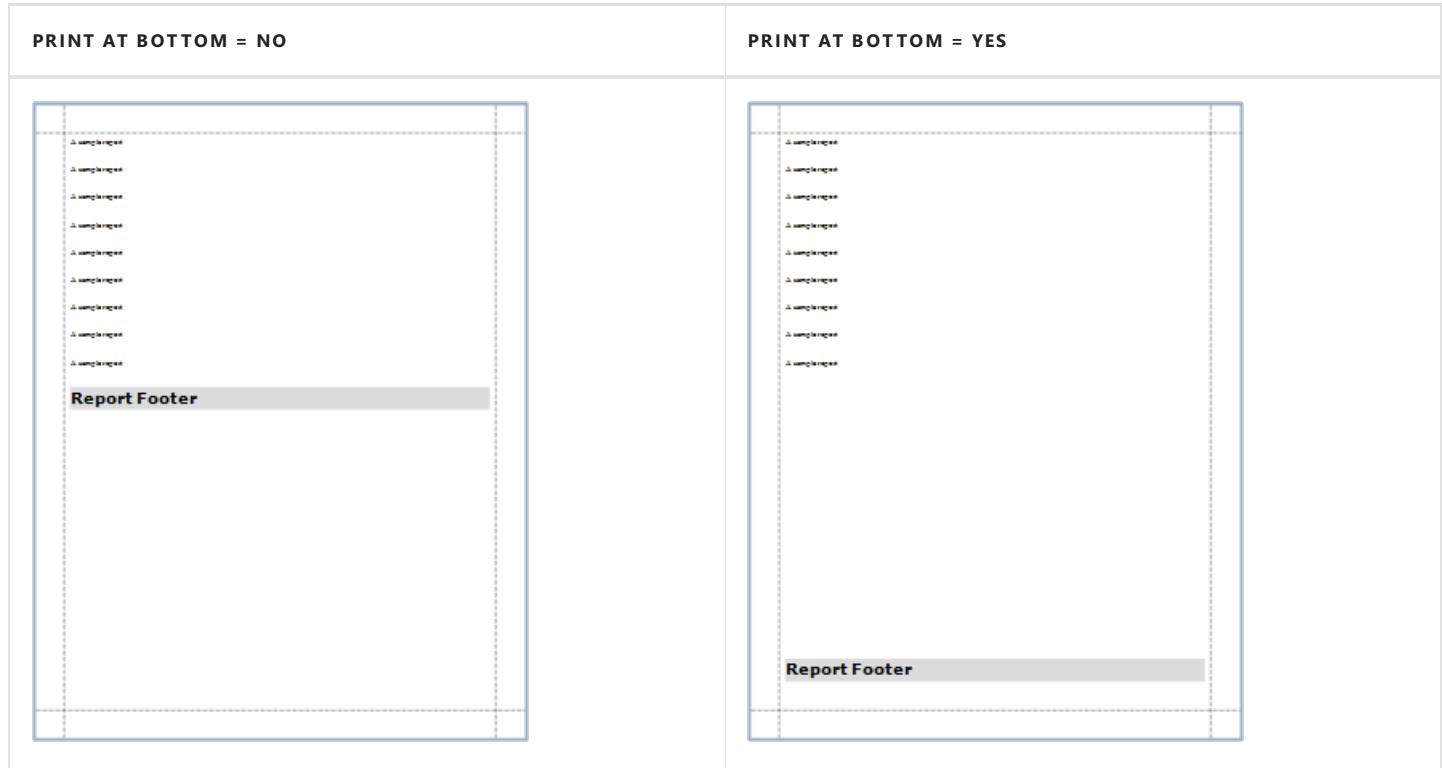
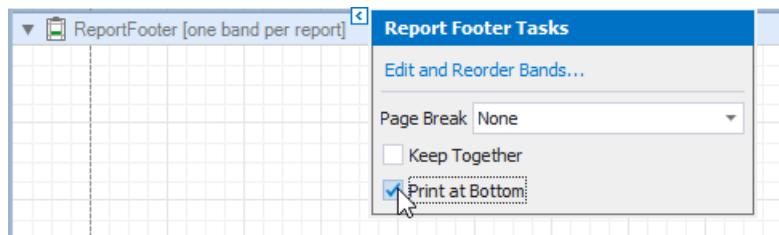
You can use [Print Preview](#) to see what the resulting document looks like because data-aware controls' contents are not available at design time.

This section contain topics describe how to maintain report elements' correct location in a published document:

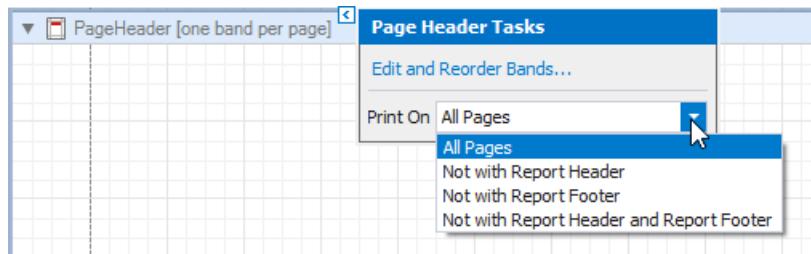
- [Maintain the Band Location on a Page](#)
- [Keep Content Together](#)
- [Maintain the Size and Content of Data-Bound Controls](#)
- [Anchor Controls](#)
- [Suppress Controls](#)

Maintain the Band Location on a Page

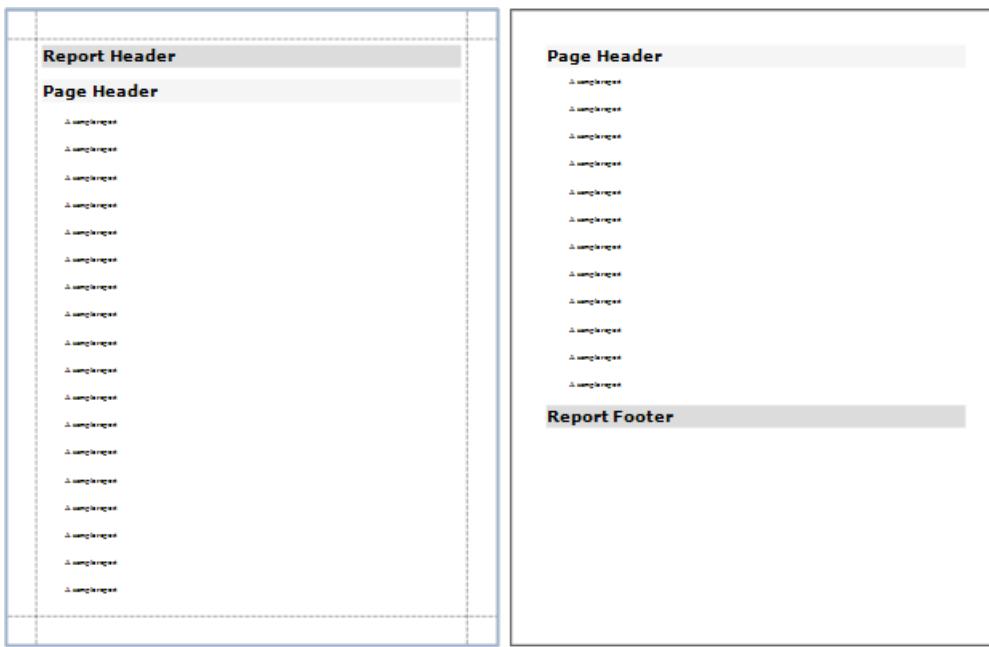
Use the **Group and Report Footer's Print At Bottom** property to choose whether these bands should appear at the bottom of a page or immediately after the previous band.



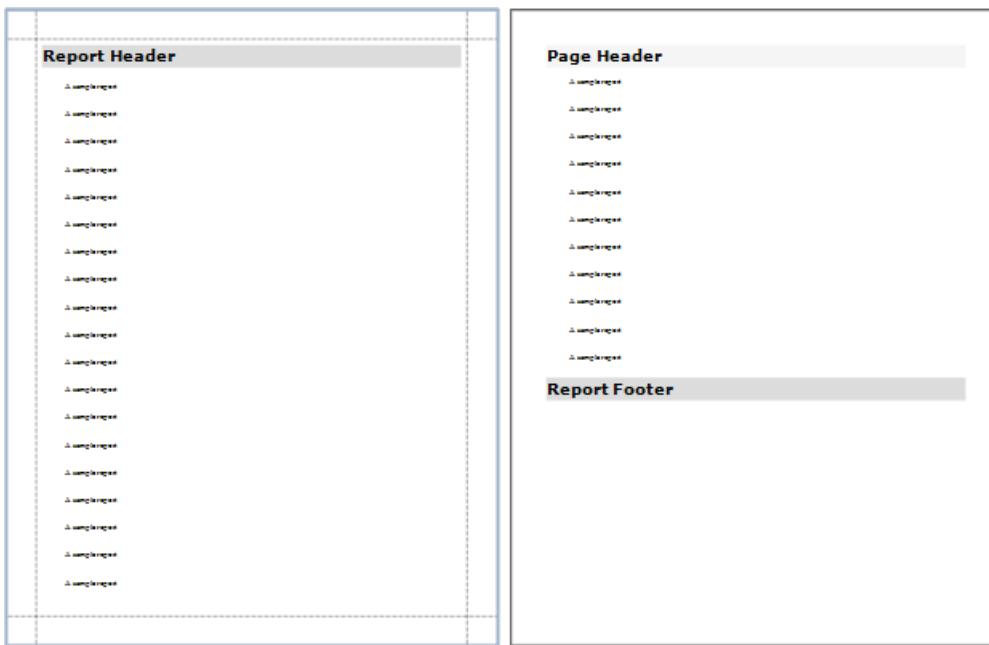
Use the Page Header and Footer's **Print On** property to avoid printing these bands on the same page with a Report Header and/or Footer.



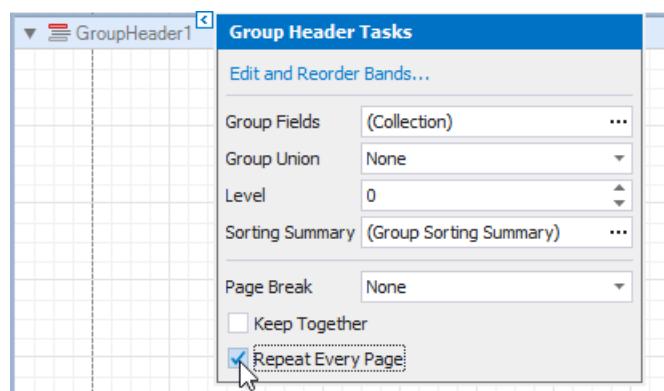
- **Print On = All Pages**



- Print On = Not With Report Header



Use the Group Header and Footer's **Repeat Every Page** property to repeat these bands on every page.



- Repeat Every Page = No

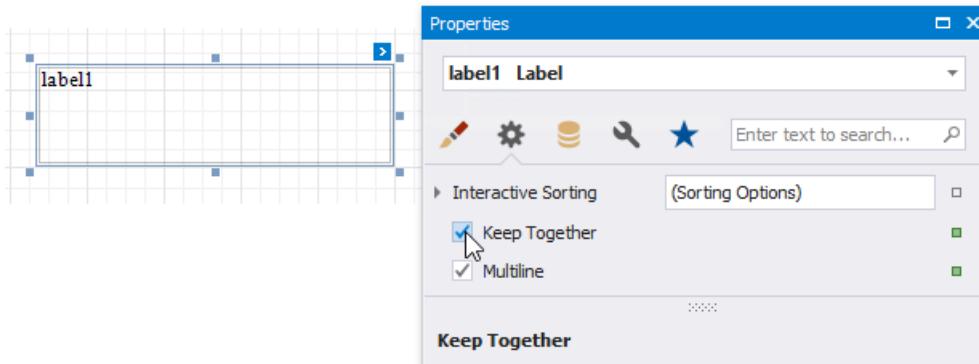
Category ID: 1	
Die	Outline Logo
Chair	Chairman's Chair
Chairperson	Ledger
Sayings	Category ID: 2
Sticky Note	Arched Top
Clouds	Chairman's Chair Setting
Charmbracelet	Chairman's Chair Set
Spice Rack	Chairman's Day Inventory Spec
Handwoven Chintz	Handwoven Chintz Set
Leather Lampshade	Cane Chairs

- Repeat Every Page = Yes

Category ID: 1	
Die	Outline Logo
Chair	Chairman's Chair
Chairperson	Ledger
Sayings	Category ID: 2
Sticky Note	Arched Top
Clouds	Chairman's Chair Setting
Charmbracelet	Chairman's Chair Set
Spice Rack	Chairman's Day Inventory Spec
Handwoven Chintz	Handwoven Chintz Set
Leather Lampshade	Cane Chairs

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.

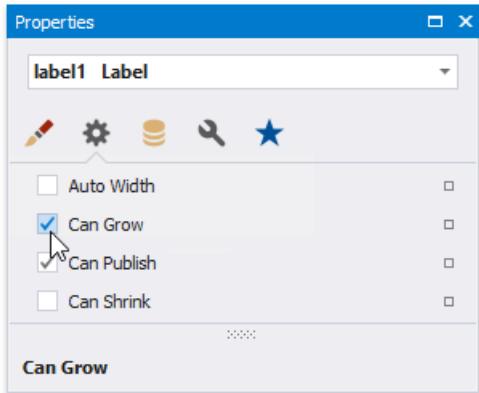
i NOTE

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).

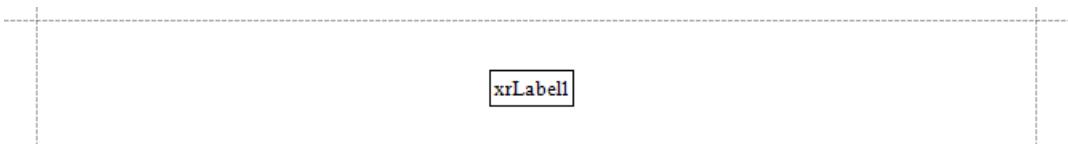
- **Text Alignment = Left**



- **Text Alignment = Right**



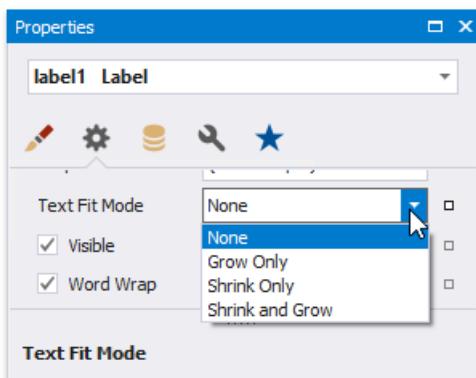
- **Text Alignment = Center**



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.



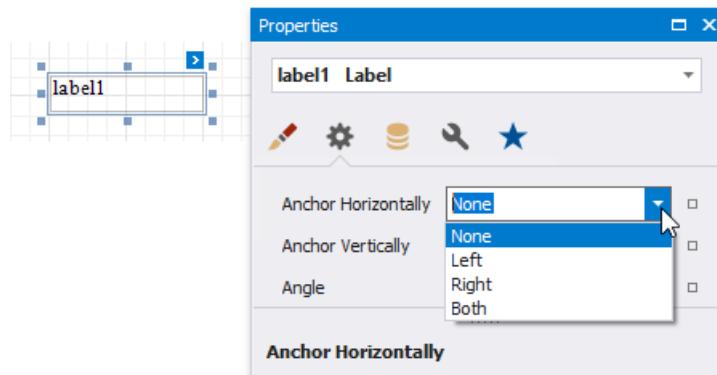
TEXT FIT MODE = NONE	TEXT FIT MODE = GROW ONLY	TEXT FIT MODE = SHRINK ONLY	TEXT FIT MODE = SHRINK AND GROW
A label with some lengthy content...			
A label with some lengthy content...			

This property is not available in the following cases:

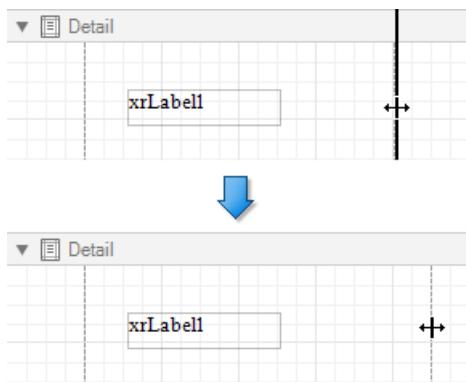
- The **Can Grow**, **Can Shrink** or **Auto Width** option is enabled;
- The label's **Angle** property is specified;
- The control's **Anchor Horizontally** or **Anchor Vertically** property is set to **Both**.

Anchor Controls

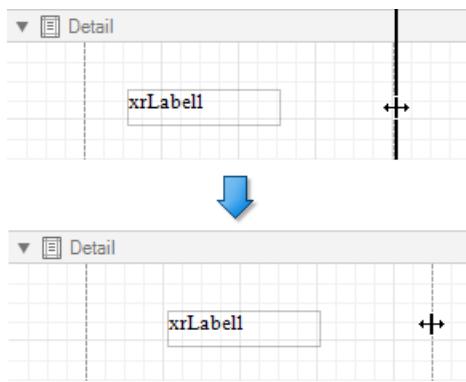
You can anchor a control to the top, bottom, or both edges of its parent container using the **Anchor Horizontally** and **Anchor Vertically** properties.



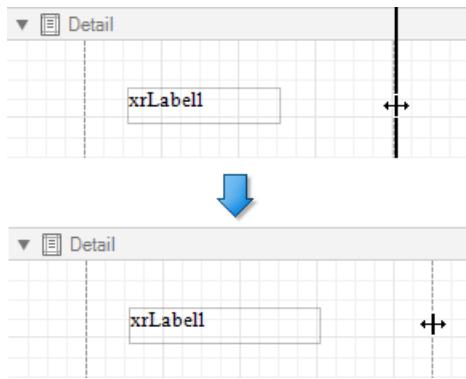
- **Anchor Horizontally = None**



- **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**

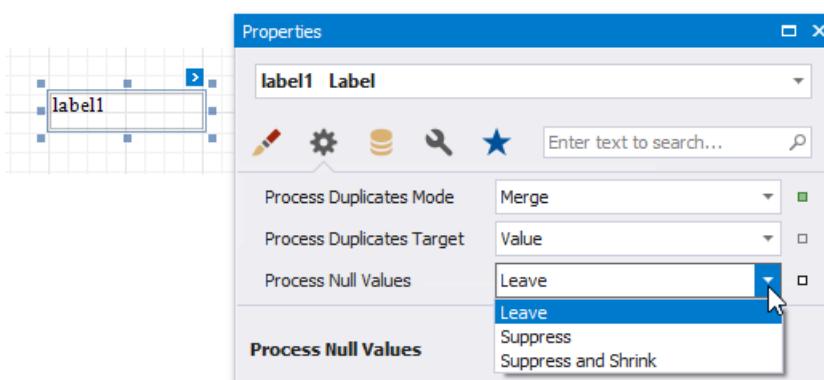
Specifies how to process report controls with identical values (leave them as is, merge, suppress, or suppress and shrink).

- **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.



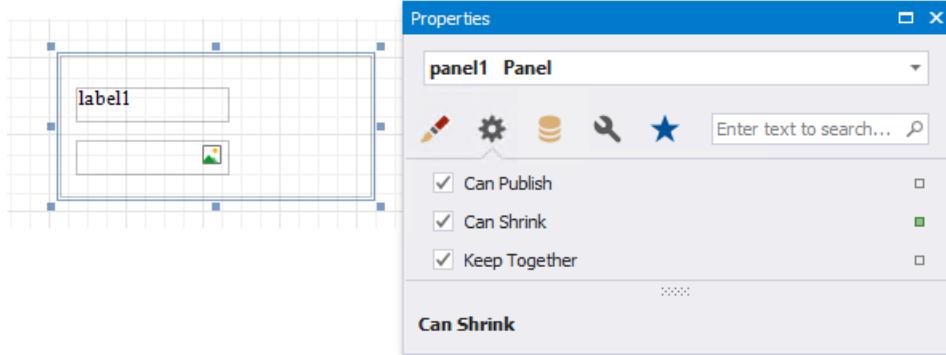
These properties are available for the following controls:

- [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 enabling its **Can Shrink** property.



For this feature to work correctly, consider the following:

- Specify the **Visible** property's expression to the controls in the panel (and not to the panel itself).
- Do not assign borders to the panel container. Otherwise, they are printed when the panel's content is suppressed.

Customize Appearance

The topics in this section describe how to customize the report elements' appearance:

- [Appearance Properties](#)
- [Report Visual Styles](#)
- [Report Style Sheets](#)

Appearance Properties

This document describes the purpose and implementation of the appearance properties - a special set of properties that allow you to customize the appearance of a report or any of its elements.

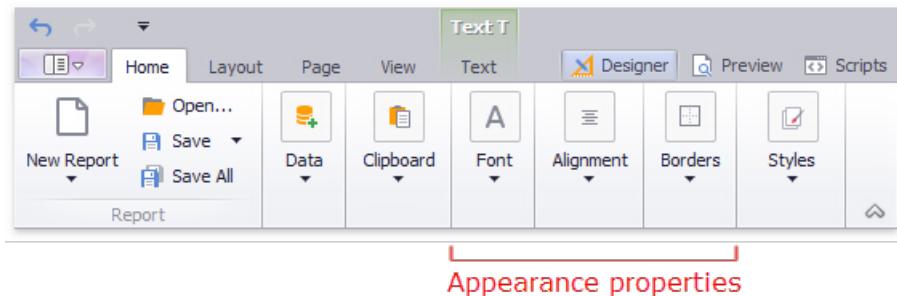
Properties Overview

Every report element ([control](#) or [band](#)), and a report itself, has a set of properties that specify its appearance. They are listed in the following table.

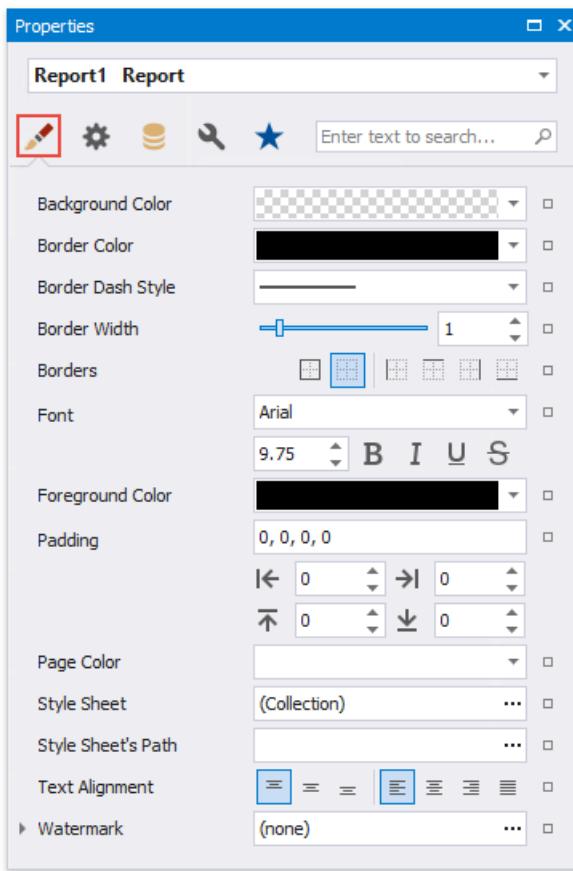
PROPERTY NAME	DESCRIPTION
Background Color	Gets or sets a background color to a report element and its child controls.
Border Color	Gets or sets a border color to a report element and its child controls.
Border Dash Style	Gets or sets a border dash style to a report element and its child controls.
Borders	Gets or sets borders (top, right, bottom, left), which should be visible for a report element and its child controls.
Border Width	Gets or sets a border width to a report element and its child controls.
Font	Gets or sets the font options (its name, size, etc.) to a report element and its child controls.
Foreground Color	Gets or sets the foreground color to a report element and its child controls.
Padding	Gets or sets the indent values which are used to render the contents of a report element and its child controls.
Text Alignment	Gets or sets the text alignment to a report element and its child controls.

Access Appearance Properties

Use the Report Designer's [Toolbar](#) to access the appearance properties.



More appearance properties are available in the [Property Grid](#)'s **Appearance** tab.



Property Value Inheritance

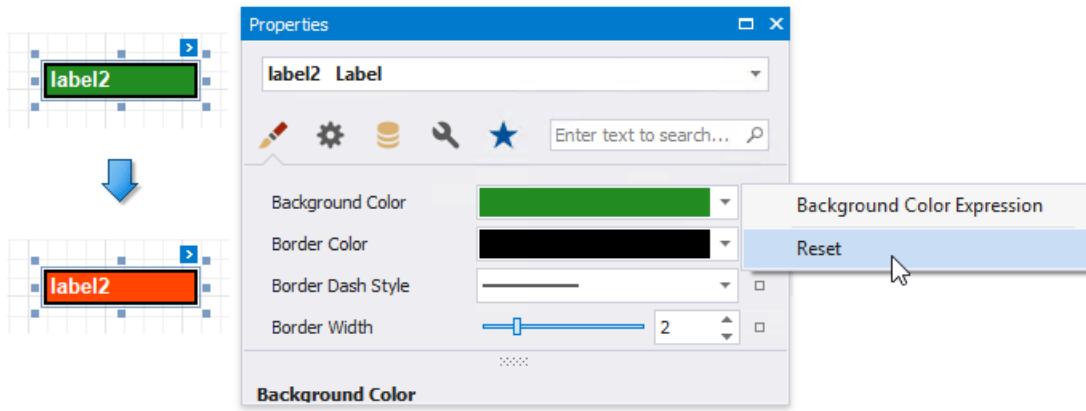
By default, appearance properties for every control or a band are set to empty values, which means that their real values are obtained from a control's parent, or a parent of its parent and so on.

The screenshot shows a report design interface with two labels, 'label1' and 'label2', both set to an orange background color. The 'label1' label has its properties open in the Properties window, where the 'Background Color' is explicitly set to orange. The 'Foreground Color' section is also visible. This illustrates how the foreground color of 'label1' is being inherited from its parent, 'Detail' band.

NOTE

The appearance properties may not be used by all descendants of the current report element for which they are defined. For example, the [Page Break](#) element ignores the **Back Color** property.

To reset values of these properties, click the property marker in the Property Grid, and select **Reset** in the invoked menu. Then, the control's actual appearance will be determined by the appropriate properties settings of its parent.



If a report element has a [style](#) assigned to it, the priority of the properties defined by this style is determined by the **StylePriority** property. Note that when a [conditional formatting](#) is involved, the appearance it defines is of greater priority than the properties described above.

Report Visual Styles

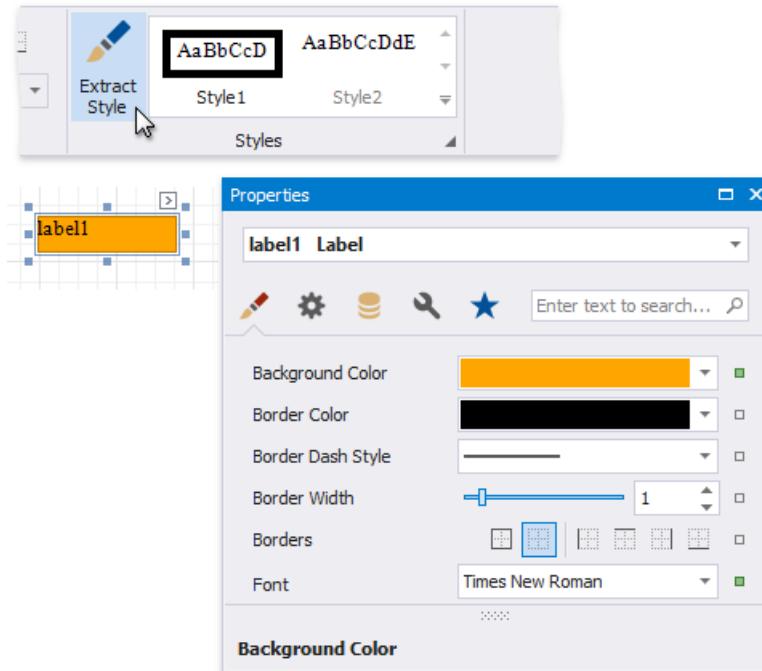
This topic describes how to combine [appearance properties](#) into styles and apply them to report elements.

Create a Report Style

Use the following approaches to create a visual style in your report:

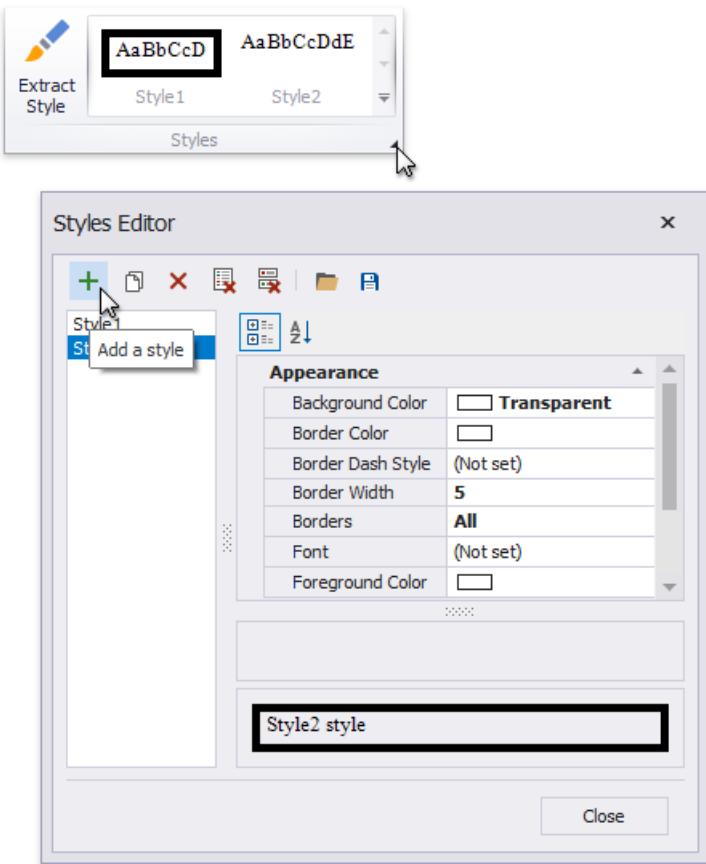
- **Extract a Style**

Specify a report control's [appearance properties](#) and press **Extract Style** in the report's toolbar.



- **Create a new Style**

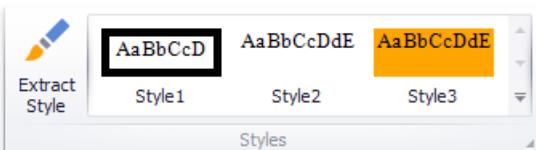
Press the caption button in the toolbar's Styles group to invoke the Styles Editor.



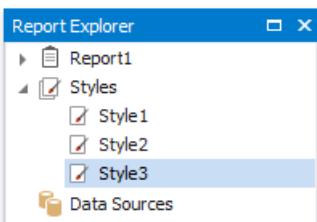
Press the **Add a style** button and specify the new style's appearance properties. Close the Styles Editor.

The created style is added to the Style gallery. You can access this gallery in the following places:

- the Styles group in the report's [toolbar](#);



- the Styles group in the [Report Explorer](#).

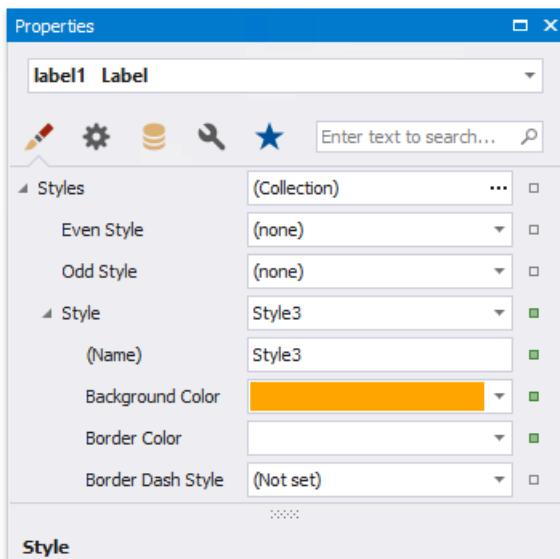


Assign a Style to a Report Element

Select a report element and press a style in the toolbar's Styles group.

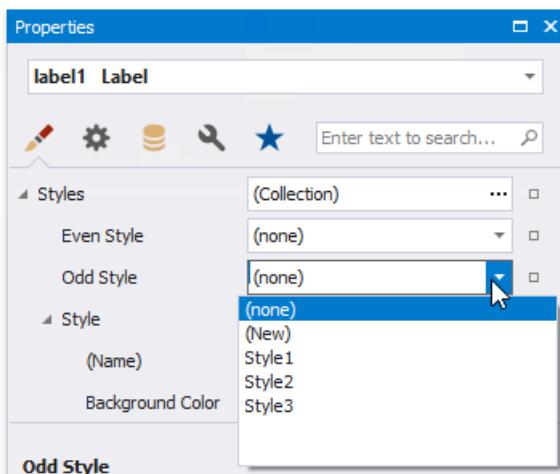


This assigns the style to the report element's **Style** property.



Assign Odd and Even Styles

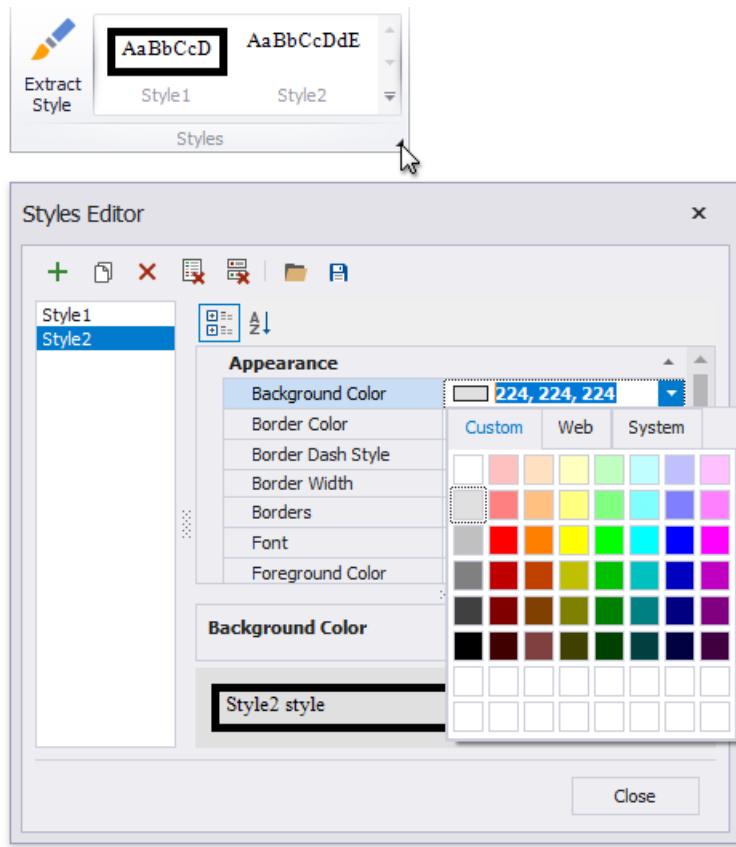
You can use the **Odd Style** and **Even Style** properties to apply different styles to alternating rows in a report.



Product Name	Quantity per Unit	Unit Price
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Aniseed Syrup	12 - 550 ml bottles	\$10.00
Chef Anton's Cajun Seasoning	48 - 6 oz jars	\$22.00
Chef Anton's Gumbo Mix	36 boxes	\$21.35
Grandma's Boysenberry Spread	12 - 8 oz jars	\$25.00
Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	\$30.00
Northwoods Cranberry Sauce	12 - 12 oz jars	\$40.00
Mishi Kobe Niku	18 - 500 g pkgs.	\$97.00
Ikura	12 - 200 ml jars	\$31.00
Queso Cabrales	1 kg pkg.	\$21.00

Customize a Style

Press the caption button in the toolbar's Styles group to invoke the Styles Editor.



Select a style and modify its property values. All the report elements apply the updated style immediately.

Style Inheritance

Nested elements inherit their parent element's style if they do not have an applied style.

Override Styles

You can specify a different value for a report element's appearance property to override the corresponding property value in the report element's style.

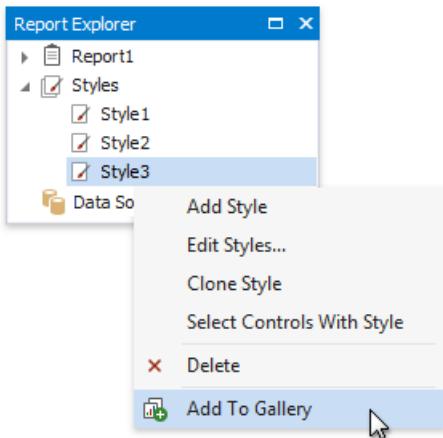
NOTE

If you apply conditional formatting, its appearance property values have a higher priority than both the individually specified properties and the style's properties.

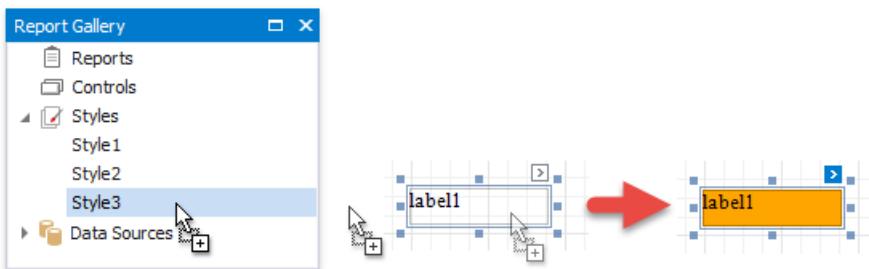
Reuse Styles

You can add a style to the [Report Gallery](#) and use it across different reports.

In the [Report Explorer](#), right-click a style and choose **Add to Gallery**.



The styles that the Report Gallery includes are available across reports. Drag a style from the **Report Gallery** to a report element.



This embeds the style to the report and set's the report element's **Style** property.

NOTE

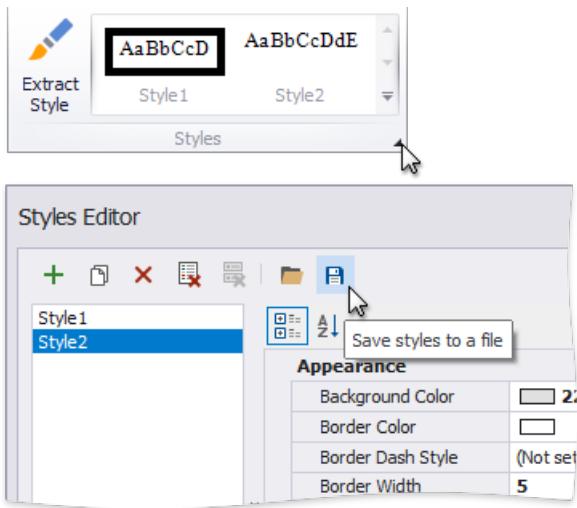
You can combine styles into **style sheets** and reuse them in reports.

Report Style Sheets

You can combine [report styles](#) into a style sheet and reuse them in reports. This topic explains how to create and use style sheets in reports.

Save Styles as Style Sheets

Press the caption button in the toolbar's Styles group to invoke the Style Editor.

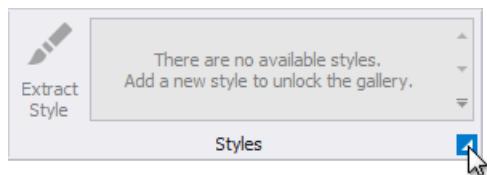


Press the button to save the styles as a style sheet (external REPSS file).

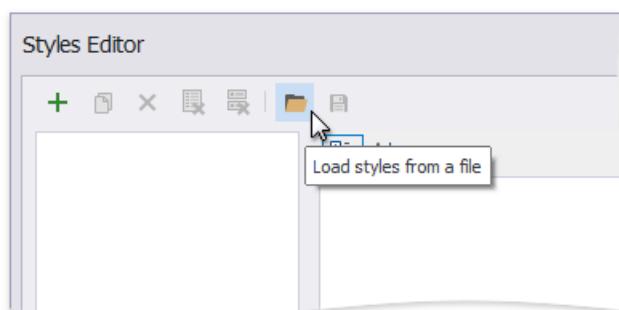
Add a Style Sheet to a Report

Do the following to embed a style sheet's styles in a report:

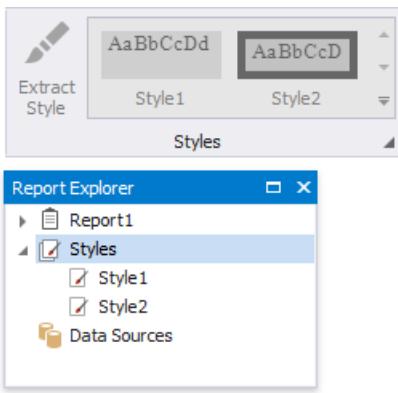
- invoke the Styles Editor;



- press and choose a style sheet file in the Open dialog.

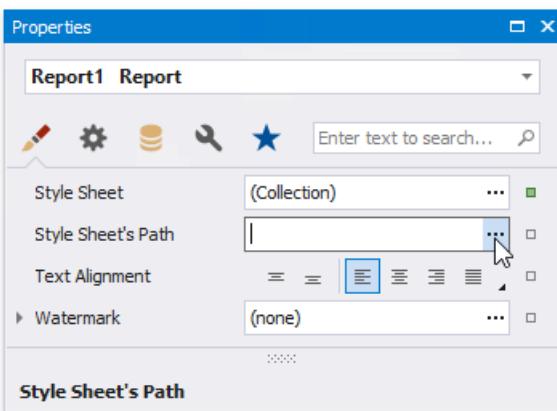


All the styles are now available in the report's toolbar and Report Explorer.

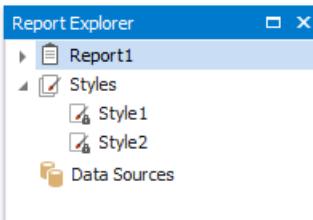


Reuse Style Sheets in Reports

You can utilize styles from a style sheet in a report. To do this, specify the path to the style sheet file in the report's **Style Sheet's Path** property.



The attached style sheet's styles are now available in the report's toolbar and the Report Explorer. You **cannot edit these styles**.



Add Navigation

The topics in this section describe how to use navigation features in your reports:

- [Add Page Numbers](#)
- [Add Cross-References and Hyperlinks](#)
- [Add Bookmarks and a Document Map](#)
- [Add a Table of Contents](#)

 **NOTE**

See [Provide Interactivity](#) to learn how to create drill-down reports.

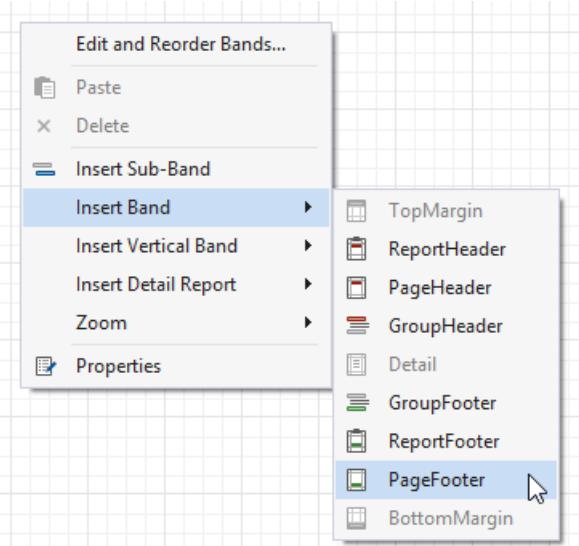
Add Page Numbers

The tutorial describes how to add page numbers to your reports.

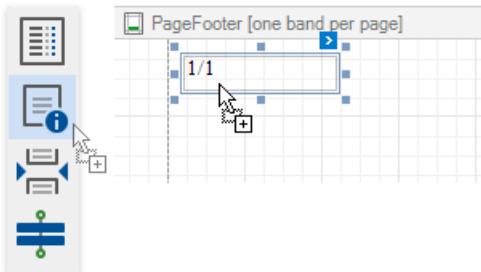
Add Page Numbers

Do the following to add page numbers to a report:

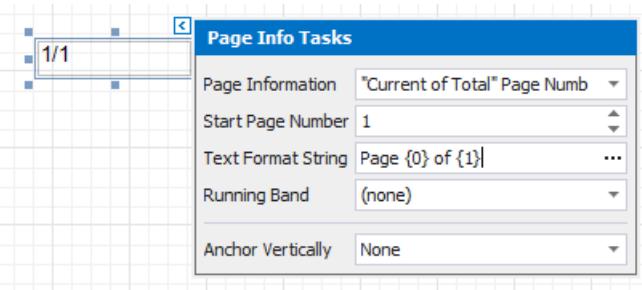
- Create a [PageFooterBand](#) in your report. To do this, right-click anywhere in the report designer, and in the context menu point to **Insert Band**, and then click **PageFooter**.



- Drop the [Page Info](#) control from the [Toolbox](#) to the **PageFooter** band.



- To change the control's display format, click its smart tag, and in the invoked actions list, specify the **Text Format String** property (e.g., **Page {0} of {1}**, to display the current page number out of the total number of pages).



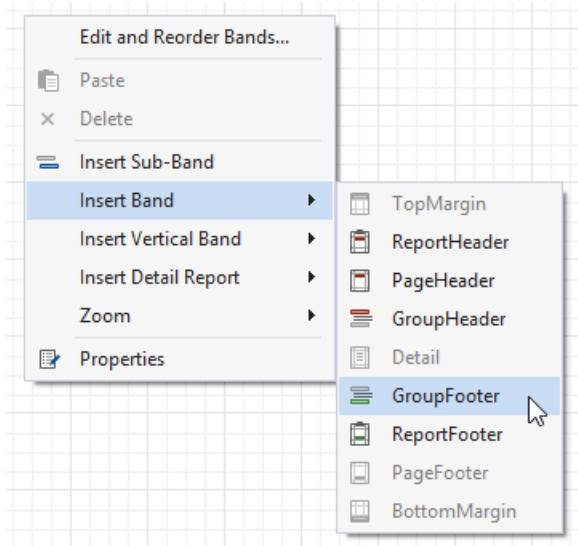
The following image illustrates the resulting report:

Gula Malacca	\$19.45
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 **GroupFooter** band. To do this, right-click anywhere on the report's surface, and in the invoked menu, point to **Insert Band** and click **GroupFooter**.

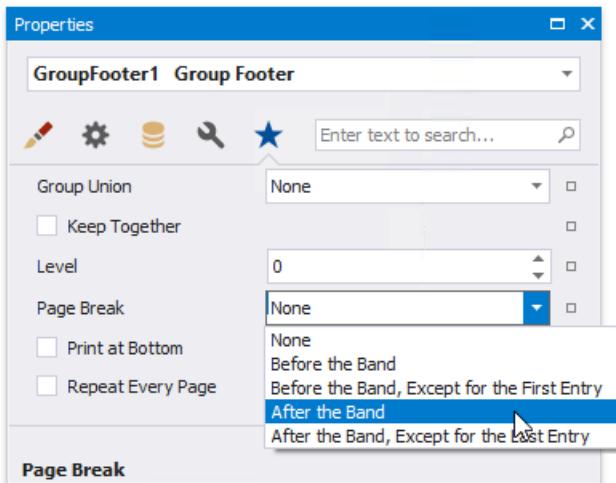


NOTE

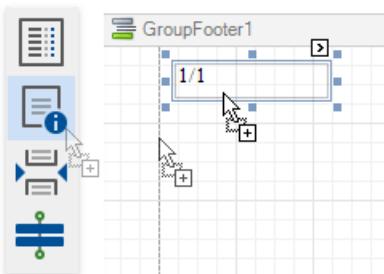
You can force the group header and/or the group footer to be repeated on each page, using the GroupBand's **Repeat Every Page** property.

- Next, force each new group to start on a separate page. Otherwise, group page numbers will be calculated incorrectly.

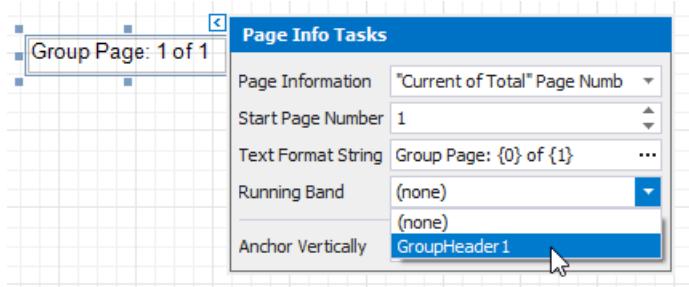
To do this, select the Group Footer, and set its **Page Break** property to *After the Band*.



- Drop the **Page Info** control from the **Toolbox** onto the **GroupFooter** (or **GroupHeader**) band.



- Select the created control, and set its **Running Band** property to *GroupHeader1*.



TIP

You can use the **Text Format String** and **Page Information** properties to adjust the way the control represents its contents.

The following image illustrates the resulting report:

Beverages

Côte de Blaye
Chartreuse verte
Ipoh Coffee
Laughing Lumberjack Lager
Outback Lager
Rhönbräu Klosterbier
Lakkalikööni

Group Page: 2 of 2

Add Cross-References and Hyperlinks

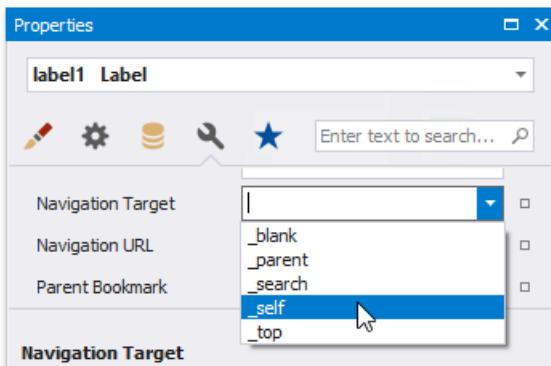
This document describes how to make an element navigate to other elements in a report or external resources by clicking it in a Print Preview.

Add Cross-References

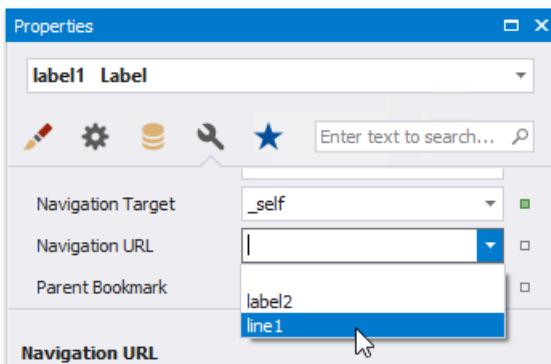
You can improve report navigation using a cross-reference because the link's target is in the same document.

You can add a cross-reference for a [report control](#) by setting the following properties:

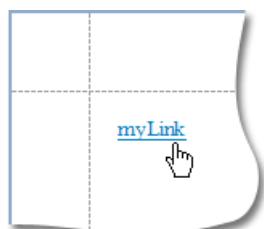
1. Set the **Navigation Target** property to `_self` to specify that the link is in the same document.



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.

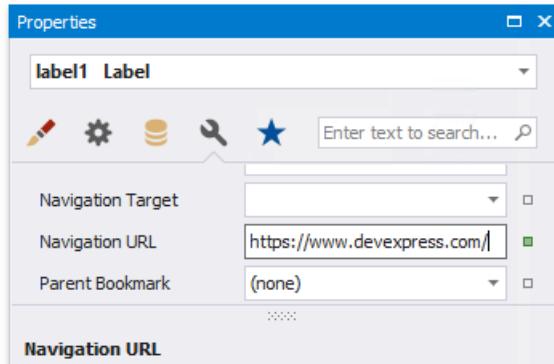
TIP

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.).

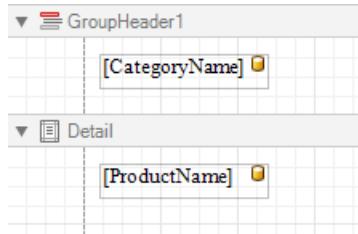
TIP

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:



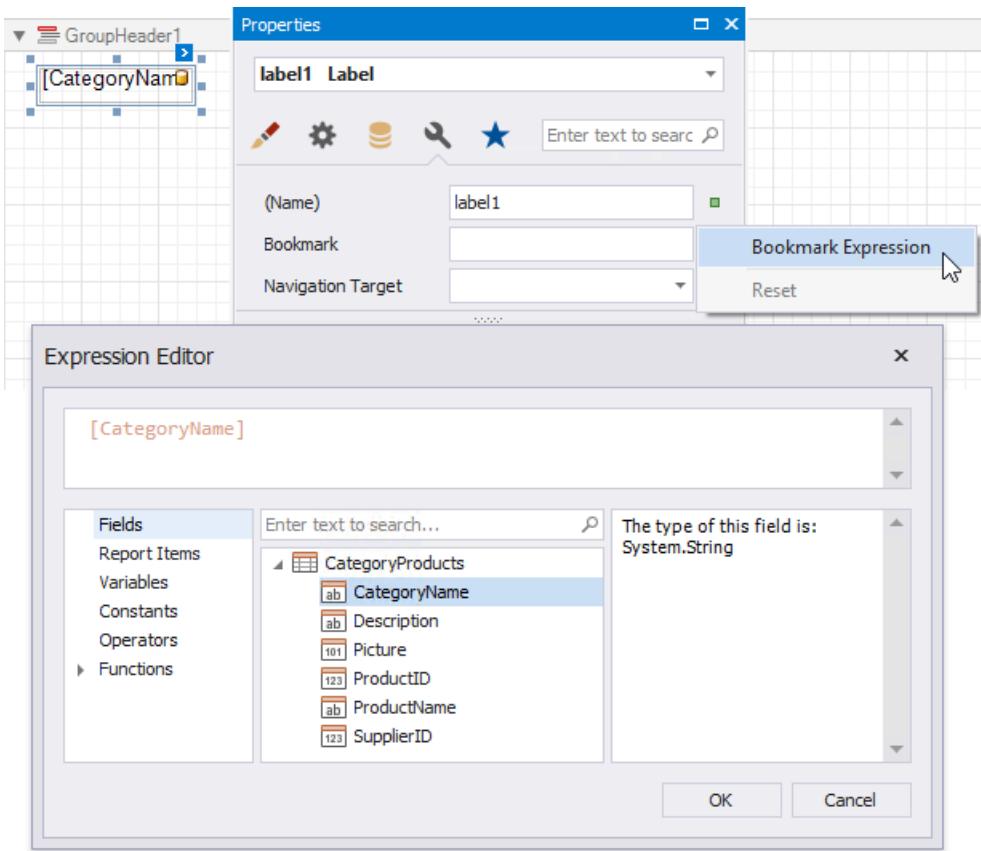
This report displays products that are **grouped** by the **CategoryName** field.

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.

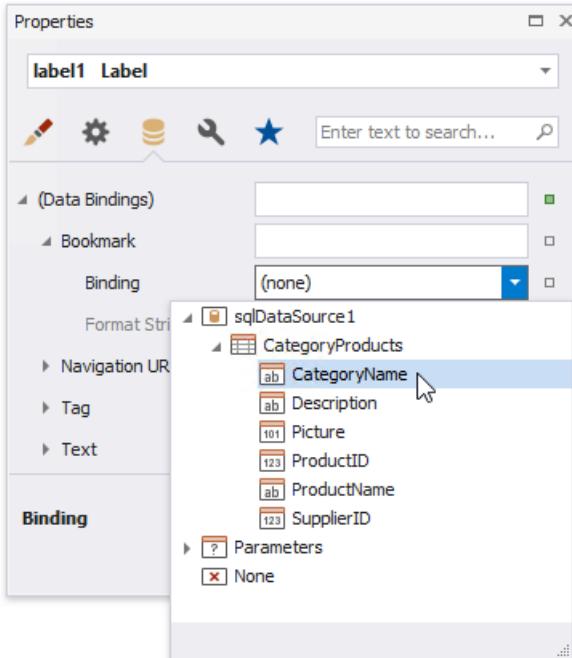
The screenshot shows the Document Map feature. On the left, there is a sidebar titled "Table of Contents" which lists the report structure. It includes categories like Beverages, Condiments, Confections, Dairy Products, Grains/Cereals, Meat/Poultry, Produce, and Seafood, each with its corresponding product names. The main area of the viewer shows the grouped report data. The "Beverages" category is expanded, showing products: Chai, Chang, Guaraná Fantástica, Sasquatch Ale, Steeleye Stout, Côte de Blaye, Chartreuse verte, Ipoh Coffee, Laughing Lumberjack Lager, Outback Lager, Rhönbräu Klosterbier, and Lakkalikööri. The "Condiments" category is also expanded, showing products: Aniseed Syrup, Chef Anton's Cajun Seasoning, Chef Anton's Gumbo Mix, and Grandma's Boysenberry Spread.

Use the following steps to generate a Document Map in your grouped report:

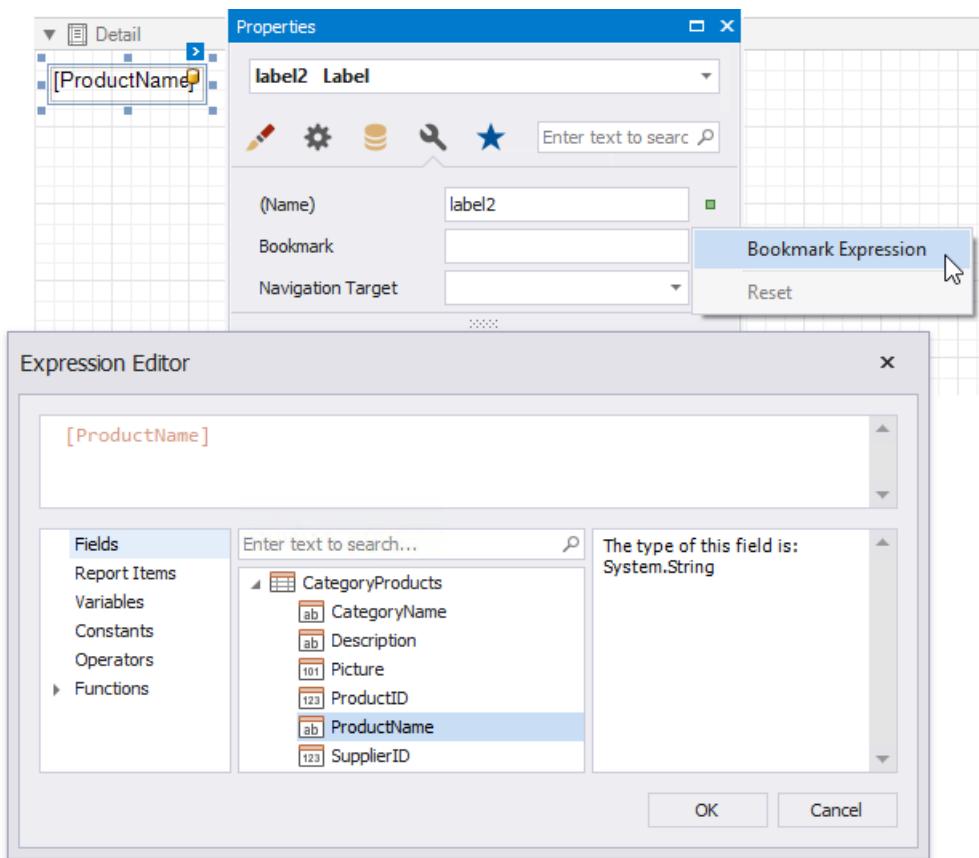
1. Select the label placed in the **Group Header** band and switch to the **Property Grid**'s **Miscellaneous** tab. Click the **Bookmark** property's marker and select the **Bookmark Expression** item. In the invoked **Expression Editor**, select the **CategoryName** data field.



In the legacy binding mode (if the Property Grid does not provide the **Bookmark Expression** item), you can specify this property in the Property Grid's **Data Bindings** category.

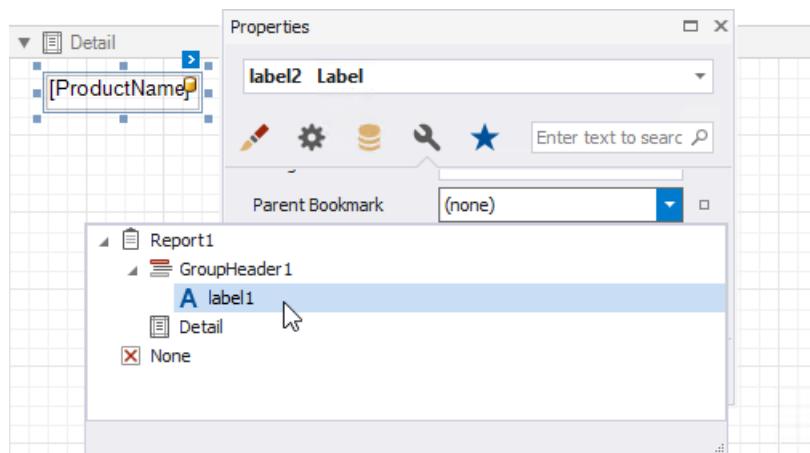


2. In the same way, select the label in the **Detail** band and bind its **Bookmark** property to the **ProductName** data field.



Most of the reporting controls (for example, [Table](#), [TableCell](#), [CheckBox](#), etc.) supports the **Bookmark** property.

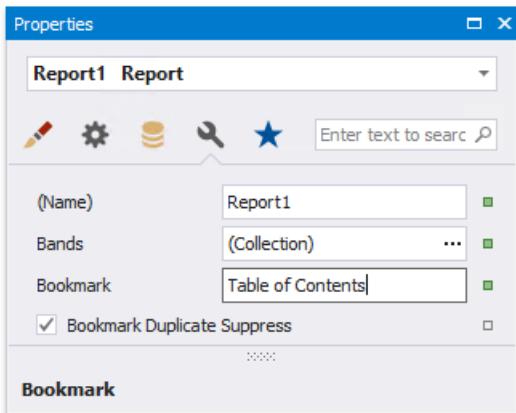
- Set the same label's **Parent Bookmark** property to the label in the group band. This arranges bookmarks into a parent-child structure reflecting the report elements' hierarchy in the Document Map.



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

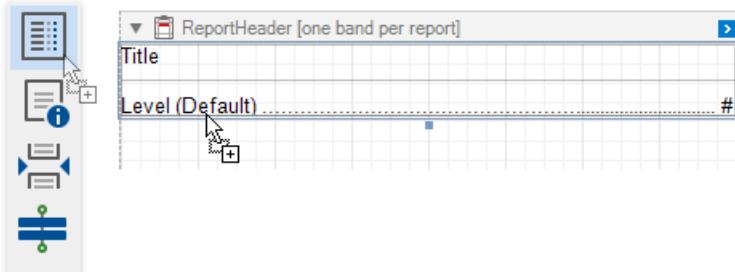
Duplicated bookmarks are suppressed to prevent adding multiple bookmarks with the same name to a final document. You can disable the report's **Bookmark Duplicate Suppress** property to allow duplicated bookmarks.

Create a Table of Contents

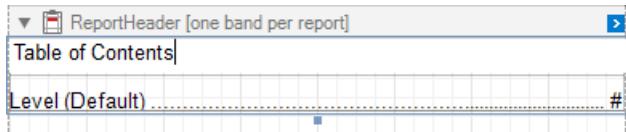
This tutorial describes the steps to create a report with a table of contents. A table of contents is automatically created based on the [bookmarks](#) existing in a report.

Do the following to create a table of contents in a report:

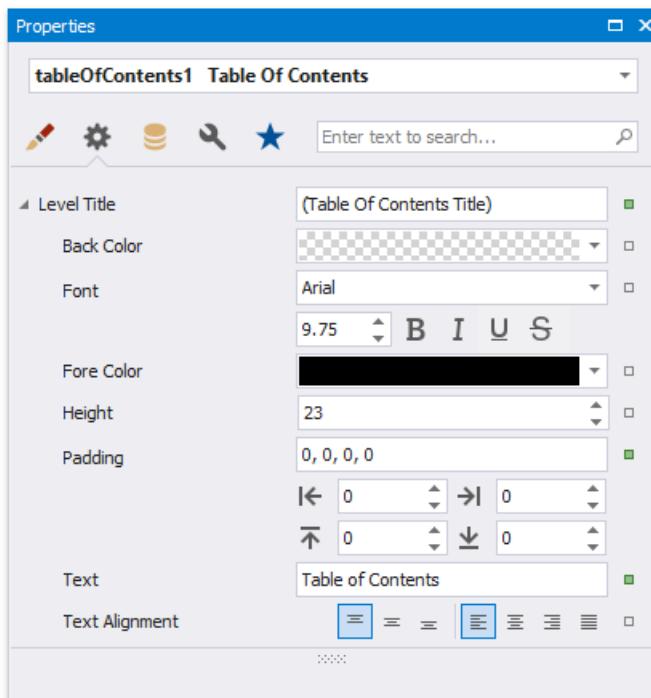
1. From the [Control Toolbox](#), drop the [Table of Contents](#) control onto the [Report Header band](#).



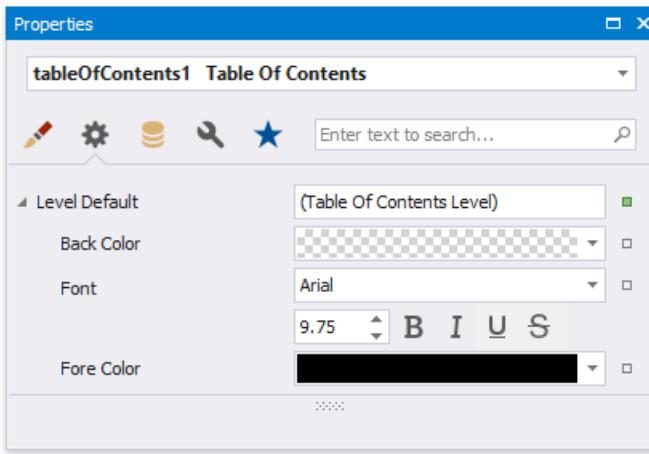
2. Double-click the title of the table of contents and specify its text.



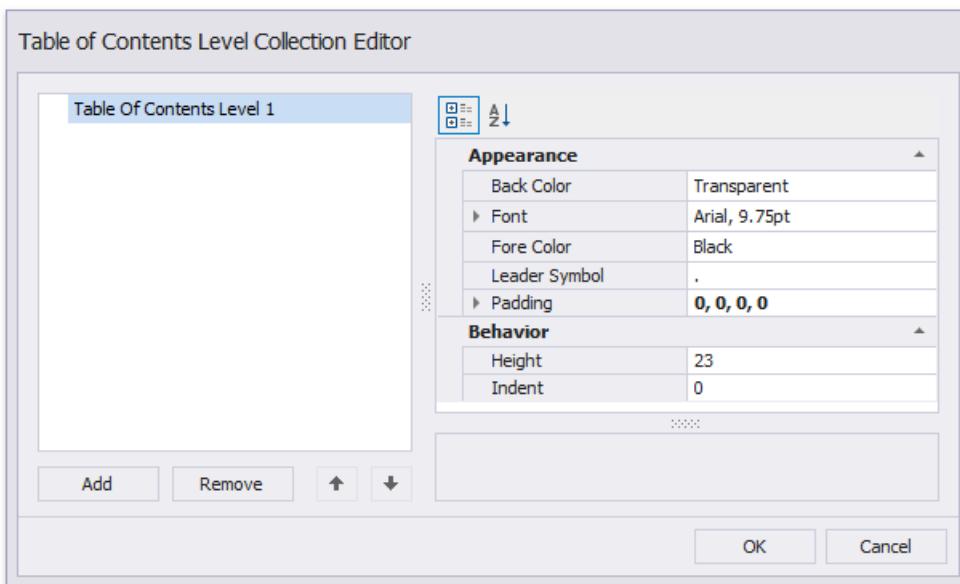
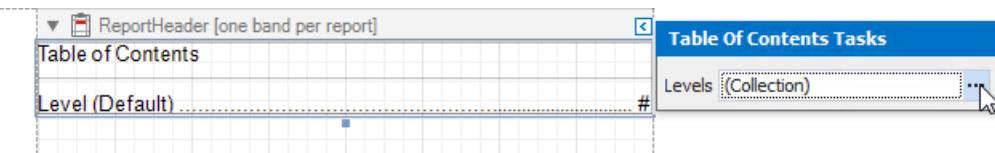
3. To customize the title appearance, use the **Level Title** option's settings available in the **Properties** window.



4. To customize the appearance of all other levels, use the **Level Default** option's settings.



5. To customize a specific level individually, add a corresponding item to the **Levels** collection of the table of contents and customize its properties.



The following image demonstrates the result in Print Preview:

Table of Contents

Beverages	4
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](#)
- [Sort a Report in Print Preview](#)
- [Content Editing in Print Preview](#)

Create Drill-Down Reports

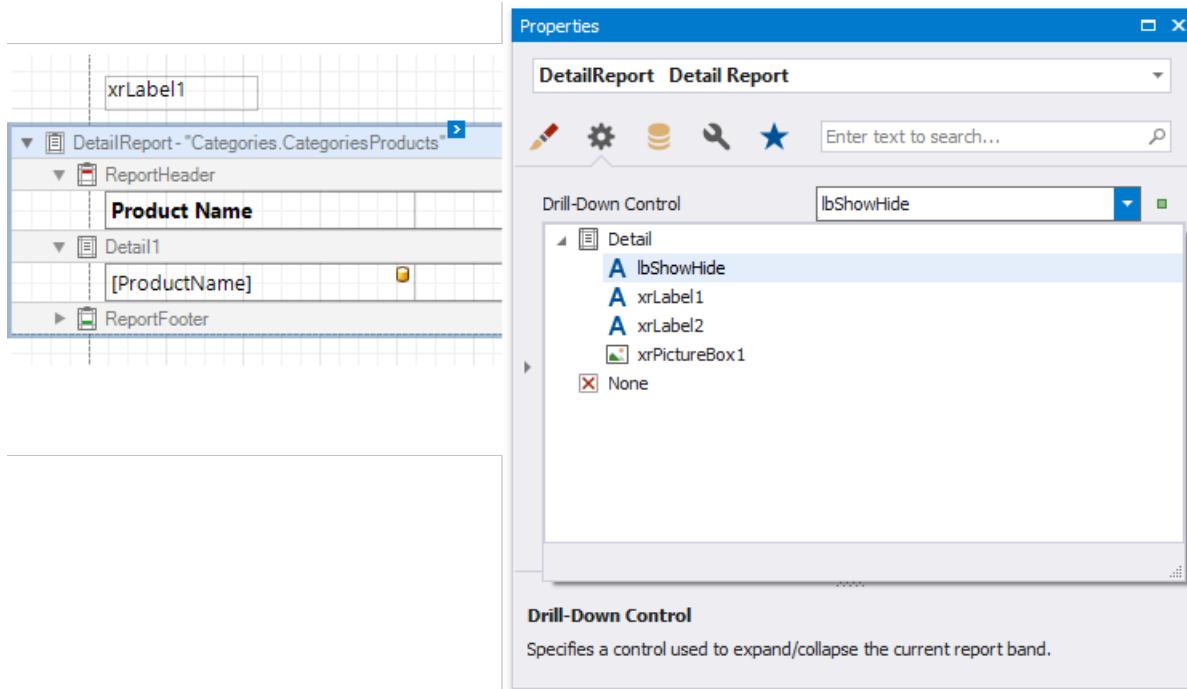
This tutorial describes how to create a drill-down report. Clicking a link in such a report displays the previously hidden detailed information in the same report:

Beverages <i>Soft drinks, coffees, teas, beers, and ales</i>  Hide Details  <table border="1"><thead><tr><th>Product Name</th><th>Quantity Per Unit</th><th>Unit Price</th></tr></thead><tbody><tr><td>Chang</td><td>24 - 12 oz bottles</td><td>\$19.00</td></tr><tr><td>Ipooh Coffee</td><td>16 - 500 g tins</td><td>\$46.00</td></tr><tr><td>Outback Lager</td><td>24 - 355 ml bottles</td><td>\$15.00</td></tr></tbody></table> Condiments <i>Sweet and savory sauces, relishes, spreads, and seasonings</i>  Show Details	Product Name	Quantity Per Unit	Unit Price	Chang	24 - 12 oz bottles	\$19.00	Ipooh Coffee	16 - 500 g tins	\$46.00	Outback Lager	24 - 355 ml bottles	\$15.00	
Product Name	Quantity Per Unit	Unit Price											
Chang	24 - 12 oz bottles	\$19.00											
Ipooh Coffee	16 - 500 g tins	\$46.00											
Outback Lager	24 - 355 ml bottles	\$15.00											

Do the following to create a drill-down report:

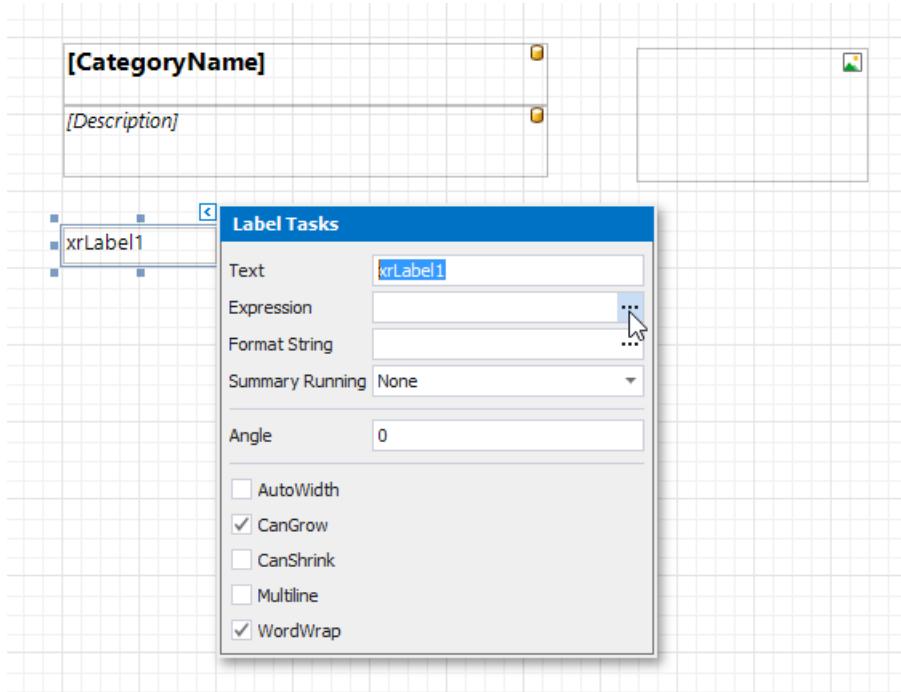
1. Create a master-detail report using Detail Report bands.
2. Drop a label onto the report's detail band. Clicking this label should expand or collapse the hidden report details.
3. Select the **detail report band** by clicking its header and expand the drop-down menu for the band's **DrillDownControl** property in the **Property Grid**.

This menu displays all report controls available on the report band that is one level above the current band in the report bands' hierarchy. Select the corresponding label in the menu to make the label expand or collapse the detail report's band when clicked in the Print Preview.



You can also specify the band's **Drill Down Expanded** property to define whether or not the band is initially expanded. This property is enabled by default.

4. Click this label's smart tag and select the **Expression** property.



This invokes the **Expression Editor** where you can make the label display different text based on the detail report's **DrillDownExpanded** property value.

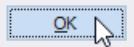
Expression Editor

```
Iif([ReportItems].[DetailReport].[DrillDownExpanded], 'Hide Details', 'Show Details')
```

Fields
Report Items
Constants
Operators
Functions
Aggregate
DateTime
Logical
Math
String

Enter text to search... 

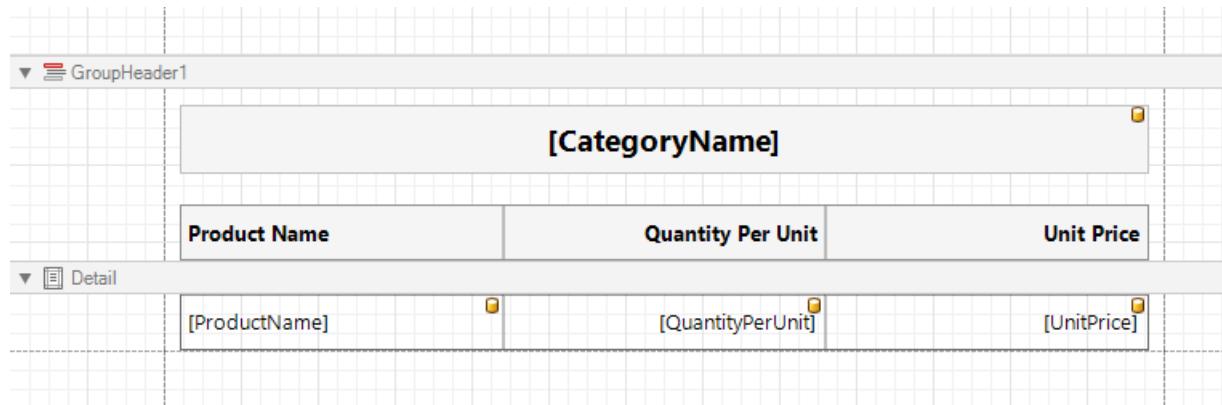
XtraReport1
TopMargin
Detail
xrLabel11
xrPictureBox1
xrLabel4
xrLabel1
DetailReport
ReportHeader
Detail1
ReportFooter
BottomMargin

 OK  Cancel

Sort a Report in Print Preview

This tutorial illustrates how to enable sorting report data in Print Preview.

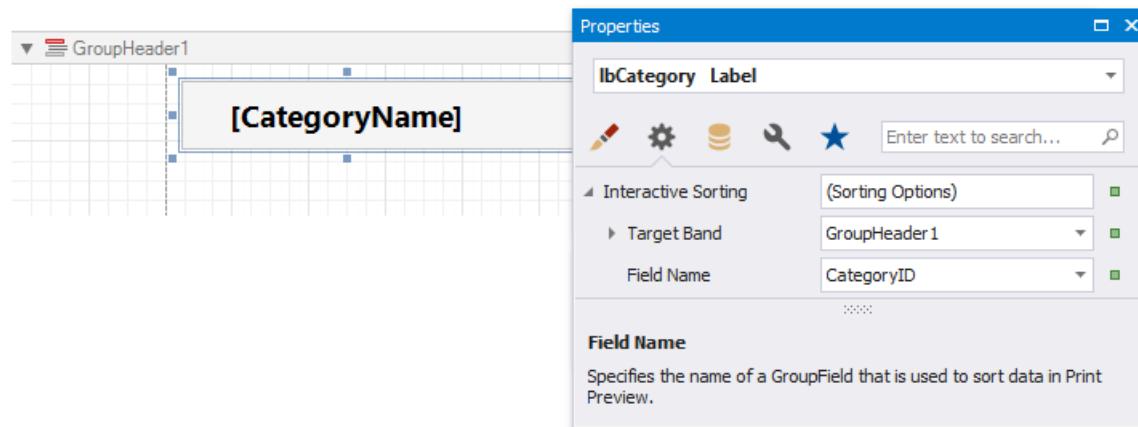
In this tutorial, we will start with the following report displaying products grouped by category names.



You can implement interactive sorting for both the detail data and report groups.

Sort Report Groups

To enable sorting report groups in Print Preview, select the label displaying product category names located in the **Group Header** band and switch to the [Property Grid](#).



Expand the label's **InteractiveSorting** property, and set the **TargetBand** property to *GroupHeader1* and **FieldName** to *CategoryName*.

Switch to the **Preview** tab to sort report groups by the **CategoryName** field. When a mouse pointer hovers over the category name, it changes to a hand indicating the sorting capability. The arrow displayed at the element's right edge indicates the sorting order.

The screenshot shows a report viewer window with a table titled "Beverages". The table has three columns: "Product Name", "Quantity Per Unit", and "Unit Price". The data rows are:

Product Name	Quantity Per Unit	Unit Price
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Guaraná Fantástica	12 - 355 ml cans	\$4.50
Sasquatch Ale	24 - 12 oz bottles	\$14.00
Steeleye Stout	24 - 12 oz bottles	\$18.00
Côte de Blaye	12 - 75 cl bottles	\$263.50
Chartreuse verte	750 cc per bottle	\$18.00
Ipoh Coffee	16 - 500 g tins	\$46.00
Laughing Lumberjack Lager	24 - 12 oz bottles	\$14.00
Outback Lager	24 - 355 ml bottles	\$15.00
Rhönbräu Klosterbier	24 - 0.5 l bottles	\$7.75
Lakkalikööri	500 ml	\$18.00

Sort Detail Data

To enable sorting data in the Detail band, select the table cell displaying the **Product Name** title and switch to the [Property Grid](#).

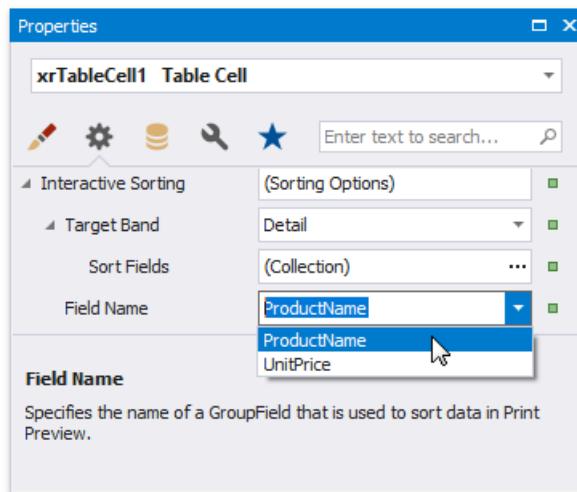
The screenshot shows the Visual Studio designer interface with the following components:

- Properties Window:** Shows the target band as "Detail" and the sort field as "(Collection)". The "Sort Fields" section is highlighted with a red box.
- Group Field Collection Editor:** A modal dialog where a new group field "GroupField - ProductName" is being added. The "Behavior" section shows "FieldName" set to "ProductName" and "SortOrder" set to "Ascending".

Set the **TargetBand** property to *Detail* and access the **SortField** property.

In the invoked collection editor, add a new group field and set its **FieldName** to **ProductName**.

Set the table cell's **FieldName** property to the **ProductName** field.



On switching to the Preview tab, you can now sort data in the Detail band by the **ProductName** field.

The screenshot shows the report preview window with a table titled 'Beverages'. The table has three columns: 'Product Name', 'Quantity Per Unit', and 'Unit Price'. The 'Product Name' column header is currently being clicked by a cursor, demonstrating an interactive sort operation. The table 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
Lakkaliköori	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

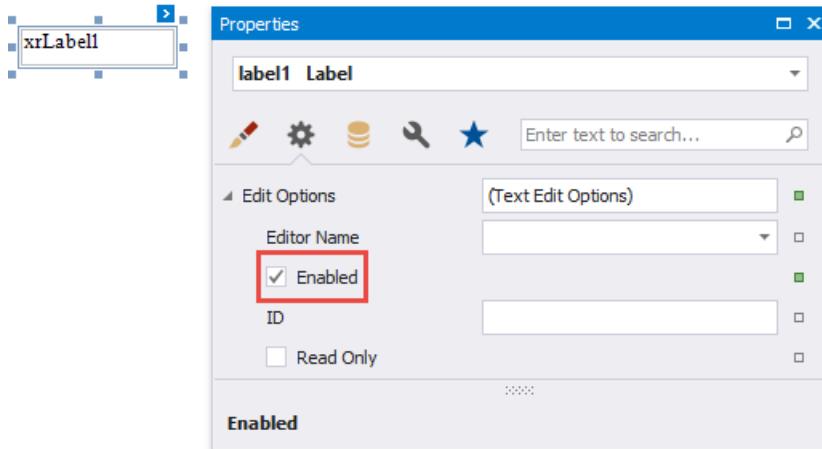
Reports embedded into the current report using the **Subreport** control do not support interactive data sorting.

Edit Content in Print Preview

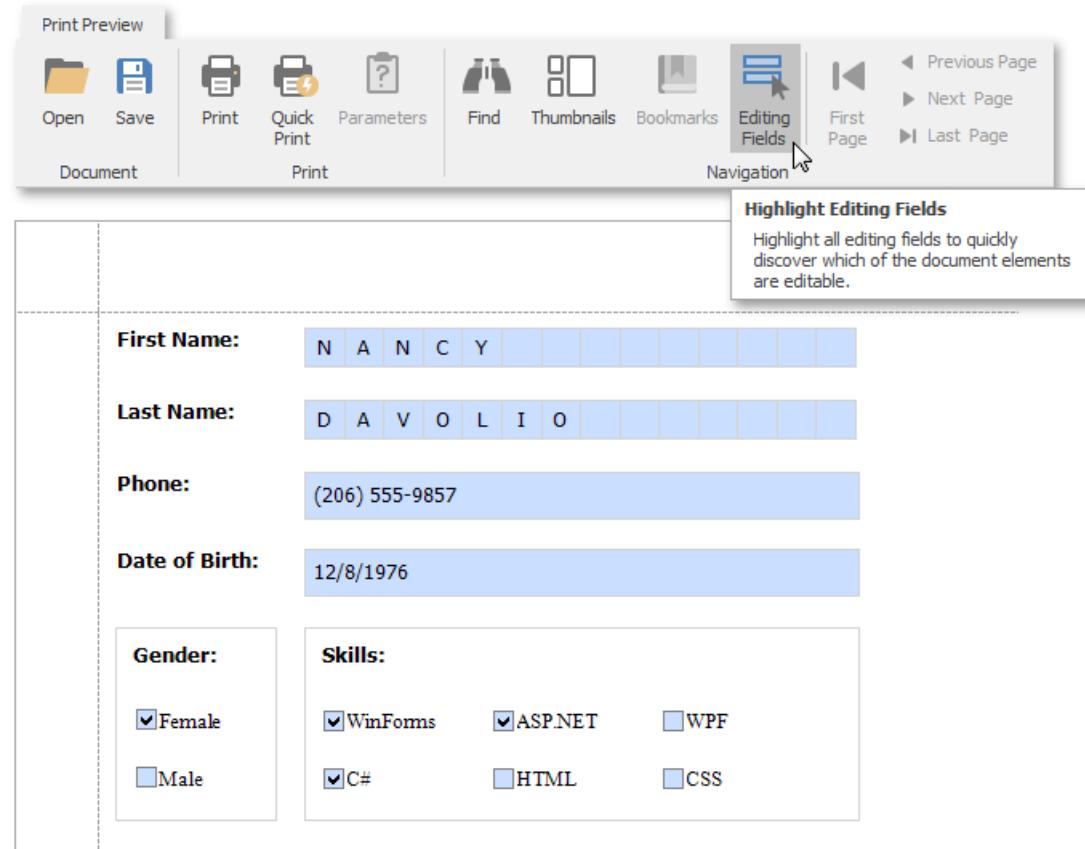
This document describes how to customize field values in a previewed document.

Content Editing Overview

Enable a report control's **Edit Options | Enabled** property and leave the **Edit Options | Read Only** property disabled to make the control's content editable in Print Preview.



Print Preview provides the **Editing Fields** toolbar button if content editing is enabled for at least one control in the displayed report. Click this button to highlight all editable fields available in the document.



Use the TAB and SHIFT+TAB keys to navigate between editable fields forward and back.

Click an editable field to invoke an editor and specify a value.

You can enable content editing for data-aware and unbound report controls.

The following report controls support content editing in Print Preview:

TEXT	BOOLEAN	IMAGE
Label	Check Box	Picture Box
Table Cell		
Character Comb		

The sections below provide information about options these controls expose. You can use these options to set up content editing.

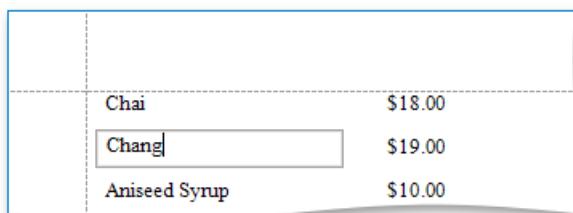
Content Editing Limitations

- Changes made to a control's content in Print Preview does not effect the document's other parts (for example, summary results, grouping, sorting, bookmarks and other settings that were processed before the document was generated).
- A control's **Can Grow** setting is ignored for editable fields. The edited area cannot exceed the control's original dimensions.
- Multi-line values can only be entered when no mask is applied to an editable field.
- Values entered into editable fields are reset after the document is refreshed (for example, when you submit [report parameter](#) values or expand/collapse data in a [drill-down report](#)).
- It is not possible to edit content in bands if their **DrillDownControl** property is specified.
- The entered values are not preserved in the Top Margin and Bottom Margin bands when the report is exported as a single file to the following formats:
 - TXT
 - CSV
 - HTML
 - MHT
 - RTF
 - XLS
 - XLSX
 - image

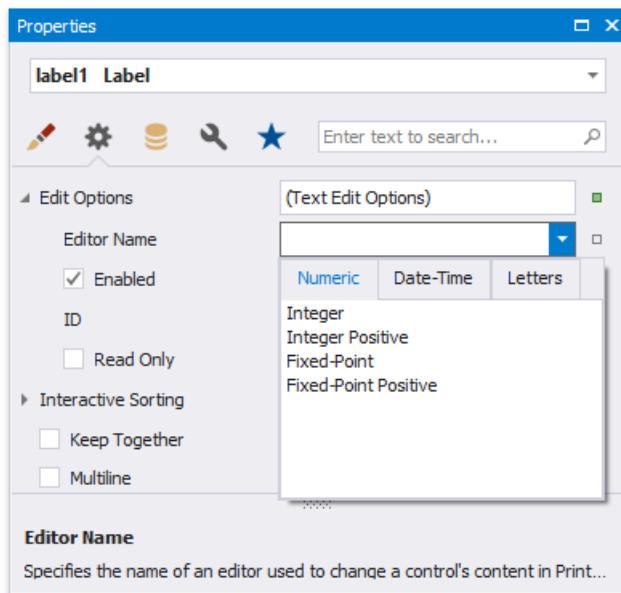
Text Editors

Text editors are used to customize the [Label](#), [Table Cell](#) and [Character Comb](#) report controls' content in Print Preview.

The default text editor is a memo edit.



Specify the **Edit Options | Editor Name** property to use one of the following text editors:



NUMERIC	DATE-TIME	LETTERS
Integer	Date	Only Letters
Positive Integer		Only Uppercase Letters
Fixed-Point		Only Lowercase Letters
Positive Fixed-Point		Only Latin Letters

Each editor has a specific mask.

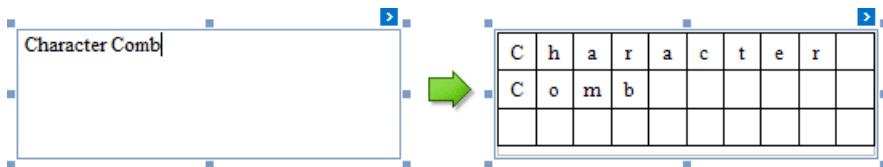
NOTE

If a table cell contains other controls, you cannot edit this cell (they can edit the cell's controls). The following image illustrates this:

Employee	Status
First Name: <input type="text" value="Nancy"/>	<input checked="" type="checkbox"/> Employed
Last Name: <input type="text" value="Davolio"/>	<input type="checkbox"/> Retired

Character Comb Editors

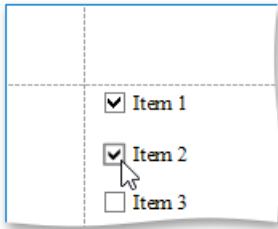
The **Character Comb** control displays text so that each character is printed in an individual cell.



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 editor is used to customize the [Check Box](#) report control's content in Print Preview.



You can combine several check box editors into a radio group so that you can select only one option within a group at a time. For this, set the [Check Box](#) report controls' **Group ID** property to the same value.

The screenshot shows the Visual Studio Properties window for a 'checkBox1 Check Box'. The 'Group ID' property is highlighted with a red border and set to 'video-format'. Other properties shown include 'Enabled' (checked), 'ID' (empty), and 'Read Only' (unchecked). A tooltip for 'Group ID' explains it specifies the ID of a group to which a check box belongs.

Image Editors

Image editors are used to customize the [XR PictureBox](#) report control's content in Print Preview.

Use the control's **Edit Options | Editor Name** property to assign one of the following image editors.

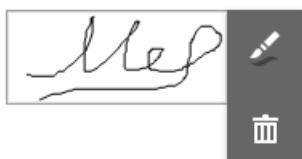
- **Image Editor**

Allows you to load an image and specify the image's size options.



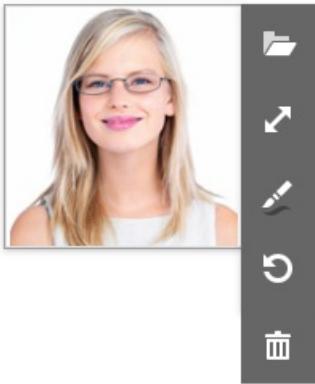
- **Signature Editor**

Allows you to specify brush options and draw a signature.



- **Image and Signature Editor (default)**

Allows you to load an image and draw a signature. The image's size options and brush options are available.



All these image editors include the button. This button allows you to clear the editor's content.

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**).

The screenshot shows the 'Properties' window for an 'XtraReport Report'. The 'Export Options' section is expanded, displaying various export settings. Under 'PDF Export Options', the 'Export Editing Fields to AcroForms' checkbox is checked. A tooltip below the checkbox provides a brief description of its function.

Properties

XtraReport Report

Export Options

- CSV Export Options
- DOCx Export Options
- E-mail Options
- HTML Export Options
- Image Export Options
- Mail Message Export Opt...
- MHT Export Options
- Native Format Options
- PDF Export Options
 - Convert Images to Jpeg
 - Document Options
 - Export Editing Fields to AcroForms

Image Quality: Highest

Export Editing Fields to AcroForms

Specifies whether to convert editable fields to AcroForms fields on PDF export.

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

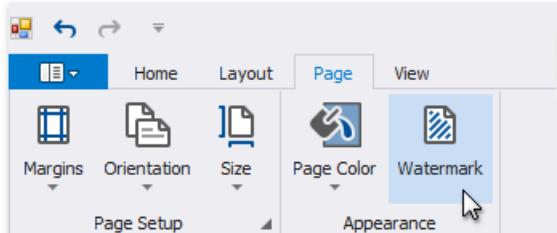
This tutorial describes how to add watermarks to a report and use preprinted forms.

Andrew received his BTS commercial in 1974 and a Ph.D. in international marketing from the University of Dallas in 1981. He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager in January 1992 and to vice president of sales in March 1993. Andrew is a member of the Sales Management Roundtable, the Seattle Chamber of Commerce, and the Pacific Rim Importers Association.

Add a Watermark to a Report

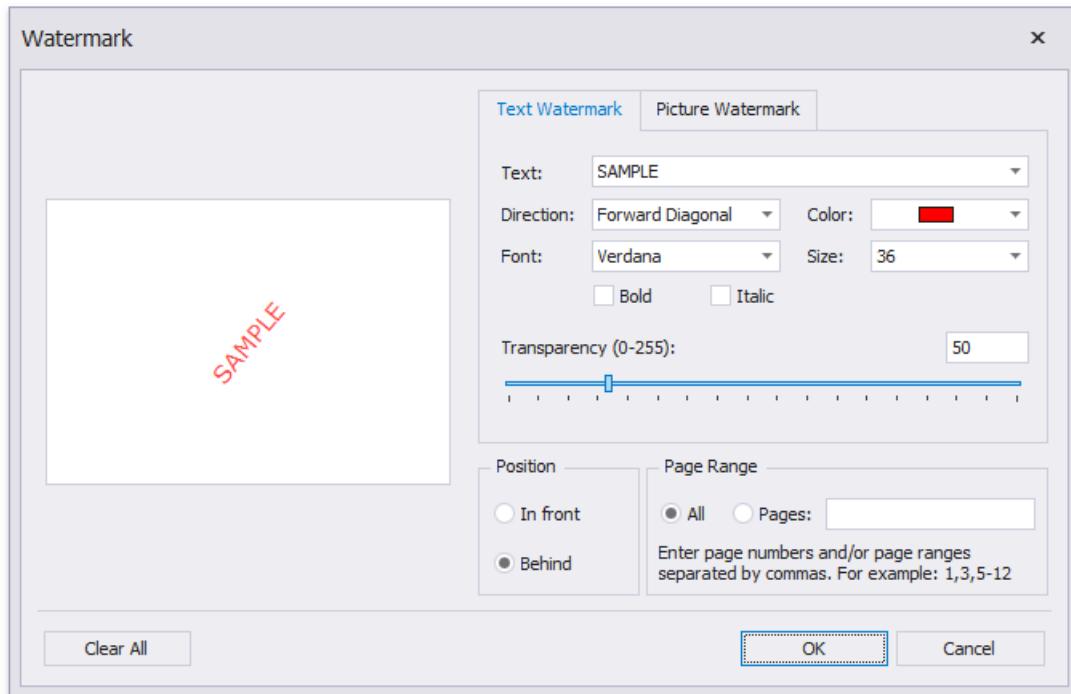
To add a watermark to a report, do the following.

1. Switch to the toolbar's **Page** page and press **Watermark**.

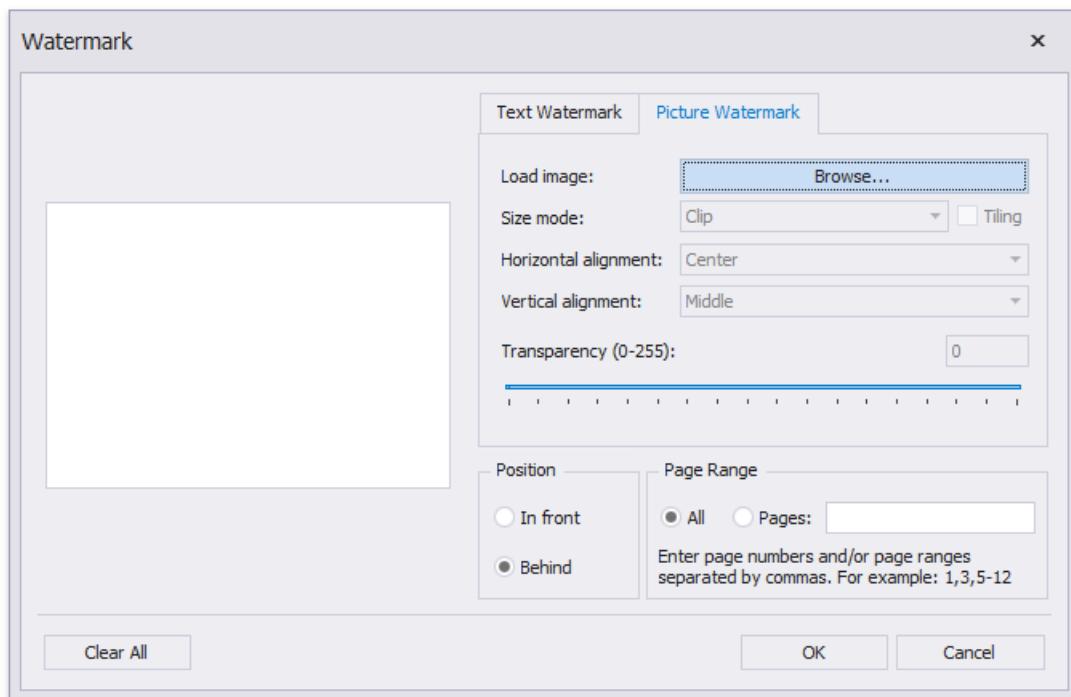


2. In the invoked **Watermark** dialog, select either the **Text Watermark** or **Picture Watermark** tab, depending on the type of watermark you wish to add.

For a text watermark, specify the text, direction and font options.



For a picture watermark, you need to specify an image. To do this, click the ellipsis button for the **Load image** option.



In the invoked **Select Picture** dialog, select the file containing the image that you wish to use as a watermark and click **Open**. Next, specify the size mode and alignment options for the picture.

Additionally, for both textual and picture watermarks, you can adjust the transparency, position (in front of or behind the document content), and the page range in which the watermark will be printed.

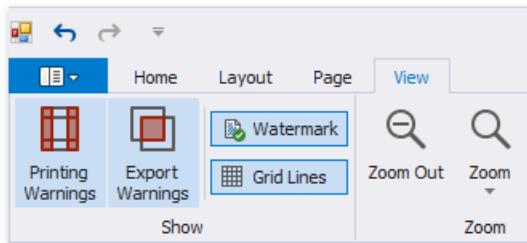
NOTE

The **Transparency** property is unavailable when you specify an SVG image.

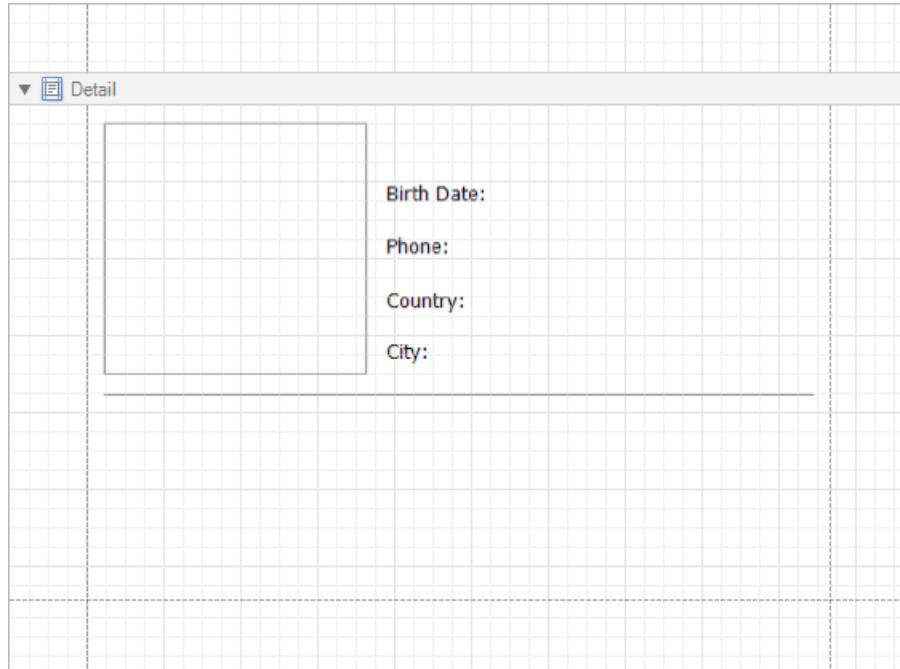
Supply a Preprinted Form

You can use a picture watermark as a template, to display an image of the preprinted form on the report's body at design time.

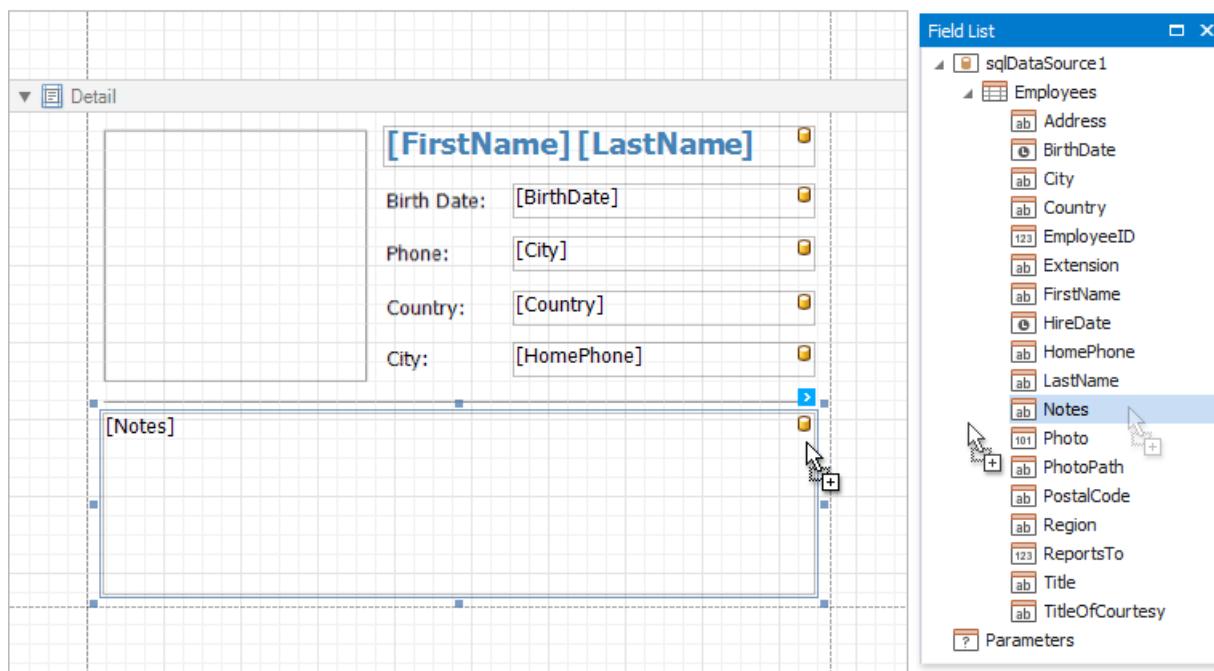
To display a watermark at design time, switch to the toolbar's **View** page and activate **Watermark**.



The following image illustrates a report with a watermark shown at design-time that contains a template of a preprinted form.



Place report controls on the report's body according to the layout of the preprinted form.



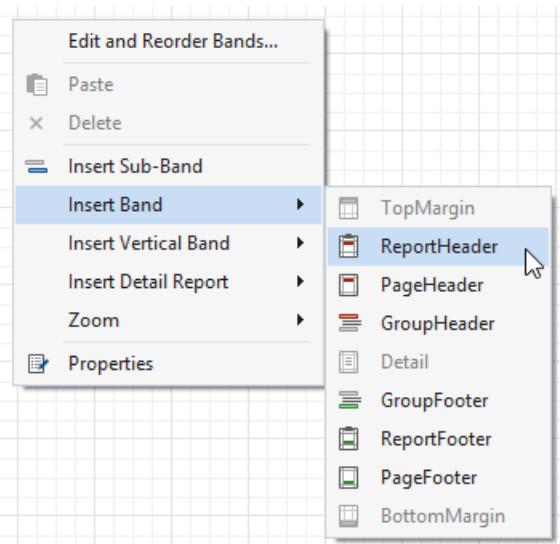
Display the User Name in a Report

This tutorial demonstrates how to insert the current user name in a report using the [Page Info](#) control.

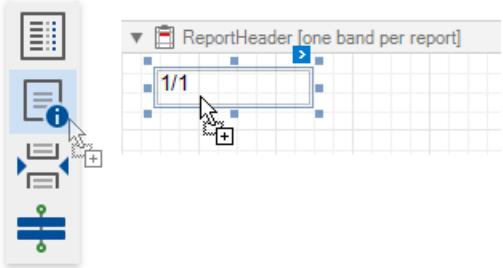
Current User: Andrew Fuller	
Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$21.35
Grandma's Boysenberry Spread	\$25.00
Uncle Bob's Organic Dried Pears	\$30.00
Northwoods Cranberry Sauce	\$40.00
Mishi Kobe Niku	\$97.00
Ikura	\$31.00
Queso 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:

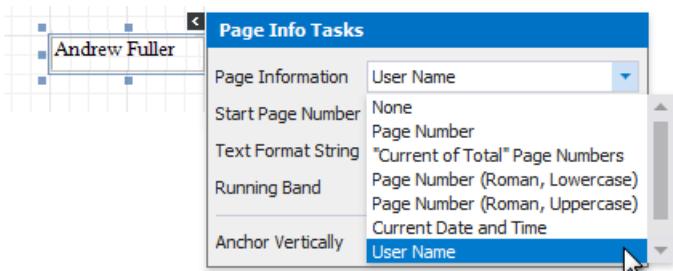
1. Typically, the user name is displayed within the [Report Header](#) band. To add it to the report, right click anywhere on the report's surface. In the invoked menu, point to **Insert Band** and click **ReportHeader**.



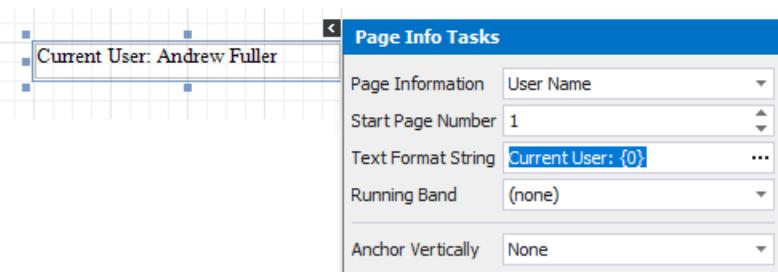
2. Drop the [Page Info](#) control from the [Toolbox](#) onto the **ReportHeader** band.



3. Set the control's **Page Information** property to *User Name* (e.g. using the smart tag).



4. Next, to apply a format string to the control's contents, type **Current User: {0}** into its **Text Format String** property.



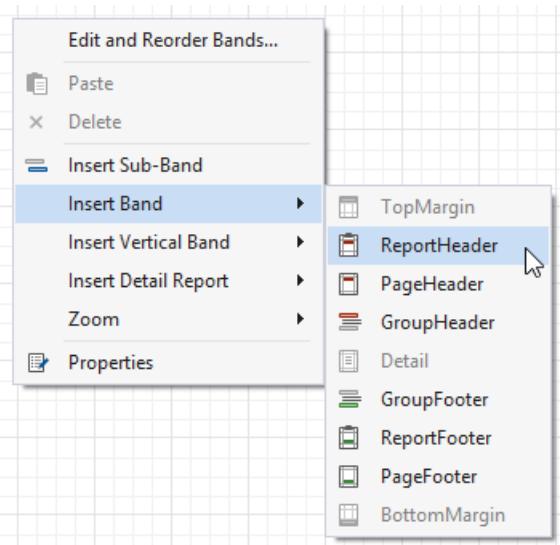
Display the Current Date and Time in a Report

This tutorial demonstrates how to insert the current system date and time into a report using the [Page Info](#) control.

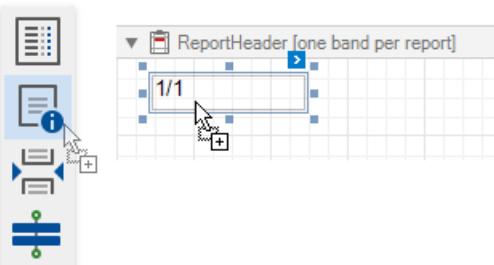
Created at 6:57 PM 06 Jun 2013	
Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$21.35
Grandma's Boysenberry Spread	\$25.00
Uncle Bob's Organic Dried Pears	\$30.00
Northwoods Cranberry Sauce	\$40.00
Mishi Kobe Niku	\$97.00
Ikura	\$31.00
Queso Cabrales	\$21.00
Queso Manchego La Pastora	\$38.00
Konbu	\$6.00
Tofu	\$23.25
Genen Shouyu	\$15.50

Do the following to include information about the current date and time into a report:

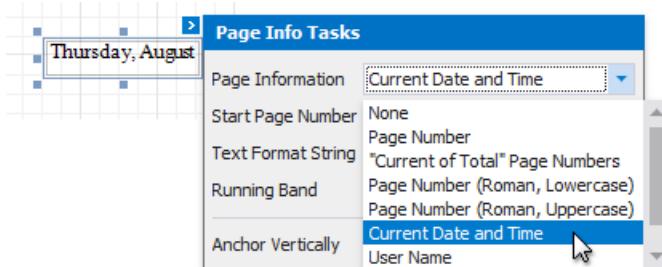
1. Typically, the current date and time are displayed within the [Report Header](#) band. To add it to the report, right click anywhere on the report's surface. In the invoked menu, point to **Insert Band** and click **ReportHeader**.



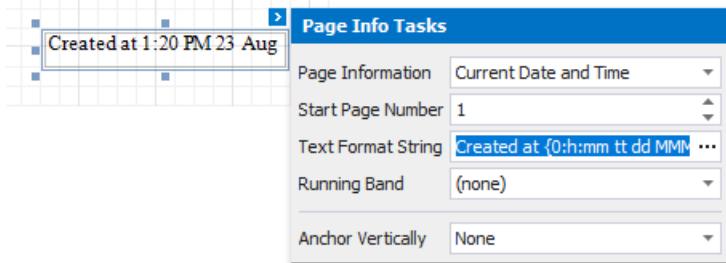
2. Drop the [Page Info](#) control from the [Toolbox](#) onto the **ReportHeader** band.



3. Set the control's **PageInformation** property to *DateTime* (e.g. using the smart tag).



4. To apply a format string to the control's contents, type **Created at {0:h:mm tt dd MMMM yyyy}** into its **TextFormatString** property.



Merge Reports

You may have report pages that do not fit within an entire report template in the following cases:

- Title pages or custom pages at the end of the report;
- Charts within a table report;

You can create pages in a separate report and merge them into your base report. This enables you to print and export merged pages as a single document, and preserve the original report page settings and orientation.

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.

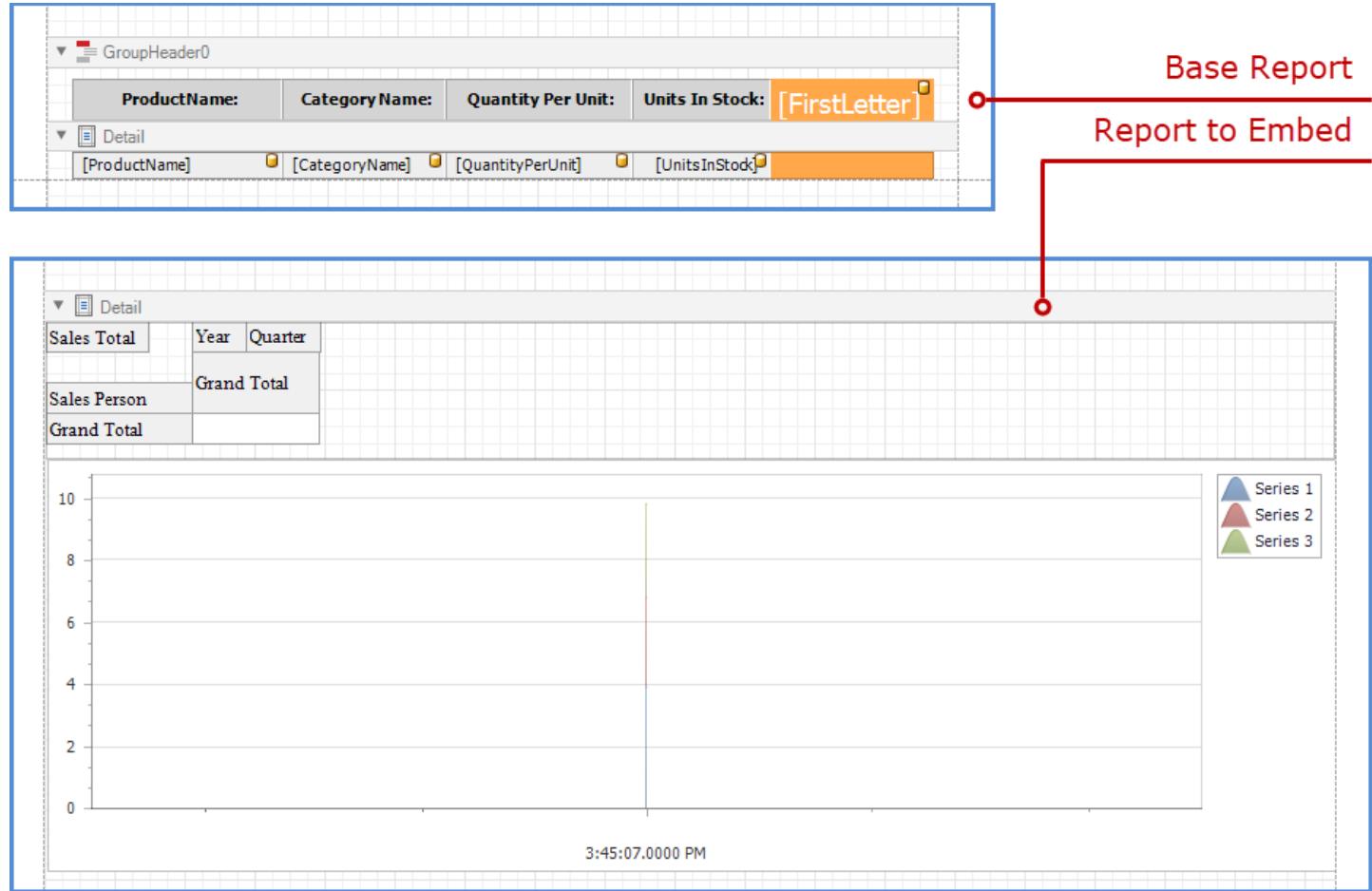
Table Page: Shows a table titled "Grains/Cereals" with columns for Product ID, Product Name, Supplier ID, and Supplier Name, along with a small image of grains.

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.

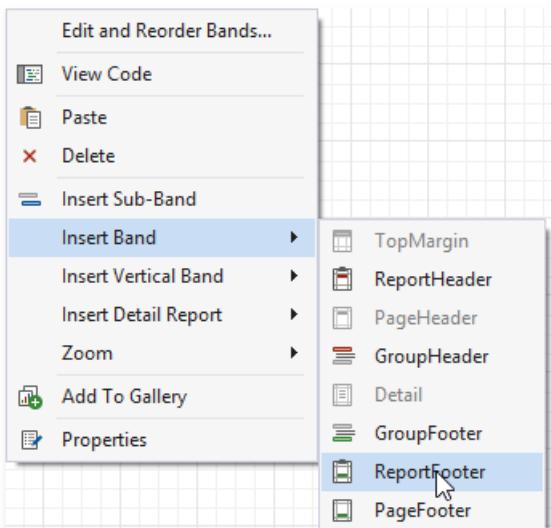
Table Page: Shows a table titled "Dairy Products" with columns for Product ID, Product Name, Supplier ID, and Supplier Name, along with a small image of dairy products.

Add a Report to the End/Beginning

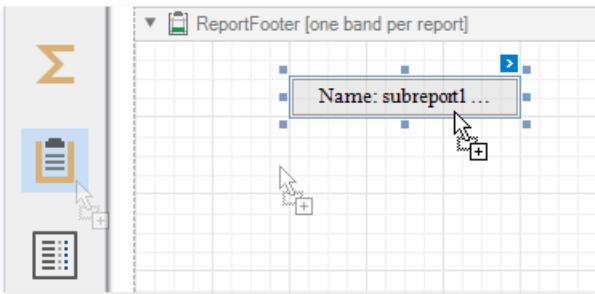
Follow the steps below to add a separate report to the end of another report and print it as a single job.



1. Right-click the base report and select the **Insert Band / Report Footer** item in the context menu.



2. Drag a Subreport item from the Toolbox onto the created Report Footer band.

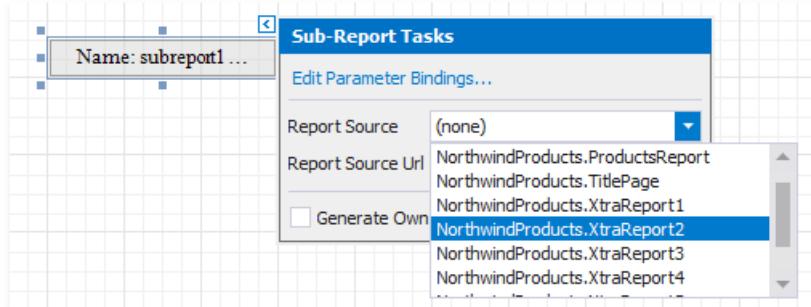


TIP

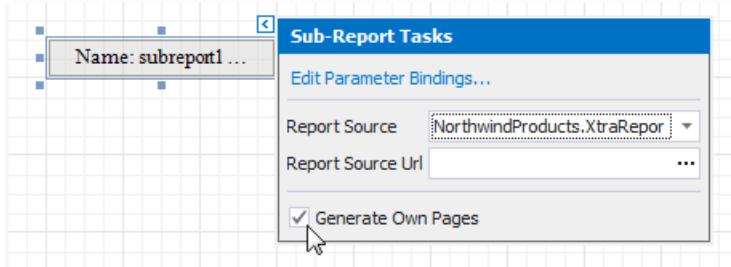
To add a report to the beginning of another report (for instance, to add a title page), use the **Report Header** band instead.

3. Click the subreport's smart tag and specify a report in the **Sub-Report Tasks** window:

- Use the **Report Source** property to assign a predefined report from the Designer.
- Use the **Report Source Url** property to assign a custom report.



4. Enable the **Generate Own Pages** option to print the embedded report on separate pages and use its own page settings.



5. Switch to Preview mode to see the combined report.

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 Tingers	Seafood	16 kg bag	42	
Chai	Beverages	10 boxes x 20 bags	39	
Chang	Beverages	24 - 12 oz bottles	17	
Chartreuse verte	Beverages	750 ml 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	
Guanbaronesasacilot	Dairy Products	10 kg bag	26	
Gula Melaka	Condiments	20 - 1 kg bags	27	
Gumbier Gummibärchen	Confetions	100 - 230 g bags	19	
Gus's Kitchens	Grains/Cereals	24 - 300 g pcks.	104	

Page : 1 / 4



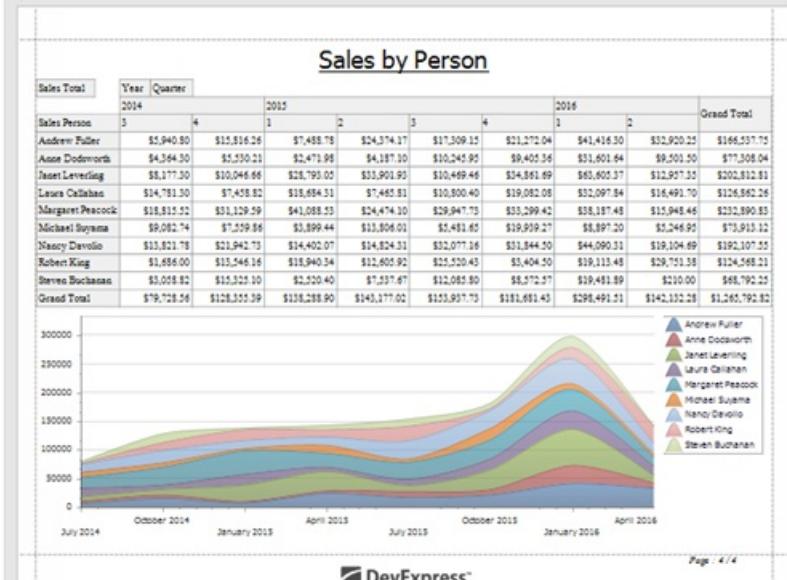
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Queso Manchego La Pasteria	Dairy Products	10 - 300 g pcks.	86	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Raclette Courteau	Dairy Products	5 kg pck	79	
Ravioles Angelo	Grains/Cereals	24 - 250 g pcks.	36	
Riboritos Kutterbutter	Beverages	24 - 0.5 l bottles	123	
Rod Kavir	Seafood	24 - 150 g jars	101	
Rogede Aard	Seafood	1kg bag	3	
Rosie's Sauvignon	Product	25 - 825 g cans	26	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Saskatch Ale	Beverages	24 - 12 oz bottles	111	
Schöpp Schokolade	Confetions	100 - 100 g pieces	49	
Scottish Longnecks	Confetions	10 boxes x 8 pieces	6	
Singaporen Holland Fried Hoi	Grains/Cereals	32 - 1 kg pcks.	26	
Sir Rooney's Hamalaise	Confetions	30 gift boxes	40	
Sir Rooney's Scones	Confetions	24 pcks x 4 pieces	3	
Skipper's Caramels	Confetions	24 - 300 ml bottles	113	
Soleasid	Seafood	4 - 400 g glasses	95	
Steelye Stout	Beverages	24 - 12 oz bottles	20	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Tarte au sucre	Confetions	48 pcks	17	
Teatime Chocolate Blaumilch	Confetions	10 boxes x 12 pieces	29	
Thüringer Rostbratwurst	Meat/Poultry	30 bags x 30 sausages	0	
Tofu	Product	40 - 100 g pcks.	35	
Tourtière	Meat/Poultry	16 pcks	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	
Veget-o-spread	Condiments	15 - 625 g jars	24	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Wimmer's gute Semmelknödels	Grains/Cereals	20 bags x 4 pieces	22	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Zincke's Iceni	Confetions	10 - 4 oz boxes	36	

Page : 2 / 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	
Zoom 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	
Lakalani	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 Oysters	Condiments	24 - 8 oz jars	4	
ProductName	Category Name	Quantity Per Unit	Units In Stock	
Mangimbo Dried Apples	Produce	50 - 300 g pcks.	20	
Mascarpone Patis	Dairy Products	24 - 200 g pcks.	9	
Mari Kobo Niki	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	
Moro-Dit Rehestering	Seafood	10 - 200 g glasses	10	
Northwoods Cranberry Sauce	Condiments	12 - 12 oz jars	6	
Multivita 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 pces	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

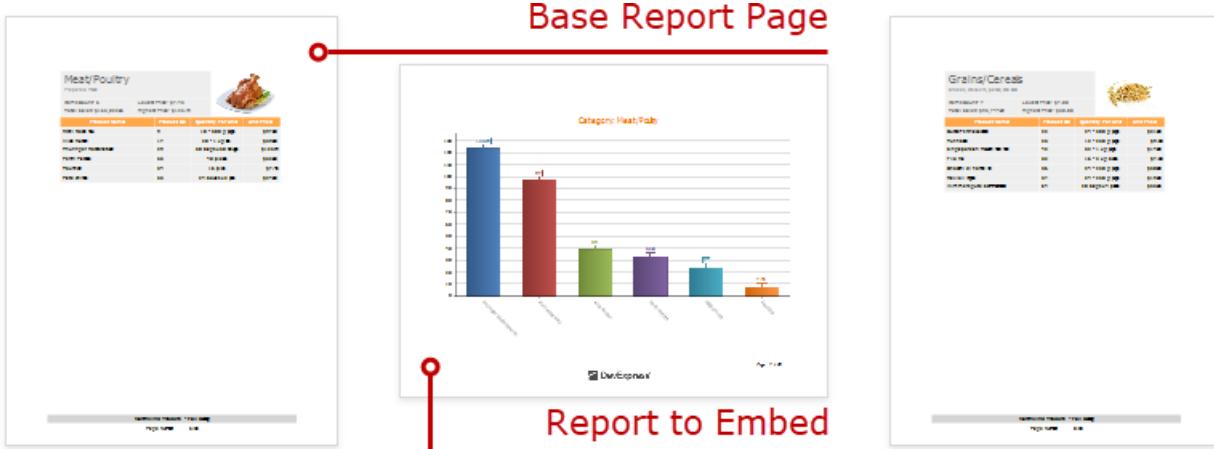


Page : 4 / 4



Use Data-Driven Page Sequence

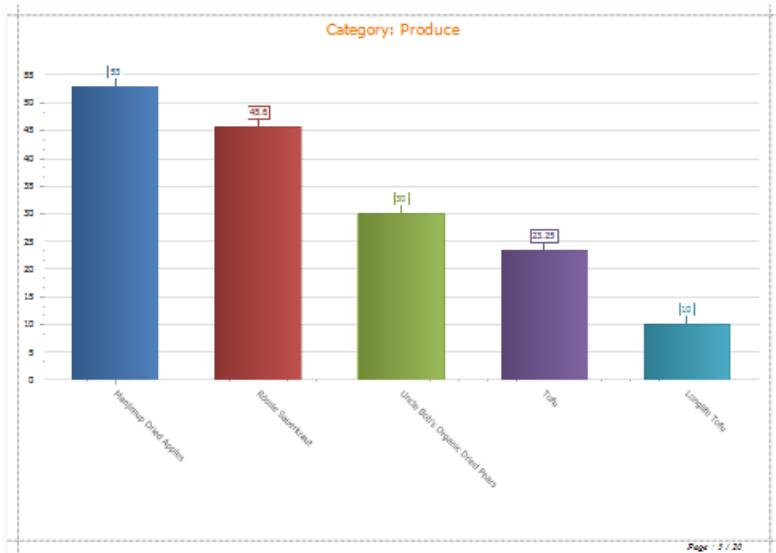
This topic describes how to combine a table report that uses the Portrait page orientation and a chart report that uses Landscape page orientation.



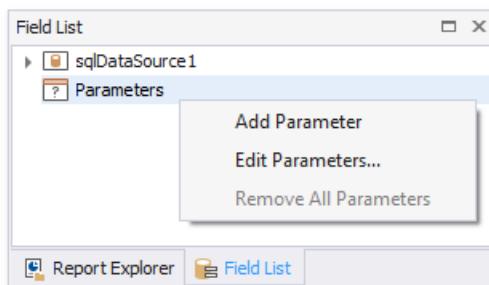
Follow the steps below to create a combined report:

Create a Chart Report

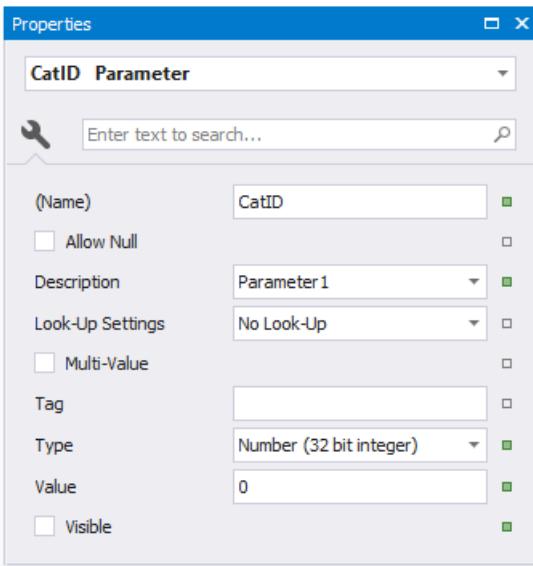
1. Create a report that shows data in the chart form. [Bind](#) the report to a data source. Set the report's **Landscape** property to **true** to enable the Landscape page orientation.



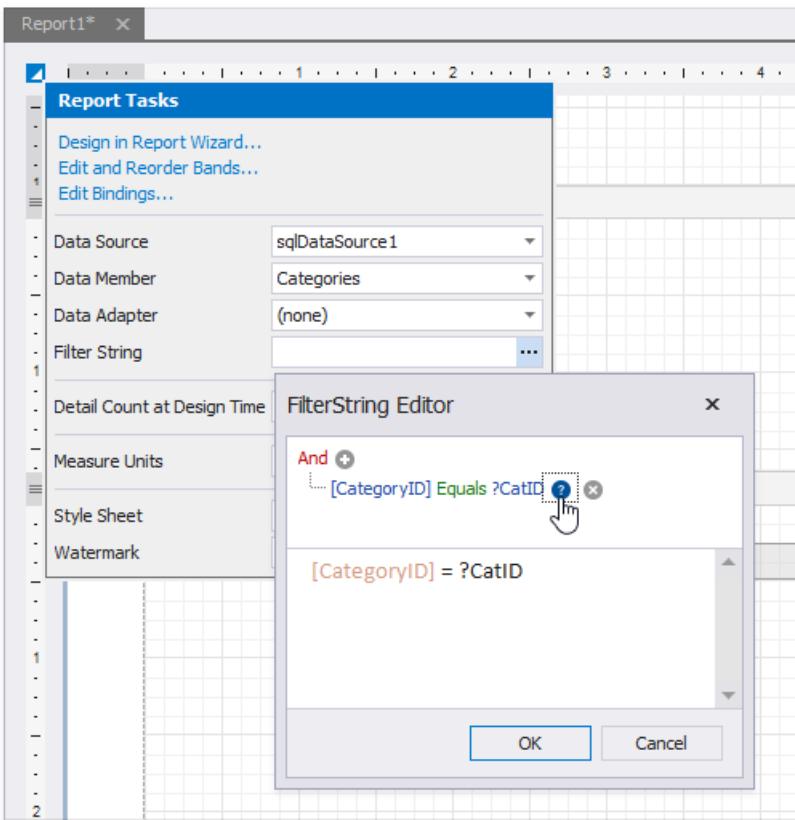
2. Add a parameter to your chart report to identify which data to use for the chart. Right-click **Parameters** in the **Field List** and choose **Add Parameter**.



3. Select the created parameter and set its **Name** and **Type**, and uncheck the **Visible** option.



4. Click the report's smart tag. Click the **Filter String** option's ellipsis button. In the invoked **FilterString Editor**, construct an expression to compare the key data field to the created parameter. To access the parameter, click the icon on the right until it turns into a question mark.



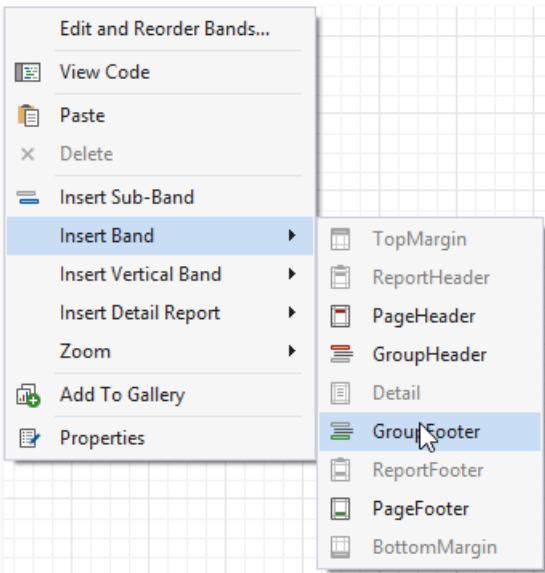
5. Save the report.

Create the Base Report

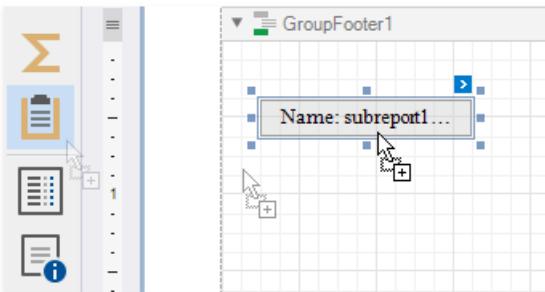
1. Create a report **bound** to the same data source as the chart report, and arrange a layout like the one shown below:

The screenshot shows the SSRS report designer interface. At the top, there is a group header section labeled "GroupHeader1" containing a title "[CategoryName]" and some descriptive text. Below it is a detail section containing a table with columns for Product Name, Product ID, Quantity Per Unit, and Unit Price. The table has four rows, each with a value like "[ProductName]", "[ProductID]", "[QuantityPerUnit]", and "[UnitPrice]".

2. Right-click the base report's **Detail** band and select the **Insert Band / Group Footer** item in the context menu.

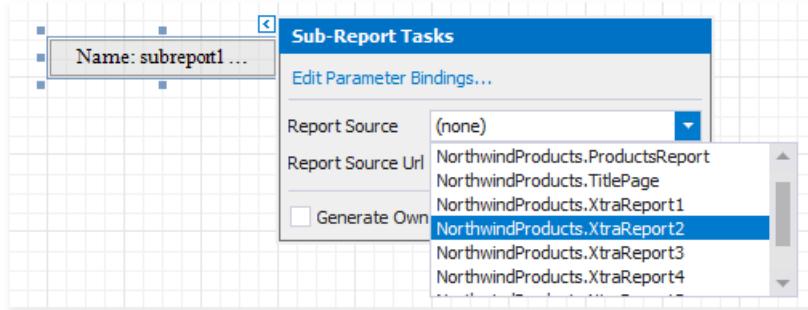


3. Drag a **Subreport** item from the Toolbox onto the added group footer band.

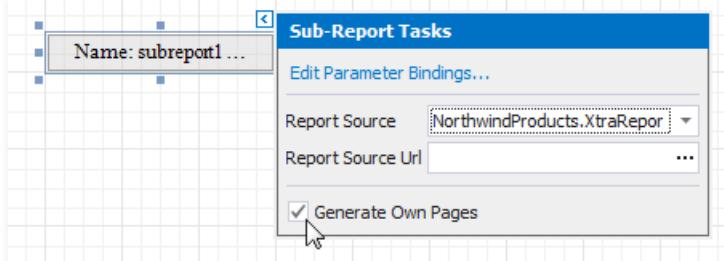


4. Click the sub-report control's smart tag and specify the chart report in the **Sub-Report Tasks** window:

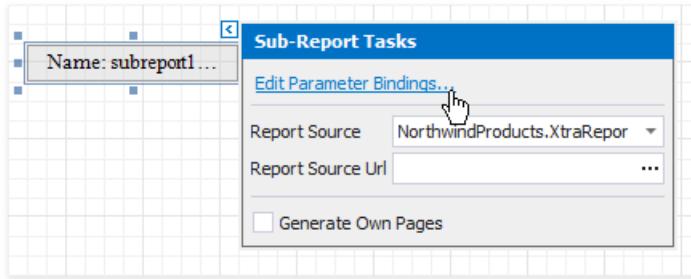
- Use the **Report Source** property to assign a predefined report from the Designer.
- Use the **Report Source Url** property to assign a custom report.



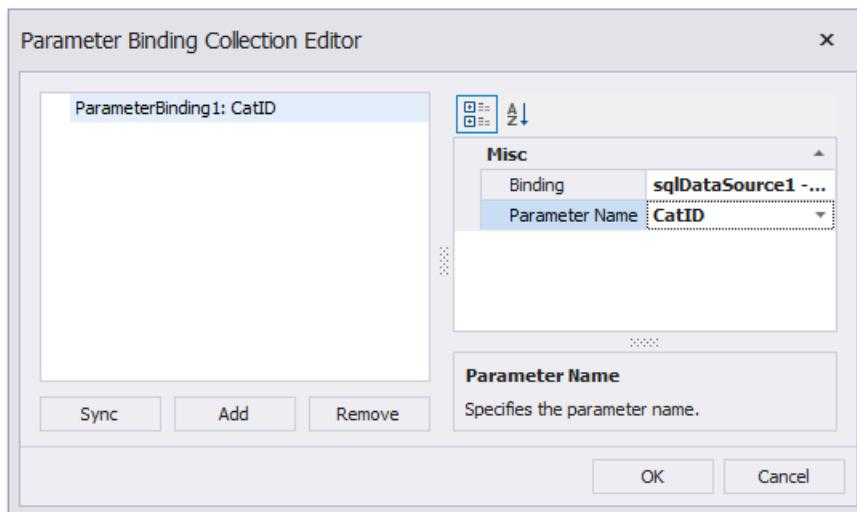
5. Enable the **Generate Own Pages** option to print the embedded report on separate pages and use its own page settings.



6. Bind the chart report's parameter to the base report's data field. Click the subreport's smart tag and select **Edit Parameter Bindings** in the invoked **SubReport Tasks** window.

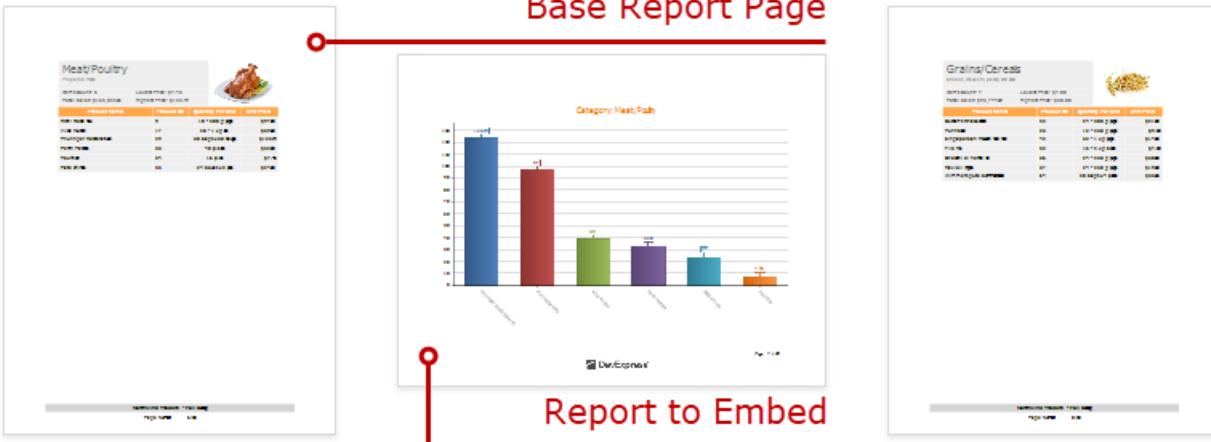


7. The **Parameter Bindings Collection Editor** is invoked. Click **Add** to add a new binding. In the binding properties list, specify the data field to bind to and the parameter name to bind.



8. Switch to Preview mode to see the combined report.

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

Use expressions to [retrieve and format data](#), [create calculated fields](#) and [calculate summaries](#), conditionally shape data and [change a report control's appearance](#).

Expression Syntax

An expression is a string that is parsed and processed to evaluate a value. Expressions consist of field names, constants, operators, and functions. Field names are wrapped in square brackets.

```
"[Quantity] * [UnitPrice] * (1 - [BonusAmount])"
```

```
"[FirstName] + ' ' + [LastName]"
```

```
"[Country] == 'USA'"
```

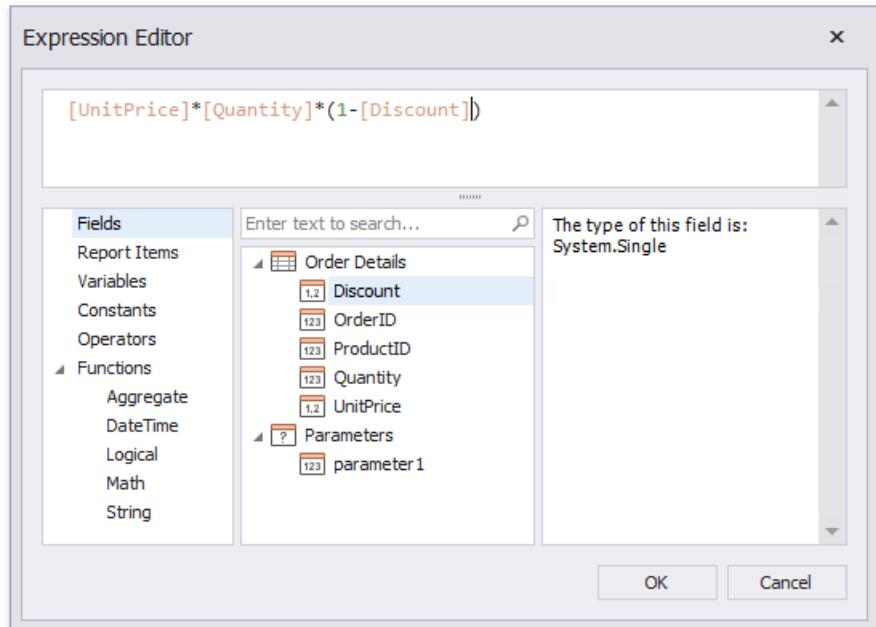
```
"[OrderDate] > #8/16/1994# AND [Quantity] > 20"
```

You can use [operators](#), [functions](#), and [constants](#) in your expressions.

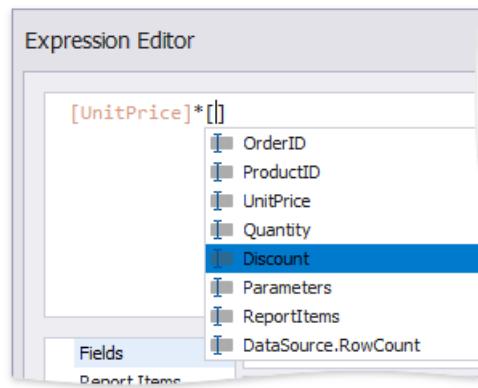
See the [Data Binding Modes](#) topic for details on the available binding modes.

Expression Editor

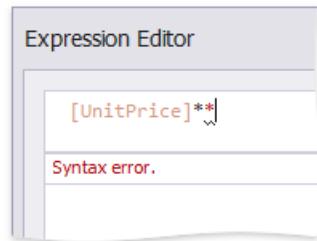
The Report Designer's Expression Editor provides functions, operators, data source fields, report elements, constants, and variables to construct expressions.



The Expression Editor highlights an expression's syntax and supports intelligent code completion (it suggests functions and available data elements as you type).



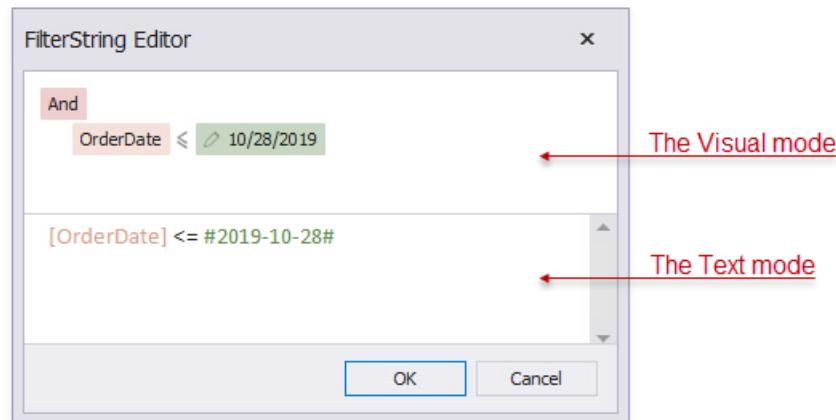
The Expression Editor displays all the errors it finds in the specified expression.



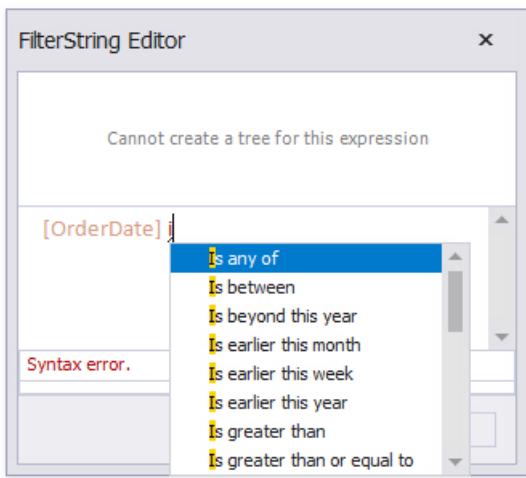
FilterString Editor

The Report Designer's FilterString Editor allows you to specify filter criteria for a report, [Cross Tab](#), or [Chart](#)'s series.

The FilterString Editor provides a visual interface where you can use an unlimited number of conditions and combine them with logical operators to create filter criteria. You can also switch to the Text mode and type a filter string.



The FilterString Editor highlights an expression's syntax and supports intelligent code completion (it suggests functions and available data elements as you type).



Expression Constants, Operators, and Functions

The table below contains constants, operators, and functions you can use in [expressions](#).

Constants

CONSTANT	DESCRIPTION	EXAMPLE
String constants	Wrap string constants in apostrophes. If a string contains an apostrophe, double the apostrophe.	[Country] == 'France' [Name] == 'O''Neil'
Date-time constants	Wrap date-time constants in '#'. The date-time constant must be enclosed in quotes.	[OrderDate] >= #2018-03-22 13:18:51.94944#
True	Represents the Boolean True value.	[InStock] == True
False	Represents the Boolean False value.	[InStock] == False
Enumeration	Specify an enumeration value using its underlying integer value. You cannot specify an enumeration value using its qualified name. The following criteria is incorrect : [Status] = Status.InProgress	[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-abc4-0ae12c72c1f}
Numeric	Specify different numeric constant types in a string form using suffixes: <ul style="list-style-type: none">• Int32 (int) - 1• Int16 (short) - 1s• Byte (byte) - 1b• Double (double) - 1.0• Single (float) - 1.0f• Decimal (decimal) - 1.0m	[Price] == 25.0m
?	Represents a null reference that does not refer to any object. We recommend using the IsNull unary operator (for example, "[Region] is null") or the IsNull logical function (for example, "IsNull([Region])") instead.	[Region] != ?

Operators

OPERATOR	DESCRIPTION	EXAMPLE
+	Adds the value of one numeric expression to another or concatenates two strings.	[UnitPrice] + 4 [FirstName] + '' + [LastName]
-	Finds the difference between two numbers.	[Price1] - [Price2]
*	Multiplies the value of two expressions.	[Quantity] * [UnitPrice] * (1 - [BonusAmount])
/	Divides the first operand by the second.	[Quantity] / 2
%	Returns the remainder (modulus) obtained by dividing one numeric expression by another.	[Quantity] % 3
	Performs a bitwise inclusive OR on two numeric expressions. Compares each bit of its first operand to the corresponding bit of its second operand. If either bit is 1, the corresponding resulting bit is set to 1. Otherwise, the corresponding resulting bit is set to 0.	[Number] [Number]
&	The bitwise AND operator. Compares each bit of its first operand to the corresponding bit of its second operand. If both bits are 1, the corresponding resulting bit is set to 1. Otherwise, the corresponding resulting bit is set to 0.	[Number] & 10
^	Performs a bitwise exclusive OR on two numeric expressions.	[Number] ^ [Number]
==	Returns true if both operands have the same value; otherwise, it returns false.	[Quantity] == 10
=		
!=	Returns true if the operands do not have the same value; otherwise, it returns false.	[Country] != 'France'
<	Less than operator. Used to compare expressions.	[UnitPrice] < 20
<=	Less than or equal to operator. Used to compare expressions.	[UnitPrice] <= 20
>=	Greater than or equal to operator. Used to compare expressions.	[UnitPrice] >= 30

>	Greater than operator. Used to compare expressions.	[UnitPrice] > 30
In (,,)	Tests for the existence of a property in an object.	[Country] In ('USA', 'UK', 'Italy')
Between ()	Specifies a range to test. Returns true if a value is greater than or equal to the first operand and less than or equal to the second operand.	[Quantity] Between (10, 20)
And &&	Performs a logical conjunction on two Boolean expressions.	[InStock] And ([ExtendedPrice]>100) [InStock] && ([ExtendedPrice]>100)
Or	Performs a logical disjunction on two Boolean expressions.	[Country]=='USA' Or [Country]=='UK' [Country]=='USA' [Country]=='UK'
~	Performs a bitwise negation on a numeric expression.	~[Roles] = 251
Not !	Performs a logical negation on a Boolean expression.	Not [InStock] ![InStock]
+	Returns a numeric expression's value (a unary operator).	+ [Value] = 10
-	Returns the negative of a numeric expression's value (a unary operator).	- [Value] = 20
Is Null	Returns true if an expression is a null reference, the one that does not refer to any object.	[Region] is null

Functions (Basic)

Aggregate Functions

FUNCTION	DESCRIPTION	EXAMPLE
Avg(Value)	Evaluates the average of the values in the collection.	[Products].Avg([UnitPrice])

FUNCTION	DESCRIPTION	EXAMPLE
Count()	Returns the number of objects in a collection.	[Products].Count()
Exists()	Determines whether the object exists in the collection.	[Categories][[CategoryID] == 7].Exists()
Max(Value)	Returns the maximum expression value in a collection.	[Products].Max([UnitPrice])
Min(Value)	Returns the minimum expression value in a collection.	[Products].Min([UnitPrice])
Single()	Returns a single object from the collection.	[Accounts].Single() is not null
Sum(Value)	Returns the sum of all the expression values in the collection.	[Products].Sum([UnitsInStock])

Date-time Functions

FUNCTION	DESCRIPTION	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))
AddMinutes(DateTime, MinutesCount)	Returns a date-time value that is the specified number of minutes from the specified DateTime.	AddMinutes([StartTime], 30)
AddMonths(DateTime, MonthsCount)	Returns a date-time value that is the specified number of months from the specified DateTime.	AddMonths([OrderDate], 1)
AddSeconds(DateTime, SecondsCount)	Returns a date-time value that is the specified number of seconds from the specified DateTime.	AddSeconds([StartTime], 60)
AddTicks(DateTime, TicksCount)	Returns a date-time value that is the specified number of ticks from the specified DateTime.	AddTicks([StartTime], 5000)
AddTimeSpan(DateTime, TimeSpan)	Returns a date-time value that is from the specified DateTime for the given TimeSpan.	AddTimeSpan([StartTime], [Duration])
AddYears(DateTime, YearsCount)	Returns a date-time value that is the specified number of years from the specified DateTime.	AddYears([EndDate], -1)
DateDiffDay(startDate, endDate)	Returns the number of day boundaries between two non-nullable dates.	DateDiffDay([StartTime], Now())
DateDiffHour(startDate, endDate)	Returns the number of hour boundaries between two non-nullable dates.	DateDiffHour([StartTime], Now())
DateDiffMilliSecond(startDate, endDate)	Returns the number of millisecond boundaries between two non-nullable dates.	DateDiffMilliSecond([StartTime], Now())

FUNCTION	DESCRIPTION	EXAMPLE
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())
GetDate(DateTime)	Extracts a date from the defined DateTime.	GetDate([OrderDateTime])
GetDay(DateTime)	Extracts a day from the defined DateTime.	GetDay([OrderDate])
GetDayOfWeek(DateTime)	Extracts a day of the week from the defined DateTime.	GetDayOfWeek([OrderDate])
GetDayOfYear(DateTime)	Extracts a day of the year from the defined DateTime.	GetDayOfYear([OrderDate])
GetHour(DateTime)	Extracts an hour from the defined DateTime.	GetHour([StartTime])
GetMillisecond(DateTime)	Extracts milliseconds from the defined DateTime.	GetMillisecond([StartTime])
GetMinute(DateTime)	Extracts minutes from the defined DateTime.	GetMinute([StartTime])
GetMonth(DateTime)	Extracts a month from the defined DateTime.	GetMonth([StartTime])
GetSecond(DateTime)	Extracts seconds from the defined DateTime.	GetSecond([StartTime])
GetTimeOfDay(DateTime)	Extracts the time of the day from the defined DateTime in ticks.	GetTimeOfDay([StartTime])
GetYear(DateTime)	Extracts a year from the defined DateTime.	GetYear([StartTime])
IsApril(DateTime)	Returns True if the specified date falls within April.	IsApril([OrderDate])
IsAugust(DateTime)	Returns True if the specified date falls within August.	IsAugust([OrderDate])
IsDecember(DateTime)	Returns True if the specified date falls within December.	IsDecember([OrderDate])
IsFebruary(DateTime)	Returns True if the specified date falls within February.	IsFebruary([OrderDate])
IsJanuary(DateTime)	Returns True if the specified date falls within January.	IsJanuary([OrderDate])

FUNCTION	DESCRIPTION	EXAMPLE
IsJuly(DateTime)	Returns True if the specified date falls within July.	IsJuly([OrderDate])
IsJune(DateTime)	Returns True if the specified date falls within June.	IsJune([OrderDate])
IsLastMonth(DateTime)	Returns True if the specified date falls within the previous month.	IsLastMonth([OrderDate])
IsLastYear(DateTime)	Returns True if the specified date falls within the previous year.	IsLastYear([OrderDate])
IsMarch(DateTime)	Returns True if the specified date falls within March.	IsMarch([OrderDate])
IsMay(DateTime)	Returns True if the specified date falls within May.	IsMay([OrderDate])
IsNextMonth(DateTime)	Returns True if the specified date falls within the next month.	IsNextMonth([OrderDate])
IsNextYear(DateTime)	Returns True if the specified date falls within the next year.	IsNextYear([OrderDate])
IsNovember(DateTime)	Returns True if the specified date falls within November.	IsNovember([OrderDate])
IsOctober(DateTime)	Returns True if the specified date falls within October.	IsOctober([OrderDate])
IsSameDay(DateTime)	Returns True if the specified date/time values fall within the same day.	IsSameDay([OrderDate])
IsSeptember(DateTime)	Returns True if the specified date falls within September.	IsSeptember([OrderDate])
IsThisMonth(DateTime)	Returns True if the specified date falls within the current month.	IsThisMonth([OrderDate])
IsThisWeek(DateTime)	Returns True if the specified date falls within the current week.	IsThisWeek([OrderDate])
IsYearToDate(DateTime)	Returns True if the specified date falls within the year-to-date period. This period starts from the first day of the current year and continues to the current date (including the current date).	IsYearToDate([OrderDate])
IsThisYear(DateTime)	Returns True if the specified date falls within the current year.	IsThisYear([OrderDate])
LocalDateTimeDayAfterTomorrow()	Returns a date-time value corresponding to the day after Tomorrow.	AddDays(LocalDateTimeDayAfterTomorrow(), 5)
LocalDateTimeLastMonth()	Returns the DateTime value corresponding to the first day of the previous month.	AddMonths(LocalDateTimeLastMonth(), 5)

FUNCTION	DESCRIPTION	EXAMPLE
LocalDateTimeLastWeek()	Returns a date-time value corresponding to the first day of the previous week.	AddDays(LocalDateTimeLastWeek(), 5)
LocalDateTimeLastYear()	Returns the DateTime value corresponding to the first day of the previous year.	AddYears(LocalDateTimeLastYear(), 5)
LocalDateTimeNextMonth()	Returns a date-time value corresponding to the first day of the next month.	AddMonths(LocalDateTimeNextMonth(), 5)
LocalDateTimeNextWeek()	Returns a date-time value corresponding to the first day of the following week.	AddDays(LocalDateTimeNextWeek(), 5)
LocalDateTimeNextYear()	Returns a date-time value corresponding to the first day of the following year.	AddYears(LocalDateTimeNextYear(), 5)
LocalDateTimeNow()	Returns a date-time value corresponding to the current moment in time.	AddDays(LocalDateTimeNow(), 5)
LocalDateTimeThisMonth()	Returns a date-time value corresponding to the first day of the current month.	AddMonths(LocalDateTimeThisMonth(), 5)
LocalDateTimeThisWeek()	Returns a date-time value corresponding to the first day of the current week.	AddDays(LocalDateTimeThisWeek(), 5)
LocalDateTimeThisYear()	Returns a date-time value corresponding to the first day of the current year.	AddYears(LocalDateTimeThisYear(), 5)
LocalDateTimeToday()	Returns a date-time value corresponding to Today.	AddDays(LocalDateTimeToday(), 5)
LocalDateTimeTomorrow()	Returns a date-time value corresponding to Tomorrow.	AddDays(LocalDateTimeTomorrow(), 5)
LocalDateTimeTwoMonthsAway()	Returns the DateTime value corresponding to the first day of the following month.	AddMonths(LocalDateTimeTwoMonthAway(), 5)
LocalDateTimeTwoWeeksAway()	Returns the DateTime value corresponding to the first day of the following week.	AddDays(LocalDateTimeTwoWeeksAway(), 5)
LocalDateTimeTwoYearsAway()	Returns the DateTime value corresponding to the first day of the following year.	AddYears(LocalDateTimeTwoYearsAway(), 5)
LocalDateTimeYearBeforeToday()	Returns the DateTime value corresponding to the day one year ago.	AddYears(LocalDateTimeYearBeforeToday(), 5)
LocalDateTimeYesterday()	Returns a date-time value corresponding to Yesterday.	AddDays(LocalDateTimeYesterday(), 5)
Now()	Returns the current system date and time.	AddDays(Now(), 5)
Today()	Returns the current date. Regardless of the actual time, this function returns midnight of the current date.	AddMonths(Today(), 1)

FUNCTION	DESCRIPTION	EXAMPLE
UtcNow()	Returns the current system date and time, expressed as Coordinated Universal Time (UTC).	AddDays(UtcNow(), 7)

Logical Functions

FUNCTION	DESCRIPTION	EXAMPLE
Iif(Expression1, True_Value1, ..., ExpressionN, True_ValueN, False_Value)	<p>Returns one of several specified values depending upon the values of logical expressions.</p> <p>The function can take $2N + 1$ arguments (N - the number of specified logical expressions):</p> <ul style="list-style-type: none"> • Each odd argument specifies a logical expression; • Each even argument specifies the value that is returned if the previous expression evaluates to true; • ... • 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
Abs(Value)	Returns the given numeric expression's absolute, positive value.	Abs(1 - [Discount])
Acos(Value)	Returns a number's arccosine (the angle in radians, whose cosine is the given float expression).	Acos([Value])
Asin(Value)	Returns a number's arcsine (the angle in radians, whose sine is the given float expression).	Asin([Value])
Atn(Value)	Returns a number's arctangent (the angle in radians, whose tangent is the given float expression).	Atn([Value])
Atn2(Value1, Value2)	Returns the angle whose tangent is the quotient of two specified numbers in radians.	Atn2([Value1], [Value2])
BigMul(Value1, Value2)	Returns an Int64 containing the full product of two specified 32-bit numbers.	BigMul([Amount], [Quantity])

FUNCTION	DESCRIPTION	EXAMPLE
Ceiling(Value)	Returns the smallest integer that is greater than or equal to the numeric expression.	Ceiling([Value])
Cos(Value)	Returns the angle's cosine, in radians.	Cos([Value])
Cosh(Value)	Returns the angle's hyperbolic cosine, in radians.	Cosh([Value])
Exp(Value)	Returns the float expression's exponential value.	Exp([Value])
Floor(Value)	Returns the largest integer less than or equal to the numeric expression.	Floor([Value])
Log(Value)	Returns a specified number's natural logarithm.	Log([Value])
Log(Value, Base)	Returns the logarithm of a specified number in a specified Base.	Log([Value], 2)
Log10(Value)	Returns a specified number's base 10 logarithm.	Log10([Value])
Max(Value1, Value2)	Returns the maximum value from the specified values.	Max([Value1], [Value2])
Min(Value1, Value2)	Returns the minimum value from the specified values.	Min([Value1], [Value2])
Power(Value, Power)	Returns a specified number raised to a specified power.	Power([Value], 3)
Rnd()	Returns a random number that is less than 1, but greater than or equal to zero.	Rnd()*100
Round(Value)	Rounds the given value to the nearest integer.	Round([Value])
Round(Value, Precision)	Rounds the given value to the nearest integer, or to a specified number of decimal places.	Round([Value], 2)
Sign(Value)	Returns the positive (+1), zero (0), or negative (-1) sign of the given expression.	Sign([Value])
Sin(Value)	Returns the sine of the angle defined in radians.	Sin([Value])
Sinh(Value)	Returns the hyperbolic sine of the angle defined in radians.	Sinh([Value])
Sqr(Value)	Returns the square root of a given number.	Sqr([Value])
Tan(Value)	Returns the tangent of the angle defined in radians.	Tan([Value])
Tanh(Value)	Returns the hyperbolic tangent of the angle defined in radians.	Tanh([Value])
ToDecimal(Value)	Converts Value to an equivalent decimal number.	ToDecimal([Value])
ToDouble(Value)	Converts Value to an equivalent 64-bit double-precision floating-point number.	ToDouble([Value])
ToFloat(Value)	Converts Value to an equivalent 32-bit single-precision floating-point number.	ToFloat([Value])
ToInt(Value)	Converts Value to an equivalent 32-bit signed integer.	ToInt([Value])

FUNCTION	DESCRIPTION	EXAMPLE
ToLong(Value)	Converts Value to an equivalent 64-bit signed integer.	ToLong([Value])

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])
PadLeft(String, Length)	Left-aligns the defined string's characters, padding its left side with white space characters up to a specified total length.	PadLeft([Name], 30)
PadLeft(String, Length, Char)	Left-aligns the defined string's characters, padding its left side with the specified Char up to a specified total length.	PadLeft([Name], 30, '<')
PadRight(String, Length)	Right-aligns the defined string's characters, padding its left side with empty space characters up to a specified total length.	PadRight([Name], 30)
PadRight(String, Length, Char)	Right-aligns the defined string's characters, padding its left side with the specified Char up to a specified total length.	PadRight([Name], 30, '>')
Remove(String, StartPosition)	Deletes all the characters from this instance, beginning at a specified position.	Remove([Name], 3)
Remove(String, StartPosition, Length)	Deletes a specified number of characters from this instance, beginning at a specified position.	Remove([Name], 0, 3)
Replace(String, SubString2, String3)	Returns a copy of String1, in which SubString2 has been replaced with String3.	Replace([Name], 'The ', '')

FUNCTION	DESCRIPTION	EXAMPLE
Reverse(String)	Reverses the order of elements within String.	Reverse([Name])
StartsWith(String1, SubString1)	Returns True if the beginning of String1 matches SubString1; otherwise, False.	StartsWith([Title], 'The best')
Substring(String, StartPosition, Length)	Retrieves a substring from String. The substring starts at StartPosition and has a specified Length.	Substring([Description], 2, 3)
Substring(String, StartPosition)	Retrieves a substring from String. The substring starts at StartPosition.	Substring([Description], 2)
ToStr(Value)	Returns a string representation of an object.	ToStr([ID])
Trim(String)	Removes all leading and trailing SPACE characters from String.	Trim([ProductName])
Upper(String)	Returns String in uppercase.	Upper([ProductName])

Functions for Expression Bindings and Calculated Fields

Below is a list of functions that are used to construct [expression bindings](#) and [calculated fields](#):

FUNCTION	DESCRIPTION	EXAMPLE
NewLine()	Returns the newline string defined for the current environment.	[CategoryName]+NewLine()+[Description] Result: <i>Beverages</i> <i>Soft drinks, coffees, teas, beers and ales.</i>
FormatString(Format, Value1, ... , ValueN)	Returns the specified string with formatted field values. See Format Data for details.	FormatString('{0:\$0.00}', [UnitPrice]) Result: \$45.60
Rgb(Red, Green, Blue)	Returns a string defining a color using the Red, Green, and Blue color channel values.	Rgb(30,200,150) Result: '30,200,150'
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'

	<p>Concatenates the multi-value report parameter's values into a string. This function is useful when you bind a multi-value parameter to a label to display the parameter's values in a report.</p> <p>This function has two overloads:</p> <ul style="list-style-type: none"> • <code>Join(parameter)</code> - concatenates the specified parameter's values using comma as a separator. • <code>Join(parameter, separator)</code> - concatenates the specified parameter's values using the specified separator. 	<code>Join(?CategoriesParameter)</code> Result: <i>Beverages, Condiments</i> <code>Join(?CategoriesParameter, newline())</code> Result: <i>Beverages</i> <i>Condiments</i>
Join()		

Functions for Stored Procedure Binding

The following functions are specific for [binding reports to a stored procedure](#):

FUNCTION	DESCRIPTION	EXAMPLE
Join()	<p>Concatenates the multi-value report parameter's values into a string. This function can be used when mapping multi-value report parameters to query parameters generated from a stored procedure's parameters. Refer to the Specify Query Parameters topic for more information.</p> <p>This function has two overloads:</p> <ul style="list-style-type: none"> • <code>Join(parameter)</code> - concatenates the specified parameter's values using comma as a separator. • <code>Join(parameter, separator)</code> - concatenates the specified parameter's values using the specified separator. 	<code>Join(?</code> <code>Parameter1)</code>
CreateTable(Column1, ..., ColumnN)	<p>Creates a table from several multi-value parameters' values. This function can be used when mapping multi-value report parameters to the query parameter that is generated from a stored procedure's User Defined Table Type parameter. Refer to the Specify Query Parameters topic for more information.</p>	<code>CreateTable(?</code> <code>Parameter1,</code> <code>..., ?</code> <code>ParameterN)</code>

Functions for Summary Expression Editor

Use the following functions when [calculating summaries](#) across a report and its groups:

FUNCTION	DESCRIPTION	EXAMPLE
<code>sumAvg(Expression)</code>	Calculates the average of all the values within the specified summary region (group, page or report).	<code>sumAvg([UnitPrice])</code>

	<p>Counts the number of values within the specified summary region (group, page or report). In a simple scenario, you may not pass a parameter.</p> <p>When using this function in a master-detail report's master band and passing a detail's field as a parameter, it counts the number of records within the detail's band.</p> <p>See also: Counting the Number of Records in a Report or Group, Counting the Number of Groups in a Report</p>	
sumCount(Expression)		sumCount([UnitPrice])
sumDAvg(Expression)	Calculates the average of all the distinct values within the specified summary region (group, page or report).	sumDAvg([UnitPrice])
sumDCount(Expression)	Counts the number of distinct values within the specified summary region (group, page or report). In a simple scenario, you may not pass a parameter.	sumDCount([UnitPrice])
sumDStdDev(Expression)	Calculates the standard deviation of all the distinct values within the specified summary region (group, page or report).	sumDStdDev([UnitPrice])
sumDStdDevP(Expression)	Calculates the standard population deviation of all the distinct values within the specified summary region (group, page or report).	sumDStdDevP([UnitPrice])
sumDSum(Expression)	Calculates the total of all the distinct values within the specified summary region (group, page or report).	sumDSum([UnitPrice])
sumDVar(Expression)	Calculates the amount of variance for all the distinct values within the specified summary region (group, page or report).	sumDVar([UnitPrice])
sumDVarP(Expression)	Calculates the population variance of all the distinct values within the specified summary region (group, page or report).	sumDVarP([UnitPrice])
sumMax(Expression)	Calculates the maximum of all the values within the specified summary region (group, page or report).	sumMax([UnitPrice])
sumMedian(Expression)	<p>Finds the middle number within a sequence.</p> <p>Note that if the total number of elements is odd, this function returns the value of the middle number in a sequence. If the total number of elements is even, this function returns the arithmetical mean of the two middle numbers.</p>	sumMedian([UnitPrice])

sumMin(Expression)	Calculates the minimum of all the values within the specified summary region (group, page or report).	sumMin([UnitPrice])
sumPercentage(Expression)	Calculates the percent ratio of the current data row's value to the total of all the values within the specified summary region (group, page or report).	sumPercentage([UnitPrice])
sumRecordNumber(Expression)	<p>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.</p> <p>In a simple scenario, you may not pass a parameter.</p> <p>See also: Displaying Row Numbers in a Report, Group or Page</p>	sumRecordNumber()
sumRunningSum(Expression)	Summarizes all the values, which were printed before the current data row, with the current data row's value.	sumRunningSum([UnitPrice])
sumStdDev(Expression)	Calculates the standard deviation of all the values within the specified summary region (group, page or report).	sumStdDev([UnitPrice])
sumStdDevP(Expression)	Calculates the standard population deviation of all the values within the specified summary region (group, page or report).	sumStdDevP([UnitPrice])
sumSum(Expression)	Calculates the total of all the values within the specified summary region (group, page or report).	sumSum([UnitsInStock])
sumVar(Expression)	Calculates the amount of variance for all the values within the specified summary region (group, page or report).	sumVar([UnitPrice])
sumVarP(Expression)	Calculates the population variance of all the values within the specified summary region (group, page or report).	sumVarP([UnitPrice])
sumWAvg(Expression, Expression)	Calculates the weighted average of all the values within the specified summary region (group, page or report). This type of summary returns the result of the following operation: $\text{Sum}(\text{Expression1} * \text{Expression2}) / \text{Sum}(\text{Expression2})$.	sumWAvg([UnitPrice])

Refer to Report Items In Expressions

A report's elements are displayed in the Report Designer's Report Explorer. You can access these elements and their properties in an expression. The following example demonstrates how to set a label's BackColor property to the other label's BackColor property value.

[ReportItems.Label2].[BackColor]

TIP

[ReportItems] is a plain list that provides access to all report items at one level.

NOTE

You cannot use the ReportItems collection in a Calculated Field's expression.

Specify Images for Picture Boxes

When you specify an expression for the [Picture Box](#)'s **ImageSource** property, you can use image **Ids** from the report's **ImageResources** collection.

`IIf([MarchSales]>20, [Images.ArrowUp],[Images.ArrowDown])`

Use Row/Column Indexes for Cross Tab Cells

Use the following variables in an expressions to change a [Cross Tab](#) cell's appearance settings:

VARIABLE	DESCRIPTION	EXAMPLE
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 if a cell is located in an odd column; if the cell is located in an even column, its color does not change.
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 if a cell is located in an odd row; if the cell is located in an even row, its color does not change.

Variables

VARIABLE	DESCRIPTION	EXAMPLE
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 not displayed if there is no data in the data source.
DataSource.CurrentRowIndex	Returns a zero-based index of the current data row in a data source.	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 .	<code>Iif([DataSource.CurrentRowHierarchyLevel] == 0, Rgb(231,235,244), ?)</code> 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 or contents](#).

Use Report Parameters

Use the following syntax to insert [report parameters](#) in an expression:

- Type a question mark before a parameter's name.

`?parameter1`

- (*Obsolete approach*) Use the "Parameters." prefix before a [report parameter](#)'s name.

`[Parameters.parameter1]`

Verify Collection Elements

Use brackets "[]" to check if a collection contains an element that satisfies your condition. The following expression returns *true* if the Accounts collection contains at least one element that satisfies the `[Amount] == 100` condition:

`[Accounts][[Amount] == 100]`

The following expression returns *false* if the Accounts collection is empty:

`[Accounts][]`

Refer to the [Calculate an Aggregate Function](#) topic for an example on how to use this syntax.

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])`

Refer to the [Calculate an Aggregate Function](#) topic for details.

Group Clauses with Brackets

It is important to use brackets to ensure that your expression returns the intended results.

For instance, the following expression returns all Customers where the account Date is 8/25/2006 or where the account Amount is 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]
```

Change Operator Precedence

When an expression contains multiple operators, their precedence controls the order in which expression elements are evaluated.

- Literal values
- Parameters
- Identifiers
- OR (left-associative)
- AND (left-associative)
- 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 first code sample below. In the second code sample, 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]
```

```
Accounts[Amount == (2 + 48) * 2]
```

Case Sensitivity

Operators are case insensitive. However, field values' case sensitivity depends on the data source.

NOTE

Data source specifics affect certain operators' behavior. For instance, SQL Server Express 2005 is configured as case insensitive. In this case, the following 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:

- \[
- \\
- \'

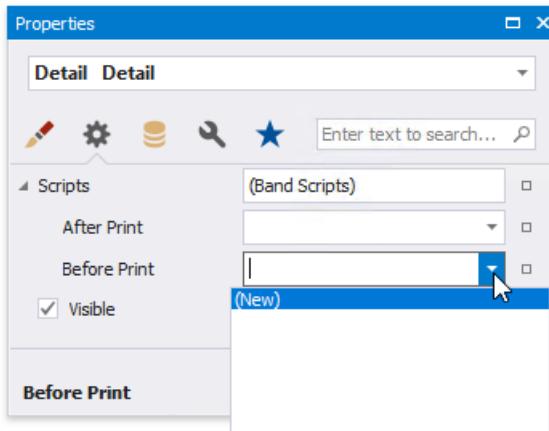
Use Report Scripts

This document describes the basic principles of *scripting*, which can be performed by handling the events of a report, and its [bands](#) and [controls](#).

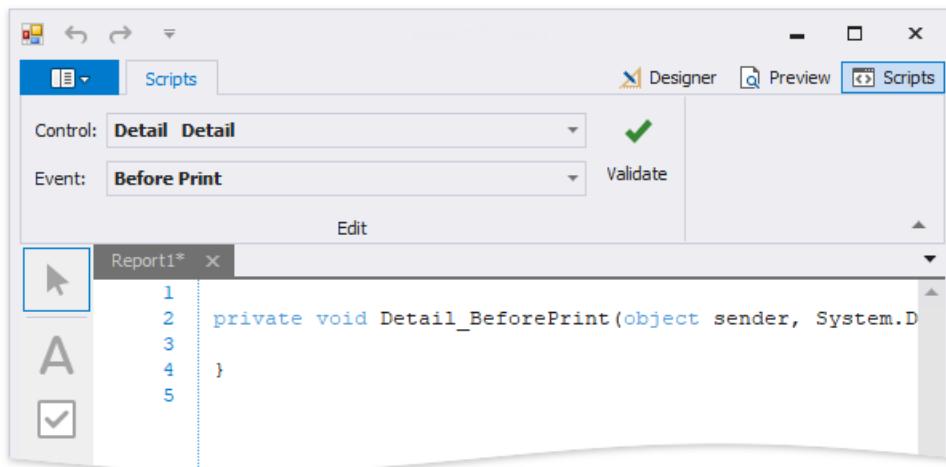
Scripts are program commands, placed within the *event handlers* of the required report elements. And, when the corresponding event occurs (e.g. a mouse click), the script code runs.

You can write *scripts* for a report or any of its elements (bands and controls), to be executed when the report is being [previewed](#), [printed](#) or [exported](#).

In the [Property Grid](#), expand the **Scripts** property for the required element. Every report element has an individual set of script events.

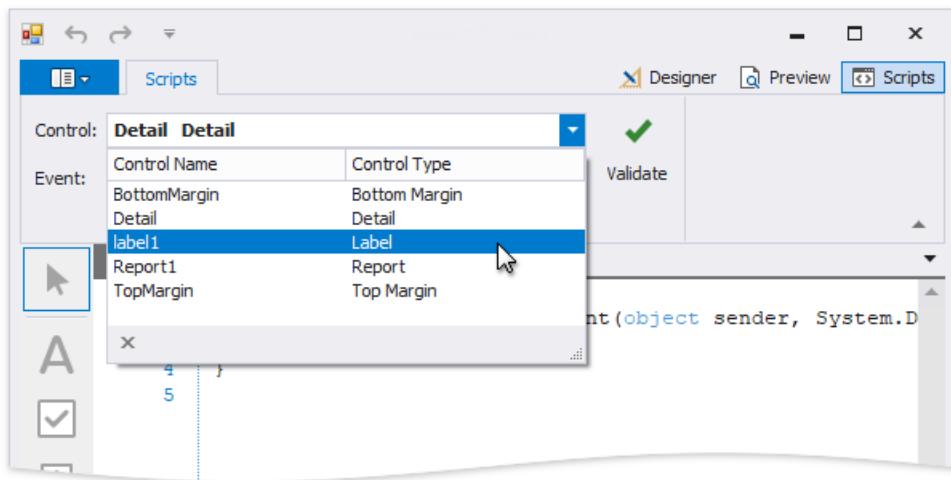


After you click **(New)** for an event (e.g. the **Before Print**, which is the most used), the **Scripts Tab** is switched on, where you can manage and edit all the report's scripts.

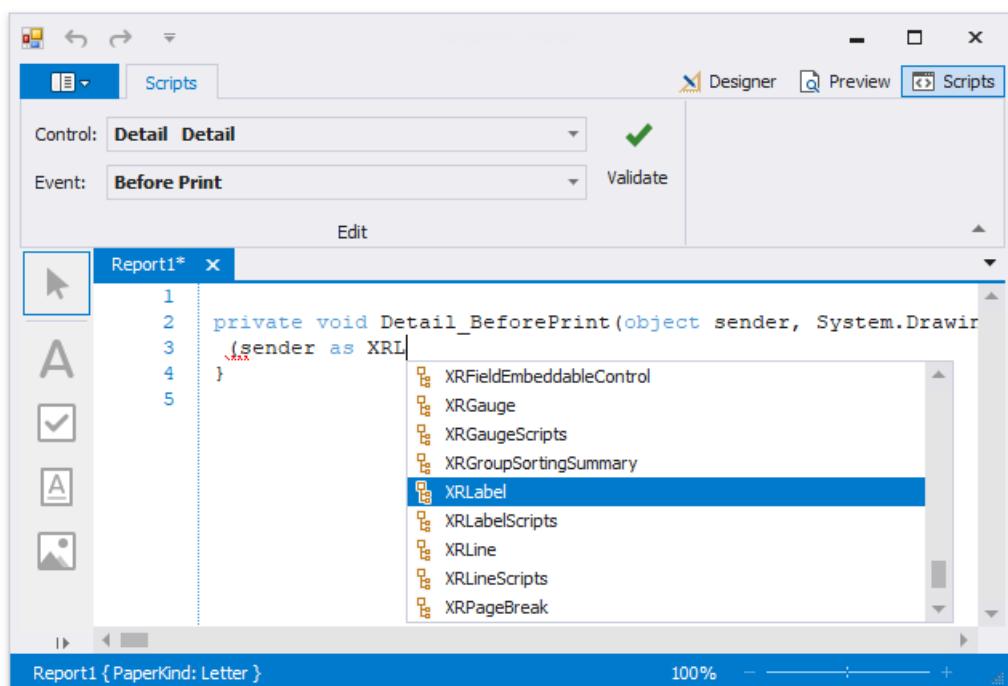


In this tab, for a selected event, a script template is auto-added, in the language specified via the **Script Language** property of the report.

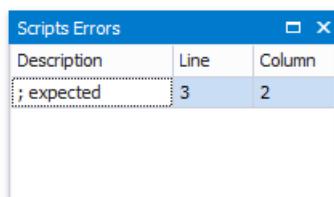
This tab contains all scripts written for all report elements, and allows you to quickly navigate through them by choosing the required report element in the corresponding drop-down list, and specifying one of its available events in another menu.



The script editor supports intelligent code completion that makes it easier and faster for you to write scripts. Context-aware hints are displayed on typing a dot or pressing CTRL+spacebar.



You can verify that your report's scripts are valid, by clicking **Validate**. The validation result is then displayed in the **Scripts Errors** panel.



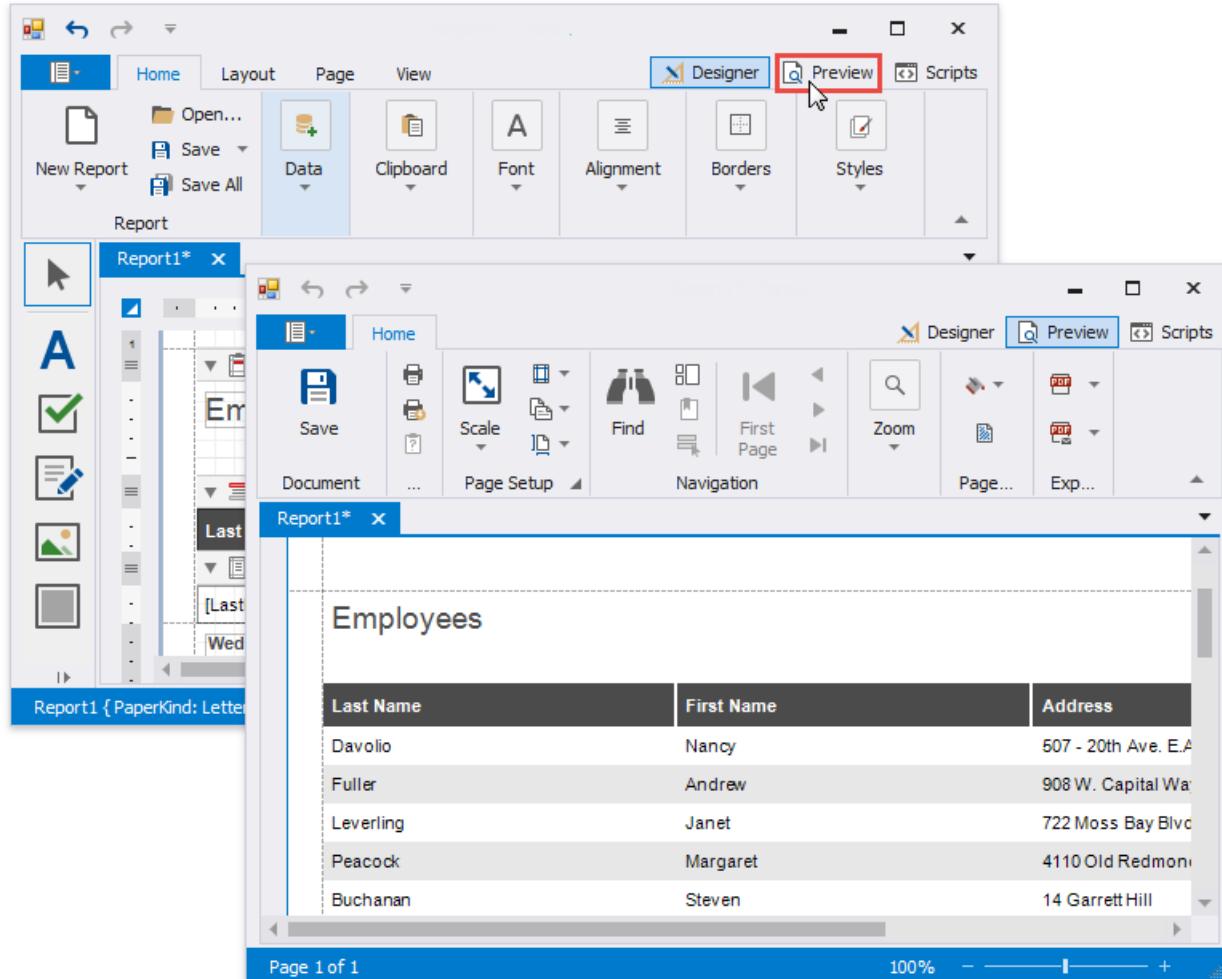
To proceed to the line that contains an error, click that error in the Error List panel.

Note that scripts are saved to a file along with the report's layout.

Preview, Print and Export Reports

Preview a Report

To switch a report to the print preview mode, click the **Preview** tab. You will see your report populated with data and broken down into pages, as specified.

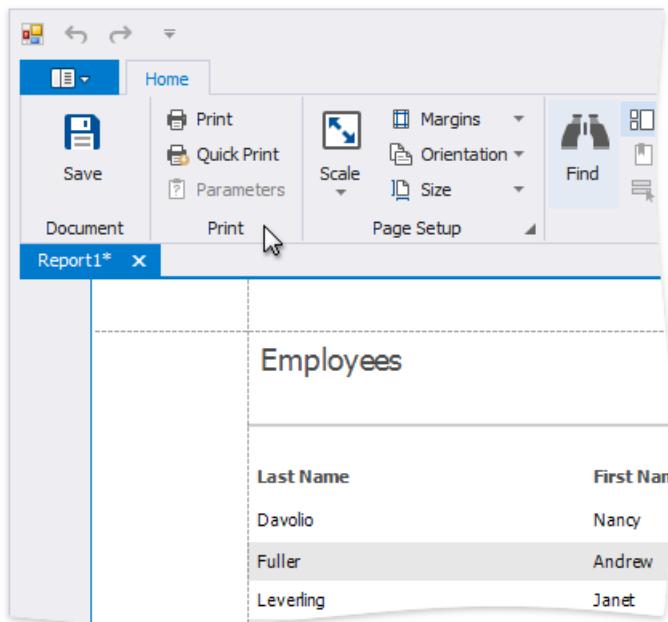


NOTE

To learn more about the options available in the print preview mode, refer to the [Print Preview for WinForms](#) section of this documentation.

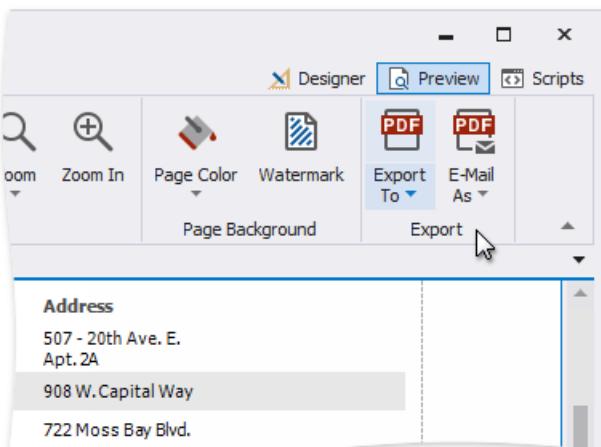
Print a Report

When in the Print Preview mode, you can print out your report using the appropriate menu and toolbar commands.



Export a Report

When in the Print Preview mode, you can export your report to files in different formats. The resulting files can either be saved to the hard drive or sent by e-mail.



The following documents describe the basics of report exporting and format-specific export options.

- [Exporting from Print Preview](#)
- [PDF-Specific Export Options](#)
- [HTML-Specific Export Options](#)
- [MHT-Specific Export Options](#)
- [RTF-Specific Export Options](#)
- [XLS-Specific Export Options](#)
- [XLSX-Specific Export Options](#)
- [CSV-Specific Export Options](#)
- [TXT-Specific Export Options](#)
- [Image-Specific Export Options](#)

Report Designer Tools

The topics in this section describe the main tools and features available in the Report Designer:

- [Report Wizard](#)
- [Data Source Wizard](#)
- [Query Builder](#)
- [Localization Editor](#)
- [Toolbox](#)
- [Toolbar](#)
- [UI Panels](#)

Report Wizard

The Report Wizard allows you to add a report using one of the following templates:

- [Blank](#)

Creates a new blank report that is not bound to a data source. Choose this option to design your report without using the wizard.

- [Table Report](#)

Allows you to create a [table report](#), connect it to a data source and configure basic report layout settings.

- [Vertical Report](#)

Allows you to create a [vertical report](#), connect it to a data source and configure basic report layout settings.

- [Cross-Tab Report](#)

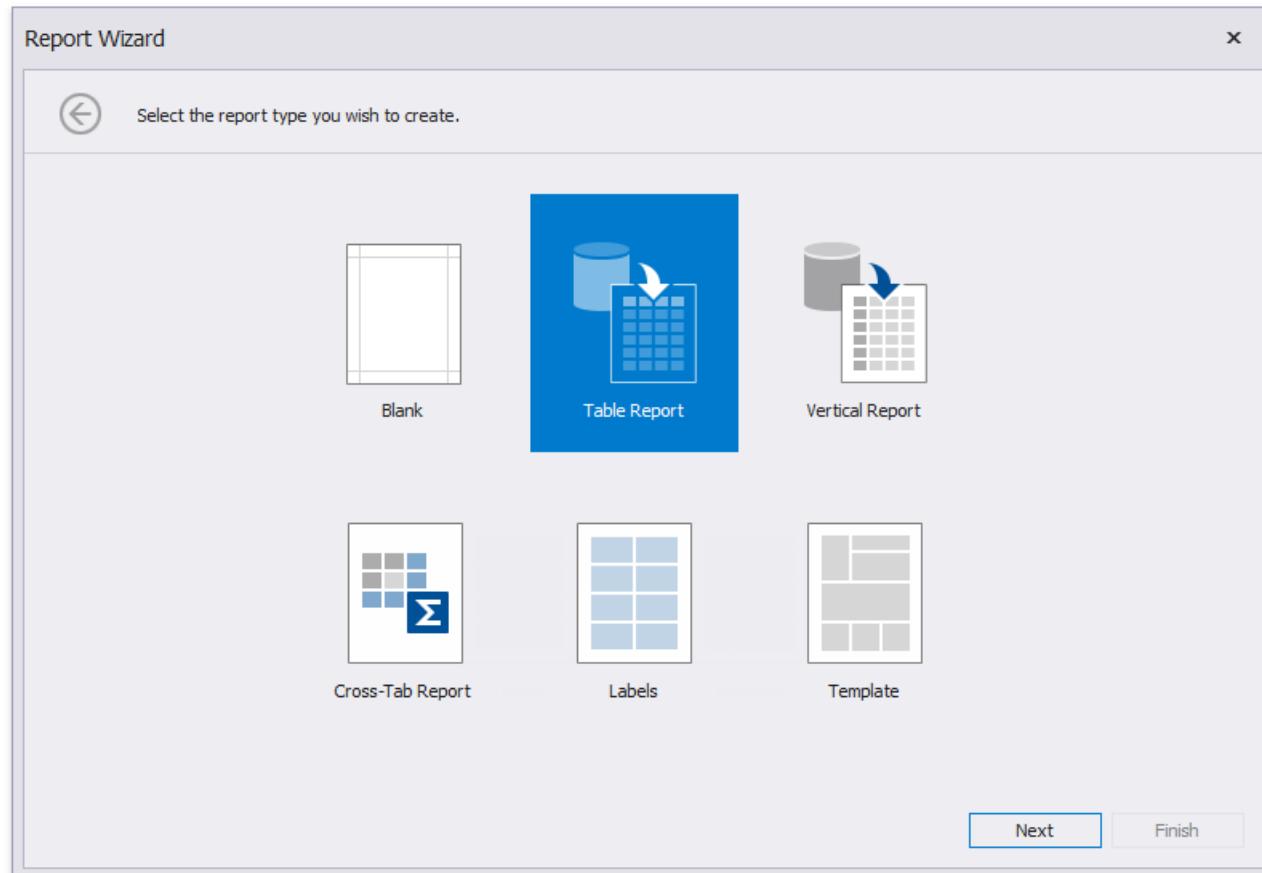
Allows you to create a [cross-tab report](#), connect it to a data source and configure basic report layout settings.

- [Labels](#)

Allows you to select from different customizable layouts to create labels, badges or price tags.

- [Template](#)

Enables you to create a new report based on available predefined templates.



Run the Report Wizard

Use one of the following ways to invoke the Report Wizard.

- Create a new report

Use the [New Report via Wizard](#) command to create a new report based on a Report Wizard template.

- Edit an existing report

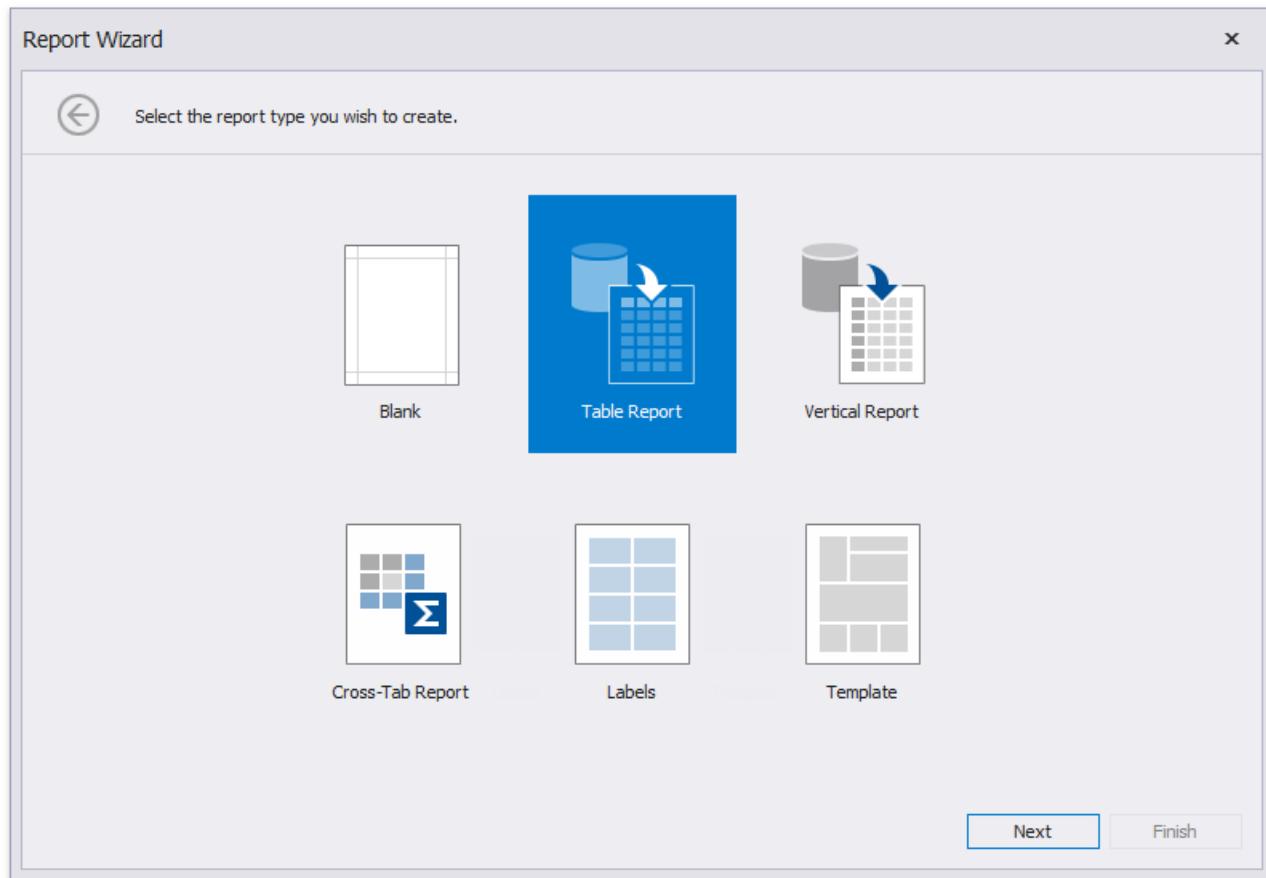
Click the report's Smart Tag and then the **Design in Report Wizard...** context link in the invoked actions list.

 **NOTE**

The new report layout overrides the initial report layout.

Choose a Report Type

On this wizard page, you can choose the report type you want to create.



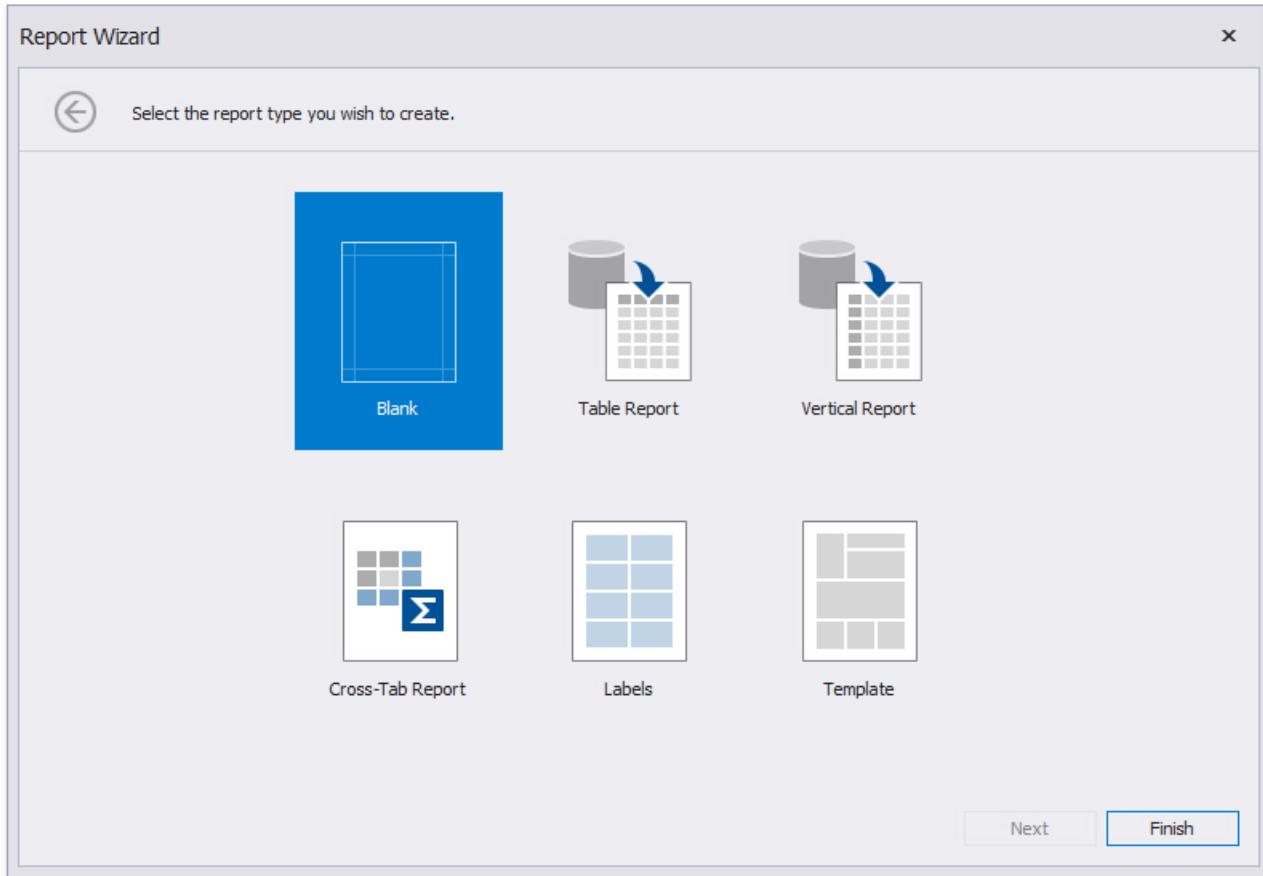
The following report types are available.

- [Blank Report](#)
- [Table Report](#)
- [Vertical Report](#)
- [Labels](#)
- [Template](#)

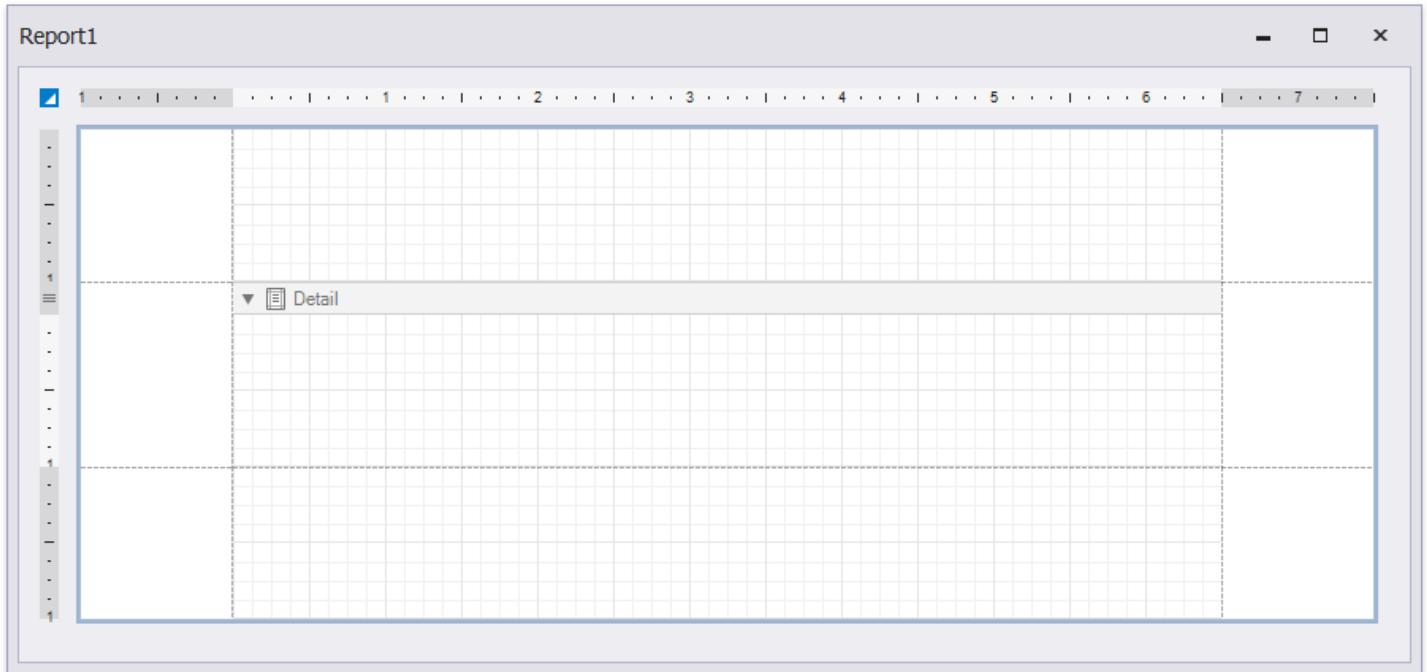
Blank Report

This topic describes how to add a new blank report to an application at design time in Visual Studio by using the **Report Wizard**.

To create an empty report, [run the Report Wizard](#), select **Blank** and click **Finish**.



The following image illustrates the default layout of a newly added empty report.

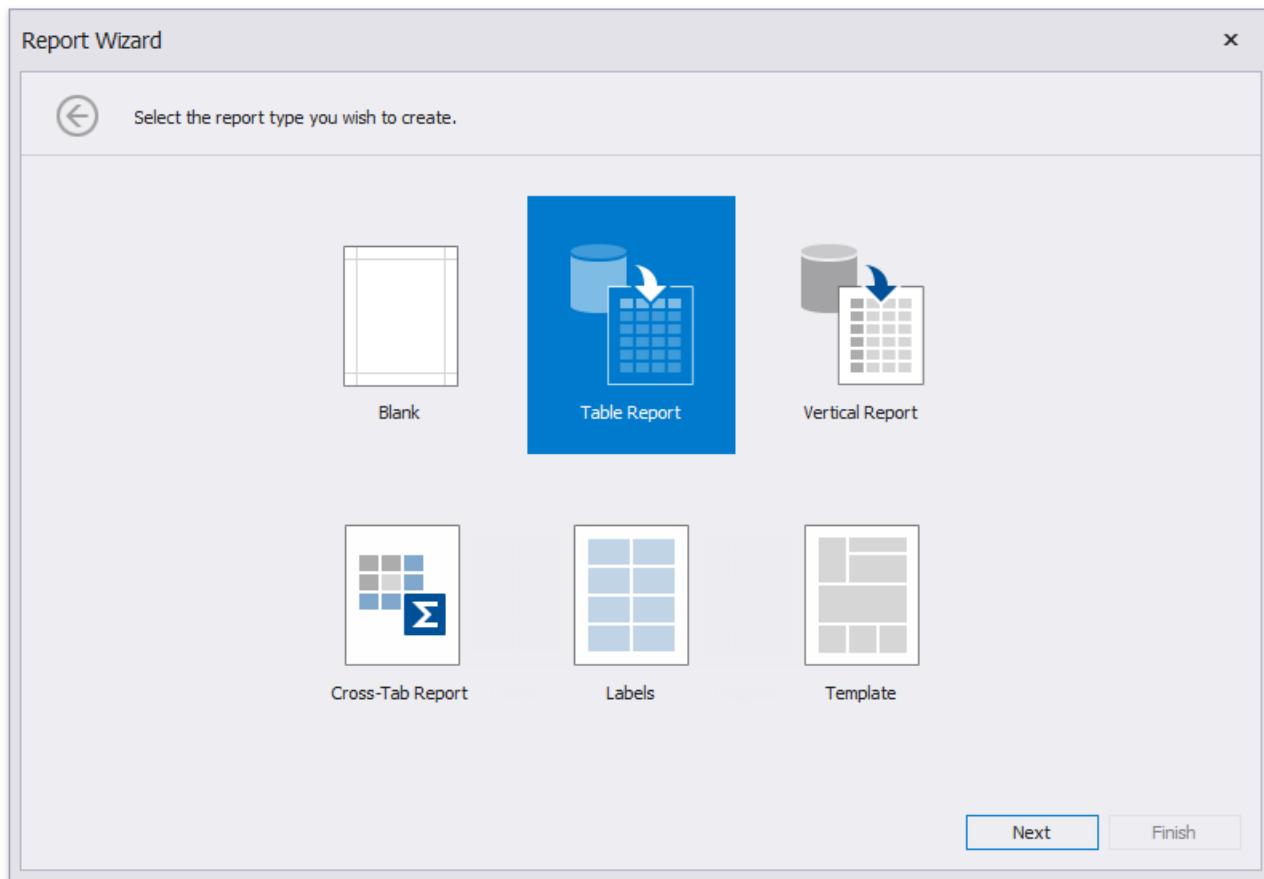


To learn how to connect a report to data and construct the report layout, see the following topic: [Bind to Data](#).

Table Report

The topics in this section describe how to create a table report and connect it to data at design time within Visual Studio using the **Data Source Wizard**.

To create a new report and connect it to data, [run the Report Wizard](#) and select **Table Report**.

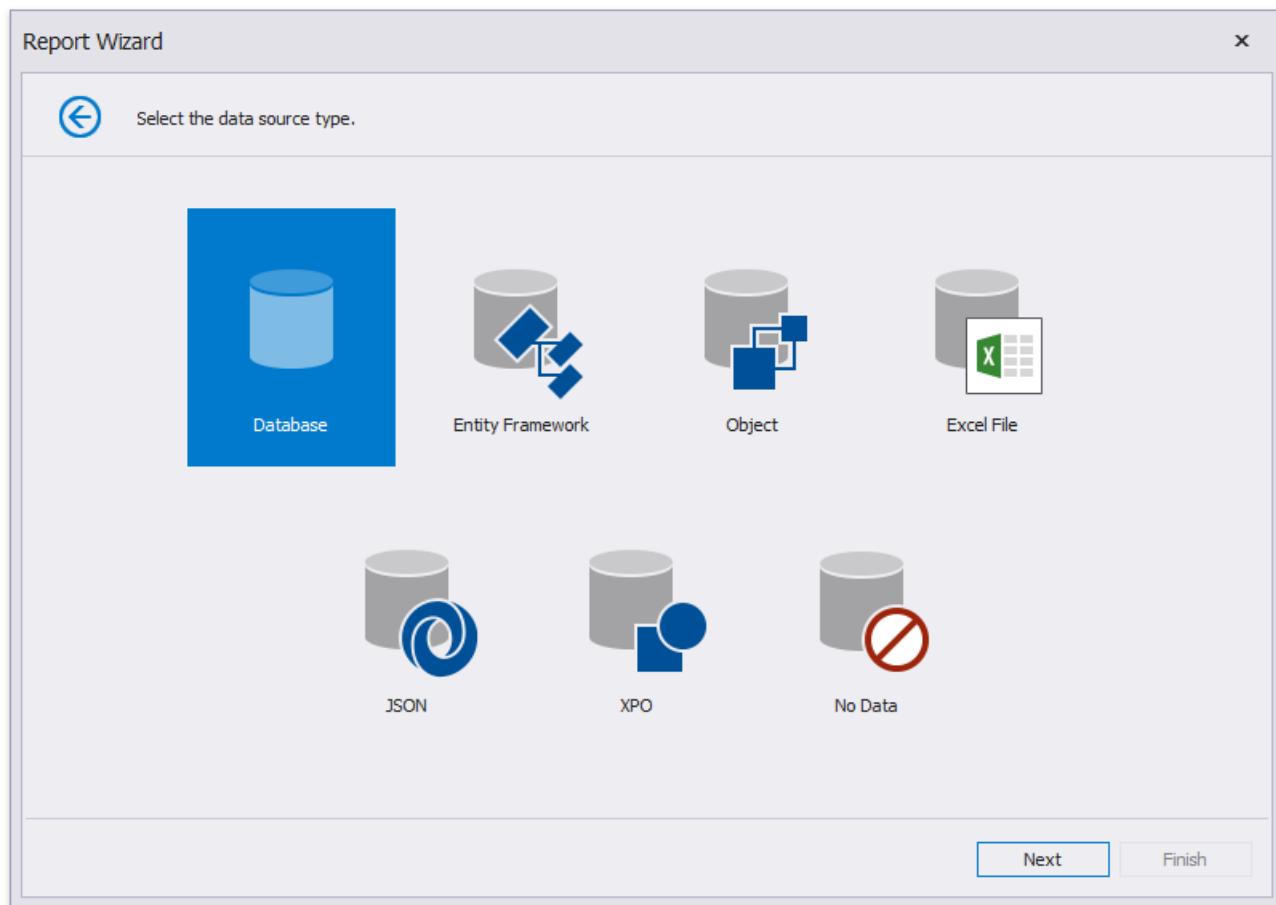


The Report Wizard can include the following pages:

- [Select the Data Source Type](#)
- [Choose Fields to Display in a Report](#)
- [Add Grouping Levels](#)
- [Specify Summary Options](#)
- [Specify Report Page Settings](#)
- [Specify a Report Color Scheme](#)
- [Set the Report Title](#)

Select the Data Source Type

This wizard page allows you to select the required data source type.

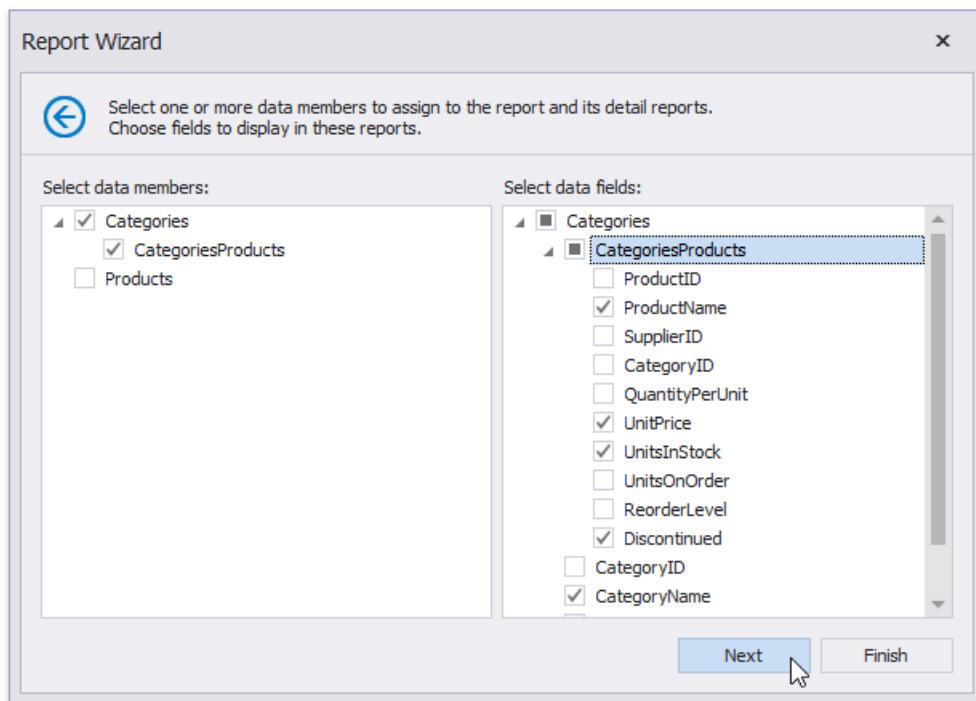


Click **Next** to proceed to the next wizard page, depending on the selected data source type.

- [Connect to a Database](#)
- [Connect to an Entity Framework Data Source](#)
- [Connect to an Object Data Source](#)
- [Connect to an Excel Date Source](#)
- [Connect to JSON Data Source](#)
- [Connect to XPO Data Source](#)
- [No Data](#)

Choose Fields to Display in a Report

This wizard page allows you to select data members for a report and its detail reports as well as choose data fields to display in these reports.



The list on the left-hand side displays queries and [master-detail relationships](#) specified on the previous wizard page. Select required check boxes to create relevant reports and assign their **DataMember** property.

In the list on the right-hand side, choose data fields from the selected data members to include into corresponding reports.

After completing the wizard, the report is constructed according to the following:

- If you select one query, it assigns to the report's **DataMember** property. The selected fields with corresponding captions are automatically added to the report's [Detail Band](#).
- If you select two or more queries, this creates the [Detail Report Band](#) for each query at the same hierarchical level. The **DataMember** properties of these detail reports are assigned to the corresponding queries.
- For each selected master-detail relationship, the [Detail Report Band](#) with the **DataMember** property set to this relationship is created under the corresponding master report.

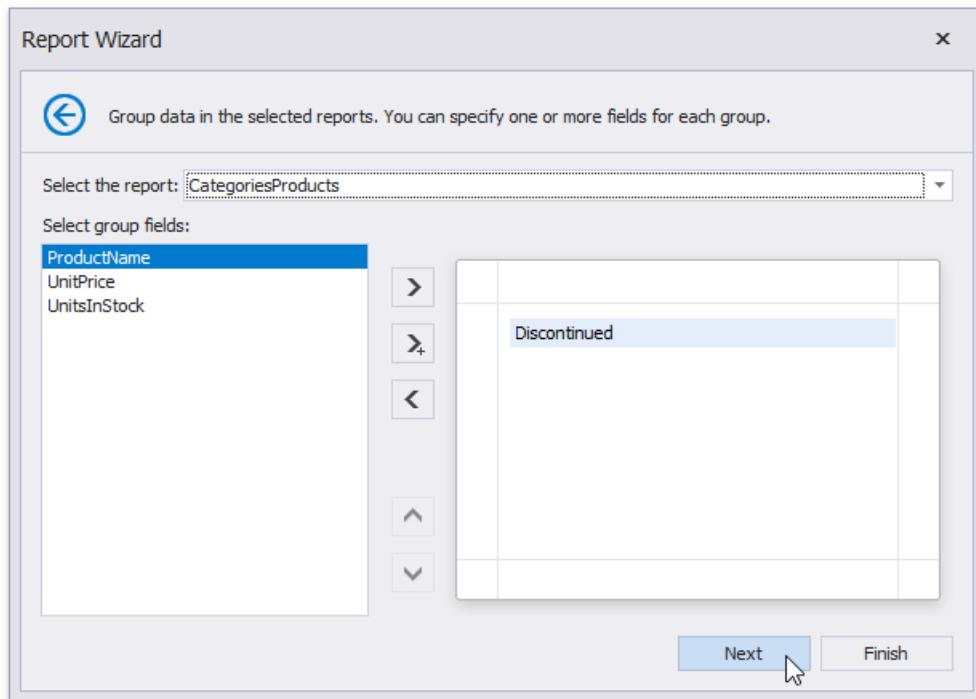
You can stop the wizard at this step by clicking **Finish**. The created report looks similar to the image below.

The screenshot shows the report design surface with a 'Detail' section expanded. It contains a table with columns 'Category Name', 'Description', and 'Picture'. Below this is a 'detailReportBand1 - "Categories.CategoriesProducts"' section, which contains a 'groupHeaderBand1' section with a table having columns 'Product Name', 'Unit Price', 'Units In Stock', and 'Discontinued'. At the bottom is a 'detailBand1' section with a table having columns '[ProductName]', '[UnitPrice]', '[UnitsInStock]', and '[Discontinued]'. Each table cell contains a placeholder like '[CategoryName]' or '[Description]'.

If you want to customize the report further, click **Next** to go to the [Add Grouping Levels](#) page.

Add Grouping Levels

This page allows you to group data in your report. If you do not need to group your data, simply click **Next** on this page to skip this step.



Nested grouping and grouping against multiple fields are fully supported. The following image illustrates all basic grouping types.

No grouping			
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			
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		
Toyota Prius			
1/5/2009	5		
1/6/2009	6		

The list on the left-hand side displays data fields that can be used to group data. To apply grouping, do one of the following.

- Select columns and click the right arrow button.
- Double-click columns.

To remove a grouping field, double-click it in the list on the right-hand side, or select it and click the left arrow button. You can also change the order of grouping fields using the up arrow and down arrow buttons.

You can stop the wizard on this step by clicking **Finish**. In this case, your report will look similar to the image below.

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

- Detail** section:
 - Category Name**: [CategoryName]
 - Description**: [Description]
 - Picture**: An icon representing a picture.
- detailReportBand1 - "Categories.Cat...Products"**:
 - groupHeaderBand2**:
 - Product Name**
 - Unit Price**
 - Units In Stock**
 - groupHeaderBand1**:
 - DISCONTINUED**: A checkbox.
 - detailBand1**:
 - [ProductName]
 - [UnitPrice]
 - [UnitsInStock]
 - groupFooterBand1**

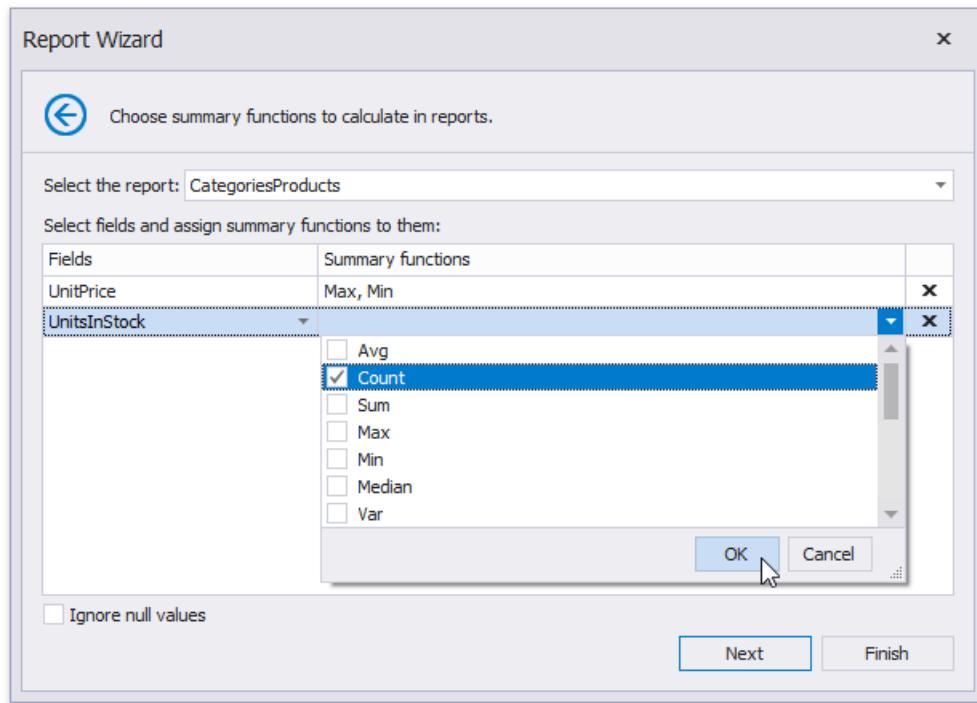
If you want to customize your report further, click **Next**. If data grouping has been applied on this page, you will proceed to the [Specify Summary Options](#) page. If you have not grouped your data, you will skip the summaries step and go to the [Specify Report Page Settings](#) page.

Specify Summary Options

NOTE

This wizard step is only available if you have applied data grouping in the previous step ([Add Grouping Levels](#)). If you have not grouped data, this step is skipped.

On this wizard page, you can specify summaries to calculate in the selected reports.



Use the drop-down list at the top of the wizard page to choose a required report.

In the **Fields** table column, you can select an available numerical or date-time field. To specify which functions should be calculated for the selected field, enable the corresponding check boxes in the **Summary functions** drop-down.

The specified summaries are displayed in the report footer and after corresponding groups (if you have grouped report data on the [previous wizard page](#)).

If data fields can contain empty values and you do not want to take these values into account when calculating totals, select the **Ignore null values** check box. Otherwise, these values are treated as zeros for numeric fields and the earliest system date for date-time fields.

You can stop the wizard at this step by clicking **Finish**. The created report looks similar to the image below.

Detail

Category Name	Description	Picture
[CategoryName]	[Description]	

detailReportBand1 - "Categories.CategoriesProducts"

groupHeaderBand2

Product Name	Unit Price	Units In Stock
--------------	------------	----------------

groupHeaderBand1

DISCONTINUED	
--------------	--

detailBand1

[ProductName]		[UnitPrice]	[UnitsInStock]
---------------	--	-------------	----------------

groupFooterBand1

groupFooterBand2

	MAX	Max([UnitPrice])	COUNT	Count([UnitsInStock])
	MIN	Min([UnitPrice])		
				Discontinued [Discontinue]

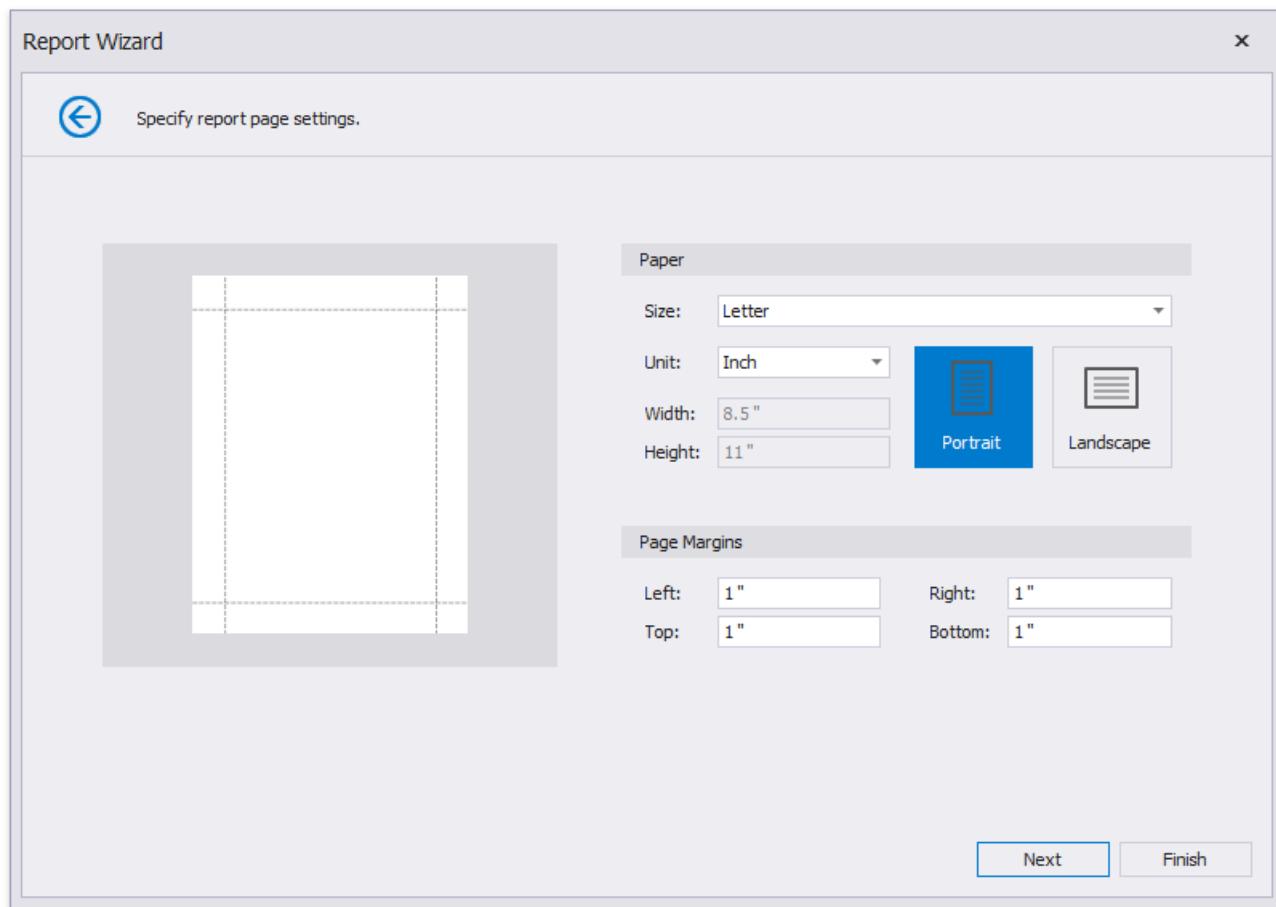
reportFooterBand1

	MAX	Max([UnitPrice])	COUNT	Count([UnitsInStock])
	MIN	Min([UnitPrice])		

If you want to customize the report further, click **Next** to proceed to the next wizard page: [Set the Report Title](#).

Specify Report Page Settings

At this step, set up the report's page.



This wizard page allows you to specify the following report properties:

- **Report Page Size**
- **Unit**

Choose between *Inch*, *Millimeter* and *Pixel* to specify size options on this wizard page. After you finish the wizard, the Report Designer transforms the specified units to *HundredthsOfAnInch*, *TenthsOfAMillimeter* or *Pixels* to provide a more precise report element alignment.

- **Width and Height**

These properties are read-only until you set the **Size** option to *Custom*.

- **Page Margins**

Use the report page preview to drag the margins to a required position.

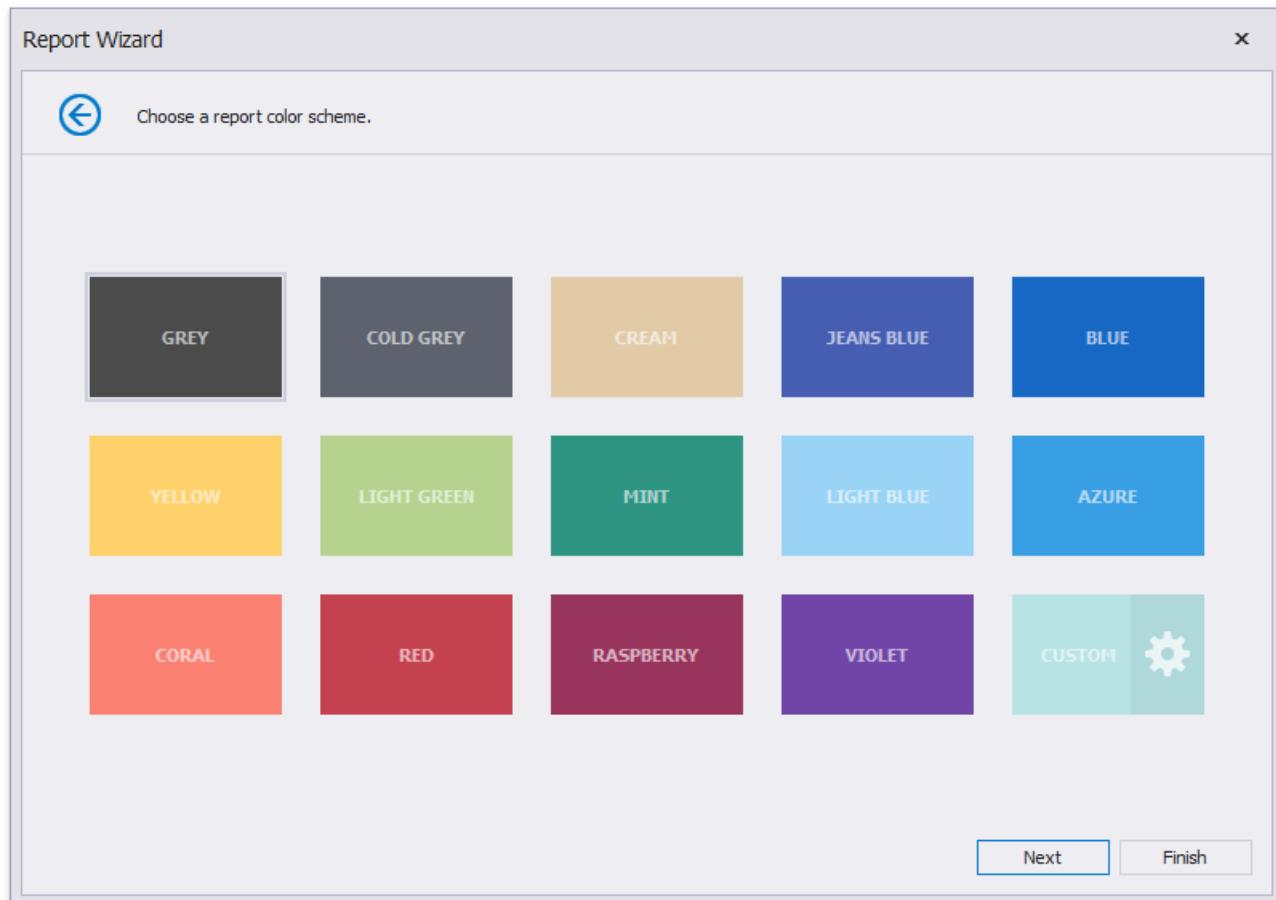
- **Page Orientation**

You can change these settings after you finish the wizard in the Report Designer's Property Grid.

If you want to customize the report further, click **Next** to proceed to the next wizard page: [Choose a Report Color Scheme](#). Otherwise, click **Finish** to complete report customization.

Choose a Report Color Scheme

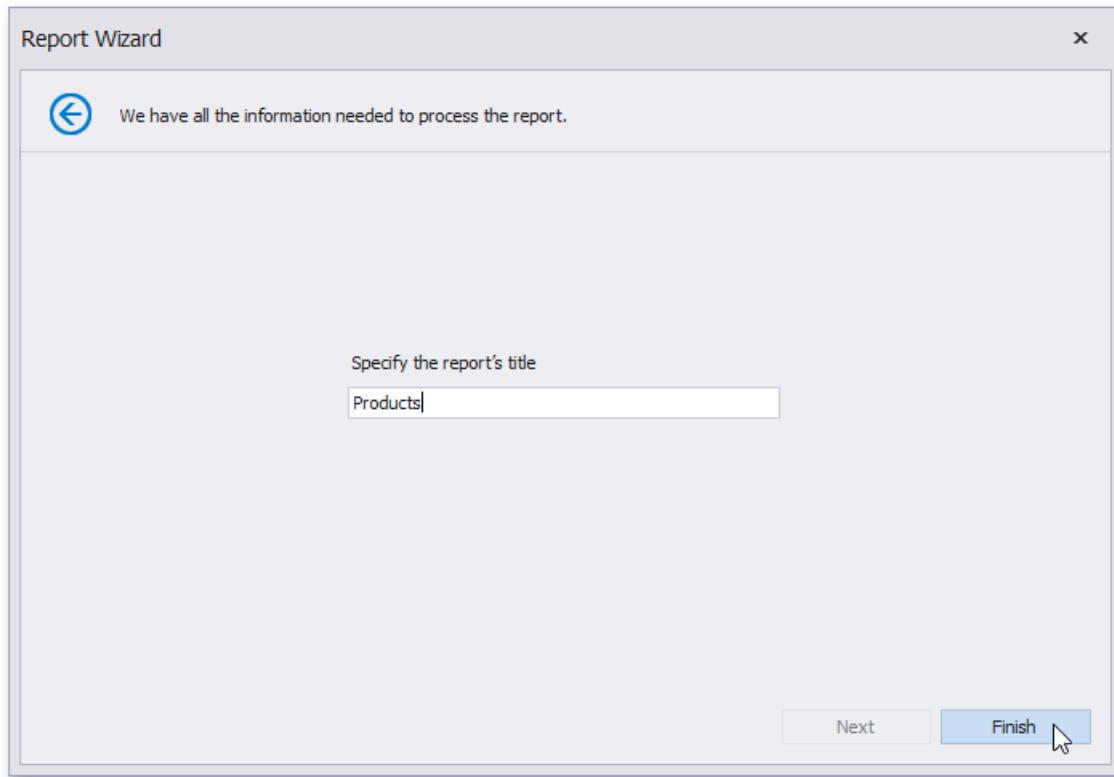
This page allows you to choose a base color for report styles.



The wizard creates styles based on the chosen color for the first level report controls and applies styles with more transparent colors to controls on deeper levels.

Set the Report Title

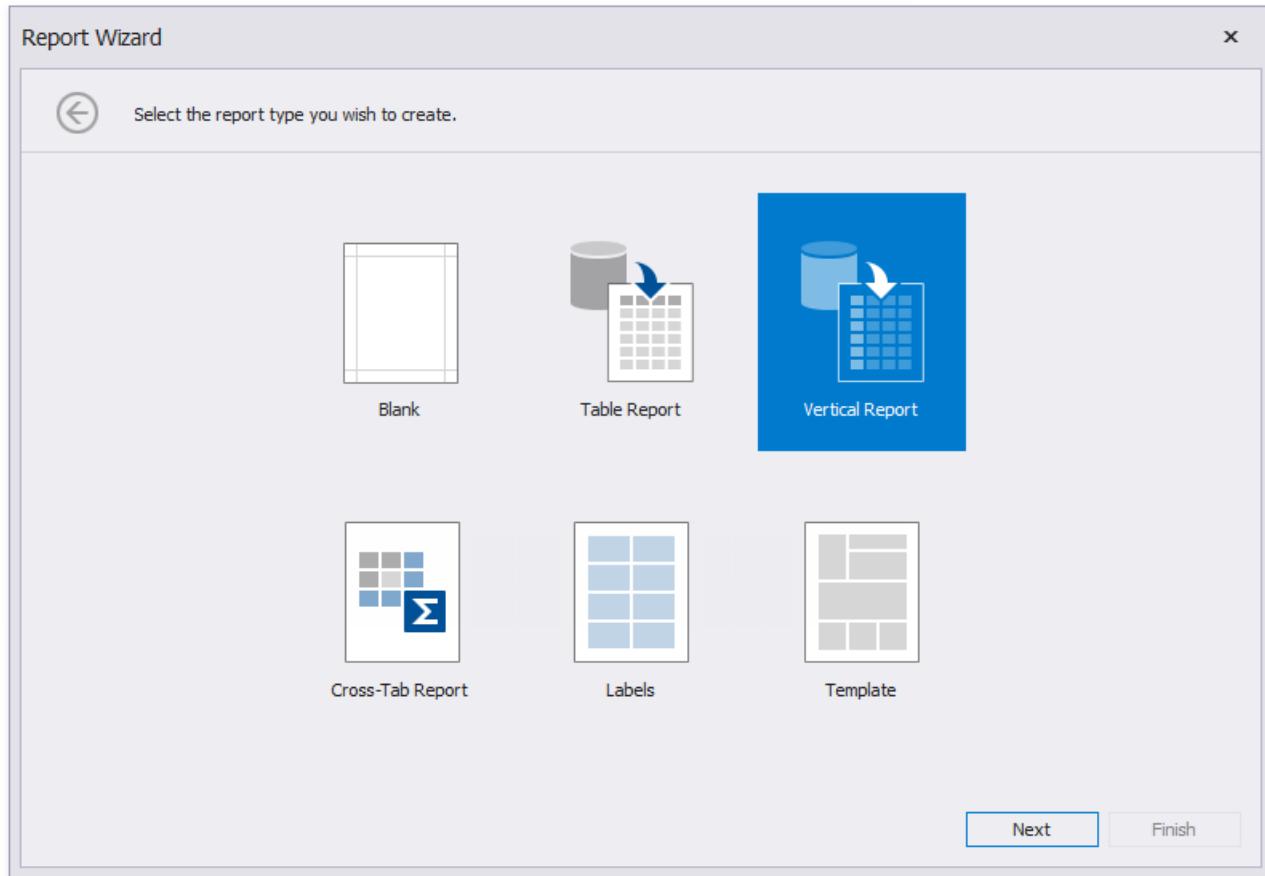
On this page, specify the title for the report and click **Finish** to exit the wizard.



Vertical Report

The topics in this section describe how to create a [vertical report](#) - a table report where record fields are displayed vertically and data records are printed horizontally.

Run the [Report Wizard](#) and select **Vertical Report** to create a new vertical report and connect it to data.



The Report Wizard can include the following pages (similar to the Table Report type):

- [Select the Data Source Type](#)
- [Choose Fields to Display in a Report](#)
- [Add Grouping Levels](#)
- [Specify Summary Options](#)
- [Specify Report Page Settings](#)
- [Specify a Report Color Scheme](#)
- [Set the Report Title](#)

After you finish the wizard, it creates a report with [vertical bands](#): **Vertical Header**, **Vertical Detail** and **Vertical Total**.

▼ ReportHeader [one band per report]

Profit and Loss

▼ VerticalHeader ▼ VerticalDetail ▼ VerticalTotal

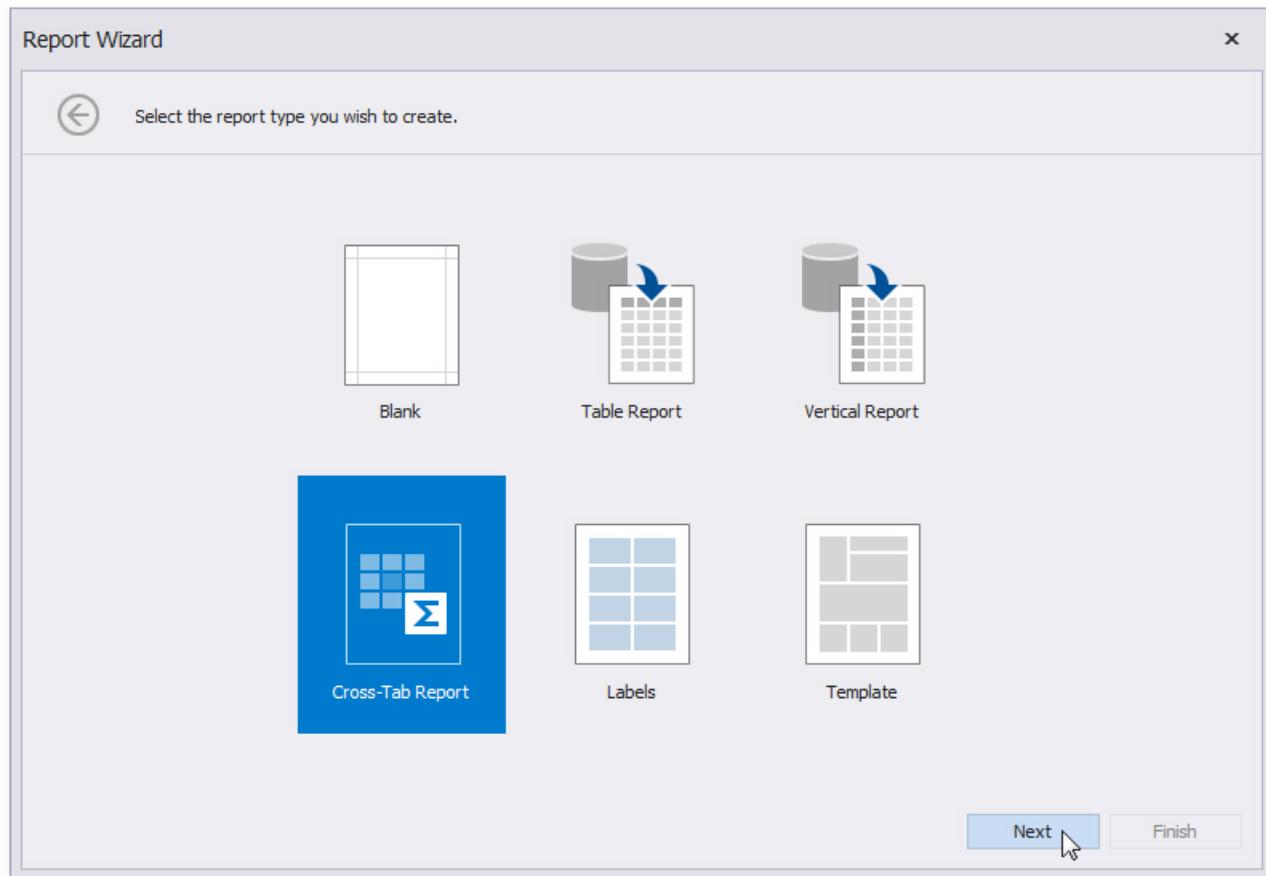
Month	[Month]	
Construction Income	[ConstructionIncome]	sum Sum([ConstructionIncome])
Sales Income	[SalesIncome]	sum Sum([SalesIncome])
Automobile	[Automobile]	sum Sum([Automobile])
Bank Service Charges	[BankServiceCharges]	sum Sum([BankServiceCharges])

Tuesday, October 16, 2018

Page 1 of 1

Cross-Tab Report

Select **Cross-Tab Report** on the wizard's [start page](#) to create a [cross-tab report](#) that displays multi-dimensional data.



Click **Next** and use the [Data Source Wizard](#) to set up a report's data source.

Once the data source is configured, you can define the report's layout on the next page. Drop data fields onto the following cross-tab area:

- **Rows** - defines row headers;
- **Columns** - defines column headers;
- **Data** - defines fields against which to calculate summaries.

Report Wizard



Drop fields onto cross-tab areas to define the report's layout.

Available Fields

ab CategoryName
ab Country
12 Discount
12 Extended Price
ab FirstName
ab LastName
o OrderDate
12 OrderID
ab ProductName

Rows

Field Name	Sort Order
OrderDate	Ascending X
CategoryName	Ascending X

Columns

Field Name	Sort Order
Country	Ascending
Sales Person	Ascending X

Data

Field Name	Summary Type
Extended Price	Sum X

Next

Finish

You can also select a field from the corresponding drop-down list.

Report Wizard



Drop fields onto cross-tab areas to define the report's layout.

Available Fields

ab CategoryName
ab Country
12 Discount
12 Extended Price
ab FirstName
ab LastName
o OrderDate
12 OrderID
ab ProductName

Rows

Field Name	Sort Order
OrderDate	Ascending X
CategoryName	Ascending X

Columns

Field Name	Sort Order
Country	Ascending ▼
ab CategoryName	Ascending X

Field Name	Sort Order
ab Country	Ascending X
12 Discount	
12 Extended Price	
ab FirstName	
ab LastName	
o OrderDate	
12 OrderID	
ab ProductName	
12 Quantity	
ab Sales Person	
12 UnitPrice	

Next

Finish

NOTE

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

You can click **Finish** to stop the Report Wizard. If you want to customize the report further, click **Next** and proceed to the next pages:

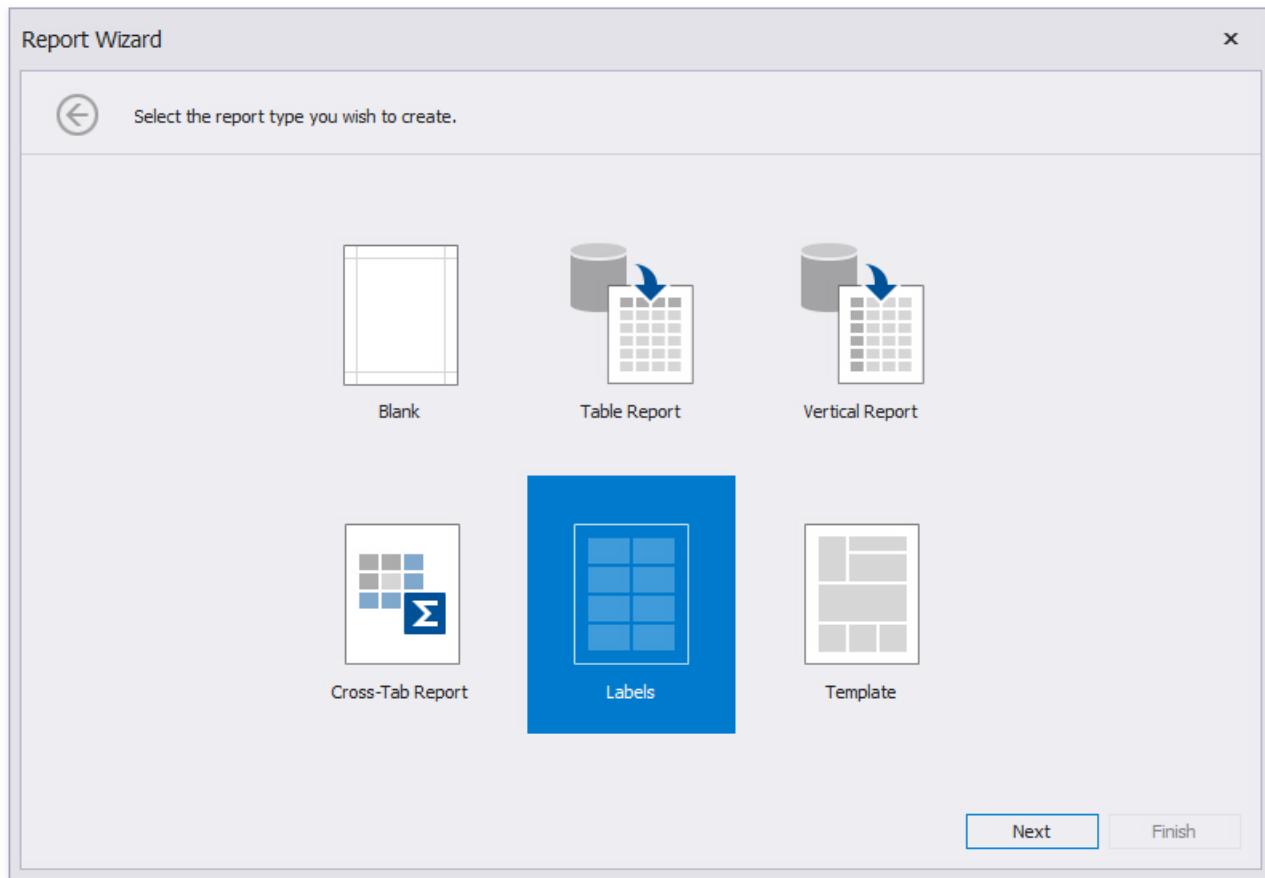
- [Specify Report Page Settings](#)
- [Choose a Report Color Scheme](#)
- [Set the Report Title](#)

The generated report contains the [Cross Tab](#) control that is configured based on the specified settings. The XRCrossTab control calculates automatic totals and grand totals across row and column fields.

Detail					
Order Date	Category Name	[Country]	Total [Countr]	Grand Total	
		[Sales Perso]			
[OrderDate]	[CategoryNa]	[Extended P]			
Total [OrderDate]					
Grand Total					

Labels

This topic describes the steps required to create a report with labels by using the [Report Wizard](#).

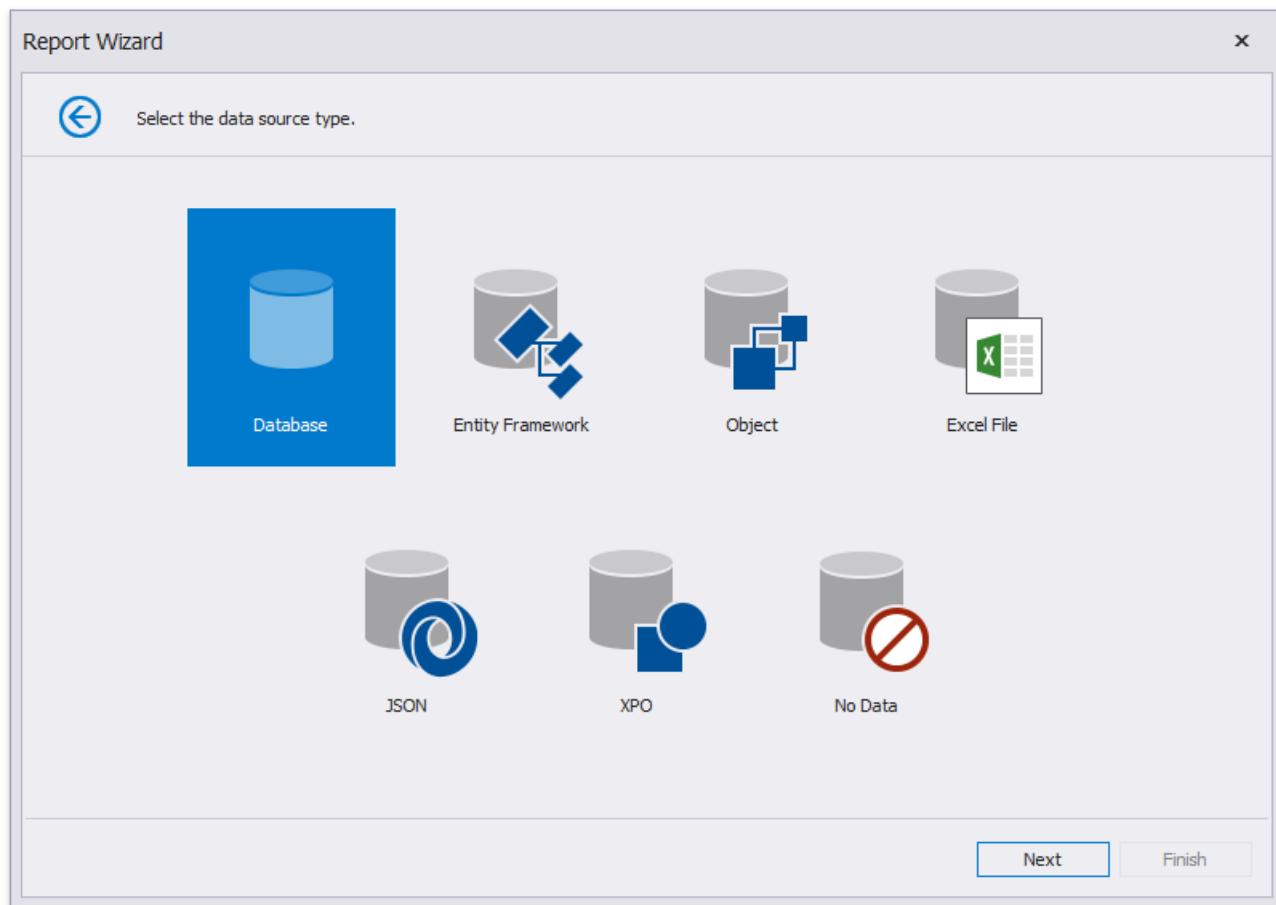


Label report creation consists of the following two steps.

- [Select the Data Source Type](#)
- [Select the Label Type](#)
- [Customize the Label Options](#)

Select the Data Source Type

This wizard page allows you to select the required data source type.



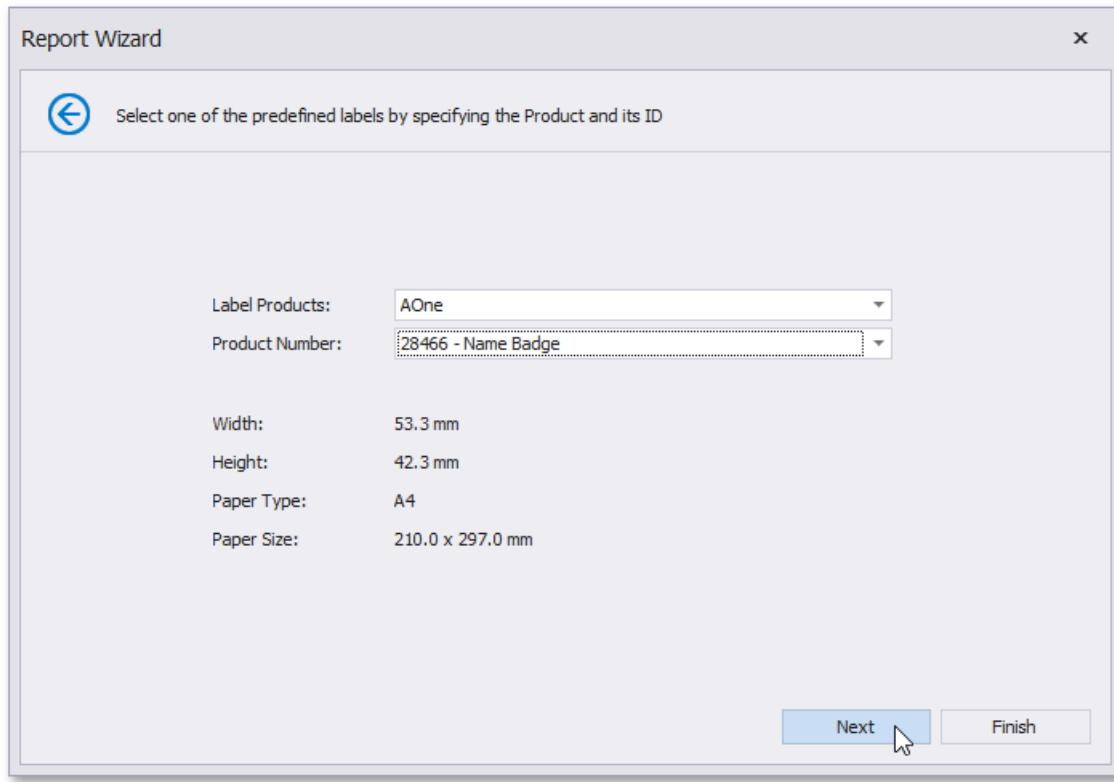
Click **Next** to proceed to the next wizard page, depending on the selected data source type.

- [Connect to a Database](#)
- [Connect to an Entity Framework Data Source](#)
- [Connect to an Object Data Source](#)
- [Connect to an Excel Date Source](#)
- [Connect to JSON Data Source](#)
- [Connect to XPO Data Source](#)
- [No Data](#)

Select the Label Type

This page is intended to select a label type from numerous predefined types.

On this page you can choose the proper setting from the **Label Products** and the **Product Number** drop-down lists. The selected type defines the label's size and layout, as well as the page type, which is default for this label.

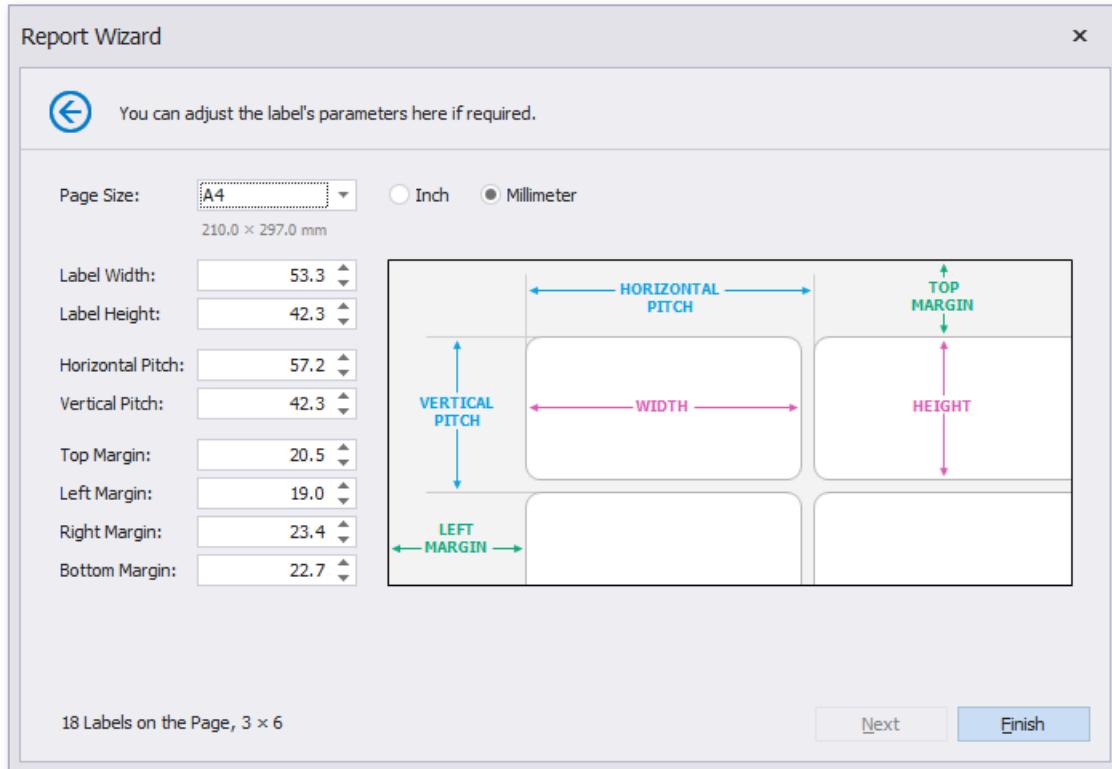


Then, click **Next** to proceed to the [Customize the Label Options](#) page.

Customize the Label Options

This page is intended to customize the label's options.

On this page you can adjust the label's layout parameters and choose the **Page Size**.

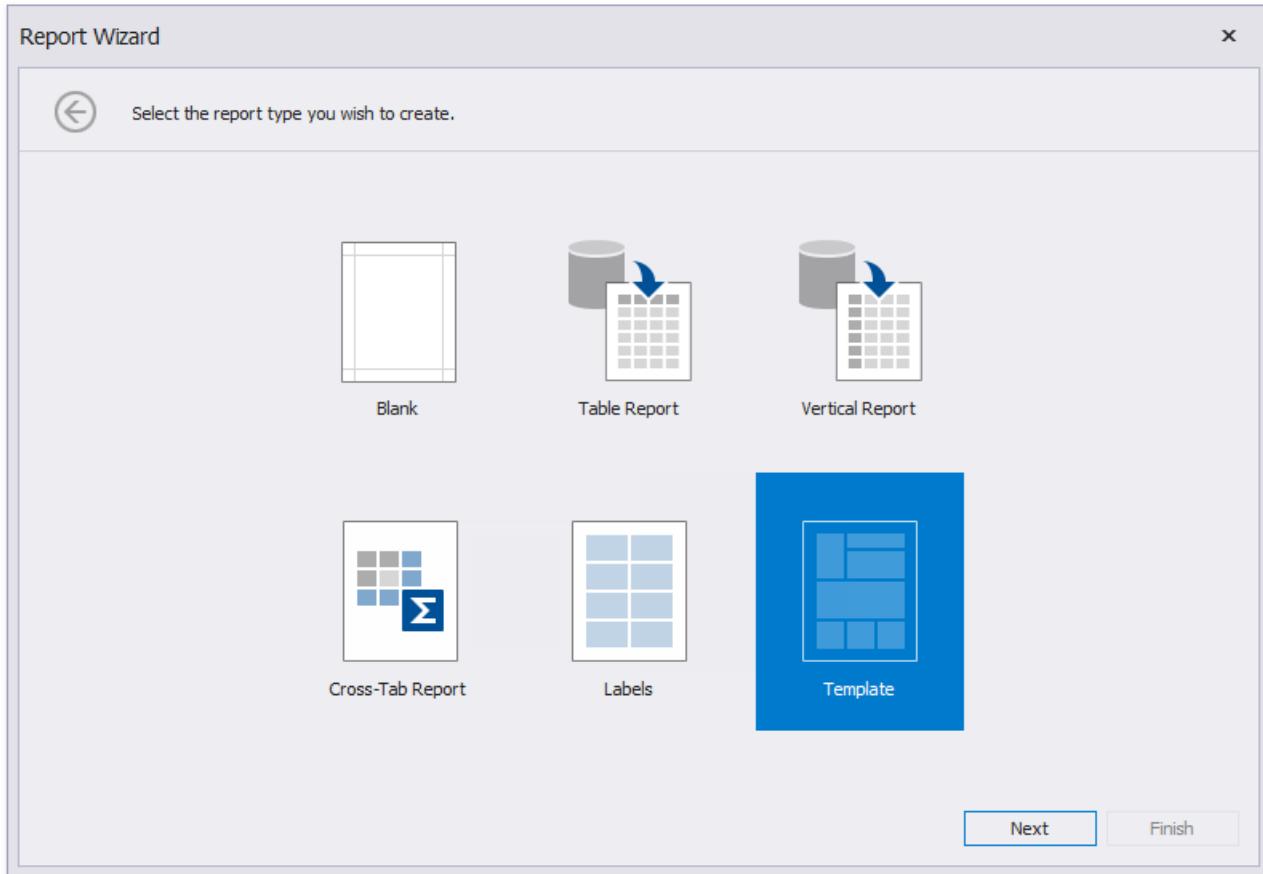


Click **Finish** to complete report creation.

Template

The topics in this section describe how to create a report based on available predefined templates in Visual Studio at design time.

Run the Report Wizard and select the **Template** option on its first page.



Template report creation includes the following steps.

- [Choose a Report Template](#)
- [Select the Data Source Type](#)
- [Map Report Template Fields](#)
- [Specify Report Template Options](#)

This wizard page allows you to choose one of the predefined report layouts.

Report Wizard

Choose a template for your report.

Invoices

Invoice 1

Qty	Description	Price	Discount	Tax	LineTotal
2	Product1	\$450.00	\$0	\$0	\$900.00
3	Product2	\$300.00	\$0	\$0	\$900.00
1	Product3	\$300.00	\$0	\$0	\$300.00
7	Product4	\$100.00	\$0	\$0	\$700.00
2	Product5	\$450.00	\$0	\$0	\$900.00

Total: **\$4950.00**

Subtotal: **\$4720.00**
Discount: **\$210.00**
Tax: **\$230.00**

ClientName: CompanyName
ClientAddress: CompanyAddress
ClientCity: CompanyCity
ClientCountry: CompanyCountry

Invoice 2

INVOICE
INVOICE #00123
October 24, 2017

QUANTITY	DESCRIPTION	UNIT PRICE	DISCOUNT	TAX	TOTAL
2	Product1	\$450.00	\$0	\$0	\$900.00
3	Product2	\$300.00	\$0	\$0	\$900.00
1	Product3	\$300.00	\$0	\$0	\$300.00
7	Product4	\$100.00	\$0	\$0	\$700.00
2	Product5	\$450.00	\$0	\$0	\$900.00

GRAND TOTAL: **\$4950.00**
DISCOUNT: **\$210.00**
TAX: **\$230.00**

TOTAL DUE: **\$4950.00**

ClientName: CompanyName
ClientAddress: CompanyAddress
ClientCity: CompanyCity
ClientCountry: CompanyCountry

Invoice 3

INVOICE
INVOICE #00123
October 24, 2017

DESCRIPTION	QTY	UNIT PRICE	DISCOUNT	TAX	TOTAL
Product1	2	\$450.00	\$0	\$0	\$900.00
Product2	3	\$300.00	\$0	\$0	\$900.00
Product3	1	\$300.00	\$0	\$0	\$300.00
Product4	7	\$100.00	\$0	\$0	\$700.00
Product5	2	\$450.00	\$0	\$0	\$900.00

TOTAL: **\$4950.00**

ClientName: CompanyName
ClientAddress: CompanyAddress
ClientCity: CompanyCity
ClientCountry: CompanyCountry

Next  **Finish**

Once the wizard finishes, the selected template defines the arrangement of the appropriate elements in a report and their appearance settings. You can stop the wizard on this page by clicking **Finish**.

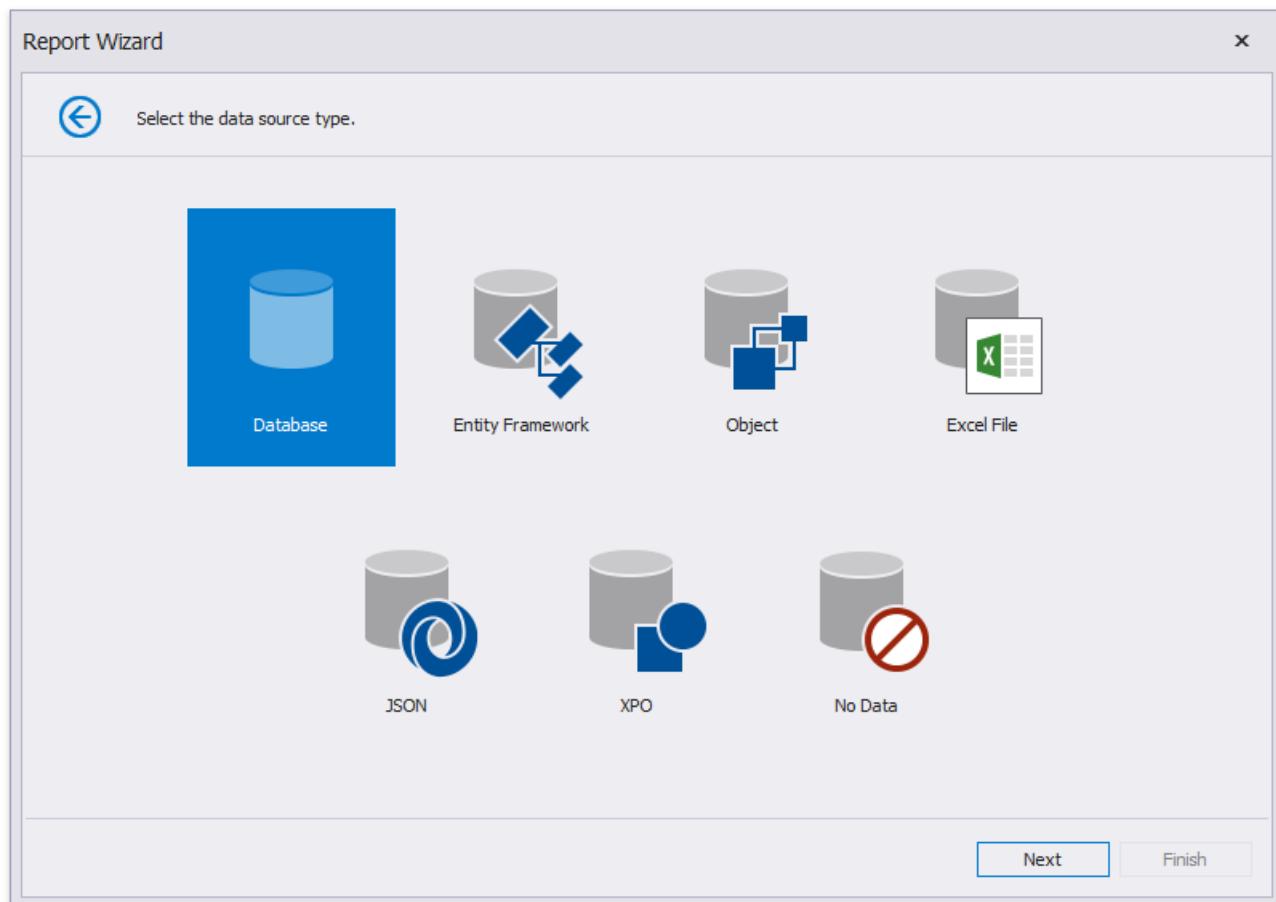
Click **Next** to provide data to your report and continue report customization.

The [next page](#) guides you through the data source setup.

After you configured a data source, proceed to the following wizard page: [Map Report Template Fields](#).

Select the Data Source Type

This wizard page allows you to select the required data source type.



Click **Next** to proceed to the next wizard page, depending on the selected data source type.

- [Connect to a Database](#)
- [Connect to an Entity Framework Data Source](#)
- [Connect to an Object Data Source](#)
- [Connect to an Excel Date Source](#)
- [Connect to JSON Data Source](#)
- [Connect to XPO Data Source](#)
- [No Data](#)

Map Report Template Fields

On this wizard page, you can specify the relationships between the data source's fields and predefined template fields, or provide static values for the template fields.

The tree on the left-hand side displays data source fields. The grid on the right-hand side contains two columns with available template fields and their values divided into categories.

Drag and drop the required data field from the tree onto the corresponding template field to map these fields.

The screenshot shows the 'Report Wizard' window with the title 'Map Report Template Fields'. A message at the top says: 'Map the data source fields to the fields available in the template. You can use drag and drop or specify the required values in the drop-down Template Field Value lists.' On the left, a tree view shows the 'Report Data Source' with 'Orders_1' expanded, listing fields like Address, City, CompanyName, etc., ending with 'OrderID' which is selected. On the right, a grid table has 'Template Field Name' and 'Template Field Value' columns. It shows sections for 'InvoiceInfo', 'Vendor', 'Customer', and 'OrderDetails'. Under 'InvoiceInfo', 'InvoiceNumber' is mapped to 'OrderID'. Under 'OrderDetails', there is an empty row with a '+' sign. At the bottom are 'Next' and 'Finish' buttons.

Template Field Name	Template Field Value
InvoiceInfo	
InvoiceNumber	OrderID
InvoiceDate	
Vendor	
Customer	
OrderDetails	

You can also select the necessary data field from the **Template Field Value** drop-down list.

Report Wizard

Map the data source fields to the fields available in the template.
You can use drag or drop or specify the required values in the drop-down Template Field Value lists.

Template Field Name	Template Field Value
InvoiceInfo	
[ab] InvoiceNumber	[Orders_1.OrderID]
[ab] InvoiceDate	
Vendor	
[ab] CompanyName	
[ab] CompanyAddress	
[ab] CompanyCity	
[ab] CompanyCountry	
[ab] CompanyWebsite	
[ab] CompanyEmail	
[ab] CompanyPhone	
Customer	
OrderDetails	

Report Data Source
Orders_1
Address
City
CompanyName
ContactName
ContactTitle
Country
Discount
Fax
Freight
OrderDate
OrderID
Phone
ProductID
Quantity
Region
RequiredDate
ShippedDate
UnitPrice

Report Data Source
Orders_1
Address
City
CompanyName
ContactName
ContactTitle
Country

Next **Finish**

Select **None** in the drop-down list to delete a mapping.

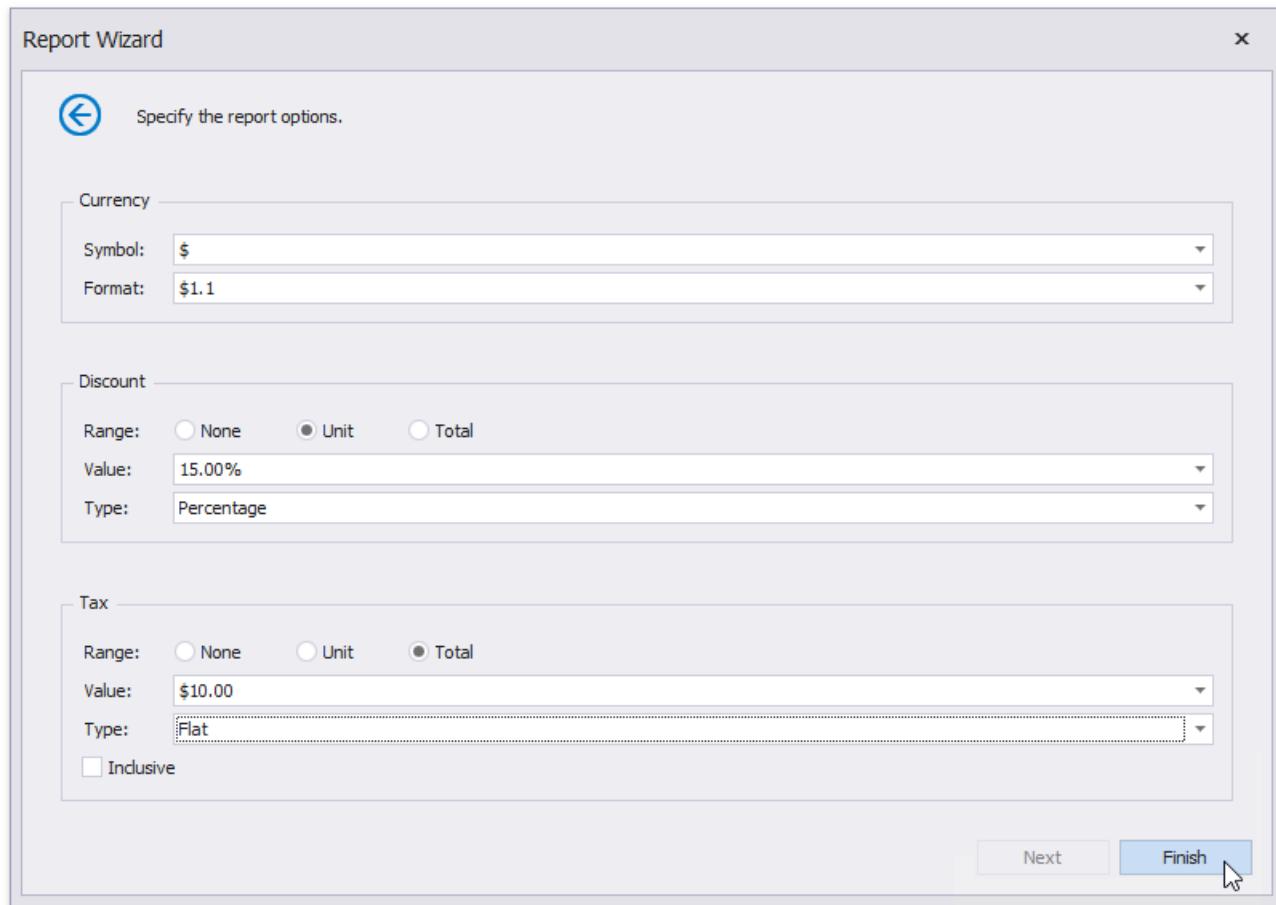
You can also manually enter a static field value in the **Template Field Value** column.

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

You can stop the wizard at this step by clicking **Finish** or click **Next** to proceed to the following wizard page: [Specify Report Template Options](#).

Specify Report Template Options

The following wizard page allows you to specify currency formatting options and the discount/tax options.



In the **Currency** section, select the currency symbol and format for displaying price values.

In the **Discount** and **Tax** section, you can specify the following settings.

- **Range** - Defines whether the discount/tax value should not be taken into account (**None**), or should be used for individual items (**Unit**) or for the entire order (**Total**).
- **Value** - Specifies the discount/tax value that can be static or bound to the data source field.
- **Type** - Specifies the type of the discount/tax value (flat, fixed or percentage).
- **Inclusive** (for the tax only) - Indicates whether the tax value is included into product prices.

Click **Finish** to complete the wizard and get the resulting report.

Data Source Wizard

The Data Source Wizard enables you to configure a data source and retrieve the required data. It supports the following data source types:

- [Database](#)

Obtains data from all major data providers (Microsoft SQL Server, XML data, Microsoft Access, Oracle, etc.).

- [Entity Framework](#)

Supports binding to a Microsoft ADO.NET Entity Framework data source.

- [Object Binding](#)

Connects to a data object.

- [Excel File](#)

Obtains data from Microsoft Excel workbooks (XLS, XLSX or XLSM files) or CSV files.

- [JSON](#)

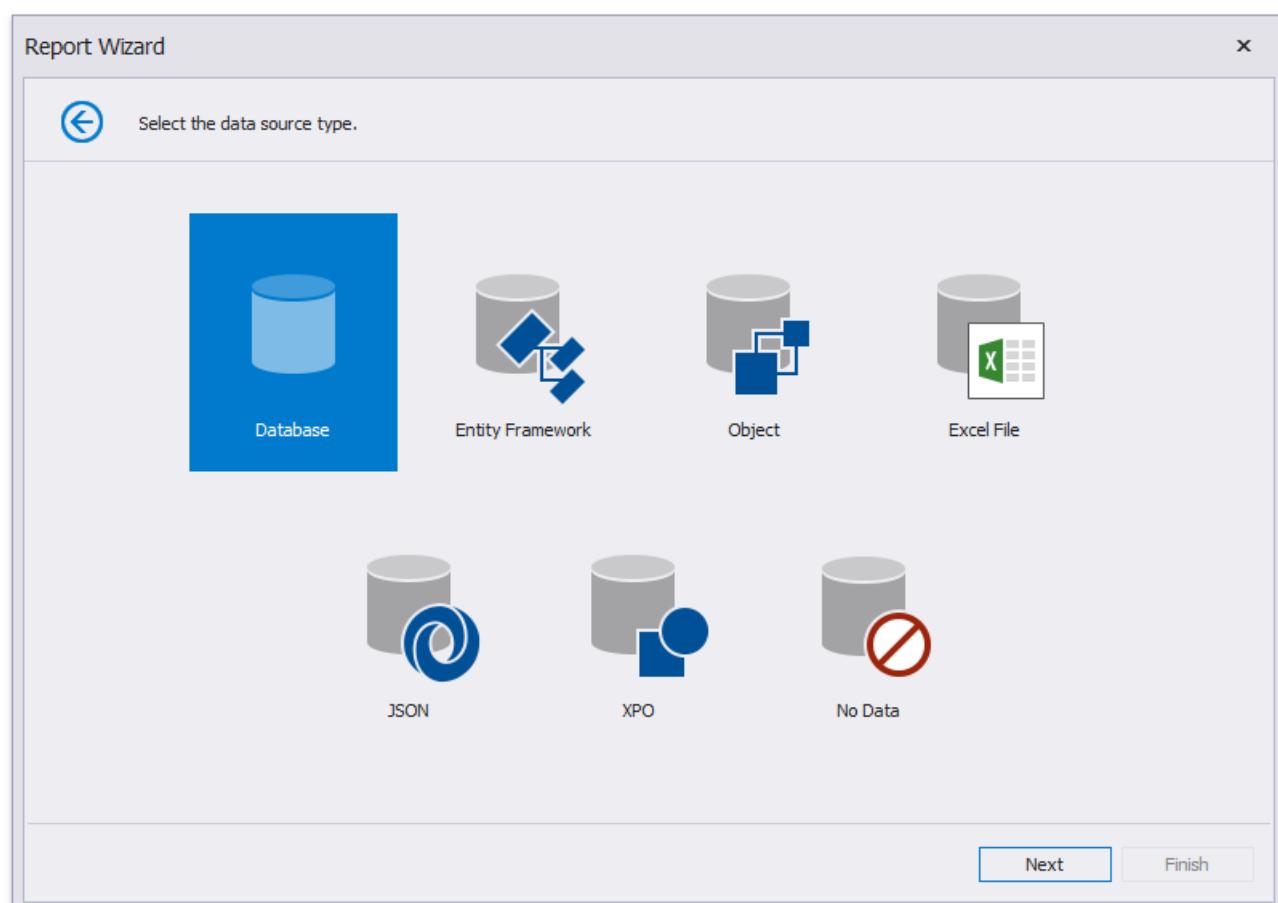
Connects to JSON-formatted data.

- [XPO](#)

Allows you to bind to **XPO** data.

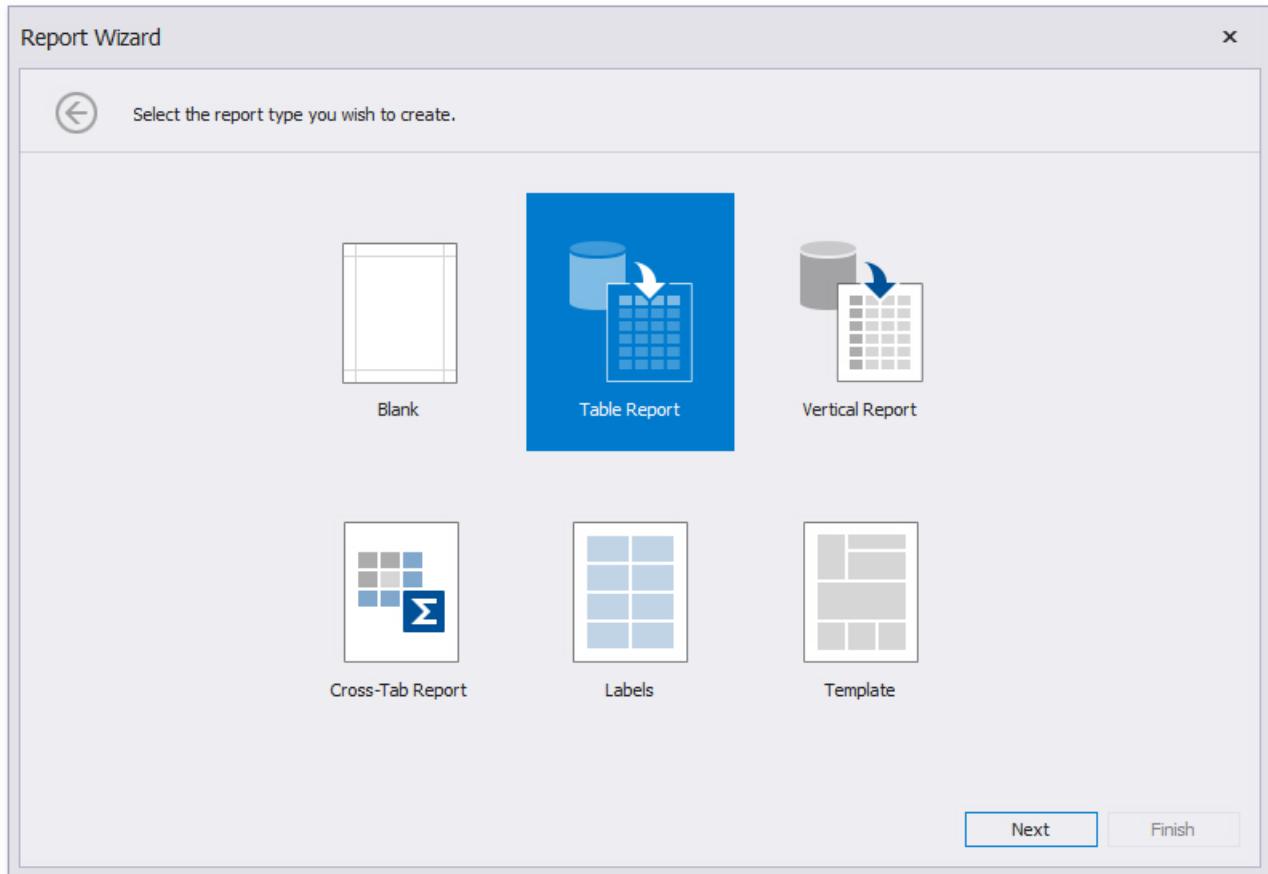
- [No Data](#)

Allows you design a report that is not bound to a data source.

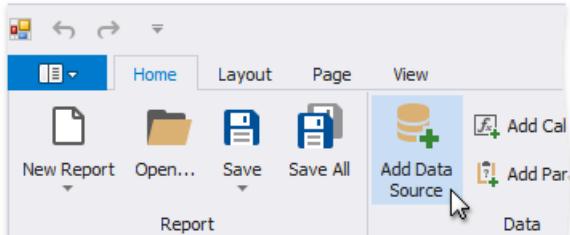


The Data Source Wizard allows you to do the following:

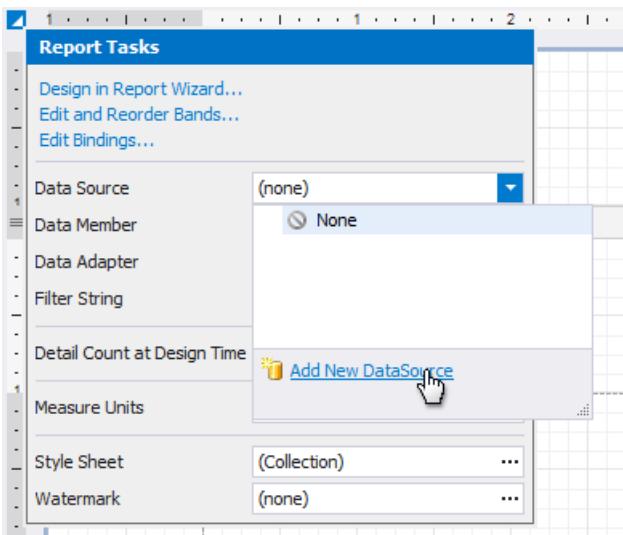
- Add a new data-bound report to your application using the [Report Wizard](#), which contains the Data Source Wizard pages.



- Bind an existing report or its [Detail Report band](#) to data. To invoke this Wizard, click **Add Data Source** on the [Ribbon's Home page](#).

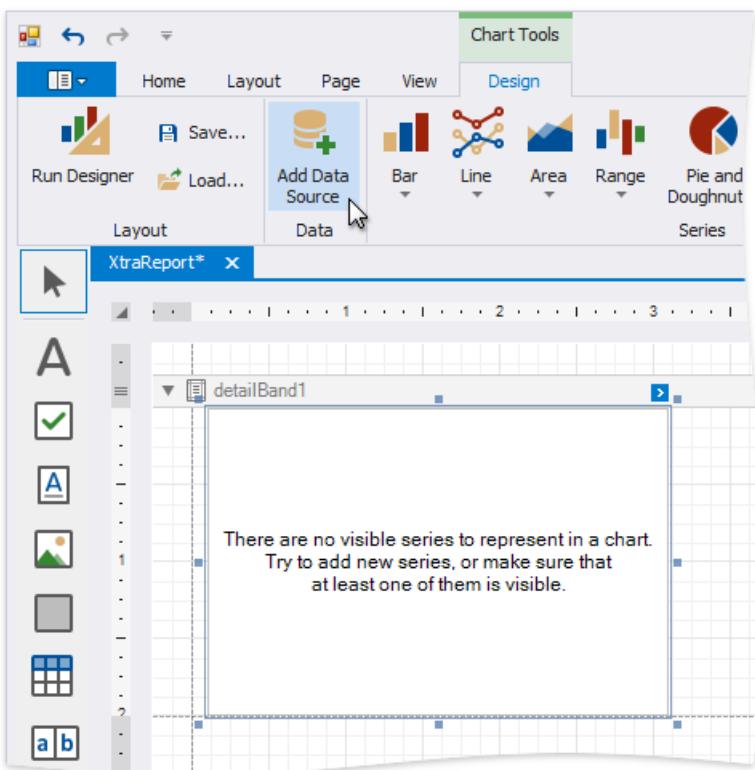


Alternatively, click the report's smart tag, expand the **DataSource** property's drop-down menu and click **Add Report Data Source**.

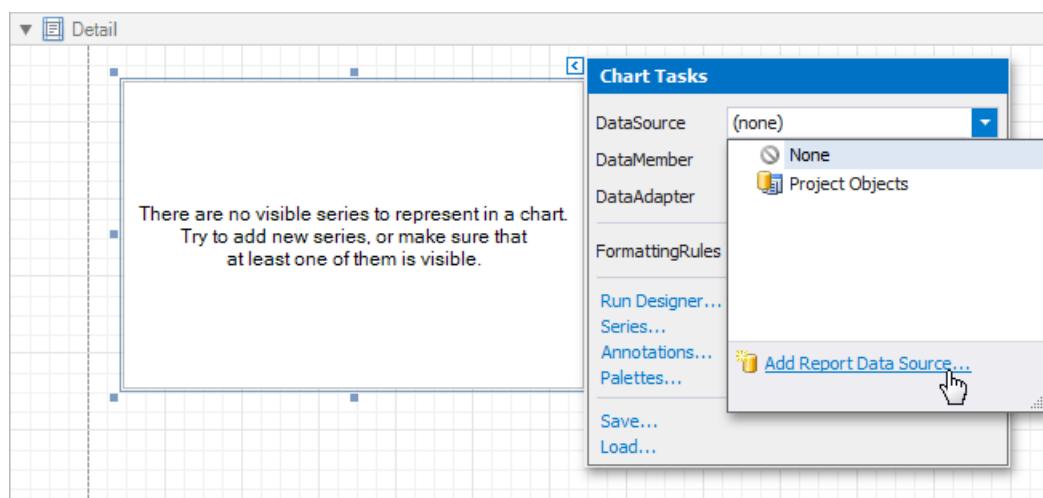


- Connect the **Chart**, **Cross Tab** and **Sparkline** report controls to individual data sources.

You can invoke the Data Source Wizard using the **Add Data Source** command on the **Chart | Design** contextual page.



You can invoke the Data Source Wizard using the **DataSource** property in the chart's smart tag.



Connect to a Database

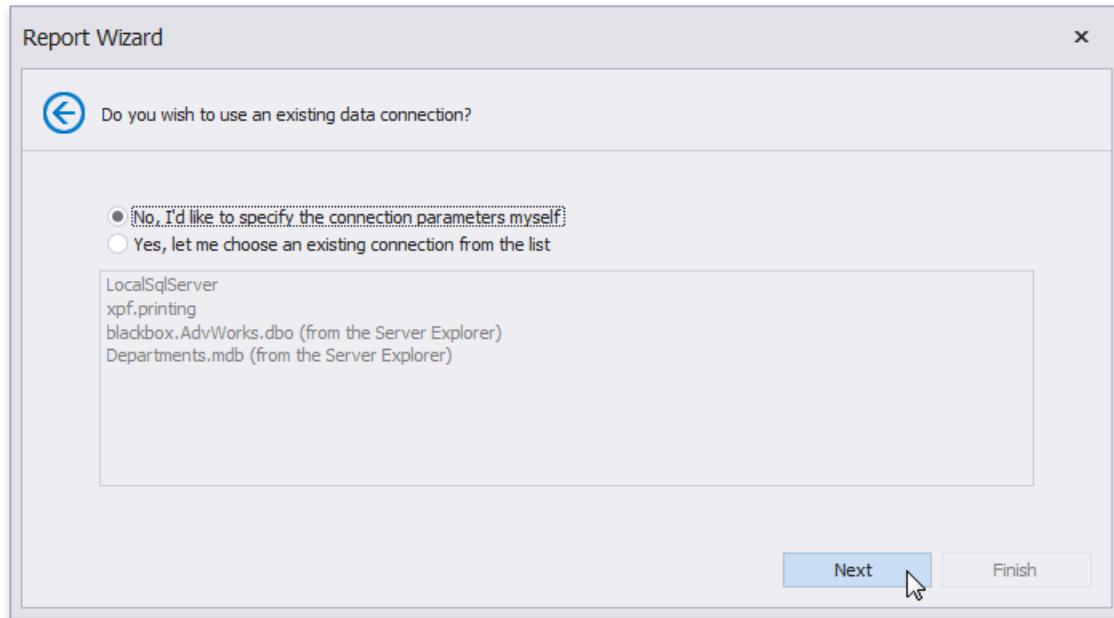
The topics in this section describe the steps required to connect a report to a database.

This task includes the following steps.

- [Select a Data Connection](#)
- [Specify a Connection String](#)
- [Save the Connection String](#)
- [Create a Query or Select a Stored Procedure](#)
- [Configure Query Parameters](#)

Select a Data Connection

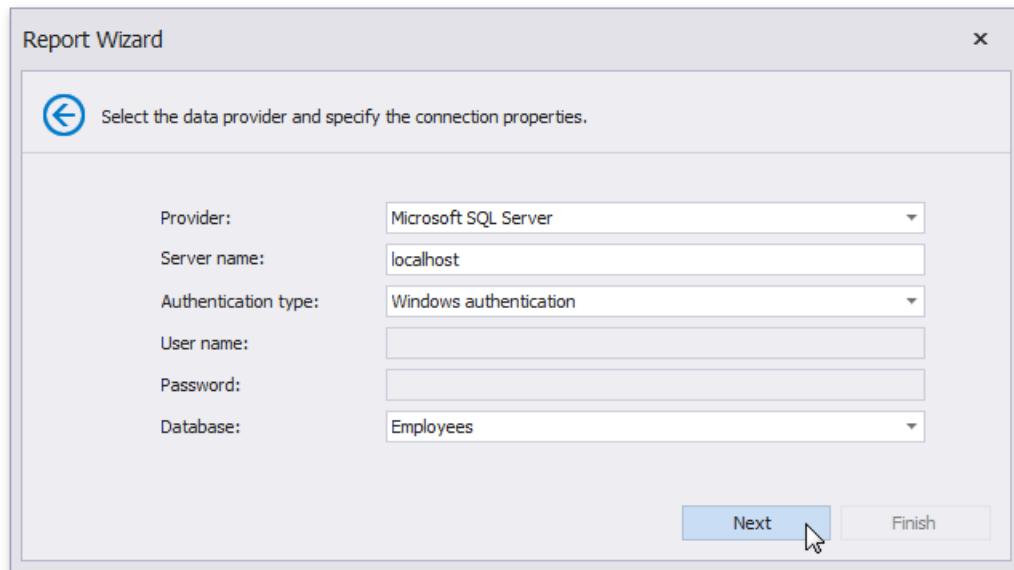
On this page, you can either select one of the currently available data connections from the list or create a new one.



Click **Next** to proceed to the next wizard page, depending on the selected option.

Specify a Connection String

On this page, define a custom connection string or select one of the supported data source types.



The following data source types are supported.

- Amazon Redshift
- Firebird
- Google BigQuery
- IBM DB2
- Microsoft Access 2007
- Microsoft Access 97
- Microsoft SQL Server
- Microsoft SQL Server Compact Edition
- MySQL
- Oracle
- Pervasive PSQL
- PostgreSQL
- SAP Sybase Advantage
- SAP Sybase ASE
- SAP Sybase SQL Anywhere
- SQLite
- Teradata
- VistaDB
- VistaDB5
- XML file

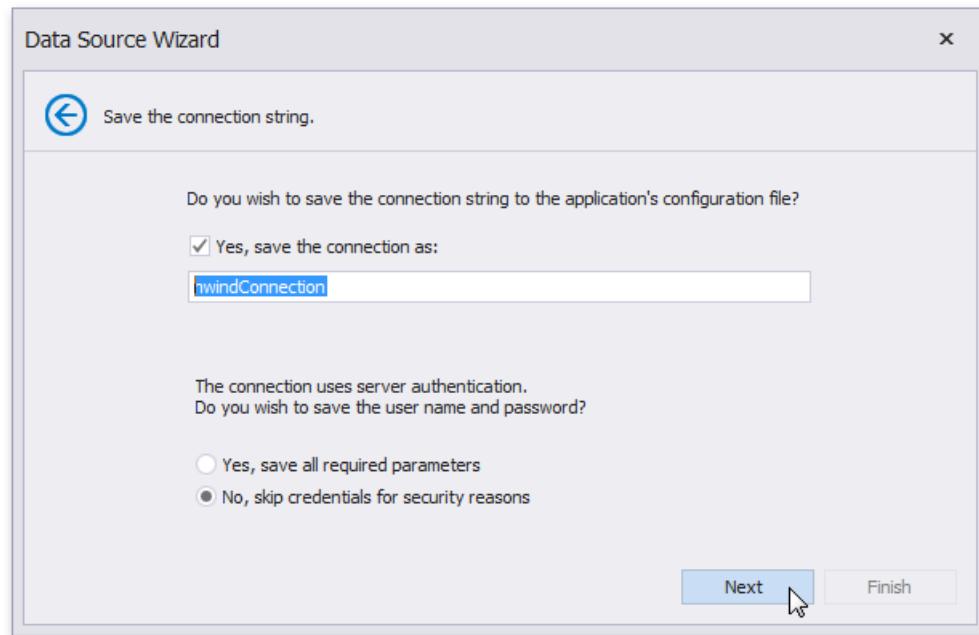
Depending on the data provider selected, it may be necessary to specify additional connection options (such as authentication type and database name) on this page.

Click **Next** to proceed to the next wizard page, depending on whether or not the created connection uses server authentication.

- [Save the Connection String](#) - if server authentication is required, this page allows you to specify whether or not you want to save the user credentials along with the connection string.
- [Create a Query or Select a Stored Procedure](#) - if server authentication is not required, the page above does not appear, and you will proceed to constructing the query.

Save the Connection String

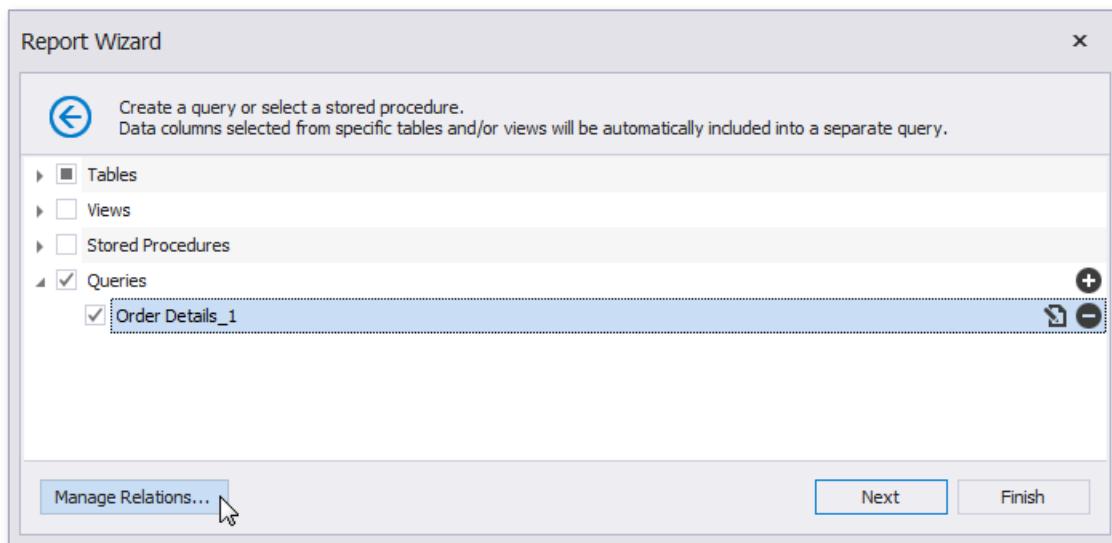
On this page, you can specify whether or not to save the user credentials along with the connection string.



Click **Next** to proceed to the next wizard page: [Create a Query or Select a Stored Procedure](#).

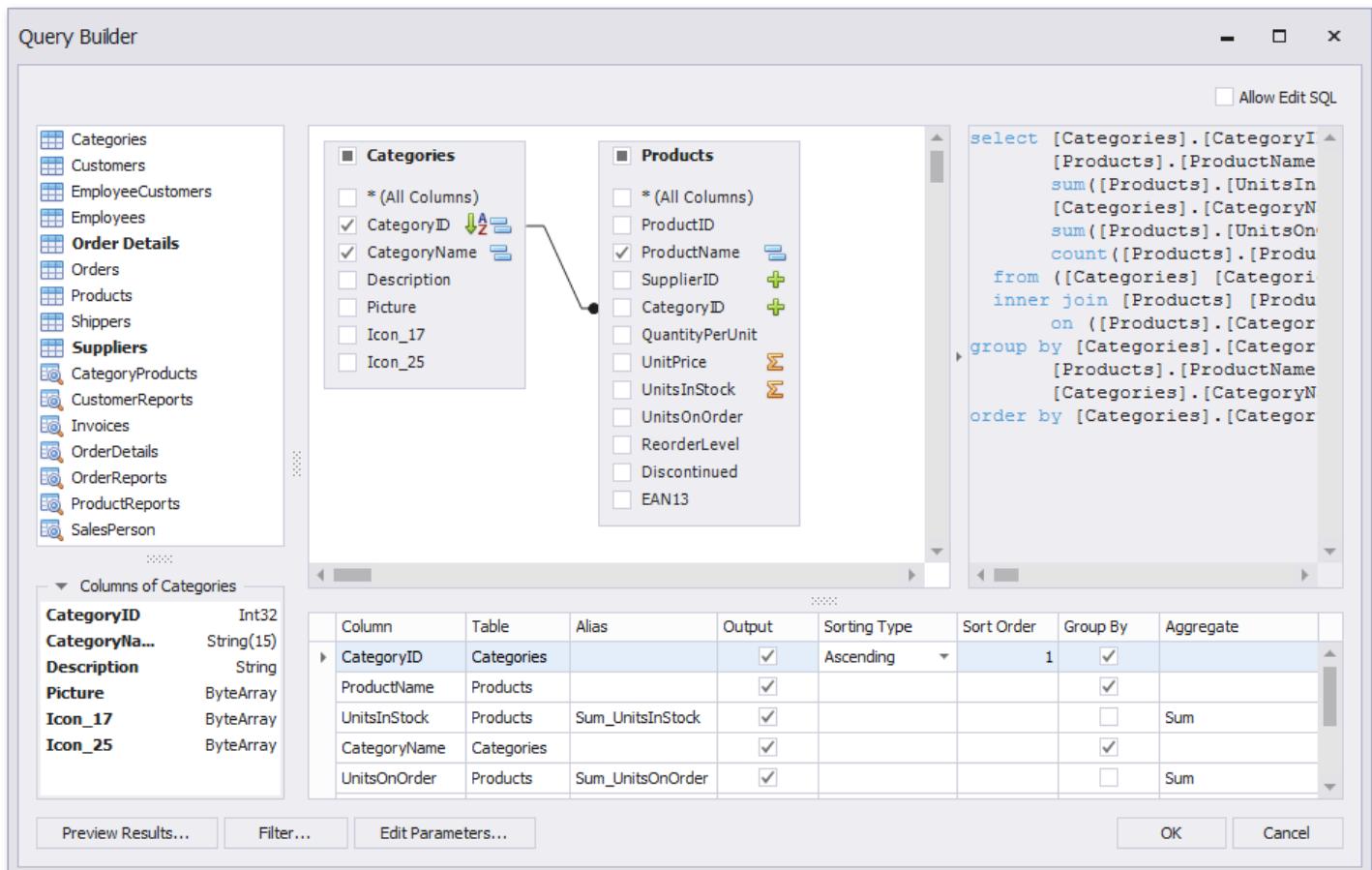
Create a Query or Select a Stored Procedure

On this wizard page, you can choose which tables, views and/or stored procedures from your data source to display in the report.



Manage Custom Queries

When you are required to shape the query data at the level of a data source, you can create custom queries by expanding the **Queries** category and clicking the **+** button. This will invoke the [Query Builder](#) where you can create complex queries by joining multiple tables, filtering, sorting and grouping their data, as well as calculating various aggregate functions.

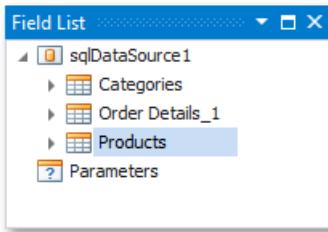


The Query Builder can also be used to specify custom SQL, if this functionality is enabled by your software provider.

To customize an existing query using the Query Builder, click the **Q** button.

