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Web Dashboard - Designer Mode

The **Web Dashboard** allows you to create dashboards in a web browser and provides an intuitive UI that facilitates data binding, shaping, layout design, etc. Many of these normally complex tasks can be accomplished with a simple drag-and-drop operation, allowing you to start creating dashboards immediately.

The screenshot shows the 'Dashboard Designer - ASI' application window. The main area displays a dashboard titled 'Revenue Analysis' containing three components: a bar chart showing Revenue from 2013 to 2015, a pie chart showing Revenue distribution across categories (Bikes, Clothing, Accessories, Components), and a table of sales data. To the left is a sidebar with icons for 'COMMON', 'MAPS', 'FILTER', and 'VIEWER'. A context menu is open over the pie chart, listing options like 'VALUES', 'ARGUMENTS', 'SERIES', 'HIDDEN DIMENSIONS', 'HIDDEN MEASURES', and 'DATA & FILTERING'. The 'VIEWER' section of the sidebar is highlighted.

Creating Dashboards

The following topics will guide you through the process of creating a dashboard.

- [Creating a Dashboard](#)
- [Providing Data](#)
- [Adding Dashboard Items](#)
- [Binding Dashboard Items to Data](#)
- [Designing Dashboard Items](#)
- [Data Shaping](#)
- [Interactivity](#)
- [Appearance Customization](#)
- [Data Analysis](#)
- [Converting Dashboard Items](#)
- [Dashboard Layout](#)
- [Undo and Redo Operations](#)
- [Saving a Dashboard](#)
- [Opening a Dashboard](#)

Exporting

The Web Dashboard provides the capability to export the individual items of a dashboard, as well as the entire dashboard.

- [Exporting](#)

UI Elements

The topics in this section describe the main elements of the Web Dashboard.

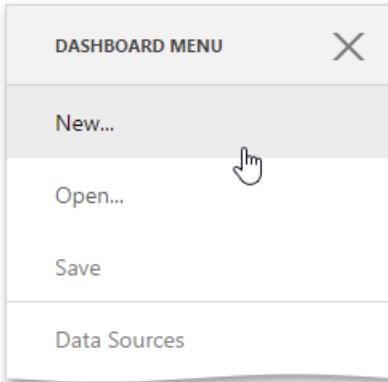
- [UI Elements](#)

Creating a Dashboard

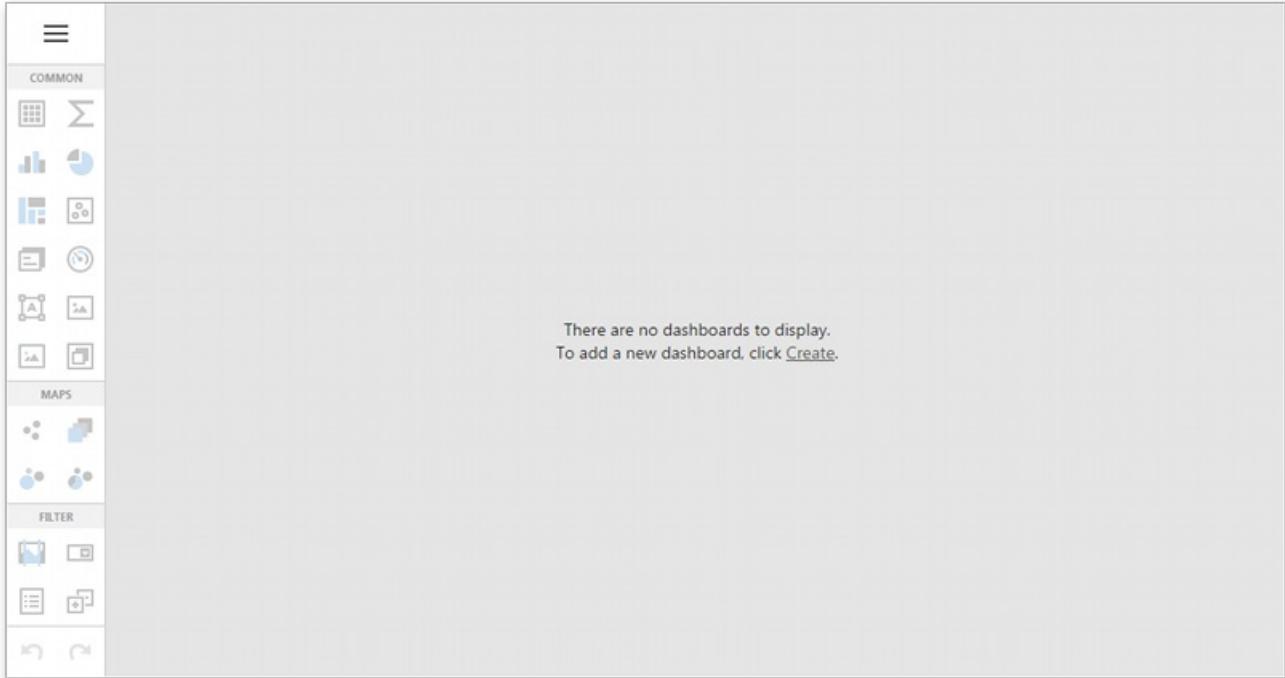
The Web dashboard allows you to embed the user interface required for creating dashboards at runtime.

You can create a new dashboard in two ways.

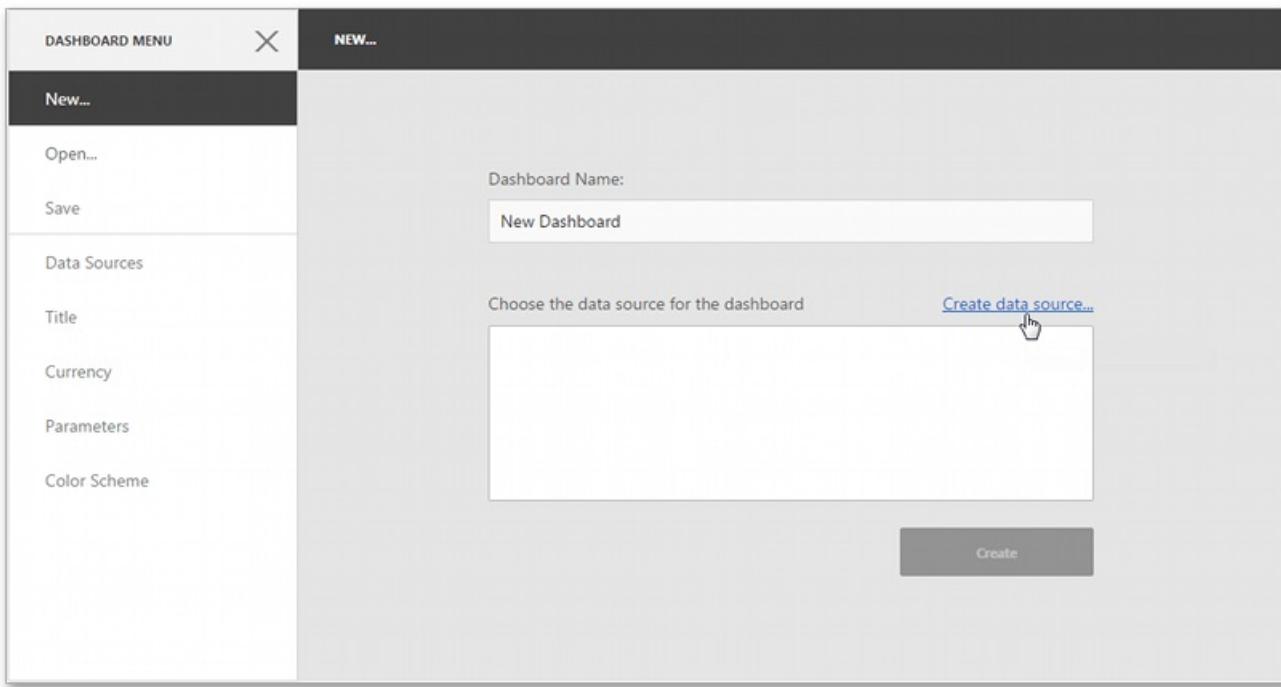
- You can open the [dashboard menu](#) and click the **New** button...



- ...or click **Create** in the following message if your application does not have any dashboards.



After that the **New...** page is invoked. Here you can set a dashboard name, [create a new data source](#) or [connect to an existing data source](#).



To learn how to provide data for the created dashboard, see [Providing Data](#).

Providing Data

Topics in this section describe how to connect dashboards to data sources and work with the connected data.

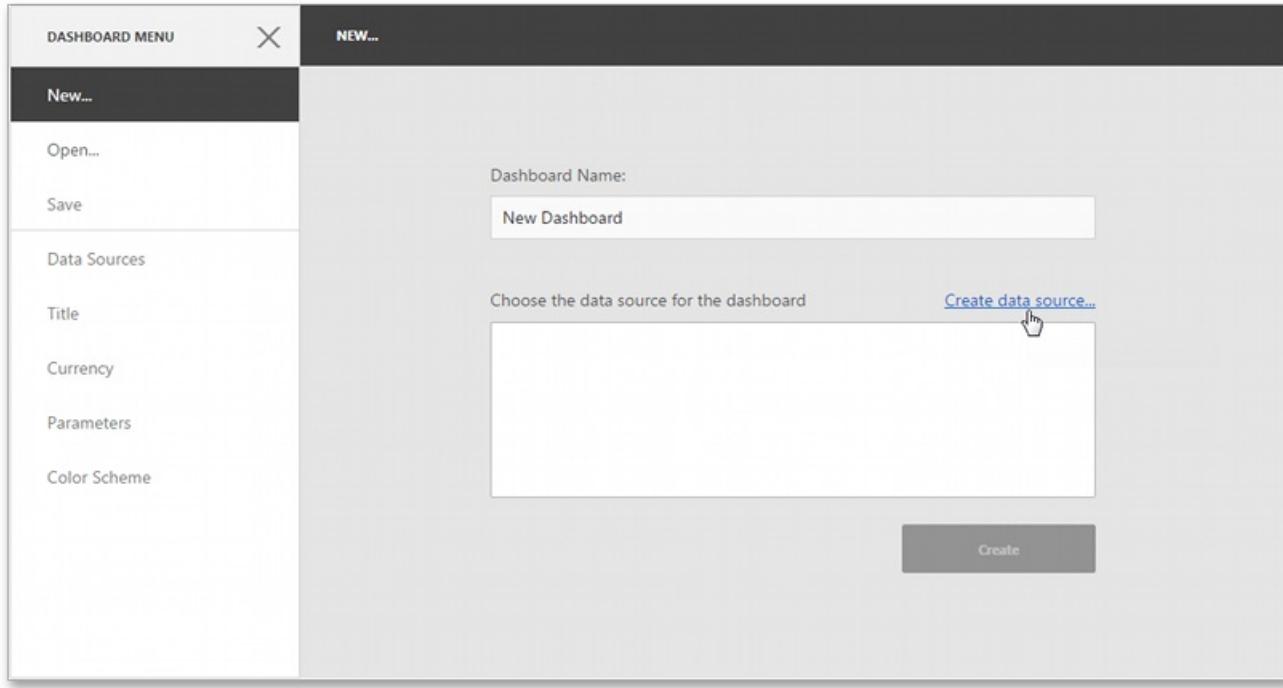
- [Create a New Data Source](#)
- [Connect to an Existing Data Source](#)
- [Manage Data Sources](#)
- [Working with SQL Data Sources](#)
- [Filter Data Sources](#)
- [Calculated Fields](#)

Create a New Data Source

This topic describes how to create a new data source based on the existing data connection.

Create a Data Source for a New Dashboard

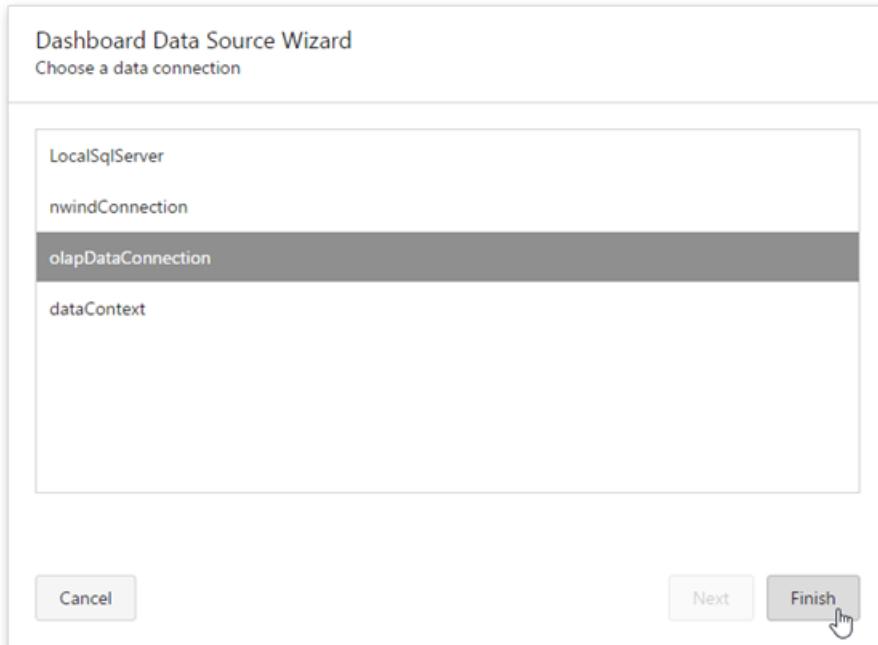
After [creating](#) a new dashboard, the **New** page of the [dashboard menu](#) is invoked. Click the **Create data source...** button to invoke the [Dashboard Data Source Wizard](#) where you can select the required connection.



Note

The SQL data connection requires a query or a stored procedure for further work. To learn more about managing queries, see [Manage SQL Queries](#).

Click **Finish** to create a new data source based on the selected connection.



The next step is [connecting a dashboard to a data source](#).

Create a Data Source for the Existing Dashboard

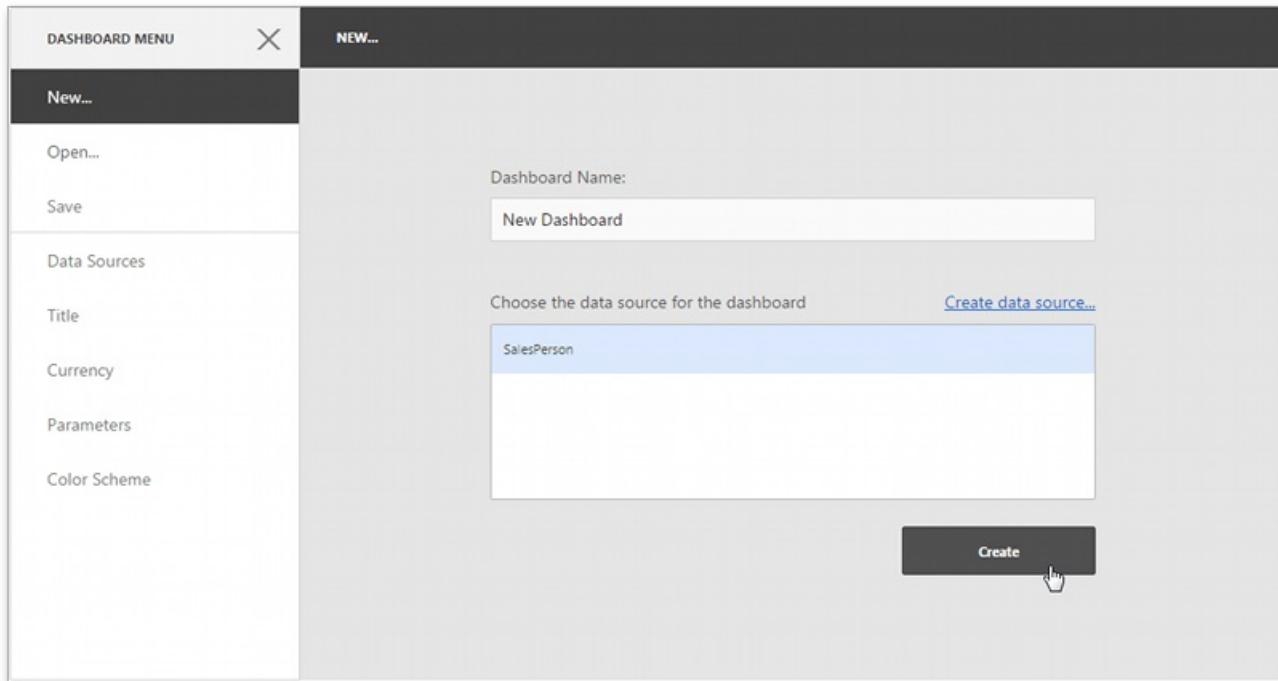
You can create a new data source based on the predefined connection for the existing dashboard. To learn more, see [Manage Data Sources](#).

Connect to an Existing Data Source

The Web Dashboard allows you to connect a dashboard to one of the existing data sources or add these data sources to the dashboard's data sources collection.

Connect a New Dashboard to an Existing Data Source

When you [create](#) a new dashboard, the **New** page of the [dashboard menu](#) is invoked and allows you to select the existing data source from the list.



This action creates a new empty dashboard that is bound to data. Now, you can [add dashboard items](#) and [bind them to data](#).

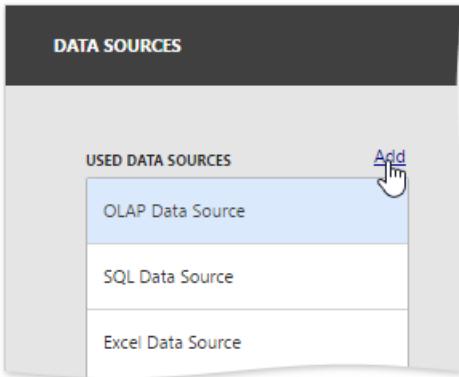
Add a New Data Source to the Existing Dashboard

You can add an existing data source to the dashboard. To learn more, see [Manage Data Sources](#).

Manage Data Sources

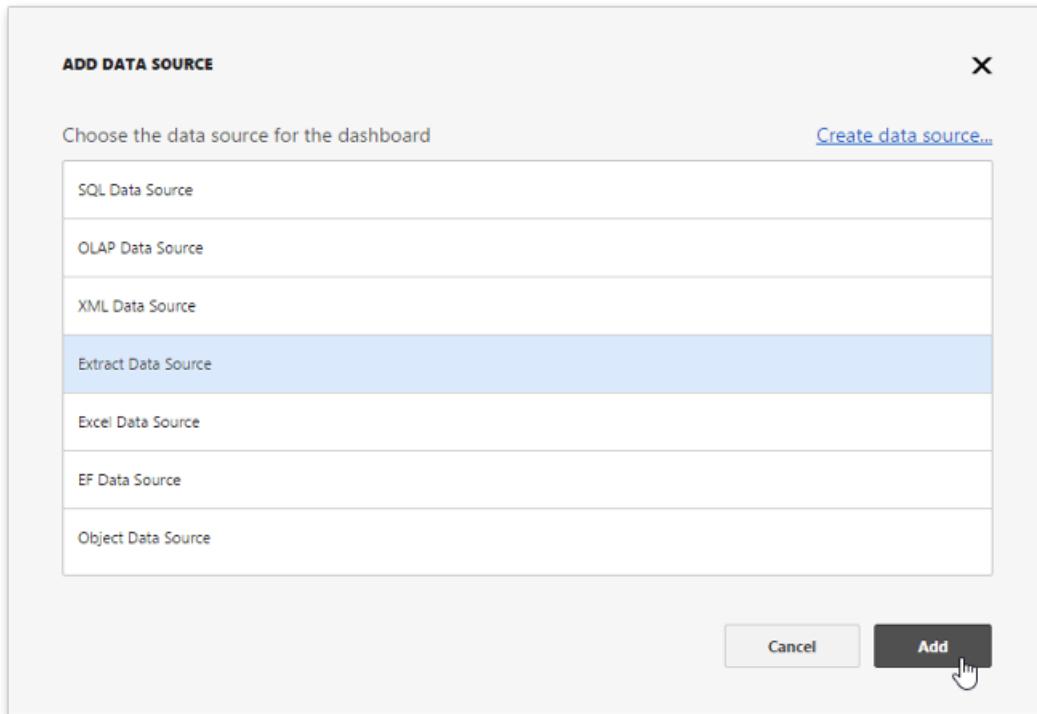
The Web Dashboard allows you to manage the dashboard's data sources. To do this, open the [dashboard menu](#) and go to the **Data Sources** page. Here you can add new data sources to the current dashboard or remove the existing data source.

To add a new data source, click **Add** next to the **Used Data Sources** list.



The **Add Data Source** window is invoked. Here you can perform the following actions.

- Click **Create** to invoke the [Dashboard Data Source Wizard](#) where you can create a new data source based on the predefined data connection.
- Select the existing data source from the list.



After that, click **Add** to add the selected data source to the dashboard data sources.

The added data source will be displayed in the **Used Data Sources** section. You can use the added data sources to [change the data source](#) of the created dashboard items.

To remove the existing data source from the dashboard data sources, click **Remove** (the icon).

DATA SOURCES

USED DATA SOURCES

[Add](#)

SQL Data Source

Extract Data Source



Working with SQL Data Sources

Topics in this section describe how to work with data in a [connected SQL data source](#).

- [Manage SQL Queries](#)
- [Dashboard Data Source Wizard](#)
- [Query Builder](#)
- [Filter Queries](#)
- [Pass Query Parameters](#)
- [Stored Procedures](#)
- [Preview Data](#)

Manage SQL Queries

After you [connect](#) to the data source and select the required data, you can create new SQL queries or edit the existing queries in the SQL data sources. To manage data sources, open the dashboard menu and go to the **Data Sources** page.

The screenshot shows the 'DATA SOURCES' page. On the left, there's a sidebar with 'USED DATA SOURCES' and an 'Add' button. The main area displays a table of fields for a 'SalesPerson' query. The table has three columns: 'Field Name', 'Type', and 'Actions'. The fields listed are: CategoryName (Text), Country (Text), Discount (Float), OrderDate (DateTime), ProductName (Text), Quantity (Integer), Sales Person (Text), Total Sum (Decimal), and UnitPrice (Decimal). Each field row includes edit and delete icons in the 'Actions' column.

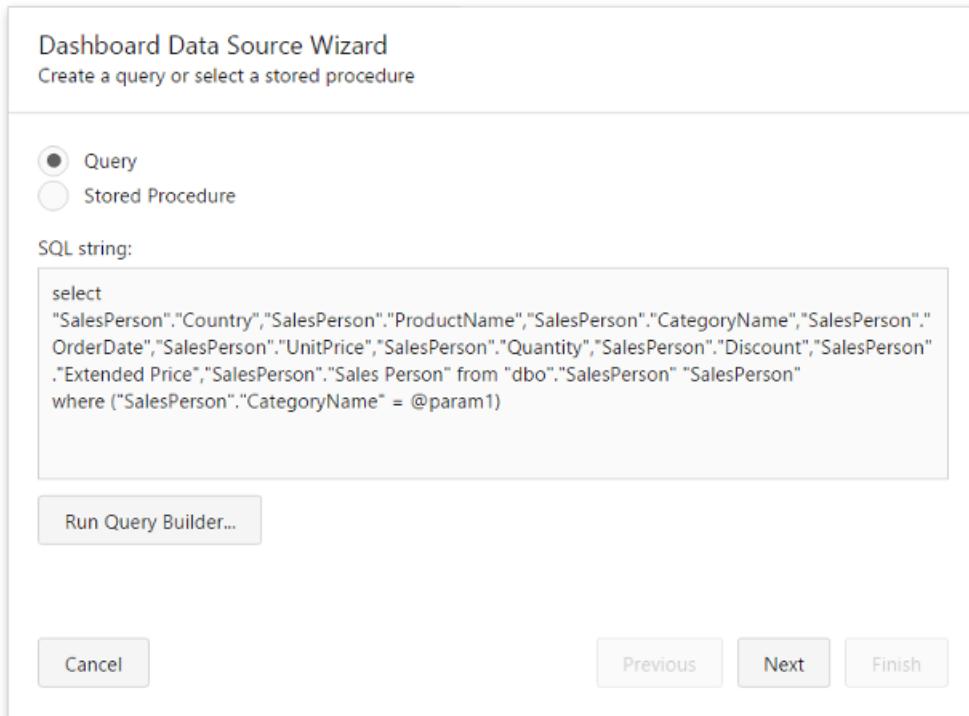
- SalesPerson		
CategoryName	Text	
Country	Text	
Discount	Float	
OrderDate	DateTime	
ProductName	Text	
Quantity	Integer	
Sales Person	Text	
Total Sum	Decimal	
UnitPrice	Decimal	

- To **add** a new query, click the **Add Query** button. This invokes the [Dashboard Data Source Wizard](#), where you can create a query, select a stored procedure or configure [query parameters](#).
- To **edit** the existing query, click the query's **Edit** button (the icon) in the Field List. This action invokes the [Dashboard Data Source Wizard](#).
- To **delete** the existing query or calculated field from a dashboard SQL data source, click the query's **Delete** button (the icon).

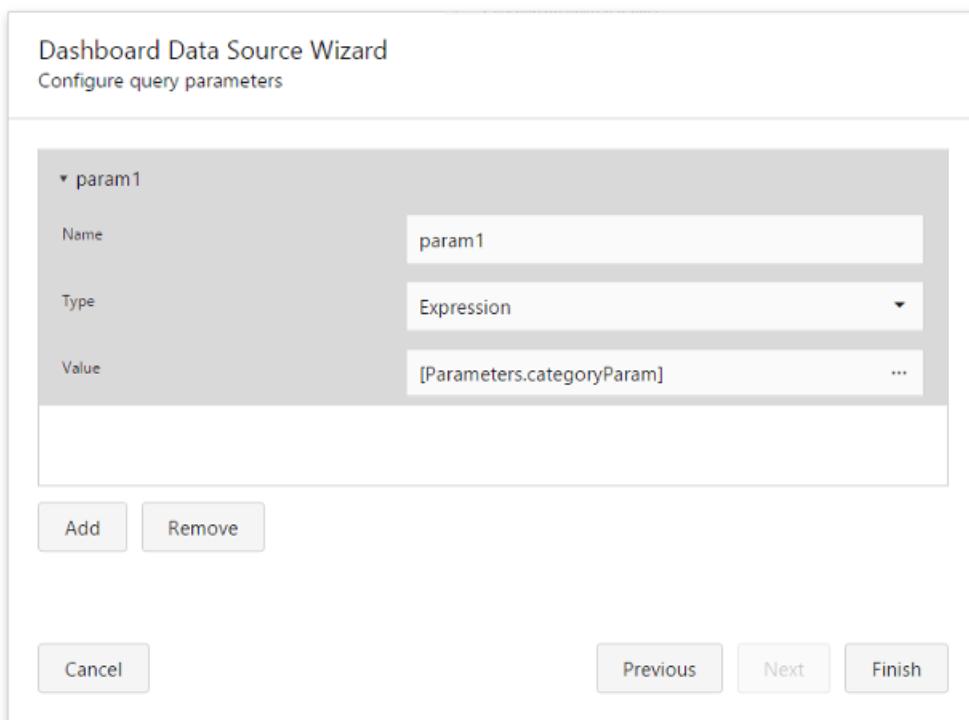
Dashboard Data Source Wizard

The **Dashboard Data Source Wizard** allows you to create a new data source or edit the existing data sources. To invoke this wizard, go to the **Data Sources** page of the [dashboard menu](#) and click the [Add Query](#) or [Edit Query](#) buttons.

The first page of the wizard allows you to create/edit a query or select a stored procedure. Click the **Run Query Builder...** button to launch the [Query Builder](#), which allows you to choose the required tables/columns visually and displays the resulting SQL query within the SQL String editor. The image below displays a generated query.



If the SQL query contains [query parameters](#), click **Next** to configure them.



Click **Finish** to create a new query. This query will be displayed in the field list.

DATA SOURCES

USED DATA SOURCES

[Add](#)

SQL Data Source

+ Orders

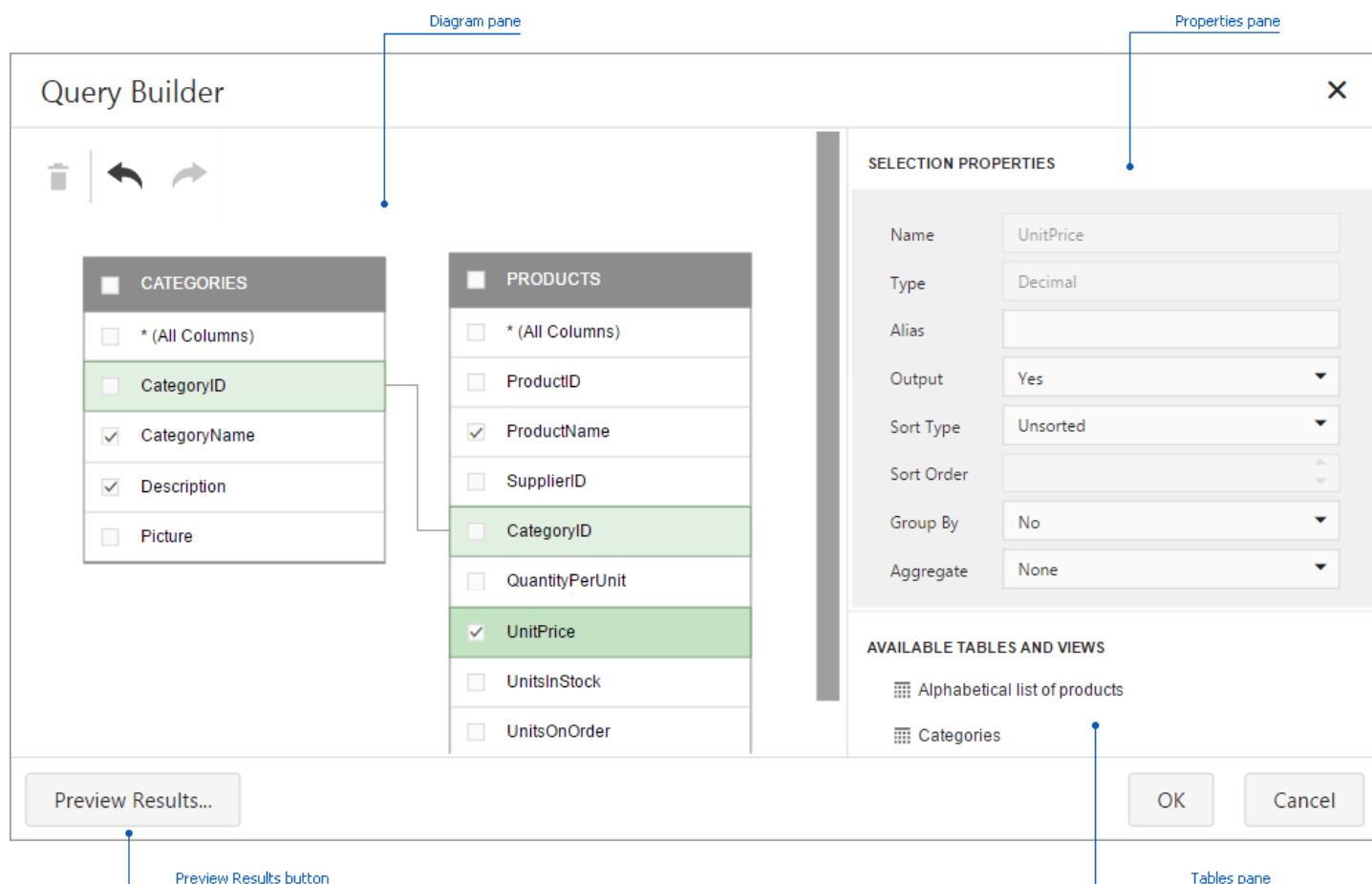
+ SalesPerson

[Add Query](#) [Add Calculated Field](#)



Query Builder

In the **Query Builder** dialog, you can add data tables and views to the data source, and select which columns to include. The **Query Builder** automatically joins the related tables, so all you need to do is drag-and-drop.

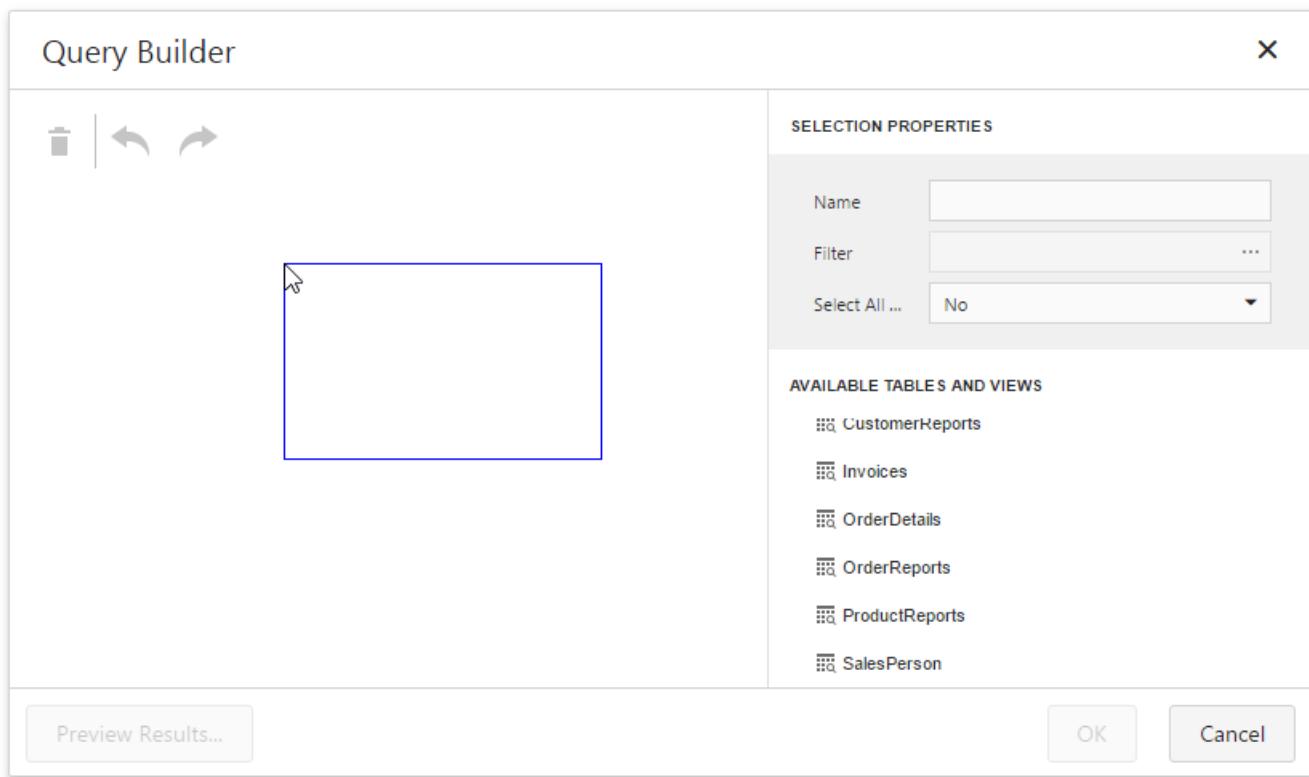


This topic consists of the following sections.

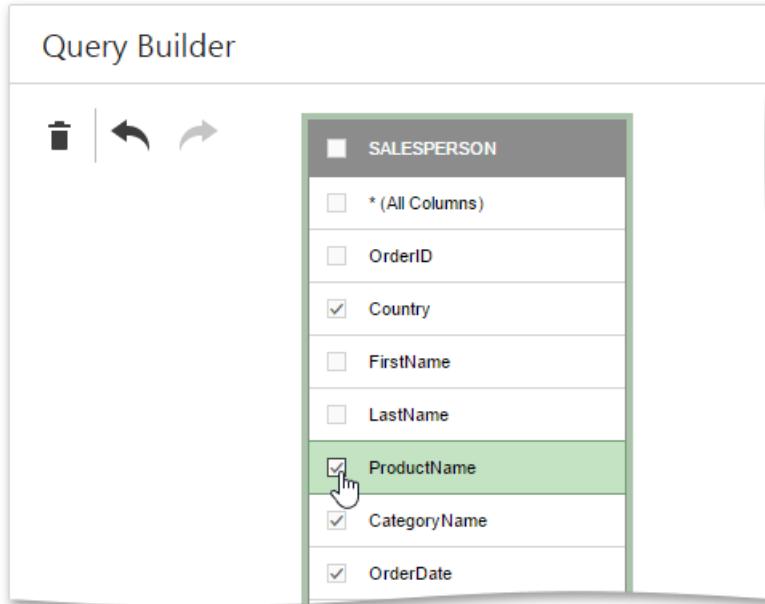
- [Add Tables](#)
- [Join Tables](#)
- [Edit Column Settings](#)
- [Filter Data](#)
- [Preview Data](#)

Add Tables

To add the required tables/views to a data source, drag-and-drop it from the **Tables** pane onto the **Diagram** pane.



Then, select the required columns.

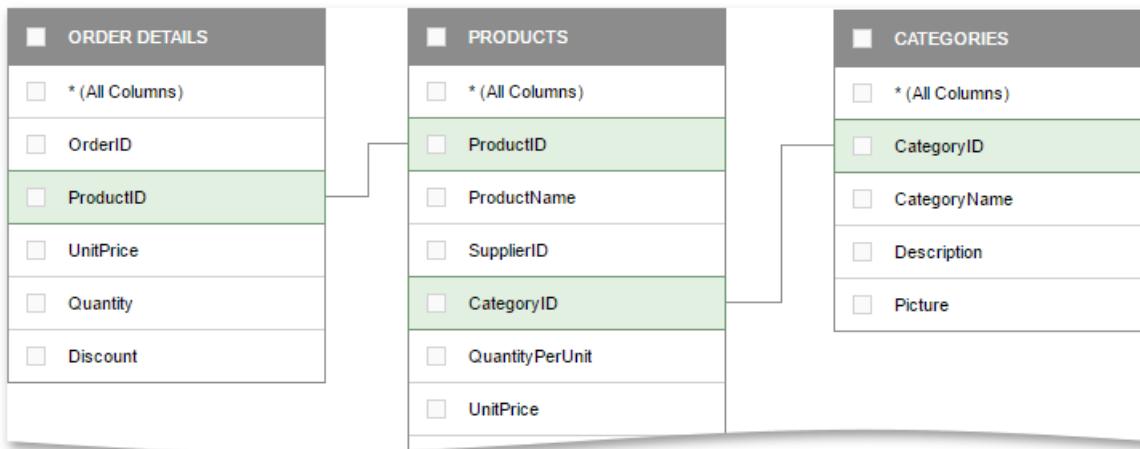


To delete the unnecessary table, select it and click the **Delete** button (the icon).

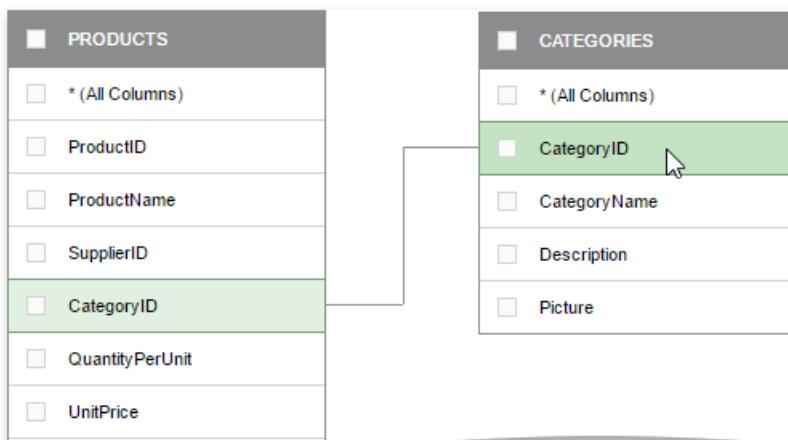
You can cancel or repeat the action using the **Undo/Redo** buttons (the and icons).

Join Tables

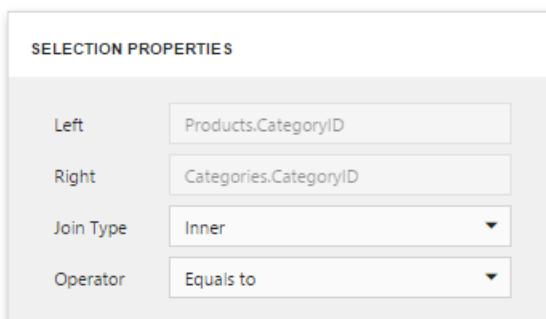
When you drop a table that has a relationship at the database level with any of the recently added tables, the **Query Builder** joins these tables automatically.



You can create a relationship between two tables manually by dragging a column in one table to a related column in a different table. A relationship line will be drawn between the two tables.



The Query Builder allows you to change the join type (if necessary). For this, select the relationship line and use the **Join type** combo box in the Properties pane. An **Inner join** and **Left outer join** are supported.



To delete the unnecessary relationship, select the relationship line and click the **Delete** button (the  icon).

Edit Column Settings

To edit a column setting, select the required column in a table. Then, use the **Properties** pane to specify the column setting.

The following settings are available for each column.

SELECTION PROPERTIES

Name	Extended Price
Type	Decimal
Alias	Price
Output	Yes
Sort Type	Ascending
Sort Order	1
Group By	No
Aggregate	Sum

- The **Name** field displays the selected column name.
- The **Type** field displays the selected column type.
- The **Alias** field allows you to specify the column alias.

Note

Note that aggregated columns should always have an alias.

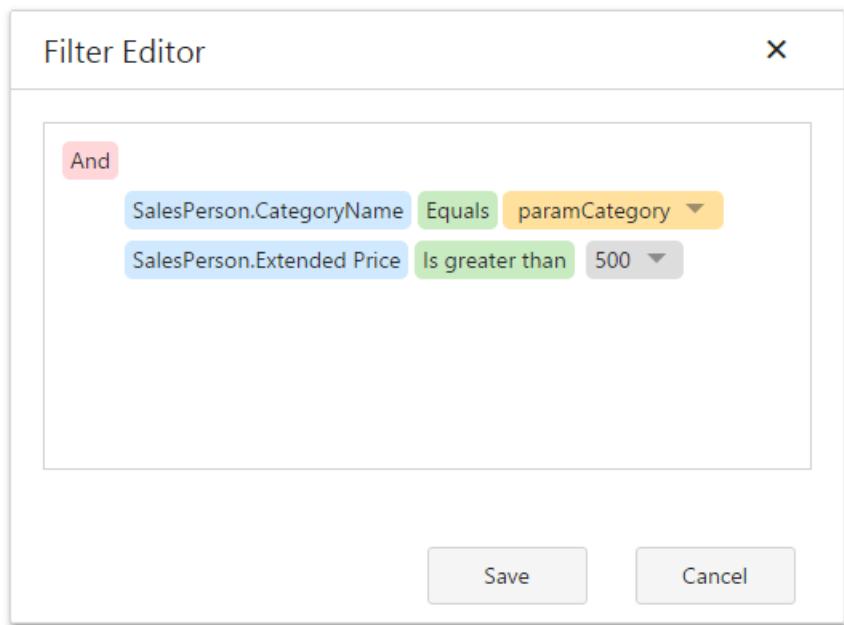
- The **Output** field allows you to choose whether to include the selected column to the query.
- Use **Sort Type** to specify the sort order of column values.
- The **Sort Order** field allows you to specify the order in which several columns are sorted.
- The **Group By** option allows you to group data by the values of the selected column.
- The **Aggregate** field allows you to specify the aggregate function used to aggregate column values.

Note

Note that you should apply aggregation/grouping either to all columns or to none of them.

Filter Data

The Query Builder allows you to filter a query. To do this, deselect tables and click the ellipsis button in the appeared **Filter** field in the **Properties** pane. This invokes the **Filter Editor** dialog, which provides a visual interface for constructing a filter string.



To learn more, see [Filter Queries](#).

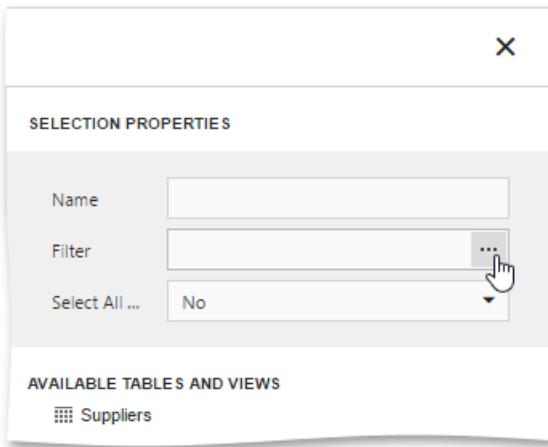
Preview Data

The Query Builder allows you to preview data for the created SQL query. To do this, click the **Preview Results...** button. This invokes the [Data Preview](#) window containing data returned after executing the query.

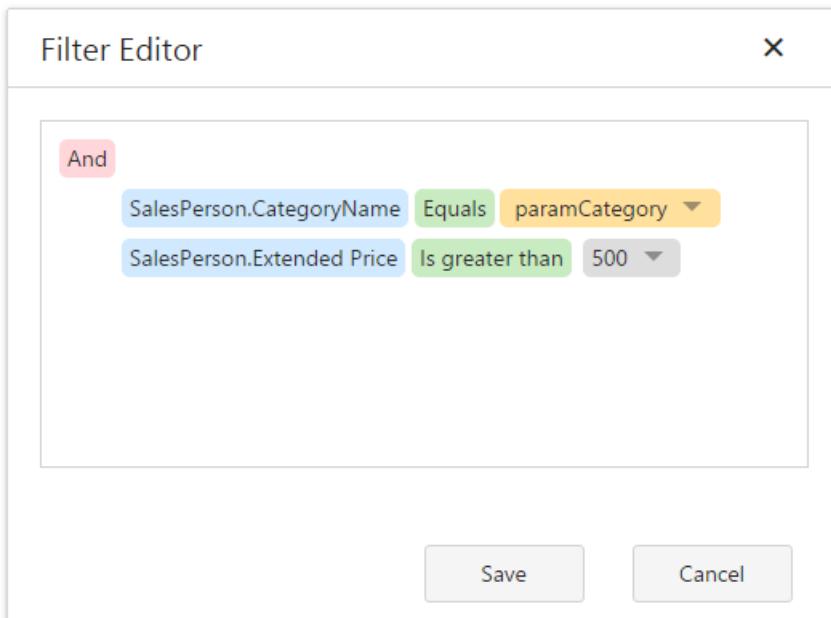
Filter Queries

SQL queries constructed in the [Query Builder](#) can be filtered by including the *WHERE* clauses to the query. Filtering can be applied to either underlying or aggregated data. You can also limit the number of returned records when filtering data.

To filter a query, deselect added tables and click the ellipsis button of the **Filter** field within the [Query Builder](#).



This will invoke the **Filter Editor** dialog, which allows you to build filter criteria.



You can create complex filter criteria with an unlimited number of filter conditions. These filter conditions can be arranged into groups with **And**, **Or**, **Not And**, and **Not Or** operators. The Filter Editor displays filter criteria as a tree-like structure, in which each node can be edited separately.

In the Filter Editor, you can compare a field value with the following objects.

- **Value** - represents a static value.
- **Property** - represents another field value.
- **Parameter** - represents a parameter value. Click the **Create new parameter** button to create a new parameter and specify its name. To learn how to configure the created parameter, see [Pass Query Parameters](#).

To switch between values, click a down arrow glyph in the operand value placeholder to expand the list of available objects.

Enter a value



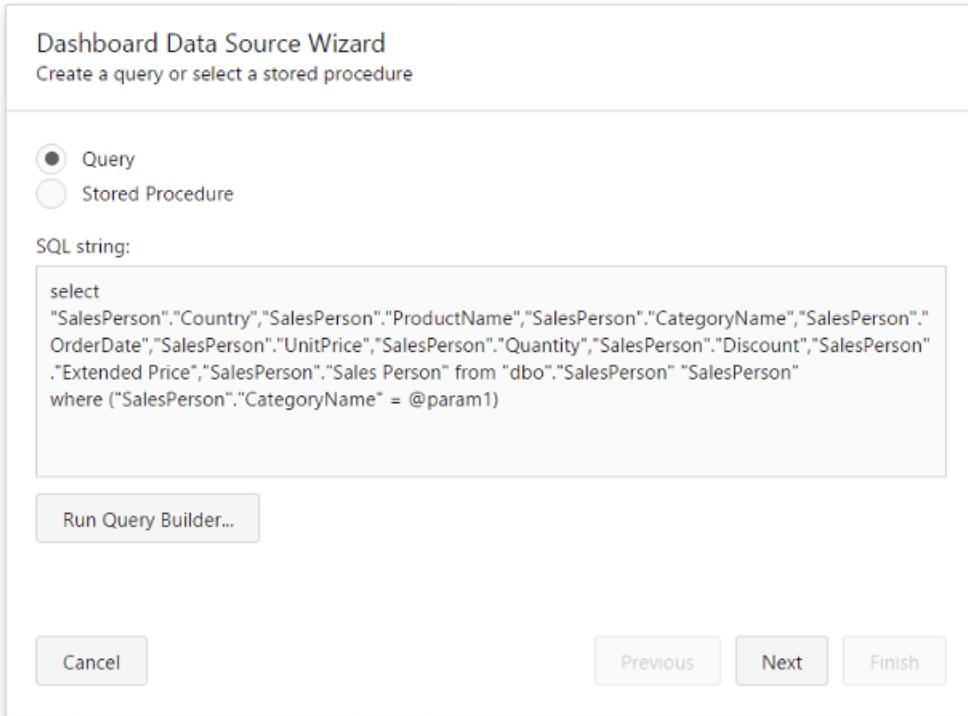
Value

Property

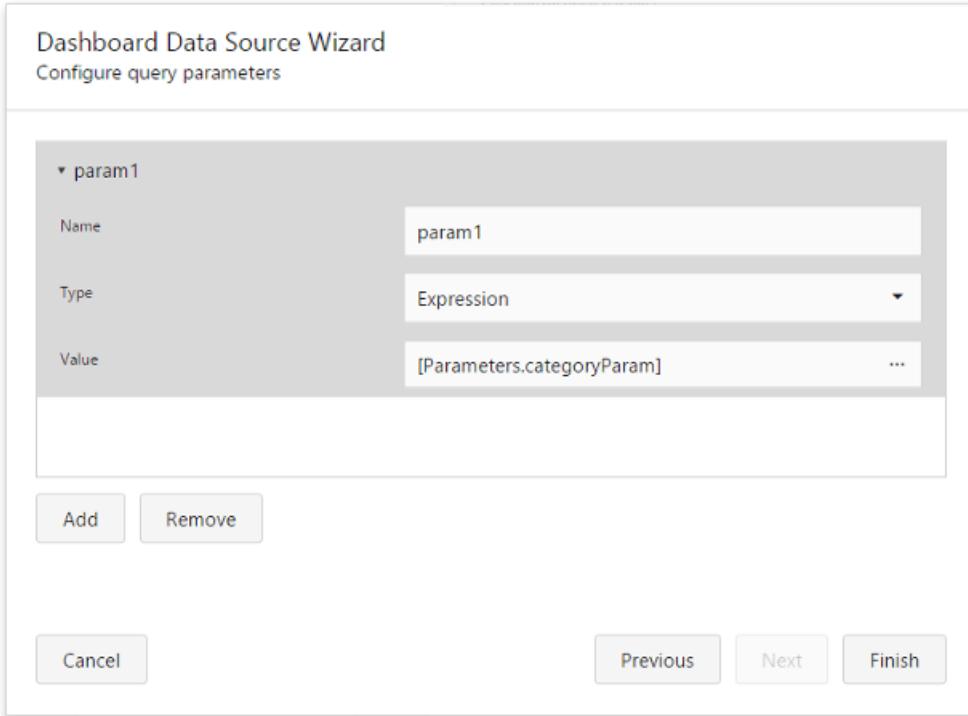
Parameter

Pass Query Parameters

The [Query Builder](#) allows you to [filter queries](#) using parameters. To specify settings of an added query parameter after creating a query, click **Next** in the [Dashboard Data Source Wizard](#) dialog.



On the next page, select the query parameter you have created to configure it.



The following settings are available.

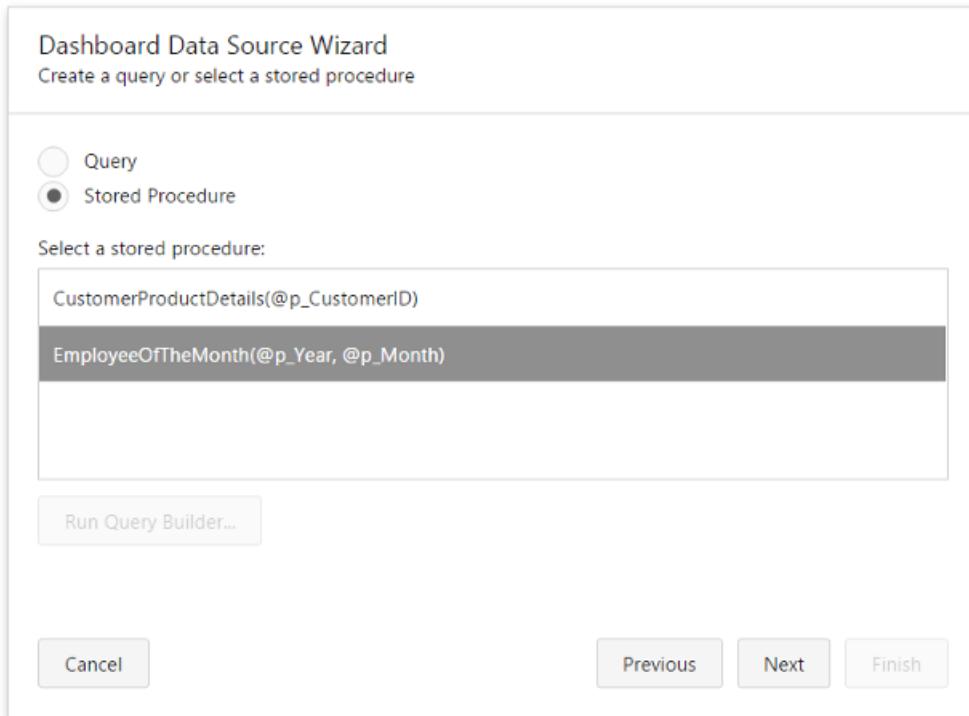
- **Name** - Specifies a parameter's name.
- **Type** - Specifies the parameter's type.
- **Value** - Specifies the parameter's value. If the parameter type is set to *Expression*, invoke the **Expression Editor** dialog using the ellipsis button and specify the required expression. For example, you can use an existing [dashboard parameter](#) to pass to the SQL query.

Use **Add** to add a new parameter and the **Remove** button to remove the selected query parameter.

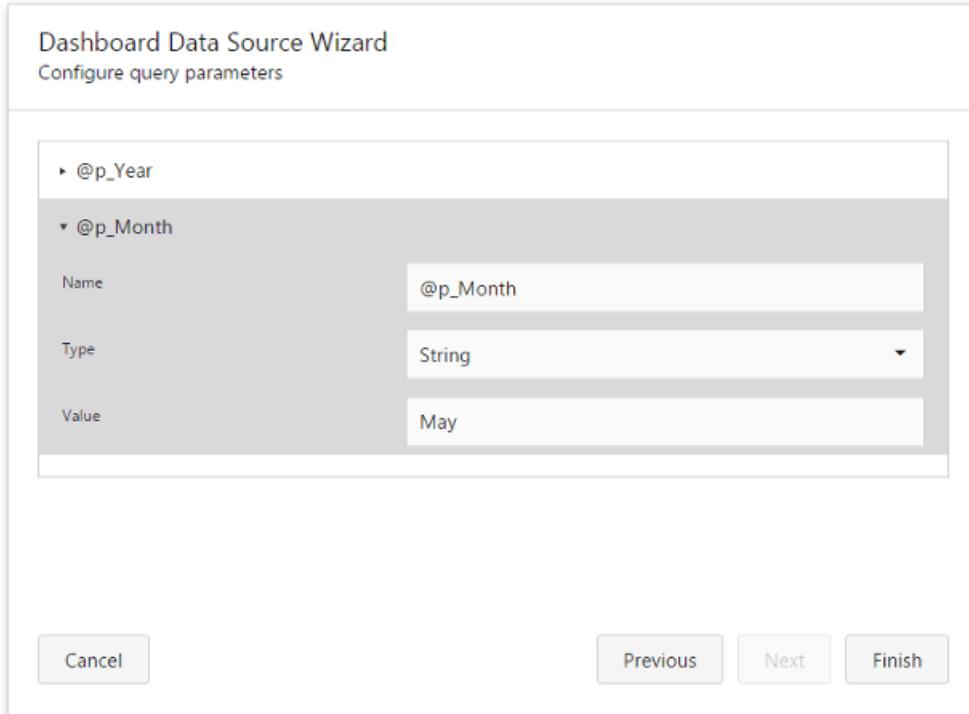
Then, click **Finish** to complete query modifications.

Stored Procedures

If you use a stored procedure to supply the dashboard with data, you should specify the stored procedure parameters. In the [Dashboard Data Source Wizard](#) dialog, select the required stored procedure and click **Next**.



On the next page, you can configure the parameters.



The following parameter settings are available.

- **Name** - Displays a parameter's name.
- **Type** - Specifies the parameter's type.
- **Value** - Specifies the parameter's value. If the parameter type is set to *Expression*, you can invoke the **Expression Editor** dialog to specify the required expression. For example, you can select an existing [dashboard parameter](#) to pass to the stored procedure.

Click **Finish** to complete query modifications.

Preview Data

The [Dashboard Data Source Wizard](#) and [Query Builder](#) allow you to preview data returned after a query/stored procedure execution. To do this, click the **Preview...** button.

Data Preview (First 100 Rows Displayed) X

Country	OrderID	LastName	FirstName	ProductName	CategoryName
UK	10248	Buchanan	Steven	Queso Cabrales	Dairy Products
UK	10248	Buchanan	Steven	Singaporean Hokkien Fried Mee	Grains/Cereals
UK	10248	Buchanan	Steven	Mozzarella di Giovanni	Dairy Products
UK	10249	Suyama	Michael	Tofu	Produce
UK	10249	Suyama	Michael	Manjimup Dried Apples	Produce
USA	10250	Peacock	Margaret	Jack's New England Clam Chowder	Seafood
USA	10250	Peacock	Margaret	Manjimup Dried Apples	Produce
USA	10250	Peacock	Margaret	Louisiana Fiery Hot Pepper Sauce	Condiments

OK

This invokes the **Data Preview** window containing data returned after you execute the current query.

Filter Data Sources

The Web Dashboard allows you to apply filtering to Excel and Object data sources.

Apply Filtering

To apply filtering to a data source, open the [dashboard menu](#), invoke the **Data Sources** page and click the **Filter** button.

The screenshot shows the 'DATA SOURCES' page. On the left, under 'USED DATA SOURCES', there is a list with 'Customer Support' highlighted. An 'Add' button is located next to the list. To the right, a table lists fields from the selected data source: Customer (Text), Employee (Text), IssueType (Text), IssueTypeIndex (Integer), Opened (DateTime), ProductName (Text), and ResolvedTime (Integer). In the top right corner of the main area, there is a button labeled 'Filter Add Calculated Field' with a small icon above it.

This will invoke the **Filter Editor** dialog, which allows you to build filter criteria with a convenient tree-like interface.

The screenshot shows the 'Filter Editor' dialog. It contains two filter criteria under the 'And' operator: 'IssueType Equals Critical' and 'ProductName Equals Web Forms'. At the bottom of the dialog are 'Save' and 'Cancel' buttons.

Pass Parameter Values

You can use the Filter Editor to filter a data source according to the current parameter value. To learn more, see the [Dashboard Parameters](#) topic.

Calculated Fields

The Web Dashboard control provides the capability to create calculated fields that allow you to apply complex expressions to data fields obtained from the dashboard's data source. As a result, you can use these fields in data visualizations as regular data source fields.

Note that calculated fields are not supported for the [OLAP](#) data source.

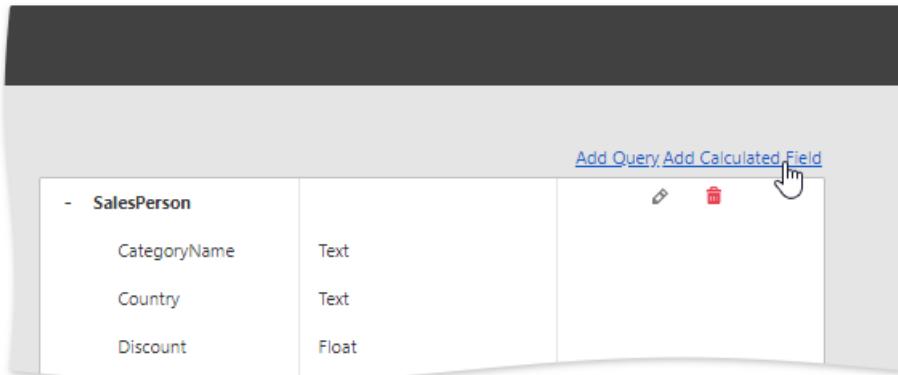
You can add a new calculated field based on the existing data source fields after you have created a data source.

- [Creating a Calculated Field](#)
- [Editing a Calculated Field](#)

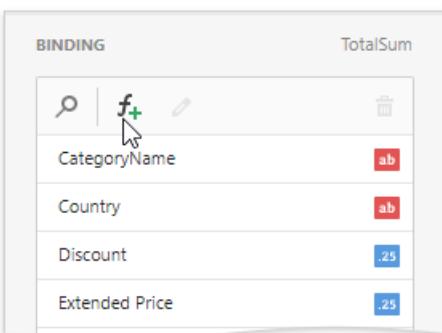
Creating a Calculated Field

You can creates calculated fields both in the **Data Sources** page and from the **Binding** panel.

- Go to the [dashboard menu](#) and open the **Data Sources** page. Select a required data source (and the required [query](#)/data member, if applicable) and click the **Add Calculated Field** button to create a calculated field.



- Open the **Binding** panel, go to the **Binding** section and click the **Add calculated field** button (the icon).



This invokes the **Edit Calculated Field** dialog, which allows you to construct the required expression.

- Use the **Name** option to change the default field name.
- Use the **Field Type** option to specify the required calculated field type.

EDIT CALCULATED FIELD

X

Name

calc_TotalSum

Field Type

Decimal

1 [UnitPrice] * [Quantity] *(1 - [Discount])

Fields

Constants

► Functions

Operators

+

-

*

/

%

Multiples the value of two expressions.

Save

Cancel

The following elements are available for creating expressions:

ELEMENT	DESCRIPTION
Fields	Contains available fields and dashboard parameters .
Constants	Contains boolean variables.
Functions	Contains different types of functions including aggregate .
Operators	Allows you to select operators from the list.

After creating the expression, click **Save** to creates a new calculated field and display it in the [Field List](#). This type of a field is indicated with the **f** glyph.

		Add Query	Add Calculated Field
-	SalesPerson		
	calc_TotalSum	Decimal	
	CategoryName	Text	
	Country	Text	

Editing a Calculated Field

You can configure calculated fields both in the **Data Sources** page and from the **Binding** panel.

- To edit the created field using the **Data Sources** page, click the calculated field's **Edit** button (the  icon).
 - In the **Binding** section, select the calculated field you want to edit and click the **Edit** button (the  icon).

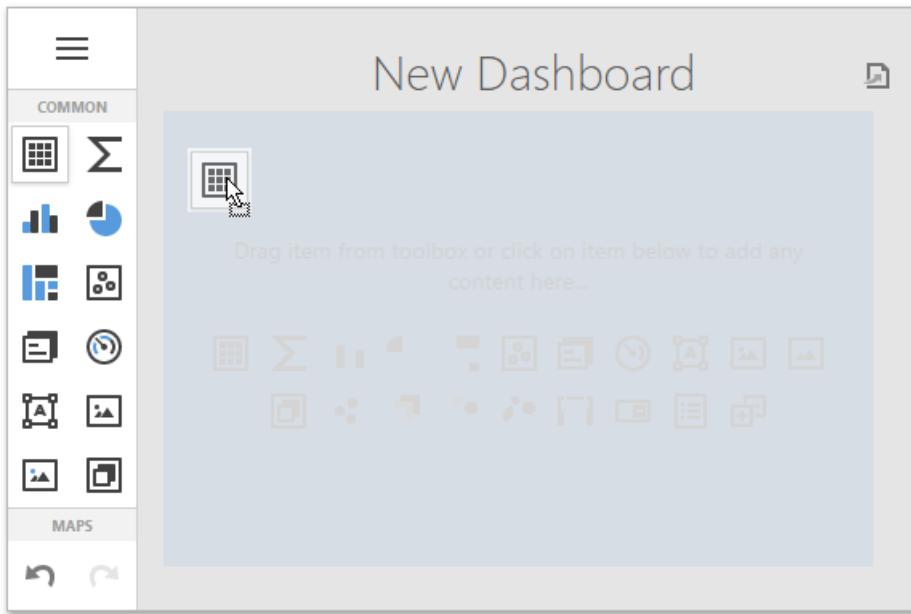
This invokes the **Edit Calculated Field** dialog. You can change the calculated field's name, type or edit the current expression.

To delete the calculated field, use the calculated field's **Delete** button (the / icons).

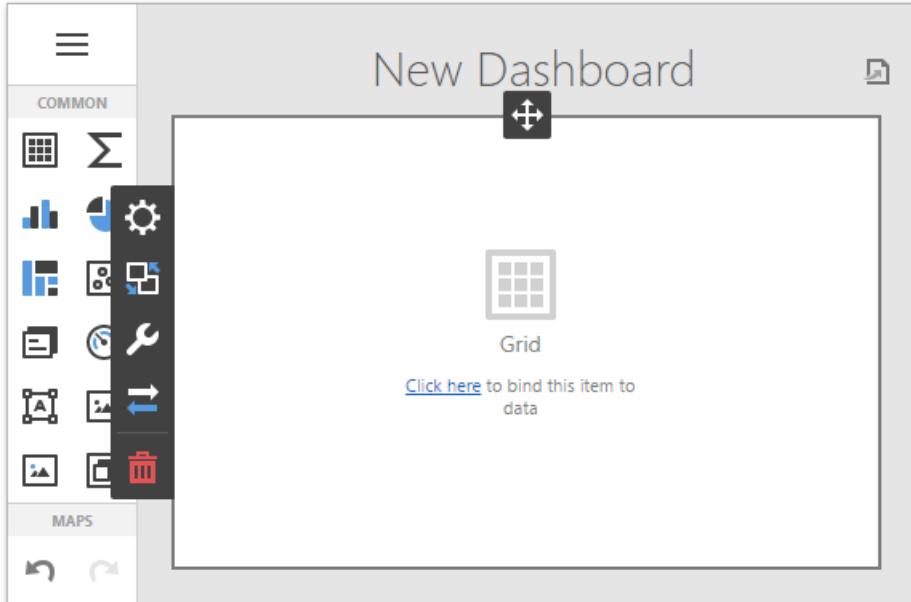
Adding Dashboard Items

After [creating a dashboard](#) and [providing data](#) to it, add **dashboard items** to display visual or textual information in a dashboard.

To create a dashboard item, click the corresponding button in the [Toolbox](#) or drag an item from the Toolbox into the dashboard surface.



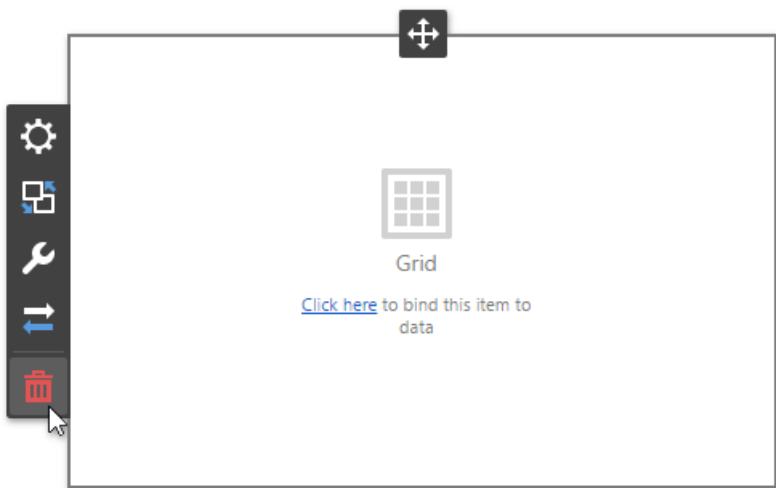
This creates an empty dashboard item, which you can now configure.



To completely design a dashboard item, perform the following steps.

- [Bind](#) the dashboard item to data.
- Set specific dashboard item settings based on its type. To learn more, see [Designing Dashboard Items](#).
- Perform the required [data shaping](#) operations (such as [grouping](#), [sorting](#), [filtering](#), etc.).
- Use the [interactivity](#) features to enable interaction between various dashboard items.
- Adjust the dashboard item's position and size (a [layout](#)) and specify the dashboard item caption settings.

To remove the dashboard item from the dashboard surface, use the **Delete** button in the [dashboard item menu](#).



Binding Dashboard Items to Data

To display data, dashboard items should be bound to [data source](#) fields. The topics in this section describe how to do this.

- [Binding Dashboard Items to Data in the Web Dashboard](#)
- [Hidden Data Items](#)
- [Binding Dashboard Items to Data in OLAP Mode](#)

Binding Dashboard Items to Data in the Web Dashboard

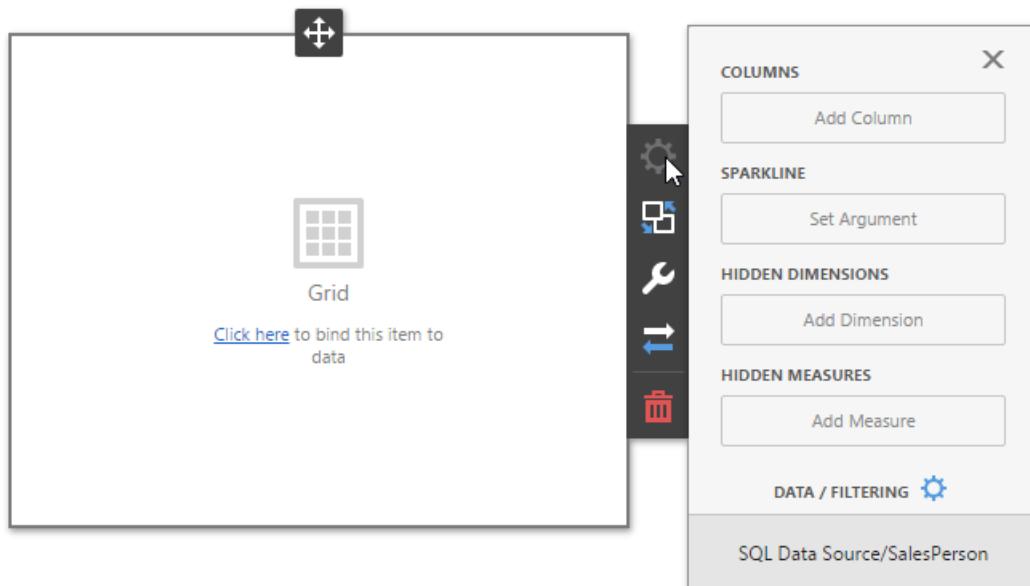
This topic explains how to bind the newly created dashboard item to data source fields to visualize data.

- [Create Binding](#)
- [Modify Binding](#)
- [Clear Binding](#)
- [Specify a Data Source](#)

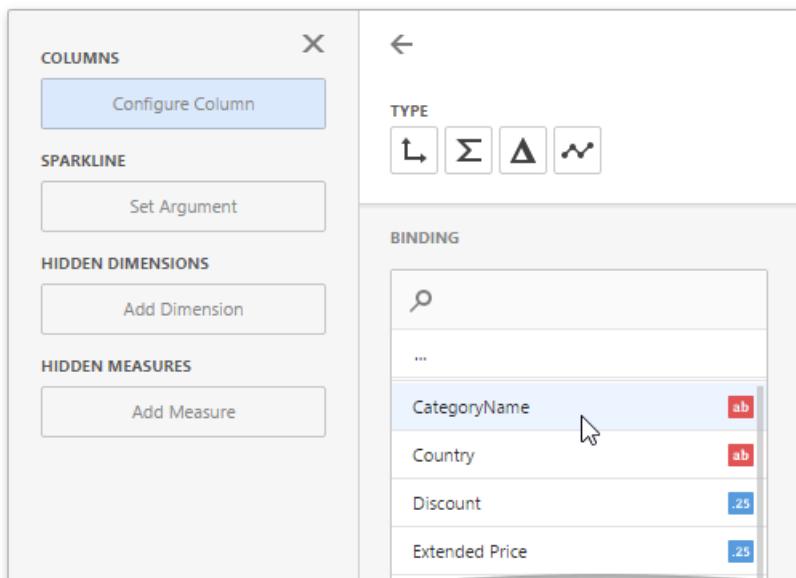
Create Binding

To bind a dashboard item to data, invoke the dashboard item's **Bindings** menu to open binding settings. In this menu you can see a data source (data member) to which the dashboard item is bound and empty placeholders for data items.

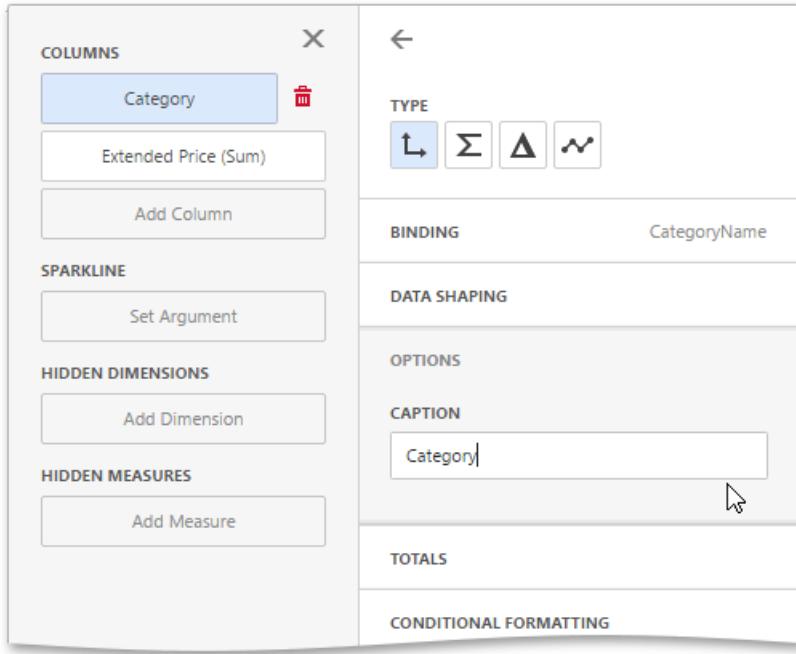
The image below displays the **Grid** dashboard item, that binded to *Sales Person* query of the *SQL Data Source*, and corresponding [data sections](#).



To populate a dashboard item with data, click a placeholder and choose the required field in the invoked list of data source's available fields.



To rename the data item, go to the **Options** section and specify the data item's caption.

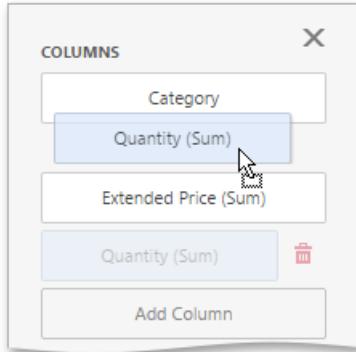


Note

To learn how to bind a specific dashboard item to data, see the **Providing Data** topic for the [required dashboard item](#).

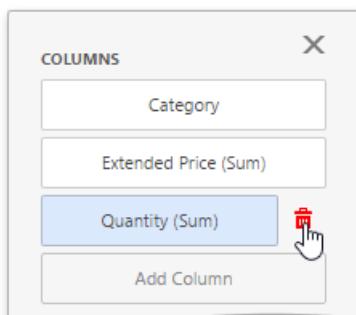
Modify Binding

You can modify data binding by dragging a data item within a data section. To do this, drag the data item to the required position.



Clear Binding

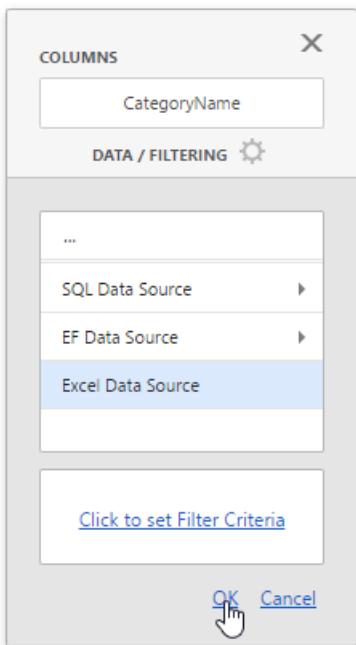
You can remove the data item by clicking the **Remove** (trash) icon in the data item container.



Specify a Data Source

A dashboard can contain several data sources. By default, a dashboard item is bound to the first [available data source](#).

You can change the default data source (or a data member / query, optionally) of dashboard items. For this, go to the dashboard item's **Bindings** menu and click the **Data / Filtering** button.



In the invoked section you can change the data source (data member) for the selected dashboard item. Click **OK** to save the changes.

Note

Note that this action removes all data items from the current dashboard item.

Hidden Data Items

The **hidden data items** can be used to perform various data shaping and analysis operations by measures or dimensions that do not directly take part in the visual representation of data.

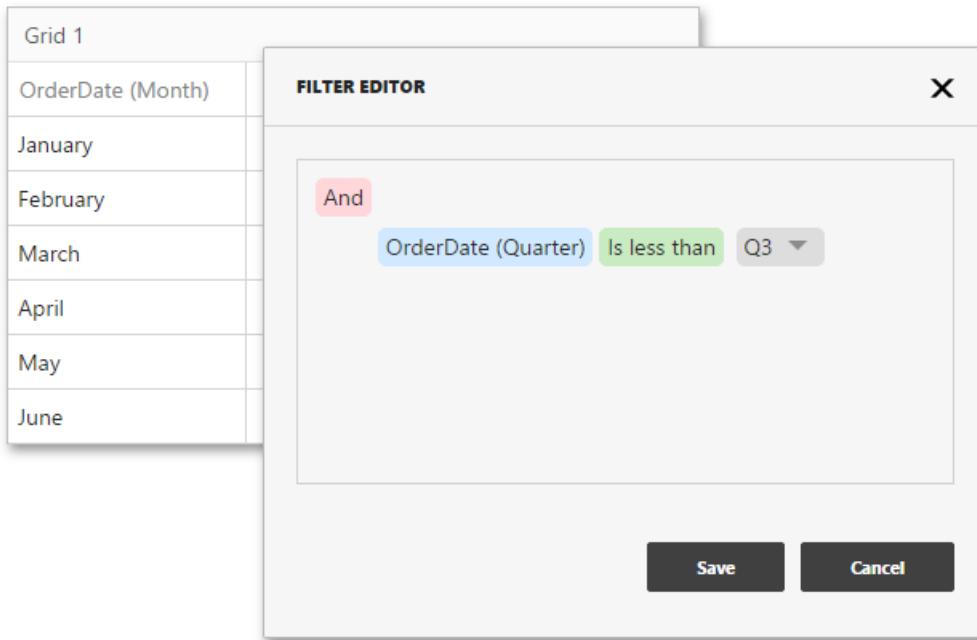
To create hidden data items, click the *Add Measure / Add dimension* placeholders in the **Hidden Measures / Hidden Dimensions** data section and select an appropriate data field.

You can perform the following operations using hidden data items.

- [Filtering](#)
- [Sorting](#)
- [Top N](#)
- [Conditional Formatting](#)

Filtering

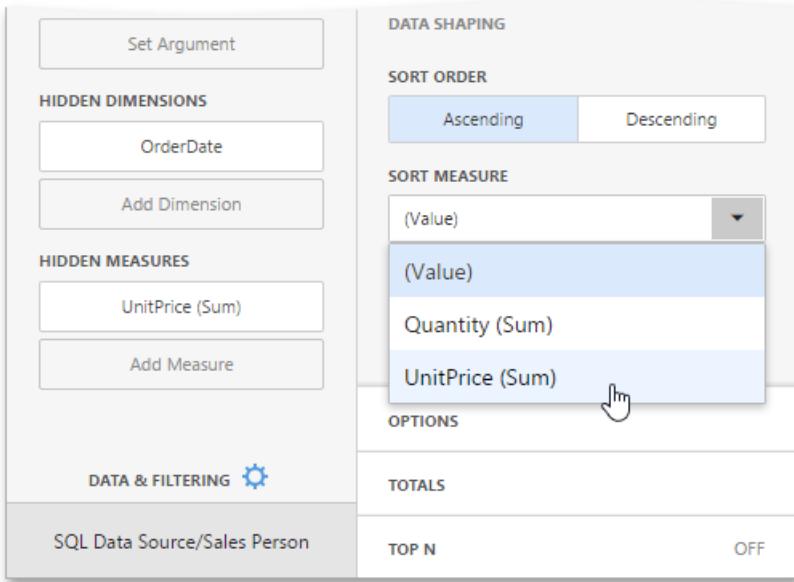
You can use **hidden dimensions** to apply [filtering](#) to the dashboard item.



For example, the Grid on the image above is filtered by the *OrderDate (Quarter)* hidden dimension.

Sorting

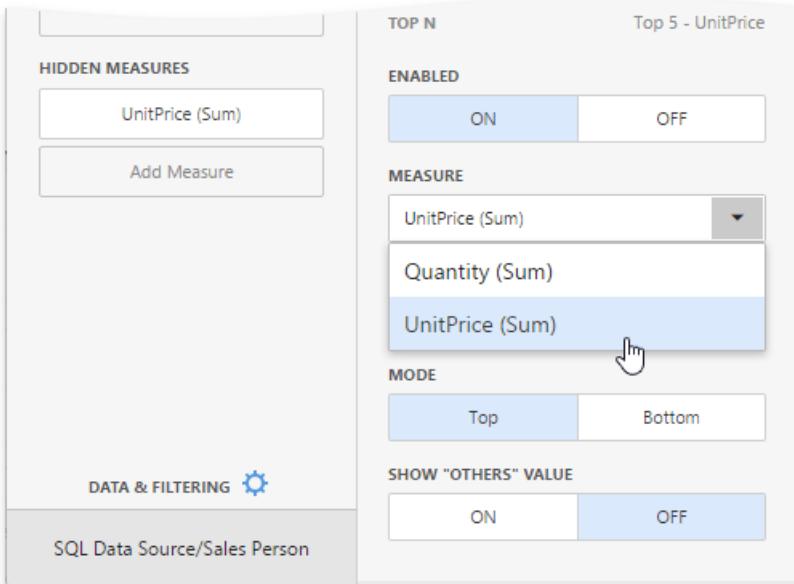
You can [sort](#) values of the specified dimension by the **hidden measure**.



For instance, a data item menu on the image above displays sorting by values of the hidden *UnitPrice (Sum)* measure.

Top N

You can use **hidden measures** in [Top N](#) conditions.



For example, a data item menu on the image above displays the top 5 categories for the *UnitPrice (Sum)* hidden measure.

Conditional Formatting

You can create format rules based on **hidden measures** to apply [conditional formatting](#) to elements corresponding to visible values.

The screenshot shows the 'FormatRule 2: Range Set' configuration dialog. On the left, there's a sidebar with sections for 'COLUMNS', 'SPARKLINE', 'HIDDEN DIMENSIONS', and 'HIDDEN MEASURES'. Under 'COLUMNS', 'Category' and 'Extended Price (Sum)' are listed. Under 'HIDDEN MEASURES', 'Quantity (Sum)' is listed with a delete icon. The main panel has sections for 'COMMON', 'CALCULATED BY' (set to 'Hidden Measures - Quantity (Sum)'), 'APPLY TO' (set to 'Category'), and 'CONDITION TYPE' (set to 'Color Ranges'). Below this are two sections for 'RANGES': 'RANGES 2' contains three color-coded boxes (light blue, light green, red), with the first one having a cursor icon over it; 'RANGES 3' contains four color-coded boxes (pink, green, blue).

For example, the Range Set format rule on the image above is calculated by the *Quantity (Sum)* hidden measure.

Binding Dashboard Items to Data in OLAP Mode

In OLAP mode, the cube schema is fetched automatically, and the **Data Sources** page of the [dashboard menu](#) displays the entire OLAP cube structure.

The screenshot shows the 'Data Sources' page with a single 'USED DATA SOURCES' entry labeled 'OLAP Data Source'. An 'Add' button is located next to it. The main area displays a list of items under the heading '+'. These include 'Customer', 'Date', 'Delivery Date', 'Employee', and 'Geography'. The 'Geography' item is expanded, showing sub-fields: 'City', 'Country', 'Postal Code', 'State-Province', and 'Geography'. Below these, there are two more collapsed items: '+ Internet Sales Order' and '+ Measures'.

USED DATA SOURCES	
Add	
OLAP Data Source	+ Customer
	+ Date
	+ Delivery Date
	+ Employee
	- Geography
	City
	Country
	Postal Code
	State-Province
	Geography
	+ Internet Sales Order
	+ Measures

To visualize data, open the dashboard item's **Bindings** menu, click a placeholder and choose the required measure, attribute or hierarchy in the invoked list of data source's available fields, as described in the [Binding Dashboard Items to Data](#) topic. Note that OLAP measures can only be placed in the Values section, while dimension attributes and hierarchies can be placed within other data sections.

Note

By default, the dashboard displays only dimension values that have intersections with measures in a cube. To show all available dimension values, add [hidden measures](#) to the dashboard item so that all dimension values of the dimension will have not be empty for at least one measure value of these measures.

OLAP hierarchies allow you to customize each of their levels separately. Select the desired level in the dashboard item's **Bindings** menu to invoke the [data item menu](#) to access hierarchy level options.

The screenshot shows the configuration dialog for a Drill-Down feature. It is divided into two main sections: a left sidebar and a right main panel.

Left Sidebar (VALUES):

- Sales Amount** (selected)
- Add Values**

ARGUMENTS:

- Group** (selected)
- Country** (selected, with a dropdown arrow pointing to **Region**)
 - Region** (with a small trash icon)
- Add Argument**

SERIES:

- Fiscal Year** (selected)
- Add Series**

Right Main Panel:

- BINDING:** Group
- DATA SHAPING:**
- SORT ORDER:** Ascending (selected), Descending, No Sorting
- SORT BY:** (Value) (dropdown menu)
- GROUP INTERVAL:** None, Alphabetical
- COLORING:** Auto (selected), Off, On

Note

You can easily drill down through OLAP hierarchies using the [Drill-Down](#) feature.

Designing Dashboard Items

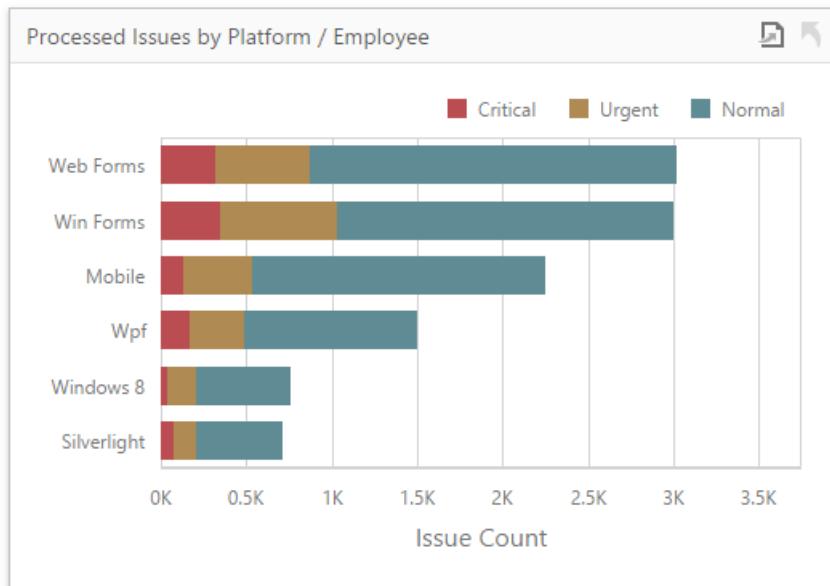
The Web Dashboard provides a number of visualization media designed to effectively present visual or textual information in a dashboard - **dashboard items**.

This section describes the available dashboard items.

- [Chart](#)
- [Scatter Chart](#)
- [Grid](#)
- [Pies](#)
- [Cards](#)
- [Gauges](#)
- [Pivot](#)
- [Choropleth Map](#)
- [Geo Point Maps](#)
- [Range Filter](#)
- [Date Filter](#)
- [Images](#)
- [Text Box](#)
- [Treemap](#)
- [Filter Elements](#)
- [Dashboard Item Group](#)
- [Tab Container](#)

Chart

The topics in this section describe the features available in the **Chart** dashboard item, and provide information on how to create and customize charts in the Web Dashboard.



This section is divided into the following subsections.

- [Providing Data](#)

Provides information on how to supply the Chart dashboard item with data.

- [Series](#)

Enumerates and describes different types of series that can be displayed within the Chart dashboard item.

- [Panes](#)

Introduces the concept of chart panes (visual areas within a diagram that display chart series), and provides information on how to create them.

- [Interactivity](#)

Describes features that enable interaction between the Chart and other dashboard items.

- [Legend](#)

Provides information about the chart legend and its options.

- [Axes](#)

Describes how to customize settings related to chart axes.

- [Orientation](#)

Describes how to toggle the chart's orientation.

