Unanet University

UNANET AE:
Using Analytic Dashboard Designer

PARTICIPANT GUIDE

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ABOUT THIS PARTICIPANT GUIDE

This document serves as a supplement to the training courses offered through Unanet University. Participants should use this workbook to complete exercises in the student Unanet system while attending the course. Additionally, participants should record notes and actions for reference when working within their own Unanet AE system.

Symbols used in this guide


Activity


Important Note


Demo


Question


Tour

Unanet Contact Information

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Send questions here for information about courses, course schedule, unanetuniversity.com, certifications, and enrollments. This is a mailbox that is monitored daily.

Support Portal

To improve your experience in accessing our support resources, all Knowledge Center articles, and FAQs have been relocated to the Unanet Support Portal, located at support.unanet.com. You will need a Support ID to access the portal, which you can acquire using the steps below:

> To obtain a login to the Unanet support portal or to create a new ticket, send an email to support@unanet.com with "Support Portal ID request" in the Subject line.
>
> The following conditions must be met to be granted a support account:
>
> - The "from" address must match the domain of your company.
> - It must NOT be a generic email account (e.g., it cannot be from gmail.com, aol.com, or msn.com).

The company must have an active support agreement with Unanet.

COURSE INTRODUCTION

In this course, you will gain a comprehensive understanding of Unanet AE Analytic Dashboards, learning to utilize their powerful features effectively. You will briefly review the query data process. The course focuses primarily on dashboard design concepts and administration.

Learning Objectives

After this session of **Unanet AE: Using Analytic Dashboards**, participants will be able to:

- Characterize Unanet AE Analytic Dashboards.
- List the concepts around quality dashboard design.
- Review dashboard administration.

LESSON 1: INTRODUCTION TO ANALYTIC DASHBOARDS

Learning Objectives

Characterize Unanet AE Analytic Dashboards.

- Describe how a dashboard could benefit your company.
- List the different types of dashboards in UAE.
- Explain the primary components necessary to create an analytic dashboard.

Purpose

The purpose of an analytic dashboard is to simplify complex data, provide meaningful, real-time insights, and enable users to monitor, analyze, and act upon key data points in an efficient and effective manner.

Definition of a Dashboard

An analytic dashboard is a tool used to visually display and analyze data in a comprehensive and interactive manner. It provides users with an easy-to-understand overview of key performance indicators (KPIs), metrics, and trends relevant to a specific area of interest or business operation.

Analytic dashboards often feature customizable widgets that allow users to choose which data visualizations they want to see. These visualizations can include charts, graphs, tables, and other interactive displays that provide insights into specific areas of a business.

The starting place in UAE is your dashboard. It is the first thing you see when logging in and can serve as a launch pad for business analytics and streamlining your work in UAE.

Benefits of a Dashboard

Benefits of a dashboard include:

- Data Visualization: Analytic dashboards present data in a visually appealing and easily consumable format, such as charts, graphs, tables, or maps. Visual representations make it easier for users to grasp complex information quickly and identify patterns or outliers.
- Dynamic Interaction: Analytic dashboards provide interactive features that allow users to drill down into the data, filter information based on specific criteria, and

explore different perspectives. Users can investigate trends, correlations, and underlying factors that contribute to specific outcomes.

- Real-time insights: Dashboards provide real-time or near real-time data updates, allowing users to monitor key metrics and performance indicators in the moment. This enables timely decision-making and the ability to respond to changing conditions promptly.
- Centralized data view: Dashboards consolidate data from various sources and systems into a single interface, offering a unified view of the organization's performance. This reduces the need to navigate multiple systems or reports to gather information, saving time and effort.
- Customizability: Analytic dashboards are often highly customizable, allowing users to select and arrange widgets or visualizations according to their specific needs and preferences. This flexibility enables users to focus on the metrics that matter most to them and tailor the dashboard to their unique requirements.

Why UAE Dashboards

A dashboard provides a powerful and efficient way to comprehend your business's data, offering direct access to your UAE data without the need for third parties. Additionally, this service comes at no additional cost, making it a cost-effective solution for managing and understanding your data.

Dashboard Types

There are two types of dashboards available in UAE. Classic and Analytic Dashboards are housed and consumed through the **Dashboard** applet which makes accessible all dashboards a user has permission to consume.

Permissions to each dashboard are managed using Dashboard Groups (**UT > Dashboard Groups**).

Classic Dashboard

Classic dashboards allow you to augment UAE and streamline common activities. For instance, you can receive an alert when a project goes over budget or when receivables go past due. Alternatively, many reports in UAE can be run directly from classic dashboards and gridgets, allowing you to display or update data through a dynamic grid.

Analytic Dashboard

Analytic dashboards use rich data visualizations allowing you to perform business analysis and gain powerful insights into your data. For instance, you can view utilization across departments with running trend lines. Use charts, grids, maps, etc. to dynamically filter and interact with your data all in real-time.

Overview of Analytic Dashboards

Analytic dashboards use rich data visualizations allowing you to perform business analysis and gain powerful insights into your data. Analytic dashboards are built on two components: Data and Design. As such, we've built dedicated applets for working with each. Each applet is available from the **Utilities** module.

Like any other report, analytic dashboards rely on a dataset - we call this an analytic model. Each model contains a query that draws from a data source.

Analytic models provide the data for designing dashboards, which can be done with the Analytic Dashboard Designer. Created dashboards are then managed in the **Analytic Dashboards** applet.

Each aspect of an analytic dashboard is governed by assigned User Permissions.

Moving Parts

- Permissions for working with analytic dashboards are assigned in **AD > Permissions**. Please complete the steps below to grant permissions as appropriate to the applets used by this tool.
    - **Data Source –** This is the source of data used in analytic models. Defaults to InFocus, but third party data sources are supported (**Administration > Global Settings > External Data Sources**).
    - **Analytic Models -** Analytic models are at the core of building great dashboards. Model is just another term for query. These are the datasets used to design dashboards. InFocus-optimized models are available in AE Marketplace. Additionally, models can be built and managed with Dashboard Queries Manager (**UT > Dashboard Queries Manager**) and Query Builder (**UT > Query Builder**).
    - **Analytic Dashboard Designer –** This is the tool used to create your analytic dashboards (**UT > Analytic Dashboard Designer**). The **Analytic Dashboard Designer** applet features an intuitive, interactive design environment that displays your dashboards in real time as you build them. Each design uses a data source (defaults to InFocus) and an analytic model.
    - **Analytic Dashboards –** Once an analytic dashboard is created, you'll manage your new dashboard in the **Analytic Dashboards** applet (**UT > Analytic Dashboards**). Similar to other reporting applets, analytic dashboards allow you to edit, copy, delete, import, and export your dashboard.

Querying Data

Querying data in analytic dashboards involves retrieving and presenting information from a data source or multiple data sources in a visual and interactive format. Analytic

dashboards are used for data analysis, reporting, and decision-making, and they provide users with a way to explore data, gain insights, and make informed decisions. Querying data, and the Query Builder is discussed in a separate course.

Dashboard Design

The Analytic Dashboard Designer applet features an intuitive, interactive design environment that displays your dashboards in real-time as you build them. Each design uses a data source (defaults to Infocus) and an analytic model.

When clicking New, you'll be prompted to select an analytic model. Note that the designer supports multiple data sources and multiple models per design (advanced designs). Once selected, you're ready to begin using the design tools.

Check Your Understanding

What is the main benefit of using dashboards in UnanetAE?

a) To facilitate team meetings
b) To schedule project tasks
c) To visualize data (Correct)
d) To store company policies
e) To control inventory

What is the purpose of querying data in analytic dashboards in UnanetAE?

a) To schedule tasks
b) To manage resources
c) To allocate budget
d) To retrieve and present information in a visual and interactive format
e) To facilitate team communication

Refer to Appendix A for answers to the Check Your Understanding questions.

LESSON 2: DASHBOARD DESIGN

Learning Objectives

List the concepts around quality dashboard design.

- Review the role of an analytic dashboard designer.
- Explain how to work with data within analytic dashboards.
- Describe how to use the components of an analytic dashboard.
- Examine dashboard interactivity.
- List dashboard design format rules.
- Review dashboard layout.

Overview - Dashboard designer role

The role of a dashboard designer is to create visually appealing and user-friendly dashboards that effectively communicate data insights and support decision-making. The dashboard designer is responsible for translating data requirements and user needs into intuitive and informative dashboard layouts. Here are the key aspects of their role:

- Data Visualization and Design: The dashboard designer creates visually appealing and informative data visualizations such as charts, graphs, tables, maps, and other graphical elements. They have a deep understanding of visualization best practices, color theory, typography, and layout design to ensure the data is presented in a visually engaging and understandable manner.
- User Experience (UX) Design: The dashboard designer focuses on designing an intuitive user interface and navigation flow within the dashboard. They consider the user's perspective, ensuring that the dashboard is easy to navigate, interactive, and provides a seamless user experience. They may conduct user research, create user personas, and gather feedback to refine the design and improve usability.
- Information Architecture: The dashboard designer structures and organizes the content and data within the dashboard to provide a logical and meaningful flow of information. They categorize and group data elements, define hierarchies, and determine the appropriate placement of visualizations to ensure users can easily find and interpret the relevant information.
- Dashboard Layout and Composition: The dashboard designer determines the layout and composition of the dashboard, arranging visualizations and components in a way that optimizes data understanding and communication.

They consider the balance between aesthetics and functionality, ensuring that the most important insights and KPIs are prominently displayed while maintaining a coherent and organized overall design.

- Collaboration with Data Analysts and Stakeholders: The dashboard designer collaborates closely with data analysts, business stakeholders, and end-users to understand their data requirements and goals. They gather feedback, iterate on design concepts, and incorporate user feedback to create a dashboard that meets the needs of the intended audience.

Overall, the role of a dashboard designer is to create visually appealing, user-friendly, and informative dashboards that effectively communicate data insights. They combine data visualization expertise with design principles to create compelling and impactful dashboards that empower users to make data-driven decisions.

Dashboard Designer’s Responsibilities

An analytic dashboard designer is responsible for designing and creating interactive dashboards that provide real-time insights and data visualizations to support decision-making processes. The role of an analytic dashboard designer typically includes:

- Understanding the user's needs: A dashboard designer should have a clear understanding of the users' requirements, business objectives, and data sources. This information helps the designer to create a dashboard that aligns with the users' needs.
- Data visualization: A dashboard designer should have a strong understanding of data visualization techniques and best practices. This skillset allows the designer to create visually appealing dashboards that communicate data insights effectively.
- Dashboard architecture: The designer must create an intuitive and logical architecture for the dashboard. This architecture should allow users to access relevant data quickly and easily.
- Data integration: A dashboard designer should have experience integrating data from various sources, including databases, spreadsheets, and cloud-based services.
- Testing and maintenance: Once the dashboard is created, the designer must conduct thorough testing to ensure it is accurate and functional. The designer must also maintain the dashboard to ensure it continues to meet user needs and remains up-to-date with changing data sources.

Overall, the role of an analytic dashboard designer is to design and develop dashboards that provide data insights that enable data-driven decision-making. The designer must have a strong understanding of the users' needs, data visualization techniques, and

best practices, as well as technical skills such as data integration and dashboard maintenance.

Best Practices for Dashboard Designers

Here are some best practices for an analytic dashboard designer.

- Understand your audience: It's important to know who your dashboard users are, what their needs are, and what data they need to see to make informed decisions. This will help you design a dashboard that is useful and relevant to its intended audience. Communication between the end user and the designer is key.
- Keep it simple: Avoid cluttering the dashboard with too much information or too many visualizations. Keep the design simple and intuitive, so users can quickly and easily find the data they need. Ideally keep it to a single page, and prioritize the “big picture” view.
- Choose the right visualizations: Different types of data require different types of visualizations. Use the appropriate charts and graphs to represent the data effectively and avoid confusing users.
- Highlight key information: Use colors, symbols, and other visual cues to draw attention to important data points or trends. Emphasize the visual aspect over text data. This will help users quickly identify the most relevant information.
- Provide context: Provide context and explanations for the data on the dashboard. This will help users understand what they are looking at and how it relates to their business goals.
- Ensure data accuracy: It's important to ensure that the data on the dashboard is accurate, up-to-date, and relevant. This requires regular maintenance and monitoring of data sources. Test your data before you start building to ensure user visibility, field functionality and correct totals.

UAE Analytic Dashboard Designer

The designer itself is organized into three sections: Toolbar, Data browser/pane, and the Dashboard surface. You’ll use the toolbar options in conjunction with your data to build your dashboard view on the surface.

Designer Toolbar

The Analytic Dashboard Designer toolbar offers powerful options for working with designs and is where primary tools are made available. The toolbar contains both standard options (always visible) and item-specific options, visible when working with the item. While item specific options will be discussed in context, here is a list of standard toolbar options.

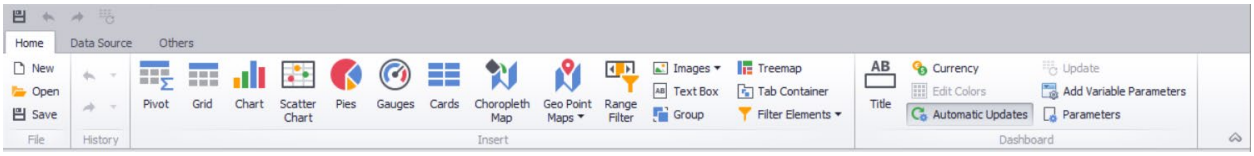
Field Descriptions - Dashboard Designer

Following is a list of standard applet fields/buttons/elements used in the Analytic Dashboard Designer.

Menu Options

- **File/Help -** Lists standard Unanet A/E File and Help options.

Toolbar Options



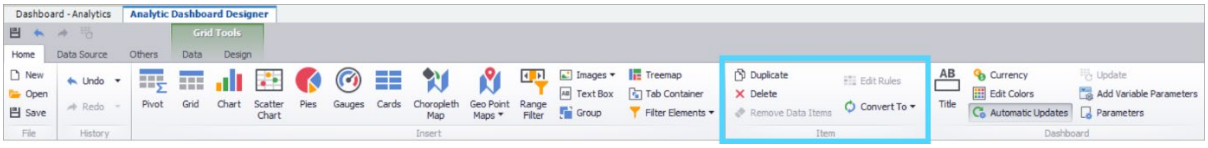
- Pinned Options
  - **Save -** Saves the loaded dashboard.
  - **Undo -** Reverses edits made.
  - **Redo -** Adds back Undone changes.
  - **Update -** Updates the dashboard with the latest modifications. This could be used if two users were working on the same dashboard design.

Home Tab

- **New -** Creates a new dashboard.
- **Open -** Opens an existing dashboard.
- **Save -** Saves the loaded dashboard.
- **Undo -** Reverses edits made.
- **Redo -** Adds back Undone changes.
- **Insert Section -** Dashboard Items used in designing an Analytic Dashboard. Supported items are as follows:
  - Pivot
  - Grid
  - Chart
  - Scatter Chart
  - Pies
  - Gauges
  - Cards
  - Choropleth Map
  - Geo Point Maps
  - Range Filter
  - Images
  - Text Box
  - Groups
  - Treemap

- Tab Container
- Filter Elements (e.g., Combo Box, List Box, Tree View)

- **Item Section -** Hidden until an Item (listed above) is inserted. Note that these options only affect the last item you selected. Available options include:
  - **Duplicate -** Duplicates the highlighted item on the dashboard.
  - **Delete -** Deletes the highlighted item.
  - **Remove Data Items -** Removes Data Items from the dashboard. This is a quick way to remove all the data items from the **DATA ITEMS** pane.
  - **Edit Rules -** Launches dialogue to work with conditional format rules added to the dashboard item.
  - **Convert To -** Used for converting one item to another (e.g., convert a Grid to a Chart).

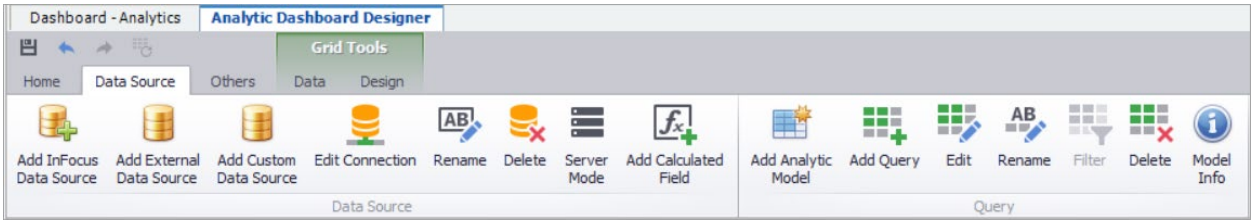


- **Dashboard Section -** Settings global to the loaded dashboard.
  - **Title -** Configures dashboard title options.
  - **Currency -** Configures currency options.
  - **Edit Colors -** Edits global dashboard colors.
  - **Automatic Updates -** Enables automatic updates for the dashboard.
  - **Update -** Use to manually update the dashboard. Disabled when using Automatic Updates.
  - **Add Variable Parameters -** Adds additional dashboard parameters.
  - **Parameters -** Used to manage dashboard parameters.

Data Source Tab

- **Add Infocus Data Source -** Adds an Infocus data source.
- **Add External Data Source -** Adds an external data source- configured in Global Settings (**AD > Global Settings > External Data Sources**).
- **Add Custom Data Source -** Adds a custom data source (Excel, CSV, etc.).
- **Rename -** Renames the loaded data source.
- **Delete -** Removes the loaded data source.
- **Server Mode -** Enables server mode. When enabled, data related operations (grouping, filtering, etc.) are performed on the server. When not enabled, processing is done client side in-memory. Generally, Server Mode only supports SQL Data Sources and may or may not impact performance.
- **Add Calculated Field -** Launches the Expression editor for creating calculated fields.

- **Add Analytic Model -** Adds Analytic Models to the Query dropdown. Multiple data sources are supported.
- **Add Query -** Launches the Query Editor for developing queries from the designer.
- **Edit -** Edits the currently loaded query (Analytic Model).
- **Rename -** Renames the currently loaded query.
- **Filter -** Edits the currently loaded query filter.
- **Delete -** Deletes the currently loaded query from the data source.
- **Model Info -** Displays Field/List Descriptions for the loaded Analytic Model. **Note:** Descriptions for the model are entered for each model via **UT > Dashboard Queries Manager**.

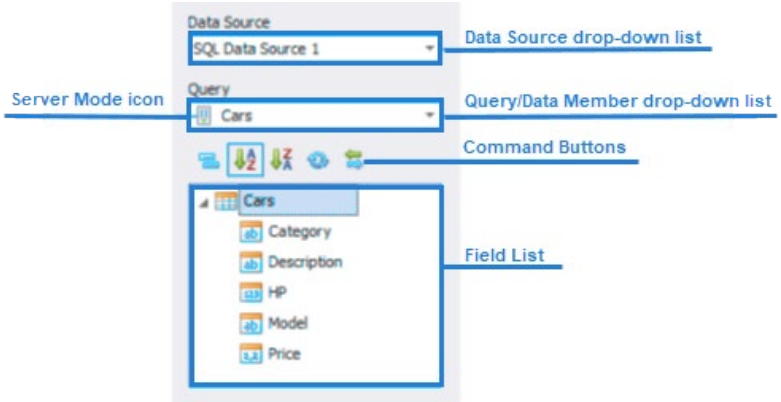


Data Browser/Pane

The Data Browser is where you'll interact with your Data Source and Analytic Model. Once a model is loaded to the dashboard (done by clicking refresh above the model field list), you can bind fields to Dashboard Items by dragging and dropping fields into the **DATA ITEMS** pane as appropriate for the Dashboard Item (Grid, Chart, Pie, etc.).

Data Source Browser

The Data Source Browser allows you to navigate through dashboard data sources. It displays the data source structure and allows you to bind dashboard items to the required data source fields using drag-and-drop operations. The Data Source Browser also enables you to manage calculated fields.

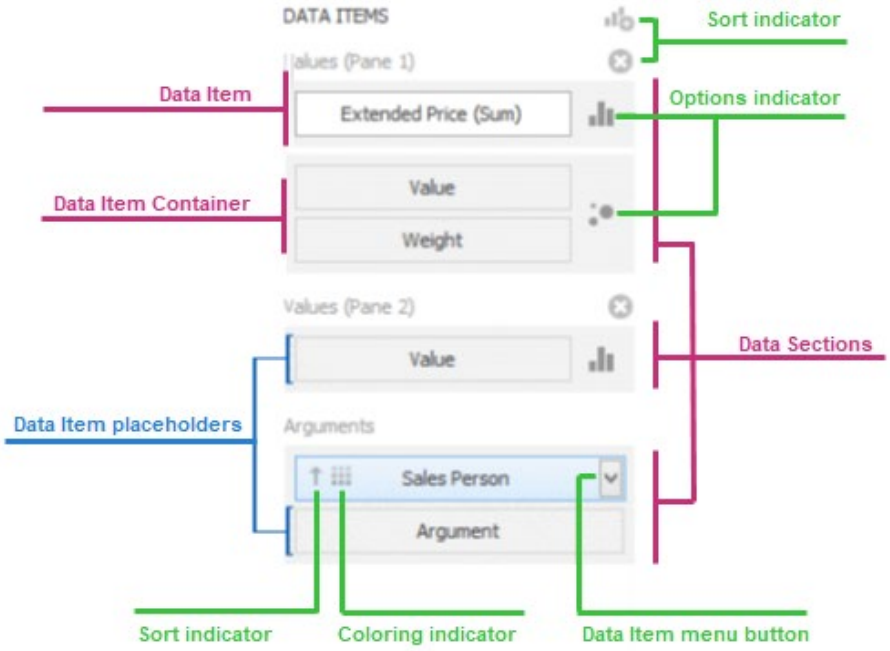


Command buttons

- **Data Source -** Lists the currently loaded data source. Supports multiple data sources (advanced designs).
- **Query/Model -** Lists the currently loaded Analytic Models. Supports multiple models (advanced designs).
- **Group Fields by Type button -** Groups field list by data type (datetime, nvarchar, int, etc.).
- **Sort Fields AZ button -** Sorts field list alphabetically.
- **Sort Fields ZA button -** Sorts field list alphabetically (descending order).
- **Reload Data (Refresh) -** Refreshes the field list. **Note:** When starting a new design, you must first click refresh to perform an initial data load. Otherwise your data will not display.
- **Change Binding -** Currently not in use.

DATA ITEMS pane

As mentioned above, Dashboard Items (Grids, Charts, etc.) are bound to data fields via the DATA ITEMS pane. The DATA ITEMS pane is placed side-by-side with the Data Source Browser, and allows you to create and modify data binding using drag-and-drop operations.



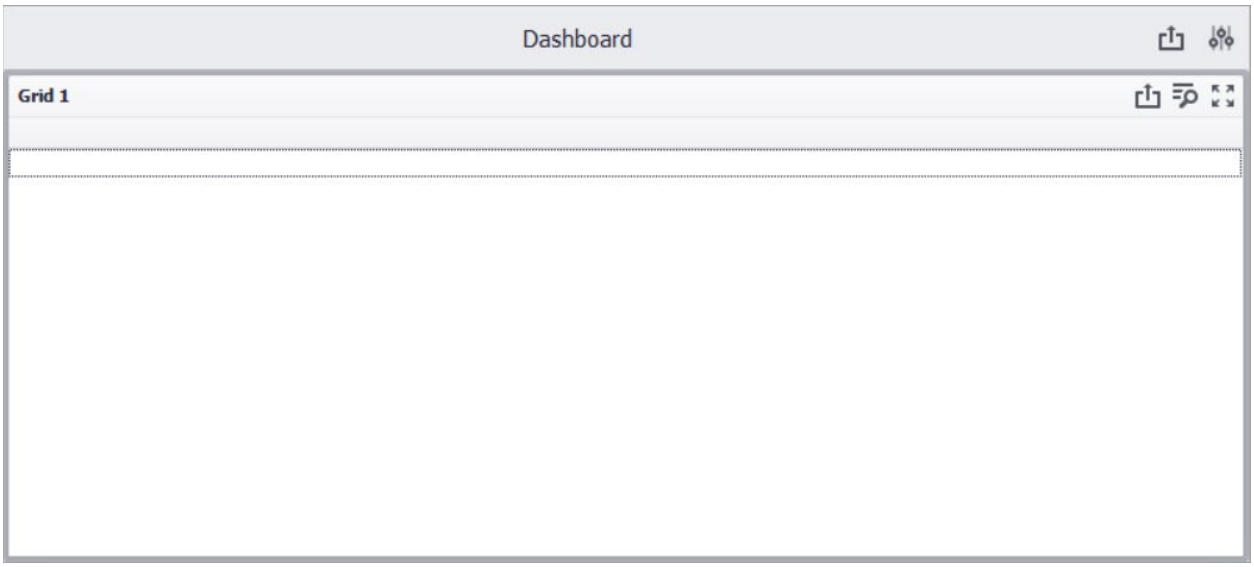
- Options in the DATA ITEMS pane will vary based on the Dashboard Item. Below is a list of available options.
    - **Command Buttons -** Listed in the upper right of the **DATA ITEMS** pane, command buttons allow you to run various operations like adding a new pane to a chart dashboard item.

- **Data Item Placeholders (Values, Columns, Rows, Arguments, Series, etc.) -** Used to bind data fields to the dashboard item. Available placeholders are determined by the selected dashboard item.
- **Data Section -** corresponds to a particular dashboard item area or element.
- **Data Item container -** used to provide data item sets (e.g., for calculating the difference between two measures). Data item containers have **Options** buttons that allow you to change specific dashboard item settings (e.g., to switch between chart series types or grid column types).
- **Sort indicator -** shows the current sort order for the data item.
- **Coloring indicator -** indicates whether coloring by hue is enabled for the data item.
- **Hidden Data Items -** Data items being used by the dashboard (filters, etc.) that don't appear in any displayed dashboard item. For instance, you could use a Grid to display Employee Name and Hours and then use a hidden field to filter out time against indirect projects based on the Charge Type. Fields can be used as either Dimensions or Measures based on the intended use for the field.
- **Dimensions -** Represent data items that can be added to the dashboard as they are with no required aggregation. Dimensions can further be sorted and/or grouped. (Project Code, Employee Name, etc.).
- **Measures -** Represent data items that are added to the dashboard only as summaries (Sum of Hours, Max Work Date, etc.).

Dashboard Surface

The Dashboard surface is your primary design space and reflects added items. Dashboard items can be configured, resized, and reorganized as needed.

In short, what you see on the surface (in terms of design), is what your end users will experience when viewing the Analytic Dashboard.



Field Descriptions

- **Title -** Defaults to “Dashboard.” The “Dashboard” title can be renamed, removed, etc., by clicking **Title** from the **Home** Toolbar.
- **Export To -** Exports the design to Print Preview, PDF, or Image. For example, this can be a great option if publishing a dashboard for one-time analysis.
- **Dashboard Parameters button -** Reflects the parameters available to the design and subsequently the end user.

Tour 2.1 – Review the Analytic Dashboard Designer Applet

Watch this video overview of the Analytic Dashboard Designer applet.

Working with the Data

Here we will discuss some of the methods for formatting data. As grids are a flexible way to view data, we will work with them in our examples. Data can be added to the grid in columns, configured based on column types, formatted and configured to interact with other Dashboard Items.

Formatting Data

The first way of formatting we will discuss is column types. Columns are used to label and provide data to the grid columns. Grids support multiple column types which can be edited by clicking the column type indicator (right-aligned icon in the **New Column** placeholder field in the **DATA ITEMS** pane). The system makes a judgement about the type of data and automatically assigns it a type. For example, text input is assigned as a

dimension, numbers are assigned as a measure. Below is a description of each column type:

- **Dimension –** Dimension represents data items that can be added to the dashboard as they are with no required aggregation. Dimensions can further be sorted and/or grouped. (e.g. Project Code, Employee Name, etc).
- **Measure –** Measure represents data items that are added to the dashboard only as summaries (e.g. Sum of Hours, Max Work Date, etc). Measures can be displayed as the value or as a bar.
- **Delta –** Delta calculates the difference between the sum of two measures and can display a visual indicator of the difference. Actual represents the first measure and Target represents the second. Deltas can be displayed as a value or a bar. Values can be further configured to evaluate the following:
    - **Value Type -** How the calculated result is represented
    - **Result Indication -** Condition that defines the visual indicator (e.g. Greater is good will display a green up arrow if the Actual exceeds the Target)
    - **Threshold Type -** Further rules can be applied to when a visual indicator will be displayed in the result (e.g. display a green up arrow only if the Actual exceeds the target by 15% or $1500.00). Threshold Type defines the type of threshold to apply- percent or absolute value.
    - **Threshold Value -** Sets the value for the threshold (e.g. 15%).

Data added to range filters is automatically formatted based on the data type. That said, formats can be edited by clicking the **Options** button (down arrow) seen when hovering over the data item. For instance, Date Values have several display options. To change display settings, hover over the data item and complete the following:

- Click the **Options** button (down arrow).
- Select the Date type (e.g. Year, Quarter, etc).
- Optionally set the Format.
    - Default
    - Full (e.g. Month = October, etc.)
    - Abbreviated (e.g. Month = Oct, etc.)
    - Numeric (e.g. Month = 10, etc.)
    - Long (e.g. Date-Hour = Saturday, October 15, 2016 10:57pm (en-US)
    - Short (e.g. Date-Hour = 10/15/2016 10:57pm (en-US))
    - Time Only (e.g. Date-Hour = 10:57pm (en-US))

To change the format for numbers or currency:

- Hover over the field in the **DATA ITEMS** pane
- Click the **Options** button (down arrow)
- Select **Format**.
- Configure settings as appropriate.

- **Format Type -** Defaults to Auto. Options include: General, Number, Currency, Scientific, Percent.
- **Unit -** Defines how the currency value should be converted
- **Precision -** Defines the decimals to display
- **Currency -** Defaults to Dashboard global currency setting. Specific currency settings can be set here.
- **Culture -** Defines the currency cultures for currencies with multiple cultures
- **Include group separator -** Displays a comma between each numeric group (e.g. 1,000,000.00)

Activity 2.2 – Formatting Data

In this activity, you will work with some common data types and apply basic formatting to dates and numbers.

Activity Steps

Part 1: Work with common data types

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Labor Resource Schedule Summary CVS** model.
5. Select the **Grid** button. The grid displays on the Dashboard.
6. Select the **Parameters** button on the upper-right corner of the Dashboard. The **Dashboard Parameters** window opens.
7. Type *3/31/2023* in the **Value** field for the **Thru_Date** line.
8. Select the **Submit** button.
9. Click and drag the following fields from the **Data Source** browser to the **New Column** field in the **DATA ITEMS** pane.
   Note: If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
   - Employee_Name
   - Transaction_Date
   - Labor_Effort
   - Labor_Pay_Cost
   - Labor_Effort (this is a second Labor_Effort column)
     Note: You can rearrange the order by clicking and dragging the fields up and down the list.
10. Select the **sum** button to the right of the second **Labor_Effort** column in the **DATA ITEMS** pane. The **Column Options** window opens.
11. Select the **Delta** radio button.
12. Select the **OK** button. A **Target** field displays under the **Labor_Effort** column.

13. Click and drag a **Labor_Pay_Cost** field to the **Target** field. The column in the grid now displays an updated header and the difference between **Labor_Effort** and **Labor_Pay Cost**.

Part 2: Formatting dates and numbers

1. Select the **down arrow** for the **Transaction Date** column in the **DATA ITEMS** pane. **Note:** Hover the cursor over the column name to activate the arrow. You can also right-click the name to view the same drop-down menu.
2. Select **Exact Date** from the list. The **Transaction_Date** column updates on the grid.
3. Select the **down arrow** for the **Transaction Date** column in the **DATA ITEMS pane** again.
4. Select **Format (Day: Default) > Day > Long**. The date displays in long form in the grid.
5. Select the **down arrow** for the **Transaction Date** column in the **DATA ITEMS** pane.
6. Select **Quarter-Year** from the list.
7. Select the **down arrow** for the first **Labor_Effort** column in the **DATA ITEMS** pane.
8. Select **Format…**. The **Numeric Format** window opens.
9. Select **Number** in the **Format Type** field. Note the display at the bottom of the window previews the format of the numbers as each option is selected.
10. Select **Ones** in the **Unit** field.
11. Select **0** in the **Precision** field.
12. Select the **Include group separator** check box.
13. Select the **OK** button.
14. Select the **down arrow** for the first **Labor_Pay_Cost** column in the **DATA ITEMS** pane.
15. Select **Format…**. The **Numeric Format** window opens.
16. Select **Currency** in the **Format Type** field. Note the display at the bottom of the window previews the format of the numbers as each option is selected.
17. Select **Ones** in the **Unit** field.
18. Select **2** in the **Precision** field.
19. Select the **Include group separator** check box.
20. Select the **OK** button.

Calculated Fields

The Dashboard Designer provides the capability to create calculated fields that allow you to apply complex expressions to data fields that are obtained from the dashboard's data source. You can use these fields in data visualizations as regular data source fields. After you have created a data source, you can add a new calculated field based on the existing data source fields.

Keep in mind that fields are locally created and stay local. This means that another user that selects the same query will not have access to the calculated fields created for a particular dashboard. They will have to create their own calculated fields.

To create a calculated field, right-click anywhere in the fields list. To modify a calculated field, right-click the field to display the menu. The menu contains the following items:

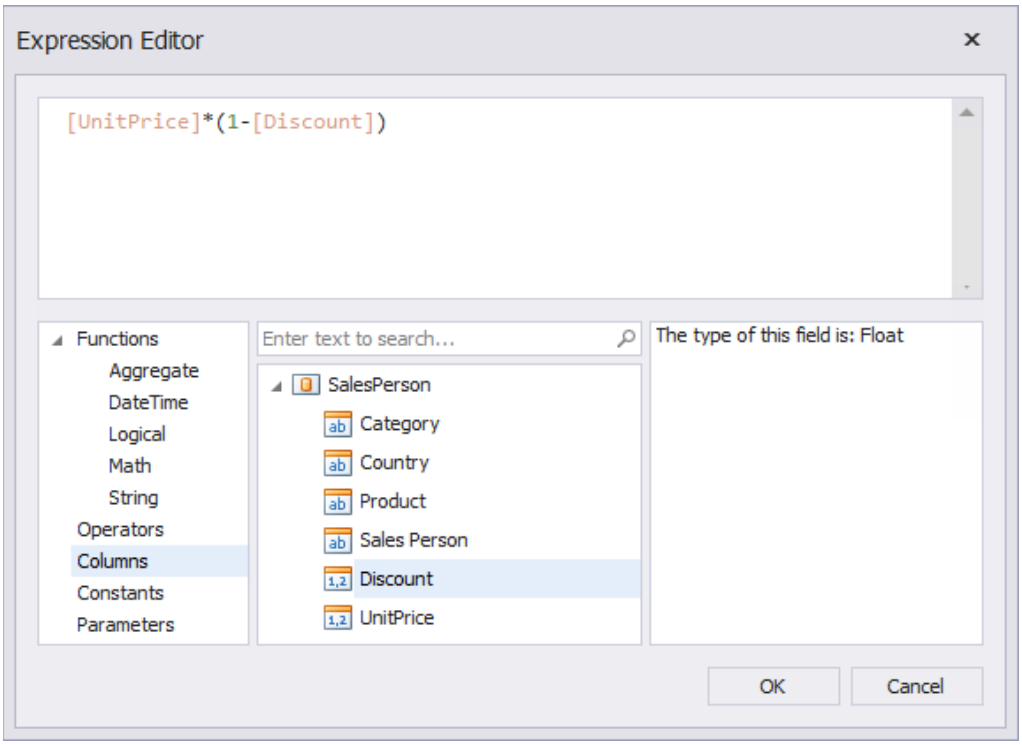
- **Edit Expression -** Opens the Expression Editor dialog, which allows you to change an expression for an existing calculated field.
- **Field Type -** Specifies the type of the calculated field.
- **Rename -** Changes the calculated field name.
- **Delete -** Removes the existing calculated field from the data source.

Note: If for some reason you delete a calculated field, and the field is part of a report, the grid data will disappear. An error icon will display in the upper left corner of the grid by the grid name. Select the error icon for details. You can recreate the calculated field, undo the removal, or remove the field from the **DATA ITEMS** pane to restore the grid view.

Expression Editor

The **Expression Editor** which allows you to specify an expression that will be used to obtain calculated field values. Here, you can construct the required expression. It functions in a manner similar to Excel.
The top pane of the **Expression Editor** displays the expression as it is built. The lower left pane displays the available elements. These elements include:

- Columns
- Constants
- Operators
- Functions



As you choose the element you wish to add, the center pane automatically updates. For example, when you choose Columns in the left pane, the center pane displays all the available columns in this query available for your calculated field. If you choose Operators, the center pane displays all the possible operators (addition, subtraction, percentage, etc.).
The pane on the lower right displays a description of the element. This is particularly useful when working with the functions, as the names do not fully describe the function.

After the expression has been specified, select the **OK** button. This displays a new calculated field in the data source structure.

Now you can specify the required calculated field type, change its default name, etc.

Activity 2.3 – Calculated Fields

In this activity, you will add a calculated field to the grid.

Activity Steps

Part 1: Create a new dashboard

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Employee Utilization Summary Month CVS** model.

5. Select the **Grid** button. The grid displays on the Dashboard.
6. Click and drag the following fields from the **Data Source** browser to the **New Column** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
   - Employee_Code
   - Employee_Name
   - Direct_Labor_Job_Cost
   - Labor_Pay_Cost

     Note: You can rearrange the order by clicking and dragging the fields up and down the list.

Part 2: Create a calculated field to subtract data

1. Right-click anywhere in the **Data Source** panel list of fields.
2. Select **Add Calculated field**. **Note:** you can also access calculated fields by selecting the **Data Source** tab > **Calculated field**. The **Expression Editor** opens.
3. Verify **Columns** is selected in the lower left pane.
4. Type *direct_labor* in the **search** field over the center pane to filter the list of fields.
5. Double-click **Direct_Labor_Job_Cost**. Note that the field now displays at the top of the editor.
6. Select **Operators** in the lower left pane.
7. Click the **X** in the text field over the center pane to remove the previous filter.
8. Double-click the **–** (minus) sign.
9. Select **Columns** in the lower left pane.
10. Type *direct_labor* in the **search** field over the center pane to filter the list of fields.
11. Double-click **Direct_Labor_Pay_Cost**.
12. Select the **OK** button. The new **Calculated Field 1** displays in the field list.
13. Click and drag the **Calculated Field 1** field to the **New Column** field.
14. Right-click **Calculated Field 1** in the **Data Source** pane.
15. Select **Rename** from the list.
16. Type *Overhead_Cost* in the field. Note that the field name updates in the **DATA ITEMS pane** and in the column header on the grid.

Part 3: Create a calculated field to concatenate data

1. Right-click anywhere in the **field list**.
2. Select **Add Calculated field**. The **Expression Editor** opens.
3. Select **Functions** in the lower left pane.
4. Type *concat* in the text field over the center pane to filter the list of fields.
5. Double-click **Concat**. Note the updated description on the right.
6. Select **Columns** in the lower left pane.
7. Click the **X** in the text field over the center pane to remove the previous filter.

8. Type *employee_code* in the text field over the center pane to filter the list of fields.
9. Double-click **Employee_Code**.
10. Type *' ',* in the formula at the top of the editor after [Employee_Code], to add a space.

```
Concat([Employee_Code],' ',)
```

Note: You must use single quotes. The editor will not accept double quotes.

11. Click the **X** in the text field over the center pane to remove the previous filter.
12. Type *employee_name* in the text field over the center pane to filter the list of fields.
13. Double-click **Employee_Name**. The final formula displays as follows:

```
Concat([Employee_Code],' ',[Employee_Name])
```

14. Select the **OK** button.
15. Click and drag the new **Calculated Field 1** field to the top of the **Columns** list in the **DATA ITEMS** pane. The new field displays the employee code and name in one column, saving space in the grid.
16. Right-click **Calculated Field 1** in the **Data Source** pane.
17. Select **Rename** from the list.
18. Type *Employee* in the field. Note that the field name updates in the **DATA ITEMS** pane and in the column header on the grid.
19. Click and drag the following fields out of the **DATA ITEMS** pane.
    - Employee_Code
    - Employee_Name

Part 4: Create a calculated field to display cost for all employees in a department

1. Click and drag an **Employee_Home_Org_Path** field to the 2nd position in the **Columns** list in the **DATA ITEMS pane**.
2. Right-click anywhere in the **field list**.
3. Select **Add Calculated field**. The **Expression Editor** opens.
4. Select **Functions** in the lower left pane.
5. Type *if* in the text field over the center pane to filter the list of fields.
6. Double-click **Iif**.
7. Select **Columns** in the lower left pane.
8. Click the **X** in the text field over the center pane to remove the previous filter.
9. Type *employee_home* in the text field over the center pane to filter the list of fields.
10. Double-click **Employee_Home_Org_Path**.
11. Type *='ARC '* in the formula at the top of the editor.

```
Iif([Employee_Home_Org_Path]='ARC',)
```

12. Click the **X** in the text field over the center pane to remove the previous filter.
13. Type *direct_labor* in the text field over the center pane to filter the list of fields.

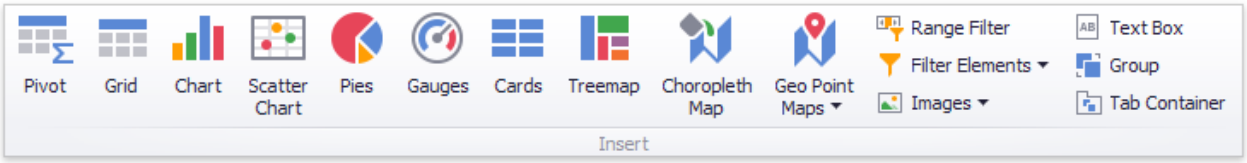
14. Double-click **Direct_Labor_Job_Cost**.
15. Type *0* at the end of the formula.

```
Iif([Employee_Home_Org_Path]='ARC',[Direct_Labor_Job_Cost],0)
```

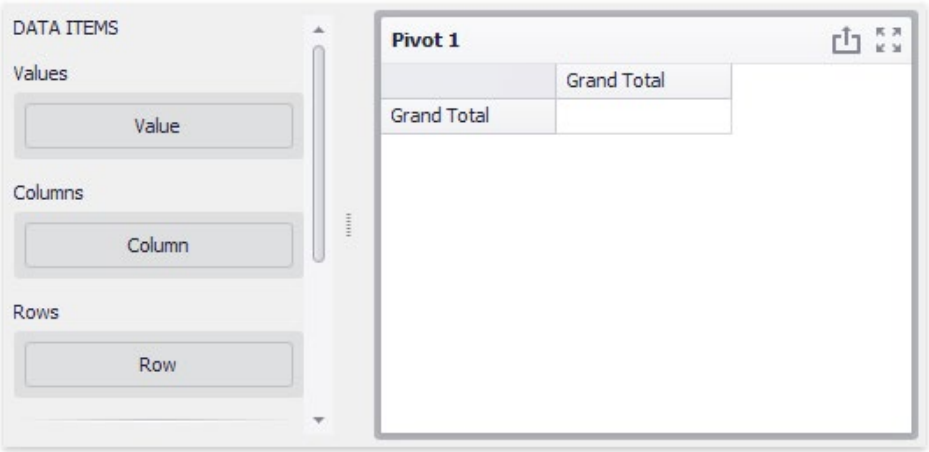
16. Select the **OK** button.
17. Right-click **Calculated Field 1** in the **Data Source** pane.
18. Select **Rename** from the list.
19. Type *DL_JC_ARC* in the field.
20. Click and drag the **DL_JC_ARC** field to the 3rd position in the **Columns** list in the **DATA ITEMS pane**. The field displays the cost for the employee with the ARC path.

Dashboard Items

To create a dashboard item in the **Dashboard Designer**, click the corresponding button in the **Home** ribbon tab.



This creates an empty dashboard item, and displays the required data sections for binding this item to data.

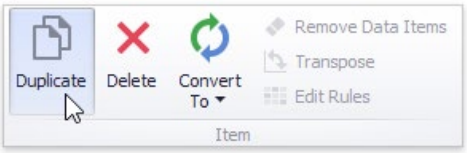


Perform the following steps to design a dashboard item.

- Bind the dashboard item to data.
- Perform the required data shaping operations (such as grouping, sorting and filtering).

- Use the interactivity features to enable interaction between various dashboard items.
- Adjust the dashboard item's position and size and specify the dashboard item caption settings.
- Specify specific dashboard item settings based on its type.

After you have created and designed the dashboard item, you can create an exact copy. To do this, click the **Duplicate** button in the **Home** ribbon tab or use the dashboard item's context menu. To remove the dashboard item from the dashboard, use the **Delete** button or the corresponding item in the context menu.

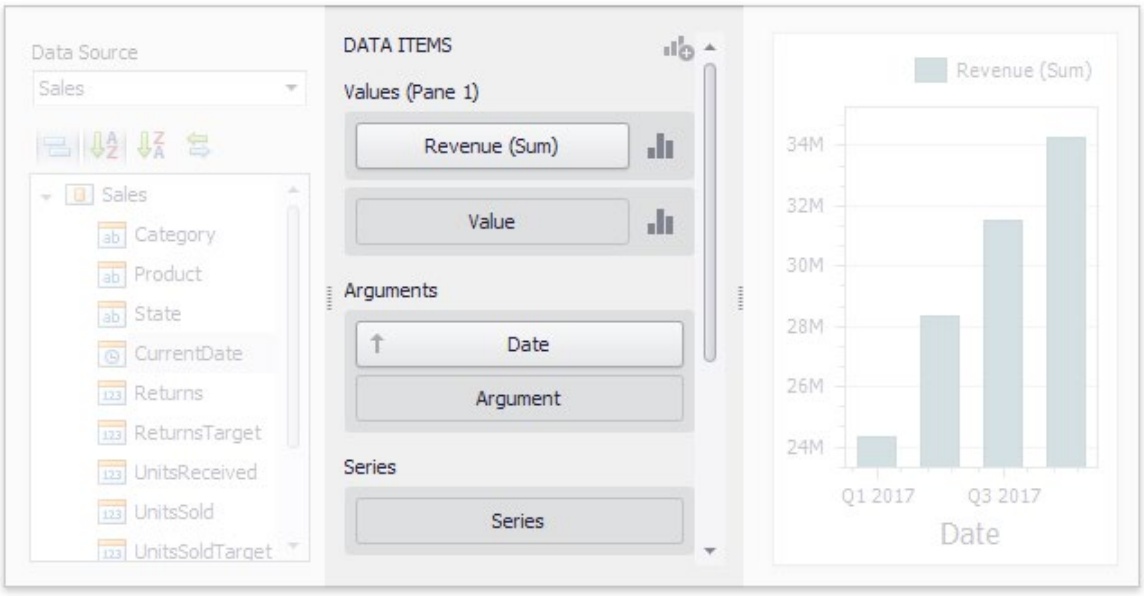


Overview

This topic discusses how to bind items to data and hidden data items.

Bind Dashboard Items to Data

To bind dashboard items to data in the Dashboard Designer, use the **DATA ITEMS** pane.

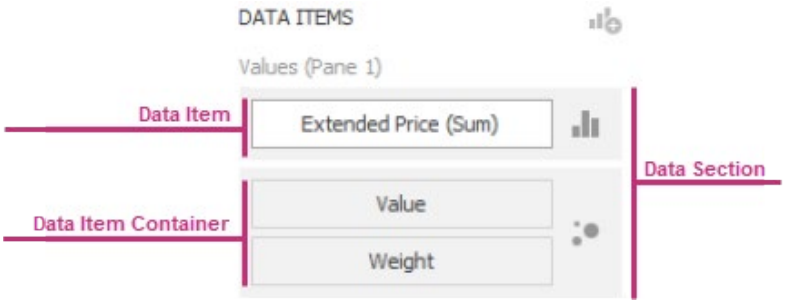


Each dashboard item type has a specific set of data sections, such as Values, Arguments and Series in the chart, Columns and Sparklines in the grid, and Values, Columns and Rows in the pivot grid. Each data section corresponds to a particular

dashboard item area or element, and should be mapped to data to be displayed within this area/element.

Mapping is performed using data items - objects that are used to bind a dashboard item to data source fields. Data items are used to link the dashboard item to the required data source fields and, thus, visualize data within the dashboard item.

Another key concept in data binding is the data item container, which represents a set of data items. It can contain either a single data item or multiple data items, and allows you to specify various options related to how a specific dashboard item visualizes data.



The data item can process data in two ways - as dimensions or measures. This depends on the data section to which the data item is assigned, and the type of the data item container.

- **Dimension -** a data item whose values are not intended to be summarized. These values can be of any type - string, date-time or numeric. In any case, the dashboard does not summarize the dimension values, but groups identical values. You can perform grouping, sorting, or display the top values for the dimension values.
  You can also customize data format settings for numeric and date-time values. To access the data shaping settings, use the data item's menu button.

  For instance, dimensions are used to provide data for the chart argument axis, pivot grid column and row headers.

- **Measure -** a data item whose values are summarized before they are used in the dashboard. These values can be of any type - numeric, date-time or string. In any case, the dashboard will calculate an appropriate summary function against measure values. You can also customize the data format settings that affect how summary values are displayed. To access these settings, use the data item's menu button.

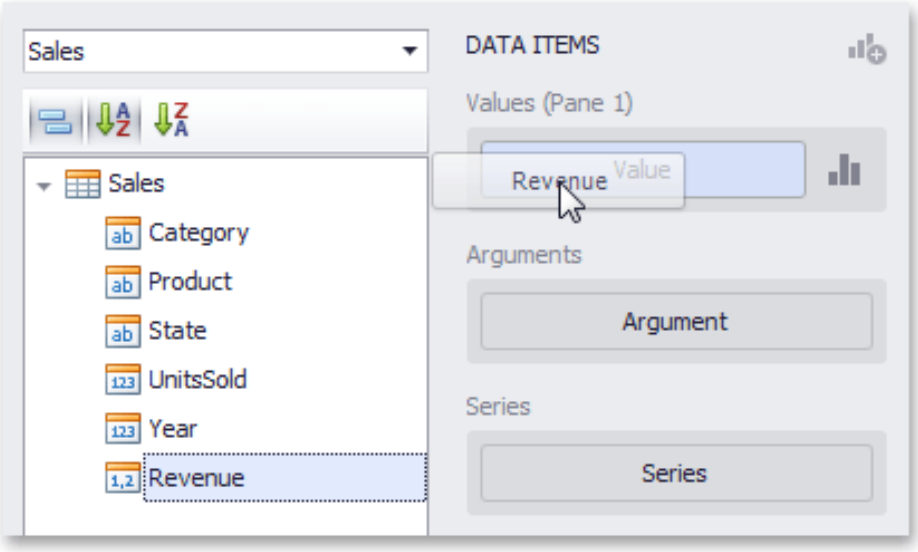
For example, measures are used to provide data for the chart's Y-axis, and to calculate pivot cell values.

Specific data sections display Options buttons for each data item container. Use these buttons to open a dialog that allows you to specify the settings of this data item container. These settings affect how a particular dashboard item's area/element displays the provided data.

Create Binding

The **DATA ITEMS** pane displays data sections of the selected dashboard item. It can be used to add, rearrange or remove data items.

To bind a dashboard item to data, select the dashboard item. Then choose the required data field from the Data Source Browser and drop it onto the appropriate section in the **DATA ITEMS** pane.

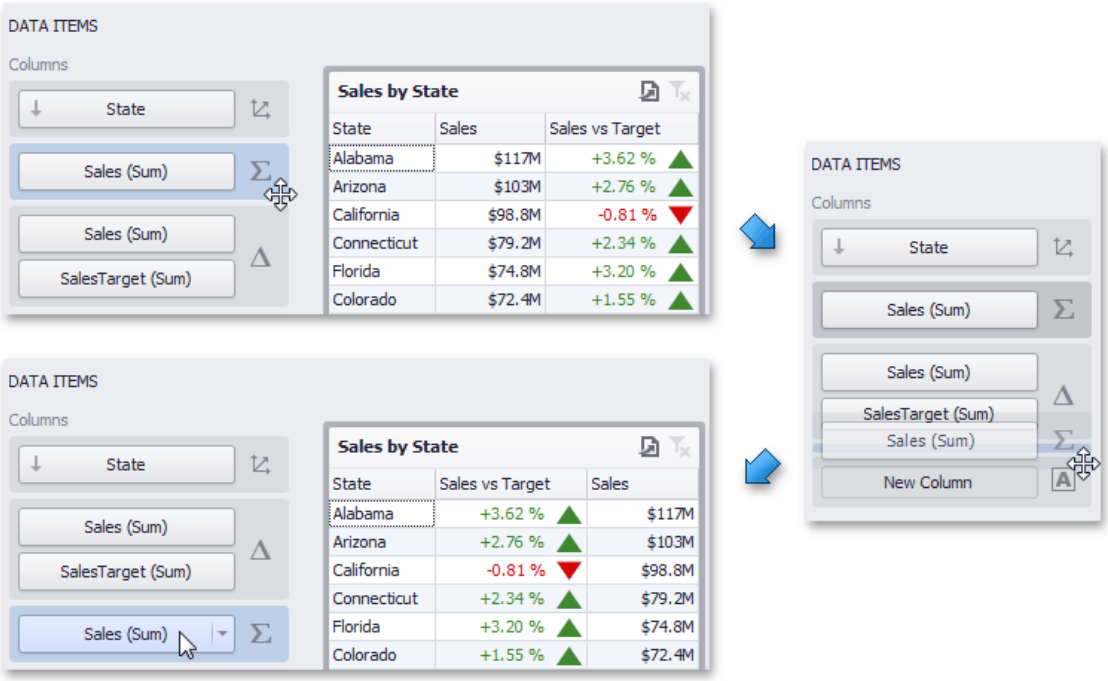


You can remove the data item by dragging it outside the **DATA ITEMS** pane.

To rename the data item, click its menu button and select Rename, to open the **Rename Data Item** dialog.

Modify Binding

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

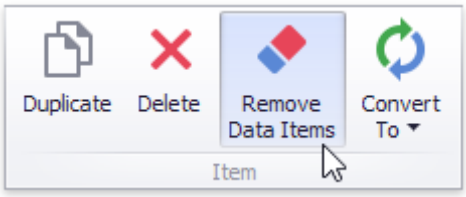


You can also modify data binding by dragging data items within the **DATA ITEMS** pane. This action has the following specifics.

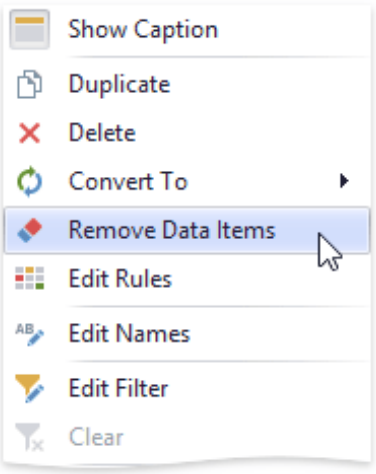
- If you drag the data item to a new position, the settings specified for the corresponding data item container will be restored to the default values.
- If you drag the data item to an existing data item placeholder, the settings of the corresponding data item container will be applied.