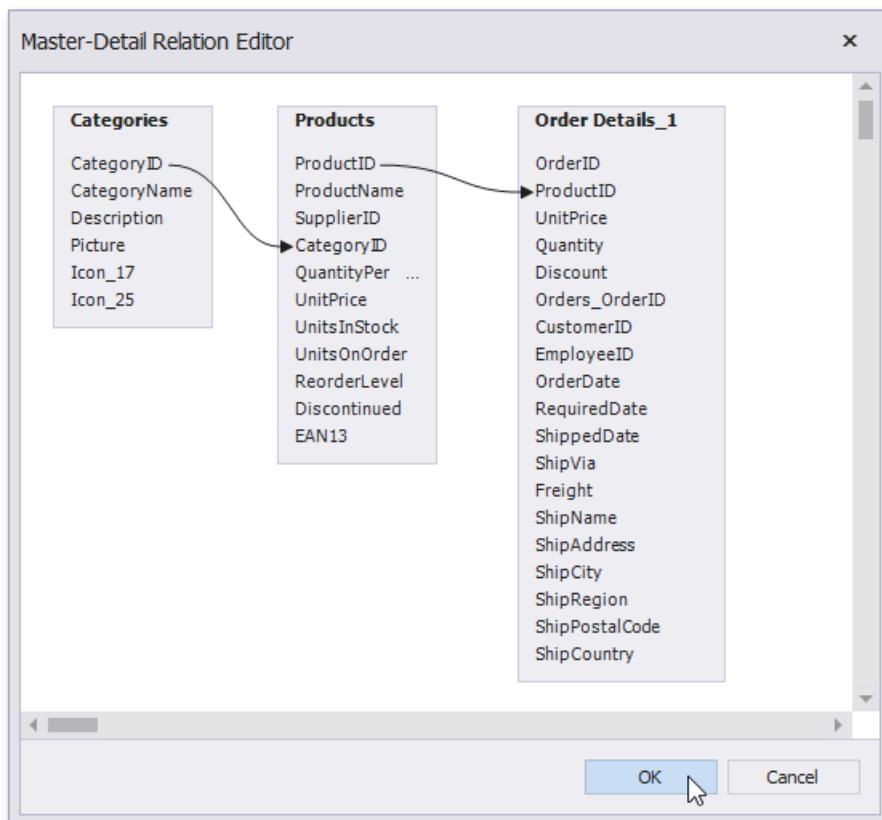
To delete a query, click the  button.

On finishing the wizard, each of the selected data items will be included into a separate query.



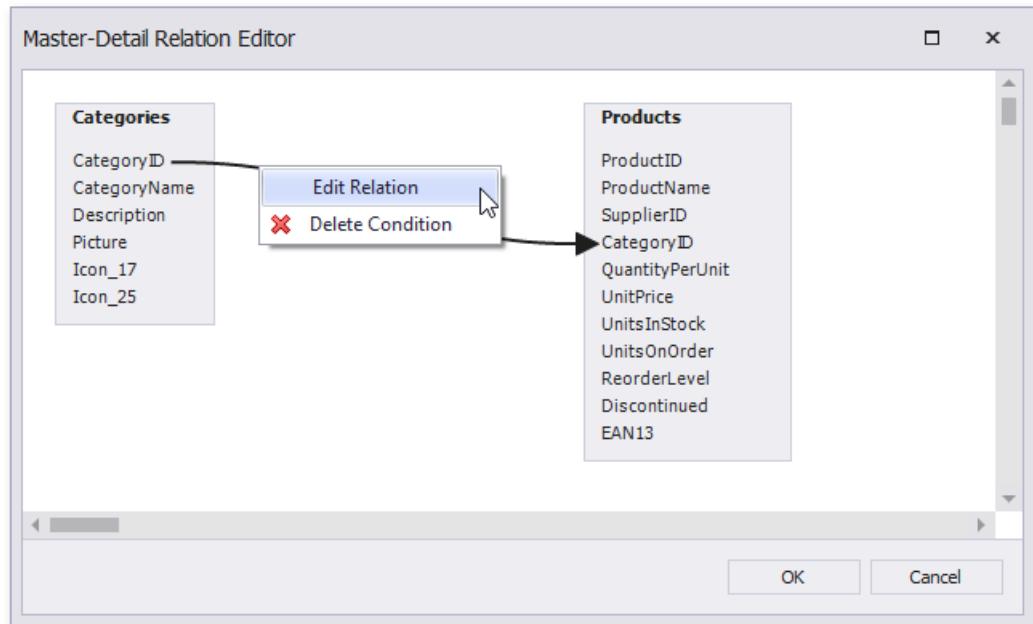
Specify Master-Detail Relationships

To define [master-detail relationships](#) between two or more queries, click **Manage Relations**.

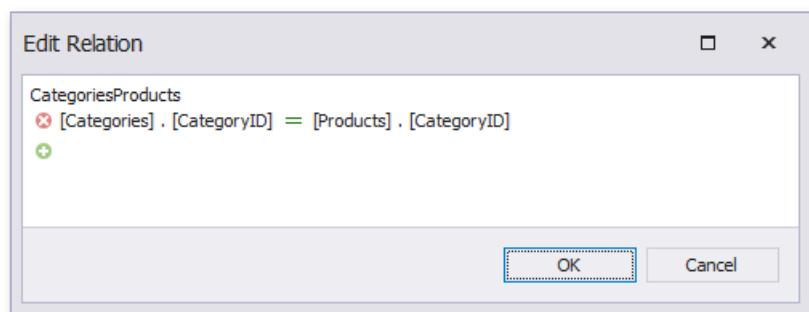


To create a new relationship, connect the required key fields using drag and drop.

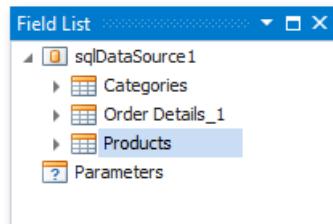
To edit an existing relationship, double-click the corresponding arrow or right-click it, and select the **Edit Relation** command in the invoked context menu.



This will invoke the **Edit Relation** editor that provides a different UI to manage the data relationships.



On finishing the wizard, the specified data relationships will appear in the [Field List](#).



If selected queries or stored procedures contain any [parameters](#), you will be required to define their values on the next wizard page: [Configure Query Parameters](#).

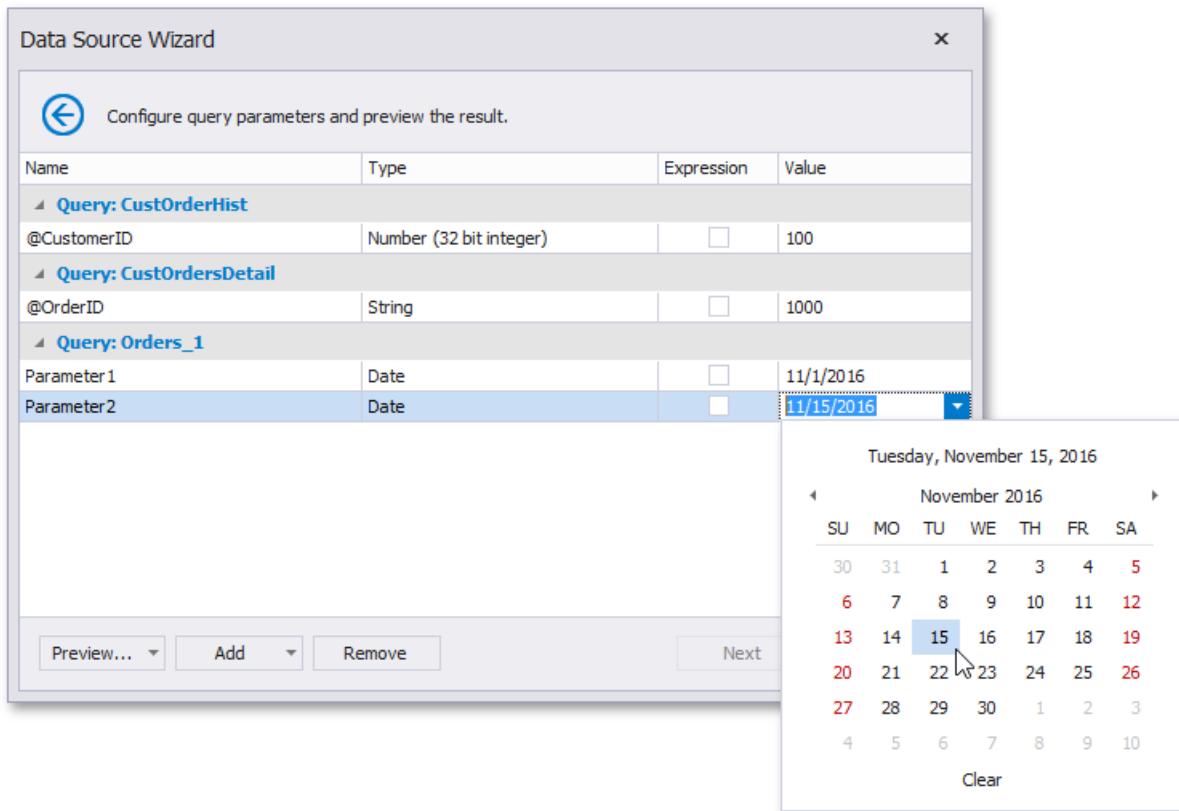
Configure Query Parameters

On this wizard page, you can manage parameters that are used in queries and/or stored procedures selected on the [previous wizard page](#), as well as specify parameter values.

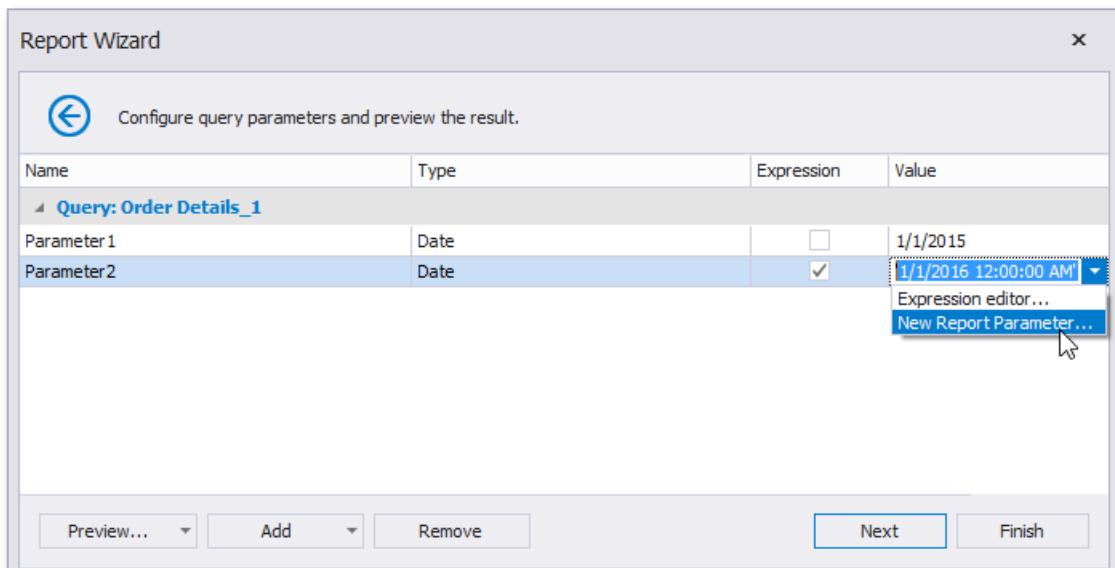
Specify Parameter Values

A parameter value can be specified in one of the following ways.

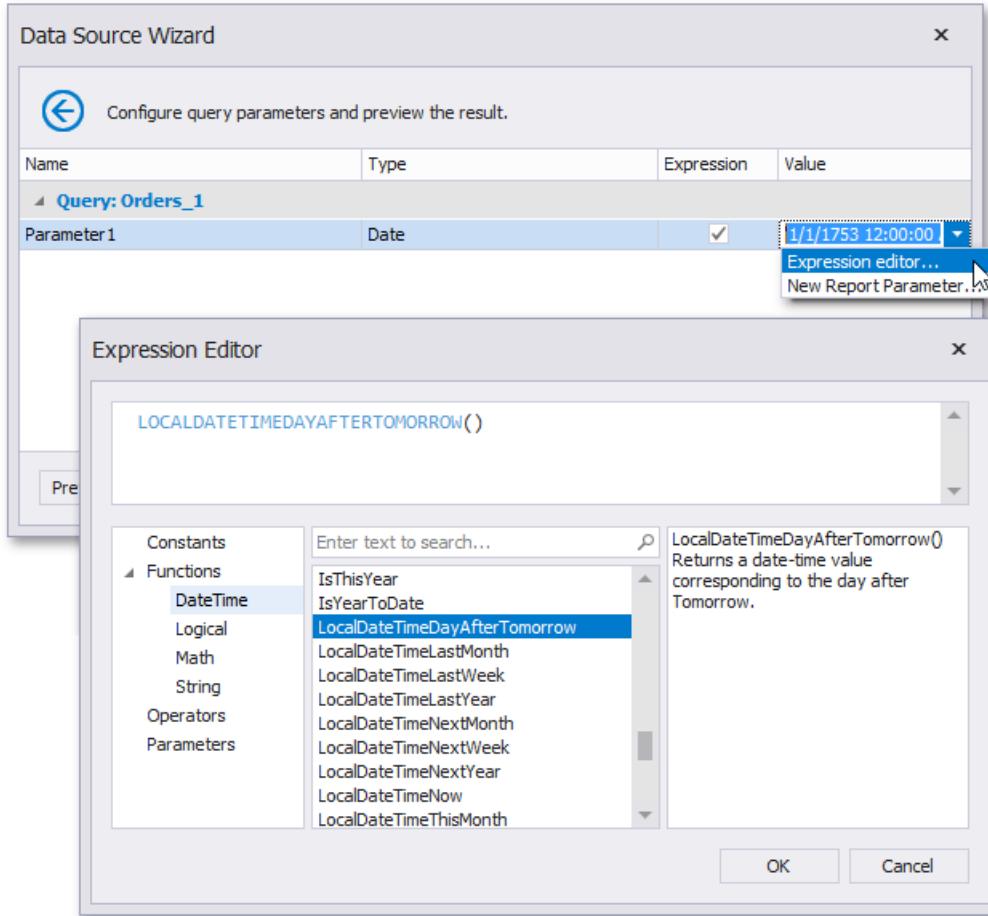
- Parameters can be assigned static values (according to the specified parameter type), which is illustrated in the following image.



- Alternatively, you can link a query or stored procedure parameter to a [report parameter](#), whose value can be requested each time before the report document is to be previewed or exported. To do this, enable the **Expression** check box and select an existing report parameter of the corresponding type or create a new one.



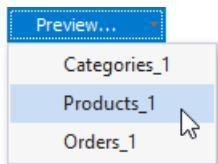
- Another option is to calculate a parameter value based on an expression. To do this, enable the **Expression** check box and run the **Expression Editor**.



Manage Parameters

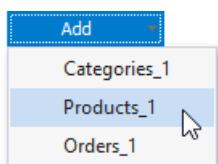
To delete a specific parameter, select it on this wizard page and click **Remove**.

To execute a specific query with the specified parameter values, click **Preview** and select a query.



When previewing a query or stored procedure result, only **1000** first data rows are displayed. If a query contains a custom SQL, the entire result set is obtained.

To create a new query parameter, click **Add** and select a query.



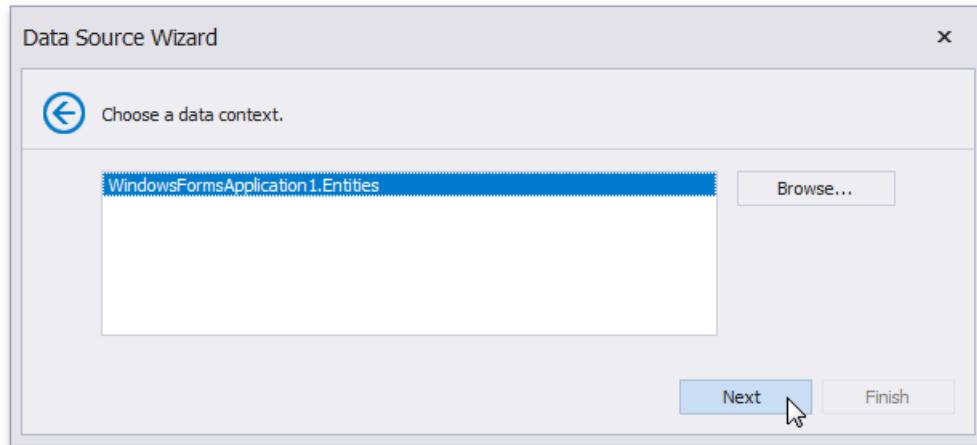
Connect to an Entity Framework Data Source

The topics in this section describe the steps required to connect a report to an Entity Framework data source:

- [Select the Data Context](#)
- [Select a Connection String](#)
- [Specify a Connection String](#)
- [Bind to a Stored Procedure](#)
- [Select a Data Member](#)
- [Configure Filters](#)

Select the Data Context

On this page, select the required data context from the list of available data contexts.



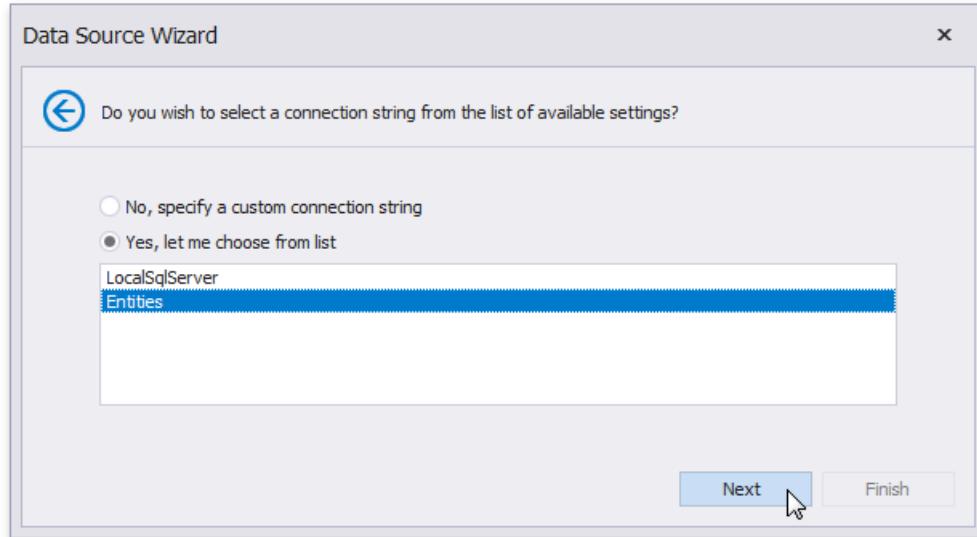
If the **Browse** button is available on this page, you can also select a data context from a custom assembly.

Click **Next** to proceed to the next wizard page: [Select a Connection String](#).

Select a Connection String

On this page, you can specify a connection string using one of the following two options.

- Using an existing connection string. To do this, select **Yes, let me choose from list**. Next, select the required connection string from the list of the available connection strings.
- Specify a connection string manually. To do this, select **No, specify a custom connection string**.

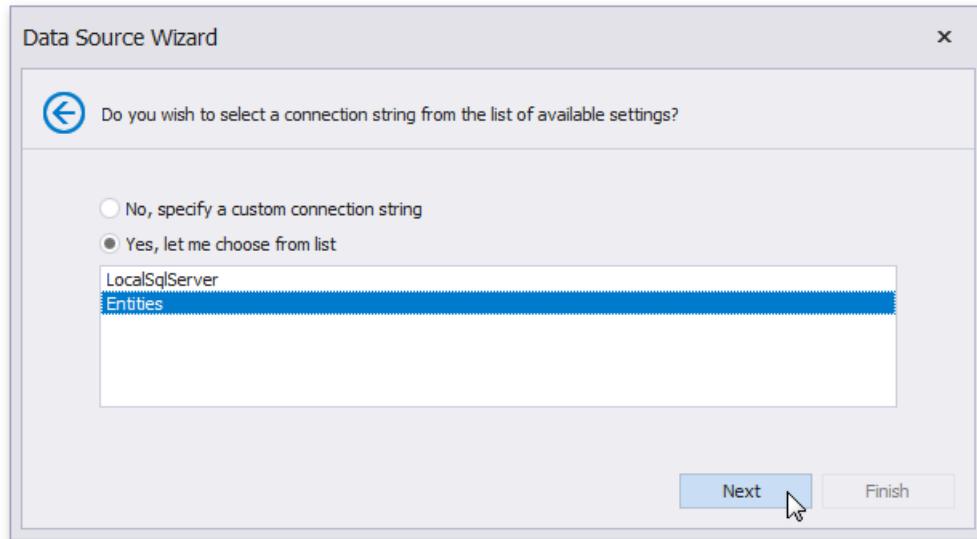


Click **Next** to proceed to the next wizard page. If you select the first option, proceed to the [Specify a Connection String](#) page. If you choose one of the available connection strings, go to the [Bind to a Stored Procedure](#) or [Select a Data Member](#) page, depending on whether or not the current Entity Framework model provides stored procedures.

Select a Connection String

On this page, you can specify a connection string using one of the following two options.

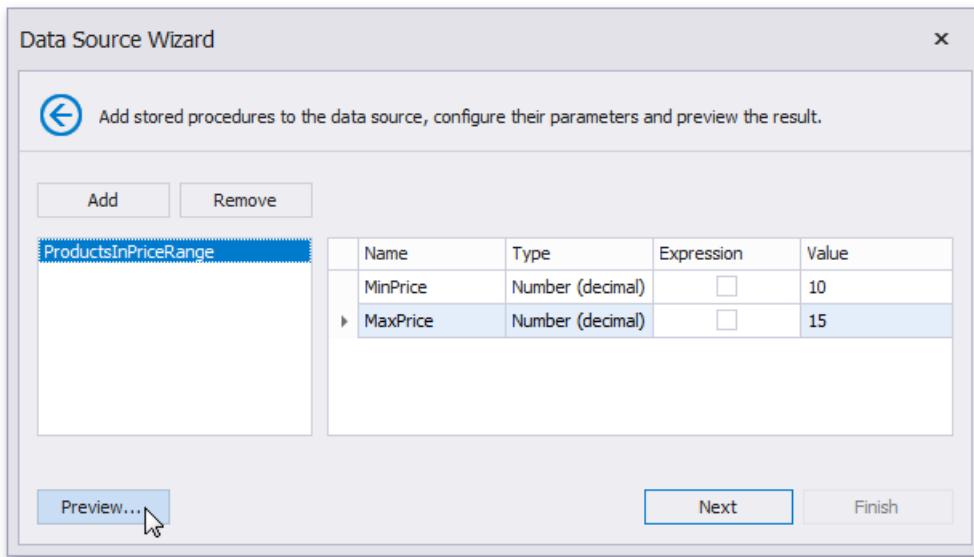
- Using an existing connection string. To do this, select **Yes, let me choose from list**. Next, select the required connection string from the list of the available connection strings.
- Specify a connection string manually. To do this, select **No, specify a custom connection string**.



Click **Next** to proceed to the next wizard page. If you select the first option, proceed to the [Specify a Connection String](#) page. If you choose one of the available connection strings, go to the [Bind to a Stored Procedure](#) or [Select a Data Member](#) page, depending on whether or not the current Entity Framework model provides stored procedures.

Bind to a Stored Procedure

This wizard page allows you to add stored procedures to the data source, configure their parameters and preview the results of a stored procedure's execution.



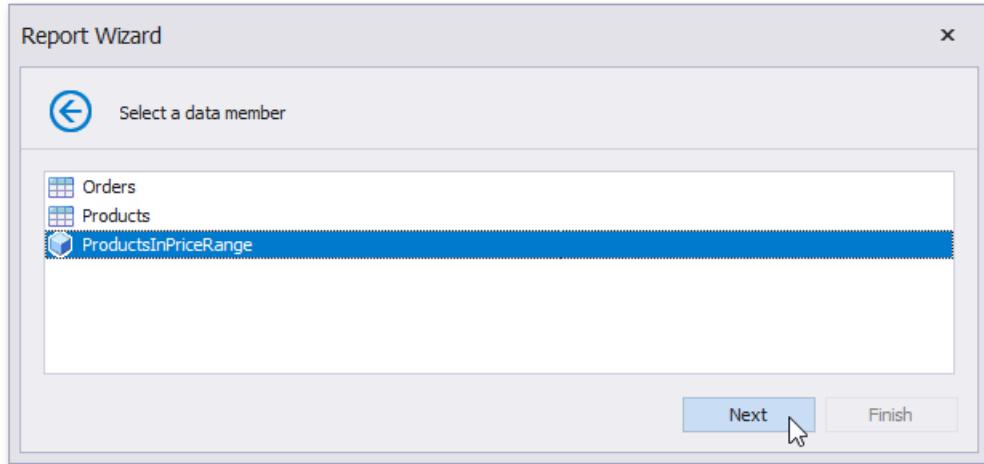
To bind to a stored procedure, do the following.

1. Click **Add**. Then, in the invoked window, select a required stored procedure and click **OK**.
2. [Configure the parameters](#) to be passed to the selected stored procedure. Make sure that the value of the passed parameter's **Type** property corresponds to the actual type of the stored procedure parameter.

Click **Next** to proceed to the next wizard page. If you have added more than one stored procedures on this page or if the current Entity Framework model additionally provides data tables, go to the [Select a Data Member](#) page.

Select a Data Member

On this page, select the required data member from the list of available data members.

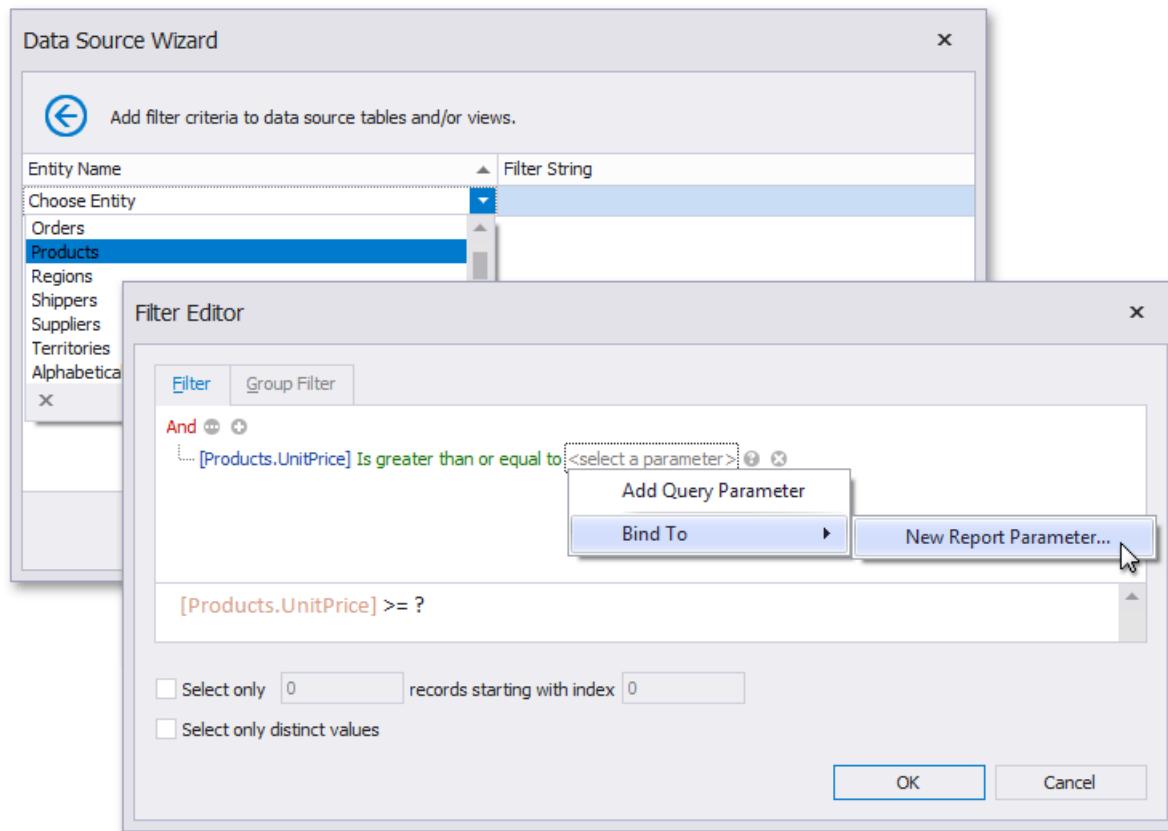


Click **Next** to proceed to the next wizard page: [Configure Filters](#).

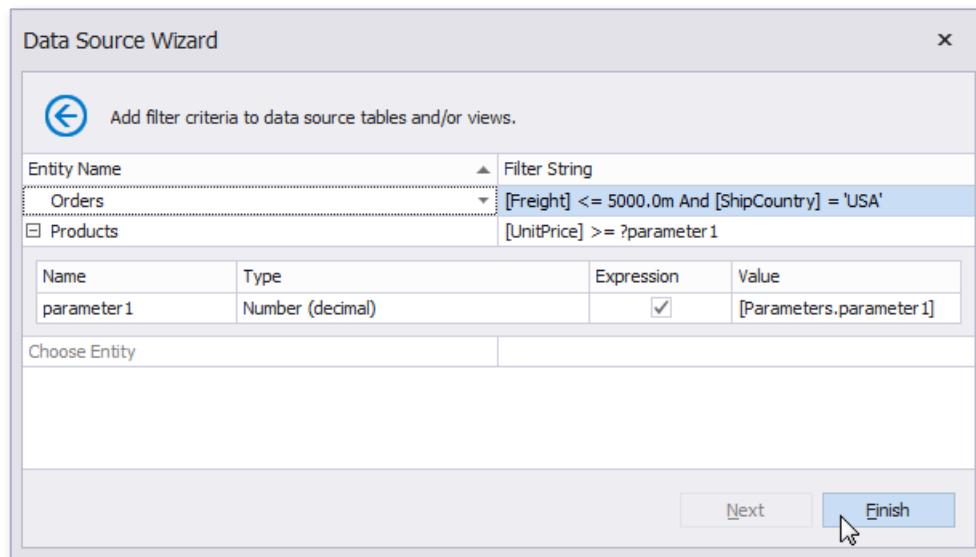
Configure Filters

This wizard page allows you to define any number of [filter criteria](#) for your data source.

The **Filter Editor** is displayed after choosing an entity on this wizard page.



Use this editor to define the selected entity's filter criteria. The filter string can also reference [report parameters](#).



Connect to an Object Data Source

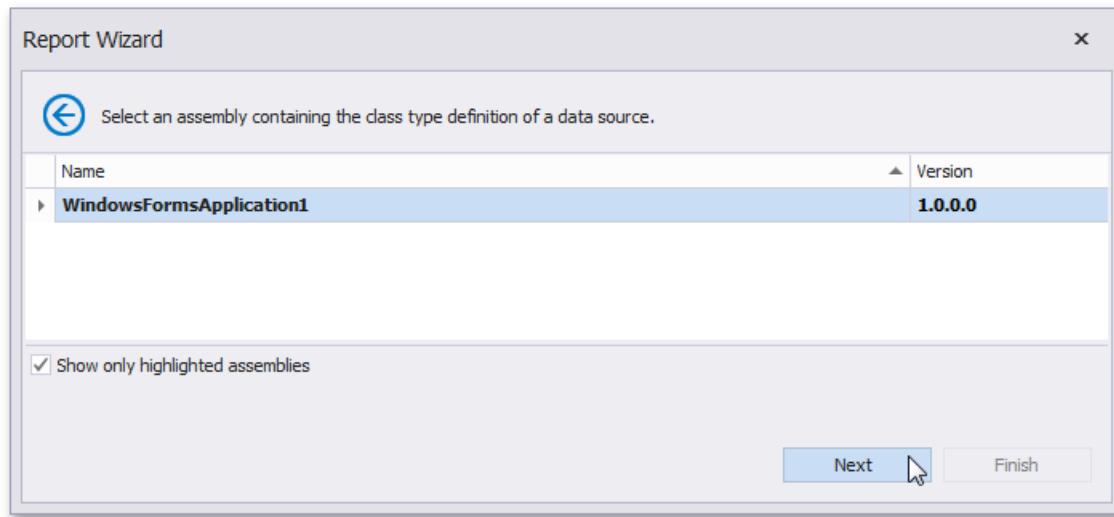
The topics in this section describe the steps required to connect a report to an object data source.

This task includes the following steps.

- [Select an Assembly](#)
- [Select a Data Source Type](#)
- [Select a Data Source Member](#)
- [Specify the Member Parameters](#)
- [Select the Data Binding Mode](#)
- [Select a Data Source Constructor](#)
- [Specify the Constructor Parameters](#)

Select an Assembly

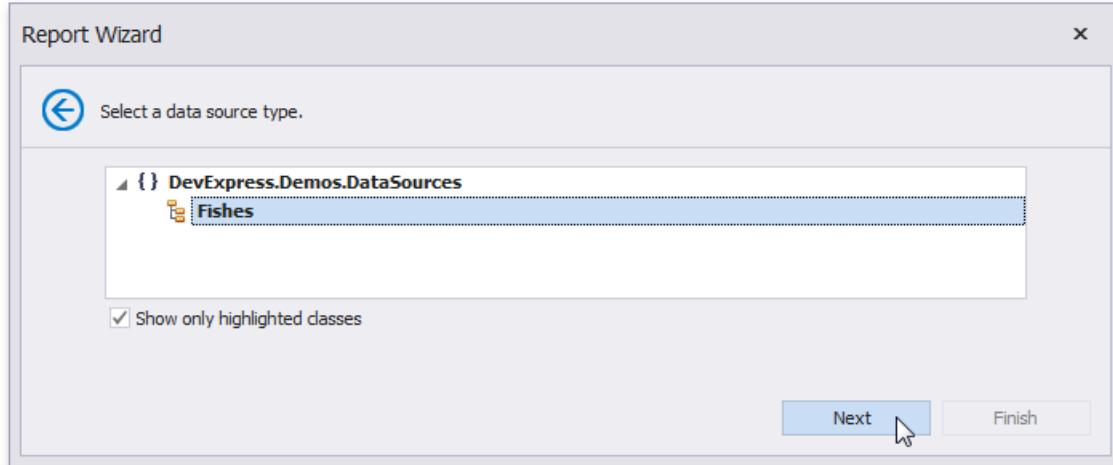
On this page, select an assembly that contains the class type definition of the data source. To exclude irrelevant assemblies from the list, select the **Show only highlighted assemblies** check box.



Click **Next** to proceed to the next wizard page: [Select a Data Source Type](#).

Select a Data Source Type

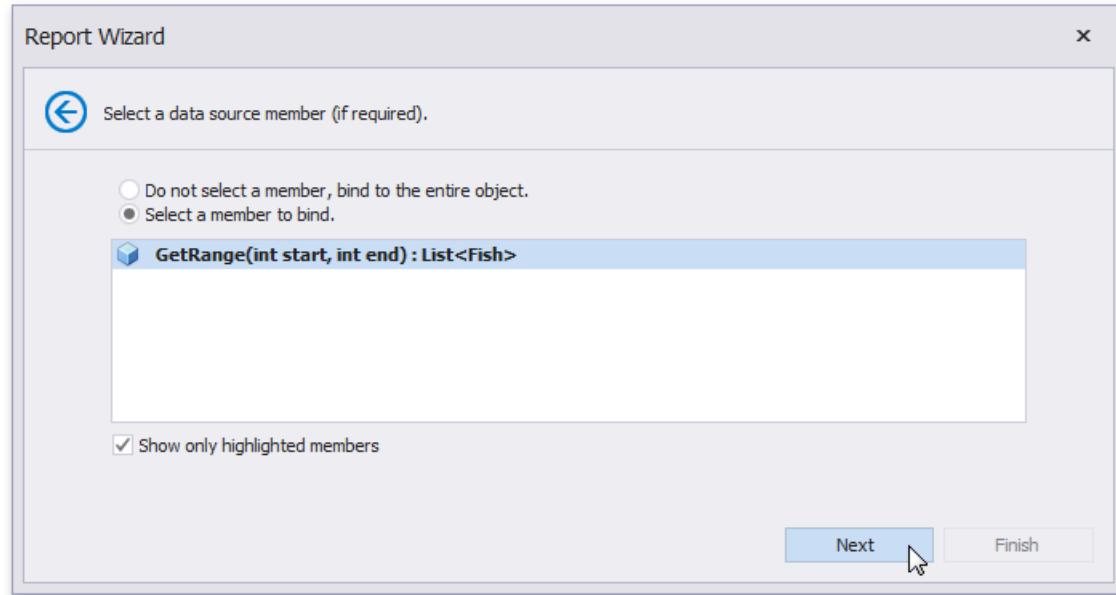
On this wizard page, select a required data source type. To exclude irrelevant classes from the list, select the **Show only highlighted classes** check box.



Click **Next** to proceed to the next wizard page: [Select a Data Source Member](#).

Select a Data Source Member

On this wizard page, specify whether you want to bind to the entire object or to its public member (method or property). To exclude irrelevant members from the list of available members, select the **Show only highlighted members** check box.



Click **Next** to proceed to the next wizard page depending on the selected option.

- [Specify the Member Parameters](#)
- [Select the Data Binding Mode](#)

Specify the Member Parameters

On this wizard page, specify the member parameters.

To specify the member parameter's value, use the **Value** column. Enable the check box in the **Expression** column to make it possible to specify the parameter expression using the **Expression Editor**. In this case, you can pass an existing report parameter to the member or even create a new report parameter using the in-place editor.

The screenshot shows the 'Report Wizard' window with the title 'Specify the method parameters.' The main area contains a table with four columns: 'Name', 'Type', 'Expression', and 'Value'. There are two rows in the table:

Name	Type	Expression	Value
start	Number (32 bit integer)	<input type="checkbox"/>	1
end	Number (32 bit integer)	<input type="checkbox"/>	5

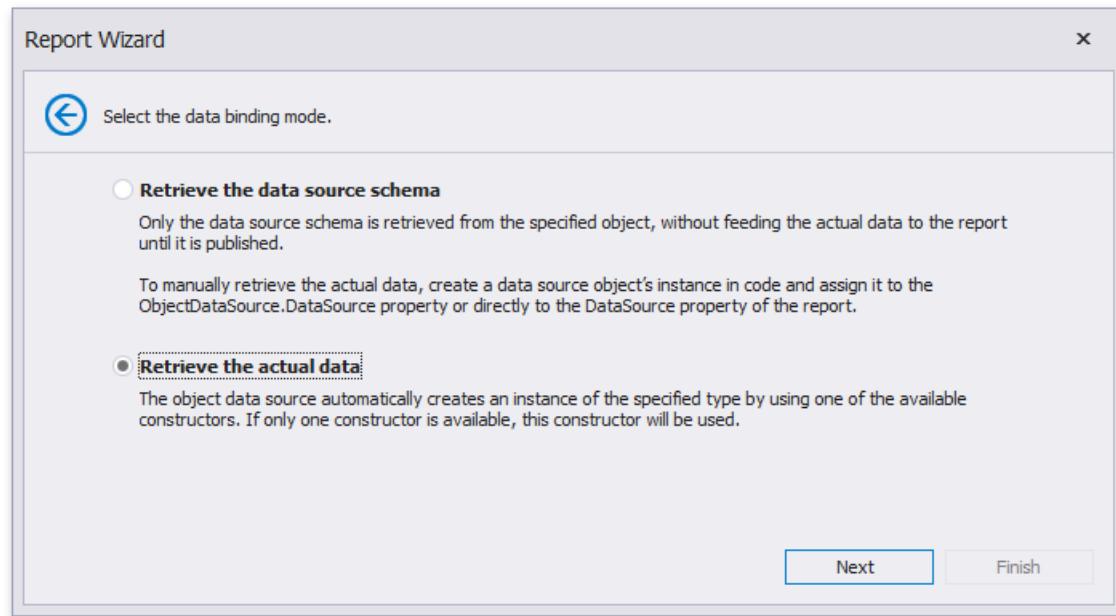
At the bottom right of the table are 'Next' and 'Finish' buttons. The 'Next' button is highlighted with a blue border.

Click **Next** to proceed to the next wizard page: [Select the Data Binding Mode](#).

Select the Data Binding Mode

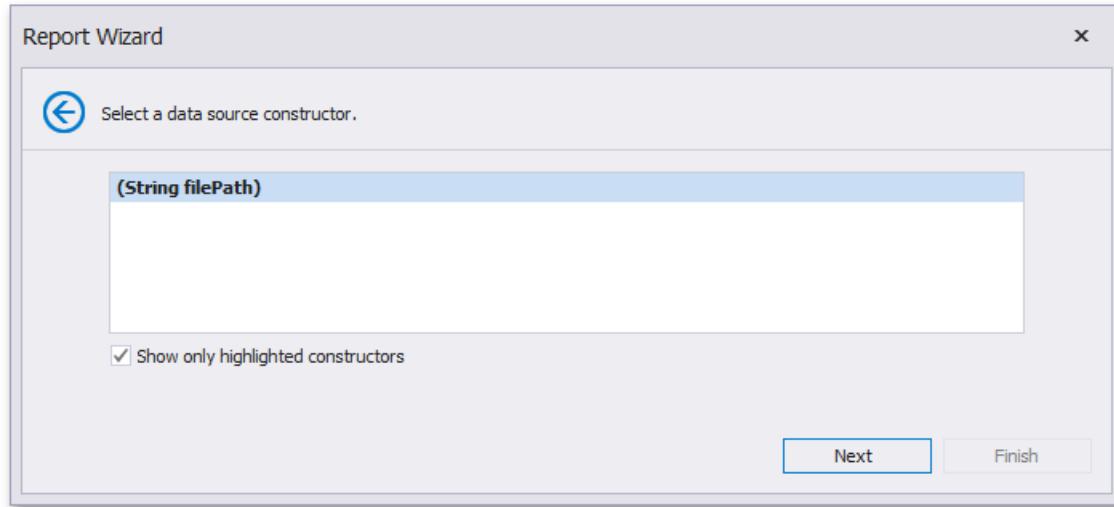
On this wizard page, you can choose one of the following two binding modes.

- **Retrieve the data source schema** - Select this option to retrieve only the data source schema from the specified object and edit the report layout without having access to the actual underlying data.
- **Retrieve the actual data** - Select this option to automatically create an instance of the data source type and obtain its actual data.



Select a Data Source Constructor

On this page, select one of the available data source constructors. To exclude irrelevant constructors from the list, select the **Show only highlighted constructors** check box.

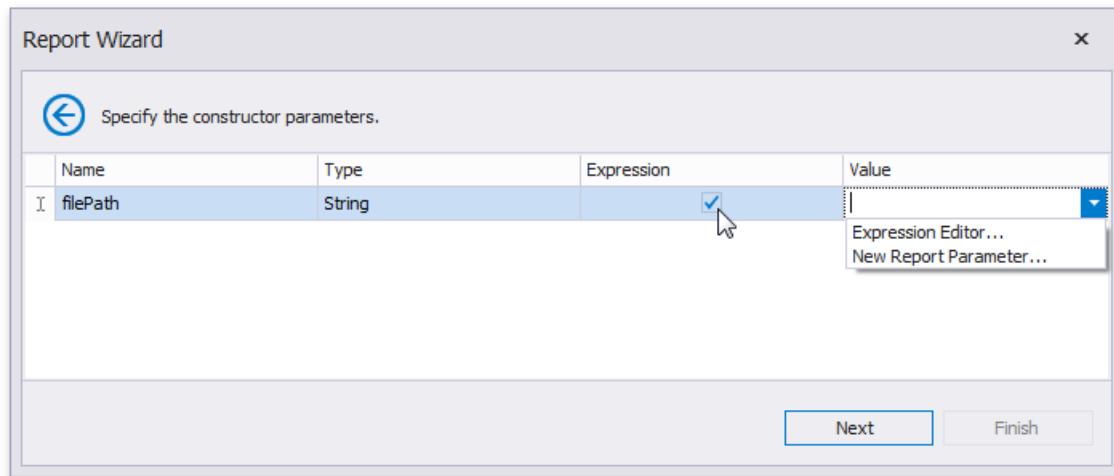


Click **Next** to proceed to the next wizard page: [Specify the Constructor Parameters](#).

Specify the Constructor Parameters

On this wizard page, specify the constructor parameters.

To specify the constructor parameter's value, use the **Value** column. Enable the check box in the **Expression** column to make it possible to specify the parameter expression using the **Expression Editor**. In this case, you can pass an existing report parameter to the constructor or even create a new report parameter using the in-place editor.



Connect to an Excel Data Source

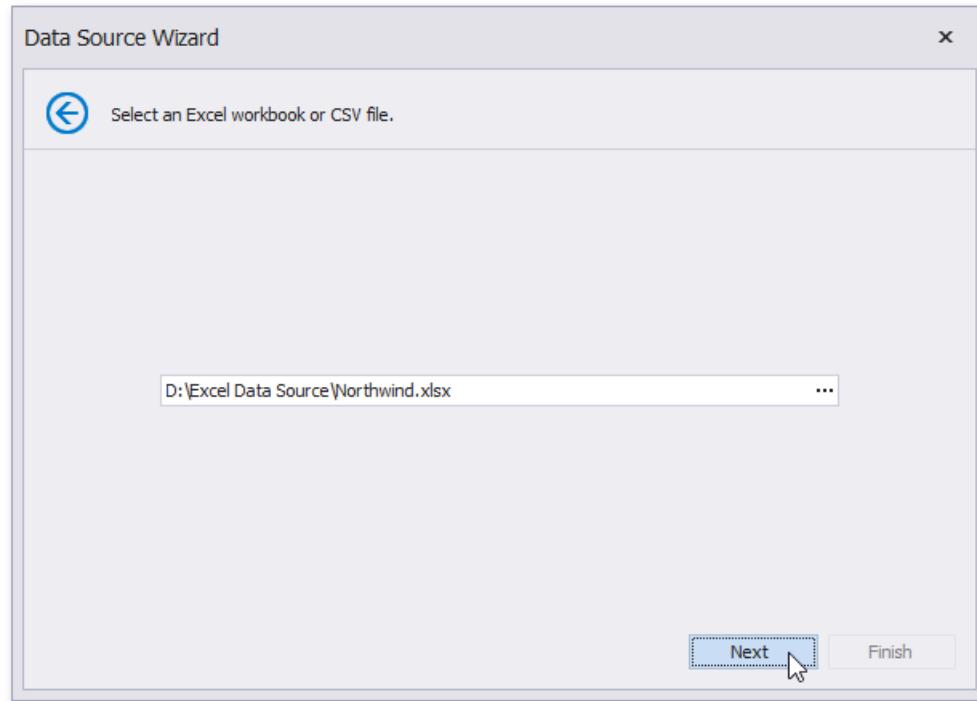
The topics in this section describe the steps required to connect a report to an Excel data source.

This task includes the following steps.

- [Select an Excel Workbook or CSV File](#)
- [Specify Import Settings](#)
- [Select a Worksheet, Table or Named Range](#)
- [Choose Columns](#)

Select an Excel Workbook or CSV file

On this wizard page, select a required Microsoft Excel Workbook (the XLS, XLSX and XLSM formats are supported) or CSV file. To do this, click the ellipsis button and locate the source file or enter the full path to this file.



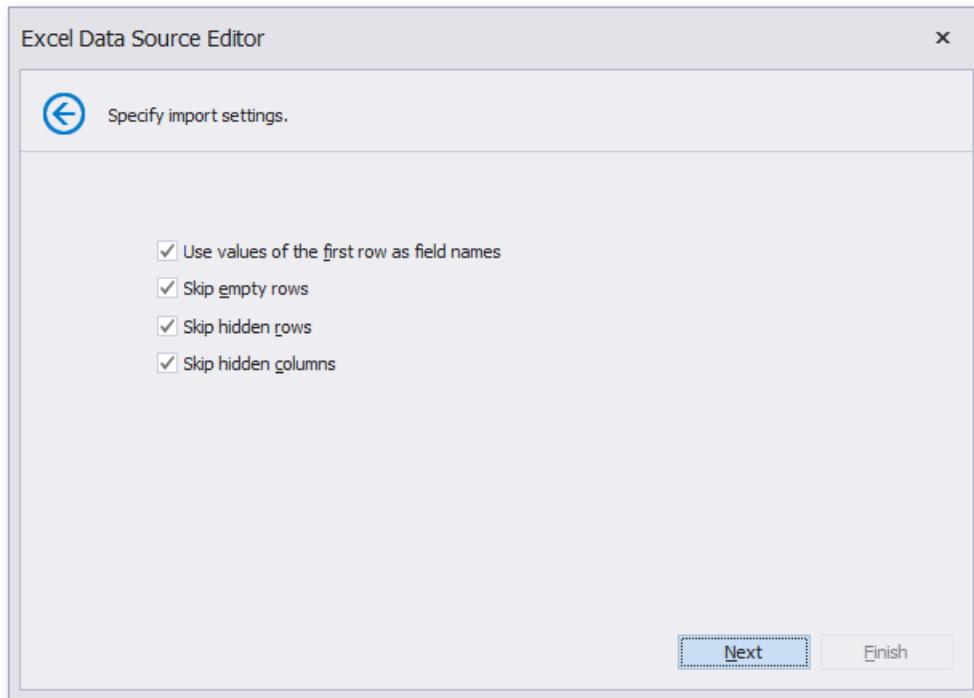
Click **Next** to proceed to the next wizard page: [Specify Import Settings](#).

Specify Import Settings

On this wizard page, you can specify required import settings. This page provides access to different settings depending on whether you have selected an Excel Workbook or CSV file.

Import Settings for an Excel Workbook

The following settings are available if an Excel workbook has been selected.

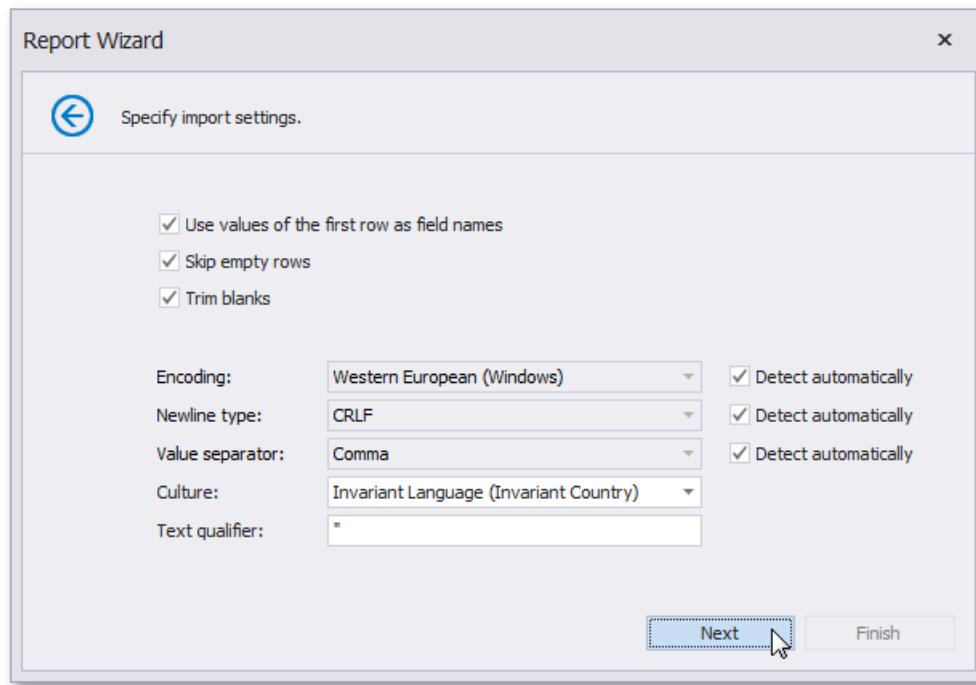


- **Use values of the first rows as field names** - Specifies whether values of the first row should be imported as field names. If this option is disabled, values of the first row will be imported as data and field names will be generated automatically.
- **Skip empty rows** - Specifies whether or not to include empty rows to the resulting data source.
- **Skip hidden rows** - Specifies whether or not to include hidden rows to the resulting data source.
- **Skip hidden columns** - Specifies whether or not to include hidden columns to the resulting data source.

Click **Next** to proceed to the next wizard page: [Select a Worksheet, Table or Named Region](#).

Import Settings for a CSV file

The following settings are available if a CSV file has been selected.

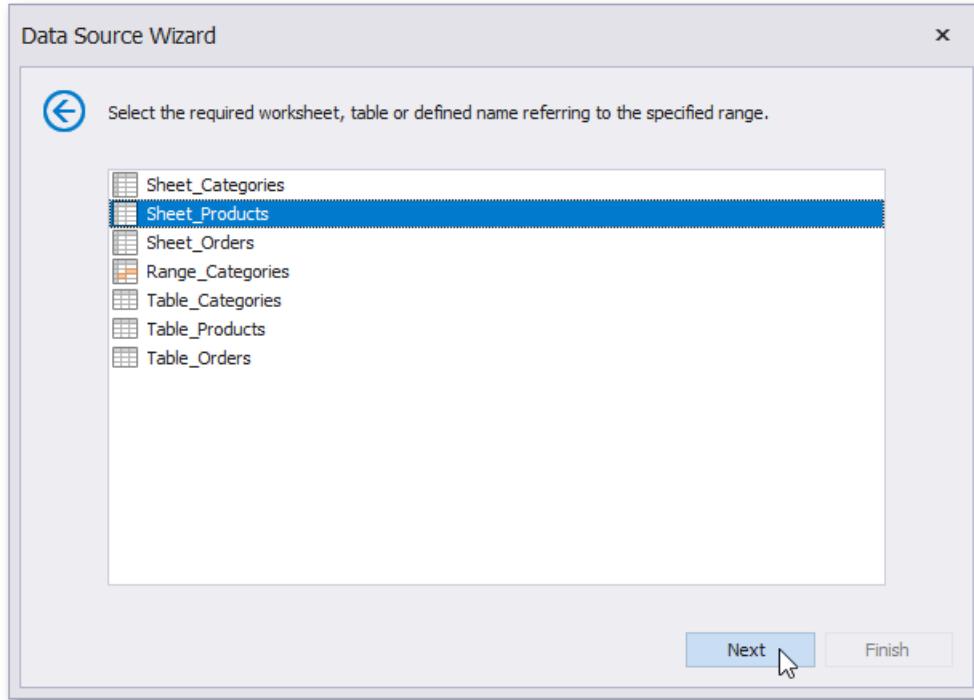


- **Use values of the first rows as field names** - Specifies whether or not values of the first row should be imported as field names. If this option is disabled, values of the first row will be imported as data and field names will be generated automatically.
- **Skip empty rows** - Specifies whether or not to include empty rows to the resulting data source.
- **Trim Blanks** - Specifies whether or not to delete all leading and trailing empty spaces from each value in the source CSV file.
- **Encoding** - Specifies the character encoding in the source CSV file. If the corresponding **Detect automatically** check box is enabled, this setting's value is automatically determined.
- **Newline type** - Specifies the line break type in the source CSV file. If the corresponding **Detect automatically** check box is enabled, this setting's value is automatically determined.
- **Value separator** - Specifies a character used to separate values in the source CSV file. If the corresponding **Detect automatically** check box is enabled, this setting's value is automatically determined.
- **Culture** - Specifies culture information used to import data from the source CSV file.
- **Text Qualifier** - Specifies the character that encloses values in the source CSV file.

Click **Next** to proceed to the next wizard page: [Choose Columns](#).

Select a Worksheet, Table or Named Region

On this wizard page, select one of the available worksheets, tables or named regions.

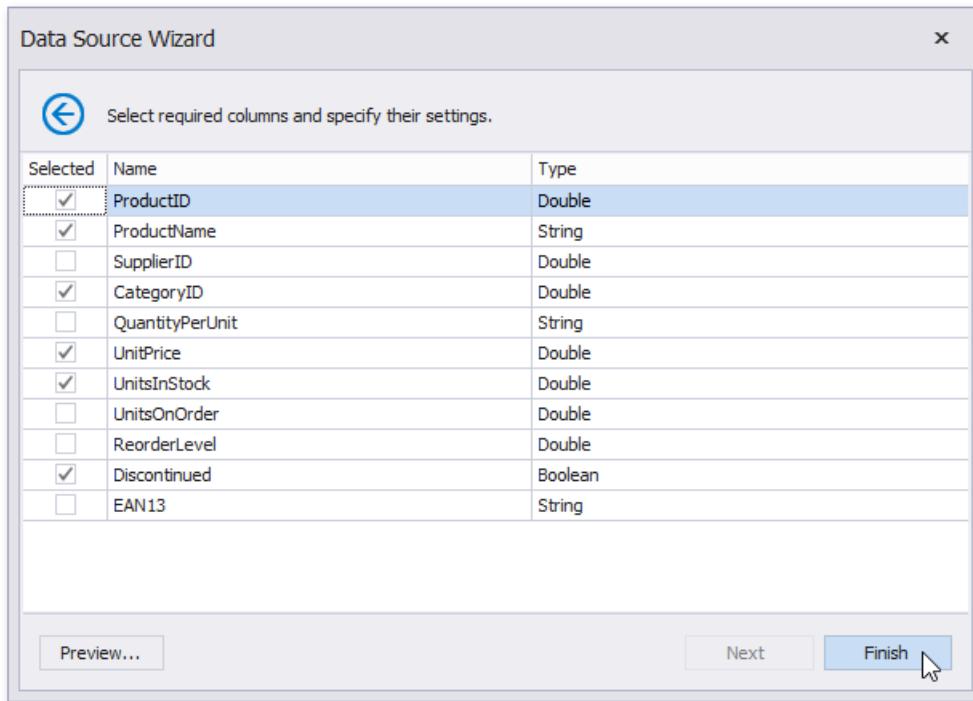


Click **Next** to proceed to the next wizard page: [Choose Columns](#).

Choose Columns

On this wizard page, you can select required columns and specify their settings.

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



This page also allows you to preview resulting data by clicking the **Preview...** button.

The screenshot shows the 'Data Preview' window titled 'First 1000 Rows Displayed'. It displays a table with 10 rows of data from the 'Products' table. The columns are 'Product ID', 'Product Name', 'Category ID', 'Unit Price', 'Units In Stock', and 'Discontinued'. The data includes products like Chai, Chang, Aniseed Syrup, Chef Anton's Cajun Seasoning, Chef Anton's Gumbo Mix, Grandma's Boysenberry Spread, Uncle Bob's Organic Dried Pears, Northwoods Cranberry Sauce, Mishi Kobe Niku, and Ikura. The 'Discontinued' column shows several checked checkboxes. A vertical scroll bar is visible on the right side of the preview area. At the bottom right is a 'Close' button.

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

Connect to a JSON Data Source

The topics in this section describe the steps required to connect a report to JSON-formatted data.

This task includes the following steps:

- [Specify JSON Data Location](#)
- [Configure Web Service Endpoint Request](#)
- [Select Data Fields](#)

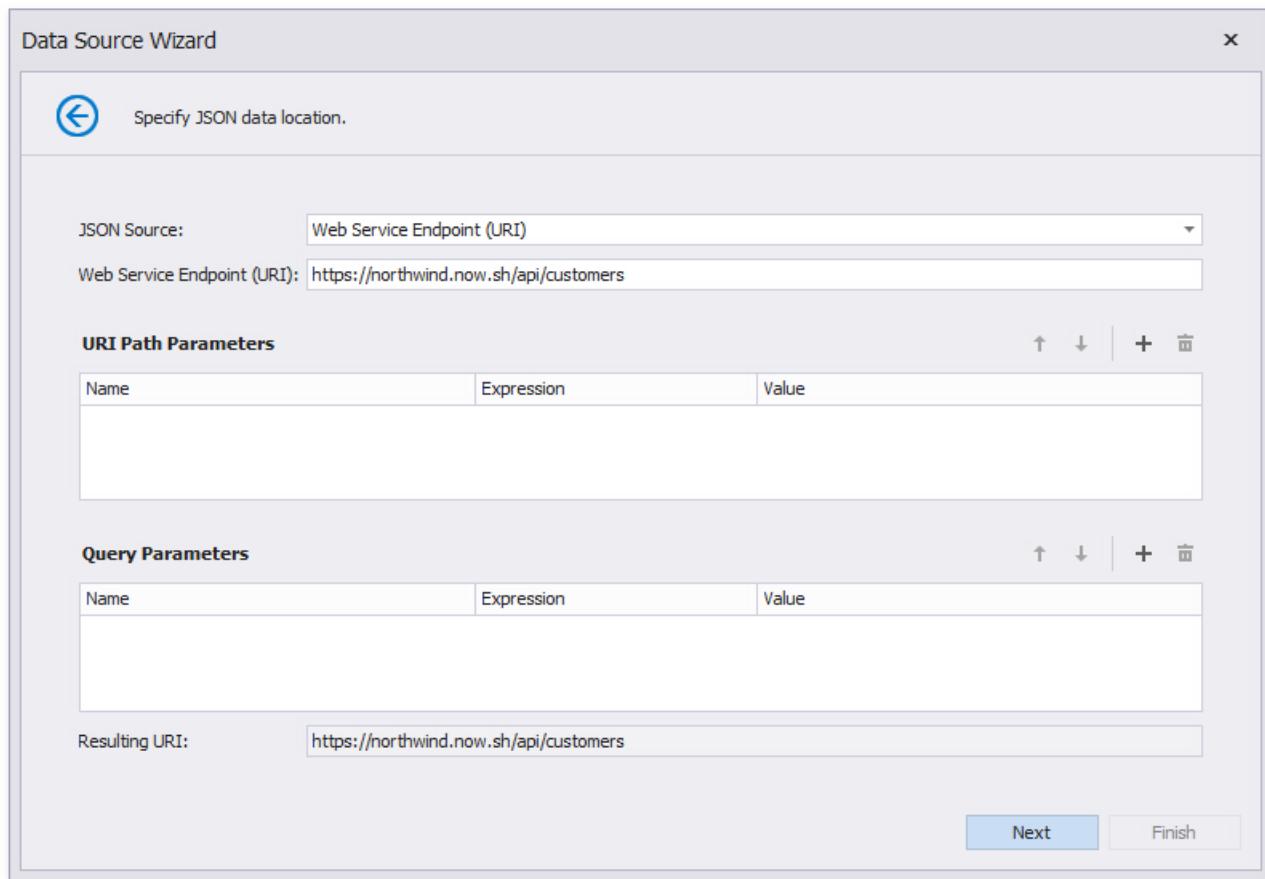
NOTE

The Report Designer's Data Source Wizard provides the JSON option if the application has a reference to the open-source [Newtonsoft.Json](#) library.

Specify JSON Data Location

This wizard page allows you to specify a Web Service Endpoint URI, a filename, or a string with JSON content. If you choose the **Web Service Endpoint** option, you can configure a connection string with URI path parameters and query parameters.

- Web Service Endpoint



- File Name

Data Source Wizard

X



Specify JSON-formatted data location.

JSON source:	JSON File
JSON File:	C:\Customers.json

Next

Finish

- String with JSON Content

Data Source Wizard

X



Specify JSON-formatted data location.

JSON source:	JSON String
JSON String:	<pre>[{"ID": 1, "CompanyName": "Super Mart of the West", "Address": "702 SW 8th Street", "City": "Bentonville", "State": "Arkansas", "Zipcode": 72716, "Phone": "(800) 555-2797", "Fax": "(800) 555-2171", "Website": "http://www.nowebitesupermart.com"}, {"ID": 2, "CompanyName": "Electronics Depot", "Address": "2455 Paces Ferry Road NW", "City": "Atlanta", "State": "Georgia", "Zipcode": 30339, "Phone": "(800) 595-3232", "Fax": "(800) 595-3231"}, {"ID": 3, "CompanyName": "Computer Connection", "Address": "123 Main Street", "City": "Little Rock", "State": "Arkansas", "Zipcode": 72201, "Phone": "(800) 555-1234", "Fax": "(800) 555-1235"}, {"ID": 4, "CompanyName": "Tech Solutions", "Address": "456 Elm Street", "City": "Tulsa", "State": "Oklahoma", "Zipcode": 74101, "Phone": "(800) 555-2222", "Fax": "(800) 555-2223"}]</pre>

Next

Finish

Configure Web Service Endpoint Request

If you chose the **Web Service Endpoint** option on the [previous page](#), you can specify the Basic HTTP Authentication credentials and HTTP header parameters for the Web Service Endpoint.

Data Source Wizard X

(1) Configure web service endpoint request.

Basic HTTP Authentication

Username:

Password:

HTTP Header Parameters

Header Name	Expression	Header Value

↑ ↓ + - ■

Next Finish

Select Data Fields

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

The screenshot shows the 'Report Wizard' window with the title 'Select data fields.' The 'Root element' is set to 'root.Customers'. The 'Field Name' section shows a tree view of the JSON structure. The 'Customers' node is expanded, showing its child nodes: 'Id', 'CompanyName', 'ContactName', 'ContactTitle', 'Address', 'City', 'PostalCode', 'Country', 'Phone', and 'Fax'. Each node has a checkbox next to it, all of which are checked. To the right of each node is its data type, all listed as 'string'. At the bottom right of the window are 'Next' and 'Finish' buttons.

Uncheck the data fields that your report does not require.

You can rename data fields if necessary.

This screenshot shows the same 'Report Wizard' window as above, but with some field names renamed. The 'Root element' is still 'root.Customers'. In the 'Field Name' section, the 'Customers' node is expanded, and its child nodes are renamed: 'CustomerId', 'CompanyName', and 'ContactName'. The other nodes ('Id', 'Address', 'City', 'Country', 'Fax', 'Phone', 'PostalCode', and 'ContactTitle') remain as they were in the previous screenshot. All nodes still have their 'string' data type. The 'Next' and 'Finish' buttons are visible at the bottom right.

Connect to an XPO Data Source

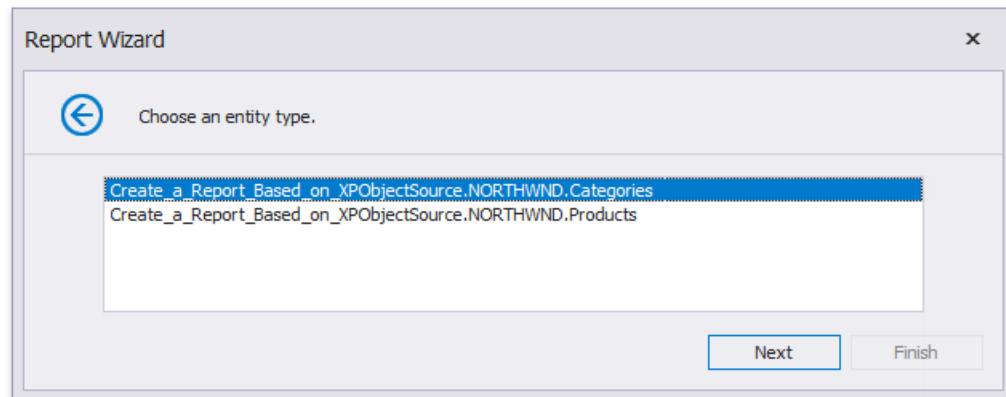
The topics in this section describe the steps required to connect a report to XPO data.

This task includes the following steps:

- [Choose an Entity Type](#)
- [Select a Data Connection](#)
- [Specify a Connection String](#)
- [Save the Connection String](#)

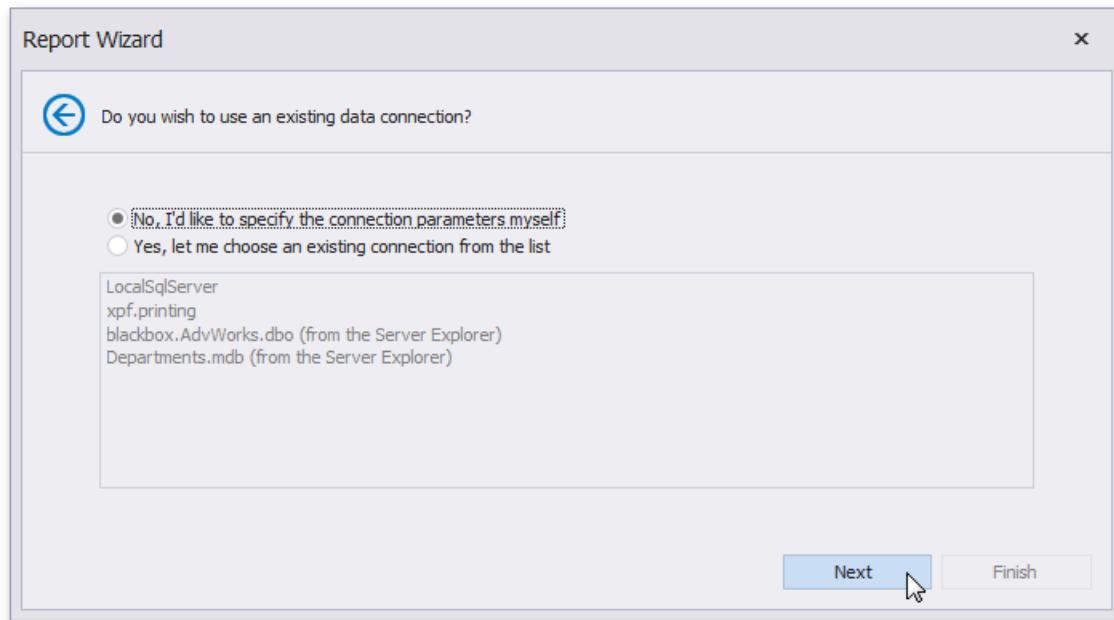
Choose an Entity Type

This wizard page lists your application project's persistent object classes. Choose one entity type and proceed to the next page.



Select a Data Connection

On this page, specify whether you want to use an existing data connection or create a new data connection.

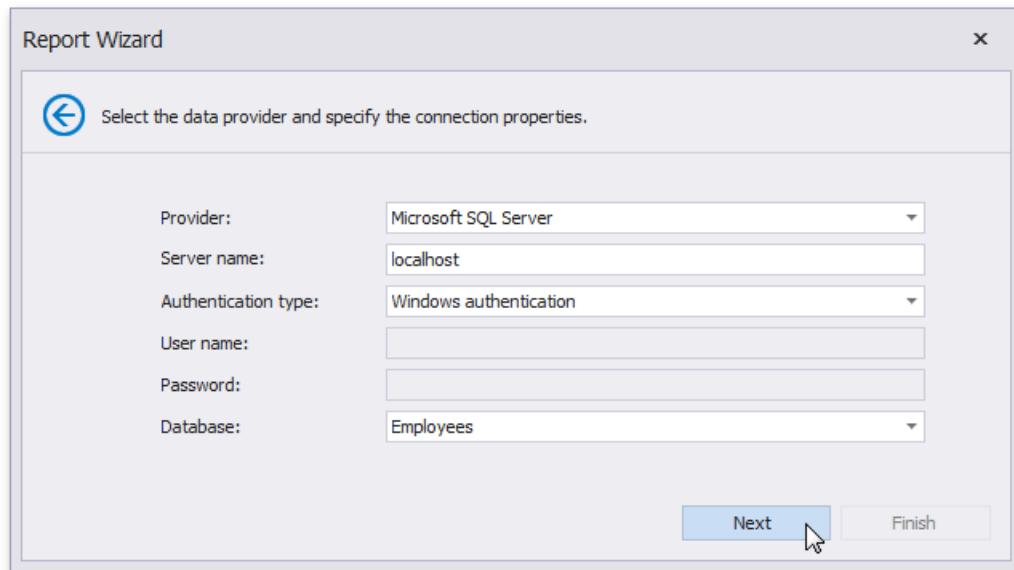


Click **Next** to proceed to the next wizard page, depending on the selected option.

- [Specify a Connection String](#)
- [Save the Connection String](#)

Specify a Connection String

This page allows you to specify connection string parameters or define a custom connection string.



The following data source types are supported.

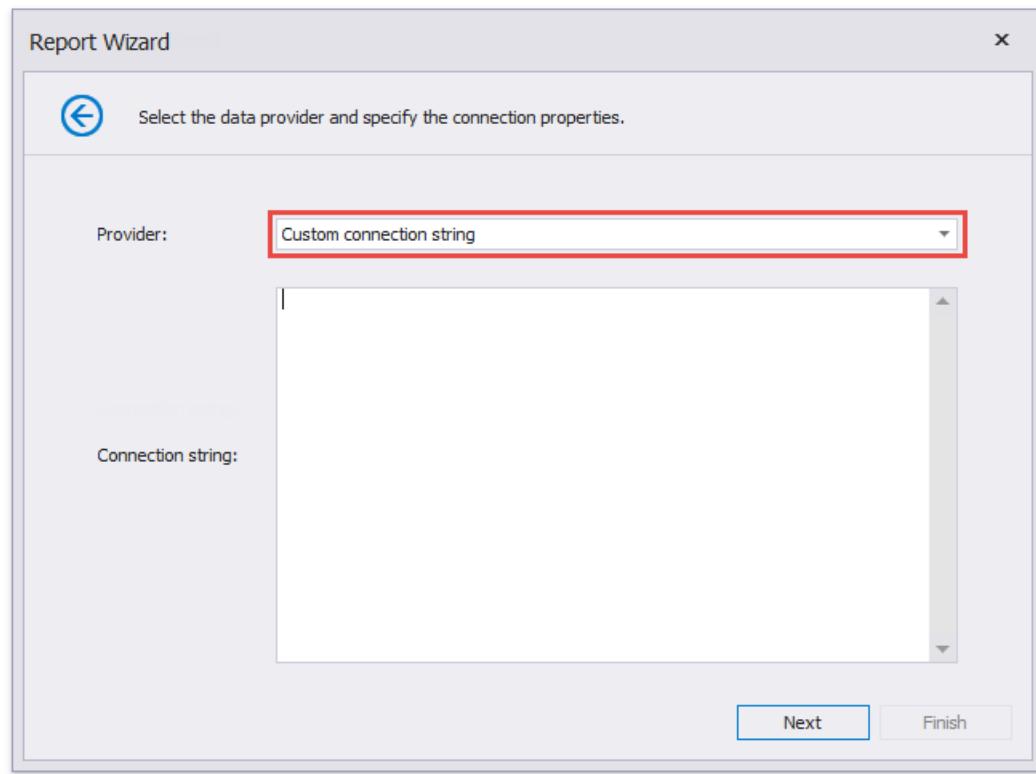
- Amazon Redshift
- Firebird
- Google BigQuery
- IBM DB2
- Microsoft Access 2007
- Microsoft Access 97
- Microsoft SQL Server
- Microsoft SQL Server Compact Edition
- MySQL
- Oracle
- Pervasive PSQL
- PostgreSQL
- SAP Sybase Advantage
- SAP Sybase ASE
- SAP Sybase SQL Anywhere
- SQLite
- Teradata
- VistaDB
- VistaDB5
- XML file

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

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

Define a Custom Connection String

Select **Custom connection string** and specify the connection string.



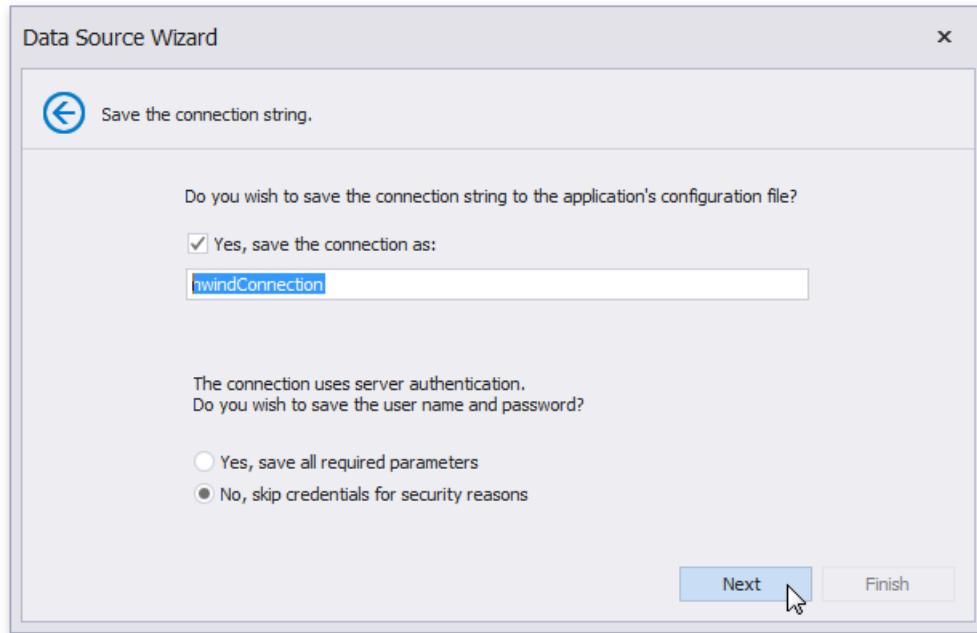
Use the **XpoProvider** parameter to identify a data source provider. For example, `XpoProvider=MSSqlServer;Data Source=(local);User ID=username;Password=password;Initial Catalog=database;Persist Security Info=true`

Click **Next** to proceed to the next wizard page: [Save the Connection String](#).

Save the Connection String

On this page, select whether or not to save the created connection string to the application's configuration file.

If the data connection uses server authentication, you can also choose to save the user credentials along with the connection string.

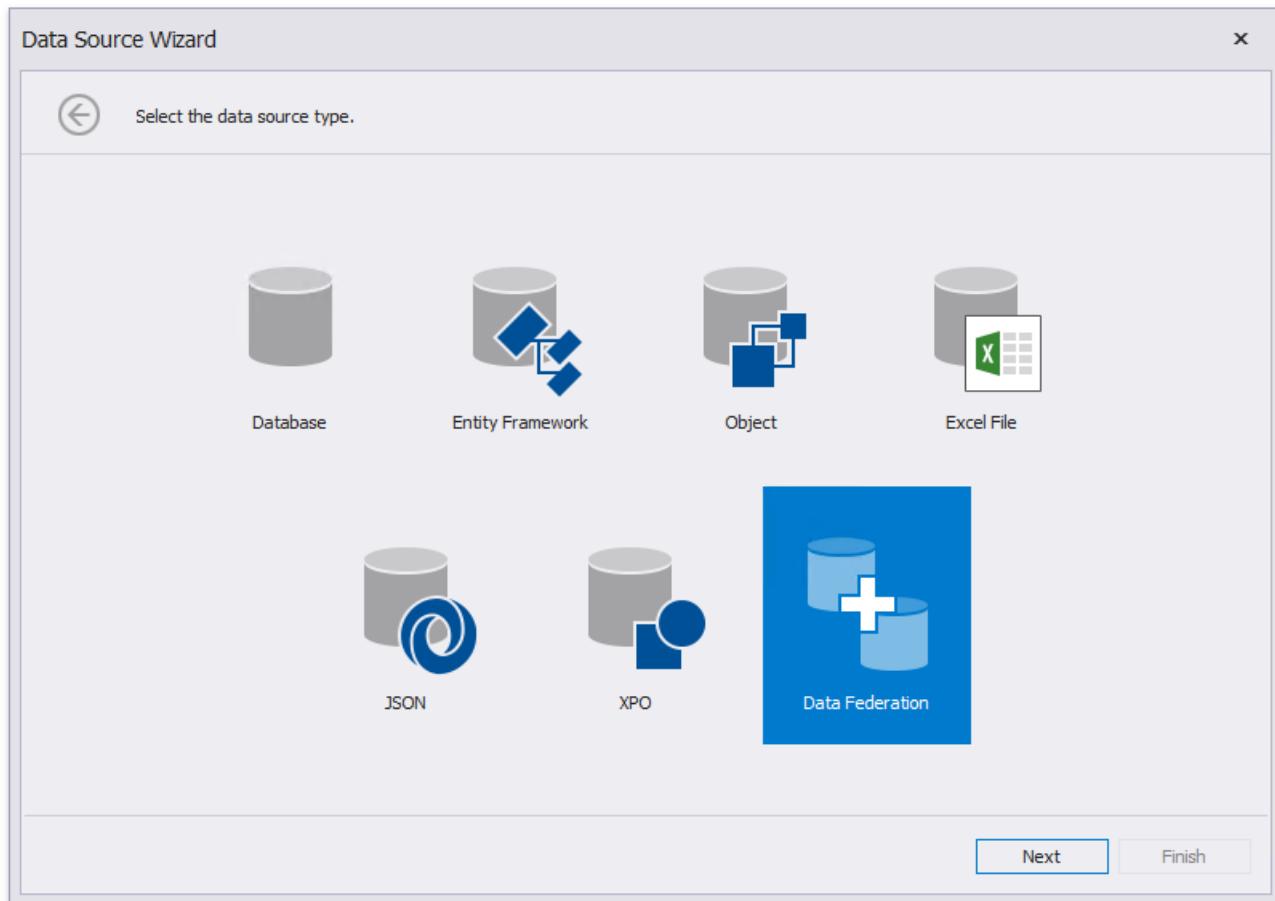


Connect to a Federated Data Source

NOTE

This data source type is available in the Data Source Wizard only if a report contains at least one data source.

Choose **Data Federation** to combine multiple data sources and specify unions, joins or master-detail relationships between data source queries.



Click **Next** to go to the [Create a Federated Query](#) page.

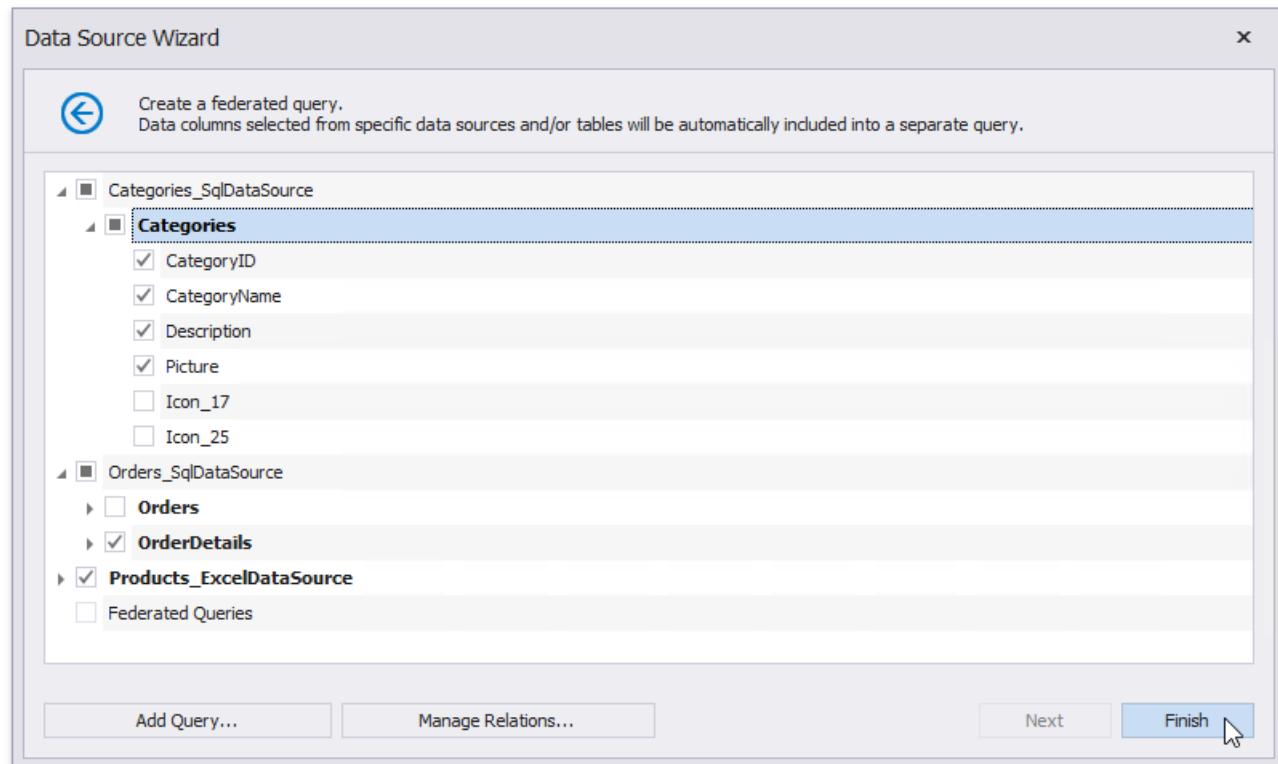
Create a Federated Query

On this wizard page, you can create federated queries based on data from other data sources.

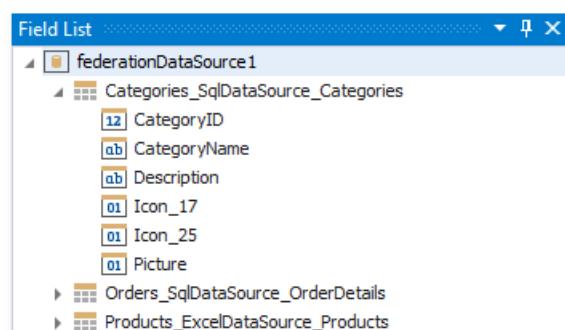
Note that initial data sources can contain data at the root level (e.g., an [Excel data source](#)) or have one or more queries (e.g., a [SQL data source](#)).

Include Data into Separate Queries

Enable check boxes for data fields, queries and/or entire data sources.



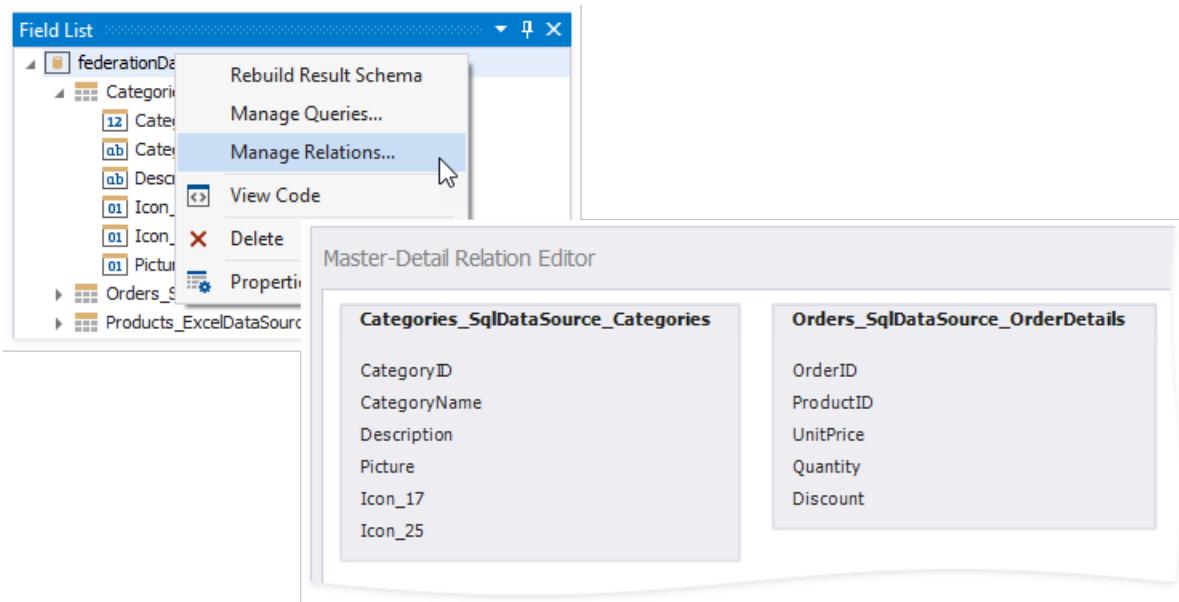
The selected items are included in data federation as separate queries based on initial data source queries.



The wizard specifies query names as follows:

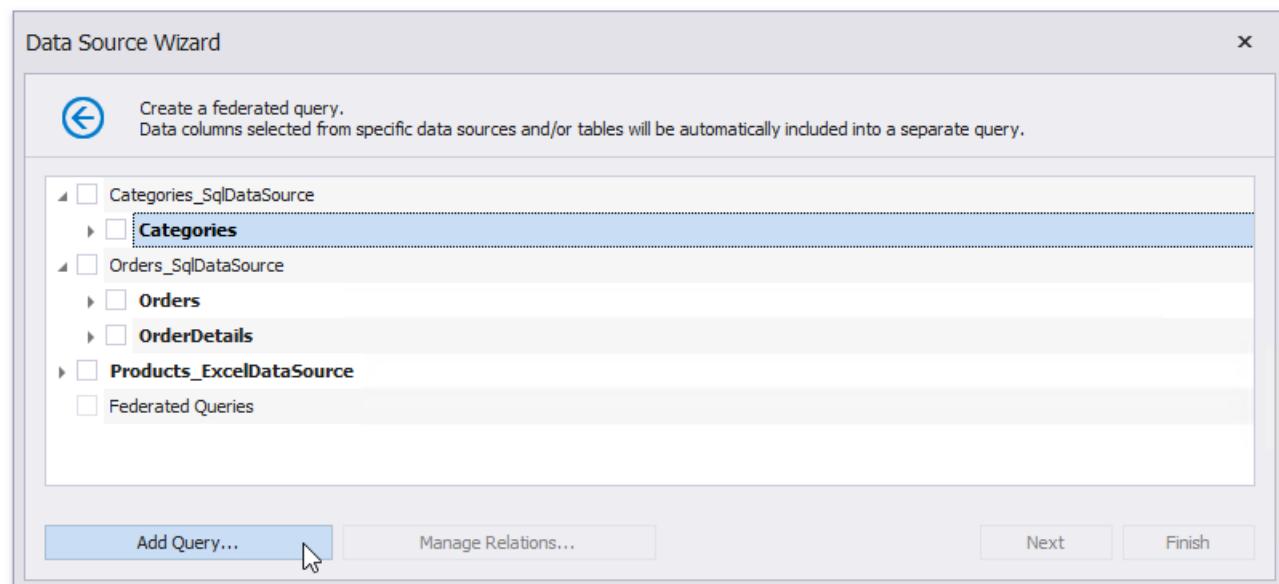
- If the initial data source contains one or more queries (such as in a SQL data source), the federated query name consists of the data source name and query name separated by an underscore.
- If the initial data source contains data at the root level (such as in an Excel data source), federated query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

Right-click the federated data source and choose **Manage Relations**. This invokes the **Master-Detail Relation Editor** you can use to [specify a master-detail relationship](#) between the separate queries.

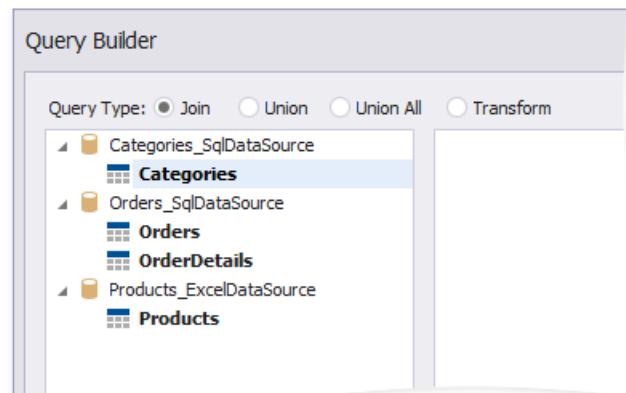


Combine Data into a Single Query

To combine data from multiple data sources into a single query, click **Add Query**.



This invokes the [Query Builder](#) designed to federated data sources.



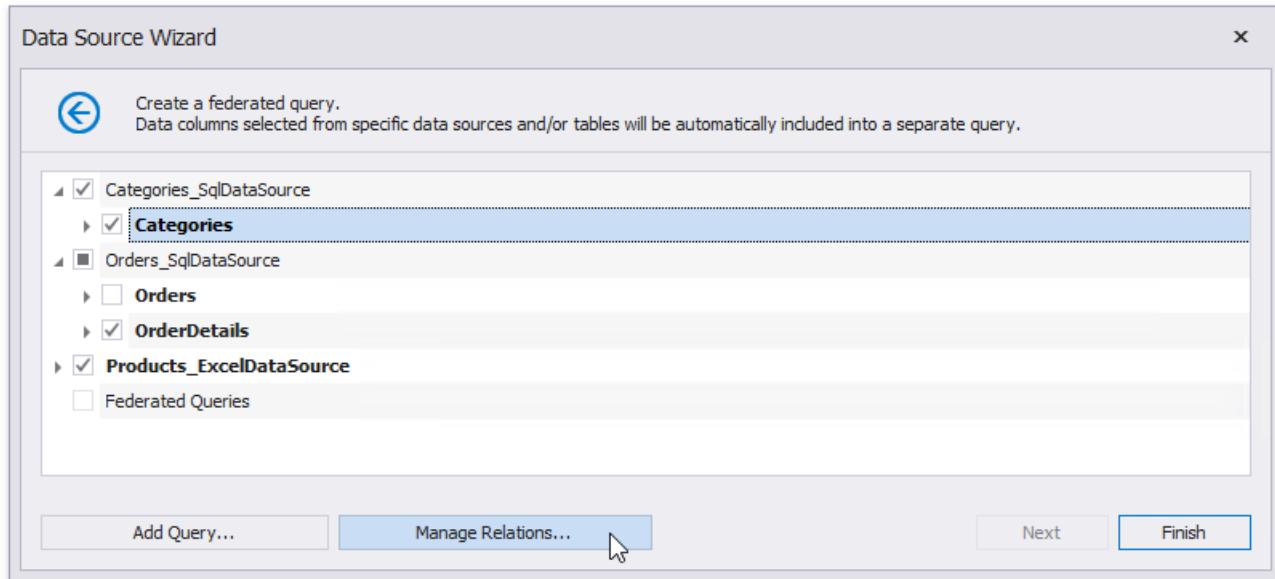
You can use the **Join**, **Union**, **Union All**, and **Transform** query types to combine data. Refer to the following articles for more information on these query types.

- [Bind a Report to a Join-Based Federated Data Source](#)

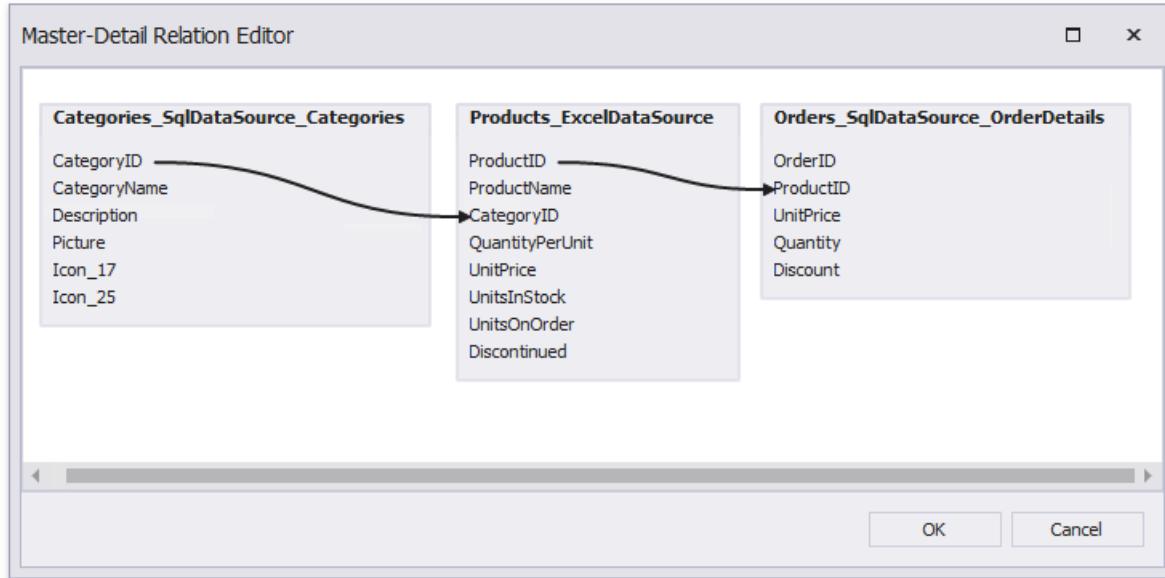
- Bind a Report to a Union-Based Federated Data Source
- Bind a Report to a Transformation-Based Data Source

Specify Master-Detail Relationships

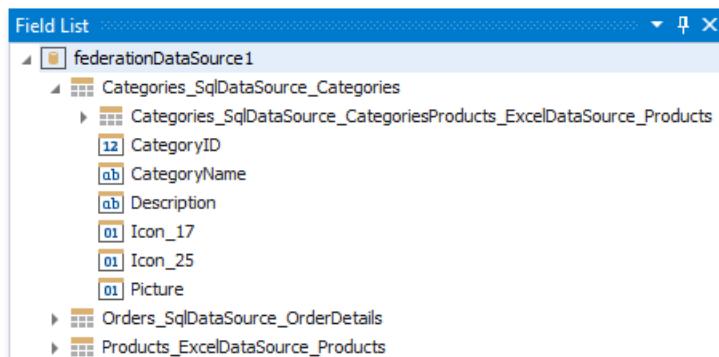
Click **Manage Relations** to define master-detail relationships between two or more queries.



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



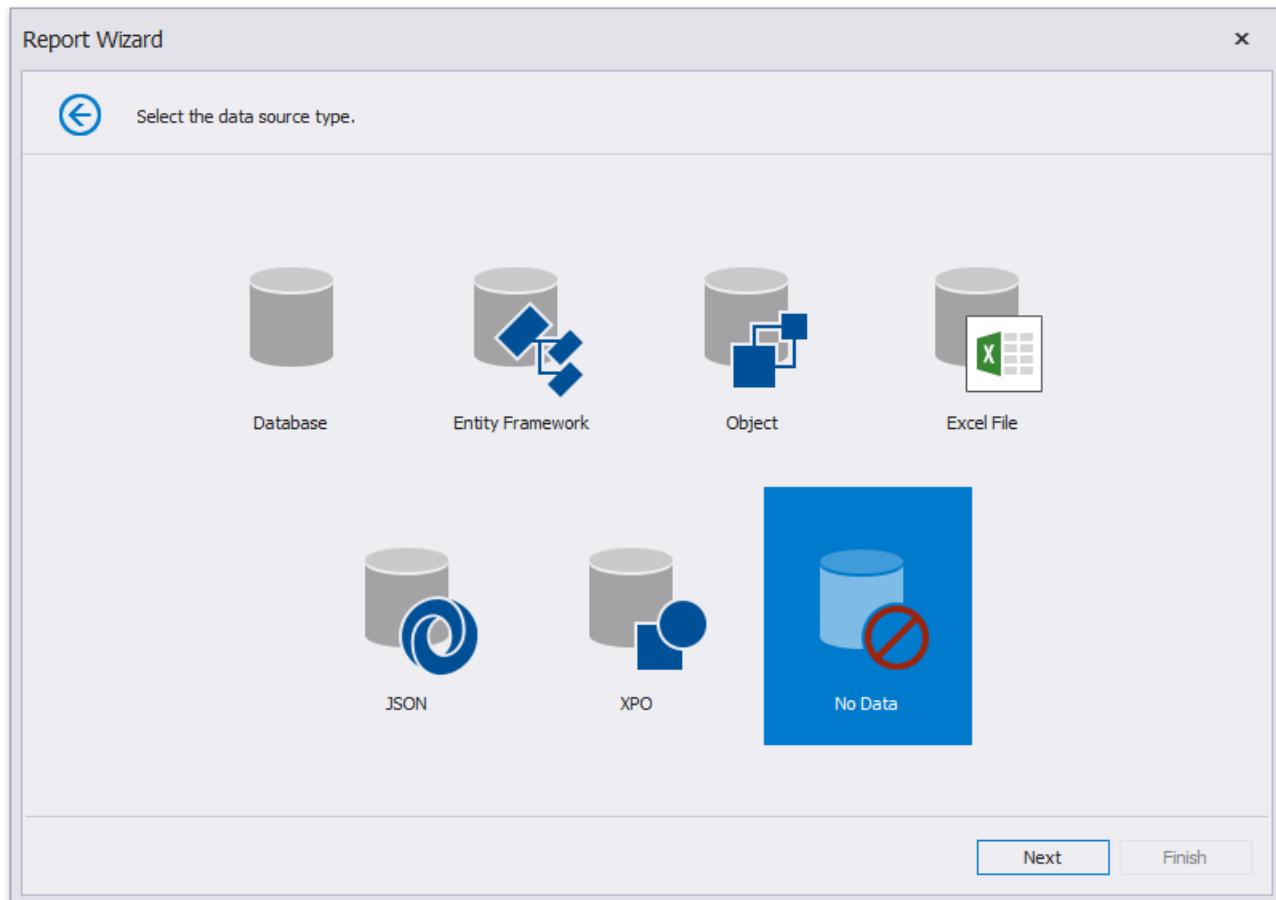
Once the wizard is complete, you can see the master-detail hierarchy in the Field List.



For more information, refer to the following guide: [Bind a Report to a Federated Master-Detail Data Source](#).

No Data

Choose *No Data* not to bind to a data source.



Query Builder

The **Query Builder** provides a visual interface for constructing SQL queries used to access database tables and views.

The screenshot shows the Query Builder window with the following components:

- Left pane:** A tree view of database objects including Categories, Customers, EmployeeCustomers, Employees, Order Details, Orders, Products, Shippers, Suppliers, CategoryProducts, CustomerReports, Invoices, OrderDetails, OrderReports, ProductReports, and SalesPerson.
- Middle pane:** Two tables are selected: "Categories" and "Products". The "Categories" table has columns: * (All Columns), CategoryID (checked), CategoryName (checked), Description, Picture, Icon_17, and Icon_25. The "Products" table has columns: * (All Columns), ProductID, ProductName (checked), SupplierID, CategoryID, QuantityPerUnit, UnitPrice, UnitsInStock, UnitsOnOrder, ReorderLevel, Discontinued, and EAN13.
- Right pane:** A large text area displays the generated SQL query:

```
select [Categories].[CategoryID]
      ,[Products].[ProductName]
      ,sum([Products].[UnitsInStock])
      ,sum([Products].[UnitsOnOrder])
   from ([Categories] [Categories]
inner join [Products] [Products]
      on ([Products].[CategoryID] = [Categories].[CategoryID])
group by [Categories].[CategoryName]
      ,[Products].[ProductName]
      ,[Categories].[CategoryName]
order by [Categories].[CategoryName]
```
- Bottom pane:** A table titled "Columns of Categories" shows the schema for the selected table:

Column	Table	Alias	Output	Sorting Type	Sort Order	Group By	Aggregate
CategoryID	Categories		<input checked="" type="checkbox"/>	Ascending	1	<input checked="" type="checkbox"/>	
CategoryName	Categories		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
Description	Categories		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
Picture	Categories		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
Icon_17	Categories		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
Icon_25	Categories		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	

NOTE

The Query Builder is not available for object, Entity Framework and Excel data sources.

Run the Query Builder

You can invoke the **Query Builder** from the [query customization](#) page of the [Report Wizard](#). On this page, click the button for the **Queries** category to create a new query using the Query Builder.

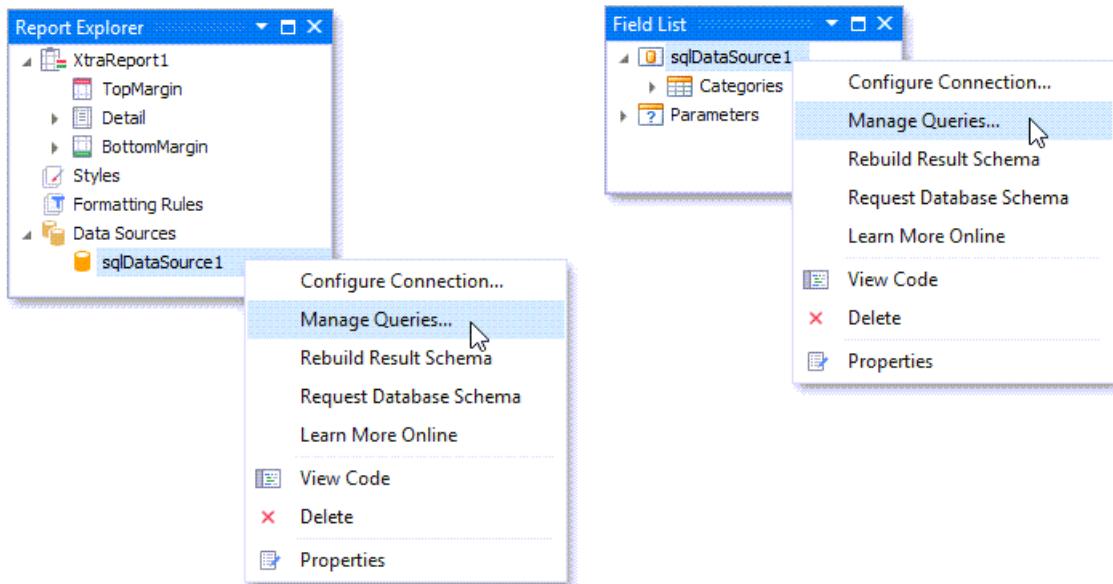
The screenshot shows the Data Source Wizard with the following steps:

- Step 1: General** (not shown)
- Step 2: Tables, Views, and Procedures**:
 - Tables**:
 - Views**:
 - Stored Procedures**:
 - Queries**:
- Step 3: Advanced** (not shown)

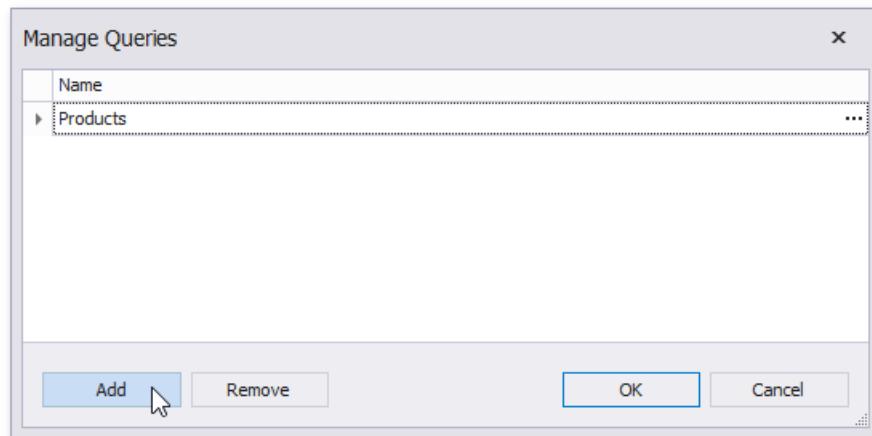
At the bottom, there are buttons for [Manage Relations...](#), [Next](#), and [Finish](#).

You can use the Query Builder to add queries to an existing SQL data source, as well as to edit existing queries. To do this, right-

click the data source in the **Report Explorer** or **Field List**, and select **Manage Queries...** in the context menu.



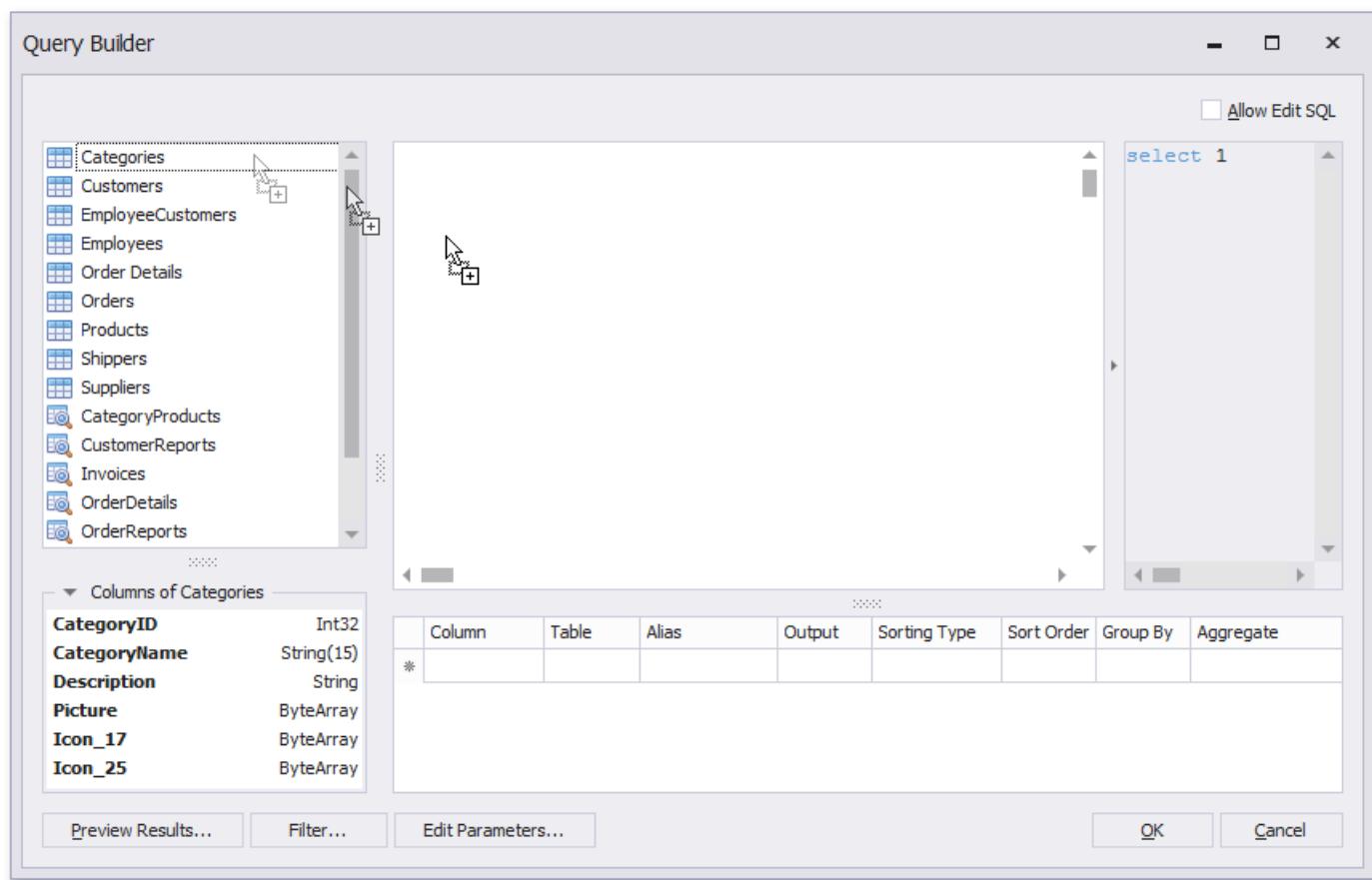
In the invoked **Manage Queries** dialog, click **Add** to add a new query. To edit an existing query, click the ellipsis button for it.



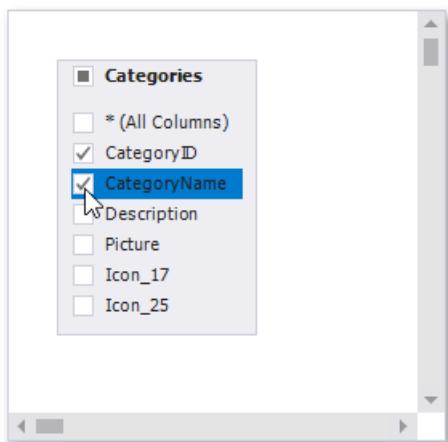
Finally, click the **Run Query Builder...** button in the invoked **Query Editor**.

Select Tables

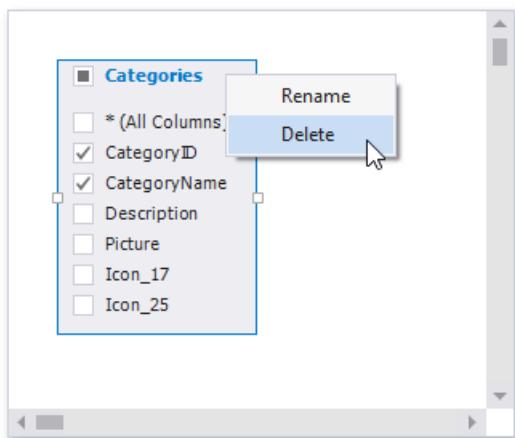
You can add a specific data table or view to a query by dragging the corresponding item from the list of available tables and dropping it onto the list of data tables to be used.



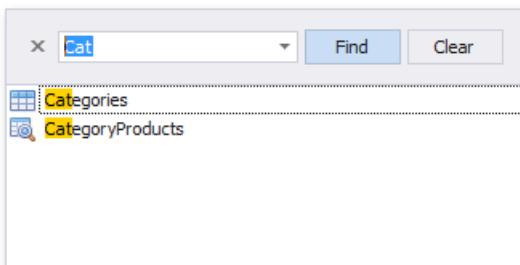
Enable check boxes for the table fields that you want to include in the query result set.



Each table provides the context menu, which allows you to rename the table or remove it from the query.

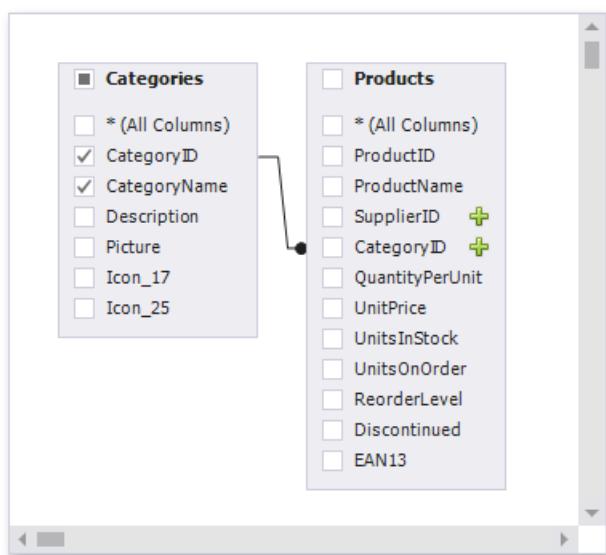


Click the list of available tables on the left and press CTRL+F to search for a specific table or view.



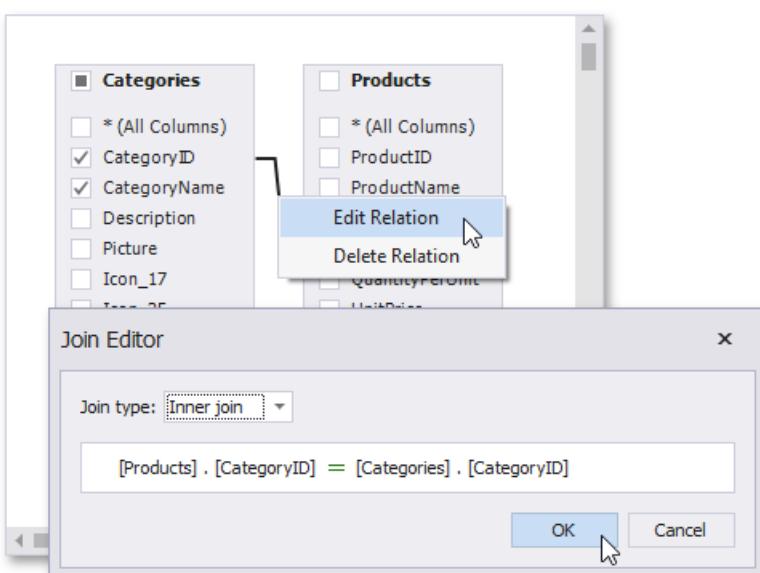
Join Tables

You can join multiple tables within the same query. The Query Builder automatically highlights tables related to any of the previously added tables. Drag-and-drop a subordinate table in the same way you added a main table to include it in a query and automatically create an inner join relation based on a key column.



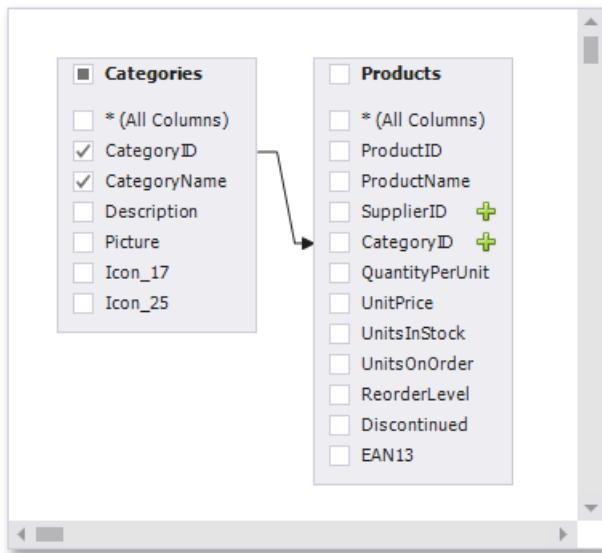
Alternatively, you can join tables by clicking the plus button in a row corresponding to a key column.

You can customize the relationship by right-clicking it on the diagram and selecting **Edit Relation** in the invoked context menu. Use the **Join Editor** to select the join type (**Left Outer** or **Inner**), apply a logical operator (**Equals to**, **Is less than**, etc.) and column key fields.



A left outer join returns an inner join's values, along with all the values in the "left" table that do not match the "right" table, including rows with NULL (empty) values in the key field.

When the left outer join is selected, the relationship line displays an arrow pointing to the "right" table.



You can manually join tables if they do not have a relationship at the database level. In this case, when you drag-and-drop a table onto the list of tables, the **Join Editor** is automatically invoked allowing you to construct a custom **join** relationship.

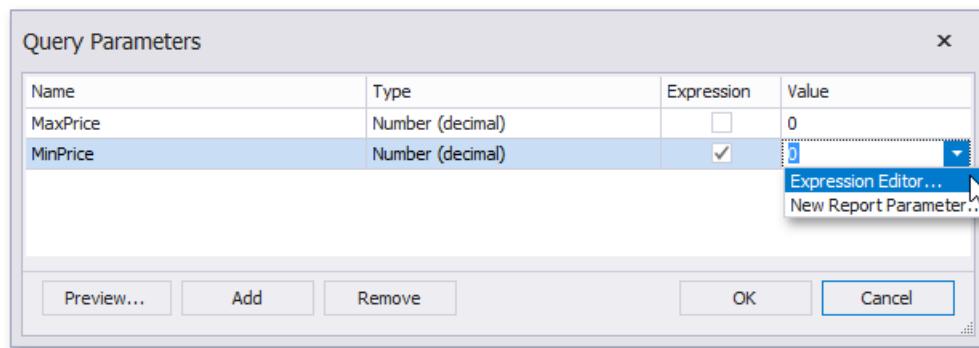
After executing the query, it returns a "flat" table composed of data records selected based on the specified join options.

NOTE

Although joining different tables within a single query may be required in some scenarios, creating [hierarchical data sources](#) generally results in better performance (in general, [master-detail reports](#) are generated faster than similar-looking reports created by grouping "flat" data sources).

Edit Parameters

Click the **Edit Parameters** button to invoke the **Query Parameters** dialog, which allows you to add and remove [query parameters](#) as well as specify parameter settings.



For each query parameter, the following properties are available.

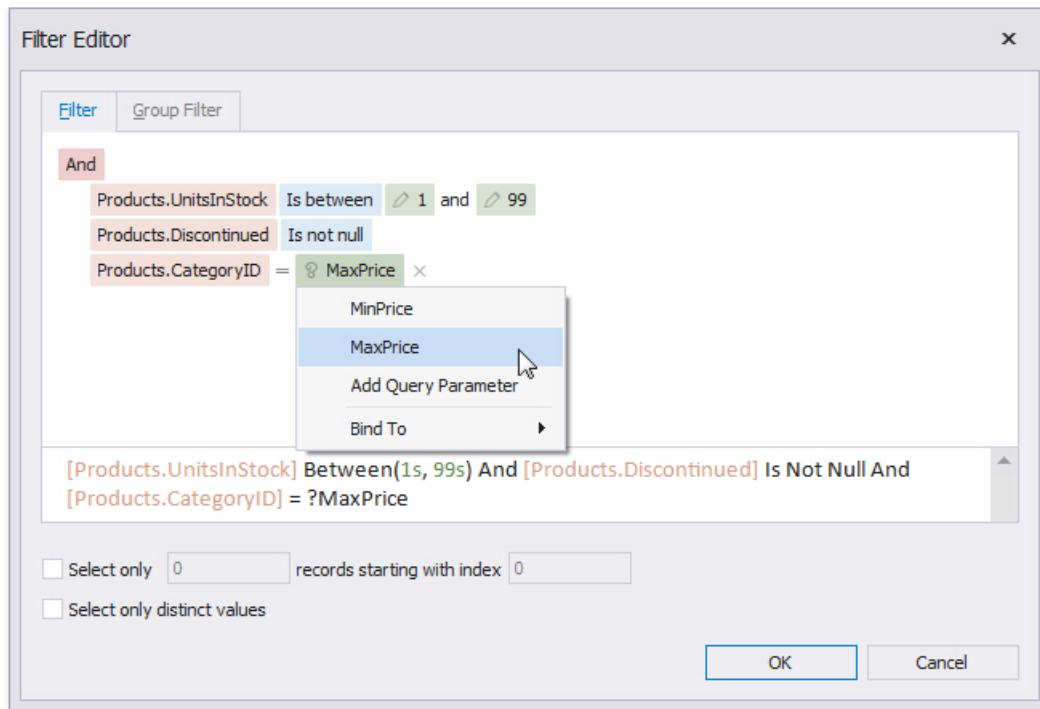
- **Name** - specifies the name used to refer a parameter.
- **Type** - specifies the data type of the parameter's value.
- **Expression** - determines whether the actual parameter value is static or generated dynamically.
- **Value** - specifies the actual value of a query parameter. If the **Expression** option is enabled, the actual parameter value is produced dynamically by calculating an associated [expression](#), which is particularly useful when you need to map the query parameter value to the value of a [report parameter](#).

The created parameters will be then available on the [Configure Query Parameters](#) wizard page.

For general information on query parameters and ways of providing parameter values, see [Specify Query Parameters](#).

Filter Data

To specify filter criteria, click the **Filter...** button in the Query Builder. This invokes the **Filter Editor**, which provides the following capabilities.



- **Filter Tab**

The editor contains the **Filter** tab allowing you to specify filter conditions for resulting data. Filter criteria can be assigned [query parameters](#) or bound to [report parameters](#).

- **Group Filter Tab**

The **Group Filter** tab allows you to specify filter conditions for grouped and aggregated data. If data is not grouped, the second tab is disabled.

- **Other Options**

Using this editor, you can limit the number of resulting data rows. If data is sorted, you can specify how many rows to skip before retrieving the specified number of rows.

NOTE

Depending on the selected data provider, it can be impossible to take into account the skip setting in the provider-specific SQL string.

Another option enables you to include only distinct values into the resulting set.

Shape Data

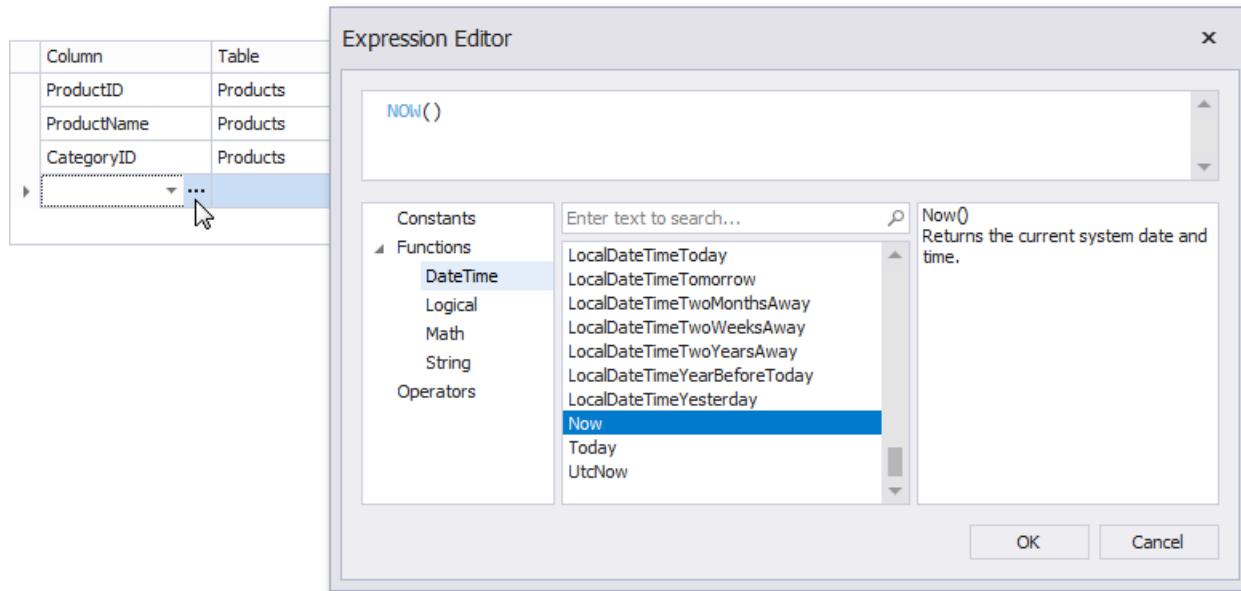
The Query Builder displays the column list under the data source editor, which provides various shaping options:

Column	Table	Alias	Output	Sorting Type	Sort Order	Group By	Aggregate
CategoryID	Categories		<input checked="" type="checkbox"/>	Ascending	1	<input checked="" type="checkbox"/>	
ProductName	Products		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
UnitsInStock	Products	Sum_UnitsInStock	<input checked="" type="checkbox"/>			<input type="checkbox"/>	Sum
CategoryName	Categories		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
UnitsOnOrder	Products	Sum_UnitsOnOrder	<input checked="" type="checkbox"/>			<input type="checkbox"/>	Sum

- **Column**

Specifies the selected column.

You can choose a column from the drop-down list or create a column expression by clicking the corresponding column's ellipsis button.



- **Table**

Specifies the table containing the selected column.

This option indicates **(All Tables)** if you created an expression for the corresponding column.

- **Alias**

Specifies a custom column name (alias).

This option is available only for columns that you included in a query.

- **Output**

Specifies whether to include the column in the query's resulting set.

- **Sorting Type**

Specifies whether to preserve the original data record order within the column or sort them (ascending or descending).

NOTE

When binding to XML files, the Query Builder does not support sorting by aggregate functions, DISTINCT and SELECT ALL statements, and custom SQL.

- **Sort Order**

This option becomes available after applying sorting to the data column records.

It defines the priority in which sorting is applied to multiple columns (a lower number has a higher priority).

For example, if column **A** has the sort order set to **1** and column **B** has it set to **2**, the query is first sorted by column **A** and then by the column **B**.

Changing this setting for one column automatically updates other columns' sorting order to avoid conflicting priorities.

- **Group By**

Specifies whether to group the query's resulting set by this column.

- **Aggregate**

Specifies whether to aggregate the column's data records.

The following aggregate functions are supported:

- Count
- Max
- Min
- Avg
- Sum
- CountDistinct
- AvgDistinct
- SumDistinct

Applying any of these functions to a column discards individual data records from the query result set, which only includes the aggregate function result.

NOTE

You should apply aggregation/grouping to either all columns or none of them.

Preview Results

You can preview the query execution's result in a tabular form by clicking the **Preview Results** button.

This opens the **Data Preview** window displaying the query result set (limited to the first 1000 data records).

Data Preview (First 1000 Rows Displayed)

x

Product ID	Product Name	Supplier ID	Category ID	Quantity Per Unit	Unit Price	Units In Stock	Units On
1	Chai	1	1	10 boxes x 20 bags	18	39	
2	Chang	1	1	24 - 12 oz bottles	19	17	
3	Aniseed Syrup	1	2	12 - 550 ml bottles	10	13	
4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22	53	
5	Chef Anton's Gumbo Mix	2	2	36 boxes	21.35	0	
6	Grandma's Boysenberry Spread	3	2	12 - 8 oz jars	25	120	
7	Uncle Bob's Organic Dried Pears	3	7	12 - 1 lb pkgs.	30	15	
8	Northwoods Cranberry Sauce	3	2	12 - 12 oz jars	40	6	
9	Mishi Kobe Niku	4	6	18 - 500 g pkgs.	97	29	
10	Ikura	4	8	12 - 200 ml jars	31	31	
11	Queso Cabrales	5	4	1 kg pkg.	21	22	
12	Queso Manchego La Pastora	5	4	10 - 500 g pkgs.	38	86	
13	Konbu	6	8	2 kg box	6	24	

Close

Control Toolbox

The **Control Toolbox** lists all available [controls](#) and allows you to add them to your report.



Available Controls

The available report controls can be divided into the following categories:

General Content

The following controls are most commonly used to display data in a report.

Barcode	Check Box	Gauge	Label	Character Comb	Picture Box	Rich Text	Table

Extended Data

The following controls are connected to data individually, without accessing a report's data source.

Chart	Pivot Grid	Sparkline

Report Layout

The following controls allow you to draw shapes in a report and customize the report layout.

Cross-Band Line	Cross-Band Box	Line	Page Break	Panel	Shape	Subreport

Document Statistics

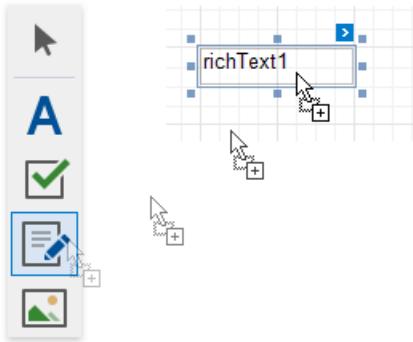
The dynamic content of the following controls is not obtained from a data source.

Page Info	Table of Contents

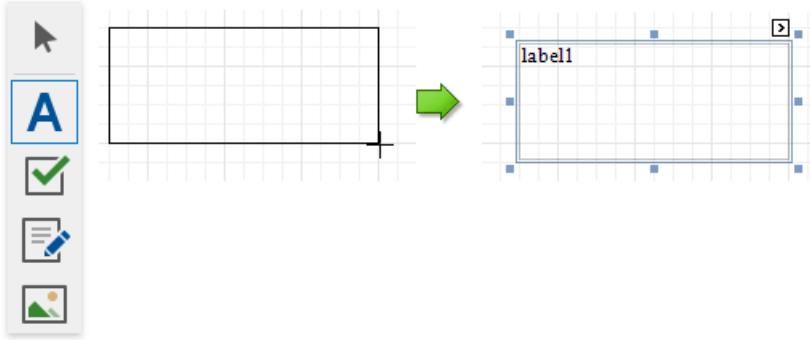
Add a Control to a Report

To add a control from the Toolbox, do one of the following.

- Double-click an item in the Toolbox for the appropriate control, which will be created at the Detail band's top left corner.
- Drag and drop an item from the Toolbox onto the required location within a report.



- Select an item in the Toolbox, and then click the required location within a report.
- Select an item in the Toolbox, and then indicate the bounding rectangle by holding the left mouse button.



Select the **Pointer** item when you need to perform selection, re-positioning or resizing operations. It is automatically selected after you drop a control onto a report.

Toolbar

The Report Designer **Toolbar** includes the **Home**, **Layout**, **Page**, and **View** tabs for general commands as well as contextual tabs for commands relating to the selected report controls.

Home Tab



Use commands in this tab to

- add new reports, load and save report layouts;
- add data sources, [calculated fields](#), and [report parameters](#);
- delete the selected report elements, place them on the clipboard and paste them onto report bands;
- customize font, color, formatting and alignment settings;
- create new styles based on the selected control's appearance settings and then apply the created styles to other controls.

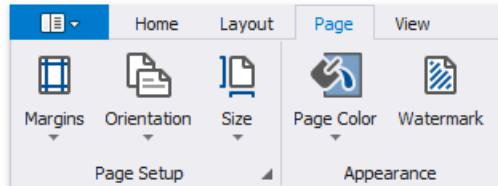
Layout Tab



This tab provides commands that

- align report elements to each other or the snap grid;
- change the report element size relative to other report elements and to fit the snap grid or the parent container;
- change the stacked elements' order;
- select the snapping mode.

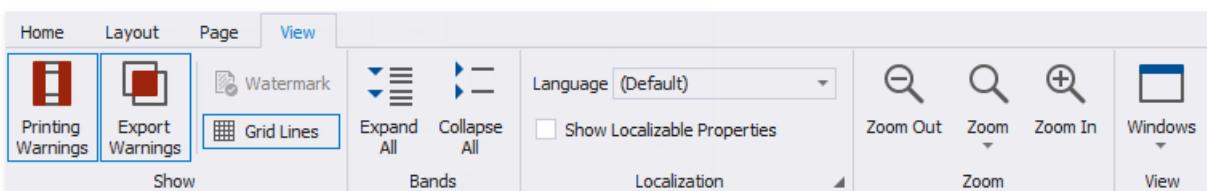
Page Tab



These commands allow you to

- set the page margins, orientation, and paper size;
- specify the page's background color;
- add watermark text to a report or turn a picture into a report's background.

View Tab



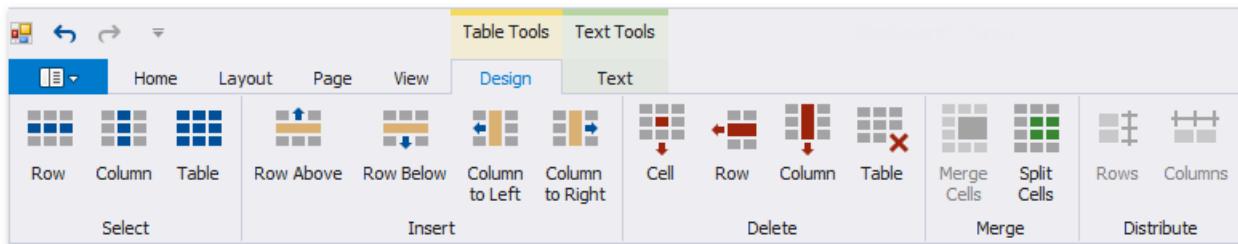
This tab enables you to

- turn on/off [export and printing warnings](#) to highlight intersecting controls and controls placed outside page margins;
- display the document's watermark on the design surface;
- specify whether to draw the snap grid;
- expand or collapse all report bands;
- change the report language and show localizable properties in the **Property Grid**;
- zoom the design surface;
- manage the Report Designer panels' visibility.

Contextual Tabs

Contextual tabs are visible whenever you select a specific report element and provide commands applicable to the selected element's type.

The following image demonstrates the table cell's available tabs:



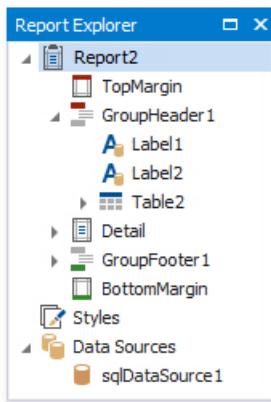
UI Panels

The Report Designer includes the following panels:

- [Report Explorer](#)
- [Field List](#)
- [Report Gallery](#)
- [Property Grid](#)
- [Group and Sort Panel](#)

Report Explorer

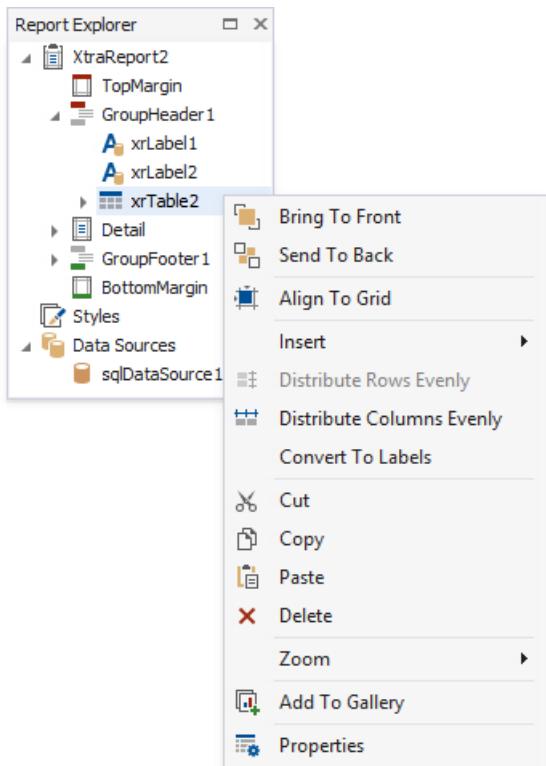
The **Report Explorer** shows a report structure in a tree-like form and provides access to components assigned to a report (such as its data sources).



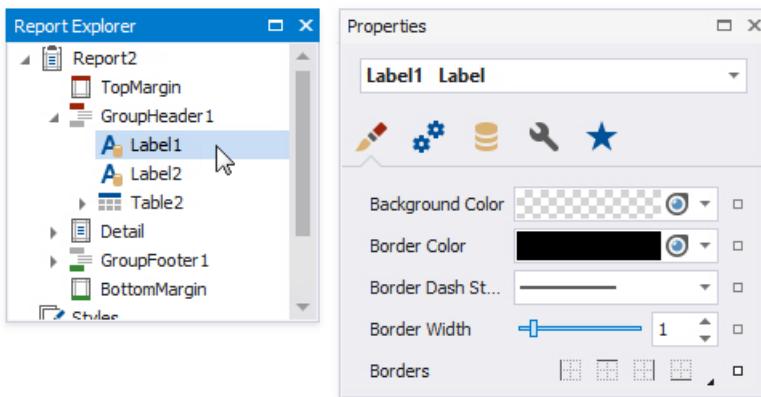
Report Bands and Controls

Bands and controls are listed in a hierarchical tree-like structure.

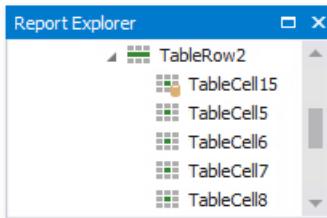
Select an element and invoke the context menu to access the available actions.



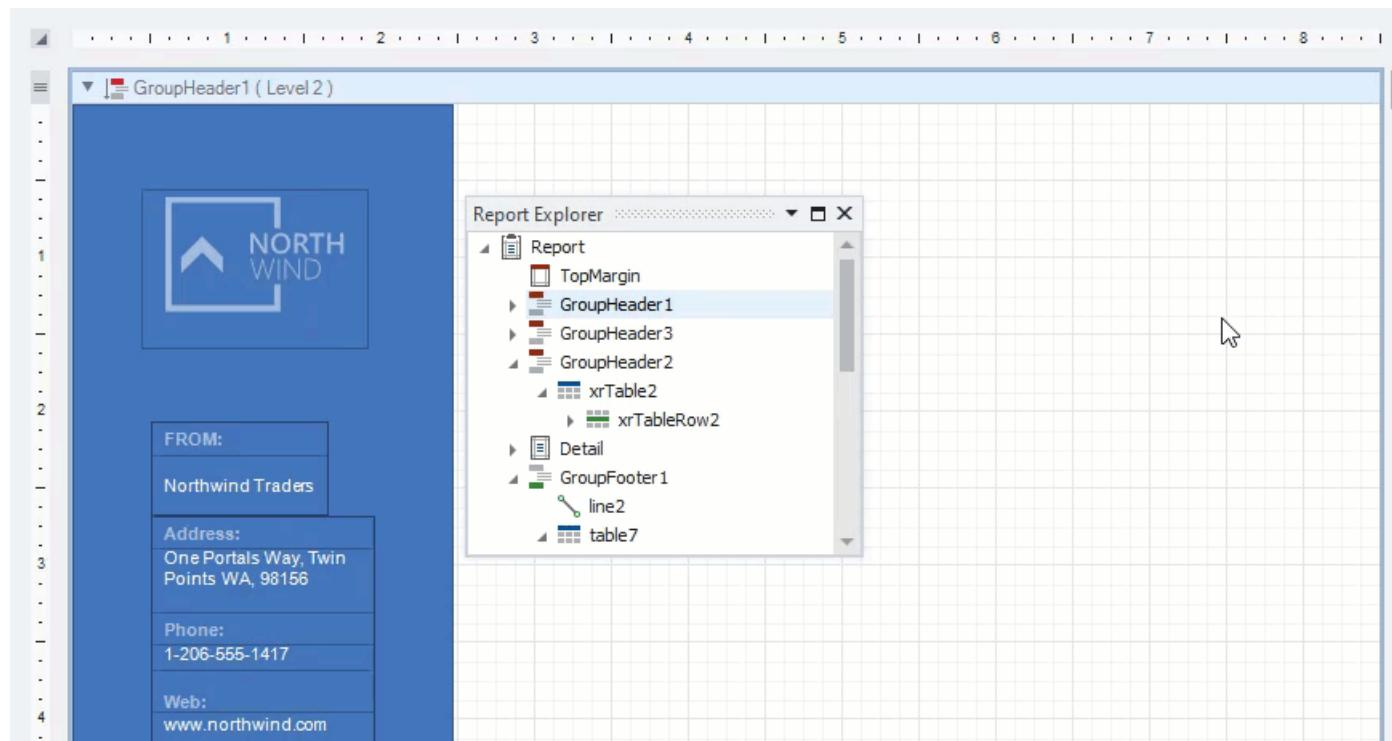
Select an element and navigate to the **Property Grid** to edit the element's options.



Data-bound controls are marked with a yellow database icon.



Right-click an element in the **Report Explorer** and select **Navigate To Control** from the context menu to move the design surface's visible area to this element.



Drag elements to change their location.

The screenshot shows the DevExpress Report Designer. On the left is the report preview area with a table containing company information. The table has two rows. The first row contains five columns: 'Contact Name' with value '[ContactName]', 'Country:' with value '[Country]', 'Contact Title' with value '[ContactTitle]', 'Region:' with value '[Region]', and 'Phone:' with value '[Phone]'. The second row contains four columns: 'Fax:' with value '[Fax]', 'City:' with value '[City]', 'Home Page:' with value 'Replace([HomePage], '#;')', and 'Postal Code:' with value '[PostalCode]'. Below the table is a section titled 'Suppliers'.

The right side of the interface features a 'Report Explorer' window displaying the report's structure. It shows a hierarchical tree of report elements:

- XtraReport1
 - topMarginBand1
 - ReportHeader1
 - Detail
 - DetailReportBand
 - Detail1
 - A lbTitle
 - xrTable4
 - xrTableRow14
 - xrTableCell55
 - xrTableCell11
 - xrTableCell12
 - xrTableCell13
 - xrTableCell14
 - xrTableCell15
 - xrTableRow6

Check the following topics for more information on how to manipulate report elements:

- [Manipulate Bands](#)
- [Manipulate Report Controls](#)
- [Manipulate Table Elements](#)

Report Styles

Drop a style onto a report element. This applies the selected style to the element.

The screenshot shows the Report Designer with a report containing three text boxes labeled '[CompanyName]', '[CustomerAccount]', and '[Address]'. To the right is the 'Report Explorer' window showing the report structure:

- ReportTitleCaption
- bottomMarginBand1
- Styles
 - EvenStyle
 - GroupHeader
 - OddStyle
 - ProductData
 - ProductHeader
 - SupplierInfo
 - SupplierTitle

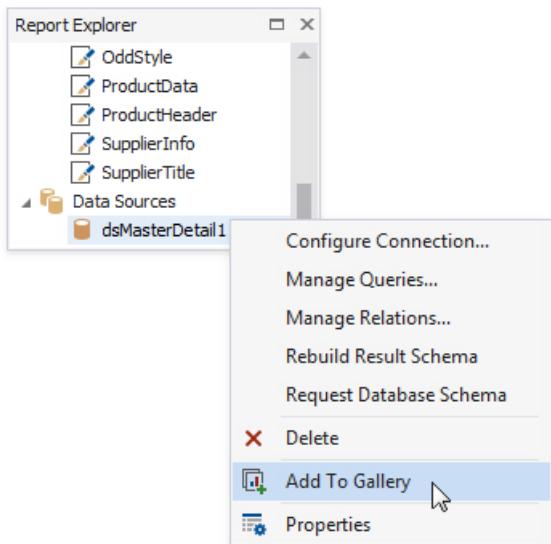
You can select all report elements with a specific style.

The screenshot shows the 'Report Explorer' context menu open over a style entry. The menu items are:

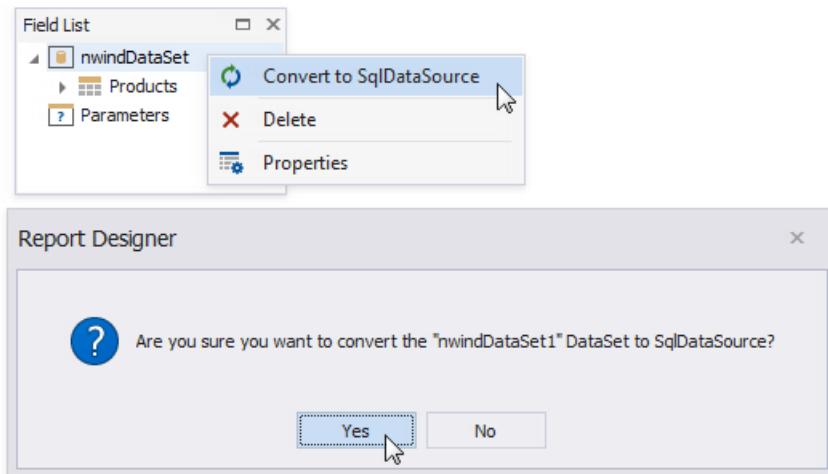
- Add Style
- Edit Styles...
- Clone Style
- Select Controls With Style** (highlighted)
- Delete
- Add To Gallery

Report Data Sources

The Data Sources node lists all [data sources](#) configured for the report. Right-click a data source to customize its settings or add it to the [Report Gallery](#).

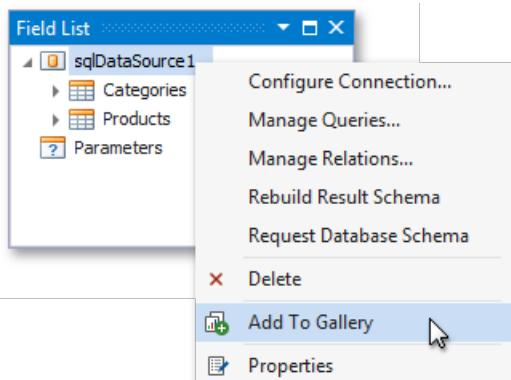


You can convert a **Data Set** data source to an SQL data source. Right-click the Data Set and select **Convert to SqlDataSource** from the context menu. Click **Yes** in the invoked dialog to confirm the selected action.



Field List

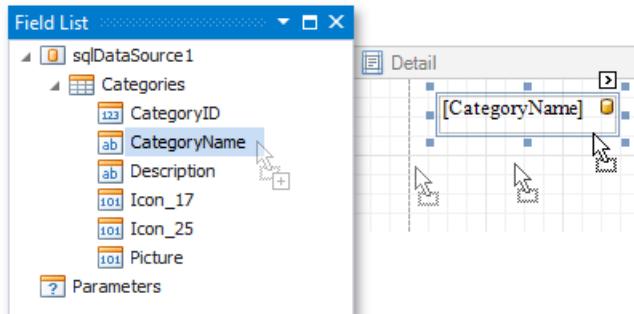
This panel displays the schema of a report's data sources. You can right-click a data source item to access its settings. For example, you can add a data source to the [Report Gallery](#) to later re-use it in other reports.



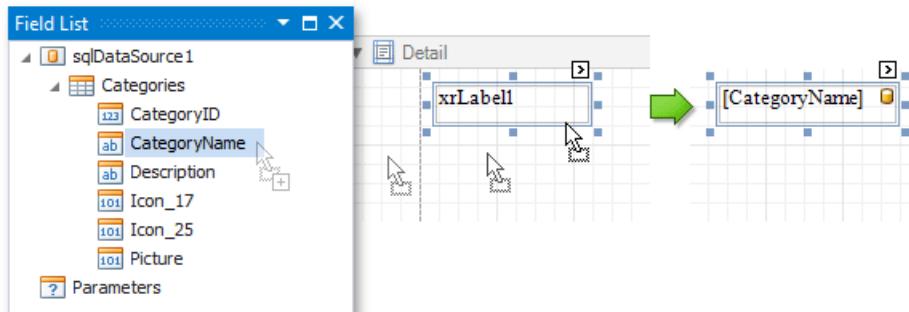
The Field List enables you to perform the following actions.

Bind controls to data

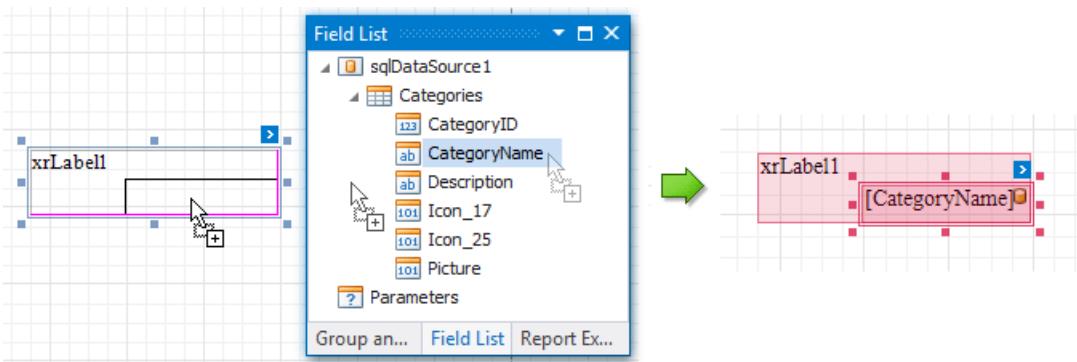
Dropping a field onto a report's surface creates a new report control bound to a corresponding field.



Dropping a field onto an existing control binds this control to a corresponding field.



You can preserve data bindings of an existing control by holding down the CTRL key when dropping a data field on this control. This creates a new report control on top of the existing control.

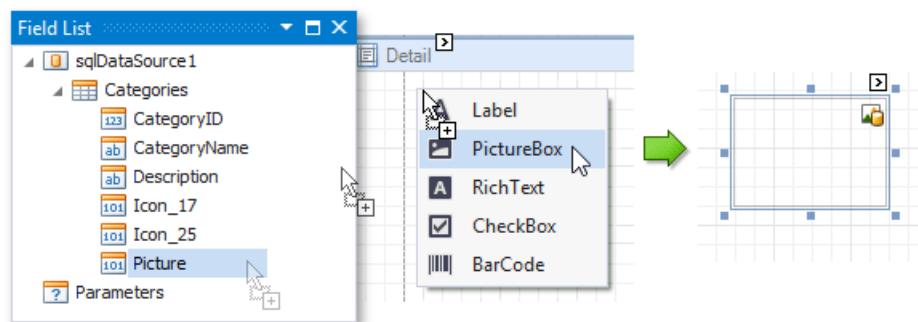


Create specific controls

To create a data-bound control of a specific type, do any of the following:

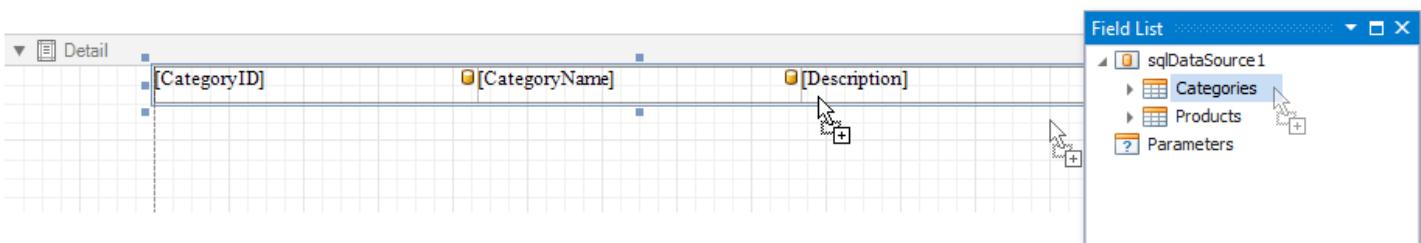
- Hold down the SHIFT key and drop a data field onto a report's surface.
- Right-click a corresponding data field and drop it onto a report's surface.

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

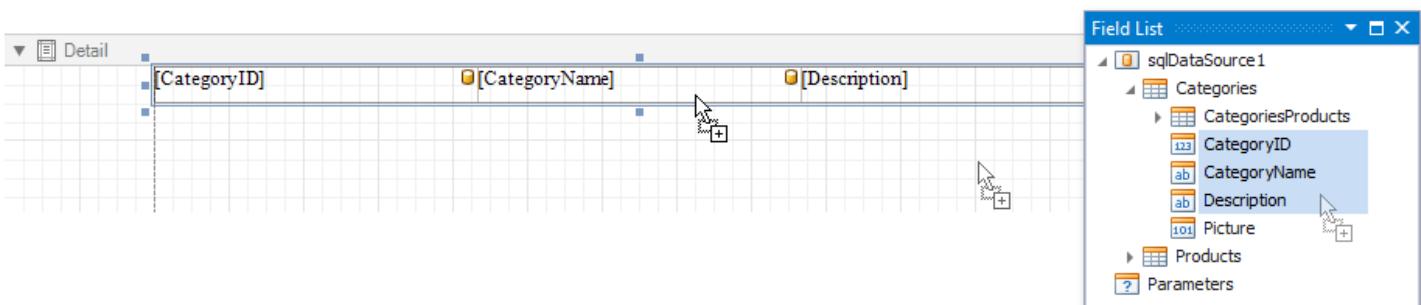


Create tables

Dropping an entire data table onto a report creates a table with its columns bound to fields contained in the data table.

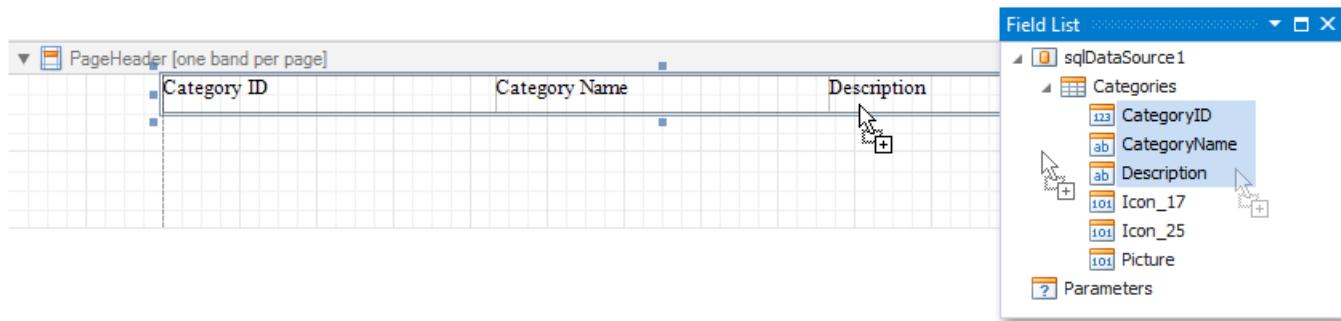


To select multiple fields, click them with holding the CTRL or SHIFT key. Dropping these fields onto a report creates a new table with its cells bound to the corresponding fields.



To create column headers, right-click the required fields with holding the CTRL or SHIFT key and drop them onto a report surface.

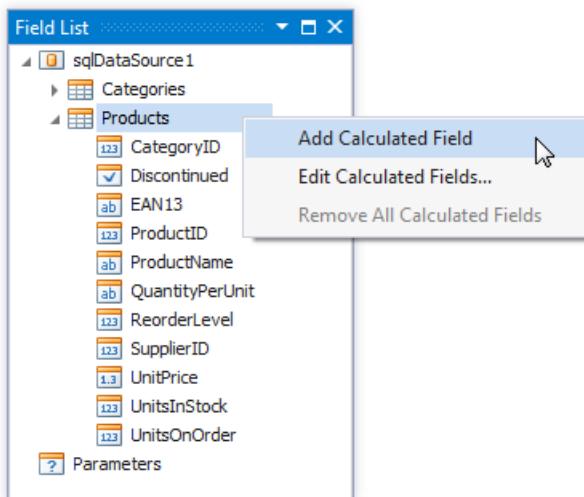
This creates a new table with its cells displaying the field names.



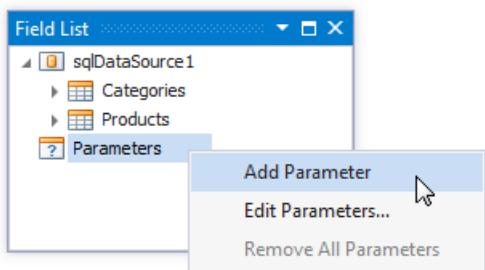
Data shaping operations

In addition, the Field List can help you solve the following tasks:

- Add [calculated fields](#) to data columns for performing various calculations in a report.

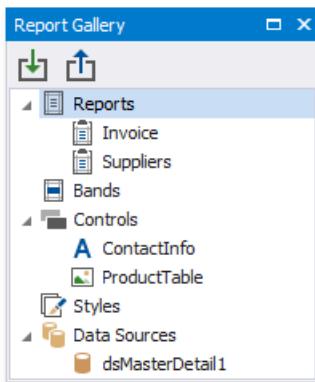


- Manage the collection of [report parameters](#).



Report Gallery

The **Report Gallery** allows you to store and reuse reports and their elements.

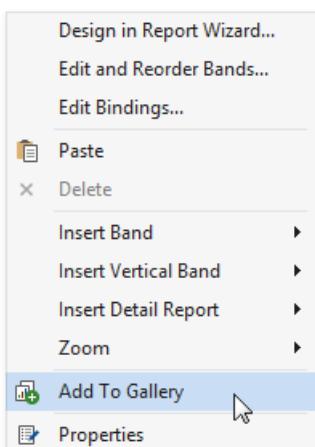


Do not confuse the Report Gallery with the [Report Explorer](#) that has a similar user interface. The Report Gallery stores shared templates. The Report Explorer displays the current report structure.

Reports

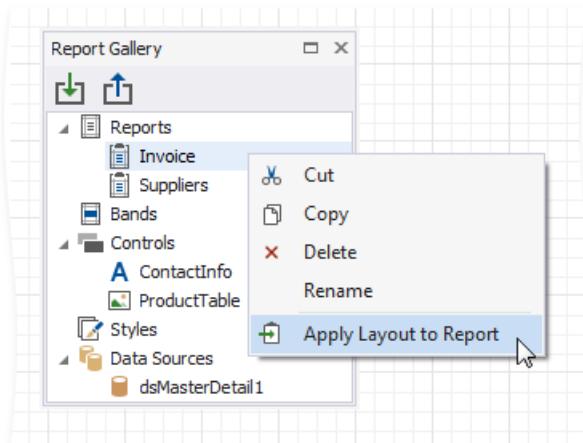
The Report Gallery displays report layout templates in the **Reports** category.

To create a new template, right-click an empty area around the design surface and select **Add To Gallery** in the context menu. The report's **Name** property value defines the template name.

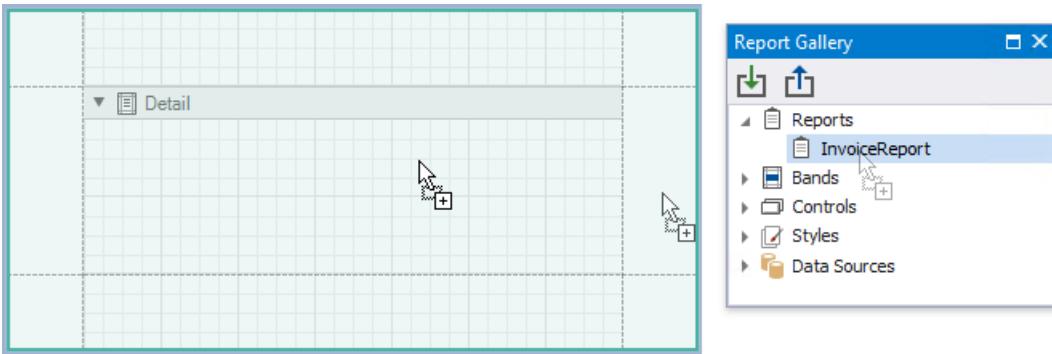


Do one of the following to apply a template to the current report:

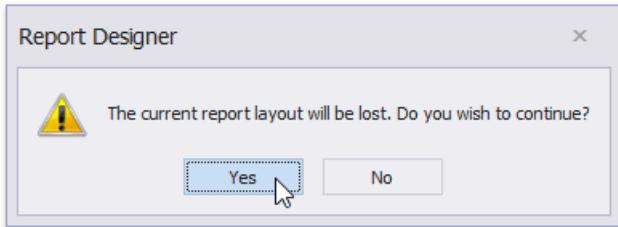
- Right-click the template in the Report Gallery and select **Apply Layout to Report**.



- Drag and drop the template from the Report Gallery onto the report.



The following dialog warns you that the template overrides the current layout:

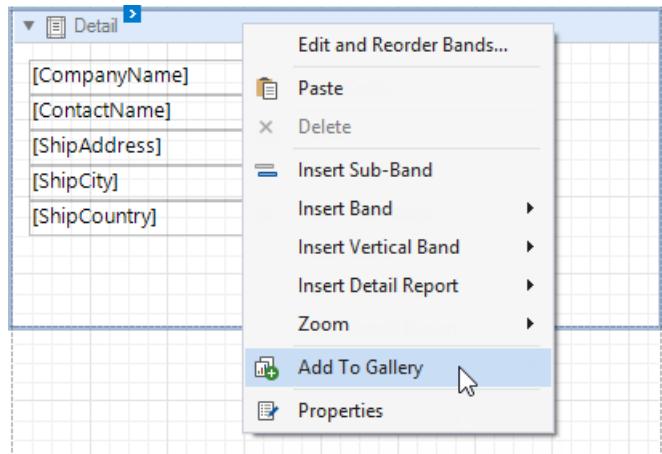


When you apply the report template, all the associated styles and components are added to the current report as well.

Bands

The Report Gallery's **Bands** category contains **band** templates.

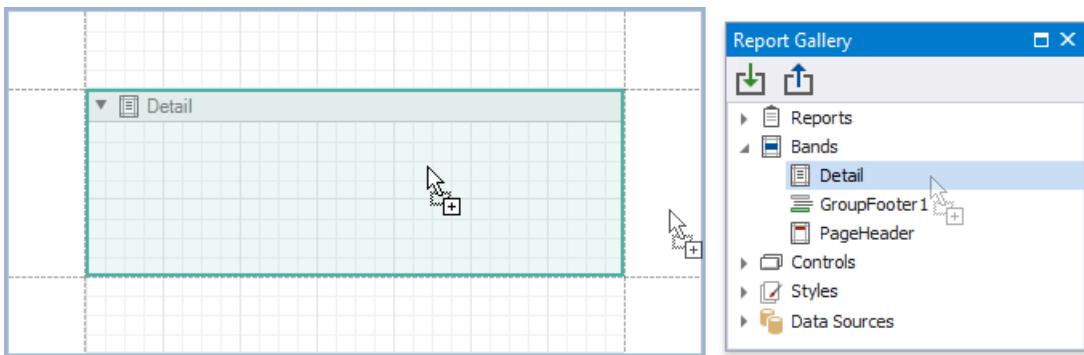
To create a new template, right-click a report band and choose **Add To Gallery** in the context menu. The band's **Name** property value defines the template name.



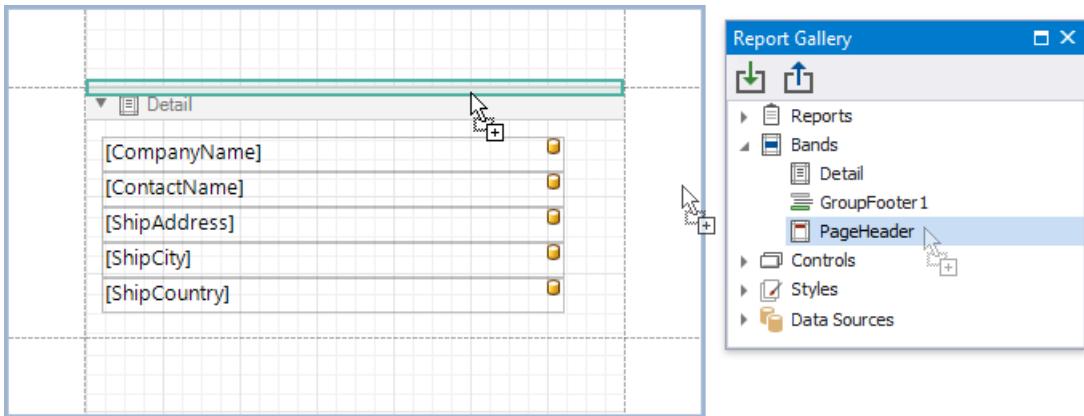
Use the following ways to apply a band template:

- **Drag and Drop**

Drag and drop the template from the Report Gallery onto the band of the same type to replace the band's content.



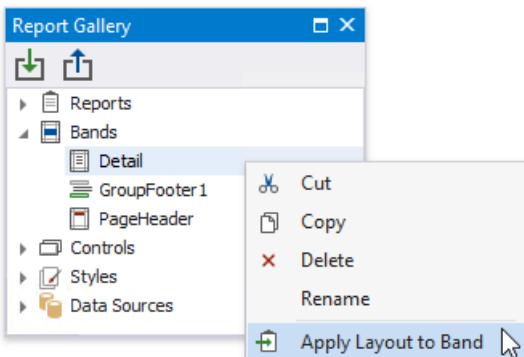
To create a new band, move the mouse cursor to the delimiter between bands and drop the template.



You can always create new Detail Report bands and Group Headers/Footers. You can add the Report Header/Footer or Page Header/Footer only if the report does not contain this band.

• Gallery Context Menu

Right-click a template in the Report Gallery and choose **Apply Layout to Band** in the context menu.



This action's behavior depends on the template's band type and the selected report band.

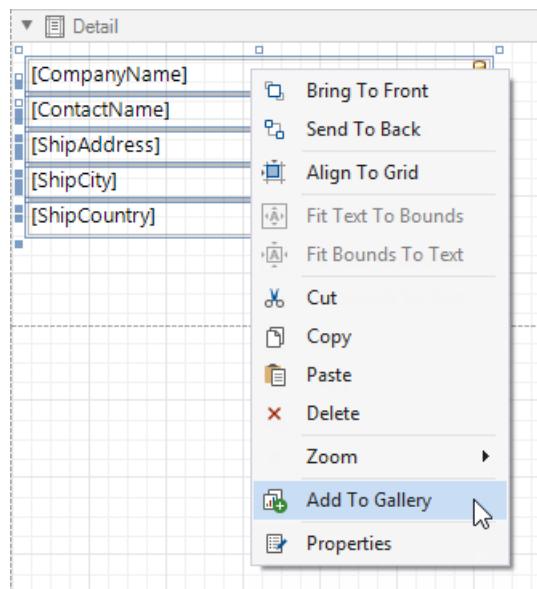
TEMPLATE'S BAND TYPE	ACTION RESULT
Detail Band, Vertical Detail Band, Top Margin, Bottom Margin	Replaces the corresponding band's content independently from the selected band type.
Group Header, Group Footer, Detail Report Band	If the same band is selected in the report, replaces the band's content. Otherwise, adds a new band to the deepest hierarchy level.
Report Header, Report Footer, Page Header, Page Footer, Vertical Header, Vertical Footer	If the same band exists in the report, replaces the band's content. Otherwise, adds a new band.

Note that the template stores settings related to the band and its controls ([binding information](#), [appearance options](#), etc). All these

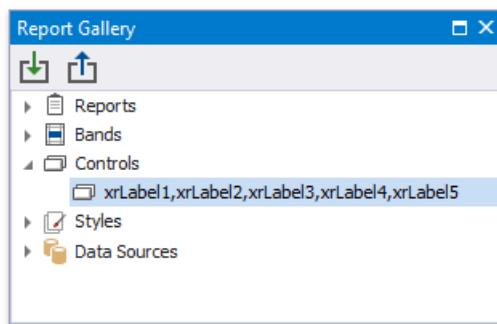
settings are restored when you apply the template.

Controls

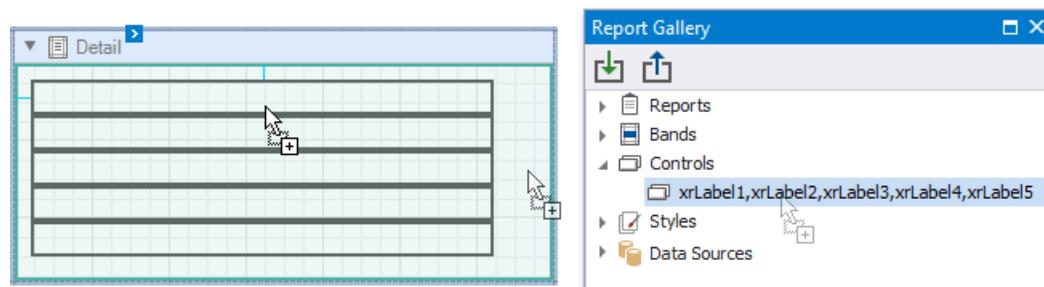
You can combine [report controls](#) from the same band into a template. Hold down SHIFT or CTRL and select controls. Then, right-click the selection and choose **Add To Gallery** in the context menu.



This adds a new template to the **Controls** section. The template name consists of control names separated by commas.



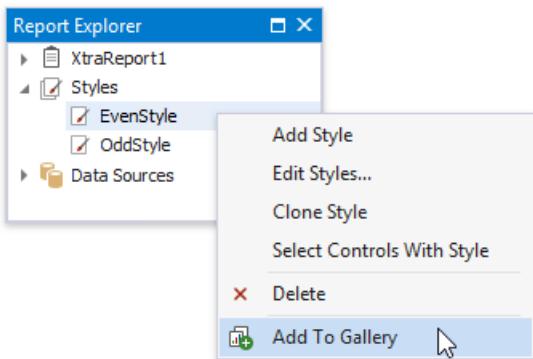
To apply a control template, drag and drop it from the Report Gallery onto a band.



All the control settings are restored when you apply the template.

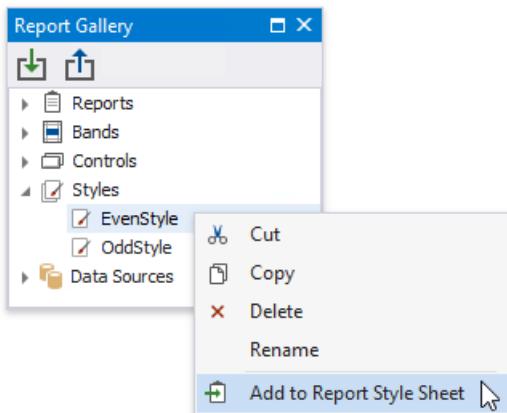
Styles

Right-click a style in the Report Explorer and select **Add To Gallery** to create a new template in the **Styles** category.



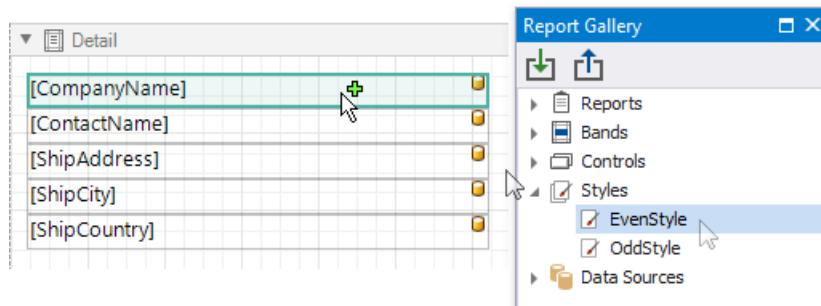
Use the following ways to apply a style template:

- To add the style to the report's [style sheet](#), right-click the style in the Report Gallery and select **Add to Report Style Sheet**.



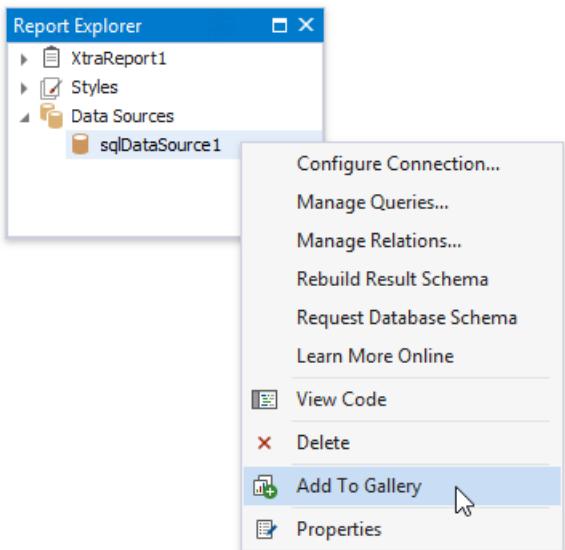
You can also use the same action in the **Styles** node's context menu to add all the styles available in the Report Gallery.

- To apply the style to a specific report control, drag and drop this style from the Report Gallery onto this control. This also adds the selected style to the report style sheet if it does not already contain this style.



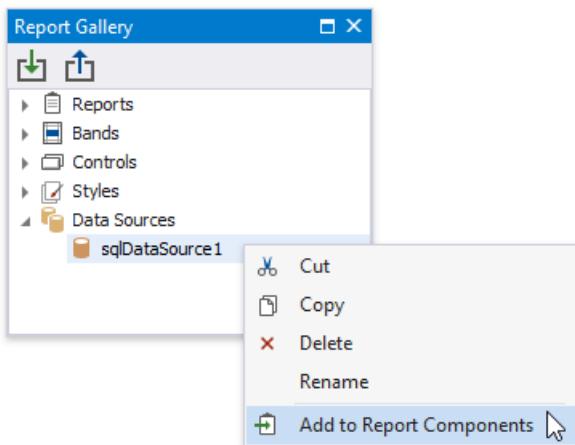
Data Sources

Right-click a data source in the Report Explorer and select **Add To Gallery** to create a new template in the **Data Source** category.



Do one of the following to apply a data source template:

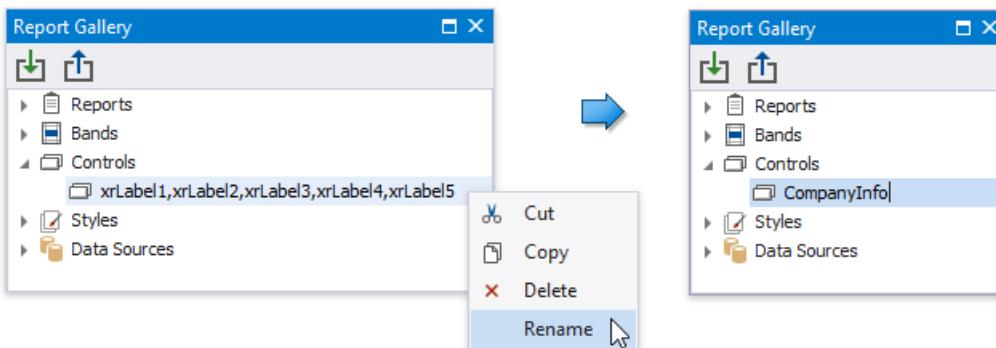
- Right-click the template in the Report Gallery and select **Add to Report Data Sources** in the context menu.



- Drag and drop the template from the Report Gallery onto the report.

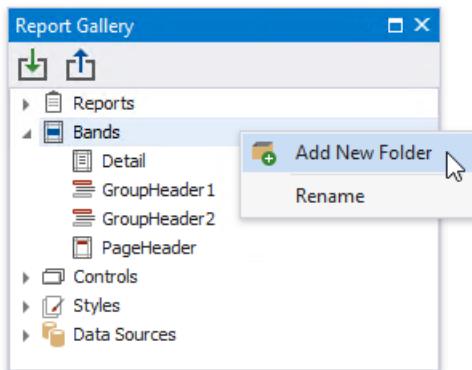
Rename Templates

To change the template name, select **Rename** in the template's context menu and type a new name.

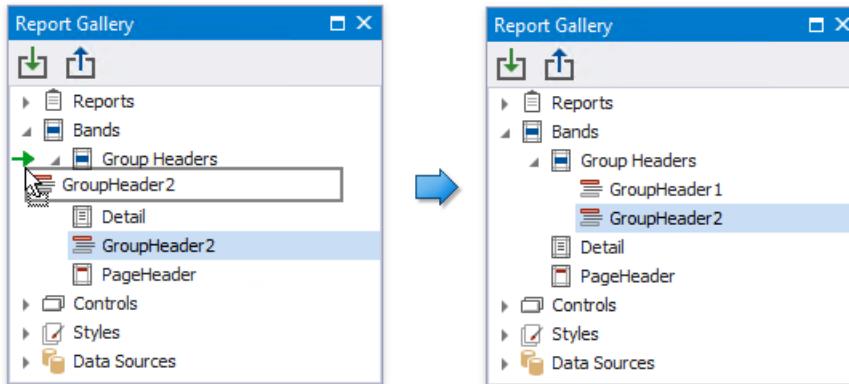


Group Templates

Right-click a root Gallery node and select **Add New Folder** in the context menu.

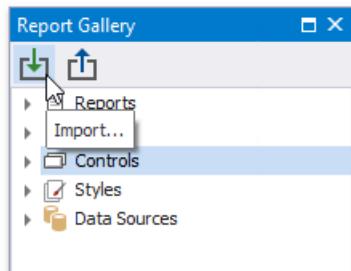


Specify the folder name. Move templates to this folder to combine them into a group.



Import and Export Templates

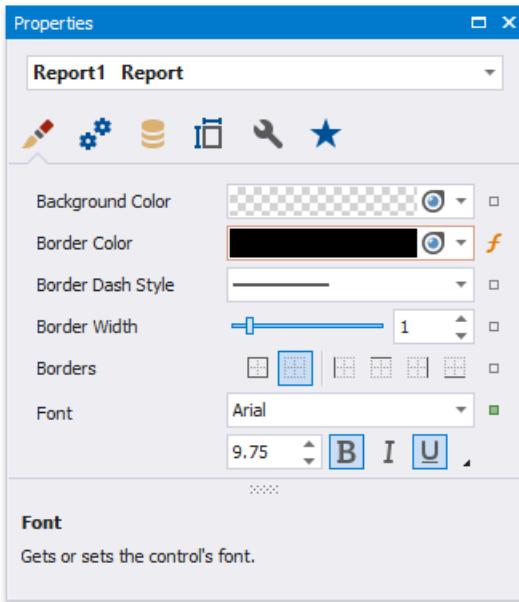
You can import gallery items from an XML file. Right-click the **Import** toolbar button, locate a file in the invoked **Open** dialog and click **OK**.



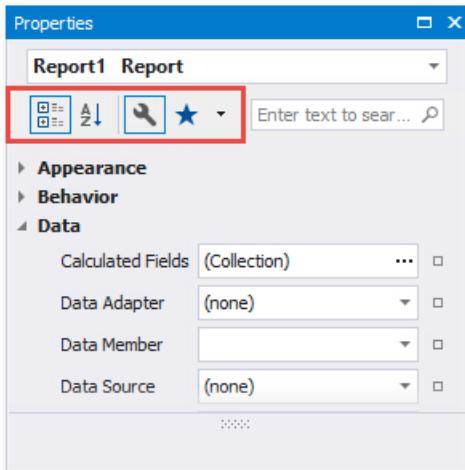
To save gallery templates to an XML file, click the **Export** toolbar button and select a target file in the **Save** dialog.

Property Grid (Tabbed View)

The **Property Grid** allows you to access and customize report/report element settings.



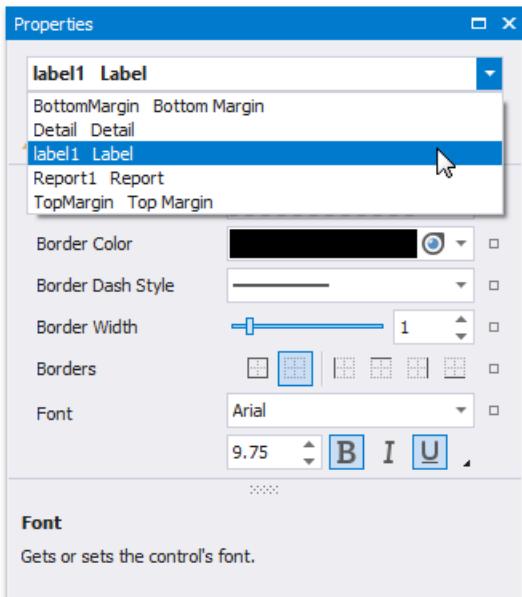
See the [Property Grid \(Non-Tabbed View\)](#) topic if your Property Grid does not display tabs.



Select a Report Element

Perform one of the following actions to select an element and show its properties in the Property Grid:

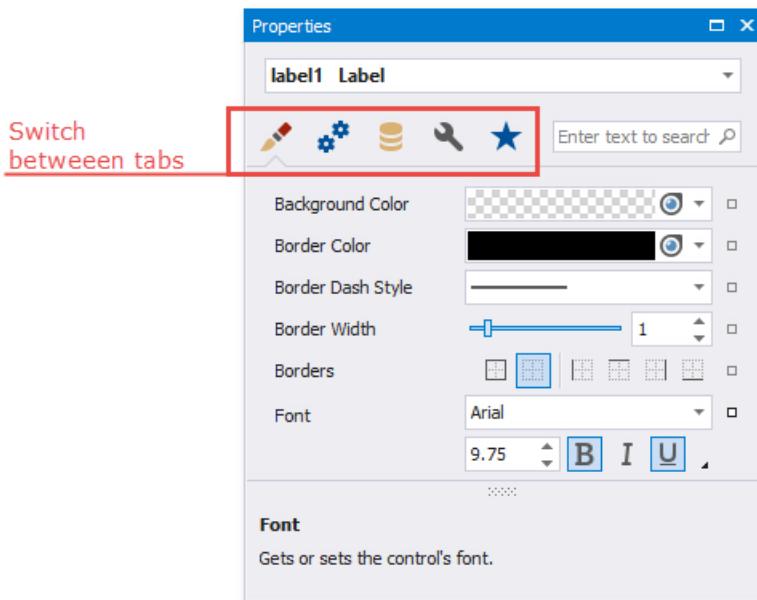
- Select an element in the drop-down list at the top of the Property Grid.



- Click an element in the [design surface](#).
- Select an element in the [Report Explorer](#).

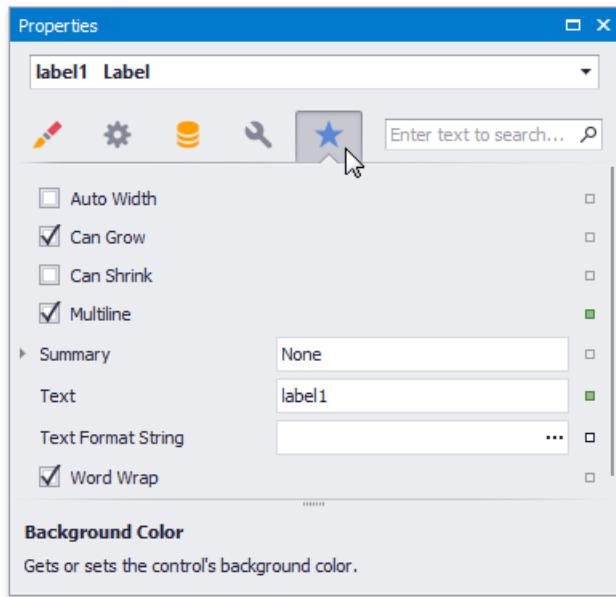
Property Grid Tabs

The Property Grid displays properties in tabs. The active tab is activated at the application's next start.

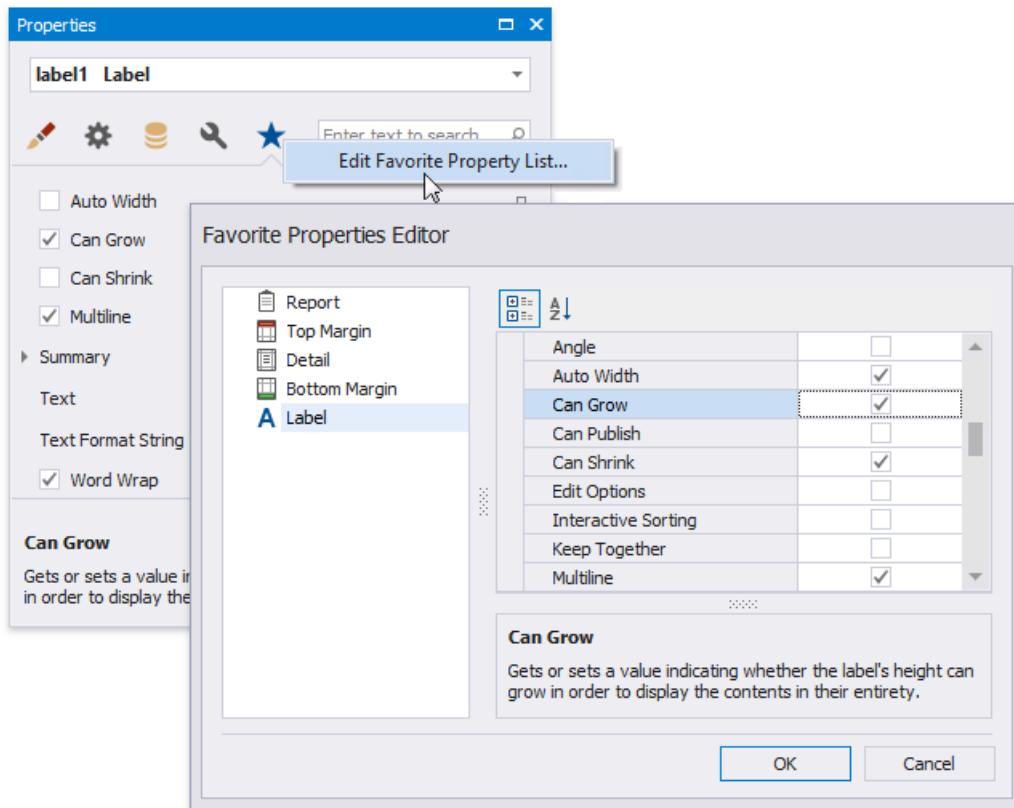


Favorite Properties

The **Favorites** tab displays favorite or most frequently used properties.

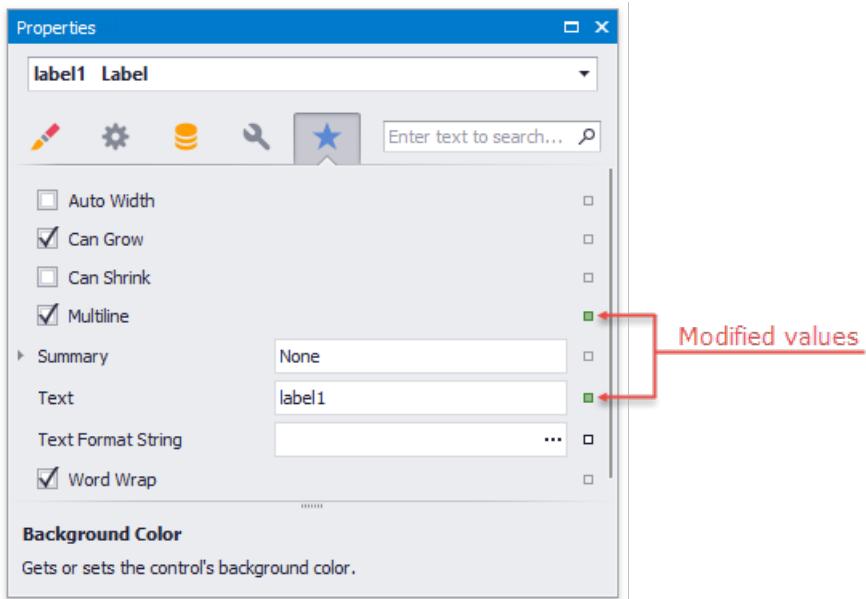


Click the **Edit Favorite Property List** context menu item to set up the favorite properties. Enable check boxes for the controls' properties in the invoked **Favorite Properties Editor** to include these properties into the favorite list.

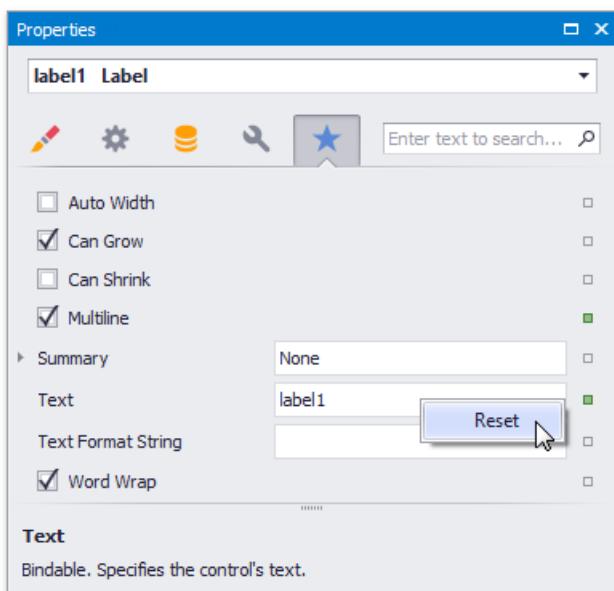


Change Property Values

The Property Grid adds a green property marker to properties if their default value changes.

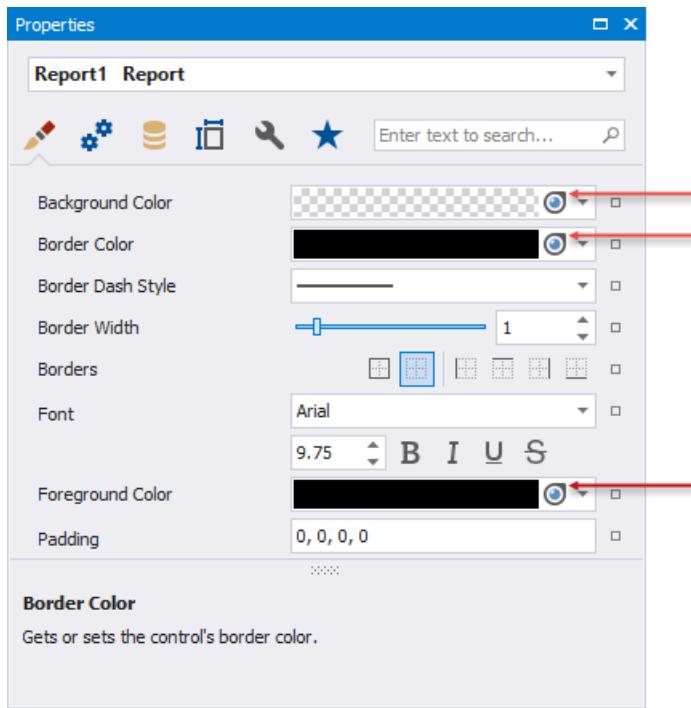


Right-click a property's editor to reset the value.



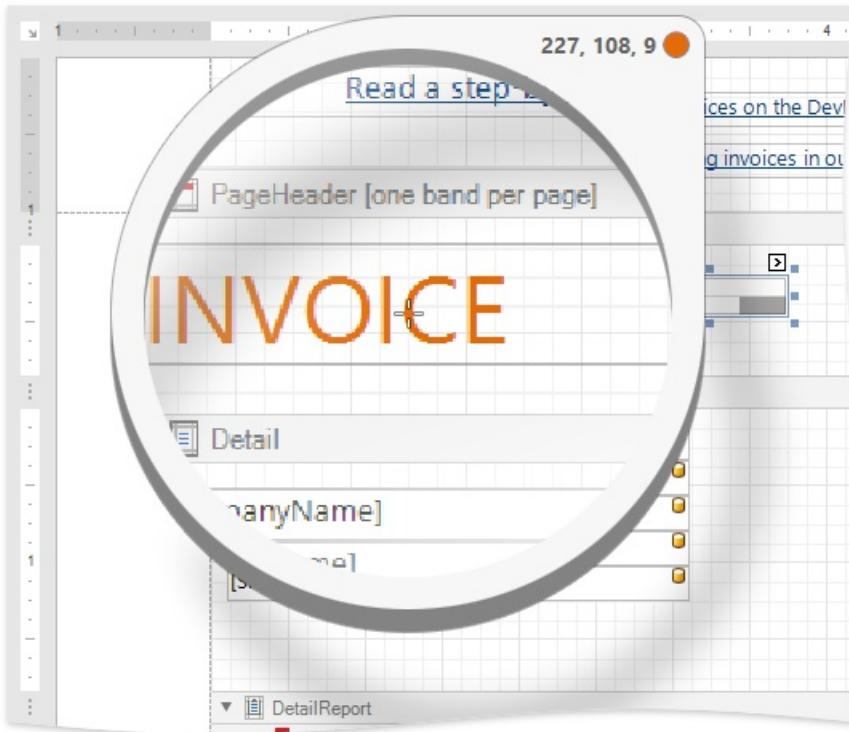
Set Color Properties

You can use the Magnifier to set color properties.



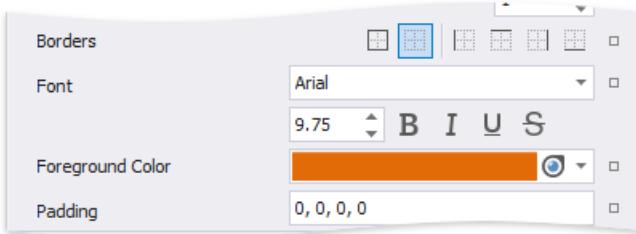
Do the following to use the Magnifier:

- Click the Magnifier button.
- Move the invoked Magnifier on the screen to find the color you want to set.



You can use the Magnifier to zoom out. Use one of the following options to do this:

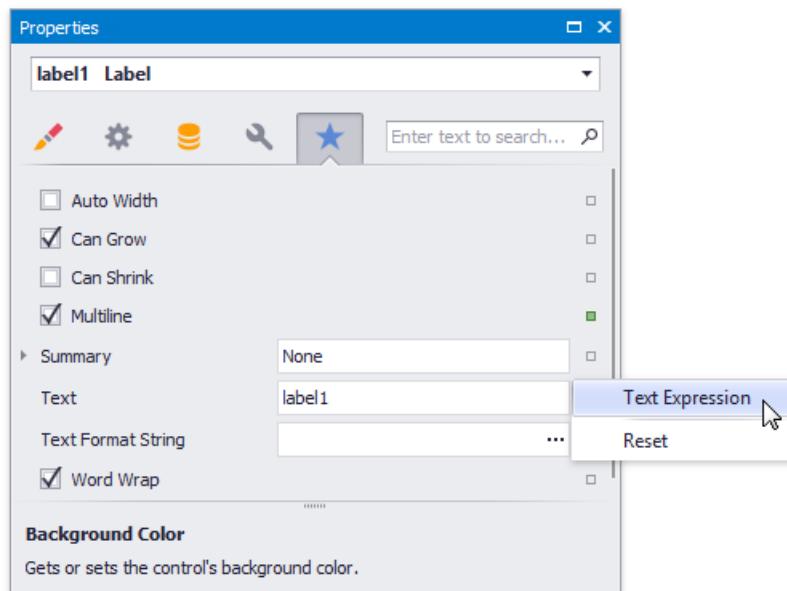
- Hold Ctrl and press + / -
- Scroll the mouse wheel
- Click to set the color property to the selected color.



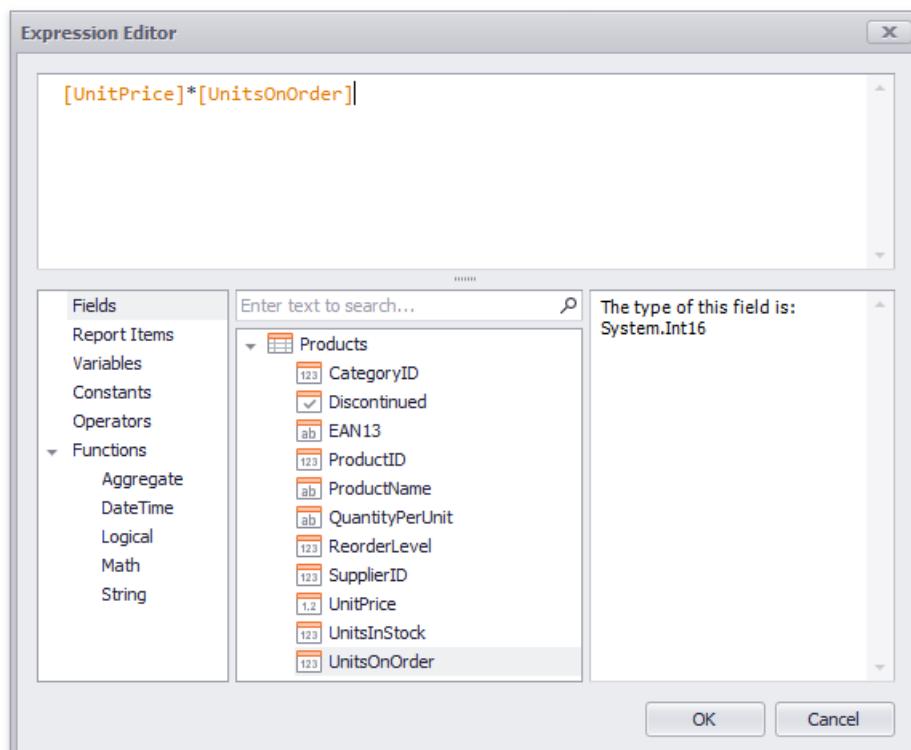
Right click or press Esc to cancel the Magnifier mode.

Specify Expressions

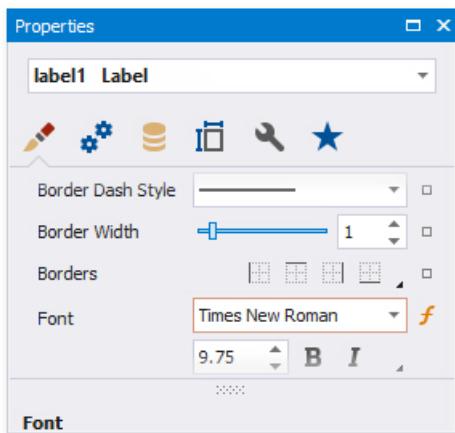
If [expression bindings](#) are enabled, the Property Grid allows you to specify expressions that can include two or more data fields and various functions. Click a property's marker to see whether the invoked context menu has the **PropertyName Expression** item.



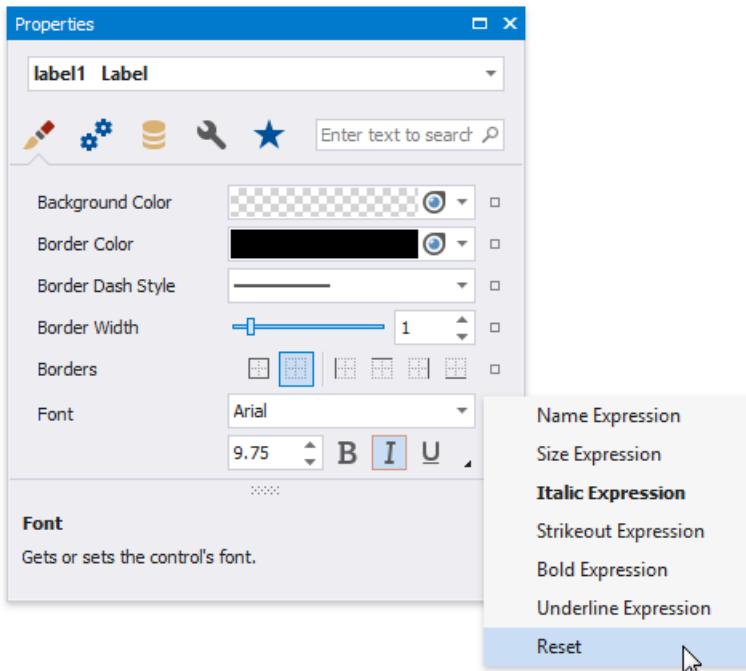
Click this item to specify an expression in the invoked Expression Editor.



The Property Grid highlights properties that have an assigned expression.



Click a property's marker and choose **Reset** to reset the property value.

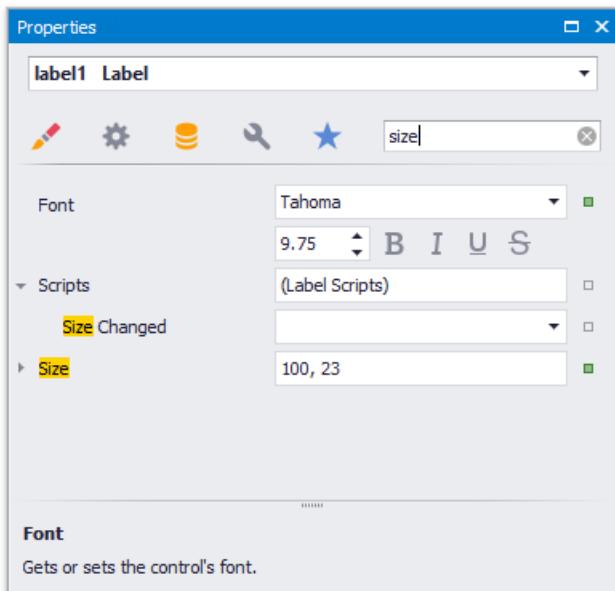


NOTE

The **Reset** command resets both the expression and the value you specified using the property editor.

Search Properties

The Property Grid's search box allows you to search for a property. When you type within the search box, the Property Grid automatically creates a search criteria based on the entered text and filters the list of available properties.

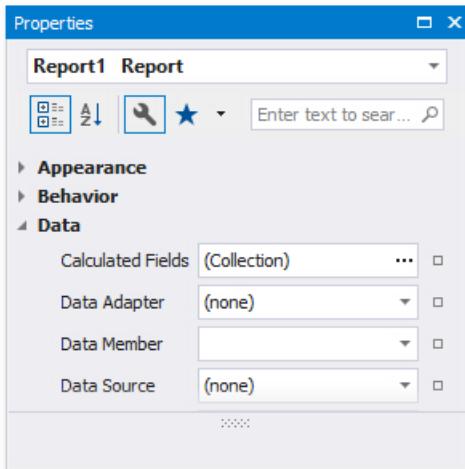


Font

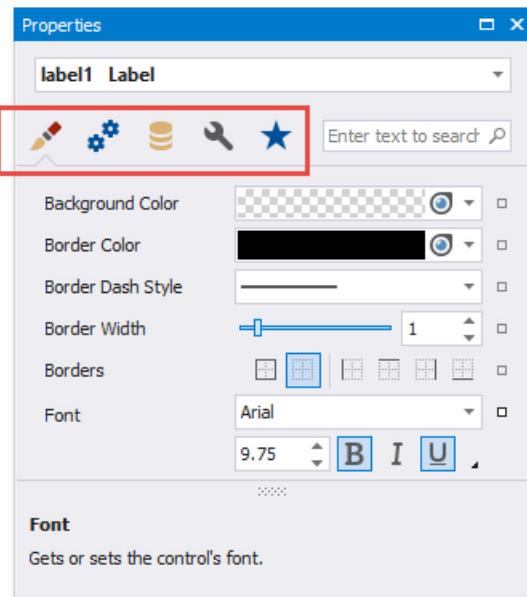
Gets or sets the control's font.

Property Grid (Non-Tabbed View)

The **Property Grid** allows you to access and customize report/report element settings.



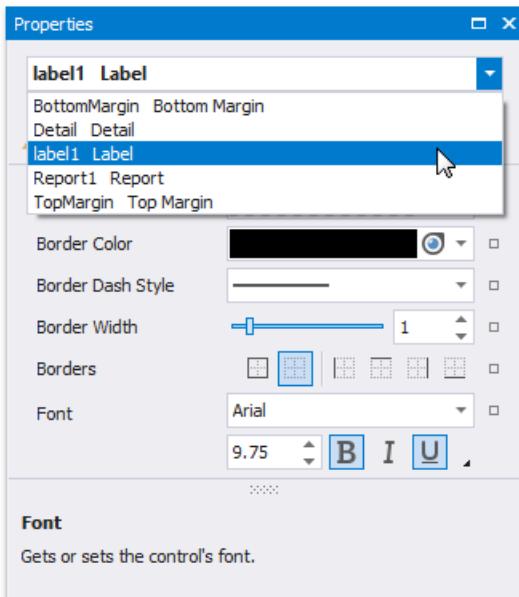
See the [Property Grid \(Tabbed View\)](#) topic if your Property Grid arranges properties in tabs.



Select a Report Element

Perform one of the following actions to select an element and show its properties in the Property Grid:

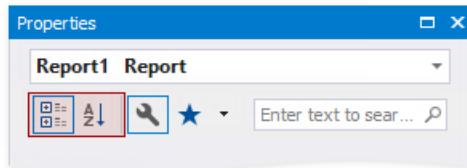
- Select an element in the drop-down list at the top of the Property Grid.



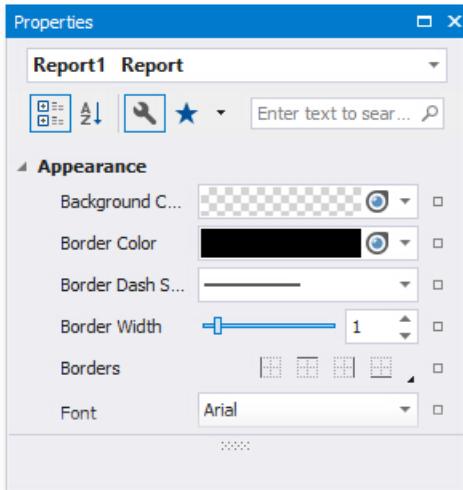
- Click an element in the [design surface](#).
- Select an element in the [Report Explorer](#).

Categorized and Alphabetical Modes

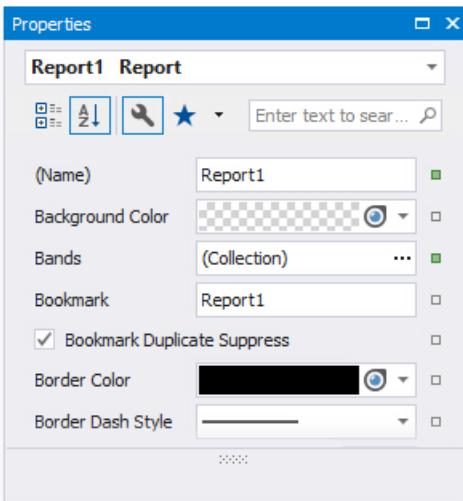
You can switch between categorized and alphabetical modes.



- In the categorized mode, properties are listed in a tree-like form.

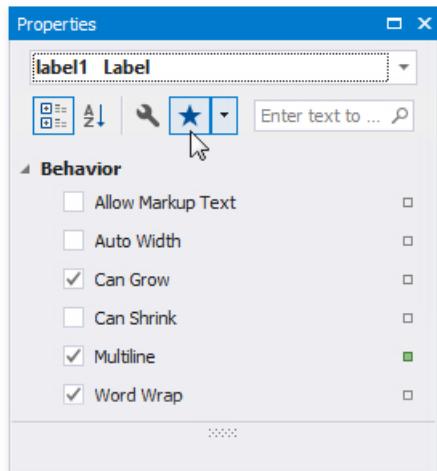


- In the alphabetical mode, all properties are displayed in a single list and are sorted alphabetically by name.

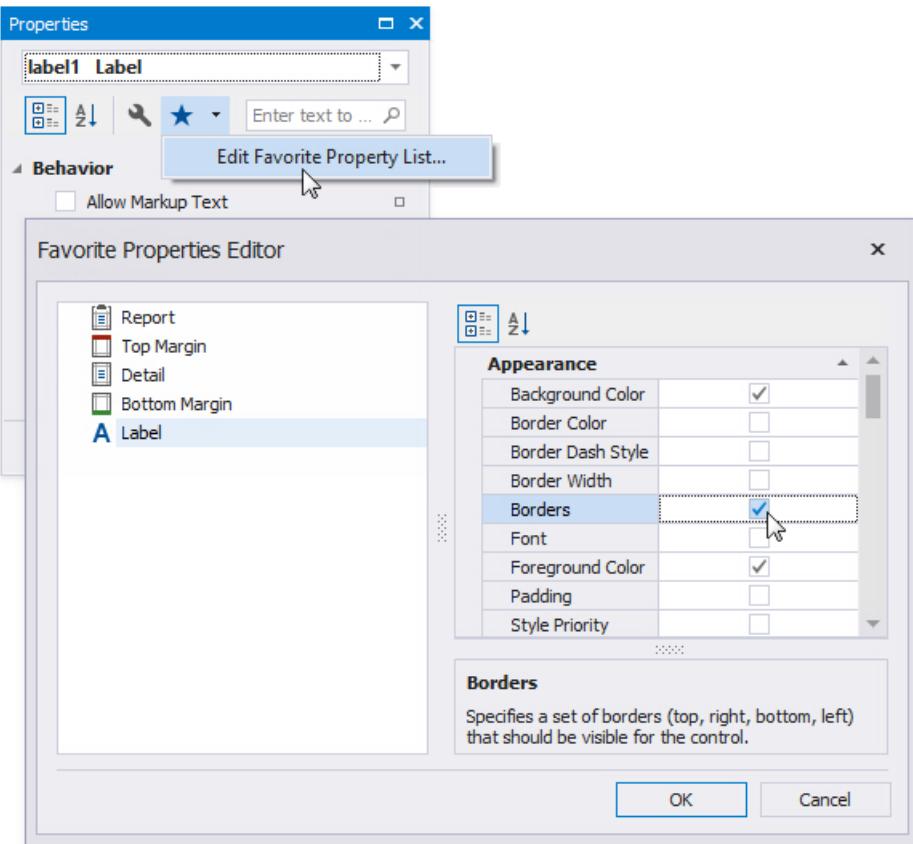


Favorite Properties

The **Favorites** tab displays favorite or most frequently used properties.

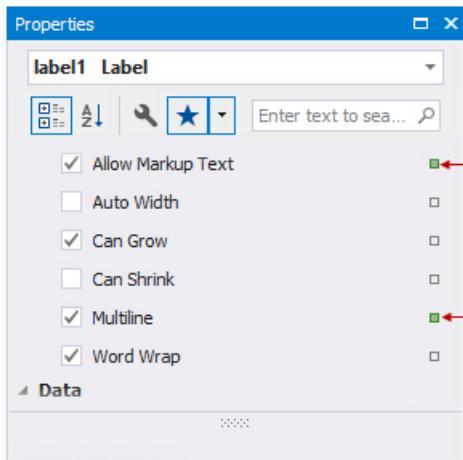


Click the **Edit Favorite Property List** context menu item to set up the favorite properties. Enable check boxes for the controls' properties in the invoked **Favorite Properties Editor** to include these properties into the favorite list.

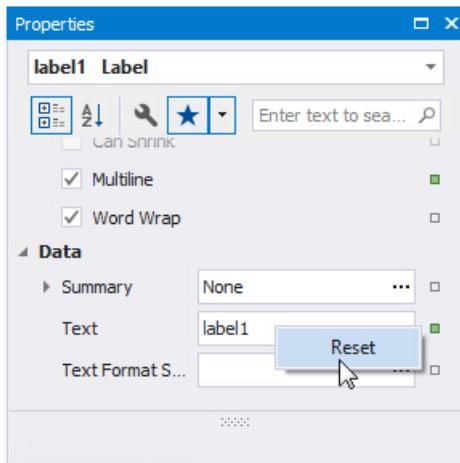


Change Property Values

The Property Grid adds a green property marker to properties if their default value changes.

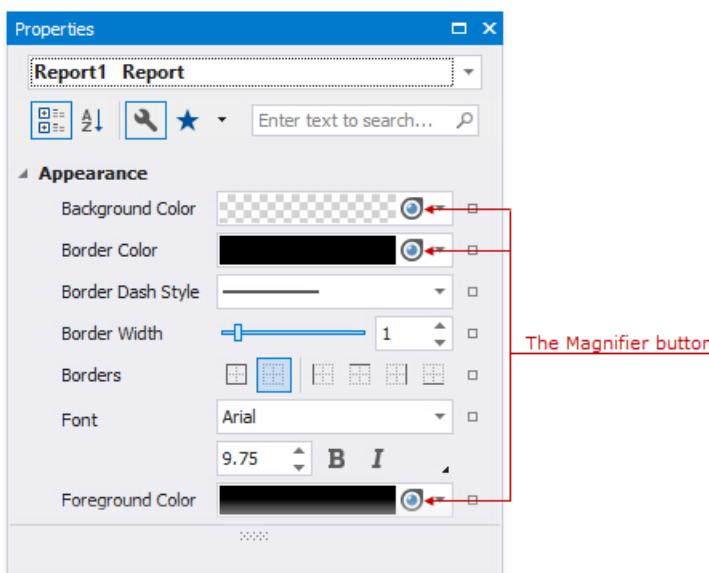


Right-click a property's editor to reset the value.



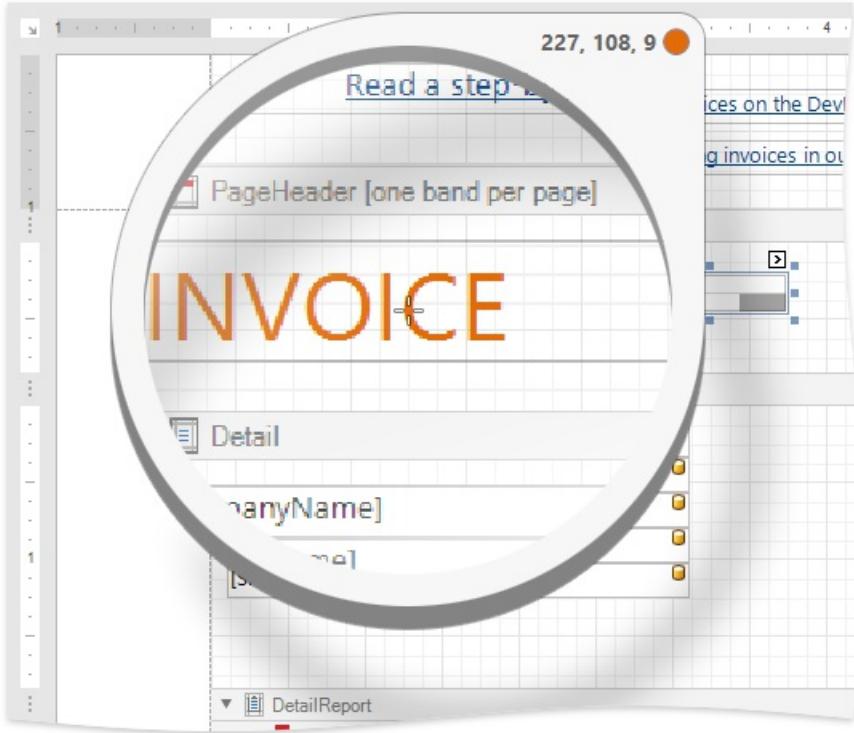
Set Color Properties

You can use the Magnifier to set color properties.



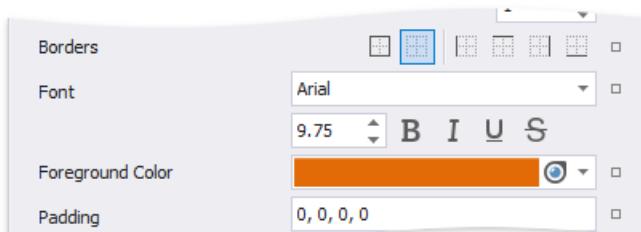
Do the following to use the Magnifier:

- Click the Magnifier button.
- Move the invoked Magnifier on the screen to find the color you want to set.



You can use the Magnifier to zoom out. Use one of the following options to do this:

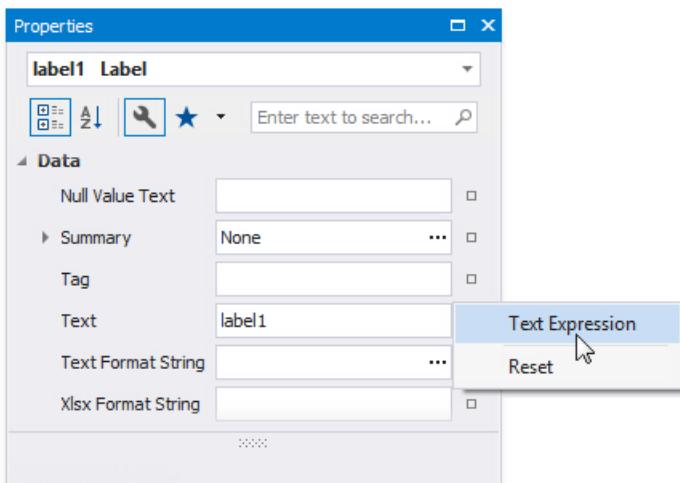
- Hold Ctrl and press + / -
- Scroll the mouse wheel
- Click to set the color property to the selected color.



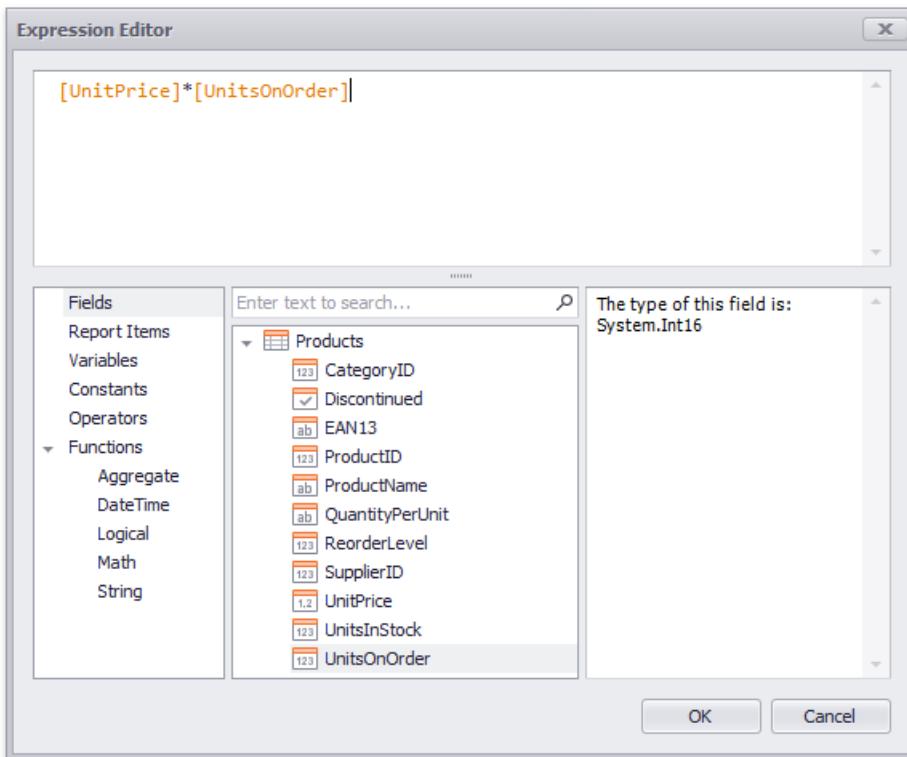
Right click or press Esc to cancel the Magnifier mode.

Specify Expressions

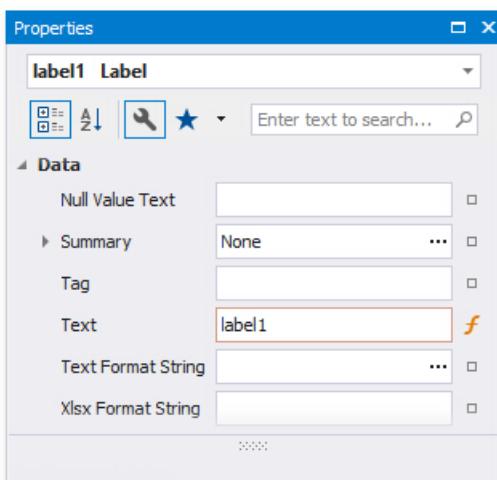
If [expression bindings](#) are enabled, the Property Grid allows you to specify expressions that can include two or more data fields and various functions. Click a property's marker to see whether the invoked context menu has the **PropertyName Expression** item.



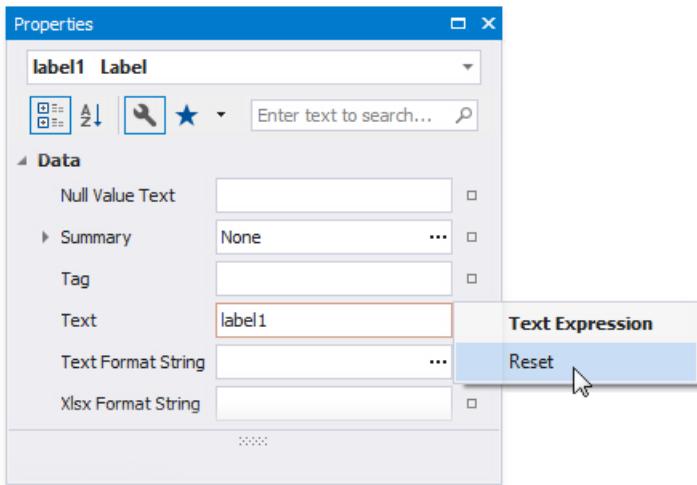
Click this item to specify an expression in the invoked Expression Editor.



The Property Grid highlights properties that have an assigned expression.



Click a property's marker and choose **Reset** to reset the property value.

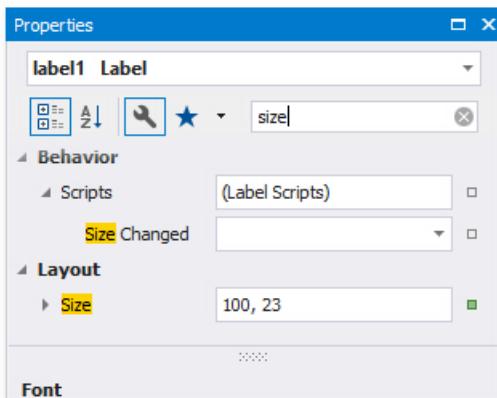


NOTE

The **Reset** command resets both the expression and the value you specified using the property editor.

Search Properties

The Property Grid's search box allows you to search for a property. When you type within the search box, the Property Grid automatically creates a search criteria based on the entered text and filters the list of available properties.



Group and Sort Panel

The **Group and Sort Panel** allows you to quickly apply [grouping](#) and [sorting](#) to your report data.

Field Name	Sort Order	Show Header	Show Footer
ShipCountry	Ascending	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ShipCity	Ascending	<input checked="" type="checkbox"/>	<input type="checkbox"/>

To create a new grouping or sorting criterion, simply click **Add a Group** or **Add a Sort**.

Then, to control whether the corresponding [Group Header](#) or [Footer](#) band should be displayed, use the **Show Header** and **Show Footer** check boxes.

The **Sort Order** drop-down list allows you to specify a sorting mode (ascending or descending) or disable sorting.

You can change the order in which multiple grouping and sorting criteria are to be performed, using the **Move Up** and **Move Down** buttons.

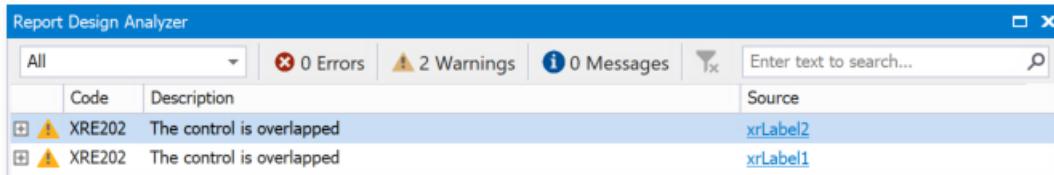
To remove a grouping or sorting criterion, select it, and click **Delete**.

NOTE

If the Group and Sort Panel is hidden, you can enable it To do this, select in the [Windows | Group and Sort](#) on the Toolbar's [View](#) page.

Report Design Analyzer

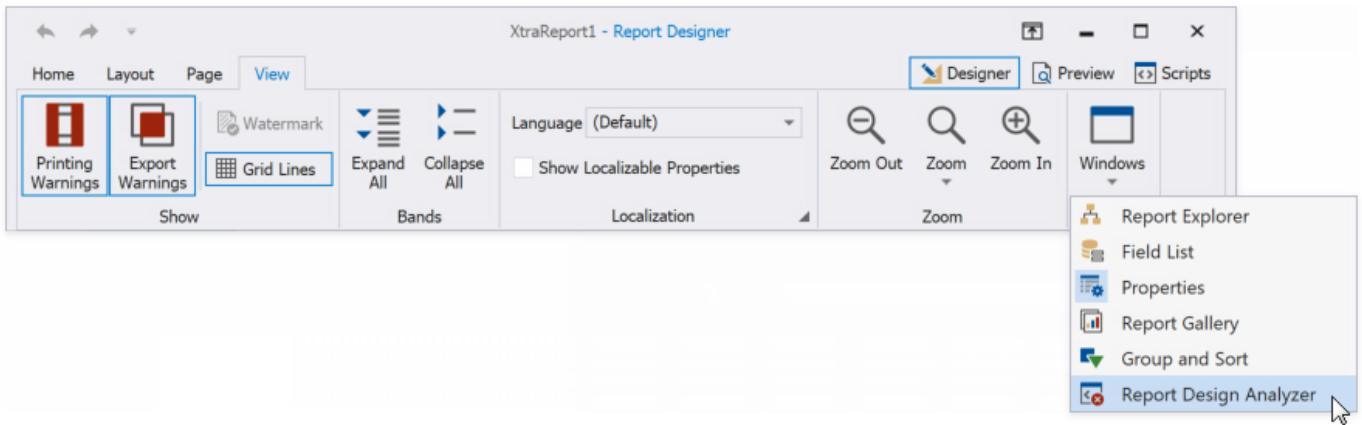
The Report Design Analyzer shows errors, warnings, and information messages that help users create or enhance a report layout in the [Report Designer](#).



Invoke the Report Design Analyzer

Do one of the following to invoke the **Report Design Analyzer**:

- Select **Report Design Analyzer** from the **Windows** drop-down menu in the **View** toolbar tab.

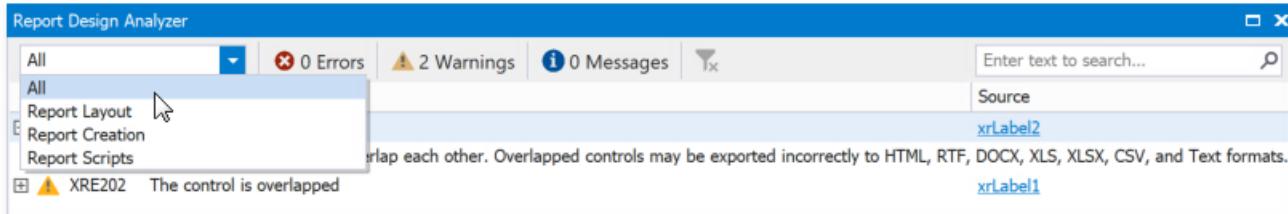


- Click the bell icon in the status bar.



Filter Messages

You can filter messages by one of the following categories:



• Report Layout

Layout-related messages (for instance, in cases when report controls overlap each other or extend beyond the report's

printable area).

- **Report Creation**

Messages about report creation (for instance, notifications about invalid property values or unreachable sources of content).

- **Report Scripts**

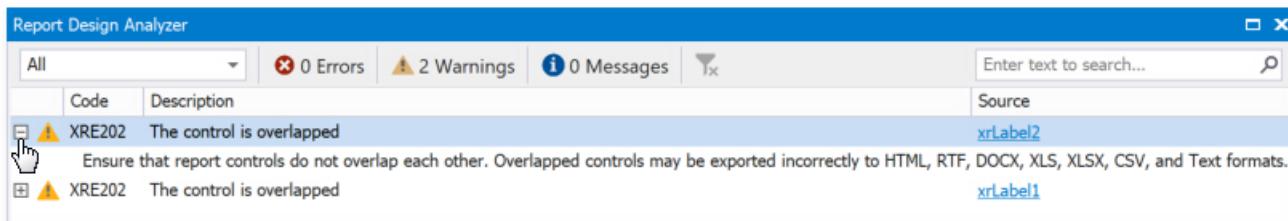
Messages that highlight issues in report scripts (for instance, errors in script syntax).

- **All**

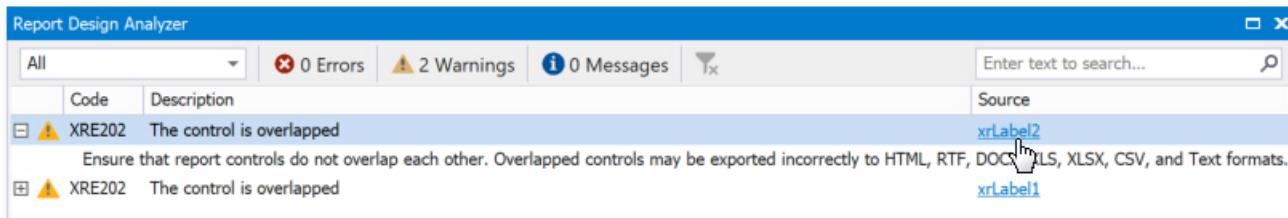
All of the above-mentioned messages.

Correct the Issues

Each message contains a recommendation on how to correct an issue. Click the Plus icon in front of the message to expand the recommendation.



The message's **Source** column contains a reference to the control or script that caused the issue. Click the reference to navigate to this control or script.



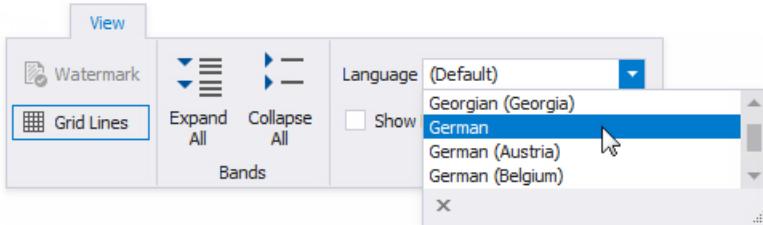
Localize Reports

This document describes how to localize a report for different languages and cultures.

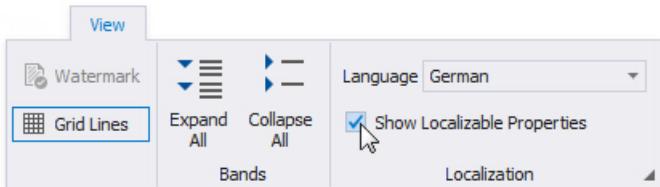
To localize a report, open it in the Report Designer and specify a report language other than *Default*. Change the reporting controls' text, sizes, and locations and save the report. All language-specific changes are saved with the report. When a localized report is displayed in Preview, the document contains modifications that match the application's culture.

Perform the following actions to localize a report:

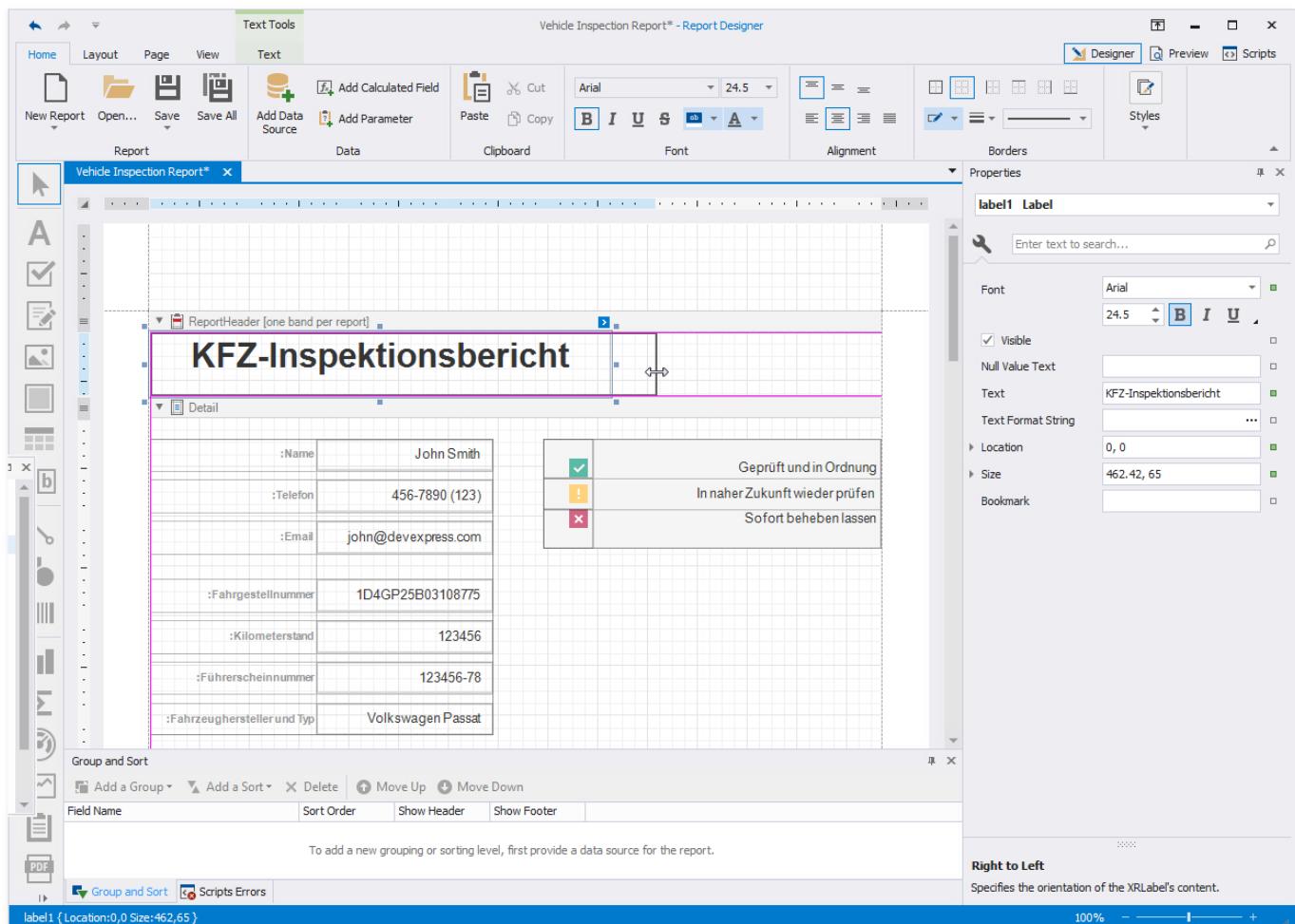
1. In the Report Designer Toolbar, switch to the **View** tab and select the language in the drop-down list in the **Localization** group.



2. Enable the **Show Localizable Properties** option to display only localizable properties in the [Property Grid](#).



3. Edit the report layout and change the controls' property values. You can move and resize a control.



- Click the **dialog box launcher** to invoke the **Localization Editor**. It allows you to change text strings in the report and expedite the translation process.

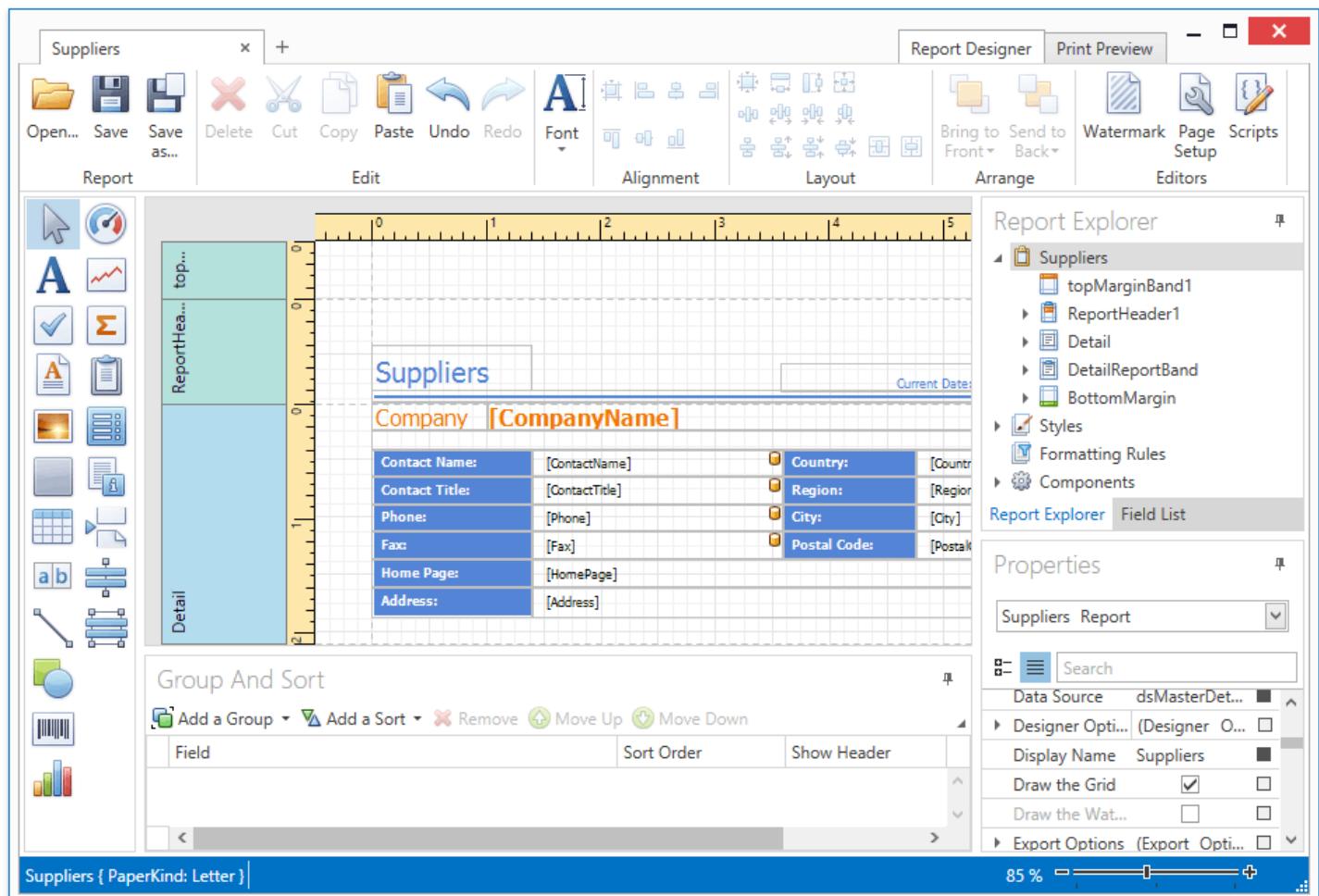
Languages		Localized Text Values	
(Default)		Property	Default Language
German		label1.Text	Vehicle Inspection Report
		tableCell1.Text	NAME:
		tableCell2.Text	John Smith
		tableCell3.Text	
		tableCell4.Text	Checked and OK
		tableCell9.Text	
		tableCell10.Text	
		tableCell5.Text	
		tableCell6.Text	May require attention
		tableCell11.Text	PHONE:
		tableCell12.Text	(123) 456-7890
		tableCell7.Text	
		tableCell8.Text	Requires immediate attention
		tableCell13.Text	
		tableCell14.Text	
		tableCell15.Text	EMAIL:

5. Save the report. Localized values are stored in the report file.

Report Designer for WPF

This guide contains information about the basic principles of creating reports with the Report Designer.

The Report Designer allows you to create new reports from scratch, bind them to data and fully customize them. In addition to report editing capabilities, it allows you to display a report's Print Preview, send its outputs to a printer or export it to various formats.



Different aspects of using the Report Designer are covered in the following documentation sections.

- [Creating Reports](#)

The tutorials in this section provide step-by-step instructions on both basic and advanced report customization.

- [Report Types](#)

The documents in this section describe how to create reports of different types with the Report Designer.

- [Report Elements](#)

The topics in this section provide information about report controls and bands used in the Report Designer.

- [Interface Elements](#)

The documents in this section are dedicated to the elements of the Report Designer user interface.

- [Report Wizard](#)

This documentation section describes the Report Wizard, which allows you to create reports based on built-in templates.

- [Document Preview](#)

The topics in this section describe the capabilities provided by the Print Preview.

Report Types

The tutorials in this section provide detailed instructions on how to create reports of different types with the Report Designer.

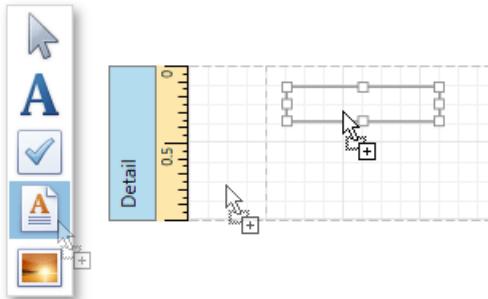
- [Static Report](#)
- [Table Report](#)
- [Label Report](#)
- [Master-Detail Report](#)
- [Master-Detail Report \(Detail Report Bands\)](#)
- [Master-Detail Report \(Subreports\)](#)
- [Report with PDF Content](#)
- [Cross-Tab Report](#)
- [Parametrized Report](#)
- [Chart with Static Series](#)
- [Chart with Dynamic Series](#)

Static Report

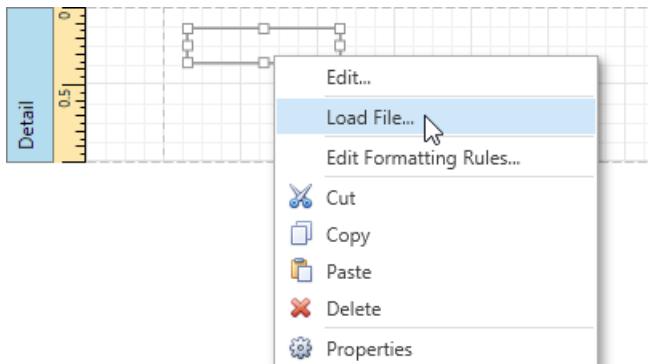
This tutorial describes the steps needed to create a *static report*, which means that the report is not bound to a data source. This example demonstrates how to create a report with the one-page content repeated 20 times.

To create a static report, do the following.

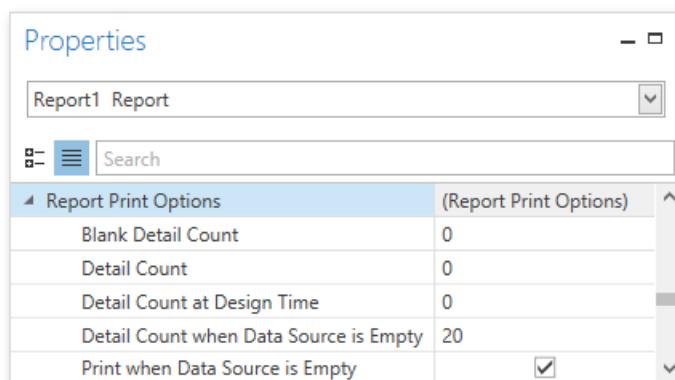
1. [Create a new report](#).
2. Drop the **Rich Text** control from the [Toolbox](#) onto the **Detail** band.



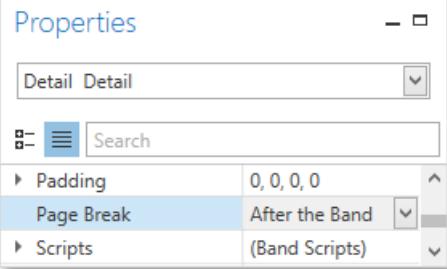
3. Right-click the created control and select **Load File...** in the invoked context menu.



4. In the invoked dialog, use the drop-down list to define the file's extension (**.rtf**, **.docx**, **.txt**, **.htm** or **.html**), select the file, and click **Open**.
5. Select the report, and in the [Properties Panel](#), expand the **Report Print Options** property. Make sure that the **Print when Data Source is Empty** option is enabled, i.e., the report is allowed to be printed when it has no data source. To repeat the created report 20 times, set the **Detail Count when Data Source is Empty** property to **20**.



6. To print the report content on separate pages, set the band's **Page Break** property to **After the Band**.



The static report is now ready. Switch to the [Print Preview](#) tab and view the result.

115636 Hodges Ln, Moundville, AL 35474



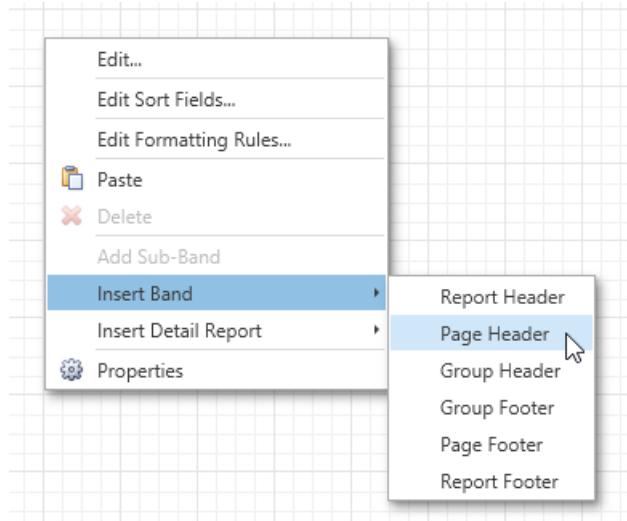
Price \$450,000.00
Beds 3
Baths 3
House Size 7550
Lot Size 1.6
Year Built 2011
Features:
Dishwasher, Disposal, Separate laundry room, Washer/Dryer on 1st floor, 1/2 bath downstairs, Formal dining room, Separate family room, Breakfast Bar/Counter, Tile flooring in kitchen, Walk-in pantry, Formal living room, Front living room, Sunken living room, Ceiling fan in master bedroom, Master bedroom separate from other, Master bedroom upstairs, Sitting room in master bedroom, Walk-in closet in master bedroom, 2nd bedroom: 13X14, 3rd bedroom: 12X13, Blinds, Built-in electric oven, Carpet, Ceiling fan(s), Drapes, Drywall, Gas cooktop, Tile floors

Table Report

This tutorial describes how to create a *table report*, which means that the report's data is arranged into a table-like layout. This feature should not be confused with the [master-detail report](#) or [cross-tab report](#).

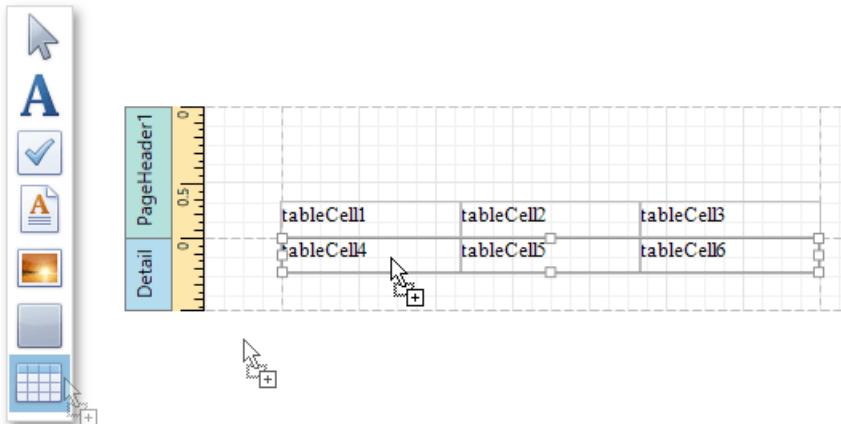
To create a table report, follow the steps below.

1. [Create a new report](#) and [bind it to a data source](#).
2. To add a [Page Header](#) to the report, right-click on the report's surface, and in the invoked context menu, select **Insert Band** and then **Page Header**.



3. Next, add two [Table](#) controls to the report's Page Header and Detail band.

To do this, drag the Table control from the [Toolbox](#) and drop it onto the Page Header Band. Then, add a table to the Detail band in the same way.



One table will be used as a header, and the other one - for the report's detail information.

4. Type the headers into the upper table's cells. Then, bind the corresponding cells in the detail section to the appropriate data fields by expanding the **Data Bindings** option and setting the **Text** property.

The screenshot shows a software interface for designing reports. On the left, there's a visual representation of a table with three columns: 'Product', 'Unit Quantity', and 'Unit Price'. The 'Product' column contains '[ProductName]', 'Unit Quantity' contains '[QuantityPerUnit]', and 'Unit Price' contains '[tableCell6]'. To the right is the 'Properties' panel. In the top section, 'tableCell6 Table Cell' is selected. Below it, the 'Text' tab is active, showing a dropdown menu with several data binding options: 'ReorderLevel', 'SupplierID', 'UnitPrice', 'UnitsInStock', and 'UnitsOnOrder'. There are also 'Clear' and '...' buttons at the bottom of the dropdown.

- Finally, you can customize various properties of the tables to improve their appearance. For example, in the **Properties Panel**, you can define the **Borders** property, as well as the **Background Color** property. To customize cell text options, specify the **Font** property.

A noteworthy feature is the capability to specify **odd** and **even** styles for the detail table.

The table report is now ready. Switch to the **Print Preview** tab, and view the result.

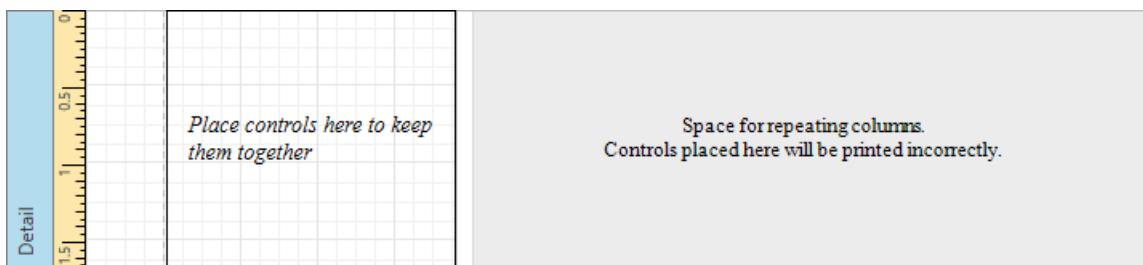
Product	Unit Quantity	Unit Price
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Aniseed Syrup	12 - 550 ml bottles	\$10.00
Chef Anton's Cajun Seasoning	48 - 6 oz jars	\$22.00
Chef Anton's Gumbo Mix	36 boxes	\$21.35
Grandma's Boysenberry Spread	12 - 8 oz jars	\$25.00
Uncle Bob's Organic 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.	\$28.00

Label Report

This tutorial describes the steps required to create a label report containing employee badges.

To accomplish this task, do the following.

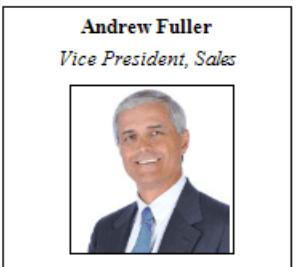
1. Click the **New** button on the [Toolbar](#) or the plus button next to the report tab headers to [create a new report](#).
2. The invoked [Report Wizard](#) will guide you through the process of creating a label report. For detailed instructions on wizard steps, refer to [Label Report](#).
3. After performing the above steps you will see that the report's Detail band is divided into three different 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.



4. [Bind a report to a data source](#) containing information about employees.
5. Then, drop the required fields from the [Field List](#) onto the available Detail band's area, and adjust the layout.



The label report is now ready. Switch your report to the [Print Preview](#) tab and view the result.



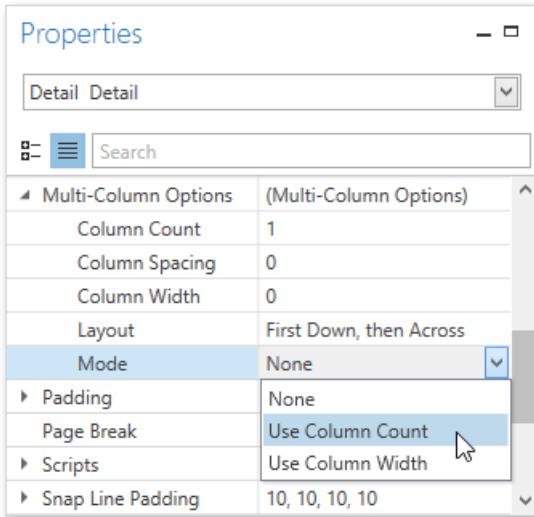
Multi-Column Report

This tutorial describes the steps to create a *multi-column report*, meaning that each page of the report document is laid out in a specified number of columns.

To demonstrate the multi-column feature, use a report with grouping, similar to the one created in the following tutorial:
[Grouping Data](#).

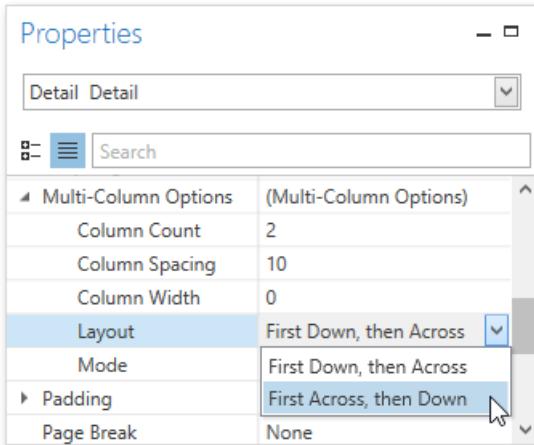
1. Select the **Detail band**, and in the **Properties Panel**, expand the **Multi-Column Options** section.

Set the required **Mode**, which determines whether the number of columns is manually specified or if it depends on the fixed column width.

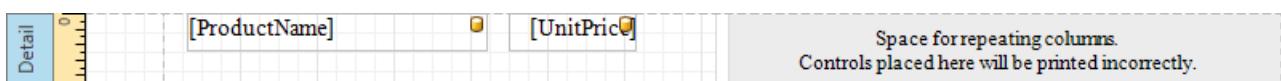


2. Then, if you've chosen to **Use Column Count**, set the **Column Count** to **2**, and **Column Spacing** to **10**.

The **Layout** property determines the order in which records of the same group are processed.



3. Now, on the Detail band's surface, a gray area appears, delimiting the available column's width. Adjust the control width, so that they fit within the effective borders.



The multi-column report is now ready. Switch to the **Print Preview** tab and view the result.

Products by Categories

Category: 1

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

Category: 2

Aniseed Syrup	\$10.00	Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$21.35	Genen Shouyu	\$15.50
Grandma's Boysenberry Spread	\$25.00	Gula Malacca	\$19.45
Louisiana Fiery Hot Pepper Sauce	\$21.05	Louisiana Hot Spiced Okra	\$17.00
Northwoods Cranberry Sauce	\$40.00	Original Frankfurter grüne Soße	\$13.00
Sirop d'éable	\$28.50	Vegie-spread	\$43.90

Master-Detail Report

A report is usually called *Master-Detail* if it is used to display data from a hierarchical data source.

Produce	
<i>Dried fruit and bean curd</i>	
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	
<i>Seaweed and fish</i>	
Ikura	\$31.00
Konbu	\$6.00
Carnarvon Tigers	\$62.50
Nord-Ost Matjeshering	\$25.89
Inlagd Sill	\$19.00

There are two main approaches for creating a master-detail report. The first approach is based on using the Detail Report band. The second approach is to create two different reports and incorporate the detail report into the master report as a subreport.

To see a detailed step-by-step demonstration of how detail report bands and subreports are used to create a master-detail report, refer to the following tutorials.

- [Master-Detail Report \(Detail Report Bands\)](#)
- [Master-Detail Report \(Subreports\)](#)

Master-Detail Report (Detail Report Bands)

This tutorial describes the steps needed to create a *master-detail report* with hierarchically linked data using the [Detail Report band](#). For an alternative approach, refer to [Master-Detail Report \(Subreports\)](#).

To start with this tutorial, [create a new report](#) and [bind it to a data source](#). For this tutorial, in the [Report Wizard](#), select the table that will be used as the principal table in the master-detail relation.

The topic consists of the following sections.

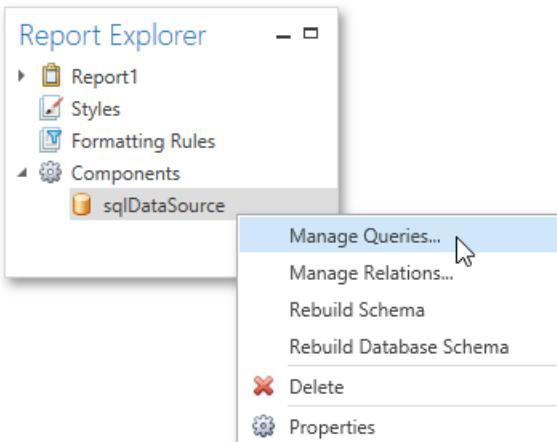
- [Provide a Report Data Source with a Master-Detail Relation](#)
- [Design a Master-Detail Report](#)
- [View the Result](#)

Provide a Report Data Source with a Master-Detail Relation

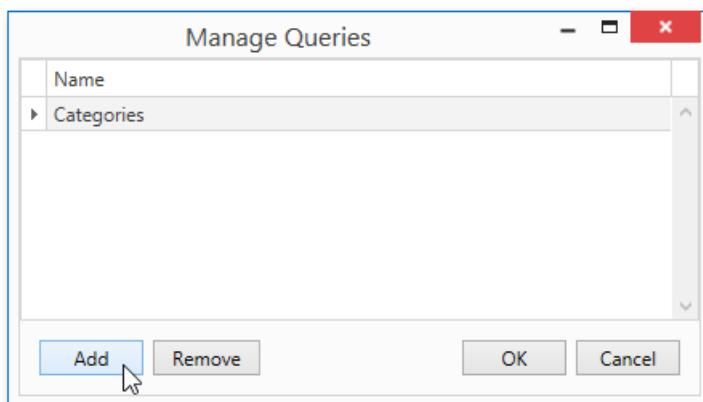
This section of the tutorial describes how to provide an SQL data source with a master-detail relation. If you are using an Entity Framework data source that contains data members with master-detail relations between them, the existing relations will be used automatically. In this case, you can skip this section of the tutorial and proceed to the next section: [Design a Master-Detail Report](#).

To add a master-detail relation to an SQL data source, do the following.

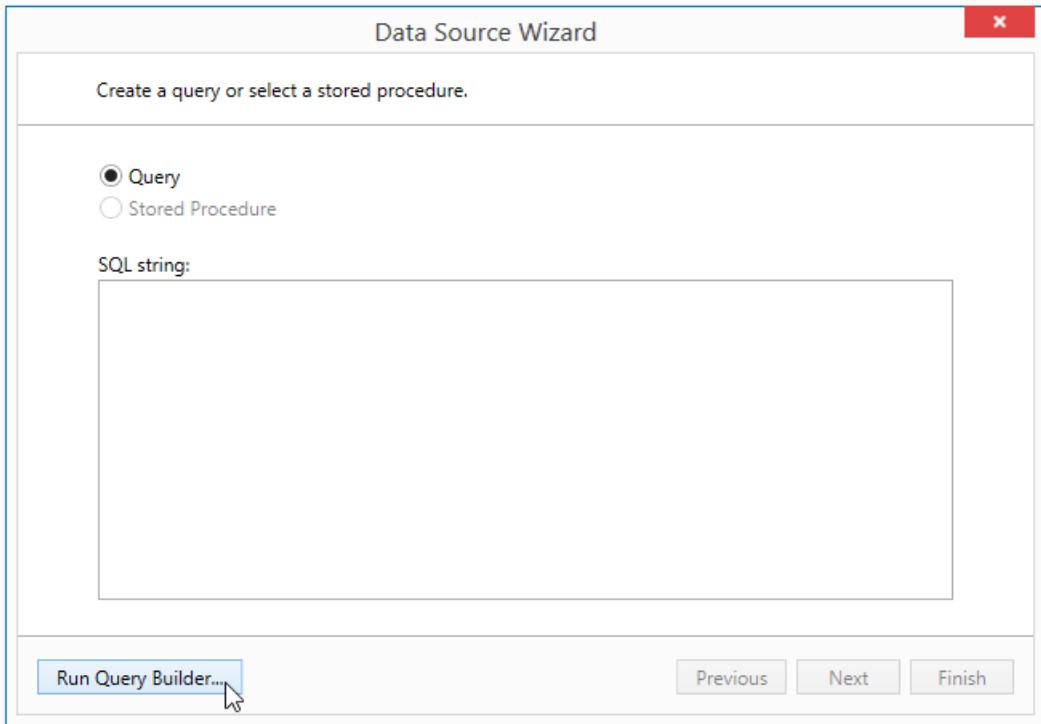
1. Add a detail table to the report data source. To do this, right-click the data source in the [Report Explorer](#), and select **Manage Queries...** in the invoked context menu.



2. In the invoked **Manage Queries** dialog, click **Add**.



3. Then, in the invoked **Data Source Wizard**, click **Run Query Builder....**



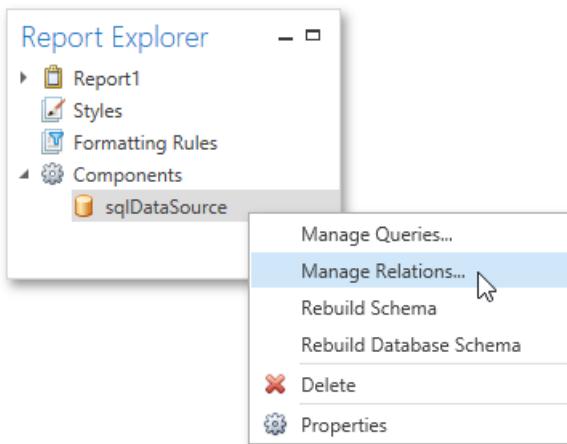
4. Add the detail table to the query and click **OK**.

Name	Join Information
<input checked="" type="checkbox"/> ProductID	
<input checked="" type="checkbox"/> ProductName	
<input checked="" type="checkbox"/> SupplierID	Can join [Suppliers]....
<input checked="" type="checkbox"/> CategoryID	Can join [Categories]...
<input checked="" type="checkbox"/> QuantityPerUnit	
<input checked="" type="checkbox"/> UnitPrice	
<input checked="" type="checkbox"/> UnitsInStock	
<input checked="" type="checkbox"/> UnitsOnOrder	
<input checked="" type="checkbox"/> ReorderLevel	

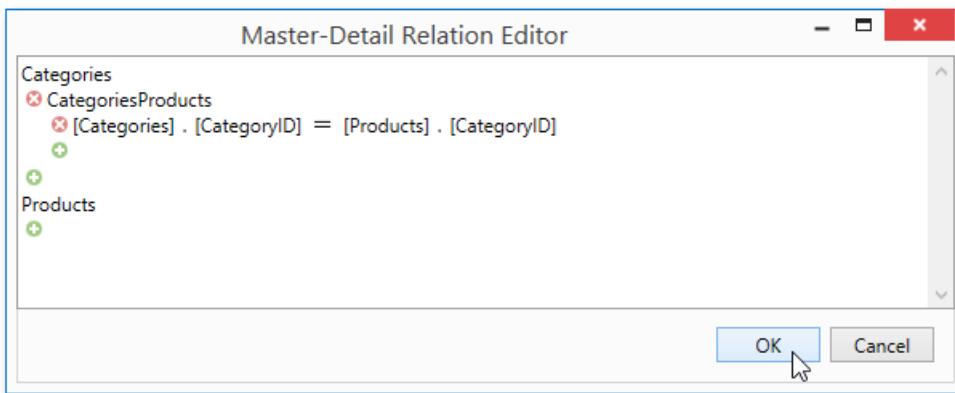
```

select "Products"."ProductID",
"Products"."ProductName",
"Products"."SupplierID",
"Products"."CategoryID",
"Products"."QuantityPerUnit",
"Products"."UnitPrice",
"Products"."UnitsInStock",
"Products"."UnitsOnOrder",
"Products"."ReorderLevel",
"Products"."Discontinued"
from "dbo"."Products" "Products"
  
```

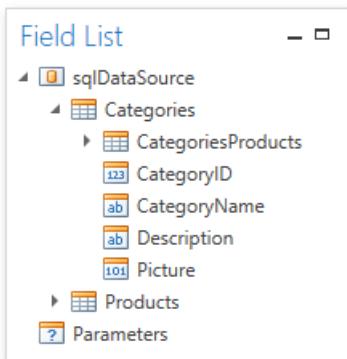
5. Click **Finish** to exit the **Data Source Wizard**. Then, click **OK** to exit the **Manage Queries** dialog.
6. Next, specify the relation between the data source tables. To do this, right-click the data source in the **Report Explorer**, and select **Manage Relations...** in the invoked context menu.



7. In the invoked **Master-Detail Relation Editor**, click the plus button next to the master query to add a new relation. Specify a relation condition as shown in the following image and click **OK** to exit the dialog.



8. The **Field List** will be updated to reflect the added relation.



Design a Master-Detail Report

To create the layout of a master-detail report, do the following.

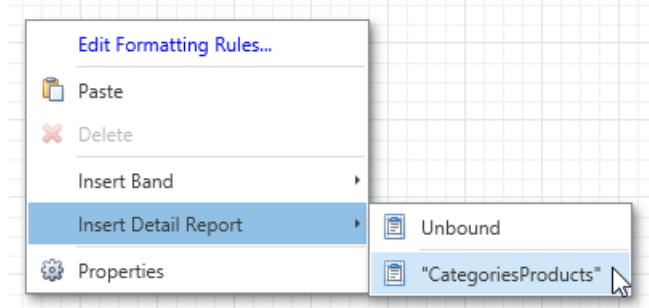
1. Allocate parts of a master report on the report's Detail band.



For the master report to be generated properly, the report's **Data Member** should be set to the master query. If you added the master query first, this property is set to the required value automatically. Otherwise, you should manually specify the data member (for instance, in the [Properties Panel](#)).

2. To add a detail report band, right-click anywhere on the report's surface, and in the invoked context menu, select **Insert**.

Detail Report. When the report's data source contains a data relationship, it is displayed in the context menu.



3. Then, drop the required data fields from the Field List onto the Detail Report band.

Note that you should drop items from the *relation node* (in this example it is the **CategoriesProducts** section) for the detail report to be generated correctly.

A screenshot of the report designer interface. On the left, there is a visual representation of the report structure with two main sections: 'DetailReport1' and 'Detail1'. In the center, the 'Detail1' section contains three text boxes with the labels '[ProductName]', '[QuantityPerUnit]', and '[UnitPrice]'. To the right of the report area is the 'Field List' window. It shows a hierarchical tree of data sources and their fields. At the top is 'sqlDataSource'. Below it is 'Categories', which has a child node 'CategoriesProducts'. Under 'CategoriesProducts', several fields are listed: CategoryID, Discontinued (with a checked checkbox), EAN13, ProductID, ProductName, QuantityPerUnit, ReorderLevel, SupplierID, and UnitPrice. The 'UnitPrice' field is currently selected, indicated by a blue highlight.

View the Result

The master-detail report is now ready. Switch to the [Print Preview](#) tab and view the result.

Beverages

Soft drinks, coffees, teas, beers, and ales



Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Guaraná Fantástica	12 - 355 ml cans	\$4.50
Sasquatch Ale	24 - 12 oz bottles	\$14.00
Steeleye Stout	24 - 12 oz bottles	\$18.00
Côte de Blaye	12 - 75 cl bottles	\$263.50
Chartreuse verte	750 cc per bottle	\$18.00
Ipoh Coffee	16 - 500 g tins	\$46.00
Laughing Lumberjack Lager	24 - 12 oz bottles	\$14.00
Outback Lager	24 - 355 ml bottles	\$15.00
Rhönbräu Klosterbier	24 - 0.5 l bottles	\$7.75
Lakkalikööri	500 ml	\$18.00

Condiments

Sweet and savory sauces, relishes, spreads



Master-Detail Report (Subreports)

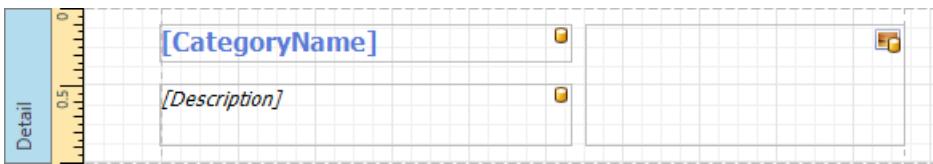
This tutorial describes the steps needed to create a master-detail report with hierarchically linked data using the [Subreport](#) control. For an alternative approach, refer to [Master-Detail Report \(Detail Report Bands\)](#).

To create a master-detail report using the subreport controls, do the following.

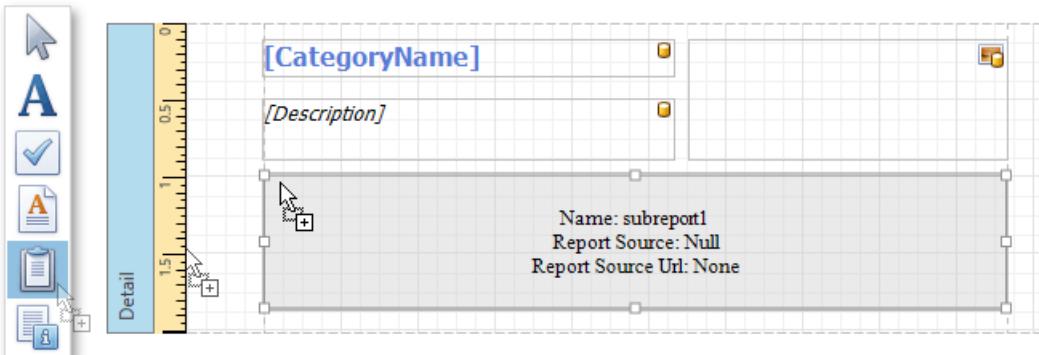
- [Create a Master Report](#)
- [Create and Customize a Detail Report](#)
- [Embed the Subreport](#)
- [Get the Result](#)

Create a Master Report

1. [Create a new report](#) and [bind it to a data source](#). This report will be used as the master report.
2. Drop the required fields from the [Field List](#) panel onto the [Detail band](#). In this example, the following report layout is used.

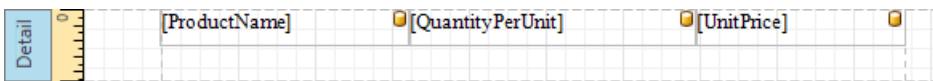


3. Drag the [Subreport](#) control from the [Toolbox](#) and drop it onto the Detail band.

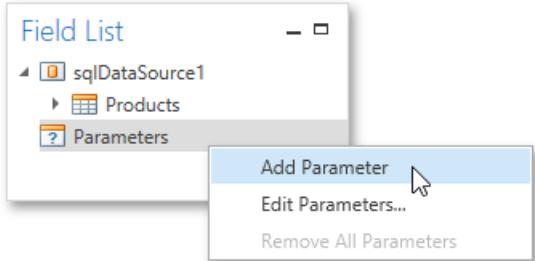


Create and Customize the Detail Report

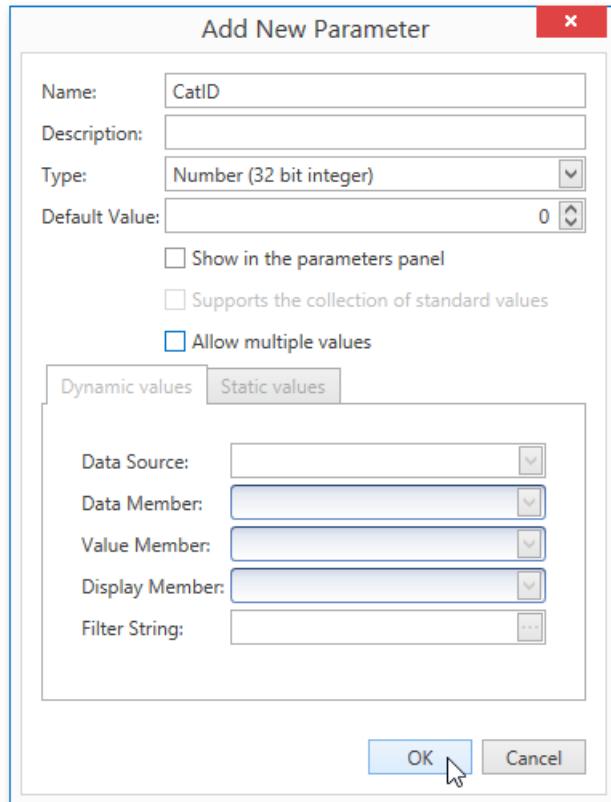
1. Next, [add one more blank report](#) and [bind it to the same data source](#). It will be used as a detail report.
2. Drop the required fields from the [Field List](#) panel onto the [Detail band](#). This tutorial uses the following layout for the detail report.



3. To add a parameter to the report, right-click the [Parameters](#) section in the [Field List](#) and choose [Add Parameter](#) in the invoked context menu.

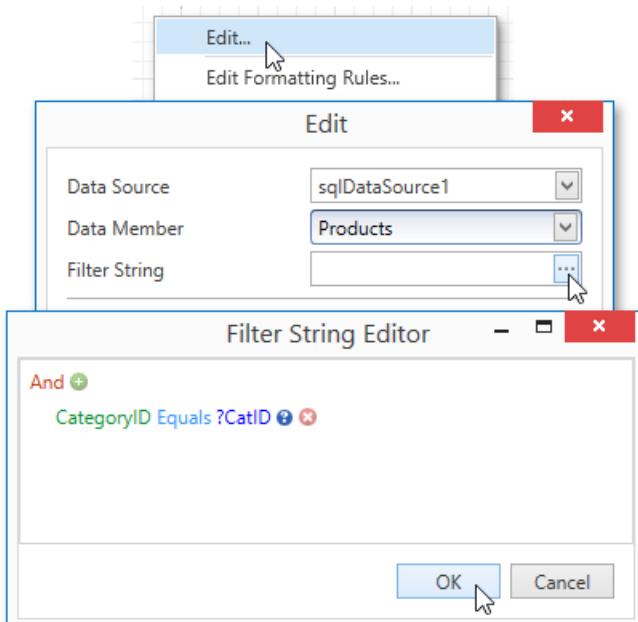


4. In the invoked **Add New Parameter** dialog, specify its options as shown in the image below.



5. Select **Edit...** in the report's context menu. Then, in the **Edit** dialog, click the ellipsis button for the **Filter String** property.

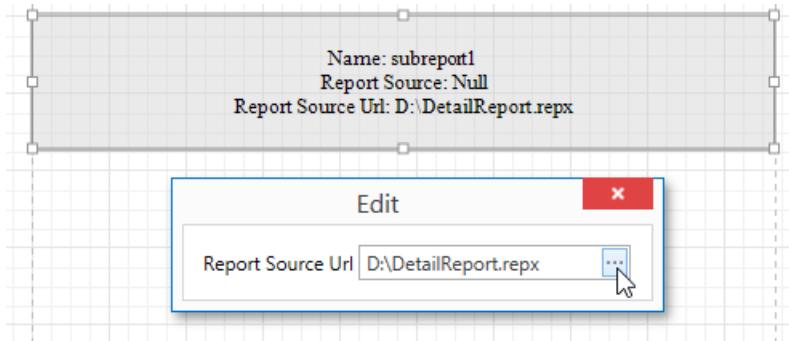
In the invoked **Filter String Editor**, construct an expression where the **Category ID** data field is compared to the **CatID** parameter. To access the parameter, click the icon on the right until it turns into a question mark.



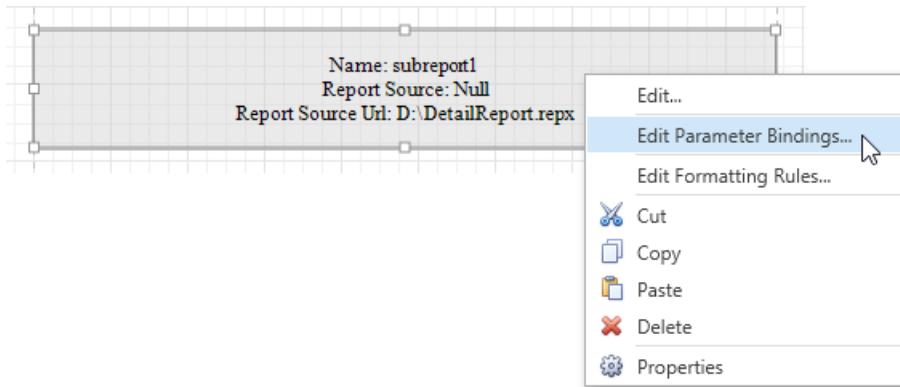
6. To save the detail report, click the **Save As**  button in the **Toolbar**. Then, in the invoked standard **Save** dialog, specify the folder and file name.

Embed the Subreport

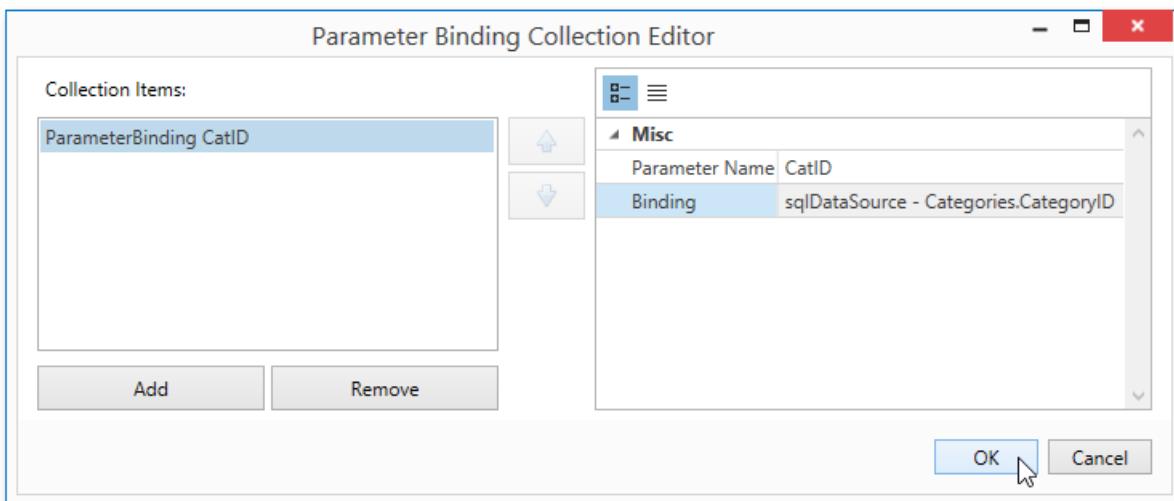
1. Next, switch back to the master report. Right-click the subreport and select **Edit...** in the invoked context menu. In the **Edit** dialog, click the ellipsis button for the **Report Source URL** property and select the previously saved detail report.



2. Then, bind the subreport's **CatID** parameter used as a filtering criterion to the master report's **CategoryID** data field, which will serve as a source of the parameter value. To do this, select **Edit Parameter Bindings...** in the subreport's context menu.



This will invoke the **Parameter Binding Collection Editor**. Click **Add** to add new 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.



Get the Result

The master-detail report is now ready to be generated. You can view the result by switching to the **Print Preview** tab.

Beverages

Soft drinks, coffees, teas, beers, and ales



Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Guaraná Fantástica	12 - 355 ml cans	\$4.50
Sasquatch Ale	24 - 12 oz bottles	\$14.00
Steeleye Stout	24 - 12 oz bottles	\$18.00
Côte de Blaye	12 - 75 cl bottles	\$263.50
Chartreuse verte	750 cc per bottle	\$18.00
Ipoh Coffee	16 - 500 g tins	\$46.00
Laughing Lumberjack Lager	24 - 12 oz bottles	\$14.00
Outback Lager	24 - 355 ml bottles	\$15.00
Rhönbräu Klosterbier	24 - 0.5 l bottles	\$7.75
Lakkalikööri	500 ml	\$18.00

Condiments

Sweet and savory sauces, relishes, spreads



Report with PDF Content

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
Total Due	\$12,175

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			

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TIP

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

Create a Report Layout

Create a report that should include PDF content.

top...

Invoice # [InvoiceNumber]
[OrderDate!MM/dd/yy]



Billing Address	Shipping Address
[Customer.Name] Home Office [Customer.HomeOffice_Line] [Customer.HomeOffice_City], [Customer.HomeOffice_StateName] [Cu	[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, 'G	-	[OrderTerms]

Description	Unit Price	Quantity	Discount	Total
[Product_Name]	[ProductPrice]	[ProductUnits]	[Discount]	[Total]

Comments
[Comments]

Sub Total	sumSum([Ord
Shipping	[ShippingAmo
Total Due	[TotalAmount]

Page 1 of 1

ReportHeader1

OrdersDetailReport

GroupFooter2

bottom...

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

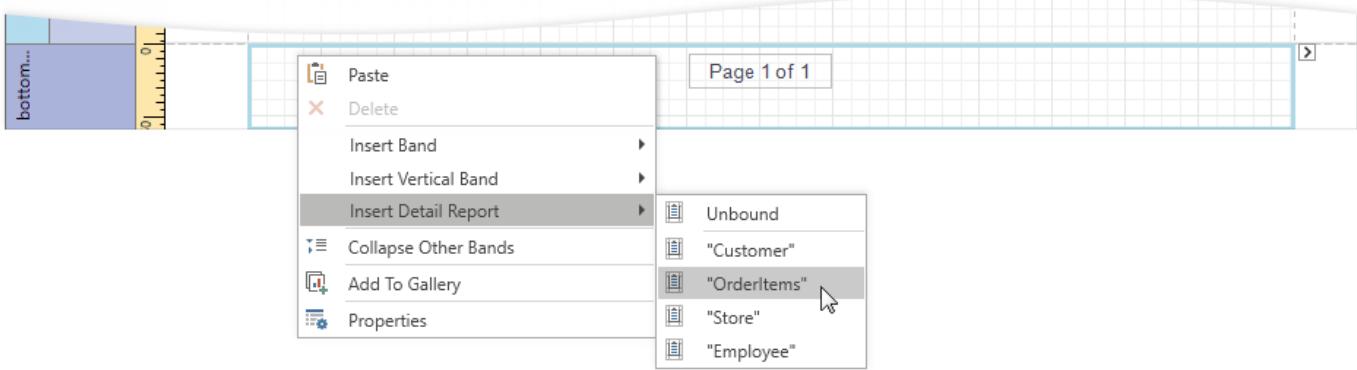
Sub Total	\$4,750
Shipping	\$375
Total Due	\$12,175

Page 1 of 1

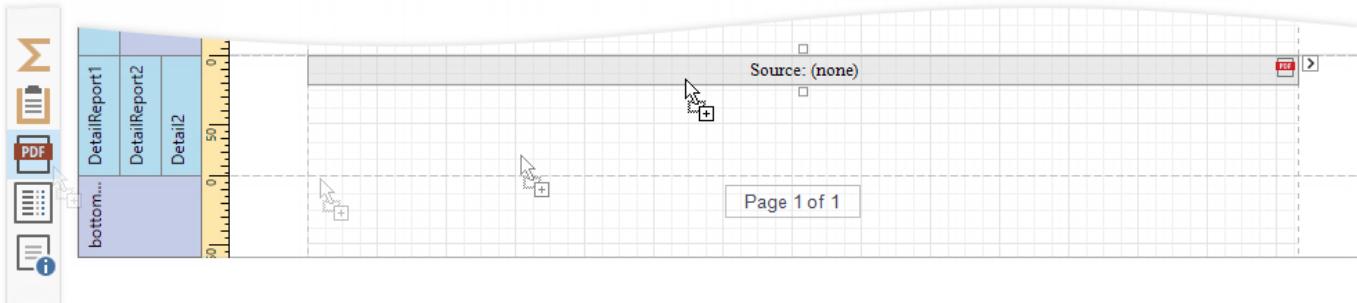
Add PDF Content

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

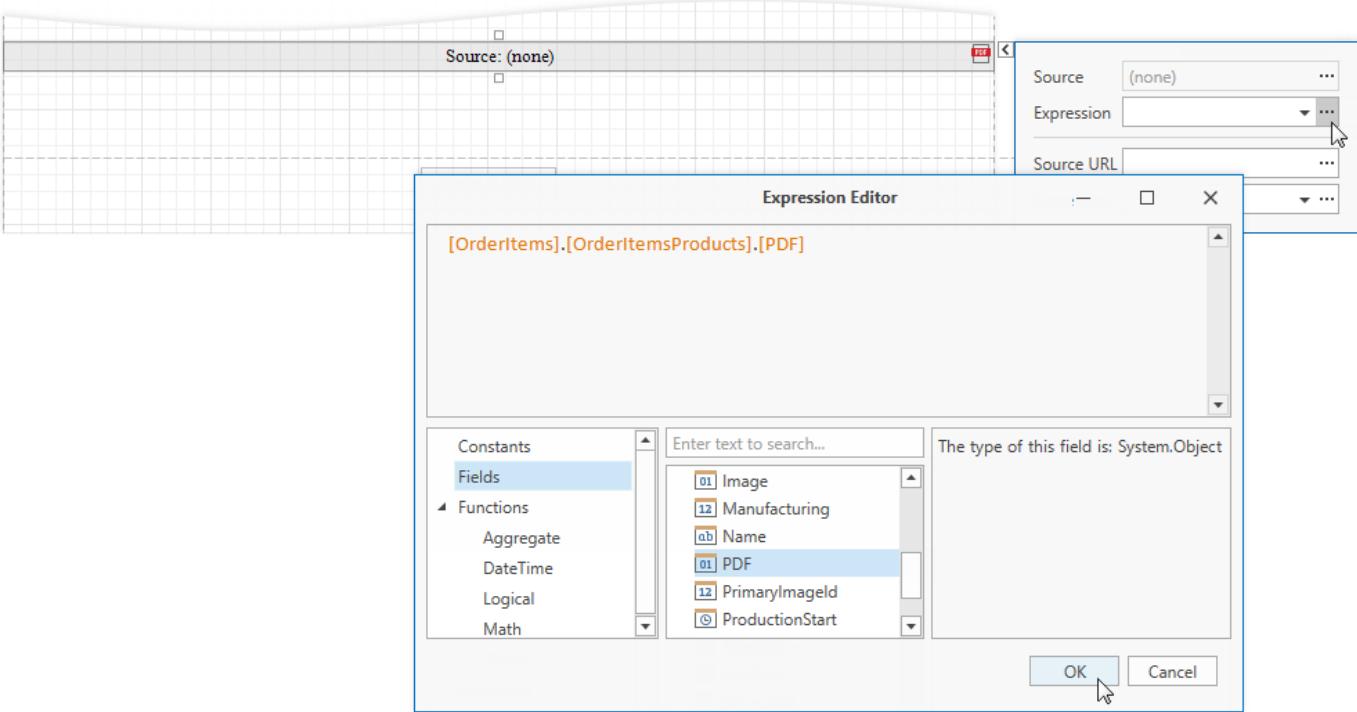
1. Add a **Detail Report** band at the location where you want to place PDF content. As PDF content is rendered on separate pages, the report from this tutorial includes this band at the bottom. Bind the new band to the same data member as in the [Create a Report Layout](#) section above.



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



3. Bind the dropped control to the source of PDF data. Expand the control's smart tag and click the **Expression** property's ellipsis button below the **Source** property. In the invoked **Expression Editor**, select the data source field that stores PDF documents and click **OK**.



TIP

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

- **Bind to a PDF file**

Specify the file's path or 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

SUPER HD Projector

The Super HD Projector is the latest addition to our product line. It is both easy to install and use, giving you hours of entertainment. With just a push of a single button, you can tune picture quality, from standard to possible picture basic.

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-XR750 Projector PlusHD

DX-RX809 HD Video Player

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	126832	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

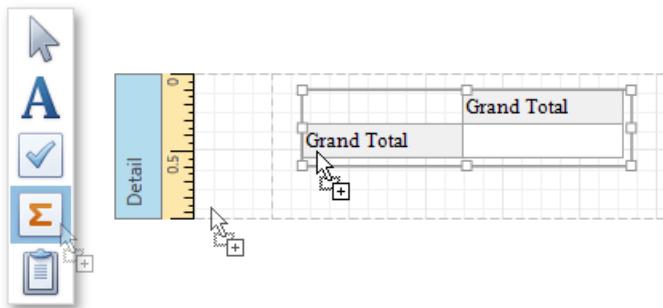
Cross-Tab Report

This tutorial describes the steps needed to create a *cross-tab report* using the **Pivot Grid** control. This feature should not be confused with the [master-detail report](#) or [table report](#). Additionally, the document demonstrates how to visualize data displayed in the Pivot Grid by linking it with the [Chart](#) control.

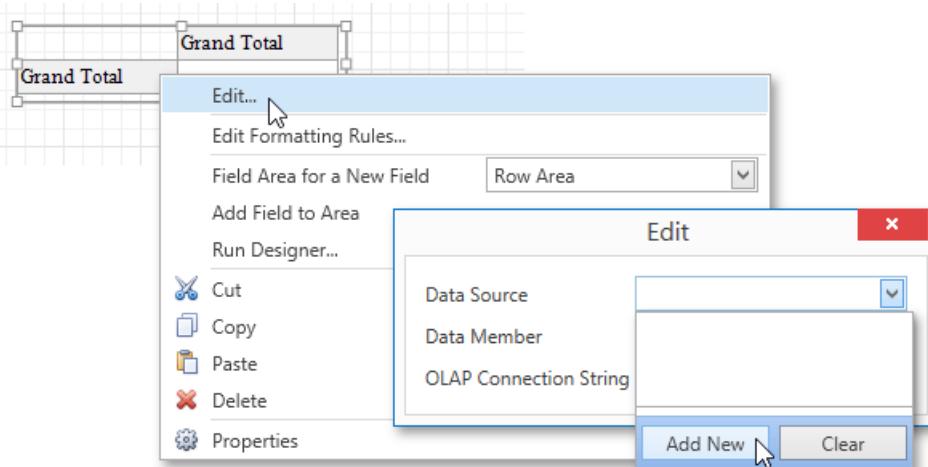
Create a Cross-Tab Report

To create a cross-tab report, do the following.

1. [Create a new empty report](#).
2. Drop the **Pivot Grid** control from the [Toolbox](#) onto the report's [Detail](#) band.

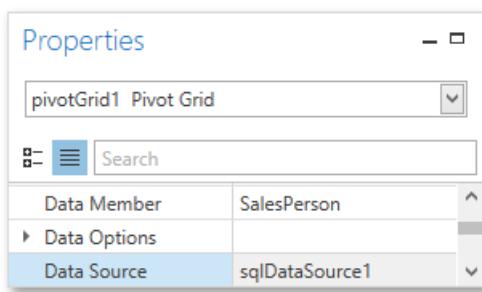


3. To bind the Pivot Grid to a data source, right-click it and select **Edit...** in the context menu. In the invoked dialog, expand the **Data Source** drop-down and click the **Add New** button.



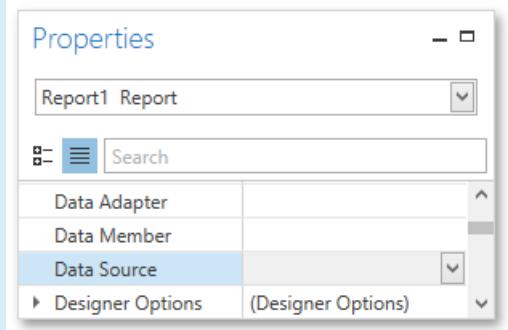
4. The invoked **Data Source Wizard** will guide you through the process of assigning a data source to the grid. For detailed instructions on the Wizard's steps, refer to [Binding a Report to Data](#), as this process is similar.

After the data source is created, it is assigned to the pivot grid's **Data Source** property. Its **Data Member** property defines from which table or view of the data source the grid obtains its data.

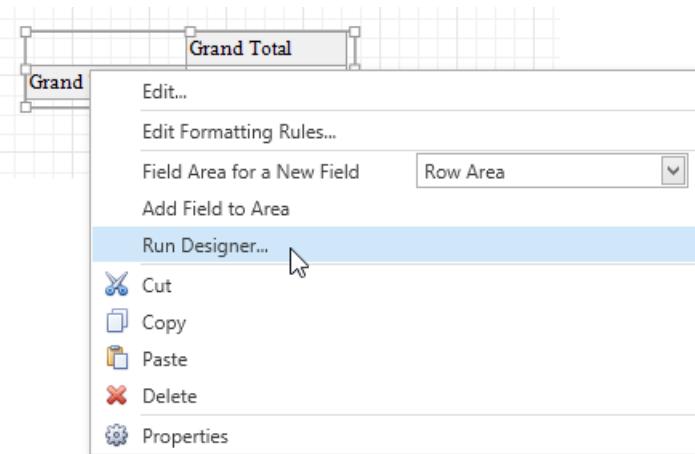


NOTE

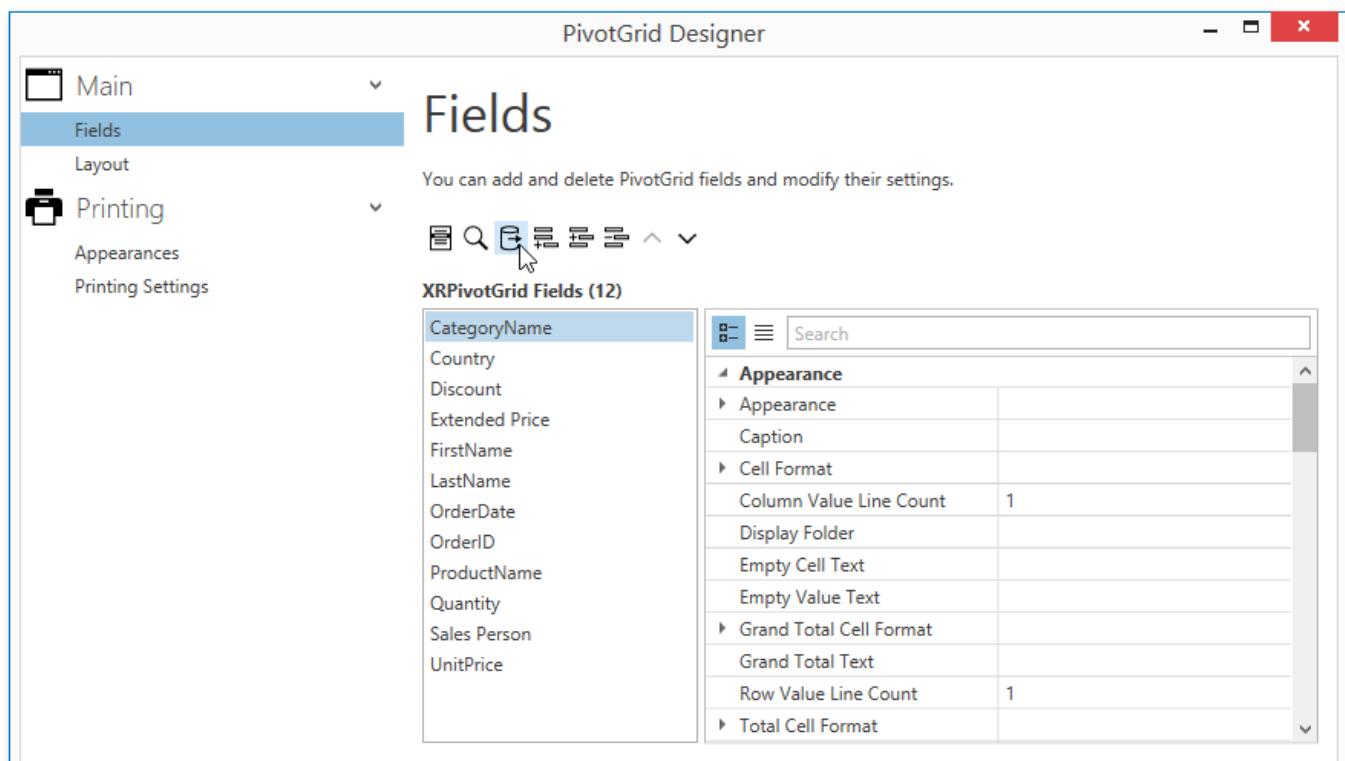
Since you have placed a Pivot Grid in the Detail band, the report's **Data Source** property should not be set. Otherwise, the Pivot Grid will be repeated at the preview as many times as there are records in the data source.



- Once again, right-click the Pivot Grid and select **Run Designer...** in the invoked context menu.

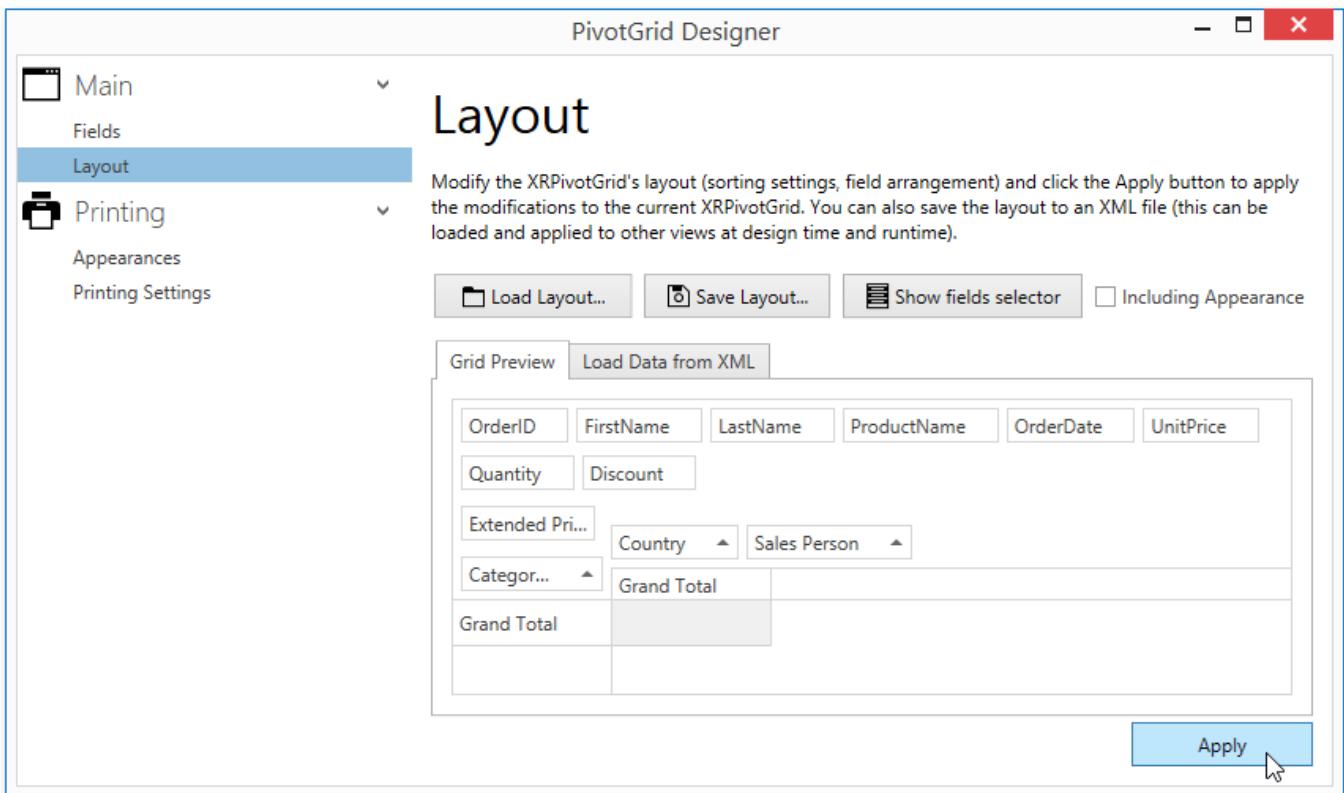


- In the invoked **PivotGrid Designer**, click **Retrieve Fields**.



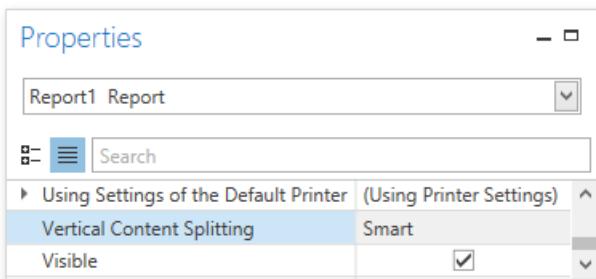
- Then, switch to the **Layout** section in the navigation bar on the left.

Drag and drop the required fields to the **Row Fields**, **Column Fields** and **Data Items** areas.



Click **Apply** and close the editor.

8. In the last step, you can set your report's **Vertical Content Splitting** option to **Smart**. This will split the grid's columns precisely by their borders in the Print Preview.



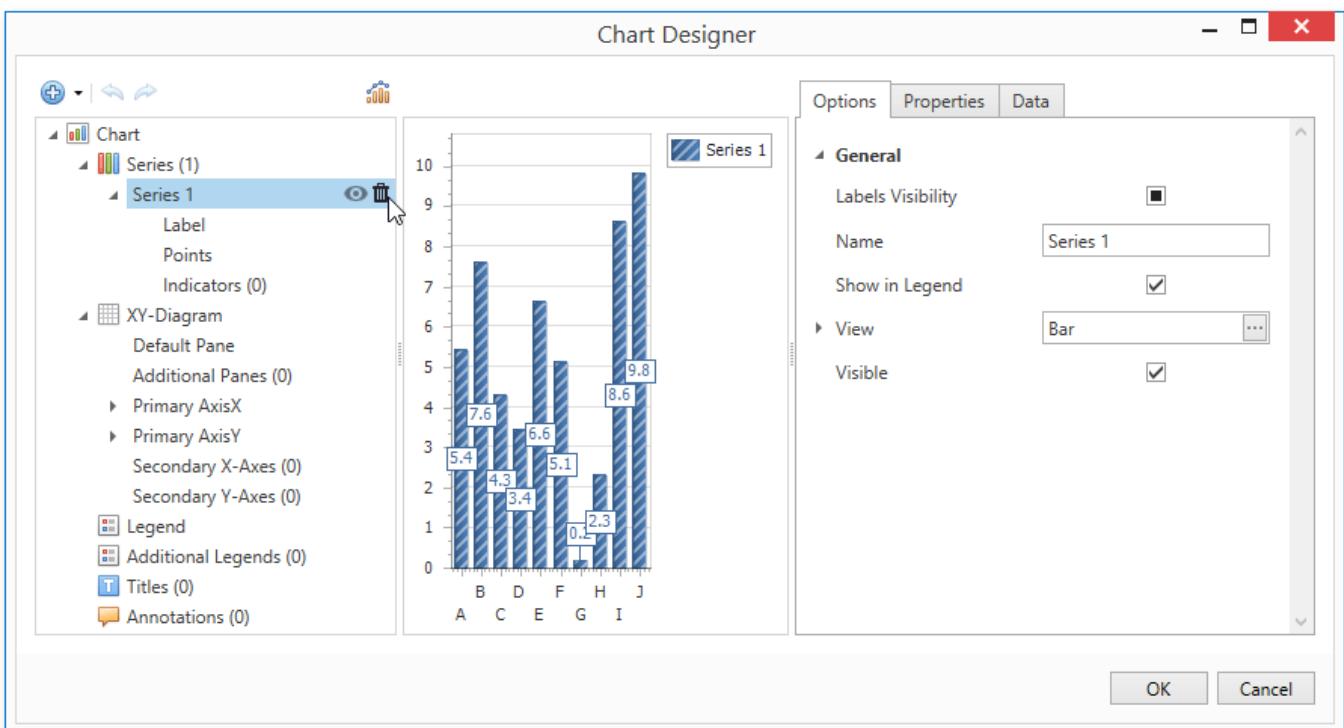
The cross-tab report is now ready. Switch to the [Print Preview](#) tab and view the result.