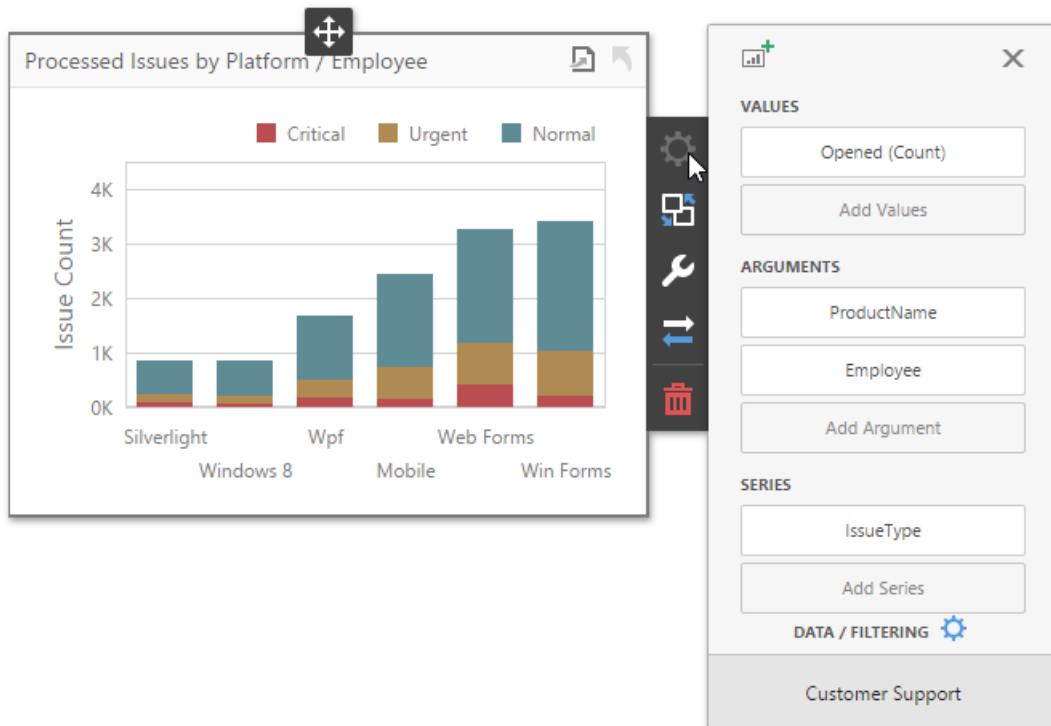
Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind a **Chart** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Chart dashboard item that is bound to data.



To bind the Chart dashboard item to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

The table below lists and describes the Chart's data sections.

SECTION	PROCESSED AS	DESCRIPTION
Values	Measure	Contains data items against which the Y-coordinates of data points are calculated. The data item menu allows you to select the series type and specify different options. Note that some types of series accept several measures. To learn more, see the documentation for the required series type .
Arguments	Dimension	Contains data items that provide values displayed along the X-axis of the chart.
Series	Dimension	Contains data items whose values are used to create chart series.

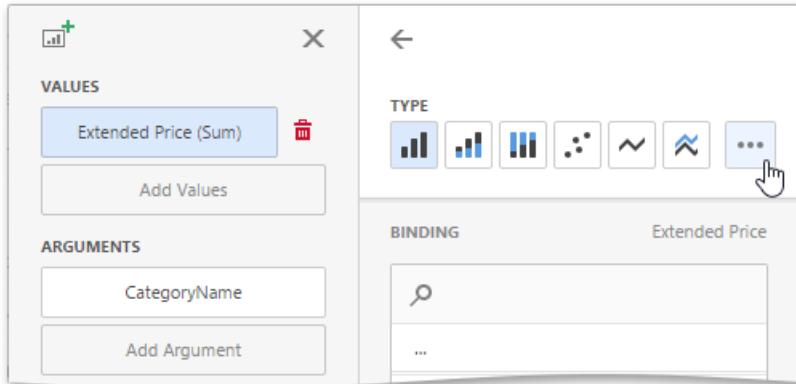
Series

The Chart dashboard item supports different types of series - from simple bar and line charts to candle stick and bubble graphs.

- [Change Series Type](#)
- [Configure Series Options](#)
- [Configure Series Point Label](#)

Change Series Type

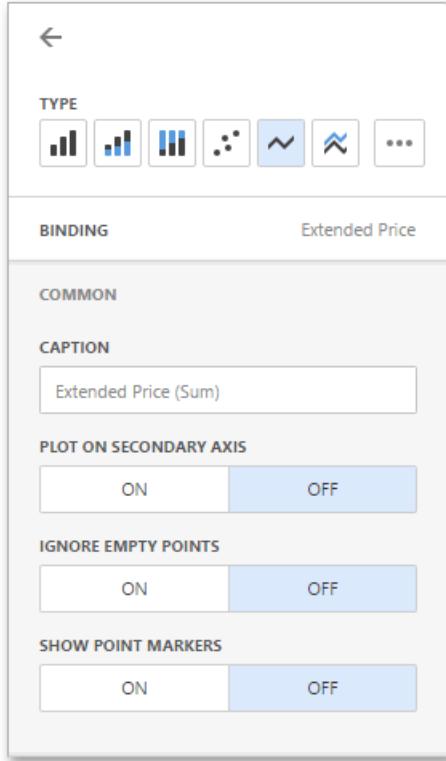
By default, Chart visualizes data using the Bar series. To switch between series types, click the required data item in the **Values** section and select the required series type in the invoked data item menu.



Click the ellipsis button to show all available series types.

Configure Series Options

To configure common series options, go to the data item's **Options** section.



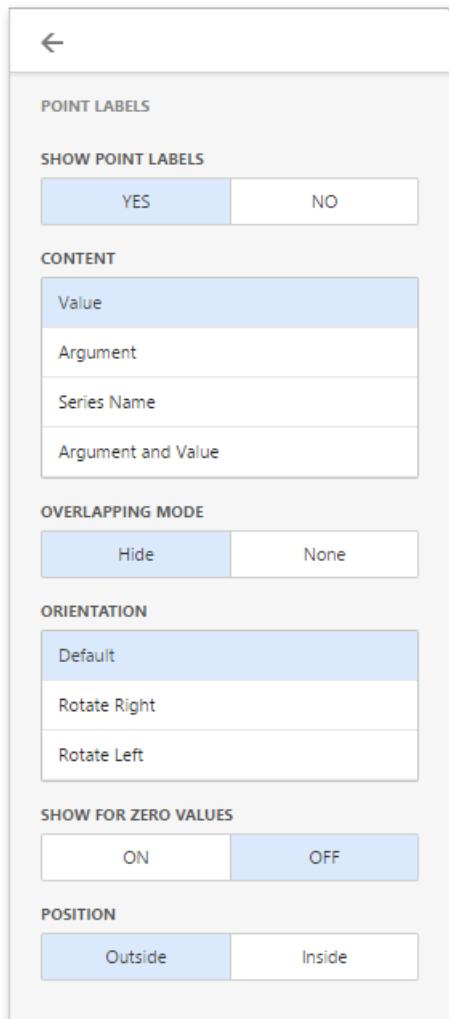
Here you can specify whether or not to plot the current series on the secondary axis, configure point markers behavior, etc.

The following options are available.

OPTION	DESCRIPTION
Caption	Specifies the series caption.
Plot on secondary axis	Specifies whether or not the secondary axis is used to plot the current series.
Ignore empty points	Specifies whether or not empty points are ignored when plotting the current series.
Show point markers	Specifies whether or not to show point markers for the current series. This option is in effect for the Line and Area series. Note that point markers are always shown when Master Filtering is enabled for the Chart dashboard item.

Configure Series Point Label

The **Point Label** section of a value data item allows you to enable series point labels and manage their settings.



For example, you can specify whether or not to show point labels or set the label overlap mode.

The following options are available.

OPTION	DESCRIPTION
Show Point Labels	Specifies whether or not to show point labels for the current series.
Content	Specifies the type of content displayed within point labels. You can select one of the following options: <i>Value</i> , <i>Argument</i> , <i>Series Name</i> or <i>Argument and Value</i> .
Overlapping Mode	Specifies the label overlap mode. You can reposition or hide overlapping labels or disable a resolving algorithm.
Orientation	Specifies the orientation of point labels. You can set default orientation or rotate point labels 90 degrees clockwise or counter clockwise.

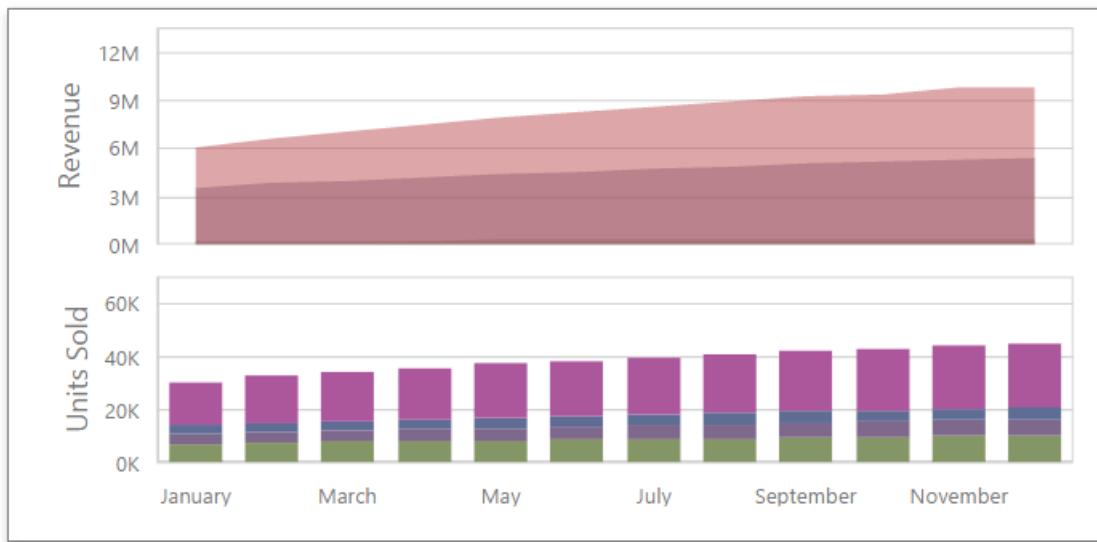
Bar series has additional settings.

OPTION	DESCRIPTION
Show for zero values	Specifies whether or not to show labels for points with zero values.
Position	Specifies the position of point labels relative to bars. Point labels can be displayed inside or outside bars.

Panes

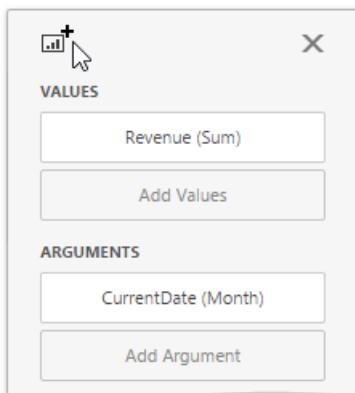
Panes are visual areas within a diagram that display chart series. The Chart dashboard item can contain any number of panes.

Each pane has its own **Y-axis** and displays a specific set of series. All panes in a chart share the same **X-axis**.

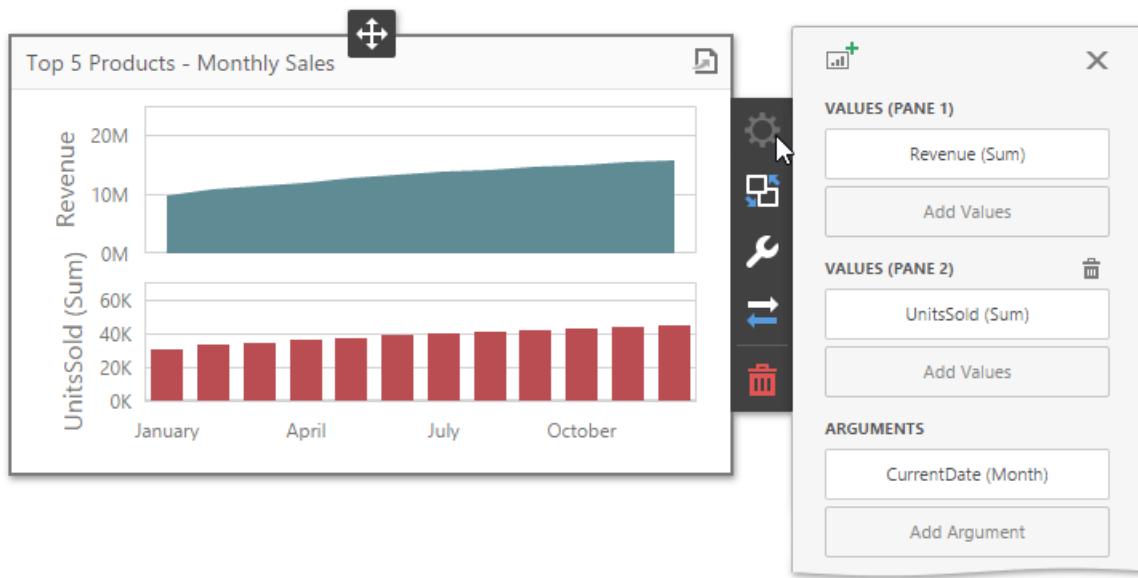


Add Panes

To add a pane, click the **Add Pane** button in the Chart's data item section.



Once a new pane is added, the Web Dashboard creates another Values section. Use this section to provide data items that supply values to be displayed in the new pane (see [Providing Data](#) for details on data binding).



To remove a pane, click the **Remove Pane** button displayed in the added Values section.

Interactivity

To enable interaction between the Chart and other dashboard items, you can use the interactivity features, as **Master Filtering** and **Drill-Down**.

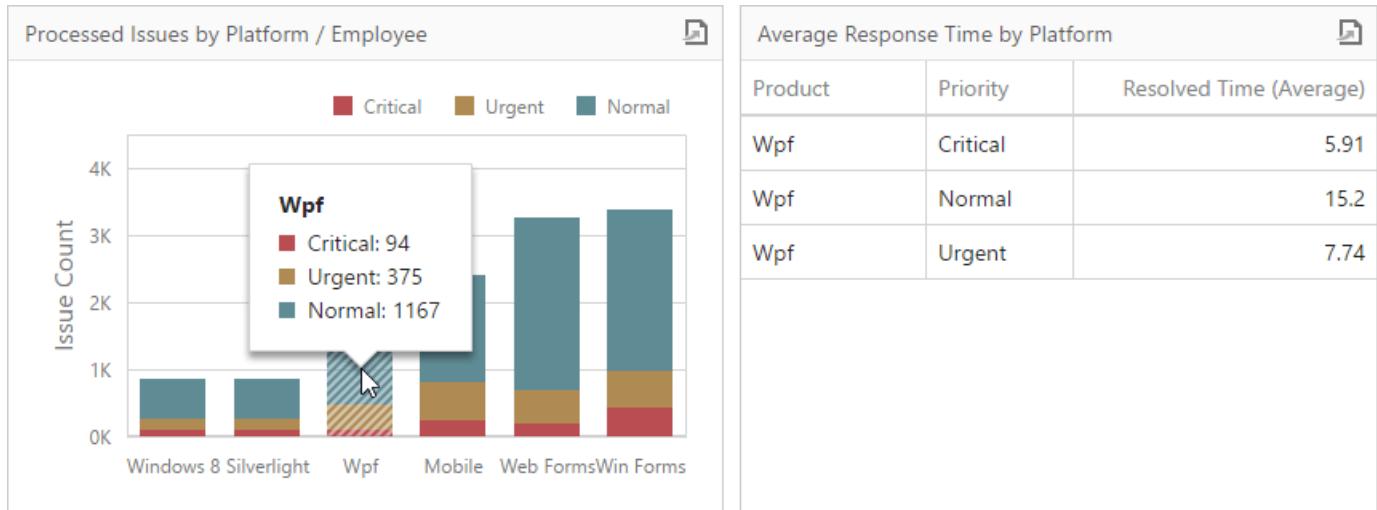
- [Master Filtering](#)
- [Drill-Down](#)

Master Filtering

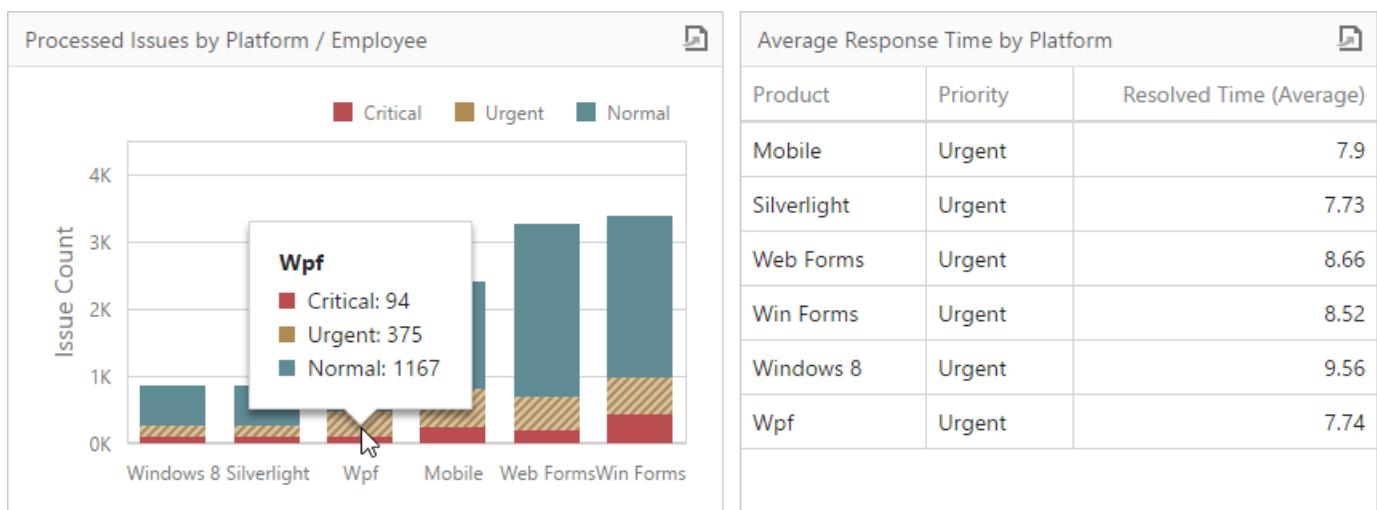
You can use the Chart dashboard item as a filter for other dashboard items. To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

The Chart supports filtering by **argument**, **series** or **points**.

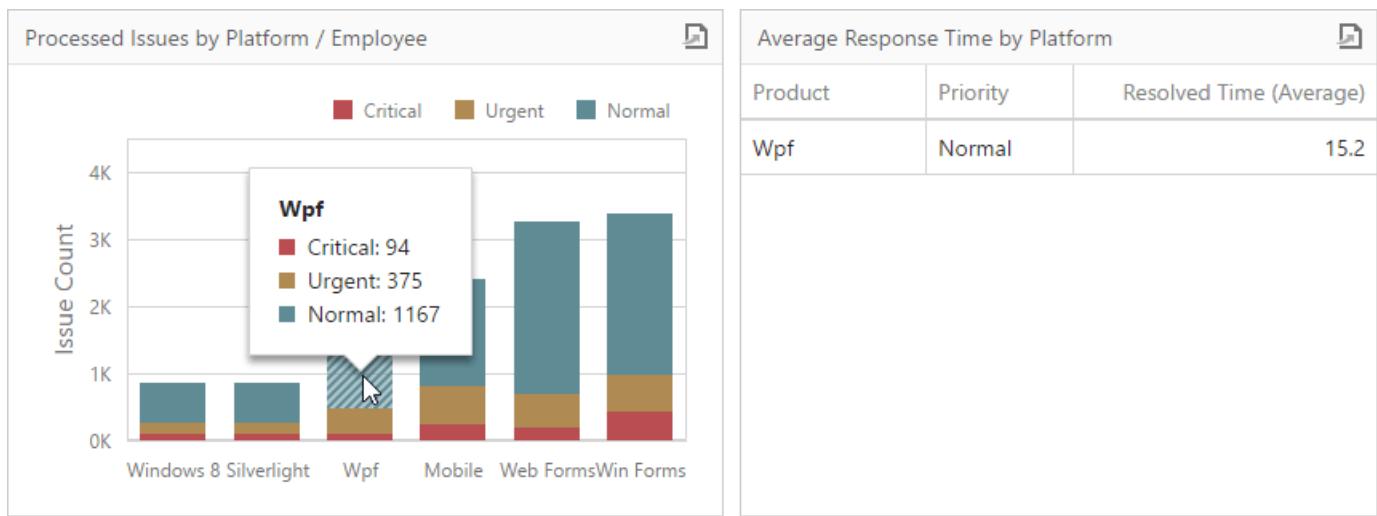
- Filtering **by arguments** allows you to make other dashboard items display only data related to selected argument values by clicking series points.



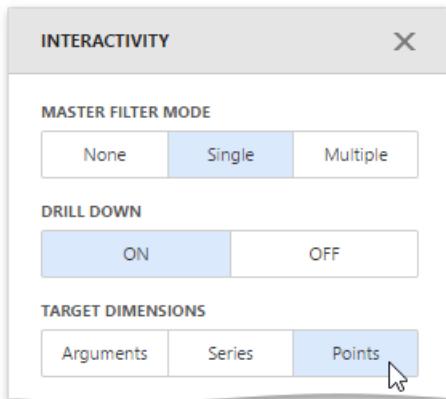
- When filtering **by series** is enabled, you can click a series point to make other dashboard items display only data related to the selected series.



- Filtering **by points** makes other dashboard items display only data related to the selected point.



To configure filtering type, open the Chart's **Interactivity** menu and select **Arguments**, **Series** or **Points** as a target dimension.



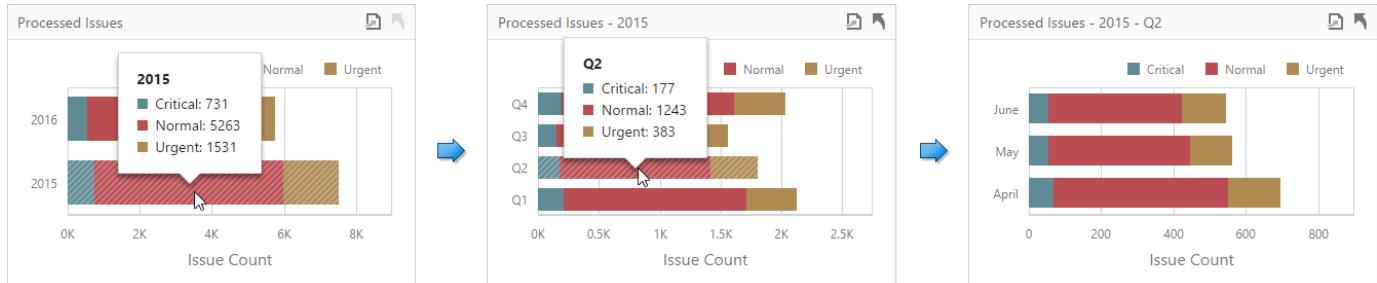
To reset filtering, use the **Clear Master Filter** button (the icon) in the Chart's [caption](#).

Drill-Down

The drill-down capability allows you to change the detail level of data displayed in the Chart dashboard item. To learn more about drill-down concepts common to all dashboard items, see the [Drill-Down](#) topic.

The Chart supports drill-down on **argument** or **series** values.

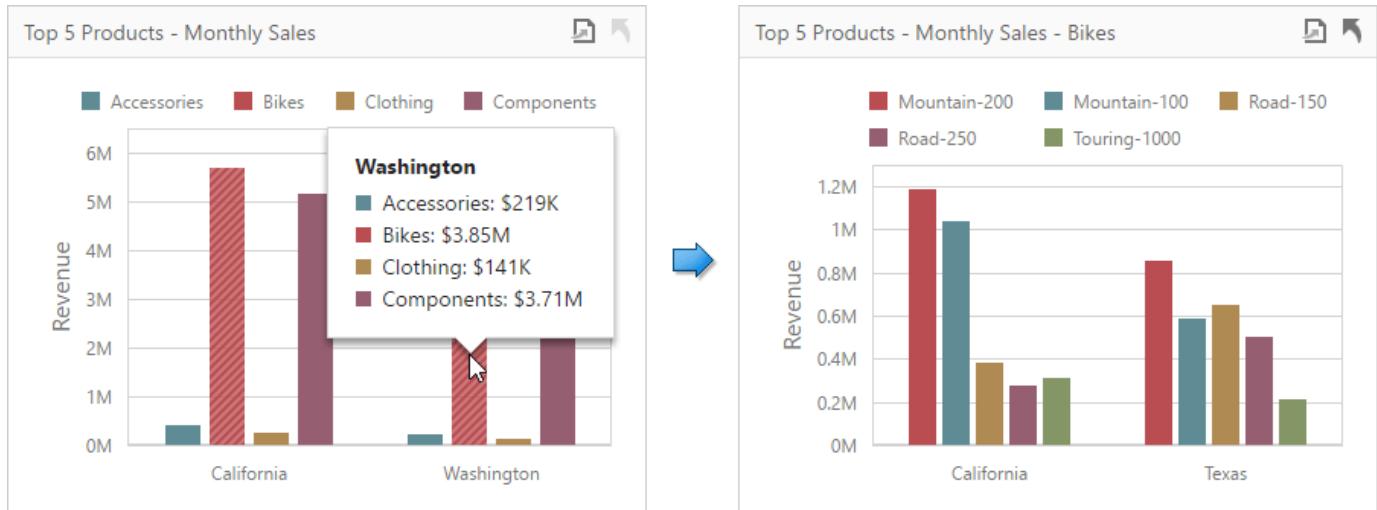
- To drill down on arguments, click a series point to view a detail chart for the corresponding argument value.



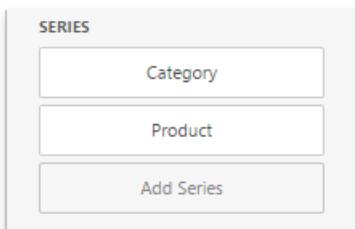
Drill-down on arguments requires that the Arguments section contains several data items, from the least detailed to the most detailed item.



- When drill-down on series is enabled, you can click a series point to view a detail chart for the corresponding series.



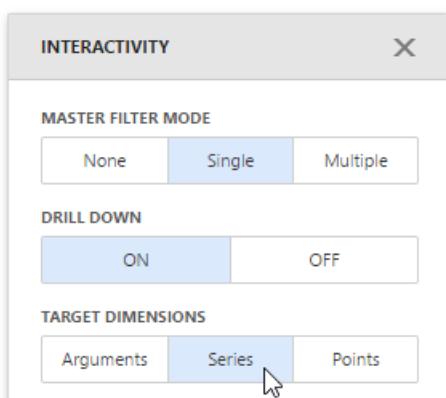
Drill-down on series requires that the Series section contains several data items, from the least detailed to the most detailed item.



Note

In OLAP mode, you can perform drill-down for either a hierarchy data item or several dimension attributes.

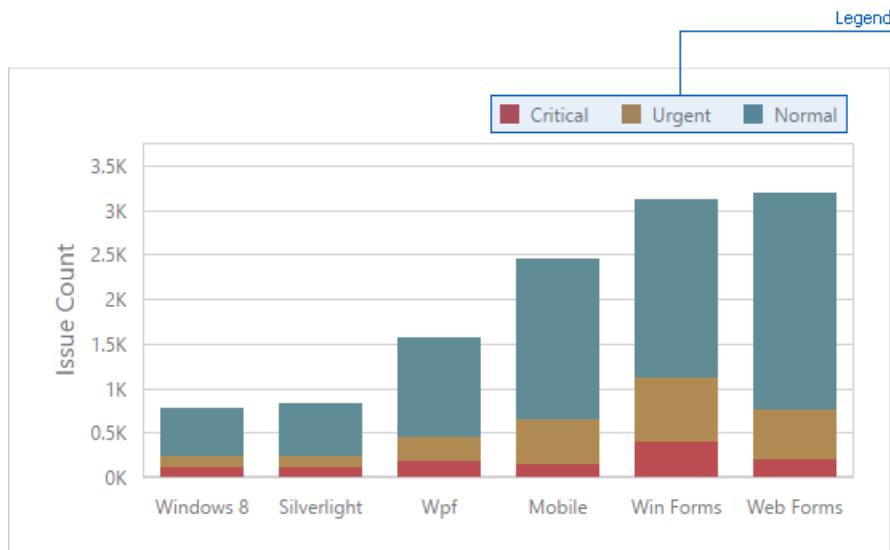
To specify drill-down type, go to the Chart's [Interactivity](#) menu and set **Arguments** or **Series** as a target dimension.



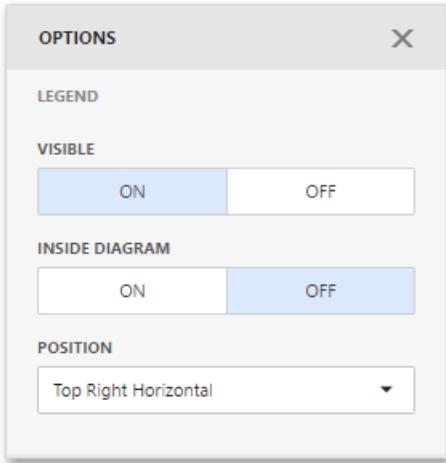
To return to the previous detail level, click the **Drill Up** button (the ↺ icon) in the Chart's [caption](#).

Legend

A legend is an element of a chart that identifies chart series and series points.



To customize legend options, go to the Chart's [Options](#) menu and open the **Legend** section.



The following settings are available.

- The **Visible** option allows you to specify whether or not to show a legend.
- The **Inside Diagram** option allows you to locate a legend inside or outside the Chart.
- The **Position** option allows to set a legend's position and orientation.

Axes

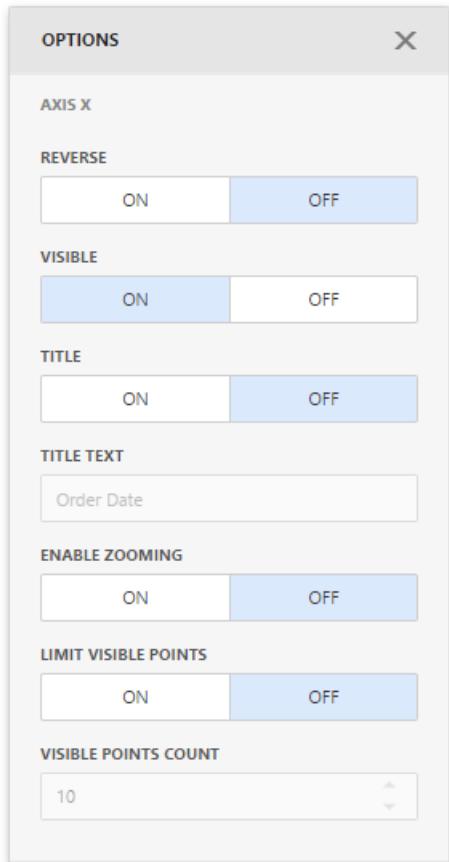
The Chart dashboard item displays two axes by default: the X-axis and the Y-axis. The X-axis is the axis of arguments and the Y-axis is the numerical axis of values.



Axis X

To access X-axis settings, go to the Chart's [Options](#) menu and open the **Axis X** section.

You can configure the following settings.

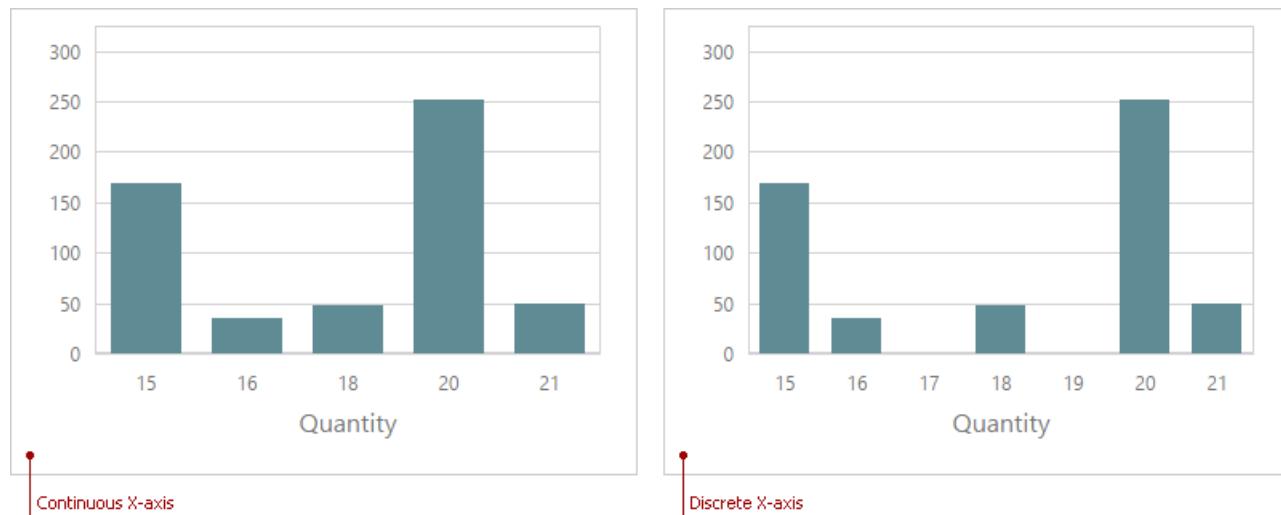


- The **Reverse** option allows you to reverse an X axis. If the X axis is reversed, its values are ordered from right to left.
- The **Visible** option specifies whether the axis is visible.
- The **Title** option specifies the X axis's title. Use the **Title Text** field to set the title.
- The **Enable Zooming** option allows you to enable zooming for the X axis.
- The **Limit Visible Points** option allows you to limit the number of visible points. The **Visible Points Count** field allows you to specify the maximum number of visible points.

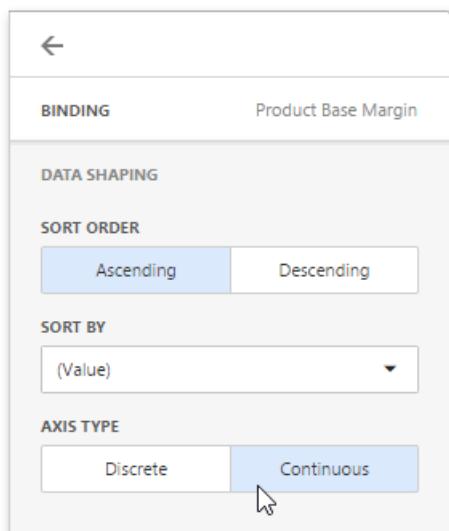
Continuous and Discrete X-Axes

If the dimension in the Arguments section contains numeric data, the Chart can create either a continuous X-axis or a discrete X-axis.

If a continuous axis is used, the distance between argument values is proportional to their values. On a discrete axis, all argument values are an equal distance from each other.



To specify the X-axis type in the Web Dashboard, go to the data item [Data Shaping](#) menu for the argument dimension and select the axis type. The image below illustrates how to change this setting for the *Product Base Margin* data item.



Axis Y

To access Y-axis settings, go to the Chart's [Options](#) menu and open the **Axis Y** section for a corresponding pane.



- The **Always Show Zero Level** option allows you to indicate whether or not an axis zero value should be displayed.
- The **Reverse** option allows you to reverse an Y-axis. If the Y-axis is reversed, its values are ordered from right to left.
- The **Grid Lines** options allows you to control the visibility of the reference lines used to improve the readability of a chart's visual data.
- The **Visible** option specifies whether the axis is visible.
- The **Title** option specifies the Y-axis's title. Use the **Title Text** field to set the title.
- The **Logarithmic Scale** option allows you to use a log scale to display Y-axis. Use the **Logarithmic Scale Base** field to set a log scale base.

Secondary Axis

The secondary Y-axis is useful when it is necessary to visually combine several charts into one. Secondary axes provide the ability to plot series with different ranges on the same chart.

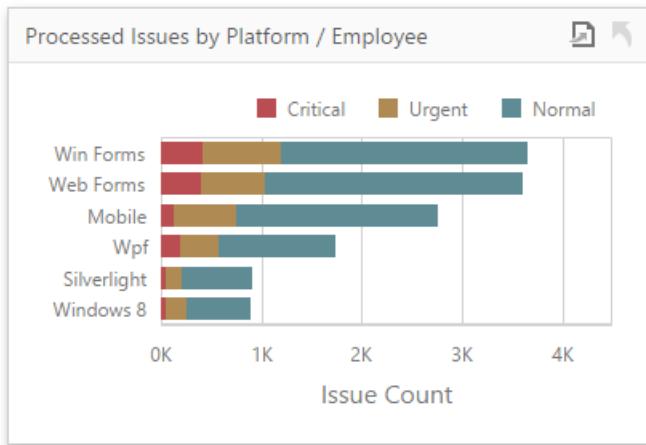


To plot the required series using the secondary axis, go to the data item **Options** menu for the value measure and turn the **Plot**

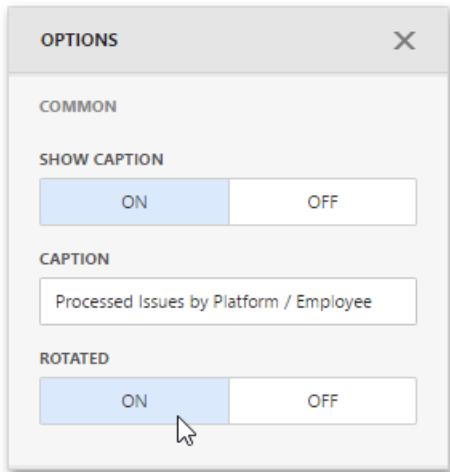
on Secondary Axis option on.

Orientation

You can rotate the Chart so that the X-axis becomes vertical, and the Y-axis becomes horizontal.

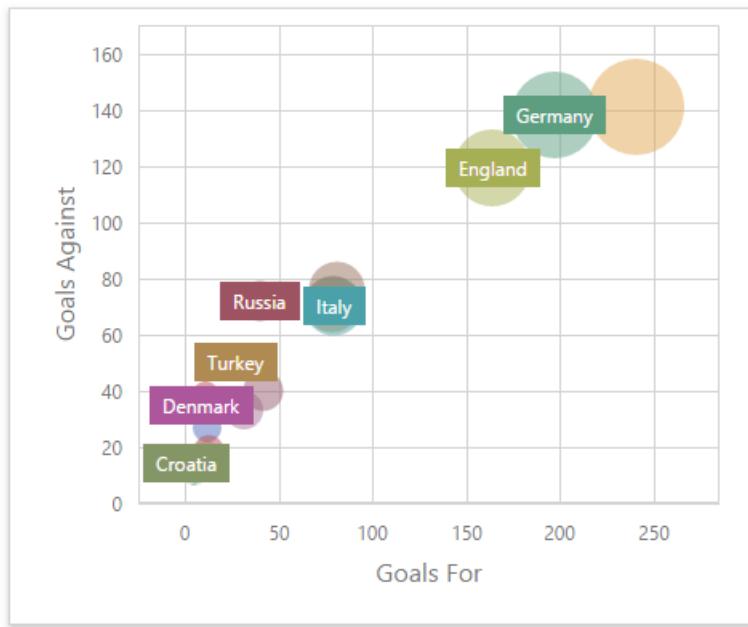


To rotate a Chart in the Web Dashboard, open the Chart's [Options](#) menu and go to **Common** section. Then, turn the **Rotated** option on.



Scatter Chart

The topics in this section describe the features available in the **Scatter Chart** dashboard item, and provide information on how to create and customize scatter charts in the Web Dashboard.



This section is divided into the following subsections.

- [Providing Data](#)

Provides information on how to supply the Scatter Chart dashboard item with data.

- [Interactivity](#)

Describes features that enable interaction between the Scatter Chart and other dashboard items.

- [Legend](#)

Provides information about the chart legend and its options.

- [Axes](#)

Describes how to customize settings related to chart axes.

- [Orientation](#)

Describes how to toggle the chart's orientation.

- [Labels](#)

Provides information about point labels and tooltips that contain descriptions of data points.

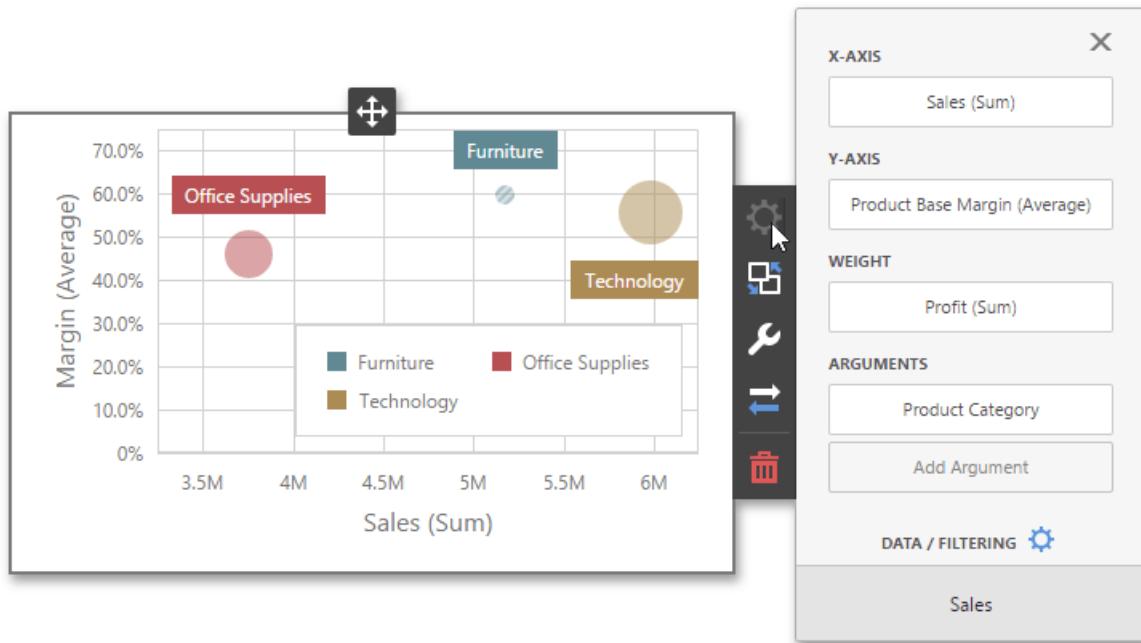
Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind a **Scatter Chart** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Scatter Chart dashboard item that is bound to data.



To bind the Scatter Chart dashboard item to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

The table below lists and describes the Scatter Chart's data sections.

SECTION	PROCESSED AS	DESCRIPTION
X-Axis	Measure	Contains the data item against which the X-coordinates of data points are calculated.
Y-Axis	Measure	Contains the data item against which the Y-coordinates of data points are calculated.
Weight	Measure	Contains the data item whose values are used to calculate the weight of data points.
Arguments	Dimension	Contains data items that provide scatter chart arguments used to create data points.

Interactivity

To enable interaction between the Scatter Chart and other dashboard items, you can use the interactivity features, as **Master Filtering** and **Drill-Down**.

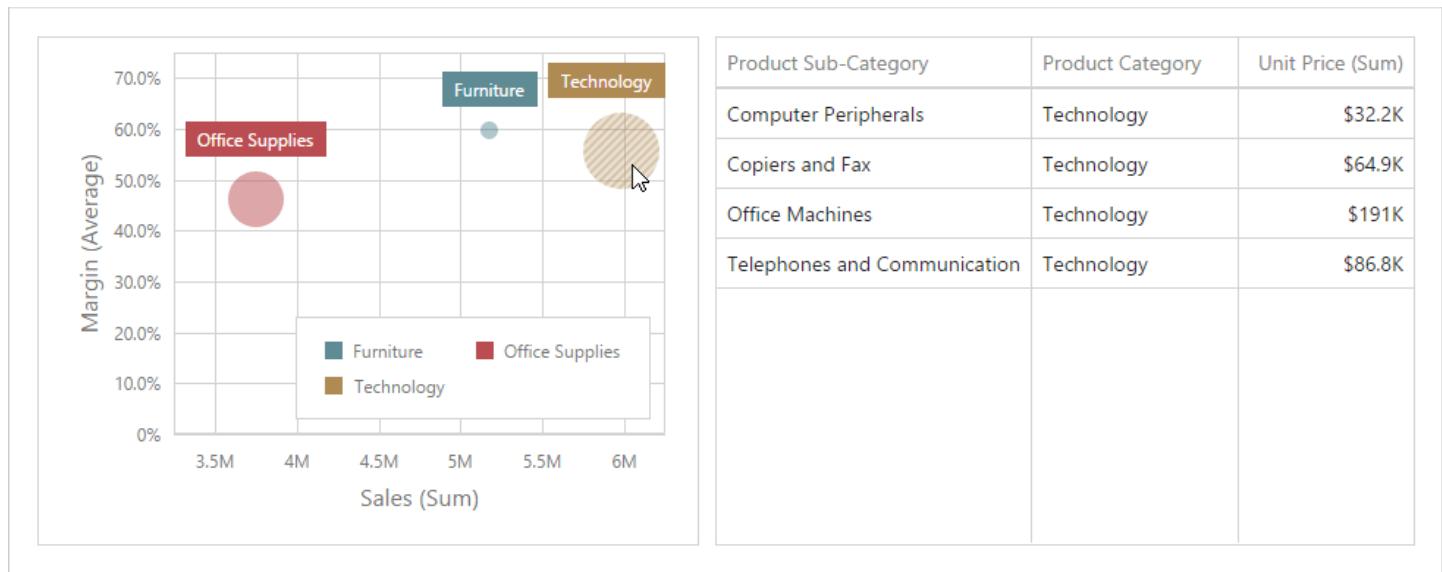
- [Master Filtering](#)
- [Drill-Down](#)

Master Filtering

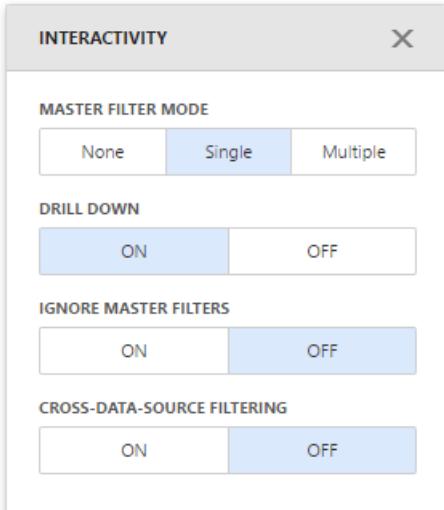
The Web Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items. To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

The Scatter Chart dashboard item supports filtering by points that correspond to specific argument values or their combinations.

When Master Filtering is enabled, you can click a point (or multiple points) to make other dashboard items only display data related to the selected point(s).



To enable **Master Filtering**, go to the Scatter Chart's [Interactivity](#) menu and select the required Master Filtering mode.

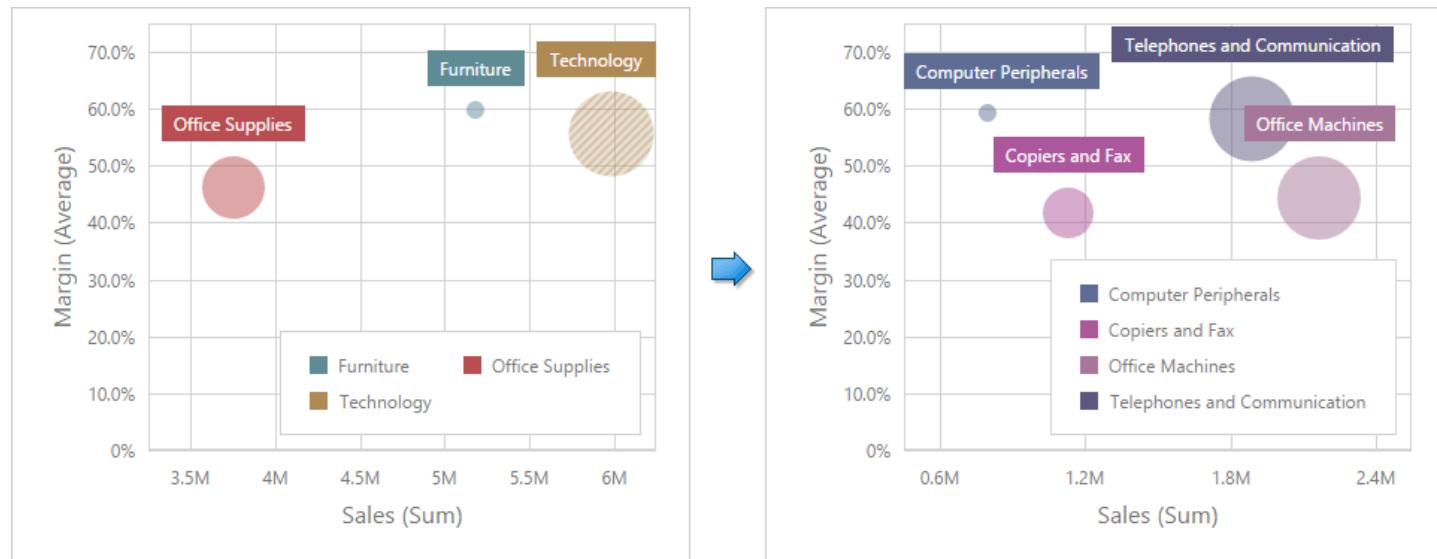


To reset filtering, use the **Clear Master Filter** button (the icon) in the Scatter Chart's [caption](#).

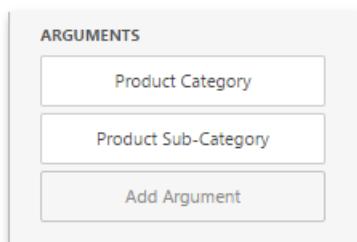
Drill-Down

The Drill-Down feature allows you to change the detail level of data displayed in dashboard items. To learn more about concepts common to all dashboard items, see the [Drill-Down](#) topic.

When drill-down is enabled, you can click a point to view the details (or double-click a point in case of enabled Master Filtering).



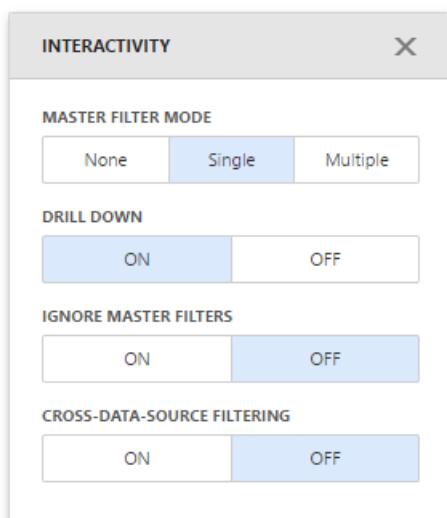
Drill-down requires that the **Arguments** section contains several dimensions, from the least to the most detailed dimension.



■ Note

In OLAP mode, you can perform drill-down for either a hierarchy data item or several dimension attributes.

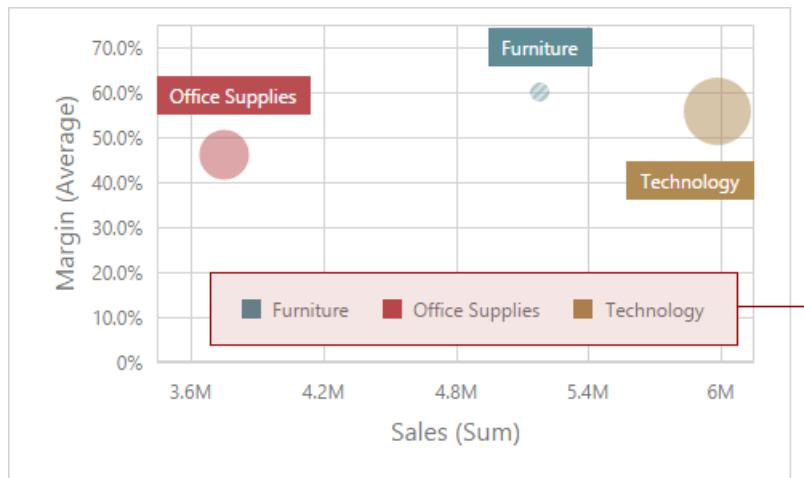
To enable **Drill-Down**, go to the Scatter Chart's [Interactivity](#) menu and turn the **Drill-Down** option on.



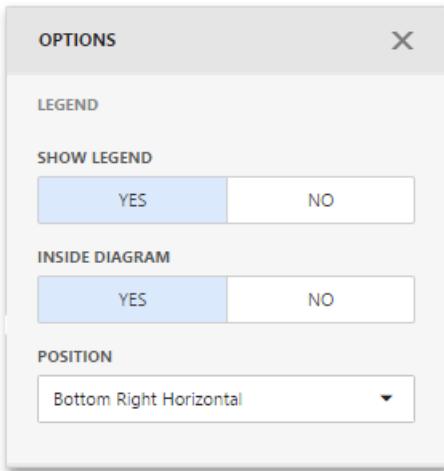
To return to the previous detail level, click the **Drill Up** button (the ↺ icon) in the Scatter Chart's [caption](#).

Legend

A legend is an element of a scatter chart that identifies chart points (for instance, colored points corresponding to argument values).



To customize legend options, go to the Scatter Chart's **Options** menu and open the **Legend** section.



The following settings are available.

SETTING	DESCRIPTION
Show Legend	Specifies whether or not to show a legend.
Inside Diagram	Locates a legend inside or outside the Scatter Chart.
Position	Sets a legend position and orientation.

Axes

Scatter Chart X and Y-axes are numerical axis of values. You can specify various axes settings to change visual data presentation.

To access X and Y-axis settings, go to the Scatter Chart's [Options](#) menu and open the **Axis X** or **Axis Y** section.

Here you can configure the visibility of axes, their title and grid lines, reverse the axes, etc.

The following options are available.



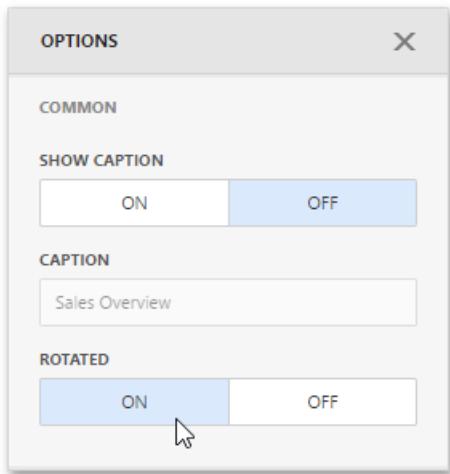
OPTIONS	DESCRIPTION
Always show zero level	Specifies whether or not the axis' zero level is visible. If this option is unchecked, the visible axis range is defined based on the values plotted in the chart. Note that the Axis X section does not contain the Always show zero level option.
Reverse	Allows you to reverse the axis. If the axis is reversed, its values are ordered from top to down.
Grid Lines	Allows you to hide and show grid lines for the axis.
Visible	Allows you to hide and show the axis.
Title	Allows you to hide and show the axis title. You can choose whether to use the default text or specify a custom string using the Title Text option.

OPTIONS	DESCRIPTION
Logarithmic scale	Specifies whether or not the axis should display its numerical values using a logarithmic scale. The combo box next to this option allows you to select the logarithmic base from one of the predefined values.

Orientation

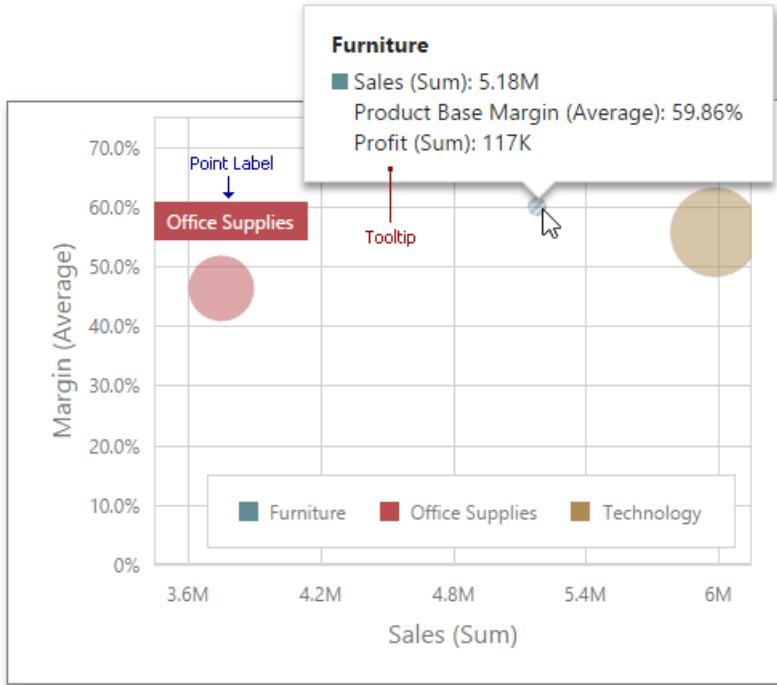
You can rotate the Scatter Chart so that the [X-axis](#) becomes vertical, and the [Y-axis](#) becomes horizontal.

To rotate a Scatter Chart in the Web Dashboard, open the Scatter Chart's [Options](#) menu and go to **Common** section. Then, turn the **Rotated** option on.



Labels

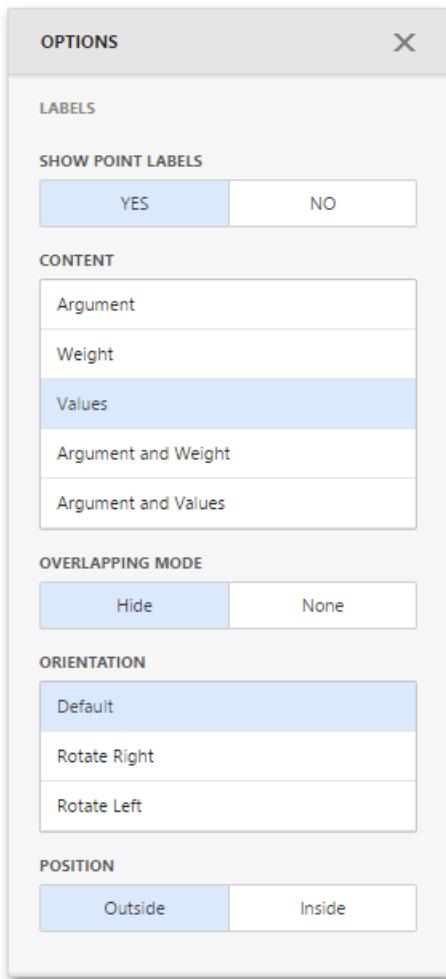
The Scatter Chart can display **point labels** that contain descriptions for data points, and provide **tooltips** with additional information.



To manage the visibility of point labels, open the Scatter Chart's [Options](#) menu and go to the **Labels** section. Then, turn the **Show Point Labels** option on.

Here you can specify the type of content displayed within point labels, configure label overlap mode and set the orientation of point labels.

The following options are available.



OPTIONS	DESCRIPTION
Show Point Labels	Specifies whether or not to show point labels for the current series.
Content	Specifies the type of content displayed within point labels. You can select <i>Value</i> , <i>Argument</i> , <i>Series Name</i> or <i>Argument and Value</i> options.
Overlapping Mode	Specifies the label overlap mode. You can hide overlapping labels or disable a resolving algorithm.
Orientation	Specifies the orientation of point labels. You can set a default orientation or rotate point labels 90 degrees clockwise or counter clockwise.
Position	Specifies the position of point labels relative to bars. Point labels can be displayed inside or outside bars.

Grid

The topics in this section describe the features available in the **Grid** dashboard item, and provide information on how to create and customize grids.

Trend	State	Sales	Sales vs Target
	Arizona	\$328M	-1.54% 
	New Mexico	\$297M	-3.65% 
	California	\$225M	+3.81% 
	Idaho	\$210M	+3.71% 
	Utah	\$187M	+2.03% 
	Michigan	\$169M	+3.95% 

- [Providing Data](#)

Provides information about how to supply the Grid dashboard item with data.

- [Columns](#)

Describes different types of grid columns.

- [Interactivity](#)

Describes features that imply interaction between the Grid and other dashboard items.

- [Conditional Formatting](#)

Describes the conditional formatting feature that provides the capability to apply formatting to grid cells whose values meet the specified condition.

- [Totals](#)

Describes totals that allow you to calculate summaries against values displayed within Grid columns.

- [Layout](#)

Describes the Grid's layout options.

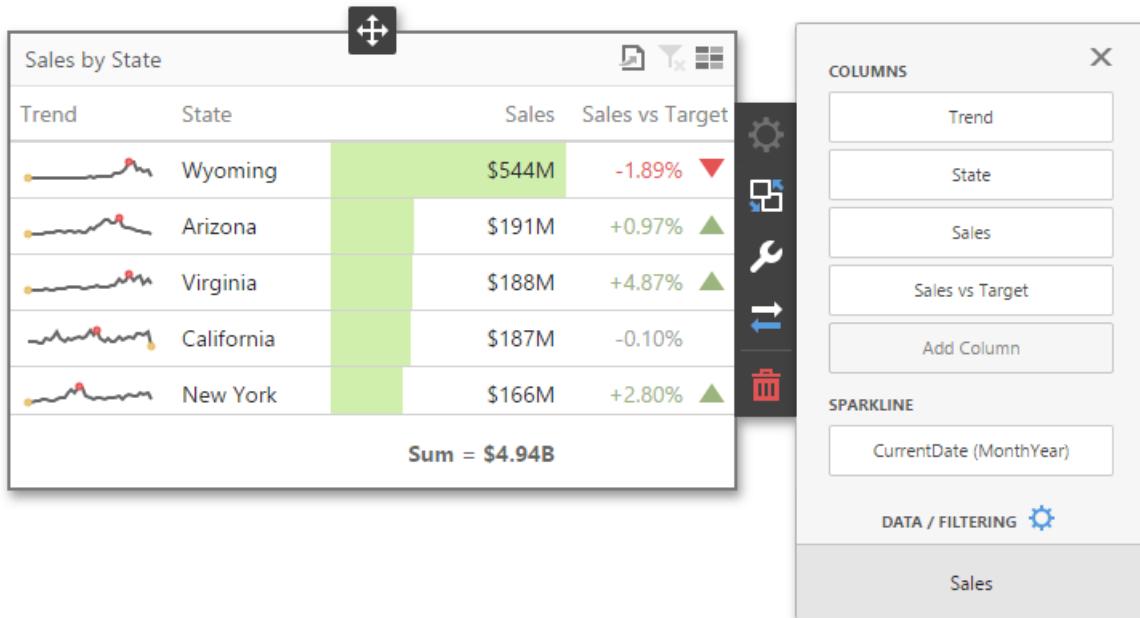
Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind a **Grid** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Grid dashboard item that is bound to data.



To bind the Grid dashboard item to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

The table below lists and describes the Grid's data sections.

SECTION	PROCESSED AS	DESCRIPTION
Columns	Dimension or Measure (depending on the selected column type)	Contains data items that provide values for grid columns. The data item menu allows you to select the column type and specify their options.
Sparkline	Dimension	Contains a data item that provides arguments for sparkline columns. To learn more, see Columns .

Columns

The Grid dashboard item supports four types of columns.

Dimension column	Hyperlink column	Measure column	Delta column	Sparkline column
State	State	Sales	Sales vs Target	Sales (Sum)
Indiana	Indiana	\$296M	+0.80% 	
California	California	\$271M	-0.20%	
Michigan	Michigan	\$245M	-3.68% 	
New York	New York	\$227M	+6.35% 	

- **Dimension**

A dimension column displays values from the bound data item "as is". If the dimension column is bound to a data source containing images, it can display images.

- **Hyperlink**

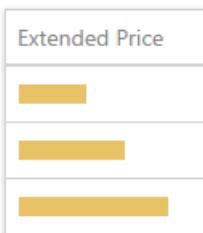
A dimension column allows you to display hyperlinks in the Grid dashboard item. You can provide hyperlinks as a separate data column, or they can be automatically created at run-time from any column using the specified **URI pattern**.

GDP by Country	
Name	GDP (billions of \$)
France	2.47M
Germany	3.48M
United States	18.6M

- **Measure**

A measure column displays summaries calculated against data in the bound data item.

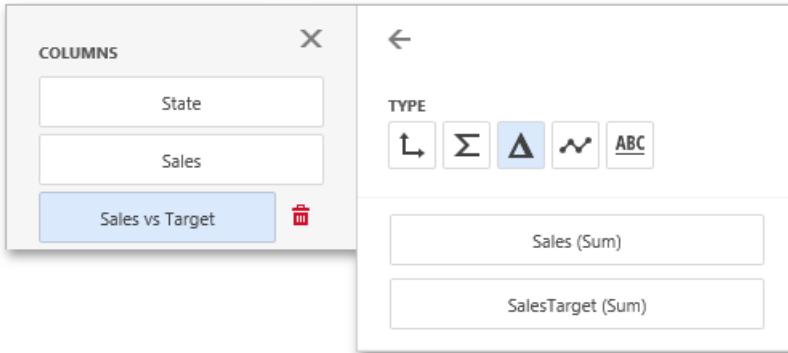
Values in the measure column can be displayed as text or represented by bars.



To select between these modes, open the column menu and go to the **Options** section.

- **Delta**

A delta column calculates summaries against two measures: the **Actual** value and the **Target** value. When you switch the column type to **Delta**, a new **Target** data item container appears.



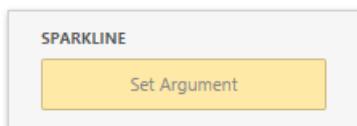
The difference between these values is displayed within the column.

You can configure delta options in the **Delta Options** section of the [column menu](#).

- **Sparkline**

A sparkline column visualizes the variation of summary values over time.

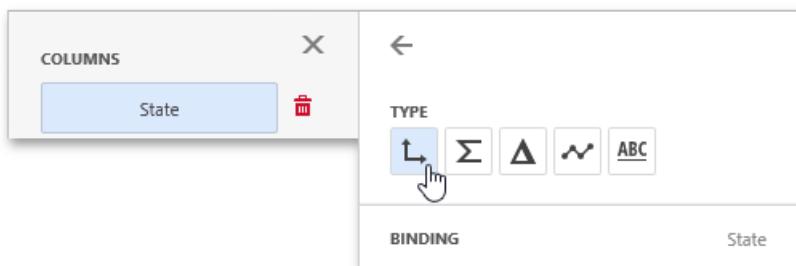
The sparkline column is bound to the measure providing sparkline values and to the dimension providing a date-time interval. Add the required date-time dimension to the **Sparkline** placeholder to show values depending on time.



You can configure sparkline options in the data item's **Sparkline Options** section.

When you drop a data item into the Columns section, the type for the new column is determined automatically based on the data type.

To change the column type, open the [column menu](#) and click the corresponding type button.



Interactivity

To enable interaction between the Grid and other dashboard items, you can use the interactivity features, as **Master Filtering** and **Drill-Down**.

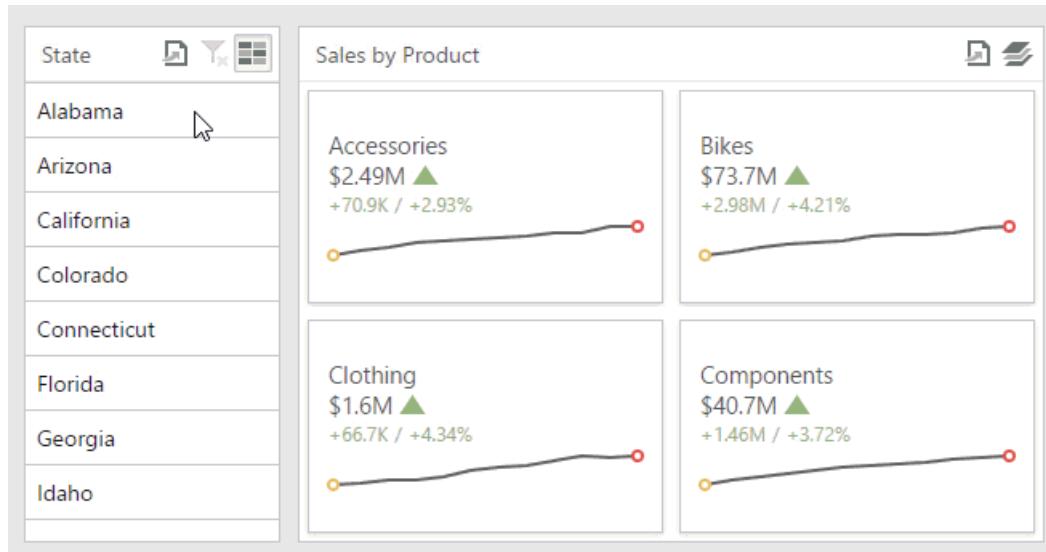
- [Master Filtering](#)
- [Drill-Down](#)

Master Filtering

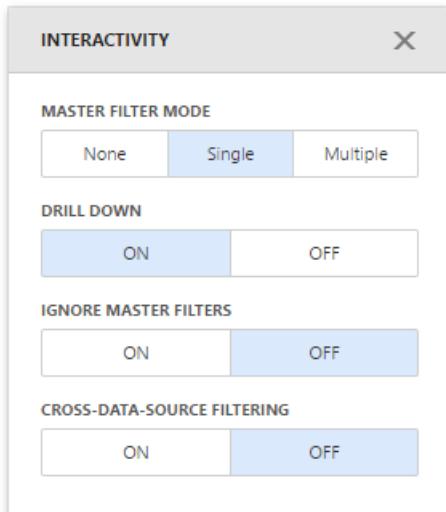
You can use the **Grid** dashboard item as a filter for other dashboard items. To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

The Grid dashboard item supports filtering by rows.

When **Master Filtering** is enabled, you can click a grid row (or multiple rows) to make other dashboard items only display data related to the selected record(s).



To enable **Master Filtering**, go to the Grid's [Interactivity](#) menu and select the required Master Filtering mode.



To reset filtering, use the **Clear Master Filter** button (the icon) in the Grid's [caption](#).

Drill-Down

The built-in drill-down capability allows you to change the detail level of data displayed in dashboard items on the fly. To learn

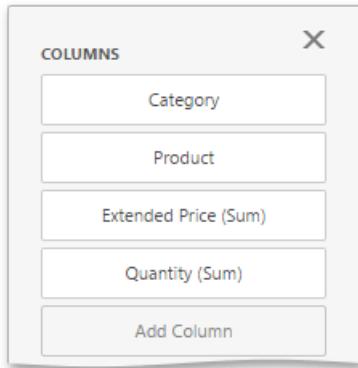
more about drill-down concepts common to all dashboard items, see the [Drill-Down](#) topic.

The **Grid** dashboard item supports drill-down for rows. When drill-down is enabled, you can click a grid row to view the details.

Category	Extended Price (Sum)	Quantity (Sum)
Beverages	\$268K	9.53K
Condiments	\$106K	5.3K
Confections	\$167K	7.91K
Dairy Products	\$235K	9.15K
Grains/Cereals	\$95.7K	4.56K
Meat/Poultry	\$163K	4.2K
Produce	\$100K	2.99K
Seafood	\$131K	7.68K

Product	Extended Price (Sum)	Quantity (Sum)
Alice Mutton	\$32.7K	978
Mishi Kobe Niku	\$7.23K	95
Pâté chinois	\$17.4K	903
Perth Pasties	\$20.6K	722
Thüringer Rostbratwurst	\$80.4K	746
Tourtière	\$4.73K	755

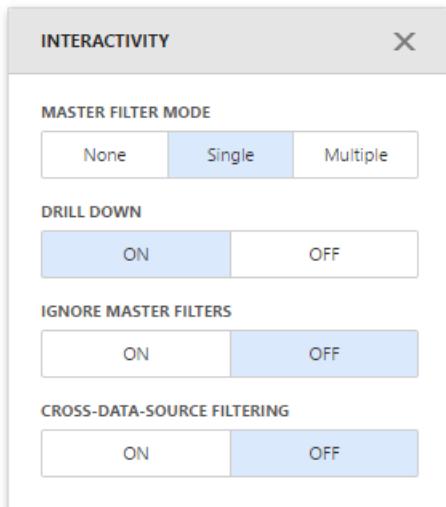
Drill-down requires that the Columns section contains several dimensions at the top, from the least detailed to the most detailed dimension.



Note

In OLAP mode, you can perform drill-down for either a hierarchy data item or several dimension attributes.

To enable **Drill-Down**, go to the Grid's [Interactivity](#) menu and turn the **Drill-Down** option on.



To return to the previous detail level, click the **Drill Up** button (the ↺ icon) in the Grid's [caption](#).

Conditional Formatting

The Grid dashboard item supports the conditional formatting feature that provides the capability to apply formatting to grid cells whose values meet the specified condition. This feature allows you to highlight specific cells or entire rows using a predefined set of rules. To learn more about conditional formatting concepts common for all dashboard items, see [Conditional Formatting](#).

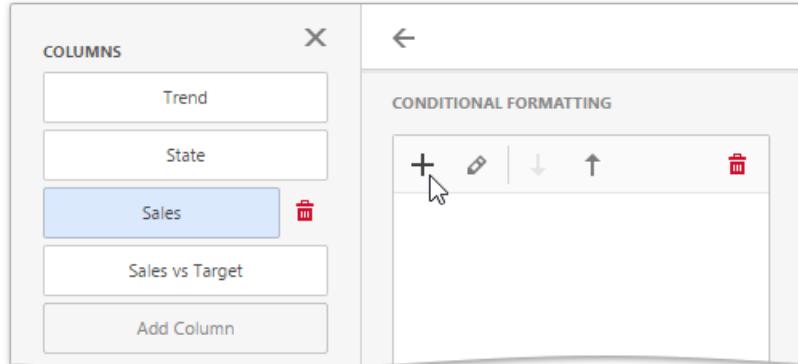
State	Sales	SalesTarget (Sum)
Wyoming	⬆️	\$546M
Kentucky	➡️	\$378M
Maine	➡️	\$346M
Georgia	⬇️	\$231M
Texas	⬇️	\$229M

The Grid dashboard item allows you to apply conditional formatting to data items providing data to the **dimension** and **measure column types**.

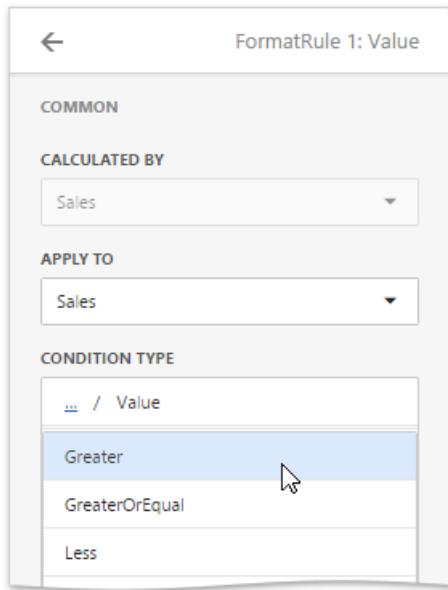
You can use [hidden measures](#) to specify a condition used to apply formatting to visible values. New appearance settings are applied to grid cells corresponding to the target dimension/measure values.

Create and Edit Format Rules

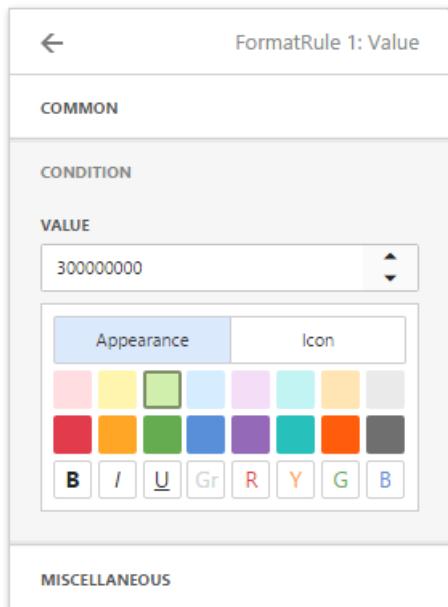
To create a new format rule, select the required measure / dimension by whose values a format condition will be calculated, open its [menu](#) and go to the **Conditional Formatting** section. Click "+" to add a new rule.



Then, specify the data item to which conditional formatting is applied using the **Apply to** combo box and select the condition type.



Depending on the selected format condition, the menu used to create a format rule for a Grid contains different settings. For example, the image below displays the *Value* format condition menu. Here you need to specify a required value and select a format rule style.



■ Note

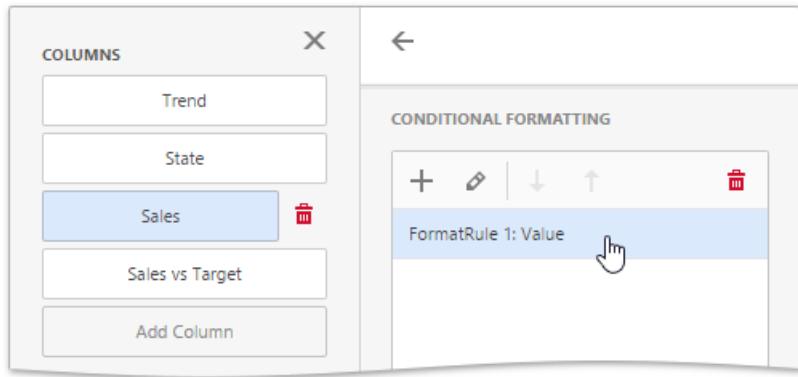
The **Miscellaneous** section of the format rule menu contains additional settings, depending on the dashboard item type. The Grid dashboard item allows you to apply the current format rule to a row or disable this rule.

The format condition is now ready and will be applied to the Grid dashboard item.

State	Sales	SalesTarget (Sum)
Wyoming	\$546M	\$544M
Kentucky	\$378M	\$374M
Maine	\$346M	\$366M
Georgia	\$231M	\$232M
Texas	\$229M	\$229M

To edit a format rule, open the **Conditional Formatting** section of the [data item menu](#), select the required format rule and click

the **Edit** button (the  icon).



To delete the selected format rule, click the **Delete** button (the  icon).

Totals

The Grid dashboard item enables you to add a summary value (a **total**) calculated against displayed values of an individual column, and to show the result under this column. Note that you can add any number of totals for each column. For example, you can obtain the number of column records, average or maximum value, etc.

Category	Extended Price (Sum)	Discount (Average)
Beverages	\$268K	6.19%
Condiments	\$106K	5.26%
Confections	\$167K	5.69%
Dairy Products	\$235K	5.34%
Grains/Cereals	\$95.7K	4.53%
Meat/Poultry	\$163K	6.45%
Produce	\$100K	4.54%
Seafood	\$131K	6.02%
Count = 8		Max = \$268K
		Avg = 5.50%
		Sum = \$1.27M

- [Totals Overview](#)
- [Create and Edit Totals](#)

Totals Overview

You can use the following summary functions when creating totals.

- **Count** - The number of records.

- **Sum** - The sum of the values.

$$Sum = \sum_i v_i$$

- **Min** - The smallest value.

- **Max** - The largest value.

- **Average** - The average of the values.

$$\bar{v} = \frac{1}{n} \cdot \sum_i v_i$$

- **Auto** - The total is calculated using the type of [summary function](#) specified for the measure corresponding to the current Grid column. Note that in this case, the total is calculated based on values of the corresponding data field from the underlying data source.

■ Note

Note that the **Auto** type is not supported when the Grid is bound to the OLAP data source.

You can create totals using different sets of summary functions. This depends on the type of the data source field providing data for the target column.

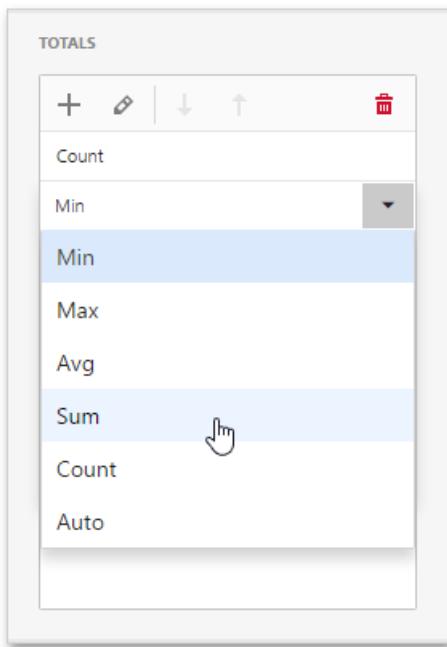
■ Important

Note that the **Auto** type is available only for the **measure** column.

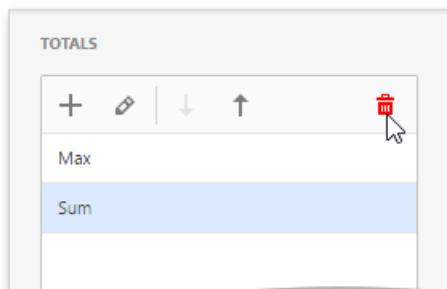
Create and Edit Totals

To create a total, open a [data item menu](#) and go to the **Totals** section. Click "+" to add a new total.

To change the total type, open the drop down list and select the required type.



You can delete the required total by clicking the **Delete** button (the icon).

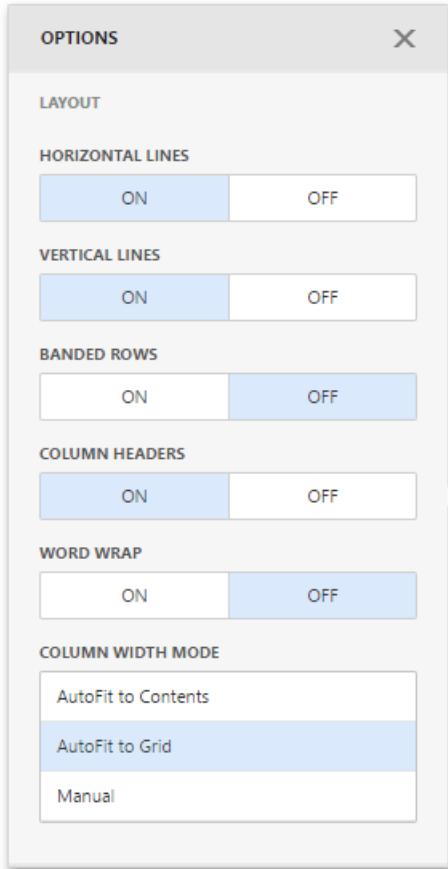


Layout

The Grid dashboard item allows you to customize its layout in various ways. You can manage the width of grid columns, specify the visibility of column headers, enable cell merging, etc.

To access the layout settings, use the **Layout** section in the Grid's [Options](#) menu.

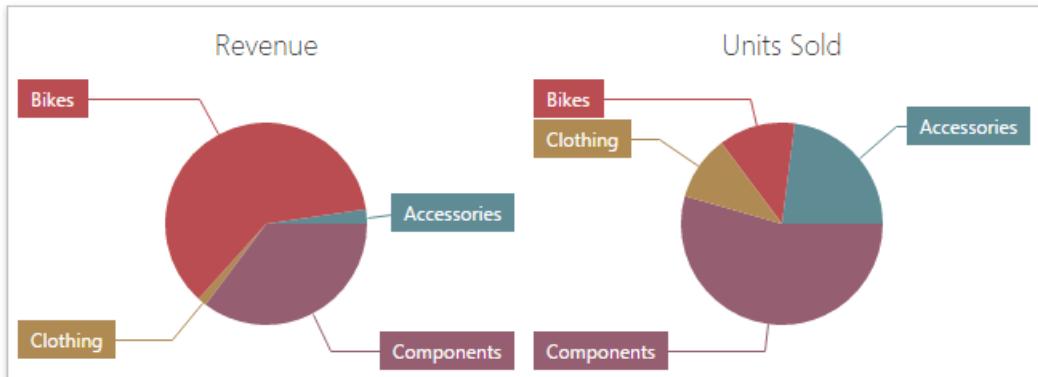
The following settings are available.



- **Horizontal Lines** - Specifies grid's horizontal line visibility.
- **Vertical Lines** - Specifies grid's vertical line visibility.
- **Banded Rows** - Specifies the different background for odd and even rows.
- **Column Headers** - Allows you to toggle column header visibility.
- **Word Wrap** - Displays cell content on multiple lines if the size of a dashboard item is insufficient to completely display the cell content on a single line.
- **Column Width Mode** - Specifies column widths of the entire Grid using one of the available modes.

Pies

The Pie dashboard item displays a series of pies or donuts that represent the contribution of each value to a total.



This section consists of the following subsections.

- [Providing Data](#)

Describes how to supply the Pie dashboard item with data.

- [Interactivity](#)

Describes features that enable interaction between the Pie dashboard item and other items.

- [Layout](#)

Describes layout options of the Pie dashboard item.

- [Labels](#)

Explains how to customize data labels and tooltips.

- [Style](#)

Describes how to select the style of pie charts.

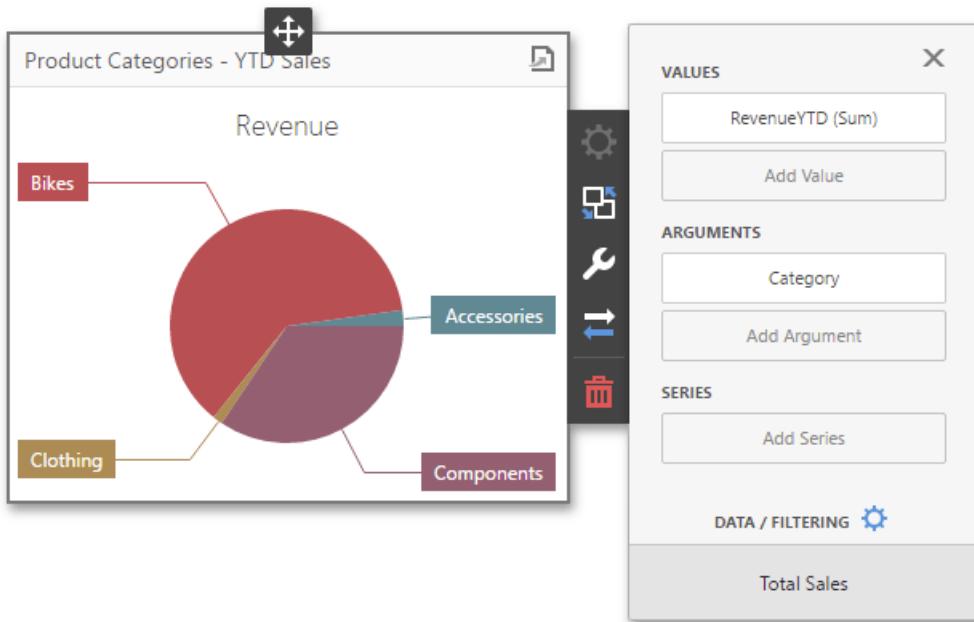
Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind a **Pie** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Pie dashboard item that is bound to data.



To bind the Pie dashboard item to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

The table below lists and describes the Pie's data sections.

SECTION	PROCESSED AS	DESCRIPTION
Values	Measure	Contains data items that define the share of pie segments. In case of negative measure values, Pie uses their absolute values.
Arguments	Dimension	Contains data items that provide values used to label pie segments.
Series	Dimension	Contains data items whose values are used to label pie charts.

Interactivity

To enable interaction between the Pie and other dashboard items, you can use interactivity features like **Master Filtering** and **Drill-Down**.

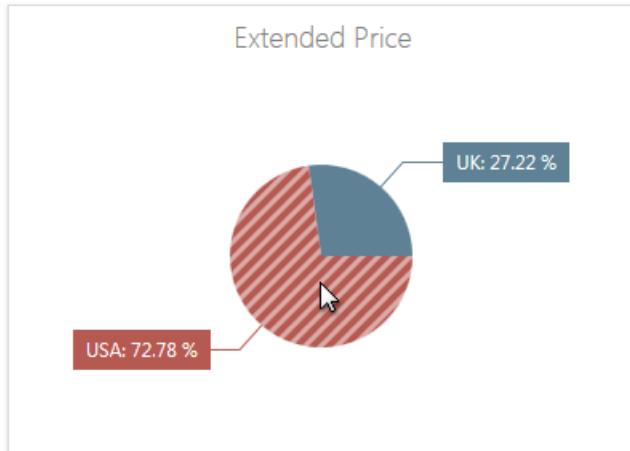
- [Master Filtering](#)
- [Drill-Down](#)

Master Filtering

You can use the Pie dashboard item as a filter for other dashboard items. To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

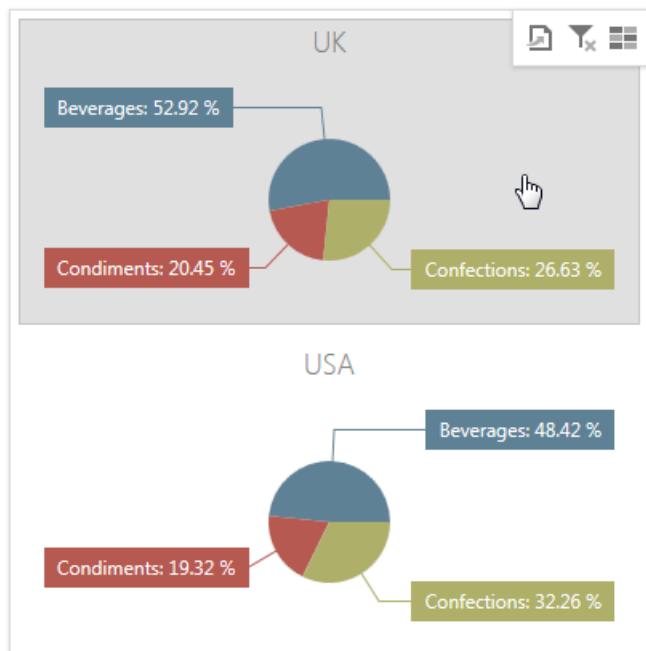
The Pie dashboard item supports filtering by **arguments**, **series** or **points**.

- Filtering **by arguments** allows you to make other dashboard items display only data related to selected argument values by clicking a pie segment.