Clear Binding

To remove all data items for a selected dashboard item, use **the Remove Data Items** button in the **Home** ribbon tab.



You can also do this via the dashboard item's context menu.

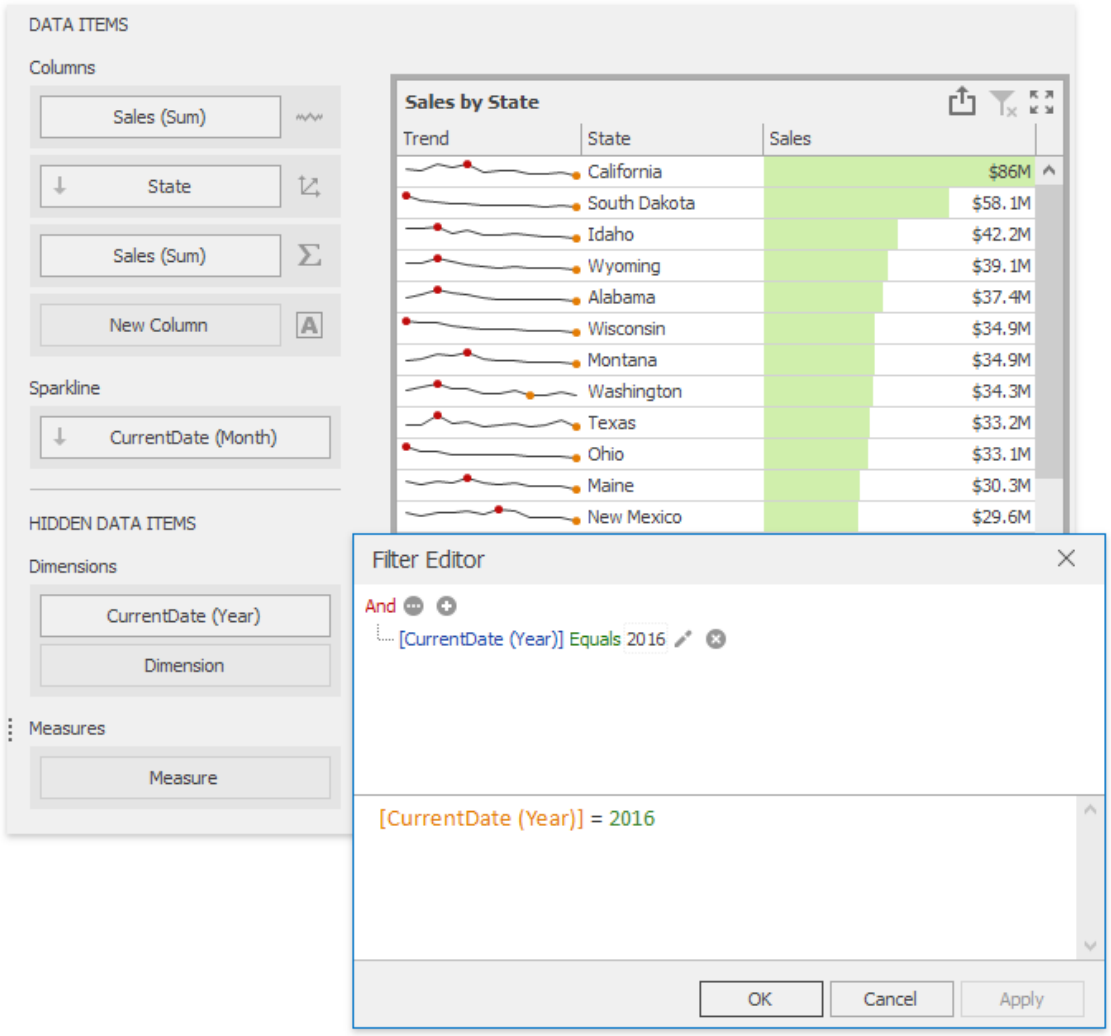


Hidden Data Items

The **HIDDEN DATA ITEMS** area 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, choose the required data field from the Data Source Browser and drop it onto the appropriate section in the **HIDDEN DATA ITEMS** area. You can perform the following operations using hidden data items.

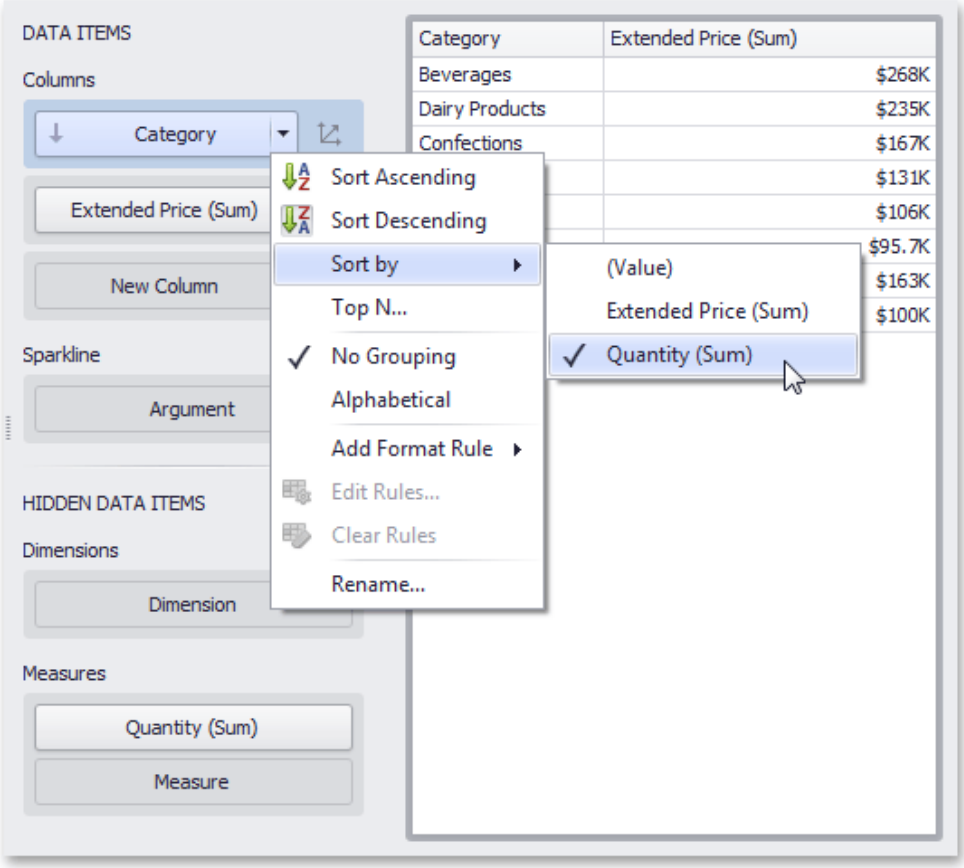
Filtering
You can use hidden dimensions to apply filtering to the dashboard item. To do this, select the required hidden dimension in the **Filter Editor** dialog and specify the required condition.



For instance, the Grid on the image above is filtered by the first quarter of the **CurrentDate (Year)** dimension.

Sorting

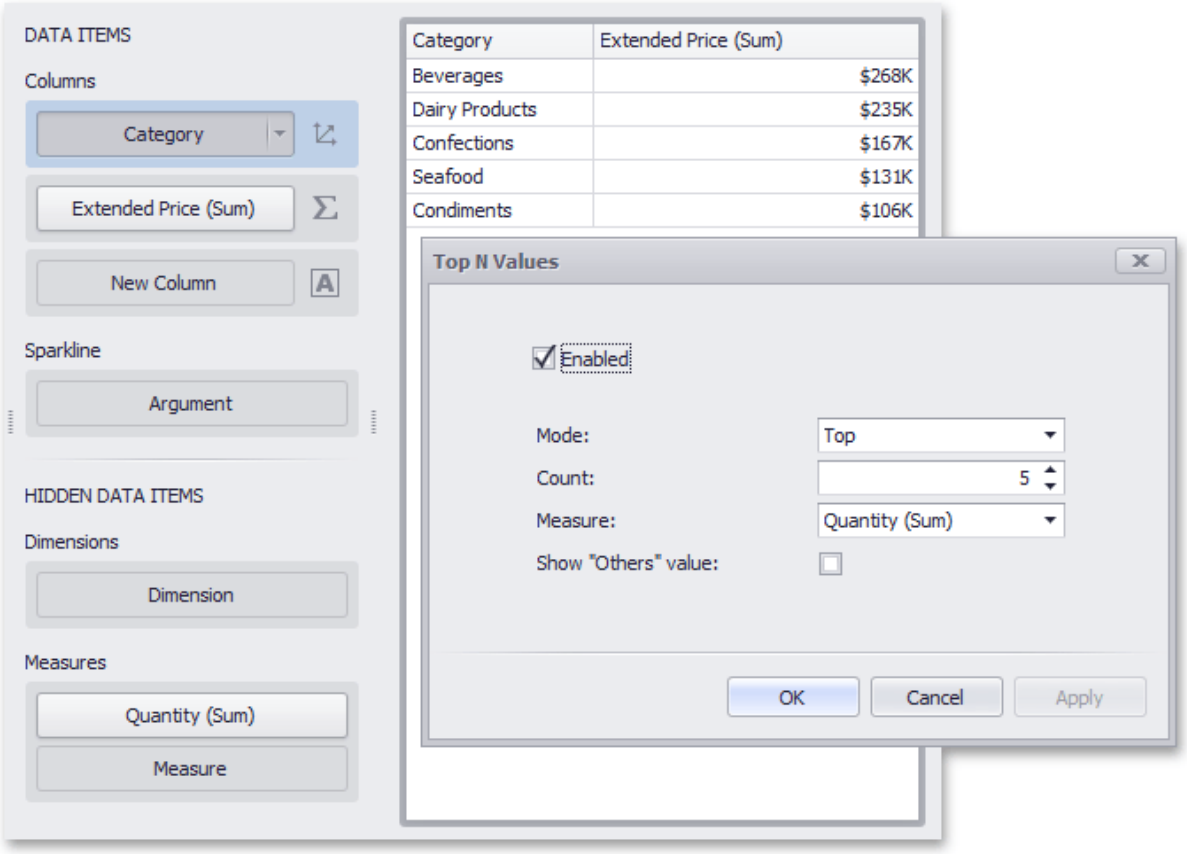
You can sort values of the specified dimension by the hidden measure. To do this, select the required measure from the dimension's Sort By sub-menu.



For instance, categories displayed in the Grid on the image above are sorted by values of the hidden Quantity (Sum) measure.

Top N

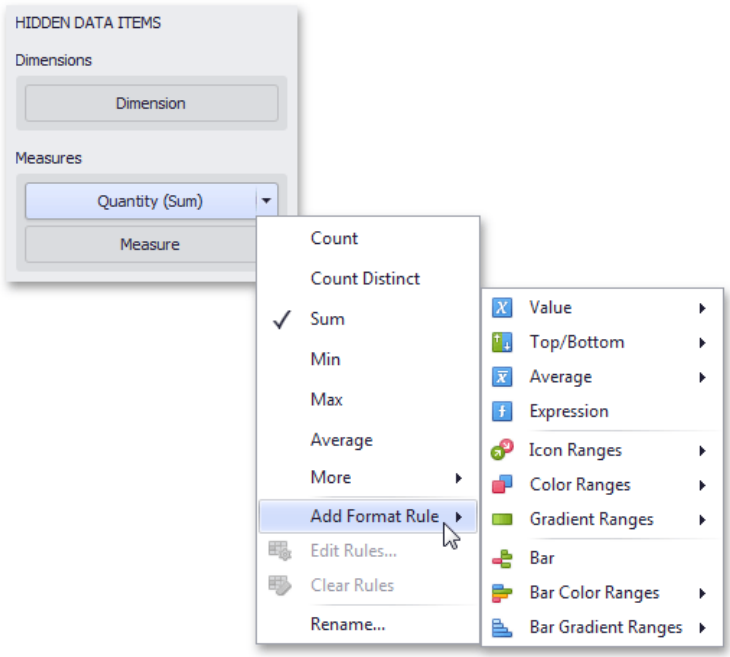
You can use hidden measures in Top N conditions. To do this, select the required measure from the Measure combo box in the Top N Values dialog.



For instance, the Grid on the image above displays top 5 categories for the **Quantity (Sum)** hidden measure.

Conditional Formatting

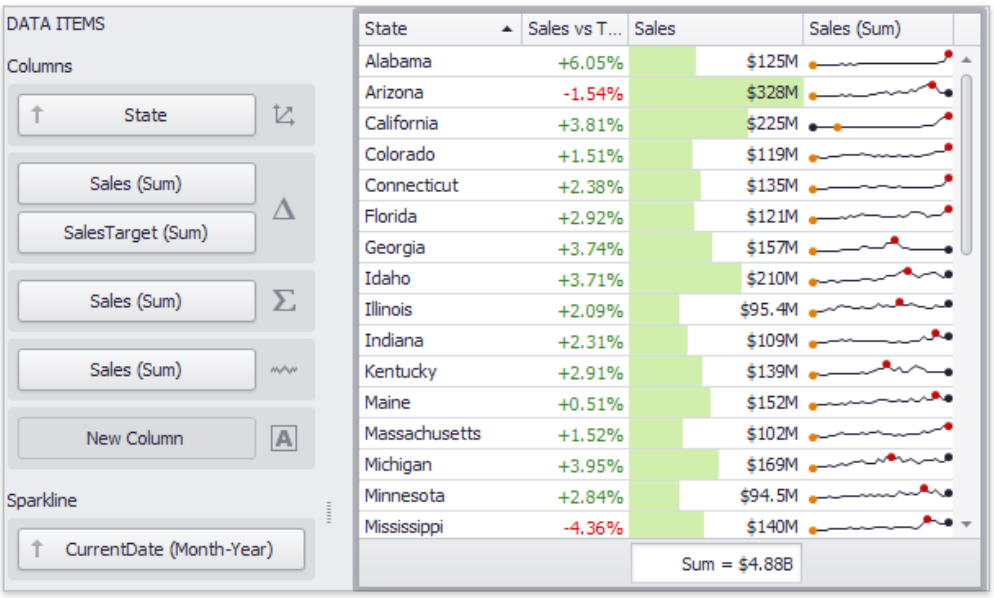
You can create format rules based on hidden measures to apply conditional formatting to elements corresponding to visible values. To do this, use the Add Format Rule menu of the hidden measure.



For the Expression format condition, you can use the required hidden measure in the same manner as in the Filter Editor dialog.

Grid

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

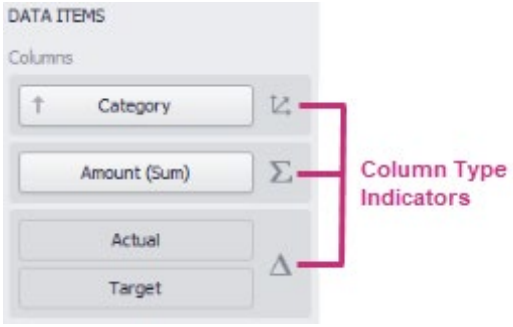


To bind the Grid dashboard item to data, drag and drop a data source field to a placeholder contained in one of the available data sections. The data sections include:

- **Columns:** Contains data items that provide values for grid columns. The Options button next to the Column data item allows you to select the column type and specify their options.
- **Sparkline:** Contains a data item that provides arguments for sparkline columns.

Column Type Overview

The Grid dashboard item supports five types of columns. The type of the column is indicated within the corresponding data item container in the **DATA ITEMS** area.



Column Type Indicator	Column Type	Description
	Dimension	The 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.

Σ	Measure	A measure column displays summaries calculated against data in a 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 Options window and select Value or Bar. If bars are displayed, use the **Always show zero level** check box to specify whether the bar's zero level is always visible.
Δ	Delta	A delta column calculates summaries against two measures, and displays the difference between these summaries. This difference can be indicated with a numeric value displayed within the delta element and an additional delta indication. Delta columns are bound to two measures that provide two values: the Actual value and the Target value. The difference between these values is displayed in the column. When you switch the column type to Delta, the data item container is changed, to accept the Actual and Target measures. Values in the delta column can be displayed as text, or represented by bars. To select between these modes, open the **Column Options** window and select **Value** or **Bar**. If bars are displayed, use the **Always show zero level** check box to specify whether the bar's minimum value is zero (checked) or an automatically selected value that ensures that the difference between bars is clearly displayed (unchecked).
	Sparkline	A sparkline column visualizes the variation in summary values over time. The sparkline column is bound to a measure providing sparkline values and to a dimension providing a date-time interval. You can control sparkline appearance settings using the **Column Options** dialog. To open this dialog, click the column type indicator. In this dialog, you can control various settings that affect how the sparkline is displayed within a grid cell.

ABC	Hyperlink	A hyperlink 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.

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, click the column type indicator. In the open **Column Options** window, select the required column type in the **Column Type** section.

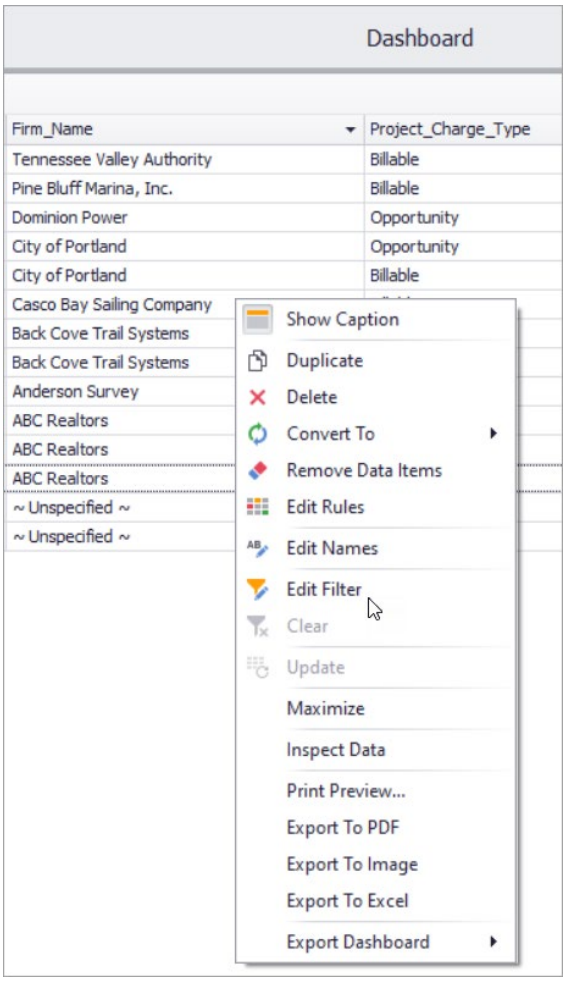
Sorting Data within the Grid

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.
You can also apply the required sort condition by right-clicking a column header or the field name in the **DATA ITEMS pane** and selecting **Sort Ascending** or **Sort Descending** from the open context menu.

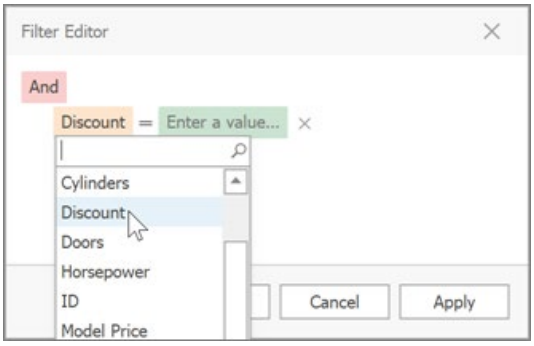
Filtering Data within the Grid

Filtering data is particularly useful when working with dimensions. The Dashboard allows you to filter apply filtering to a specific data-aware dashboard item. Basically, filter conditions specify what data to select from a data source and display in a data-bound control. A typical simple filter condition consists of three parts: the column/field name, operator and a value(s). For instance, '[Discount] >= 0.05' is a simple filter condition, where '[Discount]' is a field name, '>=' is an operator and '0.05' is a value. This condition when applied to a data-aware control will display records that have values in the Discount column greater than or equal to 0.05. The general steps to create a filter condition are:

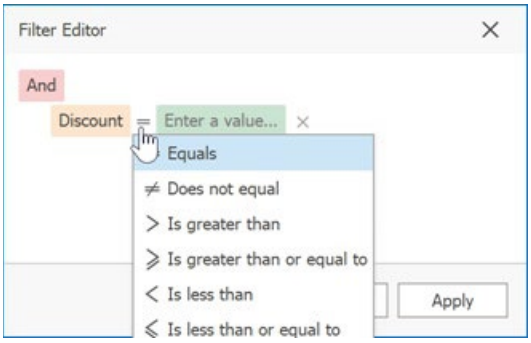
- **Open the Filter Editor -** To open the Filter Editor in a grid control, right-click anywhere in the grid and select the **Edit Filter** option.



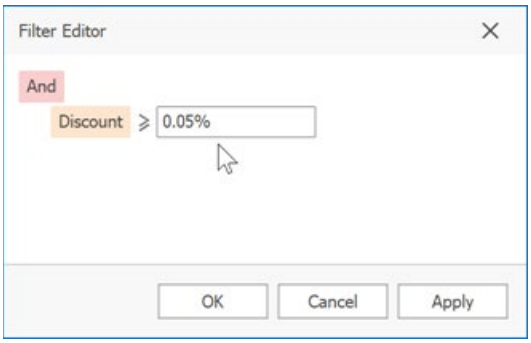
- **Select a column -** To filter against a particular column, click the column name field. This will display the list of available columns. For the example above, you would select the **Discount** column.



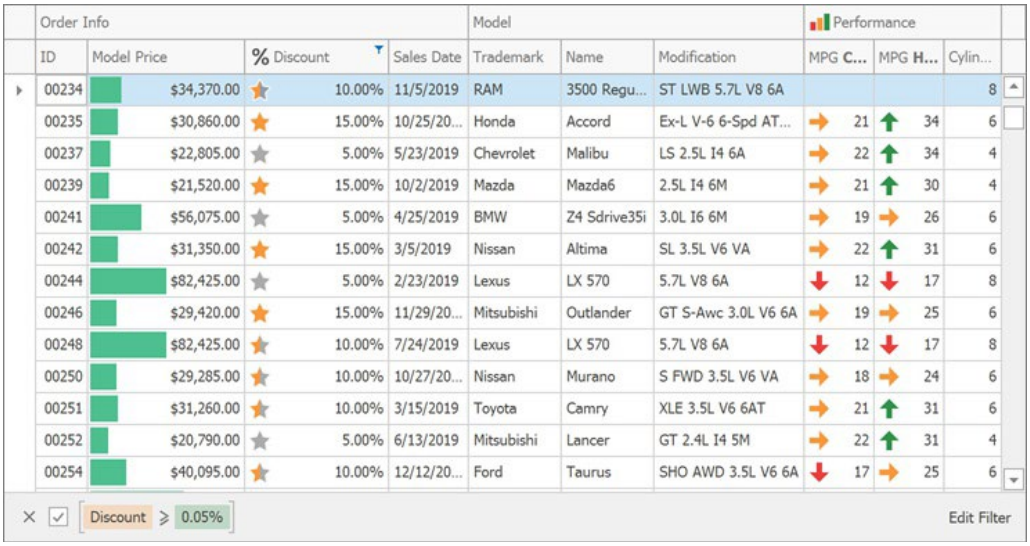
- **Select a comparison operator -** Click the operator field to choose the required operator. The comparison operator list displays only those operators that are supported by the current column's data type.



- **Enter a value -** For the example above, you would enter 0.05.

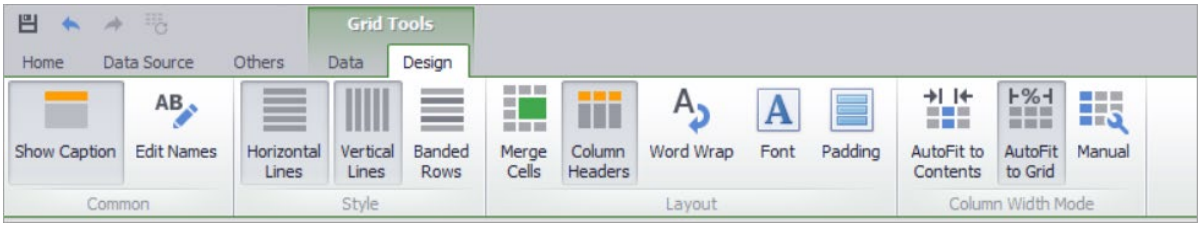


- **Save changes -** Click the **OK** or **Apply** buttons, to filter data using the created filter condition. The grid will show the filter panel displaying the current filter criteria.



Grid Tools and Design

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 design tools for the grid, select **Grid Tools > Design** tab. The tools are grouped.



Common Group

- **Show Caption:** To show or hide the caption of a dashboard item, click the **Show Caption** button.
- **Edit Names:** This is an alternate location for editing names of the columns and grid.

Style Group

The Grid dashboard item allows you to specify various style settings.

- **Grid Lines:** The **Horizontal Lines** and **Vertical Lines** buttons control grid line visibility.
- **Banded Rows:** To paint the background of odd and even rows differently, use the **Banded Rows** button.

Layout Group

- **Column Headers:** Use the **Column Headers** button to toggle column header visibility.
- **Merge Cells:** The grid allows you to merge neighboring cells with identical values. To do this, use the **Merge Cells** button.
- **Word Wrap:** The word wrapping feature enables the capability to display cell content on multiple lines if the size of a dashboard item is insufficient to completely display the cell content on a single line.
- **Font:** If you want to change the font in your grid, select the **Font** button. You can select Font, Style, Size, and Effects. **Note:** The **Undo** button does not revert the font back to a previous style.
- **Padding:** Select the **Padding** button to add height (visual space) to the lines in the grid.

Column Width Mode Group

The Grid dashboard item allows you to manage column widths using different modes. Use buttons in the Column Width Mode group to manage the column width modes.

The following modes are available.

- **AutoFit to Contents:** The grid adjusts columns to the minimum width required to completely display their content automatically. If the entire content cannot be displayed within the dashboard item, horizontal scrolling is enabled.
- **AutoFit to Grid:** The grid adjusts the width of all columns to fit their content in an optimal way. If you are changing the size of the dashboard item, the width of columns is changed proportionally.
- **Manual:** The grid allows you to adjust column widths manually.

Activity 2.4 – Grid

In this activity, you will add and modify a grid.

Activity Steps

Part 1: Add a grid

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Financial Statement CVS** model.
5. Select the **Grid** button. The grid displays on the Dashboard.
6. Select the **Parameters** icon on the upper-right corner of the Dashboard. The **Dashboard Parameters** window opens.
7. Type *2021-12* in the **Value** field for the **Current_Period_Code** line.
8. Select the **Submit** button.
9. Click and drag the following fields to the **New Column** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
    - Account_Financial_Type
    - Account_Base_Code
    - Account_Base_Name
    - YTD_Activity

Part 2: Add a total

1. Right-click the **YTD_Activity** column header.
2. Select **Add Total > Auto**.
3. Right-click the **Account_Base_Code**.column header.
4. Select **Add Total > Count**. The total count displays at the bottom of the grid below the column.
5. Right-click the **YTD_Activity** column header.
6. Select **Add Total > Count**. Both totals display below the column.

7. Right-click the **YTD_Activity** column header.
8. Select **Clear Totals**. Both totals disappear.
9. Right-click the **YTD_Activity** column header.
10. Select **Add Total > Sum**.

Part 3: Sort data

1. Click the **Account_Base_Code** header. The system automatically sorts the data from low value to high value in that column. This overrides the default sorting of left to right in the grid.
2. Click and drag the **YTD_Activity** field from the **DATA ITEMS** pane to the **Measures** area of the **HIDDEN DATA ITEMS** pane. The column is no longer visible in the chart.
3. Right-click the **Account_Financial_Type** field in the **DATA ITEMS** pane.
4. Select **Sort by > YTD_Activity (sum)**. The grid updates.
5. Click and drag the **YTD_Activity** field from the **HIDDEN DATA ITEMS** pane back to the **DATA ITEMS** pane **Column** section.
6. Right-click the **Account_Financial_Type** field in the **DATA ITEMS** pane **Column** section.
7. Select **Sort by > (Value)**. The grid updates.

Part 4: Add and remove a filter

1. Right-click anywhere on the grid.
2. Select **Edit Filter**. The **Filter Editor** opens.
3. Hover the cursor in the space next to the **And** icon in the upper left corner. Additional icons display.
4. Select the **plus** icon.
5. Select **Account_Base_Code**. A menu displays.
6. Select **Account_Financial_Type**.
7. Select **Begins with**. A menu displays.
8. Select **= Equals**.
9. Select **Enter a Value**.
10. Select the **drop-down** arrow. The system has preselected the available choices for you.
11. Select **Asset**.
12. Hover the cursor in the space next to the **And** icon in the upper left corner. Additional icons display.
13. Select the **plus** icon.
14. Select **Begins with**. A menu displays.
15. Select **< Is less than or equal to**.
16. Select **Enter a Value**.
17. Select the **drop-down** arrow. The system has preselected the available choices for you.
18. Select **1030**.

19. Select the **Apply** button. This allows you to check the filtering on the grid before closing the **Filter Editor**.
20. Select the **OK** button. Note: If the dashboard does not refresh automatically, select the **Refresh** icon in the **Data Source** pane.
21. Right-click anywhere on the grid.
22. Select **Clear**.

Part 5: Add and remove a filter that uses a hidden asset

1. Click and drag the **Account_Financial_Type** field from the **DATA ITEMS** pane to the **Dimension** field in the **HIDDEN DATA ITEMS** pane. The column is no longer visible in the chart.
2. Right-click anywhere on the grid.
3. Select **Edit Filter**. The **Filter Editor** opens.
4. Hover the cursor in the space next to the **And** icon in the upper left corner. Additional icons display.
5. Select the **plus** icon.
6. Select **Account_Base_Code**. A menu displays.
7. Select **Account_Financial_Type**. Note that **Account_Financial_Type** is not visible in the grid, but is still in the list as an option.
8. Select **Begins with**. A menu displays.
9. Select = **Equals**.
10. Select **Enter a Value**.
11. Select the **drop-down** arrow. The system has preselected the available choices for you.
12. Select **Liability**.
13. Select the **OK** button. The filtered data displays.
14. Click and drag **Account_Financial_Type** from the **HIDDEN DATA ITEMS** pane to the first spot in the **DATA ITEMS** pane. This “breaks” the filter and the grid will refresh.
    Note: Be careful to place it over/in front of the **Account_Base_Code** field, not on top of it which will replace it.

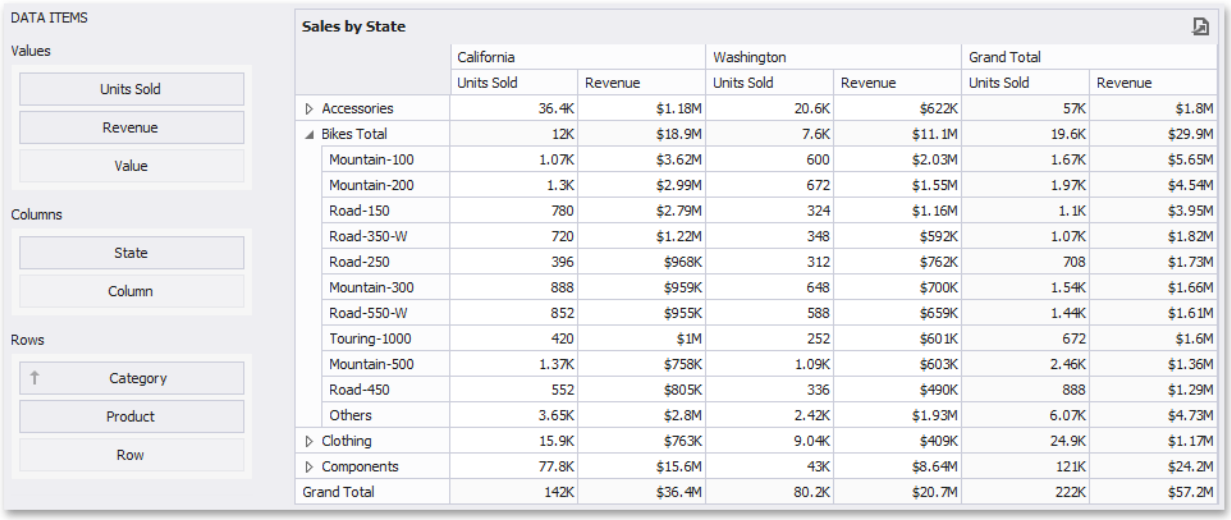
Part 6: Rename fields

1. Select the **Options drop-down** arrow for the **Account_Financial_Type** field.
2. Select **Rename**. The **Rename Data Item** window opens.
3. Type *Account Financial Type* in the **New name** field (remove the underscores).
4. Select the **OK** button. The name updates on the Dashboard.
5. Right-click anywhere on the grid. **Note:** When using this method the name changes, and will remain changed, only on the grid. It does not change the names of the fields in the **DATA ITEMS** pane.
6. Select **Edit Names**. The **Edit Names** window opens. Here you can edit all the headers and the name of the Dashboard.

7. Modify (remove the underscores) the following **Column** headers as shown.
   - Account_Base_Code to **Account Base Code**
   - Account_Base_Name to **Account Base Name**
   - YTD_Activity (Sum) to **YTD Activity**
     Note: When you add measures, the system will automatically add in parentheses the type of aggregation it is performing.
8. Select the **OK** Button.
9. Click and drag the **Account_Code** field to the **DATA ITEMS** pane in the 2nd spot, replacing **Account_Base_Code**. Note that the name does not update on the Dashboard.

Pivot

Pivots offer data visualization in a hierarchical grid. Data can be added to the pivot, nested into a hierarchy, formatted and configured to interact with other Dashboard Items. Data fields are bound to the Pivot by dragging them to the **Data Items** pane as a Value, Column or Row. Additionally, Hidden Data Items can be used for additional configurations, such as filtering, without displaying the field in the Pivot.



Working with Pivot Data

Each Dashboard Item has different requirements for the data you add to it. Pivots use Values, Columns and Rows.

- **Values -** Contains data items used to calculate values displayed in the pivot table. (e.g. the Sum of all Hours)
- **Columns -** Contains data items whose values are used to label columns.
- **Rows -** Contains data items whose values are used to label rows.

For example, to view the total hours for each project by year, add:

Values	Columns	Rows
Hours (Sum)	Work Date (Year)	Project Name

Columns can be further broken out by adding additional fields to Values.

Values	Columns	Rows
Hours (Sum)	Work Date (Year)	Project Name
Bill_Dollars (Sum)		

Hierarchy can be added to the pivot by binding additional fields to Columns or Rows. Once hierarchy is added, the pivot will display expand/collapse icons which can be used to view or hide the added hierarchy.

Values	Columns	Rows
Hours (Sum)	Work Date (Year)	Project Name
Bill_Dollars (Sum)	Work Date (Month)	Employee Name

Transposing Columns and Rows

The Pivot dashboard item provides the capability to transpose pivot columns and rows. In this case, data items contained in the **Columns** section are moved to the **Rows** section and vice versa.

	2013	2014	2015	Grand Total
Bikes	$72.2M	$79.3M	$83.6M	$235M
Components	$42.2M	$45.3M	$48.2M	$136M
Accessories	$2.77M	$2.99M	$3.15M	$8.91M
Grand Total	$117M	$128M	$135M	$380M

	Bikes	Components	Accessories	Grand Total
2013	$72.2M	$42.2M	$2.77M	$117M
2014	$79.3M	$45.3M	$2.99M	$128M
2015	$83.6M	$48.2M	$3.15M	$135M
Grand Total	$235M	$136M	$8.91M	$380M

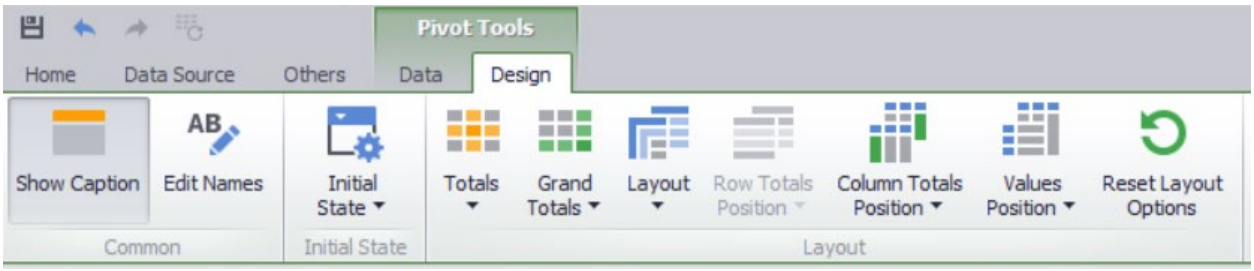
To transpose the selected Pivot dashboard item, use the **Transpose** button in the **Home** ribbon tab.

Conditional Formatting

Once data is added to the pivot, it can be formatted in a variety of ways to help visualize otherwise static data points, highlighting cells that meet certain defined criteria.
A Pivot dashboard item applies conditional formatting to cell values. You can calculate a format rule by measures placed in the **Values** section and dimensions placed in the **Columns** or **Rows** section. Note that you can use hidden measures to specify a condition used to apply formatting to visible values.

Pivot Tools and Design

Pivots feature a specific set of design and data tools, available from the toolbar (some options are also available by right-clicking the pivot).



Common Group

- **Show Caption:** To show or hide the caption of a dashboard item, click the **Show Caption** button.
- **Edit Names:** This is an alternate location for editing names of the columns and grid.

Initial State

- Sets the default state of grid hierarchy (expanded or not). Expanding the columns may result in a much wider table.

Layout Group

- **Totals:** Shows/Hides row and/or column totals.
- **Grand Totals:** Shows/Hides grand totals.
- **Layout:** If the Pivot dashboard item contains a hierarchy of dimensions in the Rows section, you can specify the layout (Tabular or Compact) used to arrange values corresponding to individual groups.
- **Row Totals Position:** If necessary, you can change the Pivot dashboard item's totals/grand totals position.

- **Column Totals Position:** If necessary, you can change the Pivot dashboard item's totals/grand totals position.
- **Values Position:** Allows you to control the position of headers used to arrange summary values corresponding to different measures.
- **Reset Layout Options:** Select to reset the layout options.

Activity 2.5 – Pivot Table

In this activity, you will add and update a pivot table.

Activity Steps

Part 1: Add a pivot table

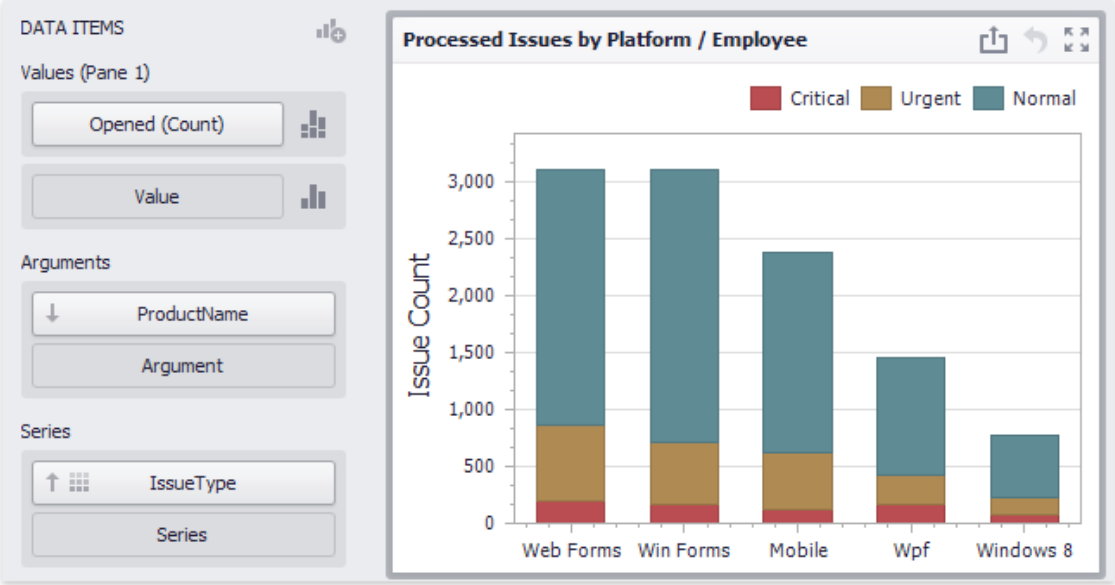
1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Opportunity History** model.
5. Select the **Pivot** button. The pivot displays on the Dashboard.
6. Click and drag the following fields to the **Value** field in the **DATA ITEMS** pane.
   Note: If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
   - expectedrevenue
   - projectcode
7. Click and drag the following fields to the **Column** field in the **DATA ITEMS** pane.
   - pmempname
   - leadstagename
8. Click and drag the following fields to the **Row** field in the **DATA ITEMS** pane.
   - chargetypename
   - projectname

Part 2: Format the table

1. Right-click anywhere in the pivot table.
2. Select **Transpose**. The table updates. Rows and columns have changed spots.
3. Right-click anywhere in the pivot table.
4. Select **Transpose**. The table reverts to the original setup.
5. Hover the cursor over the column line between the **expectedrevenue** and **projectcode** columns.
6. Drag the line to adjust the header visibility to show the entire name.
7. Select **Pivot Tools > Design**.
8. Select **Initial State > Expand Row Group**. The rows will now display in the expanded layout by default.
9. Select **Grand Totals**.

10. Select to clear the **check** for **Show Column Grand Totals**. The **Grand Total Column** is removed from the table.
11. Select **Grand Totals**.
12. Select the **check** for **Show Column Grand Totals**. The **Grand Total Column** displays in the table.
13. Select **Layout > Tabular**. The row headers update.
14. Select **Row Totals Position > Top**. The totals for each level display at the top of the level.
15. Select **Column Totals Position > Near**. The column totals move from the far right side of the table to the left side nearest the row headers.
16. Select **Values Position > Rows**. The values move from column level to row level in the table.
17. Select **Reset Layout Options**. The table reverts to its original form.

Chart



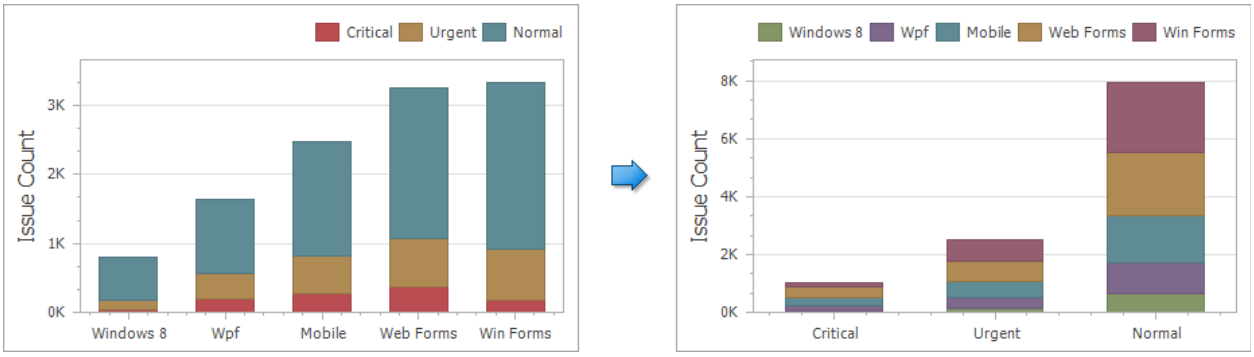
To bind the Chart dashboard item to data, drag and drop a data source field to a placeholder contained in one of the available data sections. The table below lists and describes the Chart's data sections.

Section	Description
Values	Contains data items against which the Y-coordinates of data points are calculated. The **Options** button next to the Value data item allows you to select the series type and specify different options. Note that some types of series accept several measures.

Arguments	Contains data items that provide values displayed along the X-axis of the chart.
Series	Contains data items whose values are used to create chart series.

Transposing Arguments and Series

The Chart dashboard item provides the capability to transpose chart arguments and series. In this case, data items contained in the **Arguments** section are moved to the **Series** section, and vice versa.



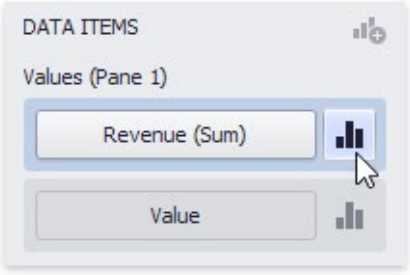
To transpose the selected Chart dashboard item, use the **Transpose** button in the **Home** ribbon tab.

Series Overview

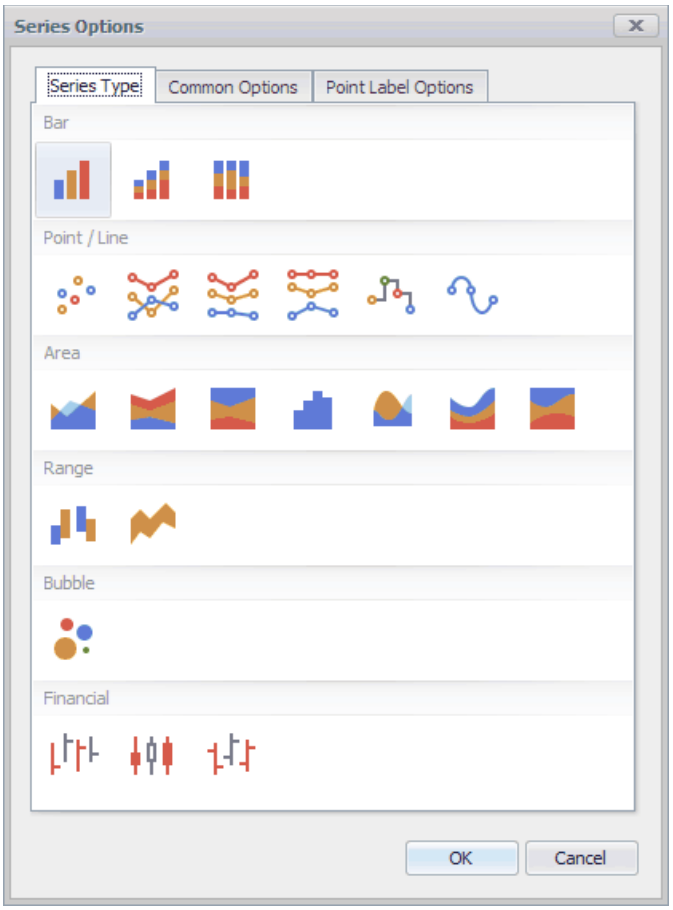
The Chart dashboard item supports a variety of series types - from simple bar and line charts to complex candle stick and bubble graphs.

Series Types

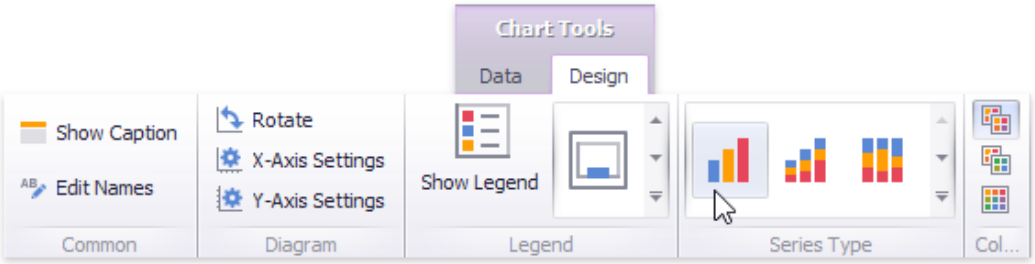
To switch between series types in the Dashboard Designer, click the **Options** button next to the required data item (or placeholder) in the **Values** section on the **Data Items** pane.



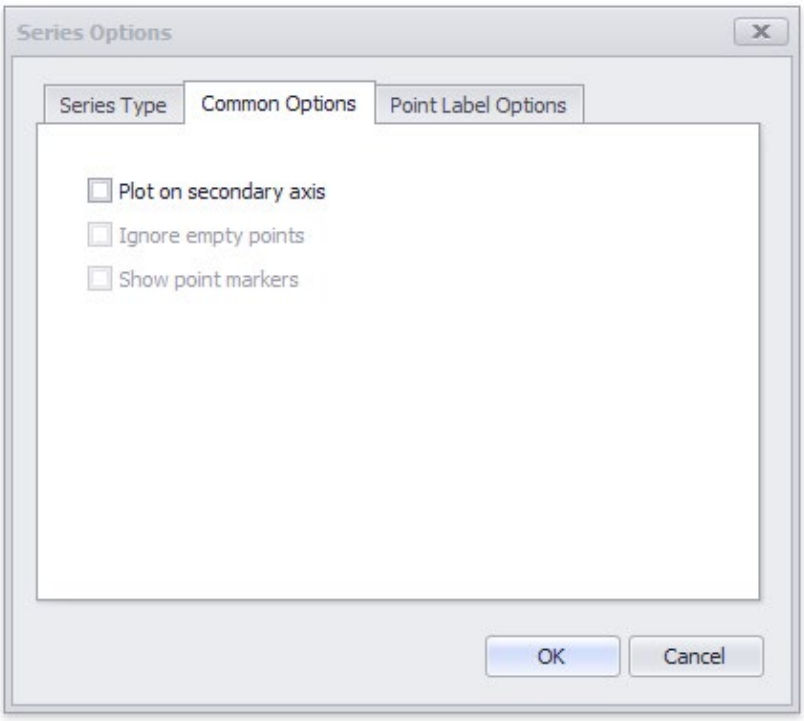
In the open **Series Options** dialog, select the required series type and click **OK**.



You can also do this using the **Series Type** gallery in the **Design Ribbon** tab.



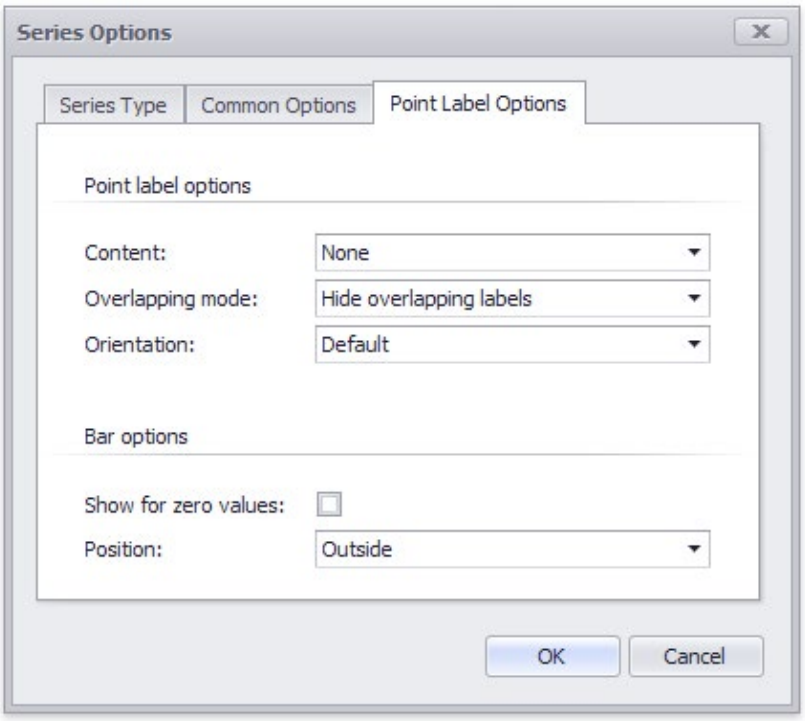
Series Options
To manage common series options, use the **Common Options** tab of the **Series Options** dialog.



- **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.
  Note that this option is in effect for the Line, Area and Range Area series.
- **Show point markers -** Specifies whether or not to show point markers for the current series. **Note:** The point markers are always shown when Master Filtering is enabled for the Chart dashboard item. Note that this option is in effect for the Line and Area series.

Series Point Labels

The **Point Label Options** tab of the **Series Options** dialog allows you to enable series point labels and manage their settings.



- **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.
- **Overlapping mode -** Specifies the label overlap mode. **Note:** This option is not in effect when the dashboard is displayed in the Web Viewer.
- **Orientation -** Specifies the orientation of point labels.

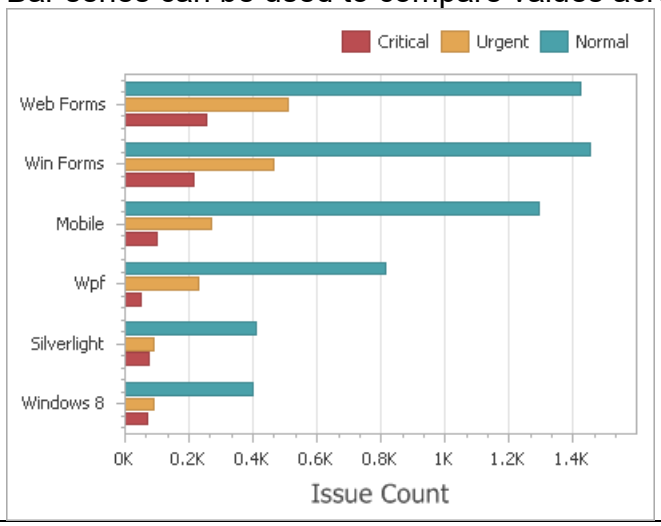
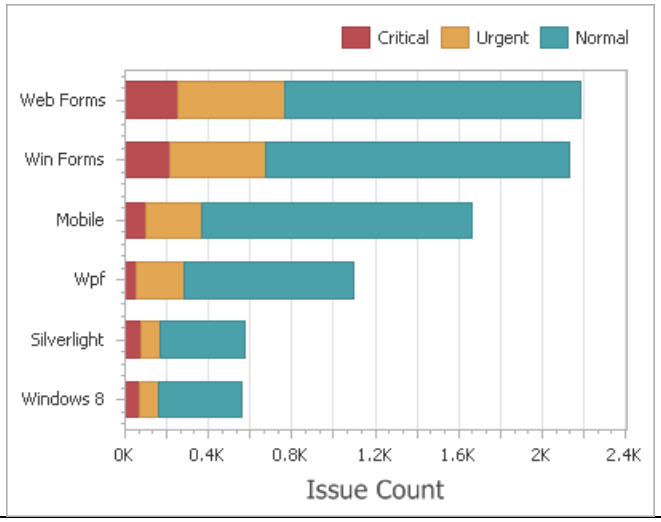
Bar options

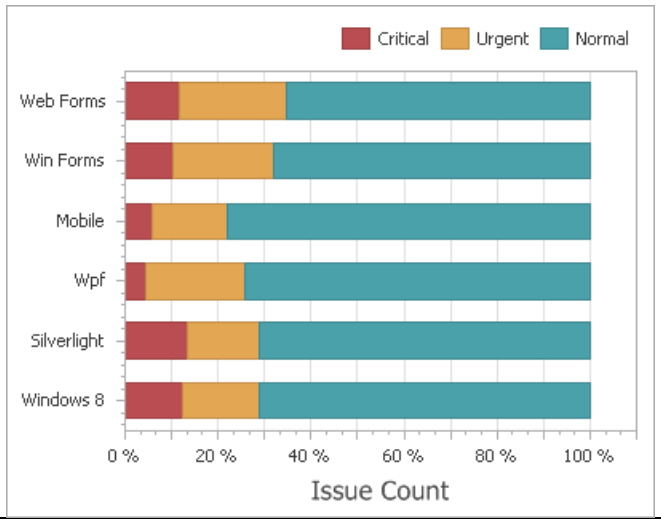
Note: These settings are for Bar series only.

- **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.

Bar Series

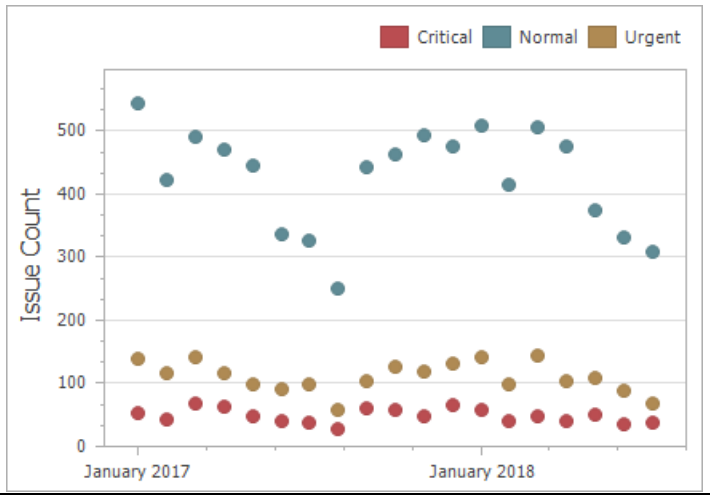
Bar series visualize data using rectangular bars with lengths proportional to the values that they represent. The following types of Bar series are available.

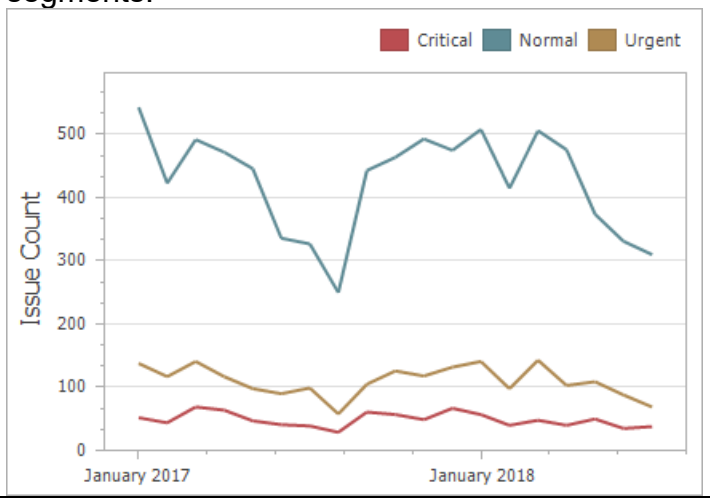
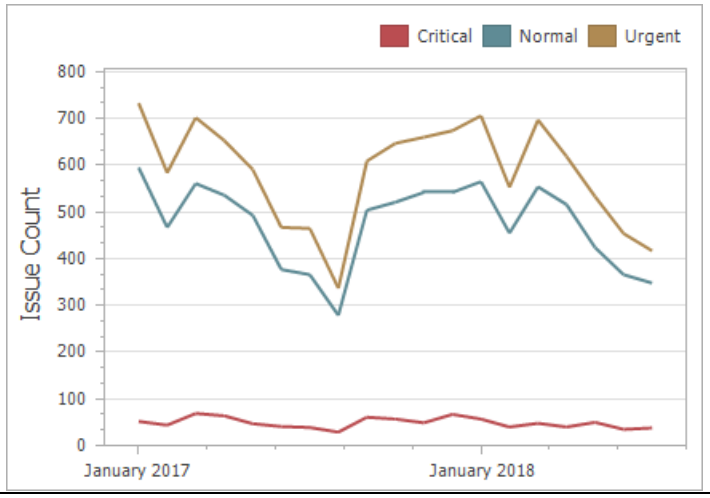
Type	Description
Bar	Bar series can be used to compare values across categories. 
Stacked Bar	Stacked Bar series show the contribution of individual categories to the whole. 

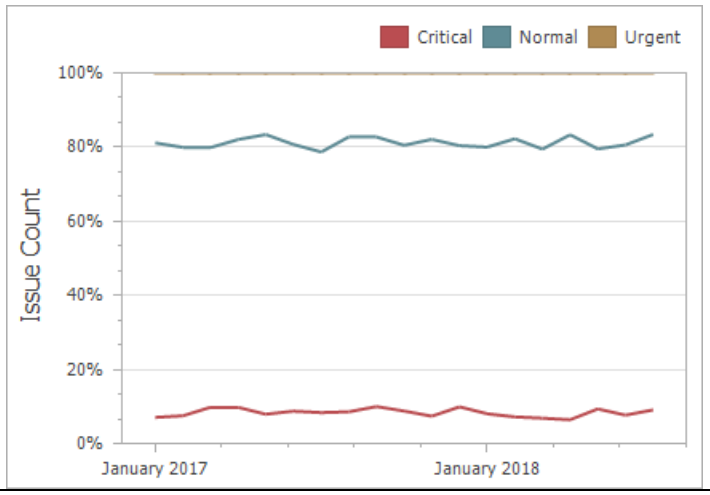
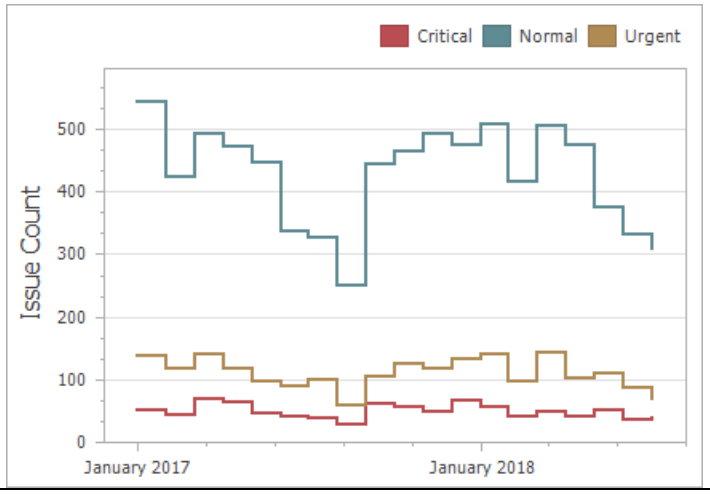
Full-Stacked Bar	Full-Stacked Bar series allow you to compare the percentage that each value contributes to a total across categories. 

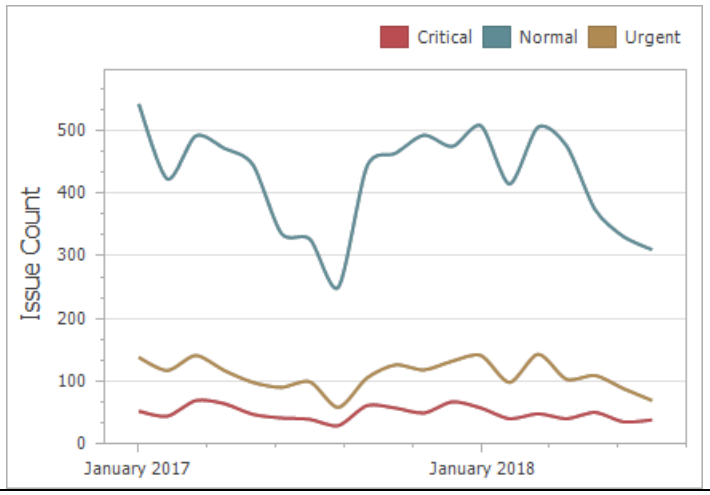
Point and Line Series

Point series visualize data as a set of individual numeric data points. Line series are used to connect numeric data points by
different types of line segments. The following types of Point and Line series are available.

Type	Description
Point	Point series visualize data as a set of individual numeric data points. 

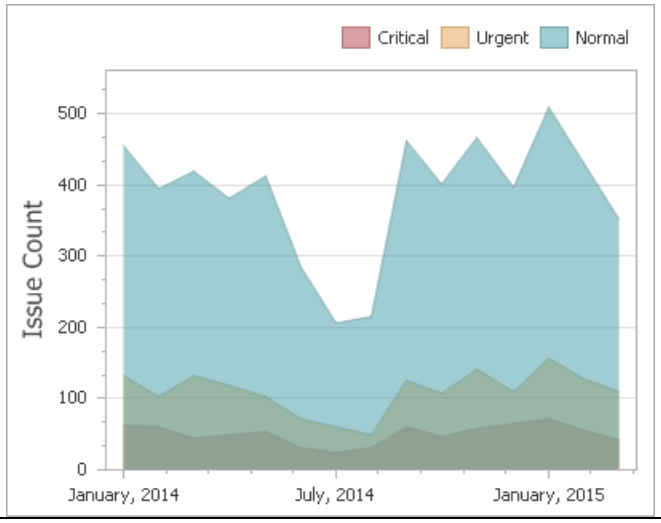
Line	Line series connect numeric data points by straight line segments. 
Stacked Line	Stacked Line series can be used to show the trend of the contribution for each value. 

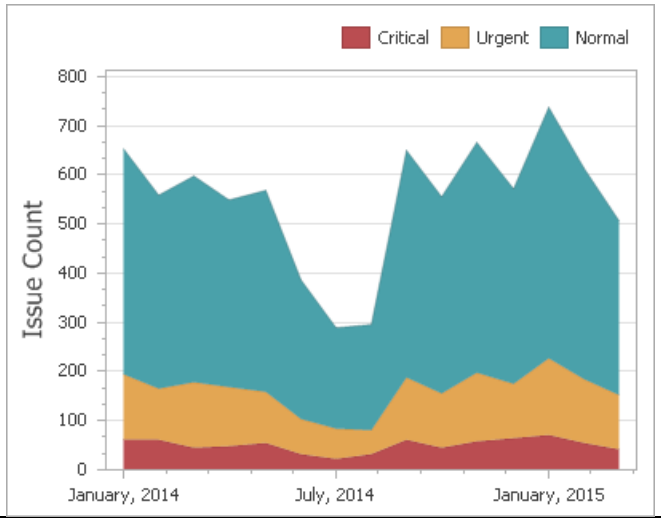
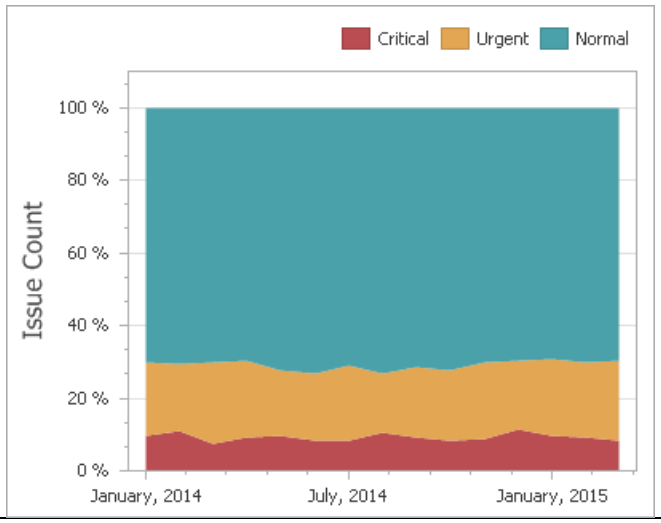
Full-Stacked Line	Stacked Line series are useful for showing the trend of the percentage for each value. 
Step Line	Step Line series use vertical and horizontal lines to connect the numeric data points forming a step-like progression. 

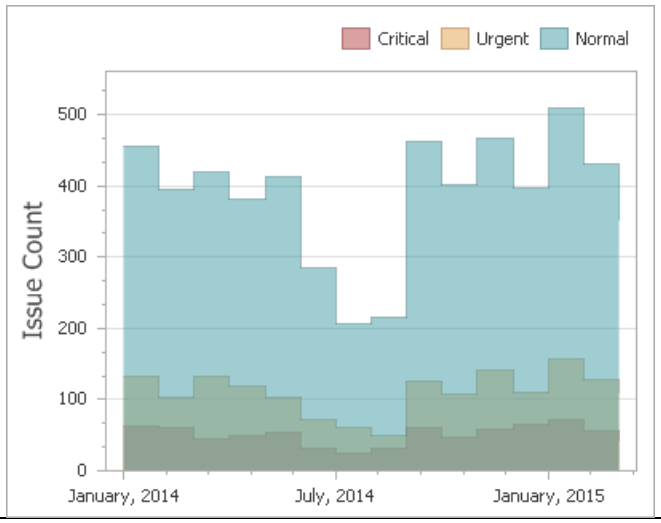
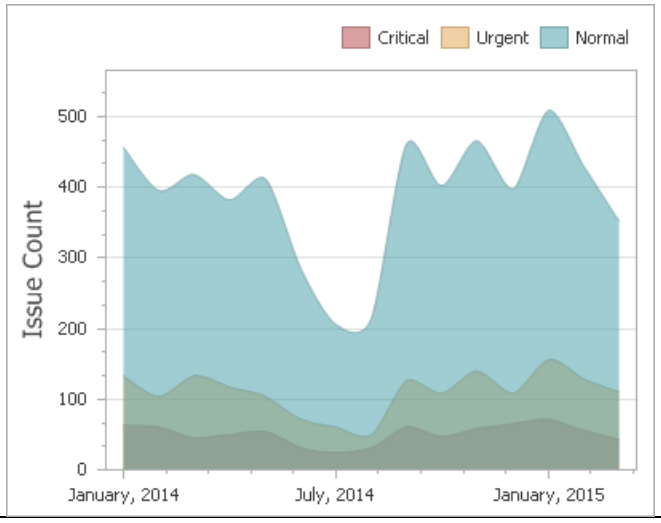
Spline	Spline series plot a fitted curve through each numeric data point. 

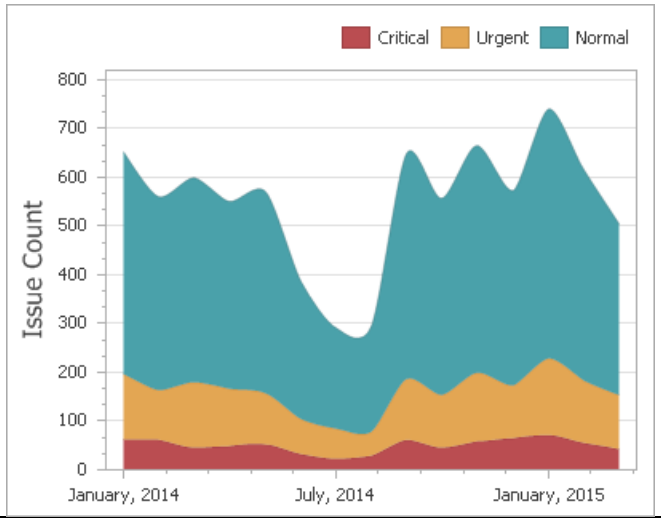
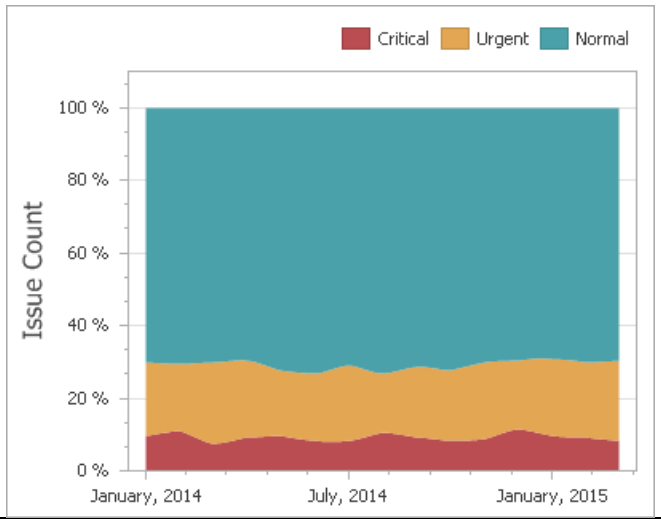
Area Series

Area series connect numeric data points by different types of line segments and fill the area between the line and X-axis/other series. The following types of Point and Line series are available.

Type	Description
Area	Area series connect numeric data points by straight line segments and fill the area between the line and X-axis. 

Stacked Area	Stacked Area series can be used to show the trend of the contribution for each value. Stacked Area series connect numeric data points by straight line segments and fill the area between the line and previous series. 
Full-Stacked Area	Full-Stacked Area series are useful to show the trend of the percentage for each value. 

Step Area	Step Area series use vertical and horizontal lines to connect the numeric data points forming a step-like progression and fill the area between the line and X-axis. 
Spline Area	Spline Area series plot a fitted curve through each numeric data point and fill the area between the line and X-axis. 

Stacked Spline Area	Stacked Area series can be used to show the trend of the contribution for each value. Stacked Area series plot a fitted curve through each numeric data point, and fill the area between the line and previous series. 
Full-Stacked Spline Area	Full-Stacked Spline Area series are useful to show the trend of the percentage for each value. 

Range Series

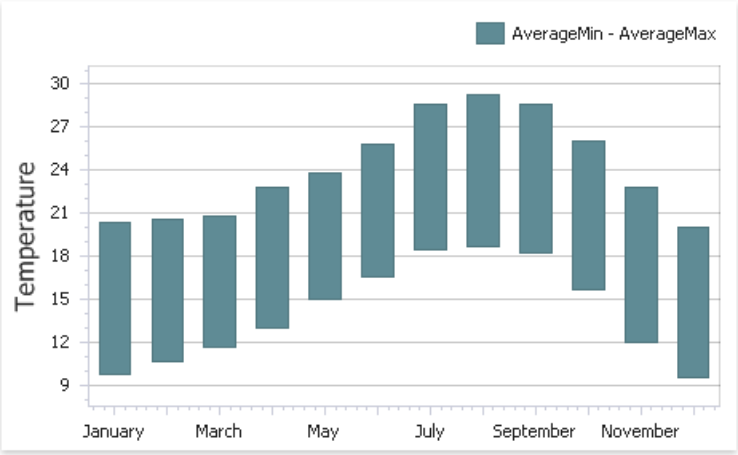
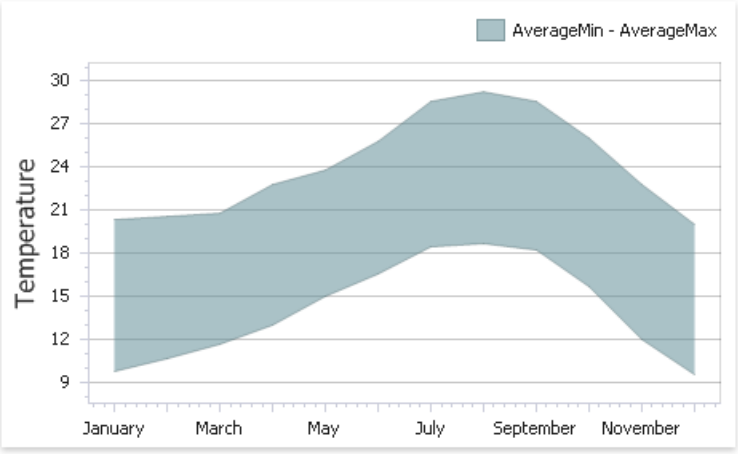
Range series are generally used to show variations in a specified time range like temperature, price, etc. The following types of Range series are available.

Data Binding Specifics

A range series is a space between two simple series displayed as a filled area (Range Area) or bars that stretch from a point in one series to the corresponding point in the other (Range Bar). Thus, you need to provide two measures instead of one to display a range series.

- Value 1 - a measure against which the first set of values is calculated.
- Value 2 - a measure against which the second set of values is calculated.

When you select the Range Bar or Range Area series type in the Designer, the **DATA ITEMS** area displays two data item placeholders. Drag and drop the required measures to corresponding placeholders.

Type	**Description**
Range Bar	Range Bar series are similar to Bar series except that they are drawn between a range of values. 
Range Area	Range Area series are similar to Area series except that their areas are filled between a range of values. 

Weighted Series

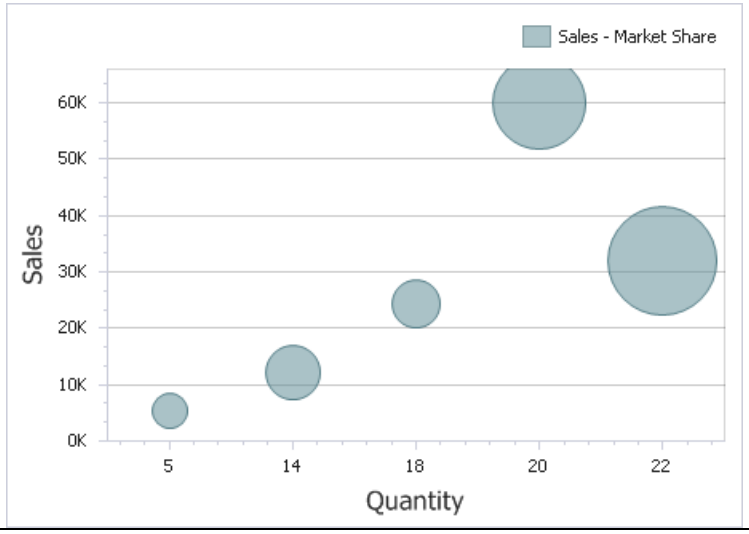
Weighted series allow you to visualize data in three dimensions.

Data Binding Specifics

Data points in a weighted series present the following two measures.

- Value - the Y-coordinate of series points.
- Weight - the size of series points.

When you select the Bubble series type in the Designer, the **DATA ITEMS** area displays two data item placeholders. Drag and drop the required measures to corresponding placeholders.

Type	Description
Bubble	Bubble series are similar to Point series except that they allow you to provide an additional measure whose values are expressed in a bubble size. 

Financial Series

Financial series are used to illustrate stock prices. The following types of Financial series are available.

Coloring Specifics

Note that financial series do not support a standard coloring mechanism used to color chart series points. The Chart dashboard item colors series points of financial series in the following way.

- Black if the price at the end of the previous period is lower than the price at the end of the current period.

- Red if the price at the end of the previous period is larger than the price at the end of the current period.

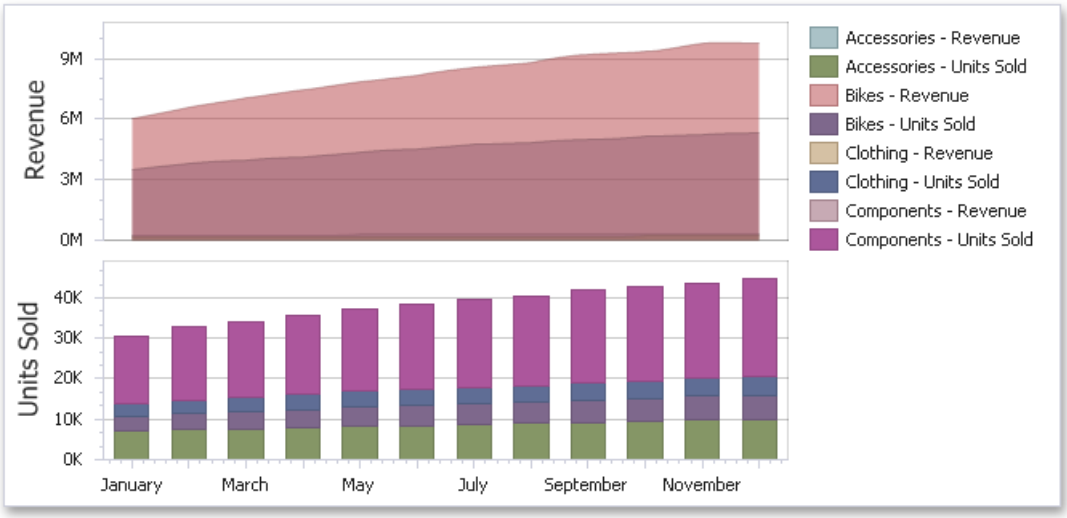
Type	Description
High-Low-Close	When you select the High-Low-Close series type in the Designer, the DATA ITEMS area displays three data item placeholders. High-Low-Close series require three measures to be provided. • High - the maximum price within the specified period (the top of the series point). • Low - the minimum price within the specified period (the bottom of the series point). • Close - the price at the end of the specified period (the tick mark). 

Stock	When you select the Stock series type in the Designer, the DATA ITEMS area displays four data item placeholders. Stock series require four measures to be provided. • Open - the price at the beginning of the specified period (the left tick mark). • High - the maximum price within the specified period (the top of the series point). • Low - the minimum price within the specified period (the bottom of the series point). • Close - the price at the end of the specified period (the right tick mark). 

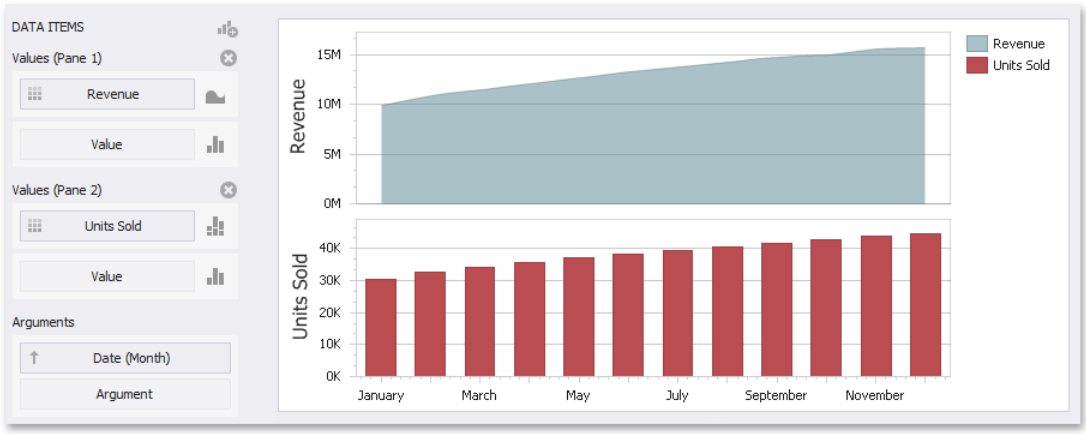
Candle Stick	When you select the Candle Stick series type in the Designer, the DATA ITEMS area displays four data item placeholders. Candle Stick series require four measures to be provided. • Open - the price at the beginning of the specified period. • High - the maximum price within the specified period (the upper shadow top). • Low - the minimum price within the specified period (the lower shadow bottom). • Close - the price at the end of the specified period. 

Panes

The Chart dashboard item can contain any number of panes. Panes are visual areas within a diagram that display chart series. Each pane has its own Y-axis and displays a specific set of series. All panes in a chart share the same X-axis.



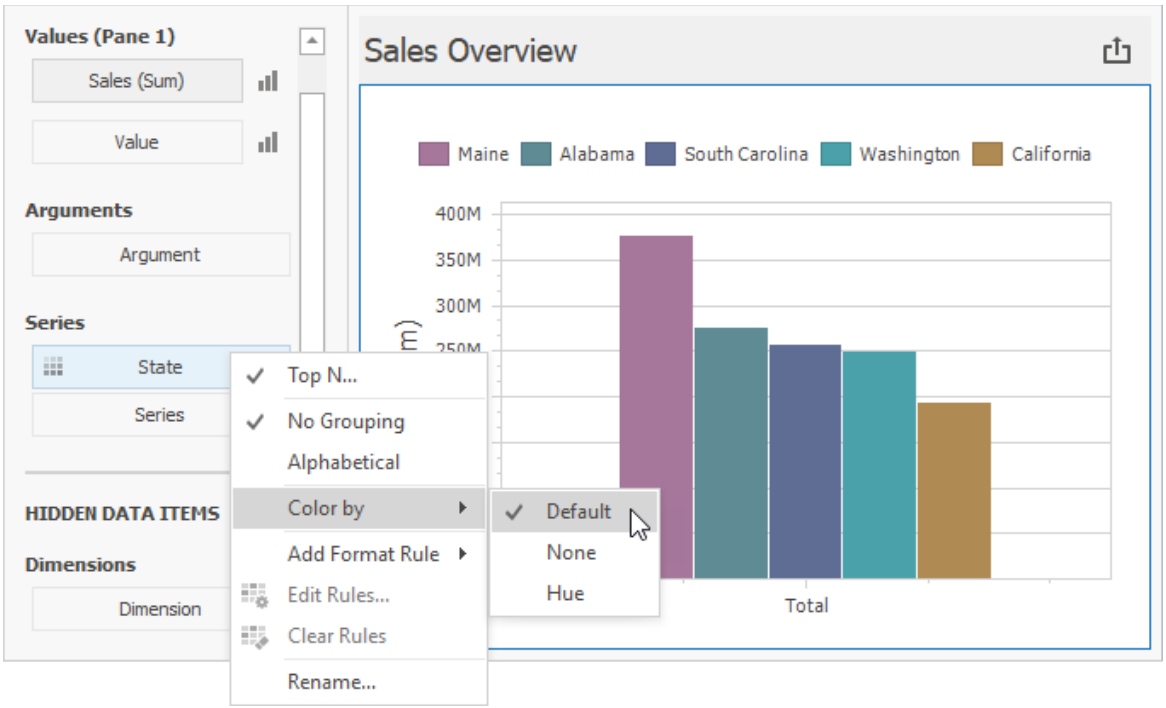
To add a pane, click the **Add Pane** button at the top right of the **DATA ITEMS** pane. Once a new pane is added, the Dashboard Designer creates another **Values** section in the **DATA ITEMS** pane.



Use this section to provide data items that supply values to be displayed in the new pane.
To remove a pane, click the **Remove Pane** button displayed in the corresponding Values section.

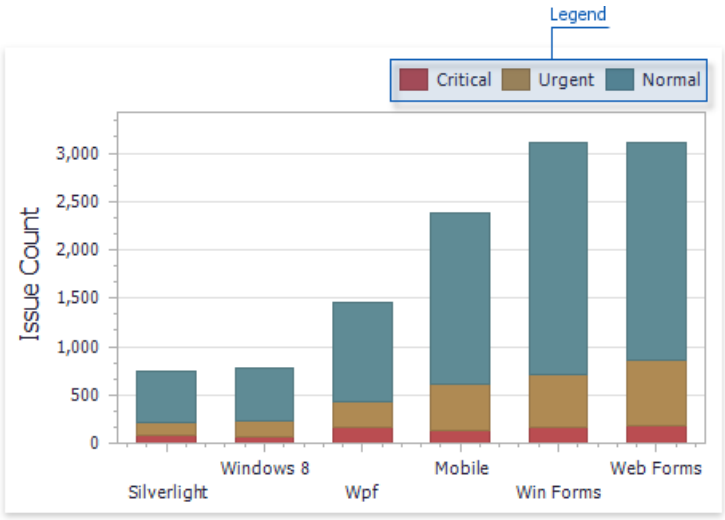
Coloring

The Chart dashboard item paints different measures and series dimensions by hue in Default color mode. The image below shows the chart item whose State series dimension values are painted in different colors. A special icon on the data item shows that color variation is enabled.
Note: The Chart dashboard item does not support coloring for the financial series.



Legend

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

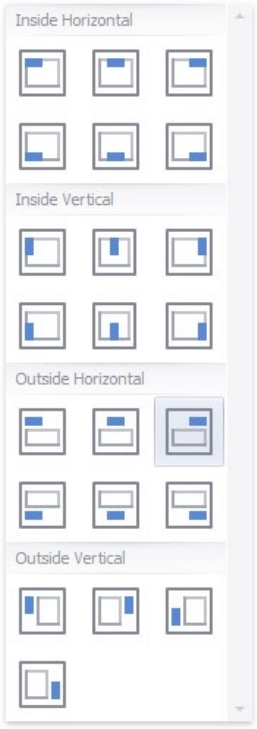


Visibility

You can specify whether or not a chart should display a legend.
In the Designer, use the **Show Legend** button in the **Legend** section of the **Design Ribbon** tab.

Position and Orientation

To specify the legend's position and orientation, select one of the predefined options from the gallery in the **Design Ribbon** tab.

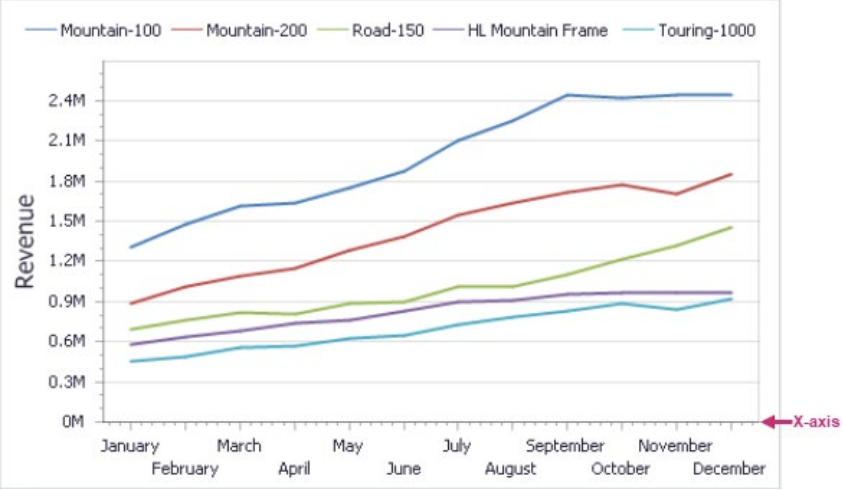


Axis

The Chart dashboard item displays two axis by default: the X-axis and the Y-axis. The topics in this section describe how to customize axis settings.

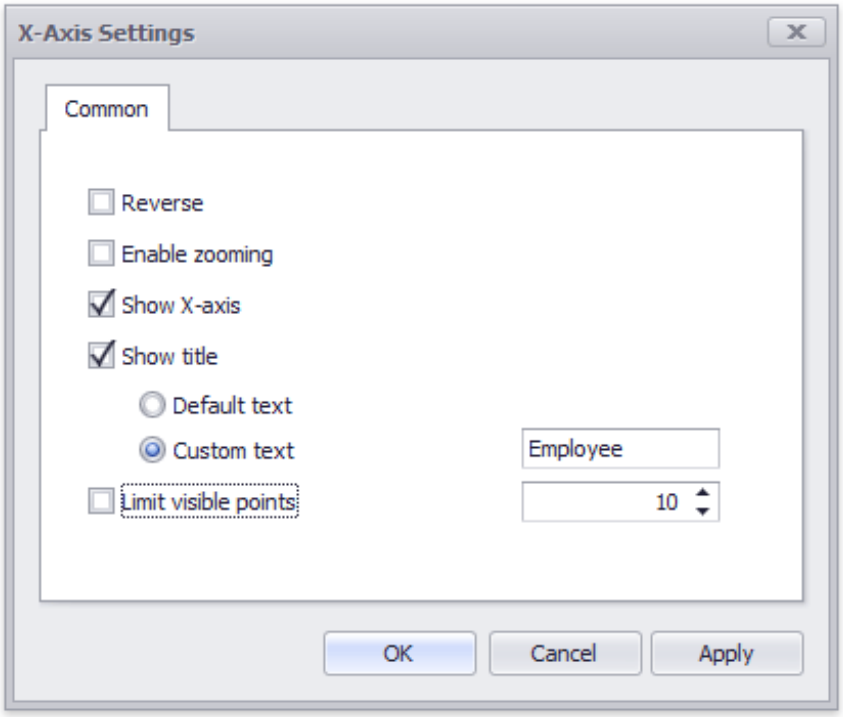
X-Axis

The X-axis is the axis of arguments.



Common X-Axis Settings

To access X-axis settings, use the **X-Axis Settings** button in the **Diagram** section of the **Design Ribbon** tab. This will open the **X-Axis Settings** dialog. This dialog contains the following settings.

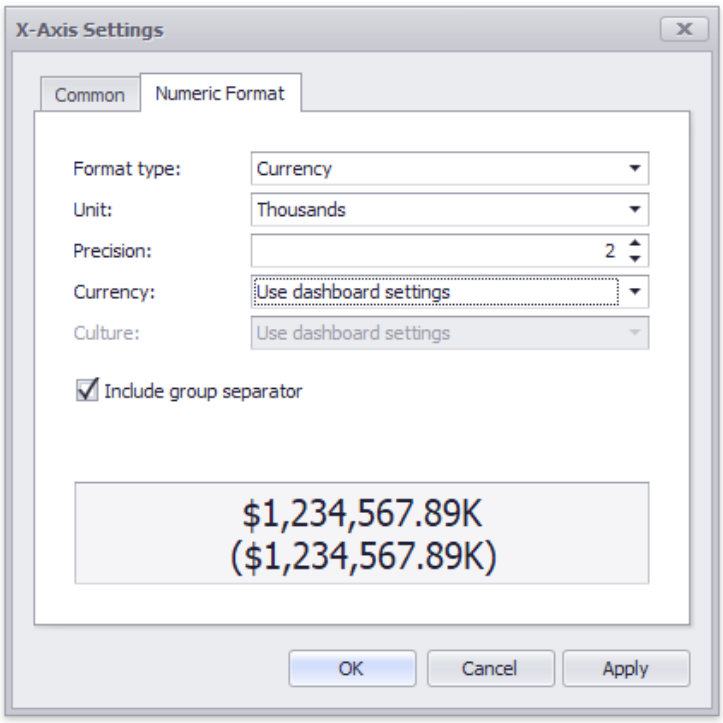


Setting	Description
Reverse	Allows you to reverse the X-axis. If the X-axis is reversed, its values are ordered from right to left.
Show X-axis	Allows you to hide and show the X-axis.
Show title	Allows you to hide and show the X-axis title. You can choose whether to use the default text or specify a custom string.
Enable zooming	Allows you to enable zooming for the X-axis. The X-axis' scroll bar provides the capability to perform navigation in the zoomed diagram.

Limit visible points	Allows you to limit the number of points displayed on the chart's diagram along the X-axis. The X-axis' scroll bar provides the capability to perform navigation if the number of all points exceeds the number of visible points.

Numeric Format X-Axis Settings

If arguments are numeric, the X-Axis Settings dialog contains a **Numeric Format** tab. It allows you to specify the numeric display formats for X-Axis data.



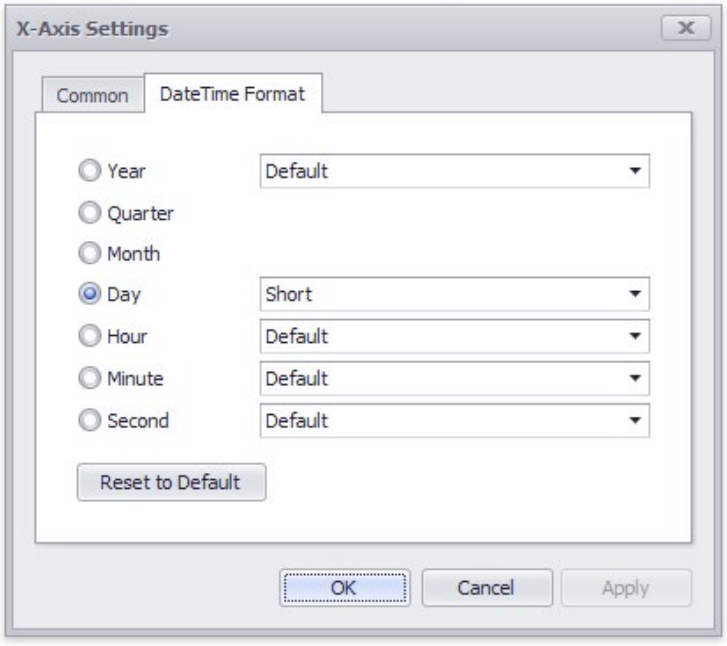
Setting	Description
Format type	Specifies format types for numeric values.
Unit	Specifies the unit to convert the numeric values.
Precision	Specifies the number of fractional digits to display.

Currency	Specifies the currency symbol and format provided by the current culture settings.
Culture	Specifies the name of a culture that defines the currency symbol and format.
Include group separator	Specifies whether separators should be inserted between digit groups.

DateTime Format X-Axis Settings

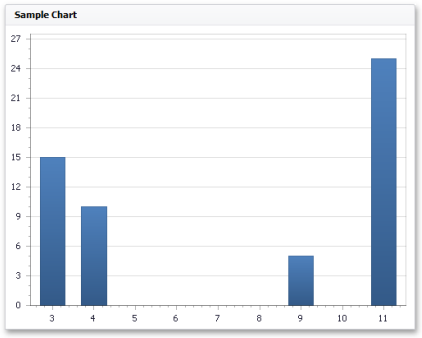
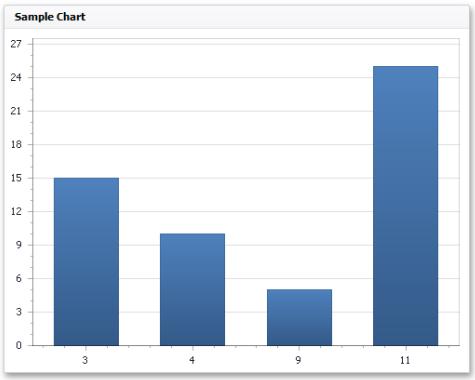
For date and time arguments, the X-Axis Settings dialog displays a Numeric Format tab. It allows you to specify the date and time display formats for X-Axis data.

Using the dialog, you can override default formats applied according to the data grouping type. The following image shows the **Date Time Format** tab in the dialog when the grouping type is set to Exact Date. Click the **Reset to Default** button to return all format settings back to their default values.



Continuous and Discrete X-Axis

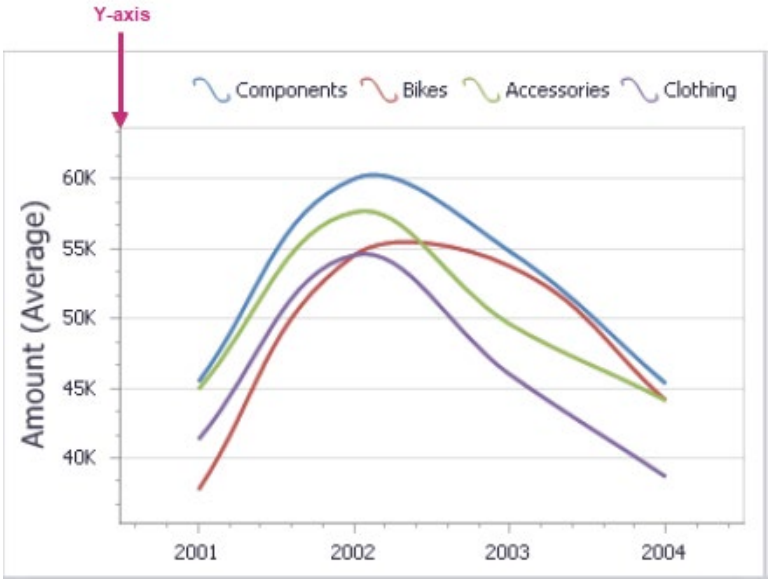
If the dimension in the Arguments section contains numeric data, the Chart can create either a continuous X-axis or a discrete X-axis.

Continuous X-Axis	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.
	

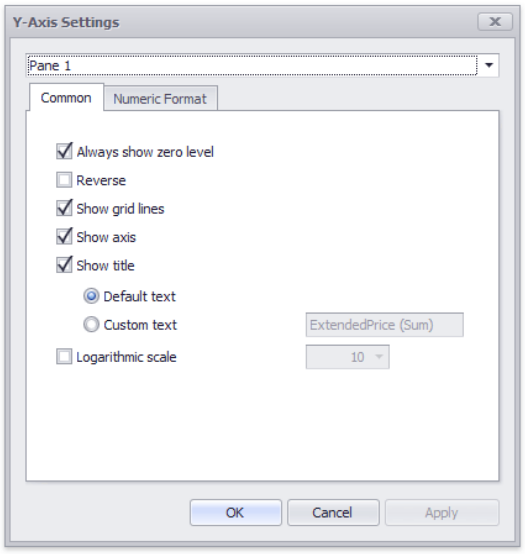
To specify the X-axis type in the Designer, open the data item menu for the argument dimension and select the axis type.

Y-Axis

The Y-axis is the numerical axis of values.



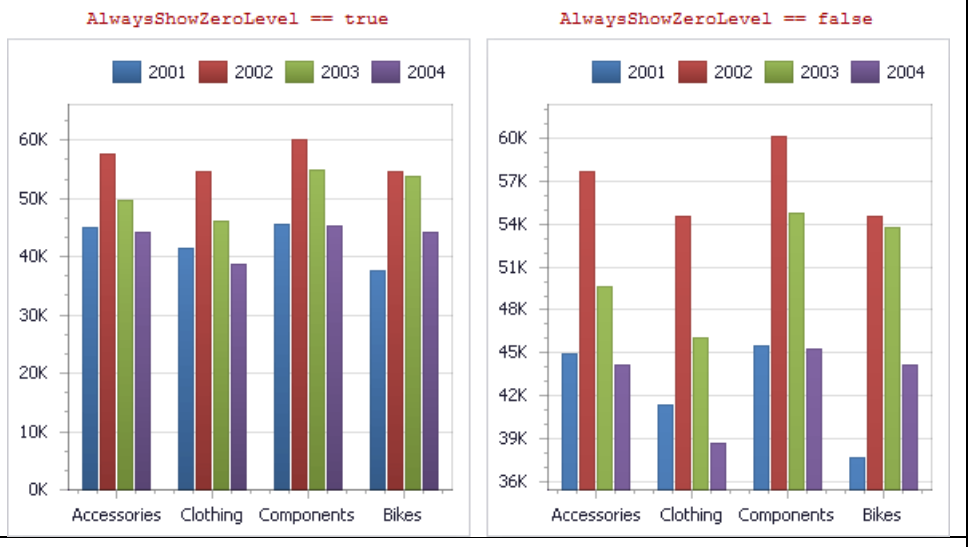
To access the Y-axis settings, use the **Y-Axis Settings** button in the **Diagram** section of the **Design Ribbon** tab. This will open the **Y-Axis Settings** dialog.



Use the combo box at the top to select the pane for the Y-axis settings you need to edit.

Common Settings

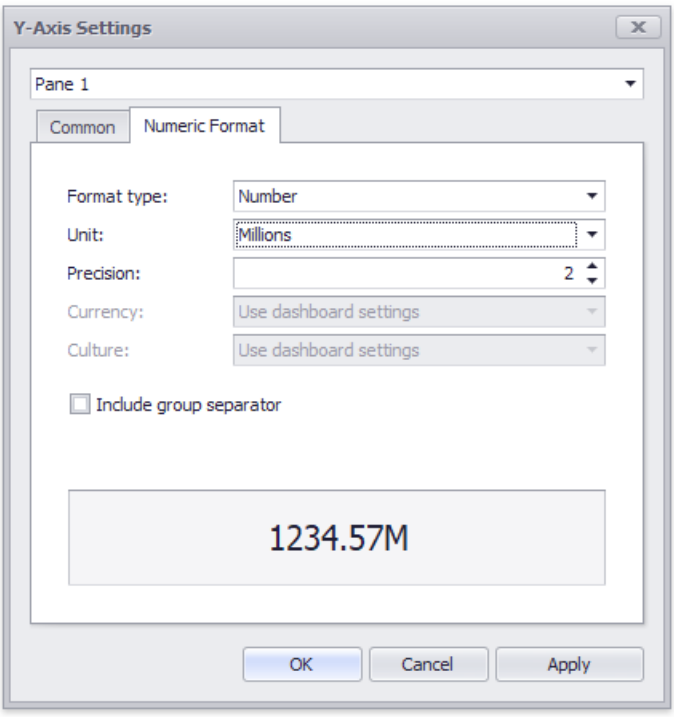
The dialog contains the following settings.

Setting	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. 
Reverse	Allows you to reverse the Y-axis. If theY-axis is reversed, its values are ordered from top to down.

Show grid lines	Allows you to hide and show grid lines for the Y-axis.
Show axis	Allows you to hide and show the Y-axis.
Show title	Allows you to hide and show the Y-axis title. You can choose whether to use the default text or specify a custom string.
Logarithmic scale	Specifies whether 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.

Numeric Format

The Numeric Format tab allows you to specify the numeric display formats for Y-Axis data.

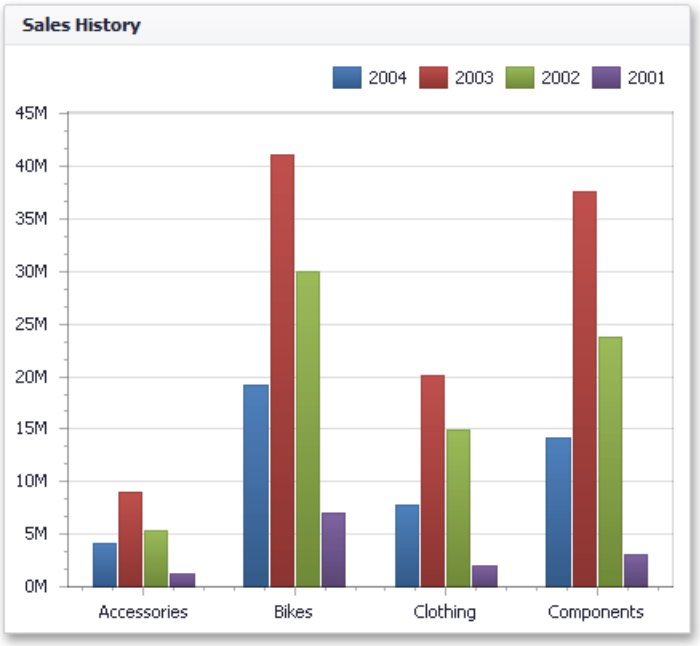


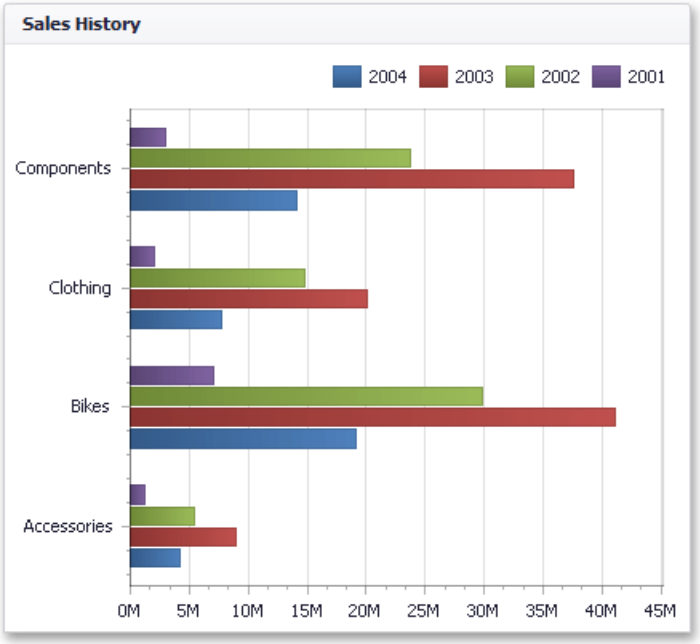
The tab contains the following settings.

Setting	Description
Format type	Specifies format types for numeric values.
Unit	Specifies the unit to convert the numeric values.
Precision	Specifies the number of fractional digits to display.
Currency	Specifies the currency symbol and format provided by the current culture settings.
Culture	Specifies the name of a culture that defines the currency symbol and format.
Include group separator	Specifies whether separators should be inserted between digit groups.

Orientation

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



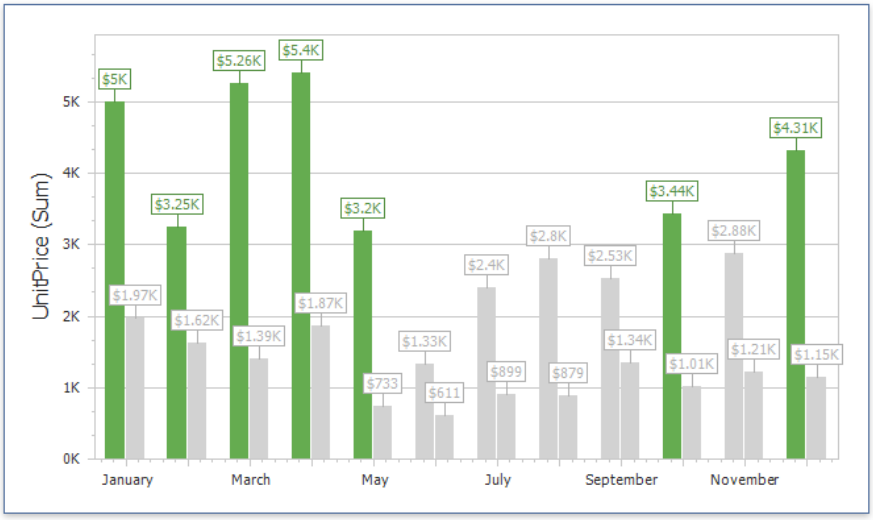


To rotate a Chart in the Designer, use the **Rotate** button in the **Diagram** group of the **Design Ribbon** tab.

Conditional Formatting

Use conditional formatting to highlight chart elements such as bars, lines, areas, and data points. The following series types support conditional formatting:

- Bar
- Point/Line
- Area
- Bubble
- Range Bar



Supported Format Rules

You can use the following data in rule calculations:

- Measures from the Values section
- Dimensions from the Arguments/Series section
- Hidden measures

The following list contains available format rules and corresponding data types:

- Numeric
  - Value
  - Top-Bottom
  - Average
  - Expression
  - Color Ranges
  - Gradient Ranges
- String
  - Value (with a condition type set to Equal To, Not Equal To or Text that Contains)
  - Expression
- Date-Time

- Value
- A Date Occurring (for dimensions with a continuous date-time group interval)
- Expression
- Color Ranges
- Gradient Ranges

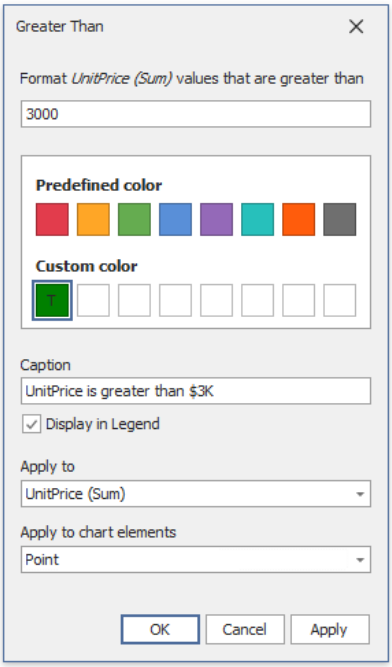
Create and Edit a Format Rule

You can create and edit format rules in the following ways:

- Click the Edit Rules button on the **Home** ribbon tab.
- Click the measure/dimension menu button in the Data Item's pane and select Add Format Rule/Edit Rules.

Chart-Specific Format Condition Settings

Specify appearance settings and set the condition's value to create a format rule. Available settings depend on the selected format condition type. The image below displays the **Greater Than** dialog (a Value format condition applied to a chart). The condition colors points/bars if their values exceed 3000.

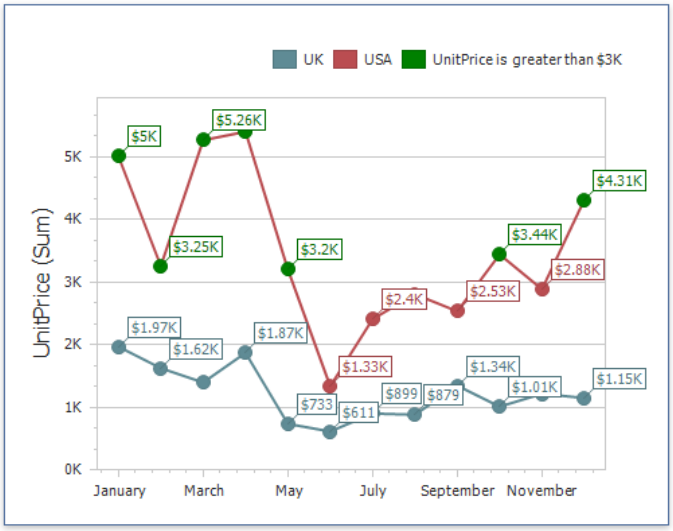


Enable **Display in Legend** to add information about the applied rule to the chart. Set the Caption field to specify the legend's text. For Range format rules, the legend's text is generated automatically and depends on the range intervals.

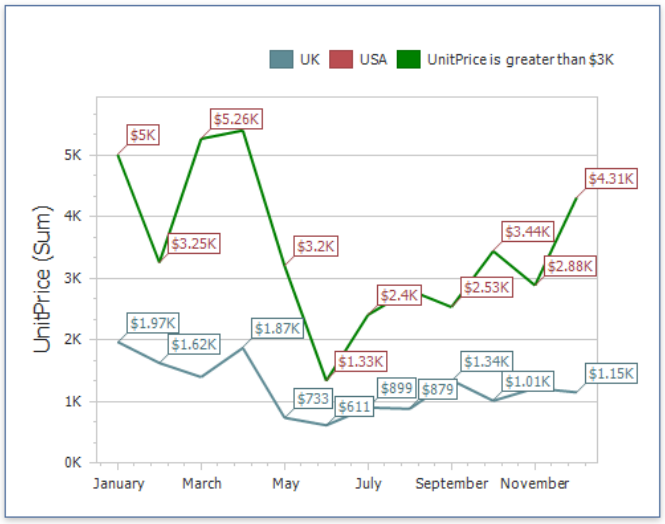
Use the **Apply to chart elements** drop-down list to apply a rule to points or lines.

- Point: A rule applies to the data points such as bars, points and bubbles.
- Line/Area: A rule applies to lines and areas.

The image below displays the Chart item with the applied Greater Than format rule. The Apply to chart elements option is set to Point and the rule is applied to points of the line series.

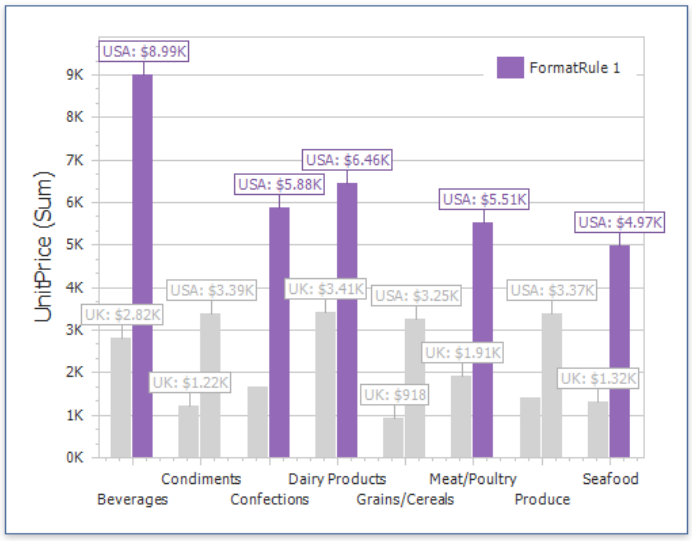


If you select Line/Area, the format rule applies to the line when at least one line point meets the rule's condition

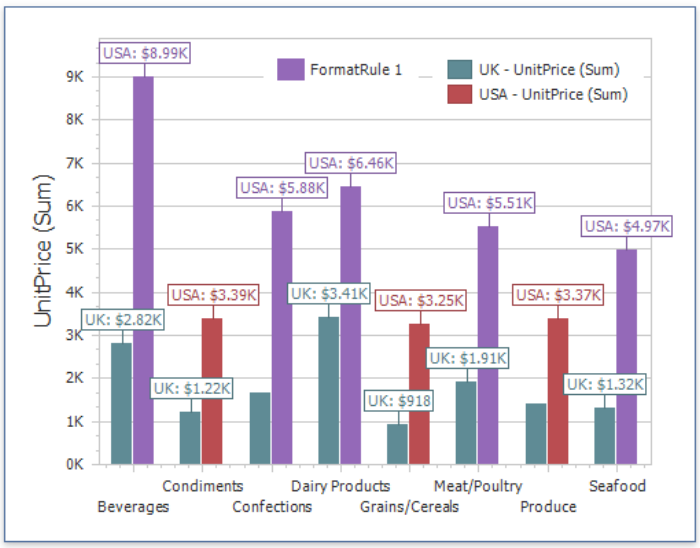


Coloring

A Chart item paints elements in pale gray if they do not meet the applied format condition. Note that this does not apply to elements that use the Hue color mode.



Select the **Color by Hue** option in a Data item's pane to restore the color scheme.



Activity 2.6 – Chart

In this activity, you will create a chart.

Activity Steps

Part 1: Add a chart

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Opportunity History** model.
5. Select the **Chart** button. The chart displays on the Dashboard.

6. Click and drag the **expectedrevenue** field to the **Value** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
7. Click and drag the **leadstagename** field to the **Argument** field in the **DATA ITEMS** pane.
8. Click and drag the **createdate** field to the **Series** field in the **DATA ITEMS** pane.

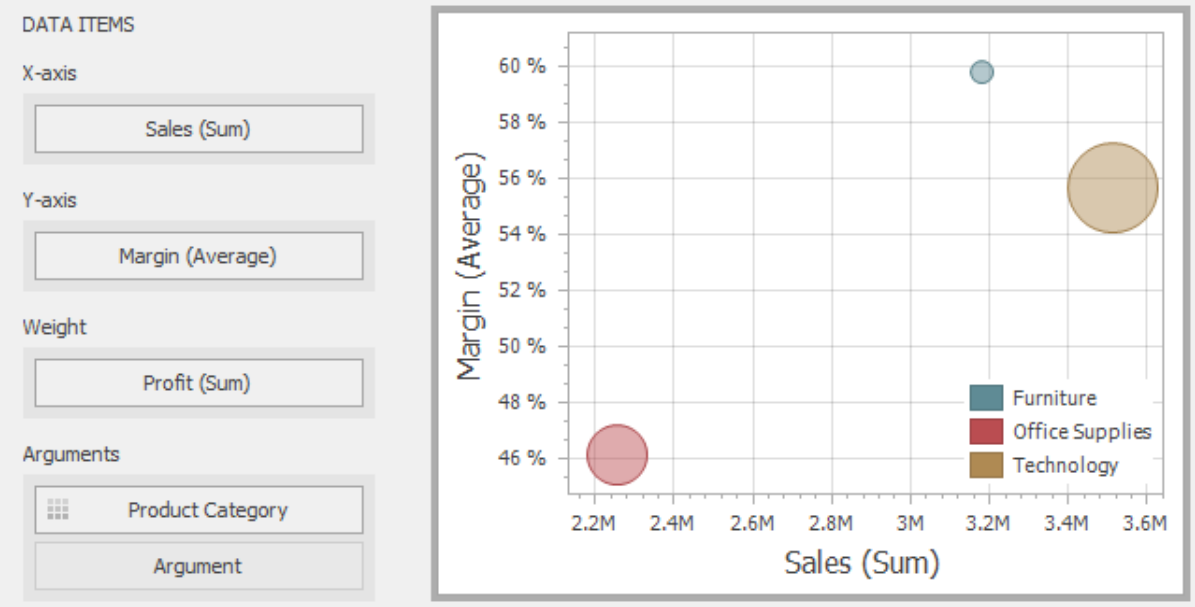
Part 2: Add a second value to the chart

1. Select **Chart Tools > Design**.
2. Select the **Stacked Bar** series type. **Note:** Hover your cursor over each icon to view the name.
3. Click and drag the **winprobability** field to the **Value** field in the **DATA ITEMS** pane.
4. Select the **Series** icon next to the **winprobability** field. The **Series Options** window opens.
5. Select the **Common Options** tab.
6. Select the **Plot on secondary axis** check box.
7. Select the **OK** button.
8. Select the **down arrow** for the **winprobability** field. **Note:** Hover the cursor over the field to view the arrow.
9. Select **Average**.
10. Select the **Series** icon next to the **winprobability** field. The **Series Options** window opens.
11. Select the **Point** series type (first icon in the second row).
12. Select the **OK** button.
13. Select the **Series** icon next to the **winprobability** field. The **Series Options** window opens.
14. Select the **Common Options** tab.
15. Clear the **Plot on secondary axis** check box.
16. Select the **OK** button.

Part 3: Add a pane

1. Select the **Add Pane** icon in the upper right corner of the **DATA ITEMS** pane. A new section and field display.
2. Click and drag the **winprobability** field from **Values (Pane 1)** section to the **Value** field in the **Values (Pane 2)** section. A second chart displays in the same chart item on the dashboard.
3. Select the **down arrow** for the **winprobability** field.
4. Select **Sum**.

Scatter Chart

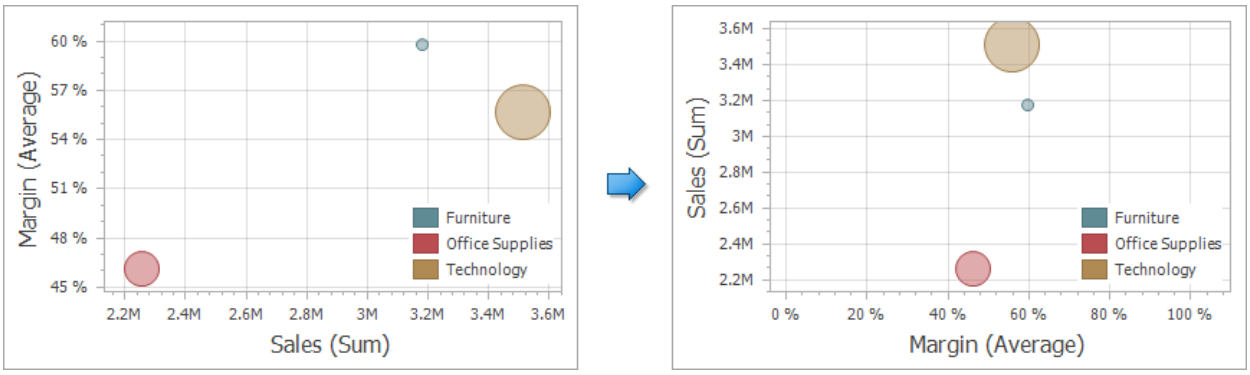


The Scatter Chart dashboard item visualizes summaries using three dimensions: the X-axis, the Y-axis and the size of data points. The Scatter Chart can display point labels and tooltips that show information on data points. To see a tooltip, hover over the required point.
To bind the Scatter Chart dashboard item to data, drag and drop a data source field to a placeholder contained in one of the available data sections. A table below lists and describes Scatter Chart data sections.

Section	Description
X-Axis	Contains the data item against which the X-coordinates of data points are calculated.
Y-Axis	Contains the data item against which the Y-coordinates of data points are calculated.
Weight	Contains the data item whose values are used to calculate the weight of data points.
Arguments	Contains data items providing scatter chart arguments that are used to create data points.

Transposing X- and Y-axis

The Scatter Chart dashboard item provides the capability to transpose its axes. In this case, the data item contained in the X-Axis section is moved to the Y-Axis section, and vice versa.



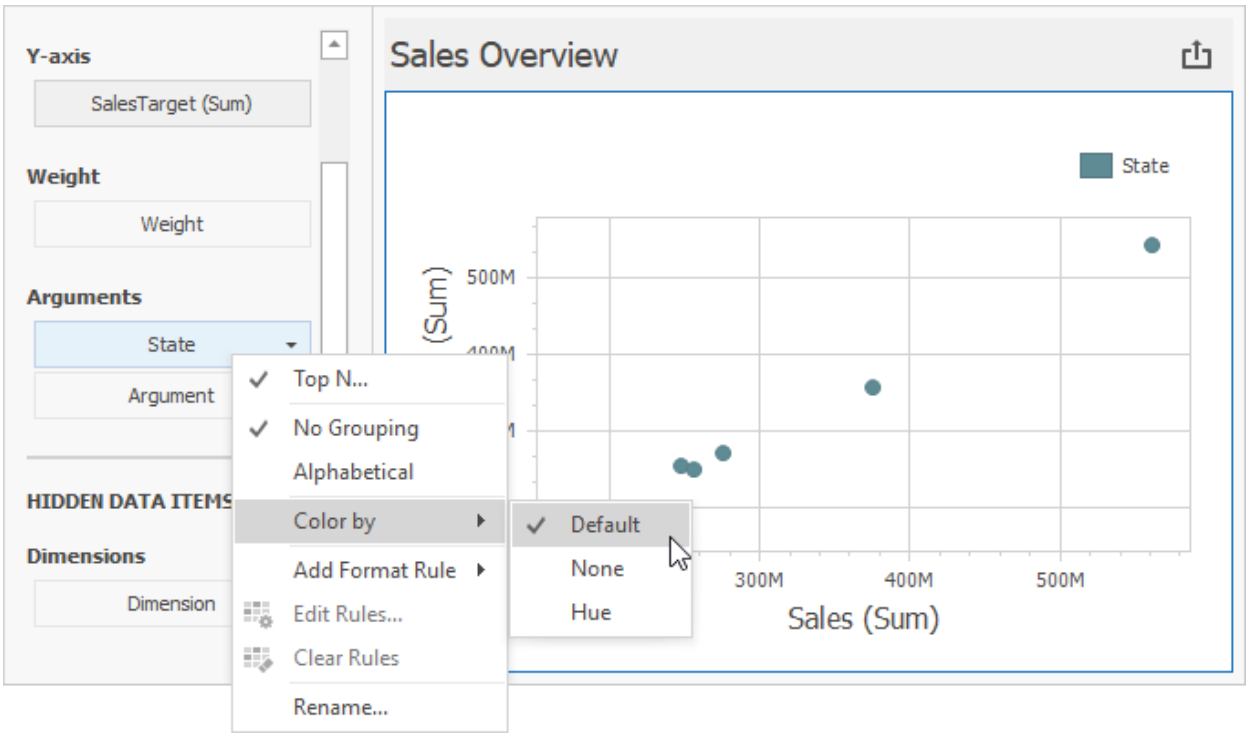
To transpose the selected Scatter Chart dashboard item, use the **Transpose** button in the **Home** ribbon tab.

Renaming Items

To rename the Data Items, select the **Edit Names** button in the **Design** ribbon tab.

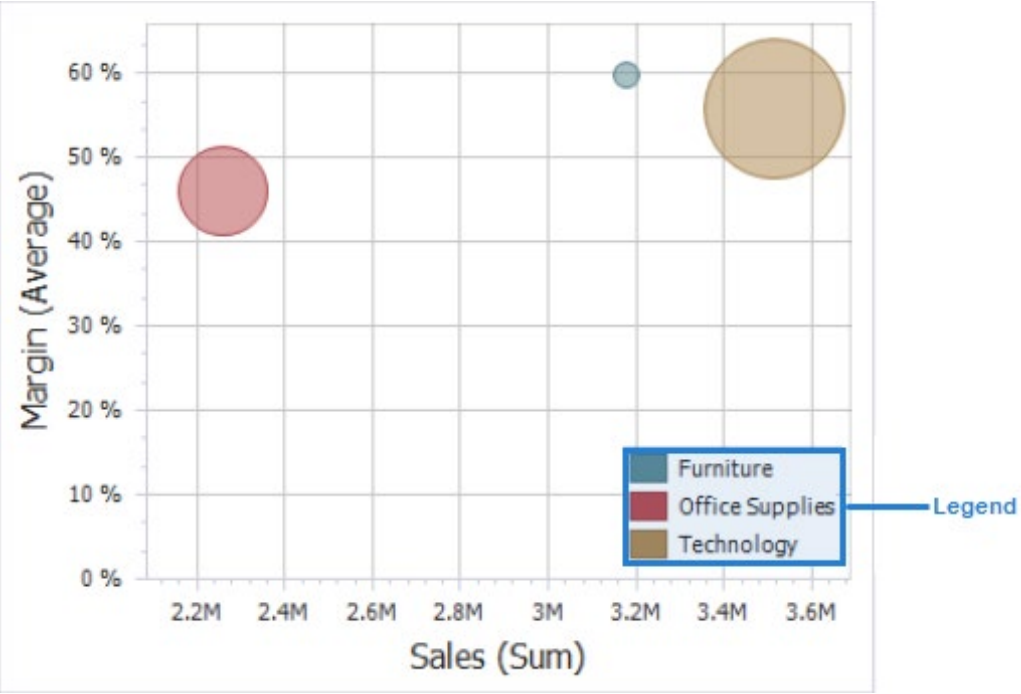
Coloring

The Scatter Chart dashboard item does not paint its arguments in Default mode.



Legend

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

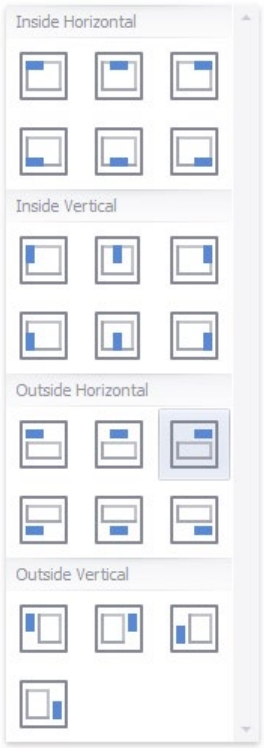


Visibility

You can specify whether or not a chart should display a legend. In the Designer, use the **Show Legend** button in the **Legend** section of the **Design Ribbon** tab.

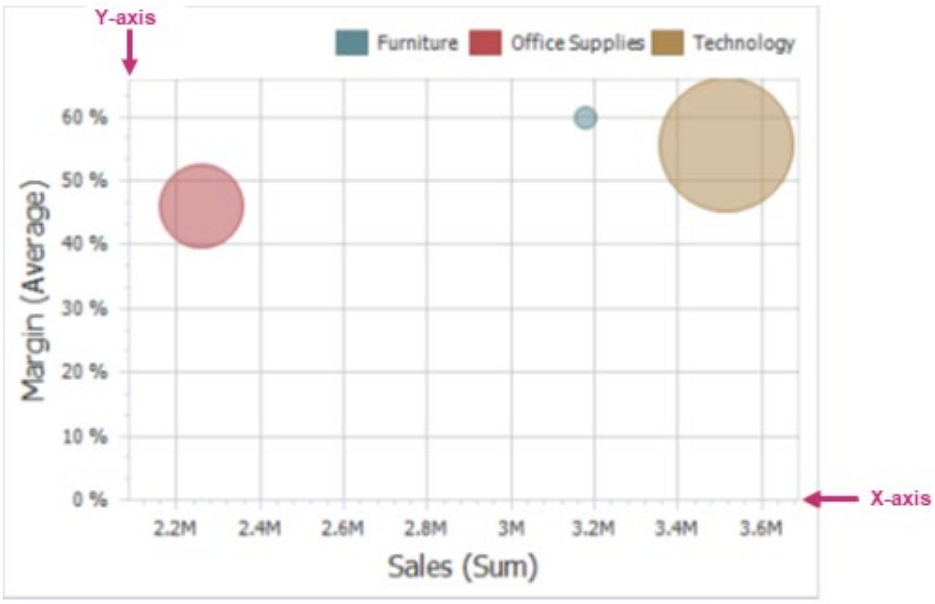
Position and Orientation

To specify the legend's position and orientation, select one of the predefined options from the gallery in the **Design Ribbon** tab.

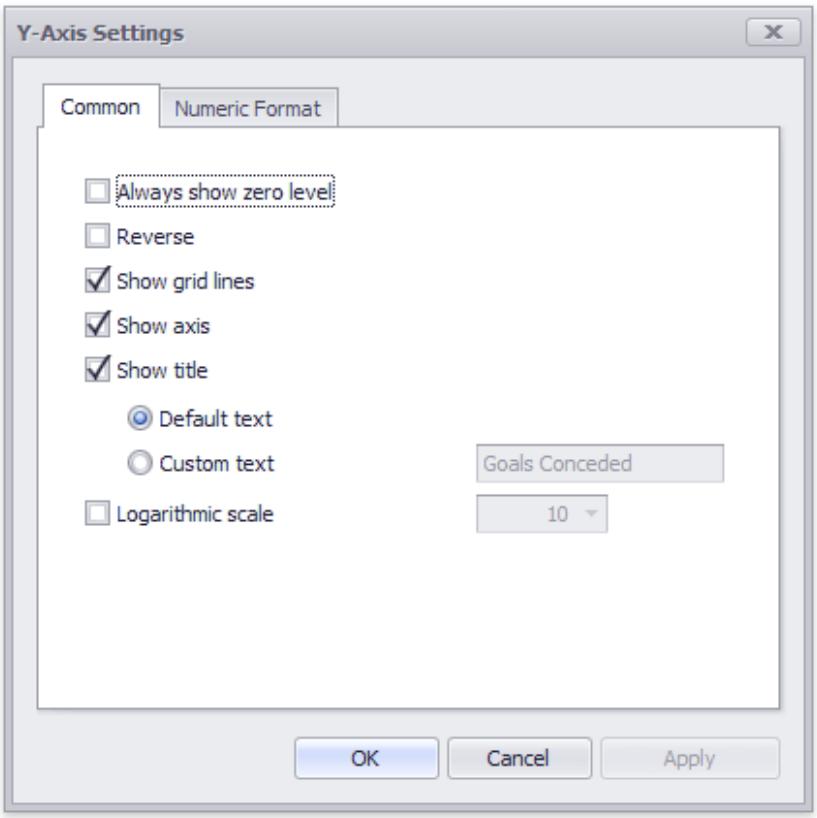


Axes

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



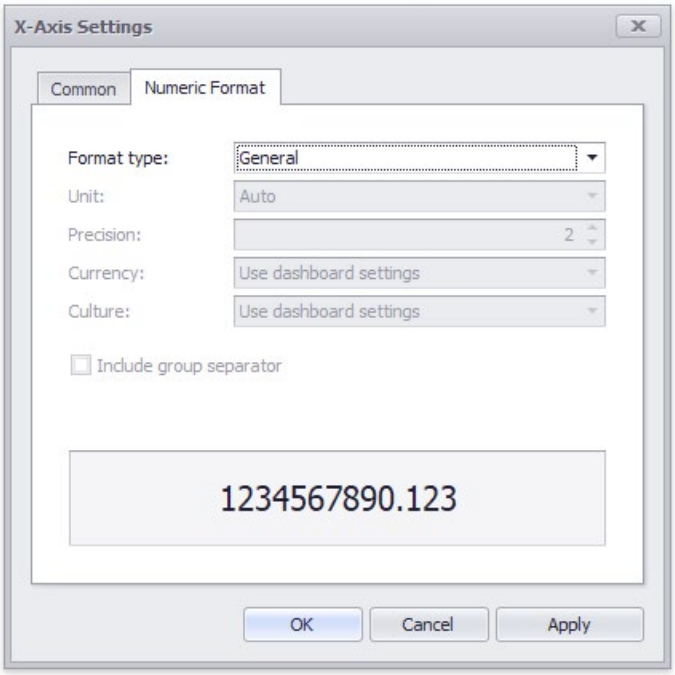
To access X and Y-axis settings, use the **X-Axis Settings/Y-Axis Settings** buttons in the **Diagram** section of the **Design Ribbon** tab. This will open the **X-Axis Settings/Y-Axis Settings** dialog.



In this dialog, you can specify the following settings.

- **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 **X-Axis Settings** dialog does not contain this option.
- **Reverse -** Allows you to reverse the axis. If the axis is reversed, its values are ordered from top to down.
- **Show grid lines -** Allows you to hide and show grid lines for the axis.
- **Show axis -** Allows you to hide and show the axis.
- **Show title -** Allows you to hide and show the axis title. You can choose whether to use the default text or specify a custom string.
- **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.

The **Numeric Format** tab allows you to specify the numeric display formats for axis data.



The tab contains the following settings.

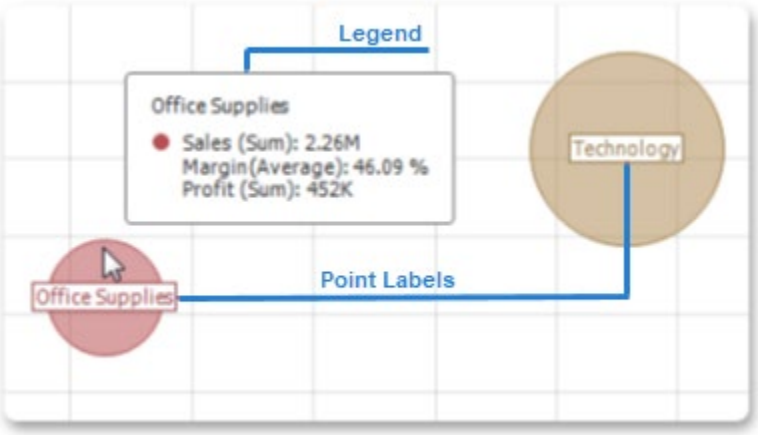
- **Format type -** Specifies format types for numeric values.
- **Unit -** Specifies the unit to convert the numeric values.
- **Precision -** Specifies the number of fractional digits to display.
- **Currency -** Specifies the currency symbol and format provided by the current culture settings.
- **Culture -** Specifies the name of a culture that defines the currency symbol and format.
- **Include group separator -** Specifies whether separators should be inserted between digit groups.

Orientation

You can rotate the Scatter Chart so that the X-axis becomes vertical, and the Y-axis becomes horizontal. To rotate a Chart in the Designer, use the **Rotate** button in the **Diagram** section of the **Design Ribbon** tab.

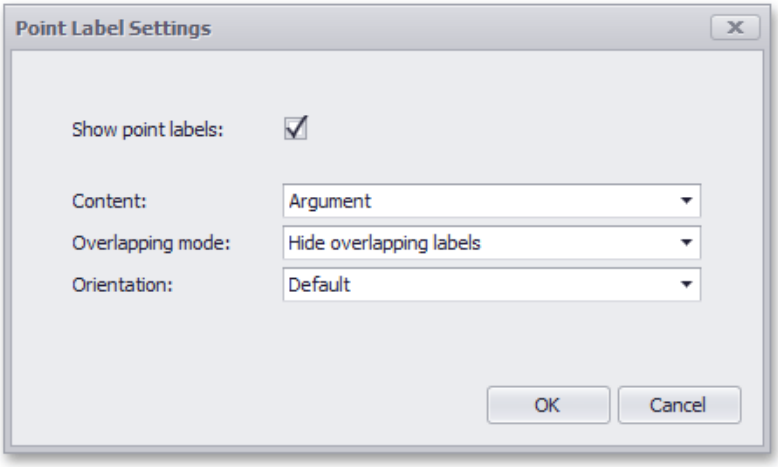
Labels

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



Point Labels

To manage the visibility of point labels, click the **Point Labels** button in the **Design ribbon** tab. In the open **Point Label Settings** dialog, enable the **Show point labels** check box to show point labels.



You can specify the following settings for point labels:

- **Content -** Specifies the type of content displayed within point labels. You can select one of the following options.
  - **Values -** Point labels show summary values from X and Y-axes.
  - **Argument -** Point labels show argument values.
  - **Argument and values -** Point labels show argument values and corresponding summary values.
  - **Weight -** Point labels show the weight summary value.
  - **Argument and weight -** Point labels show the argument value and the corresponding weight summary value.
- **Overlapping mode -** Specifies the label overlap mode. The following options are available.

    - **Hide overlapping labels -** If two or more labels overlap, some of them are automatically hidden to avoid overlapping.
    - **None -** The overlapping resolving algorithm is disabled.
    - **Reposition overlapping labels -** The default algorithm to re-position point labels in a random way, and avoid overlapping labels.
- **Orientation -** Specifies the orientation of point labels. The following options are available.
    - Default - A point label is displayed in its default orientation.
    - Rotate to the Right - A point label is rotated 90 degrees clockwise.
    - Rotate to the Left - A point label is rotated 90 degrees counter clockwise.

Activity 2.7 – Scatter Chart

In this activity, you will work with a scatter chart.

Activity Steps

Part 1: Create a scatter chart

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Opportunity Forecast** model.
5. Select the **Scatter Chart** button. The chart displays on the Dashboard.
6. Click and drag the **expectedrevenue** field to the **X-axis** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
7. Click and drag the **probability** field to the **Y-axis** field in the **DATA ITEMS** pane.
8. Click and drag the **weightedRevenue** field to the **Weight** field in the **DATA ITEMS** pane.
9. Click and drag the **projectname** field to the **Arguments** field in the **DATA ITEMS** pane.

Part 2: Rename the data items

1. Select **Scatter Chart Tools > Design**.
2. Select the **Edit Names** button. The **Edit Names** window opens.
3. Type *Target Projects* in the **Dashboard item name** field.
4. Type *Expected Revenue* in the **X-axis** field.
5. Type *Probability* in the **Y-axis** field.
6. Type *Weighted Revenue* in the **Weight** field.
7. Select the **OK** button.

Part 3: Update the axis numeric formats

1. Select the **X-Axis Settings** button on the **Design** tab. The **X-axis Settings** window opens.
2. Select the **Numeric Format** tab.
3. Select **Number** in the **Format** type field.
4. Select **Ones** in the **Unit** field.
5. Select **0** in the **Precision** field.
6. Select the **Apply** button. The x-axis numbers update.
7. Select the **OK** button.
8. Select the **Y-Axis Settings** button. The **Y-axis Settings** window opens.
9. Select the **Numeric Format** tab.
10. Select **Number** in the **Format** type field.
11. Select **Ones** in the **Unit** field.
12. Select the **Include group separator** check box.
13. Select the **Apply** button. The y-axis numbers update.
14. Select the **OK** button.

Part 4: Update the data items numeric formats

1. Select the **down arrow** for the **Expected Revenue** field in the **DATA ITEMS** pane.
2. Select **Format**. The **Numeric Format** window opens.
3. Select **Number** in the **Format** type field.
4. Select **Ones** in the **Unit** field.
5. Select **2** in the **Precision** field.
6. Select the **Include group separator** check box.
7. Select the **OK** button.
8. Hover over a data point to review the updated format in the pop-up information.
10. Select the **down arrow** next to the **Probability** field in the **DATA ITEMS** pane.
9. Select **Format**. The **Numeric Format** window opens.
10. Select **Number** in the **Format** type field.
11. Select **Ones** in the **Unit** field.
12. Select **2** in the **Precision** field.
13. Select the **Include group separator** check box.
14. Select the **OK** button.
11. Hover over a data point to review the updated format in the pop-up information.
12. Select the **down arrow** for the **Weighted Revenue** field in the **DATA ITEMS** pane.
15. Select **Format**. The **Numeric Format** window opens.
16. Select **Number** in the **Format** type field.
17. Select **Ones** in the **Unit** field.
18. Select **0** in the **Precision** field.
19. Select the **OK** button.
13. Hover over a data point to review the updated format in the pop-up information.

Part 5: Adjust color

1. Select the **down arrow** for to the **projectname** field in the **DATA ITEMS** pane.
2. Select **Color by > Hue**.
   Note: To edit the assigned colors, select the **Edit Colors** button on the **Design** tab.

Part 6: Add point labels

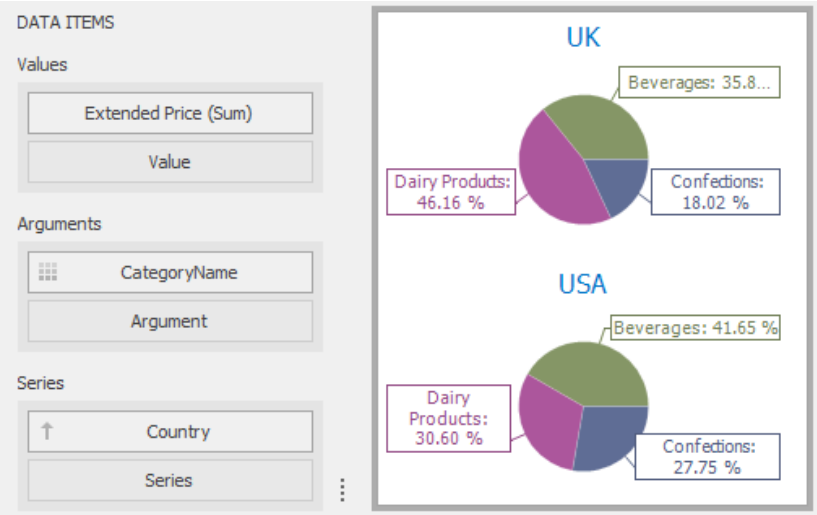
1. Select the **Point Labels** button on the **Design** tab. The **Point Labels Settings** window opens.
2. Select the **Show point labels** check box.
3. Select **Weight** in the **Content** field.
4. Select **Reposition overlapping labels** in the **Overlapping Mode** field.
5. Select the **OK** button.

Part 7: Adjust the legend

1. Select the **down arrow** in the **Legend** section of the **Design** tab.
2. Select the **second Outside Vertical** legend option.

Pies

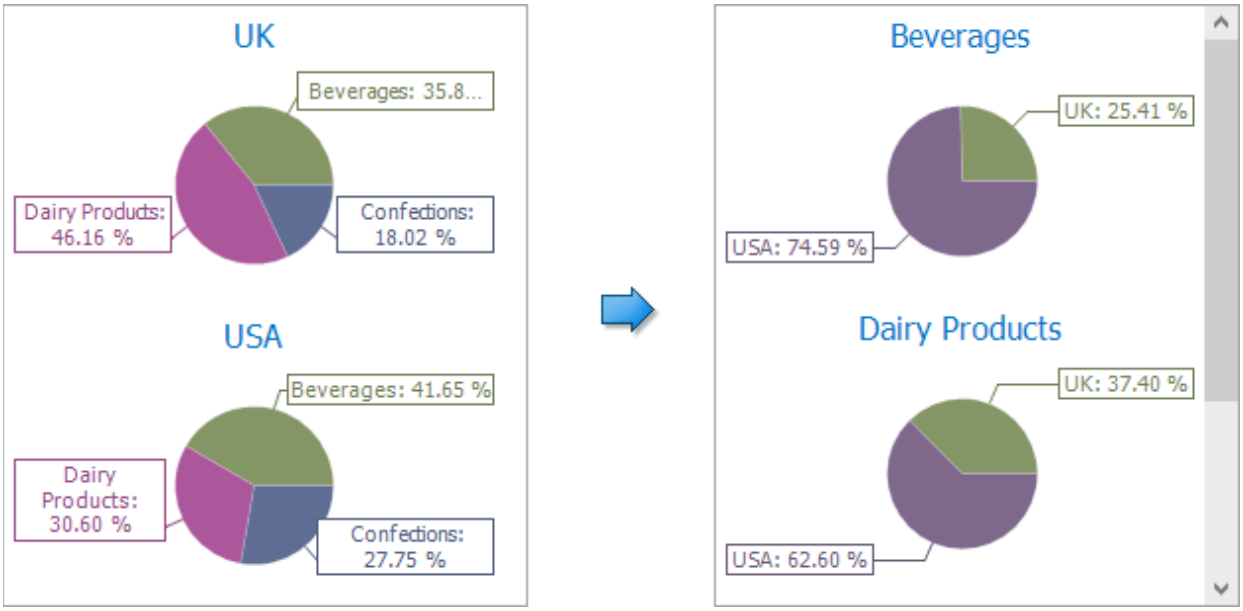
The Pie dashboard item displays a series of pies or donuts that represent the contribution of each value to a total.



To bind the Pie dashboard item to data, drag and drop a data source field to a placeholder contained in one of the available data sections. A table below lists and describes Pie's data sections.

Section	Description
Values	Contains data items that define the share of pie segments. In case of negative measure values, Pie uses their absolute values.
Arguments	Contains data items that provide values used to label pie segments.
Series	Contains data items whose values are used to label pie charts.

The Pie dashboard item provides the capability to transpose pie arguments and series. You can also perform more complicated calculations around the displayed values using the drop-down menu available on the **Value** fields. The sort preferences for Arguments and Series are available using the drop-down menus for each field.

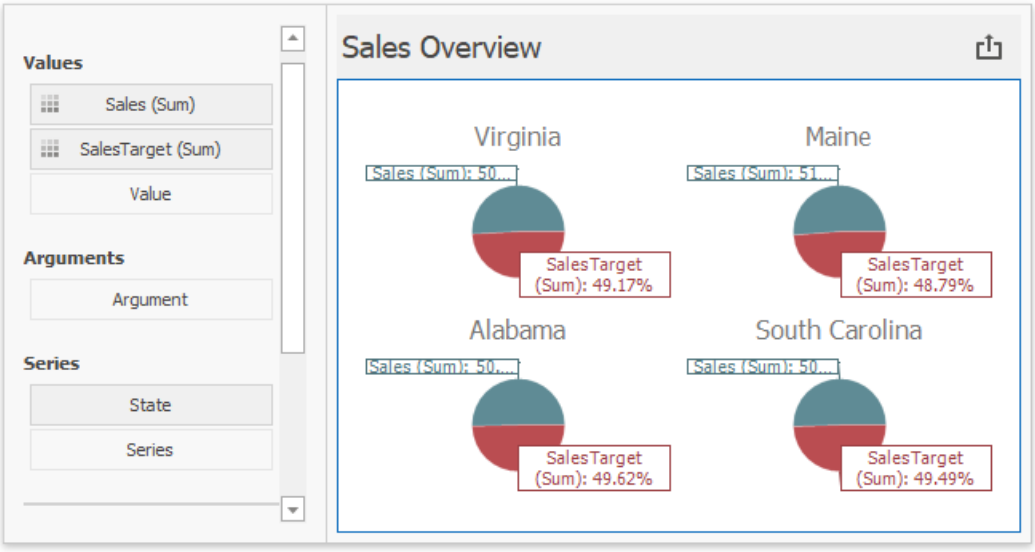


To transpose the selected Pie dashboard item, use the **Transpose** button in the **Home** ribbon tab. In this case, data items contained in the Arguments section are moved to the Series section, and vice versa.

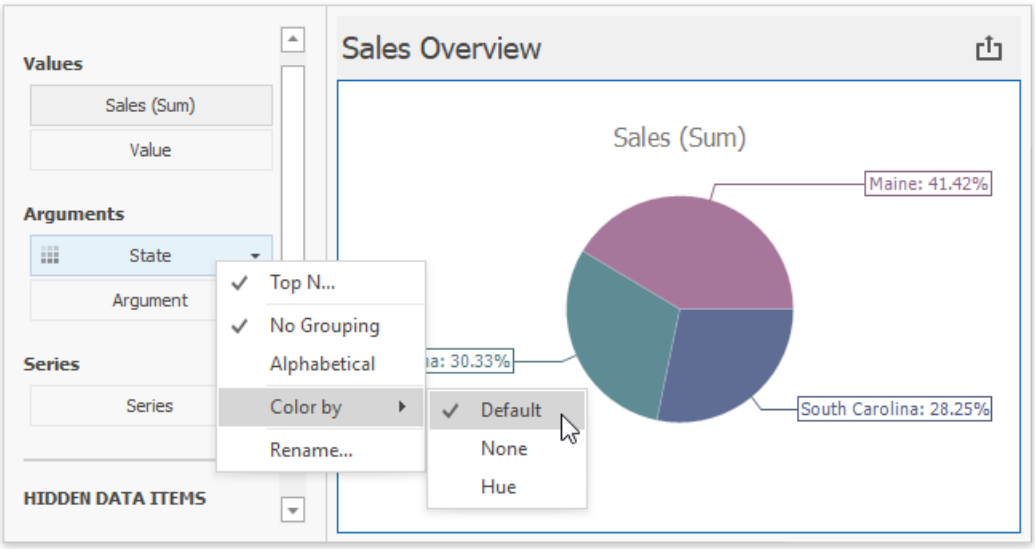
Coloring

In Default color mode, the Pie dashboard item colors its segments in the following way:

- If the Pie dashboard item contains measures (the Values section) and series dimensions (the Series section), only values corresponding to different measures are colored by hue.



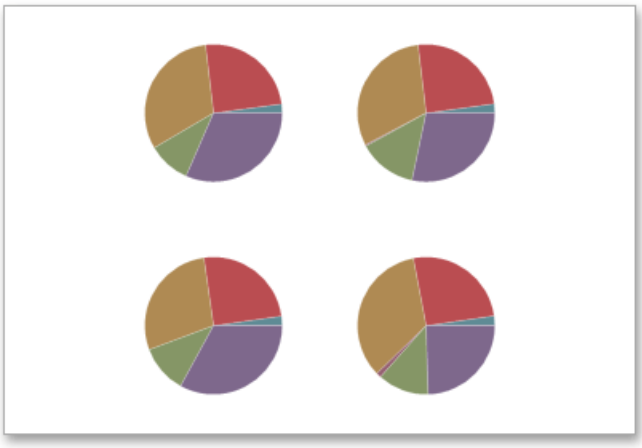
- If the Pie dashboard item contains arguments (the Arguments section), different argument values are colored by hue.



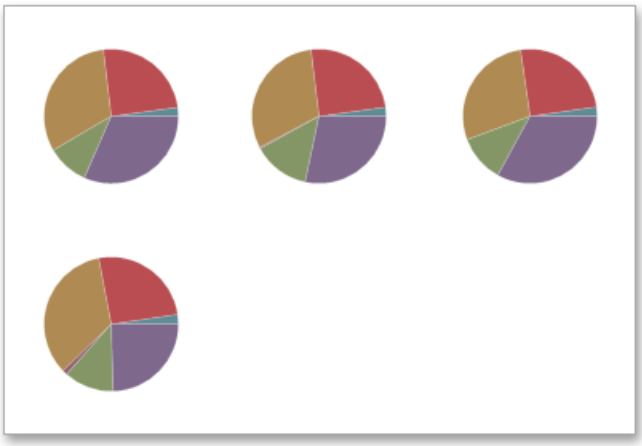
Layout

The Pie dashboard item allows you to specify the number of columns or rows in which individual diagrams are arranged.

To control how pies are arranged, use the buttons in the **Content Arrangement** group of the **Design Ribbon** tab. By default, the **Auto Arrange** option is enabled, which automatically resizes pies to fit within the dashboard item.

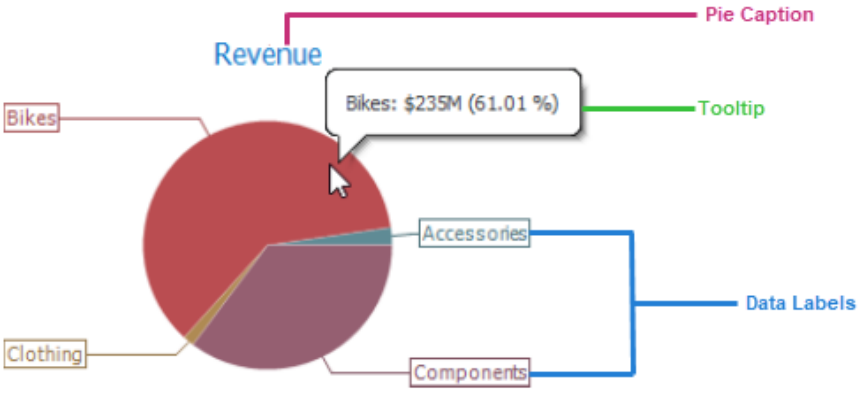


You can also specify the number of columns in which pies are arranged. Click the **Arrange in Columns** button and specify the appropriate number in the **Count** field.



Similarly, you can arrange pies in a specific number of rows.

Labels



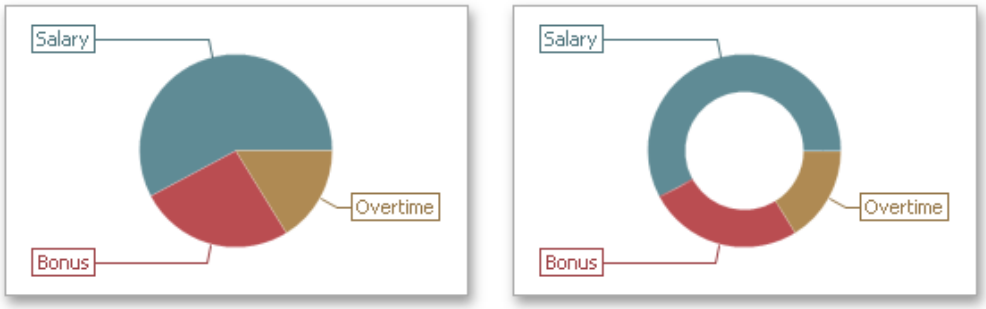
You can specify which information should be displayed within data labels and tooltips. To do this, use the **Data Labels and Tooltips** buttons in the **Labels** group of the **Design Ribbon** tab.

These buttons open a drop-down menu that is similar for both buttons. This menu allows you to specify which values are displayed within data labels or tooltips.

The **Data Labels Position** button allows you to decide if you prefer the labels around the perimeter of the graph, or on the graph directly.

Style

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



Activity 2.8 – Pies

In this activity, you will work with pie charts.

Activity Steps

Part 1: Add a pie chart

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Employee Utilization Summary Month** model.
5. Select the **Pies** button. The pie chart displays on the Dashboard.
6. Click and drag the **Work_Hours** field to the **Values** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
7. Click and drag the **Project_Charge_Type** field to the **Arguments** field in the **DATA ITEMS** pane.
8. Click and drag the **Employee_Name** field to the **Series** field in the **DATA ITEMS** pane.

Part 2: Rename the data items

1. Select **Pie Tools > Design**.
2. Select the **Edit Names** button. The **Edit Names** window opens.
3. Type *Hours Worked By Employees* in the **Dashboard item name** field.
4. Type *Work_Hours* in the **Values** field.
5. Select the **OK** button.

Part 3: Update the labels

1. Select the **Data Labels** button.

2. Select **Value**.
3. Select the **down arrow** for the **Work _Hours** in the **DATA ITEMS** pane.
4. Select **Format**. The **Numeric Format** window opens.
5. Select **Number** in the **Format** type field.
6. Select **Auto** in the **Unit** field.
7. Select the **OK** button.
8. Select the **Tooltips** button.
9. Select **Argument**.
10. Select the **Data Position Labels** button.
11. Select **Inside**.

Part 4: Change style and coloring

1. Select the **Donut** button.
2. Select the **Edit Colors** button on the **Design** tab. The **Global Color Scheme window** opens.
3. Select the **Color** cell for the **Indirect** line.
4. Select the **second color** on the **second row**.
5. Select the **Apply** button.
6. Select the **OK** button.

Part 5: Change the series sort order

1. Select the **down arrow** for the **Employee_Name** field in the **DATA ITEMS** pane.
2. Select **Sort By > Work_Hours**. The charts now display in order of highest work hours to lowest.

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.

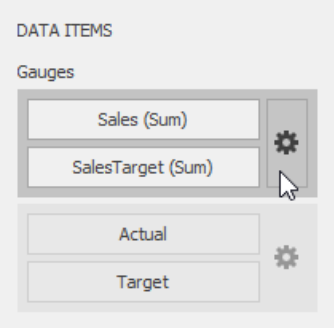
To bind the Gauge dashboard item to data, drag and drop a data source field to a placeholder contained in one of the available data sections. A table below lists and describes Gauge's data sections.

Section	Description
Gauges	Contains data items used to calculate values displayed by gauges. Data items are arranged in containers. Each data item container can hold two data items. The first item contains actual data and the second item (optional) contains target data. If both items are provided, gauges show the difference between actual and target values. 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 open the **Values** menu, click the icon in the dashboard item caption. This drop-down menu is available if the **Series** section is not empty. Otherwise, a separate gauge is created for each data item container, and all gauges are displayed simultaneously.
Series	Contains data items whose values are used to label gauges.

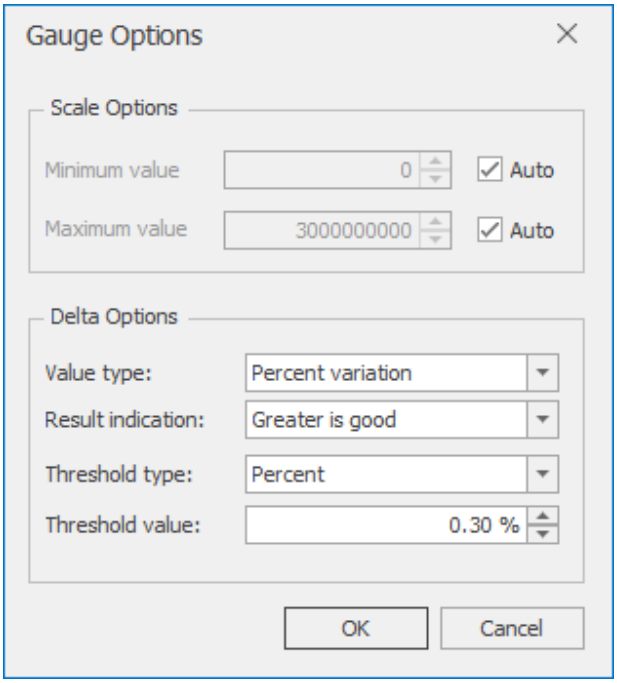
Delta

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).

To customize settings that relate to the calculation and display of deltas, use the **options** buttons (icon) displayed next to the data item container in the **Gauges** section of the **DATA ITEMS** pane.



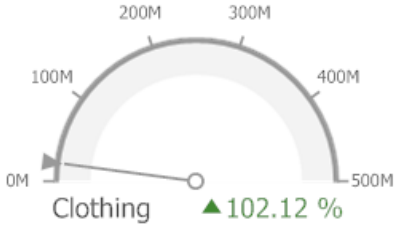
These buttons open the **Gauge Options** dialog.



Use it to define the condition for displaying delta indication, specify which delta values should be displayed, and introduce the comparison tolerance.

Delta Values

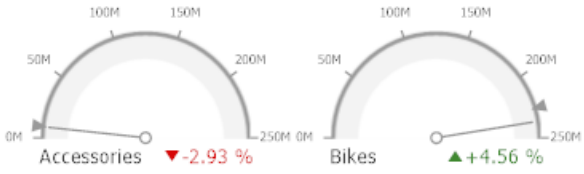
You can specify which values should be displayed within gauges. Use the **Value** type combo box in the **Gauge Options** window to select the value that will be displayed as the delta value.

Value Type	Result
Actual Value	
Absolute Variation	
Percentage Variation	
Percentage of Target	

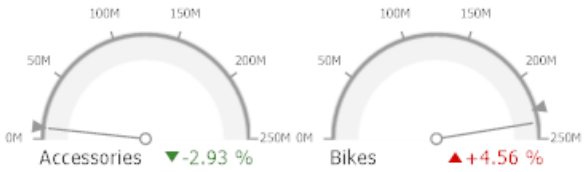
Delta Indication

You can specify the condition for displaying delta indication. To do this, use the Result indication combo box in the **Gauge Options** window.

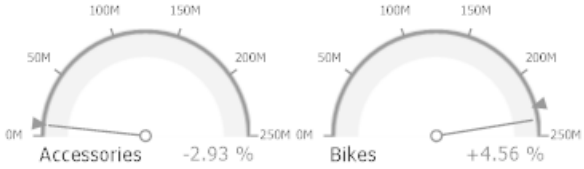
- **Greater is Good -** The 'good' indication is displayed if the actual value exceeds the target value; if the target value exceeds the actual value, the 'bad' indication is displayed.



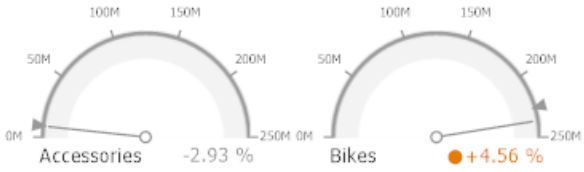
- **Less is Good -** The 'bad' indication is displayed if the actual value exceeds the target value; if the target value exceeds the actual value, the 'good' indication is displayed.



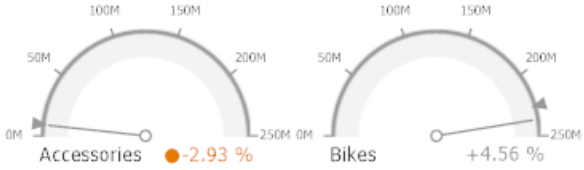
- No Indication - Indication is not displayed.



- Warning if Greater - A warning is displayed if the actual value exceeds the target value; otherwise, no indication is displayed.



- Warning if Less - A warning is displayed if the target value exceeds the actual value; otherwise, no indication is displayed.



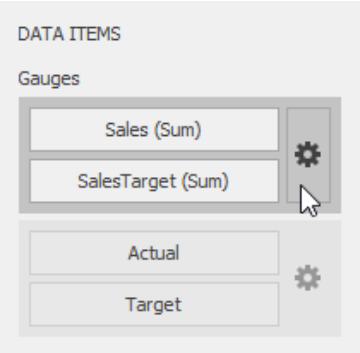
Comparison Tolerance

The comparison tolerance allows you to create more advanced conditions for displaying delta indication. For instance, you can specify that a specific indication should be displayed 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 in absolute values. Then use the **Threshold value** box to specify the comparison tolerance.

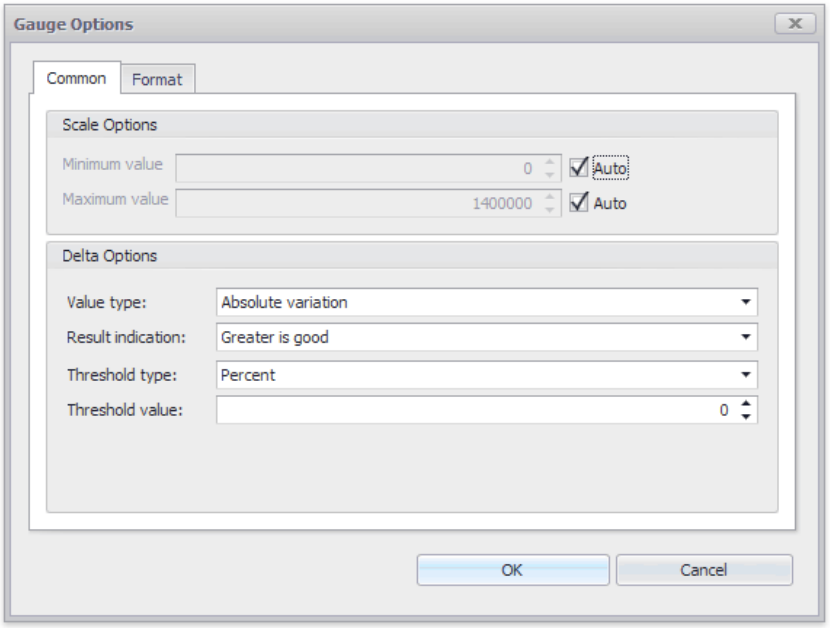
Gauge Scale

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

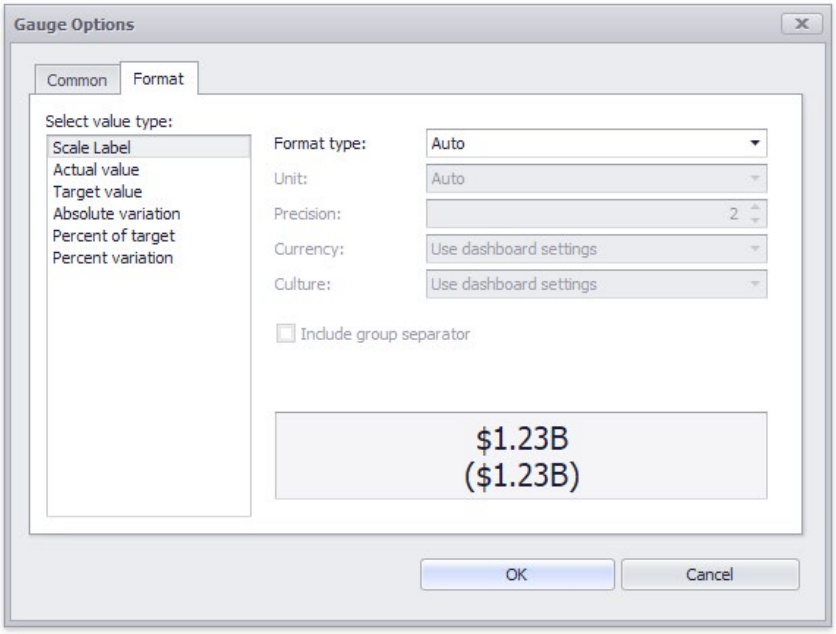
You can override this behavior and specify the maximum and minimum values on the scale. To do this, open the **Gauge Options** window using the **Options** button displayed in the data item container in the **Gauges** section of the **DATA ITEMS** pane.



In the **Gauge Options** window, uncheck the **Auto** check box for the maximum or minimum value, and specify this value in the corresponding field.



The **Format** tab allows you to specify the numeric display formats for different value types, as described in the **Formatting Data** document.

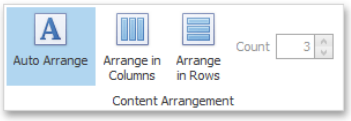


The tab contains the following settings.

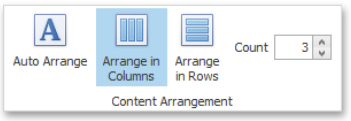
- **Format type -** Specifies format types for numeric values.
- **Unit -** Specifies the unit to convert the numeric values.
- **Precision -** Specifies the number of fractional digits to display.
- **Currency -** Specifies the currency symbol and format provided by the current culture settings.
- **Culture -** Specifies the name of a culture that defines the currency symbol and format.
- **Include group separator -** Specifies whether separators should be inserted between digit groups.

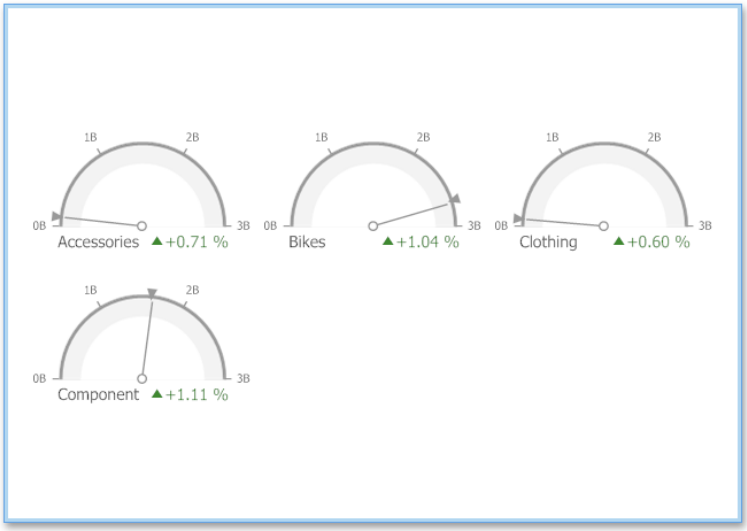
Layout

The Gauge dashboard item allows you to specify the number of columns or rows in which individual gauges are arranged. To control how gauges are arranged, use the buttons in the **Content Arrangement** group of the **Design Ribbon** tab.
By default, the **Auto Arrange** option is enabled, which automatically resizes gauges to fit within the dashboard item.

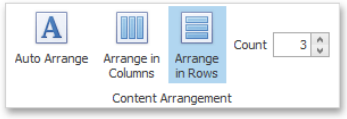


You can also specify the number of columns in which gauges are arranged. Click the **Arrange in Columns** button and specify the appropriate number in the **Count** field.





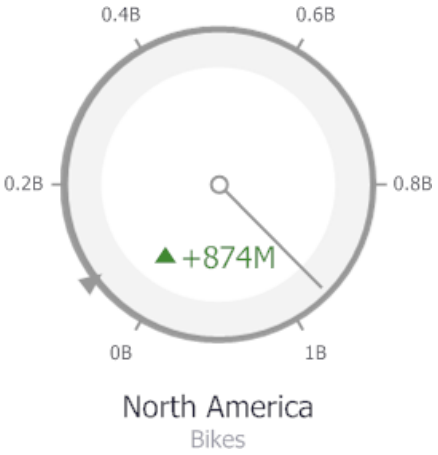
Similarly, you can arrange pies in a specific number of rows by clicking the **Arrange in Rows** button.



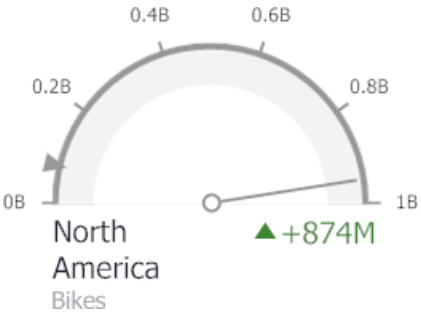
Style

The Gauge dashboard item allows you to select the gauge type.
The following types are supported.

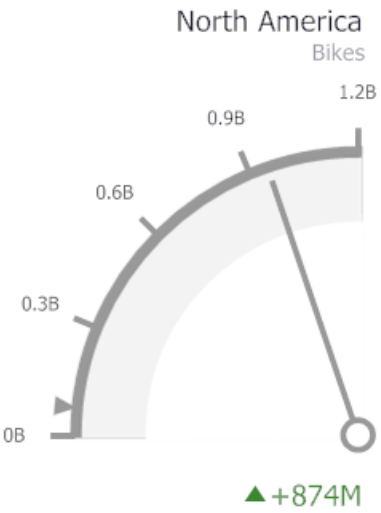
Full Circular:



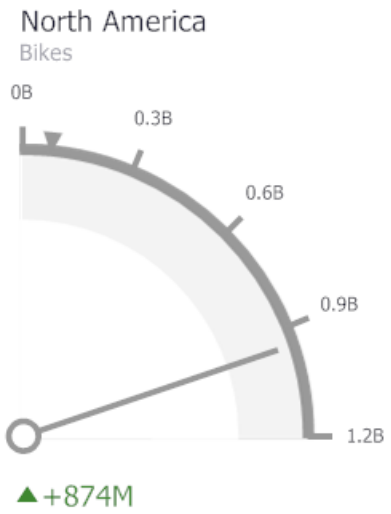
Half Circular:



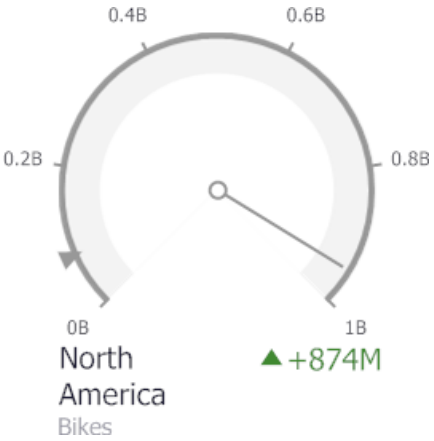
Left-Quarter Circular:



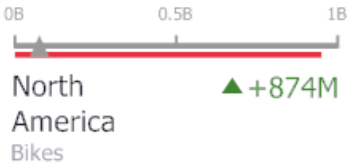
Right-Quarter Circular:



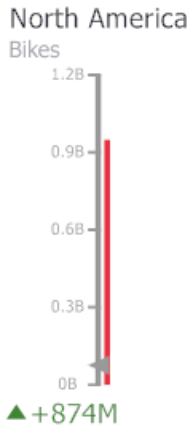
Three-Fourths Circular:



Linear Horizontal:



Linear Vertical:



To select the gauge type, use the buttons in the **Style** group of the **Design Ribbon** tab.

Activity 2.9 – Gauges

In this activity, you will work with gauges.

Activity Steps

Part 1: Add a gauge

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Project Figures CVS** model.
5. Select the **Gauges** button. The **Gauges** chart displays on the Dashboard.
6. Select the **Parameters** icon on the upper-right corner of the Dashboard. The **Dashboard Parameters** window opens.
7. Type *2023-12* in the **Value** field for the **Current_Period_Code** line.
8. Select the **Submit** button.
9. Click and drag the **PTD_Billed** field to the **Actual** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
10. Click and drag the **Budget_Amount** field to the first **Target** field in the **DATA ITEMS** pane. The gauge shows a backlog of Budget_Amount minus the PTD_Billed.
11. Click and drag the **PTD_Work_Hours** field to the next available **Actual** field in the **DATA ITEMS** pane.
12. Click and drag the **Budget_Hours** field to the next available **Target** field in the **DATA ITEMS** pane.

Part 2: Filter data with a hidden dimension

1. Click and drag the **Project_Charge_Type** field to the **Dimension** field in the **HIDDEN DATA ITEMS** pane.
2. Right-click on the **Gauge** item on the **Dashboard**.
3. Select **Edit Filter**. The **Filter Editor for Gauges 1** window opens.
4. Hover the cursor in the space next to the **And** icon in the upper left corner. Additional icons display.
5. Select the **plus** icon.
6. Select **Begins with**. A menu displays.
7. Select **= Equals**.
8. Select **Enter a Value**.
9. Select the **drop-down** arrow. The system has preselected the available choices for you.
10. Select **Billable**.
11. Select the **OK** button. **Note:** If the dashboard does not refresh automatically, select the **Refresh** icon in the **Data Source** pane.

Part 3: Rename the fields

1. Select the **down arrow** for the **PTD_Billed** field.
2. Select **Rename**. The **Rename Data Item** window opens.
3. Type *PTD Billed* in the **New Name** field.
4. Select the **OK** button.
5. Select the **down arrow** for the **Budget_Amount** field.
6. Select **Rename**. The **Rename Data Item** window opens.
7. Type *Budget Amount* in the **New Name** field.
8. Select the **OK** button.
9. Select the **down arrow** for the **PTD_Work_Hours** field.
10. Select **Rename**. The **Rename Data Item** window opens.
11. Type *PTD Work Hours* in the **New Name** field.
12. Select the **OK** button.
13. Select the **down arrow** for the **Budget_Hours** field.
14. Select **Rename**. The **Rename Data Item** window opens.
15. Type *Budget Hours* in the **New Name** field.
16. Select the **OK** button.

Part 4: Edit format

1. Select the **options** icon (gear symbol) for the **PTD Billed/Budget Amount** gauge. The **Gauge Options** window opens.
2. Select the **Format** tab.
3. Verify that **Scale Label** is selected in the **Select value type** field.
4. Select **Number** in the **Format type** field.
5. Select **Thousands** in the **Unit** field.
6. Select **0** in the **Precision** field.
7. Select the **Include group separator** check box.
8. Select **Absolute variation** in the **Select Value Type** field.
9. Select **Thousands** in the **Unit** field.
10. Select the **Include group separator** check box.
11. Select the **OK** button.
12. Select the **options** icon for the **PTD Work Hours/Budget Hours** gauge. The **Gauge Options** window opens.
13. Select **Percent of target** in the **Value Type** field.
14. Select **No indication** in the **Result Indication** field.
15. Select the **Format** tab.
16. Select **Percent of target** in the **Select value type** field.
17. Select **1** in the **Precision** field.
18. Select the **Include group separator** check box.
19. Select the **OK** button.

Part 5: Update style

1. Select **Gauges Tools > Design** in the toolbar.

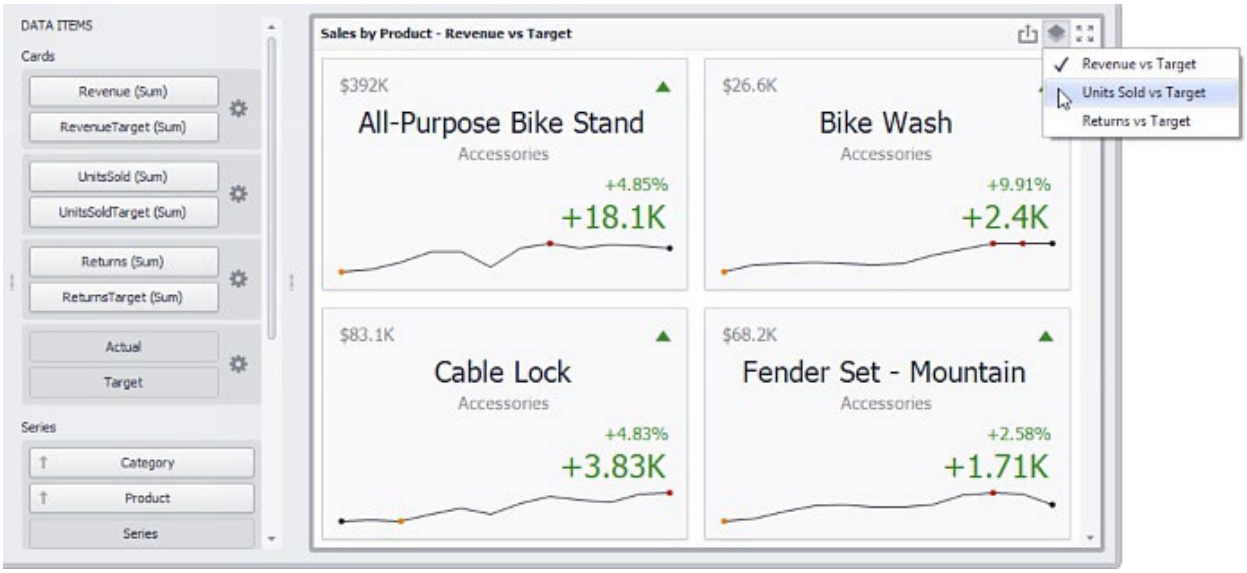
2. Select **Three-Quarter Circular**.

Part 6: Add Series

1. Click and drag the **Project_Long_Name** field to the **Series** field in the **DATA ITEMS** pane. The Dashboard now displays all the project gauges for the first set of data items (PTD Billed vs Budget Amount).
2. Select the **Values** icon in the upper right corner of the Dashboard.
3. Select **PTD Work Hours vs Budget Hours**. The Dashboard now displays all the project gauges for the second set of data items.
4. Select **Arrange in Columns** on the **Design** tab.

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.



To bind the Card dashboard item to data, drag and drop a data source field to a placeholder contained in one of the available data sections. A table below lists and describes Card data sections.

Section	Description
Cards	Contains data items used to calculate values displayed within cards. Data items are arranged in containers. Each data item container can hold two data items. The first item contains actual data and the second item (optional) contains target data. If both items are provided, cards show the difference between actual and target values. 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 open the **Values** menu, click the icon in the dashboard item caption or use its context menu. This drop-down menu is available if the Series section is not empty. Otherwise, a separate card is created for each data item container, and all cards are displayed simultaneously.
Series	Contains data items whose values are used to label cards.
Sparkline	Provide a dimension whose data will be used to visualize values using sparklines.

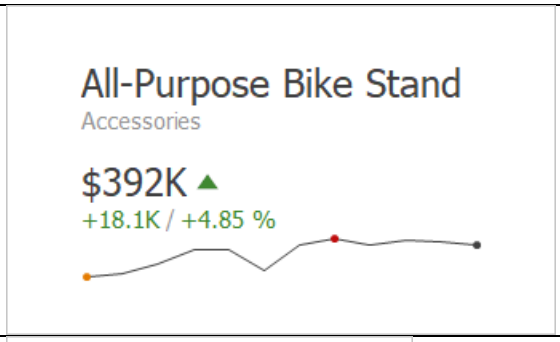
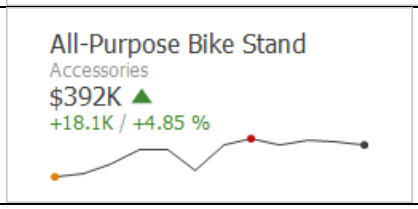
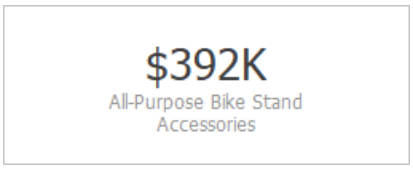
Layout

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

The table below contains information about the available layout templates:

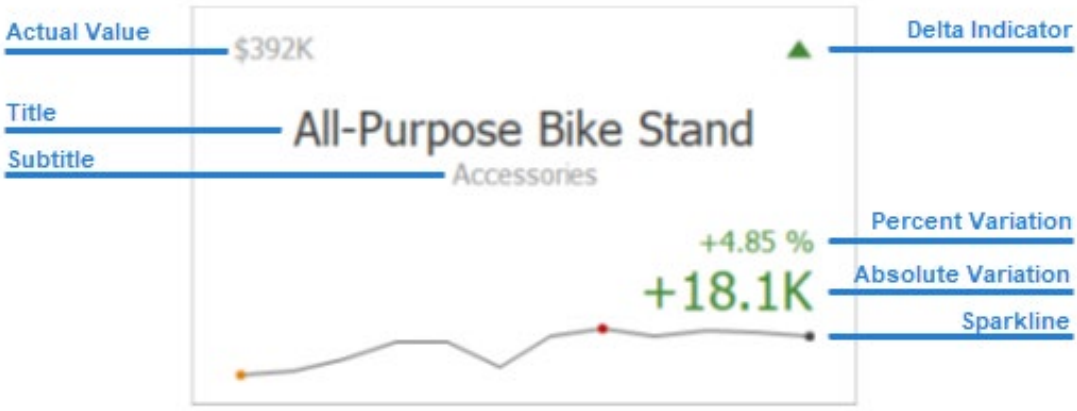
Layout Type	Example	Description
Stretched		The Stretched layout template arranges card elements so that they occupy an entire card area.

Centered		The Centered layout template is used to center card elements so that they occupy a specified width/height.
Compact		The Compact layout template is used to arrange card elements so that they occupy the minimum area.
Lightweight		The Lightweight 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

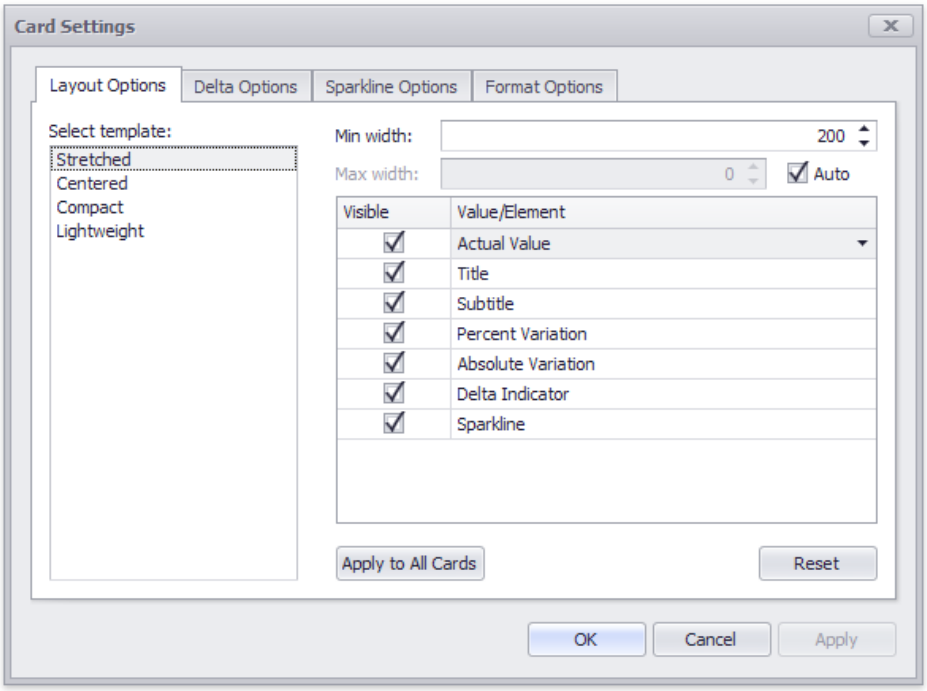
The Card dashboard item uses the Stretched layout template that arranges card visual elements in the following way by default:



Note: Delta Indicator and delta values (such as Percent Variation or Absolute Variation) are colored depending on delta settings.

Change Layout

To change a card's layout in the Dashboard Designer, click the **Options** button (the icon) displayed next to the data item container in the Cards section. This opens the Card Settings dialog.



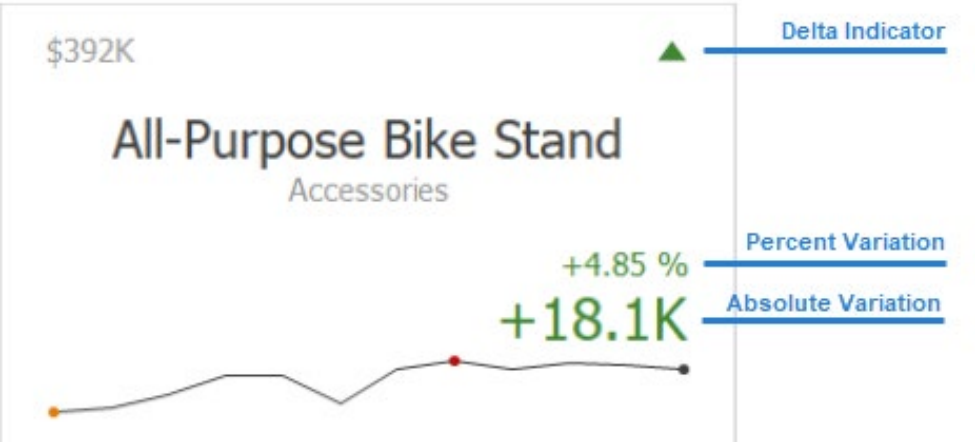
On the **Layout Options** tab, select the required layout type in the **Select template** list and specify its settings:

- **Min width -** Specifies the minimum width of the card content.
- **Max width -** Specifies the maximum width of the card content. Use the **Auto** option to determine the maximum width automatically.

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

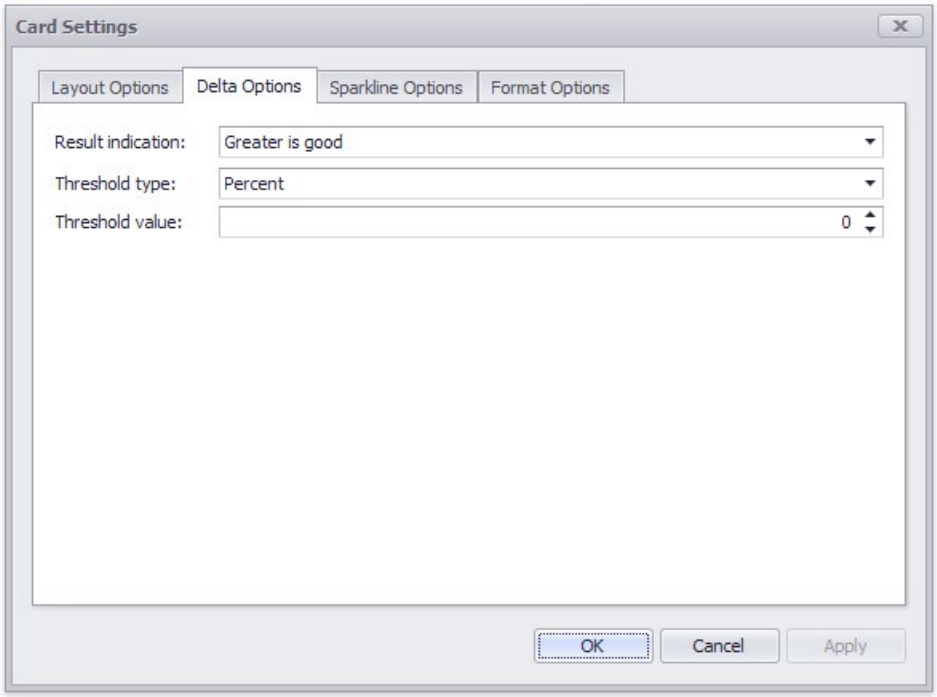
Cards allow you to visualize the difference between the actual and target values using special delta values and a delta indicator. If the default layout is used (Stretched layout type), the card displays the following delta values/elements:



- **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.

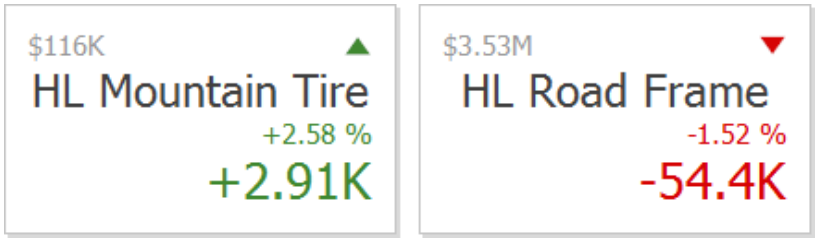
To customize settings that relate to the calculation and display of delta values/elements, use the **Options** button (the icon) displayed next to the data item container in the Cards section.

In the open **Card Settings** dialog, go to the **Delta Options** tab:

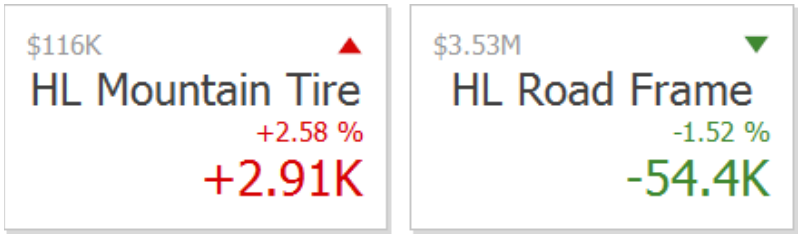


Then, specify the following settings:

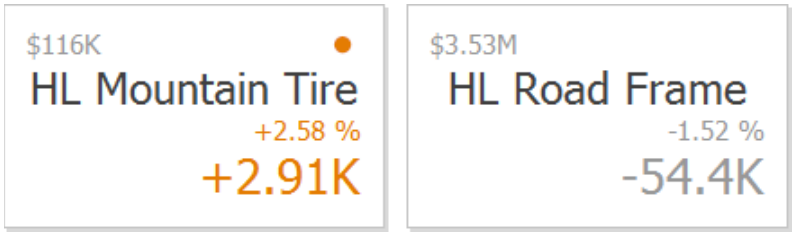
- Result Indication - You can specify the condition for displaying delta indication.
    - **Greater is Good -** The 'good' indication is displayed if the actual value exceeds the target value; if the target value exceeds the actual value, the 'bad' indication displays.



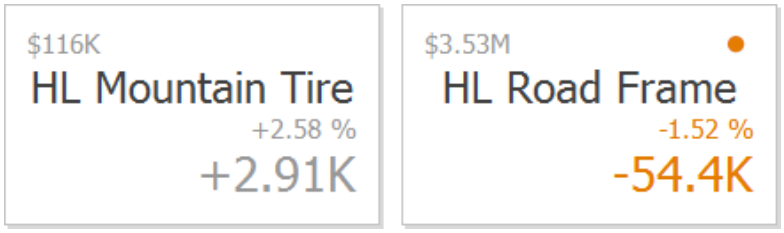
    - **Less is Good -** The 'bad' indication displays if the actual value exceeds the target value; if the target value exceeds the actual value, the 'good' indication displays.



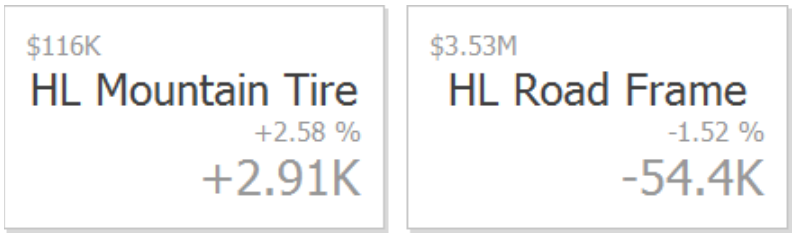
    - **Warning if Greater -** A warning displays only if the actual value exceeds the target value.



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



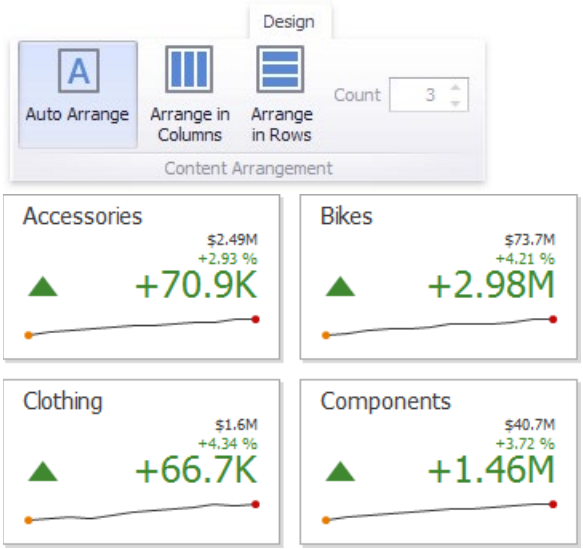
- **No Indication -** Indication does not display.



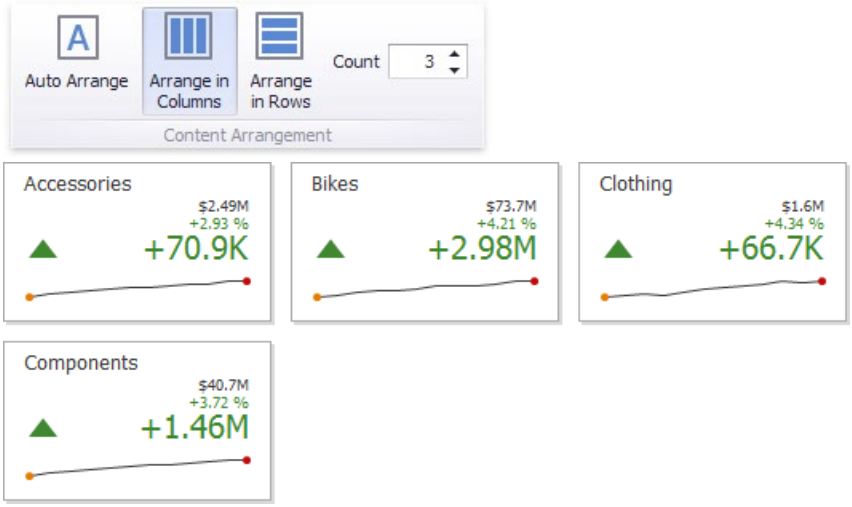
- Threshold type / Threshold value - For instance, you can specify that a specific indication should display when the actual value exceeds the target value by 10% or by $2K. Use the **Threshold type** combo box to select whether you wish to specify the comparison tolerance in percentage values or absolute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

Cards Arrangement

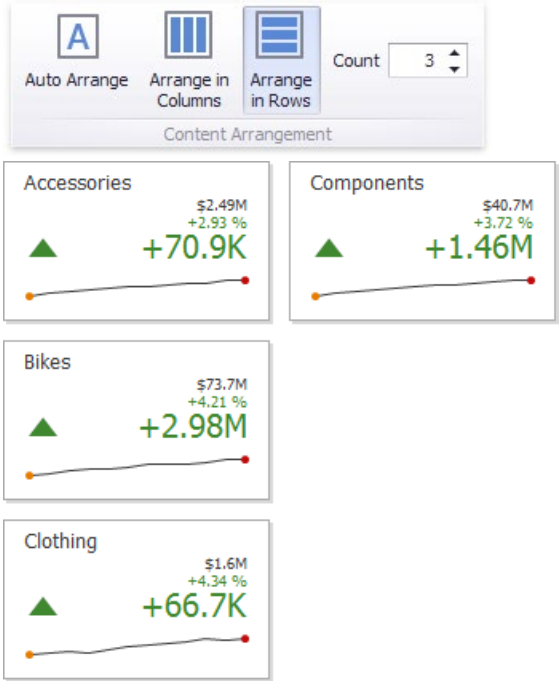
The Card dashboard item allows you to specify the number of columns or rows in which individual cards are arranged. Use the buttons in the **Content Arrangement** group of the **Design Ribbon** tab to control how cards are arranged. The **Auto Arrange** option is enabled by default, which automatically resizes cards to fit within the dashboard item.



You can also specify the number of columns in which cards are arranged. Click the **Arrange in Columns** button and specify the appropriate number in the **Count** field.



Similarly, you can arrange cards in a specific number of rows.



Activity 2.10 – Cards

In this activity, you will work with cards.

Activity Steps

Part 1: Add a card

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.

4. Double-click the **Employee Utilization Summary Month** model.
5. Select the **Cards** button. The **Cards** item displays on the Dashboard.
6. Click and drag the **Direct_Work_Hours** field to the **Actual** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
7. Click and drag the **Indirect_Work_Hours** field to the first **Target** field in the **DATA ITEMS** pane.
8. Click and drag the **Employee_Name** field to the **Series** field in the **DATA ITEMS** pane.
9. Click and drag the **Month_End_Date** field to the **Argument** field in the **DATA ITEMS** pane.
10. Select the **down arrow** for the **Month_End_Date** field.
11. Select **Month-Year**.

Part 2: Edit format

1. Select the **options** icon for the **Direct_Work_Hours/Indirect Work Hours** card. The **Card Options** window opens.
2. Select the **Format Options** tab.
3. Select **Number** in the **Format type** field.
4. Select **Ones** in the **Unit** field.
5. Select **0** in the **Precision** field.
6. Select the **Include group separator** check box.
7. Select the **Apply** button.
8. Select **Absolute Variation** in the **Select value type** field.
9. Verify that **Number** is selected in the **Format type** field.
10. Select **Ones** in the **Unit** field.
11. Verify that **0** is selected in the **Precision** field.
12. Select the **Include group separator** check box.
13. Select the **Apply** button.
14. Select the **Sparkline Options** tab.
15. Select **Area** in the **Sparkline view type** field.
16. Select the **Apply** button.
17. Select the **OK** button.

Part 3: Edit arrangement

1. Select **Cards Tools > Design** in the toolbar.
2. Select **Arrange in Columns**.
3. Select **2** in the **Count** field.

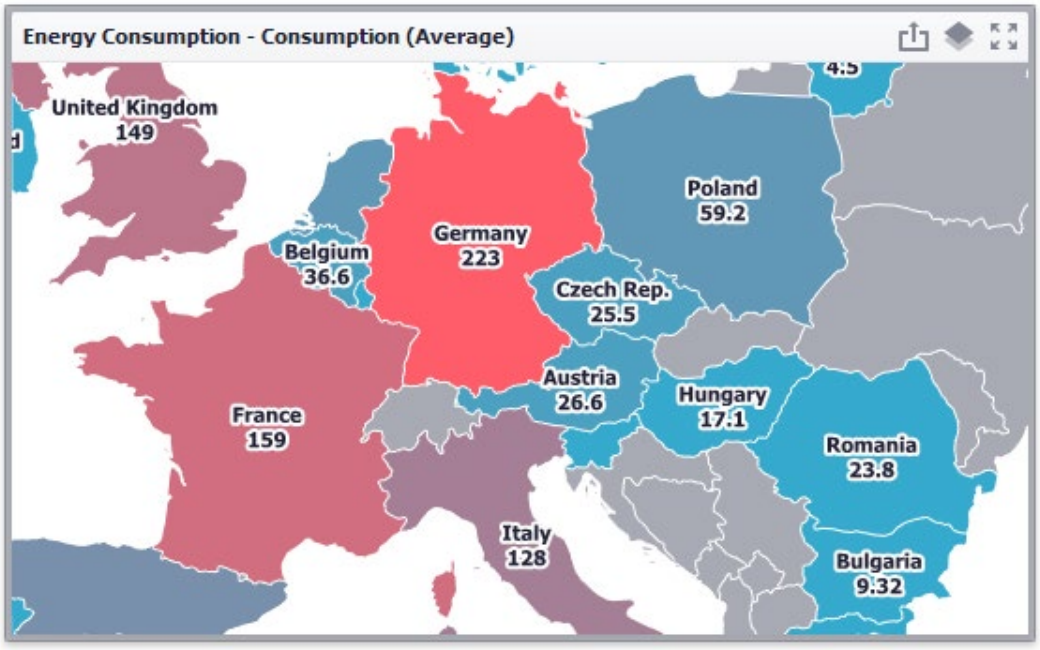
Part 4: Edit layout

1. Select the **options** icon for the **Direct_Work_Hours/Indirect Work Hours** card. The **Card Options** window opens.

2. Select the **Layout Options** tab, if necessary.
3. Select **Lightweight** in the **Select template** field.
4. Select the **OK** button.

Choropleth Maps

The Choropleth Map dashboard item allows you to colorize the required areas in proportion to the provided values.



Providing Maps

This document explains how to use the default ReportsNow Dashboard maps, or provide custom maps.

Default Maps

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

- World Countries - a world map.
- 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 countries. As an alternative, you can load a custom map with the required granularity.

To select the required default map, use the **Default Map** button in the **Open** group of the **Design** ribbon tab. As an alternative, use the corresponding command in the map context menu.

Custom Maps

ReportsNow 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 open an existing shapefile, use the **Load Map** or **Import Map** button in the Ribbon, or the command in the context menu.

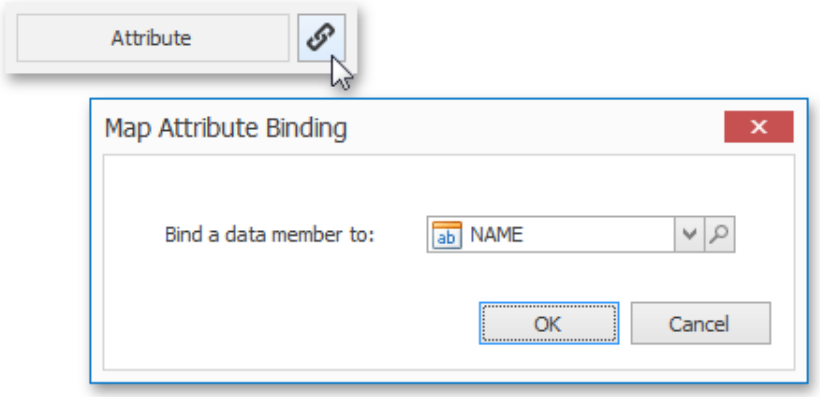
In the open dialog, locate the required **.shp** file. Note that custom maps created in the Cartesian coordinate system are not supported.

Note: If the map is opened using the Load Map button, the dashboard definition will contain the path to a map shapefile. If the map is opened using the Import Map button, the dashboard definition will contain the map itself.

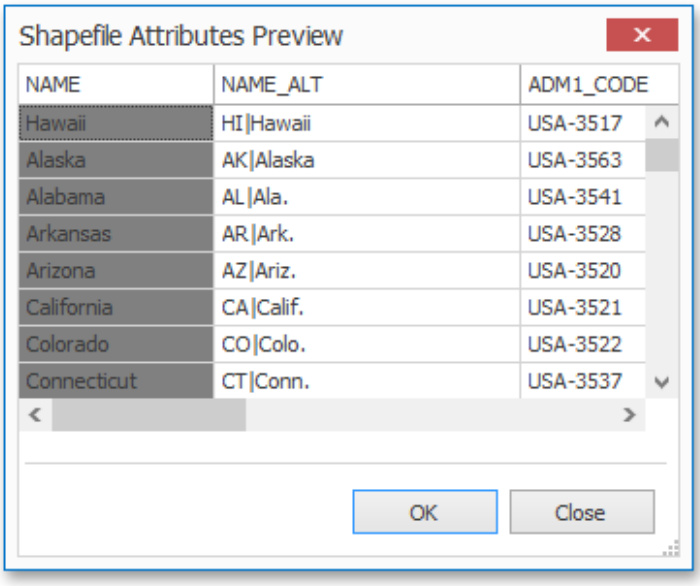
Note: Attributes from the corresponding .dbf file located in the same directory will be included in the map automatically.

Map Attributes

After you select the default map or a custom map, you can view supplemental information (such as the name of the country, state, etc.). To do this, click the **Options** button next to the **Attribute** placeholder.



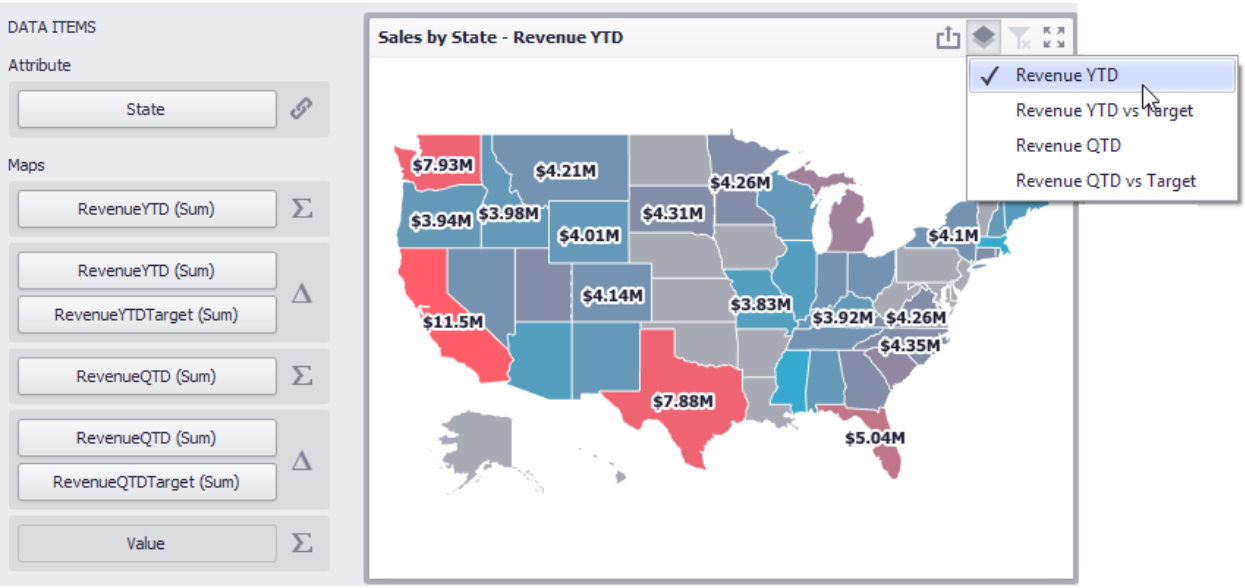
In the open **Map Attribute Binding** dialog, click **Preview**.



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

Providing Data

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 in the Designer.

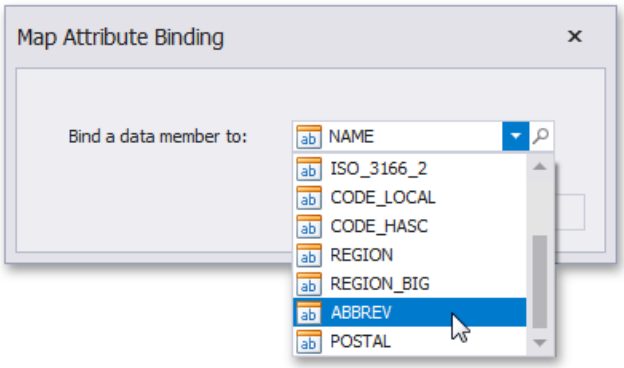


To bind the Choropleth Map dashboard item to data, drag and drop a data source field to a placeholder contained in one of the available data sections. The Choropleth Map provides two data item groups for data binding: **DATA ITEMS** and **TOOLTIP DATA ITEMS**. Tables below list the available data sections.

DATA ITEMS

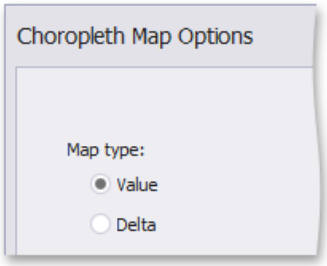
- **Attribute -** Allows you to associate map shapes with data source field values.

  To associate map shapes with data source field values, drag-and-drop the required dimension to the data item's placeholder and select the required attribute in the **Map Attribute Binding** dialog. To open this dialog, click the **Options** button (the icon) next to the **Attribute** placeholder.



  Select the required attribute and click **OK**.

- **Maps -** Contains data items whose values are used to color map shapes. Map shape colors vary based on the map type.
  Click the Options button (or the icon depending on the map type) next to the **Value** placeholder and select the required map type in the open **Choropleth Map** Options dialog.



- If you select **Value**, the Choropleth map colors map shapes depending on the values provided.
- If you select **Delta**, the Choropleth map colors map shapes depending on the difference between two values.

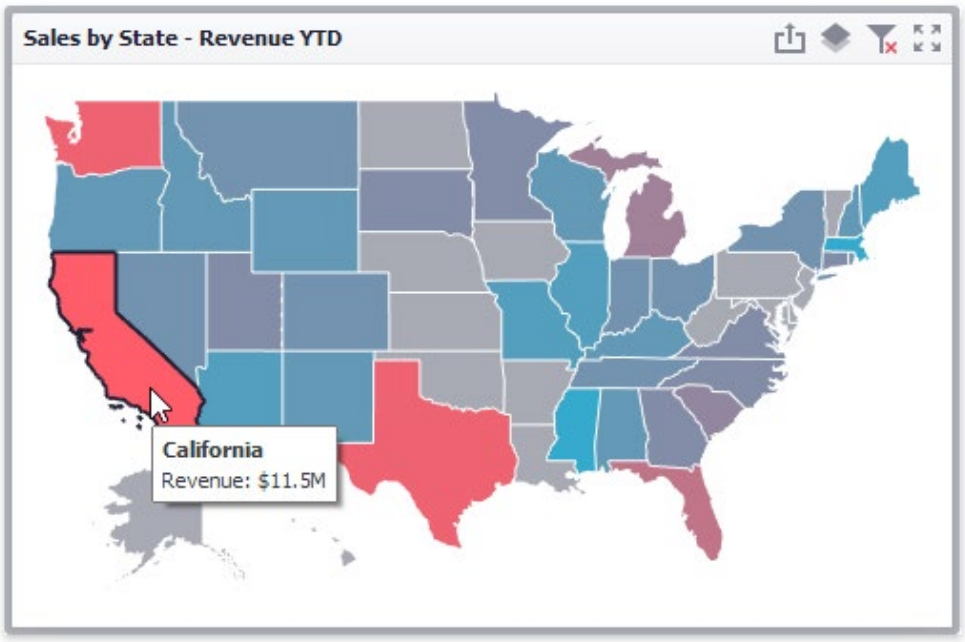
Note: You can fill several data item containers in the **Maps** section and use the **Values** drop-down menu to switch between the provided values. To open the **Values** menu, click the icon in the dashboard item caption.

TOOLTIP DATA ITEMS

- **Measures -** Allows you to add supplementary content to the tooltips. Drag and drop the required measures to provide additional data.

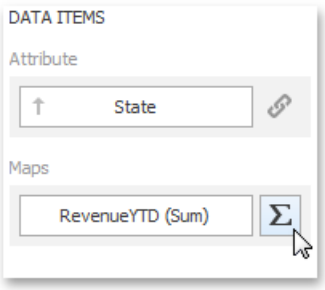
Map Coloring

The Choropleth Map dashboard item colors map shapes depending on the data provided. For instance, you can visualize a sales amount or population density.

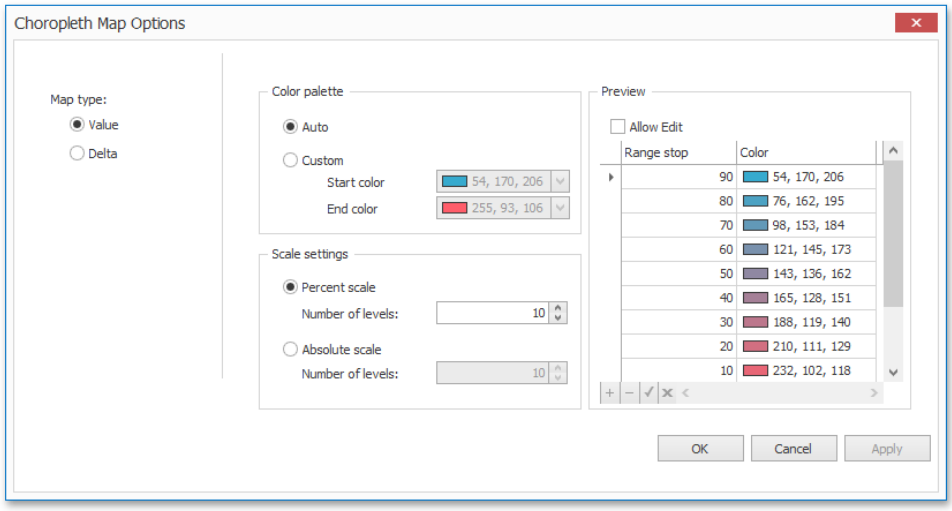


Palette and Scale Settings

The Choropleth Map automatically selects palette and scale settings to color map shapes. If you need to customize these settings, click the **Options** button next to the data item that contains these values.



This opens the **Choropleth Map Options** dialog.

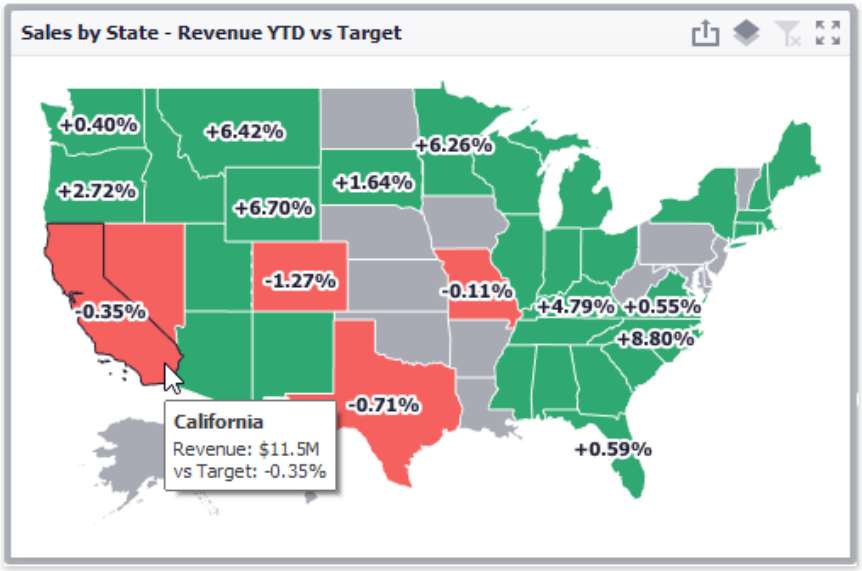


You can specify the following settings in this window.

- **Color palette -** allows you to specify the start and end color of the palette.
- **Scale settings -** specifies whether a percent scale or an absolute scale is used to define a set of colors. You can specify the number of levels that represent the number of colors used to color the map.
- **Preview** is used to display a full set of palette colors generated based on the start/end colors and the number of levels. Use the **Allow Edit** check box to automatically change the generated colors or specify value ranges for each color.

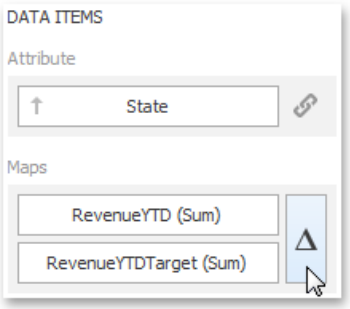
Delta

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

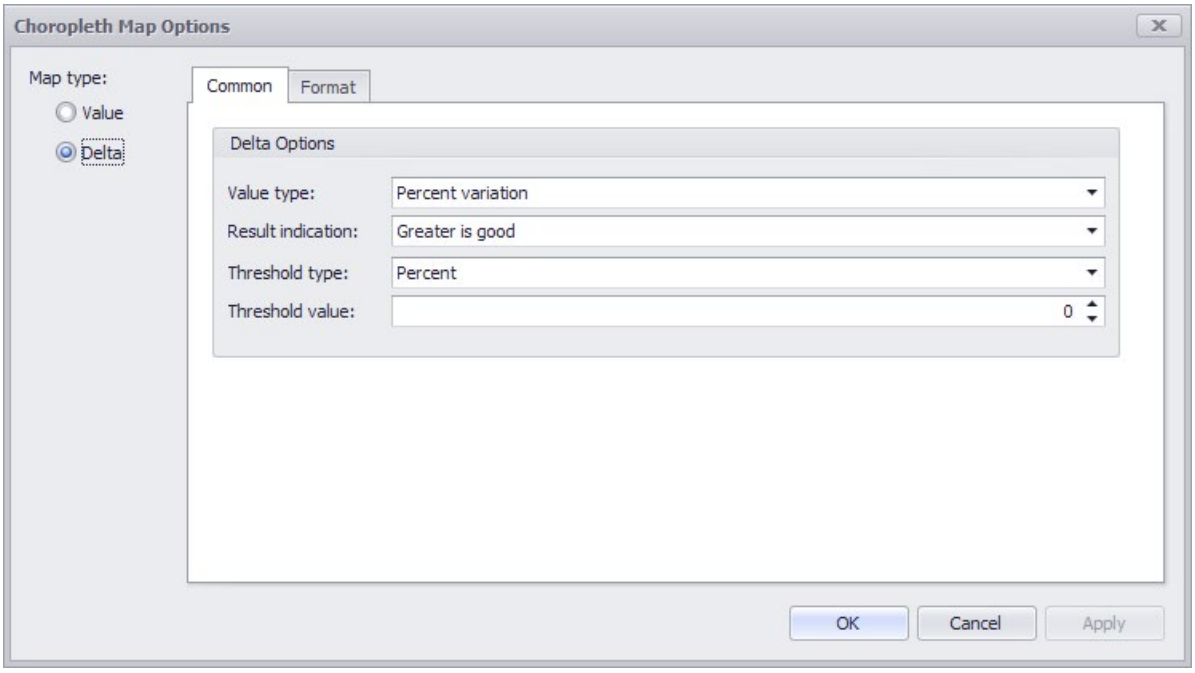


Delta Options

To specify delta indication settings, click the **Options** button next to the data item container.

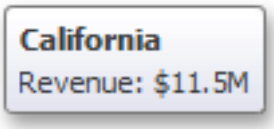
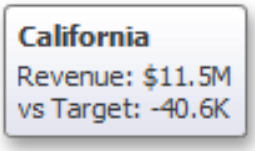
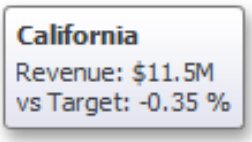
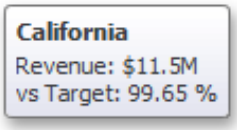


This opens the **Choropleth Map Options** dialog. When the map type is set to **Delta**, this dialog contains the following settings.

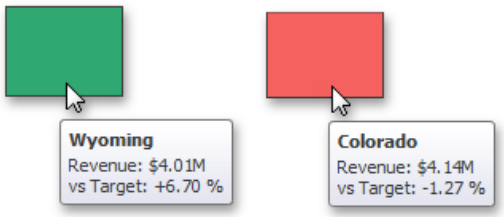
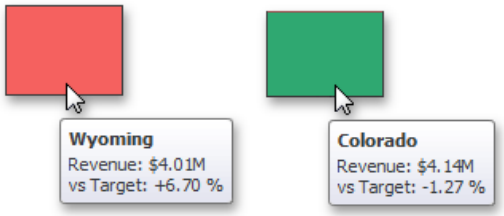


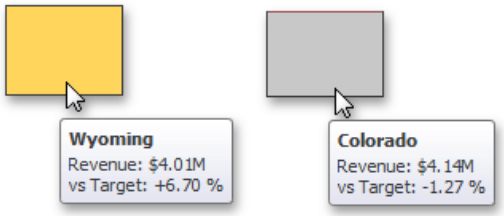
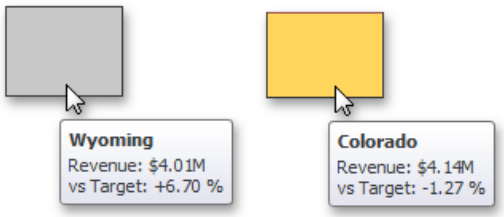
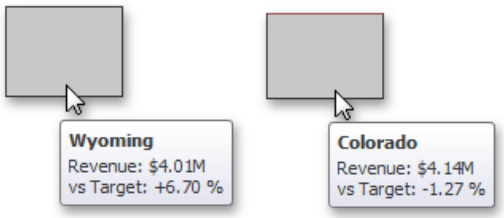
- **Value Type**
  You can specify which values to display within map tooltips. Use the **Value type** combo box to select the value that will be displayed as the delta value.

Value Type	**Tooltip**

Actual value	
Absolute variation	
Percent variation	
Percent of target	

- **Result Indication**
  You can specify the condition that will be used to select the indicator color. To do this, use the **Result indication** combo box.

Value Type	Tooltip
Greater is good	
Less is good	

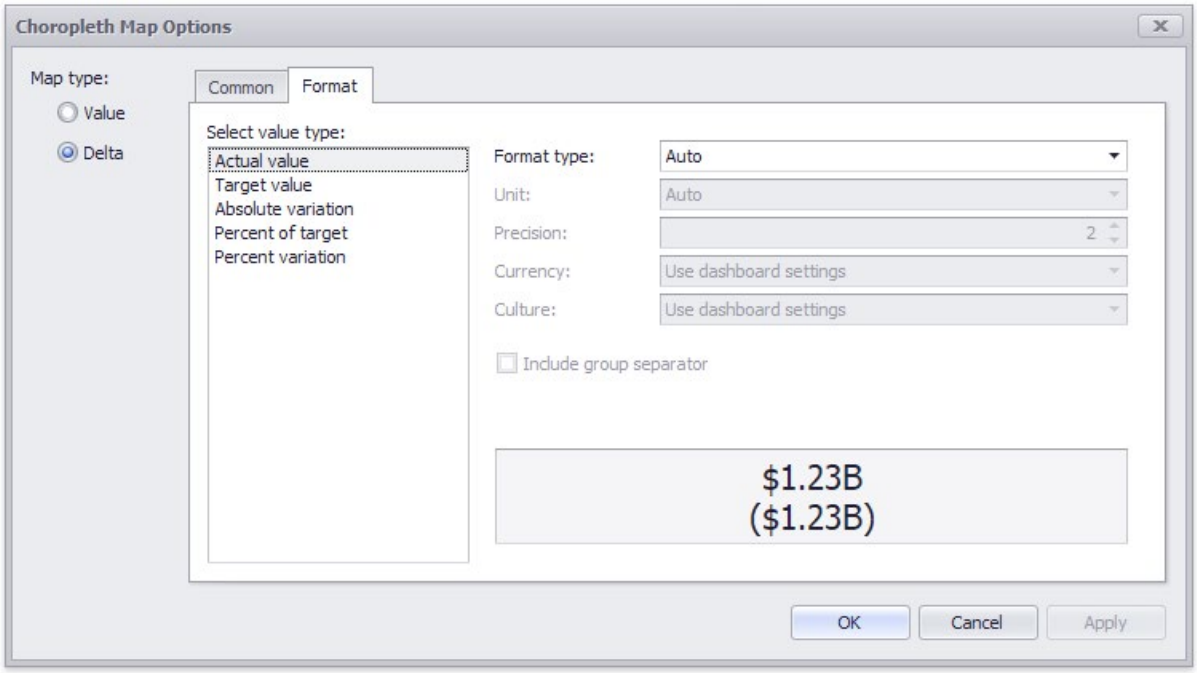
Warning if greater	
Warning if less	
No indication	

- **Threshold type** and **Threshold value**

  You can specify that a required indicator should only be displayed when the difference between the actual and target values exceeds a specified value. For instance, 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 threshold in percentage values or in absolute values. Then use the **Threshold value** box to specify the threshold value.

The Format tab allows you to specify the numeric display formats for different value types, as described in the Formatting Data document.



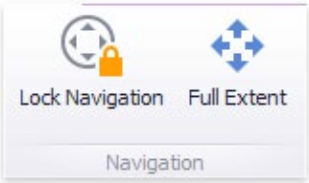
The tab contains the following settings.

- **Format type -** Specifies format types for numeric values.
- **Unit -** Specifies the unit to convert the numeric values.
- **Precision -** Specifies the number of fractional digits to display.
- **Currency -** Specifies the currency symbol and format provided by the current culture settings.
- **Culture -** Specifies the name of a culture that defines the currency symbol and format.
- **Include group separator -** Specifies whether separators should be inserted between digit groups.

Map Navigation

The Choropleth Map dashboard item allows you to perform navigation actions such as zooming and scrolling.
The Dashboard Designer allows you to specify the initial zooming/scrolling state for the Choropleth map using the mouse.

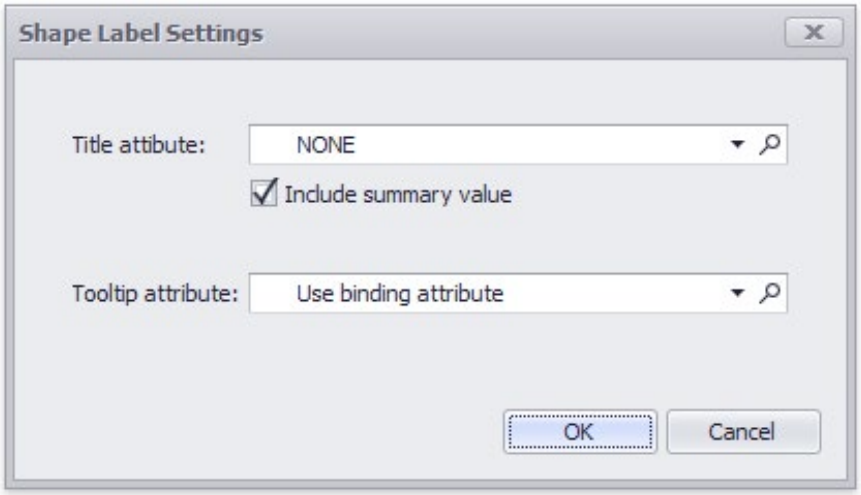
You can disable the capability to scroll/zoom the map using the **Lock Navigation** button in the **Design** ribbon tab.



Use the **Full Extent** button to display the entire map within the dashboard item.

Labels

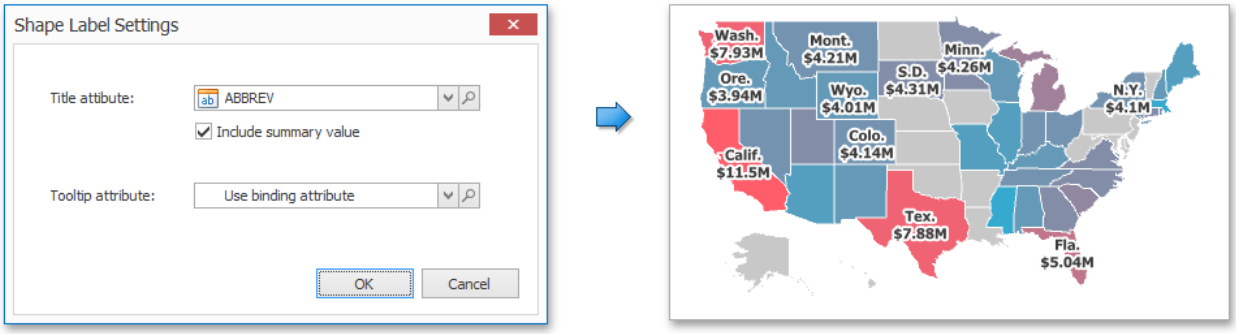
A Choropleth map provides the capability to display titles within map shapes and allows you to manage what data to show in the shape tooltips.
To manage map titles and tooltips, click the **Shape Labels** button in the **Design** ribbon tab. This opens the **Shape Label Settings** dialog.



In this dialog, you can specify attributes whose values will be displayed within shapes and tooltips. Use the button to preview the available attributes and their values for the current map.

Shape Titles

The **Title attribute** option allows you to select the attribute whose values are displayed within corresponding map shapes.

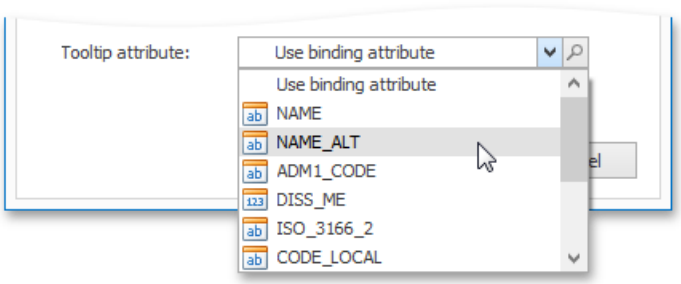


You can also use the Include summary value option to add summary values to shape titles.

Tooltips

The Choropleth Map dashboard item displays a tooltip that shows information related to a hovered shape.

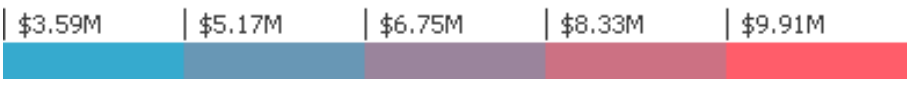
You can choose whether to use a binding attribute to display as the title of shape tooltips (the **Use binding attribute** option) or specify a custom attribute using the **Tooltip attribute** option.



The Choropleth Map also allows you to add supplementary content to the tooltips using the TOOLTIP DATA ITEMS area.

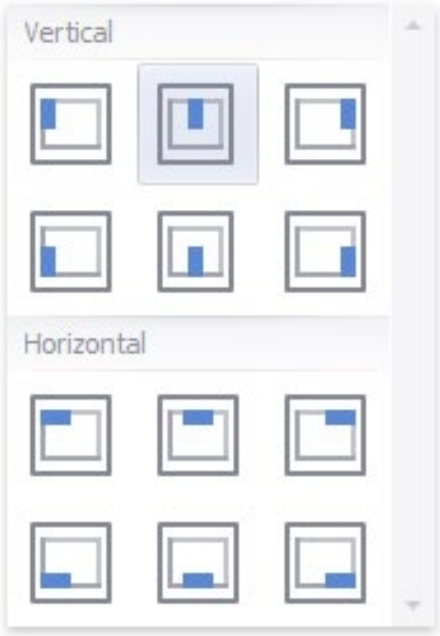
Legend

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



Visibility
To display a legend within a map, use the **Show Legend** button in the **Legend** group of the **Design Ribbon** tab.

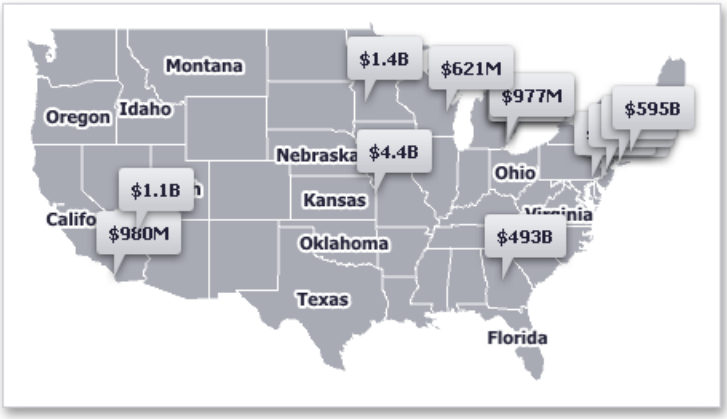
Position and Orientation
To specify the legend's position and orientation, select one of the predefined options from the gallery in the **Design Ribbon** tab.



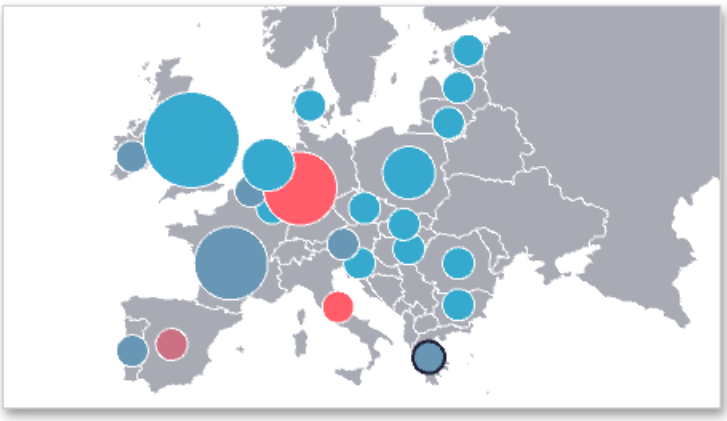
Tour 2.11 – Choropleth Maps
In this tour, you will review choropleth maps.

Geo Point Maps
The Dashboard Designer allows you to create three types of Geo Point maps.

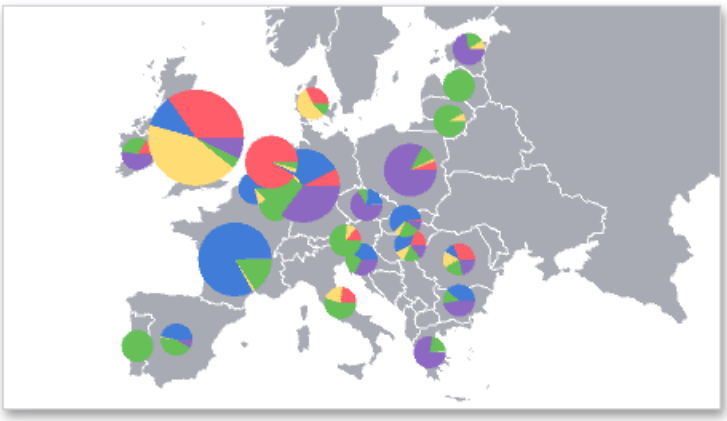
- The Geo Point Map dashboard item allows you to place callouts on the map using geographical coordinates.



- 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 **Geo Point Maps** button in the **Home** ribbon tab.

Providing Maps

This section explains how to use the default ReportsNow Dashboard maps, or provide custom maps.

Default Maps

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

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

To select the default map, use the **Default Map** button in the **Design** ribbon tab. As an alternative, use the corresponding command in the map's context menu.

Custom Maps

ReportsNow 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.

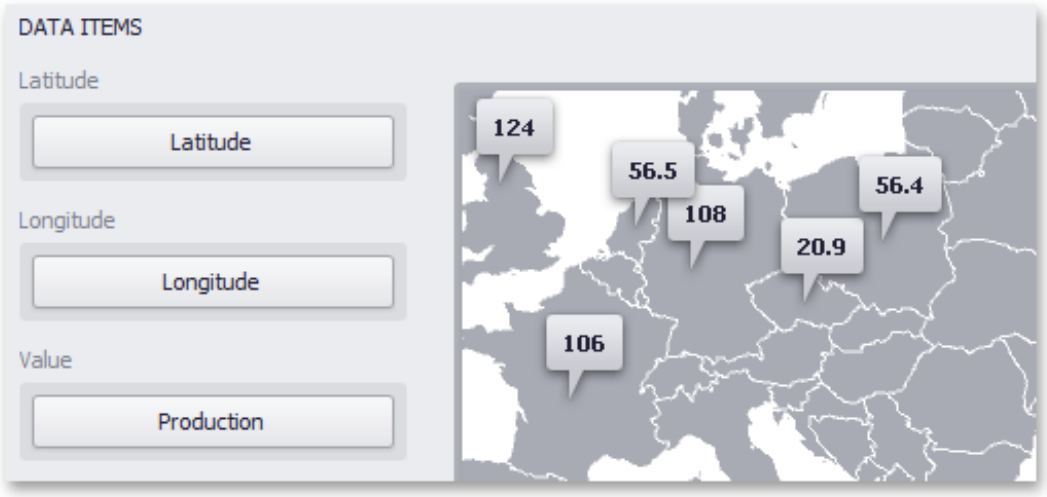
To open an existing shapefile, use the **Load Map** or **Import Map** button in the Ribbon, or the command in the context menu (**Load Map...** or **Import Map...**).
In the open dialog, locate the required .shp file. Note that custom maps created in the Cartesian coordinate system are not supported.

Note: If the map is opened using the **Load Map** button, the dashboard definition will contain the path to a map shapefile. If the map is opened using the **Import Map** button, the dashboard definition will contain the map itself.

Note: Attributes from the corresponding .dbf file located in the same directory will automatically be included in the map.

Geo Point Map

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



Note that the Geo Point Map provides two data item groups for data binding: DATA ITEMS and TOOLTIP DATA ITEMS. Tables below list the available data sections.

Data Items

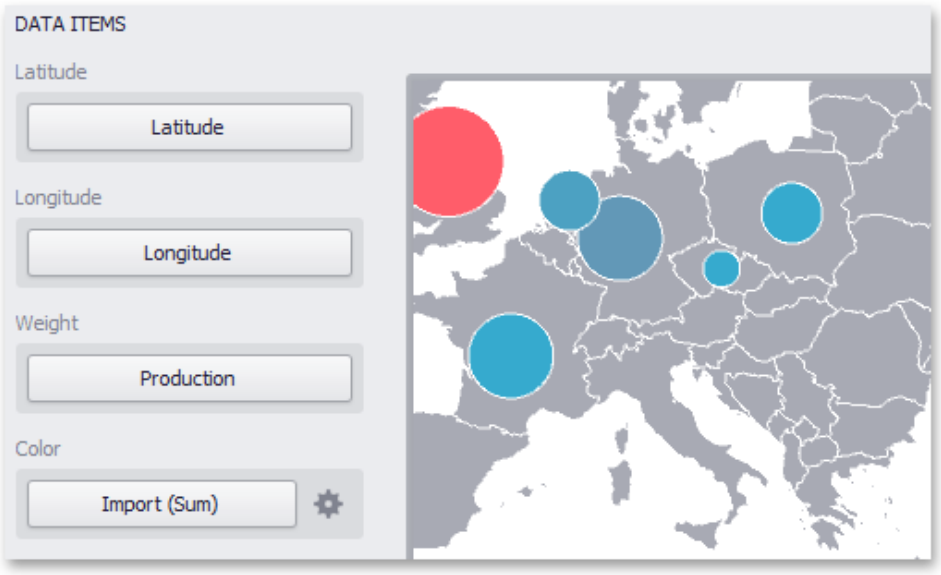
Section	Description
Latitude	Accepts a dimension used to provide geographic latitude.
Longitude	Accepts a dimension used to provide geographic longitude.
Value	Accepts values related to geographic points. These values are displayed within map callouts.

Tooltip Data Items

Section	Description
Dimensions	Accepts dimensions allowing you to add supplementary content to the tooltips.
Measures	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.



Note that the Bubble Map provides two data item groups for data binding: DATA ITEMS and TOOLTIP DATA ITEMS. Tables below list the available data sections.

Data Items

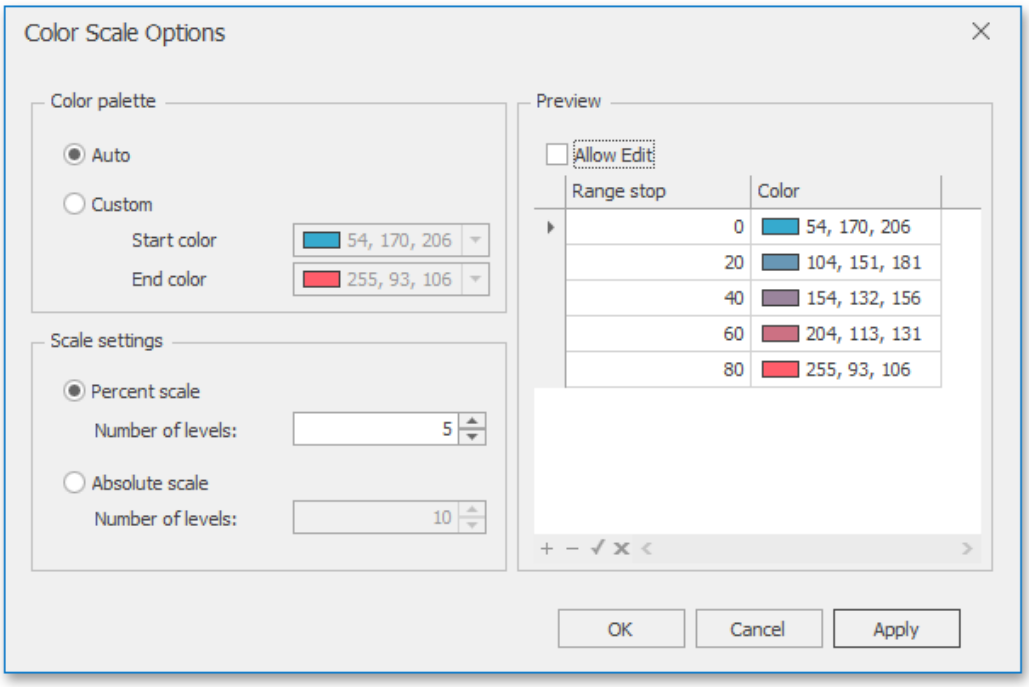
Section	Description
Latitude	Accepts a dimension used to provide geographic latitude.
Longitude	Accepts a dimension used to provide geographic longitude.
Weight	Accepts values related to geographic points. These values are displayed within map callouts.
Color	Accepts a measure used to evaluate the bubble's color. The Bubble Map dashboard item automatically selects palette and scale settings used to color bubbles. To customize these settings, click the **Options** button next to the **Color** placeholder. This opens the **Color Scale Options** dialog, which allows you to specify the palette and scale options.

Tooltip Data Items

Section	Description
Dimensions	Accepts dimensions allowing you to add supplementary content to the tooltips.
Measures	Accepts measures allowing you to add summaries to the tooltips.

Coloring

The Bubble Map dashboard item automatically selects palette and scale settings used to color bubbles depending on the provided values. To customize these settings, click the Options button next to the Color placeholder. This opens the Color Scale Options dialog, which allows you to specify the palette and scale options.



You can specify the following settings in this window.

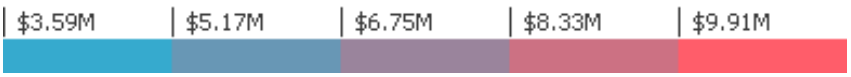
- **Color palette -** allows you to specify the start and end color of the palette.
- **Scale settings -** specifies whether a percent scale or an absolute scale is used to define a set of colors. You can specify the number of levels that represent the number of colors used to color the map.
- **Preview** is used to display a full set of palette colors generated based on the start/end colors and the number of levels. Use the **Allow Edit** check box to automatically change the generated colors or specify value ranges for each color.

Legends

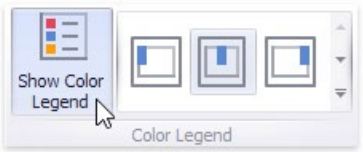
Bubble Map provides two types of legends used to identify map objects - color and weighted legends.

Color Legend

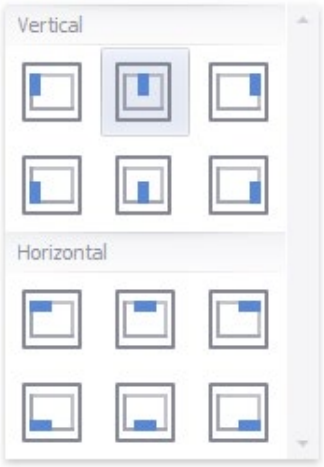
The color legend helps you to identify which colors correspond to specific values.



To display a color legend within a map, use the **Show Color Legend** button in the **Color Legend** section of the **Design Ribbon** tab.

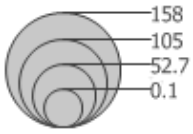


To specify the legend's position and orientation, select one of the predefined options from the gallery in the **Design Ribbon** tab.



Weighted Legend

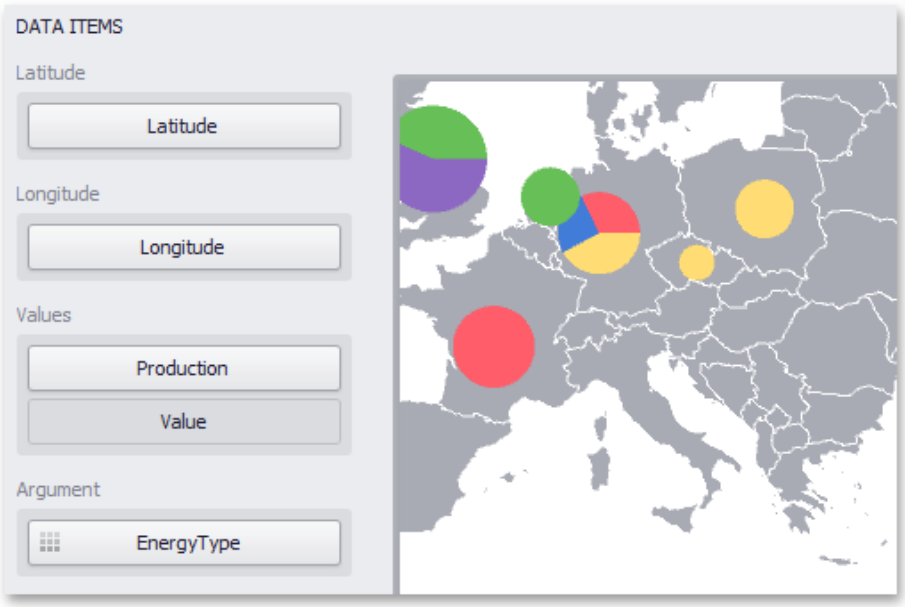
The weighted legend allows you to identify values corresponding to specific bubble sizes.



To select the required weighted legend type, use the **Show Weighted Legend** button in the **Weighted Legend** section of the **Design Ribbon** tab. To specify the legend's position, select one of the predefined options from the gallery in the **Design** Ribbon tab.

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.



Note that the Pie Map provides two data item groups for data binding: DATA ITEMS and TOOLTIP DATA ITEMS. Tables below list the available data sections.

Data Items

Section	Description
Latitude	Accepts a dimension used to provide geographic latitude.
Longitude	Accepts a dimension used to provide geographic longitude.

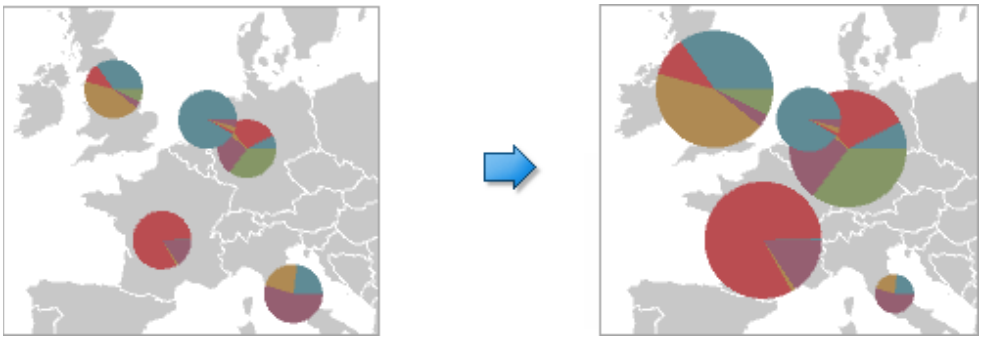
Values	Accepts measures used to calculate pie values. In case of negative measure values, Pie Map uses their absolute values. If you added a data item to the **Argument** section and several data items to the **Values** section, you can use the **Values** drop-down menu to switch between the provided values. To open the **Values** menu, click the icon in the map's caption or use the map's context menu.
Argument	Allows you to provide data for pie arguments.

Tooltip Data Items

Section	Description
Dimensions	Accepts dimensions allowing you to add supplementary content to the tooltips.
Measures	Accepts measures allowing you to add summaries to the tooltips.

Pie Options

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

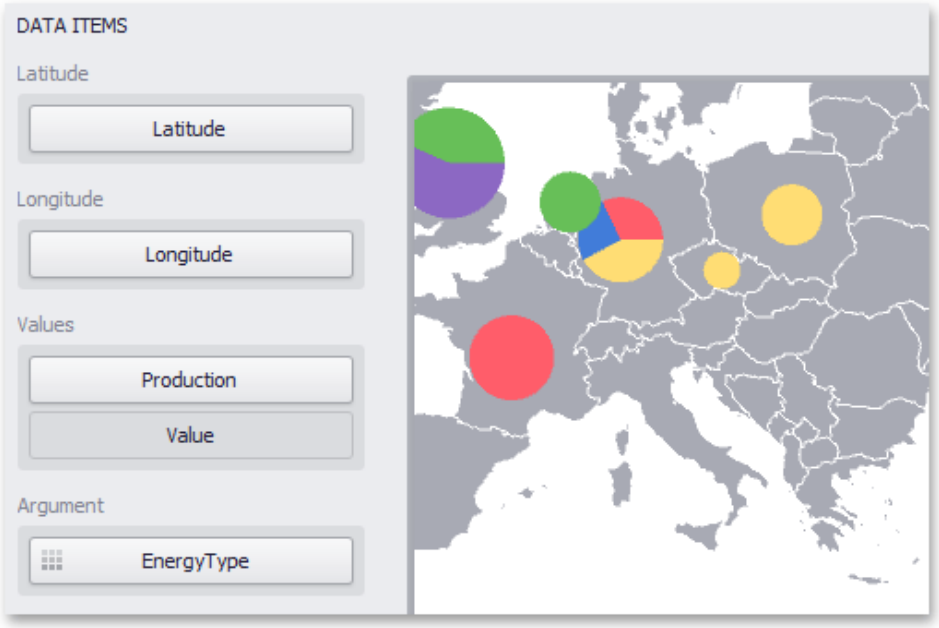


Coloring

In **Default** color mode, the Pie Map dashboard item colors its segments in the following way:

- If the Pie Map dashboard item contains arguments (the **Arguments** section), different argument values are colored by hue.
- If the Pie Map dashboard item contains only measures (the **Values** section), values corresponding to different measures are colored by hue.

The image below illustrates the Pie Map dashboard item whose argument values are painted in different colors. A special icon (nine dot grid) on the data item shows that color variation is enabled.

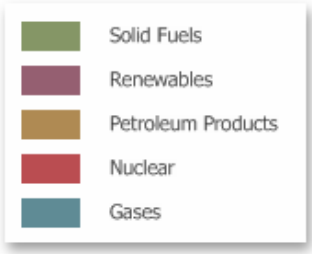


Legends

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

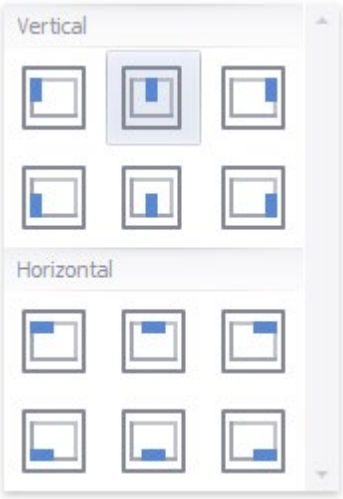
Color Legend

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

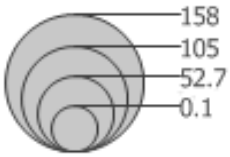


To display a color legend within a map, use the **Show Color Legend** button in the **Color Legend** section of the **Design Ribbon** tab.

To specify the legend's position and orientation, select one of the predefined options from the gallery in the **Design Ribbon** tab.



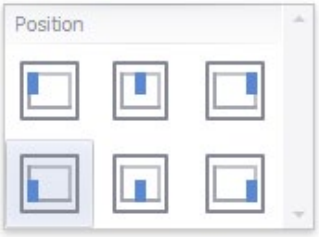
Weighted Legend
The weighted legend allows you to identify values corresponding to specific pie sizes.



Note that the Pie Map dashboard item does not display the weighted legend if weighed pies are disabled.

To select the required weighted legend type, use the **Show Weighted Legend** button in the **Weighted Legend** section of the **Design Ribbon** tab.

To specify the legend's position, select one of the predefined options from the gallery in the **Design Ribbon** tab.

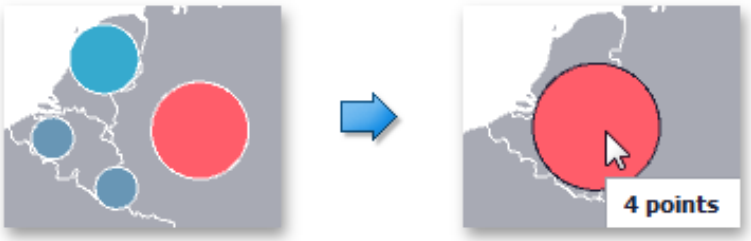


Clustering

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 **Dashboard Designer** 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.



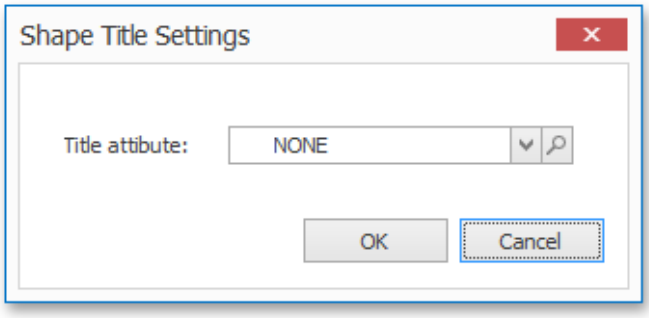
To enable clustering in the Designer, use the **Enable Clustering** button in the **Data** ribbon tab.

Labels

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

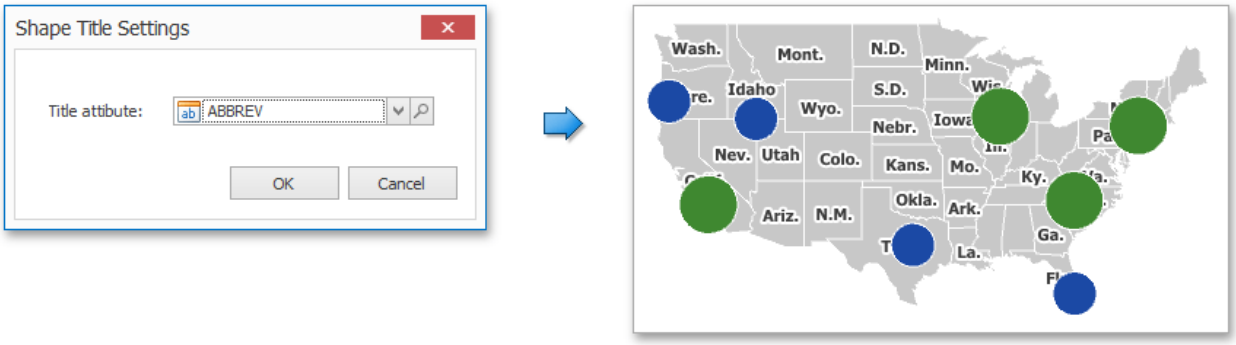
Shape Titles

To manage map titles, click the **Shape Title** button in the **Design** ribbon tab. This opens the **Shape Title Settings** dialog.



In this dialog, you can specify attributes whose values will be displayed within shapes. Use the button to preview the available attributes and their values for the current map.

The **Title attribute** option allows you to 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 DATA ITEMS area.

Map Navigation

Geo Point maps allow you to perform navigation actions such as zooming and scrolling. The Dashboard Designer allows you to specify the initial zooming/scrolling state for the Geo Point map using the mouse.

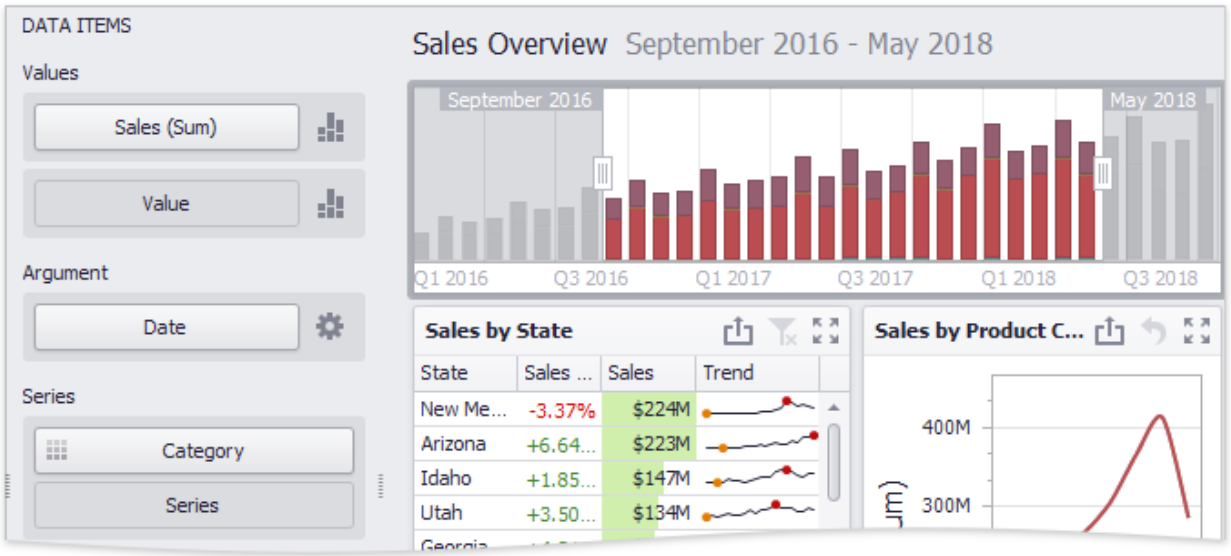
You can disable the capability to scroll/zoom the map using the **Lock Navigation** button in the **Design** ribbon tab. Use the **Full Extent** button to display the entire map within the dashboard item.

Tour 2.12 – Geo Point Maps

In this tour, you will review the three types of Geo Point Maps.

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.

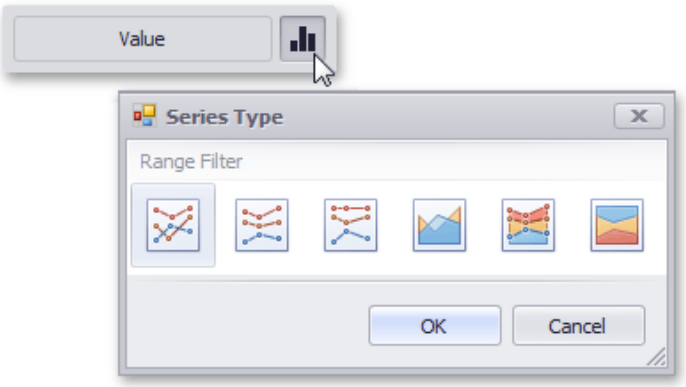


To bind the Range Filter dashboard item to data, drag and drop a data source field to a placeholder contained in one of the available data sections. A table below lists and describes **Range Filter** data sections.

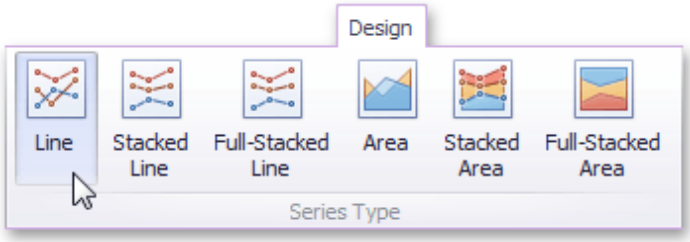
Section	Description
Values	Contains data items against which the Y-coordinates of data points are calculated.
Argument	Contains a data item that provides values displayed along the horizontal axis of the Range Filter. Filtering is performed based on these values. Note that the **Options** button (the icon) allows you to create predefined ranges used to select the required date-time interval.
Series	Contains data items whose values are used to create chart series.

Series

The Range Filter dashboard item supports various **Line** and **Area** series types.
To switch between series types in the Designer, click the options button next to the required data item in the **Values** section. In the open **Series Type** dialog, select the required series type and click **OK**.

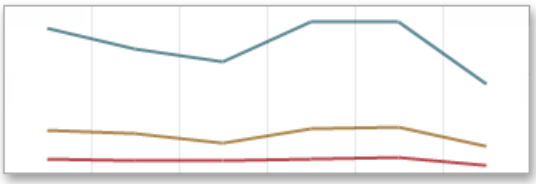


You can also do this using the buttons in the **Series Type** group of the **Design** ribbon tab.

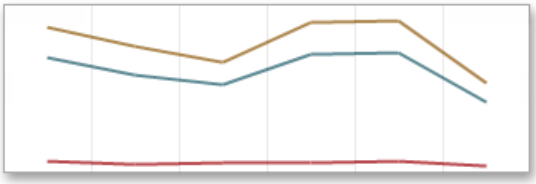


The Range Filter supports the following series types.

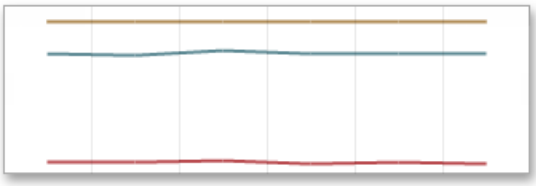
Line:



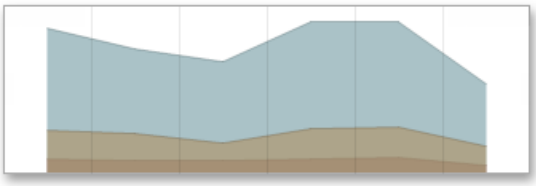
Stacked Line:



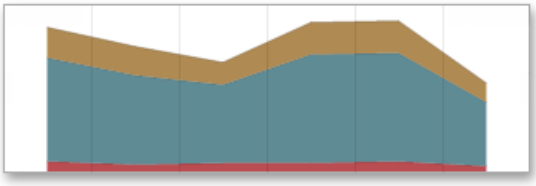
Full-Stacked Line:



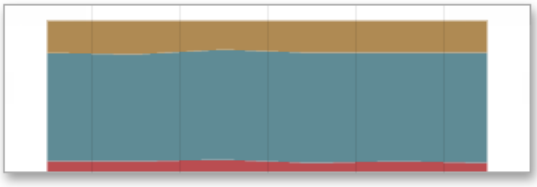
Area:



Stacked Area:

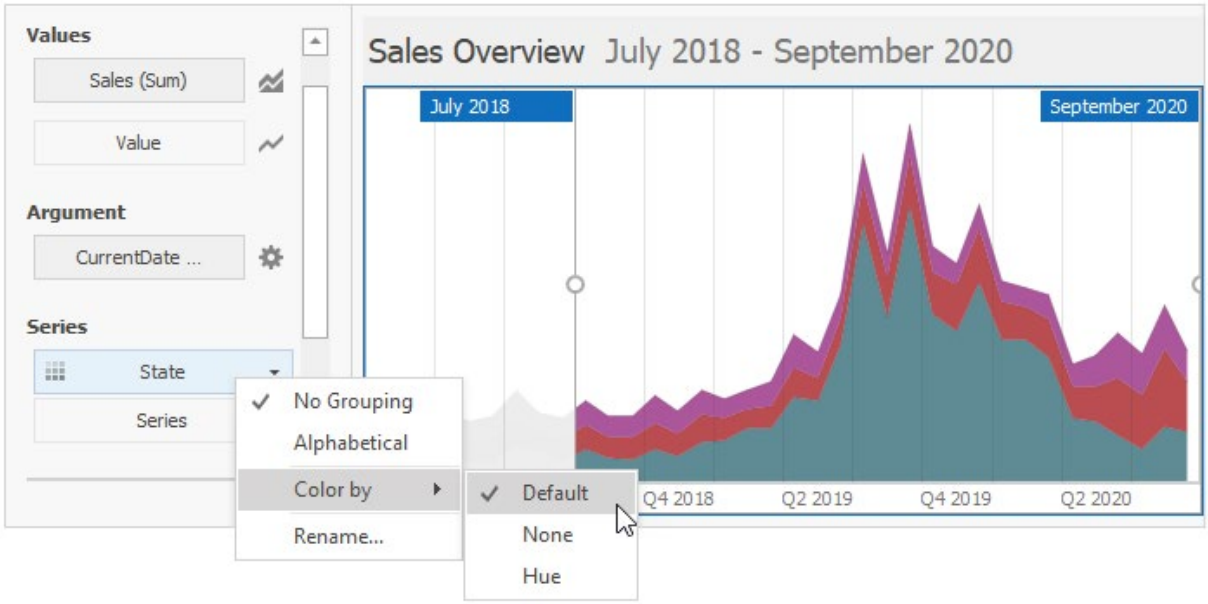


Full-Stacked Area:



Coloring

The Range Filter dashboard item paints different measures and series dimensions by hue in Default color mode. The image below shows the Range Filter item whose State series dimension values are painted in different colors. A special icon on the data item shows that color variation is enabled.



Activity 2.13 – Range Filter

In this activity, you will use the Range Filter to apply filtering to other dashboard items.

Activity Steps

Part 1: Add a grid item

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Sales Journal Detail CVS** model.
5. Select the **Grid** button. The **Grid** item displays on the Dashboard.
6. Select the **Parameters** icon on the upper-right corner of the Dashboard. The **Dashboard Parameters** window opens.
7. Type *1/1/2020* in the **Value** field for the **From_Date** line.
8. Select the **Submit** button.
9. Click and drag the following fields to the **New Column** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
   - Transaction_Date
   - Billed
11. Select the **down arrow** for the **Transaction_Date** field in the **DATA ITEMS** pane.
12. Select **Exact Date**.

Part 2: Copy grid item

1. Right-click anywhere on the grid.
2. Select **Duplicate**.
3. Right-click anywhere on the second grid.
4. Select **Convert To > Pies**.
5. Select the **down arrow** for the **Transaction_Date** field in the **DATA ITEMS** pane.
6. Select **Year**.

Part 3: Add range filter

1. Select the **Range Filter** button.
2. Click and drag the **Billed** field to the **Value** field in the **DATA ITEMS** pane.
3. Click and drag the **Transaction_Date** field to the **Argument** field in the **DATA ITEMS** pane.
4. Click and drag the **Client_Name** field to the **Series** field in the **DATA ITEMS** pane.
5. Select the **down arrow** for the **Transaction_Date** field.
6. Select **Month-Year**.
7. Select the **Series Type** icon for the **Billed** field. The **Series Type** window opens.
8. Select the **Stacked Bar** icon (second icon in the third row).
9. Select the **OK** button.
10. Select the **Design** tab.
11. Select the **Show Caption** button. The Range Filter caption displays.
12. Click the **Range Filter** caption and drag the entire range filter to the top of the dashboard.
13. Select the **September 2020** bar in the Range Filter. The Grid and Pie dashboard items update to display data from September 2020.
14. Click and drag the **handle on the right side of the selection window** to include **November 2020**. The Grid and Pie dashboard items update to display data from September 2020 through November 2020.
15. Click and drag the **entire selection window** to the right to display the data from **December 2020 to February 2021**.
16. Right-click anywhere on the ranger filter.
17. Select **Remove Caption**.

Part 4: Set a default date range

1. Verify the **Design** tab is still selected.
2. Select the **Edit Periods** button. The **Edit Periods** window opens.
3. Select **Last 2 Years**.
4. Select the **arrow**.
5. Select the **Default** check box.
6. Select the **Close** button.

Filter Elements

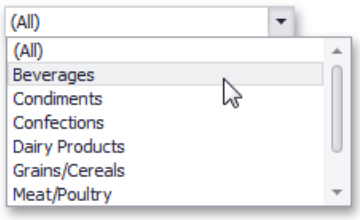
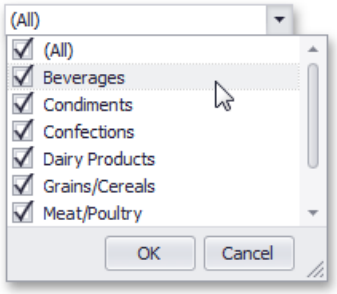
The Dashboard Designer allows you to create filter elements which are used to filter other dashboard items.

- Combo Box
- List Box
- Tree View
- Date Filter

To add the required filter element to the dashboard, use the **Filter Elements** button in the **Home** ribbon tab.

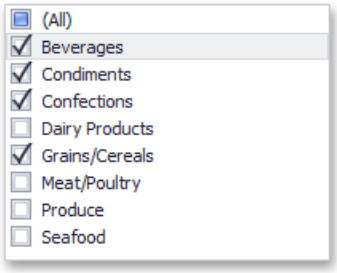
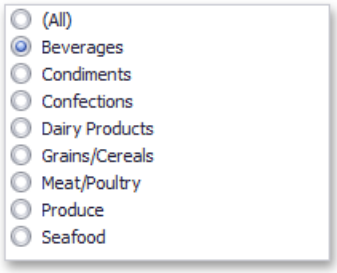
Combo Box

The Combo Box dashboard item allows you to select a value(s) from a drop-down list. You can switch the combo box type in the ribbon **Design** tab.

Combo Box Type	Example	Description
Standard		Allows you to select only a single value.
Checked		Allows you to select multiple values in the open drop-down list.

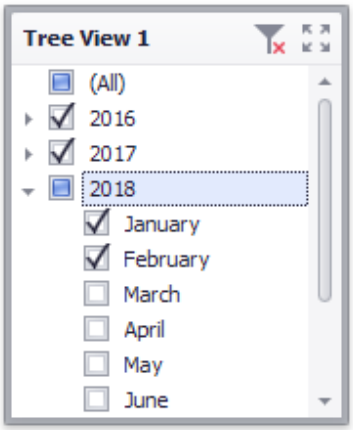
List Box

The List Box dashboard item allows you to select a value(s) from the list view.
You can switch the list box type in the ribbon **Design** tab.

List Box Type	Example	Description
Checked		Allows you to select multiple values in the list box.
Radio		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.

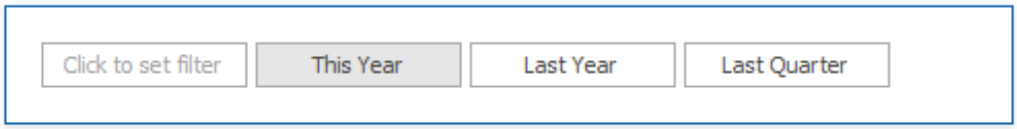


You can manage the initial expanded state of filter values using the **Auto Expand** button in the **Design** ribbon tab.

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), fixed dates (01-01-2018), or presets (Month-to-date). You can also filter dates before or after a specified date.

The DateFilter item displays a set of intervals that can be used as quick filters.



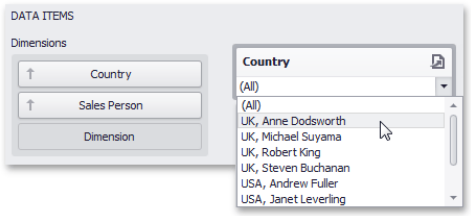
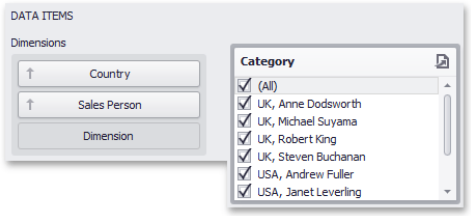
Providing Data

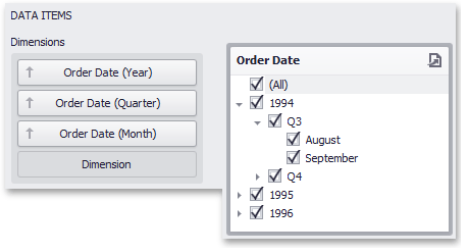
This topic describes how to bind filter elements to data using the Dashboard Designer.

Binding Overview

All filter elements provide the Dimensions data section, which accepts dimensions used to provide filter values.

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 allows you to display dimension values in a hierarchical way. This can be the set of dimensions with different group intervals (for instance, Year/Quarter/Month) or the set of related dimensions (for instance, geographical data such as continents/countries/cities).

Activity 2.14 – Filter Elements

In this activity, you will create filter elements used to filter other dashboard items.

Activity Steps

Part 1: Add a grid

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Sales Journal Detail CVS** model.
5. Select the **Grid** button. The **Grid** item displays on the Dashboard.
6. Select the **Parameters** icon on the upper-right corner of the Dashboard. The **Dashboard Parameters** window opens.
7. Type *1/1/2020* in the **Value** field for the **From_Date** line.
8. Type *2020-01* in the **Value** field for the **From_Period_Code**.
9. Type *2023-01* in the **Value** field for the **Thru_Period_Code**.
10. Select the **Submit** button.
11. Click and drag the following fields to the **New Column** field in the **DATA ITEMS** panel. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
    - Transaction_Date
    - Amount_Normalized
13. Select the **down arrow** for the **Transaction_Date** field in the **DATA ITEMS** pane.
14. Select **Exact Date**.
15. Right-click the **Amount_Normalized** column header.
16. Select **Add Total > Auto**.

Part 2: Add a combo box filter

1. Select **Filter Elements > Combo Box**.
2. Click and drag the **Firm_Name** field to the **Dimension** field in the **DATA ITEMS** pane.
3. Select the **drop-down arrow** on the search field in the **Combo Box** filter. The list of firm names display.
4. Select **Nautical Supply, Inc**. The grid displays a filtered list.
5. Select the **Clear Master Filter** (Funnel with red x) icon.
6. Click and drag the **Firm_Code** field to the **Dimension** field in the **DATA ITEMS** pane.
7. Select the **drop-down arrow** on the search field in the **Combo Box** filter. The list of firm names and codes display.
8. Select **Filter Element Tools > Design**.
9. Select the **Edit Names** button. The **Edit Names** window opens.
10. Type *Combo Box – Firm Name and Code* in the **Dashboard item name** field.
11. Select the **OK** button.
12. Select the **Design** tab > **Checked** button.
13. Select the **drop-down arrow** on the search field in the **Combo Box** filter. The list of firm names and codes display with check boxes.
14. Select the check boxes for the following firms:
    - Back Cove Trail Systems
    - Casco Bay Sailing Company
    - Nautical Supply, Inc
12. Select the **OK** button. The grid list displays only projects for those three firms.
13. Select the **Clear Master Filter** (Funnel with red x) icon.
14. Select the **Design** tab > **Enable Search** button. A second text search field displays when the primary field is selected.
15. Type *Nautical* in the text search field. The drop-down list filters for that firm.
16. Select the **Nautical Supply, Inc** check box. The grid displays only projects for that firm.
17. Select the **OK** button.
18. Select the **Clear Master Filter** icon.
19. Select the **Standard** button.
20. Select to deactivate the **Allow Empty Filter** button. The grid updates to display the first filter on the list.
21. Select the **Allow Empty Filter** button.

Part 3: Add a list box filter

1. Select the **Home** tab.
2. Select **Filter Elements > List Box**.
3. Click and drag the **list box** under the **combo box**.
4. Click and drag the **Project_PM_Name** field to the **Dimension** field in the **DATA ITEMS** pane.

5. Click and drag the **Project_PM_Code** field to the **Dimension** field in the **DATA ITEMS** pane.
6. Select **Filter Element Tools > Design**.
7. Select the **Edit Names** button. The **Edit Names** window opens.
8. Type *List Box – PM Name and Code* in the **Dashboard item name** field.
9. Select the **OK** button.
10. Select the **Radio** button. This allows you select one item at a time on the list.
11. Select the **Fletcher, Erwin P.** radio button. The grid updates.
12. Select **Hernandez, George J.** radio button. The grid updates.
13. Select the **Clear Master Filter** icon.
14. Select the **Enable Search** button. A second text search field displays.
15. Type *erwin* in the text search field. The drop-down list is filtered for that PM.
16. Select the **Fletcher, Erwin** radio button.
17. Select the **X** to clear the **text search** field.
18. Select the **Clear Master Filter** icon.

Part 4: Add a tree view filter

1. Select the **Home** button.
2. Select **Filter Elements > Tree View.**
3. Click and drag the **tree view** under the **list box**.
4. Click and drag the **Project_Charge_Type** field to the **Dimension** field in the **DATA ITEMS** pane.
5. Click and drag the **Project_Path** field to the **Dimension** field in the **DATA ITEMS** pane.
6. Select **Filter Element Tools > Design**.
7. Select the **Edit Names** button. The **Edit Names** window opens.
8. Type *Tree View – Project Charge Type and Path* in the **Dashboard item name** field.
9. Select the **OK** button.
10. Select the arrow to expand the **Billable** list.
11. Select the **Billable** check box. The grid updates.
12. Select to clear the **Billable** check box.
13. Select the **Enable Search** button. A text search field displays.
14. Type *2013* in the text search field. The drop-down list is filtered for that firm.
15. Select the **20130000-001** check box.
16. Select the **20130000-004** check box.
17. Select the **Clear Master Filter** icon.
18. Select the **X** to clear the **text search** field.

Note: If you prefer that the Tree View filter open with the tree fully expanded, select the **Auto Expand** button, then save and close the dashboard. The next time you open the dashboard, the Tree View will default to an expanded view.

Part 5: Add a date filter

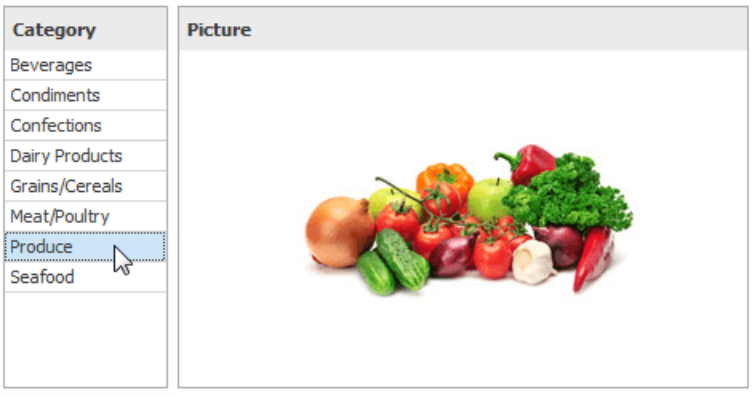
1. Select the **Home** button.
2. Select **Filter Elements > Date Filter**.
3. Click and drag the **date filter** under the **Tree View box**.
4. Click and drag the **Transaction_Date** field to the **Dimension** field in the **DATA ITEMS** pane.
5. Select the **down arrow** for the **Transaction_Date** field in the **DATA ITEMS** pane.
6. Select **Exact Date**.
7. Right-click the **Date Filter**.
8. Select **Edit Names**.The **Edit Names** window opens.
9. Type *Date Filter – Transaction Date* in the **Dashboard item name** field.
10. Select the **OK** button.
11. Select the **Gear** icon next to the **Transaction_Date** field in the **DATA ITEMS** pane. The **Edit Periods** window opens.
12. Select **Last Year**.
13. Select the **arrow**. The Date Filter updates with another button.
14. Select **Last 2 Years**.
15. Select the **arrow**. The Date Filter updates with another button.
16. Select **Last 5 Years**.
17. Select the **arrow**. The Date Filter updates with another button.
18. Select the **Close** button.
19. Select the **Last Year** button. The grid shows no date because there is none for the last year.
20. Select the **Last 2 Years** button. The grid updates.
21. Select the **Last 5 Years** button. The grid updates.
22. Select the **Set Filter** button.
23. Type *1/1/2021* in the first text field.
24. Type *12/31/2021* in the second text field.
25. Select the **Apply** button. The grid updates with data from 2021.
26. Select **Data Filter Tools > Design**.
27. Select **Arrangement Mode > Vertical**. The buttons are now stacked.
28. Select the **Clear Master Filter** icon.
29. Select **Date Picker Location > Near**. The date picker button is first in the list.
30. Select **Date Picker Location > Far**. The date picker button is last in the list.
31. Select **Date Picker Location > Hidden**. The date picker button is hidden.

Images

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

- The Image dashboard item allows you to add static images to a 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.



To create the required Image dashboard item, use the **Images** button in the **Home** ribbon tab.

Providing Images

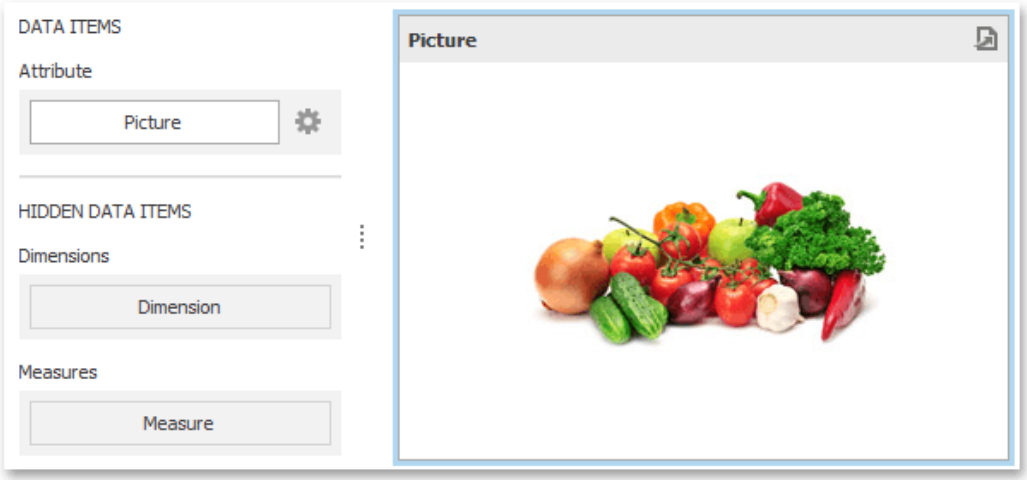
Providing Static Images

To load an image to a dashboard item, use the **Load Image** and **Import Image** buttons in the ribbon, or commands in the context menu (**Load Image...** and **Import Image...**,

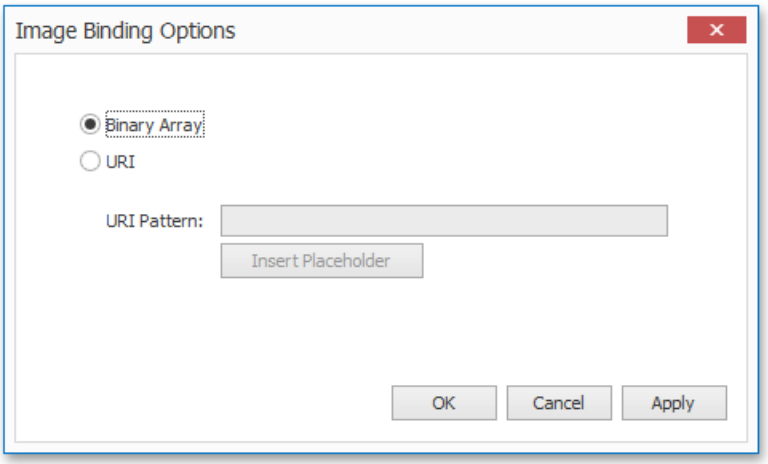
respectively). These commands open the Open dialog, which allows you to locate the desired image.
The **Load Image** command saves the path to the image in the dashboard definition, while the **Import Image** command saves the image itself.

Binding the Bound Image to Data

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



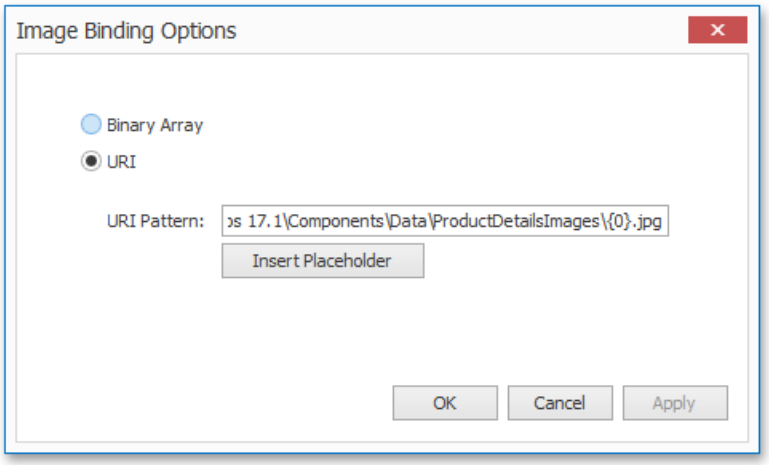
Specify the binding mode for the Bound Image by clicking the **Options** button (the icon) next to the **Attribute** placeholder. This opens the following dialog.



This dialog provides two options.

- **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 URIs to these images.

For instance, the URI pattern in the form below specifies the path to the folder containing the required images.



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 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.

Image Settings

You can customize the representation of Image and Bound Image dashboard items in different ways.

Image Alignment

To specify how the image is aligned within the dashboard item, use the **Alignment** group in the **Design** ribbon tab.

Image Size Mode

You can specify the image size mode that defines how the image fits within the dashboard item.
To do this, use the **Size Mode** group in the ribbon's **Design** tab.
The following table illustrates each size mode in two cases: when the image is smaller than the dashboard item, and vice versa.

Size Mode	Images Smaller than Dashboard Item	Images Larger than Dashboard Item	Description
Clip			The image is clipped if it is larger than the Image dashboard item.
Stretch			The image 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 in 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. If the aspect ratio of the Image dashboard item is the same as the aspect ratio of the image, it will be resized to fit into the Image dashboard item while maintaining its aspect ratio. Otherwise, the image will be resized in the closest fitting dimension (either the height or the width), and the remaining dimension will be resized while maintaining the image's aspect ratio.

Activity 2.15 – Images

In this activity, you will add images to AE.

Note: For this activity, you will need an image available to upload. You may download one here.

Activity Steps

Part 1: Upload an image

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Project Figures CVS** model.
5. Select the **Images** button.
6. Select **Image**. The Image item displays on the Dashboard.
7. Select the **Design** tab.
8. Select **Load Image**.
9. Double-click **Unanet Logo**.
10. Select the **Stretch** button.
11. Select the **Squeeze** button.
12. Select the **Align Top Left** icon in the **Alignment** section.

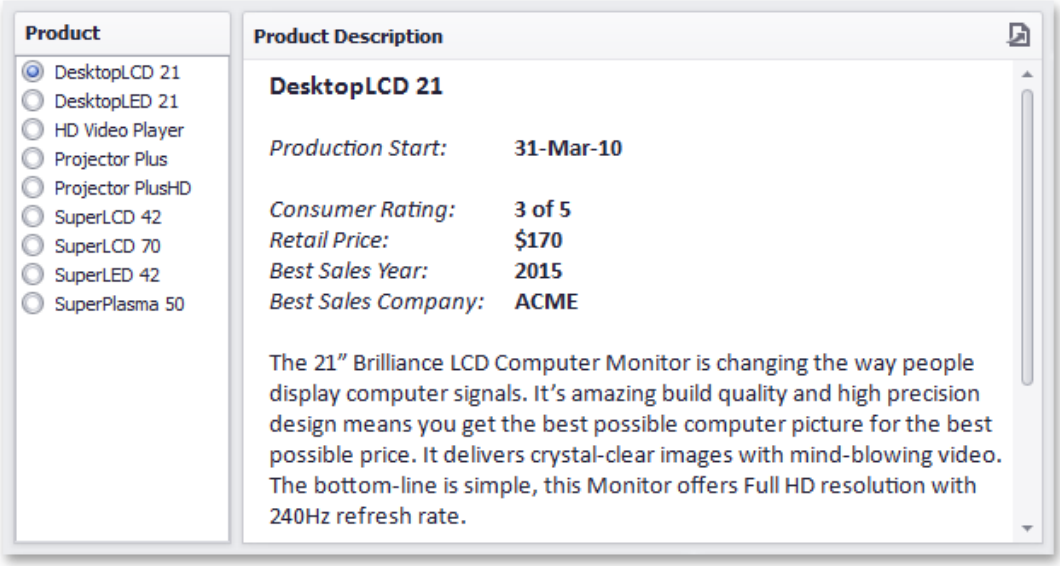
Part 2: Import an image

1. Select the **Home** tab.
2. Select the **Images** button. The Image item displays on the Dashboard.
3. Select **Image**.
4. Right-click anywhere in the **Image 2** item.

5. Select **Import Image**.
6. Double-click **Unanet Logo**.
7. Select the **Design** tab.
8. Select the **Zoom** button.
9. Select the **Align Bottom Left** icon in the Alignment section.

Text Box

Use the **Text Box** dashboard item to display rich text within a dashboard.



You can either add a static text or you can use the Text Box as a detail item along with the Master Filtering or Filtering features.

Activity 2.16 – Text Box

In this activity, you will use a text box to display static and dynamic text.

Activity Steps

Part 1: Add a text box and static text

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Project Figures CVS** model.
5. Select the **Text Box** button.
6. Right-click the text box.
7. Select **Show Caption** to clear the caption.
8. Right-click the text box.

9. Select **Edit**. The Text Box is now editable.
10. Type *PROJECT FACTS:* in the text box.
11. Select the **Home** tab in the **Text Box Editor**.
12. Highlight **PROJECT FACTS:** in the text box.
13. Select the following to modify the style:
    - Bold
    - Underline
    - Font size 12
14. Select **Page Layout > Page Color**.
15. Select **light blue** (second row, fourth color block).

Part 2: Add additional text for filtering

1. Type the following text in the text box under the Project Facts (first line).
    - Project Name
    - Project Code
    - Project Org:
    - Charge Type:
    - PM:
    - PTD Effort:
    - PTD Cost:
    - PTD Billed:
2. Highlight all the text added in step 1.
3. Select the **Home** tab in the **Text Box Editor**.
4. Select font size **10**.
5. Place the cursor after the **Project Name** text.
6. Select **Text Box Tools > Design**.
7. Select the **Insert Field** button.
8. Repeat steps 5 and 7 for the remaining lines.
    - Project Code:
    - Project Org:
    - Charge Type:
    - PM:
    - PTD Effort:
    - PTD Cost:
    - PTD Billed:

Part 3: Add a list box

1. Select the **Home** tab.

2. Select **Filter Elements > List Box**.
3. Click and drag the **list box** item to the left side of the dashboard.
4. Select **Filter Element Tools > Design**.
5. Select the **Radio** button.
6. Click and drag the **Project_Long_Name** field to the **Dimension** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.

Part 4: Add values to the text box

1. Right-click the text box.
2. Select **Edit**. The text box is now editable..
3. Click and drag the following fields to the **Value** field in the **DATA ITEMS** pane.
   - Project_Long_Name
   - Project_Path
   - Project_Org_Name
   - Project_Charge_Type
   - Project_PM_Name
   - PTD_Effort
   - PTD_Cost
   - PTD_Billed
4. Select **Select Value** in the Text Box for the **Project Name** line. A list of available fields display.
5. Select **Project_Long_Name**.
6. Use the table below to add additional values to the text box.

Line	**Value**
Project Code	Project_Path
Project Org	Project_Org_Name
Charge Type	Project_Charge_Type
PM	Project_PM_Name
PTD Effort	PTD_Effort
PTD Cost	PTD_Cost
PTD Billed	PTD_Billed

7. Select the **down arrow** for the **Project_Long_Name** field in the **DATA ITEMS** pane.
8. Select **Max**.

9. Repeat steps 7-8 for the following values in the **DATA ITEMS** pane.
    - Project_Long_Name
    - Project_Path
    - Project_Org_Name
    - Project_Charge_Type
    - Project_PM_Name
10. Select the **Edit** button.
11. Select the **Baseball Stadium** radio button. The data in the text box updates.
12. Select the **Business Development** radio button. The data in the text box updates.

Group

Dashboard Designer provides the capability 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 instance, 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 in the **Home** ribbon tab. You can add dashboard items to a group and manage item layout using drag-and-drop.

Note that a dashboard item group cannot be added inside of another group.

Activity 2.17 – Group

In this activity, you will group dashboard items.

Activity Steps

Part 1: Add a grid

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Project Figures CVS** model.
5. Select the **Parameters** icon on the upper-right corner of the Dashboard. The **Dashboard Parameters** window opens.
6. Type *2020-01* in the **Value** field for the **Current_Period_Code** line.
7. Select the **Submit** button.
8. Select the **Grid** button. The **Grid** item displays on the Dashboard.

9. Click and drag the **Project_Path_Long_Name** field to the **New Column** field in the **DATA ITEMS** panel. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.

Part 2: Create a second grid and add filters

1. Right-click the **grid**.
2. Select **Duplicate**.
3. Right-click the second grid.
4. Select **Edit Names**. The **Edit Names** window opens.
5. Type *Grid 2* in the **Dashboard item name** field.
6. Select the **OK** button.
7. Select **Filter Elements > Tree View**.
8. Click and drag the **Project_Charge_Type** field to the **Dimension** field in the **DATA ITEMS** panel. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
9. Select **Filter Elements > Tree View**.
10. Click and drag the **Firm_Name** field to the **Dimension** field in the **DATA ITEMS** panel.
11. Select the **Billable** check box in Tree View 1. Both grids display filtered data.
12. Clear the **Billable** check box in Tree View 1.
13. Select the **City of Portland** check box in Tree View 2. Both grids display filtered data.
14. Clear the **City of Portland** check box in Tree View 2.

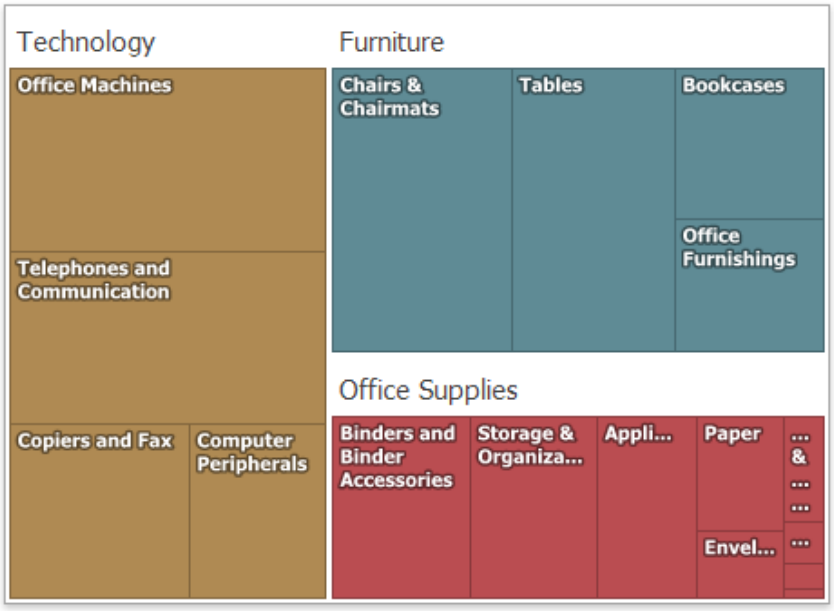
Part 3: Create two groups

1. Select the **Group** button.
2. Click and drag the **Tree View 1** filter into Group 1.
3. Click and drag the **Grid 1** into Group 1 below Tree View 1.
4. Select the **Billable** check box in Tree View 1. Only Grid 1 displays filtered data.
5. Clear the **Billable** check box in Tree View 1.
6. Select the **Group** button.
7. Click and drag the **Tree View 2** filter into Group 2.
8. Click and drag the **Grid 2** into Group 2 below Tree View 2.
9. Click and drag **Group 2** to the right side of the dashboard.
10. Select the **Dominion Power** check box in Tree View 2. Only Grid 2 displays filtered data.
11. Clear the **Dominion Power** check box in Tree View 2.
12. Select **Group 1**.
13. Select **Group Tools > Design**.
15. Select the **Edit Names** button. The **Edit Names** window opens.
16. Type *Group A* in the **Dashboard item name** field.

14. Select the **OK** button.
15. Select **Group 2**.
16. Select **Group Tools > Design**.
17. Select the **Edit Names** button. The **Edit Names** window opens.
18. Type *Group B* in the **Dashboard item name** field.
17. Select the **OK** button.

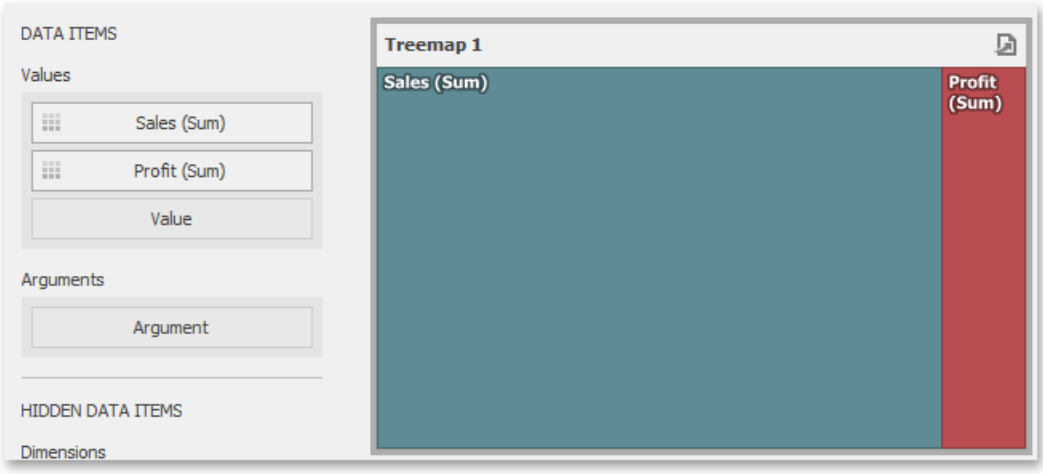
Treemap

Use the Treemap dashboard item to visualize data in nested rectangles that are called tiles.



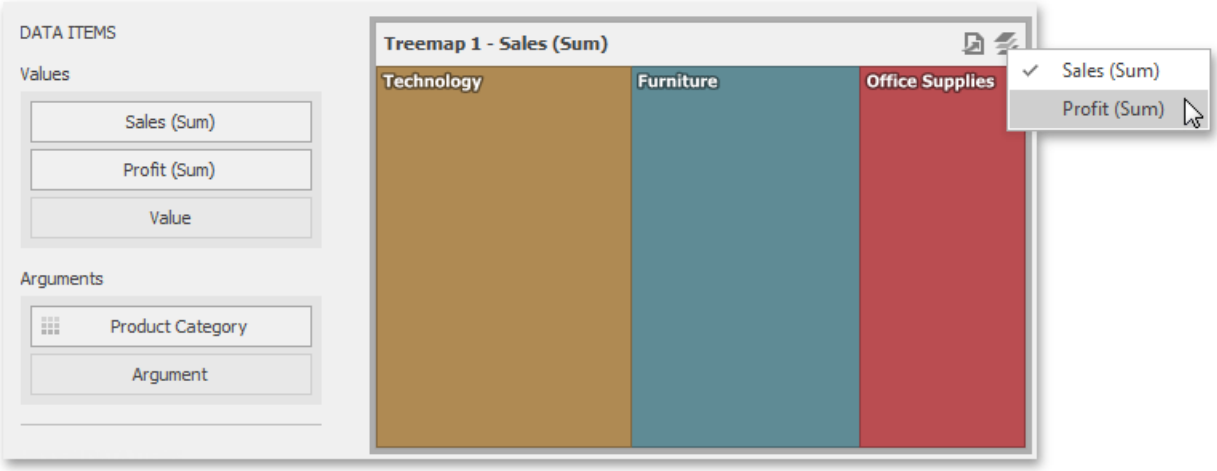
The Dashboard Designer allows you to bind various dashboard items to data in a virtually uniform manner. The only difference is in the data sections that the required dashboard item has.
The Treemap dashboard item has the **Values** and **Arguments** data sections that provide numeric and discrete categorical data, respectively. The steps below provide the most common scenarios of binding a Treemap to data.

1. Drop the **Sales and Profit** fields to the **Values** section.



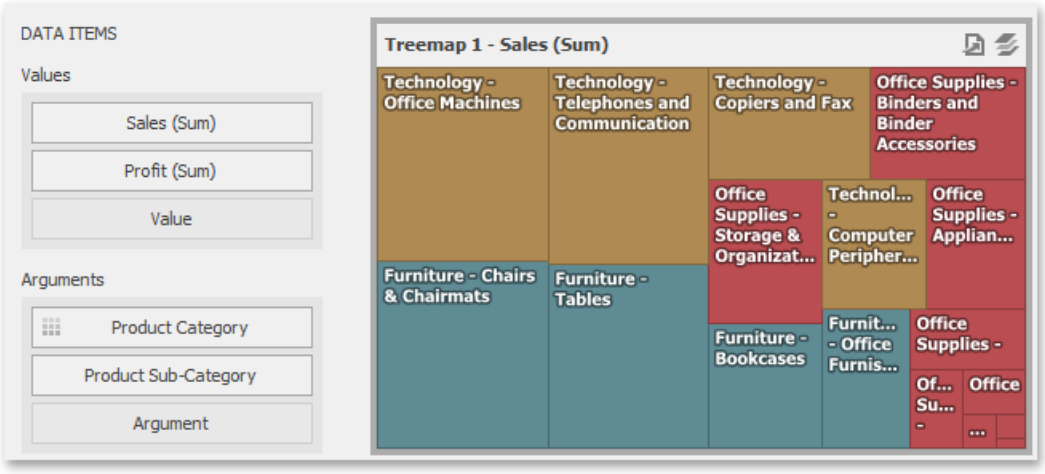
The Treemap will draw two tiles whose sizes correspond to the Sales and Profit summary values.

2. Drop the **Product Category** field to **Arguments**.



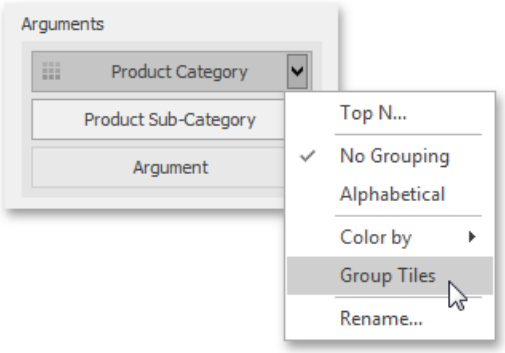
Treemap will create individual tiles for all categories. You can switch between Sales and Profit values by clicking the icon in the item's caption or you can use its context menu.

3. Drop the child Product Sub-Category field into Arguments.

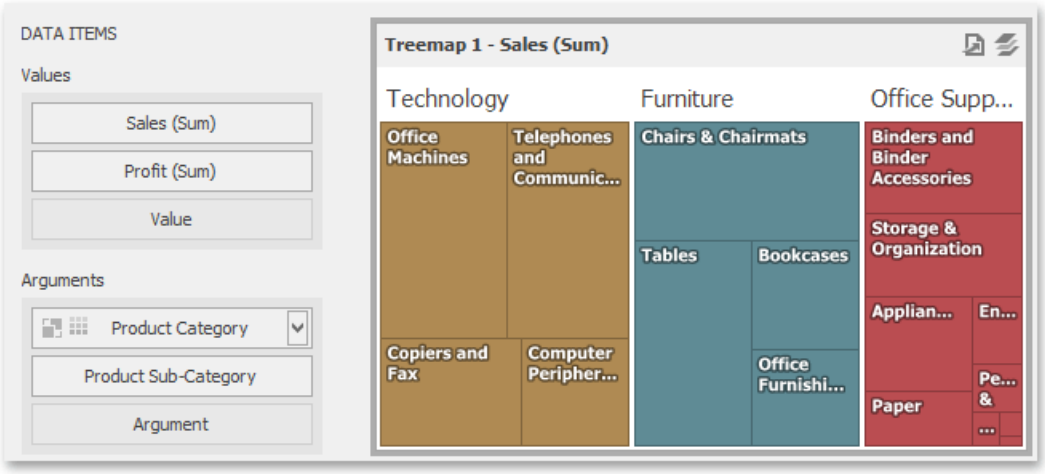


The Treemap will visualize all combinations of categories and corresponding sub-categories using individual tiles.

4. If the Arguments section contains several dimensions, you can group child tiles by values of the parent dimension. To group sub-categories inside corresponding categories, click the **CategoryName** menu button and select **Group Tiles**.



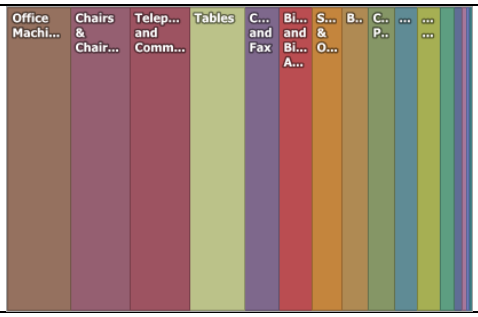
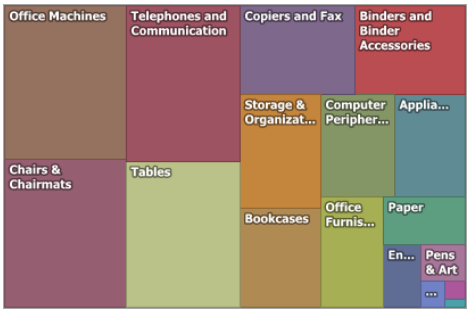
Sub-category tiles will be grouped into category groups.

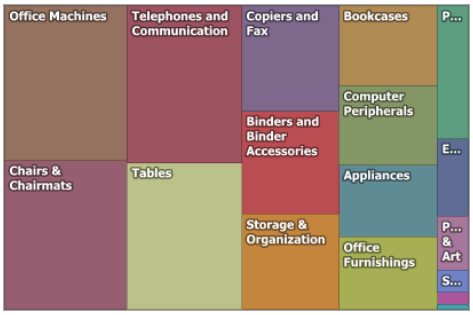


Layout

This topic describes how to change a layout algorithm used to arrange Treemap tiles. To do this in the Designer, use buttons from the **Layout** group placed in the **Design** ribbon tab.

The following algorithms are available.

Algorithm	Example	Description
Slice and Dice		This layout algorithm divides the space between items, slicing it in the specified direction depending on item value.
Squarified		The Squarified algorithm arranges tiles so that their width/height ratio will be closer to 1.

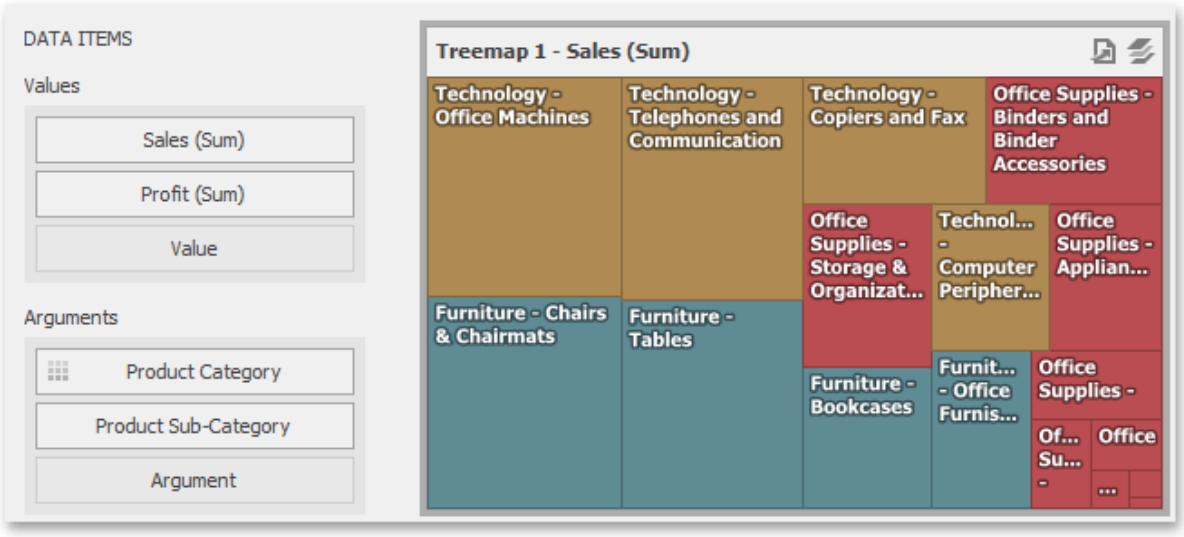
Striped		This algorithm is a modified version of the Squarified algorithm. The difference here is that tiles are drawn side by side as columns or rows.

You can also set a layout direction to specify an arrangement of tiles depending on their sizes. To do this, click the **Layout Direction** button and select the required direction.

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

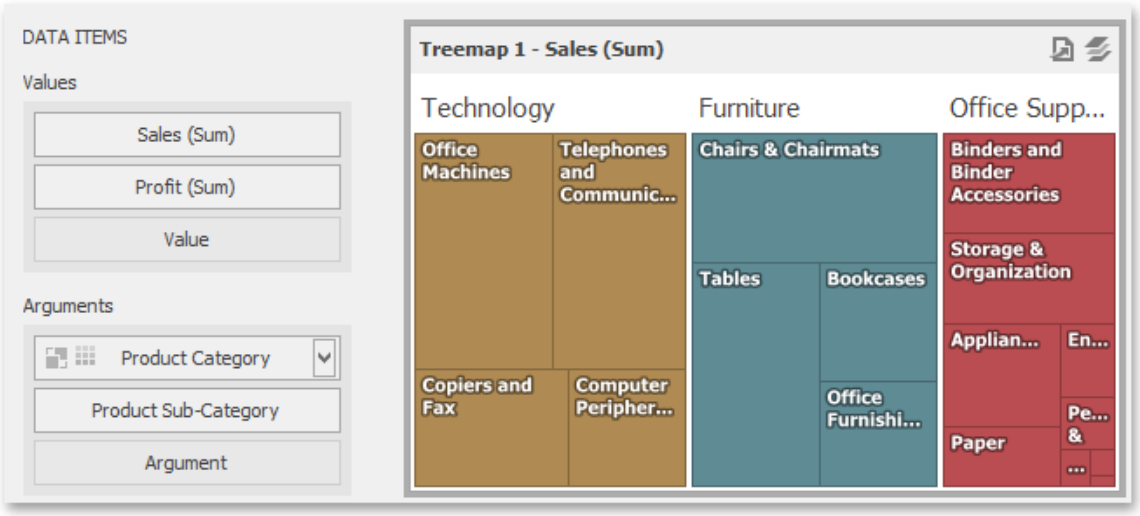
Grouping

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



To group sub-categories inside corresponding categories, click the **Product Category** menu button and select **Group Tiles**.

Product tiles will be grouped into category groups.

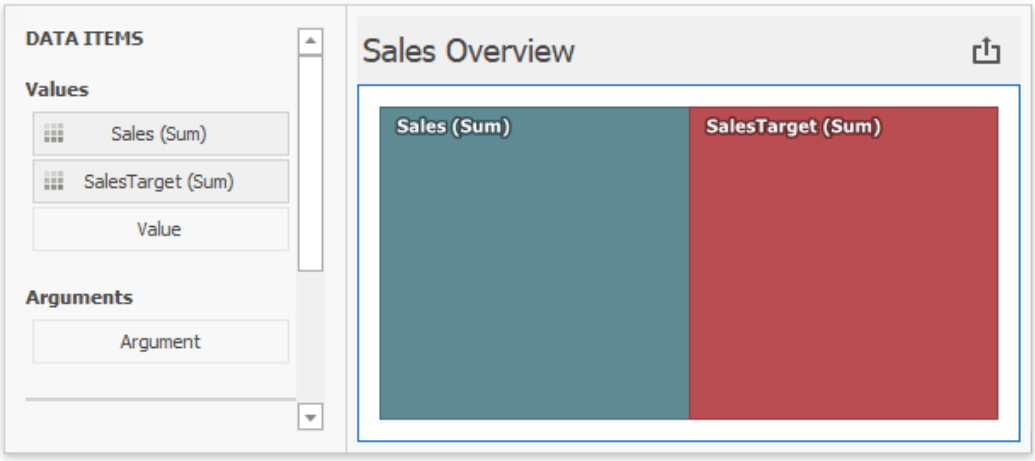


Note that the icon will be displayed within the Product Category dimension.

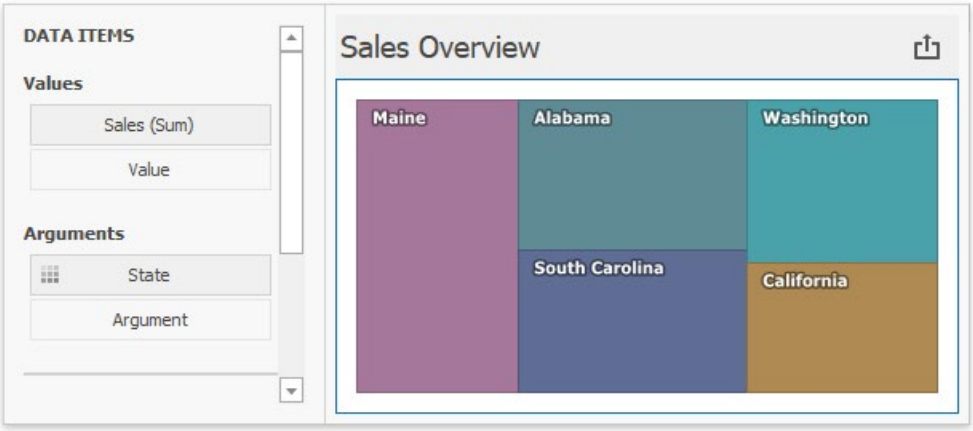
Coloring

In Default color mode, the Treemap dashboard item colors its tiles in the following ways:

- If the Treemap dashboard item contains only measures (the Values section), values corresponding to different measures are colored by hue.

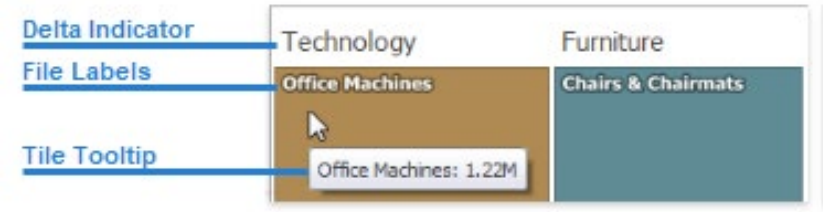


- If the Treemap dashboard item contains arguments (the Arguments section), values corresponding to the first argument are colored by hue.



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, use the **Labels and Tooltips** buttons in the **Design** ribbon tab.

Use buttons within the **Tile Labels/Group Labels** ribbon groups to manage tile and group labels, respectively. These buttons open the drop-down menu, which is similar for all buttons.

Activity 2.18 – Treemap

In this activity, you will use the Treemap dashboard item to visualize data in nested rectangles called tiles.

Activity Steps

Part 1: Add a treemap item

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Project Figures CVS** model.

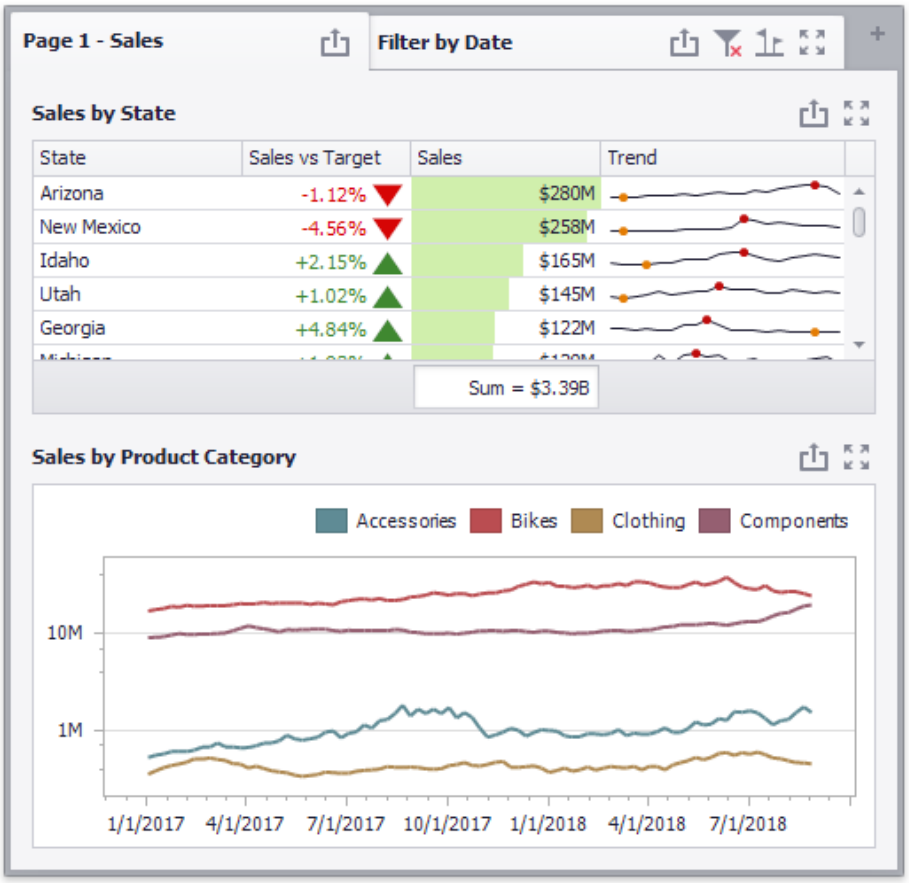
5. Select the **Parameters** icon on the upper-right corner of the Dashboard. The **Dashboard Parameters** window opens.
6. Type *2021-01* in the **Value** field for the **Current_Period_Code** line.
7. Select the **Submit** button.
8. Select the **Treemap** button. The **Treemap** item displays on the Dashboard.
9. Click and drag the **Expected_Revenue** field to the **Value** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
10. Click and drag the **Project_Charge_Type** field to the **Argument** field in the **DATA ITEMS** pane.

Part 2: Modify the treemap

1. Select **Treemap Tools > Design**.
2. Select the **Edit Names** button. The **Edit Names** window opens.
3. Type *Treemap Expected Revenue* in the **Dashboard item name** field.
4. Select the **OK** button.
5. Select **Design > Labels > Argument and Value**.
6. Click and drag the **Project_Long_Name** field to the **Argument** field in the **DATA ITEMS** pane.
7. Select the **down arrow** for the **Project_Charge_Type** field.
8. Select **Group Tiles**.
9. Click and drag the **PTD_Effort** field to the **Value** field in the **DATA ITEMS** pane.
10. Select the **Values** icon in the upper right corner of the Dashboard.
11. Select **PTD_Effort**. The Dashboard now displays the data for PTD_Effort instead of Expected_Revenue.
12. Select the **Values** icon in the upper right corner of the Dashboard.
13. Select **Expected_Revenue**.
14. Select the **Striped** button.

Tab Container

The Tab container dashboard item allows you to split the dashboard layout into several pages. Common filter controls for large elements in a dashboard can be located on a separate tab page.

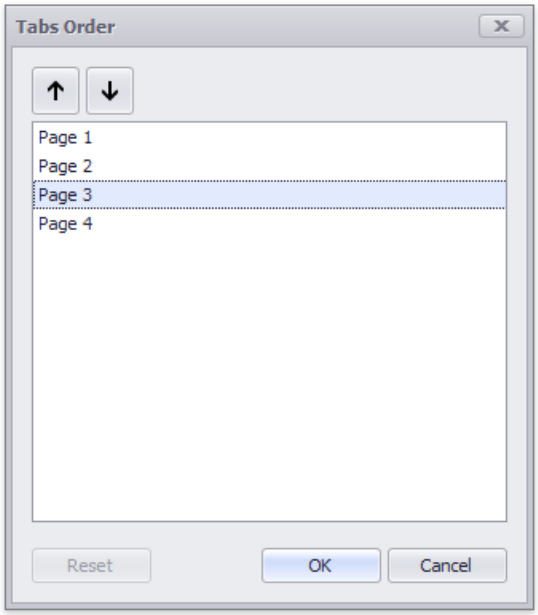


To create a tab container, use the **Tab Container** button in the **Home** ribbon tab. A newly created tab container contains an empty tab page (Page 1).

Click the + (plus) icon to add an empty page to the tab container. You can use drag-and-drop to add dashboard items to a tab page and manage the layout. Tab containers cannot be nested, so you cannot add a tab container to another tab container. However, a tab container can contain item groups.

Tab Order

To change the tab page order, click the **Reorder Tabs** button on the **Tab** settings group. The **Tabs Order** dialog opens.



Click up and down arrows to change the order of the tab pages in the tab container.

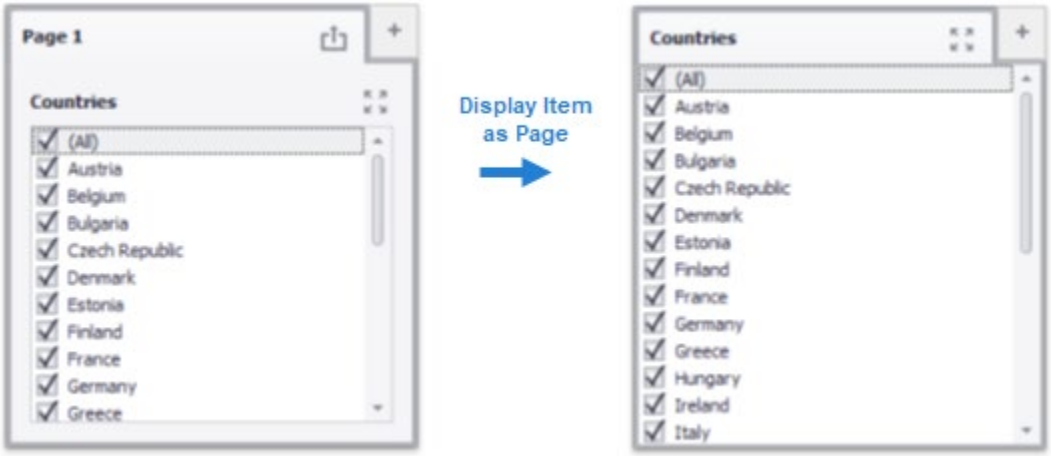
Defer Web Tab Load

Defers loading each tab until accessed, when possible, on the published Web Dashboard.

In order for tabs to actually perform deferred loading, the pages cannot be master filters, the pages cannot contain widgets that act as master filters, and you cannot use the **Display Item as Page** option.

Display Item as Page

The tab caption is above the caption of the content element on the page. If a tab page contains a single element, the Display Item as Page feature is activated. It merges the dashboard item with a tab page and displays a single caption, as illustrated below.

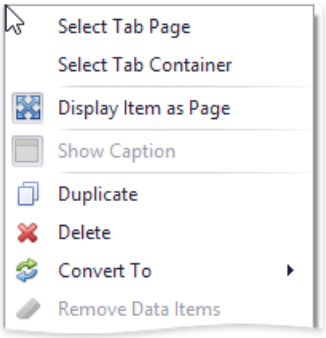


To disable the **Display Item as Page** feature, use one of the following methods:

- Select the tab page and click the **Display Item as Page** button in the **Layout** group on the **Design** ribbon tab of the **Page Tools** contextual tab set.
- Select the **Display Item as Page** command in the tab page context menu.

Selection

Click the element's border or use the item's context menu to select a page or a tab container.



Activity 2.19 – Tab Container

In this activity, you will work with a tab container.

Activity Steps

Part 1: Set up a dashboard

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Project Figures CVS** model.
5. Select the **Parameters** icon on the upper-right corner of the Dashboard. The **Dashboard Parameters** window opens.

6. Type *2021-01* in the **Value** field for the **Current_Period_Code** line.
7. Select the **Submit** button.
8. Select the **Grid** button three times to add three grids to the dashboard.
9. Select **Grid 1**.
10. Click and drag the **Project_Charge_Type** field to the **New Column** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
11. Click and drag the **PTD_Billed** field to the **New Column** field in the **DATA ITEMS** pane.
12. Select **Grid 2**.
13. Click and drag the **Project_Charge_Type** field to the **New Column** field in the **DATA ITEMS** pane.
14. Click and drag the **PTD_Profit** field to the **New Column** field in the **DATA ITEMS** pane.
15. Select **Grid 3**.
16. Click and drag the **Project_Charge_Type** field to the **New Column** field in the **DATA ITEMS** pane.
17. Click and drag the **Budget_Amount** field to the **New Column** field in the **DATA ITEMS** pane.

Part 2: Add and edit a tab container item

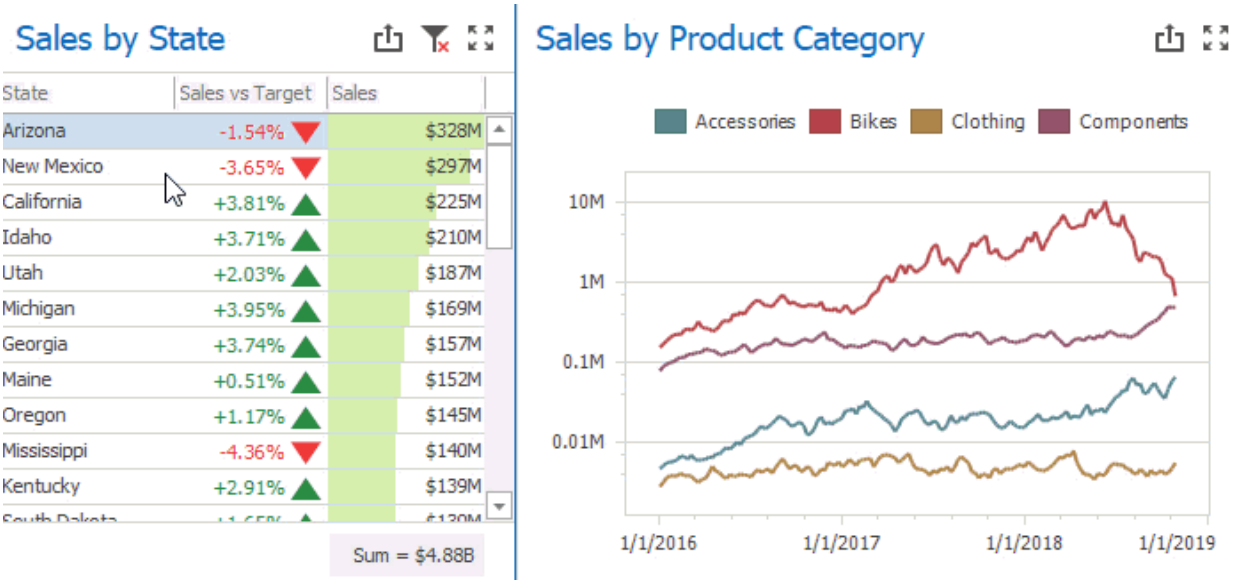
1. Select the **Tab Container** button.
2. Click the drag **Grid 1** on top of **Page 1**.
3. Click the drag **Grid 2** on top of **Page 1**, below Grid 1.
4. Select the **plus** icon for **Page 1** (upper right corner of the title bar). Page 2 displays.
5. Click the drag **Grid 3** on top of **Page 2**. Note: By default, if there is only one item on a page, the page name will default to the item name.
6. Select **Page Tools > Design**.
7. Click to clear the **Display Item as Page** button.
8. Select **Page 1**.
9. Select the **Edit Names** button. The **Edit Names** window opens.
10. Type *Page #1* in the **Dashboard Name** field.
11. Select the **OK** button.
12. Select **Page 2**.
13. Select the **Edit Names** button. The **Edit Names** window opens.
14. Type *Page #2* in the **Dashboard Name** field.
15. Select **Tab Container Tools > Design**.
16. Select the **Reorder Tabs** button. The **Tabs Order** window opens.
17. Select **Page 2** from the list.
18. Select the **up** arrow.
19. Select the **OK** button. Page 2 is now in front of page 1.

Interactivity

This section describes features that enable interaction between various dashboard items. These features include Master Filtering and Drill-Down.

Master Filtering

The Dashboard allows you to use any data aware dashboard item as a filter for other dashboard items (Master Filter). 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 Filtering Overview

Dashboard items can be divided into four groups by their master filtering capabilities.

1. Data visualization dashboard items allow you to enable master filtering by specifying the selection mode. The following dashboard items allow you to manage their master filtering mode.
    - Chart
    - Scatter Chart
    - Grid
    - Pies
    - Cards
    - Gauges
    - Choropleth Map
    - Geo Point Maps
    - Treemap

2. Filter elements represent a special type of dashboard item whose main purpose is to apply filtering to other dashboard items. This capability is always enabled for these dashboard items.
   The following filter elements are available.
   - Combo Box
   - List Box
   - Tree View
     Instead of switching between standard master filtering modes, some filter elements allow you to switch their type. This allows you to select a single value or multiple values.
3. Range Filter is a special type of dashboard item that displays a chart with selection thumbs and allows you to filter out values displayed along the argument axis.
4. Dashboard item group allows you to manage interaction between dashboard items in and out of the group.

Master Filter Settings

Master Filtering Modes
The Master Filter item supports two selection modes.

- Multiple - Allows you to select multiple elements in the Master Filter item.
- 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 enable/disable master filtering, use the **Multiple Master Filter** or **Single Master Filter** buttons in the **Data** ribbon tab.

Note: If the selected dashboard item contains several types of elements that can be used for filtering, the Ribbon or Toolbar will provide the appropriate buttons to switch between these types (e.g., the **Arguments** and **Series** buttons in the Chart).

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.

Fields are matched by their full names. For fields in other data sources to be affected by Master Filtering, their names must match the name of the field in the current data source, and they must belong to the same hierarchy level so that their full names also

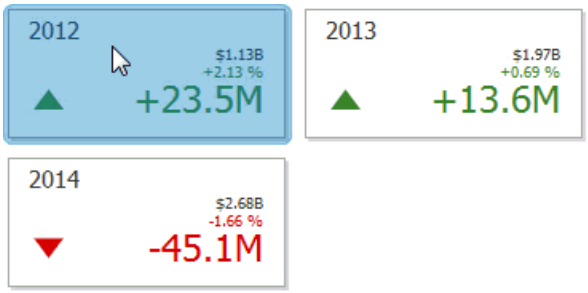
match. For instance, Customer.City and Customer.Address.City will not be treated as matching fields.

To enable filtering across data sources, use the **Cross-Data-Source Filtering** button in the **Data** ribbon tab.

Preventing Items from Being Filtered
You can prevent specific dashboard items from being affected by Master Filters. To do this, use the **Ignore Master Filters** button in the **Data** ribbon tab.

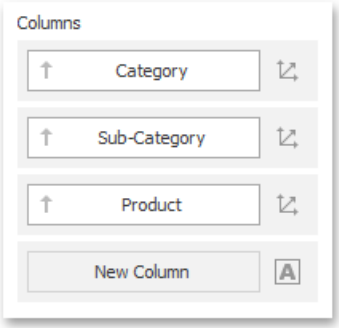
Drill-Down

Dashboard provides the Drill-Down feature, which allows you to change the detail level of data displayed in a dashboard item.
The Drill-Down feature 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...

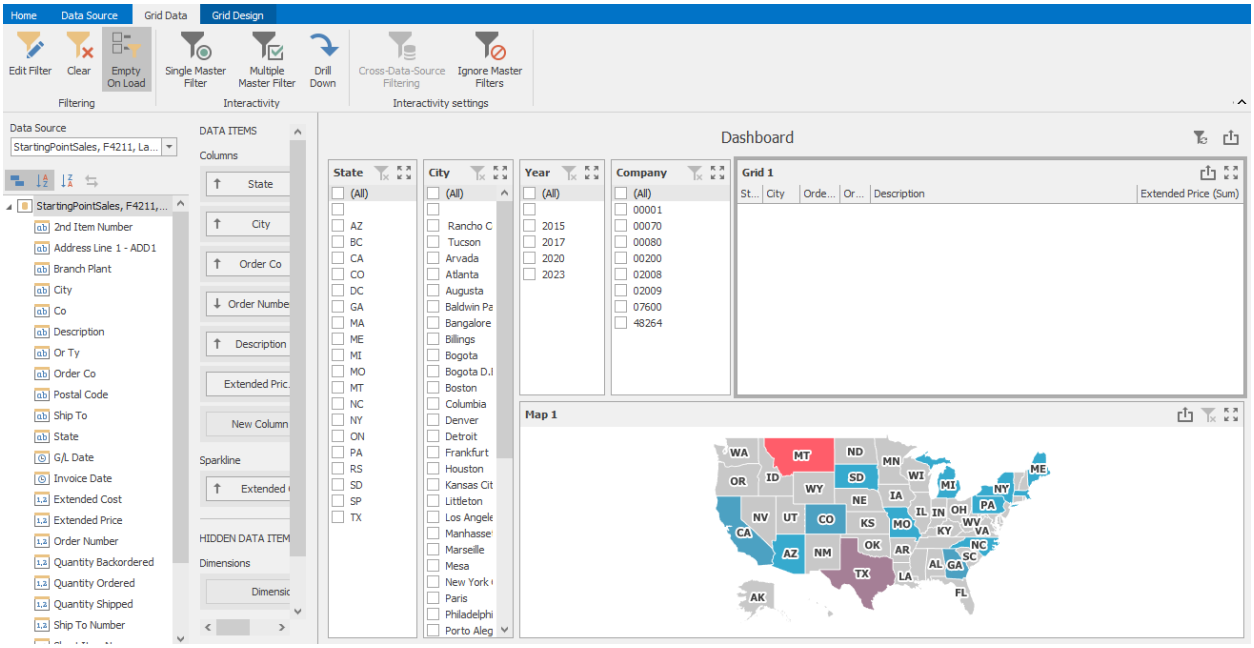


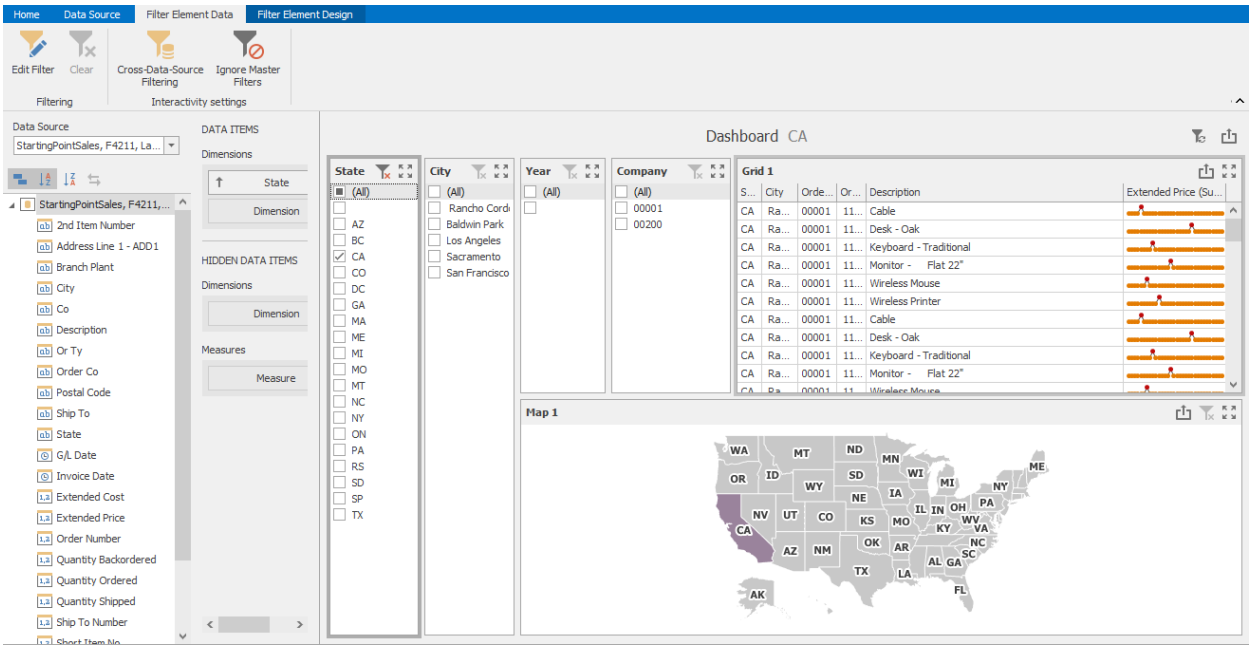
To enable drill-down, click the **Drill-Down** button in the **Data** ribbon tab (or the button if you are using the toolbar menu).

Note: If the selected dashboard item contains several types of elements that can be used for filtering, the Ribbon or Toolbar will provide the appropriate buttons to switch between these types (e.g., the **Arguments** and **Series** buttons in the Chart).

The following dashboard items support the Drill-Down feature.

- Chart
- Scatter Chart
- Grid
- Pies
- Cards
- Gauges
- Treemap





Activity 2.20 – Interactivity

In this activity, you will work with dashboard interactivity.

Activity Steps

Part 1: Set up a dashboard

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Project Figures CVS** model.
5. Select the **Parameters** icon on the upper-right corner of the Dashboard. The **Dashboard Parameters** window opens.
6. Type *2021-01* in the **Value** field for the **Current_Period_Code** line.
7. Select the **Submit** button.
8. Select the **Grid** button.
9. Click and drag the **Firm_Name** field to the **New Column** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
10. Click and drag the **Expected_Revenue** field to the **New Column** field in the **DATA ITEMS** pane.
11. Right-click the **Expected_Revenue** header.
12. Select **Add Total > Auto**.
13. Right-click the **grid**.

14. Select **Duplicate**.
15. Repeat steps 13-14 to add two more grids, for a total of four grids.
16. Right-click the **grid** in the upper right corner.
17. Select **Edit Names**. The **Edit Names** window opens.
18. Type *Grid 2* in the **Dashboard item name** field.
19. Select the **OK** button.
20. Repeat steps16-19 to rename the remaining grids:
    - Lower left corner: Grid 3
    - Lower right corner: Grid 4
21. Select **Grid 2**.
22. Click and drag the **Project_Charge_Type** field to the **Firm_Name** field in the **DATA ITEMS** pane (replacing **Firm_Name**).
23. Select **Grid 3**.
24. Click and drag the **Project_Org_Name** field to the **Firm_Name** field in the **DATA ITEMS** pane (replacing **Firm_Name**).
25. Select **Grid 4**.
26. Click and drag the **Project_Long_Name** field to the **Firm_Name** field in the **DATA ITEMS** pane (replacing **Firm_Name**).

Part 2: Set master filters

1. Select **Grid 1**.
2. Select **Grid Tools > Data**.
3. Select the **Single Master Filter** button. Grids 2-4 update to reflect the line selected Grid 1.
4. Select **ABC Realtors**. Grids 2-4 update. Note: This feature does not allow for a null value. One item is always selected.
5. Select the **Multiple Master Filter** button. Grids 2-4 do not automatically update to reflect the first firm in grid 1.
6. Select **City of Portland**. Grids 2-4 update.
7. Press and hold the **ctrl** key.
8. Select **Anderson Survey**. Grids 2-4 update with data from both firms.
9. Select the **Clear Master Filter** (Funnel with red x) icon in **Grid 1**.
10. Select **Grid 2**.
11. Select the **Multiple Master Filter** button.
12. Select **Billable**.
13. Press and hold the **ctrl** key.
14. Select **Back Cove Trail Systems** in **Grid 1**. Grids 3-4 update with billable data from that firm.
15. Select the **Clear Master Filter** (Funnel with red x) icon in **Grid 1**.
16. Select the **Clear Master Filter** (Funnel with red x) icon in **Grid 2**.
17. Select to clear the **Multiple Master Filter** button for **Grid 2**.

Part 3: Ignore master filters

1. Verify that **Grid 2** is still selected.
2. Select the **Ignore Master Filters** button.
3. Select **Back Cove Trail Systems** in **Grid 1**. Grids 3-4 update. Grid 2 does not change based on the selections made in Grid 1.
4. Select **Grid 2**.
5. Select to clear the **Ignore Master Filters** button.
6. Select **Grid 1**.
7. Select the **Clear Master Filter** (Funnel with red x) icon.
8. Select to clear the **Multiple Master Filter** button.

Part 4: Drill down in data items

1. Select **Grid 4**.
2. Press **Delete**.
3. Select **Grid 1**.
4. Click and drag the **Project_Long_Name** field between the existing **Firm_Name** and **Expected_Revenue** columns in the **DATA ITEMS** pane. **Project_Long_Name** displays in Grid 1.
5. Select the **Drill Down** button. **Project_Long_Name** is no longer visible.
6. Select **Back Cove Trail Systems**. Now **Project_Long_Name** displays in the grid**.**
7. Select the **Drill up** icon (curved arrow).
8. Select **Grid 2**.
9. Click and drag the **Project_Long_Name** field between the existing **Project_Charge_Type** and **Expected_Revenue** columns in the **DATA ITEMS** pane.
10. Select **Grid 3**.
11. Click and drag the **Project_Long_Name** field between the existing **Project_Org_Name** and **Expected_Revenue** columns in the **DATA ITEMS** pane.
12. Right-click **Grid 2**.
13. Select **Convert to > Cards**.
14. Select the **Drill Down** button. The cards are grouped by the first level, which is **Project_Charge_Type** for this example.
15. Select **Billable**. The projects list displays.
16. Select the **Drill up** icon (curved arrow).
17. Right-click **Grid 3**.
18. Select **Convert to > Chart**.
19. Select the **Drill Down** button.
20. Select the **Engineering** column. The projects display.

Format Rules

Once data is added to an item on the dashboard, it can be formatted in a variety of ways to help visualize otherwise static data points. For instance, you can highlight cells that meet certain defined criteria.
Formatting can be added, edited and cleared/deleted by clicking **Edit Rules** from the toolbar or by hovering over the data item and clicking the data item menu dropdown.

Format Rules include:

- Value - Add a formatting rule based on an evaluation of static value (>, <, <=, >=, etc.).
- Top/Bottom - Add formatting based on the evaluation of the topmost or bottommost value.
- Average - Add formatting rule based on an evaluation of average (>, <, <=, >=, etc.).
- Expression - Build an expression to apply formatting (advanced).
- Icon Ranges - Apply icons to items based on an evaluation of a range.
- Color Ranges - Apply colors to items based on an evaluation of a range.
- Gradient - Apply a color gradient to items based on an evaluation of a range.
- Bar - Displays a visual representation of a value using a bar. Bars can be colored based on positive or negative values.
- Bar Color Ranges - Displays a visual representation of a value using a bar. Bars are colored with the color set based on an evaluation of range.
- Bar Gradient Ranges - Displays a visual representation of a value using a bar. Bars are colored with the gradient color set based on an evaluation of range.

Activity 2.21 – Format Rules

In this activity, you will apply conditional formatting.

Activity Steps

Part 1: Set up a dashboard

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Project Figures CVS** model.
5. Select the **Parameters** icon on the upper-right corner of the Dashboard. The **Dashboard Parameters** window opens.
6. Type *2023-12* in the **Value** field for the **Current_Period_Code** line.
7. Select the **Submit** button.
8. Select the **Grid** button.

9. Click and drag the following fields to the **New Column** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
    - Firm_Name
    - PTD_Billed
    - PTD_Cost
    - PTD_Overhead_Cost
    - PTD_Profit

Part 2: Create and apply formatting rules

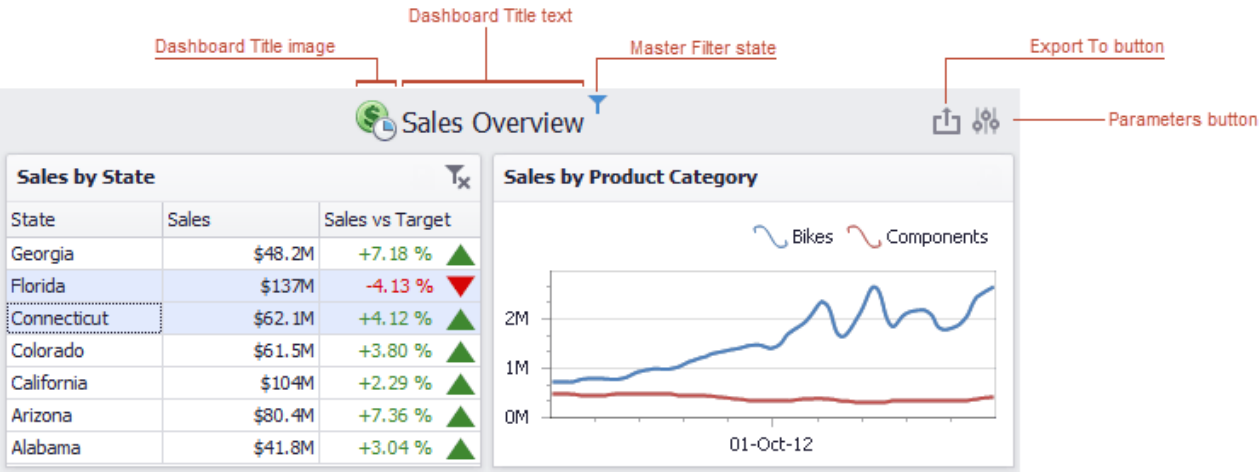
1. Select **Grid 1**.
2. Select the **Edit Rules** button. The **Edit Rules** window opens.
3. Select **PTD_Profit** in the **calculated by** field.
4. Select **Add > Value > Less Than**. The **Less Than** window opens.
5. Type *0* in the **Format PTD_Profit values that are less than** field.
6. Select the **Red with white text** color block.
7. Select the **Apply** button. The highlights display in the **PTD_Profit** column.
8. Select the **Apply to row** check box.
9. Select the **Apply** button. The highlights display for the entire row across the columns.
10. Select to clear the **Apply to row** check box.
11. Select the **Apply** button.
12. Select the **OK** button.
13.
14. Select **PTD_Overhead_Cost** in the **calculated by** field.
15. Select **Add > Top/Bottom > Top N**. The **Top N** window opens.
16. Select **1** in the **N =** field.
17. Select the **light blue** color block.
18. Select the **Apply** button. The highest value is highlighted in blue.
19. Select **2** in the **N =** field.
20. Select the **Apply** button. The top two highest values are highlighted in blue.
21. Select the **OK** button.
22. Select **PTD_Cost** in the **calculated by** field.
23. Select **Add > Bar**. The **Bar** window opens.
24. Select the **Apply** button. Bars display in the **PTD_Cost** column.
25. Select the **OK** button.
26. Select **PTD_Billed** in the **calculated by** field.
27. Select **Add > Gradient Ranges > 2 Color Gradient Range > Blue - Red** (third block, third row). The **Gradient Ranges** window opens.
28. Select the **Apply** button. Gradient colors display in the **PTD_Billed** column.
29. Select the **OK** button.
30. Select **Firm_Name** in the **calculated by** field.

31. Select **Add > Expression**. The **Expression** window opens.
32. Hover the cursor in the space next to the **And** icon in the upper left corner. Additional icons display.
33. Select the **plus** icon. **Note:** Leave the defaults **Firm Name** and **Begins with**.
34. Select **Enter a Value**.
35. Type *C* in the text field. **Note:** The autofill feature may override your input and fill in a complete name. Delete the additional characters if necessary before pressing **Enter**.
36. Select the **Green with white text** color block.
37. Select the **Apply** button. The firm names are highlighted.
38. Select the **OK** button.
39. Select the **Close** button.

Dashboard layout

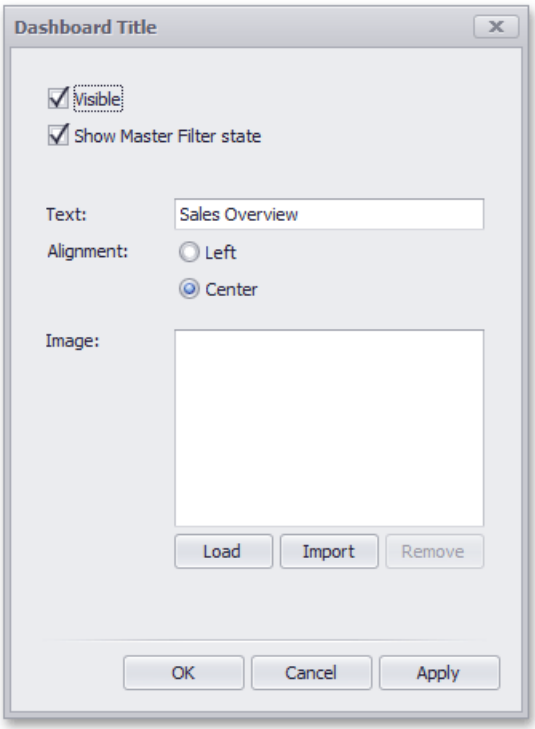
Dashboard Title

The Dashboard Title is located at the top of the dashboard surface. It can contain text or image content.



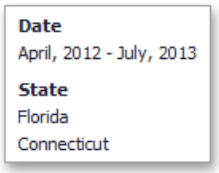
If you are using the Ribbon menu in the Dashboard Designer, you can change title settings by clicking the **Title** button.

This opens the Dashboard Title dialog, which allows you to change the text within the dashboard title, add an image, etc.



This dialog allows you to specify the following options.

- **Visible -** Specifies whether or not the dashboard title is visible.
- **Show Master Filter state -** 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 open popup.

- **Alignment -** Specifies the alignment of the dashboard title.
- **Load button -** Allows you to specify the image displayed within the dashboard title. In this case, the dashboard definition will contain the URL to access the image.
- **Import button -** Allows you to specify the image displayed within the dashboard title. In this case, the dashboard definition will contain an image as a byte array.

The dashboard title can contain command buttons.
Export To button - allows you to print/export the dashboard.
Parameters button - allows you to modify dashboard parameter values.

Dashboard Item Caption

Each dashboard item has a caption that is displayed at the top of the item. The caption contains static text along with other information, as well as command buttons.

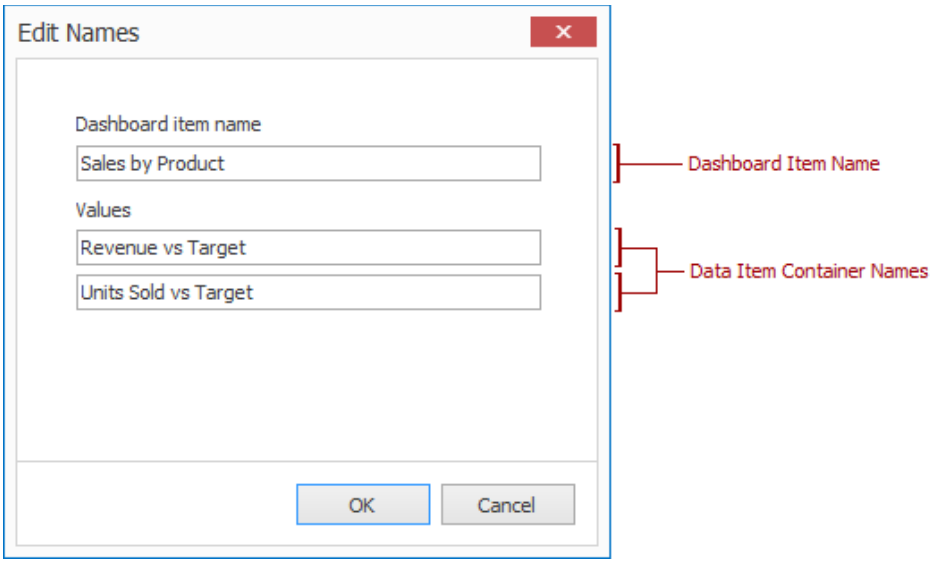
To show or hide the caption of a dashboard item, click the **Show Caption** button in the Design Ribbon tab or right-click the item when designing the dashboard, and click the **Show Caption** menu item.

Note: The caption of the Range Filter dashboard item is not visible by default.

The caption of the Dashboard item contains the following information and buttons, depending on the dashboard item type:

- **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.

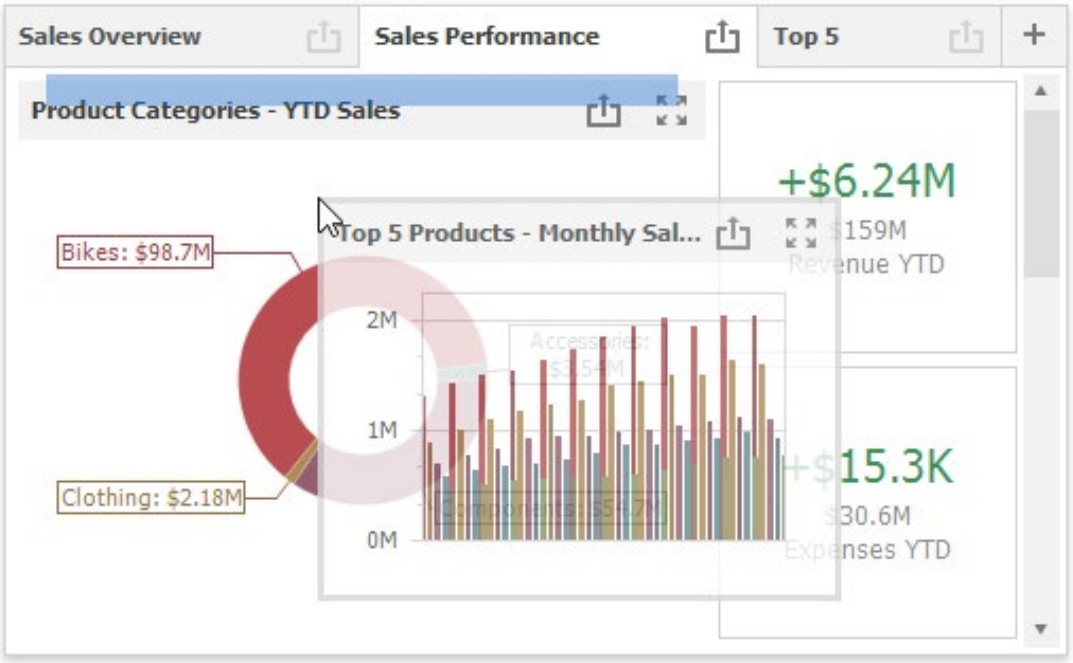
  You can change the default name of the dashboard item or data item container using the Edit Names dialog. To open this dialog, right-click the item when designing the dashboard, and click the **Edit Names...** menu item. Alternatively, you can use the **Edit Names** button in the **Design** Ribbon tab.



- **Drill-Down value -** shows the value or values from the current drill-down hierarchy.
- **Export to button -** allows you to print or export a dashboard item.
- **Values button -** opens a drop-down menu that allows you to switch between the provided values (in the pie, card, gauge and map dashboard items).
- **Clear Master Filter button -** allows you to reset filtering when a dashboard item acts as the Master Filter.
- **Drill Up button -** allows you to return to the previous detail level when the drill-down capability is enabled for this item.
- **Clear Selection button -** allows you to clear the selection inside an item.
- **Initial Extent button -** restores the Map dashboard items' default size and position.
- **Select Date Time Periods button / menu -** allows you to select date-time periods for the Range Filter.
- **Multiselection button (Web only)-** allows you to filter data by selecting multiple elements in dashboard items.
- **Maximize button -** expands any dashboard item into the whole dashboard size to examine data in greater detail.
- **Restore button -** restores the expanded item to its initial state.

Dashboard Items Layout

The Dashboard Designer provides the capability to arrange and resize dashboard items and groups in various ways, using simple drag-and-drop operations.

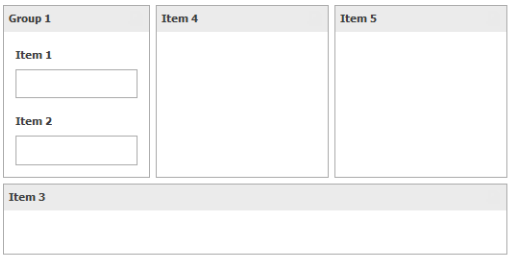


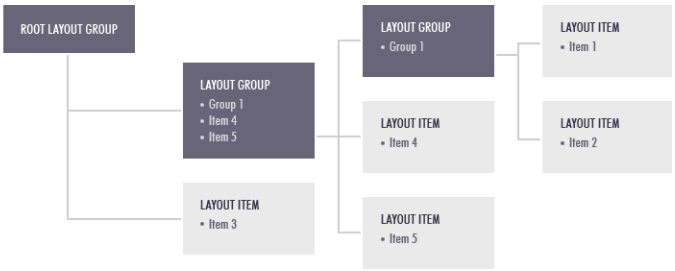
Layout Concepts

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.

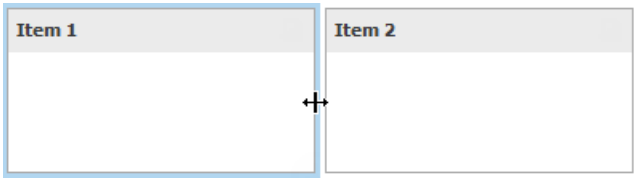
- A layout item is used as a container that displays an individual dashboard item.
- A layout group is used as a container that is used to arrange layout items (or other layout groups) either horizontally or vertically. At the same time, layout groups are used as containers that display dashboard item groups.

Thus, a dashboard layout is hierarchically arranged from the root layout group to bottommost layout items, which display individual dashboard items.

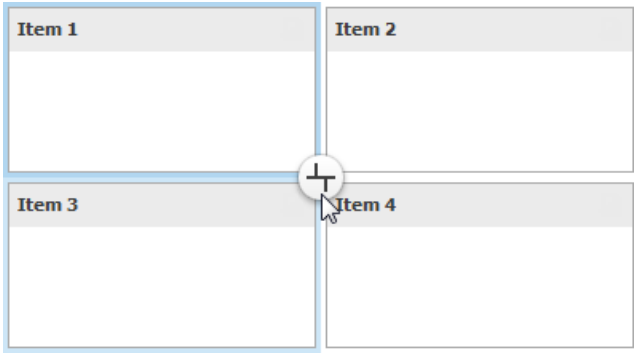




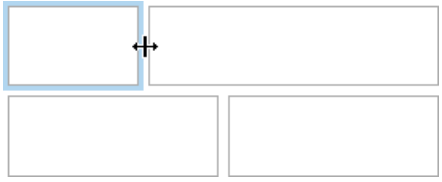
Item Resizing
You can resize individual items/groups of items by dragging their edges.



By default, a 2x2 layout group of dashboard items is horizontally oriented and contains two child layout groups. This arranges dashboard items in two columns and allows you to set a different height for items in different columns. You can switch the orientation of the 2x2 group to Vertical using the indicator at the group intersection.



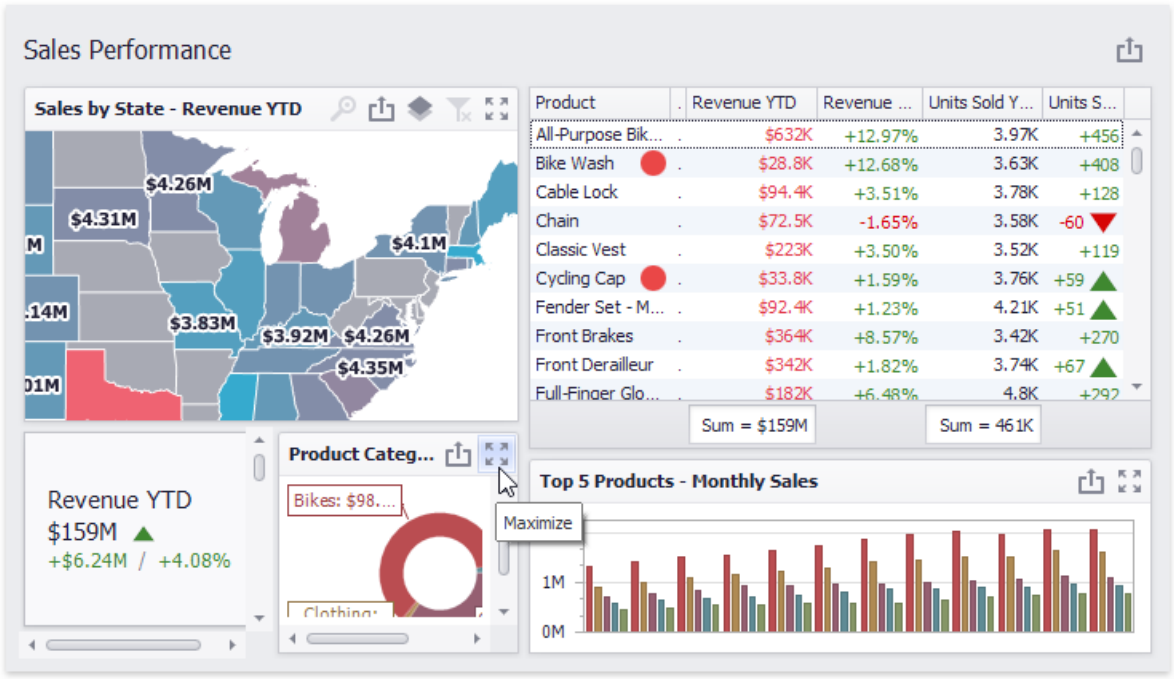
This allows you to specify different widths for dashboard items in different rows. The table below lists and describes different modes.

Indicator	Result	Description
		Orients the layout group horizontally and allows you to change the height of individual items and the width of columns.
		Orients the layout group vertically and allows you to change the width of individual items and the height of rows.

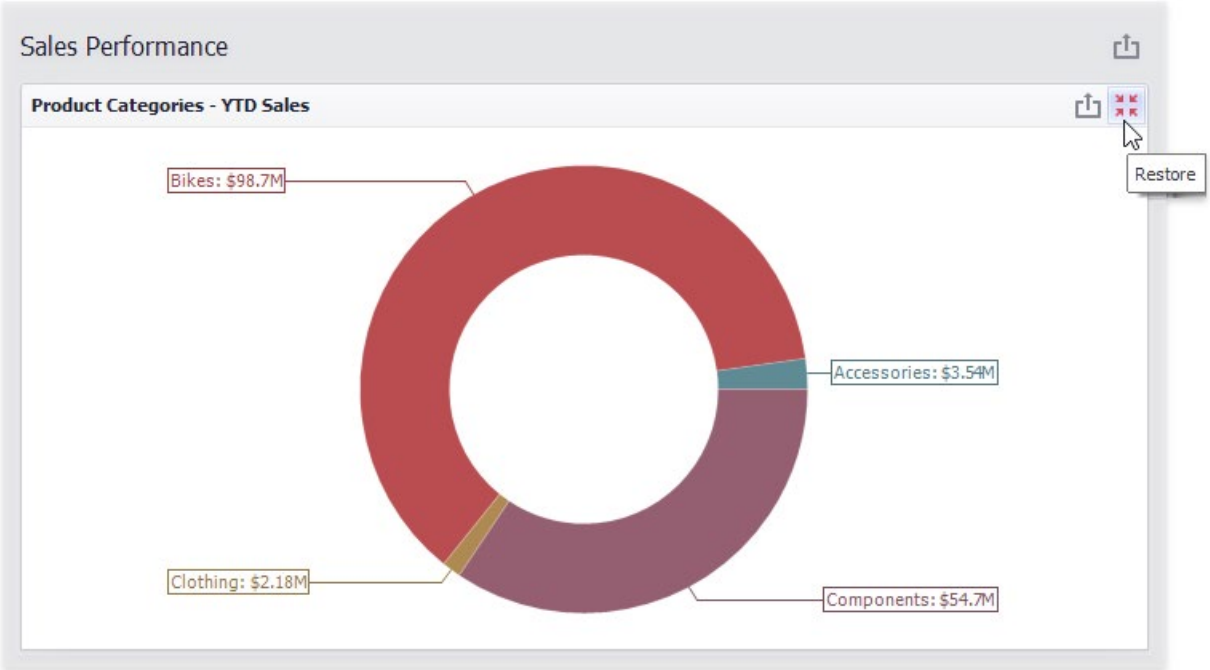
Maximize and Restore Item

You can expand any dashboard item into the whole dashboard size to examine data in greater detail. The expanded dashboard item size in this case is the same as the root layout group.

- To maximize a dashboard item, click the **Maximize** button in the dashboard item caption.



- To restore the item size, click Restore.



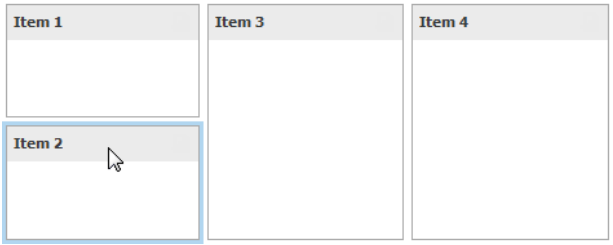
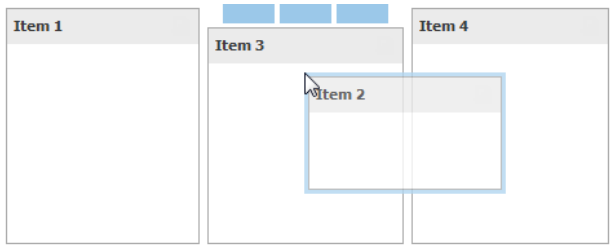
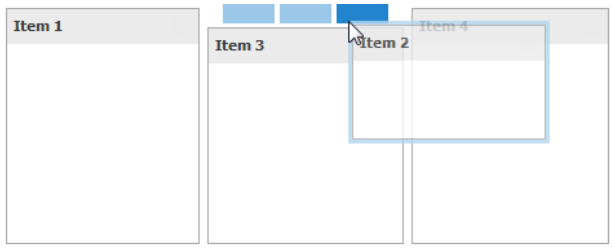
Item Positioning

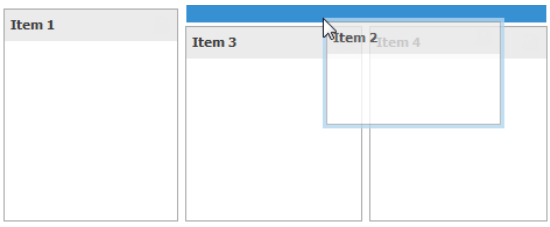
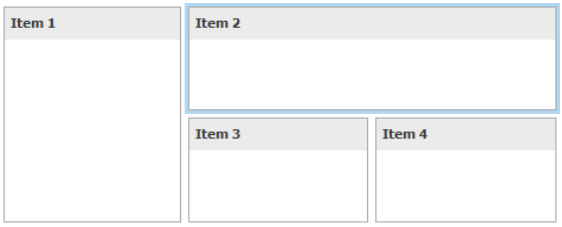
You can change the position of a dashboard item by using drag-and-drop and one of the following approaches.

- If the caption of the dashboard item is visible, click it and hold down the left mouse button while dragging the item.
- If the caption of the dashboard item is not visible, click the icon in the top left corner, and hold down the left mouse button while dragging the item.

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 table illustrates how a dashboard item is dragged.

Result	Description
	Select the required dashboard item.
	Drag the dashboard item to the expected area. The drag indicator will show possible positions for the dashboard item.
	Move the mouse cursor to the required position. The drop indicator highlights the hovered position.

	Then, the drop indicator sequentially displays areas that can be occupied by the dashboard item. Release the left mouse button when the drop indicator displays the required area.
	The dashboard item is moved to a new position.

Activity 2.22 – Design a Dashboard

In this activity, you will build a simple dashboard with multiple items.

Activity Steps

Part 1: Add a grid

1. Select **Utilities > Analytic Dashboard Designer**.
2. Select the **New** button. An **Add Model?** message displays.
3. Select the **Yes** button. The **Analytic Models** window opens.
4. Double-click the **Project Figures CVS** model.
5. Select the **Parameters** icon on the upper-right corner of the Dashboard. The **Dashboard Parameters** window opens.
6. Verify that **2021-11** displays in the **Value** field for the **Current_Period_Code** line.
7. Select the **Submit** button.
8. Select the **Grid** button. The grid displays on the Dashboard.
9. Click and drag the following fields to the **New Column** field in the **DATA ITEMS** pane. **Note:** If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
   - Firm_Name
   - PTD_Earned
   - PTD_Profit

Part 2: Add a calculated field

1. Right-click anywhere in the field list.
2. Select **Add Calculated field**. The **Expression Editor** opens.
3. Type the following in the editor text field.

   Sum([Contract])-sum([PTD_Earned])

   ```
   sum([Contract])-sum([PTD_Earned])
   ```
4. Select the **OK** button.
5. Expand **Calculated Fields** in the **Data Source** pane.
6. Right-click **Calculated Field 1**.
7. Select **Rename** from the list.
8. Type *Backlog* in the field.
10. Click and drag the **Backlog** field to the 2nd position in the **Columns** list between **Firm_Name** and **PTD_Earned**.

Part 3: Format the Grid

1. Right-click anywhere on the Grid.
2. Select **Edit Names**. The **Edit Names** window opens.
3. Type *Key Financial Metrics* in the **Dashboard item name** field.
4. Edit the Column Names:
   - Firm_Name - Client
   - Backlog (do not change)
   - PTD_Earned – PTD Revenue
   - PTD_Profit – PTD Profit
5. Select the **OK** button.
6. Select the **Backlog** down-arrow.
7. Select **Format**.
8. Select **Number** in the **Format Type** field.
9. Select **Ones** in the **Unit** field.
10. Select **0** in the **Precision** field.
11. Select the **Include group separator** check box.
12. Select the **OK** button.
13. Repeat steps 6-12 for the **PTD_Earned** and the **PTD_Profit** columns.
14. Right-click the **Backlog** column header.
15. Select **Add Total > Auto**.
16. Repeat steps 14-15 for the **PTD Revenue** and the **PTD Profit** columns.

Part 4: Add a chart

1. Select the **Chart** button. The chart displays on the Dashboard.
2. Click and drag the following fields to the **Value** field in the **DATA ITEMS** pane.
   Note: If you see a red exclamation point in the upper left corner of a dashboard item after adding fields to the **DATA ITEMS** pane, select the **Reload Data** button.
   - **PTD_Billed**
   - **PTD_Unbilled_Revenue**
3. Click and drag the following fields to the **Argument** field in the **DATA ITEMS** pane.
   - **Firm_Name**
   - **Project_Long_Name**
4. Select **Chart Tools > Data**.
5. Select the **Drill Down** button.
6. Select **Design > Y-Axis Settings**. The **Y-Axis Settings** window opens.
7. Select to clear the **Show Title** check box.
8. Select the **OK** button.
9. Select the **Series** icon next to the **PTD_Billed** field. The **Series Options** window opens.
10. Select the **middle** bar icon.
11. Select the **OK** button.
12. Right-click anywhere on the Chart.
13. Select **Edit Names**. The **Edit Names** window opens.
14. Type *Billed vs Unbilled Revenues* in the **Dashboard item name** field.
15. Edit the Column Names:
    - PTD_Billed – PTD Billed
    - PTD_Unbilled_Revenue - PTD Unbilled
16. Select the **OK** button.

Part 5: Add a pie chart

1. Select the **Home** tab.
2. Select the **Pies** button. The pie chart displays on the Dashboard.
3. Click and drag the **PTD_Work_Hours** field to the **Values** field in the **DATA ITEMS** pane.
4. Click and drag the **Project_Long_Name** field to the **Arguments** field in the **DATA ITEMS** pane.
5. Select **Pie Tools > Design**.
6. Select the **Data_Labels** button.
7. Select **None**.
8. Select to deactivate the **Show Pie Captions** button.
9. Right-click anywhere on the **Pies** item.
10. Select **Edit Names**. The **Edit Names** window opens.
11. Type *PTD Hours Worked By Project* in the **Dashboard item name** field.
12. Type *PTD Work Hours* in the **Values** field.

13. Select the **OK** button.
14. Select the **Donut** button.

Part 6: Add a treemap item

1. Select the **Home** tab.
2. Select the **Treemap** button. The **Treemap** item displays on the Dashboard.
3. Click and drag the **Expected_Revenue** field to the **Value** field in the **DATA ITEMS** pane.
4. Click and drag the **Project_Location_City** field to the **Argument** field in the **DATA ITEMS** pane.
5. Right-click anywhere on the **Treemap** item.
6. Select **Edit Names**. The **Edit Names** window opens.
7. Type *Expected Revenue by Project City* in the **Dashboard item name** field.
8. Type *Expected Revenue* in the **Values** field.
9. Select the **OK** button.

Part 7: Set master filters

1. Select the **Grid** item.
2. Select **Grid Tools > Data**.
3. Select the **Multiple Master Filter** button.
4. Select **City of Portland**. The other items update.
5. Select the **Clear Master Filter** (Funnel with red x) icon.

Part 8: Add Filter Elements

1. Select the **Home** tab.
2. Select **Filter Elements > List Box.**
3. Click and drag the **List Box** to the left of the dashboard.
4. Click and drag the **Project_Charge_Type** field to the **Dimension** field in the **DATA ITEMS** pane.
5. Right-click the **List Box 1** item.
6. Select **Edit Names**. The **Edit Names** window opens.
7. Type *Charge Type* in the **Dashboard item name** field.
8. Select the **OK** button.
9. Select the **Design** tab.
10. Select the **Radio** button.
11. Click to deactivate the **Allow Empty Filter** button.
12. Select the **Home** tab.
13. Select **Filter Elements > Tree View.**
14. Click and drag the **Tree view** to the bottom left of the dashboard, under the List View.
6. Click and drag the following fields to the **Dimension** field in the **DATA ITEMS** pane.
    - **Project_PM_Proper_Name**

- **Project_Long_Name**

15. Select the **arrow** to expand **Erwin P Fletcher**.
16. Select the **arrow** to collapse **Erwin P Fletcher**.
17. Right-click the **Tree View 1** item.
18. Select **Edit Names**. The **Edit Names** window opens.
19. Type *PM Name & Projects* in the **Dashboard item name** field.
20. Select the **OK** button.

Part 9: Save the dashboard

1. Select the **Save** button. The **Save Dashboard** window opens.
2. Type *Sample* in the **Grouping** field.
3. Type *Key Project Data* in the **Dashboard Name** field.
4. Select the **Save** button.

Note: To open a saved dashboard, select the **Open** button, and select the file.

Check Your Understanding

What are the key aspects of a dashboard designer's role?

a) To create visually appealing and informative data visualizations.
b) To design an intuitive user interface and navigation flow.
c) To structure and organize the content and data within the dashboard.
d) To determine the layout and composition of the dashboard.
e) All of the above.

Which of these is not a best practice for dashboard designers?

a) Understanding the audience and their data needs.
b) Keeping the design simple and intuitive.
c) Highlighting key information using colors and visual cues.
d) Choosing complicated visualizations to impress the audience.

How do you add totals to a column on a grid?

a) Right-click the column header and select Add Total.
b) Select the down arrow next to the field name in the Data Items column.
c) Select the **Add Total** button on the **Grid Tools Data** ribbon.
d) Select the **Add Total** button on the **Grid Tools Design** ribbon.

What is the purpose of the Ignore Master Filters button?

a) It disables all master filters in a dashboard
b) It enables all master filters in a dashboard
c) It allows you to selectively ignore master filters for specific items
d) It allows you to apply master filters to specific items only
e) It allows you to clear all master filters in a dashboard.

Refer to Appendix A for answers to the Check Your Understanding questions.

LESSON 3: DASHBOARD ADMINISTRATION

Learning Objectives

Review dashboard administration.

- Describe Dashboard Administrator responsibilities.
- List the applets necessary to work with Analytic Dashboards
- Summarize how to grant permissions to Analytic Dashboards
- Explore employee-related dashboard permissions.

Overview

The role of an analytic dashboard administrator is to oversee the management, configuration, and maintenance of the analytic dashboard system within an organization.

Dashboard Administrator's Responsibilities

Dashboard administrators are responsible for ensuring the smooth operation and optimal performance of the dashboard, as well as handling administrative tasks related to user access, security, and data integrity. Here are the key aspects of their role:

- System Configuration and Setup: The dashboard administrator is responsible for the initial configuration and setup of the analytic dashboard system. This includes connecting to data sources and defining access permissions.
- User Access and Security Management: The dashboard administrator manages user access to the analytic dashboard system. They assign permissions and ensure that appropriate security measures are in place to protect sensitive data.
- Performance Optimization: The dashboard administrator monitors and optimizes the performance of the dashboard, ensuring that it can handle the volume of data and users accessing it. They may analyze performance metrics, identify bottlenecks, and implement optimization strategies to improve speed, reliability, and scalability.
- Backup and Recovery: The dashboard administrator ensures that data is backed up regularly and can be recovered in the event of a system failure or disaster. They may implement data backup and recovery processes, conduct disaster recovery testing, and develop contingency plans to minimize downtime and data loss.
- Governance and Data Management: The dashboard administrator is responsible for ensuring the accuracy and integrity of the data within the dashboard. They may work with data analysts and other stakeholders to establish data

governance policies, data quality standards, and data management practices that ensure the data is reliable and up-to-date.

- User Support and Training: The dashboard administrator provides user support and training to ensure that users can effectively use the dashboard and access the data they need. They may provide technical support, troubleshoot issues, and respond to user feedback and inquiries. They may also develop training materials, conduct training sessions, and provide ongoing support to ensure that users are confident and proficient in using the dashboard.

In summary, the role of an analytic dashboard administrator involves overseeing the management, configuration, and maintenance of the analytic dashboard system. They handle user access, security, data integration, performance monitoring, troubleshooting, and support to ensure the effective and secure operation of the dashboard system.

Dashboard Designer & Administrator Permissions

Unanet AE relies on permissions to grant access to the Analytic Dashboards feature set. You will need permission to the following applets that are involved with Analytic Dashboards:

- Analytic Dashboard Designer
- Analytic Dashboards
- Dashboard Groups
- Dashboard Groups > Special Rights > Can Save Default Layout
- Dashboard Queries Manager
- Marketplace Purchases

Activity 3.1 – Grant Permissions

In this activity, you will grant permissions to Analytic Dashboard applets.

Activity Steps

1. Navigate to **Administration > Permissions**. The **Permissions** applet opens.
2. Select the **Groups** tab.
3. Type *Dashboard Administrator* in the **Enter New Line** field.
4. Select the **Save** button.
5. Select the **lock** icon for the **Dashboard Administrator** group. The **Permissions for Dashboard Administrator** window opens.
6. Select the **Group Permissions** tab.
7. Select the **+/-** icon to collapse the tree.
8. Select the **+** icon for the **Utilities** module.
9. Select the **View**, **Edit**, **Add**, and **Delete** check boxes for the following Applets:
   - Analytic Dashboard Designer
   - Analytic Dashboards

- Dashboard Groups
- Dashboard Queries Manager
- Marketplace Purchases
- Query Builder

Note: Selecting the **Add** checkbox automatically selects the **View** and **Edit** checkboxes.

10. Select the **+** icon for the **Dashboard Groups** applet. The **Special Rights** options display for **Dashboard Groups**.
11. Select the **Allowed** check box for **Can Save Default Layout**.
12. Select the **Save** button.

Analytic Models

Analytic Models (or queries) provide the data for designing Analytic Dashboards. While we have given you the tools to build your own, Unanet AE offers several optimized models available through the Marketplace. Whether downloaded or custom built, Analytic Models are used when designing dashboard views and can be managed in the Dashboard Queries Manager applet.

Activity 3.2 – Assign Analytic Model Permissions

In this activity, you will assign analytic model permissions.

Activity Steps

1. Navigate to **Utilities > Dashboard Queries Manager**.
2. Select **Analytic Models** in the dropdown list.
3. Double-click **Project Figures CVS** in the list.
4. Select the **Model Permissions** tab.
5. Select the **demo** check box in the **Users** list.
6. Select the **Dashboard Administrator** check box in the **Groups** list.
7. Select the **Save** button.

Analytic Dashboards

Once an Analytic Dashboard view is created, you can manage who has access to work with the design. Often, this may simply be you - the creator of the dashboard view. However, some enterprise environments may have a team of designers managing various dashboard views.

In addition to designer permissions, Analytic Dashboards allow you to edit, copy, delete, import, and export your dashboard. Other management options include activate/deactivate, grouping, titles, etc.

Activity 3.3 – Grant Designer Permissions

In this activity, you will grant designer permissions to the analytic dashboard you created in Activity 2.22.

Activity Steps

1. Navigate to **Utilities > Analytic Dashboards**. The **Analytic Dashboards** applet opens.
2. Double-click **Key Project Data** in the list.
3. Select the **Dashboard Administrator** check box in the **Groups** list on the **Designer Permissions** tab.
4. Select the **Save** button.

Dashboard Permissions (Dashboard Groups applet)

Dashboards are distributed to Employees using Dashboard Groups.

Configured in **Utilities > Dashboard Groups**, each group defines the Widgets and Dashboards (Classic and Analytic) available to the employees assigned to the group. Dashboards created here are available to each employee assigned to the Dashboard Group via the Dashboards menu option within the Dashboard applet.

Key Concepts

- Employees are assigned to a Dashboard Group within their Employee Record, which thereby governs what they can view and customize on their personal Dashboards.
- Once the Dashboard Group has been given access to a specific set of Widgets, the group can be configured with predefined Dashboards (Classic and Analytic). These Dashboards are made available to users who are a part of the group. When such a user logs in they will see the default Dashboard defined by the Dashboard Group.
- When a user is viewing Widgets that are part of the default Dashboard for a group, they cannot alter the specific settings of the Widget; they can only organize them on the Dashboard and choose whether or not to show them upon login. Alternatively, a user can customize/create other Dashboards by clicking **Configure > Dashboards** from the toolbar on the Dashboard applet. This will allow them to configure and personalize their own Dashboards - using only the Widgets that are allowed to them by their respective Dashboard Group.

Note: If there are queries or alerts that reveal sensitive information, make sure they are not allowed, except to specific Dashboard Groups.

Activity 3.4 – Deploy Analytic Dashboards

In this activity, you will deploy the analytic dashboard you created in Activity 2.22 to Dashboard Groups.

Activity Steps

1. Navigate to **Utilities > Dashboard Groups**. The **Dashboard Groups** applet opens.
2. Double-click **Accounting** in the **Dashboard Groups** list.
3. Select the **Analytic Dashboards** tab.
4. Select the **Allowed** check box for the **Key Project Data** Analytic Dashboard.
5. Select the **Save** button.
6. Select the **Configure Dashboards** button on the toolbar. The **Group Dashboard Layout** window opens.
7. Select **Analytics** from the **blank** drop-down list.
8. Select the **Show** check box for the **Key Project Data** Analytic Dashboard.
9. Select the **Default Load** check box for the **Key Project Data** Analytic Dashboard.
10. Select the **Save and Close** button.

Check Your Understanding

How can employees be assigned to Dashboard Groups?

a) Granting permissions to applets
b) Navigating to Utilities > Dashboard Groups
c) Configuring the Group Dashboard Layout
d) Selecting a Dashboard Group in the Employee applet
e) Defining access permissions

What can employees do with Widgets on their personal Dashboard? Select all that apply.

a) Alter specific settings of the Widget
b) Organize the widgets on the Dashboard
c) Grant access to Dashboard Groups
d) Define access permissions
e) Choose whether or not to show the widgets upon login

Refer to Appendix A for answers to the Check Your Understanding questions.

APPENDIX A: Check Your Understanding Answer Key

Lesson 1: Introduction to Analytic Dashboards

What is the main benefit of using dashboards in UnanetAE?

a) To facilitate team meetings
b) To schedule project tasks
c) To visualize data (Correct)
d) To store company policies
e) To control inventory

What is the purpose of querying data in analytic dashboards in UnanetAE?

a) To schedule tasks
b) To manage resources
c) To allocate budget
d) To retrieve and present information in a visual and interactive format
e) To facilitate team communication

Lesson 2: Dashboard Design

What are the key aspects of a dashboard designer's role?

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Lesson 3: Dashboard Administration

How can employees be assigned to Dashboard Groups?

a) Granting permissions to applets
b) Navigating to Utilities > Dashboard Groups
c) Configuring the Group Dashboard Layout
d) Selecting a Dashboard Group in the Employee applet
e) Defining access permissions

What can employees do with Widgets on their personal Dashboard? Select all that apply.

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c) Grant access to Dashboard Groups
d) Define access permissions
e) Choose whether or not to show the widgets upon login

COMPLETION CERTIFICATE AND EVALUATION

When the course has finished, Unanet University staff will mark the attendance in the Learning Management System (LMS.) This marking is percentage based and may be prorated if a participant was absent for any period of time during the course.

The LMS will generate a completion certificate (including **CPE credits**, where applicable) which will be available to the participant under their Transcript section of the LMS.

We appreciate your feedback on our courses and encourage you to complete the course evaluation.