Order ID	First Name	Last Name	Product Name	Order Date	Unit Price	Quantity	Discount
Extended Price	Country	Sales Person					
UK							UK Total
Category Name	Anne Dodsworth	Michael Suyama	Robert King	Steven Buchanan			
Beverages	\$19,642.55	\$9,450.20	\$27,963.83	\$11,000.52	\$68,057.10		
Condiments	\$10,125.54	\$4,648.47	\$8,851.37	\$2,675.29	\$26,300.67		
Confections	\$8,053.16	\$6,859.63	\$14,518.98	\$4,809.80	\$34,241.57		
Dairy Products	\$21,101.12	\$17,039.04	\$27,621.86	\$21,937.61	\$87,699.63		
Grains/Cereals	\$1,245.30	\$9,410.70	\$6,535.50	\$4,027.56	\$21,219.06		
Meat/Poultry	\$8,676.66	\$9,003.69	\$21,176.72	\$11,488.20	\$50,345.27		
Produce	\$314.81	\$11,560.70	\$10,753.38	\$7,109.02	\$29,737.91		
Seafood	\$8,148.90	\$5,940.70	\$7,146.58	\$5,744.25	\$26,980.43		
Grand Total	\$77,308.04	\$73,913.13	\$124,568.22	\$68,792.25	\$344,581.64		

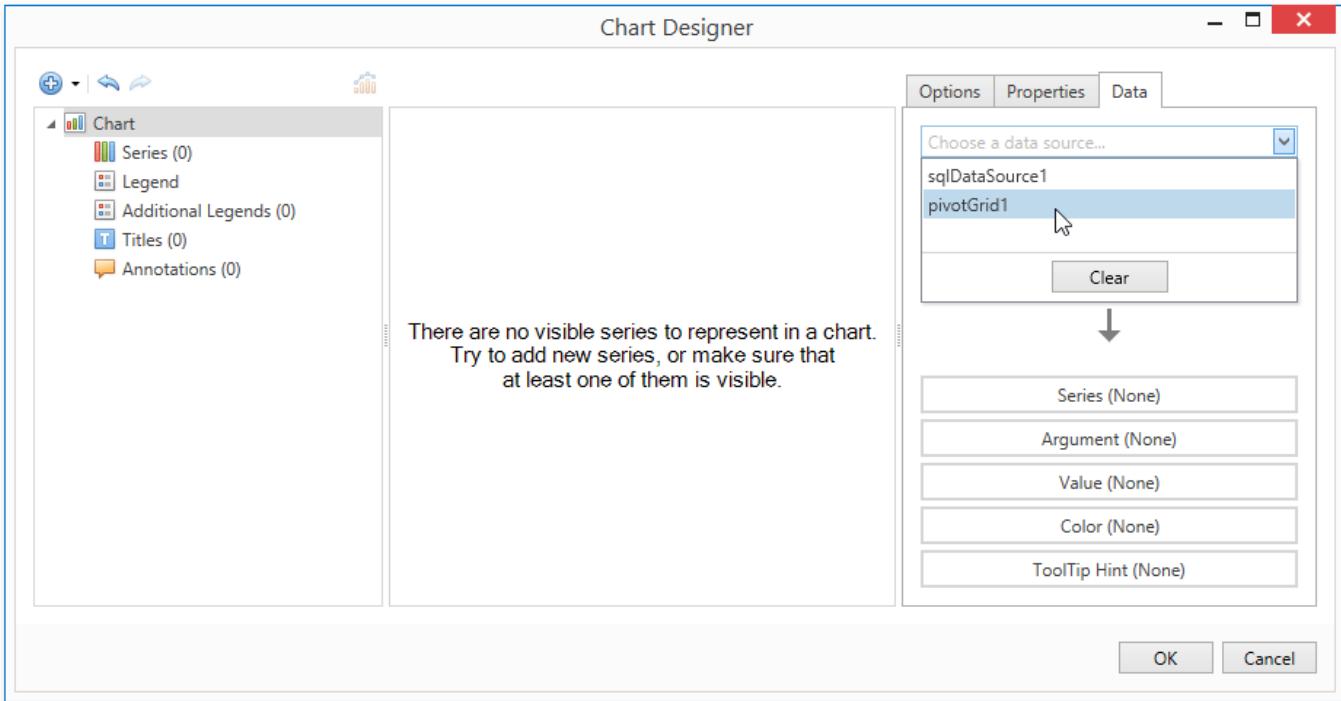
Integrate with a Chart Control

The next step is to visualize data displayed in the Pivot Grid using a Chart control. To accomplish this, perform the following steps.

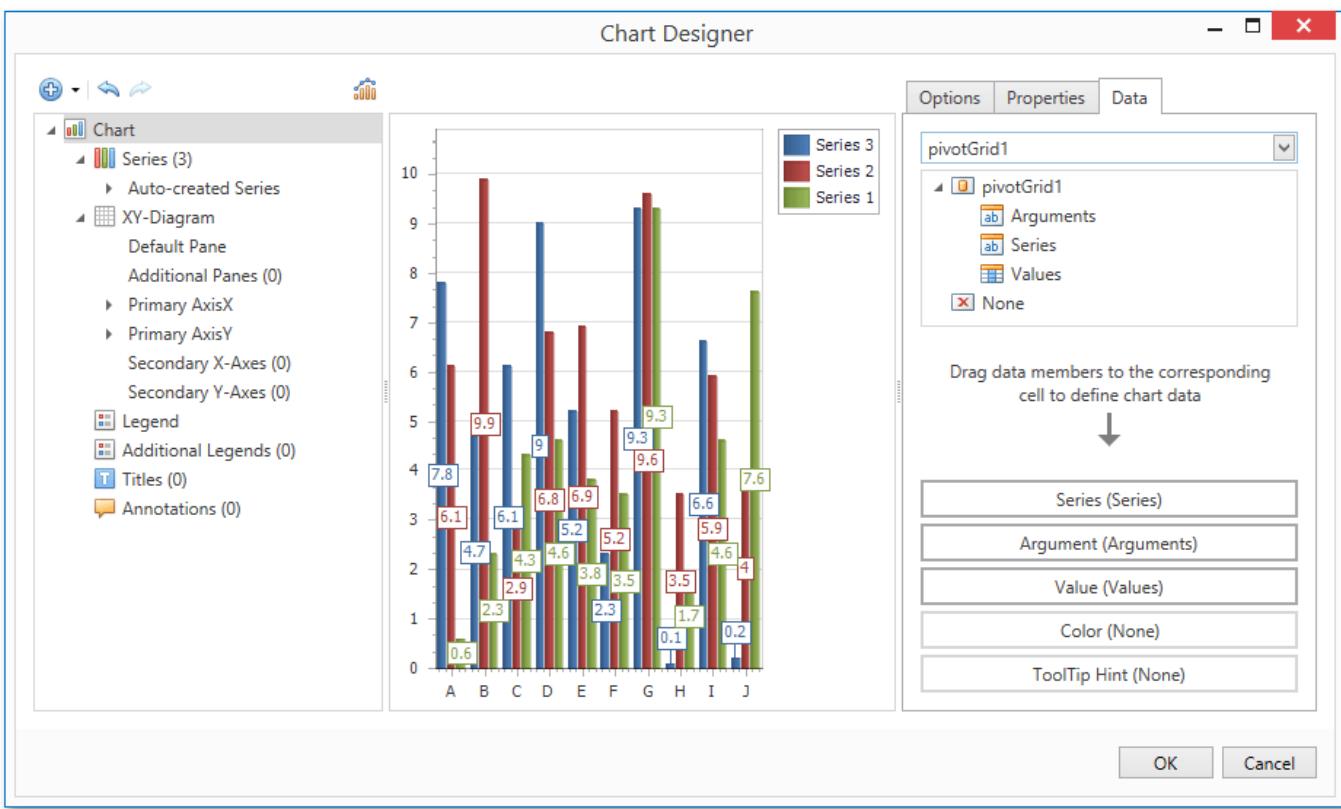
1. Drop the **Chart** control from the **Toolbox** onto the report's **Detail band** below the Pivot Grid. After you drop the Chart, the **Chart Designer** is automatically invoked.
2. In the Designer, remove an already existing series by clicking the corresponding button.



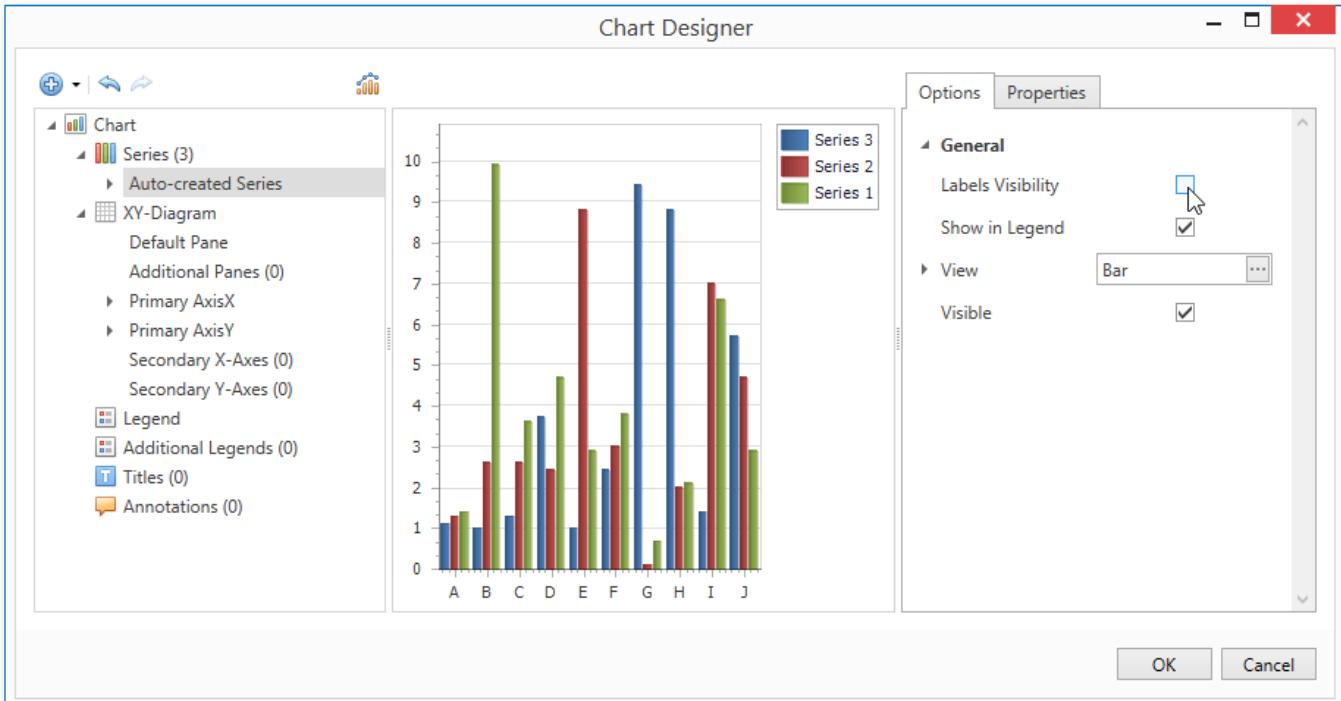
3. Then, go to the **Data** tab at the right of the Designer's window and choose the Pivot Grid in the dedicated drop-down list.



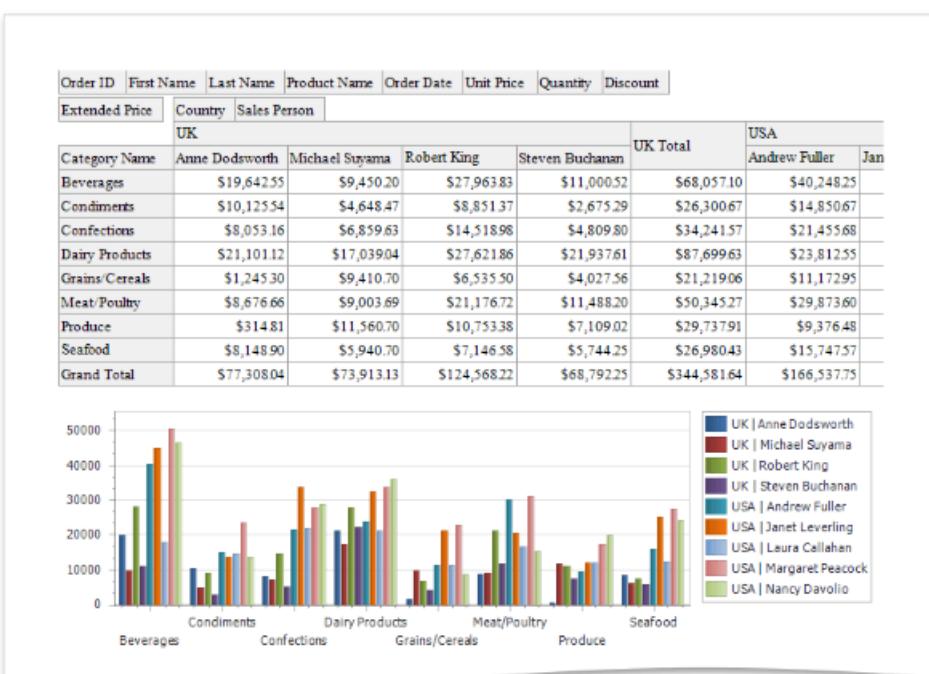
- After this, all the Chart's binding and layout settings are automatically adjusted. Make sure that **Series**, **Argument** and **Value** cells have been automatically filled with the corresponding fields. Note, values for these fields are generated based on the Pivot Grid's columns, rows and data items, respectively.



- To avoid the overlapping of series labels, select the auto-generated series in the chart elements tree, and in the **Options** tab, disable the **Labels Visibility** check box.



- If required, you can customize various settings that determine the common behavior for a bridged Chart and Pivot Grid pair. To do this, use the Chart's **Pivot Grid Data Source Options** property. This property, in turn, is linked to the **Options Chart Data Source** property of the associated Pivot Grid.
- Finally, reset the report's **Vertical Content Splitting** option and switch to the [Preview Tab](#) to see the result.

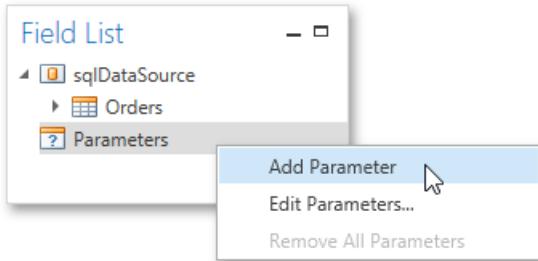


Parametrized Report

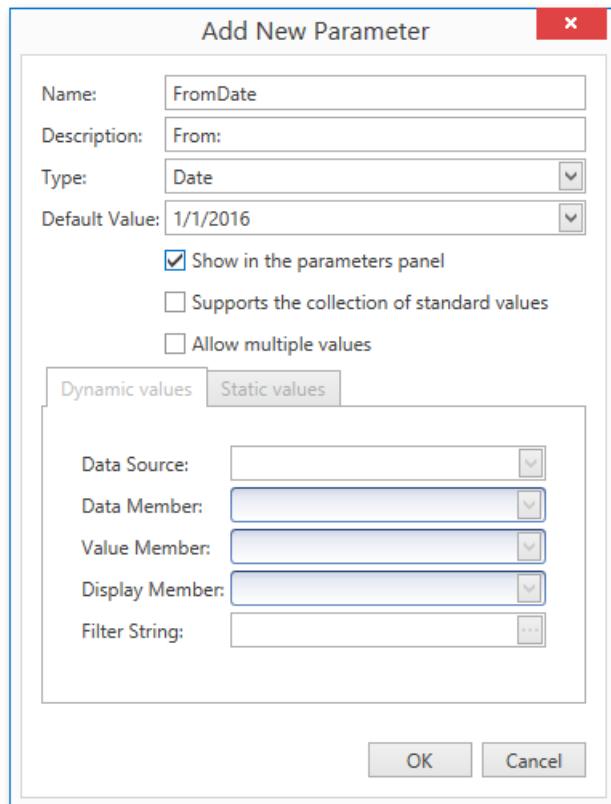
This tutorial describes the steps needed to create a report with parameters. In this example, two date-time parameters are created to filter out orders that don't fall in the specified range from the report.

To create report parameters, follow the steps below.

1. [Create a new report](#) and bind it to a data source.
2. In the [Field List](#) panel, right-click the **Parameters** section and in the invoked menu, click **Add Parameter**.



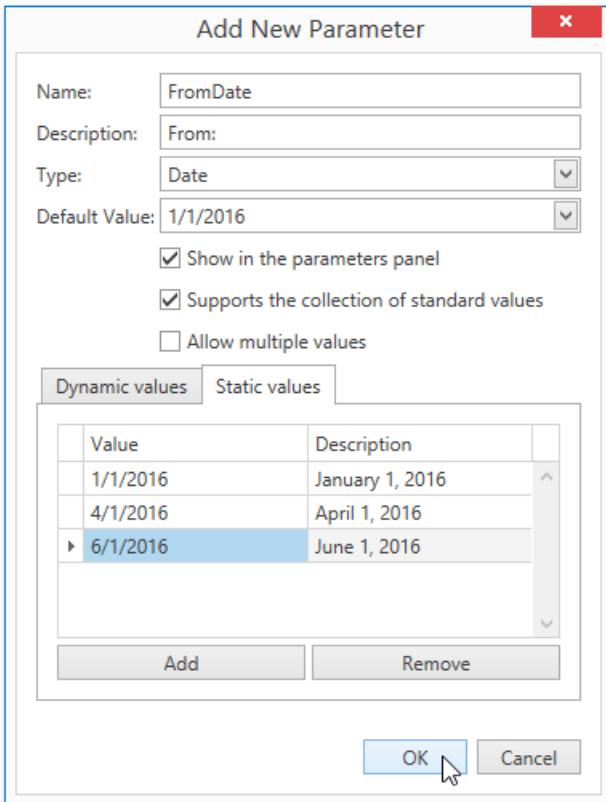
3. In the invoked **Add New Parameter** dialog, set the created parameter's **Name** and **Description** properties and make sure to set its **Type** to an appropriate value. To display this parameter in the [Print Preview](#), enable the **Show in the parameters panel** option.



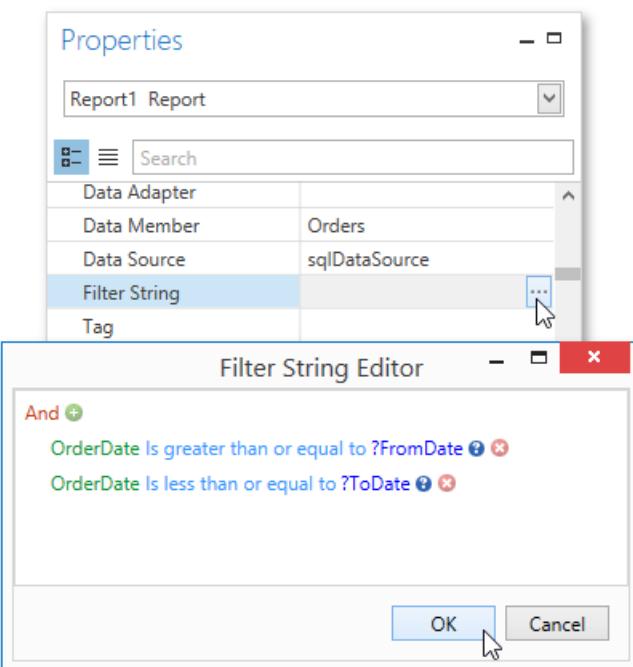
4. To assign a list of values to this report parameter, enable the **Supports the collection of standard values** option.

In the **Dynamic values** tab, you can specify a parameter's data source, data member, value member and display member. The value member defines a data field that provides values to the parameter. The display member defines a data field that provides display names for parameter values, i.e., how these values appear in the user interface available in a [Print Preview](#).

In the **Static values** tab, you can manually fill the list of parameter values. Each parameter value has an individual description specifying how this value appears in the [Parameters Panel](#).



5. Then, repeat the previous steps to create the second parameter, so that every time your report is previewed, you will be asked to specify two dates.
6. Next, use parameters to filter your report's data. Select report, and in the **Properties Panel**, click the ellipsis button for the **Filter String** property. Then, in the invoked **Filter String Editor**, construct an expression where a data field is compared with the created parameters. To access parameters, click the icon on the right until it turns into a question mark.



The Parametrized report is now ready. Switch to the **Print Preview** tab, define the required values in the **Parameters** panel and click **Submit**.

Parameters

From: January 1, 2016

To: 7/1/2016

1/1/2016	10264	Sweden
1/2/2016	10265	France
1/3/2016	10266	Finland
1/6/2016	10267	Germany
1/7/2016	10268	Venezuela
1/8/2016	10269	USA
1/9/2016	10270	Finland
1/9/2016	10271	USA
1/10/2016	10272	USA
1/13/2016	10273	Germany
1/14/2016	10274	France
1/15/2016	10275	Italy
1/16/2016	10276	Mexico
1/17/2016	10277	Germany
1/20/2016		

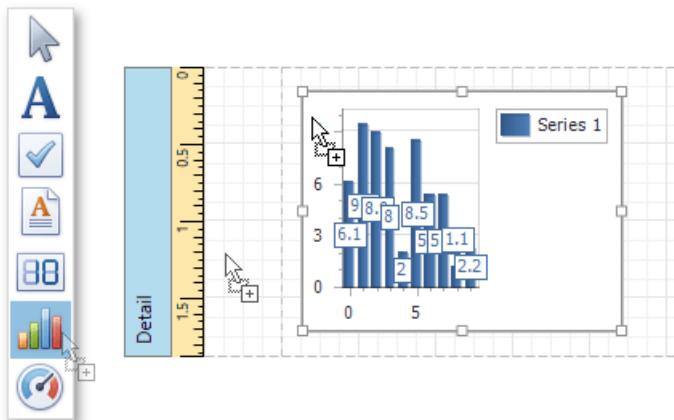
Chart with Static Series

This document describes how to create a report with a **Chart** control bound to data, so that a particular series has its own data source, and other settings. To simplify the example, both series obtain their data from the same data source. However, different data sources can be used for different series, if necessary.

This example describes how to construct a chart of products and their prices for a chosen category.

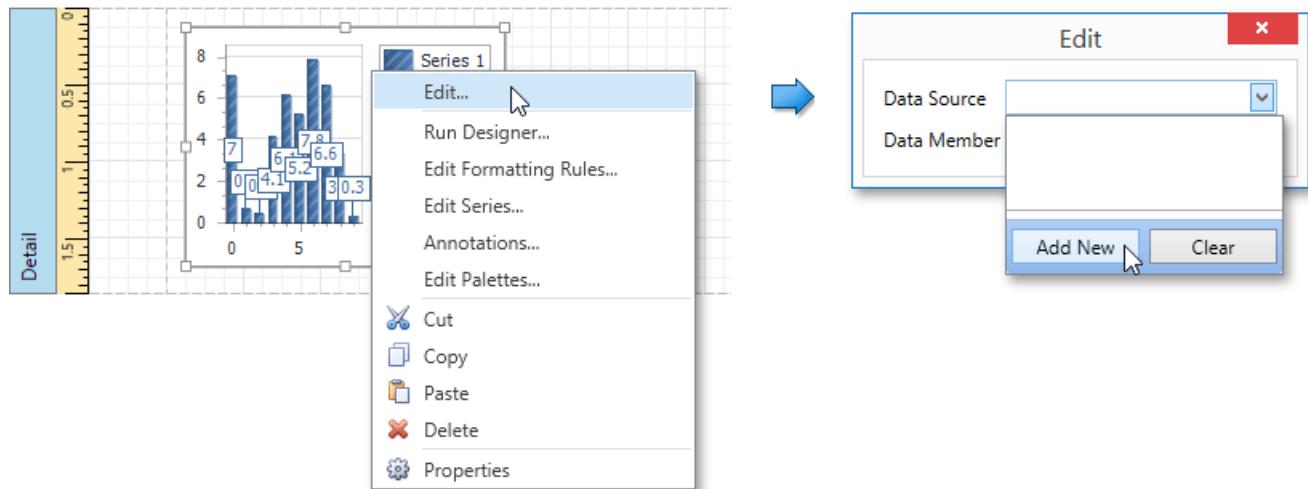
To adjust a Chart by manually creating its series, do the following.

1. [Create a new blank report](#).
2. Drop the **Chart** control from the **Toolbox** onto the report's **Detail** band.



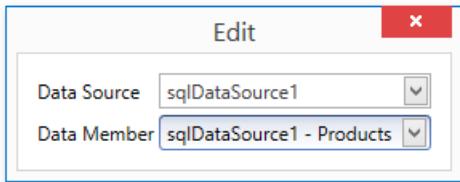
After you drop the Chart, the **Chart Designer** is automatically invoked. At this step, click **Cancel** to close the Designer, it will be used later.

3. To bind the Chart to a data source, right-click it and select **Edit...** in the context menu. Then, in the invoked dialog, expand the **Data Source** drop-down and click **Add New**.



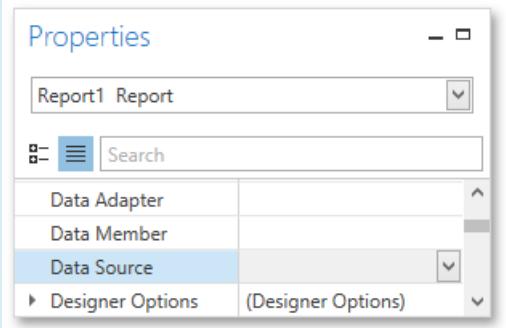
The invoked **Data Source Wizard** will guide you through the process of assigning a data source to the Chart. For detailed instructions on the Wizard's steps, refer to [Binding a Report to Data](#), as this process is similar.

After the data source is created, it is assigned to the Chart's **Data Source** property. Its **Data Member** property defines from which table or view of your data source the Chart obtains its data.

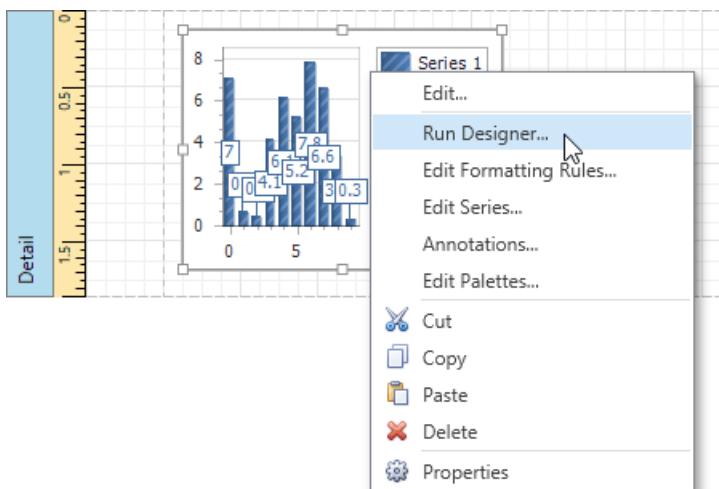


NOTE

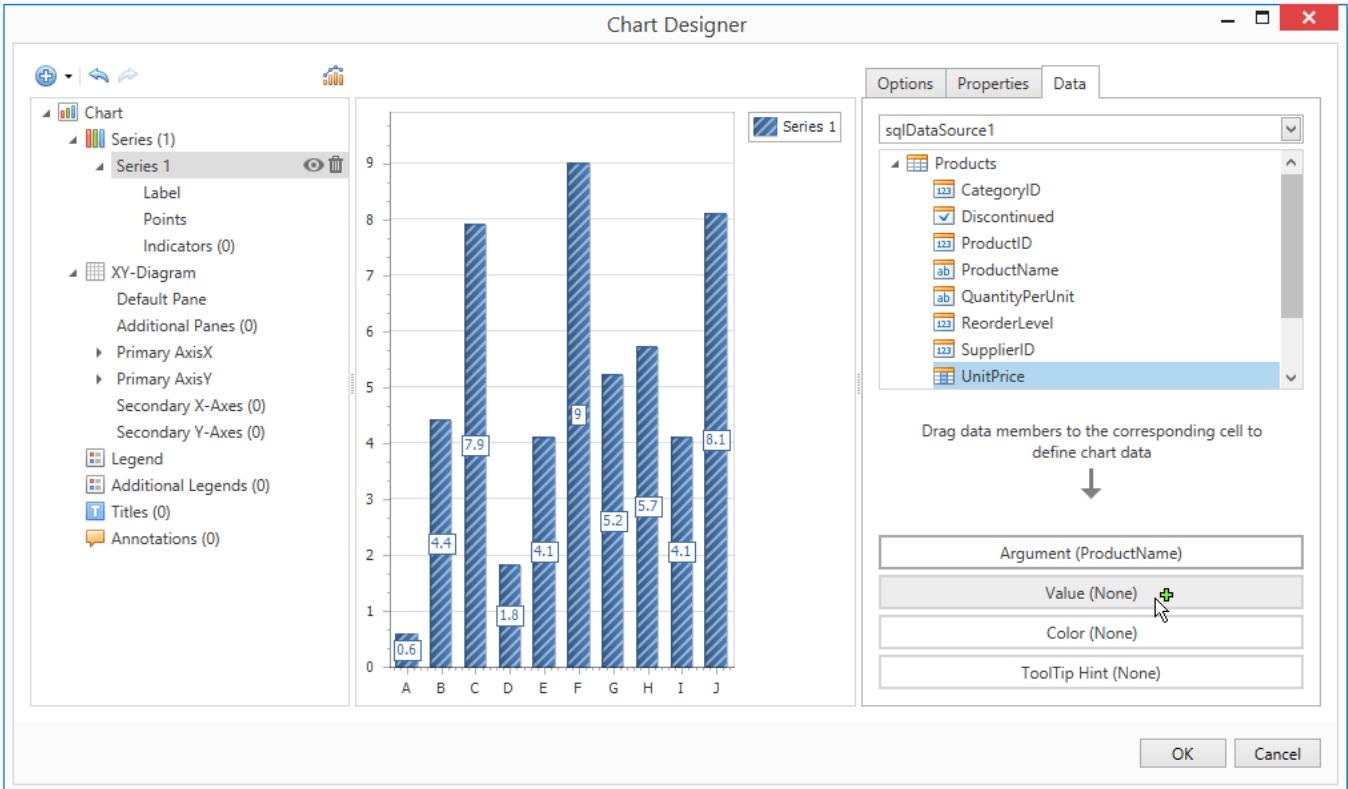
Since you have placed the Chart in the Detail band, the report's **Data Source** property should not be set. Otherwise, the Chart will be repeated at the preview as many times as there are records in the data source.



4. Once again, right-click the Chart and select **Run Designer...** in the context menu.

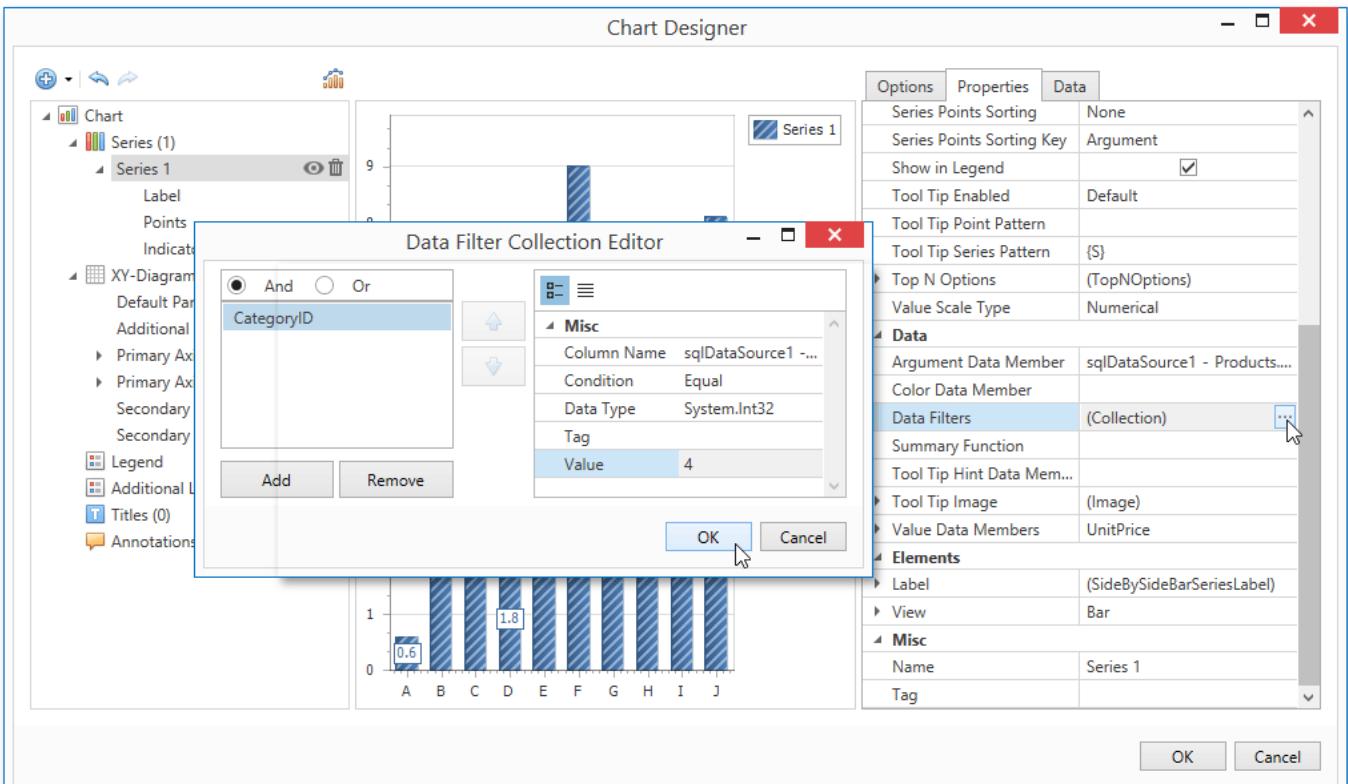


5. The invoked **Chart Designer** already contains one series of the **Bar** view type. To populate the series with points, select it in the tree and switch to the **Data** tab at the right of the designer's window. Choose an existing data source in the dedicated drop-down list. Then, drag-and-drop the required data fields to the **Argument** and **Value** cells to define the coordinates for series points.



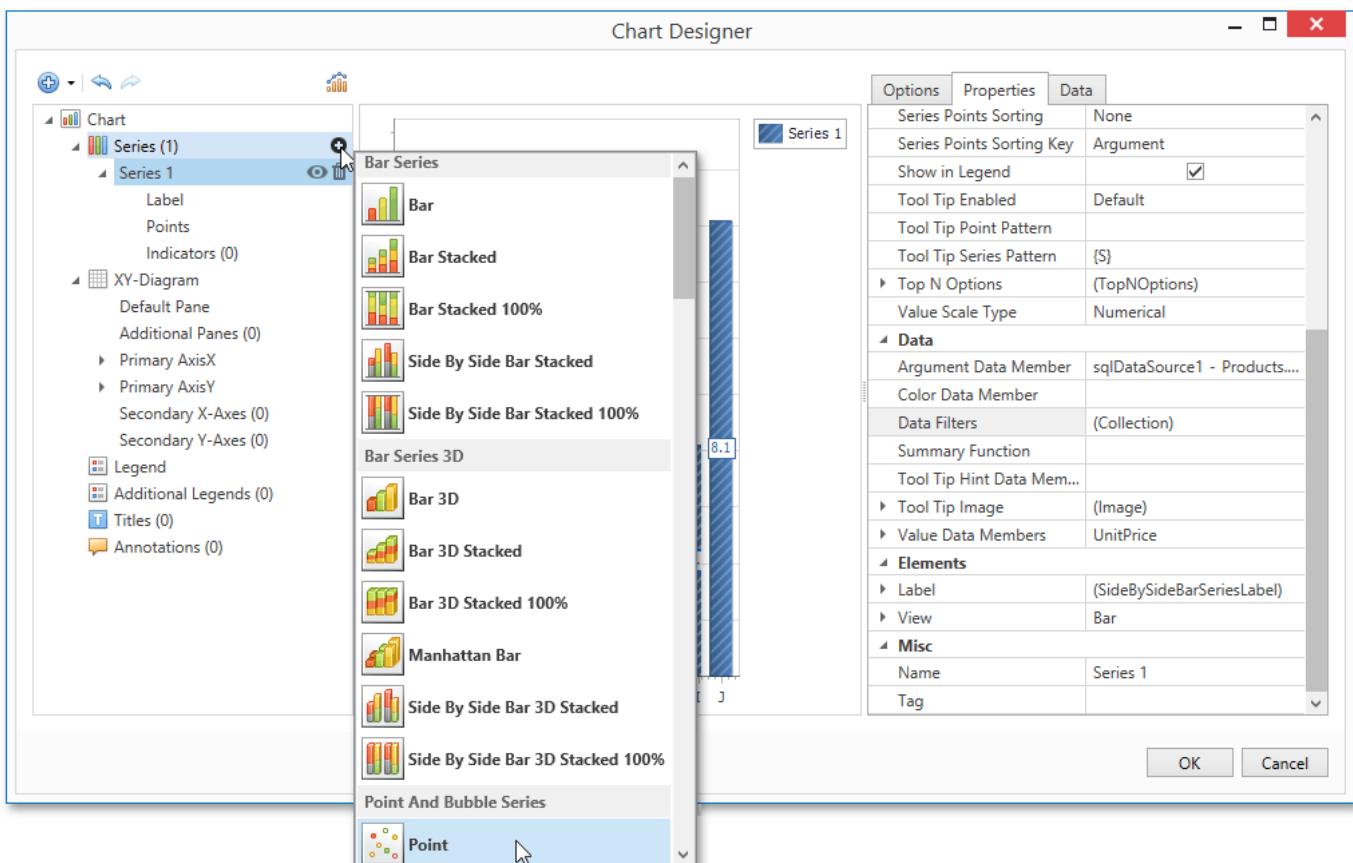
6. Go to the **Properties** tab to see that the **Argument Data Member** and **Value Data Members** settings are automatically assigned to the corresponding fields.

In addition, you can filter the series data. To do this, click the ellipsis button for the **Data Filters** property, and in the invoked dialog, create and adjust the filtering criteria.



To save the changes and quit the dialog, click **Close**.

7. Create one more series with the same settings, but select the **Point** view type. To do this, locate the **Series** element in the chart elements tree and click the plus button. In the invoked list of series types, select the required type.



8. Finally, to improve your Chart's appearance, you can make the following adjustments.

- Remove the Chart's legend as it shows the same data for both series. To do this, select the Legend in the chart elements tree, and in the **Options** tab, set the **Visibility** property to **No**.
- The point labels for **Series 1** are unnecessary, so select the **Label** node under this series and disable the **Labels Visibility** check box.
- Rotate the X-axis labels for better readability. To do this, select the **Axis X** item, and in the **Properties** tab, adjust settings for labels using the **Label** property. For instance, set the **Angle** property to **20** and the **Antialiasing** property to **Yes**.

If required, it is possible to customize many other properties for the Chart, which are not described here.

The chart is now ready. Switch to the [Print Preview](#) and view the result.

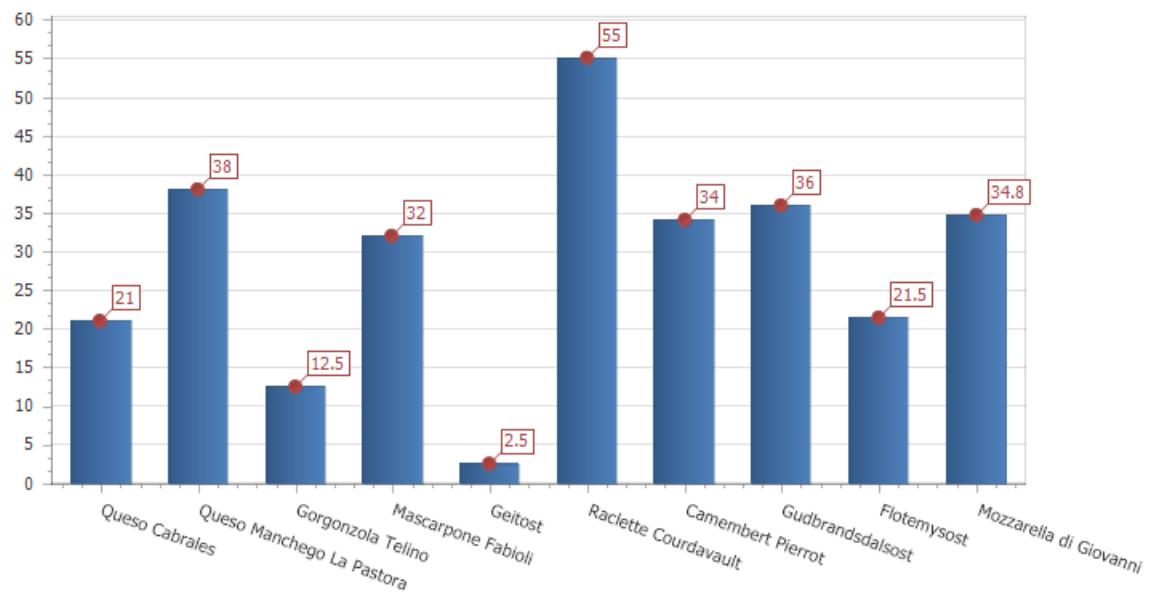


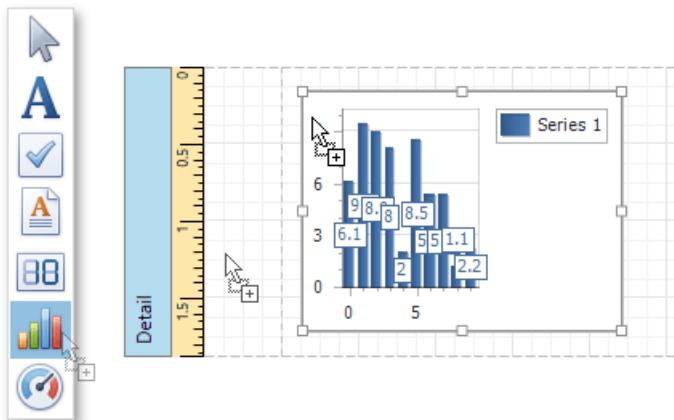
Chart with Dynamic Series

This document describes how to create a report with a **Chart** control bound to data, so that all series are auto-created based on a common template, which specifies universal options for all series. This is possible when data for all series (their names, along with point arguments and values) is stored in the same data table.

Note that in this scenario, the view type and certain other settings will be the same for all series.

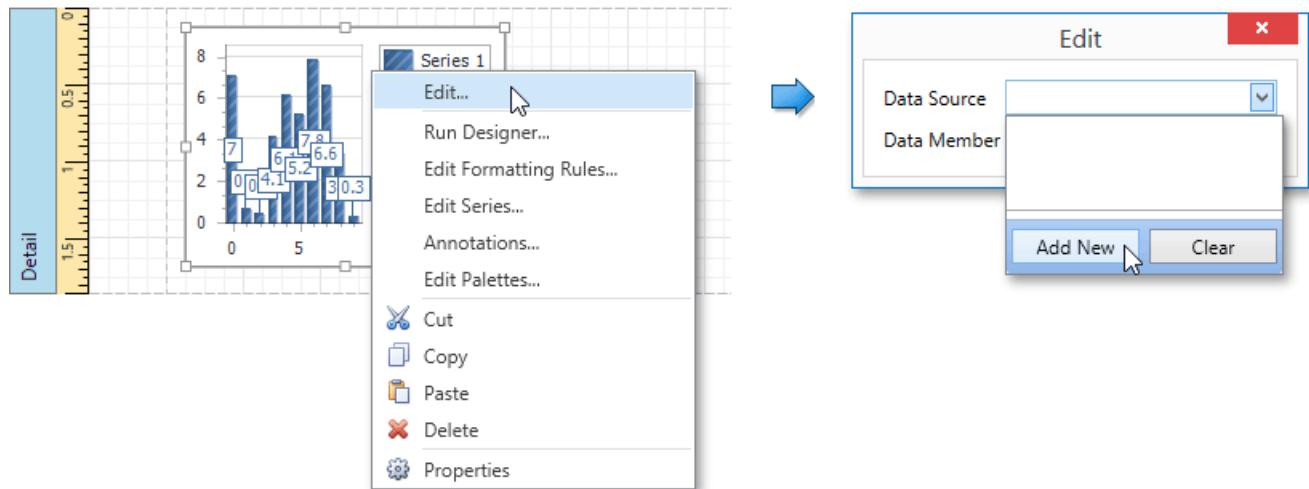
To adjust a Chart with automatically created series, do the following.

1. [Create a new empty report](#).
2. Drop the **Chart** control from the [Toolbox](#) onto the report's **Detail** band.



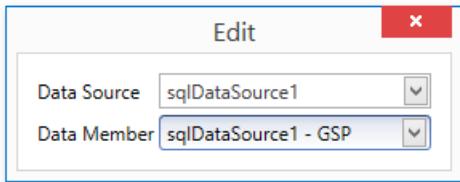
After you drop the Chart, the **Chart Designer** is automatically invoked. At this step, click **Cancel** to close the Designer, it will be used later.

3. To bind the Chart to a data source, right-click it and select **Edit...** in the context menu. Then, in the invoked dialog, expand the **Data Source** drop-down and click **Add New**.



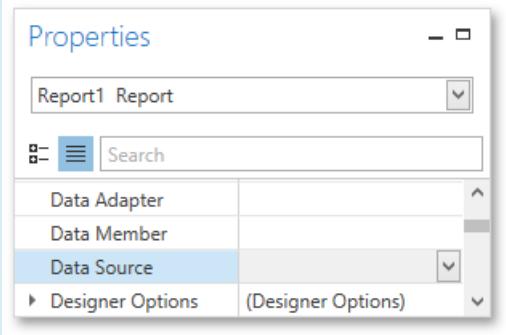
The invoked **Data Source Wizard** will guide you through the process of assigning a data source to the Chart. For detailed instructions on the Wizard's steps, refer to [Binding a Report to Data](#), as this process is similar.

After the data source is created, it is assigned to the Chart's **Data Source** property. Its **Data Member** property defines from which table or view of your data source the Chart obtains its data.

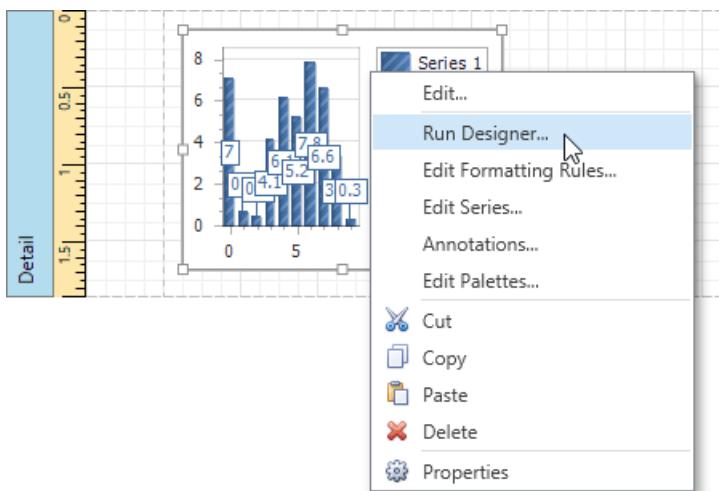


NOTE

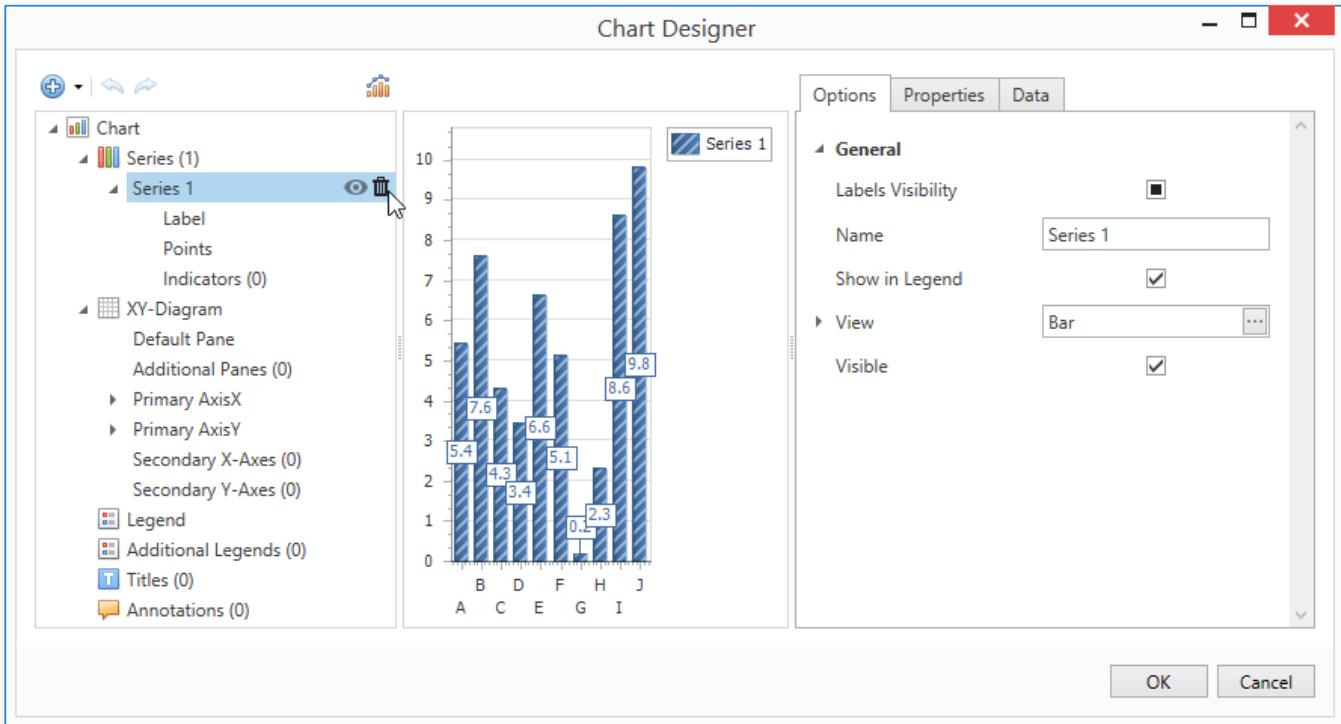
Since you have placed a Chart in the Detail band, the report's **Data Source** property should not be set. Otherwise, the Chart will be repeated at the preview as many times as there are records in the data source.



4. Once again, right-click the Chart and select **Run Designer...** in the context menu.

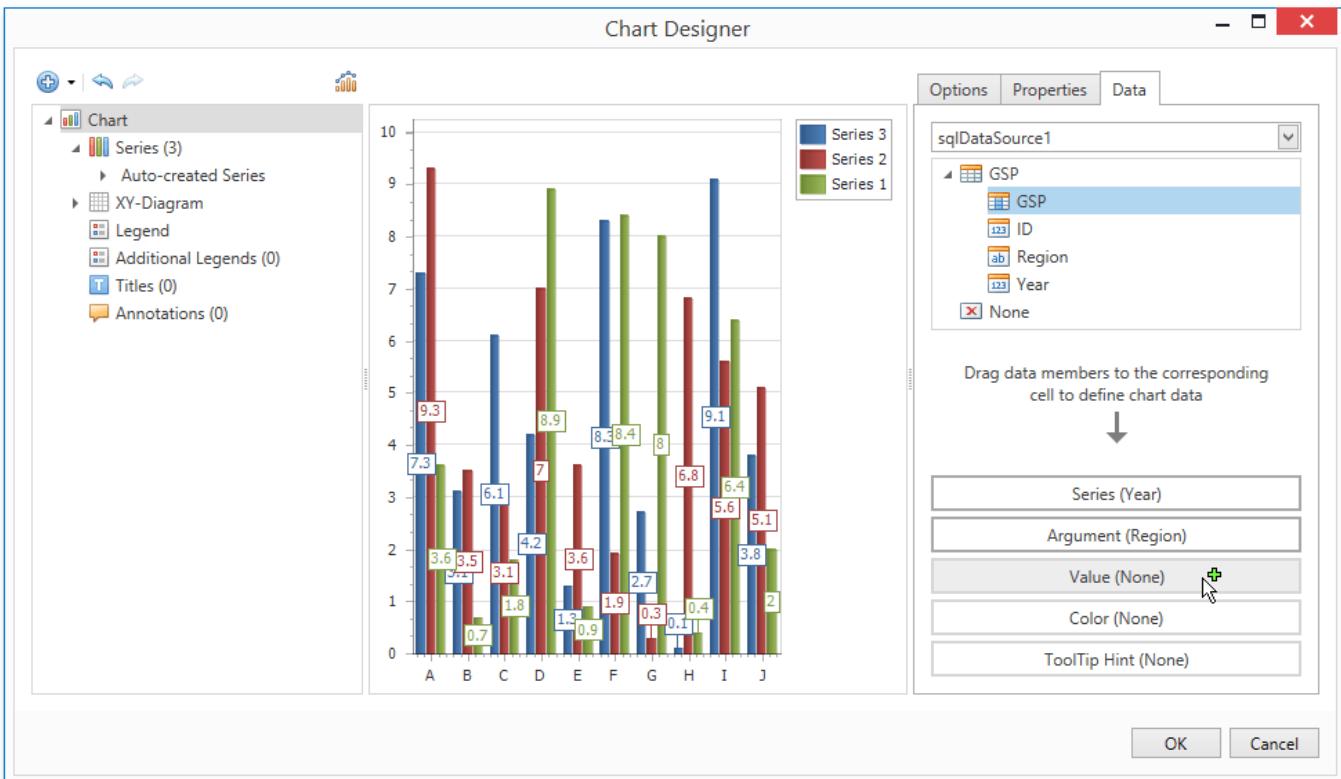


5. When the chart is added to the report, a new static series is created automatically. In the invoked **Chart Designer**, remove this series by clicking the corresponding button.

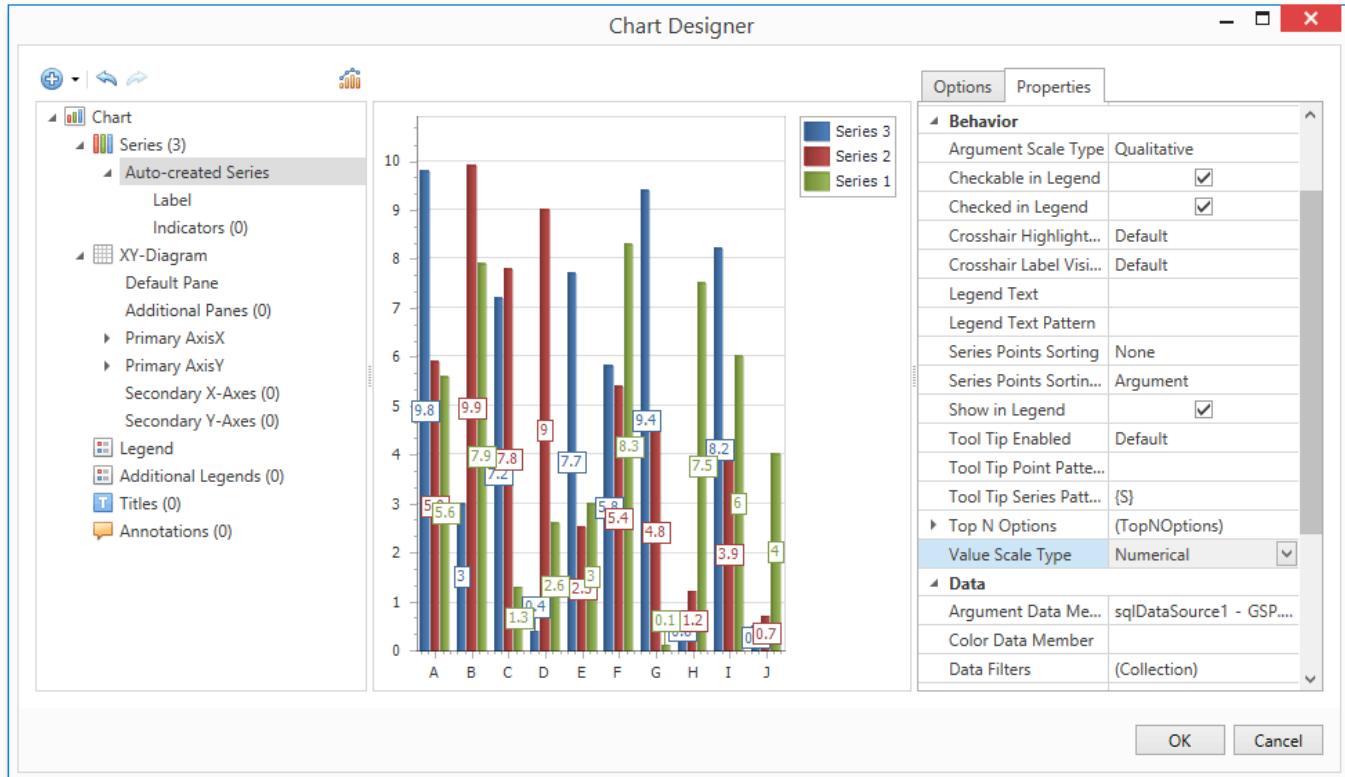


- Then, go to the **Data** tab at the right of the Designer's window. Choose an existing data source in the dedicated drop-down list and drag-and-drop the required data fields to the corresponding cells.

The **Series** cell specifies the data field, which should provide data for the series names, so that a new series is created for each record in that data field. Use the **Argument** and **Value** cells to define from where data for point arguments and values is obtained.



- Switch to the **Properties** tab and expand the **Series Template** option. As you can see, the **Argument Data Member** and **Value Data Members** properties have been automatically assigned to the corresponding data fields. Make sure that the **Argument Scale Type** and **Value Scale Type** properties are set to appropriate values.



- At this point, the chart's data options are completely defined, so in this step, certain additional customization capabilities are described.

- Adjust the Series Name Template

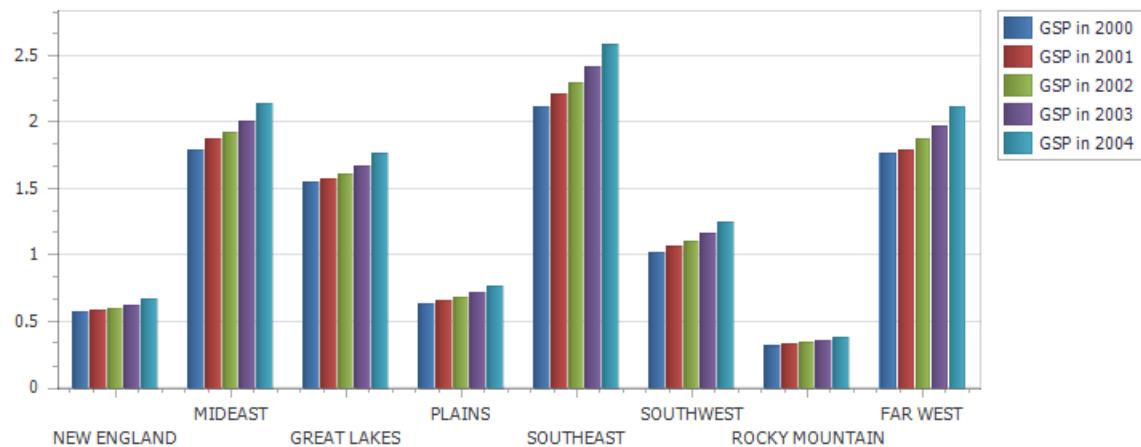
By default, the name for every auto-created series is obtained directly from an appropriate data field in the bound data source. However, you can add some text to the beginning or to the end of every series name using the Chart's **Series Name Template** property. For instance, set the **Begin Text** property to "GSP in ".

- Customize Series Labels

To avoid the overlapping of series labels, expand the Chart's **Series Template** property and set the **Labels Visibility** property to **No**.

If required, it is possible to customize many other properties for the Chart, which are not described here.

The chart is now ready. Switch to the [Print Preview](#) tab and view the result.



Creating Reports

With the **Report Designer**, you can edit existing reports, as well as create your own reports from scratch. The following sections contain tutorials providing step-by-step instructions on both basic and advanced report customization.

- [Basic Operations](#)

The topics in this section cover the basics of working with reports in the Report Designer.

- [Providing Data](#)

The documents in this section describe how to connect reports to various kinds of data sources and provide data to report elements.

- [Shaping Data](#)

The topics in this section detail various data shaping tasks that you can perform with your reports.

- [Appearance Customization](#)

The topics in this section describe how to customize the appearance of a report or any of its elements using specific appearance options, visual styles and conditional formatting.

- [Report Navigation and Interactivity](#)

The tutorials in this section cover the navigation-related features of the Report Designer.

- [Adding Details about a Report](#)

The documents in this section describe how to add technical information about a report to a generated document.

- [Scripting](#)

This topic provides basic information about scripting and contains an example of using scripts to customize a report.

Basic Operations

The topics in this section cover the basics of working with reports in the Report Designer.

This section consists of the following topics.

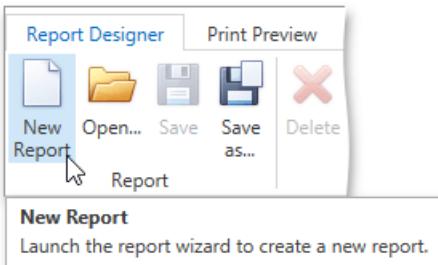
- [Create a New Report](#)
- [Change Measurement Units of a Report](#)
- [Create and Delete Report Elements](#)
- [Adjust the Layout of Report Elements](#)
- [Control Positioning](#)
- [Adjust Page Layout Settings](#)
- [Back Up the Report Layout](#)

Create a New Report

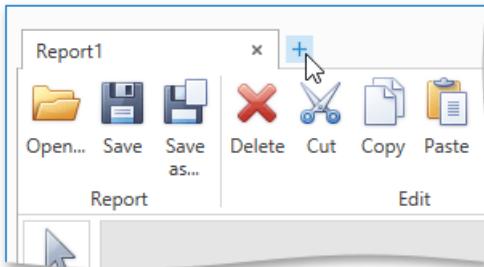
This topic explains how to create a new report in the Report Designer.

To create a new report, do one of the following depending on the Report Designer's View.

- In the Classic View, click the **New** button in the **Toolbar**.



- In the Browser View, click the plus button located inside the tab panel next to report headers.



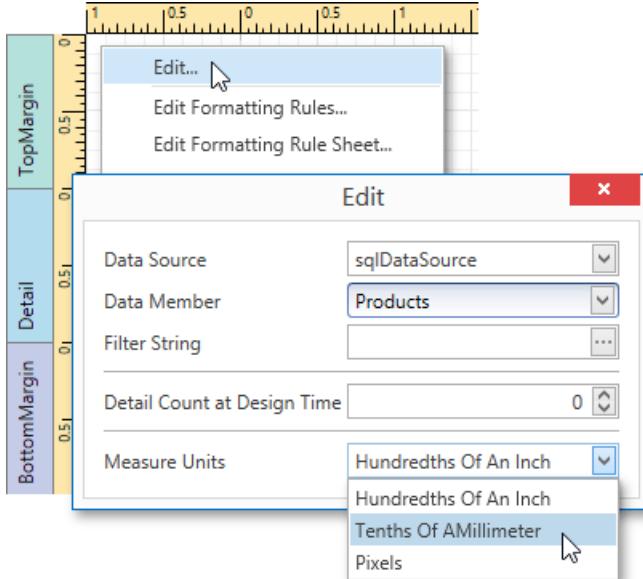
As a result, the [Report Wizard](#) is automatically invoked allowing you to create the required report based on built-in templates.

Change Measurement Units of a Report

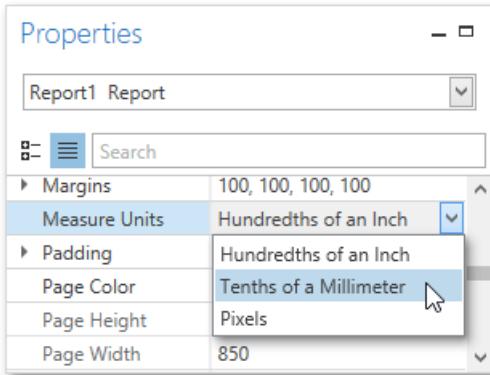
For your report, you can choose its global **Measure Units**, which can be **Hundredths of an Inch**, **Tenths of a Millimeter** or **Pixels**.

To specify the **Measure Unit** property, do one of the following.

- Right-click the report and select **Edit...** in the context menu. In the invoked dialog, set this property to the required value.



- Select the report and switch to the **Properties Panel**. Expand the **Measure Units** drop-down and select the required value.



This defines the basic measurement unit for all the unit-related options of a report and its **bands** and **controls** (such as location, size, border width, etc.) as well as the measurement unit of the report's **Snap Grid**.

Create and Delete Report Elements

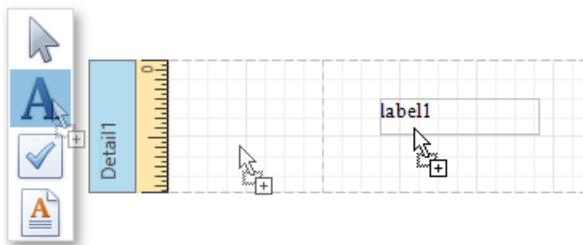
This document describes how to add and delete [report controls](#) and [bands](#) in the Report Designer.

The topic consists of the following sections.

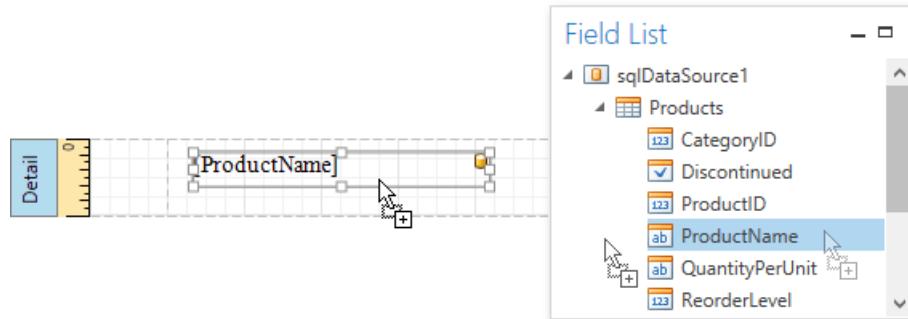
- [Creating Report Controls](#)
- [Creating Report Bands](#)
- [Deleting Controls and Bands](#)

Creating Report Controls

All available controls are listed in the [Control Toolbox](#). To add a control to the currently opened report, you can drag and drop it onto an appropriate [report band](#).

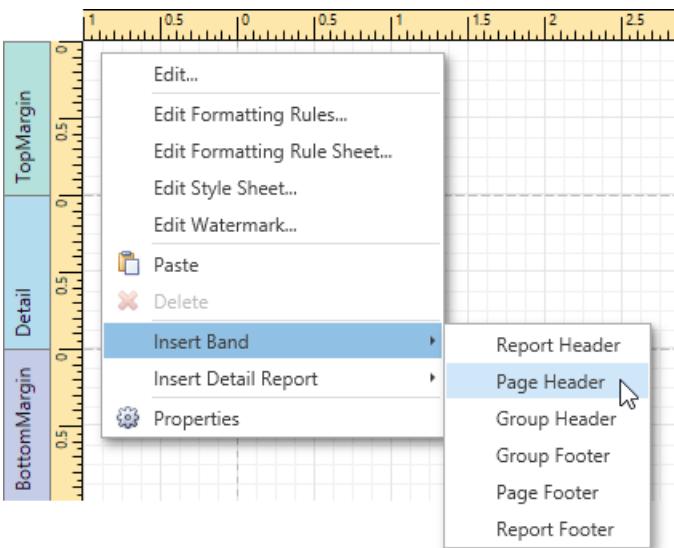


Report controls of appropriate types are created automatically, after you drag items from the [Field List](#) and drop them onto the [report surface](#).



Creating Report Bands

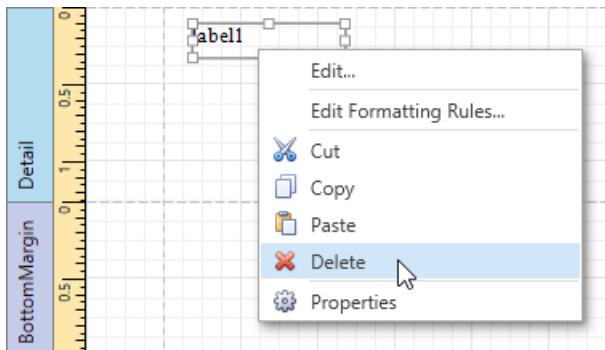
To add a new band of a particular type, use the context menu of the report or bands. Right-click a report on the [design surface](#) or in the [Report Explorer](#), and select a band to be inserted in the report.



Deleting Controls and Bands

To delete a report control or band, select it on the [design surface](#) or [Report Explorer](#), and then do one of the following.

- Press the **DELETE** key.
- Right-click the report element, and in the invoked context menu, select **Delete**.



- Click the **Delete** button on the [Toolbar](#).

Note that certain elements cannot be deleted (such as the Detail band).

Adjust the Layout of Report Elements

This document describes how to customize the [report elements](#) layout and consists of the following sections.

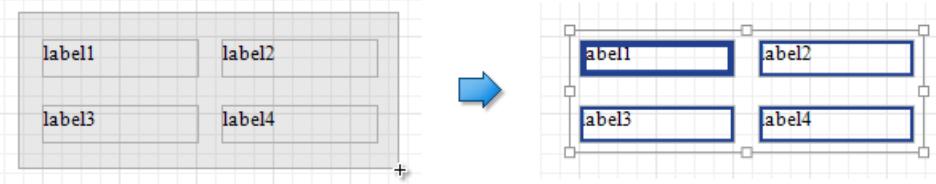
- [Selecting Report Elements](#)
- [Moving Report Elements](#)
- [Resizing Report Elements](#)

Selecting Report Elements

To select a [report control](#) or [band](#), click it. To select the next element in the tab order, press TAB. To select the previous element in the tab order, click SHIFT + TAB.

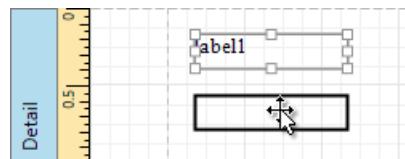
To select multiple elements, do one of the following.

- Click report elements while holding down the CTRL or SHIFT key.
- Click on a blank space and drag the mouse to create a selection frame. When the mouse button is released, all controls within the selection frame's boundaries will be selected. In this case, the previous selection is cleared.



Moving Report Elements

To move a report control, select it and drag to the new location. To move it using the keyboard, press the arrow keys.

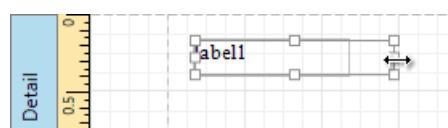


You can also move multiple selected report controls in the same way as individual controls.

The report controls can be precisely aligned to each other using the **Snap Grid** and/or **Snap Lines**. For details on this, refer to [Control Positioning](#).

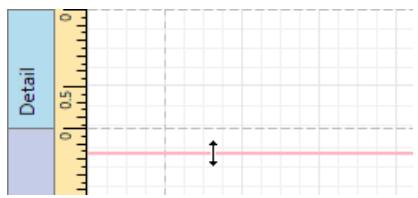
Resizing Report Elements

To resize a control using the mouse, select it and then drag a rectangle drawn on its edge or corner.



You can also select multiple controls and resize them in the same way as individual controls.

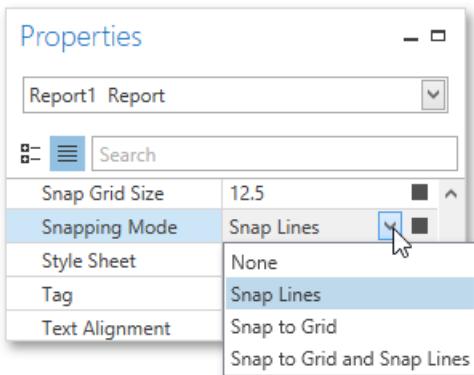
To resize a report band, drag its bottom border.



Control Positioning

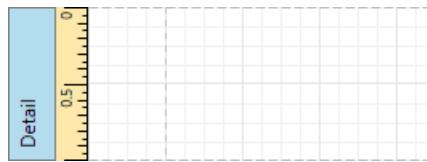
This document describes how to easily construct professionally looking reports by precisely aligning their [elements](#) to each other. These are useful when creating new reports from scratch or when fixing cluttered report layouts with dozens of randomly scattered controls.

To select an appropriate alignment mode for report elements, use a report's **Snapping Mode**.



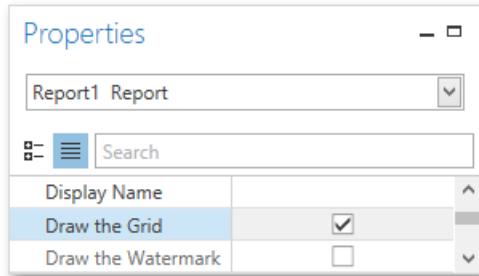
Snap Grid

When a report is being edited in the Report Designer, it is lined up by the snap grid. This helps to establish the distance between report elements and align them to each other.



In the **Snap to Grid** mode, a report control that is being relocated using the mouse or the ARROW keys is automatically aligned with the nearest grid cell. When resizing the report control, its size is discretely changed by one grid cell. You can temporarily ignore snapping to the grid when moving and resizing controls. For this, hold down the CTRL key when using the mouse and the ALT key when using the keyboard.

You can select whether the snap grid should be drawn over a report surface by setting the **Draw the Grid** option in the [Properties Panel](#).



You also can adjust the **Snap Grid Size**, which is measured in the [measurement units](#) set for your report.

Snap Lines

If the **Snap Lines** mode is selected, report elements are aligned using snap lines. These are special guide lines, which appear around the report control that is being moved or resized and indicate this control's bounds and the distance to other report elements (controls and bands).



To disable snapping using snap lines for controls being relocated or resized, additionally hold down the ALT key.

Snap Lines and Snap Grid

The **Snap to Grid and Snap Lines** mode enables snapping to both the snap grid and snap lines.

No Snapping

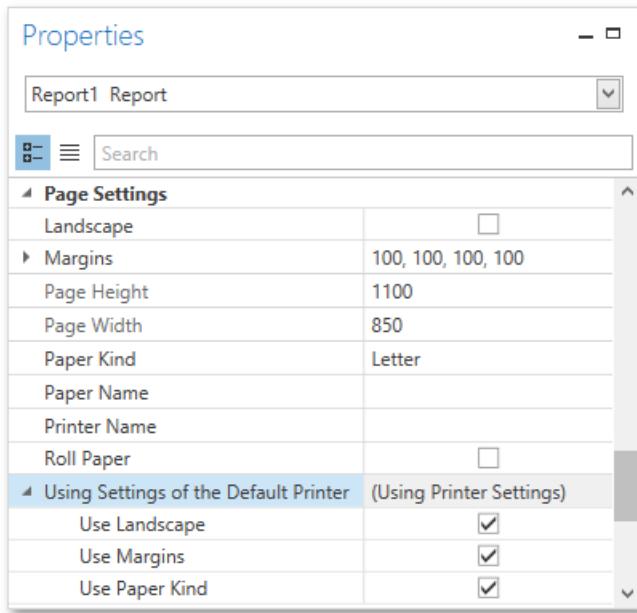
To disable snapping in your report, set the **Snapping Mode** property to **None**. In this case, report controls are moved and resized by one measurement unit defined by the **Report Unit** property.

Adjust Page Layout Settings

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

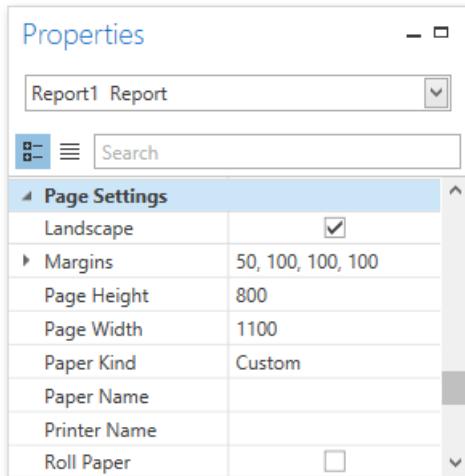
Using Settings of the Default Printer

For the orientation, margins and paper size, you can specify a requirement that applies the corresponding printer settings instead of the report's. This may be useful when the report is printed in several places with different printers and printer settings. To do this, go to the [Properties Panel](#), expand the **Using Settings of the Default Printer** property and enable required options.



Specify the Report's Page Settings

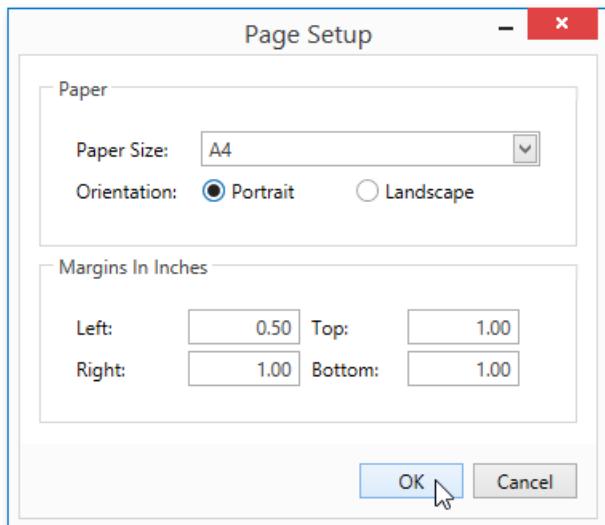
While designing the report, you can specify the page settings using the [Properties Panel](#).



You can select one of the predefined paper sizes or specify a custom paper size. To create your own paper size, set the **Paper Kind** property to **Custom**, and then specify the **Page Width** and **Page Height** properties. You can also use the **Paper Name** property to select a custom paper that is used in the printer that the document is going to be printed on.

To modify page margins, specify the **Margins** property. The margin values are expressed in the report's [measurement units](#). In addition, you can set the page orientation using the **Landscape** property and specify whether the document is supposed to be printed on roll paper.

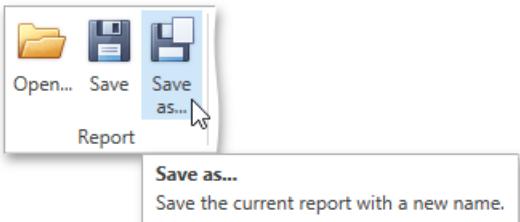
You can also modify the paper size, orientation and margins in the **Page Setup** dialog, which can be invoked by clicking the **Page Setup** button on the [Toolbar](#).



Back Up the Report Layout

To guarantee that you will be able to revert your report to its original state, you can create a *backup copy*. Then, you can apply changes without worrying that it will be hard to restore your report, in case something breaks.

- To save a copy of your report, click the **Save As** button in the **Toolbar**.

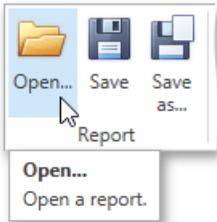


Then, in the invoked standard **Save** dialog, specify the folder and file name.

- To save the current layout of your report, click the **Save** button in the **Toolbar**, or press CTRL+S. When you click this button for the report for the first time, it invokes the **Save** dialog, which allows you to specify where the report should be saved. The subsequent clicking of this button for the same report will silently save the report to the previously specified file.



- To load a previously saved report, click the **Open** button in the **Toolbar** or press CTRL+O. This invokes the standard **Open** dialog, which allows you to locate and open report files.



Providing Data

The topics in this section describe the basic concepts of providing data for reports and their elements in the Report Designer.

- [Binding a Report to Data](#)
- [Binding Report Controls to Data](#)
- [Using Mail Merge](#)
- [Report Parameters](#)
- [Query Parameters](#)
- [Calculated Fields](#)

Binding a Report to Data

The [Report Designer](#) is primarily designed to work with *data-aware reports*, meaning that a report obtains its general dynamic data from an external data source.

The documents in this section describe how to connect reports to various kinds of data sources.

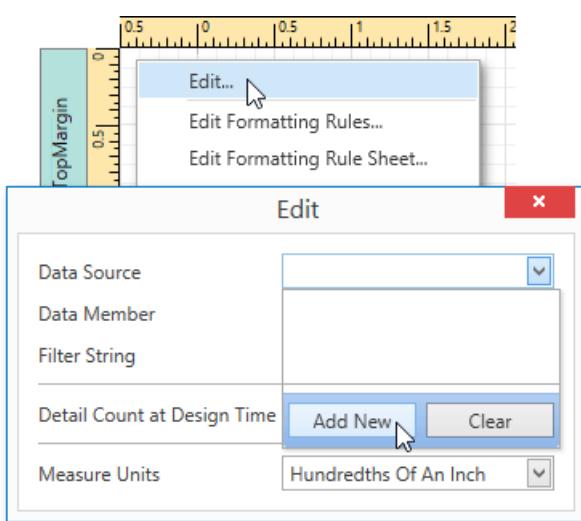
- [Bind a Report to a Database](#)
- [Bind a Report to an Entity Framework Data Source](#)
- [Bind a Report to an Object Data Source](#)
- [Bind a Report to an Excel Data Source](#)

Bind a Report to a Database

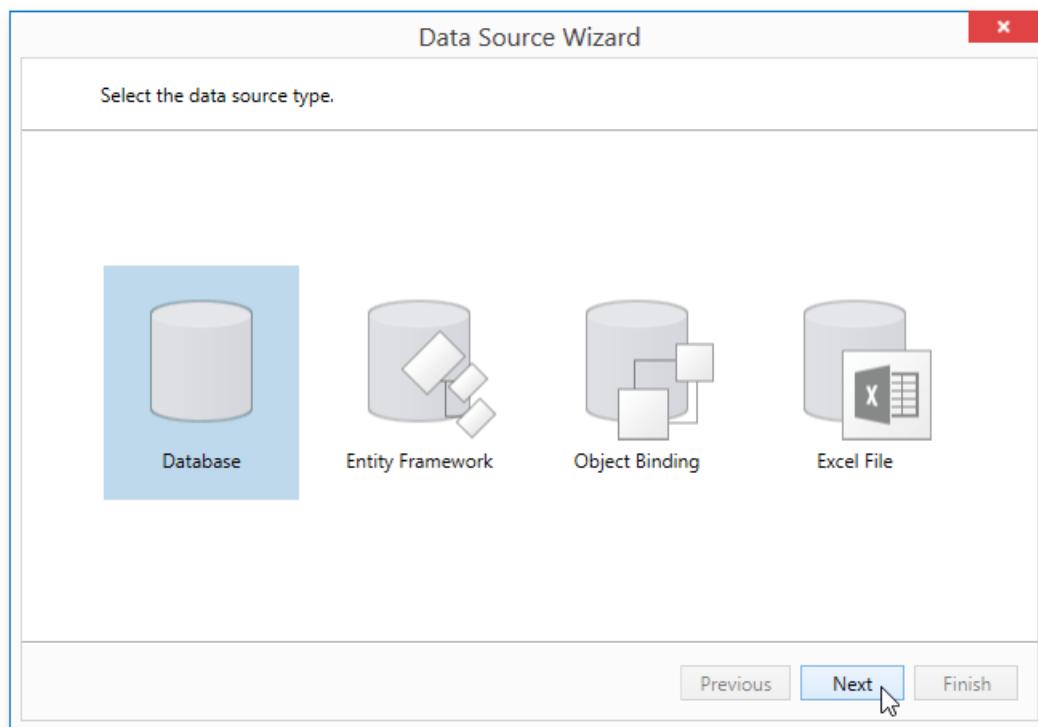
This document describes the steps required to connect a report to a database.

To bind a report to a database, do the following.

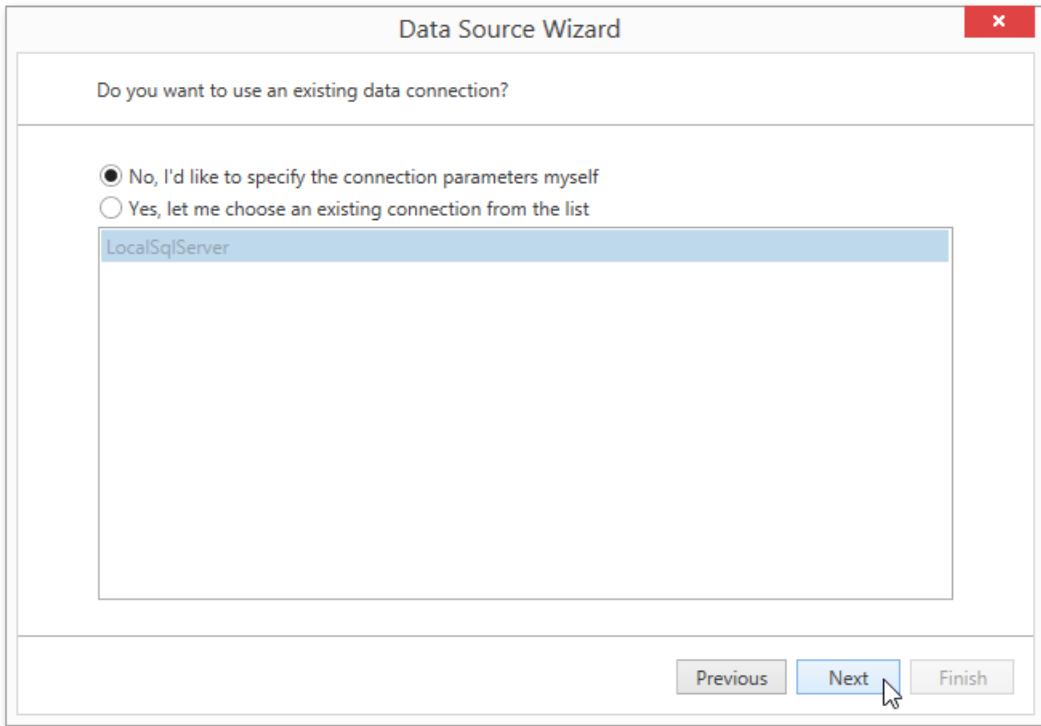
1. [Create a new report](#).
2. Right-click the report and select **Edit...** in the context menu. In the invoked dialog, expand the **Data Source** drop-down and click the **Add New** button.



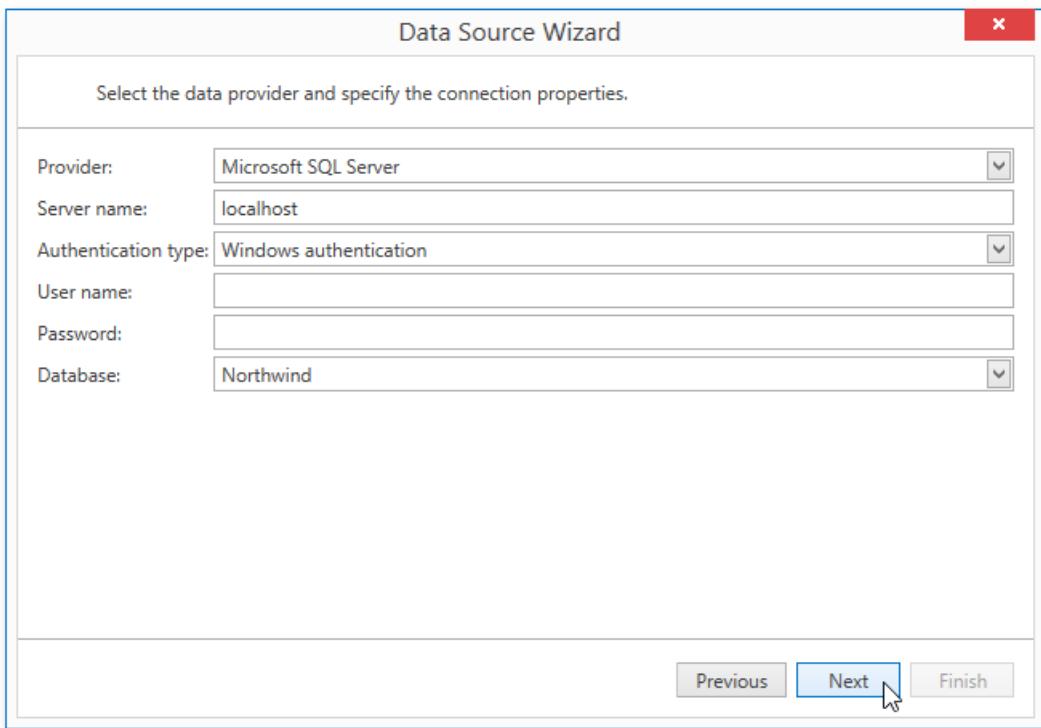
3. The first page of the invoked **Data Source Wizard** allows you to specify the data source type. Select **Database** and click **Next** to proceed.



4. On the next page, specify the data connection to be used. If it is absent in the list containing existing connections, select **No, I'd like to specify the connection parameters myself** and click **Next**.



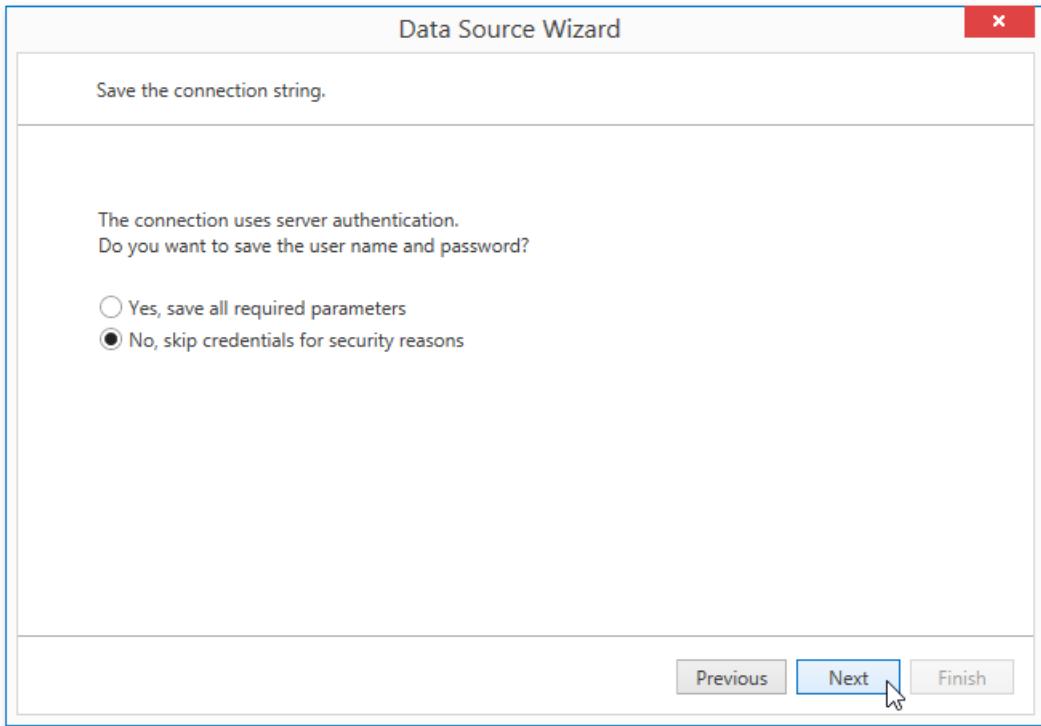
5. On the next wizard page, define a custom connection string, or select from the supported data source types. Depending on the data provider selected, it may be necessary to specify additional connection options (such as authentication type and database name) on this page.



Click **Next** to proceed.

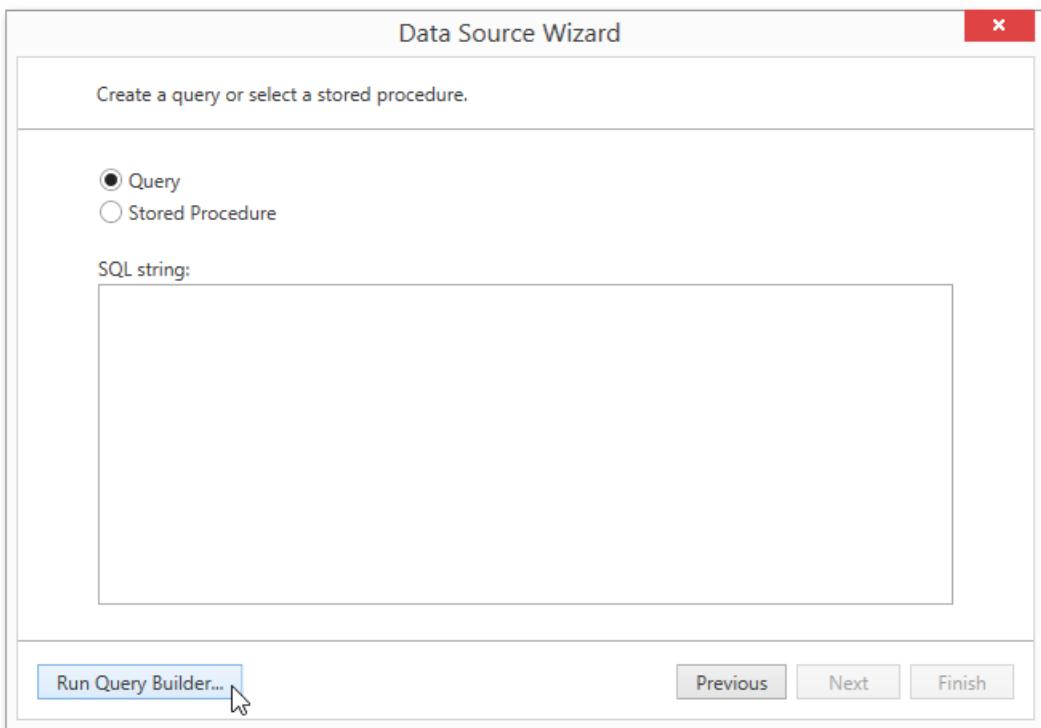
6. If server authentication is required for the selected database type, the next page will prompt you to specify whether or not you want to save the user credentials along with the connection string.

Select the required option and click **Next**.

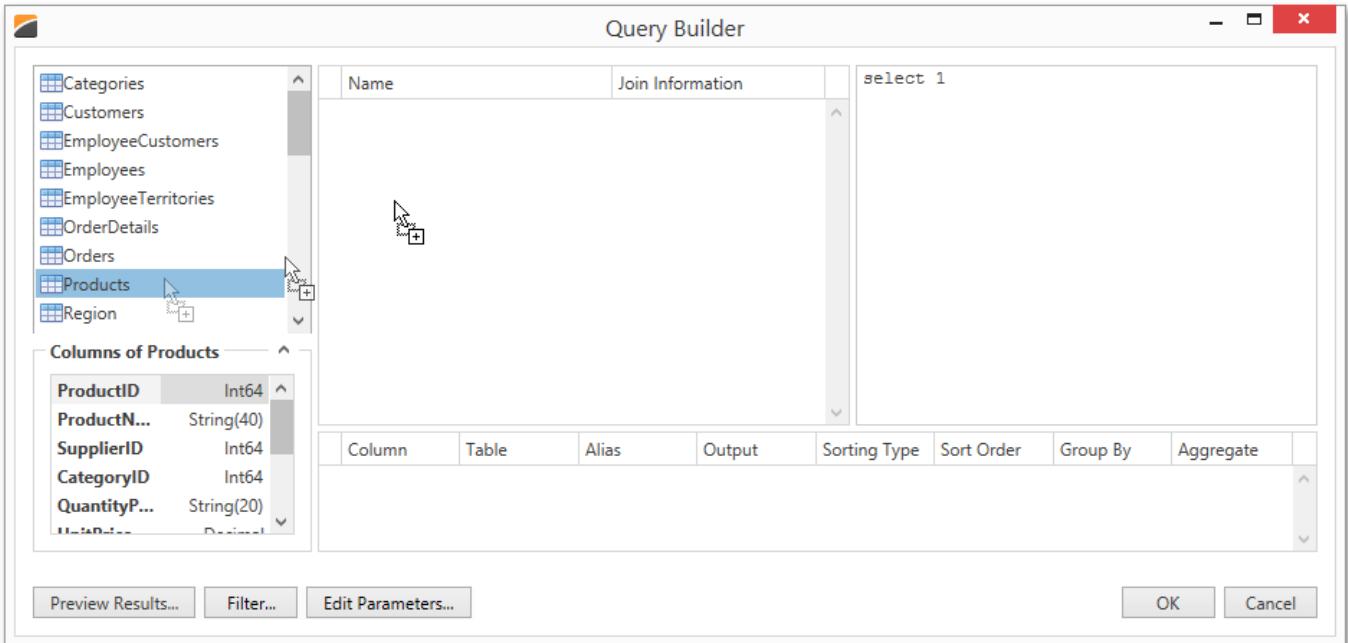


7. On the next page, you can construct an SQL query to obtain data from the database, or select a stored procedure.

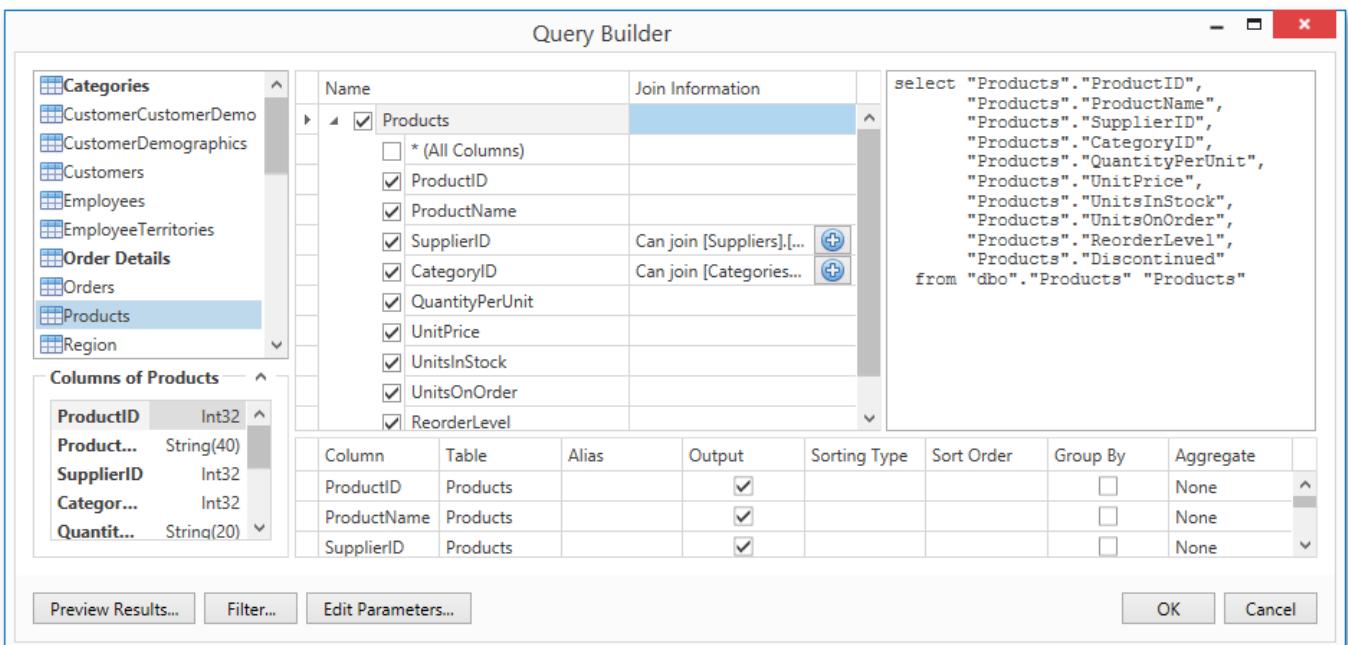
To construct an SQL query, click **Run Query Builder...**



8. In the invoked **Query Builder** window, select an item from the list of available tables on the left and drop it onto the list of data tables to be used.



9. Enable the check box near the added table to include all of its fields in the data view.



Click **OK** to exit the **Query Builder**. Click **Finish** to exit the **Data Source Wizard**.

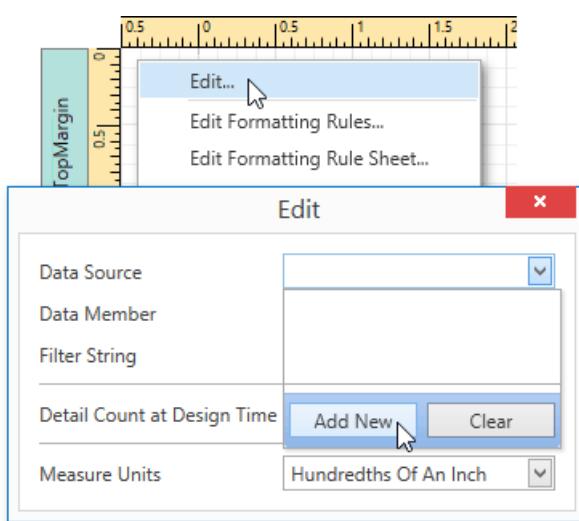
The newly created SQL data source will be displayed in the **Components** node of the **Report Explorer**. Additionally, the hierarchy of the data source will be reflected by the **Field List**.

Bind a Report to an Entity Framework Data Source

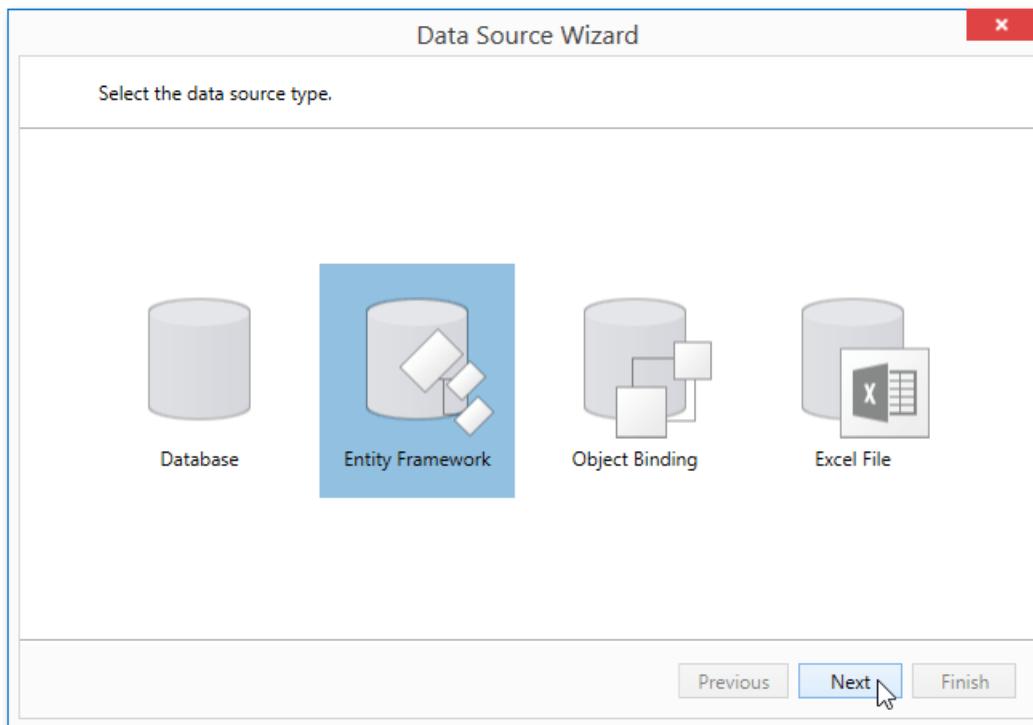
This document describes the steps required to connect a report to data provided by an Entity Framework data context.

To bind a report to an Entity Framework data source, do the following.

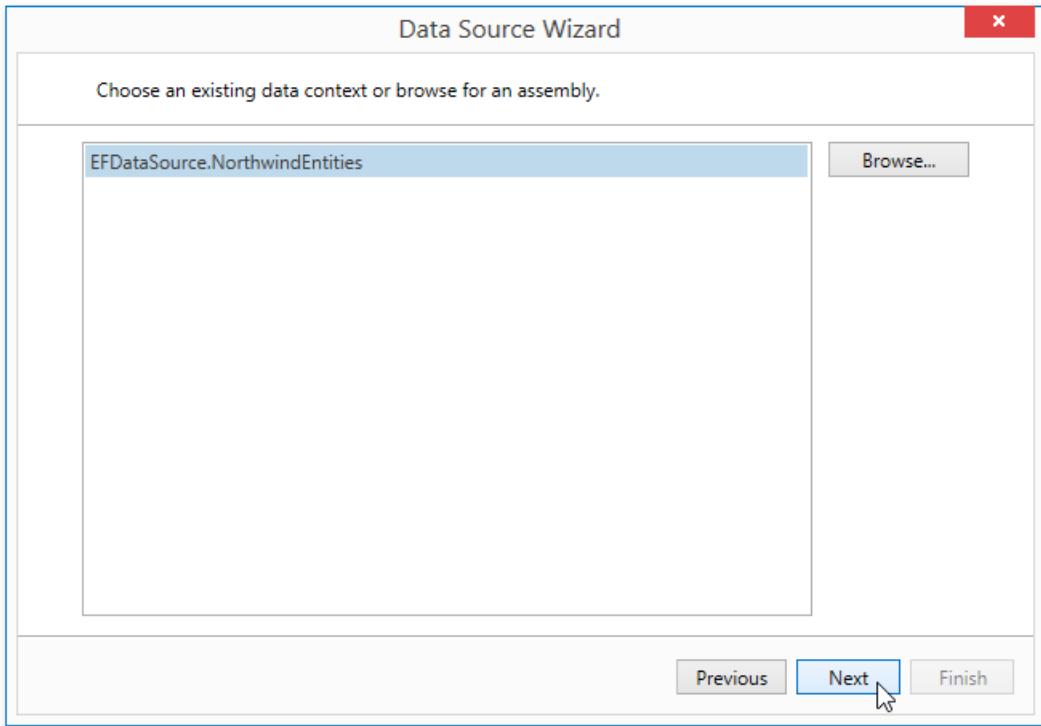
1. [Create a new report](#).
2. Right-click the report and select **Edit...** in the context menu. In the invoked dialog, expand the **Data Source** drop-down and click the **Add New** button.



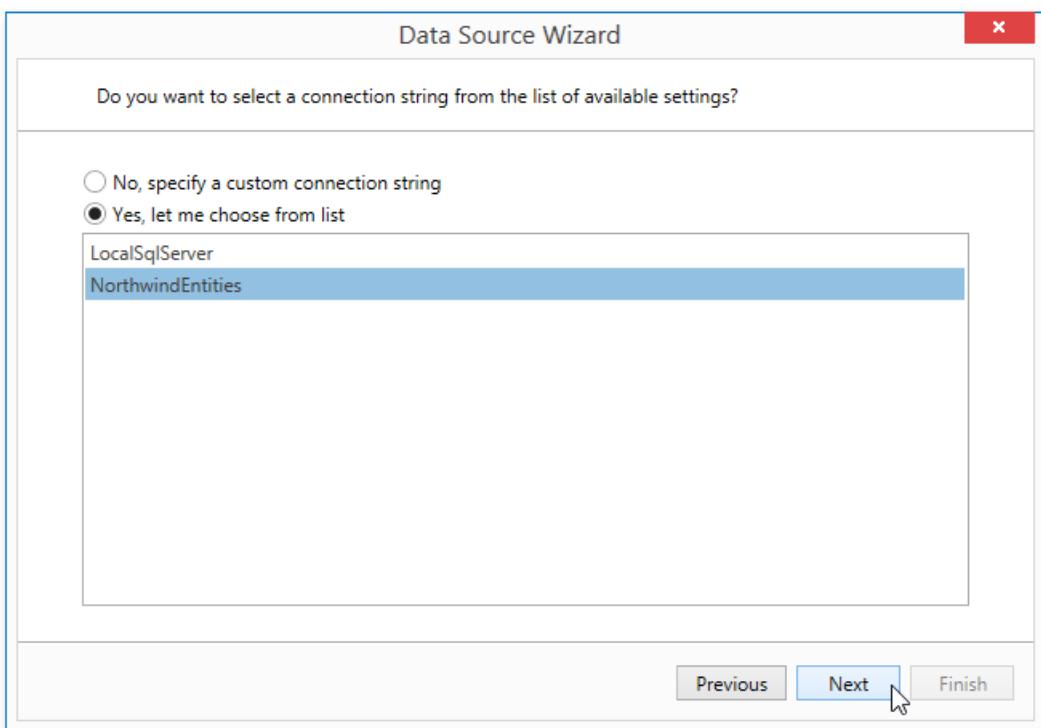
3. The first page of the invoked **Data Source Wizard** allows you to specify the data source type. Select **Entity Framework** and click **Next** to proceed.



4. On the next page, select the required data context from the list of available data contexts and click **Next**.

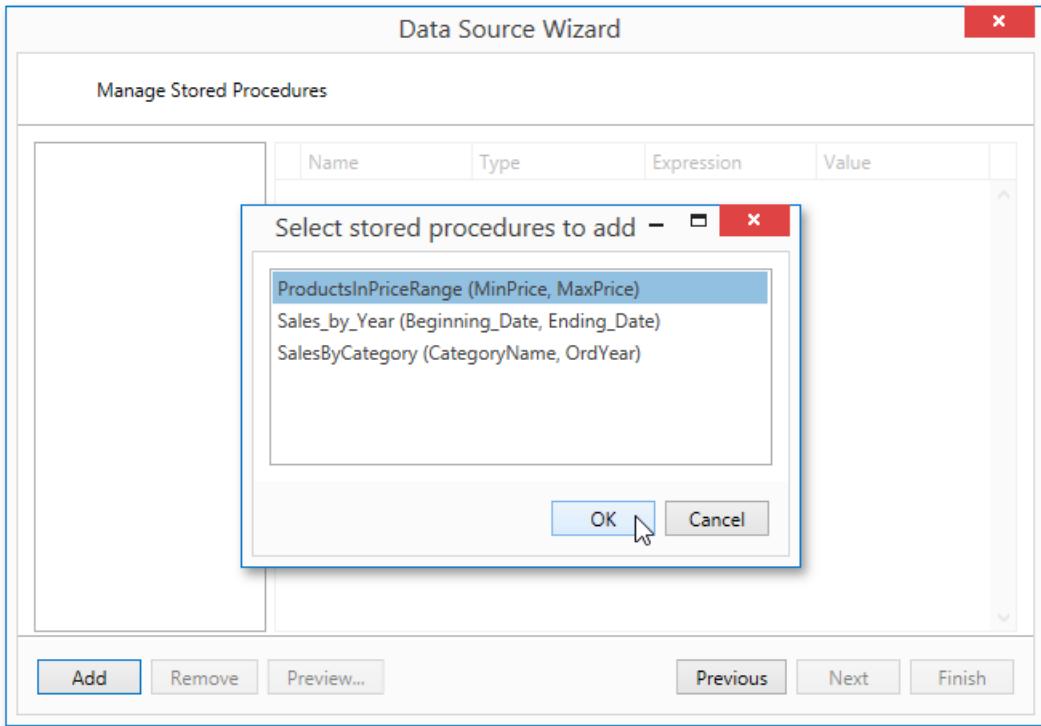


5. Select a connection string to be used to establish a data connection.

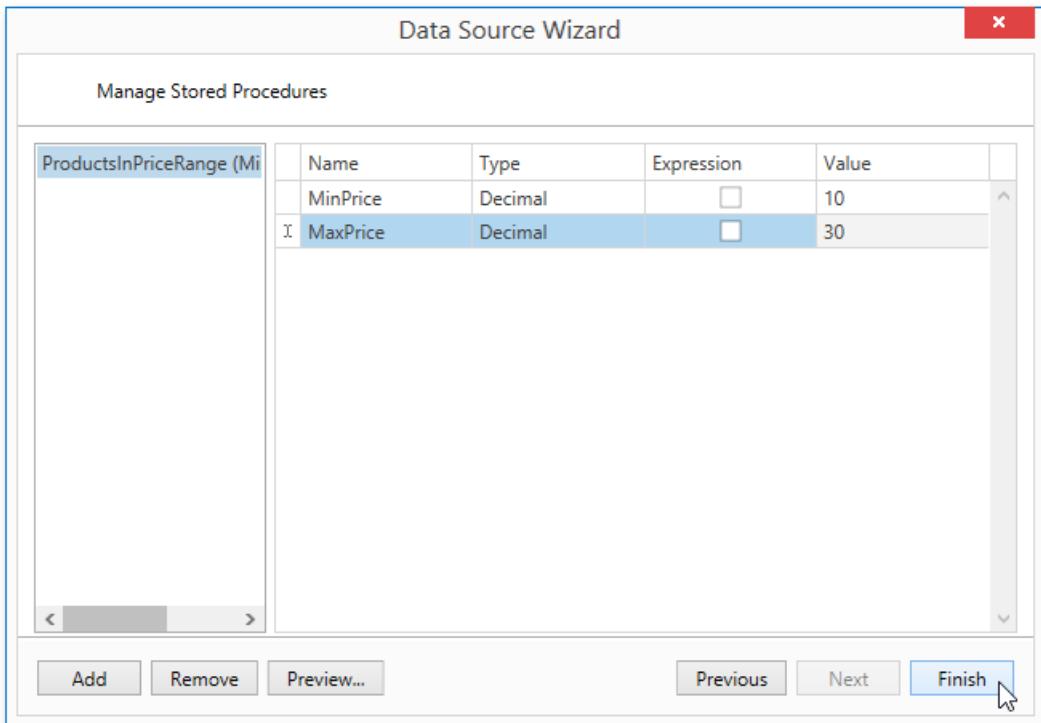


Click **Next** to proceed to the next page.

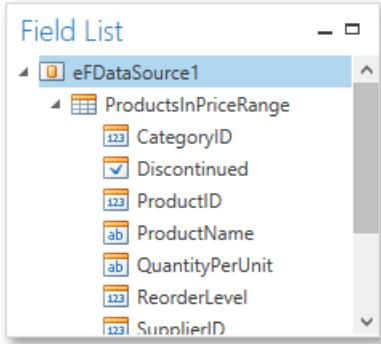
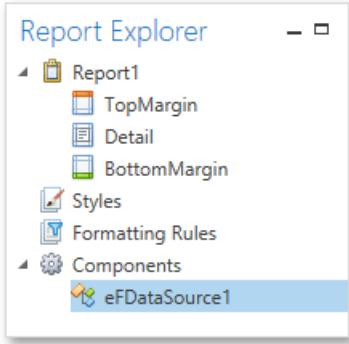
6. The following wizard page is available only if the current entity data model contains stored procedures. To bind to a stored procedure, click **Add**. Then, in the invoked window, select a required stored procedure and click **OK**.



7. Configure the parameters to be passed to the selected stored procedure. Be sure to specify the correct parameter **Type**. Click **Finish** to exit the wizard.



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

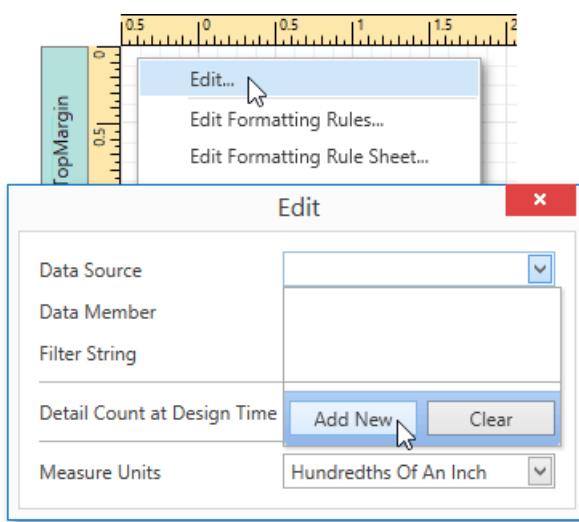


Bind a Report to an Object Data Source

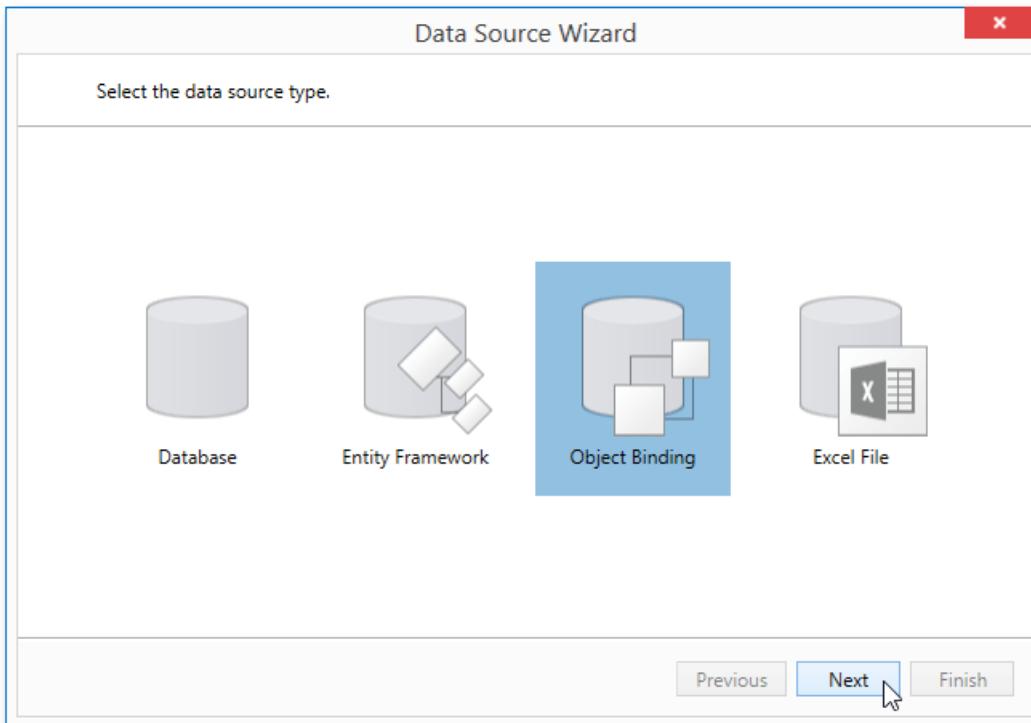
This document describes the steps required to connect a report to an object data source.

To bind a report to an object data source, do the following.

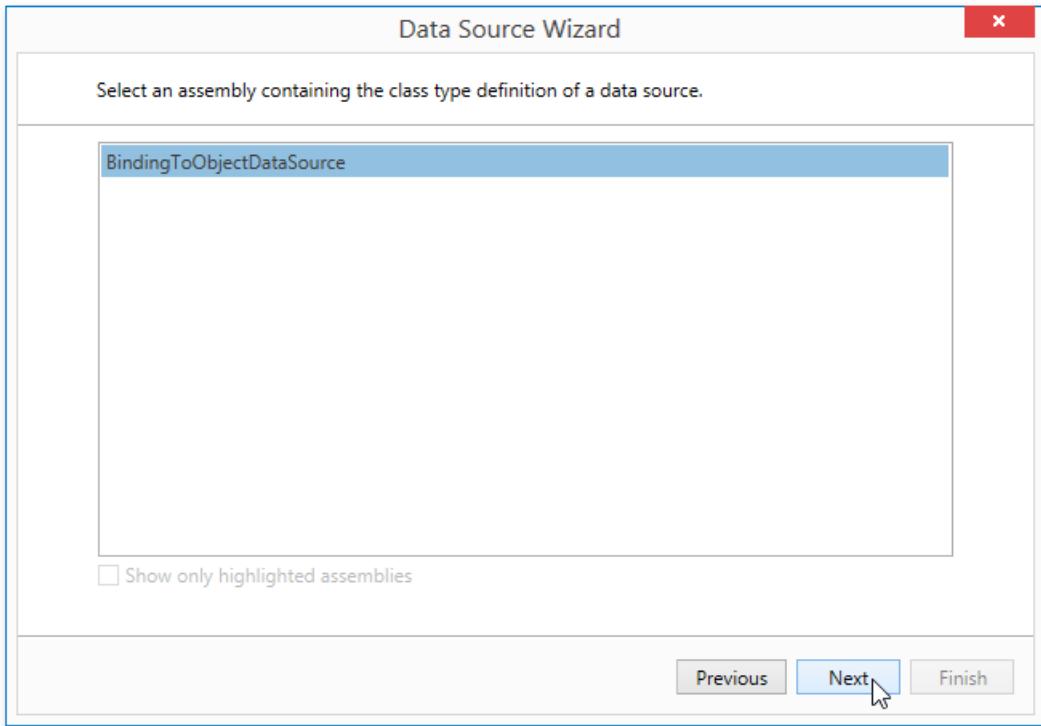
1. [Create a new report](#).
2. Right-click the report and select **Edit...** in the context menu. In the invoked dialog, expand the **Data Source** drop-down and click the **Add New** button.



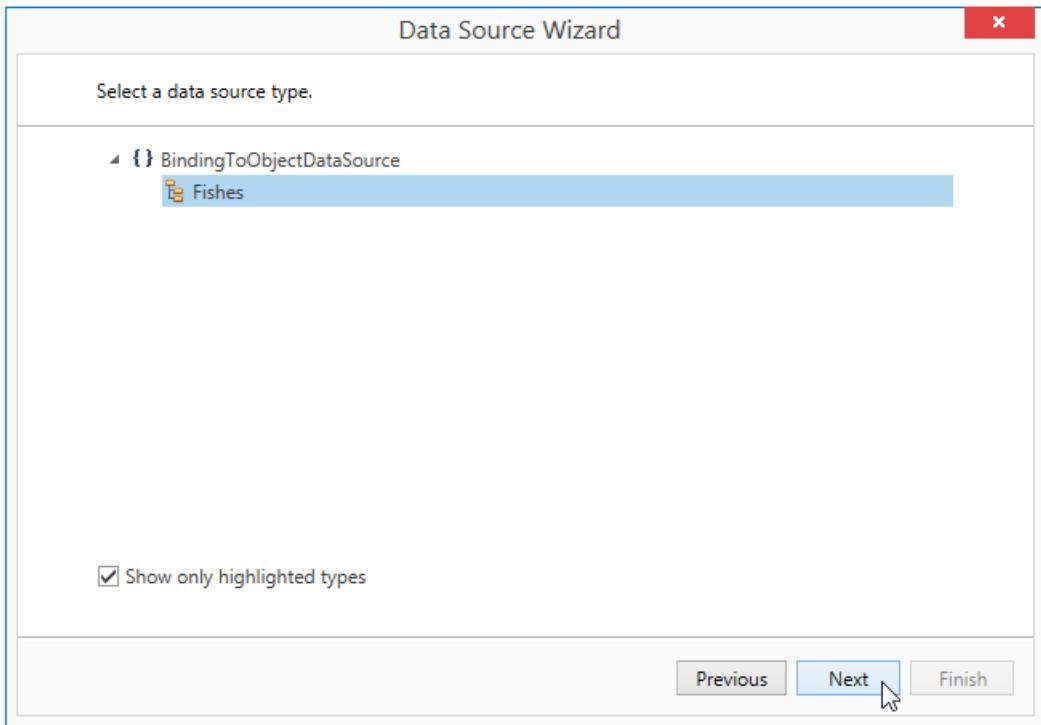
3. The first page of the invoked **Data Source Wizard** allows you to specify the data source type. Select **Object Binding** and click **Next** to proceed.



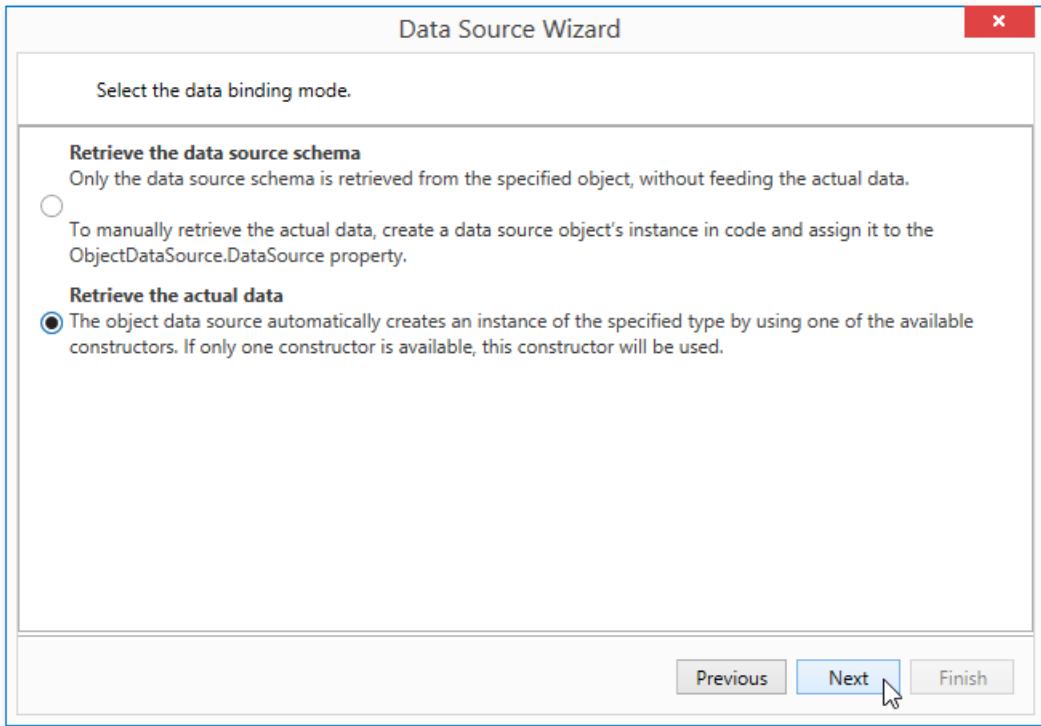
4. Next, select an assembly that contains the class type definition of the data source. To exclude irrelevant assemblies from this list, select the **Show only highlighted assemblies** check box.



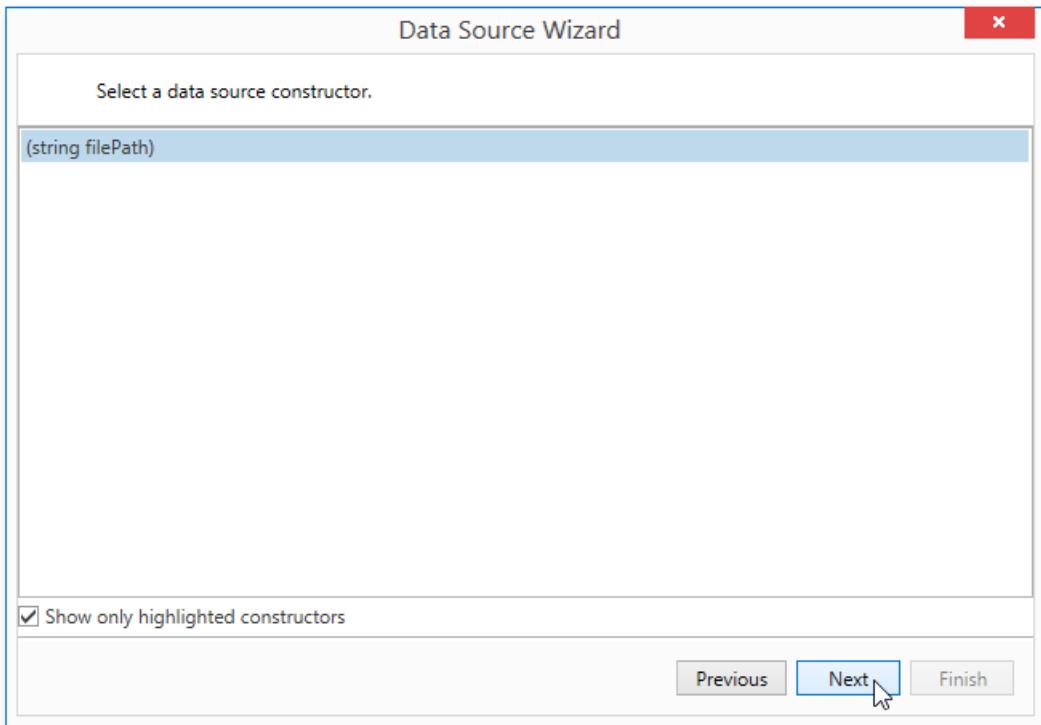
5. On the following wizard page, select a data source type. To exclude irrelevant classes from this list, select the **Show only highlighted types** check box.



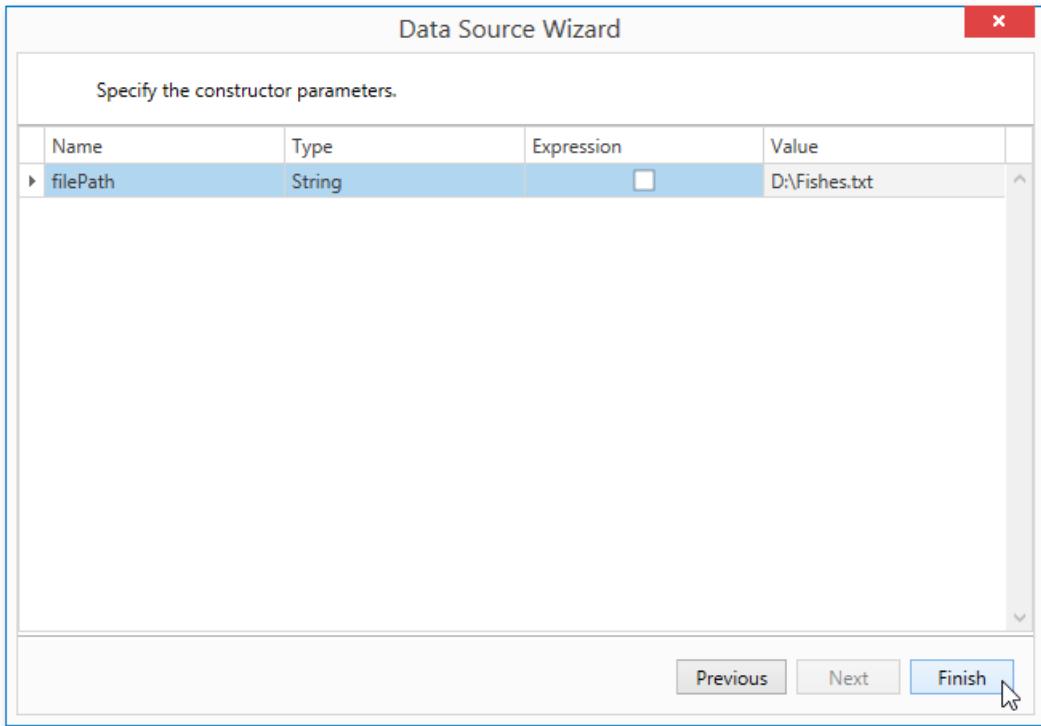
6. On the next wizard page, select whether you need to retrieve the actual data from the data source or obtain the data source schema (enabling you to edit the report layout without having access to the actual underlying data). Select the second option and click **Next** to proceed.



7. The following page allows you to select a data source constructor to be used to create an instance of the data source. To exclude irrelevant constructors from the list, select the **Show only highlighted constructors** check box.



8. On this wizard page, you can specify the parameters for the selected constructor. To specify the constructor parameter's value, use the **Value** column. Enable the check box in the **Expression** column to make it possible to specify the parameter expression using the **Expression Editor**. In this case, you can pass an existing report parameter to the member or even create a new report parameter using the in-place editor.



Click **Finish** to exit the wizard.

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

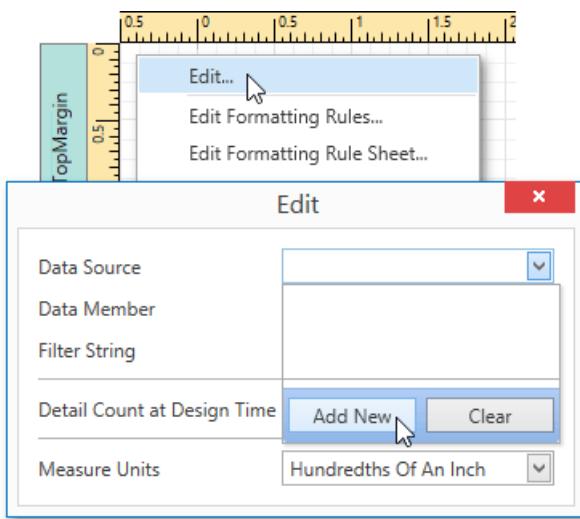
The screenshot shows the 'Report Explorer' and 'Field List' windows. In the Report Explorer, under the 'Components' node, 'objectDataSource1' is selected. In the Field List window, 'objectDataSource1' is expanded, showing fields: Fish Category, Fish Common Name, Fish ID, Fish Notes, Fish Species Name, and Parameters.

Bind a Report to an Excel Data Source

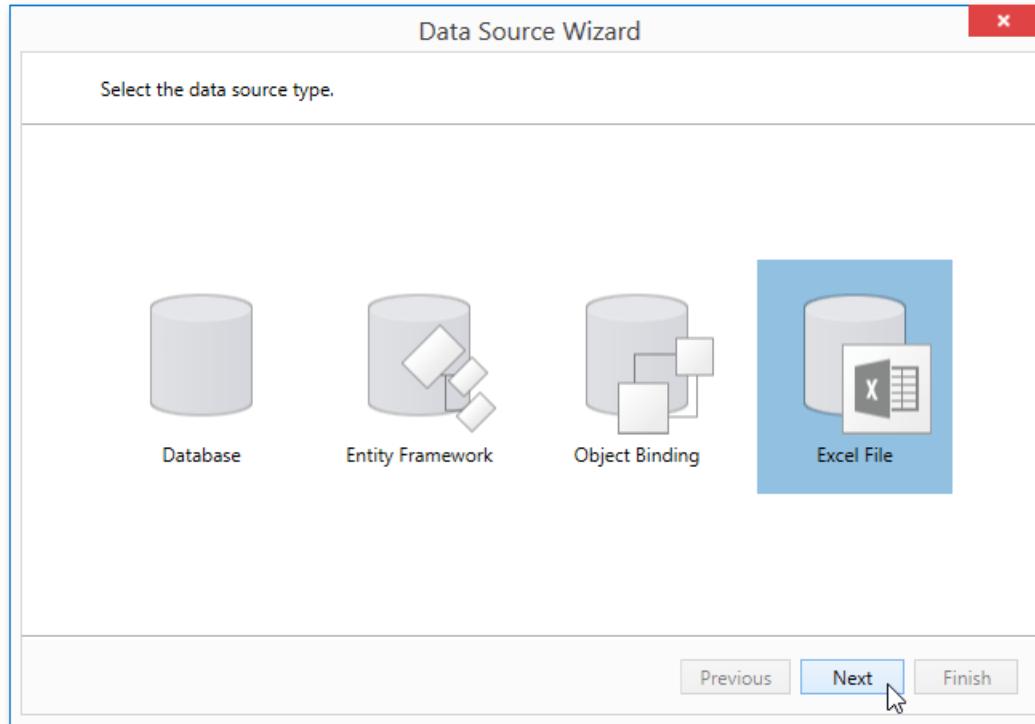
This document describes the steps required to connect a report to data obtained from a Microsoft Excel workbook.

To bind a report to an Excel data source, do the following.

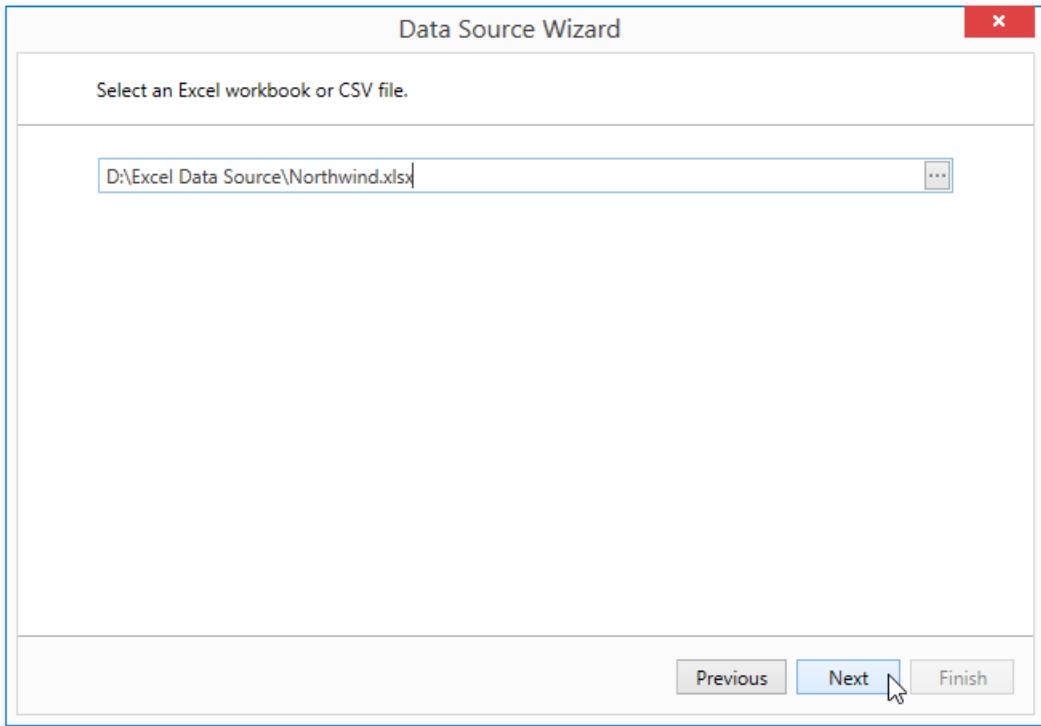
1. [Create a new report](#).
2. Right-click the report and select **Edit...** in the context menu. In the invoked dialog, expand the **Data Source** drop-down and click the **Add New** button.



3. The first page of the invoked **Data Source Wizard** allows you to specify the data source type. Select **Excel File** and click **Next** to proceed.



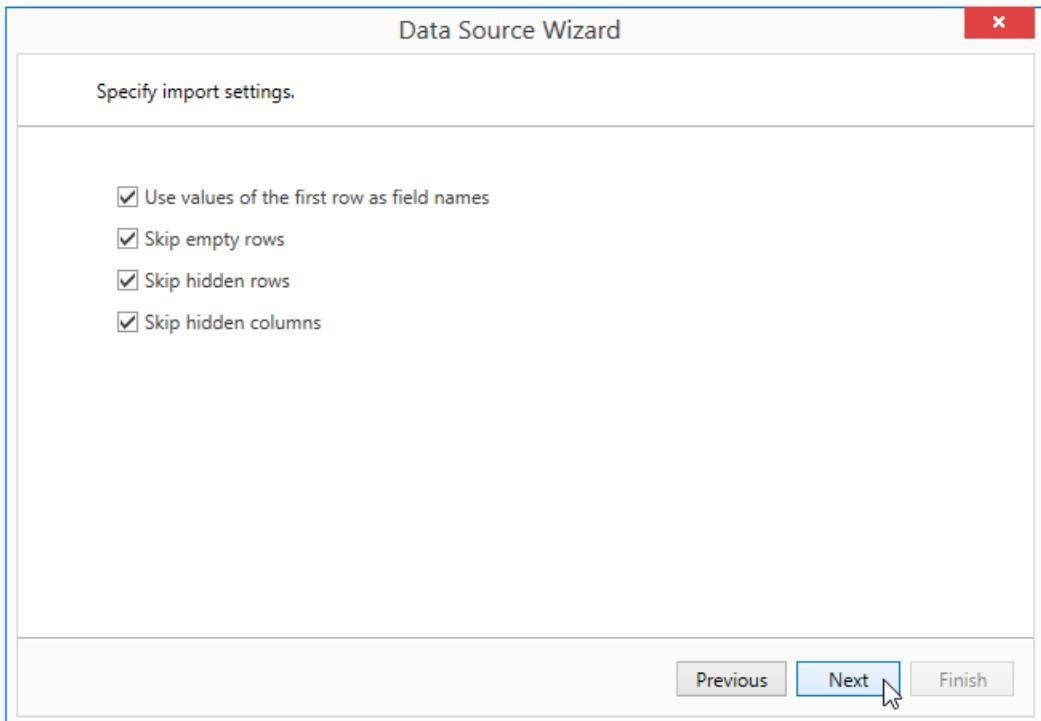
4. On the next wizard page, select a required Excel workbook. To do this, click the ellipsis button and locate the source file or enter the full path to this file. The XLS, XLSX and XLSM formats are supported.



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

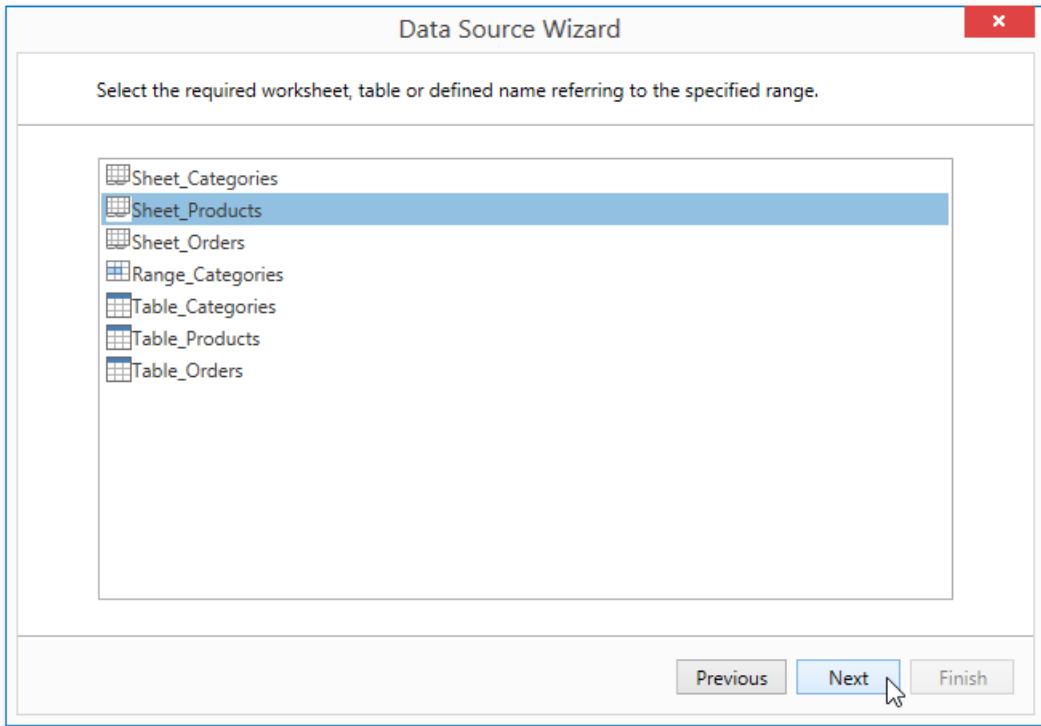
5. The next wizard page allows you to specify import settings.

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



Specify required settings and click **Next**.

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



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

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

The screenshot shows the 'Data Source Wizard' window with the title 'Select required columns and specify their settings.' A table lists columns with checkboxes for selection, names, and types. The 'EAN13' column is selected. At the bottom are 'Preview...', 'Previous', 'Next' (highlighted with a cursor), and 'Finish' buttons.

Selected	Name	Type
<input type="checkbox"/>	ProductID	Double
<input checked="" type="checkbox"/>	ProductName	String
<input type="checkbox"/>	SupplierID	Double
<input checked="" type="checkbox"/>	CategoryID	Double
<input checked="" type="checkbox"/>	QuantityPerUnit	String
<input checked="" type="checkbox"/>	UnitPrice	Double
<input checked="" type="checkbox"/>	UnitsInStock	Double
<input type="checkbox"/>	UnitsOnOrder	Double
<input type="checkbox"/>	ReorderLevel	Double
<input type="checkbox"/>	Discontinued	Boolean
<input type="checkbox"/>	EAN13	String

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

Data Preview (First 1000 Rows Displayed)

Product Name	Category ID	Quantity Per Unit	Unit Price	Units In Stock
Chai	1	10 boxes x 20 bags	18	
Chang	1	24 - 12 oz bottles	19	
Aniseed Syrup	2	12 - 550 ml bottles	10	
Chef Anton's Cajun... Chef Anton's Gum...	2	48 - 6 oz jars 36 boxes	22 21.35	
Grandma's Boysen...	2	12 - 8 oz jars	25	
Uncle Bob's Organici...	7	12 - 1 lb pkgs.	30	
Northwoods Cranb...	2	12 - 12 oz jars	40	
Mishi Kobe Niku	6	18 - 500 g pkgs.	97	

OK

Click **Finish** to complete the wizard.

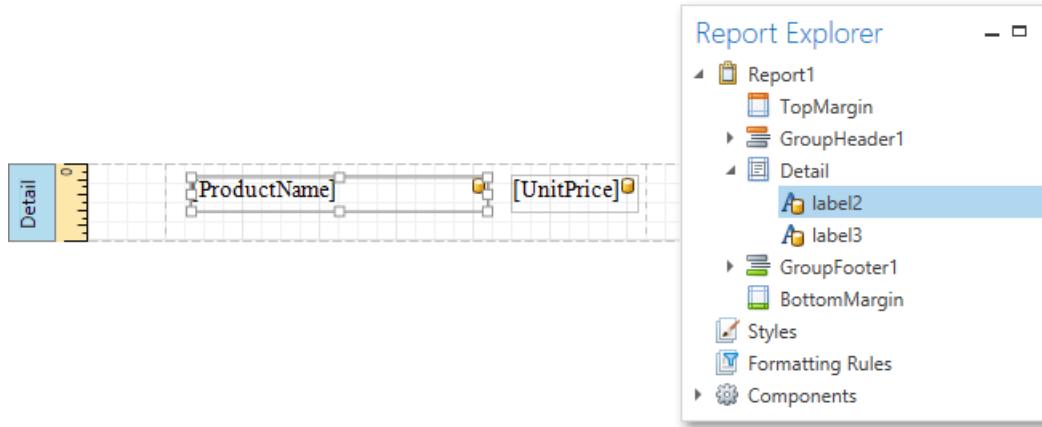
The newly created data source will be displayed in the **Components** node of the [Report Explorer](#). Additionally, the hierarchy of the data source will be reflected by the [Field List](#).

The screenshot shows two windows side-by-side. On the left is the **Report Explorer** window, which lists the report structure: Report1, TopMargin, Detail, BottomMargin, Styles, Formatting Rules, Components, and excelDataSource. The excelDataSource item is selected. On the right is the **Field List** window, which displays the fields defined in the excelDataSource component: CategoryID, ProductName, QuantityPerUnit, UnitPrice, and UnitsInStock. There is also a Parameters section listed.

Binding Report Controls to Data

Report controls can either display static information or dynamic data obtained from the [bound data source](#).

Data-bound controls are indicated by a yellow database icon, both on the [Design Surface](#) and in the [Report Explorer](#).



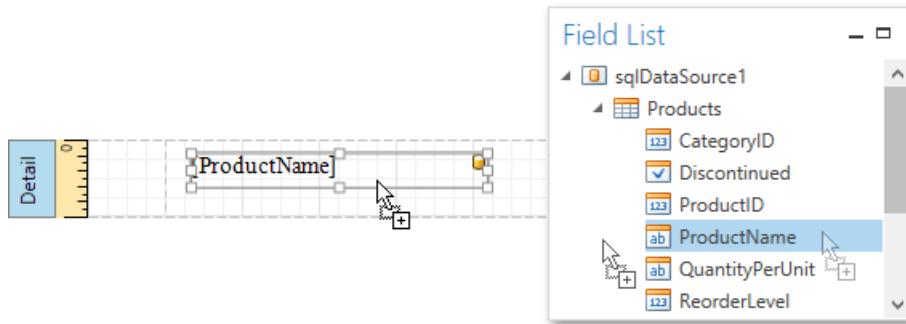
To embed dynamic information to a report, if this information is contained in the report data source, you can use one of the following approaches.

- [Using the Field List](#)
- [Using the Context Menu](#)
- [Using the Properties Panel](#)

After a control is bound to data, you can employ additional features that are listed in the [Special Capabilities](#) section of this document.

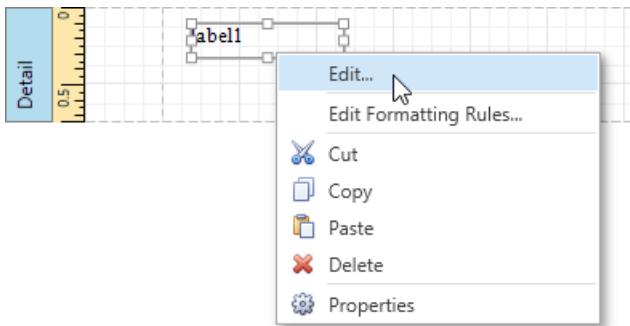
Using the Field List

The Report Designer allows you to create a data-aware element using the [Field List](#). To do this, switch to the Field List panel, click the desired field item and drop it onto the report band. This automatically creates a control bound to the selected data field.

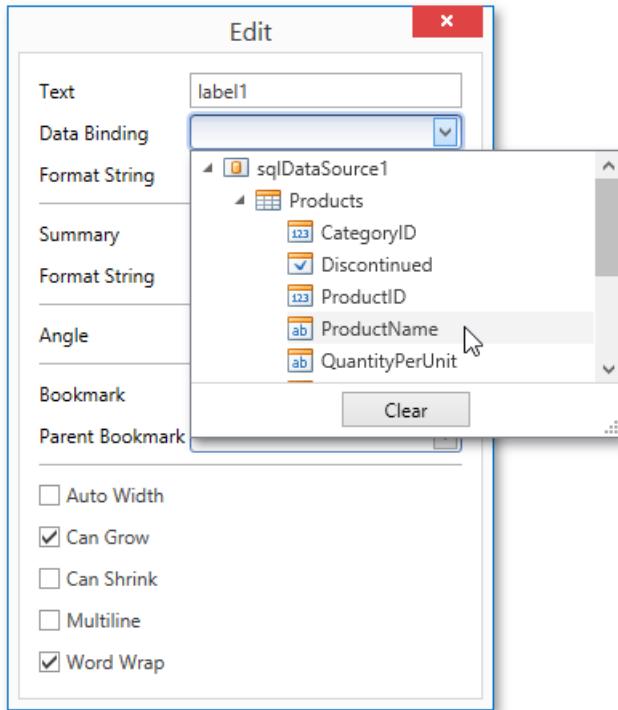


Using the Context Menu

Right click an existing report control, and in the invoked context menu, click the **Edit...** link.



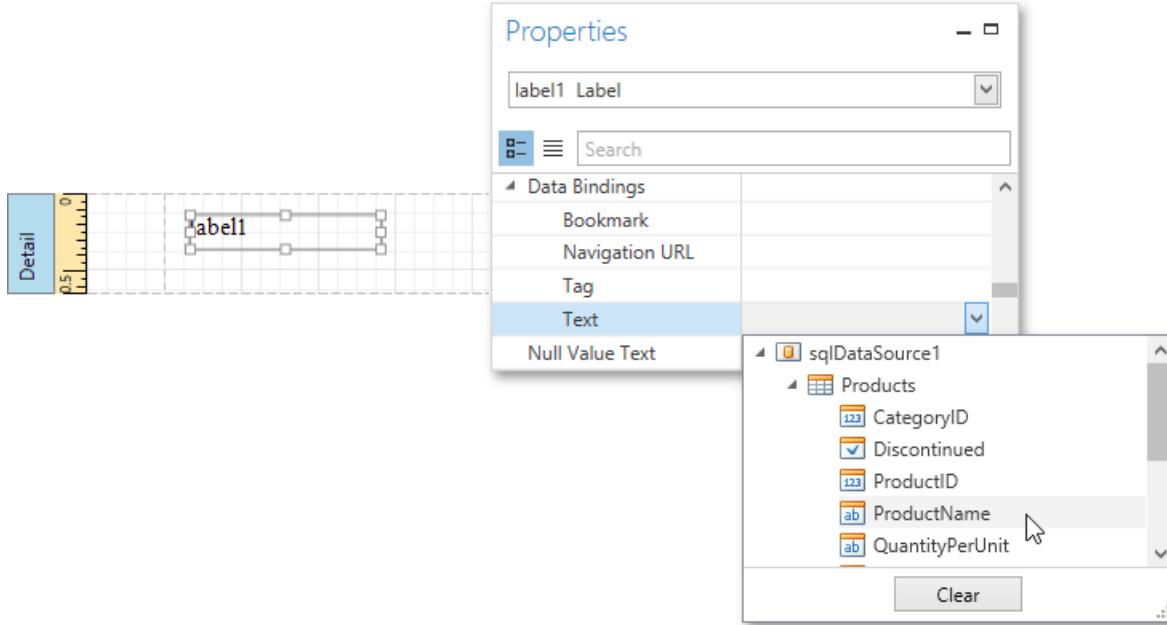
In the invoked **Edit** dialog, expand the **Data Binding** drop-down and select the required data field.



To unbind a control's property, expand the **Data Binding** drop-down and click the **Clear** button.

Using the Properties Panel

Select a control (e.g., on the [Design Surface](#)) and switch to the [Properties Panel](#). Expand the **Data Bindings** option and specify a data field for the required property (e.g., **Text**).



To unbind a control's property, expand the corresponding drop-down and click the **Clear** button.

Special Capabilities

After a control is bound, you can apply formatting to its dynamic content (e.g., for it to be treated as currency, or date-time content). For details on this, refer to [Formatting Data](#).

It is possible to force a control to display a result of a summary function calculated across the data field to which it is bound. For more information, see [Calculating Summaries](#).

Another noteworthy option is to combine both static and dynamic content within the same control (e.g., to append some text prefix or postfix to a value obtained from a database), or even bind a control to multiple data fields at one time. This is detailed in [Using Mail Merge](#).

If you are required to perform pre-calculations over the data field to which a control is bound, you can do so by creating a *calculated field*, and binding the control to it. This is detailed at [Calculated Fields](#).

In turn, a calculated field may contain both dynamic and static *parameters*, which can be requested each time a report is being previewed. For more information, refer to [Report Parameters](#).

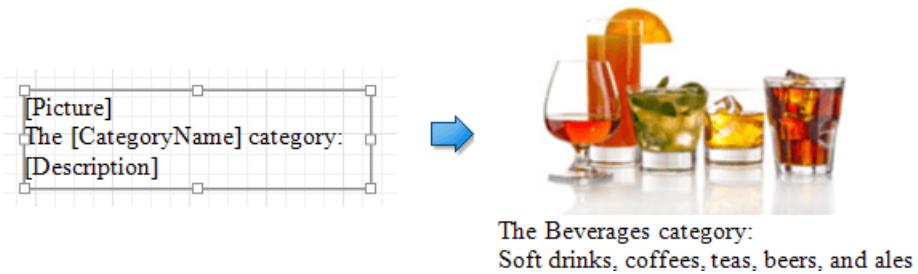
Using Mail Merge

The *mail merge* feature allows you to combine both static and [dynamic](#) content within the same [report control](#). For instance, you can append some text prefix or postfix to a value obtained from a database, or even bind a control to multiple data fields at one time.

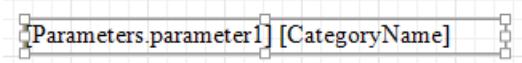
Mail merge is available for the following controls.

- Label
- Table Cell
- Check Box
- Barcode
- Zip Code

To embed dynamic data into a control's static content, type in data field names surrounded by **[square brackets]**. If this field is valid in the current data context, it will be replaced with an appropriate data value when a report is previewed or exported. Since this data field is inserted into a label's text, you may also use any prefix or postfix. Moreover, you can insert several embedded fields into the **Text** of a single control, and all these embedded fields should be processed correctly.



To embed a parameter's value into a control's content, use the **Parameters.ParameterName** syntax.



Report Parameters

This document describes the main concepts of using parameters in the Report Designer and provides information on how to create parameters and pass their values.

The document consists of the following sections.

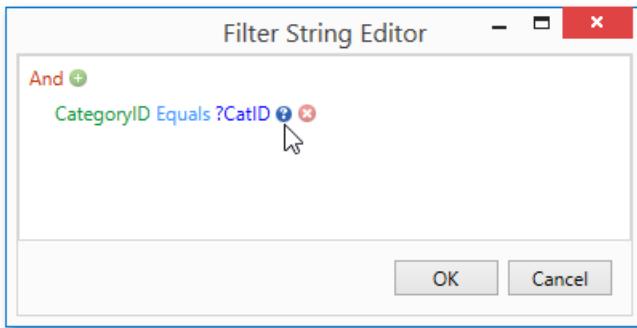
- [Using Parameters](#)
- [Creating Parameters](#)
- [Passing Parameter Values](#)

Using Parameters

Report parameters provide the capability to pass data of a certain type to a report and can be used in different ways listed below.

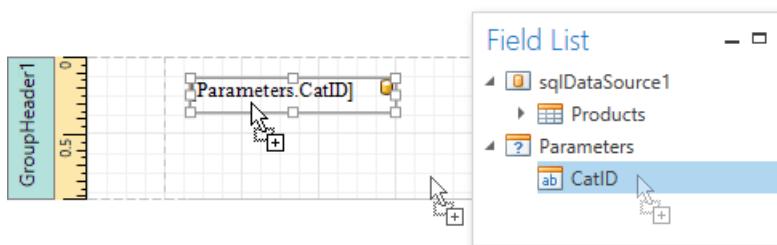
- **Filtering**

You can use a report parameter to filter report data according to the current parameter value by specifying the report's **Filter String**. For more information, see the [Filtering Data](#) topic.



- **Data Binding**

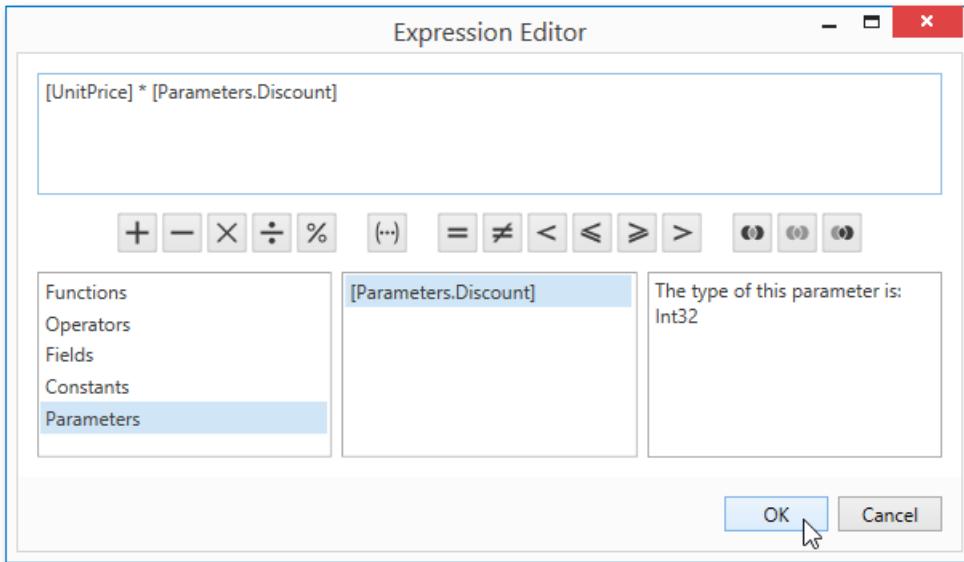
To show a parameter's value in a report, drag the parameter from the **Field List** panel and drop it onto the required band. This creates a **Label** bound to the parameter, as with an ordinary data field.



For more information, see the [Binding Report Controls to Data](#) topic.

- **Calculated Fields and Conditional Formatting**

Parameters can participate in constructing expressions for [calculated fields](#) and [formatting rules](#), as well as standard data fields. The only difference is that a parameter is inserted into the expression's text using the "**Parameters.**" prefix before its name.



- **Cascading Parameters**

You can filter parameter values by specifying the filtering expression that can also include other parameter values. To construct this filtering expression, set the parameter's **Look-Up Settings Type** property to **StaticList** or **DynamicList** and then specify its **Filter String** property.

(Name)	parameterCompanyName
Description	Parameter
Look-Up Settings	DynamicList
Data Adapter	
Data Member	Suppliers
Data Source	dsMasterDetail1
Display Member	dsMasterDetail1 - Suppl...
Filter String	dsMasterDetail1 - Suppl...
Value Member	dsMasterDetail1 - Suppl...
Multi-Value	

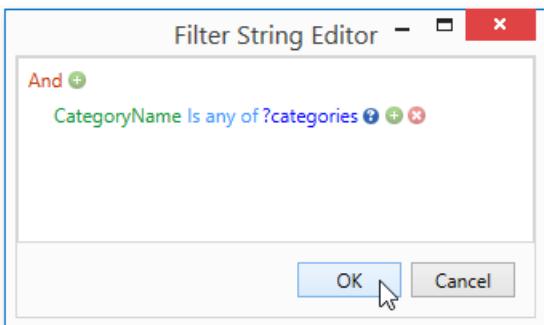
- **Multi-Value Parameters**

If a parameter is bound to a collection of standard values, it is possible to store more than one value in it. To do this, enable the parameter's **MultiValue** property.

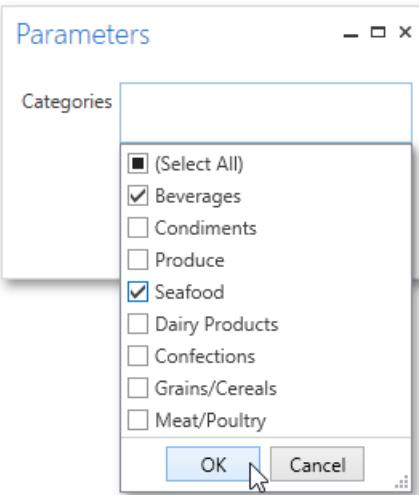
(Name)	categories
Description	Categories
Look-Up Settings	DynamicList
Multi-Value	<input checked="" type="checkbox"/>
Type	System.String
Value	String[]
Visible	<input checked="" type="checkbox"/>

Multi-value parameters are useful when you need to filter report data against a list of values. The image below

demonstrates a correct filtering expression that incorporates a multi-value parameter.



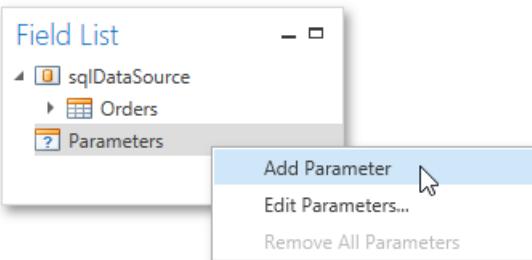
The following image demonstrates an editor for a multi-value parameter in a [Print Preview](#).



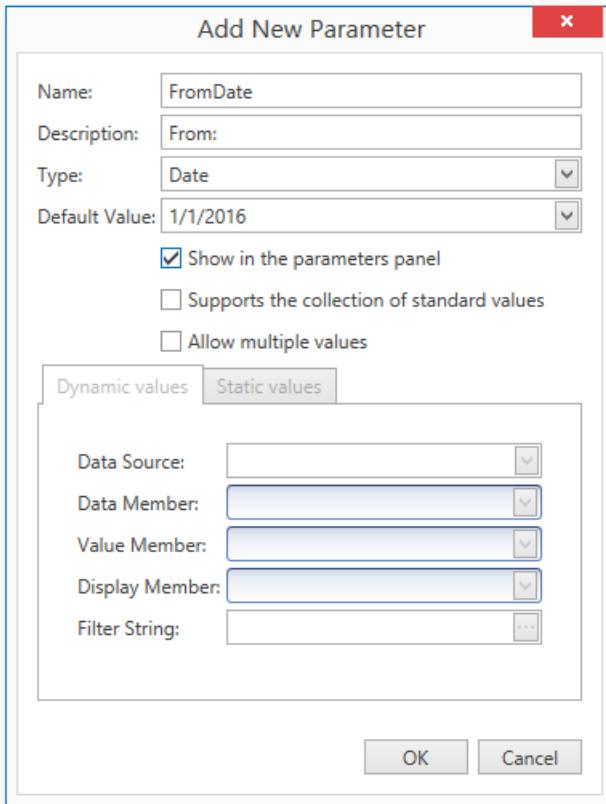
Creating Parameters

To create report parameters, follow the steps below.

1. [Create a new report](#) and bind it to a data source.
2. In the [Field List](#) panel, right-click the **Parameters** section and in the invoked menu, click **Add Parameter**.



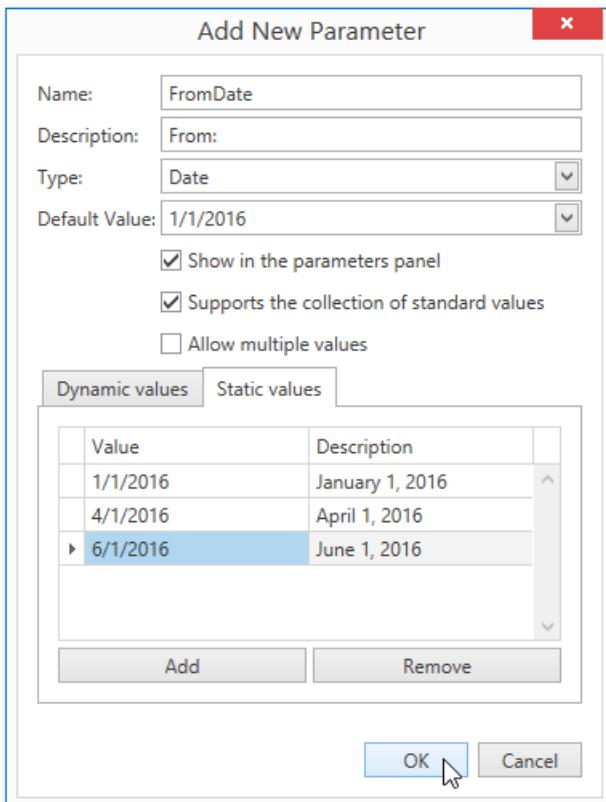
3. In the invoked **Add New Parameter** dialog, set the created parameter's **Name** and **Description** properties and make sure to set its **Type** to an appropriate value. To display this parameter in the [Print Preview](#), enable the **Show in the parameters panel** option.



4. To assign a list of values to this report parameter, enable the **Supports the collection of standard values** option.

In the **Dynamic values** tab, you can specify a parameter's data source, data member, value member and display member. The value member defines a data field that provides values to the parameter. The display member defines a data field that provides display names for parameter values, i.e., how these values appear in the user interface available in a [Print Preview](#).

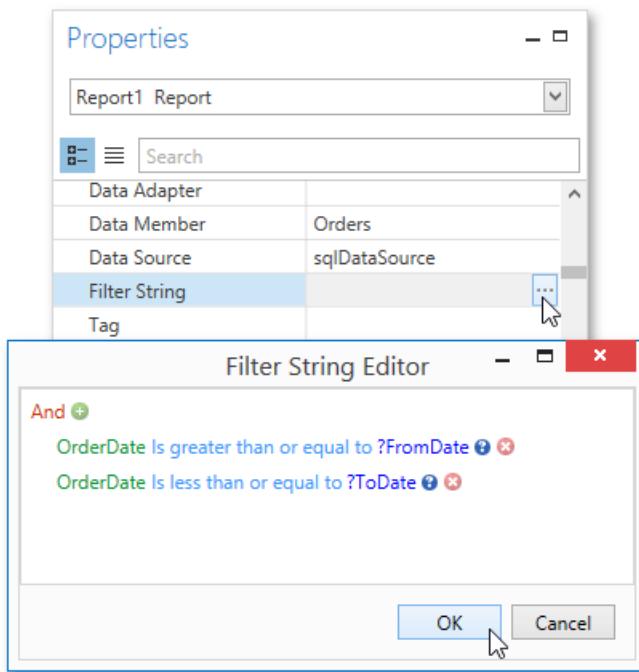
In the **Static values** tab, you can manually fill the list of parameter values. Each parameter value has an individual description specifying how this value appears in the [Parameters Panel](#).



5. Then, repeat the previous steps to create the second parameter, so that every time your report is previewed, you will be

asked to specify two dates.

6. Next, use parameters to filter your report's data. Select report, and in the **Properties Panel**, click the ellipsis button for the **Filter String** property. Then, in the invoked **Filter String Editor**, construct an expression where a data field is compared with the created parameters. To access parameters, click the icon on the right until it turns into a question mark.



Passing Parameter Values

To view the resulting report in the Report Designer, switch to the **Print Preview** tab. For a report containing at least one visible parameter, the dedicated **Parameters Panel** is automatically created in the Preview. This panel provides appropriate editors based on parameter types. To pass parameter values to the report, specify the required values and click **Submit**.

The image shows the Report Designer interface with the 'Parameters' panel open. It contains two dropdown menus: 'From:' set to 'January 1, 2016' and 'To:' set to '7/1/2016'. Below these are 'Reset' and 'Submit' buttons, with 'Submit' being the one currently highlighted by a mouse cursor. To the right of the parameters panel is the 'Print Preview' window, which displays a table of data filtered by the selected date range. The table has three columns: Order Date, Order ID, and Country. The data is as follows:

Order Date	Order ID	Country
1/1/2016	10264	Sweden
1/2/2016	10265	France
1/3/2016	10266	Finland
1/6/2016	10267	Germany
1/7/2016	10268	Venezuela
1/8/2016	10269	USA
1/9/2016	10270	Finland
1/9/2016	10271	USA
1/10/2016	10272	USA
1/13/2016	10273	Germany
1/14/2016	10274	France
1/15/2016	10275	Italy
1/16/2016	10276	Mexico
1/17/2016	10277	Germany
1/20/2016		

Query Parameters

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.

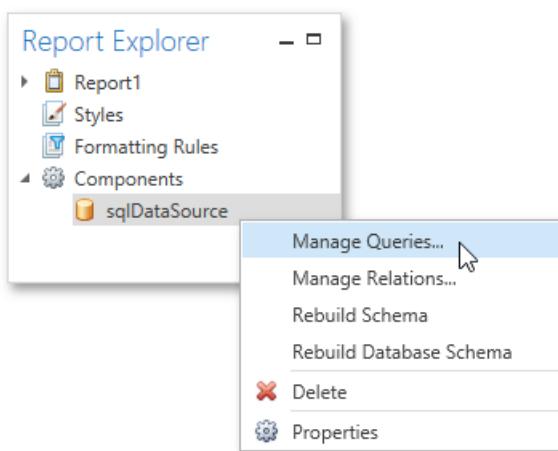
In the Report Designer, query parameters are typically used in the following scenarios.

- Passed as criteria to the **WHERE** part of an SQL statement to perform data source level [filtering](#). The query parameter's value is inserted into the resulting SQL query string in the position of the corresponding placeholder, which has the "**@QueryParameterName**" form.
- Passed as actual parameters to a stored procedure. See the [Customize the Query](#) topic to learn more.

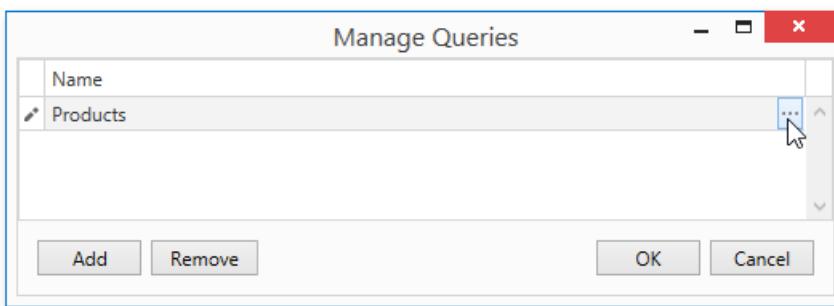
To create and configure query parameters to filter report data, do the following.

1. When creating a new data-bound report using the [Report Wizard](#) or binding an existing one to an [SQL data source](#), go to the [query customization](#) page.

To open this page to customize an existing data source, right-click this data source in the [Report Explorer](#) and select **Manage Queries** in the context menu.



Then, in the invoked **Manage Queries** dialog, click the ellipsis button for the required query.

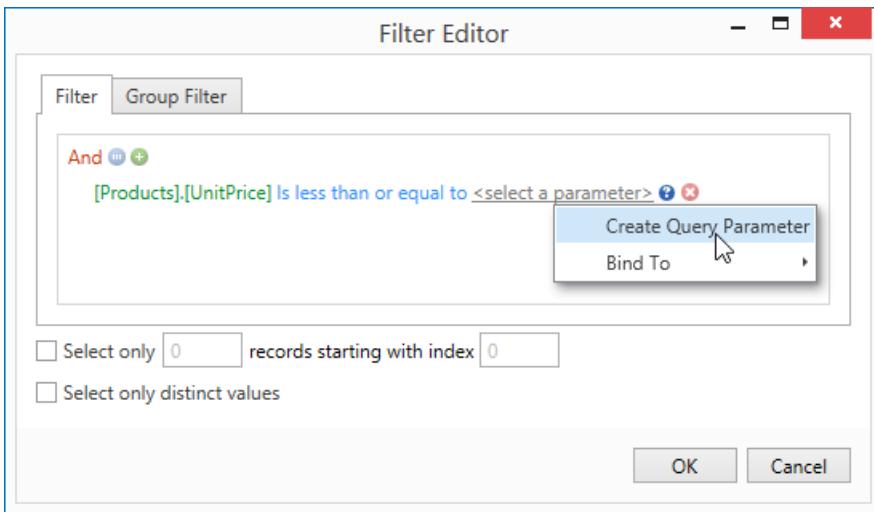


2. In the invoked **Data Source Wizard**, click the **Run Query Builder...** button.

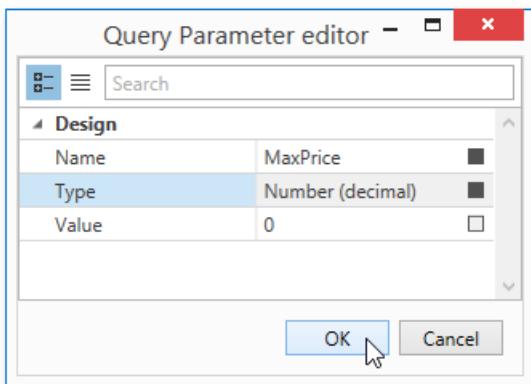


3. In the **Query Builder**, construct the query, and then, click the **Filter...** button.

4. In the invoked **Filter Editor**, construct a filtering expression that will be used to filter resulting data at the data source level. To access parameters, click the icon on the right until it turns into a question mark. Then, click the parameter placeholder and select **Create Query Parameter**.

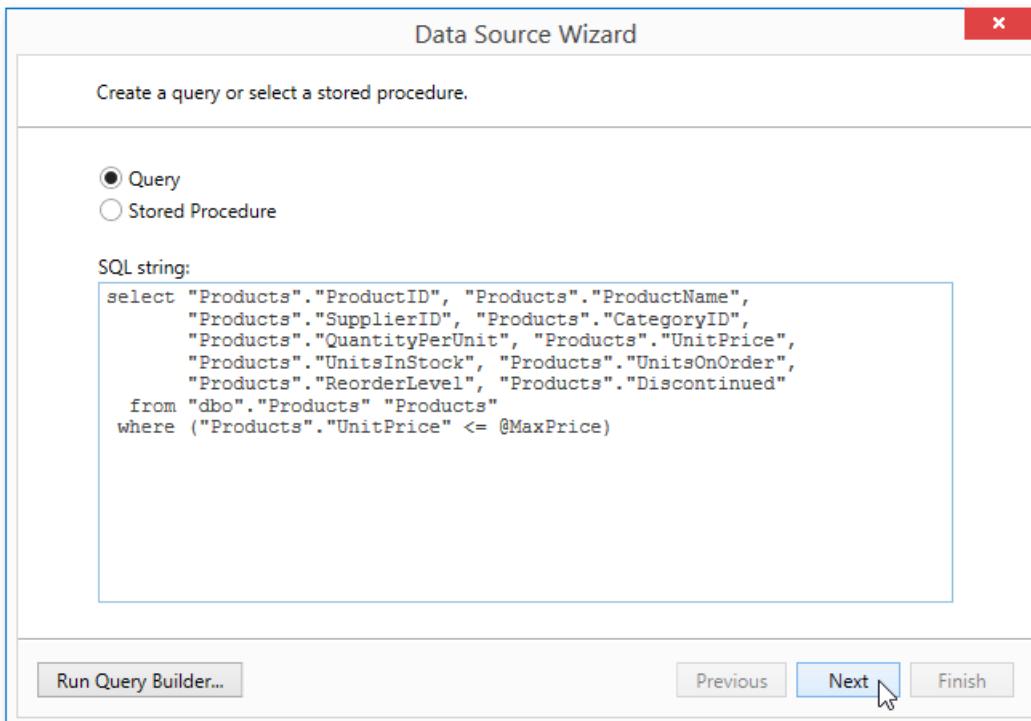


5. In the invoked **Query Parameter Editor**, specify the parameter's name and appropriate value type, and click **OK**.



Close the **Filter Editor**, and then, complete the **Query Builder**.

6. Now, the newly constructed SQL query appears in string form on this wizard page. The query parameter is passed to the **WHERE** part of the SQL string and has the "**@QueryParameterName**" form.

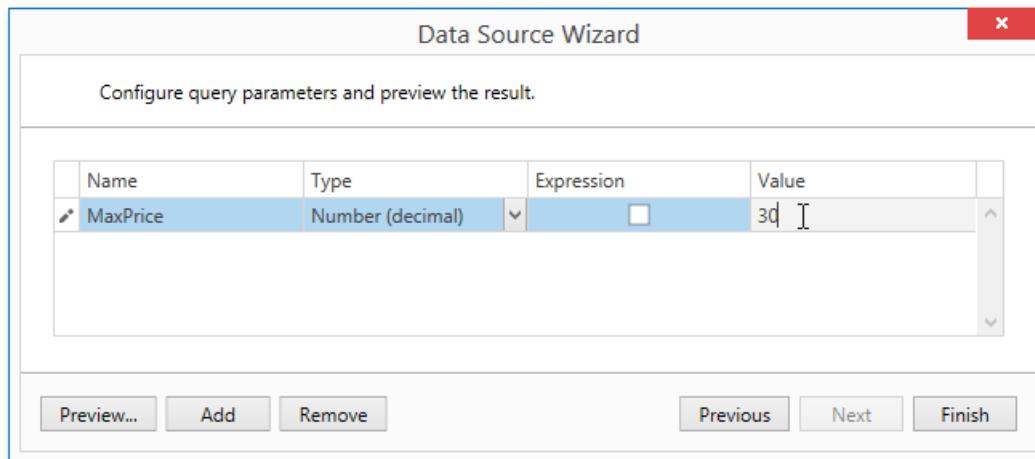


Then, click **Next** to proceed to the next wizard page.

7. The next wizard page provides access to query parameters and allows you to add, configure and remove it. On this page, specify the actual value (either static or dynamic) for a query parameter.

- **Specifying a static value**

To specify a static value for a query parameter, select the parameter's value type, and then specify its actual value in the **Value** column according to the selected type.

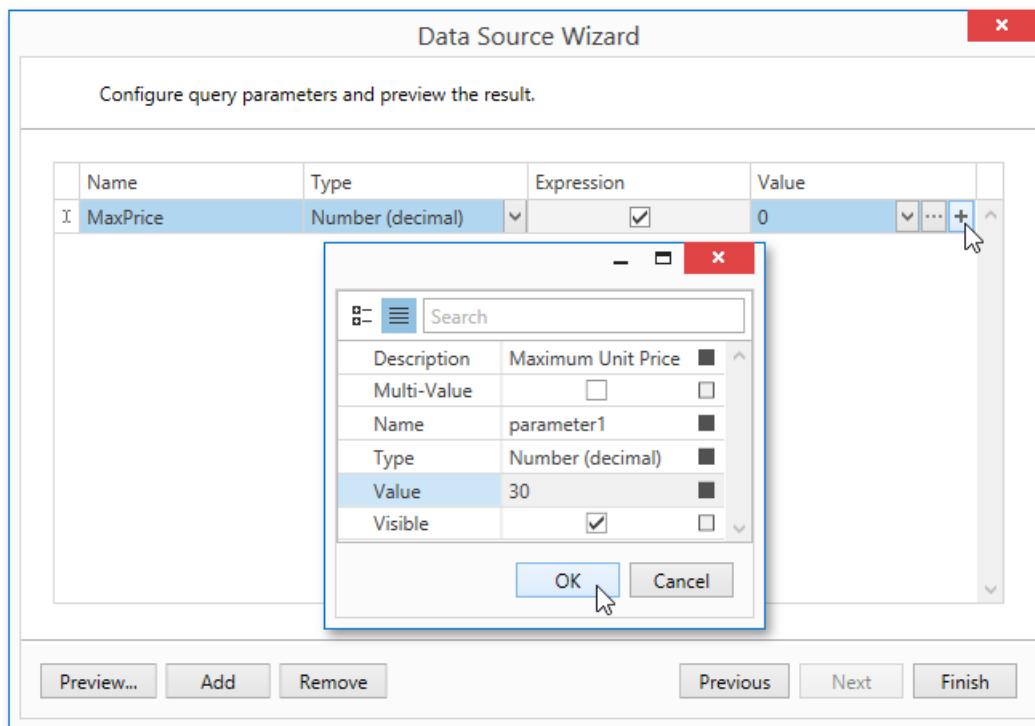


- **Specifying a dynamic value**

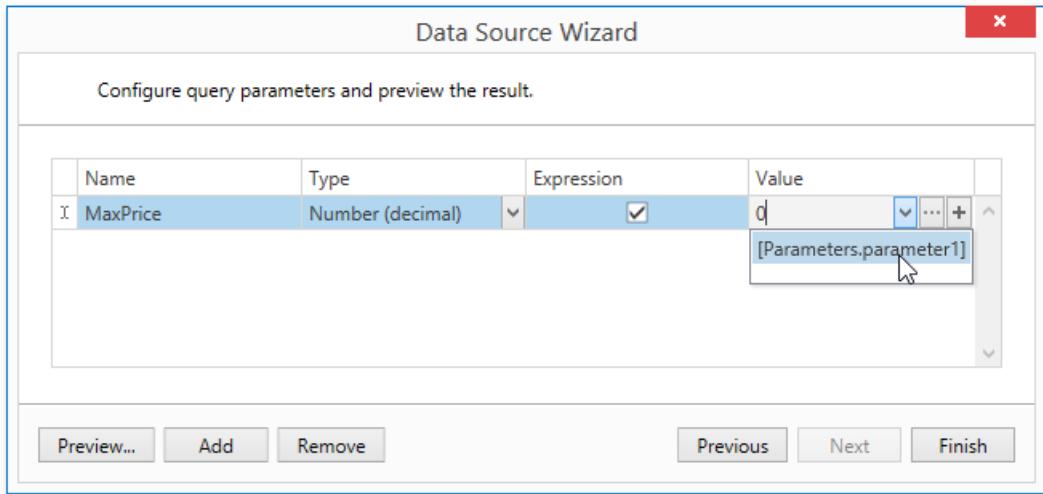
To use a dynamically generated value, do the following.

First, activate the **Expression** check box for the required parameter. This allows you to use an expression to dynamically calculate the parameter's actual value.

To map the query parameter to a new report parameter, click the plus button for the **Value** property, and in the invoked dialog, specify the required report parameter settings. Be sure to specify the report parameter type according to the type of the respective query parameter.



Then, expand the drop-down list for the **Value** property and select the created report parameter. This list also contains report parameters that already exist in a report.



You can also create a complex expression for a query parameter. To do this, click the ellipsis button for the **Value** property and construct the required expression in the invoked **Expression Editor**.

8. Click **Finish** to exit the wizard.

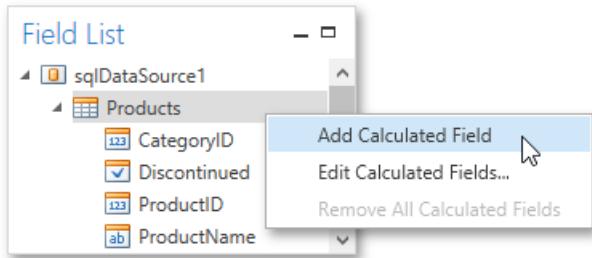
Calculated Fields

This document demonstrates how to add a *calculated field* to a report. The main purpose of calculated fields is to perform pre-calculations of virtually any level of complexity over data fields based on a specific expression.

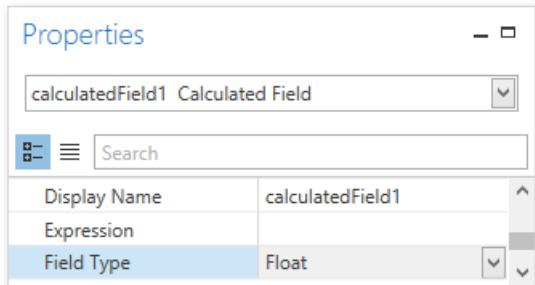
In the Report Designer, a calculated field is similar to an ordinary data field (e.g., you can [bind controls to it](#), and [group, sort](#) and [filter](#) your report against it).

To add a calculated field to your report, follow the instructions below.

1. To create a calculated field, in the [Field List](#), right-click any item inside the data source, and in the invoked menu, select **Add Calculated Field**.

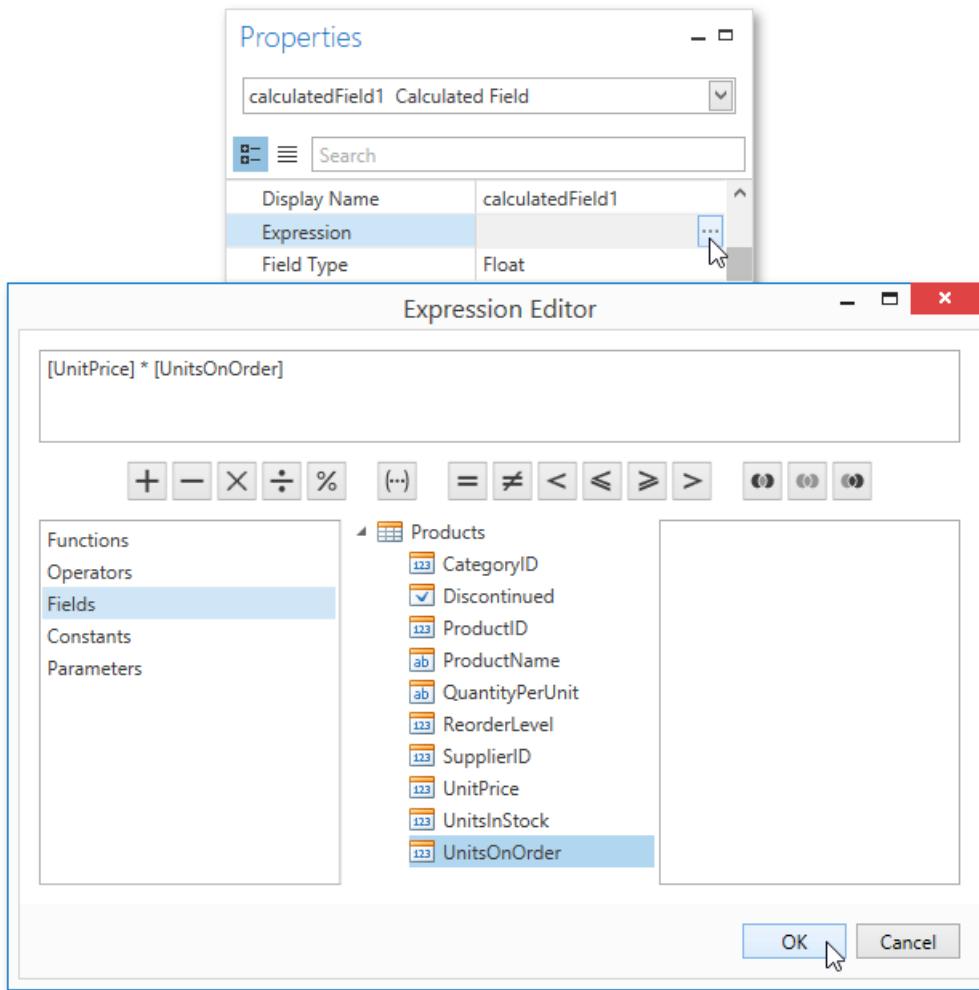


2. In the Field List, select the created field and switch to the [Properties Panel](#). Make sure to change the **Field Type** property to an appropriate value.



3. Then, create an expression for the calculated field.

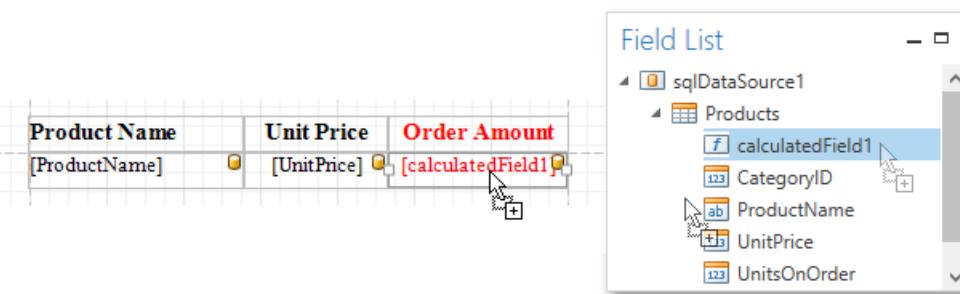
Click the ellipsis button for the **Expression** property to invoke the **Expression Editor**. You can also invoke this dialog by right-clicking the calculated field within the Field List and selecting **Edit Expression...**



Click **Fields** to see the field list. To add a data field or [report parameter](#) to this expression, double-click the required name. A data field is inserted into the expression's text using its name in [\[square brackets\]](#), and parameters are inserted using the **"Parameters."** prefix before their names. Use the toolbar to add operators between field names.

To close the dialog and save the expression, click **OK**.

- Finally, drag the calculated field from the Field List onto the required band like an ordinary data field.



The report with a calculated field is now ready. Switch to the [Print Preview](#) tab and view the result.

Product Name	Unit Price	Order Amount
Chang	\$19.00	\$760.00
Aniseed Syrup	\$10.00	\$700.00
Queso Cabrales	\$21.00	\$630.00
Sir Rodney's Scones	\$10.00	\$400.00
Gorgonzola Telino	\$12.50	\$875.00
Mascarpone Fabio®	\$32.00	\$1280.00
Gravad lax	\$26.00	\$1300.00
Ipoh Coffee	\$46.00	\$460.00
Rogede sild	\$9.50	\$665.00
Chocolate	\$12.75	\$892.50
Maxilaku	\$20.00	\$1200.00

Shaping Data

The topics in this section illustrate how to shape data in reports in various ways using the Report Designer.

- [Grouping Data](#)
- [Sorting Data](#)
- [Filtering Data](#)
- [Calculating Summaries](#)
- [Formatting Data](#)

Grouping Data

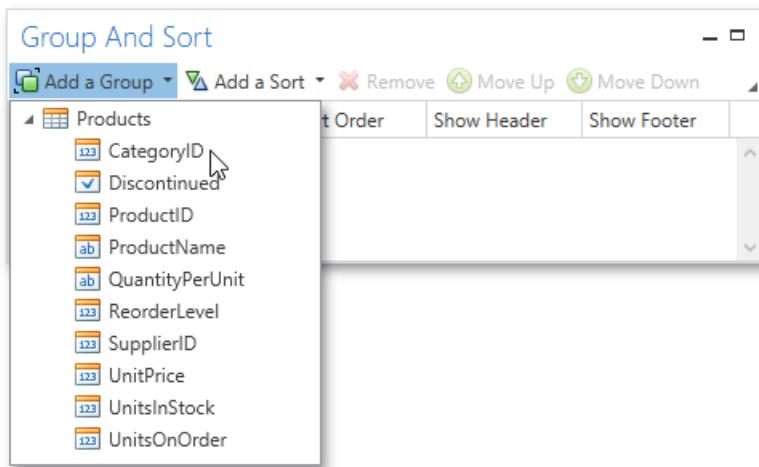
This document demonstrates how to group report data. Grouping allows you to split data into groups based on identical values in a field or fields. Note that data grouping can be performed only if a report is [bound to a data source](#).

To group records in a report, do the following.

1. [Create a new report](#) and [bind it to a data source](#). This tutorial starts with the following report.

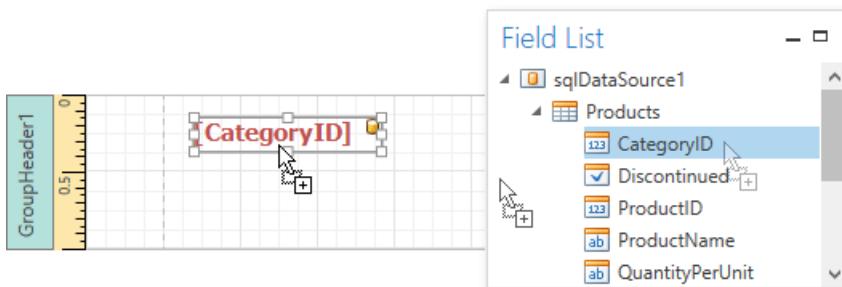


2. Next, switch to the [Group and Sort Panel](#), and click **Add a Group**. In the invoked drop-down list, select a data member across which the report is to be grouped.

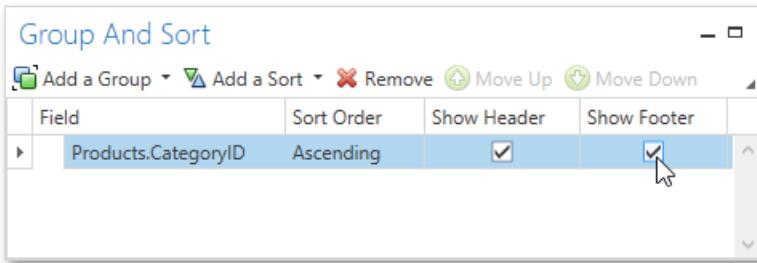


3. After this, the [Group Header](#) band is added to the report with the specified data member set as its grouping criterion.

Drop the data field, which is specified as the grouping criterion, from the [Field List](#) panel onto the Group Header band. This data field will be displayed as a header for each group.



4. In addition, you can enable the corresponding Group Footer band by enabling the **Show Footer** option in the Group and Sort Panel.



Use the **Sort Order** drop-down list to manage the sorting order of the group's items (ascending or descending) or to disable sorting in grouped data. If multiple groups are created, you can specify the priority for each group by selecting it in the Group and Sort Panel and using the **Move Up** and **Move Down** buttons.

5. Then, you can [calculate a total](#) across the group by placing a [Label](#) onto the Group Footer band and specifying its **Summary** properties in the following way.

A screenshot of the report designer showing the 'Properties' panel for a label control named 'label5'. The 'Summary' section is expanded, showing 'Function' set to 'Sum', 'Format String' set to '{0:\$0.00}', and 'Running' set to 'Group'. The label itself contains the expression 'Sum([UnitPrice])'.

Note also that value formatting is applied to a summary independently of the [general formatting](#), and has a greater priority.

The report is now ready. Switch to the [Print Preview](#) tab and view the result.

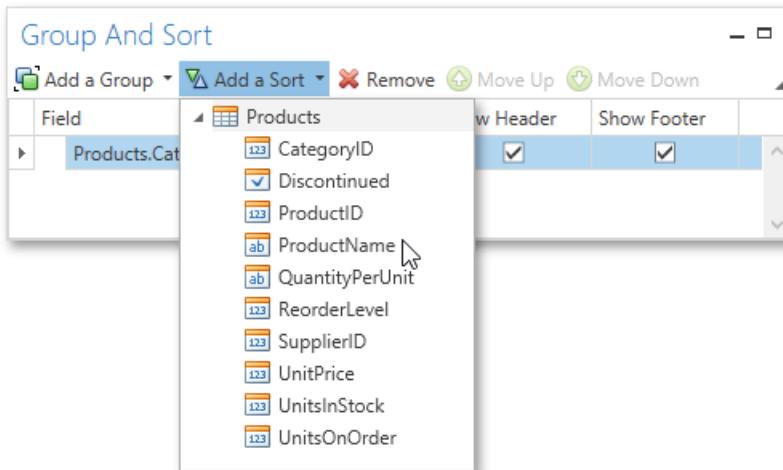
A screenshot of the 'Print Preview' tab showing a grouped report titled 'Products by Categories'. The report is grouped by category. Category 1 contains four items with a total of \$40.25. Category 2 contains three items with a total of \$23.00. Category 3 contains one item with a total of \$9.20. The totals are displayed in red.

Sorting Data

This document demonstrates how to sort report data. Note that as with data grouping, sorting can be performed only if a report is bound to a data source. This example uses the report created in the following tutorial: [Grouping Data](#).

To sort records in a data-aware report, do the following.

1. Switch to the [Group and Sort Panel](#), and click **Add a Sort**. In the invoked drop-down list, choose a data field across which the report is to be sorted.



2. To manage the sorting order, use the **Sort Order** drop-down list.

If multiple sorting criteria are specified, you can define the priority for each one by selecting it in the Group and Sort Panel and using the **Move Up** and **Move Down** buttons.

The report is now ready. Switch to the [Print Preview](#) tab and view the result.

Products by Categories

Category: 1

Chai	\$18.00
Chang	\$19.00
Chartreuse verte	\$18.00
Côte de Blaye	\$263.50
Guaraná Fantástica	\$4.50
Ipoh Coffee	\$46.00
Lakkalikööni	\$18.00
Laughing Lumberjack Lager	\$14.00
Outback Lager	\$15.00
Rhönbräu Klosterbier	\$7.75
Sasquatch Ale	\$14.00
Steeleye Stout	\$18.00
	\$455.75

Category: 2

Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00

Filtering Data

If a report is [bound to a data source](#) that contains far more data rows than are necessary for processing report creation, you can exclude excessive or undesired data. To accomplish this, construct a filtering expression using single or multiple data fields.

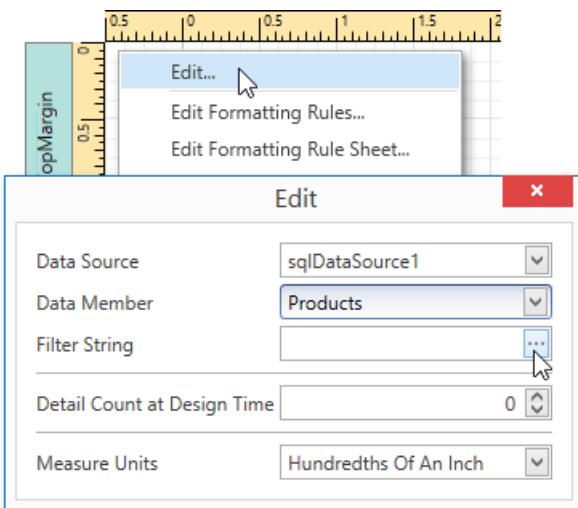
This document describes two approaches to filtering data in the Report Designer.

- [Filter Data at the Report Level](#)
- [Filter Data at the Data Source Level](#)

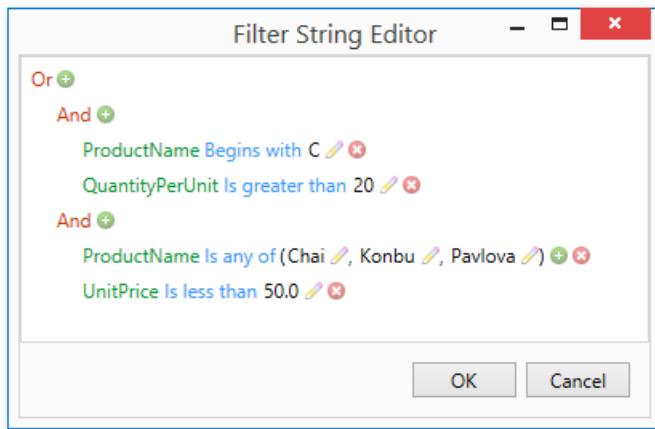
Filter Data at the Report Level

To filter a report's data, do the following.

1. Right-click the report and select **Edit...** in the context menu. In the invoked dialog, click the ellipsis button for the **Filter String** property.

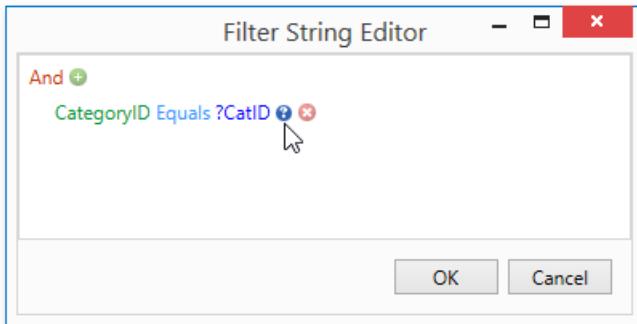


2. Then, in the invoked Filter String Editor, specify the filtering expression.



When creating a filter criteria, you can create and edit logical expressions, and also join the expression groups with And, Or, NotAnd, and NotOr operators. In every filter condition, the left part contains either the data field name, or the name of the [calculated field](#), which exists in this data source at the same level. The right part of the condition contains either a certain numerical or string value, or the name of the [report parameter](#).

To access parameters, click the icon on the right, until it turns into a question mark.



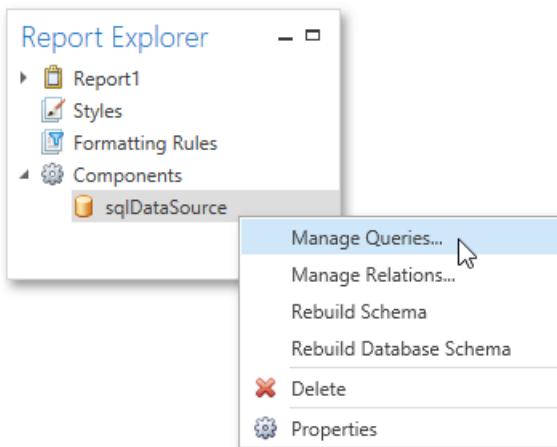
To quit the dialog and save the changes, click **OK**.

Filter Data at the Data Source Level

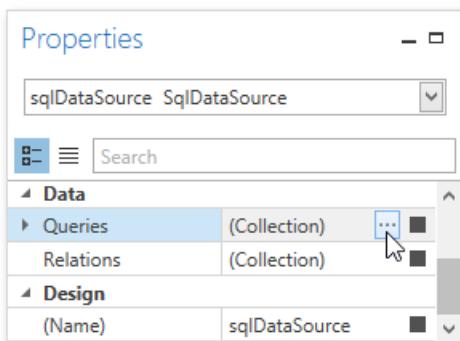
To filter data before it has been supplied to a report, you can modify a query of an SqlDataSource assigned to the report's **Data Source** property. To do this, perform the following steps.

1. Invoke the **Manage Queries** dialog using one of the following ways.

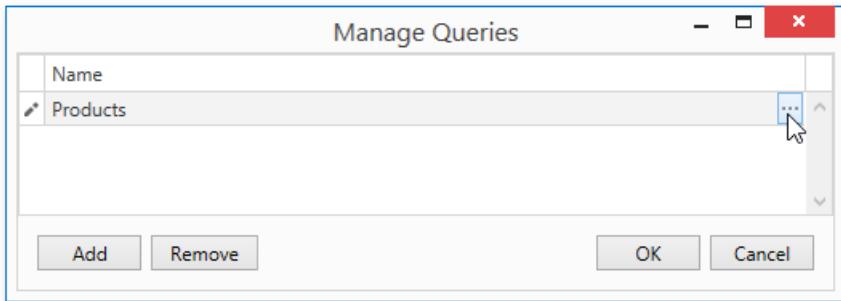
- Switch to the [Report Explorer](#) and right-click the data source item under the **Components** node. In the invoked context menu, select the **Manage Queries...** command.



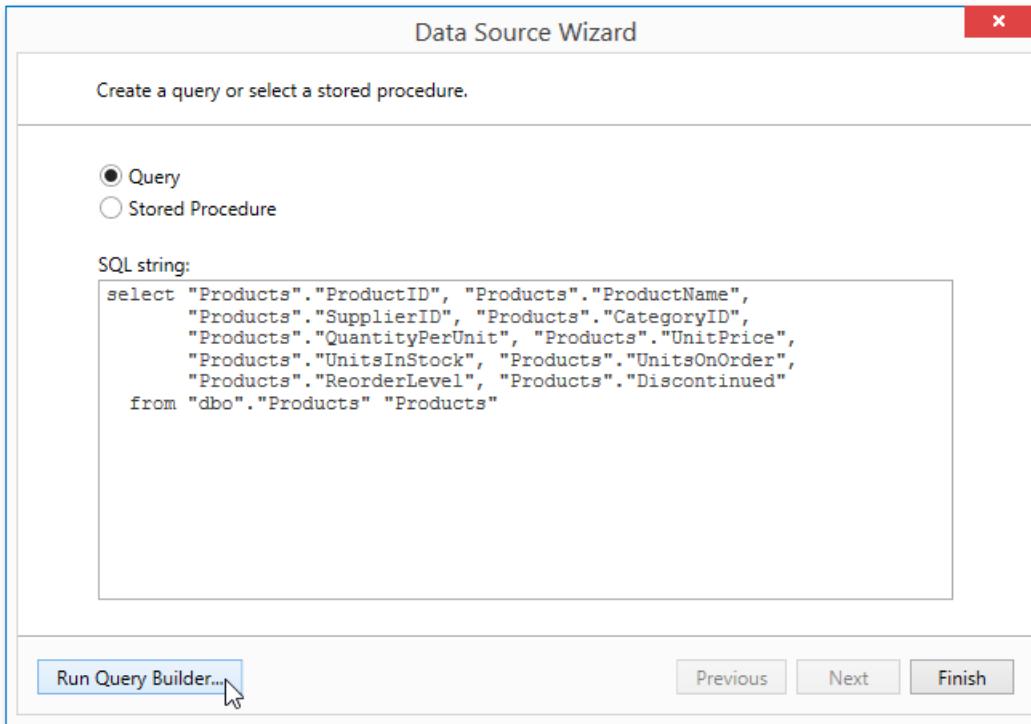
- Select a data source, and in the [Properties Panel](#), click the ellipsis button for the **Queries** property.



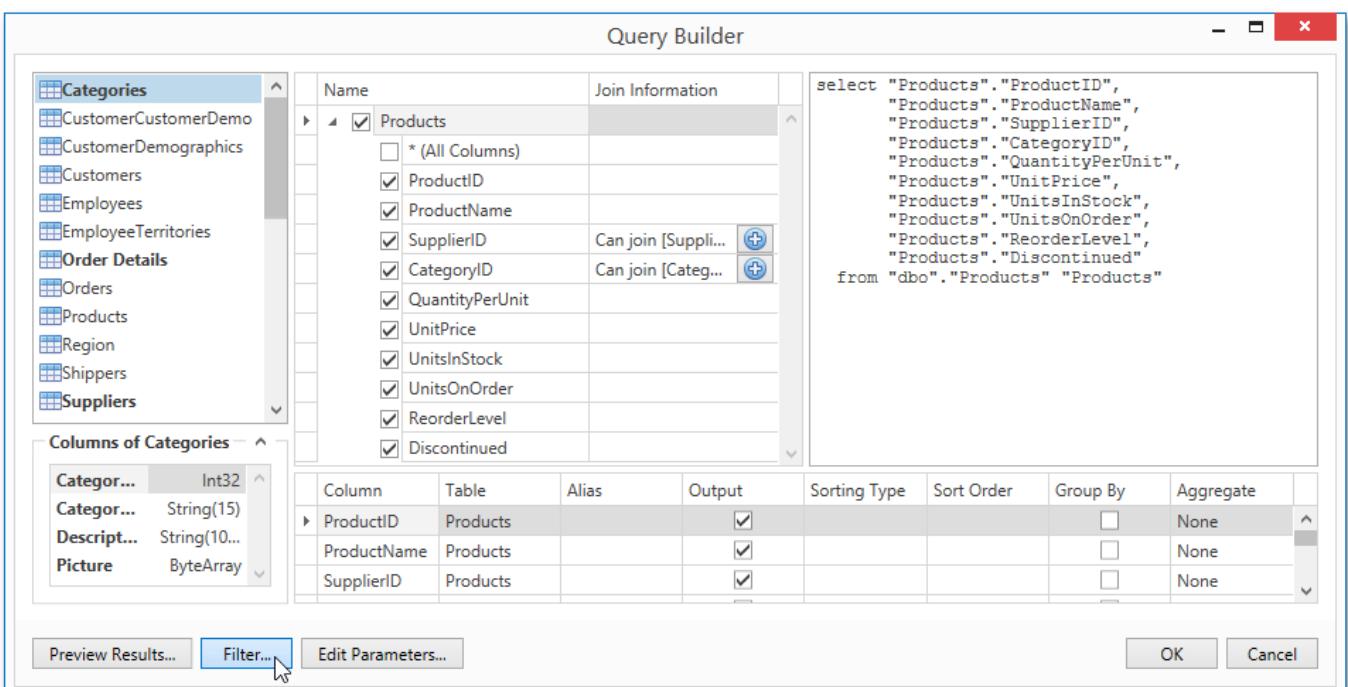
2. In the invoked dialog, click the ellipsis button corresponding to the required query.



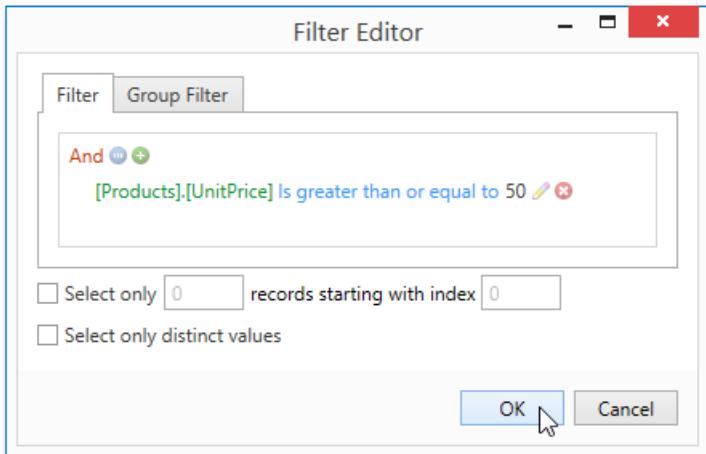
3. Next, in the invoked **Data Source Wizard**, click the **Run Query Builder...** button.



4. In the **Query Builder**, click the **Filter...** button.



5. In the invoked **Filter Editor**, construct a filtering expression that will be used to filter resulting data at the data source level.



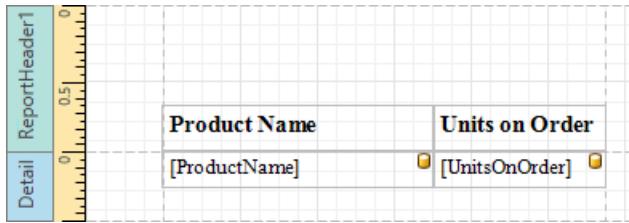
Note that it is possible to embed [query parameters](#) into the expression.

Calculating Summaries

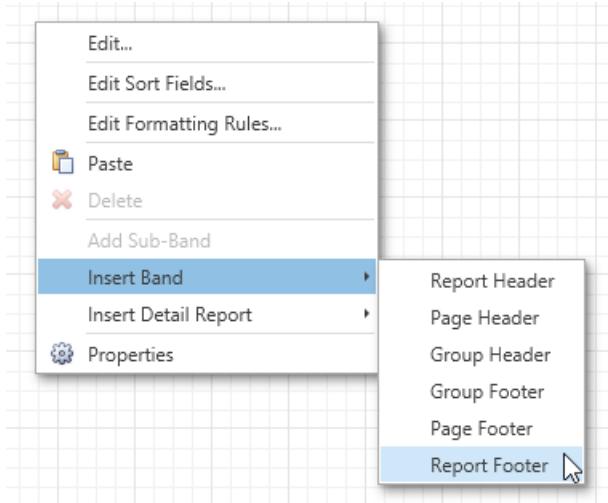
With the Report Designer, you can force a [data-bound control](#) to calculate one of the standard summary functions (**Average**, **Sum**, **Count**, **Max**, **Min**, etc.).

To calculate summaries (totals) within a report, follow the instructions below.

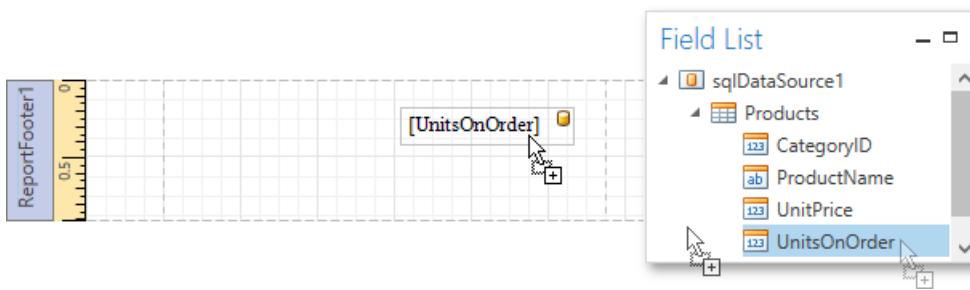
1. [Create a new report](#) and [bind it to a data source](#). This tutorial starts with the following report layout.



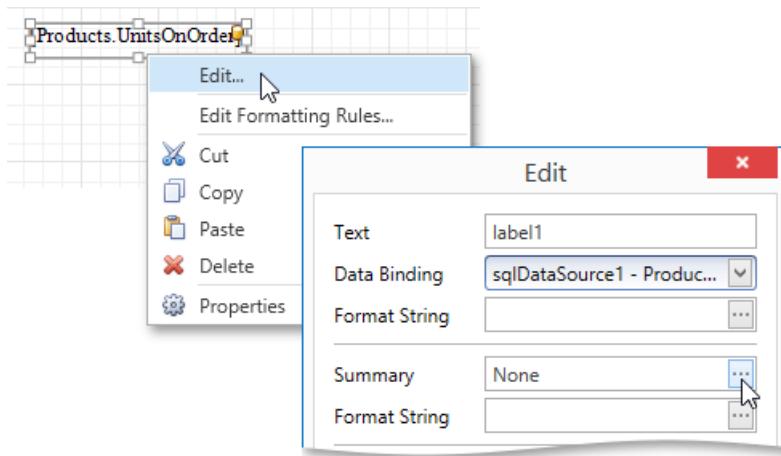
2. To display a summary at the bottom of the report, add the [Report Footer](#) band. To do this, right-click the report's area and in the invoked context menu, select **Insert Band**, and then **Report Footer**.



3. Switch to the [Field List](#) panel, select the field for which a summary will be calculated and drop it onto the created Report Footer band.



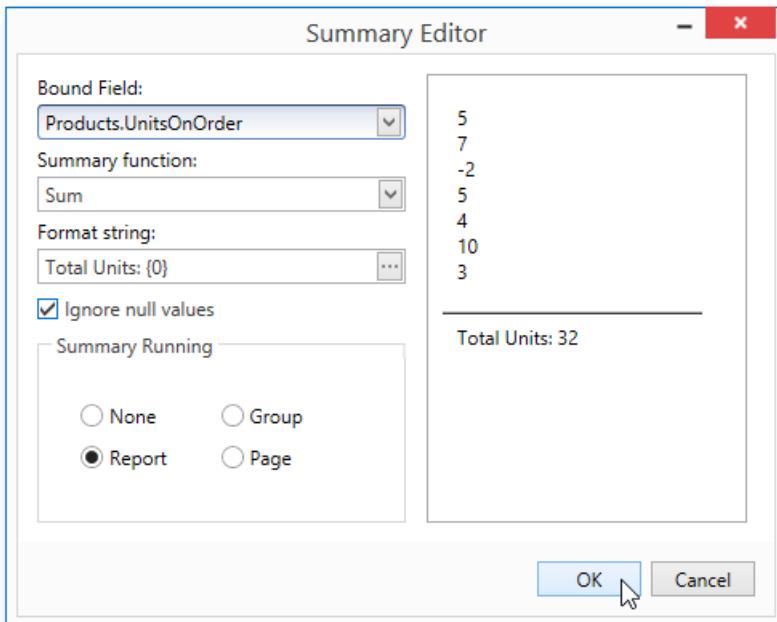
4. Right-click the newly created Label and select **Edit...** in the context menu. In the invoked dialog, click the ellipsis button for the **Summary** property.



5. In the invoked **Summary Editor**, specify the summary options. In the **Summary function** drop-down, select **Sum**. Note that in addition to a simple summary, you can choose among numerous built-in functions (such as **Count** and **Average**).

The **Summary Running** option is set to **Report** to ensure that all values from the specified data field are taken into account. You can also define a summary function's **Format string**. Note that value formatting is applied to a summary independent of [general formatting](#) and has a greater priority.

The **Ignore NULL values** option would not affect the result in this example, since NULL values are treated like zeros by default. This option makes sense for functions like **Count** or **Average**, because the number of elements counted will depend on this option.



To save the settings and close the dialog, click **OK**.

Switch your report to the [Print Preview](#) tab to view the result.

Product Name	Units on Order
Chang	40
Aniseed Syrup	70
Queso Cabrales	30
Sir Rodney's Scones	40
Gorgonzola Telino	70
Mascarpone Fabiofi	40
Gravad lax	50
Ipoh Coffee	10
Rogede sild	70
Chocolade	70
Maxilaku	60
Gnocchi di nonna Alice	10
Wimmers gute Semmelknödel	80
Louisiana Hot Spiced Okra	100
Scottish Longbreads	10
Outback Lager	10
Longlife Tofu	20

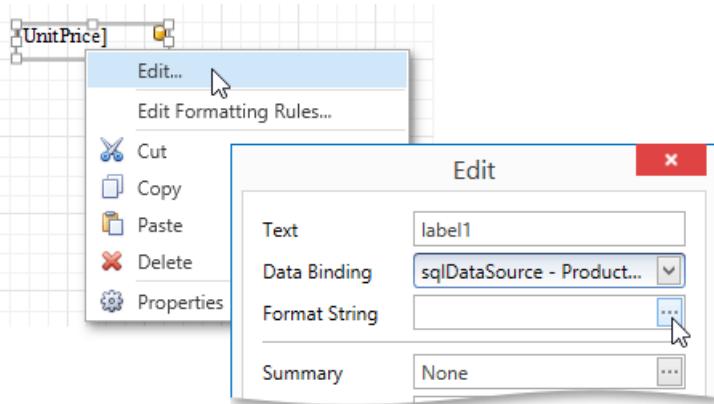
Total Units: 780

Formatting Data

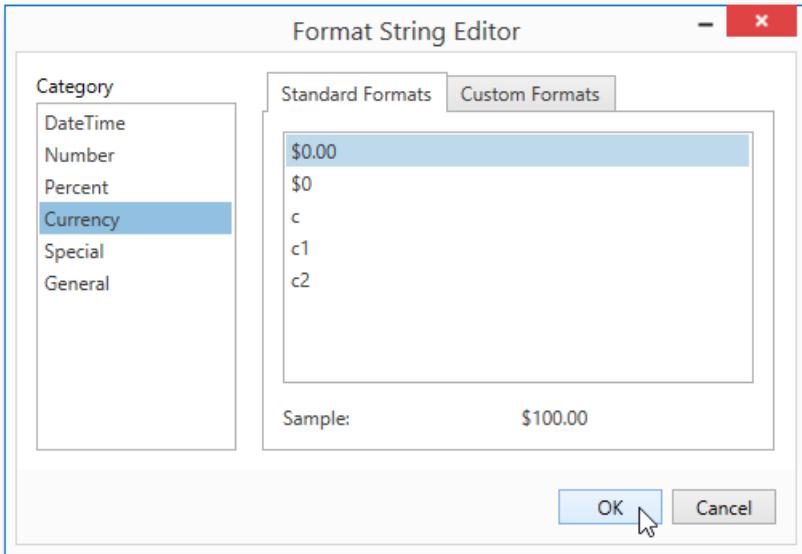
This topic describes how to change value formatting of [report elements](#) in the Report Designer. For instance, you can format a numeric value as a currency, display a date/time value in one of the standard forms depending on the culture, etc.

To apply value formatting for a [data-bound control](#)'s content, do the following.

1. Right-click the control, and select **Edit...** in the context menu. In the invoked dialog, click the ellipsis button for the **Format String** property.

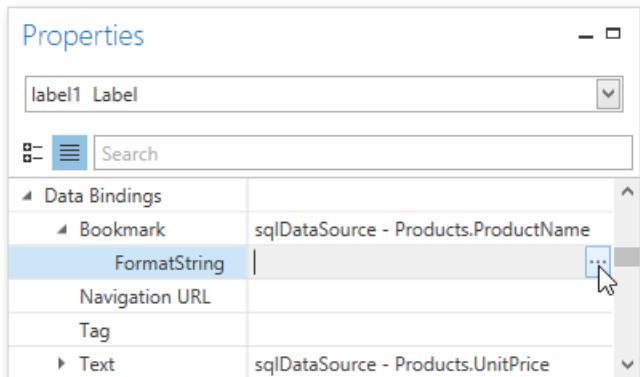


2. In the invoked **Format String Editor**, select one of the predefined standard formats or specify a custom one.



To quit the dialog and apply the changes, click **OK**.

In a similar way, you can apply formatting to a control's **Bookmark**, **Navigation URL** and **Tag** properties using the [Properties Panel](#). Note that the set of bindable properties depends on the control type.



When a summary function is applied to a control's dynamic content, value formatting is specified separately as described in the [Calculating Summaries](#) document.

Independently from general and summary value formatting, you can specify a native XSLX format string, which is preserved when the report is exported to XLSX. You can do this using a control's **Xlsx Format String** property.

Appearance Customization

The topics in this section describe how to customize the appearance of a report or any of its elements using specific appearance options, visual styles and conditional formatting.

This section consists of the following topics.

- [Understanding Style Concepts](#)
- [Use Odd and Even Styles](#)
- [Conditionally Change a Control's Appearance](#)
- [Conditionally Hide Bands](#)
- [Conditionally Change a Label's Text](#)

Understanding Style Concepts

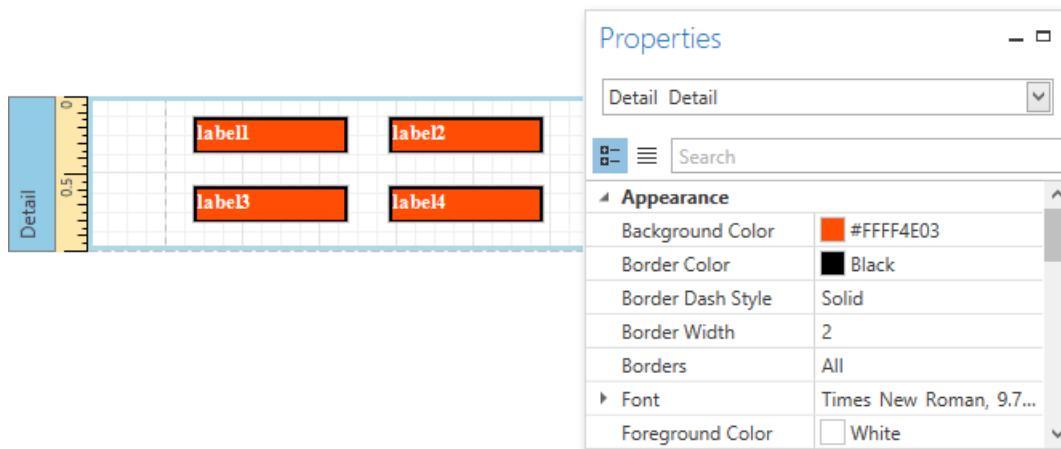
This document describes how you can provide a professional look to your reports by effectively adjusting the appearance of its elements.

This document consists of the following sections.

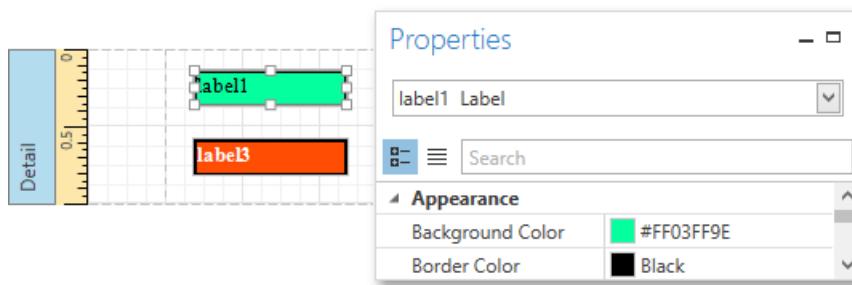
- [Appearance Properties](#)
- [Visual Styles](#)
- [Styles Priority](#)

Appearance Properties

In the Report Designer, a report and each of its elements ([bands](#) and [controls](#)) has a complete set of appearance options (such as **Background Color**, **Borders**, **Font**, **Foreground Color**, **Text Alignment**, etc.). By default, these properties are not specified, meaning that their real values are obtained from a control's (or band's) *parent*, which is the report itself. So, the appearance specified for a report is distributed to all its child elements. Similarly, the appearance of a band is translated to the controls it contains.



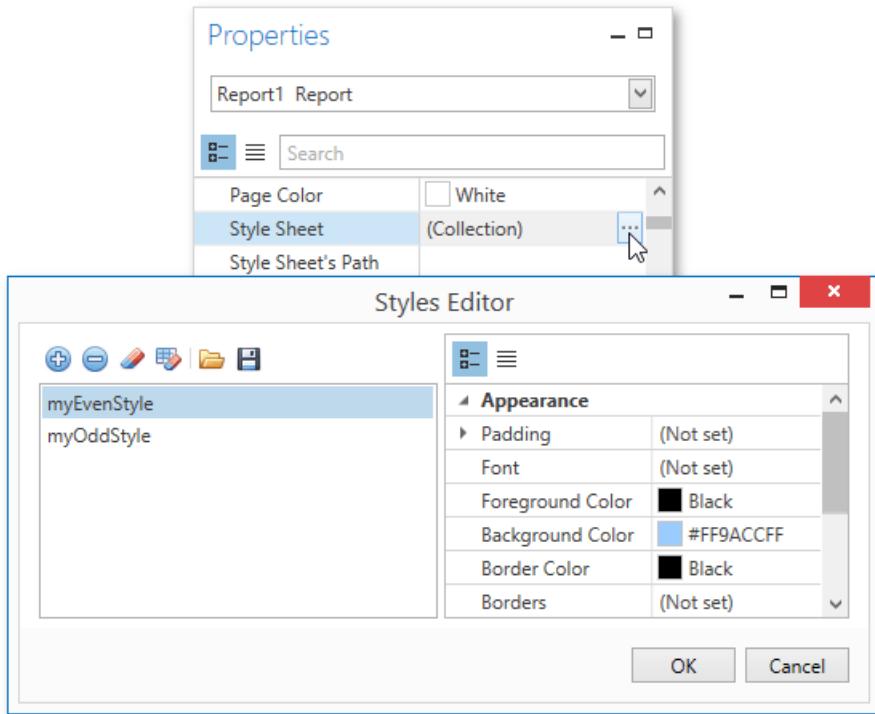
In turn, a control's appearance can be adjusted independently from its parent.



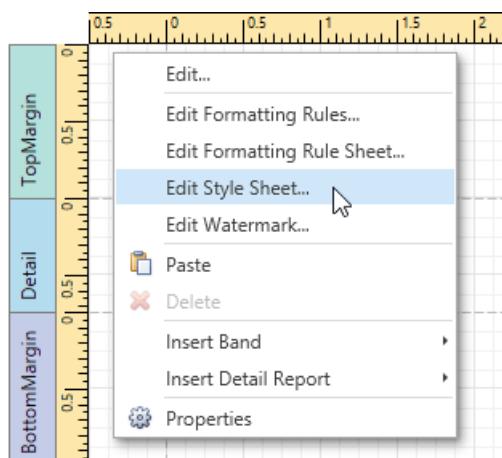
Visual Styles

In addition to the capability to specify appearance property values for every control and band, you can create comprehensive global *styles* (which are stored in the report's *style sheet*), and then assign them to individual report elements.

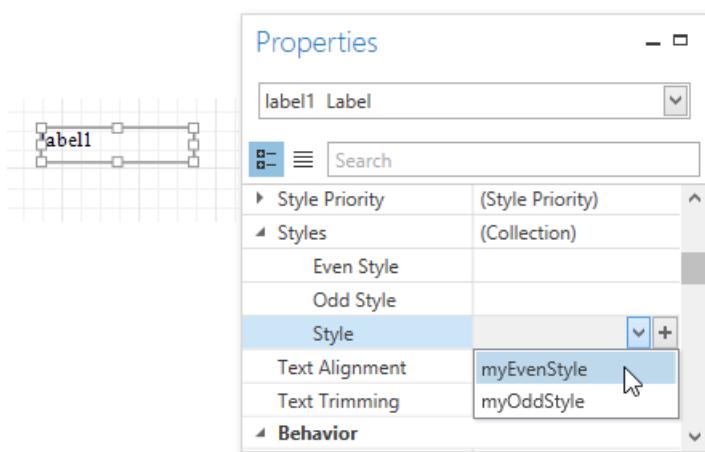
Click the ellipsis button for the report's **Style Sheet** property to invoke the **Styles Editor**, which allows you to manage a report's style sheets, customize them, save them to a file and load from it.



You can also invoke the **Styles Editor** by right-clicking the report and selecting **Edit Style Sheet...** in the context menu.

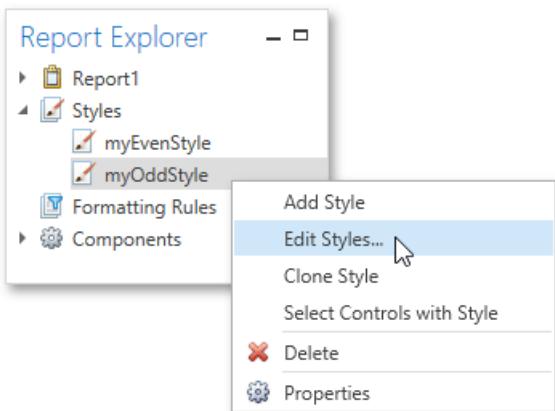


To assign a particular style to a control, invoke the drop-down list for its **Style** property. Then, select one of the styles stored in a report's sheet collection or click the plus button to create a new style sheet.



Note that if a style is assigned to a band, it is applied to all controls that the band contains.

You can also use the [Report Explorer](#) to access the style collection. Commands of the context menu allow you to add, edit, clone or delete a style.

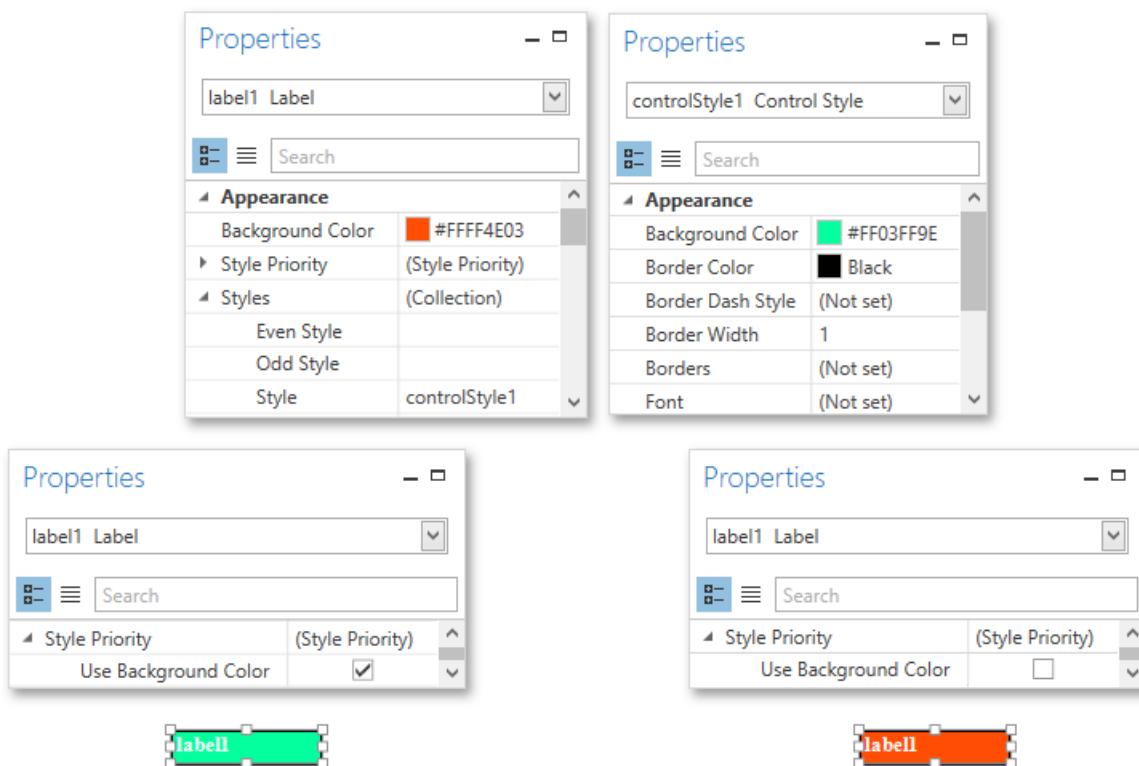


Styles Priority

A style defines the same appearance properties that are defined by a control's (or band's) appearance properties. When both styles and individual appearance settings are assigned to an element, you can control the priority of their options using an element's **Style Priority** property.

By default, most of the **Style Priority**'s options (**Use Background Color**, **Use Border Color**, etc.) are set to **Yes**. This means that if any style is assigned to a control, its properties will have a higher priority than the appearance properties of this element or its parent. You can assign a higher priority to an element's appearance property by disabling the corresponding **Use*** property.

The following image demonstrates how the **Style Priority** property works.



The same principles are applied to the *odd-even styles* feature, which allows you to alternate the appearance of consecutive data rows in your report. For details on this, refer to [Use Odd and Even Styles](#).

NOTE

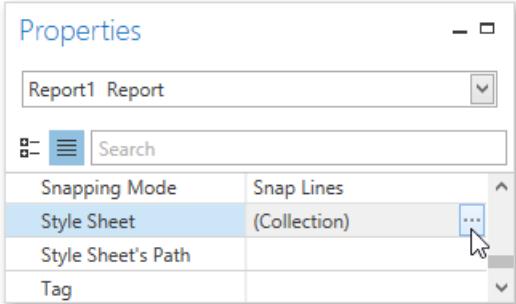
When **conditional formatting** is applied to an element, its appearance definition has the highest priority.

Use Odd and Even Styles

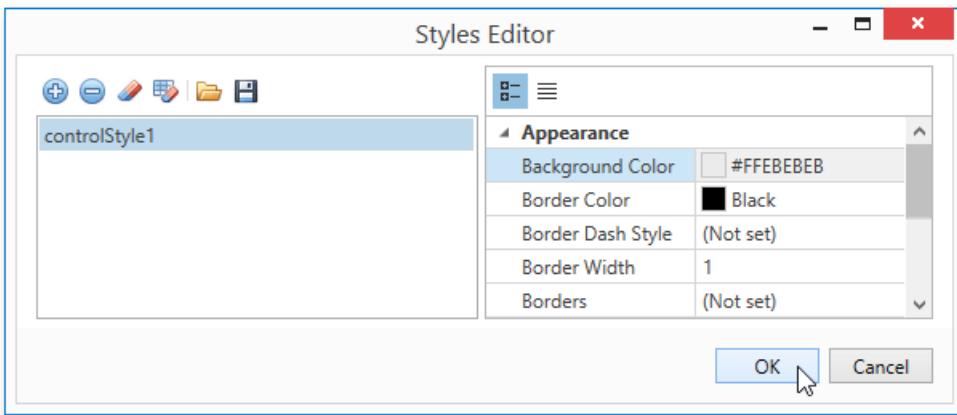
This tutorial describes how to apply *odd and even styles* to [report controls](#), e.g., to alternate the background color for each record.

To utilize odd and even styles, do the following.

1. Create a [table report](#).
2. In the [Properties Panel](#), click the ellipsis button for the report's **Style Sheet** property.

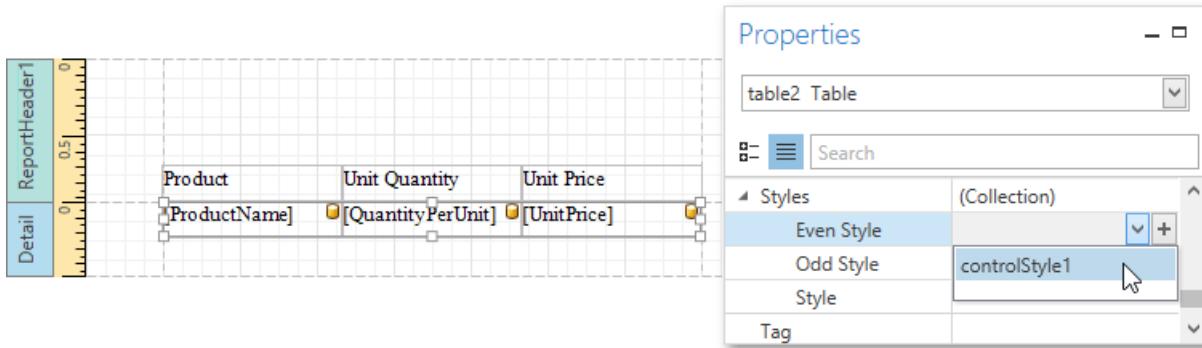


3. In the invoked **Styles Editor**, click the plus button to add a new style. Then, adjust the required options, e.g., set the **Background Color**.



Click **OK** to apply changes and quit the dialog.

4. Select the detail table, and in the [Properties Panel](#), expand its **Styles** option. Invoke the drop-down list for the **Even Style** property and select the created style.



If required, perform the same steps to create and assign an odd style.

Switch to the [Print Preview](#) tab and view the result.

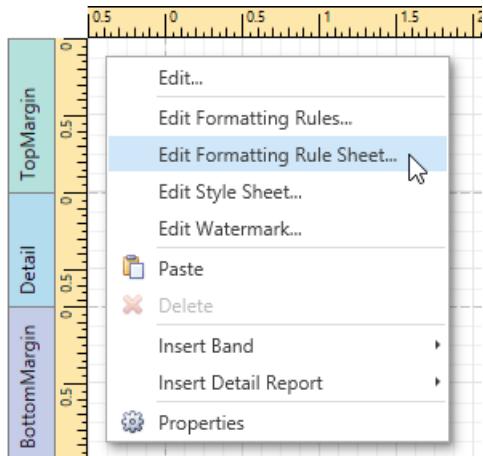
Product	Unit Quantity	Unit Price
Chai	10 boxes x 20 bags	\$18.00
Chang	24 - 12 oz bottles	\$19.00
Aniseed Syrup	12 - 550 ml bottles	\$10.00
Chef Anton's Cajun Seasoning	48 - 6 oz jars	\$22.00
Chef Anton's Gumbo Mix	36 boxes	\$21.35
Grandma's Boysenberry Spread	12 - 8 oz jars	\$25.00
Uncle Bob's Organic 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.	\$28.00

Conditionally Change a Control's Appearance

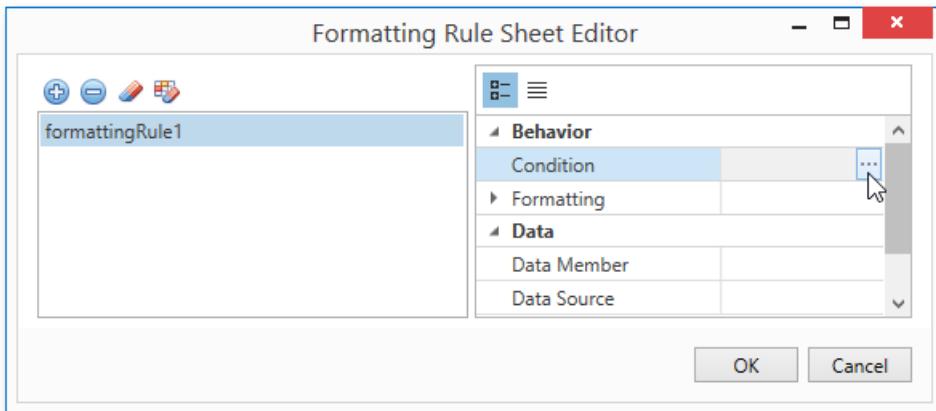
This tutorial describes how to conditionally change a control's appearance (e.g., make a **Label**'s text red if its value exceeds a certain threshold). Thanks to the *formatting rules* feature, no **scripts** are required to complete this task, so you should not have to write any code.

To conditionally change a control's appearance, do the following.

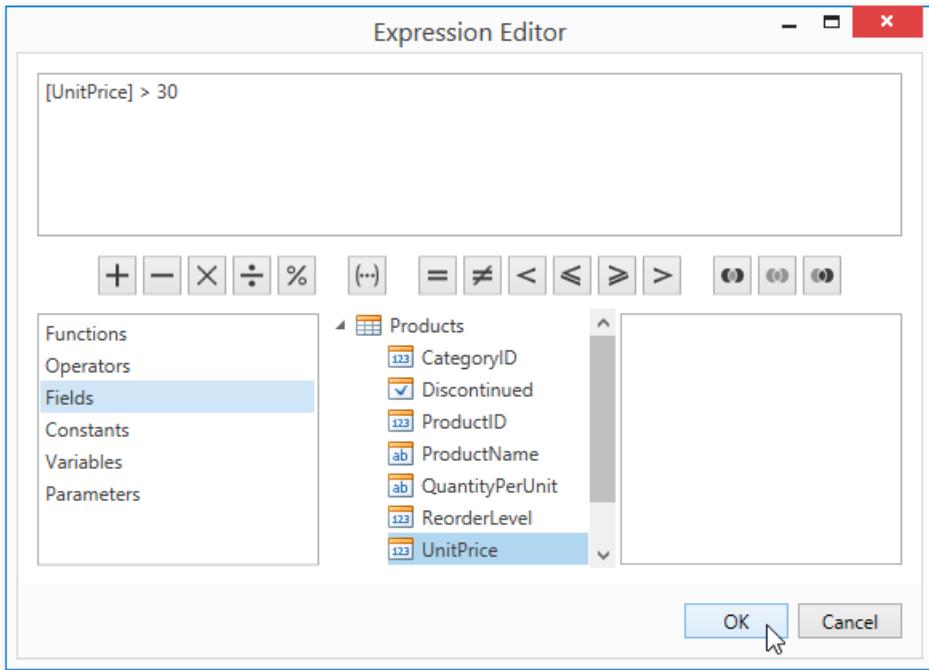
1. Create a new report and bind it to a data source.
2. Right-click the report and select **Edit Formatting Rule Sheet...** in the invoked context menu.



3. In the invoked **Formatting Rule Sheet Editor**, create a new formatting rule using the plus button, and then, click the ellipsis button for its **Condition** property.

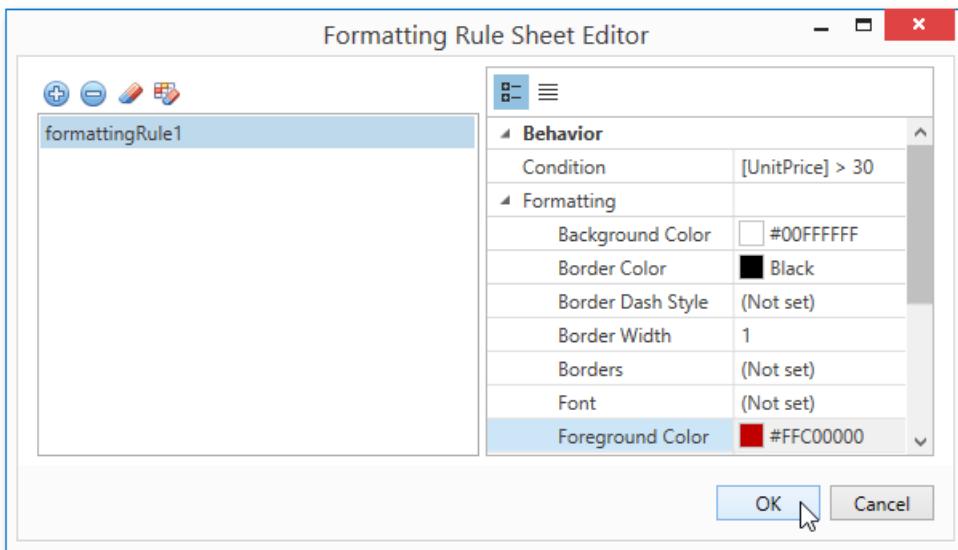


4. In the invoked **Expression Editor**, define the required Boolean condition (which means that its result is returned as either **true** or **false**). This tutorial demonstrates how to format fields if the **UnitPrice** value is greater than **30**.



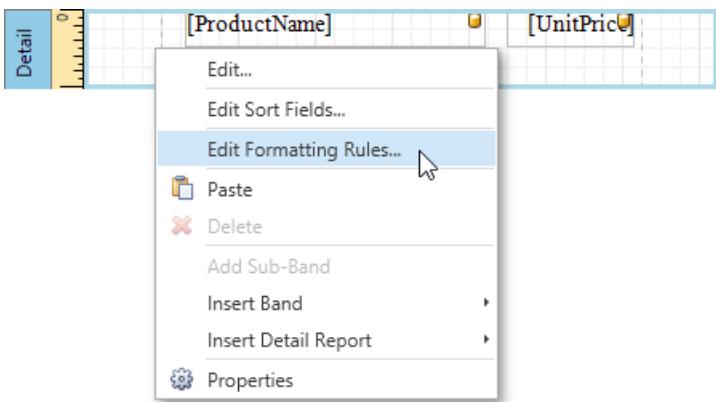
To save the condition and close the dialog, click **OK**.

5. Return to the **Formatting Rule Sheet Editor** and define the formatting to be applied, e.g., specify the desired foreground color.

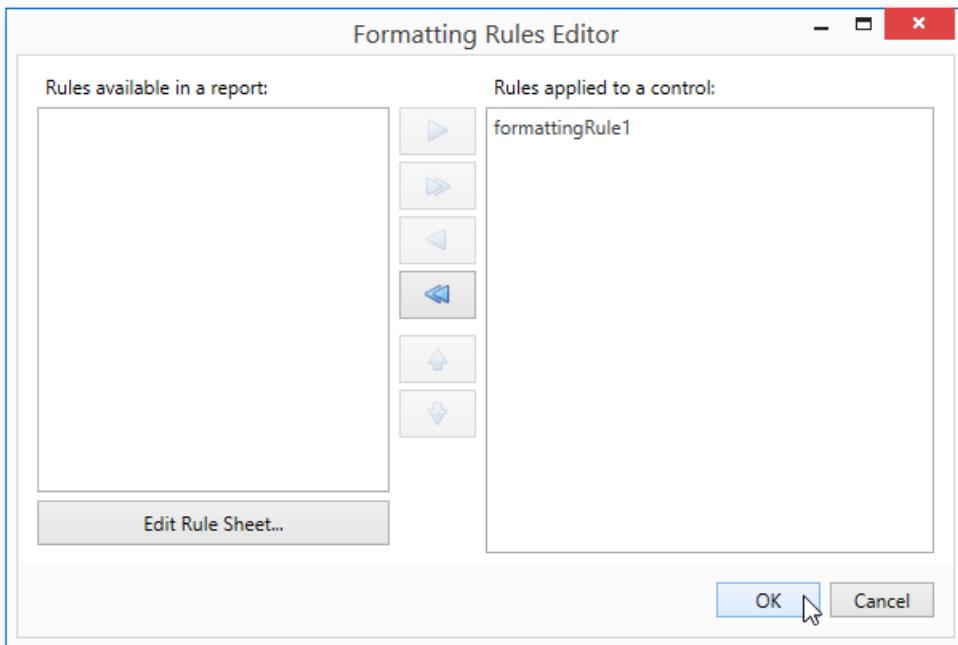


To save the changes and quit the dialog, click **OK**.

6. Finally, select the band or control to which the formatting rule should be applied (in this example, it is the **Detail band**), and select **Edit Formatting Rules...** in the context menu.



7. In the invoked **Formatting Rules Editor**, move the rule from left to right using the right arrow button so that you can apply the rule for this band.



If multiple rules are applied, it is possible to customize their precedence using the up and down arrow buttons. So, the rules are applied in the same order that they appear in the list, and the last rule in the list has the highest priority.

Switch your report to the [Print Preview](#) tab and view the result.

Product Name	Unit Price
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
Camarvon Tigers	\$62.50
Teatime Chocolate Biscuits	\$11.20

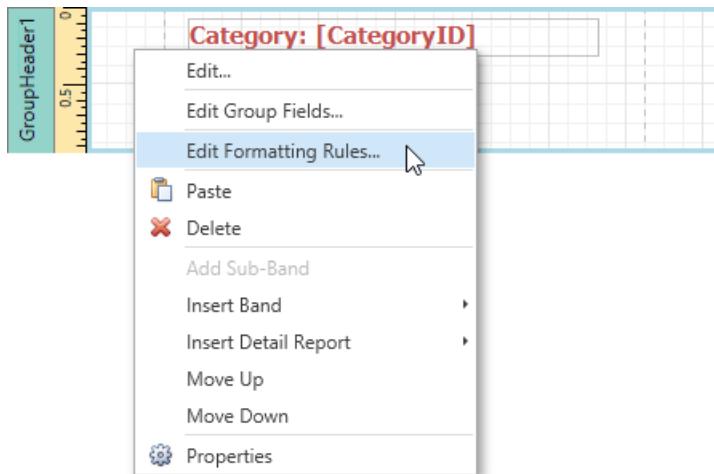
Conditionally Hide Bands

This tutorial describes how to hide bands if a certain logical condition is met. Note that no [scripts](#) are required to accomplish this task.

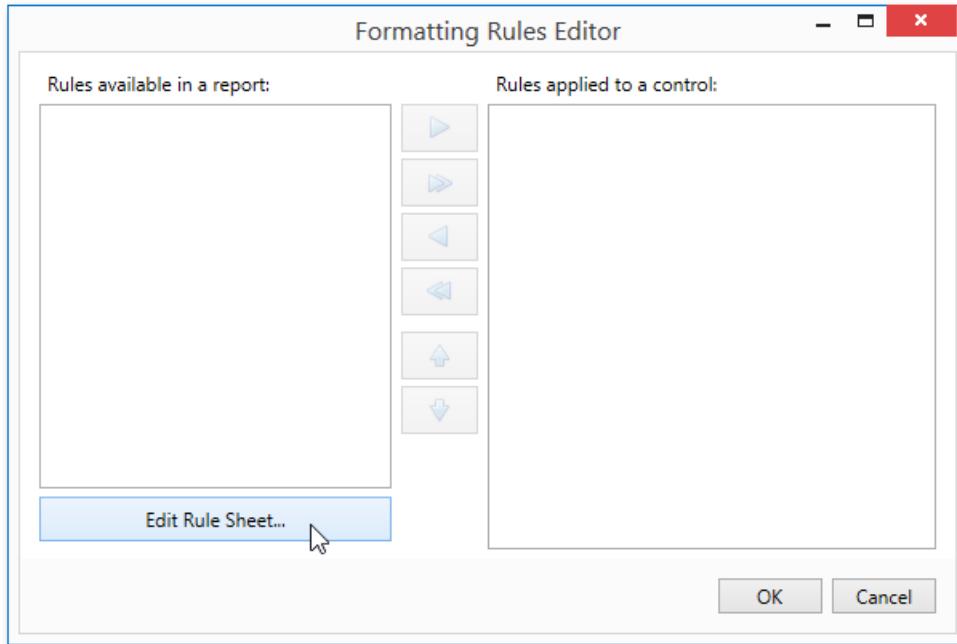
To demonstrate this feature, use a report with grouping similar to the one created in the following tutorial: [Grouping Data](#).

To conditionally hide bands in a report, do the following.

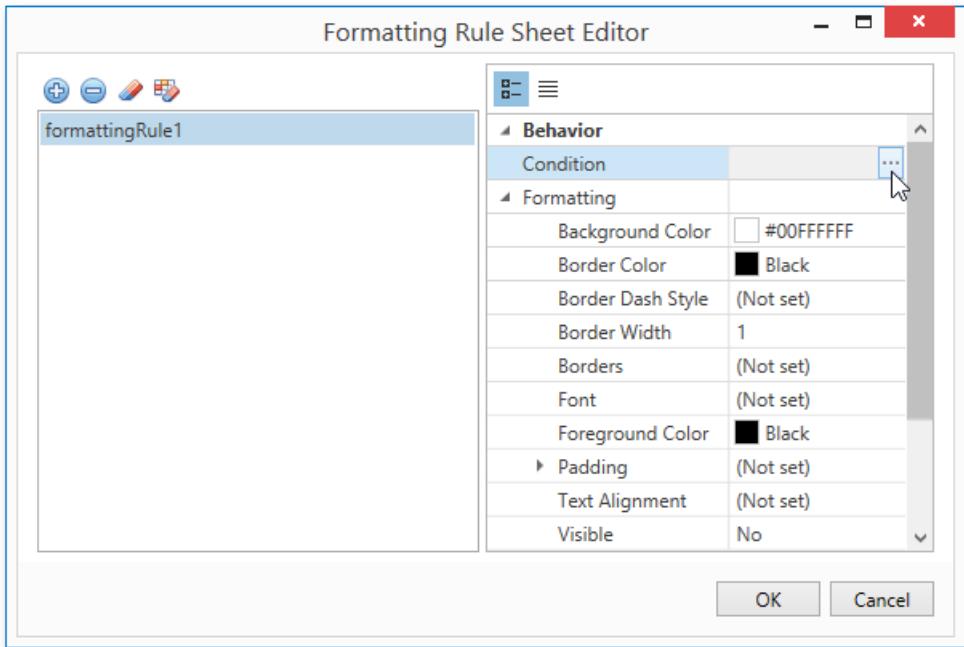
1. Right-click the **Group Header** and select **Edit Formatting Rules...** in its context menu.



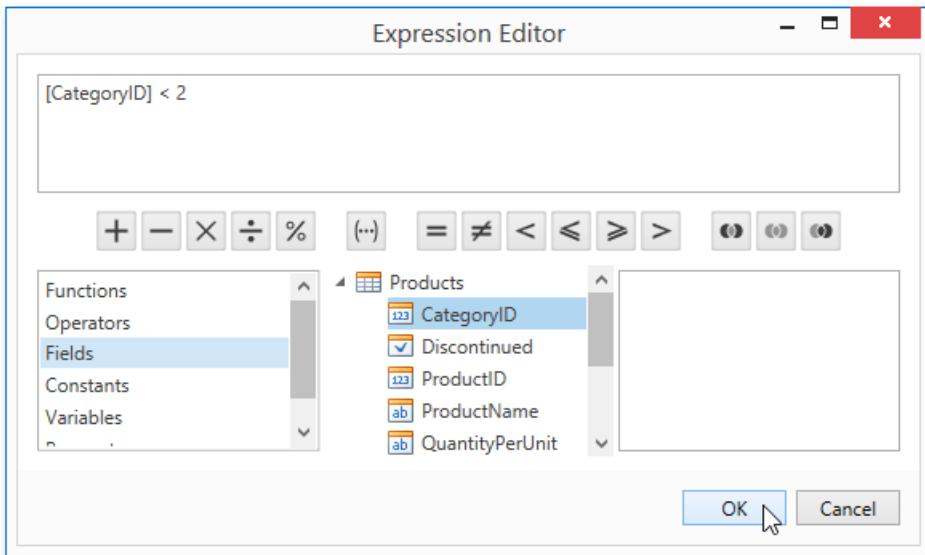
2. In the invoked **Formatting Rules Editor**, click the **Edit Rule Sheet...** button.



3. Then, in the invoked **Formatting Rule Sheet Editor**, click the plus button to create a new rule. Set its **Visible** property to **No**, and click the ellipsis button for the **Condition** property.

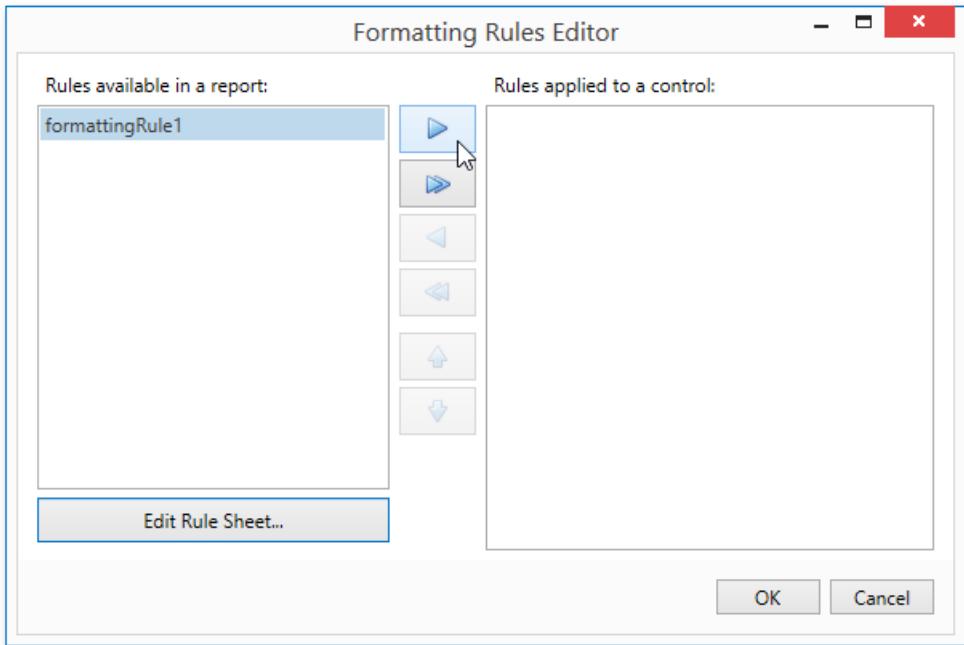


4. Construct the required logical expression (e.g., **[CategoryID] < 2**), and click **OK**.



To quit the **Formatting Rule Sheet Editor** and save changes, click **OK**.

5. Return to the **Formatting Rules Editor** and move the created rule to the dialog's right section using the right arrow button to make it active.



6. Apply the same formatting rule to the report's Detail band.

Switch to the [Print Preview](#) and view the result. In this example, you can see that the first category is not shown. So, the conditional formatting was applied properly.

Products by Categories

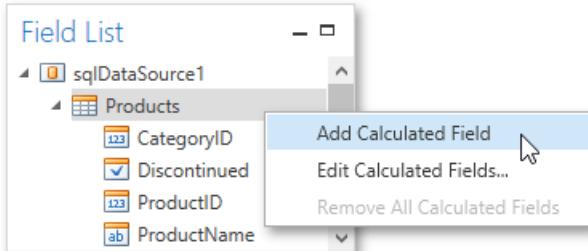
Category: 2	
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$21.35
Genen Shouyu	\$15.50
Grandma's Boysenberry Spread	\$25.00
Gula Malacca	\$19.45
Louisiana Fiery Hot Pepper Sauce	\$21.05
Louisiana Hot Spiced Okra	\$17.00
Northwoods Cranberry Sauce	\$40.00
Original Frankfurter grüne Sobe	\$13.00
Sirop d'éable	\$28.50
Vegie-spread	\$43.90
Category: 3	
Chocolade	\$12.75

Conditionally Change a Label's Text

This tutorial demonstrates how to change a label's text if a certain condition is met. No [scripts](#) are required to accomplish this task.

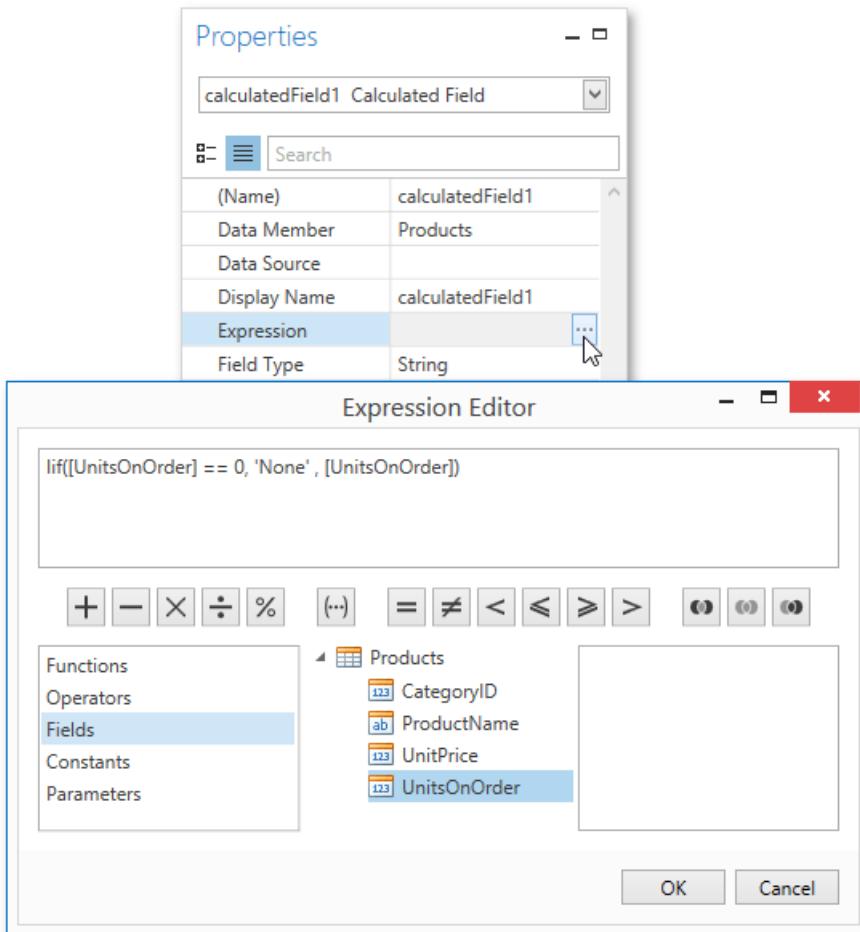
To conditionally change a label's text, do the following.

1. [Create a new report](#) and [bind it to a data source](#).
2. Next, add a calculated field. To do this, in the [Field List](#), right-click any item inside the created data source, and in the invoked context menu, select **Add Calculated Field**.



3. Select the calculated field, and in the [Properties Panel](#), set its **Field Type** to **String**. Then, click the ellipsis button for the **Expression** property.

In the invoked **Expression Editor**, specify the required logical condition for the calculated field (e.g., **lif([UnitsOnOrder] == 0, 'None', [UnitsOnOrder])**), which means that if the **UnitsOnOrder** data field's value is equal to **0**, the control's text will be replaced with **None**).



To save the changes and close the dialog, click **OK**.

4. Finally, drop the required data fields and the created calculated field from the Field List onto the report's [Detail band](#).

The screenshot shows the Visual Studio IDE interface. On the left, a report design surface displays two columns: "Product Name" and "Units on Order". The "Product Name" column contains the field "[ProductName]". The "Units on Order" column contains the field "[calculatedField1]". A cursor is positioned over the "[calculatedField1]" field. On the right, a "Field List" window is open, showing the data source "sqlDataSource1" expanded. Under "Products", several fields are listed: "calculatedField1" (selected), "CategoryID", "ProductName", "UnitPrice", and "UnitsOnOrder".

The report is now ready. Switch to the [Print Preview](#) tab and view the result.

Product Name	Units on Order
Chai	None
Chang	40
Aniseed Syrup	70
Chef Anton's Cajun Seasoning	None
Chef Anton's Gumbo Mix	None
Grandma's Boysenberry Spread	None
Uncle Bob's Organic Dried Pears	None
Northwoods Cranberry Sauce	None
Mishi Kobe Niku	None
Ikura	None
Queso Cabrales	30
Queso Manchego La Pastora	None
Konbu	None
Total:	260

Report Navigation and Interactivity

The topics in this section explain how to establish navigation through a report in different ways and enable editing reports in Print Preview.

This section consists of the following topics.

- [Add Bookmarks](#)
- [Create a Table of Contents](#)
- [Create Hyperlinks](#)
- [Add a Cross-Reference](#)
- [Enable Content Editing in Print Preview](#)

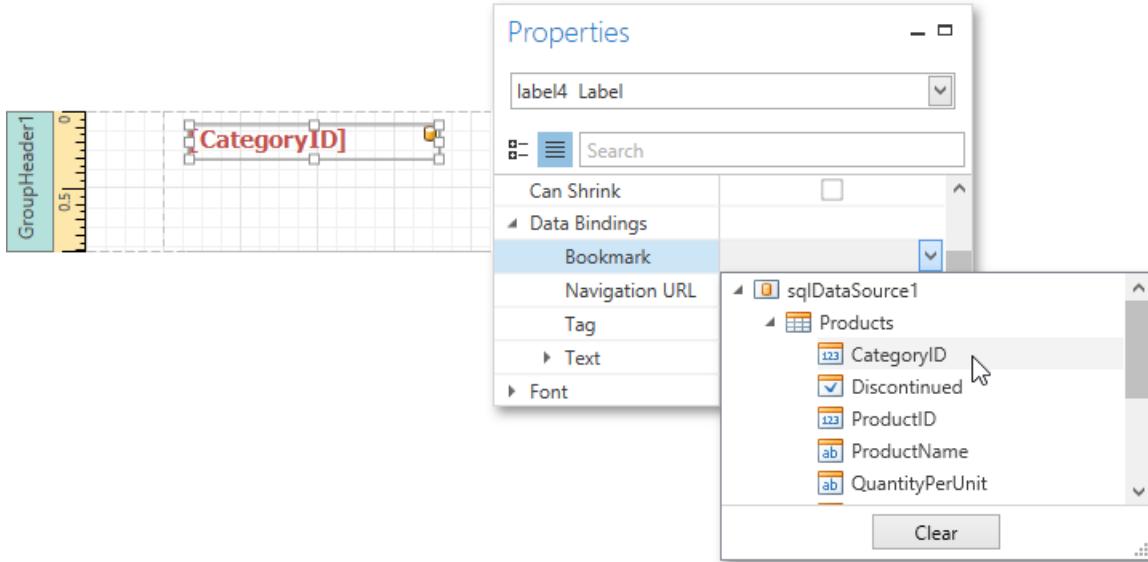
Add Bookmarks

This tutorial describes the steps to create a report with *bookmarks* (a so-called *Document Map*). This feature allows you to easily navigate through the report during [print preview](#).

To demonstrate the Document Map feature, use a report with grouping, similar to the one created in the following tutorial: [Grouping Data](#).

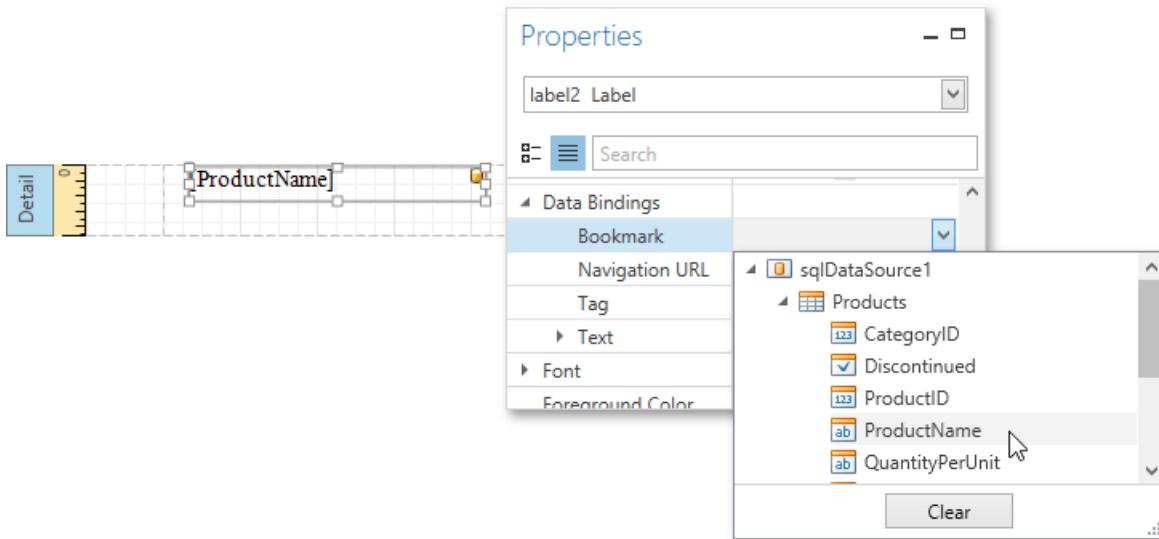
To create a report with bookmarks, do the following.

1. Select the label placed in the **Group Header band**, and in the **Properties Panel**, expand the **Data Bindings** property. As this control is bound to data, bind its **Bookmark** property to the same data field (in this example, **CategoryID**).

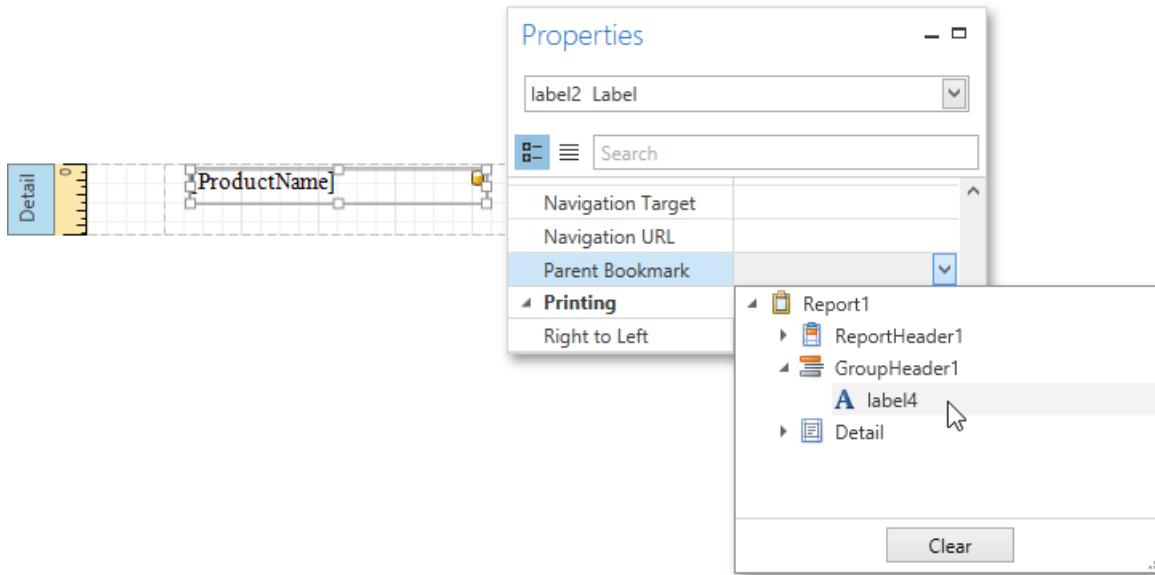


Note that as with other bindable properties, you can also apply [value formatting](#) to the **Bookmark** property (e.g., **Category: {0}**).

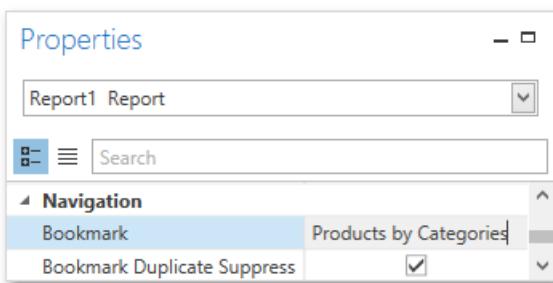
2. In the same way, select the label in the Detail band and set its **Bookmark** property to the **ProductName** data field.



3. Then, for the same label, set the **Parent Bookmark** property to the Group Header's label to define the Document Map's hierarchy.



4. Finally, select the report itself and assign text to its **Bookmark** property, which determines the caption of the root node of the Document Map.



The report with bookmarks is now ready. Switch to the [Print Preview](#) tab and use the [Document Map Panel](#) to navigate through the report.

Category: 1	
Chai	\$18.00
Chang	\$19.00
Chartreuse verte	\$18.00
Côte de Blaye	\$263.50
Guaraná Fantástica	\$4.50
Ipoh Coffee	\$46.00
Lakkalikööri	\$18.00
Laughing Lumberjack Lager	\$14.00
Outback Lager	\$15.00
Rhönbräu Klosterbier	\$7.75
Sasquatch Ale	\$14.00
Steeleye Stout	\$18.00

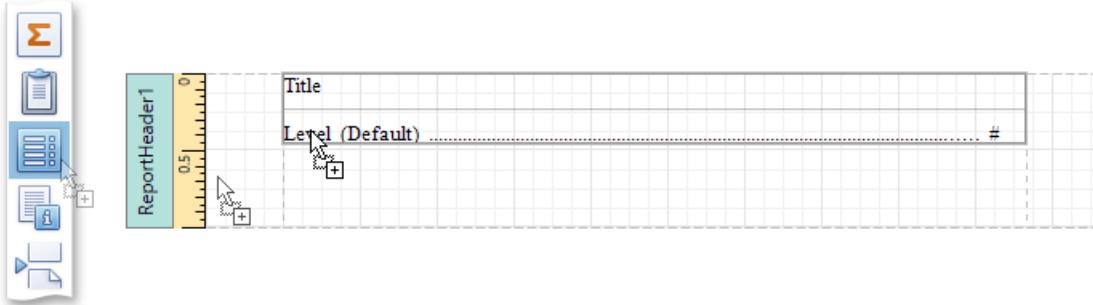
Category: 2	
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Gumbo Mix	\$15.00

Create a Table of Contents

This tutorial describes how to create a report with a table of contents, which is automatically created based on the [bookmarks](#) existing in a report.

To insert a table of contents into a report, do the following.

1. Drop the [Table Of Contents](#) control from the [Toolbox](#) onto the [Report Header Band](#).

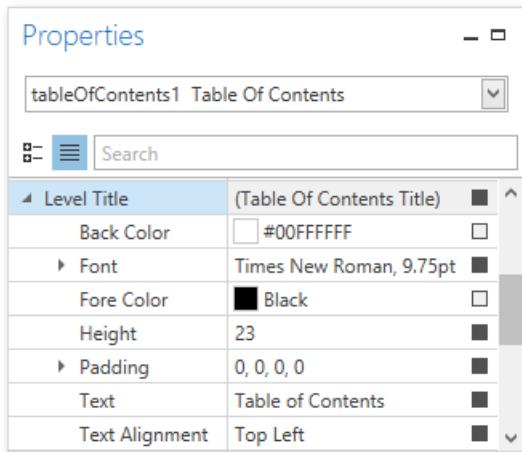


Alternatively, you can double-click the control in the Toolbox. In this case, if the report does not contain a Report Header, it will be created automatically, so that the table of contents can be added to it.

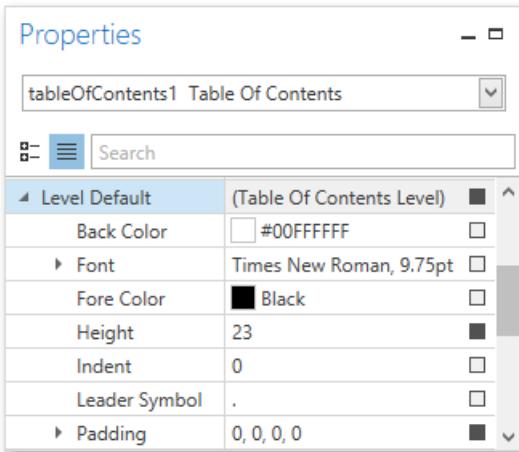
2. Double-click the title of the table of contents and specify its text.



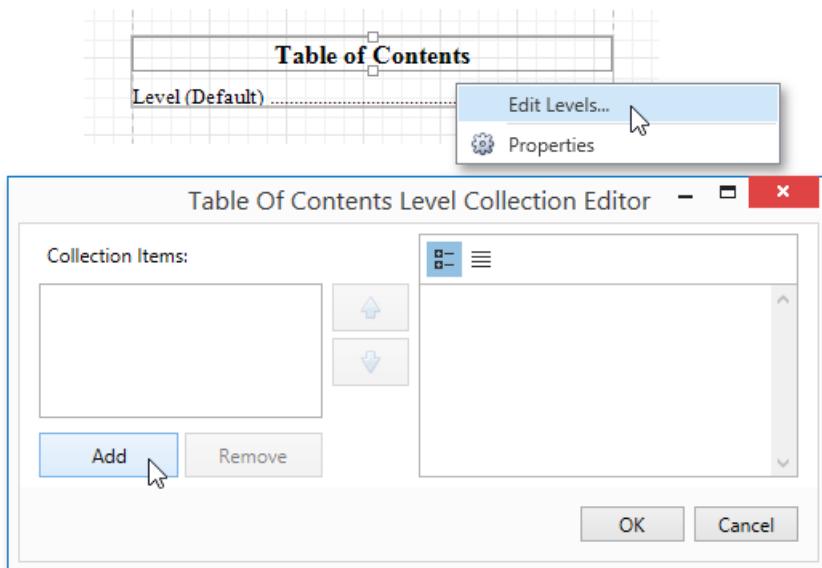
3. To customize the title's appearance, use the **Level Title** option's settings available in the [Properties Panel](#).



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.



After adding a new level, you can access and customize its properties.

The table of contents are now ready. Switch to the [Print Preview](#) and view the result.

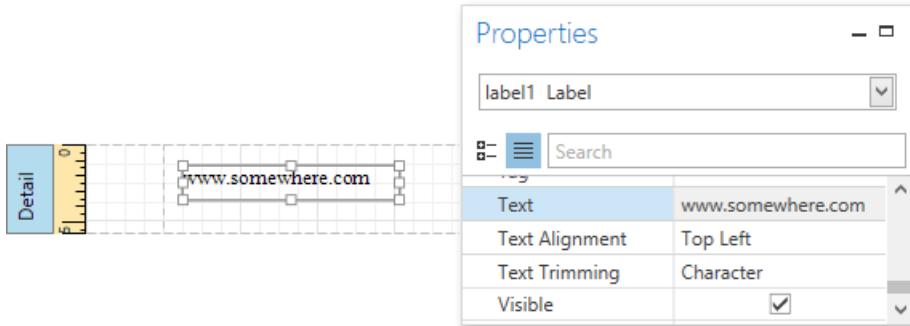
Table of Contents	
Category: 1	4
Chai	4
Chang	4
Chartreuse verte	4
Côte de Blaye	4
Guaraná Fantástica	4
Ipoh Coffee	4
Lakkalikööni	4
Laughing Lumberjack Lager	4
Outback Lager	4
Rhönbräu Klosterbier	4
Sasquatch Ale	4
Steeleye Stout	4
Category: 2	4
Aniseed Syrup	4
Chef Anton's Cajun Seasoning	4
Chef Anton's Gumbo Mix	4
Ginger Beer	4

Create Hyperlinks

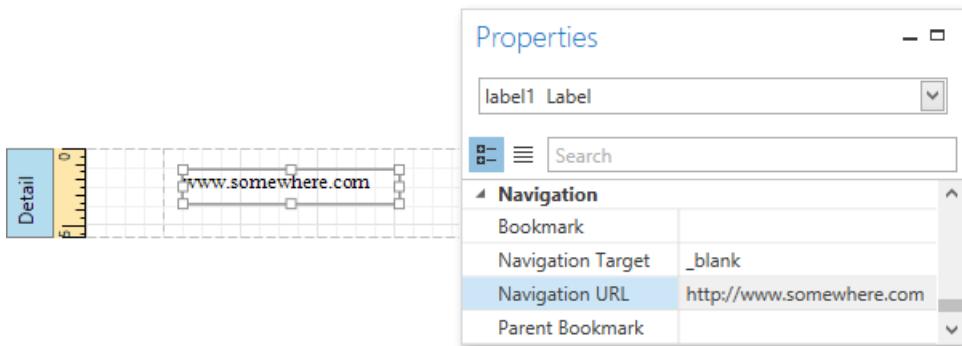
This tutorial demonstrates how to embed a *hyperlink* into your report. In this case, a label behaves as a hyperlink in a report's [Print Preview](#), and when the report is exported to PDF, HTML, MHT, RTF, XLS and XLSX formats.

To insert a hyperlink into your report, do the following.

1. [Create a new report](#).
2. Drop a **Label** onto the report, and in the [Properties Panel](#), change its **Text** to the one required for the link.



3. Then, set the **Navigation Target** to the required value (`_blank`, `_parent`, `_search`, `_self`, or `_top`), and define the required **Navigation URL**.



4. In addition, to make the label look like a typical link, you can change its appearance appropriately (e.g., make it blue and underlined).

The hyperlink is now ready. Switch to the [Print Preview](#) tab and view the result.



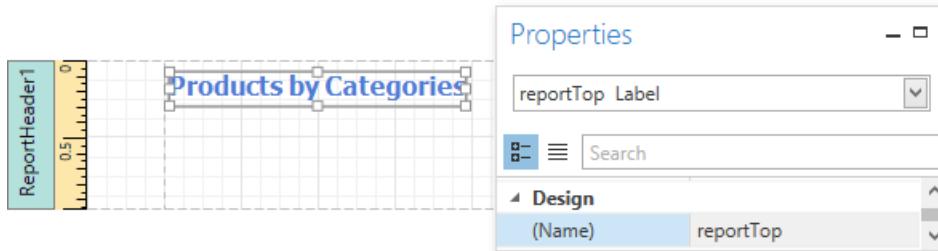
Add a Cross-Reference

This tutorial demonstrates how to add a *cross-reference* to your report. A cross-reference is a link whose target is located within the current document and which allows you to establish easy navigation through a report. In this example, a link is placed at the bottom of each group, leading to the beginning of the report.

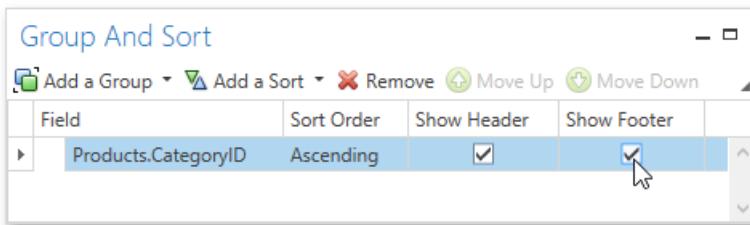
To demonstrate this feature, use a report with grouping similar to the one created in the following tutorial: [Grouping Data](#).

To create a report with cross-references, do the following.

1. Drop a label onto the created **Report Header** band, which will serve as the report's headline. Click the label to type the desired contents into it. Then, in the **Properties Panel**, set its **Name** property to **reportTop**.

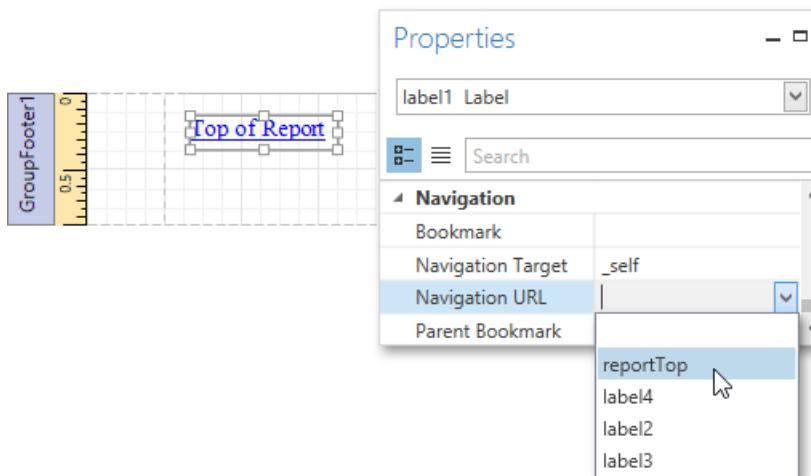


2. To accompany the existing Group Header with the corresponding Footer, in the **Group and Sort Panel**, enable the **Show Footer** option.



3. Then, drop a label onto the Group Footer band. Change the label's **Text** to **Top of Report** and apply the desired formatting to it (e.g., the blue color and underlined text).

Set its **Navigation Target** property to **_self**. Then, if you click the drop-down list of the **Navigation URL** property, you can see the controls available in your report. Choose the one named **reportTop**.



The report with cross-references is now ready. Switch to the **Print Preview** tab and view the result.

Products by Categories

Category: 1

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
Lakkalikööni	\$18.00

[Top of Report](#)



Category: 2

Enable Content Editing in Print Preview

This document describes how to enable editing the content of specific controls in [Print Preview](#).

This topic consists of the following sections.

- [Text Editing](#)
- [Check Box Editing](#)

Text Editing

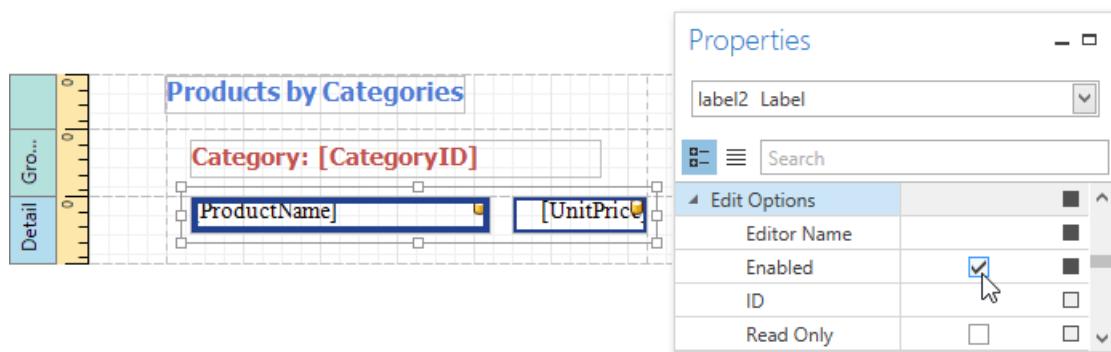
The **Label**, **Table Cell** and **Character Comb** report controls can be assigned editors to customize their content in Print Preview.

To demonstrate this feature, use the report similar to one created in the following tutorial: [Grouping Data](#).

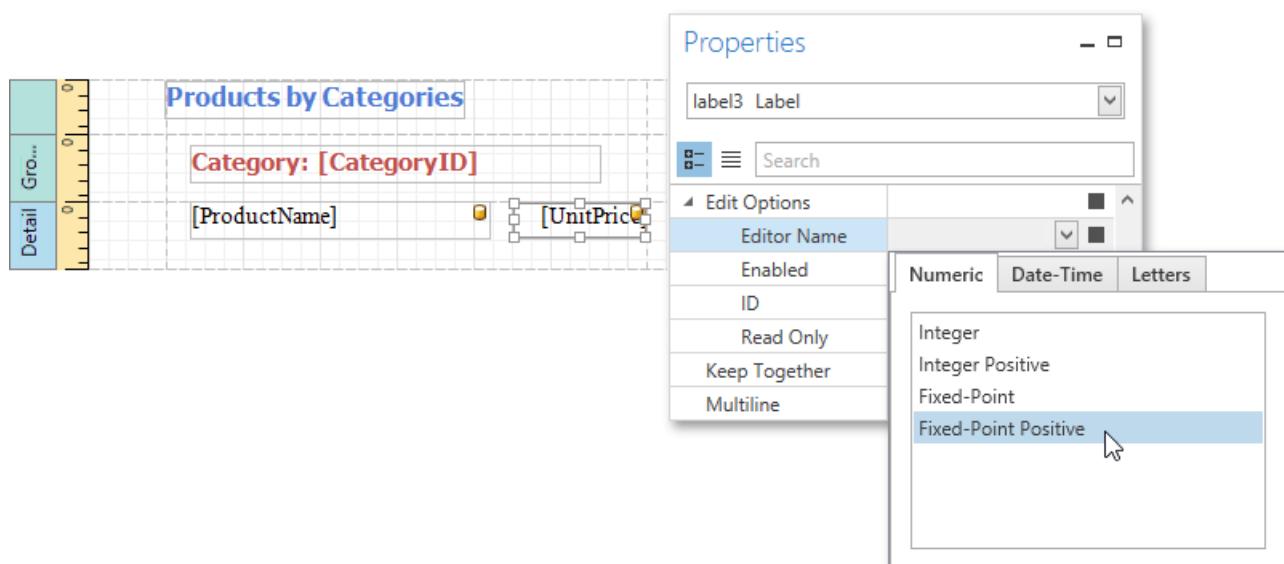
To enable content editing, do the following.

1. Select one or more controls that you want to become editable in Print Preview (to select multiple controls, click them while holding down CTRL or SHIFT).

Switch to the [Properties Panel](#), expand the **Edit Options** property and select the check box for the **Enabled** property.



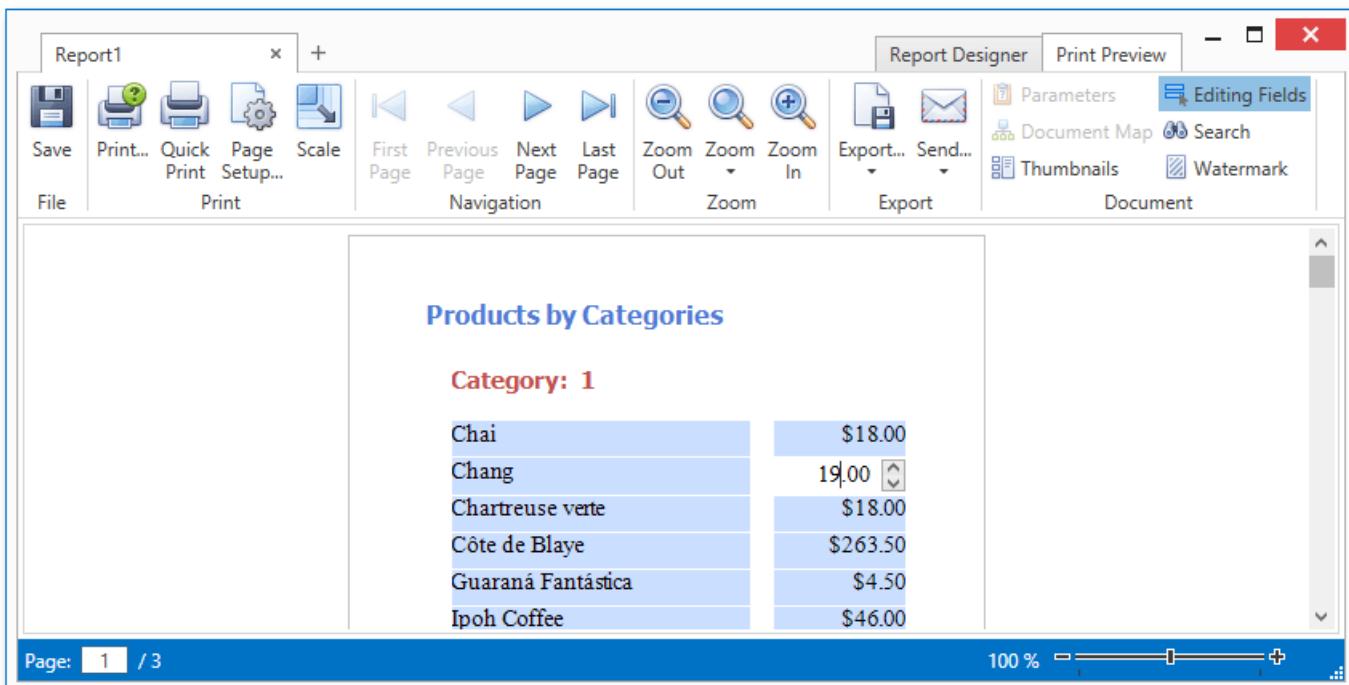
2. To provide a mask for editing decimal values of the **UnitPrice** field, set the **Editor Name** property to **Fixed-Point Positive** to assign the required editor with a corresponding mask.



Switch to the [Print Preview](#) tab. To highlight all editing fields available in the document, click the **Editing Fields** button in the Print Preview toolbar.

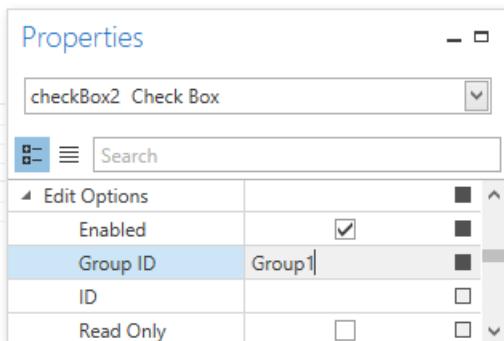
Clicking a field will invoke the appropriate editor. To apply the entered values and navigate between editing fields, use the TAB

and SHIFT+TAB keys.



Check Box Editing

In addition to editing text, you can enable switching [Check Box](#) states in Print Preview. When two or more check boxes have identical **Group ID** values, the corresponding editors belong to a single logical group (i.e., only one option can be selected within a group at a time).



NOTE

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).

Adding Details about a Report

This document lists topics that describe how to add technical information about a report to a generated document. This information includes the report's creation date, the author's name, as well as text and/or image watermarks.

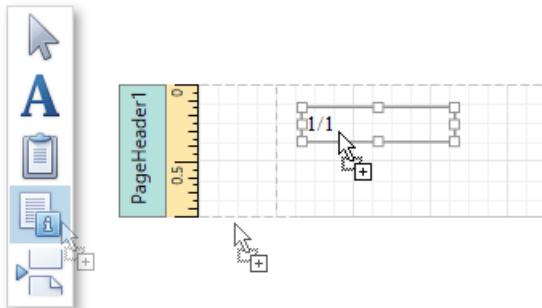
This section consists of the following examples.

- [Add Page Numbers and System Information to a Report](#)
- [Create or Modify Watermarks of a Report](#)

Add Page Numbers and System Information to a Report

This document describes how to insert *page numbers* or other system information (e.g., *current date and time*, *user name*, etc.) into a report.

Generally, this information is displayed within the Page Header and Footer or Page Margin bands. To add page numbers or system information to a report, drop the [Page Info](#) control from the [Control Toolbox](#) onto a band.



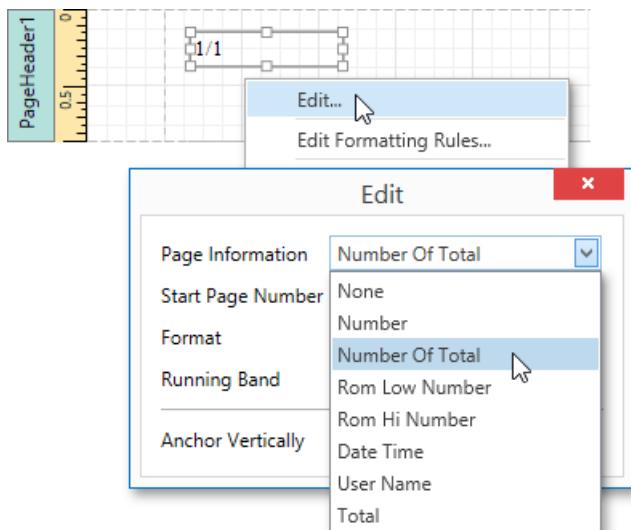
Then, follow the instructions below for your specific task.

- [Add Page Numbers](#)
- [Add System Date and Time](#)
- [Add the User Name](#)

Add Page Numbers

To insert page numbers in a report, do the following.

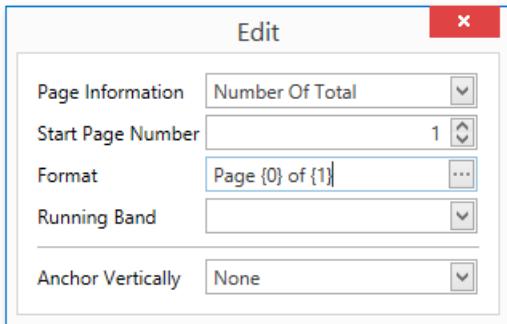
1. Right-click the **Page Info** control, and in the context menu, click the **Edit...** link. Then, in the invoked dialog, specify the **Page Information** property.



You can choose one of the following formats for displaying page numbers.

- **Number** - displays the current page number only.
- **Number of Total** - displays the current page number with total pages.
- **Rom Low Number** - the current page number is written in lowercase Roman letters.
- **Rom Hi Number** - the current page number is written in uppercase Roman letters.
- **Total** - displays the total number of pages.

2. To format the control's text, in the **Edit** dialog, specify the required format (e.g., **Page {0} of {1}**).



3. You can also specify the **Start Page Number** and **Running Band** properties. For instance, the latter is available when there are [groups](#) in a report, and you are required to apply independent page numbering for them.

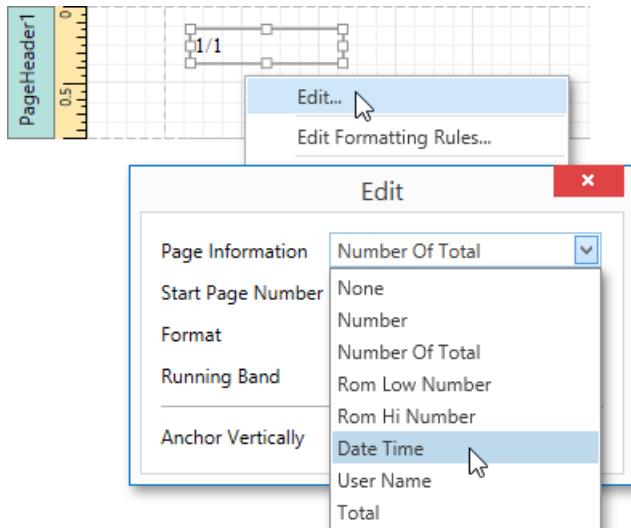
The result is shown below.

Page 1 of 3	
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

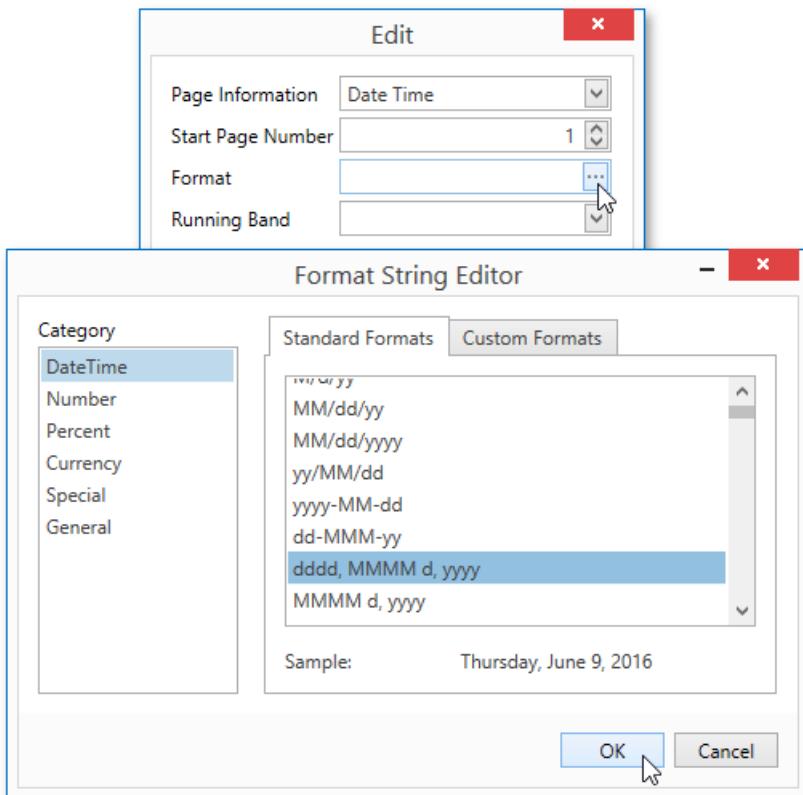
Add System Date and Time

To insert the current system date and time into a report, perform the steps below.

1. Right-click the **Page Info** control and select **Edit...** in the context menu. In the invoked dialog, expand the **Page Information** drop-down and select **Date Time**.



2. To [format](#) the control's text, you can either type it in the **Format** property, or click its ellipsis button and use the **Format String Editor**.



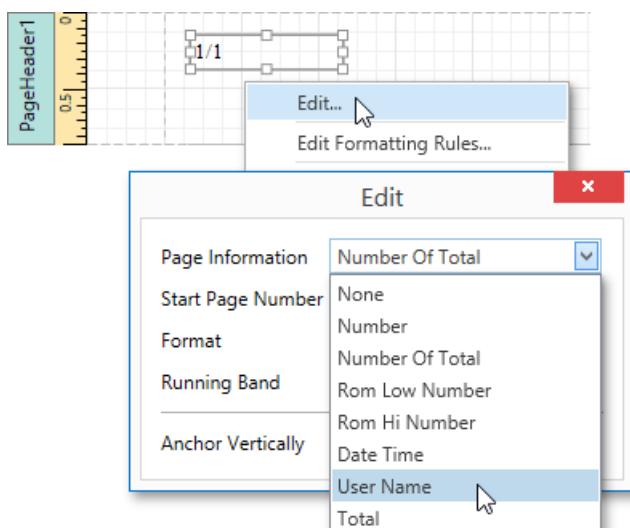
The result is shown below.

Thursday, June 9, 2016	
Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Cajun Seasoning	\$22.00

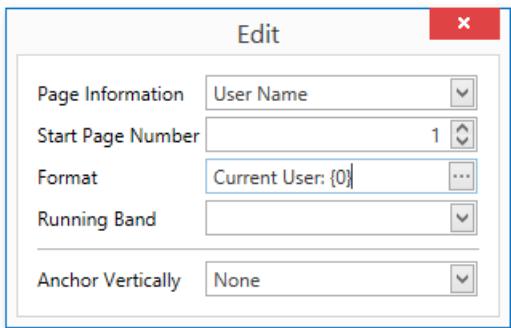
Add the User Name

To display the current user name in a report, do the following.

1. Right-click the **Page Info** control and select **Edit...** in the context menu. In the invoked dialog, expand the **Page Information** drop-down and select **User Name**.



2. To format the control's text, in the **Edit** dialog, specify the required format (e.g., **Current User: {0}**).



The following image demonstrates the result.