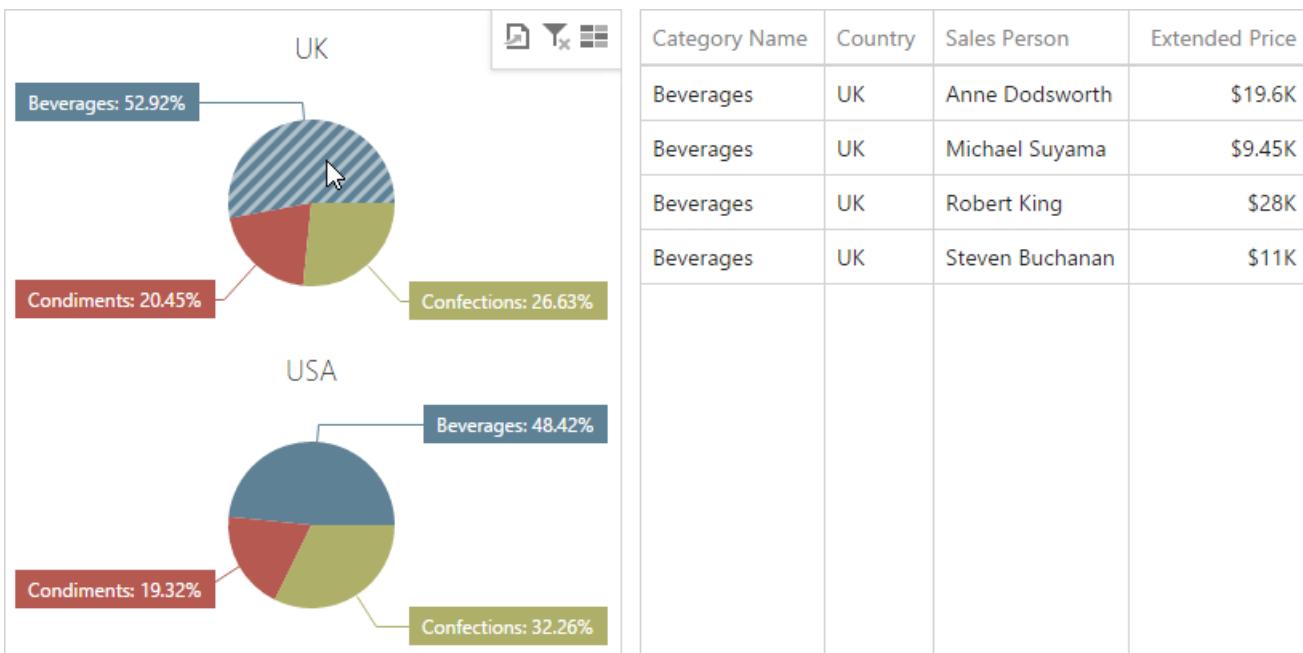
Country	Category Name	Extended Price
USA	Beverages	\$200K
USA	Condiments	\$79.7K
USA	Confections	\$133K
USA	Dairy Products	\$147K
USA	Grains/Cereals	\$74.5K
USA	Meat/Poultry	\$113K
USA	Produce	\$70.2K
USA	Seafood	\$104K

- When filtering **by series** is enabled, you can click a pie to make other dashboard items display only data related to the selected pie.

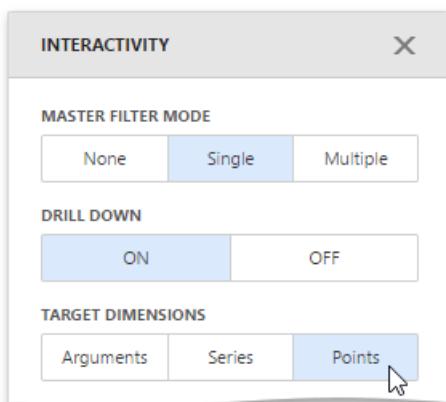


Country	Sales Person	Extended Price
UK	Anne Dodsworth	\$77.3K
UK	Michael Suyama	\$73.9K
UK	Robert King	\$125K
UK	Steven Buchanan	\$68.8K

- When filtering **by points** is enabled, you can click a single pie segment to make other dashboard items display only data related to the selected segment.



To configure filtering type, open the Pie's [Interactivity](#) menu and select **Arguments**, **Series** or **Points** as a target dimension.



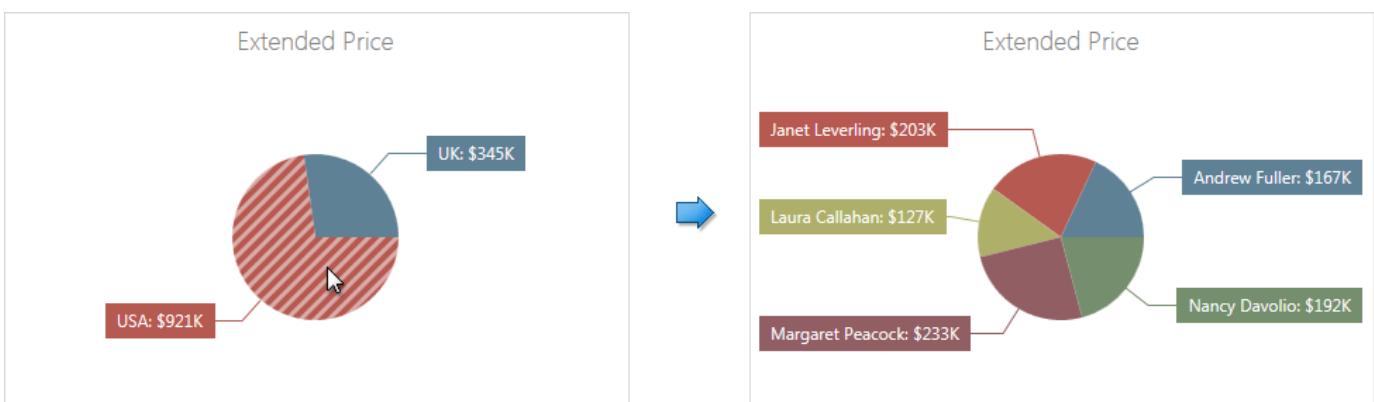
To reset filtering, use the **Clear Master Filter** button (the icon) in the Pie's [caption](#).

Drill-Down

The drill-down capability allows you to change the detail level of data displayed in the Pie dashboard item. To learn more about drill-down concepts common to all dashboard items, see the [Drill-Down](#) topic.

The Pie supports drill-down on **argument** or **series** values.

- To drill down on **arguments**, click a pie segment to view a detail diagram for the corresponding argument value.

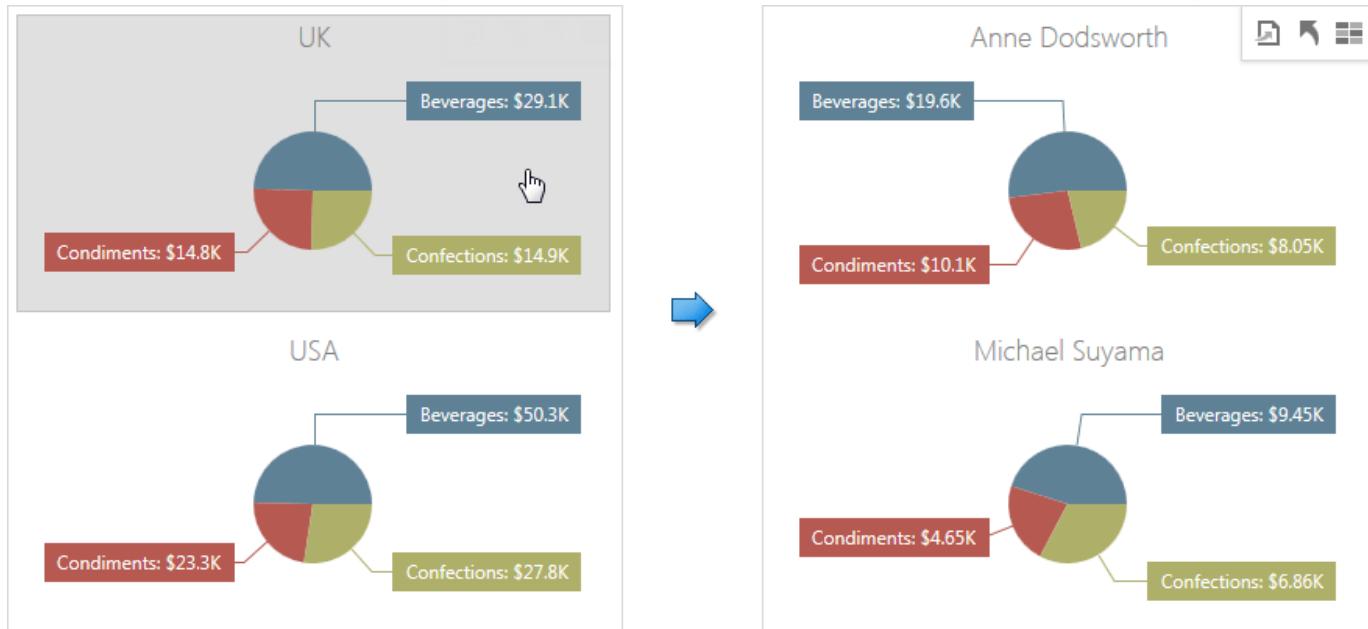


Drill-down on arguments requires that the **Arguments** section contains several data items, from the least detailed to the

most detailed item.



- When drill-down on **series** is enabled, you can click a pie chart to view a detail diagram for the corresponding series value.



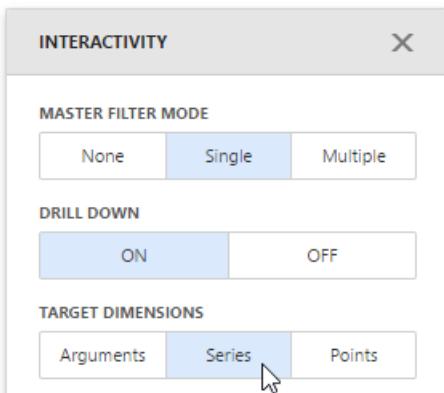
Drill-down on series requires that the **Series** section contains several data items, from the least detailed to the most detailed item.



Note

In OLAP mode, you can perform drill-down for either a hierarchy data item or several dimension attributes.

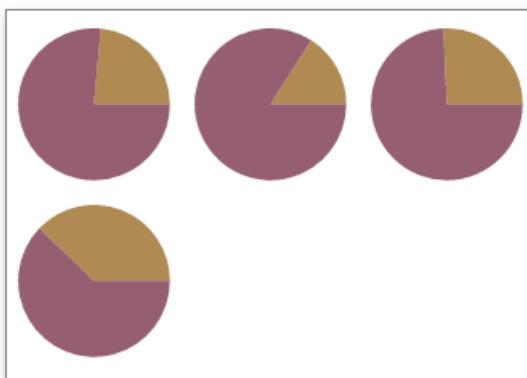
To specify drill-down type, go to the Pie's [Interactivity](#) menu and set **Arguments** or **Series** as the target dimension.



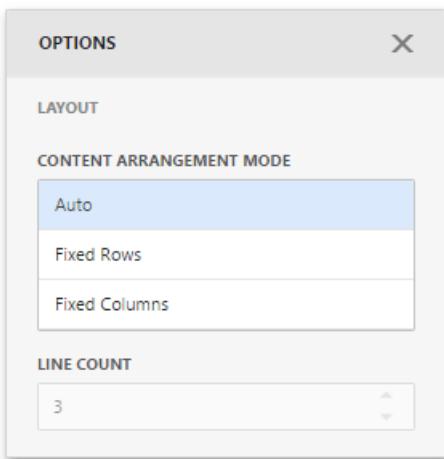
To return to the previous detail level, click the **Drill Up** button (the ↺ icon) in the Pie's [caption](#).

Layout

The Pie dashboard item allows you to specify the number of columns or rows in which pies are arranged. For example, the following image shows pies arranged into 3 columns.



To control how cards are arranged, use the **Layout** section in the Pie's [Options](#) menu.



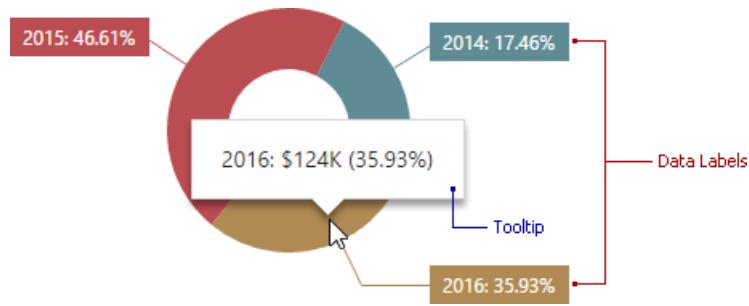
The following modes are available.

ARRANGEMENT MODE	DESCRIPTION
Auto	Automatically resizes pies to fit within the dashboard item.
Fixed Rows	Allows you to arrange pies in a specific number of rows.
Fixed Columns	Allows you to specify the number of columns in which pies are arranged.

To specify the number of rows / columns, use the **Line Count** field.

Labels

Pies display **data labels** that contain descriptions for pie segments, and provide **tooltips** with additional information.



To configure data labels and tooltips, open the Pie's [Options](#) menu and go to the **Labels** section.

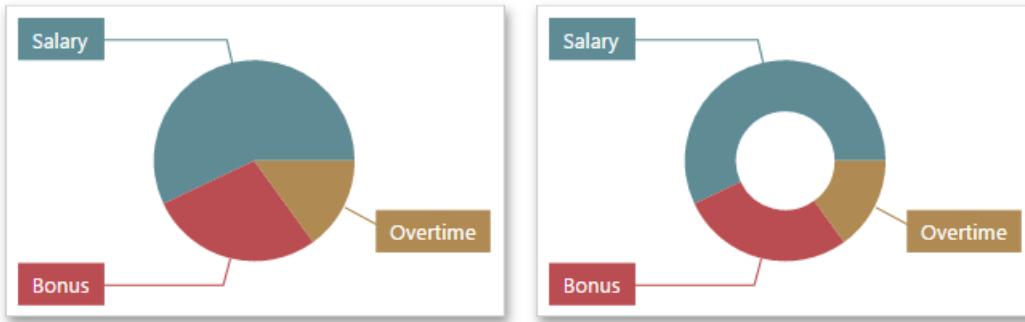
DATA LABELS
None
Argument
Percent
Argument And Percent
Value
Argument And Value
Value And Percent
Argument, Value And Percent

TOOLTIPS
None
Argument
Percent
Argument And Percent
Value
Argument And Value
Value And Percent
Argument, Value And Percent

Here you can set argument, value, percent or their combinations as data labels or tooltips.

Style

The Pie dashboard item allows you to select whether diagrams should be painted as **pies** or **donuts**.

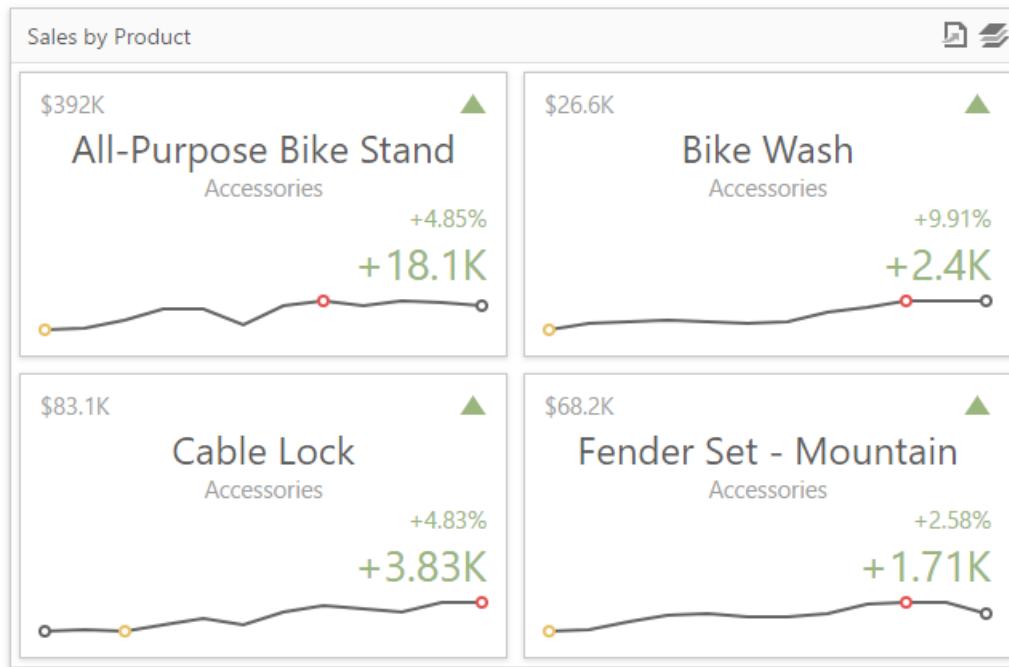


To select the diagram style, go to the **Style** section of the Pie's [Options](#) menu and use the **Pie** or **Donut** buttons.



Cards

The **Card** dashboard item displays a series of cards. Each card illustrates the difference between two values. This difference can be expressed as an absolute value, an absolute variation or a percentage variation.



This section provides the following topics.

- [Providing Data](#)

Provides information about how to supply the Card dashboard item with data.

- [Layout](#)

Describes how to manage the position and visibility of elements within a card.

- [Delta](#)

Provides an overview of the Card dashboard item's capability to display the difference between two parameters.

- [Sparkline](#)

Provides an overview of the Card dashboard item's capability to visualize data using sparklines.

- [Formatting](#)

Shows how to format values displayed within a card.

- [Interactivity](#)

Describes features that enable interaction between the Card dashboard item and other items.

- [Cards Arrangement](#)

Describes how to arrange cards within the Card dashboard item.

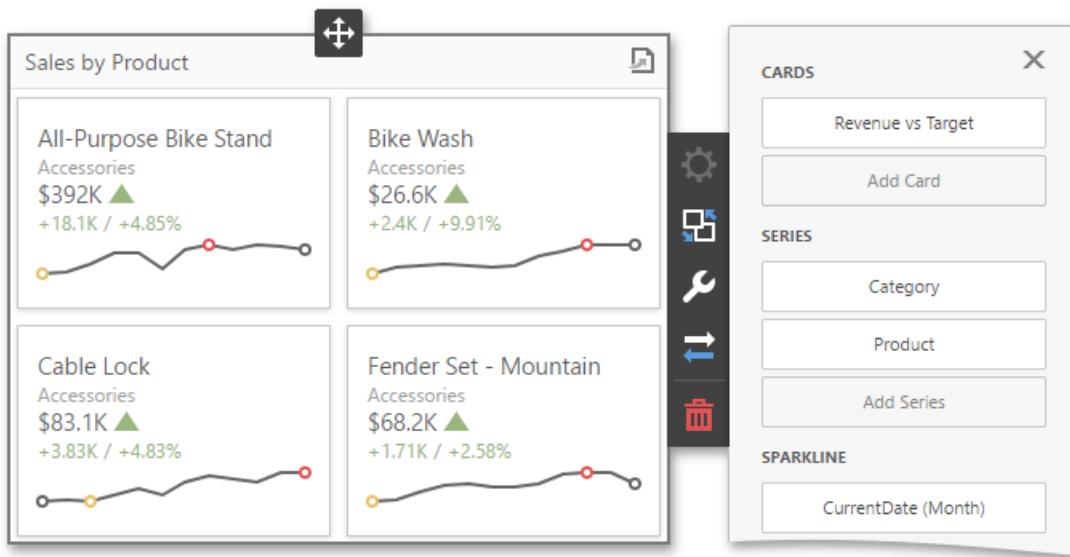
Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind a **Card** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Card dashboard item that is bound to data.



To bind the Card dashboard item to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

The table below lists and describes the Card's data sections.

SECTION	PROCESSED AS	DESCRIPTION
Cards	Measure (both <i>Actual</i> and <i>Target</i> values)	Contains data items used to calculate values displayed within cards. After you add the data item containing actual data, you can add the second data item (optional) that contains target data. If both items are provided, cards show the difference between actual and target values, called <i>delta</i> . To learn more, see Delta . You can fill several data item containers in the Cards section and use the Values drop-down menu to switch between the provided values. To invoke the Values menu, click the  icon in the dashboard item caption.
Series	Dimension	Contains data items whose values are used to label cards.
Sparkline	Dimension	Provides a date-time dimension whose data will be used to visualize values using sparklines .

Layout

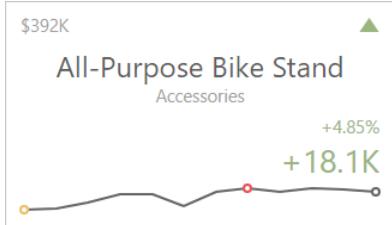
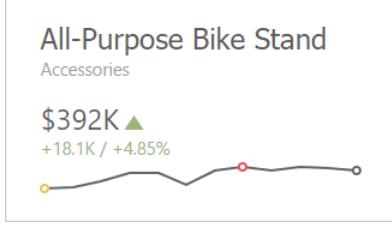
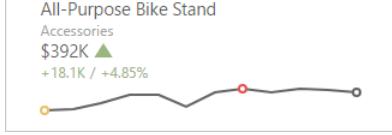
The Card dashboard item allows you to manage the position and visibility of elements displayed on cards. These elements include actual and target values, a [delta indicator and corresponding delta values](#), a [sparkline](#), etc.

To manage the position and visibility of card elements, choose a predefined layout template and customize its settings.

- [Available Layout Templates](#)
- [Default Layout](#)
- [Change Layout](#)

Available Layout Templates

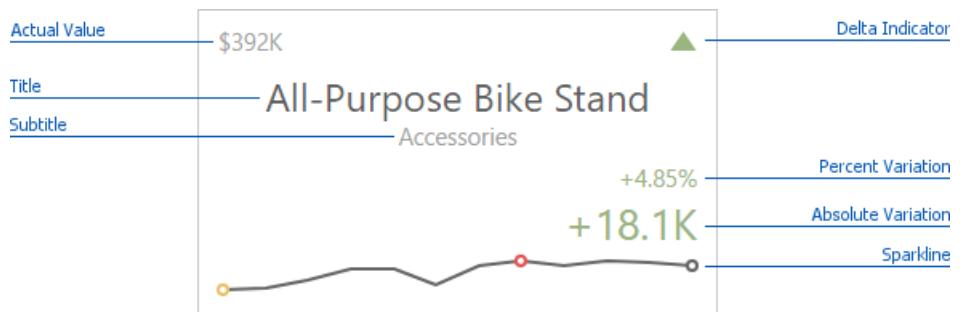
The table below contains information about the available layout templates:

LAYOUT TYPE	EXAMPLE	DESCRIPTION
Stretched		The <i>Stretched</i> layout template arranges card elements so that they occupy an entire card area.
Centered		The <i>Centered</i> layout template is used to center card elements so that they occupy a specified width/height.
Compact		The <i>Compact</i> layout template is used to arrange card elements so that they occupy the minimum area.
Lightweight		The <i>Lightweight</i> layout template displays the minimum set of elements within a card.

For all layout types, you can change the visibility of its elements, or you can specify the display value type for data-bound elements. To learn more, see the [Change Layout](#) paragraph below.

Default Layout

The Card dashboard item uses the [Stretched](#) layout template that arranges card visual elements in the following way by default:



To learn more about the available value types and visual elements, see [Change Layout](#).

■ Note

Delta Indicator and delta values (such as **Percent Variation** or **Absolute Variation**) are colored depending on delta settings. To learn how to manage delta settings, see [Delta](#).

Change Layout

To change a card's layout in the Web Dashboard's UI, invoke the **Binding menu**, click the required data item in the **Cards** section and go to **Cards Layout** in the [data item's menu](#). Select the required layout type and click the **Edit** button (the icon) to change its settings. The following settings are available:

- **Min width** - Specifies the minimum width of the card content.
- **Max width** - Allows you to specify the maximum width of the card content. Select the **Auto** option to determine the maximum width automatically or switch to **Custom** and specify the required width manually.

You can show/hide the following values and visual elements within the card:

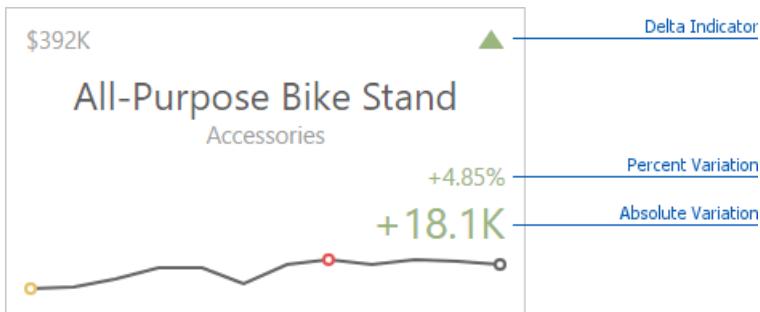
Value	Description	Example
Title	Displays values of the last (bottommost) dimension placed in the Series section.	<i>Microsoft Office Keyboard</i>
Subtitle	Displays combined values of all dimensions except the last (bottommost) dimension.	<i>Technology - Computer Peripherals</i>
Absolute Variation	An absolute difference between the actual and target value (see Delta).	+18.1K
Actual Value	A summary value for a measure placed in the Actual placeholder.	\$392K
Card Name	A card name.	<i>Revenue vs. Target</i>
Percent of Target	A percent of a target value (see Delta).	104.85 %
Percent Variation	A percent difference between the actual and target value (see Delta).	4.85 %
Target Value	A summary value for a measure placed in the Target placeholder.	\$374K
Dimension {Name}	Allows you to display values of a specific dimension placed in the Series section.	<i>Technology</i>
Element	Description	Example

Value	Description	Example
Delta Indicator	Indicates whether the actual value is less or greater than the target value (see Delta).	
Sparkline	Visualizes the variation of actual or target values. To learn more, see Sparkline .	

Use the **Apply to All Cards** button to propagate the specified layout settings to all cards corresponding to **Actual-Target** pairs. The **Reset** button resets all setting to their default values.

Delta

Cards allow you to visualize the difference between the **actual** and **target** values using special delta values and a delta indicator. If the default layout is used ([Stretched layout type](#)), the card displays the following delta values/elements:



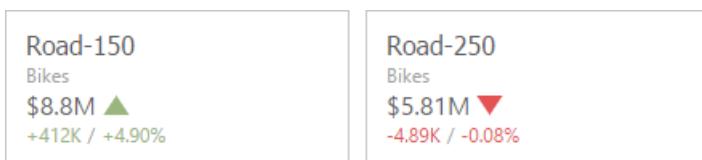
- **Delta Indicator** - Indicates whether the actual value is less or greater than the target value.
- **Percent Variation** and **Absolute Variation** - delta values that show a difference between the actual and target value. You can also display the **Percent of Target** value. To do this, customize the [card's layout](#).

To customize settings that relate to the calculation and display of delta values/elements, invoke the [Binding menu](#), click the required data item in the [Cards](#) section and go to **Delta Options** in the [data item's menu](#).

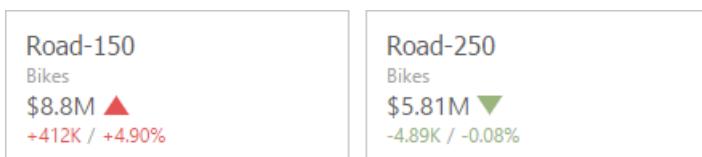
Then, specify the following settings:

- **Result Indication** - You can specify the condition for displaying delta indication.

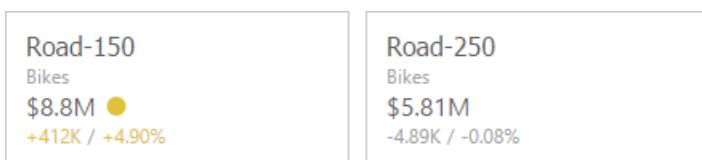
- **Greater is Good** - The 'good' indication is displayed if the actual value exceeds the target value; if the target value exceeds the actual value, the 'bad' indication displays.



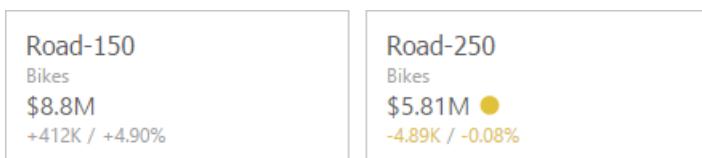
- **Less is Good** - The 'bad' indication displays if the actual value exceeds the target value; if the target value exceeds the actual value, the 'good' indication displays.



- **Warning if Greater** - A warning displays only if the actual value exceeds the target value.



- **Warning if Less** - A warning displays only if the target value exceeds the actual value.



- **No Indication** - Indication does not display.

Road-150

Bikes

\$8.8M

+412K / +4.90%

Road-250

Bikes

\$5.81M

-4.89K / -0.08%

- **Threshold type / Threshold value** - For instance, you can specify that a specific indication should display when the actual value exceeds the target value *by 10%* or *by \$2K*. Use the **Threshold type** combo box to select whether you wish to specify the comparison tolerance in percentage values or absolute values. Then use the **Threshold value** box to specify the comparison tolerance.

Sparkline

Sparklines can be used to visualize the variation of [actual or target](#) values (for instance, over time).

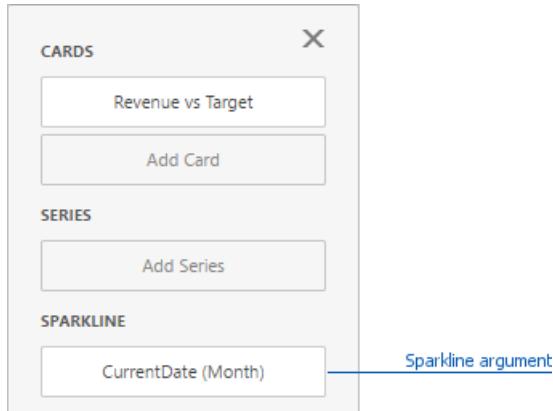


To learn how to display the sparkline for different layout types, see [Layout](#).

- [Data Binding Specifics](#)
- [Change Sparkline Options](#)

Data Binding Specifics

You need to provide a date-time or numeric dimension (in the **Sparkline** section) whose data is used as argument values to display a sparkline within the card.



If you have provided both actual and target values, a sparkline visualizes the actual value's variation.

Change Sparkline Options

To change sparkline settings in the Web Dashboard's UI, invoke the **Binding menu**, click the required data item in the **Cards** section and go to **Sparkline Options** in the [data item's menu](#). The following options are available:

SPARKLINE OPTIONS	DESCRIPTION
View type	Defines the sparkline's view type. Sparkline data points can be represented as area , line , bars , or win and loss squares.
Highlight min/max points	Specifies whether to highlight the minimum/maximum points of a sparkline.
Highlight start/end points	Specifies whether to highlight the start/end points of a sparkline.

Formatting

The Card dashboard item formats the [actual and target](#) values displayed within cards using [format settings](#) specified for data items.

To change format settings in the Web Dashboard's UI, invoke the **Binding menu**, click the required data item in the **Cards** section and go to **Format Options** in the [data item's menu](#). You can change format settings for the following [value types](#):

- **Actual Value**
- **Target Value**
- **Absolute Variation**
- **Percent of Target**
- **Percent Variation**

To change format settings for the selected value type, click the **Edit** button (the  icon). To learn more about format settings, see [Formatting Numeric Values](#) in the [Formatting Data](#) topic.

Interactivity

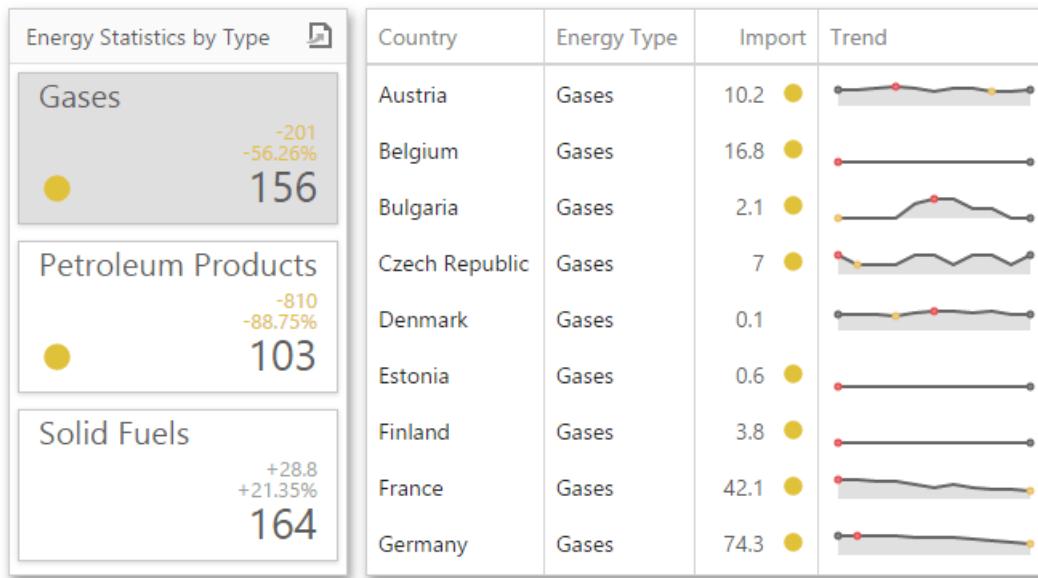
To enable interaction between the Card and other dashboard items, you can use interactivity features like **Master Filtering** and **Drill-Down**.

- [Master Filtering](#)
- [Drill-Down](#)

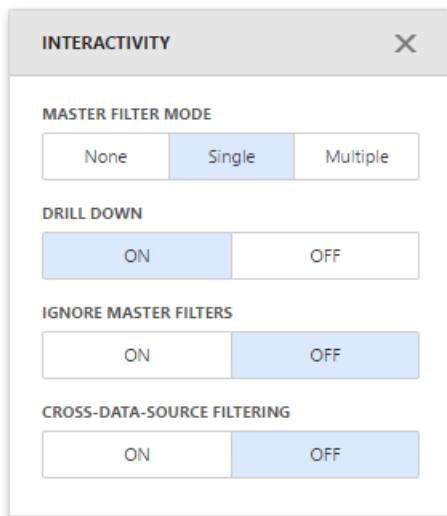
Master Filtering

The Dashboard allows you to use the Card dashboard item as a filter for other dashboard items. To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

When **Master Filtering** is enabled, you can click a card(s) to make other dashboard items only display data related to the selected card(s).



To enable **Master Filtering**, go to the Card's [Interactivity](#) menu and select the required Master Filtering mode.



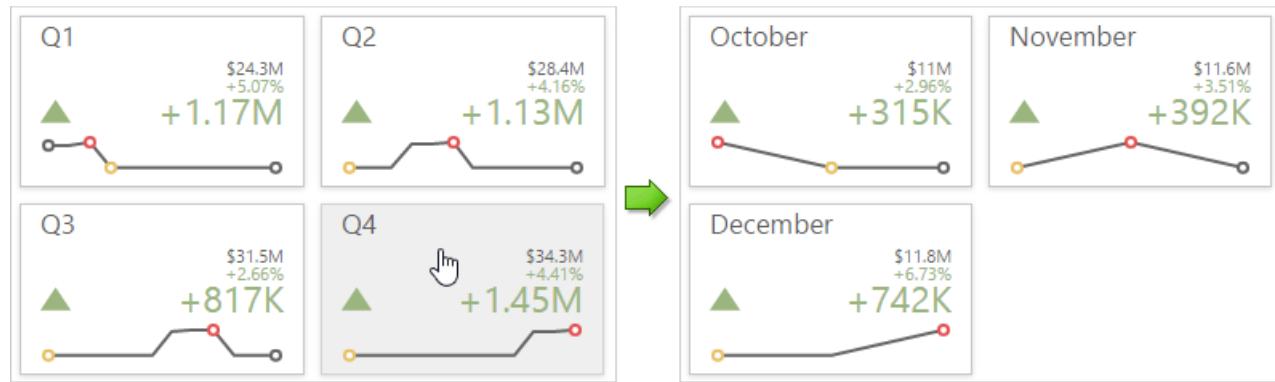
To reset filtering, use the **Clear Master Filter** button (the icon) in the Card's [caption](#).

Drill-Down

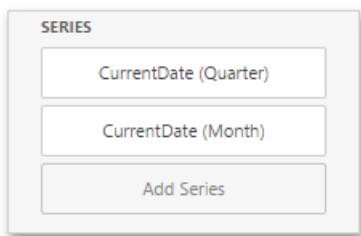
The built-in drill-down capability allows you to change the detail level of data displayed in dashboard items on the fly. To learn

more about drill-down concepts common to all dashboard items, see the [Drill-Down](#) topic.

When drill-down is enabled, you can click a card to view the details.



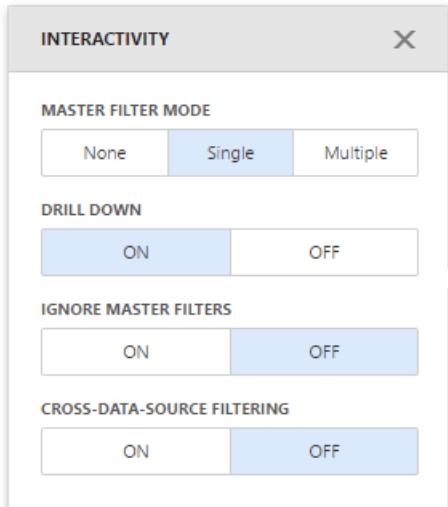
Drill-down requires that the Series section contains several dimensions at the top, from the least detailed to the most detailed dimension.



■ Note

In OLAP mode, you can perform drill-down for either a hierarchy data item or several dimension attributes.

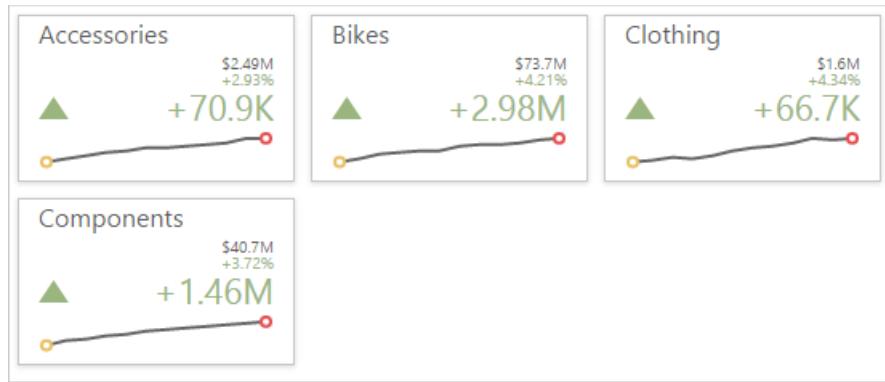
To enable **Drill-Down**, go to the Card's [Interactivity](#) menu and turn the **Drill-Down** option on.



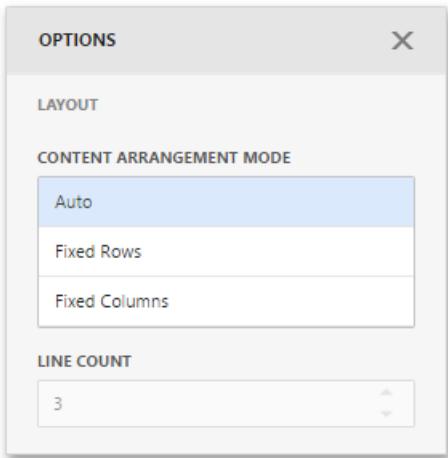
To return to the previous detail level, click the **Drill Up** button (the ↺ icon) in the Card's [caption](#).

Cards Arrangement

The Card dashboard item allows you to specify the number of columns or rows in which cards are arranged. For example, the following image show cards arranged into 3 columns.



To control how cards are arranged, use the **Layout** section in the Card's [Options](#) menu.



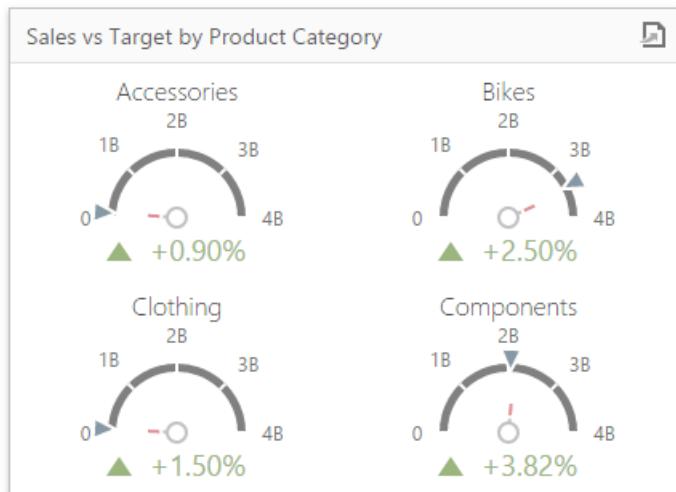
The following modes are available.

ARRANGEMENT MODE	DESCRIPTION
Auto	Automatically resizes cards to fit within the dashboard item.
Fixed Rows	Allows you to arrange cards in a specific number of rows.
Fixed Columns	Allows you to specify the number of columns in which cards are arranged.

To specify the number of rows / columns, use the **Line Count** field.

Gauges

The **Gauge** dashboard item displays a series of gauges. Each gauge can communicate two values - one with a needle and the other with a marker on the scale.



The following sections are available.

- [Providing Data](#)

Provides information about how to supply the Gauge dashboard item with data.

- [Delta](#)

Provides an overview of the Gauge dashboard item's capability to display the difference between two parameters.

- [Gauge Scale](#)

Describes options that relate to the gauge scales.

- [Interactivity](#)

Describes features that enable interaction between the Gauge dashboard item and other items.

- [Layout](#)

Describes layout options of the Gauge dashboard item.

- [Style](#)

Provides information about how to specify the gauge style.

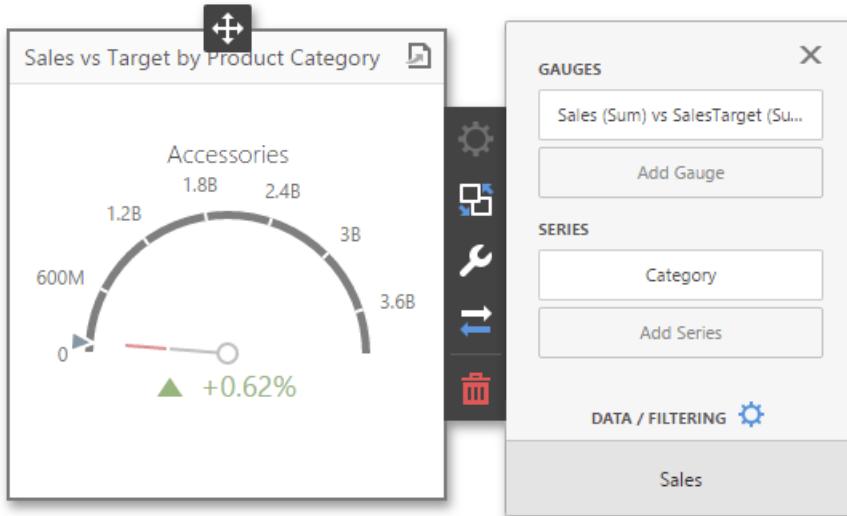
Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind a **Gauge** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Gauge dashboard item that is bound to data.



To bind the Gauge dashboard item to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

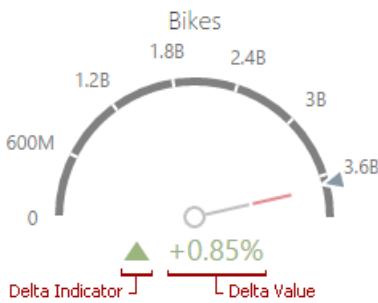
The table below lists and describes the Gauge's data sections.

SECTION	PROCESSED AS	DESCRIPTION
Gauges	Measure (both <i>Actual</i> and <i>Target</i> values)	Contains data items used to calculate values displayed by gauges. After you add the data item containing actual data, you can add the second data item (optional) that contains target data. If both items are provided, gauges show the difference between actual and target values, called <i>delta</i> . To learn more, see Delta . You can fill several data item containers in the Gauges section and use the Values drop-down menu to switch between the provided values. To invoke the Values menu, click the icon in the dashboard item caption.
Series	Dimension	Contains data items whose values are used to label gauges..

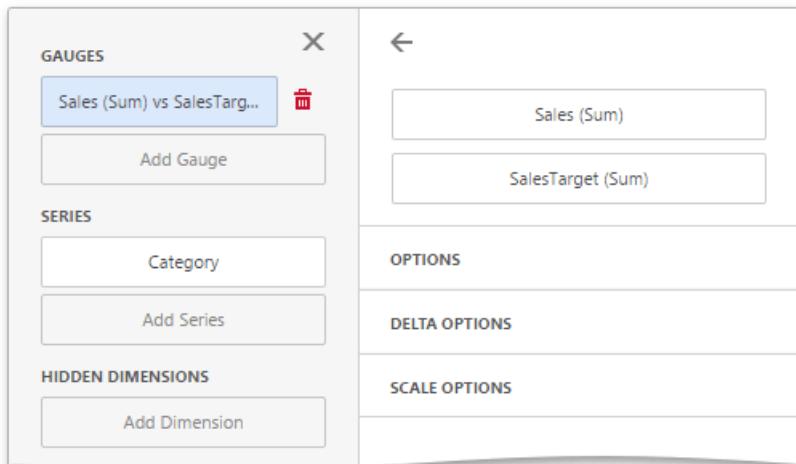
Delta

Gauges allow you to display the difference between the *actual* and *target* values of a particular parameter. This difference is called **delta**.

Delta is shown with a *delta indicator* (indicating whether the actual value is less than or greater than the target value) and *delta values* (representing this difference as an absolute value or a variation).



After you add the data item containing *actual* data, you can add the second data item (optional) that contains *target* data. To customize settings that relate to the calculation and display of deltas, open the **Delta Options** section of the [data item menu](#).

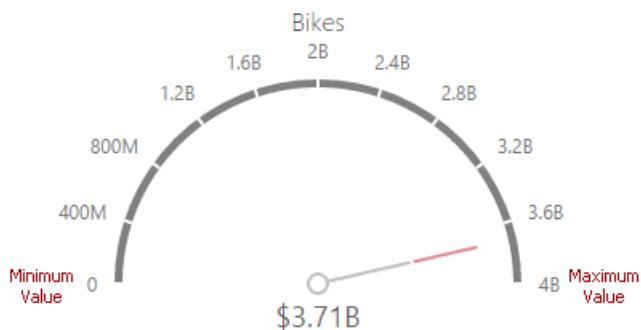


Use it to define the conditions for displaying delta indication, specify which delta values should be displayed, and introduce the comparison tolerance. The following options are available.

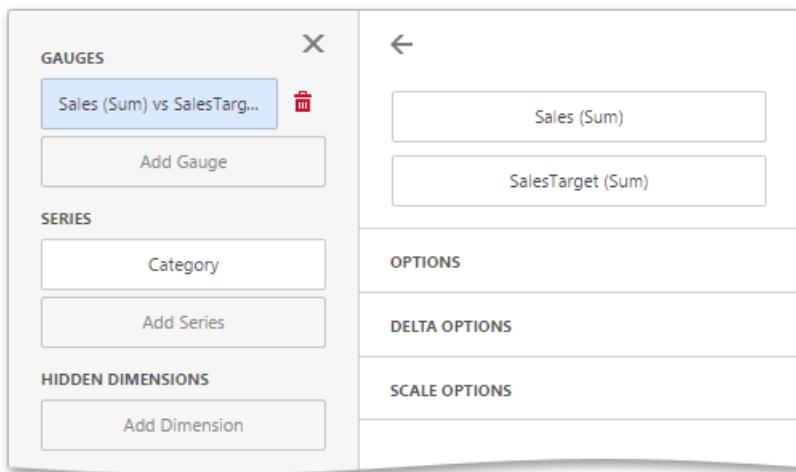
OPTION	DESCRIPTION
Value Type	Specifies which values should be displayed as the main delta value. Additional delta values are selected automatically.
Result Indication	Specifies the condition for displaying delta indication.
Threshold Type	Specifies the comparison tolerance in percentage values or in absolute values.
Threshold Value	Specifies the comparison tolerance value.

Gauge Scale

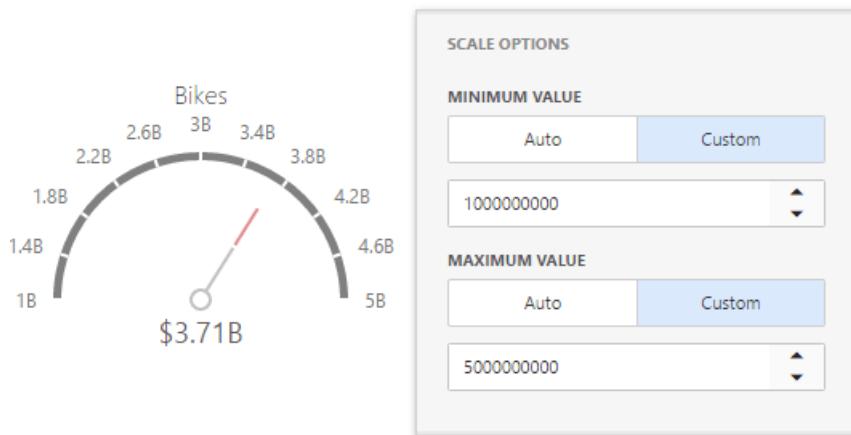
By default, the Gauge dashboard item automatically determines the range of the gauge scales based on the values they display.



You can override this behavior and specify maximum and minimum values on the scale. After you add the data item, open the **Scale Options** section of the [data item menu](#) to customize the gauge scale.



Then, set the minimum/maximum value mode to **Custom** and specify this value in the corresponding field. The image below shows a gauge with a minimum value of 1B and maximum 5B.



Interactivity

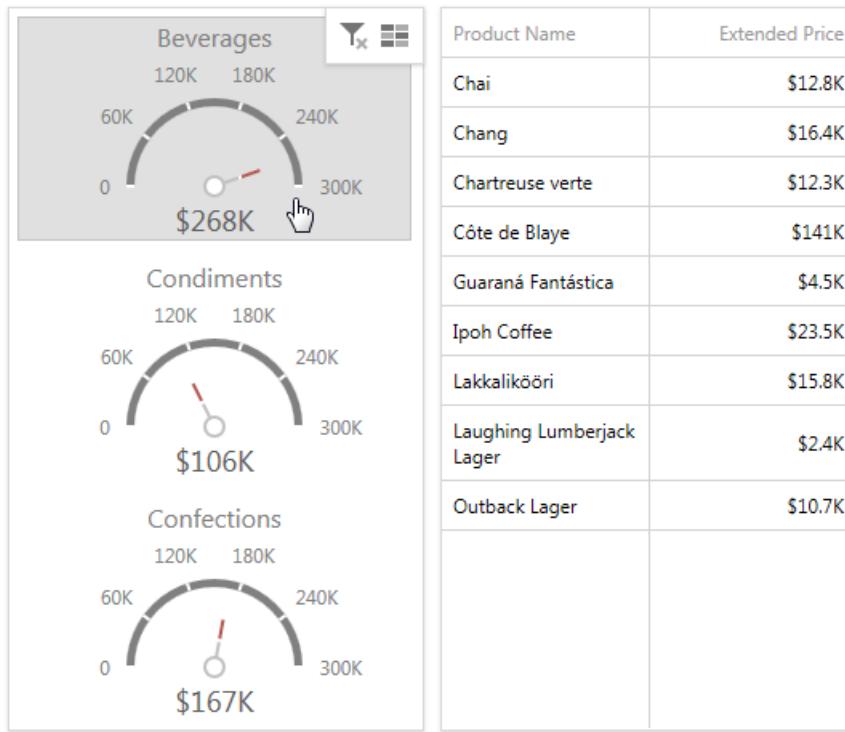
To enable interaction between the Gauge and other dashboard items, you can use the interactivity features, as **Master Filtering** and **Drill-Down**.

- [Master Filtering](#)
- [Drill-Down](#)

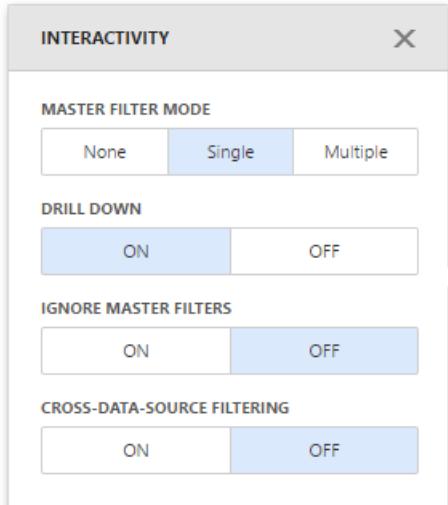
Master Filtering

You can use the **Gauge** dashboard item as a filter for other dashboard items. To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

When **Master Filtering** is enabled, you can click a gauge(s) to make other dashboard items only display data related to the selected gauge(s).



To enable **Master Filtering**, go to the Gauge's [Interactivity](#) menu and select the required Master Filtering mode.

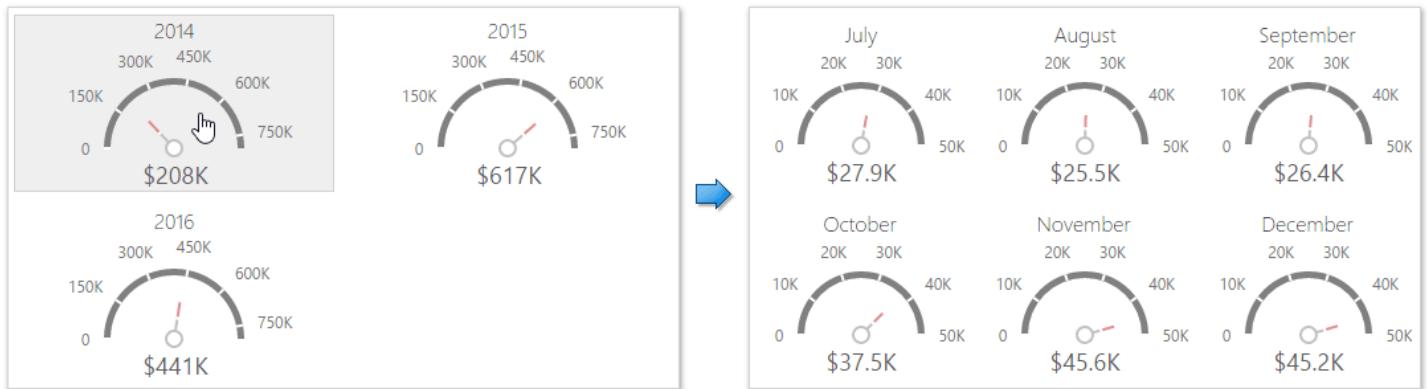


To reset filtering, use the **Clear Master Filter** button (the icon) in the Gauge's [caption](#).

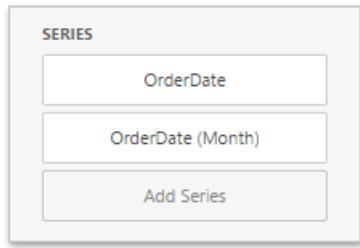
Drill-Down

The built-in drill-down capability allows you to change the detail level of data displayed in dashboard items on the fly. To learn more about drill-down concepts common to all dashboard items, see the [Drill-Down](#) topic.

When drill-down is enabled, you can click a gauge to view the details.



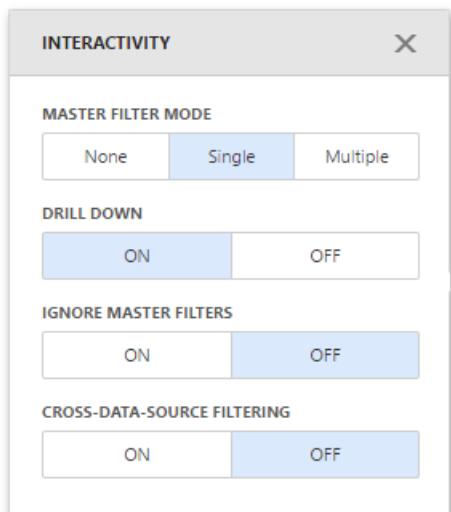
Drill-down requires that the **Series** section contains several dimensions at the top, from the least detailed to the most detailed dimension.



Note

In OLAP mode, you can perform drill-down for either a hierarchy data item or several dimension attributes.

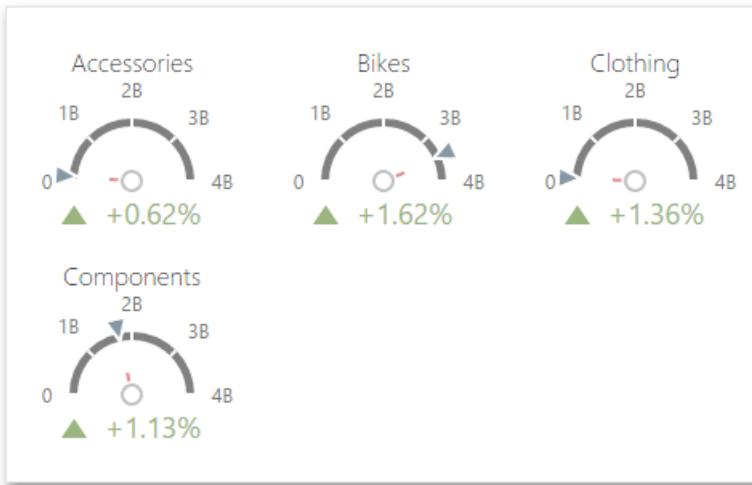
To enable **Drill-Down**, go to the Gauge's [Interactivity](#) menu and turn the **Drill-Down** option on.



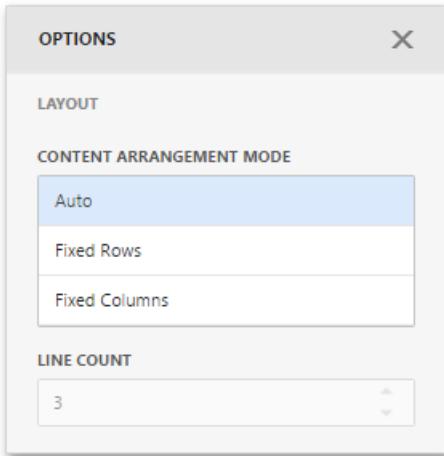
To return to the previous detail level, click the **Drill Up** button (the ↺ icon) in the Gauge's [caption](#).

Layout

The Gauge dashboard item allows you to specify the number of columns or rows by which gauges are arranged. For example, the following image shows gauges arranged into 3 columns.



To control how gauges are arranged, use the **Layout** section in the Gauge's [Options](#) menu.



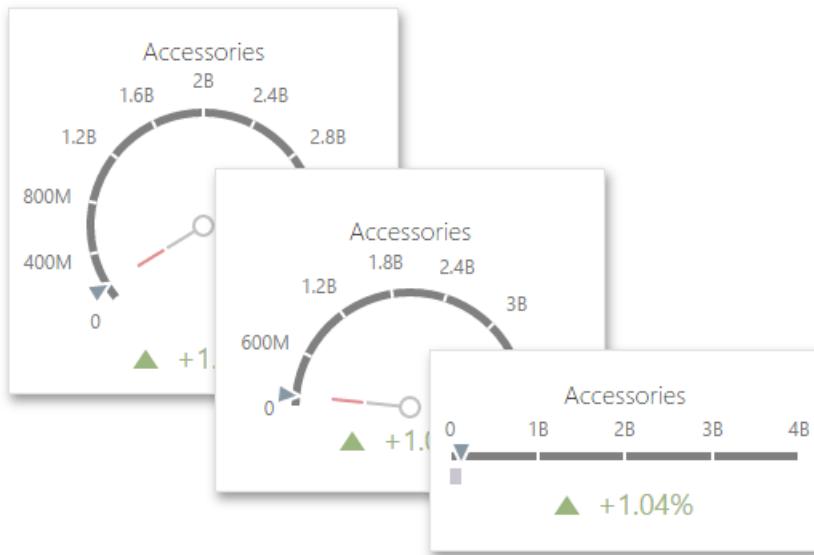
The following modes are available.

ARRANGEMENT MODE	DESCRIPTION
Auto	Automatically resizes gauges to fit within the dashboard item.
Fixed Rows	Allows you to arrange gauges in a specific number of rows.
Fixed Columns	Allows you to specify the number of columns in which gauges are arranged.

To specify the number of rows/columns, use the **Line Count** field.

Style

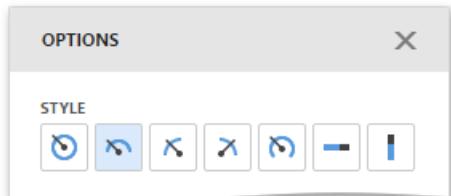
The Gauge dashboard item allows you to select the gauge style.



The following types are available.

- Full Circular
- Half-Circular
- Left-Quarter Circular
- Right-Quarter Circular
- Three-Fourths Circular
- Linear Horizontal
- Linear Vertical

To select the gauge style, use the style icons in the Gauge [Options](#) menu.



Pivot

The **Pivot** dashboard item displays a cross-tabular report that presents multi-dimensional data in an easy-to-read format.

Sales by State									
	► Bikes		★	► Clothing		► Components		Grand Total	
	Revenue	Units Sold		Revenue	Units Sold	Revenue	Units Sold	Revenue	Units Sold
Alabama	\$6.29M	3.67K		\$111K	2.41K	\$3.1M	13.7K	\$9.69M	25.1K
Arizona	\$6.11M	3.52K		\$112K	2.41K	\$3.02M	13.4K	\$9.43M	24.9K
California ★	\$18.9M	12K		\$763K	15.9K	\$15.6M	77.8K	\$36.4M	142K
Colorado	\$6.14M	3.68K		\$107K	2.32K	\$3.26M	13.9K	\$9.7M	25.5K
Connecticut	\$6.07M	3.65K		\$119K	2.56K	\$2.97M	13.2K	\$9.35M	24.7K
Florida ★	\$6.86M	4.4K		\$206K	4.78K	\$5M	25.8K	\$12.4M	47.1K
Georgia	\$6M	3.56K		\$106K	2.35K	\$3.14M	13.6K	\$9.44M	24.9K

This section consists of the following topics.

- [Providing Data](#)

Explains how to supply the Pivot dashboard item with data.

- [Interactivity](#)

Describes features that enable interaction between the Pivot and other dashboard items.

- [Conditional Formatting](#)

Describes the conditional formatting feature that provides the capability to apply formatting to cells whose values meet the specified condition.

- [Layout](#)

Describes layout options of the Pivot dashboard item.

- [Expanded State](#)

Describes how to specify whether to expand column/row groups by default.

Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind a **Pivot** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Pivot dashboard item that is bound to data.

The screenshot shows a 'Sales by State' Pivot table on the left and its binding configuration dialog on the right. The Pivot table displays sales data for various states across categories like Bikes, Clothing, and Components. The binding dialog lists 'Revenue (Sum)' under 'VALUES', 'Category' and 'Product' under 'COLUMNS', and 'State' under 'ROWS'. A 'DATA / FILTERING' section at the bottom contains a gear icon and the word 'Sales'.

	Bikes	Clothing	Components	Grand Total
Alabama	\$6.29M	\$111K	\$3.1M	\$9.69M
Arizona	\$6.11M	\$112K	\$3.02M	\$9.43M
California	\$18.9M	\$763K	\$15.6M	\$36.4M
Colorado	\$6.14M	\$107K	\$3.26M	\$9.7M
Connecticut	\$6.07M	\$119K	\$2.97M	\$9.35M
Florida	\$6.86M	\$206K	\$5M	\$12.4M
Georgia	\$6M	\$106K	\$3.14M	\$9.44M
Idaho	\$6.05M	\$111K	\$3.01M	\$9.36M

To bind the Pivot dashboard item to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

The table below lists and describes the Pivot's data sections.

SECTION	PROCESSED AS	DESCRIPTION
Values	Measure	Contains data items used to calculate values displayed in the pivot table.
Columns	Dimension	Contains data items whose values are used to label columns.
Rows	Dimension	Contains data items whose values are used to label rows.

Interactivity

To enable interaction between the Pivot and other dashboard items, you can use the interactivity features. These features include **Master Filtering**.

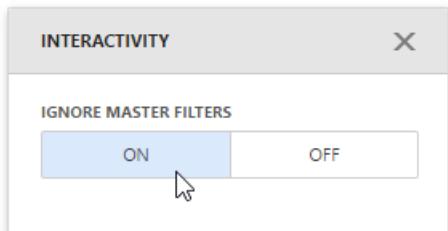
Master Filtering

Data displayed in the Pivot dashboard item can be filtered by other master filter items. The image below displays the Pivot dashboard item filtered by [Tree View](#).

The screenshot shows a dashboard interface. On the left, there is a master filter tree view. At the top level, '(All)' is selected. Below it, 'Beverages' is expanded, showing several items: Chai, Chang, Chartreuse verte, Côte de Blaye, Guarana Fantástica, Ipoh Coffee, and Lakkaliköri. Some items like Chai and Chartreuse verte have checkmarks next to them. To the right of the master filter tree is a pivot table. The columns are labeled 'UK', 'USA', and 'Grand Total'. The rows are grouped under 'Beverages', showing sub-items Chai, Chartreuse verte, Côte de Blaye, and Guarana Fantástica, along with their respective sales figures. There are also summary rows for 'Beverages Total' and 'Grand Total'.

	UK	USA	Grand Total
Chai	\$3.57K	\$9.22K	\$12.8K
Chartreuse verte	\$4.14K	\$8.16K	\$12.3K
Côte de Blaye	\$37.6K	\$104K	\$141K
Guaraná Fantástica	\$1.51K	\$2.99K	\$4.5K
Beverages Total	\$46.9K	\$124K	\$171K
Grand Total	\$46.9K	\$124K	\$171K

You can prevent the pivot from being affected by other master filter items using the **Ignore Master Filters** button in the Pivot's [Interactivity](#) menu.



To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

Conditional Formatting

The Pivot dashboard item supports the conditional formatting feature that provides the capability to apply formatting to data cells whose values meet the specified condition. This feature allows you to highlight specific cells or entire rows/columns using a predefined set of rules. To learn more about conditional formatting concepts common for all dashboard items, see [Conditional Formatting](#).

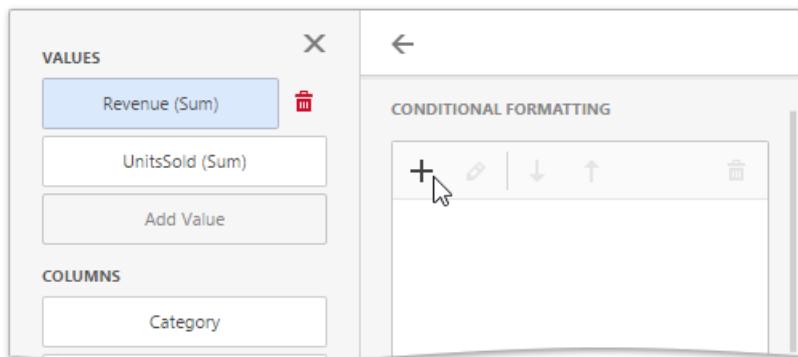
	► Clothing		► Components		Grand Total	
	Revenue	Units Sold	Revenue	Units Sold	Revenue	Units Sold
Alabama	\$111K	2.41K	\$3.1M	13.7K	\$9.69M	25.1K
Arizona	\$112K	2.41K	\$3.02M	13.4K	\$9.43M	24.9K
California ★	\$763K	15.9K	\$15.6M	77.8K	\$36.4M	142K
Colorado	\$107K	2.32K	\$3.26M	13.9K	\$9.7M	25.5K
Connecticut	\$119K	2.56K	\$2.97M	13.2K	\$9.35M	24.7K
Florida ★	\$206K	4.78K	\$5M	25.8K	\$12.4M	47.1K

The Pivot dashboard item allows you to use conditional formatting for measures placed in the **Values** section and dimensions placed in the **Columns/Rows** sections.

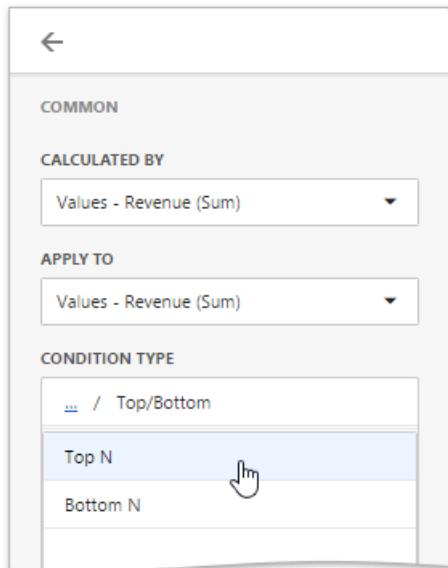
You can use [hidden measures](#) to specify a condition used to apply formatting to visible values. New appearance settings are applied to data cells corresponding to a row/column intersection. You can set the intersection of the row and column manually or use predefined settings.

Create and Edit Format Rules

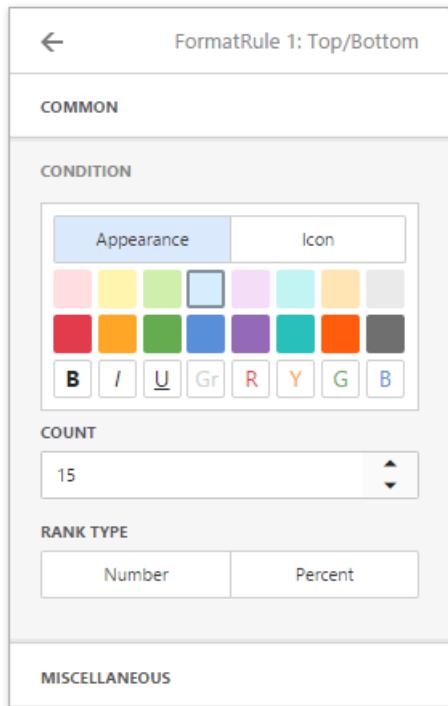
To create a new format rule for the Pivot's dimension/measure, select the required data item by whose values a format condition will be calculated, open its menu and go to the **Conditional Formatting** section. Click "+" to add a new rule.



Then, specify the data item to which conditional formatting is applied using the **Apply to** combo box and select the condition type.



Depending on the selected format condition, the menu used to create a format rule for Pivot contains different settings. For example, the image below displays the *Top/Bottom* format condition menu. Here, you need to specify the number of values to be displayed and select a format rule style.



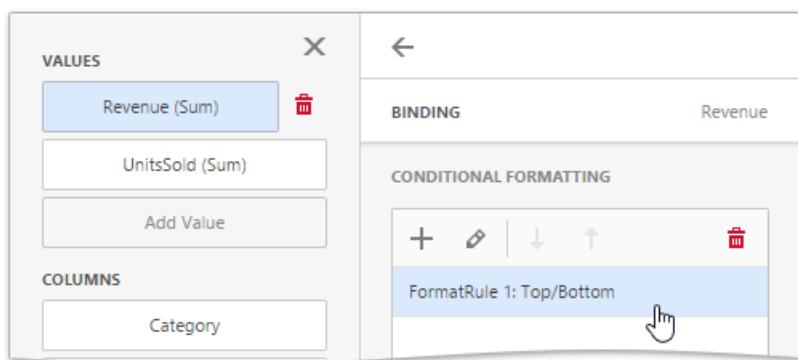
Note

The **Miscellaneous** section of the format rule menu contains additional settings depending on the dashboard item type. The Pivot dashboard item allows you to manually specify an intersection level or disable the current rule.

The format condition is now ready and will be applied to the Pivot dashboard item.

	▶ Accessories		▶ Bikes	
	Revenue	Units Sold	Revenue	Units Sold
Texas	\$655K	19.1K	\$9.53M	6.29K
Utah	\$188K	5.44K	\$6.21M	3.64K
Virginia	\$183K	5.33K	\$6.22M	3.65K
Washington	\$622K	20.6K	\$11.1M	7.6K
Wisconsin	\$182K	5.44K	\$6.23M	3.68K
Wyoming	\$182K	5.4K	\$5.9M	3.54K
Grand Total	\$8.91M	266K	\$235M	142K

To edit a format rule, open the **Conditional Formatting** section of the [data item menu](#), select the required format rule and click the **Edit** button (the  icon).



To delete the selected format rule, click the **Delete** button (the  icon).

Layout

This topic describes how to control the Pivot dashboard item layout, the visibility of totals and grand totals, etc.

- [Layout Type](#)
- [Totals Visibility](#)
- [Totals Position](#)
- [Values Visibility](#)
- [Values Position](#)

Layout Type

If the Pivot dashboard item contains a hierarchy of dimensions in the [Rows](#) section, you can specify the layout used to arrange values corresponding to individual groups.

LAYOUT TYPE	EXAMPLE	DESCRIPTION																																	
Compact	<table border="1"><thead><tr><th></th><th colspan="2">Grand Total</th></tr><tr><th></th><th>Sales</th><th>Quantity</th></tr></thead><tbody><tr><td>▼ 2015 Total</td><td>\$591K</td><td>25K</td></tr><tr><td>Q1</td><td>\$145K</td><td>6.73K</td></tr><tr><td>Q2</td><td>\$145K</td><td>5.85K</td></tr><tr><td>Q3</td><td>\$135K</td><td>5.55K</td></tr><tr><td>Q4</td><td>\$166K</td><td>6.88K</td></tr><tr><td>▼ 2016 Total</td><td>\$512K</td><td>18.9K</td></tr><tr><td>Q1</td><td>\$265K</td><td>9.26K</td></tr><tr><td>Q2</td><td>\$247K</td><td>9.67K</td></tr><tr><td>Grand Total</td><td>\$1.1M</td><td>43.9K</td></tr></tbody></table>		Grand Total			Sales	Quantity	▼ 2015 Total	\$591K	25K	Q1	\$145K	6.73K	Q2	\$145K	5.85K	Q3	\$135K	5.55K	Q4	\$166K	6.88K	▼ 2016 Total	\$512K	18.9K	Q1	\$265K	9.26K	Q2	\$247K	9.67K	Grand Total	\$1.1M	43.9K	Displays values from different Row dimensions in a single column. Note that in this case totals are displayed at the top of a group, and you cannot change totals position .
	Grand Total																																		
	Sales	Quantity																																	
▼ 2015 Total	\$591K	25K																																	
Q1	\$145K	6.73K																																	
Q2	\$145K	5.85K																																	
Q3	\$135K	5.55K																																	
Q4	\$166K	6.88K																																	
▼ 2016 Total	\$512K	18.9K																																	
Q1	\$265K	9.26K																																	
Q2	\$247K	9.67K																																	
Grand Total	\$1.1M	43.9K																																	
Tabular	<table border="1"><thead><tr><th></th><th colspan="2">Grand Total</th></tr><tr><th></th><th>Sales</th><th>Quantity</th></tr></thead><tbody><tr><td>▼ 2015 Q1</td><td>\$145K</td><td>6.73K</td></tr><tr><td>Q2</td><td>\$145K</td><td>5.85K</td></tr><tr><td>Q3</td><td>\$135K</td><td>5.55K</td></tr><tr><td>Q4</td><td>\$166K</td><td>6.88K</td></tr><tr><td>2015 Total</td><td>\$591K</td><td>25K</td></tr><tr><td>▼ 2016 Q1</td><td>\$265K</td><td>9.26K</td></tr><tr><td>Q2</td><td>\$247K</td><td>9.67K</td></tr><tr><td>2016 Total</td><td>\$512K</td><td>18.9K</td></tr><tr><td>Grand Total</td><td>\$1.1M</td><td>43.9K</td></tr></tbody></table>		Grand Total			Sales	Quantity	▼ 2015 Q1	\$145K	6.73K	Q2	\$145K	5.85K	Q3	\$135K	5.55K	Q4	\$166K	6.88K	2015 Total	\$591K	25K	▼ 2016 Q1	\$265K	9.26K	Q2	\$247K	9.67K	2016 Total	\$512K	18.9K	Grand Total	\$1.1M	43.9K	Displays values from different Row dimensions in separate columns.
	Grand Total																																		
	Sales	Quantity																																	
▼ 2015 Q1	\$145K	6.73K																																	
Q2	\$145K	5.85K																																	
Q3	\$135K	5.55K																																	
Q4	\$166K	6.88K																																	
2015 Total	\$591K	25K																																	
▼ 2016 Q1	\$265K	9.26K																																	
Q2	\$247K	9.67K																																	
2016 Total	\$512K	18.9K																																	
Grand Total	\$1.1M	43.9K																																	

To change the Pivot layout, go to [Options menu](#) | [Layout](#) and use the [Layout](#) option.

Totals Visibility

You can control the visibility of totals and grand totals for the entire Pivot dashboard item. For instance, the image below displays the Pivot dashboard item with the disabled row totals.

		Grand Total	
		Sales	Quantity
▼ 2015	Q1	\$145K	6.73K
	Q2	\$145K	5.85K
	Q3	\$135K	5.55K
	Q4	\$166K	6.88K
2015 Total		\$591K	25K
▼ 2016	Q1	\$265K	9.26K
	Q2	\$247K	9.67K
2016 Total		\$512K	18.9K
Grand Total		\$1.1M	43.9K



		Grand Total	
		Sales	Quantity
▼ 2015	Q1	\$145K	6.73K
	Q2	\$145K	5.85K
	Q3	\$135K	5.55K
	Q4	\$166K	6.88K
▼ 2016	Q1	\$265K	9.26K
	Q2	\$247K	9.67K
Grand Total		\$1.1M	43.9K

To manage the visibility of totals and grand totals, go to [Options menu](#) | [Layout](#) and use the following options:

- [Row Totals / Row Grand Totals](#)

- **Column Totals / Column Grand Totals**

Moreover, you can control the visibility of totals for individual dimensions/measures. To do this, go to **Bindings menu**, select the required data item and use its **Options | Show Totals** option.

Totals Position

If necessary, you can change the position of totals/grand totals for the Pivot dashboard item. For instance, in the Image below the Pivot dashboard item whose row totals are moved from bottom to top.



		Grand Total	
		Sales	Quantity
▼ 2015	Q1	\$145K	6.73K
	Q2	\$145K	5.85K
	Q3	\$135K	5.55K
	Q4	\$166K	6.88K
2015 Total		\$591K	25K
▼ 2016	Q1	\$265K	9.26K
	Q2	\$247K	9.67K
	2016 Total		\$512K
Grand Total		\$1.1M	43.9K

		Grand Total	
		Sales	Quantity
Grand Total		\$1.1M	43.9K
▼ 2015 Total		\$591K	25K
2015	Q1	\$145K	6.73K
	Q2	\$145K	5.85K
	Q3	\$135K	5.55K
	Q4	\$166K	6.88K
▼ 2016 Total		\$512K	18.9K
2016	Q1	\$265K	9.26K
	Q2	\$247K	9.67K

To manage totals position, go to **Options menu | Layout** and use the following options:

- **Row Totals Position**
- **Column Totals Position**

Values Visibility

The Pivot dashboard item can contain several measures in the **Values** section. In this case, you can hide summary values corresponding to specific measures. For instance, the image below shows the Pivot with hidden *Quantity* values.



		UK		USA		Grand Total	
		Sales (Sum)	Quantity (Sum)	Sales (Sum)	Quantity (Sum)	Sales (Sum)	Quantity (Sum)
▼ 2015	Q1	\$34.3K	1.21K	\$111K	5.52K	\$145K	6.73K
	Q2	\$35.1K	1.7K	\$110K	4.15K	\$145K	5.85K
	Q3	\$40.7K	1.64K	\$93.9K	3.91K	\$135K	5.55K
	Q4	\$55.3K	1.99K	\$111K	4.89K	\$166K	6.88K
▼ 2016	Q1	\$69.1K	2.45K	\$196K	6.81K	\$265K	9.26K
	Q2	\$65.4K	2.66K	\$182K	7.01K	\$247K	9.67K



		UK		USA		Grand Total	
		\$34.3K	\$111K			\$145K	
▼ 2015	Q1	\$34.3K	\$111K			\$145K	
	Q2	\$35.1K	\$110K			\$145K	
	Q3	\$40.7K	\$93.9K			\$135K	
	Q4	\$55.3K	\$111K			\$166K	
▼ 2016	Q1	\$69.1K	\$196K			\$265K	
	Q2	\$65.4K	\$182K			\$247K	

To do this, go to **Bindings menu**, select the required measure and use its **Options | Show Values** option.

Values Position

The Pivot dashboard item allows you to control the position of headers used to arrange summary values corresponding to

different measures. For instance, you can display values in columns or in rows.



The diagram illustrates a transformation in data layout. On the left, a row-oriented table displays sales and quantity data for Q1 and Q2 of 2016. A blue arrow points to the right, indicating a change in layout. On the right, a column-oriented table shows the same data, where columns represent Sales and Quantity, and rows represent time periods (2016, Q1, Q2) and totals (Grand Total).

		Grand Total	
		Sales	Quantity
▼ 2016	Q1	\$265K	9.26K
	Q2	\$247K	9.67K
2016 Total		\$512K	18.9K
Grand Total		\$512K	18.9K

			Grand Total	
▼ 2016	Q1	Sales	\$265K	
		Quantity	9.26K	
▼ 2016	Q2	Sales	\$247K	
		Quantity	9.67K	
2016 Total		Sales	\$512K	
Grand Total		Sales	\$512K	
		Quantity	18.9K	

To manage this position, go to **Options menu | Layout** and use the **Values Position** option.

Expanded State

If the [Columns or Rows](#) section contains several data items, the Pivot column and row headers are arranged in a hierarchy and make up column and row groups.

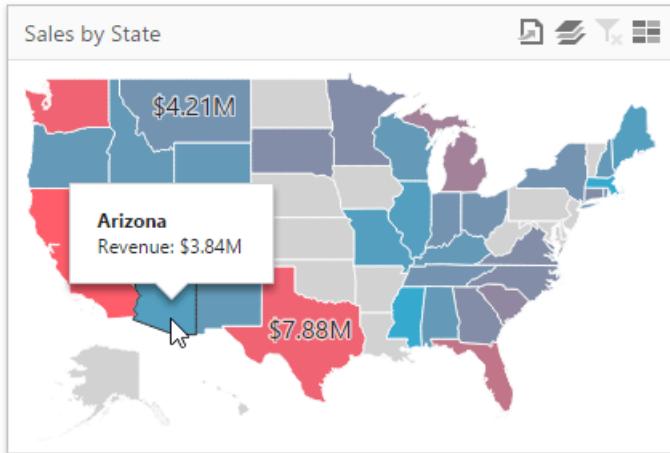
	▶ Accessories	▼ Bikes		
		Mountain-100	Mountain-200	Mountain-300
Alabama	\$192K	\$1.67M	\$831K	\$207K
Arizona	\$189K	\$1.51M	\$914K	\$207K
California	\$1.18M	\$3.62M	\$2.99M	\$959K
Colorado	\$192K	\$1.38M	\$886K	\$220K
Connecticut	\$187K	\$1.38M	<div style="border: 1px solid #ccc; padding: 5px; width: fit-content; margin: auto;"><p>COLUMNS</p><p>Category</p><p>Product</p><p>Add Column</p></div>	
Florida	\$383K	\$1.34M		
Georgia	\$189K	\$1.3M		

You can collapse and expand row and column groups using the ▼ and ▶ buttons. However, the current expanded state of column and row groups do not save in the dashboard definition. If necessary, you can specify the default expanded state using the following options from [Options menu | Initial State](#):

- **Auto Expanded Column Groups** - Specifies whether column groups should be collapsed or expanded by default;
- **Auto Expanded Row Groups** - Specifies whether row groups should be collapsed or expanded by default.

Choropleth Map

The topics in this section describe the features available in the Choropleth Map dashboard item, that allows you to colorize the required areas in proportion to the provided values.



This section consists of the following subsections.

- [Choropleth Map](#)

Describes how to use default dashboard maps or provide custom maps.

- [Providing Data](#)

Explains how to supply the Choropleth Map dashboard item with data.

- [Delta](#)

Details how to use delta to color the map shapes.

- [Map Navigation](#)

Explains how to manage map zooming and scrolling.

- [Interactivity](#)

Describes features that enable interaction between the Choropleth Map and other dashboard items.

- [Labels](#)

Describes how to display additional information related to map shapes.

- [Legend](#)

Explains the map legend and its options.

Providing Maps

This topic describes how to use the default **DevExpress Dashboard** maps and configure their attributes.

- [Default Maps](#)
- [Custom Maps](#)
- [Map Attributes](#)

Default Maps

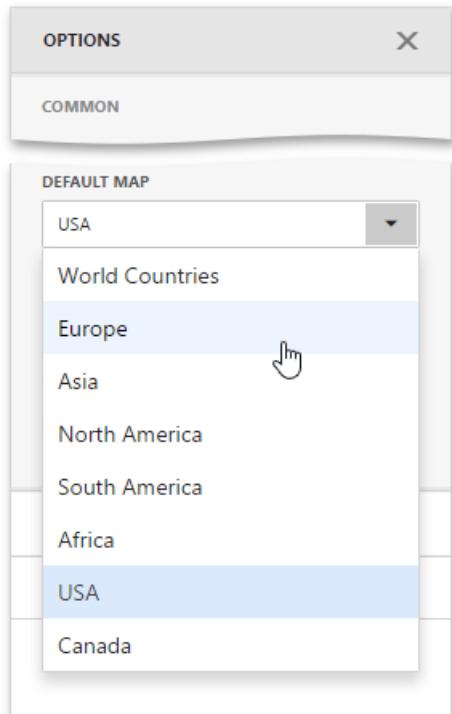
The **DevExpress Dashboard** ships with a set of default maps showing various parts of the world. The following maps are included.

- **World Countries** - a map of the world
- **Europe** - a map of Europe
- **Asia** - a map of Asia
- **North America** - a map of North America
- **South America** - a map of South America
- **Africa** - a map of Africa
- **USA** - a map of the USA
- **Canada** - a map of Canada

■ Note

The **World Countries** map has a lower level of detail than maps of specific regions and may not contain some of the countries. As an alternative, you can load a custom map with required granularity.

To select a required default map, go to the **Common** section of the [Options](#) menu and use the **Default Map** dropdown list.

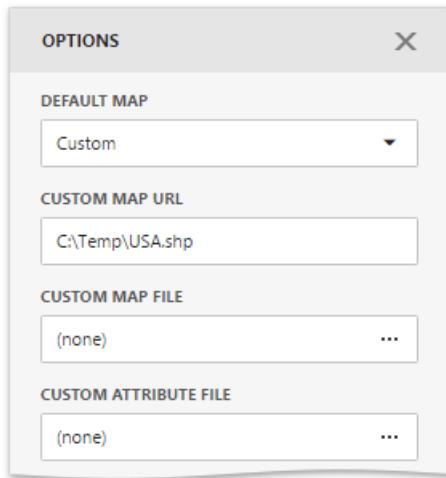


Custom Maps

The Web Dashboard uses a **Shapefile** vector format to provide custom maps. Commonly, this format includes two file types:

- **.shp file** - holds map shapes (points/lines/polygons)
- **.dbf file** - contains attributes for each shape.

To provide a custom map, go to the **Common** section of the [Options](#) menu and change the **Default Map** value to **Custom**.



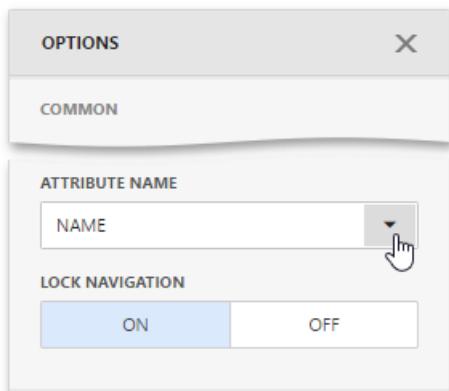
Finally, provide shape data using one of the following ways.

- Specify a path to the **.shp** file using the **Custom Map URL** option. Attributes from the corresponding **.dbf** file located in the same directory will automatically be included in the map.
- Load the existing shapefile using the ellipsis button next to the **Custom Map File** option. In the invoked dialog, locate the required **.shp** file. Use the **Custom Attribute File** option to locate the **.dbf** file containing attributes for each shape.

Note that custom maps created in the Cartesian coordinate system are not supported.

Map Attributes

After you select the default or custom map, you can display supplementary information (such as the name of a country, state, etc.). To do this, go to the [Options](#) menu and open the **Attribute Name** dropdown list.



This list displays available attributes for the current map. Each set of attribute values is related to a specific map shape.

To learn how to bind the map attribute to a data source field, see the [Providing Data](#) topic.

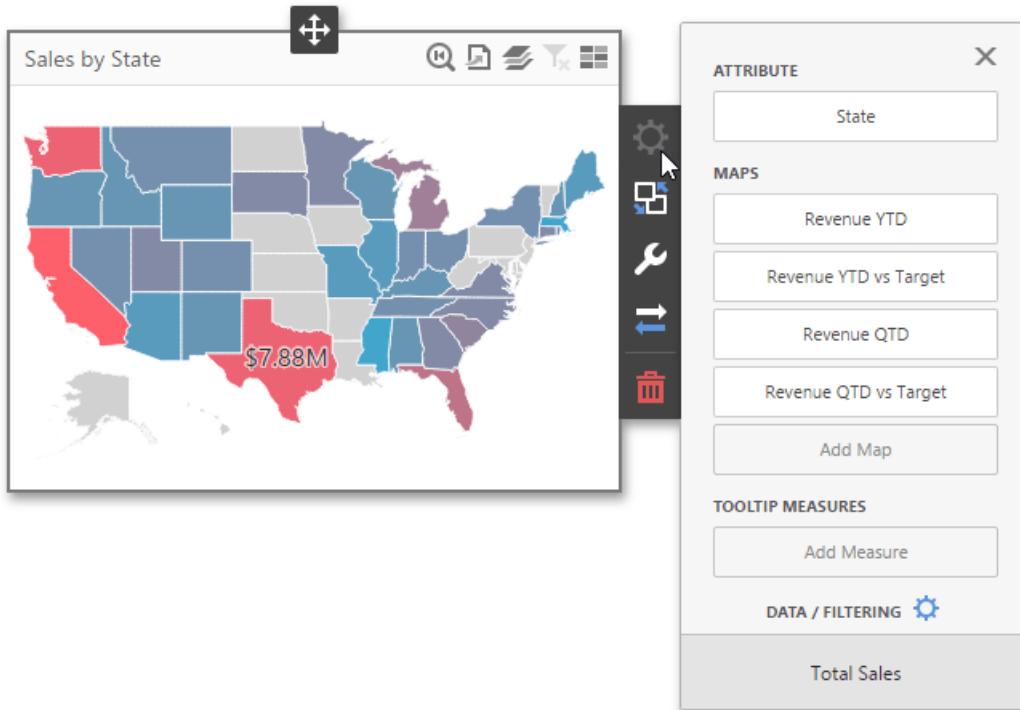
Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind a **Choropleth Map** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Choropleth Map dashboard item that is bound to data.