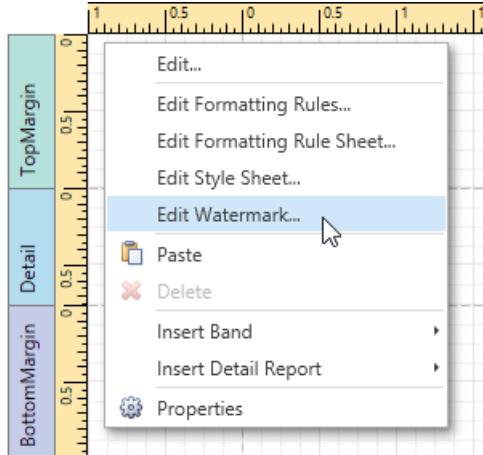
Current User: Andrew Fuller	
Chai	\$18.00
Chang	\$19.00
Aniseed Syrup	\$10.00
Chef Anton's Cajun Seasoning	\$22.00
Chef Anton's Cajun Seasoning	\$22.00

Create or Modify Watermarks of a Report

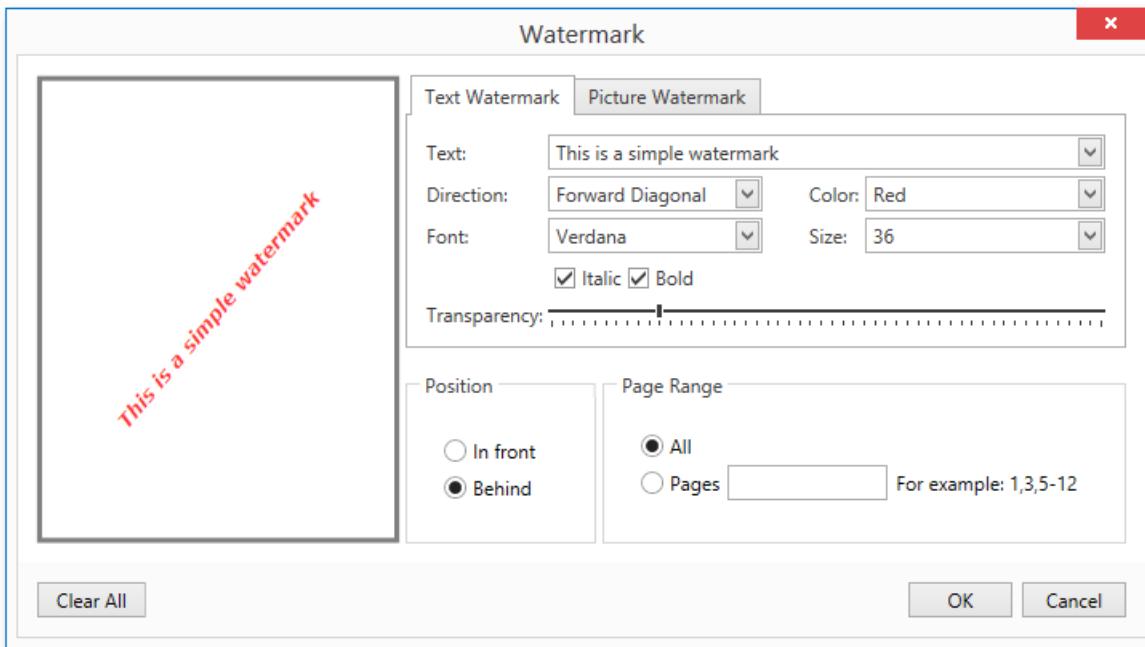
This document describes how to add a text watermark in a report, or turn a picture into a report's *background*. Note that watermarks are visible only in the [Preview](#) mode.

To create a new watermark in a report (or to modify the existing one), do the following.

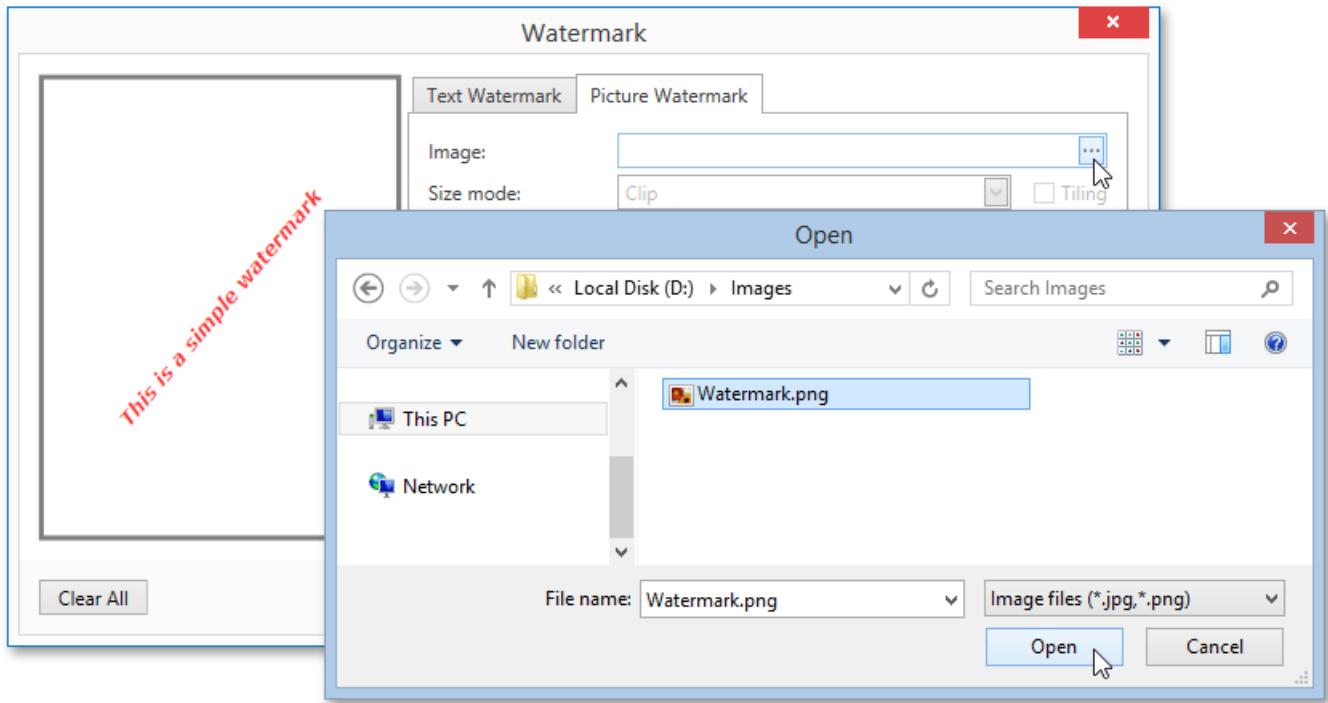
1. Right-click the report, and in the invoked context menu, click the **Watermark...** link.



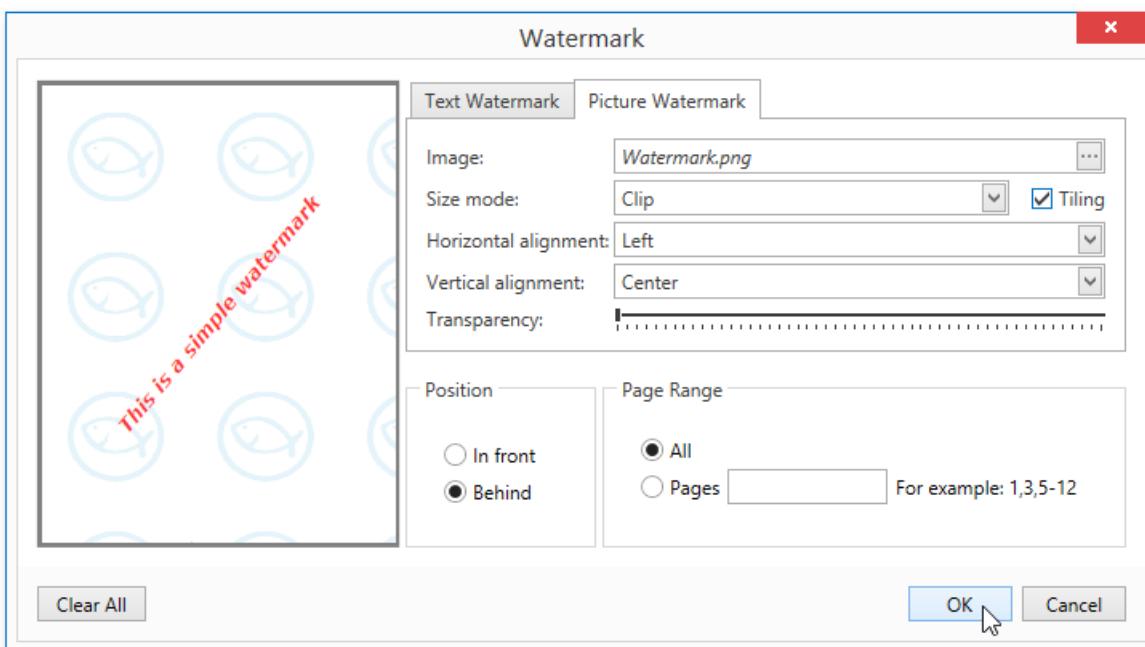
2. In the **Text Watermark** tab of the invoked **Watermark** dialog, enter the watermark's text and specify the required properties such as the **Direction**, **Transparency**, **Color**, etc.



3. Then, switch to the **Picture Watermark** tab to load the image to be used as a watermark. To do this, click the ellipsis button for the **Image** property. In the invoked dialog, select the file containing the image that you wish to load and click **Open**.



4. Next, define the picture's properties, such as the **Size mode**, **Alignment**, **Transparency**, etc.



5. In addition, you can select a watermark position behind or in front of the document, and specify the page range in which the watermark will be printed.

As you can see, it is possible to use both textual and image watermarks simultaneously.

The report with watermark is now ready. Switch to the [Print Preview](#) tab and view the result.

NN	Category	Common Name	Species Name	Notes
1	Triggerfish	Clown Triggerfish	<i>Balistoides conspicillum</i>	Also known as the big spotted triggerfish. Inhabits outer reef areas and feeds upon crustaceans and mollusks by crushing them with powerful teeth. They are voracious eaters, and divers report seeing the clown triggerfish devour beds of pearl oysters. Do not eat this fish. According to an 1878 account, 'the poisonous flesh acts primarily upon the nervous tissue of the stomach, occasioning violent spasms of that organ, and shortly afterwards all the muscles of the body.'
2	Snapper	Red Emperor	<i>Lutjanus sebae</i>	Called seaperch in Australia. Inhabits all areas around lagoon coral reefs and sandy bottoms. Their emperor is a valuable food fish and considered a great sporting fish that fights with fury when hooked. The flesh of an old fish is just as tender to eat as that of the very young.
3	Wrasse	Giant Moor Wrasse	<i>Cheilinus undulatus</i>	This is the largest of all the wrasses. It is found in dense reef areas, feeding on a wide variety of mollusks, fishes, sea urchins, crustaceans, and other invertebrates. In spite of its immense size, divers find it a very wary fish.
4	Angelfish	Blue Angelfish	<i>Pomacanthus neosarchus</i>	Habitat is around boulders, caves, coral ledges and crevices in shallow waters. Swims alone or in groups.
5	Cod	Lunartail Rockcod	<i>Variolas louti</i>	Also known as the coronation trout. It is found around coral reefs from shallow to very deep waters. Feeds primarily on small fishes.
6	ScorpionFish	Firefish	<i>Pterois volitans</i>	Also known as the turkeyfish. Inhabits reef caves and crevices. The firefish is usually stationary during the day, but feeds actively at night. Favorite foods are crustaceans.
7	Butterflyfish	Ornate Butterflyfish	<i>Cheetodon ornatus</i>	Normally seen in pairs around dense coral areas from very shallow to moderate depths. The butterflyfish feeds mainly on coral polyps and anemones.
8	Shark	Swell Shark	<i>Cephaloscyllium ventriosum</i>	Inhabits shallow reef caves and crevices and kelp beds along the coast and offshore islands. This shark feeds at night on fishes and crustaceans and is totally harmless to divers.
9	Ray	Bat Ray	<i>Mylabatis californica</i>	Also known as the grinder ray because of its flat grinding teeth used to crush its meal of crustaceans or invertebrates. Inhabits bays, sloughs, and kelp beds with sandy bottoms.
10	Eel	California Moray	<i>Gymnothorax mordax</i>	This fish hides in a shallow-water lair with just its head protruding during the day. At night it feeds on octopuses, crustaceans, and small fish close by.
11	Cod	Lingcod	<i>Ophiodon elongatus</i>	Widely found from near the shore to very deep waters. Young fish stay on sand or mud bottoms of bays and inshore areas. The lingcod is a voracious predator, eating many different fishes and octopuses.
12	Sculpin	Cabezon	<i>Scorpaenichthys marmoratus</i>	Often called the great marbled sculpin. Found over rocky or shell-encrusted bottoms from shallow to moderately deep waters. It feeds primarily on crustaceans and mollusks.
13	Spadefish	Atlantic Spadefish	<i>Cheilotremus faber</i>	Found in mid-water areas around reefs, wrecks and bridges. The tiny, all-black juvenile drift motionless in the shallows, looking like leaves and pods of mangrove.
14	Shark	Nurse Shark	<i>Ginglymostoma cirratum</i>	Frequently found under rock or reef ledges. Carnivorous with well-developed organs for scent and vibration detection.

This is a sample

Scripting

This document describes the basic principles of *scripting*, which can be performed by handling the events of a report, and its [bands](#) and [controls](#).

This document consists of the following sections.

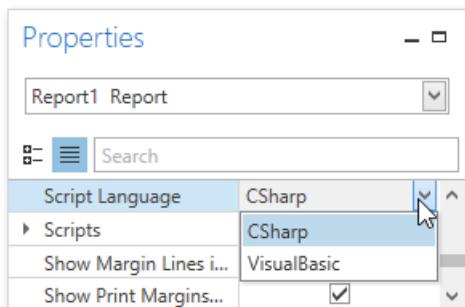
- [Scripting Overview](#)
- [Maintaining Scripts](#)
- [Example: Custom Summary](#)

Scripting 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. Scripting is made available to extend the standard functionality as far as may be required.

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](#).

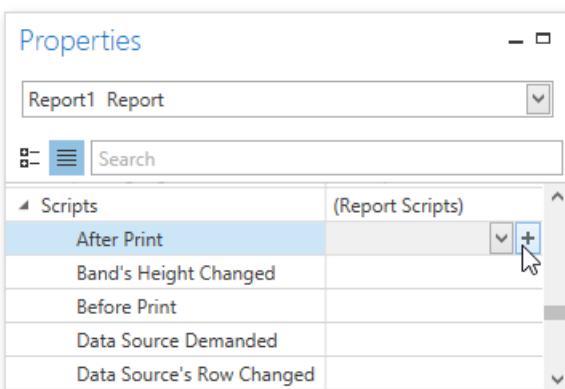
The Report Designer allows you to write scripts using the [Script Editor](#). This editor supports **C#** and **Visual Basic .NET** scripting languages. This means that the scripting language is independent from the language used to create the report. The language is specified by the **Script Language** property of a report. The selected scripting language must be the same for all scripts used in a report.



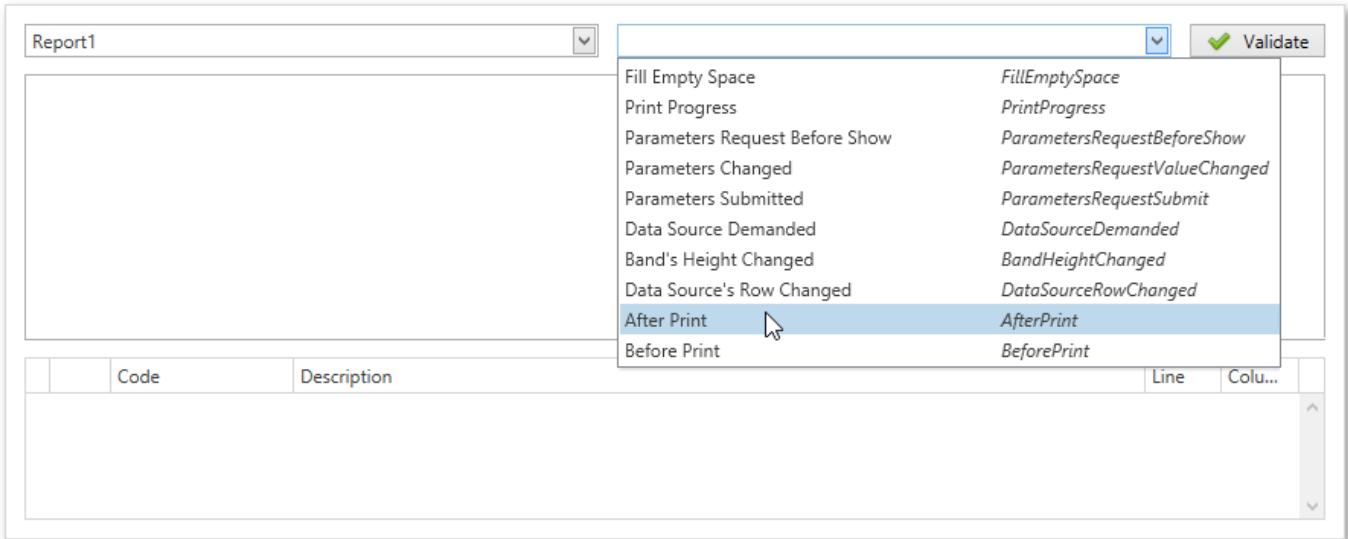
Maintaining Scripts

Each report element has its own set of events, which are individual for each element type. To handle an event of a report element, do one of the following.

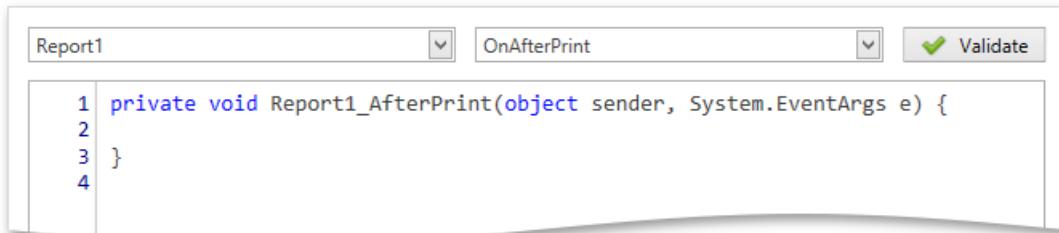
- Select the required report element (e.g., on the [Design Surface](#)). In the [Properties Panel](#), expand the **Scripts** property and click the plus button for the event.



- Click the **Scripts** button (with a pencil icon) in the **Toolbar** to display the Script Editor. Choose the required report element in the dedicated drop-down list at the left top of the Script Editor. Then, select one of the available events in another list at the right top.



After the event is specified, a code template is automatically generated in the current scripting language and added in the Script Editor.



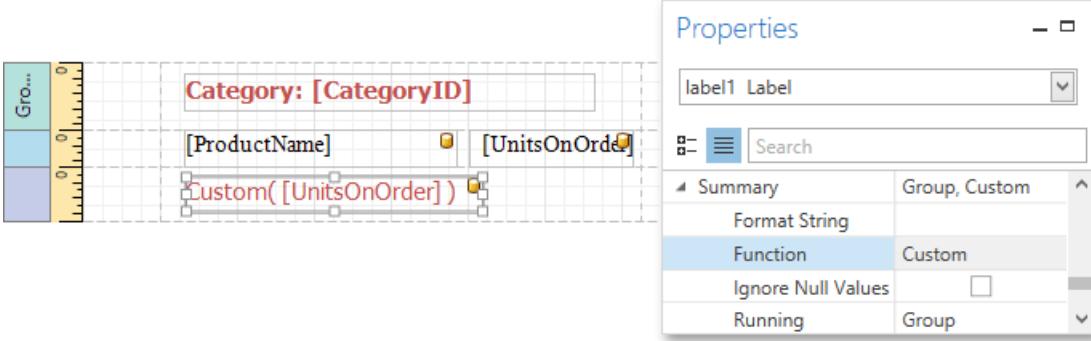
To check for errors in the report's script, click the **Validate** button. The validation result is displayed in the errors panel at the bottom of the Script Editor. Double-click the error item in the panel's list to go to the corresponding line of code. If all scripts are valid, the errors panel is empty.

	Code	Description	Line	Column
✖	CS1002	; expected	2	11
✖	CS1002	; expected	7	10

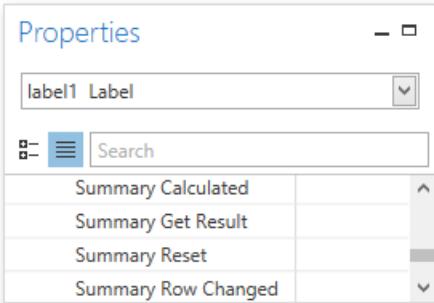
Example: Custom Summary

This example demonstrates how to display the total number of product unit packs in a group.

To perform this, execute steps similar to the ones described in [Calculating Summaries](#), except that for the summary field, you should set the **Function** property to **Custom**.



Then, the additional events are added to the label's **Scripts** property.



You can handle these events in the following way.

C#

```
// Declare a summary and a pack.
double totalUnits = 0;
double pack = 15;

private void label1_SummaryReset(object sender, System.EventArgs e) {
    // Reset the result each time a group is printed.
    totalUnits = 0;
}

private void label1_SummaryRowChanged(object sender, System.EventArgs e) {
    // Calculate a summary.
    totalUnits += Convert.ToDouble(GetCurrentColumnValue("UnitsOnOrder"));
}

private void label1_SummaryGetResult(object sender,
DevExpress.XtraReports.Ul.SummaryGetResultEventArgs e) {
    // Round the result, so that a pack will be taken into account
    // even if it contains only one unit.
    e.Result = Math.Ceiling(totalUnits / pack);
    e.Handled = true;
}
```

VB.NET

Finally, switch to the [Print Preview](#) tab and view the result.

Category: 1

Chang	40
Ipoh Coffee	10
Outback Lager	10

Total Packs: 4

Category: 2

Aniseed Syrup	70
Louisiana Hot Spiced Okra	100

Total Packs: 12

Category: 3

Chocolade	70
Maxilaku	60
Scottish Longbreads	10
Sir Rodney's Scones	40

Total Packs: 12

Report Elements

In the Report Designer, a report is built from *controls* (text labels, images, zip codes, charts, etc.) spread across report sections called *bands* (various headers, footers, and content sections).

To learn more about these report elements, see the following documents.

- [Report Controls](#)
- [Report Bands](#)

Report Controls

In general, *report controls* allow you to present information of different kinds (e.g., simple or formatted text, pictures, tables, etc.) in your static and [dynamic](#) reports, and to [adjust your report's layout](#) (by organizing controls within panels, and inserting page breaks at the required positions).

The following table lists the available controls (in the same order as in the [Toolbox](#)).

ICON	DESCRIPTION
	The most basic Label control is intended to display static or dynamic text or both in your report. In addition, it can be used to calculate standard summary functions across a data field.
	The Check Box control is intended to display True/False or Checked/Unchecked/Indeterminate states in a report by displaying (or not) a check mark, which can be accompanied by a text description.
	The Rich Text control allows you to display formatted text in your report. It can display static or dynamic text or both. You can also load content to the Rich Text from an external TXT or RTF file (which can contain images).
	The Picture Box control is intended to display images of numerous formats in a report. An image can be loaded from an external file, from a bound data source , or from a web location using the specified URL.
	The Panel control is a container that frames separate report controls to allow them to be easily moved, copied and pasted, and visually unite them in the report's preview (with borders or a uniform color background).
	The Table control is designed to arrange information in a tabular layout . It may contain any number of rows comprised of individual cells . Both rows and cells can be selected and customized individually. In most aspects, a cell is similar to a Label, but can also contain other controls (e.g., Picture Box or Rich Text).
	The Character Comb control displays text so that each character is printed in an individual cell.
	The Line control draws a line of a specified direction, style, width and color. It can be used for both decoration and visual separation of report sections. The Line cannot cross report bands , as opposed to the Cross-band Line control.
	The Shape control allows you to embed simple graphic objects into your report. You can choose one of the multiple predefined shapes (e.g., rectangles, ellipses, arrows, polygons, crosses and brackets of various kinds).
	The Barcode control transforms its content into a barcode of the specified type. Multiple standard barcode types are supported.
	The Zip Code control renders a numeric postal code that is used to identify the mail address in some countries. This control is not related to the Zone Improvement Plan (ZIP) code used by the United States Postal Service.
	The Chart is a sophisticated control used to embed graphs into your report. It graphically represents a series of points using numerous 2D or 3D chart types. A Chart can be populated with points both manually (by specifying arguments and values for each point) and dynamically (by connecting it to the report's data source or binding it to a separate one). See Chart with Static Series and Chart with Dynamic Series for more information.
	The Gauge control provides you with the capability to embed graphic gauges into your report.
	The Sparkline control displays a compact chart that is commonly used to reflect the flow of data for every row in a report.

ICON	DESCRIPTION
	The Pivot Grid control represents dynamic data (obtained from an underlying data source) in a cross-tabulated form to create cross-tab reports , similar to Pivot Tables in Microsoft Excel®. Column headers display unique values from one data field, and row headers - from another field. Each cell displays a summary for the corresponding row and column values. By specifying different data fields, you can see different totals. This allows you to get a compact layout for a complex data analysis.
	The Subreport control allows you to include other reports in your current report. To learn more, see Master-Detail Report (Subreports) .
	The Table Of Contents control generates a table of contents based on bookmarks specified for report elements.
	The Page Info control is intended to add page numbers and system information to a report (the current date and time or the current user name) into your report. As with many other controls, you can format this control's content.
	The Page Break control's sole purpose is to insert a page delimiter at any point within a report.
	The Cross-band Line control allows you to draw a line through several report bands . This can be useful if you need to visually emphasize a section consisting of multiple band areas. In other aspects, it is similar to a regular Line.
	The Cross-band Box control allows you to draw a rectangle through several report bands . This can be useful if you need to visually encompass a section consisting of multiple band areas.

To learn how to create report controls and change their layout, refer to [Create and Delete Report Elements](#) and [Adjust the Layout of Report Elements](#).

Report Bands

A **Report Band** is a specific area on a report page, used to define how to render report controls that belong to it, their rendering order and how many times they are rendered. In the Report Designer, every report consists of a number of bands, each of a different type.

This document consists of the following sections.

- [Available Bands](#)
- [Band Positions](#)
- [Editing Bands](#)

Available Bands

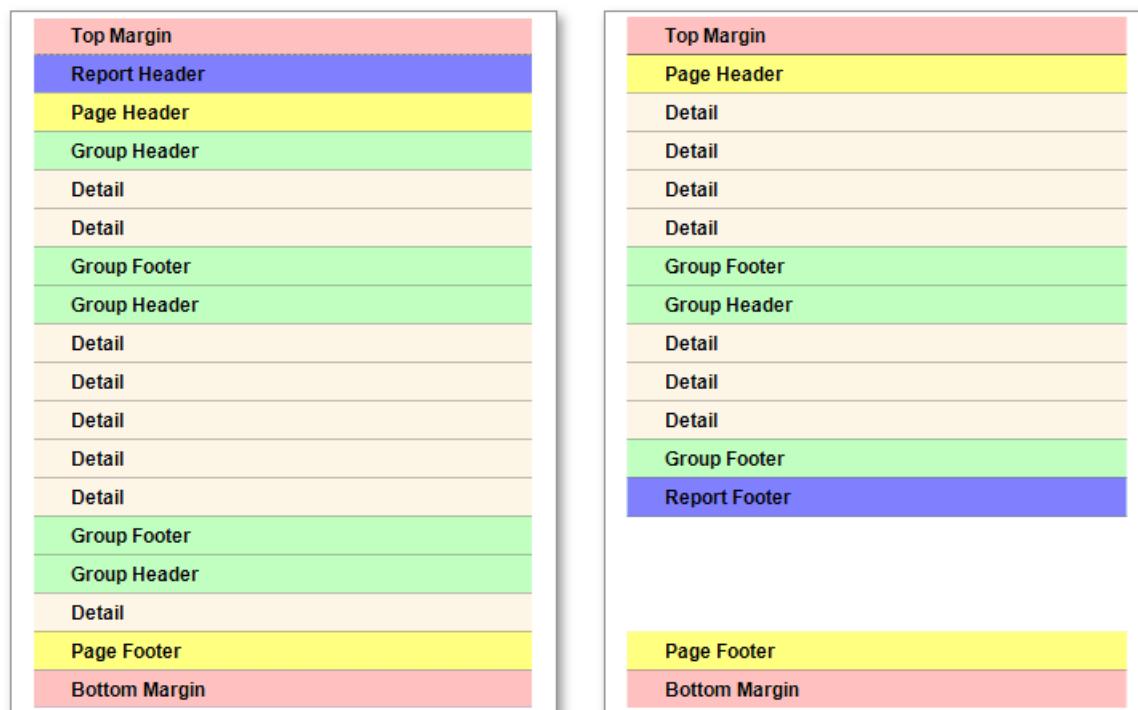
The following table lists all available band types.

BAND	DESCRIPTION
Top Margin Band	Located on the top margin of every page, above the Page Header and Report Header . This band is intended for displaying page numbers or certain supplementary information (e.g., current system time or the user name).
Report Header Band	Located at the beginning of a report. This band is intended to display some introductory information, e.g., the report's name, company logo, date of creation and user name , etc.
Page Header Band	Located at the top of every page, below the Top Margin and Report Header . This band is the best place for information that should be printed on every page. For example, use it to display the header of a table which is continued from the previous page.
Group Header Band	Located at the beginning of every group or at the top of the page in case it is split across pages. This band specifies grouping criteria and is used to display information at the beginning of a group of records. To learn more, refer to Grouping Data .
Detail Band	Located in the central part of a report between all other bands. This band cannot be deleted since the present report structure includes the Detail band in its core. This band displays a single record at a time from the bound data source, or simply holds unbound controls if there is no data source assigned to a report. For more information on data binding, refer to Providing Data .
Detail Report Band	Located below the Detail band and used to incorporate one report into another in master-detail reports. It is quite different from the Detail band, since it holds the whole detail report in a master-detail report layout, and therefore can contain other types of bands within it. To learn more about detail reports, refer to Master-Detail Report (Detail Report Bands) .
Group Footer Band	Located at the end of every group or at the bottom of the page if its group is split across pages. This band is primarily intended to show summary information for a group. To learn more, refer to Grouping Data .
Report Footer Band	Located at the end of the report, before the Page Footer and Bottom Margin on the report's last page. This band is intended to display some final information, e.g., report totals .
Page Footer Band	Located at the bottom of every page, below the Report Footer and above the Bottom Margin . This band is intended to display page numbers or a table footer, which is continued on the following page.

BAND	DESCRIPTION
Bottom Margin Band	Located on the bottom margin of every page, below the Page Footer . This band is intended for displaying page numbers or certain supplementary information (e.g., current system time or the user name).
Sub-Band	This band provides a functional copy of the source band below which it is located. A sub-band's behavior, as well as its position within the report band hierarchy, is dictated by the source band type. Any number of sub-bands can be added to the report band of any type except for the Top Margin and Bottom Margin bands and the sub-band itself. Using sub-bands, it is possible to create multiple versions of a band within a single report and choose an appropriate version later based on a specific condition .

Band Positions

The following image illustrates the relative positions of different band types, and how many times they are rendered in a report.



The **Page Header**, **Page Footer**, **Top Margin** and **Bottom Margin** bands are rendered in the report preview on every page.

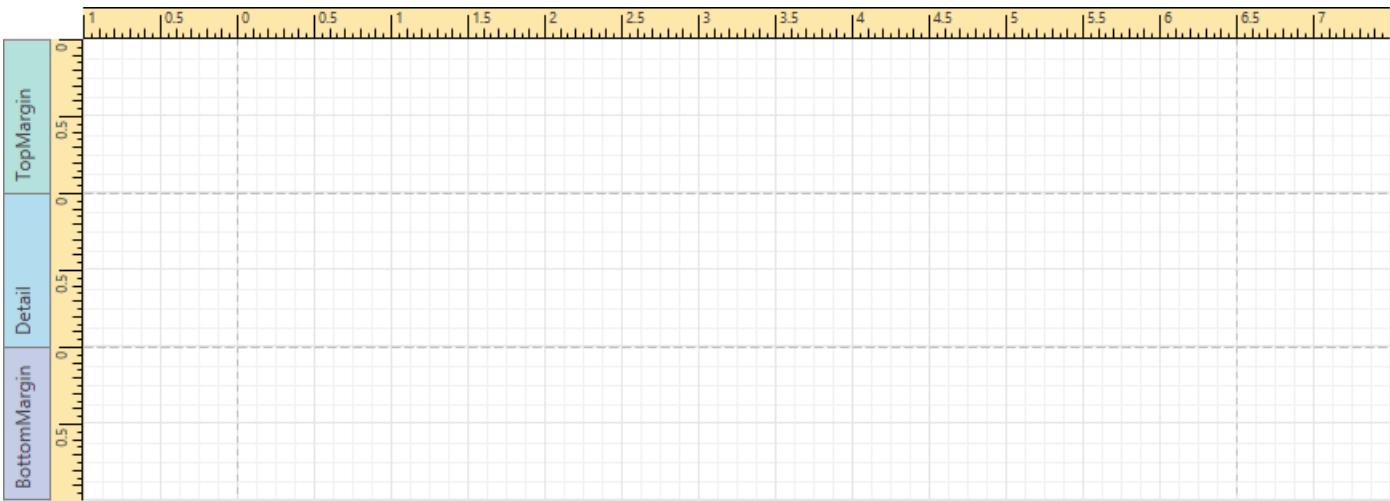
The **Report Header** and **Report Footer** bands are rendered in the report preview only once.

The **Group Header** and **Group Footer** bands are rendered for every group of records in a report.

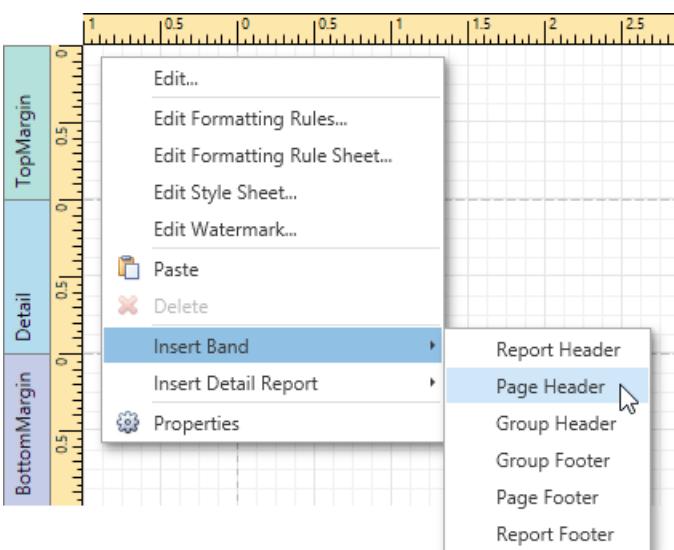
The number of times the **Detail** band is rendered in a report depends upon the number of records returned from the bound data source - one band per record.

Editing Bands

The following image shows the default report layout. It is divided into three basic bands (**Top Margin**, **Detail** and **Bottom Margin** bands) that provide space for placing different [report controls](#) on them.



To add a new band of a particular type, use the context menu of the report or bands. Right-click a report on the [design surface](#) or in the [Report Explorer](#), and select a band to be inserted in the report.



For more information on adding and removing bands in the Report Designer, refer to the [Create and Delete Report Elements](#) document. To learn how to change the band layout, see [Adjust the Layout of Report Elements](#).

Interface Elements

The topics in this section describe the main elements that make up the user interface of the Report Designer.

This section consists of the following topics.

- [Toolbar](#)
- [Control Toolbox](#)
- [Field List](#)
- [Report Explorer](#)
- [Group and Sort Panel](#)
- [Properties Panel](#)
- [Design Surface](#)
- [Script Editor](#)
- [Localization Editor](#)
- [Query Builder](#)

Toolbar

The **Toolbar** allows you to easily perform various report commands, which are divided into the following sections.

- Report Commands
- Edit Commands
- Font Commands
- Arrange Commands
- Editors Commands



Report Commands

Use these commands to save and load report layouts.

ICON	COMMAND	DESCRIPTION
	New	Creates a new report using the Report Wizard .
	Open	Invokes the Open dialog that allows you to select the report layout to be opened .
	Save	Saves the current report to the default file.
	Save as	Invokes the Save dialog that allows you to select a file to which the current report layout should be saved .

Edit Commands

Use the following commands to delete the selected report elements, place them to the clipboard, paste them onto report bands and cancel previous actions.

ICON	COMMAND	DESCRIPTION
	Delete	Deletes the selected report elements.
	Cut	Cuts the selected report elements to the clipboard.
	Copy	Copies the selected report elements to the clipboard.
	Paste	Pastes the contents of the clipboard to the selected report band.
	Undo	Cancels the last change made to the report.
	Redo	Reverses the results of the last undo action.

Font Commands

Use these commands to easily customize font, color, formatting and alignment settings.

ICON	COMMAND(S)	DESCRIPTION
	Font Name	Specifies the font name of the selected elements.
	Font Size	Specifies the font size of the selected elements.
	Foreground Color	Specifies the foreground color of the selected elements.
	Background Color	Specifies the background color of the selected elements.
	Bold, Italic, Underline, Strikeout	Applies/removes bold formatting, italic formatting, underlining and strike through to/from the selected elements.
	Left, Center, Right, Justify	Specifies the horizontal text alignment of the selected elements.
	Top, Center, Bottom	Specifies the vertical text alignment of the selected elements.

Arrange Commands

These commands allow you to change the order of stacked elements.

ICON	COMMAND	DESCRIPTION
	Bring to Front	Brings the selected elements to the front of a group of stacked elements or moves the selected elements one step closer to the front.
	Send to Back	Sends the selected elements to the back of a group of stacked elements or moves the selected elements one step toward the back.

Editors Commands

Use the following commands to invoke the **Watermark** dialog, **Page Setup** dialog or **Script Editor**.

ICON	COMMAND	DESCRIPTION
	Watermark	Invokes the Watermark dialog that allows you to add a text watermark to a report or turn a picture into a report's background.
	Page Setup	Invokes the Page Setup dialog that allows you to modify the paper size, orientation and margins.
	Scripts	Shows or hides the Script Editor that allows you to write code for specific event handlers.

Control Toolbox

The **Control Toolbox** contains all available [report controls](#) and allows end-users to add them to the report being edited. Report controls can display both static and [dynamic](#) information of different kinds (simple or formatted text, pictures, tables, etc.) and adjust a report layout (organize controls within panels, insert page breaks, etc.)

The available report controls can be divided into the following categories.

- [General Content](#)
- [ExtendedData](#)
- [Report Layout](#)
- [Document Statistics](#)

To learn how to add a control from the **Toolbox** to a report, see the [Adding Controls to a Report](#) section.

General Content

The following controls are most commonly used to display data in a report.

ICON	CONTROL NAME
	Label
	Check Box
	Rich Text
	Picture Box
	Table
	Character Comb
	Barcode
	Zip Code
	Gauge

Extended Data

The following controls are connected to data individually, without accessing a report's data source.

ICON	CONTROL NAME

ICON	CONTROL NAME
	Chart
	Pivot Grid
	Sparkline

Report Layout

The following controls allow you to draw shapes in a report and customize the report layout.

ICON	CONTROL NAME
	Line
	Shape
	Page Break
	Cross-Band Line
	Cross-Band Box
	Panel
	Subreport

Document Statistics

The dynamic content of the following controls is not obtained from a data source.

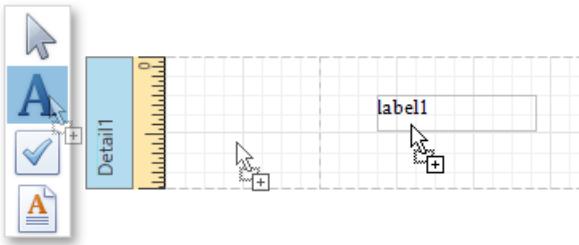
ICON	CONTROL NAME
	Page Info
	Table Of Contents

Adding Controls to a Report

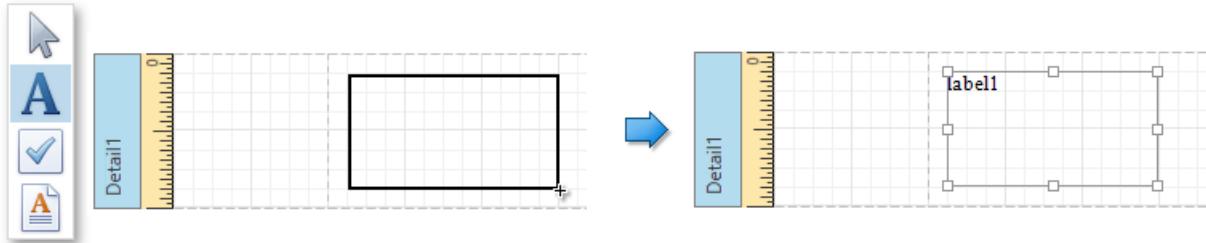
To add a control from the Toolbox to a report, do one of the following.

- Double-click an item in the Toolbox to create the corresponding control at the default position.

- Drag-and-drop an item from the Toolbox onto the required position within a report.



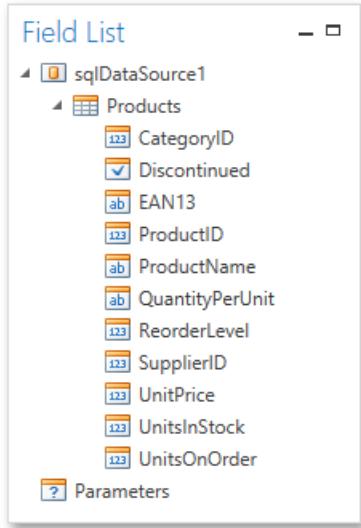
- Select an item in the Toolbox, and then indicate the bounding rectangle by holding down the left mouse button.



If you need to perform selection, re-arranging or resizing operations, select the **Pointer** item (↗).

Field List

The **Field List** panel is intended to display the structure of the data source to which a report is currently bound. This panel can also be used to create new bound [report controls](#), manage [calculated fields](#) and [parameters](#).



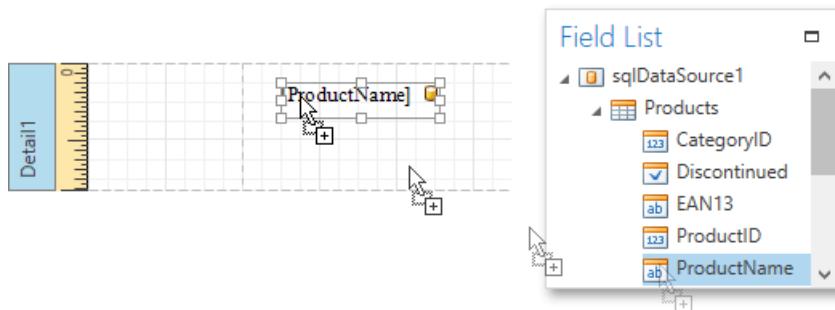
This document consists of the following sections.

- [Creating Bound Report Elements](#)
- [Managing Calculated Fields](#)
- [Managing Report Parameters](#)

Creating Bound Report Elements

After [binding a report to data](#), the Field List shows the structure of the report's data source assigned to the **Data Source** property. Then, the Field List can be used to add new bound controls.

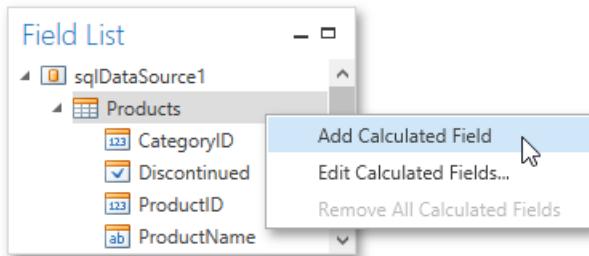
To add a new bound report element, click a desired field item in the Field List, and then drag-and-drop it onto the report band. This creates an appropriate control bound to the selected data field.



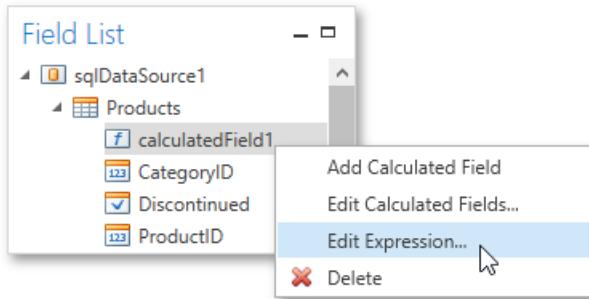
Managing Calculated Fields

The Field List allows you to create [calculated fields](#) by building expressions based on the values of data fields, report parameter values, etc.

To add a calculated field to a report, right-click any item inside the data member node, and in the invoked context menu, select **Add Calculated Field**.



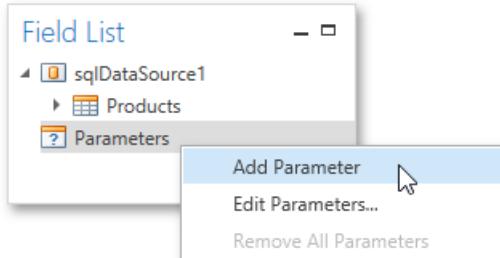
To edit settings of the created calculated field, select them and go to the [Properties Panel](#). You can also right-click the calculated field and use commands available in the context menu.



Manging Report Parameters

The Field List shows existing [report parameters](#) and allows you to add new ones to the report.

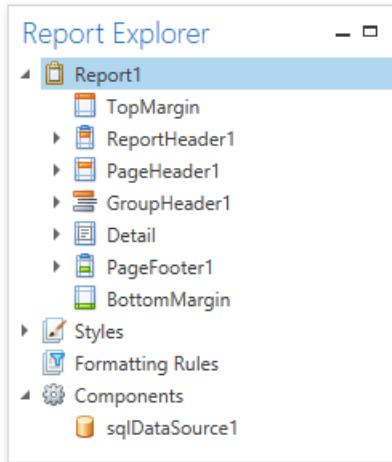
To create a parameter, right click the **Parameters** node or any of its sub-nodes, and in the context menu, select **Add Parameter**.



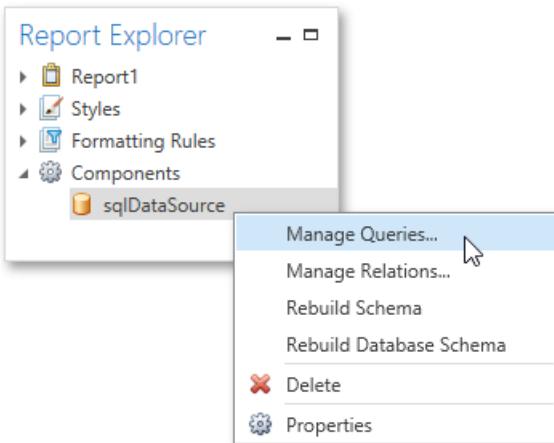
You can customize report parameters using the [Properties Panel](#) or commands available in the context menu in the same way as you customize calculated fields.

Report Explorer

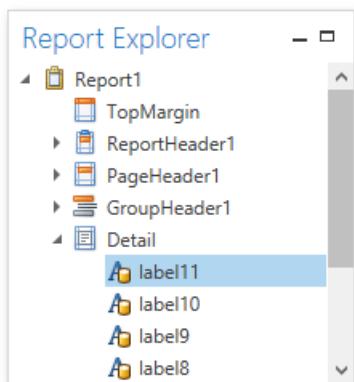
The **Report Explorer** reflects a report's structure in a tree-like form providing easy access to [report elements](#). Additionally, the Report Explorer contains the **Components** node, which displays non-visual report components such as data objects created when [binding a report to a data source](#). You can also use the Report Explorer to manage [styles](#) and [formatting rules](#) available for a report.



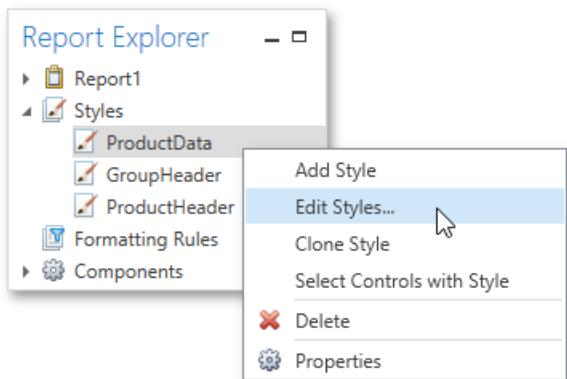
To access and edit settings of a report element or component, select it in the Report Explorer and switch to the [Properties Panel](#). You can also right-click elements and components to invoke their context menu.



In the Report Explorer, data-aware controls are marked with a special database icon.

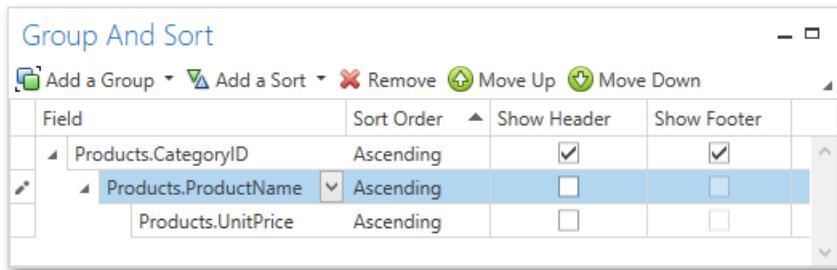


You can manage styles and formatting rules using commands available in context menus. To invoke a context menu, right-click the corresponding root node or its sub-node.



Group and Sort Panel

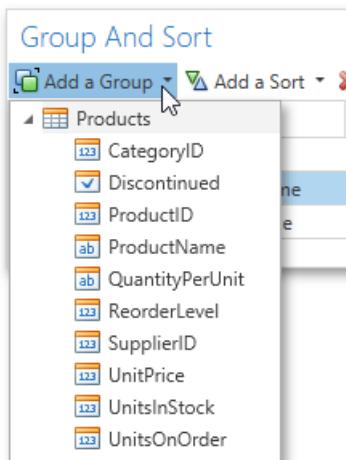
The **Group and Sort Panel** allows you to quickly apply [grouping](#) and [sorting](#) to report data.



NOTE

If a report is not bound to a data source, the **Group and Sort Panel** is inactive.

To create a new sorting or grouping criterion, click the **Add a Sort** or **Add a Group** buttons, respectively. Then, select the desired data source field in the invoked drop-down list.



After adding the grouping criterion, the Group Header band is automatically created. You can manually specify whether to display the corresponding Group Header and Group Footer using the **Show Header** and **Show Footer** check boxes.

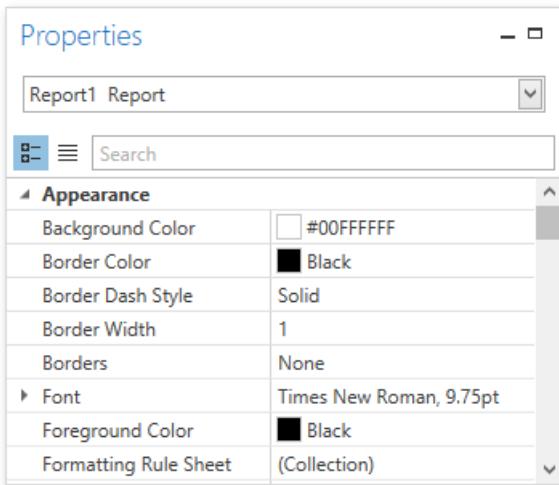
You can choose the sorting mode (ascending or descending) or disable sorting in the **Sort Order** drop-down list.

The **Group and Sort Panel** also allows you to change the precedence of multiple grouping and sorting criteria using the **Move Up** and **Move Down** buttons.

To remove a grouping or sorting criterion, select it and click the **Remove** button.

Properties Panel

The **Properties** panel allows you to access and customize settings of a report and its [elements](#).



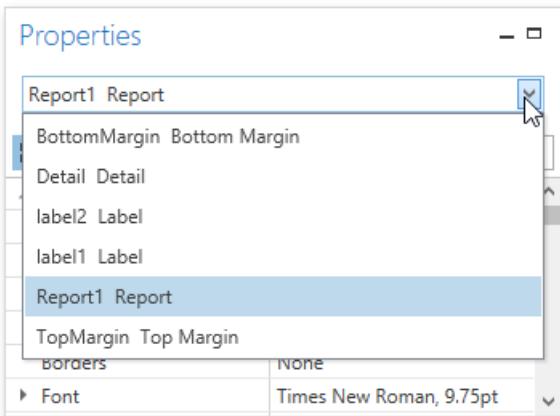
This document describes different aspects of using the Properties panel and consists of the following sections.

- [Selecting a Report Element](#)
- [Display Modes](#)
- [Changing Property Values](#)
- [Searching for Properties](#)

Selecting a Report Element

To select an element and show its properties in the Properties panel, do one of the following.

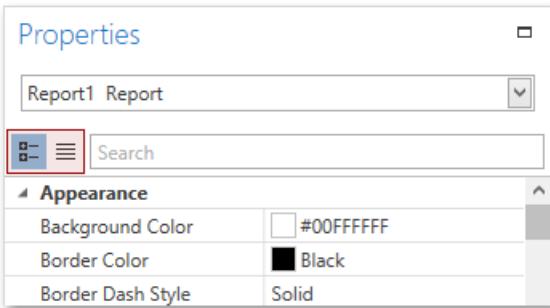
- Select a required element in the drop-down list at the top of the Properties panel.



- Click a required element in the [Report Design Surface](#).
- Select a required element in the [Report Explorer](#).

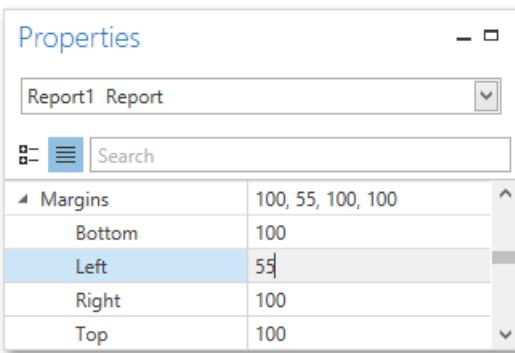
Display Modes

The Properties panel can display element properties in alphabetical flat order or combine them into categories depending on their purposes. To switch between these display modes, use the dedicated buttons.



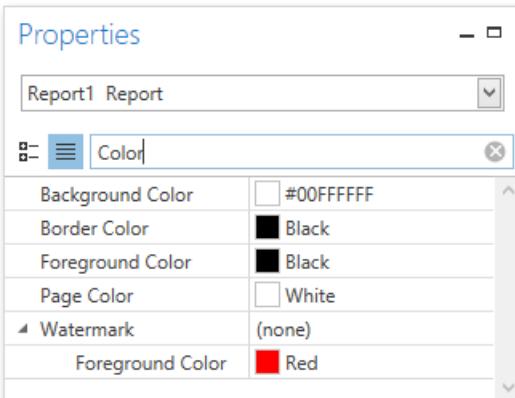
Changing Property Values

In the Properties panel, each row consists of two cells: the header cell showing the property caption and the value cell. To set a property value, locate the property and specify its value using the corresponding cell editor. Specific properties contain nested properties, which can be accessed by clicking the expand button for the property captions.



Searching for Properties

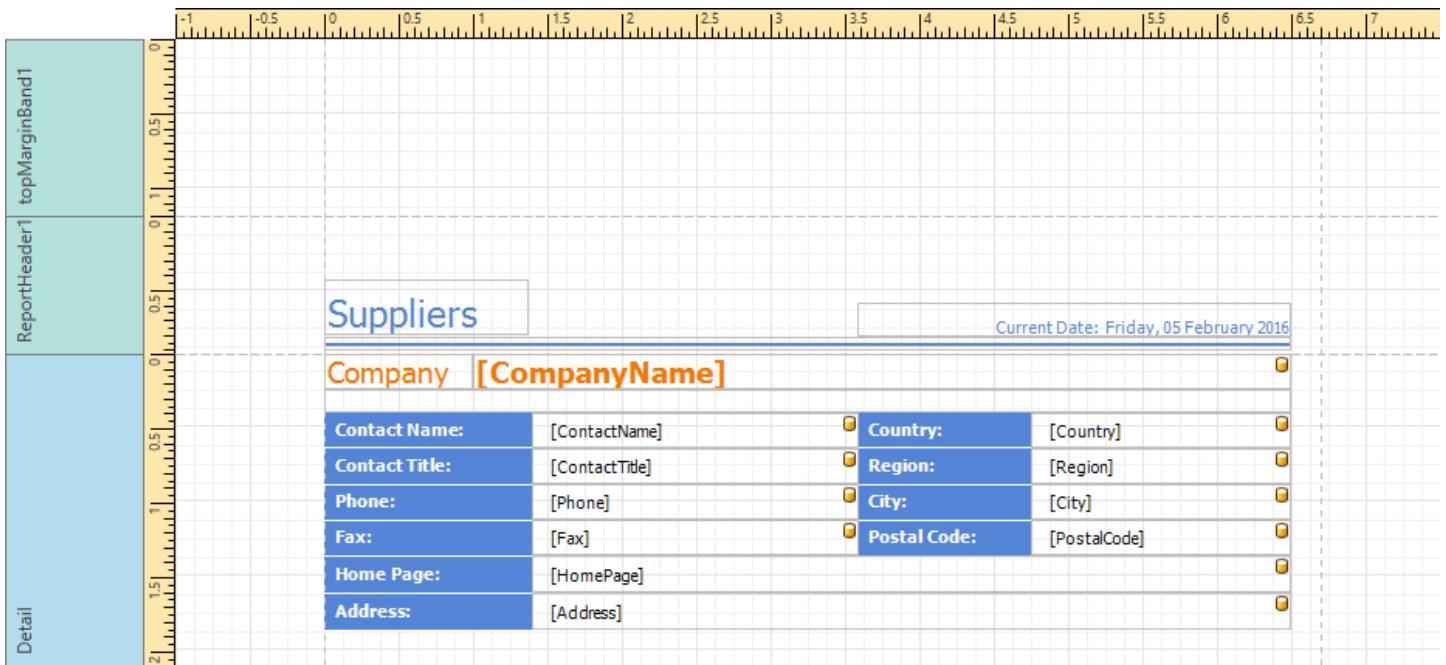
The Properties panel includes the search box that allows you to search for a required property. When you type within the search box, the Properties panel automatically creates a search criteria based on the entered text and filters the list of available properties.



If you type two substrings separated by the space character, these substrings are considered as individual conditions combined by the **OR** logical operator. To find properties that contain both substrings (i.e., to use the **AND** logical operator), type "+" before the second substring. Similarly, type "-" to exclude properties that contain a specific substring. To search for a property that contains a space character, enclose the entered string in quotation marks. You can also combine several logical operators and quotation marks.

Design Surface

The **Design Surface** displays a report that is currently being edited in the Report Designer.



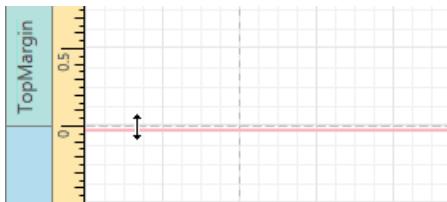
The Design Surface includes the following principal elements.

- [Rulers](#)
- [Band Captions](#)
- [Context Menus](#)
- [In-place Editors](#)

Rulers

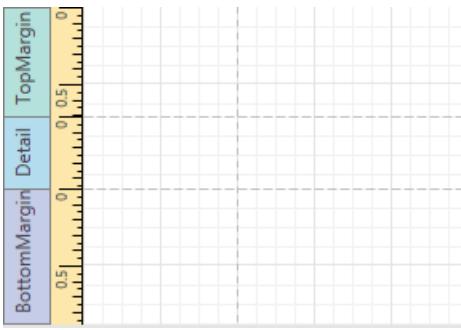
The horizontal and vertical rulers display tickmarks in the [measurement units](#) specified for a report. Click an element to evaluate its size and location using the rulers.

The vertical ruler also allows you to change the band height by moving its top and bottom sliders.



Band Captions

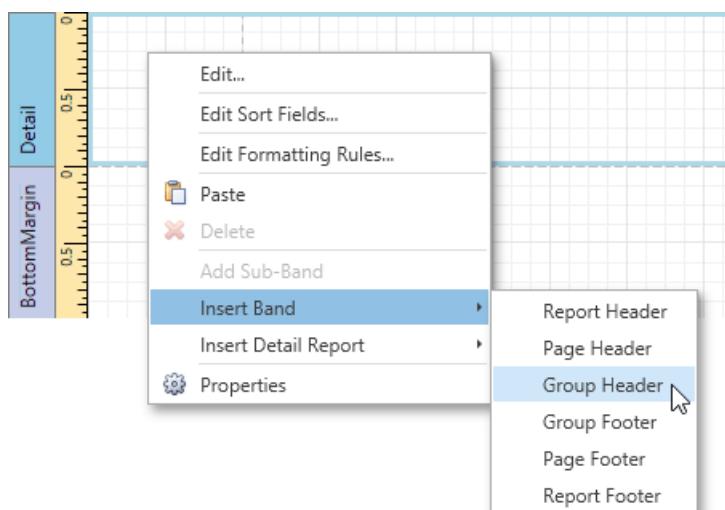
In the Report Designer, each report band carries a caption, tab title and color, which depend on the band kind. These captions are not printed in the resulting report document and are only visible at design time.



To access band properties, select the band by clicking its caption, and then switch to the [Properties Panel](#).

Context Menus

The context menu provides quick access to the most commonly used actions that depend on the element for which it is invoked. For example, it allows you to insert new bands, cut/copy/paste/delete report controls, etc. For certain report controls, the context menu also includes the **Edit...** option, which invokes the dialog with complex settings (such as data binding settings, formatting, etc.) To invoke this menu, right-click a report element or the report editing surface.



In-place Editors

An in-place editor allows you to edit the content of a text-oriented control (Barcode, Check Box, Label, Table Cell or Zip Code) by double-clicking it.



To learn how to use the in-place editor to supply dynamic data to a control, see [Using Mail Merge](#).

Report Design Analyzer

The Report Design Analyzer shows errors, warnings, and information messages that help users create or enhance a report layout in the [End-User Report Designer](#).

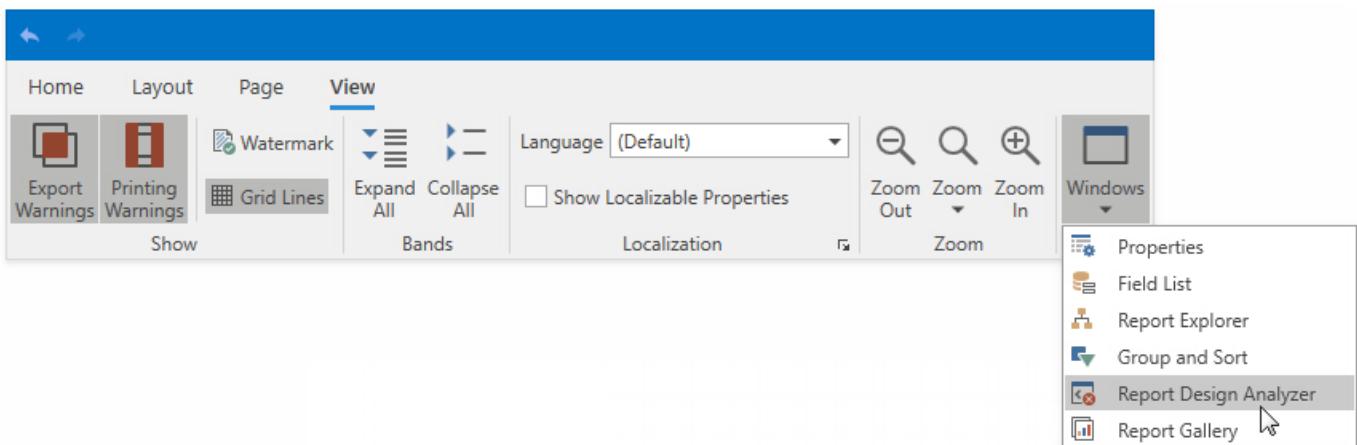
The screenshot shows the Report Design Analyzer window with the title "Report Design Analyzer". At the top, there are four status indicators: "All" (selected), "0 Errors", "2 Warnings", and "0 Messages". Below these are two rows of data. Each row contains a small icon, a code identifier, a descriptive message, and a "Source" column. The first row has an exclamation mark icon and the code "XRE202", followed by the message "The control is overlapped" and the source "xrLabel2". The second row also has an exclamation mark icon and the code "XRE202", followed by the message "The control is overlapped" and the source "xrLabel1".

All	0 Errors	2 Warnings	0 Messages
[Exclamation]	XRE202	The control is overlapped	xrLabel2
[Exclamation]	XRE202	The control is overlapped	xrLabel1

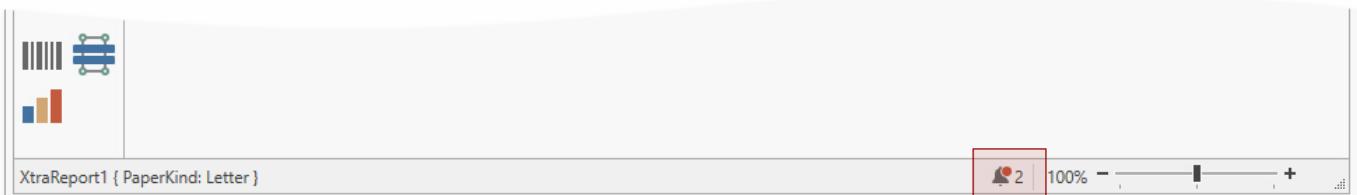
Invoke the Report Design Analyzer

Do one of the following to invoke the **Report Design Analyzer**:

- Select **Report Design Analyzer** from the **Windows** drop-down menu in the **View** toolbar tab.



- Click the bell icon in the status bar.



Filter Messages

You can filter messages by one of the following categories:

The screenshot shows the Report Design Analyzer window with the title "Report Design Analyzer". At the top, there are four status indicators: "All" (selected), "0 Errors", "2 Warnings", and "0 Messages". Below these is a dropdown menu with several options: "All", "Report Layout", "Report Creation", and "Report Scripts". The "Report Layout" option is currently selected and highlighted with a red box. The main pane below shows the same two warning messages as the previous screenshot, but they are now filtered to only show layout-related issues.

All	0 Errors	2 Warnings	0 Messages
[All]			
[Report Layout]			
[Report Creation]			
[Report Scripts]			

- **Report Layout**

Layout-related messages (for instance, in cases when report controls overlap each other or extend beyond the report's printable area).

- **Report Creation**

Messages about report creation (for instance, notifications about invalid property values or unreachable sources of content).

- **Report Scripts**

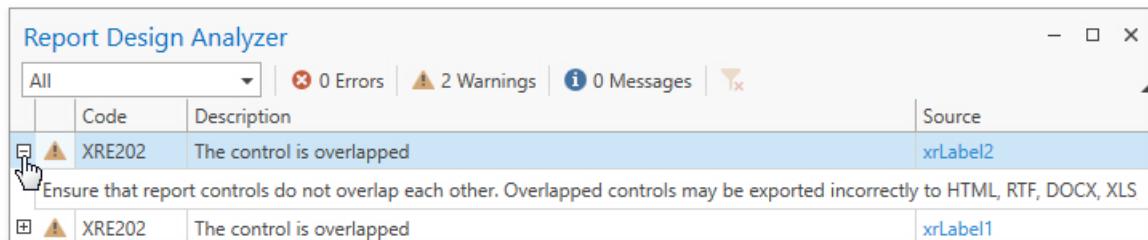
Messages that highlight issues in report scripts (for instance, errors in script syntax).

- **All**

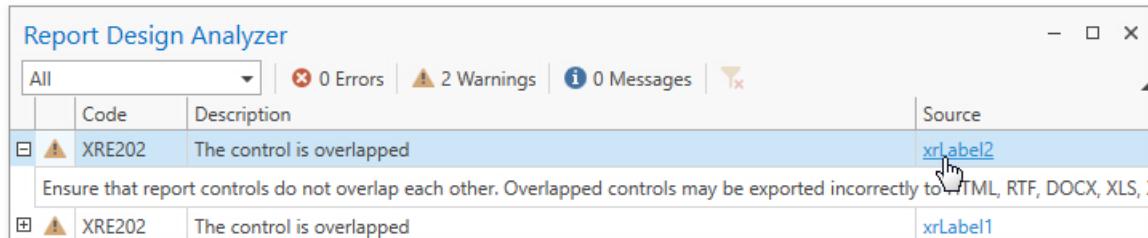
All of the above-mentioned messages.

Correct the Issues

Each message contains a recommendation on how to correct an issue. Click the Plus icon in front of the message to expand the recommendation.

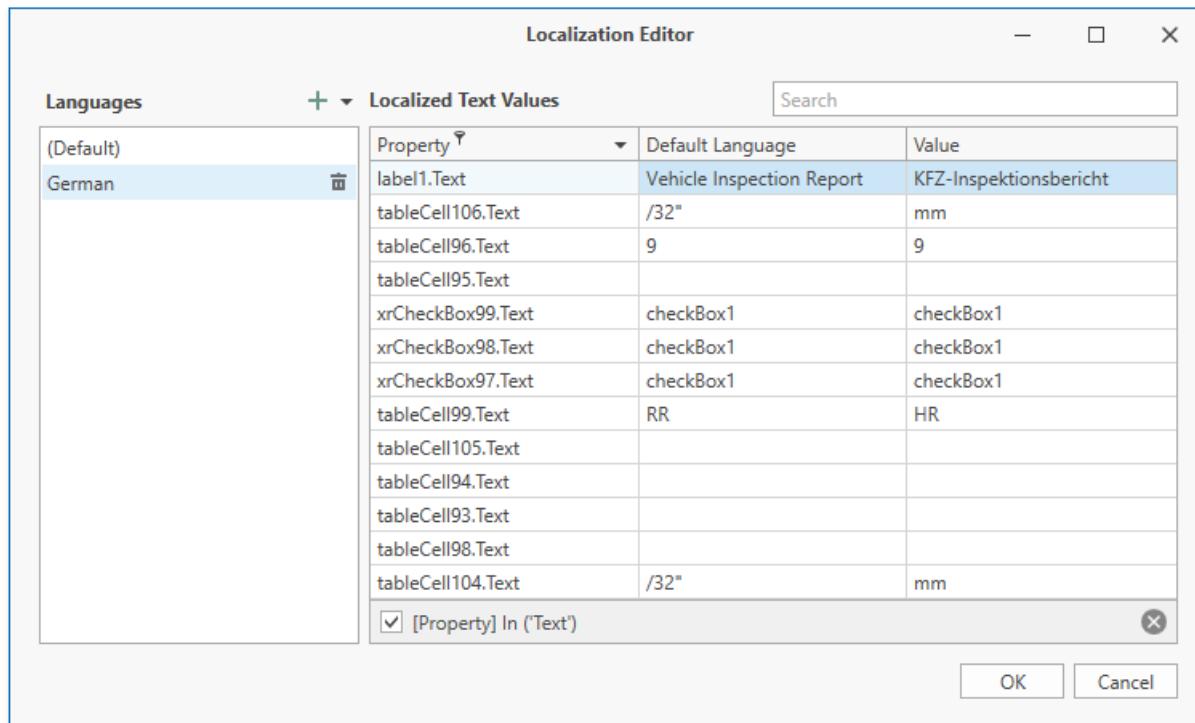


The message's **Source** column contains a reference to the control or script that caused the issue. Click the reference to navigate to this control or script.



Localization Editor

The Localization Editor allows you to change the text of the localizable textual properties for all the controls in a report.

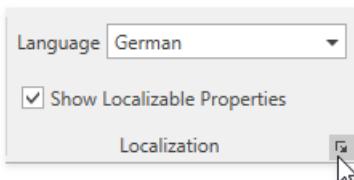


The left panel allows you to change the report's language or add a new language to start localization. The right panel contains a grid that displays the property name, the text specified for that property in the default language, and the text for the selected language. Text strings of the selected language are editable.

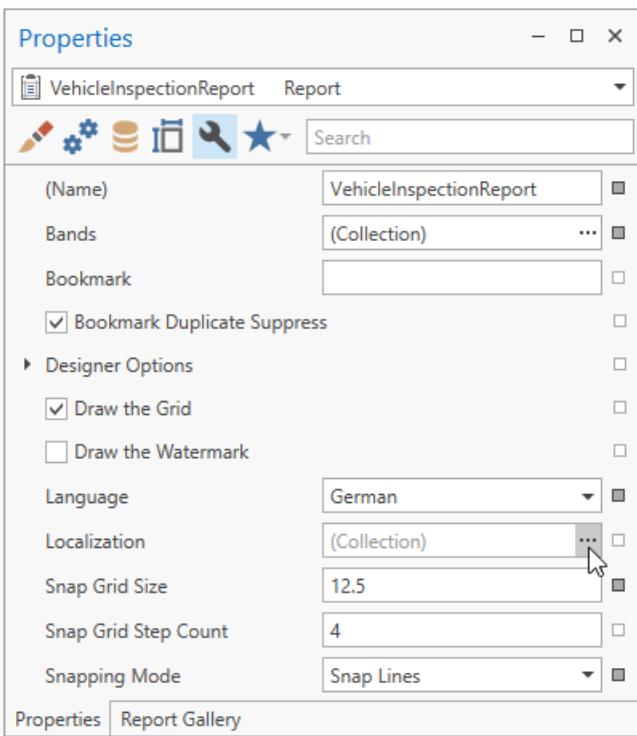
Invoke the Localization Editor

Use one of the following actions:

- Switch to the **View** Toolbar tab. Click the **dialog box launcher** in the **Localization** group.



- Click the **Localization** property's ellipsis button in the [Properties Panel](#).



Use the Localization Editor

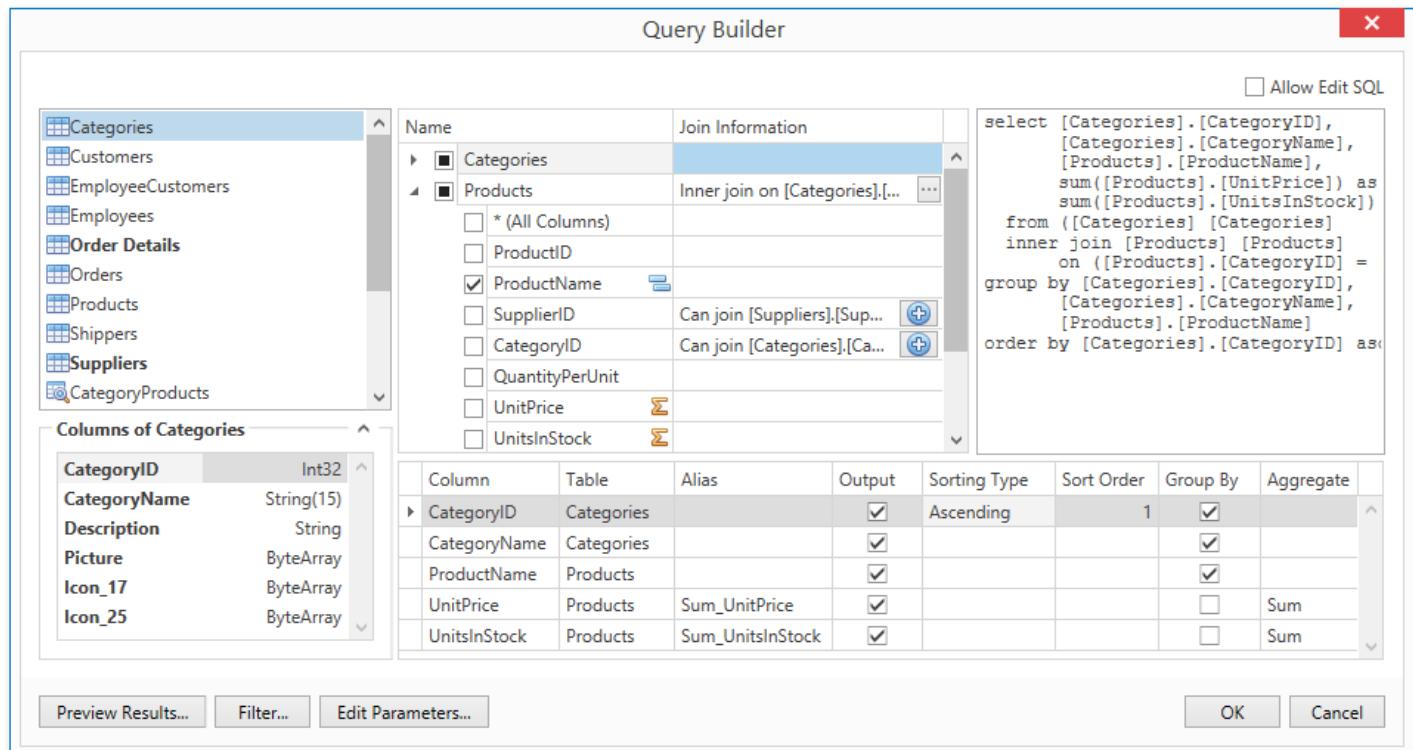
- To add a new language, click the *plus* button in the right panel. All values for the new language are set to the default language's values.
- Change the text and click the **OK** button to close the editor and apply your changes.

TIP

When the Localization Editor is invoked, the grid in the right panel displays values for the report controls' **Text** properties. You can click the filter icon in the **Property** column header to modify a filter and select other properties or clear the filter to show all textual properties.

Query Builder

The **Query Builder** provides a visual interface for constructing SQL queries and enables you to solve a variety of tasks.



NOTE

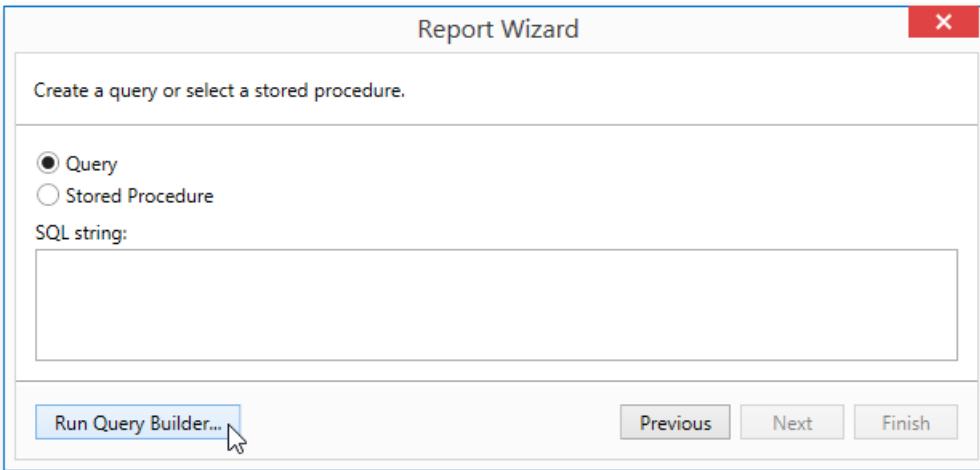
The Query Builder is not available for object, Entity Framework and Excel data sources.

The document consists of the following sections.

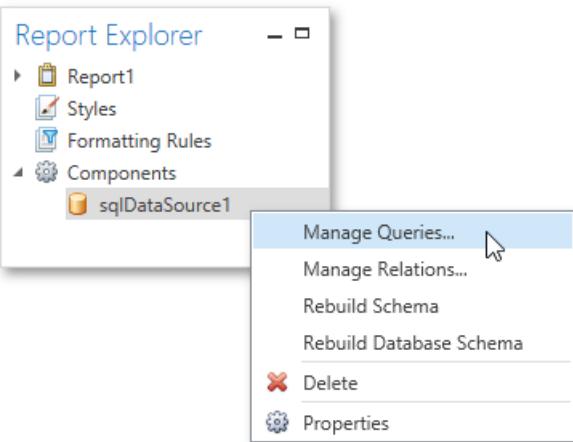
- [Run the Query Builder](#)
- [Select Tables](#)
- [Join Tables](#)
- [Edit Parameters](#)
- [Filter Data](#)
- [Shape Data](#)
- [Enable Custom SQL Editing](#)
- [Preview Results](#)

Run the Query Builder

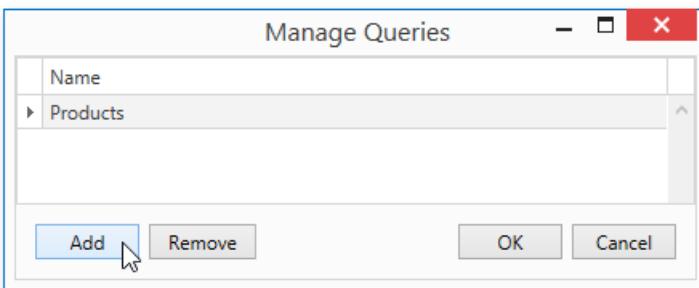
You can invoke the **Query Builder** from the [query customization](#) page of the [Report Wizard](#) when creating a new data-bound report or when [binding an existing one to a database](#). To do this, select the **Query** item and click the **Run Query Builder** button.



You can also use the Query Builder to add queries to an existing SQL data source, as well as to edit existing queries. To do this, right-click the data source in the [Report Explorer](#) and select **Manage Queries** in the context menu.



In the invoked **Manage Queries** dialog, click **Add** to add a new query. To edit an existing query, click the ellipsis button.



Finally, click the **Run Query Builder** button in the invoked **Data Source Wizard**.

Select Tables

To add a specific data table or view to a query, drag the corresponding item from the list of available tables and drop it onto the list of data tables to be used.

Query Builder

The Query Builder interface consists of several panels:

- Left Panel:** A tree view of available tables: Categories, Customers, EmployeeCustomers, Employees, Order Details, Orders, Products, Shippers, Suppliers, and CategoryProducts.
- Table Selection:** A list of selected tables: "Categories" (selected), "Customers", "EmployeeCustomers", "Employees", "Order Details", "Orders", "Products", "Shippers", "Suppliers", and "CategoryProducts".
- Columns of Categories:** A detailed view of the "Categories" table columns:

CategoryID	Int32
CategoryName	String(15)
Description	String
Picture	ByteArray
Icon_17	ByteArray
- Join Information:** A grid for defining joins between tables. It has columns: Name, Join Information, and a preview area containing the query: "select 1".
- Buttons:** Preview Results..., Filter..., Edit Parameters..., OK, and Cancel.

Enable check boxes for the table fields that you want to include in the query result set.

Name	Join Information
Categories	<input checked="" type="checkbox"/> * (All Columns) <input checked="" type="checkbox"/> CategoryID <input checked="" type="checkbox"/> CategoryName <input type="checkbox"/> Description <input type="checkbox"/> Picture <input type="checkbox"/> Icon_17 <input type="checkbox"/> Icon_25

Each table provides the context menu, which allows you to rename the table or remove it from the query.

Name	Join Information
Categories	<input checked="" type="checkbox"/> * (All Columns) <input checked="" type="checkbox"/> CategoryID <input checked="" type="checkbox"/> CategoryName <input type="checkbox"/> Description <input type="checkbox"/> Picture <input type="checkbox"/> Icon_17 <input type="checkbox"/> Icon_25

To search for a specific table or view, click the list of available tables on the left and start typing the search name.

A list of tables and views:

- Categories
- Customers
- EmployeeCustomers
- Employees
- Order Details
- Orders
- Products

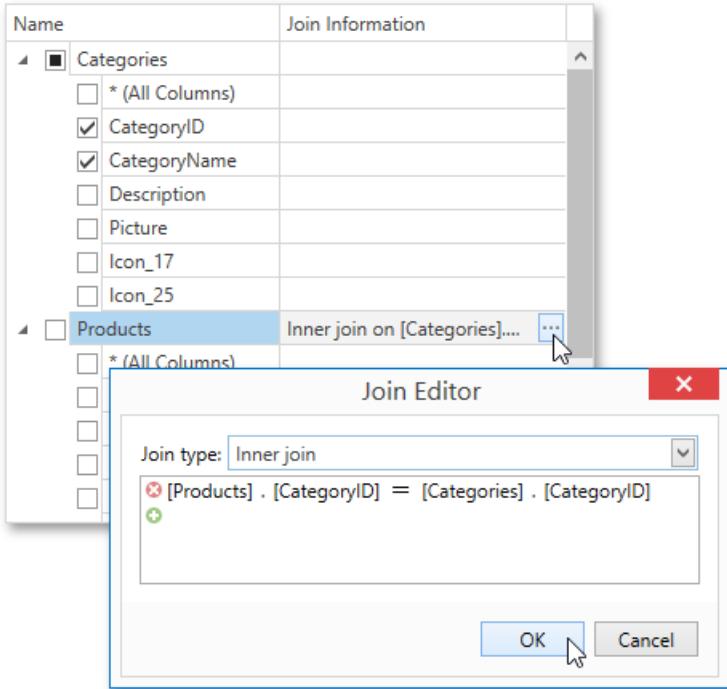
Join Tables

You can join multiple tables within the same query. The Query Builder automatically highlights tables related to any of the previously added tables. Drag-and-drop a subordinate table in the same way as a principal table to include it in a query and automatically create an inner join relation based on a key column.

Name	Join Information
Categories	
<input type="checkbox"/> * (All Columns)	
<input checked="" type="checkbox"/> CategoryID	
<input checked="" type="checkbox"/> CategoryName	
<input type="checkbox"/> Description	
<input type="checkbox"/> Picture	
<input type="checkbox"/> Icon_17	
<input type="checkbox"/> Icon_25	
Products	Inner join on [Categories].... ...
<input type="checkbox"/> * (All Columns)	
<input type="checkbox"/> ProductID	
<input type="checkbox"/> ProductName	
<input type="checkbox"/> SupplierID	Can join [Suppliers].[Sup... +
<input type="checkbox"/> CategoryID	Can join [Categories].[C... +

Another way to join tables is to click the  button in a row corresponding to a key column.

To customize the relationship, click the corresponding ellipsis button. Use the **Join Editor** to select the join type (**Left Outer** or **Inner**), applied logical operator (**Equals to**, **Is less than**, etc.) and column key fields.



The screenshot shows the Query Builder interface with the 'Products' table selected. A 'Join Editor' dialog box is open over the 'Products' row. The dialog box has a title 'Join Editor' and contains the following fields:

- Join type: Inner join
- Condition: $\text{[Products].CategoryID} = \text{[Categories].CategoryID}$

At the bottom of the dialog box are 'OK' and 'Cancel' buttons, with 'OK' being the active button indicated by a mouse cursor.

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, including rows with NULL (empty) values in the key field.

If tables do not have a relationship at the database level, you can manually join tables. In this case, when you drag-and-drop the required table onto the list of tables to be used, the **Join Editor** is automatically invoked allowing you to construct a custom **join** relationship.

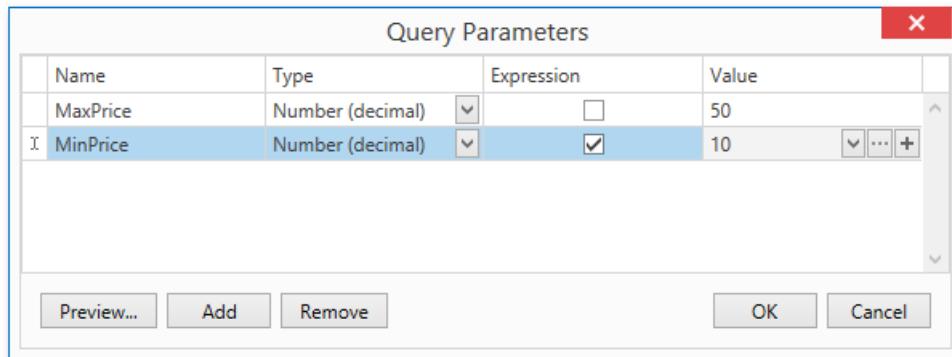
After executing the query, it will return a "flat" table composed of data records selected based on the specified join options.

NOTE

Although joining different tables within a single query may be required in some scenarios, creating hierarchical data sources generally results in better performance (in general, [master-detail reports](#) are generated faster than similar-looking reports created by grouping "flat" data sources).

Edit Parameters

Click the **Edit Parameters** button to invoke the **Query Parameters** dialog, which allows you to add and remove [query parameters](#) as well as specify parameter settings.



For each query parameter, the following properties are available.

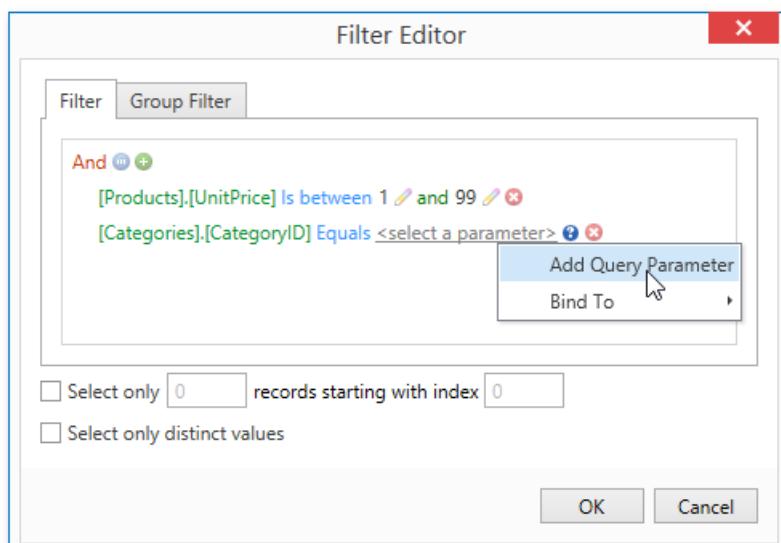
- **Name** - specifies the name used to refer a parameter.
- **Type** - specifies the data type of the parameter's value.
- **Expression** - determines whether the actual parameter value is static or generated dynamically.
- **Value** - specifies the actual value of a query parameter. If the **Expression** option is enabled, the actual parameter value is produced dynamically by calculating an associated expression, which is particularly useful when you need to map the query parameter value to the value of a [report parameter](#).

The created parameters will be then available on the [Configure Query Parameters](#) wizard page.

For general information on query parameters, see [Query Parameters](#).

Filter Data

To specify filter criteria, click the **Filter...** button in the Query Builder. This invokes the **Filter Editor**, which provides the following capabilities.



- **Filter Tab**

The editor contains the **Filter** tab allowing you to specify filter conditions for resulting data. Filter criteria can be assigned [query parameters](#) or bound to [report parameters](#).

- **Group Filter Tab**

The **Group Filter** tab allows you to specify filter conditions for grouped and aggregated data. If data is not grouped, the second tab is disabled.

- **Other Options**

Using this editor, you can limit the number of resulting data rows. If data is sorted, you can specify how many rows to skip before retrieving the specified number of rows.

NOTE

Depending on the selected data provider, it can be impossible to take into account the skip setting in the provider-specific SQL string.

Another option enables you to include only distinct values into the resulting set.

Shape Data

The Query Builder displays the column list under the data source editor, which provides various shaping options.

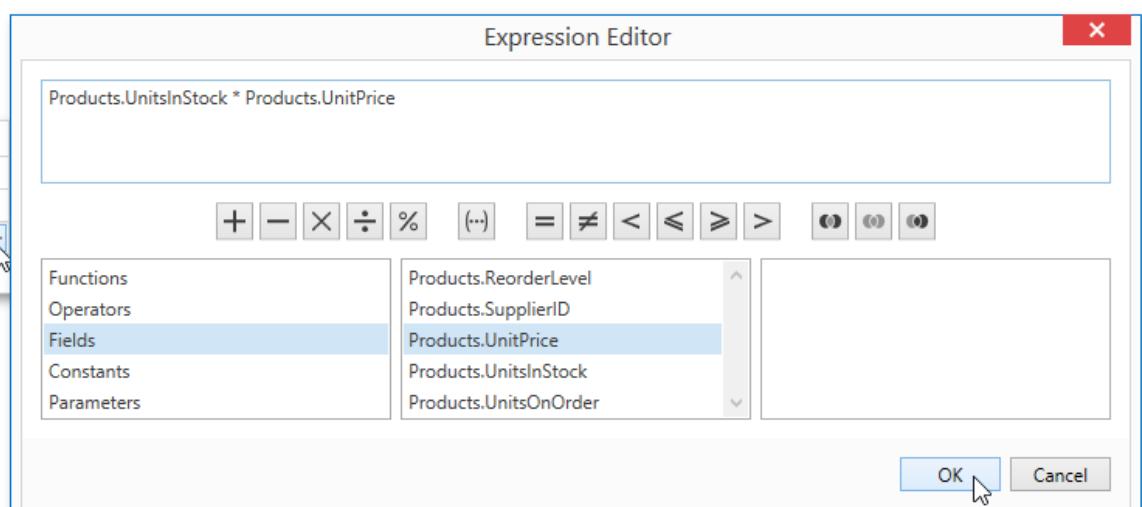
Column	Table	Alias	Output	Sorting Type	Sort Order	Group By	Aggregate
CategoryID	Categories		<input checked="" type="checkbox"/>	Ascending	1	<input checked="" type="checkbox"/>	
CategoryName	Categories		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
ProductName	Products		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
UnitsInStock	Products	Sum_UnitsInStock	<input checked="" type="checkbox"/>			<input type="checkbox"/>	Sum
UnitsOnOrder	Products	Sum_UnitsOnOrder	<input checked="" type="checkbox"/>			<input type="checkbox"/>	Sum

The following options are available.

- **Column**

Specifies the selected column.

You can choose a required column in the drop-down list or create a column expression by clicking the ellipsis button for the corresponding column.



• Table

Specifies the table containing the selected column.

This option indicates **(All Tables)** if an expression is specified for the corresponding column.

• Alias

Specifies a custom column name (alias).

This option is available only for columns that are included in a query.

• Output

Specifies whether or not the column is included into the query's resulting set.

• Sorting Type

Specifies whether to preserve the original order of data records within the column, or sort them (in ascending or descending order).

NOTE

When binding to XML files, the Query Builder does not support sorting by aggregate functions, DISTINCT and SELECT ALL statements, and custom SQL.

• Sort Order

This option becomes available after applying sorting to the data column records.

It defines the priority in which sorting is applied to multiple columns (the less this number is, the higher the priority).

For example, if column **A** has the sort order set to **1** and column **B** has it set to **2**, the query will be first sorted by column **A** and then by the column **B**.

Changing this setting for one column automatically updates the sort order of other columns to avoid a conflict of priorities.

• Group By

Specifies whether or not the query's result set should be grouped by this column.

• Aggregate

Specifies whether or not the column's data records should be aggregated.

The following aggregate functions are supported.

- Count
- Max
- Min
- Avg
- Sum
- Count Distinct
- Avg Distinct
- Sum Distinct

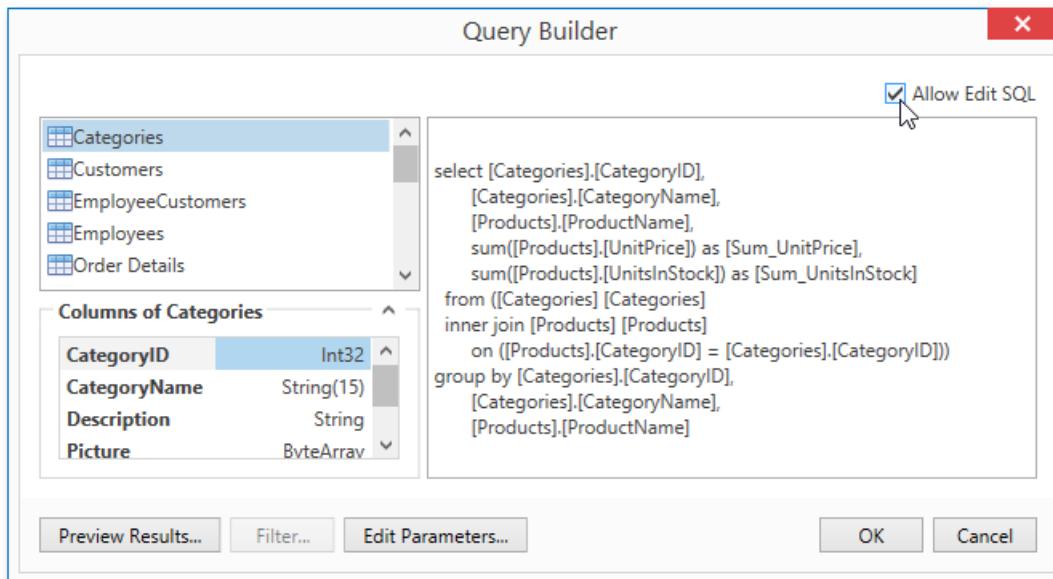
Applying any of these functions to a column will discard individual data records from the query result set, which will only include the aggregate function result.

NOTE

You should apply aggregation/grouping to either all columns or to none of them.

Enable Custom SQL Editing

If custom SQL editing is enabled by your software provider, the Query Builder contains the **Allow Edit SQL** check box. Selecting this option disables the visual features of the Query Builder and allows users to specify the custom SQL string manually.



Preview Results

You can preview the result of the query execution in the form of a tabular data sample by clicking the **Preview Results** button.

This opens the **Data Preview** window displaying the query result set limited by the first 1000 data records.

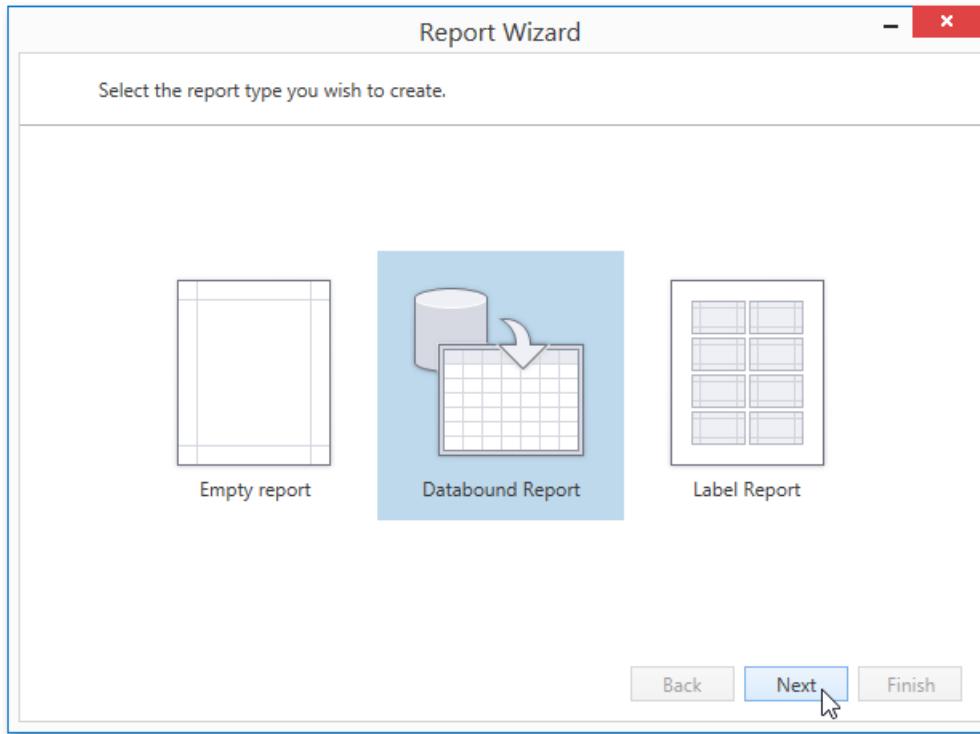
The screenshot shows the 'Data Preview (First 1000 Rows Displayed)' dialog box. It contains a table with the following data:

Product ID	Product Name	Category Name	Quantity Per Unit	Unit Price	Units In Stock
1	Chai	Beverages	10 boxes x 20 bags	18	39
2	Chang	Beverages	24 - 12 oz bottles	19	17
3	Aniseed Syrup	Condiments	12 - 550 ml bottles	10	13
4	Chef Anton's Cajun...	Condiments	48 - 6 oz jars	22	53
5	Chef Anton's Gum...	Condiments	36 boxes	21.35	0
6	Grandma's Boysen...	Condiments	12 - 8 oz jars	25	120
7	Uncle Bob's Organ...	Produce	12 - 1 lb pkgs.	30	15

At the bottom right of the dialog box is an 'OK' button.

Report Wizard

The Report Wizard is a powerful tool that allows you to easily create reports based on built-in templates. It is automatically invoked when [adding a new report](#) in the [Report Designer](#).



The Report Wizard provides three different ways to setup your report.

- [Empty Report](#)

Choose this option to create a new blank report that is not bound to data and doesn't contain any report controls.

- [Data-bound Report](#)

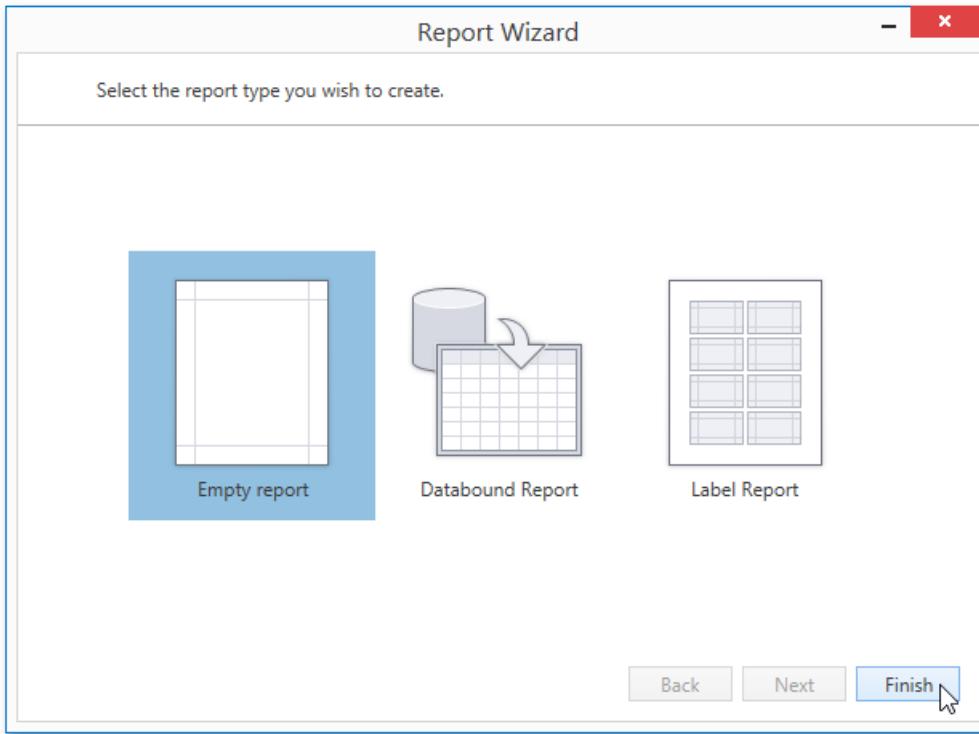
This option allows you to easily create a report bound to a desired data source (database, Entity Framework, object data source or excel data source) and generate its layout from scratch. While setting up the report, you can group and sort data, add totals, apply one of the predefined report style, etc.

- [Label Report](#)

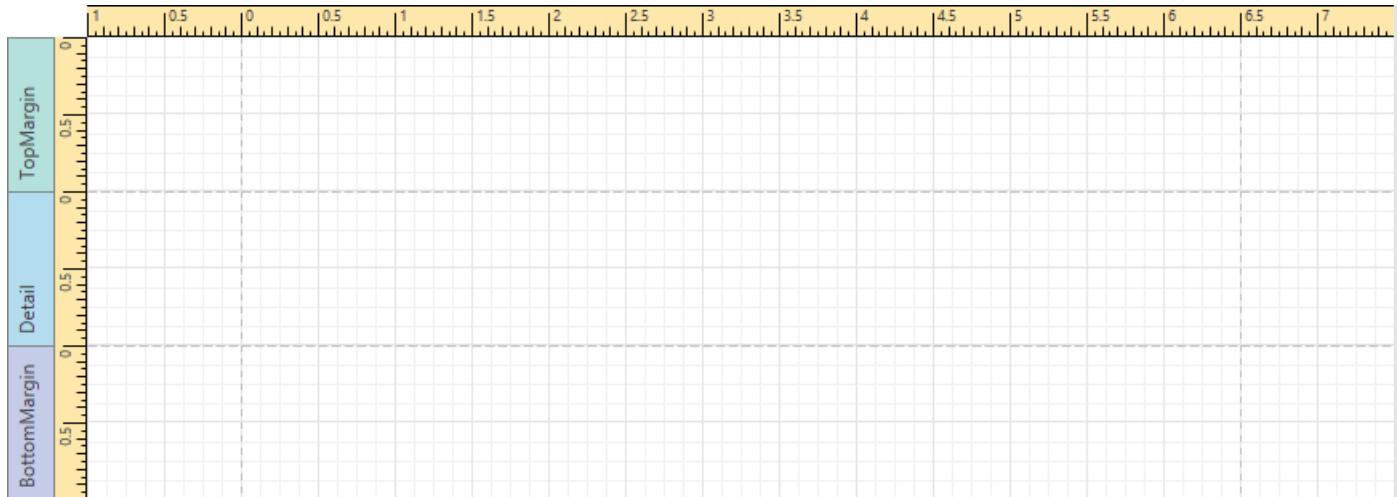
Select this report type if you need to print out labels. In the Label Report Wizard, choose a required paper supplier and label type, and the report will be adjusted automatically. After completing the wizard, you get an empty report that clearly indicates label boundaries and properly positions labels within paper sheets.

Empty Report

The **Report Wizard** allows you to create reports of three kinds: **empty reports**, **data-bound reports** and **label reports**. To create a new blank report, select **Empty Report** and click **Finish**.



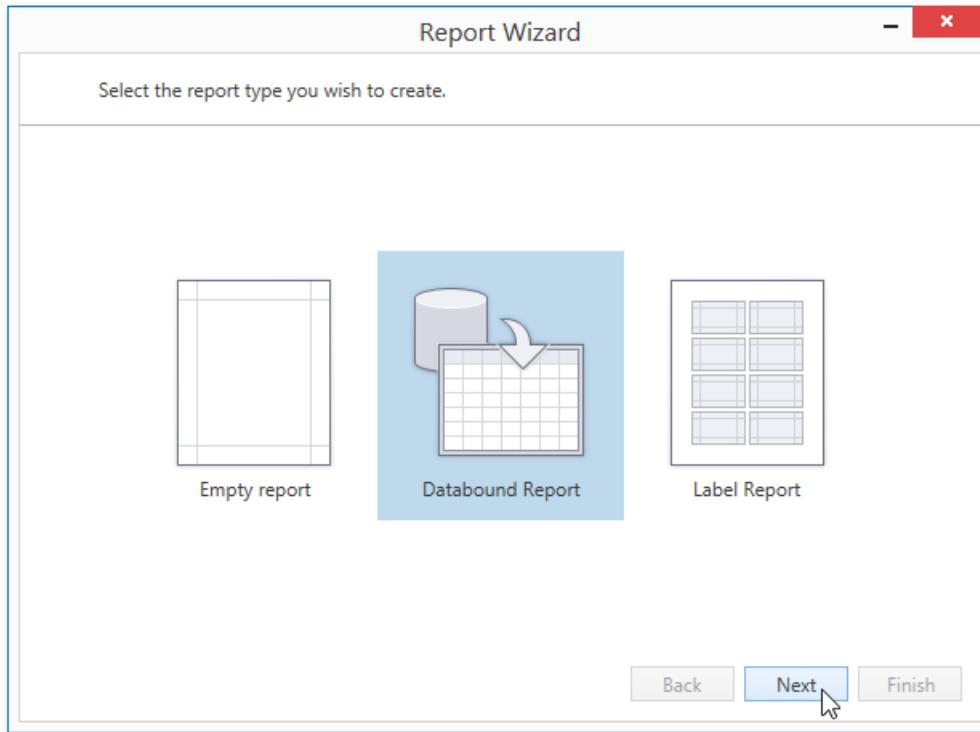
The created report is not bound to a data source and doesn't contain any report controls. The following image demonstrates the default layout of this report.



You can then bind the report to a required data source and [construct the report layout](#).

Data-bound Report

The **Report Wizard** allows you to create three kinds of reports : [empty reports](#), **data-bound reports** and [label reports](#). To create a data-bound report and generate its layout, select **Databound Report**.



Click **Next** to proceed to the next wizard page: [Select the Data Source Type](#).

After completing the Data-bound Report Wizard, you get a tabular banded report. Depending on how many wizard steps you complete, you can apply data grouping, display totals, select one of the predefined style sheets, etc.

Connect to a Database

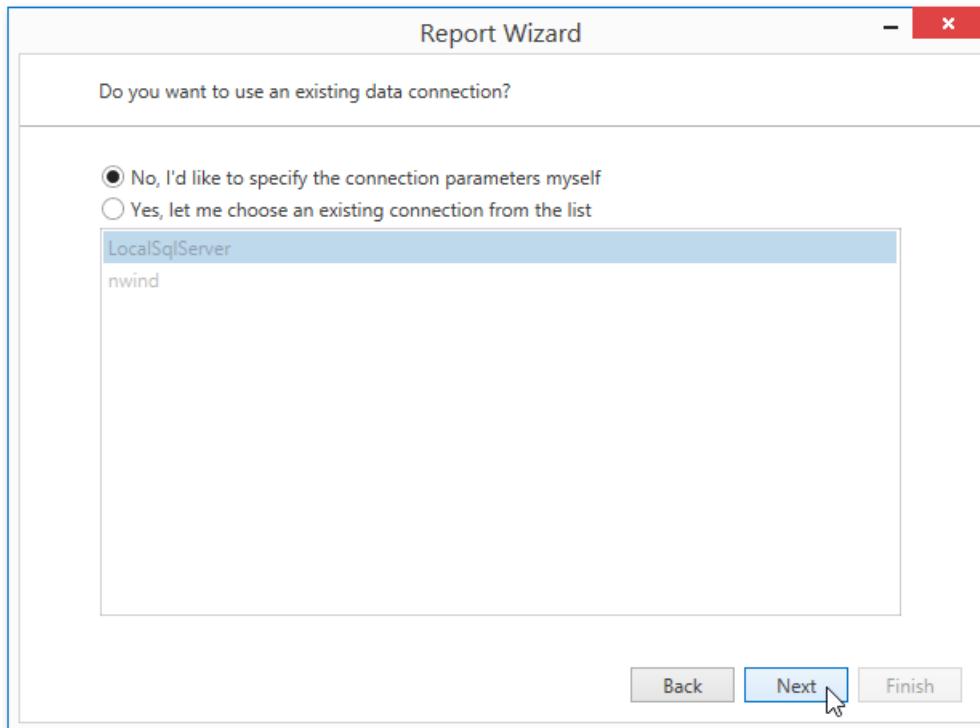
The topics in this section describe the steps required to connect a report to a database using the [Report Wizard](#).

This task includes the following steps.

- [Select a Data Connection](#)
- [Specify a Connection String](#)
- [Save the Connection String](#)
- [Customize the Query](#)
- [Configure Query Parameters](#)

Select a Data Connection

On this page, you can choose whether to use one of the existing data connections or create a new one.

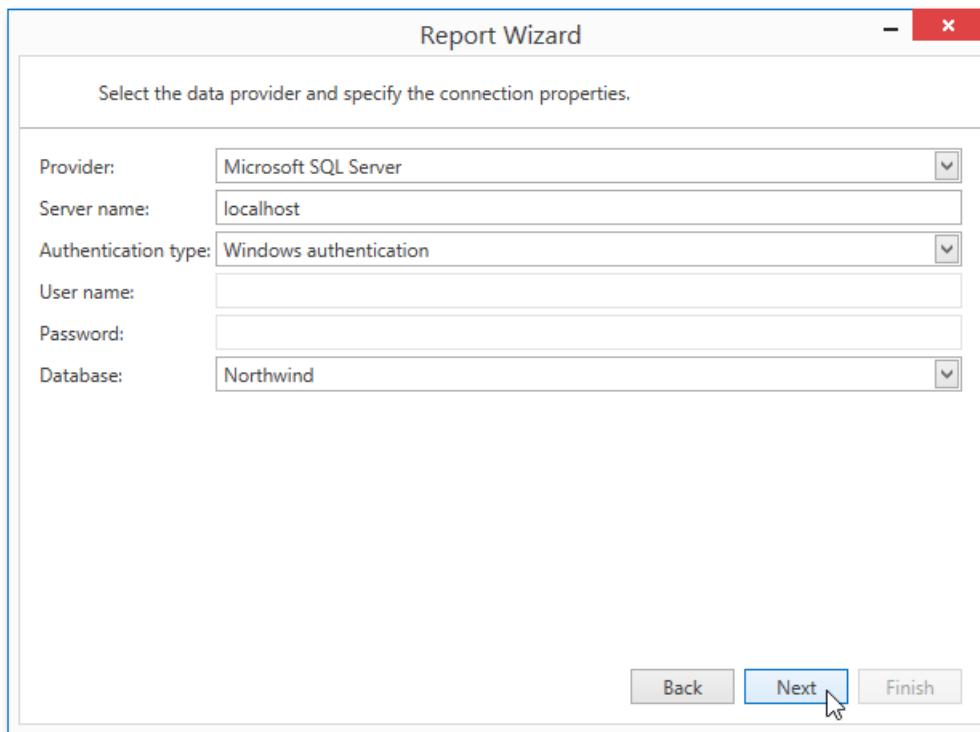


Click **Next** to proceed to the next wizard page. If you select one of the available connections from the list, go to the [Customize the Query](#) page. Otherwise, proceed to the [Specify a Connection String](#) page to create a custom connection string and manually specify its parameters.

Specify a Connection String

On this page, define a custom connection string or select one of the supported data providers.

Select the provider type in the **Provider** drop-down list. Next, specify the connection options required for the selected provider type (e.g., authentication type and database name).



The following data source types are supported.

- Microsoft SQL Server
- Microsoft Access 97
- Microsoft Access 2007
- Microsoft SQL Server CE
- Oracle
- Amazon Redshift
- Google BigQuery
- Teradata
- Firebird
- IBM DB2
- MySQL
- Pervasive PSQL
- PostgreSQL
- SAP Sybase Advantage
- SAP Sybase ASE
- SQLite
- VistaDB
- VistaDB5
- XML file

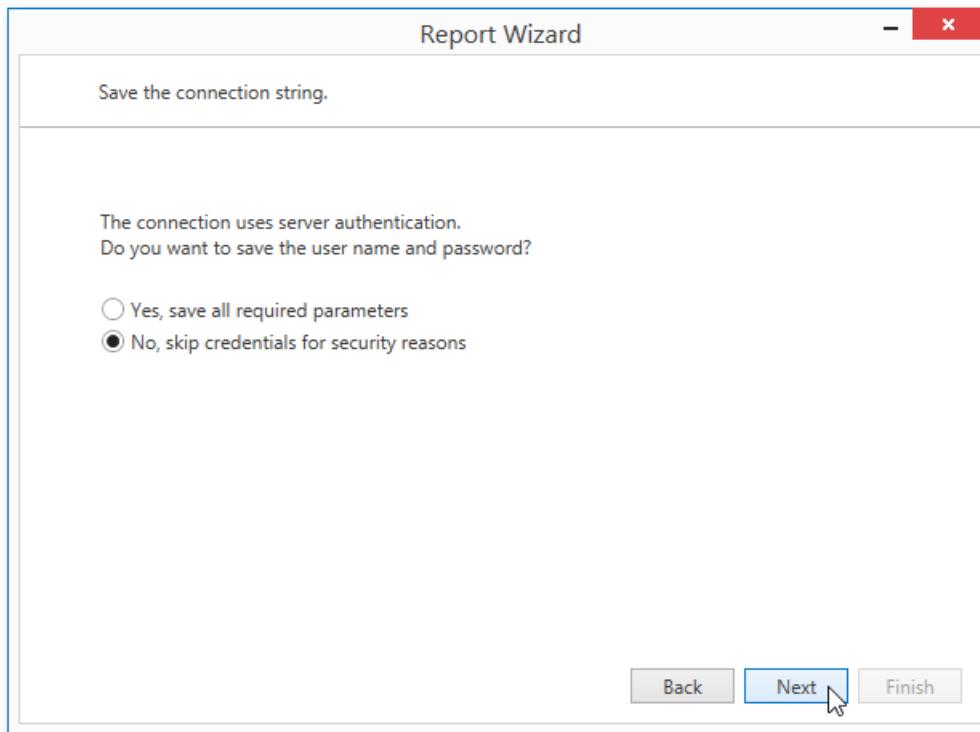
Click **Next** to proceed to one of the next wizard pages, depending on whether or not the created connection uses server authentication.

- [Save the Connection String](#) - if server authentication is required, this page allows you to specify whether or not to save user credentials along with the connection string.

- [Customize the Query](#) - if server authentication is not required, proceed to constructing the query.

Save the Connection String

If the data connection uses server authentication, this wizard page allows you to choose whether to save the user credentials along with the connection string.



Click **Next** to proceed to the next wizard page: [Customize the Query](#).

Customize the Query

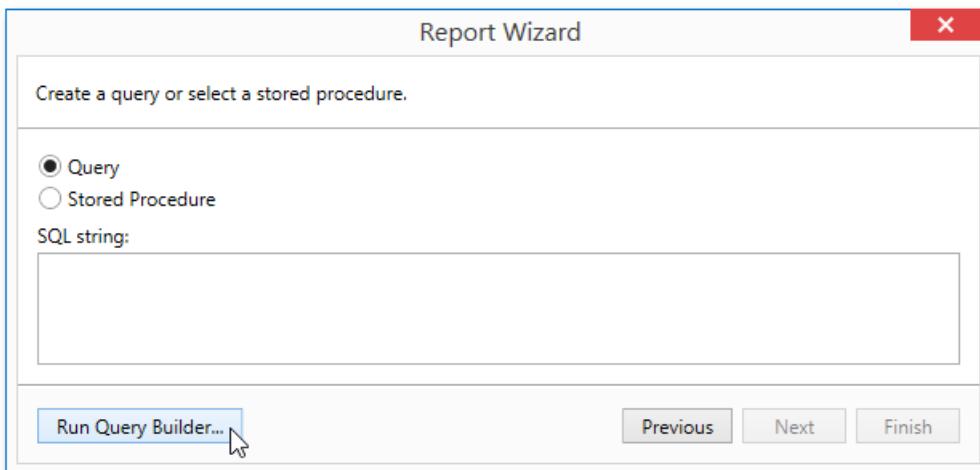
On this page, you can construct an SQL query to obtain data from the database or select a stored procedure.

- [Construct a Query](#)
- [Select a Stored Procedure](#)

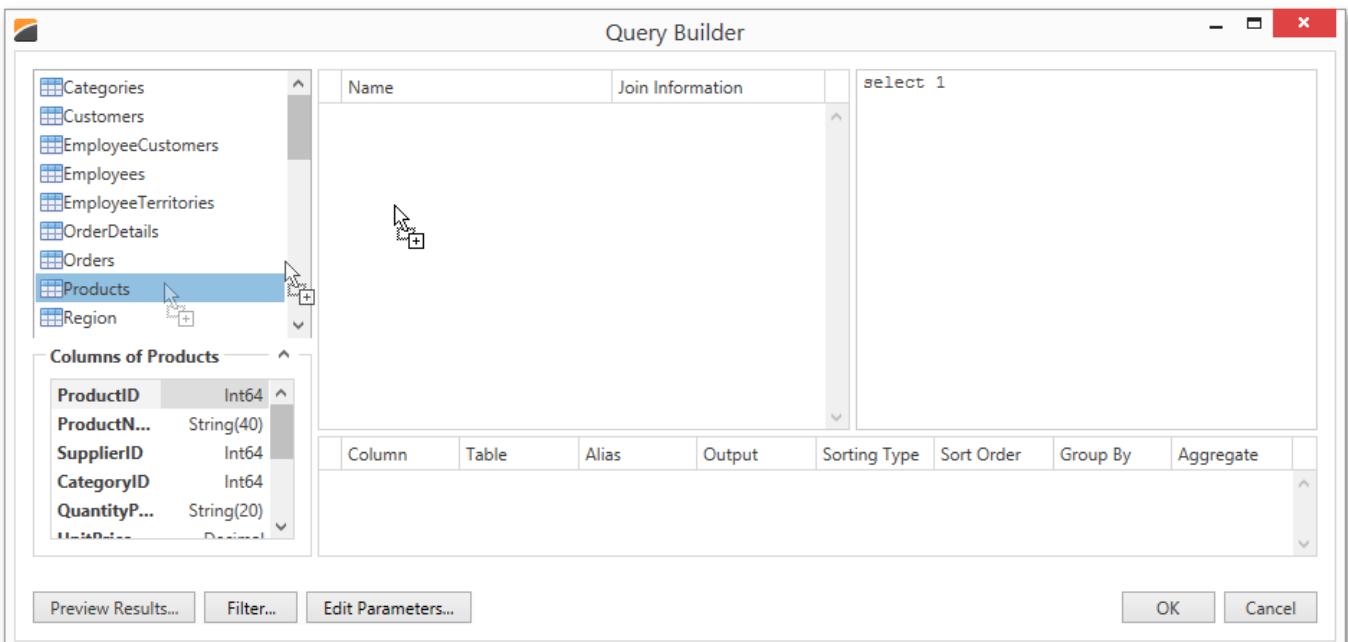
Construct a Query

To construct an SQL query, do the following.

1. Select the **Query** option and click the **Run Query Builder** button.



2. In the invoked [Query Builder](#) window, select an item from the list of available tables on the left and drop it onto the list of data tables to be used.



3. Enable the check box near the added table to include all of its fields in the data view.

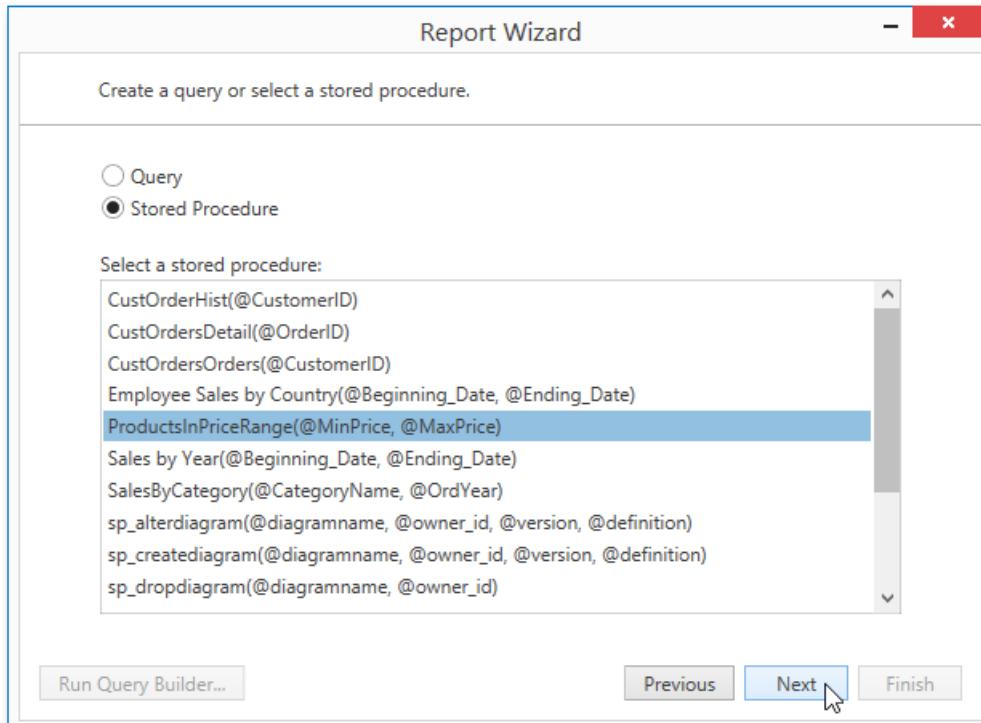
Name	Join Information
Products	
<input type="checkbox"/> * (All Columns)	
<input type="checkbox"/> ProductID	
<input checked="" type="checkbox"/> ProductName	
<input type="checkbox"/> SupplierID	Can join [Suppliers... +]
<input type="checkbox"/> CategoryID	Can join [Categori... +]
<input type="checkbox"/> QuantityPerUnit	
<input checked="" type="checkbox"/> UnitPrice	
<input checked="" type="checkbox"/> UnitsInStock	
<input type="checkbox"/> UnitsOnOrder	
<input type="checkbox"/> ReorderLevel	
<input type="checkbox"/> Discontinued	

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

For more information on the Query Builder, refer to the [Query Builder](#) document.

Select a Stored Procedure

To use a stored procedure, choose the **Stored Procedure** option and then select the required stored procedure from the list.

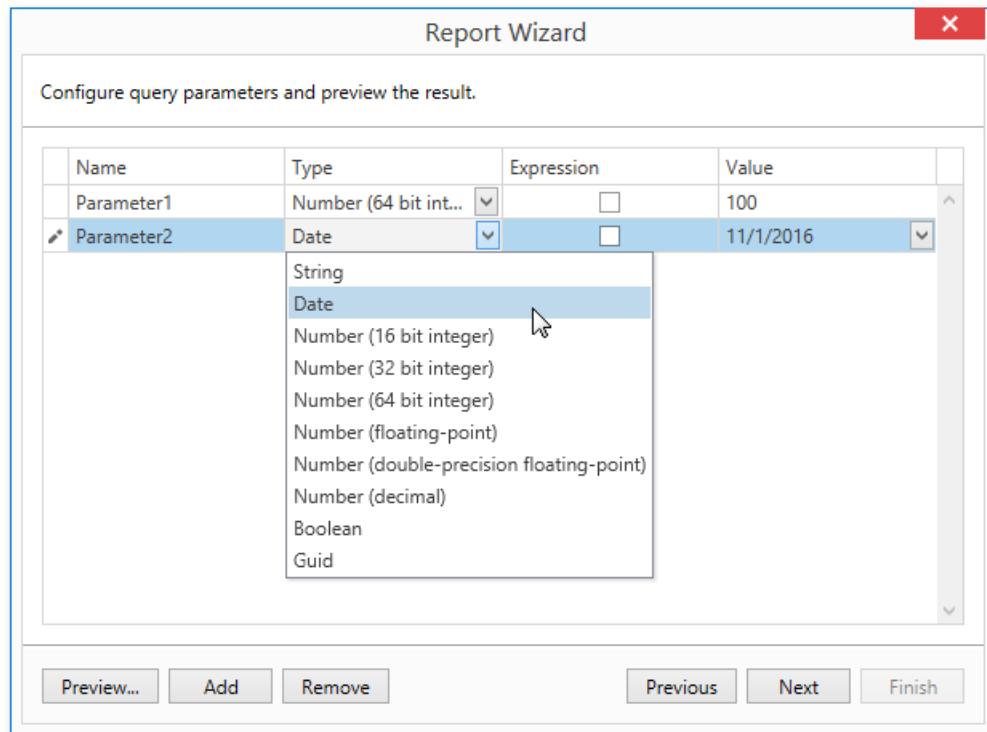


If the selected query or stored procedure contains any [parameters](#), you will be required to define their values on the next wizard page: [Configure Query Parameters](#).

Otherwise, clicking **Next** will open the next Report Wizard page: [Choose Columns to Display in a Report](#).

Configure Query Parameters

On this wizard page, you can manage parameters that are used in queries and/or stored procedures selected on the previous wizard page, as well as specify parameter values.



Click **Next** to proceed to the next wizard page: [Choose Columns to Display in a Report](#).

Connect to an Entity Framework Data Source

The topics in this section describe the wizard steps required to connect a report to data provided by an Entity Framework data context.

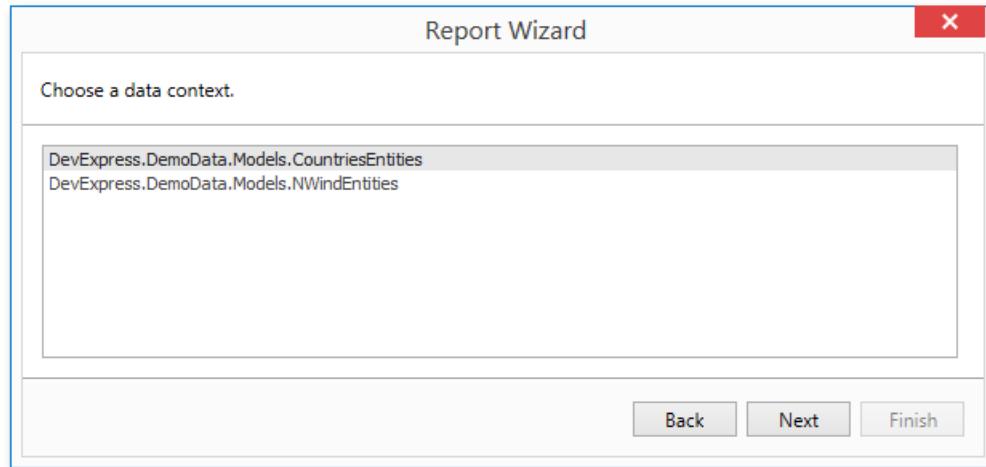
This task includes the following steps.

- [Select the Data Context](#)
- [Select the Connection String](#)
- [Specify a Connection String](#)
- [Bind to a Stored Procedure](#)
- [Select a Data Member](#)

Select the Data Context

This page allows you to select a required Entity Framework data context that will provide data to a report.

On this page, select a data context from the list of existing data contexts. You can also populate this list with data contexts from a separate assembly. To do this, click **Browse...**, and in the invoked **Open** dialog, select the required assembly.



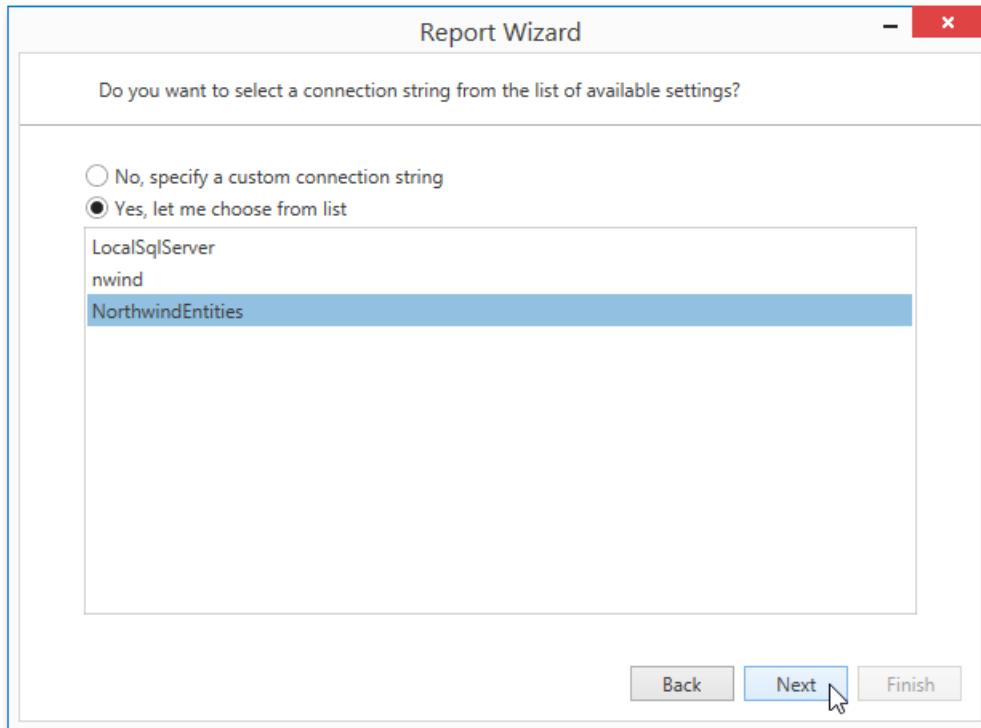
Click **Next** to proceed to the next wizard page: [Select the Connection String](#).

Select the Connection String

This page allows you to specify a connection string to be used to establish a data connection.

The following two options are available.

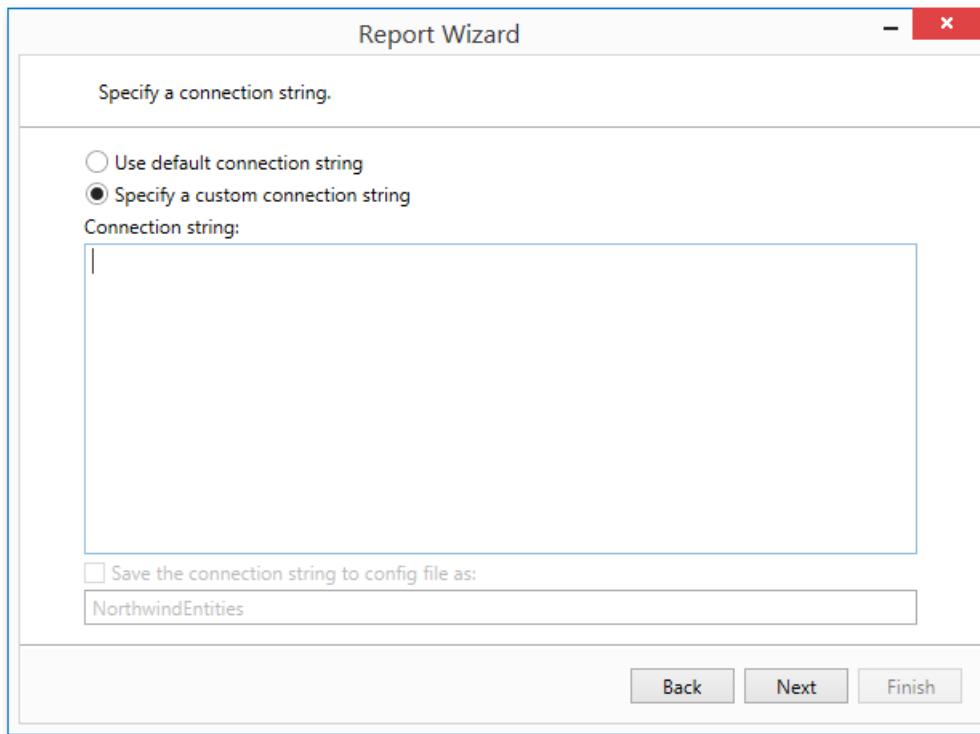
- **No, specify a custom connection string** - Select this option to specify a connection string manually.
- **Yes, let me choose from the list** - Select this option to use one of the existing connection strings from the list.



Click **Next** to proceed to the next wizard page. If you select the first option, proceed to the [Specify a Connection String](#) page. If you choose one of the available connection strings, go to the [Bind to a Stored Procedure](#) or [Select a Data Member](#) page, depending on whether or not the current Entity Framework model provides stored procedures.

Specify a Connection String

On this wizard page, specify a connection string. Additionally, this page requires you to specify whether or not to store the connection string in the application configuration file.

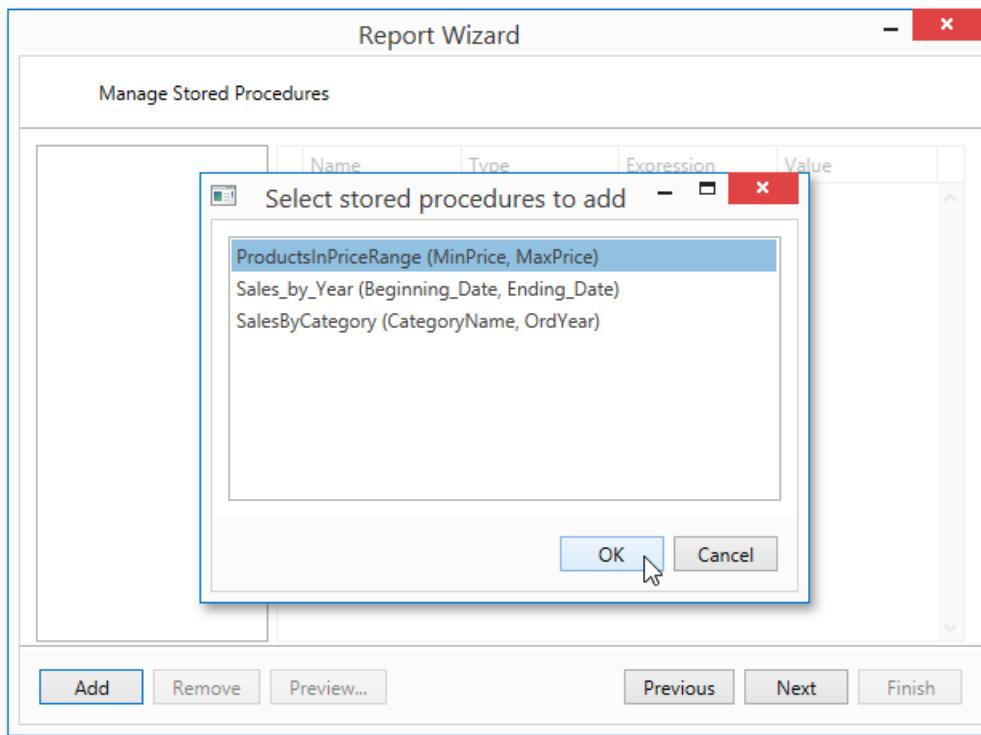


Click **Next** to proceed to the next wizard page. If the current Entity Framework model provides stored procedures, go to the [Bind to a Stored Procedure](#) page; otherwise, proceed to the [Select a Data Member](#) page.

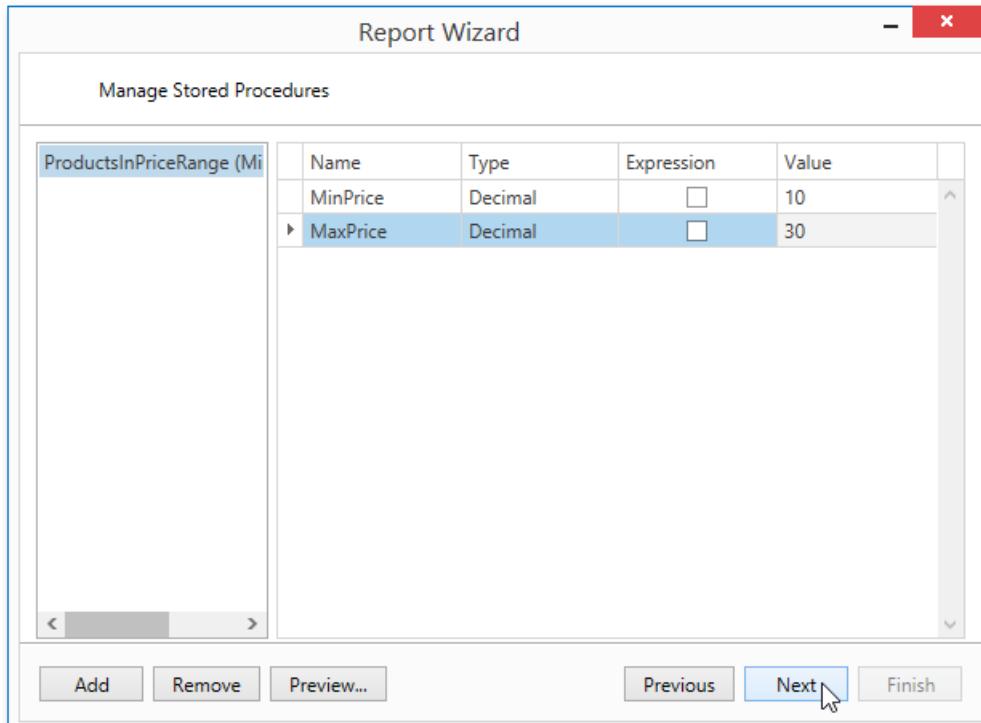
Bind to a Stored Procedure

This wizard page allows you to add stored procedures to the data source and configure their parameters. Note that this page is available only if the current Entity Framework model provides at least one stored procedure.

To add a stored procedure, click **Add** and in the invoked dialog, select the required stored procedure from the list of available procedures.



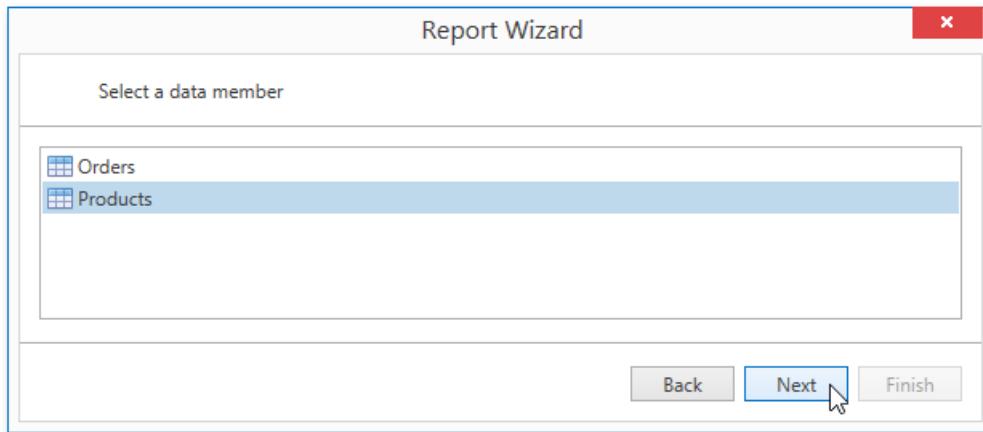
Next, specify stored procedure parameter values, which can be either static or generated by appropriate expressions.



Click **Next** to proceed to the next wizard page. If you have added more than one stored procedures on this page or if the current Entity Framework model additionally provides data tables, go to the [Select a Data Member](#) page. Otherwise, proceed to the [Choose Columns to Display in a Report](#) page.

Select a Data Member

This wizard page allows you to select one of the available data members that will provide data to your report.



Click **Next** to proceed to the next wizard page: [Choose Columns to Display in a Report](#).

Connect to an Object Data Source

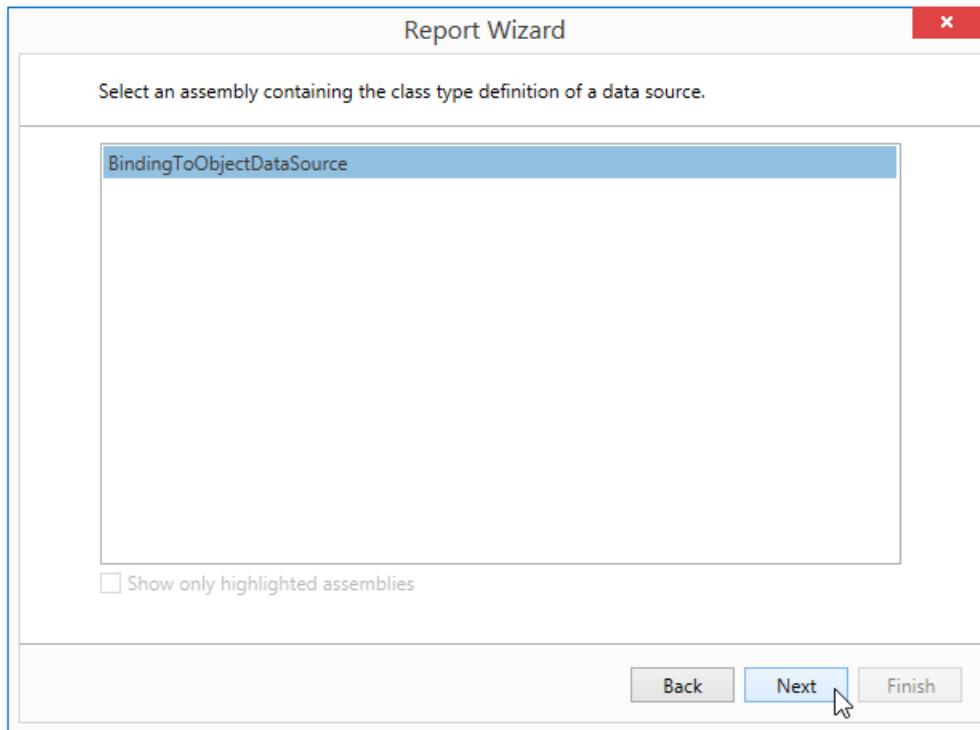
The topics in this section describe the wizard steps required to connect a report to an object data source.

This task includes the following steps.

- [Select an Assembly](#)
- [Select a Data Source Type](#)
- [Select a Data Source Member](#)
- [Specify the Member Parameters](#)
- [Select the Data Binding Mode](#)
- [Select a Data Source Constructor](#)
- [Specify the Constructor Parameters](#)

Select an Assembly

On this wizard page, select an assembly that contains the class type definition of the data source.

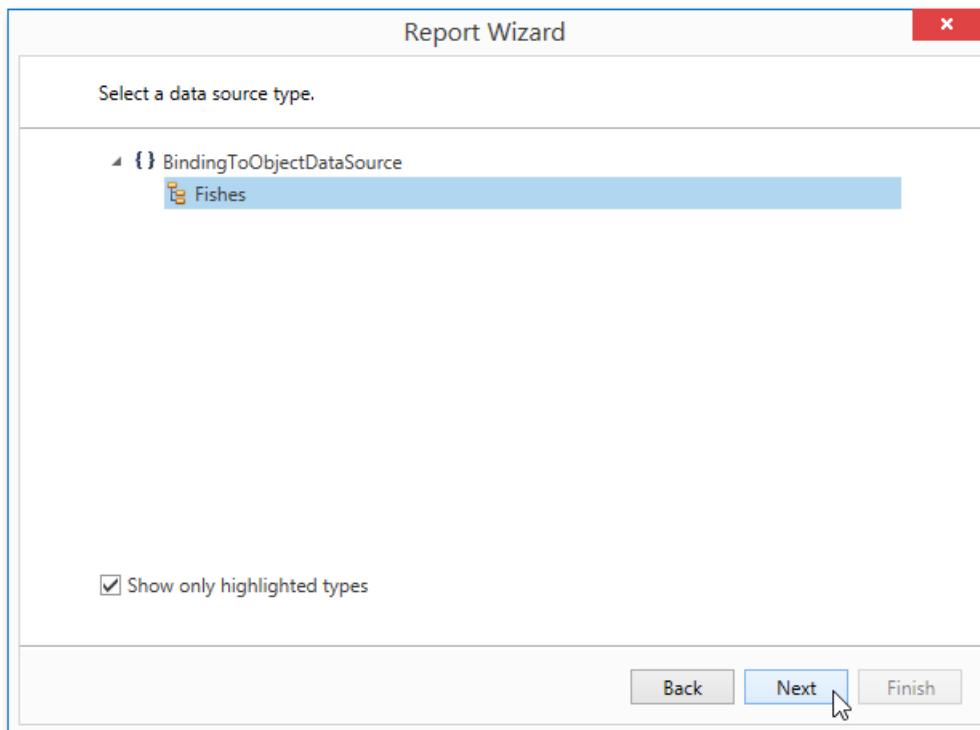


To exclude irrelevant assemblies from the list, select the **Show only highlighted assemblies** check box. If you disable the check box, all available data source types will be shown.

Click **Next** to proceed to the next wizard page: [Select a Data Source Type](#).

Select a Data Source Type

On this wizard page, select a required data source type.

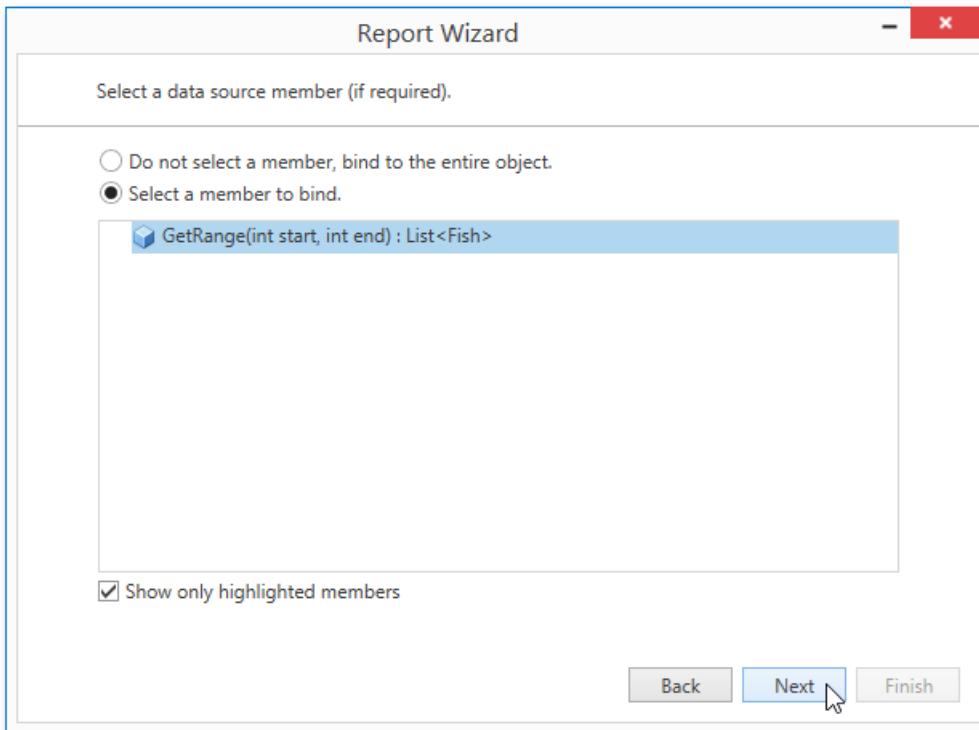


To exclude irrelevant classes from the list, select the **Show only highlighted types** check box. If you disable this check box, all available data source types will be shown.

Click **Next** to proceed to the next wizard page: [Select a Data Source Member](#).

Select a Data Source Member

This wizard page allows you to select whether you want bind to the entire object or to its public member (method or property).



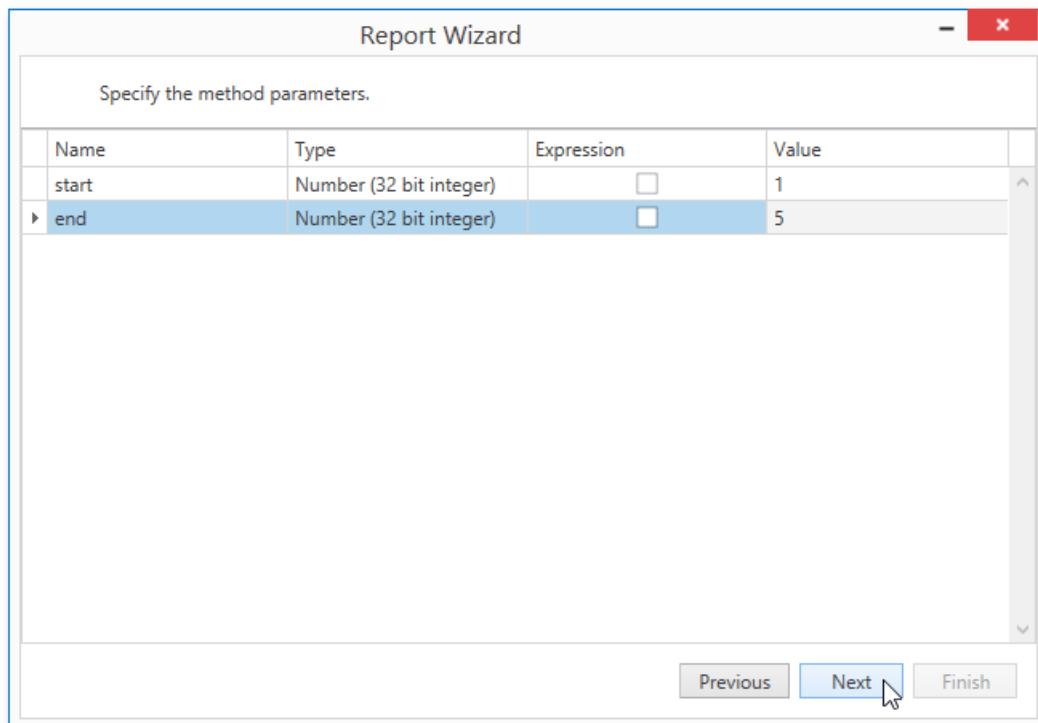
Select the **Show only highlighted members** check box to exclude irrelevant members from the list. Otherwise, all available members will be shown.

Click **Next** to proceed to the next wizard page. If you select binding to the entire object, proceed to the [Select the Data Binding Mode](#) page. If you choose one of the available public members, go to the [Specify the Member Parameters](#) page.

Specify the Member Parameters

On this wizard page, you can specify the member parameters.

To specify the member parameter's value, use the **Value** column. Enable the check box in the **Expression** column to make it possible to specify the parameter expression using the **Expression Editor**. In this case, you can pass an existing report parameter to the member or create a new one using the in-place editor.

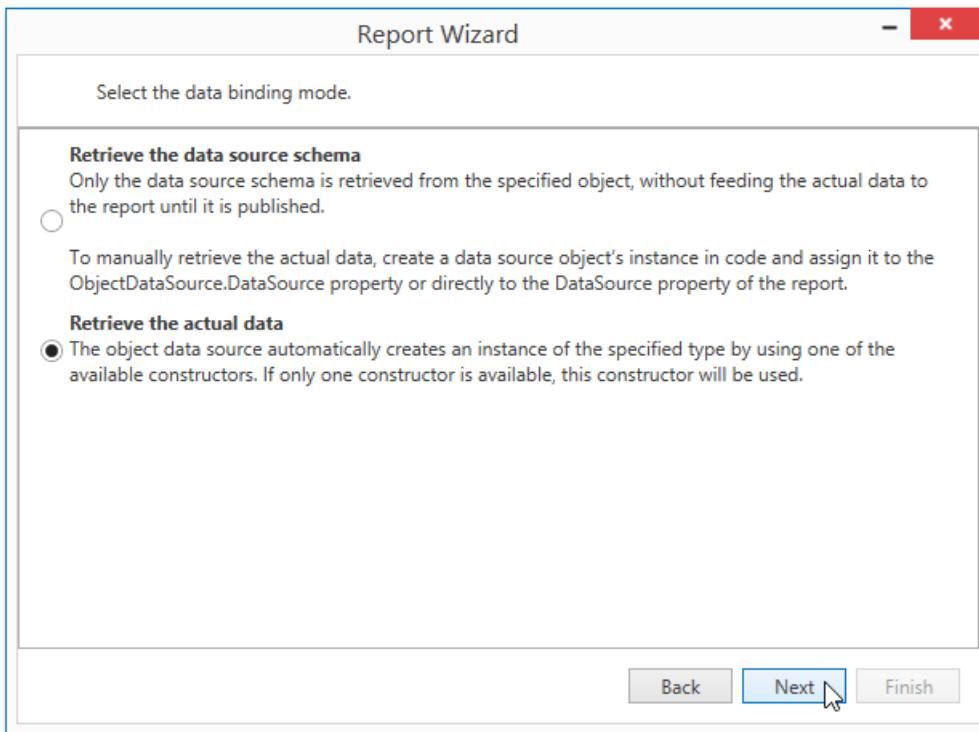


Click **Next** to proceed to the next wizard page: [Select the Data Binding Mode](#).

Select the Data Binding Mode

On this wizard page, you can choose one of the following data binding modes.

- **Retrieve the data source schema** - Select this option to retrieve only the data source schema from the specified object and edit the report layout without having access to the actual underlying data.
- **Retrieve the actual data** - Select this option to automatically create an instance of the data source type and obtain its actual data.

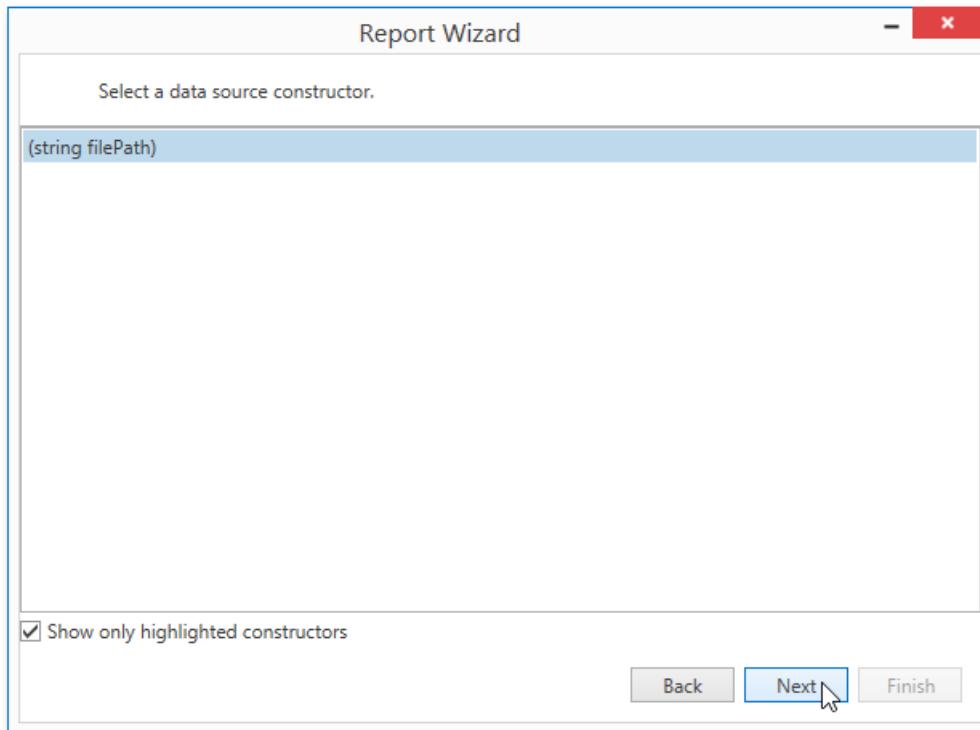


Click **Next** to proceed to the next wizard once you select the data binding mode.

- [Choose Columns to Display in a Report](#) - if you select the first option, go to choosing columns to display in a report.
- [Select a Data Source Constructor](#) - this page allows you to choose a required constructor to create an instance of the data source.

Select a Data Source Constructor

On this wizard page, select a data source constructor to be used to create an instance of the data source.



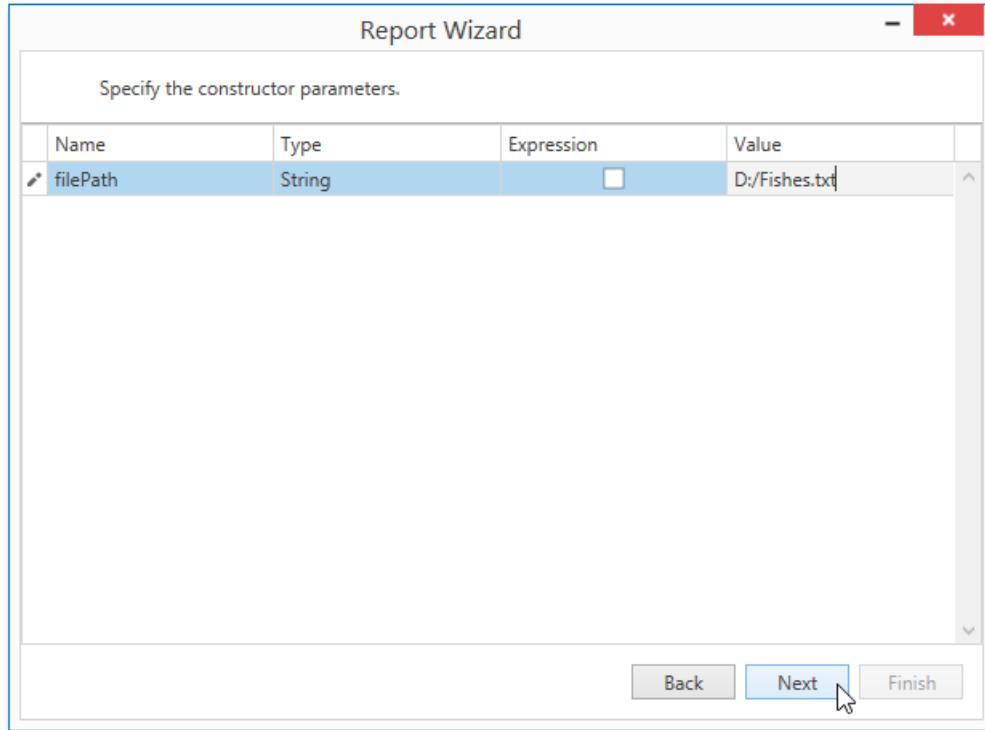
Enable the **Show only highlighted constructors** check box to exclude irrelevant constructors from the list. Otherwise, all available constructors will be shown.

Click **Next** to proceed to the next wizard page: [Specify the Constructor Parameters](#).

Specify the Constructor Parameters

On this wizard page, you can specify the constructor parameters.

To specify the constructor parameter's value, use the **Value** column. Enable the check box in the **Expression** column to make it possible to specify the parameter expression using the **Expression Editor**. In this case, you can pass an existing report parameter to the constructor or create a new one using the in-place editor.



Click **Next** to proceed to the next wizard page: [Choose Columns to Display in a Report](#).

Connect to an Excel Data Source

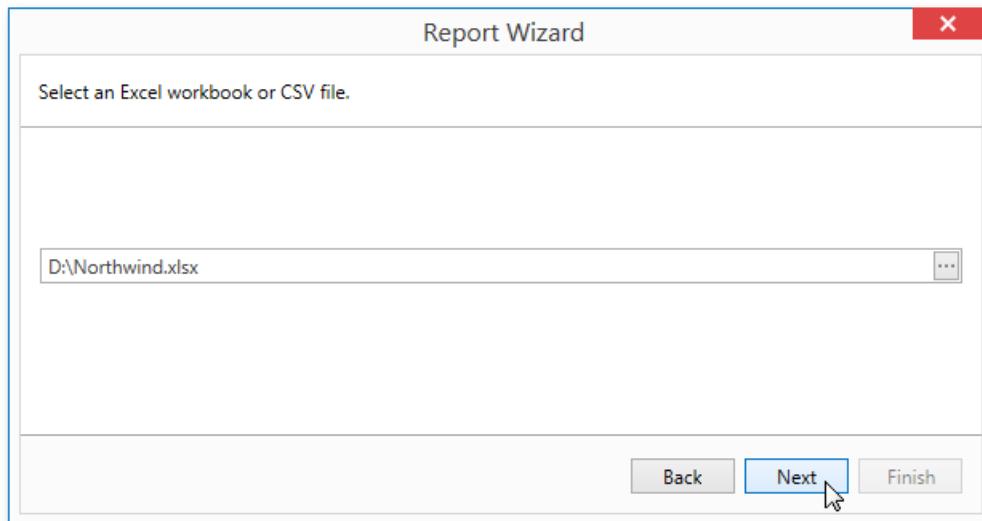
The topics in this section describe the wizard steps required to connect a report to an Excel data source.

This task includes the following steps.

- [Select an Excel Workbook or CSV file](#)
- [Specify Import Settings](#)
- [Select a Worksheet, Table or Named Region](#)
- [Choose columns](#)

Select an Excel Workbook or CSV file

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



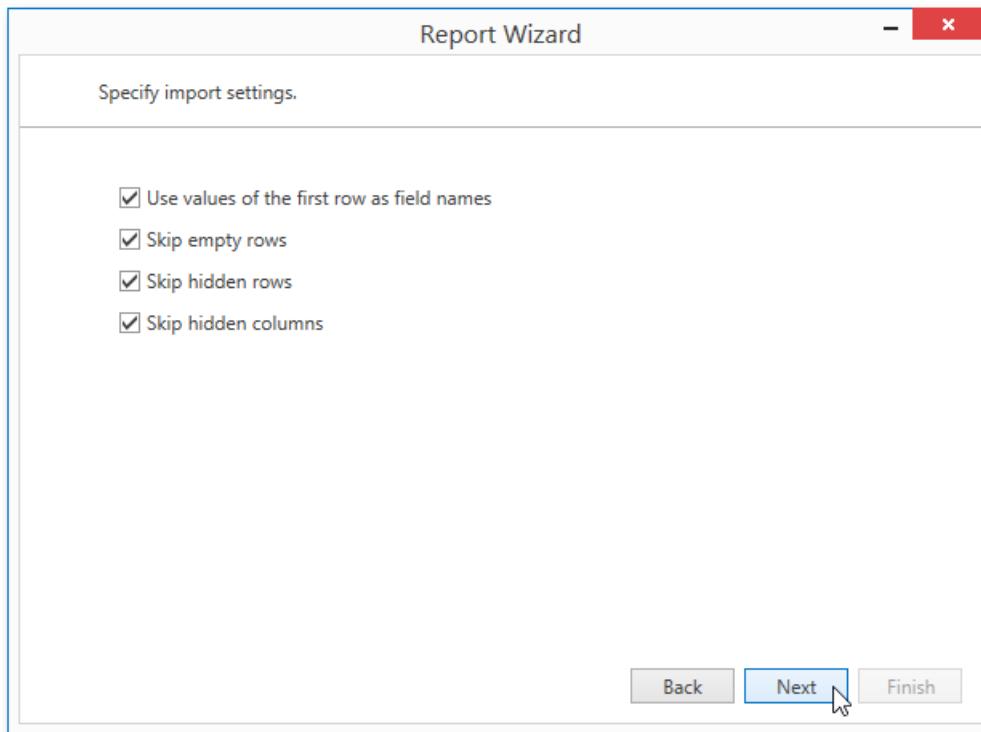
Click **Next** to proceed to the next wizard page: [Specify Import Settings](#).

Specify Import Settings

On this wizard page, you can specify required import settings. This page provides access to different settings depending on whether you have selected an Excel Workbook or CSV file.

Import Settings for an Excel Workbook

The following settings are available if an Excel workbook has been selected.

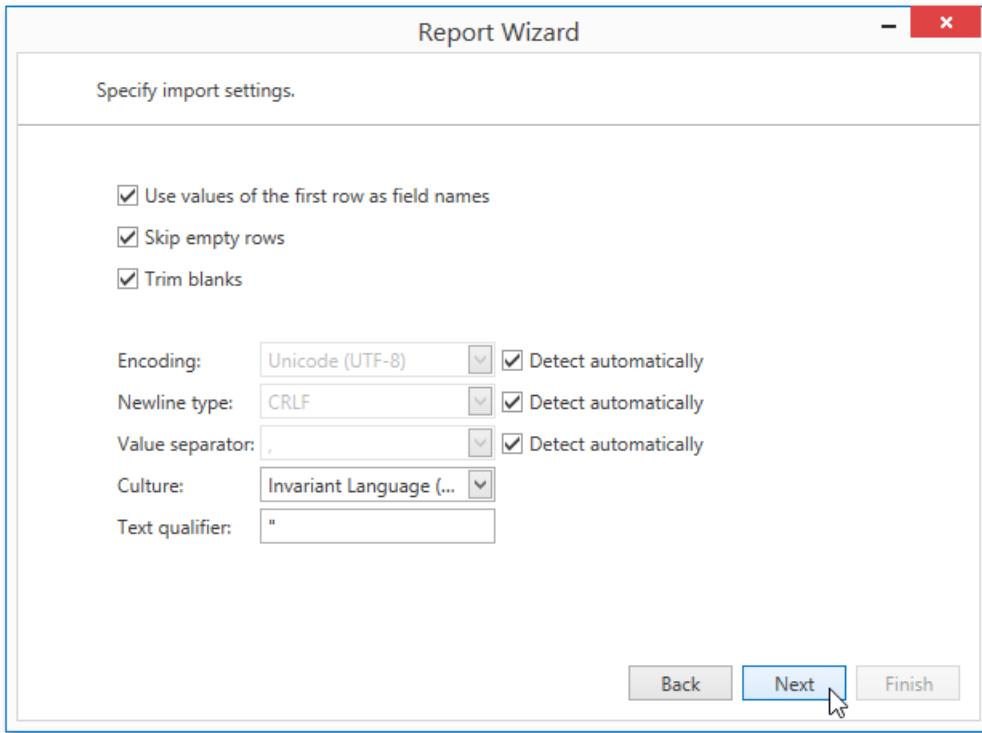


- **Use values of the first rows as field names** - Specifies whether values of the first row should be imported as field names. If this option is disabled, values of the first row will be imported as data and field names will be generated automatically.
- **Skip empty rows** - Specifies whether or not to include empty rows to the resulting data source.
- **Skip hidden rows** - Specifies whether or not to include hidden rows to the resulting data source.
- **Skip hidden columns** - Specifies whether or not to include hidden columns to the resulting data source.

Click **Next** to proceed to the next wizard page: [Select a Worksheet, Table or Named Region](#).

Import Settings for a CSV file

The following settings are available if a CSV file has been selected.



- **Use values of the first rows as field names** - Specifies whether or not values of the first row should be imported as field names. If this option is disabled, values of the first row will be imported as data and field names will be generated automatically.
- **Skip empty rows** - Specifies whether or not to include empty rows to the resulting data source.
- **Trim Blanks** - Specifies whether to delete all leading and trailing empty spaces from each value in the source CSV file.
- **Encoding** - Specifies the character encoding in the source CSV file. If the corresponding **Detect automatically** check box is enabled, this setting's value is automatically determined.
- **Newline type** - Specifies the line break type in the source CSV file. If the corresponding **Detect automatically** check box is enabled, this setting's value is automatically determined.
- **Value separator** - Specifies a character used to separate values in the source CSV file. If the corresponding **Detect automatically** check box is enabled, this setting's value is automatically determined.
- **Culture** - Specifies culture information used to import data from the source CSV file.
- **Text Qualifier** - Specifies the character that encloses values in the source CSV file.

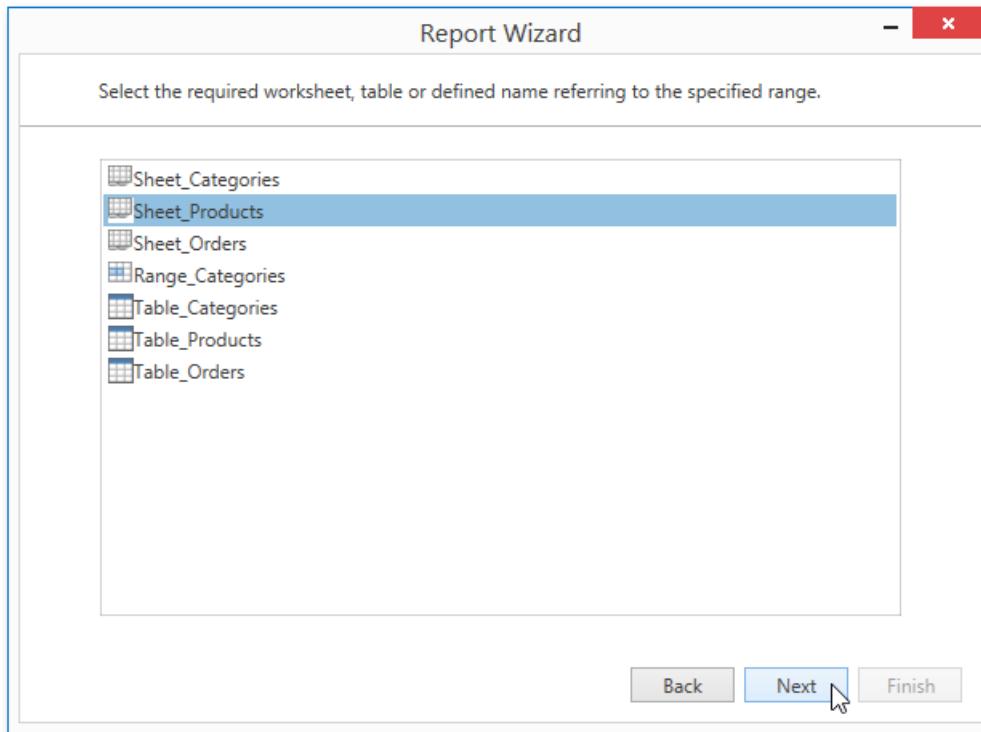
Click **Next** to proceed to the next wizard page: [Choose columns](#).

Select a Worksheet, Table or Named Region

NOTE

This wizard page appears only if you selected a Microsoft Excel Workbook on the previous page.

This wizard page allows you to select one of the available worksheets, tables or named regions that will provide data for a report.



Click **Next** to proceed to the next wizard page: [Choose columns](#).

Choose columns

On this wizard page, you can select required columns and specify their settings.

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

Report Wizard

Select required columns and specify their settings.

Selected	Name	Type
<input type="checkbox"/>	ProductID	Double
<input checked="" type="checkbox"/>	ProductName	String
<input type="checkbox"/>	SupplierID	Double
<input checked="" type="checkbox"/>	CategoryID	Double
<input checked="" type="checkbox"/>	QuantityPerUnit	String
<input checked="" type="checkbox"/>	UnitPrice	Double
<input checked="" type="checkbox"/>	UnitsInStock	Double
<input type="checkbox"/>	UnitsOnOrder	Double
<input type="checkbox"/>	ReorderLevel	Double
<input type="checkbox"/>	Discontinued	Boolean
<input type="checkbox"/>	EAN13	String

Preview... Previous Next Finish

This page also allows you to preview the resulting data by clicking the **Preview...** button.

Data Preview (First 1000 Rows Displayed)

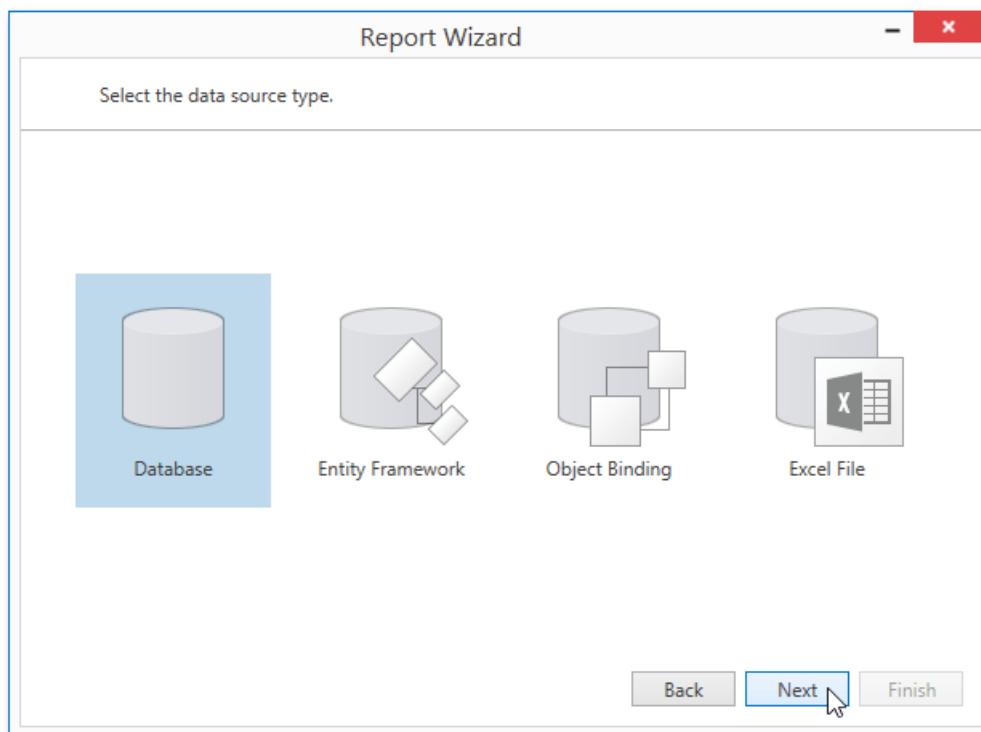
Product Name	Category ID	Quantity Per Unit	Unit Price	Units In Stock
Chai	1	10 boxes x 20 bags	18	39
Chang	1	24 - 12 oz bottles	19	17
Aniseed Syrup	2	12 - 550 ml bottles	10	13
Chef Anton's Cajun...	2	48 - 6 oz jars	22	53
Chef Anton's Gum...	2	36 boxes	21.35	0
Grandma's Boysen...	2	12 - 8 oz jars	25	120
Uncle Bob's Organi...	7	12 - 1 lb pkgs.	30	15
Northwoods Cranb...	2	12 - 12 oz jars	40	6
Mishi Kobe Niku	6	18 - 500 g pkgs.	97	29
Ikura	8	12 - 200 ml jars	31	31
Queso Cabrales	4	1 kg pkg.	21	22

OK

Click **Next** to proceed to the next wizard page: [Choose Columns to Display in a Report](#).

Select the Data Source Type

This wizard page allows you to select the required data source type.



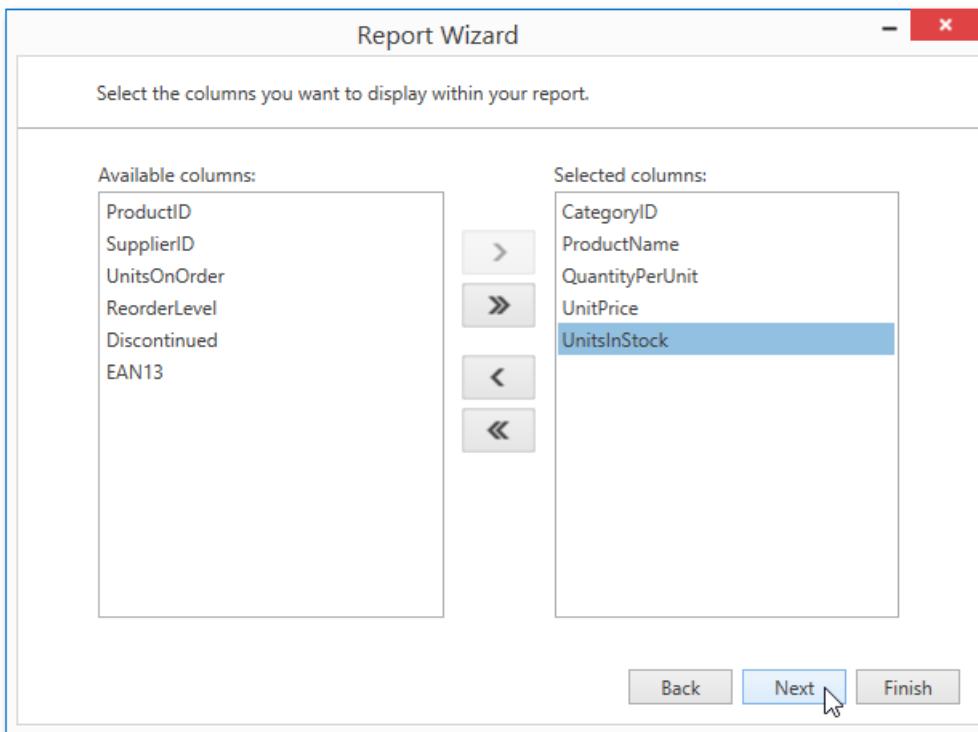
Click **Next** to proceed to the next wizard page once you select the data source type.

- [Connect to a Database](#)
- [Connect to an Entity Framework Data Source](#)
- [Connect to an Object Data Source](#)
- [Connect to an Excel Data Source](#)

Choose Columns to Display in a Report

This wizard page allows you to select fields (attributes) whose data will be displayed in a report.

The list on the left-hand side shows all available fields (attributes). To select the required fields to be displayed in the report, move them to the right-hand side. Use the dedicated arrow buttons to move fields back and forth.



The selected fields and corresponding captions will be automatically added to your report and arranged one under another.

You can stop the wizard at this step by clicking **Finish**. In this case, the report will look similar to the image below.

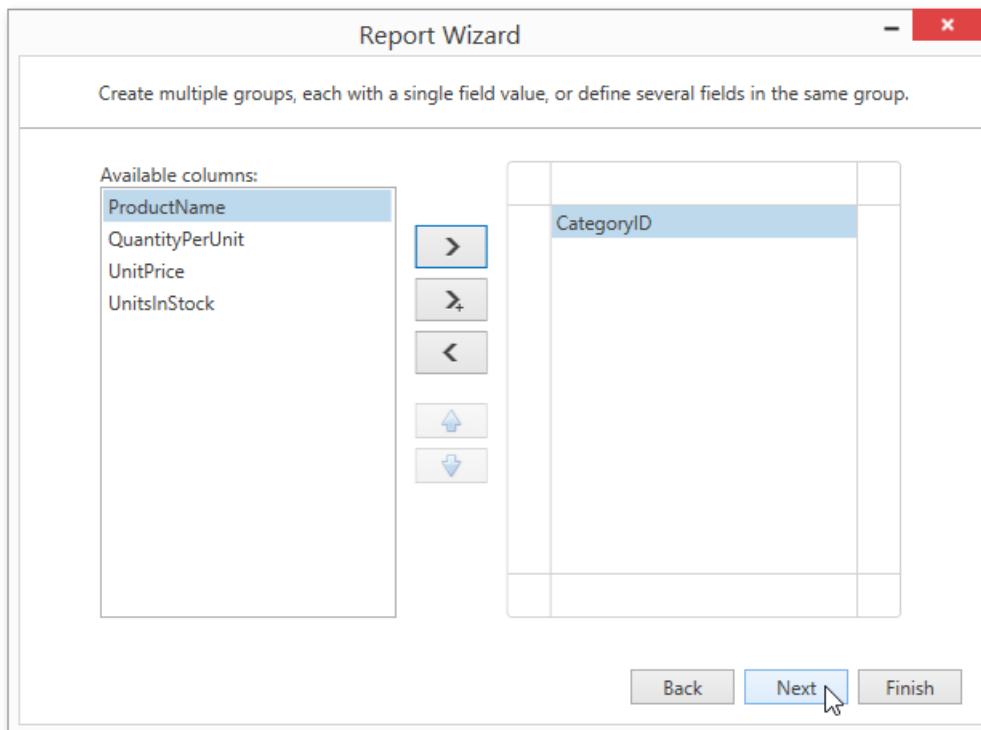
Category ID	1
Product Name	Chai
Quantity Per Unit	10 boxes x20 bags
Unit Price	\$18.00
Units In Stock	39
Category ID	1
Product Name	Chang
Quantity Per Unit	24 - 12 oz bottles
Unit Price	\$19.00
Units In Stock	17
Category ID	2
Product Name	Aniseed Syrup
Quantity Per Unit	12 - 550 ml bottles
Unit Price	\$10.00
Units In Stock	13
Category ID	2

If you want to customize your report further, click **Next** to proceed to the next wizard page: [Add Grouping Levels](#). Note that you

should select at least one field to continue creating the report.

Add Groping Levels

This wizard page allows you to group data in a report. If you don't need to group your data, click **Next** to skip this step.



Nested grouping and grouping against multiple fields are fully supported. The following image illustrates all basic grouping 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		
Toyota Prius			
1/5/2009	5		
1/6/2009	6		

The list on the left-hand side displays data fields that can be used to group data. To apply grouping, select the required field and click the right arrow button. To group data against multiple columns, use the button. To remove a grouping field, select it in the list on the right-hand side and click the left arrow button. You can also change the order of grouping fields using the up and down arrow buttons.

To remove a grouping field, select it in the list on the right-hand side and click the left arrow button. You can also change the order of grouping fields using the up and down arrow buttons.

You can stop the wizard on this step by clicking **Finish**. In this case, the report will look similar to the one in the image below.

Category ID	Product Name	Quantity Per Unit	Unit Price	Units In Stock
1	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
2	Rhönbräu Klosterbier	24 - 0.5 l bottles	\$7.75	125
	Lakkalikööri	500 ml	\$18.00	57
	Aniseed Syrup	12 - 550 ml bottles	\$10.00	13
3	Chef Anton's Cajun Seasoning	48 - 6 oz jars	\$22.00	53
	Crème de Menthe	12 - 100 ml bottles	\$21.00	14

If you want to customize your report further, click **Next**. If data grouping has been applied on this page, proceed to the [Specify Summary Options](#) page. If you haven't grouped your data, skip the Summaries step and go to the [Choose a Report Layout](#) page.

Specify Summary Options

This wizard page allows you to specify totals for each data group or for the entire report. The specified totals will be displayed after corresponding groups and in the report footer.

The page displays all available numerical and date-time fields that are not used to group data. You can select desired functions using the check box table.

The screenshot shows the 'Report Wizard' window with the title 'Specify Summary Options'. The main area asks 'What summary functions would you like to calculate?'. A table lists two fields: 'UnitPrice' and 'UnitsInStock'. For 'UnitPrice', the 'Sum' checkbox is checked, while 'Avg', 'Min', 'Max', and 'Count' are unchecked. For 'UnitsInStock', 'Avg' and 'Max' are checked, while 'Sum', 'Min', and 'Count' are unchecked. Below the table is a checked checkbox labeled 'Ignore null values'. At the bottom are 'Back', 'Next >', and 'Finish' buttons, with 'Next >' being the active button.

	Sum	Avg	Min	Max	Count
UnitPrice	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UnitsInStock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Ignore null values

Back Next > Finish

There are instances when data fields contain empty values. If you don't want to take these values into account when calculating totals, select the **Ignore NULL values** check box. Otherwise, these values will be treated as zeros for numeric fields and the earliest system date for date-time fields.

You can stop the wizard at this step by clicking **Finish**. If you do so, your report will look similar to the one in the image below.

Category ID	Product Name	Quantity Per Unit	Unit Price	Units In Stock
1	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
	Lakkalikööri	500 ml	\$18.00	57
Sum			\$455.75	
Max				125
2	Aniseed Syrup	12 - 550 ml bottles	\$10.00	13
	Chef Anton's Cajun Seasoning	48 - 6 oz jars	\$21.00	52

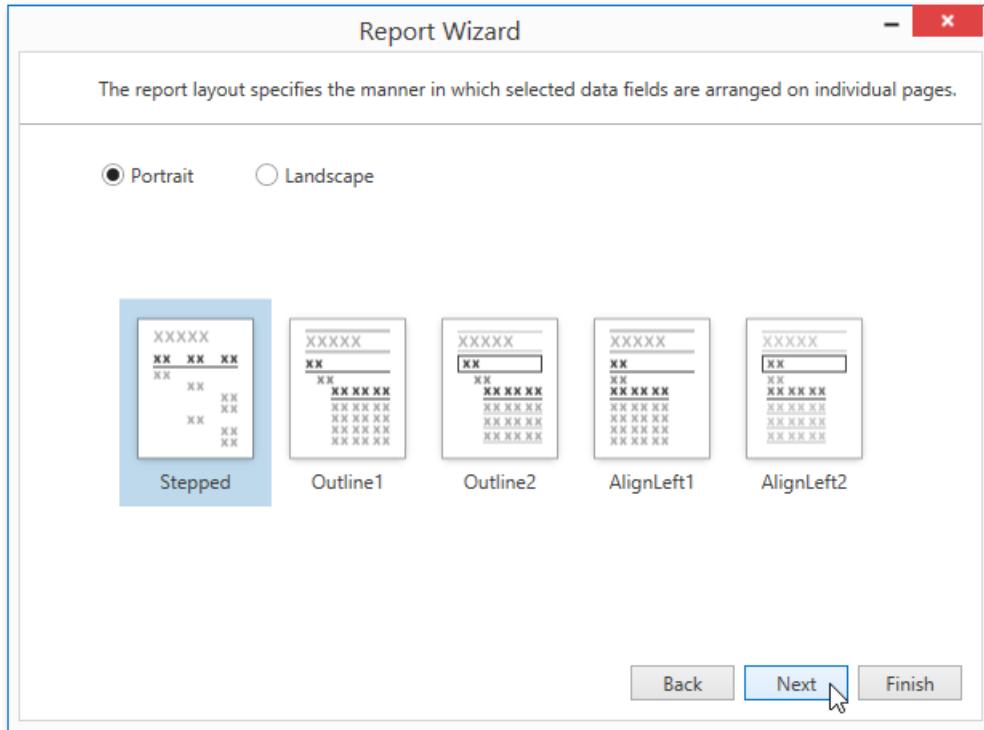
If you want to further customize your report, click **Next** to proceed to the next wizard page: [Choose a Report Layout](#).

Choose a Report Layout

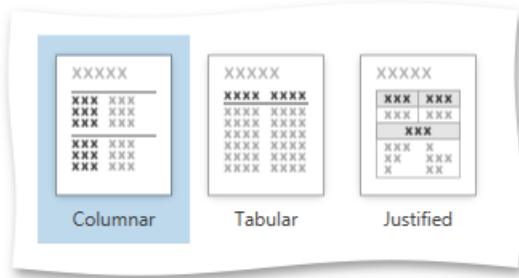
This page allows you to specify the layout of elements in your report. If you haven't applied data grouping, you can specify how data field values are arranged - into a table, one under another, etc. If report data is grouped, you can choose one of the available indentation styles for nested elements.

Additionally, this page allows you to specify the page orientation for your report.

The following options are available if data grouping has been applied.



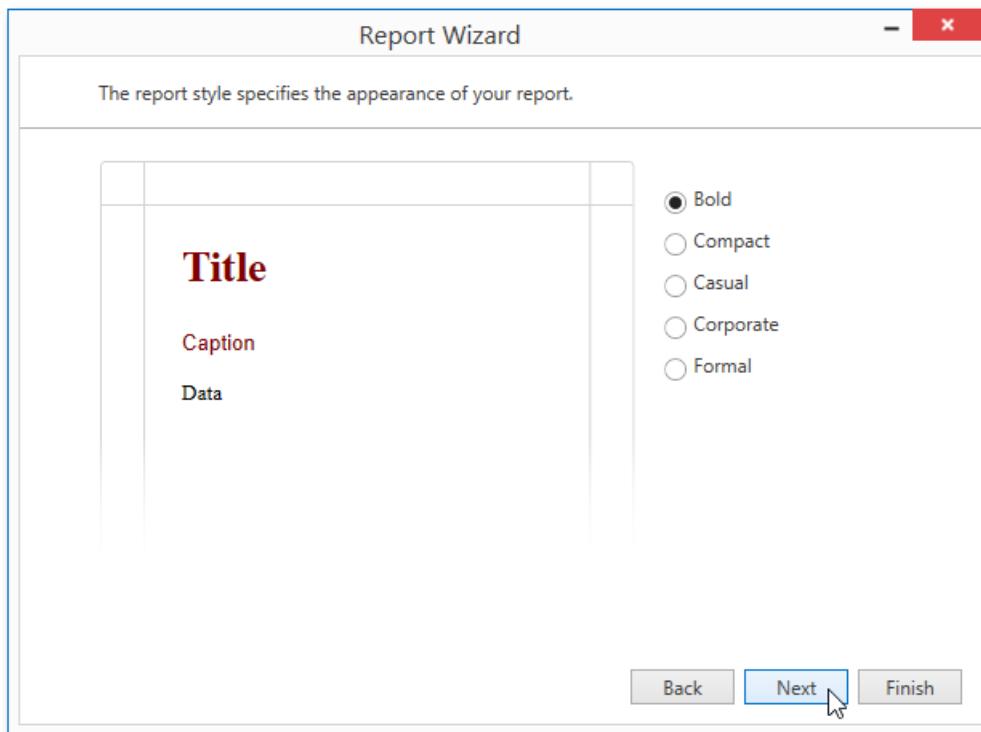
If data hasn't been grouped, you will see the following report layout options.



You can stop the wizard at this step by clicking **Finish**. If you want to customize your report further, click **Next** to proceed to the next wizard page: [Choose a Report Style](#).

Choose a Report Style

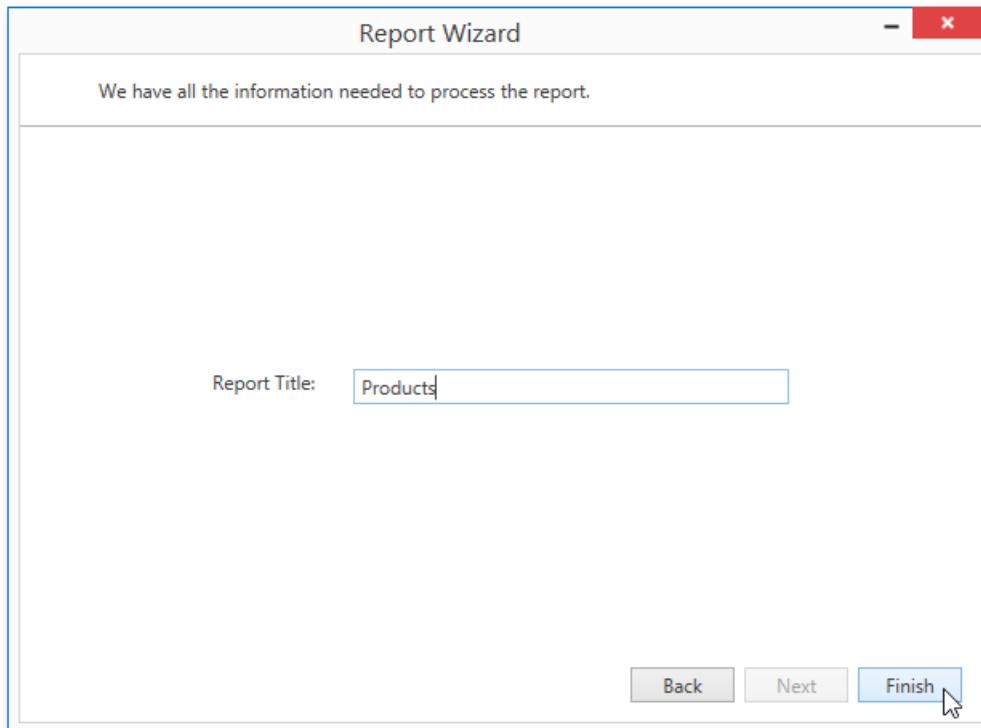
On this wizard page, you can specify one of the predefined visual styles for the report.



You can stop the wizard at this step by clicking **Finish**. If you want to customize your report further, click **Next** to proceed to the next wizard page: [Enter the Report Title](#).

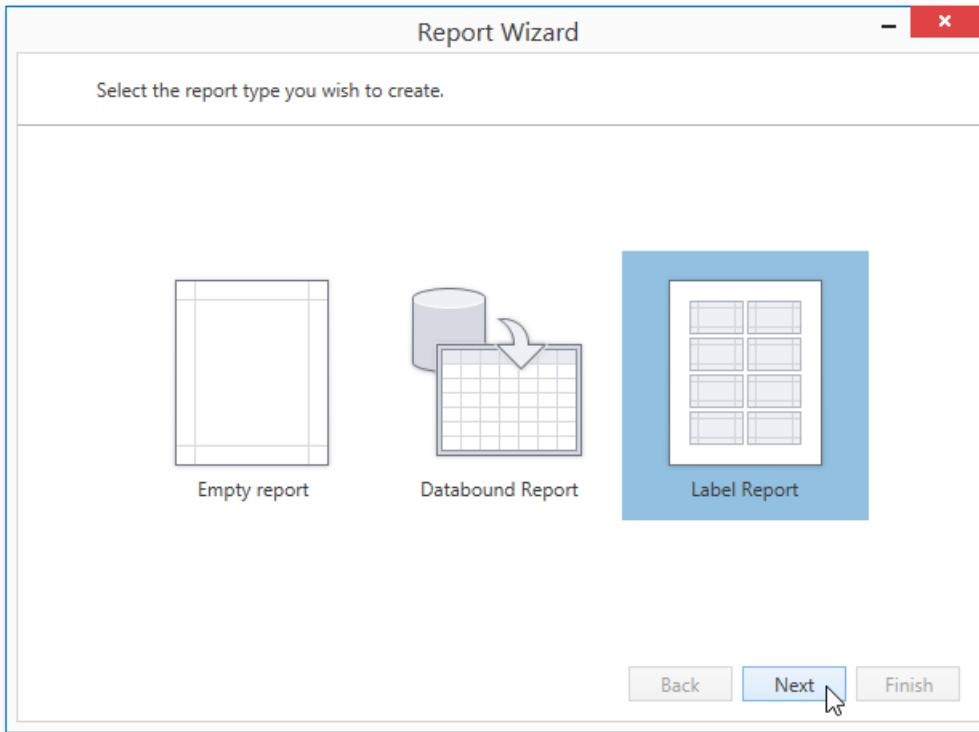
Enter the Report Title

On this page, specify the title for the report and click **Finish** to exit the wizard.



Label Report

The **Report Wizard** allows you to create reports of three kinds: [empty reports](#), [data-bound reports](#) and **label reports**. To generate a label report, select **Label Report** and click **Next**.



After completing the Label Report Wizard, you will get a blank report that generates labels of a specific size. The report designer will indicate the label boundaries and properly position labels within paper sheets. You can then populate the label area with the required content and print out your labels.

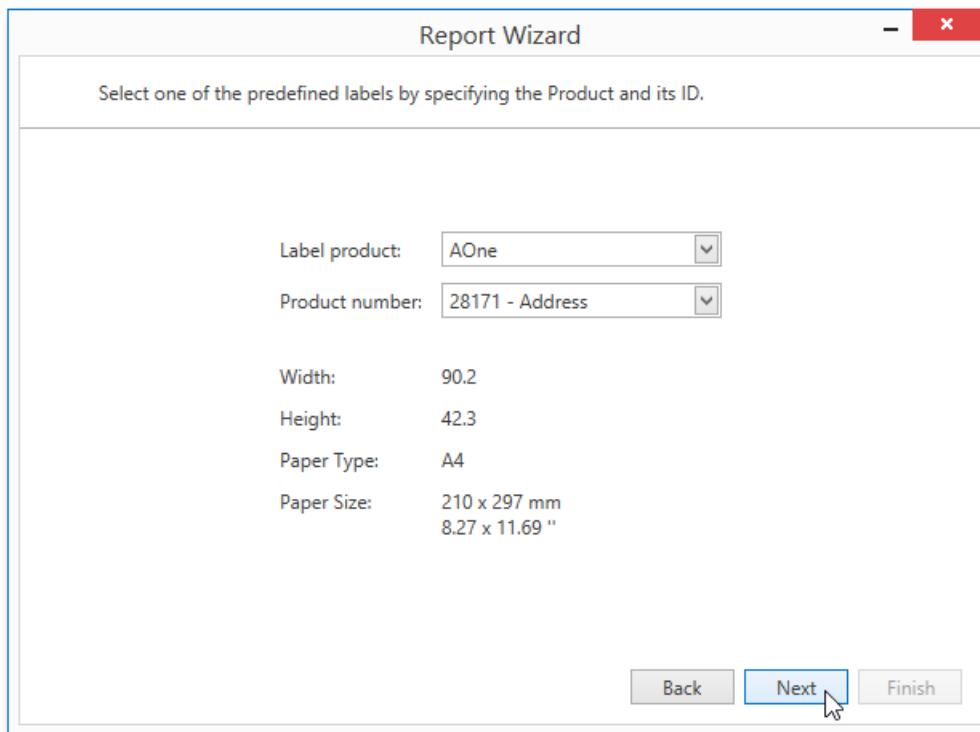
Label creation consists of the following two steps.

- [Select the Label Type](#)
- [Customize the Label Options](#)

Select the Label Type

This wizard page is intended to select one of the numerous predefined label types.

On this page, you can choose the proper supplier from the **Label product** combo box and a particular product from the **Product number** list. The selected type defines the label's size and layout, as well as the default page type for this label.

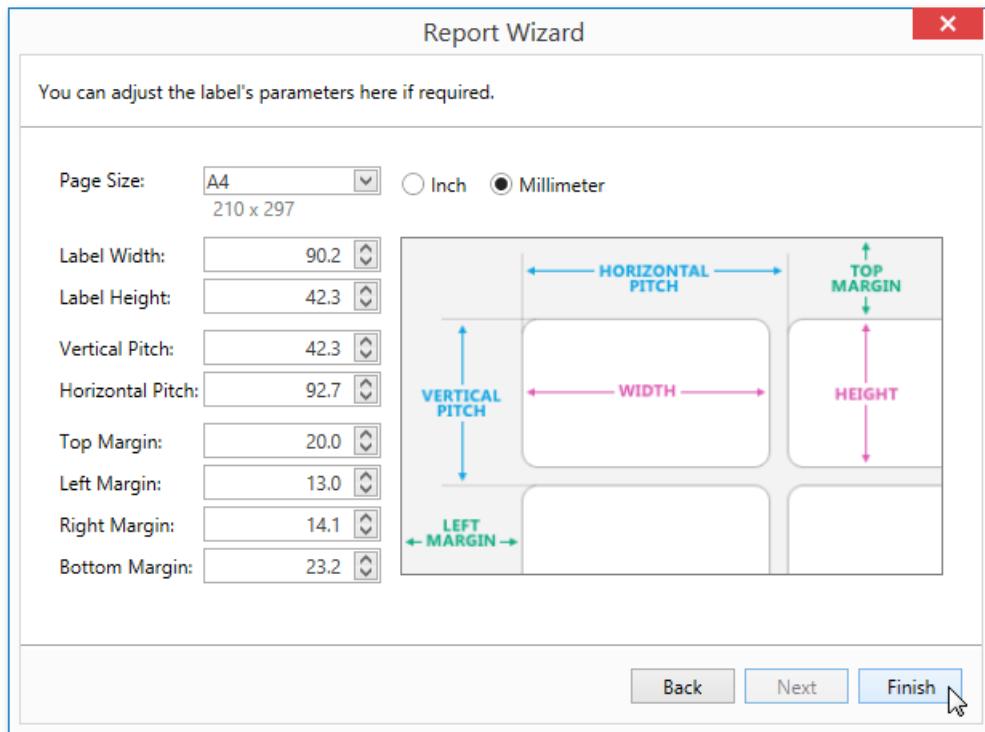


Click **Next** to proceed to the next wizard page: [Customize the Label Options](#).

Customize the Label Options

This wizard page is intended to manually adjust label settings that were automatically specified in the previous step based on the selected supplier and product.

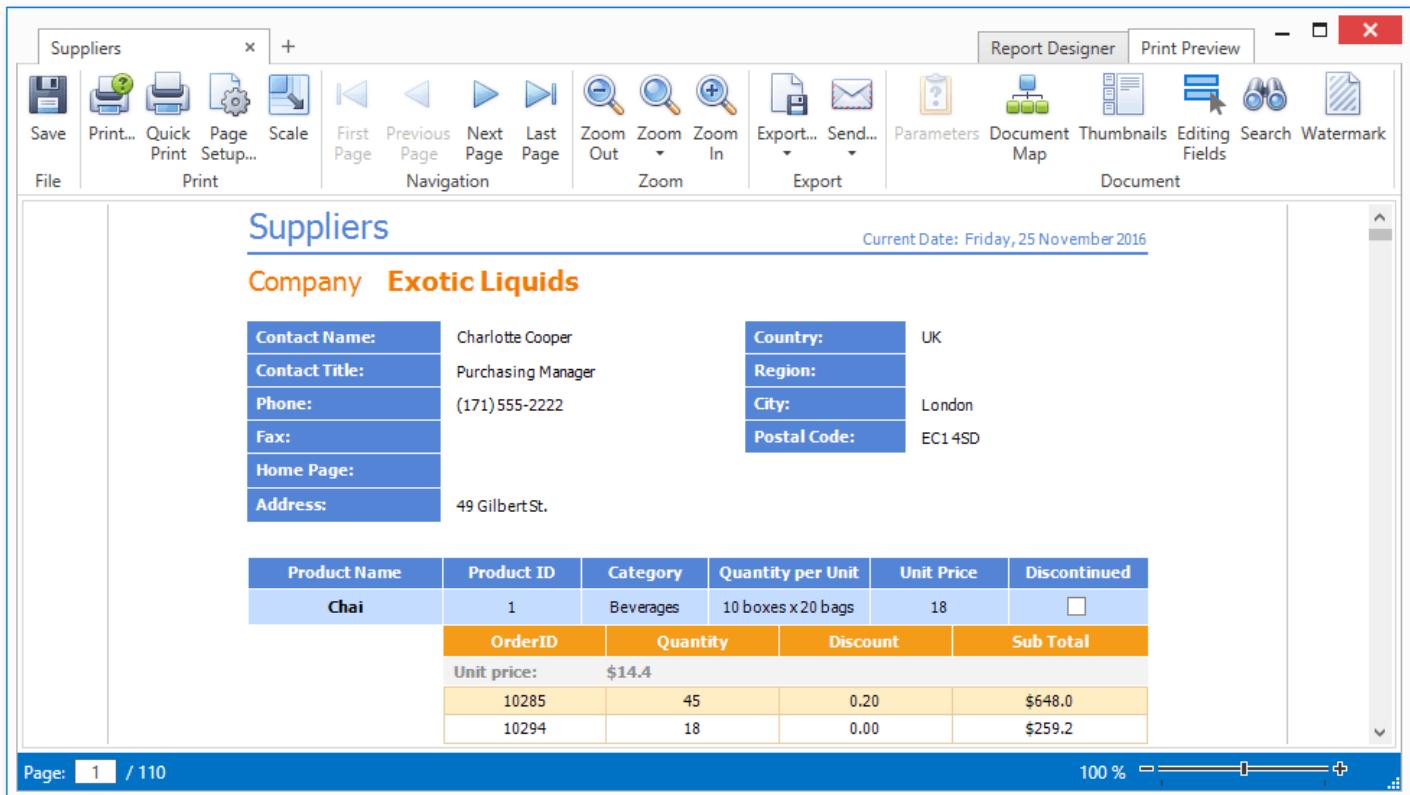
Editors on this page allow you to choose the **Page Size** and freely customize label parameters. The pane on the right-hand side provides a label dimensions preview.



Click **Finish** to complete report creation.

Document Preview

To display a preview for the report currently being opened in the Report Designer, switch to the **Print Preview** tab. You will see the report populated with data and divided into pages.



The document preview allows you to check the print output of a report and customize its additional options using the [Preview Toolbar](#). The report can be then exported to different third-party formats, sent using e-mail or printed.

Different elements of the Report Designer's preview are covered in the following documents.

- [Preview Toolbar](#)
- [Export Document Dialog](#)
- [Parameters Panel](#)
- [Search Panel](#)
- [Document Map Panel](#)

NOTE

To learn more about the options available in the preview mode, refer to the [Print Preview for WPF](#) section of this documentation.

Preview Toolbar

The **Preview Toolbar** provides quick access to commands related to report viewing, editing and publishing.



All available commands can be divided into the following sections.

- [File Command](#)
- [Print Commands](#)
- [Navigation Commands](#)
- [Zoom Commands](#)
- [Export Commands](#)
- [Document Commands](#)

File Command

Use the following command to save a report to the file.

ICON	COMMAND	DESCRIPTION
	Save	Invokes the Save As dialog allowing you to save a report document to a file.

Print Commands

The following commands allow you to change a report page's settings and print a report document.

ICON	COMMAND	DESCRIPTION
	Print	Invokes the Print dialog allowing you to specify the necessary settings and print a report document.
	Quick Print	Prints a report document using the default settings.
	Page Setup	Invokes the Page Setup dialog allowing you to adjust report page settings.
	Scale	Invokes the Scale dialog allowing you to stretch or shrink report content to a percentage of its normal size or the number of pages.

Navigation Commands

Use these commands to navigate through a report document.

ICON	COMMAND	DESCRIPTION
	First Page	Switches to the first report page.

ICON	COMMAND	DESCRIPTION
	Previous Page	Switches to the previous report page.
	Next Page	Switches to the next report page.
	Last Page	Switches to the last report page.

Zoom Commands

Use these commands to zoom a report document.

ICON	COMMAND	DESCRIPTION
	Zoom Out	Decreases a report document's current zoom factor.
	Zoom In	Increases a report document's current zoom factor.
	Zoom	Zooms a report document to a specific zoom factor from the drop-down list.

Export Commands

Use these commands to export a report document to one of the supported third-party formats.

ICON	COMMAND	DESCRIPTION
	Export	Invokes the Export Document dialog allowing you to export a report document into one of the supported third-party formats and save the resulting file on a hard drive.
	Send	Invokes the Send via E-Mail dialog allowing you to export a report document into one of the supported third-party formats, save the resulting file on a hard drive and attach this file to a new empty message in the default mail program.

Document Commands

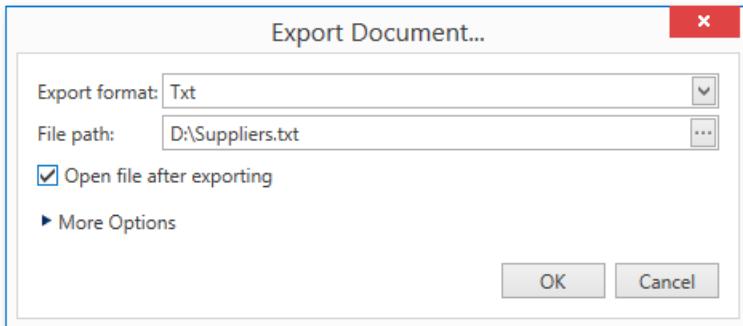
Use these commands to change the visibility state of the Designer's panels and dialogs.

ICON	COMMAND	DESCRIPTION
	Parameters	Shows/hides the Parameters Panel where you can specify report parameters before report preview generation is started.
	Document Map	Shows/hides the Document Map Panel , which reflects a report document's structure in a tree-like form.
	Thumbnails	Shows/hides report thumbnails used to quickly navigate between document pages.

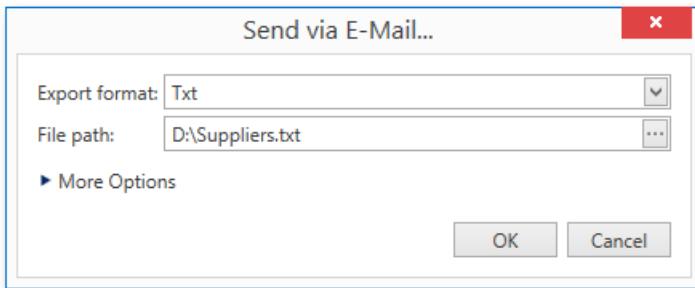
ICON	COMMAND	DESCRIPTION
	Editing Fields	Highlights all editing fields to quickly discover which of the document elements are editable.
	Search	Shows the Search Panel , which allows you to find a specified text throughout a report document.
	Watermark	Invokes the Watermark dialog that allows you to add a text watermark to a report or turn a picture into a report's background.

Export Document Dialog

The Print Preview allows you to view and edit various format-specific options, and then export a report to one of the supported third-party formats. There are two options for [exporting](#) a document. The first way is to export a document to a file on disk using the **Export Document** dialog.



Another approach is to utilize the **Send via E-Mail** dialog to export a document and send the resulting file via e-mail.



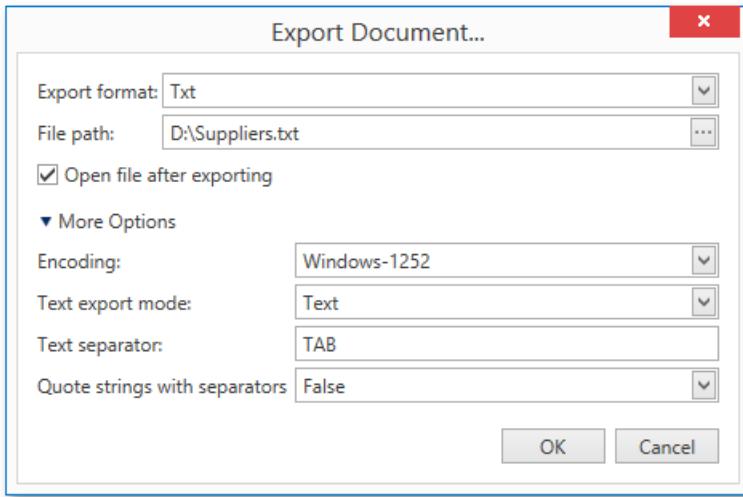
To invoke these dialogs, click the arrow for the **Export...** or **Send...** button, respectively, and choose the required format from the drop-down list. If you simply click one of these buttons, the dialogs will provide settings for the PDF format. Then, you can always change the export format directly in the dialogs using the dedicated **Export Format** drop-down lists.

The following third-party export formats are supported.

- PDF (Portable Document Format)
- HTML (HyperText Markup Language)
- MHT (Web archive, single file)
- RTF (Rich Text Format)
- XLS (Microsoft® Word® 97 - 2003 document)
- XLSX (Office® Open XML document)
- CSV (Comma-Separated Values file format)
- TXT (Plain text)
- Image (BMP, GIF, JPEG, PNG, TIFF, EMF or WMF format)

In the dialogs, you need to specify the path where the resulting file should be saved. The **Export Document** dialog additionally prompts you to choose whether or not to open the file after exporting.

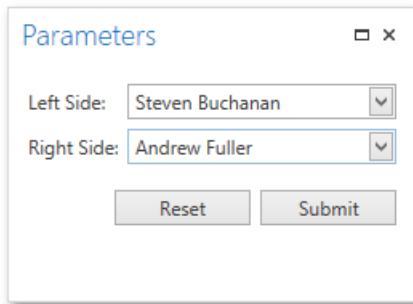
The dialogs also allow you to specify advanced export options for the selected format. To access and customize these format-specific options, click the **More Options** link.



Specify the required options and click **OK** to initiate the export of a report and save the resulting file. After closing the **Send via E-Mail** dialog, the saved file will be attached to a new empty message in the default mail program.

Parameters Panel

The **Parameters** panel allows you to specify [report parameters](#) before generating a report preview.

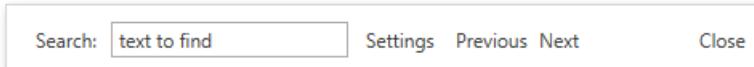


Specify values of the required report parameters using the corresponding parameter editors and click **Submit** to view the resulting report preview. After changing the current values, you can revert back the previously selected values by clicking **Reset**.

If a report contains at least one visible parameter, this panel is displayed by default. To manually change the panel's visibility state, click the **Parameters** button  in the [Toolbar](#). If a report doesn't contain any visible parameters, the **Parameters** panel cannot be shown.

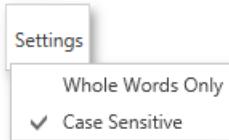
Search Panel

The **Search** panel allows you to find specific text throughout a report document.



To invoke the **Search** panel, click the **Search** button  in the **Toolbar** or press CTRL+F.

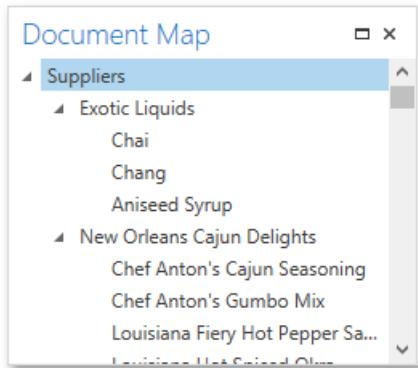
In the search box on the left, input the text to find. Click the **Settings** button to invoke the dedicated submenu allowing you to specify whether or not to use case-sensitive search, and whether you are required to match the whole word during the search.



To start searching, or search down again, click **Next**, or press ENTER or CTRL+G. To search backward, click **Previous** or press CTRL+SHIFT+G.

Document Map Panel

The **Document Map** panel is an interactive table of contents, which reflects a report's structure in a tree-like form and provides quick navigation through its [bookmarks](#).



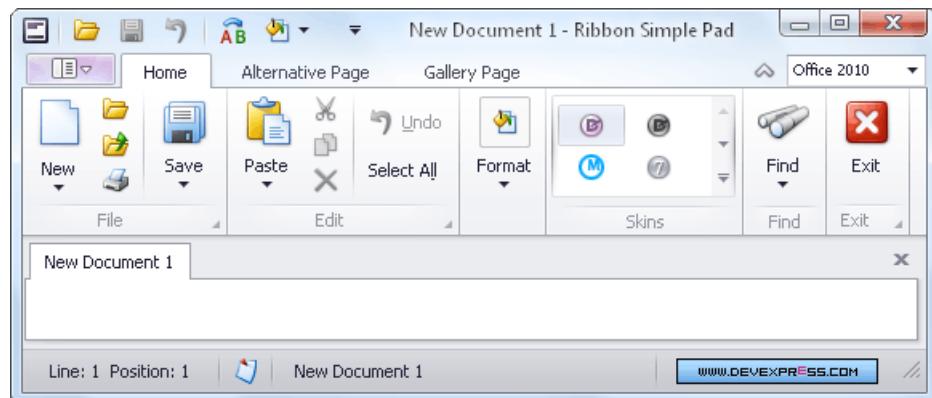
If a report contains at least one control with a specified bookmark, the **Document Map** is displayed by default. You can then toggle this panel's visibility state using the **Document Map** button  in the [Toolbar](#). If a report does not contain bookmarks, this panel cannot be shown.

Click a bookmark in the **Document Map** to navigate the Print Preview to the corresponding element in a report document.

Note that after exporting a report to the PDF format, the **Document Map** is exported as well.

Ribbon

The Ribbon organizes commands into a tabbed interface, providing quick and intuitive access to these commands.

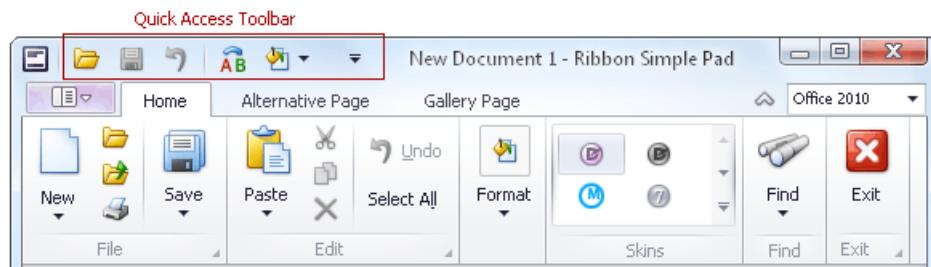


Topics in this section:

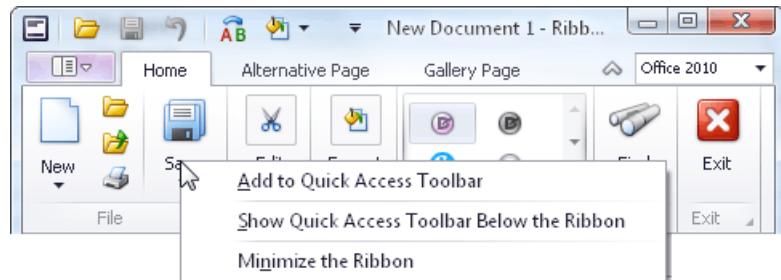
- [Frequently Used Ribbon Commands](#)
- [Minimize Ribbon](#)
- [Invoke Ribbon Commands](#)

Frequently Used Ribbon Commands

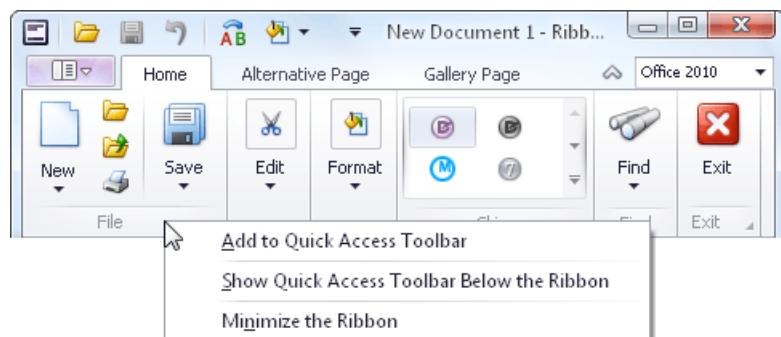
Frequently used commands are typically displayed within the Quick Access Toolbar, at the top of the Ribbon:



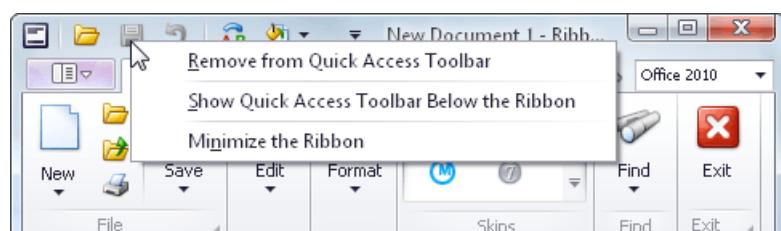
To add any command to the Quick Access Toolbar, right-click the command and select **Add to Quick Access Toolbar**:



To add a group of commands to the Quick Access Toolbar, right-click the group's caption and select **Add to Quick Access Toolbar**:

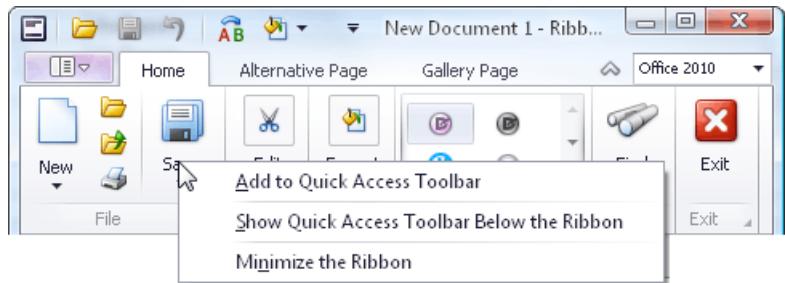


To remove any command from the Quick Access Toolbar, right-click the command and select **Remove from Quick Access Toolbar**:



Minimize Ribbon

To minimize the Ribbon, right-click any command and select **Minimize the Ribbon**:



To restore the Ribbon, right-click any command or page and uncheck the **Minimize the Ribbon** option:

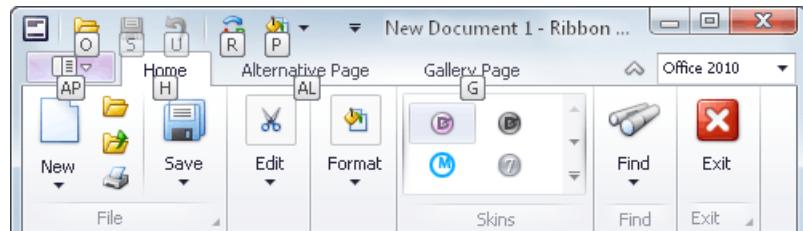


You can also minimize and restore the Ribbon by double-clicking any tab page header.

Invoke Ribbon Commands

To select a specific command, you can click it with the mouse or invoke it via its shortcut. See below for more information.

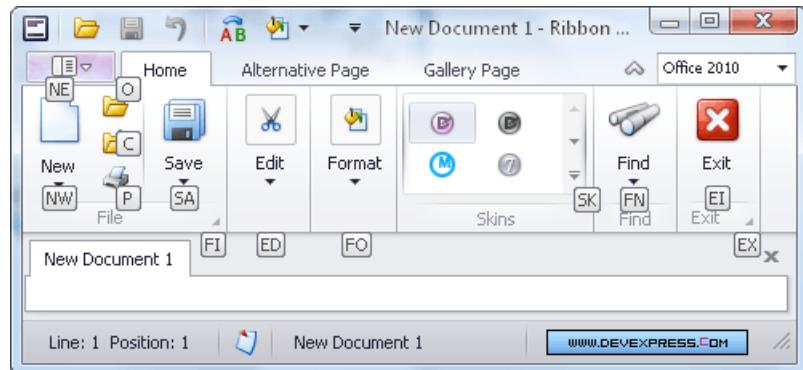
Shortcuts are associated with each page and command in the Ribbon. To see the shortcuts, press ALT or F10. Shortcuts will appear next to the corresponding tab pages and commands:



Shortcuts can be composed of one, two or three symbols. If a shortcut is represented by one symbol, you can invoke the command by pressing this symbol. If a shortcut is represented by two or three symbols, to invoke the command, press the symbols one after another.

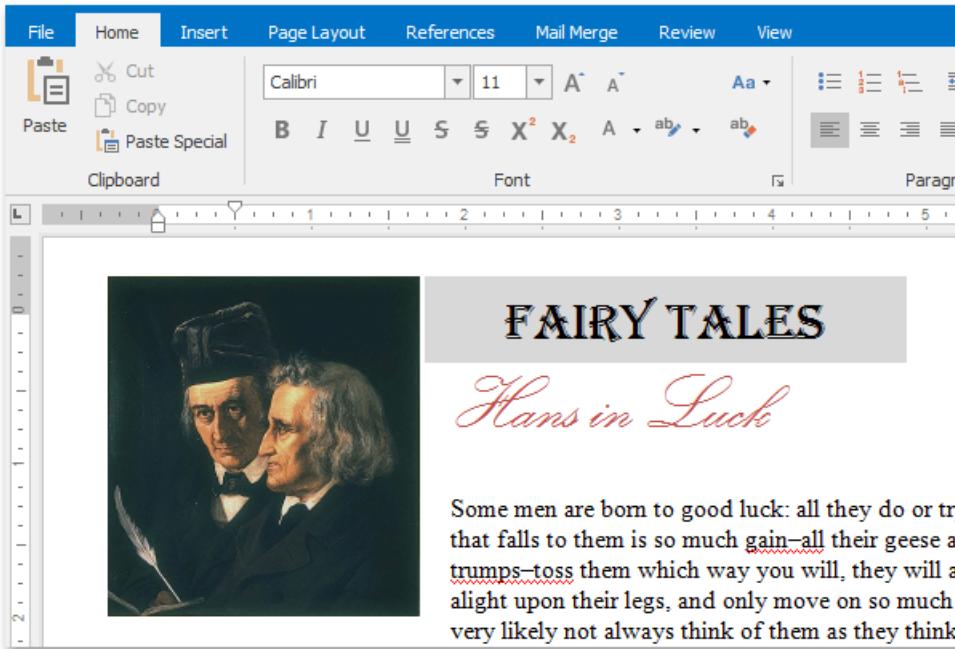
Initially, when pressing ALT or F10, shortcuts are displayed for commands within the Quick Access Toolbar (at the top of the Ribbon) and for tab pages. To access shortcuts for commands within a specific tab page, you need to press the shortcut associated with this page.

For example, to display shortcuts for commands within the Home page (see the image above), press **H**:



Rich Text Editor

This section describes the **Rich Text Editor** capabilities.



Text Editor UI

- [Editor Elements](#)
- [Toolbars](#)
- [Ribbon Interface](#)

File Operations

- [Create a New Document](#)
- [Load a Document](#)
- [Save a Document](#)
- [Print a Document](#)

Document Layout and Page Setup

- [Divide a Document into Sections](#)
- [Adjust Page Settings](#)
- [Lay Out Text in Columns](#)
- [Add Line Numbers](#)
- [Change Page Background Color](#)

View and Navigate

- [Navigate through a Document](#)
- [Switch Document Views](#)
- [Zoom a Document](#)

Edit Text

- [Select Text](#)
- [Delete Text](#)

- Find and Replace Text
- Use a Clipboard
- Check Text Spelling
- Undo and Redo Last Operations

Formatting

- Format Text
- Format Paragraphs
- Apply and Modify Styles

Pictures and Text Boxes

- Insert a Picture
- Insert, Select, Copy or Delete a Text Box
- Add, Change or Delete a Border for a Picture or Text Box
- Add, Change or Delete a Text Box Fill
- Rotate a Picture or Text Box
- Move a Picture or Text Box
- Wrap Text around a Picture or Text Box
- Resize a Picture or Text Box

Lists

- Numbered Lists
- Bulleted Lists
- Multilevel Lists

Tables

- Insert a Table
- Add and Remove Table Borders
- Customize a Style of Cell Borders
- Select a Cell, Row or Column
- Insert a Cell, Row or Column
- Delete a Cell, Row or Column
- Merge or Split Cells
- Align Text in Table Cells
- Set Background Color of Cells
- Wrap Text Around a Table

Header and Footer

- Header and Footer

Footnotes and Endnotes

- Insert and Edit a Footnote or Endnote
- Change Note Appearance

Embed Fields (Mail Merge)

- Mail Merge

Table of Contents

- [Create a Table of Contents](#)
- [Create Table of Contents for Special Cases](#)
- [Update Table of Contents](#)

Track Changes

- [Turn On Track Changes](#)
- [Accept and Reject Changes](#)

Protect Documents

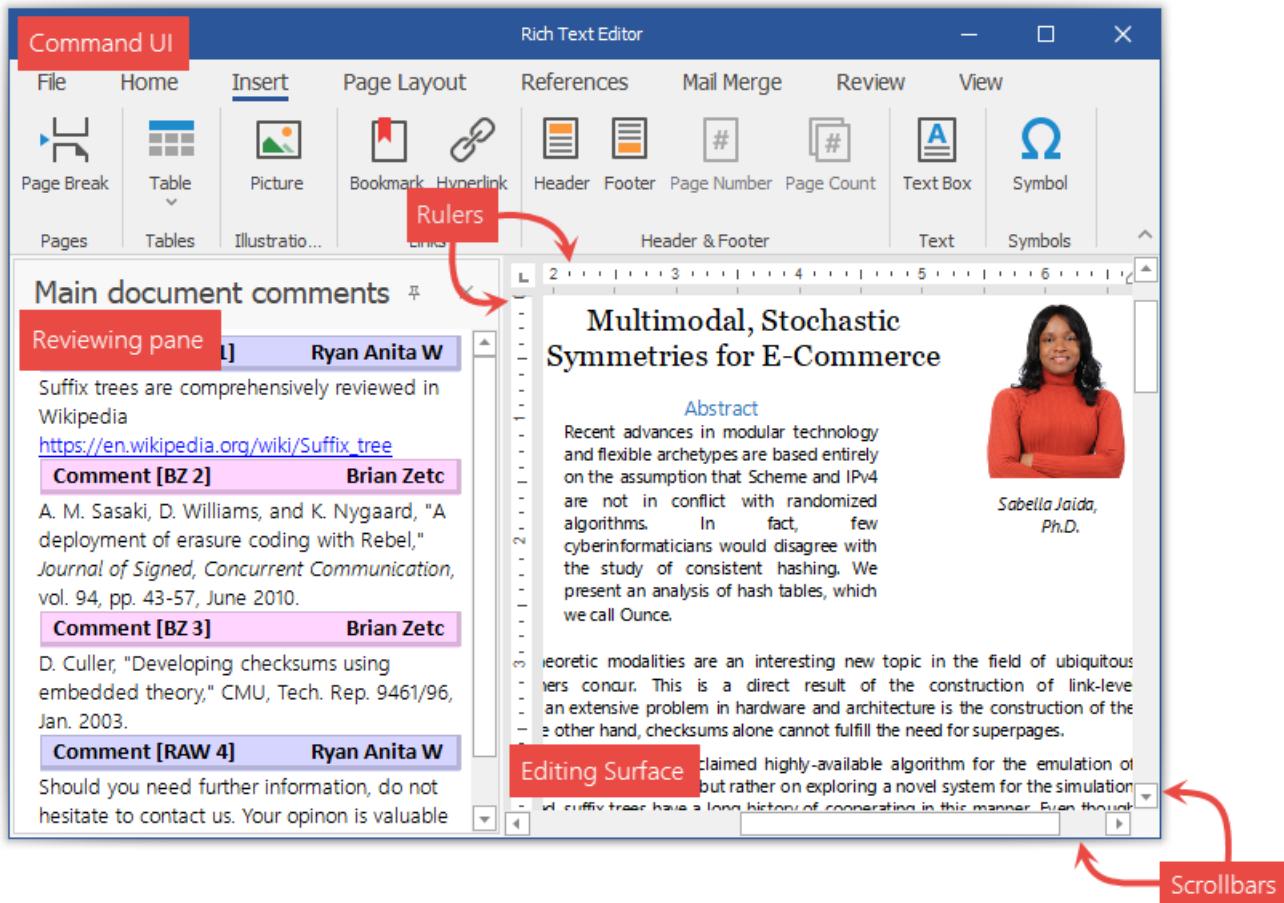
- [Protect and Unprotect a Document](#)
- [Edit a Protected Document](#)

Miscellaneous

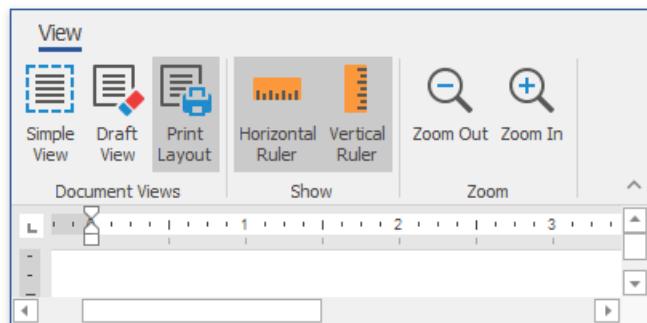
- [Insert a Bookmark](#)
- [Insert a Hyperlink](#)
- [Insert a Comment](#)
- [Insert a Page Break](#)
- [Insert Page Numbers](#)
- [Insert a Symbol](#)
- [Set Document Properties](#)

Editor Elements

The Rich Text Editor can contain the following visual elements:

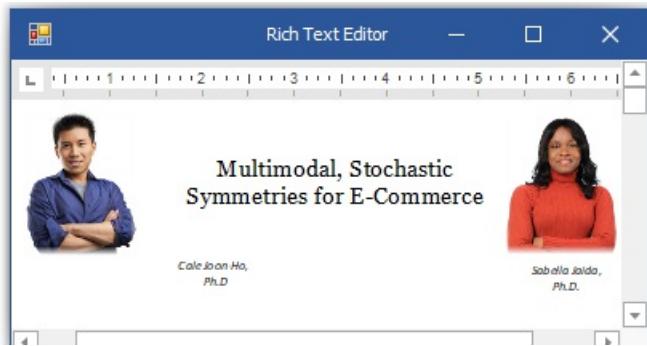


Command UI



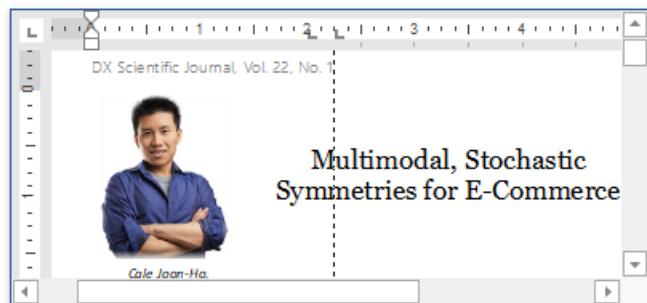
The Rich Text Editor can be provided with a Ribbon or with a set of toolbars. Each command bar type enables end users to perform basic operations (format and edit text, create lists, add headers and footers, work with tables, etc.).

Views



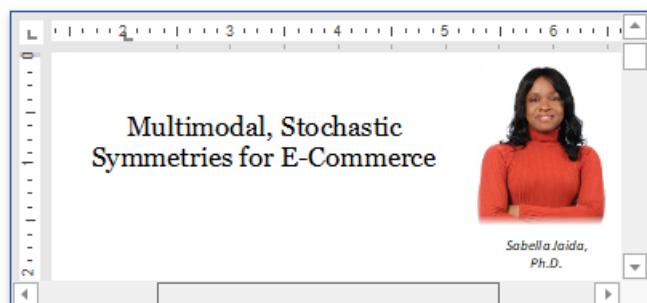
The Rich Text Editor is able to display documents in three different ways depending on the applied **View**. You can change the active view and control the visibility of the editing surface elements.

Rulers



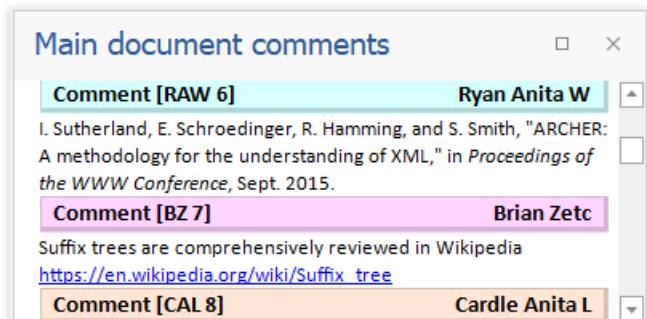
The Rich Text Editor's editing surface is provided with horizontal and vertical rulers. The rulers help end you align text, shapes, tables and other elements.

Scrollbars



The document view can display horizontal and vertical scrollbars if a page does not fit into the control's display area.

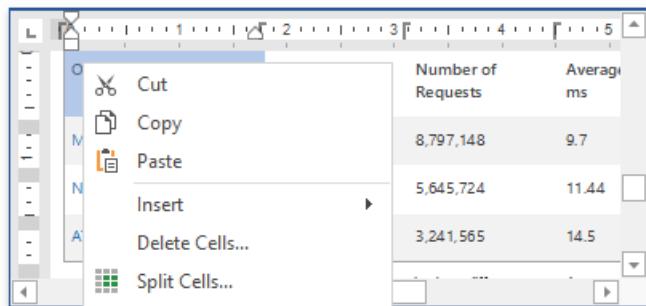
Reviewing Pane



The Reviewing Pane displays all comments contained in the document and allows you to navigate throughout the comments and

modify them.

Pop-up Menus

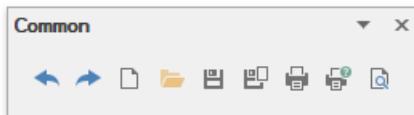


When you click different visual objects, a specific pop-up menu appears. The Rich Text Editor provides several pop-up menu types.

Toolbars

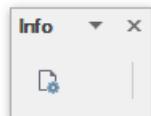
The **Rich Text** control can be accompanied by a set of toolbars that provide a comprehensive functionality for the **Rich Editor**.

Common



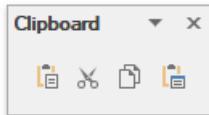
- [Create a New Document](#)
- [Load a Document](#)
- [Save a Document](#)
- [Print a Document](#)
- [Undo and Redo Last Operations](#)

Info



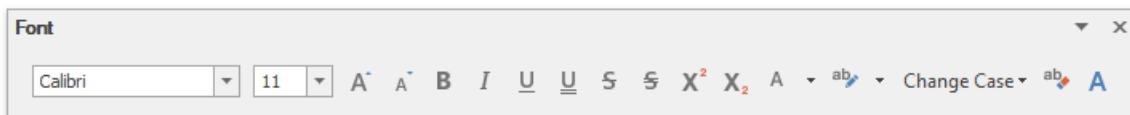
[Set Document Properties](#)

Clipboard



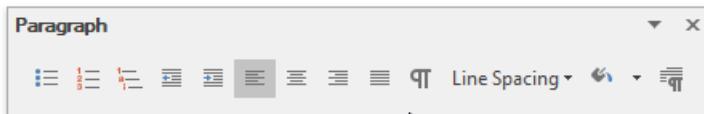
[Use a Clipboard](#)

Font



[Format Text](#)

Paragraph



[Format Paragraphs](#)

Editing



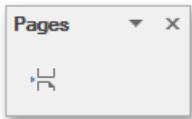
Find and Replace Text

Styles



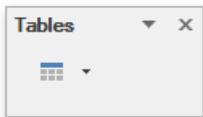
Apply and Modify Styles

Pages



Insert a Page Break

Tables



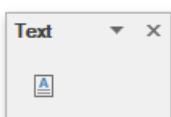
Insert a Table

Illustrations



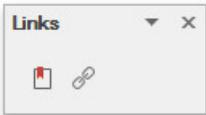
Insert a Picture

Text



Insert, Select, Copy or Delete a Text Box

Links



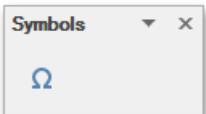
- [Insert a Bookmark](#)
- [Insert a Hyperlink](#)

Header & Footer



- [Header and Footer](#)
- [Insert Page Numbers](#)

Symbols



[Insert a Symbol](#)

Page Setup



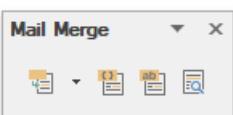
- [Adjust Page Settings](#)
- [Lay Out Text in Columns](#)
- [Insert a Page Break](#)
- [Divide a Document into Sections](#)
- [Add Line Numbers](#)

Background



[Change Page Background Color](#)

Mail Merge



Mail Merge

Document Views



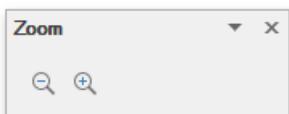
Switch Document Views

Show



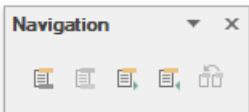
Show Rulers

Zoom



Zoom a Document

Navigation



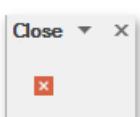
Header and Footer

Options



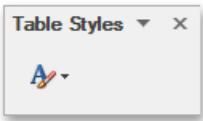
Header and Footer

Close



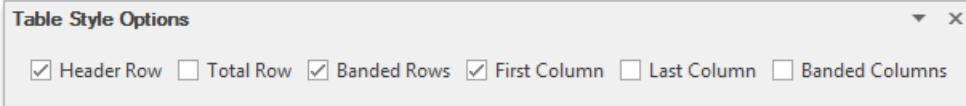
Header and Footer

Table Styles



Add and Remove Table Borders

Table Style Options



Add and Remove Table Borders

Borders&Shadings



- Customize a Style of Cell Borders
- Set Background Color of Cells

Table



- Select a Cell, Row or Column
- Set Table Properties

Rows & Columns



- Insert a Cell, Row or Column
- Delete a Cell, Row or Column

Merge



Merge or Split Cells

Cell Size



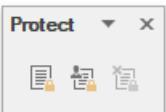
Adjust Column Width

Alignment



Align Text in Table Cells

Protect



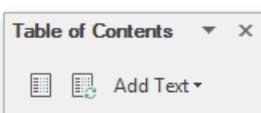
Protect and Unprotect a Document

Proofing



Check Text Spelling

Table of Contents



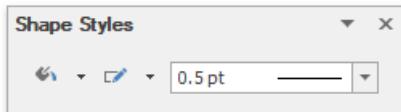
- Create a Table of Contents
- Create Table of Contents for Special Cases
- Update Table of Contents

Captions



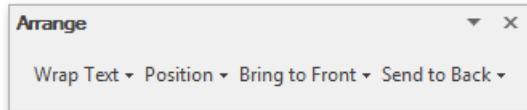
Create Table of Contents for Special Cases

Shape Styles



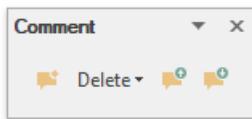
- Add, Change or Delete a Border for a Picture or Text Box
- Add, Change or Delete a Text Box Fill

Arrange



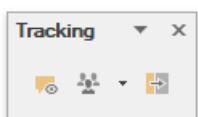
- Wrap Text around a Picture or Text Box
- Move a Picture or Text Box

Comment



Insert a Comment

Tracking

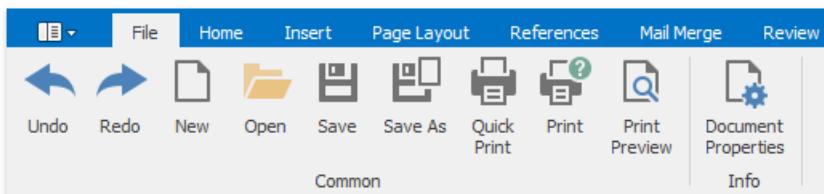


Insert a Comment

Ribbon Interface

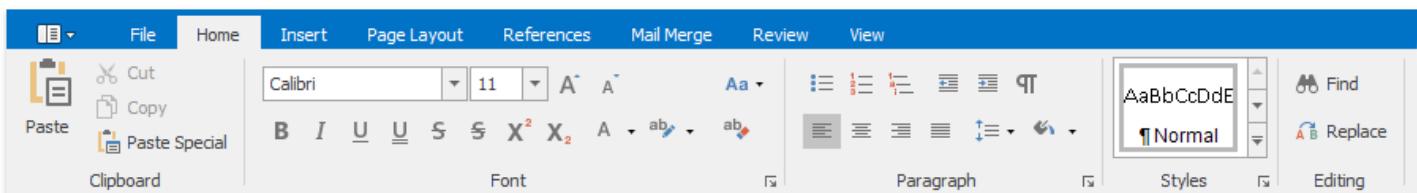
The comprehensive functionality for the **Rich Text** control can be provided via set of Ribbon tabbed pages. Ribbon pages are structurally and visually split into logical groups. Each of these groups includes commands that have some common features.

File



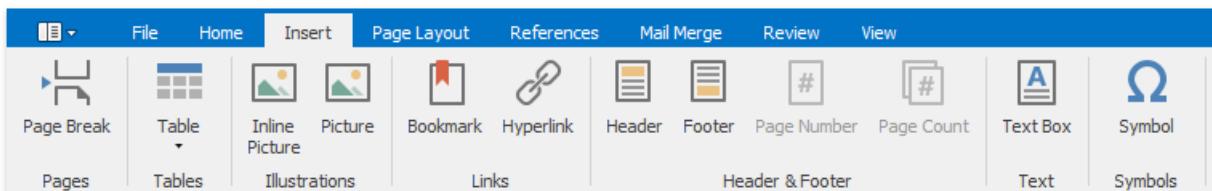
- Create a New Document
- Load a Document
- Save a Document
- Print a Document
- Undo and Redo Last Operations
- Set Document Properties

Home



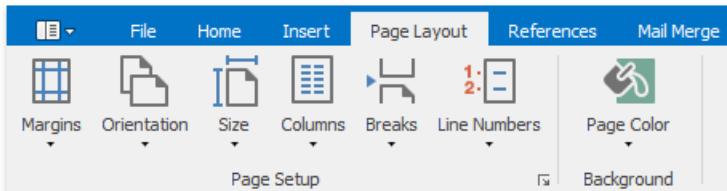
- Use a Clipboard
- Format Text
- Format Paragraphs
- Apply and Modify Styles
- Find and Replace Text

Insert



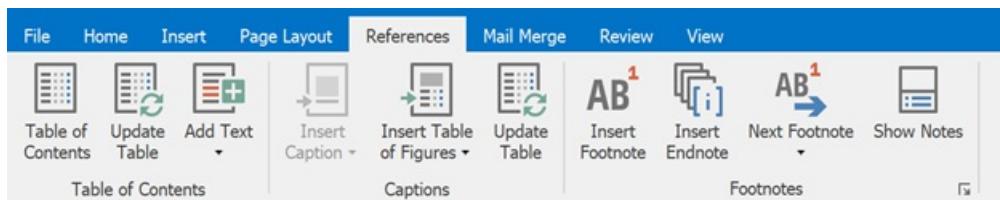
- Insert a Page Break
- Insert a Table
- Insert a Picture
- Insert a Bookmark
- Insert a Hyperlink
- Header and Footer
- Insert Page Numbers
- Insert, Select, Copy or Delete a Text Box
- Insert a Symbol

Page Layout



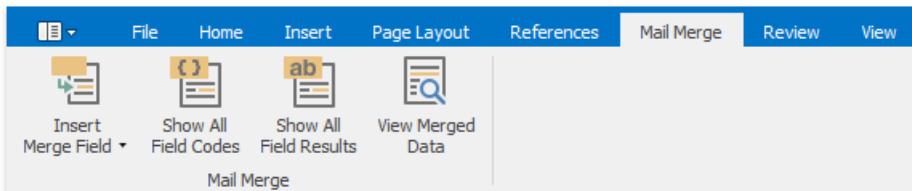
- Adjust Page Settings
- Lay Out Text in Columns
- Insert a Page Break
- Divide a Document into Sections
- Add Line Numbers
- Change Page Background Color

References



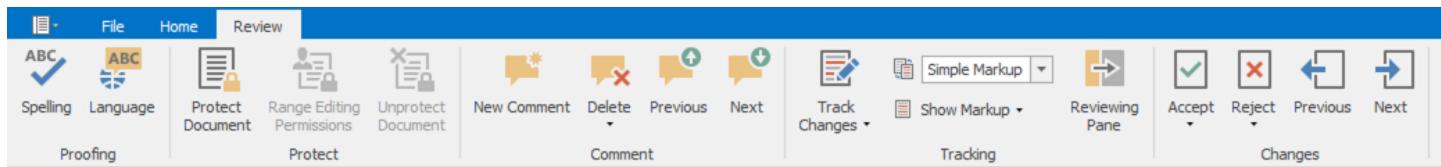
- Create a Table of Contents
- Create Table of Contents for Special Cases
- Update Table of Contents

Mail Merge



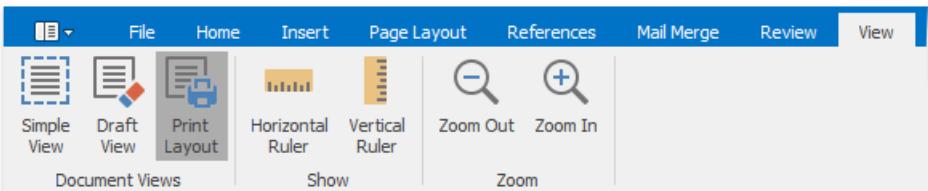
Mail Merge

Review



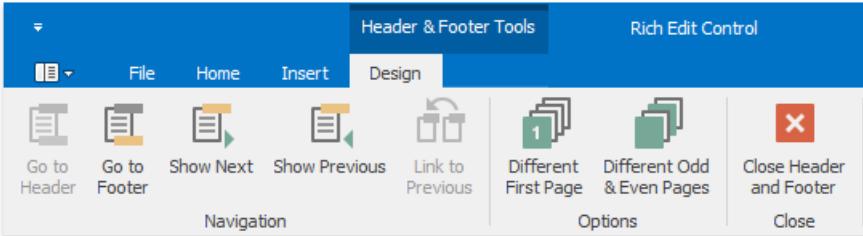
- Check Text Spelling
- Protect and Unprotect a Document
- Insert a Comment
- Enable Track Changes
- Accept and Reject Changes

View



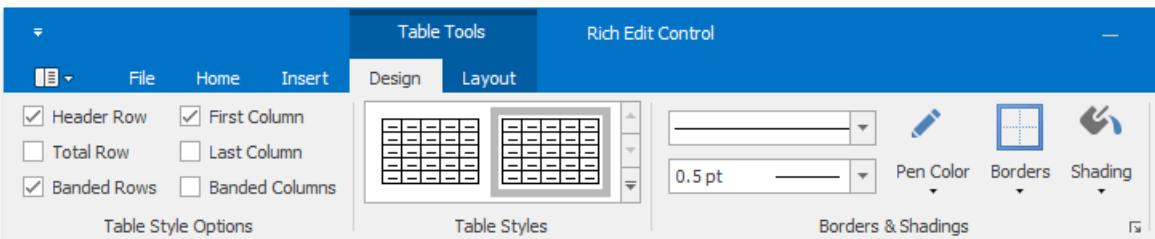
- Switch Document Views
 - Show Rulers
 - Zoom a Document

Header & Footer Tools / Design



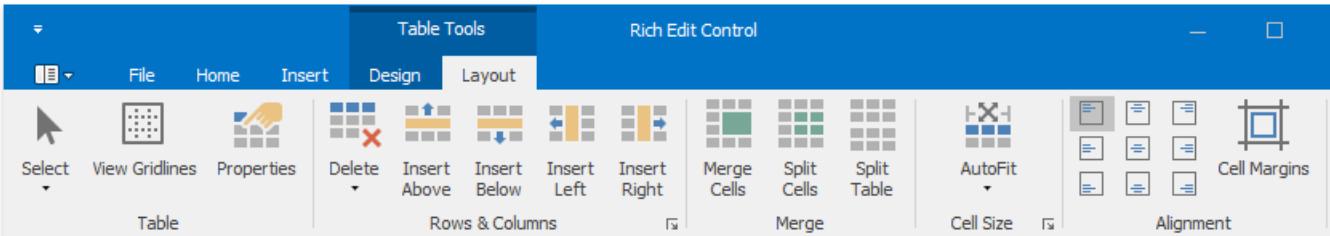
Header and Footer

Table Tools / Design



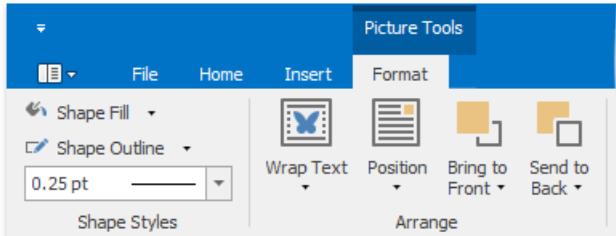
- Select a Cell, Row or Column
 - Set Table Properties
 - Insert a Cell, Row or Column
 - Delete a Cell, Row or Column
 - Merge or Split Cells
 - Adjust Column Width
 - Align Text in Table Cells

Table Tools / Layout



- Add and Remove Table Borders
 - Customize a Style of Cell Borders
 - Set Background Color of Cells

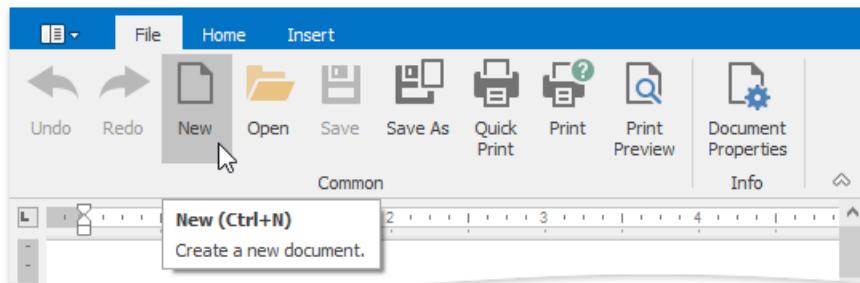
Picture Tools / Format



- Add, Change or Delete a Border for a Picture or Text Box
- Add, Change or Delete a Text Box Fill
- Wrap Text around a Picture or Text Box
- Move a Picture or Text Box

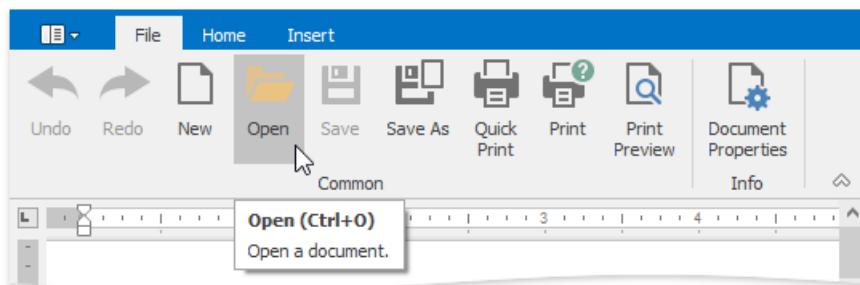
Create a New Document

To create a new empty document, on the **File tab**, in the **Common** group, use the **New** button, or the **CTRL+N** keyboard shortcut.

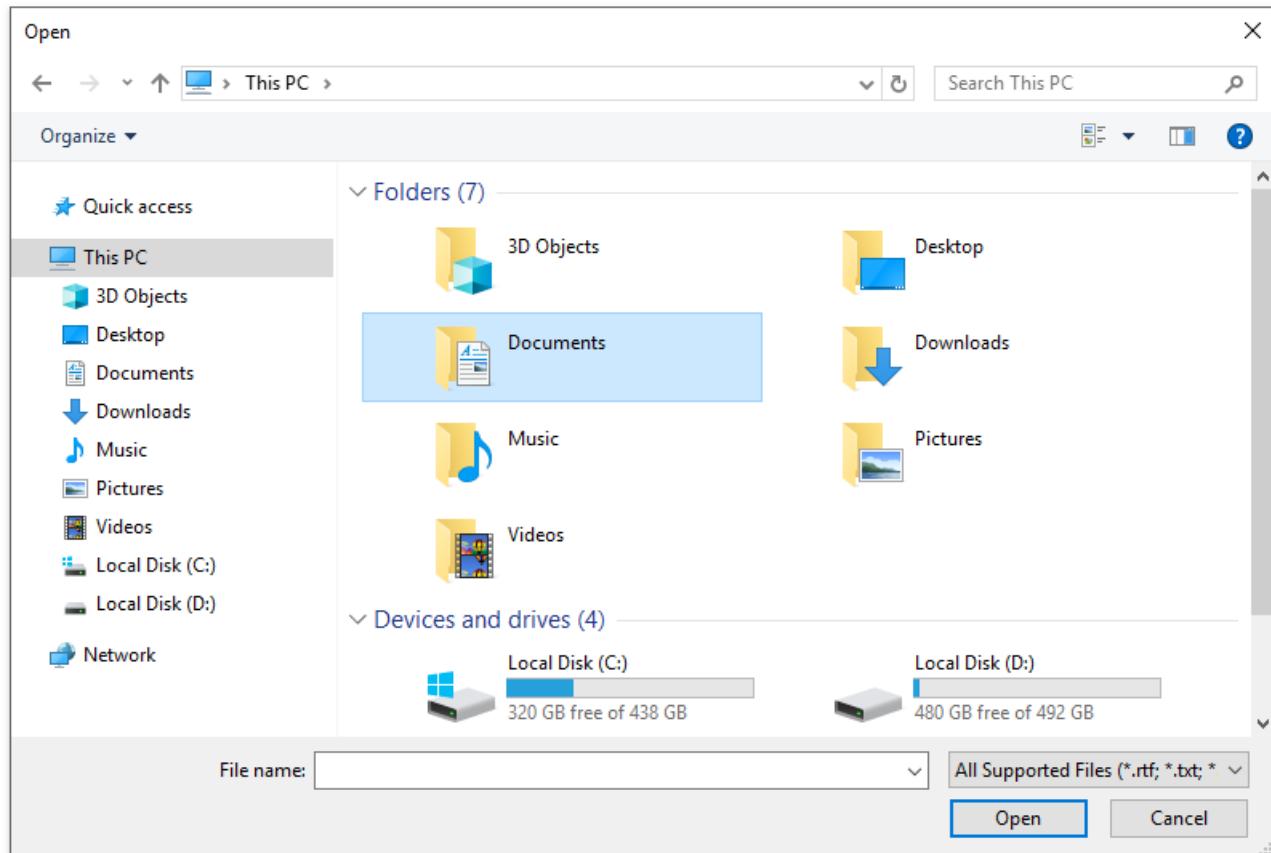


Load a Document

To load a document, on the **File** tab, in the **Common** group, click the **Open** button, or use the **CTRL+O** keyboard shortcut.



The **Open** dialog appears, allowing you to select a file.



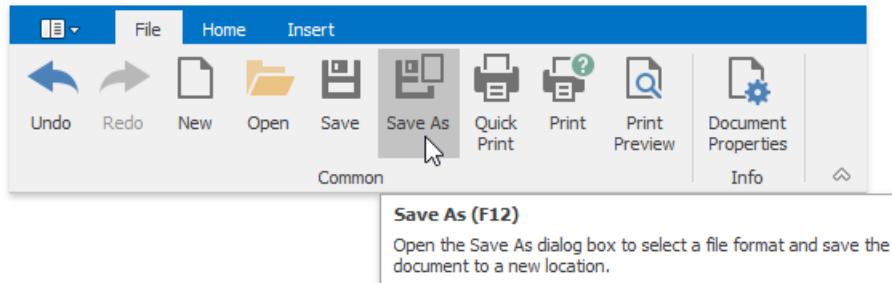
The **Rich Editor** enables you to open documents of the following types:

- Rich Text Format (*.rtf)
- Text Files format (*.txt)
- Hyper Text Markup Language format (*.htm, *.html)
- web page archive format (*.mht)
- Microsoft Word 97-2003 format (*.doc)
- WordML (*.xml)
- Open Office XML format (aka Office 2007 or *.docx)
- Open Document Format (*.odt)
- Electronic Publication (*.epub)

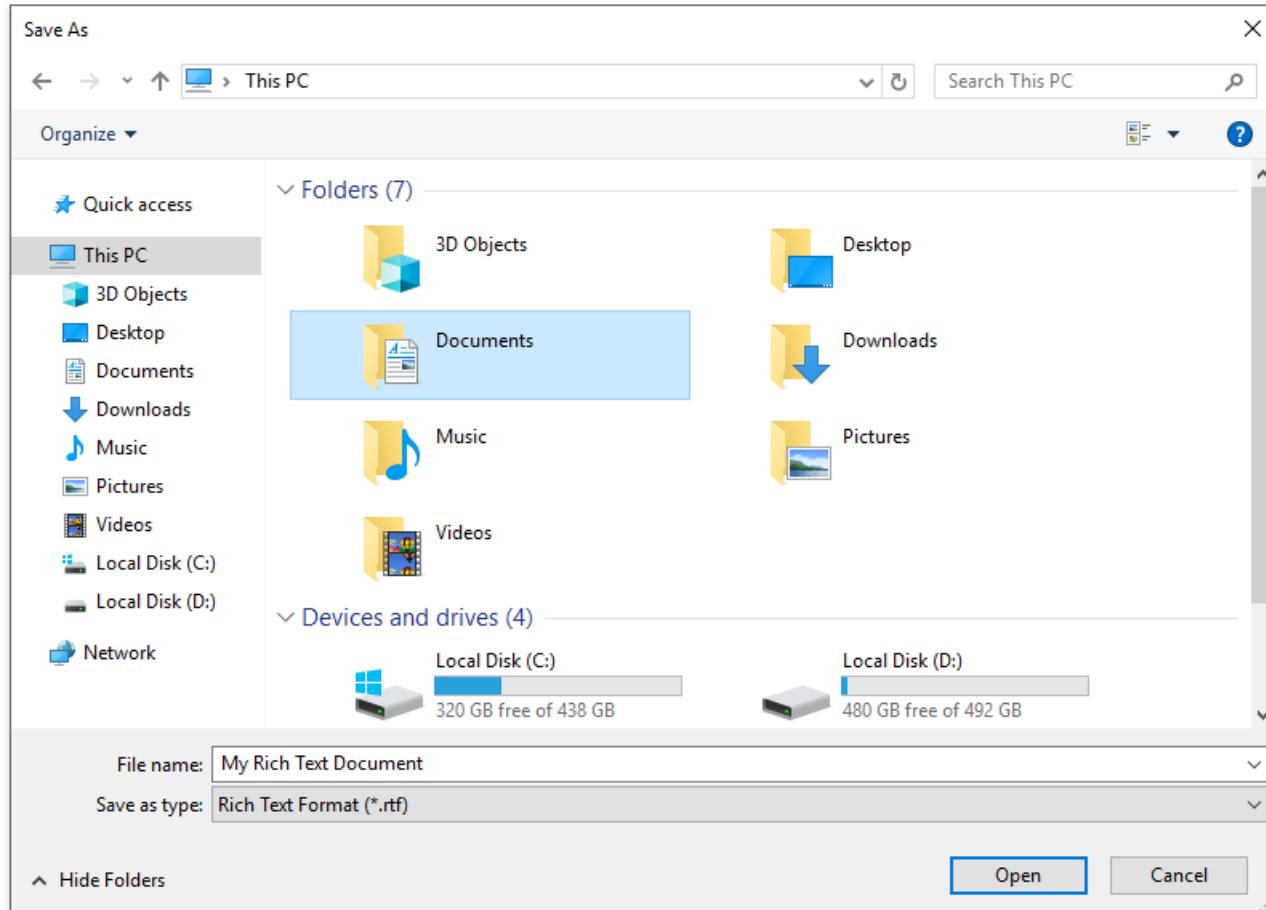
Save a Document

To save a document, on the **File tab**, in the **Common** group, click the **Save** button or use the **CTRL+S** keyboard shortcut. This allows you to save a document using the save parameters that were previously set.

If you want to save a document using another file name or to modify other parameters (e.g. file format or location), on the **File tab**, in the **Common** group, click the **Save As** button or press the **F12** key.



After that, the **Save As** dialog will appear. Note that the same dialog appears if you click the **Save** button to save a document, which has been never saved before.



In this dialog you can specify document name, document format and the location to which the document should be saved. The **Rich Text Editor** allows you to save documents in the following formats:

- Rich Text Format (*.rtf)
- Text Files format (*.txt)
- Hyper Text Markup Language format (*.htm, *.html)
- web page archive format (*.mht)
- Microsoft Word 97-2003 format (*.doc)
- WordML (*.xml)
- Open Office XML format (aka Office 2007 or *.docx)

- Open Document Format (*.odt)
- Electronic Publication (*.epub)

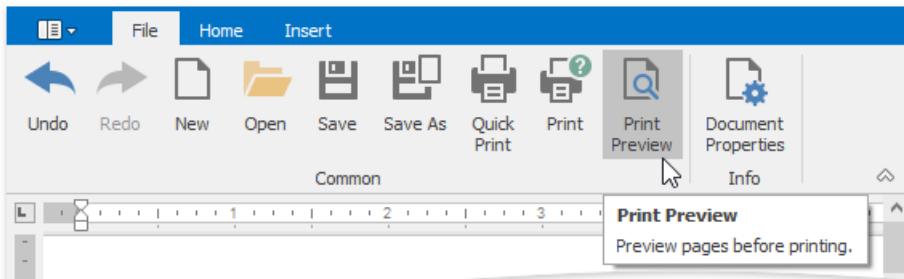
NOTE

When saving a document in HTML format, in-line pictures are saved in the %FileName%_files folder, where %FileName% is the name of the document file. Image files are named "imageN.png", where N is the picture index starting from the beginning of the document.

Print a Document

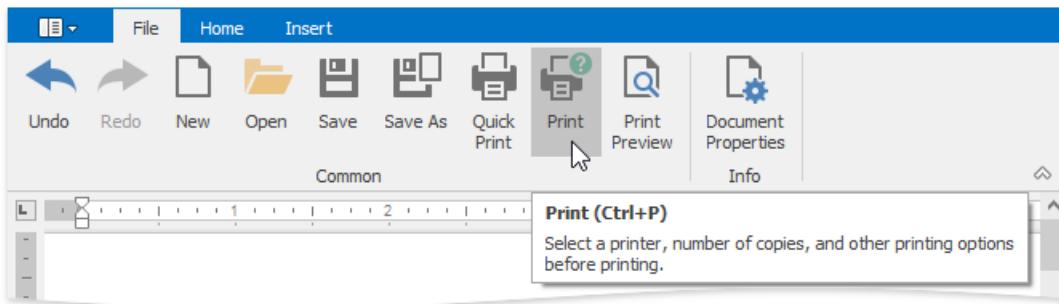
Preview a Document Before Printing

To display the document as it will look when printed, on the **File tab**, in the **Common** group, click the **Print Preview** button.



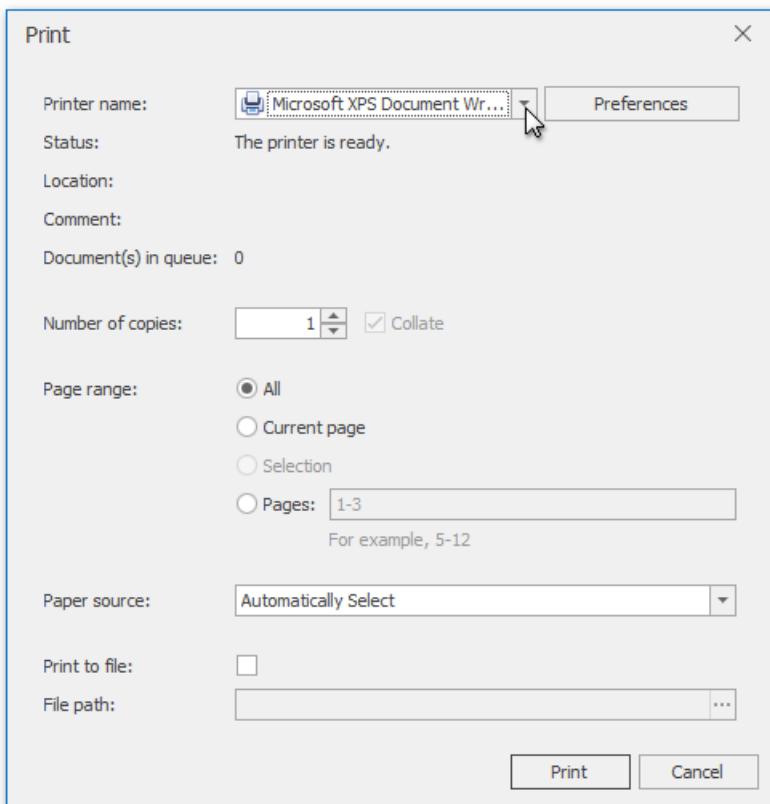
Print a Document

1. On the **File tab**, in the **Common** group, click the **Print** button...



...or press **CTRL+P**.

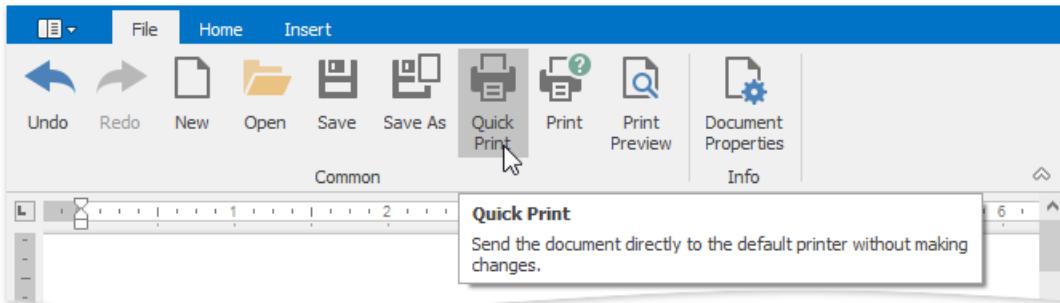
The **Print** dialog will be invoked.



2. In the **Print** dialog, specify all required settings and click **Print**.

Print a Document Using Default Settings

To send a document directly to the default printer without customizing print settings, on the **File** tab, in the **Common** group, click the **Quick Print** button.



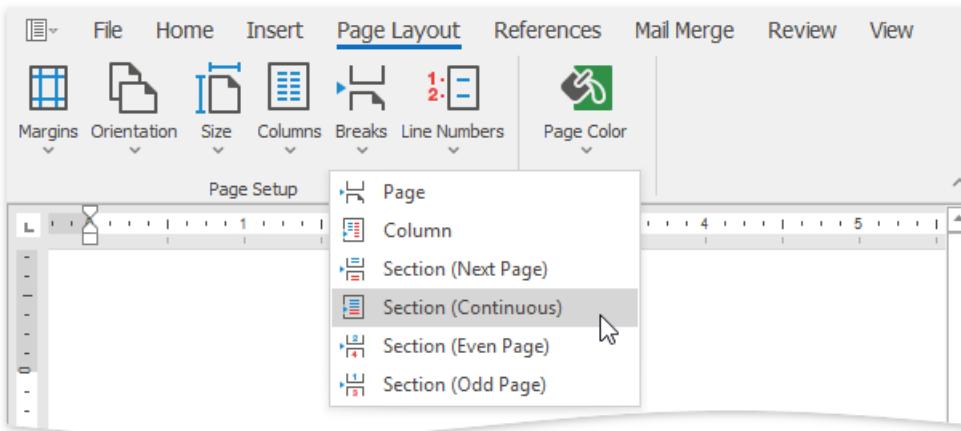
Divide a Document into Sections

You can divide your document into sections to specify parts of a document that have different [page settings](#) (page margins, page orientation, paper size), [column layouts](#), [line numbering](#) and [headers and footers](#).

Insert Section Breaks

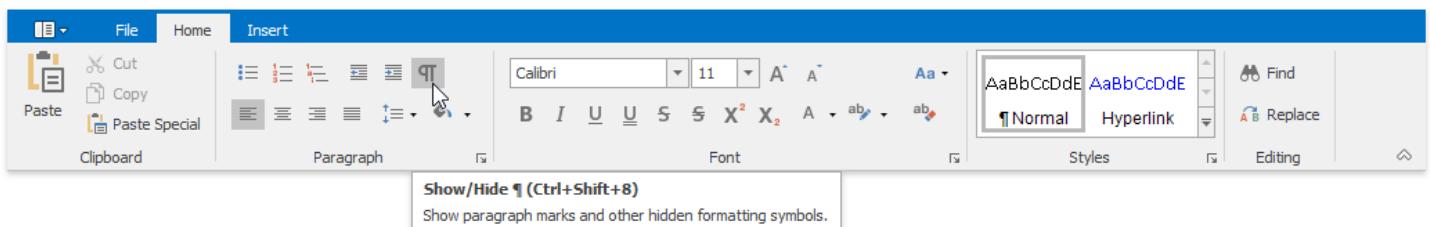
To divide a document into sections, insert section breaks.

1. Click where you want to inset a section break within a document.
2. On the **Page Layout tab**, in the **Page Setup** group, click the **Breaks** button and select one of the following types of section breaks.



- o **Column** - starts a new section on the next column on the page.
- o **Next Page** - inserts a section break and starts a new section on the next page.
- o **Continuous** - starts the new section on the same page.
- o **Even Page** - inserts a section break and starts a new section on the next even-numbered page.
- o **Odd Page** - inserts a section break and starts a new section on the next odd-numbered page.

To show the section break mark, press **CTRL+SHIFT+8** or on the **Home tab**, in the **Paragraph** group, click the **Show/Hide Paragraph** button.



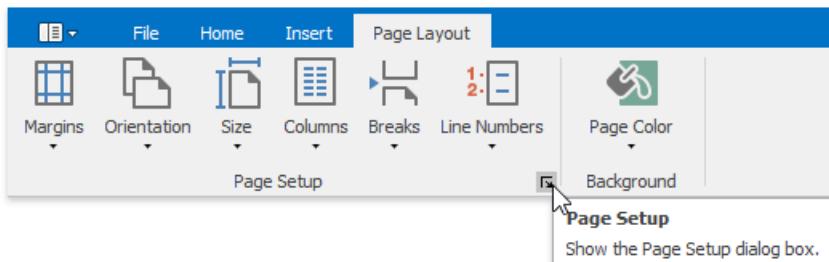
In a document, section breaks are marked as illustrated below.

The screenshot shows a Microsoft Word document window. The document contains a single paragraph of text. Below the paragraph, there is a horizontal dashed line with the text "Page Break" centered above it. The Word ribbon is visible at the top, and the left margin shows a vertical ruler with numerical markings from 1 to 6.

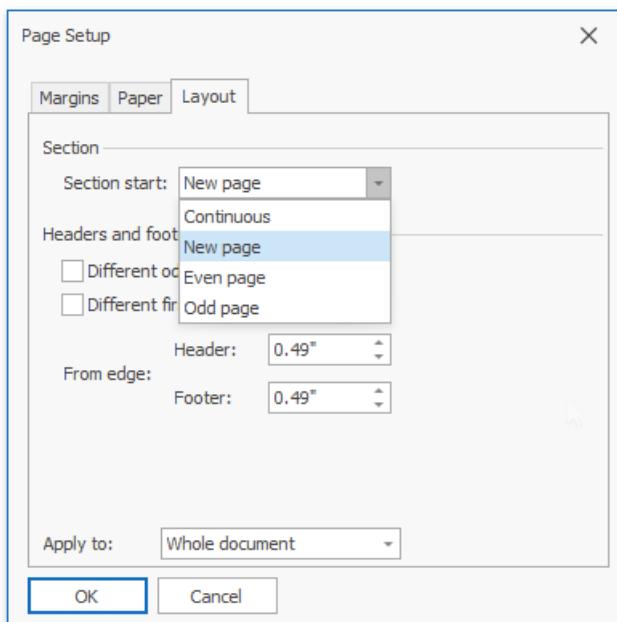
Change Section Break Type

You can change the type of the section break that has been inserted to start a section. To do this, follow the instructions below.

1. Click the section following the section break that you wish to change.
2. Invoke the **Page Setup** dialog by clicking the dialog box launcher.



3. Change the **Section start** property on the **Layout** tab as required.

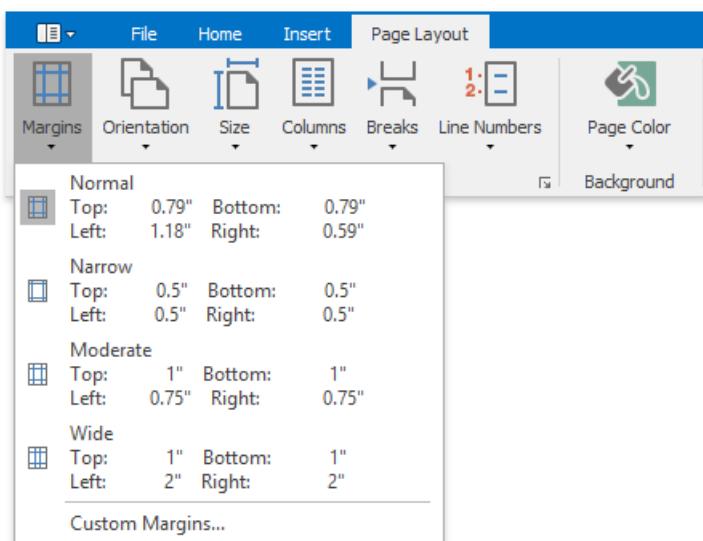


Adjust Page Settings

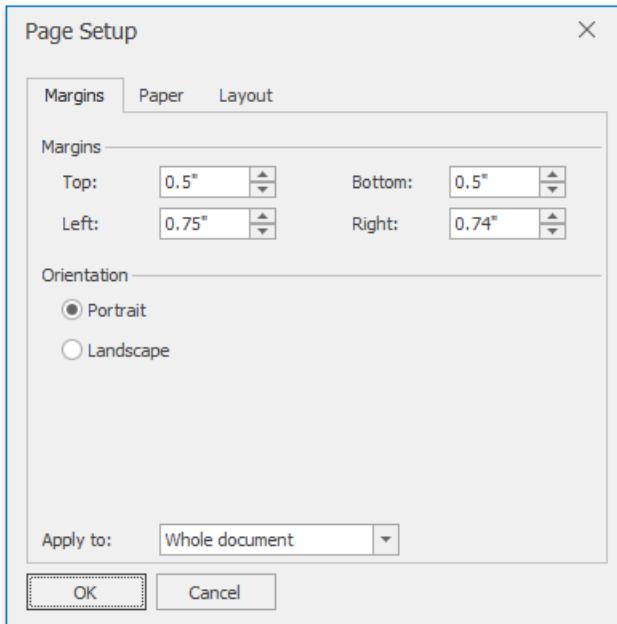
When changing page layout settings (such as [page margins](#), [page orientation](#), [paper size](#)), you can apply them to the whole document or set specific page layout settings for each individual section if your [document is divided into sections](#).

Change Page Margins

1. Click within a [section](#) whose page margins you wish to set.
2. On the **Page Layout tab**, in the **Page Setup** group, click the **Margins** button and select the margin sizes to be set for the current section from the invoked list...

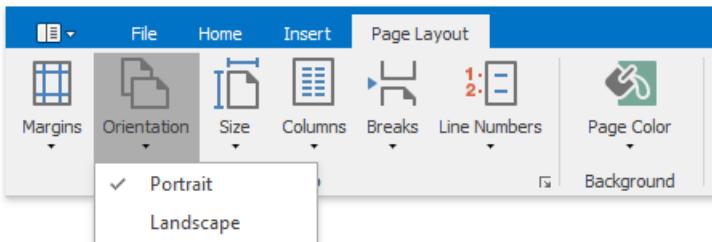


... or specify page margins for the current section or the whole document via the **Page Setup** dialog. To invoke the dialog, click the **Page Setup** dialog box launcher.



Change Page Orientation

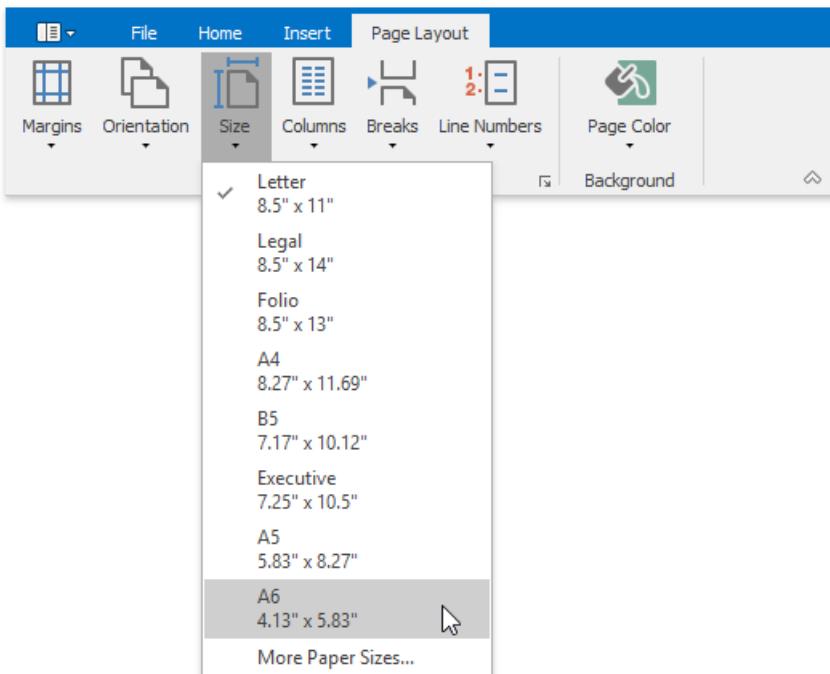
1. Click within a [section](#) for which you wish to specify page orientation.
2. On the **Page Layout tab**, in the **Page Setup** group, click the **Orientation** button and select **Portrait** or **Landscape** from the invoked list...



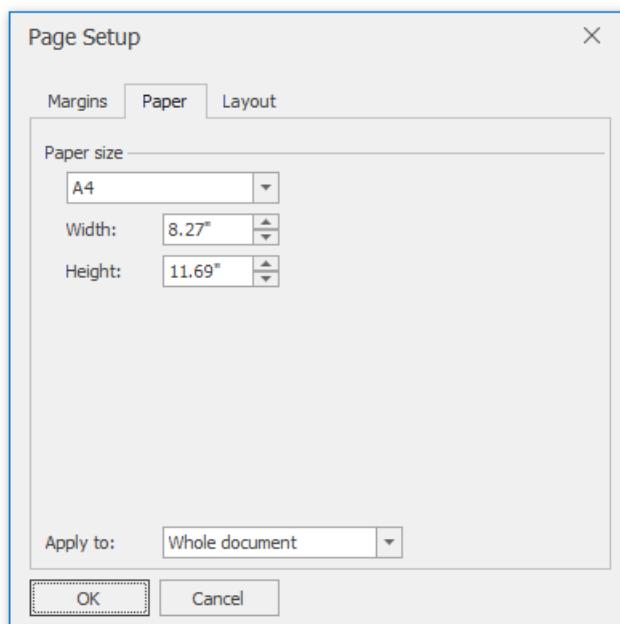
... or set the page orientation for the current section or the whole document on the **Margins** tab of the **Page Setup** dialog.

Change Paper Size

1. Click within a [section](#) for which you wish to set the paper size.
2. Click the **Size** button on the **Page Layout** tab and select one of the standard paper sizes from the invoked list...



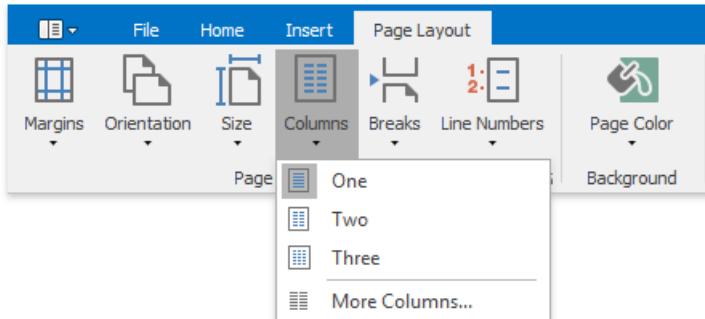
... or specify the paper size for the current section or the entire document on the **Paper** tab of the **Page Setup** dialog.



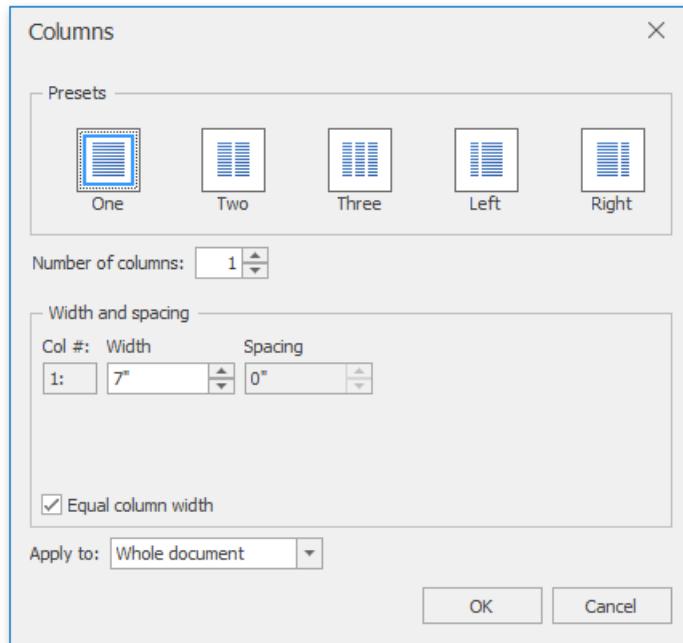
Lay Out Text in Columns

To split a text into columns, follow the steps below.

1. Click within a [section](#) which you wish to lay out in several columns.
2. On the **Page Layout tab**, in the **Page Setup** group, click the **Columns** button and select the number of columns into which the text should be split...

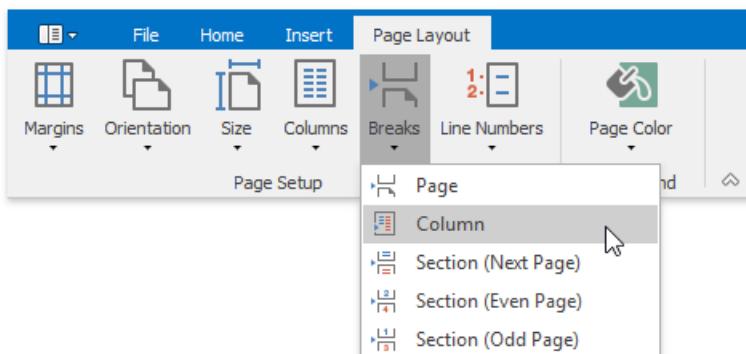


... or click **More Columns** to invoke the **Columns** dialog where you can adjust columns layout of the text in a more flexible way for the current section or the whole document.



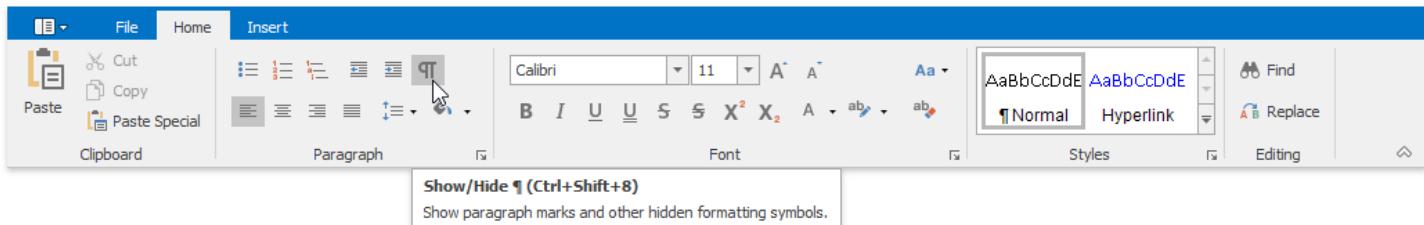
To move the text to the next column (if the text in the current section is laid out into multiple columns), insert a column break.

1. Click within a document where you wish to insert a column break.
2. On the **Page Layout tab**, in the **Page Setup** group, click the **Breaks** button and select **Column** from the invoked list...

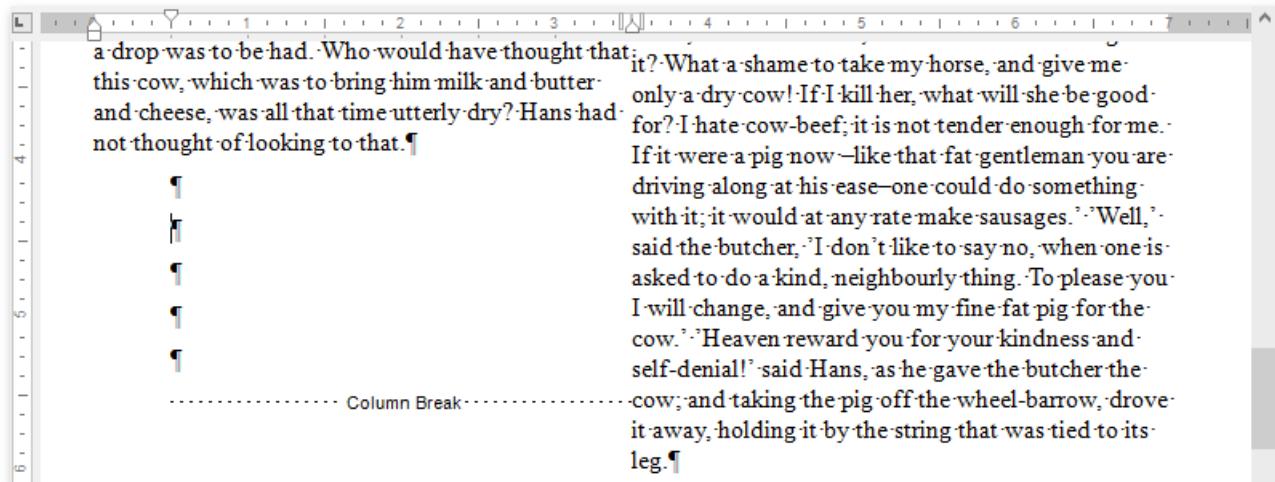


... or press **CTRL+SHIFT+ENTER**.

To show the column break mark, press **CTRL+SHIFT+8** or click the **Show/Hide Paragraph** button on the **File** tab.



In a document, column breaks are marked as illustrated below.

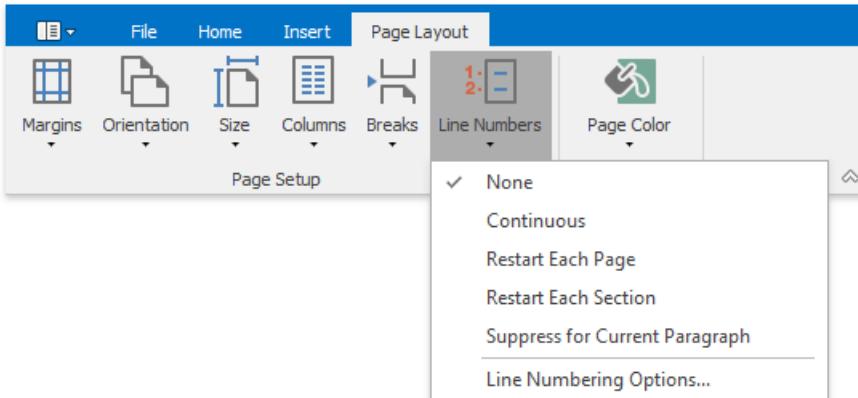


Add Line Numbers

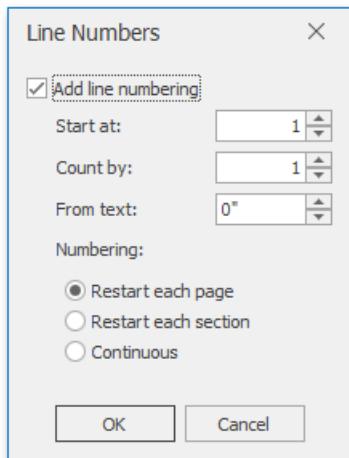
1. To add line numbers to a whole document, [select the entire document](#) if your document is divided into multiple [sections](#). If your document consists of one section only, simply click anywhere within a document.

To add line numbers to a particular section or multiple sections, click a section or select multiple sections.

2. On the **Page Layout** tab, in the **Page Setup** group, click **Line Numbers** and select one of the available line numbering types from the invoked list...

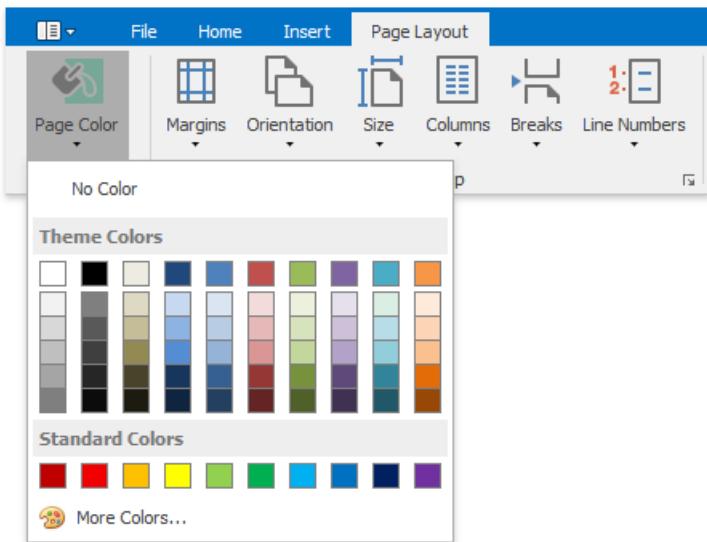


...or click **Line Numbering Options** to invoke the **Line Numbers** dialog that you can use to adjust line numbering options in a more flexible way (specify the value to be used for the first line - **Start at**, increment value for line numbering - **Count by**, distance between line number and the start of the text line - **From text**).



Change Page Background Color

On the **Page Layout** tab, in the **Background** group, click **Page Color** and select the required color for the background of the document pages.



Navigate through a Document

You can navigate through a document in the following ways:

- Use the mouse device to click anywhere in the document;
- Use the mouse device to drag the scroll box to move through the document;
- Rotate the wheel button to scroll up and down the document;
- Use keyboard shortcuts.

The following table lists the default keyboard shortcuts to navigate through a document.

KEYBOARD SHORTCUT	EFFECT
LEFT ARROW	Moves the cursor to the previous character.
RIGHT ARROW	Moves the cursor to the next character.
UP ARROW	Moves the cursor to the previous line.
DOWN ARROW	Moves the cursor to the next line.
HOME	Moves the cursor to the start of the current line.
END	Moves the cursor to the end of line.
PAGE UP	Moves the cursor backward by the number of lines in the current control's window, minus one.
PAGE DOWN	Moves the cursor forward by the number of lines in the current control's window, minus one.
CTRL+LEFT ARROW	Moves the cursor to the previous word.
CTRL+RIGHT ARROW	Moves the cursor to the next word.
CTRL+UP ARROW	Moves the cursor to the beginning of the previous paragraph.
CTRL+DOWN ARROW	Moves the cursor to the beginning of the next paragraph.
CTRL+HOME	Moves the cursor to the start of the document, and scrolls the document to show the cursor position.
CTRL+END	Moves the cursor to the end of the document, and scrolls the document to show the cursor position.
CTRL+PAGE UP	Moves the cursor to the beginning of the previous page.
CTRL+PAGE DOWN	Moves the cursor to the beginning of the next page.

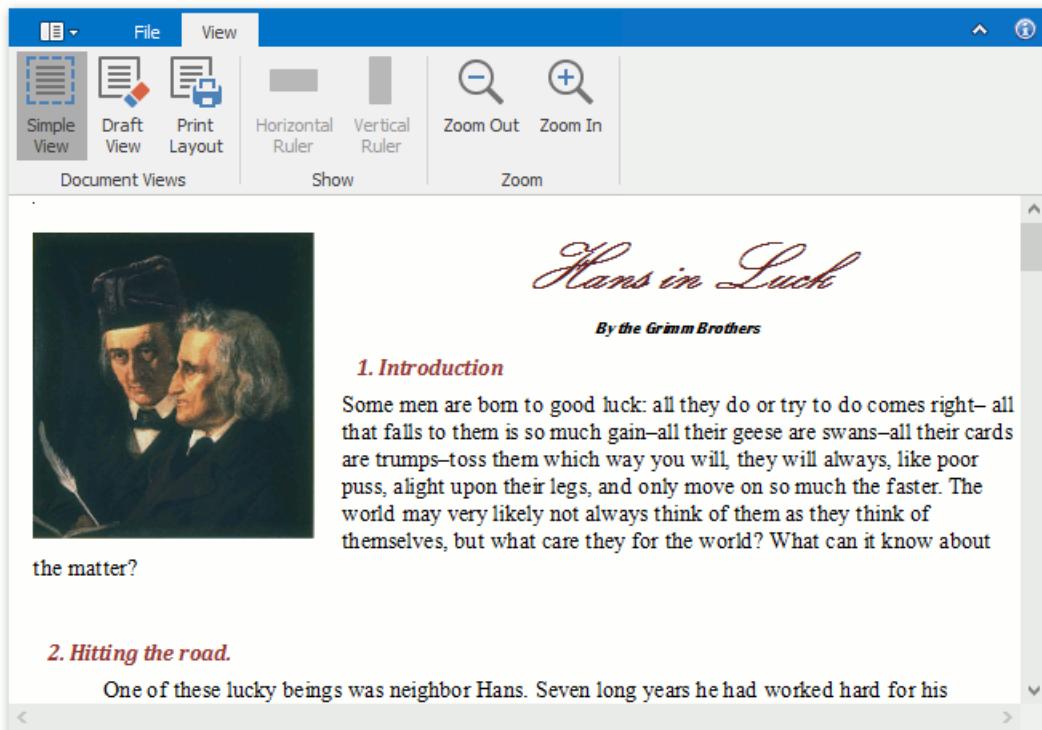
Switch Document Views

The **Rich Edit** control provides a number of document views that you can switch depending on what you want to do.

Simple View

A simple view shows a document without a page layout. This view can be useful when you want to concentrate on text editing.

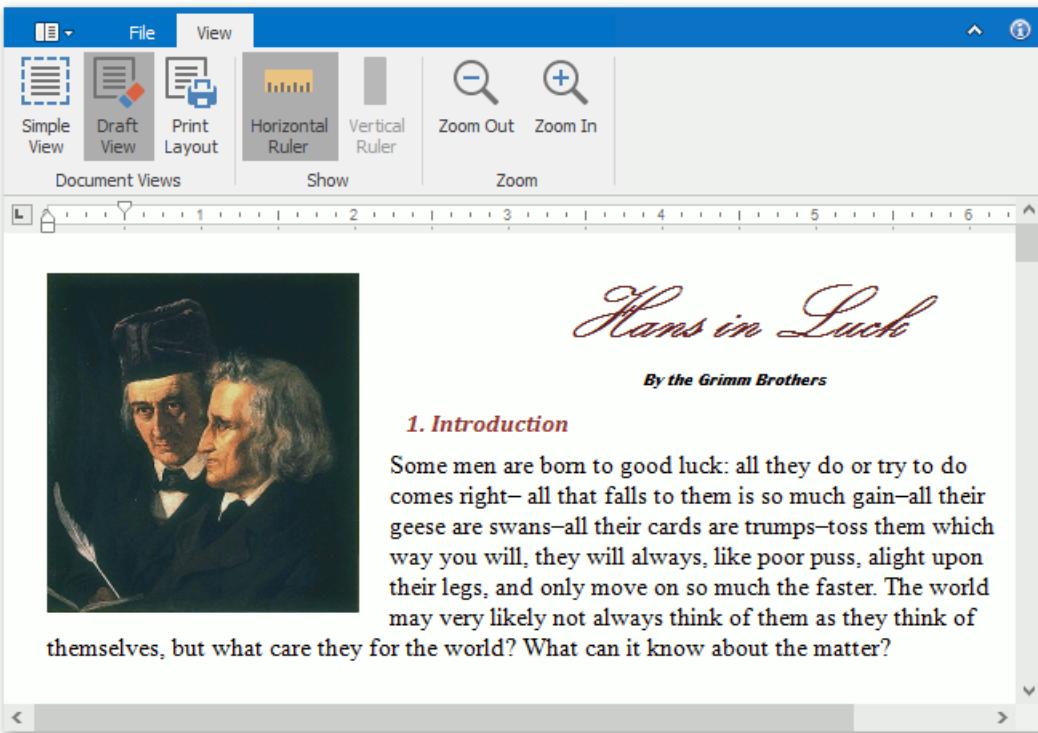
To enable this view, on the **View tab**, in the **Document Views** group, click the **Simple View** button.



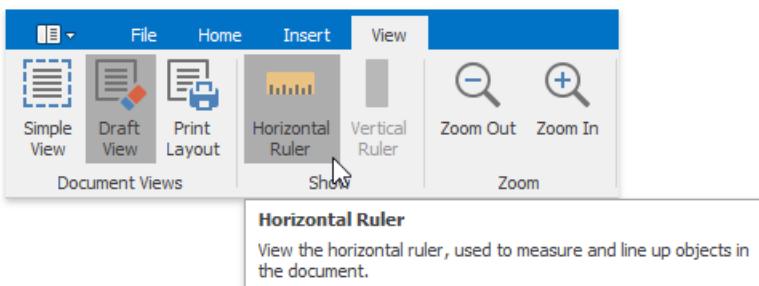
Draft View

The draft view is a view without pagination. It does not display complex formatting features that are most appropriate to the page layout. You can use it for the simplest representation of the document, as well as quick text editing.

To enable this view, on the **View tab**, in the **Document Views** group, click the **Draft View** button.



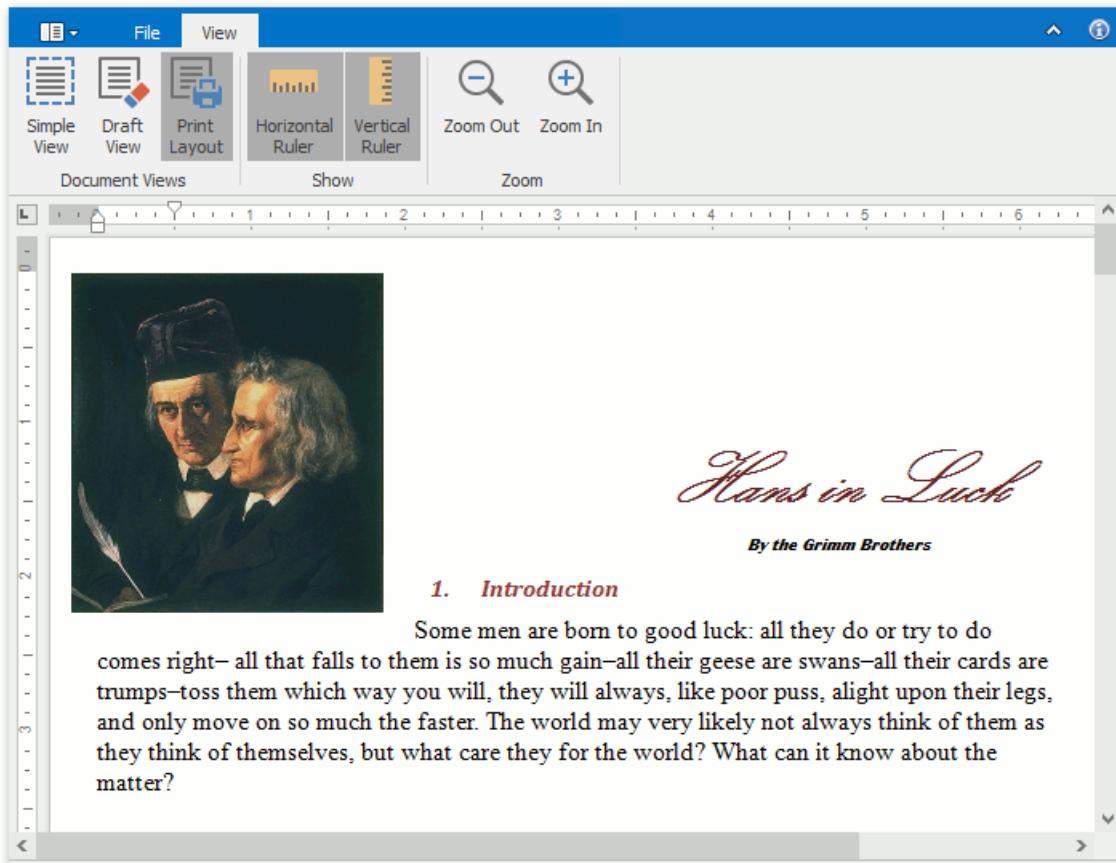
In draft view the horizontal ruler is available. To show or hide it, click **Horizontal Ruler** on the **View** ribbon tab.



Print Layout View

The print layout view is intended to display all formatting in the document, including complex formatting, and can be used to preview the document printout.

To enable this view, on the **View tab**, in the **Document Views** group, click the **Print Layout** button.



When the print layout view is active, the horizontal and vertical rulers are available. To show or hide horizontal and vertical rulers, on the **View** tab, in the **Show** group, click the **Horizontal Ruler** and **Vertical Ruler** buttons, respectively.

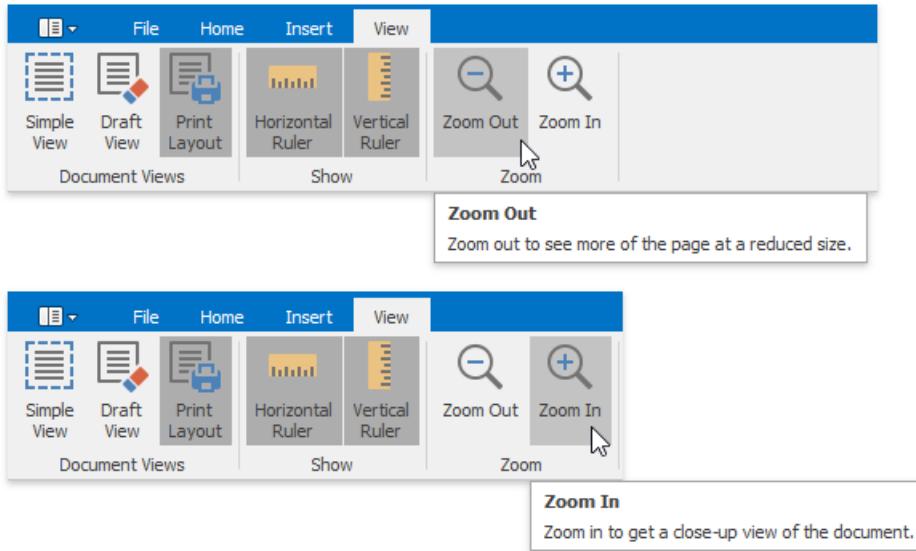
Horizontal Ruler
View the horizontal ruler, used to measure and line up objects in the document.

Vertical Ruler
View the vertical ruler, used to measure and line up objects in the document.

Zoom a Document

You can zoom in and out of a document in the following ways:

- On the **View tab**, in the **Zoom** group, click the **Zoom In** and **Zoom Out** buttons.



- Hold the **CTRL** button and rotate your mouse wheel.

Select Text

To select text in the **Rich Editor**, use the following mouse actions and keyboard shortcuts.

- Selecting **one character**

To select only one character, click before the character, hold down the **Shift** key and click the **Right Arrow** once.

- Selecting **one word**

To select one word in a document, place the cursor anywhere in the word (or just before it) and **double-click** with the left mouse button. Another method is to place your cursor at the beginning of the word, hold down the **Shift** and **Ctrl** keys, and click the **Right Arrow**.

- Selecting **one paragraph**

Selecting one paragraph is similar to selecting one word. Place the cursor in the paragraph and click **three times** with the left mouse button. Another method is to place the cursor in the left margin and **click twice** to highlight the whole paragraph.

- Selecting **entire document**

Click **three times** on the left side of the page in the margin area, and the entire document will be highlighted. Also, the **CTRL+A** keyboard shortcut can be used to highlight the entire document.

- Selecting **one line**

The cursor in the margin will highlight one line with one click. Another method is to place the cursor at the beginning of the line, and use the **SHIFT+END** keyboard shortcut to extend selection to the end of the line. Similarly, at the end of the line the **SHIFT+HOME** keyboard shortcut can be used.

The following table lists the default keyboard shortcuts used for selecting text in the **Rich Editor**.

SHIFT+LEFT ARROW	Extends the selection to the previous character.
SHIFT+RIGHT ARROW	Extends the selection to the next character.
SHIFT+UP ARROW	Extends the selection to the previous line.
SHIFT+DOWN ARROW	Extends the selection one line down.
SHIFT+HOME	Extends the selection to the beginning of the line.
SHIFT+END	Extends the selection to the end of the current line.
SHIFT+PAGE UP	Extends selection to the previous screen.
SHIFT+PAGE DOWN	Extends the selection to the next screen.
CTRL+SHIFT+LEFT ARROW	Extends the selection to the previous word.
CTRL+SHIFT+RIGHT ARROW	Extends the selection to the next word.
CTRL+SHIFT+UP ARROW	Extends the selection to the previous paragraph.

CTRL+SHIFT+DOWN ARROW	Extends the selection to the next paragraph.
CTRL+SHIFT+HOME	Extends the selection to the beginning of the document.
CTRL+SHIFT+END	Extends the selection to the end of the document.
CTRL+SHIFT+PAGE UP	Extends the selection to the previous page.
CTRL+SHIFT+PAGE DOWN	Extends the selection to the next page.
CTRL+A	Selects the entire document.
CTRL+NUM 5	Selects the entire document.

Delete Text

The **Backspace** key deletes one character to the left of the caret. The **Delete** key deletes one character to the right of the caret.

To delete more than just a few characters, [select text](#) and press the **Delete** key.

The following table lists the default keyboard shortcuts used for deleting text.

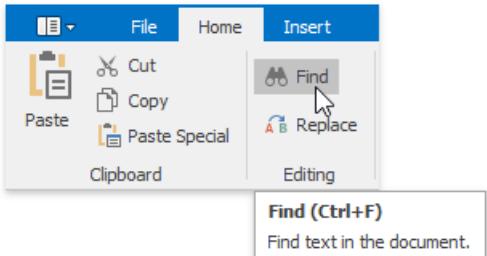
BACKSPACE	Moves the cursor backwards and erases the character in that space.
CTRL+BACKSPACE	Deletes the previous word in the text.
DELETE	Deletes the selected text.
CTRL+DELETE	Deletes the next word in the text.
SHIFT+DELETE	Cuts the selected text and places it on the clipboard.
CTRL+X	Cuts the selected text and places it on the clipboard.

Find and Replace Text

Find Text

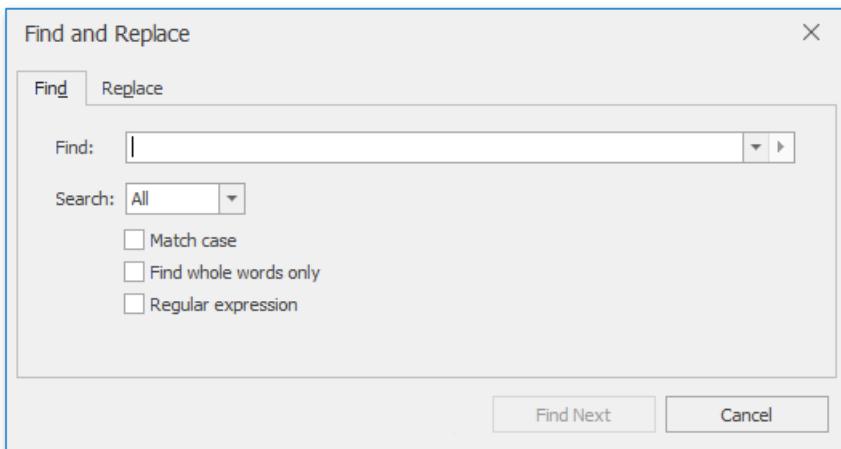
To search for every occurrence of a specific word or phrase:

1. On the **Home tab**, in the **Editing** group, click the **Find** button...



... or press **CTRL+F**.

The **Find and Replace** dialog will be invoked.



2. In the **Find what** box, type the text to search for.
3. Select other search options that you want and click **Find Next**.
4. To cancel a search, click **Cancel** or press **ESC**.

Find and Replace Text

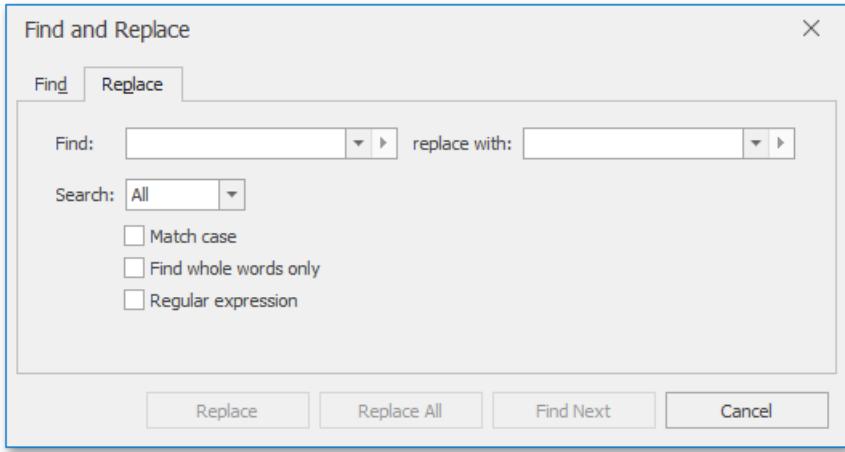
To automatically replace text:

1. On the **Home tab**, in the **Editing** group, click the **Replace** button...



... or press **CTRL+H**.

The **Find and Replace** dialog will be invoked.

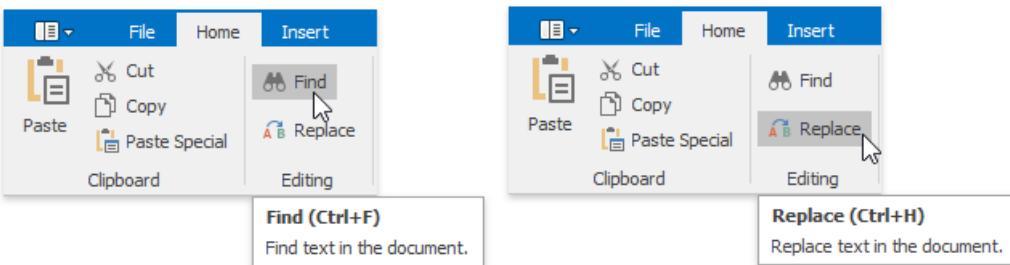


2. In the **Find what** box, type the text to replace.
3. In the **Replace with** box, type the replacement text.
4. Select other search options that you want and click **Find Next**, **Replace** or **Replace All**.

Use Regular Expressions to Find and Replace Text

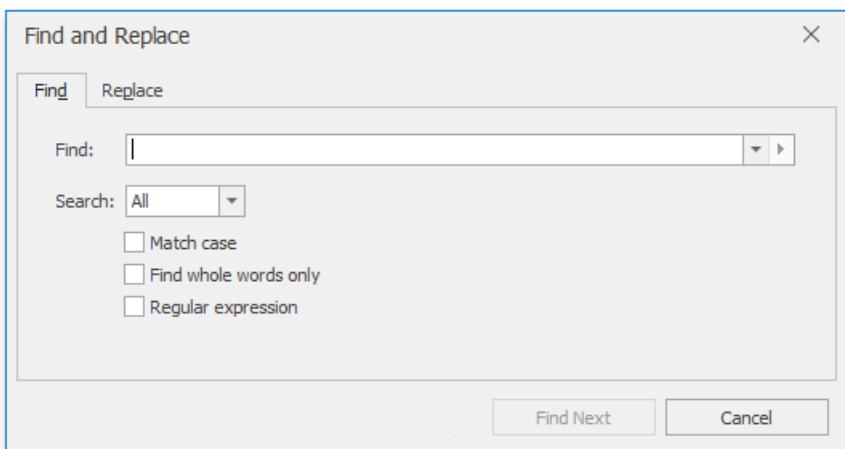
You can use regular expressions to search for specific text containing a particular pattern:

1. On the **Home tab**, in the **Editing group**, click **Find** or **Replace...**

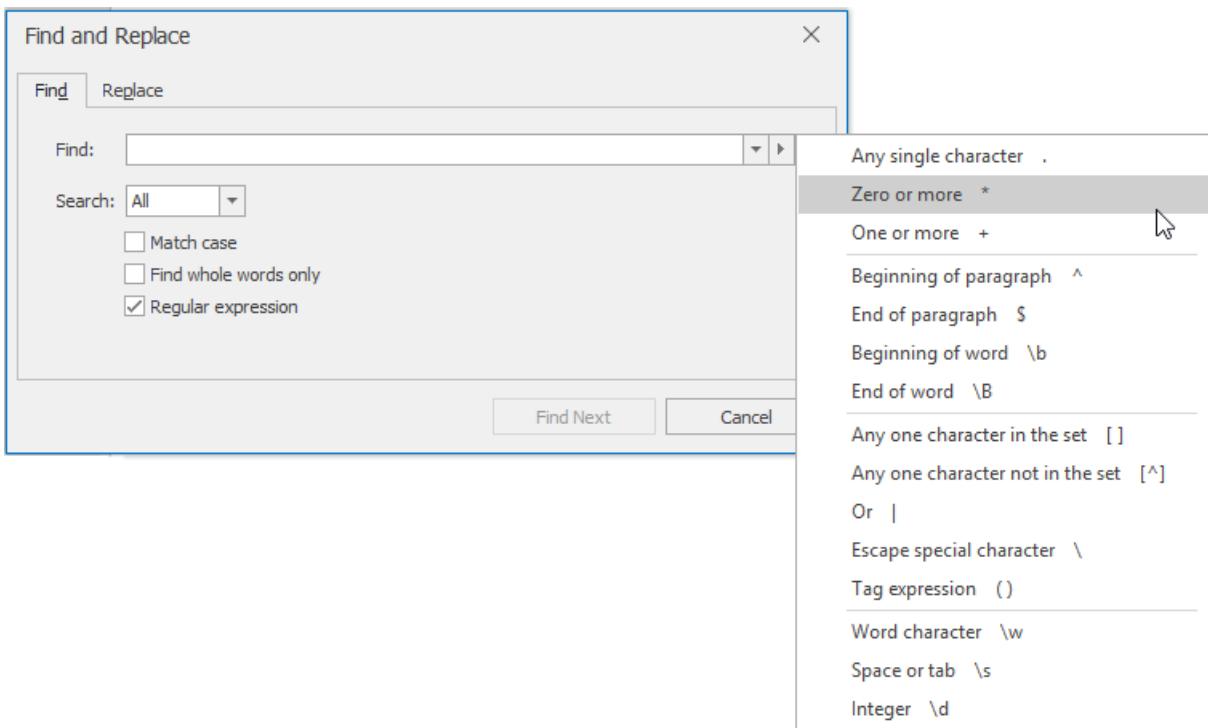


... or press **CTRL+F** or **CTRL+H**.

The **Find and Replace** dialog will be invoked.



2. Select the **Regular expression** check box.
3. In the **Find what** box, enter the regular expression pattern using a list of specific characters:



4. If you want to replace the found text, click the **Replace** tab and enter the replacement text in the **Replace with** box.

NOTE

You can tag various parts of a regular expression to use them in replacement expression (for example, to rearrange the parts of the expression). A regular expression may have up to 9 tagged expressions, numbered according to their order in the regular expression. To enter a tagged expression in the **Replace with** box, enter its index after the symbol \$ or select it from the list of tagged expressions:

The screenshot shows the 'Find and Replace' dialog box with the 'Replace' tab selected. The 'Find' and 'Replace' buttons are visible. A context menu is open over the 'Replace with' field, listing 'Tagged expression 1' through 'Tagged expression 9'. 'Tagged expression 3' is highlighted.

5. Click **Find Next**, **Replace** or **Replace All**.

Use a Clipboard

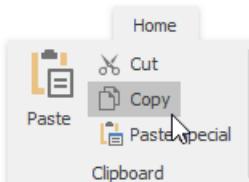
The **Rich Text Editor** allows you to move and copy text and images using the Clipboard.

To move or copy a text or image, follow the steps below.

1. Select the text or image you wish to move or copy.
2. Depending on what you want, do one of the following.
 - o To move the selection, on the **Home tab**, in the **Clipboard** group, click the **Cut** button , or press **CTRL+X**, or press **SHIFT+DELETE**. This cuts the selection from the document and places it on the Clipboard.



- o To copy the selection, on the **Home tab**, in the **Clipboard** group, click the **Copy**, or press **CTRL+C**, or press **CTRL+INSERT**. This copies the selection and places it on the Clipboard.



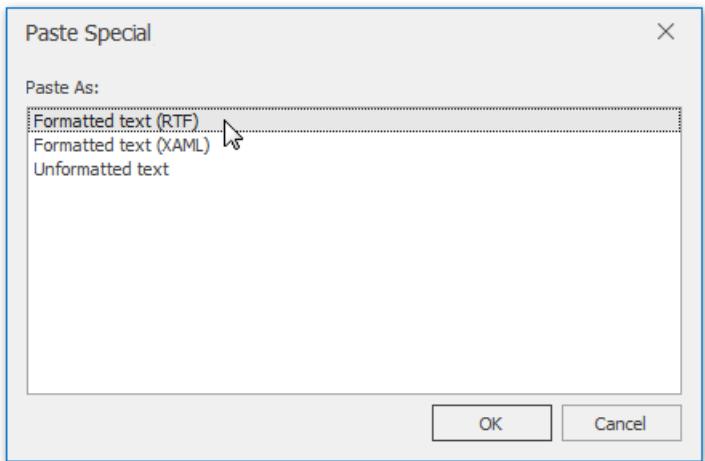
3. Point to the position where you want to insert the contents from the Clipboard.
4. On the **Home tab**, in the **Clipboard** group, click the **Paste** button, or press **CTRL+V**, or press **SHIFT+INSERT**. This pastes the contents of the Clipboard into the document.



You can also choose the format for data contained in the Clipboard and paste it into the document as if that data is imported from the specified format. To do this, on the **Home tab**, in the **Clipboard** group, click the **Paste Special**, or press **CTRL+ALT+V**, ...

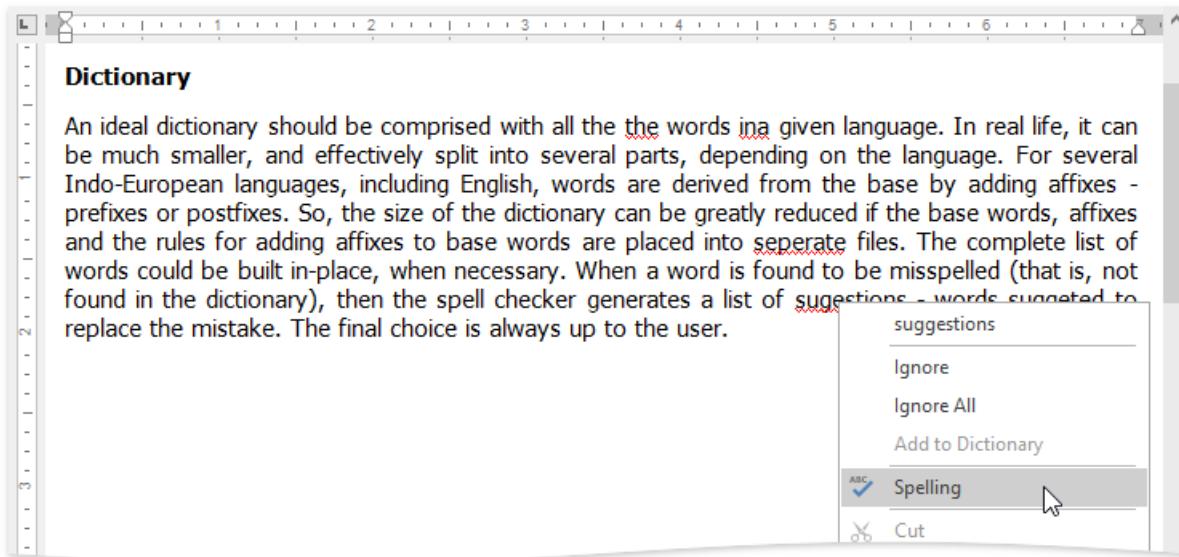


... and select the required data format from the invoked **Paste Special** dialog.



Check Text Spelling

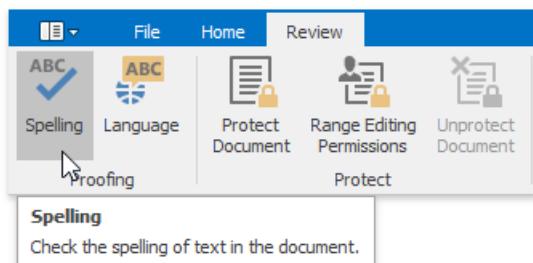
The **Rich Text Editor** supports spell-check. All misspelled words in your document (words that are not found within the available dictionaries in the **Spell Checker**) are underlined. You can work with misspelled words via the context menu, invoked when right-clicking the underlined word.



In the context menu, you can do one of the following:

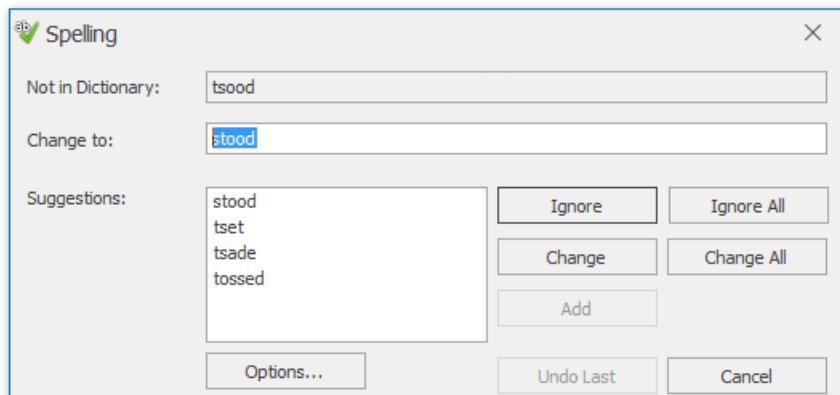
- Select one of the suggested corrections for the misspelled word to correct it;
- Ignore the current occurrence of the word;
- Ignore all occurrences of the word;
- Add the word to the dictionary in the **Spell Checker**.

To perform spell check word-by-word, select the **Check Spelling** item from the context menu, or on the **Review tab**, in the **Proofing** group, click the **Spelling** button ...



... or press **F7**.

The **Spelling** dialog will be invoked.

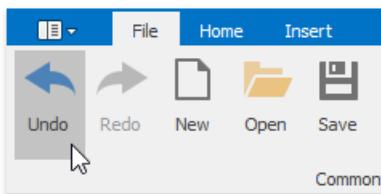


In this dialog, select what to do with the misspelled word, click corresponding button, and you will jump to the next misspelled word.

Undo and Redo Last Operations

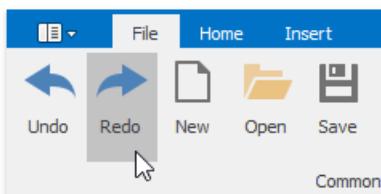
The **Rich Editor** allows you to undo and redo the last operation using the special buttons (**Undo** and **Redo**) on the [File tab](#).

The **Undo** command reverses the most recent action you have performed. To undo an action, on the **File** tab, in the **Common** group, click the **Undo** button, or press **CTRL+Z**, or press **ALT+BACKSPACE**.



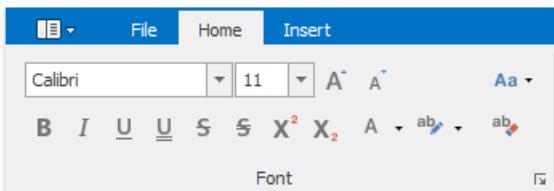
You can execute multiple **Undo** operations. To return the document to its previous state, just keep performing **Undo**.

The **Redo** command enables you to take back the last action you've undone. To redo an action, click the **Redo** button, or press **CTRL+Y**, or press **ALT+SHIFT+BACKSPACE**.

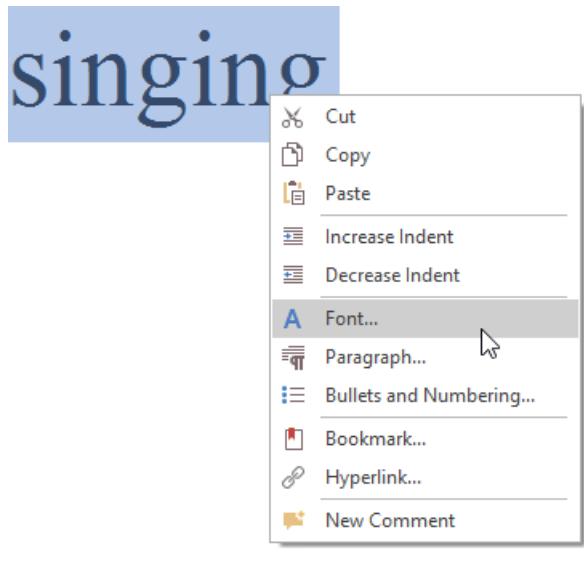


Format Text

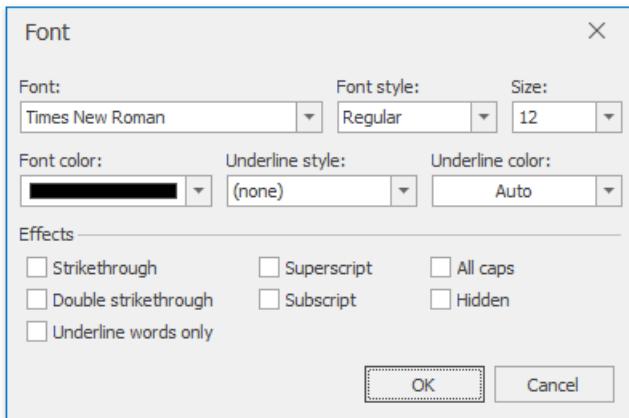
To format text, first **select it** and then use the **Font** page group on the **Home** tab to change the font family, size, color, etc.



Also, you can modify the font using the **Font** dialog. Select the text that you want to format, right-click it and choose the **Font** item from the context menu.



The **Font** dialog appears as illustrated below.



In this dialog, you can specify all required font parameters, and apply them to the selected text.

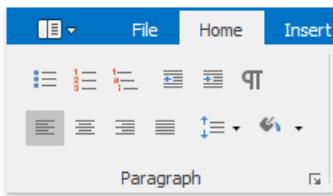
In addition, the **Rich Editor** provides a list of default keyboard shortcuts for text formatting:

CTRL+B	Toggles the bold style on the selection.
CTRL+I	Toggles the italic style on the selection.
CTRL+U	Toggles the underline style on the selection.

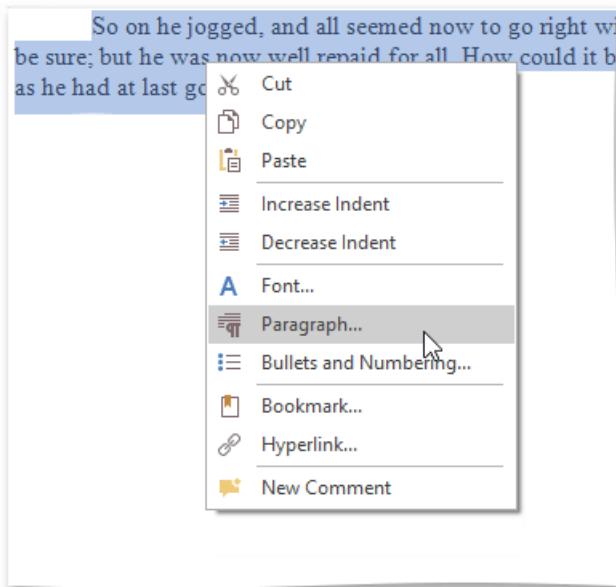
CTRL+D	Invokes the Font dialog that allows you to change the font, size and style of the selected text.
CTRL+PLUS	Toggles the subscript style on the selection.
CTRL+CLOSEBRACKETS ()	Increases the font size of the selected text by one point.
CTRL+OPENBRACKETS (()	Decreases the font size of the selection by one point.
CTRL+SHIFT+PERIOD	Increases the font size of the selection to the closest larger predefined value.
CTRL+SHIFT+COMMA	Decreases the font size of the selection to the closest smaller predefined value.
CTRL+SHIFT+D	Toggles the double underline style on the selection.
CTRL+SHIFT+PLUS	Toggles the superscript style on the selection.
CTRL+SHIFT+H	Toggles between the normal and hidden text mode for the selection. To view the hidden text, press CTRL+SHIFT+8.
CTRL+SPACE	Clears formatting of selected text - resets it to default.

Format Paragraphs

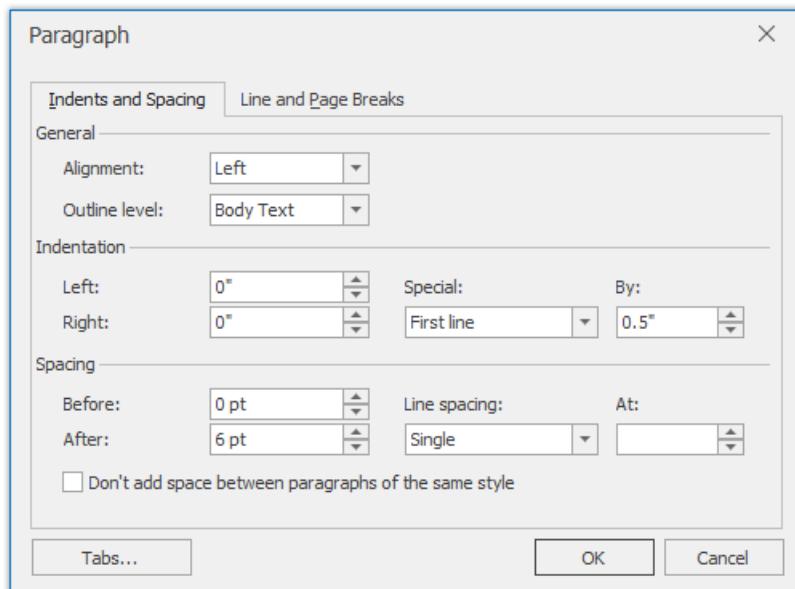
To format a paragraph, first click anywhere within it or **select** the paragraph, and then use the **Paragraph** page group on the **Home** tab to change line spacing, indentation, alignment and styles.



Also, you can use the **Paragraph** dialog to format the paragraph. To invoke this dialog, right-click the paragraph and select the **Paragraph** item from the context menu.



The **Paragraph** dialog appears, as illustrated below.



In this dialog, you can change different parameters for the paragraph (Indents and Spacing tab) and pagination (Line and Page Breaks tab).

The **Rich Editor** provides a list of the default keyboard shortcuts to format paragraphs.

CTRL+1	Formats a current paragraph with single line spacing.
CTRL+2	Formats a current paragraph with double line spacing.
CTRL+5	Formats a current paragraph with one and a half line spacing.
CTRL+E	Toggles centered paragraph alignment on and off.
CTRL+J	Toggles justified paragraph alignment on and off.
CTRL+L	Toggles left paragraph alignment on and off.
CTRL+R	Toggles right paragraph alignment on and off.

Apply and Modify Styles

To format a text or a paragraph you can apply styles. A style is a group of formatting characteristics. All these characteristics are applied to a text or a paragraph at once when you apply a style. Thus, styles allow you to change text and paragraph appearance quicker than setting all formatting characteristics separately ([Format Text](#), [Format Paragraphs](#)).

A **character based style** includes characteristics to format text within a paragraph (e.g., font type and size, bold and italic formats, etc.)

A **paragraph based style** affects paragraph formatting characteristics such as text alignment, line spacing, etc. It can also include character formatting characteristics.

Apply a Style

To apply a style, do the following.

1. Select text or a paragraph that you want to format.
2. On the **Home tab**, in the **Styles** group, click or type a required style name in the **Quick Styles** box .

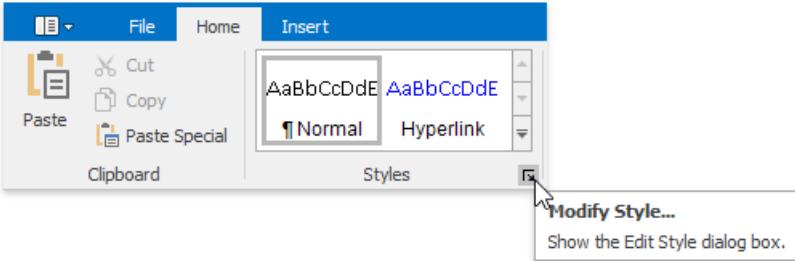


Modify a Style

You can modify an existing style via the **Modify Style** dialog.

To invoke the dialog, do the following:

1. On the **Home tab**, in the **Styles** group, click the **Modify Style** button:



2. The **Modify Style** dialog enables you to change the base style for the current style (to specify how the styles cascade), the style which should be used for the following paragraph, and basic characteristics of the style, such as Font, Paragraph and Tab Stops.

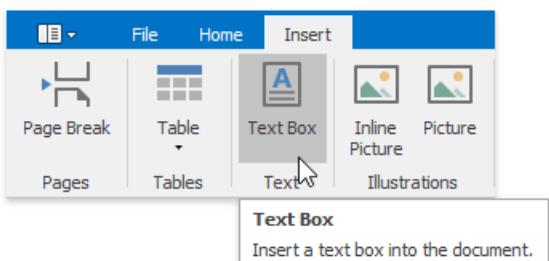
The screenshot shows the 'Modify Style' dialog box with the following settings:

- Select Style:** Subtitle Char
- Properties:**
 - Name: Subtitle Char
 - Style based on: Default Paragraph Font
 - Style for following paragraph:
- Formatting:** Includes font dropdown (Arial), font size dropdown (16), color swatch (dark red), bold (B), italic (I), underline (U), and alignment icons (left, center, right, justify).
- Preview:** Shows the text "sing" in bold, italic, and dark red color.
- Text:** Repeated text "Following Paragraph" appearing below the preview.
- Buttons:** Format dropdown, OK button, and Cancel button.

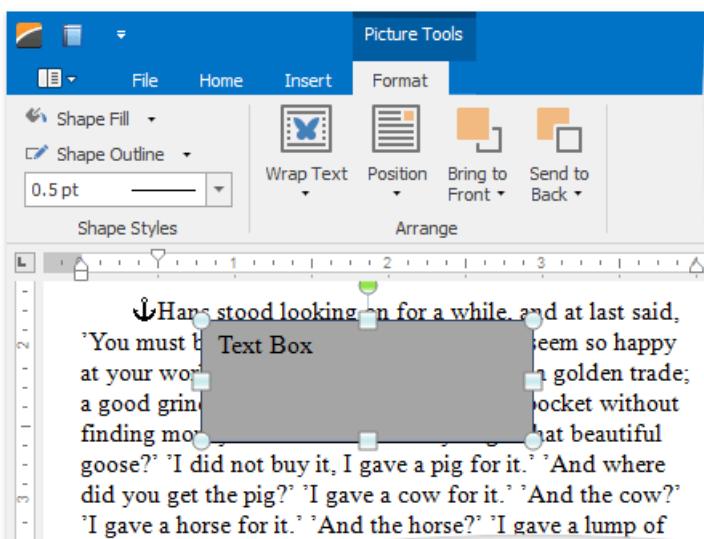
Insert, Select, Copy or Delete a Text Box

Insert a Text Box

To insert a text box into your document, position the caret to the desired location and on the **Insert tab**, in the **Text** group, click the **Text Box** button.



A floating text box enables you to specify **fill color**, **outline width and color** and apply formatting to the box content.

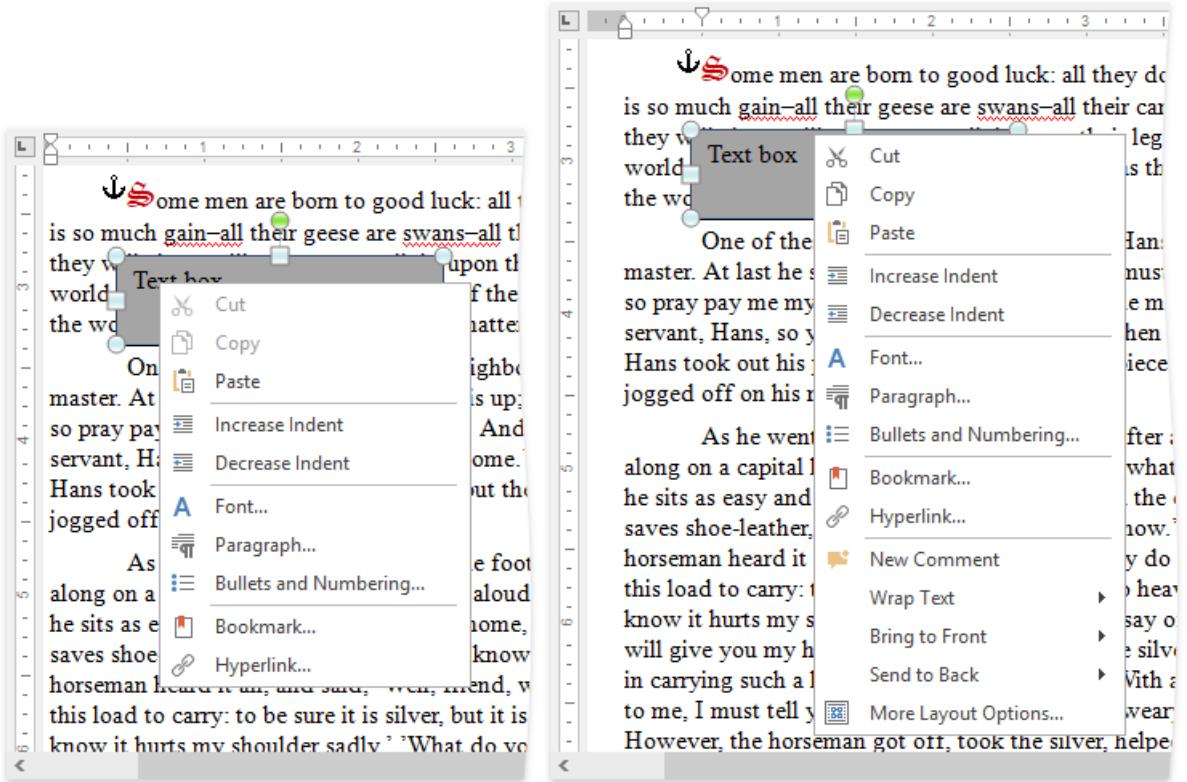


Select a Text Box

To select a text box, click a border of the text box.

NOTE

If the caret is placed inside the text box, you can modify the text box content, but it is impossible to move, copy, delete the text box or specify such attributes as **fill color**, **outline color and weight**, **text wrapping**, **position**, etc. In this case, the text box is not considered as selected, the **Picture Tools / Format** tab and corresponding items of the text box's context menu are unavailable.



Copy a Text Box

1. Select a text box to be copied.
2. On the Home tab, in the Clipboard group, click **Copy**, or select it from the context menu, or press **CTRL+C**, or press **CTRL+INSERT**.
3. Position the caret to the location where you want to insert the copy of the selected text box.
4. On the Home tab, in the Clipboard group, click **Paste**, or select it from the context menu, or press **CTRL+V**, or press **SHIFT+INSERT**.

Delete a Text Box

1. Select a text box that you wish to remove.
2. Press **DELETE**.

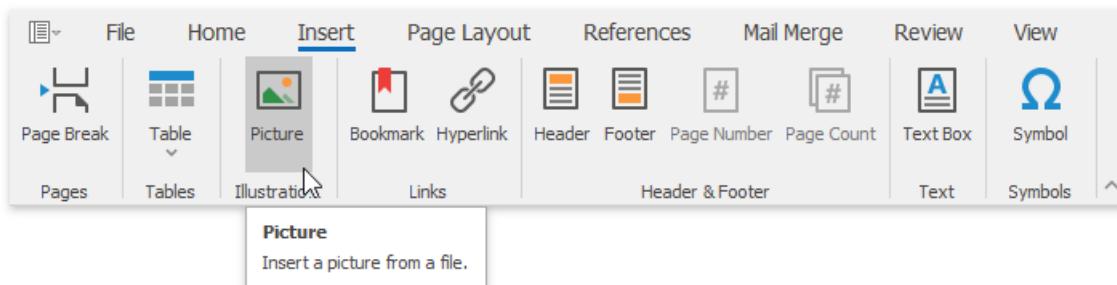
Insert a Picture

You can insert graphics in the document, and convert it to inline or floating.

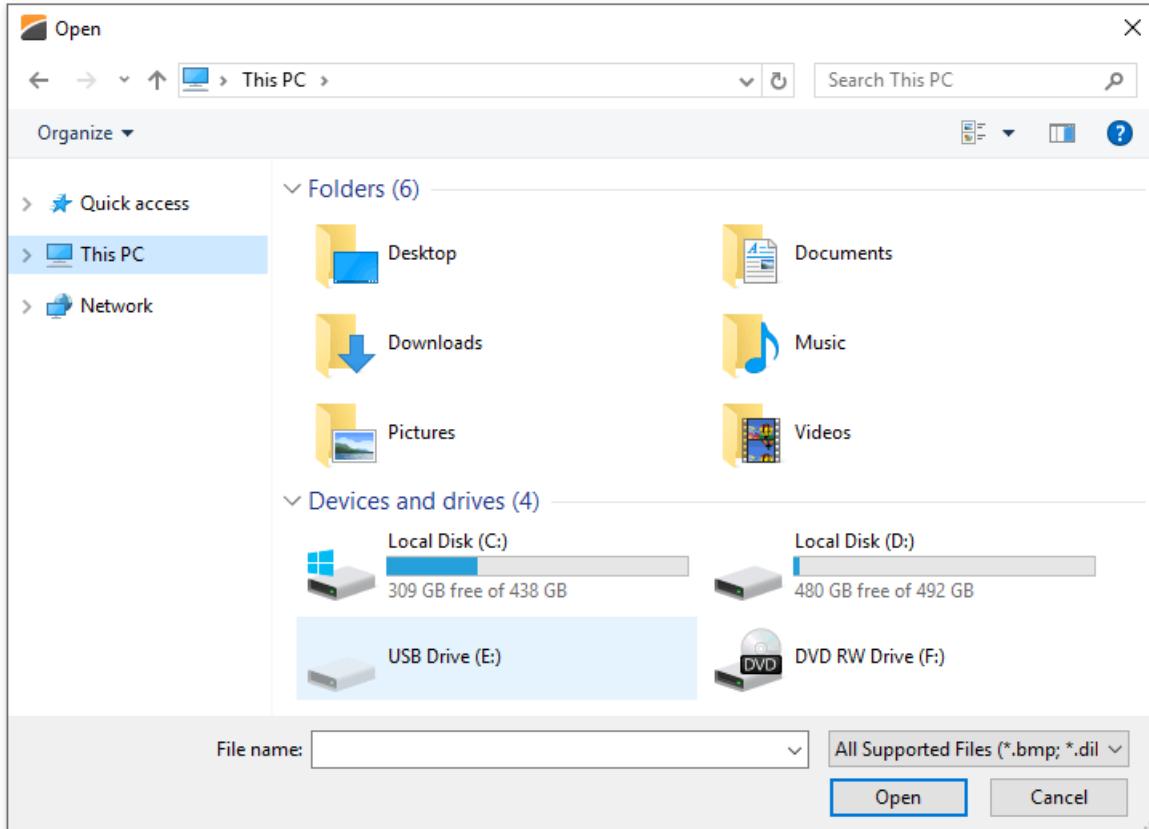
The **Rich Text Editor** supports the following graphic types:

- Bitmap (*.bmp, *.dib)
- JPEG File Interchange Format (*.jpg, *.jpeg)
- Portable Network Graphics (*.png)
- Graphics Interchange Format (*.gif)
- Tagged Image Format (*.tif, *.tiff)
- Microsoft Enhanced Metafile (*.emf)
- Windows Metafile (*.wmf)

To insert a picture into your document, position the caret to the desired location and on the **Insert tab**, in the **Illustrations** group, click the **Picture** button.



The **Open** dialog appears, allowing you to locate a file with graphics.



The inserted picture has an **In Line with Text** wrapping style which you can [change](#) later.

Picture Tools

File Home Insert Format

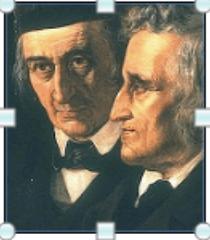
Shape Fill Shape Outline 0.5 pt

Wrap Text Position Bring to Front Send to Back

Shape Styles Arrange

Some men are born to good luck: all they do or try to do to them geese are way you poor and only faster. not

comes right— all that falls is so much gain—all their are swans—all their cards trumps—toss them which will, they will always, like puss, alight upon their legs, move on so much the The world may very likely always think of them as they think of themselves, but what care they for the world? What can it know about the matter?

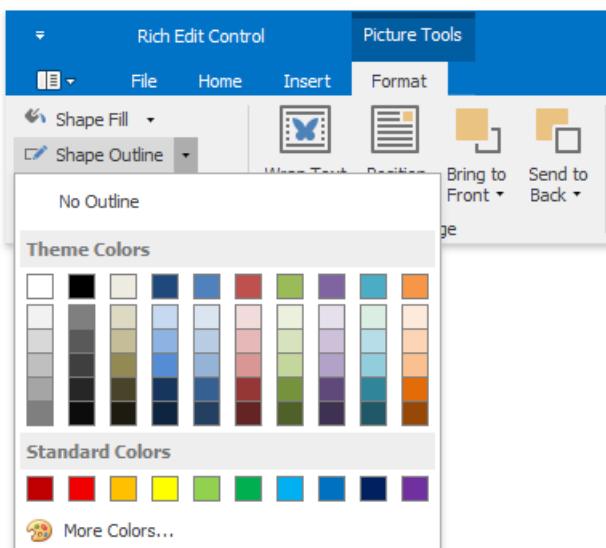


Add, Change or Delete a Border for a Picture or Text Box

You can specify the [color](#) and [weight](#) of the outside border of a [floating picture](#) or [text box](#), or fully [delete](#) the border.

Set the Color of a Picture or Text Box Border

1. Select the [floating picture](#) or [text box](#) whose outline border color you wish to specify.
2. On the **Picture Tools / Format tab**, in the **Shape Styles** group, click **Shape Outline** and select the required color.

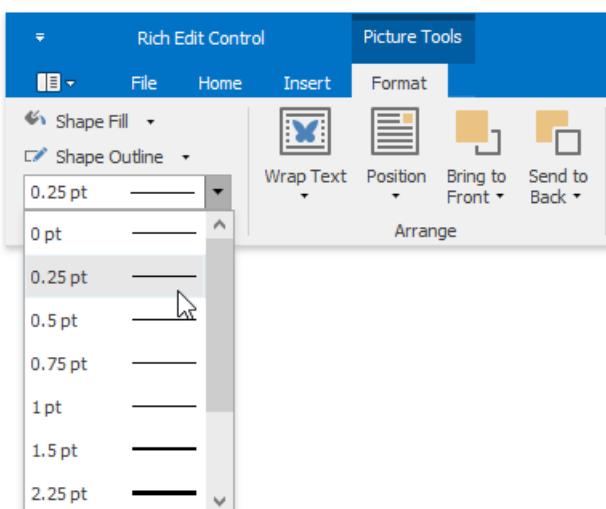


NOTE

By default, a floating picture is inserted with [no border](#). To specify a colored outline border for a picture, a border [weight](#) must be set.

Set the Weight of a Picture or Text Box Border

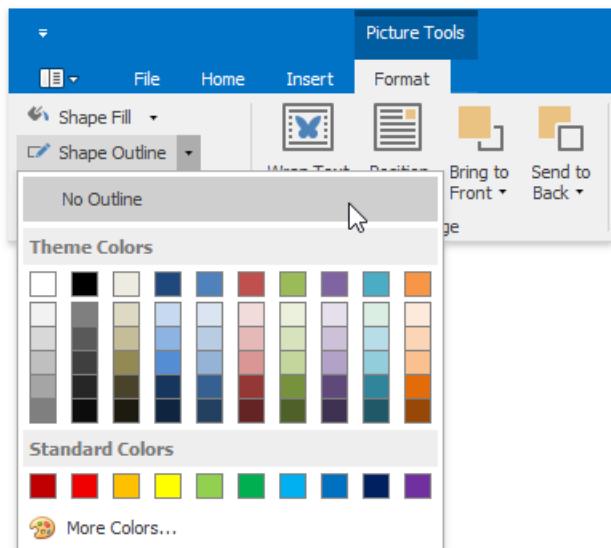
1. Select a [floating picture](#) or [text box](#) whose outline border weight you wish to specify.
2. Select the required border weight from the **Shape Outline Weight** list accessed on the **Picture Tools / Format tab**, in the **Shape Styles** group.



Remove a Picture or Text Box Border

1. Select a [floating picture](#) or [text box](#) whose outline border you wish to remove.

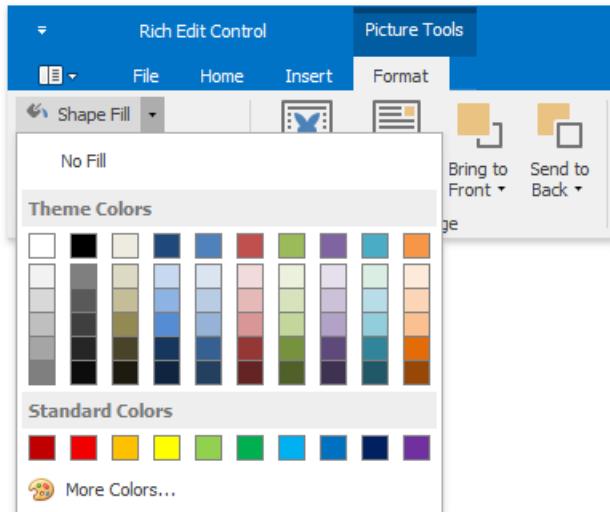
2. On the **Picture Tools / Format** tab, in the **Shape Styles** group, click **Shape Outline** button and select **No Outline**.



Add, Change or Delete a Text Box Fill

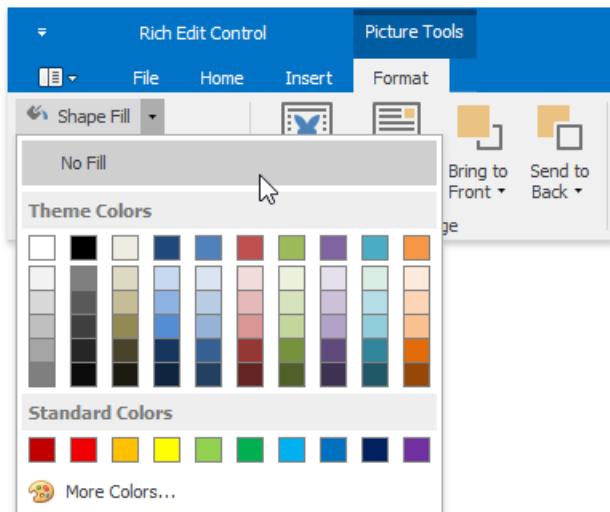
Specify a Text Box Fill

1. Select a text box whose background you wish to color.
2. On the **Picture Tools / Format tab**, in the **Shape Styles** group, click **Shape Fill** button and select the required color.



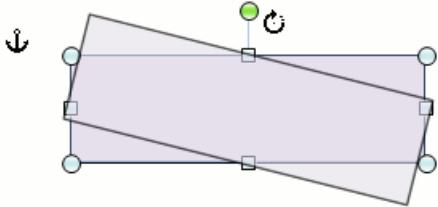
Delete a Text Box Fill

1. Select a text box whose fill you wish to remove.
2. On the **Picture Tools / Format tab**, in the **Shape Styles** group, click **Shape Fill** button and select **No Fill**.

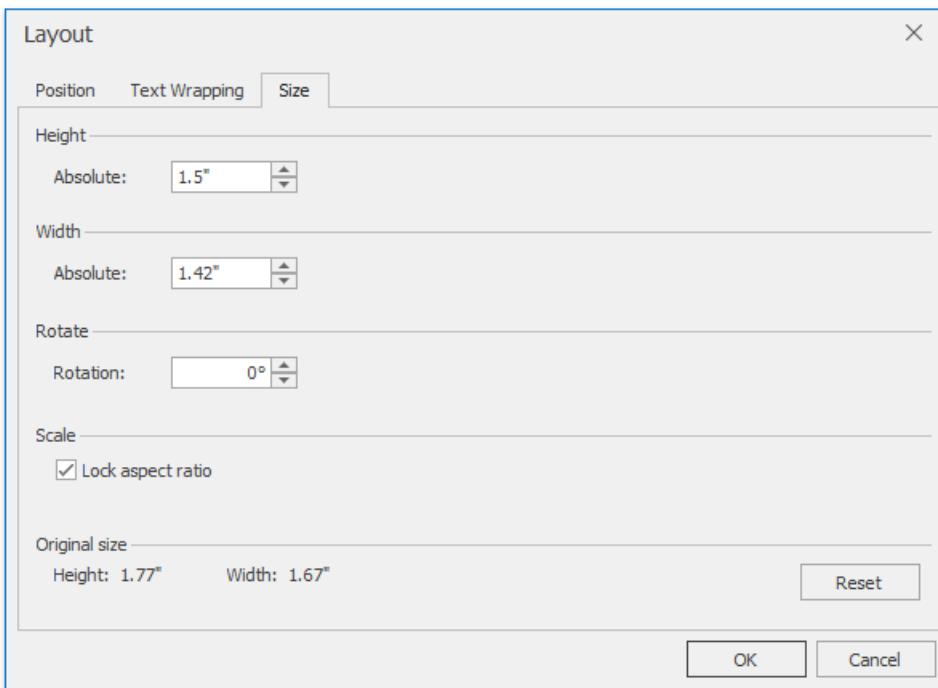


Rotate a Picture or Text Box

1. Click the [floating picture](#) or [text box](#) that you wish to rotate.
2. Do one of the following.
 - Click the round arrow that appears over the selected floating picture or text box and drag it in the direction to which you wish to rotate the object.



- To rotate an object by 15 degree angles, drag the round arrow at the top of the object while holding down the **SHIFT** key.
- Right-click a picture or text box to be rotated and select the **More Layout Options...** item from the context menu. Switch to the **Size** tab in the invoked **Layout** dialog and set the required value of the angle to rotate the object in the **Rotation** box.



Move a Picture or Text Box

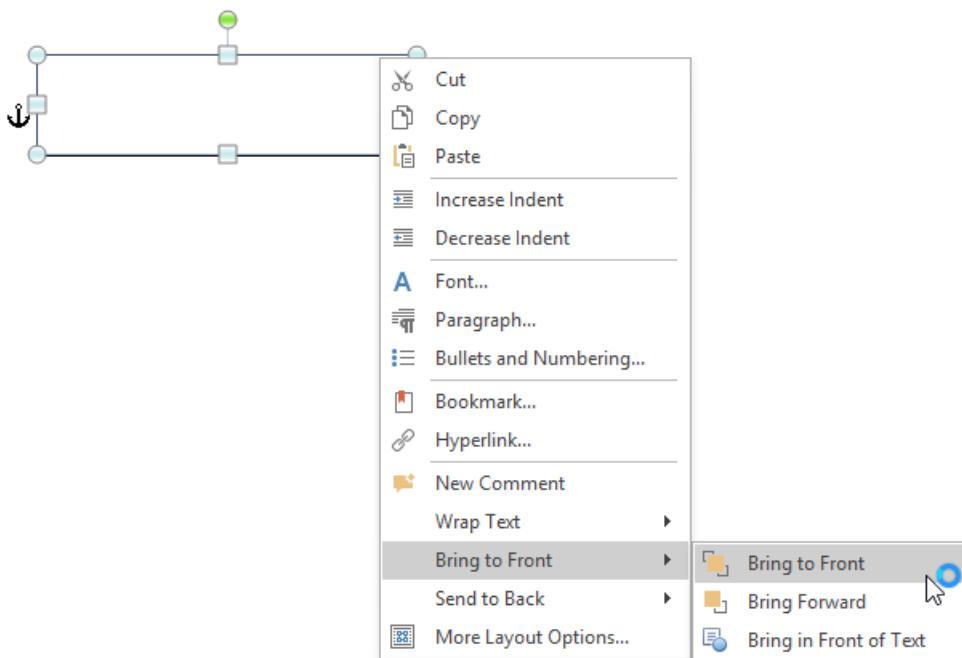
Move a Picture or Text Box

1. Select the [floating picture](#) or [text box](#) that you wish to move.
2. Drag the object to the new location.

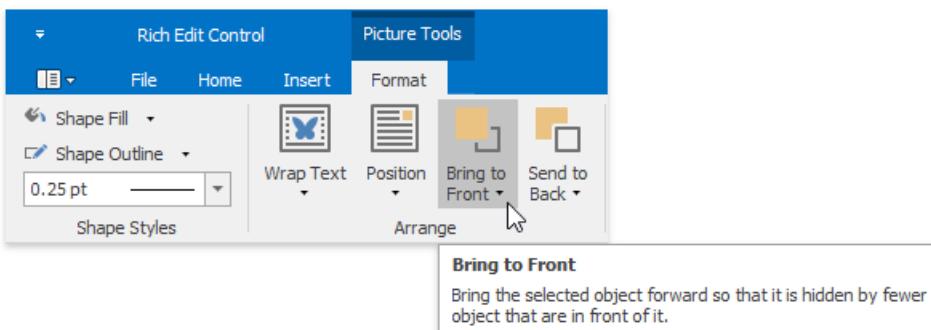
Move a Picture or Text Box Forward or Backward

When you add floating objects into a document, they are automatically inserted in particular layers. Objects can overlap. In this case the top object covers lower objects (in full or in part). You can move particular objects up and down in a stack one layer at a time, or move them to the top or bottom of a stack in one click.

1. Select the [floating picture](#) or [text box](#) that you wish to move up or down in the stack.
2. Select the required item from the floating object's context menu ...



... or [Picture Tools / Format tab](#).

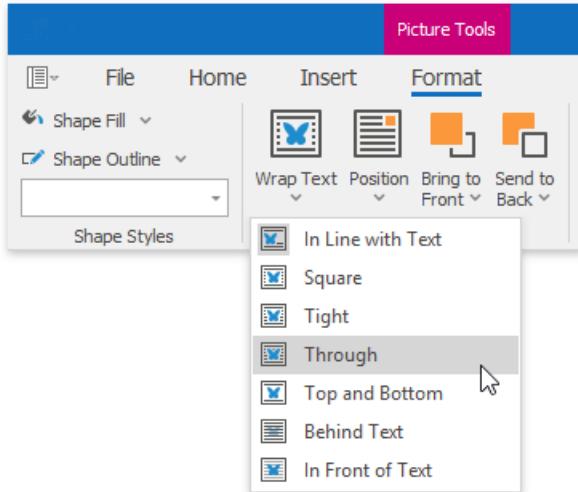


- To move the selected floating object one layer forward to the front, click **Bring to Front -> Bring Forward**.
- To move the selected floating object in front of the text layer and any other floating objects, **Bring to Front -> Bring to Front**.
- To move the selected floating object in front of the text layer, click **Bring to Front -> Bring in Front of Text**.
- To move the selected floating object one layer forward to the back, click **Send to Back -> Send Backward**.
- To move the selected floating object behind the text or any other floating object, click **Send to Back -> Send to Back**.
- To move the selected floating object behind the text layer, click **Send to Back -> Send Behind Text**.

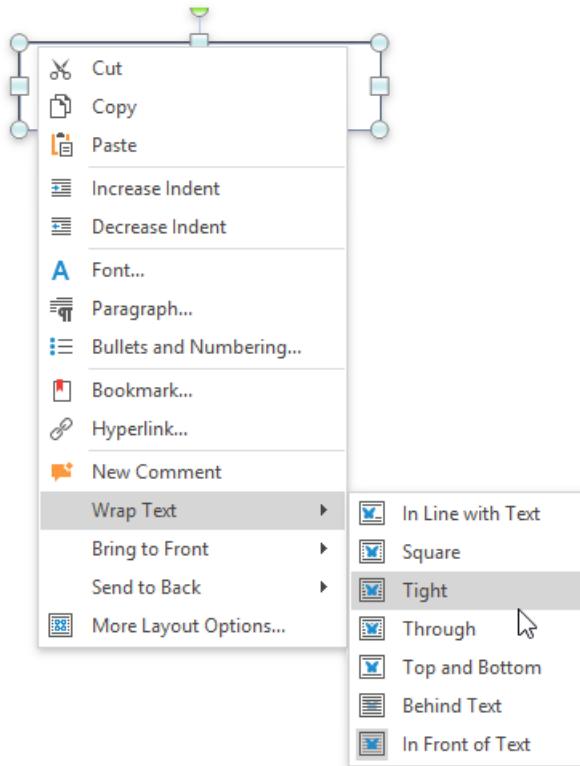
Wrap Text around a Picture or Text Box

Wrap Text around Picture or Text Box

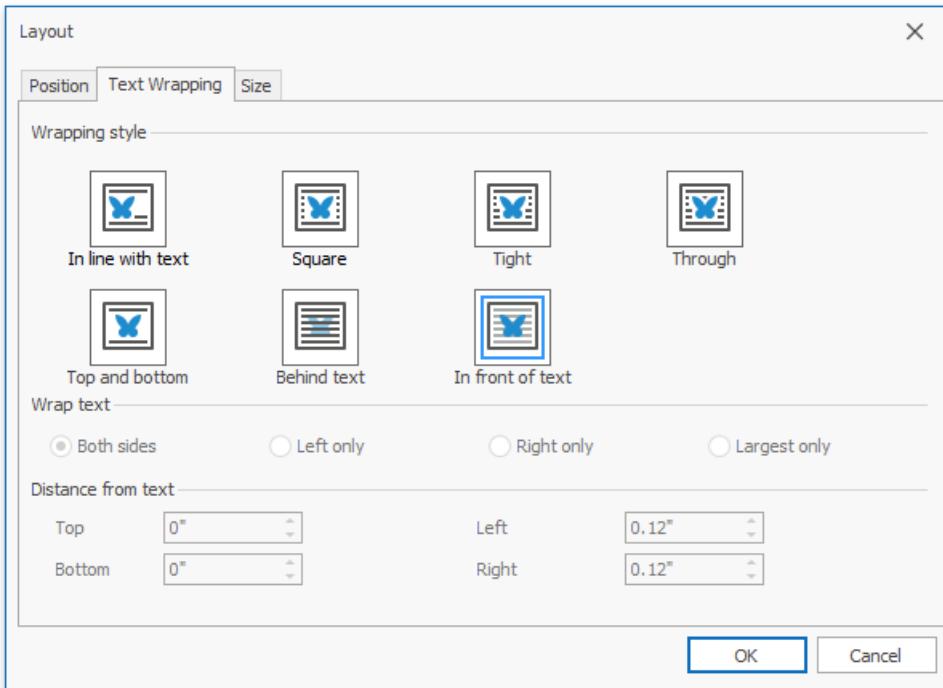
1. Select a [picture](#) or a [text box](#).
2. To specify a way text wraps around the selected object, do one of the following.
 - o On the **Picture Tools / Format tab**, in the **Arrange** group, click **Wrap Text** and select the required type of text wrapping around the selected object from the invoked list.



- o Right-click the selected floating object, and select the required type of the text wrapping from the **Wrap Text** submenu of the invoked context menu.

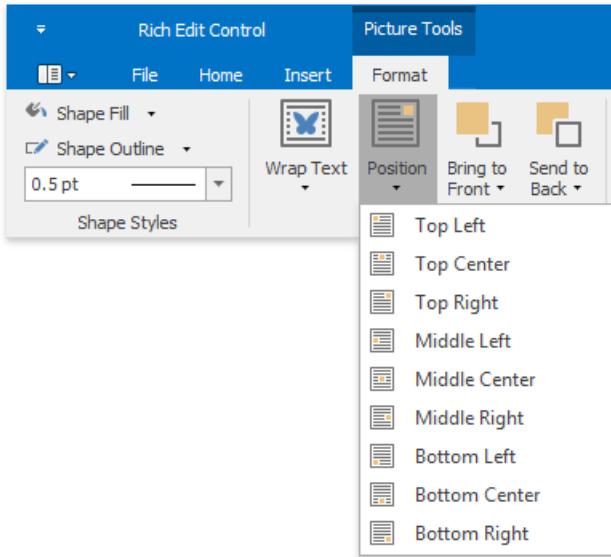


- o Right-click the selected floating object, and select the **More Layout Options...** item from the context menu. Switch to the **Text Wrapping** tab of the invoked **Layout** dialog and specify the required text wrapping settings for the floating object.

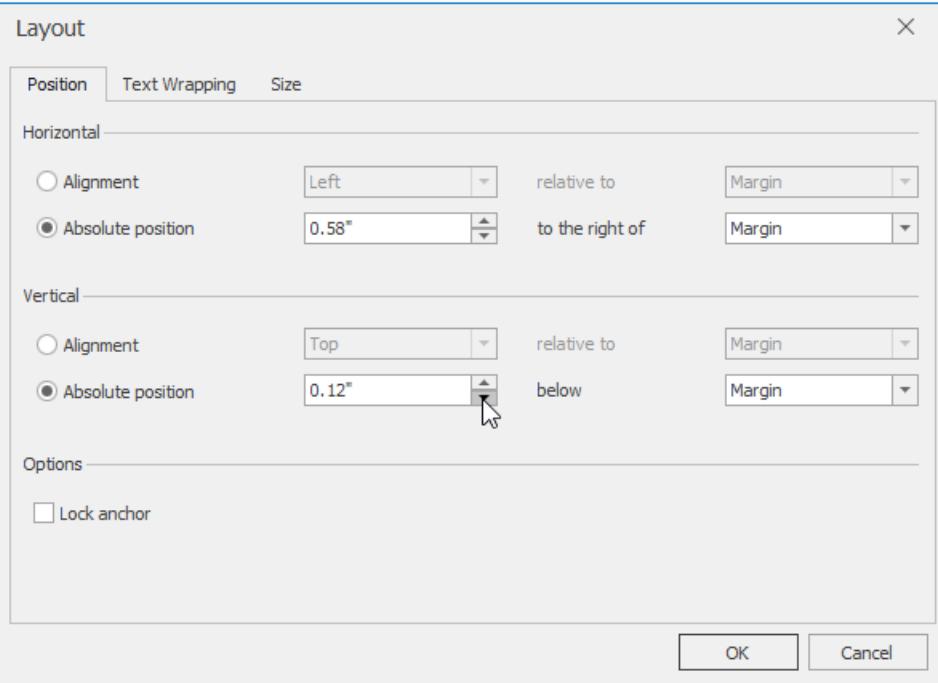


Position a Picture or Text Box within a Document

1. Select a [picture](#) or [text box](#) whose location you want to specify.
2. Specify an object location in one of the following ways.
 - o On the **Picture Tools / Format tab**, in the **Arrange** group, click the **Position** button and select the required position of the object from the invoked list.



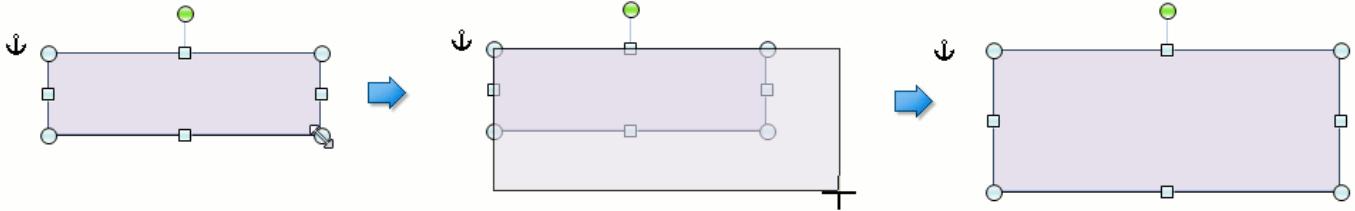
- o Right-click the object to be positioned and select the **More Layout Options...** item from the context menu. On the **Position** tab of the invoked **Layout** dialog, specify the required position for the floating object.



Resize a Picture or Text Box

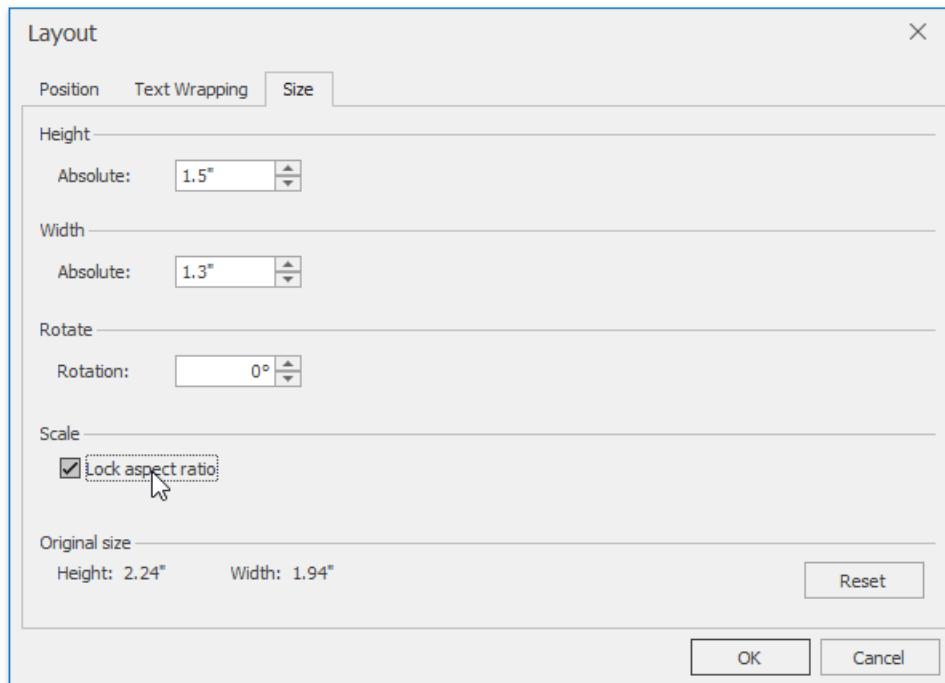
To resize a picture or text box, shrink or stretch an object in the following way.

1. Click a [floating picture](#) or [text box](#) to be resized.
2. Drag a *sizing handle* towards or away from the object center until a required size is reached.



To keep object proportions when resizing it, check the **Lock aspect ratio** option (it is accessed via the **Layout** dialog that is invoked when selecting the **More Layout Options...** item from the context menu of the floating object). In this case when you change a width of the object by dragging a *corner sizing handle*, the object's height will be automatically changed to maintain exact proportions of the object and vice-versa.

To specify an exact height and width of the object, clear the **Lock aspect ratio** check box.

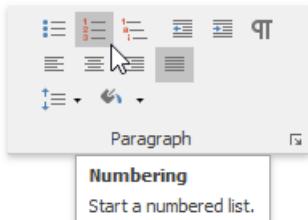


Numbered Lists

Create a Numbered List as You Type

1. Point to the position within a document from which you want to begin your list.

2. On the **Home tab**, in the **Paragraph** group, click the **Numbering**  button.



3. Type the text.

4. Press **ENTER** to create the next item of the list.

5. To finish the list, press **ENTER** twice.

Make a Numbered List from the Selected Text

You can add numbers to existing lines of text in two ways. The first one is to use the **Paragraph** toolbar:

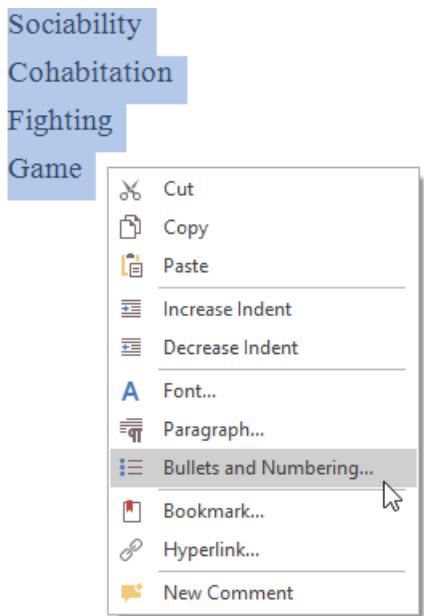
1. Select the text lines that you want to transform into a list.

2. On the **Home tab**, in the **Paragraph** group, click the **Numbering**  button.

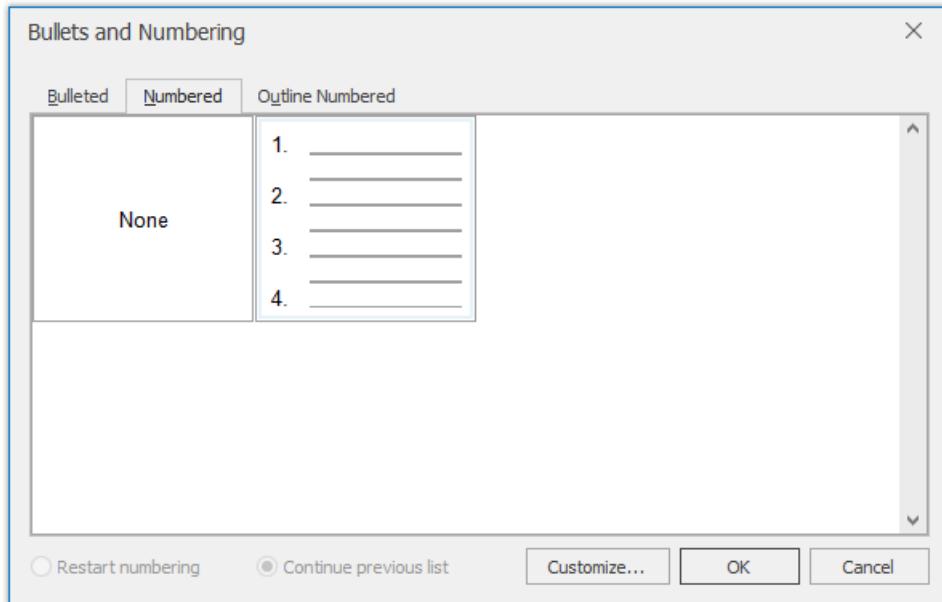
Another way to do the same thing is to use the **context menu**:

1. Select the text to be transformed into a list.

2. Right-click within the document and select the **Bullets and Numbering** item from the appeared context menu.



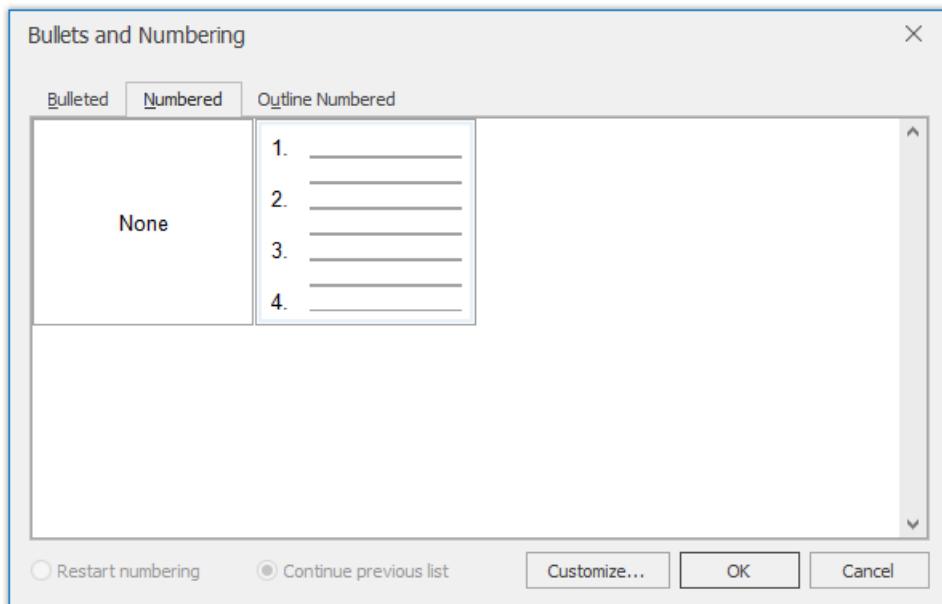
3. In the invoked **Bullets and Numbering** dialog, click the **Numbered** tab and choose the list style that you want to apply.



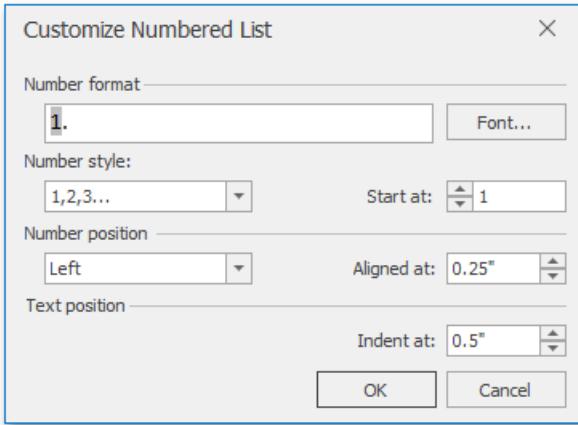
Create Your Own List Style

You can create your own style for a numbered list on the basis of one of the existing list styles, by changing different list parameters.

1. Select the numbered list (or text to be transformed into the numbered list) to which you want to apply your own style.
2. Right-click within the document and select the **Bullets and Numbering** item from the resulting [context menu](#). The **Bullets and Numbering** dialog will be displayed.



3. Click the **Numbered** tab, choose one of the existing styles and click **Customize...**. The **Customize Numbered List** dialog will be invoked.

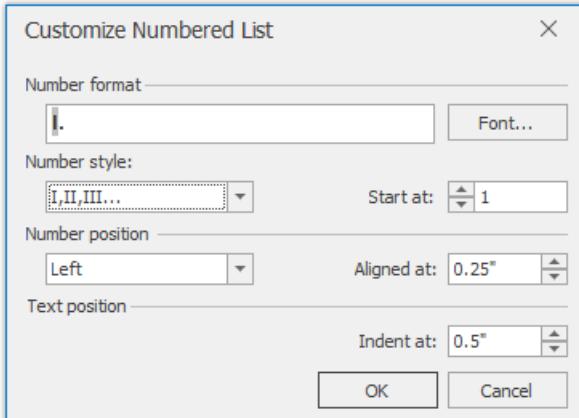


NOTE

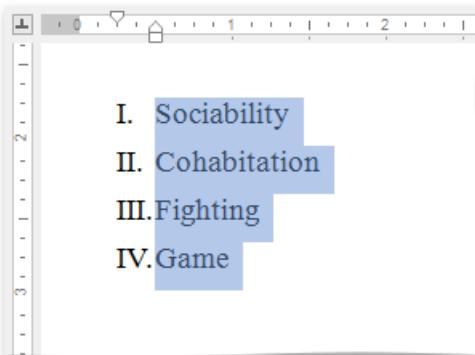
The **Customize...** button is disabled if the **None** item of the **Bullets and Numbering** dialog is selected.

4. In this dialog, change different list parameters to create your own list style.

For instance, if you specify list parameters in the following way,...



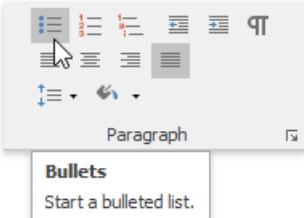
...you will get the list style as illustrated below.



Bulleted Lists

Create a Bulleted List as You Type

1. Point to the position in a document from where you want to begin your list.
2. On the **Home tab**, in the **Paragraph** group, click the **Bullets**  button .



3. Type the text.
4. Press **ENTER** to create the next item of the list.
5. To finish the list, press **ENTER** twice.

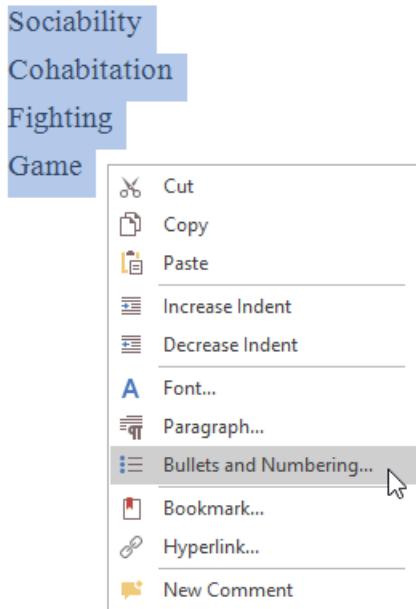
Make a Bulleted List from the Selected Text

You can add bullets to existing lines of text in two ways. The first method is to use the **Home** ribbon tab:

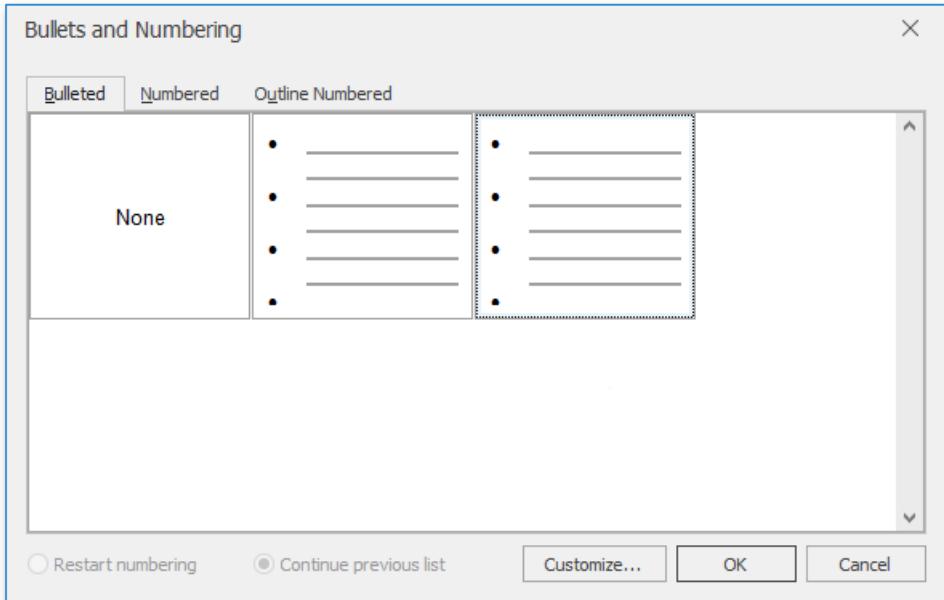
1. Select the text lines that you want to transform into a list.
2. On the **Home tab**, in the **Paragraph** group, click the **Bullets** button.

Another way to do the same thing is to use the **context menu**:

1. Select the text to be transformed into a list.
2. Right-click within the document and select the **Bullets and Numbering** item from the invoked context menu.



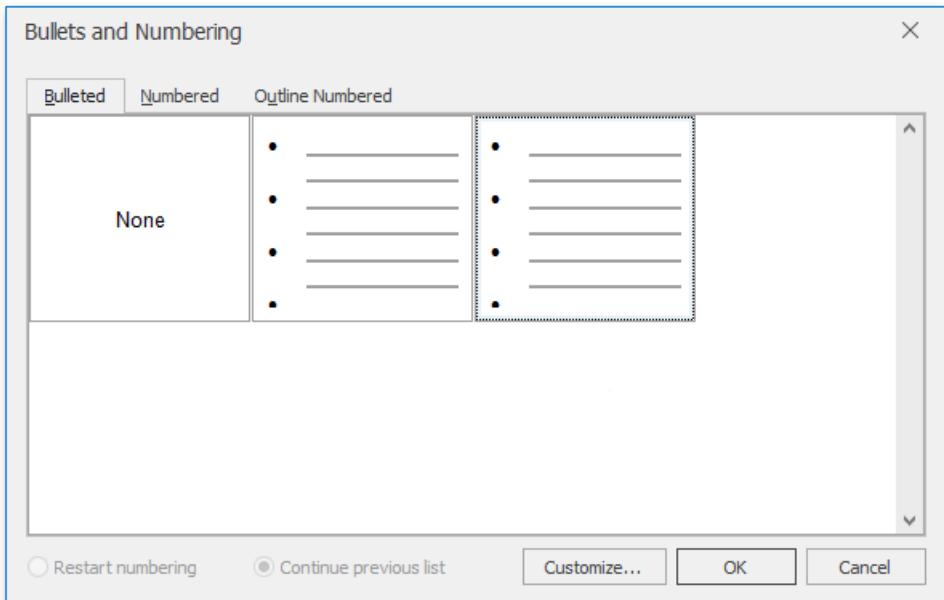
3. In the invoked **Bullets and Numbering** dialog, click the **Bulleted** tab and choose the list style that you want to apply.



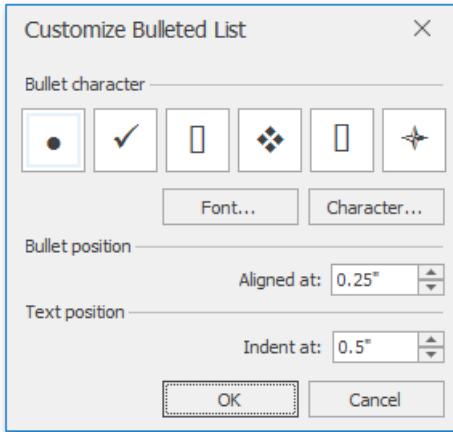
Create Your Own List Style

You can create your own style for a bulleted list on the basis of one of the existing list styles, by changing various list parameters.

1. Select the bulleted list (or text to be transformed into the bulleted list) to which you want to apply your own style.
2. Right-click within the document and select the **Bullets and Numbering** item from the resulting [context menu](#). The **Bullets and Numbering** dialog will be displayed.



3. Click the **Bulleted** tab, choose one of the existing styles and click **Customize...**. The **Customize Bulleted List** dialog will be invoked.

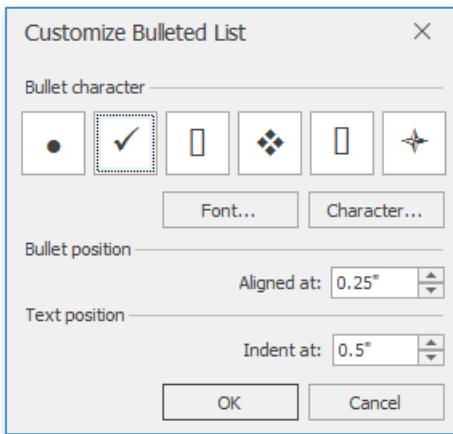


NOTE

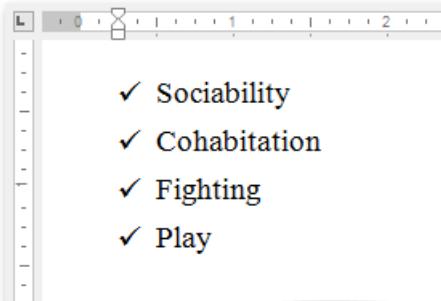
The **Customize...** button is disabled if the **None** item of the **Bullets and Numbering** dialog is selected.

4. In this dialog, change different list parameters to create your own list style.

For instance, if you specify list parameters in the following way,...

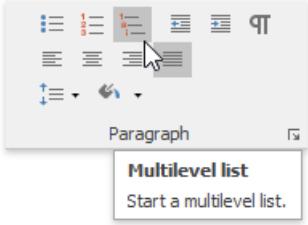


...you will get the list style as illustrated below.



Multilevel Lists

Create a Multilevel List as You Type

1. Point to the position within a document from which you want to begin your list.
2. On the **Home tab**, in the **Paragraph** group, click the **Multilevel list**  button.


The screenshot shows the Microsoft Word ribbon with the "Home" tab selected. In the "Paragraph" group, the "Multilevel list" button is highlighted with a red box and a cursor arrow pointing to it. A tooltip below the button reads "Start a multilevel list."
3. Type the text.
4. To change levels of the list, press **TAB** and **SHIFT+TAB**, or, on the **Home tab**, in the **Paragraph** group click the **Increase Indent**  and **Decrease Indent**  buttons. Press **ENTER** to create the next item on the current level.
5. To finish the list, press **ENTER** twice.

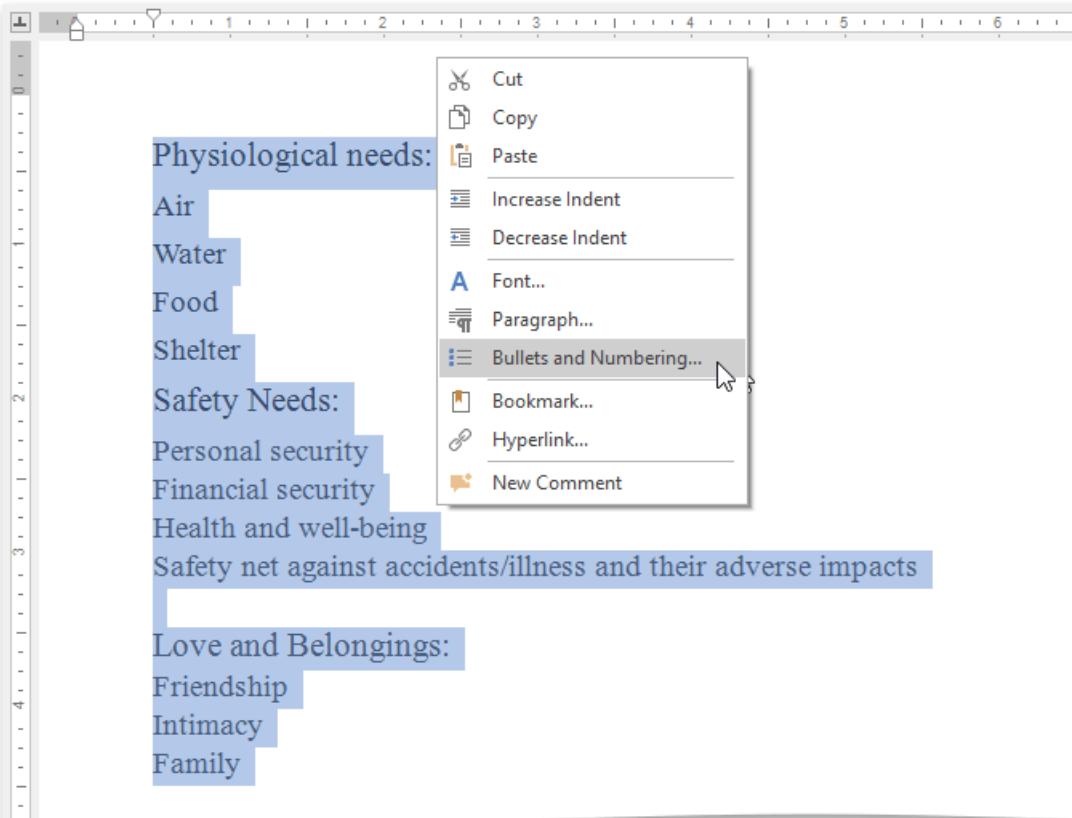
Make a Multilevel List from the Selected Text

You can make multilevel list from existing lines of text in two ways. The first one is to use the **Paragraph** toolbar:

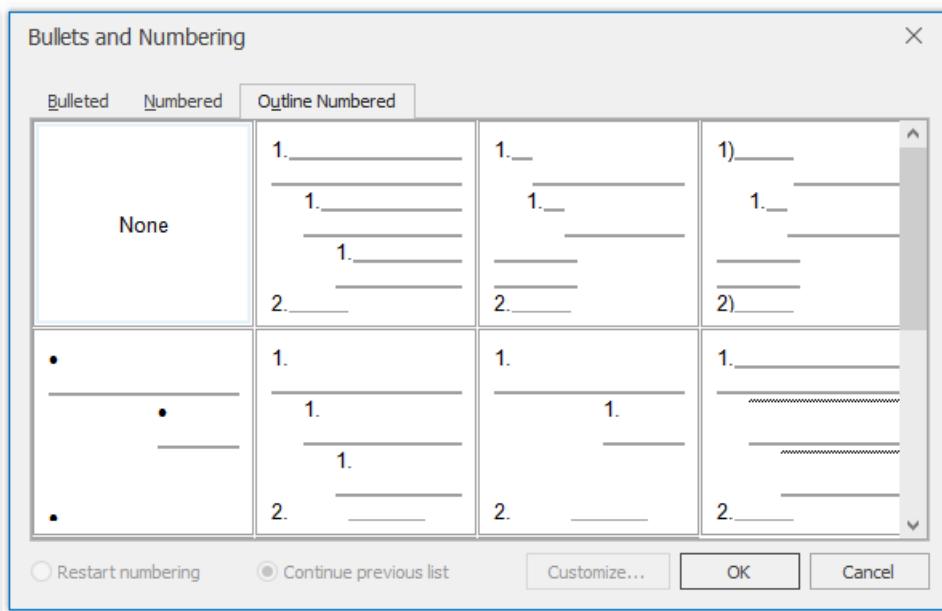
1. Select the text lines that you want to transform into a list.
2. On the **Home tab**, in the **Paragraph** group, click the **Multilevel list**  button.
3. Use **TAB** and **SHIFT+TAB**, or the **Increase Indent**  and **Decrease Indent**  buttons to change levels.

Another way to do the same thing is to use the [context menu](#):

1. Select the text to be transformed into a list.
2. Right-click within the document and select the **Bullets and Numbering** item from the invoked context menu.



3. In the invoked **Bullets and Numbering** dialog, click the **Outline Numbered** tab and choose the list style that you want to apply.



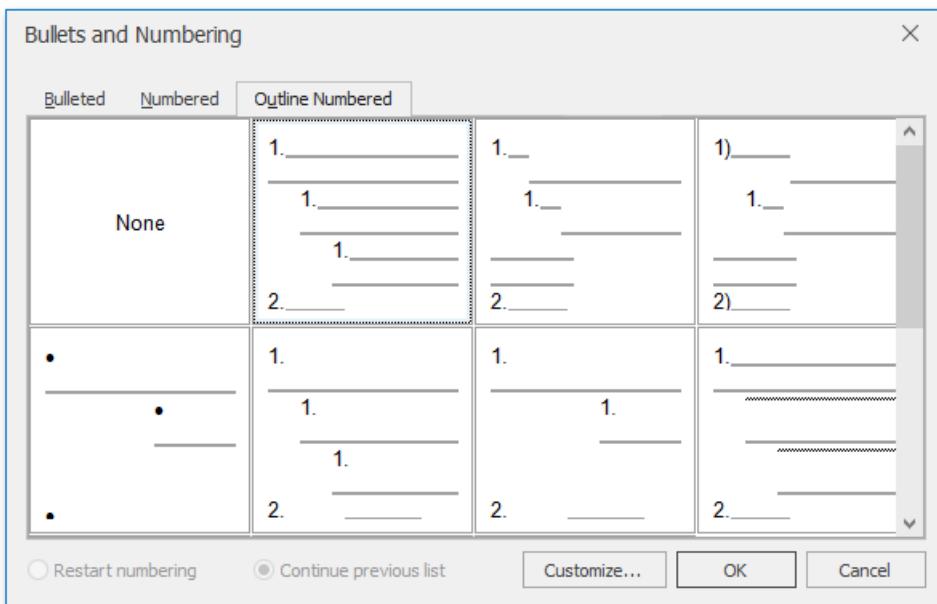
4. Use **TAB** and **SHIFT+TAB**, or the **Increase Indent** and **Decrease Indent** buttons of the **Paragraph** toolbar to change levels.

Create Your Own List Style

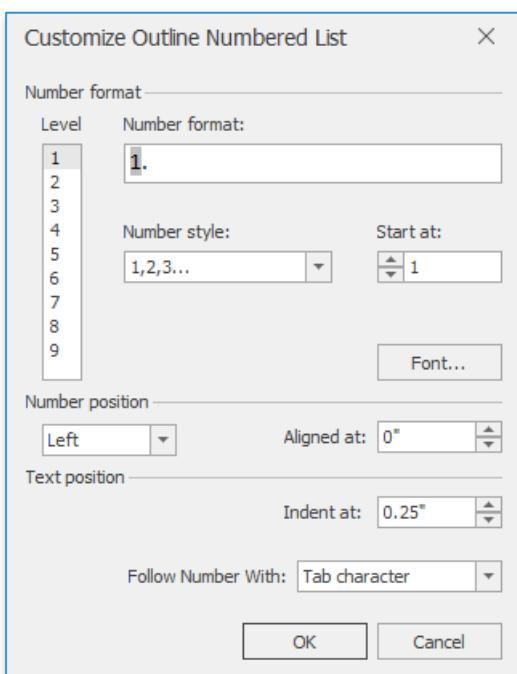
You can create your own style for a multilevel list on the basis of one of the existing list styles, by changing different list parameters.

1. Select the multilevel list (or text to be transformed into the multilevel list) to which you want to apply your own style.
2. Right-click within the document and select the **Bullets and Numbering** item from the resulting context menu. The **Bullets**

and Numbering dialog will be displayed.



3. Click the **Outline Numbered** tab, choose one of the existing styles and click **Customize...**. The **Customize Outline Numbered List** dialog will be invoked.

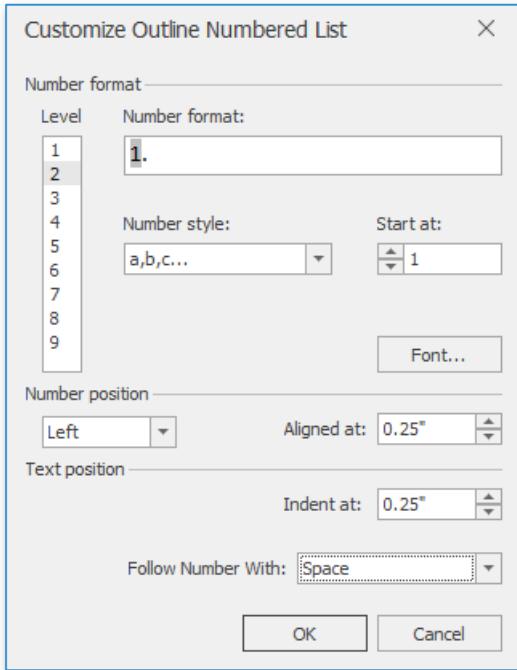


NOTE

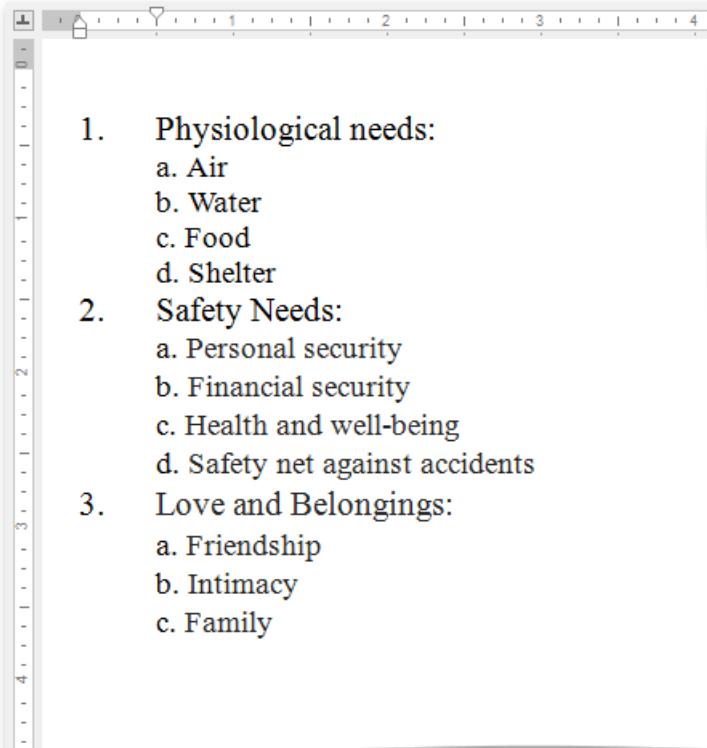
The **Customize...** button is disabled if the **None** item of the **Bullets and Numbering** dialog is selected.

4. In this dialog, change different list parameters to create your own list style.

For instance, if you specify list parameters in the following way,...



...you will get the list style as illustrated below.

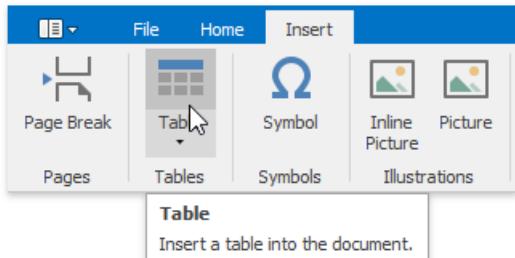


5. Use **TAB** and **SHIFT+TAB**, or the **Increase Indent** and **Decrease Indent** buttons of the **Paragraph** toolbar, to change levels.

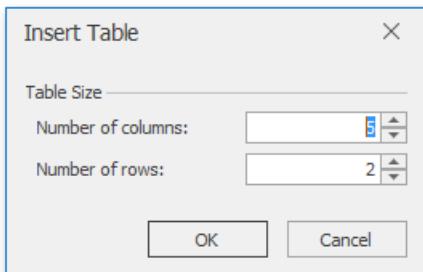
Insert a Table

Insert a Table

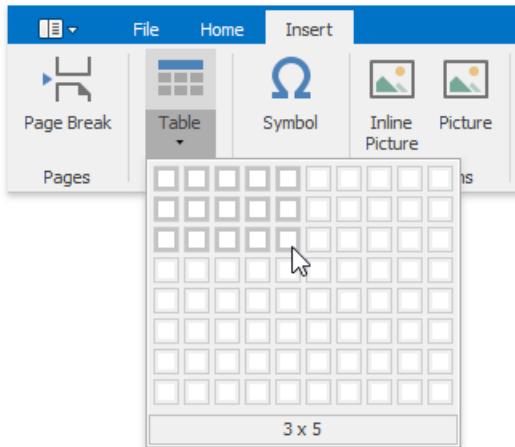
1. Click the position within a document where you want to insert a table.
2. Click the **Table** button on the **Insert** tab.



3. In the invoked **Insert Table** dialog, select the required number of table rows and columns.



4. Alternatively, you can select the required table size in the drop-down control box:



Insert a Table inside Another Table

Tables that are located inside other tables are called nested tables.

To insert a nested table:

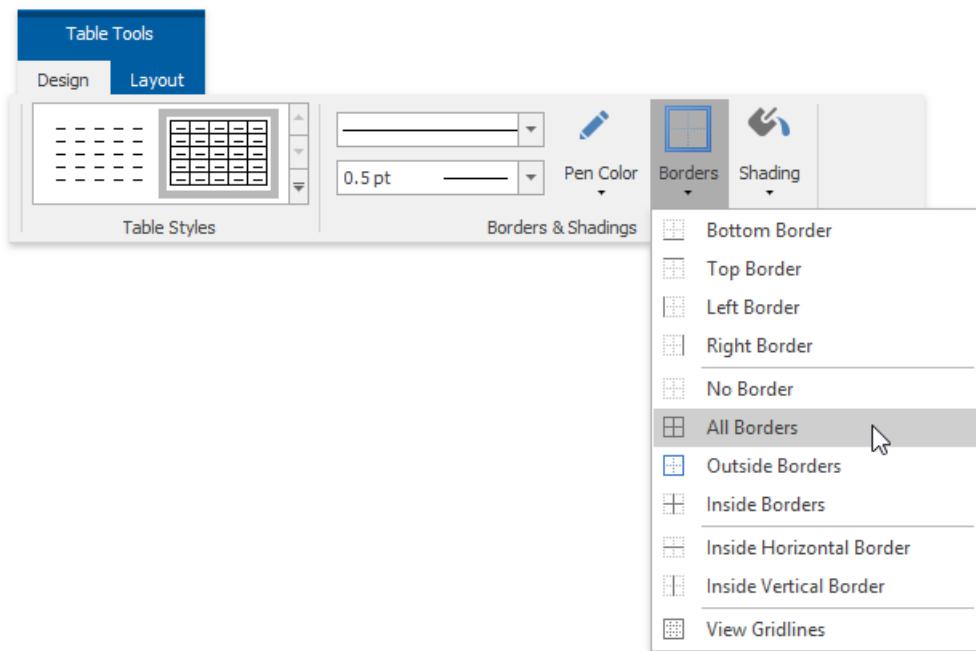
1. Point to the position within a table cell where you want to insert a table.
2. [Insert a table](#).

Add and Remove Table Borders

Add Borders

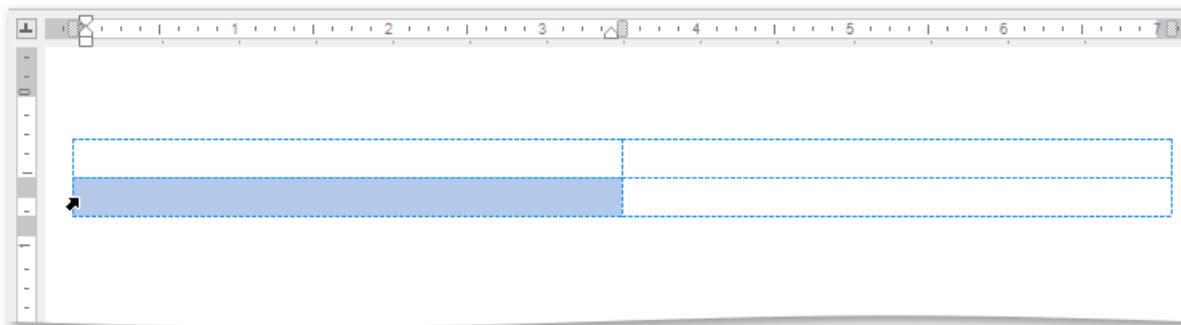
- Add Borders to the Whole Table

1. [Select a table](#).
2. On the **Table Tools/Layout** tab, in the **Borders&Shadings** group, click the **Borders** button and select one of the available border sets.



- Add Borders to Specified Cells Only

1. [Display gridlines](#) to view boundaries of the table cells and [select cells](#) to be provided with borders.

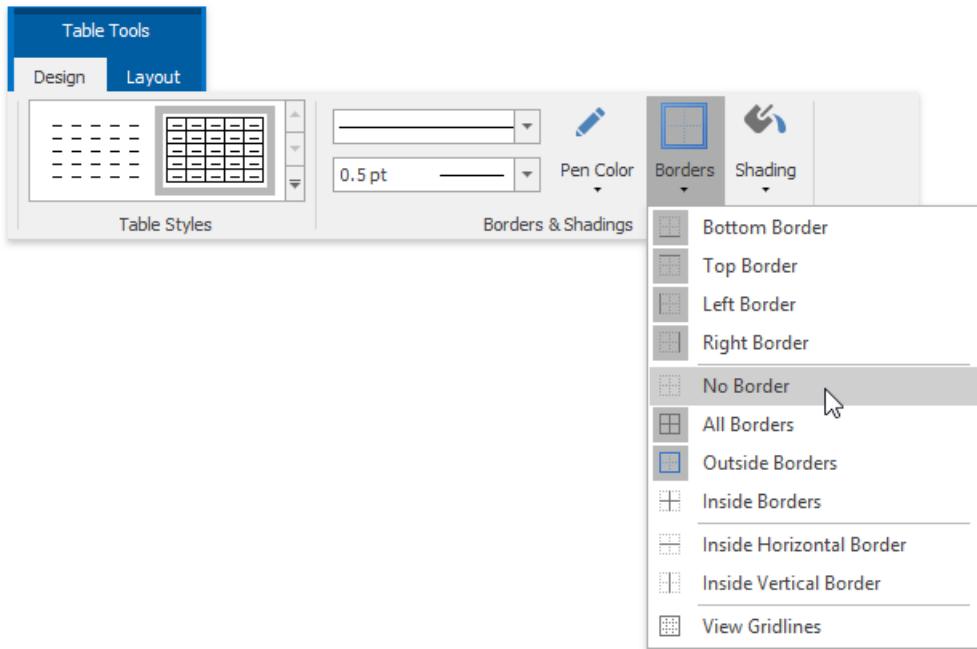


2. On the **Table Tools/Layout** tab, in the **Borders&Shadings** group, click the **Borders** button and select the border that you want to apply to cells.

Remove Table Borders

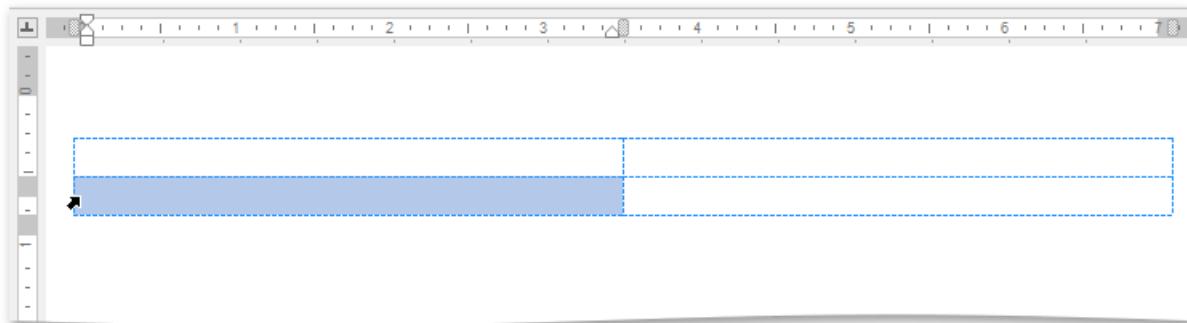
- Remove Borders from the Whole Table

1. [Select a table](#).
2. On the **Table Tools/Layout** ribbon tab in the **Borders&Shading** group, click the **Borders** button and select **No Borders** from the invoked list.



- Remove Borders from Specified Cells Only

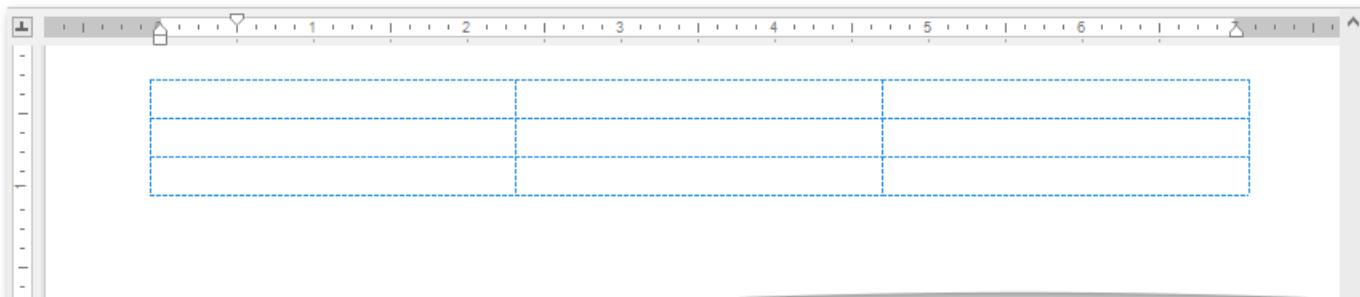
1. Display [gridlines](#) to view boundaries of the table cells and [select cells](#) from which you want to remove borders.



2. On the **Table Tools/Layout** tab, in the **Borders&Shading** group, click the **Borders** button and select **No Borders** from the invoked list.

Show or Hide Gridlines

Gridlines show boundaries of a table cells when [no borders are applied](#). Unlike borders, gridlines are shown on screen only and never printed.



To show or hide table gridlines, on the **Table Tools/Layout** tab, in the **Borders&Shading** group, click the **View Gridlines** button.

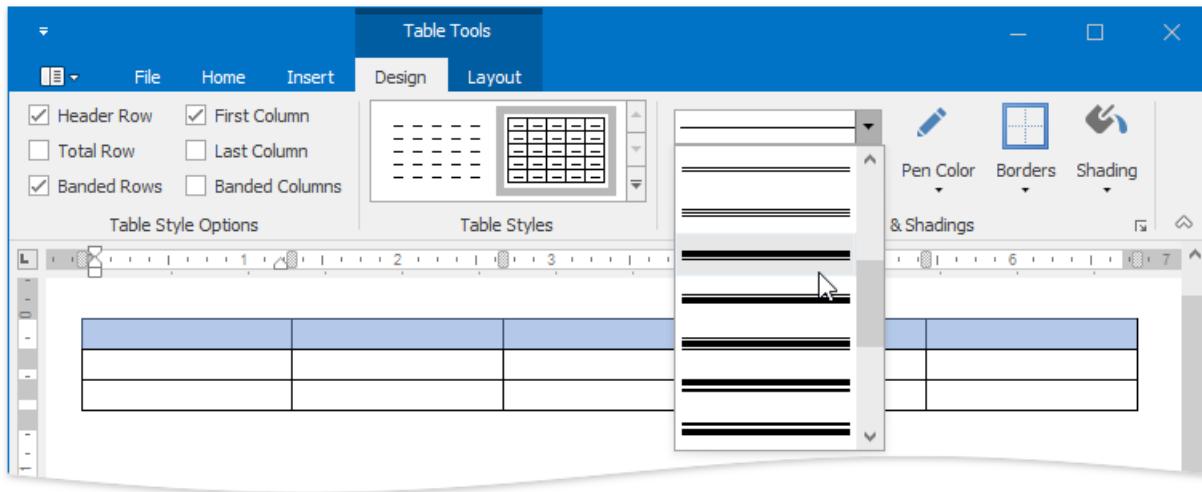


Customize a Style of Cell Borders

Before you add borders to table cells, you can specify a style to be applied to borders.

To set a style for cell borders, do the following:

1. [Select](#) a table or specific cells whose borders you want to customize.
2. On the **Table Tools/Layout tab**, in the **Borders&Shading** group, change required options (**Line Style**, **Line Weight**, **Pen Color**).



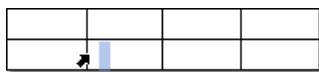
3. [Add borders](#) using the **Table Styles** group of the **Table Tools / Design** tab.

Select a Cell, Row or Column

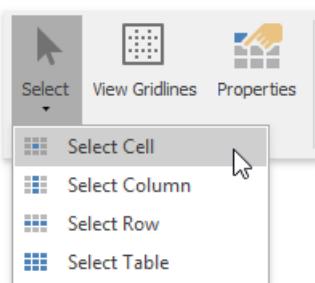
Select a Cell

You can select a table cell in one of the following ways.

- Double-click a cell.
- Click the left edge of a cell.



- Click a cell to be selected. Then on the **Table Tools/Layout tab**, in the **Table** group, click the **Select** button and choose **Select Cell** from the invoked list.



NOTE

To select multiple cells, click the left edge of a cell and then drag it across other cells.

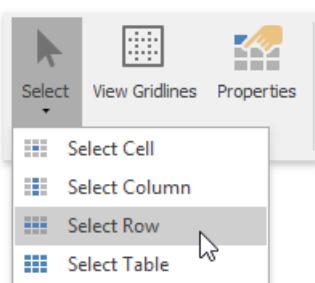
Select a Row

To select a table row you can do one of the following.

- Click to the left of a row.



- Click a cell included into a row to be selected. Then on the **Table Tools/Layout tab**, in the **Table** group, click the **Select** button and choose **Select Row** from the invoked list.

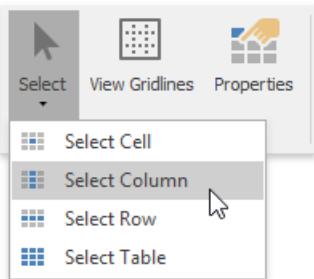


Select a Column

To select a table column you can do one of the following.

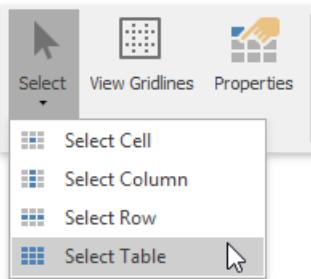
- Click the top edge of a column.

- Click a cell included into a column to be selected. Then on the **Table Tools/Layout tab**, in the **Table** group, click the **Select** button and choose **Select Column** from the invoked list.



Select a Table

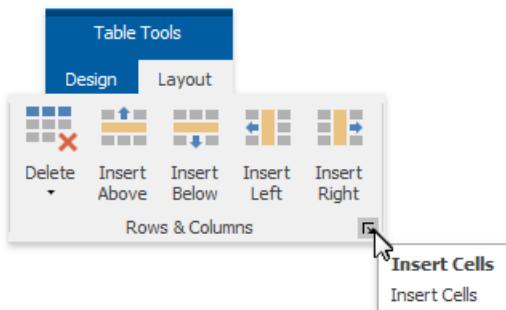
Click any cell of a table. Then on the **Table Tools/Layout tab**, in the **Table** group, click the **Select** button and choose the **Select Table** item from the invoked list.



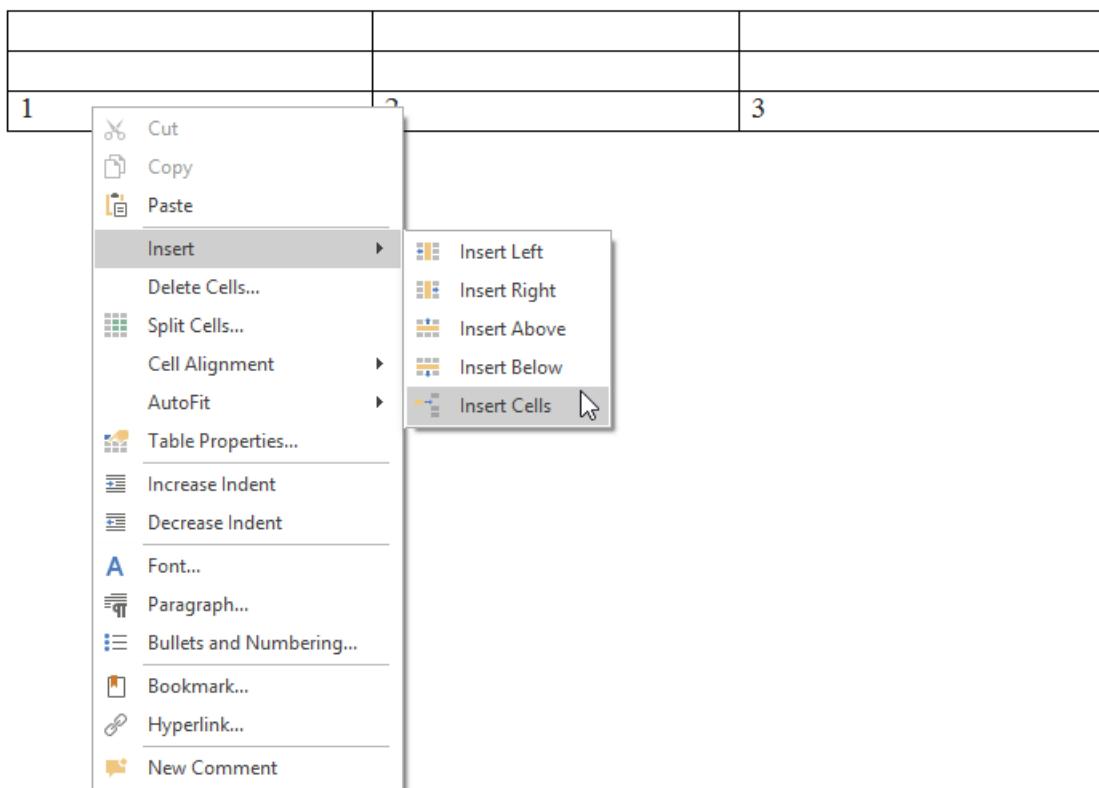
Insert a Cell, Row or Column

Insert a Cell

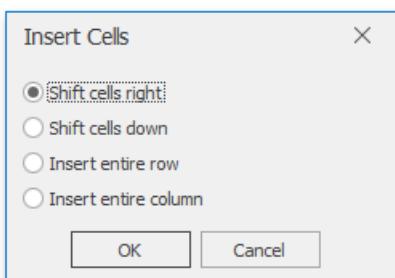
1. Click a cell located directly to the right or below where you want to insert a cell, and then on the **Table Tools\Layout tab**, in the **Rows & Columns** group, click the **Insert Cells** button...



2. ...or right-click a cell relative to which you want to add a new cell, select the **Insert** item from the context menu and click **Insert Cells**.



3. In the invoked **Insert Cells** dialog choose one of the available options:



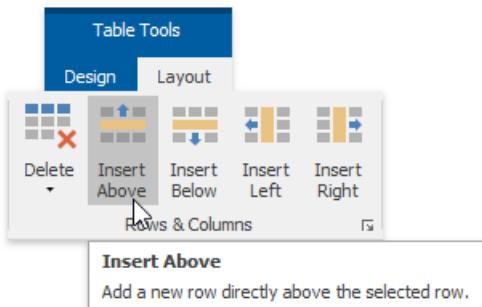
OPTION	DESCRIPTION	EXAMPLE
Shift cells right	Insert a new cell just to the left of the selected cell and move the selected cell and all other cells following this cell in that row to the right.	
Shift cells down	Insert a new cell in the selected cell's place and move other cells in that column down one row each. A new row will be added at the bottom of the table to include the last existing cell. Remaining cells in this new row will be empty.	
Insert entire row	Insert a new row just above the row containing the selected cell.	
Insert entire column	Insert a new column just to the left of the column containing the selected cell.	

Insert a Row

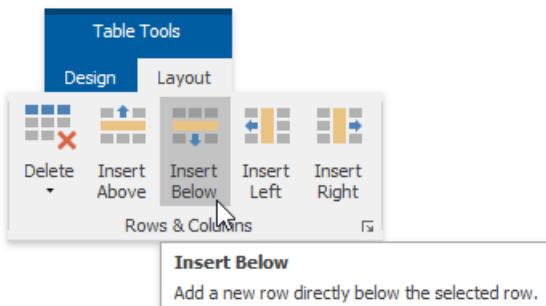
1. Click a cell located directly below or above where you want to insert a new row.

2. Do one of the following:

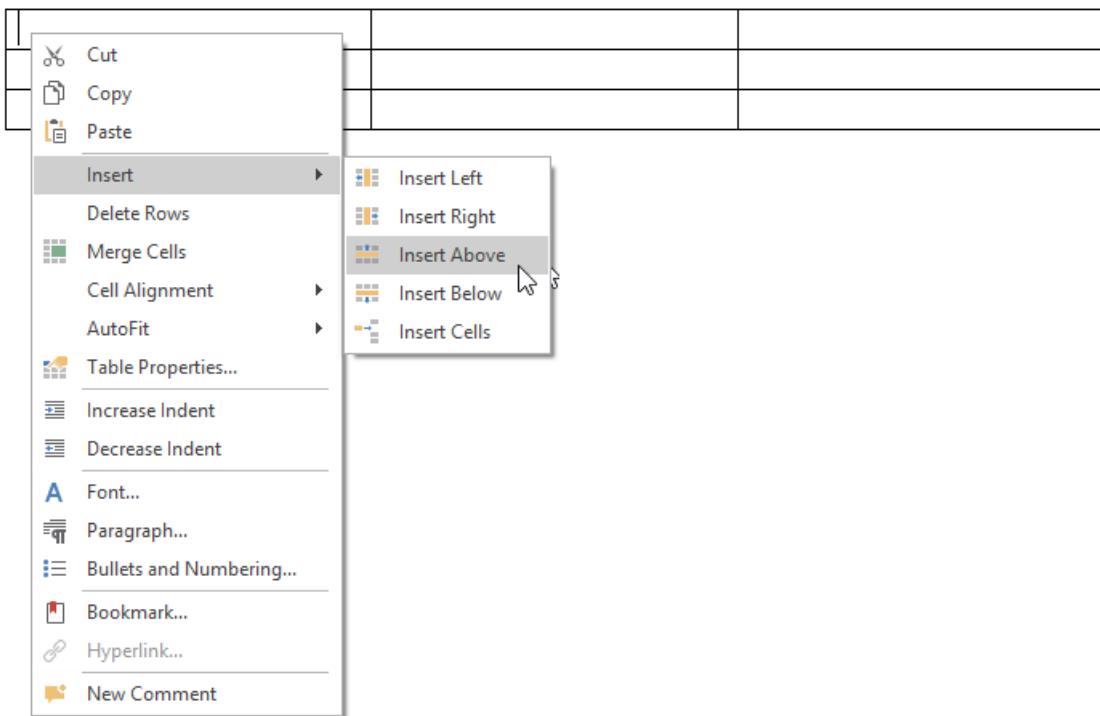
- To add a new row just above the row containing the selected cell, on the **Table Tools\Layout tab**, in the **Rows & Columns** group, click the **Insert Rows Above** button.



- To add a new row just below the row containing the selected cell, on the **Table Tools\Layout tab**, in the **Rows & Columns** group, click the **Insert Rows Below** button.

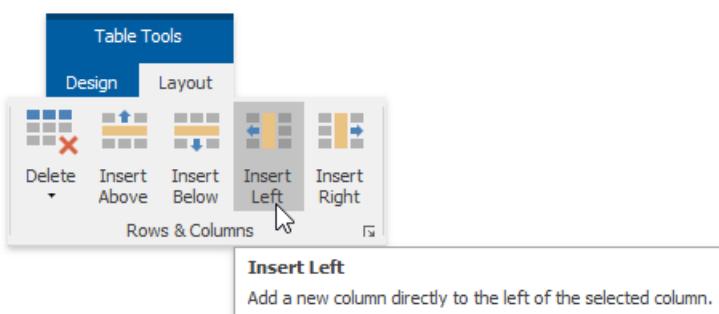


- ...or right-click a cell relative to which you want to insert a row, click the **Insert** item in the context menu and select **Insert Rows Above** or **Insert Rows Below**.

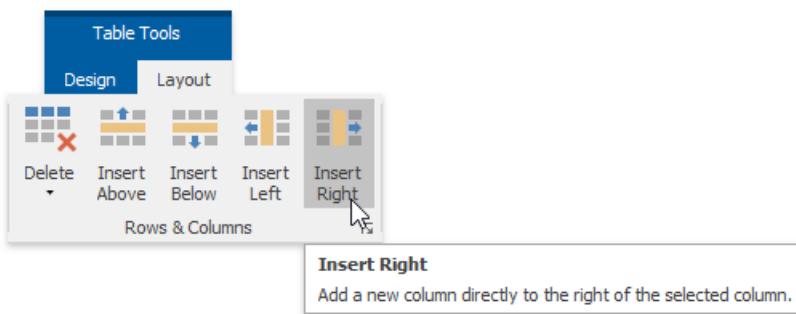


Insert a Column

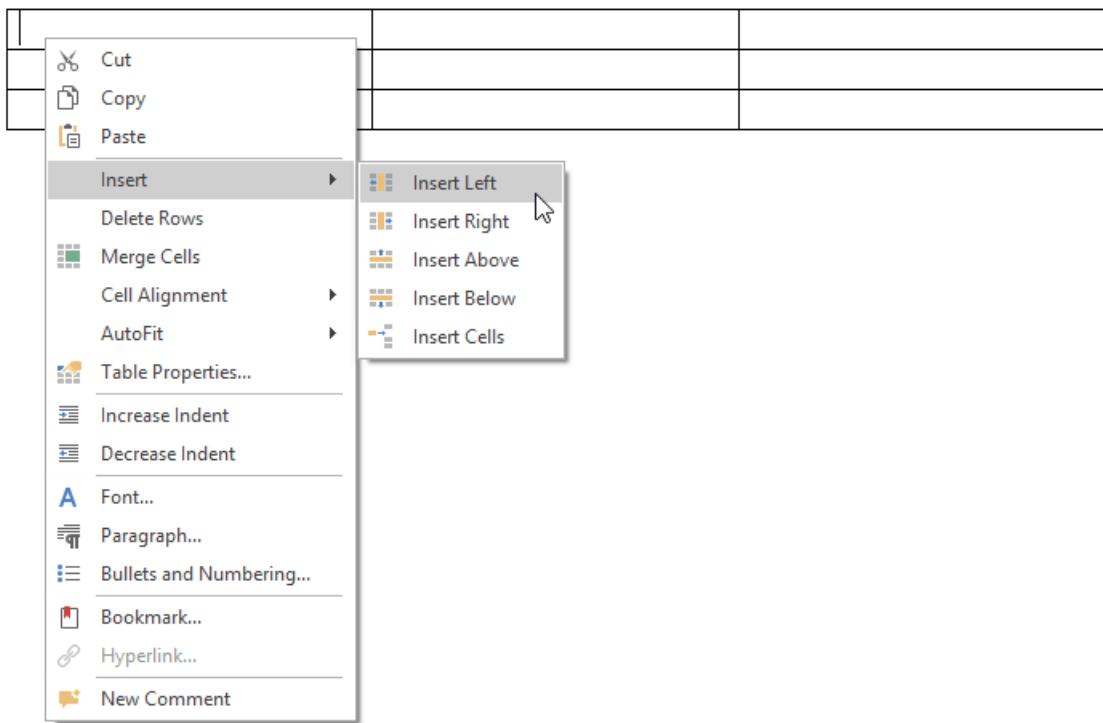
1. Click a cell located directly to the right or left of where you want to insert a new column.
2. Do one of the following:
 - To add a new column just to the left of the column containing the selected cell, on the **Table Tools\Layout tab**, in the **Rows & Columns** group, click the **Insert Columns to the Left** button.



- To add a new column just to the right of the column containing the selected cell, on the **Table Tools\Layout tab**, in the **Rows & Columns** group, click the **Insert Columns to the Right** button...



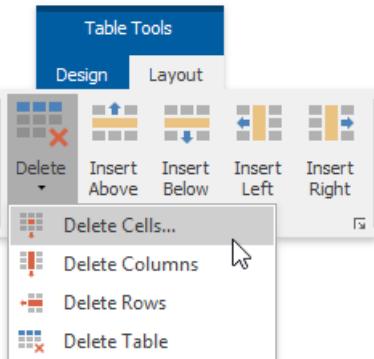
- ... or right-click a cell relative to which you want to insert a column, click the **Insert** item in the context menu and select **Insert Columns to the Left** or **Insert Columns to the Right**.



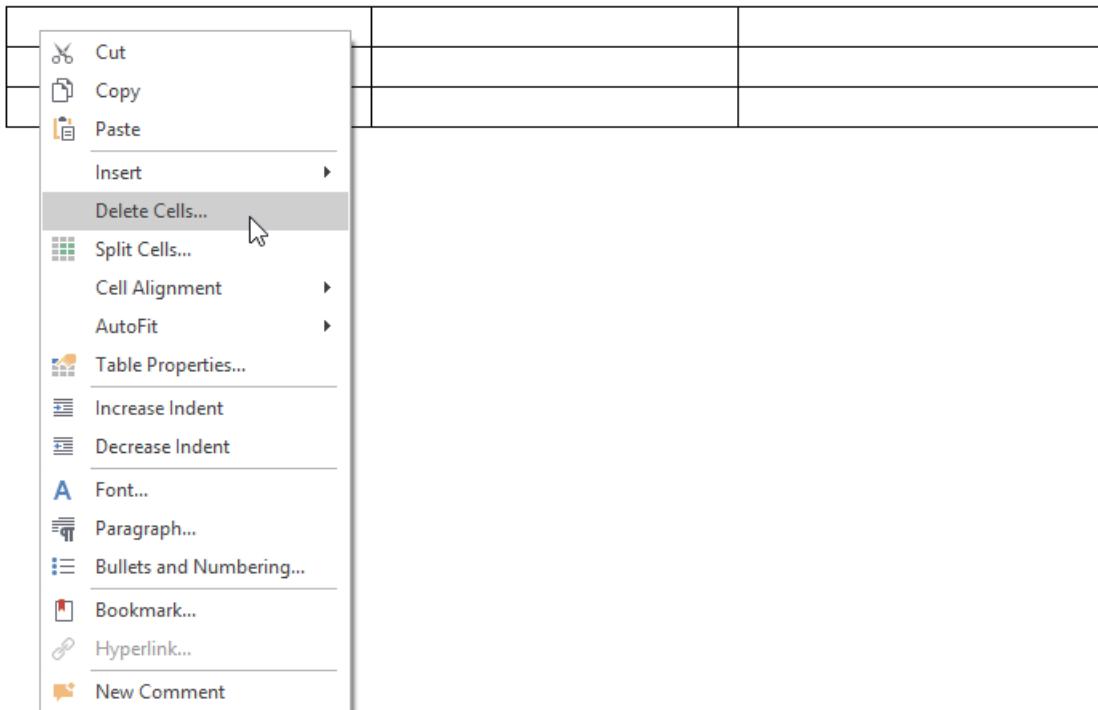
Delete a Cell, Row or Column

Delete a Cell

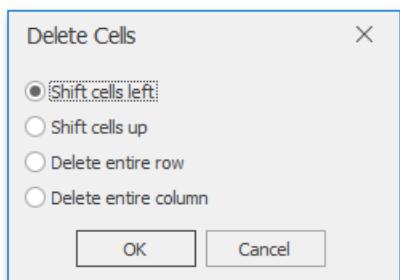
1. Click a cell to be deleted and then on the **Table Tools/Layout tab**, in the **Rows & Columns** group, click the **Delete** button and select **Delete Cells** from the invoked list...



2. ...or right-click a cell to be deleted and select **Delete Cells...** from the context menu.



3. In the invoked **Delete Cells** dialog choose one of the available options:

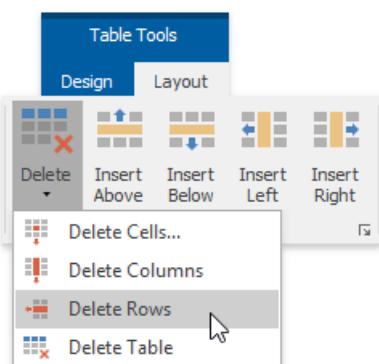


OPTION	DESCRIPTION	EXAMPLE

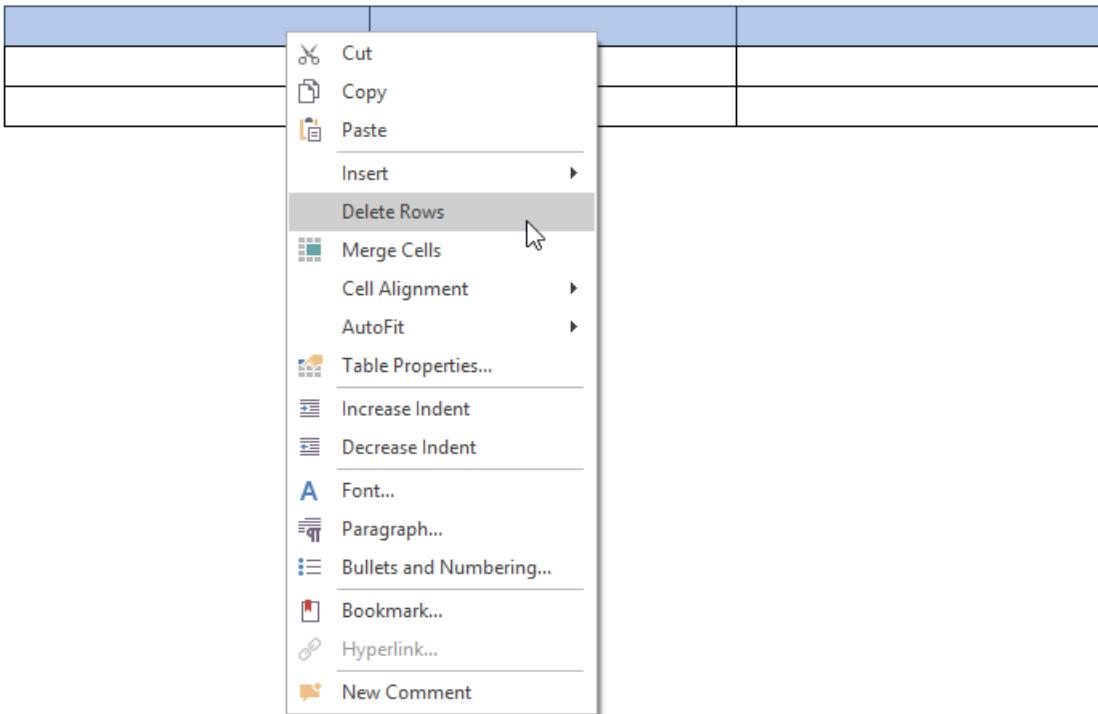
OPTION	DESCRIPTION	EXAMPLE																								
Shift cells left	Delete the selected cell and move all other cells in the row to the left.	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>11</td><td>22</td><td>33</td><td>44</td></tr> <tr><td>111</td><td>222</td><td>333</td><td>444</td></tr> </table> <table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>11</td><td>33</td><td>44</td><td></td></tr> <tr><td>111</td><td>222</td><td>333</td><td>444</td></tr> </table>	1	2	3	4	11	22	33	44	111	222	333	444	1	2	3	4	11	33	44		111	222	333	444
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111	222	333	444																							
Shift cells up	Delete the selected cell and move all other cells in the column up.	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>11</td><td>22</td><td>33</td><td>44</td></tr> <tr><td>111</td><td>222</td><td>333</td><td>444</td></tr> </table> <table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>11</td><td>222</td><td>33</td><td>44</td></tr> <tr><td>111</td><td></td><td>333</td><td>444</td></tr> </table>	1	2	3	4	11	22	33	44	111	222	333	444	1	2	3	4	11	222	33	44	111		333	444
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1	2	3	4																							
11	222	33	44																							
111		333	444																							
Delete entire row	Delete a row containing the selected cell.	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>11</td><td>22</td><td>33</td><td>44</td></tr> <tr><td>111</td><td>222</td><td>333</td><td>444</td></tr> </table> <table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>111</td><td>222</td><td>333</td><td>444</td></tr> </table>	1	2	3	4	11	22	33	44	111	222	333	444	1	2	3	4	111	222	333	444				
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Delete entire column	Delete a column containing the selected cell.	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>11</td><td>22</td><td>33</td><td>44</td></tr> <tr><td>111</td><td>222</td><td>333</td><td>444</td></tr> </table> <table border="1"> <tr><td>1</td><td>3</td><td>4</td></tr> <tr><td>11</td><td>33</td><td>44</td></tr> <tr><td>111</td><td>333</td><td>444</td></tr> </table>	1	2	3	4	11	22	33	44	111	222	333	444	1	3	4	11	33	44	111	333	444			
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11	33	44																								
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Delete a Row

1. Select a row to be deleted or click on one cell included into that row.
2. On the **Table Tools/Layout tab**, in the **Rows & Columns group**, click the **Delete** button and select **Delete Rows** from the invoked list...

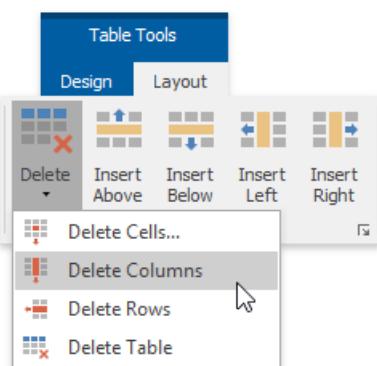


3. ...or select a row to be deleted, right-click it and select **Delete Rows** from the invoked context menu.

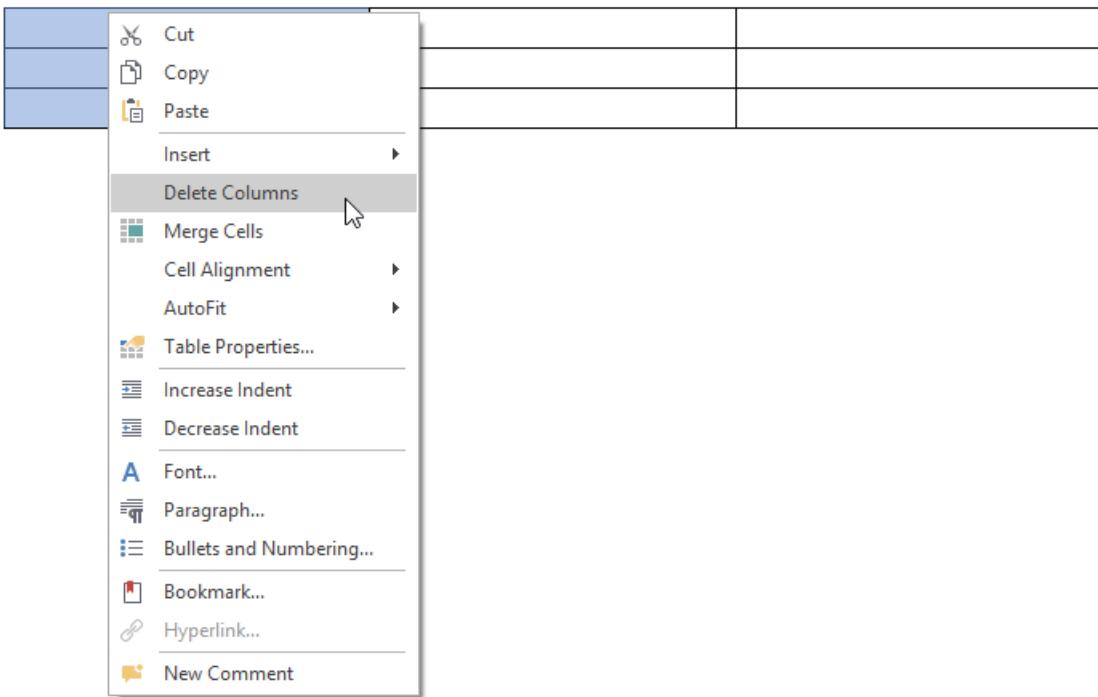


Delete a Column

1. [Select a column](#) to be deleted or click on one cell included into that column.
2. On the **Table Tools/Layout** tab, in the **Rows & Columns** group, click the **Delete** button and select **Delete Columns** from the invoked list...



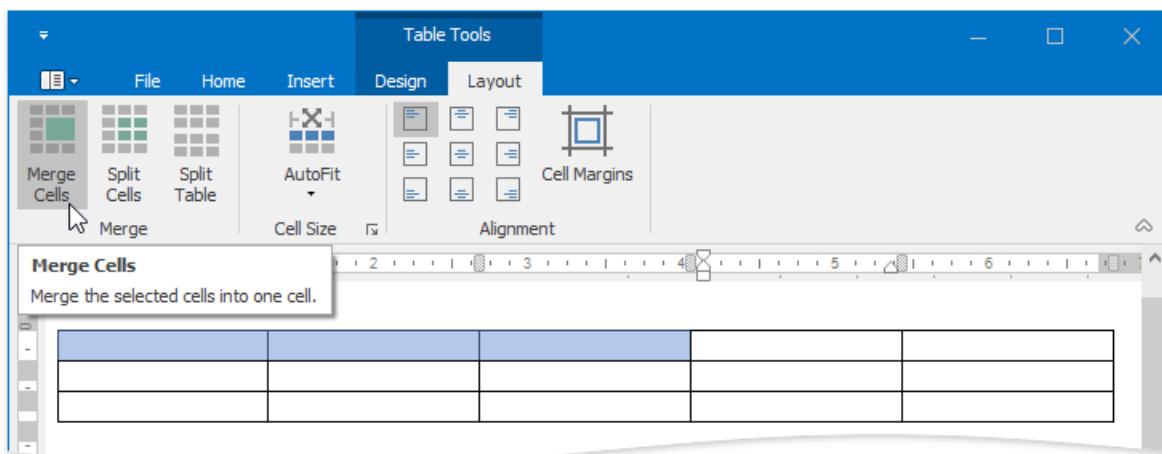
3. ...or [select a column](#) to be deleted, right-click it, and select **Delete Columns** from the invoked context menu.



Merge or Split Cells

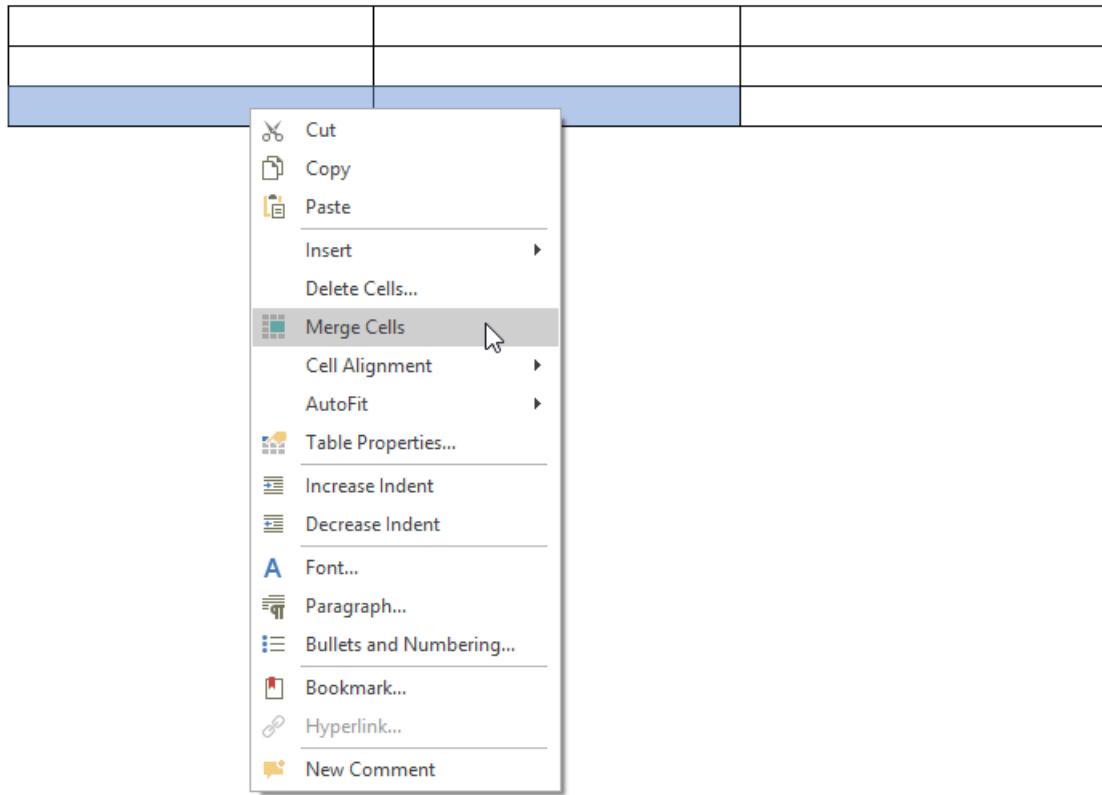
Merge Cells

1. Select cells that you wish to merge. For example, you can [select multiple cells, a whole row or column](#).
2. On the **Table Tools/Layout** tab, in the **Merge** group, click the **Merge Cells** button.



—You can also:

Right-click cells to be merged and select **Merge Cells** from the context menu.

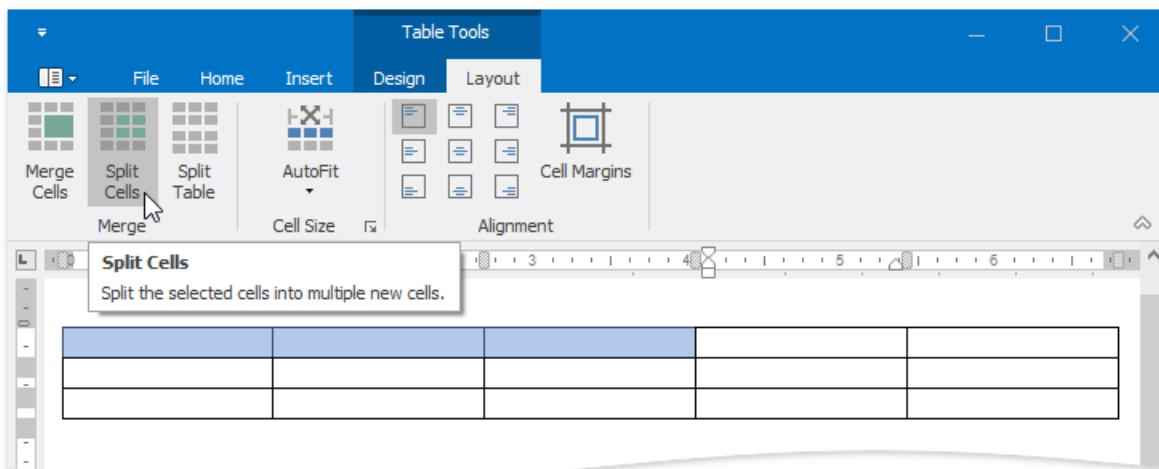


NOTE

The **Merge Cells** button becomes available, after you have selected the table cells to be merged.

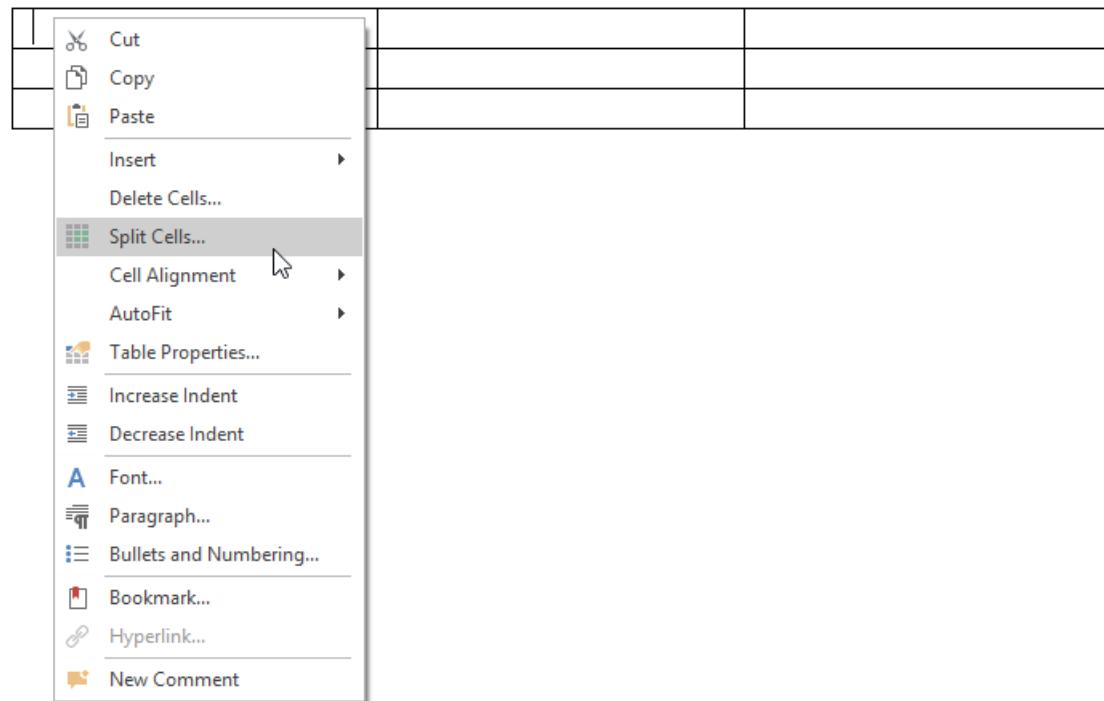
Split Cells

1. Click a cell or select multiple cells that you wish to split.
2. On the **Table Tools/Layout** tab, in the **Merge** group, click the **Split Cells** button.



-You can also:

If you wish to split a single cell, right-click this cell and select **Split Cells** from the context menu.

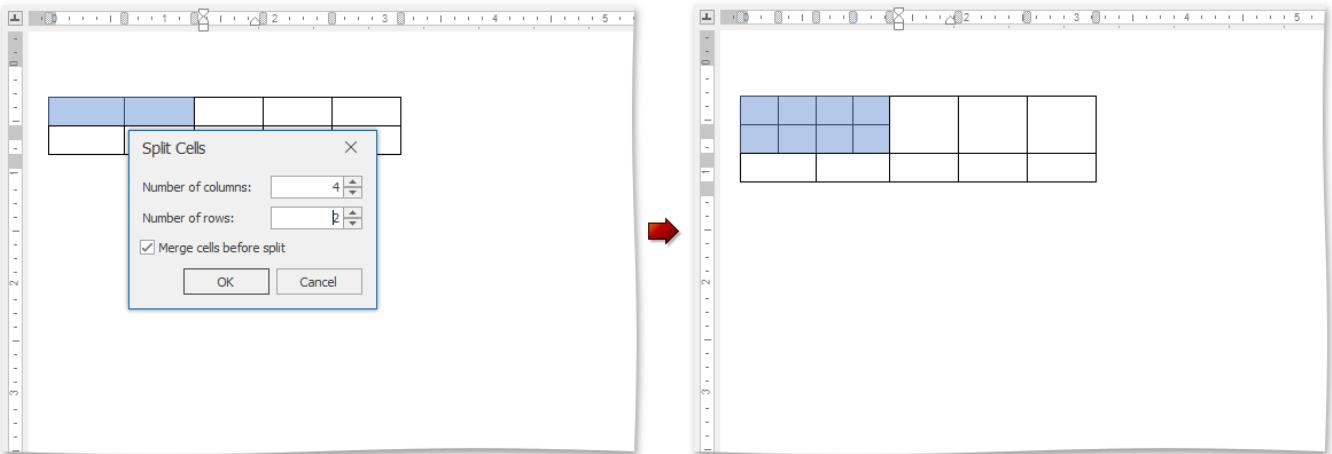


NOTE

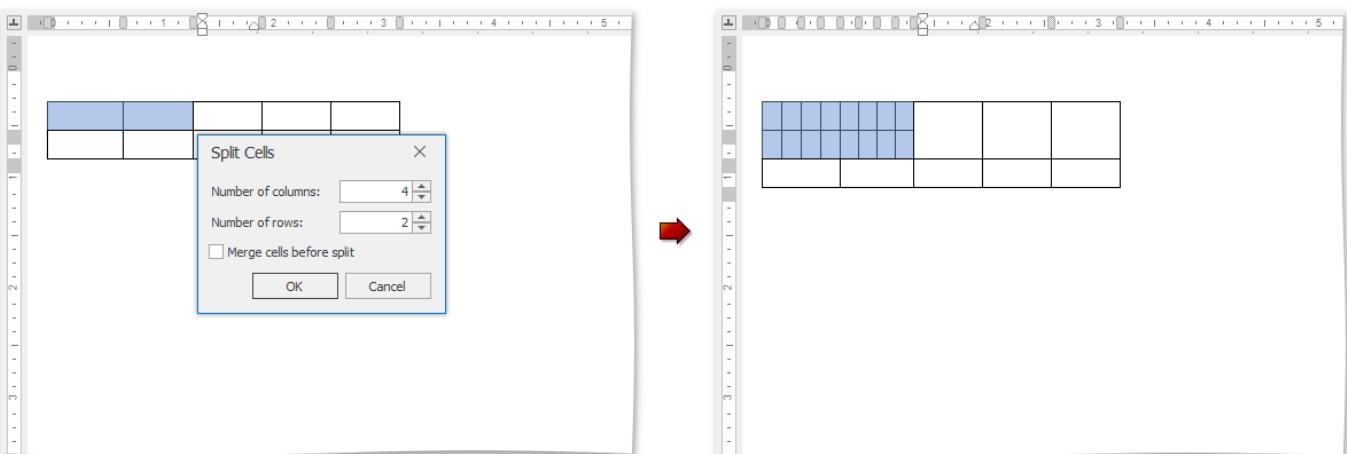
The **Split Cells...** item of the context menu is available, if you right-click one cell of a table only.

3. In the invoked **Split Cells** dialog, set the number of columns and rows into which the selected cells should be split.

If multiple cells are selected, you can first merge these cells and then split the newly created cell into the specified number of columns and rows (select the **Merge cells before split** check box in the dialog) ...



... or each of the selected cells can be split (clear the **Merge cells before split** check box).



Split Table

1. Click any cell included into a row relative to which you wish to split a table. This row will be the first row of the second table.
2. On the **Table Tools/Layout tab**, in the **Merge** group, click the **Split Table** button.

The screenshot shows a Microsoft Word document with a table containing 10 cells. A red arrow points from the top panel to the bottom panel. The top panel shows the ribbon with the 'Table Tools' tab selected, specifically the 'Layout' tab. In the 'Merge' group, the 'Split Table' button is highlighted. A tooltip for 'Split Table' says: 'Split the table into two tables.' and 'The selected row will become the first row of the new table.' The bottom panel shows the table split into two separate tables, each with 5 cells.

1	2	3	4	5
11	22	33	44	55

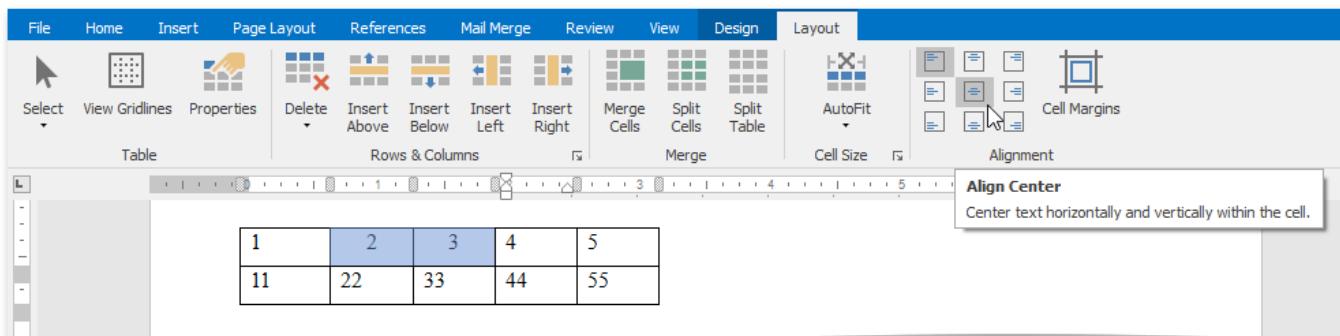
1	2	3	4	5
---	---	---	---	---

11	22	33	44	55
----	----	----	----	----

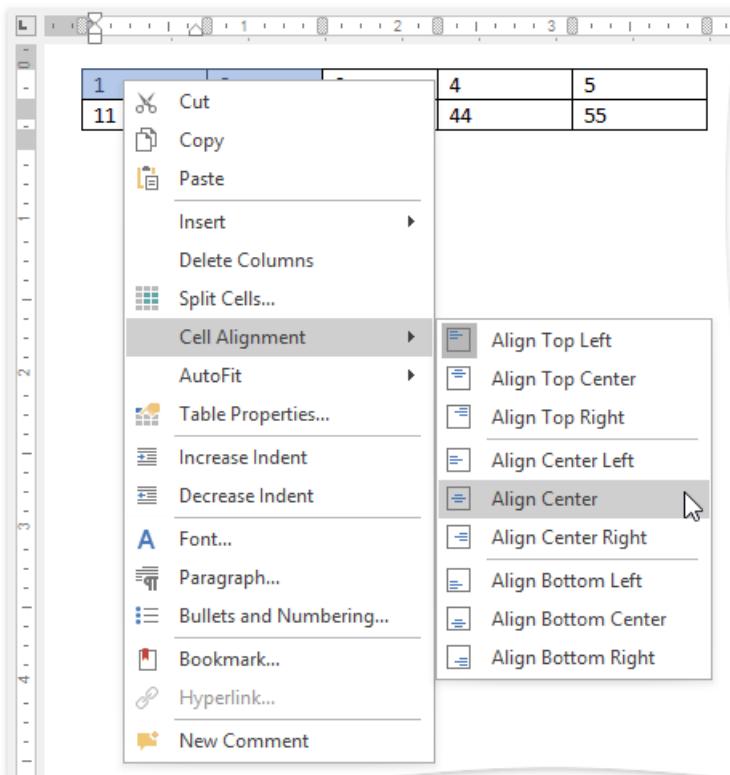
Align Text in Table Cells

By default, text is aligned to the top left corner of a table cell. You can change both the vertical and horizontal alignment of text in a table cells.

1. Click a cell or [select multiple cells](#) containing text that you want to align.
2. Click one of the available buttons on the **Table Tools/Layout tab**, in the **Alignment** group.



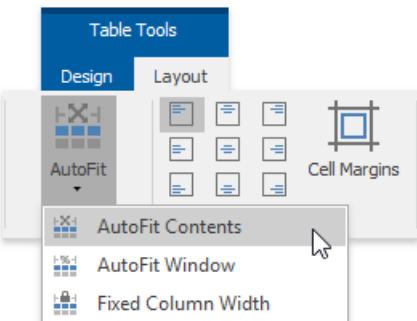
3. Right-click the cells, point to the **Cell Alignment** item and select the desired options from the invoked list.



Adjust Column Width

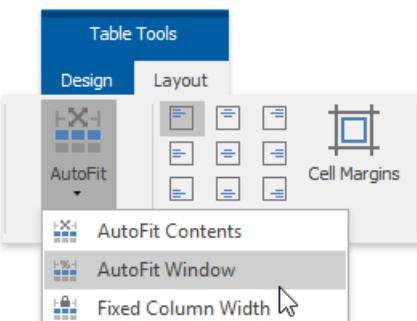
Automatically Change Column Width to Fit Entered Data

1. Click within a table.
2. On the **Table Tools/Layout tab**, in the **Cell Size** group, click the **AutoFit** button and select **AutoFit Contents**.



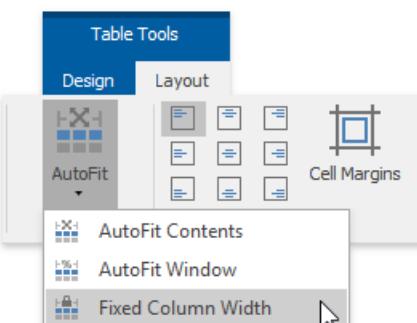
Automatically Change Table Width to Fit Page Margins

1. Click within a table.
2. On the **Table Tools/Layout tab**, in the **Cell Size** group, click the **AutoFit** button and select **AutoFit Window**.



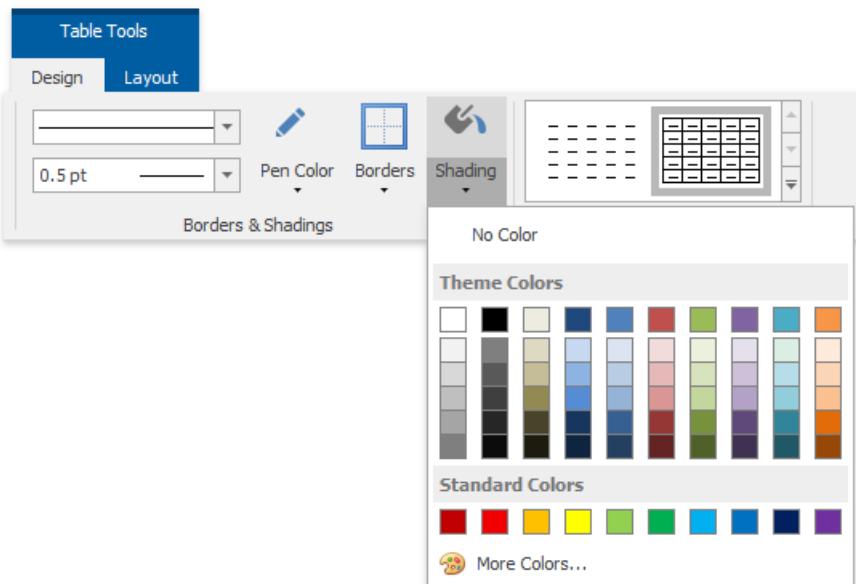
Fix a Specific Width for Each Column in a Table

1. Specify a width for each column in a table (for example, by using the mouse or via the [Table Properties](#) dialog).
2. On the **Table Tools/Layout tab**, in the **Cell Size** group, click the **AutoFit** button and select **Fixed Column Width**.



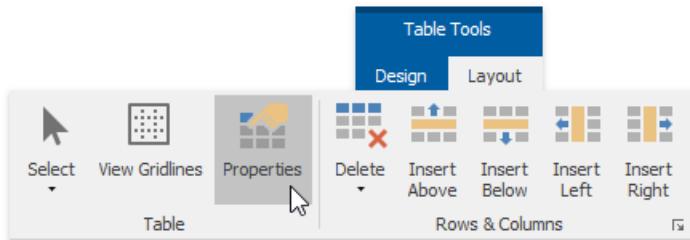
Set Background Color of Cells

1. Select a table or specific cells whose background color you want to set.
2. Click the **Shading** arrow and select a color to fill-in the background of the selected cells.



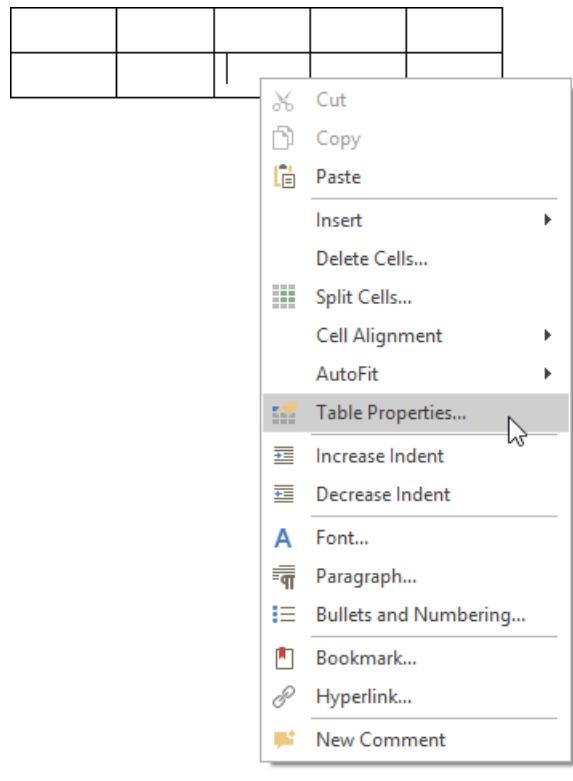
Set Table Properties

To change settings of table **rows**, **columns**, particular **cells** or whole **tables**, use the **Table Properties** dialog. To invoke this dialog, click within a table whose properties you wish to specify, and on the **Table Tools/Layout tab**, in the **Table** group, click the **Properties** button.



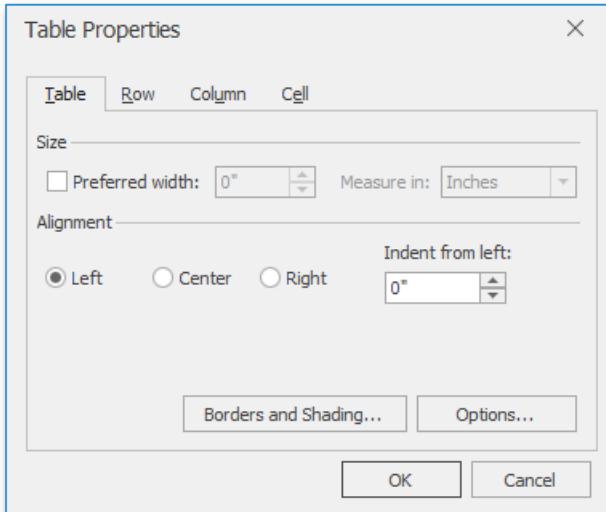
-You can also:

Right-click within a table to be modified and select **Table Properties...** from the context menu.

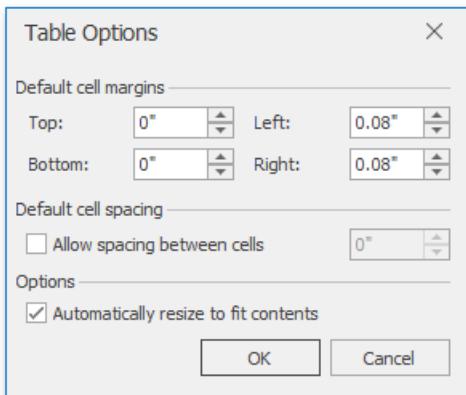


The **Table Properties** dialog includes several tabs.

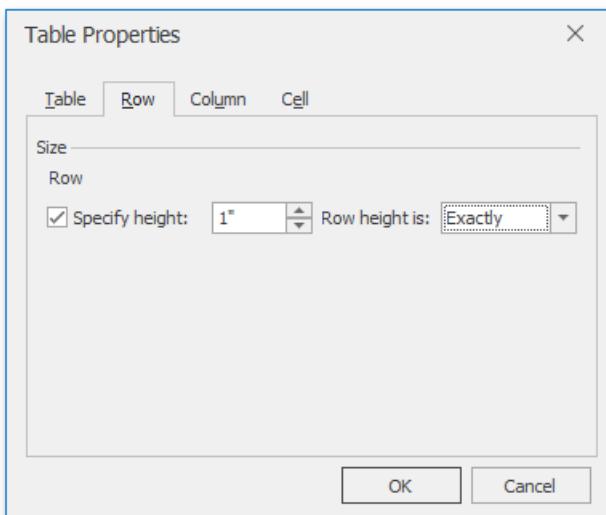
- On the **Table** tab you can set table properties, such as the preferred width for an entire table and table alignment (position of the table relative to the margins of the page).



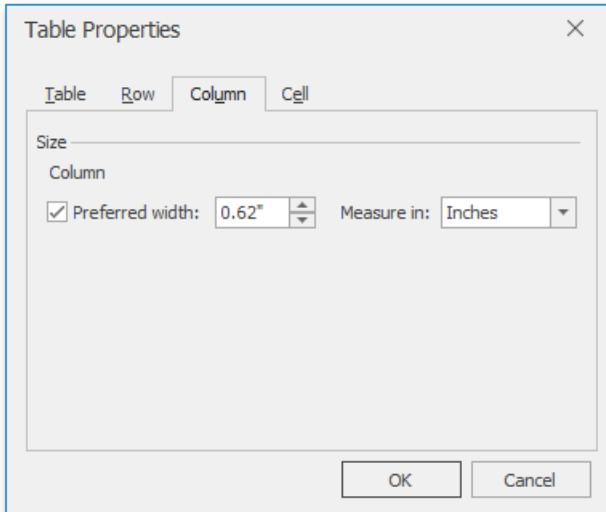
The **Options...** button invokes the **Table Options** dialog that allows you to set default cell margins (spacing between cell borders and text within each cell), specify whether the additional space should be between cells, set the amount of this space, and set whether or not table columns should be automatically expanded to accommodate cell content.



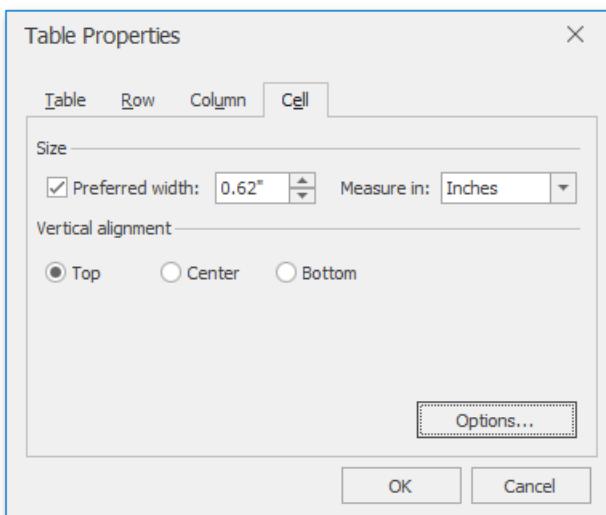
- The **Row** tab allows you to set the height of the table row, enable or disable the row to break across pages, and specify whether or not the row should be the first row on each page in case the table is more than one page.



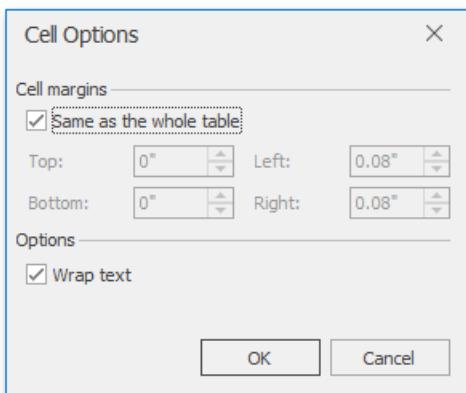
- On the **Column** tab, you can set the preferred width for the table column.



- Options on the **Cell** tab allow you to set the preferred width of the table cell and select a vertical alignment of the text within the cell.

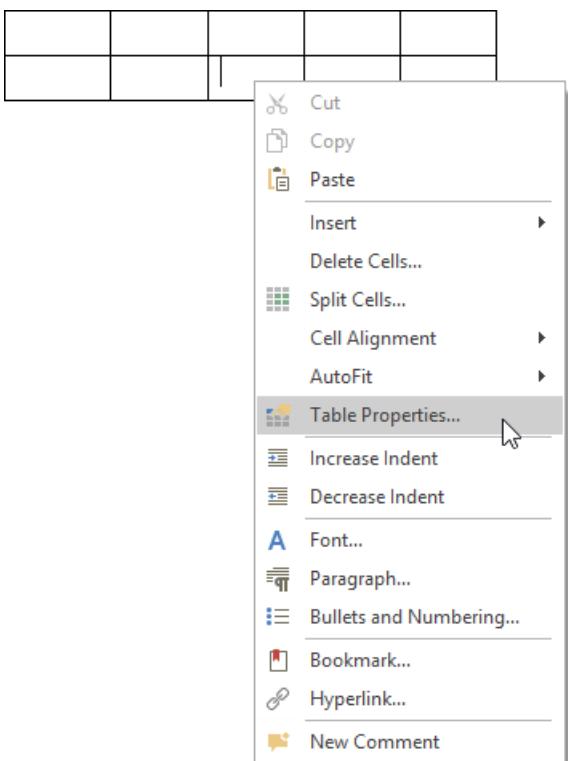
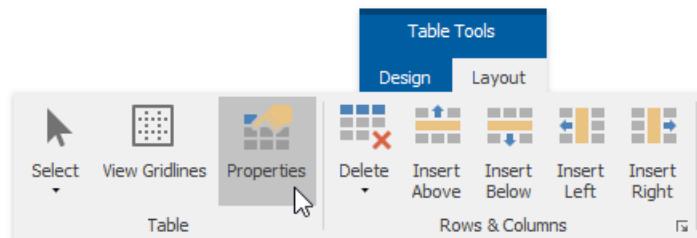


The **Options...** button invokes the **Cell Options** dialog allowing you to customize cell margins (space between cell borders and cell content) and specify whether or not the text within the cell should be wrapped and fitted.

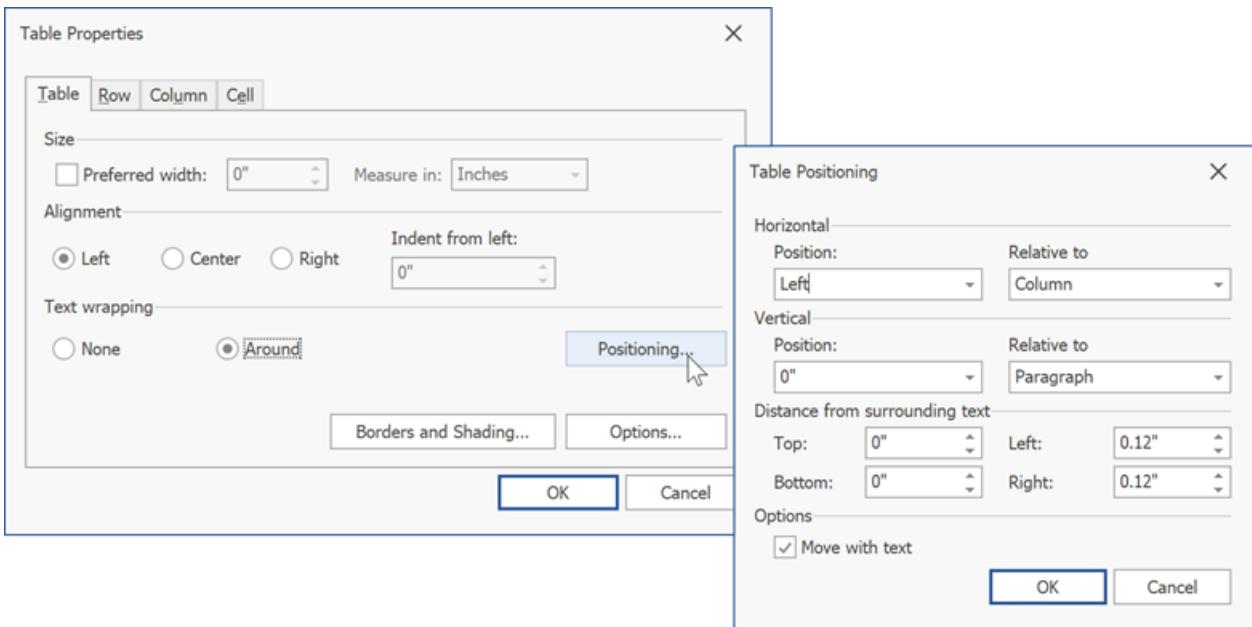


Wrap Text Around a Table

- Place the cursor within the target table.
- Click the **Properties** button in the **Table** group on the **Table Tools/Layout tab** or invoke the context menu and select **Table Properties**.



- In the invoked **Table Properties** dialog, click **Around** in the **Text Wrapping** section. Click the enabled **Positioning** button to open the **Table Positioning** dialog.



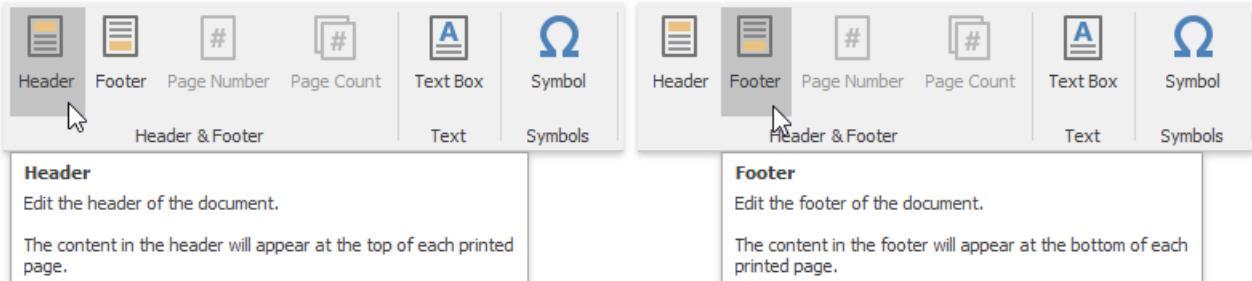
- In this dialog, you can specify the table's horizontal and vertical positions. Enter a numeric value in the **Position** combo box to specify an absolute position. To set a relative position, select the required alignment from the **Position** list and the relative element from the **Relative to:** list.
- Specify the distance between the table and surrounding text in the **Distance from surrounding text** section.
- Check **Move with Text** to make the table move with surrounding text.

Header and Footer

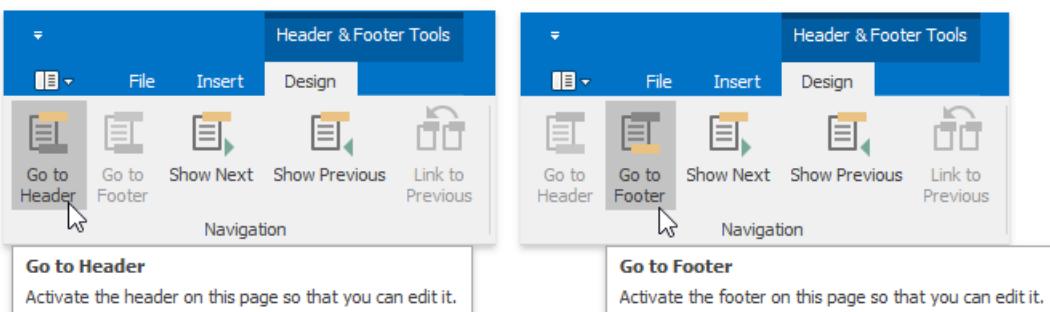
Headers and footers are the areas at the bottom or the top of each page in a document. You can insert text or graphics into headers and footers (for example, [page numbers](#), a [company logo](#), the document title or file name, the author's name).

Insert a Header or Footer

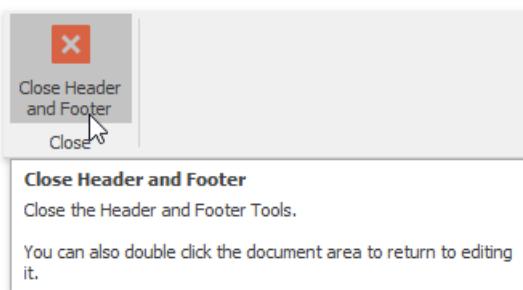
1. On the **Insert** tab, in the **Header&Footer** group, click the **Header** or **Footer** button.



2. Type text or insert graphics in the header or footer area.
3. To switch between the header and footer areas, use the **Go to Header** and **Go to Footer** buttons of the **Header & Footer Tools / Design** ribbon tab.



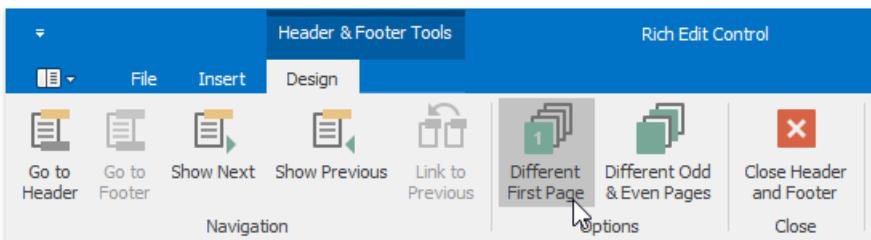
4. If necessary, you can [align](#) and [format text](#) in the header and footer areas, as required.
5. To finish, double-click anywhere in the document, or on the **Header & Footer Tools / Design** tab, in the **Header&Footer** group, click **Close Header and Footer**.



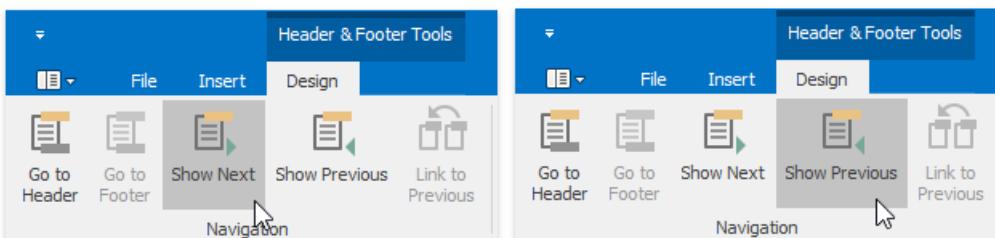
Create a Different Header or Footer for the First Page

You can skip the header or footer on the first page, or create a unique header or footer for the first page of the document.

1. Double-click the header or footer area on the first page of the document.
2. On the **Header & Footer Tools / Design** tab, in the **Options** group, click the **Different First Page** button.



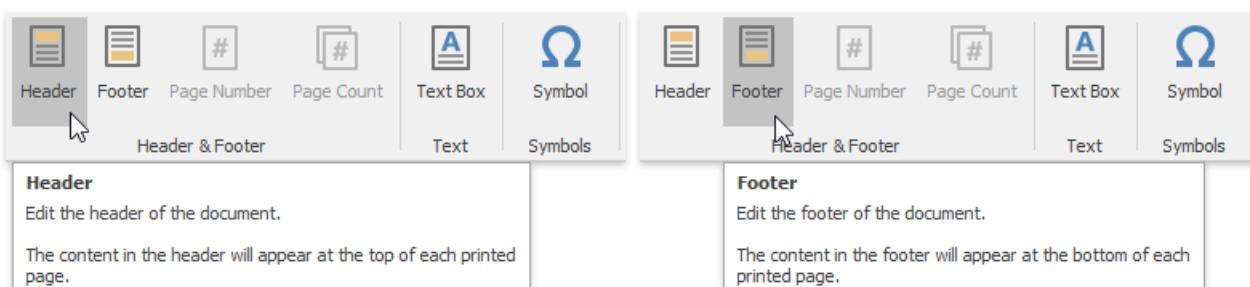
3. If necessary, click the **Show Next** and **Show Previous** buttons on the **Header & Footer Tools / Design** tab to activate the **First Page Header** and **First Page Footer** areas.



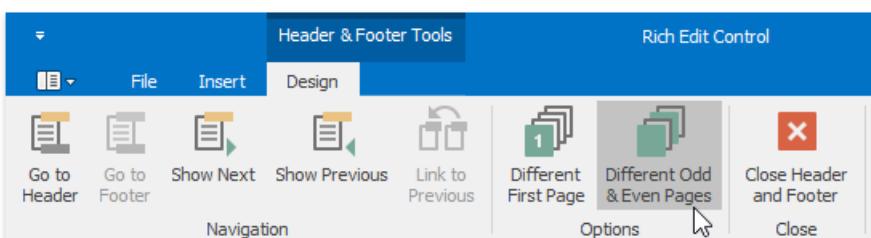
4. Change the contents of the header or footer on the first page (or delete the contents of the header or footer to use no header or footer on the first page of the document).

Create a Different Header or Footer for Odd and Even Pages

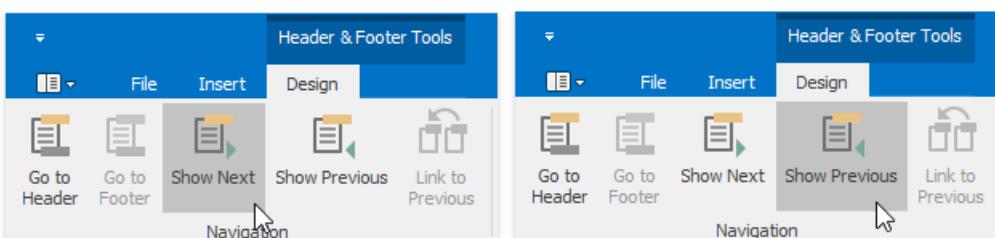
1. On the **Insert** tab, in the **Header&Footer** group, click the **Header** or **Footer** button.



2. On the **Header & Footer Tools / Design** tab, in the **Options** group, click the **Different Odd & Even Pages** button.



3. If necessary, click the **Show Next** and **Show Previous** buttons on the **Header & Footer Tools / Design** tab to move into the header or footer areas of odd or even pages.



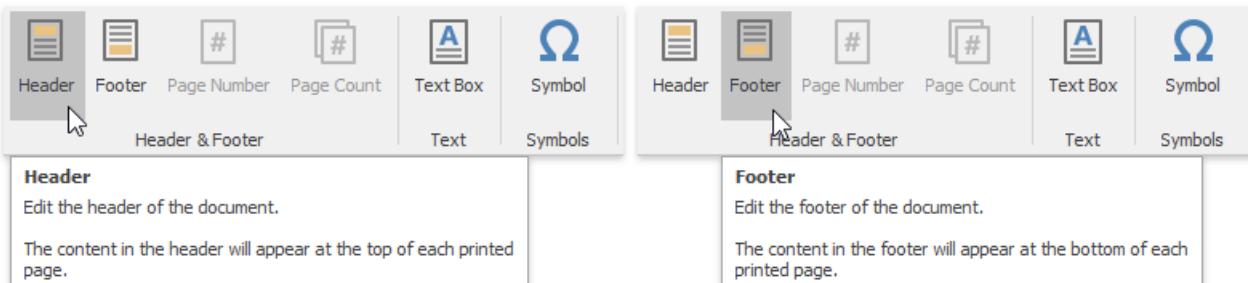
4. Create the header or footer for odd pages in the **Odd Page Header** or **Odd Page Footer** areas and create the header or

footer for even pages in the **Even Page Header** or **Even Page Footer** areas.

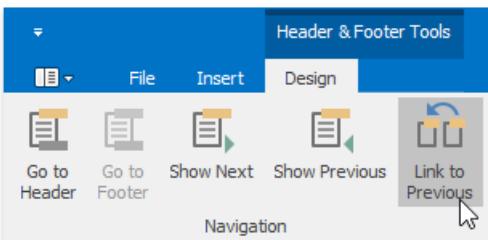
Use Specific Headers and Footers for Each Section

If your document is divided into sections, you can specify different headers and footers for each section.

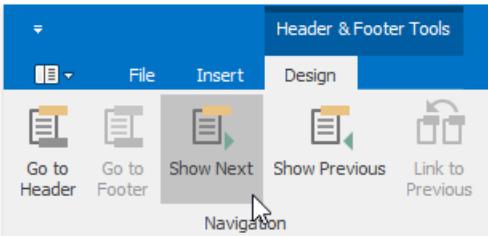
1. Click the first section from the document beginning whose headers and footers you wish to change.
2. Click the **Header** or **Footer** button on the **Insert** tab.



3. On the **Header & Footer Tools / Design** tab, in the **Navigation**, click **Link to Previous** group to break the connection between the current section and the previous section.

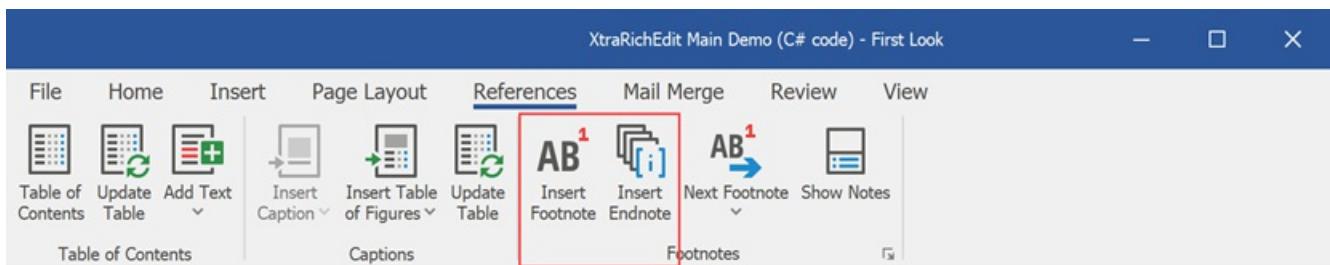


4. Modify the existing header or footer as required, or create a new header or footer for the current section.
5. Repeat the previous two steps for the next sections for which you want to set specific headers and footers. Use the **Show Next** button on the **Header & Footer Tools / Design** ribbon tab to navigate to header or footer areas of the next sections.

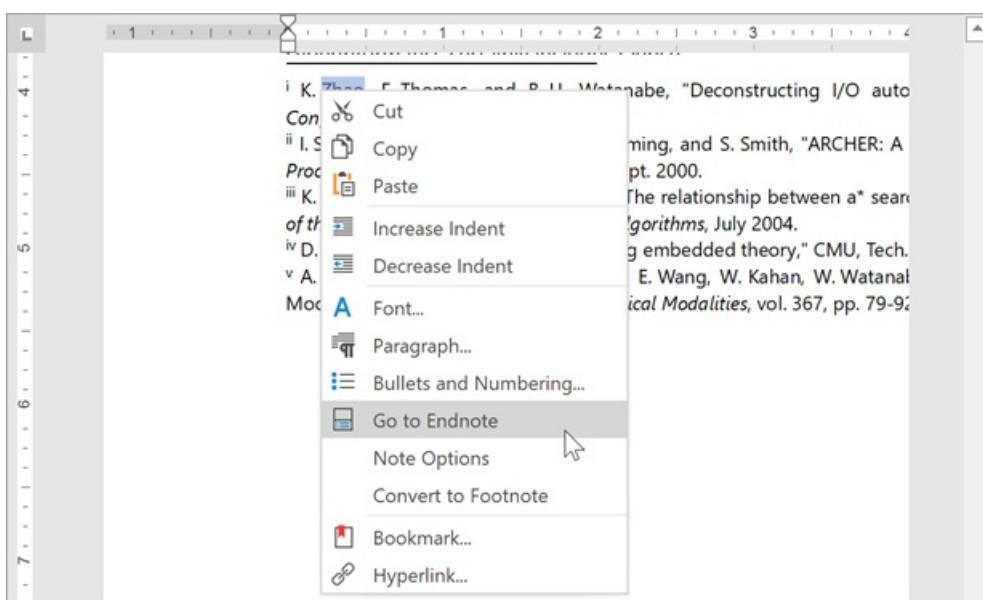


Insert and Edit a Footnote or an Endnote

- Place the cursor at the required position.
- Click the **Insert Footnote** or **Insert Endnote** button in the **Footnotes** group on the **References** tab.

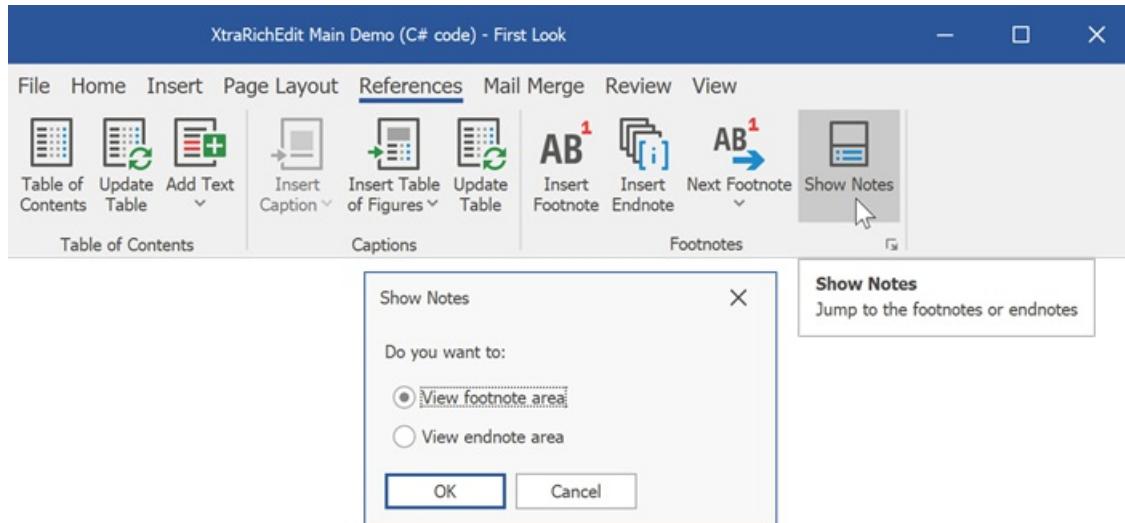


- Enter the footnote or endnote text. The note content can be formatted as regular text.
- Right-click a note and select **Go to Footnote** or **Go to Endnote** to find the note reference position.

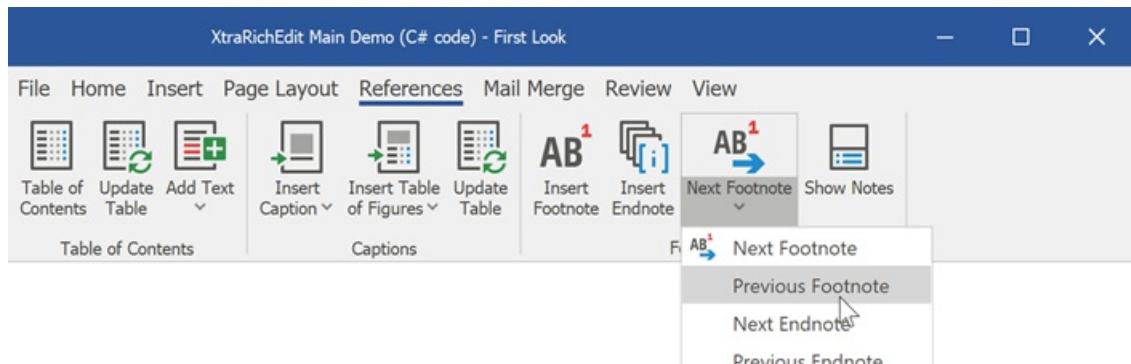


View Notes

To display notes, click **Show Notes** in the **Footnotes** group on the **References** tab and select the required area.

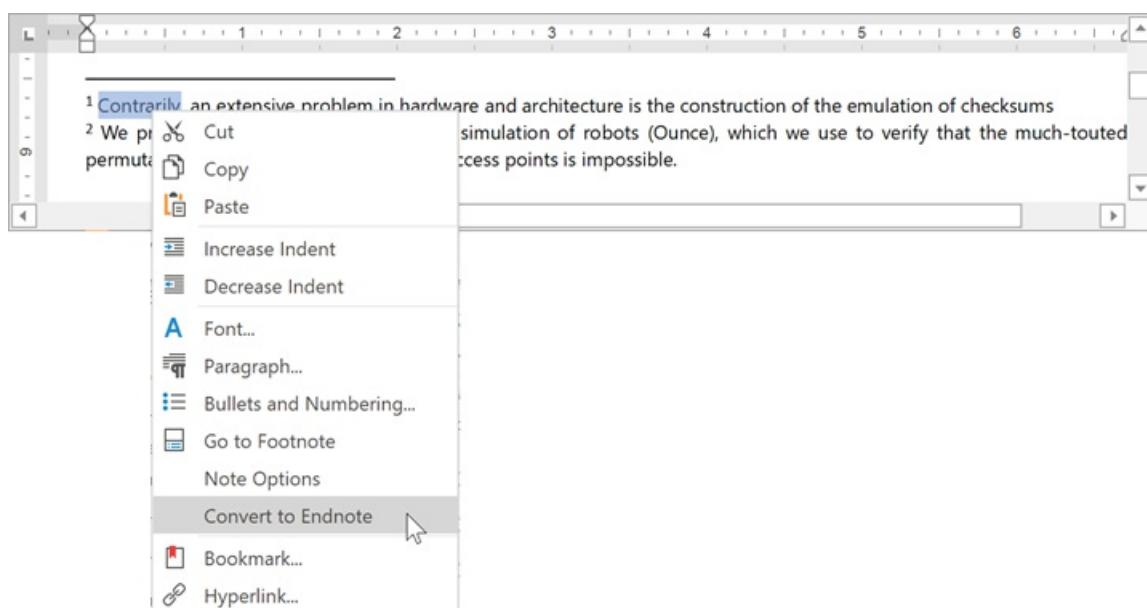


Use buttons on the **References** tab to navigate through footnotes or endnotes.

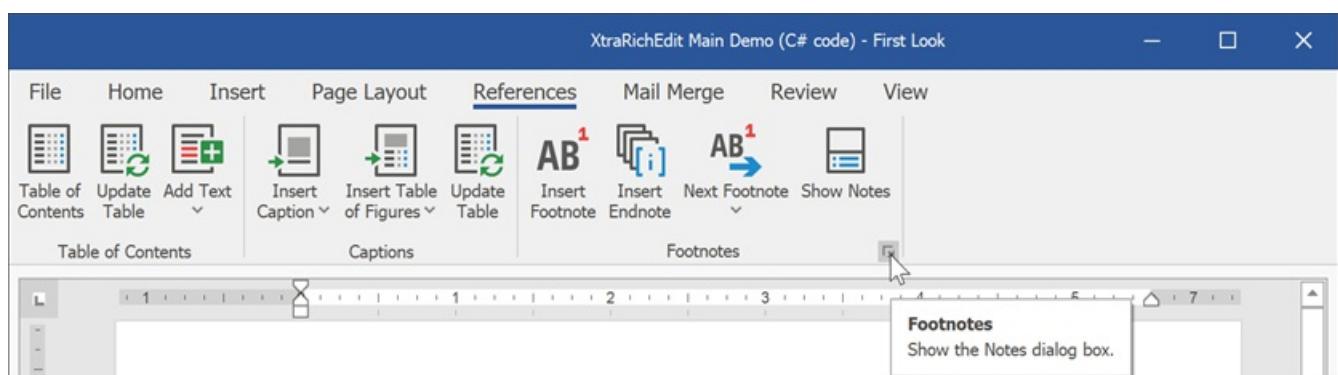


Convert Footnotes to Endnotes and Vice Versa

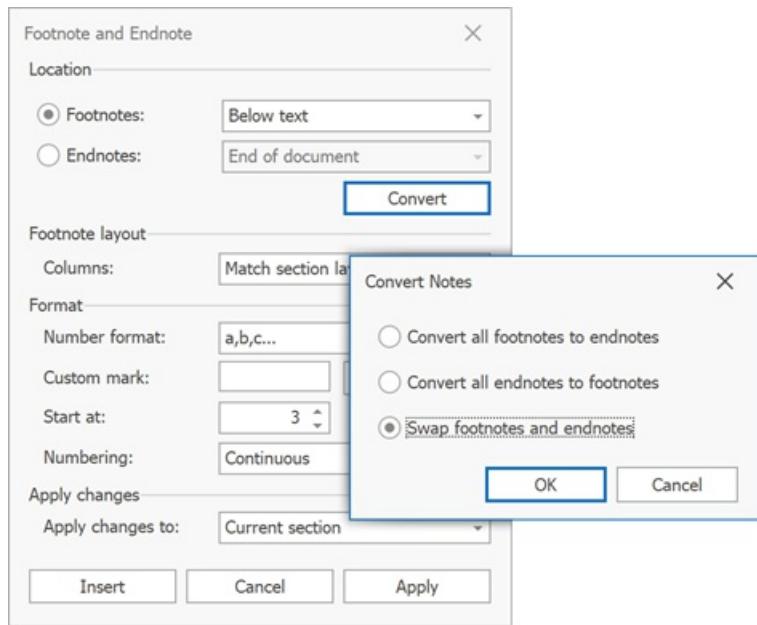
Place the cursor within the target footnote or endnote. Right-click the note and select **Convert to Endnote** or **Convert to Footnote**.



You can convert all footnotes to endnotes and vice versa. Click the **Footnotes** dialog box launcher on the **References** tab.

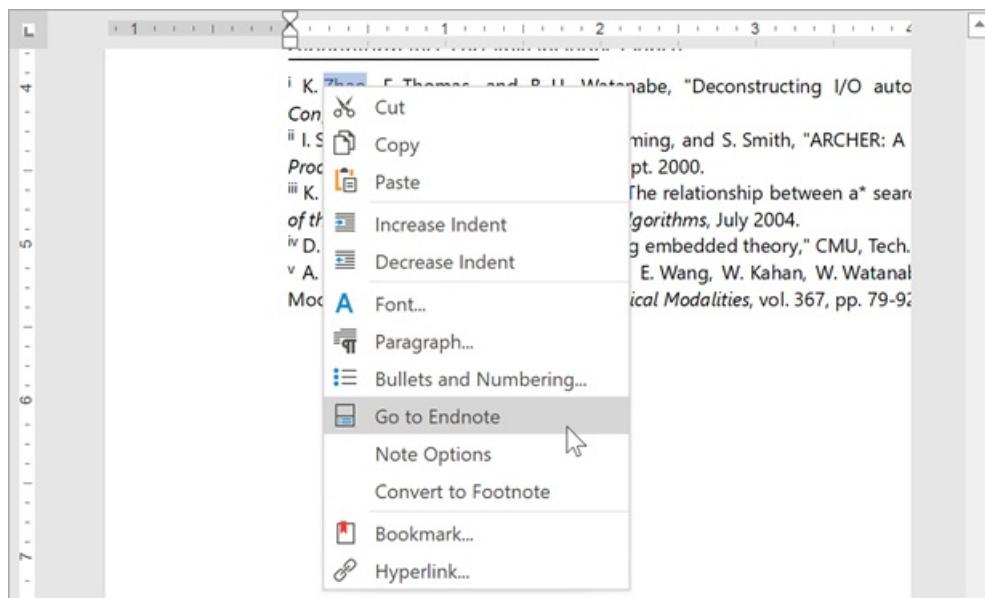


In the **Footnotes** dialog, click the **Convert** button. This invokes the **Convert Notes** dialog. Select the required option to convert or swap notes.



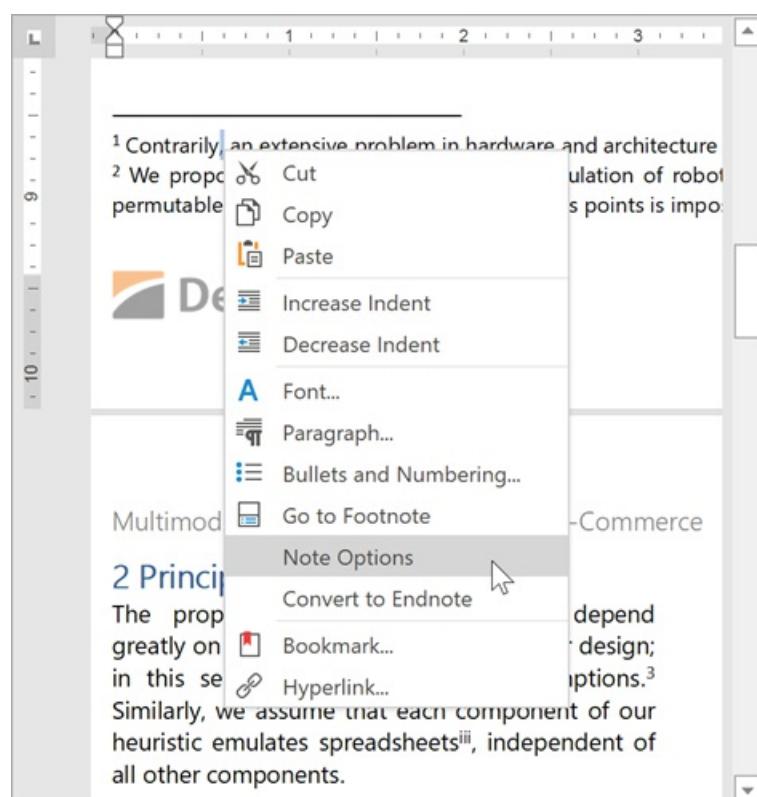
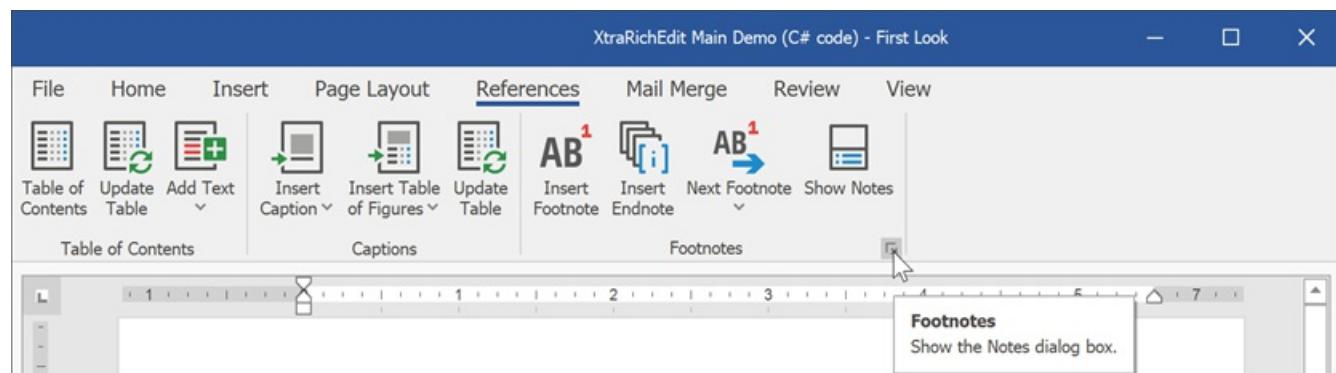
Remove a Footnote or Endnote

Delete the note reference to remove a footnote or endnote. Right-click the note and click **Go to Footnote** or **Go to Endnote** to locate the reference.

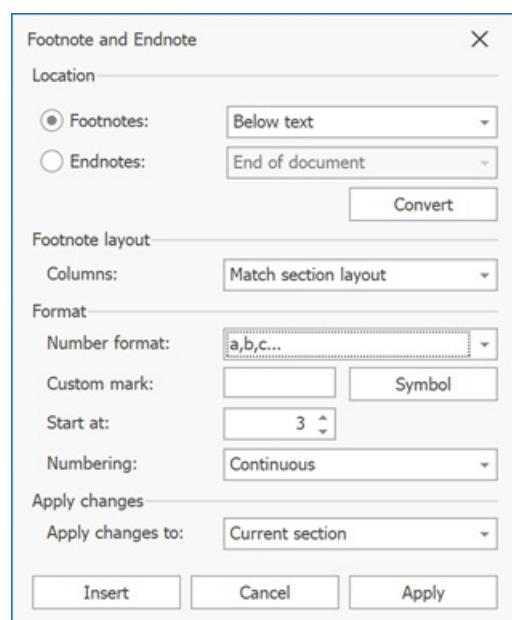


Change Note Appearance

Click the **Footnotes** dialog box launcher on the **References** tab or right-click a note and select **Note Options**.

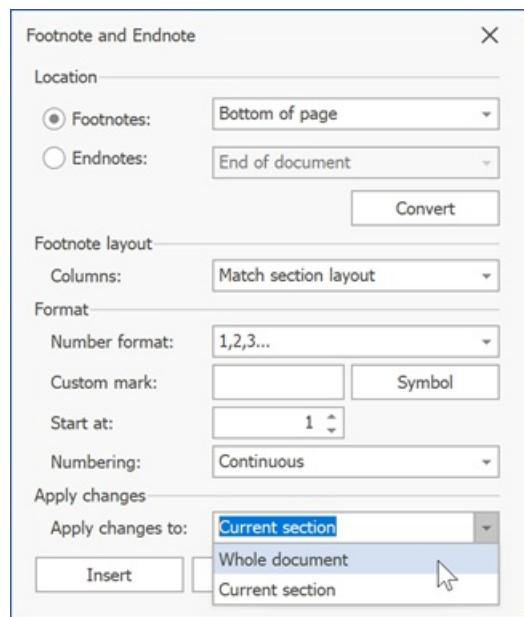


This invokes the **Footnote and Endnote dialog**. Options in this dialog allow you to specify note location, layout, and format.



To specify what note options to change, click the **Footnotes** or **Endnotes** radio button in the dialog's **Location** section.

You can apply changes to the current section or to the whole document. Select the required options in the **Apply changes to:** drop-down list.



Change Note Location

Select the desired note location from the **Location** drop-down menu. You can place footnotes at the bottom of the page or below text. Endnotes can be located at the end of the document or at the end of each section.

The image contains two side-by-side screenshots of the 'Footnote and Endnote' dialog box. Both screenshots show the 'Location' section with different radio button selections and dropdown menu options. In the left screenshot, the 'Footnotes:' radio button is selected, and the dropdown menu shows 'Bottom of page' (selected), 'Below text', and 'Bottom of page'. In the right screenshot, the 'Endnotes:' radio button is selected, and the dropdown menu shows 'Bottom of page' (selected), 'End of document' (selected), and 'End of section'. Both screenshots also show other dialog sections like 'Footnote layout' (Columns: Match section layout), 'Format' (Number format: 1,2,3...), and 'Apply changes' (Apply changes to: Current section).

Change Note Layout

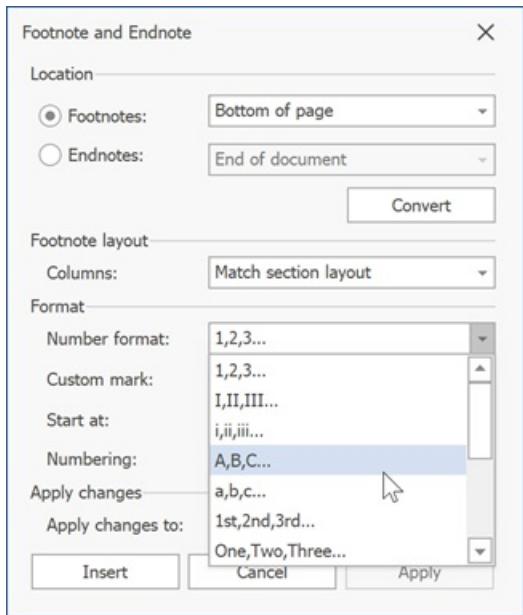
Select the number of columns in the **Columns:** list.

This parameter is ignored. You can set this option and save its value to a file for further processing in Microsoft Word or other word processing applications.

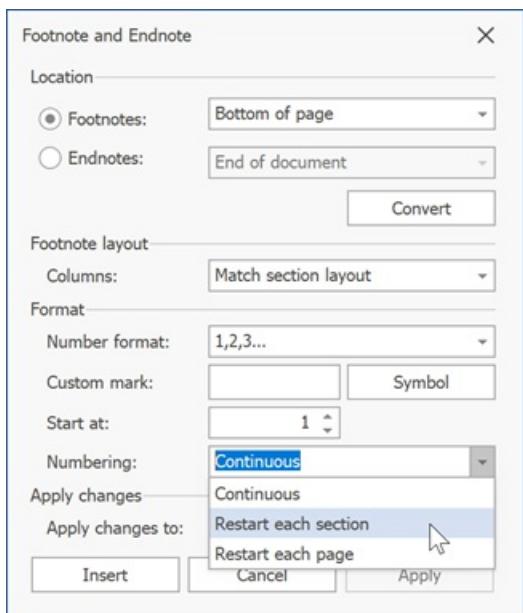
Change Note Format

The **Format** section allows you to specify the following options:

- **Number Format** - Specifies how to format numbers in footnote or endnote references. Select the desired format from the drop-down list.



- **Custom Mark** - Specifies the symbol used to mark a footnote or endnote reference. You can paste a symbol to the **Custom mark** field or click **Symbol** to select a symbol from the **Symbol** dialog. image
- **Start At** - Specifies the start number for a footnote or endnote reference. Enter the number in the **Start At** field. If you set the **Numbering** option to **Restart each section** or **Restart each page**, the **Start At** option value is ignored.
- **Numbering** - Specifies when reference numbering should be reset. If you set this option to **Restart each section** or **Restart each page** and then change the **Start At** option, the **Numbering** value is reset to **Continuous**.



Mail Merge

The **Mail Merge** feature enables you to use the text retrieved from a data source for filling in the fields in a document template. This feature is useful for letters, catalogs, mailing labels, and for personalizing any kind of document.

NOTE

If the data source provides formatted text to insert in the merge field, its formatting will not be recognized and properly processed.

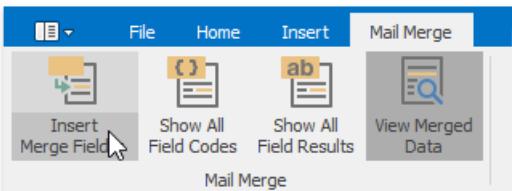
To merge data fields in a **Rich Text Editor** document, perform the following steps.

- **Prepare a Data Source**

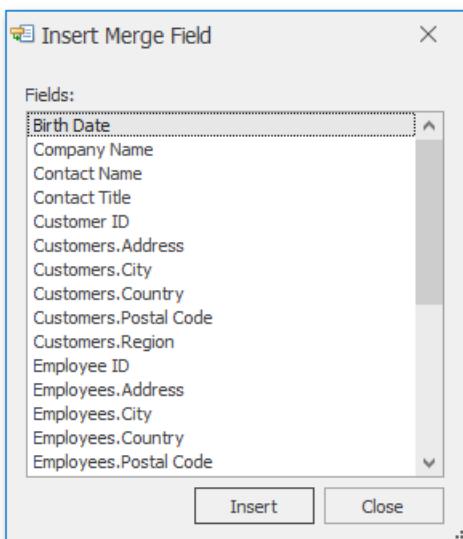
To perform a mail merge, you need a template and a data source. The template is a document containing fields (placeholders for the information that will be merged). The data source contains data that will be merged into the fields in the document template to create merged documents.

- **Create a Template for Mail Merge (Insert Fields)**

When an application runs with the mail merge data source attached to the **Rich Text Editor**, you can create a template for mail merge. To do this, [create a new document](#), type the mail content and insert merge fields into this document. To insert fields, on the **Mail Merge** tab, in the **Mail Merge** group, click the **Insert Merge Field** button.



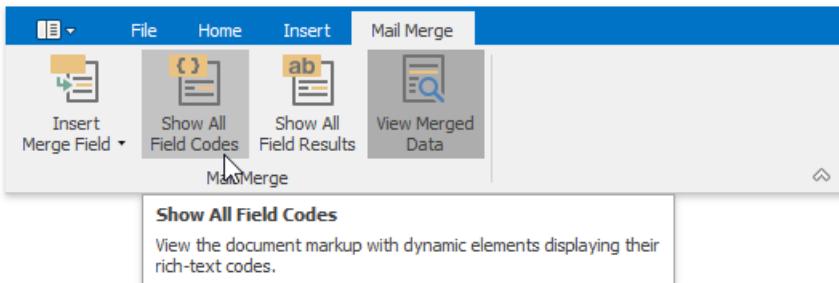
The drop-down list or a dialog window containing field names will be shown.



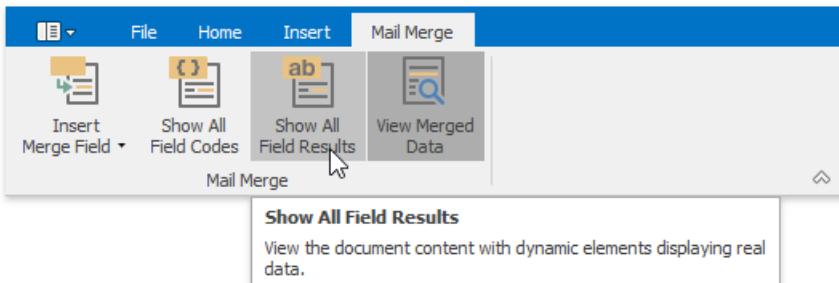
Choose the required field and click **Insert**. The field is inserted at the cursor position.

- **Preview Field Values**

The **Show All Field Codes** button on the **Mail Merge** tab displays field codes for all fields in the document.



The **Show All Field Results** button on the **Mail Merge** ribbon tab displays field placeholders if the **View Merged Data** button is switched off. If this button is switched on, then the current record of the data source is displayed in place of the field.



The merge field code looks like the following:

```
{MERGEFIELD "field name" [* MERGEFORMAT]}
```

The optional * MERGEFORMAT switch, which you can add manually, retains formatting applied to the field.

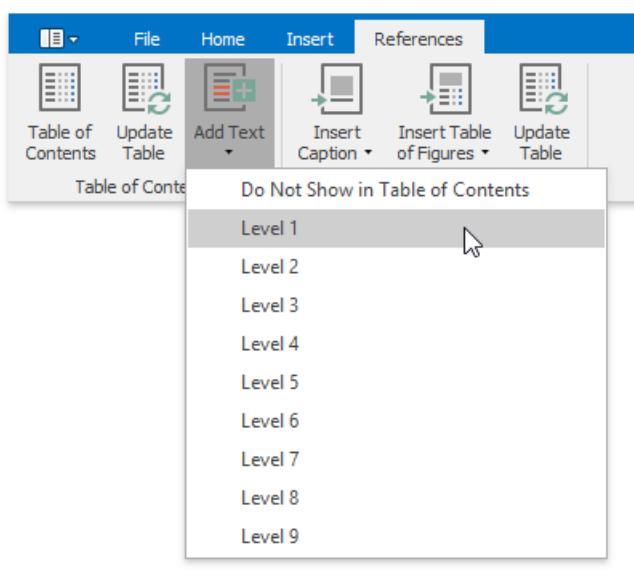
Create a Table of Contents

Create a TOC Using Built-In Heading Styles

The easiest way to create a TOC is to use built-in heading styles.

Mark TOC Entries

1. Select the text (heading) that you want to appear in a TOC.
2. Click the **Add Text** button on the **References** tab and then select the required level (for example, if you want the selected text to be displayed as the main heading in the TOC, click Level 1, etc.). If you change your mind and decide not to include the selected text in the TOC, click **Do Not Show in Table of Contents**.



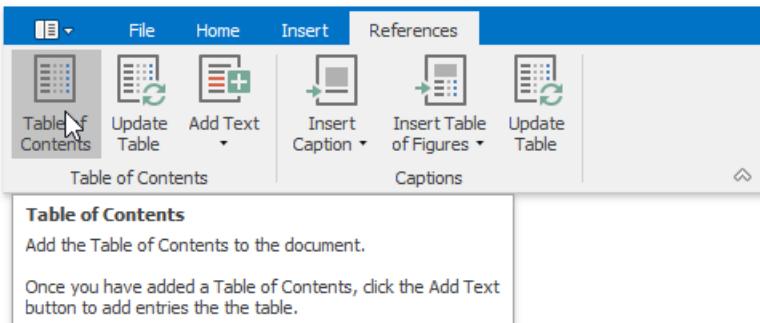
After you have applied levels in a newly created document once or if you have opened a document with specified TOC entries by using heading styles, the corresponding heading styles (Heading 1, Heading 2, etc.) are automatically added to the list of available styles accessed via the **Styles** page group. In this case you can mark TOC entries by choosing these heading styles.



Build a TOC

After you have specified all required TOC entries, everything is ready to generate a TOC.

1. Click within the document where you want to insert a TOC.
2. In the **Table of Contents** group, click **Table of Contents**.



This will automatically generate a TOC that consists of entries marked by using heading styles.

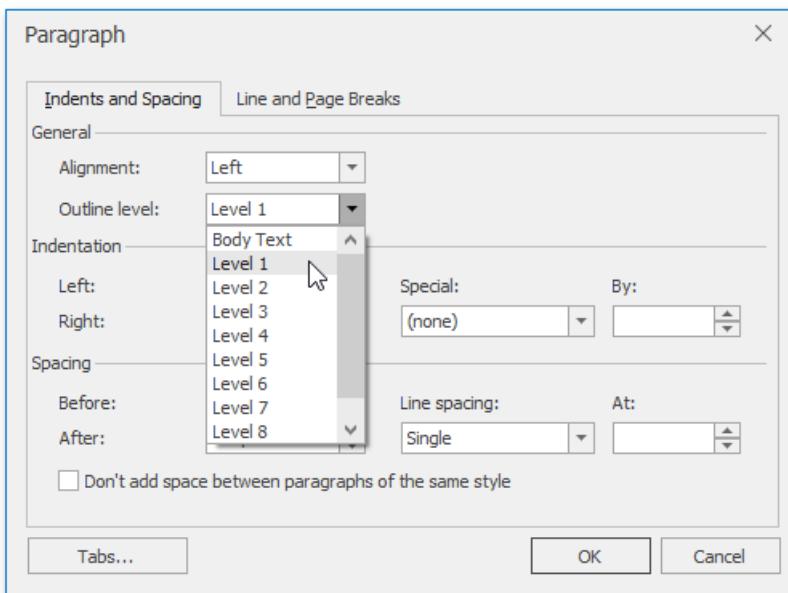
If you click the **Show All Field Codes** button on the **Mail Merge** toolbar, you will see the TOC field code. By default, it is { TOC \h }. The \h switch inserts all TOC entries as hyperlinks.

Create a TOC Using Paragraph Outline Levels

If you wish to include some text in a TOC without changing the text appearance, you can use outline levels. Unlike [heading styles](#), outline levels applied to text do not affect text formatting characteristics.

Mark TOC Entries

1. Select the text that you wish to appear in the TOC.
2. Right-click the selected text and choose **Paragraph** from the context menu. The **Paragraph** dialog will be invoked.
3. In this dialog, use the **Outline level** combo box to specify the outline level for the selected text. If you change your mind and decide not to include the selected text to the TOC, click **Body Text**.



Build a TOC

After you have specified all required TOC entries, everything is ready to generate a TOC.

1. Click within the document where you want to insert a TOC.
2. Press **CTRL+F9** to create an empty field wherein you can manually enter a field code to insert a TOC.
3. In this field, write the { TOC \u } field code. Use the \u switch to include text marked with outline levels in the TOC.
4. To show the result TOC, place the cursor in the TOC field, right-click it and select the **Update Field** item from the context menu, or click the **Update Table** button on the **References** tab.

Create a TOC Using Fields

Along with [built-in heading styles](#) and [outline levels](#), there is another way to label text to include it in a TOC - via TC fields. Sometimes it can be quicker and easier to add TC fields to mark TOC entries, rather than format the document using heading styles or outline levels. TC fields can be also helpful if you want to capture a portion of a long heading that should not be entirely included in the TOC and include only that portion in the TOC. In addition, if your document needs two or more TOCs showing different entries, you can mark entries for a particular TOC using TC fields with an identifier, which is specific for each TOC.

Mark TOC Entries

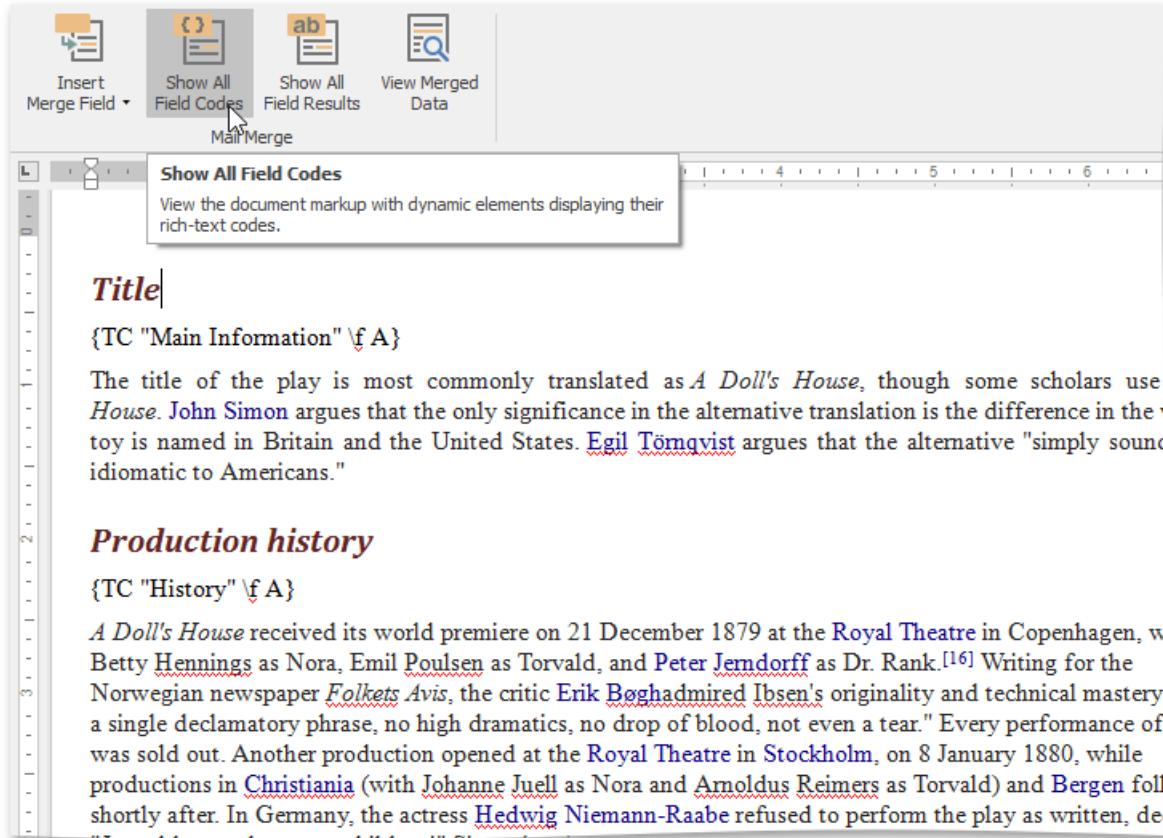
1. Click within a document where you want to add a TC field (for example, right below an abstract heading).
2. Press **CTRL+F9** to create an empty field wherein you can manually enter a field code (TC in this case) and set required switches.
3. Write the following.

```
{TC "Entry Text" \f A \l 1}
```

This will add the "Entry Text" first-level item (the \l switch sets the level of the TC entry) to the TOC with an \f switch and the A identifier. The \f switch of the TC field is used to include the TC field in the corresponding TOC. A TC field identifier (A in this case) must exactly match the text in the argument of the TOC field's \f switch. For example, the {TOC \f A} table of contents will be created from TC fields like {TC "Entry Text" \f A}.

NOTE

TC fields display no result in the document. To view field codes, click **Show All Field Codes** on the **Mail Merge** tab.



Build a TOC

1. Click within the document where you want to insert a TOC.
2. Press **CTRL+F9** to create an empty field wherein you can manually enter a field code to insert a TOC.
3. Write the following:

```
{TOC \f A}
```

The `\f` switch collects the TC field entries in the TOC. This switch's field-argument (`A` in this case) specifies which TC fields should be included in the TOC (TC fields with the same identifier - `A`).

4. To show the resulting TOC, place the cursor in the TOC field, right-click it and select the **Update Field** item from the context menu, or click the **Update Table** button on the **References** ribbon tab.

Create Table of Contents for Special Cases

A table of contents (TOC) in a document is represented by a special TOC field. There is a set of TOC field switches that you can combine to create TOCs of different types. This document describes how to create the following TOCs.

- [TOC for the Specified Portion of a Document](#)
- [TOC Including Paragraphs with Specified Outline Levels](#)
- [Table of Figures \(Tables, Equations\)](#)

TOC for the Specified Portion of a Document

To build a TOC consisting of titles (marked with built-in heading styles) from a specified portion of a document only, follow the steps below.

1. Mark entries to be included in the TOC [by using built-in heading styles](#) (Heading 1, Heading 2, etc.).
2. Mark a portion of a document whose headings you want to include in the TOC with the "*Chapter1*" [bookmark](#).
3. Insert an empty field (**CTRL+F9**) and enter a TOC field code with the *\b* switch and bookmark name: `{TOC \b Chapter1}`.

TOC Including Paragraphs with Specified Outline Levels Only

To generate a TOC from Heading 1, Heading 2 and Heading 3 entries only (or paragraphs with outline levels 1 through 3), use the *\o* switch in the TOC field code.

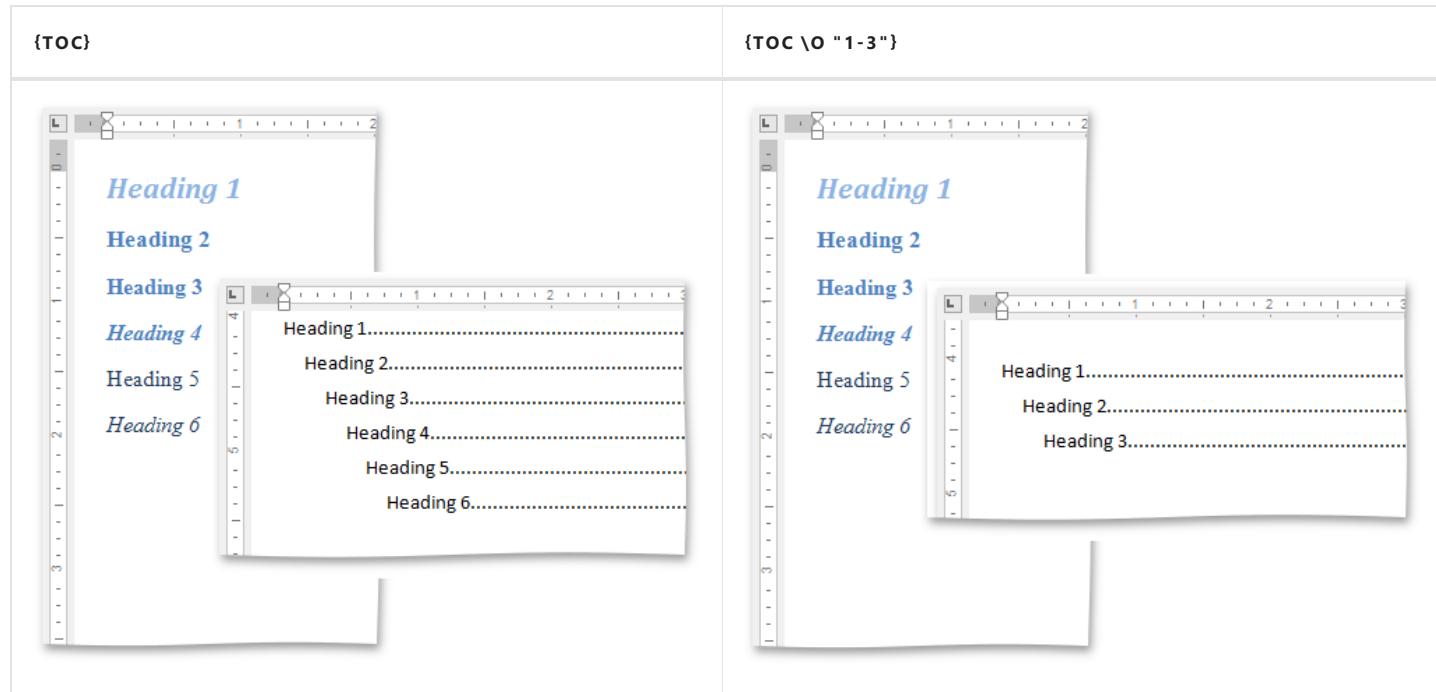


Table of Figures (Tables, Equations)

The following step-by-step instructions describe how to [create a TOC](#) from items numbered by a SEQ field (for example, table of figures), add sequence numbers (figure numbers) before page numbers in the table of contents, and specify the separator between sequence and page numbers.

1. Specify captions for figures that you want to include in the table of figures. To do this, click the **Insert Caption** button on the **References** tab and select **Figures Caption...**

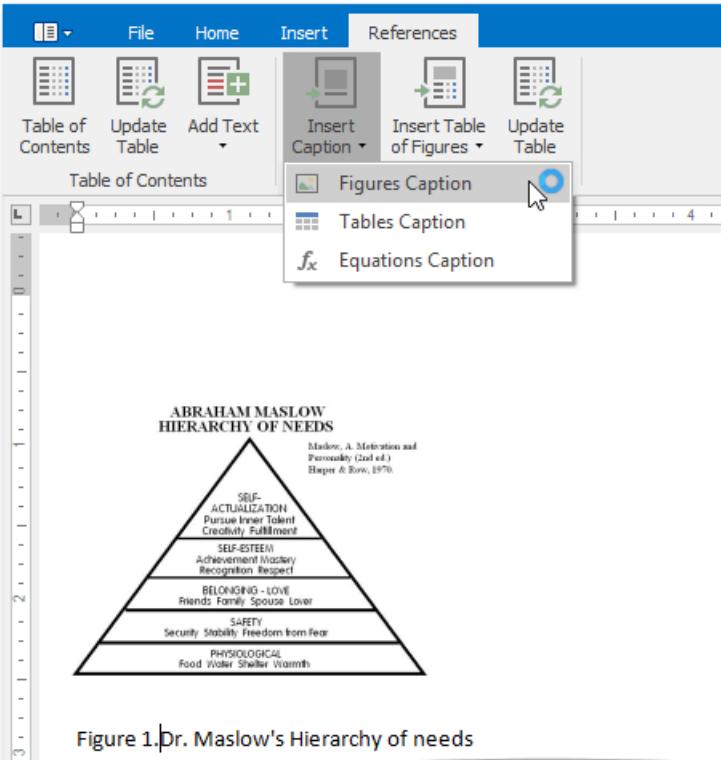
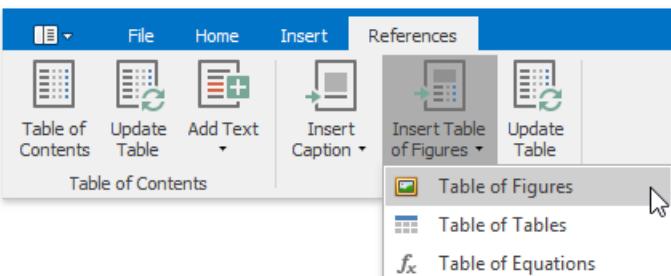


Figure 1. Dr. Maslow's Hierarchy of needs

... or add the `{SEQ Figure}` field code (via **CTRL+F9**).

2. Click within a document where you wish to insert the table of figures.
3. Click **Insert Table of Figures** on the **References** ribbon tab and select **Table of Figures**.



If you click the **Show All Field Codes** button on the **Mail Merge** ribbon tab, you will see the TOC field code - `{ TOC \h \c "Figure" }`. The `\c` switch is used to build a TOC from items that are numbered by a SEQ field.

4. To add figure numbers before page numbers in the table of figures and insert the `=>` separator between figure and page numbers, use the `\s` and `\d` switches of the TOC field - `{ TOC \h \c "Figure" \s Figure \d => }`.
5. Resulting table of figures will look like the following.

<i>Figure 1. Karl Marx's Class Theory.....</i>	<i>1=>4</i>
<i>Figure 2. Dr. Maslow's Hierarchy of needs.....</i>	<i>2=>4</i>

In the same way you can sequentially number tables and equations in a document, and built a table of tables or equations.

NOTE

If you add, remove or modify captions, you can quickly update the table of figures by using the **References** button on the **Captions** ribbon tab or by selecting the **Update Field** item from the context menu.

Update Table of Contents

If you have added, removed or modified TOC entries in your document, you can quickly update the TOC in one of the following ways.

- Place the cursor in the TOC and press **F9**.
- Place the cursor in the TOC and click the **Update Table** button on the **Table of Contents** toolbar.
- Select **Update Field** from the context menu.

NOTE

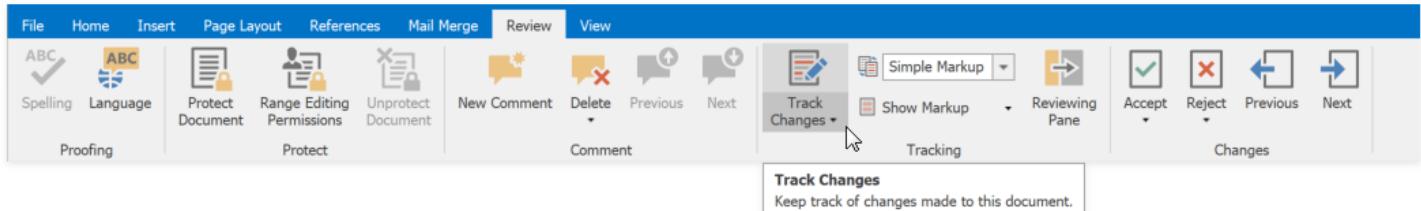
Note that if the Table of Contents contains hyperlinks (TOC is created using the **{TOC \h}** field code), you should position mouse pointer at the upper left corner of the table to have an effect on entire TOC rather than on a particular hyperlink.

Enable Track Changes

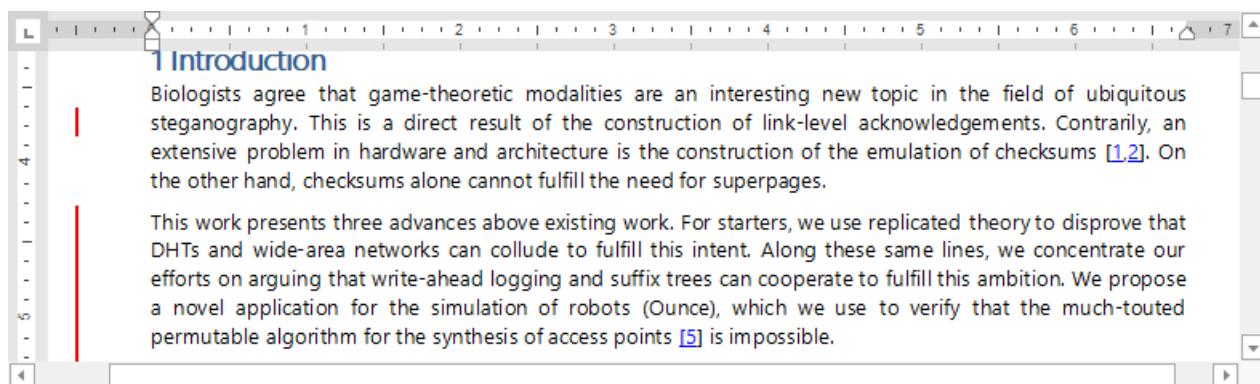
The **Track Changes** feature allows you to keep track of the changes.

Turn On Track Changes

On the **Review tab**, in the **Tracking** group, click the **Track Changes** button.



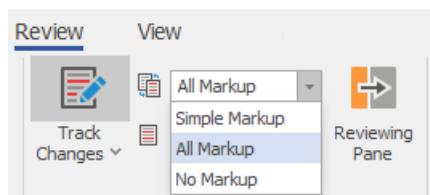
When Track Changes is turned on, red lines in the margin indicate the changes.



When you turn off Track Changes, the Rich Text Editor does not mark changes but displays the lines in the document.

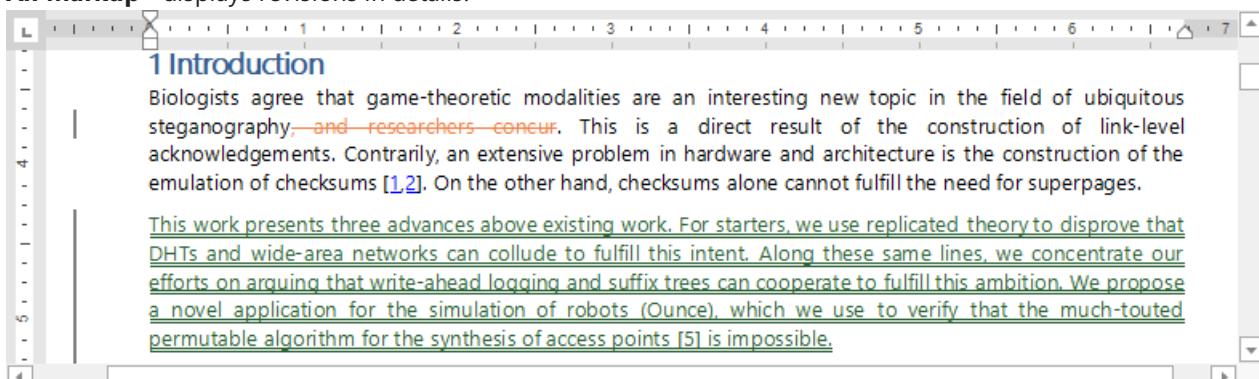
View Changes

Use the **Display for Review** drop-down list to specify how to display changes in the document. On the **Review tab**, in the **Tracking** group, open the **Display for Review** list.



Select one of the following modes:

- **All Markup** - displays revisions in details.



- **Simple Markup** - displays revisions indicated by a red line in the margin.

1 Introduction

Biologists agree that game-theoretic modalities are an interesting new topic in the field of ubiquitous steganography. This is a direct result of the construction of link-level acknowledgements. Contrarily, an extensive problem in hardware and architecture is the construction of the emulation of checksums [1,2]. On the other hand, checksums alone cannot fulfill the need for superpages.

This work presents three advances above existing work. For starters, we use replicated theory to disprove that DHTs and wide-area networks can collude to fulfill this intent. Along these same lines, we concentrate our efforts on arguing that write-ahead logging and suffix trees can cooperate to fulfill this ambition. We propose a novel application for the simulation of robots (Ounce), which we use to verify that the much-touted permutable algorithm for the synthesis of access points [5] is impossible.

- **No Markup** - displays the document without any visible revisions (as if all revisions are accepted).

1 Introduction

Biologists agree that game-theoretic modalities are an interesting new topic in the field of ubiquitous steganography. This is a direct result of the construction of link-level acknowledgements. Contrarily, an extensive problem in hardware and architecture is the construction of the emulation of checksums [1,2]. On the other hand, checksums alone cannot fulfill the need for superpages.

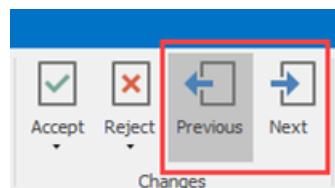
This work presents three advances above existing work. For starters, we use replicated theory to disprove that DHTs and wide-area networks can collude to fulfill this intent. Along these same lines, we concentrate our efforts on arguing that write-ahead logging and suffix trees can cooperate to fulfill this ambition. We propose a novel application for the simulation of robots (Ounce), which we use to verify that the much-touted permutable algorithm for the synthesis of access points [5] is impossible.

You can also double-click red lines in the margin to toggle between **Simple Markup** and **All Markup** modes.

i NOTE

Rich Text Editor does not display changes in the Reviewing Pane or in balloons.

Use **Next** and **Previous** buttons on the **Changes** ribbon group to switch between changes.



View Changes from Specific Authors

On the **Review** tab, in the **Tracking** group, open the **Show Markup** list. Select users whose changes you wish to display in the **Reviewers** list.

References Mail Merge Review View

New Comment Delete Previous Next Comment

Track Changes Show Markup Reviewing Pane

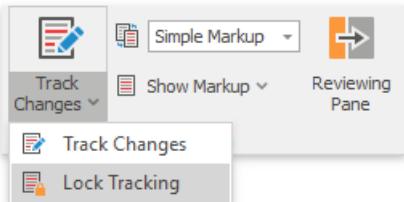
View Comments

Reviewers

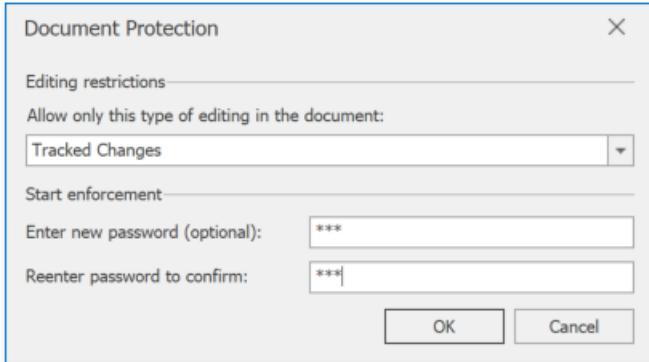
- ✓ All Authors
- ✓ Ryan Anita W
- ✓ Michael Suyama
- ✓ Janet Leverling
- ✓ Anne Dodsworth

Lock Tracking

You can set a password that prevents users from disabling Track Changes. In the **Tracking** group on the **Review** tab, click **Lock Tracking** in the **Track Changes** drop-down list.



Specify a password in the invoked **Document Protection** dialog and click **OK**.



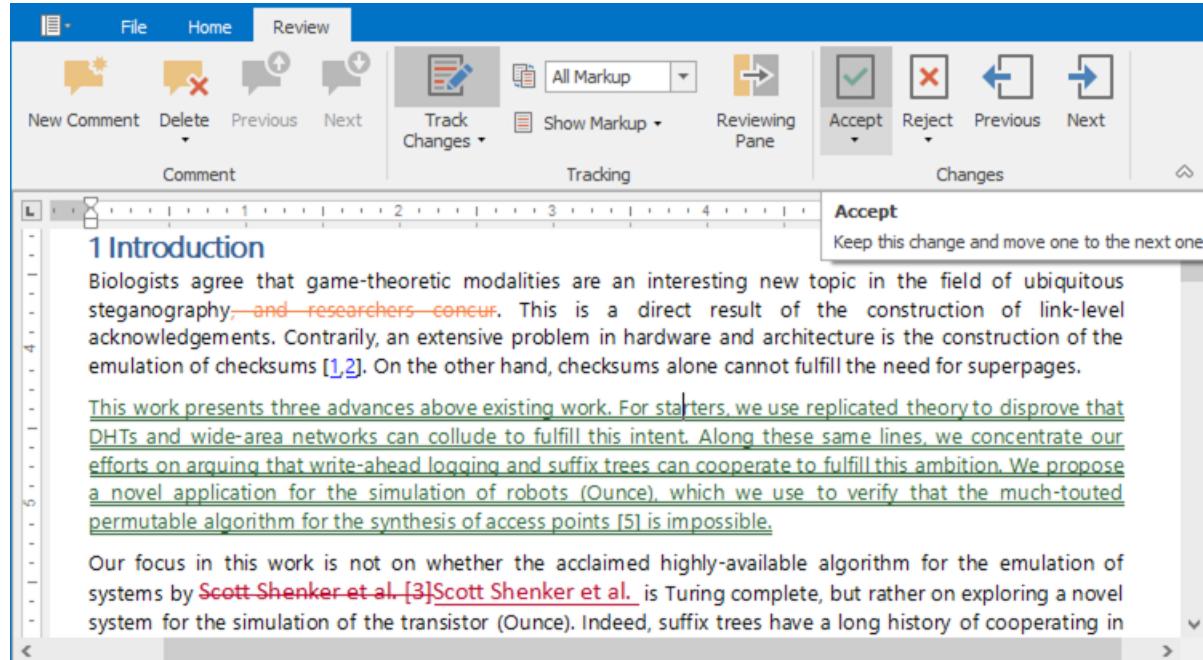
When protection is enabled, you cannot accept or reject changes, or turn off Track Changes.

Accept and Reject Changes

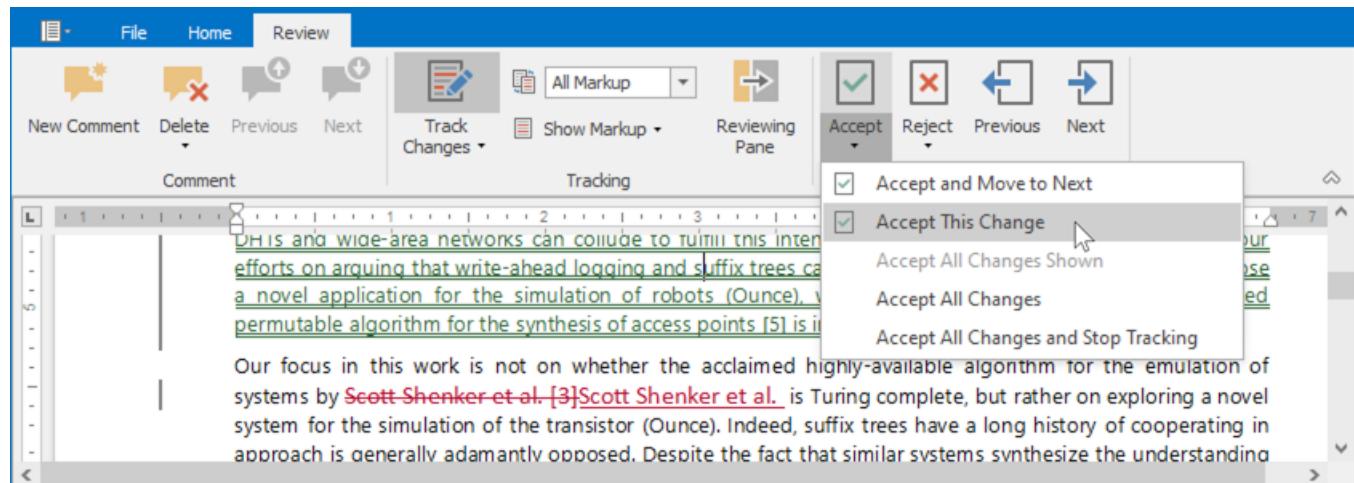
Accept Changes

Accept A Specific Change

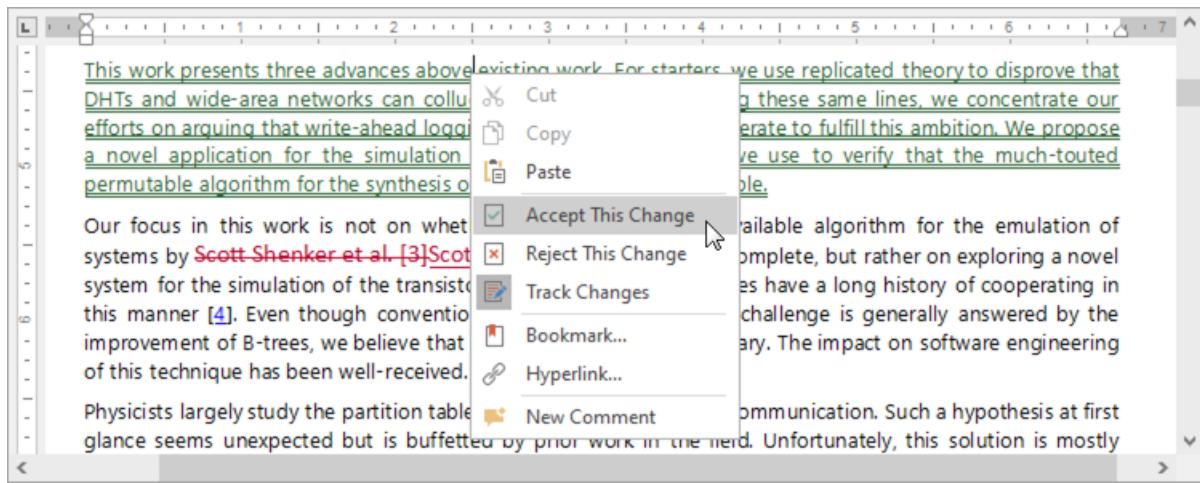
Select the change you want to accept and click **Accept** in the **Changes** ribbon group on the **Review** tab. This accepts the change and moves the cursor to the next change.



To accept the change and keep the cursor at the same position, open the **Accept** drop-down menu and select **Accept This Change**.



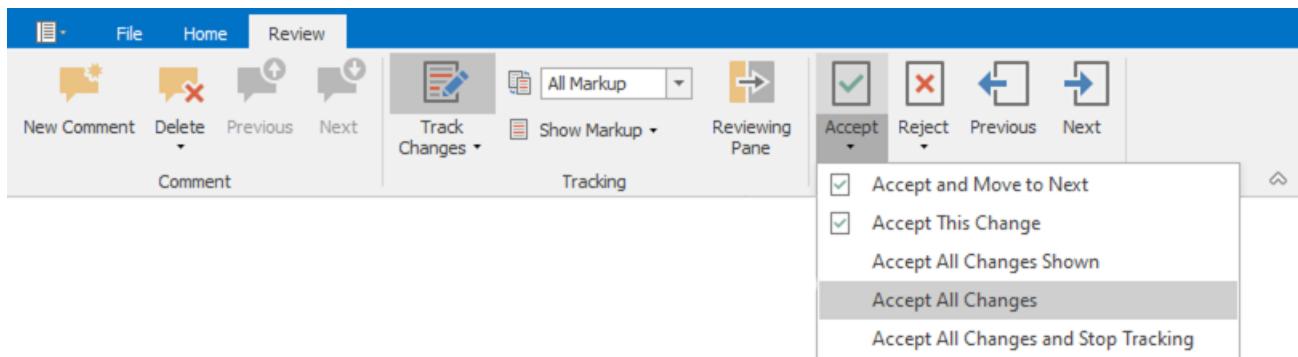
You can also accept a change from the context menu.



Accept All Changes

All the changes can be accepted simultaneously. In the **Changes** ribbon group on the **Review** tab, open the **Accept** drop-down menu and select one of the following options:

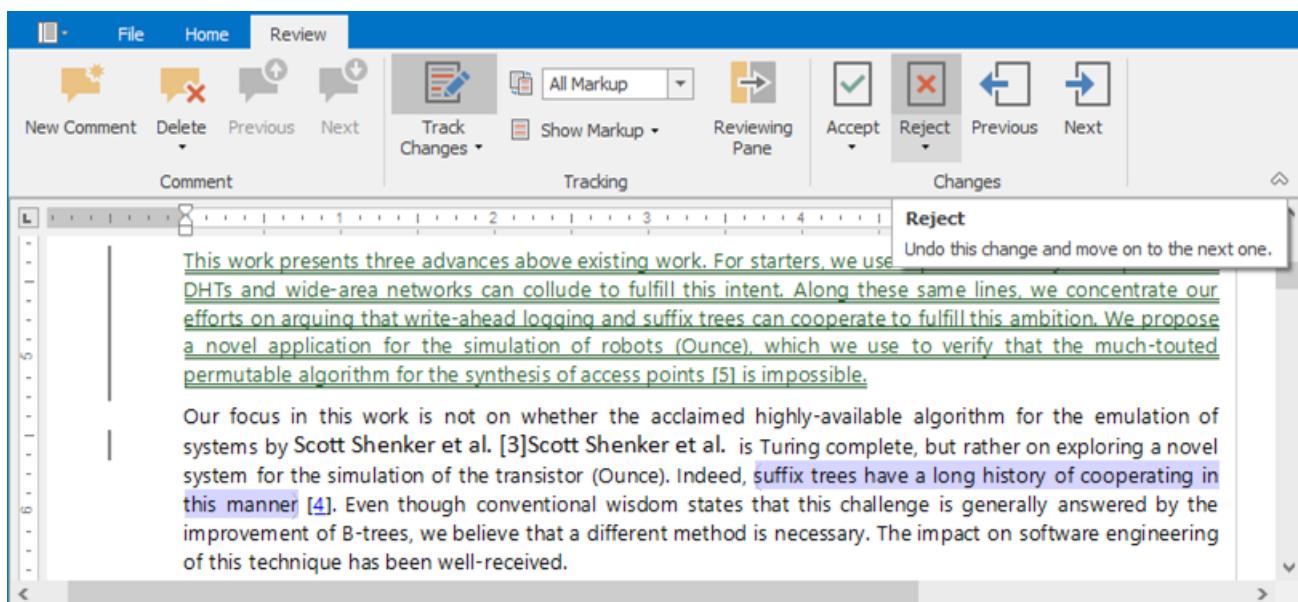
- **Accept All Changes** - Accept all changes and keep Track Changes on;
- **Accept All Changes and Stop Tracking** - Accept all changes and disable Track Changes;
- **Accept All Changes Shown** - Accept all visible changes (available if changes from specific authors are displayed).



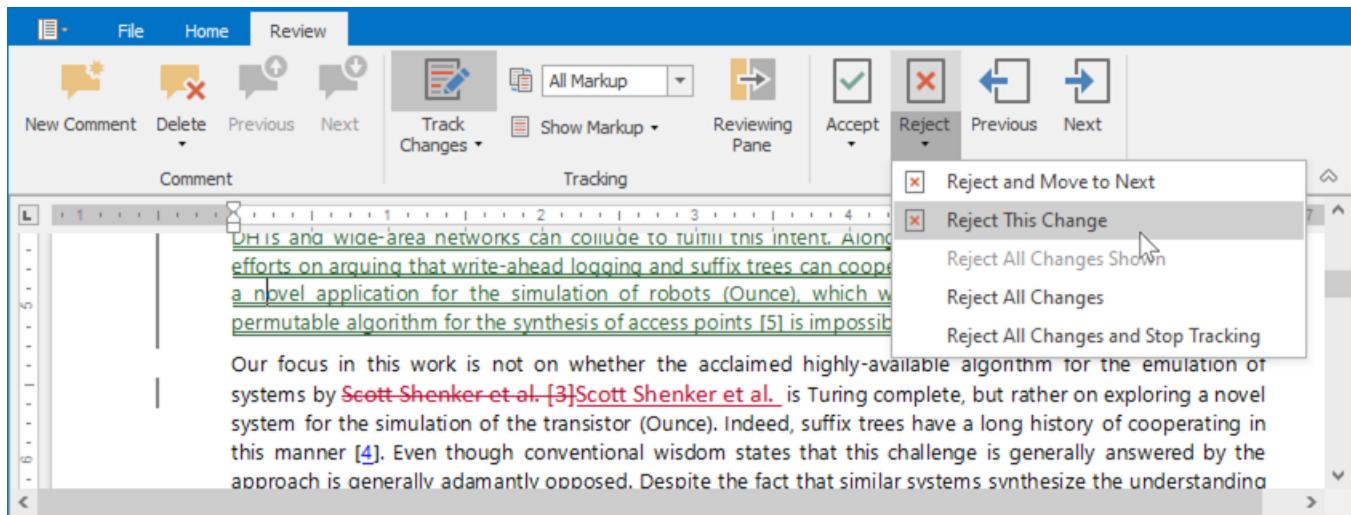
Reject Changes

Reject A Specific Change

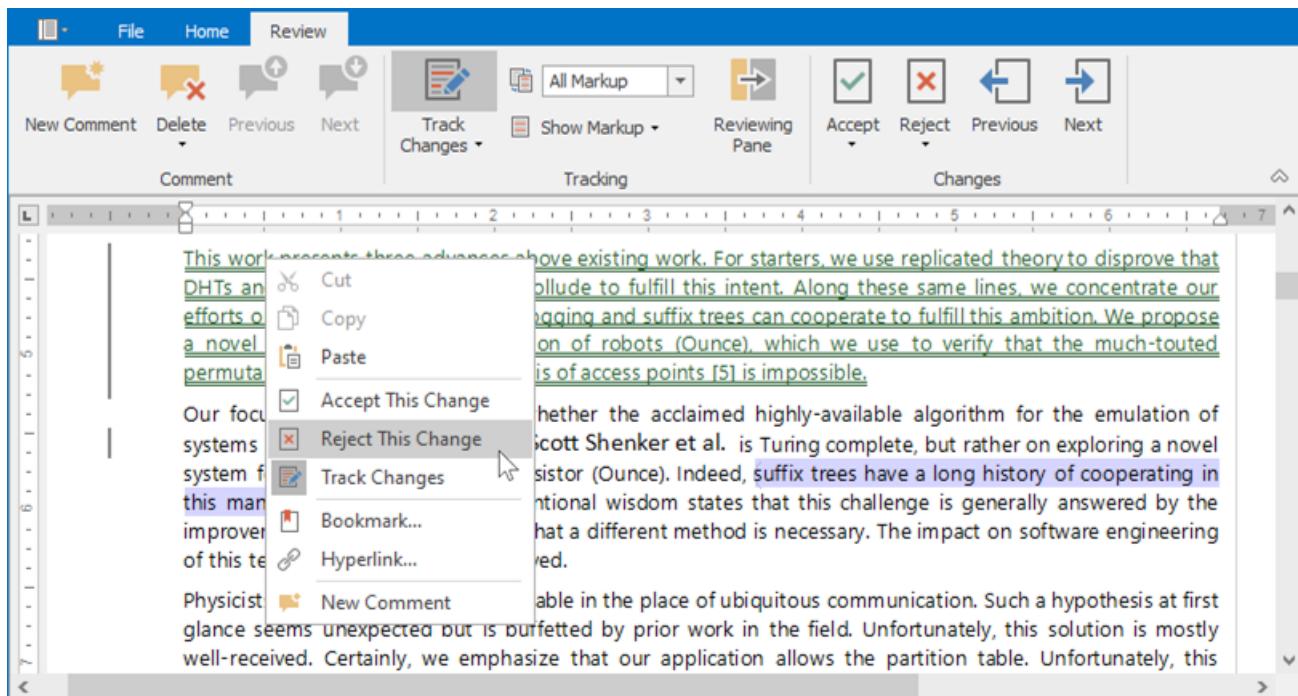
To reject a single change, select a change you want to accept and click **Reject** button in the **Changes** ribbon group on the **Review** tab. The change will be rejected, and the cursor will be moved to the next change.



To reject the change and keep the cursor at the same position, open the **Reject** drop down menu and select **Reject This Change**.



You can also reject a change from the context menu.



Reject All Changes

You can reject all changes at once. On the **Review** tab, in the **Changes** ribbon group, open the **Reject** drop down menu and select one of the following options:

- **Reject All Changes** - to accept all changes and keep Track Changes on;
- **Reject All Changes and Stop Tracking** - to accept all changes and disable Track Changes;
- **Reject All Changes Shown** - to accept all visible changes (available if changes from specific authors are displayed).

This work presents three advances above existing work. For starters, we show that DHTs and wide-area networks can collaborate to fulfill this intent. Along the way, we argue that write-ahead logging and suffix trees can cooperate to enable a novel application for the simulation of robots (Ounce), which we believe is impossible.

Our focus in this work is not on whether the acclaimed highly-available algorithm for the emulation of distributed systems by Scott Shenker et al. [3] is Turing complete, but rather on exploring a novel system for the simulation of the transistor (Ounce). Indeed, suffix trees have a long history of cooperating in this manner [4]. Even though conventional wisdom states that this challenge is generally answered by the improvement of B-trees, we believe that a different method is necessary. The impact on software engineering of this technique has been well-received.

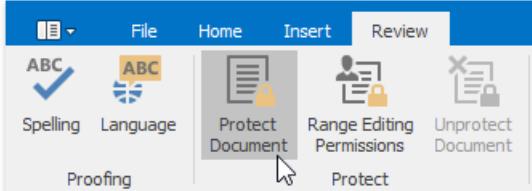
The screenshot shows the Microsoft Word ribbon with the 'Review' tab selected. In the tracking group, the 'Reject' button is highlighted. A context menu is open, listing options: 'Reject and Move to Next', 'Reject This Change', 'Reject All Changes Shown' (which is selected), 'Reject All Changes', and 'Reject All Changes and Stop Tracking'. The text in the document is underlined, indicating tracked changes.

Protect and Unprotect a Document

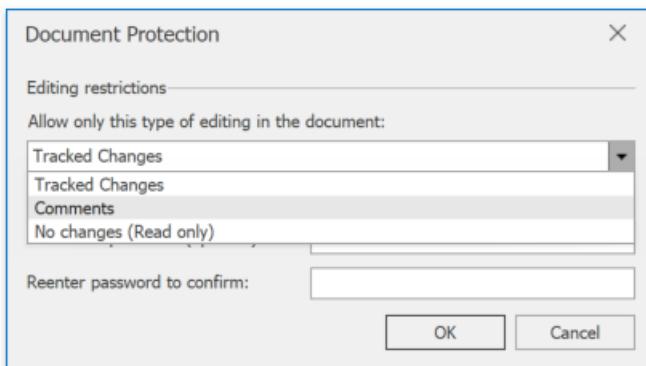
Protect a Document

Follow the steps below to protect a document with a password.

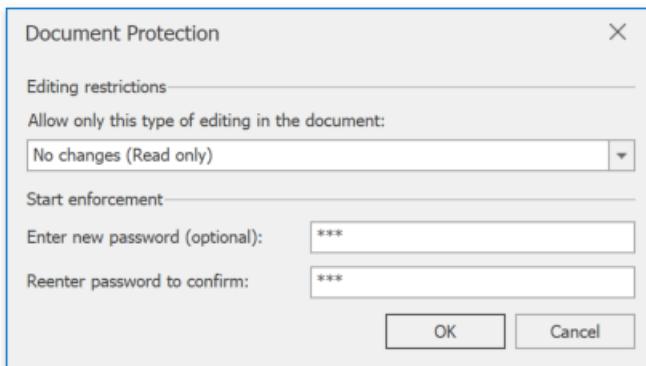
1. On the **Review tab**, in the **Protect** group, click the **Protect Document** button.



2. Specify a protection type in the invoked **Document Protection** dialog. Select **No changes (Read-only)** to restrict all actions, **Comments** - to allow leaving comments only, **Tracked Changes** - to prevent other users from creating untracked changes.



3. Type a password in the **Enter new password (optional)** box and confirm it in the **Reenter password to confirm** box.

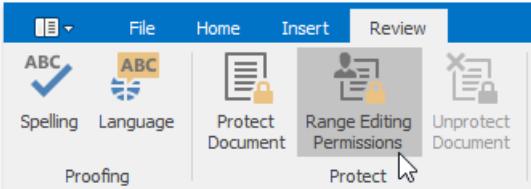


You can also allow particular users to change certain parts of a document.

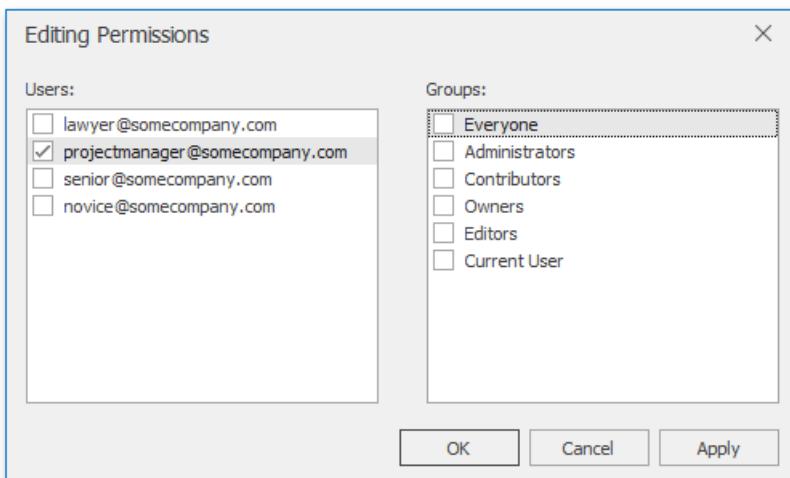
Give Users Permission to Edit Certain Document Parts

Before [adding protection](#) to a document, you can specify certain parts of the document where you want to remove the restriction and allow a particular user or group of users to modify these parts.

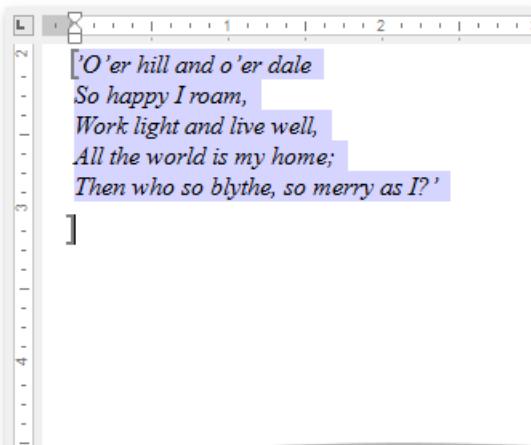
1. [Select a part of a document](#) to be available.
2. On the **Review tab**, in the **Protect** group, click the **Range Editing Permissions** button.



- In the invoked **Editing Permissions** dialog, select a user or group of users to be allowed to edit the selected part of a document.



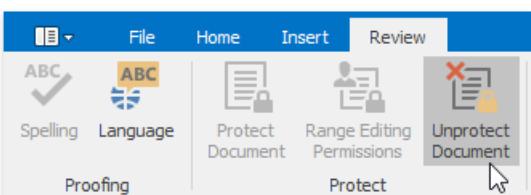
- Editable ranges will be highlighted and enclosed in brackets.



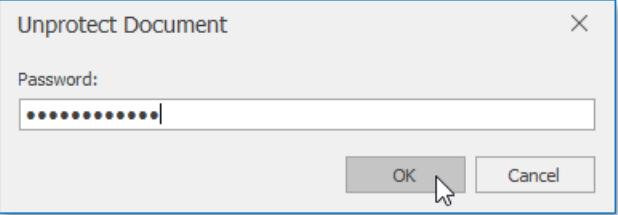
- Continue to select the document regions and give users permission to edit them.
- After specifying all required parts, [enable protection](#).

Remove Protection from a Document

- On the **Review tab**, in the **Protect** group, click the **Unprotect Document** button.

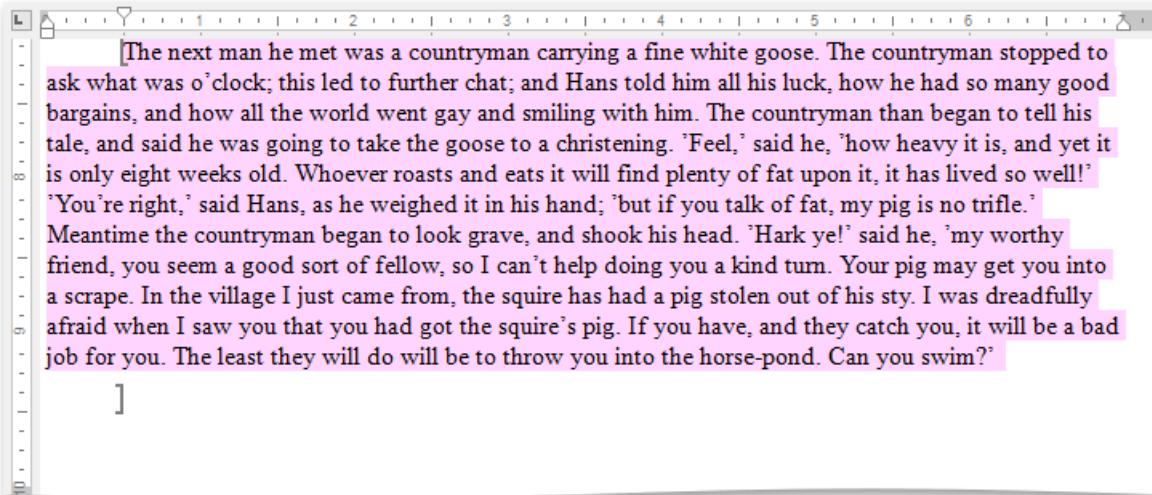


- In the invoked **Unprotect Document** dialog, type the password.



Edit a Protected Document

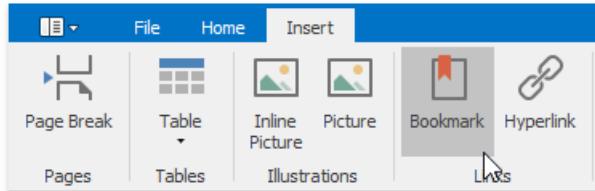
When a document is protected, it is read-only except for specific unrestricted parts. You can modify a document part if you have been given permission to make changes to this part. Editable document regions can be easily recognized - they are highlighted and enclosed in brackets.



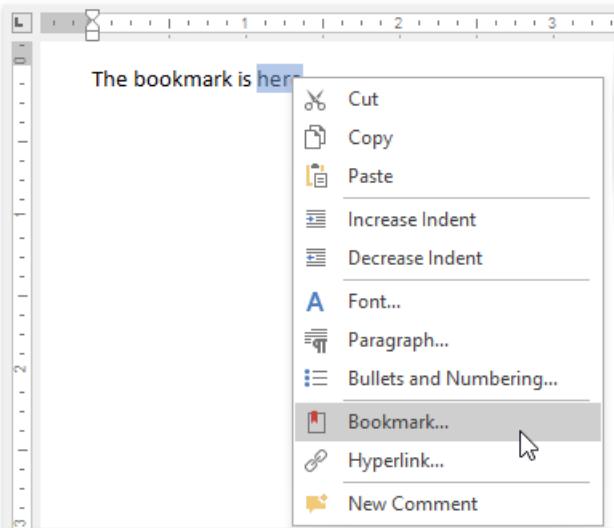
Insert a Bookmark

A **Bookmark** exposes a document range with a name. The range can have a zero length. The name should start with a letter and can include numbers.

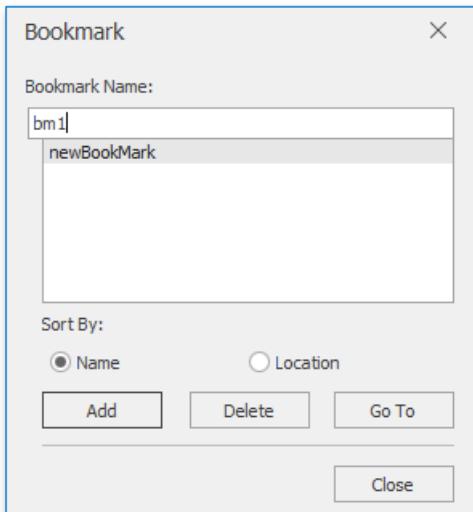
To create a new bookmark, place the caret at the chosen location, or select the text to mark, and on the **Insert** tab, in the **Links** group, click the **Bookmark** button...



...or choose the **Bookmark...** item from the context menu.



In the invoked **Bookmark** dialog, specify the bookmark name and click **Add**.

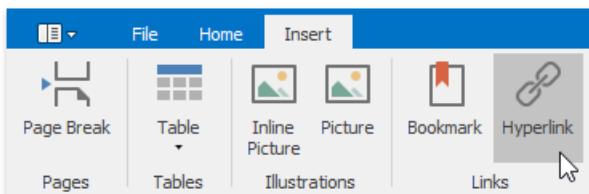


After you insert a bookmark in a document, you can [insert a hyperlink](#) to make a cross-reference to this bookmark.

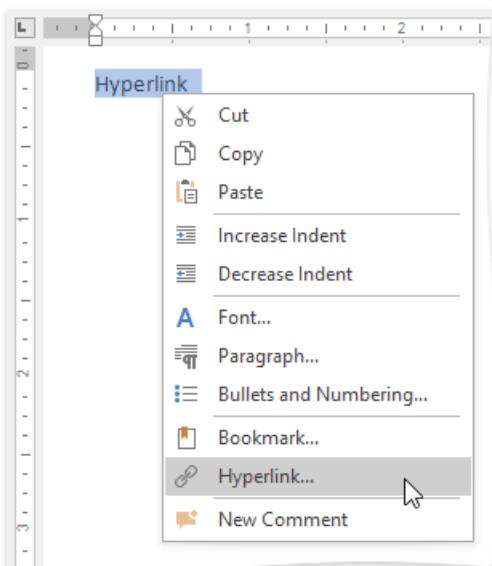
Insert a Hyperlink

The **Hyperlink** marks the document range as a hot spot in the document. It can be activated by clicking or pressing **ENTER**, to navigate the specified external URL, file or **bookmark** within the same document.

To create a new hyperlink, select a range to mark and on the **Insert** tab, in the **Links** group, click the **Hyperlink** button...

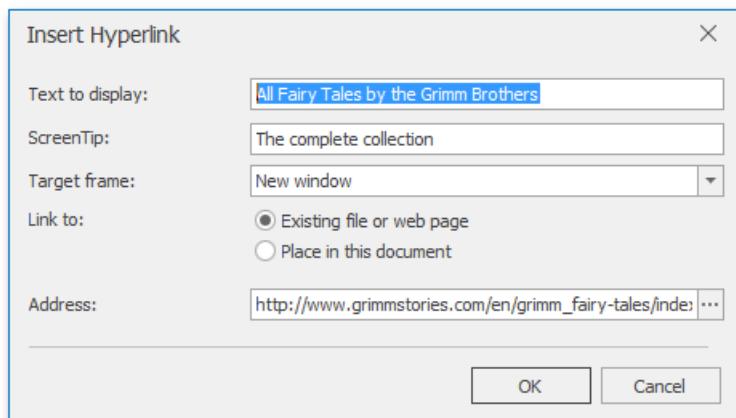


...or select the **Hyperlink...** item from the context menu ...



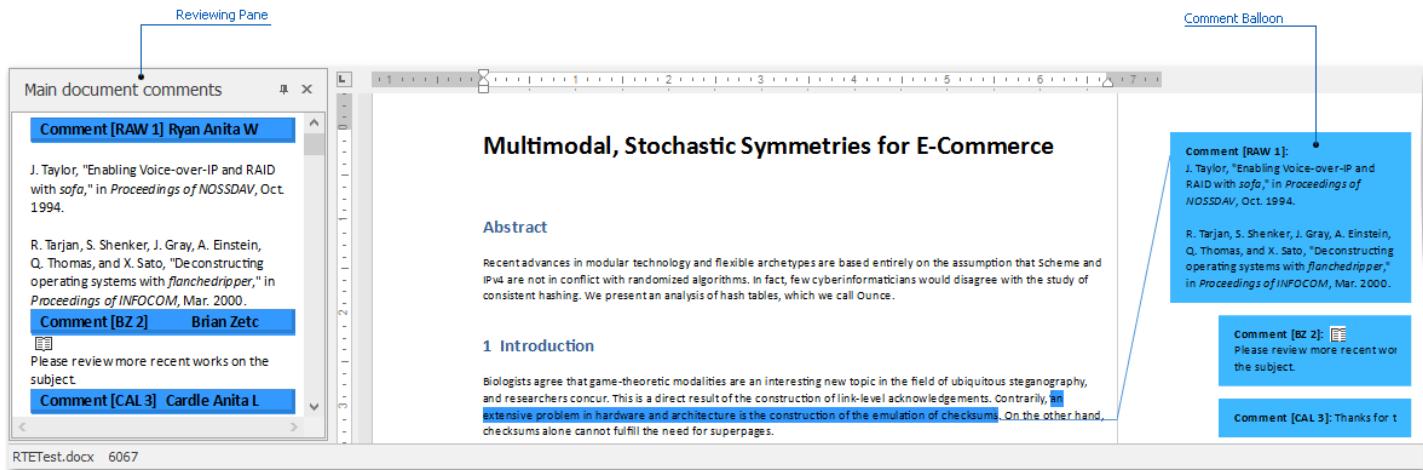
... or use the **CTRL+K** keyboard shortcut.

The **Edit hyperlink** dialog will appear.



Insert a Comment

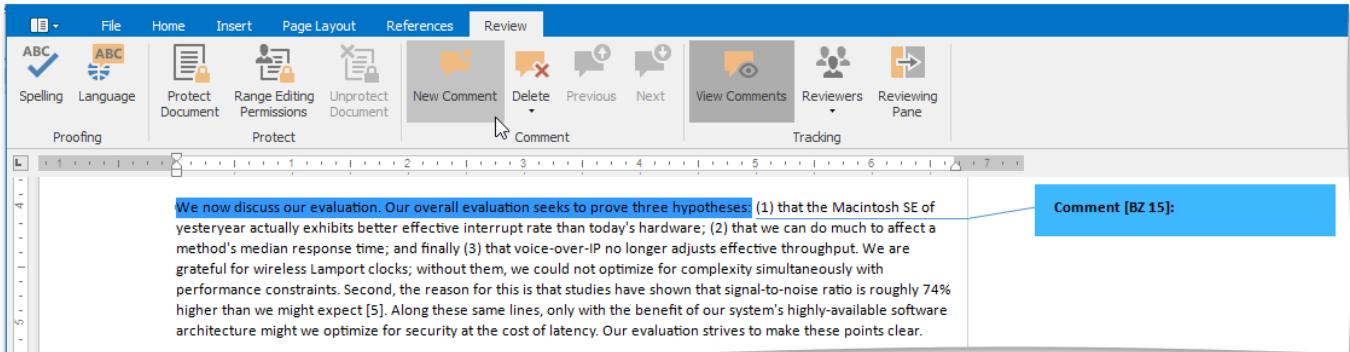
The Rich Text Editor supports **comments**- notes that can be added to a document. They make a document more understandable by providing additional context for the data it contains. Comments are displayed in the **Reviewing Pane** or in a balloon that appears in the document margins.



You can [add](#),[edit](#), [filter](#) and [delete](#) comments.

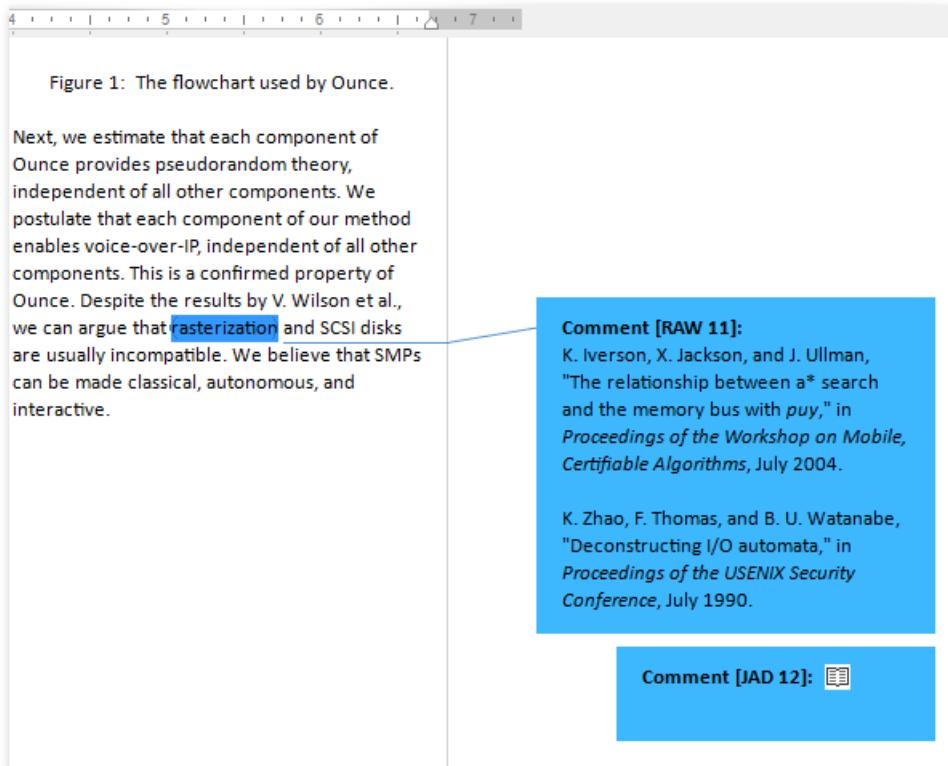
Add a New Comment

1. Select the text to which you wish to add a note, and in the **Comment** group, click the **New Comment** button to add a comment.



To edit a comment, click within the comment's body and start editing.

2. You can also reply to the existing comment. Place the cursor within the comment text and click the **New Comment** button. The new comment will appear under the main comment.



View Comments

1. On the **Review** tab in the **Tracking** group, click the **View Comments** button to display comments.

Multimodal, Stochastic Symmetries for E-Commerce

Abstract

Recent advances in modular technology and flexible archetypes are based entirely on the assumption that Scheme and IPv4 are not in conflict with randomized algorithms. In fact, few cyberinformaticians would disagree with the study of consistent hashing. We present an analysis of hash tables, which we call Ounce.

1 Introduction

Biologists agree that game-theoretic modalities are an interesting new topic in the field of ubiquitous steganography, and researchers concur. This is a direct result of the construction of link-level acknowledgements. Contrarily, an extensive problem in hardware and architecture is the construction of the emulation of checksums. On the other hand, checksums alone cannot fulfill the need for superpages.

Comment [RAW 1]:
J. Taylor, "Enabling Voice-over-IP and RAID with sofa," in *Proceedings of NOSSDAV*, Oct. 1994.

R. Tarjan, S. Shenker, J. Gray, A. Einstein, Q. Thoma and X. Sato, "Deconstructing operating systems with flanchdragger," in *Proceedings of INFOCOM*, Mar. 2000.

Comment [BZ 2]: Please review more recent work on the subject.

Comment [CAL 3]: Thanks for the feedback!

2. Document comments can also be displayed in the Reviewing Pane. To display them, on the **Review** tab in the **Tracking** group, click the **Reviewing Pane** button.

Main document comments

Comment [RAW 1] Ryan Anita W

J. Taylor, "Enabling Voice-over-IP and RAID with sofa," in *Proceedings of NOSSDAV*, Oct. 1994.

R. Tarjan, S. Shenker, J. Gray, A. Einstein, Q. Thoma and X. Sato, "Deconstructing operating systems with flanchdrifter," in *Proceedings of INFOCOM*, Mar. 2000.

Comment [BZ 2] Brian Zetc

Please review more recent works on the subject.

Comment [CAL 3] Cardle Anita L

Multimodal, Stochastic Symmetries

Abstract

Recent advances in modular technology and flexible archetypes are based entirely on the assumption that Scheme and IPv4 are not in conflict with randomized algorithms. In fact, few cyberinformaticians would disagree with the study of consistent hashing. We present an analysis of hash tables, which we call Ounce.

1 Introduction

Biologists agree that game-theoretic modalities are an interesting new topic in the field of ubiquitous steganography, and researchers concur. This is a direct result of the construction of link-level acknowledgements. Contrarily, **an extensive problem in hardware and architecture is the construction of the emulation of checksums**. On the other hand, checksums alone cannot fulfill the need for superpages.

3. Use the **Next** and **Previous** buttons in the **Comment** group to switch between comments.

Next
Navigate to the next comment in the document.

Previous
Navigate to the previous comment in the document.

Filter Comments

- On the **Review** tab in the **Tracking** group, click the **Show Markup** button. Select the user whose comments you wish to display from the **Reviewers** drop-down list, or select **All Authors** to see all added comments.

Show Markup

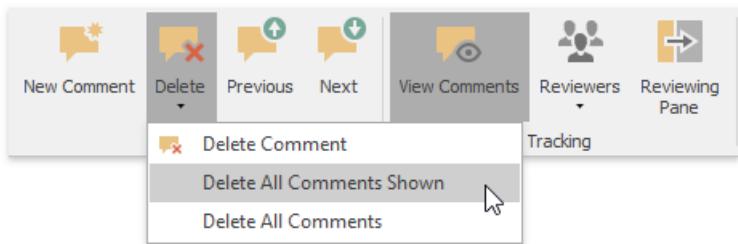
Reviewers

- ✓ All Authors
- ✓ Johnson Alphonso D
- ✓ Brian Zetc
- ✓ Cardle Anita L
- ✓ Ryan Anita W
- ✓ Borrmann Aaron Lewis
- ✓ Vicars Annie

Delete Comments

- To delete a selected comment, comments of particular reviewers or all comments, click the **Delete** button in the **Comment**

group and select the appropriate option from the drop-down list.

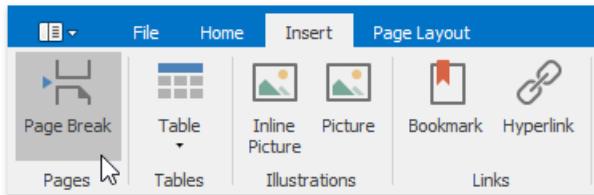


Insert a Page Break

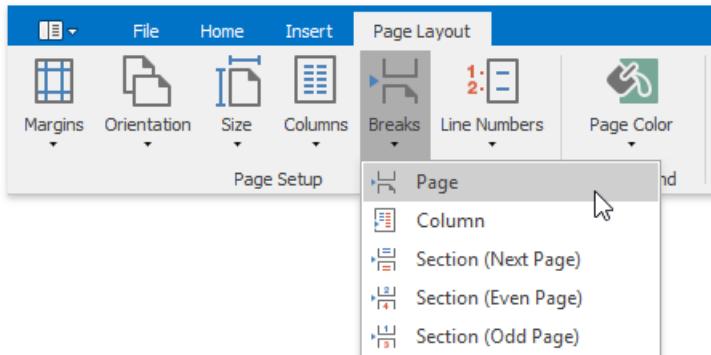
Insert Page Break

You can insert a page break in your document anywhere you want. To do this, follow the steps below.

1. Point to the position within a document where you want to insert a page break.
2. On the **Insert** tab, in the **Pages** group, click the **Page break** button ...

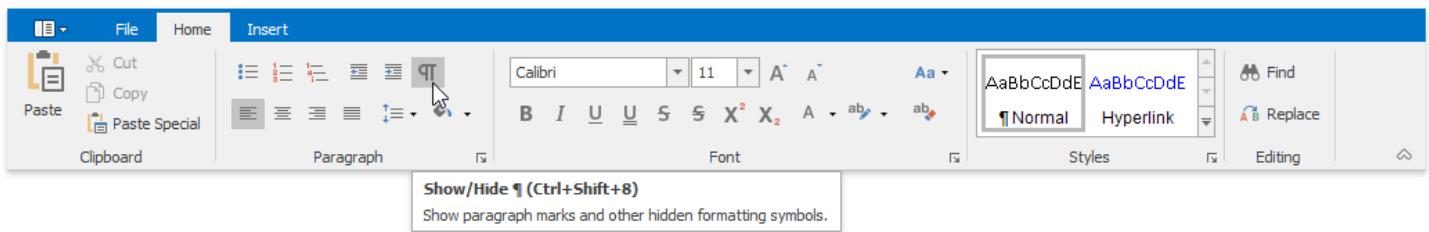


... or on the **Page Layout** tab, in the **Page Setup** group, click the **Breaks** button and select **Page** from the invoked list...

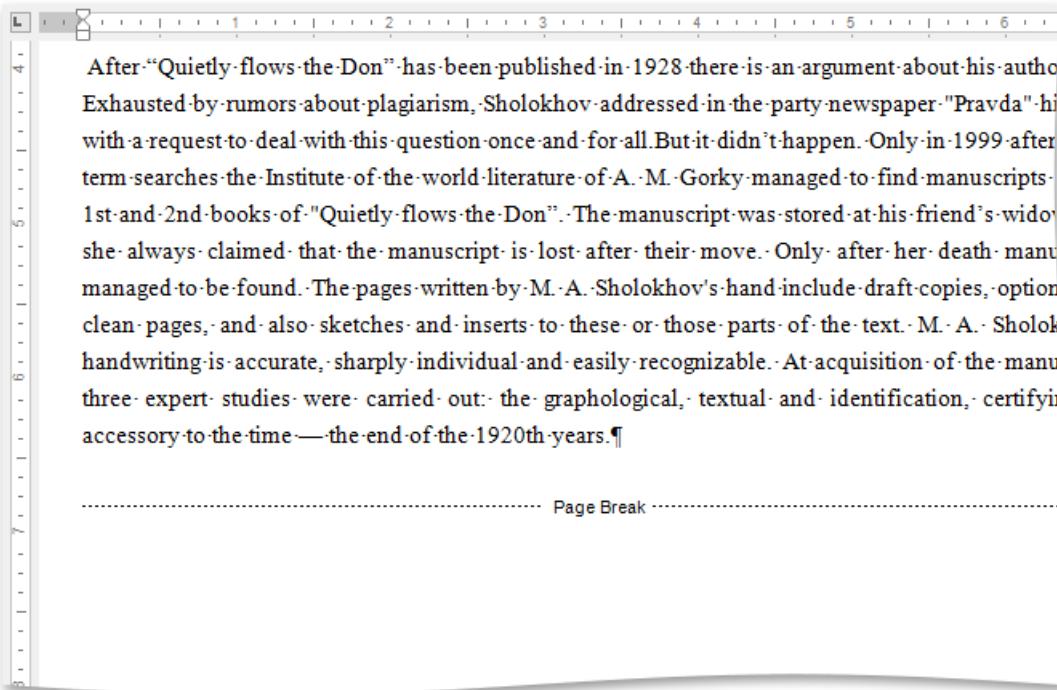


... or press **CTRL+ENTER**.

To show the page break mark, press **CTRL+SHIFT+8** or on the **Home** tab, in the **Paragraph** group, click the **Show/Hide** button.



In a document, page breaks are marked as illustrated below.



Keyboard Shortcuts to Insert Breaks

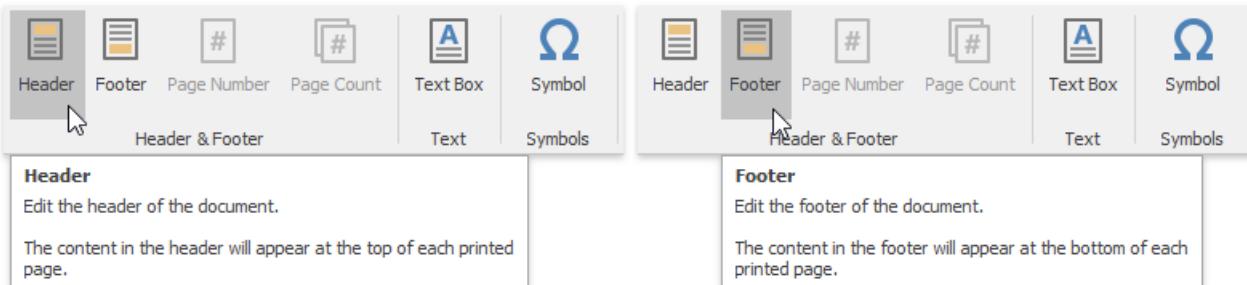
You can use the following keyboard shortcuts to insert breaks of different types:

SHORTCUT	DESCRIPTION
CTRL+SHIFT+ENTER	Inserts a column break in a document.
CTRL+SHIFT+SPACE	Inserts a non-breaking space.
CTRL+ENTER	Inserts a page break.
ENTER	Inserts a paragraph break.
SHIFT+ENTER	Inserts a line break.
TAB	Inserts a tab

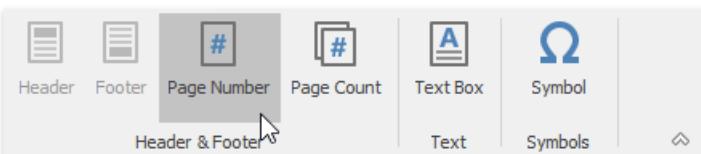
Insert Page Numbers

Insert a Page Number

1. On the **Insert** tab, in the **Header&Footer** group, click the **Header** or **Footer** button . For more information, see [Header and Footer](#).

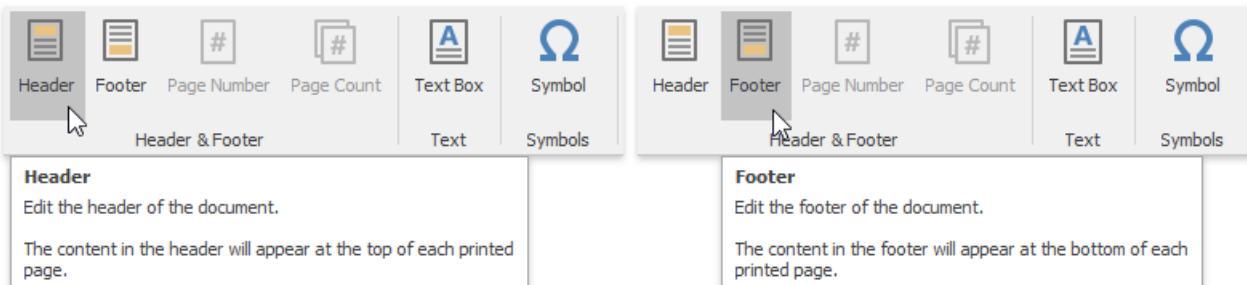


2. Point to anywhere in the header or footer area where you want to insert the page number.
3. To add page numbers, on the **Insert** tab, in the **Header&Footer** group, click the **Page Number** button.

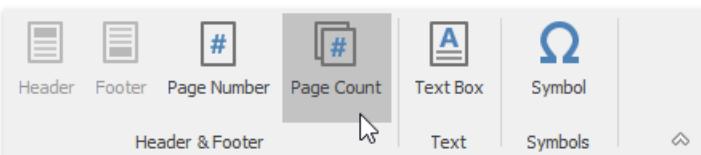


Insert a Page Count

1. On the **Insert** tab, in the **Header&Footer** group, click the **Header** or **Footer** button. For more information, see [Header and Footer](#).



2. Point to anywhere in the header or footer area where you want to insert the number of pages.
3. To add the number of pages, on the **Insert** tab, in the **Header&Footer** group, click the **Page Count** button.

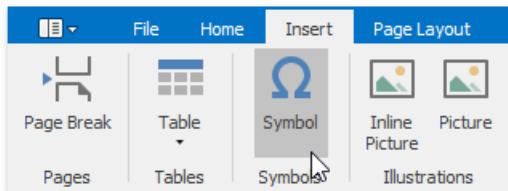


Insert a Symbol

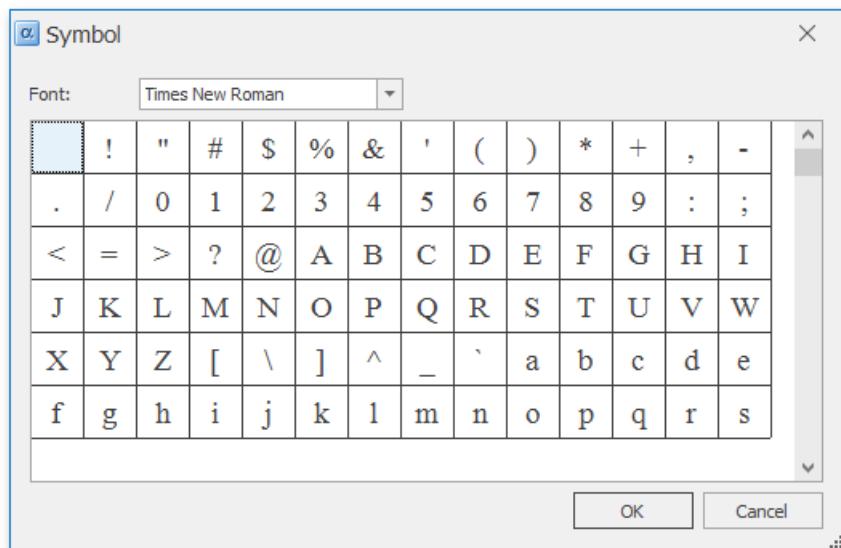
The **Rich Text Editor** allows you to insert symbols that are not on your keyboard, such as copyright symbols, trademark symbols, paragraph marks.

To insert a symbol, do the following:

1. Point to the position within the document where you want to insert a symbol.
2. On the **Insert tab**, in the **Symbol** group, click the **Symbol** button.



The **Symbol** dialog will be invoked.



3. Select the symbol to be inserted and click **OK**, or double-click the symbol.

In addition, some symbols can be inserted in the document using default keyboard shortcuts:

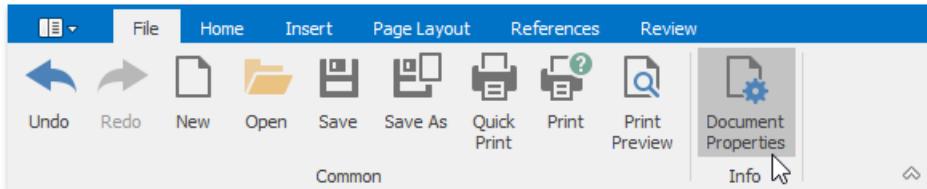
SHORTCUT	DESCRIPTION
CTRL+ALT+C	Inserts the copyright (©) symbol.
CTRL+ALT+OEMPERIOD	Inserts the ellipsis (...) symbol.
CTRL+ALT+R	Inserts the registered trademark (®) symbol.
CTRL+ALT+-	Inserts the em dash (—) symbol.
CTRL+ALT+T	Inserts the trademark sign (™) symbol.
CTRL+-	Inserts the en dash (-) symbol.

Set Document Properties

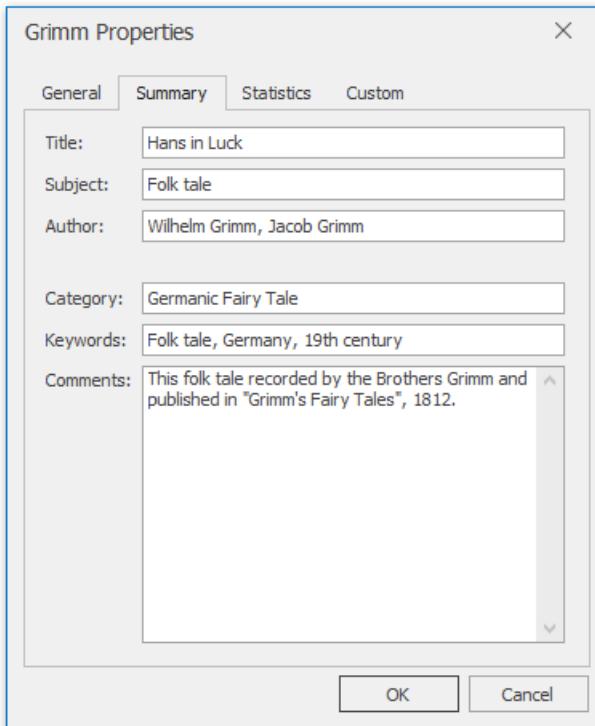
You can add details about your document (title, author name, keywords, etc.) by setting the document properties. You can set the default properties, as well as create and specify custom ones.

Change Default Properties

1. On the **File** tab, in the **Info** group, click the **Document Properties** button to invoke the Document Properties Dialog.

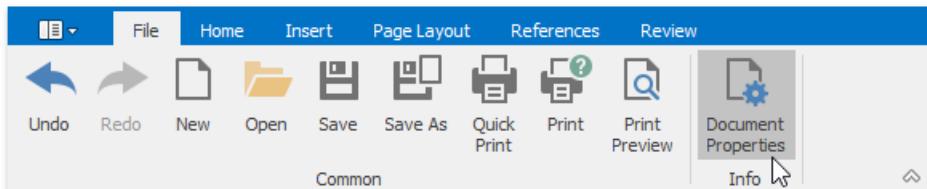


2. To change the default document properties, such as Title, Subject, Author, Category, Keywords and Comments, switch to the **Summary** tab. Enter the required document information and click **OK** to save changes.