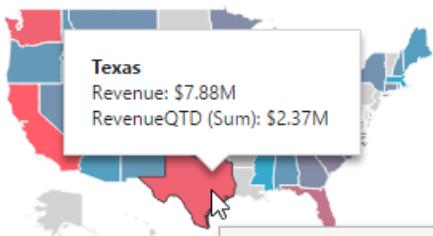
To bind the Choropleth Map dashboard item to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

The list below illustrates the Choropleth Map's data sections.

- **Attribute** - Processed as *Dimension* - Allows you to associate map shapes with data source field values. To learn more about attributes, see the [Map Attributes](#) section.
- **Maps** - Processed as *Measure* - Contains data items whose values are used to color map shapes. Map shape colors vary based on the map type.

By default, map shapes are colored depending on the provided values. If you add an additional target value, the coloring of map shapes depends on the difference between two values called [Delta](#).

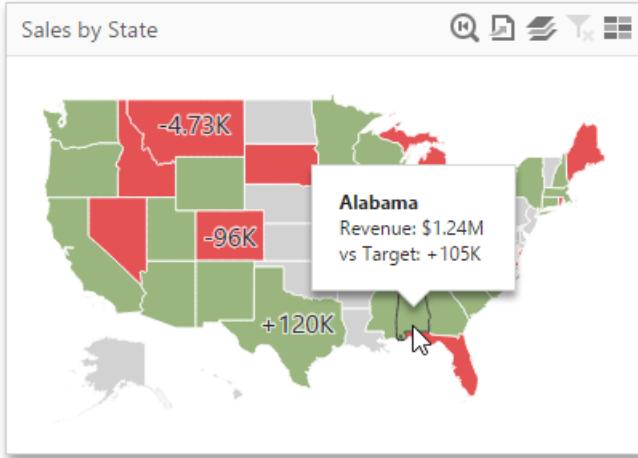
- **Tooltip Measures** - Processed as *Measure* - Allows you to add supplementary content to the tooltips. Add the required measures to provide additional data.



Delta

The Choropleth Map allows you to indicate the difference between the actual and target values of a particular parameter. This difference is called **delta**.

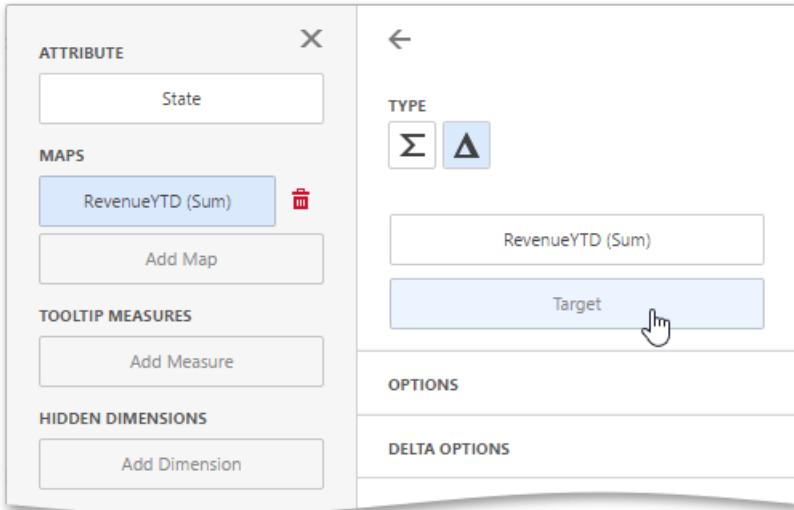
By default, map shapes are colored depending on the values provided. If you add an additional target value to create delta, the coloring of map shapes depends on the difference between two values.



Add Delta

Delta is bound to two measures that provide two values: the *Actual* value and the *Target* value. The difference between these values is displayed on the map.

When you switch the map type to *Delta*, a new **Target** data item container appears.



Click it to open the target [data item menu](#) and provide data for the target value.

Delta Options

To specify delta indication settings, go to the **Delta Options** section of the [data item menu](#). Here you can specify the delta display mode (e.g., value or bar), value type, result indication, comparison tolerance, etc.

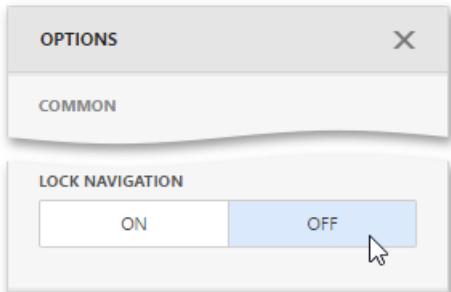
The following options are available.

OPTION	DESCRIPTION
Value Type	Specifies which values to display within map tooltips as the delta value.
Result Indication	Specifies the condition that will be used to select the indicator color.
Threshold Type	Specifies the comparison tolerance in percentage values or in absolute values. You can specify that a required indicator should only be displayed when the difference between the actual and target values exceeds a specified value.
Threshold Value	Specifies the comparison tolerance value.

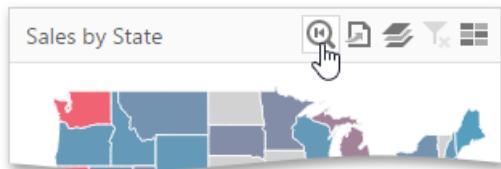
Map Navigation

The Choropleth Map dashboard item allows you to perform navigation actions such as zooming and scrolling using the mouse.

You can enable or disable the capability to scroll/zoom the map using the **Lock Navigation** setting in the Choropleth Map's [Options](#) menu.



To display the entire map within the dashboard item, use the **Initial Extent** button (the icon) in the Choropleth Map's [caption](#).



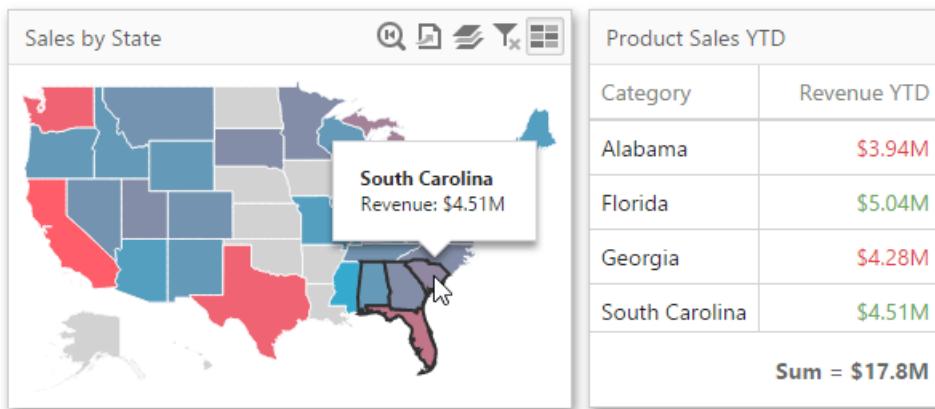
Interactivity

To enable interaction between the **Choropleth Map** and other dashboard items, you can use the interactivity features. These features include **Master Filtering**.

Master Filtering

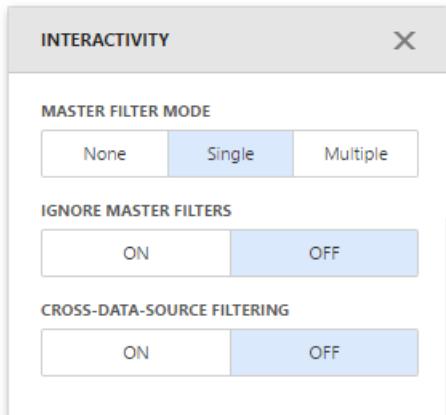
You can use the **Choropleth Map** dashboard item as a filter for other dashboard items.

The Choropleth Map dashboard item supports filtering by shapes. When Master Filtering is enabled, you can click a shape (or multiple shapes) to make other dashboard items only display data related to the selected shape(s).



To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

To enable **Master Filtering**, go to the Choropleth Map's [Interactivity](#) menu and select the required Master Filtering mode.

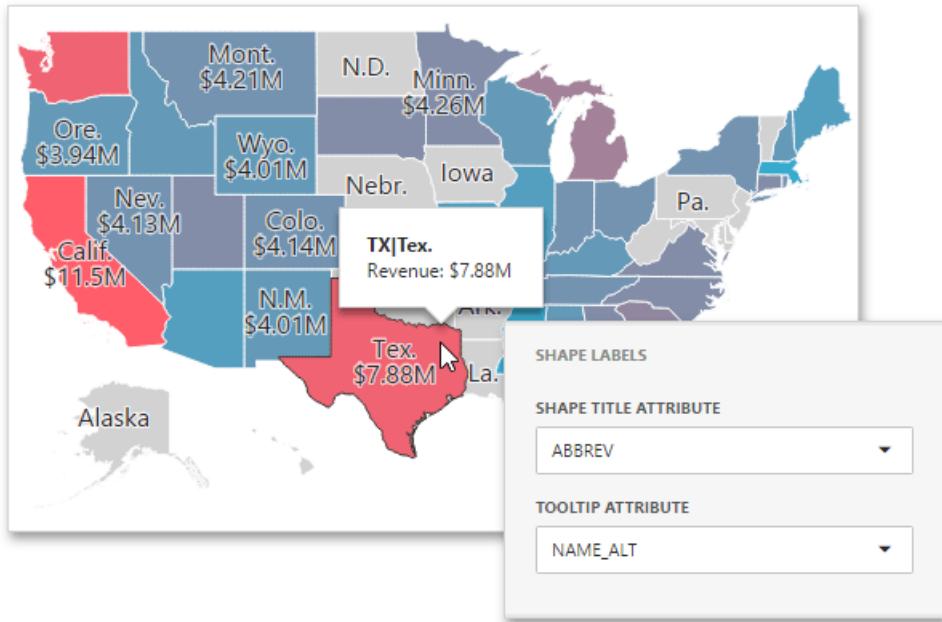


To reset filtering, use the **Clear Master Filter** button (the icon) in the Choropleth Map's [caption](#).

Labels

A Choropleth Map provides the capability to display titles within map shapes and allows you to manage what data to show in the shape tooltips.

To manage map titles and tooltips, go to the **Shape Labels** section of the Choropleth Map's **Options** menu.



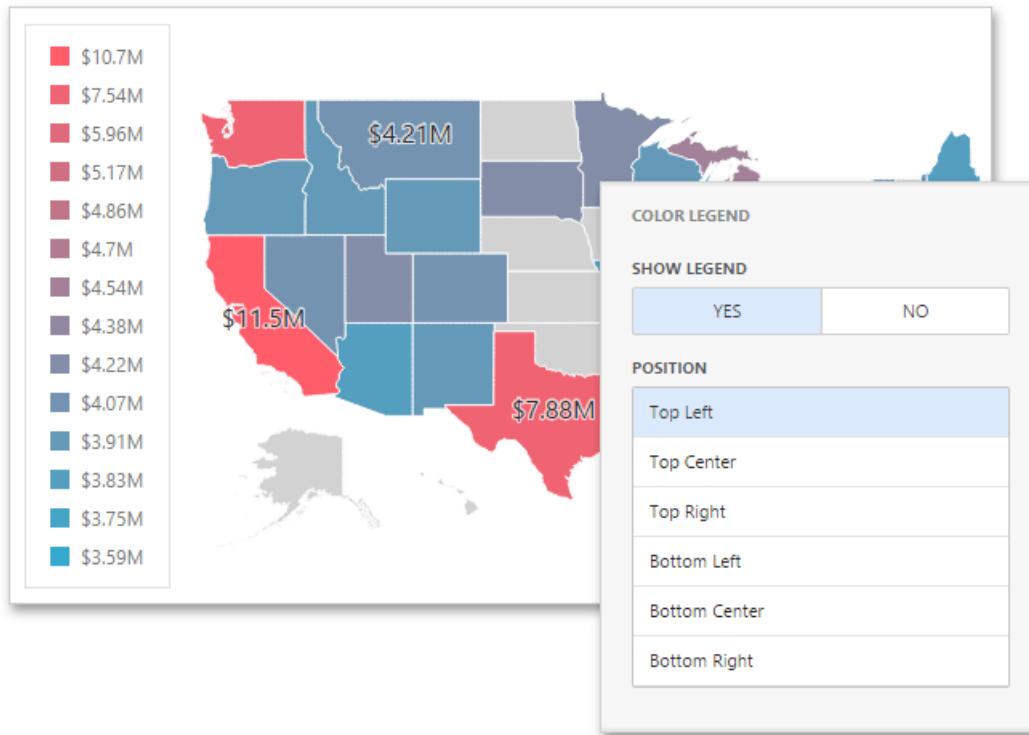
The following settings are available.

OPTION	DESCRIPTION
Shape Title Attribute	Allows you to select the attribute whose values are displayed within corresponding map shapes. Summary values are included to shape titles by default.
Tooltip Attribute	Allows you to configure information related to a hovered shape. You can choose whether to use a binding attribute to display as the title of shape tooltips (the Use binding attribute value) or specify a custom attribute from the dropdown list.

Legend

A **legend** is an element of a map that shows values corresponding to each color.

To display a legend within a map, open the Choropleth Map's [Options](#) menu and go to the **Color Legend** section.

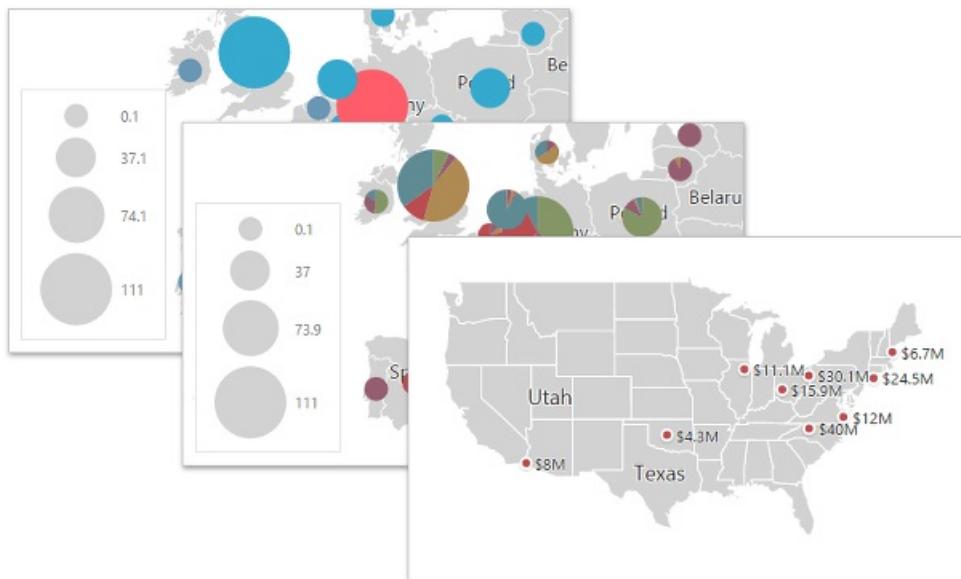


The following options are available.

OPTION	DESCRIPTION
Show Legend	Allows you to control the visibility of legend.
Position	Specifies the legend's position on a map.

Geo Point Maps

The topics in this section describe various types of **Geo Point Map** dashboard items that allow you to place callouts, bubbles or pies on the map using geographical coordinates.



This section consists of the following subsections.

- [Map Types Overview](#)

Lists the available types of Geo Point maps and their features.

- [Providing Maps](#)

Explains how to use default dashboard maps or provide custom maps.

- [Geo Point Map | Bubble Map | Pie Map](#)

Describes specific capabilities of various Geo Point Map types.

- [Clustering](#)

Describes the feature that enables grouping of neighboring map objects.

- [Map Navigation](#)

Explains how to manage map zooming and scrolling.

- [Interactivity](#)

Describes features that enable interaction between the Geo Point maps and other dashboard items.

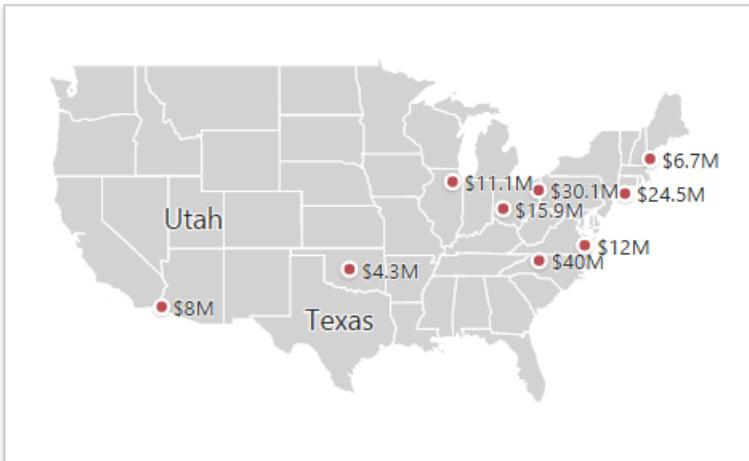
- [Labels](#)

Describes how to display additional information related to map shapes.

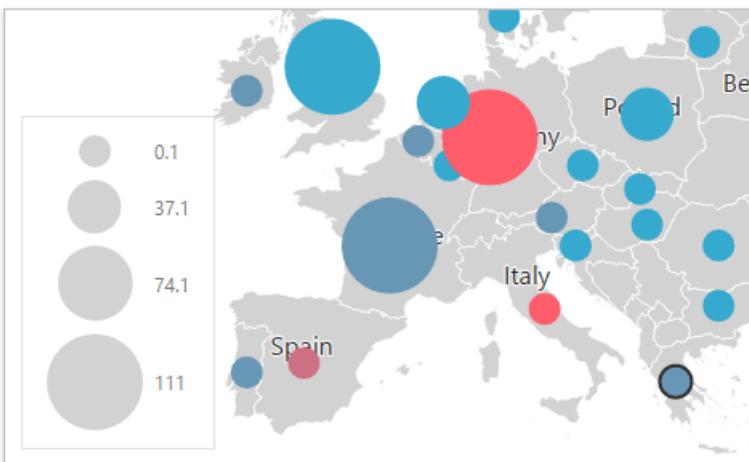
Map Types Overview

The Web Dashboard allows you to create **three types** of Geo Point maps.

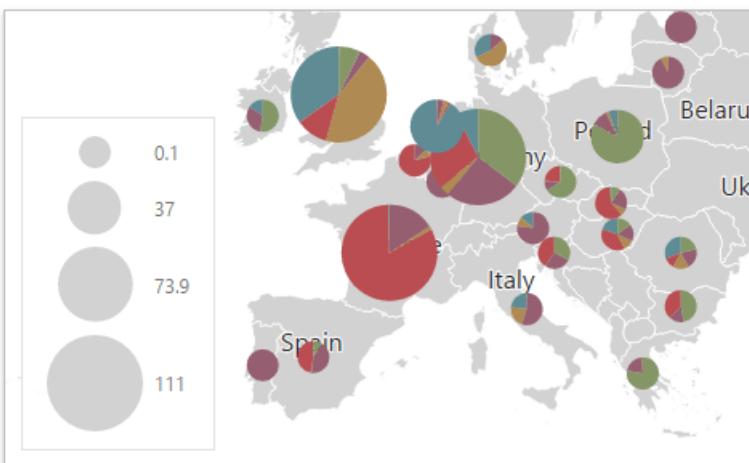
- The [Geo Point Map](#) dashboard item allows you to place callouts on the map using geographical coordinates.



- The [Bubble Map](#) dashboard item allows you to place bubbles on the map. Each bubble can represent data using its weight and color.



- The [Pie Map](#) dashboard item allows you to display pies on the map. Each pie visualizes the contribution of each value to the total.



To create the required **Geo Point Map** dashboard item, use the **Maps** section in the Toolbox.

MAPS

To learn how to provide maps for Geo Point Map dashboard items, see the [Providing Maps](#) topic.

Providing Maps

This topic describes how to use the default **DevExpress Dashboard** maps and configure their attributes.

- [Default Maps](#)
- [Custom Maps](#)

Default Maps

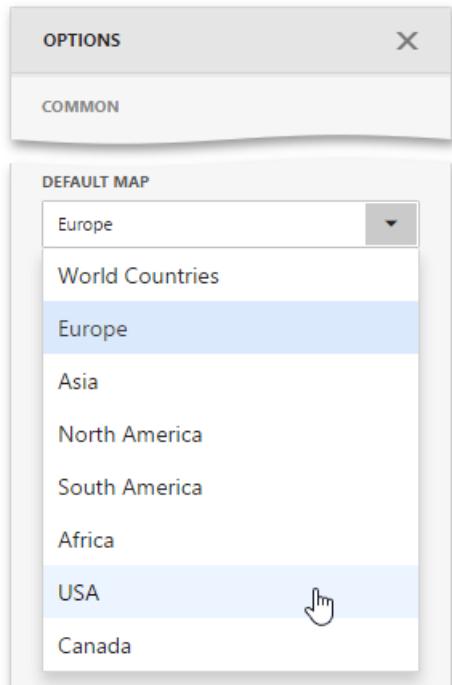
The **DevExpress Dashboard** ships with a set of default maps showing various parts of the world. The following maps are included.

- **World Countries** - a map of the world
- **Europe** - a map of Europe
- **Asia** - a map of Asia
- **North America** - a map of North America
- **South America** - a map of South America
- **Africa** - a map of Africa
- **USA** - a map of the USA
- **Canada** - a map of Canada

■ Note

The **World Countries** map has a lower level of detail than maps of specific regions and may not contain some of the countries. As an alternative, you can load a custom map with required granularity.

To select a required default map, go to the [Options](#) menu and use the **Default Map** dropdown list located in the **Common** section.

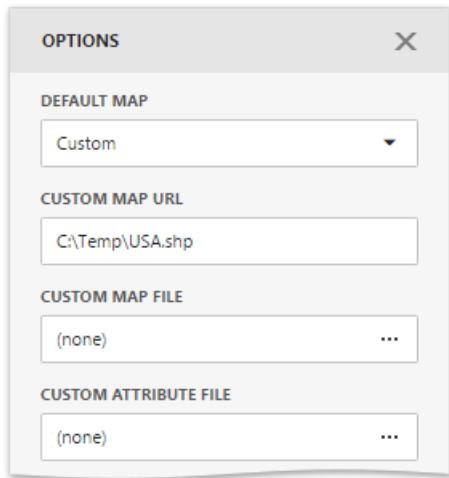


Custom Maps

The Web Dashboard uses a **Shapefile** vector format to provide custom maps. Commonly, this format includes two file types:

- **.shp file** - holds map shapes (points/lines/polygons)
- **.dbf file** - contains attributes for each shape.

To provide a custom map, go to the **Common** section of the [Options](#) menu and change the **Default Map** value to **Custom**.



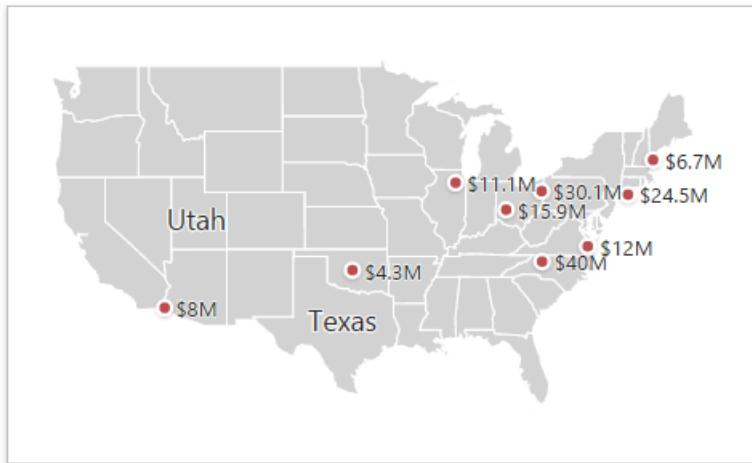
Finally, provide shape data using one of the following ways.

- Specify the path to the **.shp** file using the **Custom Map URL** option. Attributes from the corresponding **.dbf** file located in the same directory will automatically be included in the map.
- Load the existing shapefile using the ellipsis button next to the **Custom Map File** option. In the invoked dialog, locate the required **.shp** file. Use the **Custom Attribute File** option to locate the **.dbf** file containing attributes for each shape.

Note that custom maps created in the Cartesian coordinate system are not supported.

Geo Point Map

The **Geo Point Map** dashboard item allows you to place callouts on the map using geographical coordinates.



Topics in this section describe specific capabilities of the **Geo Point Map** dashboard item.

- [Providing Data](#)

Describes how to supply the Geo Point Map with data.

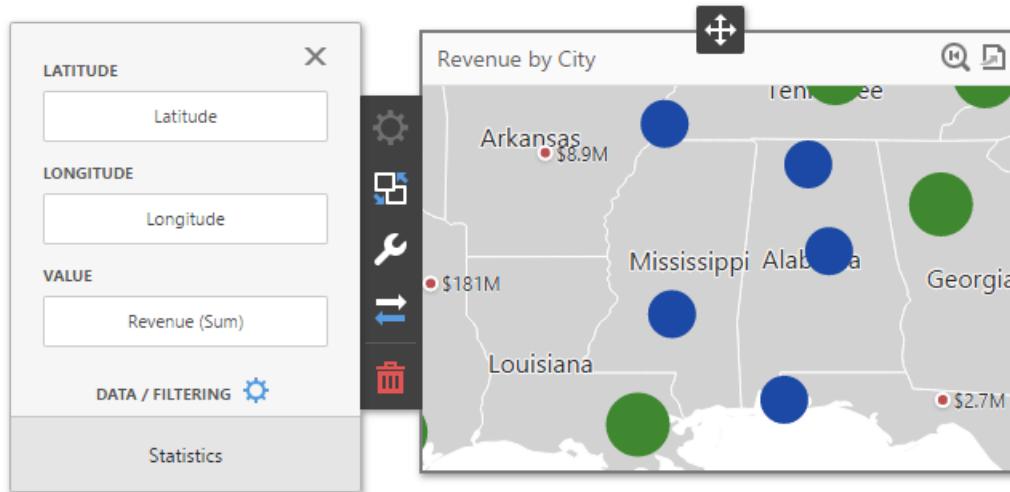
Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind the **Geo Point Map** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Geo Point Map dashboard item that is bound to data.



To bind the Geo Point Map dashboard item to data, click the placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

The tables below list and describe the Geo Point Map's data sections.

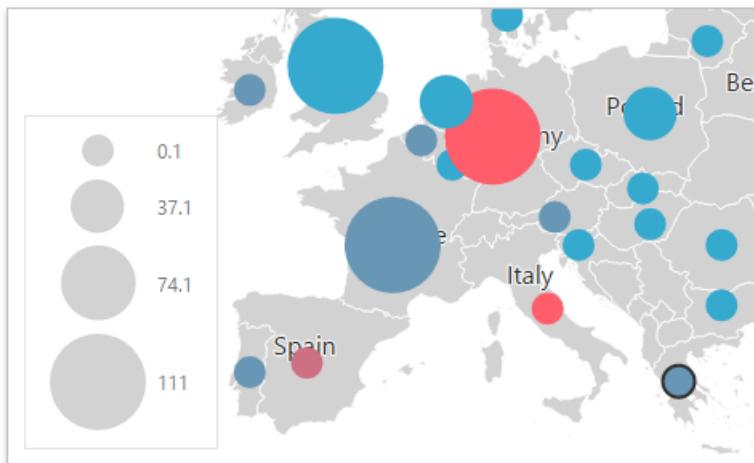
SECTION	PROCESSED AS	DESCRIPTION
Latitude	Dimension	Accepts a dimension used to provide geographic latitude.
Longitude	Dimension	Accepts a dimension used to provide geographic longitude.
Value	Measure	Accepts values related to geographic points. These values are displayed within map callouts.

The Geo Point Map allows you to add supplementary content to the tooltips to provide additional data.

SECTION	PROCESSED AS	DESCRIPTION
Tooltip Dimensions	Dimension	Accepts dimensions allowing you to add supplementary content to the tooltips.
Tooltip Measures	Measure	Accepts measures allowing you to add summaries to the tooltips.

Bubble Map

The **Bubble Map** dashboard item allows you to place bubbles on the map. Each bubble can represent data using its weight and color.



Topics in this section describe specific capabilities of the **Bubble Map** dashboard item.

- [Providing Data](#)

Describes how to supply the Bubble Map with data.

- [Legends](#)

Describes the available Bubble Map legends and their options.

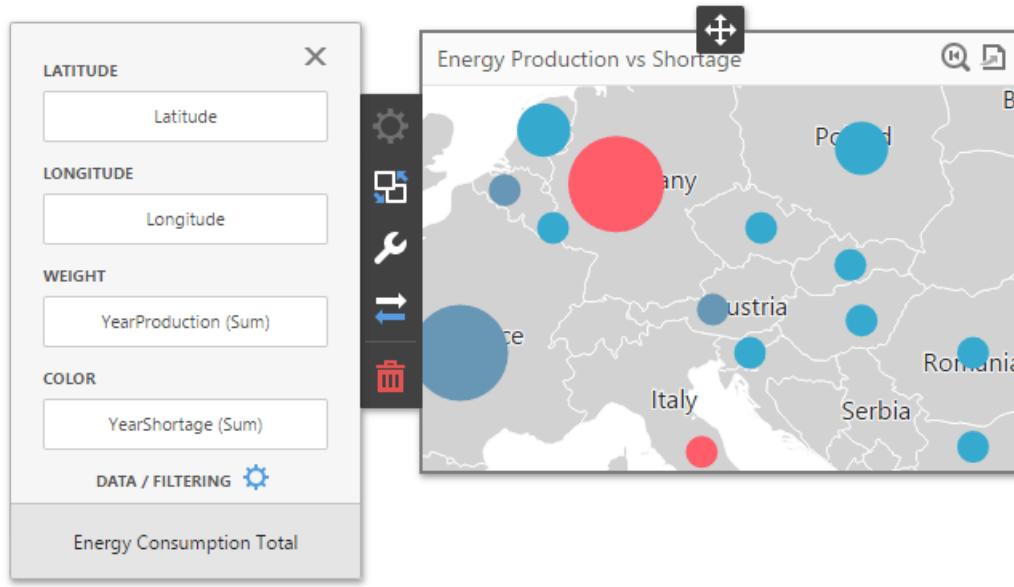
Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data in the Web Dashboard](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind the **Bubble Map** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Bubble Map dashboard item that is bound to data.



To bind the Bubble Map dashboard item to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

The tables below list and describes Bubble Map data sections.

SECTION	PROCESSED AS	DESCRIPTION
Latitude	Dimension	Accepts a dimension used to provide geographic latitude.
Longitude	Dimension	Accepts a dimension used to provide geographic longitude.
Weight	Measure	Accepts a measure used to evaluate the bubble's weight.
Color	Measure	Accepts a measure used to evaluate the bubble's color.

The Bubble Map allows you to add supplementary content to the tooltips to provide additional data.

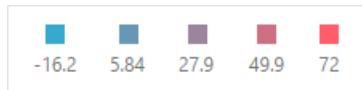
SECTION	PROCESSED AS	DESCRIPTION
Tooltip Dimensions	Dimension	Accepts dimensions allowing you to add supplementary content to the tooltips.
Tooltip Measures	Measure	Accepts measures allowing you to add summaries to the tooltips.

Legends

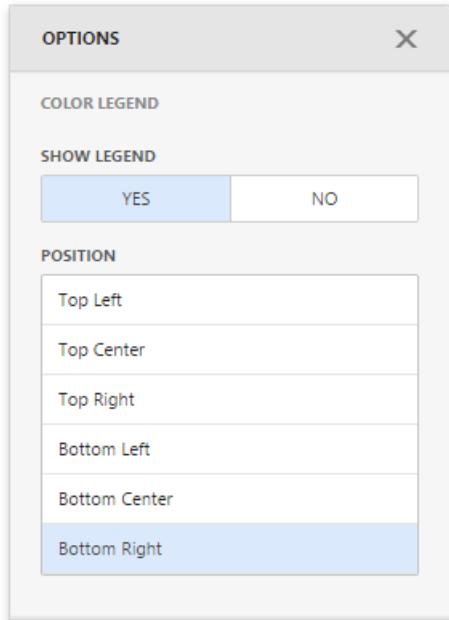
The Bubble Map provides two types of legends used to identify map objects - **color** and **weighted** legends.

Color Legend

The color legend helps you identify which colors correspond to specific values.



To specify color legend settings, go to the **Color Legend** section of the Bubble Map's **Options** menu.



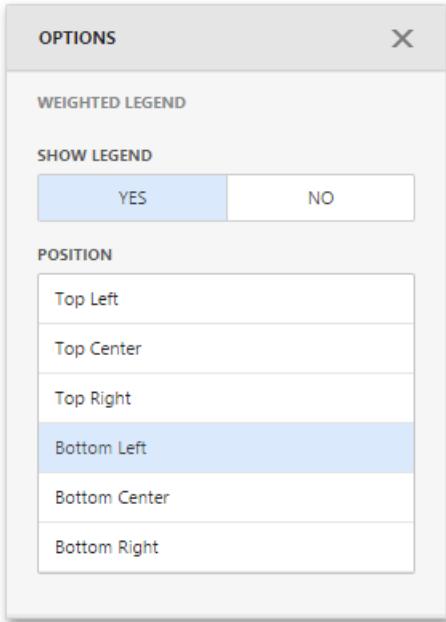
Here you can show or hide the color legend and change its position.

Weighted Legend

The weighted legend allows you to identify values corresponding to specific bubble sizes.



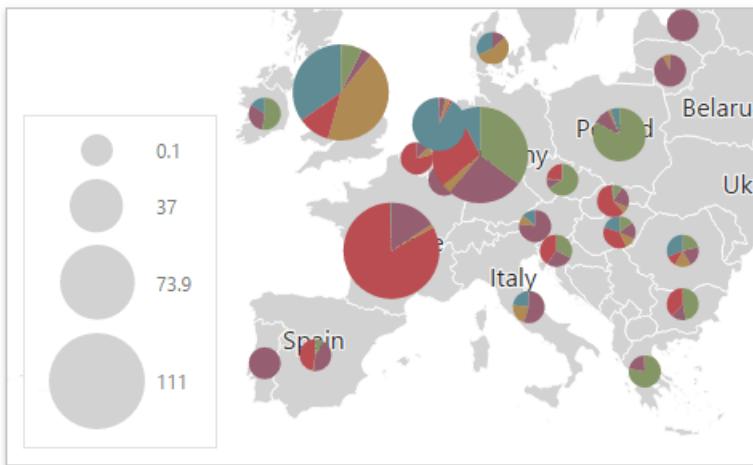
To specify weighted legend's settings, go to the **Weighted Legend** section of the Bubble Map's **Options** menu.



Here you can show or hide the weighted legend and change its position.

Pie Map

The **Pie Map** dashboard item allows you to display pies on the map. Each pie visualizes the contribution of each value to the total.



Topics in this section describe specific capabilities of the **Pie Map** dashboard item.

- [Providing Data](#)

Describes how to supply the Pie Map with data.

- [Pie Options](#)

Describes the specific options of the Pie Map dashboard item.

- [Coloring](#)

Describes the capability to manage coloring of the Pie Map.

- [Legends](#)

Describes the available Pie Map legends and their options.

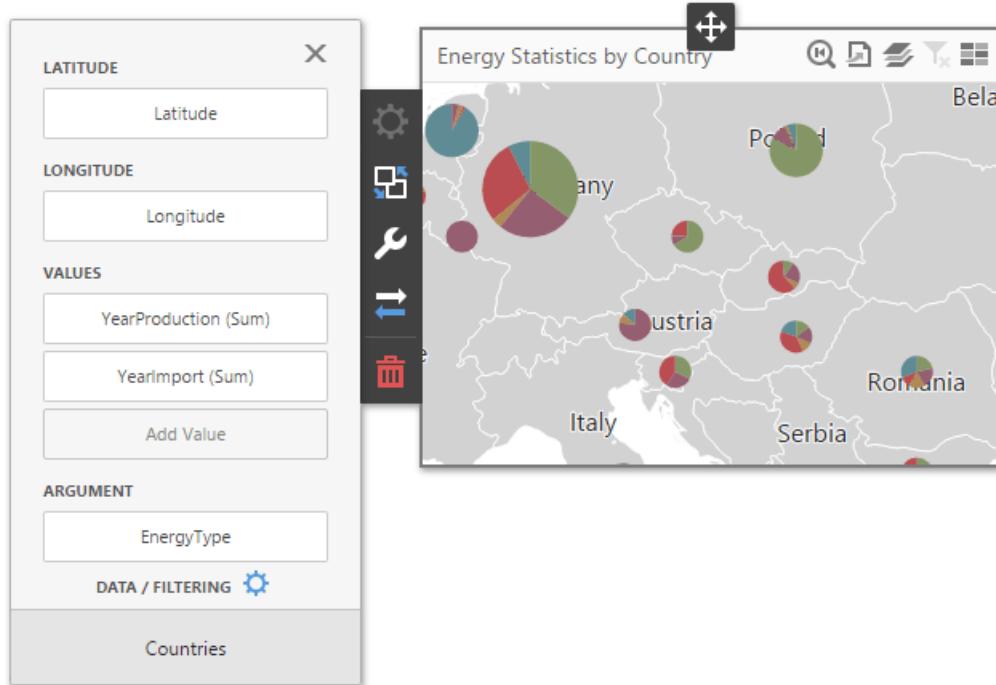
Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind the **Pie Map** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Pie Map dashboard item that is bound to data.



To bind the Pie Map dashboard item to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

The tables below list and describe the Pie Map's data sections.

SECTION	PROCESSED AS	DESCRIPTION
Latitude	Dimension	Accepts a dimension used to provide geographic latitude.
Longitude	Dimension	Accepts a dimension used to provide geographic longitude.
Values	Measure	Accepts measures used to calculate pie values.
Arguments	Measure	Allows you to provide data for pie arguments. If you added a data item to the Argument section and several data items to the Values section, you can use the Values drop-down menu to switch between the provided values. To invoke the Values menu, click the icon in the dashboard item caption .

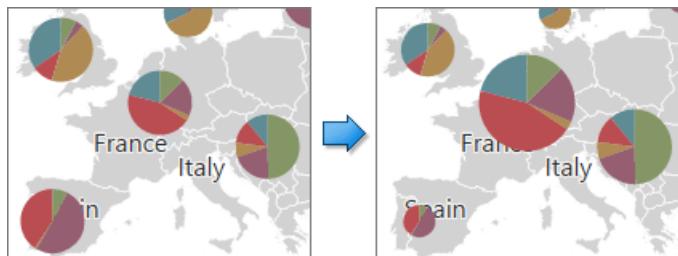
The Pie Map allows you to add supplementary content to tooltips to provide additional data.

SECTION	PROCESSED AS	DESCRIPTION
Tooltip Dimensions	Dimension	Accepts dimensions allowing you to add supplementary content to tooltips.

SECTION	PROCESSED AS	DESCRIPTION
Tooltip Measures	Measure	Accepts measures allowing you to add summaries to tooltips.

Pie Options

The Pie Map dashboard item allows you to take into account the weight of the pies. In this case, the relative sizes of the pies depend on the corresponding summary values.



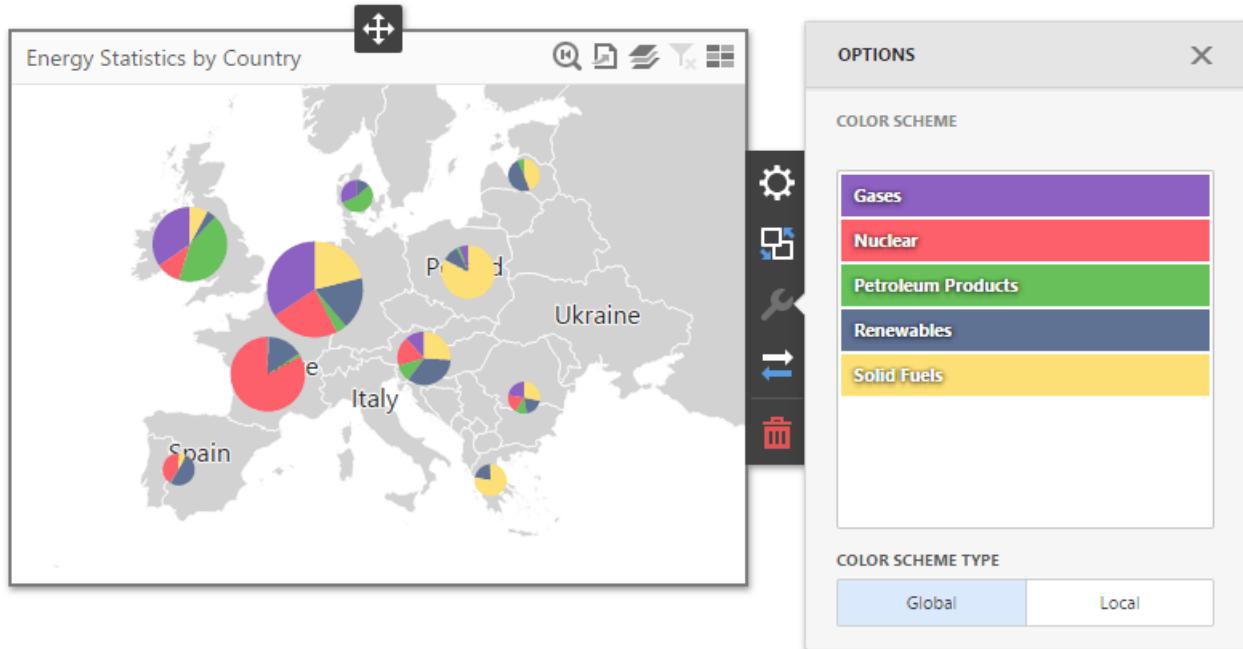
To enable this capability, go to the **Common** section of the Pie Map's **Options** menu and use the **Weighted Pies** option.



Coloring

Certain dashboard items provide the capability to color dashboard item elements by associating dimension values/measures and specified colors. You can choose whether to use a global color scheme to provide consistent colors for identical values or specify a local color scheme for each dashboard item. To learn more about coloring concepts common for all dashboard items, see the [Coloring](#) section.

The Pie Map dashboard item allows you to manage the coloring of segments corresponding to various dimension values/measures. For example, the image below illustrates the Pie Map dashboard item with a custom color palette.

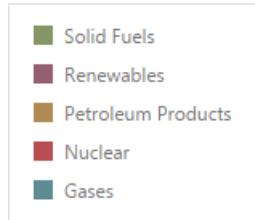


Legends

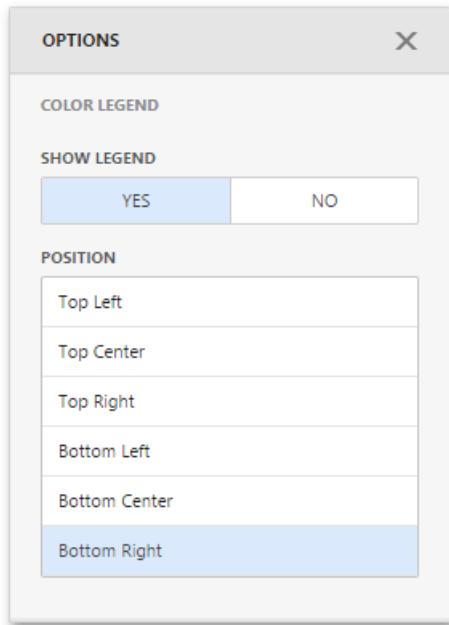
The Pie Map provides two types of legends used to identify map objects - **color** and **weighted** legends.

Color Legend

The color legend helps you identify which colors correspond to specific argument values.



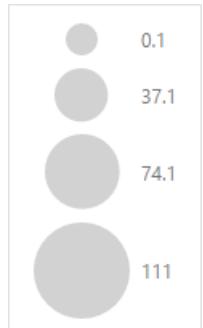
To specify color legend settings, go to the **Color Legend** section of the Pie Map's [Options](#) menu.



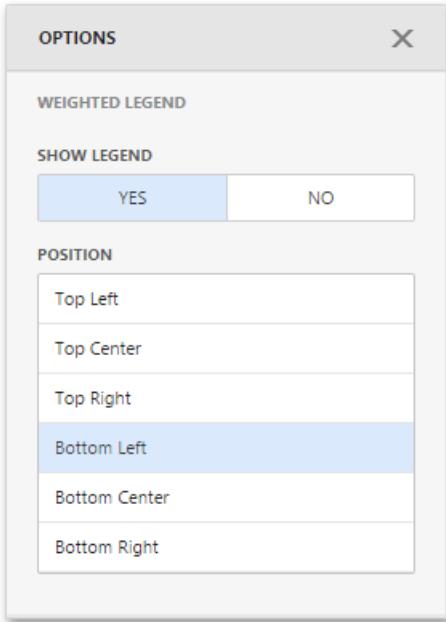
Here you can show or hide the color legend and change its position.

Weighted Legend

The weighted legend allows you to identify values corresponding to specific pie sizes.



To specify weighted legend's settings, go to the **Weighted Legend** section of the Pie Map's [Options](#) menu.



Here you can show or hide the weighted legend and change its position.

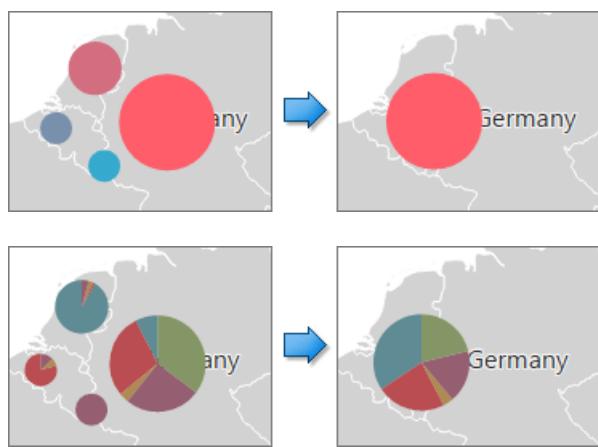
Clustering

When a Geo Point map contains a large number of objects (callouts, bubbles or pies), showing each object individually on the map is not useful. The Web Dashboard provides the capability to group neighboring map objects. This feature is called Clustering.

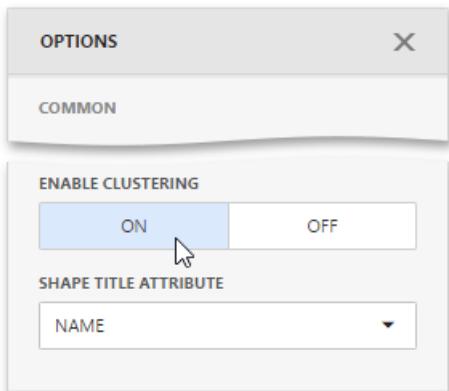
For instance, the [Geo Point Map](#) dashboard item combines callouts to bubbles.



The [Bubble Map](#) and [Pie Map](#) dashboard items cluster bubbles/pies with other bubbles/pies.



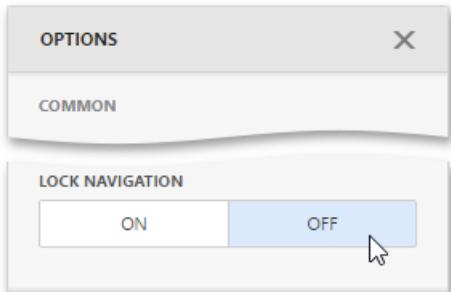
To enable clustering in the Web Dashboard, use the **Enable Clustering** option in the Geo Point Map's [Options](#) menu.



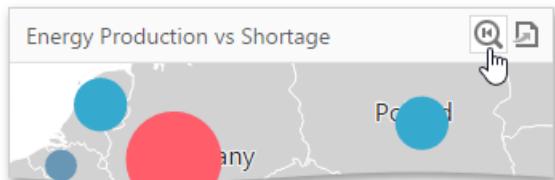
Map Navigation

The Geo Point Map dashboard item allows you to perform navigation actions such as zooming and scrolling using the mouse.

You can enable or disable the capability to scroll/zoom the map using the **Lock Navigation** option in the Geo Point Map's [Options](#) menu.



To display the entire map within the dashboard item, use the **Initial Extent** button (the icon) in the Geo Point Map's [caption](#).



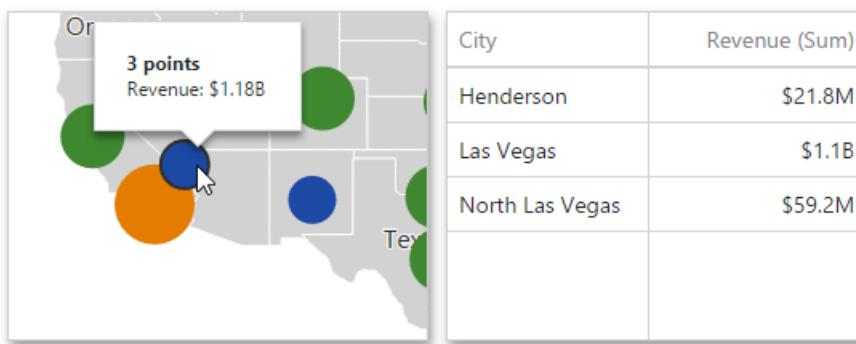
Interactivity

This document describes the capabilities that enable interaction between **Geo Point** maps and other dashboard items. These capabilities include **Master Filtering**.

Master Filtering

You can use the **Geo Point** dashboard item as a filter for other dashboard items.

The Geo Point Map dashboard item supports filtering by callout/bubble/pie. When Master Filtering is enabled, you can click a callout/bubble/pie (or multiple callouts/bubbles/pies) to make other dashboard items only display data related to the selected callout(s)/bubble(s)/pie(s).

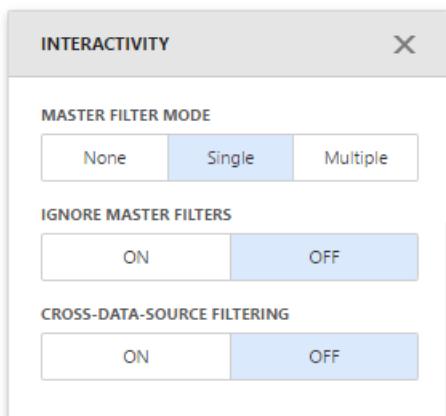


Note

When you select a clustered bubble or pie, master filtering is applied by all points that are clustered into this bubble/pie.

To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

To enable **Master Filtering**, go to the Map's [Interactivity](#) menu and select the required Master Filtering mode.



To reset filtering, use the **Clear Master Filter** button (the icon) in the Map's [caption](#).

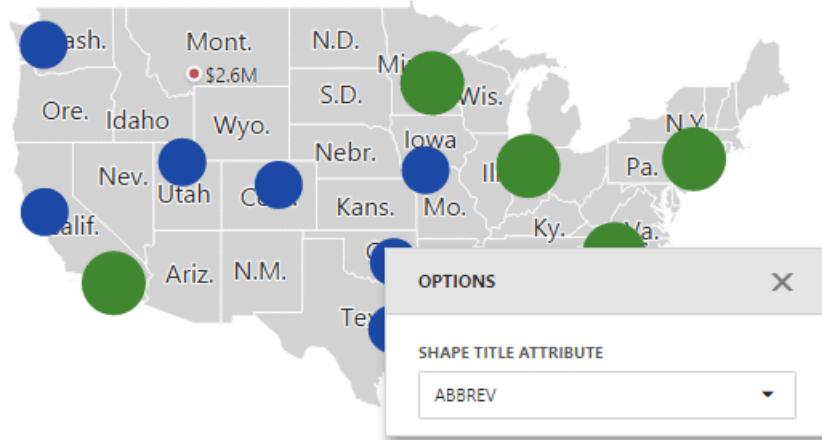
Labels

Geo Point maps provide the capability to display titles within map shapes and allow you to add supplementary content to the callout/bubble/pie tooltips.

Shape Titles

To manage map titles, use the **Shape Title Attribute** option of the Map's [Options](#) menu.

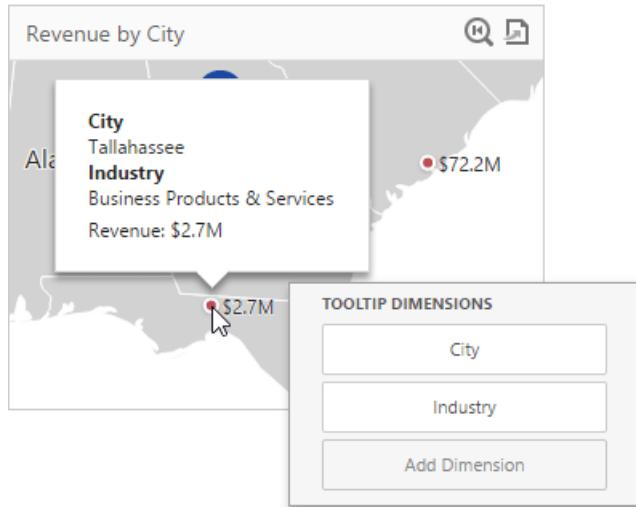
Here you can select the attribute whose values are displayed within corresponding map shapes.



Tooltips

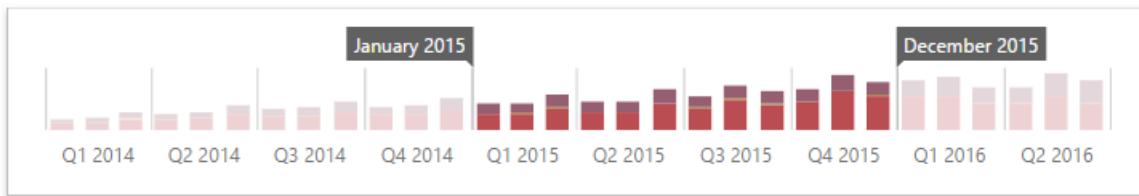
Geo Point maps also allow you to add supplementary content to the callout/bubble/pie tooltips using the **Tooltip Measures** and **Tooltip Dimensions** data sections.

To add an additional information, click a placeholder contained in one of the available data sections and select the required measure/dimension in the **Binding** section of the invoked [data item menu](#).



Range Filter

The **Range Filter** dashboard item allows you to apply filtering to other dashboard items. This item displays a chart with selection thumbs that allow you to filter out values displayed along the argument axis.



This section consists of the following subsections.

- [Providing Data](#)

Explains how to supply the Range Filter dashboard item with data.

- [Series](#)

Enumerates and describes different types of series that can be displayed within the Range Filter dashboard item.

- [Interactivity](#)

Describes features that enable interaction between the Range Filter and other dashboard items.

- [Predefined Periods](#)

Describes how to set predefined date-time periods that can be used to perform a selection.

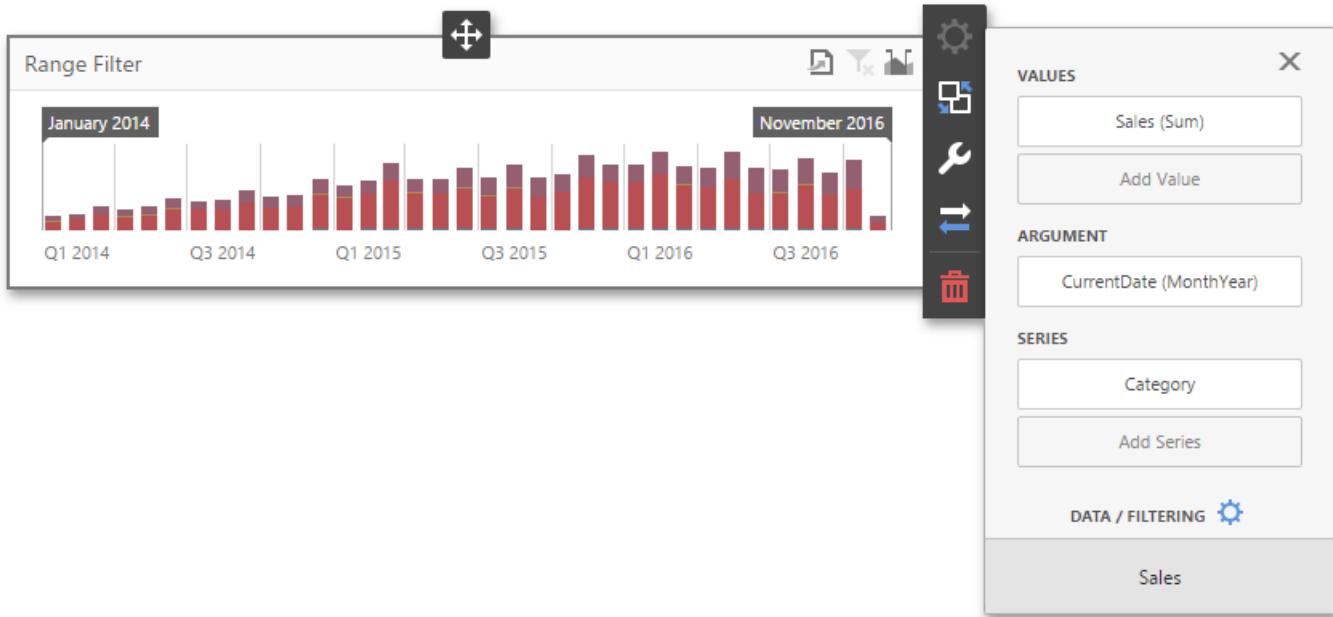
Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind a **Range Filter** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Range Filter dashboard item that is bound to data.



To bind the Range Filter dashboard item to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

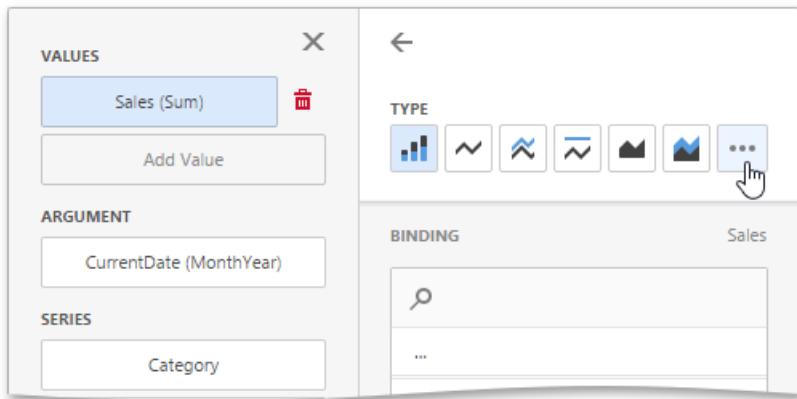
The table below lists and describes the Range Filter's data sections.

SECTION	PROCESSED AS	DESCRIPTION
Values	Measure	Contains data items against which the Y-coordinates of data points are calculated.
Arguments	Dimension	Contains data items that provide values displayed along the horizontal axis of the Range Filter. Data filtering is performed based on these values. Note that the Custom Periods section in the Options menu allows you to create predefined ranges used to select the required date-time interval.
Series	Dimension	Contains data items whose values are used to create chart series.

Series

The Range Filter dashboard item supports various **Line**, **Area** and **Bar** series types.

To switch between series types, click the data item located in the **Values** section and select the required type from the **Type** section of the [data item menu](#). To show all available types, click the ellipsis button.



The Range Filter supports the following series types.

- Line
- Stacked Line
- Full-Stacked Line
- Area
- Stacked Area
- Full-Stacked Area
- Bar
- Stacked Bar
- Full-Stacked Bar

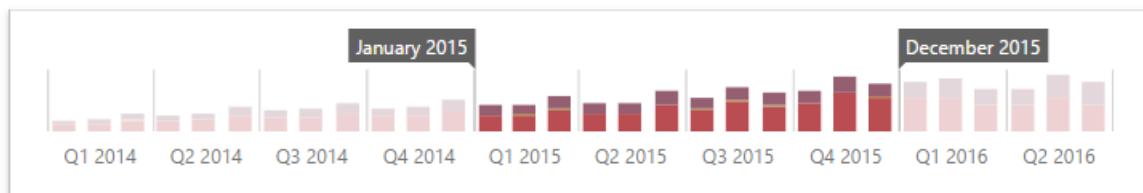
Interactivity

This document describes the features that enable interaction between the Range Filter and other dashboard items. These features include Master Filtering.

Master Filtering

The Dashboard allows you to use any data-aware dashboard item as a filter for other dashboard items.

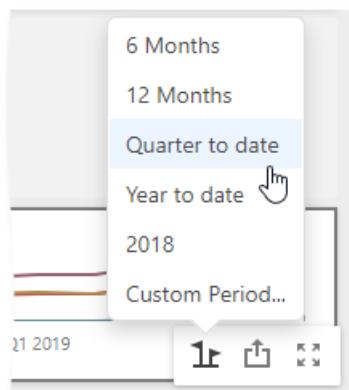
Master filtering is always enabled for the Range Filter dashboard item. The Range Filter displays a chart with selection thumbs that allow you to filter out values displayed along the argument axis.



The Range Filter supports the **Ignore Master Filters** and **Cross Data Source Filtering** options. To learn more, see the [Master Filtering](#) topic.

Predefined Periods

The Range Filter dashboard item allows you to add a number of *predefined date-time periods* that can be used to perform a selection.



To learn more about predefined periods, see [Predefined Periods](#).

Predefined Periods

The Range Filter dashboard item allows you to add a number of predefined date-time periods that can be used to perform a selection (for instance, *year-to-date* or *quarter-to-date*).

- [Add Predefined Ranges](#)
- [Select Predefined Ranges](#)

Add Predefined Ranges

To add predefined ranges, open the Range Filter's [Options](#) menu and go to the **Custom Periods** section. Click "+" to add a new period.

The screenshot shows the configuration dialog for a custom period named "Custom Period 1". The dialog is divided into several sections:

- COMMON**: Contains the **CAPTION** field with the value "Custom Period 1".
- START MODE**: Shows three options: "None" (disabled), "Fixed" (selected), and "Flow".
- START DATE**: Displays the date "1/1/2016" with a calendar icon for selection.
- END MODE**: Shows three options: "None" (disabled), "Fixed" (disabled), and "Flow" (selected).
- END INTERVAL AND OFFSET**: Includes a dropdown for "Month" and an input field for "-4" with up/down arrows.
- Result**: A summary box at the bottom displays the range "January 2016 - July 2016".

You can specify the following settings for the start/end boundaries.

- **Caption** - Specifies a predefined period caption.
- **Start Mode** - Specifies a mode of the start boundary.
- **End Mode** - Specifies a mode of the end boundary.

The following modes used to set predefined ranges are available.

- **None** - The selection will begin from the start/end of the visible range.
- **Fixed** - Allows you to select a specific date value using the calendar. Use the **Start/End Date** option to set a value.
- **Flow** - Allows you to select a relative date value. The **Interval** option specifies the interval between the current date and the required date. The **Offset** option allows you to set the number of such intervals.

■ Note

Note that the **Offset** option can accept **negative** and **positive** values. Negative values correspond to dates before the current date, while positive values correspond to future dates.

Below you can find some examples of how to set up custom periods:

Fixed custom periods

2018

- *Start Point*
 - Mode: Fixed
 - Start Date: 01/01/2018
- *End Point*
 - Mode: Fixed
 - End Date: 12/31/2018

Q1 2017

- *Start Point*
 - Mode: Fixed
 - Start Date: 01/01/2017
- *End Point*
 - Mode: Fixed
 - End Date: 03/31/2018

Flow custom periods

6 Months

- *Start Point*
 - Mode: Flow
 - Interval: Month
 - Offset: -5
- *End Point*
 - Mode: None

Year to date

- *Start Point*
 - Mode: Flow
 - Interval: Year
 - Offset: 0
- *End Point*
 - Mode: Flow
 - Interval: Day
 - Offset: 0

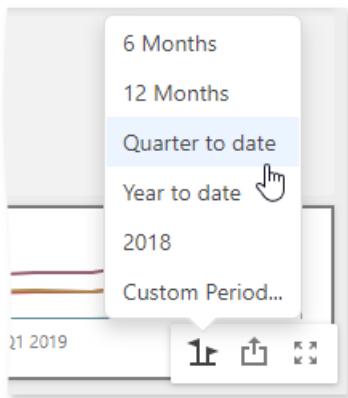
Last Month

- *Start Point*
 - Mode: Flow
 - Interval: Month
 - Offset: -1
- *End Point*

- Mode: Flow
- Interval: Month
- Offset: 0

Select Predefined Ranges

To select a predefined period, click the **Select Date Time Period** button (the  icon) in the Range Filter's [caption](#) and select the required period from the list.

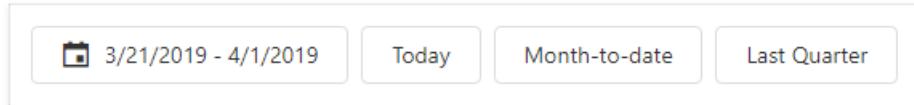


Date Filter

The **Date Filter** dashboard item allows you to filter dashboard data based on the selected data range. The range can be relative (Last 3 Months), use fixed dates (01-01-2018), or presets (Month-to-date). You can also filter dates before or after a specified date.

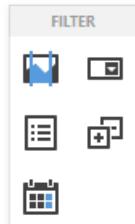


The Date Filter item displays a set of intervals that can be used as quick filters:



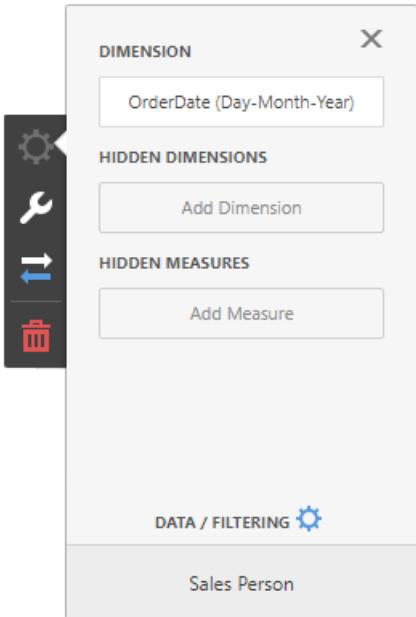
Add a New Date Filter to the Dashboard

To create a Date Filter item, click the **Date Filter** item (the icon) in the **Toolbox Filter** section:



Bind to Data

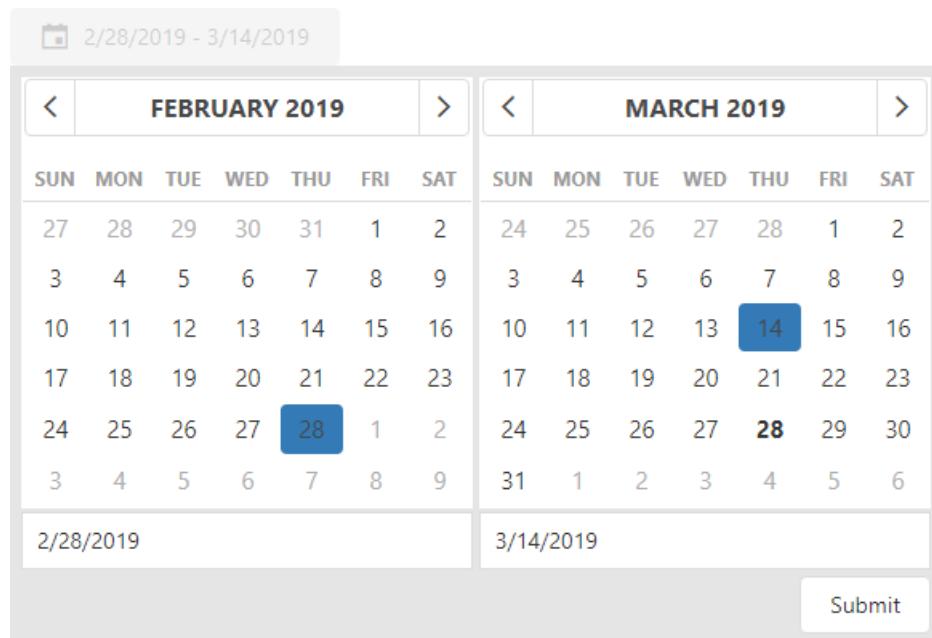
Click the **Dimension** placeholder in the data section and select the required data source field in the **Binding** section of the invoked [data item menu](#) to bind the Date Filter to data.



For details, see the [Binding Dashboard Items to Data](#) topic.

Date Picker

The Date Filter item displays a **Date Picker** that is a button with a drop-down calendar. A drop-down calendar allows the end-user to select a single date or a date range:

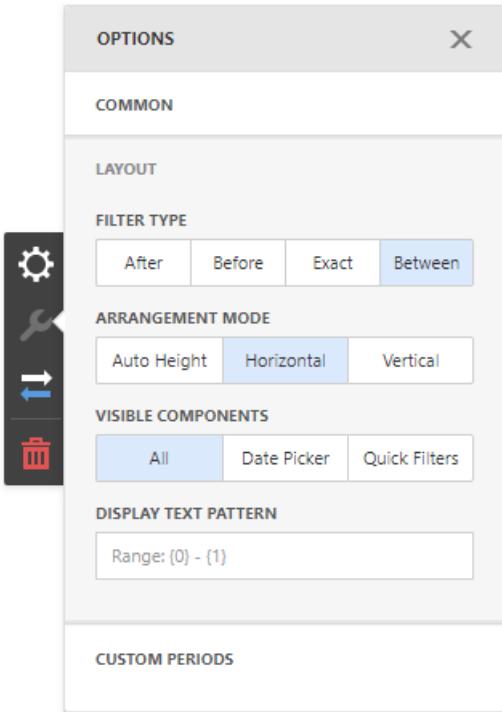


You can configure whether to display the Date Picker in the Date Filter item. For this, go to the Date Filter's [Options](#) menu, open to the **Layout** section and specify the **Show Date Picker** setting.

Display Format

To specify the date-time value format, use the **Format Type** option in the **Format** section of the [data item menu](#), as described in the [Formatting Data](#) topic.

To specify a custom string displayed in the Date Picker component, go to the dashboard item [Options](#) menu, open the **Layout** section and fill in the **Display Text Pattern** text field:



You can include placeholders in a custom string. The `{0}` placeholder is the interval's start, the `{1}` placeholder is the interval's end.

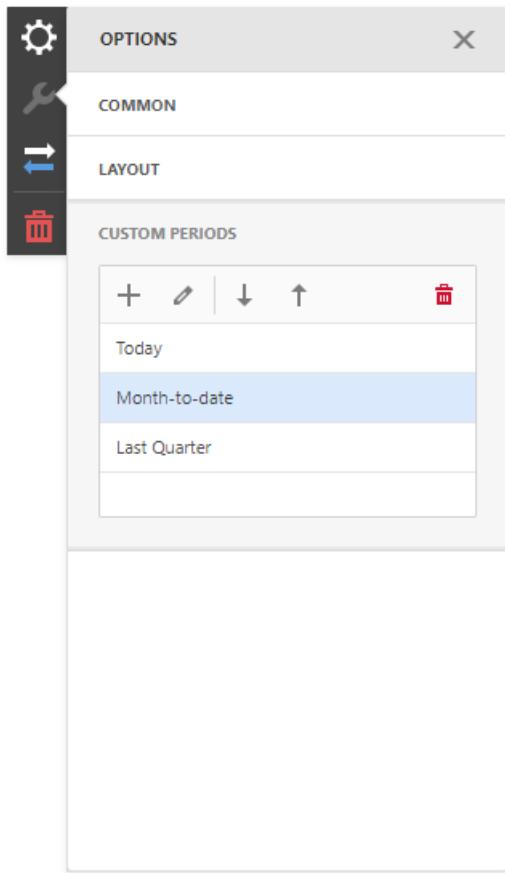
Create Quick Filters

Quick Filters are buttons displayed within the Date Filter item. Each button is bound to a predefined date-time period that can be used to perform a selection. You can click the button to apply a custom period to a Date filter:

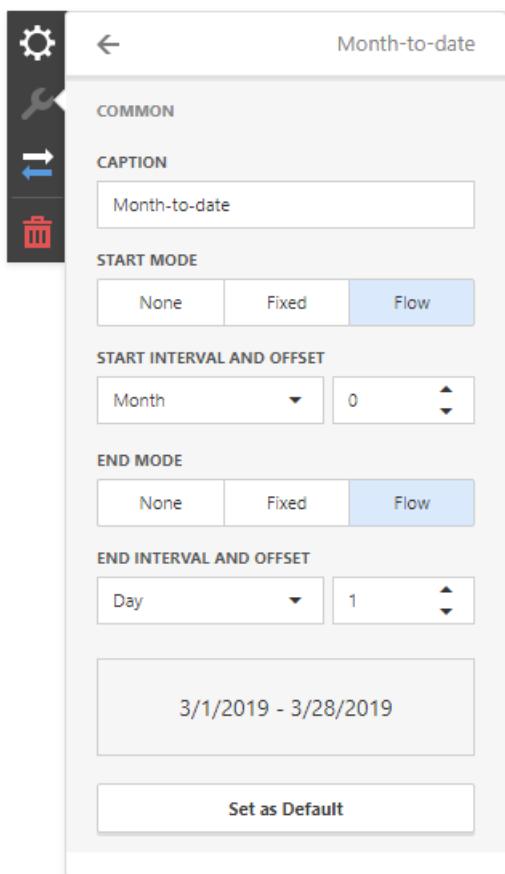


The **Select Date Time Period** button displayed in the Date Filter caption invokes the drop-down list with quick filters.

To add quick filters, open the Date Filter's [Options](#) menu and go to the **Custom Periods** section. Click "+" to add a new period:



Click the *edit* icon to invoke the editor's panel and configure a custom period. The following image illustrates how to modify the **Month-to-Date** custom period:



You can specify the following settings for the start/end boundaries:

- **Caption** - Specifies a predefined period caption.
- **Start Mode** - Specifies a mode of the start boundary.

- **End Mode** - Specifies a mode of the end boundary.

The following modes used to set predefined ranges are available:

- **None** - The selection will begin from the start/end of the visible range.
- **Fixed** - Allows you to select a specific date value using the calendar. Use the **Start/End Date** option to set a value.
- **Flow** - Allows you to select a relative date value. The **Interval** option specifies the interval between the current date and the required date. The **Offset** option allows you to set the number of such intervals.

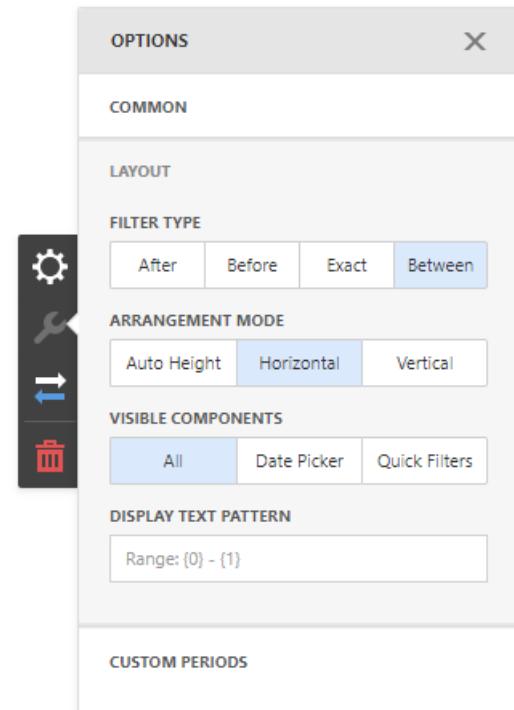
■ Note

Note that the **Offset** option can accept **negative** and **positive** values. Negative values correspond to dates before the current date, while positive values correspond to future dates.

Arrange Quick Filters

Quick filters in the Date Filter item can be arranged horizontally or vertically. The default mode is *auto height*, in which quick filters are displayed horizontally and the dashboard item shrinks automatically to fit the items and save space.

To specify the arrangement mode, go to the dashboard item [Options](#) menu, open the **Layout** section and specify the **Arrangement Mode** setting:



Images

The Image dashboard item is used to display static images within a dashboard.



You can either add a static image or you can use the Bound Image as a detail item along with the [Master Filtering](#) feature.

- [Image Overview](#)
- [Providing Images](#)
- [Interactivity](#)
- [Image Settings](#)

Image Overview

The Web Dashboard allows you to create two types of **Image** dashboard items.

- The **Image** dashboard item allows you to add a static image to the dashboard.



- The **Bound Image** dashboard item can be bound to a set of images (for instance, stored in the database). You can use the Bound Image as a detail item along with the [Master Filtering](#) feature.

A screenshot of a master filtering interface. On the left, there is a list of food categories with radio buttons: Beverages, Condiments (which is selected), Confections, Dairy Products, Grains/Cereals, Meat/Poultry, and Produce. To the right, there is a preview area showing a mortar and pestle with various ingredients like onions and herbs.

To create a required Image dashboard item, use the **Image** and **Bound Image** buttons in the [Toolbox](#).

The following topics describe various Image capabilities.

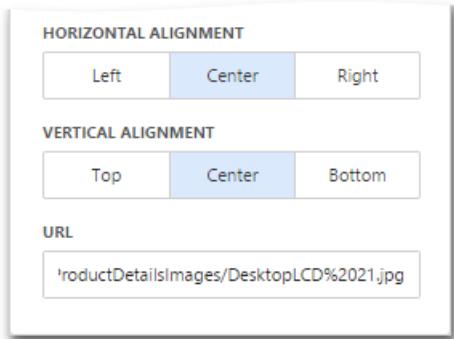
- [Providing Images](#) - describes how to load images to Image dashboard items.
- [Interactivity](#) - describes interactivity settings of the Bound Image dashboard item.
- [Image Settings](#) - describes various settings related to image representation.

Providing Images

This topic describes how to provide images for the **Image** and **Bound Image** dashboard items.

Provide a Static Image

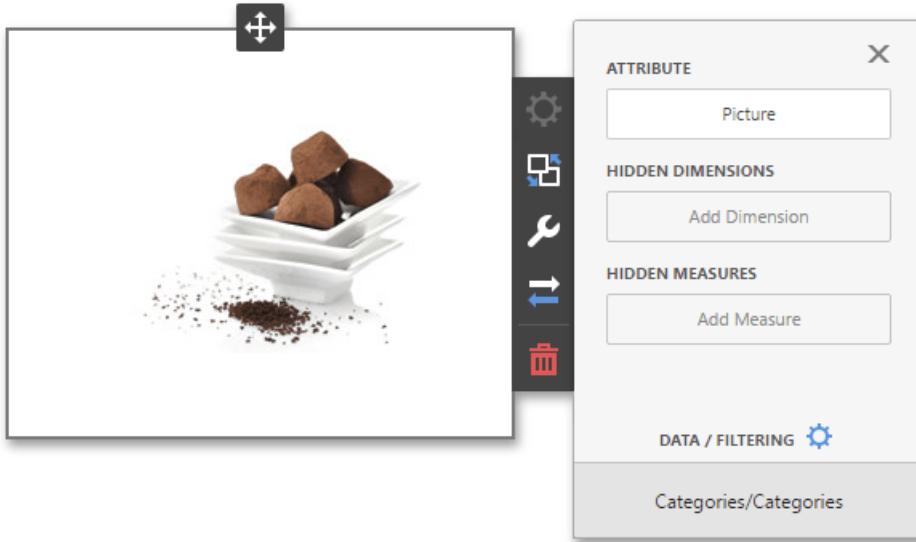
To provide an image to the Image dashboard item, open the Image's [Options](#) menu and specify the image path using **URL** option.



The URL option saves the path to the image in the [dashboard definition](#).

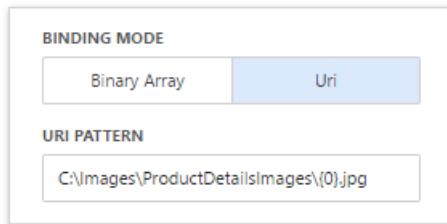
Provide a Set of Images

The **Bound Image** dashboard item provides the **Attribute** data section containing the corresponding placeholder.



You can specify the binding mode for the Bound Image. Go to the Bound Image's [Options](#) menu and specify the **Binding Mode**. The following options are available.

- **Binary Array** - Use this mode if images are stored in the data source as byte arrays.
- **URI** - Use this mode to locate images accessible by a predefined URI. In this case, the data source field should return strings that are parts of URLs to these images. For instance, the URI pattern in the form below specifies the path to the folder containing the required images.



C:\Images\ProductDetails\Images{0}.jpg

Data source field values will be inserted to the position of the {0} placeholder. Thus, the Bound Image maps the current dimension value with the image placed at the specified URI.

Note

Note that the **Bound Image** can display only a single image simultaneously. If Master Filtering is not applied to the Bound Image, it selects the displayed image in the following ways.

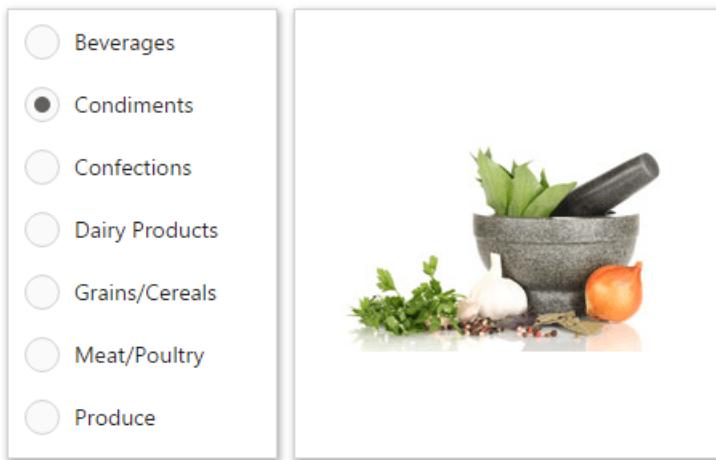
- In the **Binary Array** mode, the displayed image cannot be predicted precisely as a result of sorting limitations for the image/binary data types. Use the [Master Filtering](#) feature to display the specified image.
- In the **URI** mode, the Bound Image displays an image corresponding a first attribute value taking into account the attribute's sort order.

Interactivity

This document describes the features that enable interaction between the Bound Image and other dashboard items. These features include **Master Filtering**.

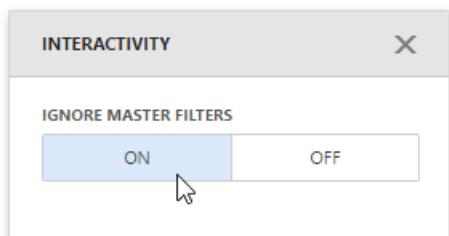
Master Filtering

Data displayed in the Bound Image dashboard item can be filtered by other master filter items. The image below displays the Bound Image dashboard item filtered by [List Box](#).



- Beverages
- Condiments
- Confections
- Dairy Products
- Grains/Cereals
- Meat/Poultry
- Produce

You can prevent the Bound Image from being affected by other master filter items using the **Ignore Master Filters** button in the Bound Image's [Interactivity](#) menu.



To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

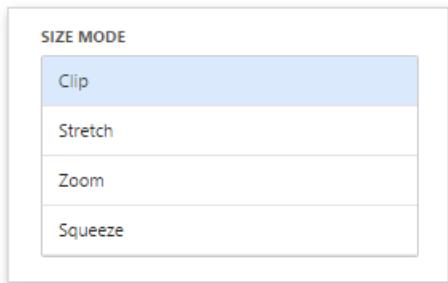
Image Settings

This topic describes settings related to the representation of **Image** dashboard items.

Image Size Mode

You can specify the image size mode that defines how the image fits within the dashboard item.

To do this, go to the [Options](#) menu and select the required size mode from the list.



The following modes are available.

SIZE MODE	DESCRIPTION
Clip	The image is clipped if it is larger than the Image dashboard item.
Stretch	The image within the Image dashboard item is stretched or shrunk to fit the size of the Image dashboard item.
Squeeze	If the dimensions of the Image dashboard item exceed those of the image it contains, the image is shown full-size. Otherwise, the image is resized to fit the dimensions of the Image dashboard item.
Zoom	The image is sized proportionally without clipping, so that it best fits the Image dashboard item. The closest fitting side of the image (either the height or the width) will be sized to fit the dashboard item, and the remaining side (height or width) will be sized proportionally, leaving empty space.

Image Alignment

To specify how the image is aligned within the dashboard item, use the **Horizontal Alignment** and **Vertical Alignment** options in the Image's [Options](#) menu.



Text Box

The Text Box dashboard item is used to display rich text within a dashboard.

SuperLCD 70

Production Start: 6/1/2012

Consumer Rating: 4 of 5

Retail Price: \$4K

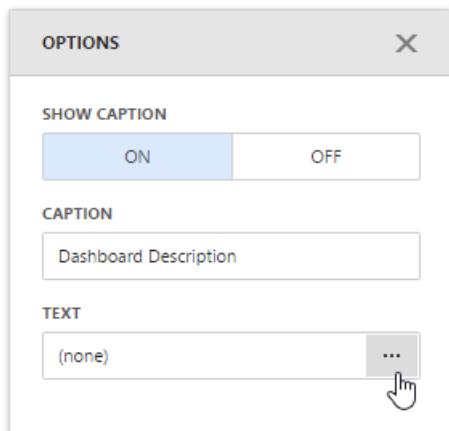
Best Sales Year: 2014

Best Sales Company: ACME

The 70" DevAV SuperLCD TV is changing the way people watch TV. It's amazing build quality and high precision design means you get the best possible picture for the best possible price. It delivers crystal-clear images with mind-blowing video. The bottom-line is simple, this TV offers 1080p Full HD output with 120Hz refresh rate. A thin frame design with super thin profile makes mounting this TV a breeze. This super-smart remote includes a built-in keypad for straightforward channel surfing. The remote is also backlit so you can easily change channels in the dark. The 70" DevAV SuperLCD TV also includes six video input options so you can display any video signal with ease.

You can provide text by uploading file in the RTF format.

To do this, go to the Text Box's [Options](#) menu and click the ellipsis button in the **Text** field.



This invokes the Open dialog, which allows you to locate the RTF file.

Note

The loaded RTF file's content in the Text Box can differ from the original RTF file's layout because of RTF to HTML conversion limitations and browser specifics.

Treemap

The **Treemap** dashboard item allows you to visualize data in nested rectangles that are called *tiles*.



This section consists of the following topics.

- [Providing Data](#)

Provides information on how to supply the Treemap dashboard item with data.

- [Interactivity](#)

Describes features that enable interaction between the Treemap and other dashboard items.

- [Layout](#)

Describes layout options of the Card dashboard item.

- [Grouping](#)

Describes how to group Treemap tiles into groups.

- [Coloring](#)

Provides information about coloring.

- [Labels](#)

Provides information about labels and tooltips that contain descriptions of tiles.

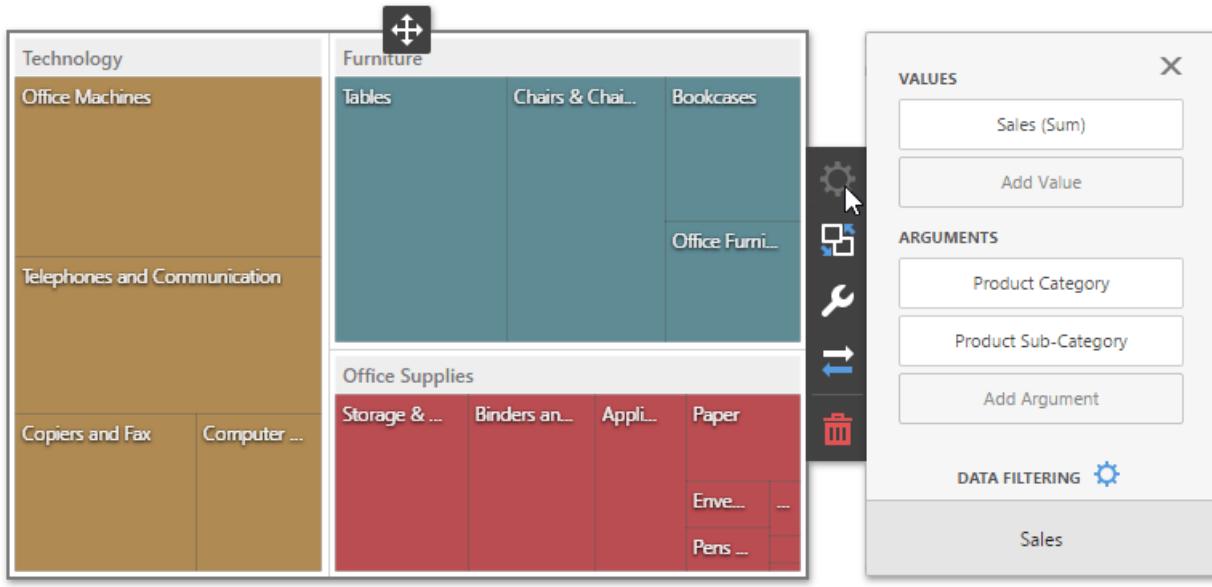
Providing Data

The **Web Dashboard** allows you to bind various dashboard items to data in a virtually uniform manner. To learn more, see the [Binding Dashboard Items to Data](#) topic.

The only difference is in the data sections that the required dashboard item has. This topic describes how to bind a **Treemap** dashboard item to data.

Binding to Data in the Web Dashboard

The image below shows a sample Treemap dashboard item that is bound to data.



To bind the Treemap dashboard item to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

The table below lists and describes the Treemap's data sections.

SECTION	PROCESSED AS	DESCRIPTION
Values	Measure	Contains data items that provide numeric data. You can fill several data item containers in the Values section and use the Values drop-down menu to switch between the provided values. To invoke the Values menu, click the icon in the dashboard item caption .
Arguments	Dimension	Contains data items that provide discrete categorical data. If the Arguments section contains several dimensions, you can group child tiles by values of the parent dimension.

Interactivity

To enable interaction between the Treemap and other dashboard items, you can use the interactivity features, as **Master Filtering** and **Drill-Down**.