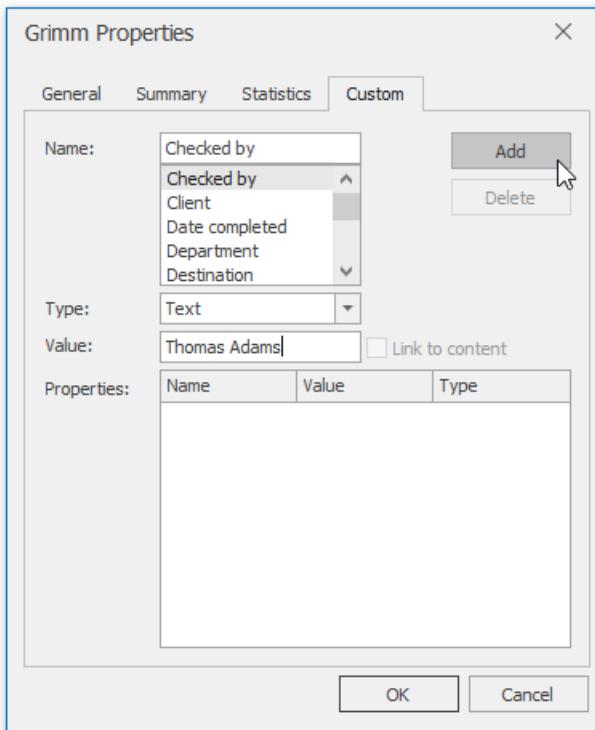


Create and Set Custom Properties

1. On the **File** tab, in the **Info** group, click the **Document Properties** button to invoke the Document Properties Dialog.

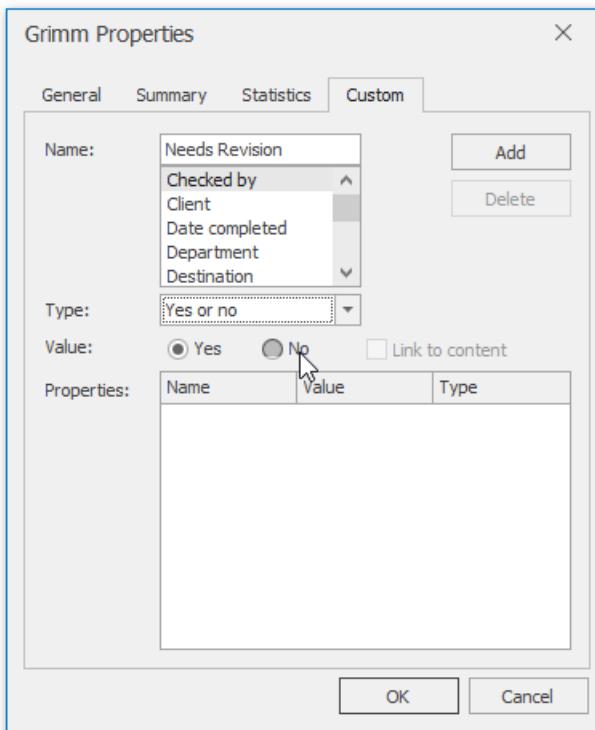


2. Switch to the **Custom** tab to create a new document property.

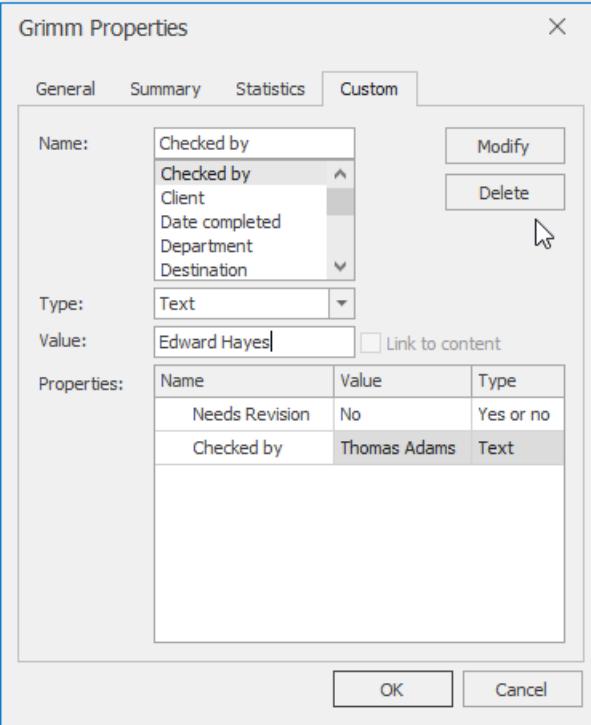


3. Enter the property's name in the **Name** box or select one of the presets from the list. Set the property type by selecting the required item from the **Type** list and enter the value in the field below.

If you selected the "Yes or no" type, click the required radio button to set the value. Click **Add** to finish creating the property.

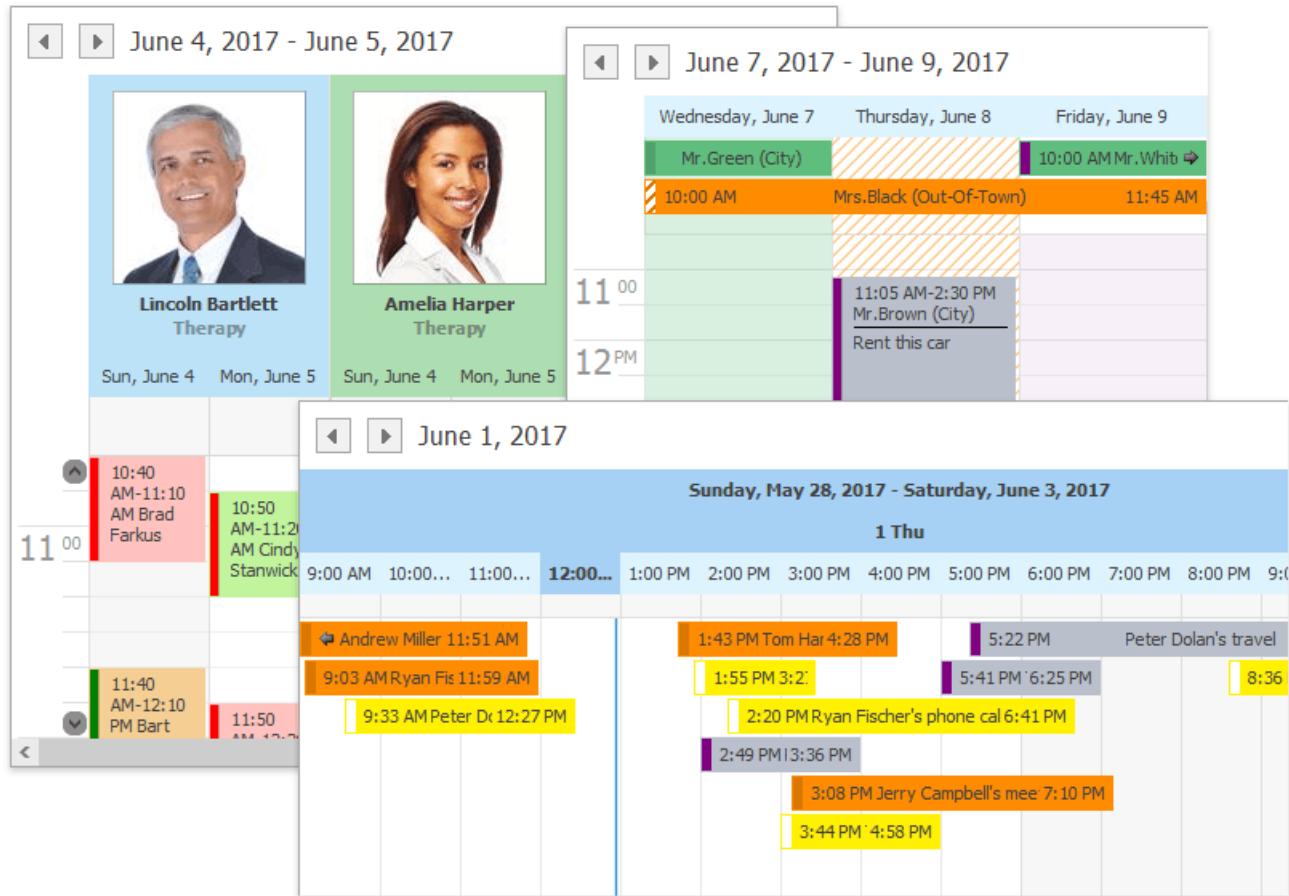


4. The newly created item will appear in the **Properties** list. You can select the property in there and change its value, type or name the same way. Click the **Modify** button to save changes. To remove the property, click **Delete**.



Scheduler

This section describes the capabilities provided by the Scheduler, which is used for scheduling/calendar activities.



Scheduler UI

- [Toolbars](#)
- [Ribbon Interface](#)

Appointment Management

- [Create Appointments](#)
- [Edit Appointments](#)
- [Manage Reminders](#)
- [Delete Appointments](#)
- [Restrictions for Operations with Appointments](#)

Layout Customization

- [Switch Scheduler Views](#)
- [Scheduler Grouping](#)
- [Zoom the Scheduling Area](#)

Selection and Navigation

- [Navigate Dates in the Scheduler](#)
- [Navigate Scheduler Resources](#)
- [Navigate Scheduler Time Cells](#)
- [Scheduler Navigation Buttons](#)
- [Scheduler 'More' Buttons](#)

Printing

- [Printing](#)

Scheduler UI

This section describes the command interface of the Scheduler.

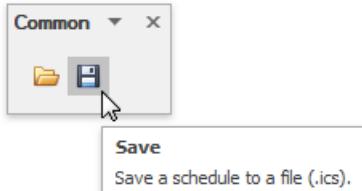
Topics in this section:

- [Toolbars](#)
- [Ribbon Interface](#)

Toolbars

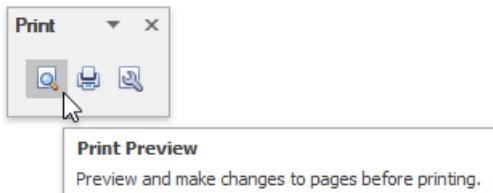
A scheduler can be accompanied by a set of toolbars that provide you with a comprehensive functionality to perform basic operations in a scheduler ([navigate through dates](#), [change active view](#), [create](#), [edit](#) and [delete appointments](#), [select a type for grouping scheduler data](#), etc.) via a Bar interface.

Common



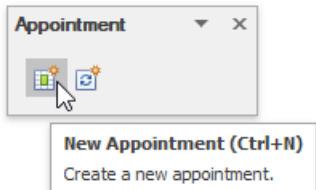
- Import and export data in the iCalendar format.

Print



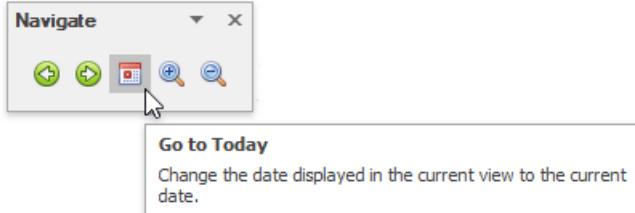
- [Print scheduler data](#)

Appointment



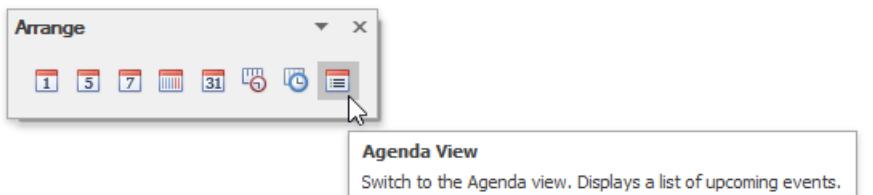
- [Create Appointments](#)

Navigate



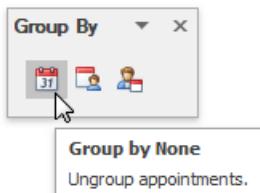
- [Navigate Dates in the Scheduler](#)
- [Zoom the Scheduling Area](#)

Arrange



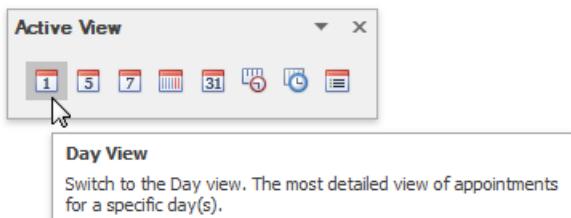
- Switch Scheduler Views

Group By



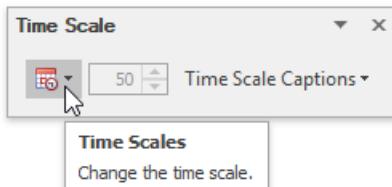
- Scheduler Grouping

Active View



- Switch Scheduler Views

Time Scale



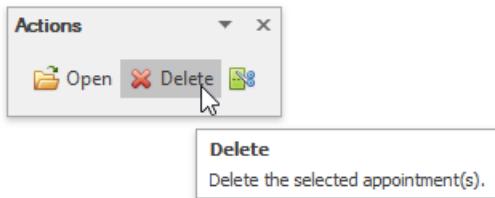
- Specify time scales.

Layout



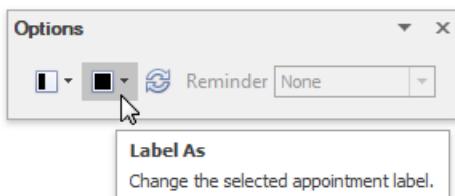
- Customize the active view layout.

Actions



- [Edit Appointments](#)
- [Delete Appointments](#)

Options

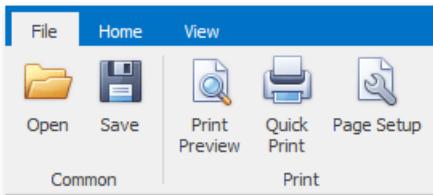


- [Edit Appointments](#)
- [Manage Reminders](#)

Ribbon Interface

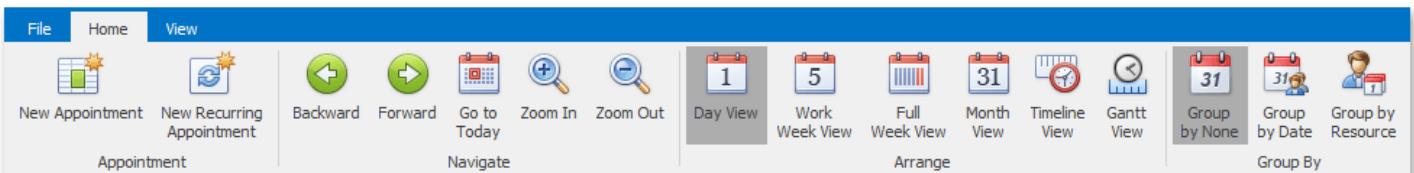
A scheduler can be accompanied by a set of of Ribbon tabbed pages that provide you with a comprehensive functionality to perform basic operations in a scheduler ([navigate through dates](#), [change active view](#), [create, edit](#) and [delete appointments](#), [select a type for grouping scheduler data](#), etc.) via a Ribbon interface. Ribbon pages are structurally and visually split into logical groups. Each of these groups includes commands that have certain common features.

File



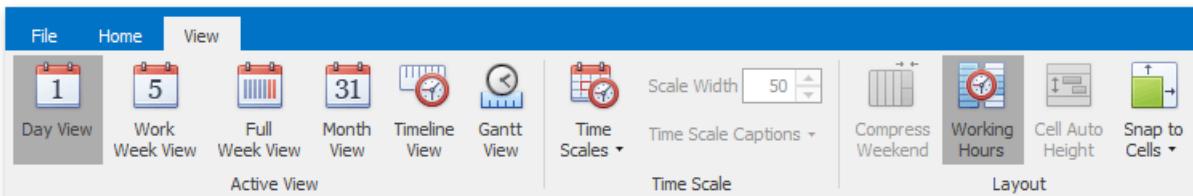
- Import and export data in the iCalendar format.
- [Print scheduler data](#)

Home



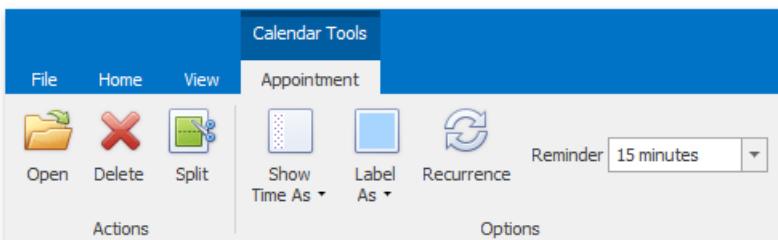
- [Create Appointments](#)
- [Navigate Dates in the Scheduler](#)
- [Switch Scheduler Views](#)
- [Scheduler Grouping](#)

View



- [Switch Scheduler Views](#)
- Customize the active view layout.

Appointment



- [Edit Appointments](#)
- [Manage Reminders](#)

Appointment Management

This section describes how to modify appointments.

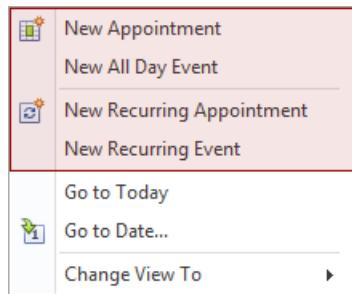
Topics in this section:

- [Create Appointments](#)
- [Edit Appointments](#)
- [Manage Reminders](#)
- [Delete Appointments](#)
- [Restrictions for Operations with Appointments](#)

Create Appointments

Context Menu

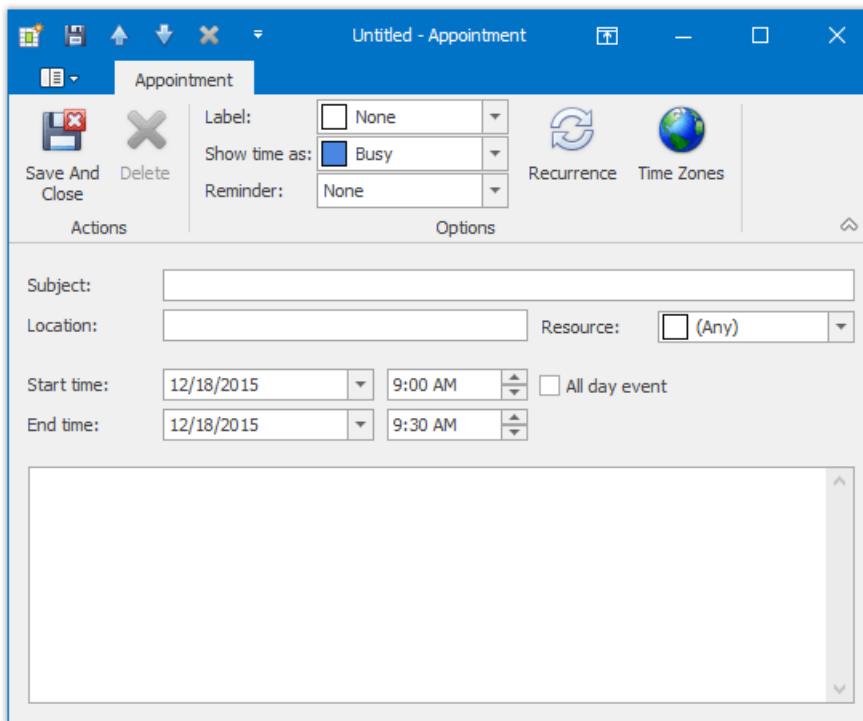
The following items are available in the context menu, invoked when you right-click any region of the Scheduler (except for areas covered by appointments).



1. New Appointment

Invokes the **Edit Appointment** dialog.

The **Start time** and **End time** values are initially set to the lower and upper boundaries of the current date and time selection.



Fill in other fields, if necessary. For example, use the large text box at the bottom of the dialog to enter text, which will be shown as an appointment's description in a **Day** or a **Work Week** views.

You can also select the **Reminder** check box to enable appointment notifications (see [Manage Reminders](#)).

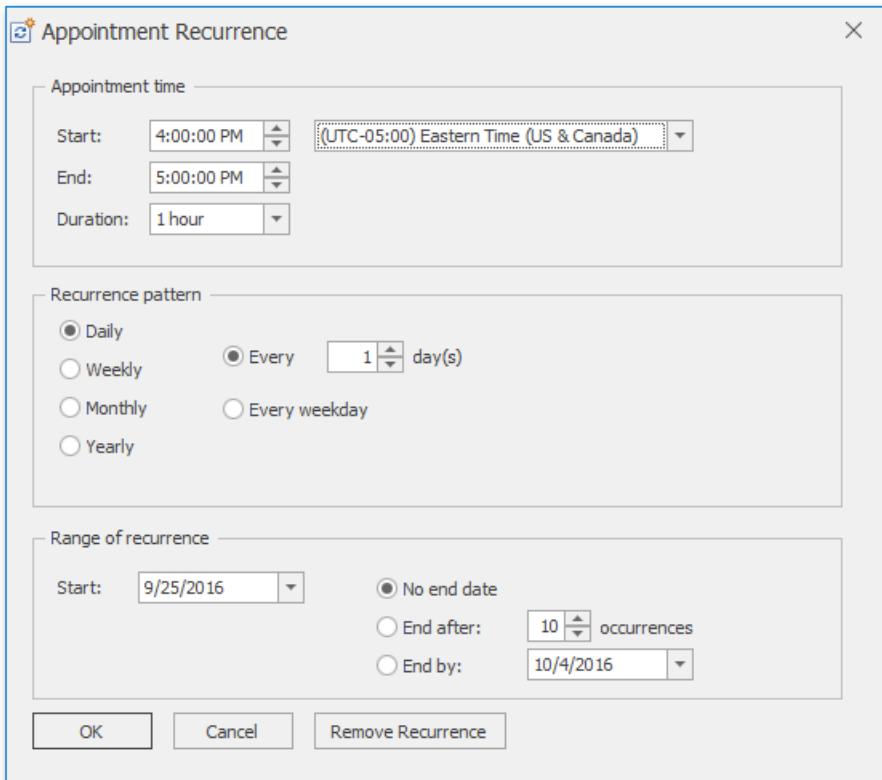
2. New All Day Event

Invokes the **Edit Event** dialog, which is used to create a new all-day appointment (also called 'all-day event'). The dialog is identical to **Edit Appointment** (shown above), except that in this case, the **All day event** option is checked, its time range is measured in days (not hours) and marked as **Free**. The appointment can be transformed into an all-day event and vice-versa by checking this box.

3. New Recurring Appointment

All appointments maintained by the scheduler can either be simple (non-recurring - i.e., they happen only once), or recurring - occurring multiple times within a specified time interval.

Selecting this menu item invokes the **Edit Appointment** dialog, used to create a new appointment, and also invokes the **Appointment Recurrence** dialog, which allows the recurrence pattern to be specified for the new appointment.



4. New Recurring Event

Selecting this menu item invokes the **Event** editor dialog used to create a new all-day appointment, and also invokes the **Appointment Recurrence** dialog, which allows the recurrence pattern to be specified for the new event.

Bar or Ribbon Interface

If a scheduler is provided with the Bar or Ribbon interface, you can create new appointments (simple and recurring) using the **New Appointment** and **New Recurring Appointment** buttons on the **Appointment** toolbar or **Ribbon page group**. These buttons invoke the **Edit Appointment** and **Appointment Recurrence** dialogs respectively.

CREATE A NEW APPOINTMENT VIA BAR INTERFACE	CREATE A NEW APPOINTMENT VIA RIBBON INTERFACE
 New Appointment (Ctrl+N) Create a new appointment.	 Home New Appointment New Recurring Appointment Appointment

Keyboard Shortcuts and Mouse Operations

ACTION	DESCRIPTION
An alphanumeric key or ENTER	Pressing an alphanumeric key or ENTER invokes an in-place editor where you can type the subject of a new appointment occupying the currently selected area. Once you have typed your appointment's subject, you can either create and save the appointment by pressing ENTER or changing the focus, or cancel the operation by pressing ESC . The type of the created appointment depends on the selected time cell(s). When typing is done in Day or Work-Week view, the appointment is created with the time interval starting with the earliest time of the selected cells and ending with the latest, and the time is marked as Busy . If an all-day area is selected, then an all-day appointment is created with the time marked as Free . When the scheduler display mode is Week or Month view, the appointment is created with the start time set to 12 AM of the first selected day, and the end time is set to 12 AM of the day following the last selected day.
Double-click	Double-clicking within a scheduler view's time cell that does not contain any appointments invokes the Edit Appointment dialog described above.
CTRL+N	Pressing CTRL+N invokes the Edit Appointment dialog. Then this dialog can be used to create a new appointment.
Dragging an appointment while holding CTRL	This action creates a copy of the selected appointment and moves it, leaving the original appointment intact.

Edit Appointments

You can modify existing appointments in the following ways:

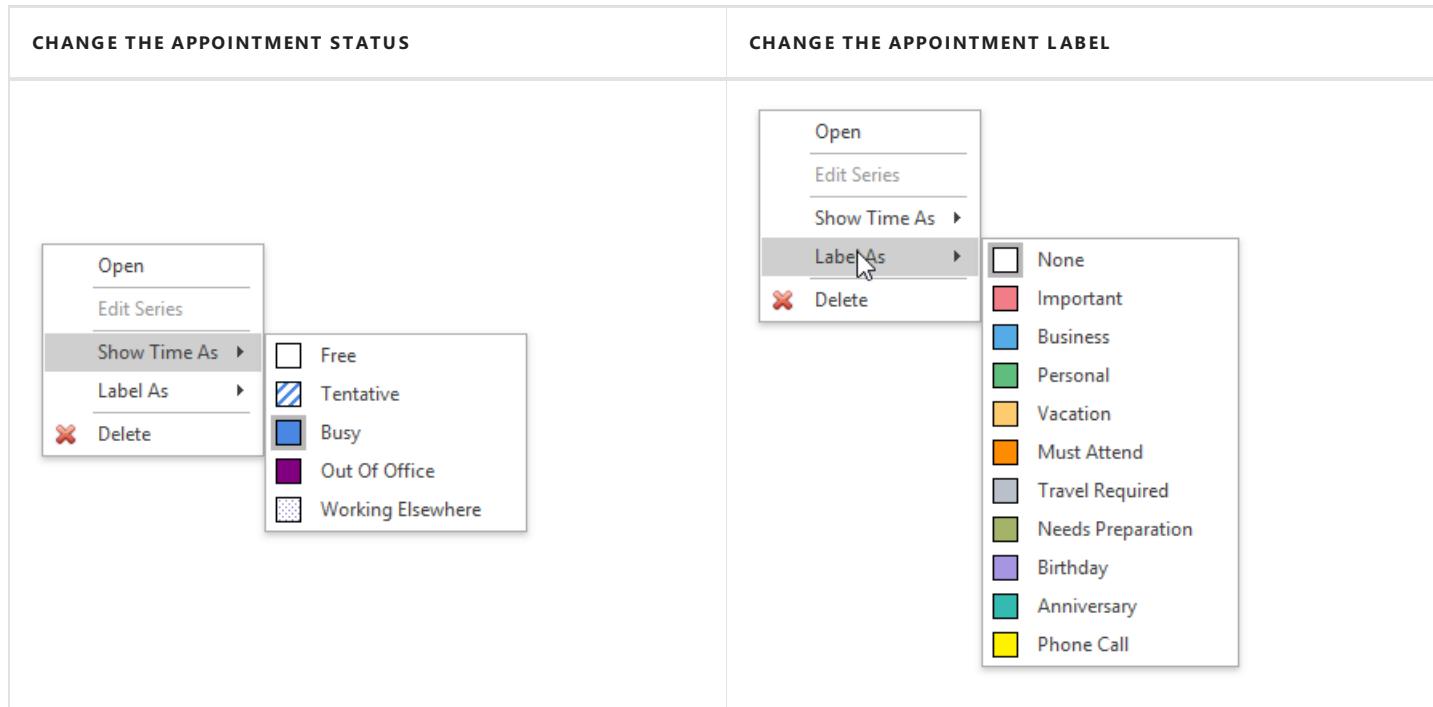
- using the appointment context menu
- using the built-in dialogs
- using the in-place editor
- via the Bar or Ribbon interface
- via keyboard shortcuts and mouse operations

NOTE

Access to some operations may be restricted.

Context Menu

After an appointment has been right-clicked, the appointment context menu is invoked. The **Show Time As** and **Label As** items are used to alter an appointment. They allow for the changing of basic visual characteristics of an appointment - status and label.

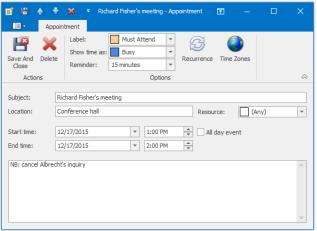


Edit Appointment and Appointment Recurrence Dialogs

- **Edit a Simple Appointment**

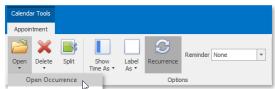
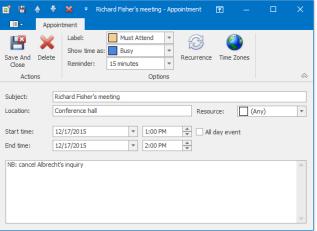
You can edit properties of a simple (non-recurring) appointment via the **Edit Appointment** dialog that can be invoked via the appointment context menu, [Bar](#) or [Ribbon](#) interface, keyboard shortcuts and mouse operations.

CONTEXT MENU	TOOLBAR	RIBBON PAGE GROUP	KEYBOARD SHORTCUTS AND MOUSE OPERATIONS	INVOKED EDIT APPOINTMENT DIALOG

CONTEXT MENU	TOOLBAR	RIBBON PAGE GROUP	KEYBOARD SHORTCUTS AND MOUSE OPERATIONS	INVOKED EDIT APPOINTMENT DIALOG
			Double-click the appointment to be edited or select an appointment, and then press ENTER or CTRL-O .	

• Edit a Particular Occurrence in a Series

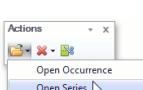
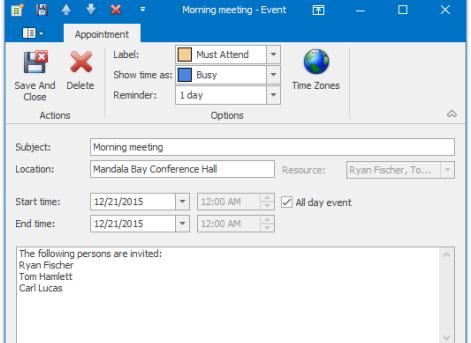
The same dialog is used to edit a particular occurrence in the series of recurring appointments (recurring appointments are marked with a  sign). If you select a recurring appointment, and click **Open** in the appointment context menu or the **Open Occurrence** button on the **Actions toolbar** or **Ribbon page group**, the **Edit Appointment** dialog is invoked to allow for the editing of the current appointment only, but not its entire series.

CONTEXT MENU	TOOLBAR	RIBBON PAGE GROUP	KEYBOARD SHORTCUTS AND MOUSE OPERATIONS	INVOKED EDIT APPOINTMENT DIALOG
			Double-click an appointment to be edited or select an appointment, and then press ENTER or CTRL-O .	

The appointment with changed properties still belongs to the series, but is marked with an "exception". The visual indicator of an exception is the crossed recurrence sign . To replace an exceptional appointment with the regular occurrence in the chain of recurring appointments, click the **Restore Default State** item in the appointment's context menu.

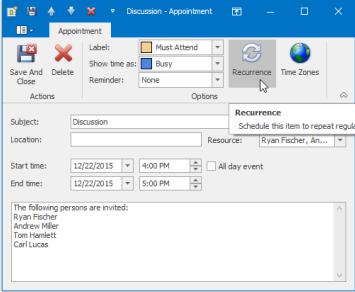
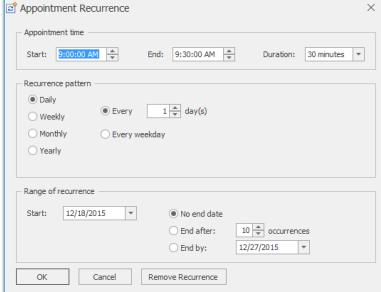
• Edit a Series of Recurring Appointments

To edit an entire series of recurring appointments (a pattern appointment), it is necessary to select a recurring appointment, and click **Edit Series** in the appointment context menu or select the **Open Series** item from the **Open** drop-down list on the **Actions toolbar** or **Ribbon page group**. In this instance, the **Edit Appointment** dialog is shown with a different window icon. Time fields are inaccessible.

CONTEXT MENU	TOOLBAR	RIBBON PAGE GROUP	INVOKED EDIT APPOINTMENT DIALOG
			

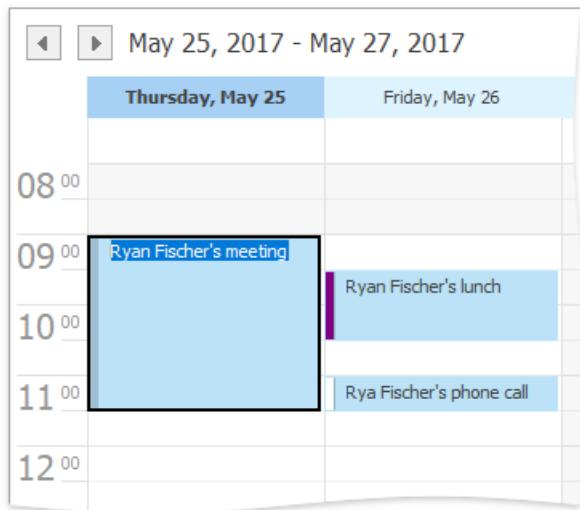
The recurrence pattern can be edited via the **Appointment Recurrence** dialog. You can invoke it by clicking the

Recurrence button of the **Edit Appointment** dialog, or using the **Recurrence** button on the **Options** toolbar or **Ribbon page group**.

EDIT APPOINTMENT DIALOG	TOOLBAR	RIBBON PAGE GROUP	INVOKED APPOINTMENT RECURRENCE DIALOG
			

In-place Editing

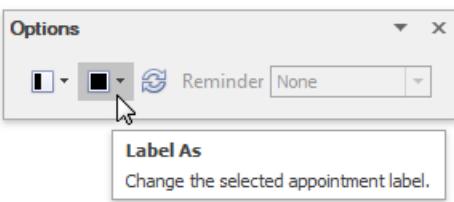
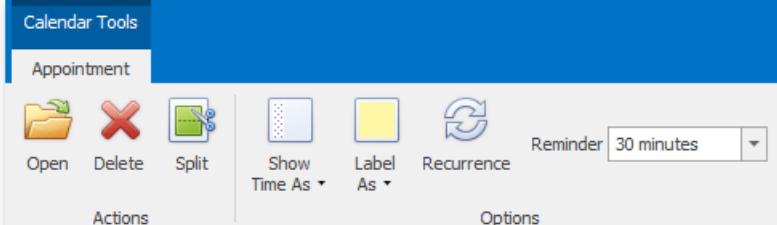
A single mouse click within an appointment, or pressing **F2**, invokes the in-place editor, which you can use to edit the selected appointment's **Subject**. It is illustrated in the following picture.



By default, you can close the editor by pressing **Enter** (to save modifications) or **Escape** (to cancel modifications).

Bar or Ribbon Interface

If a scheduler is provided with the **Bar** or **Ribbon** interface, you can modify appointment properties (status, label, recurrence and reminder) using the **Options** toolbar or **Ribbon page group**, which is active when an appointment is selected.

MODIFY AN APPOINTMENT VIA THE BAR INTERFACE	MODIFY AN APPOINTMENT VIA THE RIBBON INTERFACE
	

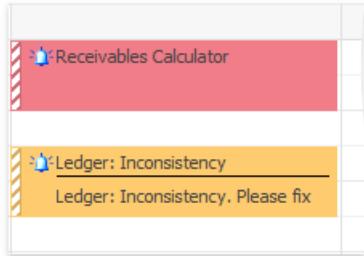
Keyboard Shortcuts and Mouse Operations

ACTION	DESCRIPTION
Click an appointment	Selects an appointment.
Right-click an appointment	Selects an appointment and invokes the context menu for the selected appointment.
Click appointments while holding the CTRL key pressed	Enables you to select multiple appointments.
ENTER or CTRL+O	Invokes the Edit Appointment dialog for the selected appointment.
Double-click an appointment	Invokes the Edit Appointment dialog.
F2	Invokes the in-place editor to modify the selected appointment.
Drag appointment edges	Resizes the rectangle representing an appointment. Results in changing its start/end times.
Click and drag an appointment with the left mouse button	Moves the appointment across time cells, changing its Start time and End time properties.
Click and drag an appointment with the right mouse button	Invokes the context menu allowing you to select between moving the appointment, copying it or canceling the operation.
Press and hold the CTRL key, click and drag an appointment(s) with the left mouse button	Creates a copy of the selected appointment(s) when the mouse button is released.

Manage Reminders

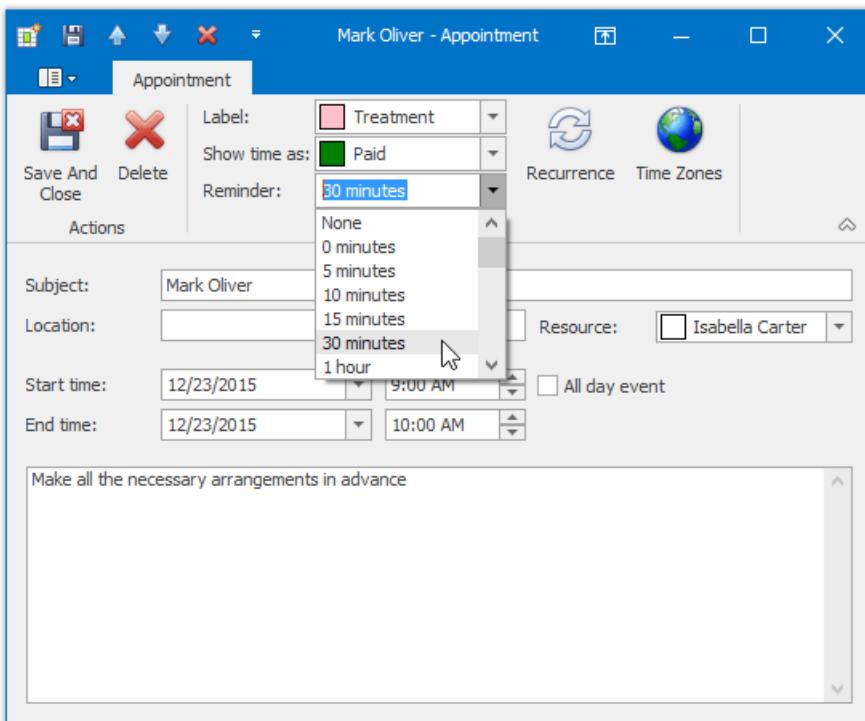
What is a Reminder?

An appointment can have one or more reminders. They are responsible for sending alerts at specified time periods before an appointment's start time. If an appointment has a reminder, the bell  image is displayed.



Specifying Reminders

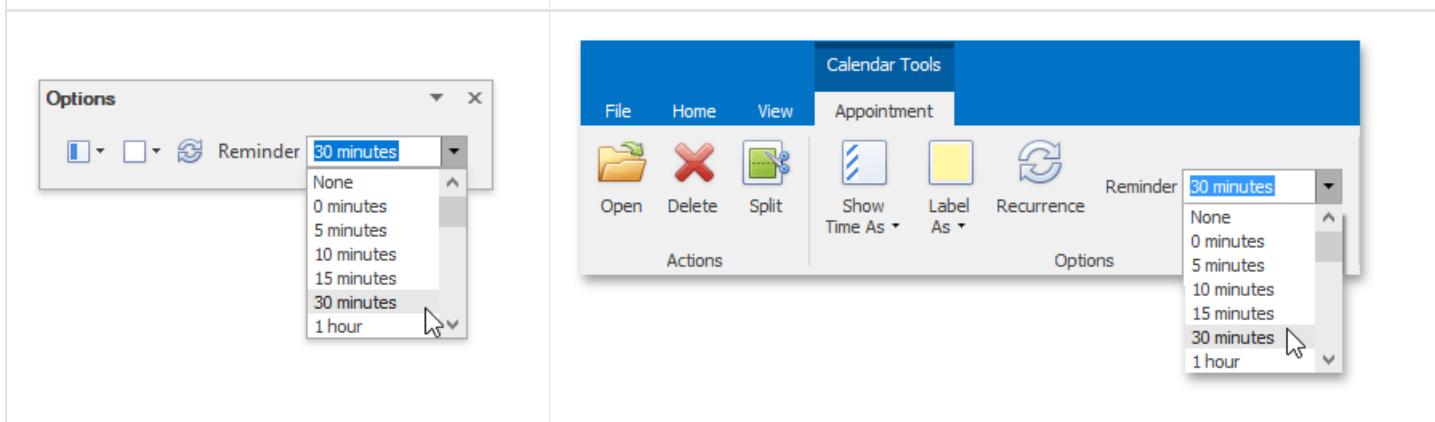
A reminder can be created for a particular appointment with the help of the appointment's editing form, demonstrated below. Select the **Reminder** check box and enter the amount of time before the appointment when you want the reminder to occur. You can select a predefined value in a drop-down list, or just type it in. The duration editor recognizes digits as the number of minutes if an "h" postfix is added - as hours, "d" - days.



If a scheduler is provided with the **Bar** or **Ribbon** interface, you can specify reminders by selecting the required value from the **Reminder** drop-down list on the **Options** toolbar or Ribbon page group, which is active when an appointment is selected.

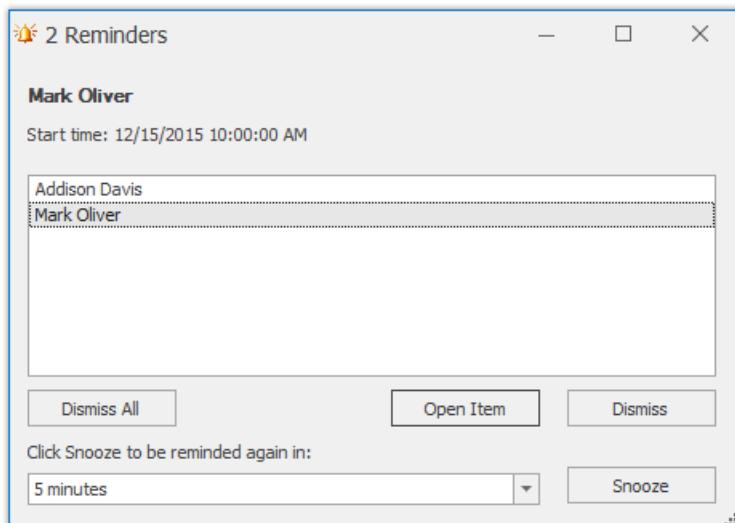
DELETE AN APPOINTMENT VIA BAR INTERFACE

DELETE AN APPOINTMENT VIA RIBBON INTERFACE



How Does It Work?

When the time has come for the reminder alert, it invokes the notification dialog, as illustrated below.



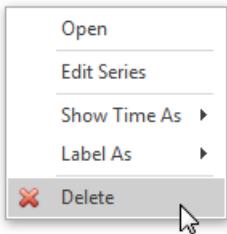
You can switch the reminders off by clicking the **Dismiss** or **Dismiss All** buttons.

Another option is to shift the alert time by selecting the time interval in the combo box and clicking the **Snooze** button. Then, the notification will be postponed for a specified time frame.

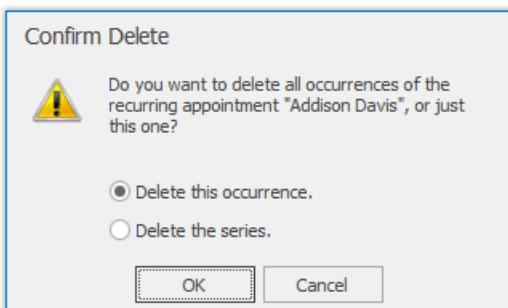
Delete Appointments

Context Menu

You can delete the selected appointment using the **Delete** item of the context menu, which is invoked when an appointment is right-clicked.

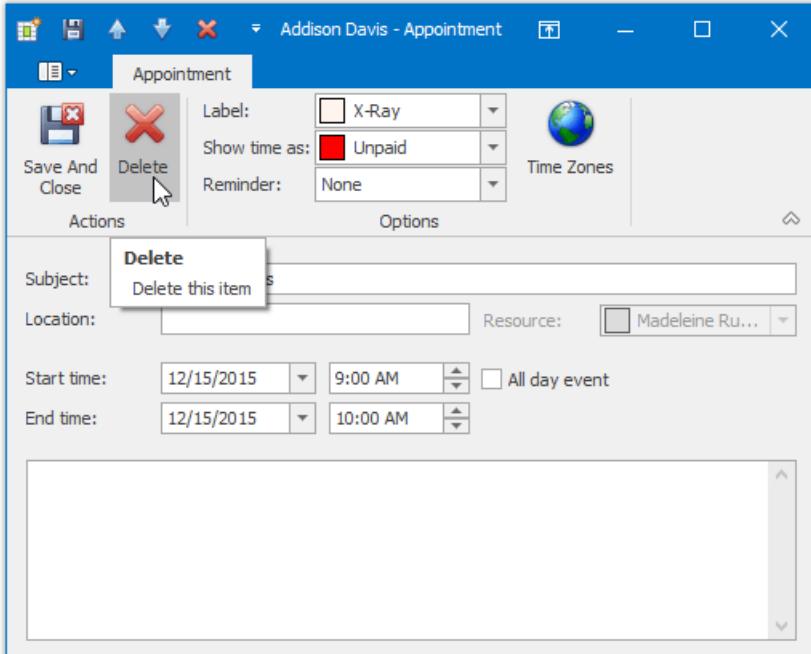


Selecting this item removes the current appointment. If the current appointment is recurring, then the **Confirm Delete** dialog is invoked.



Edit Appointment Dialog

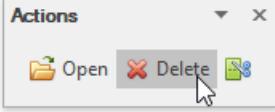
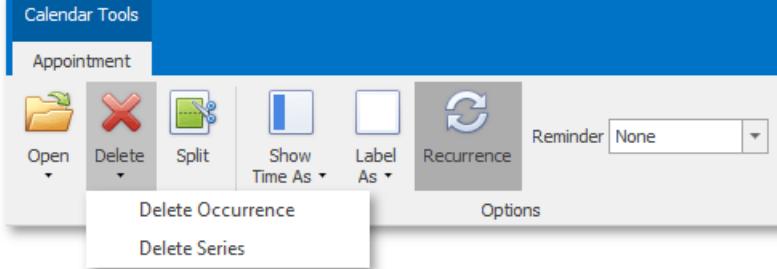
When the appointment is being edited via the **Edit Appointment** dialog, in order to delete the corresponding appointment (or series of recurring appointments) click the **Delete** button of this dialog.



Bar or Ribbon Interface

If a scheduler is provided with the **Bar** or **Ribbon** interface, you can delete appointments (simple and recurring) using the **Delete**

button on the **Actions** toolbar or Ribbon page group. If the appointment to be deleted is recurring, clicking this button invokes the drop-down list allowing you to decide whether the whole series of recurring appointments should be deleted or just a particular occurrence.

DELETE AN APPOINTMENT VIA BAR INTERFACE	DELETE AN APPOINTMENT VIA RIBBON INTERFACE
 Delete Delete the selected appointment(s).	 Delete Occurrence Delete Series

Keyboard Shortcuts

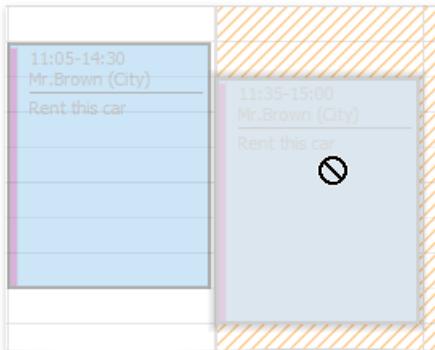
The **DELETE** key or the **CTRL+D** keyboard shortcut can be used to delete the selected appointment(s).

Restrictions for Operations with Appointments

Access to several operations may be restricted. You may find that you're not able to perform the following operations due to restrictions applied by your application vendor or administrator.

- Create new appointments.
- Edit appointments.
- Invoke the appointment editing form.
- Activate an in-place editor for an appointment.
- Change the time boundaries of appointments.
- Drag and drop appointments to another time slot or date.
- Drag and drop appointments between resources.
- Copy appointments.
- Delete appointments.
- Select more than one appointment simultaneously.
- Share the scheduled time between two or more appointments.

When you drag an appointment to relocate it, it may conflict with another. This situation is visually indicated as illustrated below:



Layout Customization

This section describes how to change the scheduler layout.

Topics in this section:

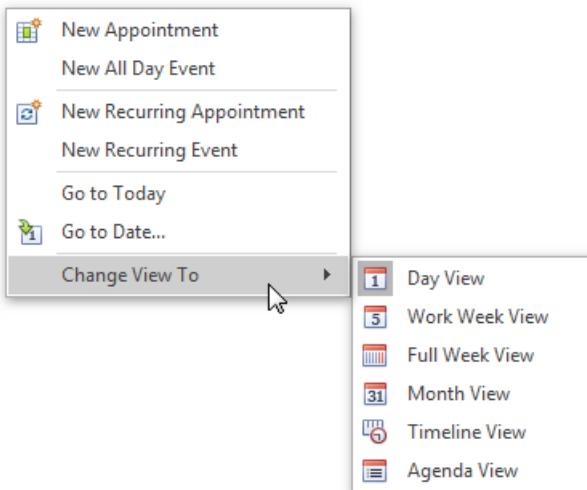
- [Switch Scheduler Views](#)
- [Scheduler Grouping](#)
- [Zoom the Scheduling Area](#)

Switch Scheduler Views

Change Active View

The scheduler is intended to display appointment data using one of the standard [Views](#). The currently active view used by the scheduler can be either selected intentionally or changed according to the scheduler's internal logic.

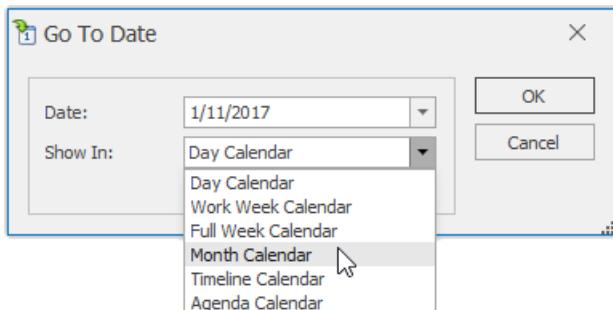
- To change the active view, use the corresponding item of the scheduler's context menu. This menu is invoked when you right-click any region of the scheduler (not occupied with an appointment).



NOTE

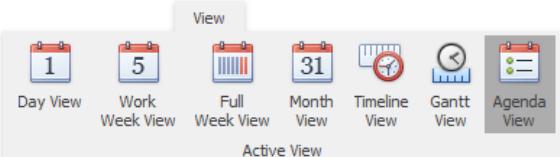
Depending on the application vendor, some options may be unavailable in your application.

- While navigating through dates via the **Go To Date** dialog, you can specify a view type to display a new time interval.



- The scheduler selects a view mode automatically, according to the date range selected in the date navigator, combined with a scheduler.
- If a scheduler is provided with the Bar or Ribbon interface, you can use the **Active View** and **Arrange** toolbars or [Ribbon page groups](#).

CHANGE THE ACTIVE VIEW VIA BAR INTERFACE	CHANGE THE ACTIVE VIEW VIA RIBBON INTERFACE
<p>A screenshot of the 'Arrange' toolbar. The toolbar has a light gray background and a white border. It contains several icons representing different views: Day View, Work Week View, Week View, Full Week View, Month View, Timeline View, Gantt View, and Agenda View. The 'Agenda View' icon is highlighted with a blue rectangle. Below the toolbar, a tooltip box appears with the text 'Switch to the Agenda view. Displays a list of upcoming events.'</p>	<p>A screenshot of the 'Home' ribbon tab. Under the 'Arrange' group, there are several buttons for different views: Day View, Work Week View, Week View, Full Week View, Month View, Timeline View, Gantt View, and Agenda View. The 'Day View' button is highlighted with a blue rectangle. At the bottom right of the group, there is a button labeled 'Arrange'.</p>

CHANGE THE ACTIVE VIEW VIA BAR INTERFACE	CHANGE THE ACTIVE VIEW VIA RIBBON INTERFACE
 <p data-bbox="223 309 742 399">Day View Switch to the Day view. The most detailed view of appointments for a specific day(s).</p>	 <p data-bbox="1155 345 1234 361">Active View</p>

Available View Types

- **Day View**

This view provides the most detailed view of appointments for a certain day(s).

- **Work-Week View**

This view displays appointments for the working days in a particular week.

- **Week View**

This view displays appointments for any given week.

- **Month (also called Multi-Week) View**

The month view is the least detailed of the views, and is designed to allow browsing and long-term plan analysis. This view positions the days one after another horizontally, so that they form weeks, while weeks are placed one under the other.

- **Timeline View**

This view plots appointments as horizontal bars along the timescales, and provides a clearer overview for scheduling purposes.

- **Gantt View**

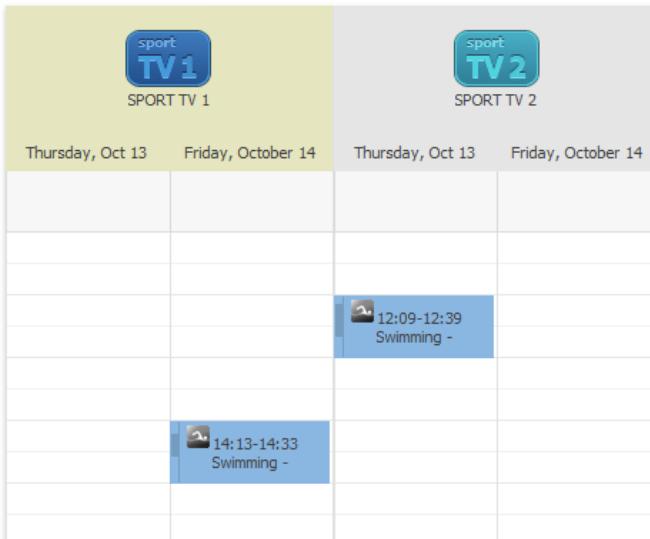
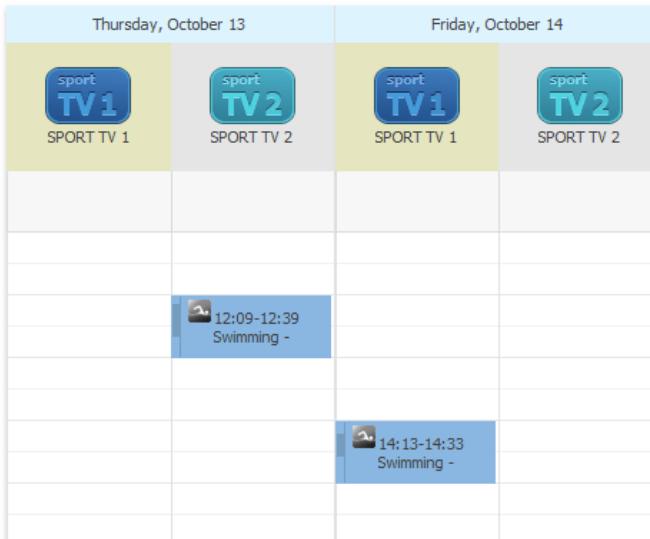
This view displays appointments as horizontal bars along the timescales, shows the current schedule status using percent-complete shadings and displays dependency relationships between appointments.

- **Agenda View**

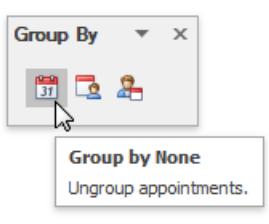
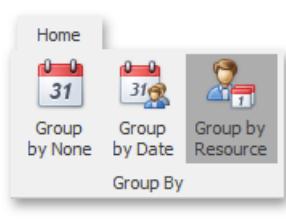
This view displays appointment as a chronological list grouped by day.

Scheduler Grouping

The appointment data displayed within the scheduler can be grouped either by resources or by dates to enhance visual representation. The following pictures illustrate the appearance of the scheduler in different grouping modes.

APPOINTMENTS ARE GROUPED BY RESOURCES	APPOINTMENTS ARE GROUPED BY DATES
	

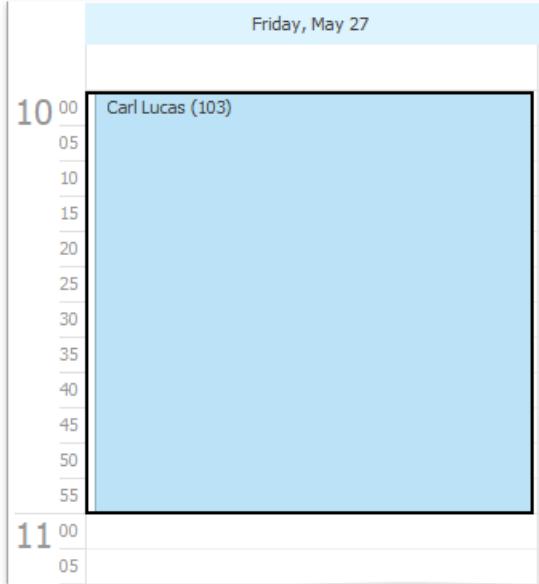
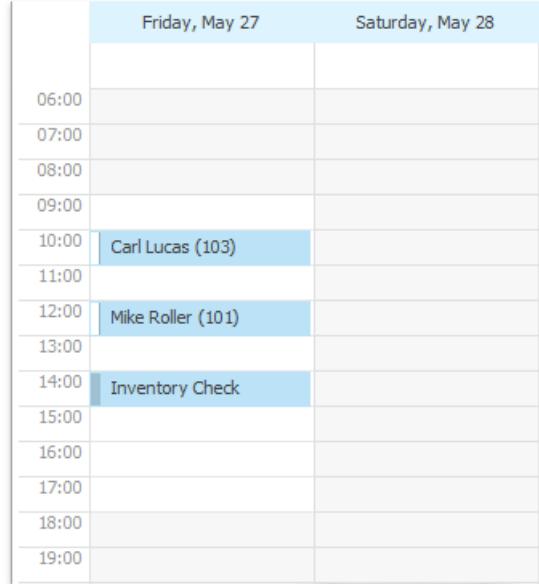
If a scheduler is provided with the Bar or Ribbon interface, you can specify the type of grouping appointments using the **Group By** toolbar or Ribbon page group.

GROUP APPOINTMENTS VIA BAR INTERFACE	GROUP APPOINTMENTS VIA RIBBON INTERFACE
	

See also the [Navigate Scheduler Resources](#) topic.

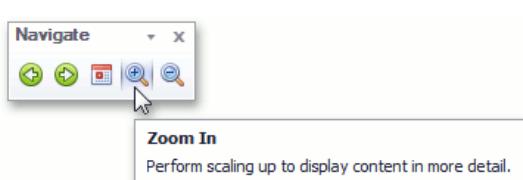
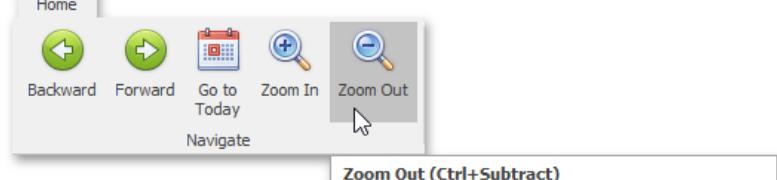
Zoom the Scheduling Area

You can zoom in the scheduler view to display its content in greater detail, or zoom out for a more general view. Zooming is implemented by adjusting the time scales (in the Day, Work-Week or Timeline [views](#)) or changing the number of visible weeks (in the Month view).

ZOOMING IN	ZOOMING OUT
	

Zooming operations are available for you via the **CTRL+PLUS SIGN**, **CTRL+MINUS SIGN** or **CTRL+MOUSE WHEEL** key combinations.

If a scheduler is provided with the Bar or Ribbon interface, you can zoom in and zoom out the scheduler area using the corresponding buttons on the [Navigate toolbar](#) or [Ribbon page group](#).

ZOOM SCHEDULER VIA BAR INTERFACE	ZOOM SCHEDULER VIA RIBBON INTERFACE
	

Selection and Navigation

This section describes how to navigate the schedule.

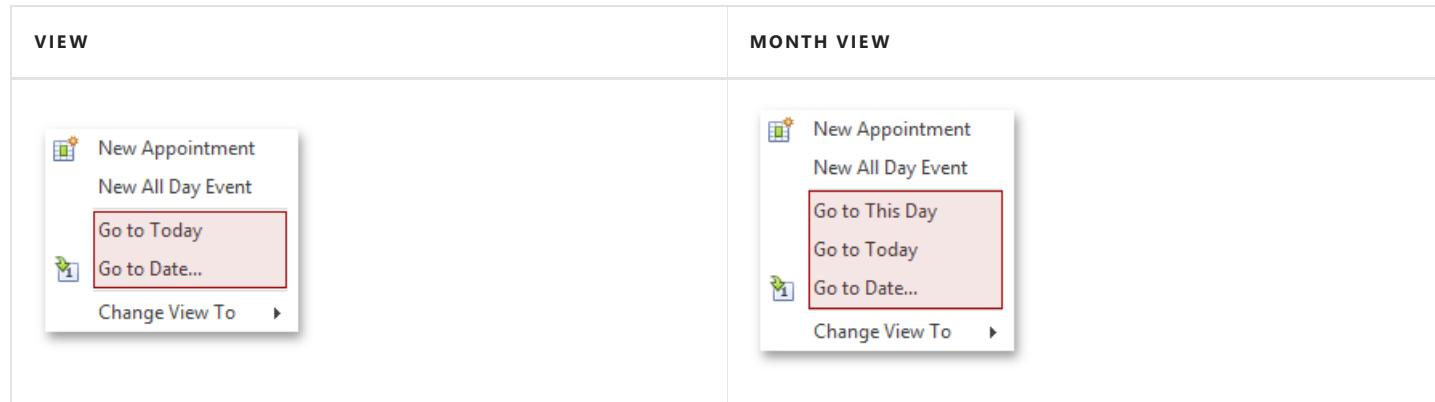
Topics in this section:

- [Navigate Dates in the Scheduler](#)
- [Navigate Scheduler Time Cells](#)
- [Zoom the Scheduling Area](#)
- [Scheduler Navigation Buttons](#)
- [Scheduler 'More' Buttons](#)

Navigate Dates in the Scheduler

Context Menu

Right-clicking within the main area of the scheduler opens the context menu, which contains items for navigating through dates.



- **Go to This Day**

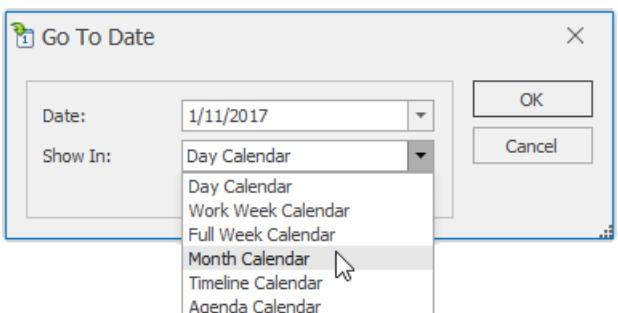
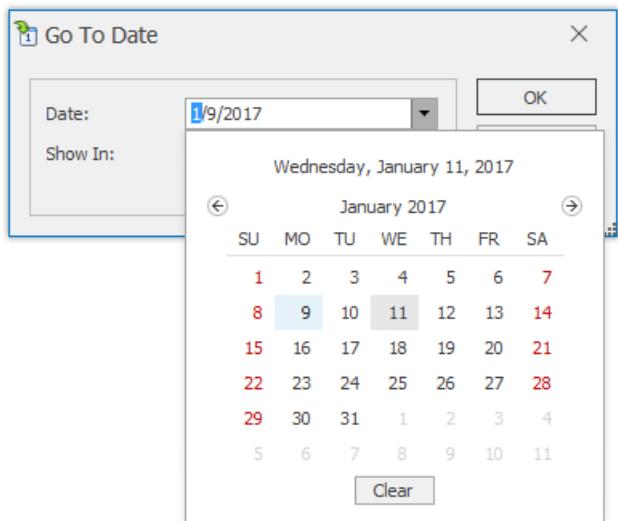
Only available in the **Month View**. This item is active when only one day is selected, and when activated, displays the target day in the **Day View** mode.

- **Go to Today**

Moves focus to the current date, preserving the existing view mode.

- **Go to Date...**

Invokes the **Go To Date** dialog to select the date and view type. The date can be selected either by using the calendar or by entering a string with the placeholders. To select the desired view type, use the **Show In** drop-down box.



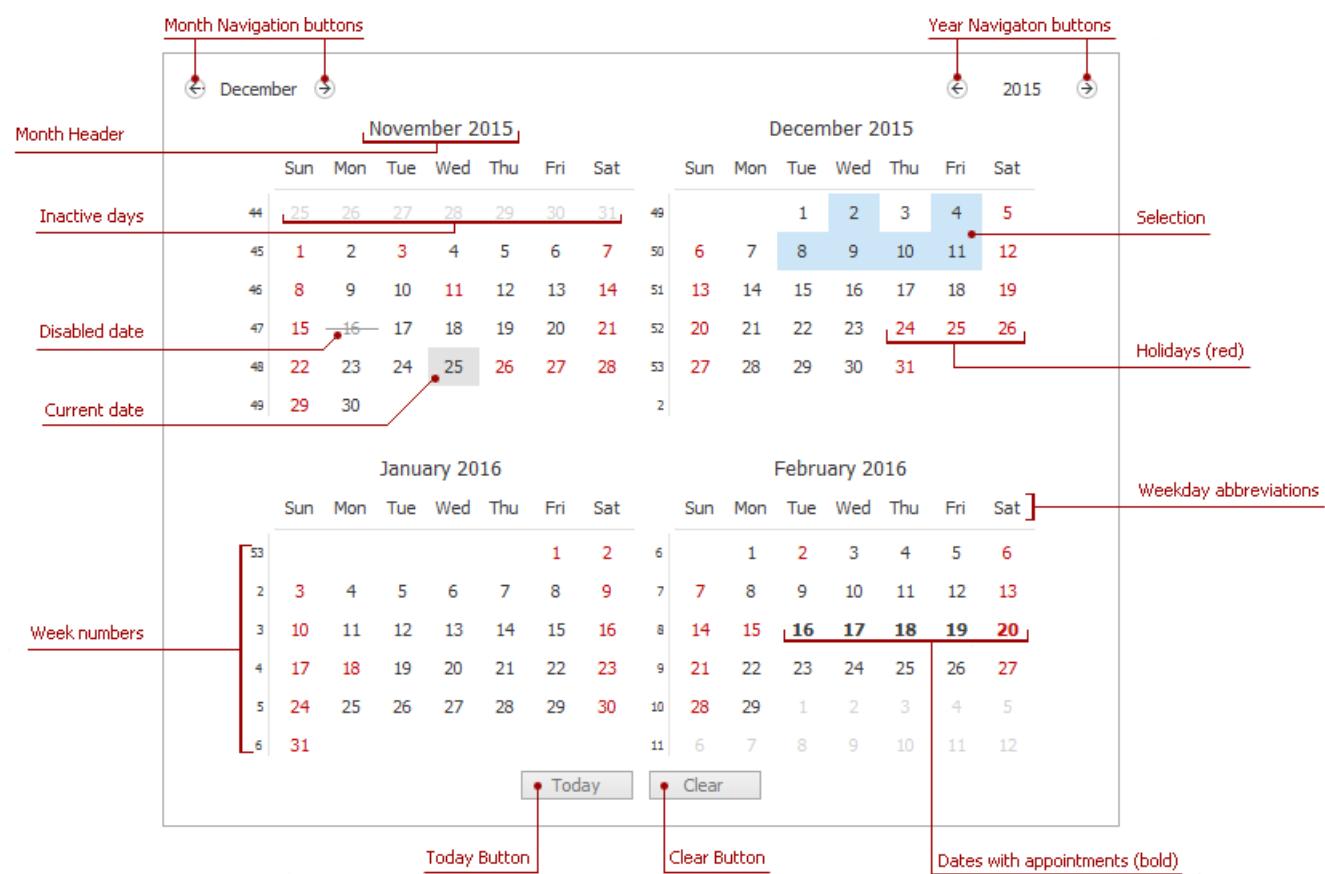
Date Navigation Bar

You can navigate through dates using **Date Navigation Bar**. Clicking its navigation arrows moves backward and forward by the time frame. The current time interval is indicated near the arrows.



Date Navigator

If the scheduler is accompanied by the **date navigator**, you can use it to navigate through dates. The common look of the date navigator is illustrated in the following picture.



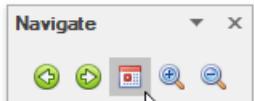
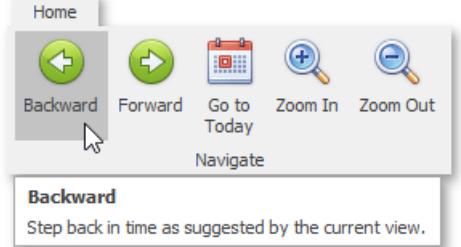
You can select either a particular date, or a range of dates in the date navigator, and the scheduler will display your selection using a **Day View**. The table below details how you can select dates in different ways.

ACTION	EFFECT
Click a date	A single date is selected and the scheduler displays it using the Day View . If the currently active view is of another type, it is automatically changed to Day View .
Click and drag across multiple dates, or click a start date, hold down the SHIFT key and click an end date	The continuous range of dates is selected. The scheduler displays it using the Day View , irrespective of the size of the selected range.
Hold down the CTRL key and click several dates	A set of dates is selected. The scheduler displays it using the Day View , irrespective of the size of the selected range.

ACTION	EFFECT
Click a week number	A corresponding week-long range is selected. The scheduler displays it using the Day View .

Bar or Ribbon Interface

If a scheduler is provided with the Bar or Ribbon interface, you can navigate through dates within a scheduler using the **Backward**, **Forward** and **Go to Today** buttons of the **Navigate** toolbar or **Ribbon page group**.

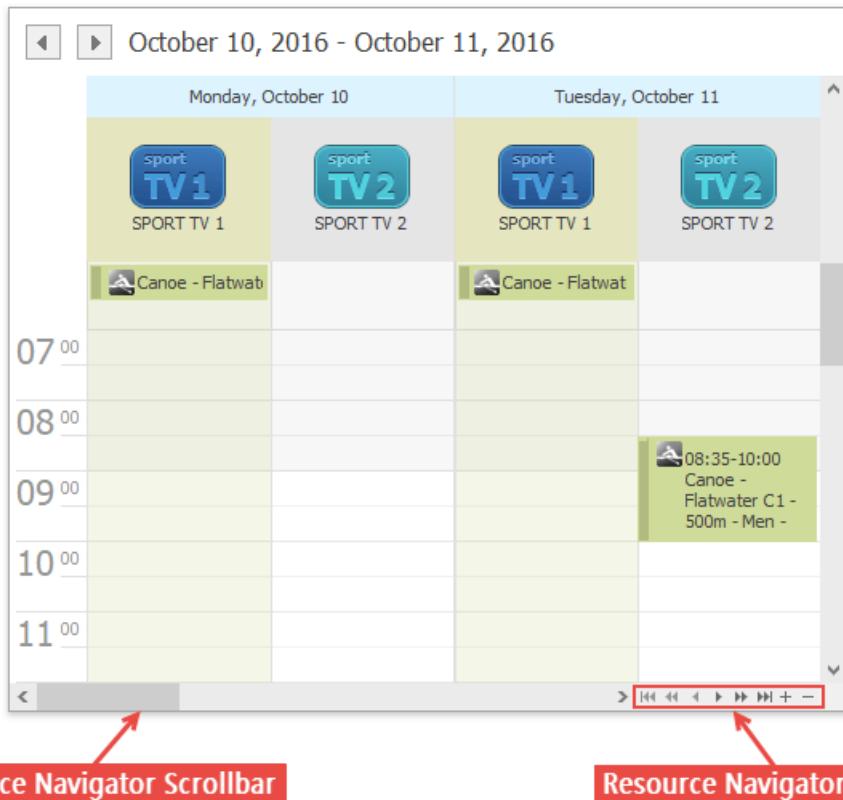
NAVIGATE THROUGH DATES VIA BAR INTERFACE	NAVIGATE THROUGH DATES VIA RIBBON INTERFACE
 Go to Today Change the date displayed in the current view to the current date.	 Backward Step back in time as suggested by the current view.

Navigate Scheduler Resources

When appointment data is grouped (either by resources or by dates), the number of resources shown on the screen within the Scheduler at once can make it difficult to see all the scheduled data. To make the Scheduler's layout more readable, it is possible to limit the number of visible resources, and then scroll between them. There is an embedded **Resource Navigator** control, which allows you to scroll between resources.

The **Resource Navigator** control is composed of a scrollbar and a set of buttons. It may be shown horizontally (on the bottom line of the Scheduler control, with buttons in the right corner) or vertically (on the right side, buttons at the bottom). The position of the control is chosen automatically. It is vertical in **Day** and **Week** views, if appointments are grouped by dates, and horizontal in other view modes.

The mode of operation is rather straightforward - you can click the buttons to move back and forth through the list of resources; one by one, or straight to the first or last one on the list. The buttons with plus and minus signs increase or decrease the number of displayed resources by one.



Navigate Scheduler Time Cells

The following table contains the typical navigation operations:

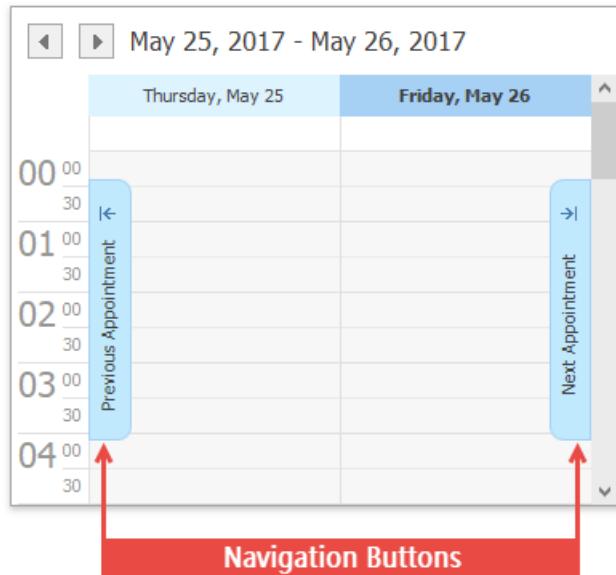
ACTION	EFFECT
Clicking a cell	Moves focus to the clicked cell, selects it.
UP ARROW; DOWN ARROW	Day View, Work Week View - Moves focus to the previous or next time cell within the current day. Week View - Moves focus to the previous or next day. Month View - Moves focus to the same day of the week for the previous or next week.
LEFT ARROW; RIGHT ARROW	Day View, Work Week View - Moves focus to the corresponding time cell of the previous or next day. Week View - Moves focus to the left or right of the corresponding cell of a column. The view is scrolled to the previous or next week if necessary. Month View - Moves focus to the previous or next day.
PAGE DOWN	Moves the row focus one page down, preserving the column focus.
PAGE UP	Moves the row focus one page up, preserving the column focus.
HOME	Day View, Work-Week View - Moves focus to the start of Work Time within the current day. Week View, Month View - Moves focus to the first day shown in the current week.
END	Day View, Work-Week View - Moves focus to the end of Work Time within the current day. Week View, Month View - Moves focus to the last day shown in the current week.
CTRL+HOME	Day View, Work-Week View - Moves focus to the first cell of the day's visible time span. Week View, Month View - Moves focus to the first day shown in the current week.
CTRL+END	Day View, Work-Week View - Moves focus to the last cell of the day's visible time span. Week View, Month View - Moves focus to the last day shown in the current week.
TAB	Switches to appointments navigation. Focus shifts to the next time appointment within the time span shown. Pressing the key repeatedly iterates through the appointments in the following way - appointments with a definite duration are followed by all-day appointments.
SHIFT+TAB	Switches to appointments navigation. Focus shifts to the previous time appointment within the time span shown. Pressing the key repeatedly iterates through the appointments in the following way - appointments with a definite duration are followed by all-day appointments.
ALT+UP ARROW; ALT+DOWN ARROW	Day View, Work-Week View, Month View - Moves focus one week before or after. Week View - acts like the LEFT(RIGHT) ARROW keys.
ALT+PAGE UP; ALT+PAGE DOWN	Day View, Week View, Month View - Moves focus to the start or end of a current month.
ALT+HOME	Day View, Work-Week View - Moves focus to the beginning of a current week.
ALT+END	Day View, Work-Week View - Moves focus to the end of a current week.

NOTE

When appointments are grouped, only ARROW keys can move focus to another resource group.

Scheduler Navigation Buttons

The **Navigation Buttons** are used to scroll to the previous or next appointment. This is helpful when there is a significant time interval between scheduled appointments.



Navigation buttons are displayed if there are no currently visible appointments within the **Scheduler** control area. If there are appointments that refer to a previous or successive date, the **Previous Appointment** and **Next Appointment** navigation buttons provide the capability to navigate to the corresponding date. If there are no appointments in a specific direction, the corresponding navigation button is disabled.

Note that if the **Scheduler** control currently displays appointments for multiple resources, navigation buttons are displayed independently for each resource.

Scheduler 'More' Buttons

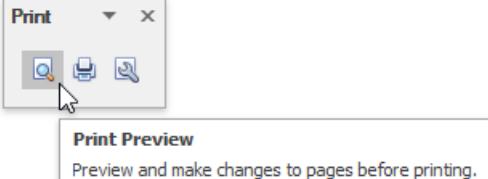
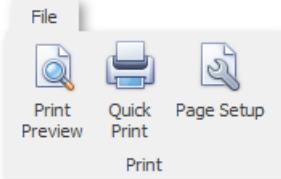
The "More" buttons indicate that more appointments exist on a particular date. Click these buttons to see all appointments in a more detailed view, or to simply scroll to the next appointment.

DAY VIEW		MONTH VIEW						
<p>Sunday, May 29 Monday, May 30</p> <p>10 30 11 00 Mark Oliver Addison Davis 12 00 30 13 00 30 14 00 Addison Davis Andrew Glover Mark Oliver 15 00 30 16 00</p> <p>More Button</p>		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
		May 9	10	11	12	13	14	15
		16	17	18	19	20	21	22
		23	24	25	26	27	28	29
		30	31	June 1	2	3	4	5

More Buttons

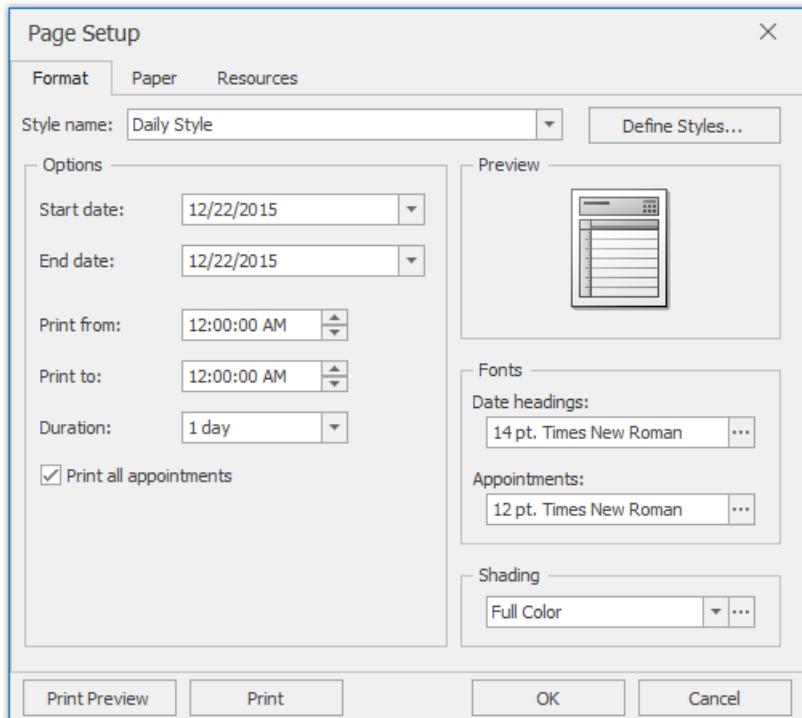
Printing

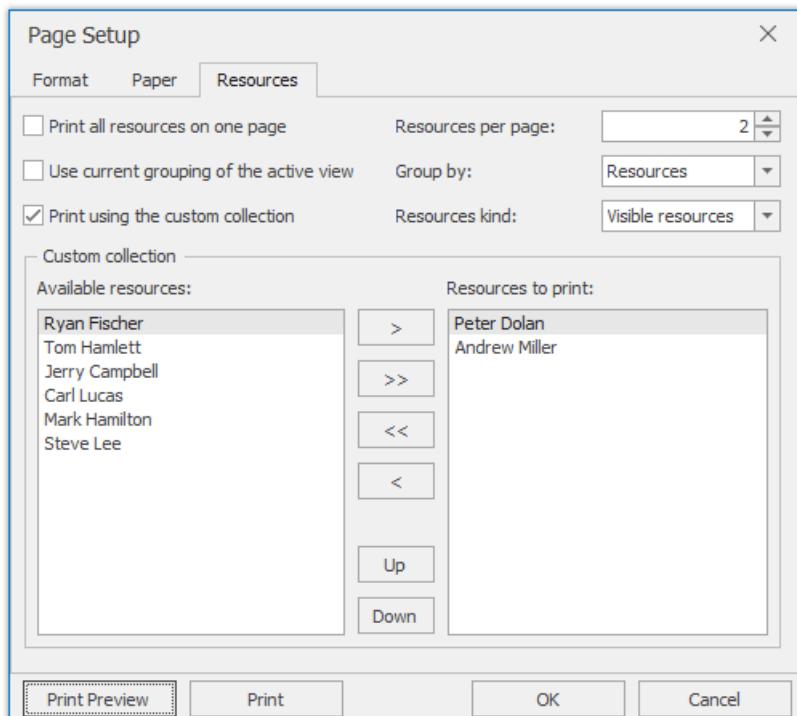
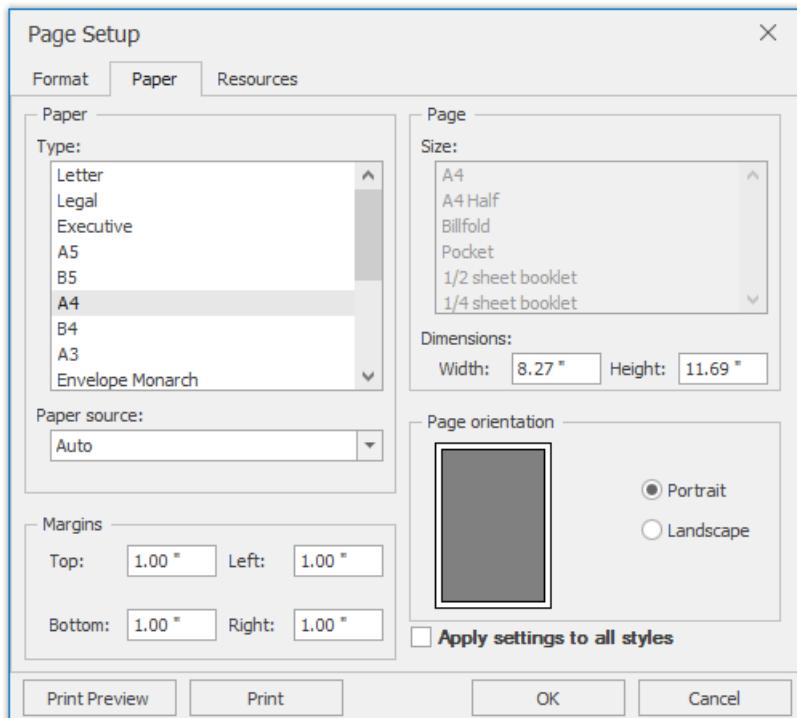
If a scheduler includes a Bar or Ribbon interface, you can use the **Print** toolbar or **Ribbon page group**.

PRINT VIA THE BAR INTERFACE	PRINT VIA THE RIBBON INTERFACE
	

Page Setup

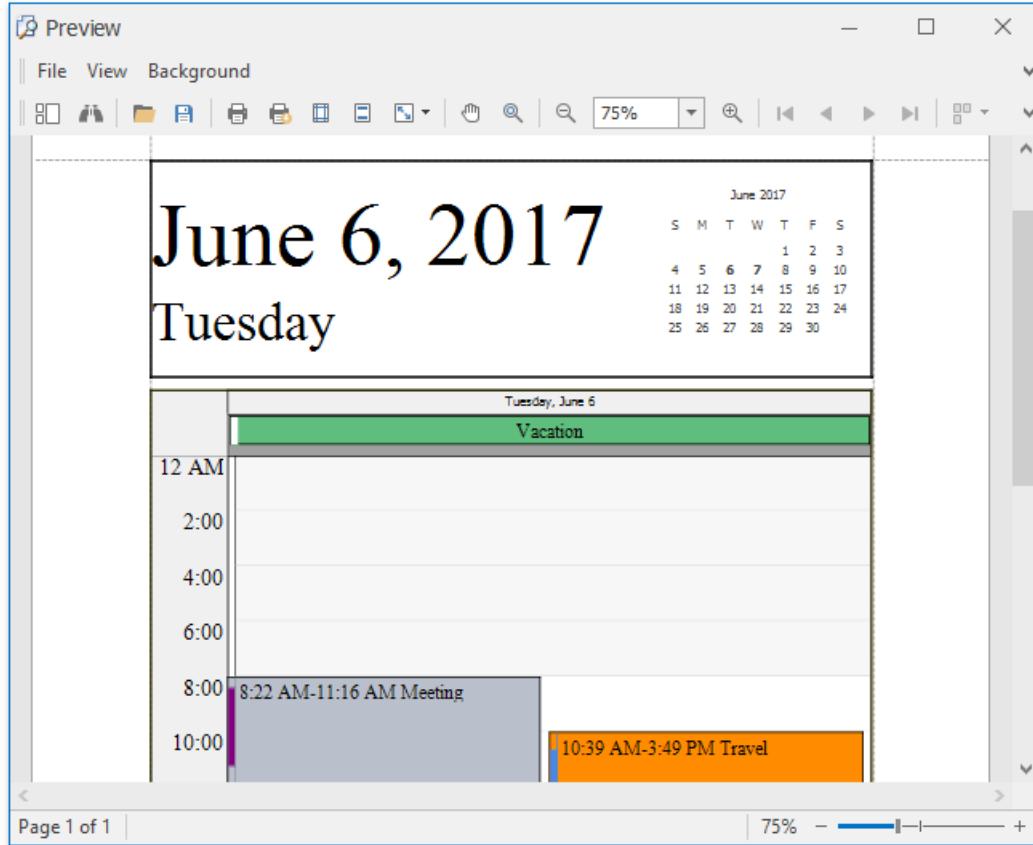
Click the **Page Setup** command button to invoke the **Page Setup** dialog. The **Page Setup** dialog consists of the **Format**, **Paper** and **Resources** tab pages, as illustrated in the images below.





Print Preview

Click the **Print Preview** button to invoke the **Print Preview** dialog, which provides a preview of the page to be printed.



This dialog allows you to print the page, or save it to a file as a PDF or an image (e.g., BMP, EMF, WMF, GIF, JPEG, PNG or TIFF).

Print

Click the **Quick Print** command button to send the scheduler content to the default printer using the current page and printer settings.

Snap Reporting Engine

This guide provides information on the basic principles of creating reports with Snap.

Snap is a WYSIWYG reporting engine that provides a user interface that allows for a quick creation of standard reports with the capabilities of data shaping (grouping, sorting and filtering), hierarchical data representation (master-detail reports), mail merge and much more.

The screenshot shows the Snap Reporting Engine application interface. The main window displays a report titled "Products" for the category "Chai". The report includes a summary table for the category and a detailed table of orders. The Data Explorer pane on the right shows the "Data Source 1" structure, and the Report Explorer pane shows the report structure.

Report Content:

Category Name:	Beverages	Description:	Soft drinks, coffees, teas, beers, and ales
Unit Price:	\$18.00	Discontinued:	<input type="checkbox"/>
Quantity Per Unit:	10 boxes x 20 bags	Discontinued:	<input type="checkbox"/>

Order Details:

Order ID	Quantity	Discount	Subtotal
10285	45	0.2	\$648.00
10294	18	0	\$259.20
10317	20	0	\$288.00
10348	15	0.15	\$216.00

Data Explorer:

- Data Source 1
 - Products
 - CategoryID
 - Discontinued
 - LastOrder
 - ProductID
 - ProductName
 - QuantityPerUnit
 - ReorderLevel
 - SupplierID

Report Explorer:

- List - Products1
 - List - Order
 - Group - (UnitPrice)

The following sections are available in this guide.

- [Graphical User Interface](#)
- [Connect to Data](#)
- [Create a Report Layout](#)
- [Manage Documents and Files](#)

Graphical User Interface

The topics in this section describe various aspects of the Snap graphical user interface (GUI).

- [Snap Application Elements](#)
- [Main Toolbar](#)

Main Toolbar

The topics in this section describe all ribbon tab and bar commands available in the [toolbar](#) of a Snap application.

After executing a command in a Snap application, the corresponding **field codes** are automatically added to the [document markup](#).

Main Reporting Commands

- [Data Tools: Field](#)
- [Data Tools: Group](#)
- [Data Tools: List](#)
- [Data Tools: Mail Merge](#)
- [Data Tools: Appearance](#)

Additional Reporting Commands

- [General Tools: File](#)
- [General Tools: Insert](#)
- [General Tools: View](#)
- [General Tools: References](#)
- [Table Tools: Design](#)
- [Table Tools: Layout](#)

Word-Processing Commands

- [General Tools: Home](#)
- [General Tools: Page Layout](#)
- [General Tools: Review](#)
- [Chart Tools: Design](#)
- [Header and Footer Tools: Design](#)
- [Picture Tools: Format](#)

Data Tools: Field

This toolbar is context sensitive, and becomes active after selecting a **Snap field** in the document.

The commands available in the **Field** toolbar of the **Data Tools** category are divided into the following sections.

- [Data Shaping](#)
- [Element](#)

Data Shaping

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Group By Field			Groups a Snap list by the selected field. All groupings added to a Snap report are displayed as nodes in the Report Explorer . Using this command, you can apply multiple grouping criteria. Every group can have a header and/or footer. To customize report groups, use the tools provided by the Data Tools: Group toolbar.
Sort Ascending			Sorts a Snap list by the selected column in ascending order. To manage the sort levels in a mail merge document, use the Sort command of the Data Tools: Mail Merge toolbar.
Sort Descending			Sorts a Snap list by the selected column in descending order. To manage the sort levels in a mail merge document, use the Sort command of the Data Tools: Mail Merge toolbar.
Summary			Calculates a summary for a selected field. Summary results are shown in the list footer. The following summary functions are available: Count; Sum; Average; Max; Min.
Quick Filter			Allows you to select which values of a selected field to show. This command is not applicable to nested lists of a master-detail report. To apply complex filtering criteria to a Snap list, use the Filter command of the Data Tools: List or Data Tools: Mail Merge toolbar.

Element

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Properties			Shows the list of properties for a selected field. The set of available properties depends on the element type .

Data Tools: Group

This toolbar is context sensitive, and becomes active after placing the text cursor in a group header or footer.

To create a new group, use the **Group By Field** command of the [Data Tools: Field](#) toolbar.

The following commands are available in the **Layout** section of the **Group** toolbar.

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Header			Adds or removes a group header. Removing both the group header and group footer removes grouping from the Snap List.
Footer			Adds or removes the group footer. Removing both the group header and group footer removes grouping from the Snap List.
Group Fields			Invokes a dialog allowing you to add or remove grouping criteria for the selected group.
Arrange Groups			Invokes the Groups Order Editor , which allows you to set the order in which groupings are applied to a Snap list.
Separator			Inserts the selected separator between groups in a Snap list. The following separators are available: Page Break; Section (Next Page); Section (Even Page); Section (Odd Page); Empty Paragraph; Empty Row; None .

Data Tools: List

This toolbar is context sensitive, and becomes active after selecting a **Snap list** in the document.

The commands available in the **List** toolbar of the **Data Tools** category are divided into the following sections.

- [Layout](#)
- [Commands](#)
- [Editor Row Limit](#)

Layout

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Header			Adds or removes the header of a selected Snap list.
Footer			Adds or removes the footer of a selected Snap list.
Separator			Inserts the selected separator between the rows of a Snap list.

Commands

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Filter			Invokes the FilterString Editor , which allows you to define complex filtering criteria for a selected Snap list. To select which data records to display for a specific field, use the Quick Filter command from the Data Tools: Field toolbar.
Convert to Paragraphs			Removes the table layout of a Snap list. The content of the removed table columns is presented as separate paragraphs. There is no reverse action to convert paragraphs back to a tabular representation.
Delete List			Removes the selected list from a document.

Editor Row Limit

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Editor Row Limit	none	none	Allows you to define the maximum number of rows to be shown in a selected Snap list. The Editor Row Limit setting does not affect the number of records shown in the Print Preview, which shows the final presentation of the document with all Snap fields replaced with actual data.

Data Tools: Mail Merge

The commands available in the **Mail Merge** section of the **Data Tools** toolbar are divided into the following categories.

- [Data](#)
- [Current Record](#)
- [Publish](#)

Data

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Data Source			Enables mail merge for a connected data source. After enabling this mode, the data source icon is displayed in green in the Data Explorer . There is no functionality for disabling mail merge once it has been implemented.
Filter			Invokes the FilterString Editor to filter data in a mail merge document.
Sort			Invokes the Sort dialog to sort data in a mail merge document.

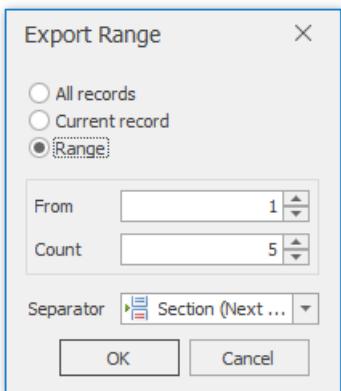
Current Record

COMMAND	ICON	DESCRIPTION
Current Record		Allows you to navigate through records in a mail merge document. You can navigate to the Next Page , the Previous Page , the First Page or the Last Page .

Publish

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Finish & Merge			Finalizes a mail merge document by supplying actual values to data elements added to a document template. This command invokes a drop-down menu to select the publishing format of a document. The following options are available: Export - exports the created document to a selected third-party format; Print - invokes the print dialog to adjust the page options of the document before sending it to a printer; Print Preview - displays the created document in a print preview window that provides options to navigate, print and/or export the document.

After selecting the document's output format, the **Export Range** dialog is invoked to specify the range of data records that the document should include.



In this dialog, you can choose from the following separators to isolate different data records:

- **None**;
- **Page Break**;
- **Section (Next Page)**;
- **Section (Even Page)**;
- **Section (Odd Page)**;
- **Paragraph**.

Data Tools: Appearance

This **Appearance** toolbar contains predefined report styles. After selecting a style, it is applied to all Snap Lists throughout the document.

The following command is available in the **Report Themes** section of this toolbar.

COMMAND	DESCRIPTION
	Sets the style to be applied to all Snap lists throughout the document. The style's icon indicates the colors that will be applied to the following report elements (the colors are described from up to down): 1 - First-level report headers and footers; 2 - First-level group headers and footers; 3 - Second-level report headers and footers; 4 - Second-level group headers and footers. Apart from colors, a visual theme applied to a report may affect the alignment of report elements, their padding and font settings, as well as other appearance properties. A visual theme does not affect elements for which the appearance is defined manually, and only changes their default property values. For example, a theme will not change the background color of a table cell for which the background color has already been specified. Clicking the arrow button invokes the drop-down menu, containing the following commands for managing report theme: Save the Current Theme to a File...; Load a Theme from a File...; Restore the Default Document Styles .

General Tools: File

The **File** toolbar contains the basic file management and printing commands.

These commands are divided into the following categories.

- [Common](#)
- [Data](#)

Common

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
New			Creates a new Snap document.
Open			Opens an existing document.
Save			Saves a document template to an SNX file. When saving a document for the first time, the Save As dialog will appear.
Save As			Saves a document template to a new SNX file. This command invokes the Save As dialog, allowing you to specify a name and location for the new file.
Export...			Exports a document into one of the supported third-party formats (DOC , DOCX , HTML , PDF , RTF , Image , etc.).
Quick Print			Sends a document to the default printer with default printing options.
Print			Invokes the Print dialog, allowing you to select a printer and specify the printing options.
Print Preview			Retrieves all data required to populate the report fields to assemble and preview a document before publishing, ignoring the current Editor Row Limit setting. Calling this command for a mail-merge document renders only one page of the document. To render a mail-merge document for a specified range of data records, use the Finish & Merge option in the Data Tools: Mail Merge tab.
Undo			Cancels the last change made to the document.
Redo			Reverses the results of the last undo.

Data

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Add New Data Source			Invokes the Create Data Source wizard , allowing you to connect the document to a new data source and specify its data connection options (e.g., data provider, login information and connection name). A data table selected with the wizard is included in the data source. To add more tables and specify their data relations, use the Query Designer .

General Tools: Insert

The **Insert** toolbar contains elements that can be inserted into a document.

These elements are divided into the following categories.

- [Pages](#)
- [Tables](#)
- [Illustrations](#)
- [Toolbox](#)
- [Links](#)
- [Header & Footer](#)
- [Text](#)
- [Symbols](#)

Pages

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Page Break			Inserts a page break at the carriage position. A page break cannot occur within tables, lists , or document headers and footers.

Tables

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Table			Inserts a table with a specified number of rows and columns at the carriage position. To customize the table layout, use the commands available in the Table Tools: Design and Table Tools: Layout tabs.

Illustrations

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Inline Picture			Inserts an inline picture at the carriage position. In a document, the inline picture behaves like an ordinary text symbol.
Picture			Inserts a picture into a document. You can adjust the picture's outline, wrap text, position, and order using commands from the Picture Tools: Format tab.

Toolbox

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Barcode			Inserts a barcode at the carriage position. After adding a barcode, specify its symbology, data binding and other options using the Properties command in the Data Tools: Field tab.
Check Box			Inserts a check box at the carriage position (e.g., to display Boolean values from a data source). To customize the check box state or bind it to external data, use the Properties command in the Data Tools: Field tab.

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Chart			Inserts a chart at the carriage position.
Sparkline			Inserts a sparkline at the carriage position.
Row Index			Inserts a row index at the carriage position.

Links

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Bookmark			Invokes the Bookmark dialog to add a new bookmark at the carriage position, or navigate to an existing bookmark.
Hyperlink			Invokes the Insert Hyperlink dialog to create a hyperlink and specify its text, screen tip and destination. A hyperlink's destination may be a web page, file, or specific position within a document.

Header & Footer

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Header			Allows editing the page header. In a published document, the content added to the header will appear at the top of each page. To quickly switch to this mode, double-click the page header area. To quit page header editing, press ESC , double click the document area, or click Close Header and Footer on the Header & Footer tab. To make the first page header display unique content, or make odd- and even-numbered pages carry different headers, use the options available on the Header and Footer Tools: Design tab .
Footer			Activates the page footer edit mode. In a published document, the content added to the footer will appear at the bottom of each page. To quickly switch to this mode, double-click the page footer area. To quit page footer editing, press ESC , double click the document area, or click Close Header and Footer on the Header & Footer tab. To make the first page footer display unique content, or make odd- and even-numbered pages carry different footers, use the options available on the Header and Footer Tools: Design tab .
Page Number			Inserts the number of the current page at the carriage position. The page statistics can only be added to a page header or footer.
Page Count			Inserts the total page count at the carriage position. The page statistics can only be added to a page header or footer.

Text

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Text Box			Inserts a text box into a document. A text box is a floating container that is capable of displaying virtually any kind of content (including the most elaborate lists), posing no restrictions on its size and location within a document.

Symbols

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Symbol			Invokes the Symbol dialog, to insert characters that are not available on the keyboard.

General Tools: View

The **View** toolbar contains commands that control the presentation of document elements on the [Design Surface](#).

These commands are divided into the following categories.

- [Document Views](#)
- [Show](#)
- [Zoom](#)
- [View](#)
- [Fields](#)

Document Views

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Simple view			Shows a document without the page layout.
Draft View			Shows a document in a draft view that ignores certain document elements such as page breaks, and headers and footers.
Print Layout			Shows a document as it will appear on the printed page.

Show

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Horizontal Ruler			Shows or hides the horizontal ruler at the top of the Design Surface .
Vertical Ruler			Shows or hides the vertical ruler to the left of the Design Surface .

Zoom

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Zoom Out			Zooms the document out.
Zoom In			Zooms the document in.

View

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Windows			Shows or hides the Snap application windows (i.e., Data Explorer and Report Explorer).
Highlight			Highlights the boundaries of a list element after it receives input focus. The invoked frame displays the type of element that is highlighted.

Fields

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Show All Field Codes			Toggles to show the field codes of all elements that provide dynamic content in a document.
Show All Field Results			Switches back to the default mode, which displays the actual values fetched by Snap fields supplying dynamic content to a document. To effectively handle incoming data, only a portion of data is shown during real-time editing of a document. This restriction does not apply to a document created for print preview, and the report requests all data after it is set for publishing. When a document is being edited, only the first 20 rows from each data column are shown by default. To modify or disable this limit, use the Editor Row Limit option in the Data Tools: List tab.
Highlight Fields			Highlights the data fields that have been added to a document from an external data source to distinguish these fields from the rest of the document content.

General Tools: References

The **References** toolbar contains commands that provide different kinds of references to a document, such as a table of contents and table captions.

These commands are divided into the following sections.

- [Table of Contents](#)
- [Captions](#)

Table of Contents

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Table of Contents			Inserts a table of contents at the carriage position.
Update Table			Updates the table of contents to ensure that all entries in it refer to the correct page numbers.
Add Text			Adds the current paragraph as an entry to the specified level of the table of contents. If a data field is added to the table of contents, a separate table of contents entry is created for each data row in the Snap list.

Captions

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Insert Caption			Inserts sequentially numbered captions for different types of objects at the carriage position. The following caption types are available: Figures Caption (automatically referenced by the table of figures); Tables Caption (automatically referenced by the table of captions); Equations Caption (automatically referenced by the table of equations).
Insert Table of Figures			Creates a table of figures, table of tables, or table of equations, containing page numbers for objects of the corresponding types.
Update Table			Updates the table of figures so that all entries refer to the correct page numbers.

Table Tools: Design

This toolbar is context sensitive, and becomes active after placing the text cursor in a document table.

The commands available in the **Design** toolbar of the **Table Tools** category are divided into the following sections.

- [Table Style Options](#)
- [Table Styles](#)
- [Cell Styles](#)
- [Borders & Shadings](#)

Table Style Options

Commands from this category allow you to activate special formatting options for different table parts.

Special formatting options available for a table are defined in its table style. To create a new table style or modify an existing one, use the tools provided by the [Table Styles](#) section of this category.

The following commands are available in the Table Style Options category.

COMMAND	DESCRIPTION
Header Row	Enables formatting of the first row in a table.
First Column	Enables special formatting for the first column in a table.
Total Row	Enables special formatting for the last row in a table.
Last Column	Enables special formatting for the last column in a table.
Banded Rows	Enables special formatting for odd and even rows in a table.
Banded Columns	Enables special formatting for odd and even columns in a table.

Table Styles

COMMAND	IMAGE	DESCRIPTION
Table Styles		Sets a table style for the selected table. Creating a new table style or modifying an existing one invokes the Modify Style dialog, allowing you to specify a style name and adjust table formatting options (including special formatting options for different table parts). You can enable special formatting using commands from the Table Style Options section within this toolbar category.

Cell Styles

COMMAND	IMAGE	DESCRIPTION
Cell Styles		Sets a cell style for the selected table cell. Creating a new table cell style or modifying an existing one invokes the Modify Style dialog, allowing you to specify a style name and adjust cell formatting options.

Borders & Shadings

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Line Style	none	none	Sets the style of a line that is used to draw borders.
Line Weight	none	none	Sets the width of the line that is used to draw borders.
Pen Color			Sets the color that is used to draw borders.
Borders			Draws the specified borders for selected cells.
Shading			Specifies the background color for the selected cells.

Table Tools: Layout

This toolbar is context sensitive, and becomes active after placing the text cursor in a document table.

The commands available in the **Layout** toolbar of the **Table Tools** category are divided into the following sections.

- [Table](#)
- [Rows & Columns](#)
- [Merge](#)
- [Cell Size](#)
- [Alignment](#)

Table

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Select			Allows you to select a cell, row, column or table.
View Gridlines			Shows or hides table gridlines. This command is useful when working with tables that contain invisible borders. These lines are only displayed in the Design Surface - they do not appear in a published document.
Properties			Invokes the Table Properties dialog for the selected table. This dialog allows you to adjust the size and alignment properties of the current table cell, row, column or table.

Rows & Columns

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Delete			Deletes the specified cells or the currently selected row, column or table. To delete a single table cell, the Delete Cells dialog is invoked that allows you to select the "shift" mode for replacing the deleted cell. To remove individual rows from a Snap List , use the Quick Filter command of the Data Tools: Field toolbar.
Insert Above			Inserts a new row above the selected row.
Insert Below			Inserts a new row below the selected row.
Insert Left			Inserts a new column to the left of the selected column.
Insert Right			Inserts a new column to the right of the selected column.

Merge

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Merge Cells			Merges selected cells. The content of merged cells is converted to paragraphs of an output cell.
Split Cells			Splits the selected cell into a specified number of rows and columns. The content of the source cell is placed in the top-left output cell.
Split Table			Splits the table into two tables. The selected row becomes the first row of the new table.

Cell Size

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
AutoFit			Sets the auto fit mode of the selected table. The following auto fit modes are available: AutoFit , Contents (table cells occupy the minimum width possible to fit content), AutoFit Window (the table occupies the entire width of the page), and Fixed Column Width (column width is fixed and can only be changed manually).

Alignment

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Alignment	none	none	Sets the text alignment for selected cells.
Cell Margins			Invokes the Table Options dialog, allowing you to set the default cell margins for the selected table cells.

General Tools: Home

The **Home** toolbar contains text formatting and alignment commands.

These commands are divided into the following categories.

- [Clipboard](#)
- [Font](#)
- [Paragraph](#)
- [Styles](#)
- [Editing](#)

Clipboard

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Paste			Pastes the content of the clipboard into a carriage position.
Cut			Cuts the selected content and places it in the clipboard.
Copy			Copies the selected content and places it in the clipboard.
Paste Special			Invokes the Paste Special dialog, allowing you to paste the content of the clipboard with a specified formatting.

Font

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Font	none	none	Specifies a font for the selected text.
Font Size	none	none	Specifies a font size for the selected text.
Grow Font			Increases the font size of the selected text.
Shrink Font			Decreases the font size of the selected text.
Change Case			Changes the case of the selected text to uppercase or lowercase.
Bold			Makes the selected text bold.
Italic			Italicizes the selected text.
Underline			Draws a line under the selected text.

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Double Underline			Draws a double line under the selected text.
Strikethrough			Draws a line through the middle of the selected text.
Double Strikethrough			Draws a double line through the middle of the selected text.
Superscript			Makes the selected text smaller and places it above the line of the text.
Subscript			Makes the selected text smaller and places it below the line of the text.
Font Color			Specifies a color for the selected text.
Text Highlight Color			Specifies a highlight color for the selected text.
Clear Formatting			Removes all formatting from the selection, leaving only plain text.
Font	none	none	Invokes the Font dialog, allowing you to adjust different font options for the selected text.

Paragraph

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Bullets			Converts the selected paragraphs into a bulleted list, or inserts a new bulleted list at the carriage position.
Numbering			Converts the selected paragraphs into a numbered list, or inserts a new numbered list at the carriage position.
Multilevel List			Converts the selected paragraphs into a multilevel list, or inserts a new multilevel list at the carriage position.
Decrease Indent			Decreases the indent level of the paragraph or the hierarchical level of the multilevel list's items.
Increase Indent			Increases the indent level of the paragraph or the hierarchical level of the multilevel list's items.
Show/Hide ¶			Shows or hides paragraph marks and other non-printable characters.
Align Text Left			Aligns the current paragraph to the left.
Center			Centers the selected paragraphs.

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Align Text Right			Aligns the selected paragraphs to the right.
Justify			Aligns the text of the selected paragraphs to both the left and right margins, adding extra space between words as necessary.
Line Spacing			Changes the spacing between the lines of the selected paragraphs. The amount of space added before and after the paragraphs can also be specified.
Shading			Specifies a background color for the selected paragraphs.
Paragraph	none	none	Invokes the Paragraph dialog, allowing you to adjust different layout options for the selected paragraphs.

Styles

COMMAND	DESCRIPTION
Quick Styles	Applies a style to the selected text. A style is a group of formatting options. All options are applied to text or a paragraph at once when you apply a style. Styles allow you to change text and paragraph appearance quicker than setting each formatting option individually.
Modify Style	Invokes the Modify Style dialog, allowing you to change the formatting options of the selected style.

Editing

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Find			Invokes the Find and Replace dialog that allows you to find the specified text in a document.
Replace			Invokes the Find and Replace dialog that allows you to find the specified text in a document and replace it with other text.

General Tools: Page Layout

The **Page Layout** toolbar contains page layout options that include paper kind, margins and orientation.

These options are divided into the following categories.

- [Page Setup](#)
- [Background](#)

Page Setup

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Margins			Sets the size of page margins for the current document section. You can select from a list of predefined margins, or invoke the Page Setup dialog and adjust the margin size manually.
Orientation			Sets the page orientation for the current document section.
Size			Sets the page size for the current document section. You can select one of the predefined page sizes from the list, or specify a custom page size in the Page Setup dialog.
Columns			Sets the number of columns for all pages in the current document section. You can also invoke the Columns dialog for more customization options.
Breaks			Inserts one of the available breaks (e.g., page break, column break or section break) at the carriage position.
Line Numbers			Displays line numbers in the current document section. You can select one of the predefined line numbering types from the list, or invoke the Line Numbers dialog to define custom line numbering.

Background

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Page Color			Sets a page color for the entire document.

General Tools: Review

The **Review** toolbar contains tools related to proofreading.

The following command is available in the **Proofing** section of this toolbar.

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Spelling			Checks the spelling of the document text. On detecting misspelled words, the spell checker invokes the Spelling dialog to type in the correct version, or select the correctly spelled word from the list of suggestions.

Chart Tools: Design

This toolbar is context sensitive, and becomes active after selecting a **chart** in the document.

The commands available in the **Design** toolbar of the **Chart Tools** category are divided into the following sections.

- [Chart Type](#)
- [Appearance](#)
- [Wizard](#)

Chart Type

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Column			Changes the type of the selected chart to one of the available column chart types. Column charts are used to compare values across categories.
Line			Changes the type of the selected chart to one of the available line chart types. Line charts are used to display trends over time.
Pie			Changes the type of the selected chart to one of the available pie chart types. Pie charts display the contribution of each value to a total.
Bar			Changes the type of the selected chart to one of the available bar chart types. Bar charts summarize and display categories of data, allowing you to compare the contribution of each value to the total across categories.
Area			Changes the type of the selected chart to one of the available area chart types. Area charts are used to display trends over time.
Other Charts			Changes the type of the selected chart to a point, funnel, financial, radar, polar, range, or Gantt chart.

Appearance

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Palette			Specifies the color palette for the selected chart.
Appearance	none	none	Applies a specified appearance to the selected chart. The collection of style presets available for a chart depends on the chart's palette .

Wizard

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Run Chart Wizard...			Invokes the Chart wizard , which allows you to adjust the main chart settings in a single user interface.

Header and Footer Tools: Design

This toolbar is context sensitive, and becomes active after double-clicking the page header or footer in a document.

To add a page header or footer, use the appropriate commands of the [General Tools: Insert](#) toolbar.

The commands available in the **Design** toolbar of the **Header & Footer Tools** category are divided into the following sections.

- [Navigation](#)
- [Options](#)
- [Close](#)

Navigation

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Go to Header			Allows you to switch to the page header of the current document section when editing a page footer.
Go to Footer			Allows you to switch to the page footer of the current document section when editing a page header.
Show Next			Allows you to navigate to the header or footer of the next document section.
Show Previous			Allows you to navigate to the header or footer of the previous document section.
Link to Previous			Makes the header or footer display the content of the header or footer of the previous document section.

Options

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Different First Page			Creates a unique header and footer for the first page.
Different Odd & Even Pages			Allows you to specify different headers and footers for odd-numbered and even-numbered pages.

Close

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Close Header and Footer			Exits the header and footer edit mode. You can also do this by double-clicking the document area, or by pressing ESC .

Picture Tools: Format

This toolbar is context sensitive, and becomes active after selecting a picture in a document.

The commands available in the **Format** toolbar of the **Picture Tools** category are divided into the following sections.

- [Shape Styles](#)
- [Arrange](#)

Shape Styles

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Shape Fill			Fills the selected shape with a specified color.
Shape Outline			Applies the specified color to the outline of the selected shape.
Shape Outline Weight	none	none	Specifies a width for the outline of the selected shape.

Arrange

COMMAND	LARGE ICON	SMALL ICON	DESCRIPTION
Wrap Text			Specifies the way in which text wraps around a selected object. The text wrap modes are as follows: Square ; Tight ; Through ; Top and Bottom ; Behind Text ; In Front of Text .
Position			Specifies the position of the selected object on a page.
Bring to Front			Moves the selected object forward. This command invokes a drop-down menu that contains the following actions: Bring Forward (moves the selected object one layer forward); Bring to Front (moves the selected object to the front of all other objects in a document); Bring in Front of Text (places the selected object in front of the text).
Send to Back			Moves the selected object backward. This command invokes a drop-down menu that contains the following actions: Send Backward (moves the selected object one layer backward); Send to Back (moves the selected object behind all other objects in a document); Send Behind Text (moves the selected object behind the text).

Snap Application Elements

The topics in this section describe the main elements that make up the user interface of a Snap application.

This section consists of the following topics.

- [Snap User Interface Overview](#)
- [Main Toolbar](#)
- [Design Surface](#)
- [Data Explorer](#)
- [Report Explorer](#)
- [Print Preview](#)

Snap User Interface Overview

This document lists the essential elements of the Snap user interface, and provides links to specific topics that describe these elements in more detail.

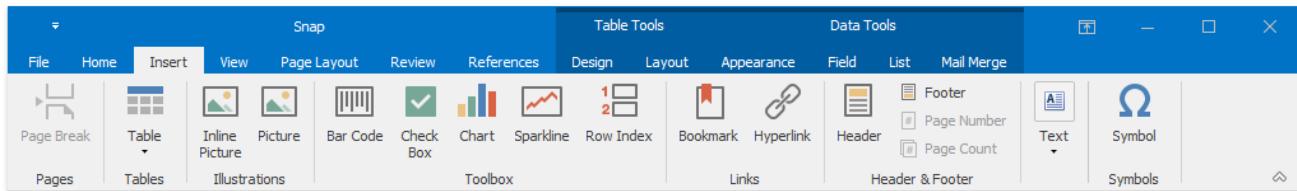
The main elements of the Snap user interface are as follows.

- **Main Toolbar**

The **Main Toolbar** in a Snap application provides quick access to the available document editing tools. The following toolbar styles are available:

1. **Ribbon**

Tools are organized in various sections, contained in different tabs.



2. **Bars**

Tools are organized in separate toolbars.



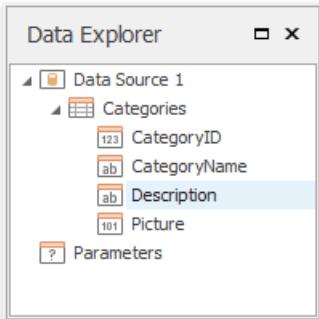
- **Design Surface**

The body of a report in the designer. In this region, you can design your report layout and immediately view the result.

ProductName	UnitPrice
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

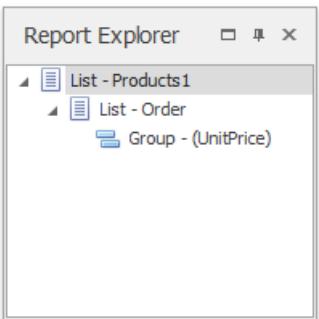
- **Data Explorer**

Reflects the structure of available data, allowing you to manage a report's data sources. You can add the data shown in this pane to your report via drag-and-drop.



- **Report Explorer**

Reflects the hierarchy of the elements of a Snap document.

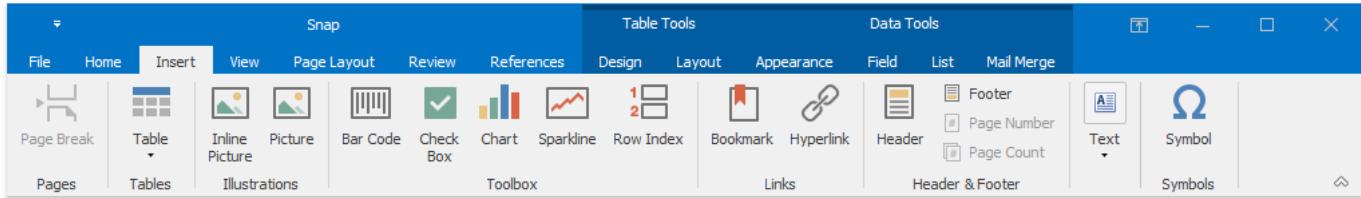


Main Toolbar

The **Main Toolbar** in a Snap application provides quick access to the available document editing tools. The following toolbar styles are available:

1. Ribbon

Tools are organized in various sections, contained in different tabs.



2. Bars

Tools are organized in separate toolbars.

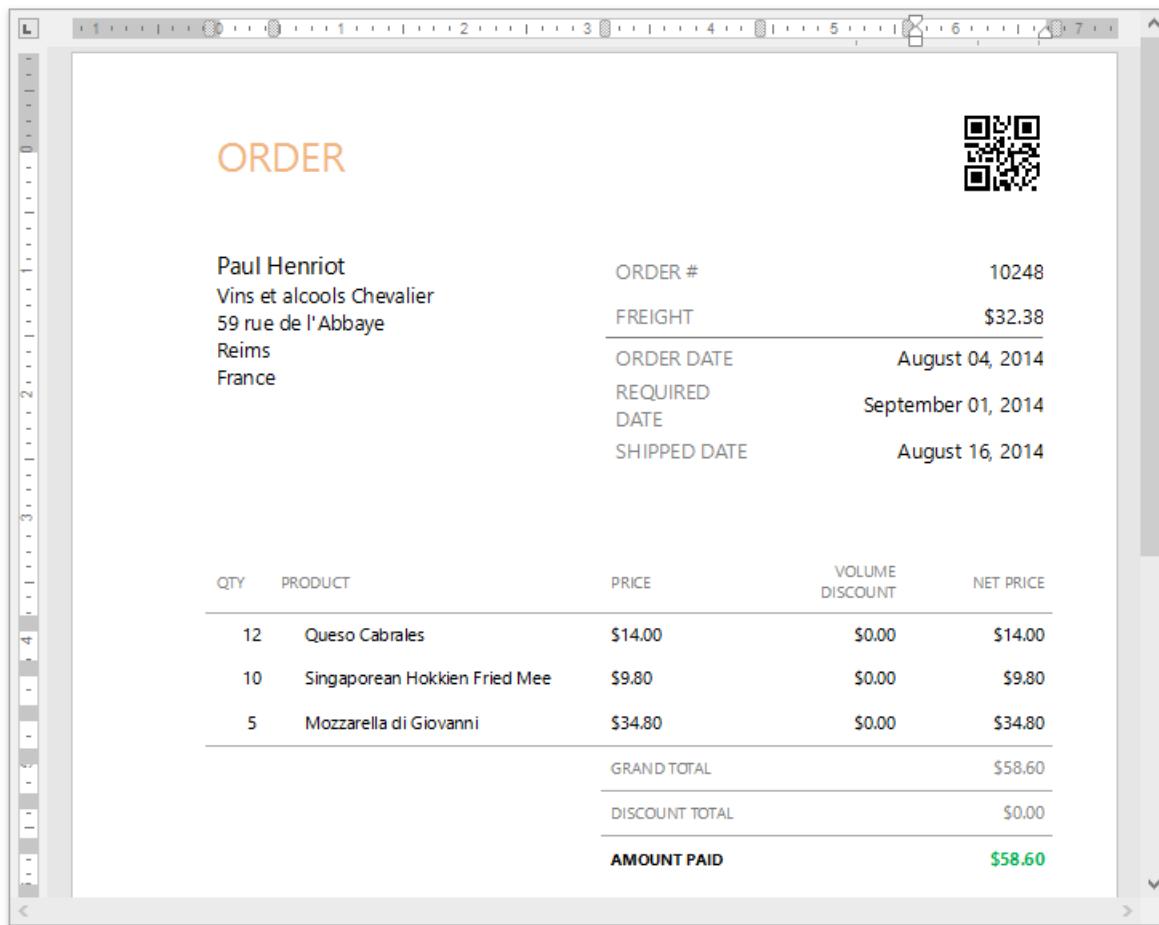


Design Surface

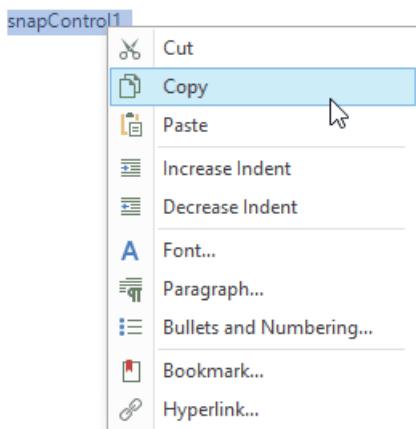
This document describes the design surface of a Snap application.

The design surface is the primary working area of a Snap application, which contains the document and allows you to modify its layout.

It can display rulers that define the horizontal and vertical alignment of a report's elements, as well as a scroll bar that allows you to browse different pages of a document.



Right-clicking the design surface invokes the context menu, which displays a specific set of commands based on the element that is clicked.



The WYSIWYG nature of Snap allows you to view document content on the design surface in the same way it will appear on paper. However, the complete document (as it appears in a Print Preview) may differ from the document layout shown in the

design surface. For example, setting the **List | Editor Row Limit** toolbar option limits the total number of processed data records while the document layout is being designed.

The [View](#) toolbar contains the commands that allow you to switch the document presentation mode (**Simple View**, **Draft View**, **Print Layout**), as well as maintain the visibility of rulers and the document zoom factor.

Data Explorer

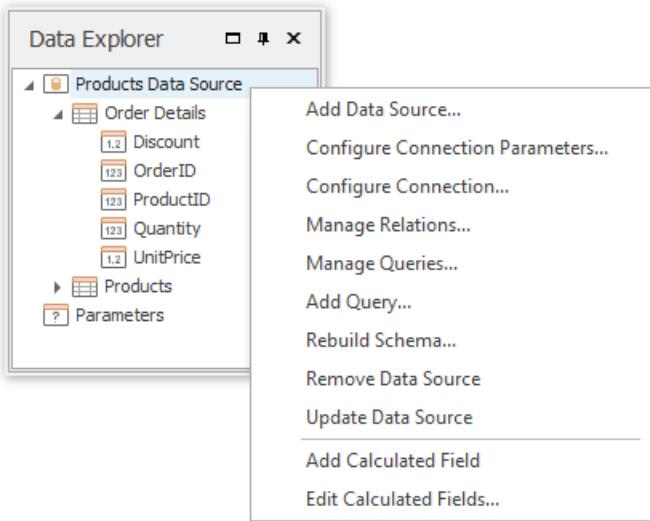
This topic describes how to use the **Data Explorer** in Snap.

This topic consists of the following sections.

- [Overview](#)
- [Data Type Reference](#)

Overview

The Data Explorer is essential for managing data in Snap applications. It allows you to **add new data sources** to a Snap document, access their structure and run the [Query Builder](#) to customize a data source.



Using the Data Explorer, you can also manage a report's parameters, as well as the [calculated fields](#) supplied to the data source tables.

You can create a Snap report layout by dropping the data members from the Data Explorer onto a document's [design surface](#). The data members correspond to the columns created on the design surface, and the data member names are displayed in the column headers.

ProductName	UnitPrice	UnitsInStock
Chai	18	39
Chang	19	13
Aniseed Syrup	10	13
Chef Anton's Cajun Seasoning	22	53
Chef Anton's Gumbo Mix	21.35	0
Grandma's Boysenberry Spread	25	120
Uncle Bob's Organic Dried Pears	30	15
Northwoods Cranberry Sauce	40	6
Mishi Kobe Niku	97	29
Ikura	31	31
Queso Cabrales	21	22
Queso Manchego La Pastora	38	86
Konbu	6	24
Tofu	23.25	35
Genen Shouyu	15.5	39
Pavlova	17.45	29
Alice Mutton	39	0
Carnarvon Tigers	62.5	42
Teatime Chocolate Biscuits	9.2	25
Sir Rodney's Marmalade	81	40

To display data in a chart, drop data fields from the Data Explorer onto the corresponding chart areas.



When a data field is added to your document, its data type determines what **element** is created (e.g., text, **chart**, or **barcode**).

Data Type Reference

In the Data Explorer, different icons are assigned to various data objects. These icons are explained in the following table.

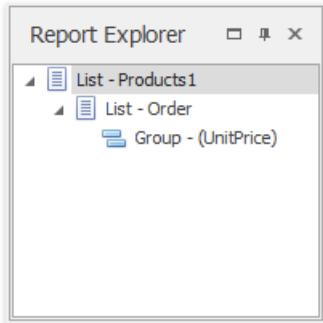
REGULAR DATA SOURCE	MAIL MERGE DATA SOURCE	DESCRIPTION
		Designates an individual data source. When expanded, shows the hierarchy of its tables and/or views.
		Designates a data table or view within a data source. When expanded, shows the hierarchy of its data fields. You can drag a data table and drop it onto the document surface, after which the entire table structure will be presented in the report in a tabular form.
		Parameters. Lists the report parameters. You can include parameters in a document's filtering expression or calculated fields, or you can use them directly in your reports, (e.g., by dropping them onto the document surface).

For every table or view, the Data Explorer lists the available data fields. Depending on the data type, it will automatically assign one of the following icons.

REGULAR DATA SOURCE	MAIL MERGE DATA SOURCE	DATA TYPE	DISPLAYED CONTENTS
		Boolean	Check Box, plain text
		Byte	Barcode, Picture
		Date-time	Plain text
		Numeric	Plain text, Barcode
		String	Plain text, Barcode
		Calculated field	Determined by the result of the calculation.

Report Explorer

Report Explorer reflects the hierarchy of **fields** in a Snap document, to quickly navigate through its data levels. It displays the order of document lists, and lists their active groups in a tree format.



Clicking a node in the Report Explorer activates the corresponding document element that is closest to the currently displayed page.

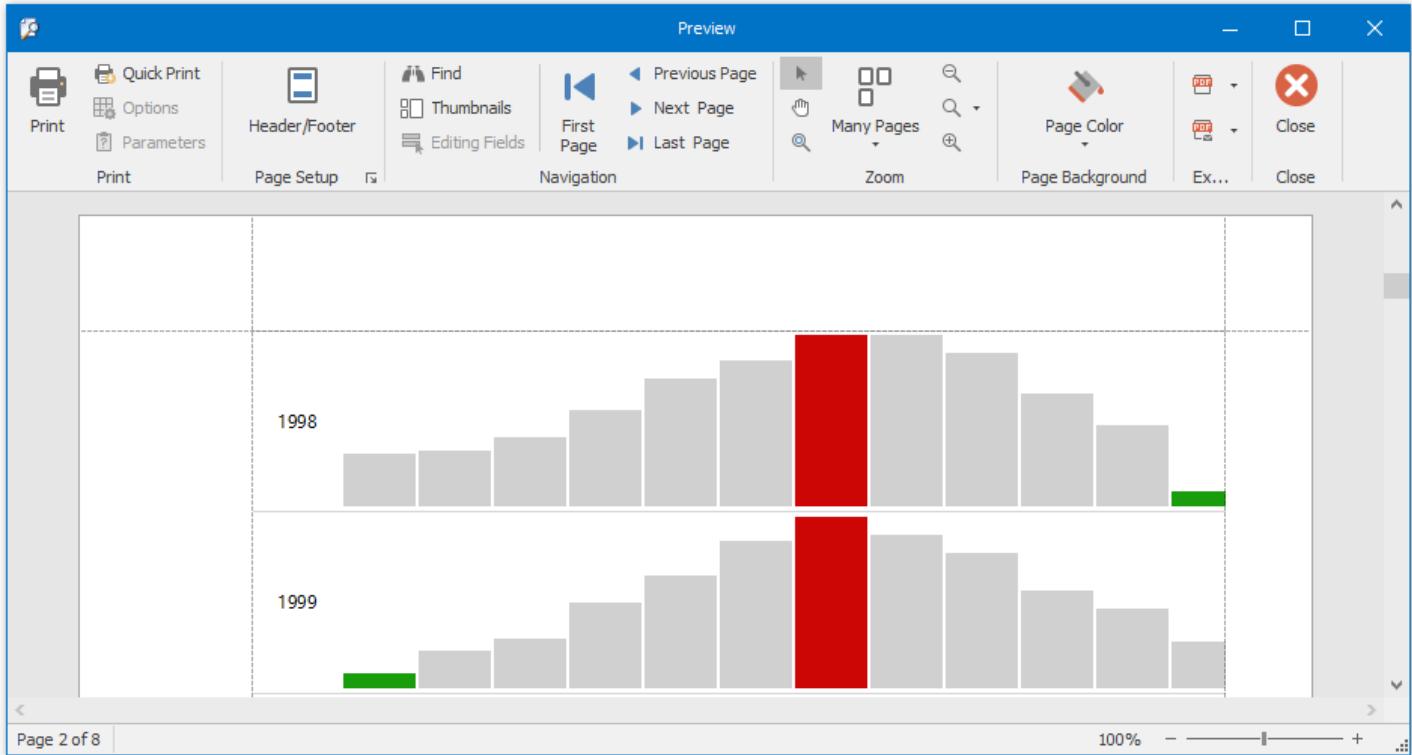
Print Preview

This document describes the **Print Preview** window, which displays published documents in a **Snap** application.

- [Print Preview Elements](#)
- [Invoke a Print Preview](#)

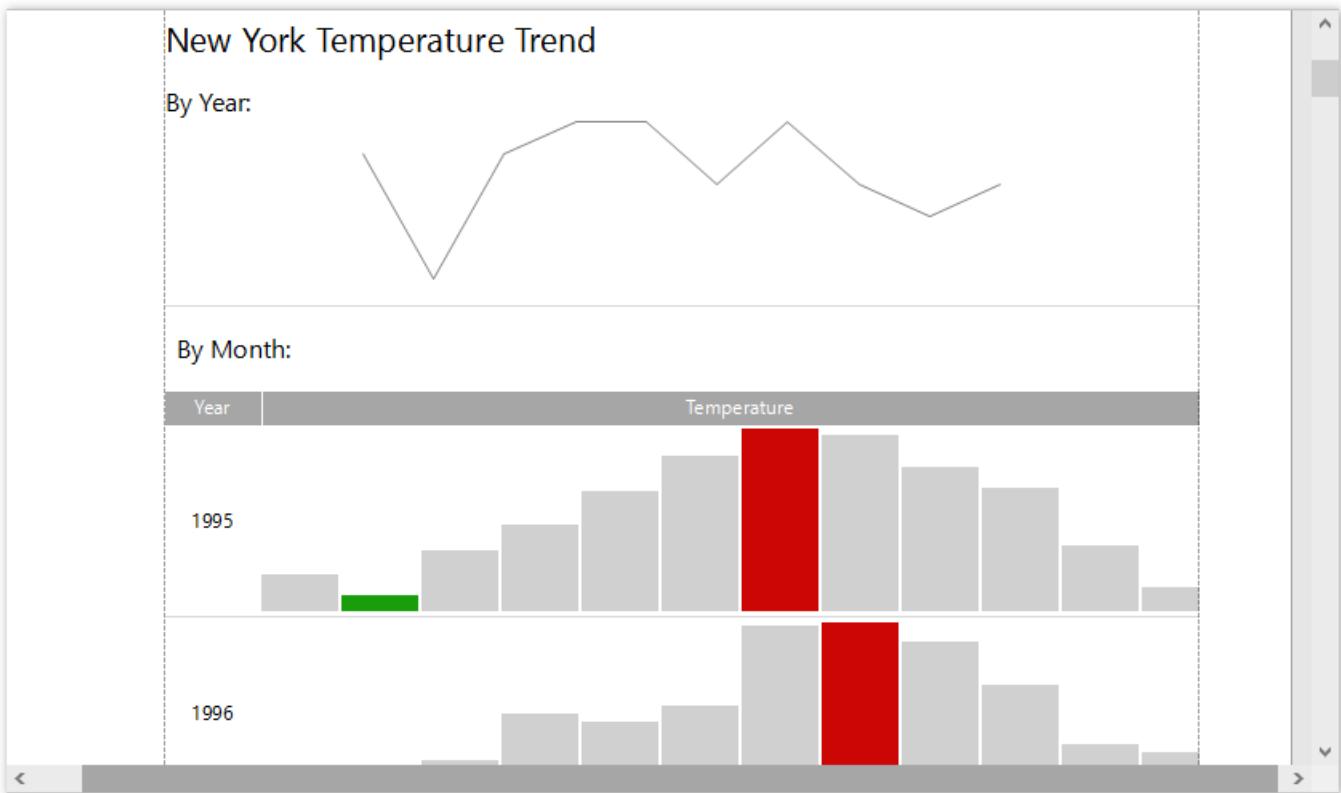
Print Preview Elements

The Print Preview displays a report document as it will appear on paper.

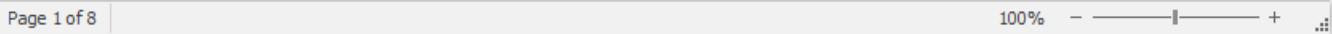


The user interface of the Print Preview window consists of the following elements.

- **Ribbon** - contains the document management and navigation commands divided into logical groups;
- **Document Pages Area** - displays a report document and provides vertical and horizontal scroll bars to navigate through the report.

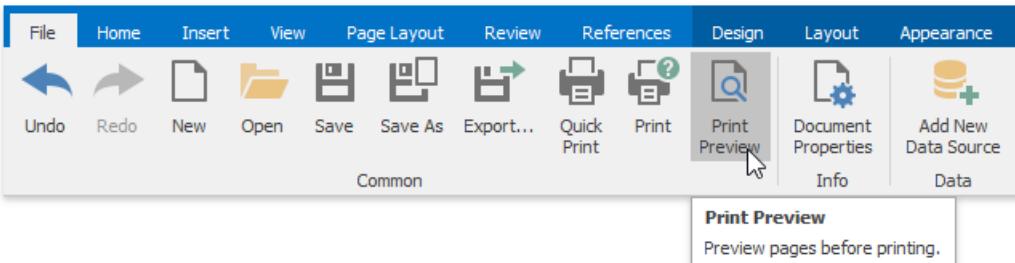


- **Status Bar** - displays the page number of the currently selected page (out of a total number of pages), shows the progress bar while a document is being loaded, and enables document zooming.



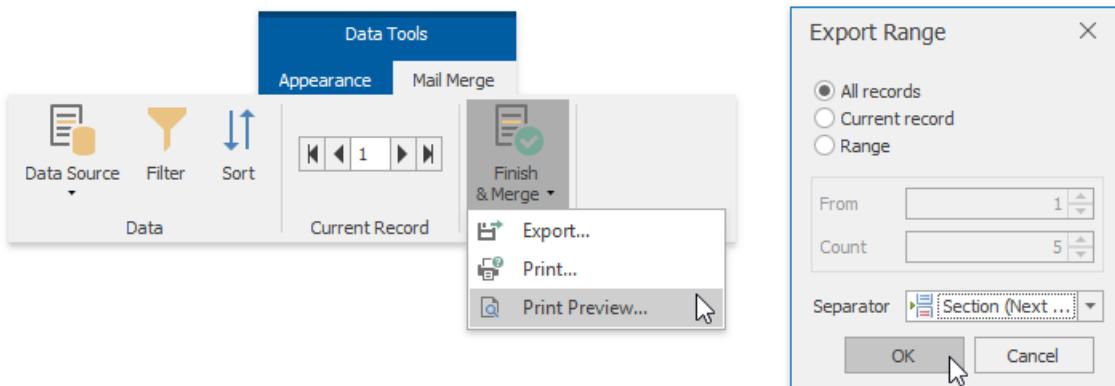
Invoke a Print Preview

- To assemble and preview a **tabular report**, click **Print Preview** in the **General Tools: File** toolbar.



- Using the option above to preview a **mail merge report** will only display the document obtained from the first data source record.

To assemble and preview a mail merge report, click **Finish & Merge** in the **Data Tools: Mail Merge** toolbar and select **Print Preview** in the invoked drop-down menu.



In the invoked **Export Range** dialog, specify the required range of data records and click **OK**.

Connect to Data

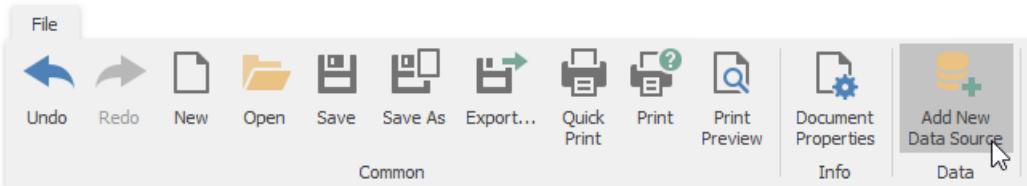
The topics in this section describe the various aspects of providing data to a Snap document.

- [Connect a Document to a Data Source](#)
- [Create a Master-Detail Data Source](#)
- [Filter Data](#)
- [Format Data](#)
- [Group Data](#)
- [Sort Data](#)
- [Pass Parameter Values](#)
- [Use Calculated Fields](#)
- [Use the Query Builder](#)

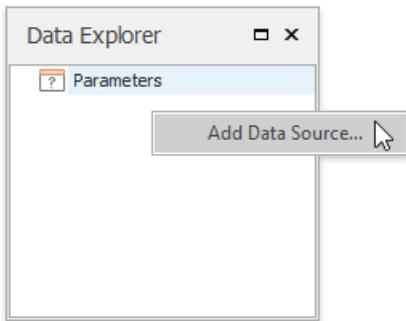
Connect a Document to a Data Source

This tutorial describes the steps required to connect a Snap document to data by using the **Data Source Wizard** and [Query Builder](#).

1. Click **Data | Add New Data Source** on the Snap application's ribbon toolbar.

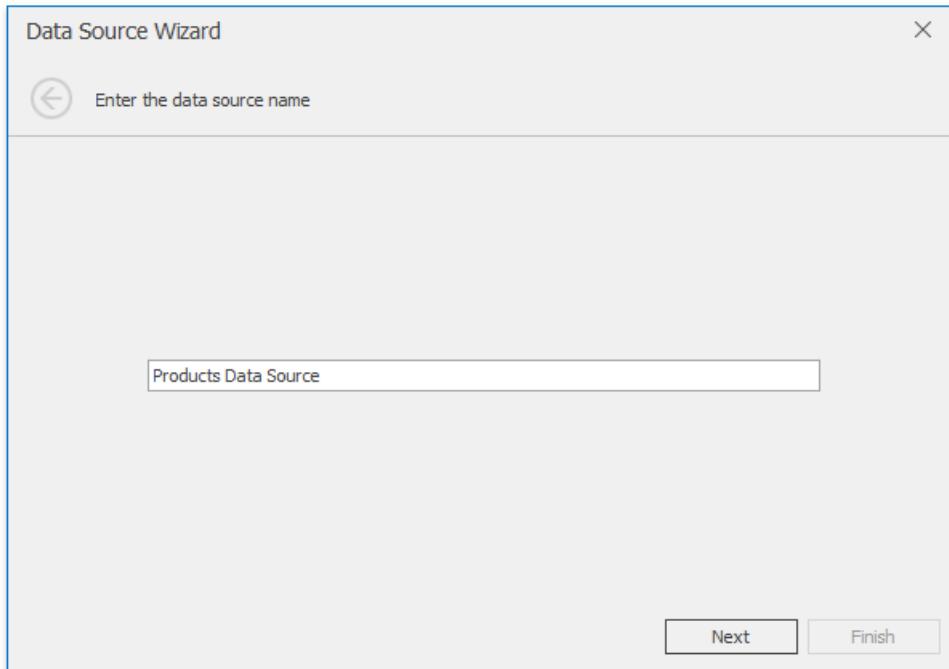


Alternatively, right-click anywhere in the [Data Explorer](#) and click **Add Data Source** in the invoked menu.

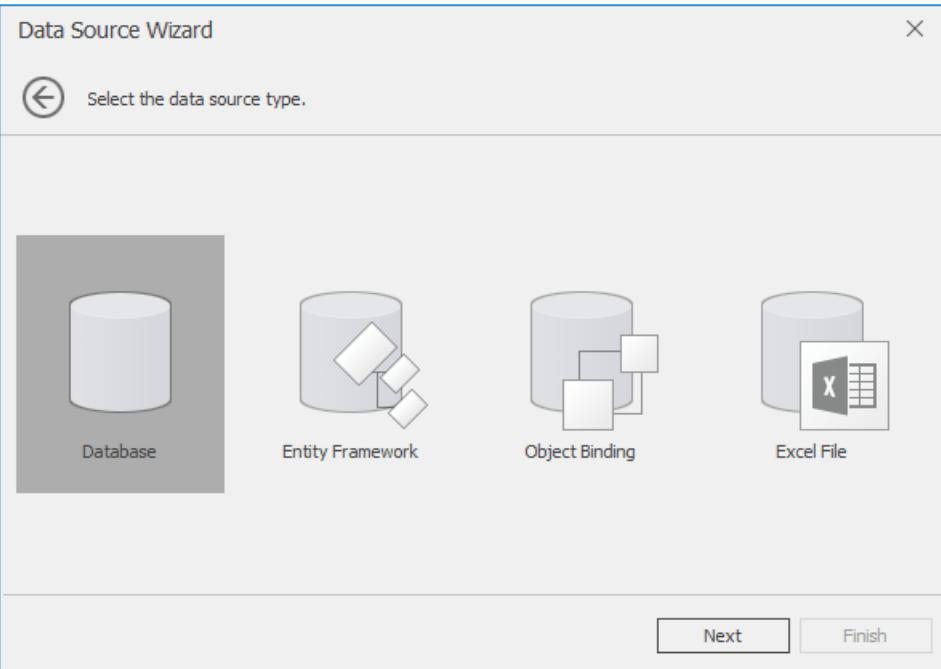


The **Data Source Wizard** is invoked. Proceed with the following steps in the wizard.

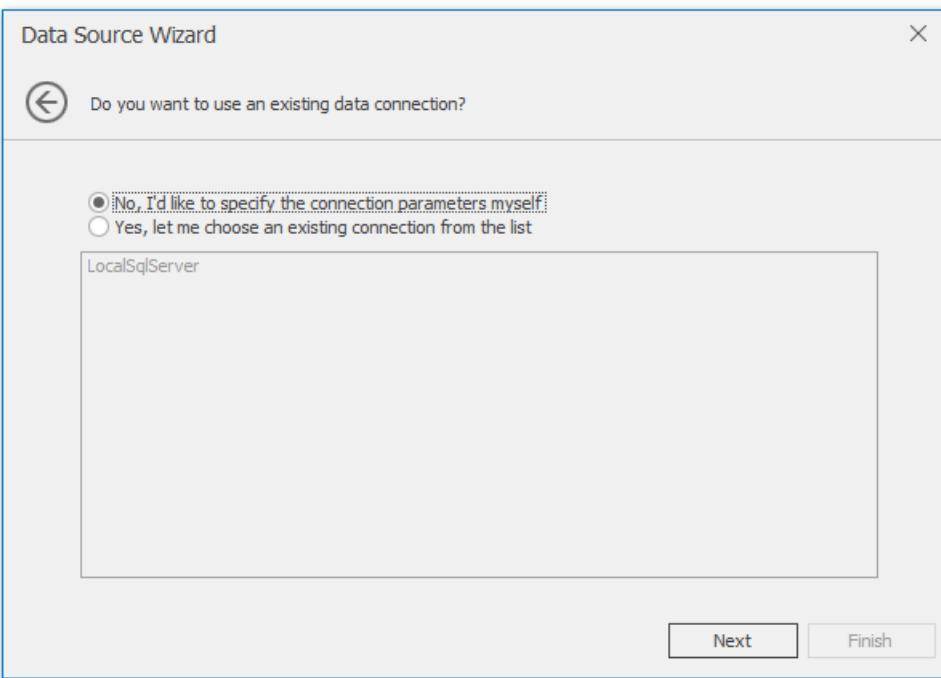
1. On the first page of the invoked **Data Source** wizard, specify a name for the new data source and click **Next**.



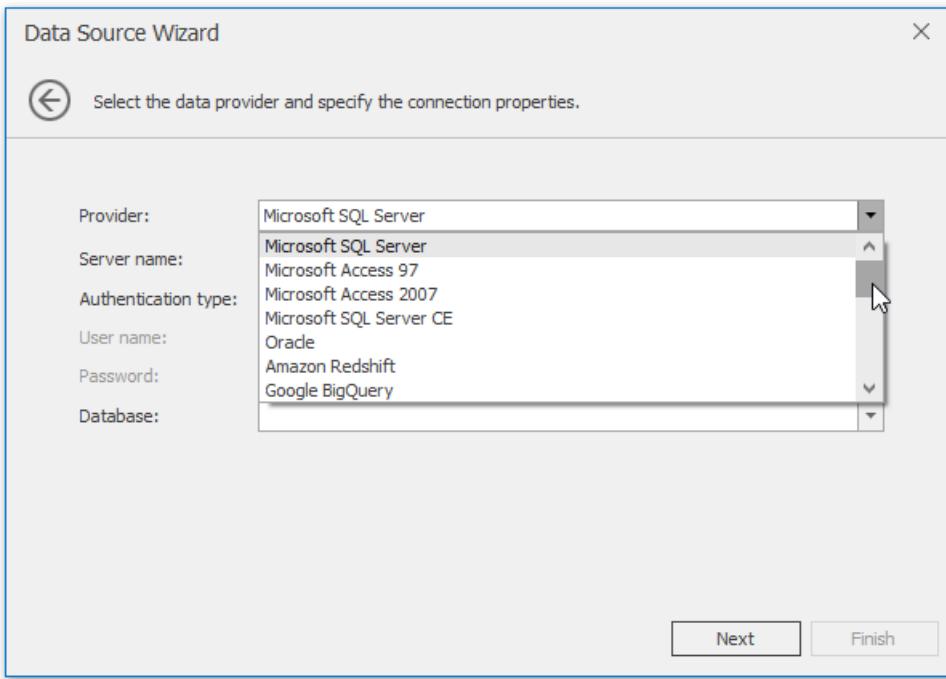
2. On the next page, select a data source type (Database) and click **Next**.



3. If a data connection has already been specified in the application, the next wizard page allows you to select whether to use one of the existing connections, or create a new one.



4. On the next page, select a data provider, specify the required connection settings and click **Next**.



On this page, you can define a custom connection string, or select from the following supported data source types.

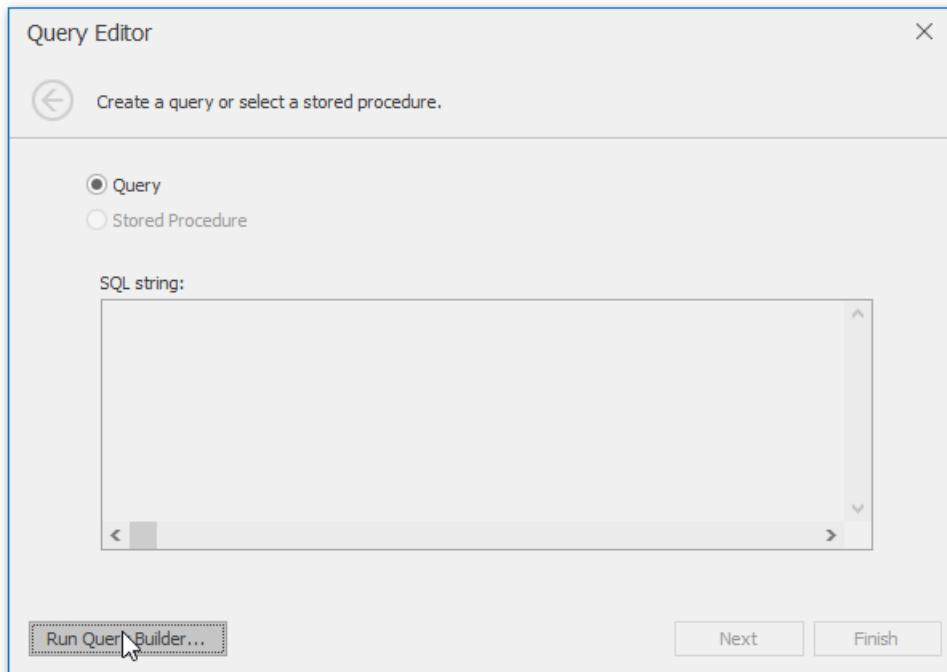
- Microsoft SQL Server
- Microsoft Access 97
- Microsoft Access 2007
- Microsoft SQL Server CE
- Oracle
- Amazon Redshift
- Google BigQuery
- Teradata
- Firebird
- IBM DB2
- Firebird
- IBM DB2
- MySQL
- Pervasive PSQL
- PostgreSQL
- SAP Sybase Advantage
- SAP Sybase ASE
- SQLite
- VistaDB
- VistaDB5
- XML File

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

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

5. On the next page you are prompted to save the connection string including or excluding the user name and a password. Choose any option and click **Next**.
6. This page allows you to select a query or a stored procedure.

Click **Run Query Builder...** to invoke the [Query Builder](#) window.



7. In the invoked **Query Builder** window, double-click the **Categories** item in the list of available tables on the left to add it to the tables included into the query.

Enable the check box for the **Categories** table, to include all of its fields in the view.

The Query Builder window displays the following interface:

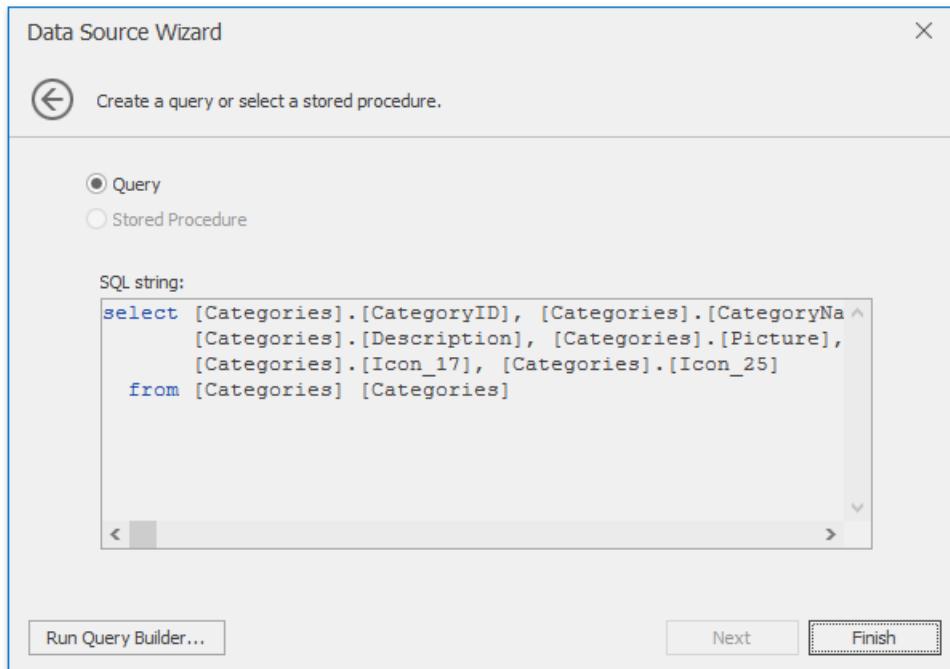
- Available Tables:** A tree view showing tables like Categories, Customers, EmployeeCustomers, etc.
- Selected Table:** A list box showing "Categories" with checkboxes for selecting individual columns. The "CategoryID" and "CategoryName" checkboxes are checked.
- Generated SQL:** A code editor containing the following T-SQL query:


```
select [Categories].[CategoryID],
           [Categories].[CategoryName],
           [Categories].[Description],
           [Categories].[Picture],
           [Categories].[Icon_17],
           [Categories].[Icon_25]
  from [Categories] [Categories]
```
- Column Details:** A table showing the columns of the selected table:

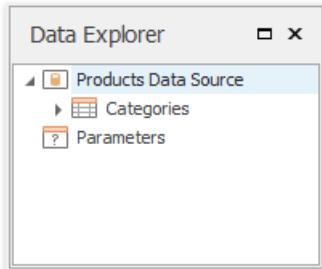
Column	Table	Alias	Output	Sorting Type	Sort Order	Group By	Aggregate
CategoryID	Categories		<input checked="" type="checkbox"/>				
CategoryName	Categories		<input checked="" type="checkbox"/>				
Description	Categories		<input checked="" type="checkbox"/>				
Picture	Categories		<input checked="" type="checkbox"/>				
Icon_17	Categories		<input checked="" type="checkbox"/>				
Icon_25	Categories		<input checked="" type="checkbox"/>				
- Buttons:** At the bottom are buttons for "Preview Results...", "Filter...", "Edit Parameters...", "OK", and "Cancel".

Click **OK** to close the Query Builder and return to the Data Source Wizard.

8. When the query is ready, click **Finish** to save it.



2. After the data source has been added to the report, the hierarchy of its data members is reflected in the [Data Explorer](#).



The Snap report is now connected to data. Drag-and-drop the **CategoryName** and **Description** data fields from the Data Explorer onto the document's body to create a simple data-aware report.

The screenshot shows the Report Designer interface. On the left is a table with two columns: 'Description' and 'CategoryName'. The 'Description' column contains items like 'Soft drinks, coffees, teas, beers, and ales', 'Sweet and savory sauces, relishes, spreads, and seasonings', etc. The 'CategoryName' column contains categories like 'Beverages', 'Condiments', etc. To the right of the table is the 'Data Explorer' window, which shows the 'Products Data Source' expanded to show 'Categories' and 'Parameters'. The 'Categories' node is expanded further to show 'CategoryID', 'CategoryName', 'Description', and 'Picture'.

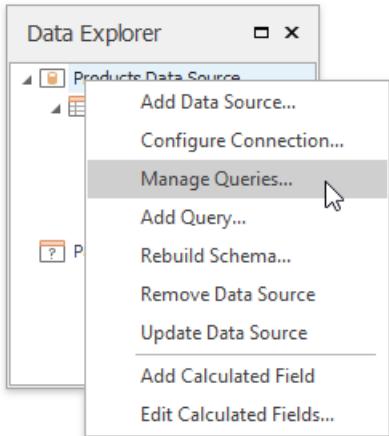
Description	CategoryName
Soft drinks, coffees, teas, beers, and ales	Beverages
Sweet and savory sauces, relishes, spreads, and seasonings	Condiments
Desserts, candies, and sweet breads	Confections
Cheeses	Dairy Products
Breads, crackers, pasta, and cereal	Grains/Cereals
Prepared meats	Meat/Poultry
Dried fruit and bean curd	Produce
Seaweed and fish	Seafood

Create a Master-Detail Data Source

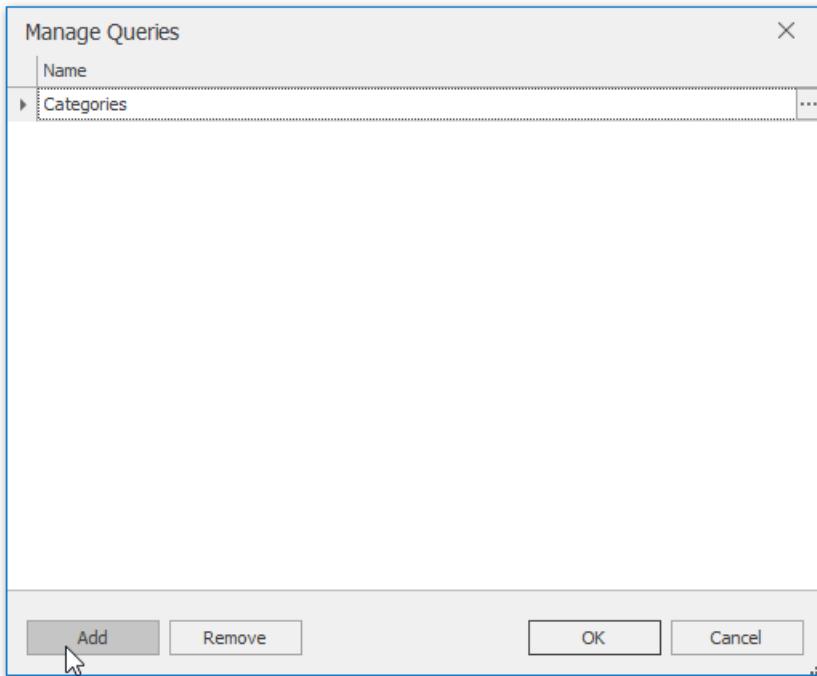
This tutorial describes how to add a master-detail relation to the document's data source.

Prior to the following steps, connect a Snap document to data as shown in the [Connect a Document to a Data Source](#) tutorial.

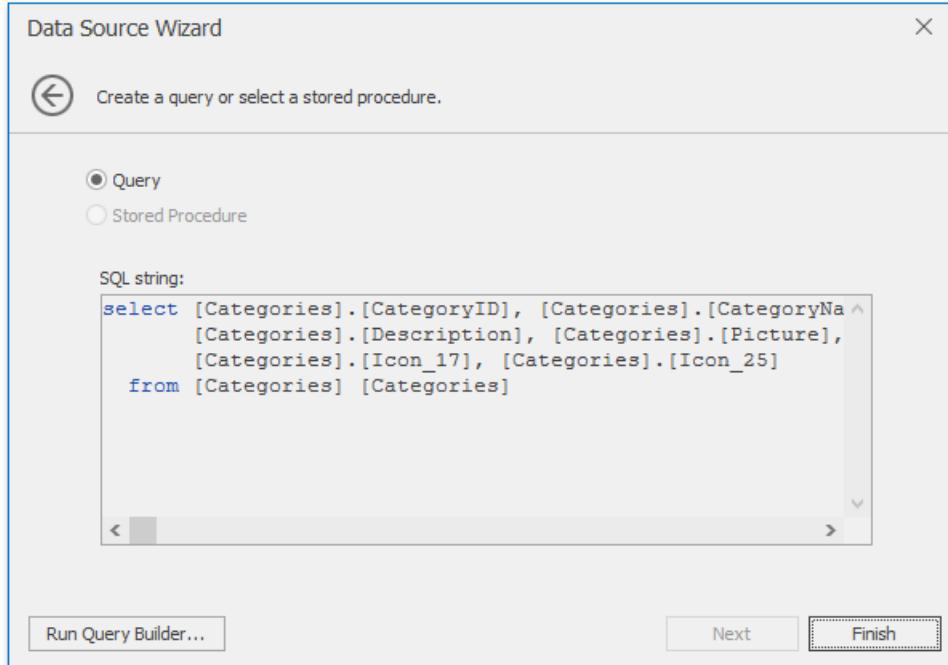
1. Right-click the **NWind Data Source** node in the **Data Explorer** window and select **Manage Queries...** in the invoked context menu.



2. The **Manage Queries** dialog is displayed. It lists the available queries and allows you to edit them, delete or add a new query. Click the ellipsis to the right of the query name to invoke the **Query Editor** dialog for the selected query.



3. Click **Run Query Builder..** to invoke the Query Builder window.



- Double-click the **Products** item in the list of available tables on the left to include it in the list of data tables to be used.

Query Builder

Available Tables:

- Categories
- Customers
- EmployeeCustomers
- Employees
- Order Details
- Orders
- Products
- Shippers
- Suppliers
- CategoryProducts
- CustomerReports
- Invoices
- OrderDetails
- OrderReports
- ProductReports

Selected Table: Products

Selected Columns:

- * (All Columns)
- ProductID
- ProductName
- SupplierID
- CategoryID
- QuantityPerUnit
- UnitPrice
- UnitsInStock
- UnitsOnOrder
- ReorderLevel
- Discontinued
- EAN13

Generated SQL:

```
select [Products].[ProductID], [Products].[ProductName], [Products].[SupplierID], [Products].[CategoryID], [Products].[QuantityPerUnit], [Products].[UnitPrice], [Products].[UnitsInStock], [Products].[UnitsOnOrder], [Products].[ReorderLevel], [Products].[Discontinued], [Products].[EAN13]
from [Products] [Products]
```

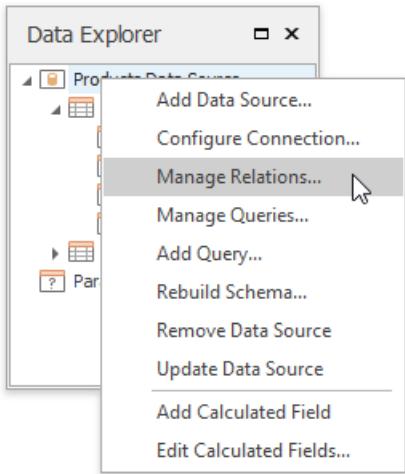
Column	Table	Alias	Output	Sorting T...	Sort ...	Group...	Aggregate
ProductID	Products		<input checked="" type="checkbox"/>				
ProductName	Products		<input checked="" type="checkbox"/>				
SupplierID	Products		<input checked="" type="checkbox"/>				
CategoryID	Products		<input checked="" type="checkbox"/>				
QuantityPerUnit	Products		<input checked="" type="checkbox"/>				

Preview Results... Filter... OK Cancel

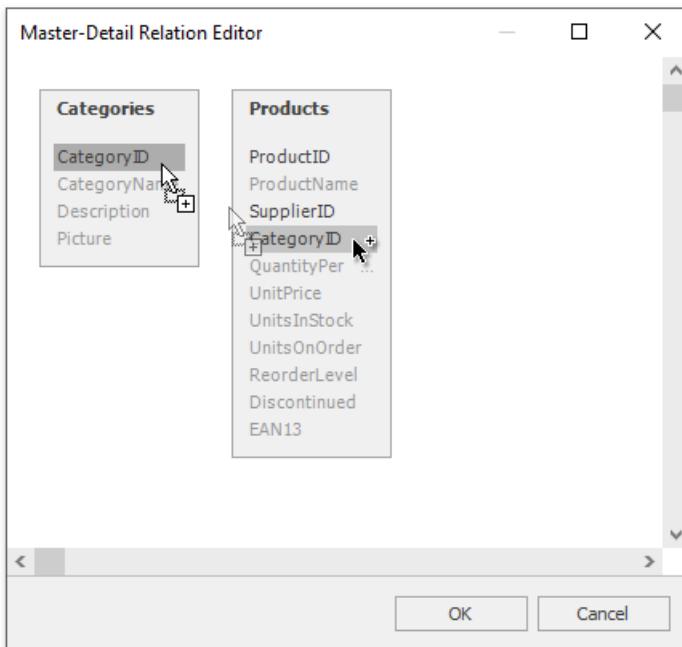
Enable the check box for the **Products** table, to include all of its fields in the view.

Click **OK** to close the Query Builder. Click **Finish** to close the **Query Editor**. Click **OK** to close the Manage Queries window which contains now two queries.

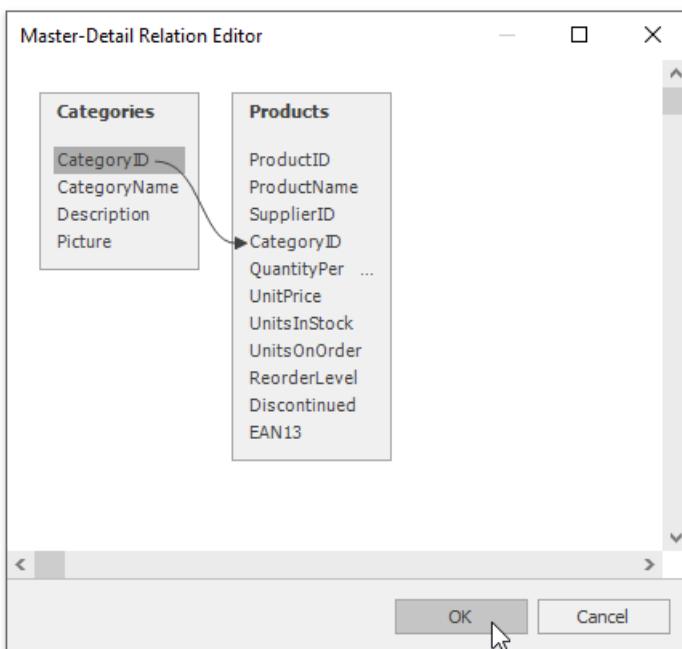
- Right-click the **NWind Data Source** node in the **Data Explorer** window and select **Manage Relations...** in the invoked context menu.



6. In the invoked **Master-Detail Relation Editor** window select the CategoryID item in the Categories table and drag it to item of the same name in the Products table.

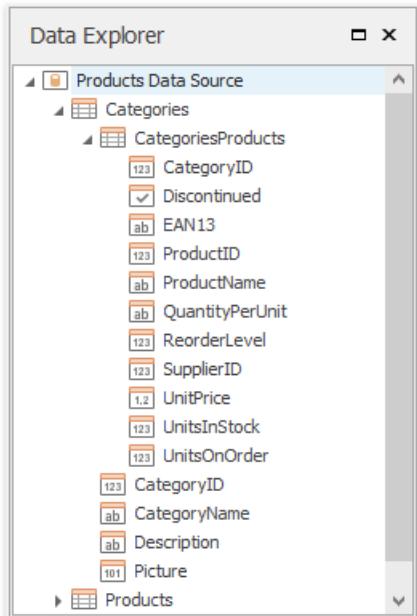


7. The relation is created as illustrated in the following image.



Next, click **OK** to apply changes to the data source and exit.

8. The content of the **Data Explorer** will be updated to reflect the new structure of the document data source.



Filter Data

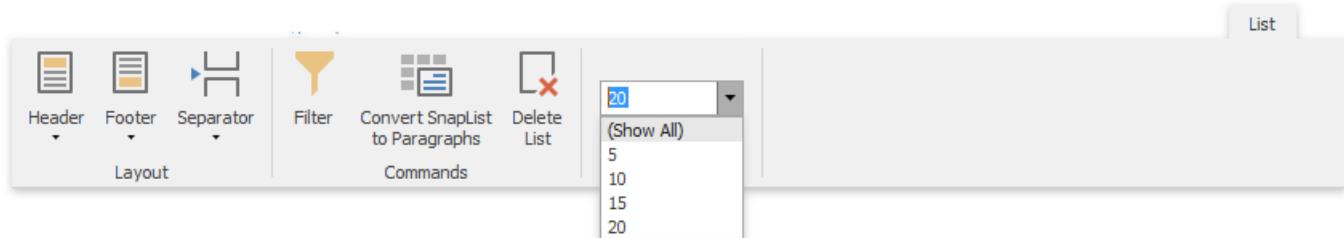
This document describes how to filter dynamic data within a **Snap** document.

The document consists of the following sections.

- [Filter Data on the Design Surface](#)
- [Filter Data at the Data Source Level](#)
- [Filter Snap List Data](#)
- [Filter Mail Merge Document Data](#)

Filter Data on the Design Surface

To improve performance, the Snap [Design Surface](#) displays only the first **20** data rows while the document layout is being designed. To change the number of data rows displayed, specify the **Editor Row Limit** option, which is located in the **List** tab of the main toolbar.

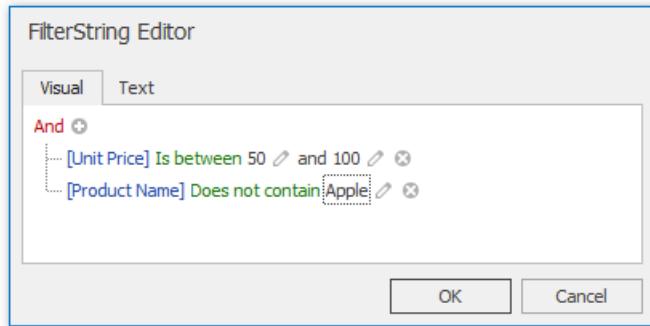


This setting does not affect the final document.

Filter Data at the Data Source Level

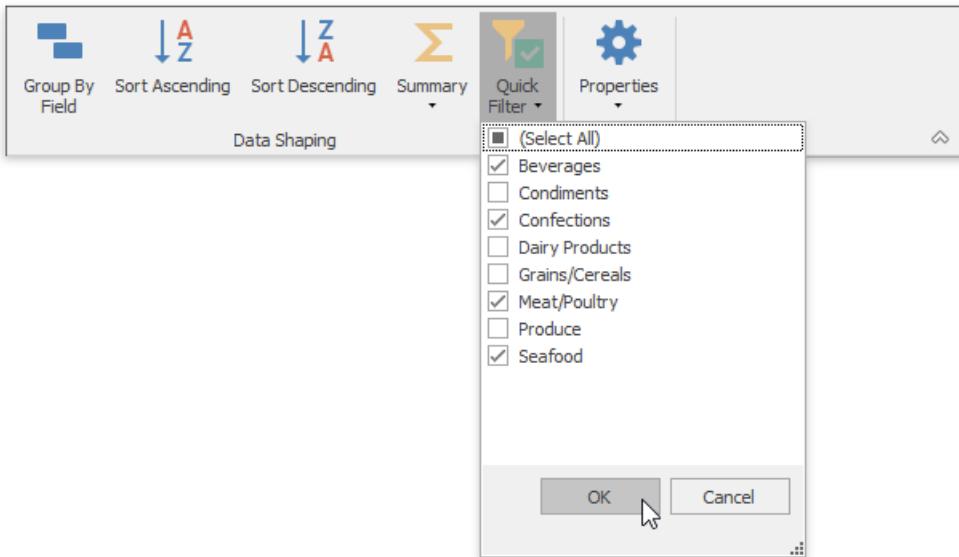
Filtering data at the data source level is useful when dealing with large data sources because it reduces data retrieval time, and thus speeds up document generation.

To filter data at the data source level, use the [Query Builder](#).



Filter Snap List Data

To select which data records to include in the document, click the **Quick Filter** command in the **Field** tab of the contextual **Data Tools** toolbar category. In the invoked drop-down menu, select the required records and click **OK** to apply the filtering.



To specify the filtering criteria for **Snap list** data, do the following.

1. Place the text cursor inside the Snap list that you wish to filter and click the **Filter** command in the **List** tab of the contextual **Data Tools** toolbar category.

CategoryName	ProductName
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

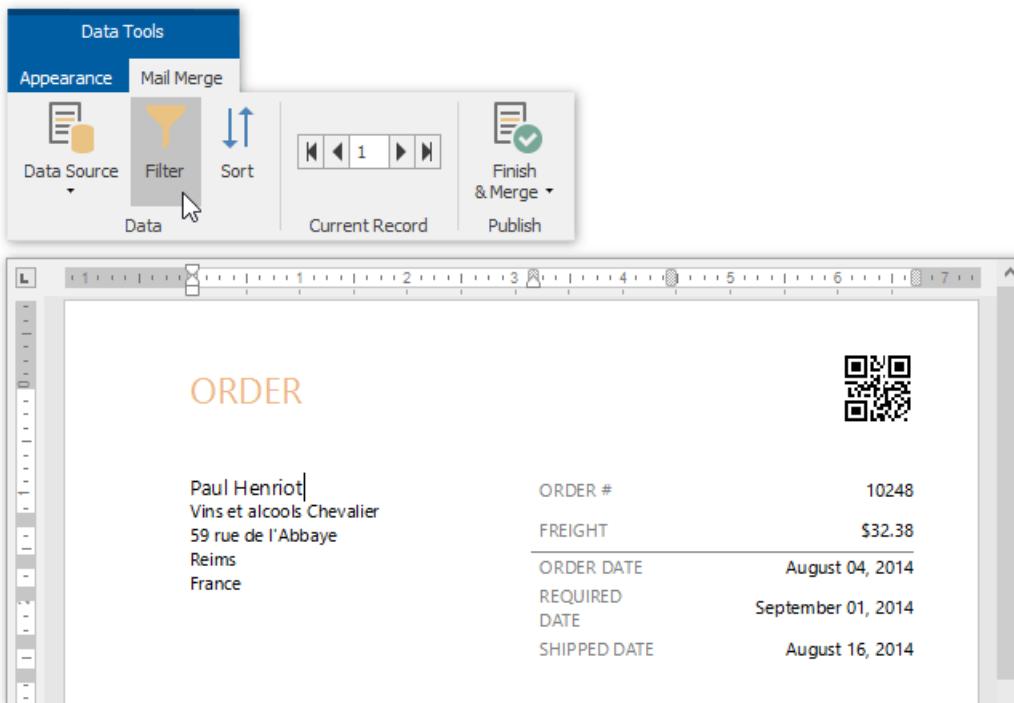
2. In the invoked **FilterString Editor**, construct the required filter expression and click **OK** to apply the filtering.

Filter Mail Merge Document Data

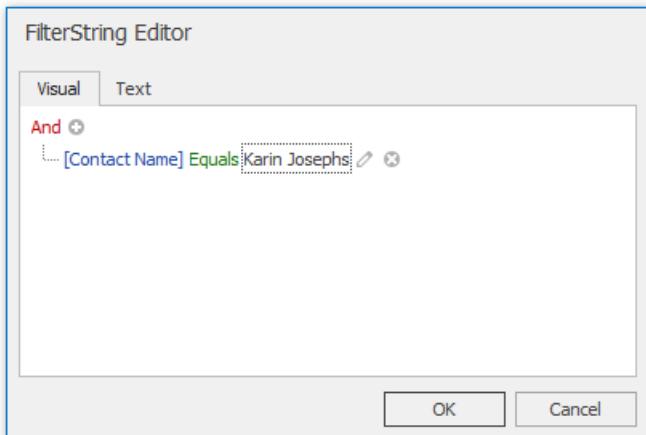
Filtering a **mail merge document** defines which data entries will appear as pages of the final document.

To filter a mail merge document, do the following.

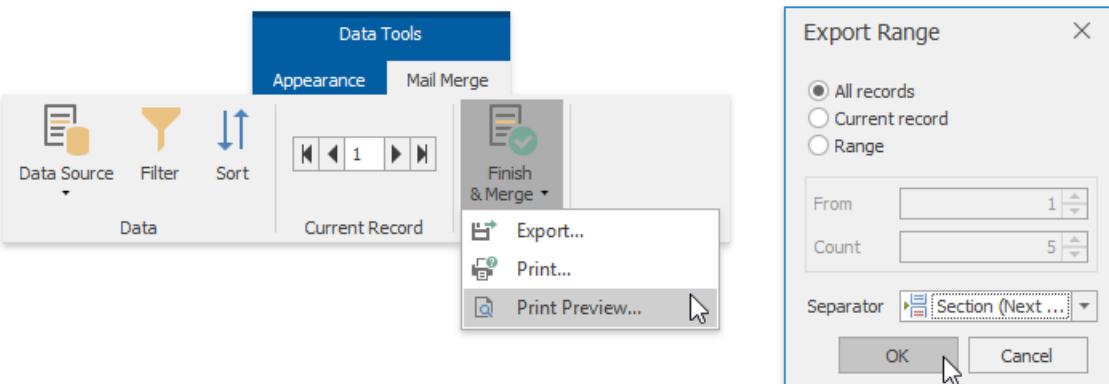
1. Switch to the **Mail Merge** tab of the contextual **Data Tools** toolbar category, and click the **Filter** command.



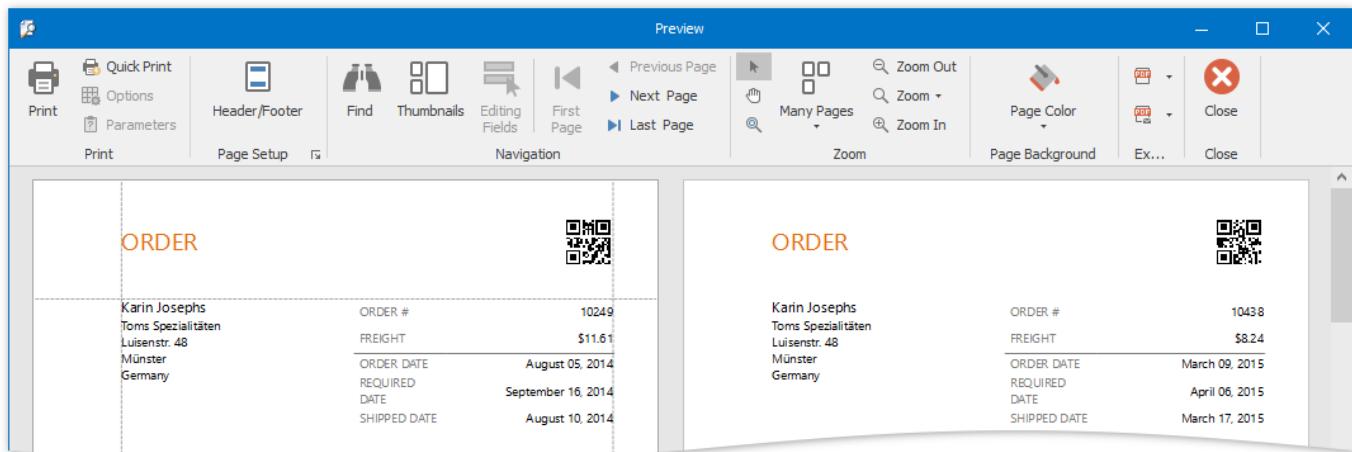
2. In the invoked **FilterString Editor**, construct the required expression and click **OK** to apply the filtering.



3. To view the result, click the **Finish & Merge** button in the **Mail Merge** tab of the contextual **Data Tools** toolbar category, and select **Print Preview...** in the drop-down menu. In the invoked **Export Range** dialog, select **All records** and click **OK**.



The following image illustrates a print preview for a filtered mail merge document.

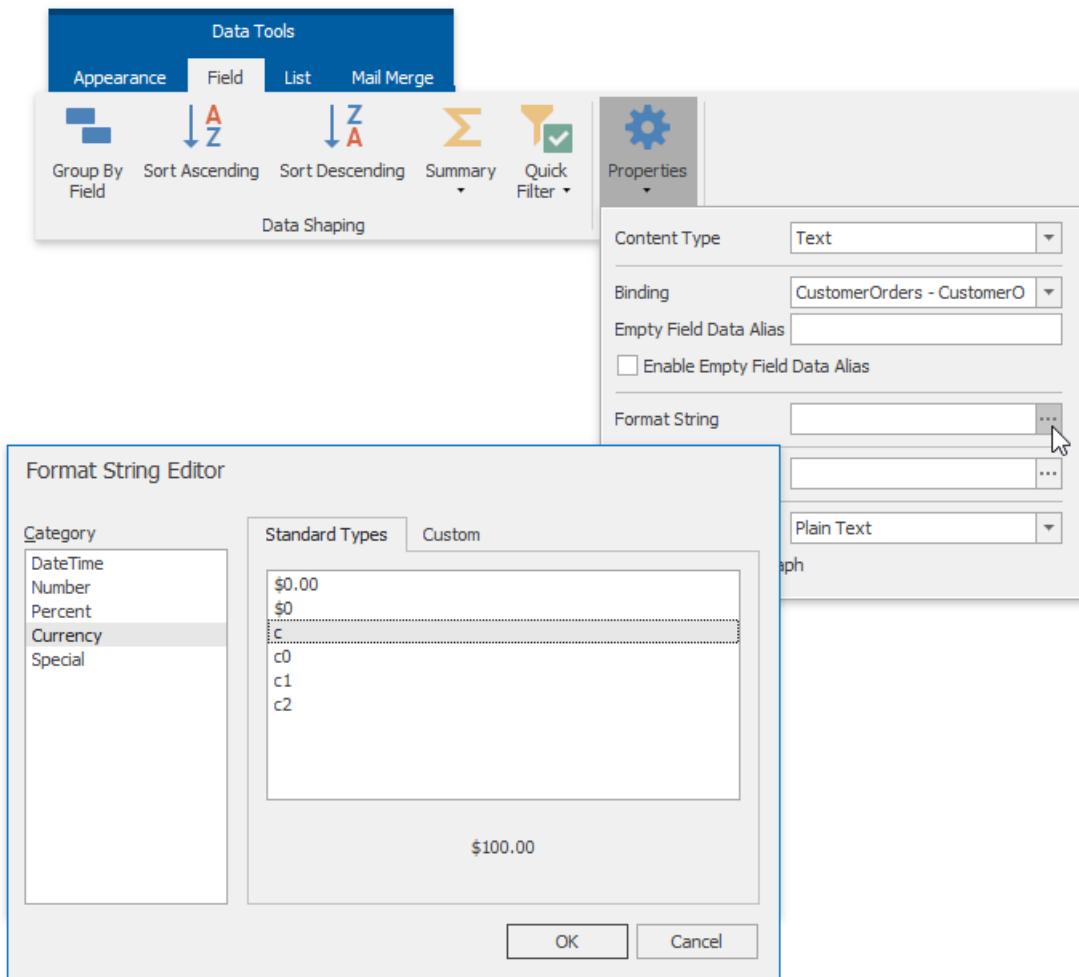


Format Data

This document describes how to format dynamic textual data in a **Snap** document.

To format report data, do the following.

1. Select the **Snap field** that you wish to format. It must be a field displaying textual information (e.g., a **Text** field or a **Row Index** field). This will activate the **Field** tab in the contextual **Data Tools** toolbar category.
2. In the **Field** tab, click the **Properties** button.
3. In the invoked drop-down menu, click the ellipsis button for the **Format String** property.
4. Specify the required formatting in the invoked **FormatString Editor**, and click **OK** to exit the dialog.



Snap supports both [standard](#) and [custom](#) .NET format strings.

Group Data

This document describes how to group data in a **Snap** document.

To group dynamic data within a **Snap list**, select the **field** that you wish to group. This automatically activates the contextual **Data Tools: Field** tab in the main toolbar. In this tab, click the **Group By Field** button.

The screenshot shows the Microsoft Word ribbon with the 'Data Tools' tab selected. Within the 'Data Tools' tab, the 'Field' tab is active. A cursor is hovering over the 'Group By Field' button, which is highlighted with a gray background. Below the ribbon, there is a 'Data Shaping' section containing several icons: 'Sort Ascending' (down arrow with 'A'), 'Sort Descending' (up arrow with 'Z'), 'Summary' (a sigma symbol), 'Quick Filter' (a funnel icon with a checkmark), and 'Properties' (a gear icon). To the right of these icons is a dropdown menu labeled 'Element'.

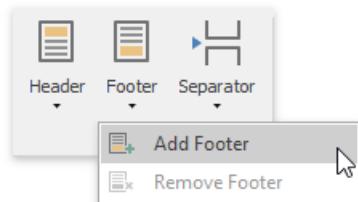
A screenshot of a Snap list in Microsoft Word. The list is grouped by 'CategoryName'. The first two items are under 'Beverages', and the last three are under 'Condiments'. The 'CategoryName' column is bolded. The data is as follows:

CategoryName	ProductName
Beverages	Chai
Beverages	Chang
Condiments	Aniseed Syrup
Condiments	Chef Anton's Cajun Seasoning
Condiments	Chef Anton's Gumbo Mix

The Snap list will be updated to reflect the applied grouping.

A group header and a group footer are automatically created for the new grouping. By default, the group header displays the value of the field by which to group, and the group footer displays the total count of entries in the group (evaluated by the **Count summary function**).

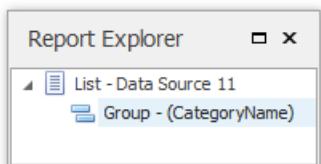
To add or remove group headers and footers, use the corresponding commands in the **Group** tab of the main toolbar.



The following image illustrates a Snap list with grouping applied.

ProductName	CategoryName
Chai	Beverages
Chang	Beverages
Côte de Blaye	Beverages
Chartreuse verte	Beverages
CategoryName: Count = 4	
CategoryName: Condiments	
Chef Anton's Cajun Seasoning	Condiments
Chef Anton's Gumbo Mix	Condiments
CategoryName: Count = 2	

All groupings added to a report are displayed in the [Report Explorer](#) as child nodes of the Snap list to which they are applied.



Sort Data

This document describes how to sort dynamic data within a **Snap** document.

The document consists of the following sections.

- [Sort Snap List Data](#)
- [Sort Mail Merge Document Data](#)

Sort Snap List Data

To apply sorting to a **Snap list**, do the following.

1. Select the **Snap field** that you wish to use as filter criteria. The field must be located inside a Snap list. This automatically activates the contextual **Field** tab in the main toolbar.
2. In the **Field** tab, click the **Sort Ascending** or **Sort Descending** button, depending on the required sort order. The Snap list will automatically be updated to reflect the sorting applied.

CategoryName	ProductName
Meat/Poultry	Alice Mutton
Condiments	Aniseed Syrup
Seafood	Boston Crab Meat
Dairy Products	Camembert Pierrot

Sort commands are also available in the context menu.

CategoryName	ProductName
Meat/Poultry	Alice Mutton
Condiments	Aniseed Syrup
Seafood	Boston Crab Meat
Dairy Products	Camembert Pierrot

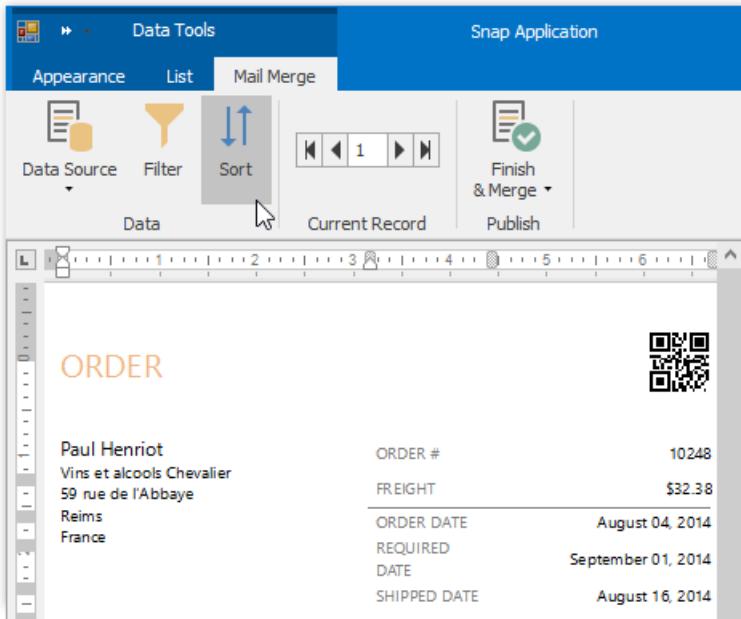
You can specify multiple sort criteria for a Snap list. In this case, sort levels are applied in the order that they are added.

Sort Mail Merge Document Data

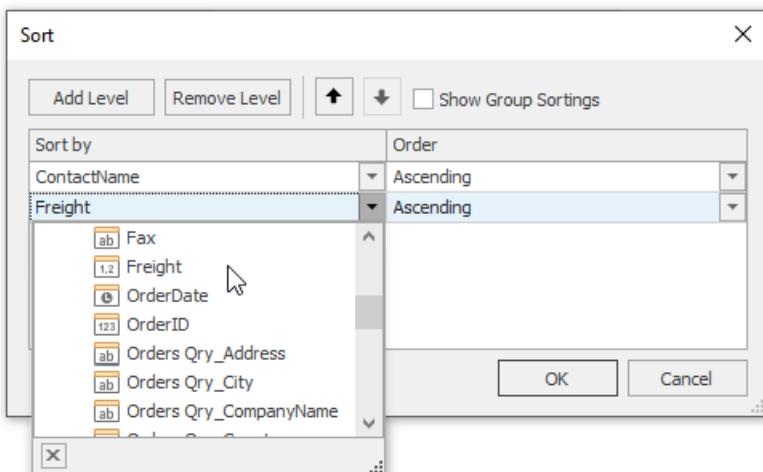
Sorting a **mail merge document** defines the order in which data entries will appear as pages of the final document.

To sort a mail merge document, do the following.

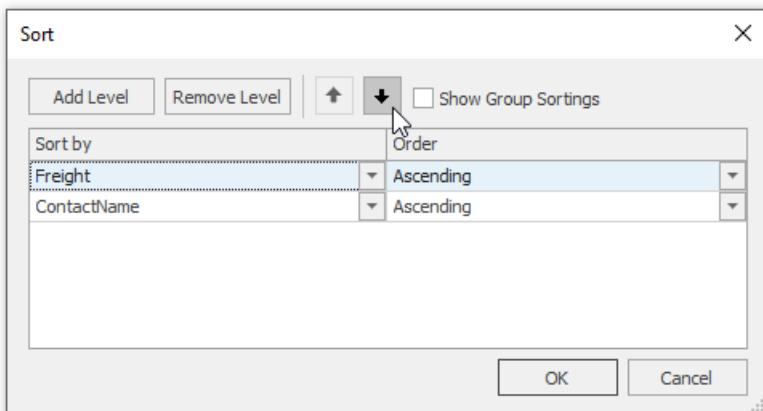
1. Switch to the **Mail Merge** tab of the main toolbar and click the **Sort** command.



- Click the **Add Level** button in the invoked **Sort** dialog. Specify the sort criteria and sort order for the additional sort level.

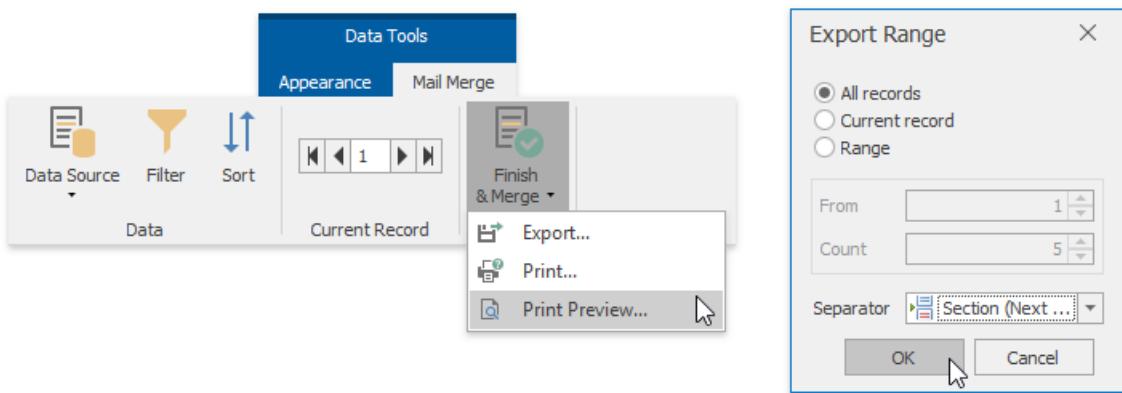


To change the order in which sort levels are applied to the document, use the arrow buttons.

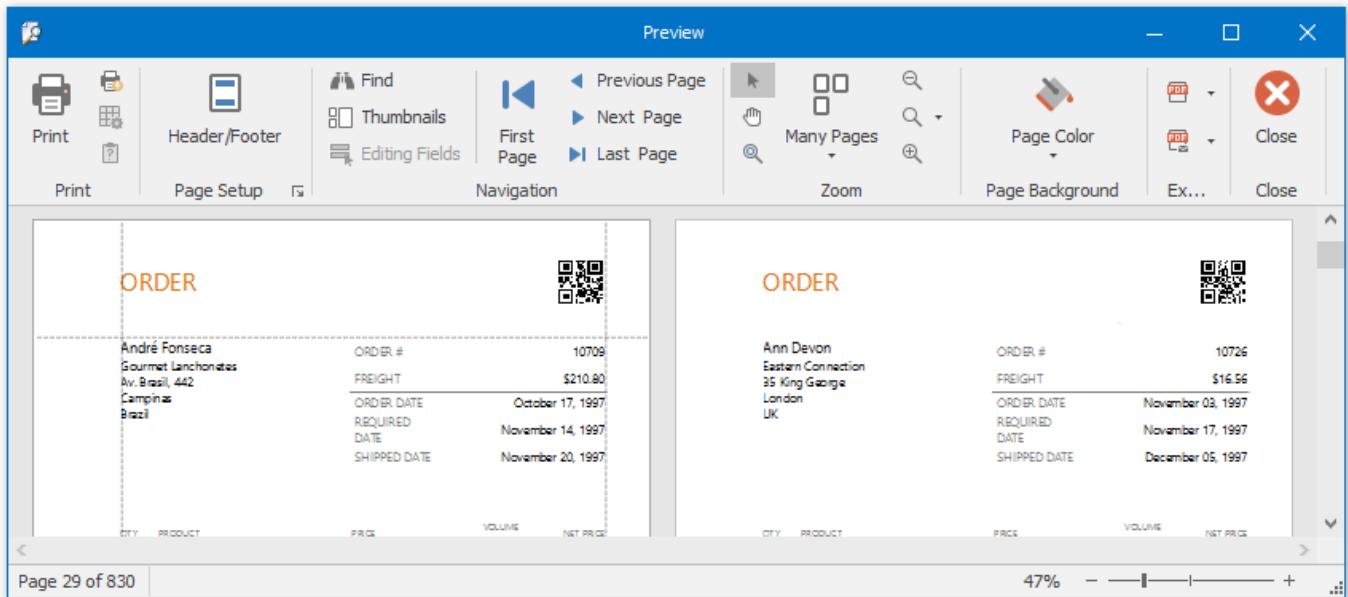


Click **OK** to exit the dialog.

- To view the result, click the **Finish & Merge** button in the **Mail Merge** tab of the main toolbar, and select **Print Preview...** in the invoked drop-down menu. In the invoked **Export Range** dialog, select **All records** and click **OK**.



The following image demonstrates a print preview for a sorted mail merge document.



Pass Parameter Values

This document describes the main concepts for using parameters in **Snap**, and provides examples of their use in various tasks.

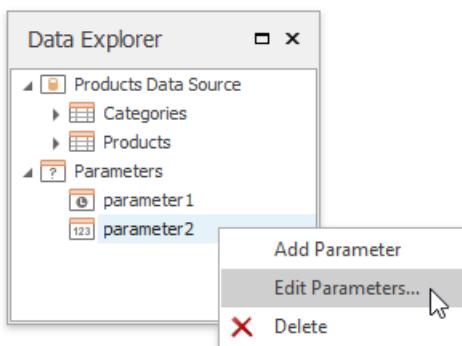
The document consists of the following sections.

- [Create Parameters](#)
- [Pass Parameter Values](#)

Create Parameters

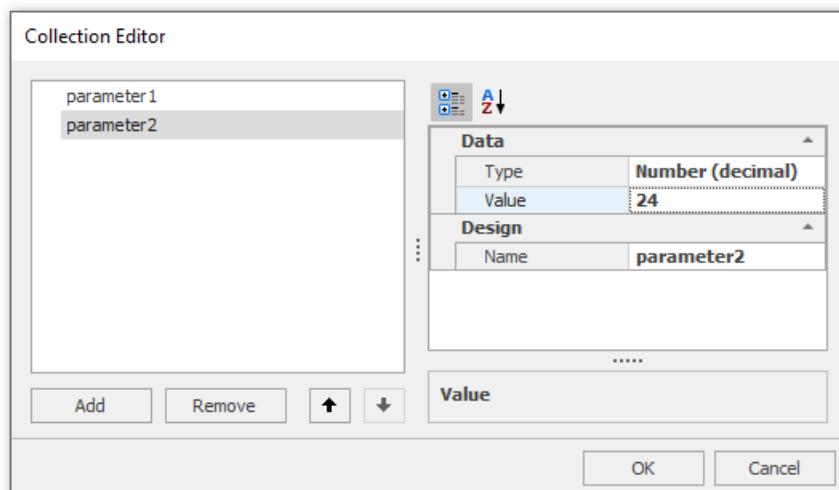
You can manage the report parameters available for a Snap document using the **Parameters** dialog.

To invoke the **Parameters** dialog, right-click the **Parameters** node (or any of its sub-nodes) in the **Data Explorer** and select **Edit Parameters...** in the invoked drop-down menu.



The **Parameters** dialog allows you to add and remove parameters using the corresponding buttons. Alternatively, you can add or remove a parameter by right-clicking the parameter in the **Data Explorer** and selecting the required action in the invoked drop-down menu.

Select the newly added parameter and specify its properties in the properties grid. Be sure to specify the proper parameter type based on the parameter's intended use.

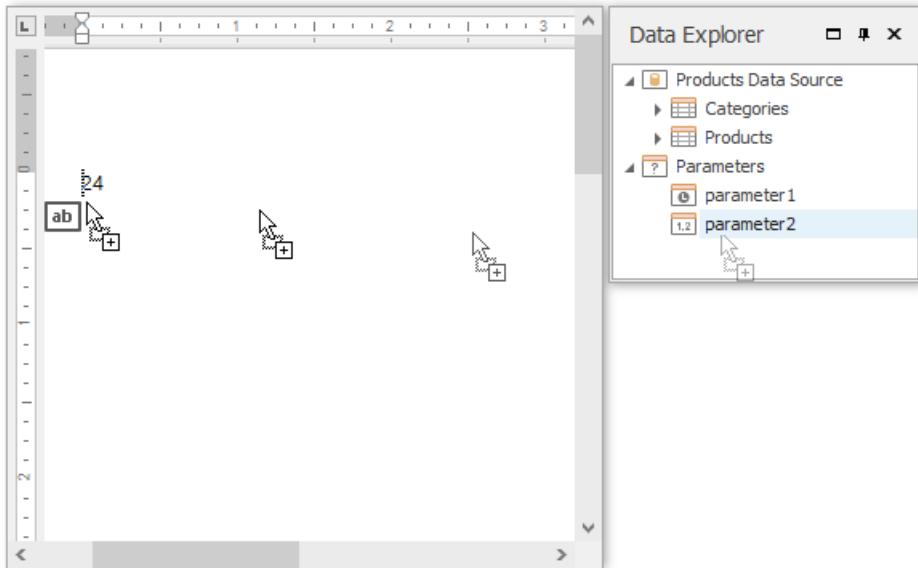


Pass Parameter Values

After a parameter is created, it can be used in different ways during report generation. Below is a list of tasks that can be accomplished using parameters.

- **Data Binding**

To display a parameter's value in a report, drag the parameter from the Field List and drop it onto the **Design Surface**.

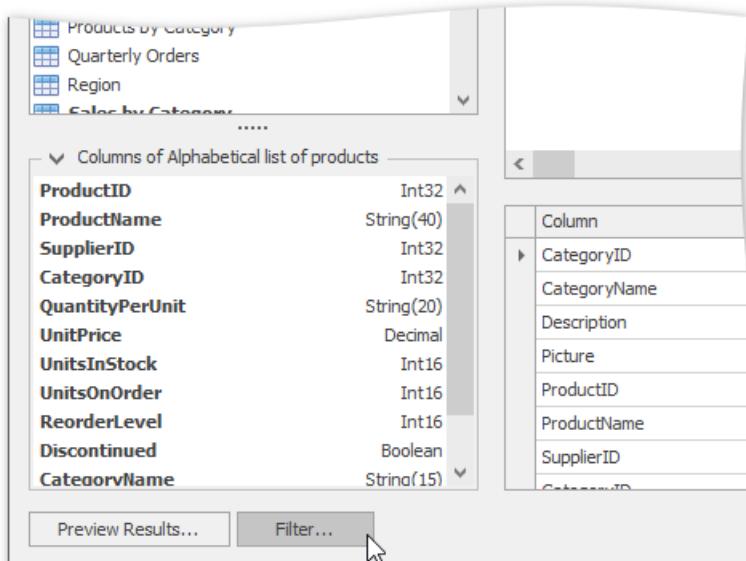


- **Filtering**

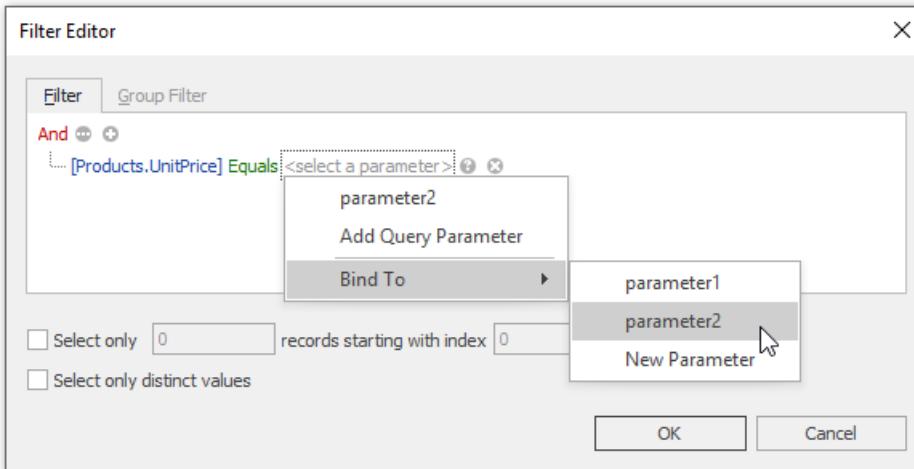
You can use a report parameter as part of a filtering expression to [filter the Snap document data](#) at either the report level or the data source level.

To filter the Snap document data at the data source level, do the following.

1. Invoke the **Query Builder** for the data source that you wish to filter.
2. In the **Query Builder**, click the **Filter** button to invoke the **Filter Editor**.



3. In the **Filter Editor**, construct an expression where the parameter's value is used as a filtering criterion. To access the parameter, click the icon on the right. It will turn into a question mark.



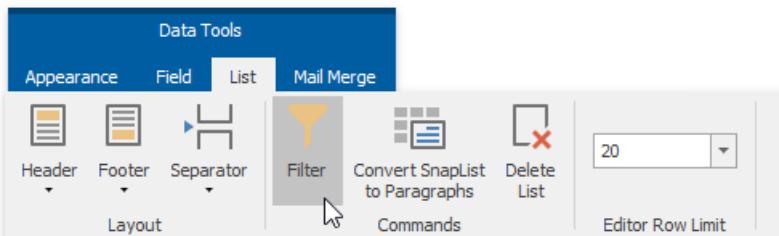
Click **OK** to exit the dialog.

The **SQL** query generated by the query designer will be updated to reflect the specified filtering.

```

select "Categories"."CategoryID",
"Categories"."CategoryName",
"Categories"."Description",
"Categories"."Picture",
"Products"."ProductID",
"Products"."ProductName",
"Products"."SupplierID",
"Products"."CategoryID" as "Products_CategoryID",
"Products"."QuantityPerUnit",
"Products"."UnitPrice",
"Products"."UnitsInStock",
"Products"."UnitsOnOrder",
"Products"."ReorderLevel",
"Products"."Discontinued",
"Products"."EAN13"
from ("dbo"."Categories" "Categories"
inner join "dbo"."Products" "Products"
on ("Products"."CategoryID" = "Categories"."CategoryID"))
where ("Products"."UnitPrice" = @parameter2)
    
```

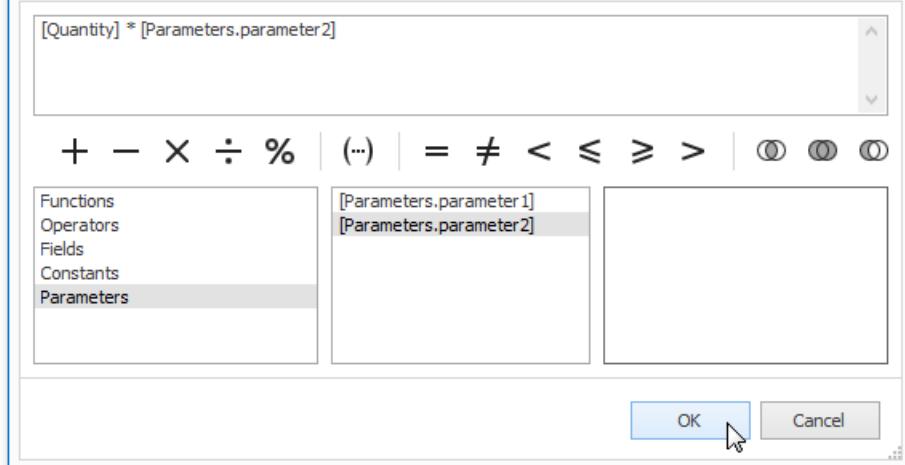
In a similar way, you can use the **Filter Editor** to filter the Snap document data at the report level. In this case, to invoke the **Filter Editor**, click the **Filter** button that resides on the **List** tab of the contextual **Data Tools** toolbar category.



• Calculated Fields

In addition to standard data fields, parameters can be used in expressions for **calculated fields**. The only difference is that the data field is inserted into the expression's text using its name in [square brackets], while a parameter is inserted using the **"Parameters."** prefix before its name.

Expression Editor

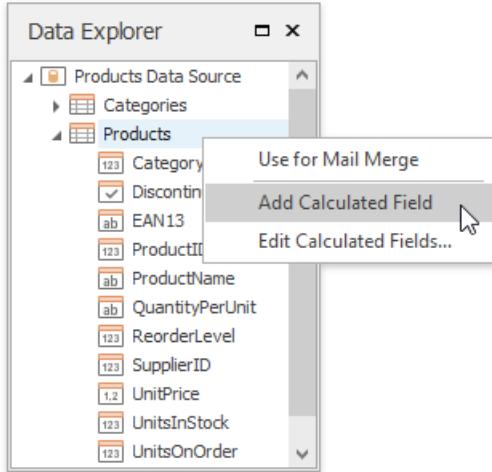


Use Calculated Fields

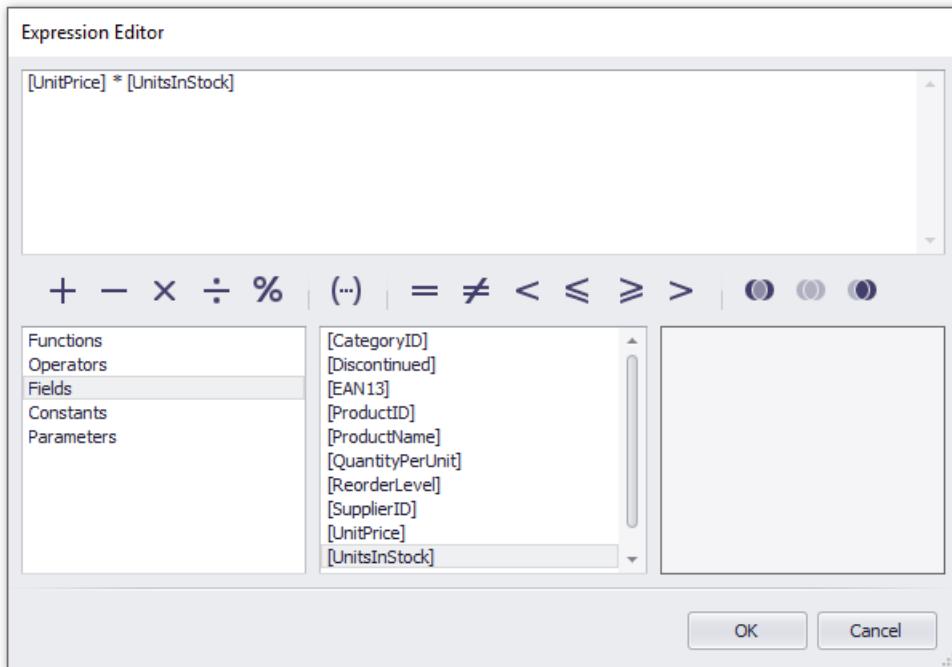
This document describes how to use **calculated fields** to evaluate custom expressions based on external data, and embed the results into a Snap document.

Use calculated fields to perform additional calculations on dynamic data and embed the results into a published document.

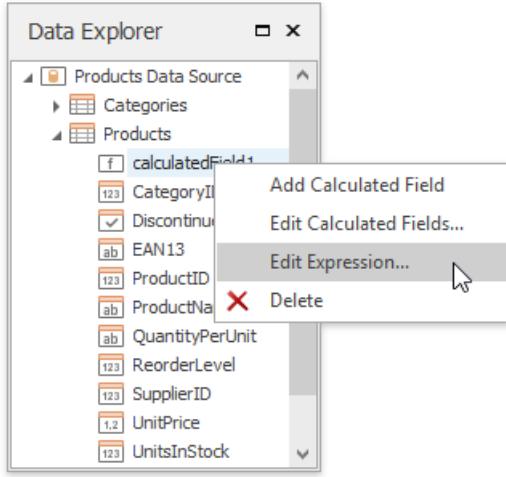
To create a calculated field and access its collection, invoke the context menu in the [Data Explorer](#).



A calculated field's expression can include conditional, date-time, mathematical and other formulas. It can also evaluate the values of other calculated fields, data source fields and [parameters](#).



The **Expression Editor** is invoked by right-clicking a calculated field and choosing the **Edit Expression...** item in the invoked popup menu.



After a calculated field is inserted into a document, its value is evaluated each time the document is set to be published.

Use the Query Builder

This topic describes how to use the **Query Builder** to manage data tables and their relations in a Snap data model (e.g., to create master-detail data sources), filter incoming data and specify a custom SQL string.

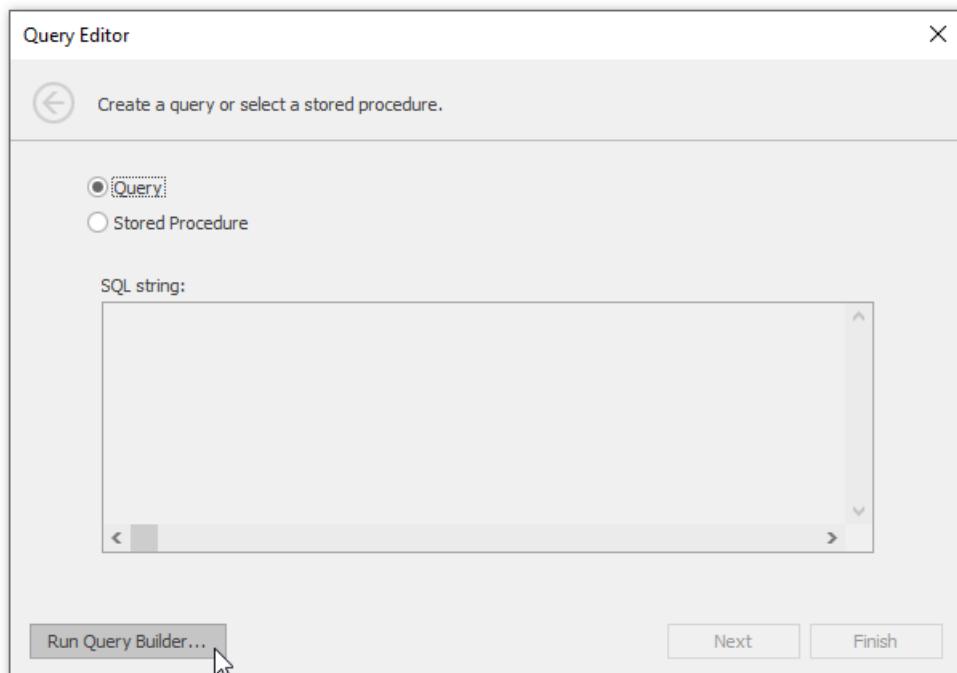
The Query Builder displays the structure of a connected data source along with its associated Snap data model. When designing a report, this data model is reflected in the [Data Explorer](#).

This topic includes the following sections.

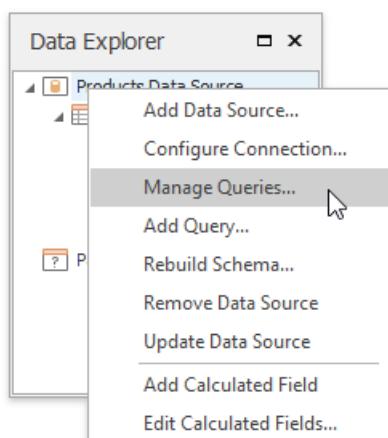
- [Run the Query Builder](#)
- [Manage Data Tables and their Relations](#)
- [Shape Data](#)

Run the Query Builder

An option to invoke the Query Builder is provided on the last page of the **Data Source Wizard**. The Data Source Wizard is invoked at [connecting a Snap document to a Data Source](#). Click the **Run Query Builder...** button to invoke the Query Builder window.



Alternatively, you can run the Query Builder by right-clicking a data source in the [Data Explorer](#) and selecting the **Manage Queries...** item in the invoked menu.

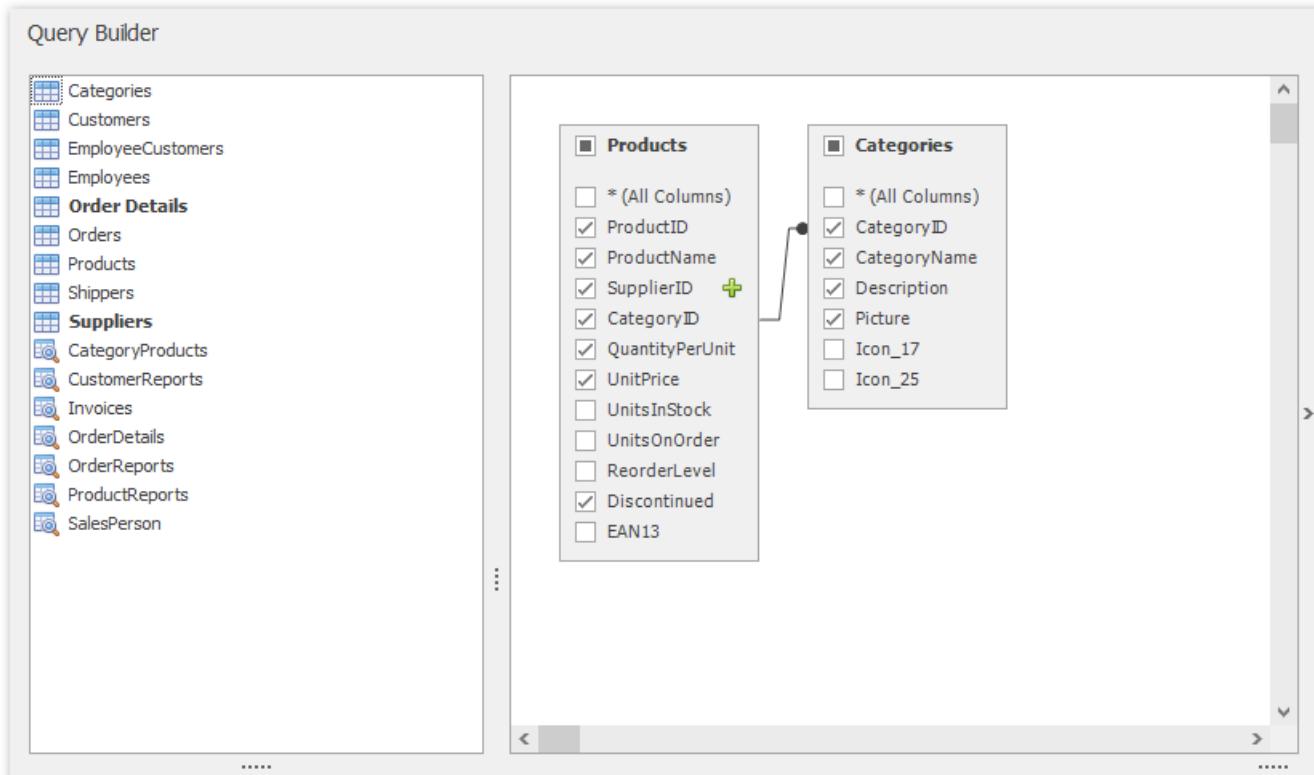


Manage Data Tables

Double-click table names in the rightmost column to add them to the query being edited. To include a particular field in the query, enable the corresponding check box.

The Query Builder automatically highlights the tables of an external data source that are related to the tables of a Snap data model by one or more primary keys.

When the related table is added to the query being edited, the corresponding primary keys are automatically connected.



Shape Data

To assign a custom name to the selected data column, specify its **Alias** in the column list displayed in the lower part of the window.

	Column	Table	Alias	Output	Sorting Type	Sort Order	Group By	Aggregate	
	UnitPrice	Products		<input checked="" type="checkbox"/>			<input type="checkbox"/>		
	UnitsInStock	Products		<input checked="" type="checkbox"/>			<input type="checkbox"/>		
	UnitsOnOrder	Products		<input checked="" type="checkbox"/>			<input type="checkbox"/>		
	ReorderLevel	Products		<input checked="" type="checkbox"/>			<input type="checkbox"/>		
	Discontinued	Products		<input checked="" type="checkbox"/>			<input type="checkbox"/>		
I	EAN13	Products	Barcode	<input checked="" type="checkbox"/>			<input type="checkbox"/>		
*									

To specify the filter criteria applied to source data, click the **Filter** button, which invokes the **Filter Editor**.

FilterString Editor

Visual Text

And

[Unit Price] Is between 50 and 100

[Product Name] Does not contain Apple

Create a Report Layout

Topics in this section provide information on creating reports with different layouts in Snap.

- [Create a Mail-Merge Report](#)
- [Create a Master-Detail Report](#)
- [Create a Table Report](#)
- [Create a Multi-Column Report](#)
- [Create a Side-by-Side Report](#)
- [Create a Parameterized Report](#)
- [Create a Chart-Based Report](#)
- [Create a Combined Report Layout](#)

Create a Mail-Merge Report

This tutorial illustrates the steps required to create and publish a mail merge report with **Snap**.

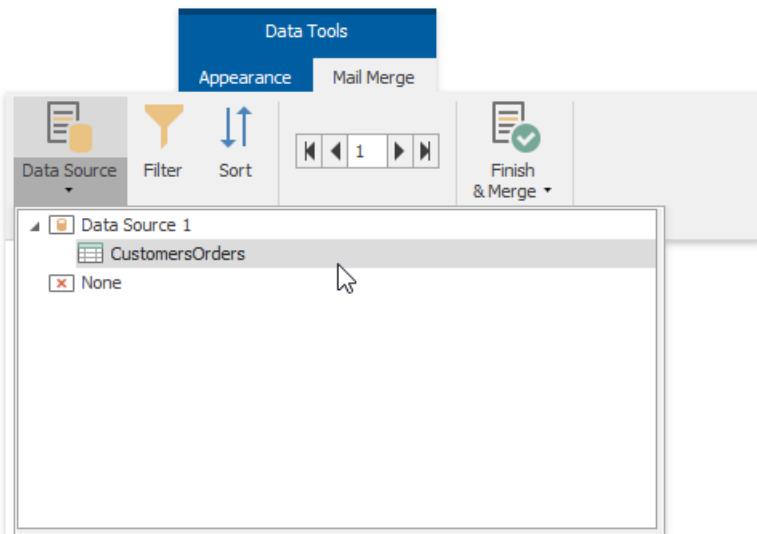
The tutorial contains following sections.

- [Add Dynamic Content](#)
- [Preview and Publish the Document](#)

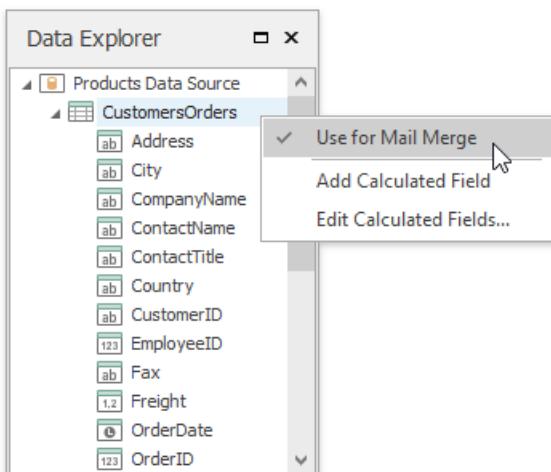
Add Dynamic Content

To create a Snap report using a document template, do the following.

1. Add a new Snap document and [provide it with a master-detail data connection](#).
2. Next, specify which data source will be used for mail merge. To do this, click the **Data Source** button on the **Data Tools: Mail Merge** tab and select the required data source in the invoked drop-down list.



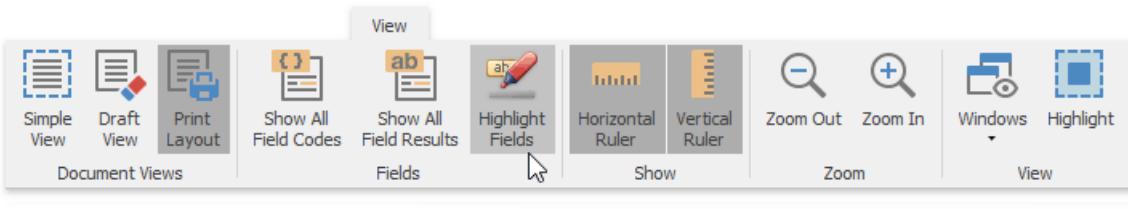
Alternatively, right-click the required data source in the **Data Explorer** and select **Use For Mail Merge** in the invoked drop-down menu.



3. To insert data bound fields into the document, drag-and-drop data fields from the **Data Explorer** onto the **Design Surface**.

The screenshot shows a Microsoft Word document titled "ORDER". In the main window, there is static text "ORDER" and dynamic fields for "ORDER #", "FREIGHT", "ORDER DATE", "REQUIRED DATE", and "SHIPPED DATE". To the right, the "Data Explorer" pane is open, displaying a hierarchical tree of fields from the "CustomerOrders" data source, including CustomerID, EmployeeID, Freight, OrderDate, OrderID, RequiredDate, ShipAddress, ShipCity, ShipCountry, ShipName, ShippedDate, ShipPostalCode, ShipRegion, and ShipVia, along with a "Parameters" node.

Activate the **Highlight Fields** option from the **View** tab of the main toolbar to highlight all mail merge fields in a document. This allows you to easily distinguish between dynamic and static content.



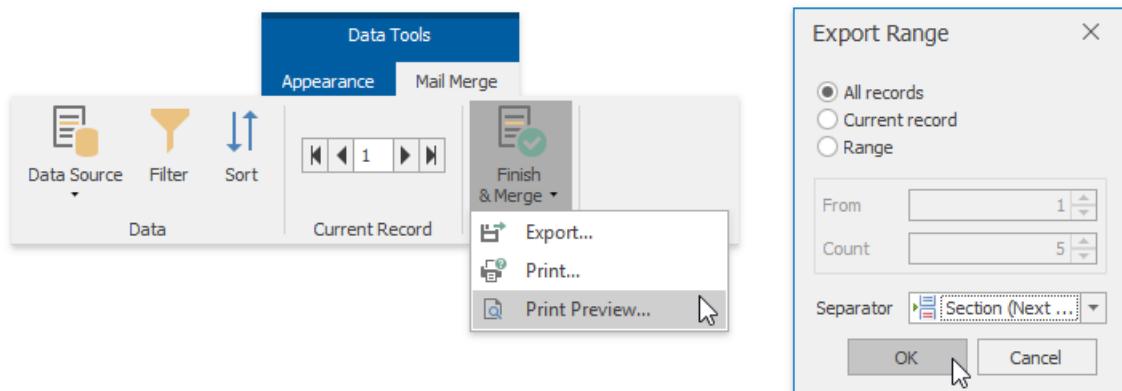
The screenshot shows the Microsoft Word document with the "Highlight Fields" option activated. The static text "ORDER" and the dynamic fields for "ORDER #", "FREIGHT", "ORDER DATE", "REQUIRED DATE", and "SHIPPED DATE" are all highlighted in gray. The left margin shows two sections of static text: "Océano Atlántico Ltda." and "Ing. Gustavo Moncada 8585 Piso 20-A" on the first line, and "Buenos Aires" and "Argentina" on the second line.

- To insert a detail report section, drag-and-drop fields from a subordinate node of the data source. Fields of a nested level of a mail-merge data source are inserted into a template as columns of a table.

The screenshot shows a Microsoft Word document with a mail merge header at the top containing the address "VINS ET BIÈVES Chevalier", "59 rue de l'Abbaye", and "Reims". Below this is a table with columns: FREIGHT (\$32.38), ORDER DATE (August 04, 2014), REQUIRED DATE (September 01, 2014), and SHIPPED DATE (August 16, 2014). A table of products follows, with columns: Quantity, Product Name, Unit Price, Discount, and Net Price. The data shows three rows: 12 units of Queso Cabrales at \$14.00, 10 units of Singaporean Hokkien Fried Mee at \$9.80, and 5 units of Mozzarella di Giovanni at \$34.80. To the right, the "Data Explorer" pane is open, showing the "CustomerOrders" table structure with fields like CustomerID, OrderID, OrderDate, RequiredDate, and UnitPrice.

Preview and Publish the Document

The Snap mail merge document is now ready. To view the result, click the **Finish & Merge** button in the **Mail Merge** tab, and select **Print Preview...** in the invoked drop-down menu. In the invoked **Export Range** dialog, select **All records** and click **OK**.



The following image illustrates a print preview for the final document.

Preview

Print Header/Footer Find Previous Page Thumbnails Next Page First Page Editing Fields Last Page

Page Setup Navigation Zoom Many Pages Page Color Page Background Ex... Close

Print Page Setup Navigation Zoom Many Pages Page Color Page Background Ex... Close

ORDER

Paul Henriot ORDER # 10248
Mme et M. Chevalier FREIGHT \$32.38
50 rue de l'Abbaye
Reims
France
ORDER DATE August 04, 2014
REQUIRED DATE September 01, 2014
SHIPPED DATE August 16, 2014

Quantity	ProductName	UnitPrice	Discount	NetPrice
12	Queso Cabrales	\$14.00	0	\$168.00
10	Singaporean Hidden Fried Meat	\$9.80	0	\$98.00
3	Mozzarella di Giovanni	\$24.00	0	\$72.00

Grandma Kelly's Homestead
707 Oxford Rd.
Ann Arbor 48104
(313) 555-3349

ORDER

Karin Josephs ORDER # 10249
Toms Spezialitäten FREIGHT \$11.61
Luibnstr. 48
Münster
Germany
ORDER DATE August 05, 2014
REQUIRED DATE September 16, 2014
SHIPPED DATE August 10, 2014

Quantity	ProductName	UnitPrice	Discount	NetPrice
9	Tofu	\$18.00	0	\$162.00
40	Marmalade Dried Apples	\$42.00	0	\$1680.00

Grandma Kelly's Homestead
707 Oxford Rd.
Ann Arbor 48104
(313) 555-3349

Page 1 of 831 46%

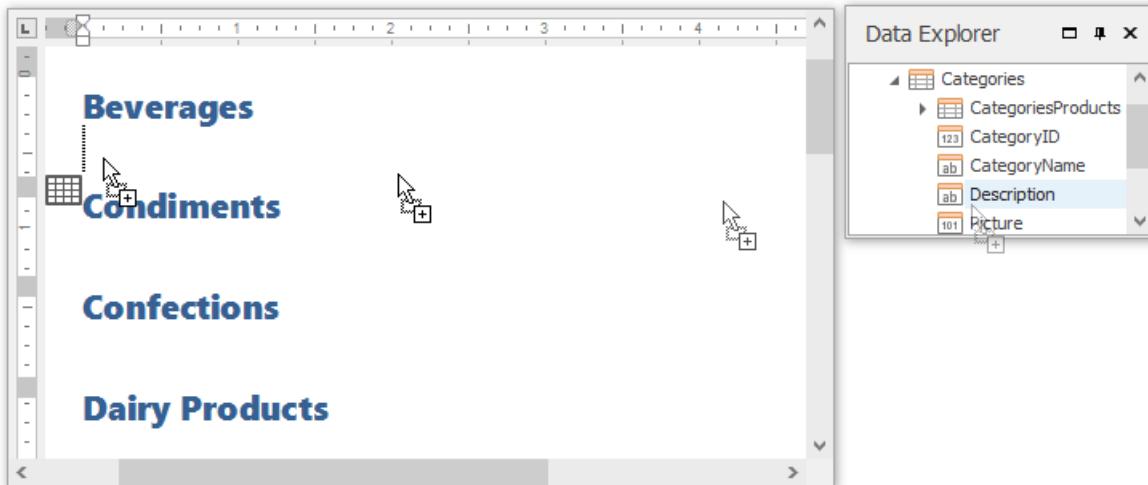
Create a Master-Detail Report

This document will guide you through the process of creating a master-detail report. Reports of this type are built upon hierarchical data sources, so to be able to create a master-detail report, you need to provide a report data source with a master-detail relation.

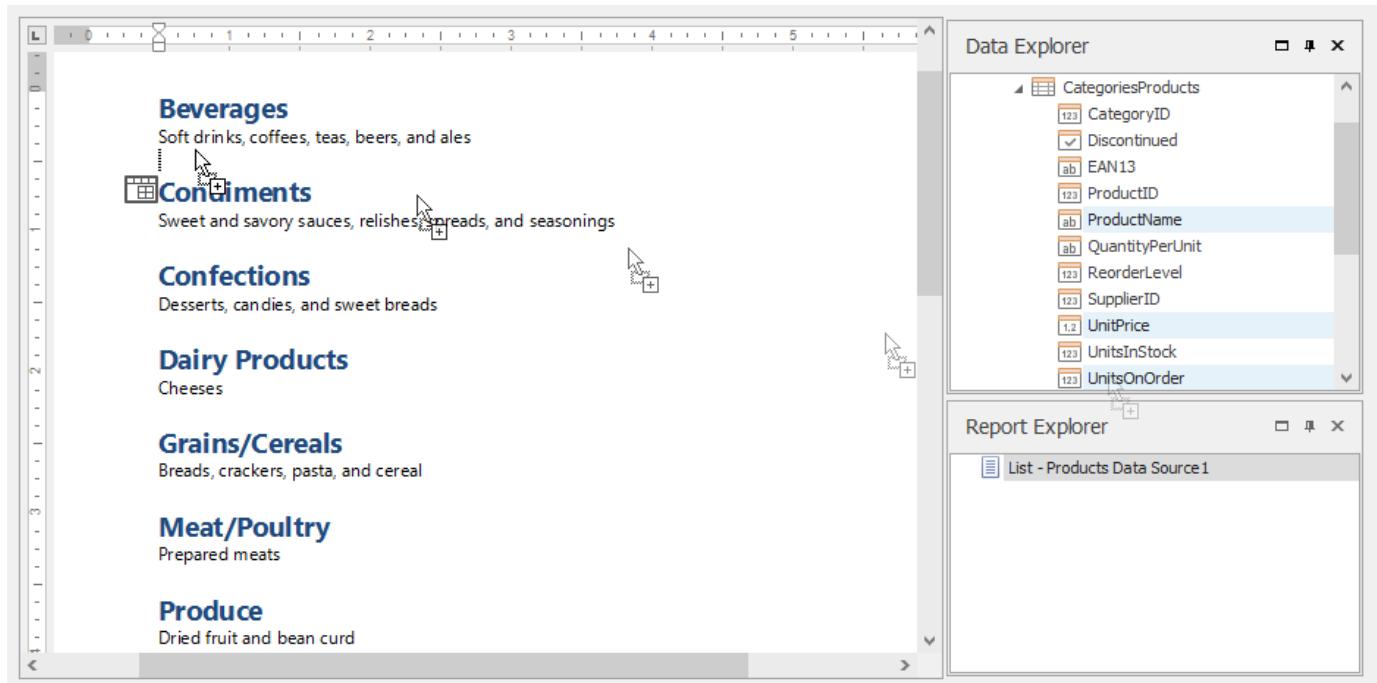
To get started with this tutorial, create a new Snap document and [add a master-detail relation](#) to it.

Perform the following steps to create a master-detail report.

1. Create a master report. To do this, drag-and-drop data fields of the master data table from the **Data Explorer** to the design surface. You can use any type of layout.



2. To create a detail report, drag-and-drop data fields of the detail data table from the **Data Explorer** onto the lower border of the master report's data row, as shown in the image below.



3. The master-detail report is now ready. Click the **Print Preview** button in the **General Tools: File** tab of the main toolbar to view the preview.

Preview

Print Header/Footer Find Previous Page ▶️ Zoom Page Color PDF Close

Print Page Setup Thumbnails First Page ▶️ Next Page ▶️ Last Page Zoom Page Background Ex... Close

Navigation

Page Background

Close

Page Color

PDF

Close

Page Background

Ex...

Close

Beverages
Soft drinks, coffees, teas, beers, and ales

ProductName	UnitPrice	UnitsOnOrder
Chai	18	0
Chang	19	40
Guaraná Fantástica	4.5	0
Sasquatch Ale	14	0
Steeleye Stout	18	0
Côte de Blaye	263.5	0
Chartreuse verte	18	0
Ipoh Coffee	46	10
Laughing Lumberjack Lager	14	0
Outback Lager	15	10
Rhönbräu Klosterbier	7.75	0
Lakkalikööri	18	0

Page 1 of 9 | 90% - + ⋮

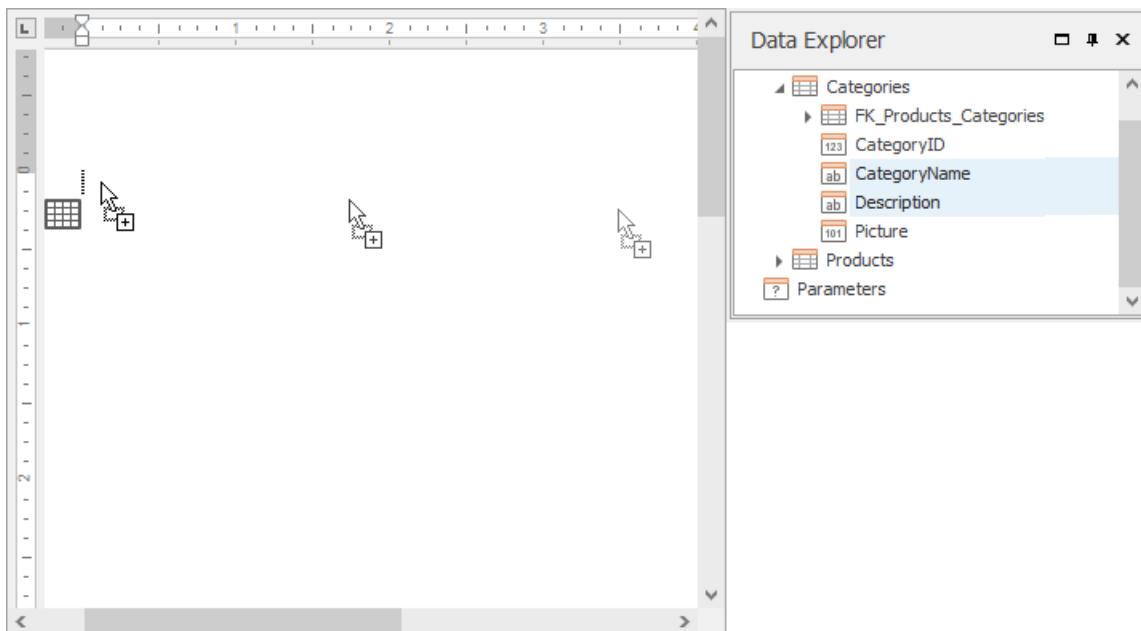
Create a Table Report

This tutorial will guide you through the process of creating a **Table Report**, and printing and saving it to your hard drive. The table report is a data-aware **Snap** report with a tabular master-detail layout.

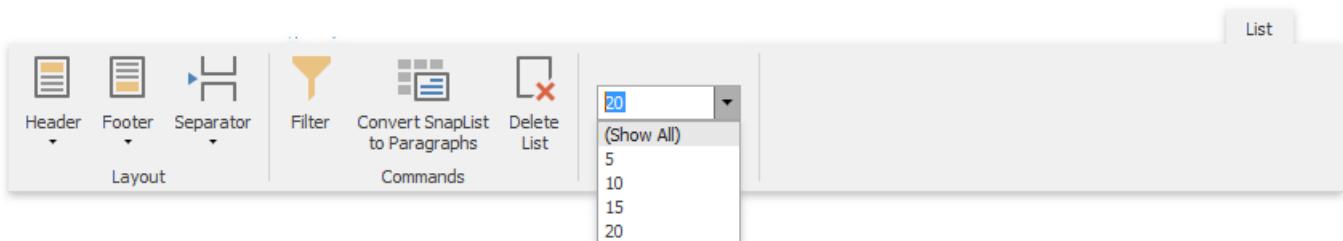
To get started with this tutorial, create a new Snap document and provide a hierarchical data source for it, as described in the [Create a Master-Detail Data Source](#) topic.

To create a master-detail Snap document layout, do the following.

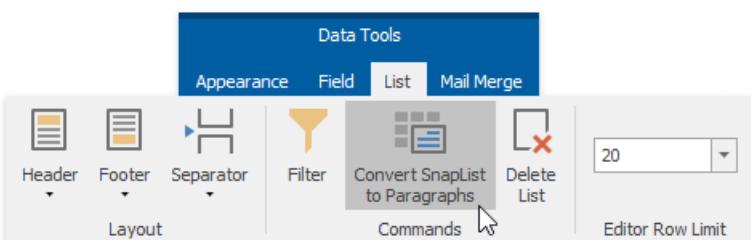
1. Create a simple tabular report by selecting the data fields that you wish to include in the report in the **Data Explorer** and dragging them to the **Design Surface**. When you drop data fields onto the empty space in the document body, they are added as columns of a table. You can select multiple data fields by pressing **CTRL** or **SHIFT**.



To improve performance, Snap shows only the first **20** data rows of a Snap list by default. To change this setting, use the **Editor Row Limit** option, which is located on the **List** tab of the main toolbar.



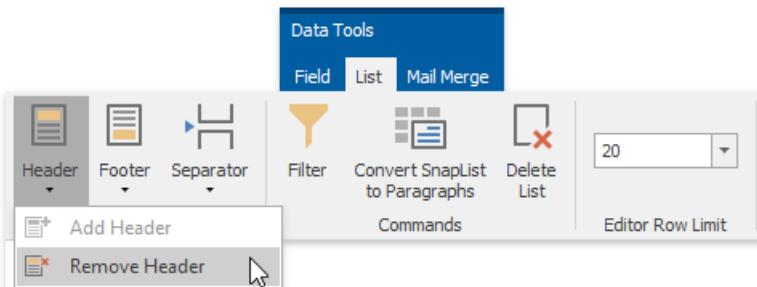
2. To convert the layout of a Snap list to a paragraph presentation, select the Snap list you wish to convert and click the **Convert to Paragraphs** command in the **List** tab of the contextual **Data Tools** toolbar category. Note that there is no reverse action allowing you to convert a Snap list back to the tabbed form.



The report should now appear as shown in the following image.

	1	2	3	4
-	CategoryName			
-	Description			
-	Beverages			
-	Soft drinks, coffees, teas, beers, and ales			
-	Condiments			
-	Sweet and savory sauces, relishes, spreads, and seasonings			
-	Confections			
-	Desserts, candies, and sweet breads			
-	Dairy Products			
-	Cheeses			
-	Grains/Cereals			

To remove a list header, select the Snap list, click the **Header** command in the **List** tab of the main toolbar, and select **Remove Header** in the invoked drop-down menu.



3. To create a detail report, drag data fields from the child data table in the **Data Explorer** onto the lower border of the master report's data row, as shown in the image below.

The added detail part will have a tabular form by default.

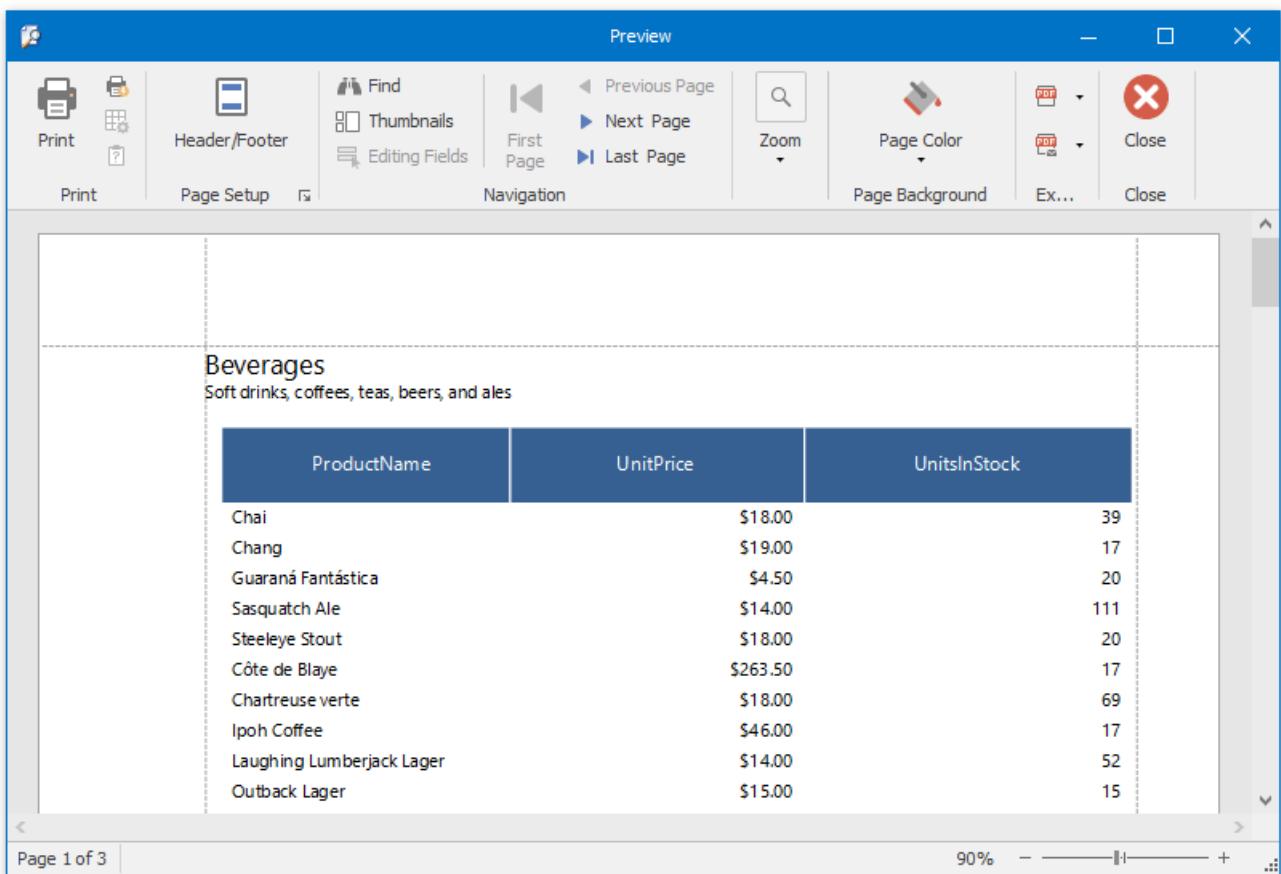
Beverages
Soft drinks, coffees, teas, beers, and ales

Product Name	Unit Price	Units In Stock
Chai	\$18.00	39
Chang	\$19.00	17
Guaraná Fantástica	\$4.50	20

Condiments
Sweet and savory sauces, relishes, spreads, and seasonings

Product Name	Unit Price	Units In Stock
Aniseed Syrup	\$10.00	13
Chef Anton's Cajun Seasoning	\$22.00	53
Chef Anton's Gumbo Mix	\$21.35	0

4. To preview your Snap document click the **Print Preview** button in the **General Tools: File** tab of the main toolbar.



The Print Preview window displays the document layout. At the top, there are tabs for Print, Page Setup, and Navigation. The Navigation tab is active, showing controls for First Page, Previous Page, Next Page, Last Page, and Zoom. Below the tabs is a preview area containing the 'Beverages' section and its table. The table has columns for ProductName, UnitPrice, and UnitsInStock. The preview also shows the bottom of the page with 'Page 1 of 3' and zoom controls at the bottom right.

Beverages
Soft drinks, coffees, teas, beers, and ales

ProductName	UnitPrice	UnitsInStock
Chai	\$18.00	39
Chang	\$19.00	17
Guaraná Fantástica	\$4.50	20
Sasquatch Ale	\$14.00	111
Steeleye Stout	\$18.00	20
Côte de Blaye	\$263.50	17
Chartreuse verte	\$18.00	69
Ipoh Coffee	\$46.00	17
Laughing Lumberjack Lager	\$14.00	52
Outback Lager	\$15.00	15

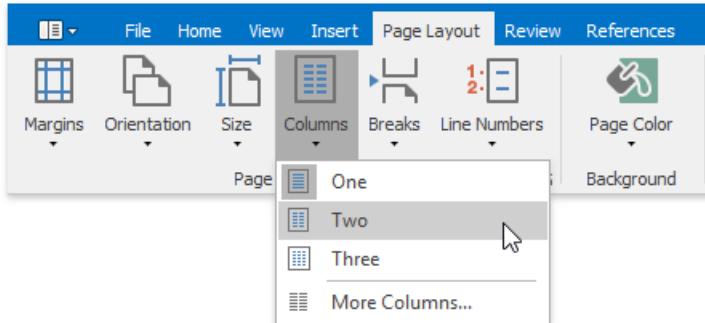
Page 1 of 3

Create a Multi-Column Report

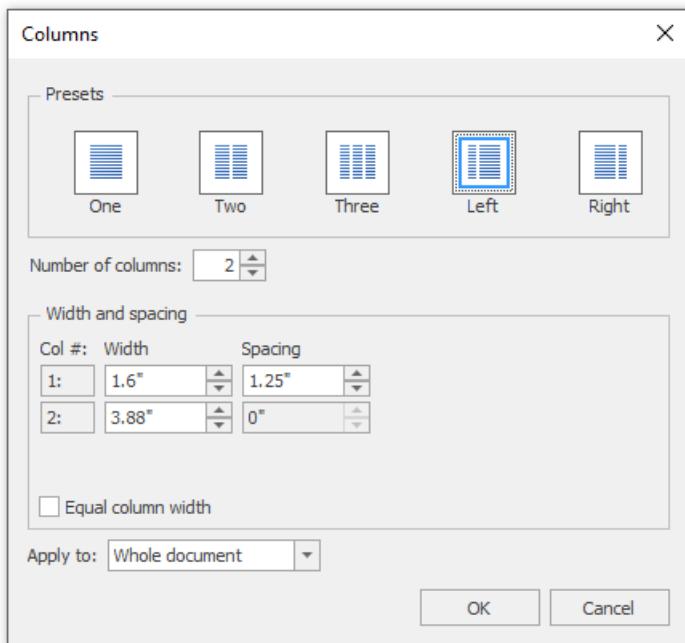
This tutorial guides you through the creation of a **Multi-Column Report**. A multi-column report is a report which represents its data in multiple columns or rows (depending upon the current multi-column settings).

To create a multi-column report, do the following.

1. In a new Snap document, create a simple table report, as described in the [Create a Table Report](#) topic.
2. In the main toolbar, switch to the [General Tools: Page Layout](#) tab, click **Columns**, and select the required number of columns in the drop-down menu.



To define more than three columns, click **More Columns**. In the invoked **Columns** dialog, customize the report layout to meet your requirements.



The following image illustrates the result.

Customer List

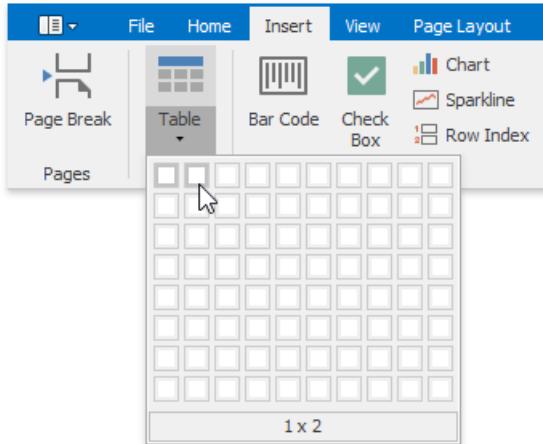
Alejandra Camino	Ann Devon	Bernardo Batista
Spain Madrid Gran Vía, 1 28001 (91) 745 6200	UK London 35 King George WX3 6FW (171) 555-0297	Brazil Rio de Janeiro Rua da Panificadora, 12 02389-673 (21) 555-4252
Alexander Feuer	Annette Roulet	Carine Schmitt
Germany Leipzig Heerstr. 22 04179 0342-023176	France Toulouse 1 rue Alsace-Lorraine 31000 61.77.61.10	France Nantes 54, rue Royale 44000 40.32.21.21
Ana Trujillo	Antonio Moreno	Anabela Domingues
Mexico México D.F. Avda. de la Constitución 2222 05021 (5) 555-4729	Mexico México D.F. Mataderos 2312 05023 (5) 555-3932	Brazil São Paulo Av. Inés de Castro, 414 05634-030 (11) 555-2167

Create a Side-by-Side Report

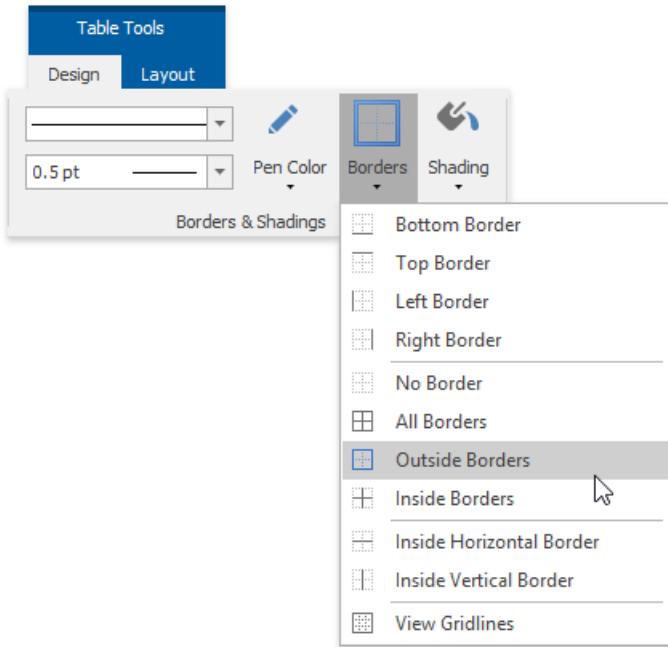
This tutorial describes the steps used to create a side-by-side report to compare different items within the report.

Follow these steps to create a side-by-side report.

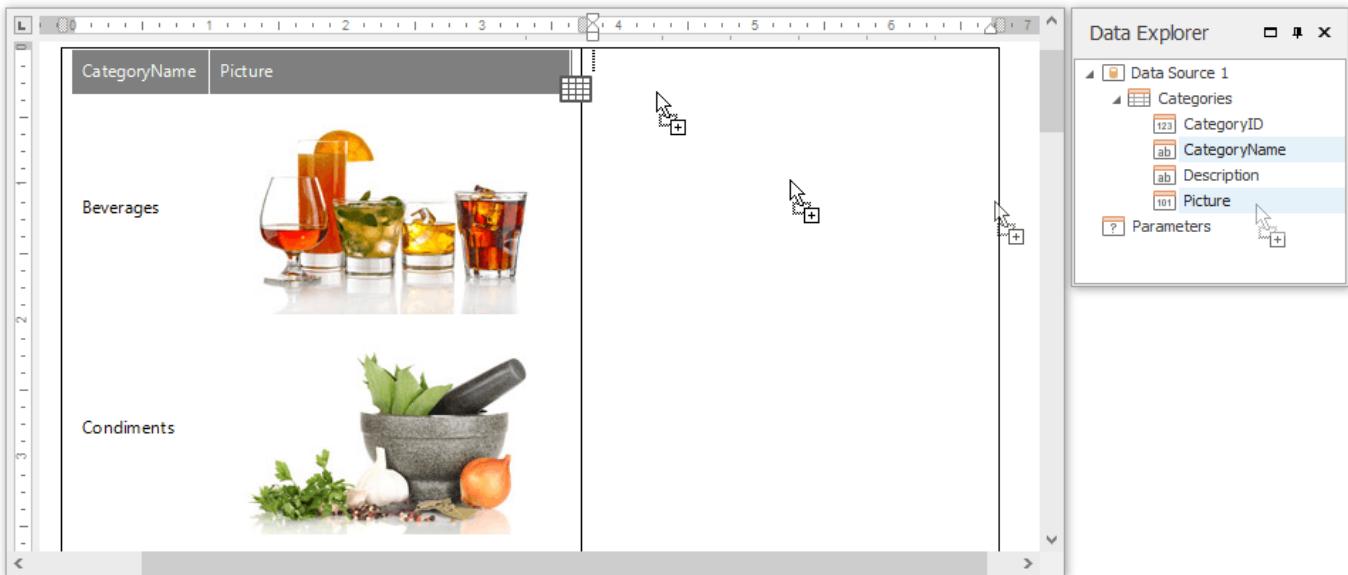
1. Create a new Snap document and bind it to the required table as described in the [Connect a Document to a Data Source](#) topic.
2. To add a new table to the report, switch to the **Insert** tab in the main toolbar and click **Table**. Then, move the cursor over the grid to select the required number of rows and columns.



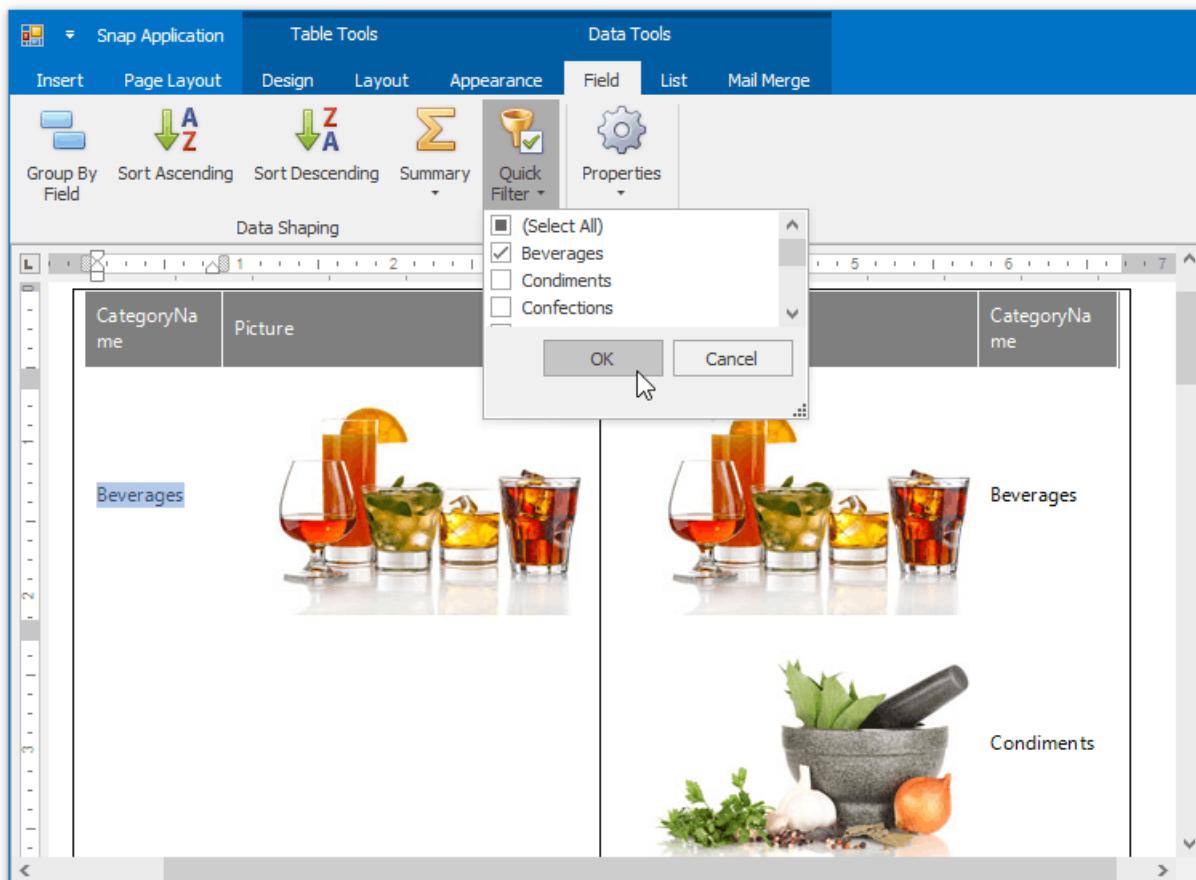
You can set table borders by clicking the **Borders** button on the **Design** tab.



3. Then, drop the fields that will be compared from the [Data Explorer](#) on the table's corresponding columns.



4. To filter each table column so that it shows only a single record, select a field on the left column and in the activated **Field** tab in the main toolbar, click **Quick Filter**. In the invoked menu, select the required field and click **OK**.



Finally, repeat the same procedure for the right column, so that it displays a different field to compare it with.

Snap Application

Table Tools

Data Tools

Insert Page Layout Design Layout Appearance

Field List Mail Merge

Quick Filter Properties

Group By Sort Ascending Sort Descending Summary

Data Shaping

CategoryName Picture

Beverages

Condiments

(Select All) Beverages Condiments Confections

OK Cancel

CategoryName

Condiments

Create a Parameterized Report

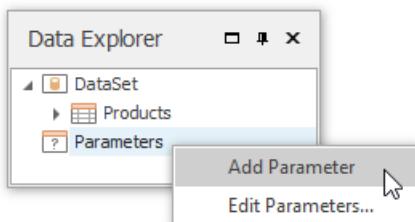
This tutorial illustrates the steps required to create a parameterized report. In this tutorial, we will create a parameter and pass it to the report's filtering expression. You are not limited by the number of parameters you can create, or the data type (e.g., *string*, *date-time*, *Boolean*, *integer* and *double*). Parameters can be used in other ways such as **data binding** and **calculated fields**. Tasks that can be solved using parameters are described in the [Pass Parameter Values](#) topic.

Follow these steps to create a report with parameters.

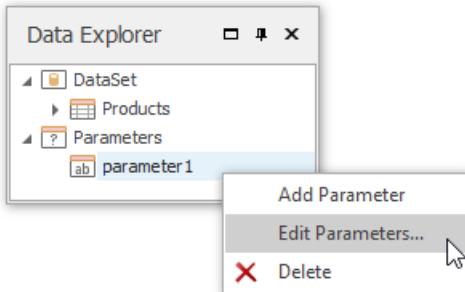
1. Create a new Snap document and [bind it to the required table](#).
2. To create a layout for your report, drop the required data fields from the [Data Explorer](#) to the [Design Surface](#).

The screenshot shows the Data Explorer window on the right and the Design Surface on the left. The Data Explorer lists a 'DataSet' node with a 'Products' node expanded, showing fields like CategoryID, Discontinued, EAN13, ProductID, ProductName, QuantityPerUnit, ReorderLevel, SupplierID, UnitPrice, and UnitsInStock. The Design Surface shows a table with columns 'ProductName' and 'UnitPrice', containing data for various products.

3. To create a parameter, switch to the Data Explorer window, right-click the **Parameters** section and choose **Add Parameter**.

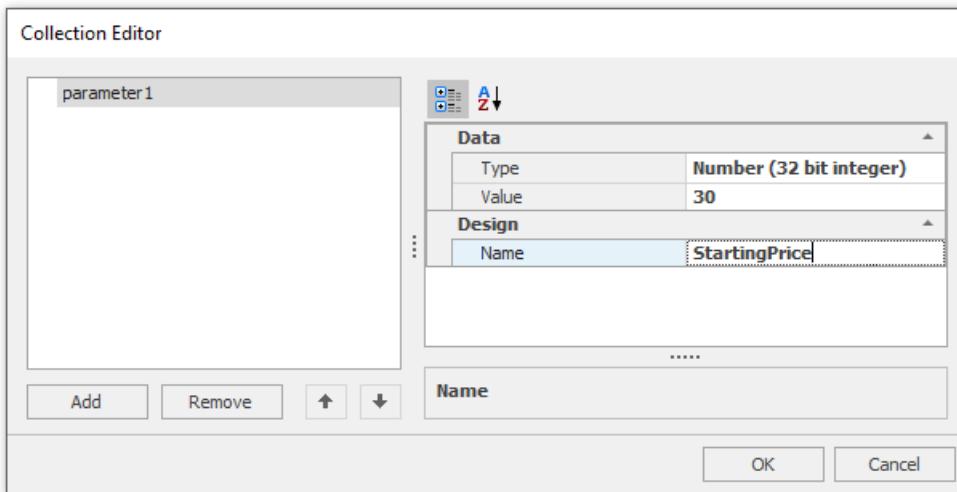


4. Right-click the created parameter and select the **Edit Parameters...** action in the invoked popup menu.



5. In the invoked editor, define the parameter name and assign an appropriate type to it. This type corresponds to the value that a parameter can receive (e.g., you cannot assign a string value to a numeric parameter).

Next, assign a default static value to the parameter.

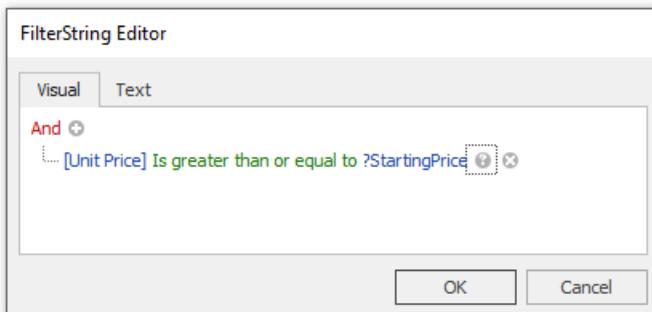


If required, you can easily modify the parameter value in the same way described in steps 4 and 5.

6. Now, switch to the **List** tab in the main toolbar and click the **Filter** button.

In the invoked **FilterString** editor, define a filtering expression (e.g., **UnitPrice** data field is greater than or equal to the **Starting Price** parameter).

To access the parameter, click the icon on the right until it turns into a question mark, and then select your parameter from the drop-down list.



The parameterized report is now ready, and its data is filtered based on the specified expression that uses the parameter value to shape the report's data.

To view how your report will look on paper, switch to the **File** tab in the main toolbar and click the **Print Preview** button.



Preview

Print Header/Footer Page Setup Navigation

ProductName	UnitPrice
Uncle Bob's Organic Dried Pears	\$30.00
Northwoods Cranberry Sauce	\$40.00
Mishi Kobe Niku	\$97.00
Ikura	\$31.00
Queso Manchego La Pastora	\$38.00
Alice Mutton	\$39.00
Carnarvon Tigers	\$62.50
Sir Rodney's Marmalade	\$81.00
Gumbär Gummibärchen	\$31.23
Schoggi Schokolade	\$43.90
Rössle Sauerkraut	\$45.60
Thüringer Rostbratwurst	\$123.79
Mascarpone Fabioli	\$32.00
Côte de Blaye	\$263.50
Ipoh Coffee	\$46.00
Manjimup Dried Apples	\$53.00
Perth Pasties	\$32.80
Gnocchi di nonna Alice	\$38.00
Raclette Courdavault	\$55.00
Camembert Pierrot	\$34.00
Tarte au sucre	\$49.30
Vegie-spread	\$43.90
Wimmers gute Semmelknödel	\$33.25
Gudbrandsdalsost	\$36.00
Mozzarella di Giovanni	\$34.80

Page 1 of 1 75% - +

This screenshot shows a software application's print preview window. The window title is "Preview". The toolbar contains icons for Print, Header/Footer, Page Setup, Find, Thumbnails, Editing Fields, First Page, Zoom, Page Color, Page Background, and Close. The main area displays a table of product names and unit prices. The table has two columns: "ProductName" and "UnitPrice". The products listed include Uncle Bob's Organic Dried Pears, Northwoods Cranberry Sauce, Mishi Kobe Niku, Ikura, Queso Manchego La Pastora, Alice Mutton, Carnarvon Tigers, Sir Rodney's Marmalade, Gumbär Gummibärchen, Schoggi Schokolade, Rössle Sauerkraut, Thüringer Rostbratwurst, Mascarpone Fabioli, Côte de Blaye, Ipoh Coffee, Manjimup Dried Apples, Perth Pasties, Gnocchi di nonna Alice, Raclette Courdavault, Camembert Pierrot, Tarte au sucre, Vegie-spread, Wimmers gute Semmelknödel, Gudbrandsdalsost, and Mozzarella di Giovanni. The preview window also shows page navigation controls and a zoom slider at the bottom.

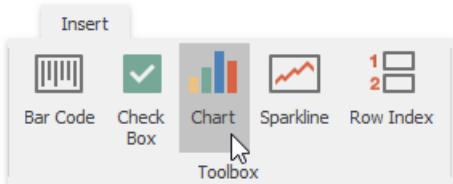
Create a Chart-Based Report

This tutorial describes the steps used to add a chart to your Snap report. Snap supports many chart types, as well as multiple visual appearance settings and chart palettes.

Snap also provides the [Chart Wizard](#), which allows you to quickly create and customize complex charts. However, when advanced charting functionality is not required, Snap provides an even easier way to create and customize your charts.

Do the following steps to create a chart-based report.

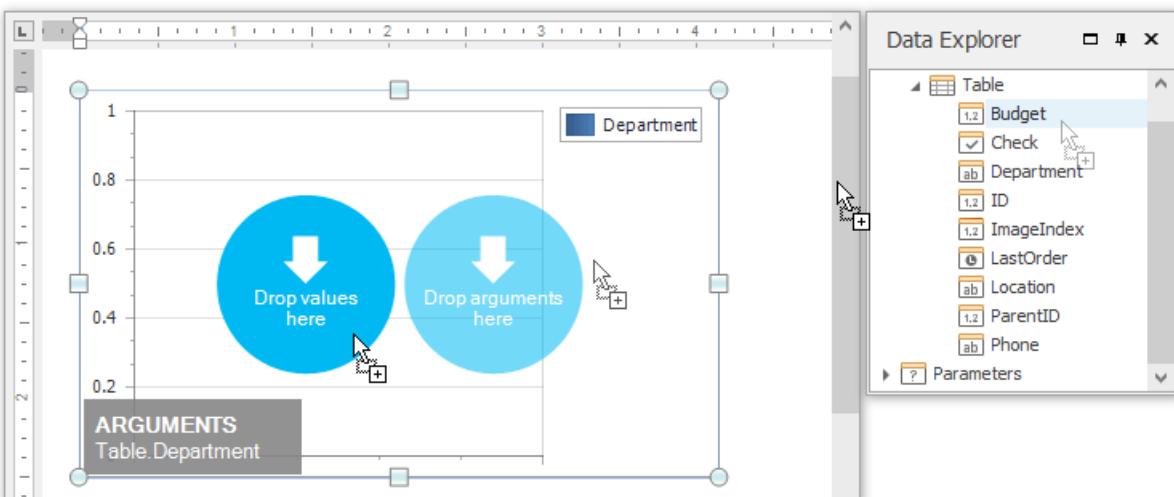
1. Create a new Snap document and [bind it to the required table](#).
2. Click the **Chart** command in the [Insert](#) tab of the main toolbar.



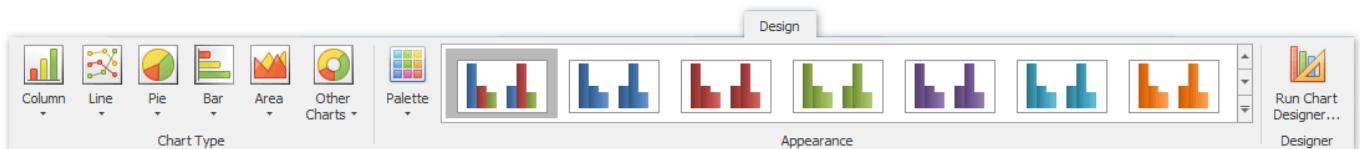
3. In the created chart, the blue circles correspond to the values and arguments of the chart. Drop one field from the [Data Explorer](#) onto the "arguments" region in the chart...



...and the other onto the "values" region.

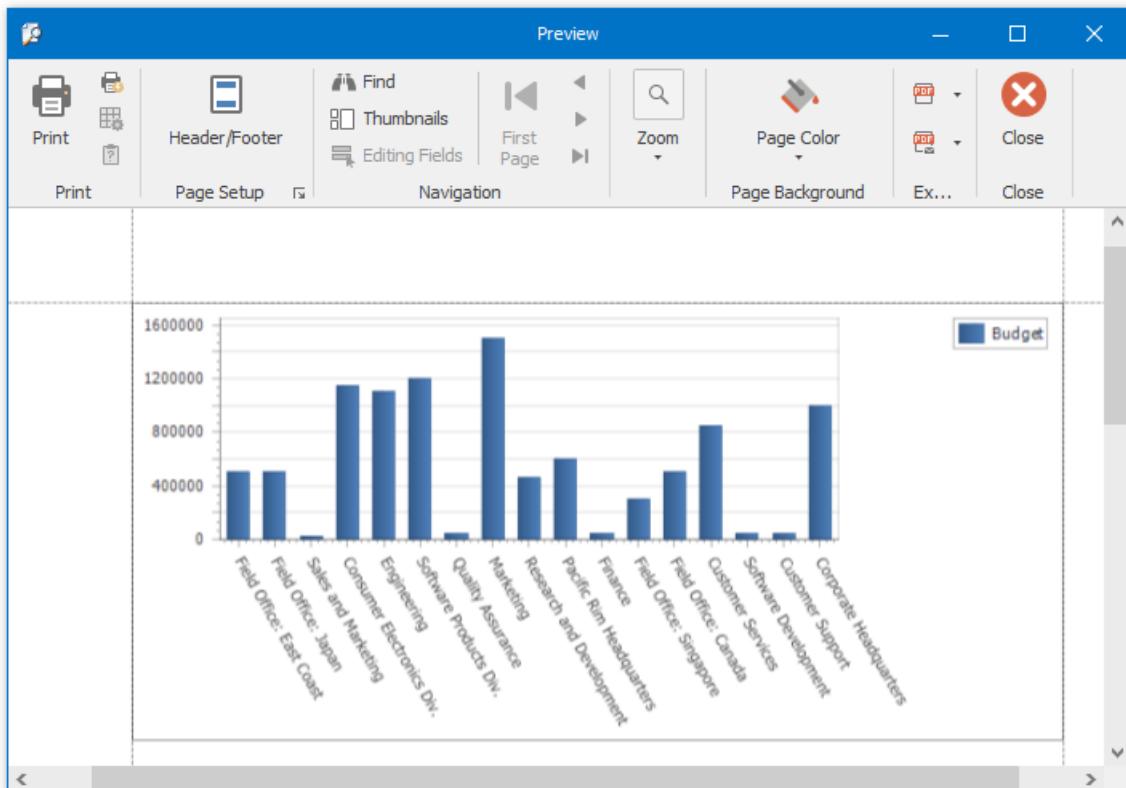


4. You can change the default chart type to one that best meets your requirements by selecting the chart and switching to the **Design** tab of the main toolbar.



In the same tab, you can also run **Chart Wizard** and select the chart's palette and visual appearance.

5. The Snap report with a chart is now ready. To view the result, switch to the **File** menu of the main toolbar and click the **Print Preview** button.



Create a Combined Report Layout

Snap allows you to create a single combined report, incorporating features of different report layout types. There is no limits on how many reports you can combine.

In this tutorial, we will create a combined report that uses the features of mail-merge and chart-based reports.

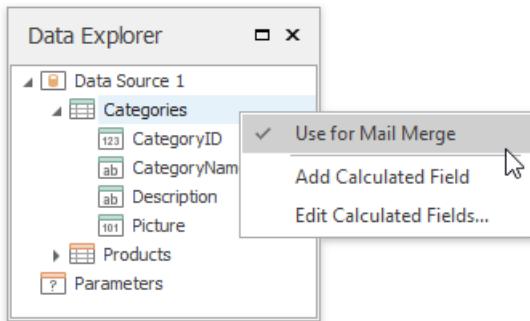
The tutorial consists of the following sections.

- [Add Mail-Merge Report Functionality](#)
- [Add Chart-Based Report Functionality](#)
- [View the Result](#)

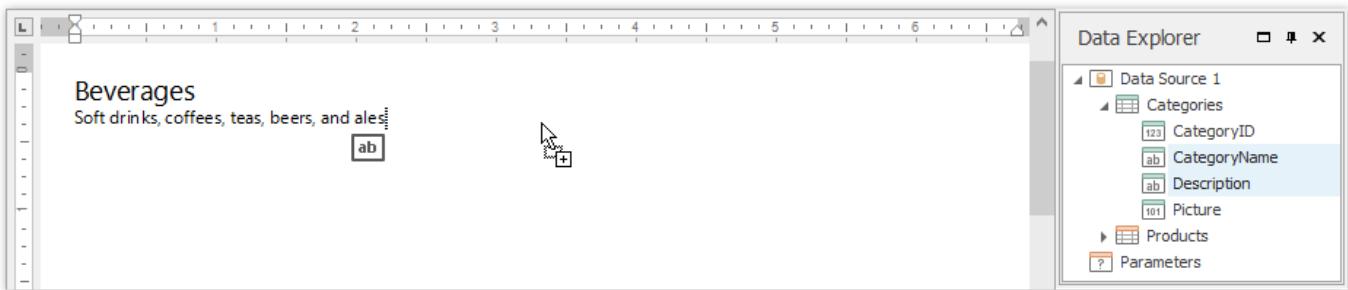
Add Mail-Merge Report Functionality

In this section, we will create a simple **Mail-Merge Report**.

1. Create a new Snap document and [provide it with a master-detail data connection](#).
2. Specify which data source will be used for mail merge by right-clicking the required data source in the Data Explorer and select **Use For Mail Merge** in the invoked drop-down menu.



3. Insert a master report part. To do this, drag-and-drop data fields from the Data Explorer onto the Design Surface.



4. To insert a detail report part, drag-and-drop fields from a subordinate node of the data source.

The screenshot shows a Microsoft Word document titled "Beverages" with the subtitle "Soft drinks, coffees, teas, beers, and ales". A cursor is positioned over a plus sign icon in the bottom right corner of the report area. To the right of the document is the "Data Explorer" pane, which lists fields from the "Products" table. The "ProductName" field is selected. Other visible fields include CategoryID, Discontinued, EAN13, ProductID, QuantityPerUnit, ReorderLevel, SupplierID, UnitPrice, UnitsInStock, UnitsOnOrder, CategoryName, Description, and Picture.

The added detail part will have a tabular form by default.

The screenshot shows the same Microsoft Word document with the detail part now displayed as a table. The table has three columns: "ProductName", "UnitPrice", and "UnitsInStock". The data rows are: Chai (\$18.00, 39), Chang (\$19.00, 17), Guaráná Fantástica (\$4.50, 20), Sasquatch Ale (\$14.00, 111), Steeleye Stout (\$18.00, 20), Côte de Blaye (\$263.50, 17), Chartreuse verte (\$18.00, 69), and Ipoh Coffee (\$46.00, 17).

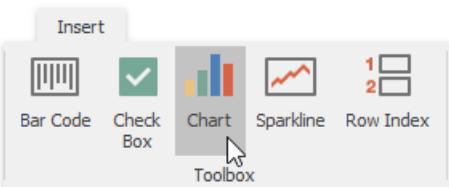
ProductName	UnitPrice	UnitsInStock
Chai	\$18.00	39
Chang	\$19.00	17
Guaráná Fantástica	\$4.50	20
Sasquatch Ale	\$14.00	111
Steeleye Stout	\$18.00	20
Côte de Blaye	\$263.50	17
Chartreuse verte	\$18.00	69
Ipoh Coffee	\$46.00	17

For more information on the creation mail-merge report, see the tutorial [Create a Mail-Merge Report](#).

Add Chart-Based Report Functionality

In this section we will add a **Chart** to the Snap document.

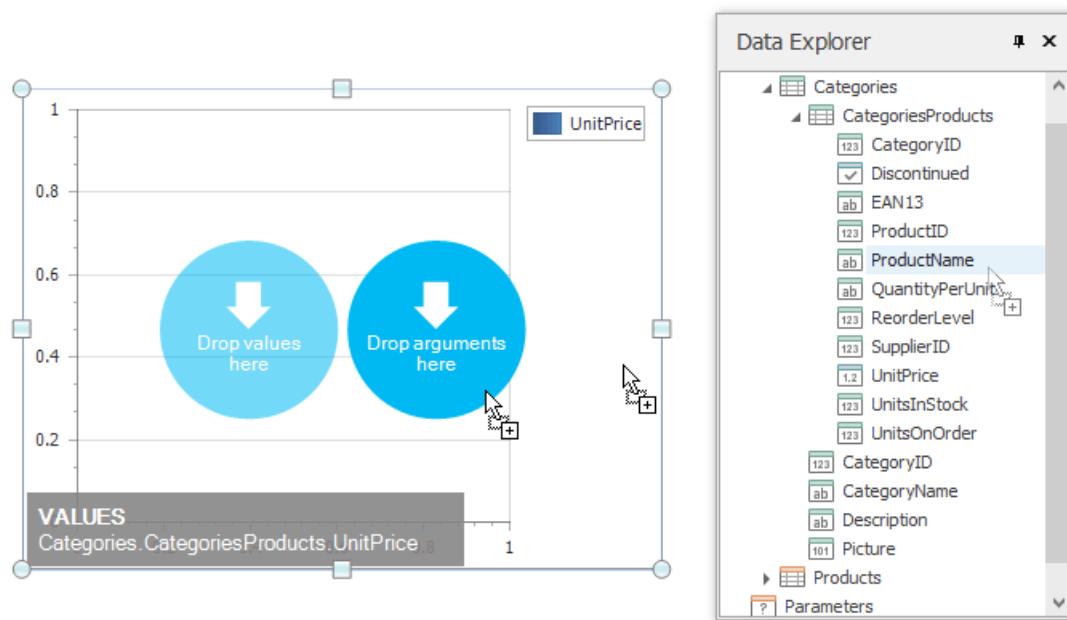
1. Click the **Chart** command in the **Insert** tab of the main toolbar.



2. In the created chart, the blue circles correspond to the values and arguments of the chart. Drop one field from a subordinate node of the data source onto the "values" region in the chart...



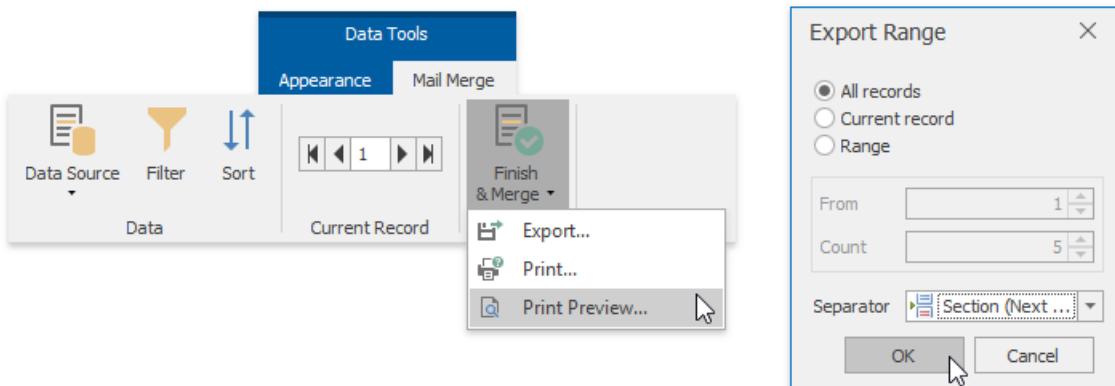
...and the other onto the "arguments" region.



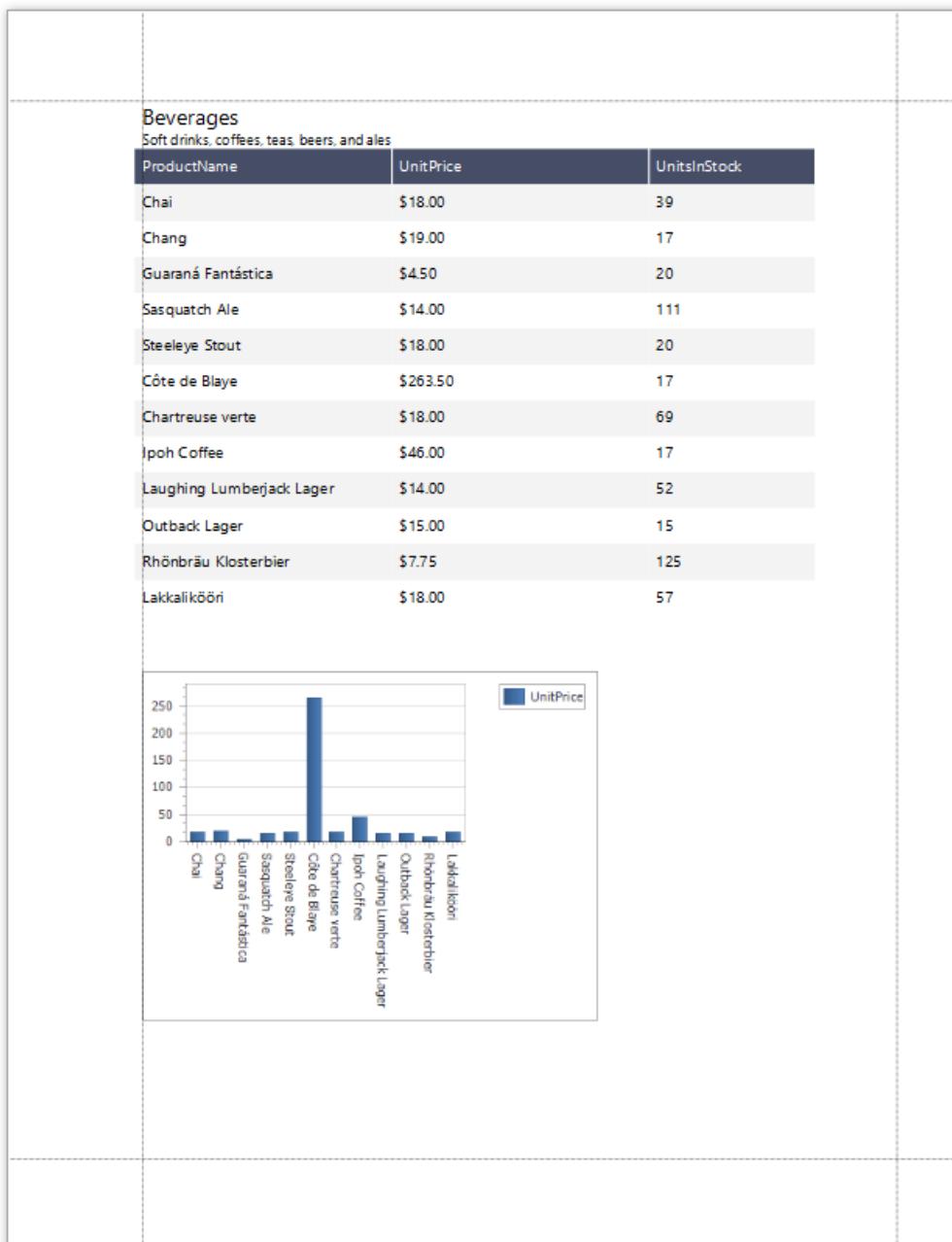
For more information on the creation of a chart-based report, see the tutorial [Create a Chart-Based Report](#).

View the Result

- The Snap mail merge document is now ready. To view the result, click the **Finish & Merge** button in the **Mail Merge** tab, and select **Print Preview...** in the invoked drop-down menu. In the invoked **Export Range** dialog, select **All records** and click **OK**.



The following image illustrates a print preview for the final document.



Manage Documents and Files

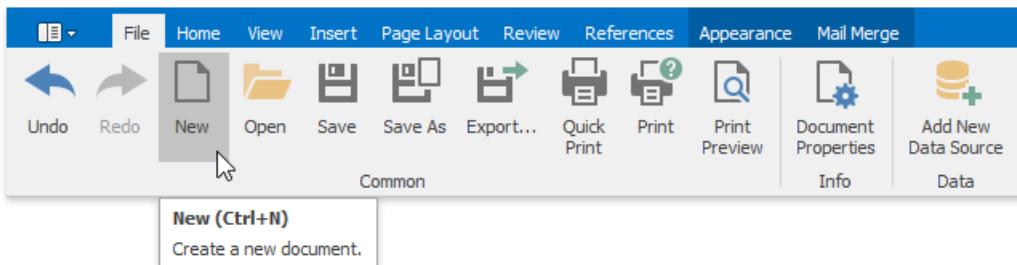
The tutorials in this section will assist you in solving the most elementary and essential tasks that relate to managing and storing Snap documents.

This section includes the following tutorials.

- [Create a New Report](#)
- [Storing Reports](#)
- [Save a Report](#)
- [Open an Existing Report](#)
- [Export a Report](#)

Create a New Report

To create a new Snap report, click the **New** button on the **File** tab of the Snap application's ribbon toolbar.



A new Snap report will be created and opened in the editor.

Storing Reports

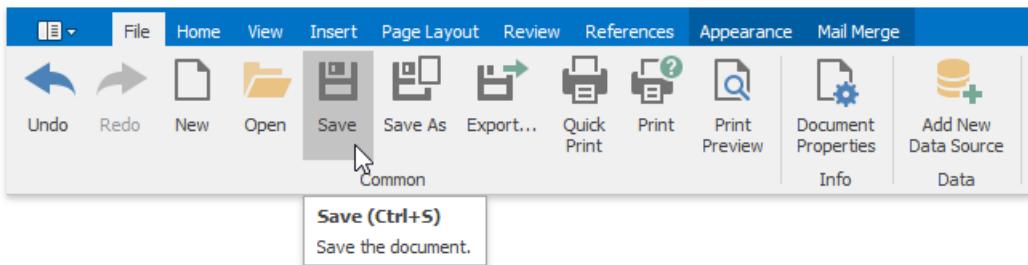
Snap provides the capability to store a report to a file and restore it. To retain all Snap-specific features, [save your report](#) in the Snap native document format (**.SNX**). You can also [export your report](#) to one of file formats listed below, but in this case, Snap fields will be replaced with their values and data connection information will be removed.

Supported document formats for export:

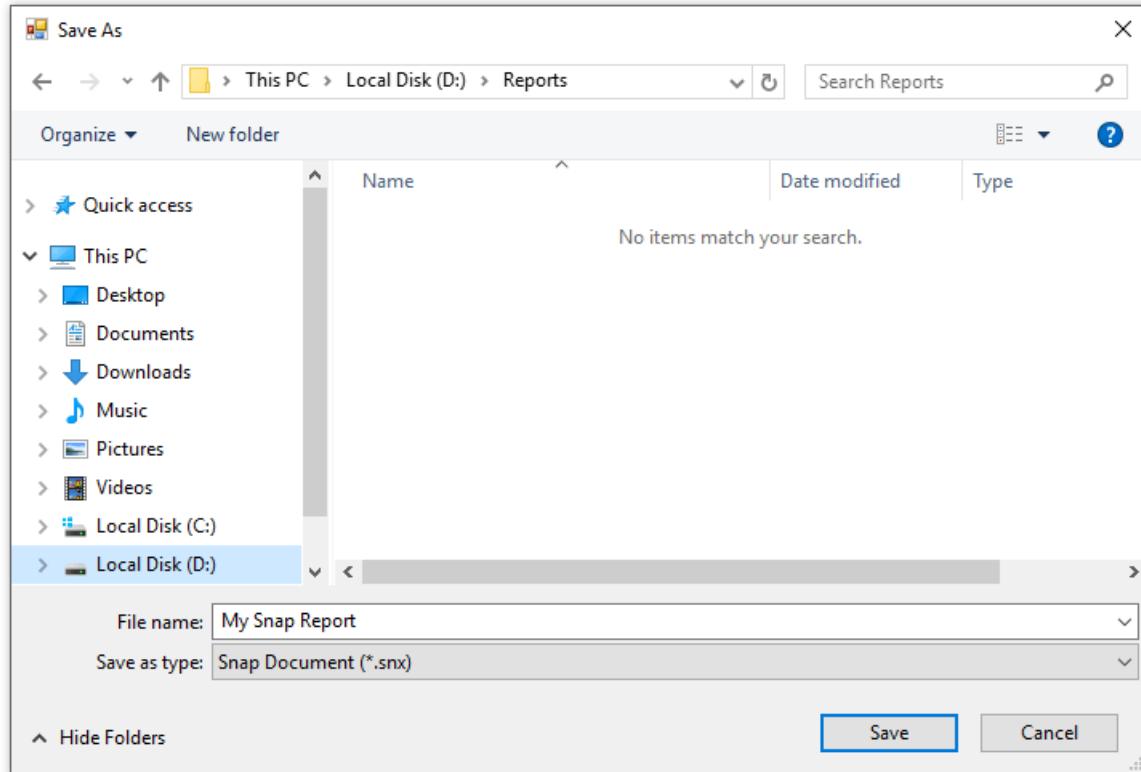
- **DOC** (Microsoft® Word® 97 - 2003 document);
- **DOCX** (Office® Open XML document);
- **HTML** (HyperText Markup Language);
- **MHTML / MHT** (Web archive, single file);
- **PDF** (Portable Document Format);
- **RTF** (Rich Text Format);
- **TXT** (Plain text);
- **ODT** (OpenDocument text format);
- **XML** (Microsoft® Word® XML document);
- **Image** (BMP, EMF, WMF, GIF, JPEG, PNG or TIFF format).

Save a Report

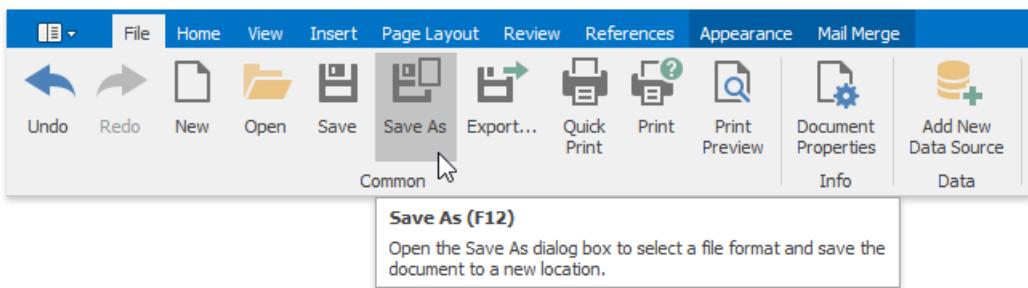
To save a report to a file, click the **Save** button on the **File** tab of the Snap application's ribbon toolbar.



If you are saving a new report, the **Save As** dialog will be invoked. In the invoked dialog, specify the name and directory for the new report file and click **Save**.

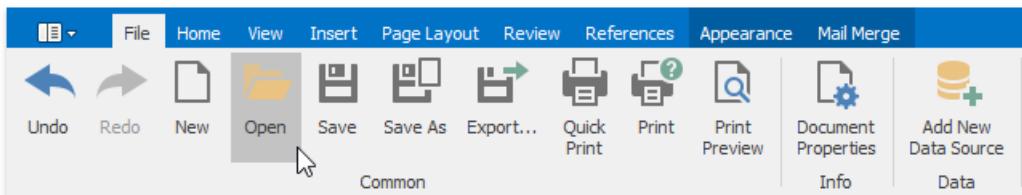


To save a changed copy of an existing report to a separate file, click the **Save As** button in the **File** tab of the ribbon toolbar.

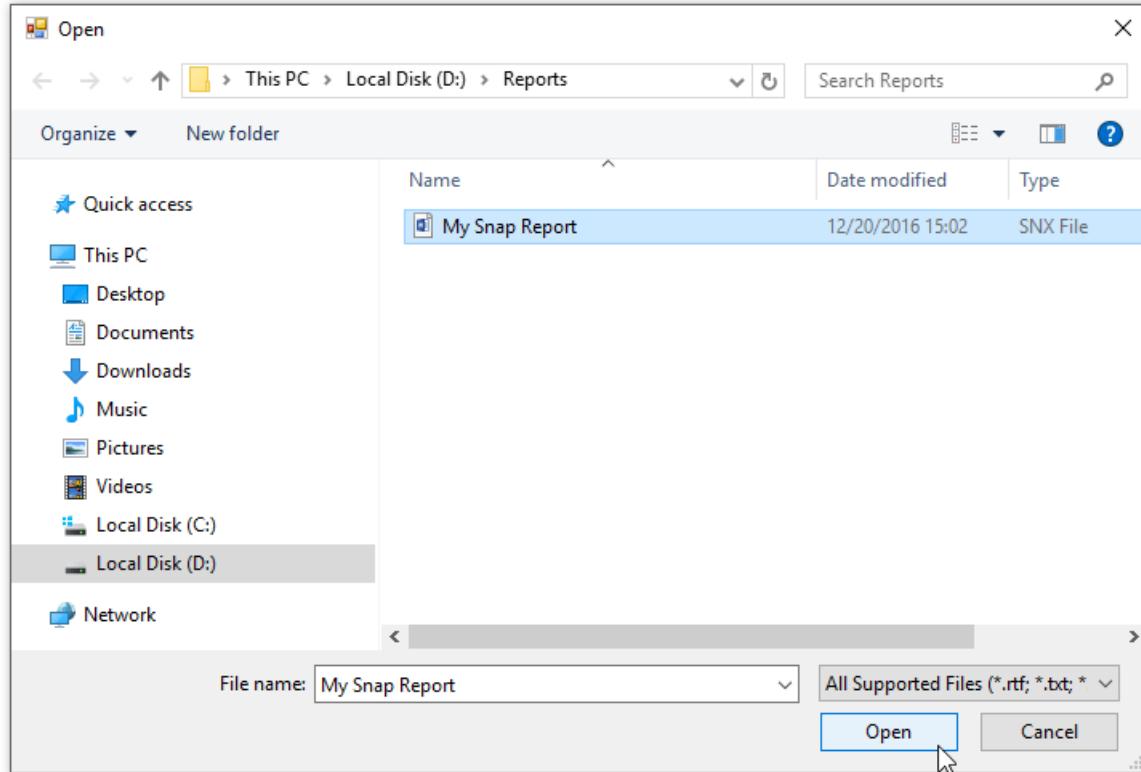


Open an Existing Report

To open an existing report, click the **Open** button on the **File** tab of the Snap application's ribbon toolbar.



In the invoked **Open** dialog, select a file and click **Open**.

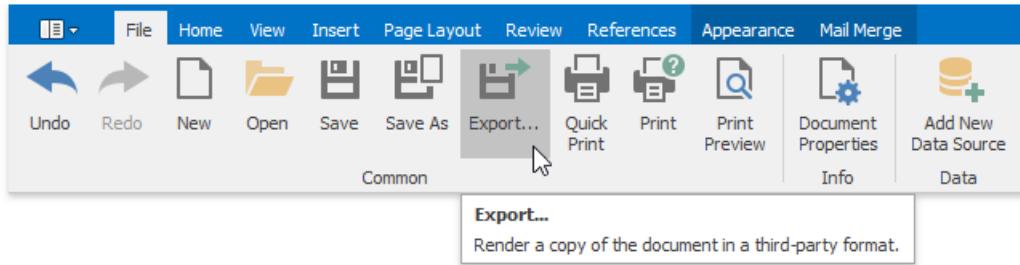


Export a Report

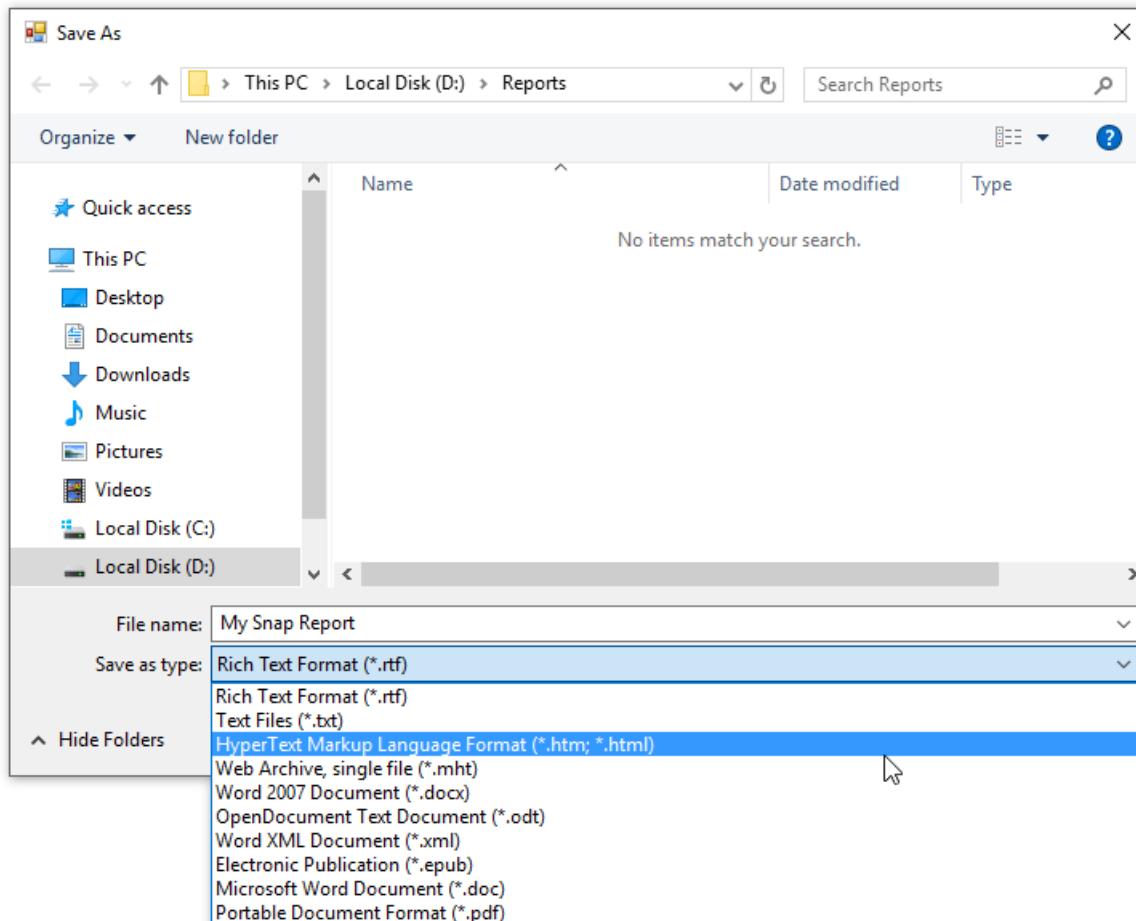
In addition to native .snx file format, Snap allows you to export reports into the one of the wide variety of third-party formats, (e.g., PDF, HTML or DOCX).

To export a Snap report in a third-party format, do the following.

1. Click the **Export Document** button on the **File** tab of the Snap application's ribbon toolbar.

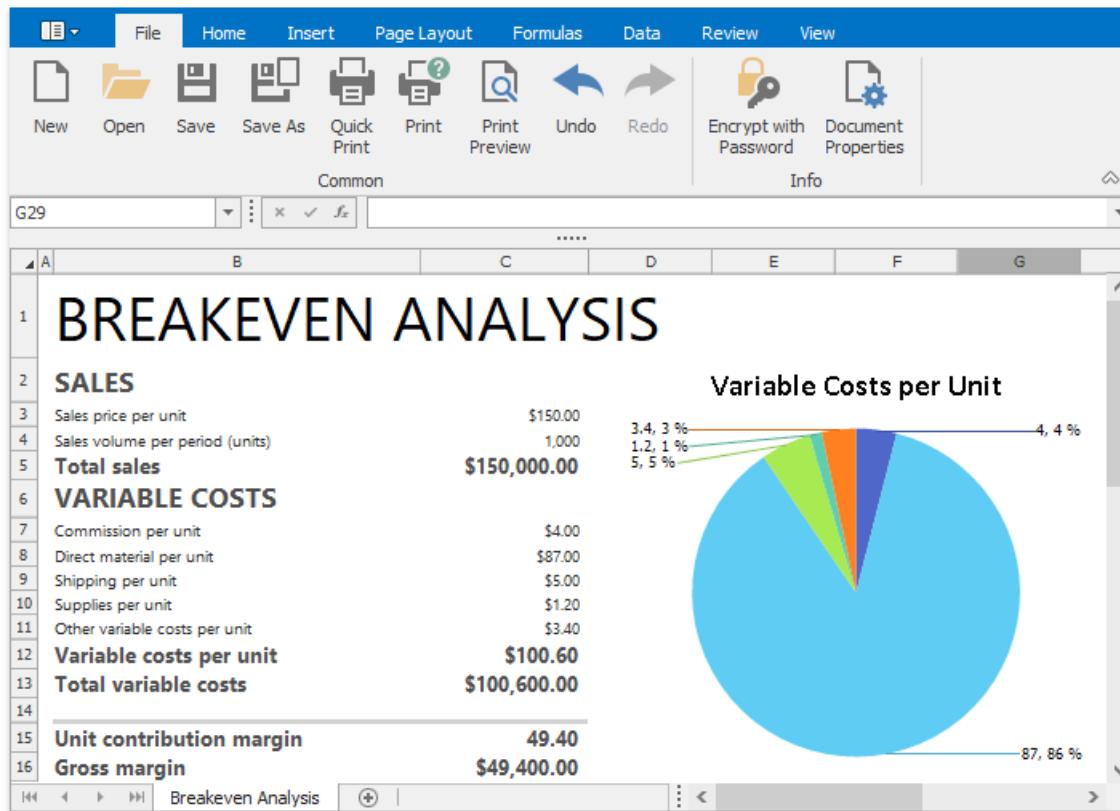


2. In the invoked **Save As** dialog, select a directory in which you want to save, specify the name and format of the exported file, and click **Save** to export the report and exit the dialog.



Spreadsheet

This section describes the capabilities provided by the **Spreadsheet**.



Spreadsheet UI

- Ribbon Interface
- Spreadsheet Elements

File Operations

- Create a Workbook
- Load a Workbook
- Create a Worksheet
- Rename a Worksheet
- Delete a Worksheet
- Save a Workbook
- Import and Export Text Files
- Print a Workbook
- Adjust Page Settings
- Undo and Redo Last Actions

Viewing and Navigating

- Hide and Display Worksheets
- Zoom a Worksheet
- Hide Gridlines and Headings
- Freeze Columns and Rows

Editing Cells

- Select Cells or Cell Content
- Copy and Paste Cell Content

- Fill Data Automatically
- Find and Replace
- Insert a Comment
- Insert a Symbol

Cell Formatting

- Format Cells
- Format Cell Content
- Wrap Text and Merge Cells
- Number Formatting
- Conditional Formatting
- Clear Cell Formatting

Columns and Rows

- Insert and Delete Columns and Rows
- Show and Hide Columns and Rows
- Specify Column Width and Row Height

Tables

- Create a Table

Pivot Tables

- Create a Pivot Table
- Modify a Pivot Table
- Refresh the PivotTable Data
- Change the PivotTable Layout
- Apply a Predefined Style to a Pivot Table
- Change the PivotTable Layout
- Subtotal and Total Fields in a Pivot Table
- Group Items in a Pivot Table
- Sort Items in a Pivot Table
- Filter a Pivot Table
- Insert a Calculated Field and Calculated Item

Data Analysis and Presentation

- Outline Data
- Subtotal Data
- Sort Data
- Filter Data

Protection

- Protect a Workbook
- Protect a Worksheet
- Protect Worksheet Ranges
- Encrypt a Workbook with the Password

Data Validation

- Validate Data in Cells

Formulas

- Create a Simple Formula
- Cell References
- Defined Names
- Using Functions in Formulas
- Supported Functions
- Create an Array Formula
- Error Types in Formulas

Charting

- Charting Overview
- Creating a Chart
- Changing a Chart Type
- Applying a Predefined Chart Layout and Style
- Modifying a Chart Manually
- Creating a Chart Sheet

Mail Merge

- Mail Merge Overview
- Data Source Wizard
- Query Builder
- Parameters Panel

Pictures and Hyperlinks

- Insert a Picture
- Move, Rotate and Resize a Picture
- Insert and Delete Hyperlinks
- Shortcuts to Work with Pictures

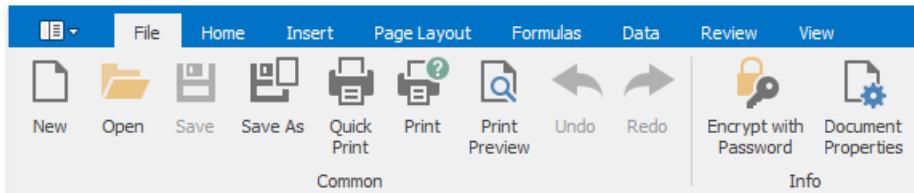
Keyboard Shortcuts

- File Operations
- Navigation inside Worksheets
- Work with Selections
- Copy, Paste and Edit the Cell Content
- Cell Formatting
- Work with Columns and Rows
- Sort and Filter
- Work with Formulas

Ribbon Interface

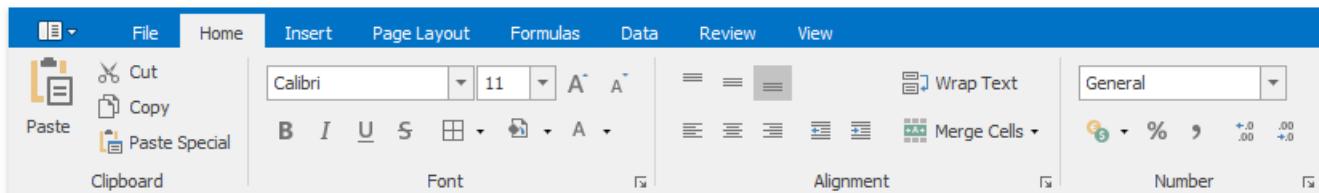
The comprehensive functionality of the **Spreadsheet** is provided by a set of **Ribbon** pages. Ribbon pages are divided into logical groups that include commands with common features. Use the **Ribbon** interface to perform basic operations in the **Spreadsheet** (load, create and save workbooks, add or remove worksheets, format cells, insert rows and columns, etc.).

File Tab



- Create a Workbook
- Load a Workbook
- Save a Workbook
- Print a Workbook
- Undo and Redo Last Actions
- Encrypt a Workbook with the Password

Home Tab



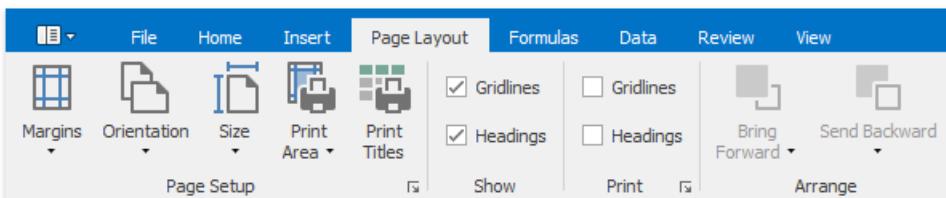
- Copy and Paste Cell Content
- Format Cells
- Format Cell Content
- Wrap Text and Merge Cells
- Number Formatting
- Conditional Formatting
- Clear Cell Formatting
- Insert and Delete Columns and Rows
- Show and Hide Columns and Rows
- Specify Column Width and Row Height
- Fill Data Automatically
- Find and Replace

Insert Tab



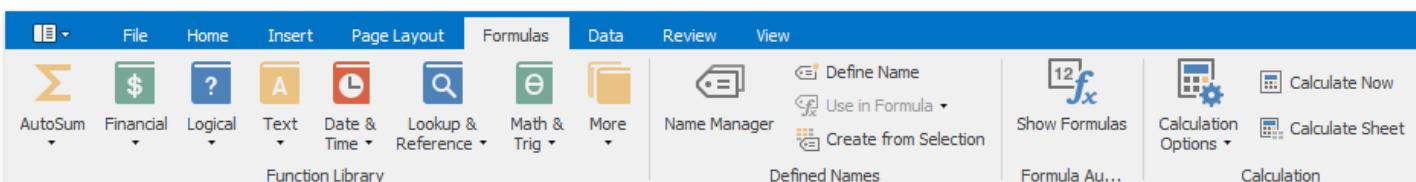
- Create a Pivot Table
- Create a Table
- Insert a Picture
- Move, Rotate and Resize a Picture
- Insert and Delete Hyperlinks
- Charting Overview
- Creating a Chart
- Changing a Chart Type
- Applying a Predefined Chart Layout and Style
- Modifying a Chart Manually
- Insert a Symbol

Page Layout Tab



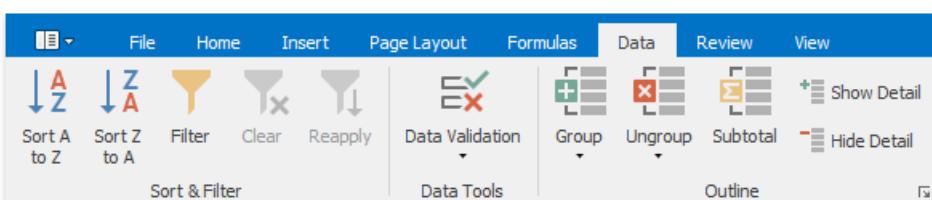
- Adjust Page Settings

Formulas Tab



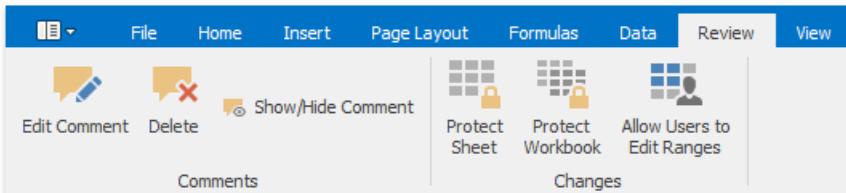
- Create a Simple Formula
- Cell References
- Defined Names
- Using Functions in Formulas
- Supported Functions
- Create an Array Formula
- Error Types in Formulas

Data Tab



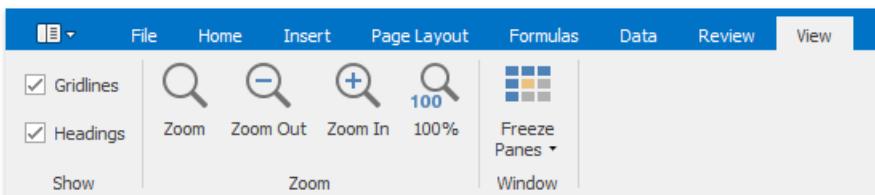
- Sort Data
- Filter Data
- Validate Data in Cells
- Outline Data
- Subtotal Data

Review Tab



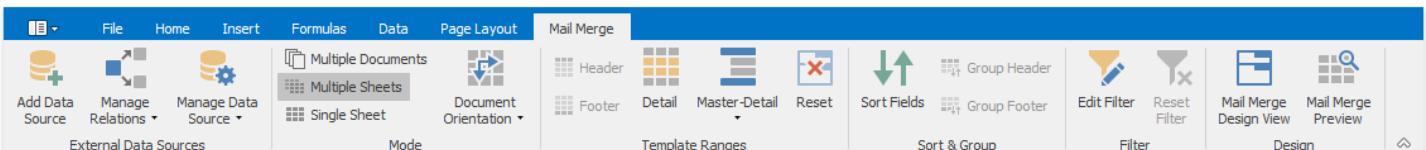
- Insert a Comment
- Protect a Workbook
- Protect a Worksheet
- Protect Worksheet Ranges

View Tab



- Zoom a Worksheet
- Hide Gridlines and Headings
- Freeze Columns and Rows

Mail Merge Tab

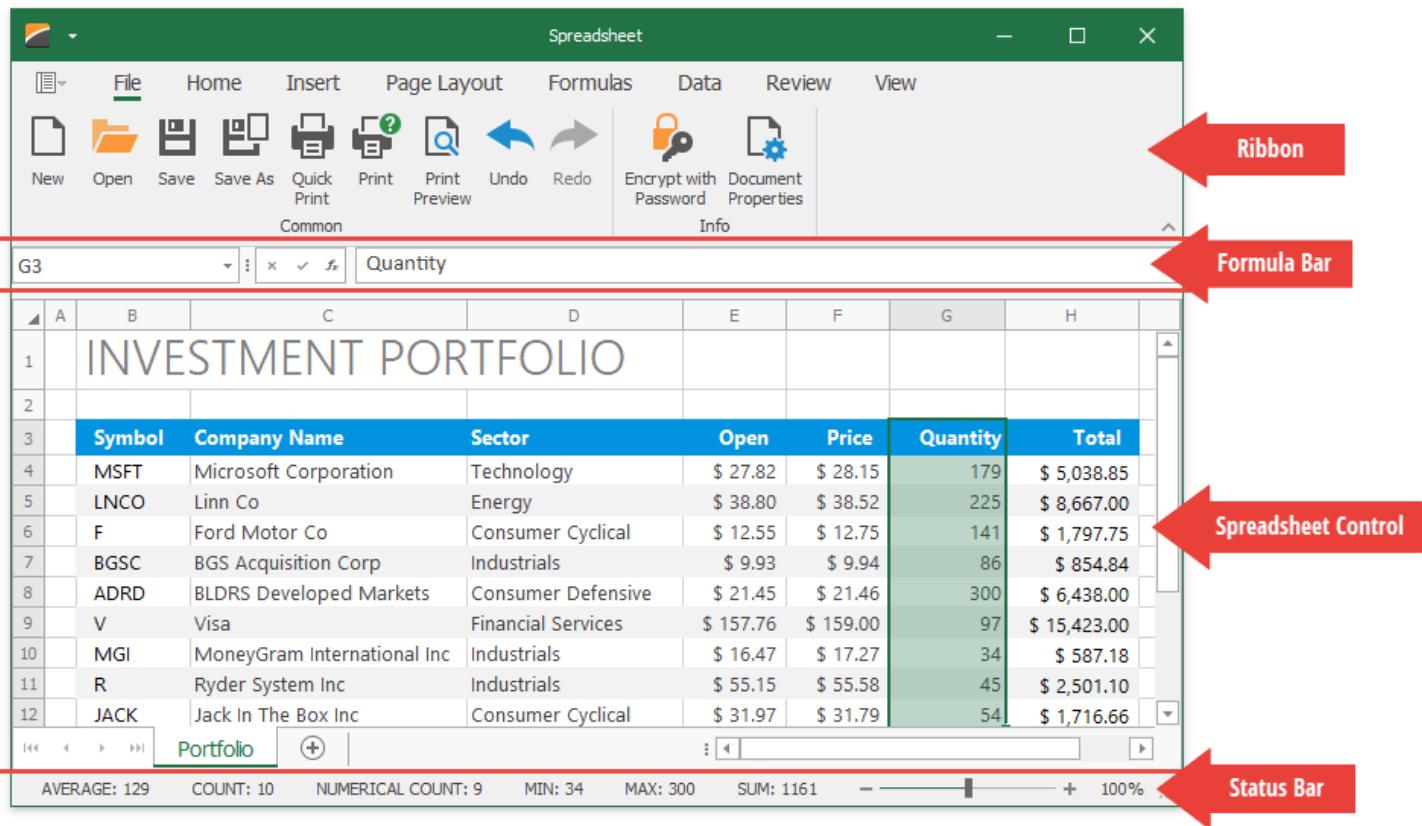


- Mail Merge Overview
- Data Source Wizard
- Query Builder
- Parameters Panel

Spreadsheet Elements

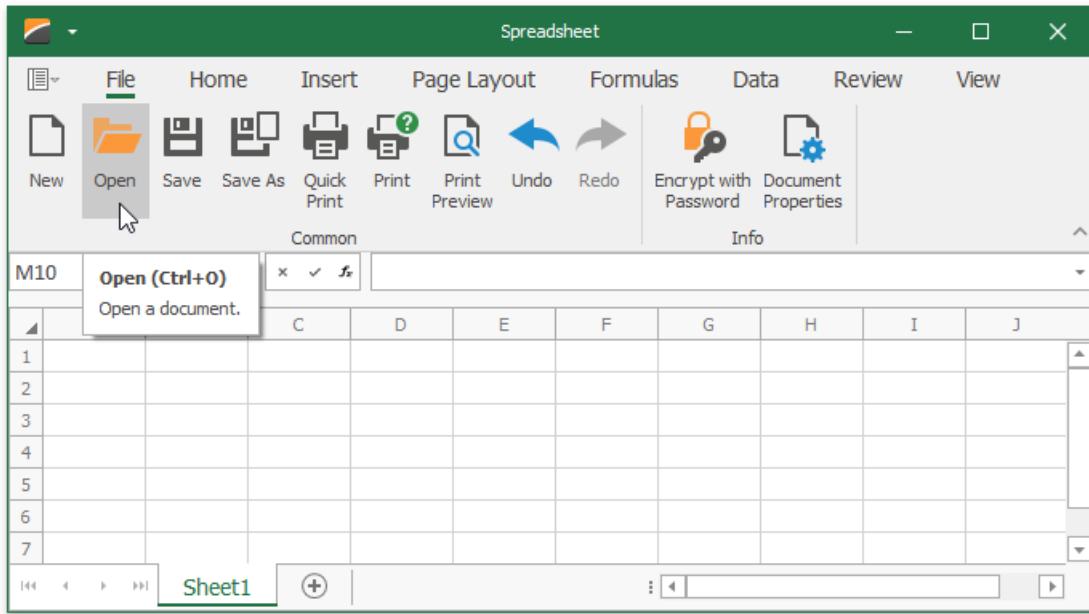
The **Spreadsheet** can include the following elements:

- Ribbon
- Formula Bar
- Spreadsheet Control
- Status Bar



Ribbon

A ribbon contains multiple tabs with grouped commands that enable you to perform basic operations in the Spreadsheet control: create, load, modify, save, and print spreadsheet documents.



Formula Bar

The **Formula Bar** displays an active cell's value and allows you to view, enter, and edit formulas and cell data in the Spreadsheet control.

A screenshot of the Spreadsheet application showing the formula bar. The "Name Box" is highlighted in red and contains the cell reference "H19". The "Formula Editor" is also highlighted in red and shows the formula "=F19*G19". Below the formula bar is a table with columns "Company Name", "Sector", "Open", "Price", "Quantity", and "Total". The "Quantity" column is currently selected. The formula bar also includes standard editing buttons like Enter, Clear, and Save.

The **Name Box** is a part of the Formula Bar that displays a reference to an active cell or a name for the selected cell range (if specified), picture or chart. The Name Box also enables you to create named ranges, and quickly navigate to cells by their references and names.

A screenshot of the Spreadsheet application showing the formula bar with the "Name Box" containing "Loan_Amount". The main area displays a table titled "ortization Schedule" (partially visible). The table includes columns for "Annual interest rate", "Loan period in years", "Number of payments per year", "Start date of loan", and "Optional extra payments". To the left of the table, a vertical list of named ranges is shown: "Loan_Amount", "Interest_Rate", "Loan_Years", "Number_of_Payments_Per_Year", "Loan_Start", "Extra_Payments", and "Scheduled_payment". The formula bar also shows the cell reference "B1".

Spreadsheet Control

Worksheet

A worksheet is a single page within a document. A worksheet is represented by a grid of cells and is used to store and edit data in the Spreadsheet control. The default Spreadsheet application contains one blank worksheet.

	A	B	C	D	E	F	G	H	I	J
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

Rows and Columns

Each worksheet is divided into 1,048,576 rows and 16,384 columns. Each row is numbered (1, 2, 3, ...) and each column is lettered (A, B, C, ...) or numbered (1, 2, 3, ...), depending on the reference style applied.

	A	B	C	D	E	F	G	H	I	J
1		Column B								
2										
3										
4	Row 4									
5										
6										
7										

Cells

All worksheet data is stored in cells. All cells have faint borders, or *gridlines*, around them.

	A	B	C	D	E	F	G	H	I	J
1										
2										
3		Cell B3								
4				Cell Range D4:H9						
5										
6										
7										
8										
9										
10										
11										

Sheet1

You can double-click a cell, press **F2** or start typing to edit a cell value. You can enter a numeric] or text value, or insert a formula to calculate a cell's value dynamically.

Selection

The Spreadsheet control enables you to select cells, cell ranges, rows, and columns in a worksheet. The selected cell used to enter data is called an *active cell*. When a cell range is selected, the active cell is usually the top left cell of this range.

	A	B	C	D	E	F	G	H	I	J
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										

Sheet1

Sheet Tab Selector

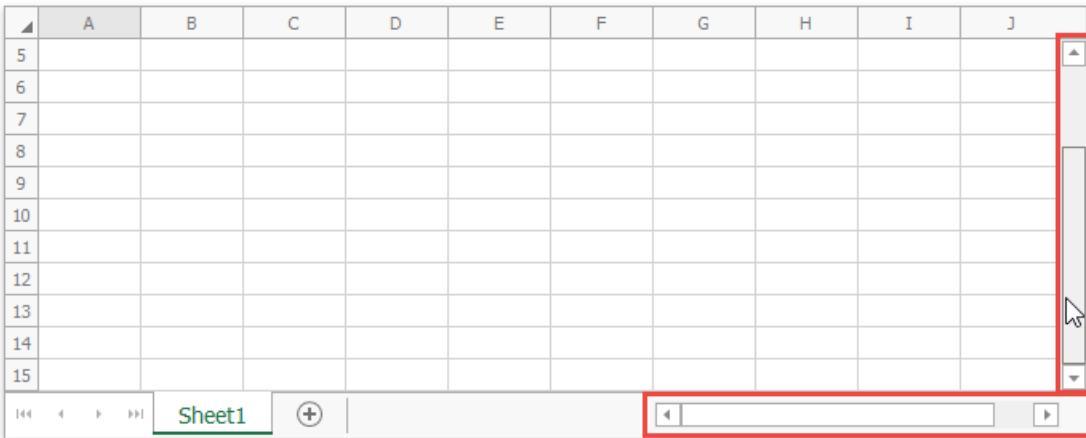
The **Sheet Tab Selector** displays all worksheets in a workbook. It enables you to add new worksheets, move between the existing worksheets, rename, hide or delete them.

	A	B	C	D	E	F	G	H	I	J
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										

Sheet1 Sheet2

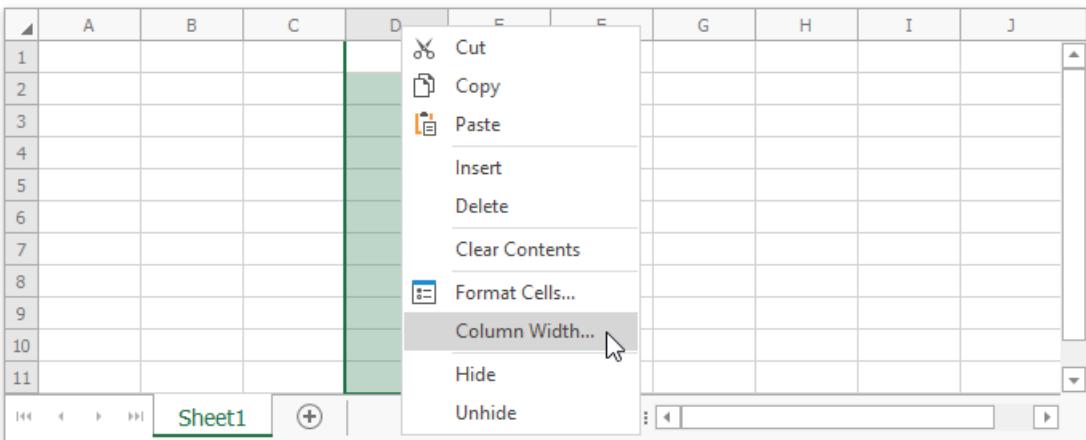
Vertical and Horizontal Scroll Bars

The horizontal and vertical scroll bars allow you to navigate through the current worksheet.



Context Menus

When you right-clicks anywhere on a worksheet (that is, a cell, row or column header, picture or chart), a context menu appears. It contains basic commands used to work with the current object.



Status Bar

A status bar appears at the bottom of the Spreadsheet application and displays the following elements:

- Summary data: the average, count, numerical count, min, max, and sum of selected cells.
- The zoom level and zoom slider.

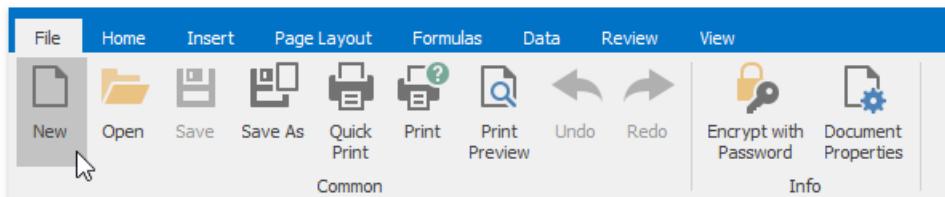
A	B	C	D	E	F
1	QUARTER SALES				
3	Product	Category	Unit Price	Qty	Amount
7	Camembert Pierrot	Dairy Products	\$ 34.00	10	\$ 340.00
18	Fløtemysost	Dairy Products	\$ 21.50	24	\$ 516.00
21	Gnocchi di nonna Alice	Grains/Cereals	\$ 38.00	32	\$ 1,216.00
22	Gorgonzola Telino	Dairy Products	\$ 12.50	16	\$ 200.00
26	Gudbrandsdalsost	Dairy Products	\$ 36.00	36	\$ 1,296.00
29	Gustaf's Knäckebröd	Grains/Cereals	\$ 21.00	20	\$ 420.00

Sales report

AVERAGE: 23 COUNT: 6 NUMERICAL COUNT: 6 MIN: 10 MAX: 36 SUM: 138 - + 100% ::

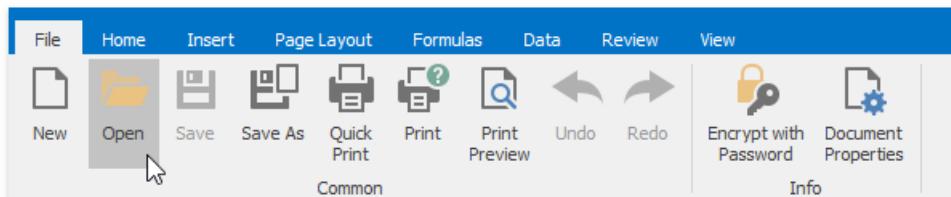
Create a Workbook

To create a blank workbook, select the **File** tab, and click the **New** button in the **Common** group (or press **CTRL+N**).

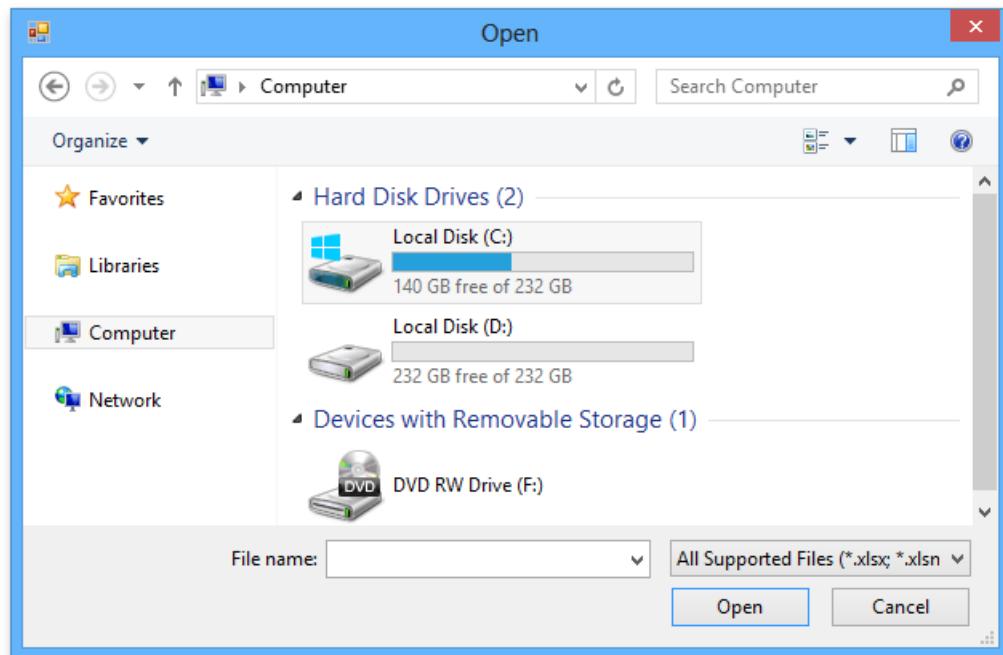


Load a Workbook

To load a workbook, select the **File** tab, and click the **Open** button in the **Common** group (or press **CTRL+O**).



In the invoked **Open** dialog box, select the file you wish to open.



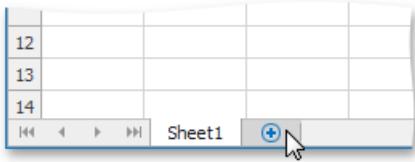
The **Spreadsheet** supports the following file formats.

- Excel Workbook (*.xlsx)
- Excel Macro-Enabled Workbook (*.xlsm)
- Excel 97-2003 Workbook (*.xls)
- Excel Template (*.xlt)
- Excel Macro-Enabled Template (*.xltm)
- Excel 97-2003 Template (*.xlt)
- Tab-delimited Text File format (*.txt)
- Comma-separated Values File format (*.csv)

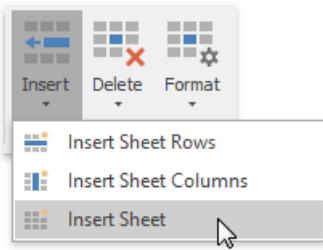
Create a Worksheet

To create a new worksheet within the current workbook, do one of the following.

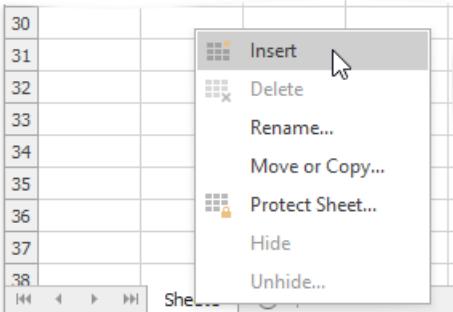
- Click the **New Sheet** button (which looks like a plus sign) at the right edge of the **Sheet tab** bar.



- To insert a worksheet in front of the existing worksheet, go to the **Home** tab, and then in the **Cells** group, click the **Insert** button and select the **Insert Sheet** item from the drop-down list or press **SHIFT+F11**.



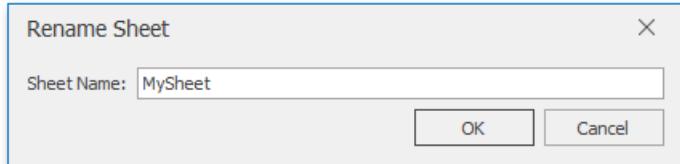
- On the **Sheet tab** bar, right-click the sheet tab of the existing worksheet and select the **Insert** item from the invoked menu.



Rename a Worksheet

When a new worksheet is created, the **Spreadsheet** assigns it a generic name, such as *Sheet1*, *Sheet2*, etc.

To rename a worksheet, double-click its sheet tab on the **Sheet tab** bar to invoke the **Rename Sheet** dialog box, or ...



... right-click the sheet tab of the worksheet and select the **Rename** item from the invoked menu. Rename the worksheet and click **OK**.

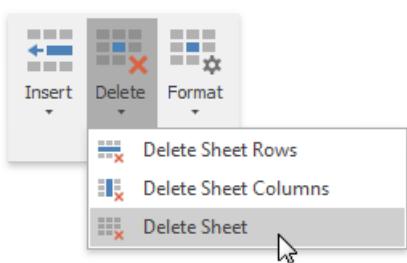
The **Spreadsheet** sets the following rules for a valid worksheet name.

- The maximum length of a worksheet name is 31 characters.
- A worksheet name must not be an empty string.
- A worksheet name must not include the following characters: \, /, ?, :, **, *[,].
- A worksheet name must not start or end with a single quote.
- A worksheet name must not be equal to a name of another existing worksheet.

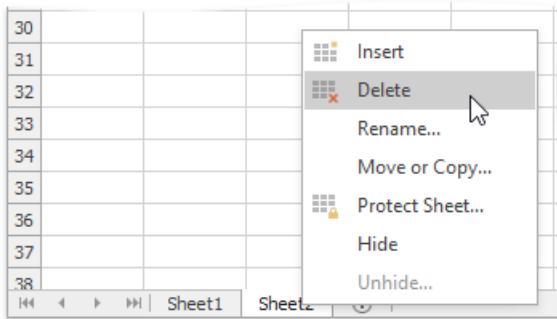
Delete a Worksheet

To delete an existing worksheet, follow the instructions below.

1. Switch to the worksheet you want to delete.
2. Do one of the following.
 - o On the **Home** tab, in the **Cells** group, click the **Delete** button and select the **Delete Sheet** item from the drop-down list.

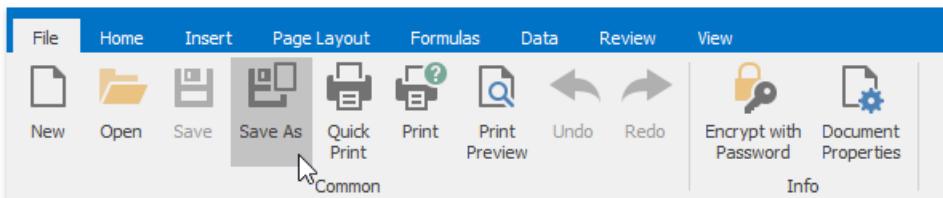


- o Right-click the sheet tab of the worksheet, and then click the **Delete** item from the context menu.



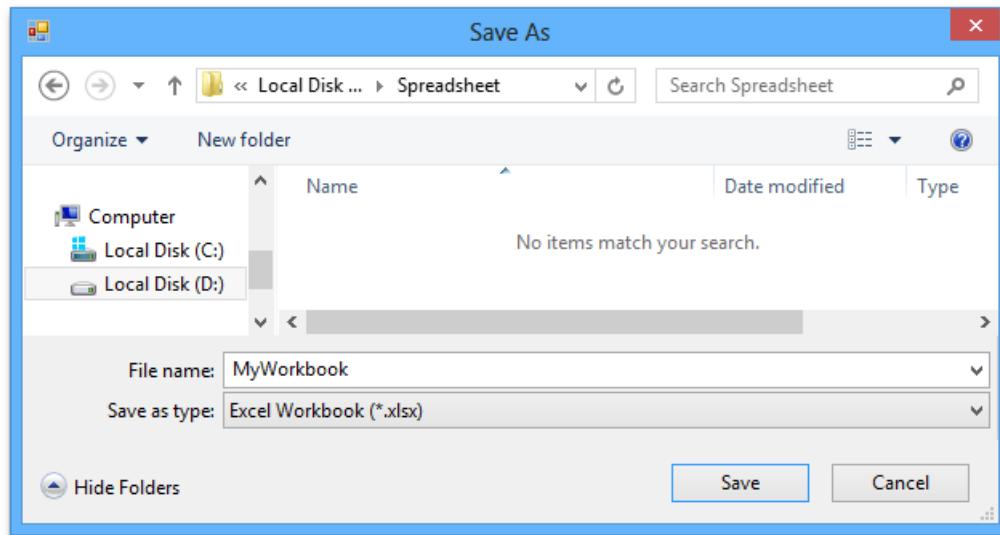
Save a Workbook

To save a workbook, go to the **File** tab, and then click the **Save as** button in the **Common** group, or press **F12** instead of these steps.



After that, the **Save as** dialog box is invoked.

Specify the location and the file format in which to save the workbook.



The available file formats in the **Save as** dialog box are the following.

- Excel Workbook (*.xlsx)
- Excel Macro-Enabled Workbook (*.xlsm)
- Excel 97-2003 Workbook (*.xls)
- Excel Template (*.xlt)
- Excel Macro-Enabled Template (*.xltm)
- Excel 97-2003 Template (*.xlt)
- Tab-delimited Text File format (*.txt)
- Comma-separated Values File format (*.csv)

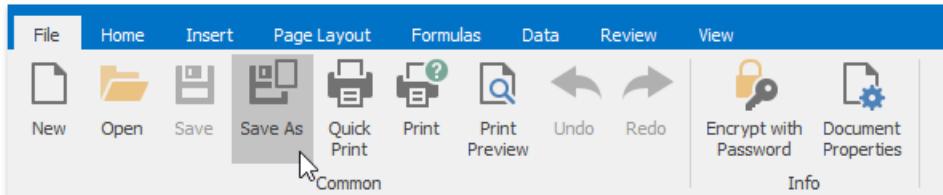
To save the active workbook with its current file format and location, go to the **File** tab, and then click the **Save** button in the **Common** group, or press **CTRL+S** instead. If you click the **Save** button to save a newly created workbook, the **Save as** dialog is invoked.

Import and Export Text Files

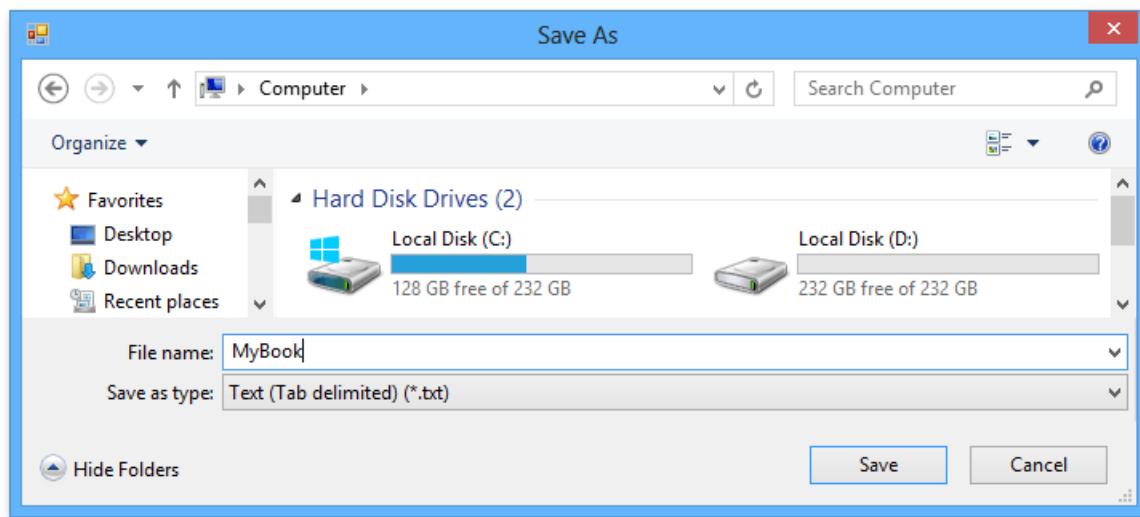
The **Spreadsheet** provides the capability to save a workbook as a text file (.txt or .csv) or load data from text files.

Save a Workbook as a Text File

1. To save a workbook as a text file, go to the **File** tab, and in the **Common** group, click the **Save As** button.



2. In the **Save As** dialog box that is invoked, select the **Text (Tab-delimited)** or **CSV (Comma-delimited)** item from the **Save as type** drop-down list.



The main features of the tab-delimited and comma-delimited file formats are described below.

- **Tab-delimited text files**

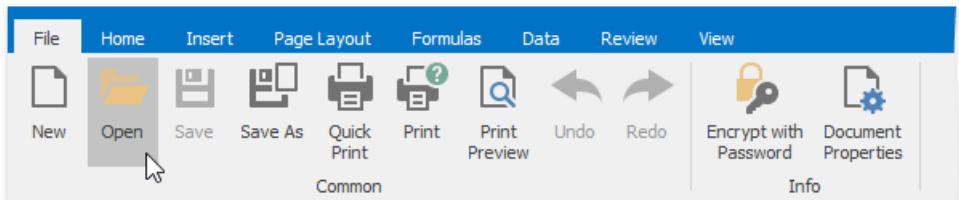
This file format uses the *TAB* character to separate each field of text. Note that the **Spreadsheet** only saves the active worksheet as a text (.txt) file. The columns are separated by the tab characters and each row ends with a carriage return character. The values and text in cells are saved as they are displayed in a worksheet. If a cell contains a comma, the cell contents are enclosed in double quotation marks. All formatting options applied to the cell, pictures and objects (such as hyperlinks) are lost.

- **Comma-delimited text files**

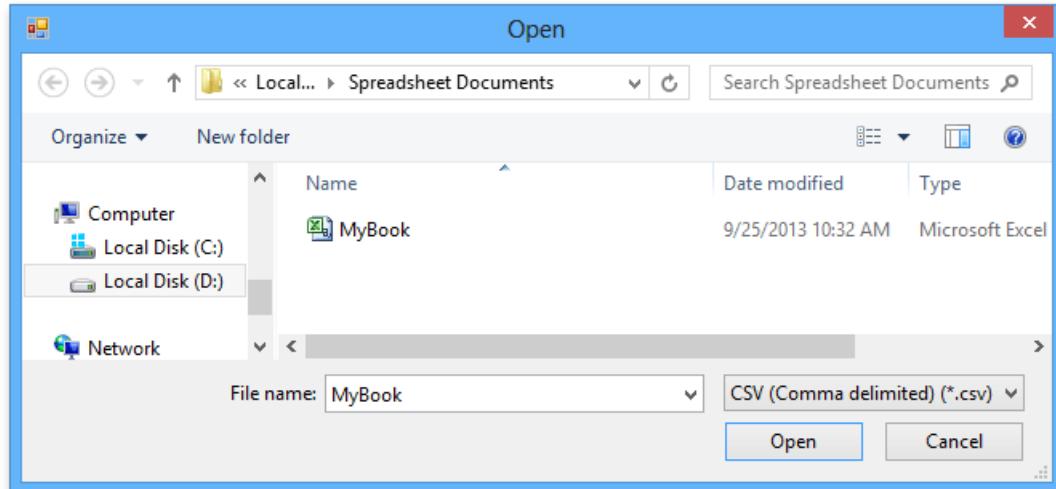
This file format uses the *comma* character to separate each field of text. Note that the **Spreadsheet** only saves the active worksheet as a CSV (.csv) file. Columns are separated by commas, and each row ends with a carriage return character. Cell text and values are saved as they are displayed in a worksheet. If a cell contains a comma, cell contents are enclosed in double quotation marks. All formatting options applied to the cell, pictures and objects (such as hyperlinks) are lost.

Load Data from Text Files

1. To load data from text files (.txt or .csv), go to the **File** tab, and in the **Common** group, click the **Open** button.



2. In the **Open** dialog box that is invoked, locate the text file you wish to open and click **Open**.



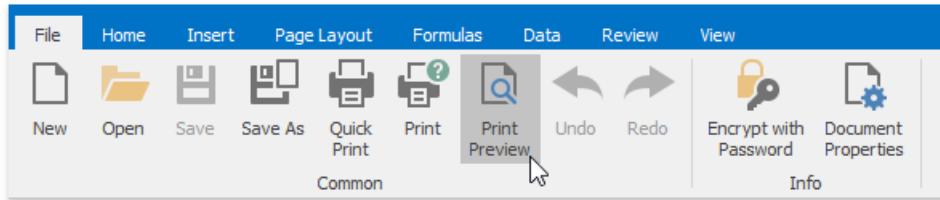
Print a Workbook

This document includes the following sections:

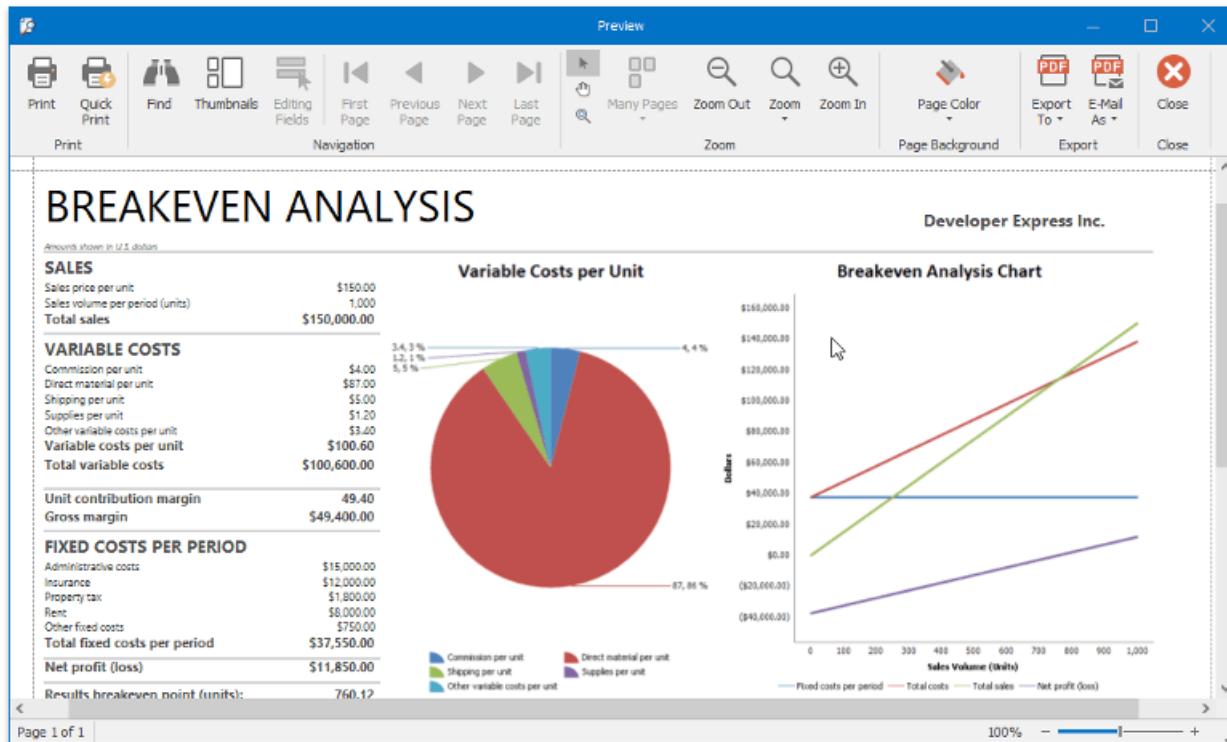
- [Preview a Workbook before Printing](#)
- [Print a Workbook](#)
- [Print a Workbook Using the Default Settings](#)
- [Print Gridlines and Headings](#)
- [Print Comments](#)
- [Change Print Resolution and Quality](#)
- [Set a Print Area](#)
- [Set Print Titles](#)
- [Add Headers and Footers to a Worksheet Printout](#)

Preview a Workbook Before Printing

To view your workbook as it will be printed, select the **File** tab and click the **Print Preview** button in the **Common** group.

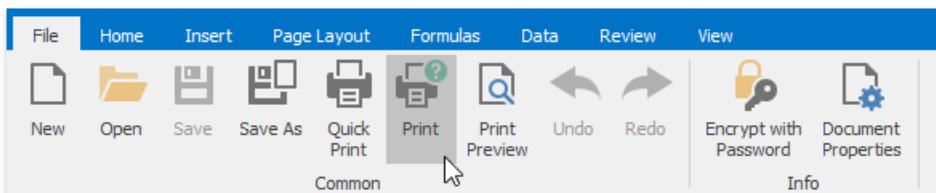


At the bottom of the **Preview** window, the **Spreadsheet** indicates how many pages the workbook will require when printed, and the number of the page you are currently viewing.

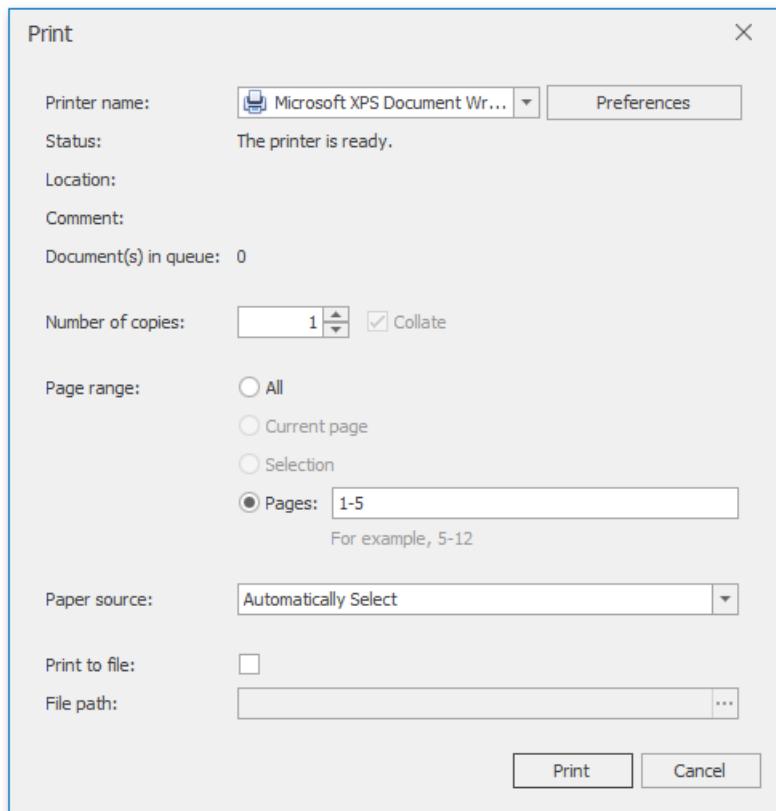


Print a Workbook

To print a document, click the **Print** button in the **Common** group or press **CTRL+P**.

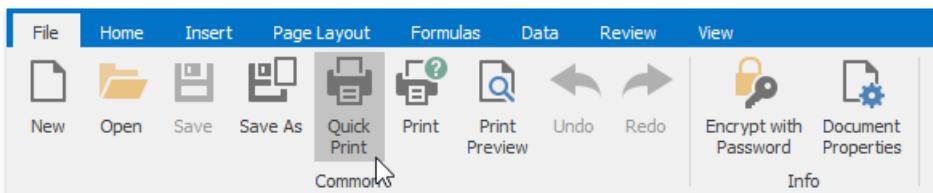


In the invoked **Print** dialog box, specify the required settings and click **Print**.



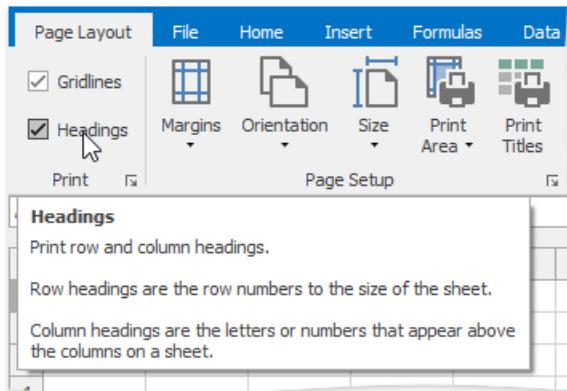
Print a Workbook Using the Default Settings

To send a workbook directly to the default printer without setting print options, click the **Quick Print** button in the **Common** group.

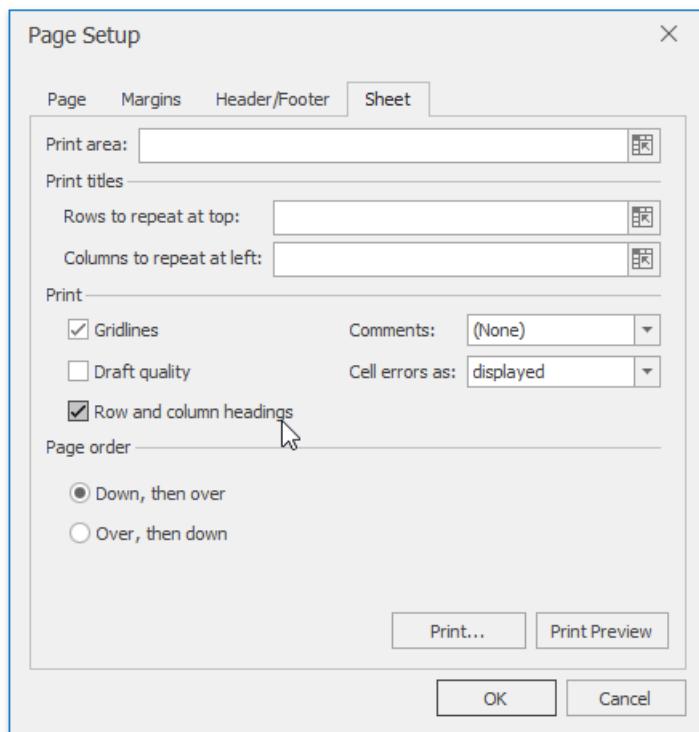


Print Gridlines and Headings

To print worksheet gridlines or row/column headings, on the **Page Layout** tab, in the **Print** group, check the **Gridlines** and **Headings** boxes...



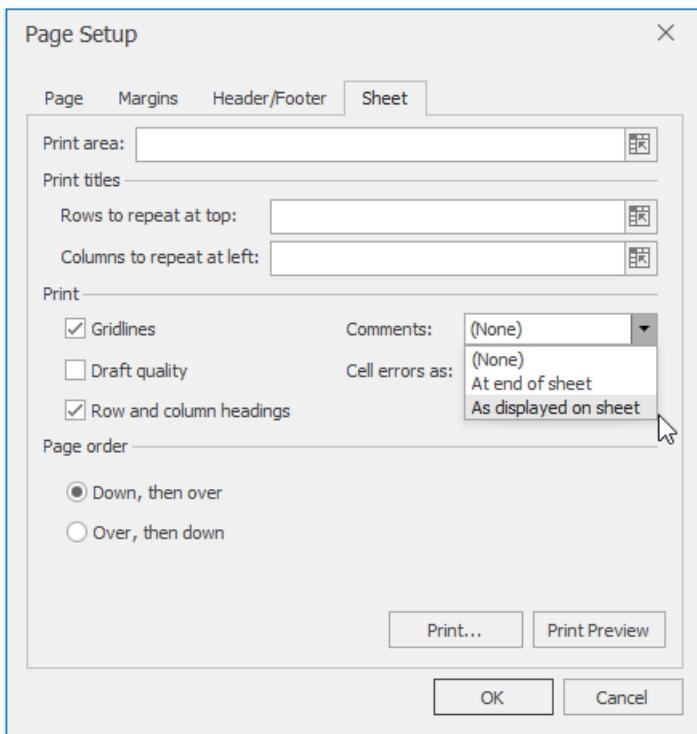
...or click the **Dialog Box Launcher**. In the invoked **Sheet** tab of the **Page Layout** dialog, check the **Gridlines** and **Row and column headings** boxes.



Print Comments

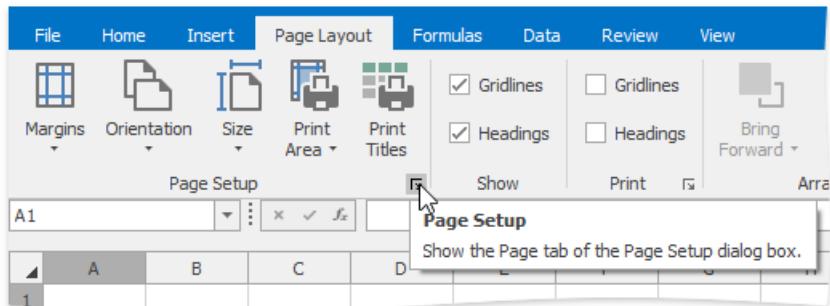
The SpreadsheetControl doesn't print comments by default. To enable printing comments, do the following.

- On the **Page Layout** tab, in the **Print** group, click the **Dialog Box Launcher**.
- In the invoked **Sheet** tab of the **Page Setup** dialog, click the **Comments** drop-down menu and select **As displayed on sheet**. To print the comments on a separate sheet of paper, select **At end of sheet**.

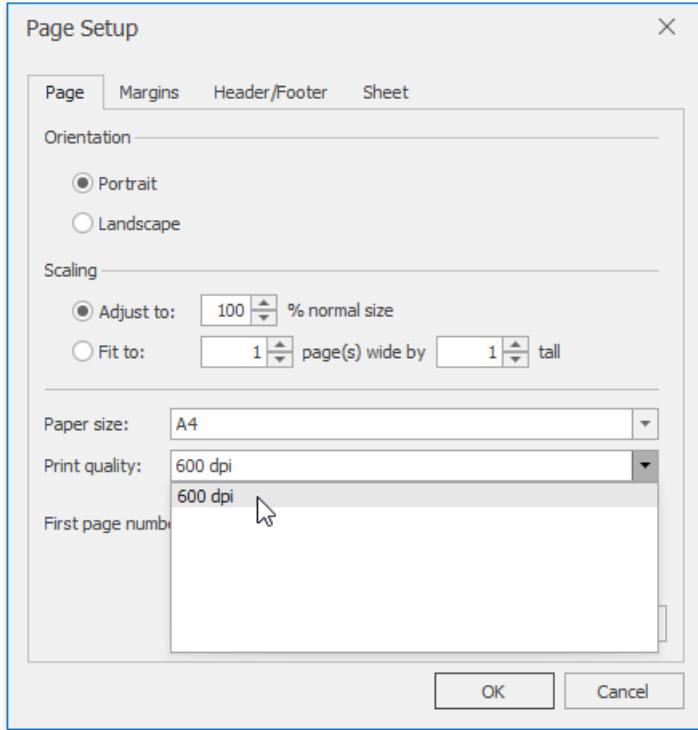


Change Print Resolution and Quality

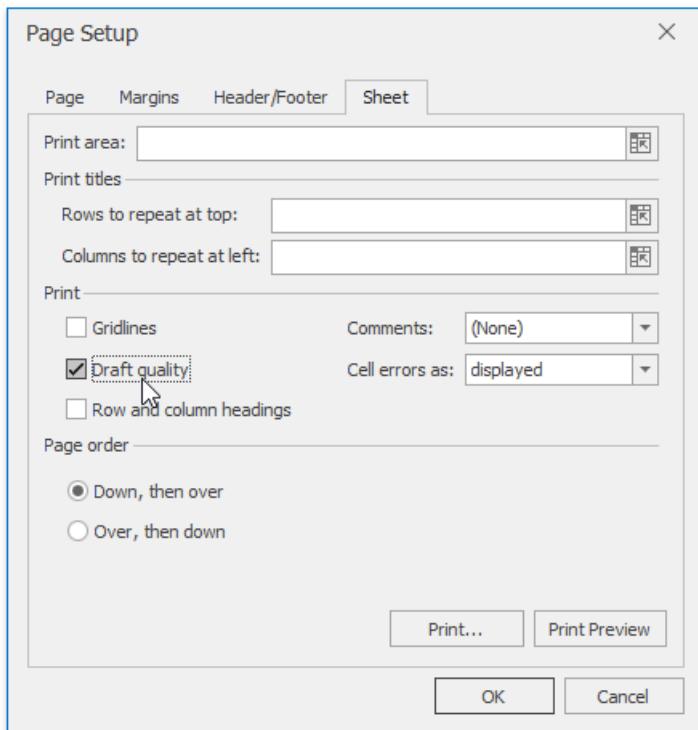
Depending on the used printer, you can change the resolution settings to a lower or higher dpi (dots-per-inches) setting. Invoke the **Page Setup** dialog by clicking the Dialog Box Launcher in the **Page Setup** group.



On the **Page** tab, select the desired resolution from the **Print Quality** box.



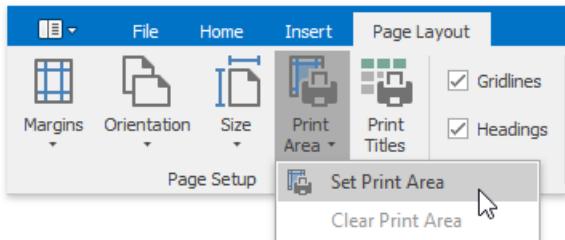
Additionally, you can print your worksheet without graphics (this is useful when it is necessary to accelerate printing and save toner). To do that, switch to the **Sheet** tab and check **Draft quality** box.



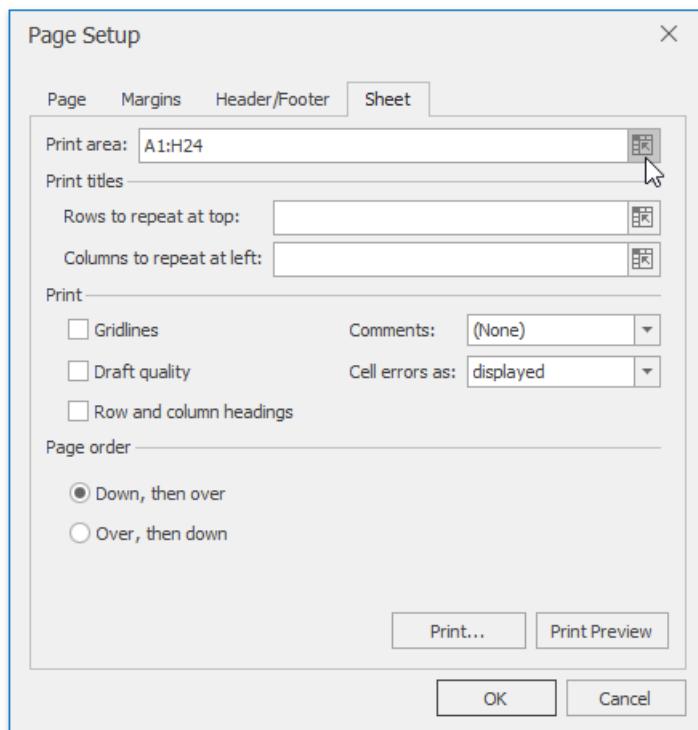
Set a Print Area

If you need to print only a specific part of the worksheet, you can define the target cell range as a **print area**. To do that, do the following:

1. Select the cells you wish to print.
2. On the **Page Layout** tab, in the **Page Setup** group, click the **Print Area** button and select **Set Print Area** in the invoked drop-down menu.



3. ... or click the **Page Setup** box launcher to invoke the **Page Setup** dialog, switch to the **Sheet** tab and specify the print area in the **Print area** box. You can type the cell reference or define the range directly in a worksheet by clicking the **Collapse Dialog** button.

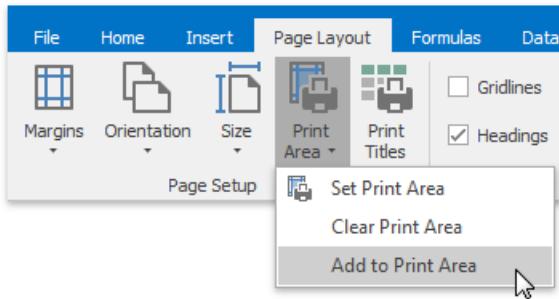


4. When you specify the print area, the cell range that it comprises gets a thin dashed outline and the `_xlnm.Print_Area` name is added to the collection of the defined names contained in the workbook.

	A	C	D	E	F	G
5		Country	Exports	Imports	Balance	Exports 1Y Chg
6		Australia	2,277.90	815.40 ↑	1,462.50	-8.94%
7		Belgium	2,808.90	1,826.20 ↑	982.70	19.23%

5. To extend the print area, select the select the cell range you wish to add and click **Print Area | Add to Print Area** in the

Page Setup group. Note that if the print area consists of non-adjacent cell ranges, each range will be printed as a separate page.

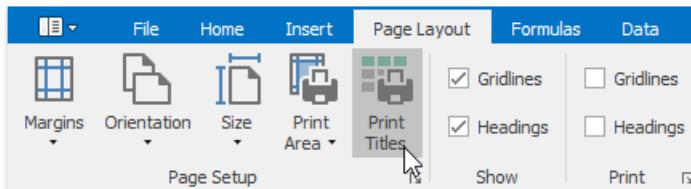


6. To clear the print area and print the entire worksheet, on the **Page Layout** tab, in the **Page Setup** group, click **Print Area** | **Clear Print Area**.

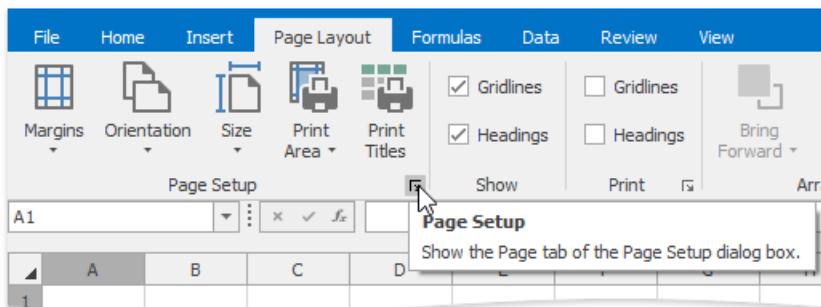
Set Print Titles

If a worksheet occupies more than one page, you can repeat specific row or column (print titles) on every printed page to make the document easier to read. To define print titles, follow the steps below.

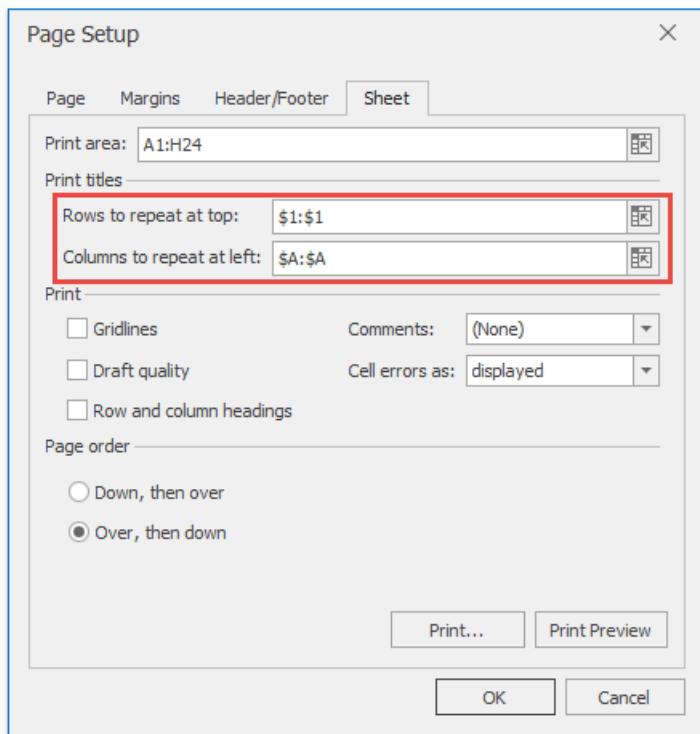
1. On the **Page Layout** tab, in the **Page Setup** group, click the **Print Titles** button...



2. ... or to invoke the **Page Setup** dialog and switch to the **Sheet** tab.



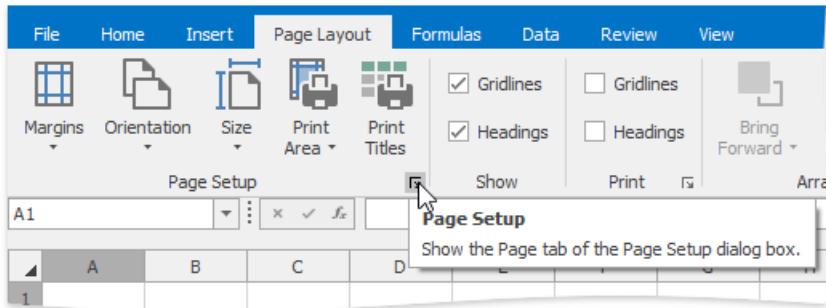
3. Specify the reference to the row/column containing labels that should be repeated in the **Rows to repeat at top** and/or **Columns to repeat at left** boxes of the **Print titles** section. You can select the target row or column directly in a worksheet by clicking the collapse dialog button



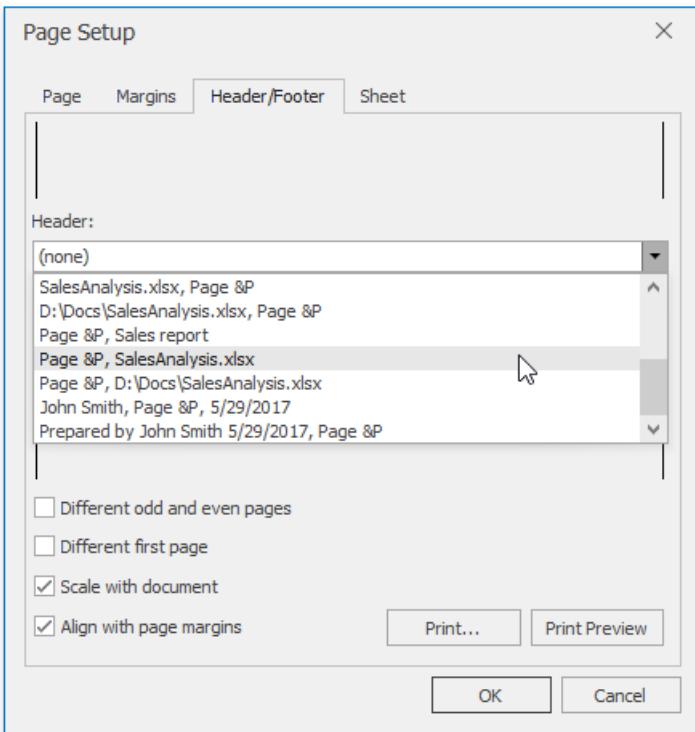
Add Headers and Footers to a Worksheet Printout

You can set a header and footer for a worksheet printout by doing the following.

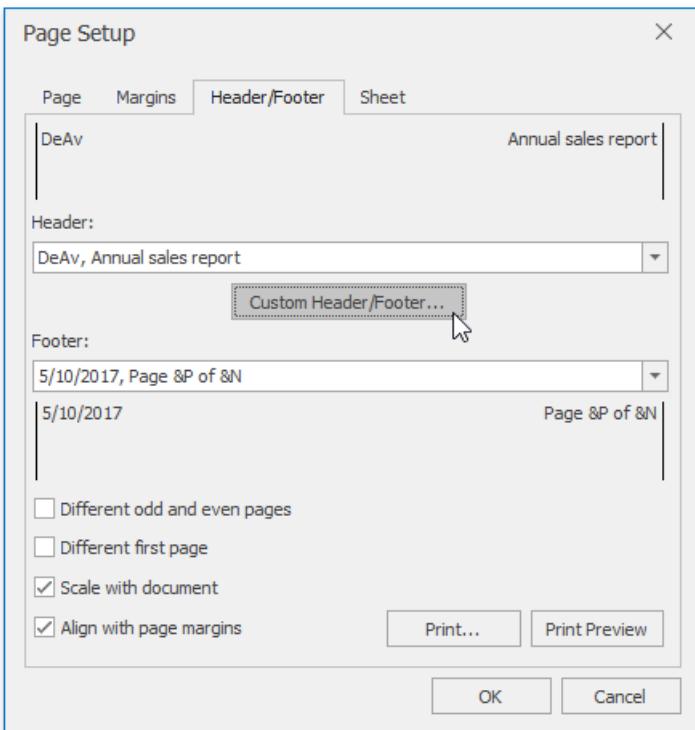
1. On the **Page Layout** tab, in the **Page Setup** group, click the **Page Setup** box launcher.



2. In the invoked **Page Setup** dialog, switch to the **Header/Footer** tab.
3. Select one of the predefined options in the **Header** or **Footer** drop-down list.



4. To specify custom header and/or footer, click the **Custom Header/Footer...** button to invoke the **Header and Footer** dialog.



5. Click in the **Left**, **Center** or **Right** section box and type the desired text. Use the buttons located between the header and footer sections to insert specific codes that enable including dynamic information into a header or footer, such as a page number, current date and time, filename, worksheet name, etc.

To insert a picture to the worksheet header or footer, click the **Insert Picture**  button and select the desired file in the invoked **Open** dialog. To format the image so it fits the header/footer area, click the **Format Picture**  button.

Header/Footer

X

Header/Footer

To insert a page number, date, time, file path, filename, or tab name: position the insertion point in the edit box, then choose the appropriate button.

Left header:

DevAv

Center header:

Right header:

&[Date]



Left footer:

&[Page]

Center footer:

Insert Page Number

Right footer:

&[Pages]

OK

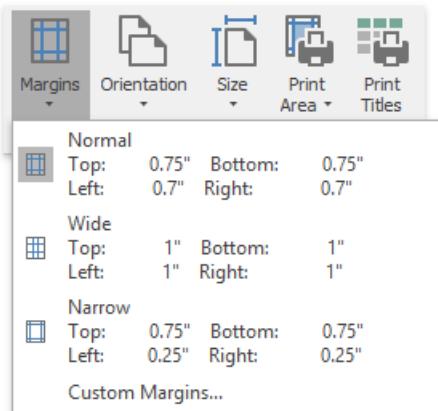
Cancel

Adjust Page Settings

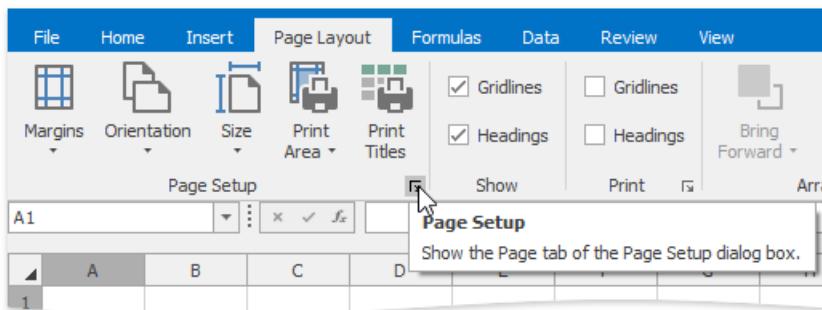
Before you print a worksheet, you can change page layout settings such as [page margins](#), [page orientation](#), [paper size](#) and [scaling](#).

Set Page Margins

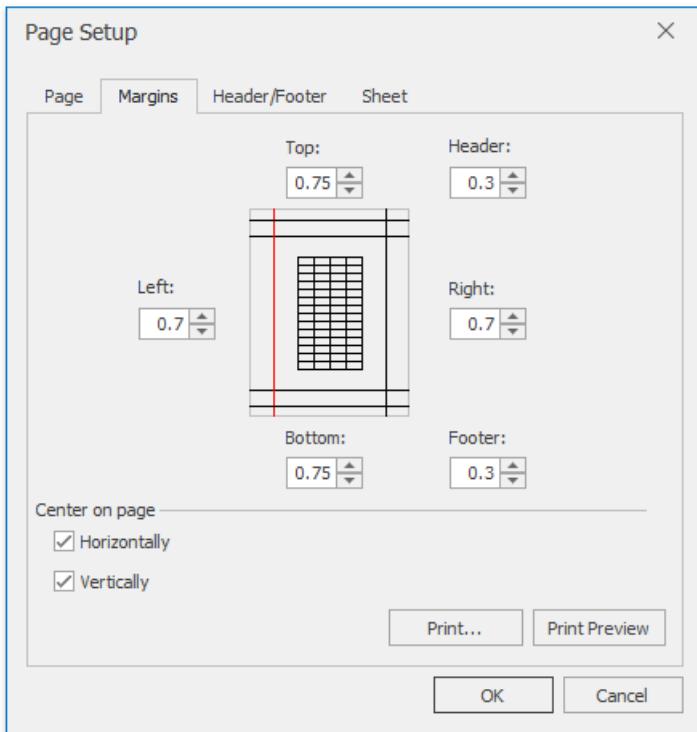
1. Click the worksheet for which you wish to set the page margins.
2. In the **Page Setup** group within the **Page Layout** tab, click the **Margins** button and select the margin sizes to be set for the current worksheet.



3. To specify custom margins, select **Custom Margins...** in the drop-down list...
4. ... or click the **Page Setup** Dialog Box Launcher and switch to the **Margins** tab in the invoked dialog.

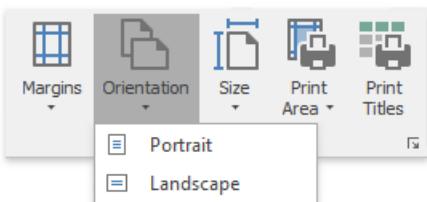


5. Specify desired margin sizes in the corresponding dialog boxes. To center worksheet data on a printed page, check the corresponding **Center on page** section boxes.

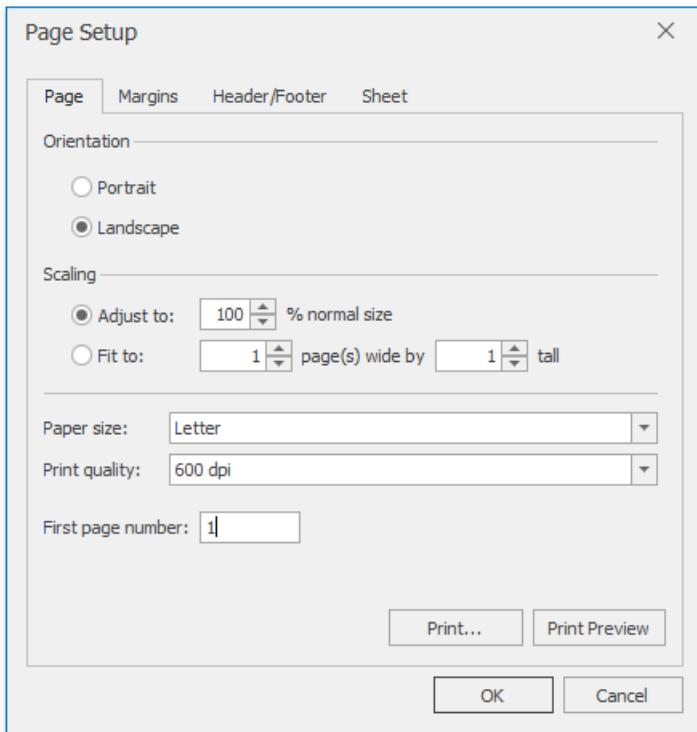


Set Page Orientation

1. Click the worksheet for which you wish to specify page orientation.
2. In the **Page Setup** group within the **Page Layout** tab, click the **Orientation** button and select **Portrait** or **Landscape** from the invoked drop-down list...

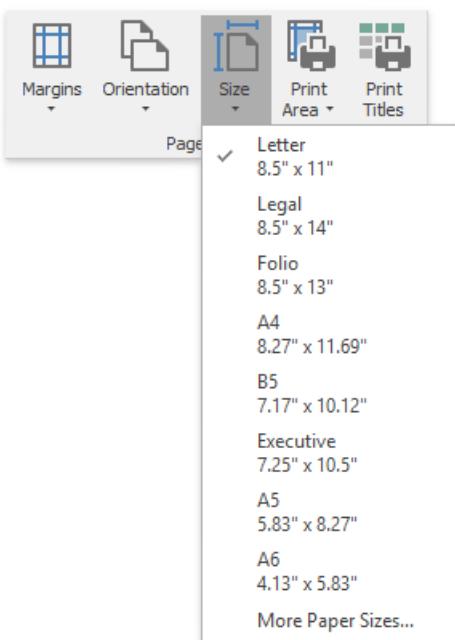


3. ... or invoke the **Page Setup** dialog by clicking the **Page Setup** box launcher and select the desired page orientation.

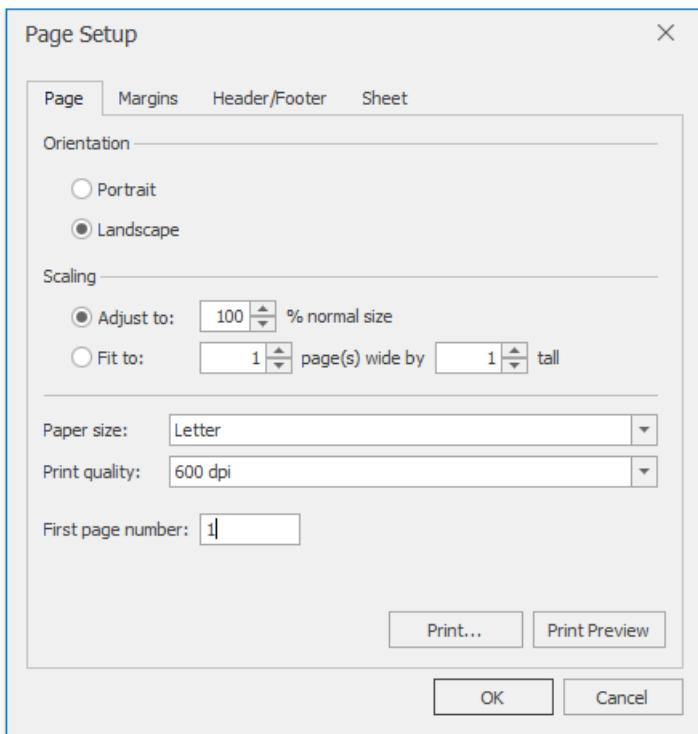


Change Paper Size

1. Click the worksheet for which you wish to set the paper size.
2. In the **Page Setup** group within the **Page Layout** tab, click the **Size** button and select one of the predefined paper sizes from the invoked drop-down list.



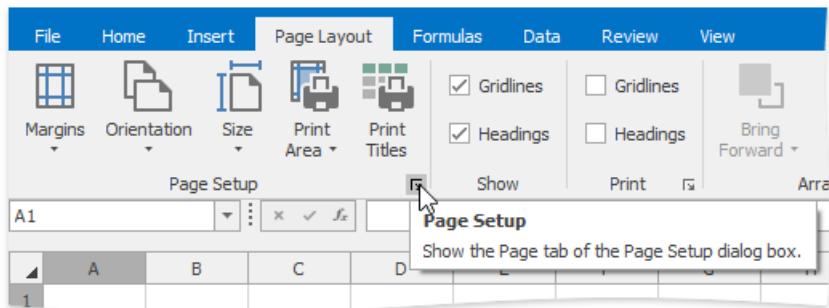
3. Click **More Paper Sizes...** to set more advanced paper size settings.



Scale a Worksheet

If your worksheet has a lot of columns, you can scale it to reduce the size of the worksheet to better fit the printed page.

On the **Page Layout** tab, in the **Page Setup** group, click the **Dialog Box Launcher**.



In the invoked dialog, in the **Scaling** section, click **Adjust to** and specify the percentage of the original size that you wish to use.

To accommodate the worksheet to a specific number of pages, select **Fit to:** and specify the number of pages wide and tall.

Page Setup

X

Page Margins Header/Footer Sheet

Orientation —

Portrait

Landscape

Scaling —

Adjust to: % normal size

Fit to: page(s) wide by tall

Paper size:

Print quality:

First page number:

Print...

Print Preview

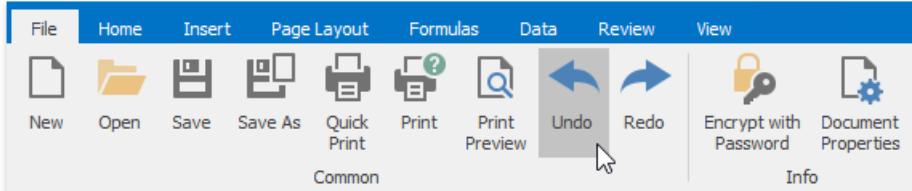
OK

Cancel

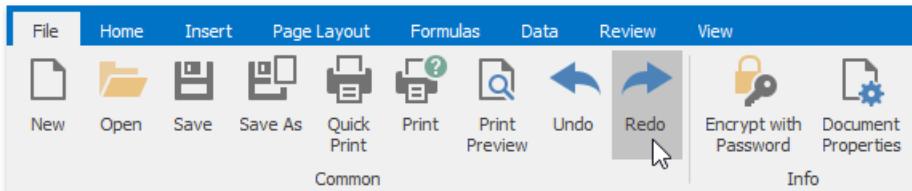
Undo and Redo Last Actions

The **Spreadsheet** allows you to undo or redo your last performed action.

To undo an action, select the **File** tab, and click the **Undo** button in the **Common** group (or press **CTRL+Z** or **ALT+BACKSPACE**).



To redo an action that you undid, click the **Redo** button in the **Common** group (or press **CTRL+Y** or **ALT+SHIFT+BACKSPACE**).

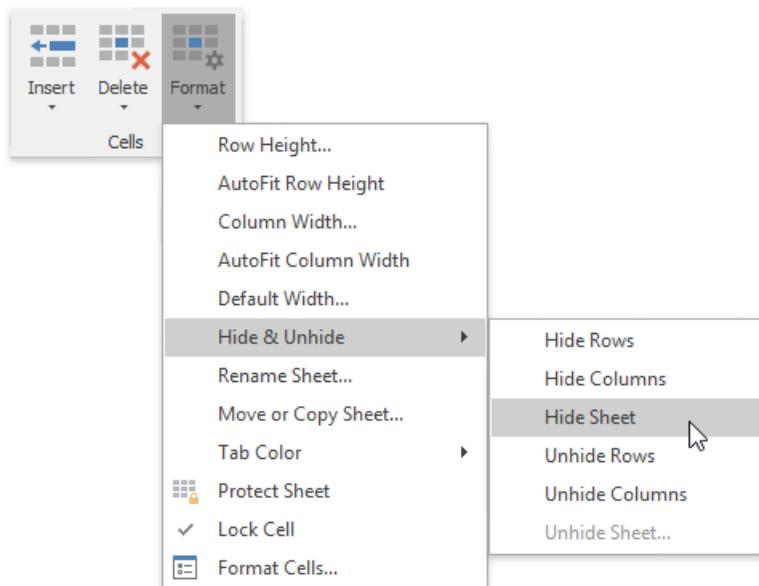


Hide and Display Worksheets

The **Spreadsheet** provides the capability to hide worksheets in a workbook. It can be useful if you want to remove a worksheet from the **Sheet tab** bar without deleting it. By default, all worksheets are displayed on the **Sheet tab** bar.

Hide Worksheets

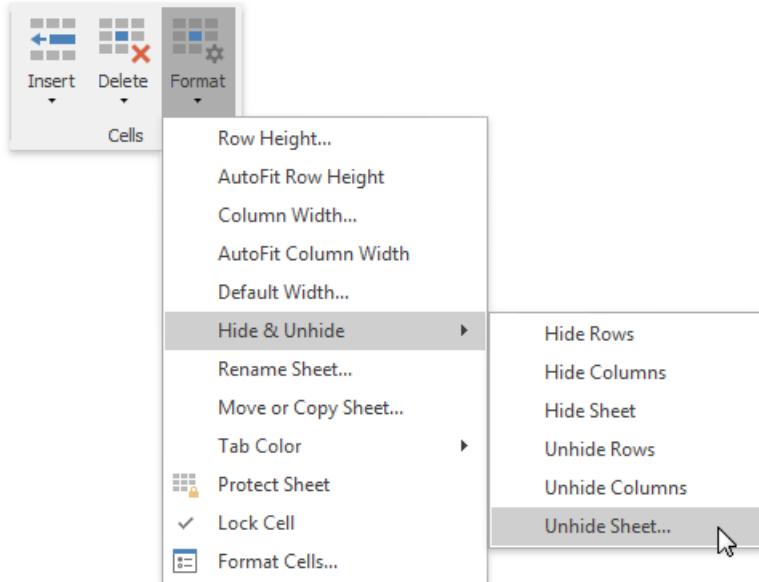
1. Switch to a worksheet you want to hide. To hide multiple worksheets, hold down **CTRL** and then click the sheet tabs of the worksheets you wish to hide on the **Sheet tab** bar.
2. Do one of the following:
 - o On the **Home** tab, in the **Cells** group, click the **Format** button and select **Hide & Unhide | Hide Sheet**. Note that this command is disabled when a workbook includes only one worksheet.



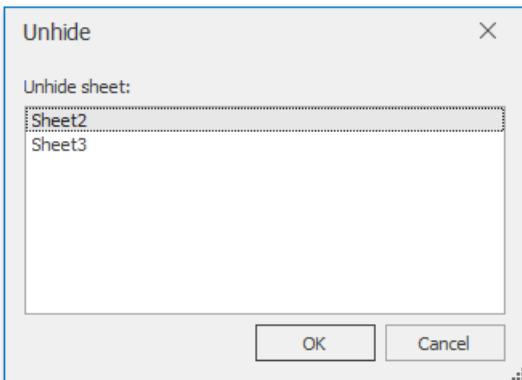
- o Right-click the selected sheet tabs and select the **Hide** item from the context menu.

Display Hidden Worksheets

1. Do one of the following:
 - o On the **Home** tab, in the **Cells** group, click the **Format** button and select **Hide & Unhide | Unhide Sheet...**;



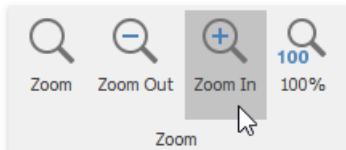
- o Right-click any visible sheet tab, and select the **Unhide** item from the context menu.
2. In the **Unhide** dialog box that is invoked, select the name of the worksheet you want to display and click **OK**. Note that you can hide multiple worksheets at once, but you can display only one worksheet at a time.



Zoom a Worksheet

To zoom in or out of a worksheet, do one of the following:

- In the **Zoom** group within the **View** tab, click the **Zoom In** or the **Zoom Out** button. Click the **Zoom 100%** button to restore the worksheet to normal size.



- Use zoom slider and zoom level on the status bar. Click zoom level to invoke the **Zoom** dialog. The dialog allows you to select a percentage of magnification, or enter a custom percentage.

18	Symbol	Company Name	Sector	Open	Price	Change in Price	Quantity	Total
19	MSFT	Microsoft Corporation	Technology	\$ 27.82	\$ 28.15	0.0072	179	\$ 5,038.85
20	LNCO	Linn Co	Energy	\$ 38.80	\$ 38.52	-0.0067	225	\$ 8,667.00
21	F	Ford Motor Co	Consumer Cyclical	\$ 12.55	\$ 12.75	0.0111	141	\$ 1,797.75

Zoom

Magnification

200%

100%

75%

50%

25%

Custom: %

OK Cancel

Zoom level. Click to open the Zoom dialog box.

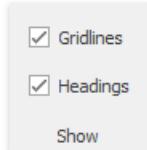
- Hold the **CTRL** button and rotate your mouse wheel.

Hide Gridlines and Headings

The **Spreadsheet** allows you to hide gridlines and headings that are displayed on a worksheet by default.

In the **Show** group within the **View** tab, uncheck the **Gridlines** check box to hide gridlines on a worksheet.

To hide the column and row headers, uncheck the **Headings** check box.



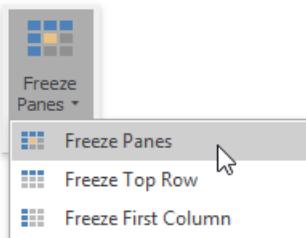
To display gridlines and headers, select the **Gridlines** and **Headings** check boxes, respectively.

Freeze Columns and Rows

To keep specific columns and rows of the worksheet visible while scrolling through the rest of the worksheet, lock them in place using the **Freeze Panes** options of the **Spreadsheet**.

To freeze specific row(s) or column(s), follow the instructions below.

1. Depending on what you wish to freeze, do one of the following.
 - o To lock a row(s), [select](#) the row below the row(s) you wish to freeze.
 - o To lock a column(s), [select](#) the column to the right of the column(s) you wish to freeze.
 - o To lock a row(s) and column(s) simultaneously, click the cell below the row(s) and to the right of the column(s) you wish to freeze.
2. In the **Window** group within the **View** tab, click the **Freeze Panes** button's drop-down.

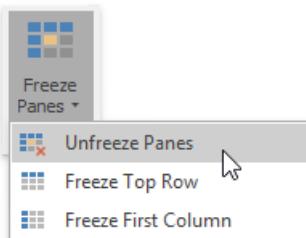


Select one of the following.

- o **Freeze Panes** - lock multiple columns and/or multiple rows simultaneously.
- o **Freeze Top Row** - lock the first row only.
- o **Freeze First Column** - lock the left column only.

A black border appears beneath the frozen row(s) and to the right of the frozen column(s).

3. To unfreeze a row(s) or column(s), click the **Unfreeze Panes** item from the **Freeze Panes** button's drop-down list. This unlocks all frozen rows and columns in the worksheet.

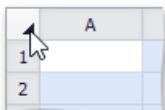


Select Cells or Cell Content

Selecting Cells

To select cells in the **Spreadsheet**, use the following mouse actions and keyboard shortcuts.

1. To select a **single cell**, click the cell or press the arrow keys to move to the required cell.
2. To select a **range of cells**, do one of the following.
 - o Click the first cell in the range and drag it to the last cell.
 - o Hold down the **SHIFT** key, and then press the arrow keys to extend the selection.
 - o Click the first cell in the range, hold down the **SHIFT** key, and then click the last cell in the range.
3. To select the **entire worksheet**, click the **Select All** button at the intersection of the column and row headings, or press **CTRL+A**.



4. To select **nonadjacent cells**, hold down the **CTRL** key, and then select other cells.
5. To select an **entire row or column**, click the row or column heading.

	A	B
1		
2		
3		
4		

6. To select **multiple columns or rows**, drag across the row or column headings.

	A	B	C	D
1				
2				
3				
4				

7. To select **several nonadjacent rows or columns**, click the heading of the first row or column in the selection, hold down **CTRL**, and then click the headings of other rows or columns you wish to select.

The following table lists the default keyboard shortcuts used for selecting cells in the **Spreadsheet**.

CTRL+RIGHT ARROW	Selects the last cell in a row.
CTRL+LEFT ARROW	Selects the first cell in a row.
CTRL+DOWN ARROW	Selects the last cell in a column.
CTRL+UP ARROW	Selects the first cell in a column.
CTRL+HOME	Selects the first cell on a worksheet.

CTRL+END	Selects the last cell that contains data or formatting on a worksheet.
CTRL+A	Selects the entire worksheet.
CTRL+SHIFT+END	Extends the selection to the last used cell on a worksheet.
CTRL+SHIFT+HOME	Extends the selection to the beginning of the document.

Selecting Cell Content

To select the cell content, do one of the following:

- Double-click the cell, and then drag across the cell content you wish to select.
- Press **F2**, and then drag across the contents of the cell you wish to select, or press **SHIFT+LEFT ARROW** to select the cell content.
- Click the cell, and then drag across the cell content you wish to select in the **Formula Bar**.

Copy and Paste Cell Content

The **Spreadsheet** allows you to copy and paste entire cells, or only their contents, using the Clipboard.

To move or copy cell content, follow the steps below.

1. Select the cells that you wish to move or copy.
2. In the **Clipboard** group within the **Home** tab, do one of the following.
 - o To move the selected cells, click the **Cut** button (or press **CTRL+X** or **SHIFT+DELETE**).



- o To copy the selected cells, click the **Copy** button (or press **CTRL+C** or **CTRL+INSERT**).



3. Click the upper-left cell in the area where you wish to paste the copied cells.
4. In the **Clipboard** group within the **Home** tab , click the **Paste** button (or press **CTRL+V** or **SHIFT+INSERT**).



To choose special options when you paste cells, in the **Clipboard** group within the **Home** tab, click the **Paste Special** button (or press **CTRL+ALT+V**).



In the invoked **Paste Special** dialog box, select one of the following options.

- o **All** - paste all cell content and formatting.
- o **Formulas** - only paste formulas, as entered in the **Formula Bar**.
- o **Values** - only paste cell values.
- o **Formats** - only paste cell formatting.
- o **Comments** - only paste the comments added to the cells.
- o **All except borders** - paste cell content and formatting without cell borders.
- o **Column widths** - paste the column widths of the copied cells to another range of columns.
- o **Formulas and number formats** - only paste formulas and number formatting options from the copied cells.

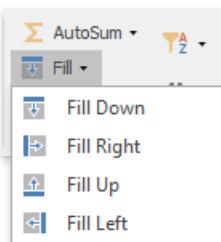
- **Values and number formats** - only paste values and number formatting options from the copied cells.
- **Skip blanks** - avoid replacing values in the paste area when the copy area includes blank cells.

Fill Data Automatically

The **Spreadsheet** provides the capability to fill adjacent cells with data automatically.

To fill a selected cell or a range of cells with the data contained in adjacent cells, do the following.

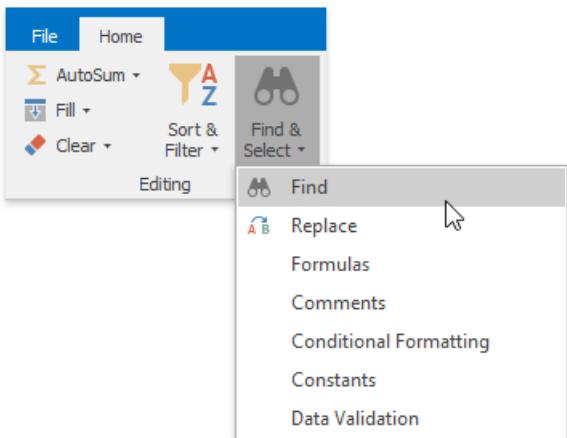
1. Select the cell (or range of cells) adjacent to the cell (or range of cells) of the data you wish to repeat.
2. In the **Editing** group within the **Home** tab, click the **Fill** button and select one of the following items from the drop-down list.



- **Fill Down** (or press **CTRL+D**) - pastes the contents of the cell that is above the selected cell, or pastes the contents of the topmost cell in the selected range to the cells below.
- **Fill Up** - pastes the contents of the cell below the selected cell, or pastes the contents of the lowermost cell in the selected range to the cells above.
- **Fill Right** (or press **CTRL+R**) - pastes the contents of the cell or cell range to the left of the selected cell(s).
- **Fill Left** - pastes the contents of the cell or cell range to the right of the selected cell(s).

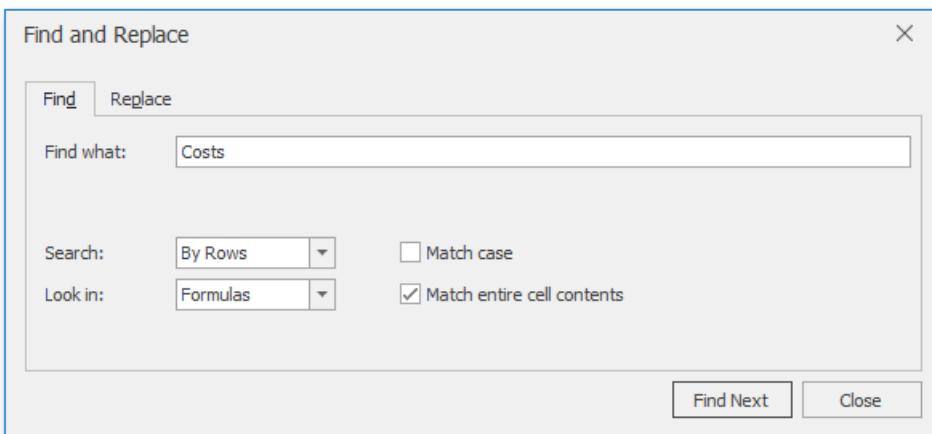
Find and Replace

The **Spreadsheet** allows you to search for specific data in the current worksheet. To perform a search, on the **Home** tab, in the **Editing** group, click the **Find & Select** button. The button's drop-down menu will be displayed.



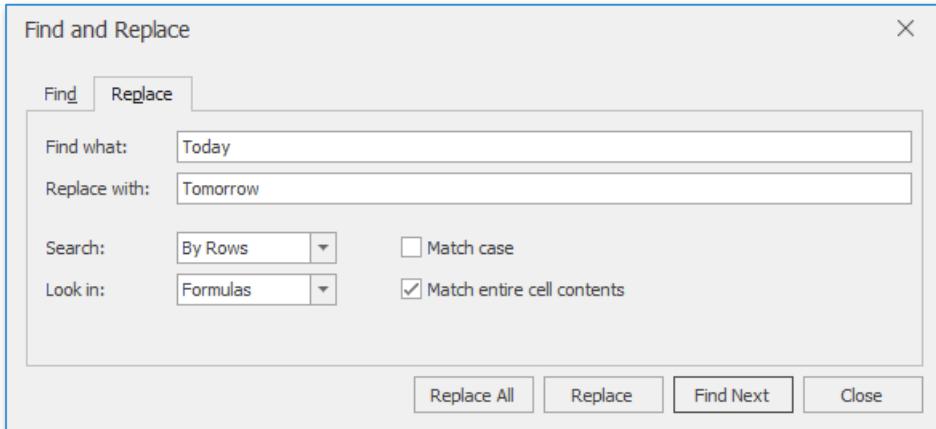
Next, do one of the following.

- Click **Find** in the **Find & Select** drop-down menu (or press **CTRL+F**) to perform a search in the active worksheet. The **Find and Replace** dialog (with the **Find** tab activated) will be invoked.



In the **Find what** field, enter the text or number you wish to find, and click the **Find Next** button to start the search. To define the direction of the search, in the **Search** field, select the **By Rows** or **By Columns** drop-down item. In the **Look in** field, select **Values** (to search cell values only) or **Formulas** (to search cell values and formula expressions, excluding the calculated results). To perform a case-sensitive search, select the **Match Case** check box. To restrict the search to the entire cell content, select the **Match entire cell contents** check box.

- Click **Replace** in the **Find & Select** drop-down menu (or press **CTRL+H**) to search for a text string and optionally replace it with another value. The **Find and Replace** dialog (with the **Replace** tab activated) will be invoked.



To replace a value, enter the search term in the **Find what** field and the replacement text for this search term in the **Replace with** field, and then click the **Find Next** button to find the first occurrence of the search term. Next, click the **Replace** button to replace only the value of the selected matching cell, or **Replace All** to replace all occurrences of the search term. Note that the **Replace** tab provides the same search options as the **Find** tab, with one exception: you can only select the **Formulas** drop-down item in the **Look in** box, so only the underlying formulas (not the calculated results) will be examined when searching for matches to your search term.

Insert a Comment

The **Spreadsheet** allows you to attach notes to individual cells by using **comments**. Comments are extremely useful when you need to provide additional information, such as reminders, notifications, or feedback in a document without modifying cell content.

Comments are displayed in a yellow box anchored to a cell. A cell containing a comment has a red triangular indicator in the corner.

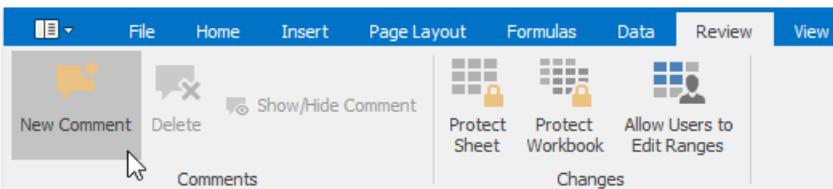
A	B	C	D	E	F	G
6	No	Day	Category	Sum		
7	1	15	Salary	\$ 13,000.00		
8	2	30	Salary	\$ 21,300.00		
9	3	8	Scholarship	\$ 80.00		
10				\$ 34,380.00		
11					Tommy Morris: Total personal income in March	
12						

You can [add](#) new comments, [edit](#) existing comments, [copy](#) comments to other cells, [move](#) and [resize](#) the comment box, [hide](#) or [delete](#) comments if they are no longer needed.

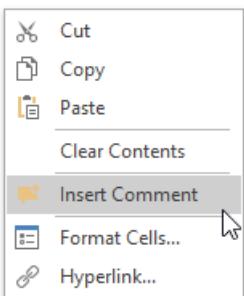
Add a Comment

To insert a new comment, select the cell where you wish to place the comment, and do one of the following.

- On the **Review** tab, in the **Comments** group, click the **New Comment** button.



- Right-click the cell and select the **Insert Comment** item in the context menu.



- Press **SHIFT+F2**.

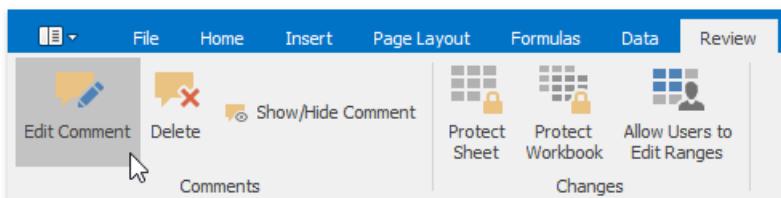
The new comment will be anchored to the cell. Type the desired text within the comment box. By default, the comment is accompanied by the user name of the person who created the comment. If you wish to change the default name, delete it and type a new name.

Edit a Comment

- Select the cell that contains the comment you wish to edit.

2. Do one of the following.

- On the **Review** tab, in the **Comments** group, click the **Edit Comment** button...



... or right-click the cell and select the **Edit Comment** item in the context menu.

The comment will be activated and the cursor will be positioned within the comment box. Change the comment text as needed.

- Click inside the comment box, and start editing the comment text.

TIP

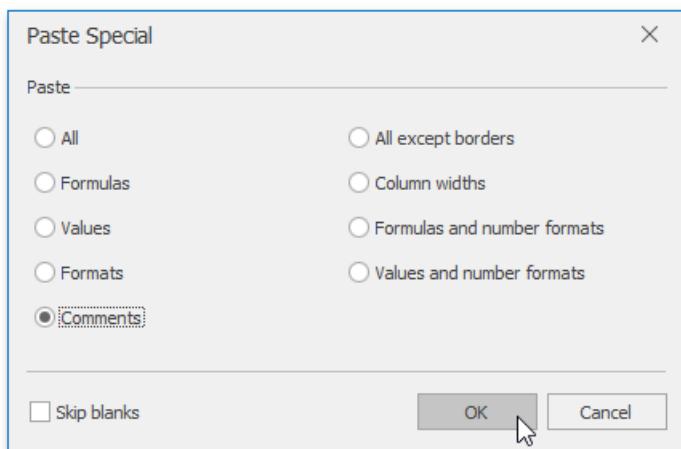
If the comment is hidden, click the **Show/Hide Comment** button to display the comment.

Copy Comments Only

- Select the cell(s) containing the comment(s) you wish to copy.
- On the **Home** tab, in the **Clipboard** group, click **Copy**, or press **CTRL+C**.
- Select the top-left cell of the destination area where you wish to insert the copied comment(s).
- On the **Home** tab, in the **Clipboard** group, click the **Paste Special** button, or press **CTRL+ALT+V**.



- In the invoked **Paste Special** dialog, click **Comments**, and then click **OK**.



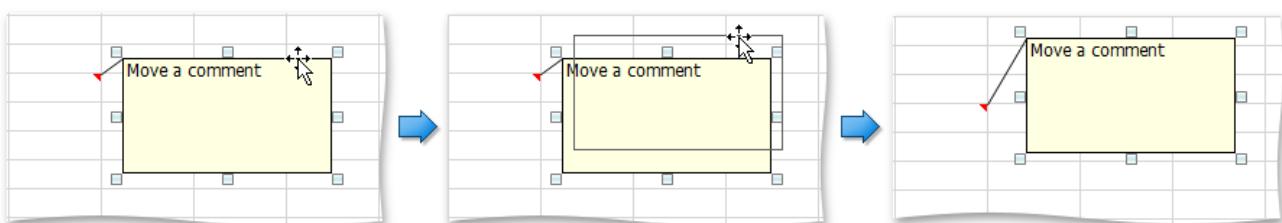
Move and Resize a Comment

- Select the cell that contains the comment you wish to move or resize.

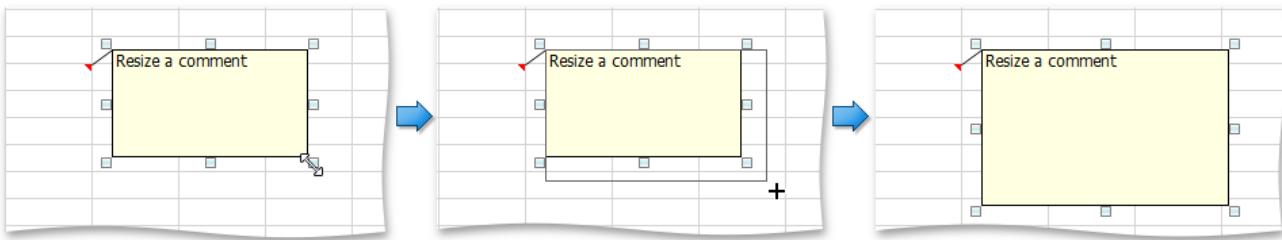
TIP

If the comment is hidden, click the **Show/Hide Comment** button to display the comment.

2. Click the comment box border to display the **sizing handles** (small rectangles at the corners and sides of the comment box).
3. Do one of the following.
 - To move a comment, hover the mouse over the comment border so that the four-way resize arrow appears, and drag the comment to a new location.

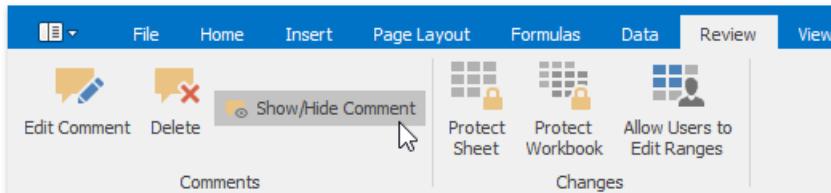


- To resize a comment, click one of the sizing handles and drag the edge of the comment box.



Display or Hide a Comment

1. Select the cell that contains the comment you wish to display or hide.
2. Do one of the following.
 - On the **Review** tab, in the **Comments** group, click the **Show/Hide Comment** button.

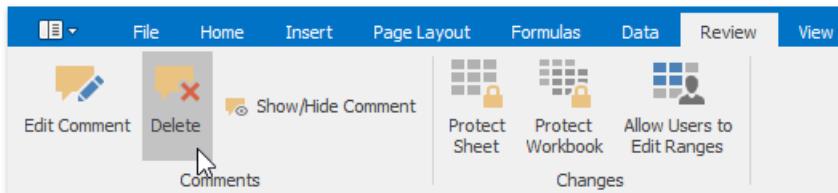


- Right-click the cell and select the **Show/Hide Comment** item in the context menu.

Remove a Comment

To delete the existing comment, do the following.

1. Select the cell that contains the comment you wish to delete.
2. Do one of the following.
 - On the **Review** tab, in the **Comments** group, click the **Delete** button.



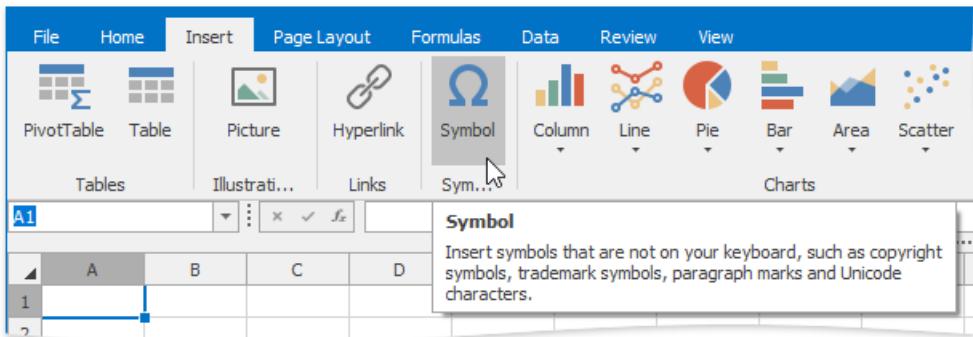
- o Right-click the cell and select the **Delete Comment** item in the context menu.

Insert a Symbol

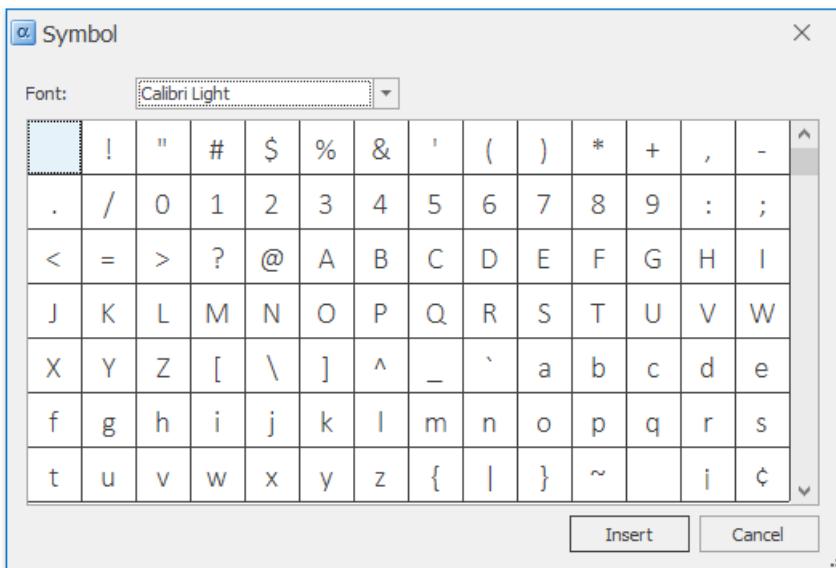
The **Spreadsheet** allows you to insert symbols and special characters that are not on your keyboard, such as ASCII or Unicode characters, fractions ($\frac{1}{4}$), copyright symbol (©), trademark symbols (®, ™), paragraph mark (¶), etc.

To insert a symbol, follow the instructions below.

1. Move to the cell where you wish to insert a symbol.
2. On the **Insert** tab, in the **Symbols** group, click the **Symbol** button.



The **Symbol** dialog will be invoked.



3. Select the symbol you wish to insert and click **Insert**, or double-click the symbol.

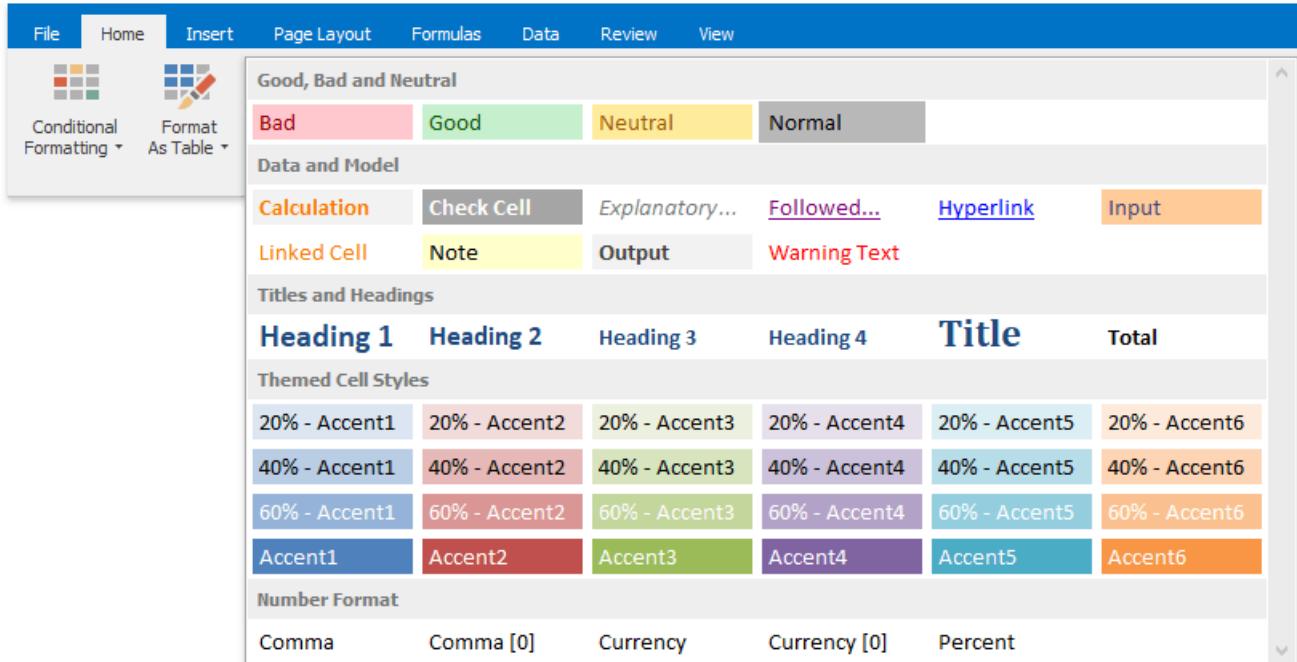
Format Cells

The **Spreadsheet** provides the capability to format cells and the data they contain. It includes many predefined styles that you can use.

To format a cell or a range of cells, follow the instructions below.

Using Predefined Styles

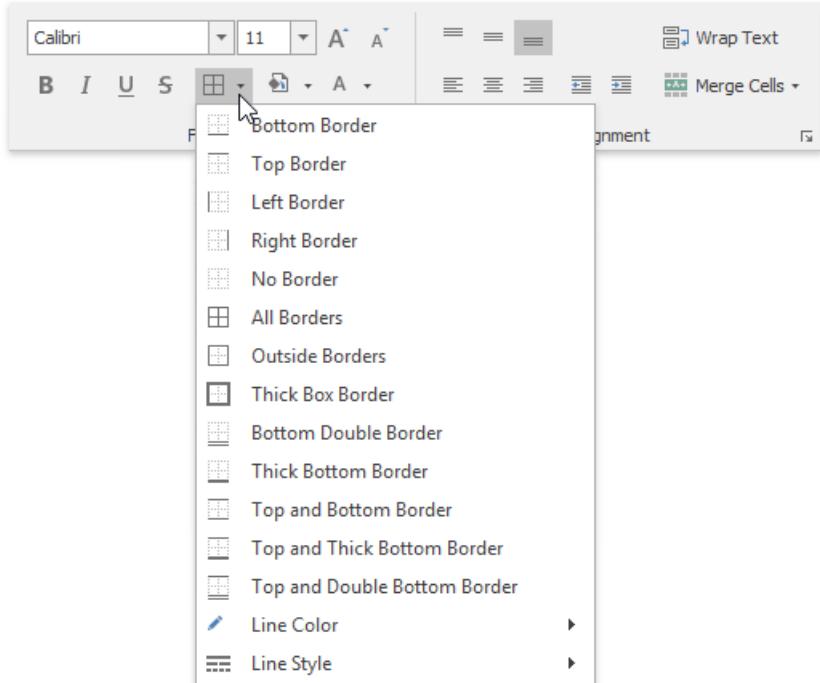
1. Select the cells you wish to format.
2. In the **Styles** group within the **Home** tab, select the style that you wish to apply to the selected cells.



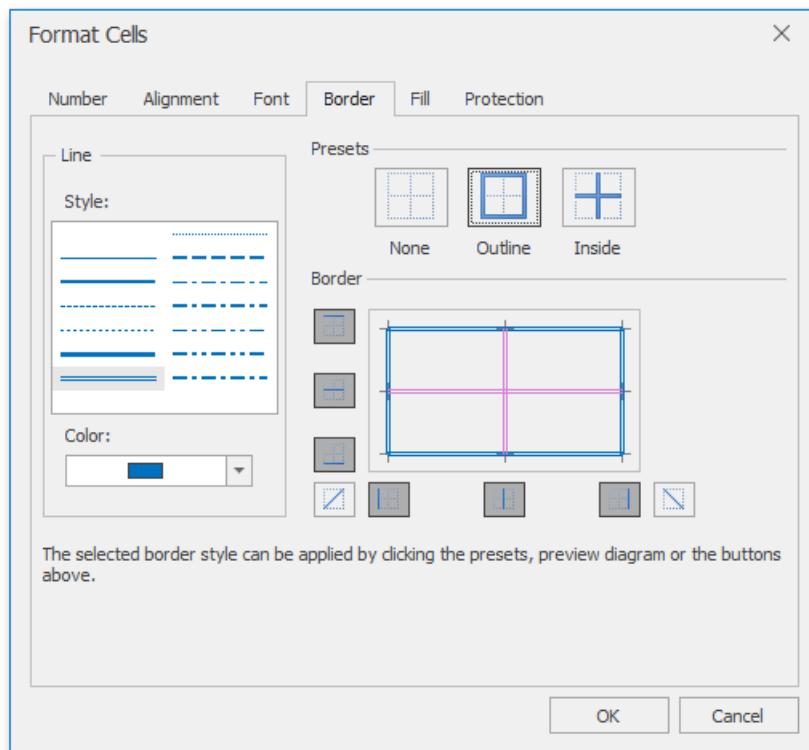
Applying Specific Formatting

If you are not satisfied with the predefined styles, specify your own formatting options.

1. Select the cells you wish to format.
2. To add borders to the selected cells, do one of the following.
 - o In the **Font** group within the **Home** tab, click the **Borders** button's drop-down menu and select the border type. This menu also allows you to select the line style and line color of borders.

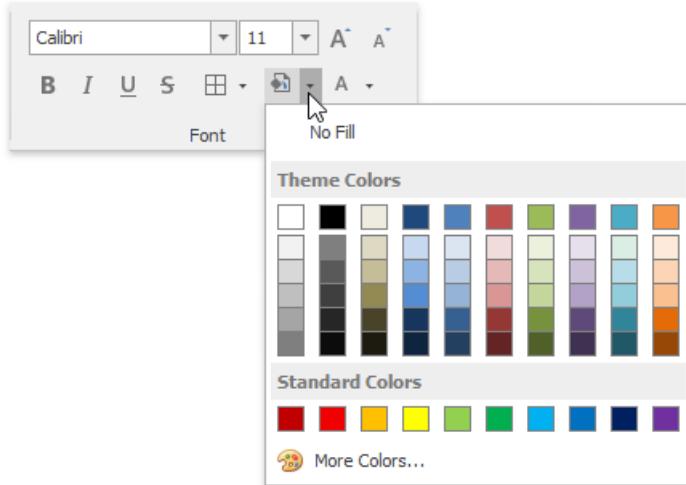


- o Click the **Font** dialog box launcher to invoke the **Format Cells** dialog box. Click the **Border** tab and specify all required parameters. Then click **OK**.

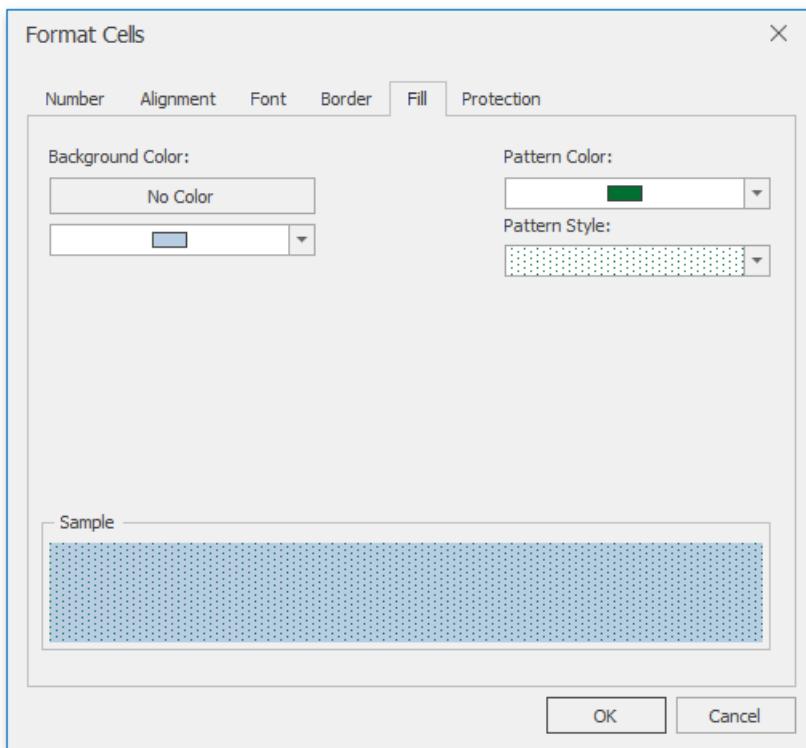


3. To set the background color of the selected cells, do one of the following.

- o In the **Font** group within the **Home** tab, click the **Fill Color** button's drop-down menu and select the desired color.



- Click the **Font** dialog box launcher, and in the invoked **Format Cells** dialog box, open the **Fill** tab. Specify all required parameters and click **OK**.



Format Cell Content

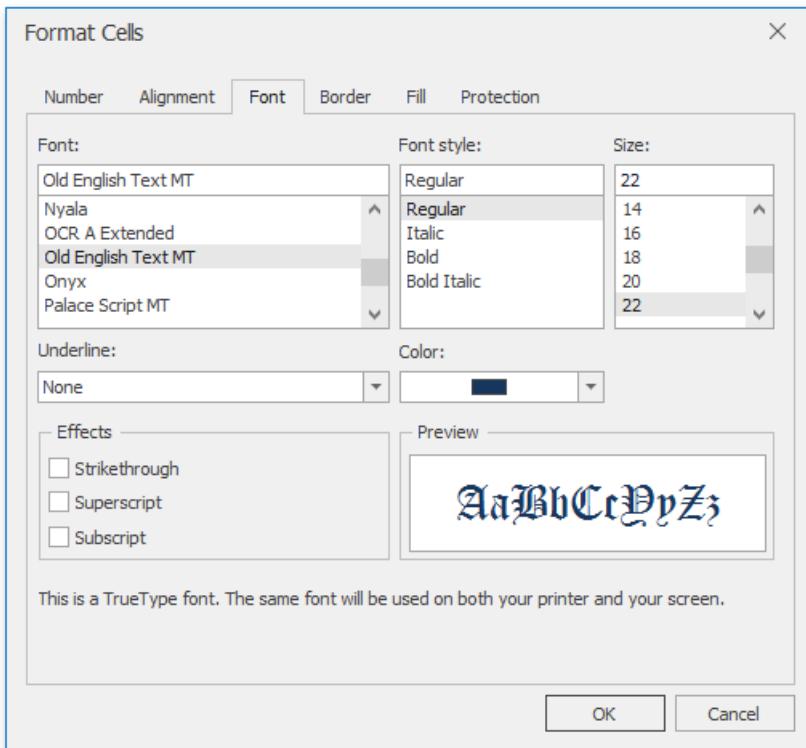
The **Spreadsheet** provides the capability to set font style, size, color and text alignment in a cell.

To format cell content, follow the steps below.

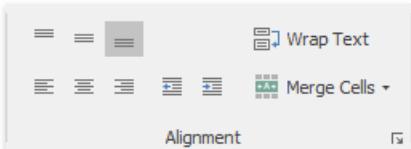
1. Select a cell or a cell range that you wish to format.
2. To change the font, use the **Font** group within the **Home** tab to specify the font family, size, style, color, etc.



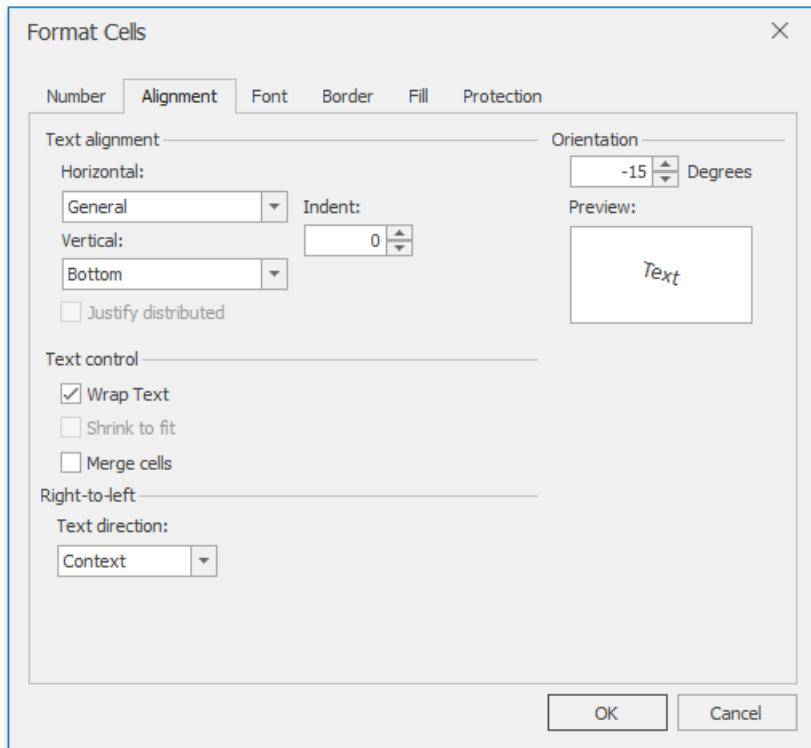
You can also modify cell font using the **Font** tab of the **Format Cells** dialog box. To invoke this dialog, click the arrow in the bottom right corner of the **Font** group. In the **Font** tab, you can specify the required font characteristics and apply them to the selected cells.



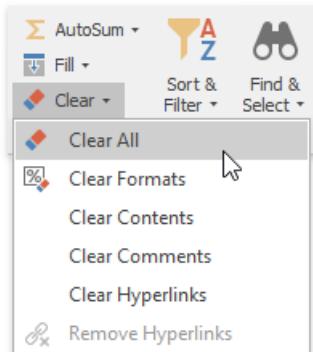
3. To position text within a cell so that it is centered, aligned to the left or aligned to the right, select the appropriate alignment options in the **Alignment** group within the **Home** tab.



To specify additional alignment options, click the arrow in the bottom right corner of the **Alignment** group. The dialog box launcher invokes the **Format Cells** dialog. In the **Alignment** tab, specify all required parameters and click **OK** to apply them to the selected cells.



4. To undo the formatting options you applied before, select the text. In the **Editing** group within the **Home** tab, click the **Clear** drop-down and select the **Clear Formats** item.



Wrap Text and Merge Cells

If text is too long to be displayed in a single cell, the **Spreadsheet** allows you to wrap the text to make it display on multiple lines in the cell, or merge cells to combine two or more adjacent cells into a single larger/longer cell.

Merging Cells

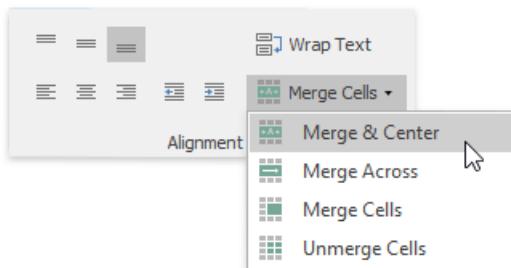
To merge cells, follow the instructions below.

1. Select the cells that you wish to merge.

NOTE

Make sure that the data you wish to display in the merged cell is contained in the upper-left cell of the selected range, because only the contents of this cell will remain in the merged cell. The data in the other cells will be deleted.

2. In the **Alignment** group within the **Home** tab, click the **Merge Cells** button's drop-down arrow and select one of the following items.
 - o **Merge & Center** - merge the selected cells and center the text in a merged cell.
 - o **Merge Across** - merge each row of the selected cell range into larger cells.
 - o **Merge Cells** - merge the selected cells into a single cell.



3. If you change your mind and wish to split a merged cell, select this cell and click the **Unmerge Cells** item in the **Merge Cells** button's drop-down menu. The data of the merged cell appears in the upper-left cell of the range of split cells.

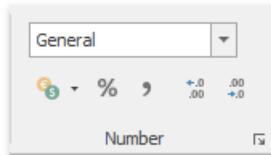
Wrapping Text in a Cell

To wrap text in a cell, do the following.

1. Select a cell or a range of cells containing the text you wish to wrap.
2. In the **Alignment** group within the **Home** tab, click the **Wrap Text** button. The text is displayed on multiple lines within the cell.
3. To unwrap the text, click the **Wrap Text** button again. The text is displayed in the same way as it was before the wrap option was applied.

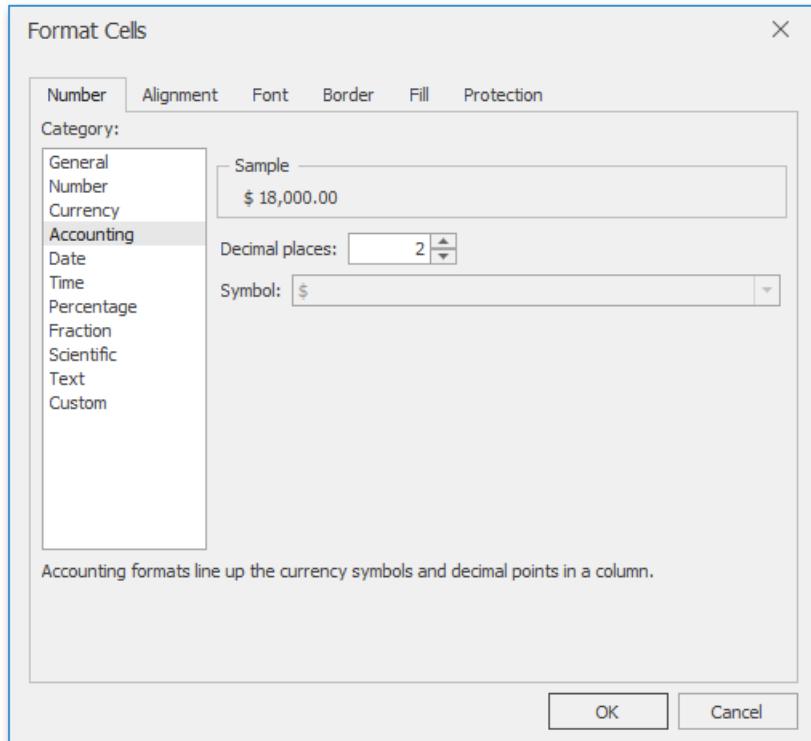
Number Formatting

The **Spreadsheet** allows you to format numbers in cells to make them easier to read and understand. For example, you can display numbers as monetary values or dates. The default format for cell content is the *General* style. Notice that number formatting does not change the value you enter, it only influences the way the number is displayed in a cell. Number formatting options are available in the **Number** group within the **Home** tab.



To apply the number format to a cell value, select the required format in the number format list at the top of the **Number** group, or use buttons at the bottom of the group, such as **Accounting Number Format**, **Percent Style** or **Comma Style**.

If you wish to set more formatting parameters, click the **Number** dialog box launcher to invoke the **Format Cells** dialog box. Select the desired number format, and then specify formatting options in the right pane of the dialog box.



You can use the following shortcuts to quickly apply the specified number format.

CTRL+SHIFT+1	Applies the Number format with two decimal places.
CTRL+SHIFT+2	Applies the Time number format.
CTRL+SHIFT+3	Applies the Date format.
CTRL+SHIFT+4	Applies the Currency format.
CTRL+SHIFT+5	Applies the Percentage format.
CTRL+SHIFT+6	Applies the Scientific number format.

Conditional Formatting

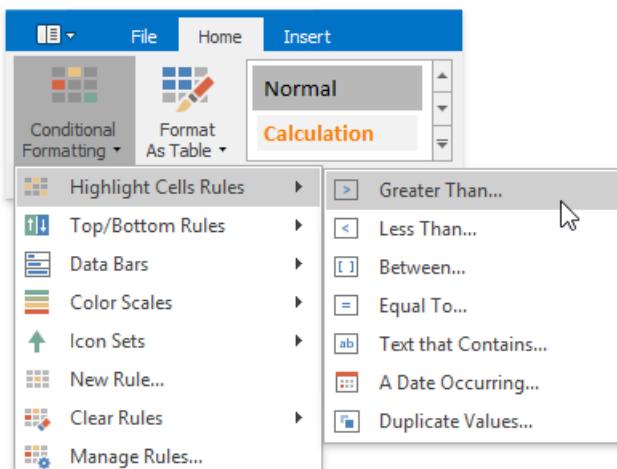
The **Spreadsheet** allows you to apply **conditional formatting** to a range of cells. Conditional formatting changes the appearance of individual cells based on specific conditions. It helps to highlight critical information, or describe trends within cells by using data bars, color scales and built-in icon sets. To create a conditional format, select the cell range to which you wish to apply a conditional formatting rule. On the **Home** tab, in the **Styles** group, click the **Conditional Formatting** button to display a drop-down list of available conditional formats. You can do one of the following.

- Format Cells that are Less than, Greater than or Equal to a Value
- Format Cells that Contain Text or a Date
- Format Unique or Duplicate Cells
- Format Top or Bottom Ranked Values
- Format Cells whose Values are Above or Below the Average
- Format Cells Using Data Bars
- Format Cells using Color Scales
- Format Cells using Icon Sets
- Edit Conditional Formatting Rules
- Clear Conditional Formatting Rules

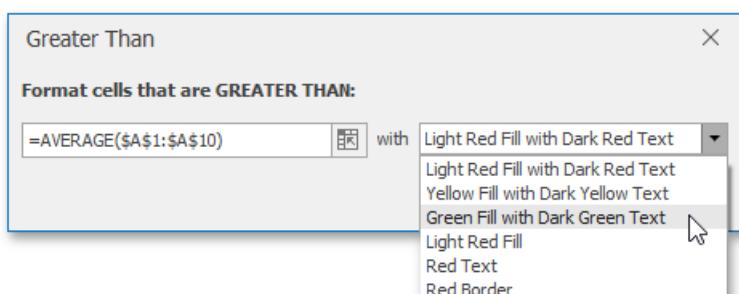
Format Cells that are Less than, Greater than or Equal to a Value

To highlight cells whose values meet the criterion represented by a relational operator ($=$, $<$, $>$), do the following.

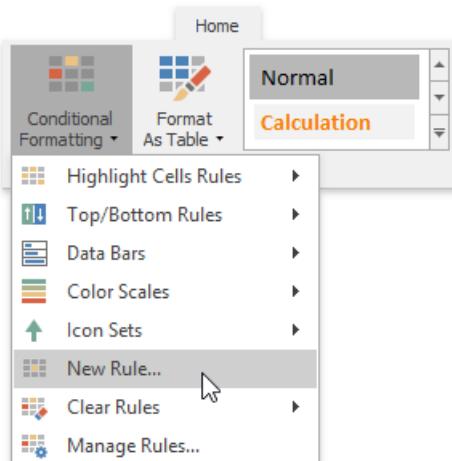
- Select the cell range to which you wish to apply a conditional format.
- On the **Home** tab, in the **Styles** group, select **Conditional Formatting | Highlight Cells Rules**, and then select one of the following items: **Greater Than...**, **Less Than...**, **Between...** or **Equal To...**



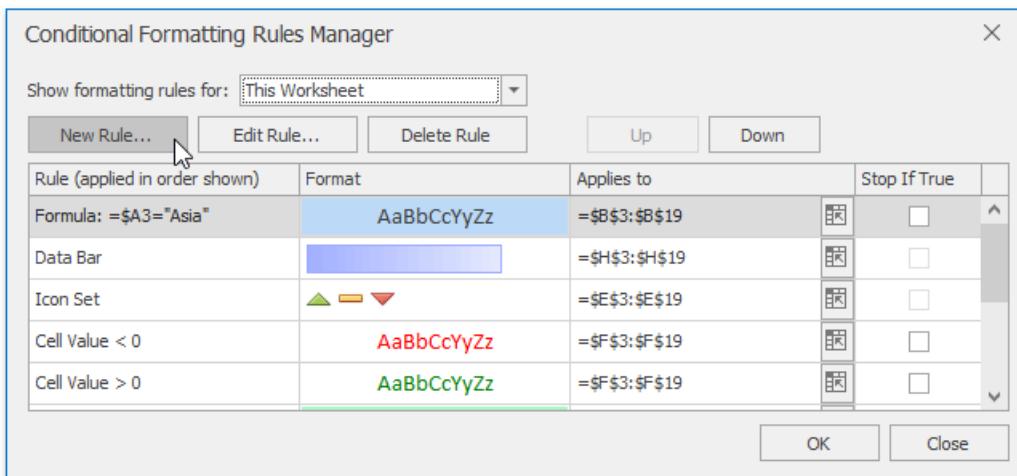
- In the invoked dialog, specify the threshold value, and select formatting options to be applied to cells that meet the condition. Note that you can also use a formula to specify the threshold value. If you enter a formula, start it with an equal sign ($=$). If a formula returns an error, formatting options will not be applied.



- If none of the built-in formatting options meet your requirements, you can create a custom formatting rule. On the **Home** tab, in the **Styles** group, select **Conditional Formatting | New Rule...**

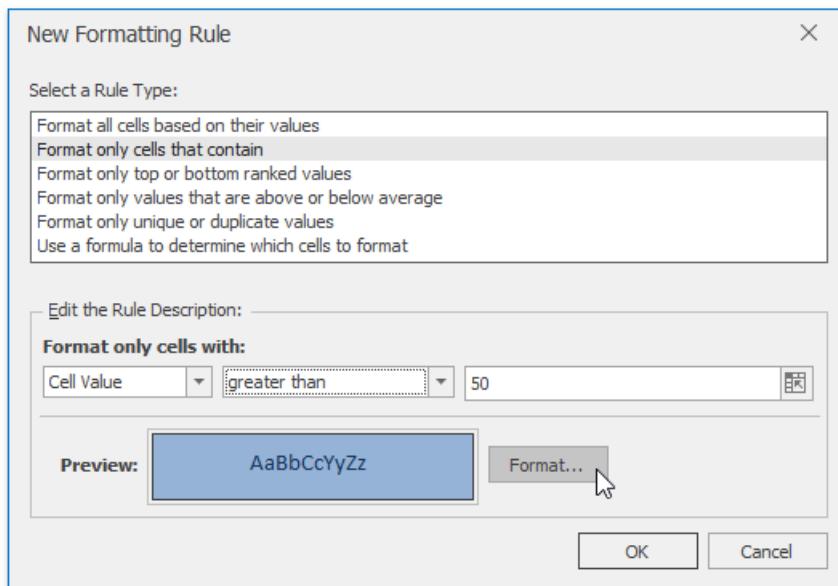


- ...or select **Conditional Formatting | Manage Rules...** and click the **New Rule...** button in the invoked **Conditional Formatting Rules Manager**.



- In the invoked **New Formatting Rule** dialog, select **Format only cells that contain** from the **Select a Rule Type** list.
- In the **Edit Rule Description** section, select the target relational operator from the drop-down menu and specify the threshold values.

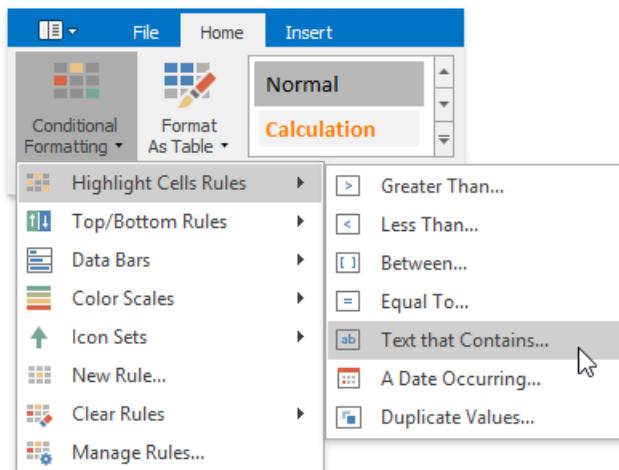
To set the formatting options to be applied to cells that meet the condition, click the **Format** button to invoke the **Format Cells** dialog. When the formatting options are defined, the resulting cell appearance is displayed in the **Preview** box.



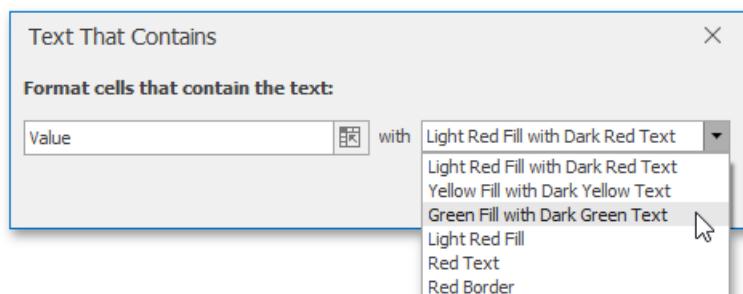
Format Cells that Contain Text or a Date

To highlight cells that contain the specified text string or time period, do the following:

- Select the cell range to which you wish to apply a conditional format.
- On the **Home** tab, in the **Styles** group, select **Conditional Formatting | Highlight Cells Rules**, and then click **Text that Contains...** or **A Date Occurring....**



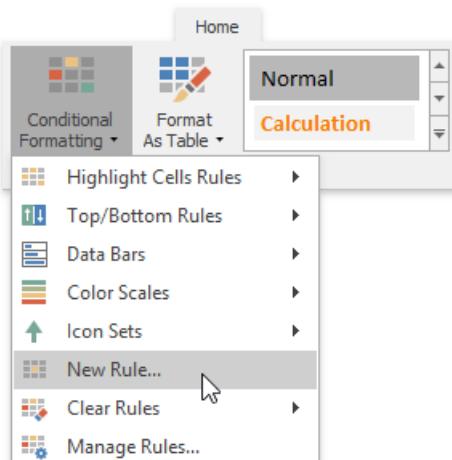
- In the invoked dialog, specify the text string (if you selected **Text that Contains...**) or time period (if you selected **A Date Occurring...**) to be highlighted, and select the formatting options to be applied to cells that meet the condition.



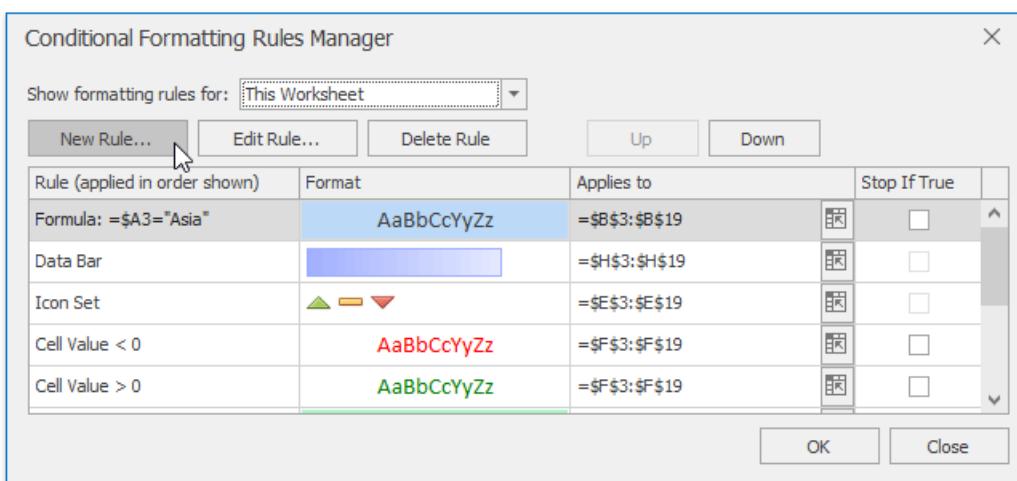
Note that for the **Text that Contains...** rule, you can also specify a formula that returns text. If you enter a formula, start it with an equal sign (=). If a formula returns an error, formatting options will not be applied.

- If none of the built-in formatting options meet your requirements, you can create a custom formatting rule. On the **Home**

tab, in the **Styles** group, select **Conditional Formatting | New Rule...**

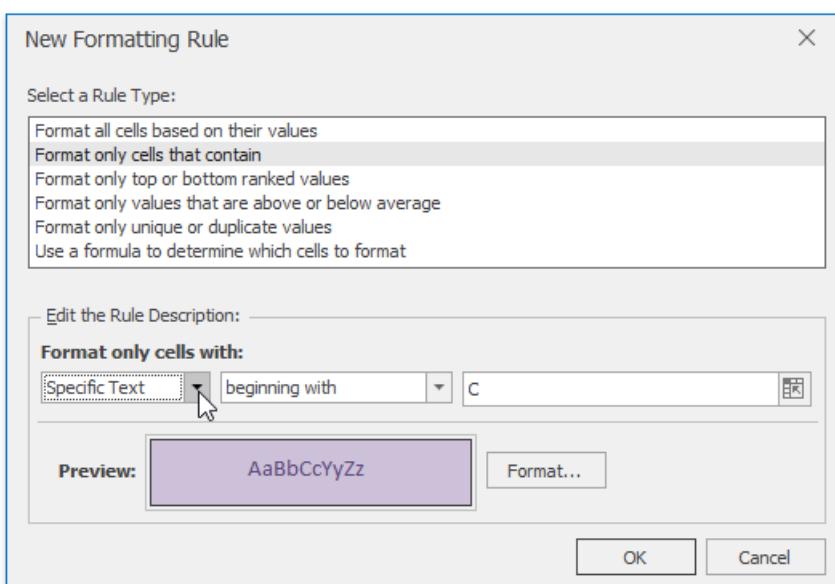


- ...or select **Conditional Formatting | Manage Rules...** and click the **New Rule...** button in the invoked **Conditional Formatting Rules Manager**.



- In the invoked **New Formatting Rule** dialog, select **Format only cells that contain** from the **Select a Rule Type** list.
- In the **Edit Rule Description** section, select the target cell content, set the format operator and the text string (if you selected **Specific Text**) or specify the time period (if you selected **Dates Occurring**).

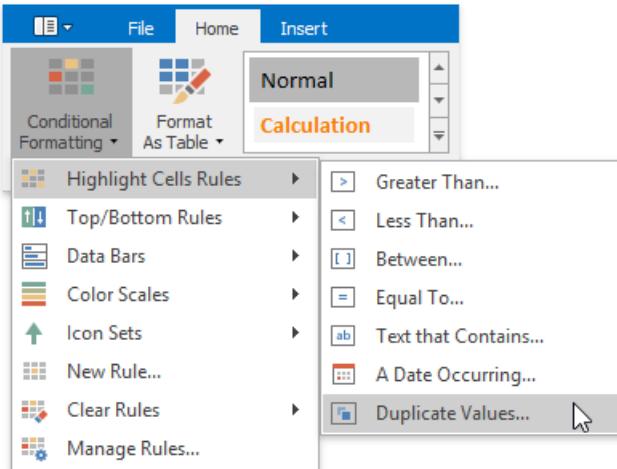
To set the formatting options to be applied to cells that meet the condition, click the **Format** button to invoke the **Format Cells** dialog. When the formatting options are defined, the resulting cell appearance is displayed in the **Preview** box.



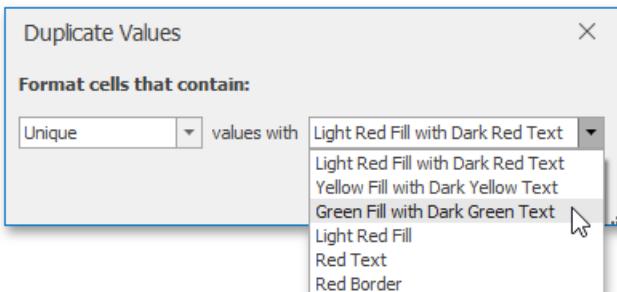
Format Unique or Duplicate Cells

To find unique or duplicate values in a range of cells, do the following:

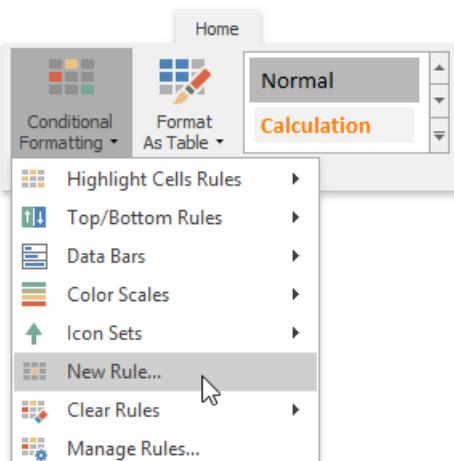
- Select the cell range to which you wish to apply a conditional format.
- On the **Home** tab, in the **Styles** group, select **Conditional Formatting | Highlight Cells Rules | Duplicate Values...**



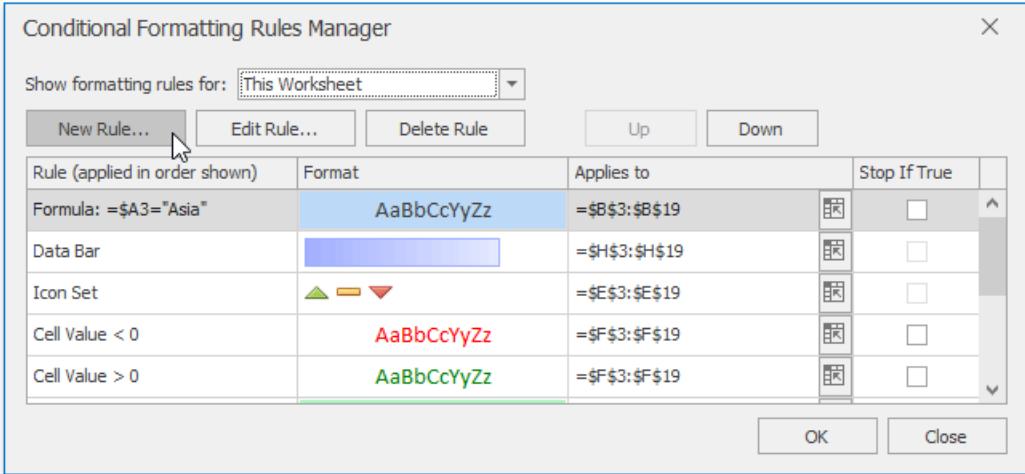
- In the invoked dialog, specify whether you wish to highlight unique or duplicate values, and select the formatting options to be applied to cells that meet the condition.



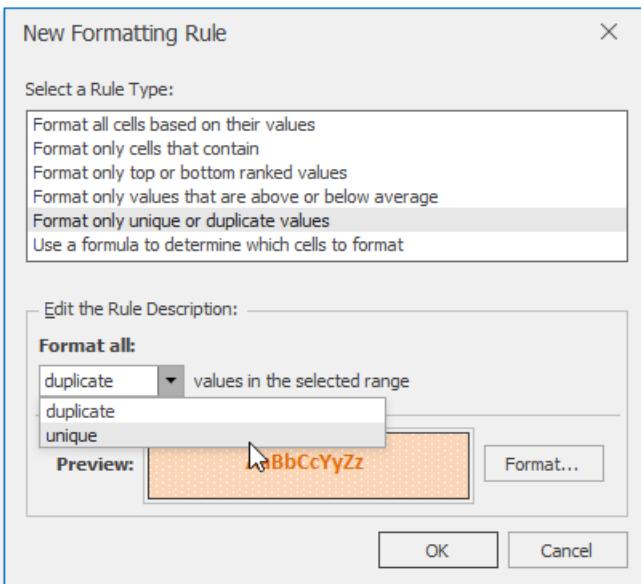
- If none of the built-in formatting options meet your requirements, you can create a custom formatting rule. On the **Home** tab, in the **Styles** group, select **Conditional Formatting | New Rule...**



- ...or select **Conditional Formatting | Manage Rules...** and click the **New Rule...** button in the invoked **Conditional Formatting Rules Manager**.



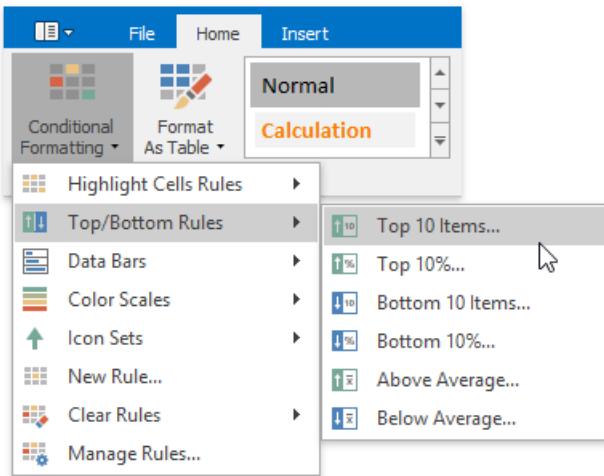
- In the invoked **New Formatting Rule** dialog, select **Format only unique or duplicate values** from the **Select a Rule Type** list.
- In the **Edit Rule Description** section, specify whether you wish to highlight unique or duplicate values. To set the formatting options to be applied to cells that meet the condition, click the **Format** button to invoke the **Format Cells** dialog. When the formatting options are defined, the resulting cell appearance is displayed in the **Preview** box.



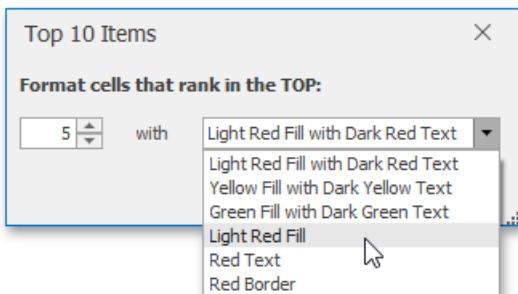
Format Top or Bottom Ranked Values

To highlight only the top or bottom ranked values in a range of cells, do the following:

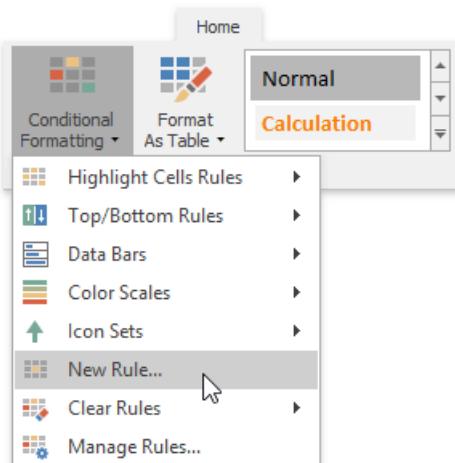
- Select the cell range to which you wish to apply a conditional format.
- On the **Home** tab, in the **Styles** group, select **Conditional Formatting | Top/Bottom Rules**, and then select one of the following items: **Top 10 Items...**, **Top 10%...**, **Bottom 10 Items...** or **Bottom 10%**.



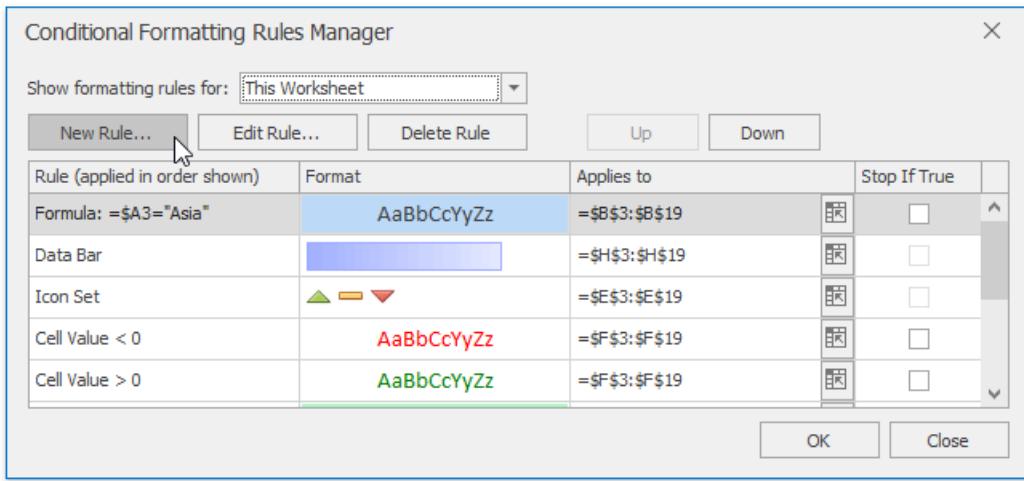
- In the invoked dialog, specify the number or percentage of the rank value (depending on the selected rule), and select the formatting options to be applied to cells that meet the condition.



- If none of the built-in formatting options meet your requirements, you can create a custom formatting rule. On the **Home** tab, in the **Styles** group, select **Conditional Formatting | New Rule...**

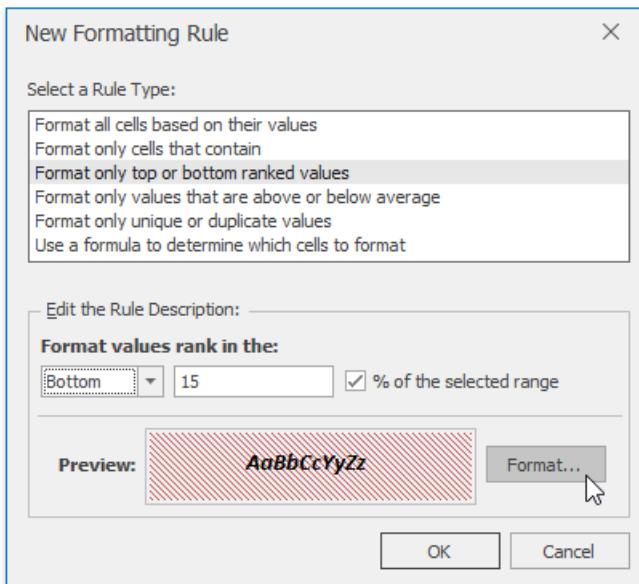


- ...or select **Conditional Formatting | Manage Rules...** and click the **New Rule...** button in the invoked **Conditional Formatting Rules Manager**.



- In the invoked **New Formatting Rule** dialog, select **Format only top or bottom ranked values** from the **Select a Rule Type** list.
- In the **Edit Rule Description** section, specify whether you wish to highlight top or bottom values and enter the rank value number. To convert the number to percentage, check the **% of the selected range** box.

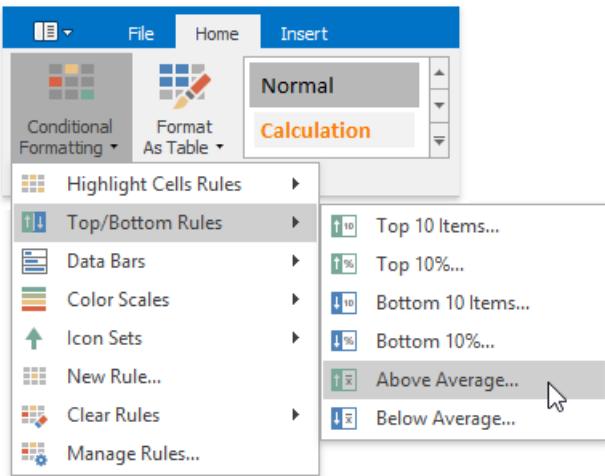
To set the formatting options to be applied to cells that meet the condition, click the **Format** button to invoke the **Format Cells** dialog. When the formatting options are defined, the resulting cell appearance is displayed in the **Preview** box.



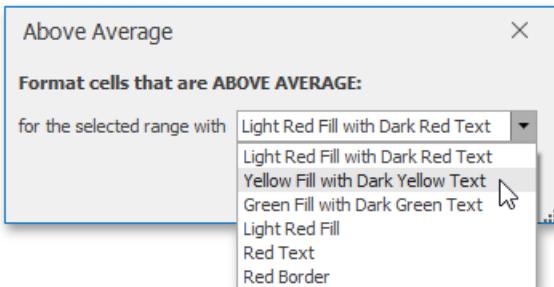
Format the Cells whose Values are Above or Below the Average

To highlight values that are above or below the average in a range of cells, do the following:

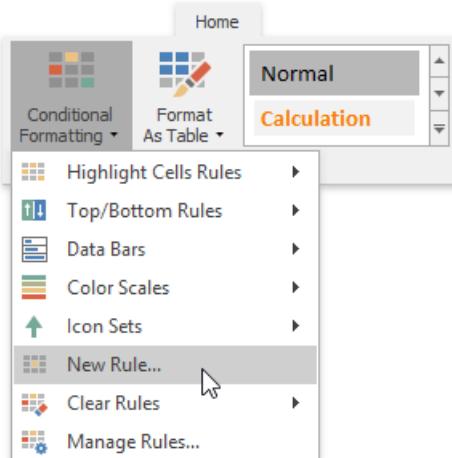
- Select the cell range to which you wish to apply a conditional format.
- On the **Home** tab, in the **Styles** group, select **Conditional Formatting | Top/Bottom Rules**, and then click **Above Average...** or **Below Average...**



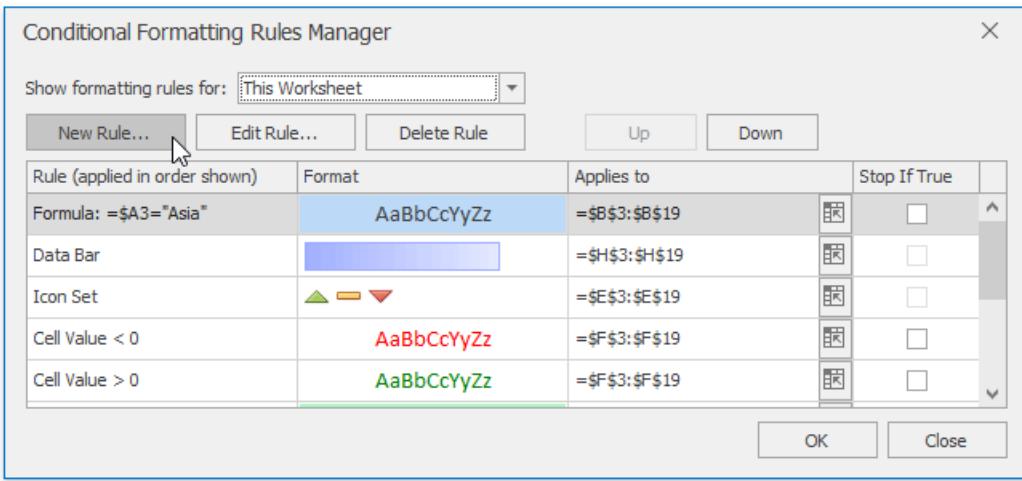
- In the invoked dialog, select the formatting options to be applied to cells that meet the condition.



- If none of the built-in formatting options meet your requirements, you can create a custom formatting rule. On the **Home** tab, in the **Styles** group, select **Conditional Formatting | New Rule...**

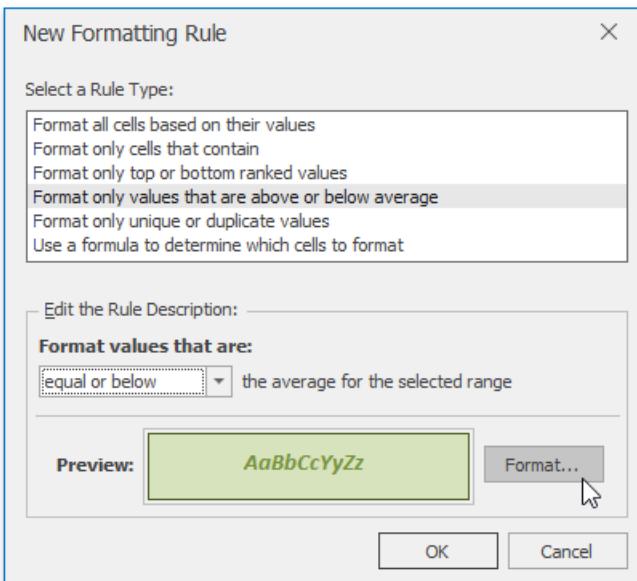


- ...or select **Conditional Formatting | Manage Rules...** and click the **New Rule...** button in the invoked **Conditional Formatting Rules Manager**.



- In the invoked **New Formatting Rule** dialog, select the **Format only values that are above or below average** type for the new rule from the **Select a Rule Type** list.
- In the **Edit Rule Description** section, select the format operator from the **Show values that are:** list.

To set the formatting options to be applied to cells that meet the condition, click the **Format** button to invoke the **Format Cells** dialog. When the formatting options are defined, the resulting cell appearance is displayed in the **Preview** box.



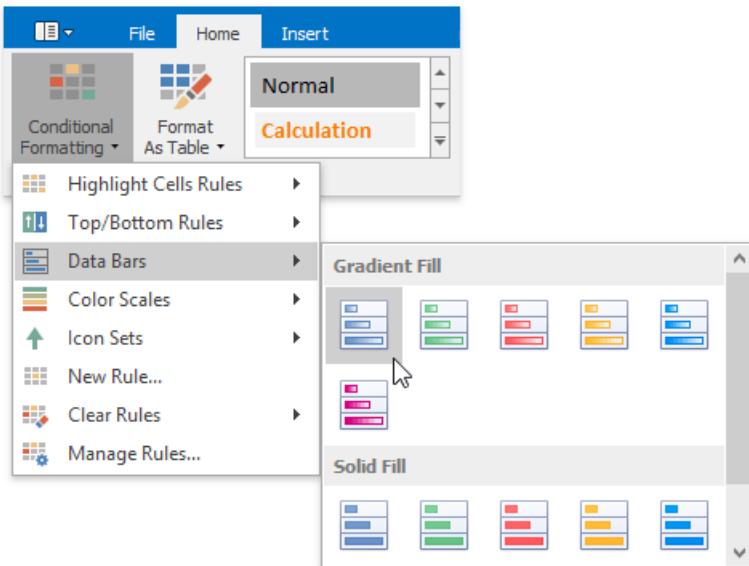
Format Cells using Data Bars

The data bar conditional formatting rule draws a shaded bar in the background of each cell in the range to which the rule is applied. The length of the data bar represents the cell value. A longer bar represents a higher value, and a shorter bar represents a lower value. For example, the image below shows the markup magnitude using solid light-green data bars.

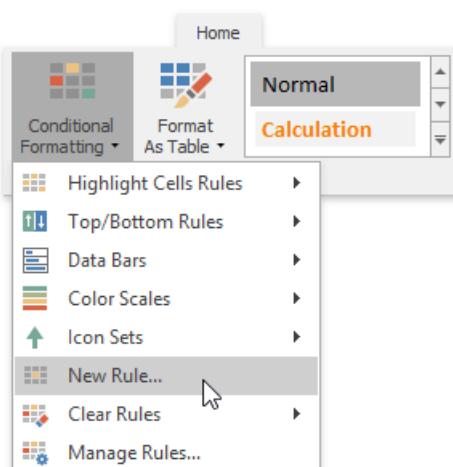
	A	B	C
1	Cost (Qtr 2)	Price	Markup
2	\$5.80	\$6.78	17%
3	\$10.00	\$16.00	60%
4	\$13.45	\$17.20	28%
5	\$9.50	\$12.43	31%
6	\$19.20	\$22.99	20%
7			

To apply a data bar conditional formatting rule, do the following:

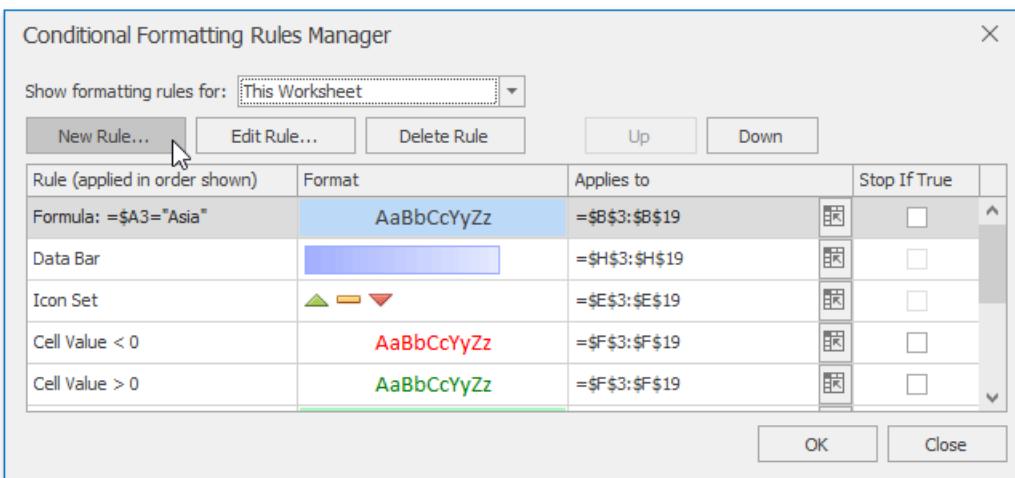
- On the **Home** tab, in the **Styles** group, choose **Conditional Formatting | Data Bars**, and then select the desired color for a gradient or solid data bar.



- If none of the built-in formatting options meet your requirements, you can create a custom formatting rule. On the **Home** tab, in the **Styles** group, select **Conditional Formatting | New Rule...**



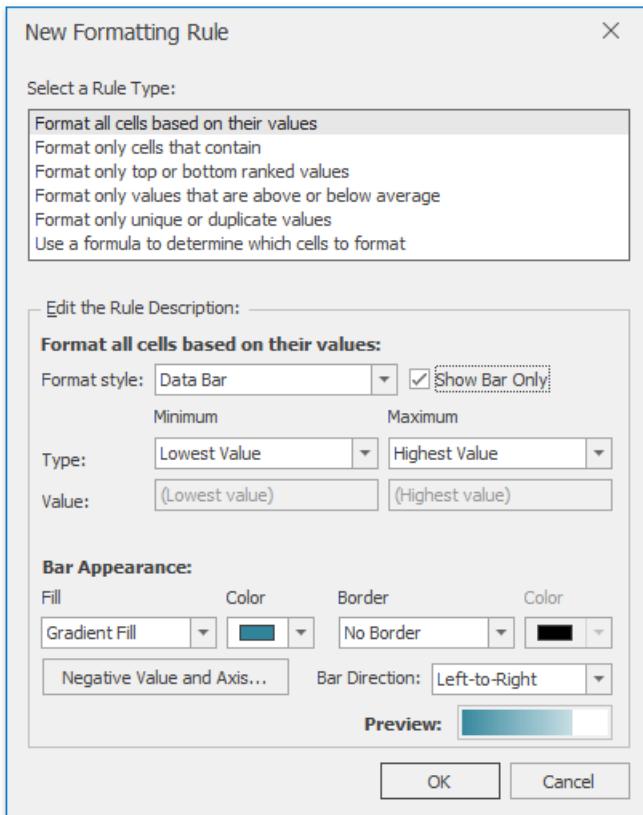
- ...or select **Conditional Formatting | Manage Rules...** and click the **New Rule...** button in the invoked **Conditional Formatting Rules Manager**.



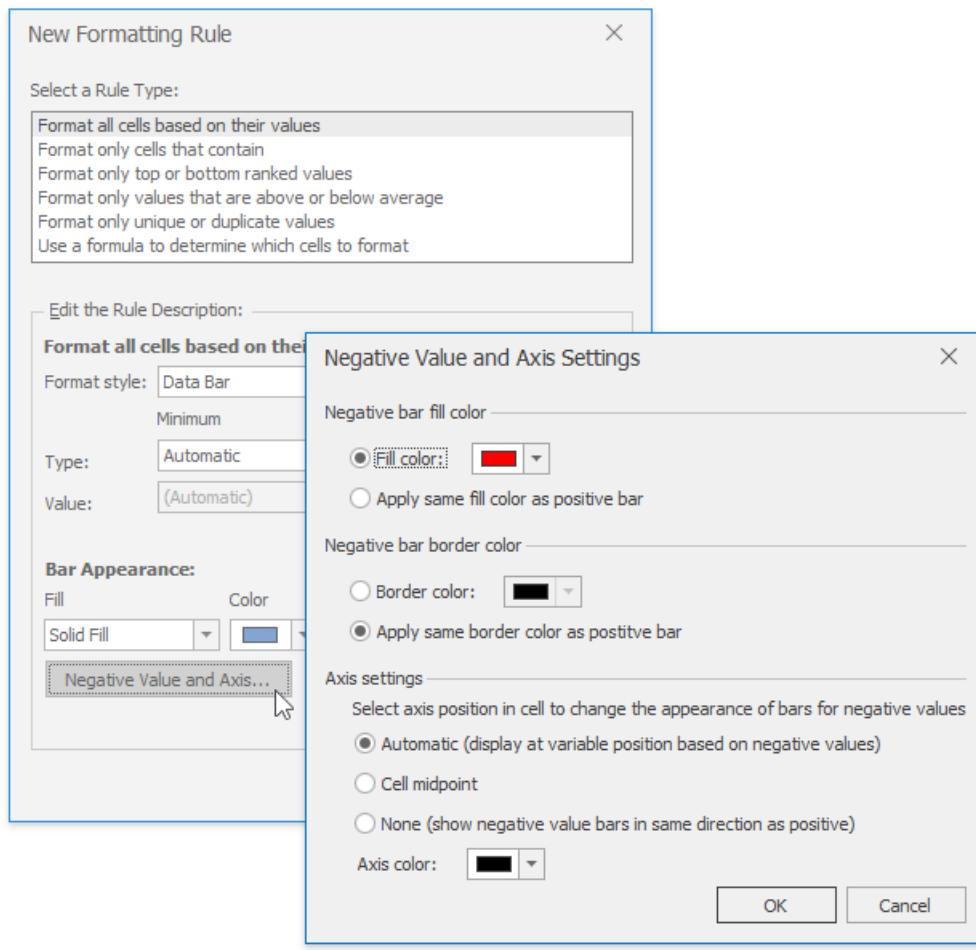
- In the invoked **New Formatting Rule** dialog, select the **Format cells based on their values** type from the **Select a Rule Type** list.
- In the **Edit Rule Description** section, select **Data Bar** from the **Format style:** list.

- Specify the minimum and maximum thresholds type and value (if necessary). To disable showing values in the cells to which the formatting rule is applied, check the **Show bar only** box.

Customize the bar appearance by setting the fill type, fill color, border type and color in the **Bar Appearance:** section. The resulting data bar appearance is displayed in the **Preview** box.



To specify the negative bar and axis appearance settings, click the **Negative Value and Axis...** button. The invoked **Negative Value and Axis Settings** dialog allows you to set the negative bar fill and border color, specify axis color and position within the cell.



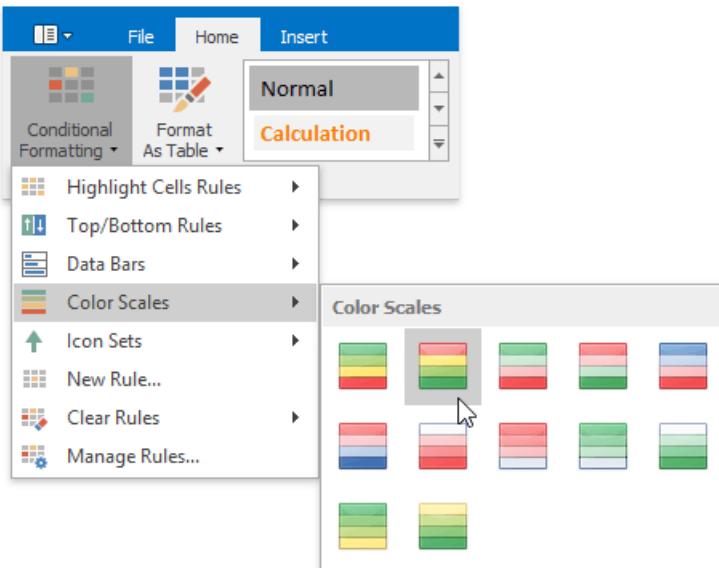
Format Cells using Color Scales

Color scales compare values using a gradation of two or three colors. The shade of the color represents higher, middle and lower values in the cell range to which the rule is applied. For example, the image below shows a price distribution using a gradation of three colors. Red represents the lower values, yellow represents the medium values and sky blue represents the higher values.

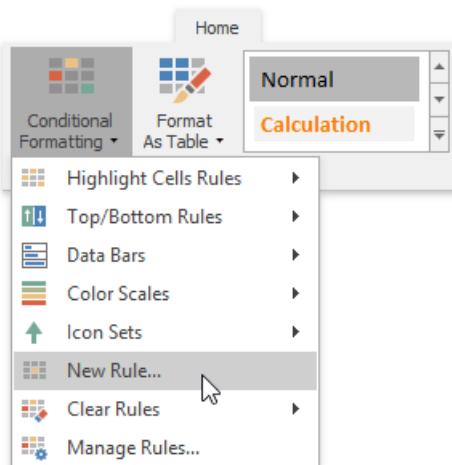
	A
1	Price
2	\$7.90
3	\$13.99
4	\$17.20
5	\$19.25
6	\$22.99
7	

To create a color scale, do the following:

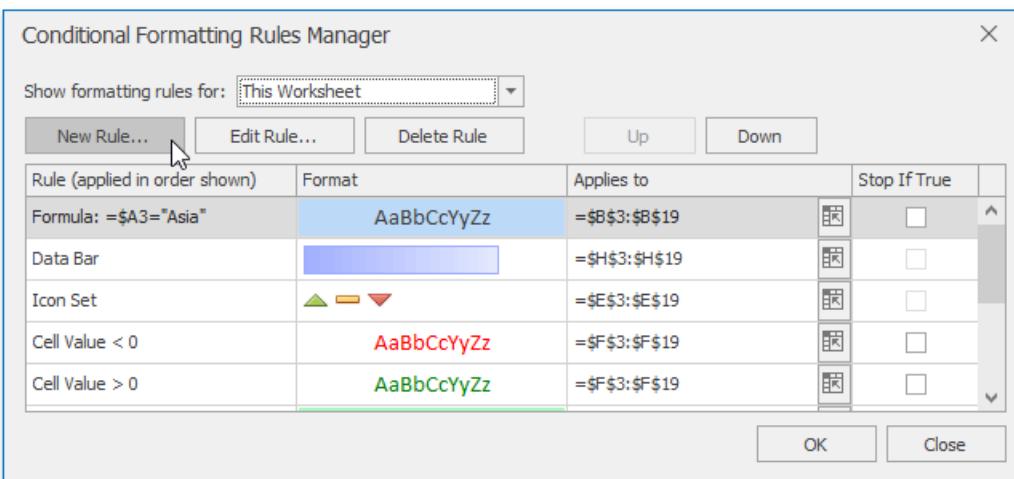
- On the **Home** tab, in the **Styles** group, choose **Conditional Formatting | Color Scales**, and then select one of the predefined color combinations.



- If none of the built-in formatting options meet your requirements, you can create a custom formatting rule. On the **Home** tab, in the **Styles** group, select **Conditional Formatting | New Rule...**



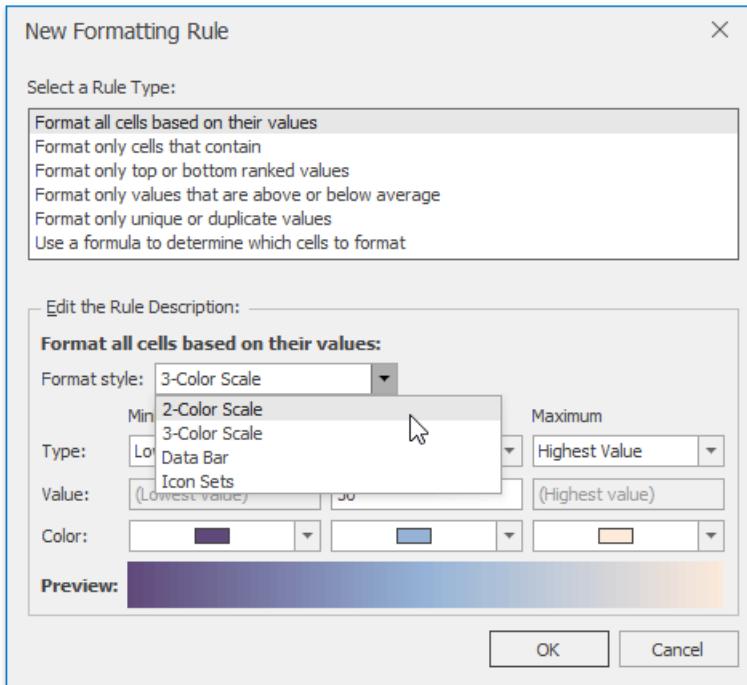
- ...or select **Conditional Formatting | Manage Rules...** and click the **New Rule...** button in the invoked **Conditional Formatting Rules Manager**.



- In the invoked **New Formatting Rule** dialog, select the **Format cells based on their values** type from the **Select a Rule Type** list.
- In the **Edit Rule Description** section, select **2- or 3-Color Scale** from the **Format style:** list.

Specify the type of the minimum, midpoint (if the 3-color scale style is selected) and the maximum threshold, enter their

values (if necessary) and select the corresponding colors. The resulting cell appearance is displayed in the **Preview** box.



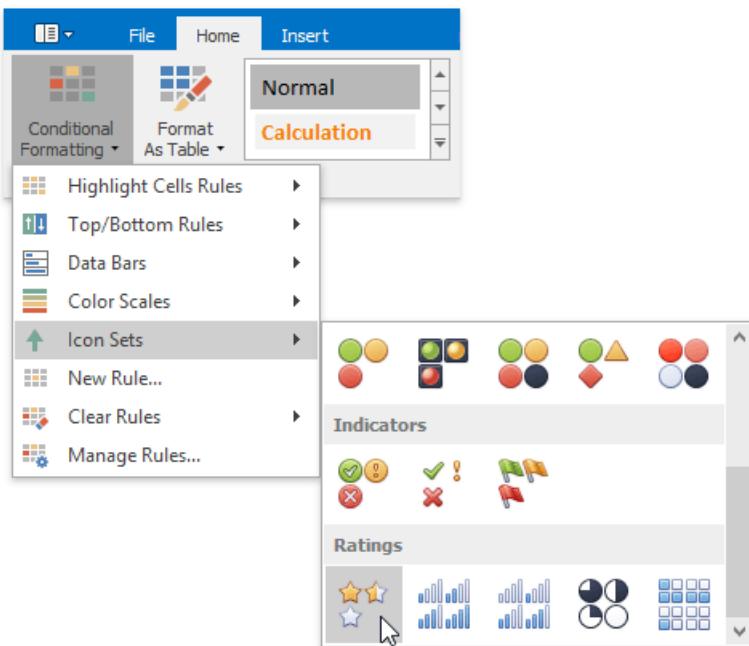
Format Cells using Icon Sets

An icon set conditional format classifies data in a range into three to five categories. The **Spreadsheet** divides the range into equal parts based on the number of icons in the selected set and applies an icon to each cell depending on its value. For example, the image below shows the value ranking. A filled star represents values that are greater than or equal to 67 percent, a half-filled star represents values that are less than 67 percent and greater than or equal to 33 percent, and an empty star shows values that are less than 33 percent.

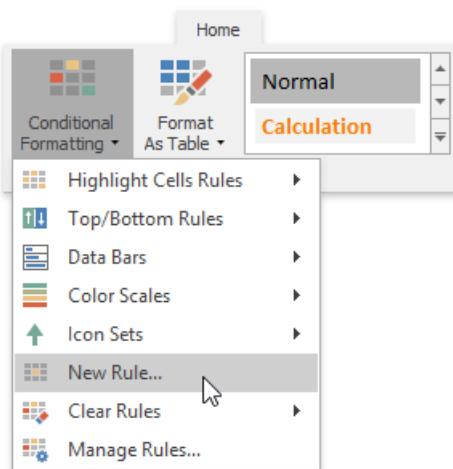
	A
1	Rating
2	2
3	5
4	0
5	4
6	3
7	1
8	

To apply an icon set conditional formatting rule, do the following:

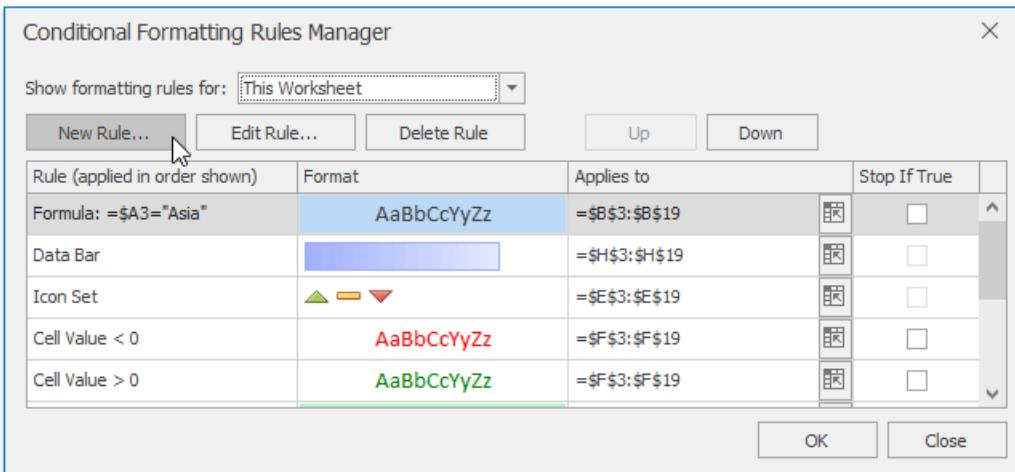
- On the **Home** tab, in the **Styles** group, choose **Conditional Formatting | Icon Sets**, and then select the desired icon set from the gallery.



- If none of the built-in formatting options meet your requirements, you can create a custom formatting rule. On the **Home** tab, in the **Styles** group, select **Conditional Formatting | New Rule...**



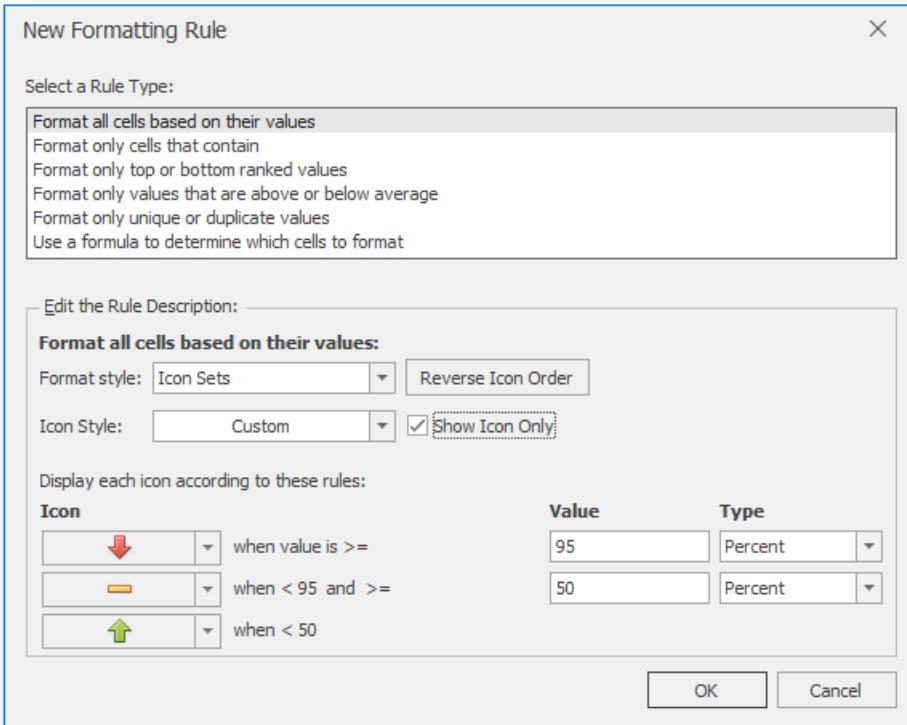
- ...or select **Conditional Formatting | Manage Rules...** and click the **New Rule...** button in the invoked **Conditional Formatting Rules Manager**.



- In the invoked **New Formatting Rule** dialog, select the **Format cells based on their values** type from the **Select a Rule Type** list.
- In the **Edit Rule Description** section, select **Icon Sets** from the **Format style:** list.

- You can select the whole icon set in the **Icon Style** list or select each icon individually in the **Icon** section. Check **Show Icon Only** box to disable showing cell values. To show icons in the reverse order, click **Reverse Icon Order** button.

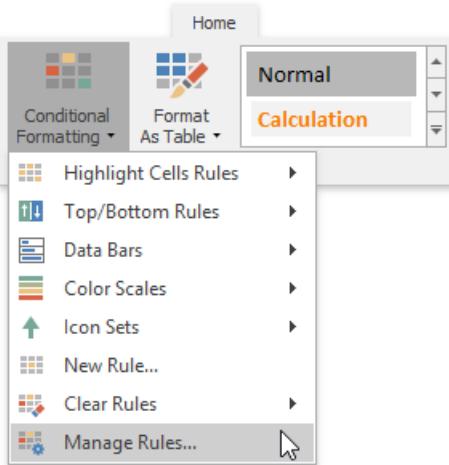
Select the minimum and maximum threshold type and change values if necessary in the corresponding **Value** boxes. The resulting rule is shown in the **Display each icon according to these rules:** section.



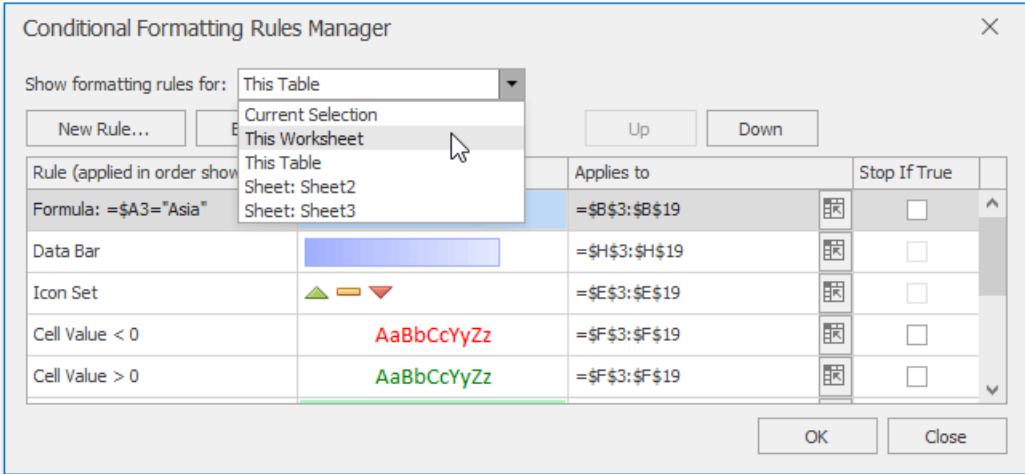
Edit the Conditional Formatting Rule

You can modify existing conditional formatting rules by doing the following:

- On the **Home** tab, in the **Styles** group, click **Conditional Formatting | Manage Rules...**



- In the invoked **Conditional Formatting Rules Manager**, select the part of the document whose formatting rules should be displayed by selecting one of the available areas from the **Show formatting rules for:** drop-down list.

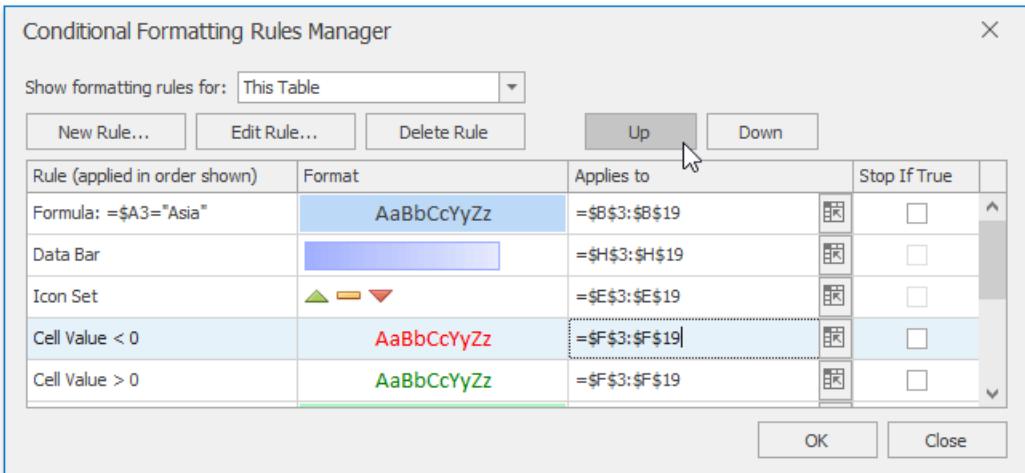


- To edit the desired rule, select it within the list and click **Edit Rule...** button.
- To apply the selected formatting rule to another cell range, type the cell reference in the **Applies to** column cell or select the cell range directly in the worksheet by clicking the **Collapse Dialog**



- The formatting rules are shown in order of precedence. A new formatting rule is automatically added to the top of the list and has the highest precedence. To change the precedence of a desired formatting rule, use **Up** and **Down** buttons.

You can disable applying the formatting rules lower in precedence if the current rule condition is **true**. To do that, check the **Stop if True** box. Note that this option is unavailable for the rules that format cells using data bars, color scales or icon sets.



Clear Conditional Formatting Rules

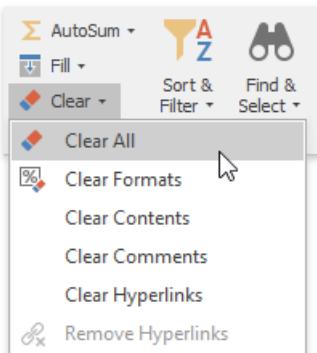
To delete a conditional formatting rule, do one of the following:

- Select the range that contains the conditional formatting rules you wish to clear. On the **Home** tab, in the **Styles** group, select **Conditional Formatting | Clear Rules | Clear Rules from Selected Cells** to delete the rules applied to the selected range.
- Invoke the **Conditional Formatting Rules Manager**, select the rule you wish to clear and click **Delete Rule** button.
- To clear all conditional formatting rules on a worksheet, select **Conditional Formatting | Clear Rules | Clear Rules from Entire Sheet**.

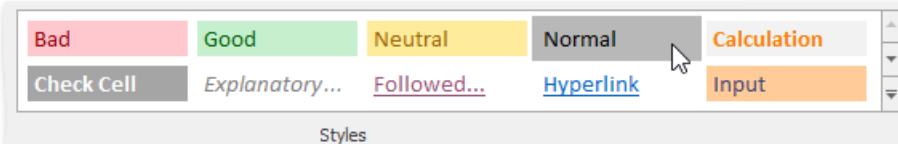
Clear Cell Formatting

To remove all formatting from cells, do one of the following.

1. In the **Editing** group within the **Home** tab, click the **Clear** button, and select **Clear Formats** from the drop-down menu.



2. In the **Styles** group within the **Home** tab, select the *Normal* style, to restore the default settings.

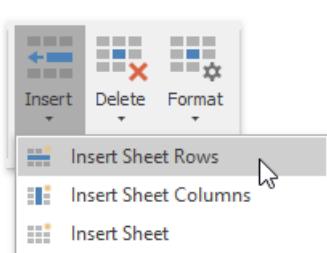


Insert and Delete Columns and Rows

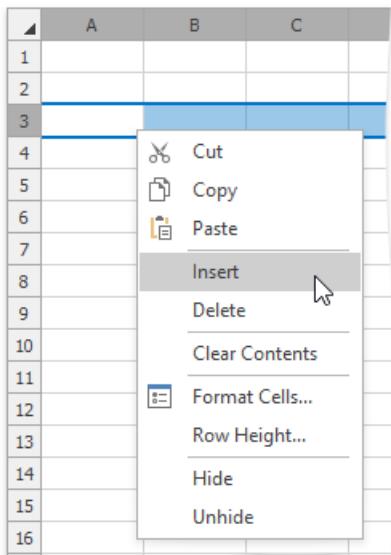
The **Spreadsheet** provides the capability to insert and delete columns and rows in a worksheet.

Insert Rows

1. To insert a single row, **select** the entire row by clicking the row heading, or click a cell in the row above the position in which you wish to insert a new row. To insert multiple rows, **select** the number of rows you wish to insert. For example, if you wish to insert three rows, select three rows by clicking the row headings.
2. Do one of the following.
 - o In the **Cells** group within the **Home** tab, click the **Insert** button and select the **Insert Sheet Rows** item from the drop-down list.

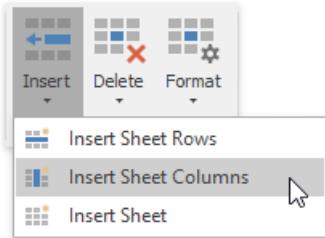


- o Right-click a cell within the selected row(s) and click the **Insert** item in the invoked menu. The new row(s) will be inserted above the selected row(s).

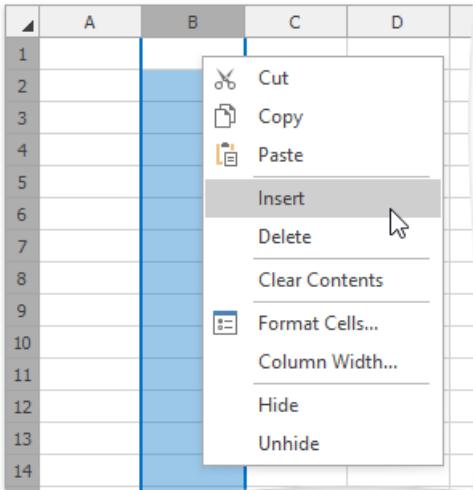


Insert Columns

1. To insert a single column, **select** the entire column by clicking the column heading, or by clicking a cell in the column to the left of where the new column will be inserted. To insert multiple columns, **select** the number of columns you wish to insert. For example, to insert three columns, select three columns by clicking column headings.
2. Do one of the following:
 - o In the **Cells** group within the **Home** tab, click the **Insert** button and select the **Insert Sheet Columns** item from the drop-down list.

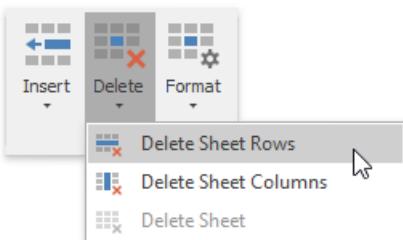


- Right-click a cell within the selected column(s) and click the **Insert** item in the invoked menu. The new column(s) will be inserted to the left of the selected column(s).



Delete Rows and Columns

- Select the column(s) or row(s) you wish to delete by clicking its heading.
- Do one of the following.
 - In the **Cells** group within the **Home** tab, click the **Delete** button and select the **Delete Sheet Rows** or **Delete Sheet Columns** item from the drop-down list.



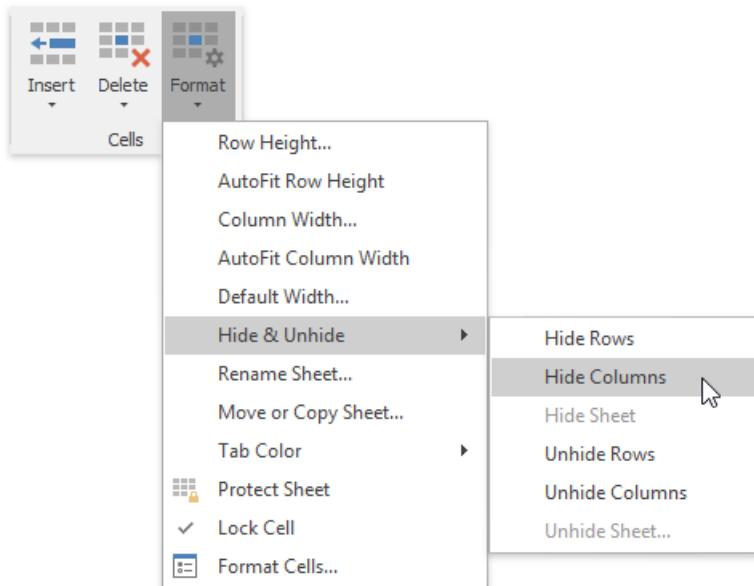
- Right-click a cell within the selected column(s) or row(s), and then click the **Delete** item in the invoked menu. The specified column(s) or row(s) will be deleted.

Show and Hide Columns and Rows

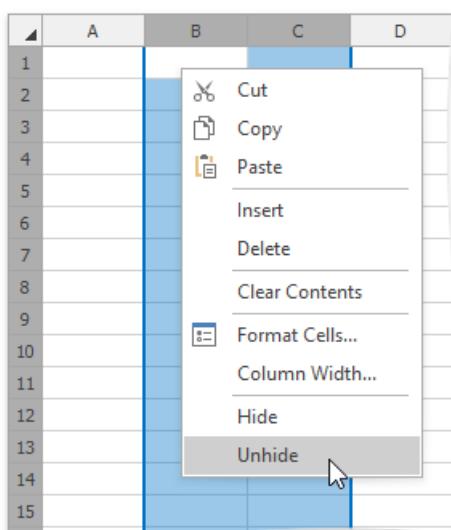
The **Spreadsheet** provides the capability to display and hide columns and rows in a worksheet.

Hide and Unhide Columns

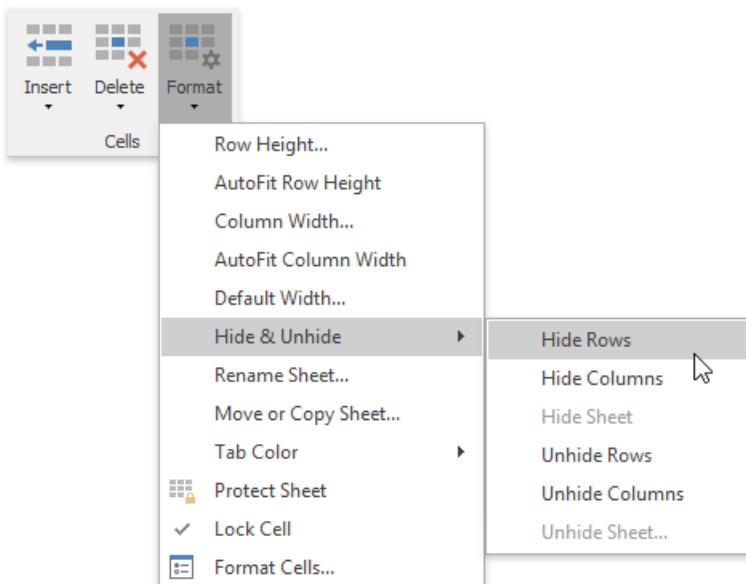
1. Select the column to be hidden.
2. Do one of the following:
 - o Set the column width to zero. To do this, drag the boundary of the column heading until the column is hidden;
 - o On the **Home** tab, in the **Cells** group, click the **Format** button and select **Hide & Unhide | Hide Columns**;

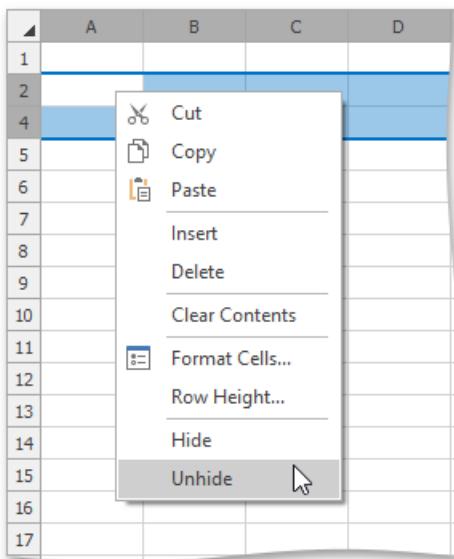


- o Right-click the selected column and select the **Hide** item from the context menu.
3. To show the column you hid, select the columns adjoining to either side of the hidden column, and then do one of the following:
 - o On the **Home** tab, in the **Cells** group, click the **Format** button, and then select **Hide & Unhide | Unhide Columns**;
 - o Right-click the selected columns and select the **Unhide** item from the context menu.



Hide and Unhide Rows

1. Select the row to be hidden.
 2. Do one of the following:
 - o Set the row height to zero. To do this, drag the boundary of the row heading until the row is not displayed;
 - o On the **Home** tab, in the **Cells** group, click the **Format** button and select **Hide & Unhide | Hide Rows**;
- 
- o Right-click the selected row and select the **Hide** item from the context menu.
3. To display the row you hid, select the rows that are above and below the hidden row, and then do one of the following:
 - o On the **Home** tab, in the **Cells** group, click the **Format** button, and then select **Hide & Unhide | Unhide Rows**;
 - o Right-click the selected rows and select the **Unhide** item from the context menu;



Display all hidden columns and rows

1. Click the **Select all** button at the intersection of the column and row headings, or press **CTRL+A**.
2. Do one of the following:
 - o On the **Home** tab, in the **Cells** group, click the **Format** button, and then select **Hide & Unhide | Unhide Rows or Unhide Columns**;
 - o Right-click the selection and select the **Unhide** item from the context menu.

Specify Column Width and Row Height

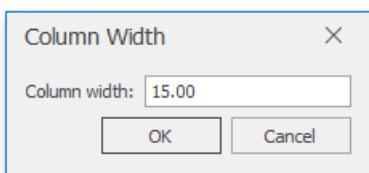
Setting the column width

In the **Spreadsheet**, the column width can vary from 0 to 255 characters of the default font specified by the predefined *Normal* style. The default column width is 8.43 characters. If you set the column width to 0, the column will be hidden.

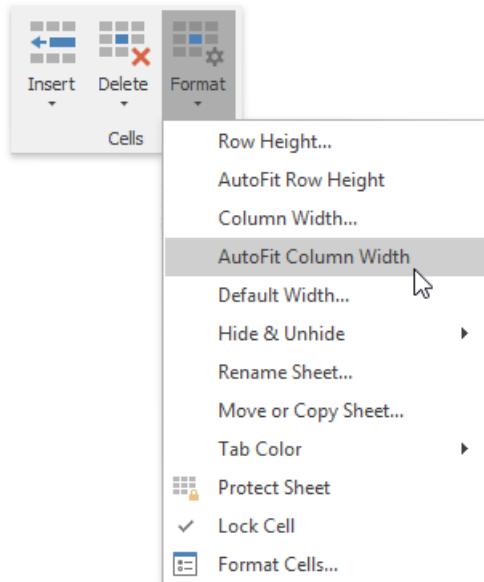
To change the column width, do one of the following.

1. Drag the right boundary of the column header to resize a column's width. To set the width of multiple columns, select these columns, and then drag the right boundary of one of the selected columns.
2. To set the column width to a specific value, select the column whose width you wish to change, and on the **Home** tab, in the **Cells** group, click **Format | Column Width...**

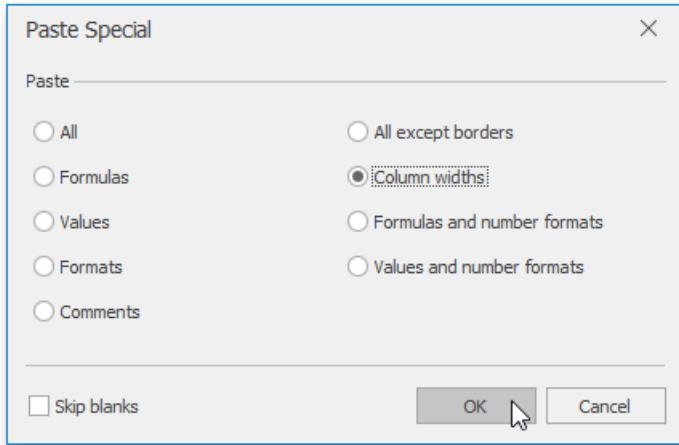
Type the required width value in the invoked **Column Width** dialog.



3. To change the column width to automatically fit the contents, select the column and do one of the following.
 - o On the **Home** tab in the **Cells** group, click the **Format** button and select the **AutoFit Column Width** item from the drop-down list.

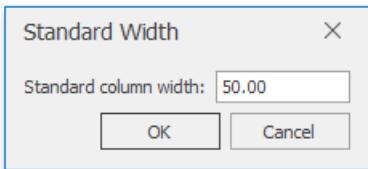


- o Double-click the right boundary of the selected column.
4. To match one column's width to another column, do the following.
 - o Select the column whose width you want to copy.
 - o On the **Home** tab, in the **Clipboard** group, click the **Copy** button or press CTRL+C.
 - o Click the cell in the column that is to be resized, and then click the **Paste Special** button in the **Clipboard** group. In the **Paste Special** dialog box that is invoked, select the **Column widths** item.



5. To change the default width for all columns in a worksheet, on the **Home** tab in the **Cells** group, click the **Format** button and select the **Default Width...** item from the drop-down list.

In the invoked **Standard Width** dialog, type a new number for the default column width.



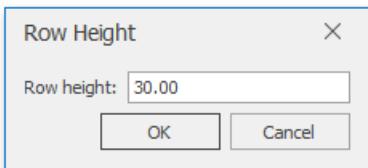
Set the row height

In the **Spreadsheet**, the row height should be between 0 and 409 points. The default row height is 12.75 points. If you set the row height to 0, the row is hidden.

To change the row height, do one of the following.

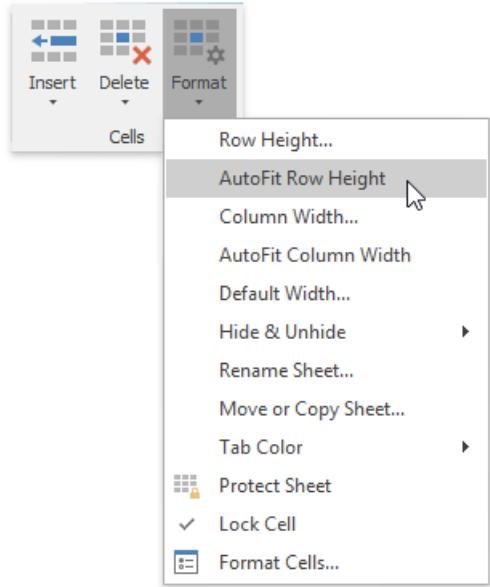
1. Drag the lower boundary of the row header until the row reaches your desired height. To set the height of multiple rows, select them, and then drag the lower boundary of any selected row.
2. To set the row height to a specific value, select the row whose height you wish to change, and on the **Home** tab in the **Cells** group, click **Format | Row Height...**

Type the required height value in the invoked **Row Height** dialog.



3. To change the row height to automatically fit the contents, select the row and do one of the following.

- o On the **Home** tab in the **Cells** group, click the **Format** button and select the **AutoFit Row Height** item from the drop-down list.



- o Double-click the lower boundary of the selected row.

Create a Table

The **Spreadsheet** allows you to insert a new table in a worksheet, or convert an existing range to a table.

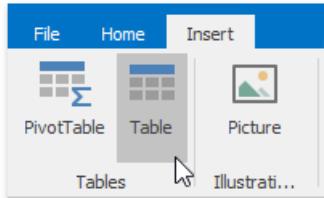
- [Create a Table](#)
- [Convert a Table to a Data Range](#)
- [Delete a Table](#)

Create a Table

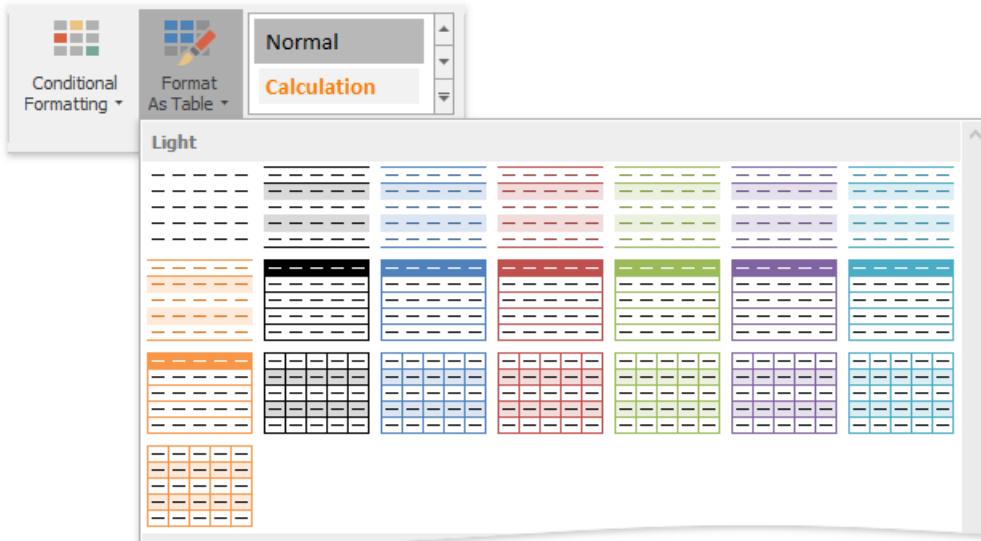
To insert a table, select the cell range to be included in the table.

Then, do one of the following.

- To create a table with the default style, on the **Insert** tab, in the **Tables** group, click the **Insert Table** button.



- To create a table with one of the predefined styles, on the **Home** tab, in the **Styles** group, click the **Format As Table** button and select the desired style from the gallery.



In the invoked **Create Table** dialog, verify that the range in the **Where is the data for your table?** field reflects your selection, and then specify whether or not the table has headers.

A screenshot of a Microsoft Excel spreadsheet titled 'International Trade Data'. The table has columns for Country, Exports, Imports, and Balance. Row 1 contains the headers. Rows 2 through 10 list data for Australia, Belgium, Brazil, Canada, China, France, Germany, South Korea, and Switzerland. A 'Create Table' dialog box is overlaid on the spreadsheet, asking 'Where is the data for your table?' with the formula '=C\$1:\$F\$10' and a checked 'My table has headers' option. Buttons for 'OK' and 'Cancel' are at the bottom right.

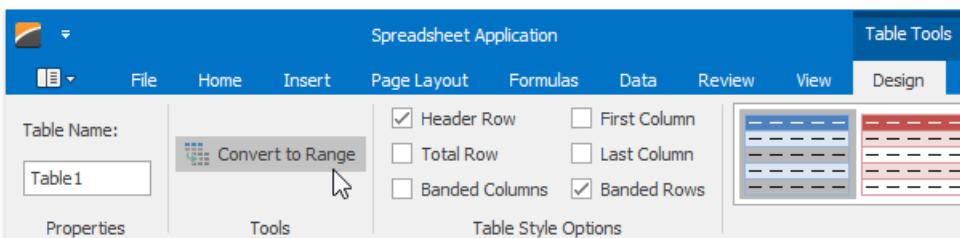
	A	C	D	E	F	G	H	I	J
1		Country	Exports	Imports	Balance				
2		Australia	2,277.90	815.40	▲ 1,462.50				
3		Belgium	2,808.90	1,826.20	▲ 982.70				
4		Brazil	3,423.20	2,571.40					
5		Canada	26,453.10	28,343.10					
6		China	8,786.50	36,646.20					
7		France	2,642.30	3,563.70					
8		Germany	4,052.50	9,888.30					
9		South Korea	3,211.50	5,669.90	▼ -2,458.40				
10		Switzerland	2,150.80	3,249.10	▼ -1,098.30				
11									

Note that after you create a table, the **Table Tools** contextual tab becomes available. Use this tab to provide some extra settings for the created table.

Convert a Table to a Data Range

To convert an existing table to a normal range of cells, do the following.

- Click the table to display the **Table Tools** contextual tab.
- On the **Design** tab, in the **Tools** group, click the **Convert To Range** button.

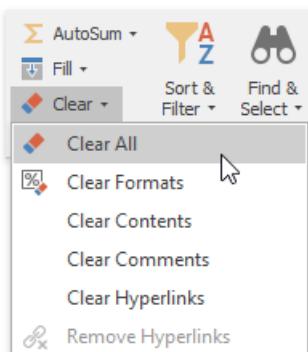


Note that after you delete a table, the table formatting persists. However, the **Table Tools** contextual tab is no longer available, and table features are lost. For example, you cannot use structured references (references that use table names) in formulas.

Delete a Table

To delete an existing table, select it and do one of the following.

- On the **Home** tab, in the **Editing** group, click **Clear | Clear All**.



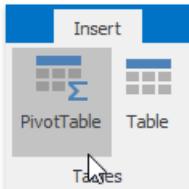
- Press **DELETE**.

Create a Pivot Table

A **pivot table** represents a summary table used to explore, analyze and aggregate large amounts of data in a worksheet. It helps divide your data into categories and subcategories, and automatically calculates subtotals and grand totals using the most suitable summary function from a predefined list.

To create a PivotTable report, follow the steps below.

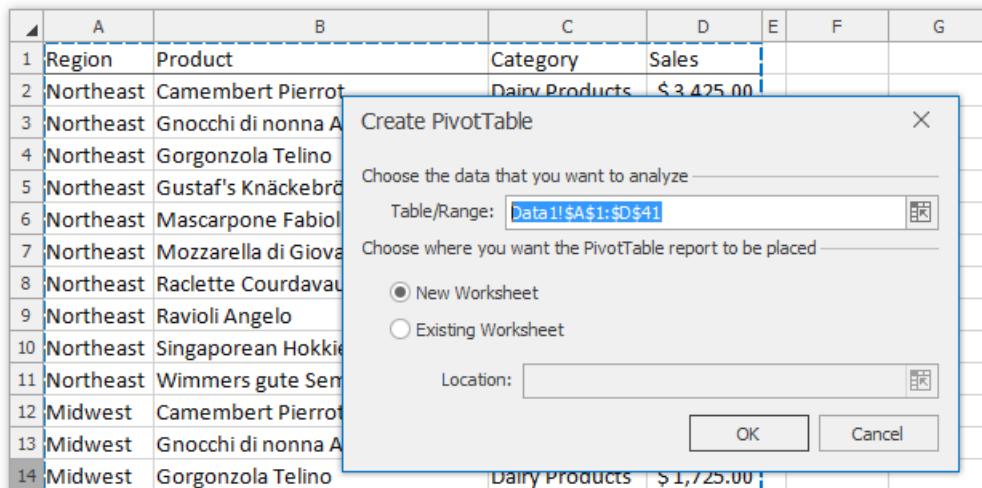
1. On the **Insert** tab, in the **Tables** group, click the **PivotTable** button.



2. In the invoked **Create PivotTable** dialog, specify the source data and the location of the new pivot table, and click **OK**.

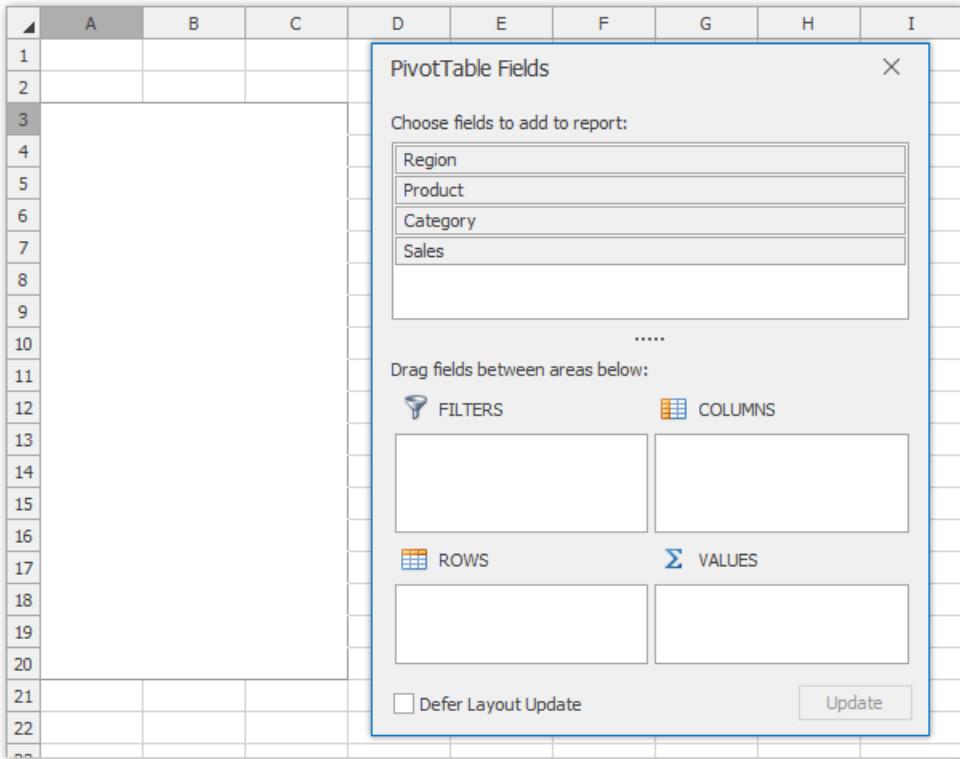
IMPORTANT

Before creating a pivot table, make sure that the source data is organized in a tabular format, has column headings in the first row and does not include blank rows or columns.



	A	B	C	D	E	F	G
1	Region	Product	Category	Sales			
2	Northeast	Camembert Pierrot	Dairy Products	\$ 3,425.00			
3	Northeast	Gnocchi di nonna A					
4	Northeast	Gorgonzola Telino					
5	Northeast	Gustaf's Knäckebrot					
6	Northeast	Mascarpone Fabio					
7	Northeast	Mozzarella di Giova					
8	Northeast	Raclette Courdavau					
9	Northeast	Ravioli Angelo					
10	Northeast	Singaporean Hokkien					
11	Northeast	Wimmers gute Semmel					
12	Midwest	Camembert Pierrot					
13	Midwest	Gnocchi di nonna A					
14	Midwest	Gorgonzola Telino	Dairy Products	\$ 1,725.00			

3. An empty report is created and the **Field List** pane is invoked.



4. To fill the pivot table with data, select the desired field in the **Field List** pane and drop it to the one of the following areas at the pane bottom.

- **Rows Area** - contains fields used to group report data by rows.
- **Columns Area** - contains fields used to break report data into categories by columns.
- **Values Area** - contains fields against which summaries are calculated. As a rule, value fields contain numeric values, which are summarized with the Sum function, but you can [change the calculation type](#) by selecting one of the predefined functions (Count, Average, Min, Max, Product, Count Numbers, StdDev, StdDevP, Var, or Varp).
- **Filters Area** - contains fields used to filter the entire PivotTable report to display data for the selected items.

All the changes are automatically reflected in the report.

A	B
1 Sum of Sales	Column Label
2 Row Labels	Midwest
3 □ Dairy Products	
4 Camembert Pierrot	
5 Gorgonzola Telino	
6 Mascarpone Fabioli	
7 Mozzarella di Giovanni	
8 Raclette Courdavault	
9 □ Grains/Cereals	
10 Gnocchi di nonna Alice	
11 Gustaf's Knäckebröd	
12 Ravioli Angelo	
13 Singaporean Hokkien Fried Mee	
14 Wimmers gute Semmelknödel	
15 Grand Total	
16	
17	
18	
19	

PivotTable Fields

Choose fields to add to report:

 Region
 Product
 Category
 Sales

.....

Drag fields between areas below:

FILTERS **COLUMNS**

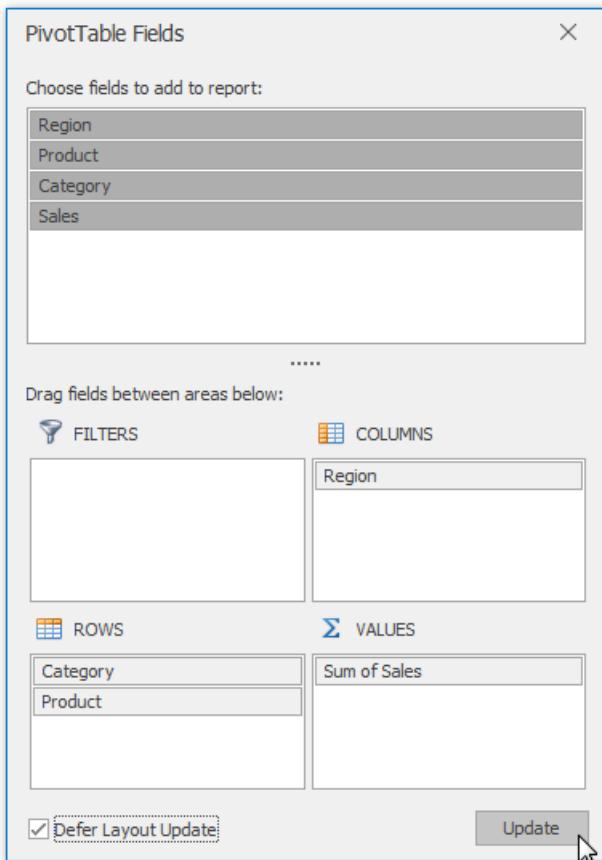
ROWS **VALUES**

Region

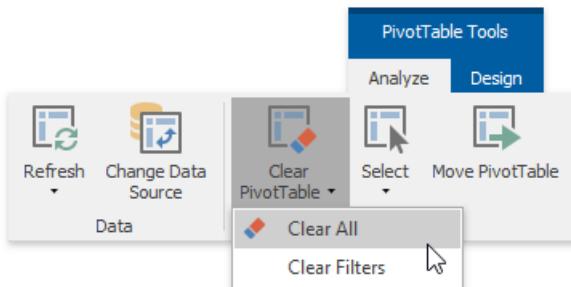
Defer Layout Update

5. To postpone the report update, select the **Defer Layout Update** check box at the bottom of the pane. The table will be

updated only after clicking the **Update** button.



6. To clear the PivotTable report, on the **PivotTable Tools | Analyze** tab, in the **Actions** group, click the **Clear PivotTable** button and select the **Clear All** item from the drop-down list.



7. To remove the pivot table completely, select the entire PivotTable range and press **DELETE**.

Modify a Pivot Table

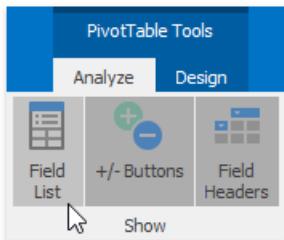
The following topic describes how to modify the existing pivot table. Select the task you wish to perform.

- [Rearrange the PivotTable Fields](#)
- [Change the PivotTable Data Source](#)
- [Move the Pivot Table](#)

Rearrange the PivotTable Fields

To reorganize the pivot table structure, use the **Field List** pane. It invokes automatically when you select any cell in the report.

If you closed the pane, you can re-invoke it from the ribbon menu. To do that, on the **PivotTable Tools | Analyze** tab, in the **Show** group, click the **Field List** button.



In the **Field List** pane, you can rearrange fields within the report by dragging them between the area sections at the bottom of the pane. To remove the field from the report, drag it outside the pane. All changes will be applied immediately.

A screenshot of an Excel spreadsheet with a PivotTable Fields dialog box open over the data. The dialog box has several sections:

- Choose fields to add to report:** A list containing Region, Product, Category, and Sales.
- Drag fields between areas below:** A section with FILTERS, COLUMNS, ROWS, and VALUES buttons.
- ROWS:** Contains 'Region' and 'Category' with a '+' sign to move 'Product'.
- VALUES:** Contains 'Sum of Sales'.
- Defer Layout Update:** A checkbox at the bottom left.
- Update:** A button at the bottom right.

The main spreadsheet area shows a PivotTable with Row Labels (Midwest, Northeast, South, West, Dairy Products, Grains/Cereals) and a Grand Total row. The 'Region' field is currently in the Rows area.

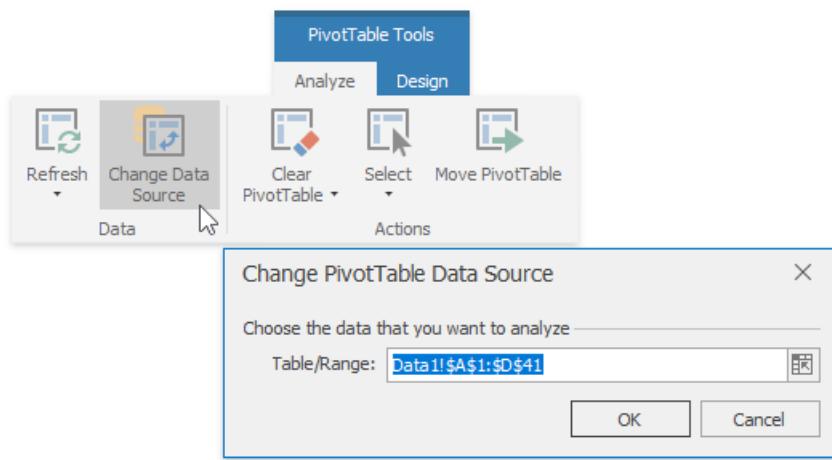
Additionally, you can reorder fields or specific field items within the area. To do that, right-click the required cell in the report and select the appropriate **Move** command from the context menu.

	A	B	C	D	E	F
1	Sum of Sales	Column Labels				
2	Row Labels	Midwest	Northeast	South	West	Grand Total
3	□ Dairy Products	\$13,195.00	\$11,997.00	\$13,650.00	\$13,720.00	\$52,562.00
4	Camembert Pierrot	\$2,820.00	\$3,425.00	\$3,425.00	\$3,520.00	\$13,190.00
5	Gorgonzola Telino	\$1,725.00	\$1,200.00	\$1,765.00	\$1,500.00	\$6,190.00
6	Mascarpone Fabioli	\$3.000.00	\$2,448.00	\$3,260.00	\$3,125.00	\$11,833.00
7	Mozzarella di Giovanni		\$1,044.00	\$1,955.00	\$1,825.00	\$6,974.00
8	Raclette Courdavault		\$3,880.00	\$3,245.00	\$3,750.00	\$14,375.00
9	□ Grains/Cereals	\$8,739.00	\$10,035.00	\$10,445.00	\$39,924.00	
10	Gnocchi di nonna Alice	\$1,216.00	\$1,435.00	\$1,675.00	\$5,976.00	
11	Gustaf's Knäckebröd	\$2,420.00	\$2,345.00	\$2,720.00	\$10,465.00	
12	Ravioli Angelo	\$2,390.00	\$2,965.00	\$3,050.00	\$11,390.00	
13	Singaporean Hokkien Fried	\$1,616.00	\$1,835.00	\$1,700.00	\$6,976.00	
14	Wimmers gute Semmelknödel	\$1,097.00	\$1,455.00	\$1,300.00	\$5,117.00	
15	Grand Total	\$20,736.00	\$23,685.00	\$24,165.00	\$92,486.00	
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Change the PivotTable Data Source

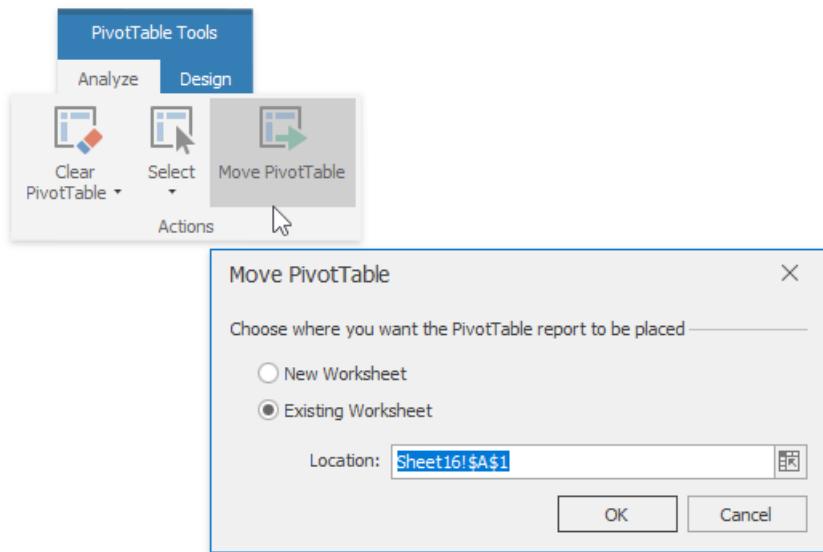
To change the data source of the pivot table report, on the **PivotTable Tools | Analyze** tab, in the **Data** group, click the **Change Data Source** button.

The invoked dialog allows you to select the new source range for the pivot table.



Move the PivotTable

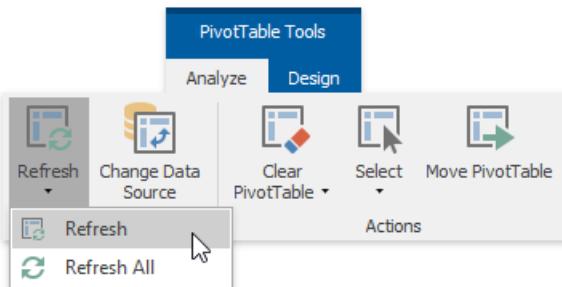
To move the entire report, on the **PivotTable Tools | Analyze** tab, in the **Actions** group, click the **Move PivotTable** button. The invoked dialog allows you to move the report to another cell range within the existing worksheet or to a new worksheet.



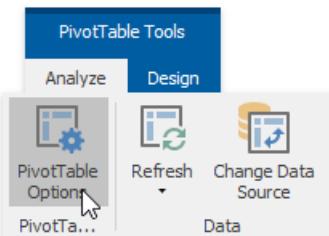
Refresh the PivotTable Data

You can update (refresh) the PivotTable data manually (while generating the report) or automatically (when you open the workbook with the pivot table). The steps below provide more detailed information about how to accomplish these tasks.

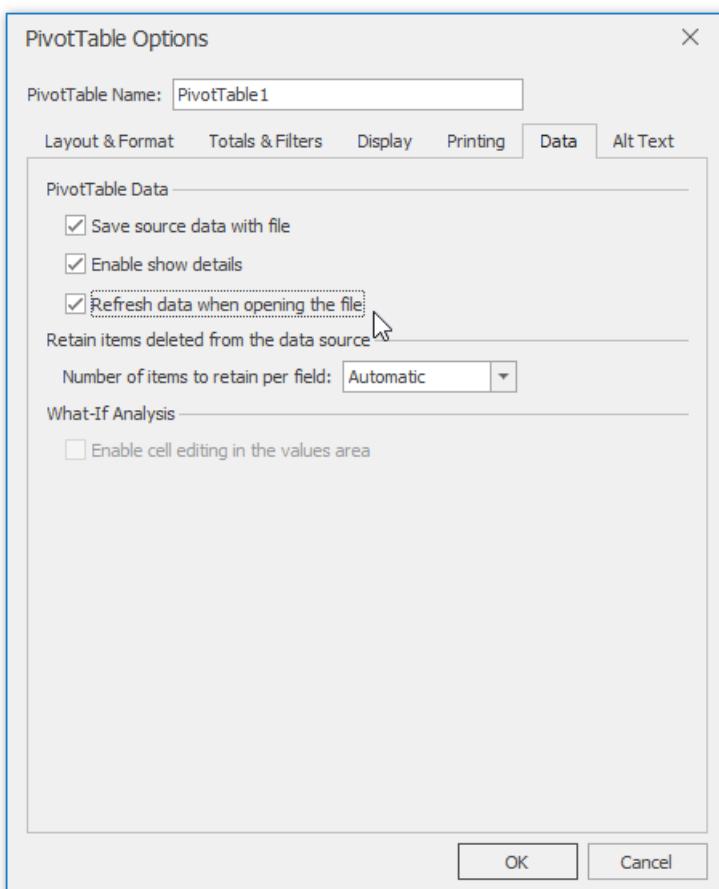
1. To update the pivot table manually, on the **PivotTable Tools | Analyze** tab, in the **Data** group, click **Refresh** and select the **Refresh** item from the invoked drop-down menu. To update all pivot tables of the current workbook, select **Refresh All**.



2. To refresh the pivot table when opening the file, use the **PivotTable Options** dialog. To invoke it, on the **PivotTable Tools | Analyze** tab, in the **PivotTable** group, click **PivotTable Options**.

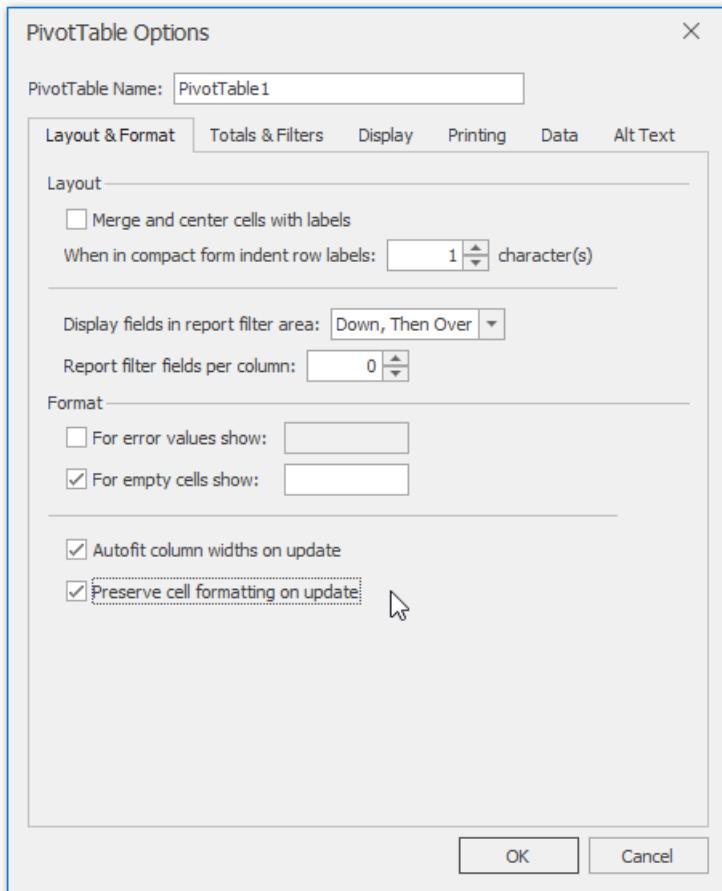


3. Switch to the **Data** tab. In the **PivotTable Data** section, select the **Refresh data when opening the file** check box.



4. To preserve the PivotTable display and formatting settings during the update operation, switch to the dialog's **Layout &**

Format tab. Here you can specify whether to auto-fit the column widths or preserve cell formatting when updating the report. To do that, select the required options in the last section of the dialog.



Change the Value Field Settings

By default, when you add a numeric field to the Values area, its data is summarized by the **Sum** function. For a text field or field containing blank cells, the **Count** function is used as the default summary function.

However, you can change how summary values are calculated and displayed within the PivotTable report. To do this, follow the steps below.

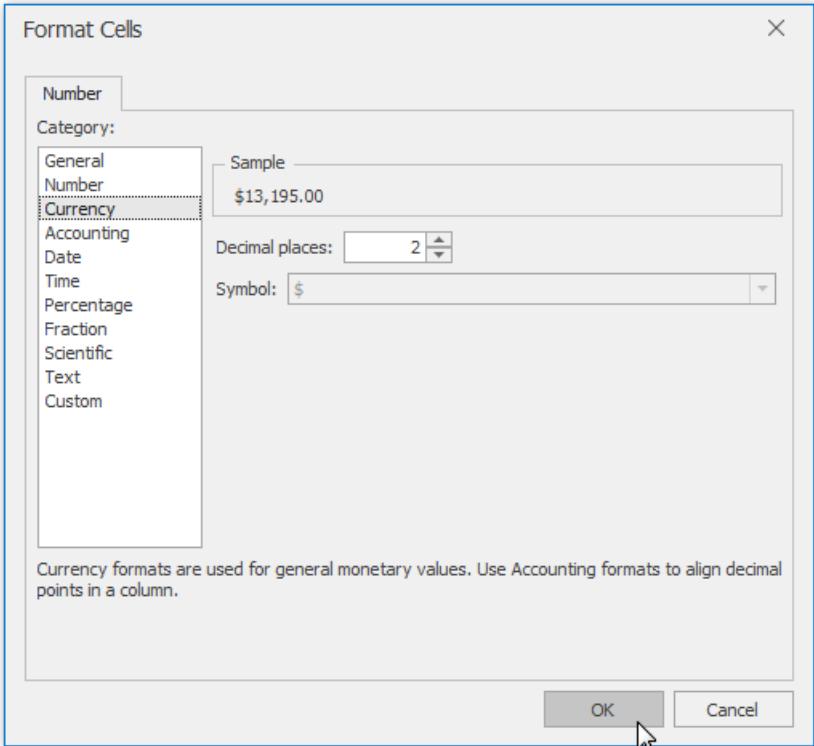
1. Select any cell in the value field you wish to modify. On the **PivotTable Tools | Analyze** tab, in the **Active Field** group, click the **Field Settings** button.

The screenshot shows the Microsoft Excel ribbon with the 'PivotTable Tools' tab selected, specifically the 'Analyze' tab. In the 'Active Field' group, the 'Field Settings' button is highlighted with a mouse cursor. Below the ribbon, a PivotTable is displayed with data for 'Sales'. The PivotTable structure includes 'Sum of Sales' as the column label, 'Row Labels' (Northeast, Grand Total), and categories like Dairy Products and Grains/Cereals. The data cells show values such as 11997, 8739, 1216, etc.

2. The invoked **Value Field Settings** dialog allows you to provide the custom name for the value field and change the aggregate function used to summarize its values. On the **Show Values As** tab, you can configure how calculation results should be displayed in cells.

The image displays two side-by-side screenshots of the 'Value Field Settings' dialog box. Both screenshots show the same basic structure: a top section for source and custom names, a 'Summarize Values By' tab, and a 'Show Values As' tab. The left screenshot shows the 'Summarize Values By' tab with 'Source Name: Sales' and 'Custom Name: Sum of Sales'. The right screenshot shows the 'Show Values As' tab with a scrollable list of options under 'Show values as', including 'No Calculation', '% of Row Total', '% Of', '% of Parent Row Total', '% of Parent Column Total', '% of Parent Total', 'Difference From', and '% Difference From'. At the bottom of both dialogs are 'Number Format', 'OK', and 'Cancel' buttons.

3. To change the default number format applied to the value field, click the **Number Format** button. In the invoked **Format Cells** dialog, select the desired format type, specify the corresponding settings and click **OK**.

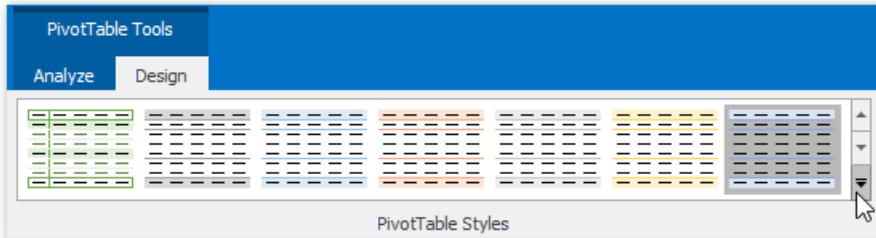


4. The result is shown in the image below.

	A	B	C	D	E	F
1	Sum of Sales	Column Labels				
2	Row Labels	Midwest	Northeast	South	West	Grand Total
3	□ Dairy Products	\$13,195.00	\$11,997.00	\$13,650.00	\$13,720.00	\$52,562.00
4	Camembert Pierrot	\$2,820.00	\$3,425.00	\$3,425.00	\$3,520.00	\$13,190.00
5	Gorgonzola Telino	\$1,725.00	\$1,200.00	\$1,765.00	\$1,500.00	\$6,190.00
6	Mascarpone Fabioli	\$3,000.00	\$2,448.00	\$3,260.00	\$3,125.00	\$11,833.00
7	Mozzarella di Giovanni	\$2,150.00	\$1,044.00	\$1,955.00	\$1,825.00	\$6,974.00
8	Raclette Courdavault	\$3,500.00	\$3,880.00	\$3,245.00	\$3,750.00	\$14,375.00
9	□ Grains/Cereals	\$10,705.00	\$8,739.00	\$10,035.00	\$10,445.00	\$39,924.00
10	Gnocchi di nonna Alice	\$1,650.00	\$1,216.00	\$1,435.00	\$1,675.00	\$5,976.00
11	Gustaf's Knäckebröd	\$2,980.00	\$2,420.00	\$2,345.00	\$2,720.00	\$10,465.00
12	Ravioli Angelo	\$2,985.00	\$2,390.00	\$2,965.00	\$3,050.00	\$11,390.00
13	Singaporean Hokkien Fried Mee	\$1,825.00	\$1,616.00	\$1,835.00	\$1,700.00	\$6,976.00
14	Wimmers gute Semmelknödel	\$1,265.00	\$1,097.00	\$1,455.00	\$1,300.00	\$5,117.00
15	Grand Total	\$23,900.00	\$20,736.00	\$23,685.00	\$24,165.00	\$92,486.00
16						

Apply a Predefined Style to a Pivot Table

You can change the appearance of a pivot table using one of the predefined pivot table styles. Select the desired style from the **PivotTable Styles** gallery on the **PivotTable Tools | Design** tab and it will be automatically applied to the report.



Additionally, you can specify whether to apply style formatting to the row and column headers or to show the banded rows and columns. To do that, on the **PivotTable Tools | Design** tab, in the **PivotTable Style Options** group, select or clear the corresponding check box.

A screenshot of the Microsoft Excel ribbon with the 'PivotTable Tools' tab selected and the 'Design' tab active. In the 'PivotTable Style Options' group, there are two checkboxes: 'Row Headers' (unchecked) and 'Column Headers' (checked). Below these are two more checkboxes: 'Banded Rows' (unchecked) and 'Banded Columns' (checked, with a cursor hovering over it). To the right of these options is a preview area showing four small examples of how the table would look with different style combinations. The main area shows a pivot table with data for various products across different regions, applying the selected style.

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.....

1 Sum of Sales Column Labels

2 Row Labels Midwest Northeast South West

3 Dairy Products \$13,195.00 \$11,997.00 \$13,650.00 \$13,720.00

4 Camembert Pierrot \$2,820.00 \$3,425.00 \$3,425.00 \$3,520.00

5 Gorgonzola Telino \$1,725.00 \$1,200.00 \$1,765.00 \$1,500.00

6 Mascarpone Fabioli \$3,000.00 \$2,448.00 \$3,260.00 \$3,125.00

7 Mozzarella di Giovanni \$2,150.00 \$1,044.00 \$1,955.00 \$1,825.00

8 Raclette Courdavault \$3,500.00 \$3,880.00 \$3,245.00 \$3,750.00

9 Grains/Cereals \$10,705.00 \$8,739.00 \$10,035.00 \$10,445.00

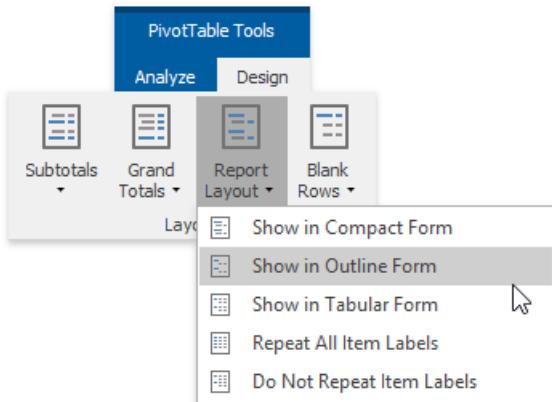
10 Grand Total \$23,900.00 \$20,736.00 \$23,685.00 \$24,165.00

Change the PivotTable Layout

This topic describes how to specify the layout options for the entire PivotTable report or a specific [row field](#) only.

Change the PivotTable Layout

1. To change the PivotTable layout, on the **PivotTable Tools | Layout** tab, in the **Layout** group, click the **Report Layout** button.



2. The invoked drop-down menu allows you to apply one of the following layout forms.

- o **Compact Form** - the default layout. The report is compressed to prevent data from spreading horizontally off the screen.

	A	B	C	D	E	F
1	Sum of Sales	Column Labels	Midwest	Northeast	South	West
2	Row Labels					Grand Total
3	□Dairy Products	\$13,195.00	\$11,997.00	\$13,650.00	\$13,720.00	\$52,562.00
4	Camembert Pierrot	\$2,820.00	\$3,425.00	\$3,425.00	\$3,520.00	\$13,190.00
5	Gorgonzola Telino	\$1,725.00	\$1,200.00	\$1,765.00	\$1,500.00	\$6,190.00
6	Mascarpone Fabioli	\$3,000.00	\$2,448.00	\$3,260.00	\$3,125.00	\$11,833.00
7	Mozzarella di Giovanni	\$2,150.00	\$1,044.00	\$1,955.00	\$1,825.00	\$6,974.00
8	Raclette Courdavault	\$3,500.00	\$3,880.00	\$3,245.00	\$3,750.00	\$14,375.00
9	□Grains/Cereals	\$10,705.00	\$8,739.00	\$10,035.00	\$10,445.00	\$39,924.00
10	Gnocchi di nonna Alice	\$1,650.00	\$1,216.00	\$1,435.00	\$1,675.00	\$5,976.00
11	Gustaf's Knäckebröd	\$2,980.00	\$2,420.00	\$2,345.00	\$2,720.00	\$10,465.00
12	Ravioli Angelo	\$2,985.00	\$2,390.00	\$2,965.00	\$3,050.00	\$11,390.00
13	Singaporean Hokkien Fried Mee	\$1,825.00	\$1,616.00	\$1,835.00	\$1,700.00	\$6,976.00
14	Wimmers gute Semmelknödel	\$1,265.00	\$1,097.00	\$1,455.00	\$1,300.00	\$5,117.00
15	Grand Total	\$23,900.00	\$20,736.00	\$23,685.00	\$24,165.00	\$92,486.00

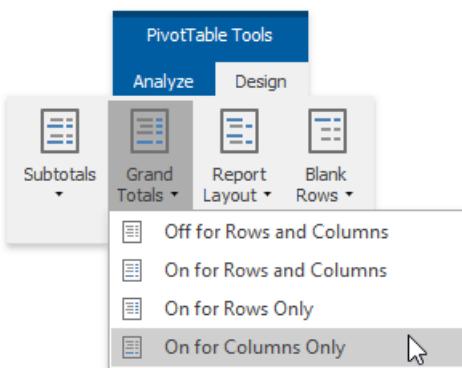
- o **Outline Form** - the report data is outlined.

	A	B	C	D	E	F	G
1	Sum of Sales	Region					
2	Category	Product	Midwest	Northeast	South	West	Grand Total
3	□ Dairy Products		\$13,195.00	\$11,997.00	\$13,650.00	\$13,720.00	\$52,562.00
4		Camembert Pierrot	\$2,820.00	\$3,425.00	\$3,425.00	\$3,520.00	\$13,190.00
5		Gorgonzola Telino	\$1,725.00	\$1,200.00	\$1,765.00	\$1,500.00	\$6,190.00
6		Mascarpone Fabioli	\$3,000.00	\$2,448.00	\$3,260.00	\$3,125.00	\$11,833.00
7		Mozzarella di Giovanni	\$2,150.00	\$1,044.00	\$1,955.00	\$1,825.00	\$6,974.00
8		Raclette Courdavault	\$3,500.00	\$3,880.00	\$3,245.00	\$3,750.00	\$14,375.00
9	□ Grains/Cereals		\$10,705.00	\$8,739.00	\$10,035.00	\$10,445.00	\$39,924.00
10		Gnocchi di nonna Alice	\$1,650.00	\$1,216.00	\$1,435.00	\$1,675.00	\$5,976.00
11		Gustaf's Knäckebröd	\$2,980.00	\$2,420.00	\$2,345.00	\$2,720.00	\$10,465.00
12		Ravioli Angelo	\$2,985.00	\$2,390.00	\$2,965.00	\$3,050.00	\$11,390.00
13		Singaporean Hokkien Fried Mee	\$1,825.00	\$1,616.00	\$1,835.00	\$1,700.00	\$6,976.00
14		Wimmers gute Semmelknödel	\$1,265.00	\$1,097.00	\$1,455.00	\$1,300.00	\$5,117.00
15	Grand Total		\$23,900.00	\$20,736.00	\$23,685.00	\$24,165.00	\$92,486.00

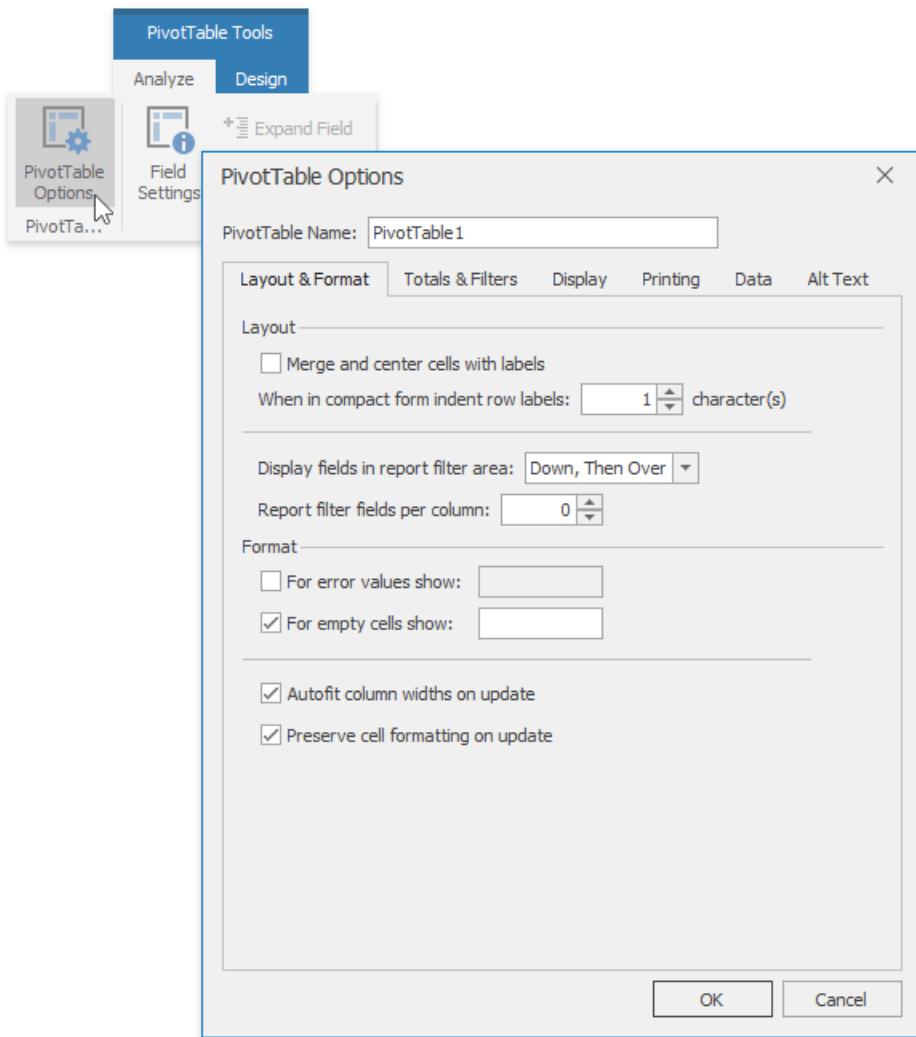
- **Tabular Form** - the pivot table is shown in the table format.

	A	B	C	D	E	F	G
1	Sum of Sales	Region					
2	Category	Product	Midwest	Northeast	South	West	Grand Total
3	□ Dairy Products	Camembert Pierrot	\$2,820.00	\$3,425.00	\$3,425.00	\$3,520.00	\$13,190.00
4		Gorgonzola Telino	\$1,725.00	\$1,200.00	\$1,765.00	\$1,500.00	\$6,190.00
5		Mascarpone Fabioli	\$3,000.00	\$2,448.00	\$3,260.00	\$3,125.00	\$11,833.00
6		Mozzarella di Giovanni	\$2,150.00	\$1,044.00	\$1,955.00	\$1,825.00	\$6,974.00
7		Raclette Courdavault	\$3,500.00	\$3,880.00	\$3,245.00	\$3,750.00	\$14,375.00
8	Dairy Products Total		\$13,195.00	\$11,997.00	\$13,650.00	\$13,720.00	\$52,562.00
9	□ Grains/Cereals		\$10,705.00	\$8,739.00	\$10,035.00	\$10,445.00	\$39,924.00
10	Grand Total		\$23,900.00	\$20,736.00	\$23,685.00	\$24,165.00	\$92,486.00

- For the outline and tabular forms, you can enable repeating item labels in the outer row fields. To do that, select the **Repeat All Item Labels** item in the **Report Layout** drop-down menu. To disable repeating, select **Do Not Repeat Item Labels**.
- You can also specify whether to show/hide subtotals and grand totals in the PivotTable report, or insert the blank line after each item in the outer row fields. To do that, on the **PivotTable Tools | Layout** tab, in the **Layout** group, click the **Subtotals, Grand Totals** or **Blank Rows** button, respectively, and select the desired action from the drop-down menu.



- The advanced layout options can be specified using the **Layout & Format** tab of the **PivotTable Options** dialog. To invoke it, click the **PivotTable Options** button in the **PivotTable** group.

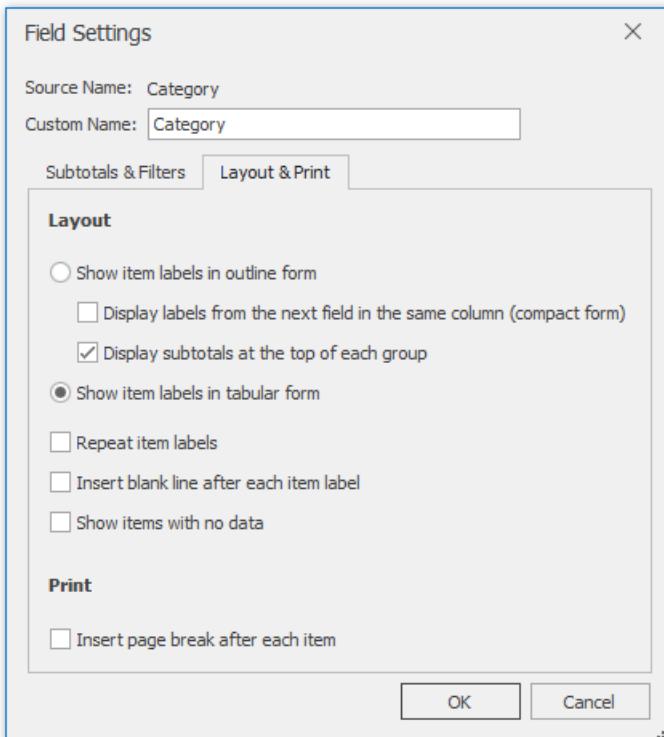


Change the Field Layout

- You can change the layout options for the specific row fields only. To do that, select a row field and on the **PivotTable Tools | Analyze** tab, in the **Active Field** group, click the **Field Settings** button.

		B	C
1	Sum of Sales	Column Labels	
2	Row Labels	Northeast	Grand Total
3	Dairy Products	11997	11997
4	Grains/Cereals	8739	8739
5	Gnocchi di nonna Alice	1216	1216
6	Gustaf's Knäckebröd	2420	2420
7	Ravioli Angelo	2390	2390
8	Singaporean Hokkien Fried Mee	1616	1616
9	Wimmers gute Semmelknödel	1097	1097
10	Grand Total	20736	20736

- In the invoked **Field Settings** dialog, switch to the **Layout & Print** tab.



- To show field items in tabular or outline form, select the corresponding option in the **Layout** section. To display field items in compact form, select **Show item labels in outline form** and then click the **Display labels from the next field in the same column (compact form)** check box.

The **Field Settings** dialog also allows you to specify whether to repeat item labels for an outer field, insert the blank line after each field item, or show items with no data. To do that, select the corresponding check boxes in the **Layout** section.

Subtotal and Total Fields in a Pivot Table

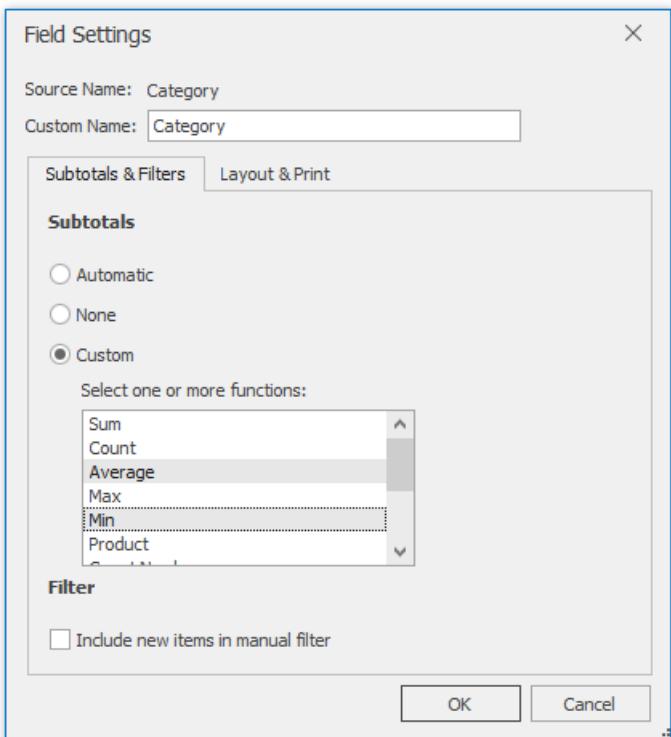
The following topic describes how to manage the **subtotals** and **grand totals** in a pivot table.

Subtotal Row and Column Fields

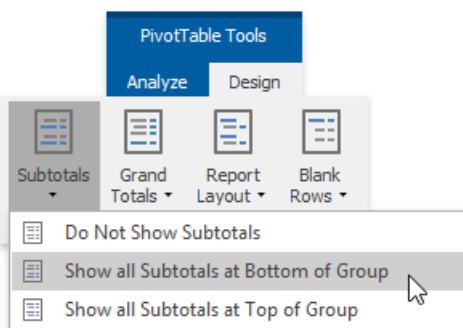
1. Click the target row or column field within the report and on the **PivotTable Tools | Analyze** tab, in the **Active Field** group, click the **Field Settings** button.

A screenshot of the Microsoft Excel ribbon. The 'PivotTable Tools' tab is selected, specifically the 'Analyze' tab. In the 'Active Field' group, the 'Field Settings' button is highlighted with a blue border and a white arrow pointing to it. A tooltip window is displayed, containing the text 'Show the Field Settings dialog box.' Below the ribbon, a PivotTable is visible. The first row shows 'Sum of Sales' as the column label, 'Northeast' as the row label, and 'Grand Total' as the value. The second row shows 'Row Labels' as the column label, 'Grains/Cereals' as the row label, and '8739' as the value. The third row shows 'Dairy Products' as the row label and '11997' as the value. The fourth row shows 'Grains/Cereals' as the row label and '8739' as the value. The fifth row shows 'Gnocchi di nonna Alice' as the row label and '1216' as the value. The sixth row shows 'Gustaf's Knäckebröd' as the row label and '2420' as the value. The seventh row shows 'Ravioli Angelo' as the row label and '2390' as the value. The eighth row shows 'Singaporean Hokkien Fried Mee' as the row label and '1616' as the value. The ninth row shows 'Wimmers gute Semmelknödel' as the row label and '1097' as the value. The tenth row shows 'Grand Total' as the row label and '20736' as the value. The 'Grand Total' row is bolded.

2. On the **Subtotals & Filters** tab of the invoked **Field Settings** dialog, select one of the following options and click **OK** to apply changes.
 - **Automatic** - to calculate the subtotals using the default summary function.
 - **Custom** - to use one or multiple custom functions for subtotal calculation. Note that if the target row or column field contains calculated items, the custom function(s) cannot be used.
 - **None** - to remove subtotals.



3. To specify the subtotal display settings, on the **PivotTable Tools | Design** tab, in the **Layout** group, click the **Subtotals** button. The invoked drop-down menu allows you to display the subtotals at the top or bottom of each item in the outer row fields in compact or outline form, or hide subtotals.

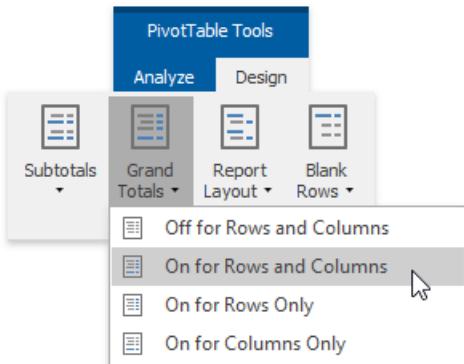


4. As a result, the pivot table will appear as follows.

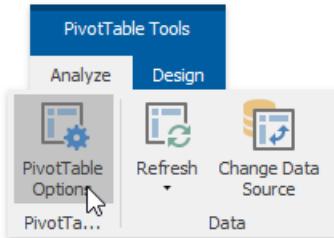
	A	B	C	D	E	F	G	H
1	Sum of Sales	Column Labels						
2	Row Labels	Arizona	California	Colorado	Illinois	Kansas	Wisconsin	Grand Total
3	□ Dairy Products							
4	Camembert Pierrot	\$3,425.00	\$2,820.00	\$3,425.00	\$3,520.00	\$2,550.00	\$2,900.00	\$18,640.00
5	Gorgonzola Telino	\$1,200.00	\$1,725.00	\$1,765.00	\$1,500.00	\$1,880.00	\$1,350.00	\$9,420.00
6	Mascarpone Fabioli	\$2,448.00	\$3,000.00	\$3,260.00	\$3,125.00	\$3,520.00	\$2,350.00	\$17,703.00
7	Mozzarella di Giovanni	\$1,044.00	\$2,150.00	\$1,955.00	\$1,825.00	\$1,725.00	\$1,265.00	\$9,964.00
8	Raclette Courdavault	\$3,880.00	\$3,500.00	\$3,245.00	\$3,750.00	\$2,950.00	\$3,180.00	\$20,505.00
9	Dairy Products Average	\$2,399.40	\$2,639.00	\$2,730.00	\$2,744.00	\$2,525.00	\$2,209.00	\$2,541.07
10	Dairy Products Min	\$1,044.00	\$1,725.00	\$1,765.00	\$1,500.00	\$1,725.00	\$1,265.00	\$1,044.00
11	□ Grains/Cereals							
12	Gnocchi di nonna Alice	\$1,216.00	\$1,650.00	\$1,435.00	\$1,675.00	\$1,765.00	\$1,715.00	\$9,456.00
13	Gustaf's Knäckebröd	\$2,420.00	\$2,980.00	\$2,345.00	\$2,720.00	\$2,200.00	\$1,968.00	\$14,633.00
14	Ravioli Angelo	\$2,390.00	\$2,985.00	\$2,965.00	\$3,050.00	\$1,950.00	\$2,785.00	\$16,125.00
15	Singaporean Hokkien Fried Mee	\$1,616.00	\$1,825.00	\$1,835.00	\$1,700.00	\$1,635.00	\$1,546.00	\$10,157.00
16	Wimmers gute Semmelknödel	\$1,097.00	\$1,265.00	\$1,455.00	\$1,300.00	\$2,055.00	\$2,097.00	\$9,269.00
17	Grains/Cereals Average	\$1,747.80	\$2,141.00	\$2,007.00	\$2,089.00	\$1,921.00	\$2,022.20	\$1,988.00
18	Grains/Cereals Min	\$1,097.00	\$1,265.00	\$1,435.00	\$1,300.00	\$1,635.00	\$1,546.00	\$1,097.00
19	Grand Total	\$20,736.00	\$23,900.00	\$23,685.00	\$24,165.00	\$22,230.00	\$21,156.00	\$135,872.00

Show or Hide Grand Totals

1. To show or hide the grand totals for a pivot table, on the **PivotTable Tools | Design** tab, in the **Layout** group, click **Grand Totals**. In the invoked drop-down menu, select one of the available options. You can hide/show the grand totals for the entire report or for the rows or columns only.



2. To specify the default settings for displaying grand totals, use the **PivotTable Options** dialog. To invoke it, on the **PivotTable Tools | Analyze** tab, in the **PivotTable** group, click the **PivotTable Options** button.



3. Switch to the **Totals & Filters** tab. To show or hide the grand totals for rows, columns or the entire PivotTable report, select or clear the corresponding check box(es) in the **Grand Totals** section.

PivotTable Options

X

PivotTable Name: PivotTable1

Layout & Format **Totals & Filters** Display Printing Data Alt Text

Grand Totals

Show grand totals for rows

Show grand totals for columns 

Filters

Subtotal filtered page items

Allow multiple filters per field

Sorting

Use Custom Lists when sorting

OK

Cancel

Group Items in a Pivot Table

Grouping can help you get a clearer view of data and show only data you want to analyze. The following topic describes how to group [dates](#), [numbers](#) or [selected items](#) in a pivot table.

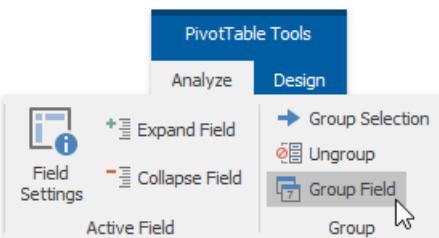
Group a Pivot Table by Date

1. Right-click a cell within a row or column field containing dates and select **Group...**

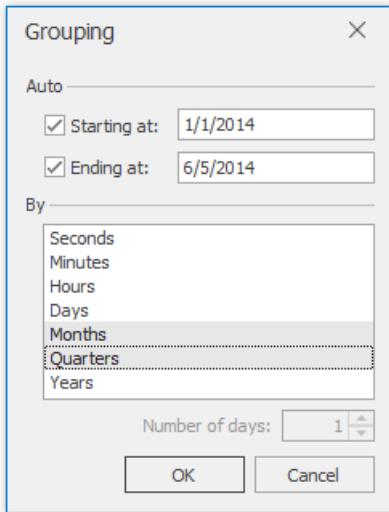
A screenshot of a Microsoft Excel PivotTable. The table has columns labeled A through F. Row 3 is the header with 'Sum of AMOUNT' and 'Column Labels'. Row 4 is 'Row Labels' with categories 'A&B Supermarkets', 'Big Foods', 'Food Land', 'Miller's', and 'Grand Total'. Rows 5 through 16 contain data for dates from '1/1/2014' to '5/22/2014', with a 'Grand Total' row at the bottom. A context menu is open over the cell '1886' in row 5, column A. The menu options include: Copy, Format Cells..., Refresh, Sort, Subtotal 'DATE', Expand/Collapse, Group..., Ungroup..., Move, Remove 'DATE', Field Settings..., PivotTable Options..., and Show Field List. The 'Group...' option is highlighted with a cursor.

A	B	C	D	E	F
2					
3 Sum of AMOUNT	Column Labels				
4 Row Labels	A&B Supermarkets	Big Foods	Food Land	Miller's	Grand Total
5 1/1/2014	1886				1886
6 1/7/2014			8002		8002
7 1/11/2014		11242			11242
8 1/25/2014					6444
9 2/10/2014					1768
10 3/8/2014	12602	5525			18127
11 3/14/2014		2950			8700
12 3/24/2014			11080		11080
13 4/9/2014					8270
14 5/5/2014			3980		15080
15 5/22/2014		9166			9166
16 Grand Total	12602	28883	23062		99765
17					
18					
19					
20					
21					
22					

...or on the **PivotTable Tools | Analyze** tab, in the **Group** group, click the **Group Field** button.



2. The **Grouping** dialog is invoked. Type the first and last date or time you want to group by, select one or more date or time intervals for grouping and click **OK**.



3. As a result, the date field will be grouped as shown in the image below.

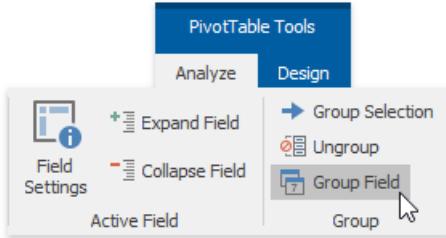
	A	B	C	D	E	F
1	Sum of AMOUNT	Column Labels				
2	Row Labels	A&B Supermarkets	Big Foods	Food Land	Miller's	Grand Total
3	Qtr1					
4	Jan	\$ 8,330.00		\$ 11,242.00	\$ 8,002.00	\$ 27,574.00
5	Feb	\$ 1,768.00				\$ 1,768.00
6	Mar	\$ 5,750.00	\$ 12,602.00	\$ 8,475.00	\$ 11,080.00	\$ 37,907.00
7	Qtr2					
8	Apr	\$ 8,270.00				\$ 8,270.00
9	May	\$ 11,100.00		\$ 9,166.00	\$ 3,980.00	\$ 24,246.00
10	Jun	\$ 10,311.00	\$ 2,592.00	\$ 10,866.00		\$ 23,769.00
11	Grand Total	\$ 45,529.00	\$ 15,194.00	\$ 39,749.00	\$ 23,062.00	\$ 123,534.00

Group a Pivot Table by Numbers

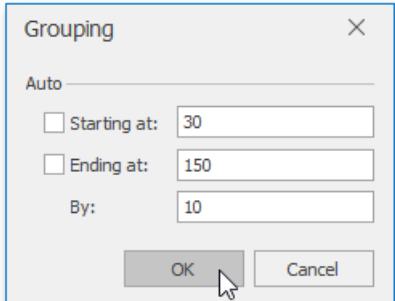
1. Right-click a cell within a row or column field containing numeric values and select **Group...**

A	B	C
1		
2	Usual Hours Worked	Average of Yearly Earnings
3	35	5
4	36	2
5	37	9
6	38	9
7	39	0
8	40	5
9	41	0
10	42	0
11	43	2
12	44	4
13	45	2
14	46	4
15	47	3
16	48	0
17	49	5
18	50	4
19	51	4
20	52	\$36,272

...or on the **PivotTable Tools | Analyze** tab, in the **Group** group, click the **Group Field** button.



2. The **Grouping** dialog is invoked. Type in start value, end value, interval and click **OK**.



3. The result is shown in the image below.

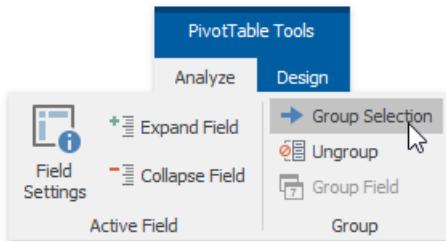
A	B	C
1		
2	Usual Hours Worked	Average of Yearly Earnings
3	30-39	\$21,791
4	40-49	\$33,668
5	50-59	\$51,797
6	60-69	\$56,456
7	70-79	\$64,838
8	80-89	\$49,856
9	90-99	\$37,511
10	100-109	\$34,888
11	110-119	\$58,135
12	120-129	\$75,000
13	140-149	\$55,000
14	Grand Total	\$37,738

Group Selected Items

1. Select the items that you want to group.
2. Right-click the selected range and select the **Group** item from the context menu...

	A	B	C	D
1	Sum of Sales	Column Labels		
2	Row Labels	Dairy Products	Grains/Cereals	Grand Total
3	Arizona	\$11,997.00	\$8,739.00	\$20,736.00
4	California		10,705.00	\$23,900.00
5	Colorado		10,035.00	\$23,685.00
6	Illinois		10,445.00	\$24,165.00
7	Kansas		\$9,605.00	\$22,230.00
8	Wisconsin		10,111.00	\$21,156.00
9	Grand Total		59,640.00	\$135,872.00
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

...or on the **PivotTable Tools | Analyze** tab, in the **Group** group, click the **Group Selection** button.



- As a result, the selected range will be combined into a single group. To rename the group, select the group header, press **F2** and type the required name.

	A	B	C	D
1	Sum of Sales	Column Labels		
2	Row Labels	Dairy Products	Grains/Cereals	Grand Total
3	West			
4	Arizona	\$11,997.00	\$8,739.00	\$20,736.00
5	California	\$13,195.00	\$10,705.00	\$23,900.00
6	Colorado	\$13,650.00	\$10,035.00	\$23,685.00
7	Illinois			
8	Illinois	\$13,720.00	\$10,445.00	\$24,165.00
9	Kansas			
10	Kansas	\$12,625.00	\$9,605.00	\$22,230.00
11	Wisconsin			
12	Wisconsin	\$11,045.00	\$10,111.00	\$21,156.00
13	Grand Total	\$76,232.00	\$59,640.00	\$135,872.00

- You can also enable or disable displaying the subtotal for the created group. To do that, right-click the group header and select the **Subtotal 'Field Name'** item.

A	B	C	D
1	Sum of Sales	Column Labels	
2	Row Labels	Dairy Products	Grains/Cereals
3	West		
4	Arizona	\$8,739.00	\$20,736.00
5	California	\$10,705.00	\$23,900.00
6	Colorado	\$10,035.00	\$23,685.00
7	Illinois		
8	Illinois	\$10,445.00	\$24,165.00
9	Kansas		
10	Kansas	\$9,605.00	\$22,230.00
11	Wisconsin		
12	Wisconsin	\$10,111.00	\$21,156.00
13	Grand Total	\$59,640.00	\$135,872.00
14			
15			
16			
17			
18			
19			
20			

5. The resulting report is shown in the image below.

A	B	C	D
1	Sum of Sales	Column Labels	
2	Row Labels	Dairy Products	Grains/Cereals
3	West	\$38,842.00	\$29,479.00
4	Arizona	\$11,997.00	\$8,739.00
5	California	\$13,195.00	\$10,705.00
6	Colorado	\$13,650.00	\$10,035.00
7	Illinois	\$13,720.00	\$10,445.00
8	Illinois	\$13,720.00	\$24,165.00
9	Kansas	\$12,625.00	\$9,605.00
10	Kansas	\$12,625.00	\$22,230.00
11	Wisconsin	\$11,045.00	\$10,111.00
12	Wisconsin	\$11,045.00	\$21,156.00
13	Grand Total	\$76,232.00	\$59,640.00
14			
15			
16			
17			
18			
19			
20			

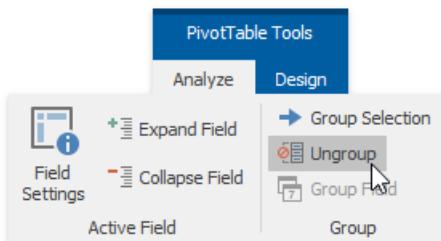
Ungroup Data

To ungroup data in a pivot table, do one of the following.

- Right-click the grouped field and select **Ungroup...** from the context menu.

A	B	C	D
1	Sum of Sales	Column Labels	
2	Row Labels	Dairy Products	Grains/Cereals
3	Group	\$ 38,842.00	\$ 29,479.00
4	Illinois	10,445.00	\$ 24,165.00
5	Illinois	10,445.00	\$ 24,165.00
6	Kansas	9,605.00	\$ 22,230.00
7	Kansas	9,605.00	\$ 22,230.00
8	Wisconsin	10,111.00	\$ 21,156.00
9	Wisconsin	10,111.00	\$ 21,156.00
10	Grand Total	59,640.00	\$ 135,872.00
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

- Select any cell in the grouped field and on the **Pivot Table Tools | Analyze** tab, in the **Group** group, click the **Ungroup** button.



Note that ungrouping a numeric or date and time field will remove all groups for that field. If you ungroup a group of selected items, only the selected items will be ungrouped.

Sort Items in a Pivot Table

The following topic describes how to sort items in the PivotTable fields by **labels** and **summary values**.

Sort Item Labels

Item labels in a PivotTable field can be sorted by text (**A to Z** or **Z to A**), numbers (**smallest to largest** or **largest to smallest**), or dates and times (**oldest to newest** or **newest to oldest**). To apply sorting, do the following.

1. Click the arrow ▾ in the **Row Labels** or **Column Labels** cell. If there are multiple fields in the area, select the row or column field you wish to sort.
2. In the invoked drop-down list, select the **Sort A to Z** item to use ascending order, or click **Sort Z to A** to sort in descending order. As a result, items in the filtered field will be reordered correspondingly. The tiny arrow ↑ appears in the row or column label to indicate that data in the report is sorted.

A screenshot of a Microsoft Excel PivotTable. The table has four columns labeled A, B, C, and D. Row 1 contains the header 'Sum of Sales'. Row 2 is 'Row Labels'. Row 3 is 'Dairy Products'. Rows 4 through 9 list various dairy products with their sales figures. Row 9 is 'Grains/Cereals'. Rows 10 through 14 list various grains/cereals with their sales figures. Row 15 is 'Grand Total'. A context menu is open over the 'Dairy Products' row, specifically over the 'Midwest' value in column C. The menu is titled 'Column Labels' and includes options like 'Select Field...', 'Sort A to Z' (which is highlighted), 'Sort Z to A', 'More Sort Options...', 'Clear Filter From 'Category'', 'Label Filters', 'Value Filters', and 'Item Filter...'. The 'Sort Z to A' option is also accompanied by a small upward-pointing arrow icon.

	A	B	C	D
1	Sum of Sales			
2	Row Labels			
3	□ Dairy Products			
4	Camembert Pierrot		\$13,195.00	
5	Gorgonzola Telino		\$2,820.00	
6	Mascarpone Fabioli		\$1,725.00	
7	Mozzarella di Giovanni		\$3,000.00	
8	Raclette Courdavault		\$2,150.00	
9	□ Grains/Cereals		\$3,500.00	
10	Gnocchi di nonna Alice		\$10,705.00	
11	Gustaf's Knäckebröd		\$1,650.00	
12	Ravioli Angelo		\$2,980.00	
13	Singaporean Hokkien Fried Mee		\$2,985.00	
14	Wimmers gute Semmelknödel		\$1,265.00	
15	Grand Total	\$20,736.00	\$24,165.00	\$23,900.00

Sort Items By Summary Values

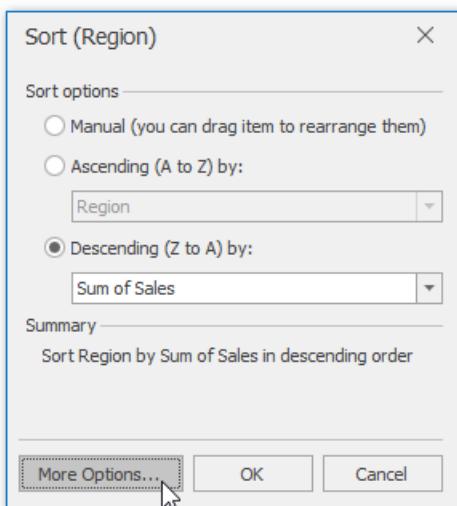
Besides sorting item labels, you can also sort items in a row or column field based on data in the **Values** area of the PivotTable report. To do this, follow the steps below.

1. Click the arrow ▾ in the **Row Labels** or **Column Labels** cell. In the invoked drop-down list, select the row or column field you wish to sort (if there are multiple fields in the area), and then click the **More Sort Options...** item.

A screenshot of a Microsoft Excel PivotTable. The table has six columns labeled A through F. Row 1 contains the header 'Sum of Sales'. Row 2 is 'Row Labels'. Row 3 is 'Dairy Products'. Rows 4 through 9 list various dairy products with their sales figures. Row 9 is 'Grains/Cereals'. Rows 10 through 14 list various grains/cereals with their sales figures. Row 15 is 'Grand Total'. A context menu is open over the 'Region' column header in column E. The menu is titled 'Column Labels' and includes options like 'Select Field...', 'Sort A to Z' (highlighted), 'Sort Z to A', 'More Sort Options...', 'Clear Filter From 'Region'', 'Label Filters', 'Value Filters', and 'Item Filter...'. The 'More Sort Options...' option is also accompanied by a small downward-pointing arrow icon.

	A	B	C	E	F
1	Sum of Sales				
2	Row Labels		Midwest		Grand Total
3	□ Dairy Products		\$13,195.00		\$52,562.00
4	Camembert Pierrot		\$2,820.00	720.00	\$13,190.00
5	Gorgonzola Telino		\$1,725.00	520.00	\$6,190.00
6	Mascarpone Fabioli		\$3,000.00	500.00	\$11,833.00
7	Mozzarella di Giovanni		\$2,150.00	125.00	\$6,974.00
8	Raclette Courdavault		\$3,500.00	825.00	\$14,375.00
9	□ Grains/Cereals		\$10,705.00	750.00	\$39,924.00
10	Gnocchi di nonna Alice		\$1,650.00	445.00	\$5,976.00
11	Gustaf's Knäckebröd		\$2,980.00	2,210.00	\$10,465.00
12	Ravioli Angelo		\$2,985.00	\$2,420.00	\$11,390.00
13	Singaporean Hokkien Fried Mee		\$1,265.00	\$2,345.00	\$1,700.00
14	Wimmers gute Semmelknödel		\$1,097.00	\$2,720.00	\$6,976.00
15	Grand Total	\$23,900.00	\$20,736.00	\$23,685.00	\$24,165.00

2. In the invoked dialog box, select the desired sort order and the value field to sort by. Click the **More Options...** button.



3. In the **More Sort Options** dialog, click **Grand Total** or select a row/column in the **Values** area to sort by and click **OK**.

The screenshot shows a table with columns A through H. Row 1 is 'Sum of Sales' and Row 2 is 'Row Labels'. The 'Dairy Products' category is expanded, showing items like Camembert Pierrot, Gorgonzola Telino, etc., with their respective sales values. The 'More Sort Options (Region)' dialog is open over the table. It contains an 'AutoSort' section with a checked checkbox for 'Sort automatically every time the report is updated'. Under 'Sort By', the radio button 'Values in selected row:' is selected, with the cell reference '\$B\$4' highlighted. The summary message below states: 'Sort Region by Sum of Sales in descending order using values in this column: Dairy Products:Camembert Pierrot'. At the bottom are 'OK' and 'Cancel' buttons. A cursor arrow points to the 'OK' button.

4. The result is shown in the image below. The tiny arrow appears in the row or column label to indicate that data in the corresponding field is sorted.

	A	B	C	D	E	F
1	Sum of Sales	Column Labels				
2	Row Labels	West	South	Northeast	Midwest	Grand Total
3	Dairy Products	\$13,720.00	\$13,650.00	\$11,997.00	\$13,195.00	\$52,562.00
4	Camembert Pierrot	\$3,520.00	\$3,425.00	\$3,425.00	\$2,820.00	\$13,190.00
5	Gorgonzola Telino	\$1,500.00	\$1,765.00	\$1,200.00	\$1,725.00	\$6,190.00
6	Mascarpone Fabioli	\$3,125.00	\$3,260.00	\$2,448.00	\$3,000.00	\$11,833.00
7	Mozzarella di Giovanni	\$1,825.00	\$1,955.00	\$1,044.00	\$2,150.00	\$6,974.00
8	Raclette Courdavault	\$3,750.00	\$3,245.00	\$3,880.00	\$3,500.00	\$14,375.00
9	Grains/Cereals	\$10,445.00	\$10,035.00	\$8,739.00	\$10,705.00	\$39,924.00
10	Gnocchi di nonna Alice	\$1,675.00	\$1,435.00	\$1,216.00	\$1,650.00	\$5,976.00
11	Gustaf's Knäckebröd	\$2,720.00	\$2,345.00	\$2,420.00	\$2,980.00	\$10,465.00
12	Ravioli Angelo	\$3,050.00	\$2,965.00	\$2,390.00	\$2,985.00	\$11,390.00
13	Singaporean Hokkien Fried Mee	\$1,700.00	\$1,835.00	\$1,616.00	\$1,825.00	\$6,976.00
14	Wimmers gute Semmelknödel	\$1,300.00	\$1,455.00	\$1,097.00	\$1,265.00	\$5,117.00
15	Grand Total	\$24,165.00	\$23,685.00	\$20,736.00	\$23,900.00	\$92,486.00

Filter a Pivot Table

The **Spreadsheet** provides numerous ways to apply filtering to the PivotTable fields to display only data that meets specific criteria. Select the task you wish to perform.

- [Use a Report Filter](#)
- [Filter Row or Column Items](#)
- [Use a Label Filter](#)
- [Use a Date Filter](#)
- [Use a Value Filter](#)
- [Use Multiple Filters per Field](#)
- [Remove a Filter](#)

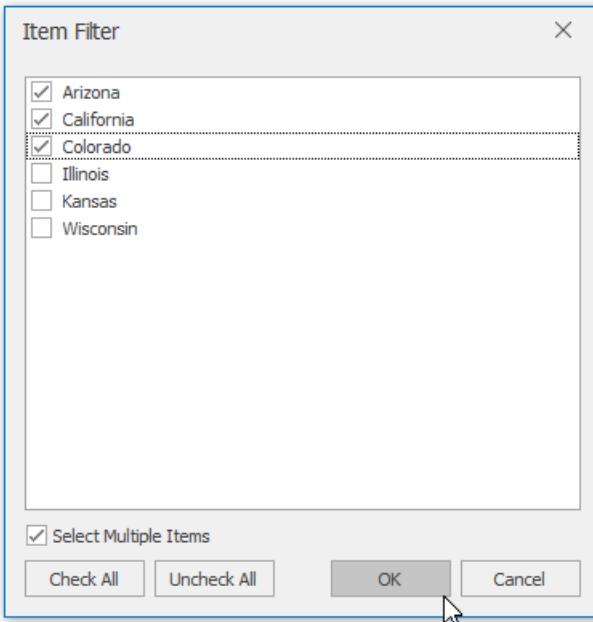
Use a Report Filter

A report filter allows you to filter the entire PivotTable report to show data for specific items. To use a report filter, follow the steps below.

1. Click the arrow ▾ in the report filter field.

	A	B
1	State	(All)
2		
3	Row Labels	Sum of Sales
4	□ Dairy Products	\$76,232.00
5	Camembert Pierrot	\$18,640.00
6	Gorgonzola Telino	\$9,420.00
7	Mascarpone Fabioli	\$17,703.00
8	Mozzarella di Giovanni	\$9,964.00
9	Raclette Courdavault	\$20,505.00
10	□ Grains/Cereals	\$59,640.00
11	Gnocchi di nonna Alice	\$9,456.00
12	Gustaf's Knäckebröd	\$14,633.00
13	Ravioli Angelo	\$16,125.00
14	Singaporean Hokkien Fried Mee	\$10,157.00
15	Wimmers gute Semmelknödel	\$9,269.00
16	Grand Total	\$135,872.00

2. In the invoked dialog, click the **Uncheck All** button to deselect the values. Then, select the check box for the item you wish to display. To select multiple items, select the **Select Multiple Items** check box at the pane bottom. Click **OK** to apply changes.



3. The resulting report is shown in the image below. The **Filter** button  appears in the report filter field to indicate that the filter is applied.

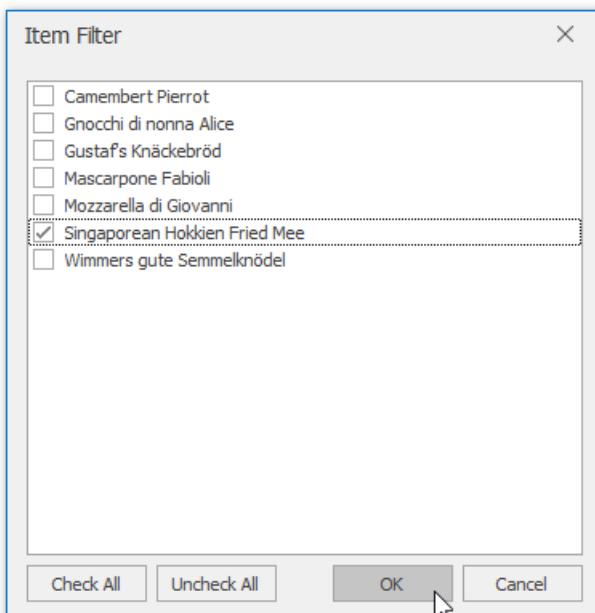
	A	B
1	State	(Multiple Items) 
2		
3	Row Labels	Sum of Sales
4	Dairy Products	\$38,842.00
5	Camembert Pierrot	\$9,670.00
6	Gorgonzola Telino	\$4,690.00
7	Mascarpone Fabioli	\$8,708.00
8	Mozzarella di Giovanni	\$5,149.00
9	Raclette Courdavault	\$10,625.00
10	Grains/Cereals	\$29,479.00
11	Gnocchi di nonna Alice	\$4,301.00
12	Gustaf's Knäckebröd	\$7,745.00
13	Ravioli Angelo	\$8,340.00
14	Singaporean Hokkien Fried Mee	\$5,276.00
15	Wimmers gute Semmelknödel	\$3,817.00
16	Grand Total	\$68,321.00

Filter Row or Column Items

1. Click the arrow  in the **Row Labels** or **Column Labels** cell. If there are multiple fields in the area, select the row or column field you wish to filter.
2. In the drop-down menu, select **Item Filter...**

	A	B	C	D
1	Sum of AMOUNT	Column Labels		
2	Row Labels			
3	□ Dairy Products			
4	Camembert Pierrot	Select Field:	0,382.00	
5	Mascarpone Fabioli	Sort A to Z	5,980.00	
6	Mozzarella di Giovanni	Sort Z to A	4,402.00	
7	□ Grains/Cereals	More Sort Options...	7,525.00	
8	Gnocchi di nonna Alice	Clear Filter From 'PRODUCT'	9,475.00	
9	Gustaf's Knäckebröd	Label Filters		
10	Singaporean Hokkien Fried Mee	Value Filters	8,050.00	
11	Wimmers gute Semmelknödel	Item Filter...		
12	Grand Total		7,907.00	

3. In the invoked dialog, click the **Uncheck All** button to deselect the values. Then, select the item(s) you wish to display and click **OK**.



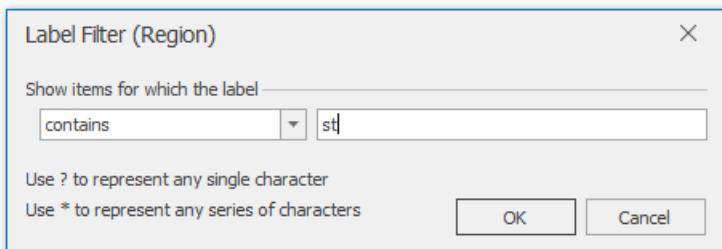
4. The resulting report is shown in the image below. The **Filter** button  appears in the row or column label to indicate that the filter is applied.

	A	B	C	D
1	Sum of AMOUNT	Column Labels		
2	Row Labels	Mar	Jun	Grand Total
3	□ Grains/Cereals	\$8,050.00	\$8,144.00	\$16,194.00
4	Singaporean Hokkien Fried Mee	\$8,050.00	\$8,144.00	\$16,194.00
5	Grand Total	\$8,050.00	\$8,144.00	\$16,194.00

Use a Label Filter

1. Click the arrow  in the **Row Labels** or **Column Labels** cell. If there are multiple fields in the area, select the row or column field you wish to filter.
2. Point to the **Label Filters** item and select one of the built-in comparison operators.

3. In the invoked dialog, specify the filter criteria and click **OK**.

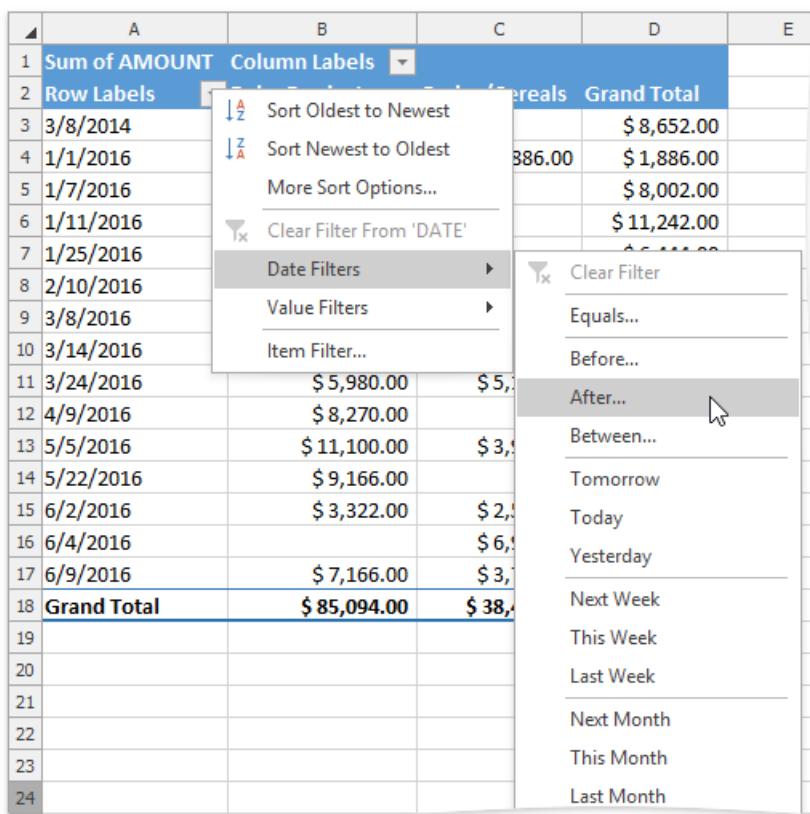


4. The resulting report is shown in the image below. The **Filter** button appears in the row or column label to indicate that the filter is applied.

	A	B	C	D	E
1	Sum of Sales	Column Labels			
2	Row Labels	Midwest	Northeast	West	Grand Total
3	□ Dairy Products	\$13,195.00	\$11,997.00	\$13,720.00	\$38,912.00
4	Camembert Pierrot	\$2,820.00	\$3,425.00	\$3,520.00	\$9,765.00
5	Gorgonzola Telino	\$1,725.00	\$1,200.00	\$1,500.00	\$4,425.00
6	Mascarpone Fabioli	\$3,000.00	\$2,448.00	\$3,125.00	\$8,573.00
7	Mozzarella di Giovanni	\$2,150.00	\$1,044.00	\$1,825.00	\$5,019.00
8	Raclette Courdavault	\$3,500.00	\$3,880.00	\$3,750.00	\$11,130.00
9	□ Grains/Cereals	\$10,705.00	\$8,739.00	\$10,445.00	\$29,889.00
10	Gnocchi di nonna Alice	\$1,650.00	\$1,216.00	\$1,675.00	\$4,541.00
11	Gustaf's Knäckebröd	\$2,980.00	\$2,420.00	\$2,720.00	\$8,120.00
12	Ravioli Angelo	\$2,985.00	\$2,390.00	\$3,050.00	\$8,425.00
13	Singaporean Hokkien Fried Mee	\$1,825.00	\$1,616.00	\$1,700.00	\$5,141.00
14	Wimmers gute Semmelknödel	\$1,265.00	\$1,097.00	\$1,300.00	\$3,662.00
15	Grand Total	\$23,900.00	\$20,736.00	\$24,165.00	\$68,801.00

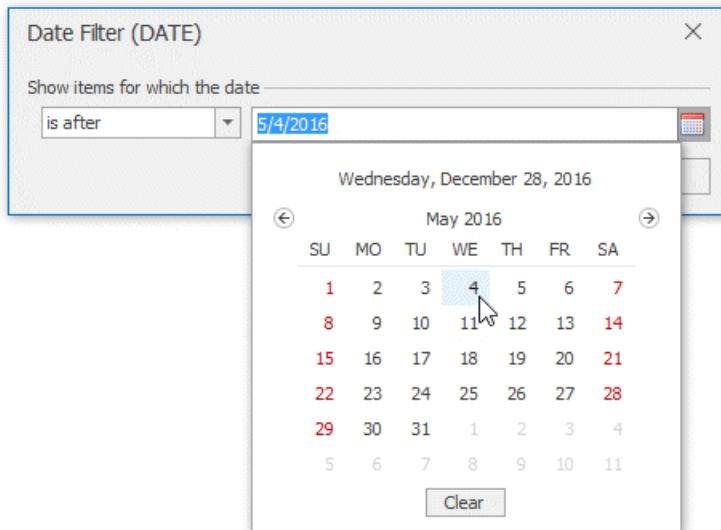
Use a Date Filter

1. Click the arrow  in the header of the row or column field containing dates.
2. Point to the **Date Filters** item and select one of the built-in dynamic filter types to display dates that fall within a specified time period (next, this or last week, month, year, etc.) or select the **Before**, **After**, **Equals** or **Between** item to find dates that are before, after or equal to the specified date, or between two dates.



A	B	C	D	E
1 Sum of AMOUNT	Column Labels			
2 Row Labels				
3 3/8/2014				
4 1/1/2016				
5 1/7/2016				
6 1/11/2016				
7 1/25/2016				
8 2/10/2016				
9 3/8/2016				
10 3/14/2016				
11 3/24/2016	\$ 5,980.00	\$ 5,		
12 4/9/2016	\$ 8,270.00	\$ 8,		
13 5/5/2016	\$ 11,100.00	\$ 3,		
14 5/22/2016	\$ 9,166.00	\$ 2,		
15 6/2/2016	\$ 3,322.00	\$ 2,		
16 6/4/2016		\$ 6,		
17 6/9/2016	\$ 7,166.00	\$ 3,		
18 Grand Total	\$ 85,094.00	\$ 38,		
19				
20				
21				
22				
23				
24				

3. In the invoked **Date Filter** dialog, specify the date(s) to filter by and click **OK**.



4. The resulting report is shown in the image below. The **Filter** button  appears in the row or column label to indicate that the filter is applied.

	A	B	C	D
1	Sum of AMOUNT	Column Labels		
2	Row Labels	Dairy Products	Grains/Cereals	Grand Total
3	5/5/2016	\$ 11,100.00	\$ 3,980.00	\$ 15,080.00
4	5/22/2016	\$ 9,166.00		\$ 9,166.00
5	6/2/2016	\$ 3,322.00	\$ 2,592.00	\$ 5,914.00
6	6/4/2016		\$ 6,989.00	\$ 6,989.00
7	6/9/2016	\$ 7,166.00	\$ 3,700.00	\$ 10,866.00
8	Grand Total	\$ 30,754.00	\$ 17,261.00	\$ 48,015.00

Use a Value Filter

A value filter allows you to filter items in a row or column field based on summary values. To use a value filter, follow the steps below.

1. Click the arrow  in the **Row Labels** or **Column Labels** cell. If there are multiple fields in the area, select the row or column field to which a filter should be applied.
2. Point to the **Value Filters** item and select one of the built-in comparison operators.

	A	B	C	D	E	F
1	Sum of Sales	Column Labels				
2	Row Labels	Midwest	Northeast	South	West	Grand Total
3	<input checked="" type="checkbox"/> Dairy Products					
4	Camembert Pierrot			\$13,650.00	\$13,720.00	\$52,562.00
5	Gorgonzola Telino			\$3,425.00	\$3,520.00	\$13,190.00
6	Mascarpone Fabioli			\$1,765.00	\$1,500.00	\$6,190.00
7	Mozzarella di Giovanni			\$3,260.00	\$3,125.00	\$11,833.00
8	Raclette Courdavault			\$1,955.00	\$1,825.00	\$6,974.00
9	<input checked="" type="checkbox"/> Grains/Cereals			\$3,245.00	\$3,750.00	\$14,375.00
10	Gnocchi di nonna Alice			\$10,035.00	\$10,445.00	\$39,924.00
11	Gustaf's Knäckebröd					
12	Ravioli Angelo					
13	Singaporean Hokkien Fried Mee			\$1,825.00	\$1,616.00	
14	Wimmers gute Semmelknödel			\$1,265.00	\$1,097.00	
15	Grand Total			\$23,900.00	\$20,736.00	
16						
17						
18						
19						
20						
21						
22						

Select Field: 

 Sort A to Z
 Sort Z to A
More Sort Options...

 Clear Filter From 'Product'

 Label Filters 

 Value Filters 

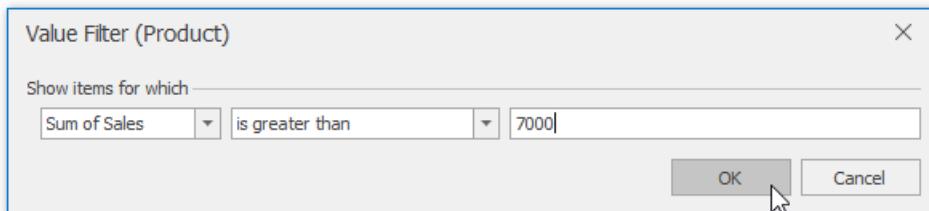
 Item Filter...

 Clear Filter
6.00
5.00
0.00

 Equals...
6.00
Does Not Equal...
7.00
Greater Than...
6.00

 Greater Than Or Equal To...
Less Than...
Less Than Or Equal To...
Between...
Not Between...
Top 10 ...

3. In the invoked dialog, specify the filter criteria and click **OK**. Note that the filtering will be applied to the filtered field's **Grand Total** values.



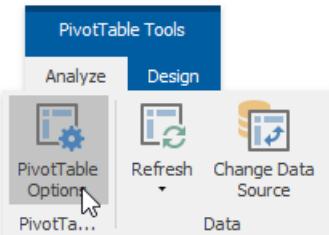
4. The resulting report is shown in the image below. The **Filter** button  appears in the row or column label to indicate that the filter is applied.