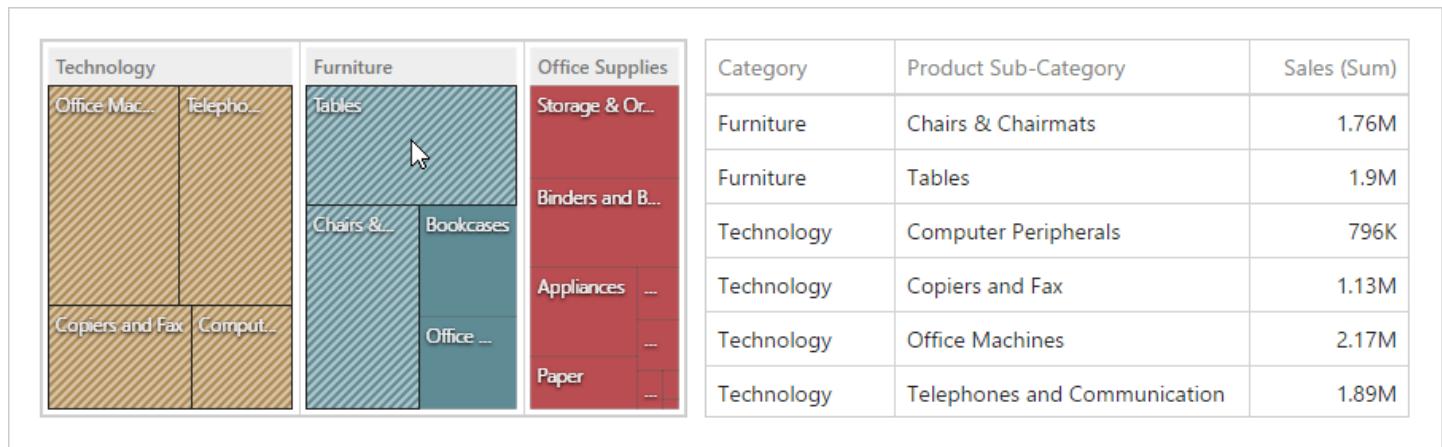
- [Master Filtering](#)
- [Drill-Down](#)

Master-Filtering

The Web Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items (Master Filter). To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

The Treemap dashboard item supports filtering by tiles/groups.

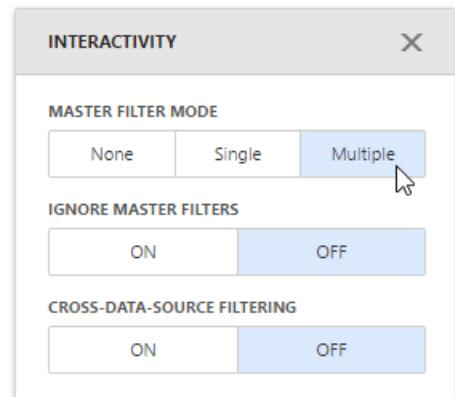
When **Master Filtering** is enabled, you can click a tile or group caption (or multiple tiles/groups) to make other dashboard items only display data related to the selected tile/group(s).



Note

If the Single Master Filter is used, you can select only tiles corresponding to the bottommost level.

To enable **Master Filtering**, go to the Treemap's [Interactivity](#) menu and select the required Master Filtering mode.

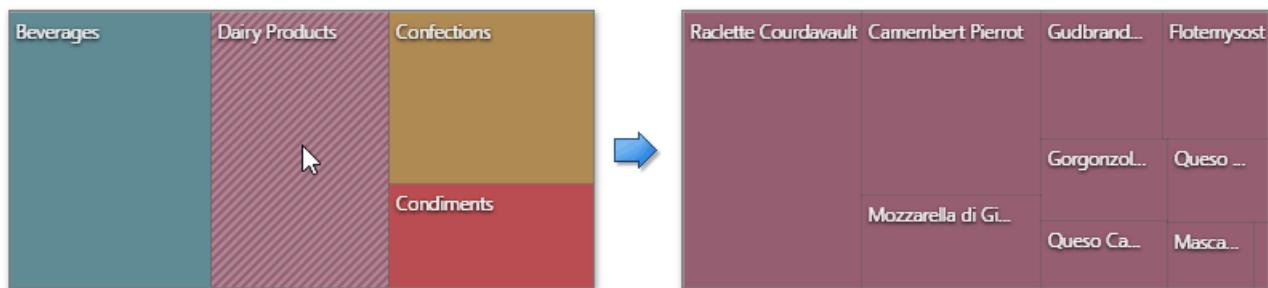


To reset multiple filtering, use the **Clear Master Filter** button (the icon) in the Treemap's [caption](#).

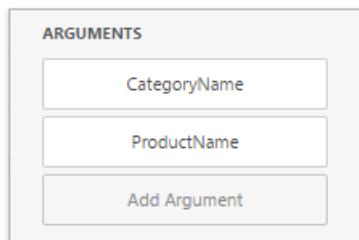
Drill-Down

The built-in drill-down capability allows end-users to change the detail level of data displayed in dashboard items on the fly. To learn more about drill-down concepts common to all dashboard items, see the [Drill-Down](#) topic.

When drill-down is enabled, an end-user can click a tile to view the details.



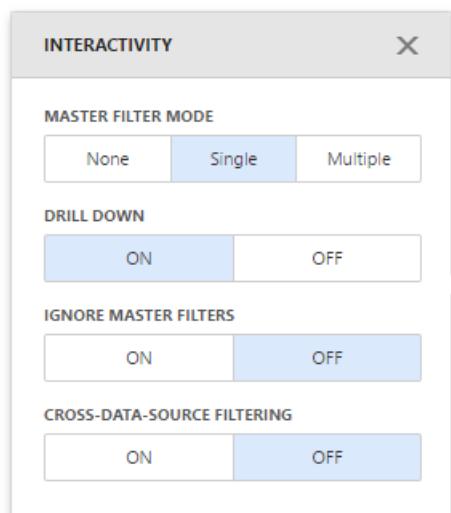
Drill-down requires that the **Arguments** section contains several dimensions at the top, from the least detailed to the most detailed dimension.



■ Note

In OLAP mode, you can perform drill-down for either a hierarchy data item or several dimension attributes.

To enable **Drill-Down**, go to the Treemap's [Interactivity](#) menu and turn the **Drill-Down** option on.



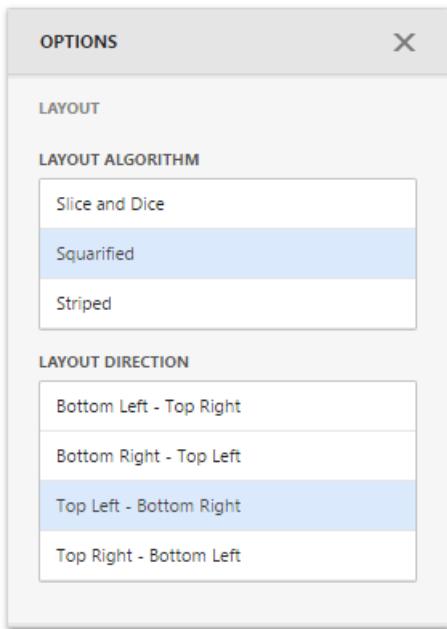
To return to the previous detail level, click the **Drill Up** button (the ↺ icon) in the Treemap's [caption](#).

■ Note

Grouping is not in effect when drill-down is enabled.

Layout

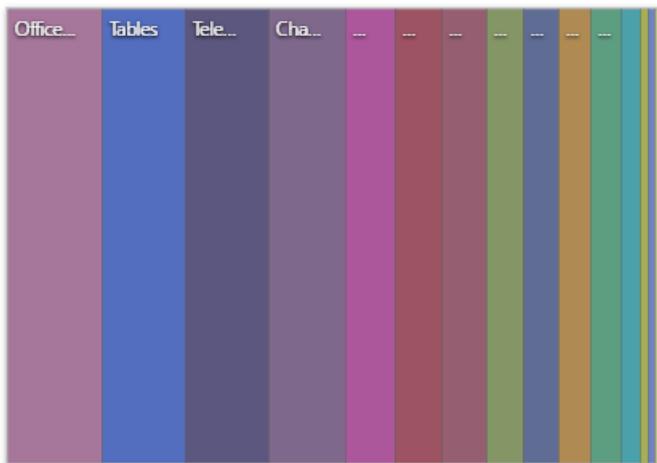
This topic describes how to change a layout algorithm used to arrange Treemap tiles. To do this in the Web Dashboard, go to the Treemap's [Options](#) menu and open the **Layout** section.



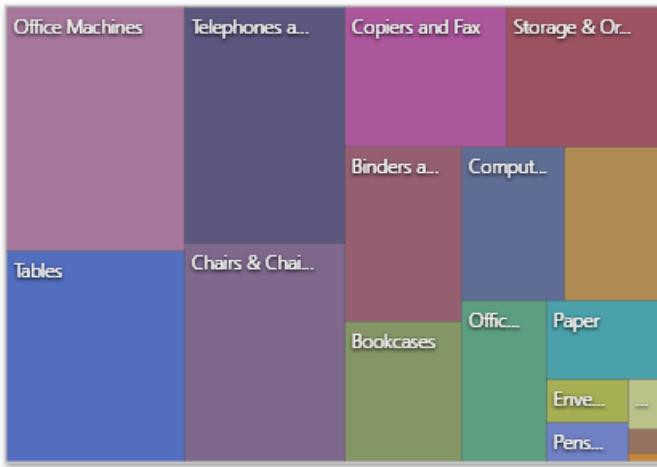
Layout Algorithm

To change a layout algorithm, select the required direction in the Layout Algorithm list. The following algorithms are available.

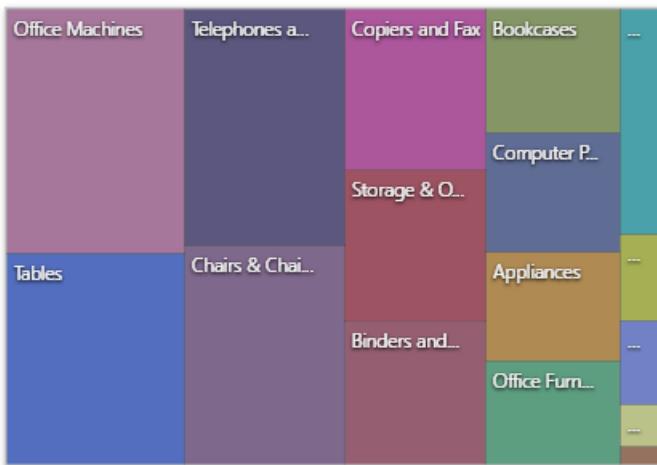
- The **Slice and Dice** algorithm divides the space between items, slicing it in the specified direction depending on item value.



- The **Squareified** algorithm arranges tiles so that their width/height ratio will be closer to 1.



- The **Striped** algorithm is a modified version of the Squarified algorithm. The difference here is that tiles are drawn side by side as columns or rows.



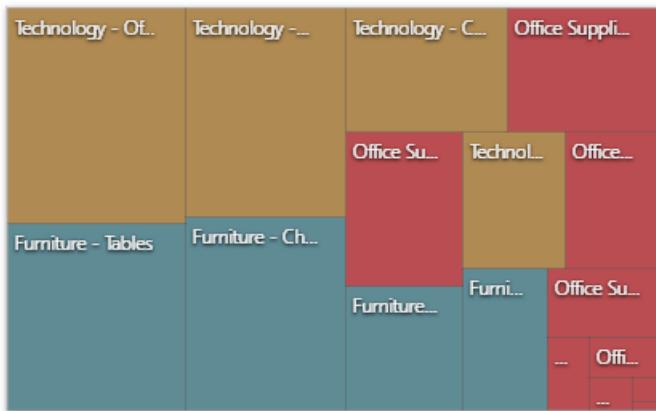
Layout Direction

You can also set a layout direction to specify an arrangement of tiles depending on their sizes. The Treemap arranges tiles in descending order from maximum to minimum values. To do this, select the required direction in the **Layout Direction** list.

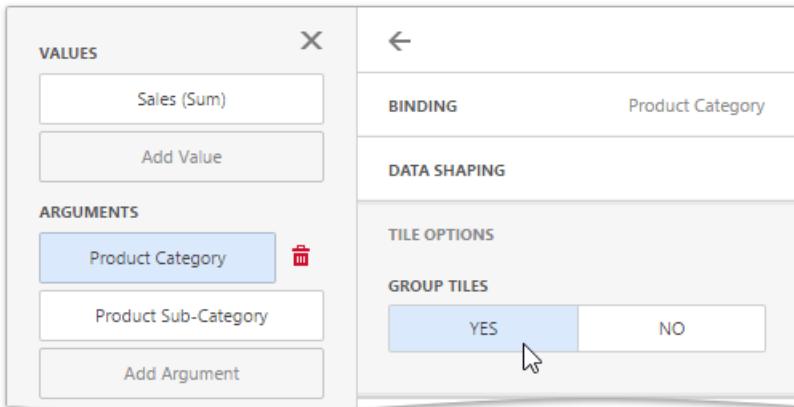
- Bottom Left - Top Right** arranges tiles from the bottom-left to the top-right corner.
- Bottom Right - Top Left** arranges tiles from the bottom-right to the top-left corner.
- Top Left - Bottom Right** arranges tiles from the top-left to the bottom-right corner.
- Top Right - Bottom Left** arranges tiles from the top-right to the bottom-left corner.

Grouping

If you use several arguments in the Treemap, you can group tiles corresponding to child values by parent values. For example, the following Treemap dashboard item displays combinations of categories and sub-categories.



To group sub-categories inside corresponding categories, click the *Product Category* data item and go to the **Tile Options** section of the [data item menu](#). There, toggle the **Group Tiles** option on.



Product tiles will be grouped into category groups.



□ Note

Note that grouping is unavailable for the bottommost level.

Coloring

Treemap provides the capability to color its tiles by associating dimension values/measures and specified colors. You can choose whether to use a global color scheme to provide consistent colors for identical values or specify a local color scheme for each dashboard item. To learn more about coloring concepts common for all dashboard items, see [Coloring](#).

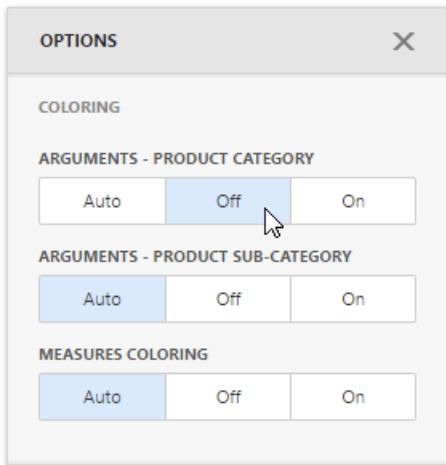
By default, the Treemap dashboard item colors its tiles in the following way.

- If the Treemap contains only measures (the *Values* section), values corresponding to different measures are colored by different hues.
- If the Treemap contains arguments (the *Arguments* section), values corresponding to the first argument are colored by different hues.

If necessary, you can change the default behavior. For example, the image below shows the Treemap dashboard item whose measures and argument values are painted with the same color.



To change the default coloring behavior, go to the **Coloring** section of the Treemap's [Options](#) menu.



■ Note

You can change the default palette used to color Treemap tiles. For this, go to the **Color Scheme** section of the Treemap's [Options](#) menu.

Labels

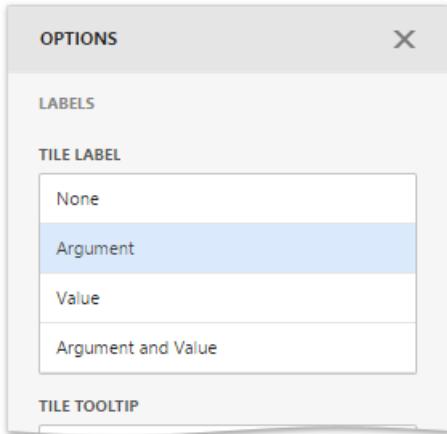
The Treemap displays labels that contain descriptions for tiles and groups, and provide tooltips with additional information.



You can specify which information should be displayed within tile and group labels separately. To do this, go to the **Labels** section of the Treemap's [Options](#) menu. Here you can specify a type of the following elements.

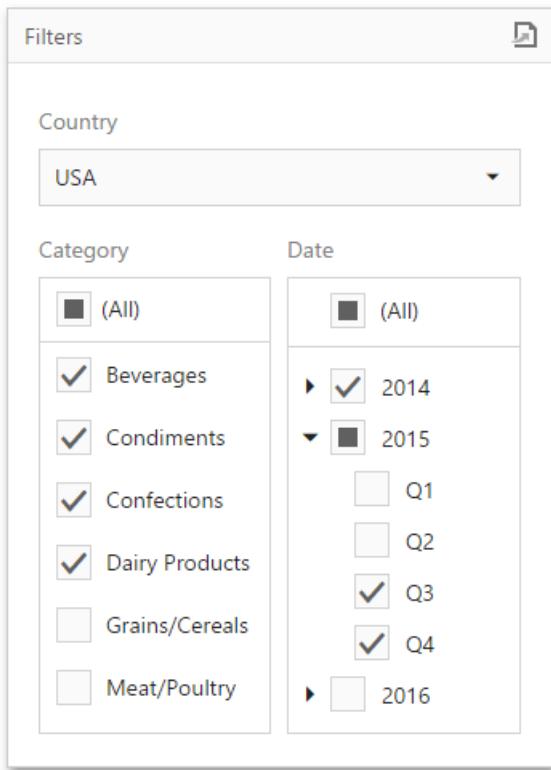
- Tile labels
- Tile tooltips
- Group labels
- Group tooltips

The available types are similar for all elements. You can set one of these types.



Filter Elements

Filter elements represent a special type of dashboard item that allows you to apply filtering to other dashboard items.



This section consists of the following topics.

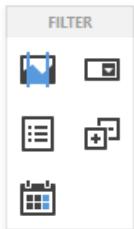
- [Filter Elements Overview](#)
- [Providing Data](#)
- [Interactivity](#)

Filter Elements Overview

The Web Dashboard allows you to create filter elements that used to filter other dashboard items.

- [Combo Box](#)
- [List Box](#)
- [Tree View](#)
- [Date Filter](#)

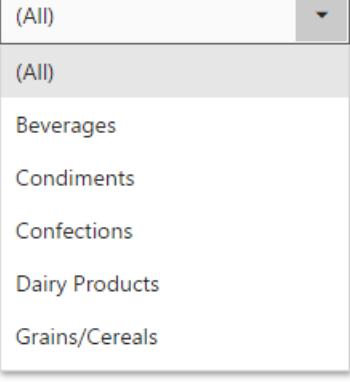
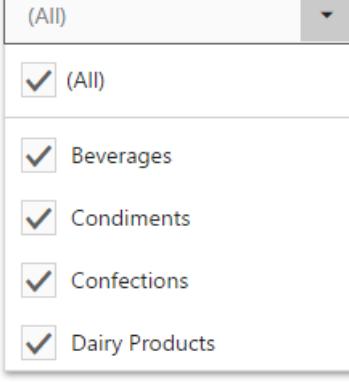
To add the required filter element to the dashboard, use corresponding buttons into the **Filter** section of the **Toolbox**.



Combo Box

The **Combo Box** dashboard item allows you to select a value(s) from the drop-down list.

You can switch the combo box type in the Combo Box's [Options](#) menu. The table below demonstrates available Combo Box's types.

STANDARD	CHECKED
The Standard type allows you to select only a single value.	The Checked type allows you to select multiple values in the invoked drop-down list.
	

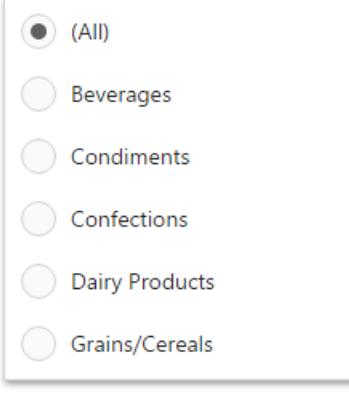
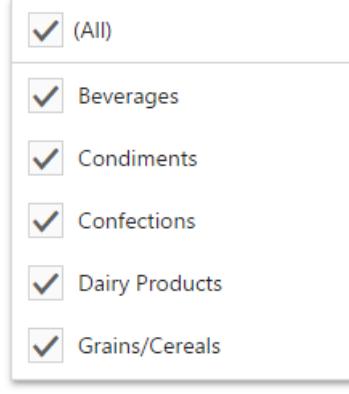
By default, the Combo Box's dropdown contains an 'All' item that allows you to select/deselect all items in the Combo Box. To hide this item, turn off the **Show 'All' Value** option in the Combo Box's [Options](#) menu.

List Box

The **List Box** dashboard item allows you to select a value(s) from the list.

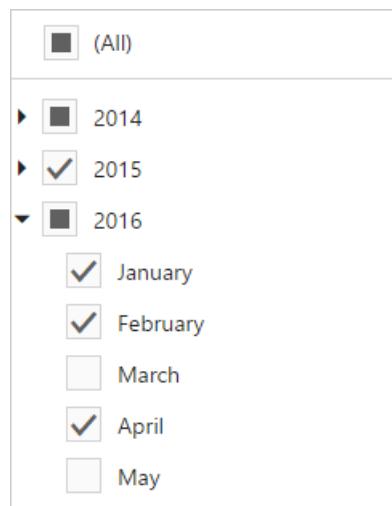
You can switch the list box type in the List Box's [Options](#) menu. The table below demonstrates available List Box's types.

CHECKED	RADIO
The Checked type allows you to select multiple values in the list box.	The Radio type allows you to select only a single value in the radio group.

Tree View

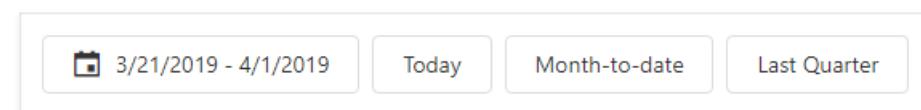
The **Tree View** dashboard item displays values in a hierarchical way and allows you to expand/collapse nodes.



You can manage the initial expanded state of filter values using the **Auto Expand** option in the Tree View's [Options](#) menu.

Date Filter

The **Date Filter** dashboard item allows you to filter dashboard data based on the selected data range.



See [Date Filter](#) for details.

Providing Data

The Web Dashboard allows you to bind various dashboard items to data in a consistent manner, the only difference being the data sections that these dashboard items comprise. To learn more about common binding concepts, see the [Binding Dashboard Items to Data](#) topic.

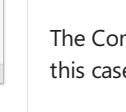
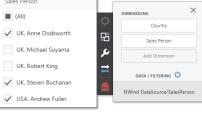
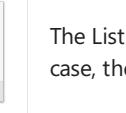
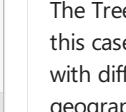
This topic describes how to bind **filter elements** to data using the Web Dashboard control.

Binding Overview

All filter elements provide the **Dimensions** data section, which accepts dimensions used to provide filter values.

To bind the filter elements to data, click a placeholder contained in one of the available data sections and select the required data source field in the **Binding** section of the invoked [data item menu](#).

To learn about the specifics of binding various filter elements to data, see the table below.

Dashboard Item	Data Sections	Description
Combo Box	 	The Combo Box filter element can contain several dimensions at the Dimensions data section. In this case , the drop-down list will contain combinations of dimension values.
List Box	 	The List Box filter element can contain several dimensions at the Dimensions data section. In this case, the list will contain combinations of dimension values.
Tree View	 	The Tree View filter element can contain several dimensions at the Dimensions data section. In this case, dimension values are displayed in a hierarchical way. This can be the set of dimensions with different group intervals (e.g., Year/Quarter/Month) or the set of related dimensions (e.g., geographical data such as continents/countries/cities).

Interactivity

This document describes filtering capabilities supported by filter elements. You can use filter elements to apply master filtering to other dashboard items or introduce hierarchical filtering by adding several connected filters.

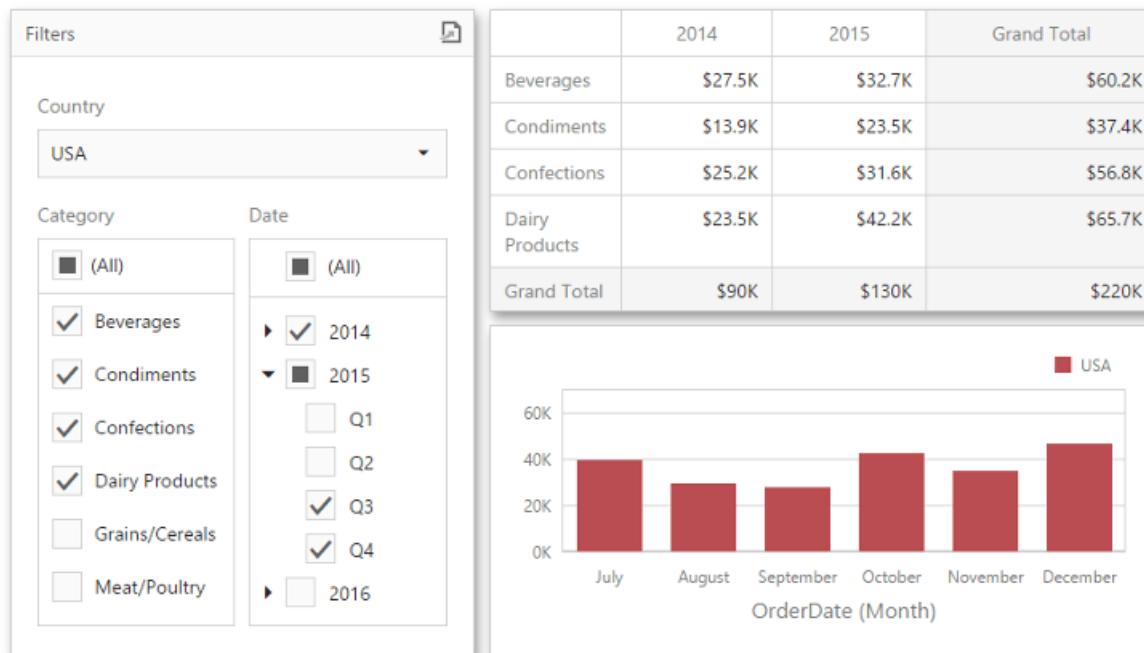
Master Filtering

The Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items ([Master Filter](#)).

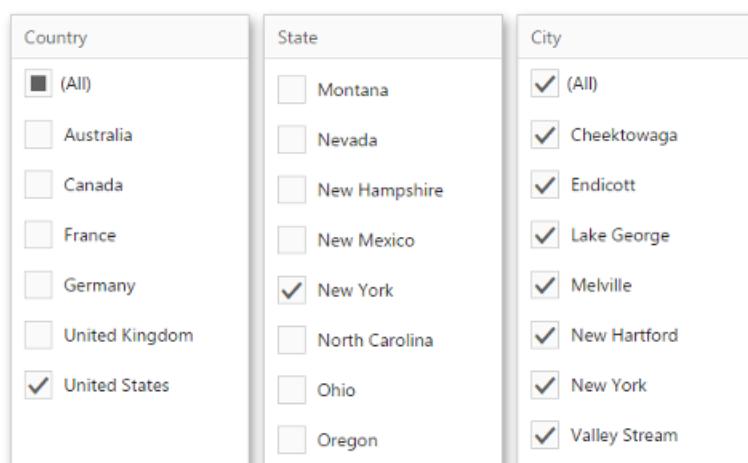
Important

Note that filter elements do not support Master Filter selection modes. You can switch the selection mode by [changing the type](#) of the required filter element.

Depending on the filter element type, you can select a value(s) to make other dashboard items display only data related to the selected value(s).



You can also create a set of related filter elements containing relevant filter values. For instance, in the image below, the *State* filter element contains states related to the 'United States' value, while the *City* filter element contains cities related to the 'New York' value.



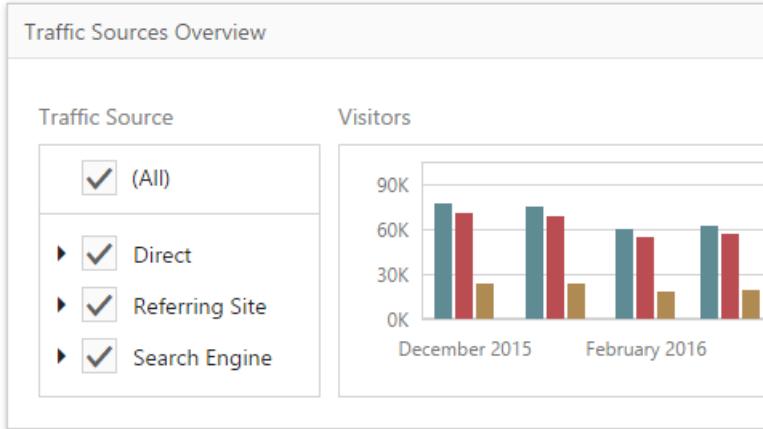
Disable the **Ignore Master Filters** option in the [Interactivity](#) menu for the required filter element to allow the applying of filtering to this element.

Dashboard Item Group

The Web Dashboard allows you to combine dashboard items into a group. The dashboard item group serves two main purposes.

- Combine dashboard items within the dashboard into a separate [layout](#) group.
- Manage [interaction](#) between dashboard items within and outside the group.

For example, you can combine related [filter elements](#) and data visualization [dashboard items](#) into a group.



Create a Group

To create a new group, use the **Group** button (the icon) in the [Toolbox](#).

You can combine dashboard items into a group using several ways.

- Create a new dashboard item using the buttons inside a group or drag a new item from the [Toolbox](#).
- Move the existing items into a group using drag-and-drop.

Note

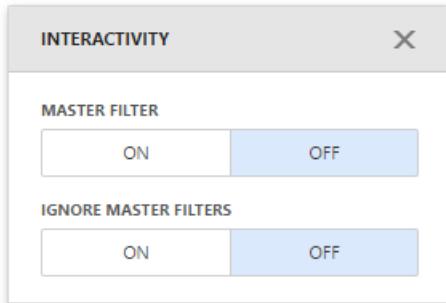
A dashboard item group cannot be added to another group.

Interactivity

The dashboard item group provides the capability to manage [interaction](#) between dashboard items within and outside the group.

To specify interactivity settings, open the Group's [Interactivity](#) menu.

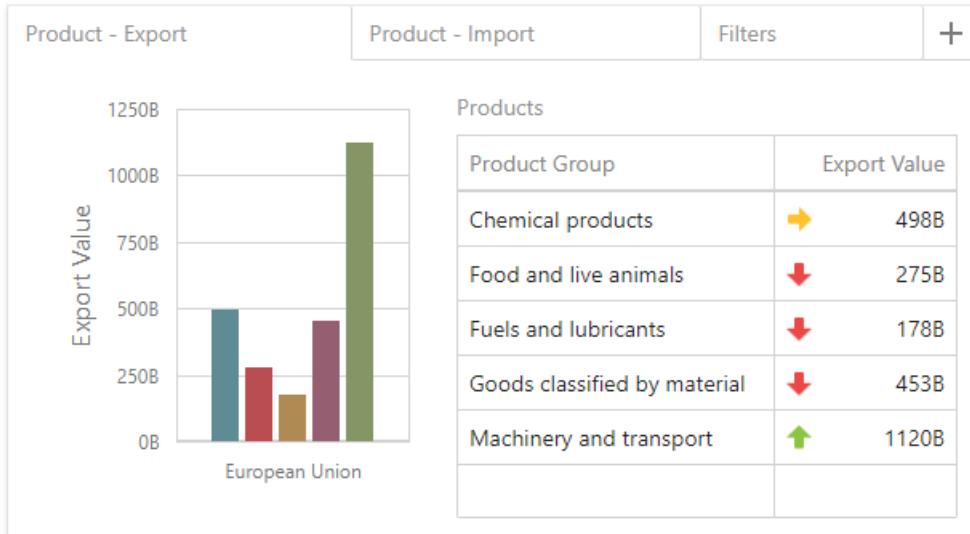
The **Master Filter** option allows you to specify whether the current group allows you to filter external dashboard items using master filter items contained within the group. If this option is disabled, master filter items contained within the group can filter only dashboard items from this group.



The **Ignore Master Filters** option allows you to isolate dashboard items contained within the group from being filtered using external master filter items.

Tab Container

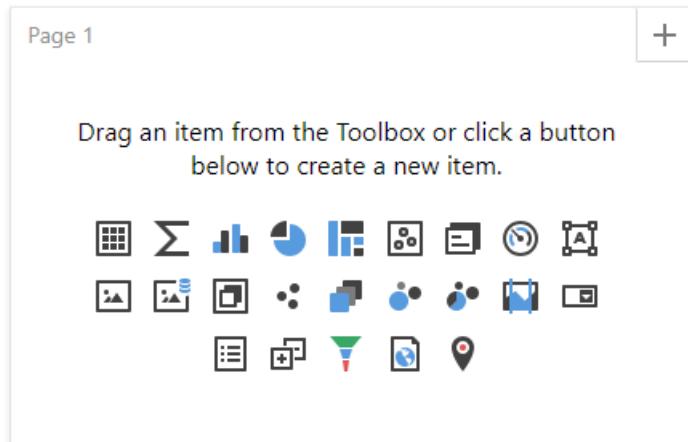
Like the [Dashboard Item Group](#), the **Tab Container** dashboard item allows you to combine elements within a dashboard. The main Tab Container's purpose is to split the dashboard layout into several pages. For example, you can place common filter elements on a separate tab page to display only data dashboard items.



- Create a Tab Container
 - Interactivity

Create a Tab Container

To create a tab container, use the **Tab Container** button (the  icon) in the [Toolbox](#). The created tab container always contains one empty tab page (*[Page 1](#)*).



Click the **Add page** button (the icon) to add a new page to the tab container.

A tab page can contain [dashboard items](#) and [dashboard item groups](#). You can add them to a tab page using one of the following ways:

- Create a new item using the buttons inside the empty tab page.
 - Drag a new item from the [Toolbox](#) and drop it to the tab page.
 - Use [drag-and-drop](#) to move existing items to the tab page.

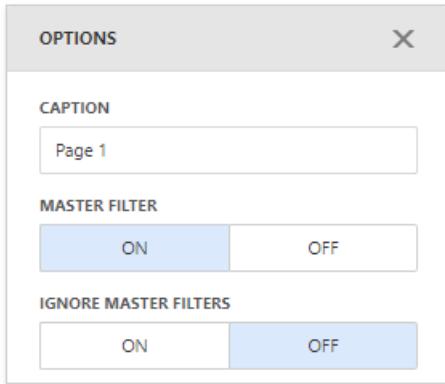
□ Note

Tab containers cannot be added to another tab container.

Interactivity

The tab page allows you to manage the [interaction](#) between dashboard items inside and outside the page.

The image below shows a tab page's default interactivity settings:



The **Master Filter** button controls whether the current tab page allows you to filter dashboard items outside the page using master filter items contained within the page. By default, this option is enabled: master filter items in the page can filter any dashboard items.

The **Ignore Master Filters** button allows you to isolate dashboard items contained within the tab page from external master filter items. By default, this option is disabled: external master filter items can filter the dashboard items contained within the tab page.

Data Shaping

Topics in this section describe various data shaping operations such as grouping, sorting and filtering that can be performed in the Web Dashboard.

This section contains the following topics.

- [Summarization](#)
- [Grouping](#)
- [Sorting](#)
- [Filtering](#)
- [Top N](#)
- [Formatting Data](#)

Summarization

To obtain numeric values that should be displayed within a dashboard item, Dashboard calculates a summary function against the specified measure.

Summary Function Types

The following summary functions are available.

- **Count** - The number of values (excluding **Null** and **DBNull** values).

This is the only summary type that can be calculated against non-numeric data.

- **Count Distinct** - The number of distinct values.

- **Sum** - The sum of the values.

$$Sum = \sum_i v_i$$

- **Min** - The smallest value.

- **Max** - The largest value.

- **Average** - The average of the values.

$$\bar{v} = \frac{1}{n} \cdot \sum_i v_i$$

- **StdDev** - An estimate of the standard deviation of a population, where the sample is a subset of the entire population.

$$StdDev = \sqrt{\frac{1}{n-1} \cdot \sum_i (v_i - \bar{v})^2}$$

- **StdDevP** - The standard deviation of a population, where the population is the entire data to be summarized.

$$StdDevP = \sqrt{\frac{1}{n} \cdot \sum_i (v_i - \bar{v})^2}$$

- **Var** - An estimate of the variance of a population, where the sample is a subset of the entire population.

$$Var = \frac{1}{n-1} \cdot \sum_i (v_i - \bar{v})^2$$

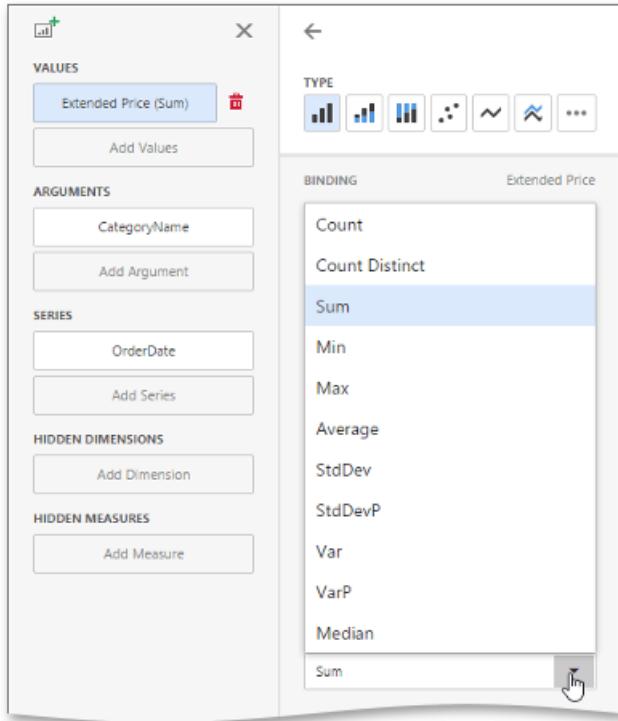
- **VarP** - The variance of a population, where the population is the entire data to be summarized.

$$VarP = \frac{1}{n} \cdot \sum_i (v_i - \bar{v})^2$$

Changing Summary Type

By default, Dashboard calculates **Sum** for numeric measures and **Count** for measures that contain another type of data.

You can change the summary function type for numeric measures. To do this, invoke the dashboard item **Bindings** menu and select the required data item. In the drop-down **Summary Type** list, select the desired summary type.



Grouping

The Web Dashboard allows you to group dimension values and display summaries for entire groups rather than individual values. You can arrange dimension values in groups of different sizes by specifying the appropriate group interval. For instance, date-time values can be grouped by year, month, quarter, etc.

Changing a Date-Time Group Interval

Date-time values support the following group intervals.

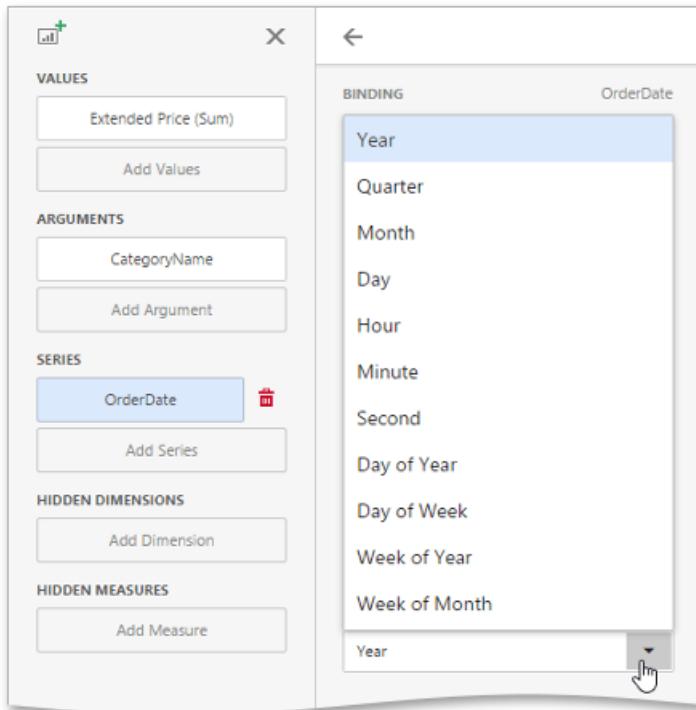
■ Note

Examples in the table below are formatted using the default settings. To learn how to customize format settings, see [Formatting Data](#).

GROUP INTERVAL	DESCRIPTION	EXAMPLES
Year	Values are grouped by the year.	2010, 2011, 2012
Quarter	Values are grouped by the quarter.	Q1, Q2, Q3, Q4
Month	Values are grouped by the month.	January, February, March, ... December
Day	Values are grouped by the day of the month.	1, 2, 3, ... 31
Hour	Values are grouped by the hour.	0, 1, 2, ... 23
Minute	Values are grouped by the minute.	0, 1, 2, ... 59
Second	Values are grouped by the second.	0, 1, 2, ... 59
Day of the Year	Values are grouped by the day of the year.	1, 2, 3, ... 365
Day of the Week	Values are grouped by the day of the week.	Sunday, Monday, Tuesday, ... Saturday
Week of the Year	Values are grouped by the week of the year.	1, 2, 3, ... 52
Week of the Month	Values are grouped by the week of the month.	1, 2, 3, 4, 5
Month-Year	Values are grouped by the year and month.	January 2012, February 2012, ... December 2012, January 2013, ...
Quarter-Year	Values are grouped by the year and quarter.	Q3 2012, Q4 2012, Q1 2013, Q2 2013, ...
Day-Month-Year	Values are grouped by date.	3/4/2012, 3/5/2012, 3/6/2012, ...
Date-Hour	Values are grouped by date with the hour value.	3/4/2012 0:00 AM, 3/4/2012 1:00 AM, 3/4/2012 2:00 AM, ...
Date-Hour-Minute	Values are grouped by date with the hour and minute values.	3/4/2012 0:00 AM, 3/4/2012 0:01 AM, 3/4/2012 0:02 AM, ...
Date-Hour-Minute-Second	Values are grouped by date with the hour, minute and second values.	3/4/2012 0:00:00 AM, 3/4/2012 0:00:01 AM, 3/4/2012 0:00:02 AM, ...

GROUP INTERVAL	DESCRIPTION	EXAMPLES
Exact Date	Each value is displayed "as is".	2009, Q2 2009, 6/15/2009 1:45:30 PM, ...

To specify a date-time group interval in the Web Dashboard, invoke the dashboard item **Bindings** menu and select the required data item. In the *Bindings* section, select the desired interval from the drop-down **Group Interval** list.

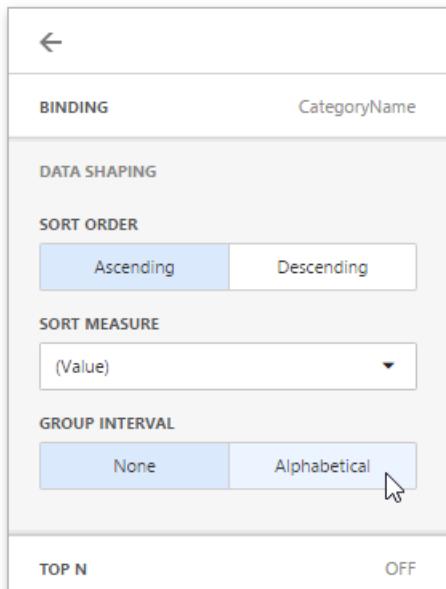


Changing a Text Group Interval

String values support the following grouping intervals.

- **No Grouping:** each value is displayed "as is".
- **Alphabetical:** values are grouped alphabetically (e.g., A, B, C, ... Z).

For string values, go to the *Data Shaping* section of the data item menu. Here, you can change the group interval to alphabetical.

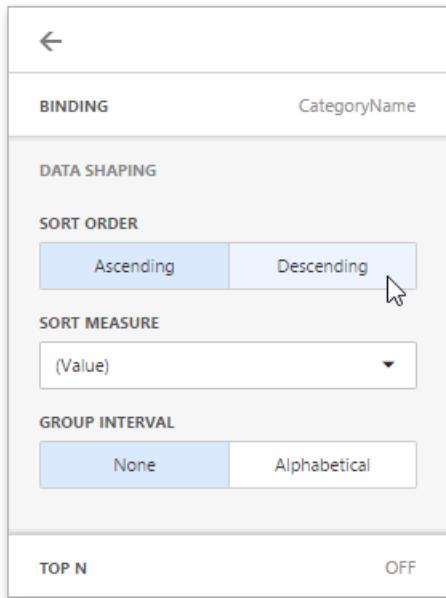


Sorting

The Web Dashboard allows you to easily change the sort order of values within a dashboard item. You can also enable sorting by measure values.

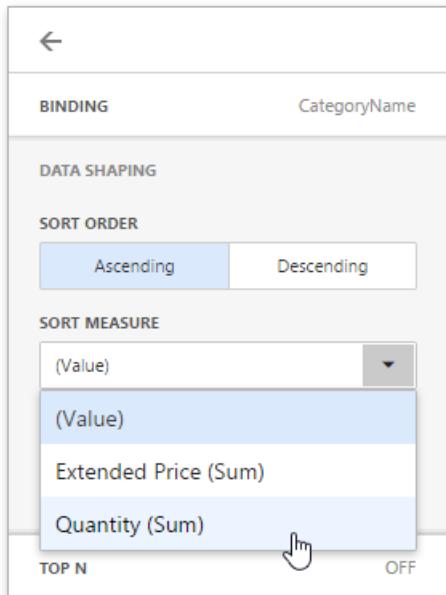
Changing Sort Order

To change the sort order of dimension values displayed within a dashboard item, open the dashboard item **Bindings** menu, select a data item and go to the **Data Shaping** section. Here you can select the *Ascending* or *Descending* sort order.



Sorting by Measure Values

The Web Dashboard also allows you to sort dimension values by summary values calculated for a specific measure. To do this, in the drop-down **Sort Measure** list, select a measure by which you want to sort this data item.



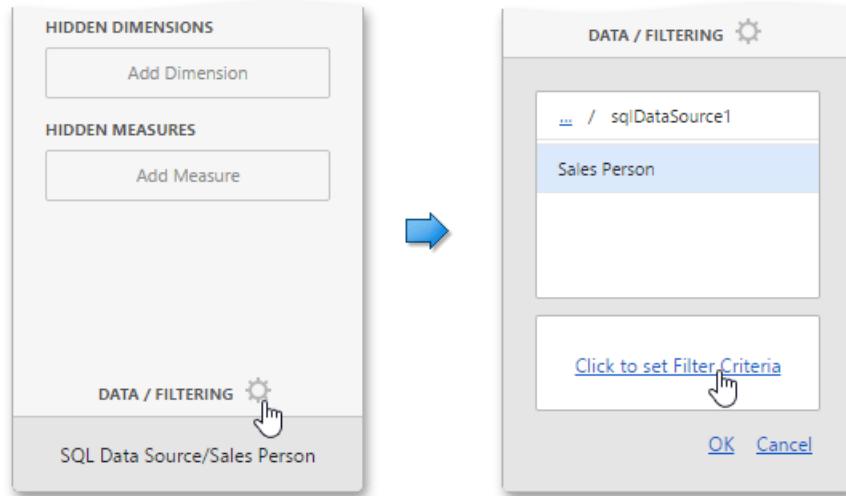
Filtering

The Web Dashboard allows you to apply filtering for individual dashboard items, filter a [query](#) of the SQL Data Source or the entire Data Source.

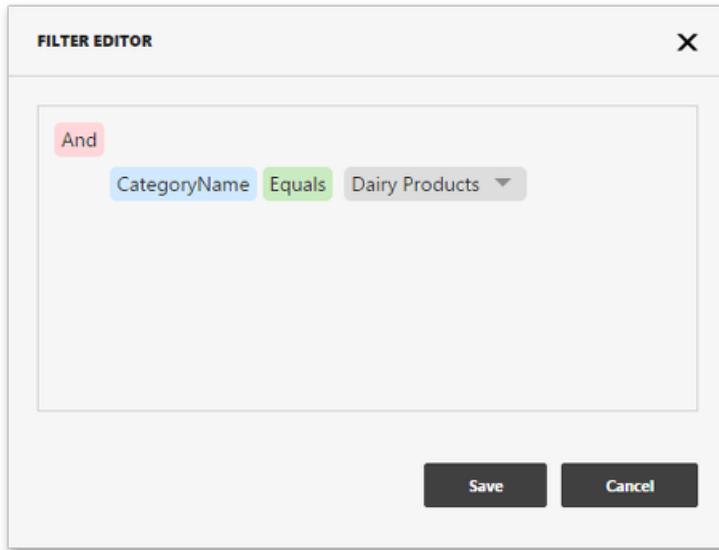
This topic describes how to filter data in the dashboard items.

Apply Filtering

To configure filtering in the Web Dashboard, select the target dashboard item and invoke the dashboard item's [Bindings](#) menu. Then, go to the **Data / Filtering** section and use the **Click to set Filter Criteria** button to invoke the Filter Editor dialog.



Use this dialog to build filter criteria with a convenient tree-like interface.



Note

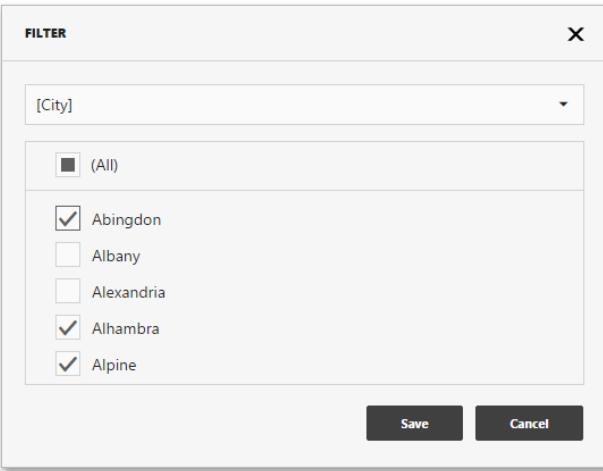
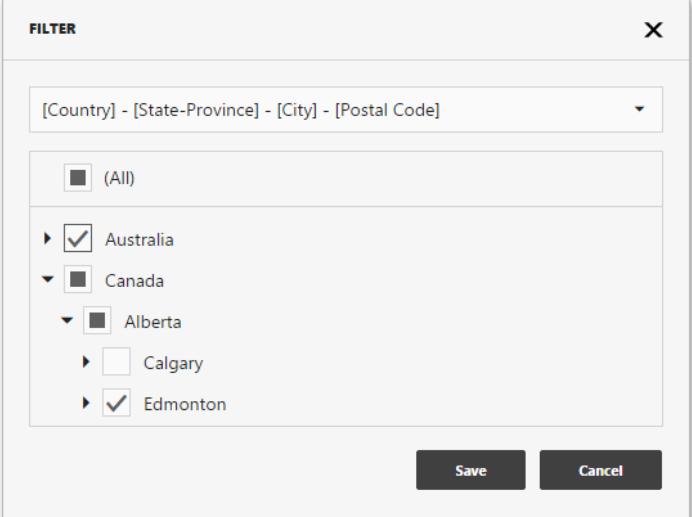
Note that you can use [hidden dimensions](#) within the Filter Editor dialog, allowing you to filter data based on the values.

Pass Parameter Values

You can use the Filter Editor to filter a data source according to the current parameter value. To learn more, see the [Using Dashboard Parameters](#) topic.

OLAP Filtering Specifics

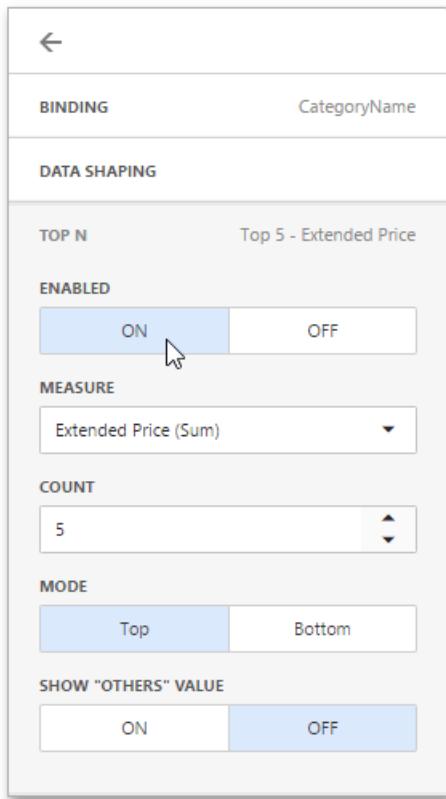
In OLAP mode, you cannot apply filtering by building complex filter criteria. Instead, you can filter dimension attributes and hierarchies by manually selecting the values you wish to include or exclude from the dashboard.

DIMENSION ATTRIBUTE	DIMENSION HIERARCHY
For dimension attributes, the Filter Editor contains a list of all values.	For hierarchies, a tree is displayed instead, allowing you to filter individual values at any hierarchy level.
	

Top N

The **Top N** feature allows you to display only a limited number of values that correspond to the highest or lowest values of a particular measure.

To enable the Top N feature, open the dashboard item [Bindings](#) menu, select a required data item and go to the *Top N* section.



Click **ON** and specify the following settings.

SETTING	DESCRIPTION
Measure	The parameter according to which the top or bottom values will be determined.
Count	The number of values to be displayed.
Mode	Specifies whether top or bottom values should be displayed.
Show "Others" value	If enabled, all values that are not the top/bottom ones are consolidated in the "Others" value. Note that this capability is not supported in OLAP mode.

You can use the [hidden measure](#) as a parameter according to which the top or bottom values will be determined.

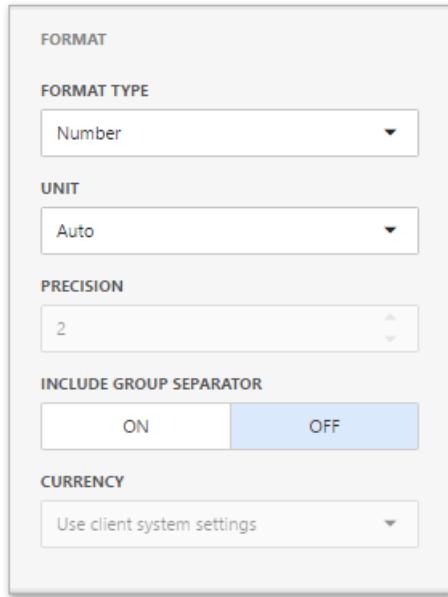
Formatting Data

The Web Dashboard allows you to customize various format settings for numeric and date-time values.

- [Formatting Numeric Values](#)
- [Formatting Date-Time Values](#)
- [Currency Formatting Specifics](#)

Formatting Numeric Values

To specify a format for numeric values, open the dashboard item [Bindings](#) menu, select a required data item and go to the **Format** section.



In the **Format type** field, select the required format type.

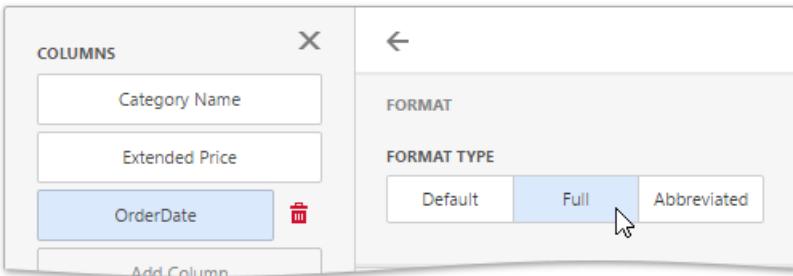
FORMAT TYPE	DESCRIPTION
Auto	Format settings are automatically determined based on the data type.
General	Converts a number to the most compact of either fixed-point or scientific notation, depending on the type of the number.
Number	Converts a number to a string of the "-d,ddd,ddd.ddd..." form where "-" indicates a negative number symbol (if required), "d" indicates a digit (0-9), "," indicates a group separator, and "." indicates a decimal point symbol.
Currency	Converts a number to a string that represents a currency amount. To learn about currency formatting specifics, see the Currency Formatting Specifics section of this document.
Scientific	Converts a number to a string of the "-d.ddd...E+ddd" or "-d.ddd...e+ddd" form where each "d" indicates a digit (0-9).
Percent	Multiplies a number by 100 and converts it to a percentage string.

Other format settings are in effect for only specific format types.

Setting	Description	Format Types
Unit	The unit to which values should be converted.	Number, Currency
Precision	The number of fractional digits that should be displayed.	Scientific, Percent
Include group separator	Specifies whether or not separators should be inserted between digit groups.	Number, Currency, Percent
Currency	Defines the currency sign and format settings that should be used to display currency values. To learn about currency formatting specifics, see the Currency Formatting Specifics section of this document.	Currency

Formatting Date-Time Values

To specify a format for date-time values, use the **Format Type** option in the data item's **Format** section.



Note

Specific group intervals do not have format options. This means that corresponding values can only be presented in a single manner. The **Format** section is not displayed for such group intervals.

The following list shows format types by group interval.

- Year
 - *Full* - The full year pattern (Example - 6/15/2017 1:45:30 PM -> 2017 (en-US)).
 - *Abbreviated* - The year from 00 to 99 (Example - 6/15/2017 1:45:30 PM -> 17 (en-US)).
- Quarter
 - *Full* - The full quarter pattern (Example: 6/15/2017 1:45:30 PM -> Q2 (en-US)).
 - *Numeric* - The quarter from 1 through 4 (Example: 6/15/2017 1:45:30 PM -> 2 (en-US)).
- Month
 - *Full* - The full name of the month (Example: 6/15/2017 1:45:30 PM -> June (en-US)).
 - *Abbreviated* - The abbreviated name of the month (Example: 6/15/2017 1:45:30 PM -> Jun (en-US)).
 - *Numeric* - The month from 1 through 12 (Example: 6/15/2017 1:45:30 PM -> 6 (en-US)).
- Hour
 - *Long* - Long hour pattern, 12-hour format (Example: 6/15/2017 1:45:30 PM -> 1:00 PM).
 - *Short* - Short hour pattern, 24-hour format (Example: 6/15/2017 1:45:30 PM -> 13).
- Day of Week
 - *Full* - The full name of the day of the week (Example: 6/15/2017 1:45:30 PM -> Monday (en-US)).
 - *Abbreviated* - The abbreviated name of the day of the week (Example: 6/15/2017 1:45:30 PM -> Mon (en-US)).
 - *Numeric* - The day of the week from 1 through 7 (Example: 6/15/2017 1:45:30 PM -> 2 (en-US)).

- Day-Month-Year
 - *Long* - Long date pattern (Example: 6/15/2017 1:45:30 PM -> Monday, June 15, 2017 (en-US)).
 - *Short* - Short date pattern (Example: 6/15/2017 1:45:30 PM -> 6/15/2017 (en-US)).
- Date-Hour
 - *Long* - Long date pattern, long hour pattern (Example: 6/15/2017 1:45:30 PM -> Monday, June 15, 2017 1:00 PM (en-US)).
 - *Short* - Short date pattern, long hour pattern (Example: 6/15/2017 1:45:30 PM -> 6/15/2017 1:00 PM (en-US)).
 - *Time only* - Long hour pattern (Example: 6/15/2017 1:45:30 PM -> 1:00 PM (en-US)).
- Date-Hour-Minute
 - *Long* - Long date pattern, long time pattern (Example: 6/15/2017 1:45:30 PM -> Monday, June 15, 2017 1:45 PM (en-US)).
 - *Short* - Short date pattern, long time pattern (Example: 6/15/2017 1:45:30 PM -> 6/15/2017 1:45 PM (en-US)).
 - *Time only* - Long time pattern (Example: 6/15/2017 1:45:30 PM -> 1:45 PM (en-US)).
- Date-Hour-Minute-Second
 - *Long* - Long date pattern, long time pattern (Example: 6/15/2017 1:45:30 PM -> Monday, June 15, 2017 1:45:30 PM (en-US)).
 - *Short* - Short date pattern, long time pattern (Example: 6/15/2017 1:45:30 PM -> 6/15/2017 1:45:30 PM (en-US)).
 - *Time only* - Long time pattern (Example: 6/15/2017 1:45:30 PM -> 1:45:30 PM (en-US)).

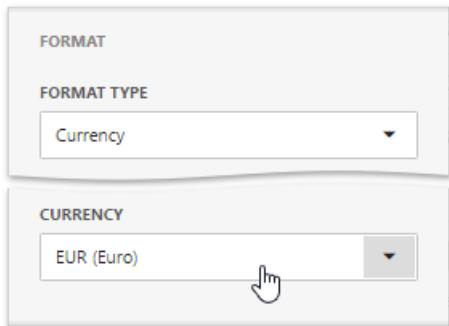
The list below illustrates format types related to the **Exact Date** group interval.

- Year
 - *Full* - The full year pattern (Example: 6/15/2017 1:45:30 PM -> 2017 (en-US)).
 - *Abbreviated* - The year from 00 to 99 (Example: 6/15/2017 1:45:30 PM -> 17 (en-US)).
- Quarter
 - *n/a* - The default year and full quarter pattern (Example: 6/15/2017 1:45:30 PM -> Q2 2017 (en-US)).
- Month
 - *n/a* - The default year pattern and the full name of the month (Example: 6/15/2017 1:45:30 PM -> June, 2017 (en-US)).
- Day
 - *Long* - Long date pattern (Example: 6/15/2017 1:45:30 PM -> Monday, June 15, 2017 (en-US)).
 - *Short* - Short date pattern (Example: 6/15/2017 1:45:30 PM -> 6/15/2017 (en-US)).
- Hour
 - *Long* - Long date pattern, long time pattern (Example: 6/15/2017 1:45:30 PM -> Monday, June 15, 2017 1:00 PM (en-US)).
 - *Short* - Short date pattern, long time pattern (Example: 6/15/2017 1:45:30 PM -> 6/15/2017 1:00 PM (en-US)).
 - *Time only* - Long time pattern (Example: 6/15/2017 1:45:30 PM -> 1:00 PM (en-US)).
- Minute
 - *Long* - Long date pattern, long time pattern (Example: 6/15/2017 1:45:30 PM -> Monday, June 15, 2017 1:45 PM (en-US)).
 - *Short* - Short date pattern, long time pattern (Example: 6/15/2017 1:45:30 PM -> 6/15/2017 1:45 PM (en-US)).
 - *Time only* - Long time pattern (Example: 6/15/2017 1:45:30 PM -> 1:45 PM (en-US)).
- Second
 - *Long* - Long date pattern, long time pattern (Example: 6/15/2017 1:45:30 PM -> Monday, June 15, 2017 1:45:30 PM (en-US)).
 - *Short* - Short date pattern, long time pattern (Example: 6/15/2017 1:45:30 PM -> 6/15/2017 1:45:30 PM (en-US)).
 - *Time only* - Long time pattern (Example: 6/15/2017 1:45:30 PM -> 1:45:30 PM (en-US)).

Currency Formatting Specifics

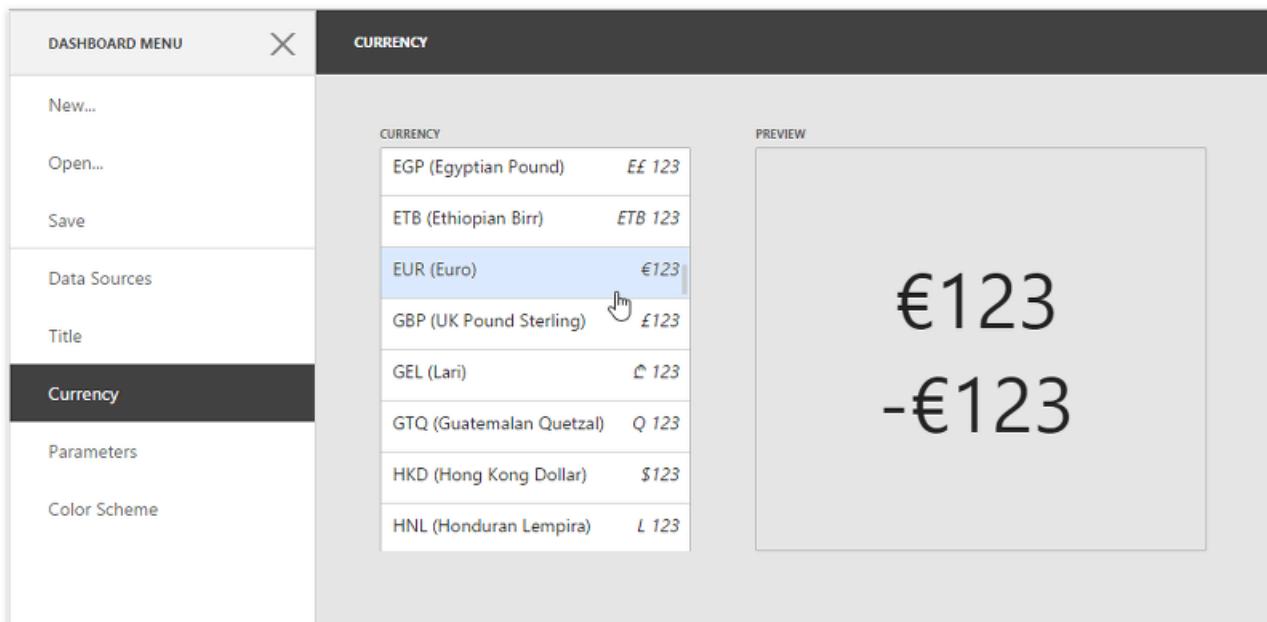
The Web Dashboard allows you to specify currency formats for the current data item or for entire dashboard.

- To set a data item currency format, open the dashboard item [Bindings](#) menu, select a required data item and go to the **Format** section. Select **Currency** as a format type and specify the required culture using the **Currency** combo box.



You can also specify the data item to use the client culture. For this, select the *Use client system settings* in the combo box.

- To set the dashboard currency, open the [dashboard menu](#) and go to the **Currency** page. Here you can select the required currency from the list.



You can also specify the dashboard to use the client culture. For this, select the *Use client system settings* item.

Interactivity

This section describes features that enable interaction between various dashboard items, like Master Filtering and Drill-Down features.

The section consists of the following topics.

- [Master Filtering](#)
- [Drill-Down](#)

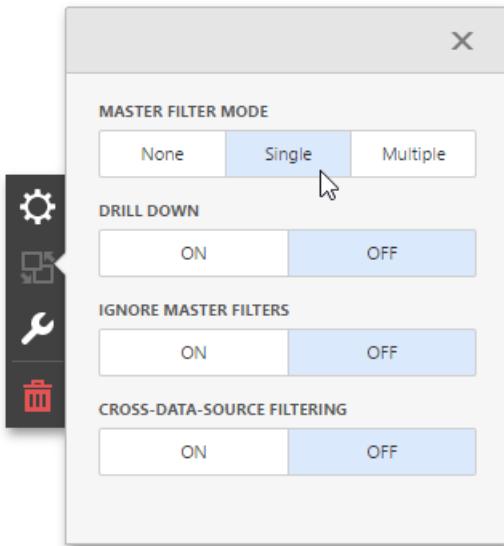
Master Filtering

The Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items. This feature is called **Master Filtering**. You can select elements in a Master Filter item (grid records, chart bars, pie segments, etc.) to filter data in other dashboard items by the selected values.

- [Master Filter Modes](#)
- [Filtering Across Data Sources](#)
- [Preventing Items from Being Filtered](#)

Master Filter Modes

To enable master filtering, go to the dashboard item's **Interactivity** menu and use the **Master Filtering Mode** option.



The Master Filter item supports the following modes.

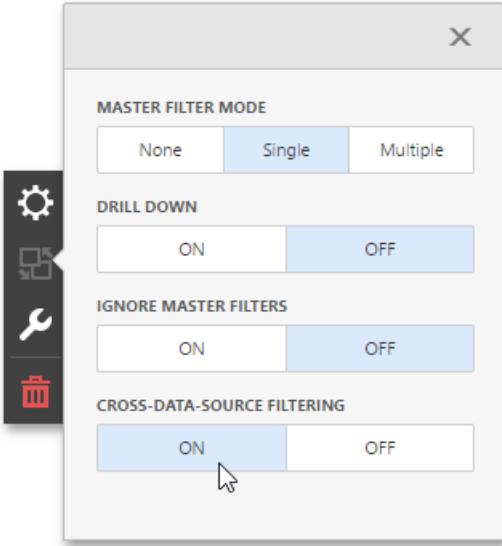
- **None** - Disables master filtering.
- **Multiple** - Allows you to select multiple elements in the Master Filter item. To reset filtering, use the **Clear Master Filter** button (the icon) in the dashboard item's caption.
- **Single** - Allows you to select only one element in the Master Filter item. When this mode is enabled, the default selection will be set to a Master Filter element. You can change this selection, but cannot clear it.

To disable the Master Filter, select **None** as a Master Filter mode.

Filtering Across Data Sources

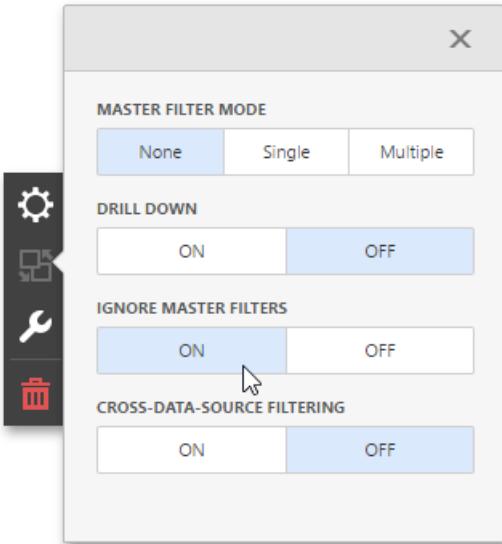
When different items in a dashboard are bound to different data sources, you can specify that a particular Master Filter should be applied across data sources. This means that it will apply filtering to fields with matching names in all data sources.

To filter data across data sources, enable the **Cross-Data-Source Filtering** in the dashboard item's **Interactivity** menu.



Preventing Items from Being Filtered

You can prevent specific dashboard items from being affected by Master Filters. To do this, enable the **Ignore Master Filters** option in the dashboard item's **Interactivity** menu.

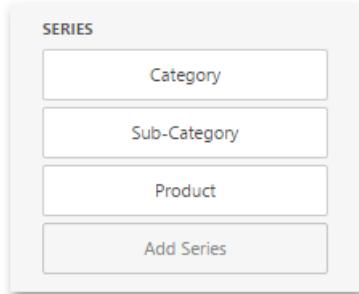


Drill-Down

Dashboard provides the **Drill-Down** feature, which allows you to change the detail level of data displayed in a dashboard item. Drill-Down enables users to drill down to display detail data, or drill up to view more general information.

Enable Drill-Down

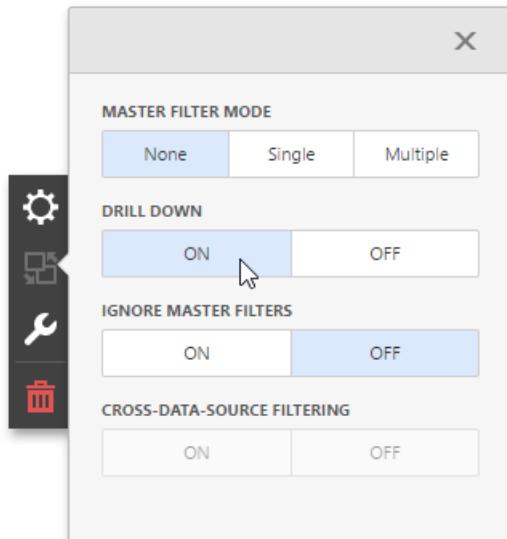
Drill-down requires that the data section contains several dimensions...



... or a hierarchy data item (in OLAP mode).



To be able to change the detail level of data, go to the dashboard item's **Interactivity** menu and enable the **Drill Down** option.

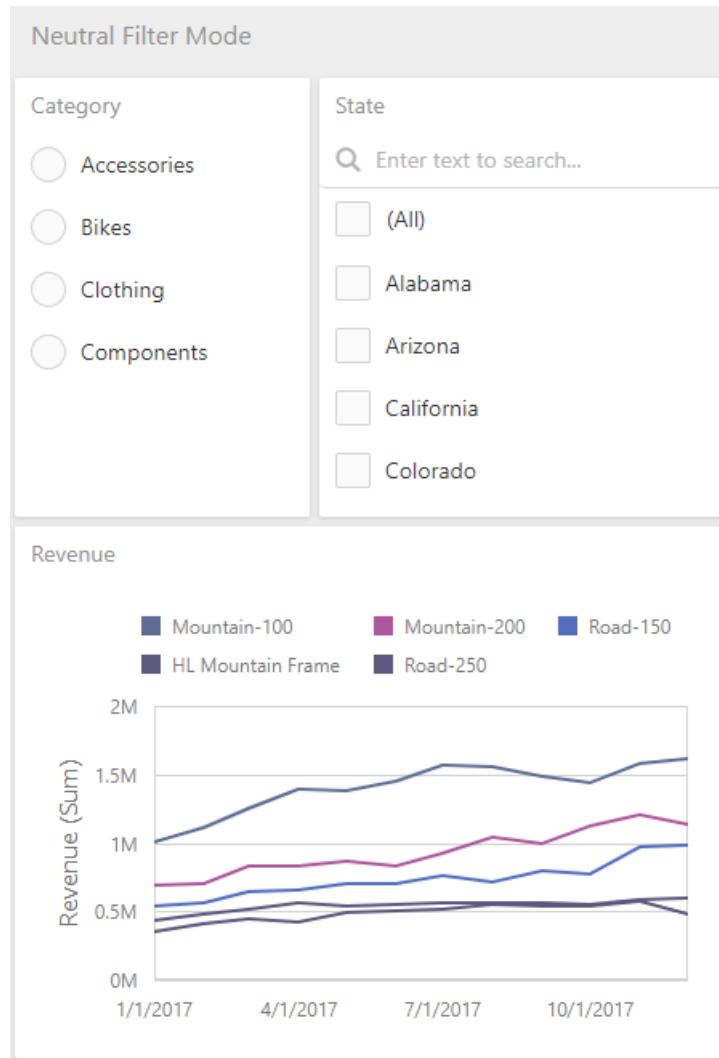


Neutral Filter Mode

The [filter elements](#) show all items selected by default, to indicate that no filtering is currently taking place. Starting from this state, users typically begin each filtering operation by deselecting **All**, before they select individual items.

An extra click is required to begin any actual filtering operation, because the **standard filter mode** shows all items selected. This is not an optimal implementation for performance reasons, because it generates filtering criteria that are evaluated by the data layer and/or the database.

To solve these issues, the **Neutral Filter Mode** is implemented. It is neutral in the sense that it does not apply any criteria to the data source in its default state, resulting in improved performance.



All items are shown deselected. This means that an extra click is no longer required in the most common scenarios, and this behavior is familiar to end users from websites world-wide.

The **Neutral Filter Mode** helps in a situation when there is a potential “dead lock”, due to the fact that multiple filter elements influence each other. The **Clear Master Filter** button resets the filters.

Neutral Filter Mode 

Category 

- Accessories
- Bikes
- Clothing
- Components

State 

(All)

Alabama

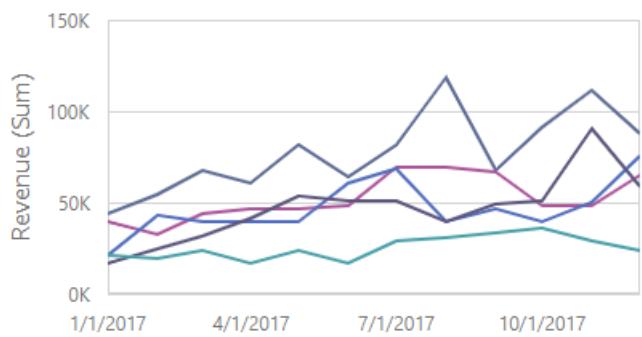
Arizona

California

Colorado

Revenue

Mountain-100 Mountain-200 Road-150
 Road-250 Touring-1000



Appearance Customization

The topics in this section describe how to customize the appearance of a dashboard or any of its elements using conditional formatting and coloring.

This section contains the following topics.

- [Conditional Formatting](#)

Describes how to format dashboard item elements whose values meet a specified condition.

- [Coloring](#)

Describes how to manage coloring of dashboard item elements.

Conditional Formatting

The Web Dashboard allows you to format dashboard item elements whose values meet a specified condition. This feature allows you to highlight specific elements using a predefined set of rules.

To learn more about the specifics of using a conditional formatting feature for different dashboard items, see the following topics.

- [Conditional Formatting - Grid](#)
- [Conditional Formatting - Pivot](#)

Product Sales								
Product		Revenue (Sum)		UnitsSold (Sum)				
Mountain-100	●	\$51.4M		15.2K				
Mountain-200	●	\$35.7M		15.5K				
Mountain-300	Sales by State							
Mountain-400-W		Clothing		Components		Grand Total		
Mountain-500		Revenue	Units Sold	Revenue	Units Sold	Revenue	Units Sold	
Patch kit	Racing Socks	Alabama	\$111K	2.41K	\$3.1M	13.7K	\$9.69M	25.1K
		Arizona	\$112K	2.41K	\$3.02M	13.4K	\$9.43M	24.9K
		California ★	\$763K	15.9K	\$15.6M	77.8K	\$36.4M	142K
		Colorado	\$107K	2.32K	\$3.26M	13.9K	\$9.7M	25.5K
		Connecticut	\$119K	2.56K	\$2.97M	13.2K	\$9.35M	24.7K
		Florida ★	\$206K	4.78K	\$5M	25.8K	\$12.4M	47.1K

Format rules used in conditional formatting can be divided into groups depending on their purpose and can be applied to measure or dimension values.

Comparison rules used in conditional formatting can be divided into the following groups.

- **Value** - Allows you to compare static values (such as Greater Than, Less Than, Between, etc.).
- **Top-Bottom** - Highlights a specific number of topmost/bottommost values.
- **Average** - Highlights values above the average value or below the average value.
- **A Date Occuring** - Allows you to highlight date-time values that fall into a specified interval.
- **Expression** - Allows you to use complex conditions to apply formatting. You can also pass dashboard parameters to expressions.
- **Icon and Color Ranges** - Allows you to apply formatting by displaying specific icons for different ranges of values. You can select a predefined set of icons or use a specific icon for each range.
- **Color Ranges** - Allows you to apply formatting using specific colors for different ranges of values. You can select a predefined set of colors or use custom appearance settings to highlight values within specified ranges.
- **Gradient Ranges** - Allows you to apply formatting using gradient color scales.
- **Bar** - Allows you to visualize numeric values using bars. You can also color bars corresponding to positive and negative values using different colors.
- **Bar Color Ranges** - Allows you to visualize numeric values using bars whose colors are contained in the specified color set.
- **Bar Gradient Ranges** - Allows you to visualize numeric values using bars whose colors are contained in the specified color gradient.

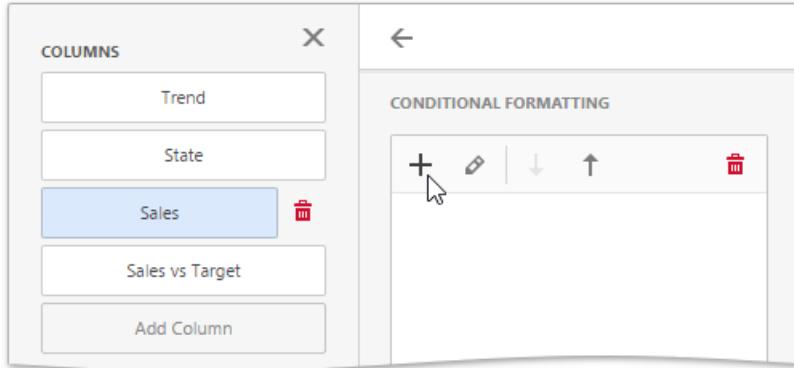
You can create comparison rules for measures or dimensions. The table below lists format conditions that can be applied to different types of data items.

- Measure/numeric Dimension
 - **Value**
 - **Top-Bottom**
 - **Average**
 - **Expression**
 - **Icon Ranges**
 - **Color Ranges**
 - **Gradient Ranges**
 - **Bar**
 - **Bar Color Ranges**
 - **Bar Gradient Ranges**
- string Dimension
 - **Value** with the condition type set to *Equal To*, *Not Equal To* or *Text that Contains*
 - **Expression**
- date-time Dimension
 - **Value**
 - A **Date Occuring** for dimensions with the continuous date-time group interval
 - **Expression**
 - **Icon and Color Ranges**
 - **Color Ranges**
 - **Gradient Ranges**
 - **Bar**
 - **Bar Color Ranges**
 - **Bar Gradient Ranges**

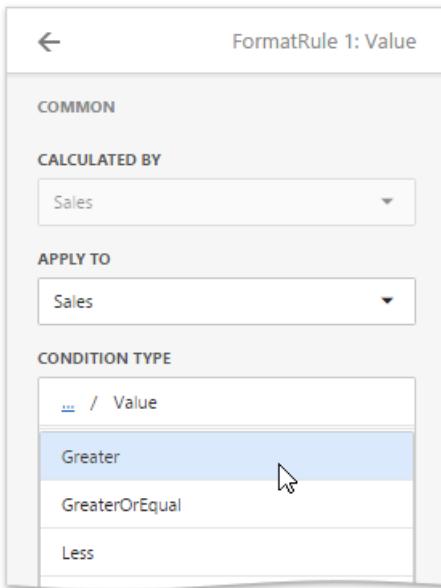
Create and Edit a Format Rule

To create a format rule, perform the following steps.

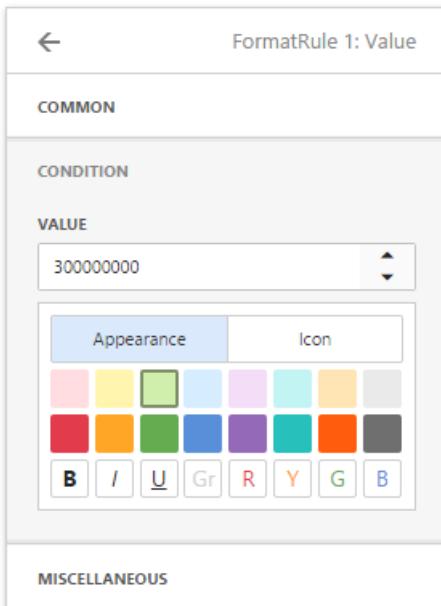
1. Select the required measure/dimension by whose values a format condition will be calculated, open the **Conditional Formatting** section of the data item menu and click "+" to add a new format rule.



2. Specify the data item to which conditional formatting is applied using the **Apply to** combo box and select a condition type from the list.



3. The format rule's menu is opened. This menu depends on the selected format condition and the type of the dashboard item. Here you can specify settings specific for the selected condition. For example, the *Value* format rule allows you to set a value that will be compared with dimension/measure values and specify a format rule style. The image below displays settings where values greater than 300M will be colored in pale green.

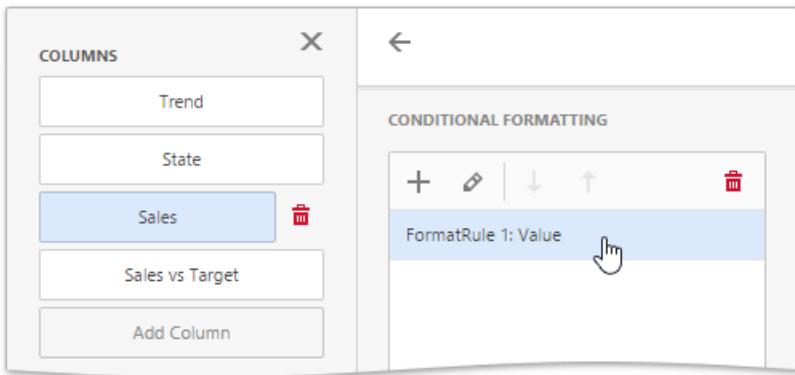


You can specify additional settings in the **MISCELLANEOUS** section of the format rule's menu. This section contains settings depending on the type of the dashboard item. For example, you can manually specify an intersection level for the Pivot or apply the current rule to a row in the Grid.

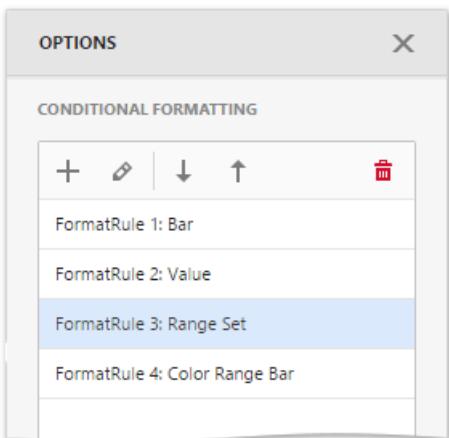
4. The format rule is now ready and will be applied to the dashboard item.

State	Sales	SalesTarget (Sum)
Wyoming	\$546M	\$544M
Kentucky	\$378M	\$374M
Maine	\$346M	\$366M
Georgia	\$231M	\$232M
Texas	\$229M	\$229M

To edit a format rule, open the **Conditional Formatting** section of the [data item menu](#), select the required format rule and click the **Edit** button (the  icon). To delete the selected format rule, click the **Delete** button (the  icon).



You can see existing format rules for the entire dashboard item. To do this, open the dashboard item's [Options](#) menu and go to the **Conditional Formatting** section.



Appearance Settings

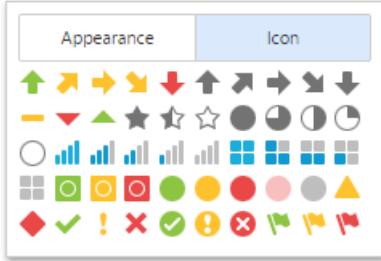
When creating a new format rule, you can select the required appearance settings in the **Condition** section of the format rule's menu. This settings applied according to the current format condition. All format conditions allow you to customize appearance settings in a similar manner.

For example, the **Value** format condition allows you to specify appearance settings in the following way...

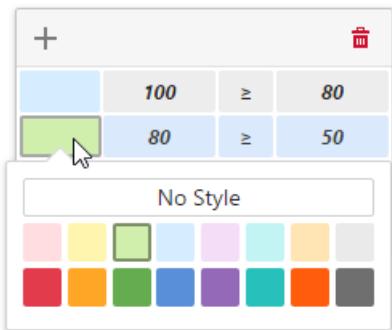
- The **Appearance** tab allows you to choose the predefined background color or font.



- The **Icons** tab allows you to add the predefined icon.



... while the different types of Range format rules allow you to customize predefined range colors and values.



Coloring

The Web Dashboard provides the capability to manage the coloring of dashboard item elements, such as chart series points or pie segments.

- [Supported Dashboard Items](#)
- [Color Schemes Overview](#)
- [Coloring Measures and Dimensions](#)
- [Customizing Color Palettes Using the Dashboard Item Menu](#)
- [Customizing Color Palettes Using the Color Scheme Page](#)

Supported Dashboard Items

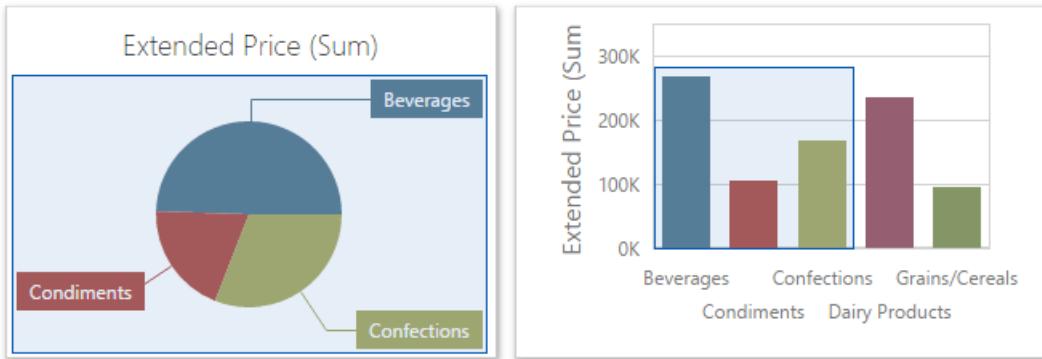
You can manage coloring for the following dashboard items.

- [Chart](#)
- [Scatter Chart](#)
- [Pie](#)
- [Pie Map](#)
- [Range Filter](#)
- [Treemap](#)

Color Schemes Overview

The dashboard provides two ways of coloring dashboard item elements.

- **Global color scheme.** This color scheme provides consistent colors for identical values across the dashboard. The image below shows the dashboard containing Pie and Chart dashboard items. Pie segments and chart series points corresponding to *Beverages*, *Condiments* and *Confections* dimension values are colored using identical colors from the default palette.



■ **Important**

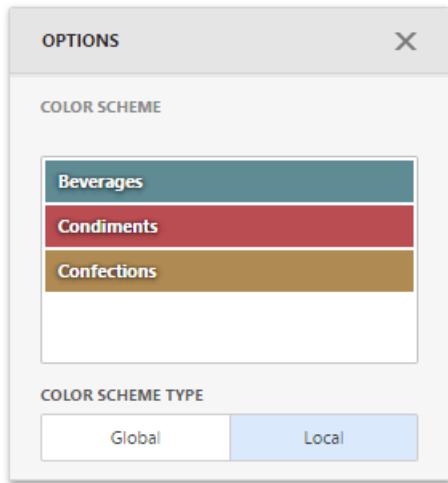
When a global color scheme is used, the dashboard reserves automatically generated colors for certain values regardless of the filter state.

- **Local color scheme.** This color scheme provides an *independent* set of colors for each dashboard item.

■ **Important**

When a local color scheme is used, the dashboard reassigns palette colors when the filter state is changed.

To select a type of coloring dashboard item elements, open the [dashboard item menu](#), go to the **Color Scheme** section and use the **Color Scheme Type** option.



Coloring Measures and Dimensions

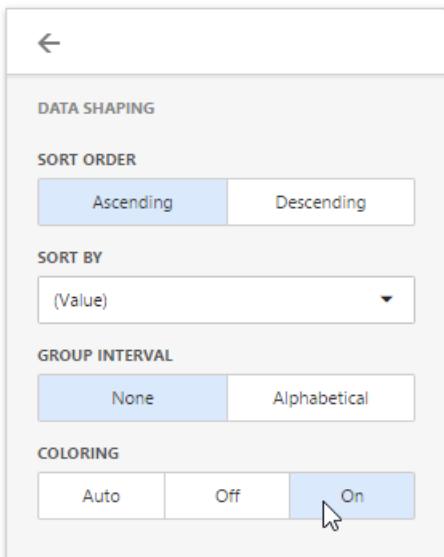
Dashboard items allow you to manage the coloring of individual dimensions or all dashboard item measures using predefined coloring modes.