	A	B	C	D	E	F	
1	Sum of Sales	Column Labels	Midwest	Northeast	South	West	Grand Total
2	Row Labels						
3	Dairy Products		\$9,320.00	\$9,753.00	\$9,930.00	\$10,395.00	\$39,398.00
4	Camembert Pierrot		\$2,820.00	\$3,425.00	\$3,425.00	\$3,520.00	\$13,190.00
5	Mascarpone Fabioli		\$3,000.00	\$2,448.00	\$3,260.00	\$3,125.00	\$11,833.00
6	Raclette Courdavault		\$3,500.00	\$3,880.00	\$3,245.00	\$3,750.00	\$14,375.00
7	Grains/Cereals		\$5,965.00	\$4,810.00	\$5,310.00	\$5,770.00	\$21,855.00
8	Gustaf's Knäckebröd		\$2,980.00	\$2,420.00	\$2,345.00	\$2,720.00	\$10,465.00
9	Ravioli Angelo		\$2,985.00	\$2,390.00	\$2,965.00	\$3,050.00	\$11,390.00
10	Grand Total		\$15,285.00	\$14,563.00	\$15,240.00	\$16,165.00	\$61,253.00

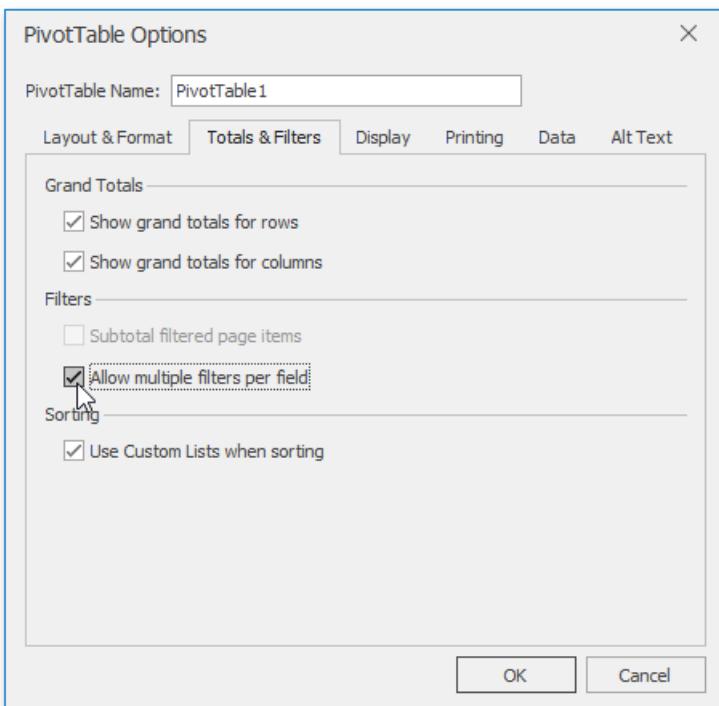
Use Multiple Filters per Field

To enable the capability to apply multiple filters to a single row or column field, do the following.

- On the **PivotTable Tools | Analyze** tab, in the **PivotTable** group, click the **PivotTable Options** button.



- In the invoked **PivotTable Options** dialog, switch to the **Totals & Filters** tab and check the **Allow multiple filters per field** box.



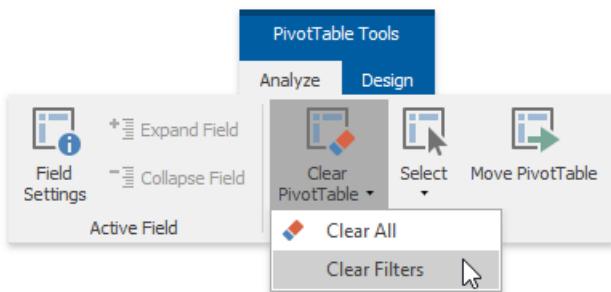
Remove a Filter

To remove a filter, do the following.

- To remove a filter from a specific field, click the **Filter** button and select the **Clear Filter From 'Field Name'** item in the drop-down menu.

	B	C	D	E
1	Column Labels			
2	Midwest			
3	1319			
4	282			
5	172			
6	300			
7	215			
8	350			
9	1070			
10	1650	1216	1675	454
11	2980	2420	2720	812

- To clear all filters applied to the PivotTable fields at once, on the **PivotTable Tools | Analyze** tab, in the **Actions** group, click **Clear PivotTable | Clear Filters**.



Insert a Calculated Field and Calculated Item

If the predefined aggregation functions or the **Show Values As** calculation options do not meet your requirements, you can create your own formulas to calculate values in a PivotTable report by inserting **calculated fields** and **calculated items**.

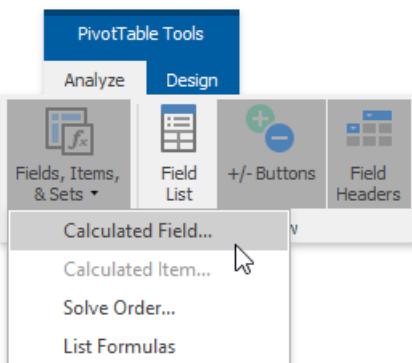
Insert a Calculated Field

Calculated fields can perform calculations using the contents of other fields in the report. A calculated field's formula should conform to the common syntax rules and contain only supported elements.

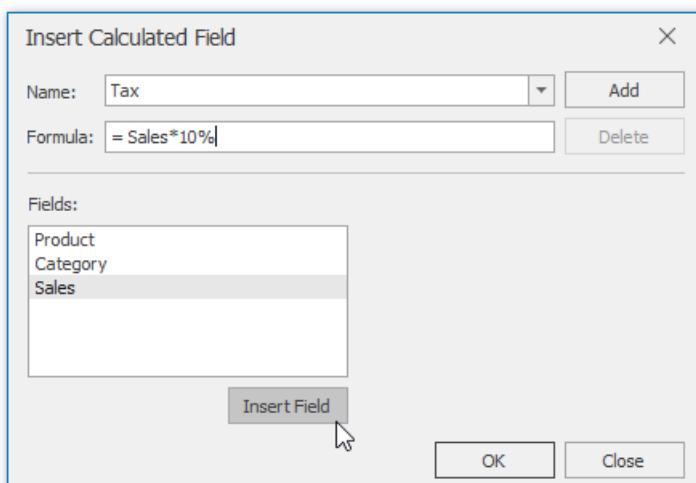
- In the formula, you can use constants and refer to other fields in the pivot table. The calculation will be performed on the sum of the underlying data for any fields in the formula. When you reference a field in your formula, you can enclose its name in apostrophes or omit them.
- You cannot create formulas that use a cell reference, defined name, circular references and arrays.
- The formula cannot refer to the PivotTable's subtotals, totals and Grand Total value.

To insert a calculated field, do the following.

1. Select a cell within the PivotTable report and on **PivotTable Tools | Analyze** tab, in the **Calculation** group, click the **Fields, Items, & Sets** button. In the drop-down menu, select the **Calculated Field...** item to invoke the **Insert Calculated Field** dialog.



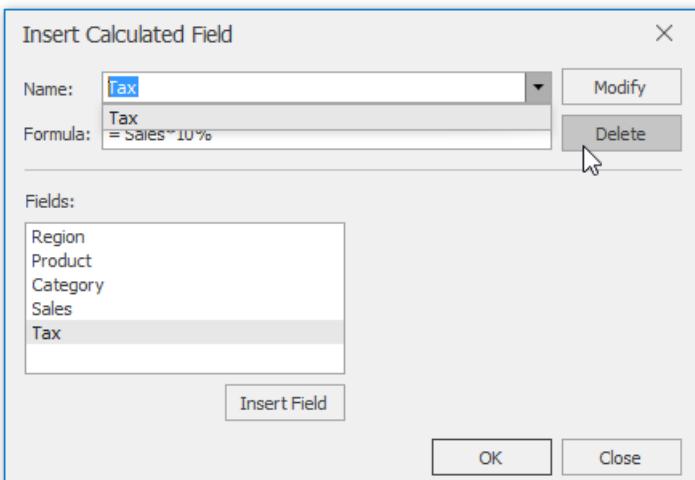
2. In the dialog window, specify the name and formula for the calculated field. To use data from another field in the formula, click the required field in the **Fields** box, and then click **Insert Field**.



3. Click **Add**, and then click **OK**. As a result, the new field will be automatically added to the **Values** area of the PivotTable report.

	A	B	C
1		Values	
2	Row Labels	Sum of Sales	Sum of Tax
3	Dairy Products	\$52,562.00	\$ 5,256.20
4	Camembert Pierrot	\$13,190.00	\$ 1,319.00
5	Gorgonzola Telino	\$6,190.00	\$ 619.00
6	Mascarpone Fabioli	\$11,833.00	\$ 1,183.30
7	Mozzarella di Giovanni	\$6,974.00	\$ 697.40
8	Raclette Courdavault	\$14,375.00	\$ 1,437.50
9	Grains/Cereals	\$39,924.00	\$ 3,992.40
10	Gnocchi di nonna Alice	\$5,976.00	\$ 597.60
11	Gustaf's Knäckebröd	\$10,465.00	\$ 1,046.50
12	Ravioli Angelo	\$11,390.00	\$ 1,139.00
13	Singaporean Hokkien Fried Mee	\$6,976.00	\$ 697.60
14	Wimmers gute Semmelknödel	\$5,117.00	\$ 511.70
15	Grand Total	\$92,486.00	\$ 9,248.60

4. To delete a calculated field, invoke the **Insert Calculated Field** dialog, select the required field from the **Name** drop-down list and click **Delete**.



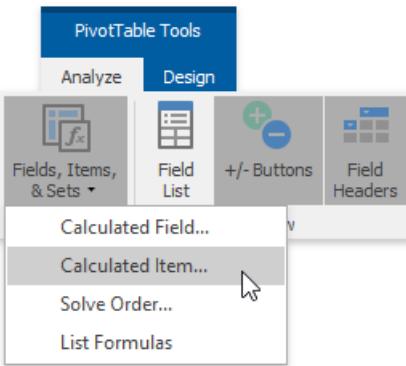
Insert a Calculated Item

A **calculated item** is a custom item in a PivotTable field whose value is produced based on values of other items in the same field. Before inserting a calculated item, take into account the following restrictions.

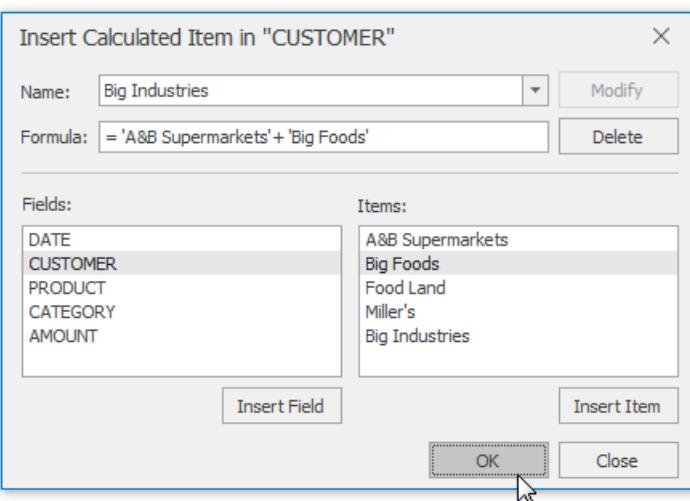
- You cannot add a calculated item to a page field. Also, you cannot move a row or column field containing calculated items to the page area of the PivotTable report.
- You cannot add a calculated item to a grouped field. Ungroup the field before inserting the calculated item.
- You cannot add multiple copies of a field containing calculated items to the data area.
- You cannot add a calculated item to a PivotTable report that uses the **Average**, **StdDev**, **StdDevP**, **Var** or **VarP** aggregation function in the data area.

To insert a calculated item, follow the steps below.

1. Select a cell in the field to which the calculated item should be added. On the **PivotTable Tools | Analyze** tab, in the **Calculations** group, click the **Fields, Items, & Sets** item and select the **Calculated Item...** item from the drop-down menu.



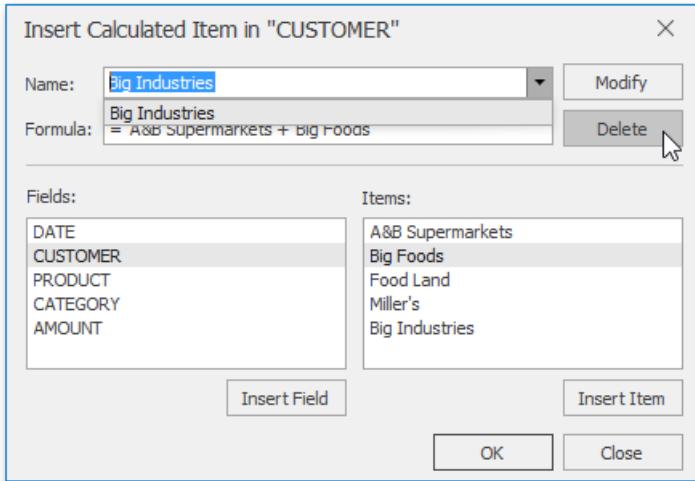
2. In the invoked **Insert Calculated Item** dialog, specify the name and formula for the calculated item. To use a value of another item in the formula, click the required item in the **Items** list, and then click **Insert Item**. Note that you can use only items from the same field as the calculated item.



3. Click **Add**, and then click **OK**. As a result, the new item will be added to the field.

	A	B
3	Row Labels	Sum of AMOUNT
4	A&B Supermarkets	\$101,871.00
5	Big Foods	\$66,083.00
6	Food Land	\$86,552.00
7	Miller's	\$74,707.00
8	Big Industries	\$167,954.00
9	Dairy Products	\$112,670.00
10	Camembert Pierrot	\$34,472.00
11	Gnocchi di nonna Alice	\$0.00
12	Gustaf's Knäckebröd	\$0.00
13	Mascarpone Fabioli	\$33,824.00
14	Mozzarella di Giovanni	\$44,374.00
15	Singaporean Hokkien Fried Mee	\$0.00
16	Wimmers gute Semmelknödel	\$0.00
17	Grains/Cereals	\$55,284.00
18	Camembert Pierrot	\$0.00
19	Gnocchi di nonna Alice	\$11,488.00
20	Gustaf's Knäckebröd	\$8,986.00
21	Mascarpone Fabioli	\$0.00
22	Mozzarella di Giovanni	\$0.00
23	Singaporean Hokkien Fried Mee	\$27,139.00
24	Wimmers gute Semmelknödel	\$7,671.00
25	Grand Total	\$497,167.00

4. To delete a calculated item, invoke the **Insert Calculated Item** dialog, select the required item from the **Name** drop-down list and click **Delete**.



Create a List of the PivotTable Formulas

You can automatically create a list of all the calculated fields and items used in the current pivot table. To do that, on the **PivotTable Tools | Analyze** tab, in the **Calculations** group, click the **Fields, Items, & Sets** item and select the **List Formulas** item from the drop-down menu. As a result, the list will be created on a new worksheet and will appear as in the image below.

	A	B	C	D	E	F	G	H	I	J
1	Calculated Field									
2	Solve Order	Field	Formula							
3	1	Tax	= Sales*10%							
4										
5	Calculated Item									
6	Solve Order	Item	Formula							
7	1	State[West]	= Arizona+ California+ Colorado							
8										
9										
10	Note:	When a cell is updated by more than one formula, the value is set by the formula with the last solve order.								
11										
12										
13	To change the solve order for multiple calculated items or fields, on the Options tab, in the Calculations group, click Fields, Items, & Sets, and then click Solve Order.									
14										

Outline Data

The **Spreadsheet** provides you with the capability to split a large amount of data into separate groups and display summary rows and columns for each group. Data grouping is useful when you wish to temporally hide unnecessary rows or columns to display only significant information.

Select the action you wish to perform.

- [Group Rows and Columns](#)
- [Outline Data Automatically](#)
- [Expand or Collapse Groups](#)
- [Specify Group Settings](#)

Group Rows and Columns

- To **group** data in a worksheet, do the following.

1. Select the rows or columns you wish to group.
2. On the **Data** tab, in the **Outline** group, click the **Group** button, and select the **Group** item in the button's drop-down menu...

NOTE

You can also place one group of rows or columns inside another. To do this, repeat the steps above until you create the required number of groups. Note that the number of nested groups is limited: you can create a maximum of **seven levels** of grouping.

- To **ungroup** data in a worksheet, do the following.

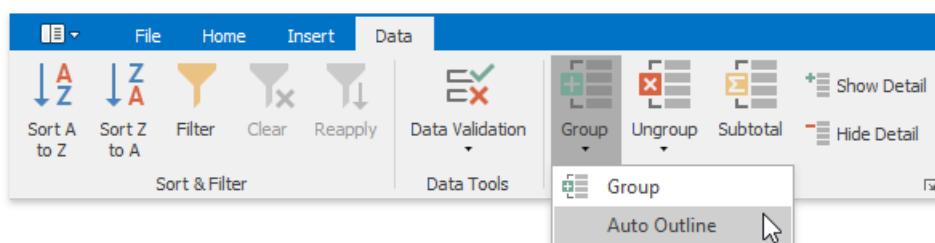
1. Select the rows or columns you wish to ungroup.
2. On the **Data** tab, in the **Outline** group, click the **Ungroup** button, and select the **Ungroup** item in the button's drop-down menu...

Outline Data Automatically

The **Spreadsheet** allows you to create an automatic outline of rows and columns based on subtotal and summary formulas contained in a worksheet.

- To **create an automatic outline**, do the following.

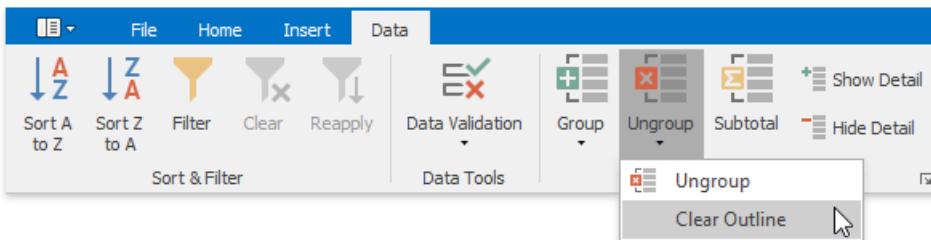
1. Specify the summary rows or columns containing formulas that reference cells to be outlined. If you do not specify any summary formulas, the data will not be grouped.
2. On the **Data** tab, in the **Outline** group, click the **Group** button, and select the **Auto Outline** item in the button's drop-down menu.



- To **remove an automatic outline**, do the following.

On the **Data** tab, in the **Outline** group, click the **Ungroup** button, and select the **Clear Outline** item in the button's drop-

down menu.

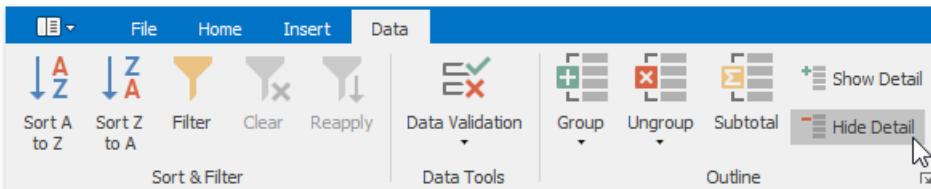


Expand or Collapse Groups

- **Using the outline symbols**

Since the group is created, it is marked by the grouping bar displayed along the grouped rows to the left side of a worksheet and along the grouped columns at the top of a worksheet. Each grouping bar is accompanied by a plus  or minus  outline symbol (depending on the group state). To collapse the required group, click the minus sign, which automatically changes into a plus sign after the group is collapsed, or just click the grouping bar itself. To expand the collapsed group, click the plus sign.

You can also use the **Hide Detail** and **Show Detail** buttons in the **Outline** group to hide or display the detail rows and columns for a specific group.



- **Using the outline buttons**

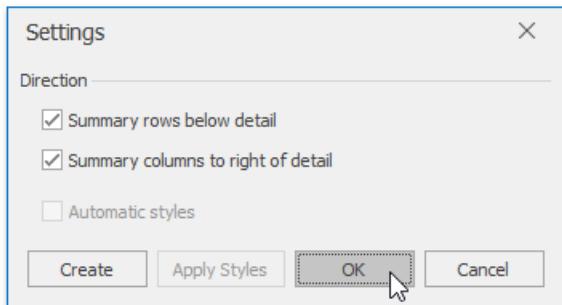
If your data is divided into different grouping levels , you can collapse or expand multiple groups at once using the **outline buttons**   . The outline buttons for row grouping are displayed above the row headers, while the outline buttons for column grouping are shown to the left of the column headers. Each outline button has a number that indicates a grouping level. For example, if you have two levels of grouping, the **Spreadsheet** displays three outline buttons. Clicking outline button **1** collapses all the specified groups of rows or columns. Clicking number **2** collapses all the groups in the second grouping level and lower, except the first level. Clicking the last outline button displays the entire worksheet by expanding all the specified groups.

Thus, to hide all detail data, click outline button **1**. To display all detail data, click the outline button with the largest number.

The number of outline buttons changes depending on the levels of grouping created in a worksheet. The largest number is **8**, because you can create a maximum of **seven levels** of grouping.

Specify Group Settings

You can specify the grouping direction using the **Settings** dialog. To invoke this dialog, on the **Data** tab, click the **Outline** dialog box launcher.



Select the required check boxes depending on where your summary rows or columns are located. For example, if you inserted summary rows above detail rows in each group, clear the **Summary rows below detail** check box.

In this case, the grouping bar changes direction, so that the minus outline symbol is displayed opposite the summary row at the top of the group.

SUMMARY ROWS BELOW DETAIL				SUMMARY ROWS ABOVE DETAIL			
1	2	A	B	C	D	E	F
1							
2		Arizona		Q1	Q2		
· 3		HD Video Player	\$ 2,970.00	\$ 7,590.00			
· 4		SuperLED 42	\$ 8,700.00	\$ 13,050.00			
· 5		SuperLED 50	\$ 4,800.00	\$ 11,200.00			
· 6		DesktopLED 19	\$ 3,795.00	\$ 3,795.00			
· 7		DesktopLED 21	\$ 4,025.00	\$ 1,050.00			
· 8		Projector Plus HD	\$ 7,500.00	\$ 3,000.00			
9		Quarterly total	\$ 31,790.00	\$ 39,685.00			
10							

Subtotal Data

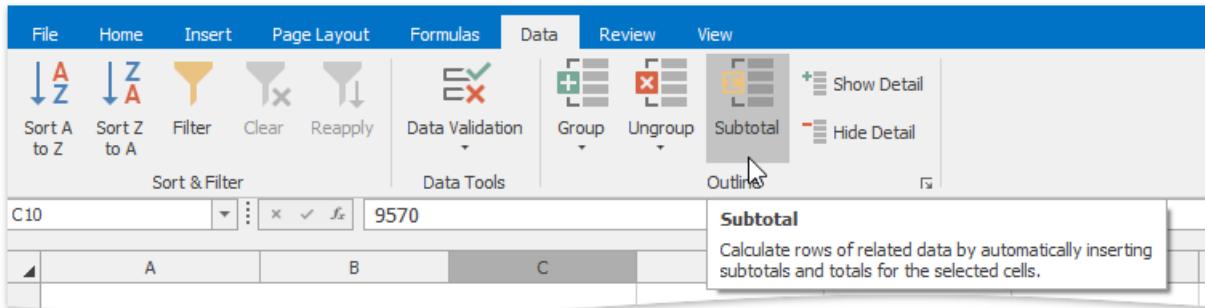
The **Spreadsheet** allows you to automatically [group](#) related data in a worksheet and add summary rows to each group using the **SUBTOTAL** function.

IMPORTANT

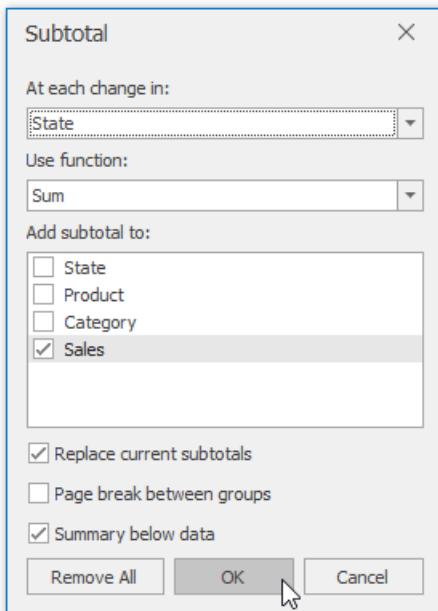
Before subtotaling, it is necessary to ensure that the range to be subtotalized contains similar data in each column, has column headings in the first row and does not include blank rows or columns.

To insert subtotals for the selected range, follow the steps below.

- On the **Data** tab, in the **Outline** group, click the **Subtotal** button.



- In the invoked **Subtotal** dialog, specify the required subtotal options.



- In the **At each change in** drop-down list, select the heading of the column by which the data should be grouped. Each time a value in this column changes, a new subtotal row is inserted. So [sorting](#) your data by this column is recommended to ensure that the same column values will be in one group.
- In the **Use function** drop-down list, select one of the eleven functions available for calculating subtotals: Sum, Count, Average, Max, Min, etc.
- In the **Add subtotals to** box, select the check boxes corresponding to the columns for which the SUBTOTAL function should be calculated.
- Select the **Replace current subtotals** check box to replace the existing subtotals with the recently specified subtotals. If you wish to create more than one level of subtotals (for example, to insert subtotals for the inner groups using different summary functions), clear this check box.
- Select the **Page break between groups** check box to locate each group on a new page. It can be useful if your

groups contain many detail rows and you wish to separate them while printing.

- o Select the **Summary below data** check box to display a summary row below detail rows in each group. Otherwise, the summary row will be displayed at the top of the group.

Since subtotals are specified, you can change the SUBTOTAL function directly in the cell or formula bar to ignore values in the collapsed groups. To do this, add **100** to the first numeric function's argument, which specifies the code of the function used in calculating subtotals. In this case, the hidden values in the collapsed group will not be taken into account during calculations.

The screenshot shows a Microsoft Excel spreadsheet titled "Regional Sales" on Sheet1. The data is organized into three main sections: East, West, and Grand Total. The East section contains four rows of data: Camembert Pierrot (\$6,750.00), Gorgonzola Telino (\$4,500.00), Mascarpone Fabioli (\$3,550.00), and Mozzarella di Giovanni (\$3,800.00). Below these is a subtotal row labeled "East Total" with a value of \$18,600.00. The West section contains three rows of data: Gorgonzola Telino (\$5,500.00), Mascarpone Fabioli (\$8,600.00), and Mozzarella di Giovanni (\$5,325.00). Below these is a subtotal row labeled "West Total" with a value of \$19,425.00. At the bottom is a final "Grand Total" row containing the formula =SUBTOTAL(9,D3:D10).

Region	Product	Sales
East	Camembert Pierrot	\$ 6,750.00
East	Gorgonzola Telino	\$ 4,500.00
East	Mascarpone Fabioli	\$ 3,550.00
East	Mozzarella di Giovanni	\$ 3,800.00
East Total		\$ 18,600.00
West	Gorgonzola Telino	\$ 5,500.00
West	Mascarpone Fabioli	\$ 8,600.00
West	Mozzarella di Giovanni	\$ 5,325.00
West Total		\$ 19,425.00
Grand Total		=SUBTOTAL(9,D3:D10)

To remove subtotals, select a cell in the subtotalled range, invoke the **Subtotal** dialog and click the **Remove All** button.

Sort Data

The **Spreadsheet** provides the capability to sort data by text (**A to Z** or **Z to A**), numbers (**smallest to largest** or **largest to smallest**), dates and times (**oldest to newest** or **newest to oldest**) in one column.

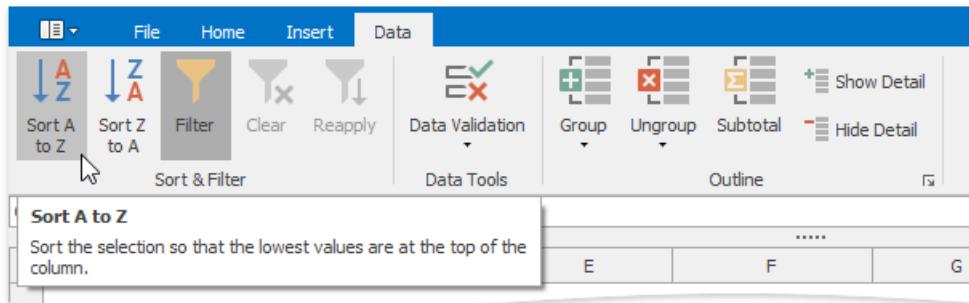
To perform sorting, do the following.

1. Select a range in the column you wish to sort.

NOTE

If multiple columns are selected, the range will be sorted by the **first** column.

2. On the **Data** tab, in the **Sort & Filter** group, click **Sort A to Z** to select ascending order, or click **Sort Z to A** for descending order.



Sort a Table

To sort data in a table, follow the steps below.

1. Click the arrow ▾ in the header of the column by which data will be sorted.
2. In the drop-down menu, select the **Sort A to Z** item to select ascending order, or select the **Sort Z to A** item to select descending order.

	C	D	E	F
5	Country	Exports	Imports	Balance
6	Australia			1,462.50
7	Belgium			982.70
8	Brazil			851.80
9	Canada			-1,890.00
10	China	8,786.50	36,646.20	-27,859.70
11	France	2,642.30	3,563.70	-921.40

All the records in the table will be reordered accordingly. The tiny arrow ▾ appears in the column header to indicate that data in the table are sorted by this column.

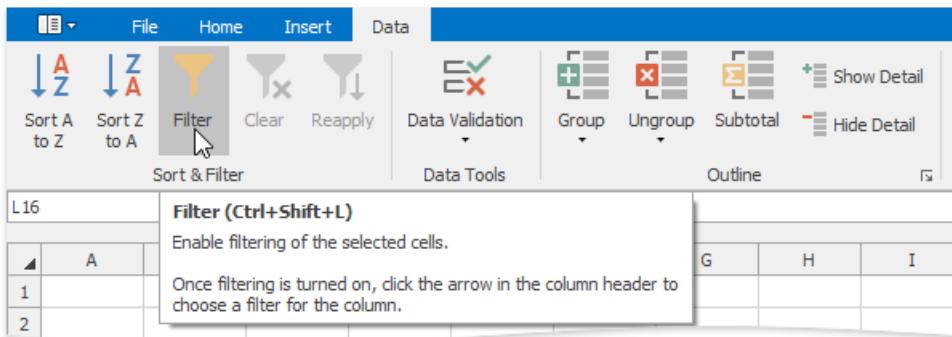
NOTE

You cannot sort a table by more than one column at a time. When you apply a new sort order, it replaces the previous one.

Filter Data

The **Spreadsheet** allows you to use the AutoFilter to arrange large amounts of data by displaying only rows that meet the filtering criteria.

To enable the filtering functionality, select the required data, and on the **Data** tab, in the **Sort & Filter** group, click the **Filter** button.



Once filtering is activated, a drop-down arrow appears on the right side of each column header in the range. Depending on the data in the column you wish to filter, you can apply one of the following filters: Filter by Values, Text Filter, Number Filter or Date Filter.

NOTE

You can filter your data by multiple columns. Filters are **additive**: each new filter is applied in addition to the existing filters and further reduces your data.

- [Filter by Values](#)
- [Text Filter](#)
- [Number Filter](#)
- [Date and Time Filter](#)
- [Reapply a Filter](#)
- [Clear a Filter](#)

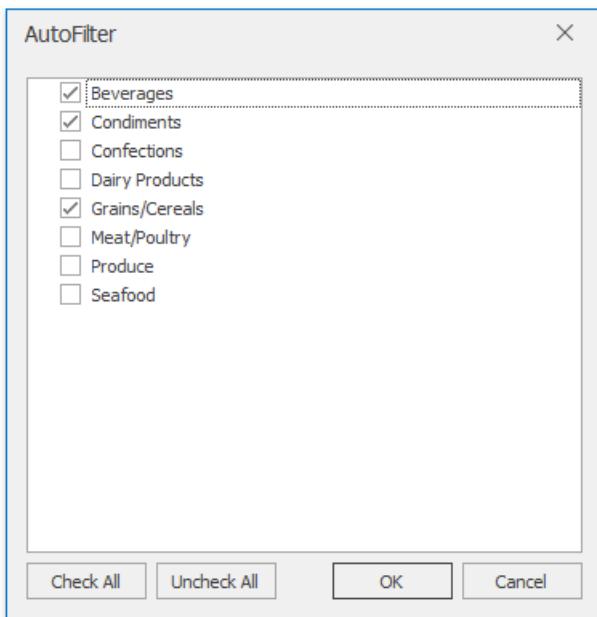
Filter by Values

To filter your data by a list of values, do the following.

1. Click the arrow in the header of the column containing the values you wish to filter.
2. In the drop-down menu, select the **Filter by Values** item to invoke the **AutoFilter** dialog.

C	D	E	F
2 Category			
3 Meat/Poultry	\$ 1,170.00		
4 Condiments	\$ 140.00		
5 Seafood	\$ 404.80		
6 Dairy Products	\$ 340.00		
7 Seafood	\$ 2,125.00		
8 Beverages	\$ 522.00		
9 Beverages	\$ 684.00		
10 Beverages	\$ 504.00		

3. The **AutoFilter** dialog displays a list of all values in the selected column. Click the **Uncheck All** button to deselect the values. Then, select the check boxes for the items you wish to display, and click **OK**.



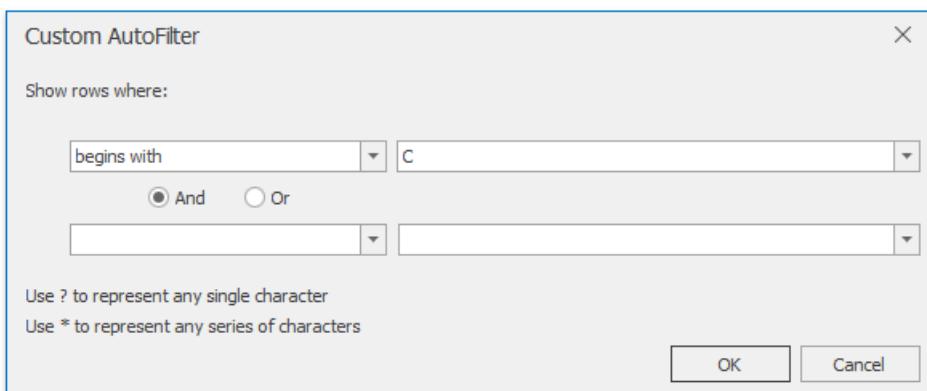
Text Filter

To apply the text filter, do the following.

1. Click the arrow ▾ in the header of the column containing text values you wish to filter.
2. Point to **Text Filters** and select one of the built-in comparison operators, or select **Custom Filter** to construct your own filter expression.

A	B	C	D	E	F
2					
3	Product				
7	Camembert Pierrot				
18	Fløtemysost				
21	Gnocchi di nonna Alice				
22	Gorgonzola Telino				
26	Gudbrandsdalsost				
29	Gustaf's Knäckebröd				
41	Mascarpone Fabioli				
44	Mozzarella di Giovanni				
52	Queso Cabrales				
53	Queso Manchego La Pastora				
54	Raclette Courdavault				
55	Ravioli Angelo				
63	Singaporean Hokkien Fried Mee				

3. In the invoked **Custom AutoFilter** dialog specify the filter criterion.



You can also specify the additional filter criterion using the **AND** or **OR** logical operator to combine the conditions.

To make your filter criterion more flexible, use the **wildcard characters**. The asterisk * matches any number of characters, while the question mark ? represents a single character. For example, to display all the values that start with the letter "C", you can either use the **Begins With** operator as shown in the image above, or select the **Equals** operator and type "C*" in the box on the right.

TIP

To filter values containing a specific character, such as the asterisk, question mark or tilde, put the tilde (~) before it.

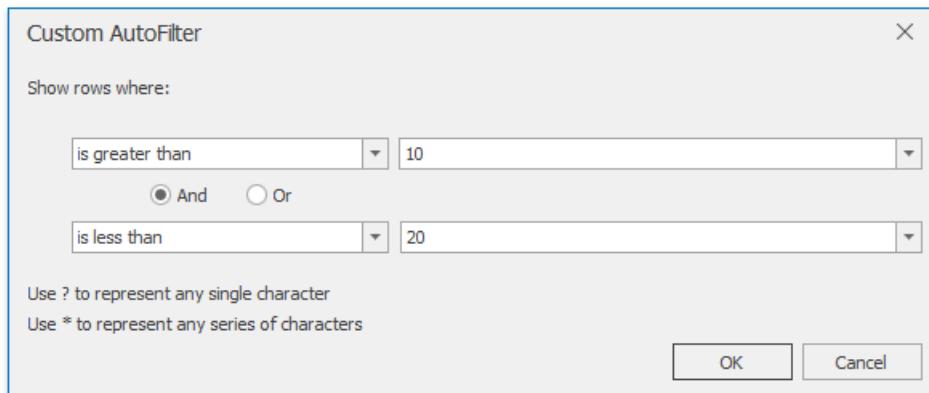
Number Filter

To apply the number filter, do the following.

1. Click the arrow ▾ in the header of the column containing numeric values you wish to filter.
2. Point to **Number Filters** and select one of the built-in comparison operators (**Equals**, **Greater Than**, **Less Than**, **Between**, **Top 10**, **Above** or **Below Average**, etc.), or select **Custom Filter** to construct your own filter expression.

D	E	F	G	H	I	J
2 Unit Price	Qty	Amount				
3 \$ 39.00	▲	Sort Smallest to Largest				
4 \$ 10.00	▼	Sort Largest to Smallest				
5 \$ 18.40	☒	Clear Filter From 'Unit Price'				
6 \$ 34.00						
7 \$ 62.50						
8 \$ 18.00						
9 \$ 19.00	36	\$ 684.00				
10 \$ 18.00	28	\$ 504.00				
11 \$ 22.00	49	\$ 1,078.00				
12 \$ 21.35	55	\$ 1,174.25				
13 \$ 12.75	21	\$ 267.75				
14 \$ 263.50	17	\$ 4,479.50				
15 \$ 13.25	11	\$ 145.75				
16 \$ 7.00	48	\$ 336.00				
17 \$ 21.50	24	\$ 516.00				
18 \$ 2.50	33	\$ 82.50				
19 \$ 15.50	58	\$ 899.00				

3. In the invoked **Custom AutoFilter** dialog specify the filter criterion.



You can also specify the additional filter criterion using the **AND** or **OR** logical operator to combine the conditions.

Date and Time Filter

To apply the date filter, do the following.

1. Click the arrow ▾ in the header of the column containing dates you wish to filter.
2. Point to **Date Filters** and select one of the built-in dynamic filter types to display dates that fall within a specified time period (next, this or last week, month, year, etc.)...

The screenshot shows a Microsoft Excel spreadsheet with columns A, B, and C. Column A contains dates from January 1, 2014, to March 8, 2014. Column B contains product names, and Column C contains category names. In the top row, the 'Date' column has a red header bar. A context menu is open over the first cell of the Date column (A3). The menu has the following items:

- Sort Oldest to Newest
- Sort Newest to Oldest
- Clear Filter From 'Date'
- Date filters** (this item is highlighted)
- Filter by Values ...

A second dropdown menu is open under 'Date filters', listing various time-based filters:

- Equals...
- Before...
- After...
- Between...
- Tomorrow
- Today
- Yesterday
- Next Week
- This Week
- Last Week
- Next Month
- This Month
- Last Month** (this item is highlighted with a cursor)
- Next Quarter
- This Quarter
- Last Quarter

... or select the **Before**, **After**, **Equals** or **Between** item to invoke the **Custom AutoFilter** dialog and find dates that are before, after or equal to the specified date, or between two dates.

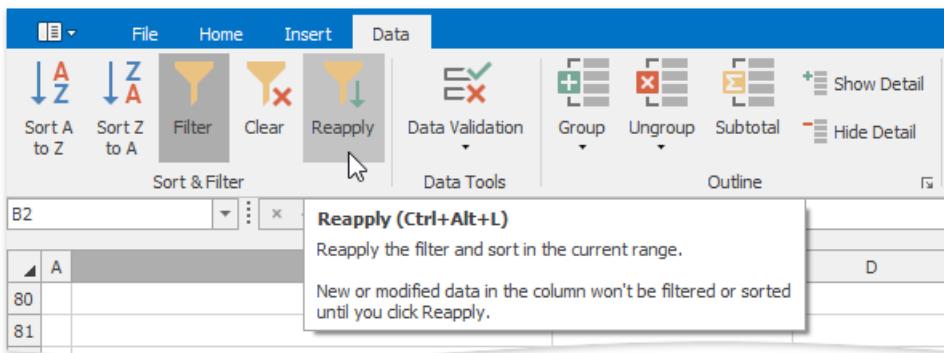
The screenshot shows the 'Custom AutoFilter' dialog box and a calendar window. The dialog box has the following fields:

- Show rows where:
- is after (with a calendar icon to its right)
- And Or
- Use ? to represent any single character
- Use * to represent any series of characters

At the bottom are 'OK' and 'Cancel' buttons. A calendar window is overlaid on the dialog, showing the month of December 2014. The date '17' is selected, indicated by a blue border and a cursor. The calendar also shows the days of the week: MO, TU, WE, TH, FR, SA, SU.

Reapply a Filter

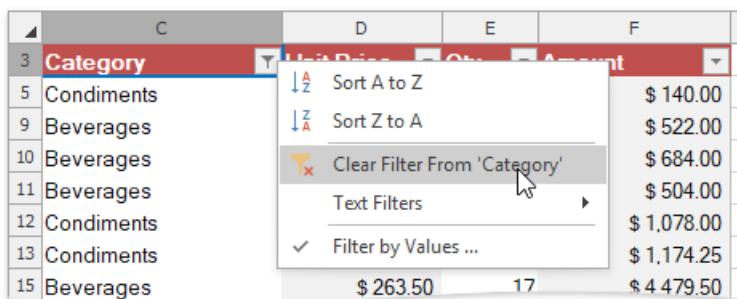
To reapply a filter after you change your data, click a cell in the range or table to which the filter is applied, and then on the **Data** tab, in the **Sort & Filter** group, click the **Reapply** button.



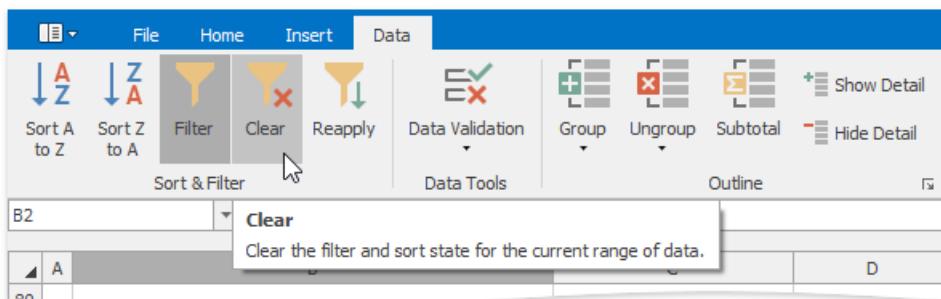
Clear a Filter

To remove a filter, do the following.

- To remove a filter from a specific column, click the **Filter** button  in the column header, and then select the **Clear Filter From 'Column Name'** item in the drop-down menu.



- To clear all the specified filters and display the hidden rows, on the **Data** tab, in the **Sort & Filter** group, click the **Clear** button.

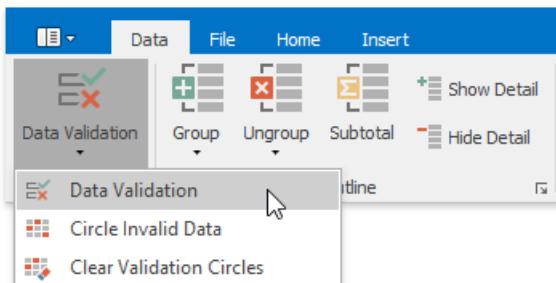


To disable the filtering functionality, click a cell in the range or table, and then on the **Data** tab, in the **Sort & Filter** group, click the **Filter** button. The drop-down arrows will disappear from the column headers and all the specified filters will be removed.

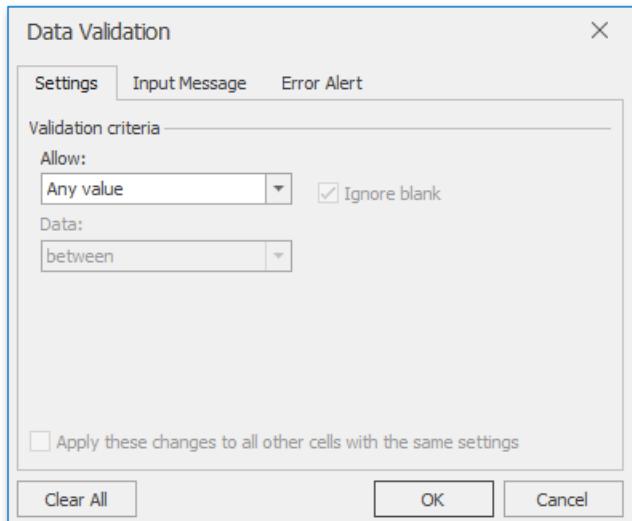
Validate Data in Cells

The **Spreadsheet** allows you to use data validation to impose restrictions on cells to prevent other users from entering incorrect values in validated cells. For example, you can create a drop-down list of allowed values, restrict the number of characters entered into a cell, validate data using spreadsheet formulas, display an error message, provide an input message explaining what values can be entered into cells, etc.

Data validation settings are located on the **Data** tab in the **Data Tools** group.



To configure data validation settings, use the **Data Validation** dialog, which can be invoked by clicking the **Data Validation** button and selecting the **Data Validation** item in the drop-down menu.



Select the action you wish to perform.

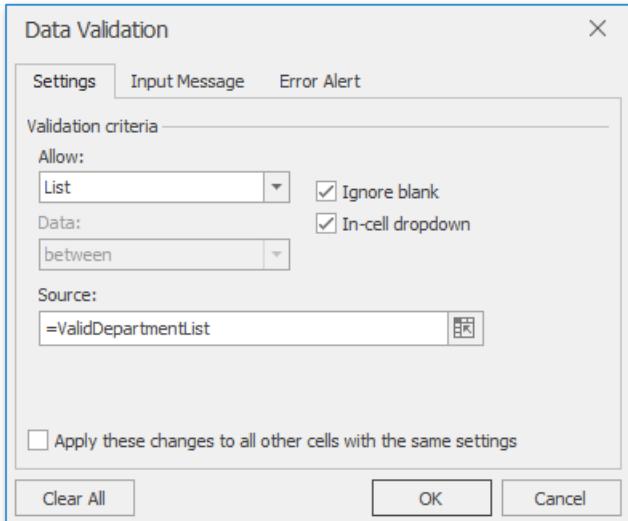
- Restrict data entry to predefined items from a drop-down list
- Restrict data entry to a whole or decimal number within a specified range
- Restrict dates and times to values within a certain time interval
- Limit the number of text characters
- Validate data based on formulas or values in other cells
- Create an input message
- Create an error message
- Circle invalid data
- Remove data validation

Restrict Data Entry to Predefined Items from a Drop-Down List

1. Select the cell or cell range you wish to validate.
2. Invoke the **Data Validation** dialog.
3. On the **Settings** tab, in the **Allow** list, select the **List** item.
4. Enter a reference to the list of valid entries in the **Source** box. You can use a list of comma-separated values, define a name

for the cell range of valid entries, or [select](#) this cell range directly in the worksheet by using the **Collapse Dialog** button .

If you use a defined name or cell reference, precede it with an equal sign (=).



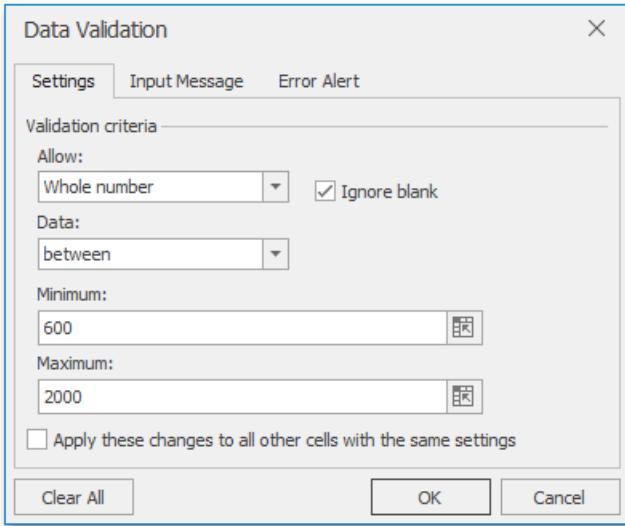
5. Verify that the **In-cell dropdown** check box is selected to display the drop-down menu in validated cells.
6. Select or clear the **Ignore blank** check box to specify whether or not to validate cells with empty values.
7. Click **OK** to close the dialog and apply the specified validation criterion.

As a result, the drop-down arrow appears to the right of a validated cell. Click the arrow to display the cell's drop-down list and select the required value.

A	B	C	D
1			
2	Employee ID	Employee name	Department
3	10115	Augusta Delono	Accounting
4	10501	Berry Dafoe	Accounting
5	10709	Chris Cadwell	Logistics
6	10356	Esta Mangold	IT
7	10401	Frank Diamond	Management
8	10202	Liam Bell	Manufacturing

Restrict Data Entry to a Whole or Decimal Number within a Specified Range

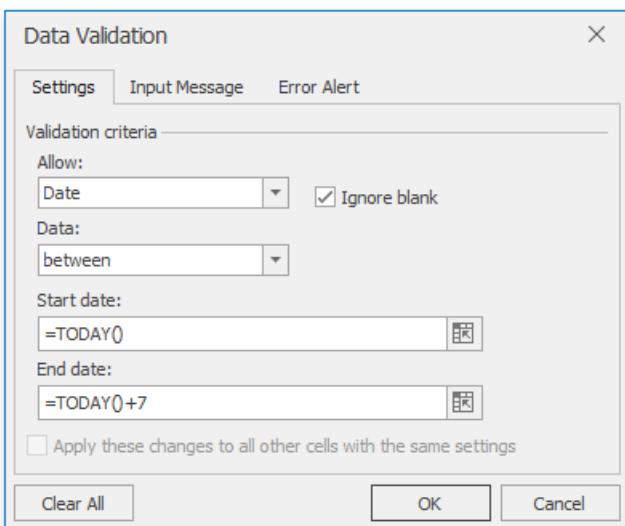
1. [Select](#) the cell or cell range you wish to validate.
2. Invoke the [Data Validation](#) dialog.
3. On the **Settings** tab, in the **Allow** list, select the **Whole number** or **Decimal** item.
4. Select the desired comparison operator in the **Data** list.
5. Depending on the selected operator, enter the required threshold values in the **Minimum**, **Maximum** or **Value** boxes.
Note that you can also use a formula that returns a numeric value to calculate the threshold value. If you enter a formula, start it with an equal sign (=).



6. Click **OK** to close the dialog and apply the specified validation criterion.

Restrict Dates and Times to Values within a Certain Time Interval

1. Select the cell or cell range you wish to validate.
2. Invoke the [Data Validation](#) dialog.
3. On the **Settings** tab, in the **Allow** list, select the **Date** or **Time** item.
4. Select the desired comparison operator in the **Data** list.
5. Depending on the selected operator, provide the required values for the **Start date**, **End date** or **Date** boxes, if the **Date** option is selected (or for the **Start time**, **End time** or **Time** boxes in case of the **Time** option). Note that you can also use a formula that returns a date or time value to calculate the threshold value. If you enter a formula, start it with an equal sign (=).

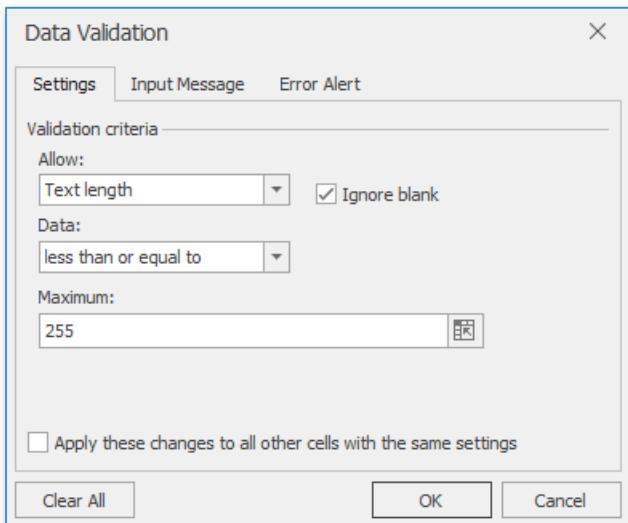


6. Click **OK** to close the dialog and apply the specified validation criterion.

Limit the Number of Text Characters

1. Select the cell or cell range you wish to validate.
2. Invoke the [Data Validation](#) dialog.
3. On the **Settings** tab, in the **Allow** list, select the **Text length** item.
4. Select the desired comparison operator in the **Data** list.
5. Depending on the selected operator, enter the minimum, maximum, or particular text length in the **Minimum**, **Maximum**

or **Length** boxes, respectively. Note that you can also use a formula that returns a numeric value to specify the allowable text length. If you enter a formula, start it with an equal sign (=).

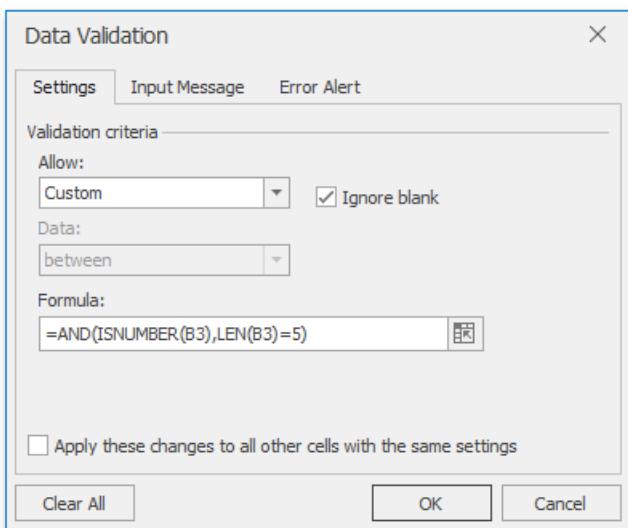


6. Click **OK** to close the dialog and apply the specified validation criterion.

Validate Data Based on Formulas or Values in Other Cells

1. Select the cell or cell range you wish to validate.
2. Invoke the [Data Validation](#) dialog.
3. On the **Settings** tab, in the **Allow** list, select the **Custom** item.
4. In the **Formula** box, enter a [formula](#) you wish to use as a validation criterion. Note that this formula should return a logical value: TRUE for valid values and FALSE for incorrect values. Your formula may also contain [cell references](#), so that you can calculate the allowable values based on the content of other cells.

For example, to restrict data entry for an Employee ID to a five-digit number, use the following formula:
=AND(ISNUMBER(B3),LEN(B3)=5).



5. Click **OK** to close the dialog and apply the specified validation criterion.

Create an Input Message

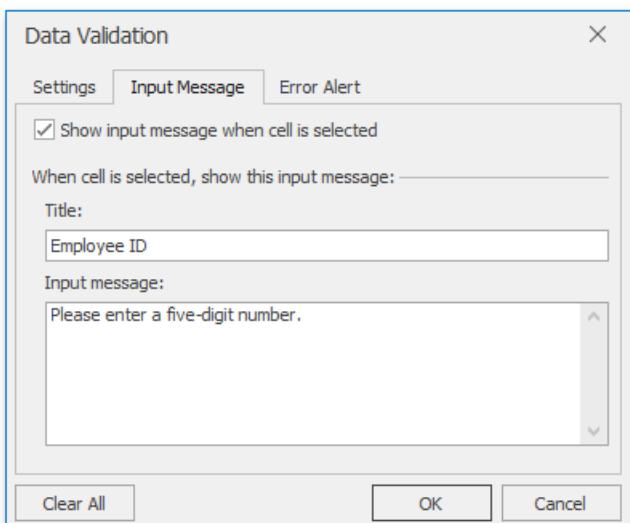
Once you apply data validation to cells, you can create an *input message*, which represents a descriptive message explaining what values can be entered into validated cells. Each time a validated cell is selected, a yellow text box appears near the cell displaying

the input message.

A	B	C
1		
2	Employee ID	Employee name
3	10115	Augusta Delono
4	10501	Berry Dafoe
5	10709	Cadwell
6	10356	Gangold
7	10401	Diamond

To create an input message, do the following.

1. Invoke the [Data Validation](#) dialog.
2. Switch to the **Input Message** tab.
3. Verify that the **Show input message when cell is selected** check box is selected.
4. Specify the message title in the **Title** box, and enter the detailed message text in the **Input Message** box.



5. Click **OK** to close the dialog and add the specified input message to validated cells.

Create an Error Message

In addition to an [input message](#), you can also specify an error message that will be displayed when a user enters an incorrect value into a validated cell.

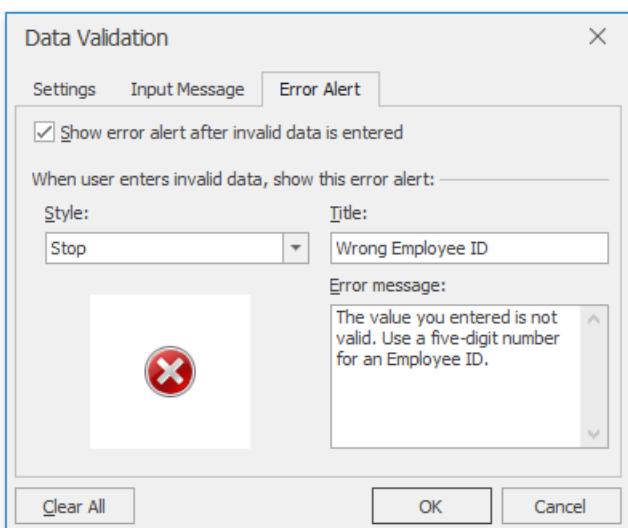
A	B	C	D	E	F
1					
2	Employee ID	Employee name	Salary	Bonus	Department
3	10115	Aug	Wrong Employee ID		
4	105010	Berr			
5	10709	Chris			
6	10356	Estabrook			
7	10401	Frank Diamond	\$ 1,750.00	\$ 100.00	Marketing

There are three types of error messages.

- **Stop** - specifies that users are not allowed to enter invalid data in a validated cell. The **Stop** message contains two buttons: the **Retry** button enables users to edit the invalid entry, while the **Cancel** button rejects it and rolls back to the previous cell value.
- **Warning** - allows users to enter an incorrect value in a validated cell, but warns them that the specified value is invalid. The **Warning** message contains three buttons: clicking **Yes** allows users to accept the invalid value, **No** enables them to edit the invalid entry, and **Cancel** rolls back to the previous cell value.
- **Information** - informs users that they entered an incorrect value and allows them to accept this value by clicking **OK**, or reject it by clicking **Cancel**.

Unless you specify the error message, the **Spreadsheet** will use the **Stop** error alert with the default text. To customize the error text and provide other users with a more informative message, do the following.

1. Invoke the **Data Validation** dialog.
2. Switch to the **Error Alert** tab.
3. Verify that the **Show error alert after invalid data is entered** check box is selected.
4. Select the type of the error message in the **Style** list.
5. Specify the caption for the error alert window in the **Title** box, and enter the error description in the **Error Message** box.

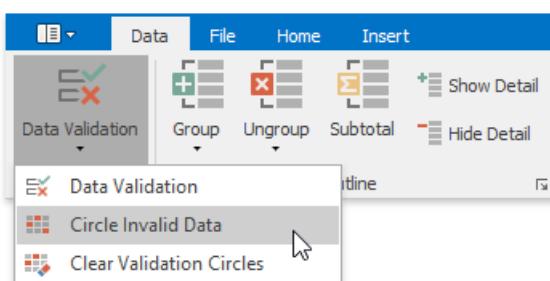


6. Click **OK** to close the dialog.

Note that if you use error messages that do not prevent the entry of incorrect values (**Warning** or **Information**), you can identify invalid data in your document by displaying **validation circles**.

Circle Invalid Data

The **Spreadsheet** allows you to highlight invalid values entered into validated cells. To do this, on the **Data** tab, in the **Data Tools** group, click **Data Validation | Circle Invalid Data**.



As a result, red circles will appear around cells containing incorrect values.

A	B	C
1		
2	Employee ID	Employee name
3	105004	Augusta Delono
4	10501	Berry Dafoe
5	10709	Chris Cadwell
6	10356	Esta Mangold
7	10401	Frank Diamond
8	10202	Liam Bell
9	10205	Simon Newman
10	10403	Wendy Underwood
11		

Once you identified invalid values, you can hide validation circles again. Do one of the following.

- Enter a value that meets the validation criterion in the cell. In this case, the validation circle will disappear automatically.
- On the **Data** tab, in the **Data Tools** group, click **Data Validation | Clear Validation Circles**.

Remove Data Validation

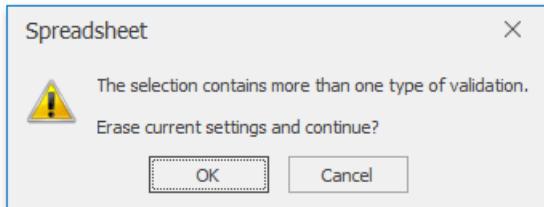
To remove data validation criteria, perform the steps below.

1. Select the cells which you wish to stop validating.

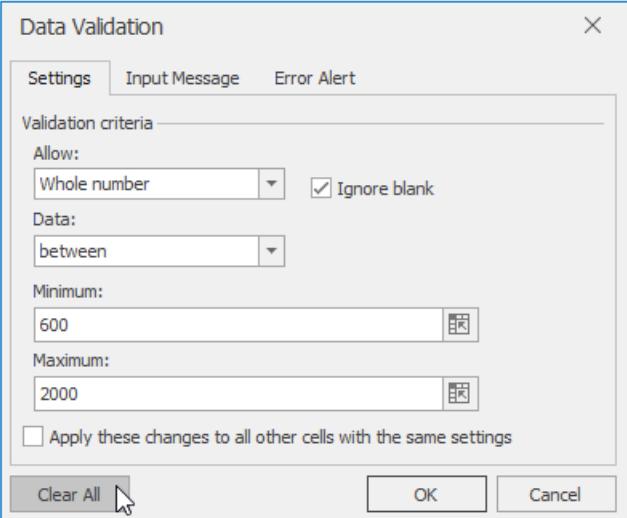
TIP

To quickly select all cells to which data validation is applied, on the **Home** tab, in the **Editing** group, click **Find & Select | Data Validation**.

2. Invoke the **Data Validation** dialog.
3. Do one of the following.
 - o If you are prompted to erase current validation settings and continue, click **OK**, and then click **OK** in the invoked **Data Validation** dialog.



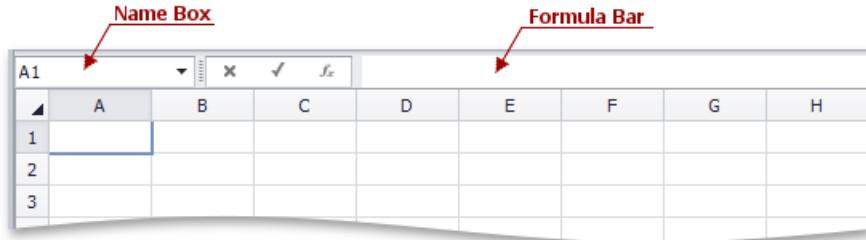
- o In the invoked **Data Validation** dialog, on the **Settings** tab, click the **Clear All** button.



Create a Simple Formula

The **Spreadsheet** allows you to perform calculations on data in cells using formulas. A formula is a string expression that starts with the equal sign ("="). Formulas can contain constants, math operators, functions, cell references, etc.

The **Spreadsheet** provides the capability to use the **Formula Bar**, which is the bar at the top of a worksheet, to enter and edit formulas.



For example, if you wish to add 1 to the product of 2 and 5, type the following formula in the cell in which you wish to insert the formula or in the **Formula Bar**.

=2*5+1

Press **ENTER**. The result appears in the cell in which you inserted the formula.

Cell References

The A1 Reference Style

If you want to change data in a worksheet without changing formulas that use this data for evaluation, you can use **cell references**. A cell reference defines cell location in a worksheet. It is a combination of column letters (**A, B, C**, etc.) and row numbers (**1, 2, 3**, etc.). For example, **A1** refers to a cell at the intersection of column A and row 1.

To add values in cells A1 and A2, and divide the result by the value in cell A3, type the following formula (use parentheses to determine the order of operations):

```
=A1+A2)/A3
```

You can also use a reference to a cell located in another worksheet. For example, to multiply a value in cell B1 by the value in cell B1 in *Sheet 2*, enter the following formula:

```
=B1*Sheet2!B1
```

To prevent data from changing when the formula is copied, use the **absolute reference**. Absolute references have a dollar sign (\$) before column and/or row references.

The following example demonstrates how to use a constant value in cell B1 in calculations:

```
=A1*$B$1
```

The R1C1 Reference Style

The **Spreadsheet** supports the **R1C1 reference style** where both rows and columns are labeled with numbers. Cell location is indicated by an "R" letter followed by a row number and a "C" letter followed by a column number.

You can use **absolute** and **relative** R1C1 references. An absolute R1C1 reference always refers to a cell in a specific location.

	1	2	3	4
1				
2				
3				
4				

The example below demonstrates how to create a formula that adds values in cells A1 through A5 using the absolute R1C1 reference style:

```
=SUM(R1C1:R5C1)
```

A relative R1C1 reference refers to a cell location in relation to an active cell.

The image below illustrates a relative reference to a cell one row above and one column to the left of the active cell.

	1	2	3
1			
2			
3			
4			

The following example demonstrates how to create a formula that adds values in cell range A1:A5 using the relative R1C1 reference style in cell B1:

```
=SUM(RC[-1]:R[4]C[-1])
```

Defined Names

The **Spreadsheet** allows you to define a descriptive **name** for an individual cell, cell range, function, or constant value to make it easier to understand the information contained in worksheet formulas.

- [Defined Name Overview](#)
- [Defined Name Scope](#)
- [Syntax Rules for Names](#)
- [Create a Name Using the Name Box](#)
- [Create a Name Using the New Name Dialog](#)
- [Create Names from Selection](#)
- [Manage Names Using the Name Manager Dialog](#)
- [Use Names in Formulas](#)
- [Delete Names](#)

Defined Name Overview

A defined name is a meaningful shorthand name that describes the meaning of an individual cell, cell range, function, or constant value. Each defined name contains the following information.

- **Name**

Indicates an individual cell, range of cells, formula or constant. Usually, a name explains the purpose of an object to which this name refers, making it easier to find and use this object.

When specifying a name, you must take into account special [syntax rules](#).

- **Refers To**

A string specifying a reference to a cell or cell range, formula or constant associated with the defined name. For example:

"=Sheet1!\$D\$20" - refers to the D20 cell located on the Sheet1 worksheet;

"=Sheet1!\$A\$1:\$C\$10" - refers to the A1:C10 range of cells located on the Sheet1 worksheet;

"=SUM(Sheet1!\$B\$1:\$B\$10)" - refers to the formula that calculates the sum of values contained in the B1:B10 range of cells located on the Sheet1 worksheet;

"=10.5" - refers to a constant value.

By default, defined names use [absolute cell references](#), including worksheet names.

- **Comment**

An explanation or additional information accompanying the defined name. The comment length cannot exceed 255 characters.

Defined Name Scope

Each defined name has a scope - an area (individual worksheet or entire workbook) where the name is recognized and can be used without qualification. For example, a defined name (*cellName*) whose scope is the first worksheet of a workbook (*Sheet1*) is recognized without qualification in this worksheet only (e.g., =5+*cellName*). To use this defined name in other worksheets, precede it with the name of the worksheet to which the defined name belongs (e.g., "=5+Sheet1!*cellName*"). If the scope of a defined name (*cellName_global*) is an entire workbook, this name is recognized in any worksheet of this workbook (e.g., "=5+*cellName_global*").

NOTE

Each name must be unique in its scope.

If the defined name is not found, the cell that uses this name displays the **#NAME?** error.

Syntax Rules for Names

When you create or modify a defined name, follow these rules.

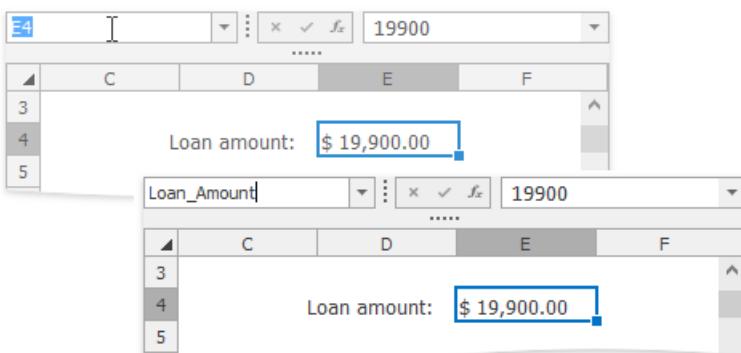
- Start a name with a letter, an underscore symbol ("_") or a backslash ("\"). Other characters in the name can be letters, numbers, periods and underscore symbols.

Note that the single letters "C", "c", "R", or "r" cannot be used as defined names.

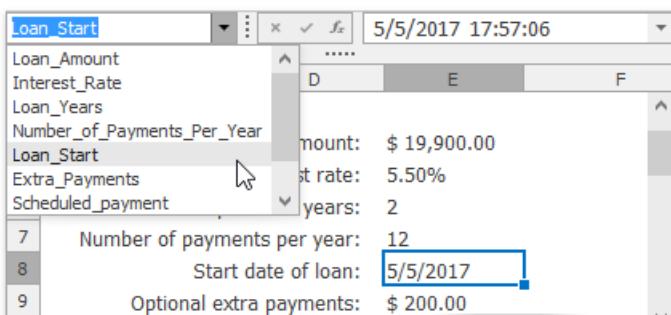
- A name cannot contain a cell reference (for example, "A1", "\$M\$15", etc.).
- A name cannot contain spaces (use underscore symbols and periods to separate individual words in a name).
- A name cannot be an empty string.
- The length of a name cannot exceed 255 characters.
- Names are case-insensitive, so that you are not allowed to create the *Products* and *PRODUCTS* names in one scope.

Create a Name Using the Name Box

- Select a cell or a range of cells for which you wish to define a name.
- Type the name you want to use to refer to the selection in the **Name Box** located to the left of the **Formula Bar**. Press **ENTER**.



Now you can quickly select the defined cell range by its name. To do this, click the drop-down arrow to the right side of the **Name Box**, and select the required name from the drop-down list.

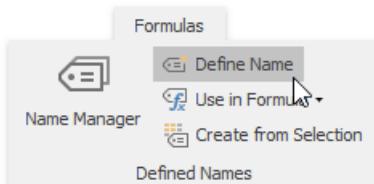


Create a Name Using the New Name Dialog

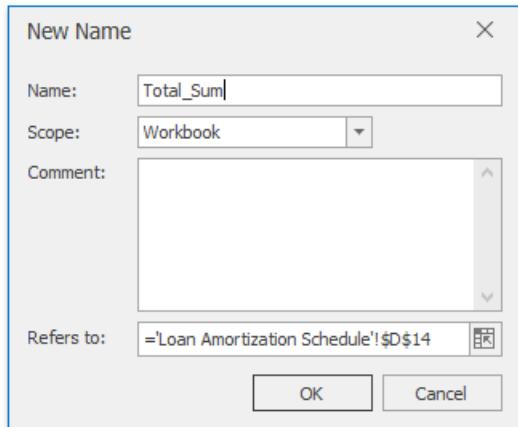
The **New Name** dialog gives you more flexibility for naming parts of your document. Using this dialog, you can name cell ranges,

formulas and constants, and provide additional information for created names.

1. To invoke the **New Name** dialog, on the **Formulas** tab in the **Defined Names** group, click the **Define Name** button.

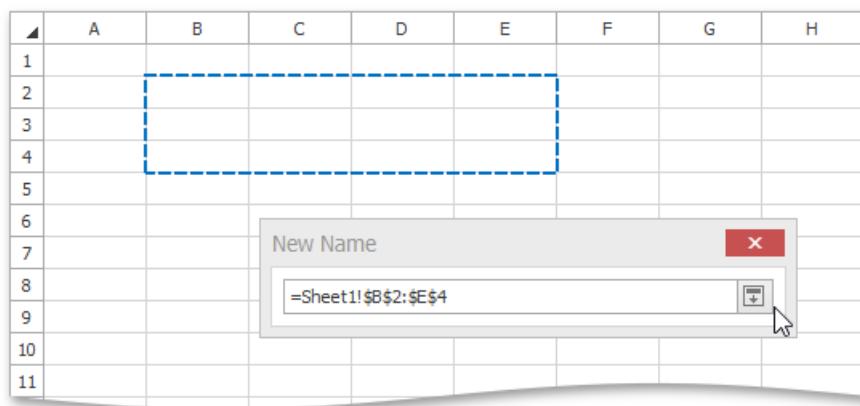


2. In the invoked dialog in the **Name** box, type a name to be associated with a cell or cell range, formula or constant.



3. In the **Scope** drop-down list, select the scope of the defined name: specify whether a name should be accessible within an entire workbook or an individual worksheet only.
4. In the **Comment** box, enter a descriptive text for your defined name (optionally).
5. In the **Refers to** box, type a cell reference, formula or constant for which you wish to define a name.

By default, when you invoke the **New Name** dialog, the current selection is displayed in the **Refers to** box. However, you can enter another cell range by selecting it directly in the worksheet. To do this, click the **Collapse Dialog** button (⊖) to minimize the dialog and access the worksheet, select the appropriate cell range, and then click the **Expand Dialog** button (⊕) to restore the dialog's initial state.



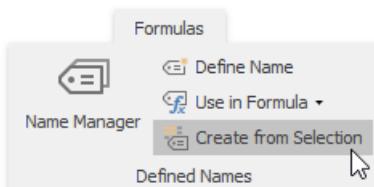
6. Click **OK** to finish creating the name.

Create Names from Selection

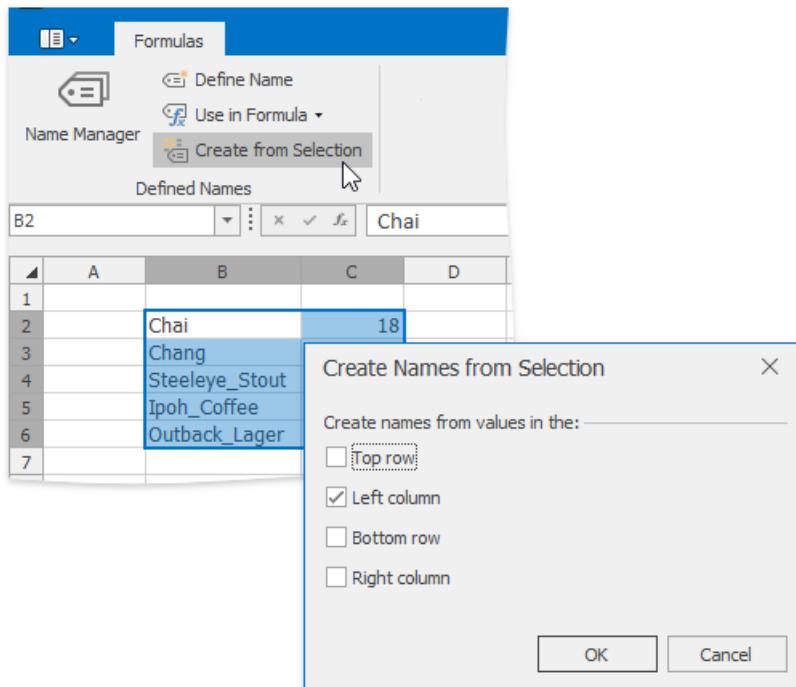
The **Create Names from Selection** dialog allows you to automatically generate names for rows and columns in the selected range using the row and column labels.

To create a name from a selection, do the following.

1. Select a cell range to be named, including the row or column labels to be used for generating names.
2. On the **Formulas** tab in the **Defined Names** group, click the **Create from Selection** button, or press **CTRL+SHIFT+F3**.



3. In the invoked **Create Names from Selection** dialog, specify which row (top or bottom) or column (left or right) contains labels that should be used for generating names, and click **OK**.

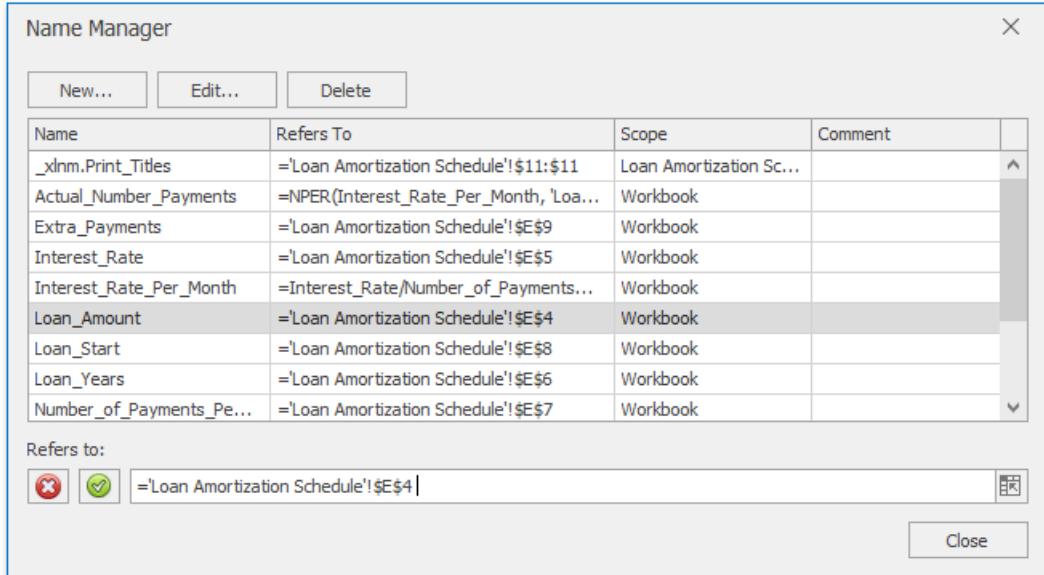


NOTE

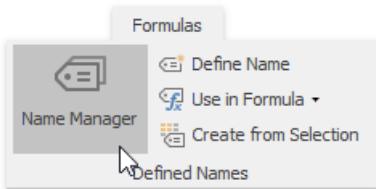
Names generated using this approach do not include the row and column labels and refer only to the cells containing values.

Mange Names Using the Name Manager Dialog

The **Name Manager** dialog lists all the defined names specified in a workbook and allows you to [create](#) new names, [edit](#) and [delete](#) existing names.



To invoke the **Name Manager** dialog, on the **Formulas** tab in the **Defined Names** group, click the **Name Manager** button.

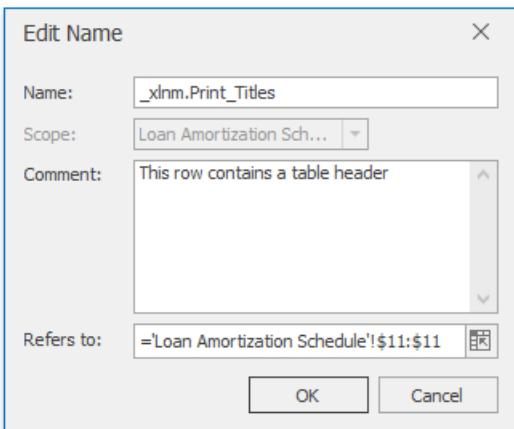


- **Create a name**

To define a new name, at the top of the **Name Manager** dialog, click the **New...** button. In the invoked **New Name** dialog, specify all necessary parameters for a new defined name.

- **Edit a name**

To modify the existing name, select this name in the **Name** list, and at the top of the **Name Manager** dialog click the **Edit...** button, or double-click the name. In the invoked **Edit Name** dialog, modify the name itself, change the cell reference, formula or constant to which the name refers, or enter a new comment. Only the scope of the defined name cannot be changed.



If you wish to modify only the current reference for a name, you can do it directly in the **Name Manager** dialog. To do this, select the desired name in the **Name** list and type a new value in the **Refers to** box, or...



... click the **Collapse Dialog** button () and select the desired range directly in the worksheet.

Use Names in Formulas

To insert an existing defined name into a formula, type the required name directly in the formula or select it from the **Use in Formula** list on the **Formulas** tab in the **Defined Names** group.

Scheduled_Number_Payments

First scheduled payment: \$ 877.50

Scheduled number of payments: =Loan_Years*Number_of_Payments_Per_Year

Actual number of payments: 20

Total early payments: \$ 3,800.00

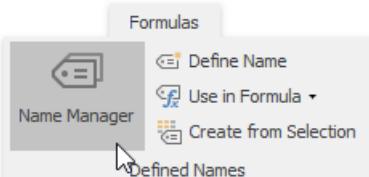
Total interest: \$ 941.18

_xlnm.Print_Titles
Actual_Number_Payments
Extra_Payments
Interest_Rate
Interest_Rate_Per_Month
Loan_Amount
Loan_Start
Loan_Years
Number_of_Payments_Per_Year
Scheduled_Number_Payments
Scheduled_payment

Delete Names

To remove a defined name, do the following.

1. On the **Formulas** tab, in the **Defined Names** group, click the **Name Manager** button.



2. In the invoked **Name Manager** dialog, select the name you wish to delete.
3. Click the **Delete** button, or press **DELETE**.

Name	Refers To	Scope	Comment
_xlnm.Print_Titles	=`Loan Amortization Schedule'!...	Loan Amortization Schedule	
Actual_Number_Payments	=NPER(Interest_Rate_Per_M...	Workbook	
Extra_Payments	=`Loan Amortization Schedule'!...	Workbook	
Interest_Rate	=`Loan Amortization Schedule'!...	Workbook	
Interest_Rate_Per_Month	=Interest_Rate/Number_of_P...	Workbook	
Loan_Amount	=`Loan Amortization Schedule'!...	Workbook	
Loan_Start	=`Loan Amortization Schedule'!...	Workbook	
Loan_Years	=`Loan Amortization Schedule'!...	Workbook	
Number_of_Payments_Per_Year	=`Loan Amortization Schedule'!...	Workbook	

Refers to:

=`Loan Amortization Schedule'!\$E\$9

Close

Using Functions in Formulas

The **Spreadsheet** provides the capability to use a set of predefined **functions** in formulas to perform simple or complex calculations.

To create a formula containing functions, follow the instructions below.

1. Click the cell in which you want to insert the formula.
2. Type the equal sign "`=`". This is required to interpret the cell content as a formula. Skip this action if you insert the function in a cell which already contains a formula.
3. Type the function's name, or [insert the required function](#) from the **Function Library**.
4. Enter the arguments between the function's parentheses.
5. Press **ENTER**. The result appears in the cell in which you inserted the formula.

Insert a Function

If you do not remember the name of the function you want to use, you can insert the desired function quickly using one of the following approaches.

- **Using the Function Library group**

On the **Formulas** tab, in the **Function Library** group, click the button corresponding to the category to which your function belongs, and select this function from the button's drop-down list.

TIP

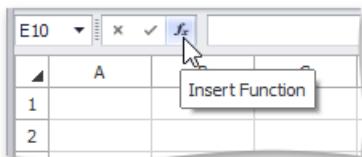
Frequently used functions such as **Sum**, **Average**, **Count Numbers**, **Max** and **Min** are also listed under the **AutoSum** button on the **Home** tab in the **Editing** group.

For example, if you wish to add all numbers in the range **E4:E8**, in the **Function Library** group, select the **SUM** function from the **AutoSum** (or **Math & Trig**) button's drop-down list. Type "E4:E8" in the function's parentheses, or select the cell range directly in the worksheet, and press **ENTER**.

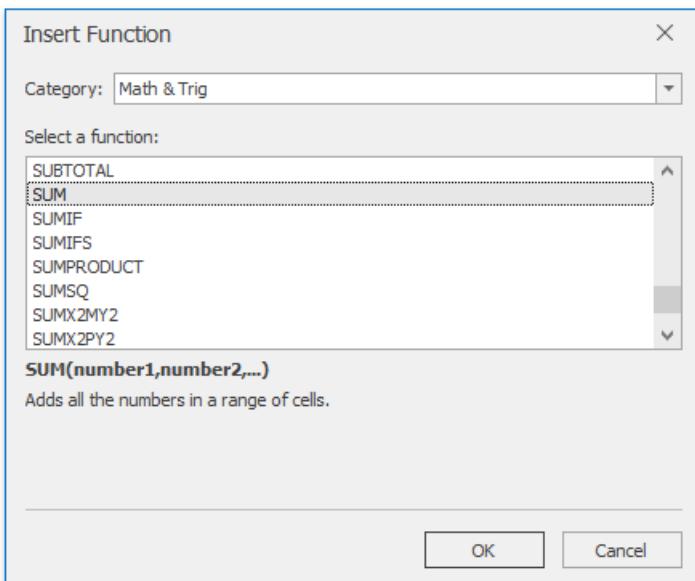
The screenshot shows the Microsoft Excel ribbon with the 'Formulas' tab selected. In the 'Function Library' group, the 'AutoSum' button is highlighted, and its dropdown menu is open, showing options like Sum, Average, Count Numbers, Max, and Min. The 'Sum' option is currently selected. Below the dropdown, the formula bar displays the formula `=SUM(E3:E7)`. In the background, there is a table with columns labeled 'Description', 'Quantity', 'Unit Price', and 'Amount'. The table has several rows of data, and the 'Subtotal' row at the bottom contains the formula `=SUM(E3:E7)`.

- **Using the **Insert Function** dialog****

1. To invoke the **Insert Function** dialog, click the **Insert Function** button on the **Formula Bar**, or press **SHIFT+F3**.

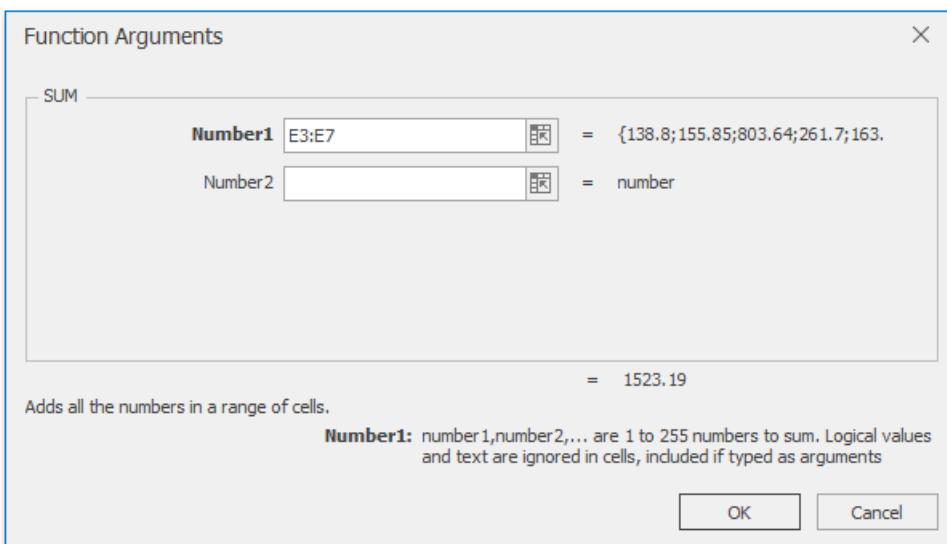


2. At the top of the dialog, select a category to which the desired function belongs, and then select this function in the sorted list below. Note that at the bottom of the dialog, the selected function's syntax and description are shown. Click **OK**.



3. In the invoked **Function Arguments** dialog, enter the required function's arguments (that are marked in bold font) in the corresponding editors. A function argument can be a data value, cell reference, defined name, another [function](#), etc.

If your function uses a cell reference as an argument, you can select the desired cell range directly in the worksheet. To do this, click the **Collapse Dialog** button (☒) to the right of the argument editor (to minimize the dialog and access the worksheet), select the appropriate cell range, and then click the **Expand Dialog** button (⊕) to restore the dialog's initial state and continue specifying other function arguments.



After all the function's arguments are specified, click **OK** to finish building your formula and see the calculated result in the cell.

If you start the formula with a function, the **Spreadsheet** automatically adds the equal sign to your formula.

Nested functions

You can create a formula with a function that uses another function as one of the arguments. A function that is used as an argument is called a **nested function**. A formula can contain up to 64 levels of nesting.

Examples of formulas with nested functions are detailed in the table below.

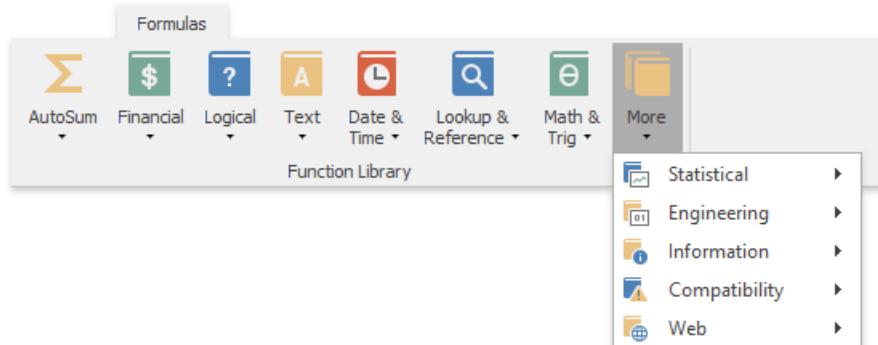
FORMULA	DESCRIPTION
=ROUND(SUM(A1:A5),2)	Round the sum of the values contained in the cell range A1:A5 to two decimal places.
=SQRT(AVERAGE(A1:A5))	Returns the square root of the average value of the numbers in the cell range A1:A5 .
=IF(A5<1000, POWER(A5,2))	Square the value in cell A5 if it is less than 1000.

Supported Functions

The **Spreadsheet** supports the following functions to be used in formulas.

- **Mathematical Functions** - used to perform common mathematical operations: addition (SUM), multiplication (PRODUCT), exponentiation (POWER), extraction of the square root (SQRT), evaluation of trigonometric functions (e.g., SIN, COS or TAN), etc.
- **Financial Functions** - used to perform various types of financial operations: calculation of interest rates (RATE), calculation of interest payments (IPMT), etc.
- **Logical Functions** - used to perform logical operations such as AND, OR, NOT, etc.
- **Text Functions** - used to provide operations with text data in cells, such as string concatenation (CONCATENATE), replacement of part of a string with another string (REPLACE), etc.
- **Date and Time Functions** - used to work with dates: to calculate the number of days, months, or years between two dates (e.g., DATEIF or DAYS360), or to add various components of a specified time to a worksheet (e.g., SECOND, MINUTE or HOUR).
- **Lookup and Reference Functions** - used for searching specific data in a worksheet: to look up values in vectors, arrays or references (e.g., LOOKUP or MATCH)
- **Statistical Functions** - used for data analysis: to find the average of a list of values (AVERAGE), to evaluate the covariance between two data sets (COVAR), to find the smallest or the largest value in a list of arguments (MAX, MIN), etc.
- **Engineering Functions** - used to work with special functions (e.g., BESSELI or BESSELJ), complex numbers (e.g., COMPLEX or IMAGINARY) and various numeral systems (e.g., DEC2BIN or BIN2DEC).
- **Information Functions** - used to provide information about the formatting, location or content of cells (e.g., CELL, INFO or ISTEXT).
- **Compatibility Functions** - replaced by new functions in Microsoft® Excel® versions 2010 and higher. These functions can be used to provide compatibility with earlier versions of Microsoft® Excel®.
- **Web Functions** - used to return a URL-encoded string (ENCODEURL).

All of the functions described above are available in the **Function Library** group within the **Formulas** tab.



Create an Array Formula

An **array formula** is a formula that performs calculations on sets of cell ranges, so that you do not need to re-enter formulas for each calculation. Create an array formula and specify the columns or rows that the array formula must fill. Array formulas are used to perform actions on two or more sets of values, which are called arguments. Each array argument must have the same number of rows and columns. The result of an array formula can either be a single value or multiple values.

To create an array formula, do the following.

1. Select the cell in which you wish to insert the array formula. If the formula calculates multiple results, select the cell range for which you wish to create the array formula.
2. Enter the array formula in the **Formula Bar**.
3. Press **CTRL+SHIFT+ENTER**. The **Spreadsheet** automatically adds a pair of curly braces to the formula to indicate that it is an array formula.



NOTE

Any time you edit the array formula, you must press **CTRL+SHIFT+ENTER** to save changes and convert the formula into an array formula.

The example below demonstrates how to create a formula that multiplies three arrays of values (quantity, price and discount) to get an array of amount values for each product item without entering a separate formula for each row.

=C4:C8*D4:D8*(1-E4:E8)

	A	B	C	D	E	F
1						
2						
3	DESCRIPTION	QUANTITY	UNIT PRICE	DISCOUNT	AMOUNT	
4	R. Bradbury "Dandelion Wine"	10	\$13.88	10%	=C4:C8*D4:D8*(1-E4:E8)	
5	R. Bradbury "Fahrenheit 451"	15	\$10.39	10%		\$140.27
6	R. Bradbury "Farewell Summer" (Limited Numbered Edition Signed by Author)	3	\$267.88	10%		\$723.28
7	R. Bradbury "The Martian Chronicles"	10	\$26.17	10%		\$235.53
8	R. Bradbury "A Sound of Thunder"	15	\$10.88	10%		\$146.88
9						

Error Types in Formulas

If a formula in a cell cannot be calculated correctly, it means that the cell contains an **error**. The error appears because the formula's syntax is incorrect, or the formula uses unexpected arguments or data types.

Errors that occur in formulas are detailed in the following table:

ERROR	DESCRIPTION	EXAMPLE
#####	The column is not wide enough to display the cell content.	
#DIV/0!	Division by zero.	=A1/B1 (where the value in cell B1 is equal to zero, or cell B1 is blank).
#NAME?	The formula refers to a name that doesn't exist or is spelled incorrectly.	=SUM(Values) (the cell range named "Values" does not exist).
#N/A	The referenced value is not available to the formula.	=SUM(A1:A5*B1:B3) (the array formula has arguments consisting of different numbers of elements).
#NULL!	An incorrect range operator is used in the formula, or the specified intersection includes two ranges that do not intersect.	=SUM(A1 A3) (a colon is missing in the cell range reference).
#NUM!	There are invalid numeric values in the formula.	=SQRT(-4) (the square root of a negative number cannot be calculated).
#REF!	The cell reference is not valid.	=SUM(A1, B1) (column B has been deleted).
#VALUE!	The formula uses values of the wrong data type.	=SUM(5, "Text") (the SUM function requires numeric arguments).

Charting Overview

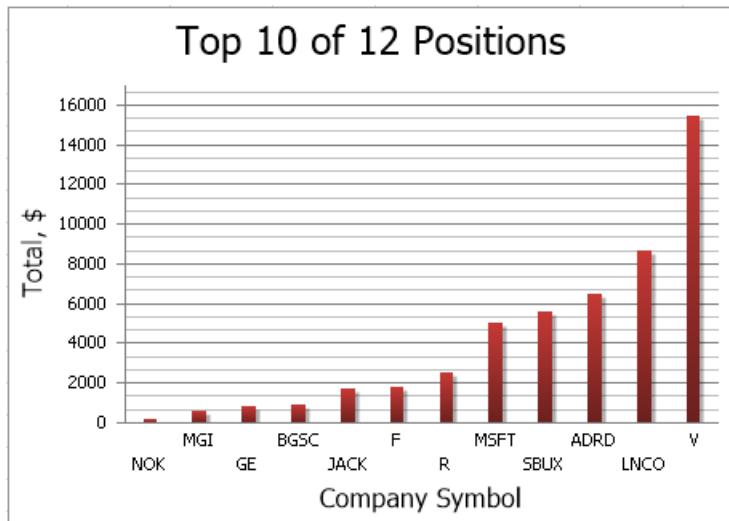
The **Spreadsheet** provides the capability to summarize worksheet data visually using a variety of **charts**. Charts display data series visually to make data interpretation easier, and show the relationship between different data series. To create a chart, click the chart type you wish to insert in the **Charts** group within the **Insert** tab.



The following chart types are currently available in the **Spreadsheet**:

- **Column Charts**

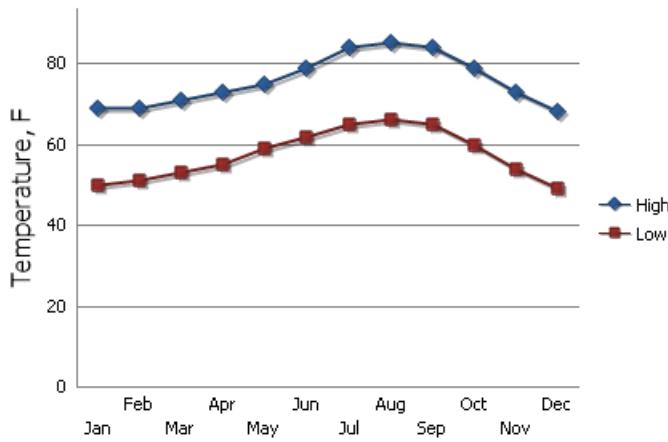
Column charts are used to display series as sets of vertical bars (or columns) that are grouped by category. The bar lengths are proportional to the values that they represent. Column charts are typically used to compare values in different categories. Some column graphs display series as individual columns, grouped by category, and others show columns divided into subparts to show a cumulative effect (stacked column graphs). You can select column charts of different shapes, such as cylinder, cone or pyramid.



- **Line Charts**

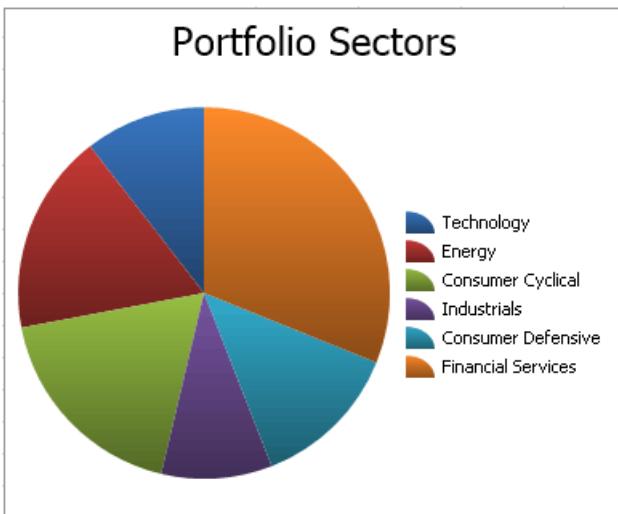
Line charts display information as a series of data points connected by line segments. This chart type is useful when you need to show trends for several series on the same diagram, and to compare values of several series for the same point argument.

Average Temperatures in Los Angeles



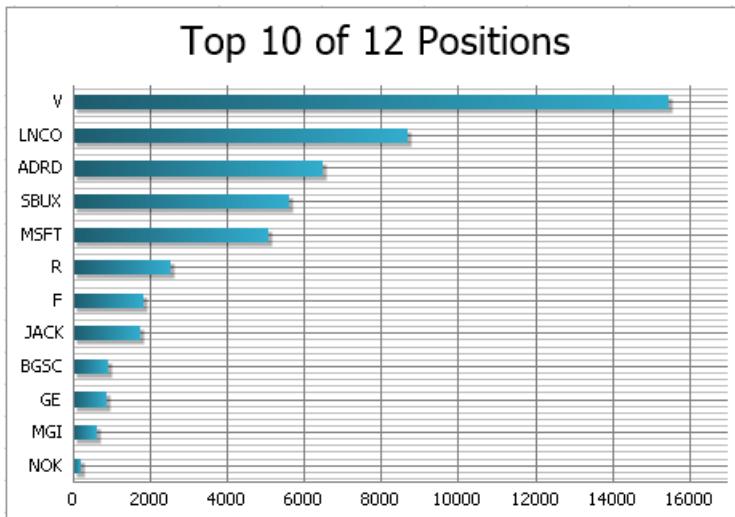
• Pie Charts

Pie and doughnut charts are used to compare the percentage values of different point arguments in the same series. These charts may be useful to determine which point value is the most significant, or which values in the point series are the most significant. A doughnut chart is functionally identical to a pie chart. The main difference is the shape of the doughnut chart, and that it can contain more than one data series.



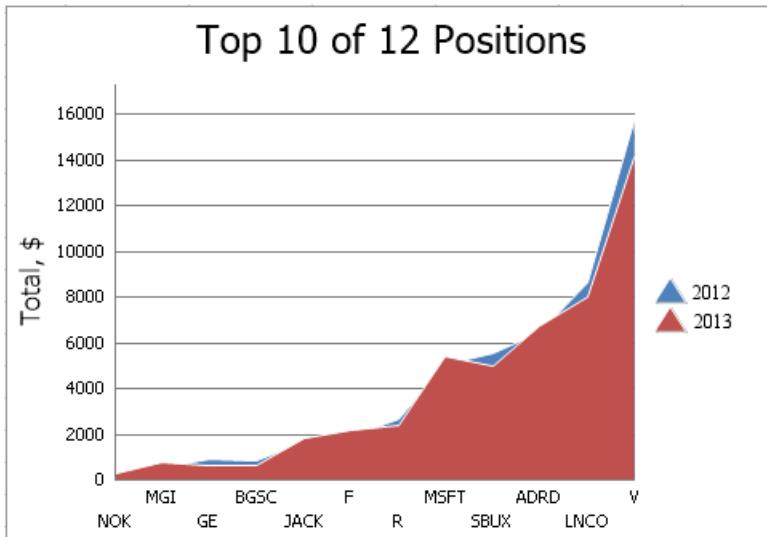
• Bar Charts

Bar charts are identical to column charts with one exception: bar charts use horizontal bars instead of vertical bars to compare values across categories. Some bar graphs display series as individual bars grouped by category, and others show bars divided into subparts to show a cumulative effect (stacked bar graphs). You can select bar charts of different shapes, such as cylinder, cone or pyramid.



- **Area Charts**

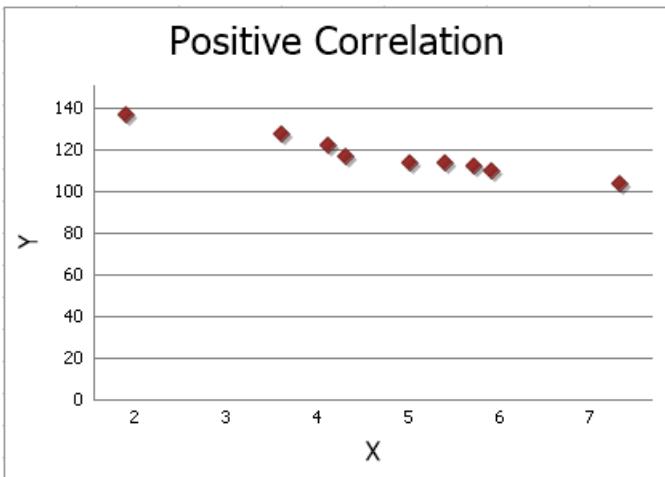
Area charts display series as filled areas in a diagram, with each data point displayed as a peak or valley in the area. This chart type is useful when you need to show trends for several series on the same diagram, and also show the relationship of the parts to the whole. The area chart is based on the line chart, with the area below the plotted line filled with color.



- Scatter Charts

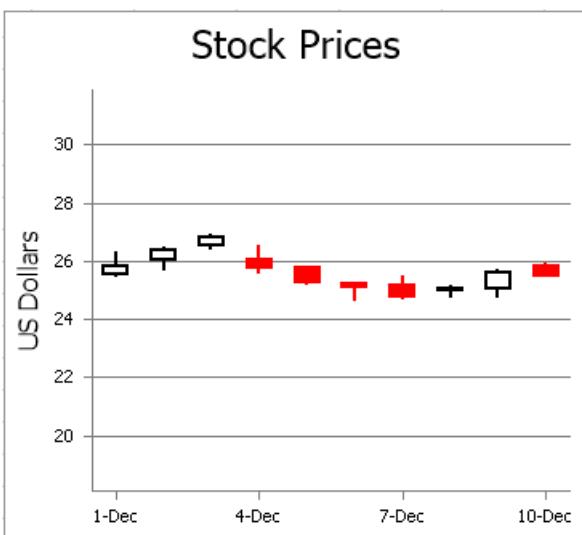
Scatter charts are used to plot data points on the horizontal and vertical axis to show the relationship between two sets of data. This chart type combines data values into single data points and displays them in uneven intervals (or clusters).

Bubble charts allow you to visually represent data that has a third dimension, expressed in the bubble's size. You map two dimensions along the horizontal and vertical axes, and then the third dimension is displayed as a filled circle at the data point.



- **Stock Charts**

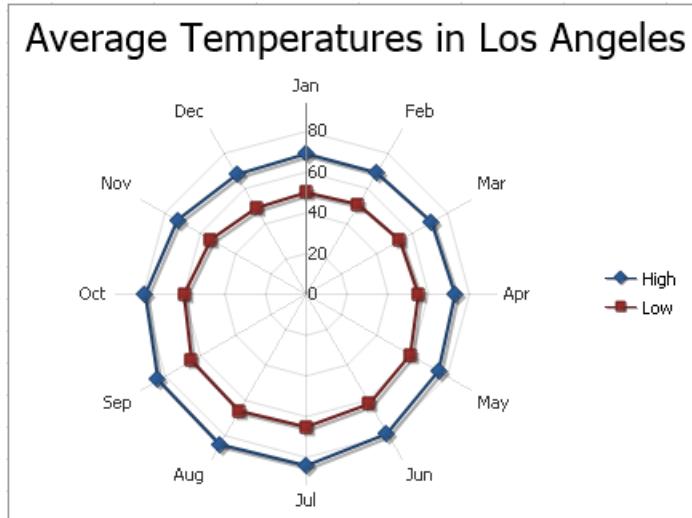
Stock charts are used to show variation in stock prices over the course of a day. In the **High-Low-Close** chart type, the **High** and **Low** prices are represented by the top and bottom values of the vertical line that is shown at each point, and the **Close** prices are represented by the right tick marks. In the **Open-High-Low-Close** chart type, the **High** and **Low** prices are shown in the same way as in the **High-Low-Close** charts, but the **Open** and **Close** prices are represented by the bottom and top borders of a rectangle. If the stock closes higher than its opening price, the rectangle is hollow. And if the stock closes lower than its opening price, the rectangle is filled.



- **Radar Charts**

Radar charts are used when it is necessary to display series as an area on a circular grid that has multiple axes along which data can be plotted, so values are shown relative to a center point.

Average Temperatures in Los Angeles



Creating a Chart

The **Spreadsheet** allows you to create charts quickly using the **Charts** group of the **Insert** tab.

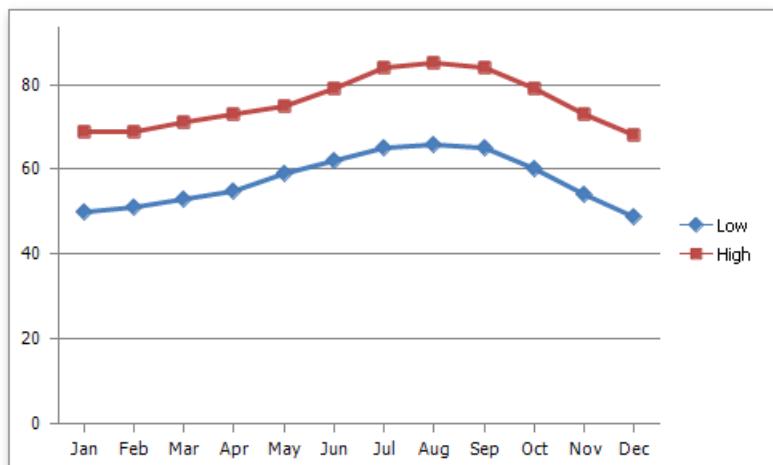
To create a chart, select the table that contains the data you wish to use for the chart. Note that the **Spreadsheet** only allows you to create charts for data series representing a contiguous cell range.

A	B	C	D	E	F	G	H	I	J	K	L	M	N
2	High and Low Temperatures in New York (°F)												
3	Temperature	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4	High	40	42	51	62	72	80	85	83	76	64	54	44
5	Low	27	29	35	45	54	63	69	68	61	50	41	32
6													

In the **Charts** group within the **Insert** tab, select the required chart type. In the example below, a line chart is created. To insert a line chart, click the **Line** button, and then select the **Line with Markers** chart subtype.

The screenshot shows the Microsoft Excel ribbon with the 'Insert' tab selected. In the 'Charts' group, the 'Line' button is highlighted, and a dropdown menu is open, showing various chart types. The 'Line with Markers' option is selected, and a callout box provides a description: 'Display trend over time (dates, years) or ordered categories.' and 'Useful when there are only a few data points.' Below the ribbon, a table of temperature data for New York is visible.

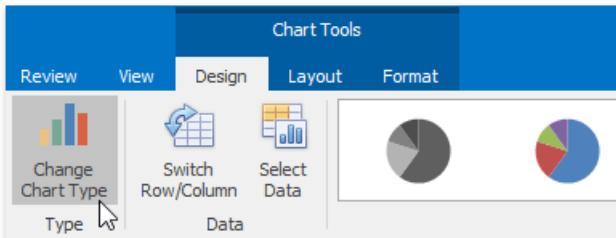
The chart is added to the worksheet. You can move the chart to the desired location and resize it for a better fit.



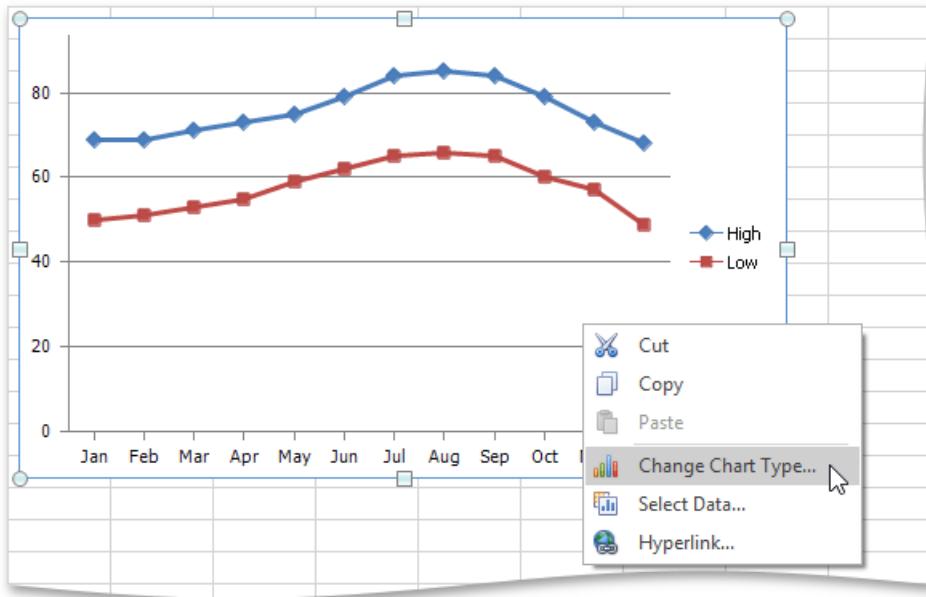
Changing a Chart Type

The **Spreadsheet** allows you to change the type of the existing chart. To do this, click the chart to display the **Chart Tools** contextual tab.

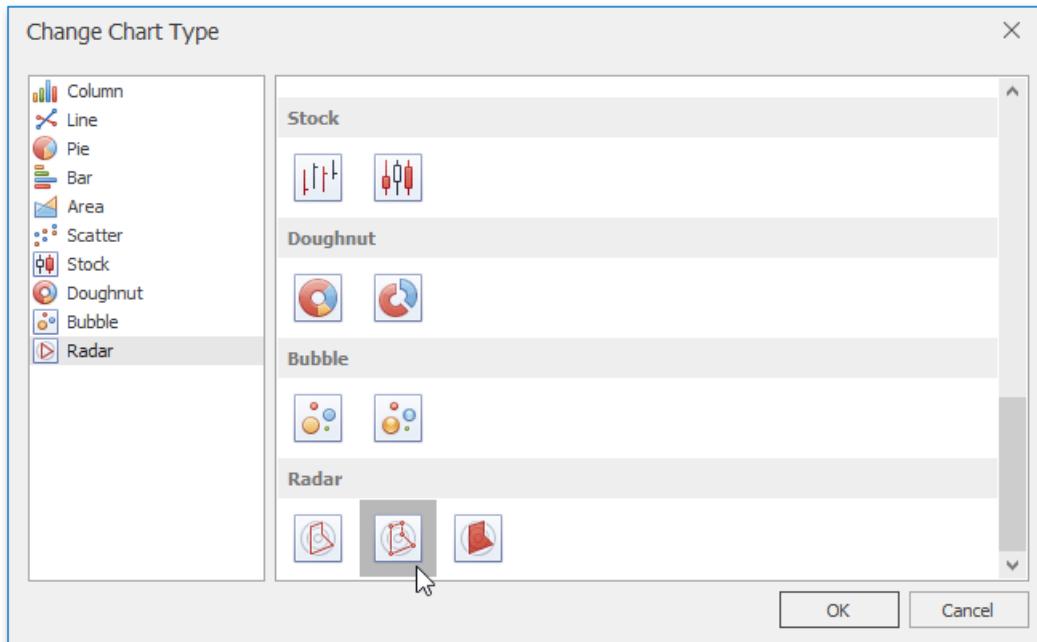
Click the **Change Chart Type** button in the **Type** group within the **Design** tab...



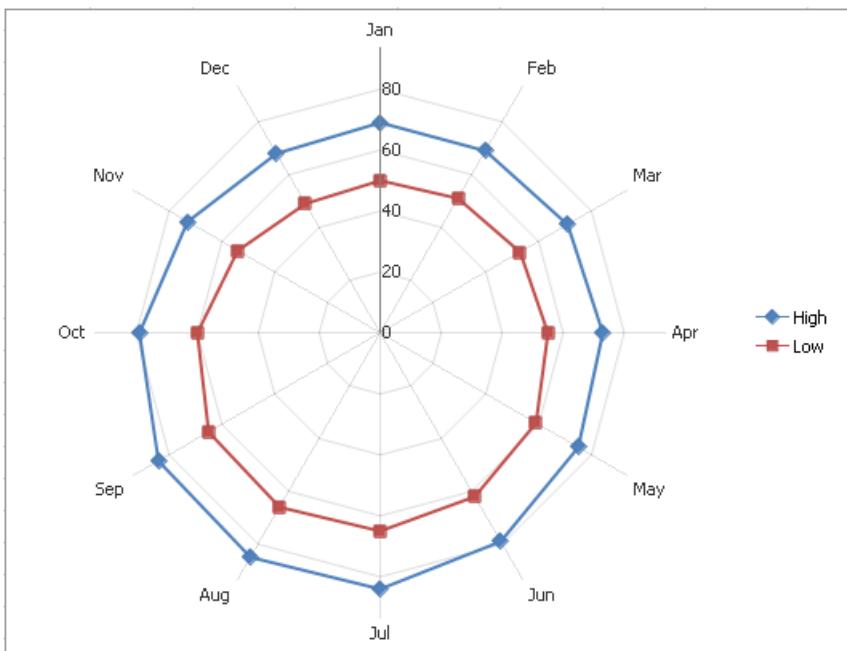
... or right-click the chart and select the **Change Chart Type...** item in the context menu.



In the invoked **Change Chart Type** dialog, select a new chart type and click **OK**.



The following image illustrates the chart with the **Radar with Markers** chart type applied.



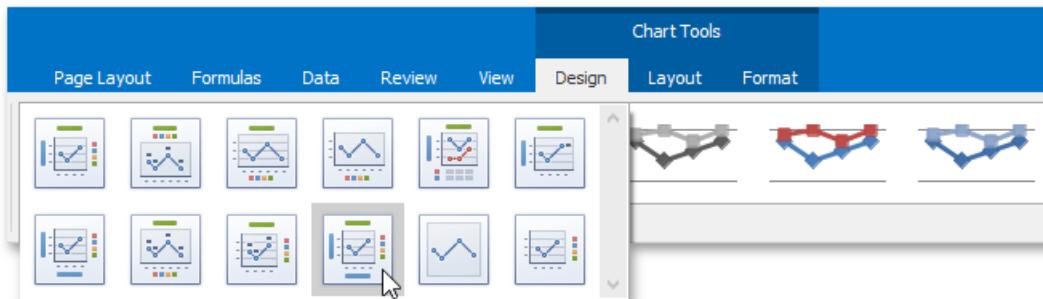
Applying a Predefined Chart Layout and Style

The **Spreadsheet** allows you to change the appearance of the existing chart by applying one of the predefined layouts and styles.

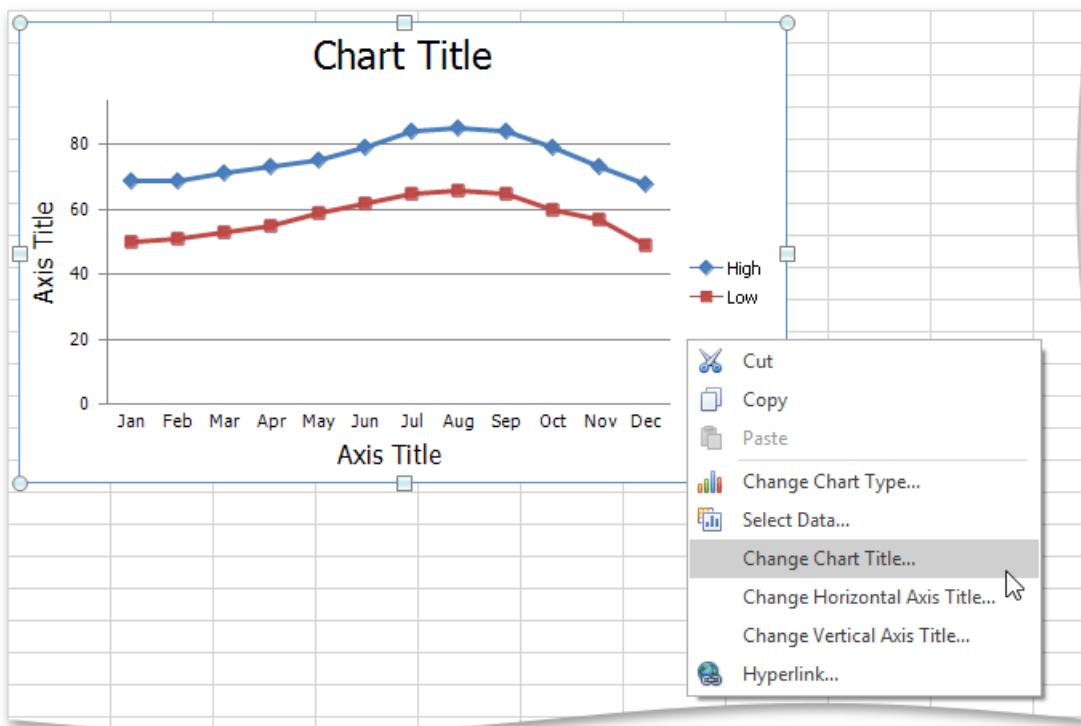
To change a chart style or layout, click the chart you wish to format, to display the **Chart Tools** contextual tab.

Apply a Predefined Chart Layout

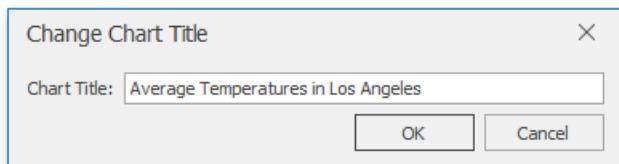
In the **Chart Layouts** group within the **Design** tab, select the required chart layout. For example, select **Layout 10**, which positions the chart legend to the right of the chart area, and adds the chart and axis titles.



To enter the chart title, right-click the chart and select the **Change Chart Title...** item in the context menu.



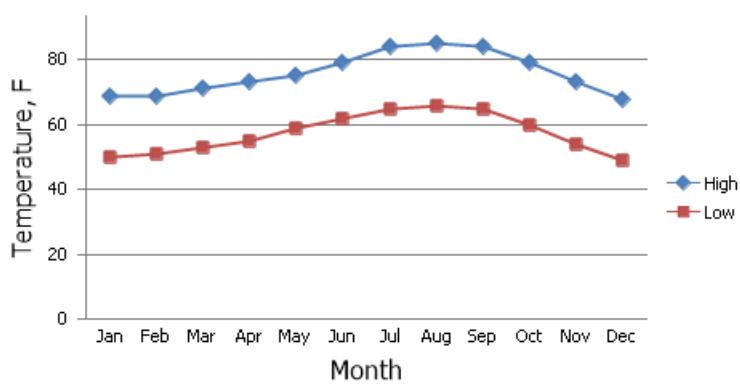
In the invoked **Change Chart Title** dialog box, enter a title and click **OK**.



To provide horizontal or vertical axis titles, right-click the chart and select the **Change Horizontal Axis Title...** or **Change Vertical Axis Title...** item in the context menu. Type a new title in the invoked dialog box.

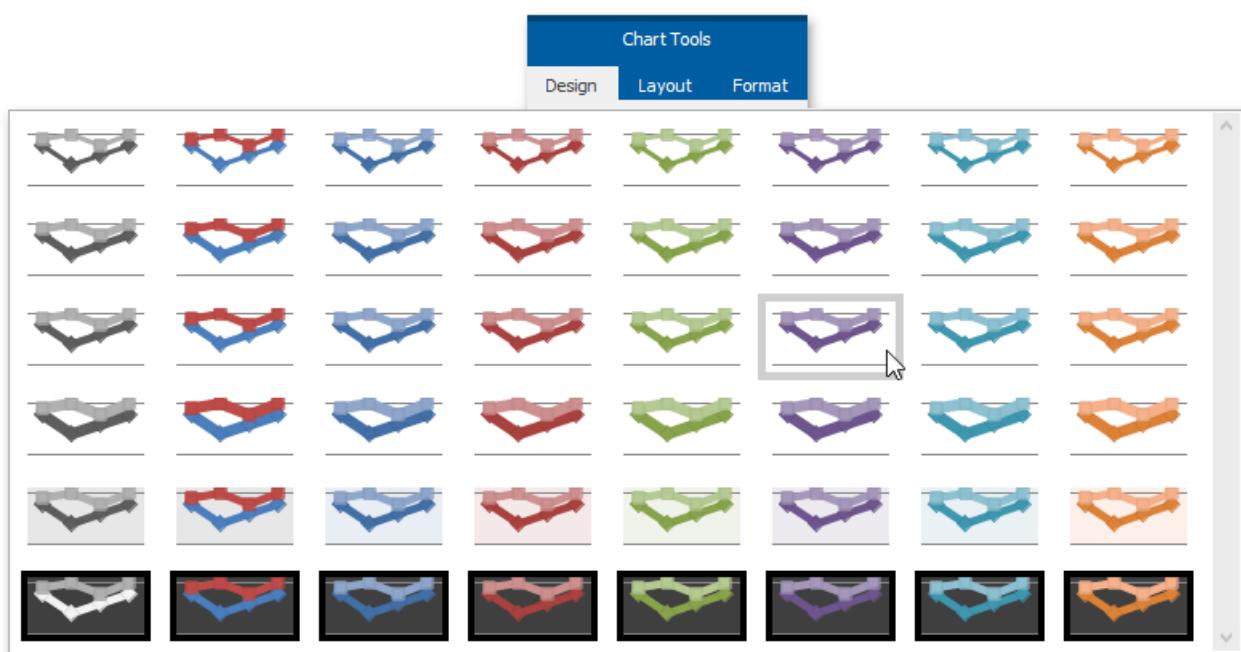
The image below shows the result.

Average Temperatures in Los Angeles

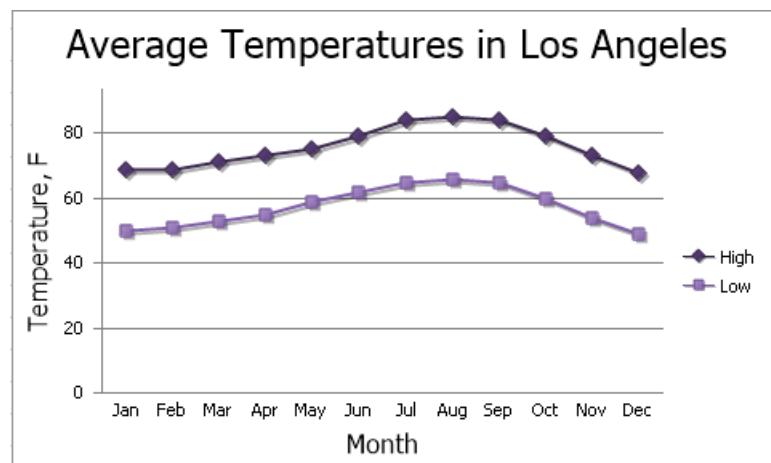


Apply a Predefined Style

In the **Chart Styles** group of the **Design** tab, click the chart style you wish to apply.



The image below shows a chart with **Style 22** applied.



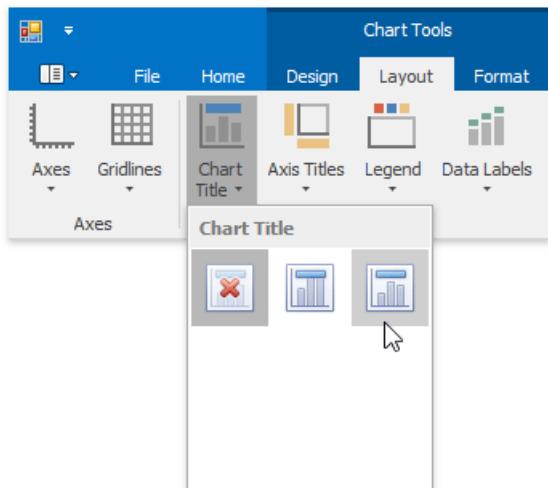
Modifying a Chart Manually

After you create a chart, you can choose whether to apply one of the [predefined chart layouts](#) or specify your own layout. The **Spreadsheet** provides the capability to [add axis titles](#) and [chart titles](#), [show the chart legend](#), [display gridlines](#) and [data labels](#), etc.

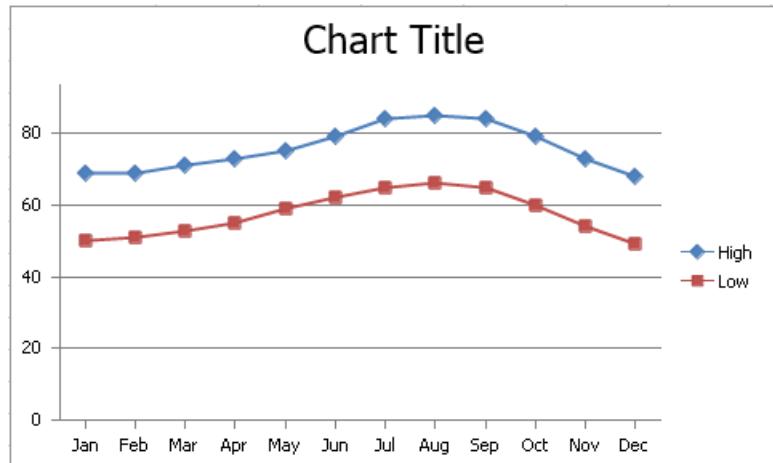
To modify a chart, click it to display the **Chart Tools** contextual tab.

Add a Chart Title

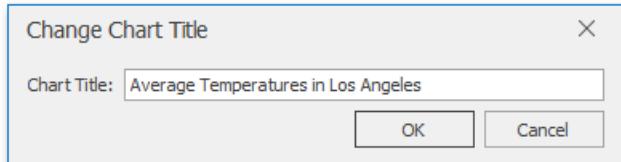
To add a title to your chart, click the **Chart Title** button in the **Labels** group within the **Layout** tab, and then select where to position the chart title. For example, click the **Above Chart** button to display the title at the top of the chart.



The image below illustrates the result.



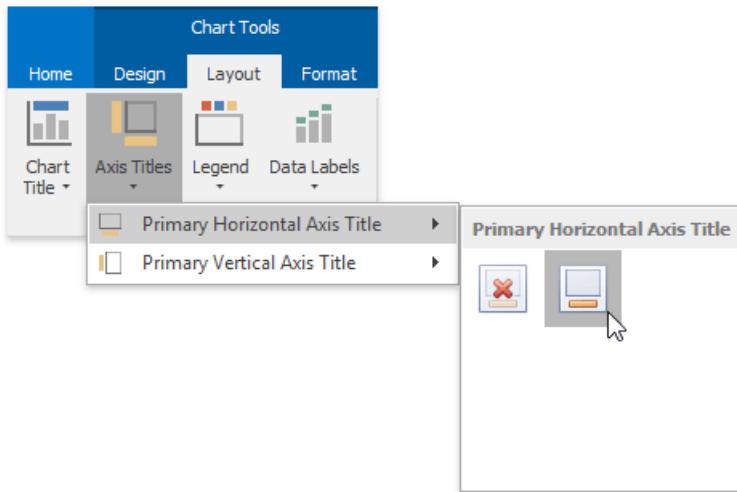
To change the default text in the title, right-click the chart and select the **Change Chart Title...** item in the context menu. Specify a new chart title in the invoked **Change Chart Title** dialog box.



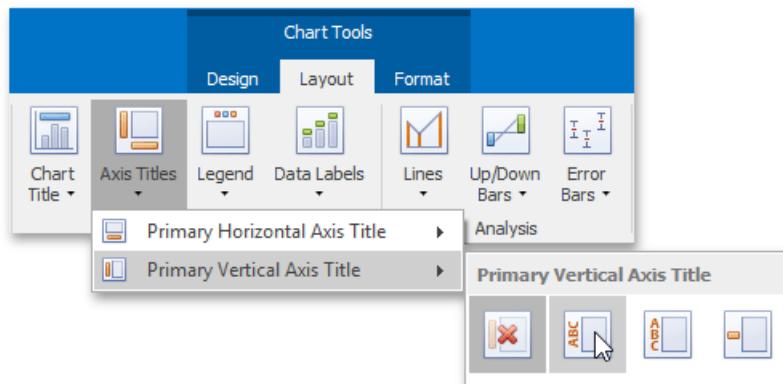
Add Axis Titles

To display horizontal and vertical axis titles, click the **Axis Titles** button in the **Labels** group within the **Layout** tab and do the following.

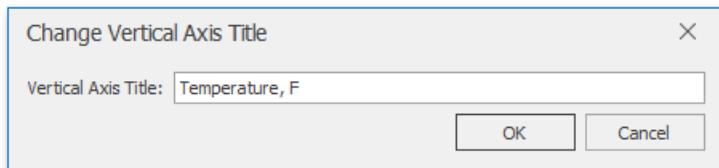
- To add a horizontal axis title, select the **Primary Horizontal Axis Title** item, and then click the **Title Below Axis** button.



- To add a vertical axis title, select the **Primary Vertical Axis Title** item, and then select the type of axis title (rotated, vertical or horizontal) you wish to display.

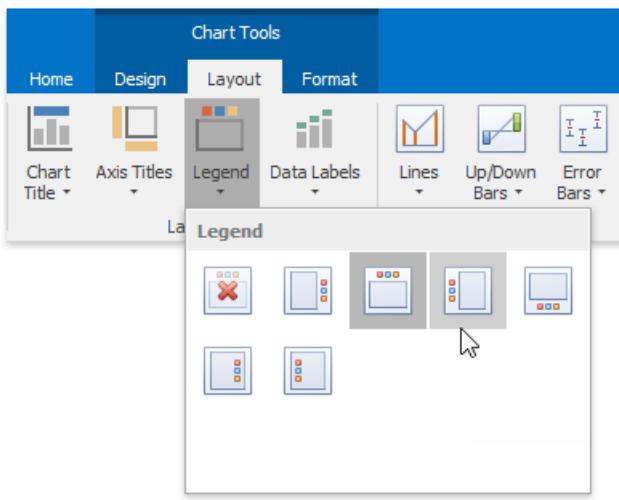


To change the default text in the axis title, right-click the chart and select the **Change Horizontal Axis Title...** or **Change Vertical Axis Title...** item in the context menu. Type a new title in the invoked dialog box.

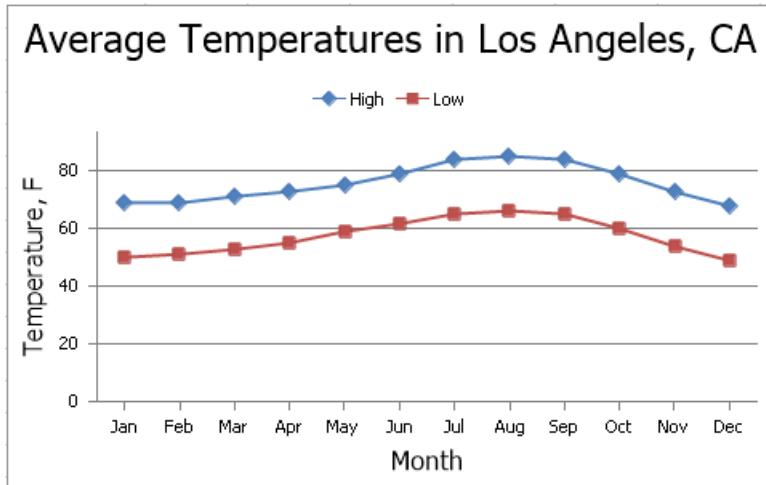


Add a Chart Legend

To add a legend to the chart, click the **Legend** button in the **Labels** group within the **Layout** tab, and then select where to position the legend.

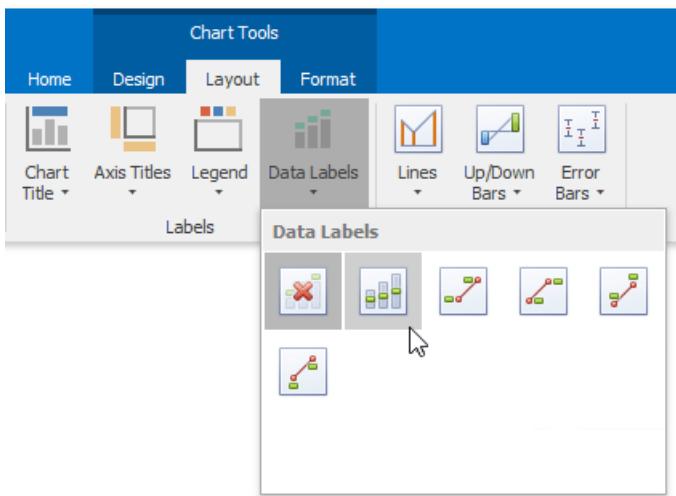


For example, click the **Show Legend at Top** button to display the legend above the plot area.



Display Data Labels

To display data values on the chart, click the **Data Labels** button in the **Labels** group within the **Layout** tab, and then select where to position the data labels.

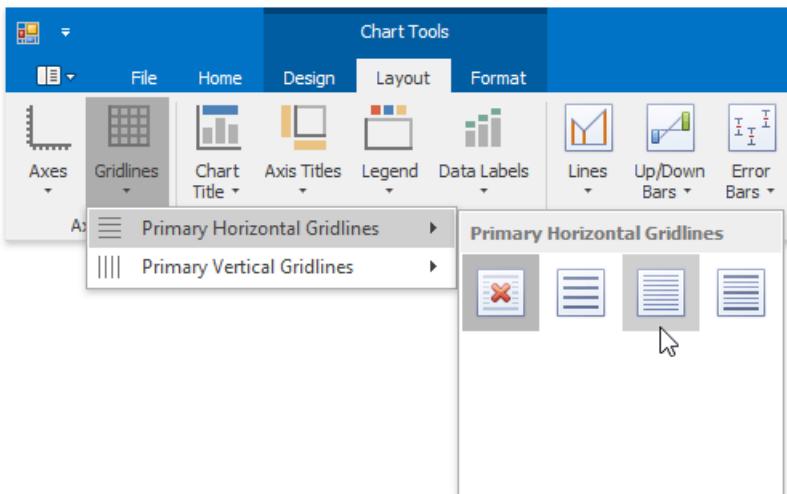


Add Gridlines

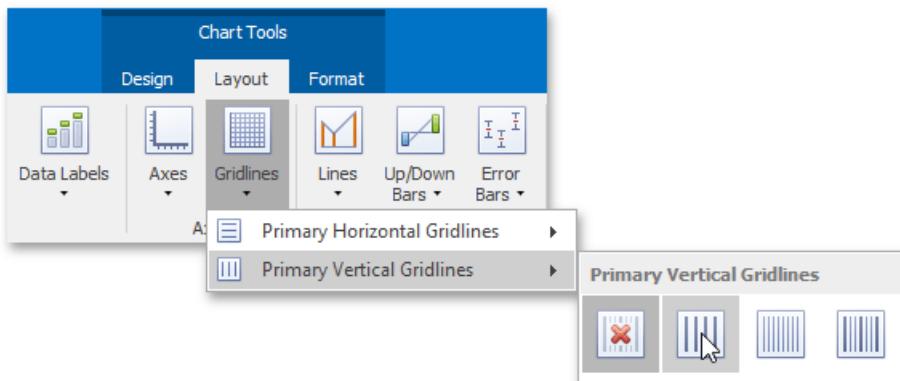
To display chart gridlines, click the **Gridlines** button in the **Axes** group within the **Layout** tab and do one of the following:

- To add horizontal gridlines, select the **Primary Horizontal Gridlines** item, and then select the type of gridlines you wish to

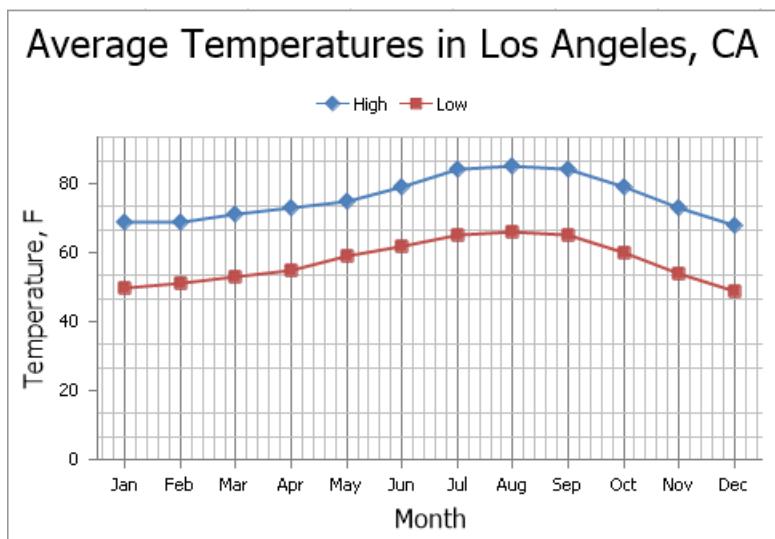
display.



- To add vertical gridlines, select the **Primary Vertical Gridlines** item, and then select the type of gridlines you wish to display.



A chart with horizontal and vertical gridlines is shown below.



Creating a Chart Sheet

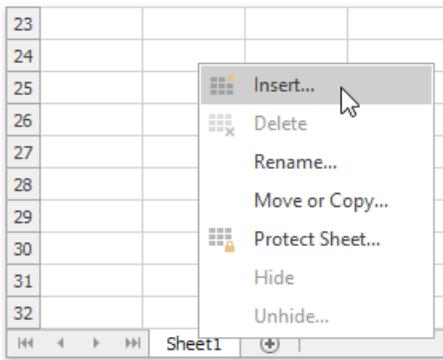
The **Spreadsheet** allows you to create two chart types: an [embedded chart](#) inserted into an existing worksheet and a standalone chart placed on a separate sheet in a workbook - a *chart sheet*. Chart sheets are useful when you need to show or print a chart on a page without any worksheet data.

Select the action you wish to perform:

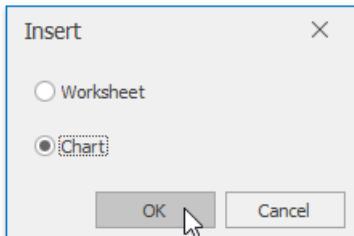
- [Insert a New Chart Sheet](#)
- [Move an Existing Chart to a Chart Sheet](#)
- [Remove a Chart Sheet](#)

Insert a New Chart Sheet

1. On the **Sheet** tab bar, right-click an existing worksheet's tab and select **Insert...** in the context menu.

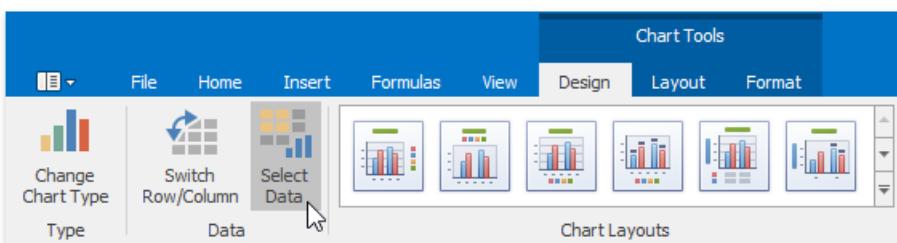


2. Select **Chart** in the invoked dialog and click **OK**.

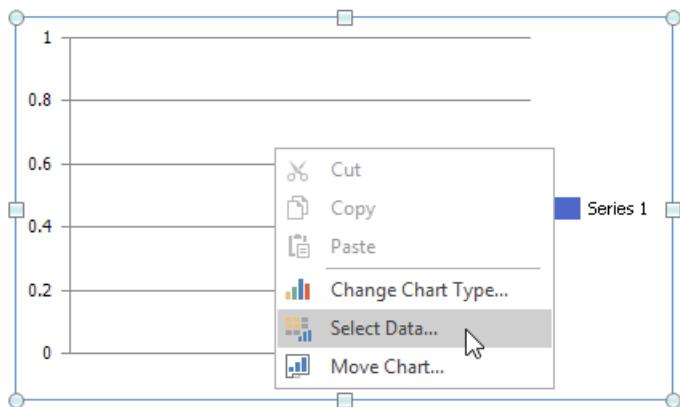


As a result, an empty chart sheet with a default name is added to the document.

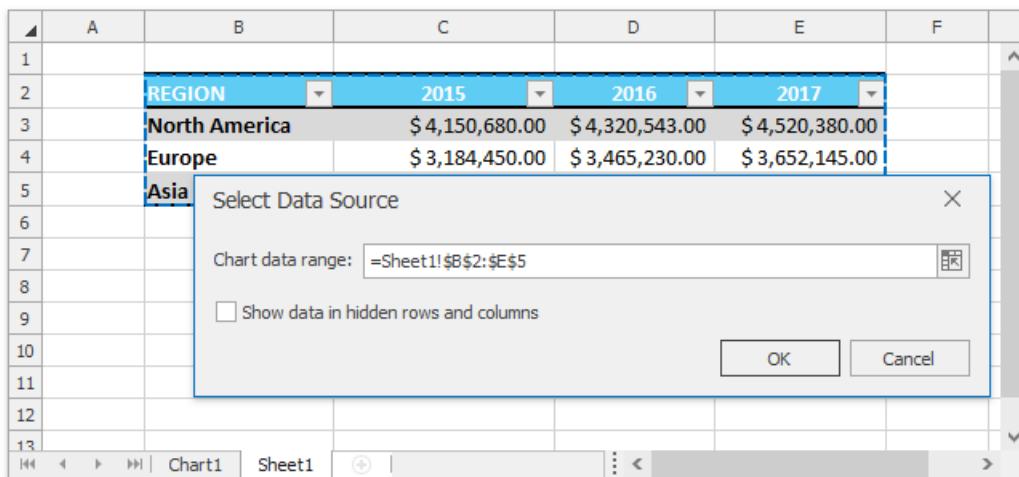
3. Select the chart data by clicking **Select Data** in the **Data** group, on the **Chart Tools | Design** tab...



... or by right-clicking an empty chart area and clicking **Select Data...** in the context menu.

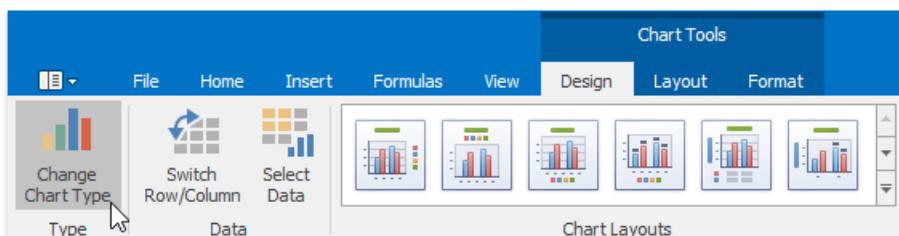


4. In the invoked **Select Data Source** dialog, enter a reference to the cell range containing the chart data. You can use the **Collapse Dialog** button to select this range directly in a worksheet.

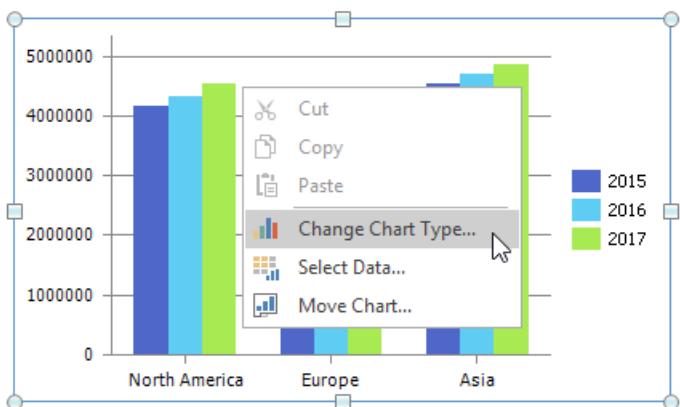


The **Spreadsheet** creates a clustered column chart by default.

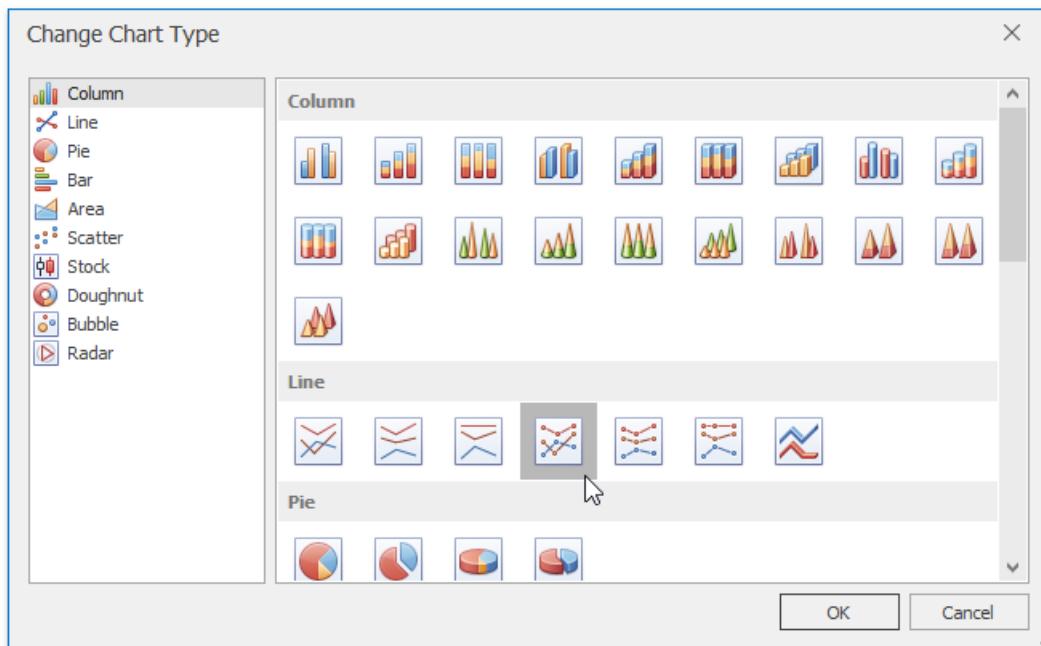
5. To change the default chart type, click **Change Chart Type** in the **Type** group, on the **Chart Tools | Design** tab...



... or right-click a chart and select **Change Chart Type...** in the context menu.



6. In the invoked **Change Chart Type** dialog, select a new chart type and click **OK**.

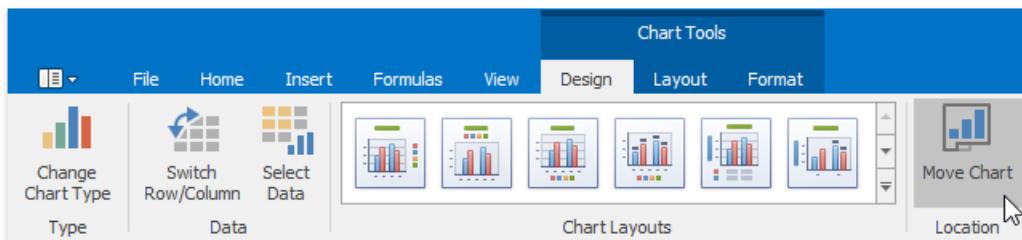


Use other options on the **Chart Tools** contextual tab to fine-tune chart settings like applying a [chart style](#) and adjusting the chart's layout.

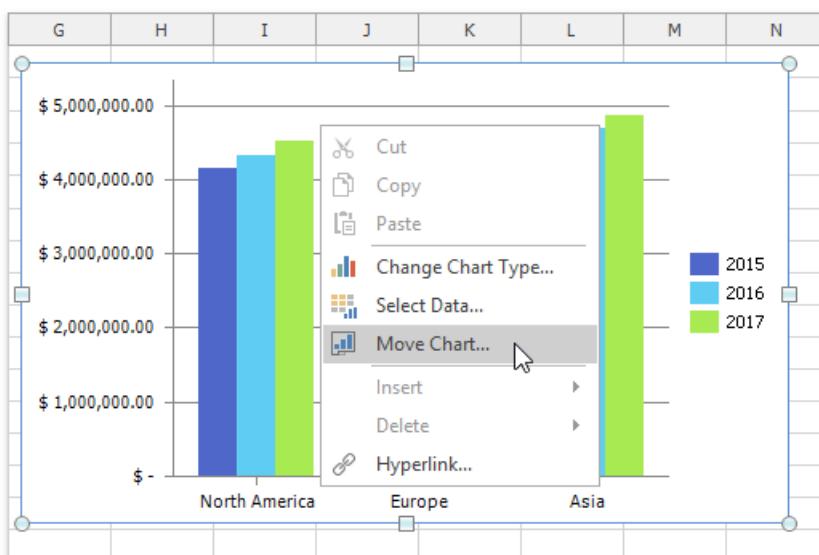
Move an Existing Chart to a Chart Sheet

To move an existing chart from a worksheet to a separate chart sheet, follow the steps below:

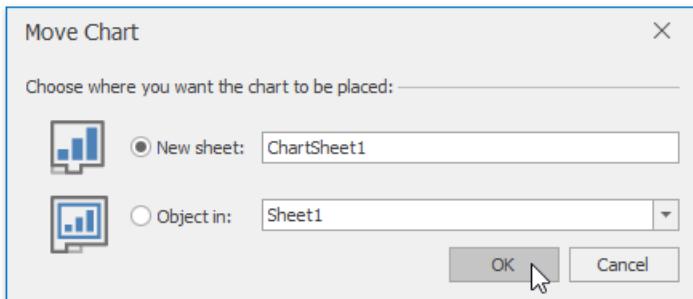
1. Click **Move Chart** in the **Location** group, on the **Chart Tools | Design** tab...



... or right-click the chart and select **Move Chart...** in the context menu.

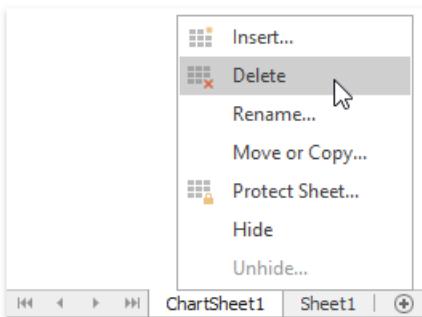


2. In the invoked dialog, select **New Sheet** and then enter a chart sheet name. Click **OK** to create a chart sheet with the specified chart.

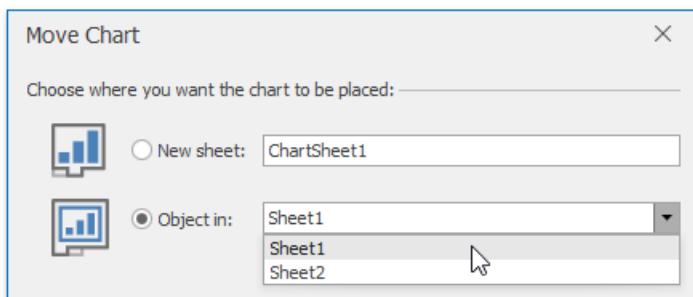


Remove a Chart Sheet

To delete a chart sheet, right-click its tab on the **Sheet** tab bar, and then click **Delete** in the context menu.



If you want to preserve a chart located on a chart sheet, you can move the chart back to the worksheet containing the source data or place it on another worksheet. Click **Move Chart** in the **Location** group, on the **Chart Tools | Design** tab to invoke the **Move Chart** dialog. Select the necessary worksheet from the **Object in** list and click **OK**.



As a result, the **Spreadsheet** removes the chart sheet and moves its chart to the specified worksheet. You can change the chart's location and resize it.

Mail Merge Overview

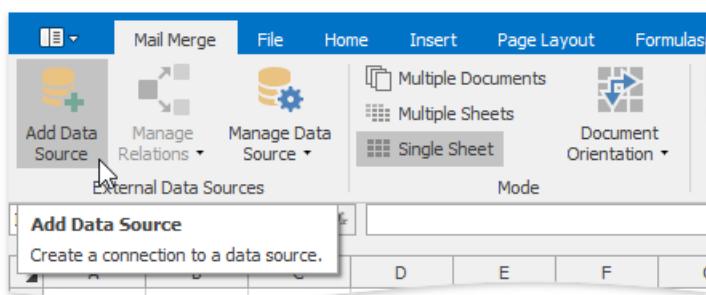
The **Spreadsheet** supports the **Mail Merge** functionality, which allows you to automatically generate a set of documents based on a common template, and include unique data values retrieved from a data source in each document. Use mail merge to generate personalized letters and a variety of professional reports.

- [Add a Data Source](#)
- [Create a Template](#)
- [Generate a Merged Document](#)

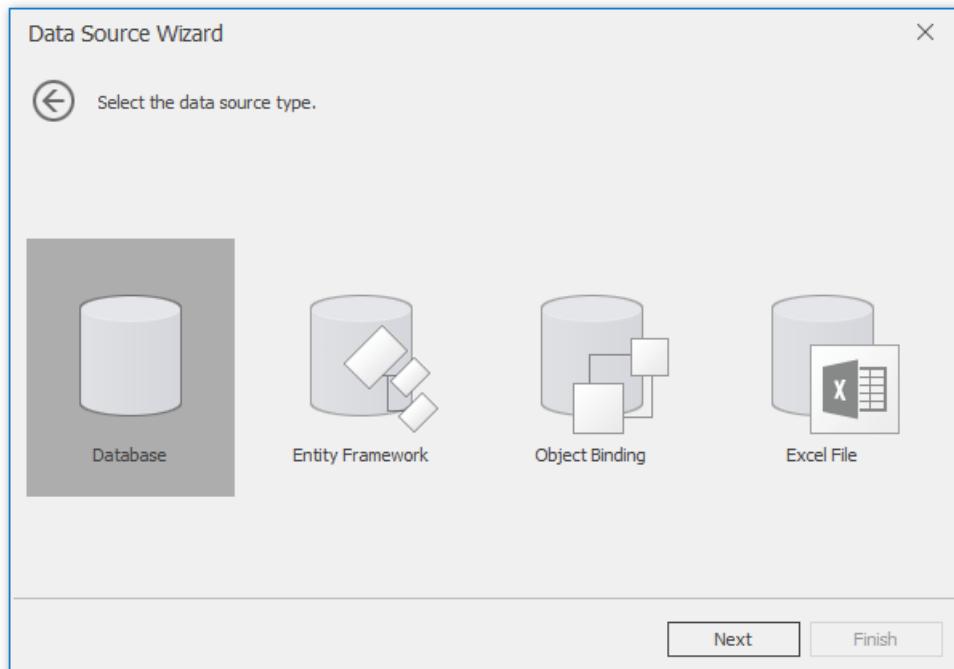
Add a Data Source

To perform a mail merge, you need a template and a data source from which the data is retrieved. You can specify a data source at runtime using the **Data Source Wizard**. Once created, the data source configuration will be stored in the XLS/XSX spreadsheet file, so there is no need to re-configure the data source again.

To invoke the wizard, click **Add Data Source** in the **External Data Sources** group of the **Mail Merge** tab.



The wizard allows you to select the data source type. You can choose between an external database, the Entity Framework, an object data source or an Excel workbook.



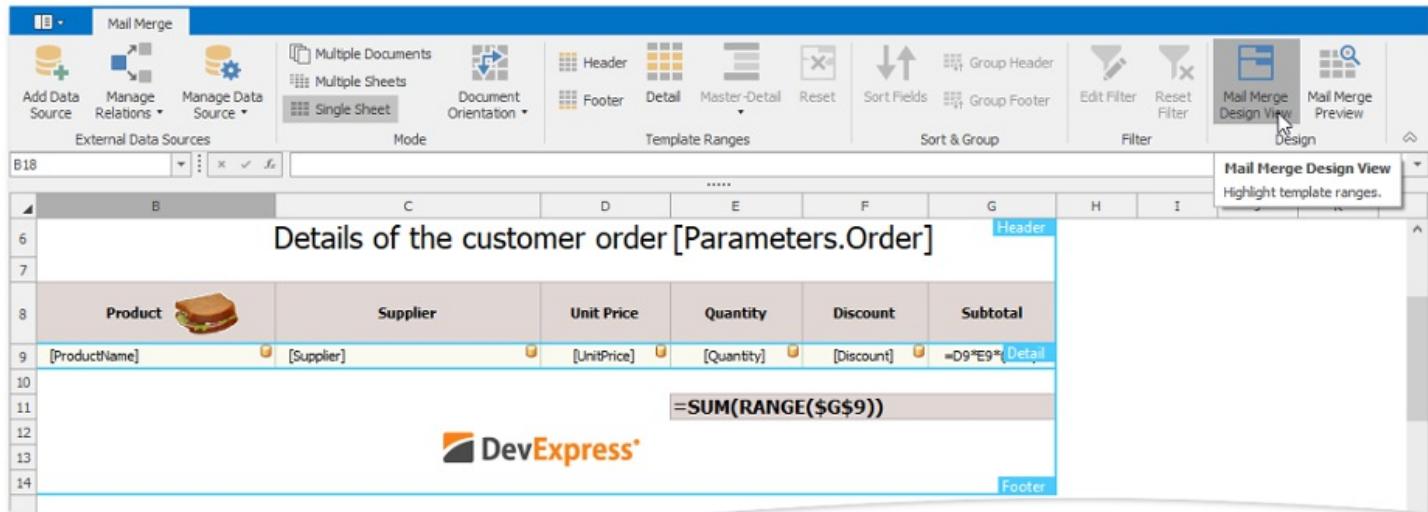
For more information on data source configuration, review the following documents:

- [Data Source Wizard](#)
- [Query Builder](#)
- [Parameters Panel](#)

Create a Template

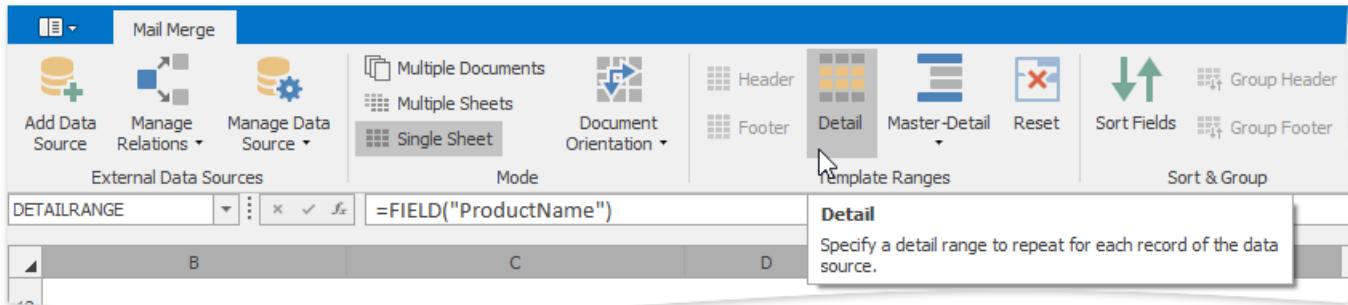
A template is a workbook with one worksheet containing **mail merge fields** that will be filled with unique data values from a bound data source.

As a rule, a template includes detail, header and footer ranges that reflect the structure of a merged document. To highlight template ranges, on the **Mail Merge** tab, in the **Design** group, click the **Mail Merge Design View** button.

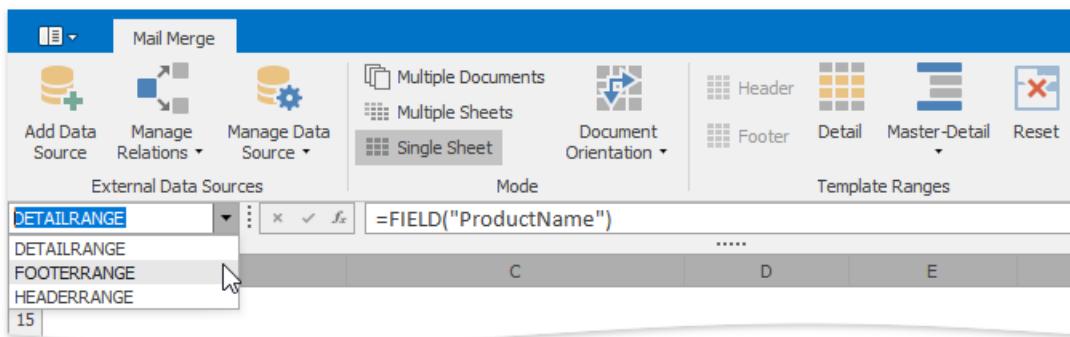


A **detail range** contains information from a data source. To create a detail range, select the range of the required size and do one of the following:

- On the **Mail Merge** tab, in the **Template Ranges** group, click the **Detail** button.



- Assign the "DETAILRANGE" defined name to the selected range.



A detail range includes mail merge fields. Real data values retrieved from a data source will be displayed in a merged document instead of these fields. To create a mail merge field, use the **FIELD** function.

FUNCTION	SYNTAX	DESCRIPTION
FIELD	FIELD("data_field_name")	Retrieves a data value from the corresponding field of a data source.

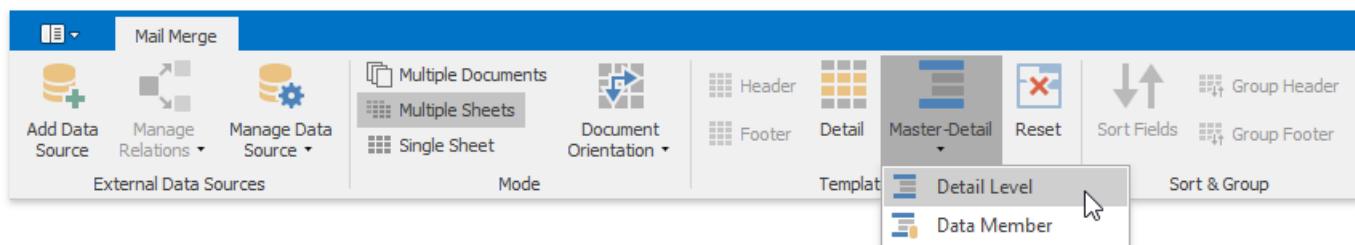
A mail merge field is displayed as the name of the specified data field enclosed in square brackets. If a mail merge field is used in a cell formula as one of its elements, the entire formula is displayed in the cell.

The screenshot shows a Microsoft Excel spreadsheet. The top part, labeled "Template", contains a table with columns A through F. Row 5 contains the header "Company". Rows 6 through 9 contain data entries: "Contact Name: [ContactName]", "Contact Title: [ContactTitle]", and "Phone: [Phone]". The cell containing "[ContactName]" is highlighted with a blue border. A red arrow points from the text "Mail Merge Fields" to this cell. The bottom part, labeled "Resulting Document", shows the merged data. It includes the header "Company" followed by two records. Each record has a "Company" row in orange, followed by "UK" or "USA", then a "Contact Name:" row with a value, a "Contact Title:" row with a value, and a "Phone:" row with a value. The "Resulting Document" table has rows 1 through 9.

	B	C	D	E	F
5	Company	[CompanyName]	Detail		
6		[Country]			
7	Contact Name:	[ContactName]			
8	Contact Title:	[ContactTitle]			
9	Phone:	[Phone]			
10					

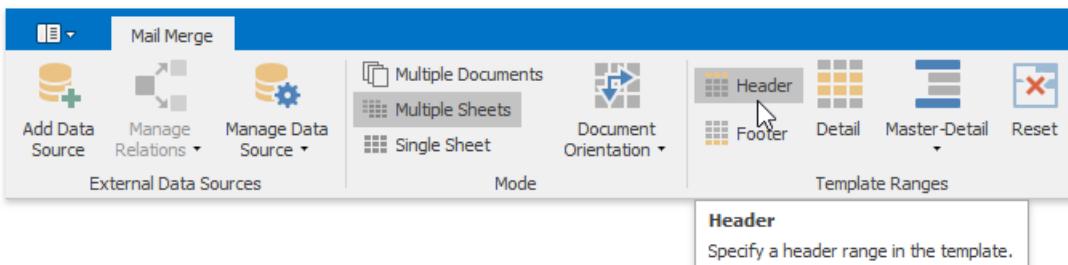
	B	C	D	
1	Company	Exotic Liquids		
2		UK		
3	Contact Name:	Charlotte Cooper		
4	Contact Title:	Purchasing Manager		
5	Phone:	(171) 555-2222		
6	Company	New Orleans Cajun		
7		USA		
8	Contact Name:	Shelley Burke		
9	Contact Title:	Order Administrator		
		(100) 555-4822		

You can also create a multi-level report by adding nested levels within a detail range. To create the next data level, select a range within an existing detail range, and then click **Master-Detail | Detail Level** in the **Template Ranges** group. Click **Master-Detail | Data Member** to invoke the **Data Member** dialog and bind the specified detail level to a data member from a data source.

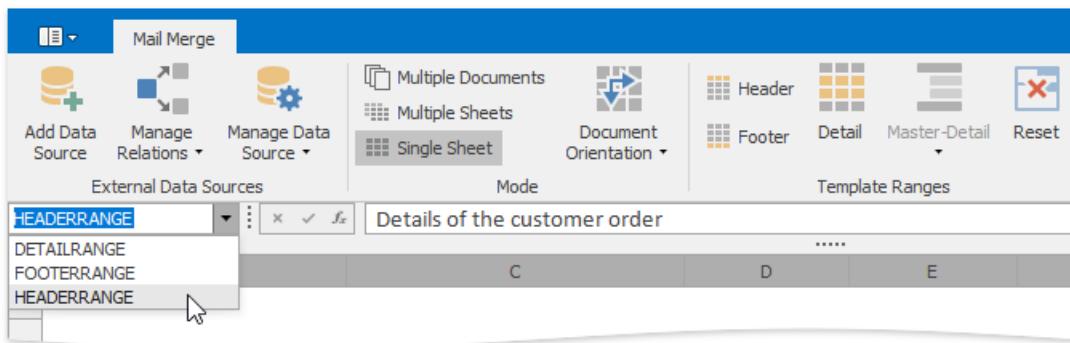


Header and **footer ranges** are displayed above and below all detail ranges in the resulting worksheet if all data records are merged into a single worksheet. In other [mail merge modes](#), the header and footer are repeated for each detail range. To create a header or footer range, select the range you wish to use as a header or footer, and do one of the following:

- On the **Mail Merge** tab, in the **Template Ranges** group, click the **Header** or **Footer** button.



- Assign the "HEADERRANGE" or "FOOTERRANGE" defined name to the selected range.

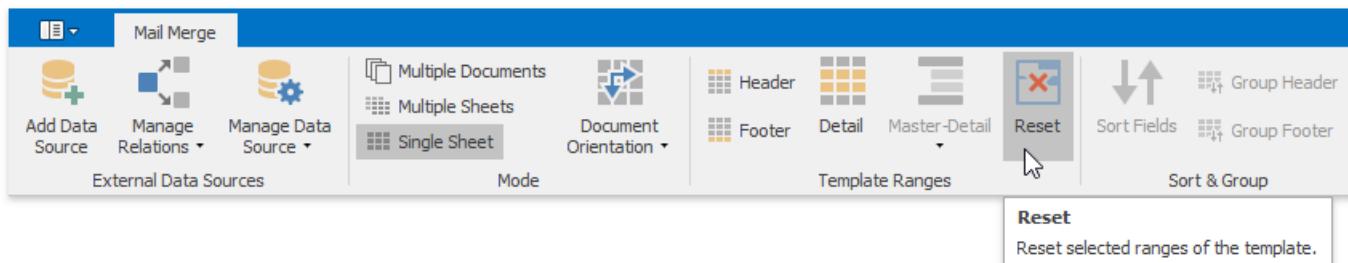


Note that you can create a header or footer range only if the template already contains a detail range. If you do not set a detail range, the entire template will be copied for each record of the data source.

At the template creation stage, you can access the range into which the specified cell in a template will be expanded after a mail merge is performed. To do this, use the **RANGE** function.

FUNCTION	SYNTAX	DESCRIPTION
RANGE	RANGE(abs_cell_reference)	Obtains the specified range of a merged document.

If you no longer wish to use the specified range as a detail range, header or footer, you can reset it by clicking the **Reset** button.

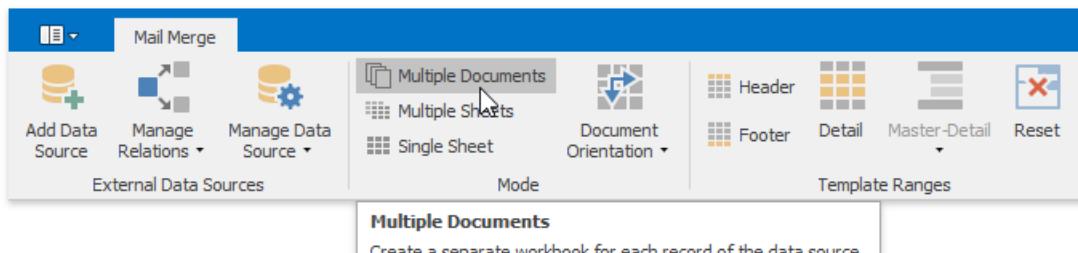


Generate a Merged Document

A mail merge supports three modes for generating a resulting document, as listed in the table below:

MODE	DESCRIPTION
<i>Multiple Documents</i>	Inserts the merged range for each record of the data source into a separate workbook.
<i>Multiple Sheets</i>	Inserts the merged range for each record of the data source into a separate worksheet of a single document.
<i>Single Sheet</i>	Inserts all merged ranges into a single worksheet, retaining the structure of the template document.
<i>Document Orientation</i>	Specifies the direction in which the detail range will be repeated.

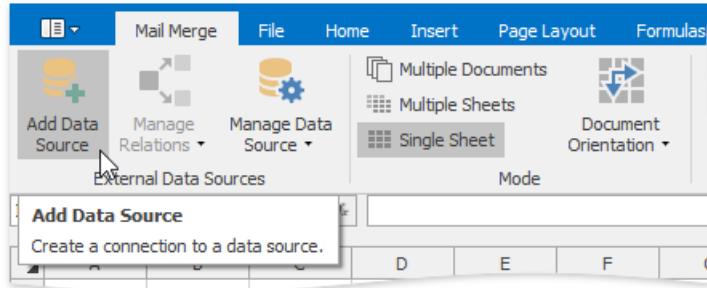
To select the desired mode, on the **Mail Merge** tab, in the **Mode** group, click **Multiple Documents**, **Multiple Sheets** or **Single Sheet**. **Document Orientation** option can be useful for the **Single Sheet** mode only.



Data Source Wizard

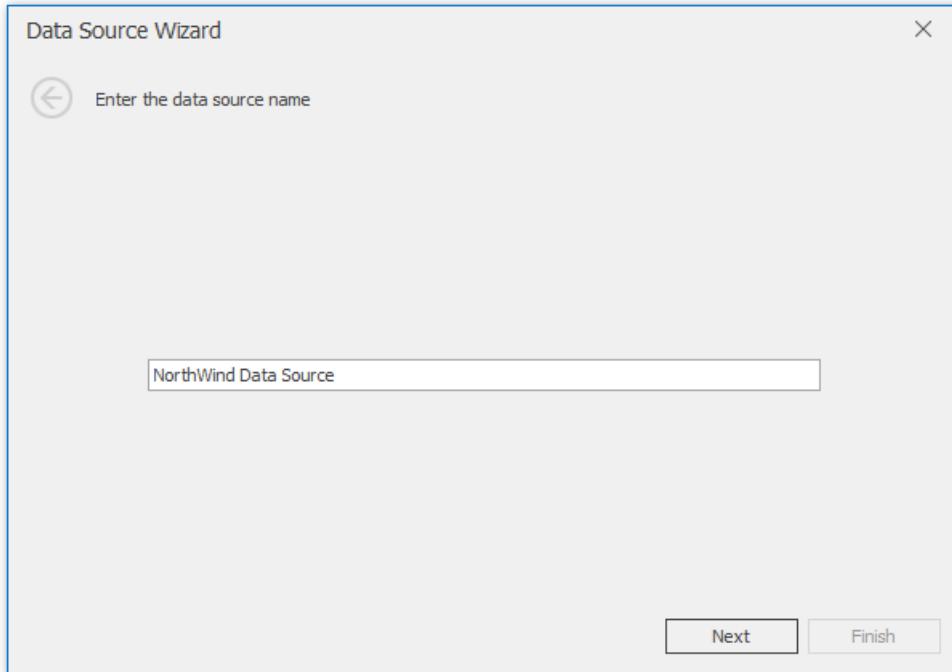
The **Data Source Wizard** allows the user to create a new data source, configure it, and if there is more than one data source available, to select the one that is required for a particular task. Once created, the data source configuration will be stored in the XLS/XLSX spreadsheet file, so the user does not have to re-configure the data source again.

To invoke the wizard, click **Add Data Source** in the **External Data Sources** group of the **Mail Merge** tab.



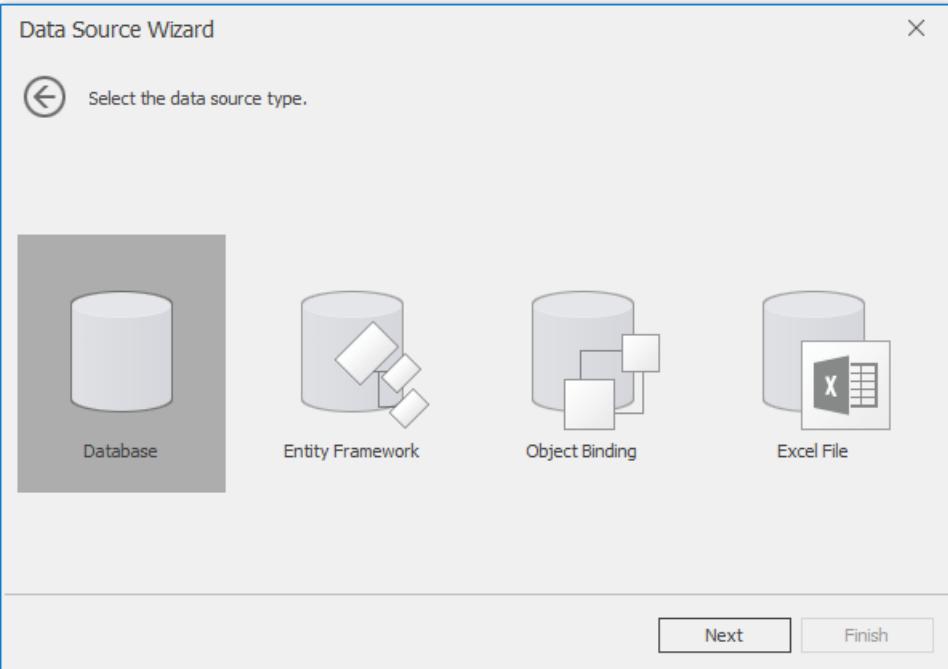
Next, proceed with the following steps in the wizard.

1. On the first page, specify the name for the new data source and click **Next**.

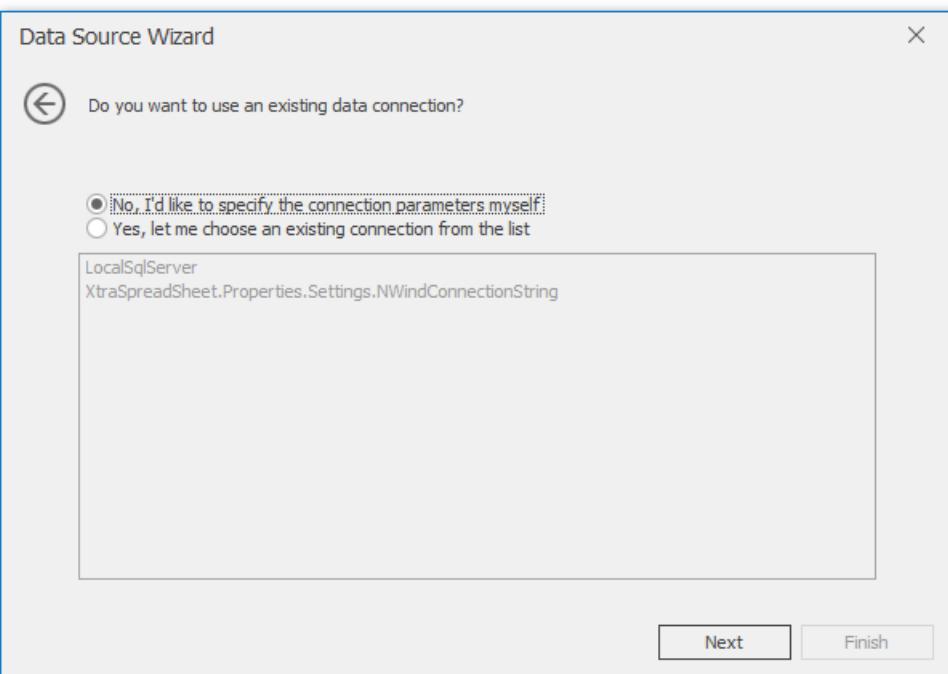


2. On the next page, select the data source type and click **Next**. The following steps assume that a **Database** is selected.

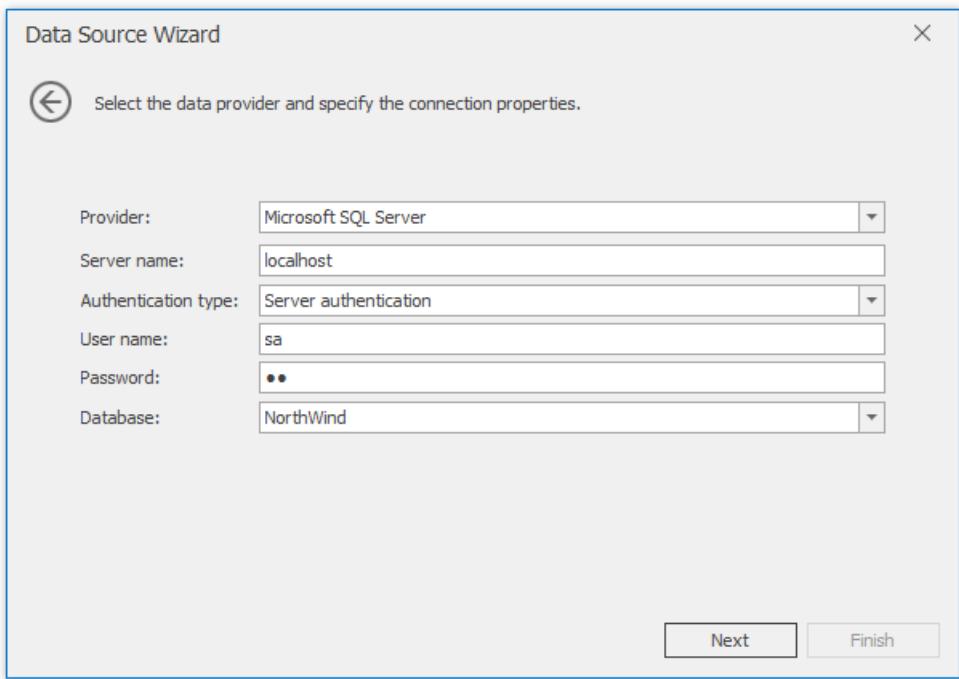
1



3. If a data connection has already been specified in the application, the next wizard page allows you to select whether to use one of the existing connections, or create a new one.



4. When creating a new connection, you can specify the connection parameters on the next page.



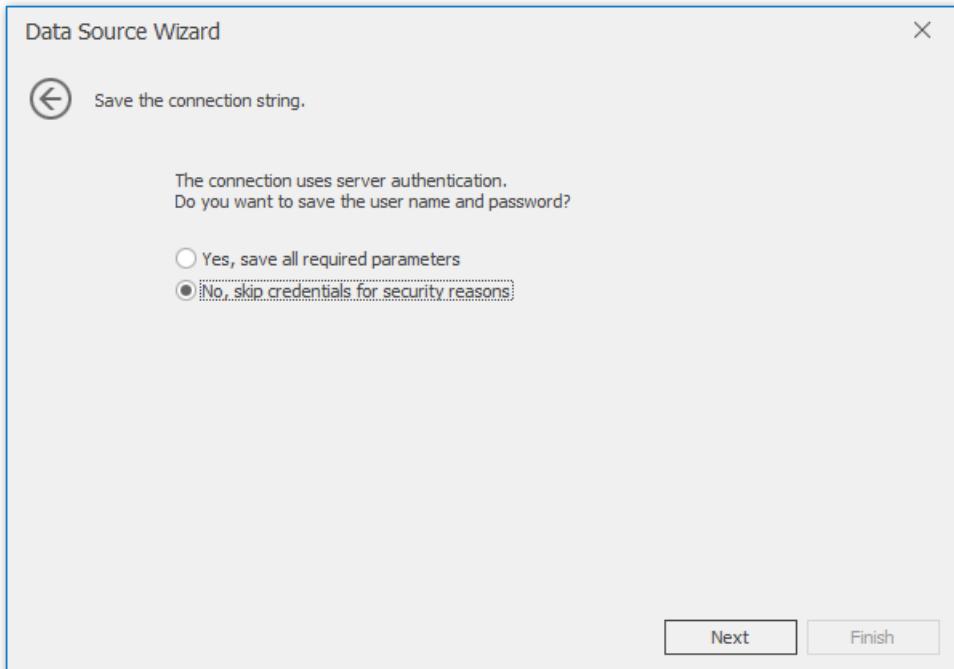
On this page, you can define a custom connection string, or select from the following supported data source types.

- Microsoft SQL Server
- Microsoft Access 97
- Microsoft Access 2007
- Microsoft SQL Server CE
- Oracle
- Amazon Redshift
- Google BigQuery
- Teradata
- Firebird
- IBM DB2
- MySQL
- Pervasive PSQL
- PostgreSQL
- SAP Sybase Advantage
- SAP Sybase ASE
- SQLite
- VistaDB
- VistaDB5
- XML File

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

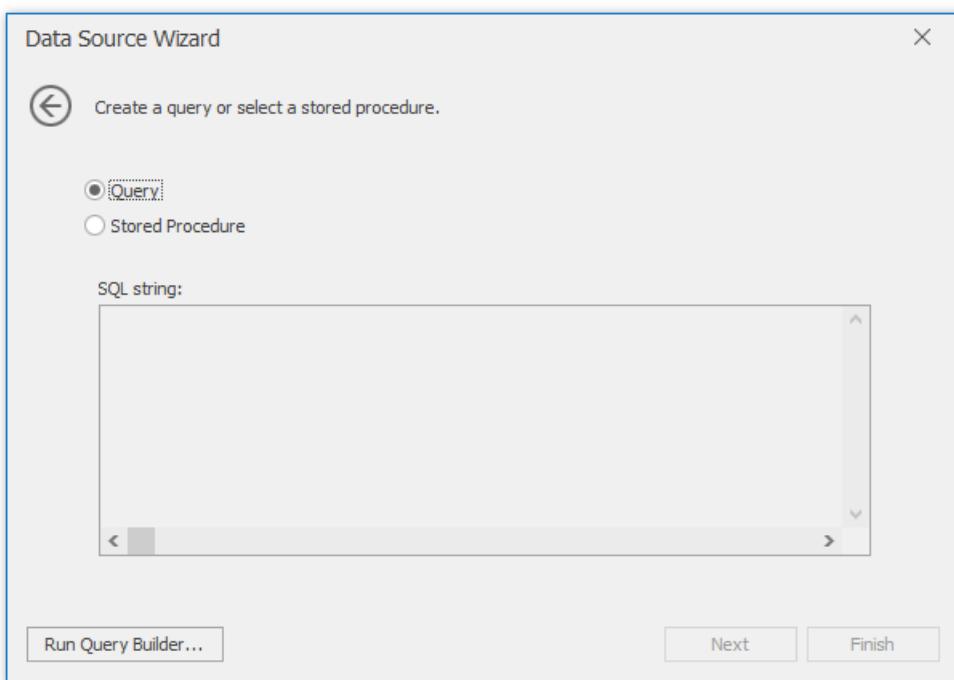
To proceed to the next wizard page, click **Next**.

5. On this page, you are prompted whether to save the user name and password in a connection string.



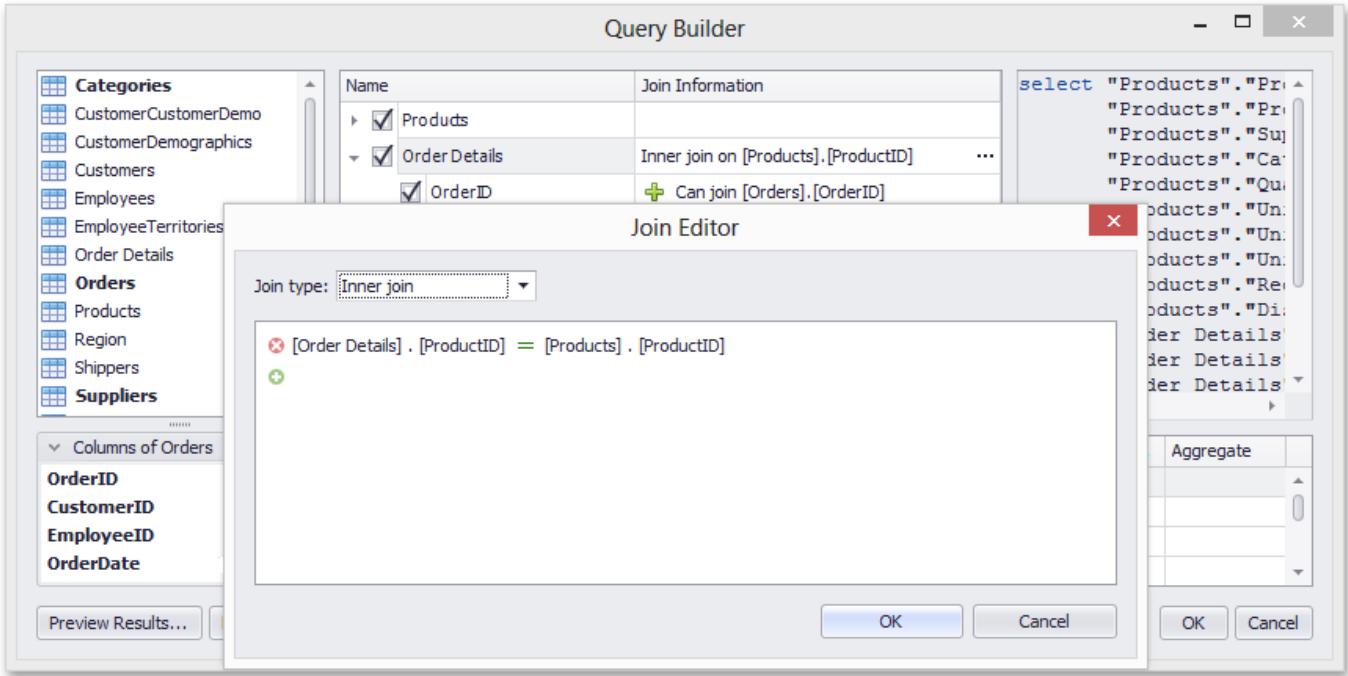
Click **Next** to proceed to the next page.

6. This page allows you to select a query or a stored procedure.



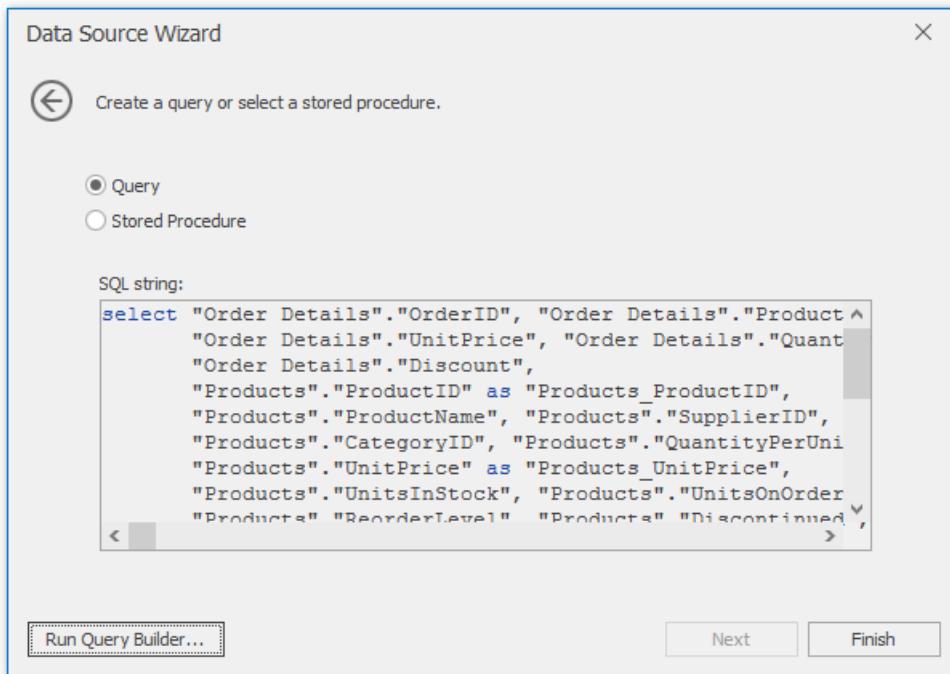
Click **Run Query Builder...** to invoke the **Query Builder** window.

7. The **Query Builder** window allows you to select tables and columns to include in the result. The joins are created automatically, however you can modify them using the **Join Editor**.



Click **OK** to close the **Query Builder** dialog and return to the **Data Source Wizard**.

8. The data source is created and configured.



Now you can click **Finish** to quit the **Data Source Wizard**.

If the Spreadsheet is accompanied with the **Field List Panel**, the fields from the bound data source are immediately displayed within that panel. It allows you to drag and drop the required data field onto a worksheet used as a mail merge template.

The screenshot shows a Windows application window with a toolbar at the top. The main area contains a data grid with columns labeled A through L. Row 5 has 'Company' in column A and '[CompanyName]' in column B. Rows 7 through 12 each have a label in column A followed by a bracketed field name in column B. The 'Field List' panel on the right lists fields from a data source named 'NWIndDataSource'. The 'Customers' category is expanded, showing fields like Address, City, CompanyName, ContactName, ContactTitle, Country, CustomerID, Fax, and Phone. The 'CompanyName' field is selected.

To modify the query used in the data source, click **Manage Relations -> Manage Queries** in the **External Data Sources** group to invoke the [Query Builder](#).

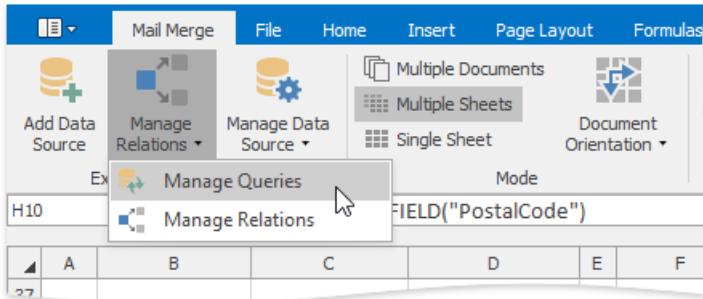
TIP

The data source configuration is stored in .xls or .xlsx file. You can save the workbook after creating the data source. Subsequently, you can start a mail merge immediately after the XLSX/XLS file is loaded into the Spreadsheet control.

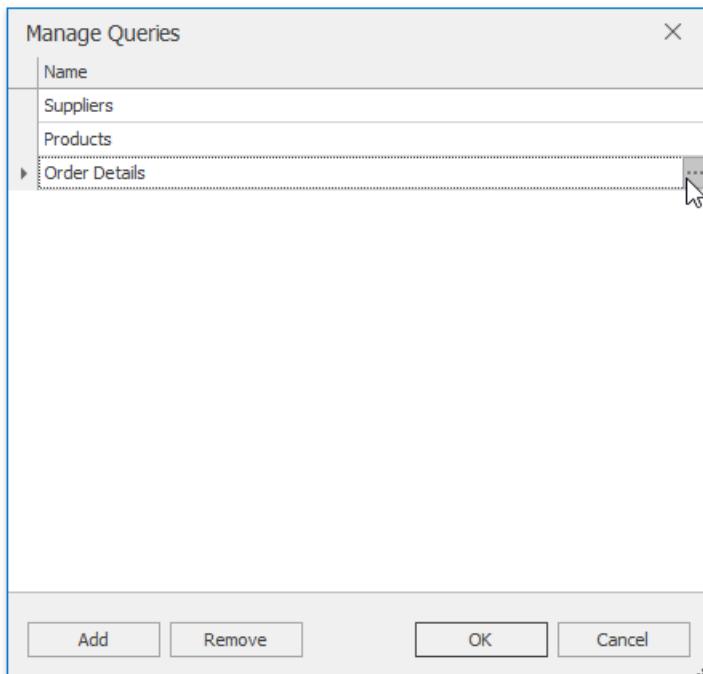
Query Builder

When the data source is configured, you can use the built-in **Query Builder** dialog to select required data.

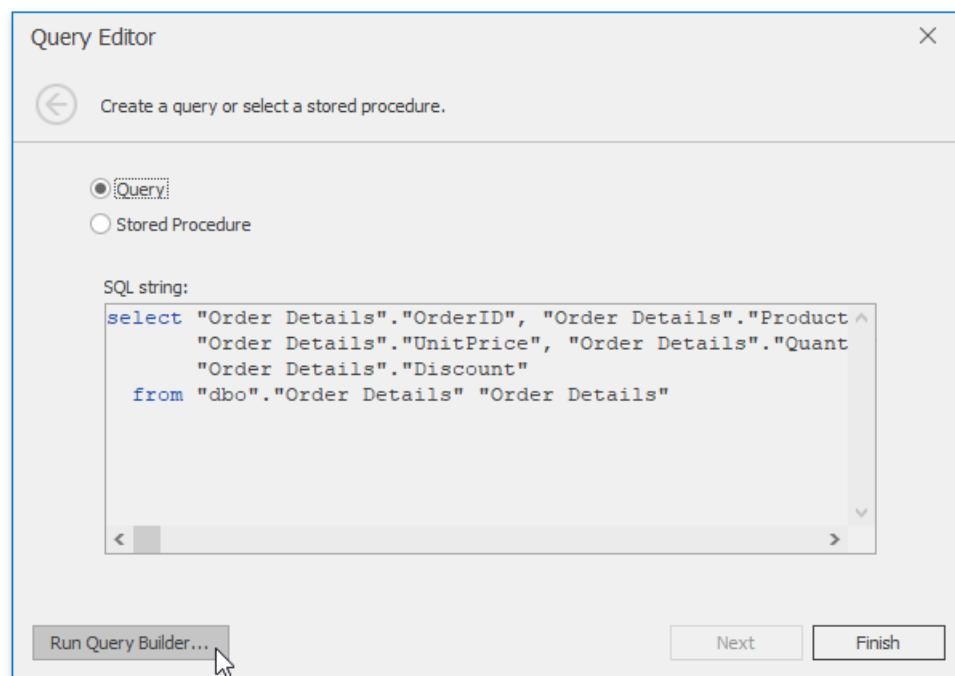
To invoke the **Query Builder** window, select the **Manage Queries** item from the **Manage Relations** drop-down menu.



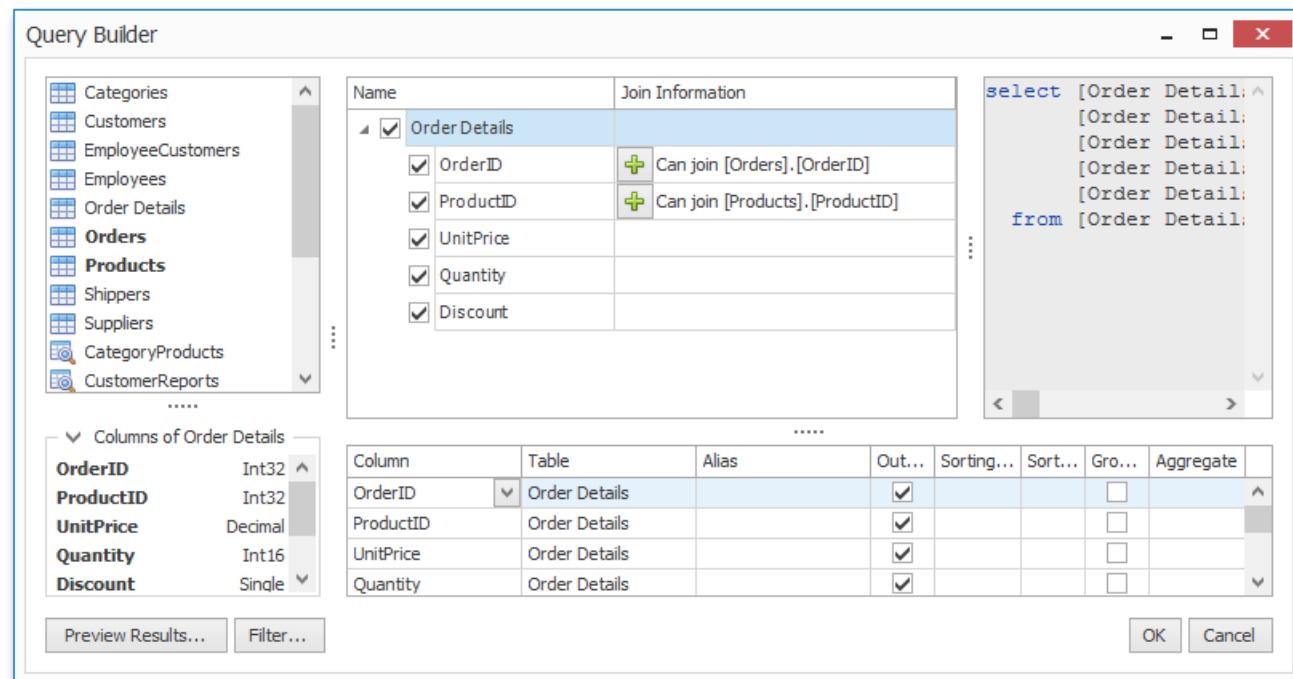
In the **Manage Queries** dialog, click the ellipsis button in the query list to edit the selected query.



The **Query Editor** window appears.



To modify the query, invoke the **Query Builder** window by clicking the **Run Query Builder...** button.



To add a data table to the query, drag the required table from the list of available tables on the left and drop it onto the list of data tables to be used. Select the check box near the field to include this field in the query. A green plus symbol near the field indicates that you can join tables using this field.

Click **Preview Results...** to invoke a dialog displaying the first 1000 records of the resulting table.

Data Preview (First 1000 Rows Displayed) X

Order ID	Quantity	Unit Price	Discount	Product Name
10285	45	14.4	0.2	Chai
10294	18	14.4	0	Chai
10317	20	14.4	0	Chai
10348	15	14.4	0.15	Chai
10354	12	14.4	0	Chai
10370	15	14.4	0.15	Chai
10406	10	14.4	0	Chai
10413	24	14.4	0	Chai
10477	15	14.4	0	Chai
10522	40	18	0.2	Chai
10526	8	18	0.15	Chai
10576	10	18	0	Chai
10590	20	18	0	Chai
10609	3	18	0	Chai
10611	6	18	0	Chai

Close

Click the **Filter...** button in the **Query Builder** to invoke the **Filter Editor** window that allows you to specify a filtering criterion or create a parametrized query.

Filter Editor X

Filter Group Filter

And +/-

[OrderDetails.OrderID] = Equals ?OrderNumber ?OrderNumber +/-

Equals
Does not equal
Is greater than
Is greater than or equal to
Is less than
Is less than or equal to
Is between
Is not between
Is null
Is not null
Is any of
Is none of

Select only
 Select only distinct values

OK Cancel

For more information on parameters, review the [Parameters Panel](#) document.

When all the necessary changes are made, click **OK** to close the window and save the query in the document.

TIP

All queries are stored in an .xls or .xlsx file. You can save the workbook after creating the data source. Subsequently, you can start performing a mail merge immediately after the XLSX/XLS file is loaded into the Spreadsheet control.

Parameters Panel

The Spreadsheet can be accompanied with the **Parameters** panel. It displays parameters used in a query to retrieve data and allows you to modify them. The following picture illustrates how to specify the order ID for data used in the mail merge template.

A screenshot of a spreadsheet application showing a 'Parameters' panel on the right. The panel has a table with one row, 'Order' with value '10300'. The main area shows a header with a sandwich icon, a detail range with columns for Product, Supplier, Unit Price, and Quantity, and a footer with a sandwich icon. A sidebar on the right shows 'Header', 'total', 'ds', and '1* Detail'.

5 A header is displayed at the top of the merged document. In this example, the header contains a customer order ID. You can change it by specifying the Order parameter in the Parameters panel to a number between 10248 and 11077.

6 Details of the customer order [Parameters.Order]

7

8 Product Supplier Unit Price Quantity

9 Detail Range

10 A Detail range contains information retrieved from a data source. Real data values are displayed in the specified in the Detail range. The Detail range is repeated for each data source record in the resulting

11 [ProductName] [Supplier] [UnitPrice] [Quan

12 Footer Range

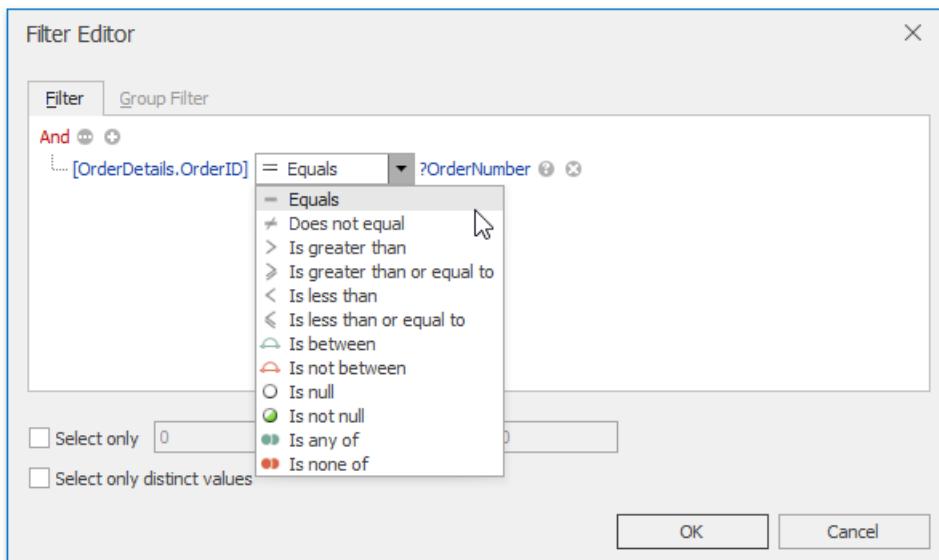
13 A footer is displayed at the bottom of the merged document.

The resulting report for order ID 10300 is shown below.

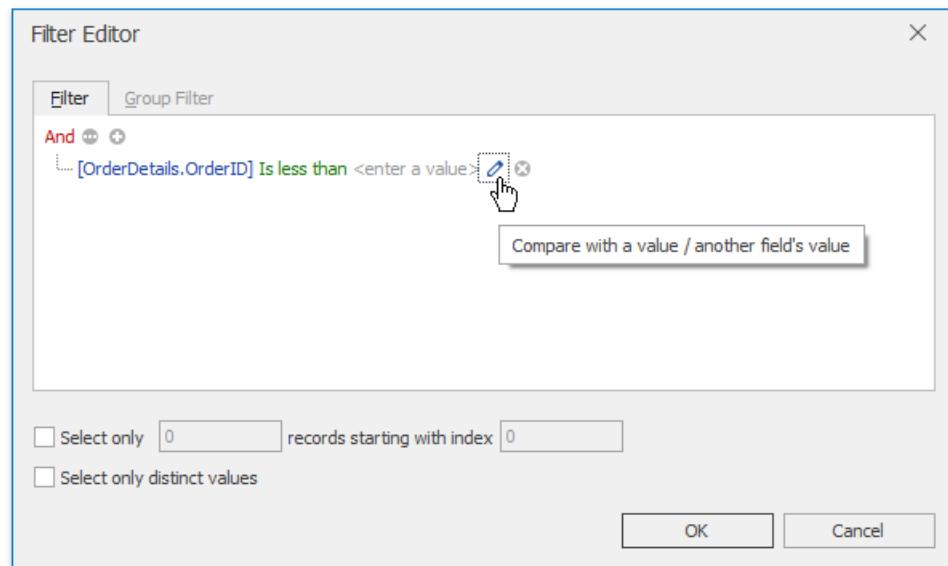
	C	D	E	F	G
1	Details of the customer order 10300				
2					
3	Supplier	Unit Price	Quantity	Discount	Subtotal
4	Shelley Burke (New Orleans Cajun Delights, Order Administrator) - USA, New Orleans, 70117 P.O. Box 78934	\$13.60	30	0%	\$408.00
5	Peter Wilson (Specialty Biscuits, Ltd., Sales Representative) - UK, Manchester, M14 GSD 29 King's Way	\$10.00	20	0%	\$200.00

To add a parameter to a query, invoke the [Query Builder](#) and click the **Filter...** button to display the **Filter Editor** window.

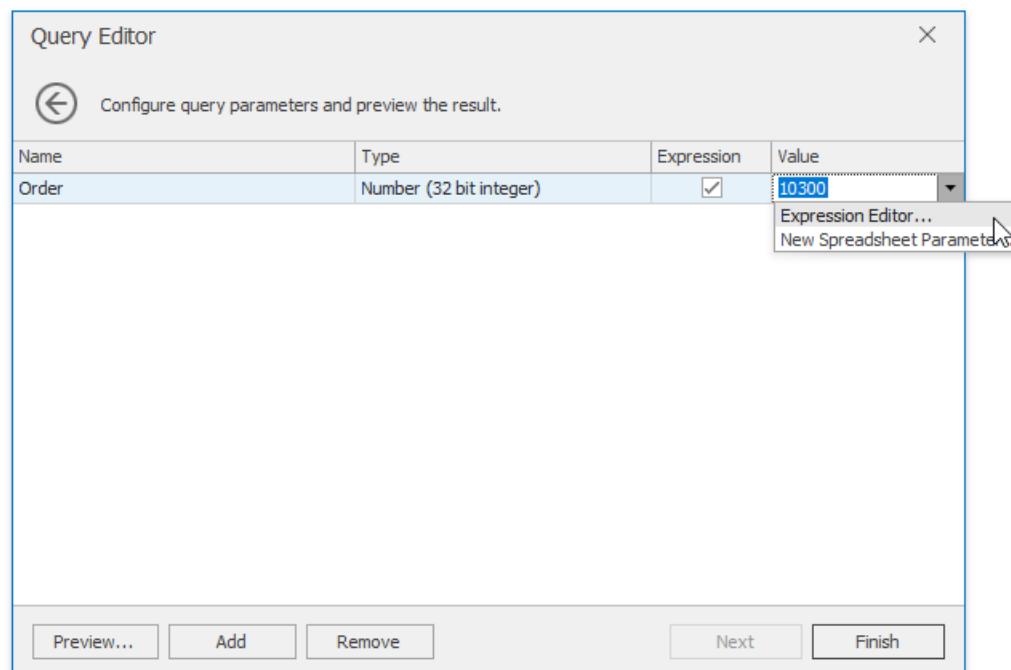
The **Filter Editor** window allows you to specify a filtering criterion to be applied to the source data.



Click the icon on the right side of the **Filter Editor** to switch between a value, another field and a parameter.

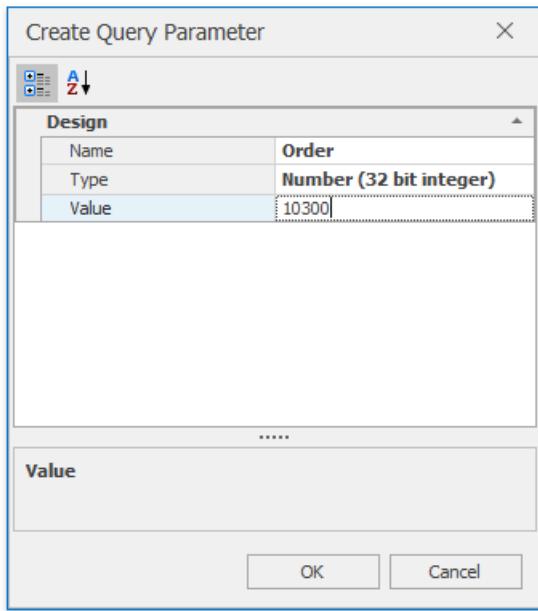


Click **OK** to close the **Filter Editor** dialog and click **Next** in the **Query Editor** window to navigate to the page that allows you to configure query parameters. This page is shown in the image below.



Select the check box in the **Expression** column to specify an expression to calculate the parameter value. Map the query parameter to a new spreadsheet parameter. To do this, expand the drop-down list for the **Value** column and select the **New Spreadsheet Parameter...** item.

In the invoked **Spreadsheet Parameter** dialog, specify the required parameter settings (its name, type and initial value).



After closing the [Query Builder](#) window, you will see the newly created parameter in the **Parameters** panel as shown in the picture at the beginning of this document.

Insert a Picture

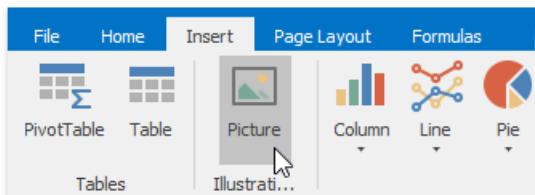
The **Spreadsheet** allows you to insert pictures in a worksheet.

You can insert graphics of the following type.

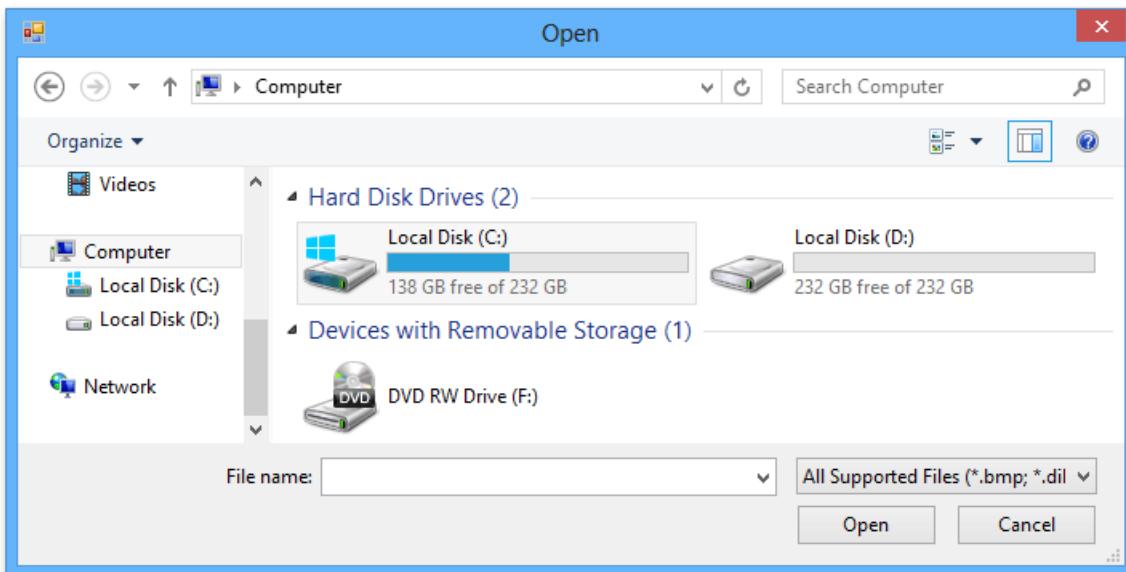
- Bitmap (*.bmp, *.dib)
- JPEG File Interchange Format (*.jpg, *.jpeg)
- Portable Network Graphics (*.png)
- Graphics Interchange Format (*.gif)
- Tagged Image Format (*.tif, *.tiff)
- Microsoft Enhanced Metafile (*.emf)
- Windows Metafile (*.wmf)

To insert a picture, follow the instructions below.

1. On the **Insert** tab, in the **Illustrations** group, click the **Picture** button.



2. In the **Open** dialog box that is invoked, locate the folder that contains the picture you want to insert. Click **Open**. The picture will be inserted into the worksheet.



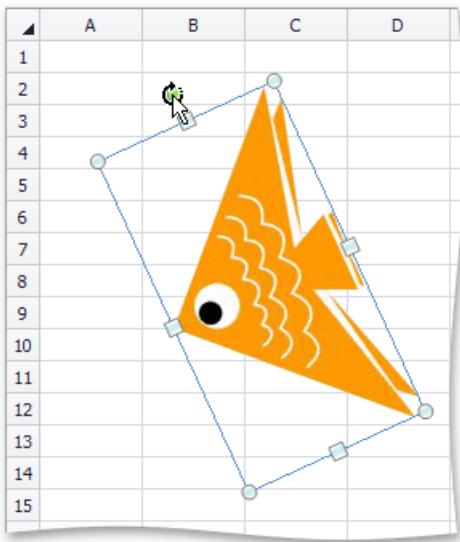
Move, Rotate and Resize a Picture

Move a Picture

1. Click the picture you wish to move.
2. Drag the picture to a new location.

Rotate a Picture

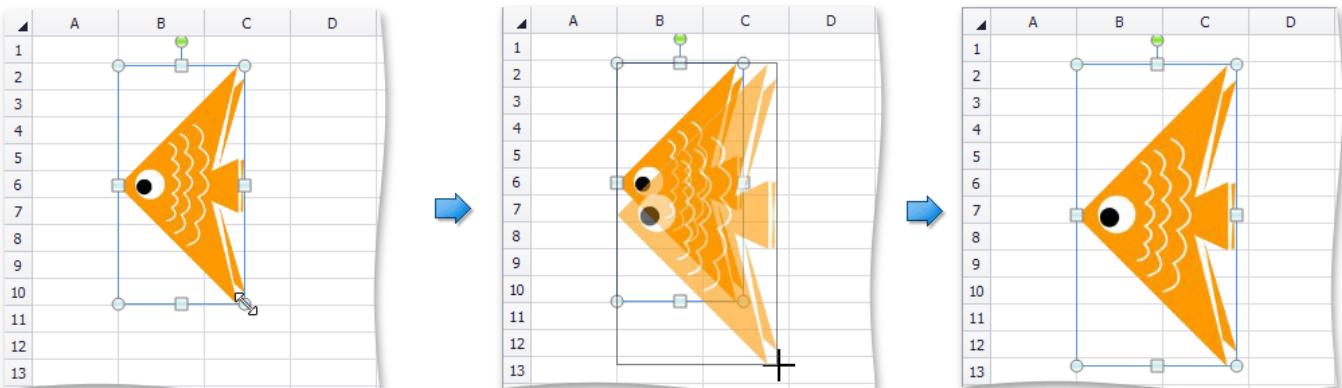
1. Click the picture you wish to rotate.
2. Click the *rotation handle* (the round arrow that appears over the selected picture) and drag it in the direction in which you wish to rotate the object.



3. To rotate a picture in 15-degree increments, drag the rotation handle while holding down the **SHIFT** key.

Resize a Picture

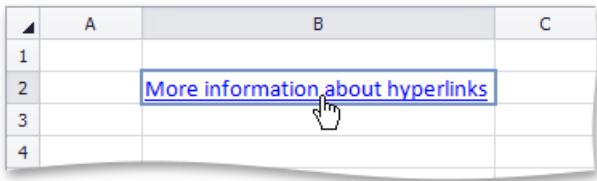
1. Click the picture to be resized.
2. Drag the *sizing handle* away from the center (or towards the center) of the picture, and release it once the desired size is reached.



When you change the width of the object by dragging a *corner sizing handle*, the object's height will automatically be changed to maintain the aspect ratio of the object, and vice-versa.

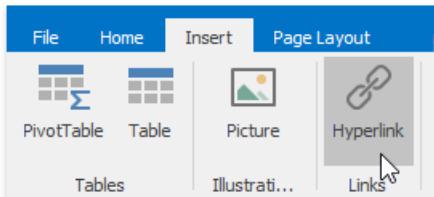
Insert and Delete Hyperlinks

The **Spreadsheet** allows you to [insert](#), edit and [delete](#) hyperlinks. A hyperlink is a link from a worksheet to another file or Web page that can be opened when you click the hyperlink text or image.

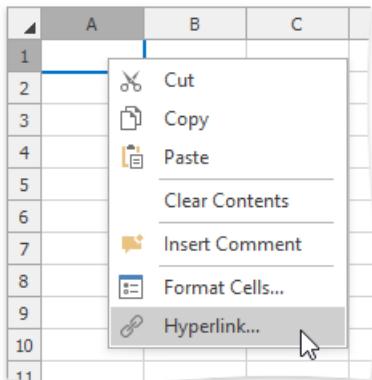


Insert a Hyperlink

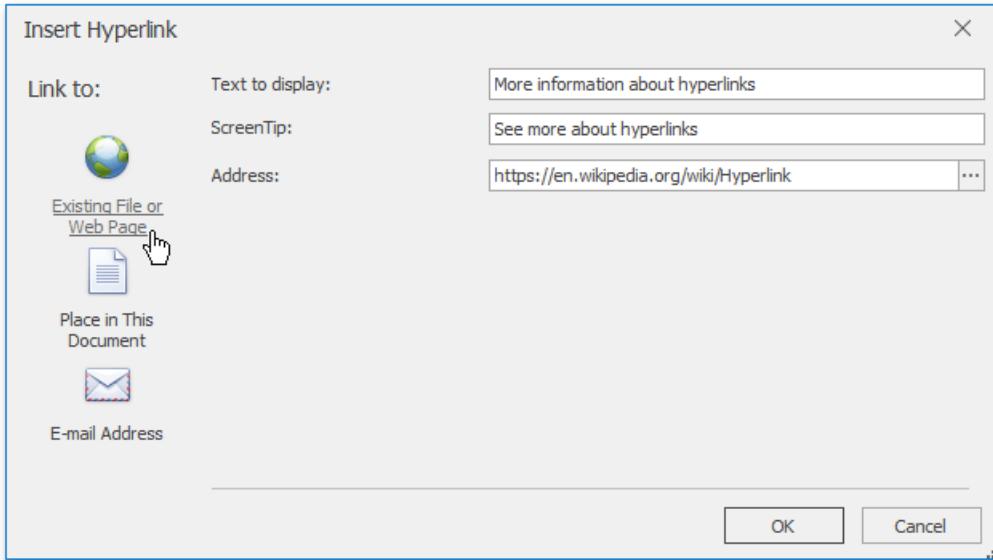
1. Click the cell in which you wish to insert a hyperlink.
2. Do one of the following.
 - o In the **Links** group within the **Insert** tab, click the **Hyperlink** button.



- o Right-click the cell and select **Hyperlink...** from the context menu.



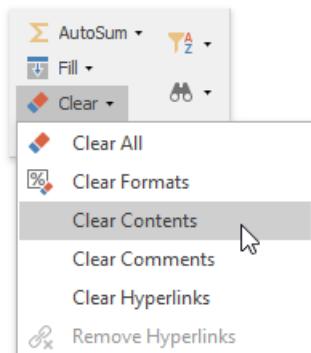
- o Press **CTRL+K**.
3. In the invoked **Edit Hyperlink** dialog box, select whether you wish to insert a hyperlink to an existing file, a Web page, a location within the current workbook, or an email address. Depending on your choice, provide all required options in the right pane of the dialog box.



Delete a Hyperlink

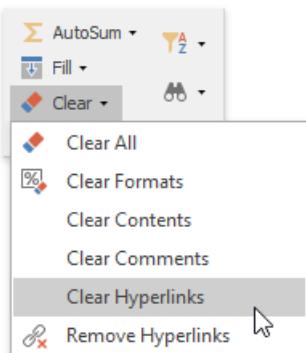
1. To delete a hyperlink along with its text, do one of the following.

- o In the **Editing** group within the **Home** tab, click the **Clear** button, and select **Clear Contents** from the drop-down list.



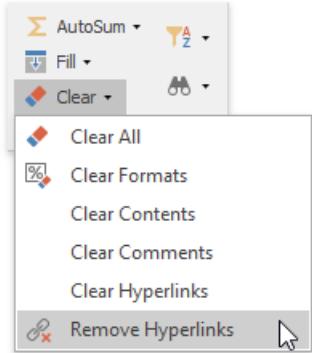
- o Right-click the cell that contains the hyperlink and select **Clear Contents** from the invoked context menu.

2. To delete a hyperlink while maintaining its text with hyperlink formatting, in the **Editing** group within the **Home** tab, click **Clear**, and select **Clear Hyperlinks** from the drop-down list.



3. To delete a hyperlink while maintaining its text with default formatting, do one of the following.

- o In the **Editing** group within the **Home** tab, click the **Clear** button, and select **Remove Hyperlinks** from the drop-down list.



- o Right-click the cell that contains the hyperlink and select **Remove Hyperlinks** from the invoked context menu.

Shortcuts to Work with Pictures

The **Spreadsheet** allows you to move, resize or rotate pictures quickly using keyboard shortcuts.

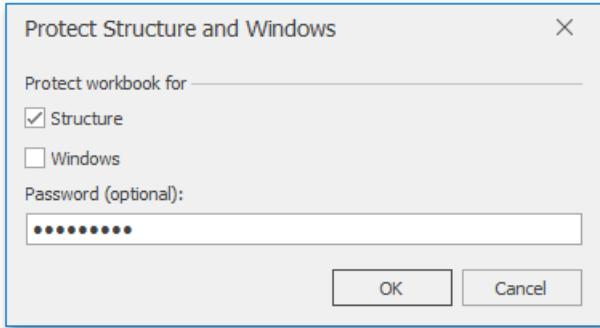
To work with pictures, use the default shortcuts listed in the table below.

SHORTCUT	DESCRIPTION
DELETE	Deletes the selected picture.
BACKSPACE	Deletes the selected picture.
ARROW KEYS	Move the selected picture in a worksheet.
ALT+LEFT ARROW KEY	Rotates the selected picture counterclockwise by 15 degrees.
CTRL+ALT+LEFT ARROW KEY	Rotates the selected picture counterclockwise by 1 degree.
ALT+RIGHT ARROW KEY	Rotates the selected picture clockwise by 15 degrees.
CTRL+ALT+RIGHT ARROW KEY	Rotates the selected picture clockwise by 1 degree.
SHIFT+RIGHT ARROW KEY	Increases the width and height of the selected picture by 10%.
SHIFT+UP ARROW KEY	Increases the width and height of the selected picture by 10%.
CTRL+SHIFT+RIGHT ARROW KEY	Increases the width and height of the selected picture by 1%.
CTRL+SHIFT+UP ARROW KEY	Increases the width and height of the selected picture by 1%.
SHIFT+LEFT ARROW KEY	Decreases the width and height of the selected picture by 10%.
SHIFT+DOWN ARROW KEY	Decreases the width and height of the selected picture by 10%.
CTRL+SHIFT+LEFT ARROW KEY	Decreases the width and height of the selected picture by 1%.
CTRL+SHIFT+DOWN ARROW KEY	Decreases the width and height of the selected picture by 1%.
CTRL+A	Selects all pictures in a worksheet.
TAB	Selects the next picture in a worksheet.
TAB+SHIFT	Selects the previous picture in a worksheet.

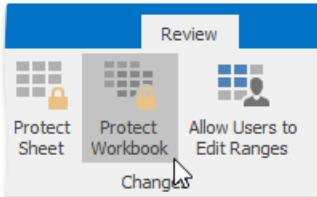
Protect a Workbook

Workbook protection prevents users from changing a workbook's structure (by moving, deleting, adding, hiding or displaying a hidden worksheet) or window position (by freezing or unfreezing panes).

You can protect a worksheet by using the following dialog:



To invoke this dialog, on the **Review** tab, in the **Changes** group, click **Protect Workbook**.



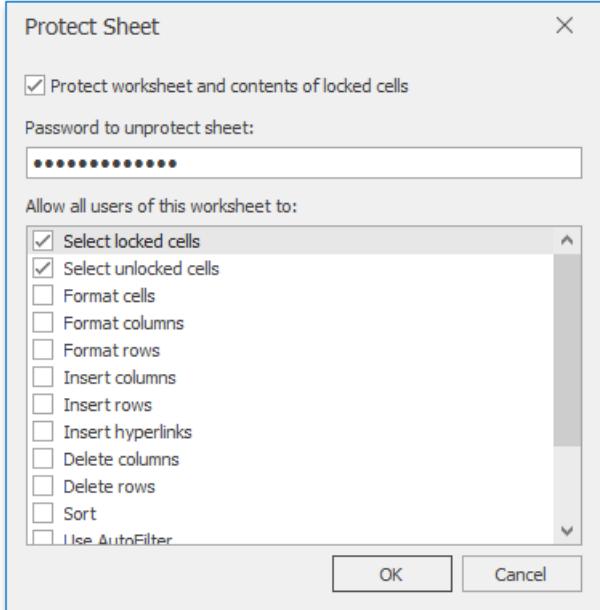
In a protected workbook, this button displays the "**Unprotect Workbook**" caption, which invokes a simple dialog that prompts for a password or unlocks the workbook if an empty password was set.

Protect a Worksheet

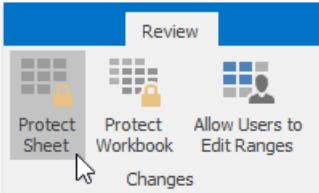
Worksheet protection locks the cells so that you can only perform a specific (restricted) set of actions.

By default, all cells in the worksheet are locked. When protection is applied to the worksheet, these cells become read-only. However, you can specify certain actions which can be performed with the locked cells in a protected worksheet.

To protect a worksheet, use the following dialog:



To invoke this dialog, on the **Review** tab, in the **Changes** group, click the **Protect Sheet** button.

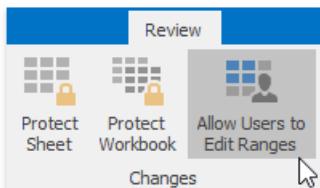


In a protected sheet, this button displays the "**Unprotect Sheet**" caption, which invokes a simple dialog that prompts for a password or unlocks the sheet if an empty password was set.

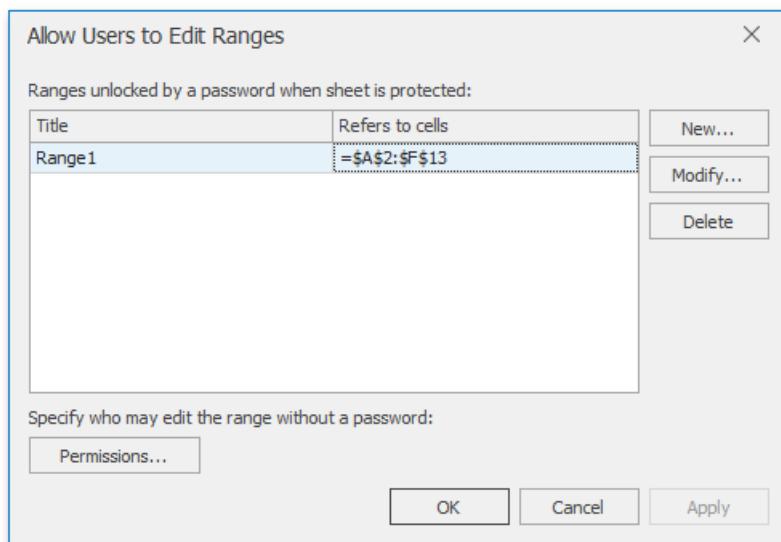
Protect Worksheet Ranges

In a protected worksheet, all locked cells are read-only. However, you can unlock certain ranges for users who provide the correct password. You can also specify user accounts and groups who can edit specific ranges without a password.

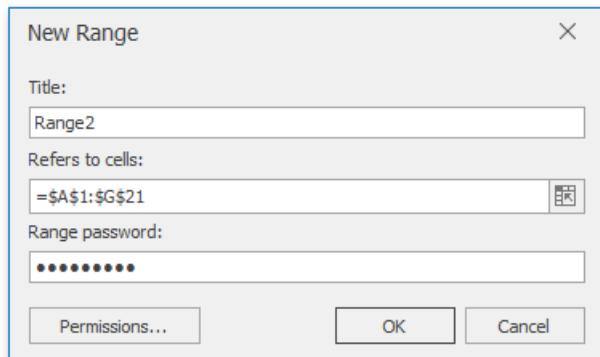
To accomplish this task, invoke the **Allow Users to Edit Ranges** dialog. On the **Review** tab, in the **Changes** group, click **Allow Users to Edit Ranges**.



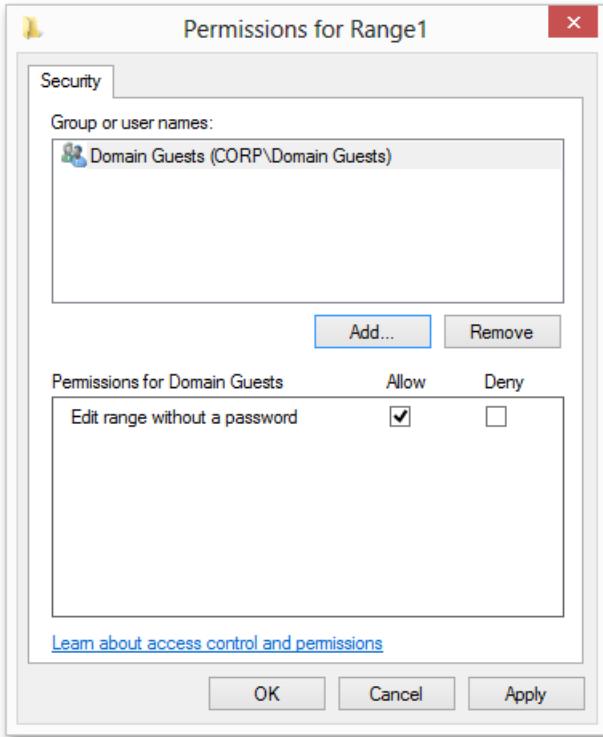
The **Allow Users to Edit Ranges** dialog is shown in the picture below.



Click the **New...** button to display a dialog to specify the worksheet range and password, as illustrated below.



The **Permissions...** button allows you to specify Active Directory users and groups.



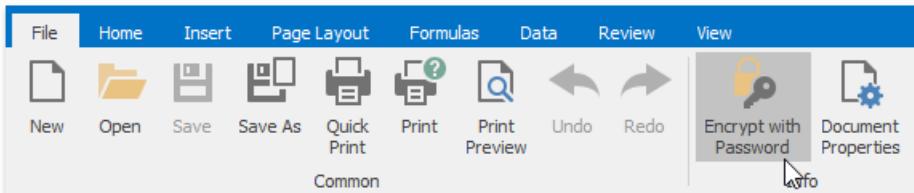
After all required permissions and password-protected ranges are specified, apply protection to the worksheet to activate permissions as described in the [Protect a Worksheet](#) document.

When attempting to edit a cell content in a protected range for which a permission is specified, you will be prompted for a password if your user account is not listed in the Permissions dialog for that range or if the account does not belong to the user group listed in that dialog.

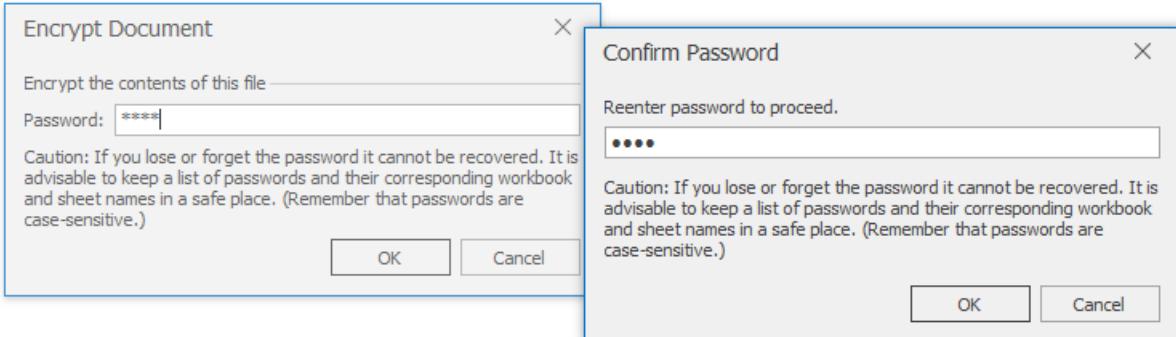
Encrypt a Workbook with the Password

You can encrypt your document with a password to prevent unauthorized people from opening or modifying your workbooks. To do that, follow the steps below.

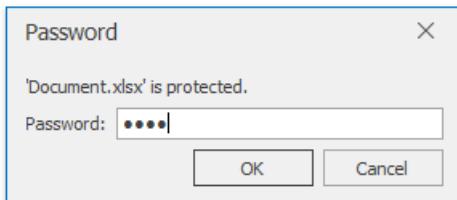
1. In the **Info** group on the **File** tab, click the **Encrypt with Password** button.



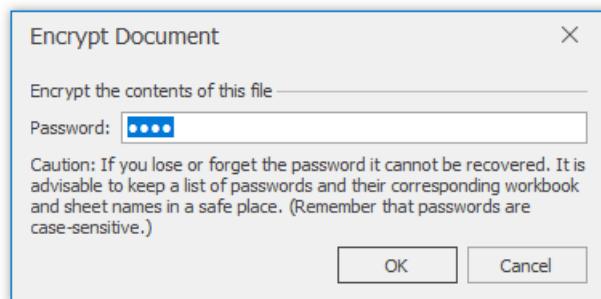
2. In the invoked dialog, specify the encryption password. Then, re-enter the password again and click **OK**.



3. Save the workbook to apply changes. The next time the workbook will be opened, a simple dialog that prompts for a password will be invoked.



4. To remove the password encryption, in the **Info** group on the **File** tab, click the **Encrypt with Password** button. In the invoked window, clear the contents of the **Password** box. Save the document to apply changes.



Shortcuts

The **Spreadsheet** provides the capability to perform common commands quickly using keyboard shortcuts.

All supported shortcuts are divided into the following groups:

- [File Operations](#)
- [Navigation inside Worksheets](#)
- [Work with Selections](#)
- [Copy, Paste and Edit the Cell Content](#)
- [Cell Formatting](#)
- [Work with Columns and Rows](#)
- [Sort and Filter](#)
- [Work with Formulas](#)

File Operations

The key combinations used to perform file operations are listed in the table below.

Shortcut	Description
CTRL+N	Creates a blank workbook.
CTRL+O	Invokes the Open dialog box to open a new file.
CTRL+S	Saves changes in the current workbook.
F12	Invokes the Save as dialog box to save a workbook in the specified file format to a new location.
SHIFT+F11	Inserts a new worksheet in front of the existing worksheet within the current workbook.
CTRL+P	Invokes the Print dialog box.

Navigation inside Worksheets

The key combinations that allow you to navigate through a worksheet are listed in the table below.

Shortcut	Description
LEFT ARROW KEY	Moves the active cell one cell to the left in a worksheet.
RIGHT ARROW KEY	Moves the active cell one cell to the right in a worksheet.
UP ARROW KEY	Moves the active cell one cell up in a worksheet.
DOWN ARROW KEY	Moves the active cell one cell down in a worksheet.
ENTER	Moves the active cell one cell down in a worksheet.
SHIFT+ENTER	Moves the active cell one cell up in a worksheet.
TAB	Moves the active cell one cell to the right in a worksheet.
SHIFT+TAB	Moves the active cell one cell to the left in a worksheet.
CTRL+ARROW KEYS	Move the active cell to the edge of the current data region in a worksheet.
HOME	Moves the active cell to the beginning of a row in a worksheet.
CTRL+HOME	Moves the active cell to the beginning of a worksheet.
CTRL+END	Moves the active cell to the last cell in a worksheet (the last edited row of the rightmost edited column).
PAGE DOWN	Moves the active cell one screen down in a worksheet.
PAGE UP	Moves the active cell one screen up in a worksheet.
CTRL+F	Invokes the Find and Replace dialog (with the Find tab activated).
CTRL+H	Invokes the Find and Replace dialog (with the Replace tab activated).
CTRL+PAGE DOWN	Moves to the next worksheet in the current workbook.
CTRL+PAGE UP	Moves to the previous worksheet in the current workbook.

Work with Selections

The key combinations that allow you to work with selections are listed in the table below.

Shortcut	Description
ENTER	Moves the active cell one cell down in the selection.
SHIFT+ENTER	Moves the active cell one cell up in the selection.
TAB	Moves the active cell one cell to the right in the selection.
SHIFT+TAB	Moves the active cell one cell to the left in the selection.
CTRL+PERIOD (.)	Moves the active cell clockwise to the next corner of the selection.
CTRL+ALT+LEFT/RIGHT ARROW KEY	Switches between multiple selected ranges of cells.
SHIFT+BACKSPACE	Selects only the active cell in the selected cell range.
CTRL+SPACEBAR	Selects an entire column in a worksheet.
SHIFT+SPACEBAR	Selects an entire row in a worksheet.
CTRL+A	Selects the entire worksheet or the data region to which the active cell belongs.
CTRL+SHIFT+SPACEBAR	Selects the entire worksheet or the data region to which the active cell belongs.
SHIFT+ARROW KEYS	Extend the selection by one cell.
CTRL+SHIFT+ARROW KEYS	Extend the selection to the last nonblank cell in a row or column.
SHIFT+HOME	Extends the selection to the first column.
CTRL+SHIFT+HOME	Extends the selection to the beginning of the document.
CTRL+SHIFT+END	Extends the selection to the previously used cell in a worksheet.
SHIFT+PAGE DOWN	Extends the selection one screen down in a worksheet.
SHIFT+PAGE UP	Extends the selection one screen up in a worksheet.

Copy, Paste and Edit the Cell Content

The key combinations used to work with cell content are listed below.

SHORTCUT	DESCRIPTION
F2	Turns on the edit mode for the active cell and positions the cursor at the end of the cell content.
SHIFT+LEFT ARROW KEY	In the cell edit mode, selects or deselects one character to the left.
SHIFT+RIGHT ARROW KEY	In the cell edit mode, selects or deselects one character to the right.
CTRL+SHIFT+LEFT ARROW KEY	In the cell edit mode, selects or deselects one word to the left.
CTRL+SHIFT+RIGHT ARROW KEY	In the cell edit mode, selects or deselects one word to the right.
SHIFT+HOME	In the cell edit mode, selects from the cursor current position to the beginning of the cell.
SHIFT+END	In the cell edit mode, selects from the cursor current position to the end of the cell.
ALT+ENTER	Starts a new line in the same cell.
CTRL+ENTER	Completes a cell entry and stays in the same cell.
ENTER	Completes a cell entry and selects the cell below.
SHIFT+ENTER	Completes a cell entry and selects the cell above.
TAB	Completes a cell entry and selects the cell to the right.
SHIFT+TAB	Completes a cell entry and selects the cell to the left.
ESC	Cancels an entry in a cell or Formula Bar .
BACKSPACE	In the cell edit mode, deletes a character to the left of the cursor.
DELETE	Removes the cell content without affecting the cell formatting.
CTRL+DELETE	In the cell edit mode, deletes all characters from the cursor current position to the end of the line.
CTRL+Z or ALT+BACKSPACE	Performs the Undo command to reverse the last action or to delete the last entry you typed.
CTRL+Y or ALT+SHIFT+BACKSPACE	Repeats the last action.
CTRL+C or CTRL+INSERT	Copies the selected cell in the clipboard.
CTRL+V or SHIFT+INSERT	Inserts the contents of the clipboard in the specified cell and replaces any selection.
CTRL+ALT+V	Invokes the Paste Special dialog box to specify the paste options.
CTRL+X or SHIFT+DELETE	Cuts the selected cells.

SHORTCUT	DESCRIPTION
CTRL+D	Performs the Fill Down command to copy the contents of the topmost cell to the cells below.
CTRL+R	Performs the Fill Right command to copy the contents of the leftmost cell to the cell to the right.
CTRL+K	Invokes the Insert Hyperlink dialog box to create a new hyperlink.
SHIFT+F2	Adds a comment to the active cell.

Cell Formatting

The key combinations that allow you to apply formatting options quickly are listed in the following table.

Shortcut	Description
CTRL+SHIFT+F	Invokes the Format Cells dialog (with the Font tab activated).
CTRL+B or CTRL+2	Applies or removes bold formatting.
CTRL+I or CTRL+3	Applies or removes italic formatting.
CTRL+U or CTRL+4	Applies or removes underlining.
CTRL+5	Applies or removes strikethrough.
CTRL+SHIFT+7	Applies the outline border to the selected cell or cell range.
CTRL+SHIFT+MINUS (-)	Removes the outline border from the selected cell or cell range.
CTRL+SHIFT+1	Applies the Number format with two decimal places.
CTRL+SHIFT+2	Applies the Time format.
CTRL+SHIFT+3	Applies the Date format.
CTRL+SHIFT+4	Applies the Currency format.
CTRL+SHIFT+5	Applies the Percentage format.
CTRL+SHIFT+6	Applies the Scientific number format.

Work with Columns and Rows

The key combinations that allow you to display, hide or group columns and rows in a worksheet are listed in the following table.

SHORTCUT	DESCRIPTION
CTRL+9	Hides the selected rows.
CTRL+SHIFT+9	Displays the hidden rows.
CTRL+0	Hides the selected columns.
CTRL+SHIFT+0	Displays the hidden columns.
ALT+SHIFT+RIGHT ARROW KEY	Groups the selected rows or columns.
ALT+SHIFT+LEFT ARROW KEY	Ungroups the selected rows or columns.

Sort and Filter

The key combinations that allow you to activate the filtering functionality for a worksheet range or table are listed in the table below.

Shortcut	Description
CTRL+SHIFT+L	Toggles between enabling and disabling the AutoFilter functionality.
CTRL+ALT+L	Reapplies a filter.

Work with Formulas

The key combinations used to create formulas quickly are listed in the table below.

SHORTCUT	DESCRIPTION
CTRL+SHIFT+ENTER	Creates an array formula.
CTRL+ENTER	Creates a shared formula.
ALT+PLUS (+)	Inserts the SUM function in the active cell.
SHIFT+F3	Invokes the Insert Function dialog.
CTRL+ `	Toggles between displaying cell values and formulas on a worksheet.
CTRL+SHIFT+U	Toggles between expanding and collapsing the Formula Bar .
F4	Cycles through all the various types of cell references, when a cell reference is selected or edited directly in the cell or Formula Bar .
F9	Calculates the entire workbook.
SHIFT+F9	Calculates the active worksheet.
CTRL+ALT+F9	Calculates the entire workbook, regardless of whether its data has changed since the last calculation.
CTRL+ALT+SHIFT+F9	Calculates the entire workbook, regardless of whether its data has changed since the last calculation, and rebuilds the dependencies.
CTRL+F3	Invokes the Name Manager dialog to define a name.
CTRL+SHIFT+F3	Creates names from row and column labels.

Toolbars and Menus

This section describes the capabilities provided by toolbars and menus.



Layout Customization

- [Open Toolbar Customization Window](#)
- [Finish Toolbar Customization](#)
- [Hide and Display Toolbars](#)
- [Hide and Display Bar Commands](#)
- [Rearrange Toolbars and Menus](#)
- [Rearrange Bar Commands](#)
- [Restore the Default Layout of Bar Commands](#)

Navigation

- [Keyboard Navigation in Menus and Toolbars](#)

Select Commands

- [Invoke Toolbar and Menu Commands](#)

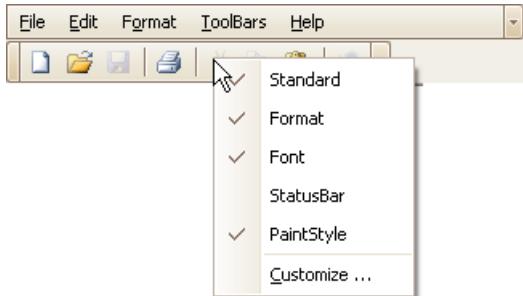
Open Toolbar Customization Window

Opening the Customization window activates the customization mode where you can:

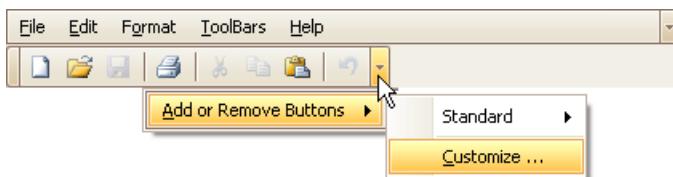
- Rearrange, hide and display bar commands.
- Change display options of bar commands.
- Hide bars, etc

To open the Customization window, do one of the following:

- Right-click any bar or the empty space, and select **Customize...**



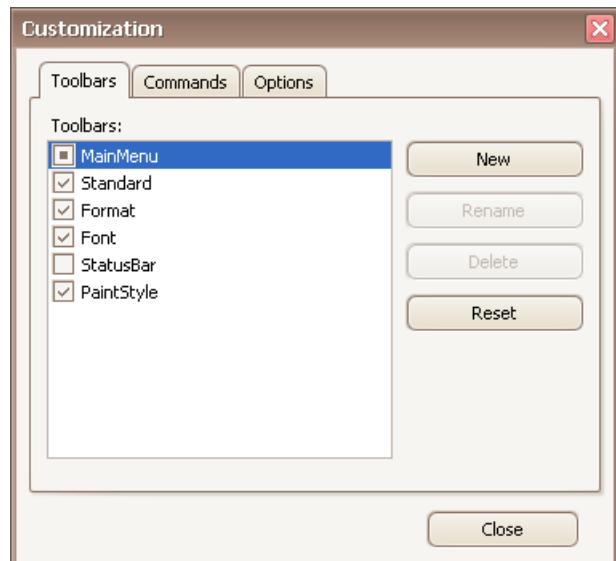
- Click the dropdown button displayed at the right edge of any bar. Then select **Add or Remove Buttons** and then **Customize...**



- Double-click the empty space, not occupied by any bar.



The Customization window will be opened, containing three tabs:



The **Toolbars** tab allows you to hide specific bars and display hidden ones.

The **Commands** tab allows you to access bar commands and add them to bars.

The **Options** tab allows you to control options affecting the display of menus and bar commands.

Finish Toolbar Customization

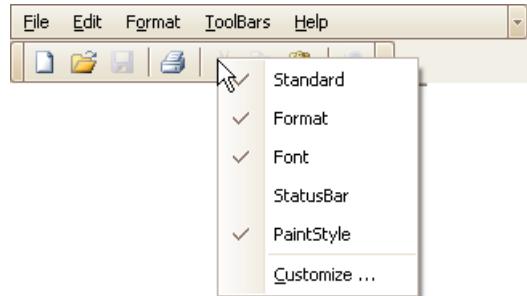
To finish [customization](#), click the Customization window's Close button:



Hide and Display Toolbars

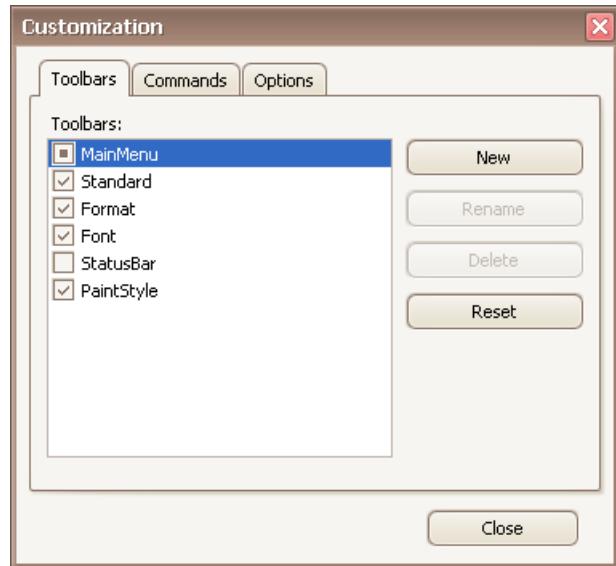
Use the Quick Customization Menu

Right-click any bar, and check or uncheck the required toolbars.



Use the Customization Window

Open the [Customization window](#). Under the Toolbars tab, check or uncheck the required toolbars.



Hide and Display Bar Commands

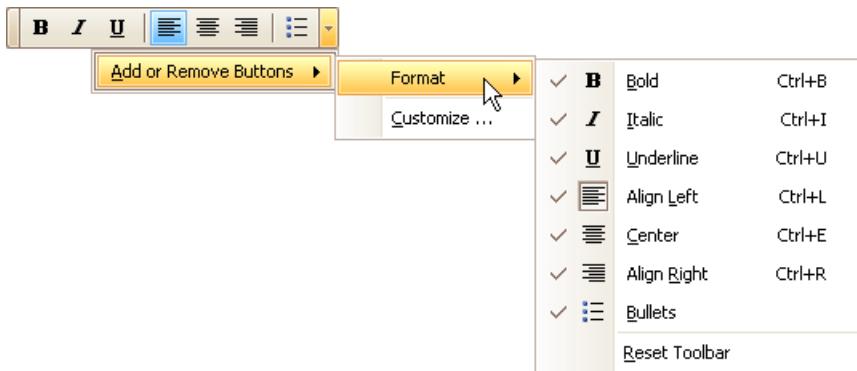
Temporarily Hide and Display Bar Commands

You can temporarily hide bar commands, and then restore hidden commands within a specific bar as follows:

1. Click the dropdown button displayed at the right edge of the bar:



2. Select **Add or Remove Buttons**, and then select the name of the clicked bar displayed at the top of the submenu. A check list of bar commands displayed within the bar will be displayed:



3. To hide specific commands, uncheck corresponding items via mouse click. To display hidden commands, check the corresponding items.

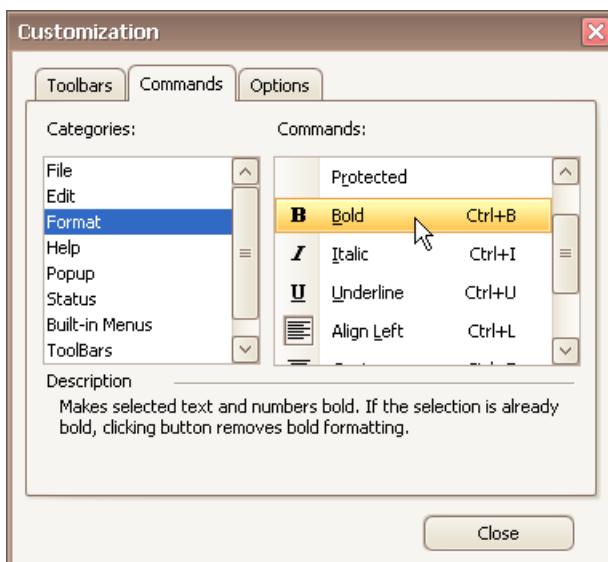
If a specific command is not available in a bar's command list, you can still access this command in customization mode, and add this command to the bar. See below, to learn more.

Hide and Display Bar Commands in Customization Mode

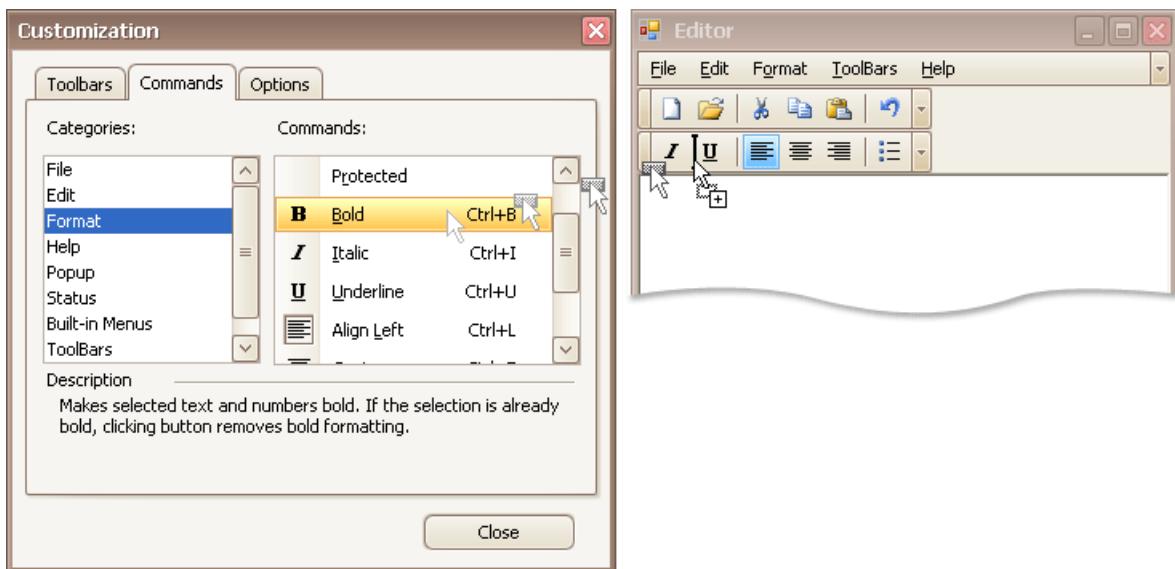
First, open the [Customization window](#).

To add a specific bar command to a bar, do the following:

1. Switch to the **Commands** tab page and locate the required command in the **Commands** list. Typically, commands are grouped into categories, so you can first select a category to quickly locate the command.



2. Drag the bar command from the **Commands** list onto a bar or menu. Note that you can put bar commands into nested menus. Menus will automatically open when you drag a bar command over their parent menu items.



To remove a bar command from a bar, drag the bar command away from the bar, and drop it when the mouse cursor changes its image to 'x':



NOTE

You can cancel drag and drop while dragging an item by pressing ESC.

Rearrange Toolbars and Menus

To move a bar docked to a form, drag it via its drag widget.



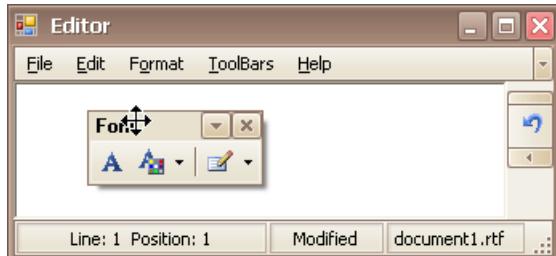
To move a floating bar, drag it by its caption.



To dock a bar to any of the four edges of the form, drag the bar to this edge.



To make a docked bar floating, drag the bar away from the form's edges.



Rearrange Bar Commands

To rearrange bar commands, do the following:

1. Open the [Customization window](#).
2. Drag a bar command to a new position:



To copy a bar command, press CTRL while dragging.

NOTE

You can move commands even when the customization window is closed. For this purpose, hold down the ALT key when dragging a bar command.

Restore the Default Layout of Bar Commands

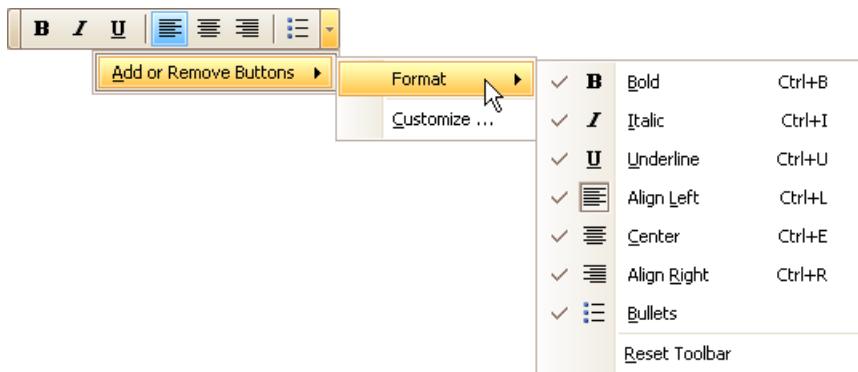
You can customize the layout of bar commands within a bar by hiding and rearranging them. Subsequently, you can revert to the default layout of bar commands. This topic describes two ways to do this.

Restore the Default Layout Using Quick Customization

1. Click the dropdown button displayed at the right edge of any bar:

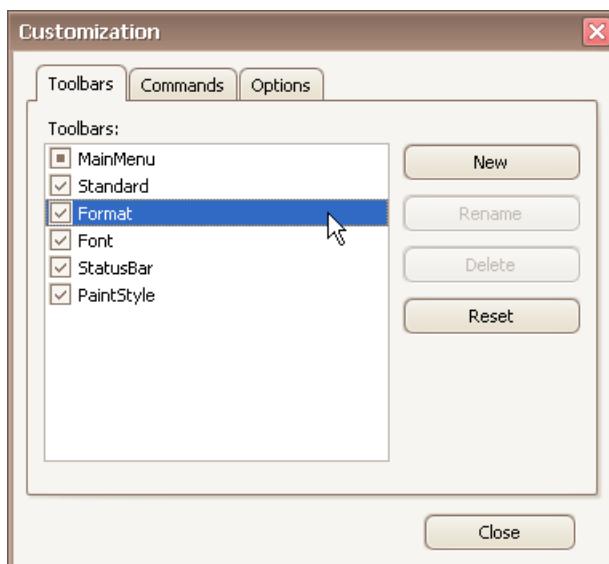


2. Select **Add or Remove Buttons**, and then select the name of the clicked bar displayed at the top of the submenu. Then, select **Reset Toolbar**.

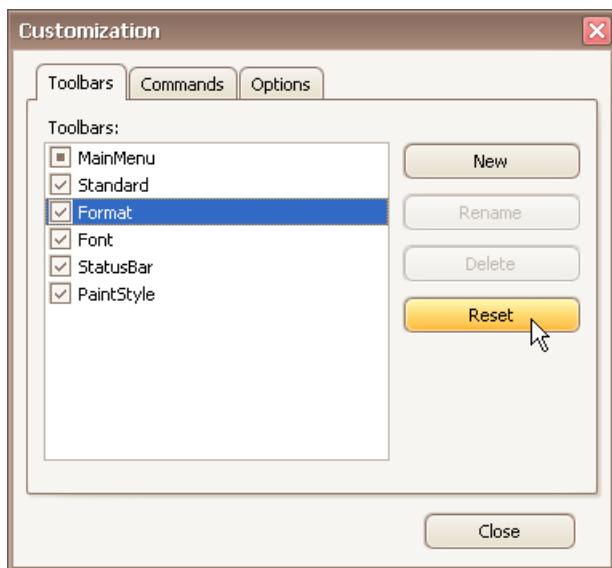


Restore the Default Layout in Customization Mode

1. Open the [Customization window](#).
2. Select a bar in the list whose layout is to be restored.



3. Click **Reset**.



Keyboard Navigation in Menus and Toolbars

Navigate between Toolbar and Menu Items

To switch focus to the main menu, press ALT or F10. The following shortcuts allow you to navigate through bars and bar items. They are in effect when a bar/menu is focused.

ACTION	DESCRIPTION
CTRL+TAB	Moves focus to another bar.
ARROW keys	Moves focus to the next command in the corresponding direction.
TAB or SHIFT+TAB	Moves focus to the next/previous command.
ESC	Moves focus away from the currently focused bar.

Open and Close Menus

To open a sub-menu displayed within a bar, do one of the following:

- Focus the sub-menu (using one of the methods described above) and press the ENTER or DOWN ARROW.
- If the sub-menu's name contains an underscored letter, then:
 - if the bar is focused, press the underscored letter.
 - if the bar is not focused, hold the ALT key down and then press the underscored letter.

To open a menu displayed within another menu, do one of the following:

- Focus the sub-menu and press the RIGHT ARROW.
- If the menu's name contains an underscored letter, press the underscored letter.

To close the currently opened menu, press ESC.

Invoke Toolbar and Menu Commands

To invoke a specific bar or menu command, do one of the following:

- Click the command with the mouse
- **Focus** the command and then press ENTER.
- If a command is visible and it contains an underscored letter in its name, then:
 - if the bar or menu that contains this command is focused, then press this underscored letter.
 - if the bar or menu that contains this command is not focused, hold the ALT key down and then press this underscored letter.
- Press the shortcut assigned to the command.

If a command is displayed within a menu, its shortcut is displayed next to the command's name (if assigned).

Shortcuts for toolbar buttons are typically displayed in hints.

Tree List

This section describes the capabilities provided by a multi-column tree view, which displays hierarchical data, supports data editing, sorting, summary calculation and many other features:

	Department	Budget	Location	Phone	LastOrder
▶	Corporate Headquarters	\$1,000,000	Monterey	(408) 555-1234	2/15/2001
▶	+ Engineering	\$1,100,000	Monterey	(408) 555-1234	8/12/2001
	- Finance	\$40,000	Monterey	(408) 555-1234	5/5/2005
▶	Sales and Marketing	\$22,000	San Francisco	(415) 555-1234	3/5/1999
	+ Field Office: Canada	\$500,000	Toronto	(416) 677-1000	5/1/2002
	+ Field Office: East Coast	\$500,000	Boston	(617) 555-4234	5/5/2005
	- Marketing	\$1,500,000	San Francisco	(415) 555-1234	9/17/2001
▶	+ Pacific Rim Headquarters	\$600,000	Kauai	(808) 555-1234	5/25/2000

Data Editing

- [Edit Cells in a Tree List](#)

Data Presentation

- [Sort Tree List Nodes](#)

Data Analysis

- [Filter TreeList Data](#)
- [Show Summaries \(Totals\) in a Tree List](#)
- [Apply Cell Conditional Formatting](#)

Layout Customization

- [Expand and Collapse Nodes in a Tree List](#)
- [Hide and Display Tree List Columns](#)
- [Reorder Tree List Columns](#)
- [Resize Tree List Columns](#)

Selection and Navigation

- [Navigation in a Tree List](#)
- [Select Tree List Nodes](#)

Edit Cells in a Tree List

Activate Cell Editor

Do one of the following:

- Click a cell.
- Focus a cell (for instance, via the keyboard), and press ENTER or F2.
- Focus a cell and press any alpha-numeric key. The editor will be invoked and its contents will be replaced with the pressed character.

Select and Deselect Cell Text

Press F2 or CTRL+A.

Close Cell Editor and Accept Changes Made

Do one of the following:

- Press ENTER.
- Click any other grid cell.
- Focus any other control.

Discard Changes

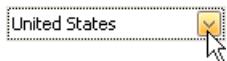
To discard changes made in a cell, press ESC.

To discard changes made in all cells within a node, press ESC twice.

Open Cell Editor's Dropdown

Do one of the following:

- Activate a cell editor and press ALT+DOWN ARROW or F4.
- Click the editor's dropdown button:



Close Cell Editor's Dropdown

For all editors providing a dropdown, you can close the dropdown by pressing ALT+DOWN ARROW.

If the calculator is displayed in the dropdown, it can be closed via CTRL+ENTER.

Dropdowns displaying lists of items can be closed by clicking an item with the mouse, or by selecting an item with the keyboard and pressing ENTER.

Change Values

Change Date/Time Values

You can edit these cell values without opening the dropdown calendar. Position the caret at the portion of a date/time value that needs to be changed. To increment the value, press CTRL+UP ARROW. To decrement the value, press CTRL+DOWN ARROW.

Change Numeric Values

To increment the value, press CTRL+UP ARROW. To decrement the value, press CTRL+DOWN ARROW.

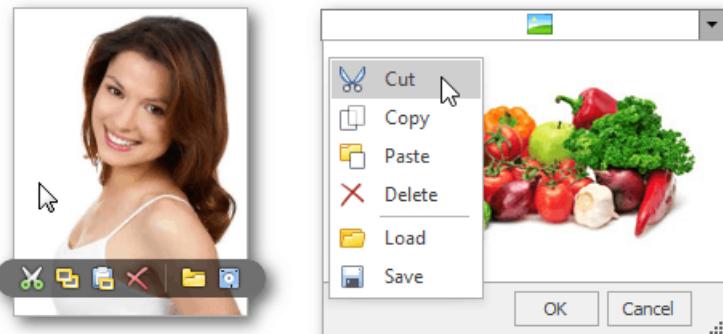
Change Values of Cells That Provide Dropdown Items

To select the previous value, press CTRL+UP ARROW. To select the next value, press CTRL+DOWN ARROW.

Note: this feature is not applicable to all editors.

Edit Images

To copy, cut, paste, load and save images in image editors, right click the image and select the required command via the context menu:



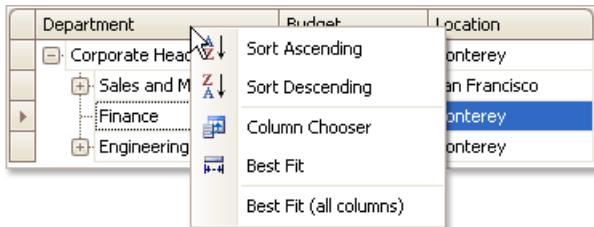
Sort Tree List Nodes

To sort nodes by a column's values and replace existing sort conditions that are applied to the current or other columns, click the target column's header, until an Up or Down Arrow icon is displayed within the header. The Up and Down Arrows indicate ascending and descending sort orders respectively.



To sort nodes by a column's values while preserving existing sort conditions, do one of the following:

- Click a column header while holding the SHIFT key down, until an UP or Down Arrow icon is displayed within the header.
- Right-click a column header and select **Sort Ascending** or **Sort Descending** from the context menu that will appear.



To remove sorting by a column, click a column header while holding the CTRL key down.

Filter TreeList Data

Invoking the Filter Dropdown List

Hover over the column header and click the filter button  that appears.

Job Title	First Name	Last Name	Birth Date
Chief Executive Officer	Bruce	Cambell	9/6/1957
Information Services Manager	Cindy	Haneline	12/23/1973
Database Administrator	Andrea	Deville	11/15/1967
Application Specialist	Anita	Ryan	3/28/1974
Application Specialist	George	Bunkelman	7/19/1954
Network Manager	Anita	Cardle	12/24/1974
Network Administrator	Andrew	Carter	9/19/1967
Network Administrator	Almas	Basinger	4/20/1978
Marketing Manager	Carolyn	Baker	3/23/1978

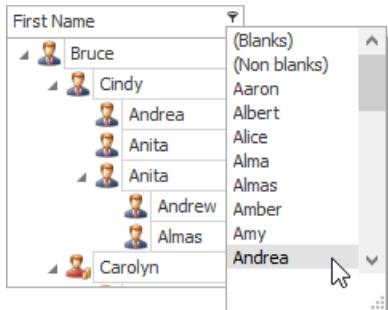
Creating a Simple Filter Condition

To select records that contain a specific value in a specific column, do the following.

1. Invoke the filter dropdown list containing available filter values.

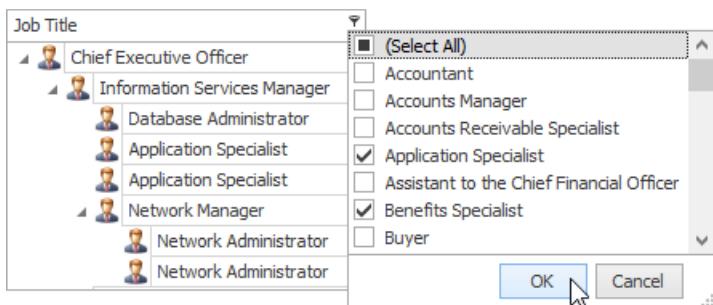
By default, if filtering is applied, the filter dropdown will only display the values which match the current filter criteria. If the SHIFT key is pressed while opening the filter dropdown, all values will be listed (not only those that match the current filter criteria).

2. Select the required filter value in the filter dropdown list.



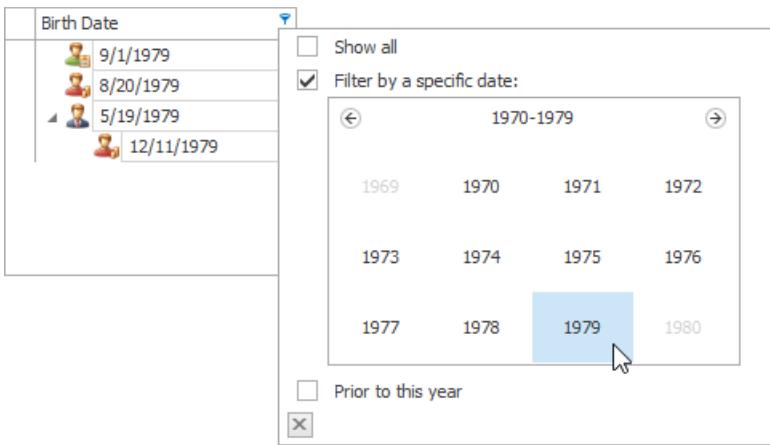
The filter dropdown list will be immediately closed, and the control will display the records that contain the specified value in the specified column.

If the filter dropdown list provides check boxes to the left of filter values, multiple values can be selected (checked) simultaneously.



In this mode, click the **OK** button to close the filter dropdown list and apply the filter.

For date-time columns, the filter dropdown list is displayed as a calendar. To apply the filter, select the desired date.

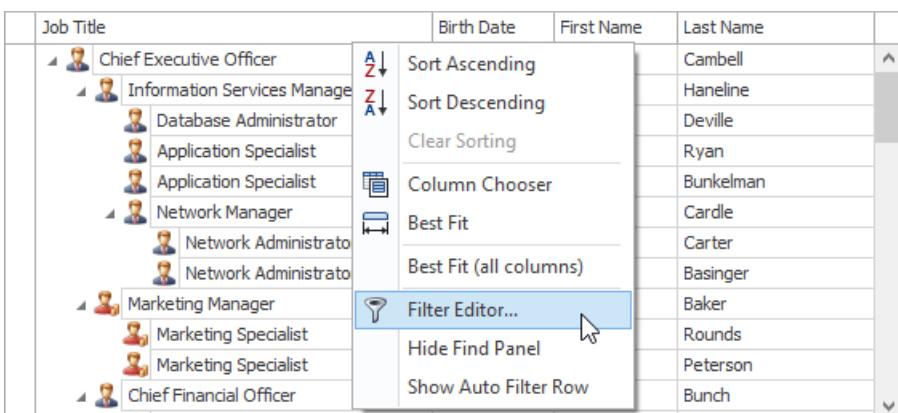


The control will immediately display records which contain the selected date in the appropriate column. To hide the filter dropdown list, click the close button

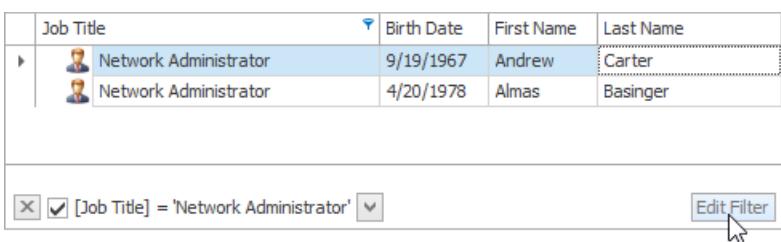
Using the Advanced Filter Editor Dialog

To invoke an advanced Filter Editor dialog, do one of the following.

- Right-click any column's header and select **Filter Editor**.



- If the Filter Panel at the bottom of the TreeList control is visible, click the **Edit Filter** button.



To learn how to work with the Filter Editor, refer to [Filter Data via the Filter Editor](#).

Using the Auto Filter Row

If the Auto Filter Row is displayed at the top of the TreeList control, you can type text within this row. A filter condition is automatically created based on the entered value, and the filter is applied to the focused column.

Auto Filter Row

Job Title	First Name	Last Name	Birth Date
*admin			
Database Administrator	Andrea	Deville	11/15/1967
Network Administrator	Andrew	Carter	9/19/1967
Network Administrator	Almas	Basinger	4/20/1978
Human Resources Administrative A...	Dora	Crimmins	6/12/1983
Facilities Administrative Assistant	Alberta	Berntsen	1/23/1955

Contains([Job Title], 'admin')

Clearing the Filter

To clear the filter applied to a specific column, do one of the following.

- Invoke the filter dropdown list (see above), and then choose between clicking (All) or selecting (Select All) or choosing (Show All,) depending on the dropdown list type.
- Right-click the column header and select the **Clear Filter** menu item.

Job Title	First Name	Last Name	Birth Date
Chief Executive Officer	Sort Ascending	Deville	9/6/1957
Information Services	Sort Descending	Carter	12/23/1973
Database Admin	Clear Sorting	Almas	11/15/1967
Application Spec	Column Chooser	Basinger	3/28/1974
Application Spec	Best Fit	Dora	7/19/1954
Network Manager	Best Fit (all columns)	Alberta	12/24/1974
Marketing Manager		Berntsen	3/23/1978
Marketing Spec			1/4/1973

Clear Filter

To clear all filter criteria, click the Close Filter Button within the Filter Panel.

Job Title	First Name	Last Name	Birth Date
Network Administrator	Andrew	Carter	9/19/1967
Network Administrator	Almas	Basinger	4/20/1978

[Job Title] = 'Network Administrator'

Disabling/Enabling the Filter

Click the Enable Filter Button within the Filter Panel.

Job Title	First Name	Last Name	Birth Date
Network Administrator	Andrew	Carter	9/19/1967
Network Administrator	Almas	Basinger	4/20/1978

[Job Title] = 'Network Administrator'

Show Summaries (Totals) in a Tree List

To change the type of summary for a specific column or apply a summary, do the following:

1. Right-click a region within a group footer or grid footer under a specific column. A context menu displaying a list of supported summary types will be displayed.

The screenshot shows a tree list with two columns: 'Department' and 'Budget'. The 'Corporate Headquarters' node is expanded, showing three child nodes: 'Sales and Marketing', 'Finance', and 'Engineering'. The 'Budget' column for the 'Corporate Headquarters' node is highlighted. A context menu is open at the bottom of the 'Budget' column, listing the following options: Sum, Min, Max, Count, Average, None, and All Nodes. The 'All Nodes' option is checked, indicated by a checked checkbox icon next to it.

Department	Budget
Corporate Headquarters	\$1,000,000
Sales and Marketing	\$22,000
Finance	\$40,000
Engineering	\$1,100,000

2. Select the required option from the context menu.

To calculate summaries against all nodes, ensure that the **All Nodes** menu check item is checked. To calculate summaries against root nodes only, uncheck the **All Nodes** check item.

Apply Cell Conditional Formatting

You can highlight certain column cells that meet a specific condition using the **Conditional Formatting** menu. To invoke this menu, right-click the column to which a formatting rule should be applied and select **Conditional Formatting**.

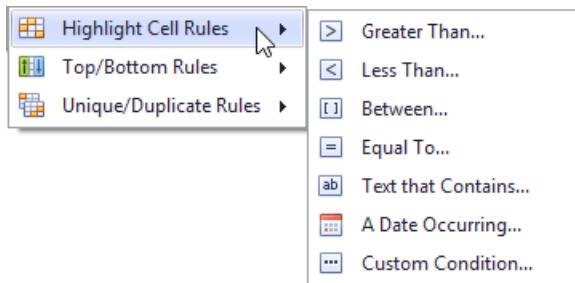
The screenshot shows a Microsoft Excel spreadsheet with a table titled "Sales". The columns are "Region", "March", "September", "Change From Prior Year", and "Current Market Share". A context menu is open over the "March" column header, listing options like "Sort Ascending", "Sort Descending", "Clear Sorting", "Column/Band Chooser", "Best Fit", "Best Fit (all columns)", and "Conditional Formatting". The "Conditional Formatting" option is highlighted with a mouse cursor.

Sales		Change From Prior Year		Current Market Share
Region	March	September	March	Market Share
Western Europe			-5.50 %	70 %
Eastern Europe			5.67 %	62 %
Belarus			-12.65 %	34 %
Bulgaria			17.46 %	80 %
Croatia			7.62 %	29 %
Czech Republic			16.77 %	13 %
Hungary			24.08 %	14 %
Poland			-36.62 %	52 %
Romania	22500	24580	Highlight Cell Rules	30 %
Russia	31400	32800	Top/Bottom Rules	85 %
North America	31400	32800	Unique/Duplicate Rules	84 %
USA	31400	32800	Data Bars	64 %
Canada	25390	27000	Color Scales	32 %
South America	16380	17590	Icon Sets	88 %
Argentina	16380	17590		10 %
Brazil	4560	9480		

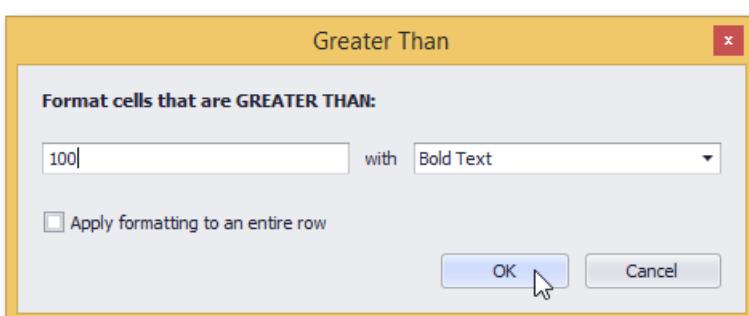
Available format rules are displayed when expanding the **Conditional Formatting** menu. Different options are supported for different columns (depending on the type of data a clicked column displays).

Highlighting Cells that Meet a Specific Condition

- Choose the **Highlight Cell Rules** menu item.

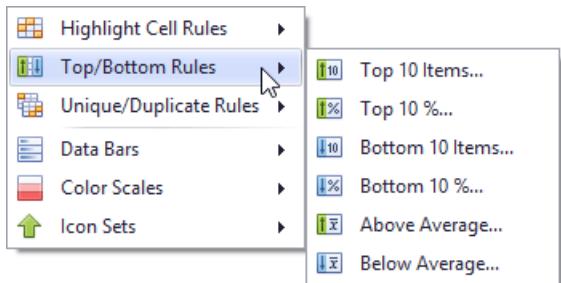


- Select the condition type. You can use one of the predefined conditions (the **Greater Than...**, **Less Than...**, **Between...** and **Equal To...** menu items), provide a custom condition (the **Custom Condition...** item) or format cells that contain the specified text (**Text that Contains...**) or refer to a certain date interval(s) (**A Date Occurring...**).
- Based on the selected condition type, an appropriate dialog window is invoked. You need to either enter a constant to be compared with the column's values, or select desired check boxes related to dates, or construct a custom condition in the dedicated editor. After that, choose a format style in the dropdown list, and click the **OK** button. To apply formatting to an entire row instead of a single cell, select the corresponding check box.

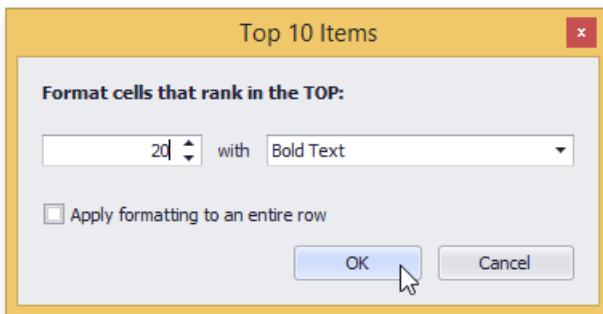


Highlighting Top or Bottom Cell Values

- Choose the **Top/Bottom Rules** menu item.

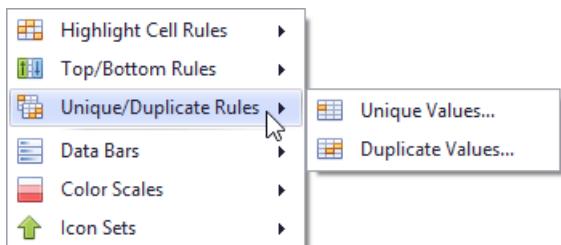


- Select the rule type. You can highlight cells that contain the highest or lowest values (the **Top 10%...**, **Bottom 10%...**, **Top 10 Items...** and **Bottom 10 Items...** menu items), and values that are above or below the column's average (**Above Average** and **Below Average**).
- According to the selected rule type, an appropriate dialog window is invoked. Enter a cutoff value (where required), choose a format style in the dropdown list, and click the **OK** button. To apply formatting to an entire row instead of a single cell, select the corresponding check box.

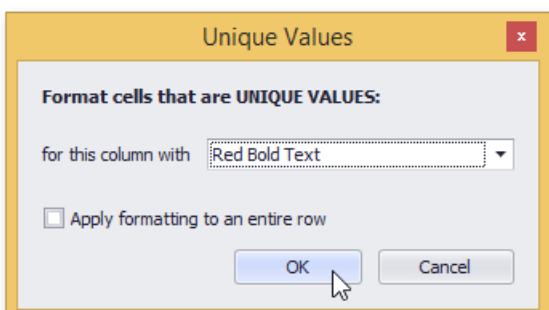


Highlighting Unique or Duplicate Cell Values

- Choose the **Unique/Duplicate Rules** menu item.



- Select the rule type.
- In the invoked dialog window, choose a format style in the dropdown list, and click the **OK** button. To apply formatting to an entire row instead of a single cell, select the corresponding check box.



Highlighting Cells Using Data Bars

A data bar fills a cell according to the ratio of the cell's value to the highest and smallest column values. A longer bar corresponds to a higher value, and a shorter bar corresponds to a lower value.

To apply a data bar format, do the following:

- Choose the **Data Bars** menu item.

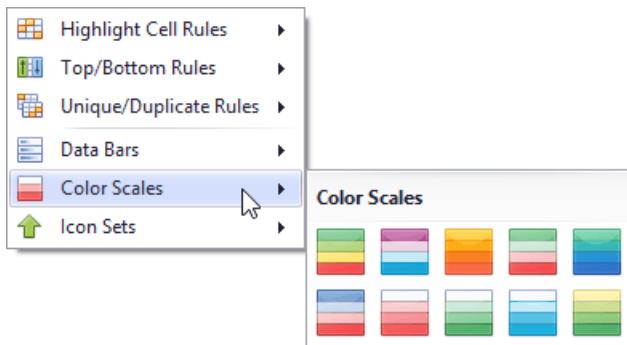


- Select the bar style format. Solid bars and bars with gradient fills are available in various colors.

Applying Color Scales

This format shows data distribution and variation using color scales. A cell is filled with the background color that is calculated according to the ratio of the cell's value to the highest and smallest column values. A two-color scale specifies two colors, which represent the minimum and maximum column values. Cell values residing between the minimum and maximum values are painted using a shade of these colors. A three-color scale additionally defines a color for the middle value and so, uses a gradation of three colors.

- Choose the **Color Scales** menu item.



- Select one of the predefined two or three-color scales.

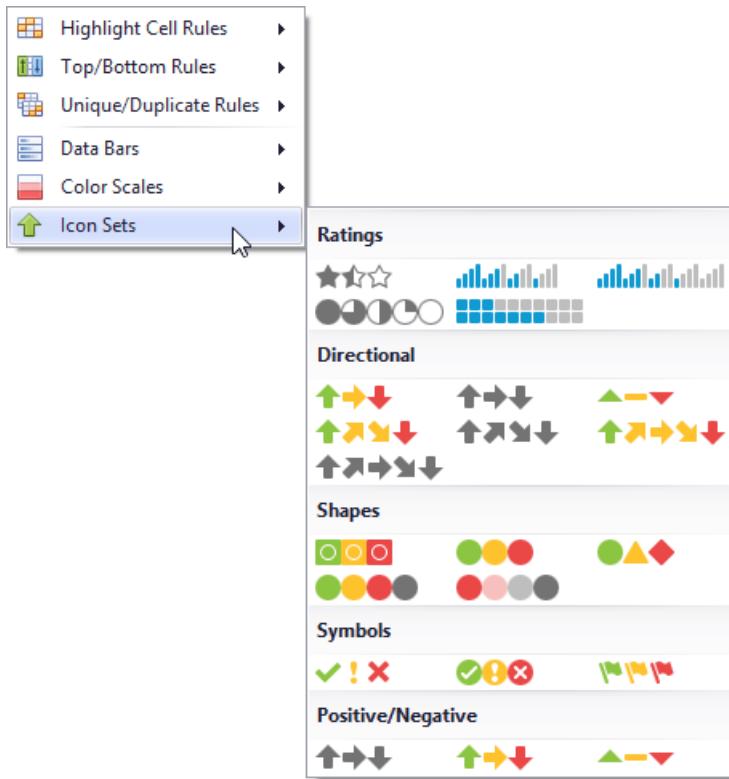
Highlighting Cells Using Predefined Icons

Icon sets allow you to classify column values into several ranges separated by threshold values, and display a specific icon in a column cell according to the range to which this cell value belongs. In the **Positive/Negative** group, the available icon sets divide column values into three ranges: positive values, negative values and values equal to zero.

Other icon sets divide column values into three, four or five ranges, displaying a specific icon for each range. If an icon set contains three icons, the ranges are as follows: [0%-33%), [33%-67%) and [67%-100%], where 0% corresponds to the smallest

column value and 100% corresponds to the largest column value. The icon sets with four icons classify column values into four ranges: [0%-25%), [25%-50%), [50%-75%) and [75%-100%). For the icon sets that contain five icons, the target ranges are: [0%-20%), [20%-40%), [40%-60%), [60%-80%) and [80%-100%].

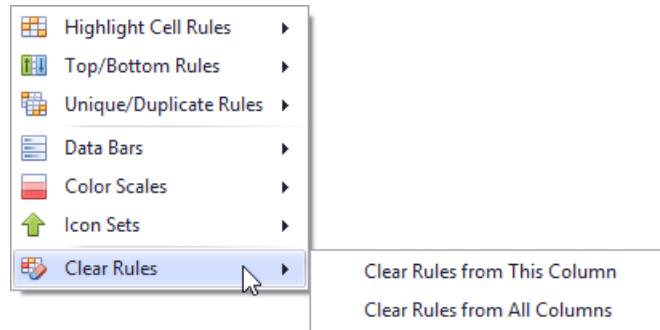
- Choose the **Icon Sets** menu item.



- Select one of the predefined icon sets.

Deleting Rules

If you have already applied one or more rules to columns, the additional **Clear Rules** item is displayed at the second level of the **Conditional Formatting** menu.



You can do one of the following.

- To delete conditional formatting rules from the target column, click the **Clear Rules from This Column** menu item. If the column has no rules applied to it, this item is not shown.

or
- To delete formatting rules from all columns, click the **Clear Rules from All Columns** menu item .

Expand and Collapse Nodes in a Tree List

Expand and Collapse Nodes

Do one of the following:

- Focus the node and then press PLUS on the keyboard to expand the node, and MINUS to collapse the node.
- Click the node's expand button.

	Department	Location
▶	Corporate Headquarters	Monterey
▶	Sales and Marketing	San Francisco
▶	Finance	Monterey
▶	Engineering	Monterey

- Double-click the indicator cell corresponding to the node.

	Department	Location
▶	Corporate Headquarters	Monterey
▶	Sales and Marketing	San Francisco
▶	Finance	Monterey
▶	Engineering	Monterey

Indicator Cells

Expand Nodes Recursively

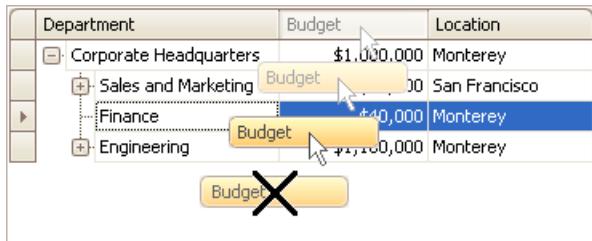
To expand a node and all its child nodes that have nested nodes, focus the node and press MULTIPLY on the keyboard.

Hide and Display Tree List Columns

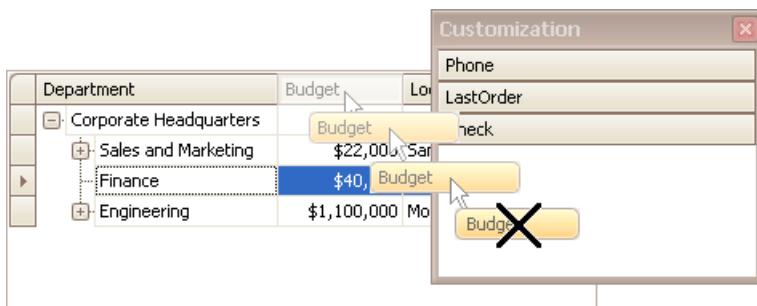
Hide Columns

Do one of the following:

- Click a column header and drag it outside the header panel, until the cursor changes its image to the big 'X'. Then drop the header.

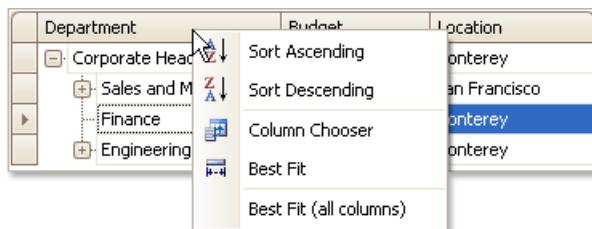


- Drag and drop a column header onto the Customization Form if it's open (see below).



Display Hidden Columns

- Open the Customization Form by right-clicking a column header and selecting **Column Chooser**.



The Customization Form will be displayed listing hidden columns (if any).



- Drag the required column from the Customization Form onto the column header panel and drop it at the required position.



Reorder Tree List Columns

To reorder columns, drag and drop a column header to a new position.



A screenshot of a Windows application window titled "Reorder Tree List Columns". Inside, there is a tree list control with a hierarchical structure. The columns are labeled "Department", "Budget", "Budget", "Location", and "Budget". The "Budget" column headers are highlighted with yellow backgrounds and blue borders. A mouse cursor is shown dragging the third "Budget" header towards the right, indicating the process of reordering the columns. The data rows show departments like "Corporate Headquarters", "Sales and Marketing", "Finance", and "Engineering" with their respective budget values and locations.

Department	Budget	Budget	Location	Budget
Corporate Headquarters	\$1,000,000		Monterey	
Sales and Marketing		\$22,000	San Francisco	
Finance		\$40,000	Monterey	
Engineering	\$1,100,000		Monterey	

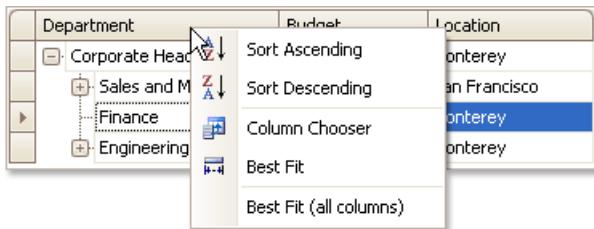
Resize Tree List Columns

To resize columns, drag the right edge of the target column header:

Department	Budget	Location
Corporate Headquarters	\$1,000,000	Monterey
Sales and Marketing	\$22,000	San Francisco
Finance	\$40,000	Monterey
Engineering	\$1,100,000	Monterey

To change a column's width so that it displays its contents compactly in their entirety, do one of the following:

- Double-click the right edge of the column header.
- Right-click the column's header and select **Best Fit**.



To change the widths of all columns so that they display their contents in the best possible way, right-click the header of any column and select **Best Fit (all columns)**.

Navigation in a Tree List

ACTION	DESCRIPTION
Clicking a data cell	Moves focus to the clicked cell.
ARROW keys	Moves focus to the next cell in the corresponding direction.
HOME	Moves focus to the first cell within the focused node.
END	Moves focus to the last cell within the focused node.
PAGE UP	Moves focus one page up.
PAGE DOWN	Moves focus one page down.
CTRL+HOME	Moves focus to the first cell within the first node.
CTRL+END	Moves focus to the last cell within the last node.
TAB or CTRL+TAB	Moves focus away from the TreeList to the next control, in tab order.
SHIFT+TAB	Moves focus away from the TreeList to the previous control, in tab order.
CTRL+RIGHT ARROW	Expands the focused node.
CTRL+LEFT ARROW	Collapses the focused node.

You can also click node indicator cells to move focus to the corresponding row while preserving column focus.

Department	Location
Corporate Headquarters	Monterey
Sales and Marketing	San Francisco
Finance	Monterey
Engineering	Monterey

Indicator Cells

Select Tree List Nodes

Change Focused Node

To focus a node and clear the existing selection, do one of the following.

- Click the node's indicator cell or any of its data cells.



- Select the node using the ARROW keys.

Select Multiple Nodes

To select a node while preserving the current selection, click the node's indicator cell or any of its data cells, while holding the CTRL key down.

To toggle the focused node's selected state, do one of the following.

- Press CTRL+SPACE.
- Click the node while holding the CTRL key down.

To move focus between nodes while preserving the current selection, use CTRL+ARROW keyboard shortcut.

Vertical Grid

This section describes the capabilities provided by Vertical Grids (Property Grids).

The screenshot displays a vertical grid interface with three main sections:

- Employee:** A table with four columns. Row 1: First Name (Margaret), Last Name (Peacock), Title (Sales Representative), Title Of Courtesy (Mrs.). Row 2: First Name (Steven), Last Name (Buchanan), Title (Sales Manager), Title Of Courtesy (Mr.). Row 3: First Name (Laura), Last Name (Callahan), Title (Inside Sales Coordinator), Title Of Courtesy (Ms.).
- Address:** A table with eight columns. Row 1: City (Redmond), Region (WA), Postal Code (98052), Country (USA). Row 2: City (London), Region (UK), Postal Code (SW1 8JR), Country (USA). Row 3: City (Seattle), Region (WA), Postal Code (98105), Country (USA). Row 4: Home Phone (206) 555-8122, Home Phone (71) 555-4848, Home Phone (206) 555-1189.
- Photo & Notes:** A grid of four photo thumbnails. The first thumbnail has a "Photo" label below it. The other three thumbnails show individual portraits.

Data Editing

- [Edit Cells in Vertical Grids](#)

Layout Customization

- [Expand and Collapse Rows in Vertical Grids](#)
- [Resize Rows and Columns in Vertical Grids](#)

Navigation

- [Navigation in Vertical Grids](#)

Edit Cells in Vertical Grids

Activate Cell Editor

Do one of the following:

- Click a cell.
- Focus a cell (for instance, via the keyboard), and press ENTER or F2.
- Focus a cell and press any alpha-numeric key. The editor will be invoked and its contents will be replaced with the pressed character.

Select and Deselect Cell Text

Press F2 or CTRL+A.

Close Cell Editor and Accept Changes Made

Do one of the following:

- Press ENTER.
- Click any other grid cell.
- Focus any other control.

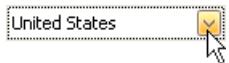
Discard Changes

To discard changes made in a cell, press ESC.

Open Cell Editor's Dropdown

Do one of the following:

- Activate a cell editor and press ALT+DOWN ARROW or F4.
- Click the editor's dropdown button:



Close Cell Editor's Dropdown

For all editors providing a dropdown, you can close the dropdown by pressing ALT+DOWN ARROW.

If the calculator is displayed in the dropdown, it can be closed via CTRL+ENTER.

Dropdowns displaying lists of items can be closed by clicking an item with the mouse, or by selecting an item with the keyboard and pressing ENTER.

Change Values

Change Date/Time Values

You can edit these cell values without opening the dropdown calendar. Position the caret at the portion of a date/time value that needs to be changed. To increment the value, press CTRL+UP ARROW. To decrement the value, press CTRL+DOWN ARROW.

Change Numeric Values

To increment the value, press CTRL+UP ARROW. To decrement the value, press CTRL+DOWN ARROW.

Change Values of Cells That Provide Dropdown Items

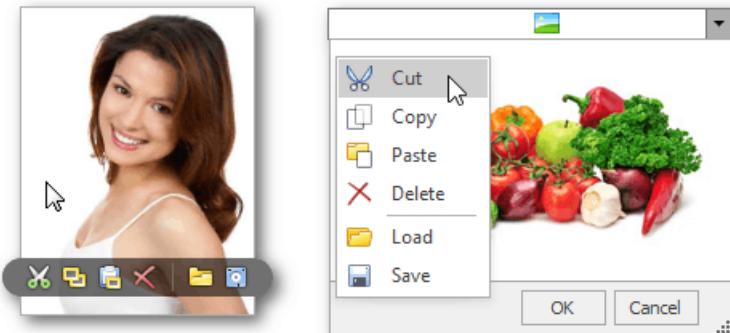
To select the previous value, press CTRL+UP ARROW. To select the next value, press CTRL+DOWN ARROW.

NOTE

This feature is not applicable to all editors.

Edit Images

To copy, cut, paste, load and save images in image editors, right click the image and select the required command via the context menu:

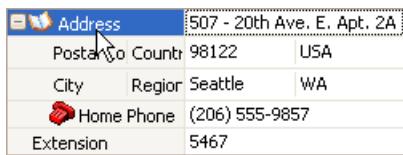


Expand and Collapse Rows in Vertical Grids

Expand and Collapse Data Rows

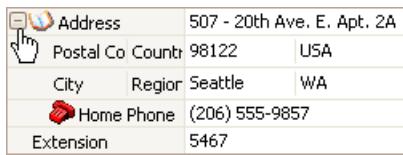
Do one of the following:

- Focus the row and then press PLUS on the keyboard to expand the row, and MINUS to collapse the row.
- Double-click the row's header.



	Address	507 - 20th Ave. E. Apt. 2A
Postal Co	Co Count	98122 USA
City	Region	Seattle WA
	Home Phone	(206) 555-9857
Extension		5467

- Click the row's expand button.

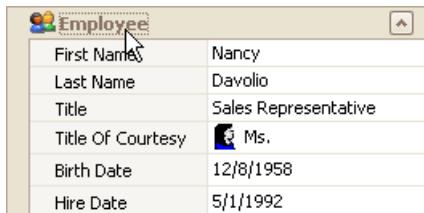


	Address	507 - 20th Ave. E. Apt. 2A	
	Postal Co	Co Count	98122 USA
City	Region	Seattle WA	
	Home Phone	(206) 555-9857	
Extension		5467	

Expand and Collapse Category Rows

Do one of the following:

- Focus the row and press PLUS on the keyboard to expand the row, and MINUS to collapse the row.



Employee	
First Name	Nancy
Last Name	Davolio
Title	Sales Representative
Title Of Courtesy	Ms.
Birth Date	12/8/1958
Hire Date	5/1/1992

- Double-click the row.
- Click the row's expand button.



Employee	
First Name	Nancy
Last Name	Davolio
Title	Sales Representative
Title Of Courtesy	Ms.
Birth Date	12/8/1958
Hire Date	5/1/1992

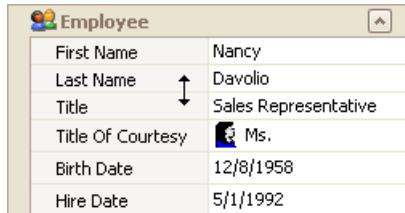
Expand Rows Recursively

To expand a row and all its child rows that have nested rows, focus the row and press MULTIPLY on the keyboard.

Resize Rows and Columns in Vertical Grids

Resize Rows

To resize a row, drag the row header's bottom edge vertically.

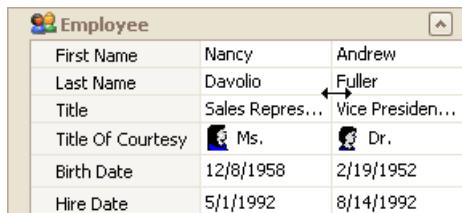


A screenshot of a vertical grid titled "Employee". The grid has six rows with the following data:

First Name	Nancy
Last Name	Davolio
Title	Sales Representative
Title Of Courtesy	Ms.
Birth Date	12/8/1958
Hire Date	5/1/1992

Resize Columns

To resize data columns, drag a separator between data columns horizontally.

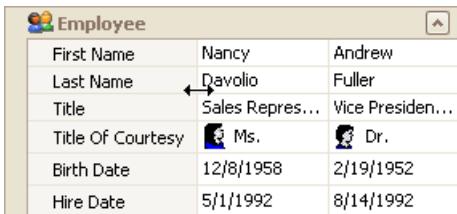


A screenshot of a vertical grid titled "Employee". The grid has six rows with the following data:

First Name	Nancy	Andrew
Last Name	Davolio	Fuller
Title	Sales Repres...	Vice Presiden...
Title Of Courtesy	Ms.	Dr.
Birth Date	12/8/1958	2/19/1952
Hire Date	5/1/1992	8/14/1992

To resize the header column, do one of the following.

- Drag the header column's right edge.



A screenshot of a vertical grid titled "Employee". The grid has six rows with the following data:

First Name	Nancy	Andrew
Last Name	Davolio	Fuller
Title	Sales Repres...	Vice Presiden...
Title Of Courtesy	Ms.	Dr.
Birth Date	12/8/1958	2/19/1952
Hire Date	5/1/1992	8/14/1992

- Press CTRL+LEFT ARROW to decrease the header column's width. Press CTRL+RIGHT ARROW to increase the header column's width.
- To resize headers to the minimum width while making sure all content is visible, double-click a header's right edge.

Navigation in Vertical Grids

ACTION	DESCRIPTION
Clicking a data cell	Moves focus to the clicked cell.
Clicking a row header	Moves focus to the corresponding row while preserving column focus.
ARROW keys	Moves focus to the next cell in the corresponding direction.
TAB, SHIFT+TAB	Moves focus to the next/previous cell.
HOME, END	Moves focus to the first/last cell within the current row.
PAGE UP, PAGE DOWN	Moves focus one page up or down.
CTRL+HOME	Moves focus to the first cell of the grid control.
CTRL+END	Moves focus to the last cell of the grid control.
CTRL+TAB	Moves focus away from the control to the next control, in tab order.