The following coloring settings are available.

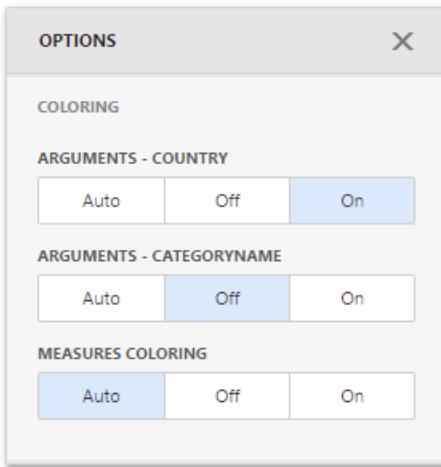
SETTING	DESCRIPTION
Auto	Dimension values/measures are colored by default. To learn how specific dashboard items color their elements by default, see the Coloring topic for the corresponding dashboard item .
On	Dimension values/measures are colored by different hues.
Off	Dimension values/measures are colored with the same color.

You can configure coloring in two ways.

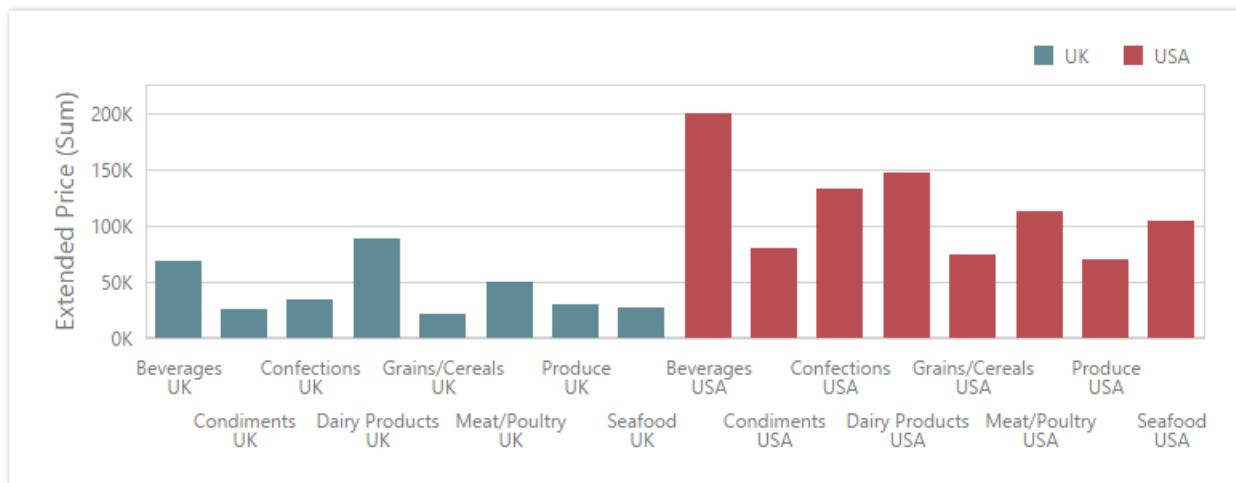
- To specify the coloring mode for the specific measure/dimension, open the data item menu and go to **Data Shaping** section. Use the **Coloring** option to specify coloring mode of this data item.



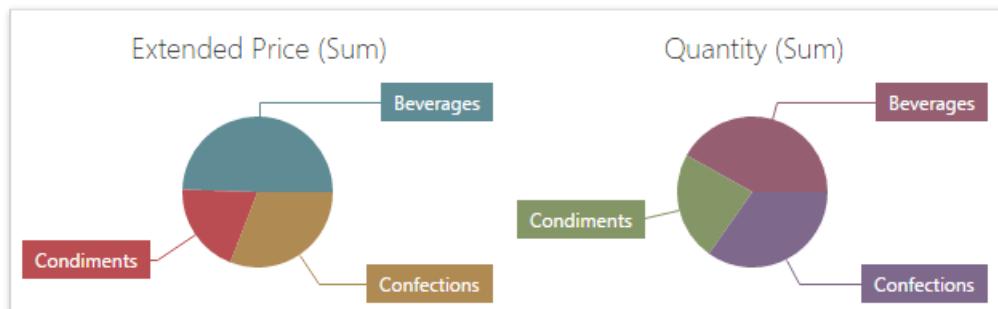
- To see a list of all measures/dimensions for which you can specify coloring mode, open the dashboard item's **Options** menu and go to the **Coloring** section.



For example, the image below shows the Chart dashboard item whose **Country dimension** is colored by different hues...



...and this image shows the Pie dashboard item whose **measures** are colored by different hues.

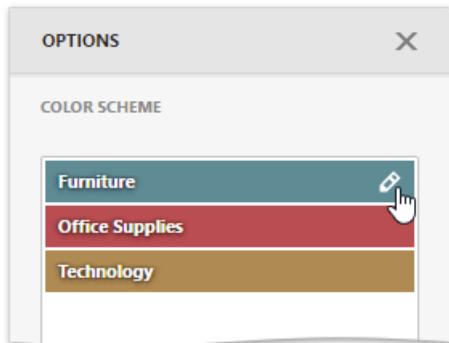


Note

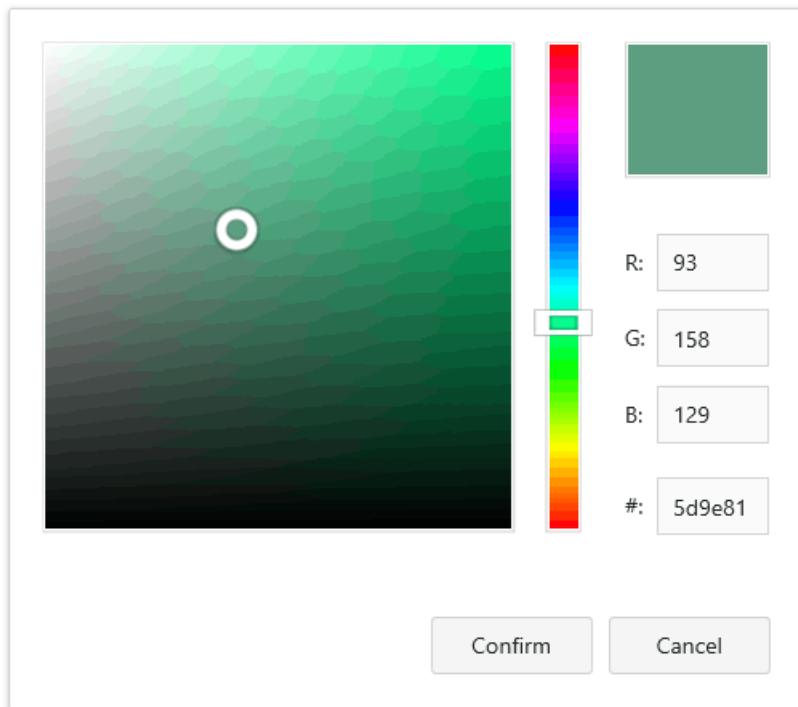
If you enabled coloring by different hues for several dimensions/measures, all combinations of dimension values/measures will be automatically colored using different colors from the default palette.

Customizing Color Palettes Using the Dashboard Item Menu

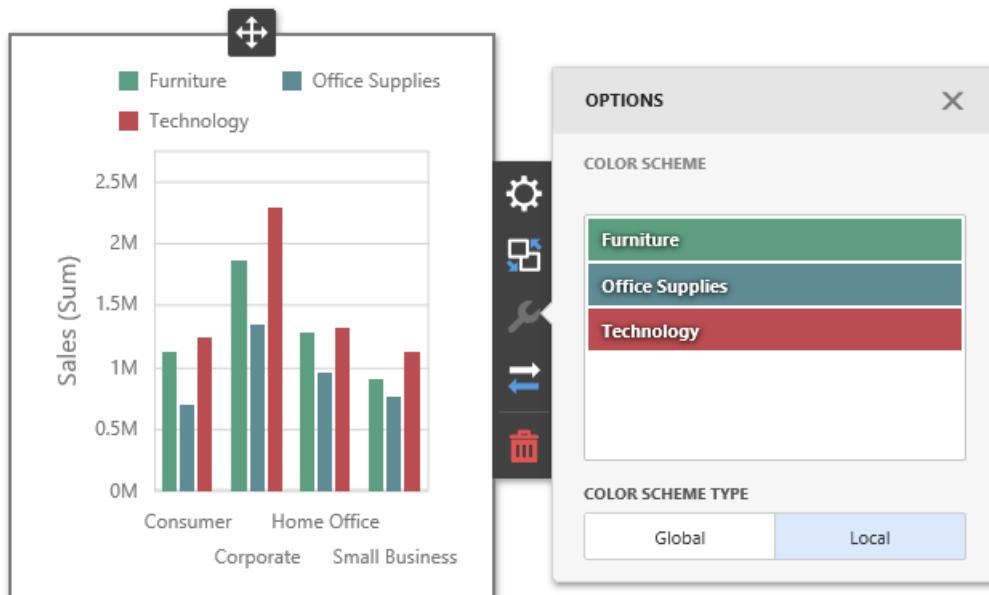
The Web Dashboard allows you to customize colors of the specific palette using the **Color Scheme** section of the dashboard item **Options** menu. To edit the color scheme, click the **Edit** button (the icon) of the corresponding color.



Then, pick any color using the RGB color model in the invoked color picker and click **Confirm** to change the color.

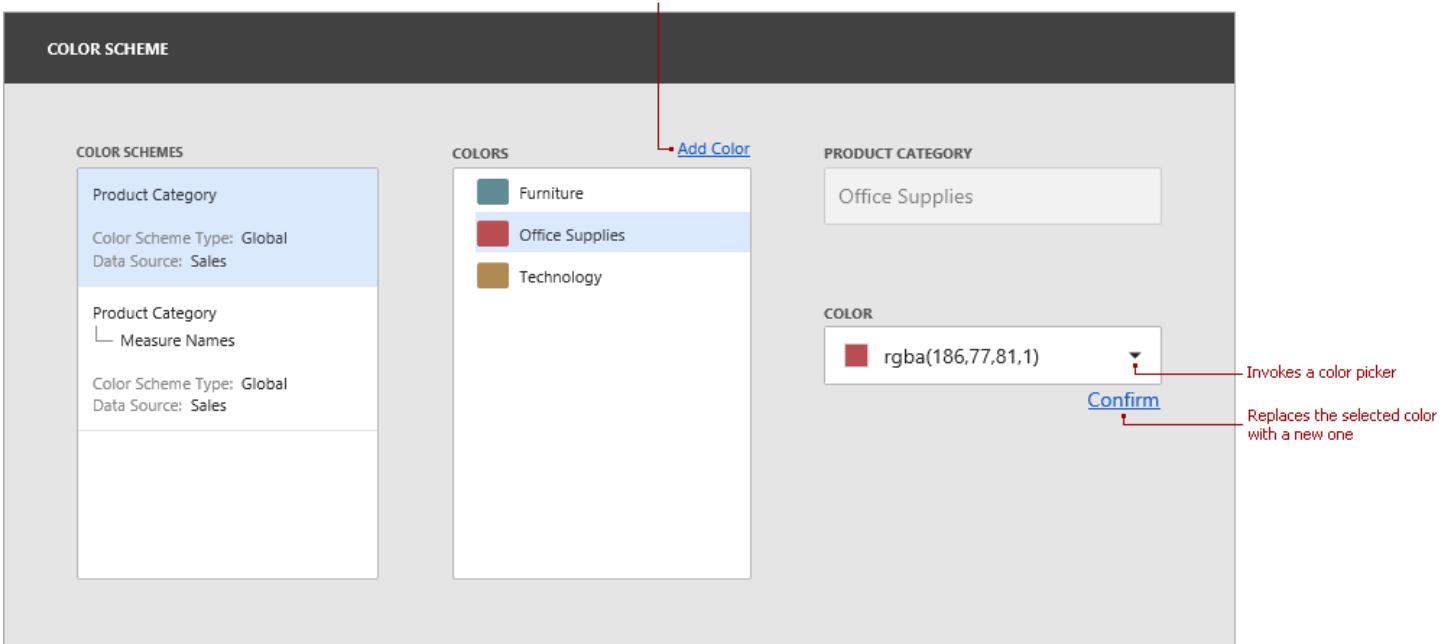


A new color scheme will be applied to the dashboard item(s).



Customizing Color Palettes Using the Color Schemes Page

The Color Scheme page of the [dashboard menu](#) allows you to customize color tables by editing and adding colors.

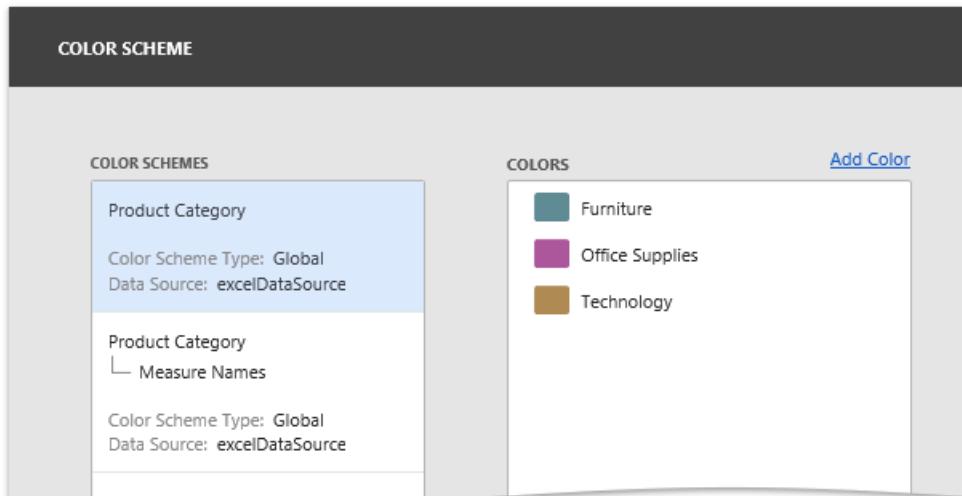


- **Edit colors.** You can reassign a color in the selected color table. For this, select one of the available schemes in the **Color Schemes** pane and click the required color in the **Colors** pane to provide access to the **Color** combo box.

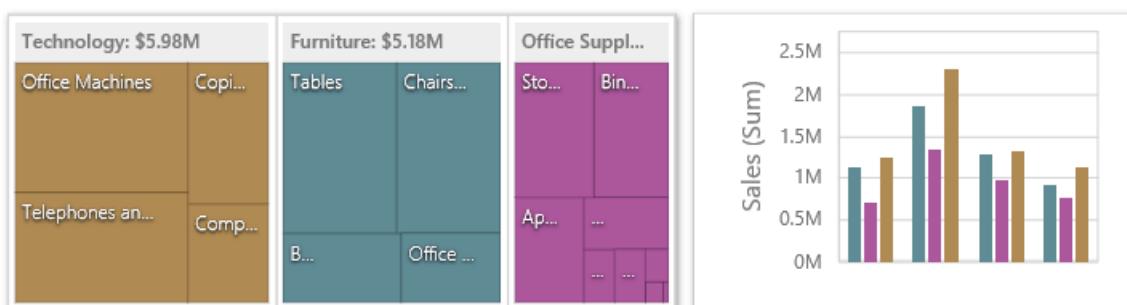
Clicking the **Color** dropdown button invokes a color picker where you can specify a new color.



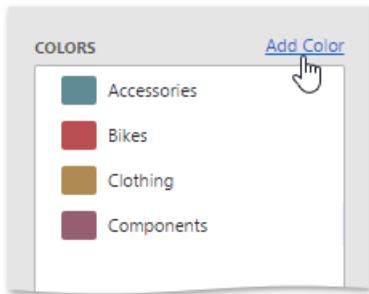
Click **Confirm** to change the automatically assigned color for the selected value and update the current color scheme.



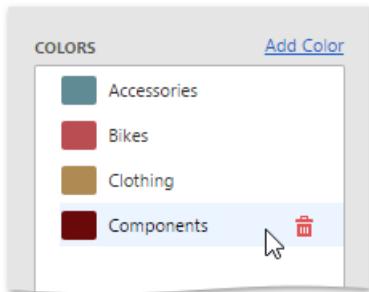
The image below demonstrates the dashboard items that are colored using the updated color table.



- **Add colors.** The Color Scheme page allows you to add a new value with the specified color to the selected color scheme. To do this, use the **Add color** button.



Specify the dimension value of the added color or select the required measures. This creates a new value whose color can be specified as described in the **Edit colors** section.



You can remove manually added values using the **Remove** button (the icon).

Data Analysis

This section describes how to perform advanced data analysis using the aggregate and window functions, dashboard parameters, etc.

The section consists of the following topics.

- [Aggregations](#)
- [Calculations](#)
- [Dashboard Parameters](#)
- [Expression Constants, Operators, and Functions](#)

Aggregations

The Web Dashboard allows you to prepare underlying data using additional aggregation levels when creating [calculated fields](#). This topic shows how to evaluate calculated fields on a visualization (summary) and intermediate levels.

Summary Level Aggregations

To compute values of the calculated field on a visualization (or summary) level, you can use a set of predefined aggregate functions. In the [Expression Editor](#), these functions are available within the **Functions | Aggregate**.

FUNCTION	DESCRIPTION	EXAMPLE
Aggr(SummaryExpression, Dimensions)	Aggregates underlying data using the detail level specified by a predefined set of dimensions and a specified summary function.	Aggr(Sum([Sales]), [Category], [Product])
Avg(Value)	Returns the average of all the values in the expression.	Avg([Profit])
Count()	Returns the number of values.	Count()
CountNotNull(Value)	Returns a number of non-null objects in a collection.	CountNotNull([Orders])
CountDistinct(Value)	Returns the number of distinct values.	CountDistinct([Orders])
Max(Value)	Returns the maximum value across all records.	Max([Profit])
Min(Value)	Returns the minimum value across all records.	Min([Profit])
Mode(Value)	Returns the mode of the values.	Mode([Profit])
Median(Value)	Returns the median of the values.	Median([Profit])
Sum(Value)	Returns the sum of all values.	Sum([Profit])
Var(Value)	Returns an estimate of the variance of a population, where the sample is a subset of the entire population.	Var([Orders])
Varp(Value)	Returns the variance of a population, where the population is the entire data to be summarized.	Varp([Orders])
StdDev(Value)	Returns an estimate of the standard deviation of a population, where the sample is a subset of the entire population.	StdDev([Orders])
StdDevp(Value)	Returns the standard deviation of a population, where the population is the entire data to be summarized.	StdDevp([Orders])

These functions can be used for all types of numeric fields. After creating such calculated fields, you can use them as measures contained in an OLAP cube.

Intermediate Level Aggregations

The Web Dashboard can aggregate and summarize data on different levels.

- The [Query Builder](#) allows you to prepare an underlying data source before analyzing data. You can apply grouping, sorting,

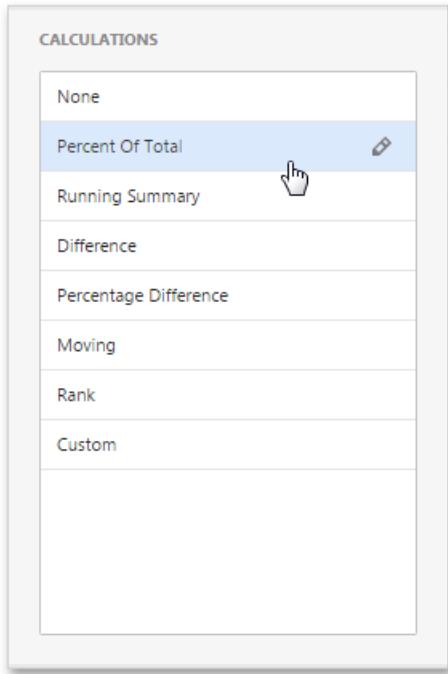
summarization and other data shaping operations during data selection.

- [Dashboard items](#) aggregate and summarize data at a visualization level using dimensions and measures, respectively. To learn more, see [Binding Dashboard Items to Data](#).
- The **Aggr** function introduces an intermediate detail level that is not related to the visualization level. This allows you to create custom aggregations at different levels and combine these aggregations with existing visualizations.

Calculations

Window calculations provide the capability to apply specific computations to measure values and allow you to perform different analytical tasks such as computing running totals, percentages of totals, differences, etc.

To create a window calculation, invoke the [Bindings](#) menu and click the required measure. In the invoked [Data Item Menu](#), go to **Calculations** and select one of the available calculations.



- [Percent of Total](#)
- [Running Summary](#)
- [Difference](#)
- [Percentage Difference](#)
- [Moving](#)
- [Rank](#)
- [Custom](#)

After you have selected the required calculation, you can change its default settings by clicking the **Edit** button (the icon). This invokes the special window containing common and specific calculation settings:

Percent of Total

A calculation is used to compute a percentage of the total for the specified measure across a window.

The screenshot shows the configuration dialog for the 'Percent Of Total' measure. The 'COMMON' section is collapsed. The 'WINDOW DEFINITION' section has two tabs: 'Predefined' (selected) and 'Specific'. Under 'DEFINITION MODE', the dropdown is set to 'Rows'. In the 'EXPRESSION' section, the formula is displayed as `ToDouble(Sum([Sales])) / Total(Sum([Sales]))`, with an 'Edit...' button below it.

- **Window Definition** specifies a window that limits measure values participating in a calculation. You can choose between the *Predefined* and *Specific* window definitions.
 - For the *Predefined* window definition, you can specify the **Definition mode** that depends on the dashboard item type.
 - For the *Specific* window definition, you can manually specify the set of dimensions that fall into the window.
- **Expression** displays an expression generated for the current calculation. To change the expression, click **Edit**.

In the Grid below, **Percent of Total** is applied to a fourth column to show a contribution of individual quarterly sales to total sales.

Order Year	Order Quarter	Sales	Percent of Total
2015	Q1	\$138K	13.07%
2015	Q2	\$143K	13.54%
2015	Q3	\$154K	14.55%
2015	Q4	\$182K	17.18%
2016	Q1	\$298K	28.22%
2016	Q2	\$142K	13.44%

Running Summary

Can be used to compute a cumulative total for the specified measure across a window.

The screenshot shows the 'Running Summary' configuration dialog. Under 'COMMON', there's a 'WINDOW DEFINITION' section with 'Predefined' selected. In 'DEFINITION MODE', 'Rows' is chosen. Under 'SUMMARY TYPE', 'Sum' is selected. The 'EXPRESSION' section contains the formula 'RunningSum(Sum([Sales]))' and an 'Edit...' button.

- **Window Definition** specifies a window that limits measure values participating in a calculation. You can choose between the *Predefined* and *Specific* window definitions.
 - For the *Predefined* window definition, you can specify the **Definition mode** that depends on the dashboard item type.
 - For the *Specific* window definition, you can manually specify the set of dimensions that fall into the window.
- **Summary Type** - Specifies a summary function used to apply a calculation.
- The **Expression** displays an expression generated for the current calculation. To change the expression, click **Edit**.

In the Grid below, the **Running Total** is applied to a fourth column to display cumulative sales across all quarters.

Order Year	Order Quarter	Sales	Running Total
2015	Q1	\$138K	\$138K
2015	Q2	\$143K	\$281K
2015	Q3	\$154K	\$435K
2015	Q4	\$182K	\$617K
2016	Q1	\$298K	\$916K
2016	Q2	\$142K	\$1.06M

Difference

Can be used to compute the difference between measure values across a window.

The screenshot shows the 'Difference' configuration dialog. Under 'COMMON', 'WINDOW DEFINITION' is set to 'Predefined'. 'DEFINITION MODE' is set to 'Rows'. 'TARGET' is set to 'Previous'. 'DIFFERENCE TYPE' is set to 'Absolute'. The 'EXPRESSION' section contains the formula: `Sum([Sales]) - Lookup(Sum([Sales]), -1)`. An 'Edit...' button is visible below the expression.

- **Window Definition** specifies a window that limits measure values participating in a calculation. You can choose between the *Predefined* and *Specific* window definitions.
 - For the *Predefined* window definition, you can specify the **Definition mode** that depends on the dashboard item type.
 - For the *Specific* window definition, you can manually specify the set of dimensions that fall into the window.
- **Target** - Specifies the value used to calculate the difference. The following values are available: *Previous*, *Next*, *First* and *Last*.
- **Difference Type** - Specifies whether the absolute or percentage difference is calculated.
- **Expression** displays an expression generated for the current calculation. To change the expression, click **Edit**.

In the Grid below, the **Difference** is applied to a fourth column to show absolute differences between quarterly sales.

Order Year	Order Quarter	Sales	Difference
2015	Q1	\$138K	
2015	Q2	\$143K	\$4.89K
2015	Q3	\$154K	\$10.8K
2015	Q4	\$182K	\$27.7K
2016	Q1	\$298K	\$117K
2016	Q2	\$142K	-\$156K

Percentage Difference

A calculation is used to compute the difference in percentages between measure values across a window.

The screenshot shows the configuration dialog for a Percentage Difference calculation. The 'COMMON' section is visible at the top. Under 'WINDOW DEFINITION', the 'Predefined' tab is selected. In 'DEFINITION MODE', 'Rows' is chosen. The 'TARGET' dropdown is set to 'Previous'. Under 'DIFFERENCE TYPE', the 'Percent' tab is selected. The 'EXPRESSION' section contains the DAX formula: `ToDouble(Sum([Sales])) - Lookup(Sum([Sales]), -1)) / Lookup(Sum([Sales]), -1)`. An 'Edit...' button is located below the expression input field.

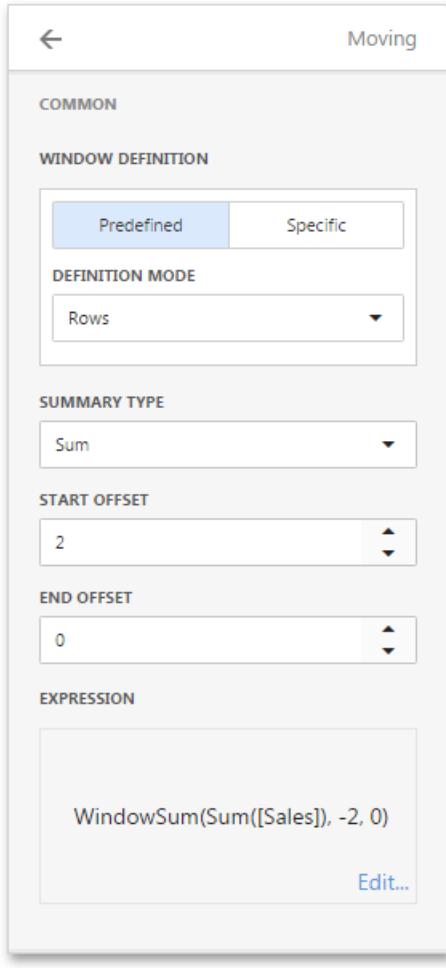
- **Window Definition** specifies a window that limits measure values participating in a calculation. You can choose between the *Predefined* and *Specific* window definitions.
 - For the *Predefined* window definition, you can specify the **Definition mode** that depends on the dashboard item type.
 - For the *Specific* window definition, you can manually specify the set of dimensions that fall into the window.
- **Target** - Specifies the value used to calculate the difference. The following values are available: *Previous*, *Next*, *First* and *Last*.
- **Difference Type** - Specifies whether the absolute or percentage difference is calculated.
- **Expression** displays an expression generated for the current calculation. To change the expression, click **Edit**.

In the Grid below, **Percentage Difference** is applied to a fourth column to show percentage differences between quarterly sales.

Order Year	Order Quarter	Sales	Percent Difference
2015	Q1	\$138K	
2015	Q2	\$143K	3.53%
2015	Q3	\$154K	7.52%
2015	Q4	\$182K	18.02%
2016	Q1	\$298K	64.29%
2016	Q2	\$142K	-52.38%

Moving

The Moving calculation uses neighboring values to calculate a total.



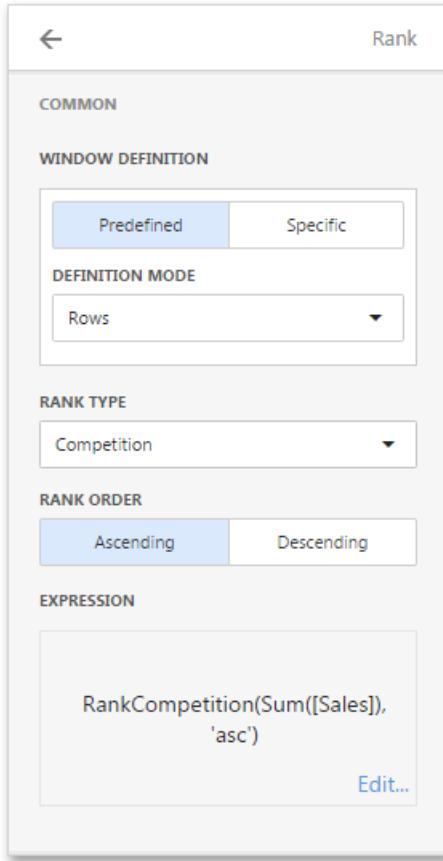
- **Window Definition** specifies a window that limits measure values participating in a calculation. You can choose between the *Predefined* and *Specific* window definitions.
 - For the *Predefined* window definition, you can specify the **Definition mode** that depends on the dashboard item type.
 - For the *Specific* window definition, you can manually specify the set of dimensions that fall into the window.
- **Summary Type** - Specifies a summary function used to apply a calculation.
- **Start Offset/End Offset** - Specify start/end offsets from the currently processed value. For instance, if you specified offsets as 1/1, the previous and next values will be used along with the current value to apply the Moving calculation.
- The **Expression** displays an expression generated for the current calculation. To change the expression, click **Edit**.

In the Grid below, a **Moving** calculation is applied to a fourth column to show a moving average across all quarters.

Order Year	Order Quarter	Sales	Moving Average
2015	Q1	\$138K	\$138K
2015	Q2	\$143K	\$141K
2015	Q3	\$154K	\$145K
2015	Q4	\$182K	\$160K
2016	Q1	\$298K	\$211K
2016	Q2	\$142K	\$207K

Rank

Use the Rank calculation to compute rankings for the specified measure across a window.



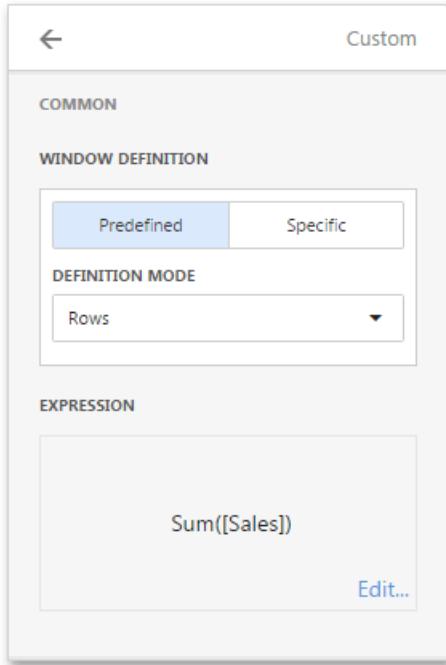
- **Window Definition** specifies a window that limits measure values participating in a calculation. You can choose between the *Predefined* and *Specific* window definitions.
 - For the *Predefined* window definition, you can specify the **Definition mode** that depends on the dashboard item type.
 - For the *Specific* window definition, you can manually specify the set of dimensions that fall into the window.
- **Rank Type** - Specifies the type of ranking. The following ranking types are available: *Unique*, *Competition*, *Dense*, *Modified* and *Percentile*.
- **Rank Order** - Specifies the order of ranking. You can select *Ascending* or *Descending*.
- The **Expression** displays an expression generated for the current calculation. To change the expression, click **Edit**.

In the Grid below, a **Rank** calculation is applied to a fourth column to show a ranking of sales for individual quarters.

Order Year	Order Quarter	Sales	Rank
2015	Q1	\$138K	6
2015	Q2	\$143K	4
2015	Q3	\$154K	3
2015	Q4	\$182K	2
2016	Q1	\$298K	1
2016	Q2	\$142K	5

Custom

Use Custom to specify a custom calculation by adding the required calculation functions inside the measure expression.



- **Window Definition** specifies a window that limits measure values participating in a calculation. You can choose between the *Predefined* and *Specific* window definitions.
 - For the *Predefined* window definition, you can specify the **Definition mode** that depends on the dashboard item type.
 - For the *Specific* window definition, you can manually specify the set of dimensions that fall into the window.
- The **Expression** allows you to change the expression for the current measure. To change the expression, click **Edit**.

Dashboard Parameters

You can use **dashboard parameters** when it is necessary to pass data of a certain type to a dashboard (e.g., to pass a specific value to the data source filter string or a calculated field).

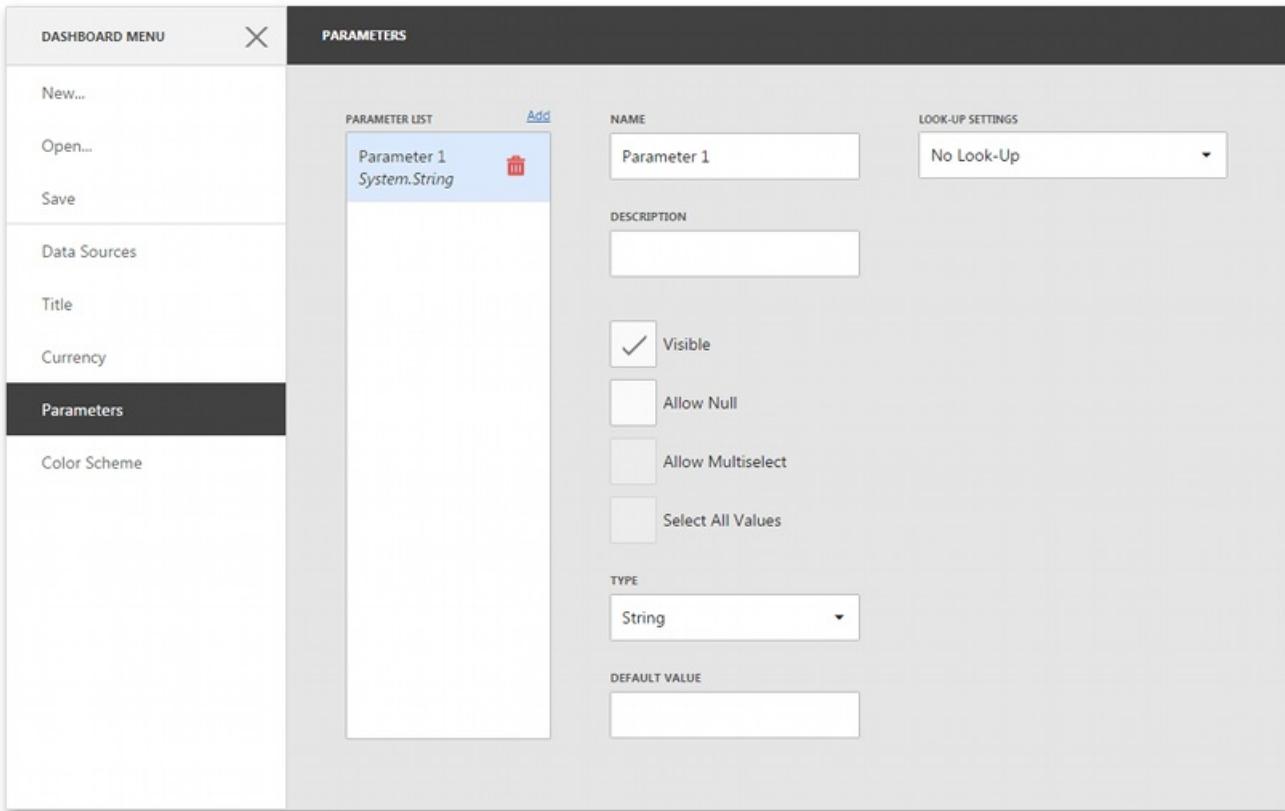
These topics describe how to use dashboard parameters.

- [Creating Parameters](#)
- [Passing Parameter Values](#)
- [Requesting Parameter Values](#)

Creating Parameters

To create a dashboard parameter in the Web Dashboard, perform the following steps.

1. Invoke the [Dashboard Menu](#) and select **Parameters**.
2. In the **Parameter List**, click the **Add New Parameter** button. The following settings will be displayed for the created parameter.



3. Specify the following parameter's settings.

- **Name** - Specifies the parameter name.
- **Description** - Specifies the parameter's description.

The parameter's description is the value displayed in the **Parameter Name** column of the [Dashboard Parameters](#) dialog.

- **Visible** - Specifies whether or not the parameter is visible in the [Dashboard Parameters](#) dialog.
- **Allow Null** - Specifies whether or not null value can be passed as a parameter value.
- **Allow Multiselect** - Specifies whether or not multi-selection is enabled for the current parameter.
- **Select All Values** - Specifies whether or not all parameter values should be selected in the initial state. Note that this option is in effect when **Allow Multiselect** is set to **true**.
- **Type** - Specifies the parameter type.
- **Default Value** - Specifies the default parameter's value.
- **Look-up Settings** - Specifies the parameter's look-up editor settings. To learn more, see the next step.

4. Depending on the selected **Look-up Settings** option, you need to specify the following settings.
- **No Look-up** - Allows you to specify the required parameter value manually in the [Dashboard Parameters](#) dialog.
- **Static List** - Allows you to select a parameter value defined in a static list. To add predefined parameter values, use the **+** button.
- **Dynamic List** - Allows you to select a parameter value defined in a data source. To provide access to data source values, specify the following options.

1. First, select the required **Data Source** from the list of available data sources. For the SQL data source, select the required **Data Member** that specifies the query/data member from the selected **Data Source**.
2. Then, specify data members for the dashboard parameter's value and display name using **Value Member** and **Display Member**, respectively.
3. If necessary, specify the data member used to sort parameter values using the **Sort By** option. The **Sort Order** specifies the required sort order.

Passing Parameter Values

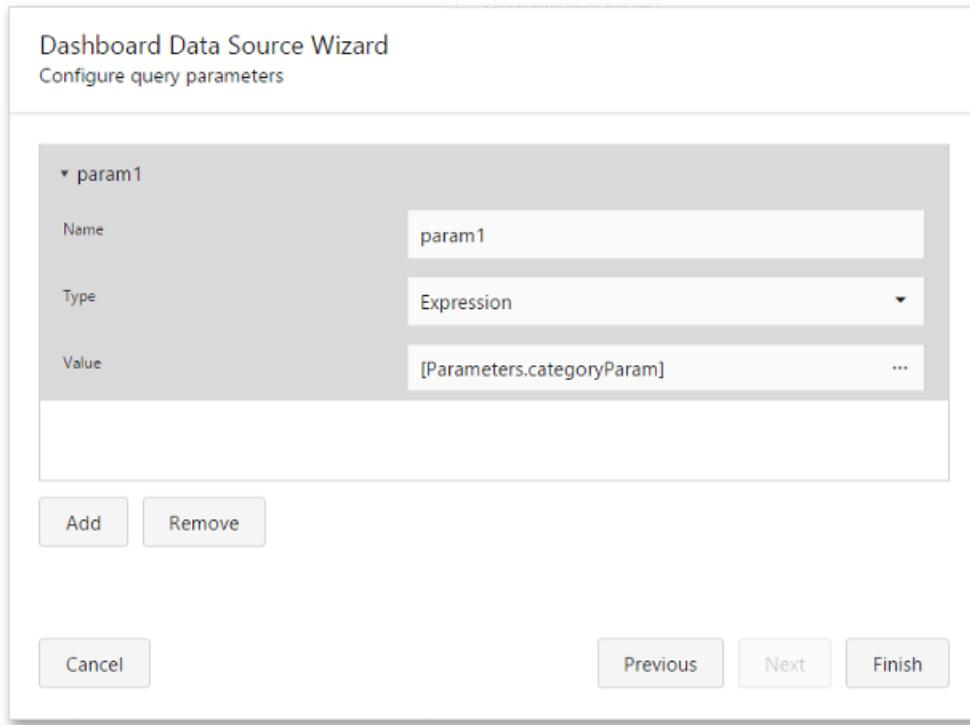
In this topic, it describes how to pass the created dashboard parameter to the dashboard. For instance, you can include a dashboard parameter to a *WHERE* clause of the SQL query or you can filter a dashboard dynamically according to the required parameter value(s).

The created dashboard parameter can be used in the following scenarios:

- [SQL Queries](#)
- [Filtering](#)
- [Conditional Formatting](#)
- [Calculated Fields](#)
- [Window Calculations](#)

SQL Queries

The Web Dashboard provides the capability to bind a dashboard parameter and the existing [SQL query/stored procedure](#) parameter. This can be useful when you need to [filter the SQL query](#) dynamically by including the parameter value in the *WHERE* clause.



To bind a dashboard parameter to an SQL query/stored procedure parameter in the [Dashboard Data Source Wizard](#), do the following:

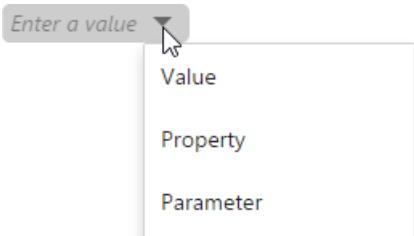
- Select the existing query/stored procedure parameter or create a new query parameter using the **Add** button.
- Set the **Expression** as a parameter value and click the ellipsis button to invoke the Expression Editor for this parameter.
- In the Expression Editor add the required dashboard parameter from the Parameters column.

Filtering

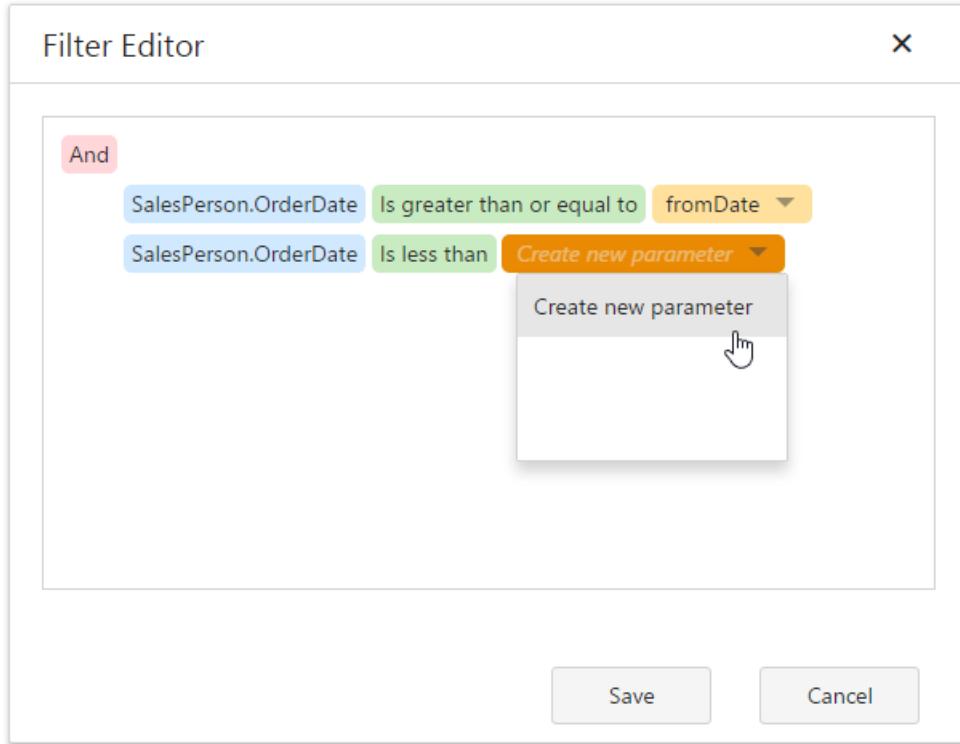
You can filter the specified [query](#) of the SQL Data Source, the entire [Excel Data Source/Object Data Source](#) or [apply filtering](#) to a specific dashboard item according to the current parameter value(s) using the Filter Editor.

In the Filter Editor, you can compare a field value with different objects such as static values, values of another field or parameter values. To switch between values, click a down arrow glyph in the operand value placeholder to expand the list of available

objects. Select the **Parameter** object to compare a field value with a parameter value.

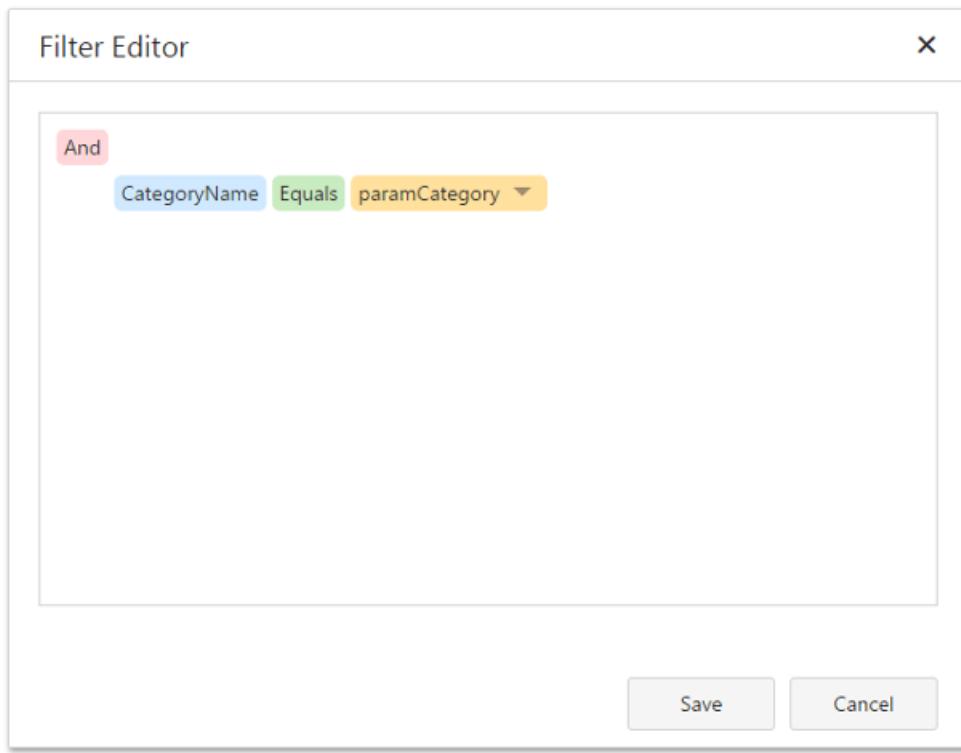


Then, click the operand value to invoke the list of available parameters and select the existing parameter or create a new one.



Conditional Formatting

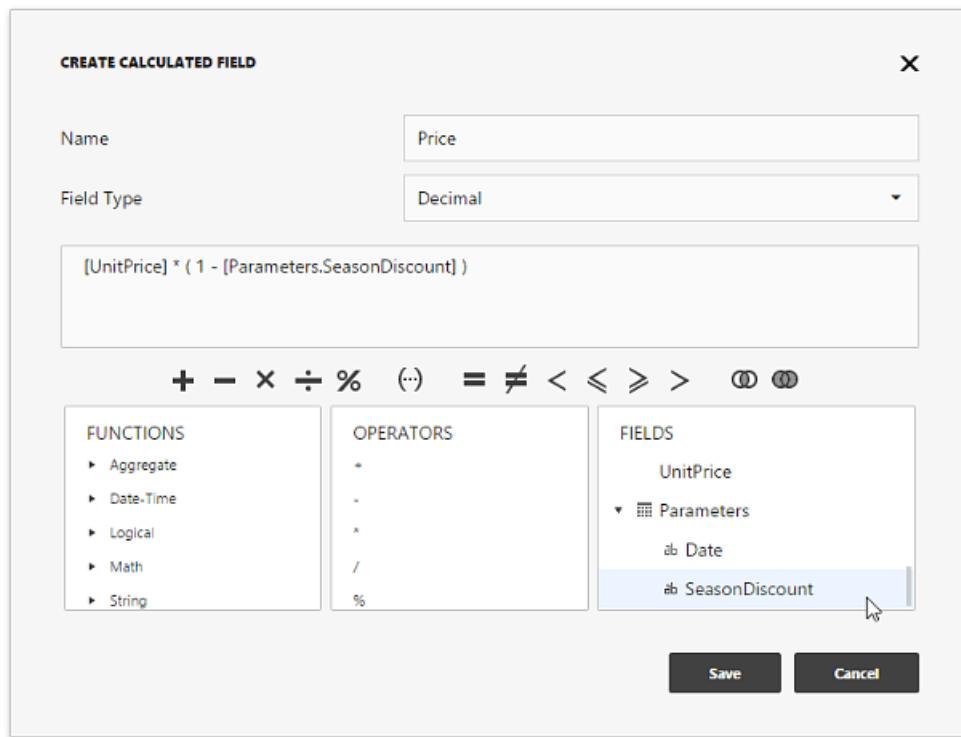
You can apply conditional formatting to a specific dashboard item according to the current parameter value when creating the **Expression format condition**. Use this capability to format dashboard item elements dynamically, depending on the current parameter value.



To switch between values, click the down arrow glyph in the operand value placeholder to expand the list of available objects and select the **Parameter** object to create a format rule with a parameter.

Calculated Fields

You can use parameters when constructing [expressions](#) for [calculated fields](#). This allows you to evaluate values of the calculated field dynamically depending on the current parameter value.

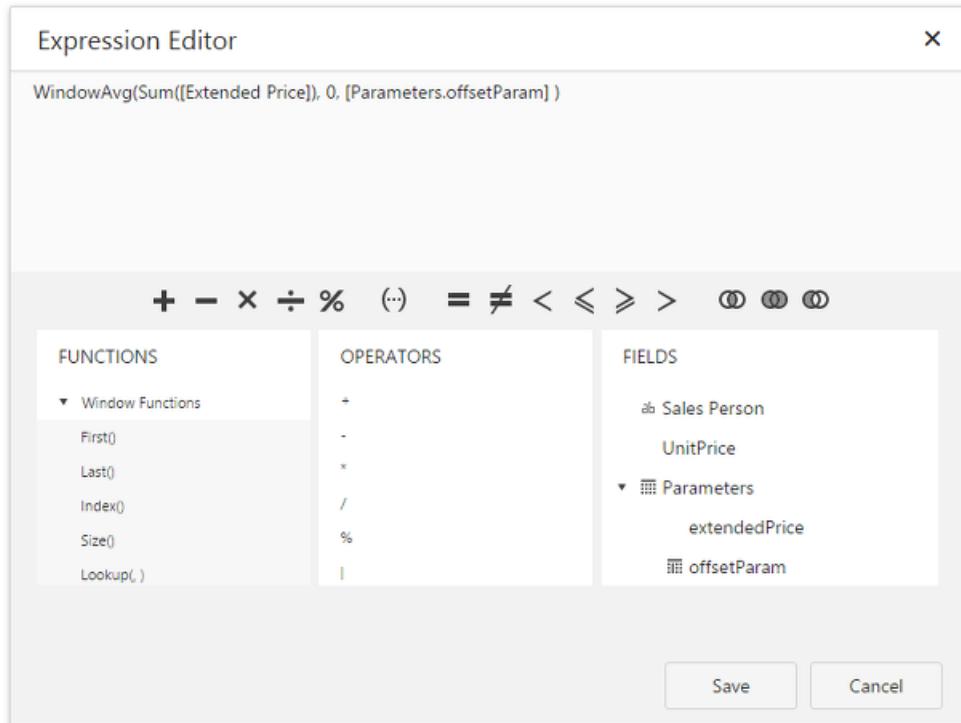


To include a parameter in the expression, double-click the required parameter in the Fields pane.

Window Calculations

You can use parameters when customizing expressions for [window calculations](#). This allows you to apply a calculation

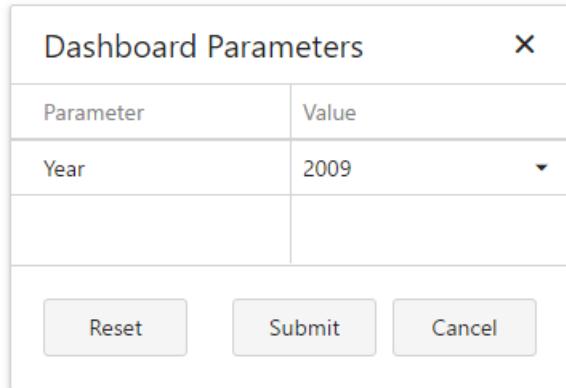
dynamically, depending on the current parameter value.



To create the calculation with a parameter, select the **Custom** calculation and click **Edit**. In the invoked Expression Editor double-click the required parameter.

Requesting Parameter Values

The Web Dashboard provides a built-in **Dashboard Parameters** dialog, which provides the capability to change dashboard parameter values. This dialog is created automatically, depending on the parameter type and visibility settings.



The screenshot shows a modal dialog titled "Dashboard Parameters". It contains a table with two columns: "Parameter" and "Value". A single row is visible, showing "Year" in the Parameter column and "2009" in the Value column. Below the table are three buttons: "Reset", "Submit", and "Cancel".

Parameter	Value
Year	2009

Reset Submit Cancel

To invoke the Dashboard Parameters dialog in the Web Dashboard, click the **Parameters** button (the  icon) in the [dashboard title](#).

Select the required parameter values in the Dashboard Parameters dialog and click the **Submit** button to apply the changes. To restore the default values, click the **Reset** button.

Expression Constants, Operators, and Functions

The DevExpress Dashboard uses criteria language that you can use in various DevExpress products for building expressions. An expression is a string that evaluates some value. The criteria language is based on the cross-platform library with some additions and subtractions specific for dashboards. This topic details basic and dashboard-specific constants, operators, and functions.

The tables below contain constants, operators, and functions you can use in dashboard expressions.

Constants

CONSTANT	DESCRIPTION	EXAMPLE
String constants	Wrap string constants in apostrophes. If a string contains an apostrophe, double the apostrophe.	[Country] == 'France' or [Name] == 'O'Neil'
Date-time constants	Wrap date-time constants in '#'.	[OrderDate] >= #2018-03-22 13:18:51.94944#
True	Represents the Boolean True value.	[InStock] == True
False	Represents the Boolean False value.	[InStock] == False
Enumeration	Specify an enumeration value using its underlying integer value. Note that you cannot specify an enumeration value using its qualified name.	[Status] == 1
Guid	Wrap a Guid constant in curly braces. Use Guid constants in a relational operation with equality or inequality operators only.	[OrderID] == {513724e5-17b7-4ec6-abc4-0eae12c72c1f}
Numeric	Specify different numeric constant types in a string form using suffixes: Int32 (int) - 1, Int16 (short) - 1s, Byte (byte) - 1b, Double (double) - 1.0, Single (float) - 1.0f, Decimal (decimal) - 1.0m,	[Price] == 25.0m
?	Represents a null reference that does not refer to any object. We recommend using the IsNull unary operator (for example, "[Region] is null") or the IsNull logical function (for example, "IsNull([Region])") instead.	[Region] != ?

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] != ?")
```

Operators

OPERATOR	DESCRIPTION	EXAMPLE
+	Adds the value of one numeric expression to another or concatenates two strings.	[UnitPrice] + 4 or [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.	[Flag1]
&	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.	[Flag] & 10
^	Performs a bitwise exclusive OR on two numeric expressions.	[Flag1] ^ [Flag2]
==	Returns true if both operands have the same value; otherwise, it returns false.	[Quantity] == 10
=	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)
&&	Performs a logical conjunction on two Boolean expressions.	[InStock] && ([ExtendedPrice]> 100)

OPERATOR	DESCRIPTION	EXAMPLE
Or	Performs a logical disjunction on two Boolean expressions.	[Country]=='USA' Or [Country]=='UK'
	Performs a logical disjunction on two Boolean expressions.	[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]
!	Performs a logical negation on a Boolean expression.	![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

Aggregate Functions

FUNCTION	DESCRIPTION	EXAMPLE
Aggr(SummaryExpression, Dimensions)	Aggregates underlying data using the detail level specified by a predefined set of dimensions and a specified summary function.	Aggr(Sum([Sales]), [Category], [Product])
Avg(Value)	Returns the average of all the values in the expression.	Avg([Profit])
Count()	Returns the number of values.	Count()
CountNotNull(Value)	Returns a number of non-null objects in a collection.	CountNotNull([Orders])
CountDistinct(Value)	Returns the number of distinct values.	CountDistinct([Orders])
Max(Value)	Returns the maximum value across all records.	Max([Profit])
Min(Value)	Returns the minimum value across all records.	Min([Profit])
Mode(Value)	Returns the mode of the values.	Mode([Profit])
Median(Value)	Returns the median of the values.	Median([Profit])
Sum(Value)	Returns the sum of all values.	Sum([Profit])
Var(Value)	Returns an estimate of the variance of a population, where the sample is a subset of the entire population.	Var([Orders])
Varp(Value)	Returns the variance of a population, where the population is the entire data to be summarized.	Varp([Orders])

FUNCTION	DESCRIPTION	EXAMPLE
StdDev(Value)	Returns an estimate of the standard deviation of a population, where the sample is a subset of the entire population.	StdDev([Orders])
StdDevp(Value)	Returns the standard deviation of a population, where the population is the entire data to be summarized.	StdDevp([Orders])

Window Functions

FUNCTION	DESCRIPTION	EXAMPLE	IMAGE																												
Last()	Returns the number of rows from the current row to the last row in the window.	Last()	<table border="1"> <thead> <tr> <th>Order Year</th><th>Order Quarter</th><th>Sales</th><th>Last()</th></tr> </thead> <tbody> <tr><td>2015</td><td>Q1</td><td>\$138K</td><td>5</td></tr> <tr><td></td><td>Q2</td><td>\$143K</td><td>4</td></tr> <tr><td></td><td>Q3</td><td>\$154K</td><td>3</td></tr> <tr><td></td><td>Q4</td><td>\$162K</td><td>2</td></tr> <tr><td>2016</td><td>Q1</td><td>\$208K</td><td>1</td></tr> <tr><td></td><td>Q2</td><td>\$142K</td><td>0</td></tr> </tbody> </table>	Order Year	Order Quarter	Sales	Last()	2015	Q1	\$138K	5		Q2	\$143K	4		Q3	\$154K	3		Q4	\$162K	2	2016	Q1	\$208K	1		Q2	\$142K	0
Order Year	Order Quarter	Sales	Last()																												
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	Q2	\$142K	0																												
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	Q2	\$142K	-5																												
Index()	Returns the index of the current row in the window.	Index()	<table border="1"> <thead> <tr> <th>Order Year</th><th>Order Quarter</th><th>Sales</th><th>Index()</th></tr> </thead> <tbody> <tr><td>2015</td><td>Q1</td><td>\$138K</td><td>1</td></tr> <tr><td></td><td>Q2</td><td>\$143K</td><td>2</td></tr> <tr><td></td><td>Q3</td><td>\$154K</td><td>3</td></tr> <tr><td></td><td>Q4</td><td>\$162K</td><td>4</td></tr> <tr><td>2016</td><td>Q1</td><td>\$208K</td><td>5</td></tr> <tr><td></td><td>Q2</td><td>\$142K</td><td>6</td></tr> </tbody> </table>	Order Year	Order Quarter	Sales	Index()	2015	Q1	\$138K	1		Q2	\$143K	2		Q3	\$154K	3		Q4	\$162K	4	2016	Q1	\$208K	5		Q2	\$142K	6
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2016	Q1	\$208K	5																												
	Q2	\$142K	6																												
Size()	Returns the number of rows in the window.	Size()	<table border="1"> <thead> <tr> <th>Order Year</th><th>Order Quarter</th><th>Sales</th><th>Size()</th></tr> </thead> <tbody> <tr><td>2015</td><td>Q1</td><td>\$138K</td><td>6</td></tr> <tr><td></td><td>Q2</td><td>\$143K</td><td>6</td></tr> <tr><td></td><td>Q3</td><td>\$154K</td><td>6</td></tr> <tr><td></td><td>Q4</td><td>\$162K</td><td>6</td></tr> <tr><td>2016</td><td>Q1</td><td>\$208K</td><td>6</td></tr> <tr><td></td><td>Q2</td><td>\$142K</td><td>6</td></tr> </tbody> </table>	Order Year	Order Quarter	Sales	Size()	2015	Q1	\$138K	6		Q2	\$143K	6		Q3	\$154K	6		Q4	\$162K	6	2016	Q1	\$208K	6		Q2	\$142K	6
Order Year	Order Quarter	Sales	Size()																												
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2016	Q1	\$208K	6																												
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Lookup(SummaryExpression, Position)	Returns the value of the expression in a target position specified as a relative offset from the current position.	Lookup(Sum([Sales]), 3)	<table border="1"> <thead> <tr> <th>Order Year</th><th>Order Quarter</th><th>Sales</th><th>Lookup(Sum([Sales]), 3)</th></tr> </thead> <tbody> <tr><td>2015</td><td>Q1</td><td>\$138K</td><td>\$182K</td></tr> <tr><td></td><td>Q2</td><td>\$143K</td><td>\$298K</td></tr> <tr><td></td><td>Q3</td><td>\$154K</td><td>\$140K</td></tr> <tr><td></td><td>Q4</td><td>\$162K</td><td></td></tr> <tr><td>2016</td><td>Q1</td><td>\$208K</td><td></td></tr> <tr><td></td><td>Q2</td><td>\$142K</td><td></td></tr> </tbody> </table>	Order Year	Order Quarter	Sales	Lookup(Sum([Sales]), 3)	2015	Q1	\$138K	\$182K		Q2	\$143K	\$298K		Q3	\$154K	\$140K		Q4	\$162K		2016	Q1	\$208K			Q2	\$142K	
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RankCompetition(SummaryExpression, ['asc'])	'desc'])	Returns the standard competition rank for the current row in the window.	RankCompetition(Sum([Sales]), 'asc')																												
RankDense(SummaryExpression, ['asc'])	'desc'])	Returns the dense rank for the current row in the window.	RankDense(Sum([Sales]), 'asc')																												
RankUnique(SummaryExpression, ['asc'])	'desc'])	Returns the unique rank for the current row in the window.	RankUnique(Sum([Sales]), 'asc')																												
RankModified(SummaryExpression, ['asc'])	'desc'])	Returns the modified competition rank for the current row in the window.	RankModified(Sum([Sales]), 'asc')																												
RankPercentile(SummaryExpression, ['asc'])	'desc'])	Returns the percentile rank for the current row in the window.	RankPercentile(Sum([Sales]), 'desc')																												

Function	Description	Example	Image																												
RunningAvg(SummaryExpression)	Returns the running average of the specified expression from the first row in the window to the current row.	RunningAvg(Sum([Sales]))	<table border="1"> <thead> <tr> <th>Order Year</th><th>Order Quarter</th><th>Sales</th><th>RunningAvg(Sum([Sales]))</th></tr> </thead> <tbody> <tr> <td>2015</td><td>Q1</td><td>\$138K</td><td>\$138K</td></tr> <tr> <td></td><td>Q2</td><td>\$143K</td><td>\$143K</td></tr> <tr> <td></td><td>Q3</td><td>\$154K</td><td>\$149K</td></tr> <tr> <td></td><td>Q4</td><td>\$182K</td><td>\$154K</td></tr> <tr> <td>2016</td><td>Q1</td><td>\$298K</td><td>\$183K</td></tr> <tr> <td></td><td>Q2</td><td>\$142K</td><td>\$179K</td></tr> </tbody> </table>	Order Year	Order Quarter	Sales	RunningAvg(Sum([Sales]))	2015	Q1	\$138K	\$138K		Q2	\$143K	\$143K		Q3	\$154K	\$149K		Q4	\$182K	\$154K	2016	Q1	\$298K	\$183K		Q2	\$142K	\$179K
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RunningCount(SummaryExpression)	Returns the running count of the specified expression from the first row in the window to the current row.	RunningCount(Sum([Sales]))	-																												
RunningMax(SummaryExpression)	Returns the running maximum of the specified expression from the first row in the window to the current row.		RunningMax(Sum([Sales]))																												
RunningMin(SummaryExpression)	Returns the running minimum of the specified expression from the first row in the window to the current row.	RunningMin(Sum([Sales]))	<table border="1"> <thead> <tr> <th>Order Year</th><th>Order Quarter</th><th>Sales</th><th>RunningMin(Sum([Sales]))</th></tr> </thead> <tbody> <tr> <td>2015</td><td>Q1</td><td>\$138K</td><td>\$138K</td></tr> <tr> <td></td><td>Q2</td><td>\$143K</td><td>\$138K</td></tr> <tr> <td></td><td>Q3</td><td>\$154K</td><td>\$138K</td></tr> <tr> <td></td><td>Q4</td><td>\$182K</td><td>\$138K</td></tr> <tr> <td>2016</td><td>Q1</td><td>\$298K</td><td>\$138K</td></tr> <tr> <td></td><td>Q2</td><td>\$142K</td><td>\$138K</td></tr> </tbody> </table>	Order Year	Order Quarter	Sales	RunningMin(Sum([Sales]))	2015	Q1	\$138K	\$138K		Q2	\$143K	\$138K		Q3	\$154K	\$138K		Q4	\$182K	\$138K	2016	Q1	\$298K	\$138K		Q2	\$142K	\$138K
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RunningSum(SummaryExpression)	Returns the running sum of the specified expression from the first row in the window to the current row.	RunningSum(Sum([Sales]))	<table border="1"> <thead> <tr> <th>Order Year</th><th>Order Quarter</th><th>Sales</th><th>RunningSum(Sum([Sales]))</th></tr> </thead> <tbody> <tr> <td>2015</td><td>Q1</td><td>\$138K</td><td>\$138K</td></tr> <tr> <td></td><td>Q2</td><td>\$143K</td><td>\$281K</td></tr> <tr> <td></td><td>Q3</td><td>\$154K</td><td>\$435K</td></tr> <tr> <td></td><td>Q4</td><td>\$182K</td><td>\$617K</td></tr> <tr> <td>2016</td><td>Q1</td><td>\$298K</td><td>\$916K</td></tr> <tr> <td></td><td>Q2</td><td>\$142K</td><td>\$1,058K</td></tr> </tbody> </table>	Order Year	Order Quarter	Sales	RunningSum(Sum([Sales]))	2015	Q1	\$138K	\$138K		Q2	\$143K	\$281K		Q3	\$154K	\$435K		Q4	\$182K	\$617K	2016	Q1	\$298K	\$916K		Q2	\$142K	\$1,058K
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WindowAvg(SummaryExpression, StartOffset, EndOffset)	Returns the average of the expression within the window, which is defined using offsets from the current row.	WindowAvg(Sum([Sales]), First(), Last())	<table border="1"> <thead> <tr> <th>Order Year</th><th>Order Quarter</th><th>Sales</th><th>WindowAvg()</th></tr> </thead> <tbody> <tr> <td>2015</td><td>Q1</td><td>\$138K</td><td>\$179K</td></tr> <tr> <td></td><td>Q2</td><td>\$143K</td><td>\$179K</td></tr> <tr> <td></td><td>Q3</td><td>\$154K</td><td>\$179K</td></tr> <tr> <td></td><td>Q4</td><td>\$182K</td><td>\$179K</td></tr> <tr> <td>2016</td><td>Q1</td><td>\$298K</td><td>\$179K</td></tr> <tr> <td></td><td>Q2</td><td>\$142K</td><td>\$179K</td></tr> </tbody> </table>	Order Year	Order Quarter	Sales	WindowAvg()	2015	Q1	\$138K	\$179K		Q2	\$143K	\$179K		Q3	\$154K	\$179K		Q4	\$182K	\$179K	2016	Q1	\$298K	\$179K		Q2	\$142K	\$179K
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WindowCount(SummaryExpression, StartOffset, EndOffset)	Returns the count of the expression within the window.	WindowCount(Sum([Sales]), First() + 2, Last())																													
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WindowCountDistinct(SummaryExpression, StartOffset, EndOffset)	Returns the distinct count of the expression within the window.	WindowCountDistinct(Sum([Sales]), First(), Last())	-																								
WindowMax(SummaryExpression, StartOffset, EndOffset)	Returns the maximum of the expression within the window.	WindowMax(Sum([Sales]), First(), Last())	<p>Order Year Order Quarter Sales WindowMax()</p> <table border="1"> <tr><td>2015</td><td>Q1</td><td>\$138K</td><td>\$208K</td></tr> <tr><td></td><td>Q2</td><td>\$143K</td><td>\$208K</td></tr> <tr><td></td><td>Q3</td><td>\$154K</td><td>\$208K</td></tr> <tr><td></td><td>Q4</td><td>\$182K</td><td>\$208K</td></tr> <tr><td>2016</td><td>Q1</td><td>\$208K</td><td>\$208K</td></tr> <tr><td></td><td>Q2</td><td>\$142K</td><td>\$208K</td></tr> </table>	2015	Q1	\$138K	\$208K		Q2	\$143K	\$208K		Q3	\$154K	\$208K		Q4	\$182K	\$208K	2016	Q1	\$208K	\$208K		Q2	\$142K	\$208K
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WindowMode(SummaryExpression, StartOffset, EndOffset)	Returns the mode of the expression within the window.	WindowMode(Sum([Sales]), First(), Last())	-																								
WindowMedian(SummaryExpression, StartOffset, EndOffset)	Returns the median of the expression within the window.	WindowMedian(Sum([Sales]), First(), Last())	<p>Order Year Order Quarter Sales WindowMedian()</p> <table border="1"> <tr><td>2015</td><td>Q1</td><td>\$138K</td><td>\$149K</td></tr> <tr><td></td><td>Q2</td><td>\$143K</td><td>\$149K</td></tr> <tr><td></td><td>Q3</td><td>\$154K</td><td>\$149K</td></tr> <tr><td></td><td>Q4</td><td>\$182K</td><td>\$149K</td></tr> <tr><td>2016</td><td>Q1</td><td>\$208K</td><td>\$149K</td></tr> <tr><td></td><td>Q2</td><td>\$142K</td><td>\$149K</td></tr> </table>	2015	Q1	\$138K	\$149K		Q2	\$143K	\$149K		Q3	\$154K	\$149K		Q4	\$182K	\$149K	2016	Q1	\$208K	\$149K		Q2	\$142K	\$149K
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WindowSum(SummaryExpression, StartOffset, EndOffset)	Returns the sum of the expression within the window.	WindowSum(Sum([Sales]), First() + 2, Last())	<p>Order Year Order Quarter Sales WindowSum()</p> <table border="1"> <tr><td>2015</td><td>Q1</td><td>\$138K</td><td>\$776K</td></tr> <tr><td></td><td>Q2</td><td>\$143K</td><td>\$776K</td></tr> <tr><td></td><td>Q3</td><td>\$154K</td><td>\$776K</td></tr> <tr><td></td><td>Q4</td><td>\$182K</td><td>\$776K</td></tr> <tr><td>2016</td><td>Q1</td><td>\$208K</td><td>\$776K</td></tr> <tr><td></td><td>Q2</td><td>\$142K</td><td>\$776K</td></tr> </table>	2015	Q1	\$138K	\$776K		Q2	\$143K	\$776K		Q3	\$154K	\$776K		Q4	\$182K	\$776K	2016	Q1	\$208K	\$776K		Q2	\$142K	\$776K
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WindowVar(SummaryExpression, StartOffset, EndOffset)	Returns the variance of the expression within the window.	WindowVar(Sum([Sales]), First(), Last())	-																								
WindowVarp(SummaryExpression, StartOffset, EndOffset)	Returns the biased variance of the expression within the window.	WindowVarp(Sum([Sales]), First(), Last())	-																								
WindowStdDev(SummaryExpression, StartOffset, EndOffset)	Returns the sample standard deviation of the expression within the window.	WindowStdDev(Sum([Sales]), First(), Last())	-																								
WindowStdDevp(SummaryExpression, StartOffset, EndOffset)	Returns the biased standard deviation of the expression within the window.	WindowStdDevp(Sum([Sales]), First(), Last())	-																								
Total(SummaryExpression)	Returns the total based on values from the underlying data source for the specified expression in a calculation window.	Total(Sum([Sales]))	<p>Order Year Order Quarter Sales Total(Sum([Sales]))</p> <table border="1"> <tr><td>2015</td><td>Q1</td><td>\$138K</td><td>\$1,068K</td></tr> <tr><td></td><td>Q2</td><td>\$143K</td><td>\$1,068K</td></tr> <tr><td></td><td>Q3</td><td>\$154K</td><td>\$1,068K</td></tr> <tr><td></td><td>Q4</td><td>\$182K</td><td>\$1,068K</td></tr> <tr><td>2016</td><td>Q1</td><td>\$208K</td><td>\$1,068K</td></tr> <tr><td></td><td>Q2</td><td>\$142K</td><td>\$1,068K</td></tr> </table>	2015	Q1	\$138K	\$1,068K		Q2	\$143K	\$1,068K		Q3	\$154K	\$1,068K		Q4	\$182K	\$1,068K	2016	Q1	\$208K	\$1,068K		Q2	\$142K	\$1,068K
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Important

Note that window functions cannot be used inside [Aggr](#).

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())
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())

FUNCTION	DESCRIPTION	EXAMPLE
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])
GetDateHour(DateTime)	Extracts the date part with the hour value from the defined DateTime.	GetDateHour([OrderDate])
GetDateHourMinute(DateTime)	Extracts the date part with the hour and minute values from the defined DateTime.	GetDateHourMinute([OrderDate])
GetDateHourMinuteSecond(DateTime)	Extracts the date part with the hour, minute, and second values from the defined DateTime.	GetDateHourMinuteSecond([OrderDate])
GetDateMonthYear(DateTime)	Extracts the date with the month and year from the defined DateTime.	GetDateMonthYear([OrderDate])
GetDateQuarterYear(DateTime)	Extracts the date with the quarter and year from the defined DateTime.	GetDateQuarterYear([OrderDate])
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])
GetWeekOfMonth(DateTime)	Extracts the week of the month from the defined DateTime.	GetWeekOfMonth([OrderDate])
GetWeekOfYear(DateTime)	Extracts the week of the year from the defined DateTime.	GetWeekOfYear([OrderDate])
GetYear(DateTime)	Extracts a year from the defined DateTime.	GetYear([StartTime])
IsApril(DateTime)	Returns True if the specified date falls within April.	IsApril([OrderDate])

FUNCTION	DESCRIPTION	EXAMPLE
IsAugust(DateTime)	Returns True if the specified date falls within August.	IsAugust([OrderDate])
IsDecember(DateTime)	Returns True if the specified date falls within December.	IsDecember([OrderDate])
IsFebruary(DateTime)	Returns True if the specified date falls within February.	IsFebruary([OrderDate])
IsJanuary(DateTime)	Returns True if the specified date falls within January.	IsJanuary([OrderDate])
IsJuly(DateTime)	Returns True if the specified date falls within July.	IsJuly([OrderDate])
IsJune(DateTime)	Returns True if the specified date falls within June.	IsJune([OrderDate])
IsLastMonth(DateTime)	Returns True if the specified date falls within the previous month.	IsLastMonth([OrderDate])
IsLastYear(DateTime)	Returns True if the specified date falls within the previous year.	IsLastYear([OrderDate])
IsMarch(DateTime)	Returns True if the specified date falls within March.	IsMarch([OrderDate])
IsMay(DateTime)	Returns True if the specified date falls within May.	IsMay([OrderDate])
IsNextMonth(DateTime)	Returns True if the specified date falls within the next month.	IsNextMonth([OrderDate])
IsNextYear(DateTime)	Returns True if the specified date falls within the next year.	IsNextYear([OrderDate])
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])

FUNCTION	DESCRIPTION	EXAMPLE
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)
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)

FUNCTION	DESCRIPTION	EXAMPLE
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)
MakeDateTime(Year, Month, Day)	Returns a date value constructed from the specified Year, Month and Day.	MakeDateTime(2018, 5, 5)
MakeDateTime(Year, Month, Day, Hour)	Returns a date value constructed from the specified Year, Month, Day and Hour.	MakeDateTime(2018, 5, 5, 20)
MakeDateTime(Year, Month, Day, Hour, Minute)	Returns a date value constructed from the specified Year, Month, Day, Hour and Minute.	MakeDateTime(2018, 5, 5, 20, 18)
MakeDateTime(Year, Month, Day, Hour, Minute, Second)	Returns a date value constructed from the specified Year, Month, Day, Hour, Minute and Second.	MakeDateTime(2018, 5, 5, 20, 18, 30)
Now()	Returns the current system date and time.	AddDays(Now(), 5)
ToDateTime(Value)	Converts Value to a DateTime value.	ToDateTime([Orders])
Today()	Returns the current date. Regardless of the actual time, this function returns midnight of the current date.	AddMonths(Today(), 1)
UtcNow()	Returns the current system date and time, expressed as Coordinated Universal Time (UTC).	AddDays(UtcNow(), 7)

Logical Functions

{| |-

! Function ! Description ! Example |-

| **lif(Expression1, True_Value1, ..., ExpressionN, True_ValueN, False_Value)** | Returns one of several specified values depending upon the values of logical expressions.

The function can take $2N+1$ arguments (N - the number of specified logical expressions):

- Each odd argument specifies a logical expression;
- Each even argument specifies the value that is returned if the previous expression evaluates to **true**;
- ...
- The last argument specifies the value that is returned if the previously evaluated logical expressions yielded **false**. | **lif(Name = 'Bob', 1, 0)"**

lif(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])

| ToBoolean(Value) | Converts Value to an equivalent Boolean value. | ToBoolean([Value]) |}

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)

FUNCTION	DESCRIPTION	EXAMPLE
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])
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')

FUNCTION	DESCRIPTION	EXAMPLE
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])
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 ', '')
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])

FUNCTION	DESCRIPTION	EXAMPLE
Upper(String)	Returns String in uppercase.	Upper([ProductName])

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)
- ==, !=
- <, >, <=, >=
- -, + (left-associative)
- *, /, % (left-associative)
- NOT
- unary -
- In
- If
- Trim(), Len(), Substring(), IsNull()
- '[]' (for set-restriction)
- '()'

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

```
Amount == 2 + 48 * 2
```

```
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, by default, the SQL Server Express 2005 is configured as case insensitive. In this case, the following expression always evaluates to **true**:

```
Lower(Name) == Upper(Name)
```

Escape 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

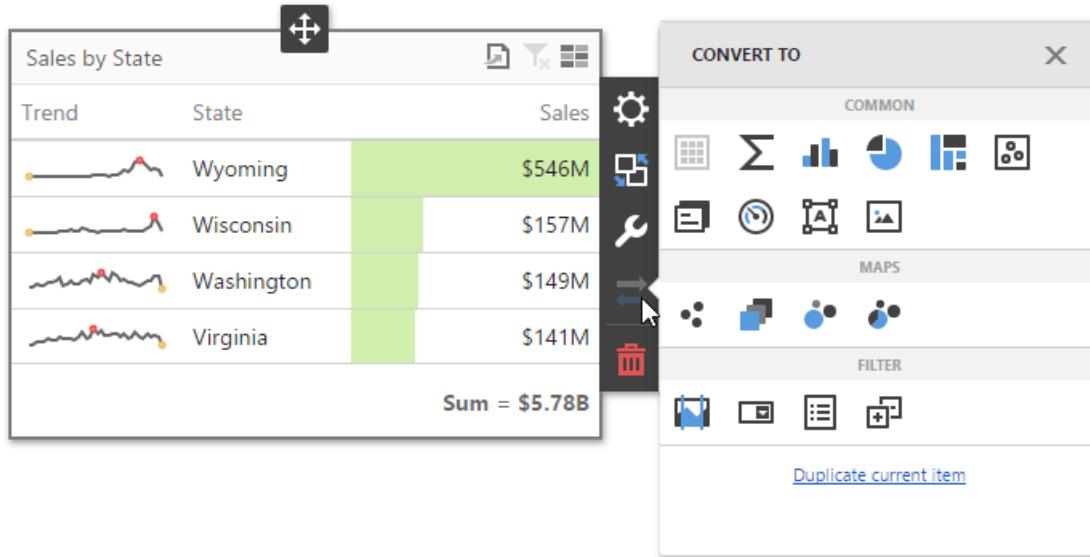
Use a backslash () as an escape character for characters in expressions. Examples:

- \[
- \\
- \'

Converting Dashboard Items

The Web Dashboard provides the capability to convert data-bound dashboard items to another type.

To convert the selected dashboard item to another type, use the dashboard item's [Convert To](#) menu.



Note

You can also created a copy of the selected dashboard item using the **Duplicate current item** command.

The Web Dashboard always preserves the following settings for data-bound dashboard items.

- The set of data items used to bind the dashboard item to data.
- Data shaping settings of data items and their names.
- A custom name displayed within the dashboard item caption.

The following settings are kept if the dashboard item is being converted to an item that also supports this feature.

- [Master Filtering](#) settings (e.g., the specified master filter mode).
- [Drill-Down](#) settings (e.g., the target dimension).
- [Conditional Formatting](#) settings.
- [Coloring](#) settings.
- [Calculation](#) settings.

For different types of dashboard items, some specific settings can be preserved. For example, the following settings are preserved.

- Legend settings for the [Chart/Scatter Chart](#) dashboard items.
- Series types for the [Chart/Range Filter](#) dashboard items.
- Element arrangement settings for the [Pie/Card/Gauge](#) dashboard items.
- Caption settings for the [Pie/Gauge](#) dashboard items.
- Navigation settings for [Choropleth Map/Geo Point Maps](#).
- The attribute whose values are displayed within shape titles for [Choropleth Map/Geo Point Maps](#).
- Legend settings for the [Choropleth Map/Geo Point Maps](#).
- Clustering settings for [Geo Point Maps](#).

Dashboard Layout

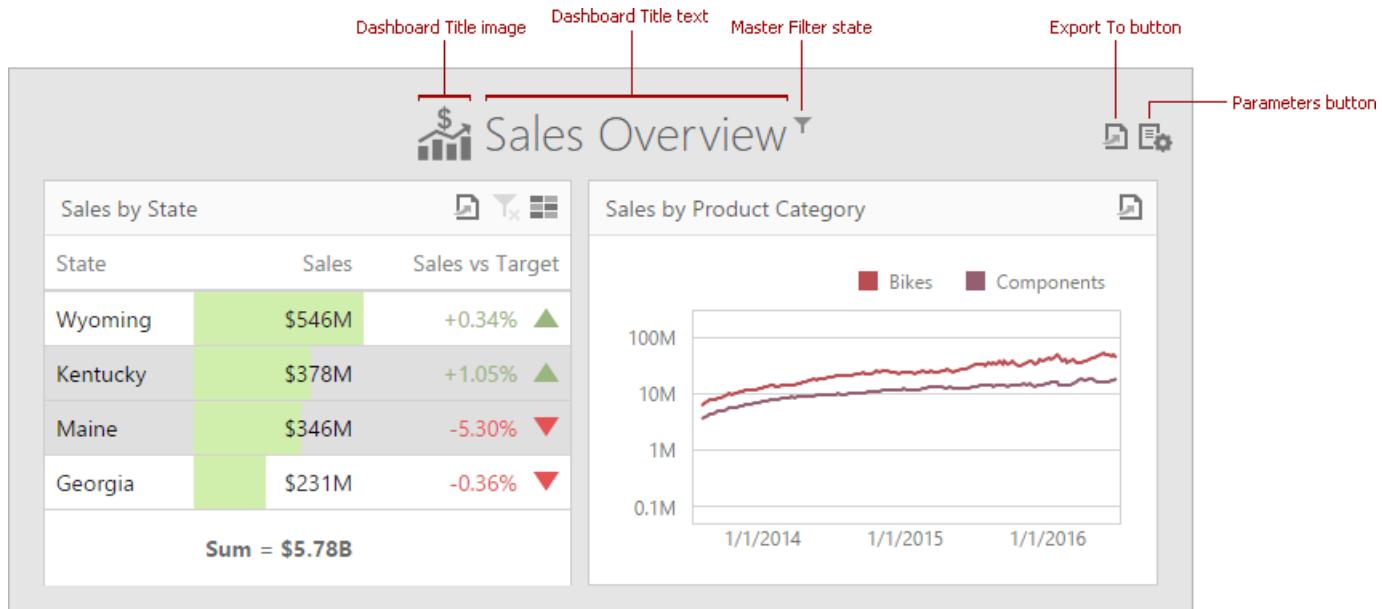
This section describes the features related to the dashboard layout.

The section consists of the following topics.

- [Dashboard Title](#)
- [Dashboard Item Caption](#)
- [Dashboard Items Layout](#)

Dashboard Title

The **Dashboard Title** is located at the top of the [dashboard surface](#) and can contain text and image content.



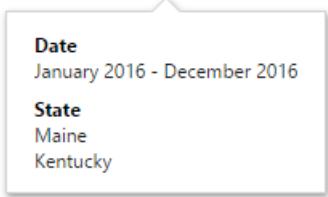
To change title settings, invoke the [dashboard menu](#) and open the **Title** page.

The screenshot shows the "TITLE" configuration page. It includes sections for "TEXT" (containing "Sales Overview" and a "Visible" checkbox), "ALIGNMENT" (with "Left" selected), "INCLUDE MASTER FILTER" (with a checked checkbox), and "IMAGE" (with "Image" selected). A preview window on the right shows the "Sales Overview" text with a small chart icon.

Here you can specify the following options.

- **Text** - Specifies the dashboard title text.
- **Visible** - Specifies whether or not the dashboard title is visible.
- **Alignment** - Specifies the alignment of the dashboard title.
- **Include Master Filter** - Specifies whether or not to show the state of master filter items in the dashboard title.

When you hover over the filter icon (▼), all master filters applied to the dashboard are displayed in the invoked popup.



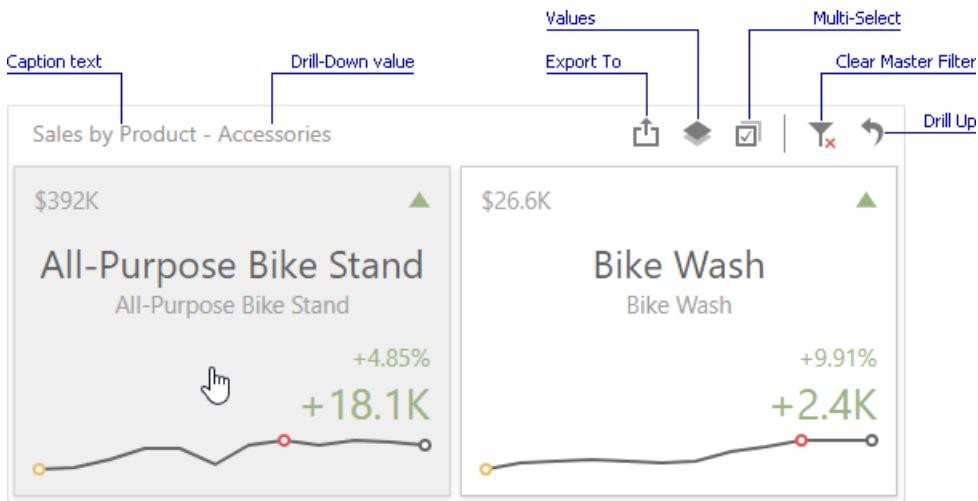
- **Image** - Allows you to specify the image displayed within the dashboard title. The dashboard definition will contain an image as a byte array.

The dashboard title can contain the following command buttons.

- **Export To** - Allows you to export the entire dashboard. To learn more about exporting, see [Exporting](#).
- **Parameters** - Allows you to modify dashboard parameter values. To learn more about parameters, see [Parameters](#).

Dashboard Item Caption

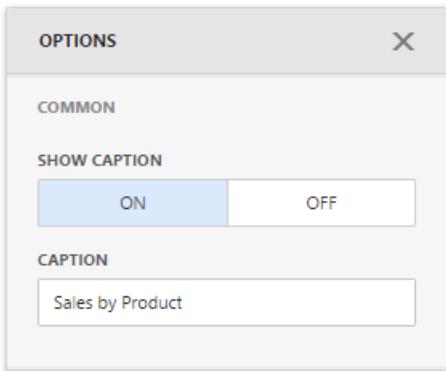
Each dashboard item has a caption that is displayed at the top of this item. The caption contains static text and other information, as well as command buttons.



You can control the dashboard item caption's visibility.

- When the caption is **on**, it is always displayed at the top of the dashboard item. Some command buttons are displayed when you hover the mouse pointer over them.
- When the caption is **off**, it is not visible by default. Some command buttons are displayed in a floating panel when you hover the mouse pointer over them. On touch-based devices, you need to do extra click to show the caption elements when the caption is hidden.

To show or hide the caption of a dashboard item, go to the dashboard item **Options** menu and use the **Show Caption** option.



Note

The [Range Filter](#) dashboard item's caption is not visible by default.

The dashboard item caption consists of the following elements:

- A **static item** is visible only if the caption is enabled (for example, the item caption, the data reducing icon).
- An **action item** is displayed only when the mouse pointer hovers over the dashboard item caption (for instance, the *Export To* and *Values* buttons).
- A **state item** is displayed only in specific dashboards states (for example, the *Drill Up* and *Clear Master Filter* buttons).
- A **navigation item** allows you to navigate through different dashboard screens (for example, *Dashboards* and *Back* buttons in [mobile layout](#)).

The table below lists the information and buttons that can be displayed in the dashboard item caption.

ICON / TEXT	ITEM	DESCRIPTION
	Data Reducing icon	Static. Shows that visible data is limited.
Text	Drill-Down Text	Static. Shows a value or values from the current drill-down hierarchy. See Drill-Down for more details.
Text	Caption Text	Static. Shows a static text in the caption.
	Maximize button	Action. Expands any dashboard item into the whole dashboard size to examine data in greater detail. Refer to Dashboard Items Layout for more information.
	Restore button	Action. Restores the expanded item to its initial state.
	Export to button	Action. Invokes the export menu for a dashboard item. To learn how to export individual dashboard items, see Exporting .
	Values button	Action. Invokes a drop-down menu that allows you to switch between provided values (in the pie, card, gauge and maps dashboard items). To learn more, see the Providing Data topic for the corresponding dashboard item .
	Multi-Select button	Action. Allows you to filter data by selecting multiple elements in dashboard items.
	Select Date Time Period menu / button	Action. Allows you to select date-time periods for the Range Filter.
	Filters button	Action. Displays filters affecting the current dashboard item or entire dashboard. This button is only available in mobile layout .
	Clear Master Filter button	State. Allows you to reset filtering when a dashboard item acts as the Master Filter. To learn more, see Master Filtering .
	Drill Up button	State. Allows you to return to the previous detail level when the drill-down capability is enabled for this item.
	Clear Selection button	State. Allows you to clear the selection inside an item.
	Initial Extent button	State. Restores the default size and position of the Map dashboard items.
Dashboards	Dashboards button	Navigation. Displays a list of available dashboards.
	Back button	Navigation. Returns to the dashboard items list.

Dashboard Items Layout

The **Web Dashboard** provides the capability to arrange and resize dashboard items and groups using simple drag-and-drop operations.

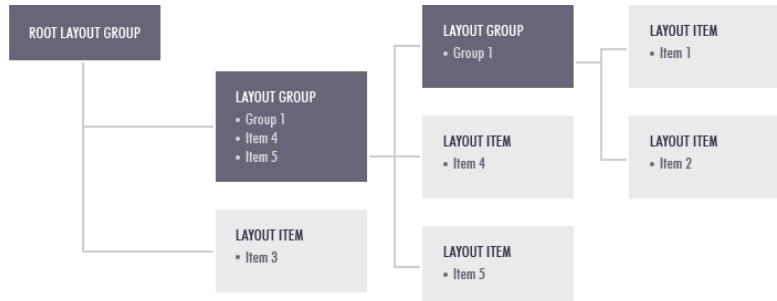
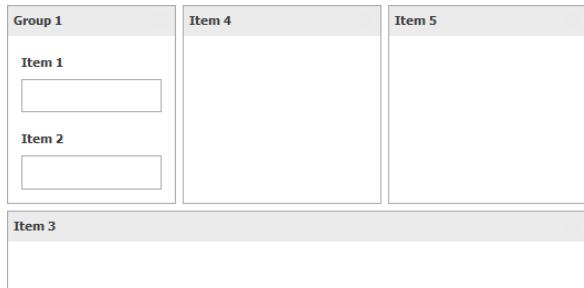
- [Layout Concepts](#)
- [Item Resizing](#)
- [Maximize and Restore Item](#)
- [Item Positioning](#)
- [Layout Concepts](#)
- [Item Resizing](#)
- [Maximize and Restore Item](#)
- [Item Positioning](#)

Layout Concepts

The dashboard arranges dashboard items and groups using *layout items* and *layout groups*. They are special containers that are used to present a dashboard layout as a hierarchical structure.

- A **layout item** is used as a container that displays an individual dashboard item.
- A **layout group** is used as a container that is used to arrange layout items (or other layout groups) either horizontally or vertically. At the same time, layout groups are used as containers that display dashboard item groups.

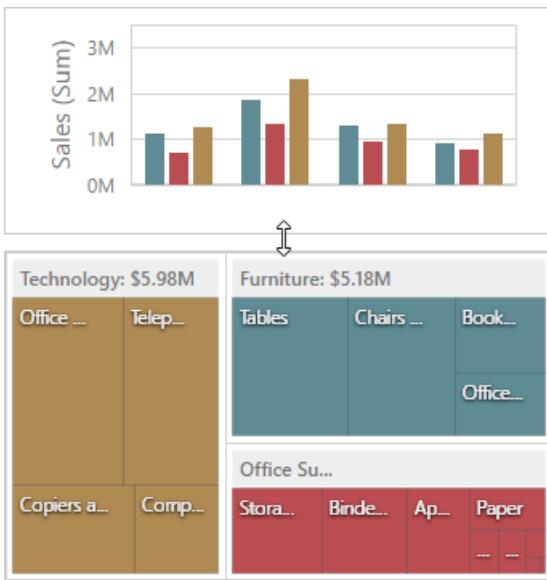
Thus, a dashboard layout is hierarchically arranged from the root layout group to bottommost layout items, which display individual dashboard items.



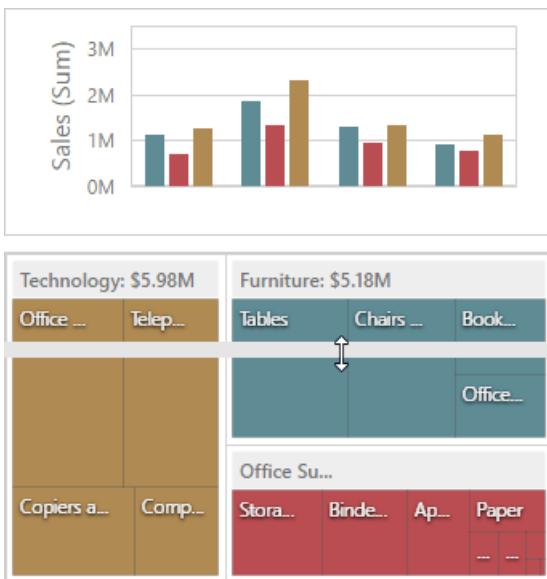
Item Resizing

You can resize individual items/groups of items by dragging their edges. For this, follow the steps below.

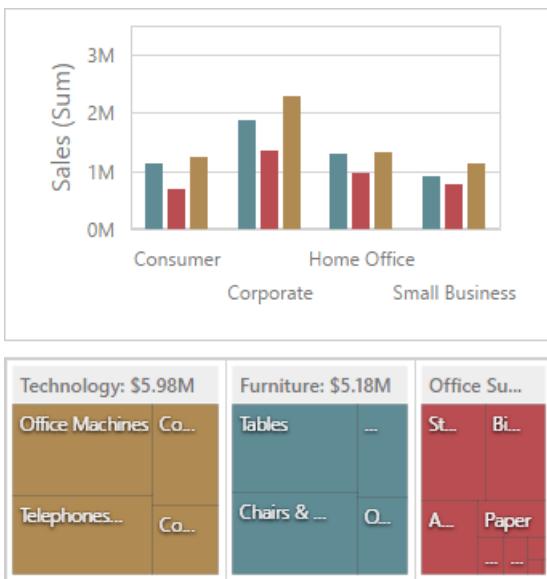
1. In the area allowing you to resize items, cursor types will be changed to **column resize / row resize**.



2. Left-click and drag the cursor until you get the expected sizes and release the left mouse button.



3. The dashboard items change their sizes.

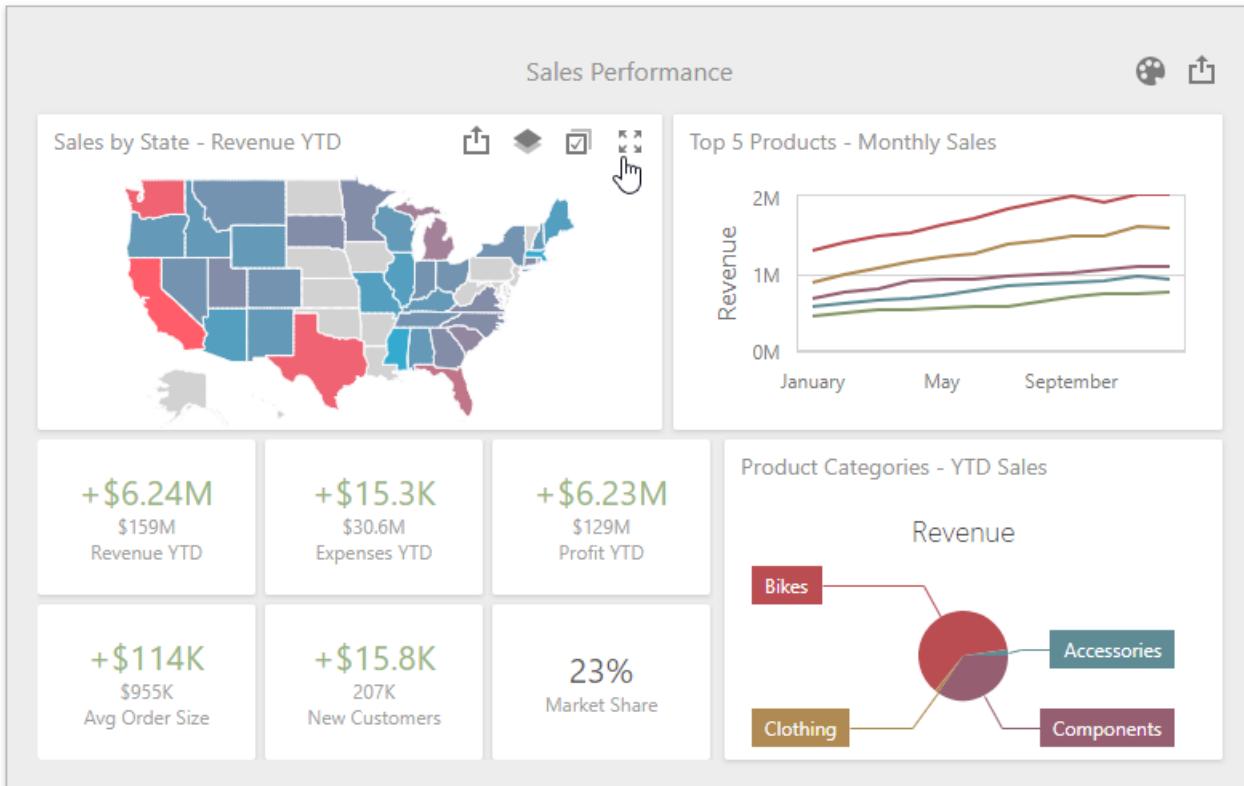


Maximize and Restore Item

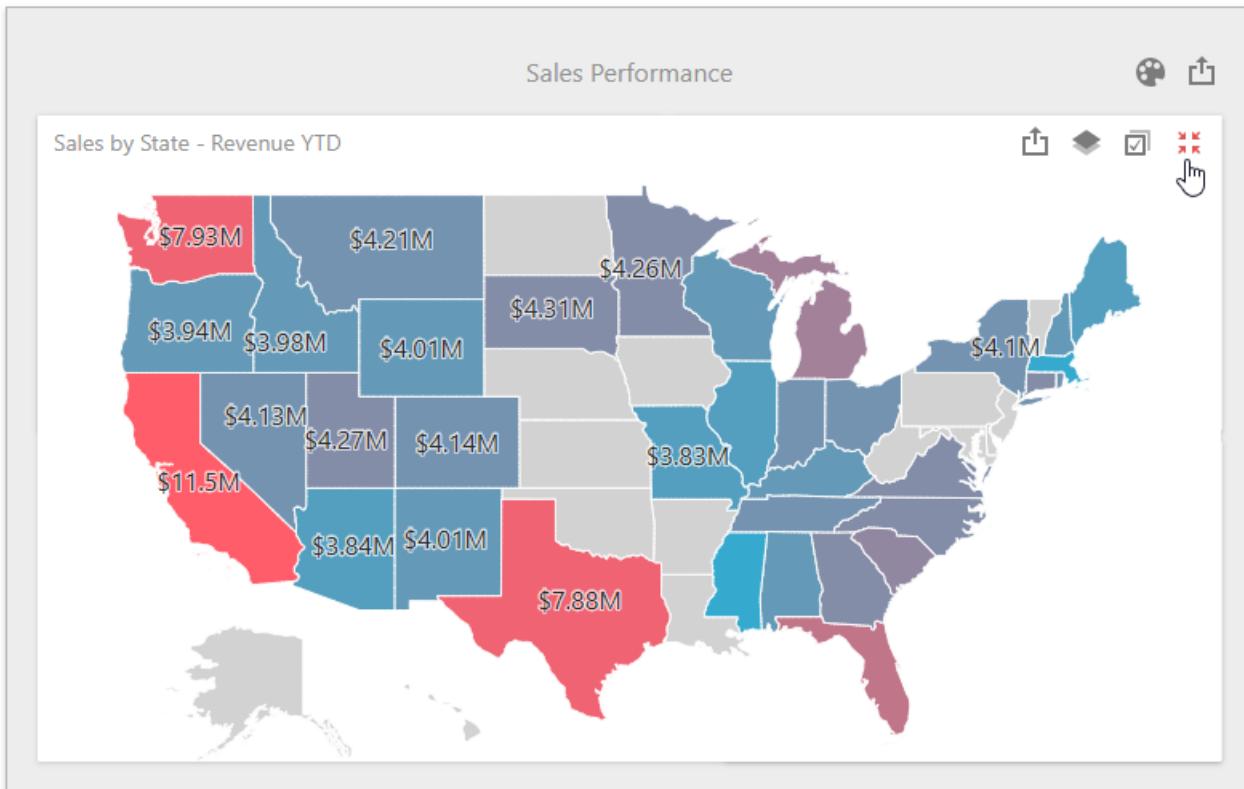
You can expand any dashboard item to fit the dashboard to examine data in greater detail. The expanded dashboard item size in

this case is the same as the root layout group.

1. Click the **Maximize** button in the [dashboard item caption](#) to maximize a dashboard item.



2. Click **Restore** to restore the item's size.



Item Positioning

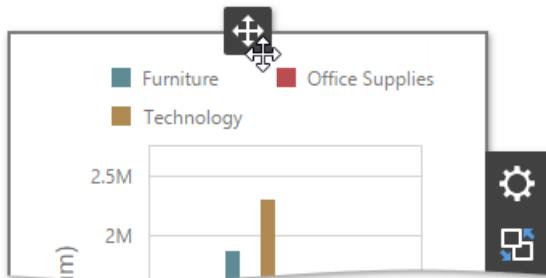
You can change the position of a dashboard item by using drag-and-drop and the dashboard item's [Move](#) button.

Depending on the required dashboard item position, a new layout group is created (if required) to maintain the arrangement of

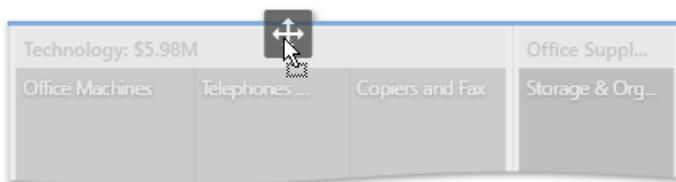
items. Thus, the dashboard item can be inserted to the desired area of a new or existing dashboard layout group.

The following steps illustrates how a dashboard item is dragged.

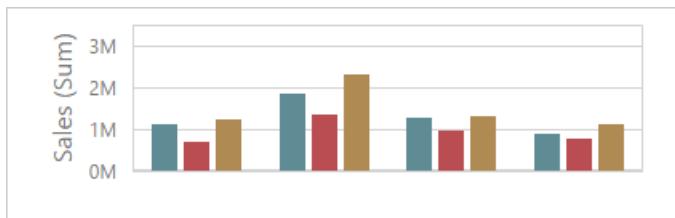
1. Select a dashboard item and hover the **Move** button.



2. Drag the dashboard item to the expected area and release the left mouse button when the drop indicator displays the required area.



3. The dashboard item is moved to a new position.



Undo and Redo Operations

The Web Dashboard keeps track of all user actions, and allows you to undo or repeat them using the **Undo/Redo** buttons.

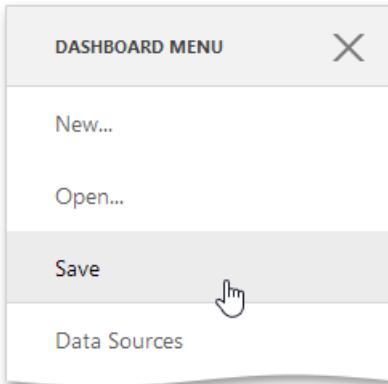
To undo/redo the last action, use the following buttons located in the [Toolbox](#).



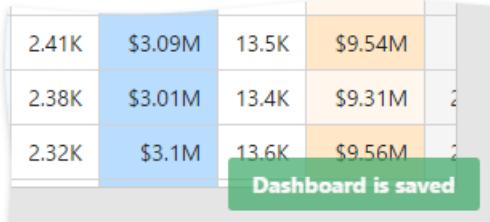
Saving a Dashboard

The Web Dashboard provides the capability to save a dashboard definition (dashboard items, data source, data binding and layout settings, etc.) to an XML definition. This can be accomplished in the following ways.

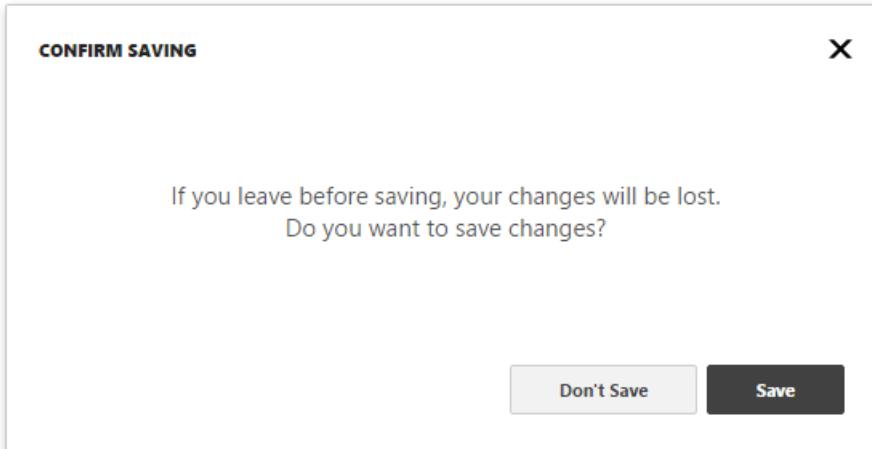
- You can save the dashboard definition manually. For this, open the [dashboard menu](#) and click **Save**.



The following message indicates that you have successfully saved the dashboard.



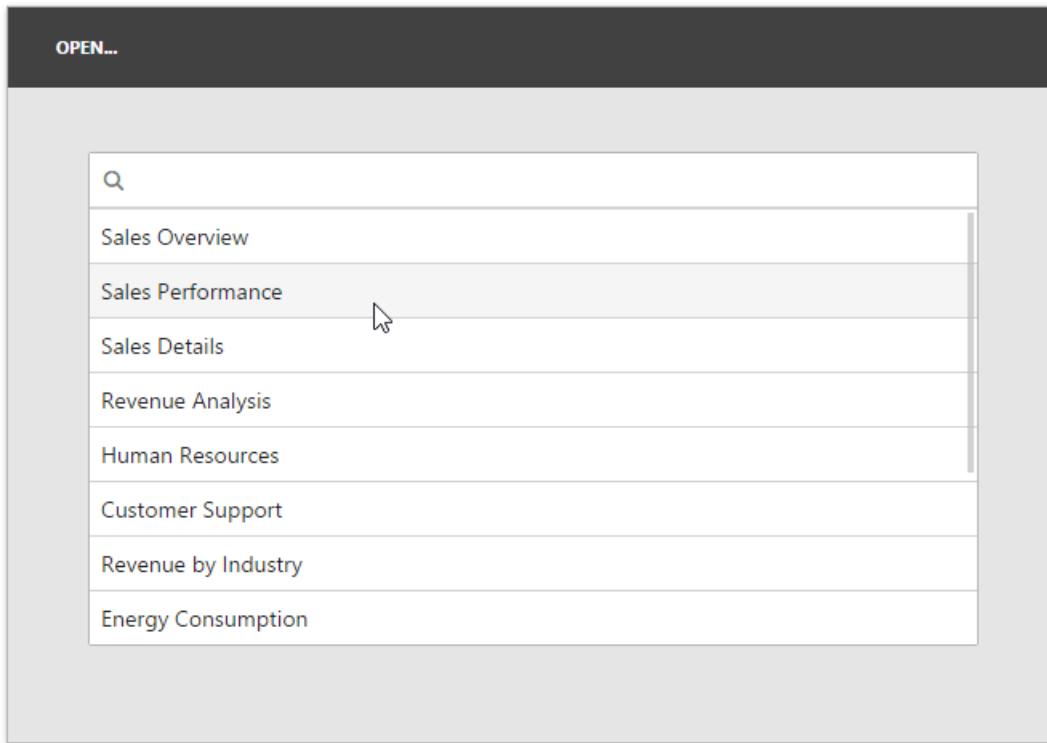
- The dashboard definition can be saved when the currently opened dashboard is closed (for instance, the page containing the Web Dashboard is closed, a new dashboard is created or a different dashboard is [opened](#)). By default, a save confirmation dialog will be invoked.



To learn how to open the saved dashboard, see [Opening a Dashboard](#).

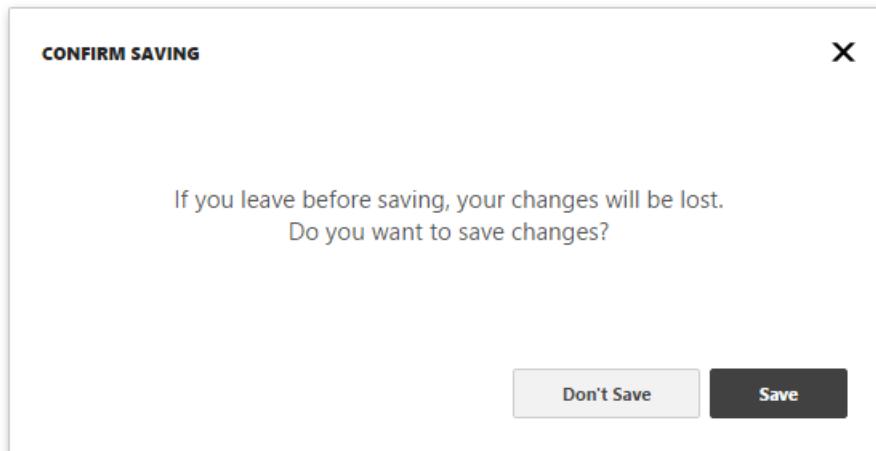
Opening a Dashboard

To open a **saved** dashboard, go to the **dashboard menu** and click the **Open...** item. You will see a list of available dashboards.



Click the required dashboard to open it.

If the current dashboard has unsaved changes, you will see a save confirmation dialog.



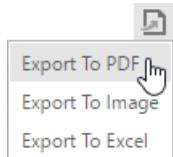
Exporting

The Web Dashboard allows you to export an entire dashboard or individual [dashboard items](#). You can export the dashboard/dashboard items to PDF and Image formats; additionally, you can export dashboard item's data to Excel/CSV.

- [Exporting Dashboards](#)
- [Exporting Dashboard Items](#)

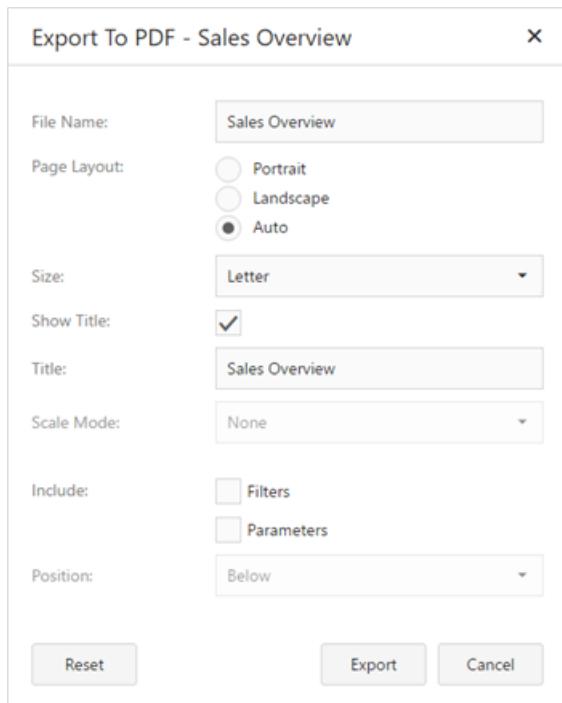
Exporting Dashboards

To export the entire dashboard, click the  button in the dashboard title area and choose the required action.



Export to PDF

Invokes a corresponding dialog that allows you to export a dashboard to a PDF file with specific options. The following options are available:



The dialog box has the following fields:

- File Name:** Sales Overview
- Page Layout:** Auto (selected)
- Size:** Letter
- Show Title:** checked
- Title:** Sales Overview
- Scale Mode:** None
- Include:** Filters (unchecked), Parameters (unchecked)
- Position:** Below

Buttons at the bottom: Reset, Export (highlighted), Cancel.

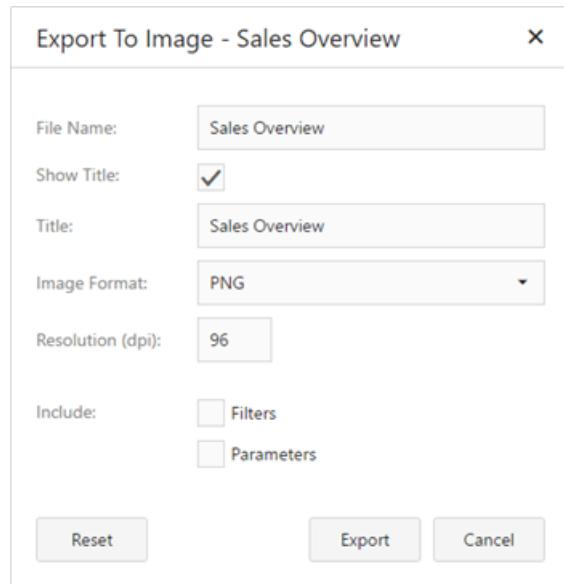
- **File Name** - Specifies the name of the exported PDF file.
- **Page Layout** - Specifies the page orientation used to export a dashboard. You can select between *Portrait*, *Landscape* and *Auto*. Note that in the *Auto* mode the page orientation is selected automatically depending on the horizontal and vertical sizes of a dashboard.
- **Size** - Specifies the standard paper size (for instance, *Letter* or *A4*).
- **Show Title** - Specifies whether or not to apply the dashboard title to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Scale Mode** - Specifies the mode for scaling when exporting a dashboard.

Note

Note that this option is in effect when **Page Layout** is set to value different from *Auto*.

Export to Image

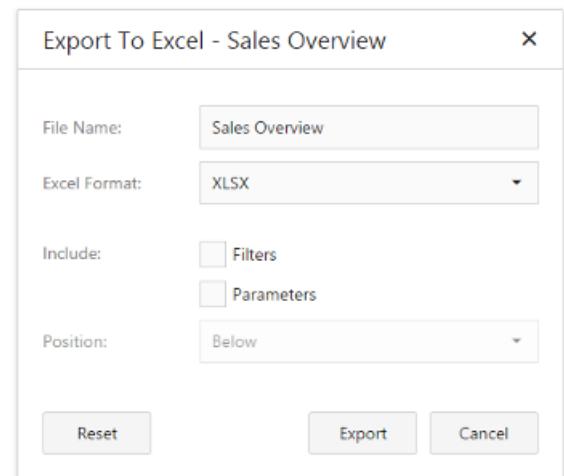
Invokes a corresponding dialog that allows you to export a dashboard to image of the specified format. The following options are available:



- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard title to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard is exported. The following formats are available: *PNG*, *JPEG* and *GIF*.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard.

Export to Excel

Invokes a corresponding dialog that allows you to export dashboard's data to the Excel file. The following options are available:



- **File Name** - Specifies the name of the exported Excel file.
- **Excel Format** - Specifies the Excel workbook format in which the dashboard's data is exported. You can select between *XLSX* and *XLS*.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Sheet*.

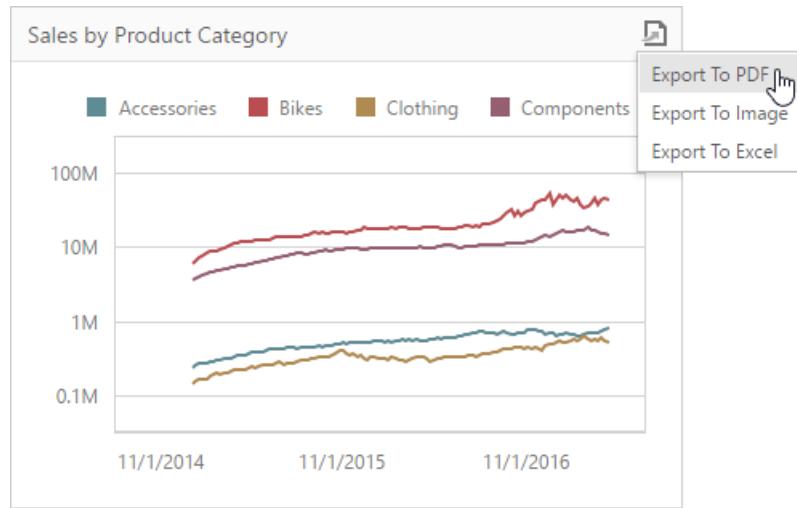
Specify the required options in the dialog and click the **Export** button to export the dashboard. To reset the changes to the default values, click the **Reset** button.

Note

If you export the entire dashboard, its current state is preserved (e.g., the [dashboard layout](#), the scroll position of individual dashboard items and selections within [master filter](#) items).

Exporting Dashboard Items

To export a dashboard item, click the  button in the dashboard item caption area and choose the required action.



- **Export to PDF** - Invokes a corresponding dialog that allows you to export a dashboard to a PDF file with specific options.
- **Export to Image** - Invokes a corresponding dialog that allows you to export a dashboard to image of the specified format.
- **Export to Excel** - Invokes a corresponding dialog that allows you to export a dashboard item's data to the Excel workbook or CSV file.

To learn more about exporting specifics of different dashboard items, see the [Exporting](#) topic for the required [dashboard item](#).

Note

When an individual dashboard item is printed, the entire item's content is reflected in the printed document regardless of the item's current scroll position.

UI Elements

The topics on this page describe control elements that you can see on the screen. Each topic contains a screenshot that outlines the described element and a brief overview of the element's purpose.

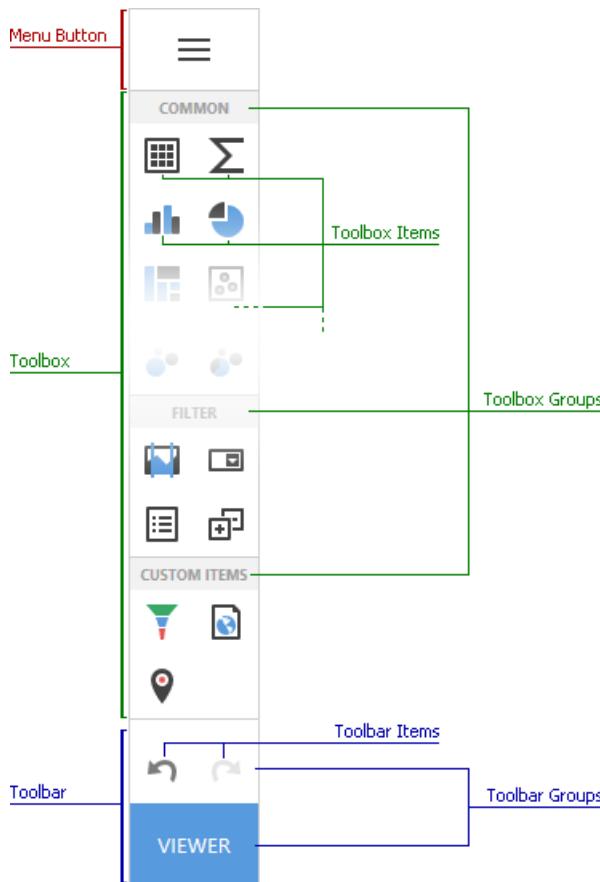
The Web Dashboard consists of the following visual elements.

- [Toolbox](#)
- [Dashboard Surface](#)
- [Dashboard Menu](#)
- [Dashboard Item Menu](#)
- [Data Item Menu](#)

Toolbox

The **Toolbox** provides access to the dashboard menu, and allows you to add dashboard items, as well as undo or repeat user actions.

The main parts of the Toolbox are listed below.



- **Dashboard Menu** - contains the dashboard menu elements. They allow you to save or load dashboards and configure general dashboard settings. To invoke this menu, click on the [Dashboard Menu](#) button.
- **Toolbox** - contains buttons that allow you to add dashboard items like [Grid](#), [Maps](#), [Treemap](#), [Filter Elements Overview](#) or custom items.
- **Toolbar** - the bottom part of the Toolbox that contains undo/redo buttons and buttons with custom functionality.

Toolbox Groups

The Toolbox groups dashboard items as follows:

- **Common** - Data items used to visualize data.

- [Grid](#)
- [Pivot](#)
- [Chart](#)
- [Treemap](#)
- [Pies](#)
- [Scatter Chart](#)
- [Cards](#)
- [Gauges](#)
- [Text Box](#)
- [Image](#)
- [Bound Image](#)

- **Maps** - Map dashboard items.

- [Choropleth Map](#)
- [Geo Point Map](#)
- [Bubble Map](#)
- [Pie Map](#)

- **Filter** - Items used to filter data in data items.

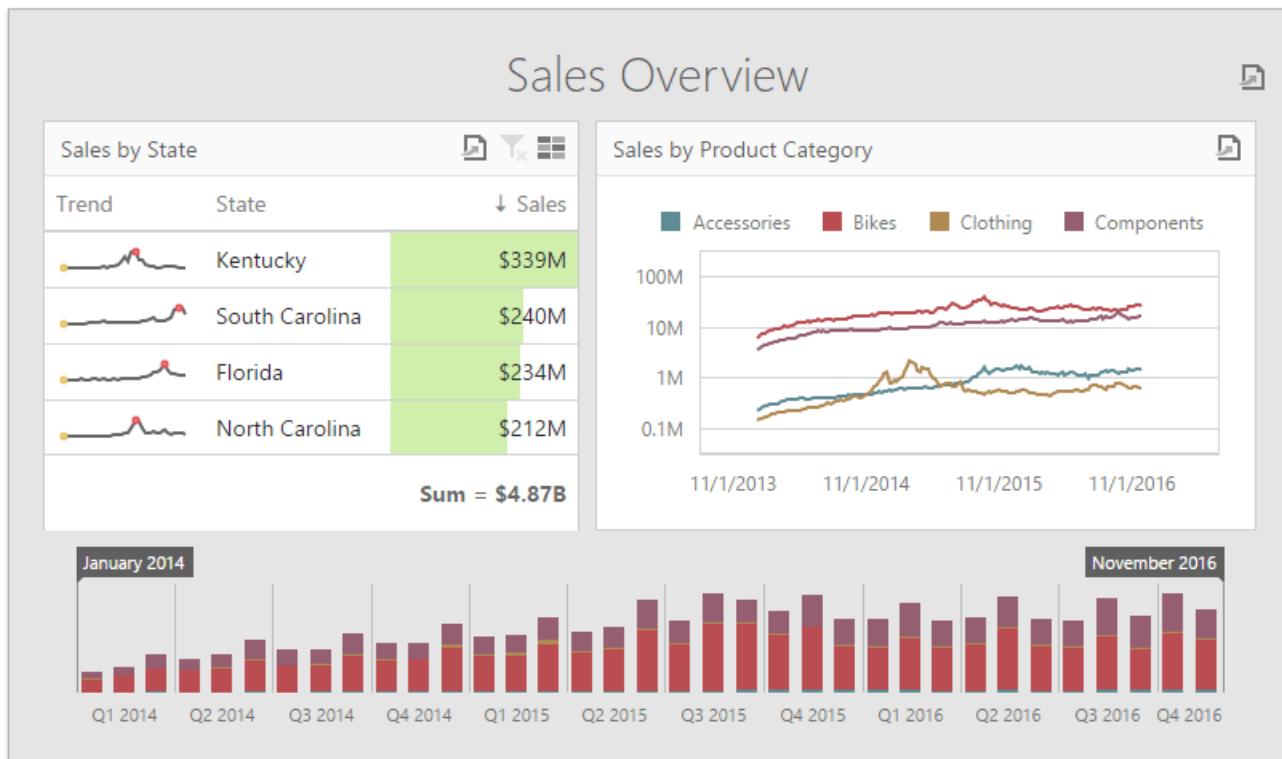
- [Range Filter](#)
- [Combo Box](#)
- [List Box](#)
- [Tree View](#)
- [Date Filter](#)

- **Layout** - Items used to arrange another dashboard items in a dashboard.

- [Group](#)
- [Tab Container](#)

Dashboard Surface

The **Dashboard Surface** is a rectangular area that displays the dashboard that you are designing. This area includes [dashboard items](#) and the [dashboard title](#).

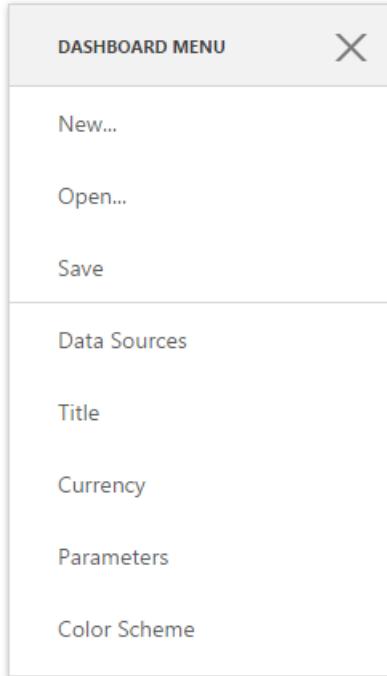


You can customize a [dashboard items layout](#) using drag-and-drop operations, and specify dashboard item settings using its [dashboard item menu](#).

Dashboard Menu

The dashboard menu allows you to create, save or open dashboards and invokes pages containing global dashboard settings. To invoke this menu, use the **Dashboard Menu button** on the [Toolbox](#).

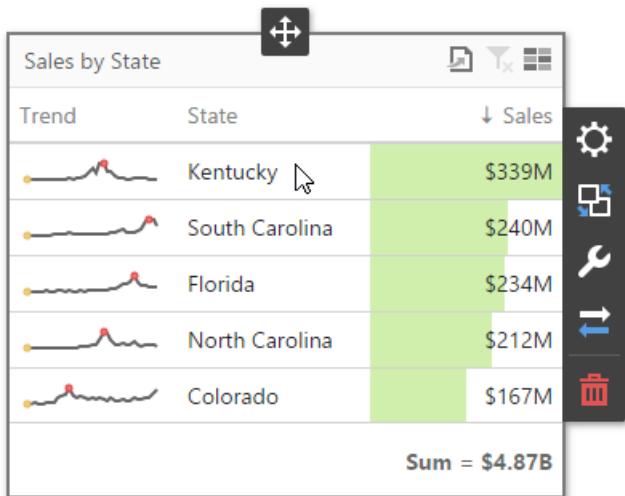
The dashboard menu consists of the following buttons.



BUTTON	DESCRIPTION	SHORTCUT
New...	Use this button to create a new dashboard. The invoked New... page allows you to set a dashboard name, choose an existing data source for this dashboard or create a new one. To learn more, see Creating a Dashboard .	Alt+N
Open...	This button allows you to open the existing dashboards.	Alt+O
Save	Use this button to save the current dashboard.	Alt+S
Data Sources	This button opens the Data Sources page where you can configure dashboard <i>data sources</i> . To learn more, see Manage Data Sources .	Alt+A
Title	This button opens the Title page where you can set a dashboard title and specify its settings like title visibility, alignment, etc.	Alt+T
Currency	This button opens the Currency page. Here you can specify the currency format for the entire dashboard. To learn more about formatting, see Formatting Data .	Alt+C
Parameters	This button invokes the Parameters page containing a list of dashboard parameters and their settings. To learn more about parameters, see Dashboard Parameters .	Alt+P
Color Scheme	This button opens the Color Scheme page where you can customize a global color scheme that provides consistent colors for identical values across the dashboard. To learn more about coloring, see Coloring .	-

Dashboard Item Menu

The **dashboard item menu** allows you to configure a dashboard item. This menu provides interface to supply a dashboard item with data, specify interactivity settings, etc. To invoke this menu, click the required dashboard item.



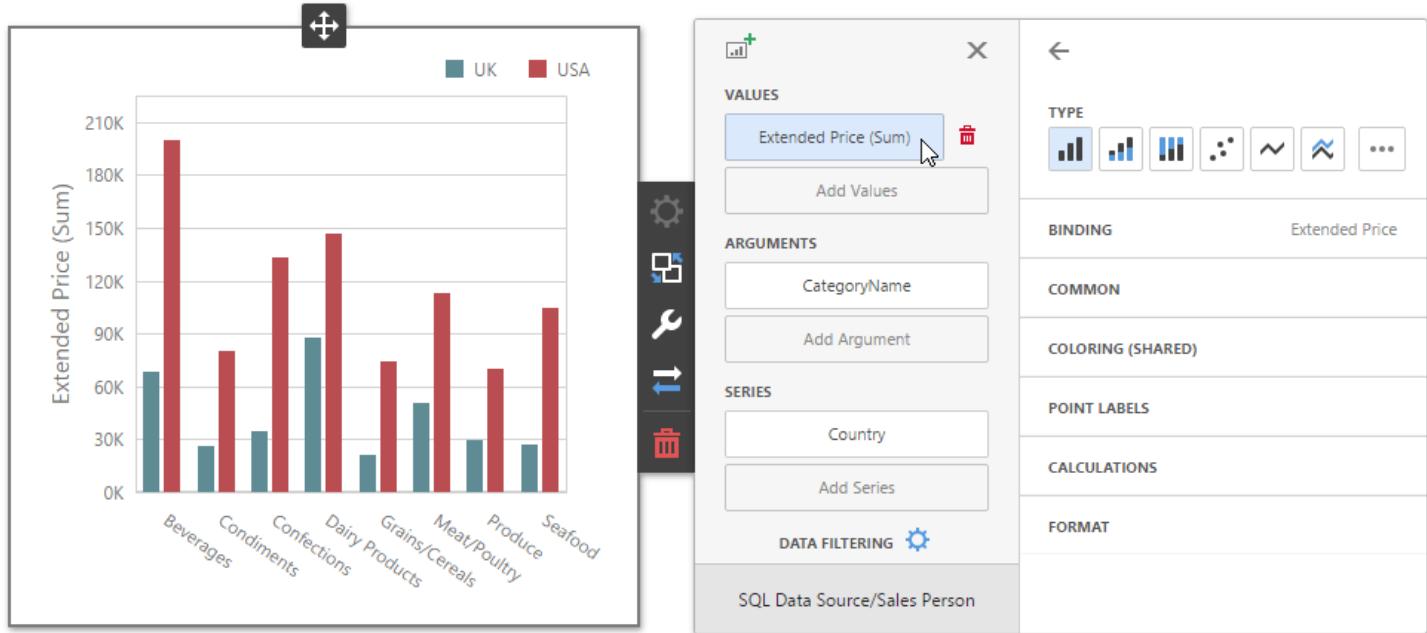
The dashboard item menu consists of the following buttons.

ICON	BUTTON NAME	DESCRIPTION
	Move	Allows you to customize a dashboard item layout using drag-and-drop operations. To learn more, see Dashboard Items Layout .
	Bindings	Invokes the <i>Binding</i> menu that allows you to create and modify data binding of the selected dashboard item .
	Interactivity	Invokes the <i>Interactivity</i> menu contains settings affected on interaction between various dashboard items.
	Options	Invokes the <i>Options</i> menu contains specific options and settings related to the current dashboard item . Settings can be combined into sections like <i>Common</i> , <i>Legend</i> , <i>Colors</i> , etc.
	Convert To	Invokes the <i>Convert To</i> dialog that allows you to convert or duplicate the current item.
	Delete	Deletes the current dashboard item from the dashboard surface .

Data Item Menu

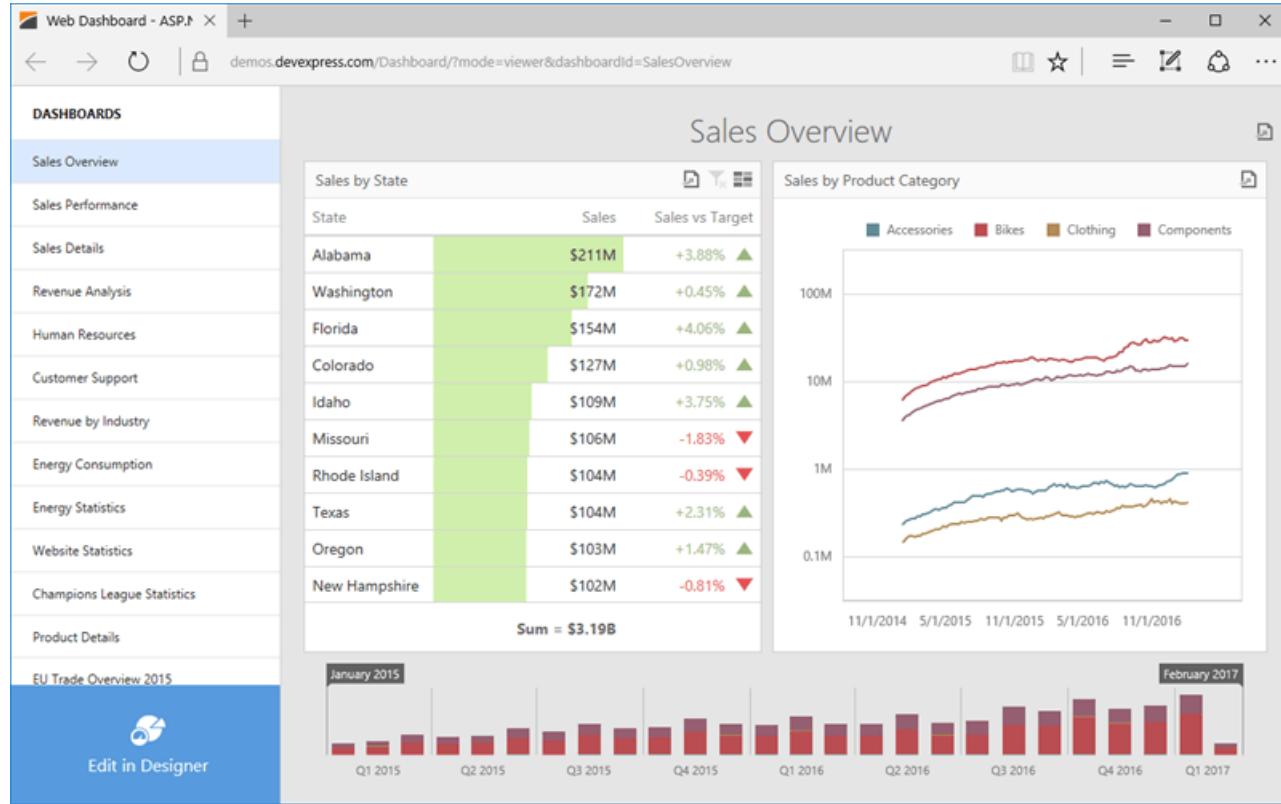
The data item menu allows you to add measures and dimensions and configure settings related to the selected data item. For example, you can [specify a data field](#), change a data item type, perform [data shaping operations](#) and [advanced data analysis](#), etc.

To invoke this menu, click a data item placeholder or the required data item in the dashboard item's [Bindings](#) menu.



Web Dashboard - Viewer Mode

The **Web Dashboard** provides the capability to display dashboards in web browsers on desktop and mobile devices.



Data Presentation

The topics in this section provide information on how the Web Dashboard presents data.

- [Data Presentation Basics](#)
- [Master Filtering](#)
- [Drill-Down](#)
- [Dashboard Layout](#)

Mobile Layout

The Web Dashboard uses a mobile layout to display dashboards on phones and tablets.

- [Mobile Layout](#)

Dashboard Parameters

The following topic describes how to change dashboard parameter values.

- [Requesting Parameter Values](#)

Exporting

The Web Dashboard provides the capability to export individual items of a dashboard, as well as the entire dashboard.

- [Exporting](#)

Dashboard Items

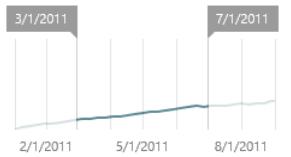
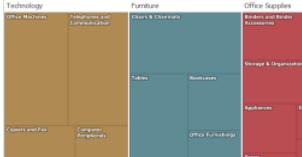
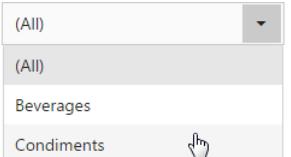
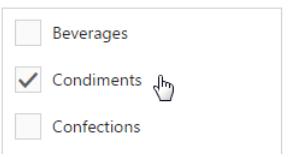
Dashboard items are used to present information in various ways.

- [Chart](#)
- [Scatter Chart](#)
- [Grid](#)
- [Pies](#)
- [Cards](#)
- [Gauges](#)
- [Pivot](#)
- [Choropleth Map](#)
- [Geo Point Maps](#)
- [Range Filter](#)
- [Image](#)
- [Text Box](#)
- [Treemap](#)
- [Filter Elements](#)
- [Tab Container](#)

Data Presentation Basics

The Web Dashboard can be used to present dashboards on the web. A wide range of dashboard items are used to display visual or textual information.

Dashboard Item	Image	Description
Chart	A line chart comparing two data series over time. The x-axis represents dates from December 2010 to December 2011. The y-axis represents values from 0 to 40M. The 'Bikes' series (red line) starts around 15M and rises steadily to about 35M. The 'Components' series (purple line) starts lower, around 10M, and also rises, reaching approximately 25M by the end of the period.	Displays data graphically using bars, lines, points, etc.
Scatter Chart	A scatter plot with two axes. The horizontal axis has three data points represented by green circles. The vertical axis has four data points represented by blue circles. The points are scattered across the plot area, suggesting a lack of strong linear correlation between the variables.	Visualizes relationships between numeric variables.
Grid	A grid table with three rows. The columns are labeled 'Year', 'Turnover', and 'Turnover %'. The data shows turnover values for three years: 2013 (2.05%), 2006 (1.72%), and 2008 (1.10%).	Presents data in tabular form.
Pies	A pie chart divided into three segments. The largest segment is labeled 'Salary' (blue), the second largest is 'Overtime' (orange), and the smallest is 'Bonus' (red). Labels with arrows point from each segment to their respective names.	Displays a series of pies or donuts that represent the contribution of each value to the total.
Cards	A card with a title 'Hitch Rack - 4-Bike Accessories'. It shows a green triangle icon, a value '\$365K', a percentage '+4.21%', and a large green arrow pointing down with the text '+14.8K'.	Displays a series of cards, each illustrating the difference between two values.
Gauges	A gauge chart with a scale from 0 to 3B. The needle is positioned at 1.8B. Labels include 'Components', '1.2B', '1.8B', '2.4B', and '3B'. Below the gauge, a green arrow points down with the text '+1,04%'.	Visualizes data within a series of gauges.
Pivot	A pivot table with a row for 'Accessories' and columns for 'Units Sold' and 'Revenue'. Data for California and Washington is shown. An additional column for 'Revenue' is partially visible.	Displays cross-tabular reports and allows you to analyze multi-dimensional data.
Choropleth Map	A map of the United States where states are colored according to their revenue. A callout box for California indicates a revenue of \$11.5M. The map uses a color gradient from light yellow for lower values to dark red for higher values.	Colorizes areas in proportion to the provided values.

Dashboard Item	Image	Description
Geo Point Map		Displays callouts on the map using geographical coordinates.
Bubble Map		Displays bubbles on the map using geographical coordinates.
Pie Map		Places pies on the map using geographical coordinates.
Range Filter		Allows you to apply filtering by dragging selection thumbs along the argument axis.
Images		Displays images.
Text Box		Displays rich text within a dashboard.
Treemap		Visualizes data in nested rectangles.
Combo Box		Allows you to select a value(s) from the drop-down list.
List Box		Allows you to select a value(s) from the list.

Dashboard Item	Image	Description
Tree View		Displays values in a hierarchical way and allows you to filter other dashboard items by selecting parent/child values.

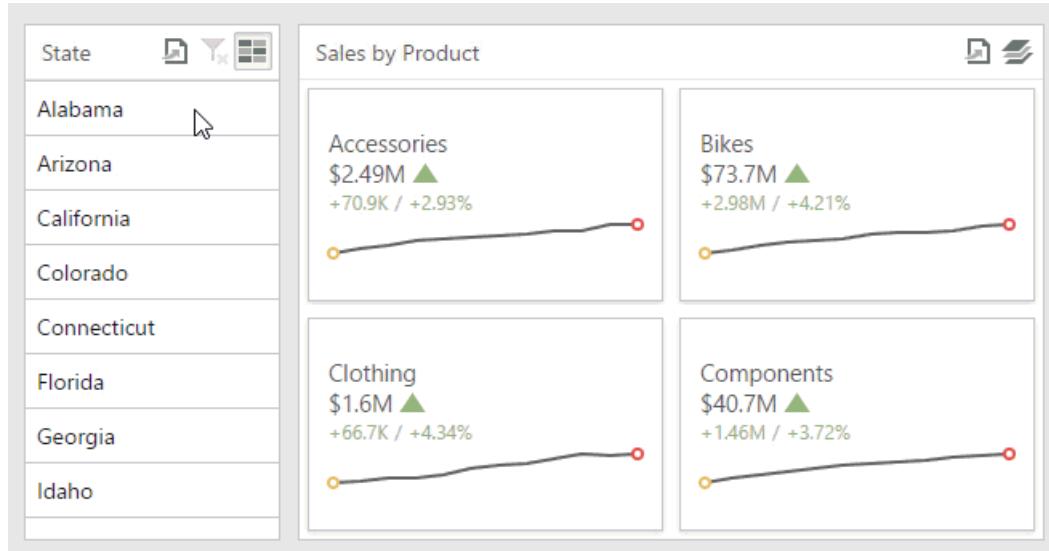
The Web Dashboard enables interaction between various dashboard items. These features include **Master Filtering** and **Drill-Down**.

- [Master Filtering](#)
- [Drill-Down](#)

To learn more about the dashboard layout, see the [Dashboard Layout](#) topic.

Master Filtering

The Web Dashboard allows you to use any data-aware dashboard item as a filter for the entire dashboard (**Master Filter**). You can select elements in a **Master Filter** item (chart bars, pie segments, grid records, etc.) to filter data in the rest of the dashboard by the selected values.



Master Filtering Modes

The Master Filter item supports two selection modes.

- **Multiple**

Allows you to select multiple elements in the Master Filter item. To enable multiple element selection, use the **Multi-Select** button (the icon) in the dashboard item [caption](#) area.

To clear the selection in the Master Filter item, use the **Clear Master Filter** button (the icon) in the dashboard item [caption](#) area.

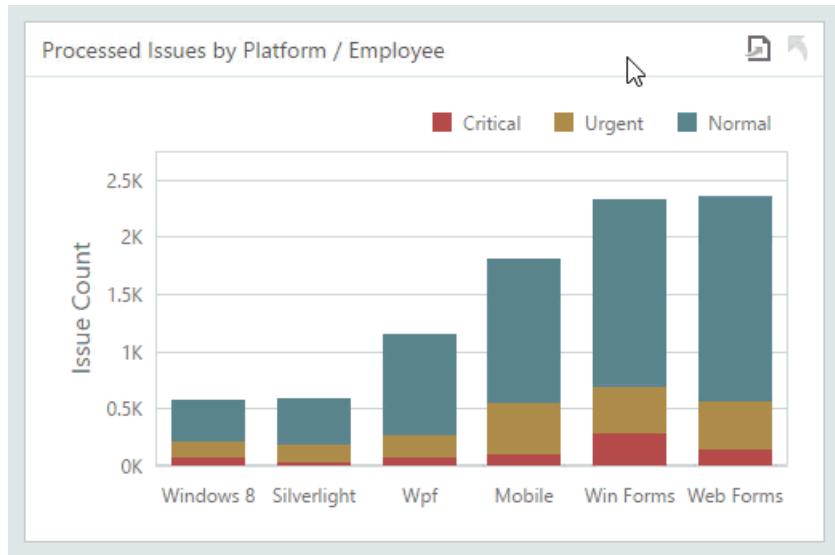
- **Single**

Allows you to select only one element in the Master Filter item. When this mode is enabled, the default selection will be set to a Master Filter element. You can change this selection, but you cannot clear it.

To learn how to filter dashboard data via a specific dashboard item, refer to the documentation for this item in the [Dashboard Items](#) section.

Drill-Down

The Web Dashboard provides the **drill-down** feature, which allows you to change the detail level of data displayed in a dashboard item. This feature allows you to drill down to display the details, or drill up to view more general information.



Note

You cannot drill down to view the details if **Multi-Select** is enabled in [Multiple Master Filter](#) mode.

To return to the previous detail level (drill up), use the **Drill Up** button (the ↺ icon) in the dashboard item's [caption](#) area.

To learn how to drill down using a particular dashboard item, refer to the documentation for this item in the [Dashboard Items](#) topic.

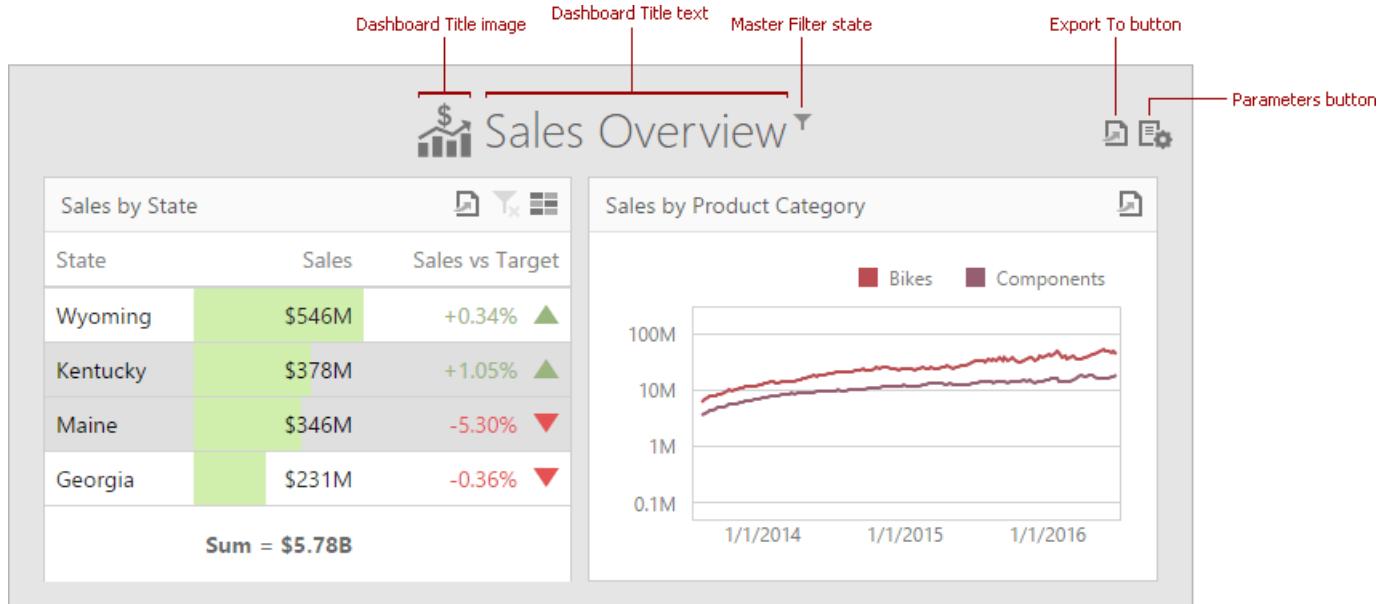
Dashboard Layout

This topic describes the features related to the dashboard layout.

- [Dashboard Title](#)
- [Dashboard Item Caption](#)
- [Resizing Dashboard Items](#)

Dashboard Title

The **Dashboard Title** is located at the top of the dashboard. The dashboard title can contain text or image content, elements selected in the master filter item, and command buttons.



When you hover over the filter icon (▼), all master filters applied to the dashboard are displayed in the invoked popup.



The dashboard title can contain the following command buttons.

- **Export To** button - allows you to export the dashboard. To learn more about exporting, see the [Exporting](#) topic.
- **Parameters** button - allows you to modify dashboard parameter values. To learn how to modify dashboard parameter values, see the [Requesting Parameter Values](#) topic.

Dashboard Item Caption

Each [dashboard item](#) can include a caption that is displayed at the top of this item. The caption contains static text along with other information, as well as command buttons.



Note

If the dashboard item caption is not visible, command buttons are displayed at the top right corner of the item.

The caption of the dashboard item contains the following information and buttons, depending on the dashboard item type.

- **Names**

- **Dashboard Item Name** - represents the static text within a dashboard item's caption.
- **Data Item Container Name** - represents the name of the data item container.

- **Interactivity Information**

- **Drill-Down** value - shows a value or values from the current drill-down hierarchy. To learn more, see the [Drill-Down](#) topic.

- **Command Buttons**

- **Export to** button - allows you to export a dashboard item. To learn how to print individual dashboard items, see the [Exporting](#) topic.
- **Values** button - invokes a drop-down menu that allows you to switch between provided values (in the pie, card, gauge and maps dashboard items). To learn more, see the **Data Presentation Basics** topic for the corresponding dashboard item.
- **Clear Master Filter** button - allows you to reset filtering when a dashboard item acts as the **Master Filter**. To learn more, see the [Master Filtering](#) topic.
- **Drill Up** button - allows you to return to the previous detail level when the drill-down capability is enabled for this item. To learn more, see the [Drill-Down](#) topic.
- **Multi-Select** button - allows multiple element selection in the Master Filter item, when [Multiple Master Filter](#) mode is enabled.

Resizing Dashboard Items

You can resize individual items (or a group of items) by dragging their edges.

Item 1

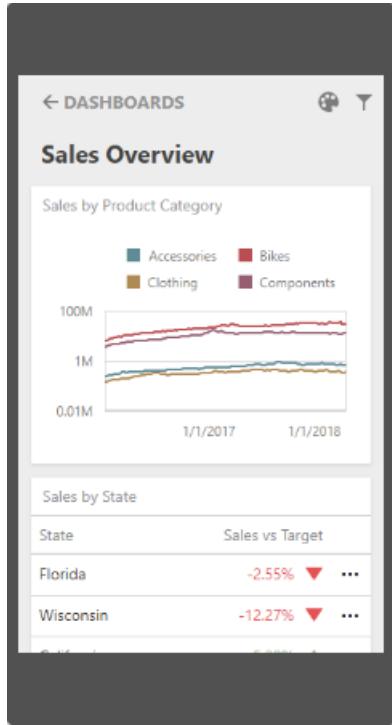
Item 2



Item 3

Mobile Layout

This topic describes the Web Dashboard's mobile layout that enables you to display dashboards on mobile phones.



- [Mobile Layout's Views](#)
- [Dashboard Items Behavior](#)

□ Note

You can [export](#) only dashboard items when the Web Dashboard displays dashboards on mobile phones.

Mobile Layout's Views

Web Dashboard in the mobile layout consists of the following views:

List View

The **List view** displays all dashboard items used in the current dashboard. The item's interactivity is disabled. Filter elements are not displayed in the List view (see [Dashboard Items Behavior](#)).

The screenshot shows a dashboard titled "Sales Performance". On the left, there's a sidebar with a back arrow and a filter icon. The main area displays a list of products under the heading "Product". The products listed are "All-Purpose Bike Stand", "Bike Wash", "Cable Lock", "Chain", and "Classic Vest". To the right of each product name is a red circular icon with three dots and a "..." button. Below the product list is a summary section with two boxes: one showing "+\$6.24M" revenue YTD and another showing "+\$15.3K" expenses YTD.

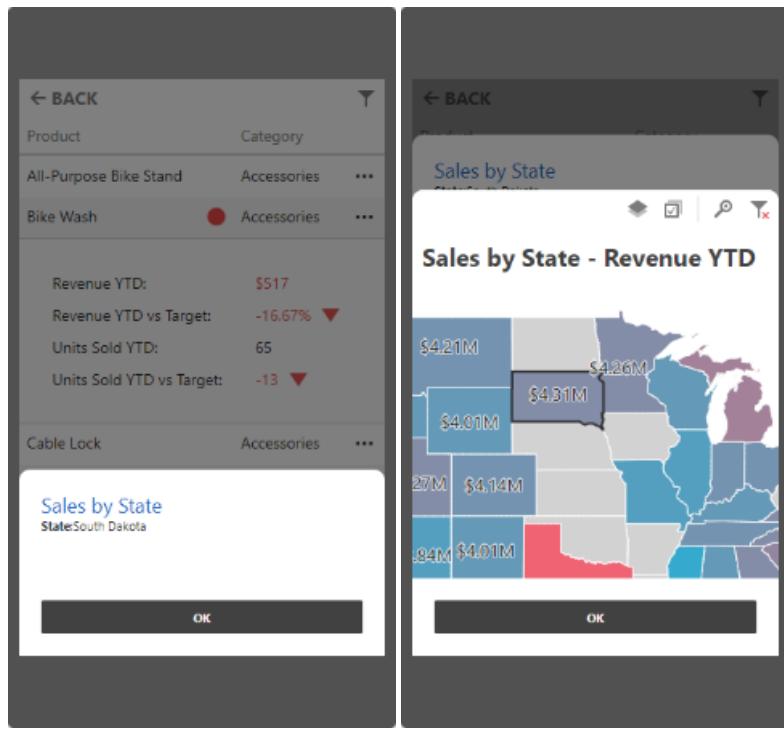
Item View

The **Item view** displays the selected item. Interactivity is supported. Filter elements are not displayed in the Item view (see [Dashboard Items Behavior](#)).

The screenshot shows the "Item View" for the "Bike Wash" product. At the top, there's a back arrow and a filter icon. The main content area shows the product details: "Bike Wash" is in the "Accessories" category. Below this, there are performance metrics: "Revenue YTD: \$20.8K" (red), "Revenue YTD vs Target: +12.68%" (green triangle up), "Units Sold YTD: 3.63K", and "Units Sold YTD vs Target: +408" (green triangle up). Further down, a list of other products is shown: "Cable Lock" (Accessories), "Chain" (Components), "Classic Vest" (Clothing), "Cycling Cap" (Clothing), and "Fender Set - Mountain" (Accessories).

Filter Panel

The **Filter panel** displays filters that are applied to the entire dashboard / dashboard items. Click the **Filter** button (the icon) in the List view / Item view to see the filters applied to the entire dashboard / dashboard item, respectively. Click the required filter in the Filter panel to open the corresponding filter element and filter data.



Dashboard Items Behavior

The items listed below are displayed with the following specifics when used in the mobile layout:

Grid

- The Grid always adjusts columns automatically to the minimum width required to completely display its content.
- Grid hides columns to adapt the content to the screen or container size. Click the ellipsis button in the Grid's row to display hidden data inside the adaptive detail row.
- The default column fit of the sparkline and bars is two times tighter than in a desktop version.
- Column resizing is disabled.

Cards

- Cards in the mobile layout are always arranged automatically.

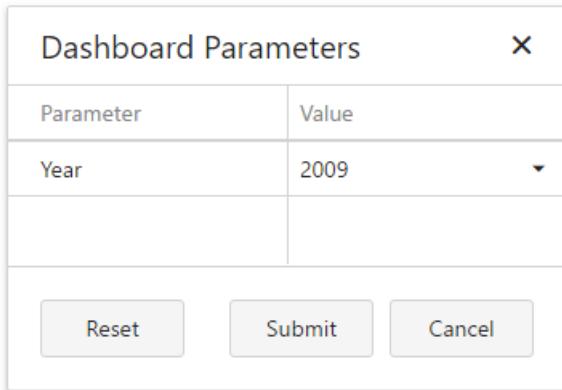
Filter Elements

- Filter elements are displayed only in the Filter panel and are hidden in the List and Item views.

Requesting Parameter Values

The **Web Dashboard** provides a built-in **Dashboard Parameters** dialog, which allows you to change dashboard parameter values.

To invoke the **Dashboard Parameters** dialog, click the **Parameters** button (the  icon) in the [dashboard title](#).



The screenshot shows a modal dialog titled "Dashboard Parameters" with a close button "X" in the top right corner. The dialog has a table with two columns: "Parameter" and "Value". A single row is visible for the "Year" parameter, which is set to "2009" with a dropdown arrow indicating it can be changed. At the bottom of the dialog are three buttons: "Reset", "Submit", and "Cancel".

Parameter	Value
Year	2009 ▾

Reset Submit Cancel

Select the required parameter values and click the **Submit** button to apply the changes. To reset changes to the default values, click the **Reset** button.

Exporting

The Web Dashboard provides the capability to export an entire dashboard and individual items.

- [Exporting Dashboards](#)
- [Exporting Dashboard Items](#)

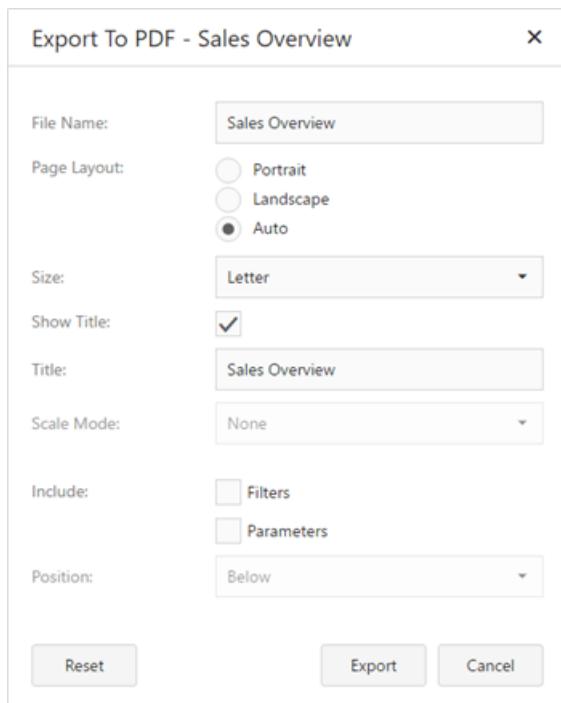
Exporting Dashboards

To export the entire dashboard, click the  button in the [dashboard title](#) area and select the required format.



Export to PDF

Invokes a corresponding dialog that allows you to export a dashboard to a PDF file with specific options. The following options are available:



The dialog box contains the following fields:

- File Name:** Sales Overview
- Page Layout:** Auto (selected)
- Size:** Letter
- Show Title:** checked
- Title:** Sales Overview
- Scale Mode:** None
- Include:** Filters (checked), Parameters (unchecked)
- Position:** Below

Buttons at the bottom: Reset, Export (highlighted), Cancel.

- **File Name** - Specifies the name of the exported PDF file.
- **Page Layout** - Specifies the page orientation used to export a dashboard. You can select between *Portrait*, *Landscape* and *Auto*. Note that in the *Auto* mode, page orientation is selected automatically depending on the horizontal and vertical sizes of a dashboard.
- **Size** - Specifies the standard paper size (for instance, *Letter* or *A4*).
- **Show Title** - Specifies whether or not to apply the dashboard title to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Scale Mode** - Specifies the mode for scaling when exporting a dashboard.

Note

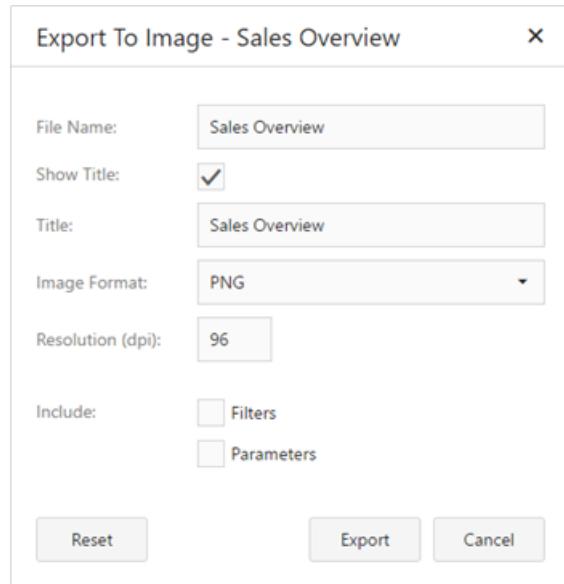
Note that this option is in effect when **Page Layout** is set to a value different from *Auto*.

- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Page*.

Export to Image

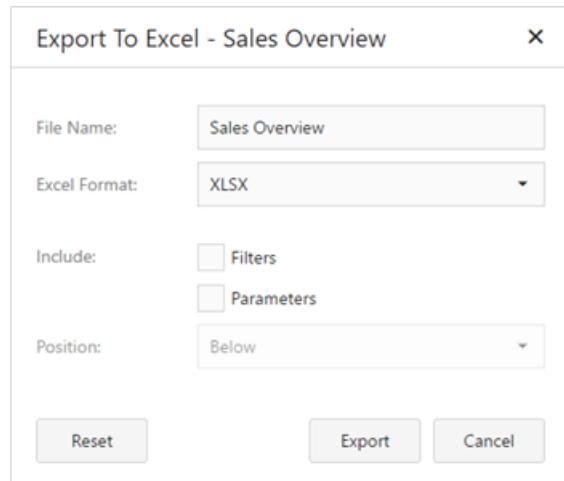
Invokes a corresponding dialog that allows you to export a dashboard to an image in the specified format. The following options are available.



- **File Name** - Specifies the name of the exported PDF file.
- **Show Title** - Specifies whether or not to apply the dashboard title to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard is exported. The following formats are available: *PNG*, *JPEG* and *GIF*.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Export to Excel

Invokes a corresponding dialog that allows end-users to export dashboard's data to the Excel file. The following options are available:



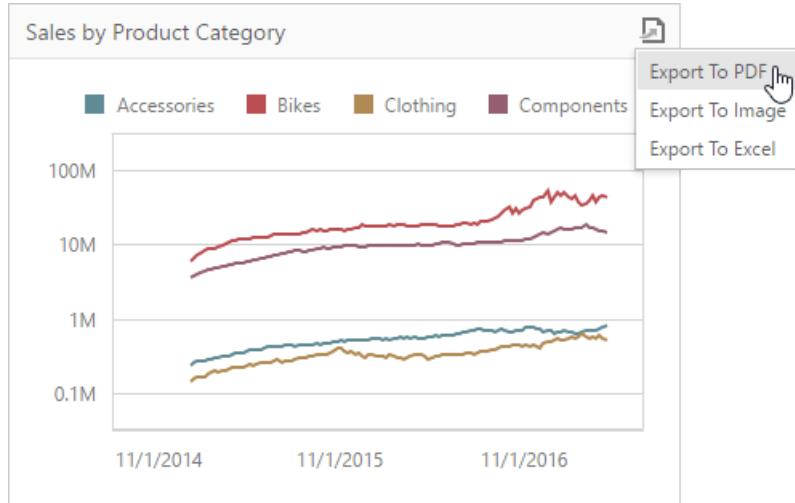
- **File Name** - Specifies the name of the exported Image file.
- **Excel Format** - Specifies the Excel workbook format in which the dashboard's data is exported. You can select between *XLSX* and *XLS*.
- **Include | Filters** - Allows you to include master filter values to the exported document.

- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Sheet*.

Specify the required options in the invoked dialog and click the **Export** button to export the dashboard. To reset changes to the default values, click the **Reset** button.

Exporting Dashboard Items

To export a dashboard item, click the  button in its [caption](#) and choose the required action.



- **Export to PDF** - Invokes a corresponding dialog that allows you to export a dashboard to a PDF file with specific options.
- **Export to Image** - Invokes a corresponding dialog that allows you to export a dashboard to image in the specified format.
- **Export to Excel** - Invokes a corresponding dialog that allows you to export a dashboard item's data to the Excel workbook or CSV file.

To learn more about exporting specifics of different dashboard items, see the **Exporting** topic for the required [dashboard item](#).

Dashboard Items

DevExpress Dashboard provides a number of visualization elements (**dashboard items**) designed to effectively present visual or textual information in a dashboard.

This section describes the available dashboard items.

- [Chart](#)
- [Scatter Chart](#)
- [Grid](#)
- [Pies](#)
- [Cards](#)
- [Gauges](#)
- [Pivot](#)
- [Choropleth Map](#)
- [Geo Point Maps](#)
- [Range Filter](#)
- [Date Filter](#)
- [Image](#)
- [Text Box](#)
- [Treemap](#)
- [Filter Elements](#)
- [Tab Container](#)

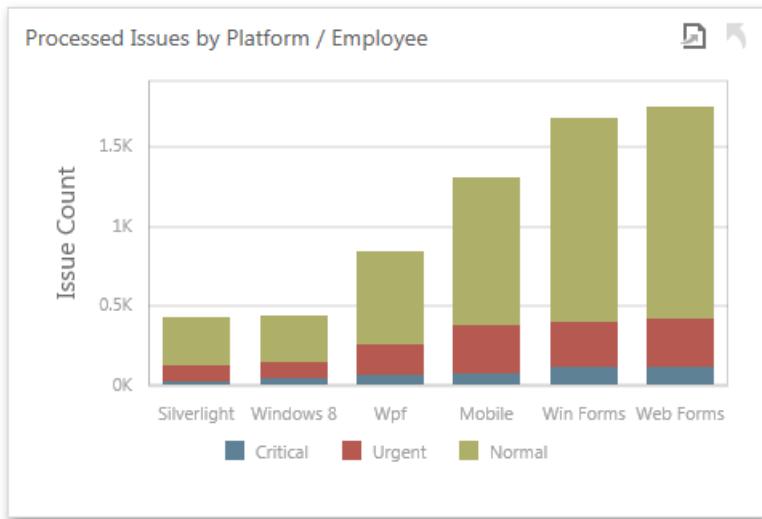
Chart

The topics in this section describe the **Chart** dashboard item, which visualizes data in XY-diagrams of different kinds - from line and bar charts to candle stick and bubble charts.

- [Data Presentation Basics](#)
- [Interactivity](#)
- [Exporting](#)

Data Presentation Basics

The **Chart** dashboard item presents data visually using different types of series.



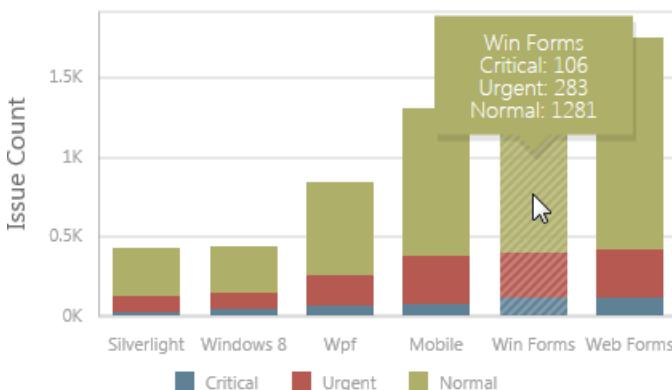
A series represents a grouping of related data points. The most important characteristic of a series is its type, which determines a particular visual representation of data.

The Chart dashboard item includes the following series types.

- A **Bar** series displays data as sets of rectangular bars with lengths proportional to the values that they represent.
- **Point** and **Line** series display data as standalone points or points joined by a line.
- An **Area** series displays data by a line that joins points, and the shaded area between the line and the argument axis.
- A **Range** series is the area between two simple series displayed as a shaded area, or bars that stretch from a point in one series to the corresponding point in another series.
- A **Weighted** series displays data using a third dimension, expressed by a bubble's size.
- **Financial** series are useful in analyzing stock and bond prices, as well as the behavior of commodities.

Tooltip

The Chart dashboard item can display a tooltip that shows information on a hovered series point.



Interactivity

This topic describes features that enable interaction between the **Chart** and other dashboard items. These features include **Master Filtering** and **Drill-Down**.

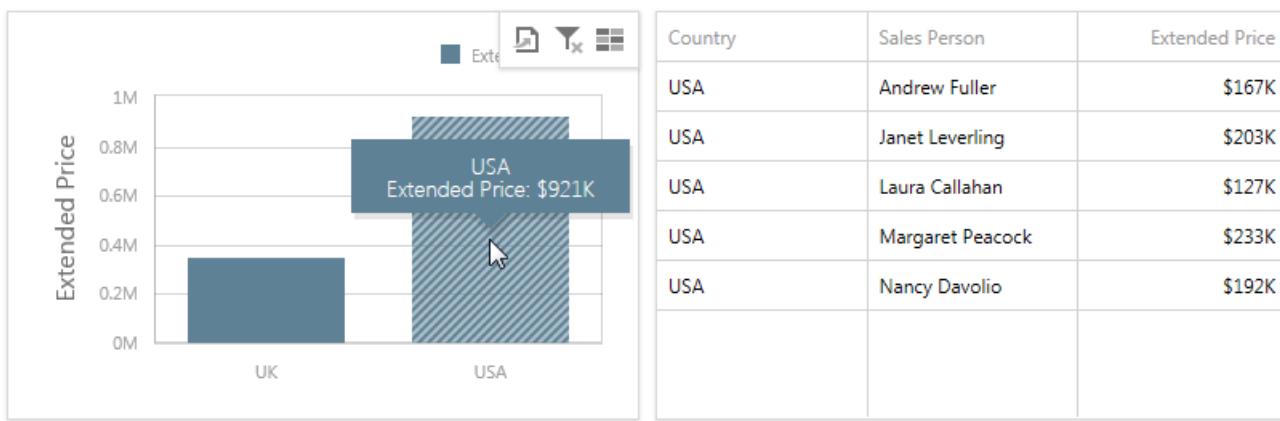
Master Filtering

The Web Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items (**Master Filter**). To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

The Chart dashboard item supports filtering by **argument** or **series** values.

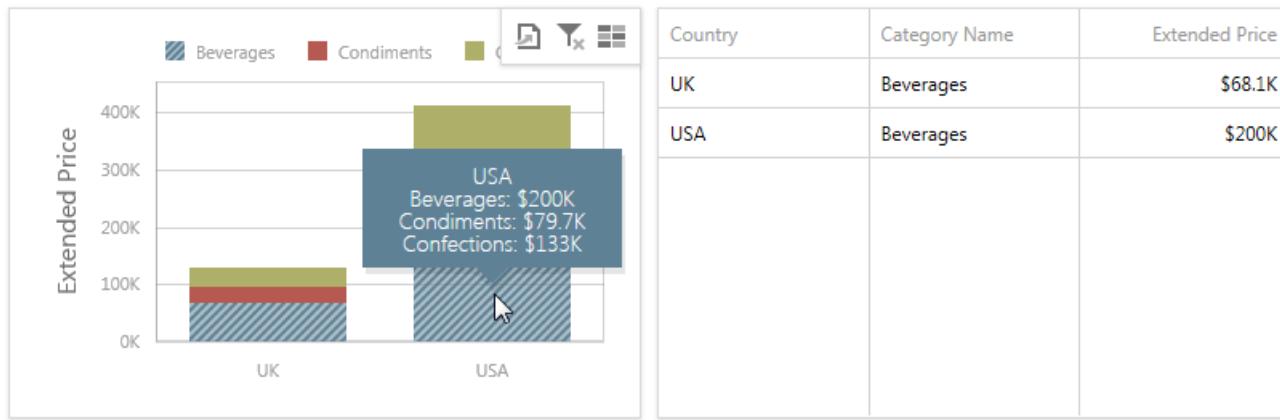
- **Filtering by Arguments**

When filtering by arguments is enabled, you can click series points to make other dashboard items display only data related to selected argument values.



- **Filtering by Series**

When filtering by series is enabled, you can click a series point to make other dashboard items display only data related to the selected series.



To clear the selection in the Master Filter item, use the **Clear Master Filter** button (the icon) in the chart's [caption](#) area.

Drill-Down

The built-in drill-down capability allows you to change the detail level of data displayed in dashboard items on the fly. To learn more, see [Drill-Down](#).

The Chart dashboard item supports drill-down on argument or series values.

- **Drill Down on Arguments**

When drill-down on arguments is enabled, you can click a series point to view a detail chart for the corresponding argument value.

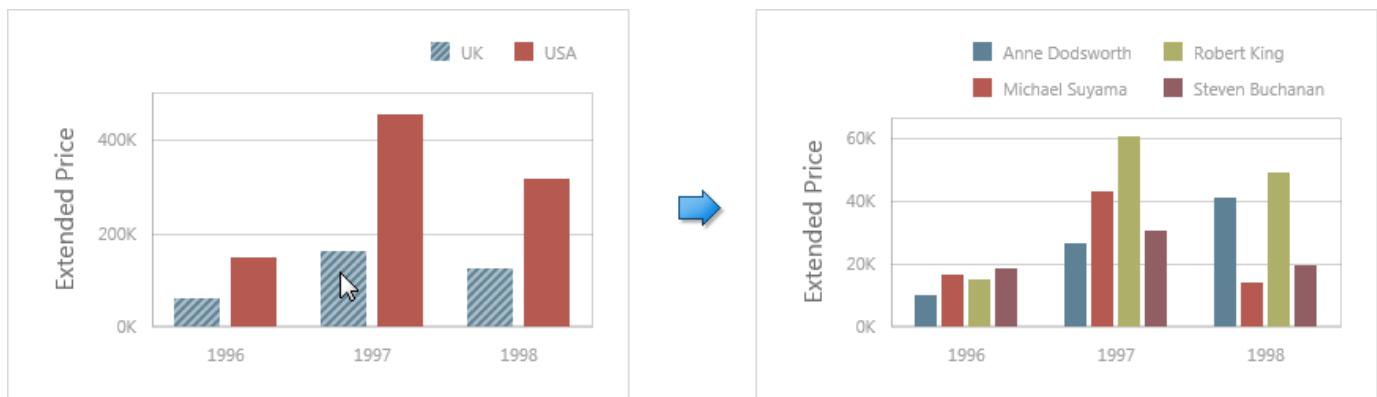


Note

When **Filtering by Arguments** is enabled, you can view the details by clicking a selected series point.

- **Drill-Down on a Series**

When drill-down on a series is enabled, you can click a series point (or corresponding legend item) to view a detail chart for the corresponding series.



Note

When **Filtering by Series** is enabled, you can view the details by clicking a selected series point.

To return to the previous detail level (drill up), use the **Drill Up** button (the ↺ icon) in the chart's [caption](#).

Exporting

The Web Dashboard allows you to export individual dashboard items, or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting a **Chart** dashboard item.

- [Export To PDF](#)
- [Export To Image](#)
- [Export To Excel](#)

Export To PDF

The dialog box has a title bar 'Export To PDF - Sales by Category' and a close button 'X'. It contains the following fields:

- File Name:** A text input field containing 'Sales by Category'.
- Page Layout:** A group of three radio buttons:
 - Portrait
 - Landscape
 - Auto
- Size:** A dropdown menu showing 'Letter'.
- Show Title:** A checked checkbox.
- Title:** A text input field containing 'Sales by Category'.
- Size Mode:** A group of three radio buttons:
 - None
 - Stretch
 - Zoom
- Include:** Two checkboxes:
 - Filters
 - Parameters
- Position:** A dropdown menu showing 'Below'.

At the bottom are three buttons: 'Reset', 'Export' (highlighted in blue), and 'Cancel'.

- **File Name** - Specifies the name of the exported PDF file.
- **Page Layout** - Specifies the page orientation used to export a dashboard item.
- **Size** - Specifies the standard paper size.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Size Mode** - Specifies the export size mode for the Chart dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Page*.

Specify the required options in this dialog and click the **Export** button to export the Chart dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Image

All data-bound dashboard items provide the same set of options when exporting them to an Image format. The following options are available:

Export To Image - Sales by Category X

File Name:	Sales by Category
Show Title:	<input checked="" type="checkbox"/>
Title:	Sales by Category
Image Format:	PNG
Resolution (dpi):	96
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Excel

Data visualized within all data-bound dashboard items can be exported to the required Excel format. The following options are available:

Export To Excel - Sales by Category X

File Name:	Sales by Category
Excel Format:	XLSX
Separator:	,
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Position:	Below
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Excel file.
- **Excel Format** - Specifies the Excel format in which the dashboard item is exported. You can use the XLSX, XLS or CSV formats.
- **Separator** - Specifies the string used to separate values in the exported CSV document.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select

between *Below* and *Separate Sheet*.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

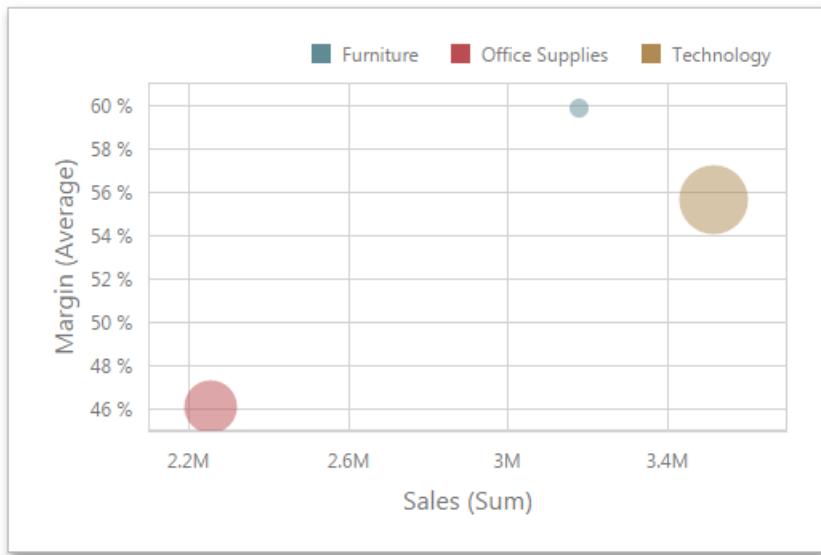
Scatter Chart

The topics in this section describe the **Scatter Chart** dashboard item, which visualizes summaries using numerical X/Y-axes and the size of data points.

- [Data Presentation Basics](#)
- [Interactivity](#)
- [Exporting](#)

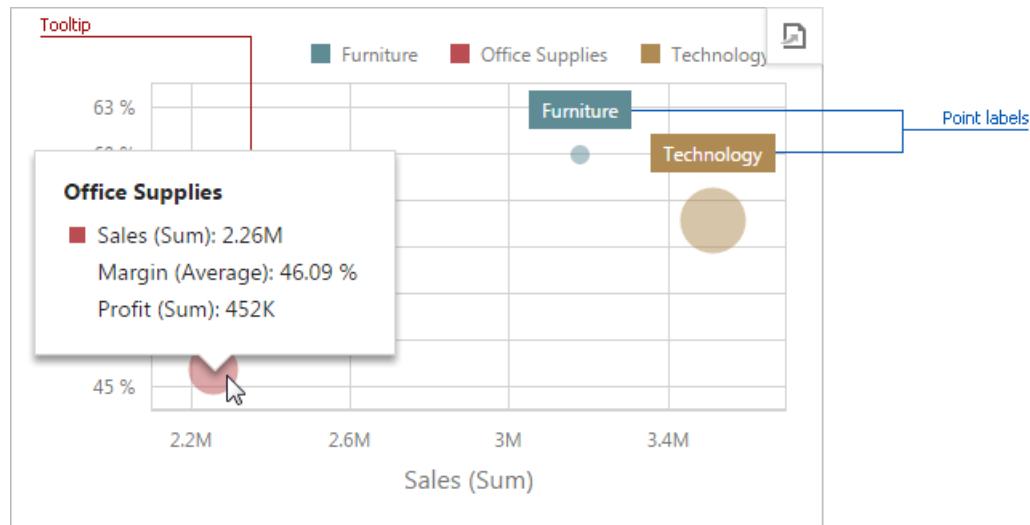
Data Presentation Basics

The **Scatter Chart** dashboard item visualizes summaries using three dimensions: the X-axis, the Y-axis and the size of data points.



Point Labels and Tooltips

The Scatter Chart dashboard item can display point labels and tooltips that show information on data points. To see a tooltip, hover over the required point.



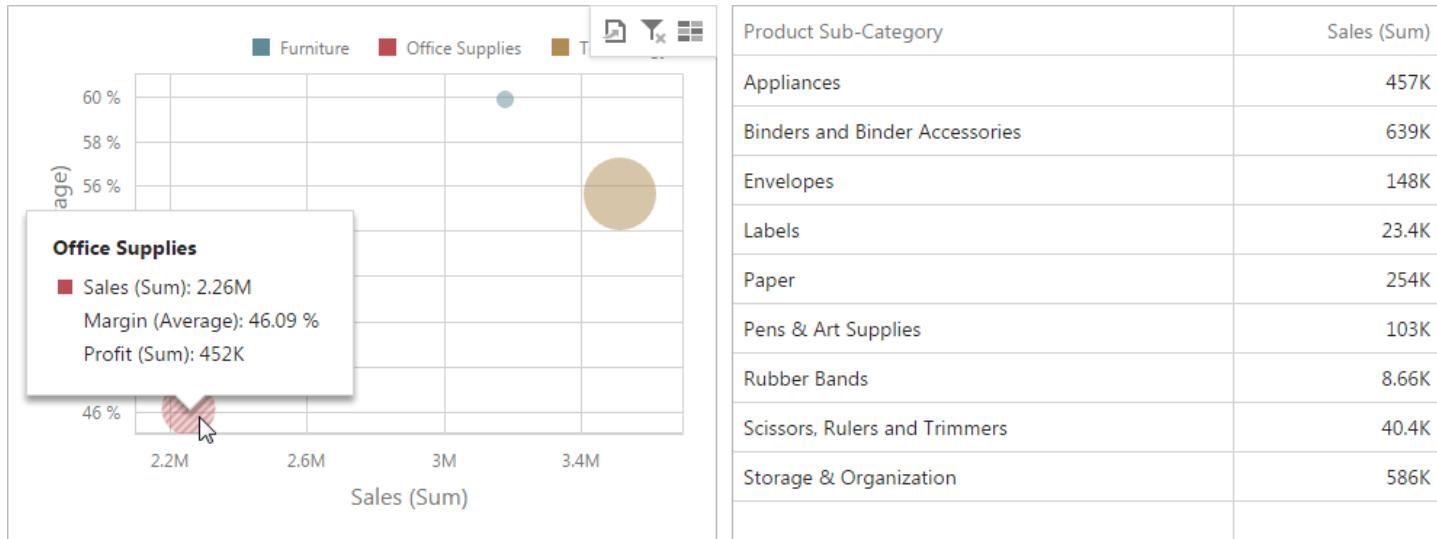
Interactivity

This topic describes features that enable interaction between the **Scatter Chart** and other dashboard items. These features include **Master Filtering** and **Drill-Down**.

Master Filtering

The Web Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items (**Master Filter**). To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

When Master Filtering is enabled, you can click a point (or multiple points) to make other dashboard items only display data related to the selected point(s).

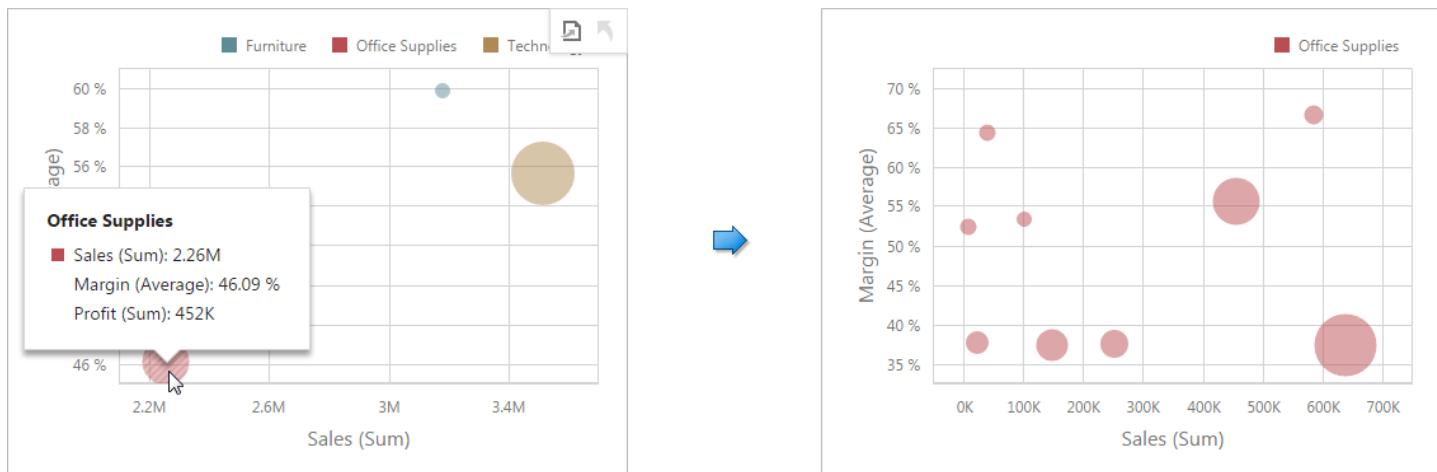


To reset filtering, use the **Clear Master Filter** button (the icon) in the Chart's [caption](#) area, or the **Clear Master Filter** command in the Chart's context menu.

Drill-Down

The built-in drill-down capability allows you to change the detail level of data displayed in dashboard items on the fly. To learn more, see [Drill-Down](#).

When drill-down is enabled, you can click a point to view the details.



Note

When **Master Filtering** is enabled, you can view the details by clicking a selected point.

To return to the previous detail level (drill up), use the **Drill Up** button (the ↺ icon) within the Chart's [caption](#) area, or the **Drill Up** command in the Chart's context menu.

Exporting

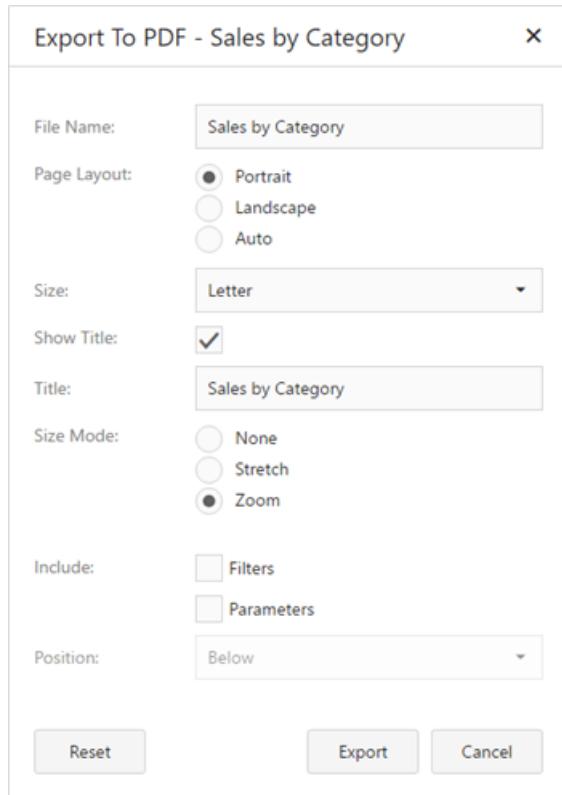
The Web Dashboard allows you to export individual dashboard items or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting a **Scatter Chart** dashboard item.

- [Export To PDF](#)
- [Export To Image](#)
- [Export To Excel](#)

Export To PDF

The following options are available when exporting the Scatter Chart dashboard item to a PDF.



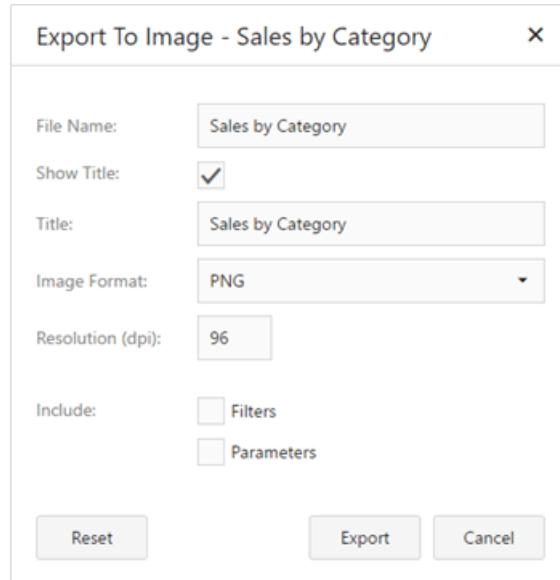
- **File Name** - Specifies the name of the exported PDF file.
- **Page Layout** - Specifies the page orientation used to export a dashboard item.
- **Size** - Specifies the standard paper size.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Size Mode** - Specifies the export size mode for the Scatter Chart dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Page*.

Specify the required options in this dialog and click the **Export** button to export the Scatter Chart dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Image

All data-bound dashboard items provide the same set of options when exporting them to an Image format. The following options

are available:

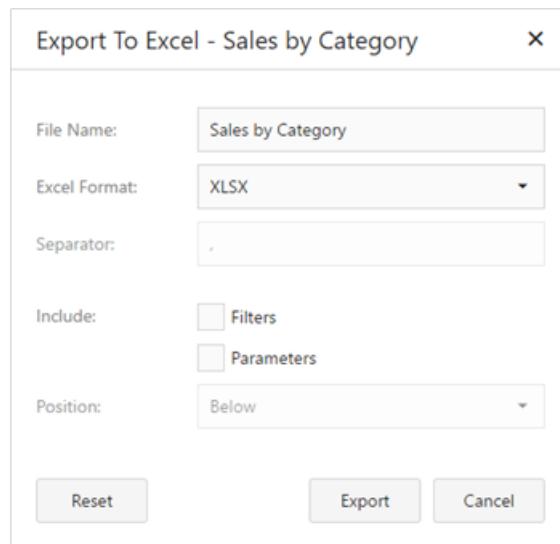


- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Excel

Data visualized within all data-bound dashboard items can be exported to the required Excel format. The following options are available:



- **File Name** - Specifies the name of the exported Excel file.
- **Excel Format** - Specifies the Excel format in which the dashboard item is exported. You can use the XLSX, XLS or CSV formats.
- **Separator** - Specifies the string used to separate values in the exported CSV document.
- **Include | Filters** - Allows you to include master filter values to the exported document.

- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Sheet*.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Grid

The topics in this section describe the **Grid** dashboard item, which displays data in a two-dimensional table.

- [Data Presentation Basics](#)
- [Interactivity](#)
- [Exporting](#)

Data Presentation Basics

The **Grid** displays data in a two-dimensional table that supports four types of columns.

Dimension Column	Measure Column	Delta Column	Sparkline Column
State	Sales	Sales vs Target	Trend
Montana	\$109M	-1.16 % ▼	
Nevada	\$82.8M	+1.30 % ▲	
New Hampshire	\$117M	-0.13 %	

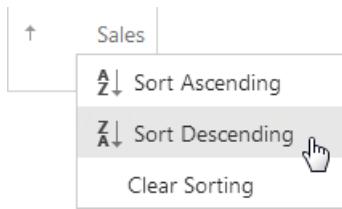
- The **dimension column** displays values from the bound data item "as is".
- The **measure column** displays summaries calculated from data in the bound data item.
- The **delta column**, bound to two measures, calculates summaries for both measures, and displays the difference between these summaries.
- The **sparkline column** visualizes the variation of summary values over time.

Sort Grid Rows

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

Sales by State				
Trend	State	Sales	↓ ↑	Sales vs Target
	Missouri		↓	\$634M -4.40 % ▼
	Arizona		↑	\$543M +2.85 % ▲
	Maine		↑	\$267M -4.33 % ▼

You can also apply the required sort condition by right-clicking a column header and selecting **Sort Ascending** or **Sort Descending** from the invoked context menu.



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

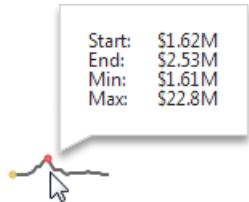
Tooltips

A Grid dashboard item can display a tooltip when the mouse pointer is hovered over the bar in the measure column.

Sales	Sales
 \$1.42B	\$1.42B

The tooltip shows the value in the measure column as text.

When the mouse pointer is hovered over the cell in the sparkline column, the tooltip can display start/end values and minimum/maximum values.



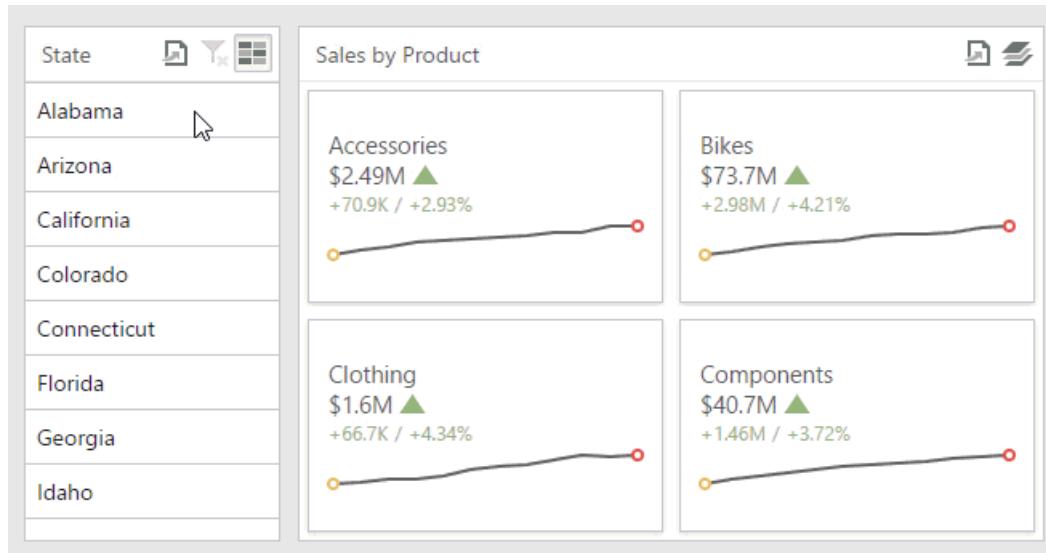
Interactivity

This topic describes features that enable interaction between the **Grid** and other dashboard items. These features include **Master Filtering** and **Drill-Down**.

Master Filtering

The Web Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items (**Master Filter**). To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

When Master Filtering is enabled, you can click a grid row (or multiple rows) to make other dashboard items only display data related to the selected record(s).



To clear the selection in the Master Filter item, use the **Clear Master Filter** button (the icon) in the grid's [caption](#) area.

Drill-Down

The built-in drill-down capability allows you to change the detail level of data displayed in dashboard items on the fly. To learn more, see [Drill-Down](#).

The Grid dashboard item supports drill-down for rows.

When drill-down is enabled, you can click a grid row to view the details.

Category Name	Extended Price
Beverages	\$268K
Condiments	\$106K
Confections	\$167K
Dairy Products	\$235K
Grains/Cereals	\$95.7K
Meat/Poultry	\$163K
Produce	\$100K
Seafood	\$131K

Product Name	Extended Price
Alice Mutton	\$32.7K
Mishi Kobe Niku	\$7.23K
Pâté chinois	\$17.4K
Perth Pasties	\$20.6K
Thüringer Rostbratwurst	\$80.4K
Tourtière	\$4.73K

Note

When **Master Filtering** is enabled, you can view the details by clicking the selected row.

To return to the previous detail level (drill up), use the **Drill Up** button (the  icon) in the grid's [caption](#) area.

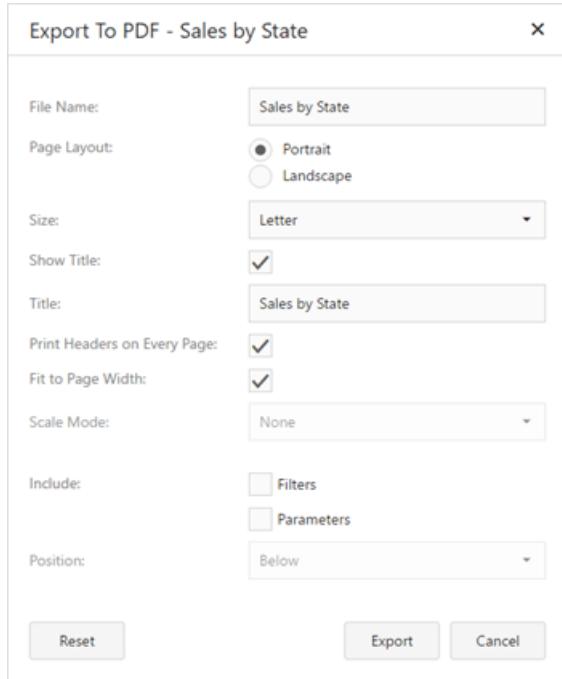
Exporting

The Web Dashboard allows you to export individual dashboard items, or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting a **Grid** dashboard item.

- [Export To PDF](#)
- [Export To Image](#)
- [Export To Excel](#)

Export To PDF



Export To Image - Sales by Category X

File Name:	Sales by Category
Show Title:	<input checked="" type="checkbox"/>
Title:	Sales by Category
Image Format:	PNG
Resolution (dpi):	96
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Excel

Data visualized within all data-bound dashboard items can be exported to the required Excel format. The following options are available:

Export To Excel - Sales by Category X

File Name:	Sales by Category
Excel Format:	XLSX
Separator:	,
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Position:	Below
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Excel file.
- **Excel Format** - Specifies the Excel format in which the dashboard item is exported. You can use the XLSX, XLS or CSV formats.
- **Separator** - Specifies the string used to separate values in the exported CSV document.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select

between *Below* and *Separate Sheet*.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

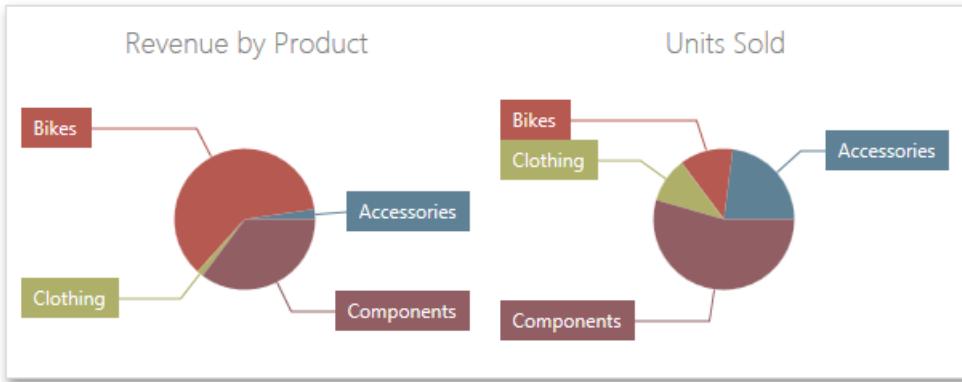
Pies

The topics in this section describe the **Pie** dashboard item, which displays a series of pies or donuts that represent the contribution of each value to a total.

- [Data Presentation Basics](#)
- [Interactivity](#)
- [Exporting](#)

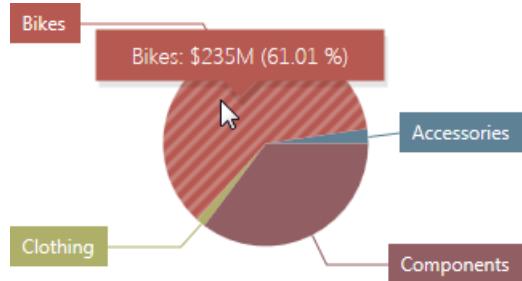
Data Presentation Basics

The **Pie** dashboard item displays a series of pies or donuts that represent the contribution of each value to a total.



Tooltip

A Pie dashboard item can display a tooltip that shows information about the hovered pie segment.



Interactivity

This topic describes features that enable interaction between the **Pie** and other dashboard items. These features include **Master Filtering** and **Drill-Down**.

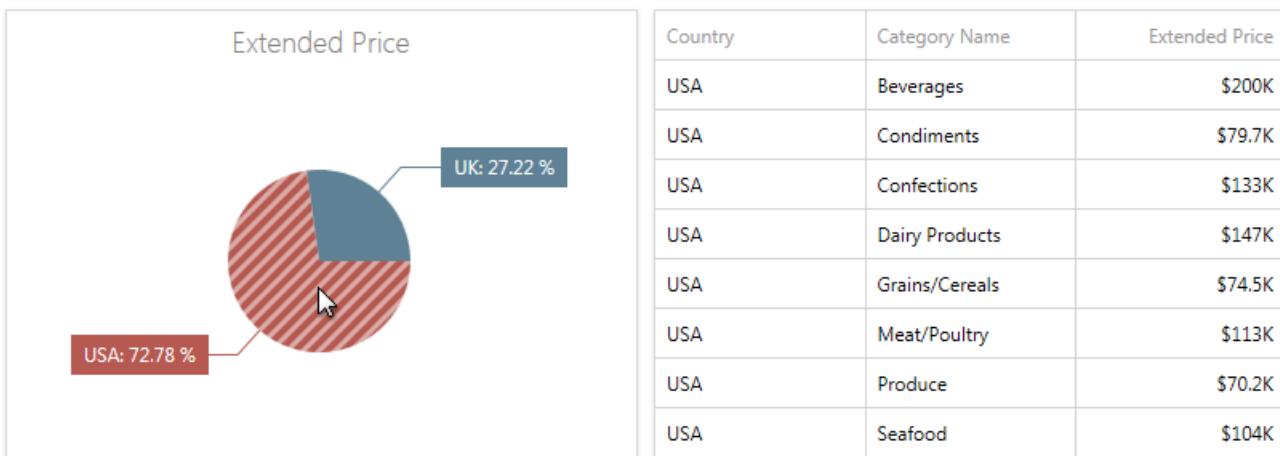
Master Filtering

The Web Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items (**Master Filter**). To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

The Pie dashboard item supports filtering by **argument** or **series** values.

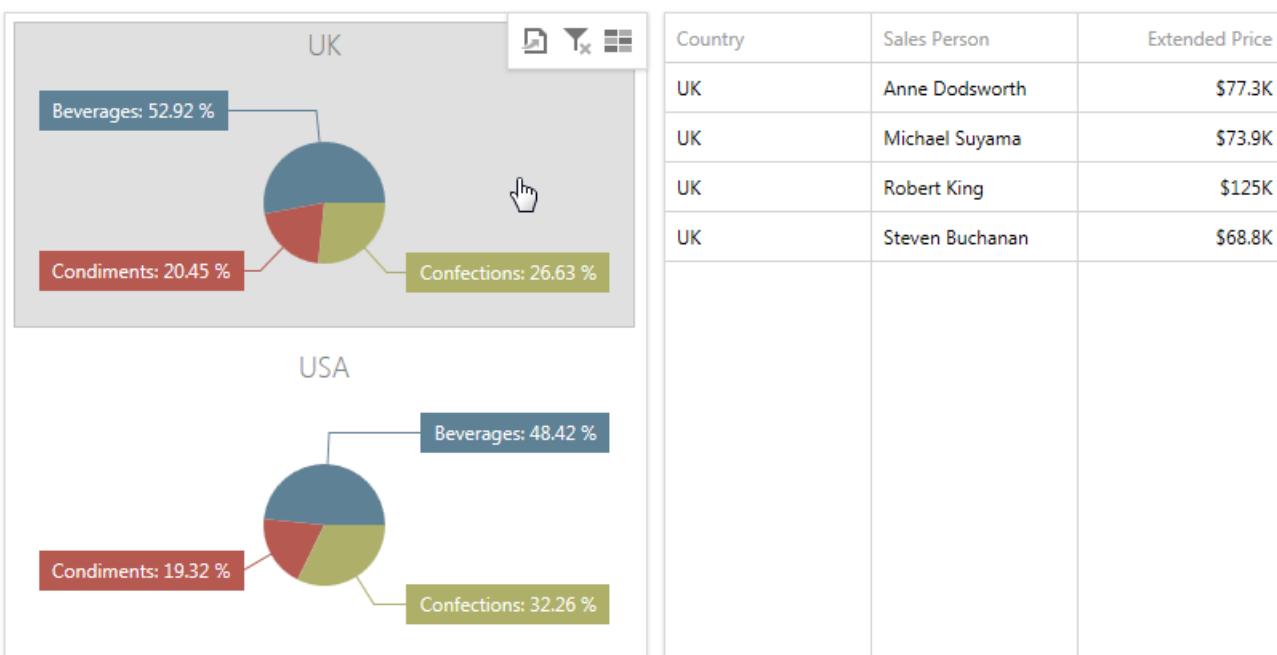
- **Filtering by Arguments**

When filtering by arguments is enabled, you can click a pie segment to make other dashboard items only display data related to the selected argument value.



- **Filtering by Series**

When filtering by series is enabled, you can click a pie to make other dashboard items display only data related to the selected pie.



To clear the selection in the Master Filter item, use the **Clear Master Filter** button (the icon) in the pie's **caption** area.

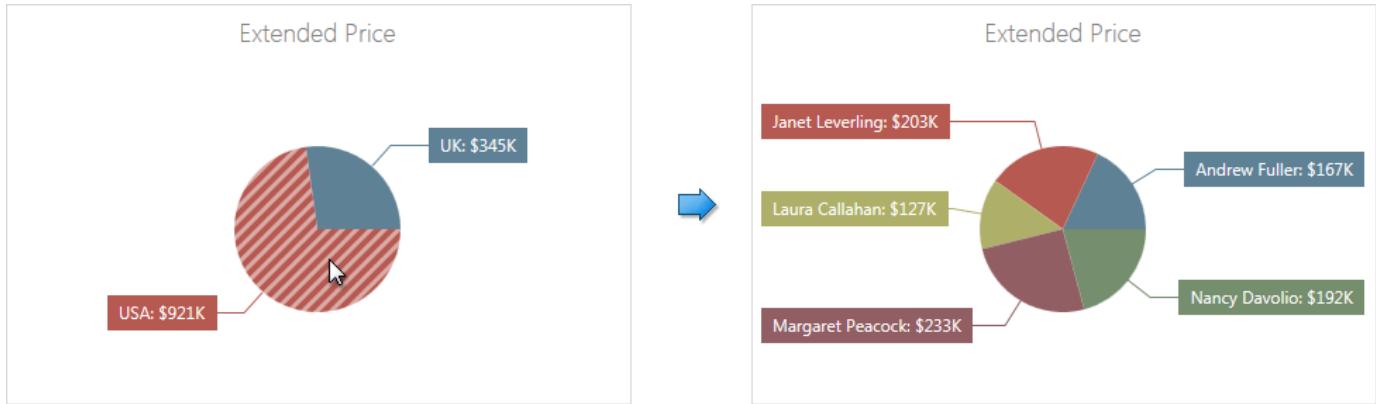
Drill-Down

The built-in drill-down capability allows you to change the detail level of data displayed in dashboard items on the fly. To learn more, see [Drill-Down](#).

The Pie dashboard item supports drill-down on argument or series values.

- **Drill Down on Arguments**

When drill-down on arguments is enabled, you can click a pie segment to view a detail diagram for the corresponding argument value.

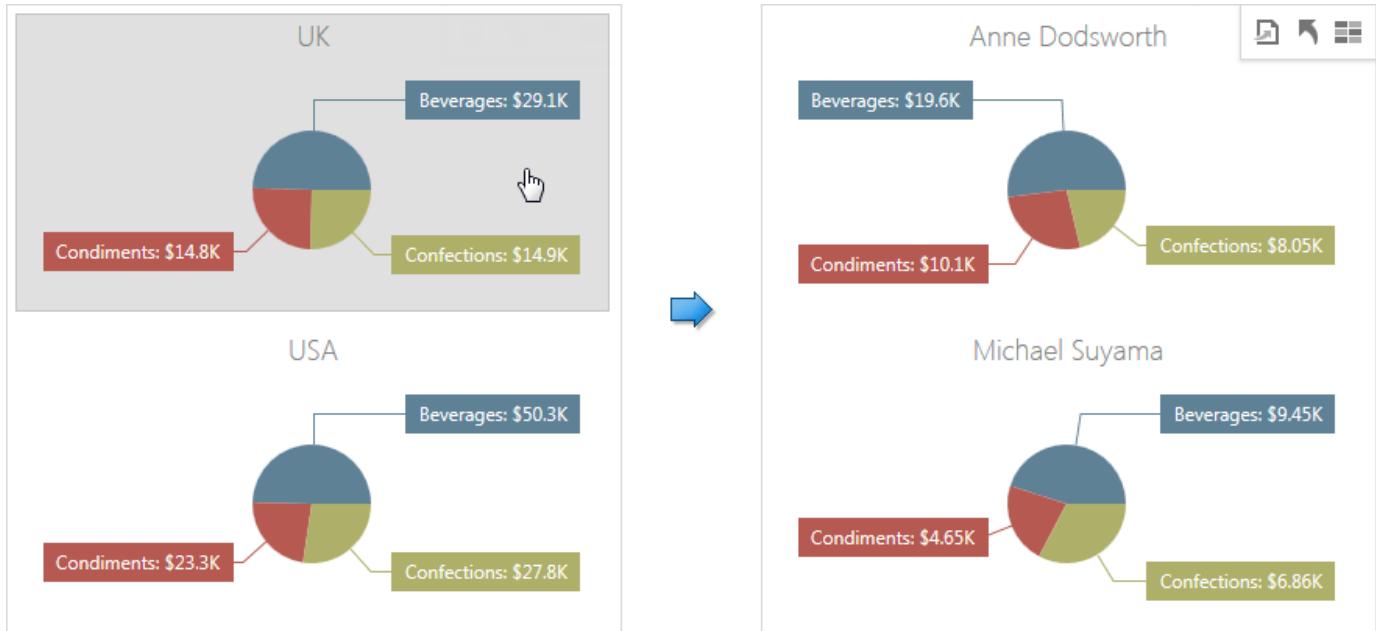


Note

When **Filtering by Arguments** is enabled, you can view the details by clicking a selected pie segment.

- **Drill-Down on Series**

When drill-down on a series is enabled, you can click a pie chart to view a detail diagram for the corresponding series value.



Note

When **Filtering by Series** is enabled, you can view the details by clicking a selected pie chart.

To return to the previous detail level (drill up), use the **Drill Up** button (the ↺ icon) in the pie's [caption](#) area.

Exporting

The Web Dashboard allows you to export individual dashboard items, or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting a **Pie** dashboard item.

- [Export To PDF](#)
- [Export To Image](#)
- [Export To Excel](#)

Export To PDF

The dialog box has a title bar 'Export To PDF - Sales by Category' with a close button 'x'. It contains the following settings:

- File Name:** Sales by Category
- Page Layout:** Portrait (selected)
- Size:** Letter
- Show Title:** checked
- Title:** Sales by Category
- Auto Arrange Content:** checked
- Scale Mode:** None
- Include:** Filters (unchecked), Parameters (unchecked)
- Position:** Below

At the bottom are three buttons: Reset, Export (highlighted in blue), and Cancel.

- **File Name** - Specifies the name of the exported PDF file.
- **Page Layout** - Specifies the page orientation used to export a dashboard item.
- **Size** - Specifies the standard paper size.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Auto Arrange Content** - Specifies whether pies are arranged automatically in the exported document.
- **Scale Mode** - Specifies the mode for scaling when exporting a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Page*.

Specify the required options in this dialog and click the **Export** button to export the Pie dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Image

All data-bound dashboard items provide the same set of options when exporting them to an Image format. The following options are available:

Export To Image - Sales by Category

File Name:	Sales by Category	X
Show Title:	<input checked="" type="checkbox"/>	
Title:	Sales by Category	
Image Format:	PNG	
Resolution (dpi):	96	
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters	
<input type="button" value="Reset"/> <input type="button" value="Export"/> <input type="button" value="Cancel"/>		

- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Excel

Data visualized within all data-bound dashboard items can be exported to the required Excel format. The following options are available:

Export To Excel - Sales by Category

File Name:	Sales by Category	X
Excel Format:	XLSX	
Separator:	,	
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters	
Position:	Below	
<input type="button" value="Reset"/> <input type="button" value="Export"/> <input type="button" value="Cancel"/>		

- **File Name** - Specifies the name of the exported Excel file.
- **Excel Format** - Specifies the Excel format in which the dashboard item is exported. You can use the XLSX, XLS or CSV formats.
- **Separator** - Specifies the string used to separate values in the exported CSV document.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select

between *Below* and *Separate Sheet*.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Cards

The topics in this section describe the **Card** dashboard item, which displays a series of cards. Each card can display a single value, or show the difference between two values.

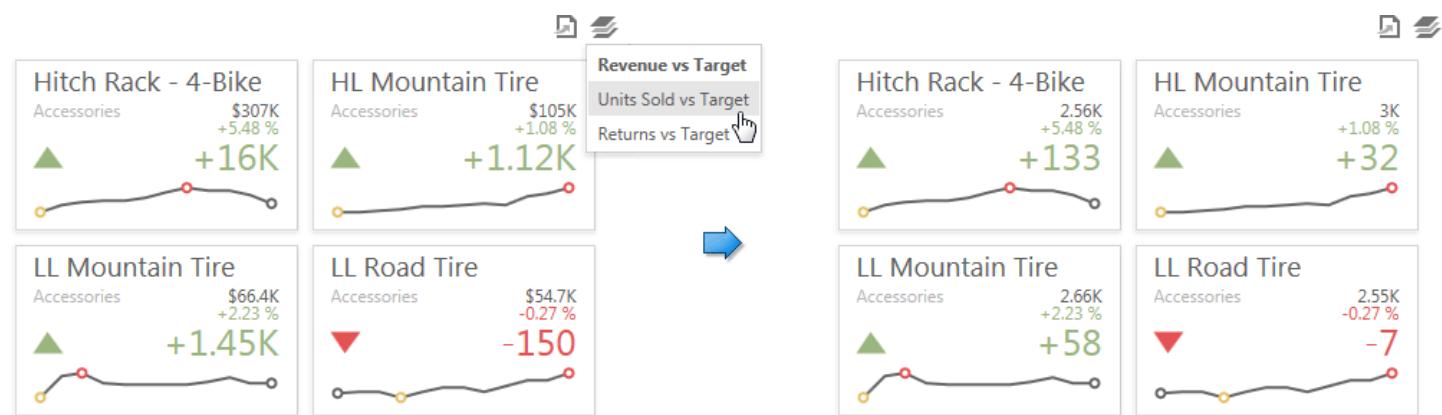
- [Data Presentation Basics](#)
- [Interactivity](#)
- [Exporting](#)

Data Presentation Basics

The **Card** dashboard item displays a series of cards. Each card illustrates the difference between two values. This difference can be expressed as an absolute value, an absolute variation or a percentage variation.



The **Card** dashboard item can illustrate this difference for various sets of values. You can switch between these sets using the **Values** button (the icon) in the card's caption.



Tooltip

A **Card** dashboard item can display a tooltip for cards containing a sparkline. When the mouse pointer is hovered over the sparkline, the tooltip can display start/end values and minimum/maximun values.



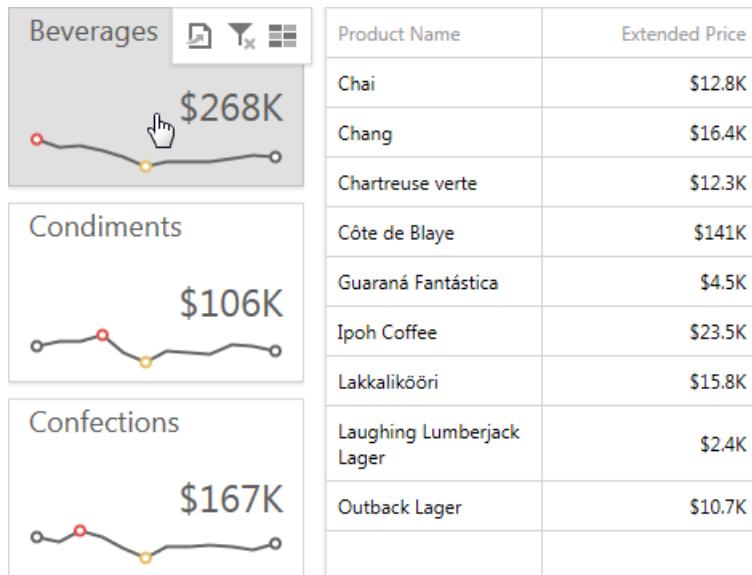
Interactivity

This topic describes features that enable interaction between the **Card** and other dashboard items. These features include **Master Filtering** and **Drill-Down**.

Master Filtering

The Web Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items (**Master Filter**). To learn more, see the [Master Filtering](#) topic, which describes filtering concepts common to all dashboard items.

When Master Filtering is enabled, you can click a card (or cards) to make other dashboard items only display data related to the selected card (or cards).

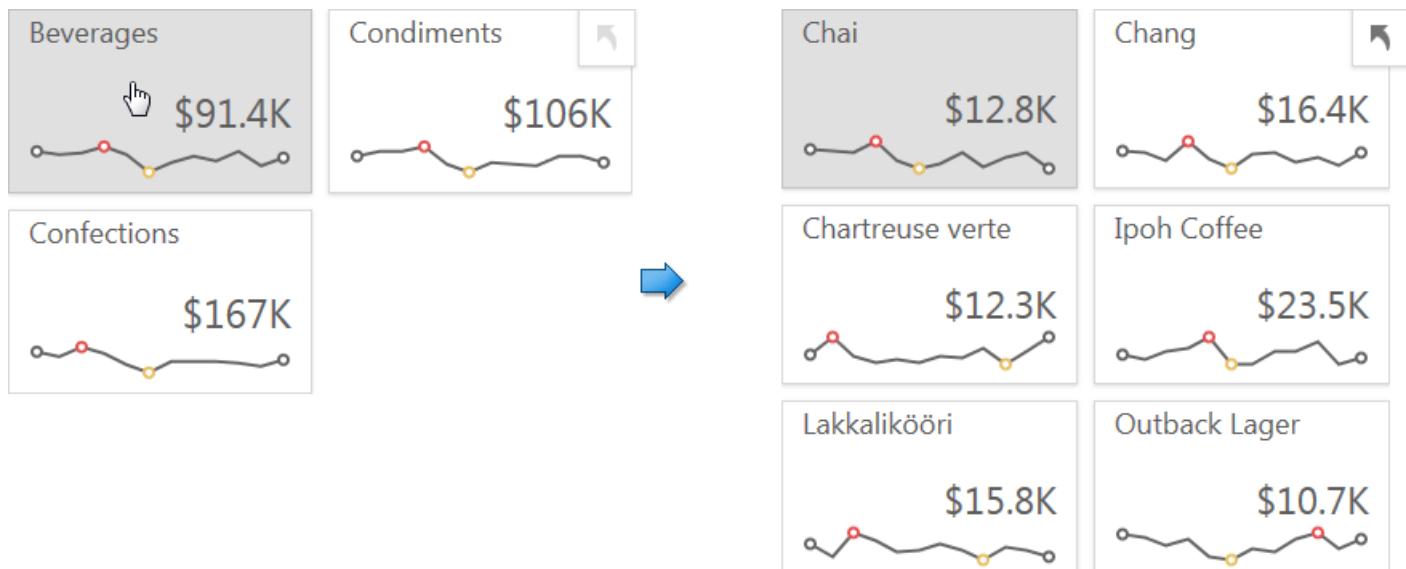


To clear the selection in the Master Filter item, use the **Clear Master Filter** button (the icon) in the card's [caption](#).

Drill-Down

The built-in drill-down capability allows you to change the detail level of data displayed in dashboard items on the fly. To learn more, see [Drill-Down](#).

When drill-down is enabled, you can click a card to view the details.



When **Master Filtering** is enabled, you can view the details by clicking a selected card.

To return to the previous detail level (drill up), use the **Drill Up** button (the  icon) in the card's [caption](#).

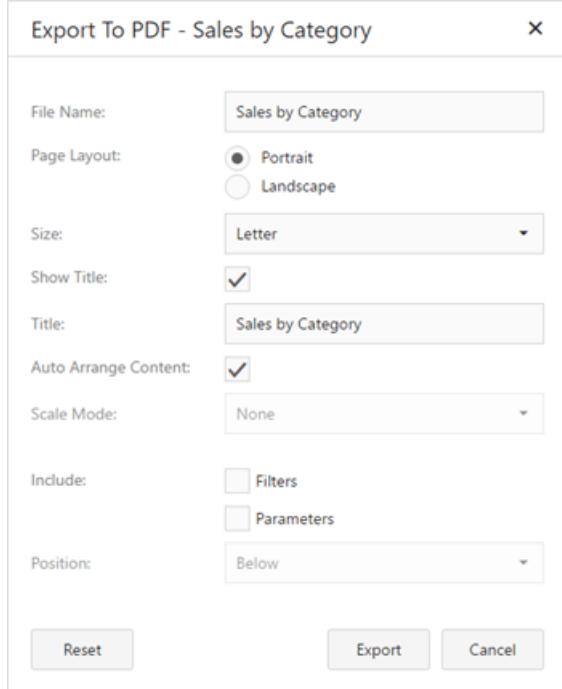
Exporting

The Web Dashboard allows you to export individual dashboard items, or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting a **Card** dashboard item.

- [Export To PDF](#)
- [Export To Image](#)
- [Export To Excel](#)

Export To PDF



- **File Name** - Specifies the name of the exported PDF file.
- **Page Layout** - Specifies the page orientation used to export a dashboard item.
- **Size** - Specifies the standard paper size.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Auto Arrange Content** - Specifies whether cards are arranged automatically in the exported document.
- **Scale Mode** - Specifies the mode for scaling when exporting a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Page*.

Specify the required options in this dialog and click the **Export** button to export the Card dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Image

All data-bound dashboard items provide the same set of options when exporting them to an Image format. The following options are available:

Export To Image - Sales by Category X

File Name:	Sales by Category
Show Title:	<input checked="" type="checkbox"/>
Title:	Sales by Category
Image Format:	PNG
Resolution (dpi):	96
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Excel

Data visualized within all data-bound dashboard items can be exported to the required Excel format. The following options are available:

Export To Excel - Sales by Category X

File Name:	Sales by Category
Excel Format:	XLSX
Separator:	,
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Position:	Below
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Excel file.
- **Excel Format** - Specifies the Excel format in which the dashboard item is exported. You can use the XLSX, XLS or CSV formats.
- **Separator** - Specifies the string used to separate values in the exported CSV document.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select

between *Below* and *Separate Sheet*.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Gauges

The topics in this section describe the **Gauge** dashboard item, which displays a series of gauges.

- [Data Presentation Basics](#)
- [Interactivity](#)
- [Exporting](#)

Data Presentation Basics

The **Gauge** dashboard item displays a series of gauges. Each gauge can communicate two values - one with a needle and the other with a marker on the scale.



The **Gauge** dashboard item can illustrate this difference for various sets of values. You can switch between these sets using the **Values** button (the  icon) in the gauge's caption.

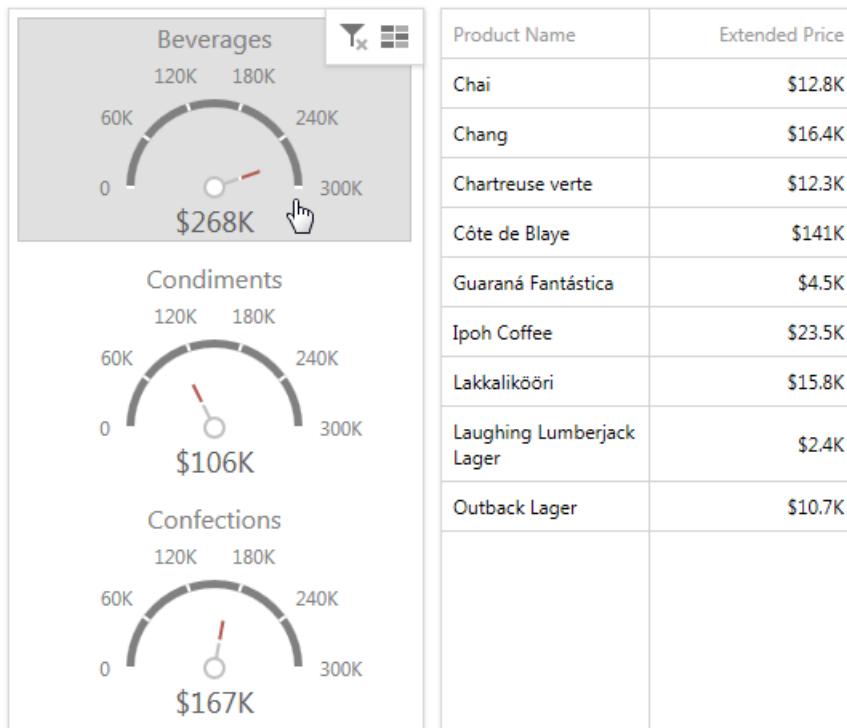
Interactivity

This topic describes features that enable interaction between the **Gauge** and other dashboard items. These features include **Master Filtering** and **Drill-Down**.

Master Filtering

The Web Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items (**Master Filter**). To learn more, see the [Master Filtering](#) topic, which describes filtering concepts common to all dashboard items.

When Master Filtering is enabled, you can click a gauge (or multiple gauges) to make other dashboard items only display data related to the selected gauge or gauges.

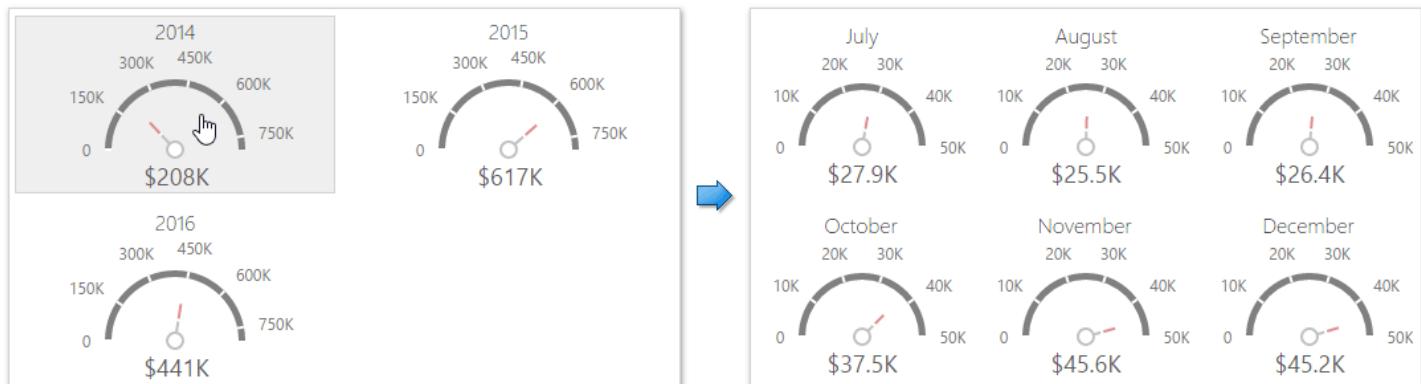


To clear the selection in the Master Filter item, use the **Clear Master Filter** button (the icon) in the dashboard item [caption](#).

Drill-Down

The built-in drill-down capability allows you to change the detail level of data displayed in dashboard items on the fly. To learn more, see [Drill-Down](#).

When drill-down is enabled, you can click a gauge to view the details.



Note

When **Master Filtering** is enabled, you can view the details by clicking a selected gauge.

To return to the previous detail level (drill up), use the **Drill Up** button (the  icon) in the dashboard item's [caption](#).

Exporting

The Web Dashboard allows you to export individual dashboard items, or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting a **Gauge** dashboard item.

- [Export To PDF](#)
- [Export To Image](#)
- [Export To Excel](#)

Export To PDF

The dialog box has a title bar 'Export To PDF - Sales by Category' with a close button 'x'. It contains the following settings:

- File Name:** Sales by Category
- Page Layout:** Portrait (selected)
- Size:** Letter
- Show Title:** checked
- Title:** Sales by Category
- Auto Arrange Content:** checked
- Scale Mode:** None
- Include:** Filters (unchecked), Parameters (unchecked)
- Position:** Below

At the bottom are three buttons: Reset, Export (highlighted in blue), and Cancel.

- **File Name** - Specifies the name of the exported PDF file.
- **Page Layout** - Specifies the page orientation used to export a dashboard item.
- **Size** - Specifies the standard paper size.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Auto Arrange Content** - Specifies whether gauges are arranged automatically in the exported document.
- **Scale Mode** - Specifies the mode for scaling when exporting a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Page*.

Specify the required options in this dialog and click the **Export** button to export the Gauge dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Image

All data-bound dashboard items provide the same set of options when exporting them to an Image format. The following options are available:

Export To Image - Sales by Category X

File Name:	Sales by Category
Show Title:	<input checked="" type="checkbox"/>
Title:	Sales by Category
Image Format:	PNG
Resolution (dpi):	96
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Excel

Data visualized within all data-bound dashboard items can be exported to the required Excel format. The following options are available:

Export To Excel - Sales by Category X

File Name:	Sales by Category
Excel Format:	XLSX
Separator:	,
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Position:	Below
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Excel file.
- **Excel Format** - Specifies the Excel format in which the dashboard item is exported. You can use the XLSX, XLS or CSV formats.
- **Separator** - Specifies the string used to separate values in the exported CSV document.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select

between *Below* and *Separate Sheet*.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Pivot

The **Pivot** dashboard item displays a cross-tabular report that presents multi-dimensional data in an easy-to-read format.

		Sales by State					
		Accessories		Bikes		Clothing	
		Units Sold	Revenue	Units Sold	Revenue	Units Sold	Revenue
California		36.4K	\$1.18M	12K	\$18.9M	15.9K	\$763K
Washington		20.6K	\$622K	7.6K	\$11.1M	9.04K	\$409K
Texas		19.1K	\$655K	6.29K	\$9.53M	10K	\$487K
Florida		12.1K	\$383K	4.4K	\$6.86M	4.78K	\$206K

Expanding and Collapsing Groups

To expand or collapse row and column groups, use the  and  buttons, respectively.

		UK	USA	Grand Total
 1996		\$60.2K	\$148K	\$208K
 1997 	Q1	\$27.8K	\$110K	\$138K
	Q2	\$38.1K	\$105K	\$143K
	Q3	\$53.3K	\$101K	\$154K
	Q4	\$41.3K	\$140K	\$182K
1997 Total		\$161K	\$456K	\$617K
 1998		\$124K	\$317K	\$441K
Grand Total		\$345K	\$921K	\$1.27M

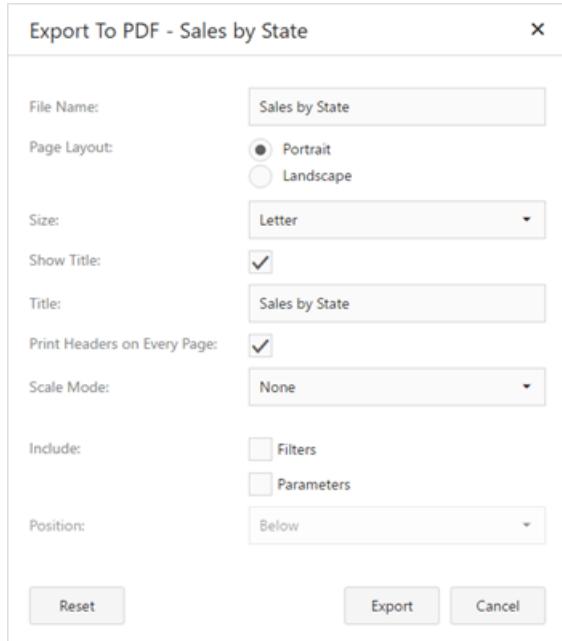
Exporting

The Web Dashboard allows you to export individual dashboard items, or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting a **Pivot** dashboard item.

- [Export To PDF](#)
- [Export To Image](#)
- [Export To Excel](#)

Export To PDF



Export To Image - Sales by Category X

File Name:	Sales by Category
Show Title:	<input checked="" type="checkbox"/>
Title:	Sales by Category
Image Format:	PNG
Resolution (dpi):	96
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Excel

Data visualized within all data-bound dashboard items can be exported to the required Excel format. The following options are available:

Export To Excel - Sales by Category X

File Name:	Sales by Category
Excel Format:	XLSX
Separator:	,
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Position:	Below
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Excel file.
- **Excel Format** - Specifies the Excel format in which the dashboard item is exported. You can use the XLSX, XLS or CSV formats.
- **Separator** - Specifies the string used to separate values in the exported CSV document.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select

between *Below* and *Separate Sheet*.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Choropleth Map

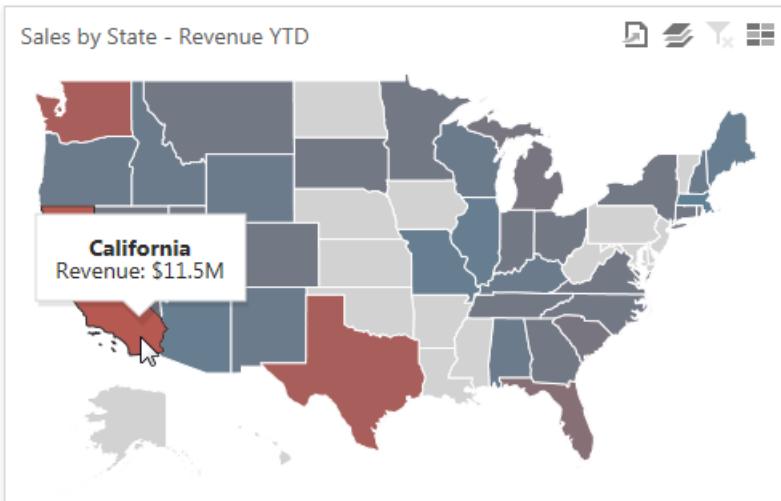
The topics in this section describe the **Choropleth Map** dashboard item, which colorizes the required areas in proportion to the provided values.

- [Data Presentation Basics](#)
- [Interactivity](#)
- [Exporting](#)

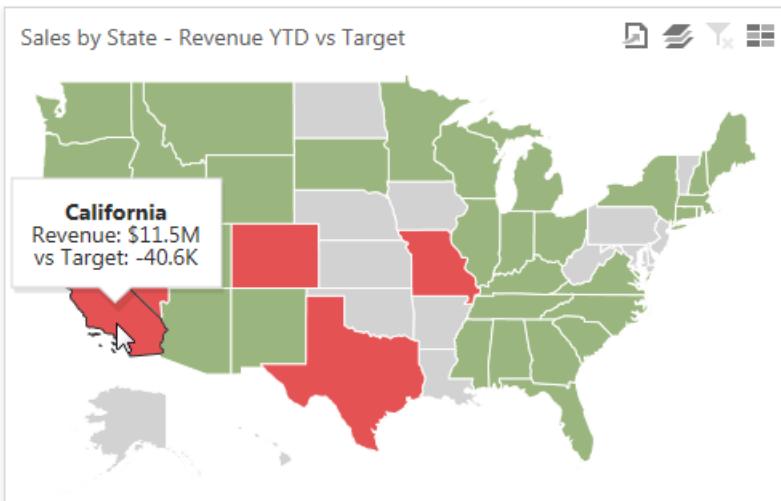
Data Presentation Basics

The **Choropleth Map** dashboard item colorizes map areas in two ways.

- Based on the provided values.



- Based on the difference between the actual and target values of a particular parameter.



You can switch between the provided values using the **Values** button (the icon) in the map's [caption](#).

Map Zooming and Scrolling

Use the following actions to scroll a map.

- **Zooming**

- Use the mouse scroll wheel to change the current zoom level for the map.
- On a touchscreen device, use pinch or spread gestures to change the current zoom level.



- **Scrolling**

- To scroll the map, hold down the left mouse button and drag it.
- On a touchscreen device, use flick gestures to scroll the map.



Tooltip

The **Choropleth Map** dashboard item can display a tooltip that shows information on a hovered area.



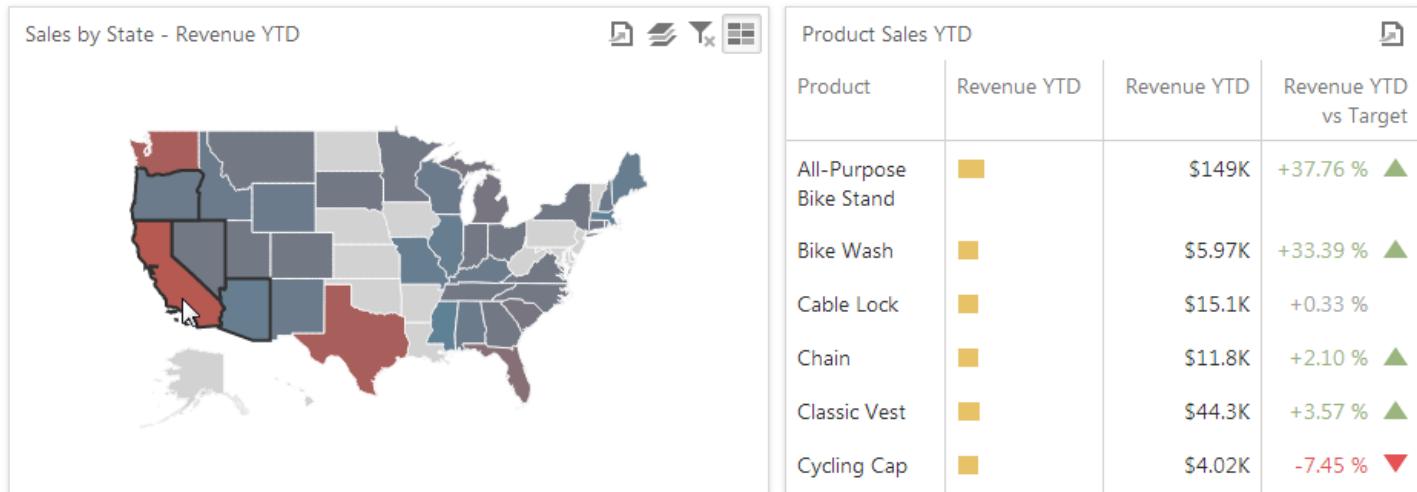
Interactivity

This document describes the **Master Filtering** feature, which enables interaction between the **Choropleth Map** and other dashboard items..

Master Filtering

The Web Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items (**Master Filter**). To learn more, see the [Master Filtering](#) topic, which describes filtering concepts common to all dashboard items.

When Master Filtering is enabled, you can click a shape (or multiple shapes) to make other dashboard items only display data related to the selected shape (or shapes).



To reset filtering, use the **Clear Master Filter** button (the icon) in the map's [caption](#).

Exporting

The Web Dashboard allows you to export individual dashboard items, or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting a **Choropleth Map** dashboard item.

- [Export To PDF](#)
- [Export To Image](#)
- [Export To Excel](#)

Export To PDF

The dialog box is titled "Export To PDF - Sales by State". It contains the following settings:

- File Name:** Sales by State
- Page Layout:** Portrait (selected)
- Size:** Letter
- Show Title:** checked
- Title:** Sales by State
- Size Mode:** Zoom (selected)
- Include:** Filters (unchecked), Parameters (unchecked)
- Position:** Below

At the bottom are three buttons: Reset, Export (highlighted in red), and Cancel.

- **File Name** - Specifies the name of the exported PDF file.
- **Page Layout** - Specifies the page orientation used to export a dashboard item.
- **Size** - Specifies the standard paper size.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Size Mode** - Specifies the export size mode for the Choropleth Map dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Page*.

Specify the required options in this dialog and click the **Export** button to export the Choropleth Map dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Image

All data-bound dashboard items provide the same set of options when exporting them to an Image format. The following options are available:

Export To Image - Sales by Category X

File Name:	Sales by Category
Show Title:	<input checked="" type="checkbox"/>
Title:	Sales by Category
Image Format:	PNG
Resolution (dpi):	96
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Excel

Data visualized within all data-bound dashboard items can be exported to the required Excel format. The following options are available:

Export To Excel - Sales by Category X

File Name:	Sales by Category
Excel Format:	XLSX
Separator:	,
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Position:	Below
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Excel file.
- **Excel Format** - Specifies the Excel format in which the dashboard item is exported. You can use the XLSX, XLS or CSV formats.
- **Separator** - Specifies the string used to separate values in the exported CSV document.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select

between *Below* and *Separate Sheet*.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Geo Point Maps

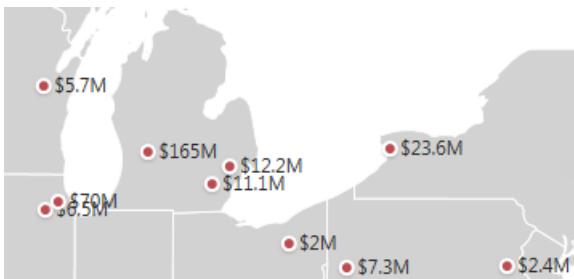
The topics in this section describe various types of **Geo Point Map** dashboard items which places callouts, bubbles or pies on the map using geographical coordinates.

- [Data Presentation Basics](#)
- [Interactivity](#)
- [Exporting](#)

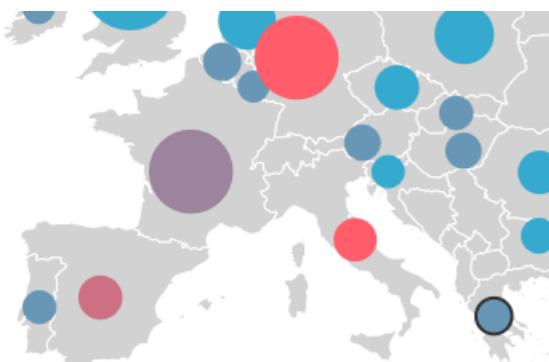
Data Presentation Basics

The Web Dashboard supports three types of **Geo Point** maps.

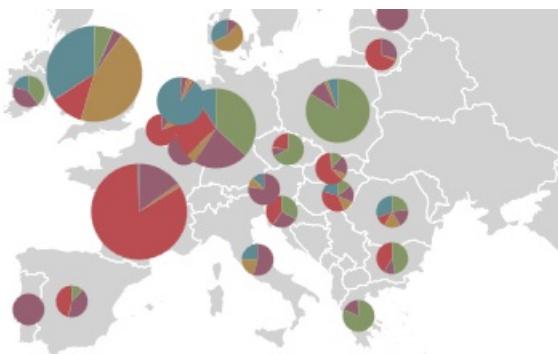
- The **Geo Point Map** dashboard item places callouts on the map using geographical coordinates.



- The **Bubble Map** dashboard item displays bubbles on the map. The color and size of each bubble relay data particular to that color and size.



- The **Pie Map** dashboard item displays pies on the map. Each pie shows the relative contribution that different values contribute to the total.



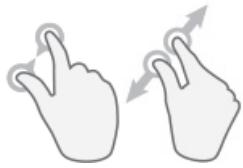
You can switch between the provided values using the **Values** button (the  icon) in the map's [caption](#).

Map Zooming and Scrolling

Use the following actions to scroll a map.

- **Zooming**

- Use the mouse scroll wheel to change the current zoom level for the map.
- On a touchscreen device, use pinch or spread gestures to change the current zoom level.



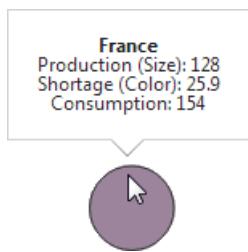
- **Scrolling**

- To scroll the map, hold down the left mouse button and drag it.
- On a touchscreen device, use flick gestures to scroll the map.



Tooltip

A **Geo Point Map** dashboard item can display a tooltip that displays information in a hovered callout/bubble/pie.



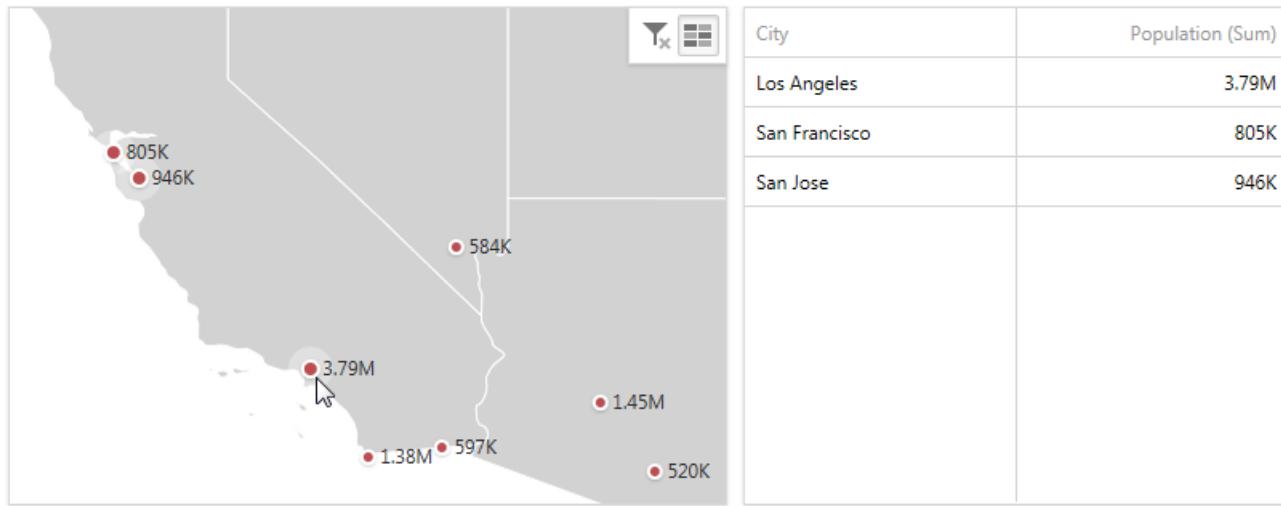
Interactivity

This document describes the **Master Filtering** feature, which enables interaction between the **Geo Point Map** and other dashboard items.

Master Filtering

The Web Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items (**Master Filter**). To learn more, see the [Master Filtering](#) topic, which describes filtering concepts common to all dashboard items.

When Master Filtering is enabled, you can click a callout/bubble/pie (or multiple callouts/bubbles/pies by holding down the **CTRL** key) to make other dashboard items only display data related to the selected callout(s)/bubble(s)/pie(s).



To reset filtering, use the **Clear Master Filter** button (the icon) in the map's [caption](#).

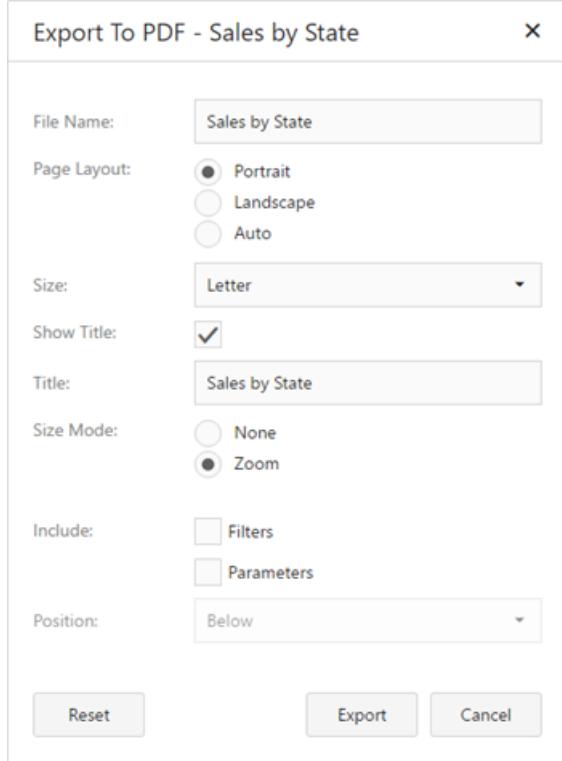
Exporting

The Web Dashboard allows you to export individual dashboard items, or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting **Geo Point Map** dashboard items.

- [Export To PDF](#)
- [Export To Image](#)
- [Export To Excel](#)

Export To PDF



- **File Name** - Specifies the name of the exported PDF file.
- **Page Layout** - Specifies the page orientation used to export a dashboard item.
- **Size** - Specifies the standard paper size.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Size Mode** - Specifies the export size mode for the Geo Point Map dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Page*.

Specify the required options in this dialog and click the **Export** button to export the Geo Point Map dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Image

All data-bound dashboard items provide the same set of options when exporting them to an Image format. The following options are available:

Export To Image - Sales by Category X

File Name:	Sales by Category
Show Title:	<input checked="" type="checkbox"/>
Title:	Sales by Category
Image Format:	PNG
Resolution (dpi):	96
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Excel

Data visualized within all data-bound dashboard items can be exported to the required Excel format. The following options are available:

Export To Excel - Sales by Category X

File Name:	Sales by Category
Excel Format:	XLSX
Separator:	,
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Position:	Below
Reset Export Cancel	

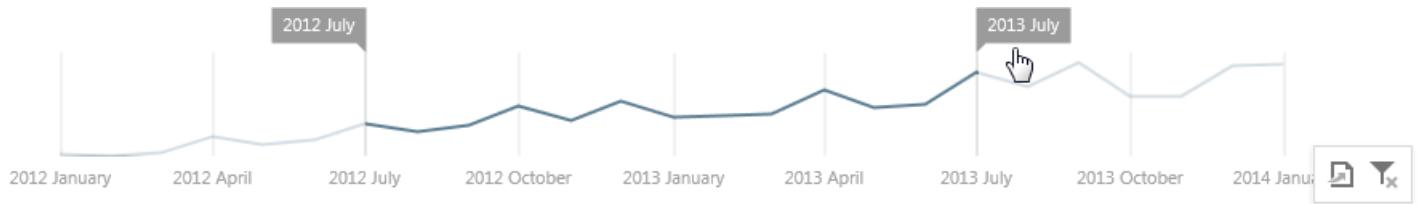
- **File Name** - Specifies the name of the exported Excel file.
- **Excel Format** - Specifies the Excel format in which the dashboard item is exported. You can use the XLSX, XLS or CSV formats.
- **Separator** - Specifies the string used to separate values in the exported CSV document.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select

between *Below* and *Separate Sheet*.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Range Filter

The **Range Filter** dashboard item allows you to apply filtering to other dashboard items. This item displays a chart with selection thumbs that allow you to filter values displayed along the argument axis.



To reset filtering, use the **Clear Master Filter** button (the  icon).

Exporting

The Web Dashboard allows you to export individual dashboard items, or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting a **Range Filter** dashboard item.

- [Export To PDF](#)
- [Export To Image](#)
- [Export To Excel](#)

Export To PDF

The dialog box has a title bar 'Export To PDF - Range Filter 1' with a close button 'X'. It contains the following settings:

- File Name:** Range Filter 1
- Page Layout:** Portrait (selected)
- Size:** Letter
- Show Title:** checked
- Title:** Range Filter 1
- Size Mode:** Stretch (selected)
- Include:** Filters (unchecked), Parameters (unchecked)
- Position:** Below

At the bottom are three buttons: Reset, Export (highlighted in blue), and Cancel.

- **File Name** - Specifies the name of the exported PDF file.
- **Page Layout** - Specifies the page orientation used to export a dashboard item.
- **Size** - Specifies the standard paper size.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Size Mode** - Specifies the export size mode for the Range Filter dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Page*.

Specify the required options in this dialog and click the **Export** button to export the Range Filter dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Image

All data-bound dashboard items provide the same set of options when exporting them to an Image format. The following options are available:

Export To Image - Sales by Category X

File Name:	Sales by Category
Show Title:	<input checked="" type="checkbox"/>
Title:	Sales by Category
Image Format:	PNG
Resolution (dpi):	96
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Excel

Data visualized within all data-bound dashboard items can be exported to the required Excel format. The following options are available:

Export To Excel - Sales by Category X

File Name:	Sales by Category
Excel Format:	XLSX
Separator:	,
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters
Position:	Below
Reset Export Cancel	

- **File Name** - Specifies the name of the exported Excel file.
- **Excel Format** - Specifies the Excel format in which the dashboard item is exported. You can use the XLSX, XLS or CSV formats.
- **Separator** - Specifies the string used to separate values in the exported CSV document.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select

between *Below* and *Separate Sheet*.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Image

The **Image** dashboard item is used to display images within a dashboard.

Academy of Athens



Exporting

The Web Dashboard allows you to export individual dashboard items, or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting an **Image** dashboard item.

- [Export To PDF](#)
- [Export To Image](#)

Export To PDF

The dialog box has a title bar 'Export To PDF - Product Image' with a close button 'X'. It contains the following settings:

- File Name:** Product Image
- Page Layout:** Portrait (selected)
- Size:** Letter
- Show Title:** checked
- Title:** Product Image
- Scale Mode:** None
- Include:** Filters (unchecked), Parameters (unchecked)
- Position:** Below

At the bottom are three buttons: Reset, Export (highlighted in blue), and Cancel.

- **File Name** - Specifies the name of the exported PDF file.
- **Page Layout** - Specifies the page orientation used to export a dashboard item.
- **Size** - Specifies the standard paper size.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Scale Mode** - Specifies the mode for scaling when exporting a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Page*.

Specify the required options in this dialog and click the **Export** button to export the Image dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Image

Export To Image - Product Image X

File Name:	Product Image
Show Title:	<input checked="" type="checkbox"/>
Title:	Product Image
Image Format:	PNG
Resolution (dpi):	96
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters

Reset **Export** **Cancel**

- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** -Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the Image dashboard item. To reset changes to the default values, click the **Reset** button.

Text Box

The **Text Box** dashboard item is used to display rich text within a dashboard.

SuperLCD 70

Production Start: 6/1/2012

Consumer Rating: 4 of 5

Retail Price: \$4K

Best Sales Year: 2014

Best Sales Company: ACME

The 70" DevAV SuperLCD TV is changing the way people watch TV. It's amazing build quality and high precision design means you get the best possible picture for the best possible price. It delivers crystal-clear images with mind-blowing video. The bottom-line is simple, this TV offers 1080p Full HD output with 120Hz refresh rate. A thin frame design with super thin profile makes mounting this TV a breeze. This super-smart remote includes a built-in keypad for straightforward channel surfing. The remote is also backlit so you can easily change channels in the dark. The 70" DevAV SuperLCD TV also includes six video input options so you can display any video signal with ease.

Exporting

The Web Dashboard allows you to export individual dashboard items, or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting a **Text Box** dashboard item.

- [Export To PDF](#)
- [Export To Image](#)

Export To PDF

The dialog box has a title bar 'Export To PDF - Product Description' with a close button 'X'. It contains the following fields:

- File Name:** Product Description
- Page Layout:** Portrait (selected)
- Size:** Letter
- Show Title:** checked
- Title:** Product Description
- Include:** Filters (unchecked), Parameters (unchecked)
- Position:** Below

At the bottom are three buttons: Reset, Export (highlighted in blue), and Cancel.

- **File Name** - Specifies the name of the exported PDF file.
- **Page Layout** - Specifies the page orientation used to export a dashboard item.
- **Size** - Specifies the standard paper size.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Page*.

Specify the required options in this dialog and click the **Export** button to export the Text Box dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Image

Export To Image - Product Description X

File Name:	Product Description
Show Title:	<input checked="" type="checkbox"/>
Title:	Product Description
Image Format:	PNG
Resolution (dpi):	96
Include:	<input type="checkbox"/> Filters <input type="checkbox"/> Parameters

Reset **Export** **Cancel**

- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** -Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the Text Box dashboard item. To reset changes to the default values, click the **Reset** button.

Treemap

The Treemap dashboard item visualizes data in nested rectangles that are called *tiles*.

- [Data Presentation Basics](#)
- [Interactivity](#)
- [Exporting](#)

Data Presentation Basics

The Treemap dashboard item visualizes data in nested rectangles that are called *tiles*. Tiles corresponding to child values can be combined by parent values into groups. For example, the Treemap below displays combinations of categories and sub-categories.



Labels and Tooltips

The Treemap displays **labels** that contain descriptions for tiles and groups, and provide **tooltips** with additional information.



Interactivity

This topic describes features that enable interaction between the **Treemap** and other dashboard items. These features include **Master Filtering**.

Master Filtering

The Web Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items (**Master Filter**). To learn more about filtering concepts common to all dashboard items, see the [Master Filtering](#) topic.

When Master Filtering is enabled, you can click a tile/group caption (or multiple tiles/group captions) to make other dashboard items only display data related to the selected tile(s).

Category	Product Sub-Category	Sales (Sum)
Furniture	Chairs & Chairmats	1.76M
Furniture	Tables	1.9M
Technology	Computer Peripherals	796K
Technology	Copiers and Fax	1.13M
Technology	Office Machines	2.17M
Technology	Telephones and Communication	1.89M

To reset filtering, use the **Clear Master Filter** button (the icon) in the Treemap's [caption](#) area, or the **Clear Master Filter** command in the Treemap's context menu.

Drill-Down

The built-in drill-down capability allows you to change the detail level of data displayed in dashboard items on the fly. To learn more about drill-down concepts common to all dashboard items, see the [Drill-Down](#) topic.

When drill-down is enabled, you can click a tile to view the details.

Raclette Courdavault	Camembert Pierrot	Gudbrand...	Flotemysost
		Gorgonzol...	Queso ...
Mozzarella di Gi...		Queso Ca...	Masca...

Exporting

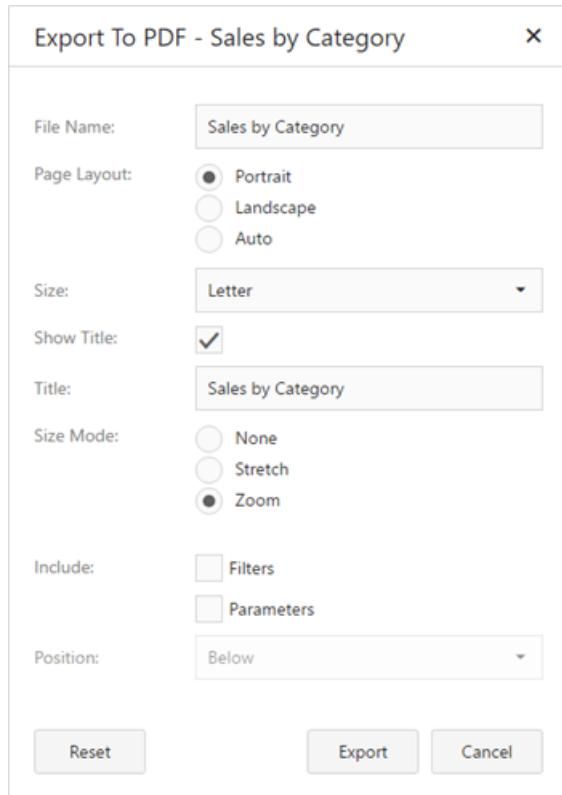
The Web Dashboard allows you to export individual dashboard items or the entire dashboard. To learn more about exporting concepts common to all dashboard items, see the [Exporting](#) topic.

This topic describes the specifics of exporting a **Treemap** dashboard item.

- [Export To PDF](#)
- [Export To Image](#)
- [Export To Excel](#)

Export To PDF

The following options are available when exporting the Treemap dashboard item to a PDF.



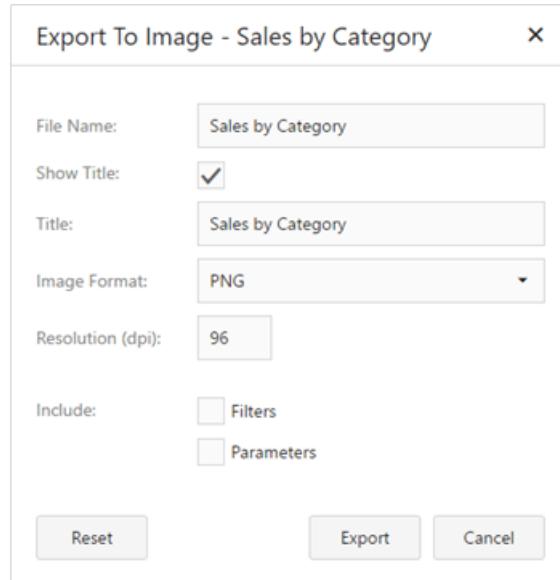
- **File Name** - Specifies the name of the exported PDF.
- **Page Layout** - Specifies the page orientation used to export a dashboard item.
- **Size** - Specifies the standard paper size.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Size Mode** - Specifies the export size mode for the Treemap dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Page*.

Specify the required options in this dialog and click the **Export** button to export the Treemap dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Image

All data-bound dashboard items provide the same set of options when exporting them to an Image format. The following options

are available:

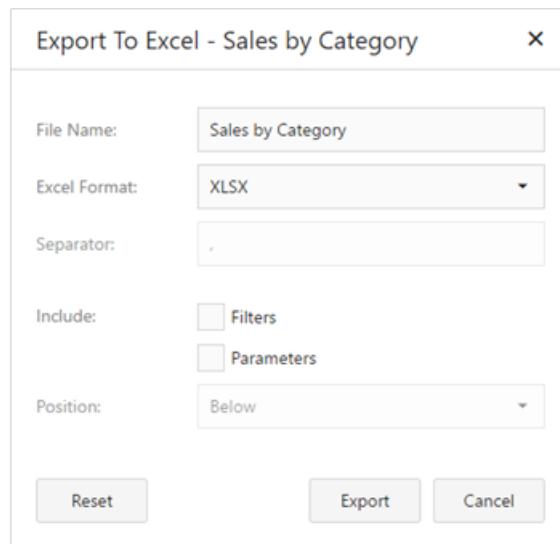


- **File Name** - Specifies the name of the exported Image file.
- **Show Title** - Specifies whether or not to apply the dashboard item caption to the exported document title.
- **Title** - Specifies the title of the exported document.
- **Image Format** - Specifies the image format in which the dashboard item is exported.
- **Resolution (dpi)** - Specifies the resolution (in dpi) used to export a dashboard item.
- **Include | Filters** - Allows you to include master filter values to the exported document.
- **Include | Parameters** - Allows you to include parameter values to the exported document.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Export To Excel

Data visualized within all data-bound dashboard items can be exported to the required Excel format. The following options are available:



- **File Name** - Specifies the name of the exported Excel file.
- **Excel Format** - Specifies the Excel format in which the dashboard item is exported. You can use the XLSX, XLS or CSV formats.
- **Separator** - Specifies the string used to separate values in the exported CSV document.
- **Include | Filters** - Allows you to include master filter values to the exported document.

- **Include | Parameters** - Allows you to include parameter values to the exported document.
- **Position** - Specifies the position of the master filter and parameter values in the exported document. You can select between *Below* and *Separate Sheet*.

Specify the required options in this dialog and click the **Export** button to export the dashboard item. To reset changes to the default values, click the **Reset** button.

Filter Elements

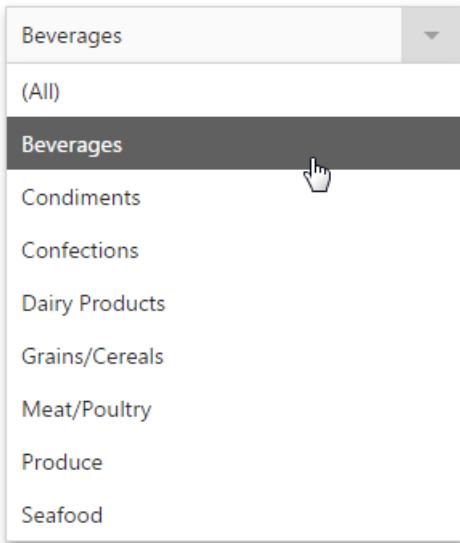
Filter elements provide the capability to [filter](#) other dashboard items.

- [Combo Box](#)
- [List Box](#)
- [Tree View](#)

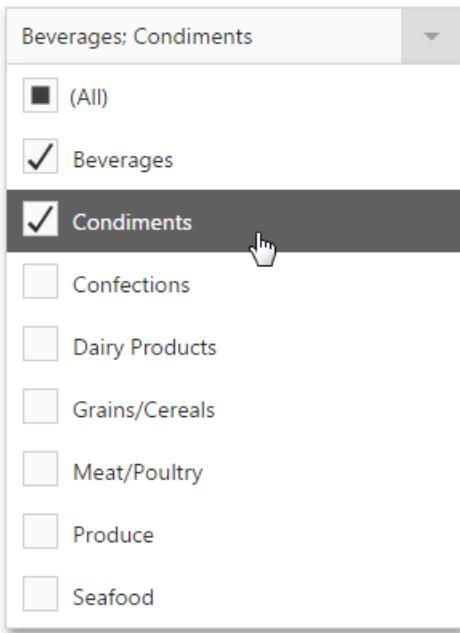
Combo Box

The **Combo Box** dashboard item allows you to select a value(s) from the drop-down list.

- The **Standard** type allows you to select only a single value.



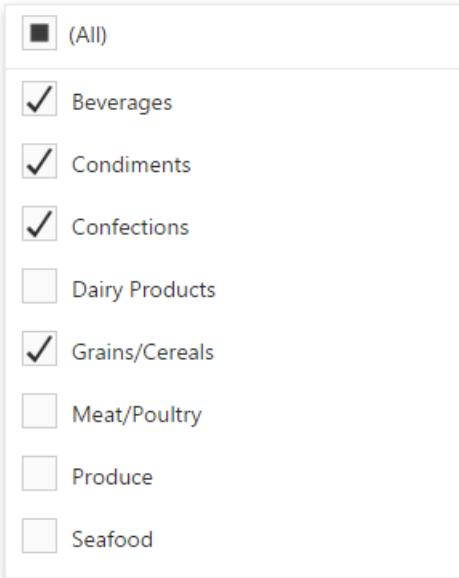
- The **Checked** type allows you to select multiple values in the invoked drop-down list.



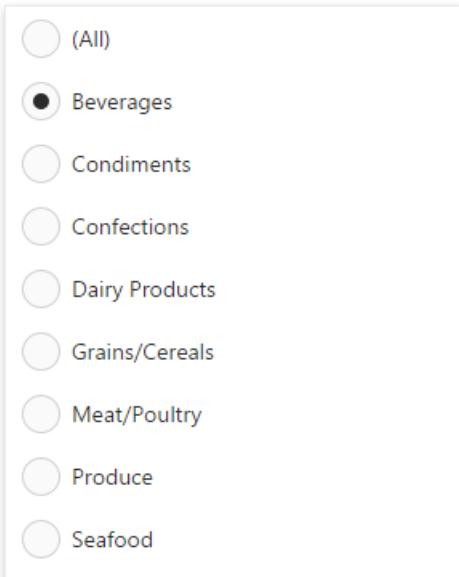
List Box

The **List Box** dashboard item allows you to select a value(s) from the list.

- The **Checked** type allows you to select multiple values in the list box.



- The **Radio** type allows you to select only a single value in the radio group.



Tree View

The **Tree View** dashboard item displays values in a hierarchical way and allows you to expand/collapse nodes.

(All)

▼ 1996

July

August

September

October

November

December

► 1997

► 1998

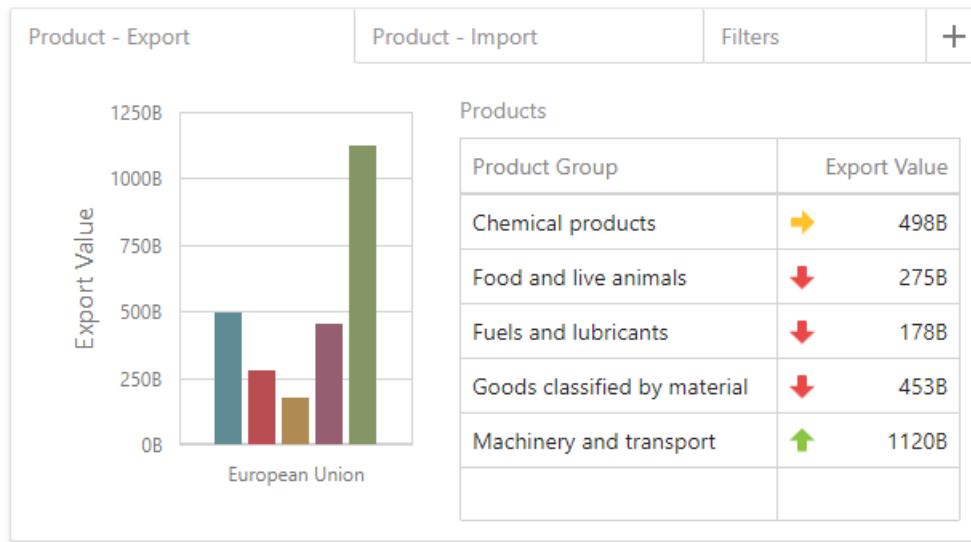
Date Filter

The [Date Filter](#) dashboard item allows you to filter dashboard data based on the selected data range.

3/21/2019 - 4/1/2019 Today Month-to-date Last Quarter

Tab Container

Like the Dashboard Item Group, the **Tab Container** dashboard item allows you to combine elements within a dashboard. The main Tab Container's purpose is to split the dashboard layout into several pages.



Click the tab page's header to switch between tab pages:

