



Visual BI Extensions for SAP BusinessObjects Design Studio (VBX) & SAP Lumira Designer

- User Guide -

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2 Introduction

2.1 Document History

This document is valid for the releases shown in the Table below (see Table 2.1):

Major Release	Minor Release	Patch	Date
1	0	0	February 2015
1	1	1	June 2015
1	2	0	August 2015
1	3	0	September 2015
1	4	0	December 2015
1	4	0	January 2016
1	5	0	August 2016
1	5	9	December 2016
1	6	8	July 2017
2	0	0	September 2017
2	2	0	January 2018
2	3	0	May 2018
2	3	2	September 2018
2	4	0	March 2019
2	5	0	July 2019

Table 2.1: Document History

2.2 Who should read this guide?

This User Guide for the Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer (VBX) offered by Visual BI is meant for users that are going to create SAP BusinessObjects Design Studio/SAP Lumira Designer applications.

2.3 What is the Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer (VBX) Suite?

The SAP® Design Studio Extensions (VBX) suite is a custom component package from Visual BI Solutions for SAP® BusinessObjects™ Design Studio consisting of 70+ extensions that includes charts, selectors, mapping components, and other utilities. The suite also offers other features such as export of charts as an image file or into a PDF file, which are not available in the standard functionality of SAP BusinessObjects Design Studio/SAP Lumira Designer.

2.4 Supported Platforms

For further details on the list of supported platforms you can follow this link:

<http://cdn.visualbi.com/wp-content/uploads/visualbi-extensions-for-sap-lumira-designer-vbx-supported-platforms.pdf>

3 Getting Started

3.1 Overview of the Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer (VBX) Suite

The Visual BI Extensions (VBX) suite is a custom component package from Visual BI Solutions for SAP BusinessObjects Design Studio/SAP Lumira Designer consisting of 70+ extensions that includes charts, selectors, mapping components, and other utilities. After the installation has been completed, the VBX suite extensions appear on the Components panel (see Figure 3.1) along with the standard components available in SAP BusinessObjects Design Studio/SAP Lumira Designer.

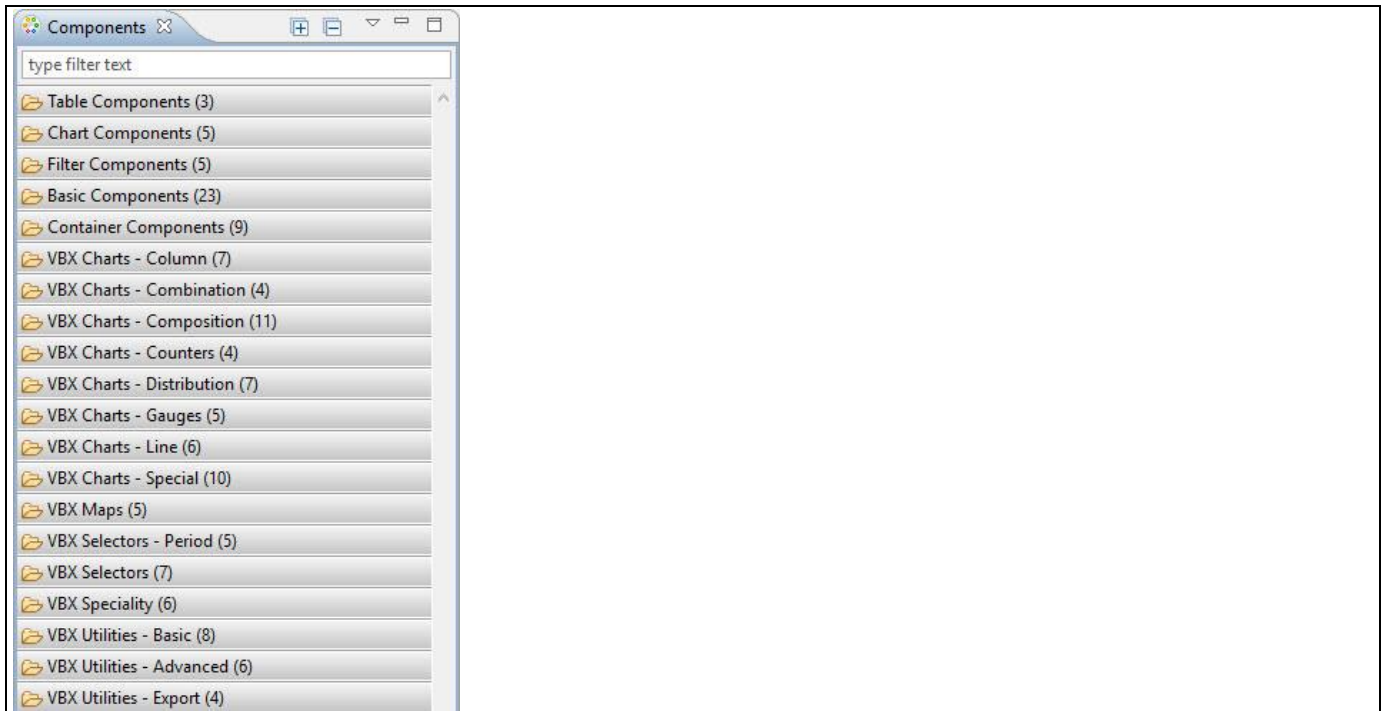


Figure 3.1: VBX Components

3.2 List of Components

The VBX suite consists of a rich set of charts, patented selectors, utilities, and maps along with a location analyzer which can plot locations based on geographic information onto maps. Below you can find a complete list of components available in the VBX suite broken down into the available categories (see Table 3.1).

VBX Charts	Activity Gauge	Column/Bar Chart	Multiple Axes Chart	Slope Chart	Tree Map
	Advanced Column Bar Chart	Column/Bar Drill down Chart	Number Counter	Solid Gauge	Tree Map Drill Down Chart
	Advanced Gauge	Combination Chart	Parallel Coordinates	Sparkline Chart	Waffle Chart
	Angular Gauge	Donut Chart	Pie Chart	Sparkline Table Chart	Waterfall chart
	Area Chart	Dual Axes Chart	Pie Drilldown Chart	Spie Chart	Rainfall Chart

	Box Plot	Fixed Column Chart	Polar Chart	Stacked and Grouped Column Chart	
	Bubble Chart	Funnel/Pyramid Chart	Progress Bar	Stacked Area Chart	
	Bullet Chart	Funnel/Pyramid Drilldown Chart	Radar Chart	Stacked Column/Bar Chart	
	Calendar Heatmap Chart	Heat Map Chart	Risk Matrix Chart	Stream Graph	
	Chart Container	Line Chart	Sankey Chart	Sunburst Chart	
	Chart Selector	Linear Gauge	Scatter Plot Chart	Super Combination chart	
	Circular Counter	Marimekko Chart	Semicircle Donut Chart	Tag Cloud	
VBX Selectors	Combo Box	Grid Box	List Box	Period Selector YM	Period Selector YQM Multi-select
	Facet Filter	Hierarchical Filter	Period Selector DWM	Period Selector YQM Single-select	Range Slider
					Multiselect Box
					Time Slicer
VBX Utilities	Advanced KPI Tile	DOC Export	Menu	PPT Export	Table
	Advanced Table	HTML Box	OData Source	Responsive UI	Trend Icon
				Small Multiples	Data Merge
	Constant Data Source	KPI Tile	PDF Export	Script Box	Web Service as Data Source
	Advanced Label	Mail Export	Pictogram	Search Box	What If Analyzer
VBX Speciality Charts	Analytics	Data Source Config	Data Utility Component	Gantt Chart	Timeline Series Chart
VBX Maps	Bubble/Heat Map	ESRI Map	Google Map	Indoor Analyzer	Location Analyzer

Table 3.1: Components in VBX Suite

4 Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer (VBX) – Charts

With the VBX suite you receive a large set of additional charts, such as funnel charts, gauges, and combination charts. In the following sections we will review the detailed functionality of the different chart types.

4.1 Overview of VBX Charts

Similar to the standard SAP BusinessObjects Design Studio/SAP Lumira Designer chart components, the VBX chart extensions can be used as part of the application by a simple drag and drop from the VBX Charts components pane (see Figure 4.1).

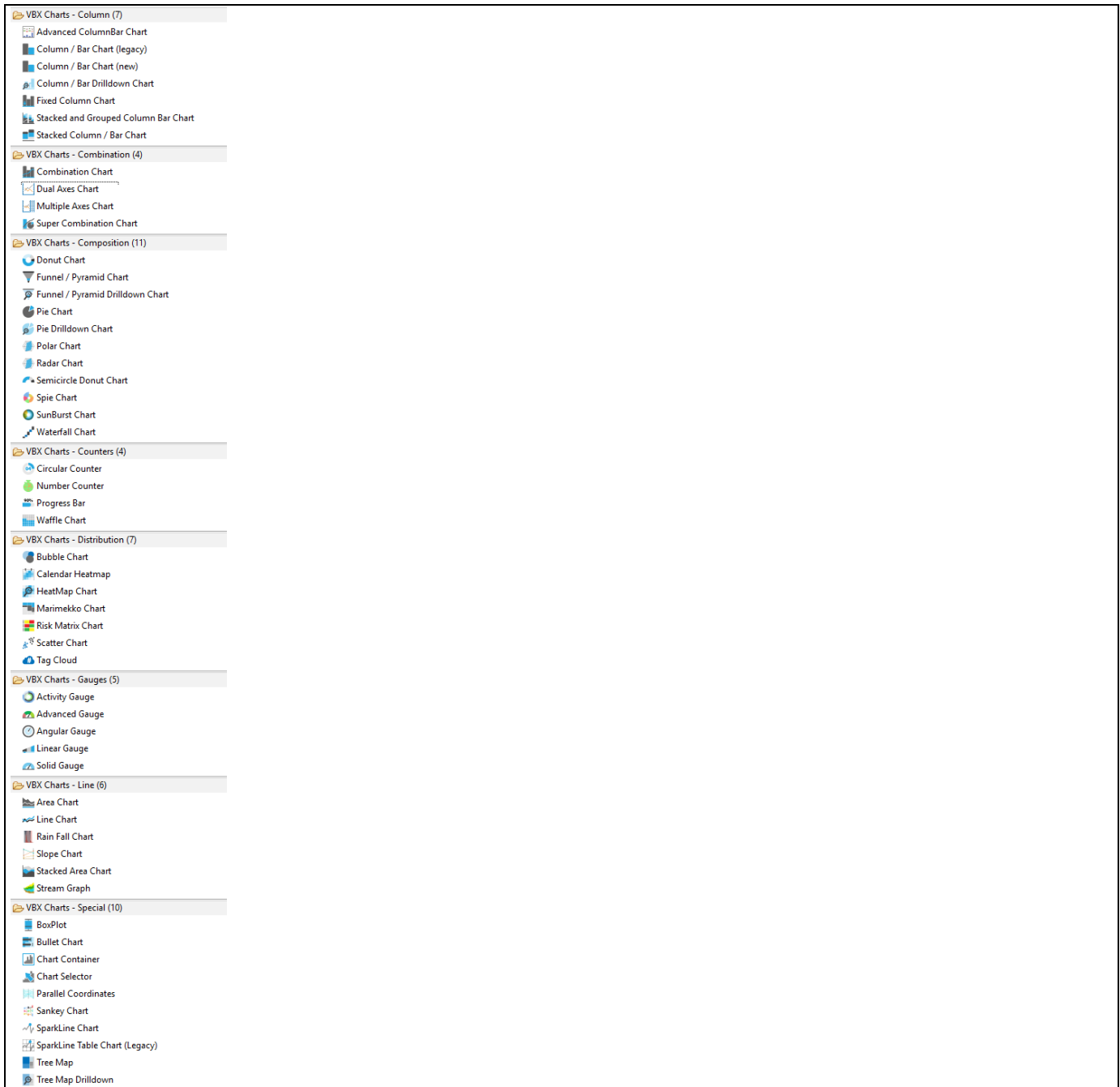


Figure 4.1: VBX Charts components panel

4.2 List of VBX Chart Components

Based on the visualization type, the VBX chart components are grouped into nine different categories. Below you will find these categories and the individual VBX charts in these categories.

- Trend and Comparison charts
 - Line chart
 - Column/Bar chart
 - Combination chart
 - Column/Bar Drill Down Chart
 - Polar Chart
 - Radar Chart
 - Area Chart
 - Slope Chart
 - Advanced Column Bar Chart
 - Rainfall Chart
- Pie Chart variants
 - Pie chart
 - Donut chart
 - Semicircle donut chart
 - Pie Drill Down chart
 - Spie Chart
- Stacked charts
 - Stacked Area chart
 - Stacked Column/Bar chart
 - Stacked and Grouped Column chart
 - Stream Graph
- Gauges
 - Solid Gauge
 - Angular Gauge
 - Advanced Gauge
 - Linear Gauge
 - Activity Gauge
- Funnel charts
 - Funnel/Pyramid chart
 - Funnel/Pyramid Drill Down chart
- Progression components
 - Progress Bar
 - Number counter
 - Circular counter

- Special charts
 - Dual Axes chart
 - Multiple Axes chart
 - Super Combination chart
 - Sparkline chart
 - Sparkline Table Chart (legacy)
 - Chart Selector
 - Chart Container
 - Tag Cloud
 - Waffle Chart
 - Risk Matrix Chart
 - Calendar Heat Map Chart
 - Sunburst Chart
- Composition/Relationship charts
 - Waterfall chart
 - Heat Map chart
 - Scatter Plot chart
 - Bubble Chart
 - Marimekko Chart
 - Tree Map Chart
 - Tree Map Drill Down Chart
- Performance charts
 - Bullet chart
 - Fixed Column chart
 - Box Plot Chart
- Parallel Coordinates
- Sankey Chart

4.3 Features of VBX Charts

The VBX charts offer several detailed features that are not available with the standard components in SAP BusinessObjects Design Studio/SAP Lumira Designer. In the following sections you can find detailed information about these features.

4.3.1 Title and Subtitle

The title is by default displayed at the top of the chart, and an optional subtitle can be shown beneath it. The title and subtitle can also be moved using the available settings in the Additional Properties in the categories Title and Subtitle.

4.3.2 Axes

The X-Axis and Y-Axis are shown by default in all VBX charts, except the Pie Chart, Donut Chart, Funnel / Pyramid Chart, and any of the progression components. The axis labels, tick marks, and gridlines are closely linked and change with every change to the scaling parameters. The following sections outline the details for the axes formatting options.

4.3.2.1 Axis Labels

The axis labels can be configured for the X-Axis as well as for the Y-Axis and are either indicating a dimension member or the value for the data series. You have the option to configure elements such as a Prefix or Suffix as well as the option to stagger the axis labels in order to improve the readability.

4.3.2.2 Ticks

Ticks are the lines placed along an axis to show either the different values or to show the different dimension members. You can configure the details, such as the Tick Interval, Tick Placement, and Tick Position in the category for each of the axis in the Additional Properties. In addition you have the option to enable major and minor ticks for the chart.

4.3.2.3 Gridlines

In addition to the option to enable ticks for the axis, you can also enable gridlines for the X-Axis as well as the Y-Axis. You can configure elements, such as the gridline color, gridline style, and gridline width for each of the axis of the chart. Minor and major gridlines are available for the values axis, and major gridlines are available for the dimension axis.

4.3.3 Tooltip

The tooltip appears when you will be hovering over a point in a data series. By default the tooltip shows the value of the point and the name of the data series. At design time, the dashboard developer also has an option to enable a crosshair option, which displays a line connecting the points with their corresponding axis.

4.3.4 Legend

The legend will display the data series of the chart and display the assigned color and symbol of the data series. You also have the option to hide / unhide a data series by clicking on the element in the legend itself.

4.3.5 Plot Bands and Plot Lines

The VBX charts provide the option to enable a plot line and plot band for both of the axis. A plot line or plot band provides you with the option to highlight a specific area or to add a line for a specified threshold value.

Plot lines and plot bands provide the option to define the color, label, and the plot value/range. The lines and bands will always be in a 90 degree angle to the axis it is defined for. When a plot band/line is used on the X- and Y-Axis at the same time, the plot band/line on the Y-Axis will be shown in front, as seen in the example below (see Figure 4.2).



Figure 4.2: Plot bands and Plot lines in VBX Charts

4.3.6 Panning and Zooming

In the Panning and Zooming area of the Additional Properties you have the option to activate the zooming option for the X-Axis or Y-Axis. You can use the mouse pointer and drag out a rectangle in the chart itself, and the selected area will be used for zooming. Unlike pinch zooming, you can't pan the zoomed area, but has to zoom out on a new area. On touch devices, you can zoom by pinching in the chart area. On these devices, you may also move the zoomed area by panning with one finger across the chart.

4.3.7 3D Charts

All the pie chart variants included in the VBX charts support a 3D option. For all these charts, the following options are available:

- **Enabled:** This indicates whether the 3D option is enabled or not. The possible values are true or false
- **Depth:** The total depth of the chart with a default value of 100.
- **Alpha & Beta:** The angles to rotate the view of the chart along the X-axis and Y-axis respectively.

4.3.8 Export

All of the charts in the VBX suite do allow you to export the chart, as shown in Figure 4.3. The export feature supports the options to export the chart as a PDF, PNG, JPEG, or SVG vector file, or to print the chart directly. The dashboard designer has the option to enable or disable the export and printing option as part of the Additional Properties of the chart in the category Export.



Figure 4.3: Export Module in VBX Charts

Exporting Charts

Since the export options uses server side scripting, an internet connection is required to download the image or document.

4.3.9 Chart Style Details

As part of the Additional Properties each of the charts is offering detailed formatting options for elements such as the chart background, borders, plot areas, margin, padding, and so on. These details can be found in each of the different categories of the Additional Properties as well as in the category Appearance.

4.3.9.1 Layout and Positioning

VBX Chart elements such as axis labels, data labels, legends, titles, and the export button can be positioned horizontally and vertically - relative to the top left corner - using the properties "Align" and "Vertical Align". The "Align" option can have the values left, right, and center. The Vertical Align property can have the values top, bottom, and middle.

4.3.9.2 Plot Area, Margin, and Padding

The plot area of the chart is the area within the axis, where the data series are plotted. In Figure 4.4 the plot area is shown as an orange box. The margin options (Left Margin, Top Margin, etc) define the margin between the chart plot area and the chart borders. The padding options (Left Padding, Top Padding, etc) define the padding between the outer area of the chart and all elements inside the chart area, such as data labels and a legend.

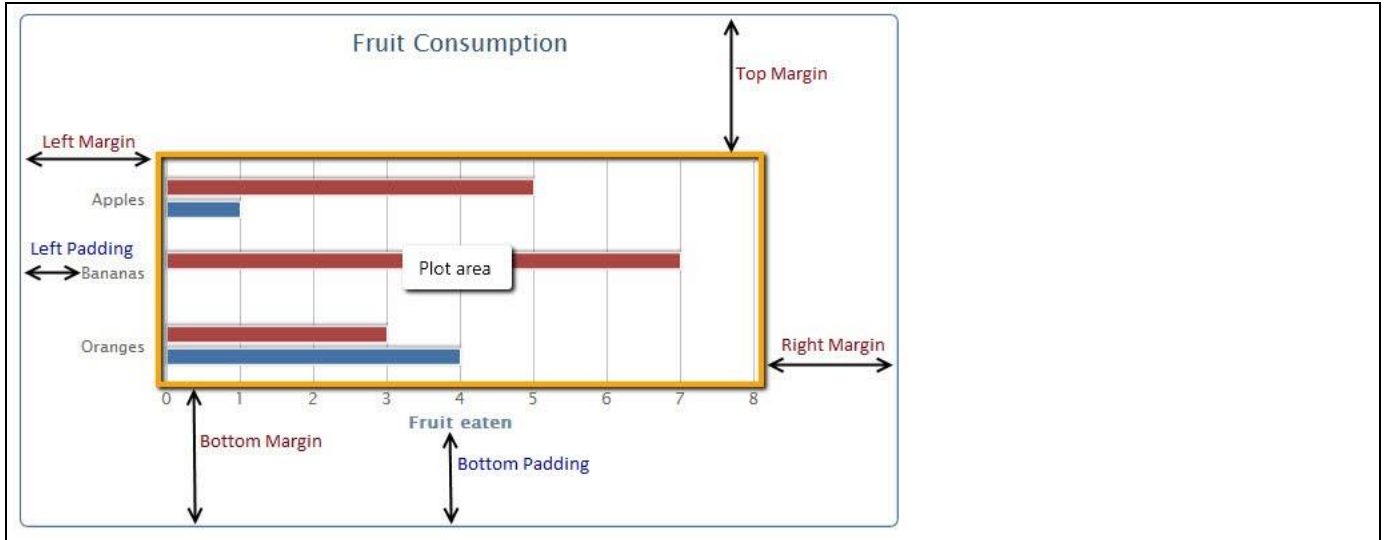


Figure 4.4: Plot Area, Margin and Padding in VBX Charts

4.3.9.3 Borders

For chart elements, such as data labels, labels, and the legend it is possible to define border details as part of the Additional Properties. The properties Border Width and Border Color can be used to define the border details. In addition, the property Border Radius can be used to enable curved edges.

4.3.9.4 Fonts

All layout elements of the chart that include text have a Style option that allows setting text related properties such as Font Color, Font Style, Font Size, and Font Family. In addition there is an option to define a global override option and to select a global font for all elements of the chart.

4.3.9.5 Animation

The property Animation provides you the option to activate the chart animation for situations where something has changed in the chart. A change in the chart could be the change of a dimension, a drill down, or a scripted change of other chart properties. The default duration of the animation is 500 ms.

4.3.10 Conditional Formatting for Charts

The charts as part of the Visual BI Extensions (VBX) allow you to define a set of conditional formatting rules, allowing you to highlight information displayed in the chart itself based on a variety of conditions. You can define rules based on a comparison with a single measure, with a measure calculation, or based on a target value definition.

The following charts support the Conditional Formatting capabilities:

- Pie Chart
- Pie Drilldown Chart
- Donut Chart
- Semicircle Donut Chart
- Funnel / Pyramid Chart
- Line Chart
- Column / Bar Chart
- Column / Bar Drilldown Chart
- Combination Chart
- Stacked Column Bar Chart
- Waterfall Chart
- Scatter Plot Chart
- Bubble Chart
- Fixed Column Chart

In the following sections we will outline the options to setup Conditional Formatting for the charts and provides examples for all three options to setup rules for this functionality.

4.3.10.1 Conditional Formatting based on a Single Measures

The first option for the Conditional Formatting is the ability to define rules based on a Single Measure. For our example we will assume that we have a Data source which outlines measure Net Value along 12 months of a year and we will use a Column / Bar Chart for our example (see Figure 4.5). In addition our data source also contains the measure Cost and Profit.

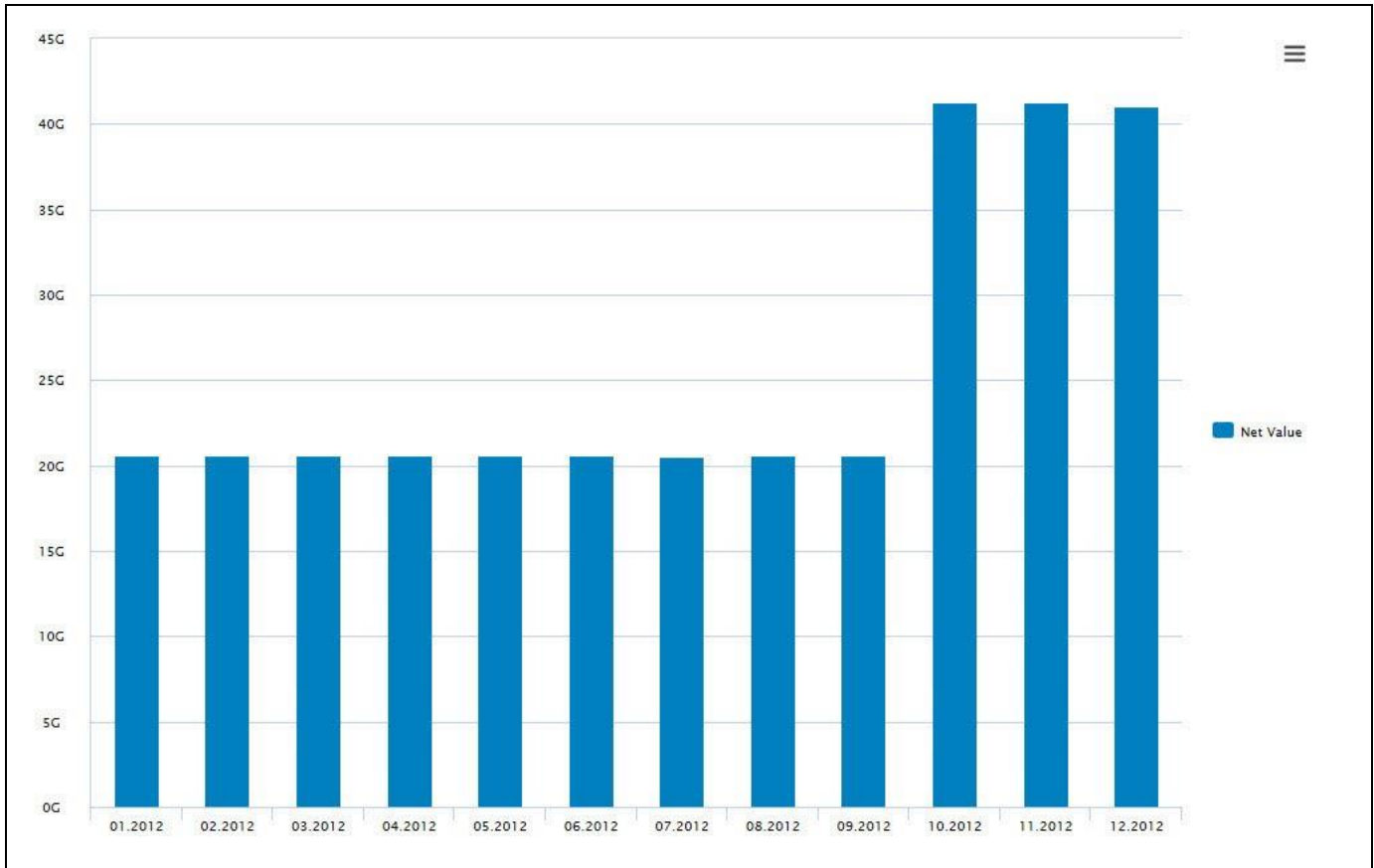


Figure 4.5: Column / Bar Chart

You can follow the steps below to configure Conditional Formatting based on a Single Measure:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Revenue along 12 months of the dimension Calendar Month.
3. Add a Column / Bar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Column / Bar Chart.
5. Navigate to the Additional Properties of the Column / Bar Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Data and to the sub category Conditional Formatting (see Figure 4.6).

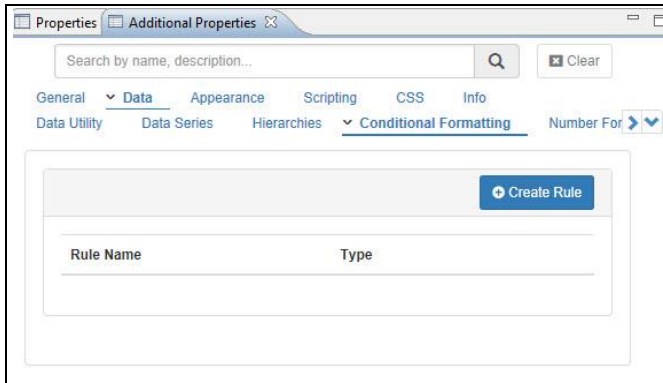


Figure 4.6: Category Data

8. Now click on Create Rule (see Figure 4.7).

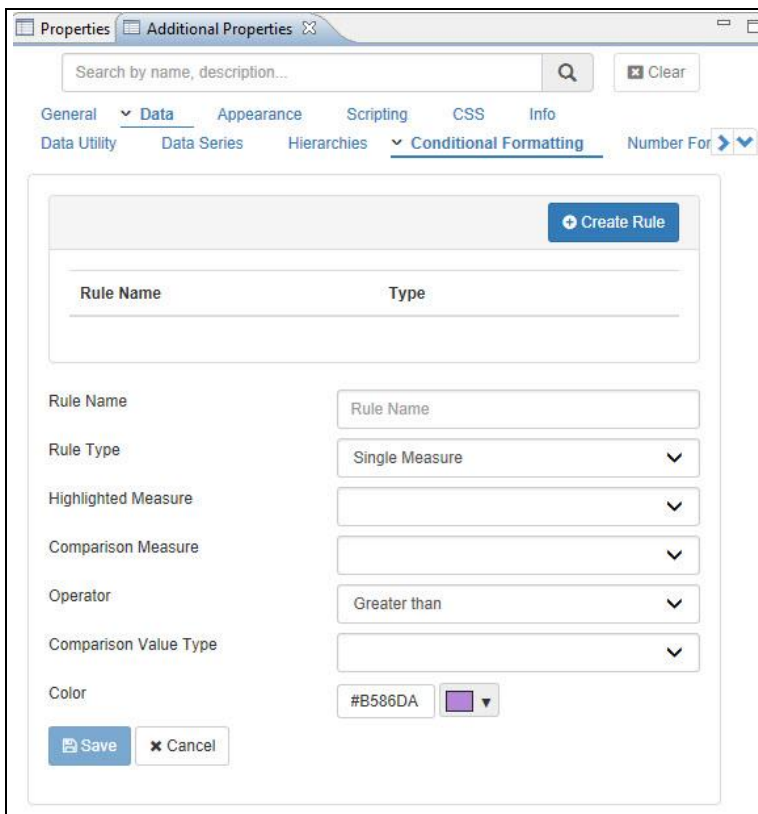


Figure 4.7: Conditional Formatting

9. Enter a Rule Name for your Rule.
10. Set the Rule Type to the option Single Measure.
11. You can now define the other properties for the rule, following the details in Table 4.1:

Label	Details
Rule Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value and Dimension.
Highlighted Measure	Here you can select the measure from the chart where the rule will be applied upon.

Label	Details
Comparison Measure	Here you can select the measure which will be compared against the Comparison Value.
Operator	Here you can choose the operator that is used to compare the Comparison Measure with the Comparison Value.
Comparison Value Type	Depending on the configured options, the property Comparison Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
Dynamic Selection Value	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
Color	Here you can define the color for the Rule.

Table 4.1: Conditional Formatting – Single Measure

12. In our example we are setting up an alert based on the Rule Type Single Measure: (see Figure 4.8)

- Highlighted Measure Net Value
- Comparison Measure Profit
- Operator Greater Than
- Comparison Value Type Dynamic
- Dynamic Selection Value Measure Selection
- Comparison Value Cost
- Color Green

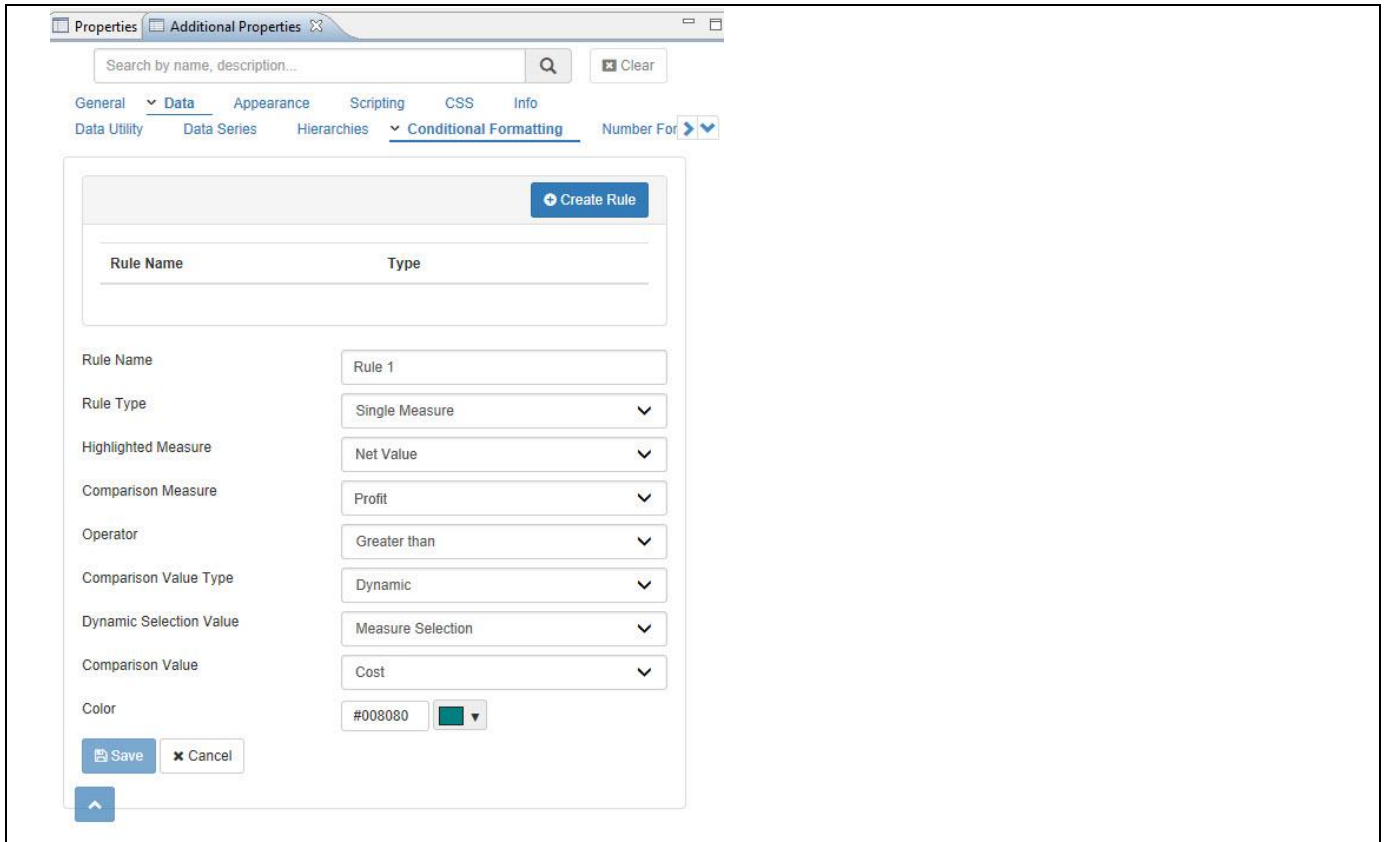


Figure 4.8: Conditional Formatting

13. After configuring the details, please click Save. The rule will be added to the list and if required you can edit the details.

The configured Rule is now being applied to our chart and those values in the chart, which meet the requirement of our defined rule, will be color using colored green (see Figure 4.9).

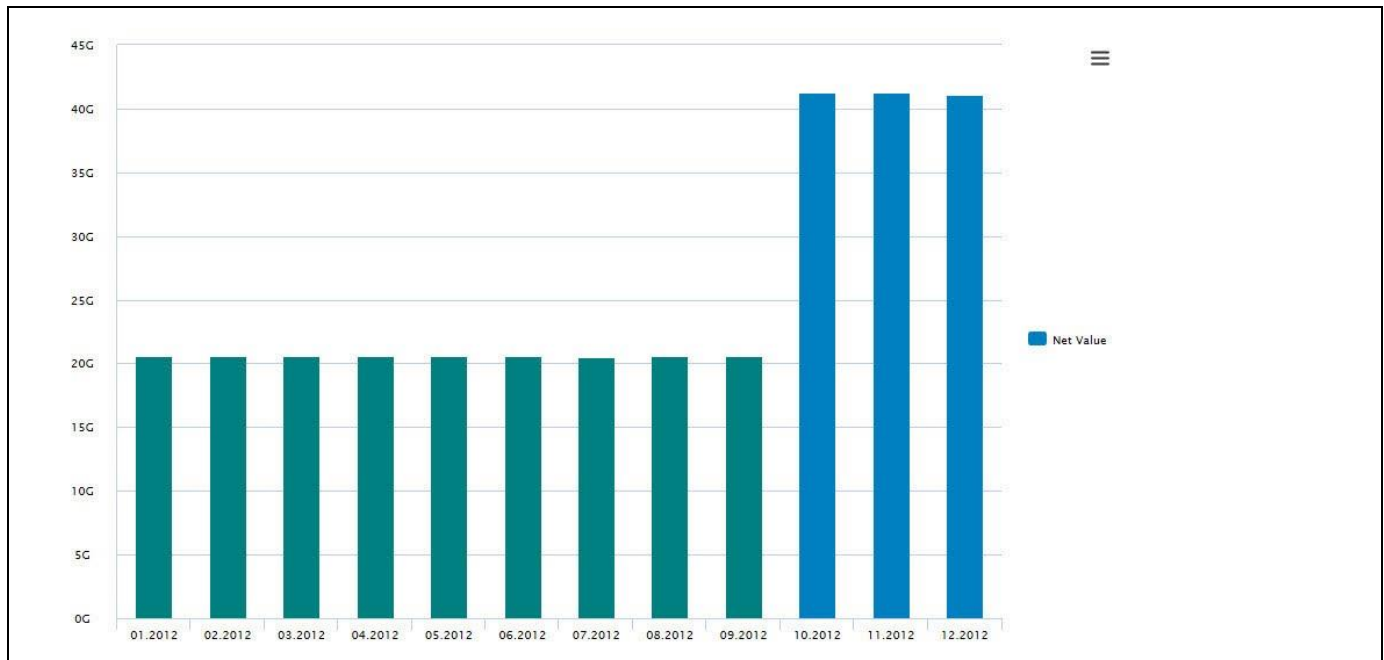


Figure 4.9: Chart with Conditional Formatting

Conditional Formatting for Measures

Please note, that you can configure a conditional formatting based on all measures in the underlying data source from the chart itself and not just based on measures that are used in the chart itself.

4.3.10.2 Conditional Formatting based on a Measure Calculation

The second option for the Conditional Formatting is the ability to define rules based on a Measure Calculation. For our example we will assume that we have a Data source which outlines measure Net Value along 12 months of a year and we will use a Column / Bar Chart for our example. In addition our data source also contains the measure Cost and Profit.

You can follow the steps below to configure the Conditional Formatting based on a Measure Calculation:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Revenue along 12 months of the dimension Calendar Month.
3. Add a Column / Bar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Column / Bar Chart.
5. Navigate to the Additional Properties of the Column / Bar Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Data and to the sub category Conditional Formatting (see Figure 4.10).
8. Now click on Create Rule.
9. Enter a Rule Name for your Rule.
10. Set the Rule Type to the option Measure Calculation (see Figure 4.10).

The screenshot shows the 'Additional Properties' window for 'Conditional Formatting'. The 'Measure Calculation' rule type is selected. The fields are as follows:

- Rule Name:** (Empty text field)
- Rule Type:** Measure Calculation (Dropdown menu)
- Highlighted Measure:** (Empty dropdown menu)
- Comparison Measure:** (Empty dropdown menu)
- Operator:** (Empty dropdown menu)
- Measure 1:** (Empty dropdown menu)
- Calculation Operator:** (Empty dropdown menu)
- Measure 2:** (Empty dropdown menu)
- Color:** #F1C337 (Color picker)

Buttons: Create Rule, Save, Cancel, and a back arrow.

Figure 4.10: Measure Calculation

11. You can now define the other properties for the rule, following the details in Table 4.2:

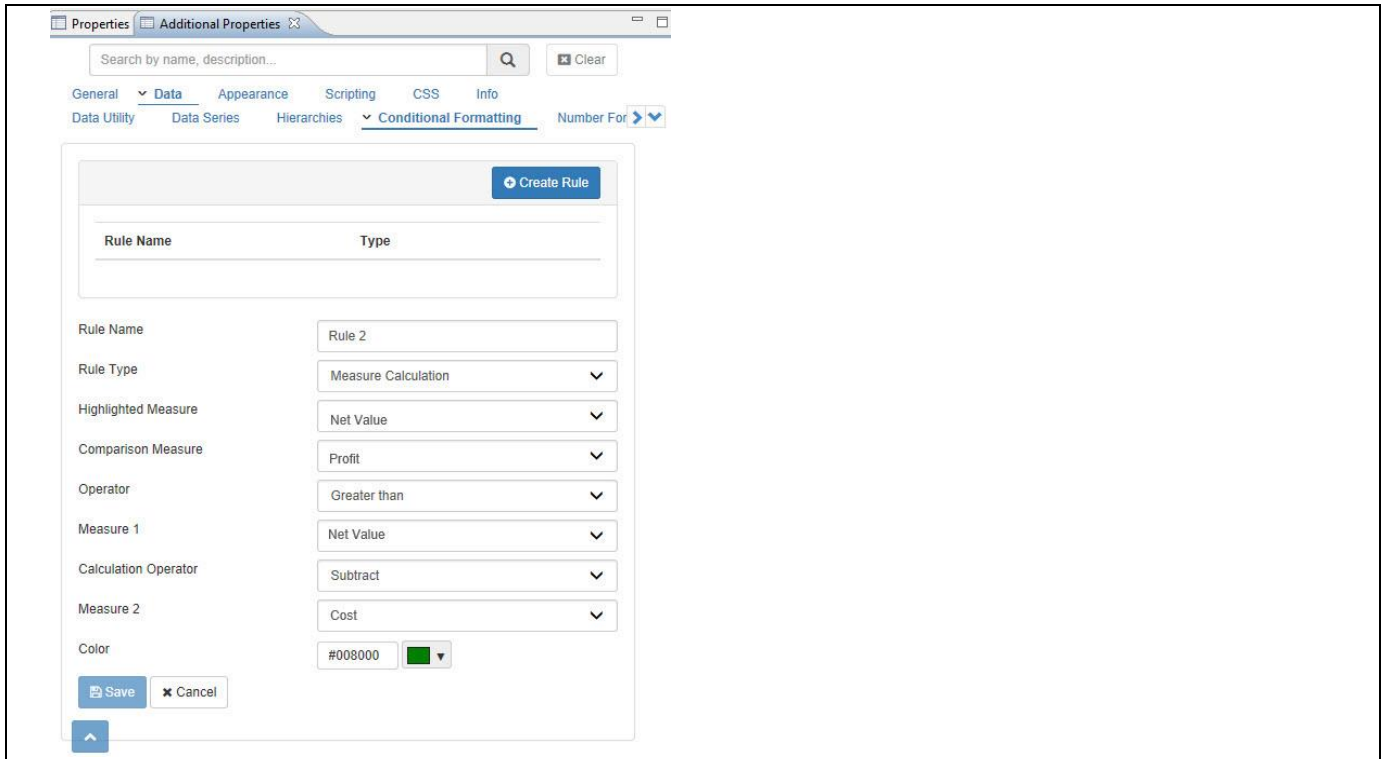
Label	Details
Rule Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value and Dimension.
Highlighted Measure	Here you can select the measure from the chart where the rule will be applied upon.
Comparison Measure	Here you can select the measure which will be compared against the outcome of the calculation.
Operator	Here you can choose the operator that is used to compare the Comparison Measure with the outcome of the measure calculation.
Measure 1	This property allows you to select the Measure 1 value for the Calculation.
Calculation Operator	Here you can choose the type of calculation. Available options are: Add, Subtract, Divide, Multiply.
Measure 2	This property allows you to select the Measure 2 value for the Calculation.
Color	Here you can define the color for the Rule.

Table 4.2: Conditional Formatting – Measure Calculation

12. In our example we are setting up an alert based on the Rule Type Measure Calculation:

- Highlighted Measure: Net Value
- Comparison Measure: Profit
- Operator: Greater Than
- Measure 1: Net Value

- Calculation Operator Subtract
- Measure 2 Cost
- Color Green



Properties Additional Properties

Search by name, description...

General **Data** Appearance Scripting CSS Info

Data Utility Data Series Hierarchies **Conditional Formatting** Number For

Rule Name	Type
Rule 2	Measure Calculation

Rule Name

Rule Type

Highlighted Measure

Comparison Measure

Operator

Measure 1

Calculation Operator

Measure 2

Color

Figure 4.11: Conditional Formatting

13. After configuring the details, please click Save. The rule will be added to the list and if required you can edit the details.

The configured Rule is now being applied to our chart and those values in the chart, which meet the requirement of our defined rule, will be color using colored green.

4.3.10.3 Conditional Formatting based on a Target Value

The third option for the Conditional Formatting is the ability to define rules based on a Target Value achievement. For our example we will assume that we have a Data source which outlines measure Net Value along 12 months of a year and we will use a Column / Bar Chart for our example. In addition our data source also contains the measure Profit.

You can follow the steps below to configure the Conditional Formatting based on a Target Value:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Revenue along 12 months of the dimension Calendar Month.
3. Add a Column / Bar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Column / Bar Chart.
5. Navigate to the Additional Properties of the Column / Bar Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Data and to the sub category Conditional Formatting (see Figure 4.12).
8. Now click on Create Rule.
9. Enter a Rule Name for your Rule.
10. Set the Rule Type to the option Target Value (see Figure 4.12).

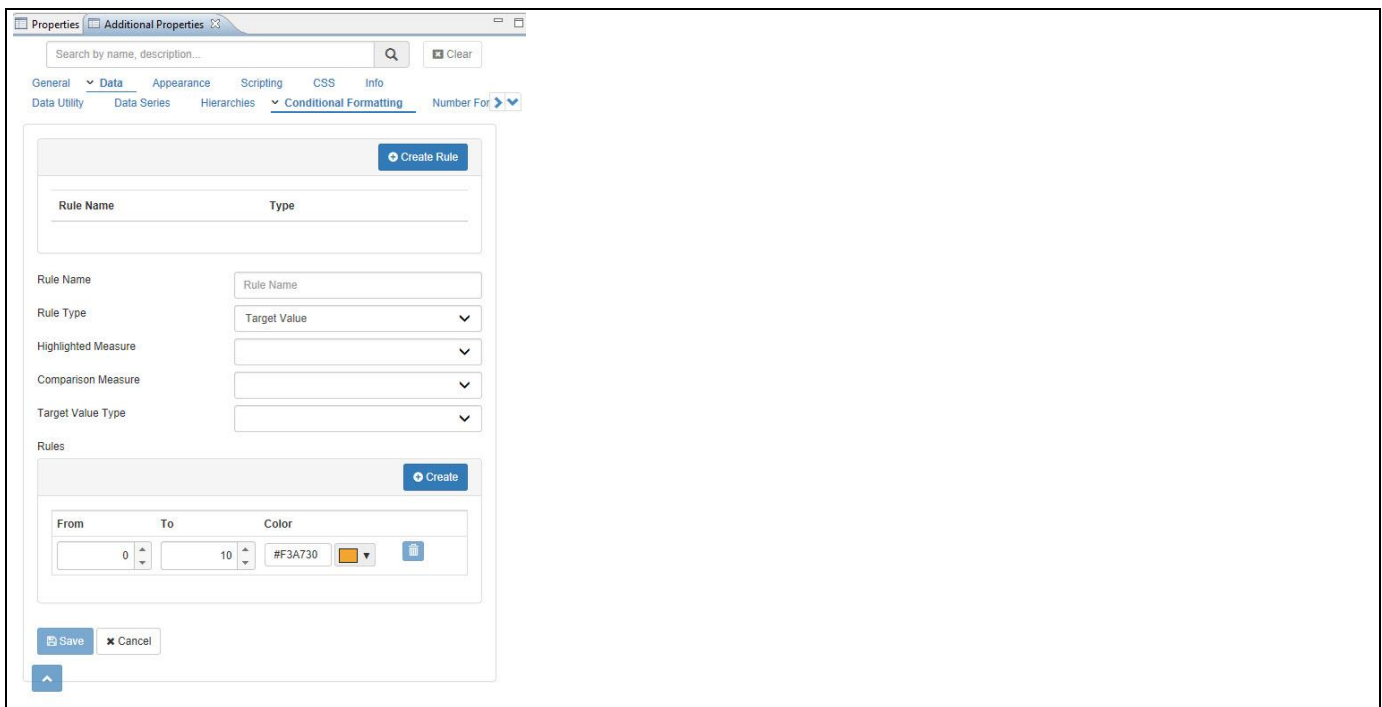


Figure 4.12: Measure Calculation

11. You can now define the other properties for the rule, following the details in Table 4.3:

Label	Details
Rule Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value and Dimension.
Highlighted Measure	Here you can select the measure from the chart where the rule will be applied upon.
Comparison Measure	Here you can select the measure which will be compared against the Target Value.
Target Value Type	Here you can choose between a Static and a Dynamic Target Value.
Target Value	Depending on the configured options, the property Target Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
Dynamic Selection Value	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.

Table 4.3: Conditional Formatting – Target Value

12. In our example we are setting up an alert based on the Rule Type Target Value:

- Highlighted Measure Net Value
- Comparison Measure Profit
- Target Value Type Dynamic
- Dynamic Selection Type Measure Selection
- Target Value Net Value

13. After configuring the basic items, please click on Create in the Rules area to add the first rule for the Target Value achievement (see Figure 4.13).



Figure 4.13: Target Value Achievement

14. You can now enter the rules and per rule you can define the color.

15. After you finished the details, please click on Save to add the rule to the chart.

The configured Rule is now being applied to our chart and those values in the chart, which meet the requirement of our defined rule, will be colored following the detailed rules.

4.3.10.4 Conditional Formatting based on a Dimension Member

The fourth option for the Conditional Formatting is the ability to define rules based on specific dimension member. For our example we will assume that we have a Data source which outlines measure Net Value along a set of Products and we will use a Column / Bar Chart for our example.

You can follow the steps below to configure the Conditional Formatting based on a Target Value:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Revenue along a set of Products.
3. Add a Column / Bar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Column / Bar Chart.
5. Navigate to the Additional Properties of the Column / Bar Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Data and to the sub category Conditional Formatting (see Figure 4.14).
8. Now click on Create Rule.
9. Enter a Rule Name for your Rule.
10. Set the Rule Type to the option Dimension (see Figure 4.14).

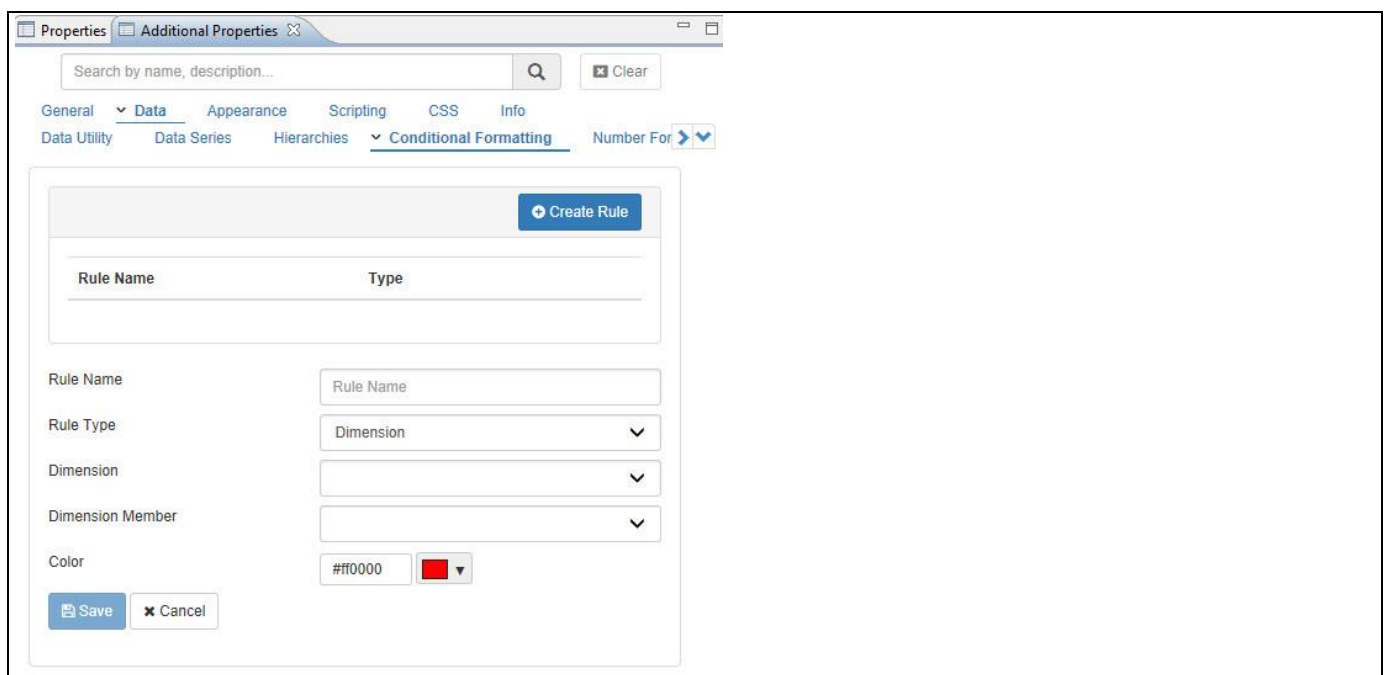


Figure 4.14: Dimension

11. You can now define the other properties for the rule, following the details in Table 4.4:

Label	Details
Rule Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value and Dimension.
Dimension	Here you can select the dimension which you would like to choose a member from.
Dimension Member	Here you can select the dimension member you would like to highlight in the chart.
Color	Here you can set the color.

Table 4.4: Conditional Formatting – Dimension

12. After you finished the details, please click on Save to add the rule to the chart.

In this scenario the selected dimension members will be highlighted with the defined color.

4.3.11 Configuring Identical Scaling

As part of the Visual BI Extensions (VBX) for SAP BusinessObjects Design Studio/SAP Lumira Designer, you can now configure several charts with an identical scale. This option is not available for charts with more than one Y-Axis or for charts without an axis, like the Pie chart. For Example, if one chart displays sales values and a second chart displays Cost of Goods Sold, then by defining an identical Axis Group for the Y-Axis in the Additional Properties, the dashboard designer can configure both of the charts with a common scale (see Figure 4.15). Following are the charts that support Identical Scaling:

- Column/Bar chart
- Combination chart
- Fixed Column chart
- Line chart
- Scatter Plot chart
- Stacked and Grouped Column chart
- Stacked Area chart
- Stacked Column/Bar chart
- Super Combination chart

Once, two or more charts are assigned to an identical scale, all the charts assigned to this group will have the Y-Axis configured with a common scale. If the first chart shows Sales values between \$5 Million and \$10 Million and the second chart shows Cost values between \$1 Million and \$6 Million, then both the charts will be normalized between \$1 Million and \$10 Million.

To configure two or more charts with an identical scale, you can follow the steps listed below:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer navigate to the Additional Properties of the first chart.
2. Navigate to the category General and to the sub category Y-Axis.
3. Navigate to the area Identical Scaling.
4. Enter a new name for the property Identical Scaling Group Name and click Add/Update.
5. Now select the newly created group from the property Select Group dropdown list.
6. Select the second chart in your project.
7. Navigate to the category General and to the sub category Y-Axis for the second chart.
8. Navigate to the area Identical Scaling.
9. Select the previously created group from the property Select Group dropdown list (see Figure 4.15).

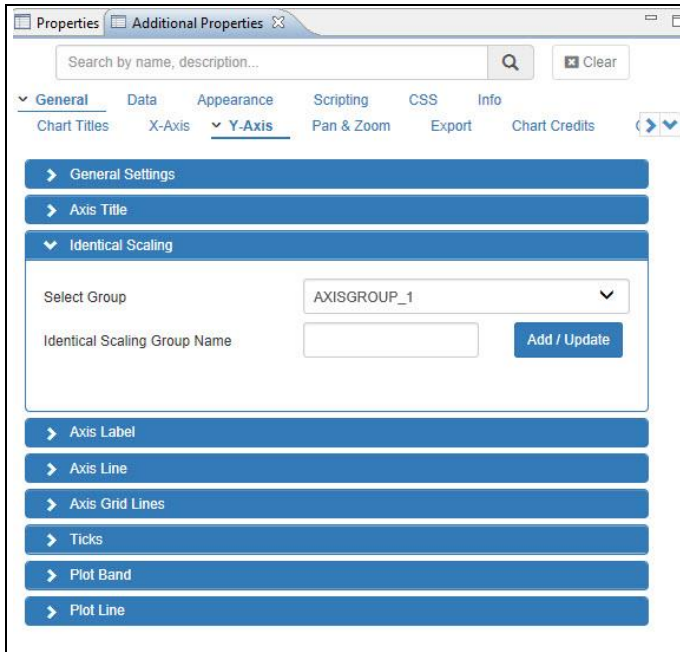


Figure 4.15: Identical Scaling

By assigning the identical group to both charts, you assigned both charts to an identical scaling and each time a change in scaling – for example based on filter values – will automatically update both charts.

4.3.12 Displaying Totals/Sub-totals

Our charts also provide an option to display the Total and Sub-Total values as a separate column or bar. This option can be enabled as part of the Additional Properties by navigating to the category Data and to the sub category Data Series (see Figure 4.17). The sub-totals are calculated as a summation of all data series for a particular dimension member. The totals and subtotals will be shown as a separate category on the X-Axis or Y-Axis (as shown in Figure 4.16).

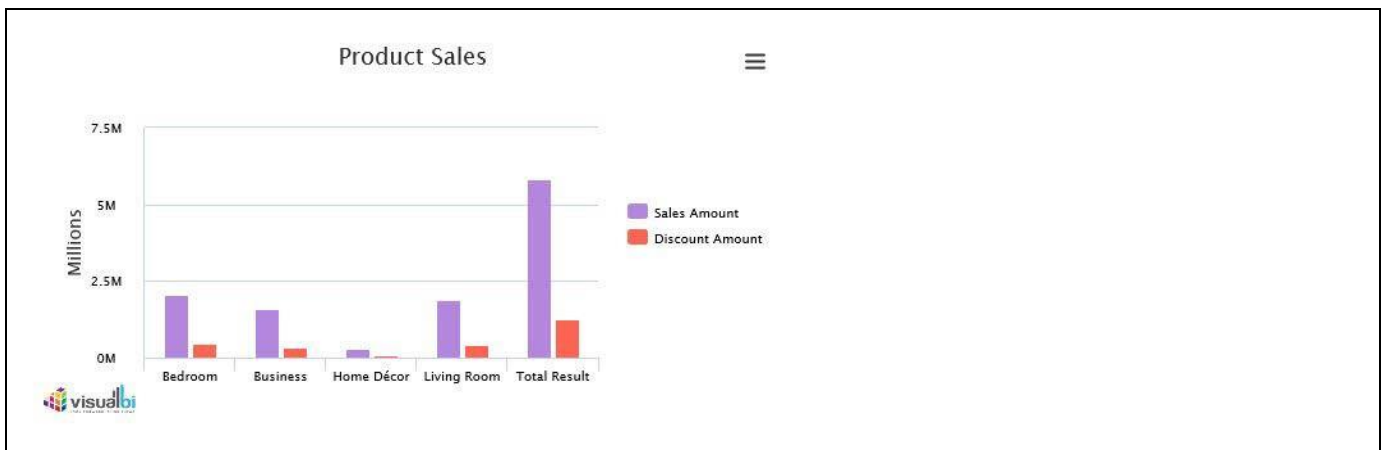


Figure 4.16: Example for displaying Totals/Sub-totals

Figure 4.16 shows a Column Chart outlining the sales revenue for several products and by activating the option Show Totals the chart would also include the Total Result values shown on the far right hand side for each measure.

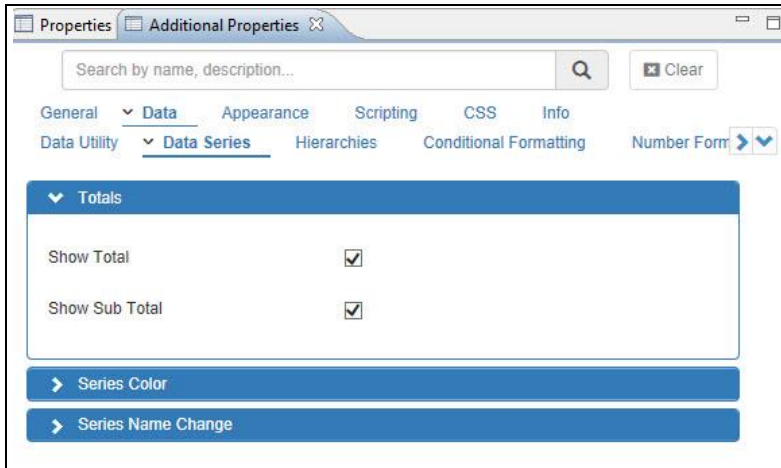


Figure 4.17: Displaying Totals/Sub-totals

4.3.13 Displaying Key & Text for Dimension Member

All of the VBX charts are offering you the option to choose between the Key, Text, or Key and Text values of the dimension members for the display in the charts. The option to configure the display of the dimension member is possible by navigating to the category Appearance and to the sub category Chart and to the area General Settings (see Figure 4.18). By default the charts will leverage the settings from the Initial View of the assigned data source, but you have the option to overwrite the configuration on a per chart basis.

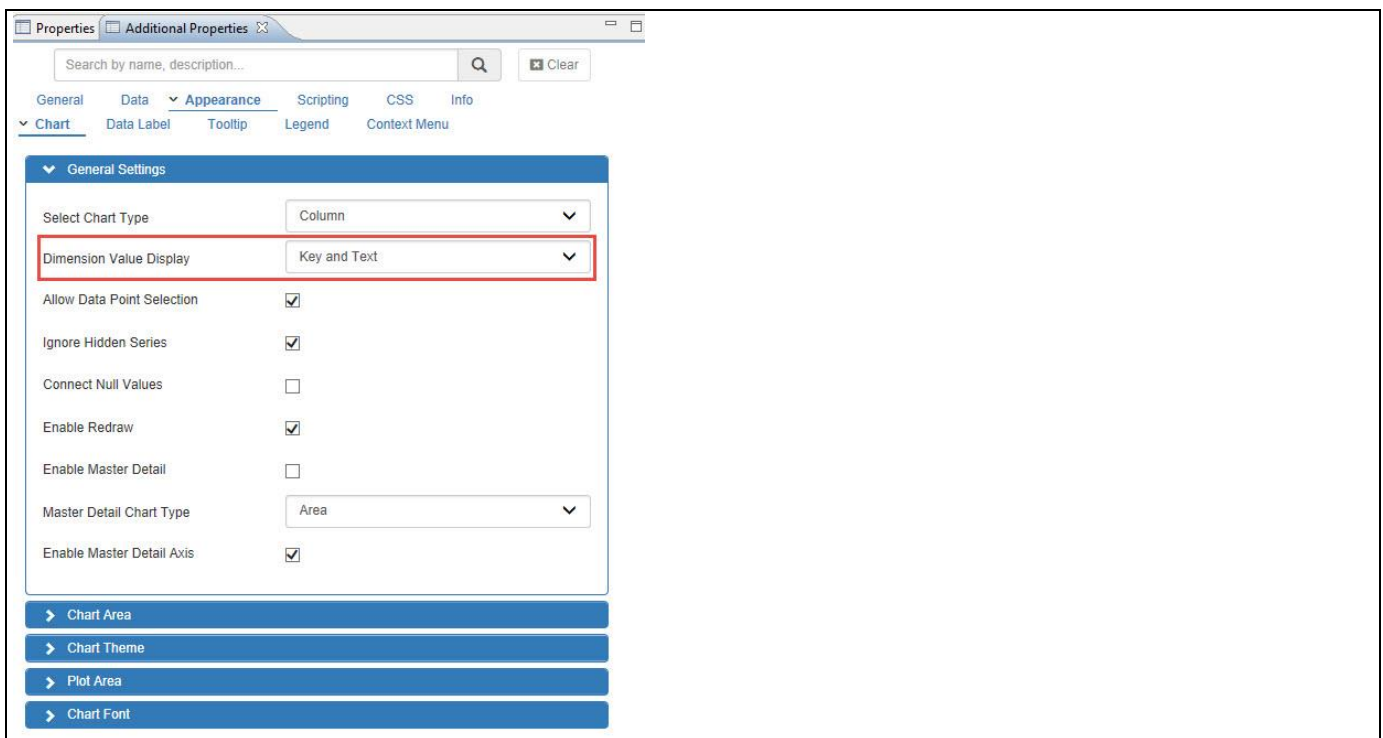


Figure 4.18: Displaying Key and Text

4.3.14 High Chart Theming Support

In addition to the standard style properties you will also find the area Chart Theme by navigating to the category Appearance and to the sub category Chart of the Additional Properties (see Figure 4.19). The dashboard designer can create a custom theme for the chart and in that way quickly apply color settings and a defined look and feel to the complete chart.

By clicking on the Custom Theme Editor, you will be guided to a separate website (see Figure 4.20) and can configure the different elements of the chart and then export the necessary theme code.

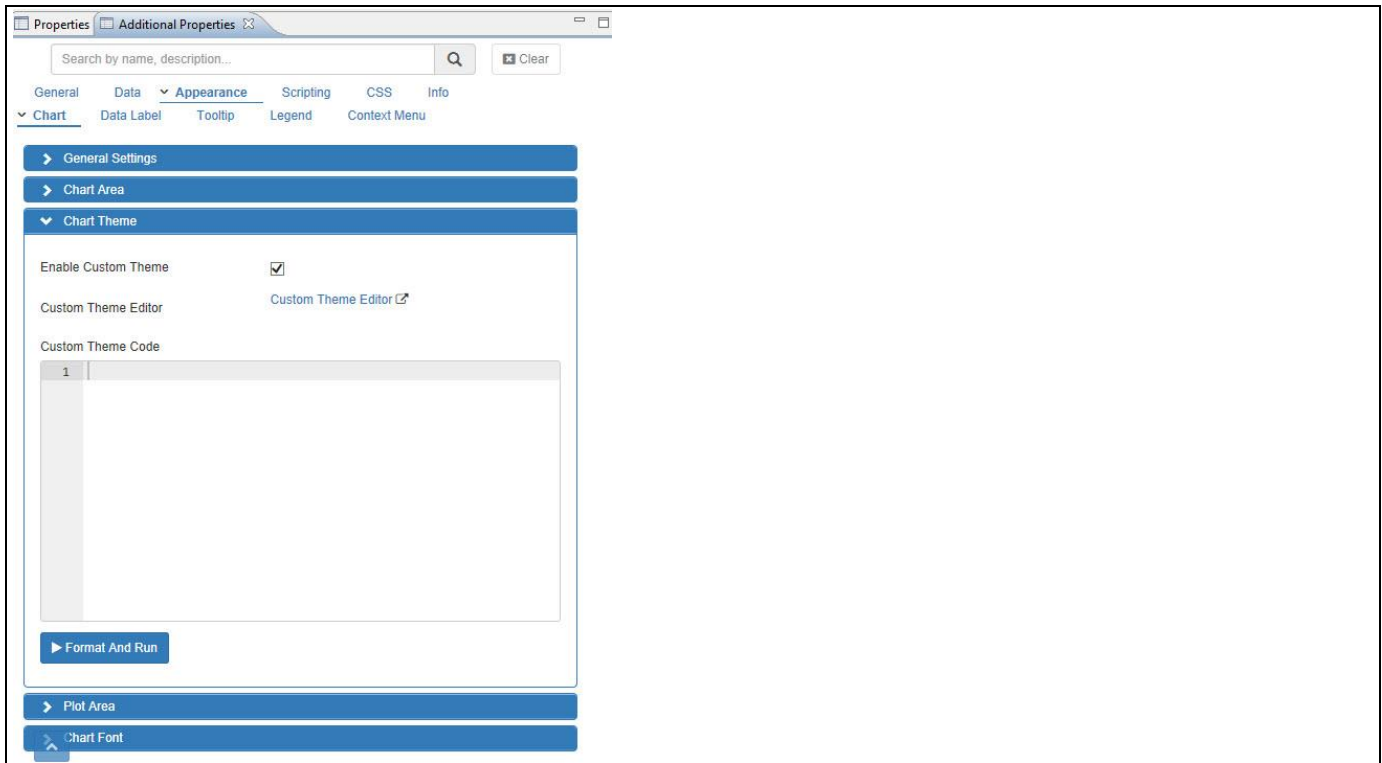


Figure 4.19: High Chart Theming Support

You can follow the steps below to apply a custom theme to your chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a VBX Chart – for example a Column / Bar chart – to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
3. Navigate to the Additional Properties of the chart.
4. Navigate to the category Appearance and to the sub category Chart and to the area Chart Theme (see Figure 4.19).
5. Click on the link Custom Theme Editor to open the Custom Theme Editor (shown in Figure 4.20).
6. In the Custom Theme Editor select the type of chart from the dropdown list in the top right corner.
7. Select a theme from the pre-configured list of themes or customize the settings.
8. The Custom Theme Editor lists several properties where you can modify the colors for elements such as chart background, Title, legend, data series, data labels, and tooltips. Change the colors of these properties as needed.
9. Once the changes are done, click Export.
10. The custom code will be copied to the clipboard.
11. Navigate back to your dashboard in SAP BusinessObjects Design Studio/SAP Lumira Designer.
12. Navigate to the Additional Properties.
13. Navigate to the category Appearance and to the sub category Chart and to the area Chart Theme.
14. Now paste the custom theme code into the text area available in the Custom Theme Code.

15. Ensure the Enable Custom Theme option is activated.

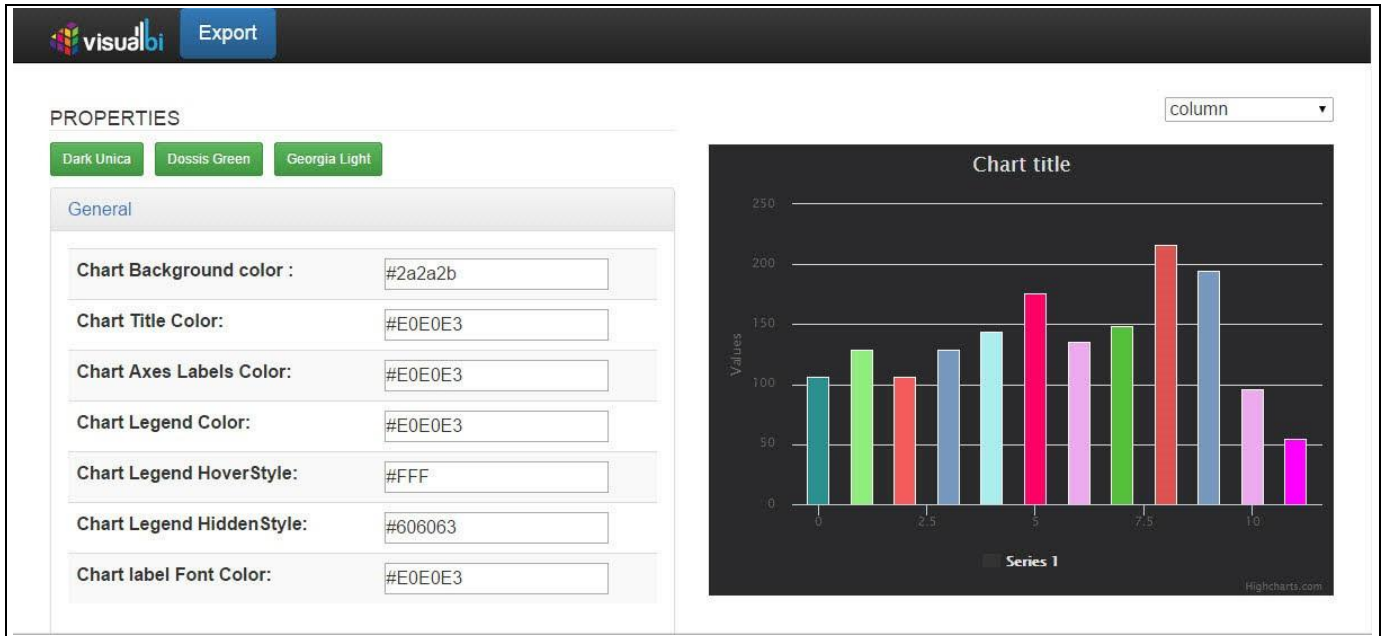


Figure 4.20: Custom Theme Editor

After applying the Custom Theme Code and enabling the Custom Theme support for the chart, the configured color settings should now be applied to your chart.

4.3.15 Support for Trendlines

Starting with release 1.4 of the Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer, most of the charts also are now able to support Trendlines as part of the visualization. Currently the supported Trendline types are: Linear, Exponential, and Loess. You can find the Trendline option as part of the Additional Properties for the chart by navigating to the category Data and to the sub category Trendline (see Figure 4.21).

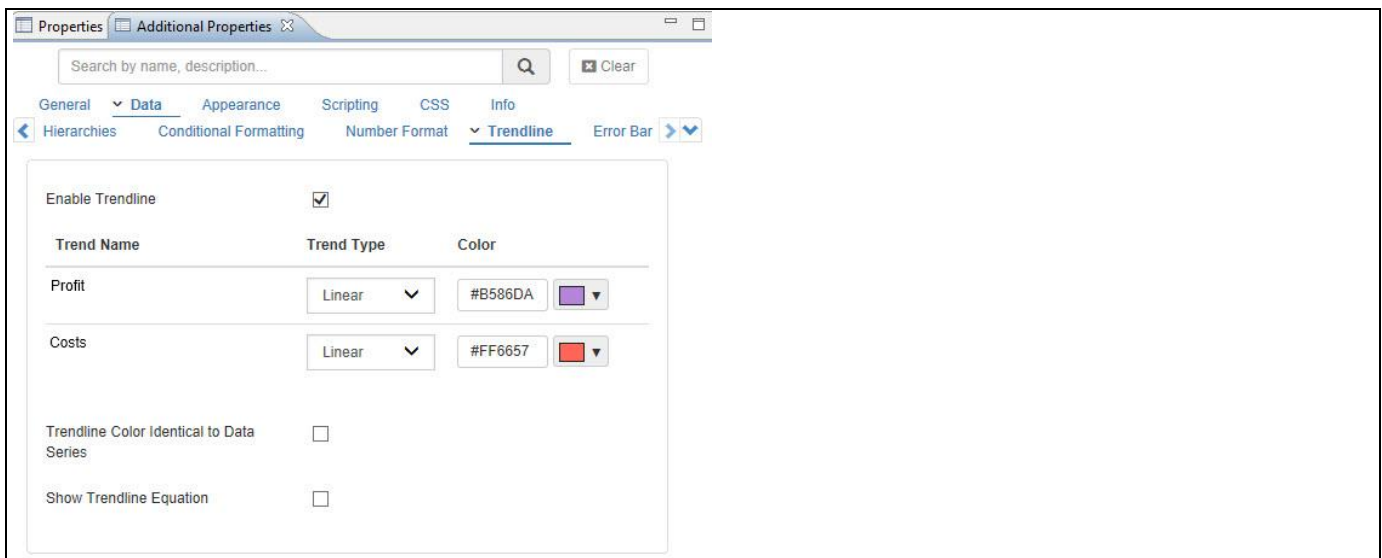


Figure 4.21: Trendline

As shown in Figure 4.21, you can enable the support for the Trendlines and you can choose for each individual measure which type of Trendline you would like to add to the chart. In the example above we added linear Trendlines for the measure Profit and Costs.

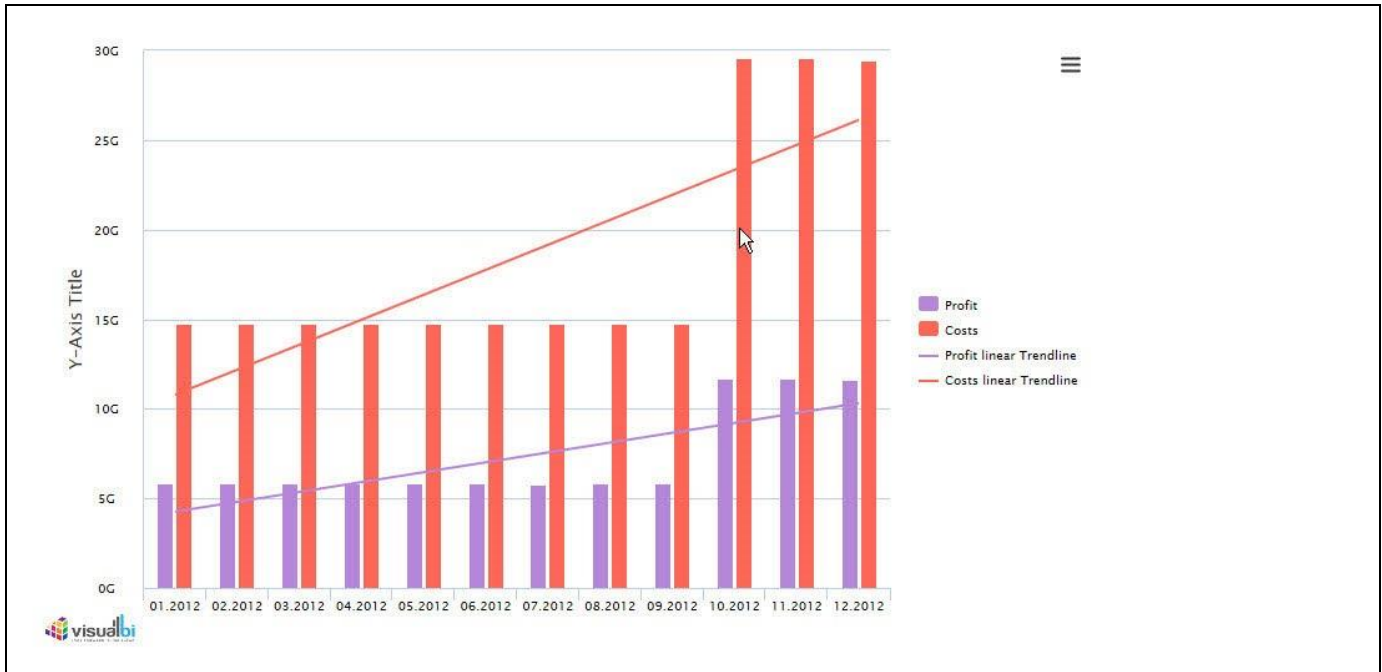


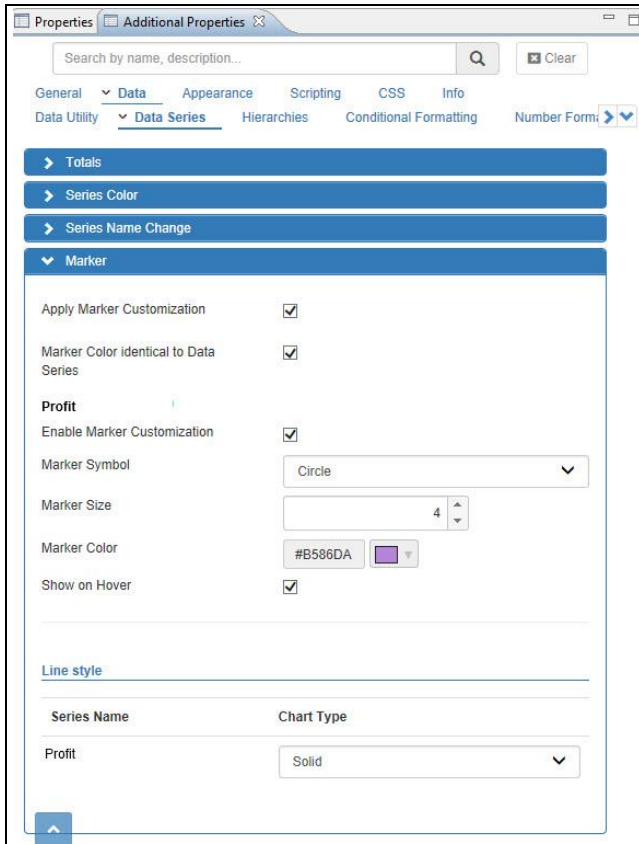
Figure 4.22: Column Chart with Trendlines

Figure 4.22 shows the resulting Column chart with both Trendlines added to the visualization. In case you would like to add Trendlines only to some of the measure but not to all measures, you can use the entry “None” from the dropdown box to not show a Trendline for some of the measures.

Trendlines are currently supported by the following chart types: Area chart, Bubble chart, Column / Bar chart, Line chart, Scatter Plot chart, Stacked Area chart, Stacked Column / Bar chart.

4.3.16 Customizing Line Style and Marker Style

Starting with release 1.4 of the Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer, those charts that offer the display options of lines and markers – for example a Line chart – also provide the ability to customize those options. The options to customize the Line Style and Marker Style can be done by navigating to the category Data and to the sub category Data Series and to the area Marker in the Additional Properties of the chart (see Figure 4.23).



Properties Additional Properties

Search by name, description...

General **Data** Appearance Scripting CSS Info

Data Utility **Data Series** Hierarchies Conditional Formatting Number Form:

> Totals

> Series Color

> Series Name Change

▼ Marker

Apply Marker Customization ☒

Marker Color identical to Data Series ☒

Profit

Enable Marker Customization ☒

Marker Symbol ▼

Marker Size ▲ ▼

Marker Color

Show on Hover ☒

Line style

Series Name	Chart Type
Profit	<input type="text" value="Solid"/> ▼

Figure 4.23: Line and Marker Options

Figure 4.23 shows the options to customize the Line Style and Marker style for a measure and you can try having more than one measure. You have the option to set a Line Style and customize the Marker Symbol, Marker Size, and Marker Color.

4.3.17 Adding Error Bars

Starting with release 1.4 of the Visual BI Extensions our charts also provide the option to add Error Bars to the display of the chart. Error Bars can be used to provide an additional visual representation of the variability of the data and are normally used on graphs to indicate the error range.

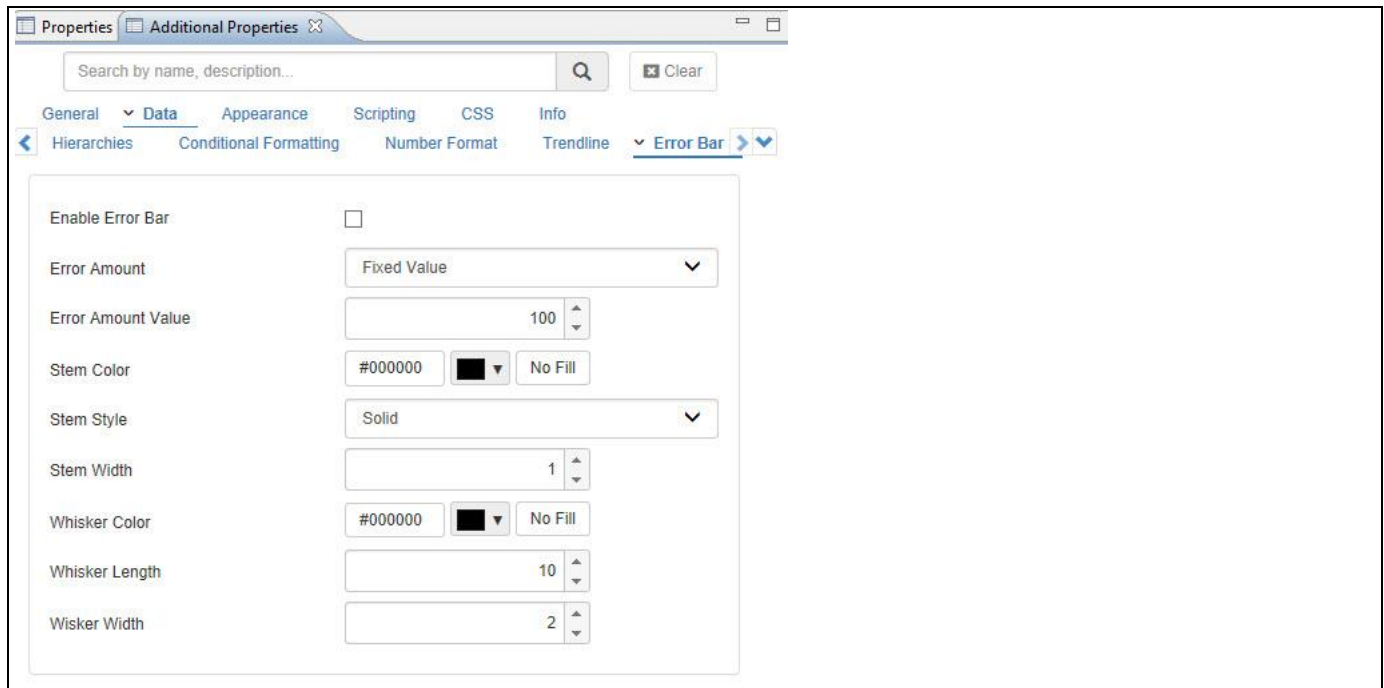


Figure 4.24: Error Bar Option

Figure 4.24 shows the detailed options for the Error Bar area by navigating to the category Data and to the sub category Error Bar of the Additional Properties.

- **Error Amount:** The Error Amount can be set to Fixed Value, Percentage Value, Standard Deviation, or Custom. In case of the option Custom you will then have the option to first choose the Data Series and in addition you can then select measures from the data source for the upper and lower limits of the error bars.
- **Error Amount Value:** In case of the Fixed Value or the Percentage Value option, you can enter the corresponding value.
- **Stem Style:** You can leverage properties such as the Stem Width, Stem Color, and Stem Style to configure the look and feel of the Stem.
- **Whisker Style:** You can leverage properties such as the Whisker Color, Whisker Length, and Whisker Width to configure the look and feel of the Whisker.

In case you choose the Custom option for the Error Amount you will receive three additional configuration options:

- **Select Measure:** Here you can select a measure from the data source and the Error Bar will be enabled for the selected measure.
- **Upper Limit:** Here you can select a measure from the underlying data source as value for the upper limit of the Error Bar.
- **Lower Limit:** Here you can select a measure from the underlying data source as value for the lower limit of the Error Bar.

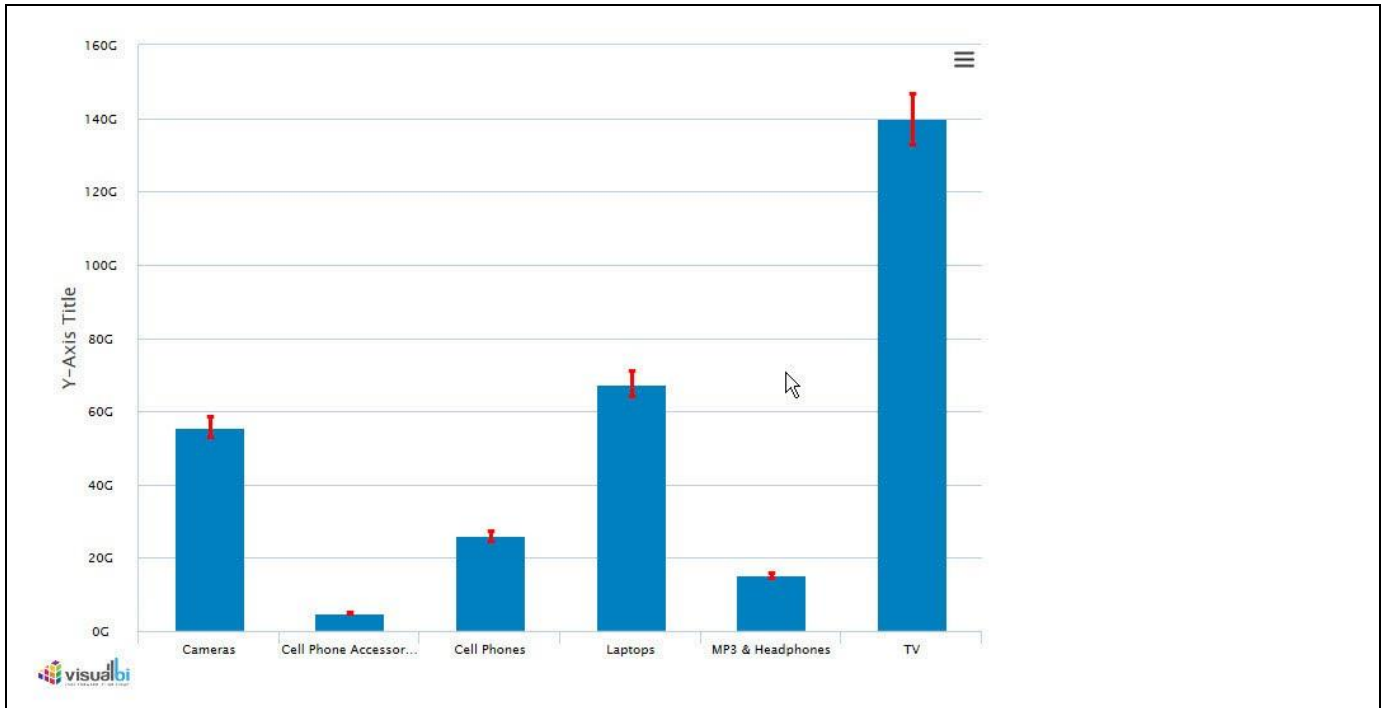


Figure 4.25: Column Chart with Error Bars

Figure 4.25 shows a Column chart with a simple Error Bar display configuration.

4.3.18 Editing Measure Labels

Starting with release 1.4 of the Visual BI Extensions you can now change the labels for the measures being used as part of the chart. By default, charts will use the label for the measure based on the meta-data retrieved from the underlying source, but you can also customize the label as part of the Additional Properties (see Figure 4.26).

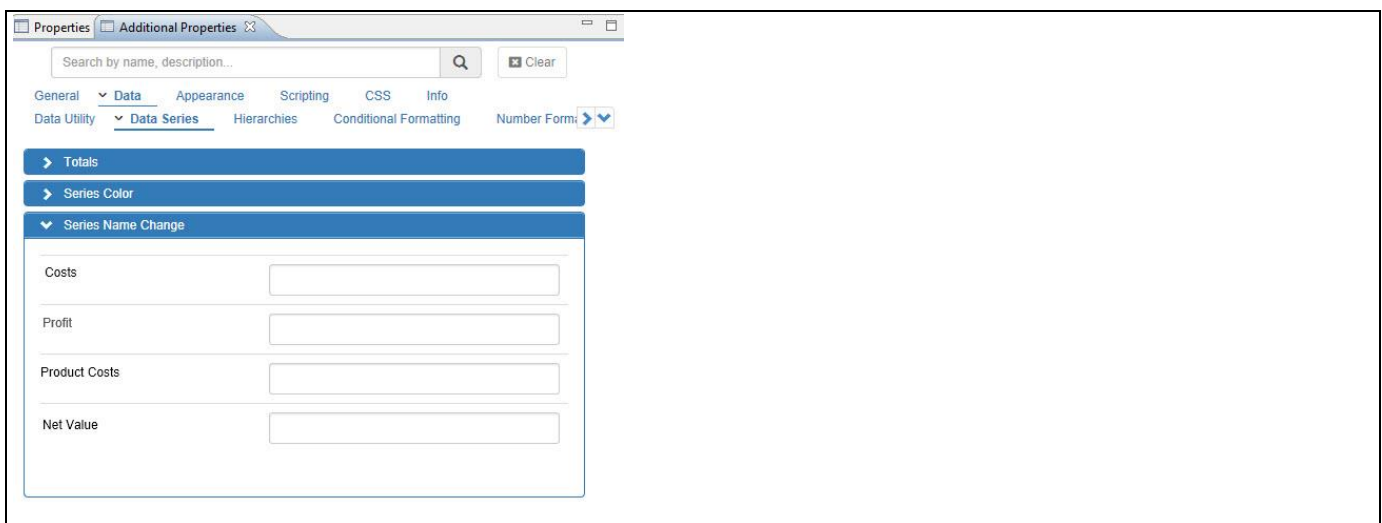


Figure 4.26: Series Name Change

Navigate to the category Data and to the sub category Data Series and to the area Series Name Change. You can simply enter a new name for each of the available measures and the chart will then use the changed name as part of the visualization.

4.3.19 Configuring Drill Down for Charts

As part of the VBX Charts you also receive a set of Drill Down charts, which are able to leverage multiple dimensions or a hierarchy from the assigned data source and provide your users with the ability to drill down from an overview to a more detailed chart. In the following sections we will outline the detailed options on how you can setup a Drill Down chart either based on multiple dimensions or based on a hierarchical data set. Drill Down charts either require multiple dimensions as part of the data source or a dimension with an activated hierarchy. In addition Drill Down Charts offer several advanced features, which can be configured as part of the Additional Properties. You will have the option to either perform an actual Drill Down, meaning you will navigate to a more detailed chart, or you can choose to expand the chart inplace. For our first example on how you can configure a Drill Down Chart we will assume that our data source consists of dimension Calendar Year and dimension Calendar Month as well as measures Revenue and Cost.

You can follow the steps below to setup your first Drill Down Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a Column / Bar Drilldown chart to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
3. Add a data source to your project. For our example we assume the data source has dimension Calendar Year and Calendar Month, as well as measures Revenue and Cost.
4. Assign the data source to the chart.
5. Navigate to the Additional Properties of the chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Drill Down (see Figure 4.27).

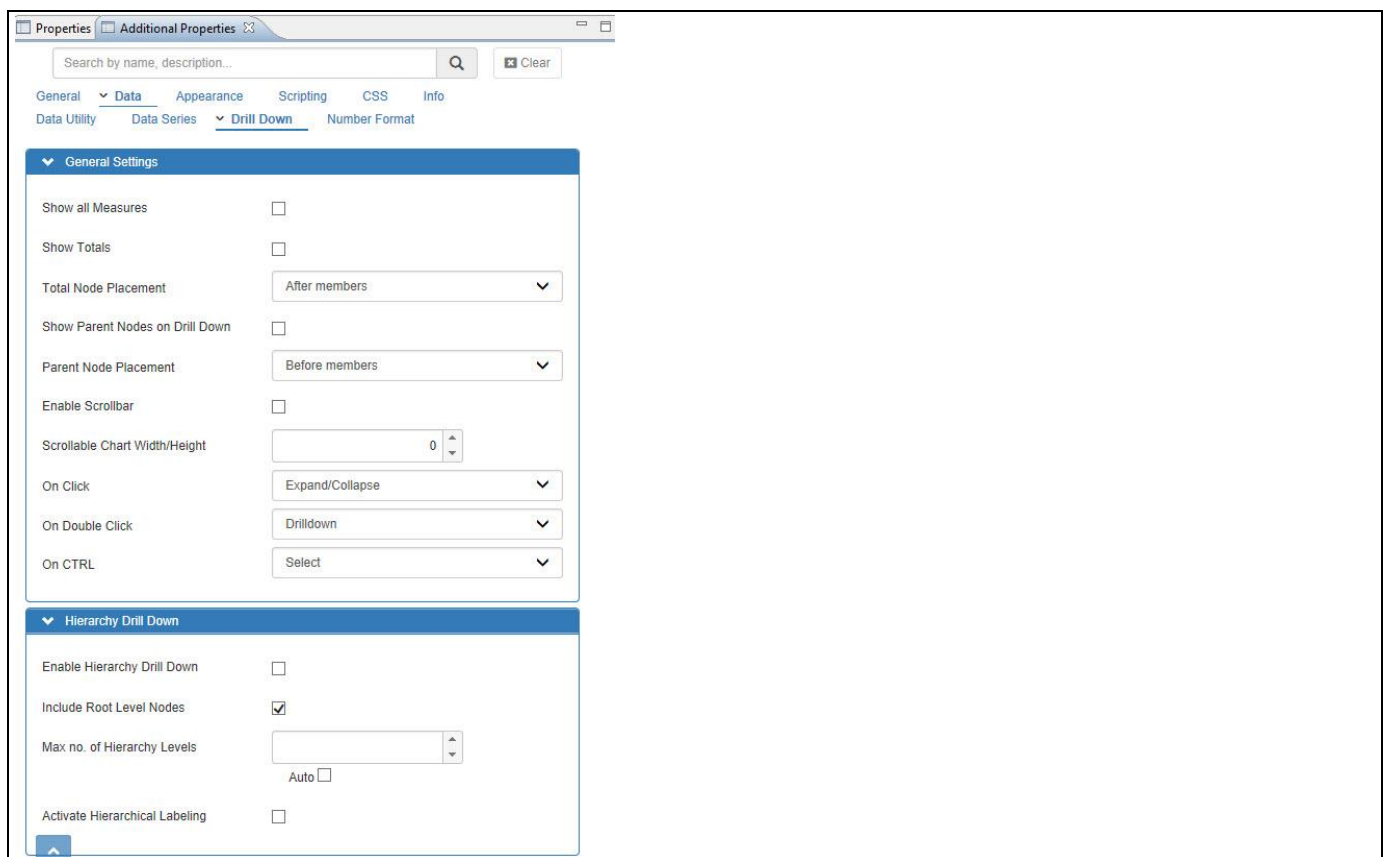


Figure 4.27: Category Data

8. In the sub category Drill Down you have several options to configure the Drill Down behavior. You can find the details in Table 4.5:

Option	Description
Show all Measures	You can use this property to enable / disable the showing of all measures in a Drilldown. In case this option is disabled, then the drill down will only show the measure that was clicked.
Show Totals	This property allows you to show / hide totals for the chart itself. The totals will only be shown on the first view of the charts, but will not be shown on the next drill down levels.
Total Node Placement	This property allows you to decide if the Total node should be placed before or after the members of the drill down.
Show Parent Nodes on Drilldown	In case this property is activated, then the parent node will be included in the Drill Down chart in addition to the members from the next level.
Parent Node Placement	This property allows you to decide if the parent node totals should be placed before or after the members of the drill down.
Enable Scroll Bar	This option allows you to enable / disable the scroll bar.
Scrollable Chart Width/Height	Sets the Width/Height of the Chart greater than the Container Width/Height.
On Click	Using the On Click property you can specify which functionality should be used when you click on an element of the data series in the chart. The available options are: Drilldown, Expand / Collapse, Select, None.
On Double Click	Using the On Double-Click property you can specify which functionality should be used when you double-click on an element of the data series in the chart. The available options are: Drilldown, Expand / Collapse, Select, None.
On CTRL	Using the On CTRL-Click property you can specify which functionality should be used when you press the CTRL Key and clicks on an element of the data series in the chart. The available options are: Drilldown, Expand / Collapse, Select, None.
Enable Hierarchy Drilldown	This option allows you to enable / disable a Drill Down based on an active hierarchy in the data source.
Include Root Level Nodes	Using this property you can include or exclude the root level nodes of an active hierarchy into the Drill Down chart. This option only impacts Drill Down charts using a hierarchy.
Max. no. of Hierarchy Levels	Using this option you can define a maximum for a Drilldown chart using hierarchies. By specifying the maximum number of hierarchy levels you can limit the data volume, which you will be able to retrieve using the drilldown chart.
Activate Hierarchical Labeling	Using this property you can activate a specific labeling which will visualize the hierarchical nature of the data and keep the labels on the X-Axis (for example with a column chart) grouped together based on the drill down.

Table 4.5: Data Series Properties

9. For our example we will activate the following options:

- Show Parent Nodes on Drilldown
- Show all Measures
- Activate Hierarchical Labeling

10. For all other options we will use the default values, which means that you will be able to use a drill down with a double-click and the inplace Expand / Collapse option with a single-click.

11. Now use the menu Application • Execute Locally to see the chart and use the Drilldown.

12. Your initial view of the chart should look similar to Figure 4.28.

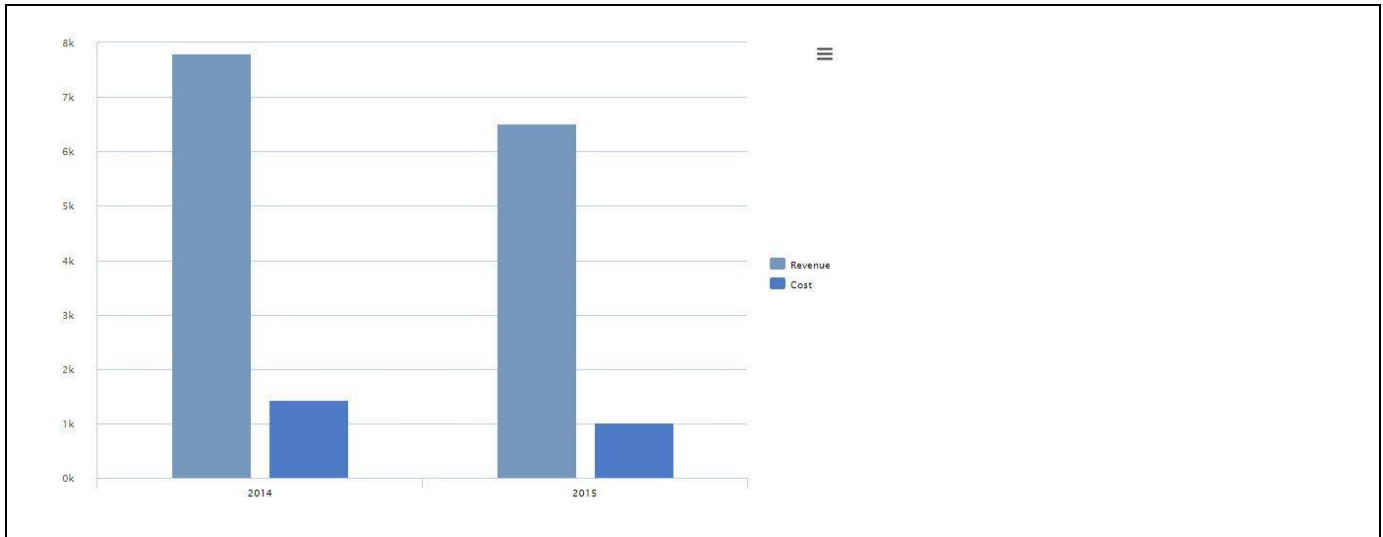


Figure 4.28: Drilldown Chart

13. Now use a double-click on any of the columns in the chart (see Figure 4.29).

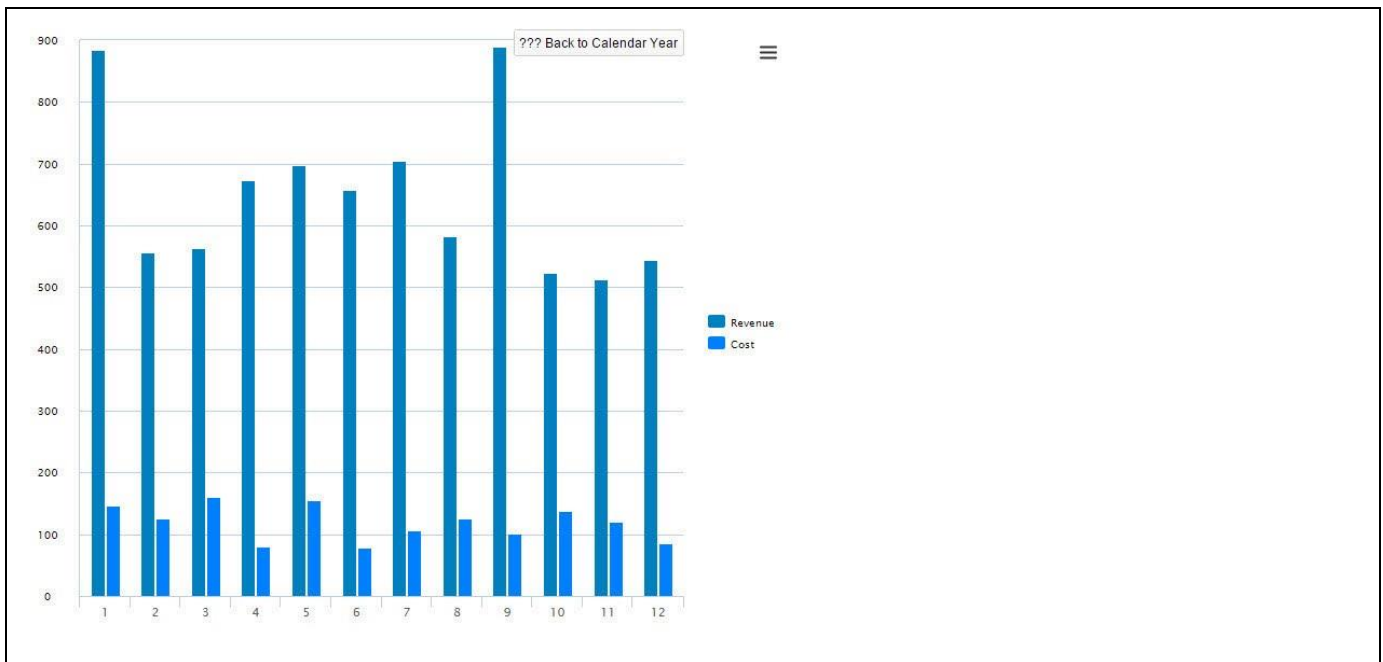


Figure 4.29: Drilldown Chart

14. You can now see the next dimension based on the Drilldown and because we activated the option to see all measures, we can see measure Revenue and measure Cost. In addition we can see the parent node shown on the left hand side, in our example the node for the year 2014.
15. Click on the Back button in the top right corner to go back to the initial view.
16. Now use a single click on the measure for the year 2014 (see Figure 4.30).

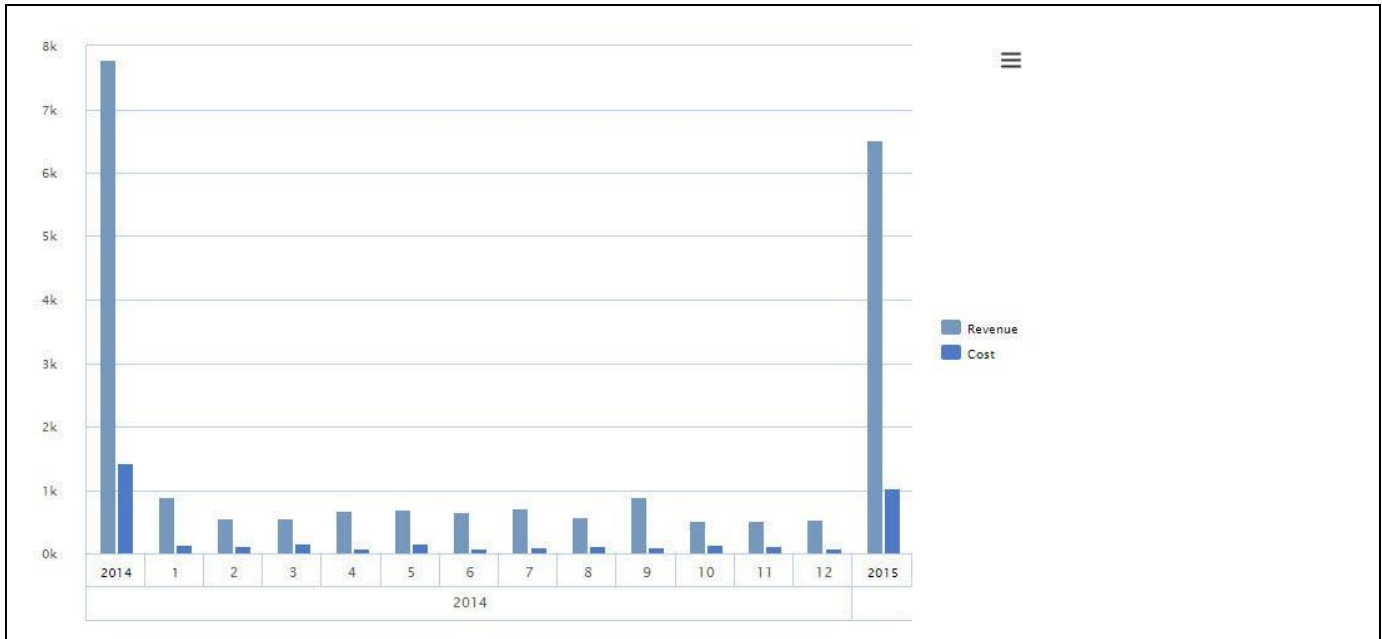


Figure 4.30: Drilldown Chart

17. In this example we expanded the data to the next level. In our example we expanded the year 2014 to show the 12 members of dimension Calendar Month. In addition we can now see the hierarchical labeling showing the year and month labels in separate rows and we can also notice that the entry for the year 2015 is still visible because we used the inplace expand instead of the drilldown.
18. Close the browser and navigate back to SAP BusinessObjects Design Studio/SAP Lumira Designer.

In the first example we used the Drill Down chart with a set of dimensions. In our next example we will use the Drill Down chart with a hierarchy from the assigned data source.

You can follow the steps below to setup your first Drill Down Chart with a hierarchy:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a Column / Bar Drilldown chart to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
3. Add a data source to your project. For our example we assume the data source has dimension Product with an activated hierarchy, as well as measures Revenue and Cost along that hierarchy.
4. Assign the data source to the chart. You will notice that the chart does not display the hierarchical information, because we first need to activate the hierarchical drill down.
5. Navigate to the Additional Properties of the chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Drill Down
8. In the area Hierarchy Drilldown, activate the option Enable Hierarchy Drill Down.
9. You will notice that the chart now shows the hierarchy from the underlying data source (see Figure 4.31).

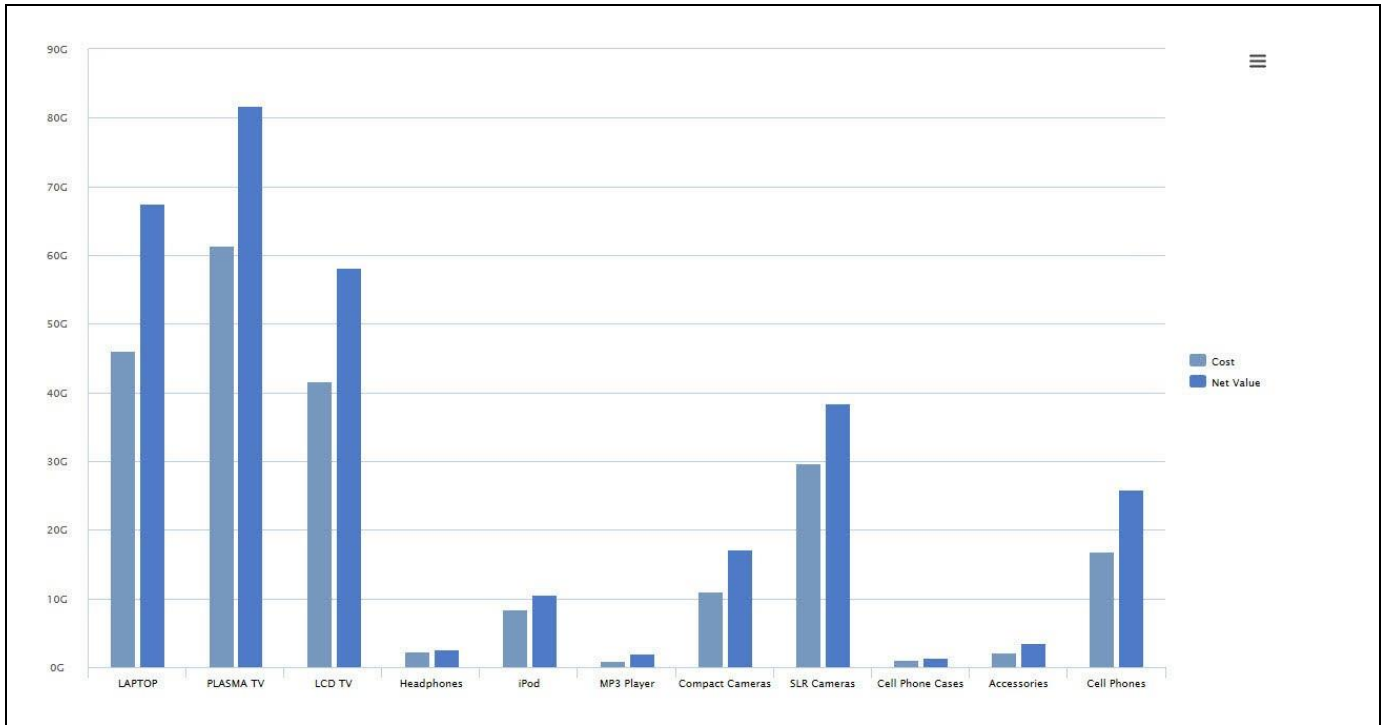


Figure 4.31: Hierarchical Drill Down Chart

10. You have the same options for the configuration (see Table 4.5) as well as navigation when you execute the application.
11. For the configuration in regards to the Drill Down we will use the default values, which means that you will be able to use a drill down with a double-click and the inplace Expand / Collapse option with the single-click.
12. Now use the menu Application • Execute Locally to see the chart and use the Drilldown.
13. Your initial view of the chart should look similar to Figure 4.31 and you should be able to use a Drill Down as well as an inplace Expand / Collapse navigation.

In just a few steps we were able to use the Drill Down functionality of the chart and use a set of dimensions and a hierarchy to visualize our data.

4.3.20 Events

In addition to the Additional Properties, the charts are also offering the ability to add scripting code to specific events. The VBX charts support the following events:

- On Plot Background Click
- After Chart Load
- On Zoom
- On Select

In addition, those charts that do support plot bands - such as the Trend & Comparison charts - also support the following events in addition to the events listed above:

- On X-axis Plot Band Mouse Over
- On Y-axis Plot Band Mouse Over.

4.3.21 Lasso and Reverse Lasso Selection

The Lasso and Reverse Lasso selection allows you to either use a lasso selection and select those elements in the chart that are included in the selected area or to use a reverse lasso selection, which will select all elements of the chart that are outside of the selected area. In the following steps we will outline how you can leverage the Lasso and Reverse Lasso selection with the Visual BI Extension charts.

4.3.21.1 Lasso Selection

As part of the standard menu of the Visual BI Extension Charts you have the option to select the Lasso option (see Figure 4.32). The Lasso option will select those elements in the chart that are inside the selected area. For our example, we will use a Column Chart with two measures – Forecast Amount and Sales Amount – and several dimension members.

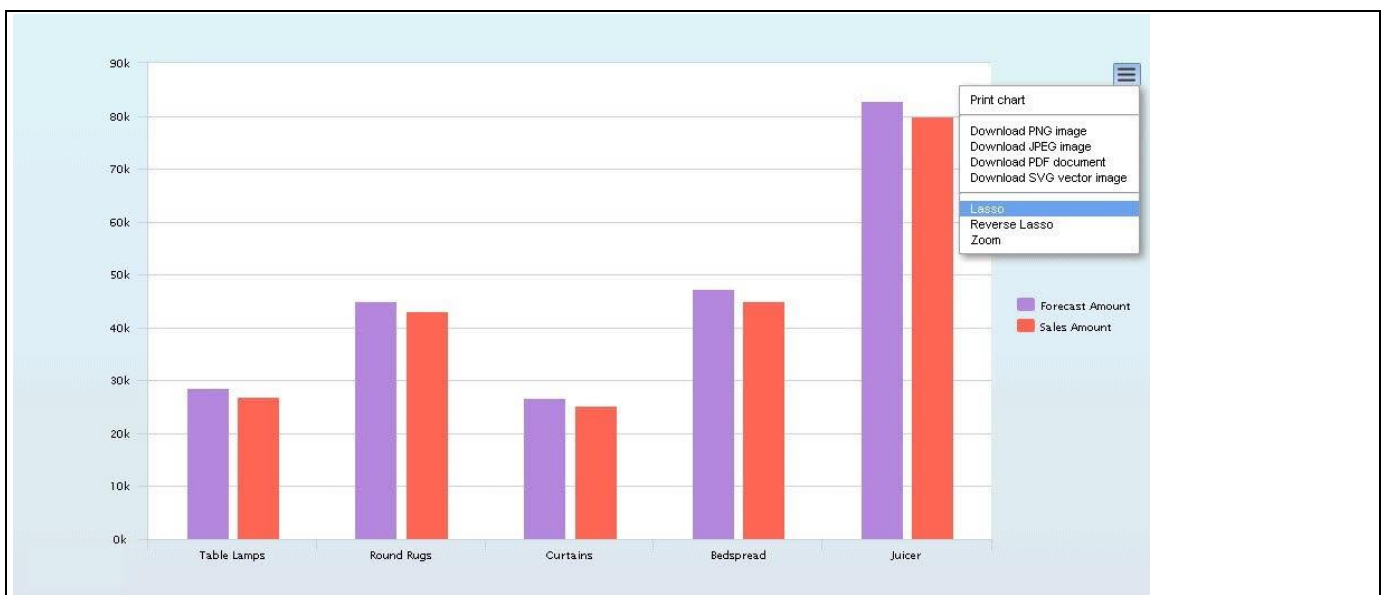


Figure 4.32: Lasso – Chart Menu

1. After you have activated the Lasso option from the chart menu, you can then select the elements in the chart (see Figure 4.33)– in our example the measures for dimension member Round Rugs and Curtains.

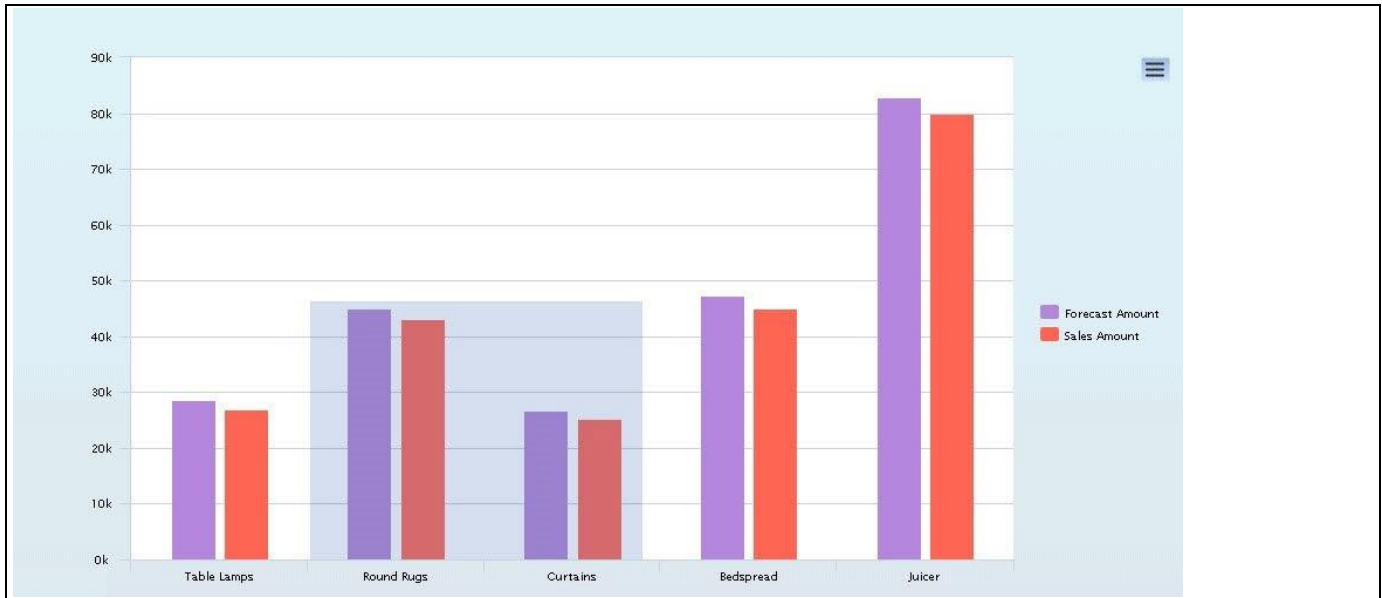


Figure 4.33: Item Selection in chart

2. After you selected the items, the selected items will follow the color assignment for the selected items (see Figure 4.34) and the selected members can also be retrieved using the scripting functions for the chart.

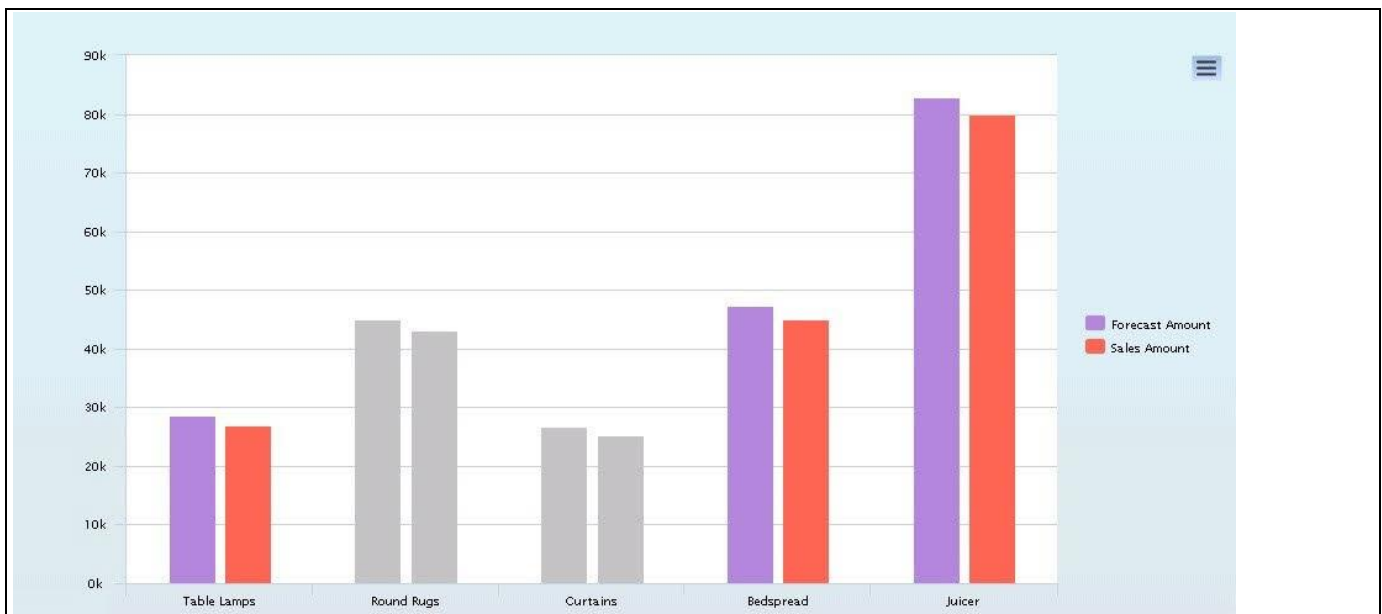


Figure 4.34: Lasso

4.3.21.2 Reverse Lasso Selection

As part of the standard menu of the Visual BI Extension Charts you have the option to select the Reverse Lasso option (see Figure 4.35). The Reverse Lasso option will select those elements in the chart that are outside the selected area. For our example, we will use a Column Chart with two measures – Forecast Amount and Sales Amount – and several dimension members.

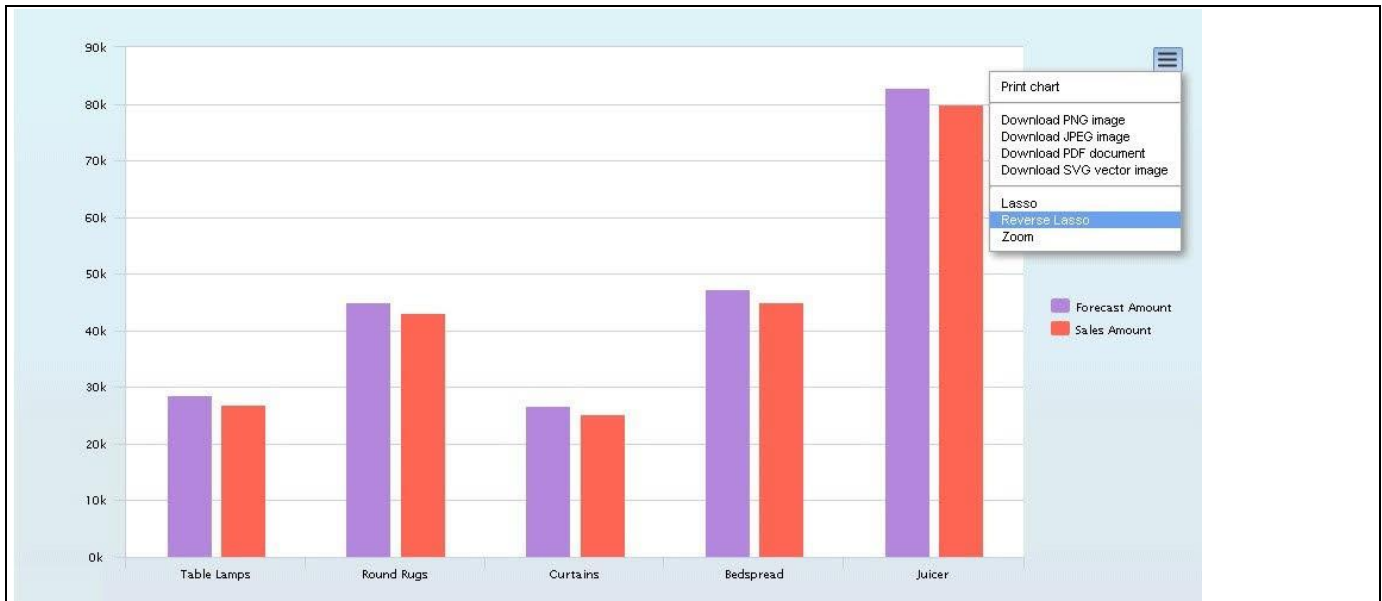


Figure 4.35: Reverse Lasso – Chart Menu

1. After you have activated the Reverse Lasso option from the chart menu, you can then select the elements in the chart (see Figure 4.36) – in our example the measures for dimension member Round Rugs and Curtains.

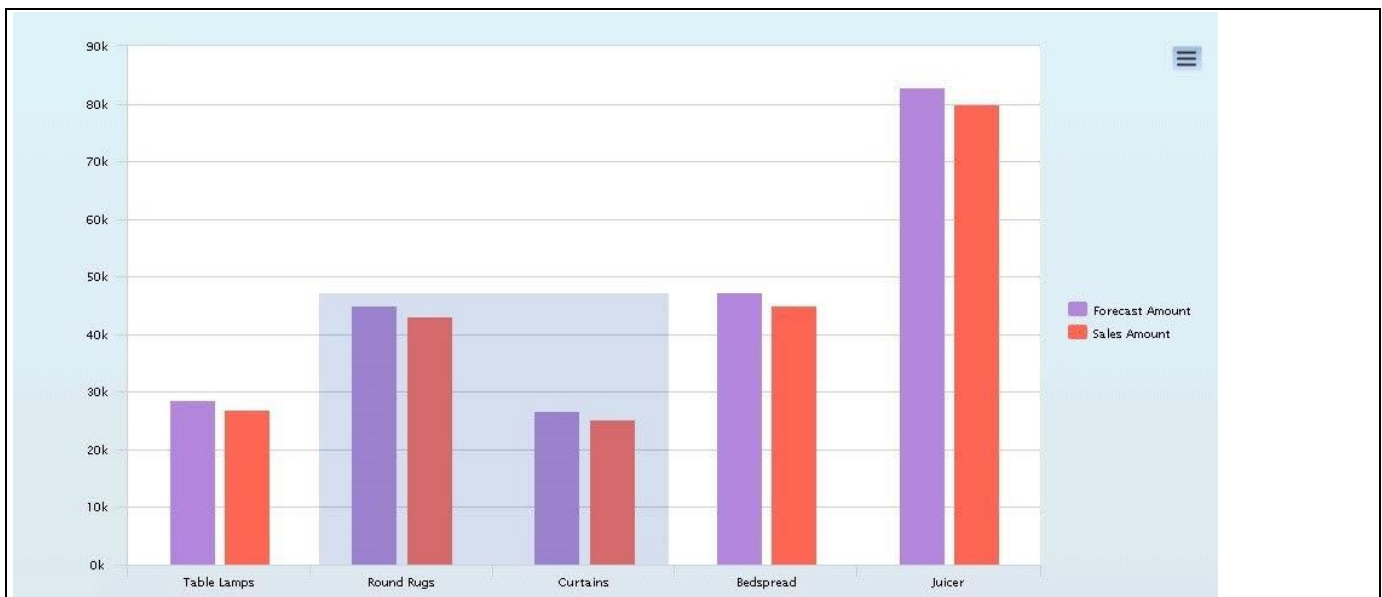


Figure 4.36: Item Selection in chart

2. After you have selected the items, the items outside the selected area will follow the color assignment for the unselected items (see Figure 4.37) and the unselected members can also be retrieved using the scripting functions for the chart.

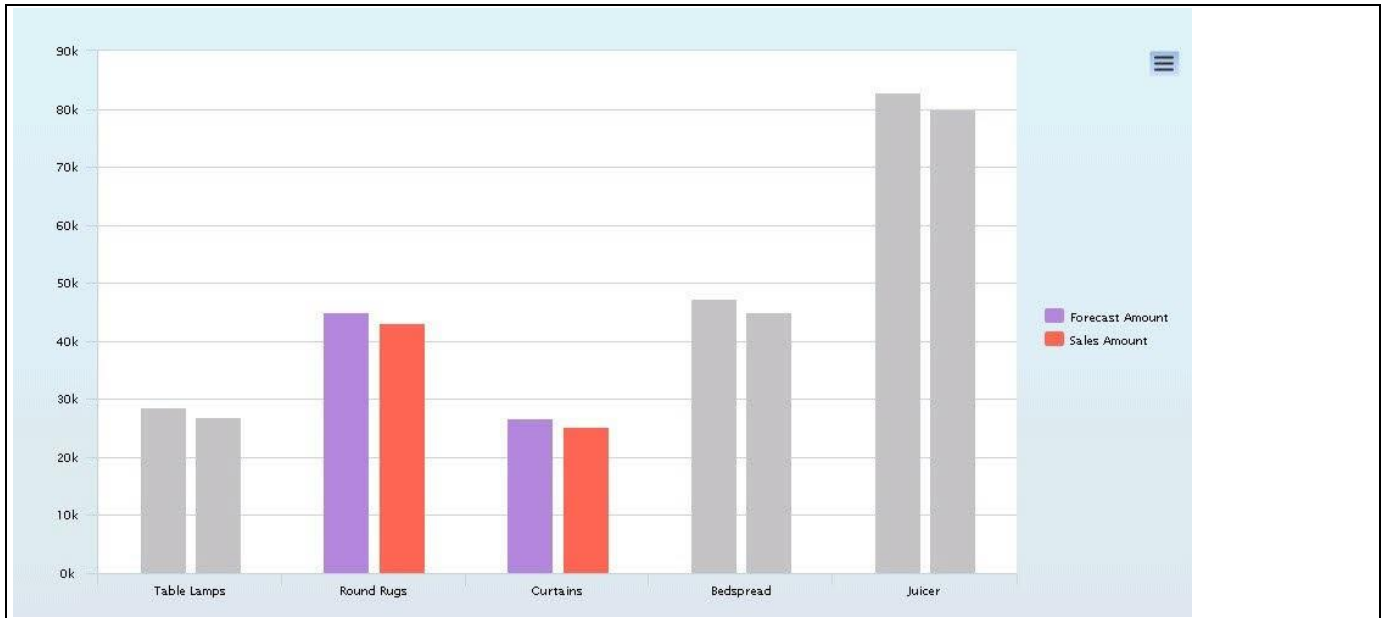


Figure 4.37: Reverse Lasso

In the last section we have outlined the steps on you can leverage the Lasso and Reverse Lasso selection with the Visual BI Extension charts. In the next section, we will outline on the steps on how you can enable / disable a Loading message for the Visual BI Extension chart.

4.3.22 Ability to have a loading and hiding message via scripting

4.3.22.1 Show Loading

As part of the chart functionality you have the option to enable / disable a Loading message for situations, for example, where the chart is loading a larger dataset. You can use scripting functions to trigger the showing and hiding of the loading message.

You can follow the steps below for an example:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows two measures - Forecast Amount and Sales Amount – and one dimension Product.
3. Add a Column Bar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Make sure the Name of your Column Bar Chart in the Standard Properties is shown as CHART1.
5. Assign the data source to the Column Bar Chart.
6. Navigate to the Additional Properties of the Column Bar Chart.
7. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
8. Navigate to the category Scripting in the Additional Properties of the Column Bar Chart.
9. Open the script editor for the event After Chart Load.
10. Add the following scripting:


```
CHART1.DSXShowLoading();
```
11. Click OK to close the script editor.
12. Navigate to the menu Application • Save.
13. Select the menu Application • Execute Locally.
14. You will be able to view the loading message for the chart (see Figure 4.38).

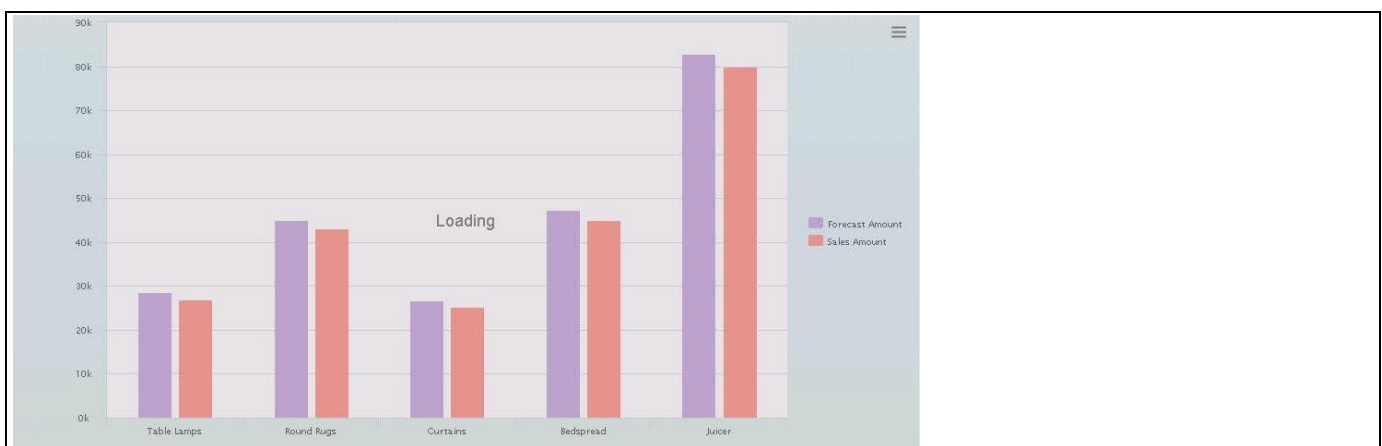


Figure 4.38: Loading Message

4.3.22.2 Hide Loading

In the previous steps we enabled the loading message and in the next steps we will incorporate the hiding of the message.

You can follow the steps below for an example:

1. Use the project we created in the previous steps with the loading message being shown when the chart is being loaded.
2. We will now add a button to the dashboard that will allow you to hide the loading message.
3. Ensure you have the previous project open in SAP BusinessObjects Design Studio/SAP Lumira Designer.
4. Add a Button from the Basic Components to the canvas.
5. Ensure that the Button is being placed outside of the chart area, so that the button will not overlap with the loading message for the chart.
6. Navigate to the Standard Properties of the Button.
7. In case the Standard Properties are not shown, please use the menu View • Properties to activate the display of the Standard Properties.
8. Open the script editor for the onClick.
9. Add the following scripting:


```
CHART2.DSXHideLoading();
```
10. Click OK to close the script editor.
11. Navigate to the menu Application • Save.
12. Select the menu Application • Execute Locally.

You will be able to view the chart and initially the loading message will be shown and you have the option to click on the button to hide the loading message (see Figure 4.39).

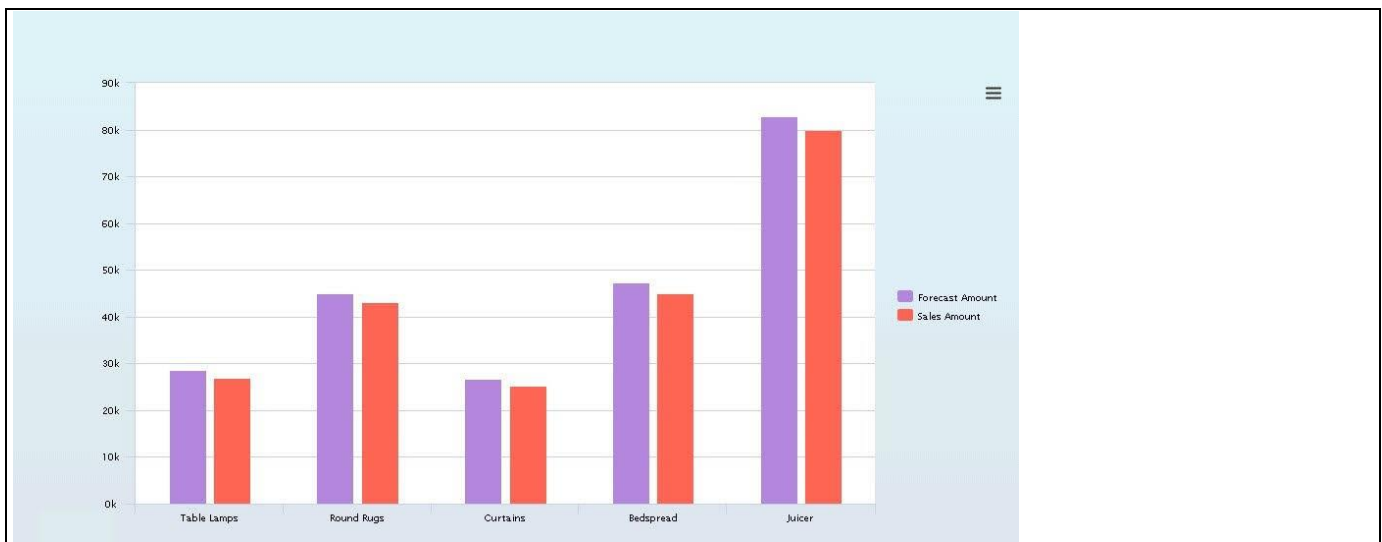


Figure 4.39: Hiding Message

4.3.23 Master / Detail option for the charts

With the new Master Detail functionality for the Visual BI Extension Charts you now have the option to enable a miniature display of the complete chart and data for navigation purposes (see Figure 4.40).



Figure 4.40: Master Details Chart

Figure 4.40 shows an example of a Column Chart with the Master Detail functionality enabled and you are now able to select a range of the complete chart in the Master Details display, which then will focus the chart on the selected area. This functionality is implemented for the following charts:

- Area
- Bullet
- Column Bar
- Dual Axes
- Fixed Column
- Group Stacked Column Bar
- Line
- Multiple Axes
- Stacked Area
- Stacked Column Bar

The following steps show a simple example on how you can use the Master Detail functionality:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows two measures - Forecast Amount and Sales Amount – and one dimension Product.
3. Add a Column Bar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Column Bar Chart from the Standard Properties (see Figure 4.41).

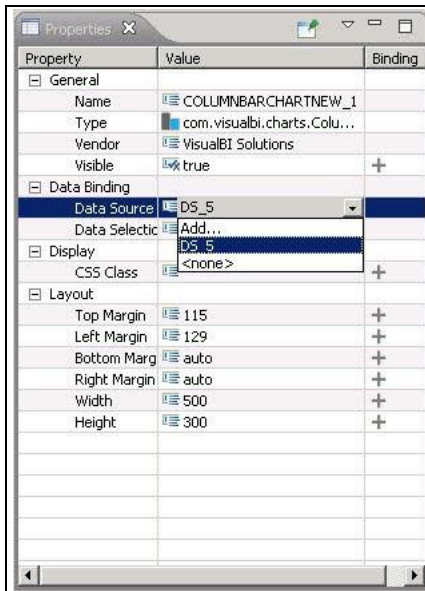


Figure 4.41: Assign Data Source

5. Navigate to the Additional Properties of the Column / Bar Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Chart and to the area General Settings. You can configure the Master Details for the chart.
8. Enable the option Enable Master Detail (see Figure 4.42).
9. You can then choose the Chart Type that you would like to use for the Master Details chart by setting the option Master Detail Chart Type.
10. In case you prefer to see the Axis for the Master Detail chart you can enable the option Enable Master Detail Axis.

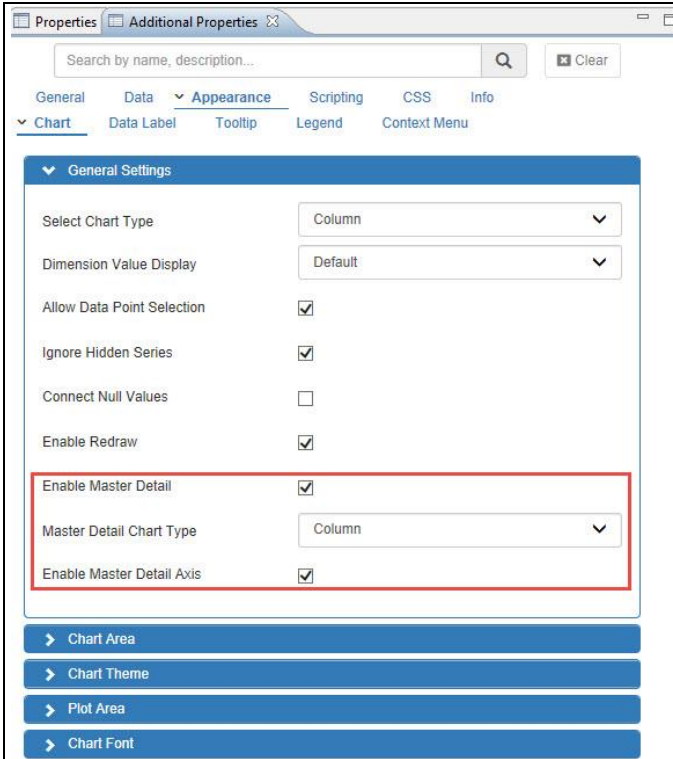


Figure 4.42: Category Appearance

11. You will be able to view the Master details for the selected configuration (see Figure 4.43).

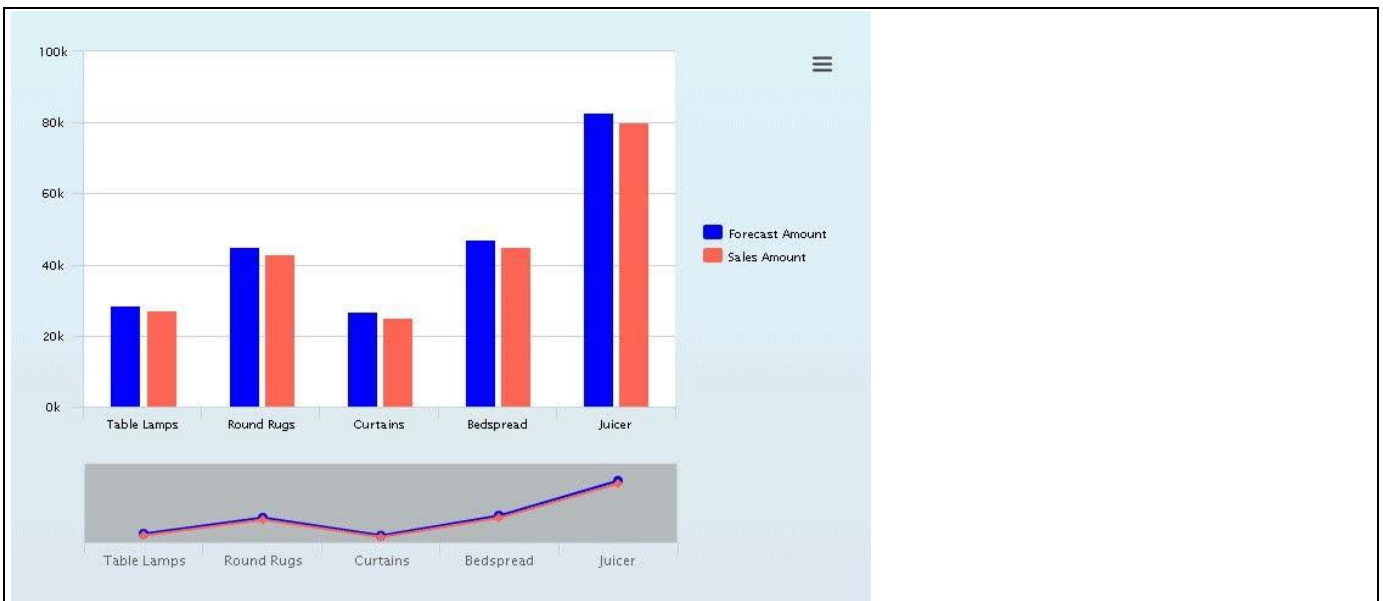


Figure 4.43: Master Details Chart

12. Now you can select a range of the complete chart in the Master Details display – in our example the measures for dimension member Round Rugs and Curtains, which then will focus the Column Bar Chart on the selected area (see Figure 4.44).

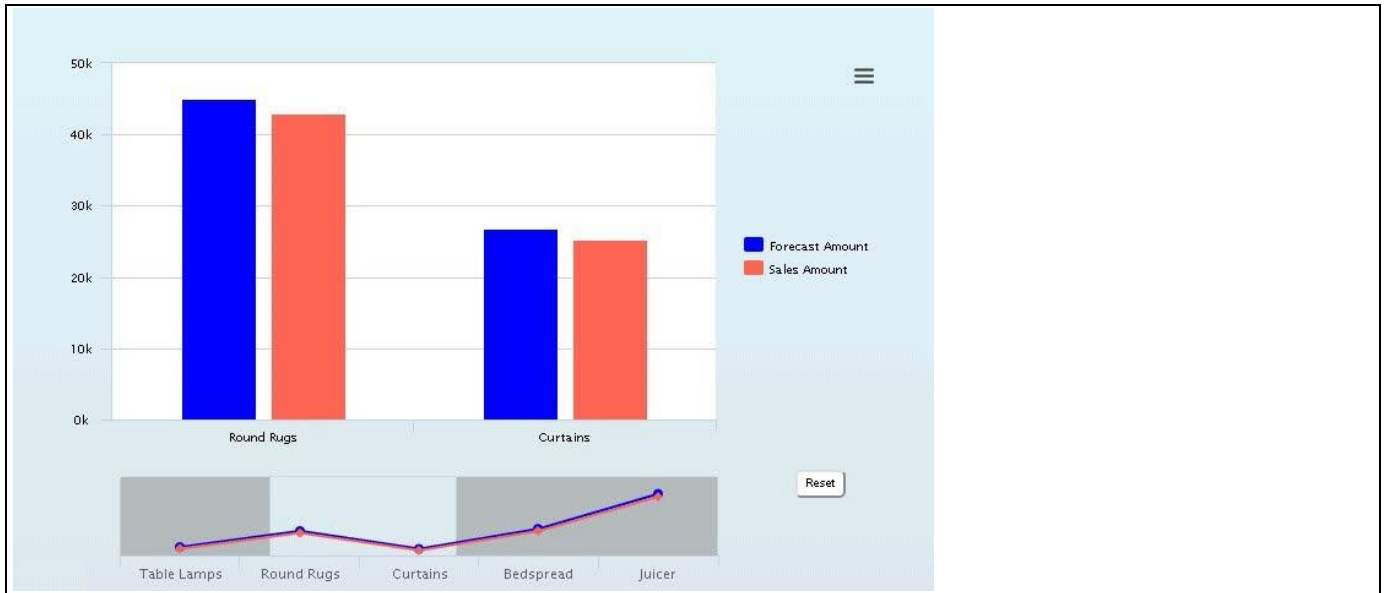


Figure 4.44: Selected range of the Master details chart

In the last section we have outlined the steps on how you can enable a miniature display of the complete chart and data for navigation purposes using Master Detail functionality in the Visual BI Extension chart.

In the next section, we will outline on how we will be working with the New Context Menu for the charts.

4.3.24 Context Menu

The Context Menu for charts now allows you to perform specific actions as part of a context menu directly in the chart. You will have the ability to leverage functions, such as filtering, ranking, drill down / drill up, or selecting the dimensions and measures for display in the chart.

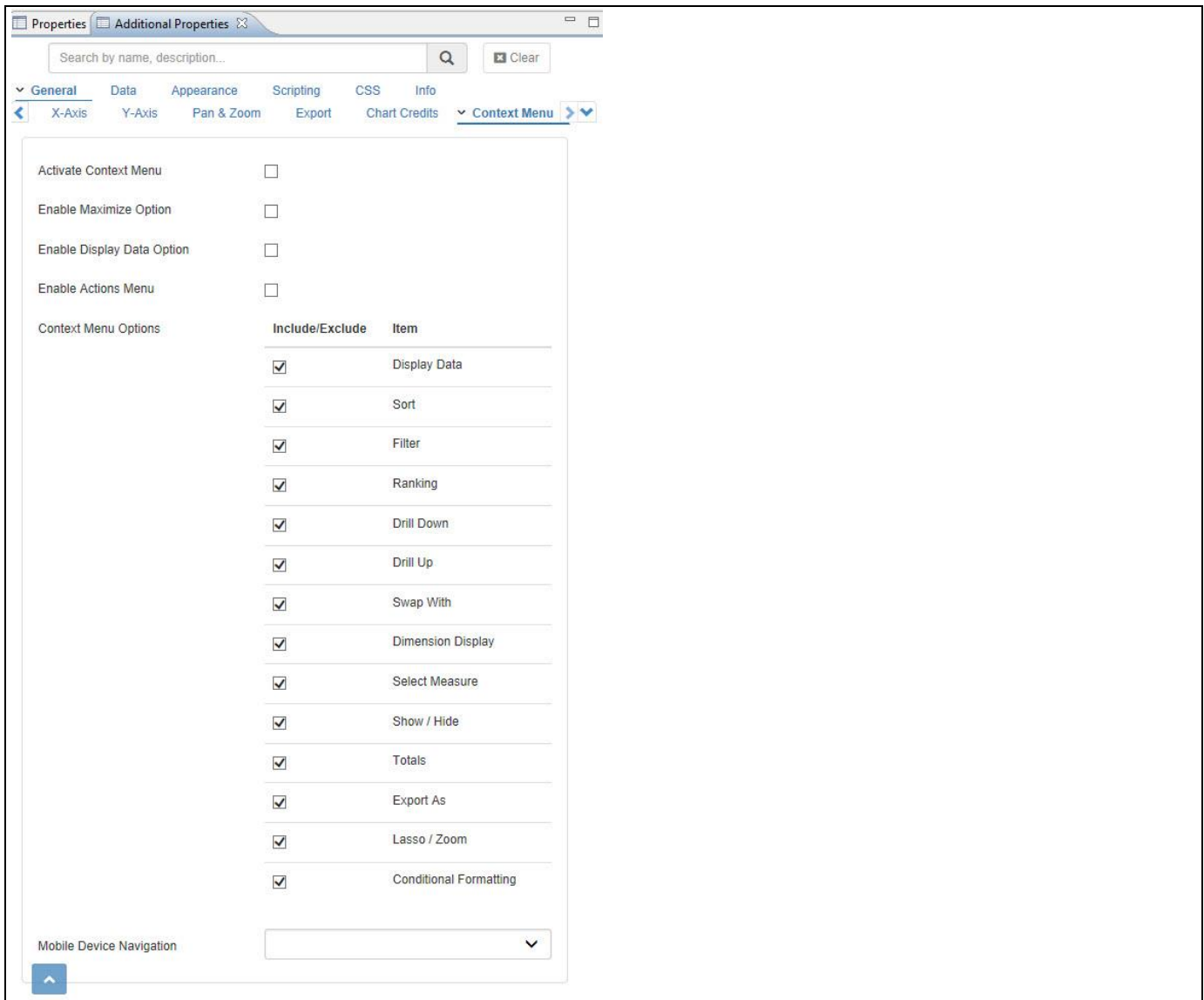


Figure 4.45: Category General

Figure 4.45 shows the sub category Context Menu as part of the Additional Properties for the chart. As part of the Additional Properties you can choose, which functionality will be available as part of the Context Menu, and which functionality will be disabled.

4.3.24.1 Custom Context Menu

As part of Release 2.32, now you will be able to create the Custom Context Menu items based on your choice. You can configure the Custom Context Menu items as part of the Additional Properties. For our example, navigate to the category General and to the subcategory Context Menu of the Line chart (see Figure 4.46).

The screenshot shows the 'Additional Properties' window for a chart, specifically the 'Context Menu' tab. The 'Activate Context Menu' checkbox is checked. Below it, a table lists various menu items with checkboxes for 'Include/Exclude' and 'Item'.

Include/Exclude	Item
<input checked="" type="checkbox"/>	Display Data
<input checked="" type="checkbox"/>	Sort
<input checked="" type="checkbox"/>	Filter
<input checked="" type="checkbox"/>	Ranking
<input checked="" type="checkbox"/>	Drill Down
<input checked="" type="checkbox"/>	Drill Up
<input checked="" type="checkbox"/>	Swap With
<input checked="" type="checkbox"/>	Dimension Display
<input checked="" type="checkbox"/>	Select Measure
<input checked="" type="checkbox"/>	Show / Hide
<input checked="" type="checkbox"/>	Totals
<input checked="" type="checkbox"/>	Export As
<input checked="" type="checkbox"/>	Lasso / Zoom
<input checked="" type="checkbox"/>	Conditional Formatting
<input checked="" type="checkbox"/>	Remove Annotations

Below the table, a section for adding new menu items is highlighted with a red box. It contains an 'Add' button, a 'Menu' field with 'Menu1', a 'Sub Menu' field with 'Menu1.1, Menu1.2', and a 'Save' button. Below this, a table for choosing icons for custom menu items is shown:

Item	Icon
Menu1	fa://hand-up
Menu1.1	fa://check
Menu1.2	fa://location-arrow

At the bottom, there is a 'Save' button and a 'Mobile Device Navigation' dropdown set to 'Double Tap'.

Figure 4.46: Custom Context Menu

You can add number of Menu Items and Submenu Items and also assign the icons for them as shown in Figure 4.46.

Based on the above configuration, you will be able to visualize the added Custom Context Menu items along with their icons for the assigned Line chart (see Figure 4.47).

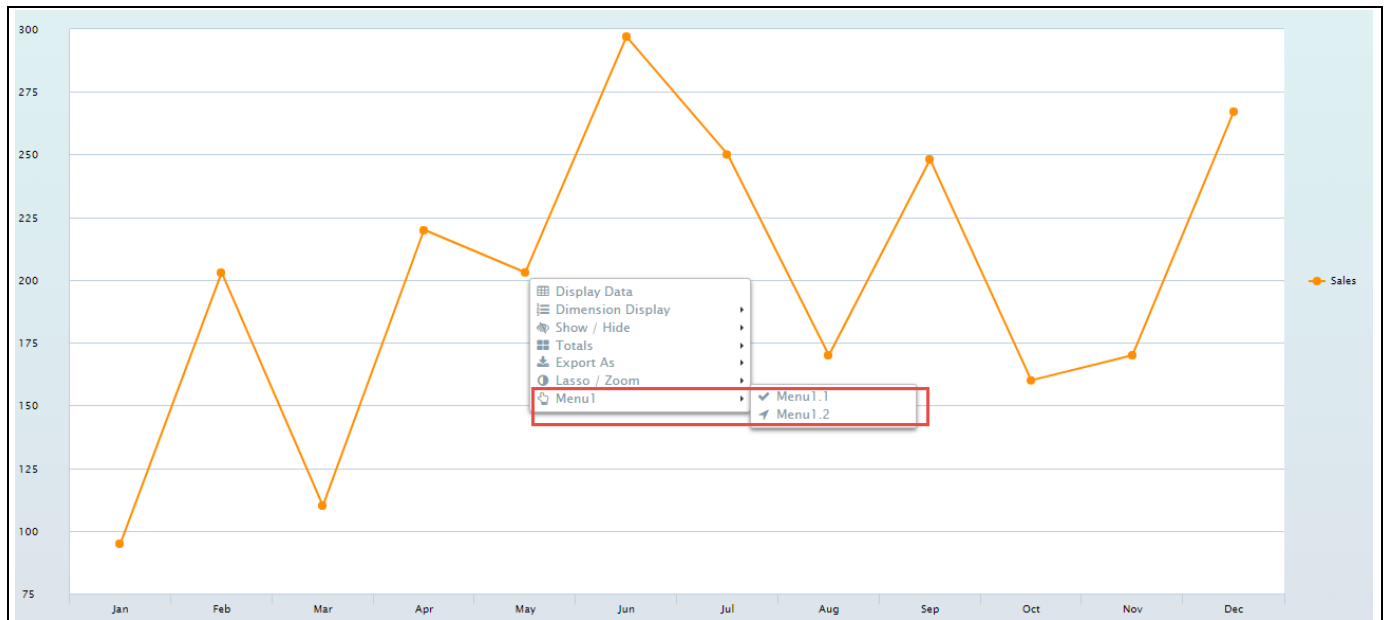


Figure 4.47: Custom Context Menu

4.3.24.2 Enabling the Context and Actions Menu

As part of the category Context Menu you can enable / disable the Context Menu using the property Activate Context Menu and the Actions Menu using the Enable Actions Menu option (see Figure 4.45). After you have enabled the Context Menu, you can open the context menu as part of the dashboard at runtime using a right-click and you can open the Actions Menu in the top right corner of the chart (see Figure 4.48).

Please also keep in mind, that when the Actions Menu is enabled, the typical Export menu is disabled and the Export options are being integrated into the Actions Menu.

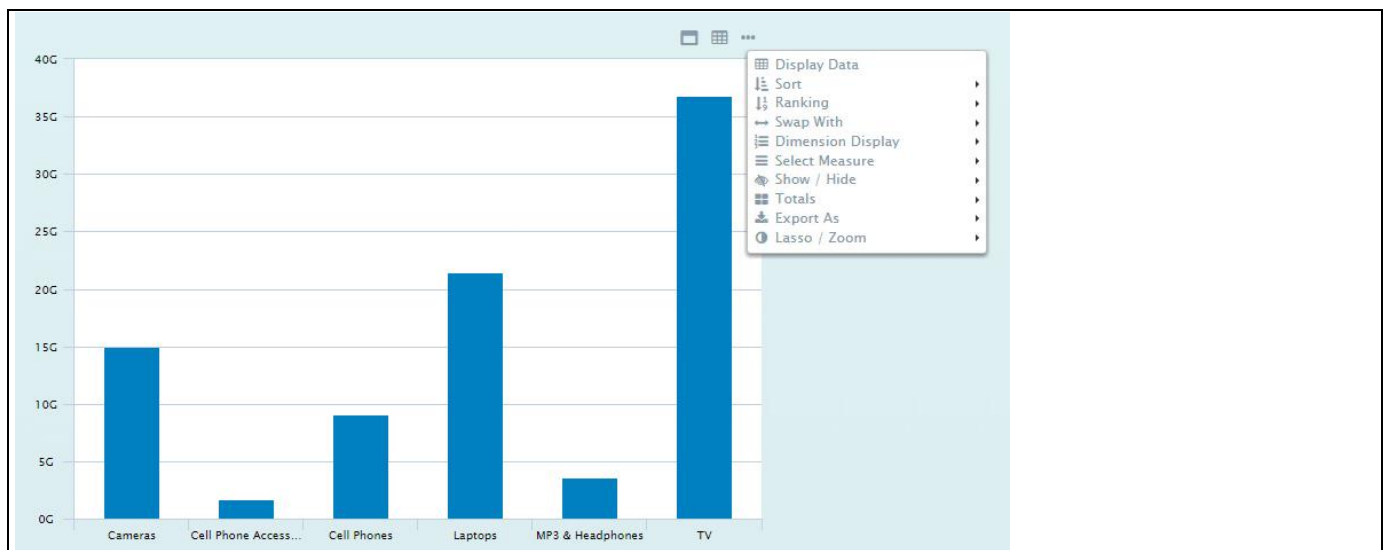


Figure 4.48: Enabled Context Menu

4.3.24.3 Enable Maximize Option

The property Enable Maximize Option allows you to maximize the chart. When you maximize the chart, the chart will leverage the full screen space that is available, and when minimized again, the chart will leverage the configured space as part of the overall dashboard. Figure 4.49 shows the full screen space for the chart when maximize option is enabled.

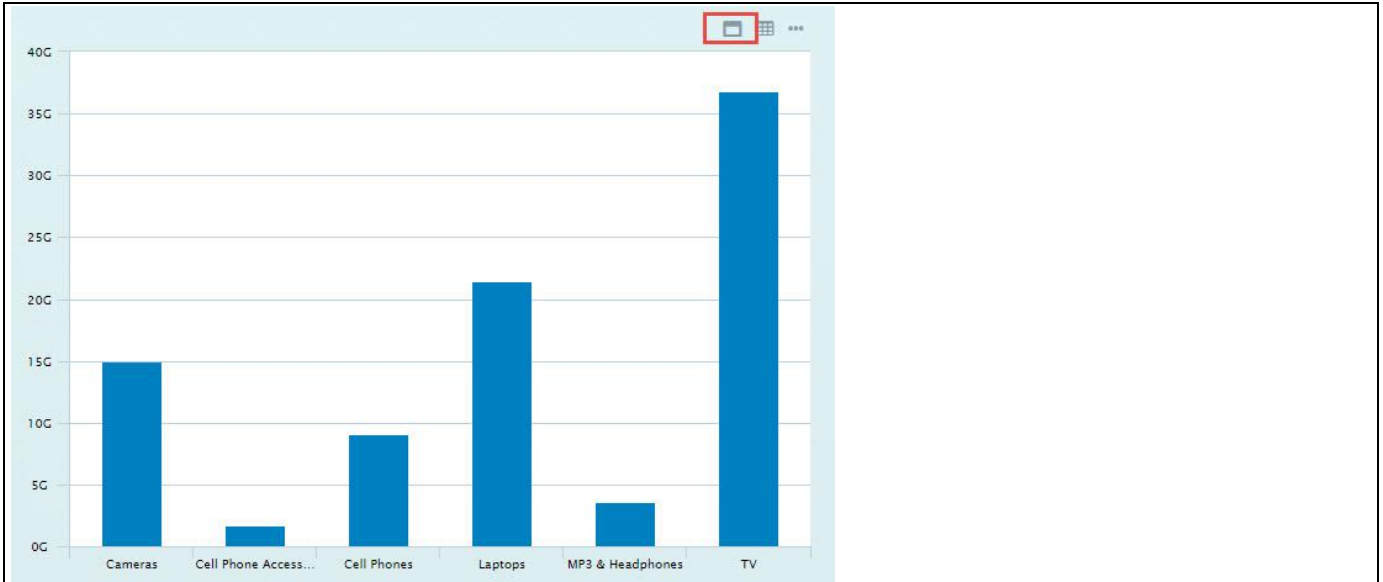


Figure 4.49: Enable Maximize Option

Figure 4.50 shows the configured space for the chart as part of the overall dashboard when minimize option is enabled.

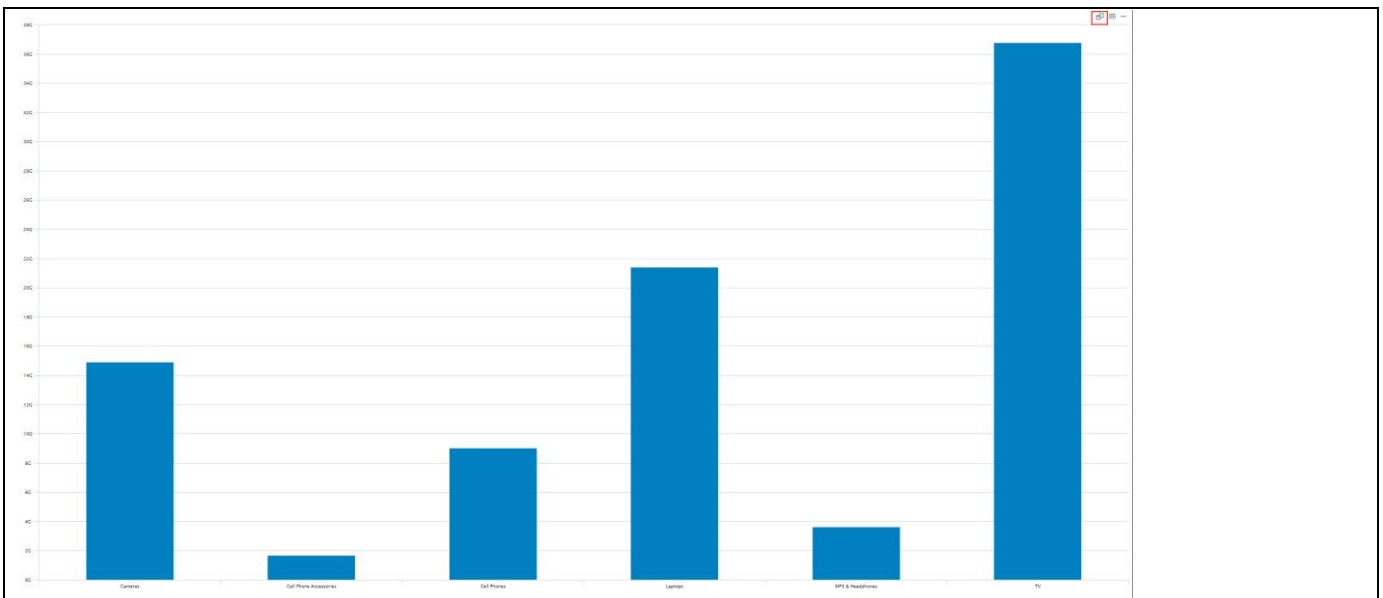


Figure 4.50: Restore Option

4.3.24.4 Enable Display Data Option

The property Enable Display Data Option allows you to display the chart data in a separate window that shows the data in form of a table. In case no element of the chart is selected, then the table will display the complete data source. In case elements of the chart have been selected, then the data for the selected elements will be shown in the table. You need to click the grid icon and view the Table format for the selected element (see Figure 4.51).

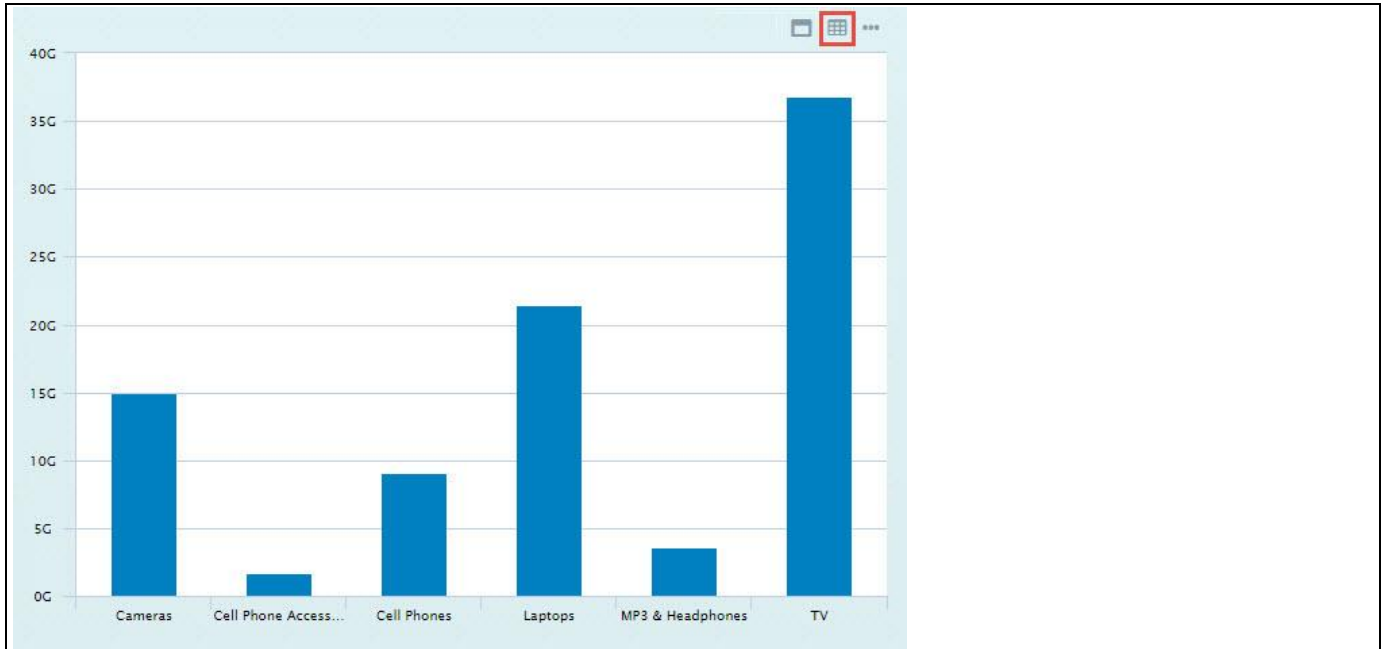
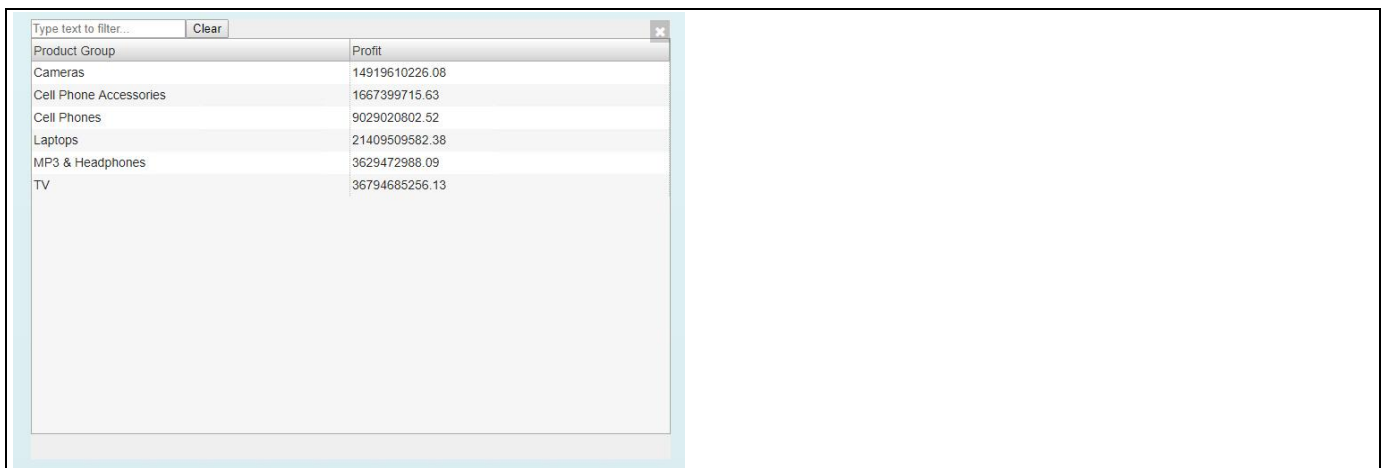


Figure 4.51: Element selection for Data Display

Figure 4.52 represents the chart data in a separate window that shows the data in form of a table when you click the grid icon.



Product Group	Profit
Cameras	14919610226.08
Cell Phone Accessories	1667399715.63
Cell Phones	9029020802.52
Laptops	21409509582.38
MP3 & Headphones	3629472988.09
TV	36794685256.13

Figure 4.52: Data Display in Table format

4.3.24.5 Table Formatting in Display Data Option

As part of the VBX Release 2.4, you will be able to format the Table for the Chart Data that appears in the run time by navigating to the category General and to the sub category Context Menu (see Figure 4.53). You can also apply Custom Theme Code to format the Table for the Chart Data.

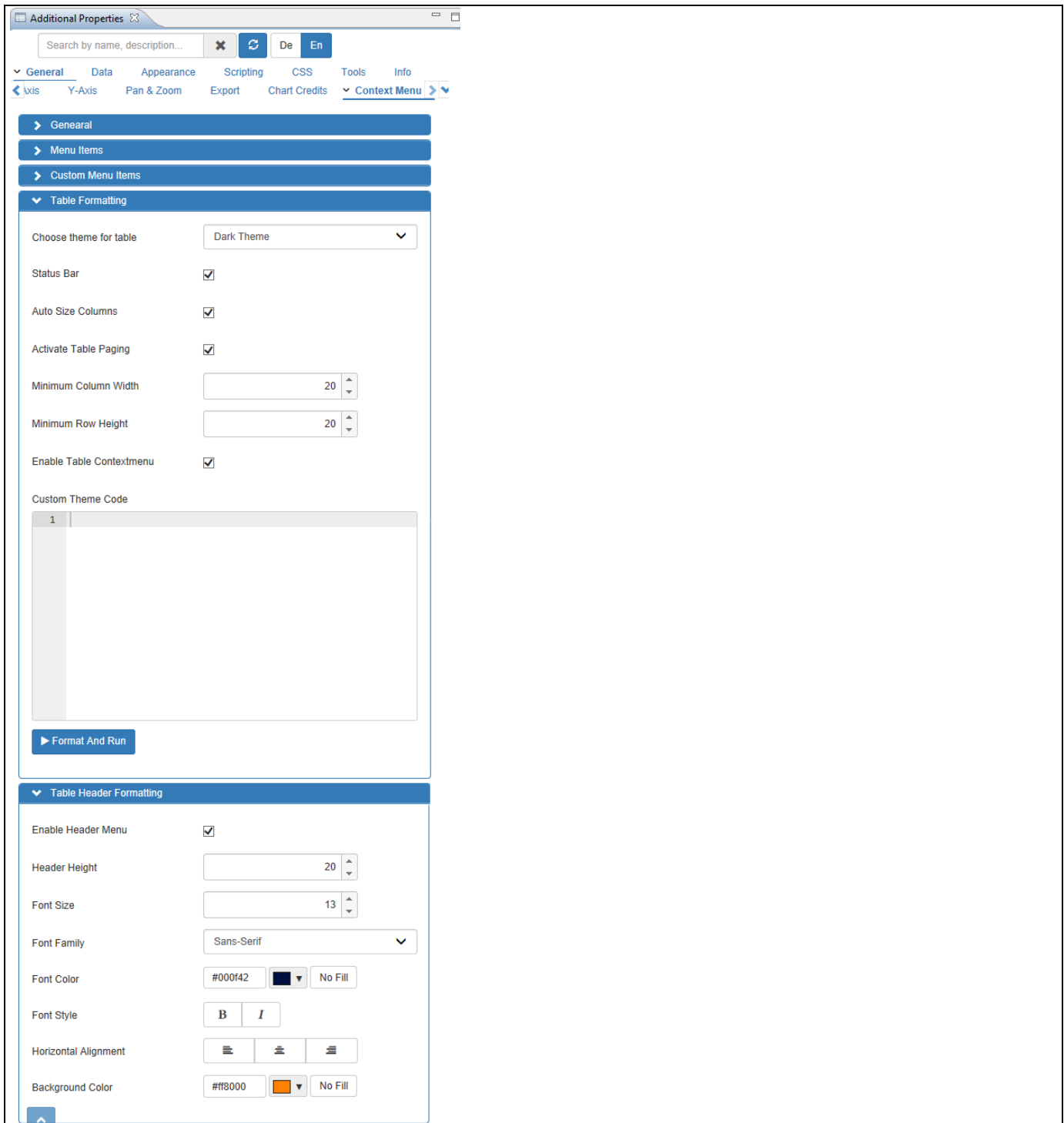


Figure 4.53: Category General

For our example, we have assigned the data for the Line Chart which appears in the run time (see Figure 4.54). Now click the Display Data option as shown in the Figure below.

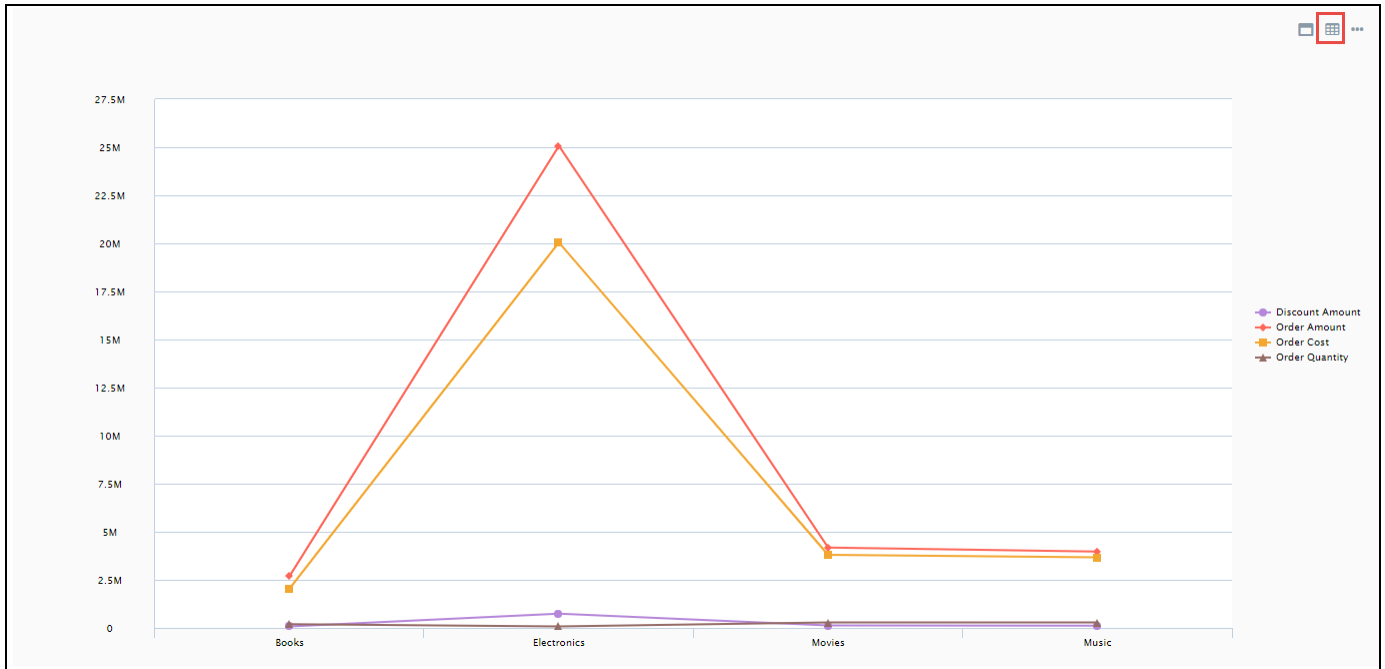


Figure 4.54: Line Chart with Display Data Option

Based on the above set of configurations as shown in Figure 4.53, you will be able to view the Formatted Table for the Line Chart Data in run time by clicking the Display Data option (see Figure 4.55).

Filter...	Clear				
Item Category	Discount Amount	Order Amount	Order Cost	Order Quantity	
Books	80,980	2,702,642	2,056,212	191,036	
Electronics	745,391	25,069,184	20,046,257	83,436	
Movies	124,157	4,177,493	3,801,759	284,140	
Music	118,610	3,967,495	3,670,037	280,175	

Figure 4.55: Formatted Table for the Chart Data

4.3.24.6 Enable Actions Menu

The property Enable Actions Menu is enabling all the selected Menu options. You can then open the Actions Menu and choose the menu option from the symbol in the top right corner of the chart (see Figure 4.56).

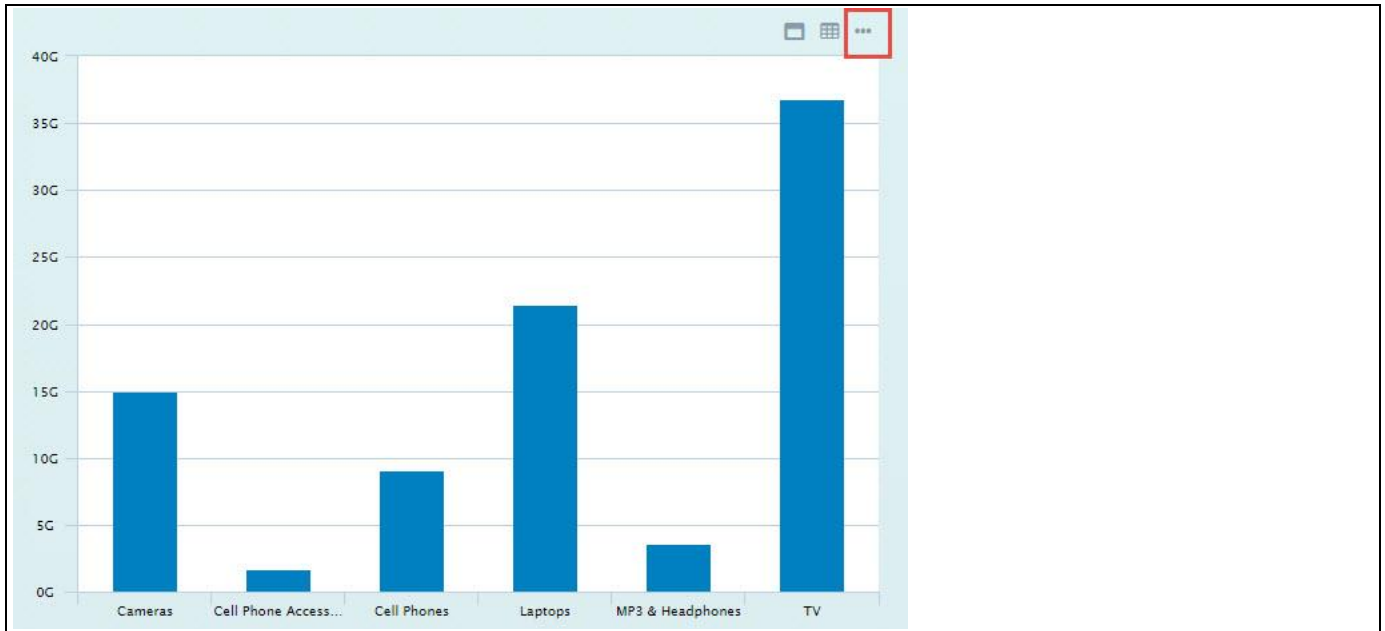


Figure 4.56: Actions Menu Option

Figure 4.57 shows the selected list of Menu options when you click the symbol in the top right corner of the chart.

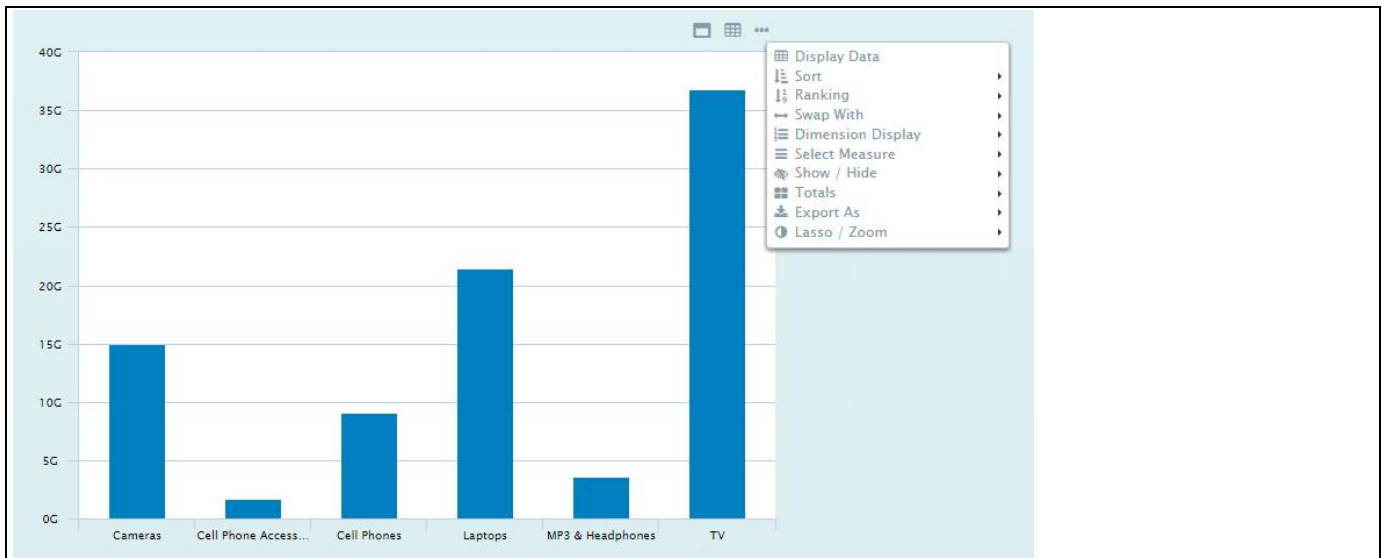


Figure 4.57: Context Menu Display

4.3.24.7 Context Menu Options

In the area Context Menu Options (see Figure 4.58), you have the option to select, which menu options will be available as part of the overall Context Menu and Actions Menu.

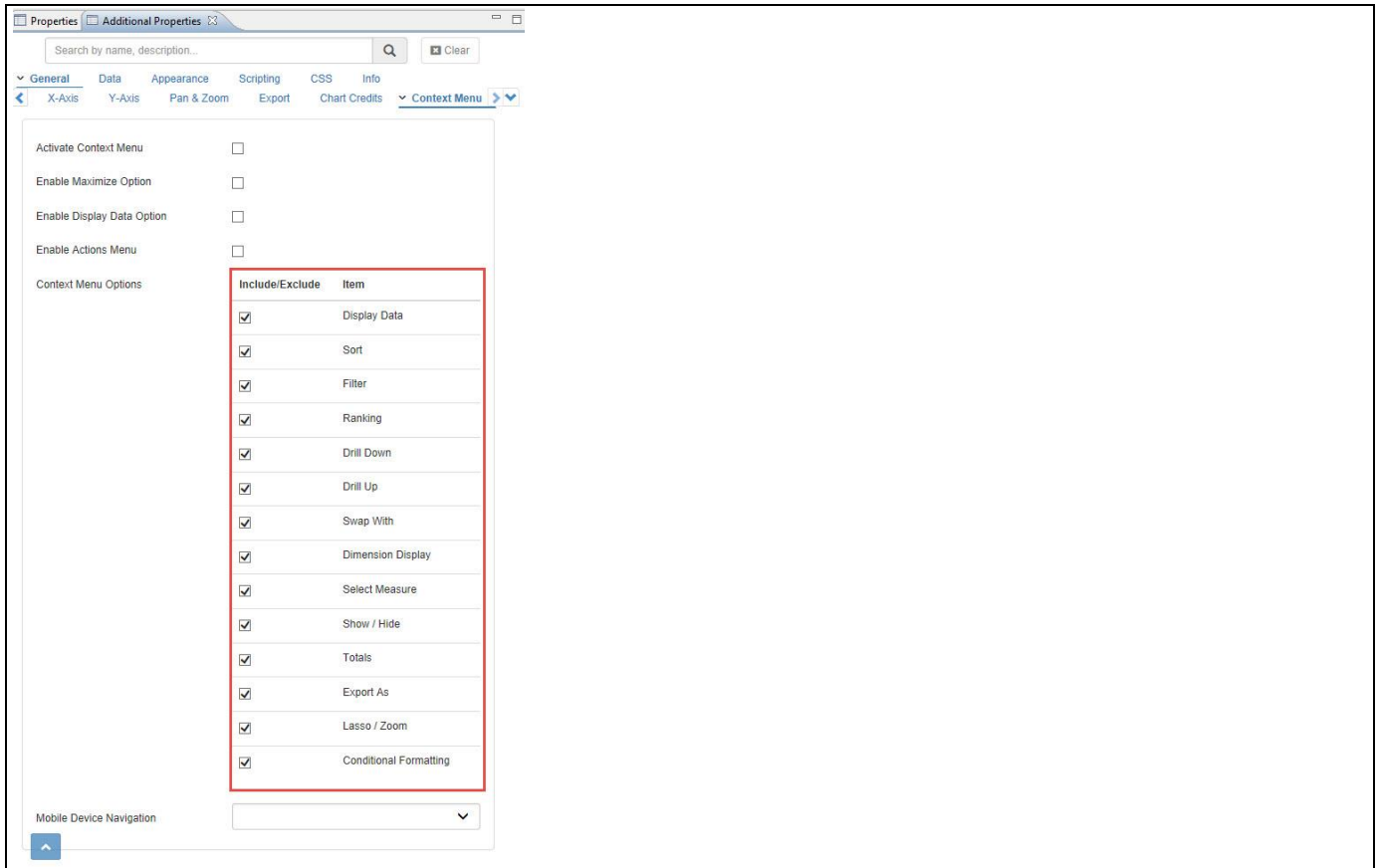


Figure 4.58: Context Menu Options

4.3.24.8 Sort

The Context Menu Sort allows you to sort the information displayed in the chart based on Dimension values or based on Measure values (see Figure 4.59).

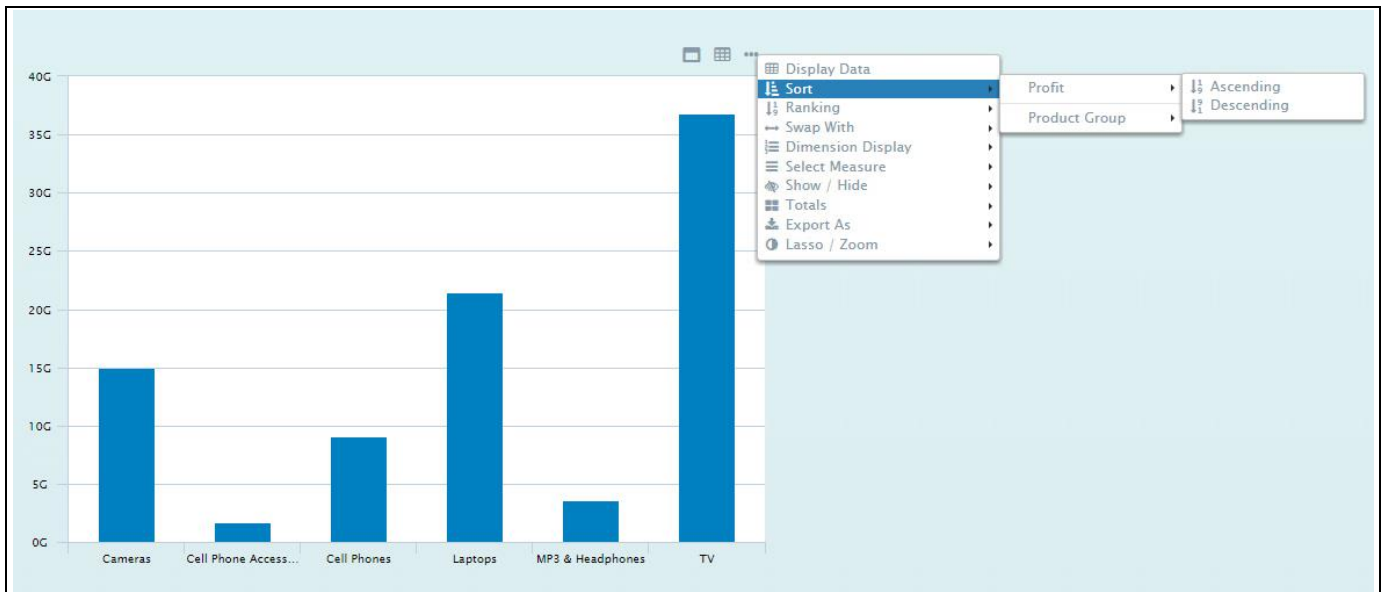


Figure 4.59: Sort Option for the Dimension

4.3.24.9 Ranking

The Context Menu Ranking allows you to rank the information in the chart based on predefined conditions, such as Top 5, Top 10, Bottom 5, Bottom 10, or to use the option Top N or Bottom N to define a custom ranking based on the available measures.

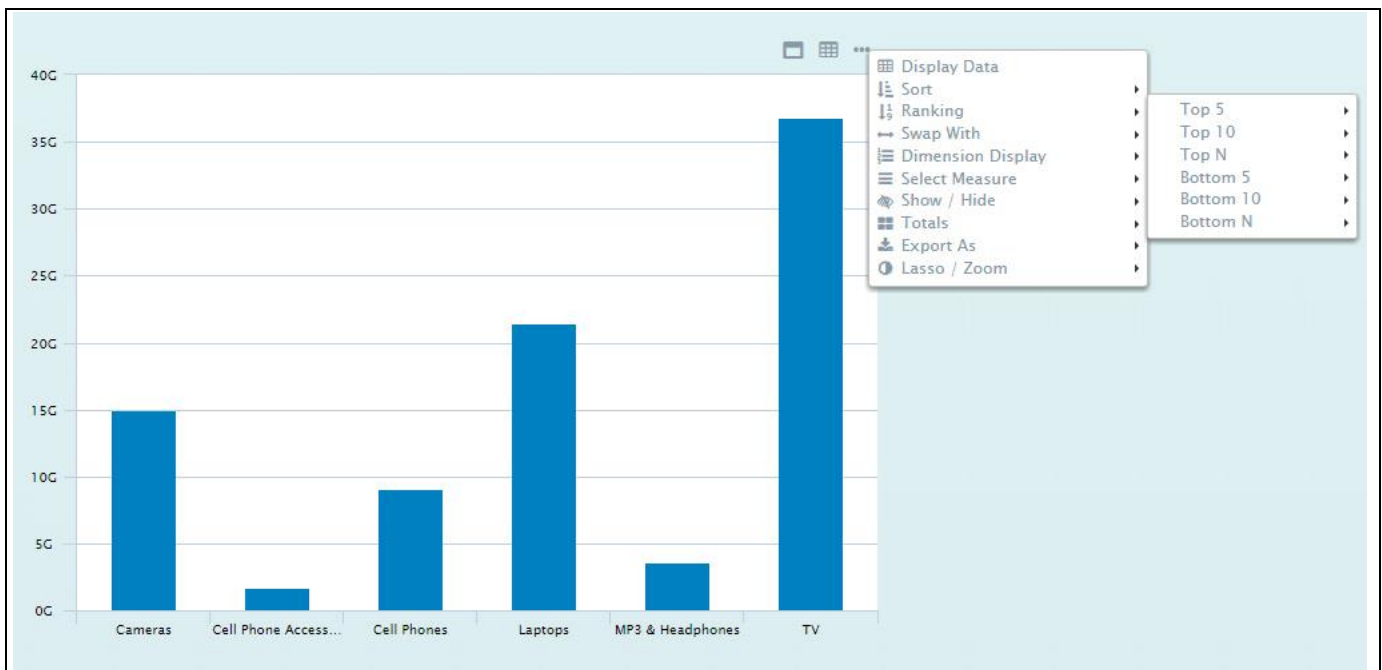


Figure 4.60: Top 5 Ranking

4.3.24.10 Swap With

The Context Menu Swap With allows you to exchange the current dimension used by the chart with another dimension from the assigned data source (see Figure 4.61) and in that way quickly change the dimension used by the chart.

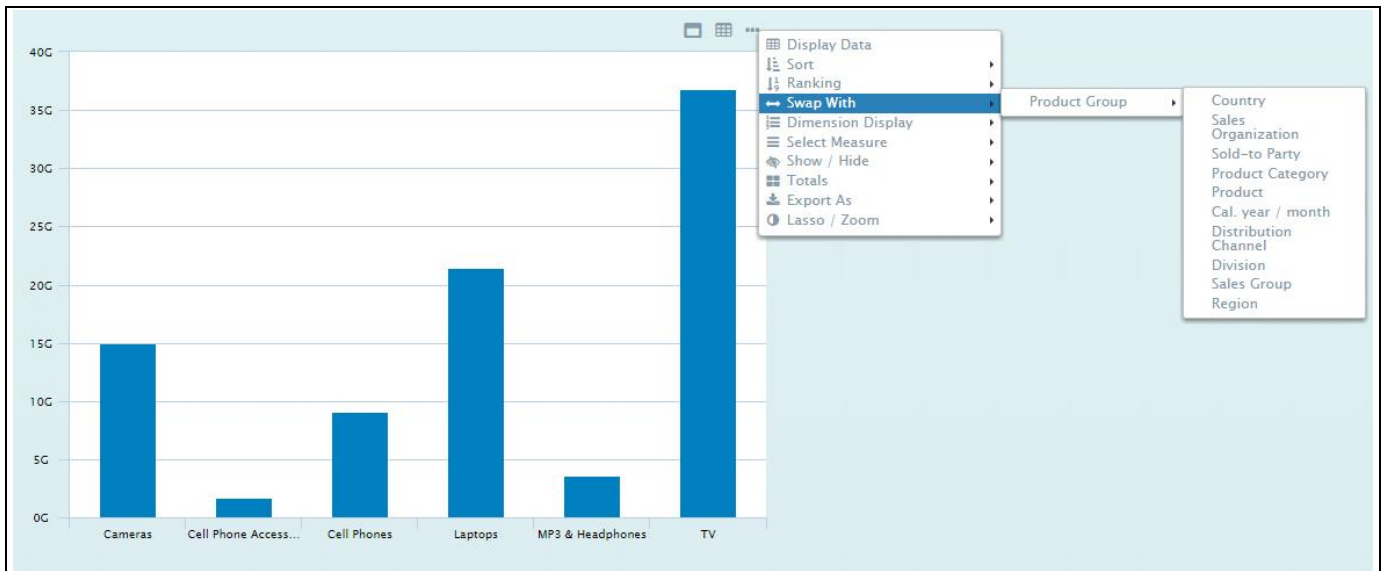


Figure 4.61: Swap from Continent to Region

4.3.24.11 Dimension Display

The Context Menu Dimension Display allows you to choose, which elements of a dimension will be displayed. You can choose between Key, Text, or a combination of Key and Text values, as well as the option Default. The option Default will leverage the configuration from the Initial View of the data source (see Figure 4.62).

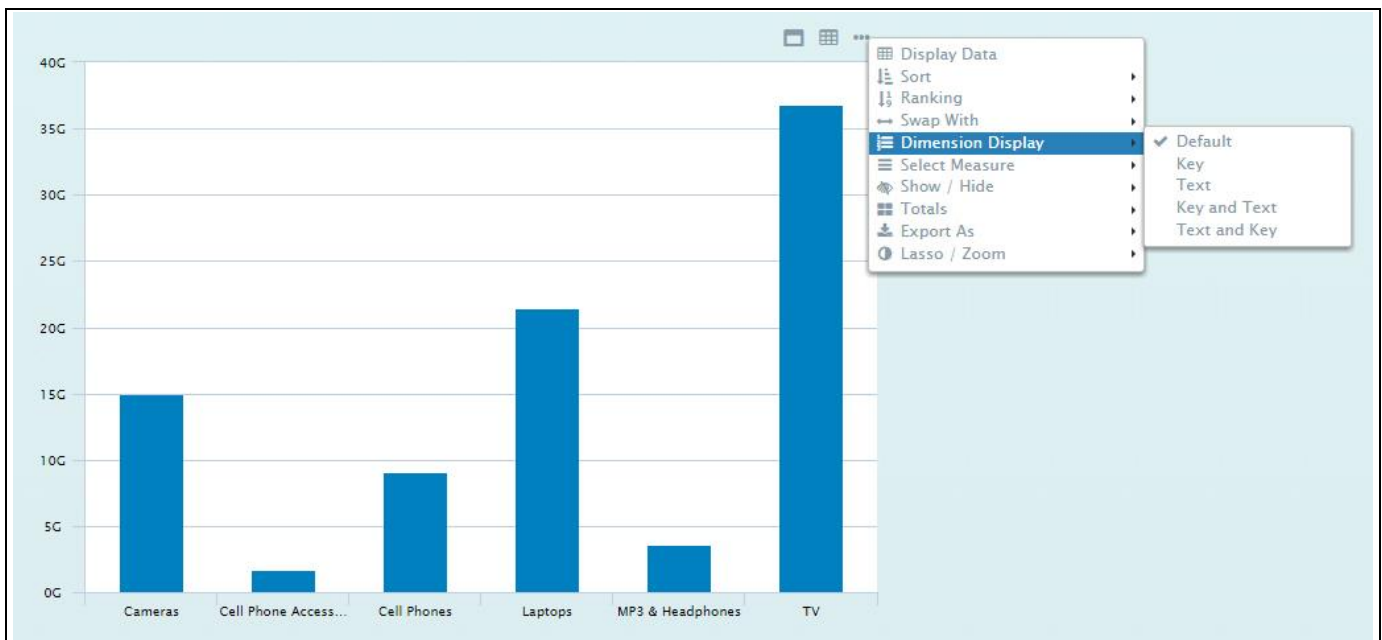


Figure 4.62: Dimension Display

4.3.24.12 Select Measure

The Context Menu Select Measure (see Figure 4.63) allows you to choose which measure(s) will be displayed as part of the chart. By default, the chart will display those measure which have been configured for the chart as part of the initial design, but by using the Context Menu you have the option to choose other or additional measures.

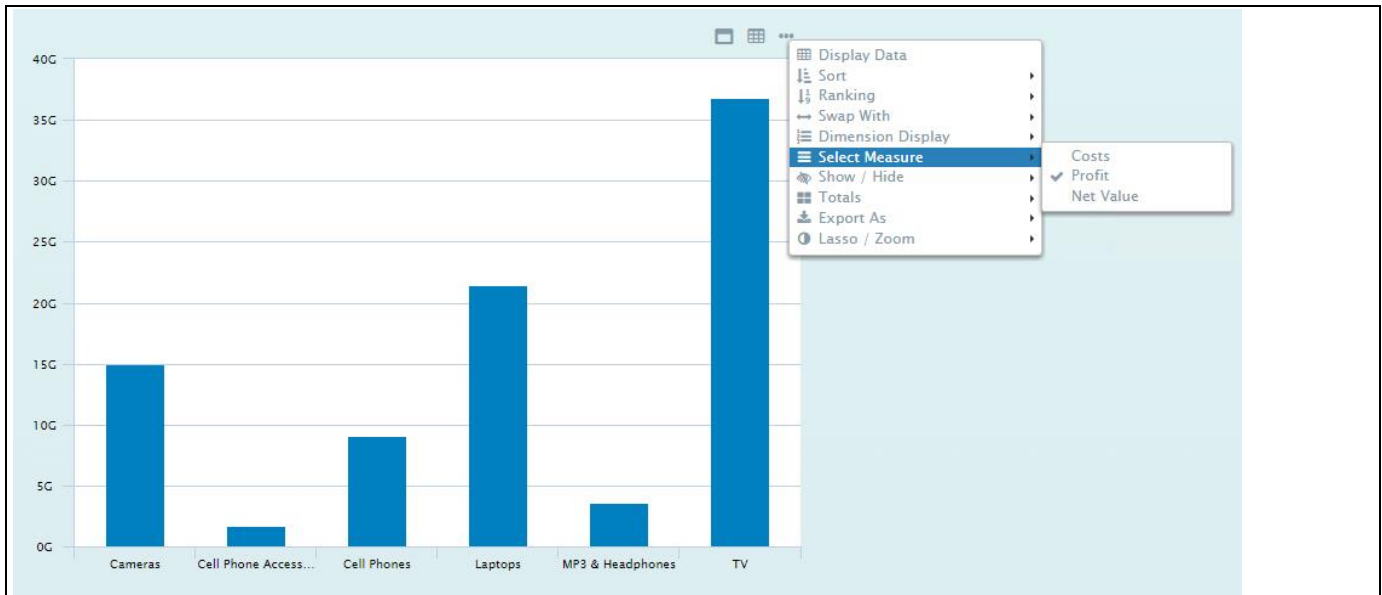


Figure 4.63: Select Measure

4.3.24.13 Show / Hide Chart Elements

The Context Menu Show / Hide allows you to configure a set of chart elements to be displayed or to be hidden (see Figure 4.64).

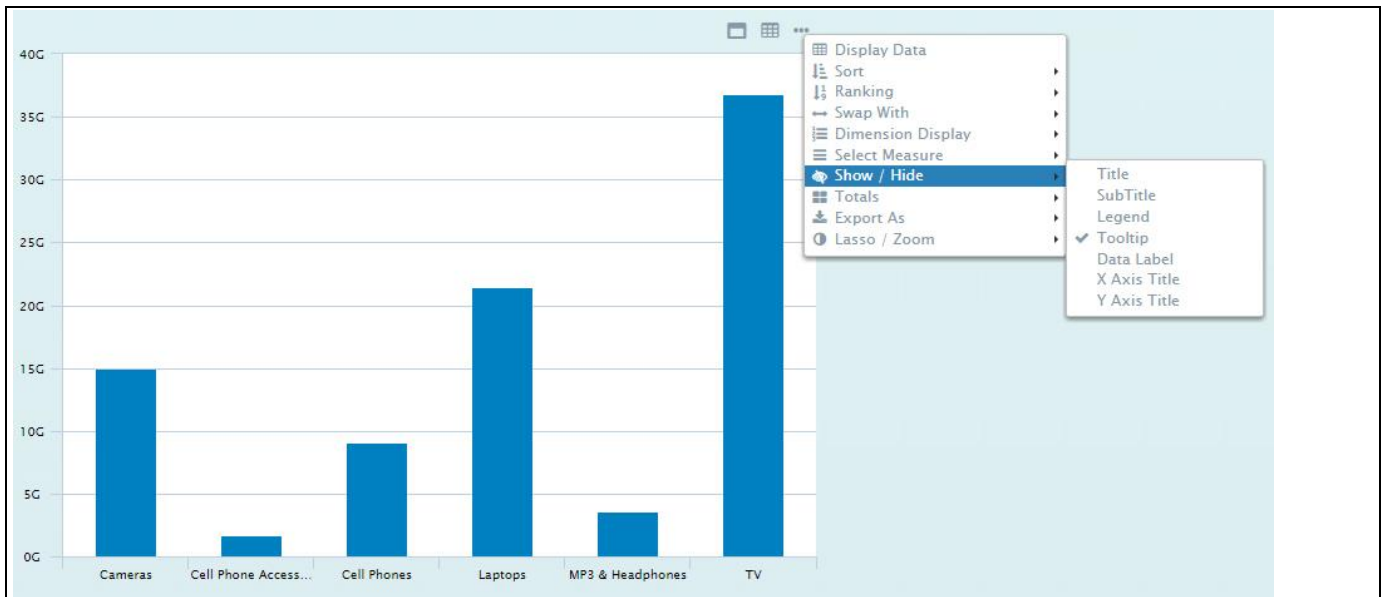


Figure 4.64: Show / Hide option

4.3.24.14 Totals

The Context Menu Totals allows you to switch on / off the usage of Totals and Subtotals (see Figure 4.65).

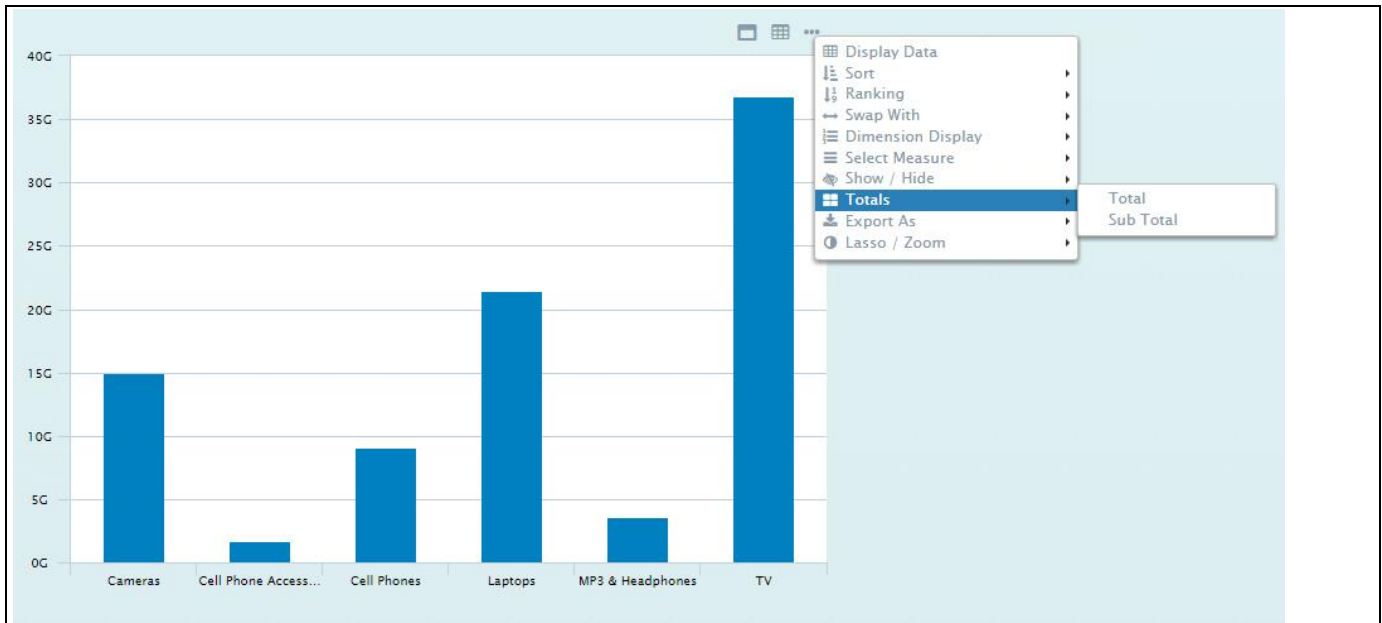


Figure 4.65: Totals Option

4.3.24.15 Export As

The Context Menu Export As allows you to export the content of the chart into different formats (see Figure 4.66). The available export formats are PDF, PNG, JPEG and SVG.

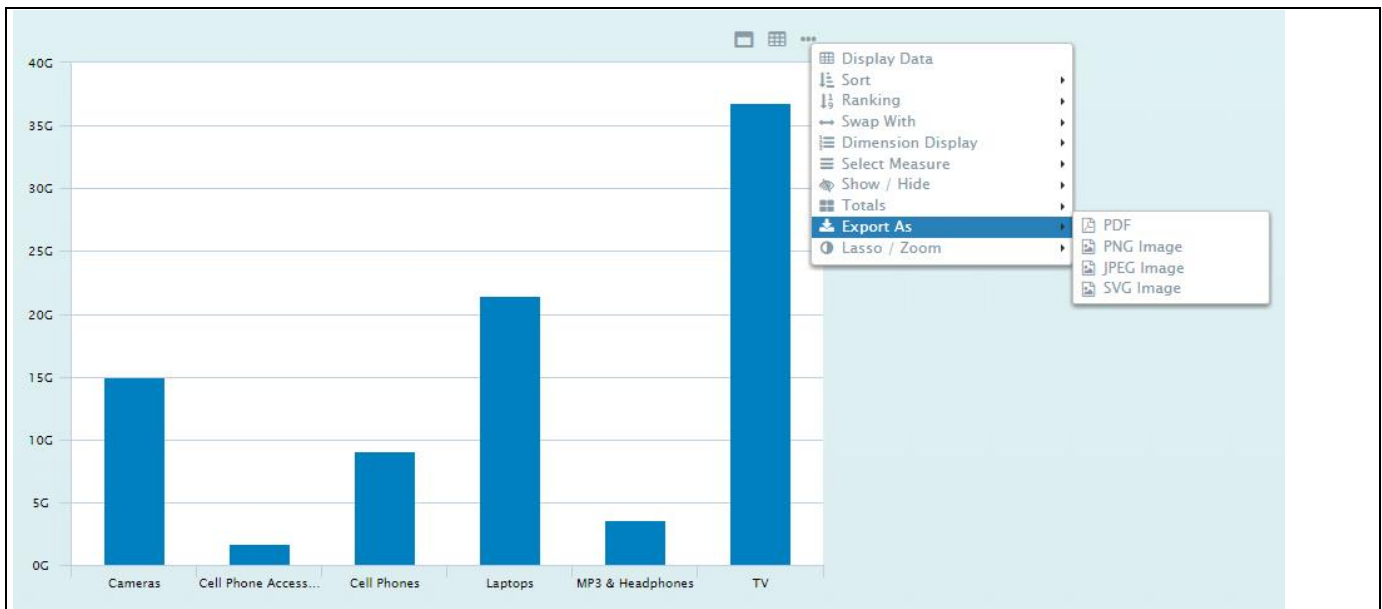


Figure 4.66: Export As

4.3.24.16 Lasso / Zoom

The Context Menu Lasso / Zoom allows you to choose between a Lasso, Reverse Lasso, or Zoom functionality. You can enable one of those options, which then will become the action that is being performed when you interact with the chart (see Figure 4.67).

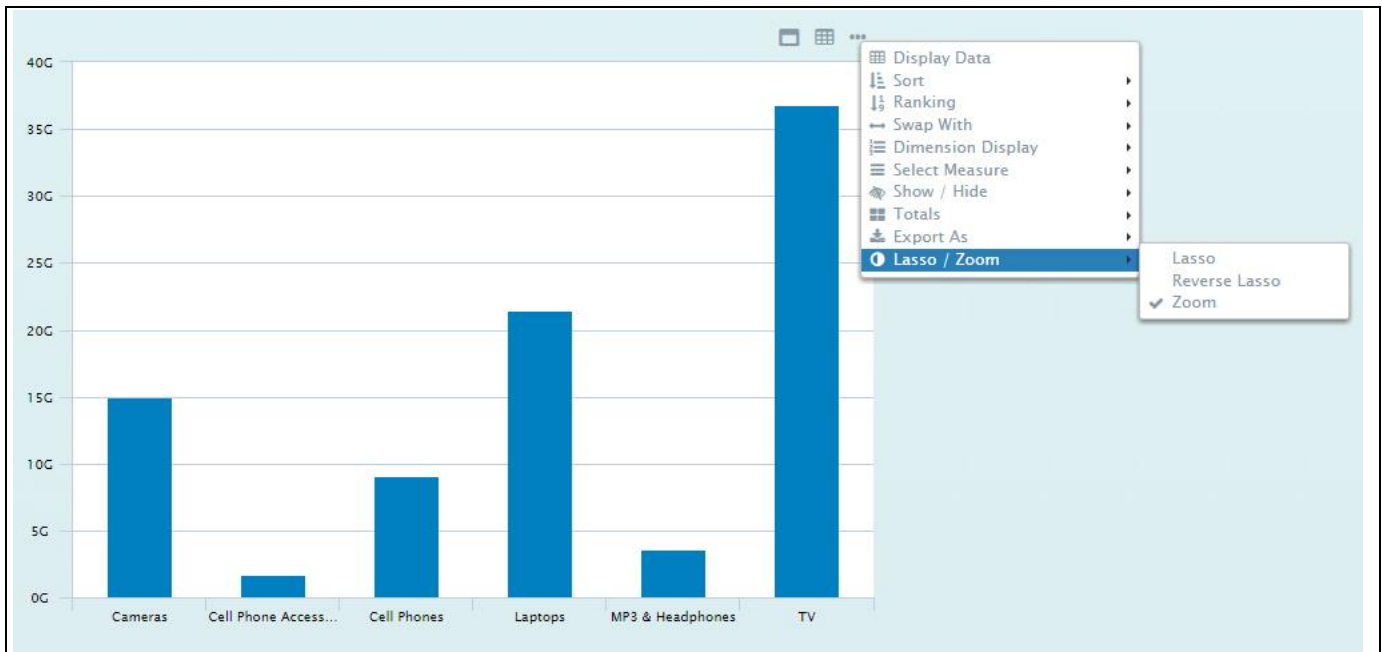


Figure 4.67: Lasso/Zoom

4.3.24.17 Conditional Formatting

The Context Menu Conditional Formatting provides you with the ability to enable / disable previously configured Conditional Formatting rules.

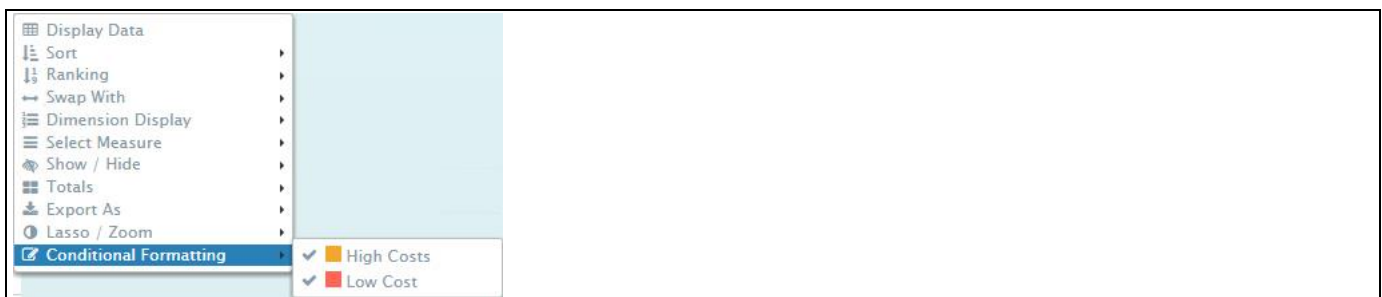


Figure 4.68: Conditional Formatting

4.3.24.18 Context Menu Filter

In case you have selected a single item or multiple items as part of the chart, you also have the option to use the menu option Filter via the Context Menu (see Figure 4.69). As part of the Filter menu you will be allowed to perform three different filter functions:

- Include – The selected items will be included into the chart.
- Exclude – The selected items will be excluded from the chart.
- Clear Filter – Any configured filter values will be removed.

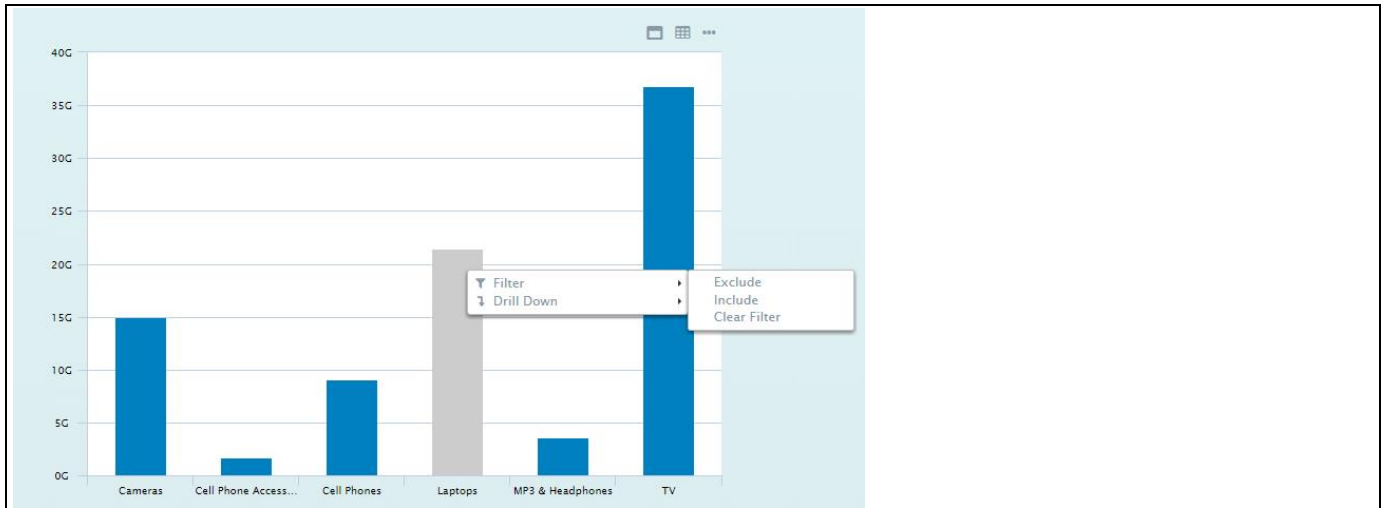


Figure 4.69: Context Menu Filter

4.3.24.19 Drill Down

In case you select a single or multiple items in the chart, you can also leverage the Drill Down menu as part of the Context Menu (see Figure 4.70). As part of the Drill Down menu, you will be shown the list of dimensions from the assigned data source and can choose to which dimension you would like to drill.

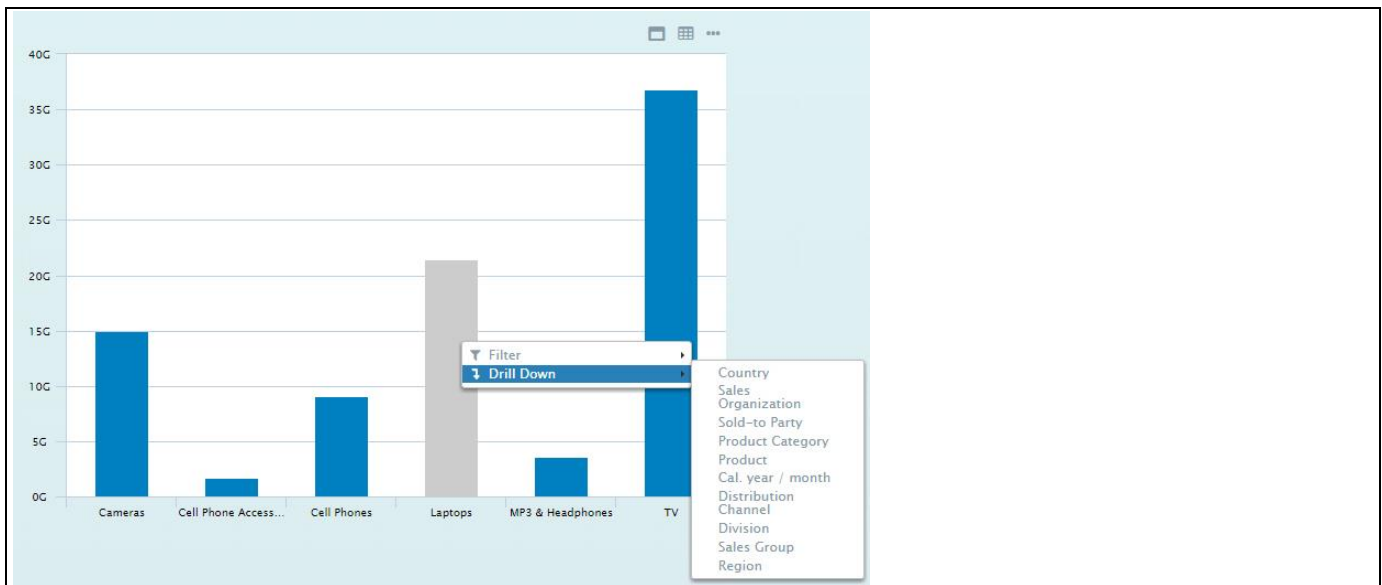


Figure 4.70: Drill down

After a successful Drill Down, you will be able to leverage the Drill Up (see Figure 4.71) menu option and can choose to which level you would like to navigate back.

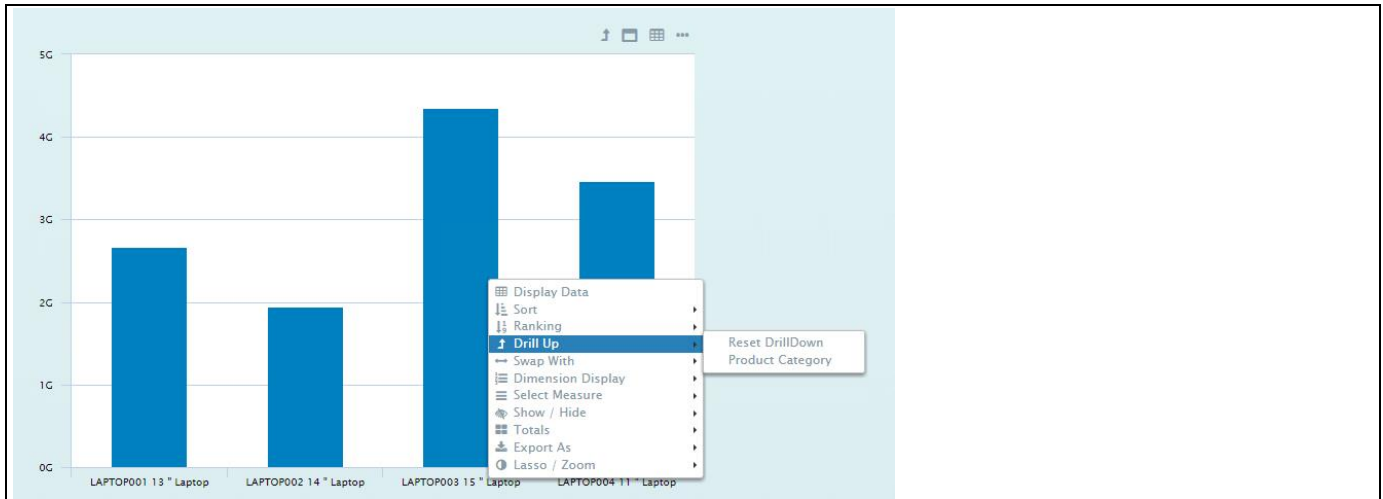


Figure 4.71: Drill Up

4.3.24.20 Mobile Device Navigation

The property Mobile Device Navigation allows you to configure, which navigation option should be configured to be used on a mobile device for opening the Context Menu. The options are Long Press and Double Tap.

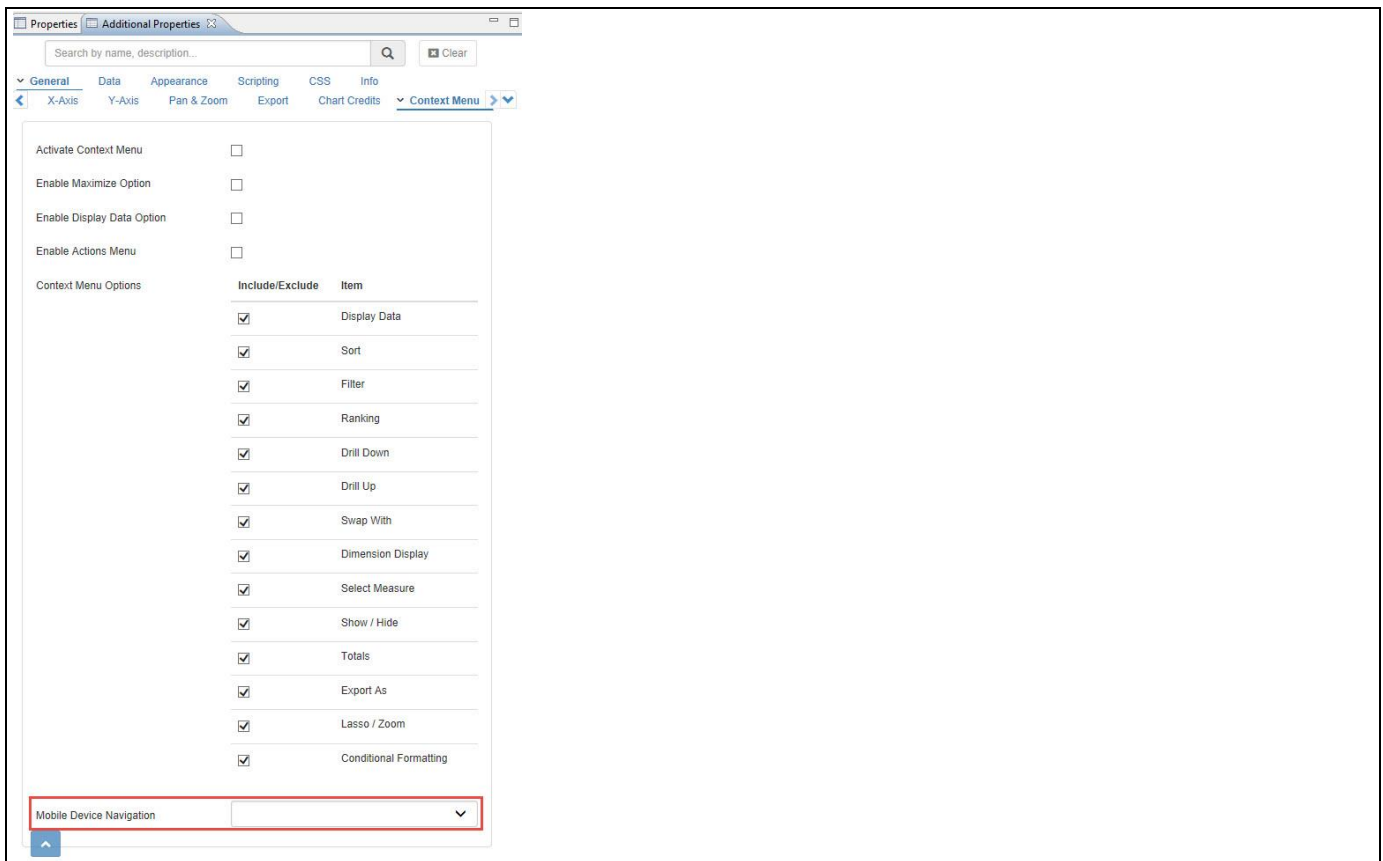


Figure 4.72: Mobile Device Navigation

4.3.25 Custom Data Label and Tooltip

Starting with the release 2.0 of the Visual BI Extensions, you also have the ability to create a customized Data Label and Tooltip using a small text editor as part of the Additional Properties.

In the Additional Properties in the Category Appearance you can navigate to the subcategory Data Label, which provides access to all the settings related to the Data Labels for the chart (see Figure 4.73).

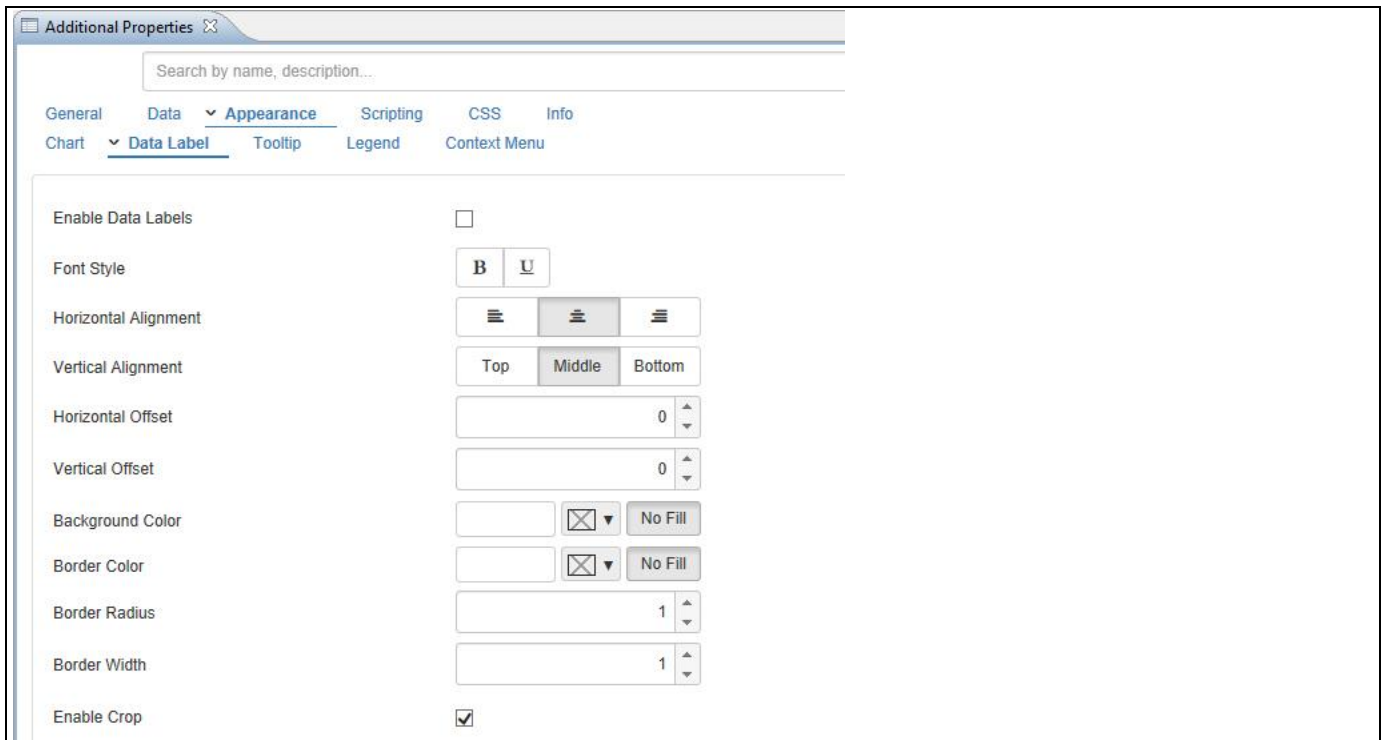


Figure 4.73: Data Label Properties

Part of the Data Label properties is also a small editor, which allows you to create a customized data label (see Figure 4.74).

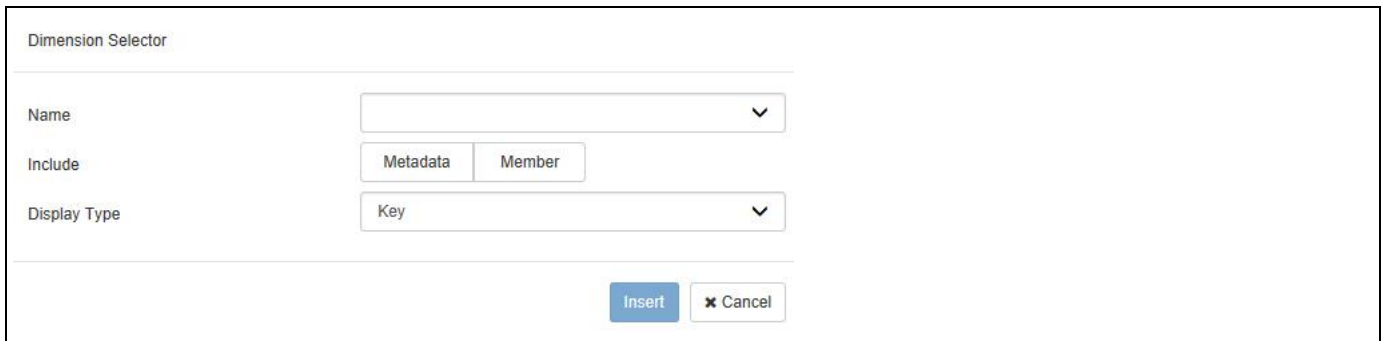


Figure 4.74: Custom Data Label

Using this small editor you have the ability to simply type and format text, as well as integrate data and meta-data from the assigned data source. Using the menu items Dimension and Measure, you can integrate the information from the assigned Dimension and Measure(s) into the Data Label.

When clicking on Dimension, you will have the option to select the dimension as part of the property Name. By using the option Metadata, you can include the name of the dimension into the data label and by using the option Member the dimension member that is shown in the chart will then be mentioned in the data label.

In addition you can configure the property Display Type to either show the Key or the Text for the dimension member (see Figure 4.75).

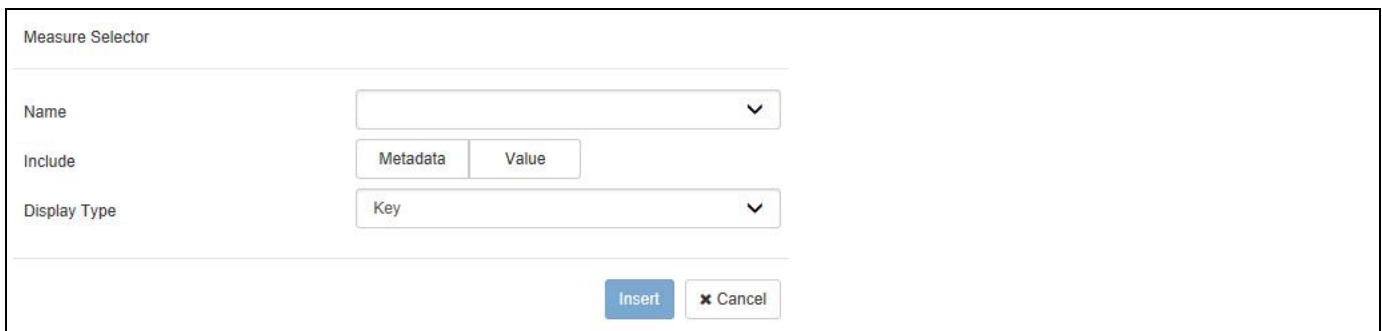


The 'Dimension Selector' dialog box contains the following elements:

- Name:** A dropdown menu.
- Include:** Two buttons, 'Metadata' and 'Member'.
- Display Type:** A dropdown menu with 'Key' selected.
- Buttons:** 'Insert' and 'Cancel' at the bottom right.

Figure 4.75: Dimension Selector

When clicking on Measure, you will receive a very similar list of options for the measures in the chart (see Figure 4.76).



The 'Measure Selector' dialog box contains the following elements:

- Name:** A dropdown menu.
- Include:** Two buttons, 'Metadata' and 'Value'.
- Display Type:** A dropdown menu with 'Key' selected.
- Buttons:** 'Insert' and 'Cancel' at the bottom right.

Figure 4.76: Measure Selector

Here you also have the ability to first select the Measure and then choose between the Metadata and the Value of the Measure. In case you choose the Metadata option, you can then also choose between the Key and Text for the Display Type. After inserting the text and the selected elements from the dimension and measures, the text editor is showing the elements of the data labels (see Figure 4.77).



Figure 4.77: Custom Data Label

In the given example we selected the Text from the Member from dimension Product Group and the measure value from the measure displayed in the chart. You also has this option available for the Tooltip as part of the Additional Properties in the category Appearance > Tooltip.

Number Format for Data Label and Tooltip

Any configurations as part of the Number Format settings in the Additional Properties will automatically be used by the Data Label and Tooltip display – including any custom Data Label and Tooltip.

4.3.26 Using CSS for Chart Formatting

Starting with the release 2.0 of the Visual BI Extensions, you have the ability to configure the look and feel of the chart using a style sheet.

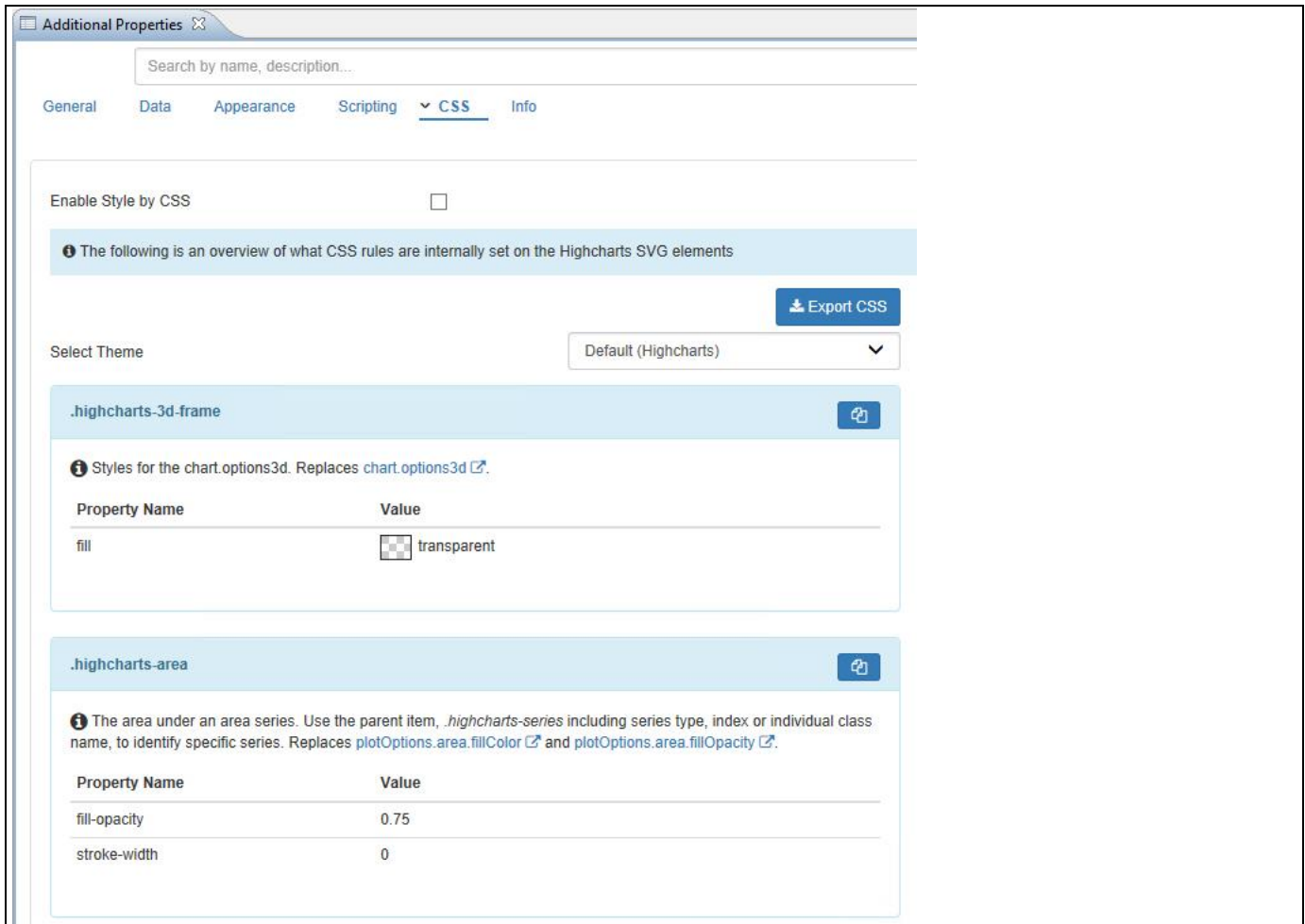


Figure 4.78: Style by CSS

In the Additional Properties category CSS (see Figure 4.78) you have the option to retrieve the complete list of used style sheet classes. The list of CSS Classes provides two functionalities. Using the Copy functionality (see Figure 4.79), you can copy the settings of a single style sheet class and paste the settings into the Style Sheet editor inside from SAP BusinessObjects Design Studio / SAP Lumira Designer and then change any settings for the used CSS class.



Figure 4.79: Copy CSS Class

Using the Export CSS option (see Figure 4.78) you can export all used CSS classes with all used settings into an external file and then copy those configurations and paste them into the style sheet editor inside SAP BusinessObjects Design Studio / SAP Lumira Designer. In addition you have the ability to choose between different CSS templates, such as Fiori, Belize, and Blue Crystal.

Style by CSS

Please be aware, that when the option Enable Style by CSS is activated, that the settings done via the CSS will apply to any Visual BI Chart used as part of the dashboard.

In addition, any settings configured via the CSS will overwrite the configuration done as part of the Additional Properties settings.

4.3.27 Common Number Format Settings

Starting with the release 2.0 of the Visual BI Extensions, you have the ability to configure the Number Format for several parts of the chart in a single place of the Additional Properties (see Figure 4.80).

Additional Properties

Search by name, description...

General Data Appearance Scripting CSS Info

Data Utility Data Series Hierarchies Conditional Formatting **Number Format** Trendline Error Bar

Apply Identical Number Format in all areas ☐

Component Area Data Label

Number Format Definition

Number Format Definition Custom Number Format

Number of Decimals 2

Thousand Separator ,

Decimal Separator .

Show Unit / Currency ☐

Currency / Unit Placement 10 \$

Show Scaling Factor ☐

Scaling Factor Default

Show Scaling Unit ☐

Scaling Unit Placement 10 K

Scaling Unit

Prefix

Suffix

Semantic Formatting

Enable Semantic Formatting ☐

Format for Negative Values -X

Color for Negative Values No Fill

Format for Positive Values X

Color for Positive Values No Fill

Figure 4.80: Number Format

In the category Data and the subcategory Number Format, you have the option to configure the details of the number format for chart elements such as the Data Label and Tooltip either individually, or you can activate the option Apply Identical Number Format in all areas to leverage a single Number Format configuration for all relevant chart areas. The detailed list of all the properties available in the Number Format area can be found in section 4.5.6.

4.3.28 Annotations in Charts

Starting with release 2.3 of the Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer, most of the charts also are now able to support Annotation. You can find the Annotation option as part of the Additional Properties for the chart by navigating to the category Appearance and to the sub category Annotations.

You can follow the steps below to configure the Annotations for the Charts:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows two measures – Order Quantity and Order Cost and one Dimension – Item Category.
3. Add a Area Chart from the VBX Charts to your SAP BusinessObjects Design Studio /SAP Lumira Designer project.
4. Assign the data source to the Area Chart.
5. Navigate to the Additional Properties of the Area Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Appearance and to the sub category Annotations (see Figure 4.81).
8. Click Create Annotation.

Search by name, description...

Q

Clear

General

Data

Appearance

Scripting

CSS

Tools

Info

Label

Tooltip

Series Label

Legend

Context Menu

Annotations

Create Annotation

Annotation Name

Annotation Name

Annotation 1

Condition

Maximum

Select Series

Order Cost

Message

Maximum : %Value%

Select the Shape

Call out

Font Color

#FFFFFF

Font Size

11

Background Color

#000000

Fill Opacity

0.75

Border Color

Border Width

Horizontal Offset

0

Vertical Offset

0

Enable Tooltip

Tooltip Message

B I U Normal

Maximum Value of the Order Cost

Save

Cancel

Figure 4.81: Annotation

9. Enter a Annotation Name.
10. For our example, set the property Condition to the option Maximum. The other option is Minimum.
11. Set the property Select Series to the measure Order Cost.
12. Set the property Message to the value Maximum: %Value% .
13. Set the property Select the Shape to the option Call out. The other options are Circle and Diamond.
14. Set the other properties Font Color, Font Size, Background Color, Fill Opacity, Border Color, Border Width, Horizontal Offset and Vertical Offset relevant to your choice (see Figure 4.81).
15. Now activate the property Enable Tooltip.
16. Enter the Message for the Tooltip as “Maximum Value of the Order Cost”
17. Based on the above configuration you will be able to view the Area Chart with the Annotation and Tooltip configured as part of Annotation for the maximum measure value Order Cost (see Figure 4.82).

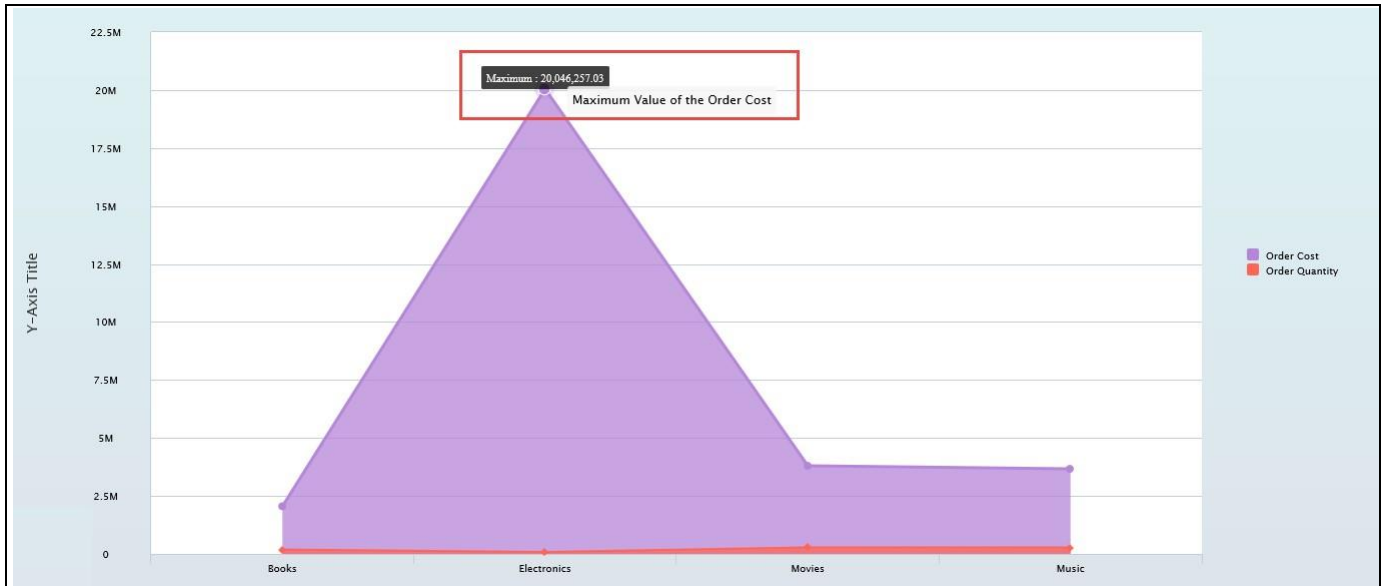


Figure 4.82: Area Chart with Annotation and Tooltip

Annotations are currently supported by the following chart types: Area chart, Column / Bar chart, Combination chart, Dual Axis chart, Fixed Column Bar chart, Line chart, Multi Axes chart, Stacked Area chart, Stacked Column / Bar chart, Stacked and Grouped Column chart and Super Combination chart.

4.3.29 Annotation at Run time

In the Additional Properties of the Charts in the category Appearance and the sub category Annotations, you can activate the option Enable Runtime Annotation in the area Runtime Annotations to use the Annotation option as part of the run time (see Figure 4.83).

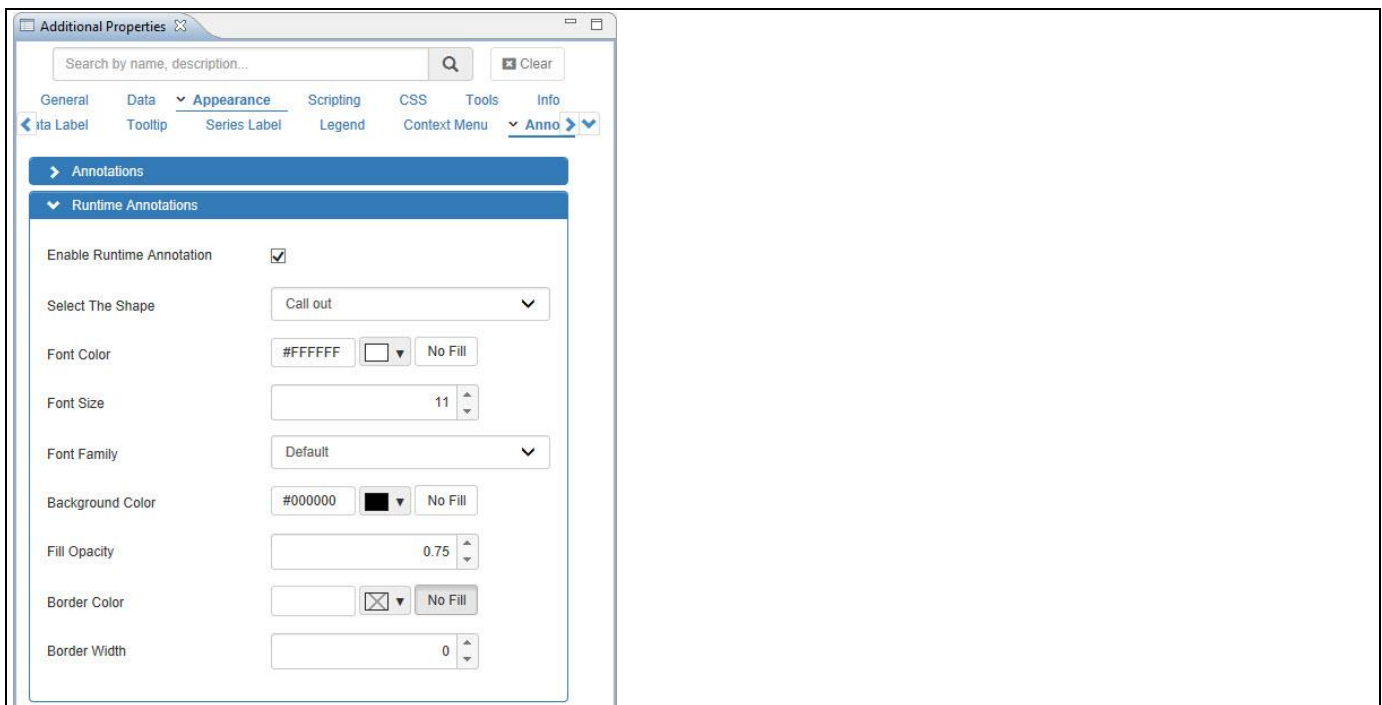


Figure 4.83: Runtime Annotations

For our example, based on the above configuration as shown in Figure 4.83 you will be able to view the Area Chart with the Annotation part being added in the run time by pressing double-click of the mouse (see Figure 4.84).

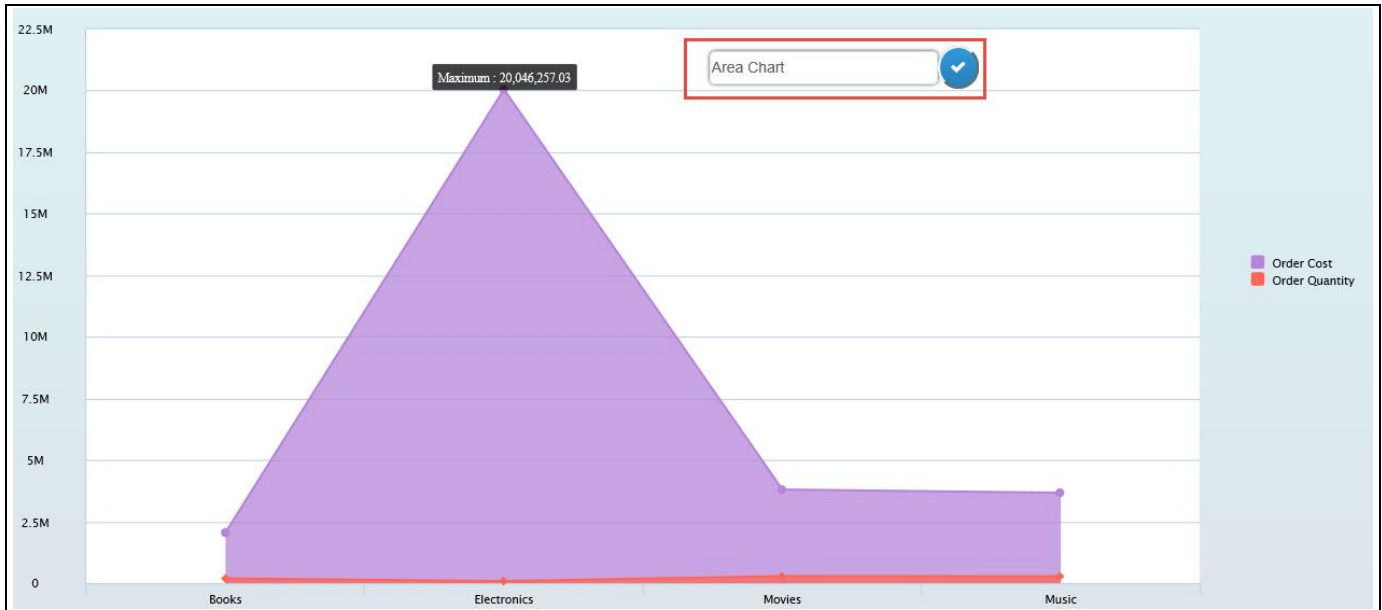


Figure 4.84: Area Chart with Run Time Annotation

4.3.30 Series – Enable/Disable Option

In the Additional Properties of the Charts in the category Data and the sub category Data Series, you can enable/disable the Series in the area Series Options and visualize the chart based on the configuration (see Figure 4.85).

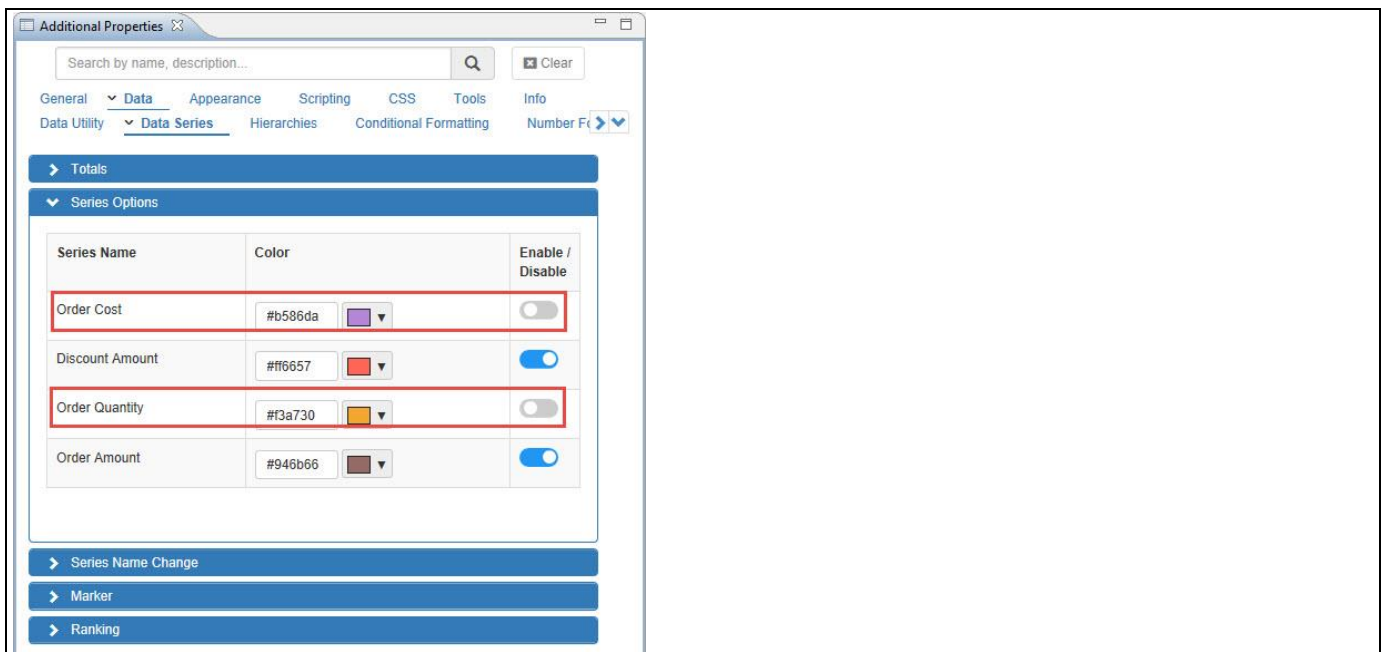


Figure 4.85: Series Options

For our example, based on the above configuration as shown in Figure 4.85 you have disabled the series option for “Order Cost” and “Order Quantity” and now you will be able to view the Line Chart with the Series Option disabled for two series “Order Cost” and “Order Quantity” (see Figure 4.86). Here you can observe that the Legends for the two series “Order Cost” and “Order Quantity” have been disabled and the Line Chart is visualized with only two series “Discount Amount” and “Order Amount”.

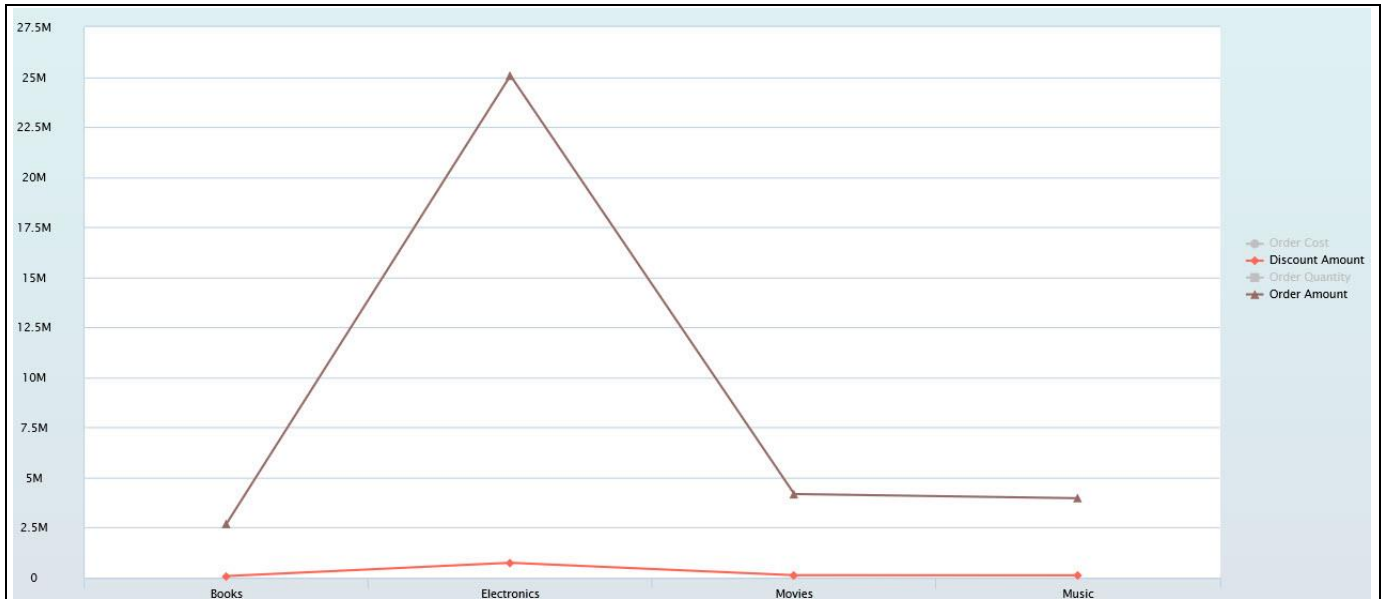


Figure 4.86: Line Chart selected with Series Option

Series – Enable/Disable option is currently supported by all the chart types except Marimekko Chart, Bullet Chart and all Drill Down Charts.

4.3.31 Legend - Enable/Disable Option

In the Additional Properties of the Charts in the category Appearance and the sub category Legend, you can Show/Hide the Legends for the series in the area Legend Options and visualize the chart based on the configuration (see Figure 4.87).

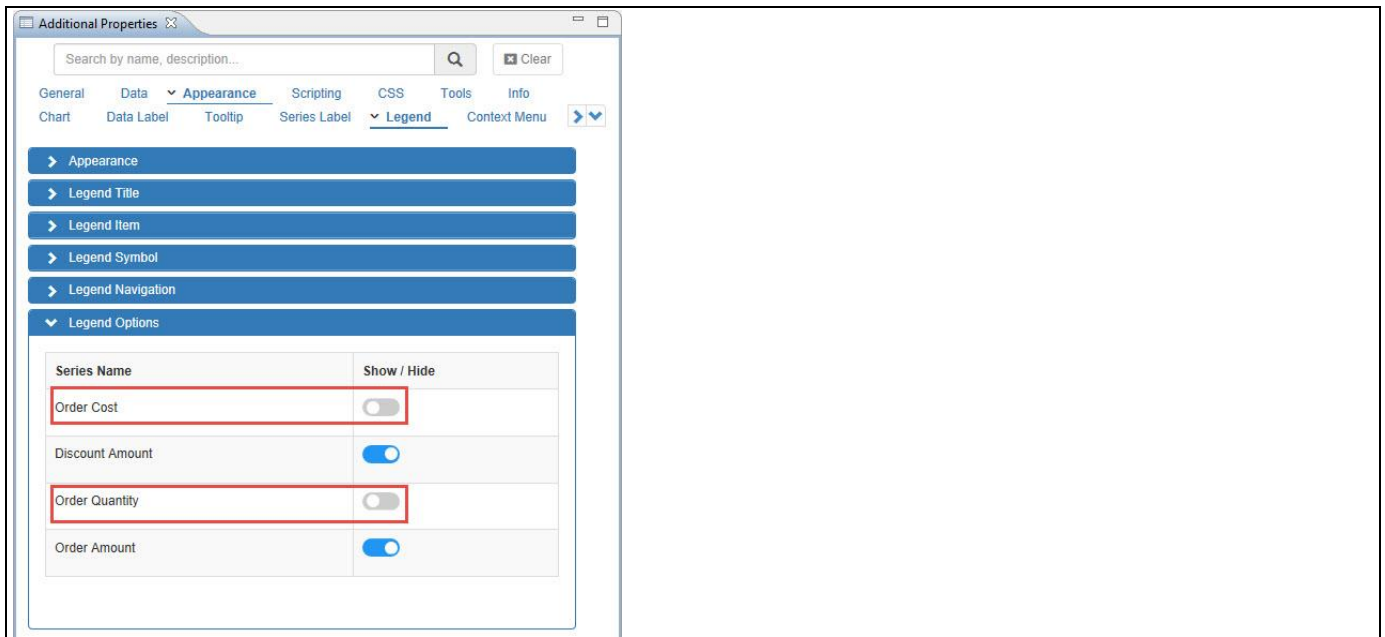


Figure 4.87: Legend Options

For our example, based on the above configuration as shown in Figure 4.87 you have disabled the legend option for “Order Cost” and “Order Quantity” and now you will be able to view the Line Chart with the Legend Option disabled for two series “Order Cost” and “Order Quantity” (see Figure 4.88). Here you can observe that only the Legends for the two series “Order Cost” and “Order Quantity” have been completely hidden but the Line Chart is visualized with all the four series.

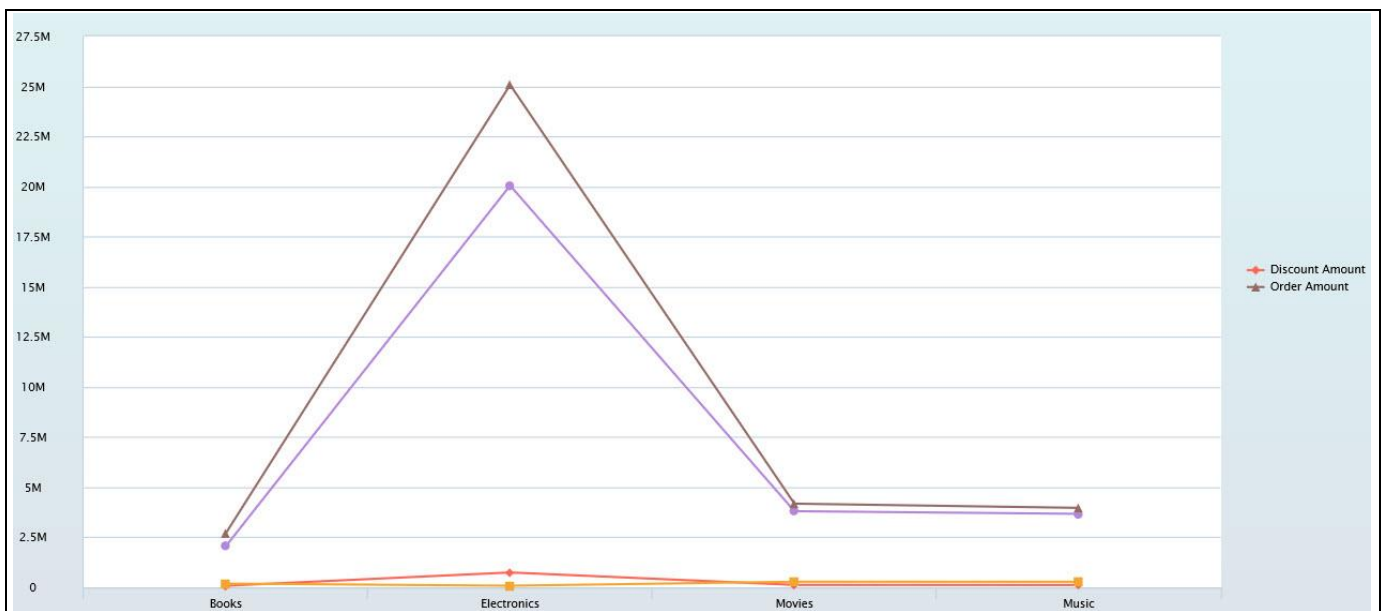


Figure 4.88: Line Chart selected with Legend Option

Legend – Enable/Disable option is currently supported by the following chart types: Area chart, Bubble chart, Column / Bar chart, Combination chart, Dual Axis chart, Fixed Column Bar chart, Line chart, Multi Axes chart, Polar chart, Radar chart, Scatter Plot chart, Stacked Area chart, Stacked Column / Bar chart, Stacked and Grouped Column chart and Super Combination chart.

4.3.32 Series Label in Charts

Starting with release 2.3 of the Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer, most of the charts also are now able to support Series Label. You can find the Series Label option as part of the Additional Properties for the chart by navigating to the category Appearance and to the sub category Series Label.

You can follow the steps below to configure the Series Label for the Charts:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows two measures – Order Quantity and Order Amount and one Dimension – Item Category.
3. Add a Area Chart from the VBX Charts to your SAP BusinessObjects Design Studio /SAP Lumira Designer project.
4. Assign the data source to the Area Chart.
5. Navigate to the Additional Properties of the Area Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Appearance and to the sub category Series Label (see Figure 4.89).
8. Activate the option Enable Series Labels.

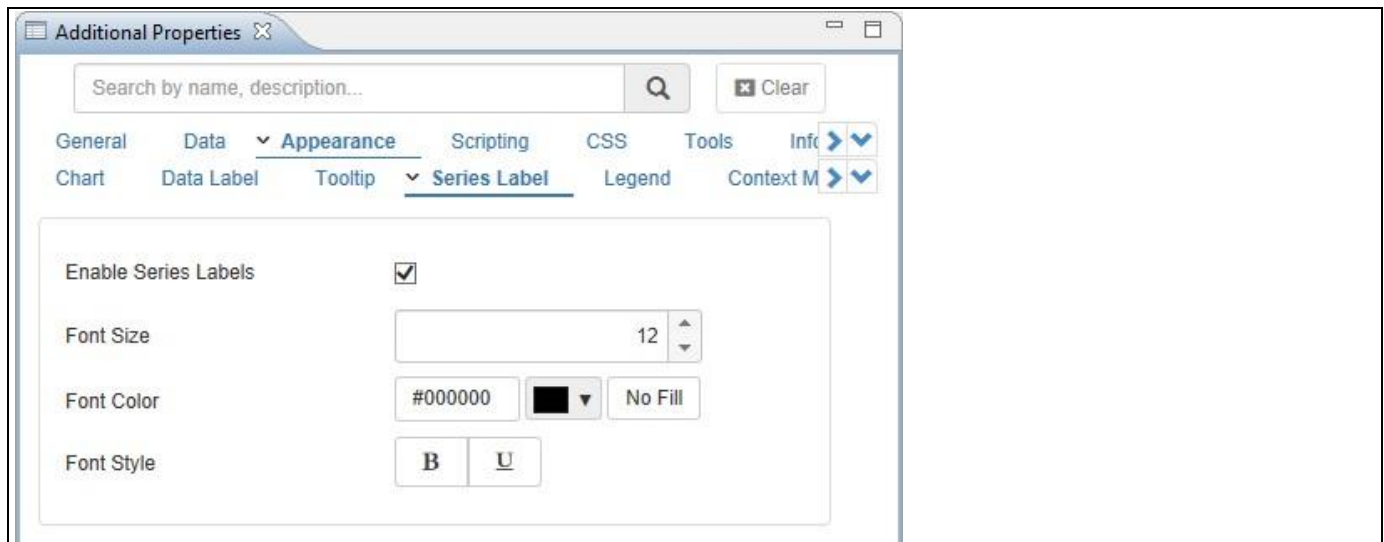


Figure 4.89: Series Label

18. For our example, set the property Font Size to the value 12.
19. Set the property Font Color to the color Black and set the Font Style relevant to your choice (see Figure 4.89).
20. Based on the above configuration you will be able to view the Area Chart with the appearance of the Series Labels for the measures Order Quantity and Order Amount inside the chart area (see Figure 4.90).

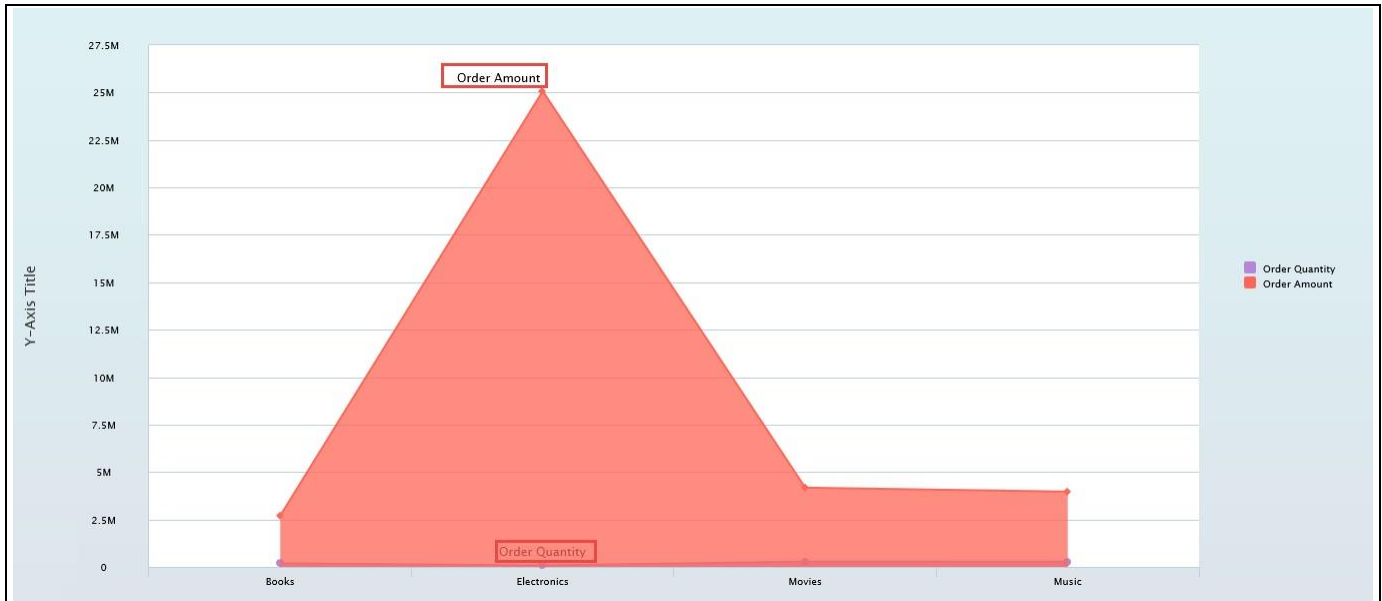


Figure 4.90: Area Chart with Series Labels

Series Labels are currently supported by the following chart types: Area chart, Line chart, Stacked Area chart and Stream Graph.

4.3.33 Pattern as Series Options in Charts

In the Additional Properties of the Charts in the category Data and the sub category Data Series, you can configure the pattern for the Series in the area Series Options and visualize the chart based on the applied pattern (see Figure 4.91).

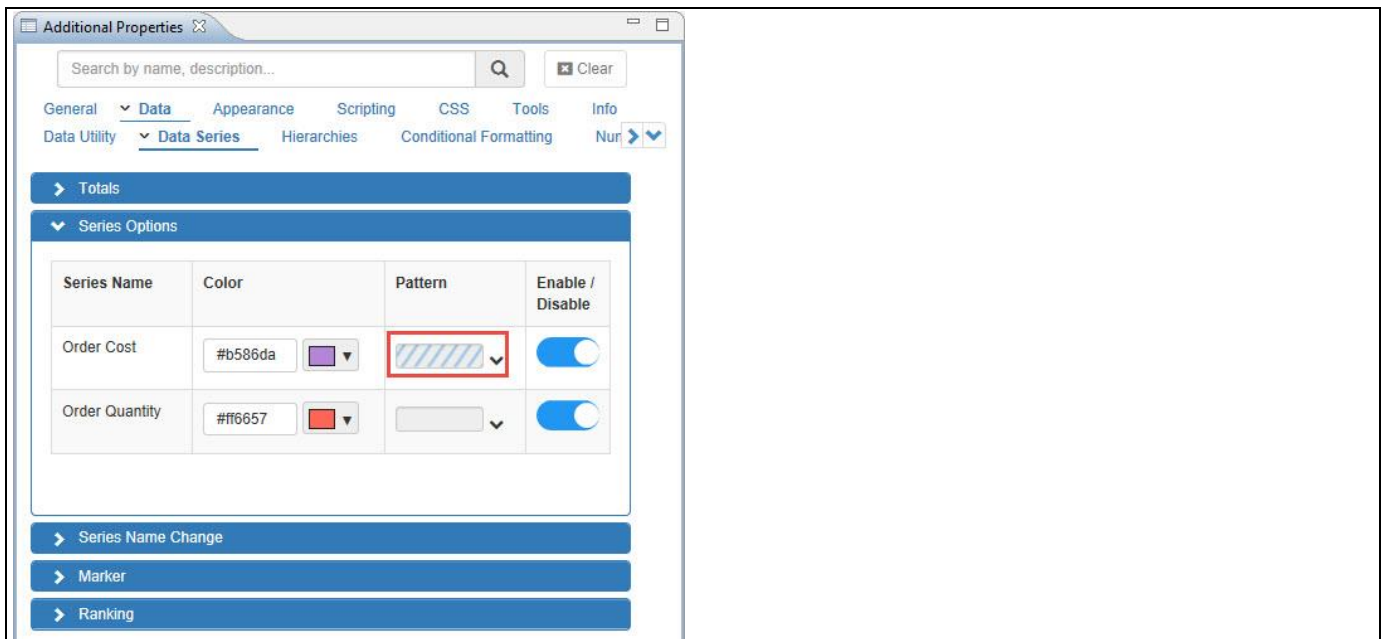


Figure 4.91: Pattern as Series Option

For our example, based on the above configuration as shown in Figure 4.91 you will be able to view the Area Chart with Pattern applied as Series Option for the Series Name Order Cost (see Figure 4.92).

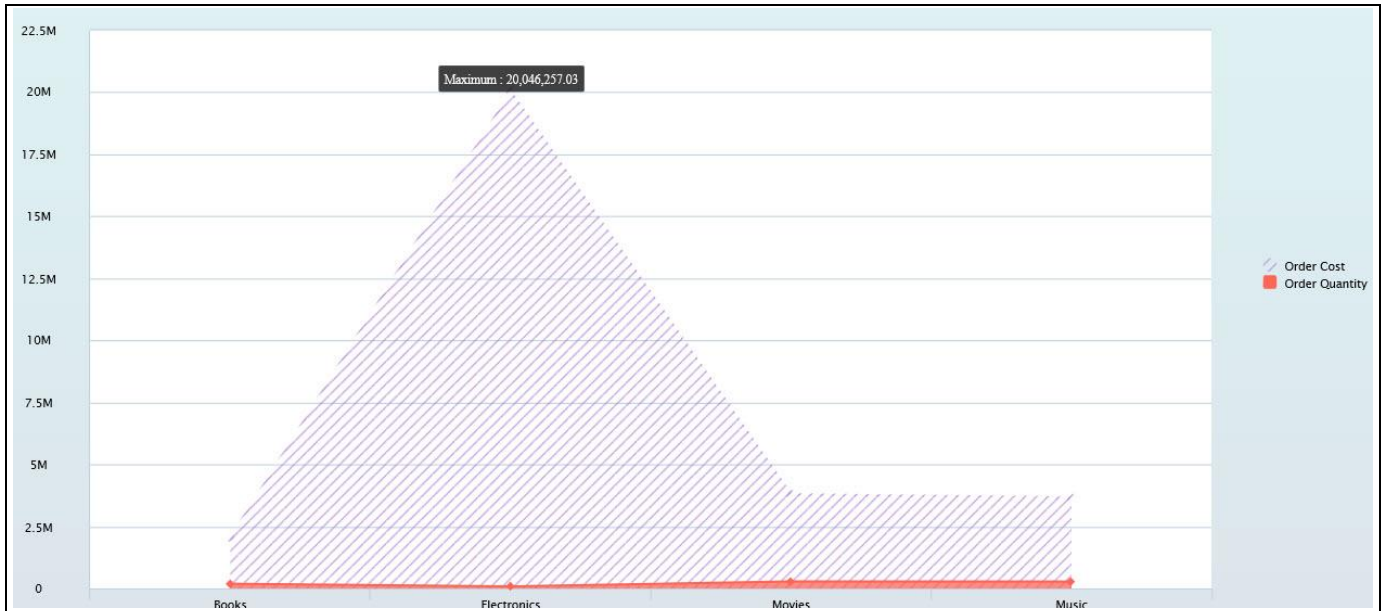


Figure 4.92: Area Chart with Pattern as Series Option

Pattern as Series options are currently supported by the following chart types: Area chart, Column / Bar chart, Combination chart, Donut Chart, Dual Axis chart, Fixed Column Bar chart, Funnel chart, Multi Axes chart, Pie chart, Semicircle Donut chart, Stacked Area chart, Stacked Column / Bar chart, Stacked and Grouped Column chart and Super Combination chart.

4.3.34 Ranking in Data Series

In the Additional Properties of the Charts in the category Data and the sub category Data Series, you can define a custom ranking based on the available measures in the area Ranking and visualize the chart based on the applied Ranking to the particular Measure (see Figure 4.93).

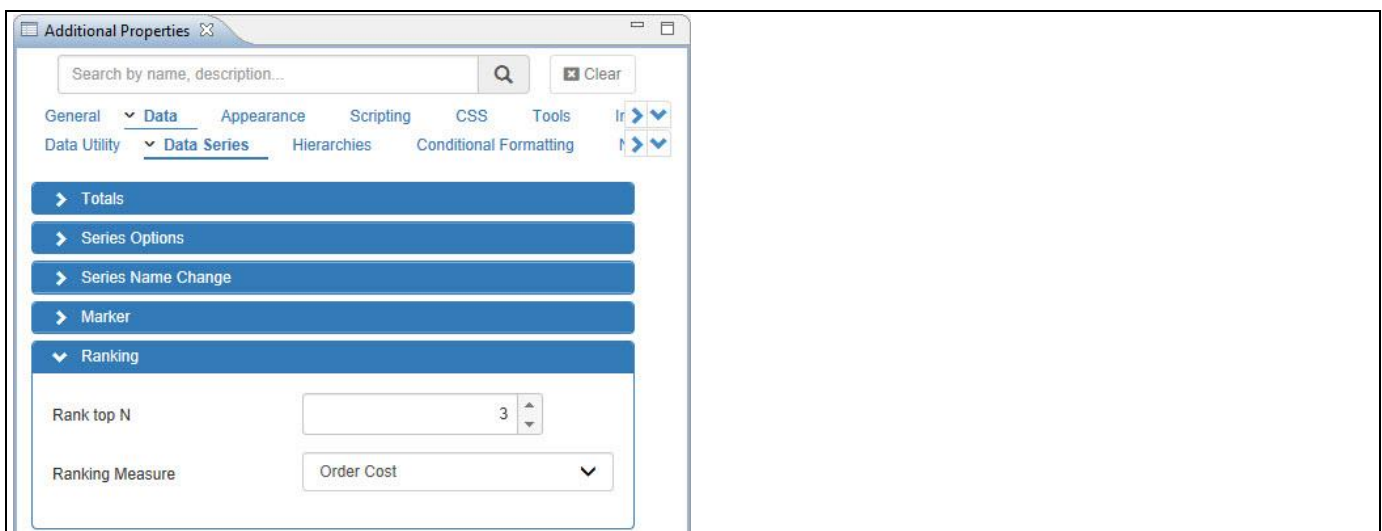


Figure 4.93: Ranking

For our example, based on the above configuration as shown in Figure 4.93 you will be able to view the Line Chart for the Ranking Measure Order Cost with Rank top 3 so that the Line chart is visualized for the top 3 Order Cost values (see Figure 4.94).

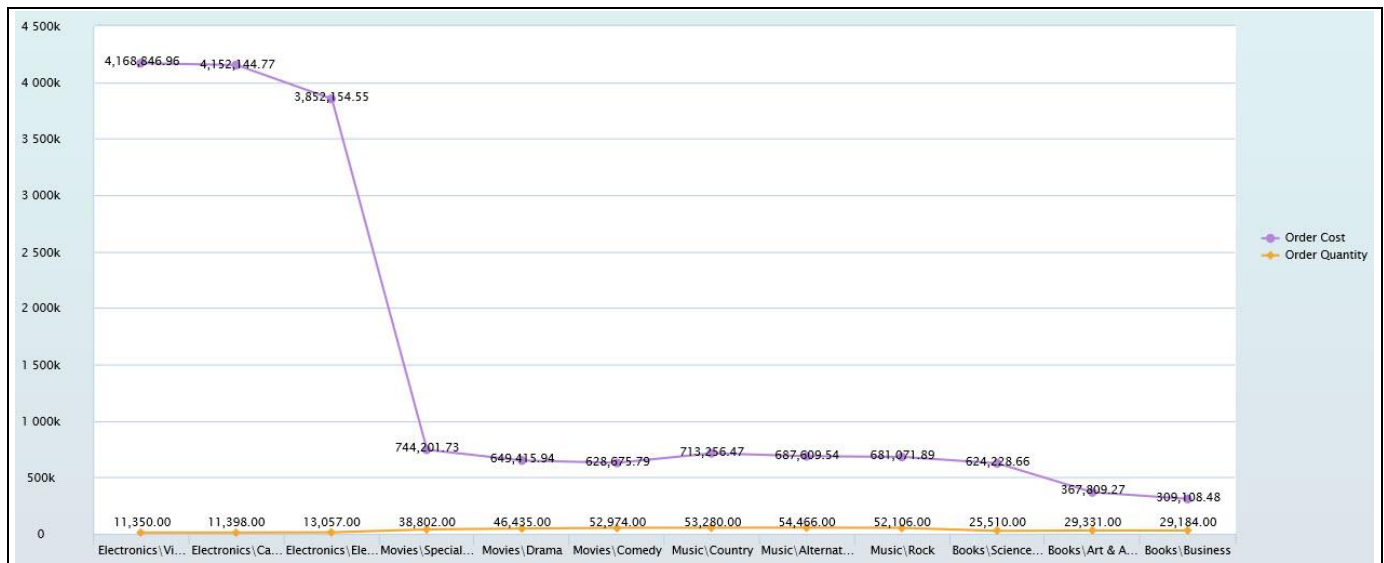


Figure 4.94: Line Chart with Ranking for top 3 values

Dimension for Ranking in Data Series

The Dimensions to be assigned for the Ranking in Data Series will not support more than two dimensions.

4.3.35 Conditional Formatting in Charts using Groups

Starting with release 2.3 of the Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer, most of the charts also are now able to support Conditional Formatting using Logical Operators OR and AND. You can find this option as part of the Additional Properties for the chart by navigating to the category Data and to the sub category Conditional Formatting.

Now follow the below steps to configure the Conditional Formatting for the Gantt Chart using Logical Operators OR and AND.

1. After assigning the Data Source and configuring the additional properties for the Gantt Chart, now navigate to the category Appearance and to the sub category Chart in the additional properties of the Gantt Chart and set the property Select Chart Type to the option Gantt (see Figure 4.95).

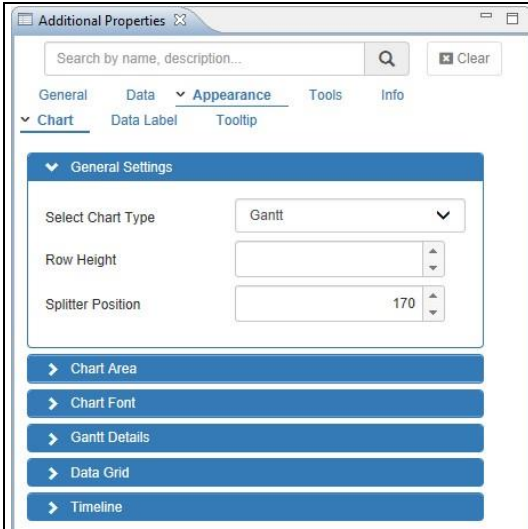


Figure 4.95: Category Appearance

2. Now navigate to the category Data and to the sub category Conditional Formatting (see Figure 4.96).
3. Click Create Group.

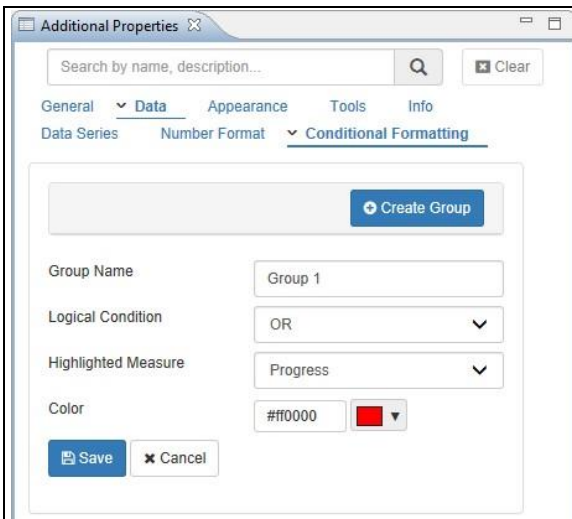


Figure 4.96: Create Group

4. Enter the Group Name as Group 1.
5. For our example, set the property Logical Condition to the value OR.
6. Set the property Highlighted Measure to the option Progress.
7. Set the property Color to the color Red.
8. Click Save and the Group 1 will be created. By default, the Rule 1 will be created for the Group 1 where it can be edited based on your choice (see Figure 4.97). We can also create as many Rules for the created Group.

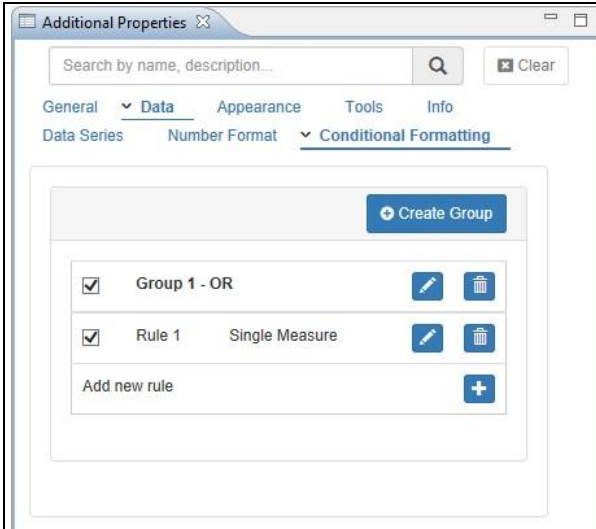


Figure 4.97: Created Group and Rule

9. For our example, click Edit for Rule 1 (see Figure 4.98).

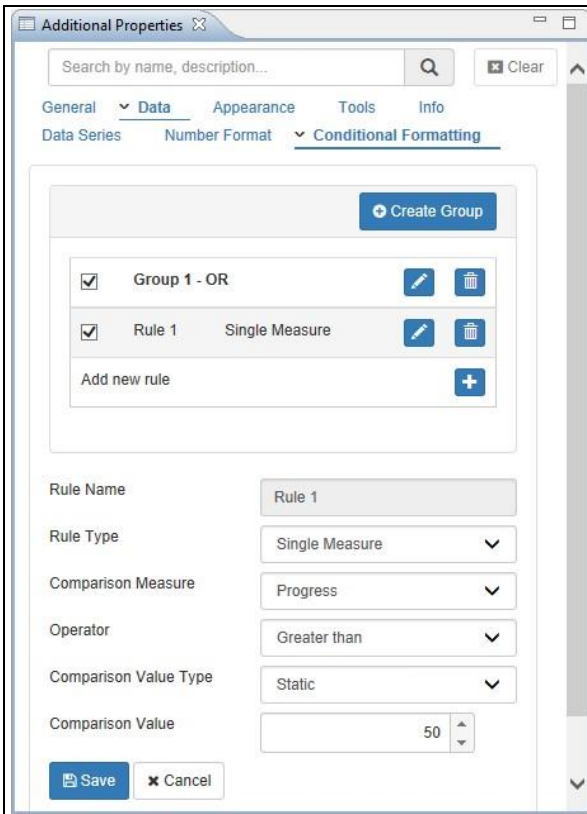


Figure 4.98: Edit Rule 1

10. Set the property Rule Type to the option Single Measure.
11. Set the property Comparison Measure to the option Progress.
12. Set the property Operator to the option Greater than.
13. Set the property Comparison Value Type to the option Static.
14. Set the property Comparison Value to the value 50.
15. Now Click Add New Rule to add another Rule (see Figure 4.99).
16. Enter the Rule Name as Rule 2.

General
Data
Appearance
Tools
Info

Data Series
Number Format
Conditional Formatting

☒
Group 1 - OR

☒
Rule 1
Single Measure

Add new rule

Rule Name

Rule Type
Single Measure

Comparison Measure
Progress

Operator
Between

Comparison Value Type
Static

Start Value

End Value

Figure 4.99: Rule 2

17. Set the property Rule Type to the option Single Measure.
18. Set the property Comparison Measure to the option Progress.
19. Set the property Operator to the option Between.
20. Set the property Comparison Value Type to the option Static.
21. Set the property Start Value Type to the value 50.
22. Set the property End Value Type to the value 60.
23. Click Save and Rule 2 will be created (see Figure 4.100).

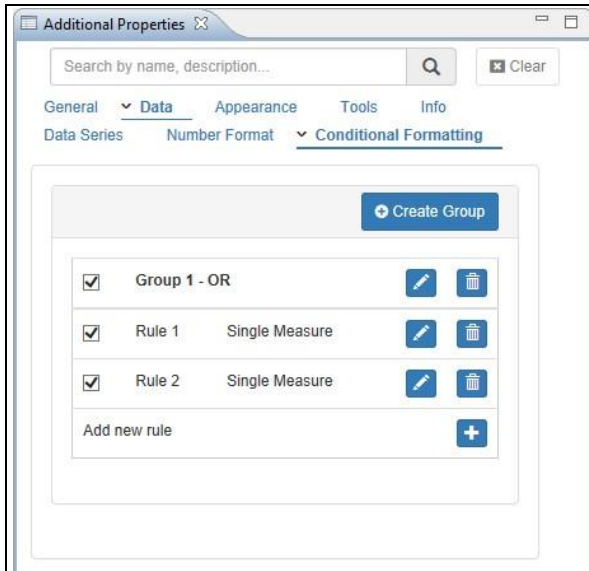


Figure 4.100: Rule 1 and Rule 2

24. Based on the Data Source assigned and the above set of configurations being applied, you will be able to visualize the Gantt Chart using the logical OR operator for both the Rule 1 and Rule 2 (see Figure 4.101).

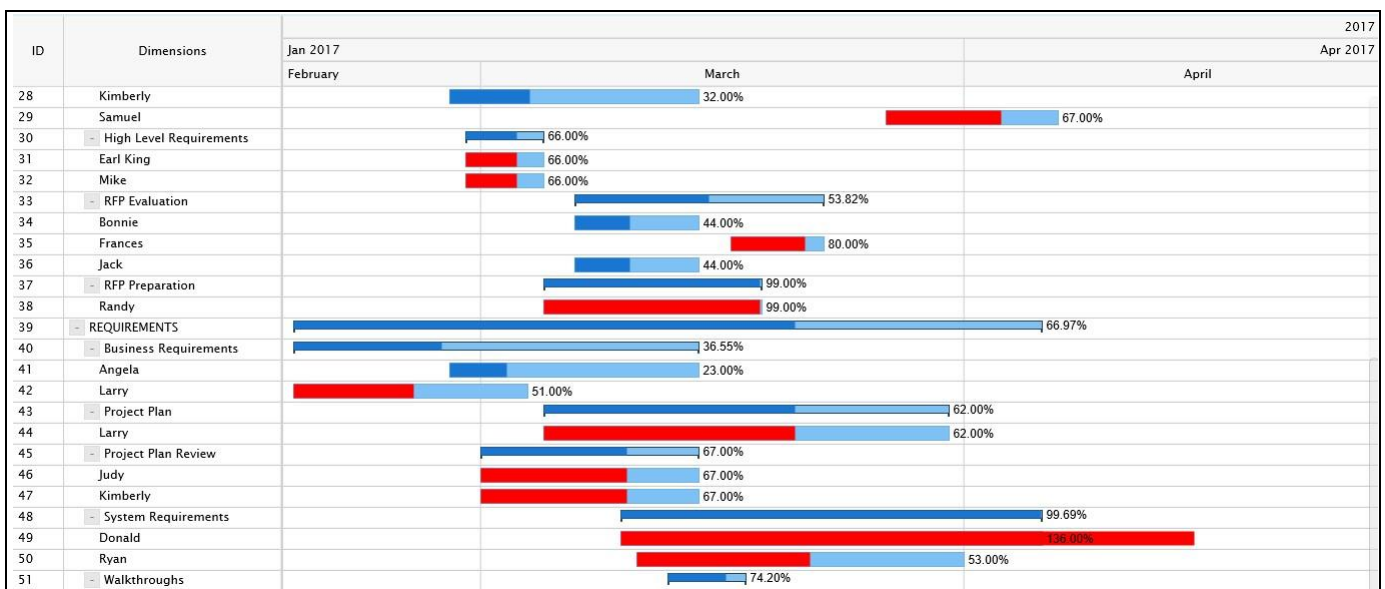


Figure 4.101: Gantt Chart using Logical OR operator

25. Here you can observe that the Progress values for both the Rule 1 and Rule 2 will be displayed in the Gantt Chart (represented by red color) based on the conditions “greater than 50” and values “between 50 and 60”.

26. Based on the above set of configurations, when logical operator AND is applied for the Rule 1 and Rule 2, then you can observe that the Progress values in the Gantt Chart (represented by red color in Figure 4.102) will be visualized satisfying both Rules which denotes that it considers all the values above 50 (Rule1) and within the range from 50 to 60 (Rule 2).

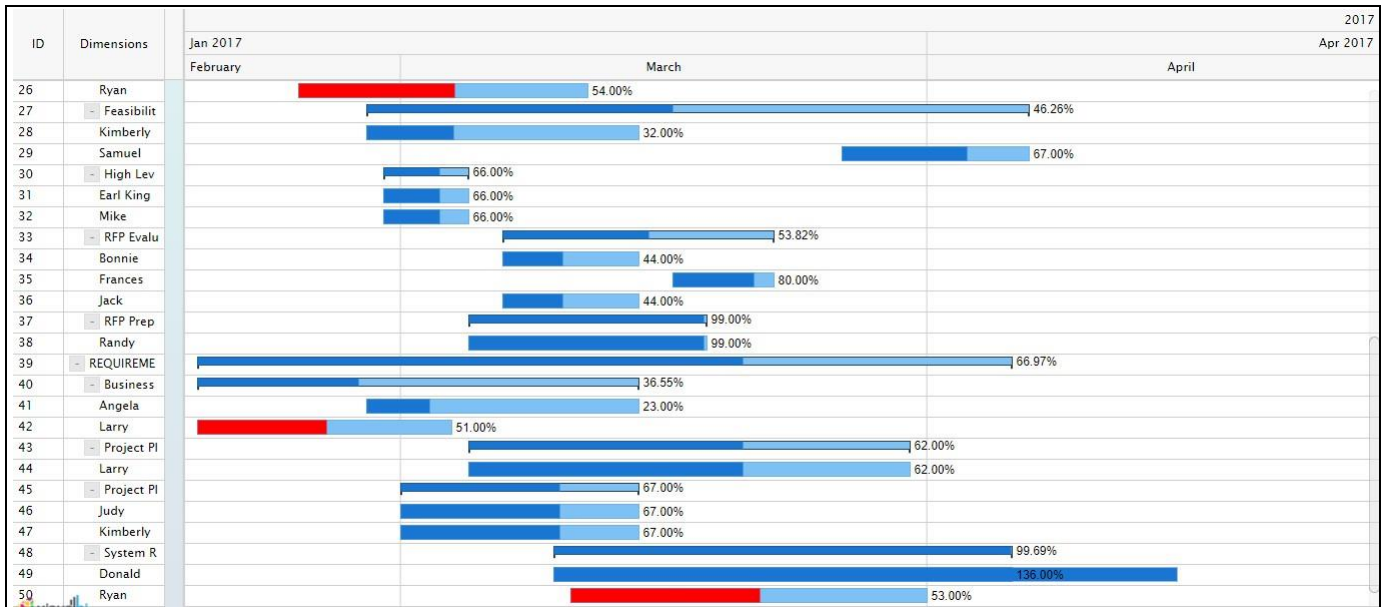


Figure 4.102: Gantt Chart using Logical AND operator

Rule Type Selection

After creating a Group, if you set the property Rule Type to the option as “Target Value” for Rule 1, then additional Rules cannot be created further for that Group. If the property Rule Type for Rule 1 is set to other options namely Single Measure, Measure Calculation and Dimension, then additional Rules can be created for that Group.

4.3.36 Enable Runtime Editor

As part of VBX Release 2.5, you will be able to enable Runtime Editor by navigating to the category Tools and to the area Editor. It provides the Additional Properties Sheet feature in the run time of any VBX component where the user can enable/disable the toggle buttons for the respective Area Panel of each Category/Sub category in Design time and the enabled Area Panel will get displayed in the run time as Additional Properties.

In the following steps we will outline, how you can enable Runtime Editor option as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows three measures – Discount Amount, Order Cost and Order Quantity - and one dimension - Item Category.
3. Add a Line Chart from VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Line Chart.
5. Navigate to the Additional Properties of the Line Chart (see Figure 4.103).
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Tools in the Additional Properties of the Line Chart.
8. For our example, in the area Editor enable the property Enable Runtime Editor (see Figure 4.103).

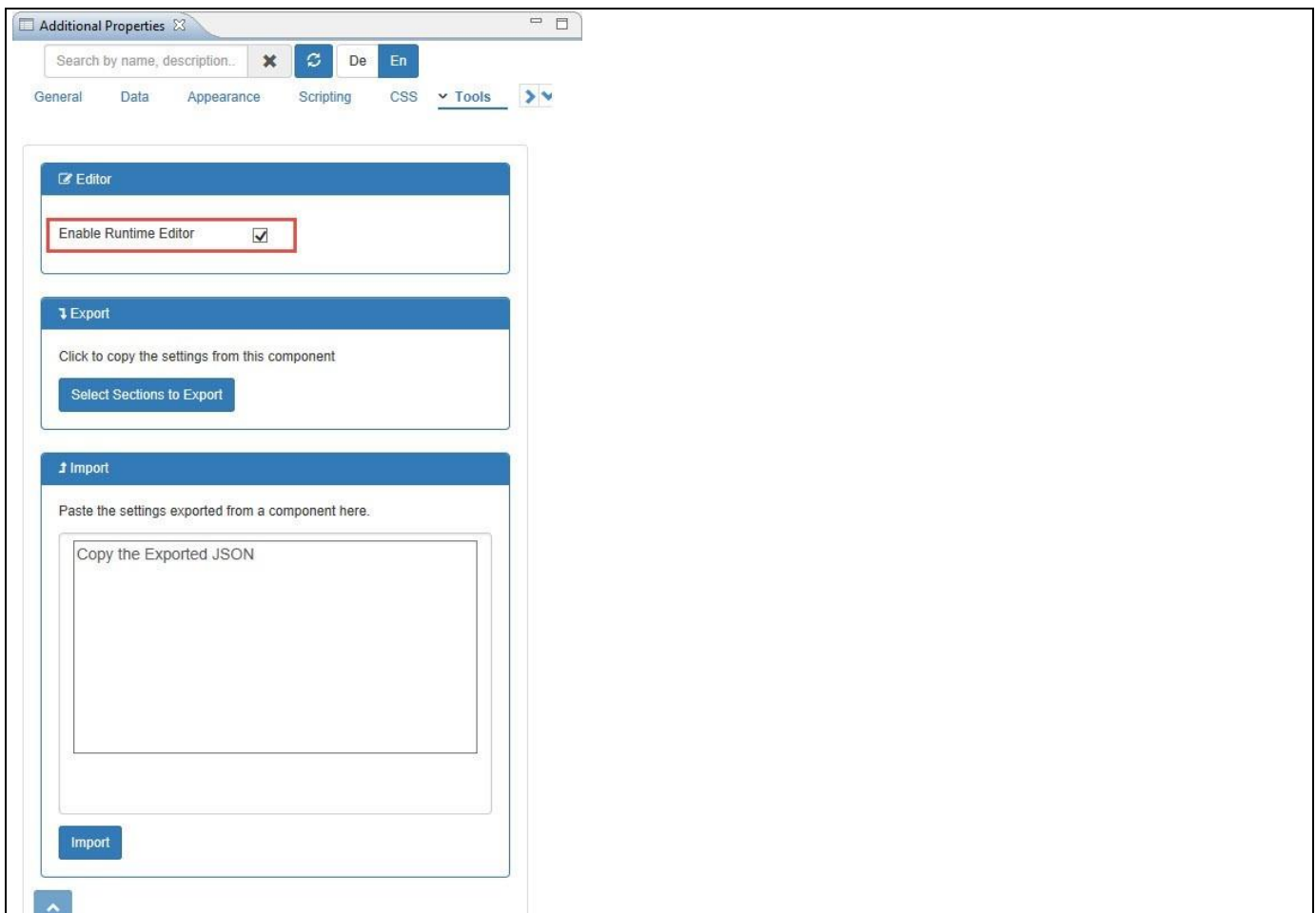


Figure 4.103: Category Tools

9. Navigate to the category Appearance and to the sub category Chart in the Additional Properties of the Line Chart. In general the toggle buttons for all the Areas in the Category/Sub category will be in the “Enabled” status (see Figure 4.104).

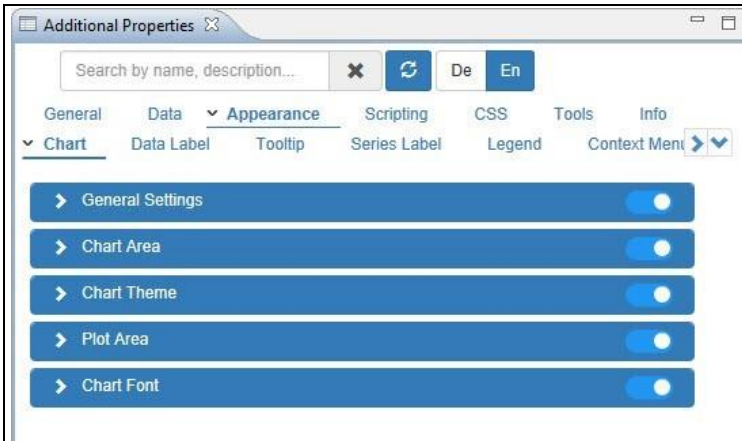


Figure 4.104: Category Appearance – Areas with Enabled Toggle Buttons

10. For our example, disable the Toggle button for the Areas “Chart Theme” and “Plot Area” (see Figure 4.105 **Error! Reference source not found.**).

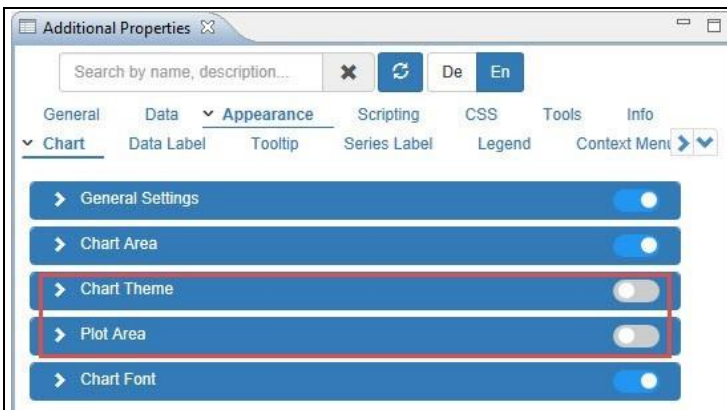


Figure 4.105: Category Appearance – Two Areas with Disabled Toggle Buttons

11. Based on the above configuration you will be able to view the Line Chart (see Figure 4.106).

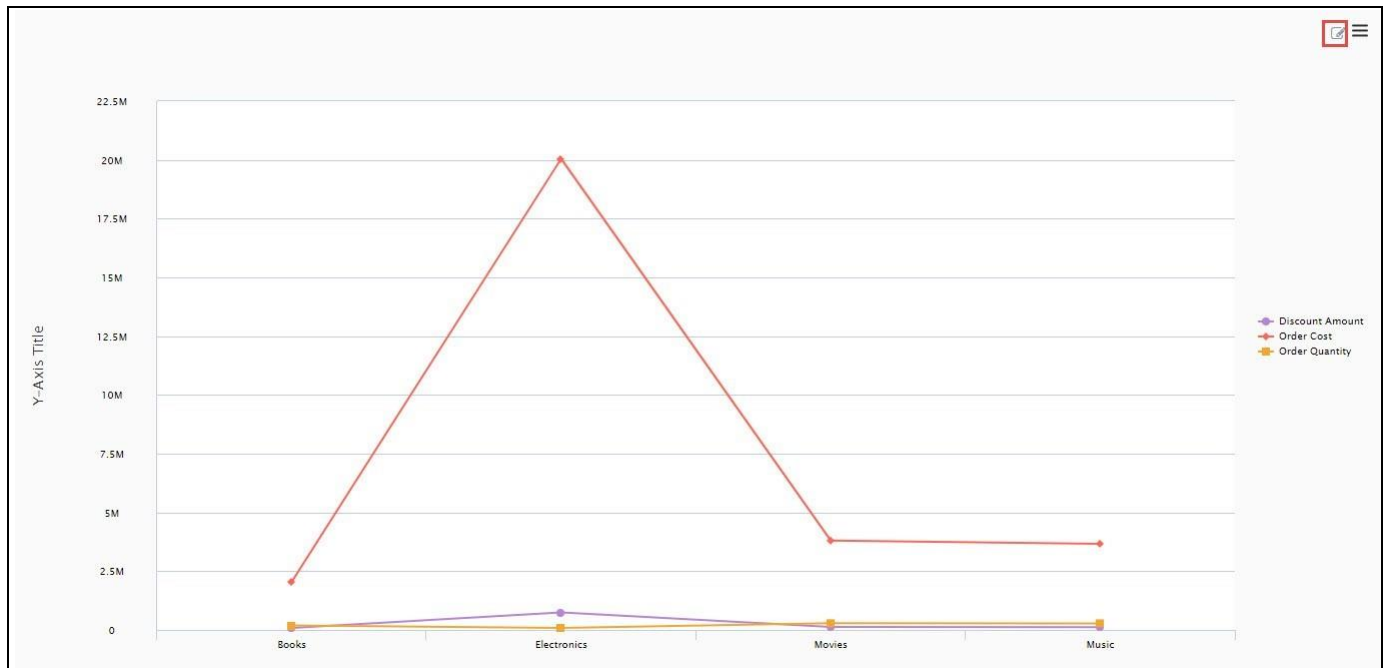


Figure 4.106: Line Chart with Data Source Config option

- Now click the Edit button as shown in Figure 4.106. You can observe that the Additional Properties of the Line Chart for the Areas “General Settings”, “Chart Area” and “Chart Font” with the Toggle buttons being enabled in the Design time will be now appearing in the Run time (see Figure 4.107). From this setting you can now configure the Line Chart with the help of the Additional Properties in the Run time.

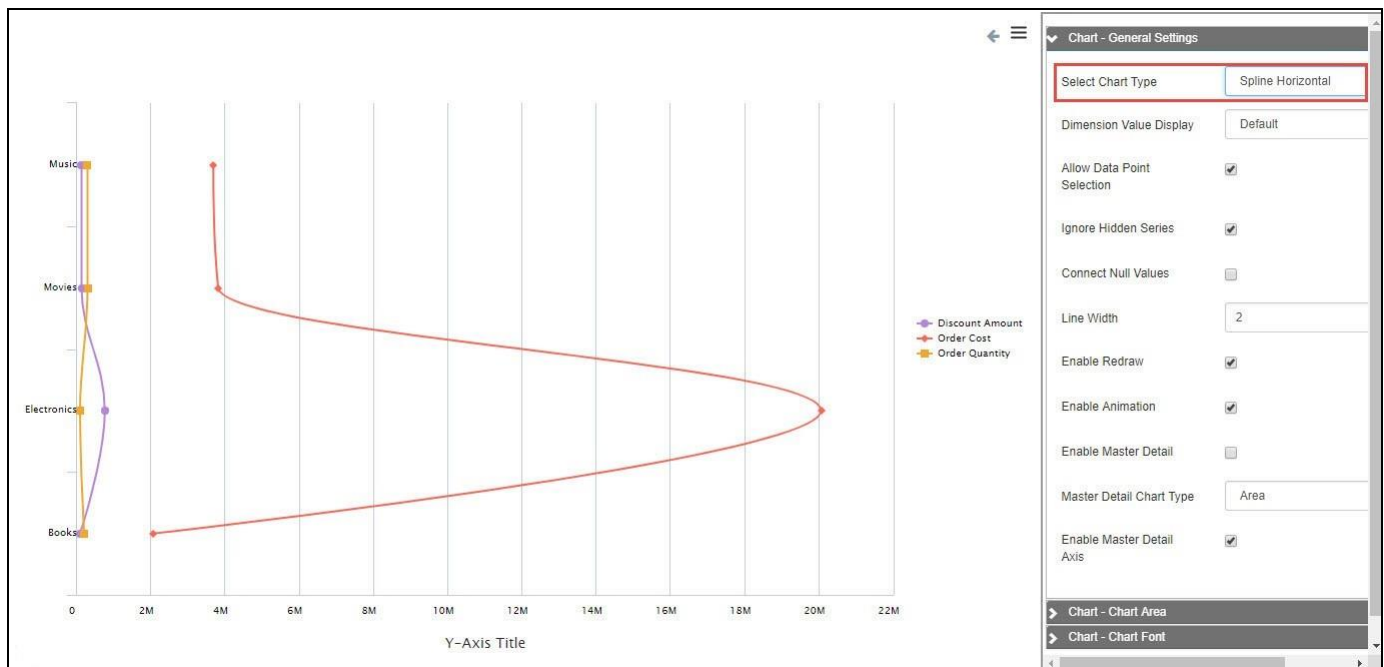


Figure 4.107: Line Chart with Additional Properties in Run time

From the above Figure, you can observe that the Chart Type has been selected as “Spline Horizontal” in the Additional Properties panel in Run time.

4.3.36.1 Theme for Runtime Editor

By navigating to the Category Tools and to the Area Editor, you will be able to change the theme for the Runtime Editor (see Figure 4.108).

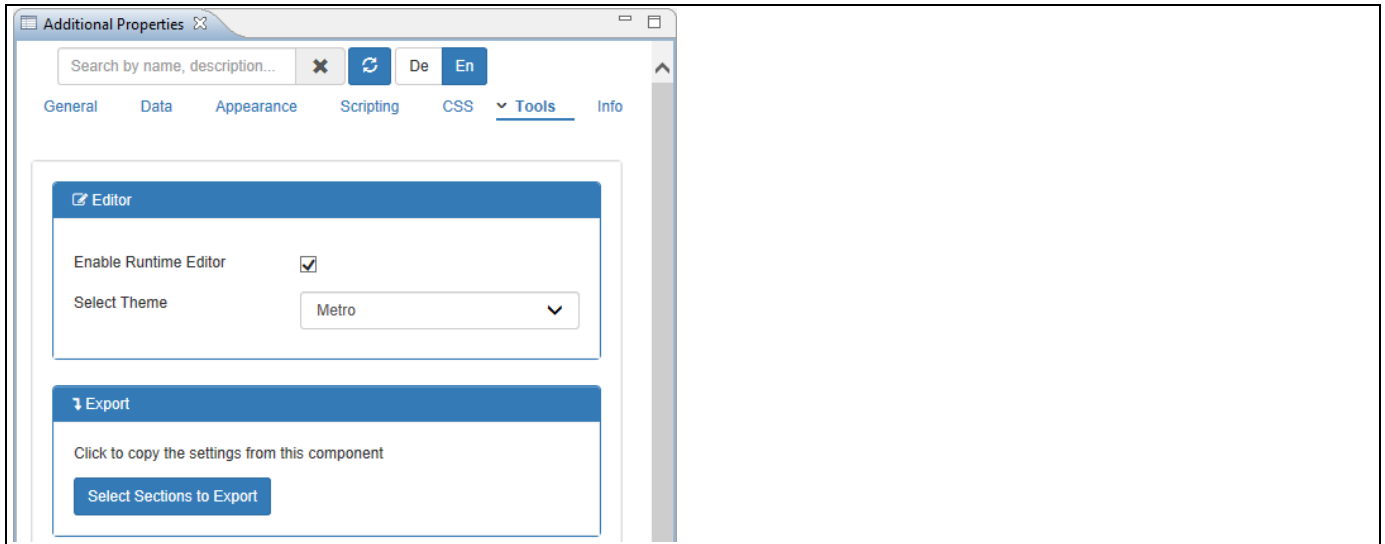


Figure 4.108: Category Tools

For our example, activate the property Enable Runtime Editor and set the property Select Theme to the option Metro. Based on the above configuration, you can observe that the Additional Properties sheet appearing in the Runtime is configured with the Theme Metro.

4.3.36.2 Conditional Formatting for Runtime Editor

As part of VBX Release 2.5, you will be able to apply the Conditional Formatting for the Runtime Editor option by navigating to the Category Data and to the Sub category Conditional Formatting in the Additional Properties of any VBX component.

You can follow the steps below to configure the Conditional Formatting for the Runtime Editor using any VBX component:

1. As an Initial step, follow the steps 1 to 10 as explained in the previous section .
2. Now navigate to the Category Data and to the Sub category Conditional Formatting of the Line Chart (see Figure 4.109)

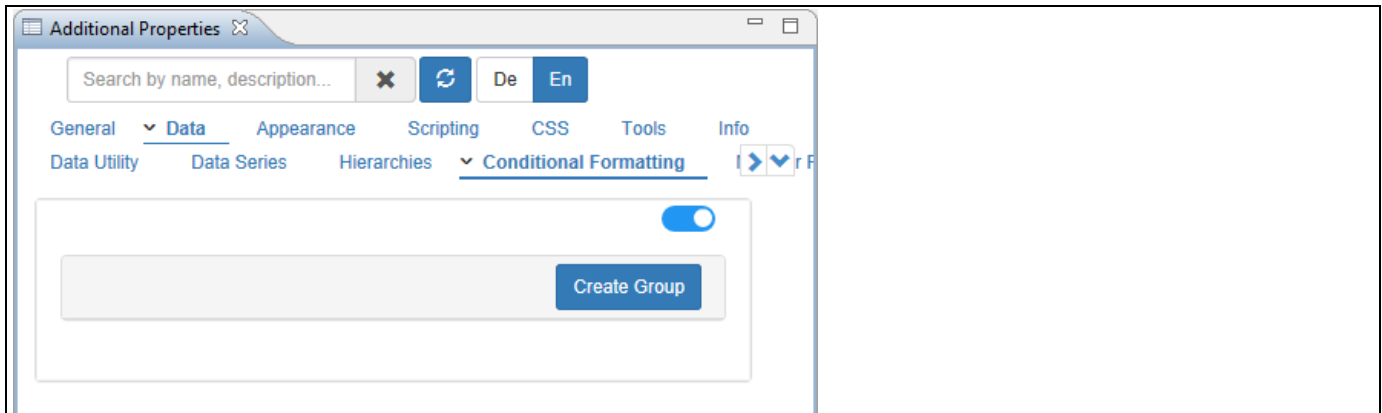


Figure 4.109: Category Data

3. Now enable the Toggle button for the Conditional Formatting.
4. Based on the above configuration you will be able to view the Line Chart (see Figure 4.110).

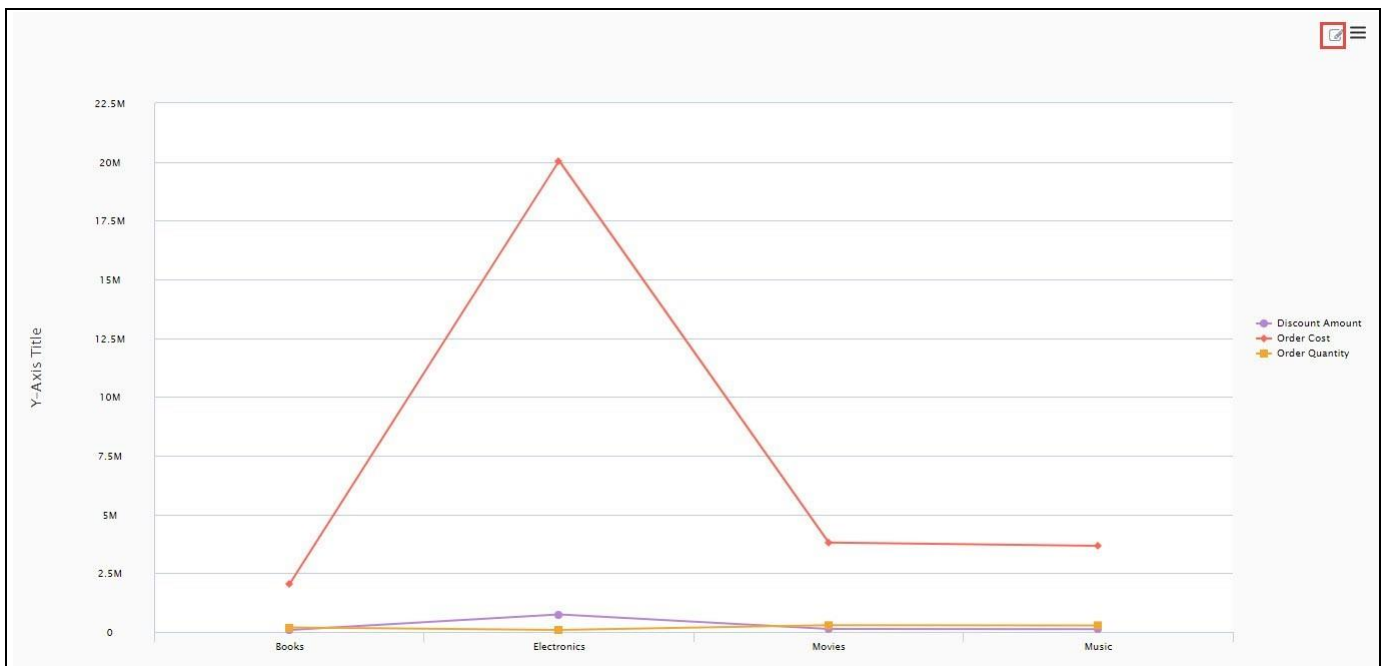


Figure 4.110: Line Chart with Data Source Config option

5. Now click the Edit button as shown in Figure 4.110. You can observe that the Additional Properties of the Line Chart for the Areas “General Settings”, “Chart Area”, “Chart Font” and “Conditional Formatting” will be appearing in the Runtime since the Toggle buttons for those Areas are being enabled in the Design time (see Figure 4.111). From this setting you can now configure the Line Chart with the Conditional Formatting properties in the Run time.

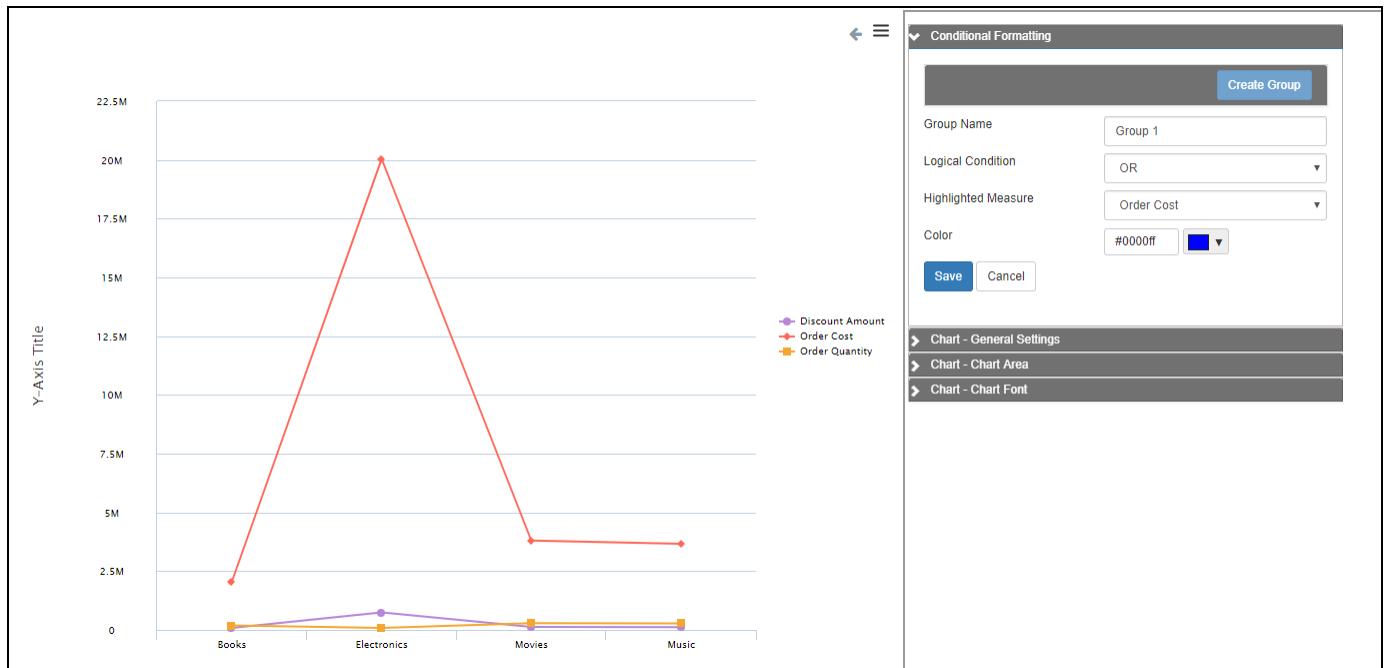


Figure 4.111: Conditional Formatting Area at Run Time

6. Click Create Group.
7. Enter the Group Name as Group 1.
8. For our example, set the property Logical Condition to the value OR.
9. Set the property Highlighted Measure to the option Order Cost.
10. Set the property Color to the color Blue.
11. Click Save and the Group 1 will be created. By default, the Rule 1 will be created for the Group 1 where it can be edited based on your choice (see Figure 4.112). We can also create as many Rules for the created Group.

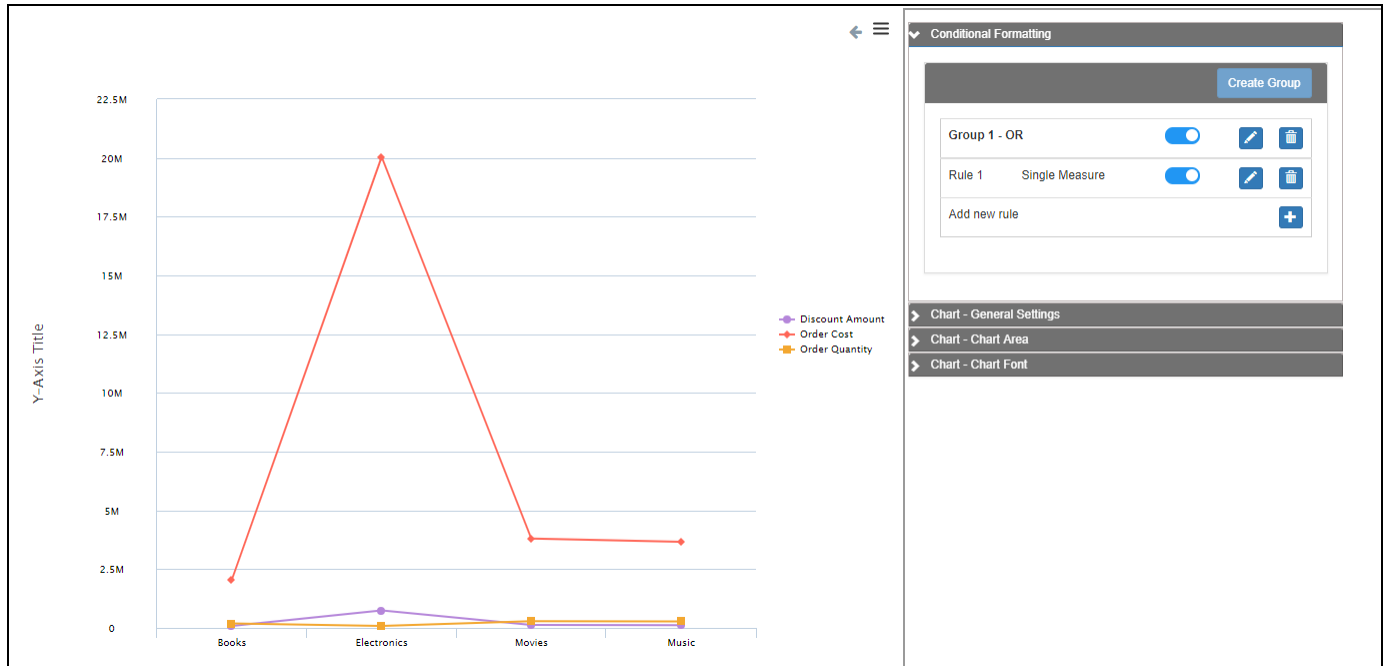


Figure 4.112: Created Group and Rule

12. For our example, click Edit for Rule 1 (see Figure 4.113).

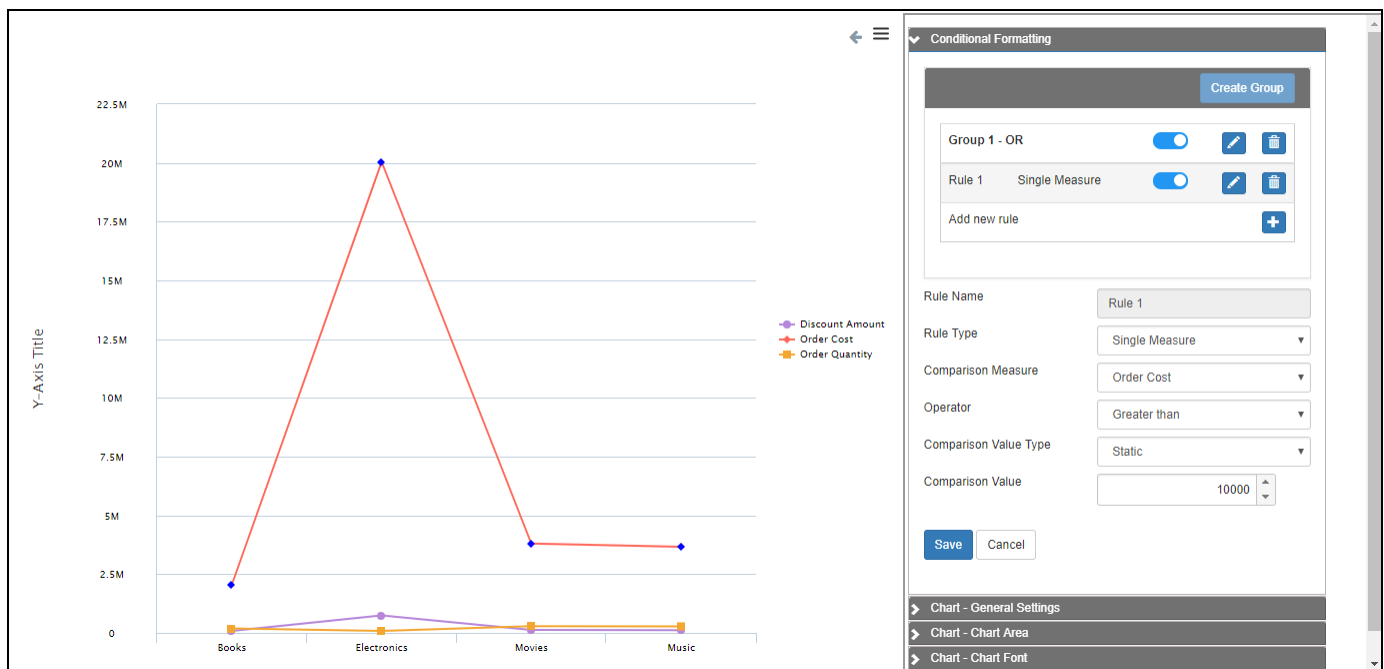


Figure 4.113: Edit Rule 1

13. Set the property Rule Type to the option Single Measure.
14. Set the property Comparison Measure to the option Order Cost.
15. Set the property Operator to the option Greater than.
16. Set the property Comparison Value Type to the option Static.
17. Set the property Comparison Value to the value 10000.
18. Based on the above settings, you will be able to view the Line Chart configured with Conditional Formatting rule applied during runtime (see Figure 4.114).

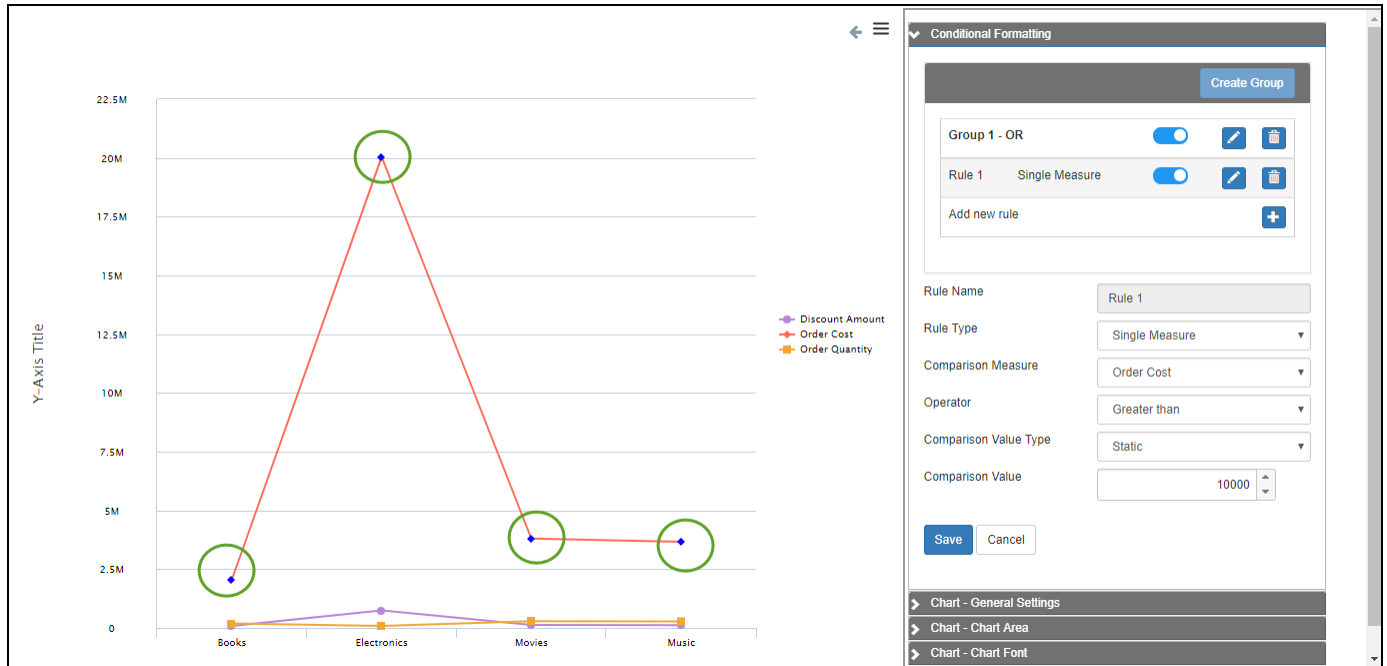


Figure 4.114: Line Chart with Conditional Formatting applied at runtime

From the above Figure you can observe that the conditional formatting has been applied for the measure Order Cost which is greater than Comparison Value 10000 and they are highlighted in Blue Color assigned for Order Cost in Group 1 (see green circles at the plot points).

4.4 Working with Data

In the following sections we will outline a set of steps in SAP BusinessObjects Design Studio/SAP Lumira Designer which will help you to get a better understanding on how the VBX charts are able to leverage the data as part of your next project in SAP BusinessObjects Design Studio/SAP Lumira Designer.

4.4.1 Assigning a Data Source

Each of the VBX charts will require a connection to a data source as part of the SAP BusinessObjects Design Studio/SAP Lumira Designer project. To add a data source to your SAP BusinessObjects Design Studio/SAP Lumira Designer project you can use a right click on the Data Source folder in the Outline of your project and select the menu Add Data Source (see Figure 4.115).

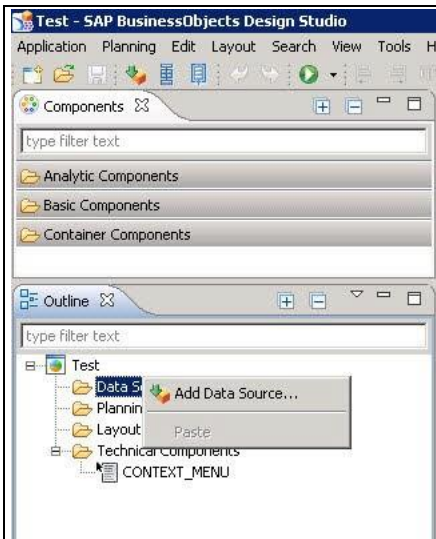


Figure 4.115: Adding a Data Source

In the pop up window as shown in Figure 4.116 you can first select a Connection and after doing so you can browse for a Data Source. After you selected the Data Source you can specify an Alias for the data source, which will be used as reference to the data source throughout your application. You can confirm the dialog using the OK button.

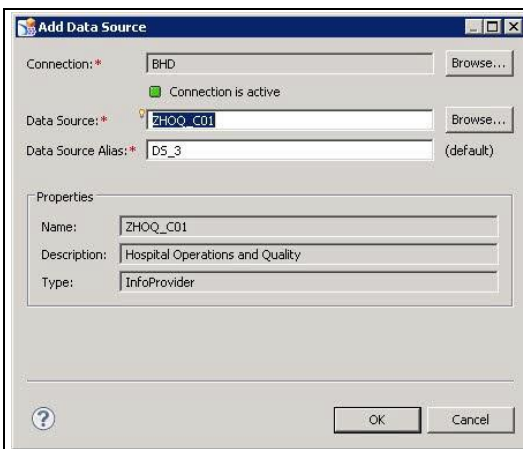


Figure 4.116: Specify Data Connection and Data Source

To edit the default view of the data source, right click on the newly added data source in the Outline of your SAP BusinessObjects Design Studio/SAP Lumira Designer application and select the menu option Edit Initial View... as shown in Figure 4.117.

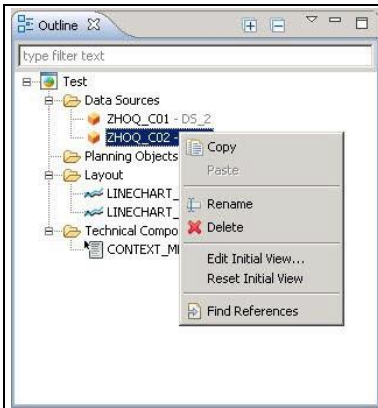


Figure 4.117: Edit Initial View

The Initial View Editor (see Figure 4.118) allows to select rows, columns, and filters for the view of your data source as well as configuring properties such as a scaling factor for a measure. By default, all the dimensions and measures added to the Rows, Columns, and Background Filter will be used when the data source is being assigned to a component.

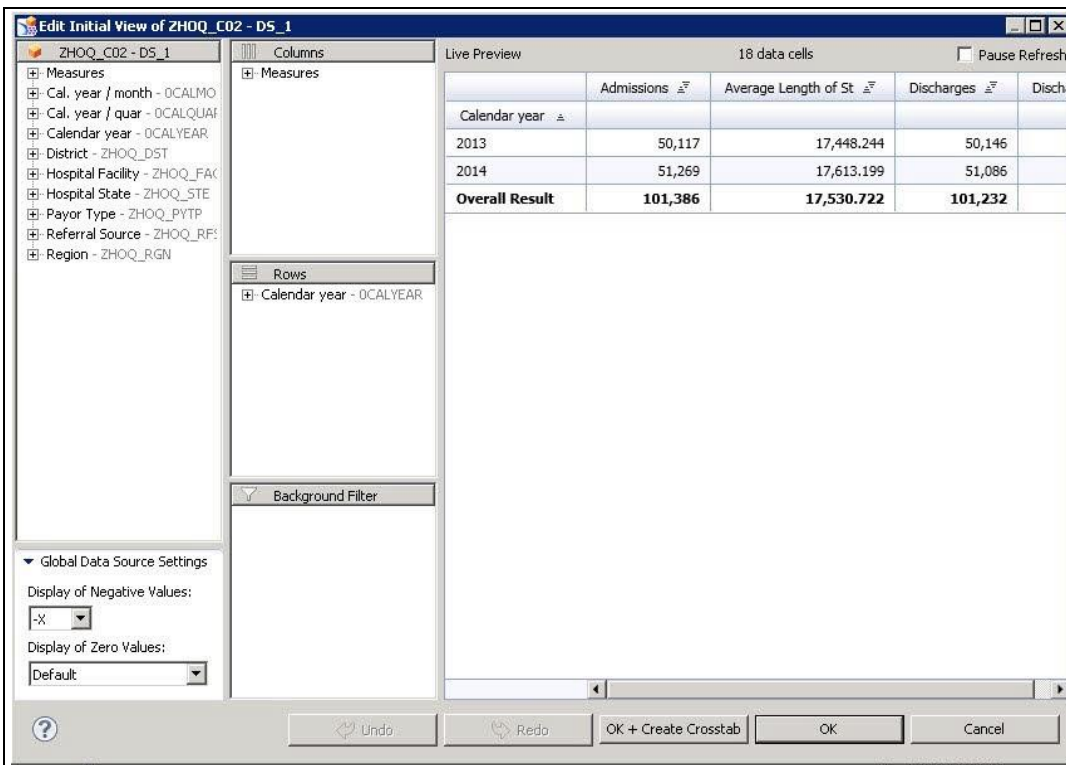


Figure 4.118: Edit Initial View

After the data source has been added to the SAP BusinessObjects Design Studio/SAP Lumira Designer project, it can be assigned to the charts from the VBX suite. You can assign the data source to a component using the property Data Source (see Figure 4.119) or using a simple drag and drop navigation, dragging the data source from the Outline to the component in your project.

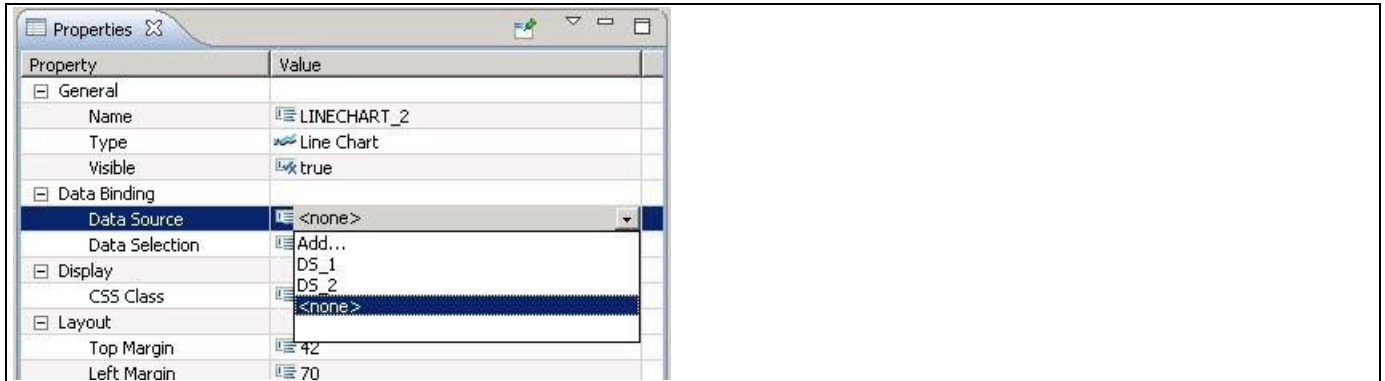


Figure 4.119: Data Source Selection

4.4.2 Data Utility Feature in VBX Charts

Each of the charts in the VBX suite also comes with the option to enable the Data Utility tool (see Figure 4.120). The Data Utility functionality provides you with the ability to select a subset of dimensions and measures from the assigned data source for the chart. For example, your data source could contain the dimensions Product Category and Region, and the measures Sales Amount and Profit Amount, but your chart is supposed to only display the Sales Amount by Region. In this situation the Data Utility allows you to re-use this data source and select the dimensions and measure that should be used, instead of using the complete data set. As the Data Utility tool allows you to specify the dimensions and measures per chart, it helps you to reduce the overall number of data source and in that way helps you to improve the overall performance of your application.

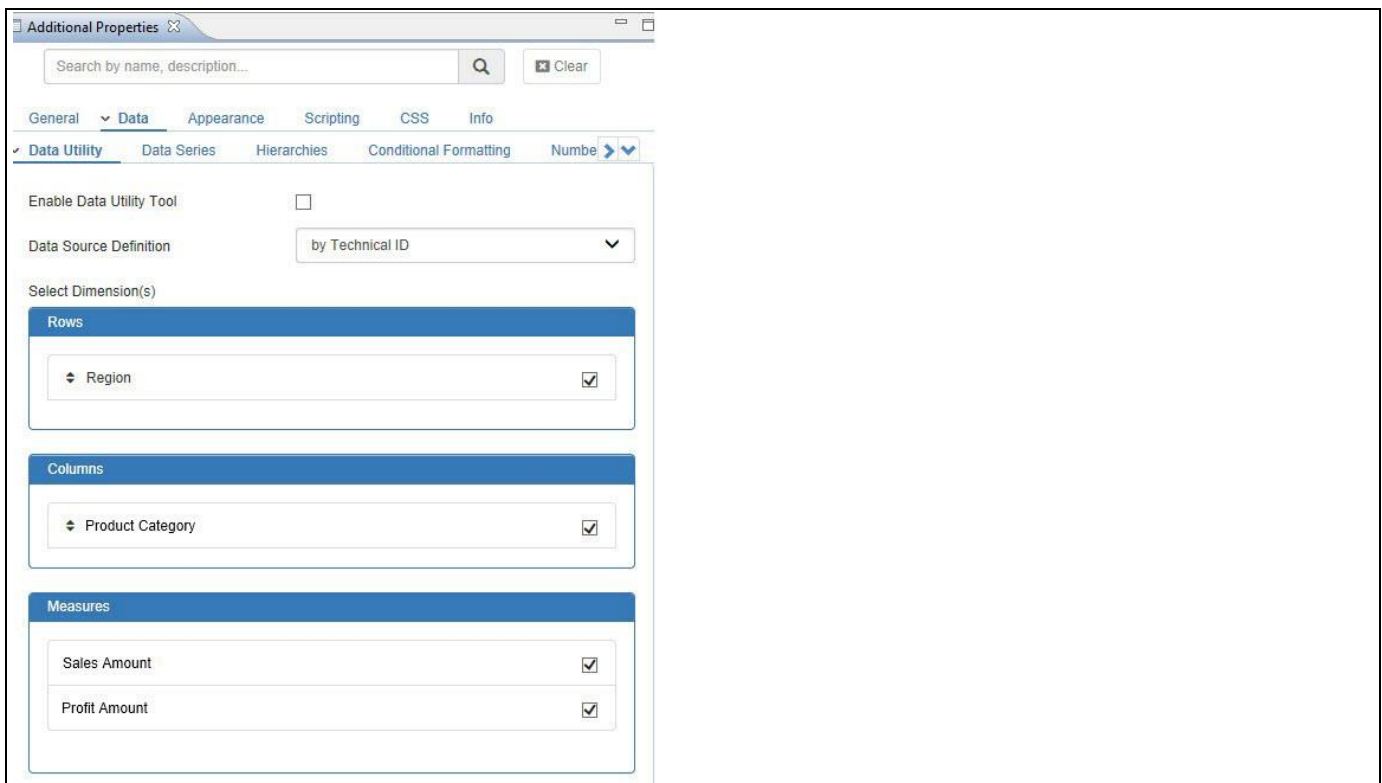


Figure 4.120: Data Tab – VBX Charts

Navigate to the category Data and to the sub category Data Utility in the Additional Properties of the VBX Charts (see Figure 4.120). After you enabled the Data Utility tool by activating the option Enable Data Utility Tool, you can set the Data Source Definition type and select both the measures and dimensions (see Figure 4.121). All Dimensions that are available in the Rows and Columns of the initial view are shown as part of the Rows, Columns, and Measures area of the Data Utility tool.

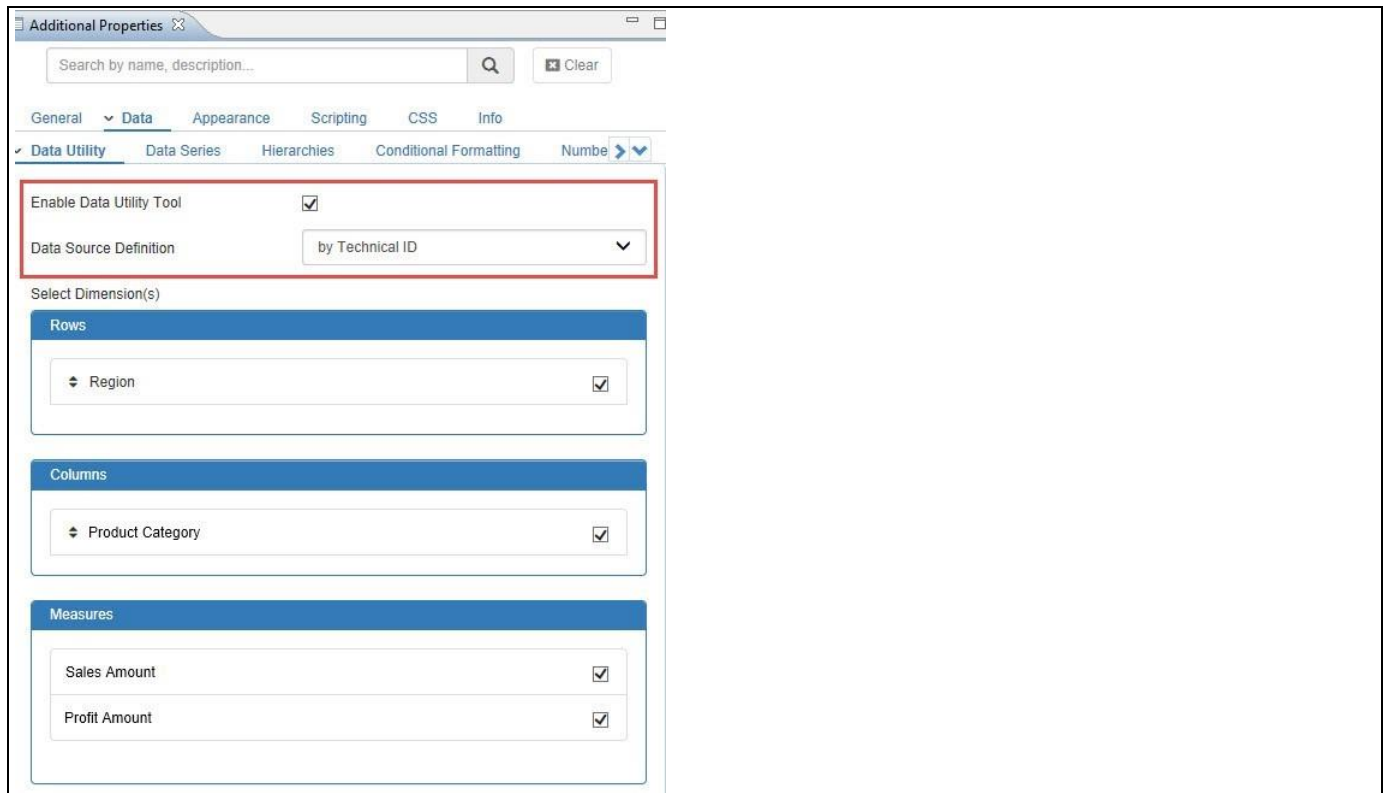


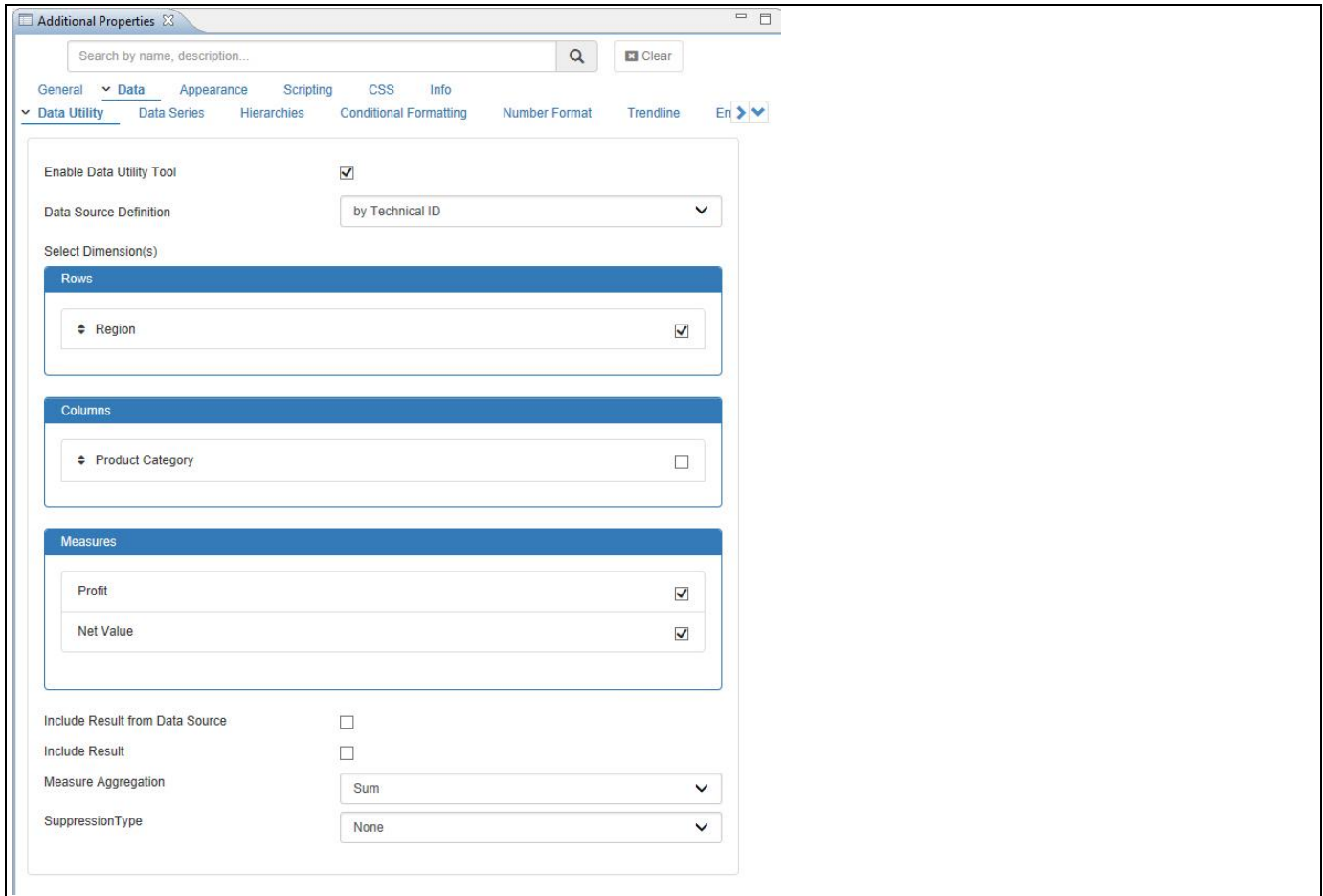
Figure 4.121: Data Utility box

4.4.2.1 Data Source Definition

As part of the Data Utility tool, you have the option to configure the property “Data Source Definition” to be based on the Technical ID or to be based on the Index.

- The option Technical ID allows you to specify the dimensions and measures based on their technical names.
- The option Index Based allows you to specify an index value (zero based index), and the index will specify the position of the dimension or measure in the assigned data source. For example a index of 2 for the measure will then use the third measure (0, 1, 2) of the assigned data source. By using the option Index based, you can keep the dimension and measure assignment dynamic, as the Data Utility will then always leverage the dimensions and measures based on the assigned index, even when there are changes in the underlying structure of the data source.

For our example we will select the option “Technical ID” as shown in Figure 4.122. The dimension Region is selected, along with the measures Profit and Net Value.



Additional Properties

Search by name, description...

General Data Appearance Scripting CSS Info

Data Utility Data Series Hierarchies Conditional Formatting Number Format Trendline Eri

Enable Data Utility Tool ☒

Data Source Definition by Technical ID

Select Dimension(s)

Rows

Region ☒

Columns

Product Category ☐

Measures

Profit ☒

Net Value ☒

Include Result from Data Source ☐

Include Result ☐

Measure Aggregation Sum

SuppressionType None

Figure 4.122: Data Utility

You also have the option to set the following properties for the Data Utility (see Figure 4.122).

- **Include Result from Data Source:** This property allows you to include Totals and Subtotals from the Initial View of the Data source.
- **Include Result:** When this property is activated, you have the option to include totals / subtotals for the selected dimension / measures and choose the aggregation function in the next property.
- **Measure Aggregation:** Using this property, you can set the Aggregate Function for the data points which are configured using the options such as Min, Max, Average, Count, Distinct Count, Sum, Percentage Share, and Running Total. The property Show Total and Sub total will display the sum of all the data points based on the selected Aggregate function.
- **Suppression Type** – This property allows you to configure a Zero and Null suppression for the Rows and Columns. The Zero / Null Suppression will be performed on the configured element of the Data Utility Tool.

4.5 Common Properties of VBX Charts

The following sections outlines the common properties of the VBX Charts that are available in the Additional Properties. Properties that are specific to a particular chart component are discussed separately.

4.5.1 General

The General category lists the component name and type which are not customizable. The property Visible controls the visibility of the component dynamically.

4.5.2 Data Binding

The dashboard designer can use the Data Source property in the Standard Properties of the chart to assign a data source to the chart. In addition you can leverage the previously mentioned Data Utility tool.

4.5.3 Display

The CSS Class property in the Standard Properties allows you to specify the CSS class name that is added to the component at runtime. This class can be referenced using the custom CSS file from the application properties.

4.5.4 Layout

Properties related to the component margins and size are available under the Layout category in the Standard Properties. For any component, a maximum of two properties between margins and size can be set to auto for the component to adjust the size and position dynamically.

4.5.5 Additional Properties Sheet – German Support

As part of VBX Release 2.32, you have the option to view the Additional Properties Sheet in German Language. The user can switch to English as well as German Languages based on their choice (see Figure 4.123).

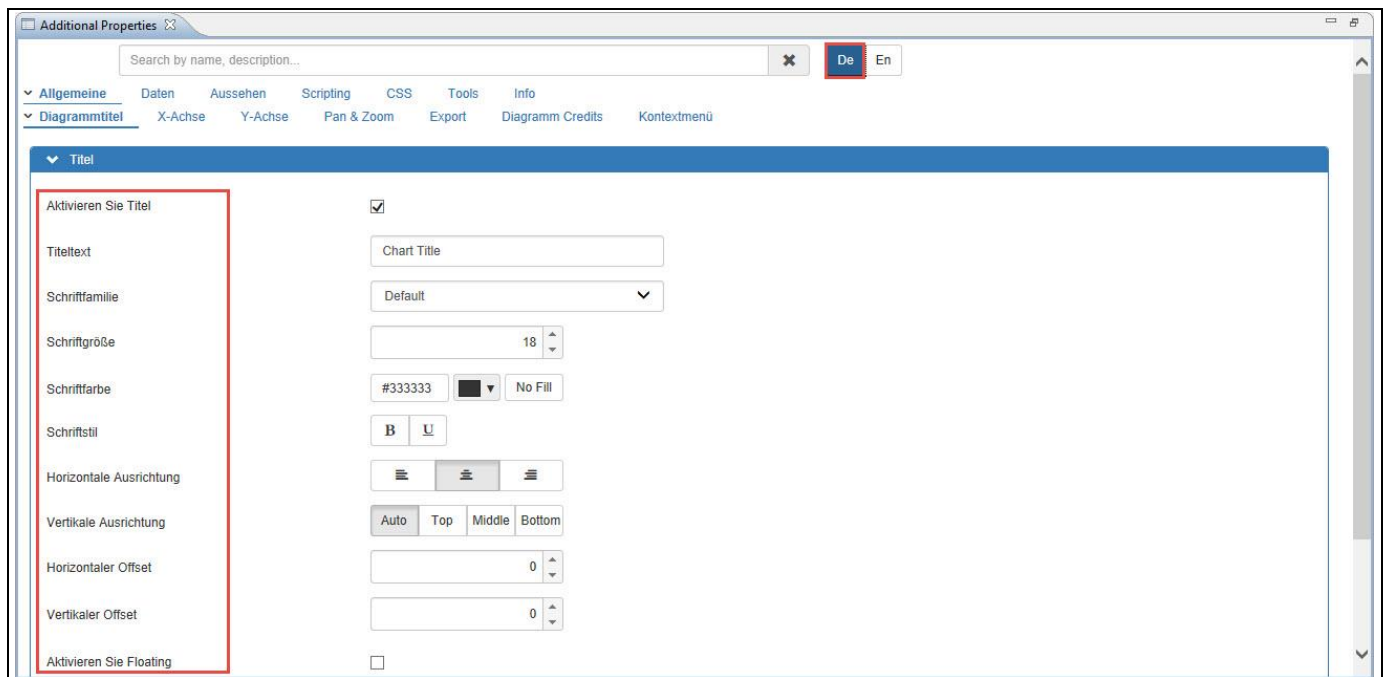


Figure 4.123: German Support

4.5.6 Additional Properties Sheet

The Additional Properties sheet consists of options and attributes to control the look and feel of the VBX charts. This sheet also enables users to modify properties related to advanced interactivities such as drilldown, panning and zooming, etc. Figure 4.124 highlights the available tabs of an Additional Property sheet for a line chart.



Figure 4.124: Additional Properties - Tabs

Except for a few unique properties for specific charts (like gauges and counters), all VBX charts share a common set of properties grouped under the categories discussed below. Exceptions from these categories include value axis for Gauges, 3D options for Pie charts, and text styles for Counters.

4.5.6.1 Category General

The following section outlines the available Additional Properties for the category General.

Sub category	Area	Property	Description
Chart Titles	Title	Enable Chart Title	This property allows to enable / disable the chart title.
		Chart Title Text	Here you can enter the chart title text.
		Font Family	Set the Font Family for the chart Title.
		Font Size	Set the Font Size for the chart Title.
		Font Color	Set the Font Color for the chart Title.
		Font Style	Set the Font Style for the chart Title.
		Horizontal Alignment	Here you can specify the horizontal alignment.
		Vertical Alignment	Here you can specify the vertical alignment.
		Horizontal Offset	This property allows to specify the Horizontal Offset of the Title relative to its default alignment.
		Vertical Offset	This property allows to specify the Vertical Offset of the Title relative to its default alignment.
		Enable Floating	When enabled, the plot area will not assign specific space for the title.
		Margin	Here you can specify the space between the title and the chart plot area or the chart subtitle (if enabled).
	Subtitle	Enable Chart Subtitle	This property allows to enable / disable the chart subtitle.
		Chart Subtitle Text	Here you can enter the chart subtitle text.

Sub category	Area	Property	Description
		Font Family	Set the Font Family for the chart Subtitle.
		Font Size	Set the Font Size for the chart Subtitle.
		Font Color	Set the Font Color for the chart Subtitle.
		Font Style	Set the Font Style for the chart Subtitle.
		Horizontal Alignment	Here you can specify the horizontal alignment.
		Vertical Alignment	Here you can specify the vertical alignment.
		Enable Floating	When enabled, the plot area will not assign specific space for the subtitle.
		Horizontal Offset	This property allows to specify the Horizontal Offset of the Subtitle relative to its default alignment.
		Vertical Offset	This property allows to specify the Vertical Offset of the Subtitle relative to its default alignment.
		Enable Floating	When enabled, the plot area will not assign specific space for the title.
X-Axis	General Settings	Enable Decimals	When enabled, the values on the X-Axis can contain decimals.
		Axis Ceiling	Here you can set the highest allowed value for the automatically scaled X-Axis. The upper limit displayed in the chart may be lower if the values are smaller. To manually enforce the display of a specific upper limit in the chart, use Maximum property instead.
		Axis Floor	Here you can set the lowest allowed value for the automatically scaled X-Axis. The lower limit displayed in the chart may be higher if the values are larger. To manually enforce the display of a specific lower limit in the chart, use Minimum property instead.
		Axis Minimum Value	Minimum value of the X-Axis. When this property is set to the value null then the minimum value is calculated automatically.
		Axis Maximum Value	Maximum value of the X-Axis. When this property is set to the value null then the maximum value is calculated automatically.
		Show Axis To Top	By activating this property, the X-Axis will be displayed at the Top of the chart.
		Enable Reverse Axis	By activating this property, the X-Axis will be reversed, so that the highest number is closer to the origin.
		Minimum Padding	Here you can enter a percentage value by which the X-Axis has to be padded to avoid the minimum value appearing closer to the

Sub category	Area	Property	Description
			edge of the plot area. This property works only when the Minimum is not set as a fixed value.
		Maximum Padding	Here you can enter a percentage value by which the X-Axis has to be padded to avoid the maximum value appearing closer to the edge of the plot area. This property works only when the Maximum is not set as a fixed value.
		Vertical Axis Offset	This property allows to specify the Vertical Offset of the X-Axis relative to its default alignment.
	Axis Title	Enable X-Axis Title	This property enables / disables the X-Axis Title.
		Axis Title Text	Set the title text for the axis.
		Font Family	Sets the Font Family for the X-Axis Title.
		Font Size	Sets the Font Size for the X-Axis Title.
		Font Color	Sets the Font Color for the X-Axis Title.
		Font Style	Sets the Font Style for the X-Axis Title.
		Horizontal Alignment	This property allows to configure the horizontal alignment of the X-Axis Title.
		Vertical Alignment	This property allows to configure the vertical alignment of the X-Axis Title.
		Vertical Offset	This property allows to specify the Vertical Offset of the X-Axis Title relative to its default alignment.
		Rotation	Here you can specify a degree value by which the X-Axis Text will be rotated.
		Title Margin	Here you can specify the distance between the X-Axis Title and the X-Axis Labels and X-Axis Line.
	Axis Label	Enable Axis Label	This property allows to enable / disable the Labels for the X-Axis.
		Enable Auto Scale	When activated, the X-Axis will automatically be scaled based on the assigned data. When disabled, the X-Axis will use the values configured in the Additional Properties for a manual scale.
		Label Prefix	This property allows to specify a Prefix for the X-Axis Labels.
		Label Suffix	This property allows to specify a Suffix for the X-Axis Labels.
		Show Empty Values	When enabled, the X-Axis Label as well as the X-Axis line will be displayed for empty

Sub category	Area	Property	Description
			values.
		Show First Label	When activated, the first label will be shown on the axis.
		Show Last Label	When activated, the last label will be shown on the axis.
		Show N'th Label	This property allows you to specify a value to display every N th label on the X-Axis. When set to 1, every label for the X-Axis will be shown. Set it to blank to have the component automatically calculate a value that will avoid overlapping.
		No of Stagger Lines	Here you can specify the number of rows which can be used to stagger the X-Axis labels. The property Stagger Lines will force the X-Axis labels to be staggered across the number of rows.
		Maximum No of Stagger Lines	This property allows you to specify a maximum number of rows for staggering X-Axis labels. This property is only applicable when the property Stagger Lines is not defined. The property Max Stagger Lines will stagger the X-Axis labels on when space is required.
		Font Family	Sets the Font Family for the X-Axis Label.
		Font Size	Sets the Font Size for the X-Axis Label.
		Font Color	Sets the Font Color for the X-Axis Label.
		Font Style	Sets the Font Style for the X-Axis Label.
		Horizontal Alignment	This property allows to configure the horizontal alignment of the X-Axis Labels.
		Horizontal Offset	This property allows to specify the Horizontal Offset of the X-Axis Label relative to its default alignment.
		Vertical Offset	This property allows to specify the Vertical Offset of the X-Axis Label relative to its default alignment.
		Send Forward/Backward	This property allows you to specify a number, by which the X-Axis Label for the X-Axis will be moved forward or backwards.
		Rotation	Here you can specify a degree value by which the X-Axis Labels will be rotated.
	Axis Line	Axis Line Color	Sets the Color for the X-Axis Line.
		Axis Line Width	Sets the Width for the X-Axis Line.
		Alternate Grid Color	Here you can configure the color for the space between alternate grid lines in the plot area.

Sub category	Area	Property	Description
	Axis Grid Line	Major Grid Line Color	Set the Color for the Major Grid Lines.
		Major Grid Line Style	Set the style for the Major Grid Lines.
		Major Grid Line Width	Set the Width for the Major Grid Lines.
		Send Forward/Backward	This property allows you to specify a number, by which the Grid Lines for the X-Axis will be moved forward or backwards.
	Ticks	Major Tick Interval	Sets the Interval for the Major Ticks on the X-Axis.
		Major Tick Mark Placement	Defines the Major Ticks Placement. The available options are On and Between.
		Major Tick Position	Defines the Major Ticks Position. The available options are Inside and Outside.
		Major Tick Color	Defines the Major Ticks Color.
		Major Tick Length	Defines the Major Ticks Length.
		Major Tick Width	Defines the Major Ticks Width.
		Minor Tick Interval	Sets the Interval for the Minor Ticks on the X-Axis.
	Plot Band	Enable Plot Band	This property enables / disables the Plot Band option.
		Start Value	Here you specify the start position for the Plot Band. The value is index based and refers to the index position of the values in the chart.
		End Value	Here you specify the end position for the Plot Band. The value is index based and refers to the index position of the values in the chart.
		Plot Band Color	Sets the Color for the Plot Band.
		Border Color	Sets the Border Color for the Plot Band.
		Border Width	Sets the Border Width for the Plot Band.
		Send Forward/Backward	This property allows you to specify a number, by which the Plot Band for the X-Axis will be moved forward or backwards.
		Enable Plot Band Label	This property enables / disables the Plot Band Label option.
		Label Text	Here you can specify the Plot Band Label Text.
		Label Font Family	Sets the Font Family for the Plot Band Label.
		Label Font Size	Sets the Font Size for the Plot Band Label.
		Label Font Color	Sets the Font Color for the Plot Band Label.
		Label Font Style	Sets the Font Style for the Plot Band Label.

Sub category	Area	Property	Description
		Label Horizontal Alignment	This property allows to configure the horizontal alignment of the Plot Band Label.
		Label Vertical Alignment	This property allows to configure the vertical alignment of the Plot Band Label.
		Label Text Horizontal Alignment	This property allows to configure the horizontal alignment of the Label Text within the Plot Band Label.
		Label Horizontal Offset	This property allows to specify the Horizontal Offset of the Plot Band Label relative to its default alignment.
		Label Vertical Offset	This property allows to specify the Vertical Offset of the Plot Band Label relative to its default alignment.
		Label Rotation	Here you can specify a degree value by which the Plot Band Label will be rotated.
	Plot Line	Enable Plot Line	This property enables / disables the Plot Line option.
		Plot Line Value	Here you specify the position for the Plot Line. The value is index based and refers to the index position of the values in the chart.
		Plot Line Style	Sets the Dashstyle for the Plot Line.
		Plot Line Color	Sets the Color for the Plot Line.
		Plot Line Width	Sets the Width for the Plot Line.
		Send Forward/Backward	This property allows you to specify a number, by which the Plot Line for the X-Axis will be moved forward or backwards.
		Enable Plot Line Label	This property enables / disables the Plot Line Label option.
		Plot Line Label Text	Here you can specify the Plot Line Label Text.
		Label Font Family	Sets the Font Family for the Plot Line Label.
		Label Font Size	Sets the Font Size for the Plot Line Label.
		Label Font Color	Sets the Font Color for the Plot Line Label.
		Label Font Style	Sets the Font Style for the Plot Line Label.
		Label Vertical Alignment	Vertical alignment of the label within the text box.
		Label Text Alignment	This property allows to configure the horizontal alignment of the Plot Line Label Text within the Label.
		Label Horizontal Offset	This property allows to specify the Horizontal Offset of the Plot Line Label relative to its default alignment.
		Label Vertical Offset	This property allows to specify the Vertical Offset of the Plot Line Label relative to its

Sub category	Area	Property	Description
			default alignment.
		Label Rotation	Here you can specify a degree value by which the Plot Line Label will be rotated.
Y-Axis	General Settings	Enable Decimals	When enabled, the values on the Y-Axis can contain decimals.
		Axis Ceiling	Here you can set the highest allowed value for the automatically scaled Y-Axis. The upper limit displayed in the chart may be lower if the values are smaller. To manually enforce the display of a specific upper limit in the chart, use Maximum property instead.
		Axis Floor	Here you can set the lowest allowed value for the automatically scaled Y-Axis. The lower limit displayed in the chart may be higher if the values are larger. To manually enforce the display of a specific lower limit in the chart, use Minimum property instead.
		Axis Maximum	Maximum value of the Y-Axis. When this property is set to the value null then the maximum value is calculated automatically.
		Axis Minimum	Minimum value of the Y-Axis. When this property is set to the value null then the minimum value is calculated automatically.
		Show Axis on opposite side	By activating this property, the Y-Axis will be displayed at the opposite side of the chart.
		Enable Reverse Axis	By activating this property, the Y-Axis will be reversed, so that the highest number is closer to the origin.
		Minimum Padding	Here you can enter a percentage value by which the Y-Axis has to be padded to avoid the minimum value appearing closer to the edge of the plot area. This property works only when the Minimum is not set as a fixed value.
		Maximum Padding	Here you can enter a percentage value by which the Y-Axis has to be padded to avoid the maximum value appearing closer to the edge of the plot area. This property works only when the Maximum is not set as a fixed value.
		Horizontal Axis Offset	This property allows to specify the Horizontal Offset of the Y-Axis relative to its default alignment.
	Axis Title	Enable Y-Axis Title	This property enables / disables the Y-Axis Title.
		Title Text	Set the title text for the axis.

Sub category	Area	Property	Description
		Font Family	Sets the Font Family for the Y-Axis Title.
		Font Size	Sets the Font Size for the Y-Axis Title.
		Font Style	Sets the Font Style for the Y-Axis Title.
		Font Color	Sets the Font Color for the Y-Axis Title.
		Vertical Alignment	This property allows to configure the vertical alignment of the Y-Axis Title.
		Horizontal Offset	This property allows to specify the Horizontal Offset of the Y-Axis Title relative to its default alignment.
		Rotation	Here you can specify a degree value by which the Y-Axis Text will be rotated.
		Margin	Here you can specify the distance between the Y-Axis Title and the Y-Axis Labels and Y-Axis Line.
	Identical Scaling	Select Group	Here you can select a Axis Group from a list of already existing groups.
		Identical Scaling Group Name	Here you can specify a Axis Group Name which will be used to identify all charts which will use an identical scaling.
	Axis Label	Enable Axis Label	This property allows to enable / disable the Labels for the Y-Axis.
		Enable Auto Scale	When activated, the Y-Axis will automatically be scaled based on the assigned data. When disabled, the Y-Axis will use the values configured in the Additional Properties for a manual scale.
		Label Prefix	This property allows to specify a Prefix for the Y-Axis Labels.
		Label Suffix	This property allows to specify a Suffix for the Y-Axis Labels.
		Show Empty Values	When enabled, the Y-Axis Label as well as the Y-Axis line will be displayed for empty values.
		Show First Label	When activated, the first label will be shown on the axis.
		Show Last Label	When activated, the last label will be shown on the axis.
		Show N'th Label	This property allows you to specify a value to display every N th label on the Y-Axis. When set to 1, every label for the Y-Axis will be shown. Set it to blank to have the component automatically calculate a value that will avoid overlapping.
		No of Stagger Lines	Here you can specify the number of rows which can be used to stagger the Y-Axis

Sub category	Area	Property	Description
			labels. The property Stagger Lines will force the Y-Axis labels to be staggered across the number of rows.
		Maximum No of Stagger Lines	This property allows you to specify a maximum number of rows for staggering Y-Axis labels. This property is only applicable when the property Stagger Lines is not defined. The property Max Stagger Lines will stagger the Y-Axis labels on when space is required.
		Font Family	Sets the Font Family for the Y-Axis Label.
		Font Size	Sets the Font Size for the Y-Axis Label.
		Font Color	Sets the Font Color for the Y-Axis Label.
		Font Style	Sets the Font Style for the Y-Axis Label.
		Label Alignment	This property allows to configure the Vertical alignment of the Y-Axis Labels.
		Horizontal Offset	This property allows to specify the Horizontal Offset of the Y-Axis Label relative to its default alignment.
		Vertical Offset	This property allows to specify the Vertical Offset of the Y-Axis Label relative to its default alignment.
		Send Forward/Backward	This property allows you to specify a number, by which the Y-Axis Label for the Y-Axis will be moved forward or backwards.
		Rotation	Here you can specify a degree value by which the Y-Axis Label will be rotated.
	Axis Line	Axis Line Color	Sets the Color for the X-Axis Line.
		Axis Line Width	Sets the Width for the X-Axis Line.
		Alternate Grid Color	Here you can configure the color for the space between alternate grid lines in the plot area.
	Axis Grid Lines Ticks	Major Grid Line Color	Set the Color for the Major Grid Lines.
		Minor Grid Line Style	Set the Dashstyle for the Minor Grid Lines.
		Major Grid Line Width	Set the Width for the Major Grid Lines.
		Send Forward/Backward	This property allows you to specify a number, by which the Grid Lines for the Y-Axis will be moved forward or backwards.
		Minor Grid Line Color	Set the Color for the Minor Grid Lines.
		Major Grid Line	Set the Dashstyle for the Major Grid Lines.

Sub category	Area	Property	Description
		Style	
		Minor Grid Line Width	Set the Width for the Minor Grid Lines.
		Major Tick Interval	Sets the Interval for the Major Ticks on the Y-Axis.
		Major Tick Position	Defines the Major Ticks Position. The available options are Inside and Outside.
		Major Tick Color	Defines the Major Ticks Color.
		Major Tick Length	Defines the Major Ticks Length.
		Major Tick Width	Defines the Major Ticks Width.
		Minor Tick Interval	Sets the Interval for the Minor Ticks on the Y-Axis.
		Minor Tick Position	Defines the Minor Ticks Position. The available options are Inside and Outside.
		Minor Tick Color	Defines the Minor Ticks Color.
		Minor Tick Length	Defines the Minor Ticks Length.
		Minor Tick Width	Defines the Minor Ticks Width.
	Plot Band	Enable Plot Band	This property enables / disables the Plot Band option.
		Start Value	Here you specify the start position for the Plot Band. The value is index based and refers to the index position of the values in the chart.
		End Value	Here you specify the end position for the Plot Band. The value is index based and refers to the index position of the values in the chart.
		Plot Band Color	Sets the Color for the Plot Band.
		Border Color	Sets the Border Color for the Plot Band.
		Border Width	Sets the Border Width for the Plot Band.
		Send Forward/Backward	This property allows you to specify a number, by which the Plot Band for the Y-Axis will be moved forward or backwards.
		Enable Plot Band Label	This property enables / disables the Plot Band Label option.
		Label Text	Here you can specify the Plot Band Label Text.
		Label Font Family	Sets the Font Family for the Plot Band Label.
		Label Font Size	Sets the Font Size for the Plot Band Label.
		Label Font Color	Sets the Font Color for the Plot Band Label.
		Label Font Style	Sets the Font Style for the Plot Band Label.
		Label Horizontal Alignment	This property allows to configure the horizontal alignment of the Plot Band Label.

Sub category	Area	Property	Description
		Label Vertical Alignment	This property allows to configure the vertical alignment of the Plot Band Label.
		Label Text Alignment	This property allows to configure the horizontal alignment of the Label Text.
		Label Horizontal Offset	This property allows to specify the Horizontal Offset of the Plot Band Label relative to its default alignment.
		Label Vertical Offset	This property allows to specify the Vertical Offset of the Plot Band Label relative to its default alignment.
		Label Rotation	Here you can specify a degree value by which the Plot Band Label will be rotated.
	Plot Line	Enable Plot Line	This property enables / disables the Plot Line option.
		Plot Line Value	Here you specify the position for the Plot Line. The value is index based and refers to the index position of the values in the chart.
		Plot Line Color	Sets the Color for the Plot Line.
		Plot Line Width	Sets the Width for the Plot Line.
		Plot Line Style	Sets the Dashstyle for the Plot Line.
		Send Forward/Backward	This property allows you to specify a number, by which the Plot Line for the Y-Axis will be moved forward or backwards.
		Enable Plot Line Label	This property enables / disables the Plot Line Label option.
		Plot Line Label Text	Here you can specify the Plot Line Label Text.
		Font Family	Sets the Font Family for the Plot Line Label.
		Font Size	Sets the Font Size for the Plot Line Label.
		Font Color	Sets the Font Color for the Plot Line Label.
		Font Style	Sets the Font Style for the Plot Line Label.
		Label Horizontal Alignment	This property allows to configure the horizontal alignment of the Plot Line Label.
		Label Vertical Alignment	This property allows to configure the vertical alignment of the Plot Line Label.
		Label Text Alignment	This property allows to configure the horizontal alignment of the Plot Line Label Text within the Label.
		Label Horizontal Offset	This property allows to specify the Horizontal Offset of the Plot Line Label relative to its default alignment.
		Label Vertical Offset	This property allows to specify the Vertical Offset of the Plot Line Label relative to its default alignment.

Sub category	Area	Property	Description
		Label Rotation	Here you can specify a degree value by which the Plot Line Label will be rotated.
Pan & Zoom	Panning	Enable Panning	This property allows you to enable / disable the Panning functionality.
		Panning Key	With this setting you can define the key that you need to hold down to pan the chart when zoomed in. The available options are Shift and Ctrl.
	Zoom	Chart Zoom Type	Decide along which dimension a user can zoom by dragging the mouse - along x, y or both.
		Chart Pinch Type	Decide along which dimension a user can zoom by using multi-touch gestures - along x, y or both axis.
		Minimum Range X-Axis	Minimum Range on the X-Axis corresponds to the range shown when zoom on this axis is at its maximum. In other words, you will be unable to zoom to a scale lower than this minimum range.
		Minimum Range Y-Axis	Minimum Range on the Y-Axis corresponds to the range shown when zoom on this axis is at its maximum. In other words, you will be unable to zoom to a scale lower than this minimum range.
		Minimum Tick Interval Y-Axis	Set the smallest division to which the chart can be zoomed on the Y-axis.
	Reset Button	Horizontal Alignment	Set the Horizontal Alignment for the Reset Zoom button.
		Vertical Alignment	Set the Vertical Alignment for the Reset Zoom button.
		Background Color	Set the Background Color for the Zoom Button.
		Hover Background Color	Set the Background color for the Zoom Button on mouse over.
		Zoom Area Fill Color	Here you can set the Fill Color for the Zoom area being dragged by the cursor.
		Font Color	Set the Text Color for the display text on the button.
		Hover Font Color	Set the Text color for the Zoom Button on mouse over.
		Button Radius	Set the Radius for the Zoom Button.
Export	General Settings	Enable Export	This property allows you to enable / disable the Export option.
	Export File	Export File Name	Here you can define the file name for the Export. Please specify the file name without

Sub category	Area	Property	Description
			the extension.
		Chart Width	This property defines the Width of the exported chart in pixels. If unassigned, this will be determined automatically.
		Chart Height	This property defines the Height of the exported chart in pixels. If unassigned, this will be determined automatically.
		Chart Scale	This property defines the scale / zoom factor for the exported image compared to the on-screen display.
	Export Button	Button Type	Using this property, you can specify the Export Button type. Available options are: Menu, Circle, Diamond, and Square.
		Button Height	Height of the Export Button in pixels.
		Button Width	Width of the Export Button in pixels.
		Horizontal Alignment	Horizontal alignment for the Export Button.
		Vertical Alignment	Vertical alignment for the Export Button.
		Horizontal Offset	This property allows to specify the Horizontal Offset of the Export Button relative to its default alignment.
		Vertical Offset	This property allows to specify the Vertical Offset of the Export Button relative to its default alignment.
		Button Radius	This property sets the Radius for the Export Button.
		Background Fill Color	This property sets the Background Fill Color for the Export Button.
		Background Hover Fill Color	This property sets the Background Hover Fill Color for the Export Button.
	Export Icon	Icon Fill Color	This property configures the Fill Color for the Icon inside the Export Button.
		Icon Size	This property configures the Size for the Icon inside the Export Button.
		Icon Stroke Color	This property sets the Stroke Color for the Icon inside the Export Button.
		Icon Stroke Width	This property sets the Stroke Width for the Icon inside the Export Button.
		Horizontal Offset	This property allows to specify the Horizontal Offset of the Export Icon relative to its default alignment.
		Vertical Offset	This property allows to specify the Vertical Offset of the Export Icon relative to its default alignment.

Sub category	Area	Property	Description
	Dropdown Menu	Background Hover Fill Color	This property sets the Background Color for the Export Menu Items for mouse over.
		Background Fill Color	This property sets the Background Fill Color for the Export Menu.
		Item Font Color	This property sets the Font Color for the Export Menu Items.
		Item Font Style	This property sets the Font Style for the Export Menu Items.
		Item Hover Font Color	This property sets the Font Color for the Export Menu Items for mouse over.
		Item Hover Font Style	This property sets the Font Style for the Export Menu Items for mouse over.
Chart Credits	General Settings	Enable	This property allows to enable / disable the Metadata.
		URL	Here you can specify a hyperlink, which will be opened when the metadata text is clicked.
		Text	Here you can specify the Text that will be displayed.
	Appearance	Font Family	Sets the Font Family for the metadata text.
		Font Size	Sets the Font Size for the metadata text.
		Font Color	Sets the Font Color for the metadata text.
		Font Style	Set the Font Style for the metadata text.
		Credits Cursor	Here you can choose from either a Normal or a Pointer Cursor type.
		Horizontal Alignment	Horizontal alignment for the Text.
		Vertical Alignment	Vertical alignment for the Text.
		Horizontal Offset	This property allows to specify the Horizontal Offset of the Text relative to its default alignment.
		Vertical Offset	This property allows to specify the Vertical Offset of the Text relative to its default alignment.
	General	Activate Context Menu	This property enables /disables the right click option for the Context Menu.
		Enable Maximize Option	This property enables /disables the Maximize Button for the Context Menu.
		Enable Display Data Option	This property enables /disables the Display Data option for the Context Menu.
		Enable Actions Menu	This property enables /disables the More Actions Button for the Context Menu.
		Mobile Device	This property allows to configure, which

Sub category	Area	Property	Description
		Navigation	navigation option should be configured to be used on a mobile device for opening the Context Menu. The options are Double Tap and Long Press.
	Menu Items	Context Menu Options	<p>This property allows to include /exclude the following options for the Context Menu.</p> <ul style="list-style-type: none"> ▪ Display Data ▪ Sort ▪ Filter ▪ Ranking ▪ Drill Down ▪ Drill Up ▪ Swap With ▪ Dimension Display ▪ Select Measure ▪ Show / Hide ▪ Totals ▪ Export As ▪ Lasso / Zoom ▪ Conditional Formatting ▪ Remove Annotations
	Custom Menu Items	Menu	Using this property, you will be able to create the custom Menu items.
		Sub Menu	Using this property, you will be able to create the custom Sub Menu items.
		Icon	Using this property, you will be able to assign the icon for the respective custom Menu and Sub Menu items.
	Table Formatting	Choose theme for table	Using this property, you will be able to select the theme for the Table having Chart Data at run time. The options are Default Theme, Fresh Theme, Blue Theme, Dark Theme, Balham Theme, Material Theme, Bootstrap Theme and Balham Dark Theme.
		Status Bar	This property shows the status bar for the selected cells in the Table.
		Auto Size Columns	Using this property, you will be able to autosize the columns in the Table.
		Activate Table Paging	Using this property, you will be able to enable/disable the pagination option for the Table.
		Minimum Column Width	Using this property, you will be able to set the minimum column width for the Table.
		Minimum Row Height	Using this property, you will be able to set the minimum row height for the Table.

Sub category	Area	Property	Description
		Enable Table Contextmenu	This property enables /disables the Context Menu option for the Table.
		Custom Theme Code	Using this property, you will be able to apply Custom Theme Code for the Table.
	Table Header Formatting	Enable Header Menu	Using this property, you will be able to enable/disable the Header Menu in the columns of the Table.
		Header Height	Using this property, you will be able to set the height for the Table Header.
		Font Size	This property sets the Font Size for the Table Header.
		Font Family	This property sets the Font Type for the Table Header.
		Font Color	This property sets the Font Color for the Table Header.
		Font Style	This property sets the Font Style for the Table Header.
		Horizontal Alignment	This property sets the Horizontal Alignment for the Table Header Text.
		Background Color	This property sets the Background Color for the Table Header.

Table 4.6: General

4.5.6.2 Category Data

The category Data contains properties and attributes related to the data for the chart. For charts such as the line or area chart, the Data category contains attributes that allow changing the layout of the markers displayed in the chart.

Sub category	Area	Property	Description
Data Utility		Enable Data Utility Tool	This property enables /disables the Data Utility Tool.
		Data Source Definition	Here you can select the option for the property Data Source Definition and the two different options are 1. Technical ID 2. Index based
		Select Dimension(s)	Here you can customize the Dimensions used in the Chart.
		Measure	Select a Measure from the Data Source for the chart.
		Include Result from Data Source	This property enables/disables the Include Result from Data Source option.
		Include Result	When this property is activated, you have the option to include totals / subtotals for

Sub category	Area	Property	Description
			the selected dimension / measures and choose the aggregation function in the next property.
		Measure Aggregation	Using this property, you can set the Aggregate Function for the data points which are configured using the options such as Min, Max, Average, Count, Distinct Count, Sum, Percentage Share, and Running Total. The property Show Total and Sub total will display the sum of all the data points based on the selected Aggregate function.
		Suppression Type	This property allows you to configure if rows or columns (or both) with null and zero values should be suppressed from the result set.
Data Series	Ranking	Rank Top N	This property allows you to rank the information in the chart . For example, you can provide the values for the property Rank Top N based on your choice and visualize the ranking in the chart.
		Ranking Measure	This property allows you to select the Measure for the Ranking.
	Totals	Show Total	Enables the option to show the Total for the chart.
	Series Options	Color	Here you can configure the color for each data series.
		Enable/Disable	This property allows you to enable/disable the data series in the chart.
	Series Name Change	Series Name Change	Using this property you can change the labels for the measures from the assigned data source for this particular chart.
	Chart Settings	Select Measure for Volume	This property allows you to select the Measure value for volume of the slice for Spie Chart.
		Select Measure for Radius	This property allows you to select the Measure value for radius of the slice for Spie Chart.
Hierarchies	General Settings	Activate Hierarchical Labeling	This property enables/disables the Hierarchical Labels for the X-Axis.
Conditional Formatting		Group Name	Here you can enter a Name for the Group.
		Status Flag	Here you can set the Status Flag. It is

Sub category	Area	Property	Description
			applicable for the Gantt Chart.
		Logical Condition	Here you can set the Logical Condition. The options are OR and AND.
		Highlighted Measure	Here you can set the Highlighted Measure.
		Color	Here you can set the color for the Status Flag.
		Rule Name	Here you can enter a Name for the Alert.
		Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value and Dimension.
		Highlighted Measure	Here you can select the measure from the chart where the rule will be applied upon.
		Comparison Measure	Here you can select the measure which will be compared against the Comparison Value.
		Operator	Here you can choose the operator that is used to compare the Comparison Measure with the Comparison Value.
		Comparison Value Type	Depending on the configured options, the property Comparison Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
		Dynamic Selection Value	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
		Measure 1	This property allows you to select the Measure 1 value for the Calculation.
		Calculation Operator	Here you can choose the type of calculation. Available options are: Add, Subtract, Divide, Multiply.
		Measure 2	This property allows you to select the Measure 2 value for the Calculation.
		Target Value Type	Here you can choose between a Static and a Dynamic Target Value.
		Target Value	Depending on the configured options, the

Sub category	Area	Property	Description
			property Target Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
		Dimension	Here you can select the dimension which you would like to choose a member from.
		Dimension Member	Here you can select the dimension member you would like to highlight in the chart.
		Color	Here you can define the color for the Rule.
Number Format		Apply Identical Number Format in all areas	This property allows to enable / disable the Identical Number Format in all areas.
		Component Area	This property sets the Component Area. The options are Data Label and Tooltip.
		Number Format Definition	This property allows you to select the options for Number Format Definition. The options are Initial View and Custom Number Format.
		Number of Decimals	This property allows to the define the Number of decimals for the Data Label/Tooltip.
		Thousand Separator	This property allows to the define the Thousand Separator for the Data Label/Tooltip.
		Decimal Separator	This property allows to the define the Decimal Separator for the Data Label/Tooltip.
		Show Scaling Unit	This property allows to enable / disable the Scaling Unit for the Data Label/Tooltip.
		Scaling Unit Placement	This property allows you to set the Scaling Unit Placement for the Data Label/Tooltip.
		Scaling Unit	This property allows you to set the Scaling Unit for the Data Label/Tooltip.
		Show Unit / Currency	This property allows to enable / disable the display of the configured Unit / Currency for the Data Label/Tooltip.
		Currency/Unit Placement	This property allows you to set the Currency/Unit Placement for the Data Label/Tooltip.
		Enable Scaling Factor	This property allows to enable / disable the display of the configured Scaling Factor for the Data Label/Tooltip.
		Scaling Factor	The property allows you to specify a

Sub category	Area	Property	Description
			Scaling Factor, which then can be displayed together with the data value for the Data Label/Tooltip.
		Prefix	This property allows to configure the Prefix for the Data Label/Tooltip.
		Suffix	This property allows to configure the Suffix for the Data Label/Tooltip.
		Enable Semantic Formatting	This property activates the option for Semantic Formatting for the Data Label/Tooltip.
		Format for Negative Values	This property sets the Format for Negative Values for the Data Label/Tooltip.
		Color for Negative Values	This property sets the Color for Negative Values for the Data Label/Tooltip.
		Format for Positive Values	This property sets the Format for Positive Values for the Data Label/Tooltip.
		Color for Positive Values	This property sets the Color for Positive Values for the Data Label/Tooltip.
Trendline		Enable Trendline	This property enables/disables the Trendline for the Charts.
		Trendline Color Identical to Data Series	This property enables/disables the color identical to the Data Series for the Chart.
		Show Trendline Equation	This property enables/disables the Trendline Equation for the Chart.
Error Bar		Enable Error Bar	This property enables/disables the Error Bar for the Chart.
		Error Amount	This property sets the Error Amount type for the Chart. The options are Fixed Value, Percentage Value, Standard Deviation, or Custom.
		Error Amount Value	This property sets the Error Amount value for the Chart.
		Stem Color	This property allows you to specify the color for the Stem Line.
		Stem Style	This property allows you to specify the style for the Stem Line.
		Stem Width	This property allows you to specify the width for the Stem Line.
		Whisker Color	This property allows you to specify the color for the Whisker Line.
		Whisker Length	This property allows you to specify the length for the Whisker Line.
		Whisker Width	This property allows you to specify the

Sub category	Area	Property	Description
			width for the Whisker Line.

Table 4.7: Data

Enable Data Utility Tool

When the property Enable Data Utility Tool in the Category Data of the Additional Properties for the Charts is activated, then the native component scripting related to the Data Utility Feature namely “swapDimensions()” will not function.

4.5.6.3 Category Appearance

The category Appearance provides access to properties that allow you to configure the look and feel of the chart, such as background color, border, data label, and plot options.

Sub category	Area	Property	Description
Chart	General Settings	Chart Type	Sets the chart type.
		Dimension Value Display	Select whether the dimension members should be displayed using the key, text, or key and text values.
		Allow Data Point Selection	This property allows the Series points to be selected.
		Ignore Hidden Series	When enabled, the axis scaling will only be based on the displayed series.
		Connect Null values	This property enables/disables the option to connect the graph line across the null points.
		Enable Redraw	Resizes the chart to fit the container when the window is resized at runtime.
		Enable Master Detail	Enables/Disables the Master Details Chart.
		Master Detail Chart Type	Select whether the type of charts should be displayed using Area, Column and Line charts.
		Enable Master Detail Axis	Enables/Disables Master Detail Axis.
		Minimum Point Size	This property sets the maximum point size for the slice in Spie Chart.
		Minimum Point Size	This property sets the minimum point size for the slice in Spie Chart.
	Chart Area	Border Color	Here you can configure the Border Color for the chart.
		Border Width	Here you can configure the Border Width for the chart.
		Border Radius	Here you can configure the Border Radius for the chart.
		Enable Shadow	Applies a drop shadow on the outer chart area.
		Background Color	Here you can configure the Background Color for the chart.
	Chart Theme	Enable Custom Theme	Activates the Custom Theme option.
		Custom Theme Editor	Click on the link to navigate to the Custom Theme Editor.
		Custom Theme Code	Here you can insert the custom theme code.
	Plot Area	Enable Transparency	When enabled, the plot area becomes transparent.
		Background Color	Here you can set the Background Color for the plot area.

Sub category	Area	Property	Description
		Background Image	Here you can specify a background image, by specifying an Image URL, for example: http://www.sample.com/images/bglImage.png .
		Border Color	Here you can set the Border Color for the plot area.
		Border Width	Here you can set the Border Width for the plot area.
		Enable Plot Area Shadow	Applies a drop shadow on the outer plot area.
		Margin Top	The Margin Bottom defines the margin between the chart plot area and the top chart border (see Figure 4.4).
		Margin Bottom	The Margin Bottom defines the margin between the chart plot area and the bottom chart border (see Figure 4.4).
		Margin Left	The Margin Left defines the margin between the chart plot area and the left chart border (see Figure 4.4).
		Margin Right	The Margin Right defines the margin between the chart plot area and the right chart border (see Figure 4.4).
		Padding Top	The padding options define the padding between the outer area of the chart and all elements inside the chart area, such as data labels and a legend. This property is for the Top area (see Figure 4.4).
		Padding Bottom	The padding options define the padding between the outer area of the chart and all elements inside the chart area, such as data labels and a legend. This property is for the Bottom area (see Figure 4.4).
		Padding Left	The padding options define the padding between the outer area of the chart and all elements inside the chart area, such as data labels and a legend. This property is for the Left area (see Figure 4.4).
		Padding Right	The padding options define the padding between the outer area of the chart and all elements inside the chart area, such as data labels and a legend. This property is for the Right area (see Figure 4.4).
	Chart Font	Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.

Sub category	Area	Property	Description
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
Data Label		Enable Data Labels	This property allows you to enable / disable the display of the data labels.
		Font Style	Here you can set the Font Style for the Data Labels.
		Horizontal Alignment	This property allows you to set the horizontal alignment for the Data Label.
		Vertical Alignment	This property allows you to set the vertical alignment for the Data Label.
		Horizontal Offset	This property allows to specify the Horizontal Offset of the Data Label box relative to its default alignment.
		Vertical Offset	This property allows to specify the Vertical Offset of the Data Label box relative to its default alignment.
		Background Color	Here you can set the Background Color for the Data Label.
		Border Color	Here you can set the Border Color for the Data Label.
		Border Radius	Here you can set the Border Radius for the Data Label.
		Border Width	Here you can set the Border Width for the Data Label.
		Enable Crop	When activated, Data Labels outside the plot area will be cropped.
		Defer Display	When activated, the showing of the Data Labels will be delayed until the data series animation is complete.
		Allow Overlap	Allow Data Labels to be overlapped. By default, overlapping Data Labels are hidden.
		Label Padding	This property defines the Padding between the Data Label text and the borders.
		Label Rotation	Set the Text Rotation in degrees. Note: The Border and Background will be lost when the Data Label is rotated.
		Enable Shadow	This property allows you to enable / disable a Shadow for the Data Label box.
		Font Family	Sets the Font Family for the Data Labels.
		Font Size	Sets the Font Size for the Data Labels.
		Font Color	Sets the Font Color for the Data Labels.
Tooltip		Enable Tooltip	This property enables / disables the display of

Sub category	Area	Property	Description
			the Tooltip.
		Font Style	Set the Font Style for the Tooltip.
		Border Color	Define the Border Color for the Tooltip.
		Border Radius	Define the Border Radius for the Tooltip.
		Border Width	Define the Border Width for the Tooltip.
		Shape	The property allows you to specify the shape of the Tooltip. The available options are Callout, Oval, Rectangle.
		Hide delay	This is the amount of milliseconds by which the hiding of the tooltip is delayed, after you have moved the focus away from the particular data point.
		Enable Cross Hair	The Cross Hair property enables an additional visual help which follows the Tooltip to help locating the exact data value.
		Enable Shadow	Applies a drop shadow to the tooltip.
		Enable Animation	Enables the animation for the tooltip.
		Follow Mouse Pointer	Enables the Tooltip's ability to follow the mouse pointer.
		Follow Touch Move	Enables the Tooltip's ability to follow the pointer for touch devices.
		Shared Tooltip	When enabled, the entire plot area (all columns / data points) capture mouse movements or touch events.
		Snap to data	Proximity within which the Tooltip snaps to the data point in pixels.
		Font Family	Set the Font Family for the Tooltip.
		Font Size	Set the Font Size for the Tooltip.
		Font Color	Set the Font Color for the Tooltip.
		Background Color	Define the Background Color for the Tooltip.
		Tooltip Date Format	Set the Tooltip Date Format. It is applicable for Gantt Chart.
Legend	Appearance	Enable Legend	This property allows you to enable / disable the Legend.
		Legend Layout	You can choose to list the legend items horizontally or vertically.
		Font Family	Set the Font Family for the navigation text.
		Font Size	Set the Font Size for the navigation text.
		Font Color	Set the Font Color for the navigation text.
		Font Style	Set the Font Style for the navigation text.
		Horizontal Alignment	This property allows to configure the Horizontal Alignment.

Sub category	Area	Property	Description
		Vertical Alignment	This property allows to configure the Vertical Alignment.
		Horizontal Offset	This property allows to specify the Horizontal Offset of the Legend relative to its default alignment.
		Vertical Offset	This property allows to specify the Vertical Offset of the Legend relative to its default alignment.
		Background Color	Set the Background Color for the legend area.
		Border Color	Set the Border Color for the legend area.
		Border Radius	Define the Border Radius for the legend area.
		Border Width	Define the Border Width for the legend area.
		Box Width	This property allows to specify the Legend Box Width.
		Margin	This property allows to define the distance between the Legend and the Axis Labels / Plot Area. The property is only applicable when the property Floating is disabled for the Legend.
		Padding	Inner padding of the Legend box.
		Enable Floating	When enabled, the plot area will not assign specific space for the legend.
		Enable Shadow	This property allows to enable / disable a drop shadow for the legend area.
	Legend Title	Title Text	Here you can define a Legend Title.
		Font Family	Set the Font Family for the Legend Title.
		Font Size	Set the Font Size for the Legend Title.
		Font Color	Set the Font Color for the Legend Title.
		Font Style	Set the Font Style for the Legend Title.
	Legend Item	Enable Reverse Order	Reverse the order of the legend items.
		RTL Support	Right to Left Support - for Arabic and Hebraic languages.
		Item Width	This property allows you to specify the Width for each Legend item.
		Item Distance	This property allows you to specify the distance between each Legend item. This property is only applicable for Legends with a horizontal layout.
		Item Margin Top	Here you can configure the Top Margin for each Legend Item.
		Item Margin Bottom	Here you can configure the Bottom Margin for each Legend Item.
		Hidden Item Color	Here you can define the color for Hidden Items in the Legend.

Sub category	Area	Property	Description
	Legend Symbol	Hovering Item Color	Here you can define the color for Mouse Over items in the Legend.
		Symbol Height	Here you can define the Symbol Height for each legend item in pixels.
		Symbol Radius	Here you can define the Symbol border Radius.
		Symbol Padding	Here you can define the distance between the legend items text and legend item symbol.
		Symbol Width	Here you can define the Symbol Width for each legend item in pixels.
	Legend Navigation	Enable Animation	This property allows you to enable the animation of legend items upon navigation. Navigation is applicable only when the legend space is too small for the number of entries.
		Font Family	Set the Font Family for the Legend.
		Font Size	Set the Font Size for the Legend.
		Font Color	Set the Font Color for the Legend.
		Font Style	Set the Font Style for the Legend.
		Active Color	Set the Active Color for the up and down arrows.
		In-Active Color	Set the In-active Color for the up and down arrows.
		Arrow Size	Set the navigation Arrow Size.
Context Menu	Menu Items	Enable Theme Code for Export	This property enables you to set the Theme options available on the Context Menu.
		Font Family	Sets the Font Family for the Context Menu Item.
		Font Size	Sets the Font Size for the Context Menu Item.
		Font Color	Sets the Font Color for the Context Menu Item.
		Font Style	Sets the Font Style for the Context Menu Item.
		Background Color	Sets the Background Color for the Context Menu Item.
		Hover Background Color	Here you can configure the Background Color of the Context Menu Item on hover.
		Hover Text Color	Sets the Text color for the Context Menu Item on mouse over.
		Icon Color	Sets the Icon color for the Context Menu Item.
		Hover Icon Color	Here you can configure the Icon color of the Context Menu Item on hover.
	Buttons	Button Size	Sets the Font size for the Action buttons in pixels.
		Button Color	Sets the Font color for the Action buttons.
		Background Color	Sets the Background color for the Action

Sub category	Area	Property	Description
			buttons.
		Horizontal Alignment	This property allows to configure the horizontal alignment of the Action buttons.
		Vertical Alignment	This property allows to configure the vertical alignment of the Action buttons.

Table 4.8: Appearance

4.5.6.4 Category Scripting

The category Scripting provides access to the events of the chart and specific scripting can be added to these events using the script editor.

Property	Description
On Axis Click	This event will be triggered based on the selection of the Axis Name in the Chart.
On Plot Background Click	This event will be triggered when the plot background is clicked.
After Chart Load	This event will be triggered immediately after the chart completes loading.
On Zoom	This event will be triggered upon zooming into the data series.
On Drilldown	This event will be triggered on the Drill Down and is only available for the Drill Down charts.
On Select	This event will be triggered upon selection elements of the data series in the chart.
On Expand	This event will be triggered on an in place expand and is only available for the Drill Down charts.
On Collapse	This event will be triggered on an in place collapse and is only available for the Drill Down charts.

Table 4.9: Scripting

4.5.6.5 Category Tools

The following section outlines the available Additional Properties for the category Tools.

Area	Property	Description
Editor	Enable Runtime Editor	By enabling this property, the Additional Properties sheet for the VBX Charts will be displayed in the Runtime and the user can configure the Additional Properties in the Runtime.

Table 4.10: Category Tools

4.6 Common Scripting Functions in Charts

Below you will find the list of common scripting functions for the charts.

Function/Method	Description
DSXClearSelection()	This function allows you to clear any selected items from the chart.
DSXGetAxisLabel()	The function allows you to retrieve the Axis Label.
DSXGetChartTitle()	This function allows you to retrieve the Chart Title.
DSXGetChartTitleEnabled()	This function returns a Boolean value based on the Chart Title enabled status.
DSXGetChartType()	The function allows you to retrieve the Chart Type.
DSXGetChartValue()	This function allows you to retrieve the Chart value.
DSXGetChartValueEnabled()	This function returns a Boolean value based on the Chart Value enabled status.
DSXGetDataLabelPrefix()	The function allows you to retrieve the Data Label Prefix.
DSXGetDataLabelSuffix()	The function allows you to retrieve the Data Label Suffix.
DSXGetDataSelection()	The function allows you to retrieve Data selection specifying the result set of the data source.
DSXGetDataType()	This function allows to retrieve the data type option.
DSXGetDataValue()	This function allows you to retrieve the data value assigned to the component.
DSXGetDecimalSeparator()	The function allows you to retrieve the configured Decimal Separator.
DSXgetDrilldownLevel()	The function allows you to retrieve the Drill Down Level.
DSXgetDrilldownMember()	The function returns the Member object for the dimension that was used as part of the Drill Down function.
DSXgetDrilldownMemberKey()	The function returns the Member Key for the dimension that was used as part of the Drill Down function.
DSXgetDrilldownMemberText()	The function returns the Member Text for the dimension that was used as part of the Drill Down function.
DSXgetDrillUpMember()	The function returns the Member object for the dimension that was used as part of the Drill Up function.
DSXgetDrillUpMemberKey()	The function returns the Member Key for the dimension that was used as part of the Drill Up function.
DSXgetDrillUpMemberText()	The function returns the Member Text for the dimension that was used as part of the Drill Up function.
DSXGetFilledIconColor()	This function allows to retrieve the color for the Filled Icon.
DSXGetIconWidth()	This function allows to retrieve the Icon Width.
DSXGetMaxDataSelection()	This function allows to retrieve the data selection for the maximum value.
DSXGetMaximumValue()	This function allows you to retrieve the configured maximum value for the component.
DSXGetMaxValue()	This function allows to retrieve the Maximum Value.

Function/Method	Description
DSXGetNonFilledIconColor()	This function allows to retrieve the color for the Non-Filled Icon.
DSXGetResponsive()	This function returns a Boolean value based on the Responsive Icon property status.
DSXgetSelectedMember()	The function returns the Member object for the selected value in the chart.
DSXgetSelectedMemberKey()	The function returns the Member key value for the selected value in the chart.
DSXgetSelectedMembers()	The function returns an array of selected members for a dimension.
DSXgetSelectedMembersKey()	The function returns an array of keys of the selected members for a dimension.
DSXgetSelectedMembersText()	This function retrieves the selected Members. The returned object is an array of text values.
DSXgetSelectedMemberText()	The function returns the Member Text value for the selected value in the chart.
DSXGetSubTitleText()	The function allows you to retrieve the Sub Title Text.
DSXGetThousandSeparator()	The function allows you to retrieve the configured Thousand Separator.
DSXGetTitleText()	The function allows you to retrieve the Title Text.
DSXGetXAxisLabelPrefix()	The function allows you to retrieve the X-Axis Label Prefix.
DSXGetXAxisLabelSuffix()	The function allows you to retrieve the X-Axis Label Suffix.
DSXGetXAxisPlotBandColor()	The function allows you to retrieve the color for the X-Axis Plot Band.
DSXGetXAxisPlotBandEnabled()	The function allows you to retrieve the status (enabled / disabled) of the X-Axis Plot Band.
DSXGetXAxisPlotBandFrom()	The function allows you to retrieve the X-Axis Plot Band From value.
DSXGetXAxisPlotBandTo()	The function allows you to retrieve the X-Axis Plot Band To value.
DSXGetXAxisPlotLineColor()	The function allows you to retrieve the X-Axis Plot Line Color.
DSXGetXAxisPlotLineEnabled()	The function allows you to retrieve the status (enabled / disabled) of the X-Axis Plot Line.
DSXGetXAxisPlotLineValue()	The function allows you to retrieve the value of X-Axis Plot Line.
DSXGetXAxisTitleText()	The function allows you to retrieve the X-Axis Title Text.
DSXGetYAxisLabelPrefix()	The function allows you to retrieve the Y-Axis Label Prefix.
DSXGetYAxisLabelSuffix()	The function allows you to retrieve the Y-Axis Label Suffix.
DSXGetYAxisPlotBandColor()	The function allows you to retrieve the Y-Axis Plot Band Color.
DSXGetYAxisPlotBandEnabled()	The function allows you to retrieve the status (enabled / disabled) of the Y-Axis Plot Band.
DSXGetYAxisPlotBandFrom()	The function allows you to retrieve the Y-Axis Plot Band From value.
DSXGetYAxisPlotBandTo()	The function allows you to retrieve the Y-Axis Plot Band To value.

Function/Method	Description
DSXGetYAxisPlotLineColor()	The function allows you to retrieve the Y-Axis Plot Line Color.
DSXGetYAxisPlotLineEnabled()	The function allows you to retrieve the status (enabled / disabled) of the Y-Axis Plot Line.
DSXGetYAxisPlotLineValue()	The function allows you to retrieve the value of Y-Axis Plot Line.
DSXGetYAxisTitleText()	The function allows you to retrieve the Y-Axis Title Text.
DSXHideLoading()	The function allows you to set the Hide Loading.
DSXHideSeries()	The function allows you to hide the Legend Series for the Charts.
DSXOnClick()	This function triggers the On Click event for the component.
DSXSetChartOrientation()	The function allows you to set the Orientation for the chart.
DSXSetChartTitle()	This function allows to set the Chart Title.
DSXSetChartTitleEnabled()	This function enables / disables the Chart Title.
DSXSetChartType()	The function allows you to set the Chart Type.
DSXSetChartValue()	This function allows to set the Chart value.
DSXSetChartValueEnabled()	This function enables / disables the Chart Value.
DSXSetDataLabelEnabled()	The function allows you to enable the Data Label.
DSXSetDataLabelNoOfDecimals()	This function allows you to set the number of decimals for the Data Label value.
DSXSetDataLabelPrefix()	The function allows you to set the Data Label Prefix.
DSXSetDataLabelSuffix()	The function allows you to set the Data Label Suffix.
DSXSetDataSelection()	The function allows you to set the Data Selection specifying the result set of a data source.
DSXSetDataType()	This function allows you to set the Pictogram data type.
DSXSetDataValue()	The function allows you to set the Data Value.
DSXSetDecimalSeparator()	The function allows you to set the Decimal Separator.
DSXSetExportedFileName()	The function allows you to set the Exported File Name.
DSXSetFilledIconColor()	This function allows to set the color for the Filled Icon.
DSXSetMaxDataSelection()	This function allows to set the data selection for the maximum value.
DSXSetMaximumValue()	This function allows you to set the maximum value for the component.
DSXSetMaxValue()	This function allows to retrieve the Maximum Value.
DSXSetNonFilledIconColor()	This function allows to set the color for the Non-Filled Icon.
DSXSetResponsive()	This function allows to enable / disable the Responsive Icon property status.
DSXSetSubTitleEnable()	The function allows you to enable the Sub Title.
DSXSetSubTitleText()	The function allows you to set the Sub Title Text.
DSXSetThousandSeparator()	The function allows you to set the Thousand Separator.
DSXSetTitleEnable()	The function allows you to enable the Chart Title.
DSXSetTitleText()	The function allows you to set the Title Text.

Function/Method	Description
DSXSetToolTipNoOfDecimals()	This function allows you to set the number of decimals for the Tool Tip value.
DSXSetTooltipValuePrefix()	The function allows you to set the Tooltip Value Prefix.
DSXSetTooltipValueSuffix()	The function allows you to set the Tooltip Value Suffix.
DSXSetXAxisLabelEnabled()	The function allows you to enable the X-Axis Labels.
DSXSetXAxisLabelPrefix()	The function allows you to set the X-Axis Label Prefix.
DSXSetXAxisLabelSuffix()	The function allows you to set the X-Axis Label Suffix.
DSXSetXAxisPlotBand()	The function allows you to set the X-Axis Plot Band.
DSXSetXAxisPlotBandColor()	The function allows you to set the X-Axis Plot Band Color.
DSXSetXAxisPlotBandEnabled()	The function allows you to enable the X-Axis Plot Band.
DSXSetXAxisPlotBandFrom()	The function allows you to set the X-Axis Plot Band From Value.
DSXSetXAxisPlotBandTo()	The function allows you to set the X-Axis Plot Band To Value.
DSXSetXAxisPlotLine()	The function allows you to set the X-Axis Plot Line.
DSXSetXAxisPlotLineColor()	The function allows you to set the X-Axis Plot Line Color.
DSXSetXAxisPlotLineEnabled()	The function allows you to enable the X-Axis Plot Line.
DSXSetXAxisPlotLineValue()	The function allows you to set the value of X-Axis Plot Line.
DSXSetXAxisTitleEnabled()	The function allows you to enable the X-Axis Title.
DSXSetXAxisTitleText()	The function allows you to set the X-Axis Title Text.
DSXSetYAxisLabelEnabled()	The function allows you to enable the Y-Axis Label.
DSXSetYAxisLabelPrefix()	The function allows you to set the Y-Axis Label Prefix.
DSXSetYAxisLabelSuffix()	The function allows you to set the Y-Axis Label Suffix.
DSXSetYAxisMaximum()	The function allows you to set the maximum value of Y-Axis.
DSXSetYAxisMinimum()	The function allows you to set the minimum value of Y-Axis.
DSXSetYAxisPlotBand()	The function allows you to set the Y-Axis Plot Band.
DSXSetYAxisPlotBandColor()	The function allows you to set the Y-Axis Plot Band Color.
DSXSetYAxisPlotBandEnabled()	The function allows you to enable the Y-Axis Plot Band.
DSXSetYAxisPlotBandFrom()	The function allows you to set the Y-Axis Plot Band From value.
DSXSetYAxisPlotBandTo()	The function allows you to set the Y-Axis Plot Band To value.
DSXSetYAxisPlotLine()	The function allows you to set the Y-Axis Plot Line.
DSXSetYAxisPlotLineColor()	The function allows you to set the Y-Axis Plot Line Color.
DSXSetYAxisPlotLineEnabled()	The function allows you to enable the Y-Axis Plot Line.
DSXSetYAxisPlotLineValue()	The function allows you to set the value of Y-Axis Plot Line.
DSXSetYAxisTitleEnabled()	The function allows you to enable the Y-Axis Title.
DSXSetYAxisTitleText()	The function allows you to set the Y-Axis Title Text.
DSXShowLoading()	The function allows you to set the Show Loading.
DSXShowSeries()	The function allows you to show the Legend Series for the Charts.

Table 4.11: Scripting Functions

4.7 Common Scripting Functions for Conditional Formatting

Below you will find the list of common scripting functions for conditional formatting.

Function/Method	Description
DSXCreateStaticValue()	This function will create the datainfo object with static value.
DSXCreateMeasureSelection()	This function will create the datainfo object with measure value.
DSXCreateCellSelection()	This function will create the datainfo object with dataset cell selection value.
DSXCreateComparisonSelection()	This function will create the datainfo object for Measure Calculation type.
DSXCreateComparisonInfo()	This function will create the ComparisonInfo object with comparison measure, measure operator and datainfo object.
DSXCreateRuleConditionMeasureType()	This function will create rule condition of MeasureType, (i.e) Single measure, Measure calculation, Target value
DSXCreateRuleConditionDimensionType()	This function will create rule condition of dimension type
DSXCreateGroup()	This function will create new Conditional Formatting rule.
DSXEditRule()	This function will edit the existing rule in Conditional formatting
DSXRemoveRule()	This function will remove the single rule or entrie group.

Table 4.12: Scripting Functions for Conditional Formatting

4.8 Common Events in Charts

Below you will find the list of common scripting Events for the charts.

Function / Method	Description
After Chart Load	This event is triggered right after the loading of the chart has finished.
On Axis Click	This event is triggered when you click on the axis of the chart.
On Collapse	This even is triggered when you perform an inplace Collapse.
On Drilldown	This event is triggered when you perform a Drill Down in the chart.
On Drillup	This event is triggered when you perform a Drill Up in the chart.
On Expand	This even is triggered when you perform an inplace Expand.
On Plot Background Click	This event is triggered when you click on the plot background of the chart.
On Select	This event is triggered when you select an element of the data series in the chart.
On Zoom	This event is triggered when you leverage the Zoom functionality.

Table 4.13: Scripting Functions

4.9 Trend and Comparison Charts

The VBX Suite consists of a group of chart components that highlight trends over time or are used to compare elements among each other.

4.9.1 Trend and Comparison Charts Overview

As part of the list of charts in the VBX suite, you also receive a set of Trend and Comparison Charts. This group includes the following charts: Line Chart, Column / Bar Chart, Combination Chart, and Area Chart. In the following sections we will outline the details for each of these chart types.

4.9.2 Line Chart

The Line Chart is represented by a series of values connected with a straight line. Line Charts are most often used to visualize data that changes over time to indicate a potential trend. The Line Chart in the VBX suite also has an option to indicate the trend as a spline (smoothed line) instead of a standard straight line. A sample line chart is shown in Figure 4.125.



Figure 4.125: Line Chart

4.9.2.1 Data Source Requirements for a Line Chart

The minimum data source requirement for a Line Chart are at least one dimension and one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Line Chart or you can decide to plot the complete data set onto the chart.

4.9.2.2 How to use the Line Chart?

In the following steps we will outline how you can setup a new Line Chart in your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Line Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measures Revenue and Cost along 12 months of the dimension Calendar Month.
3. Add a Line Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.

4. Assign the data source to the Line Chart.
5. The Line Chart will plot the information from the assigned data source (see Figure 4.126).

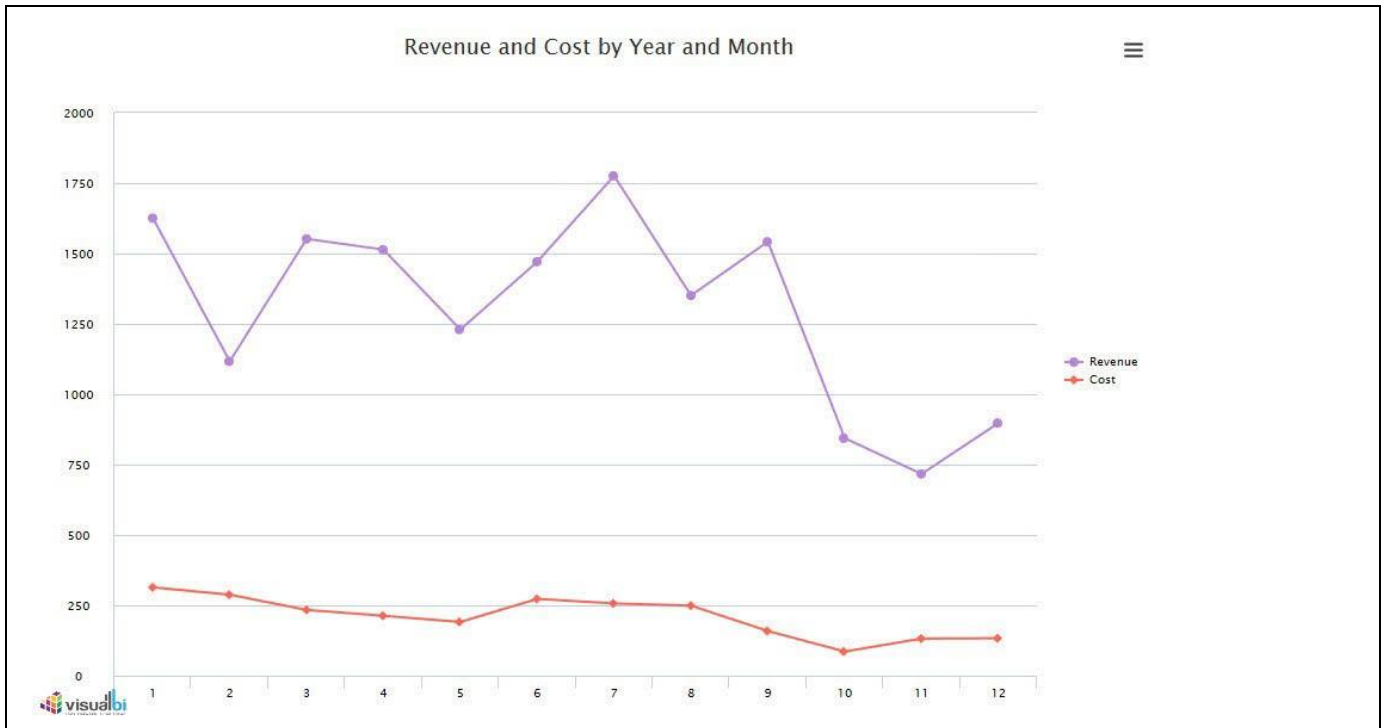


Figure 4.126: Line Chart

Figure 4.126 shows the basic Line Chart for two measures. You can use now the Additional Properties to customize the layout and look and feel.

4.9.2.3 Configuration of Line Chart as Dot Plot Chart

In the Additional Properties of the Line Chart in the category Appearance and the sub category Chart, you have the option to configure the property Select Chart Type as Dot Plot Chart to display the Line Chart as Dot Plot Chart (see Figure 4.127).

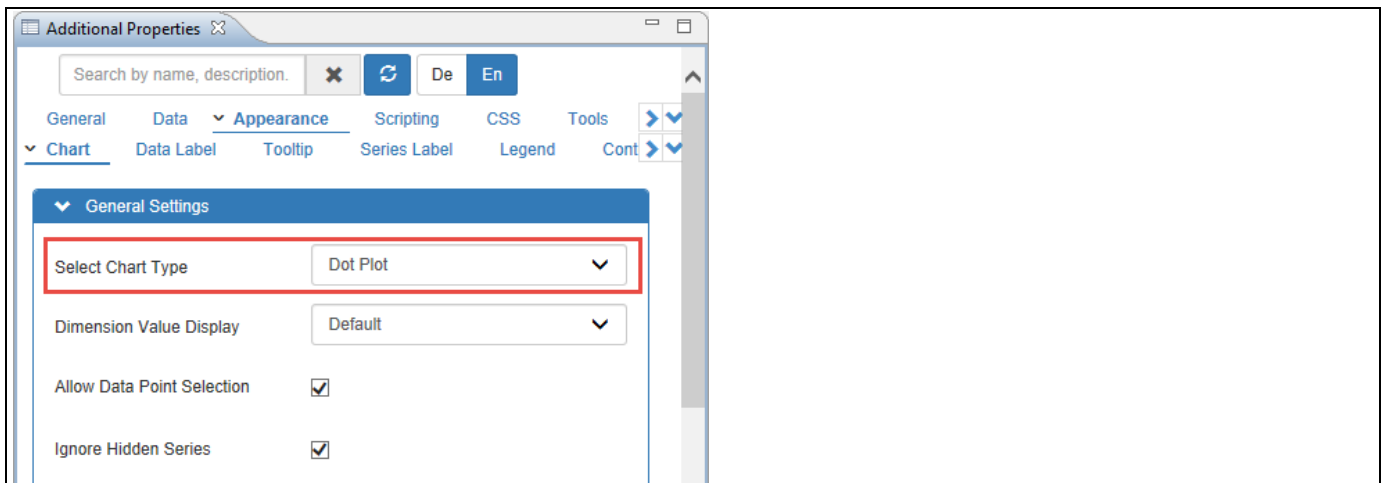


Figure 4.127: Category Appearance

Based on the above configuration, you will be able to view the Line Chart as Dot Plot Chart with the dots appearing as plots (see Figure 4.128). In our example, the Data Source assigned has three Measures – Discount Amount, Order Cost and Order Quantity and one Dimension – Item Category.



Figure 4.128: Dot Plot Chart

4.9.3 Column / Bar Chart

The Column / Bar Chart component is similar to a Line Chart, except that the information is visualized either as columns or as bars. Figure 4.129 shows a sample column chart.



Figure 4.129: Column / Bar Chart

4.9.3.1 Option for Runtime Deviation Bar in Column Bar Chart

In the Additional Properties of the Column Bar Chart in the category Appearance and the sub category Chart, you have the option to activate the property Enable Deviation Bar to display the Deviation Value between one Column Bar and the other Column Bar. The deviation will be represented through a thin line bar showing the positive deviation in green color and the negative deviation in red color.

For our example, you can follow the steps below to configure the Deviation Bar in the Column Bar Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Order Quantity along the dimension Item Category.
3. Add a Column Bar Chart from the VBX Charts to your SAP BusinessObjects/SAP Lumira Designer.
4. Assign the data source to the Column Bar Chart.
5. Navigate to the Additional Properties of the Column Bar Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Appearance and to the sub category Chart (see Figure 4.130).
8. Activate the option Enable Deviation Bar (see Figure 4.130).

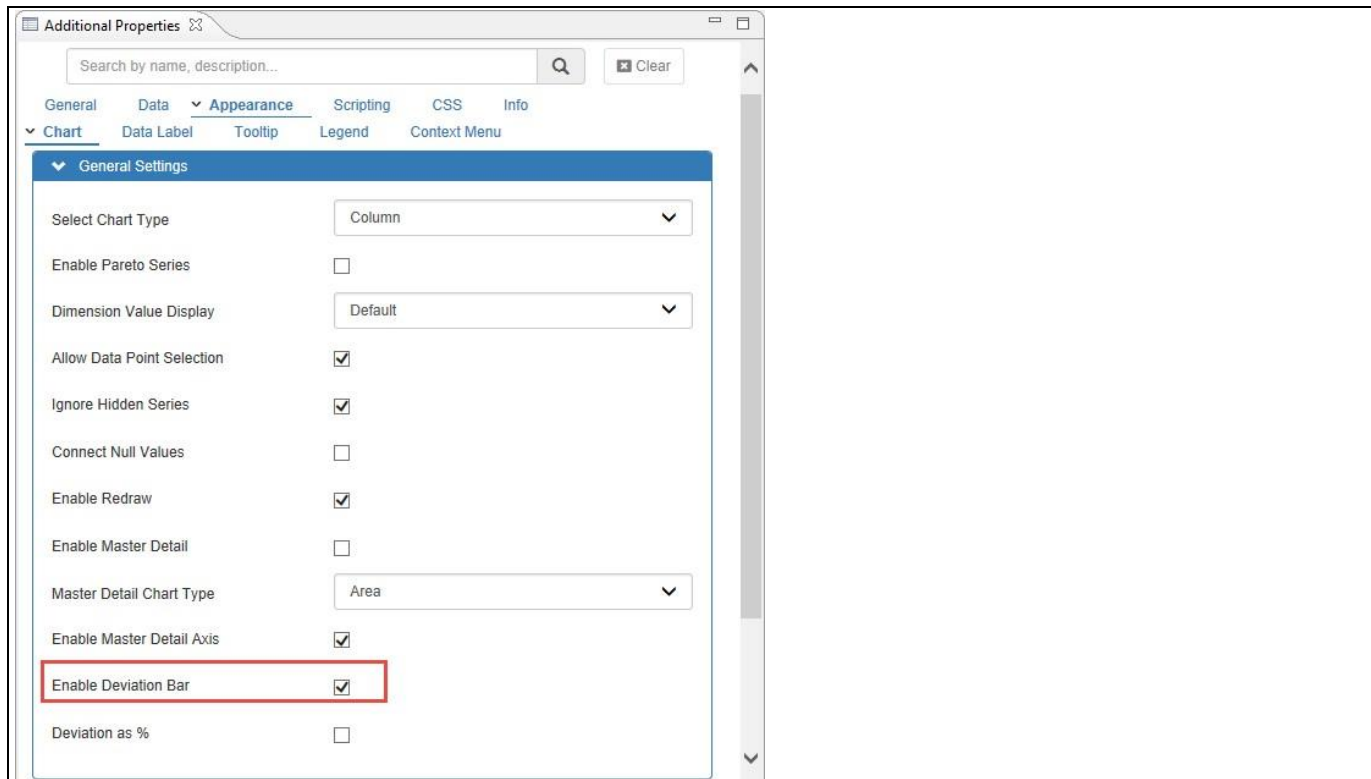


Figure 4.130: Enable Deviation Bar

9. Based on the above configured settings, you will be able to visualize the Column Bar Chart enabled with Deviation Bar (see Figure 4.131). In our example, you can observe that a positive Deviation Order Quantity value of 93104 occurs for the dimension Movies in comparison with the dimension Books. The deviation will be calculated as Mouse Hover Column Bar Value Minus (-) Selected Column Bar Value. In our example, the Mouse Hover Column Bar takes the Dimension “Movies” and the Selected Column Bar takes the Dimension “Books”.

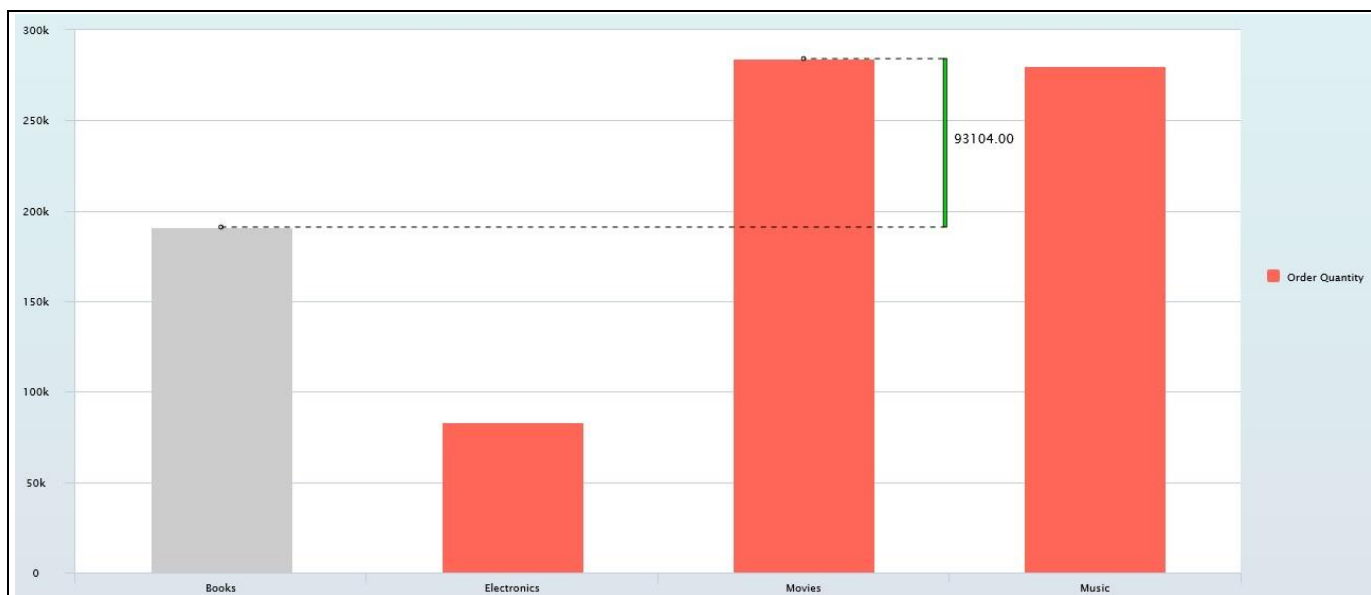


Figure 4.131: Column Bar Chart with Runtime Deviation Bar

10. Now navigate to the category Appearance and to the sub category Chart (see Figure 4.132).
11. Activate the option Deviation as % (see Figure 4.132).

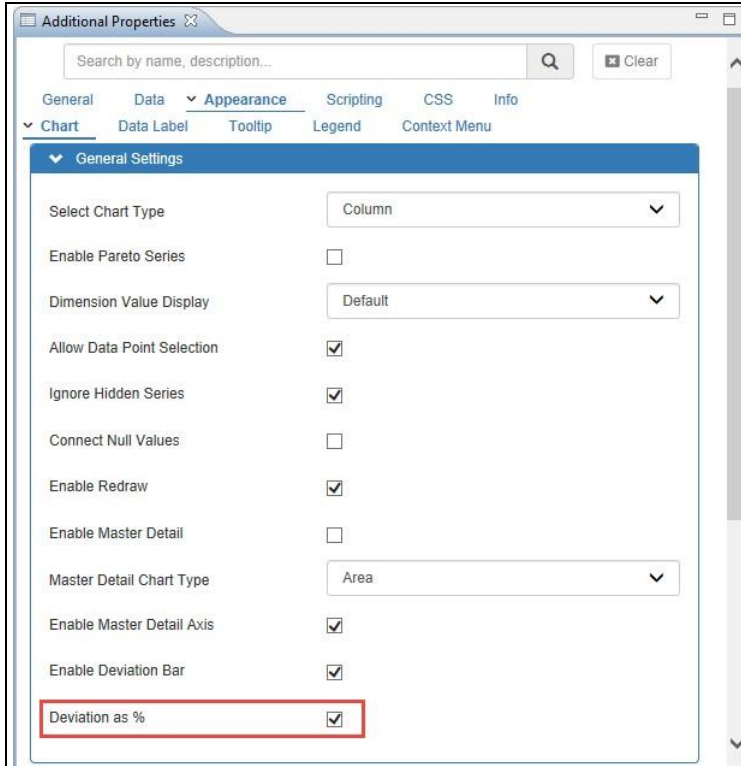


Figure 4.132: Enable Deviation as %

12. Based on the above configured settings, you will be able to visualize the Column Bar Chart enabled with the option Deviation as % (see Figure 4.133). In our example, you can observe that a positive Deviation Order Quantity value of 48.74% occurs for the dimension Movies in comparison with the dimension Books. The deviation will be calculated as $\text{Mouse Hover Column Bar Value Minus (-) Selected Column Bar Value Divide (/) by Selected Column Bar Value} \times 100$. In our example, the Mouse Hover Column Bar takes the Dimension "Movies" and the Selected Column Bar takes the Dimension "Books".

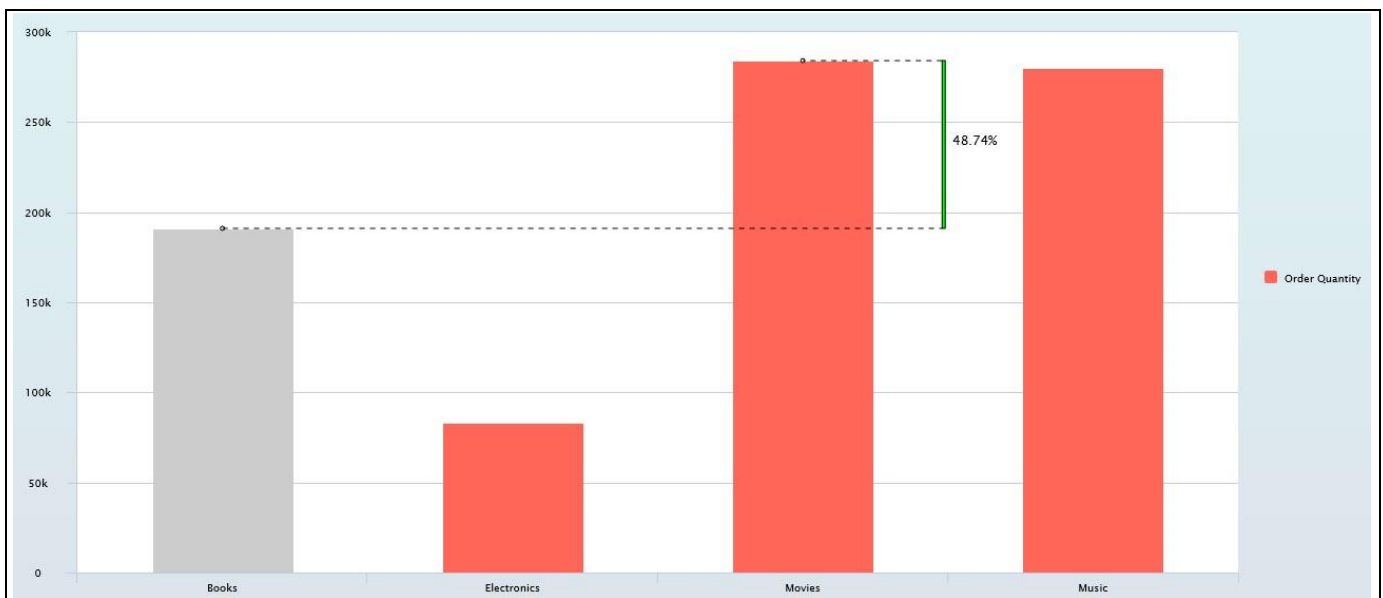


Figure 4.133: Column Bar Chart with Runtime Deviation Bar in %

Deviation as %

The option Deviation as % will be only functional when the option Enable Deviation Bar is enabled in the Additional Properties of the Column Bar Chart.

4.9.3.2 Option to enable Pareto Series in Column Bar Chart

In the Additional Properties of the Column Bar Chart in the category Appearance and the sub category Chart, you have the option to activate the property Enable Pareto Series to display both Column bars and a Line where individual values are represented in descending order by column bars, and the cumulative total is represented by the line.

The Column Bar Chart with Pareto Series is useful for figuring out the most significant factors in your data and how they contribute to the entire set. Also, you can discover the areas for improvement from the Pareto Series. For our example, you can follow the steps below to configure the Pareto Series in the Column Bar Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Number of Mobile Phone Returns along the dimension Return Reasons.
3. Add a Column Bar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Column Bar Chart.
5. Navigate to the Additional Properties of the Column Bar Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Appearance and to the sub category Chart (see Figure 4.134).
8. Activate the option Enable Pareto Series (see Figure 4.134).

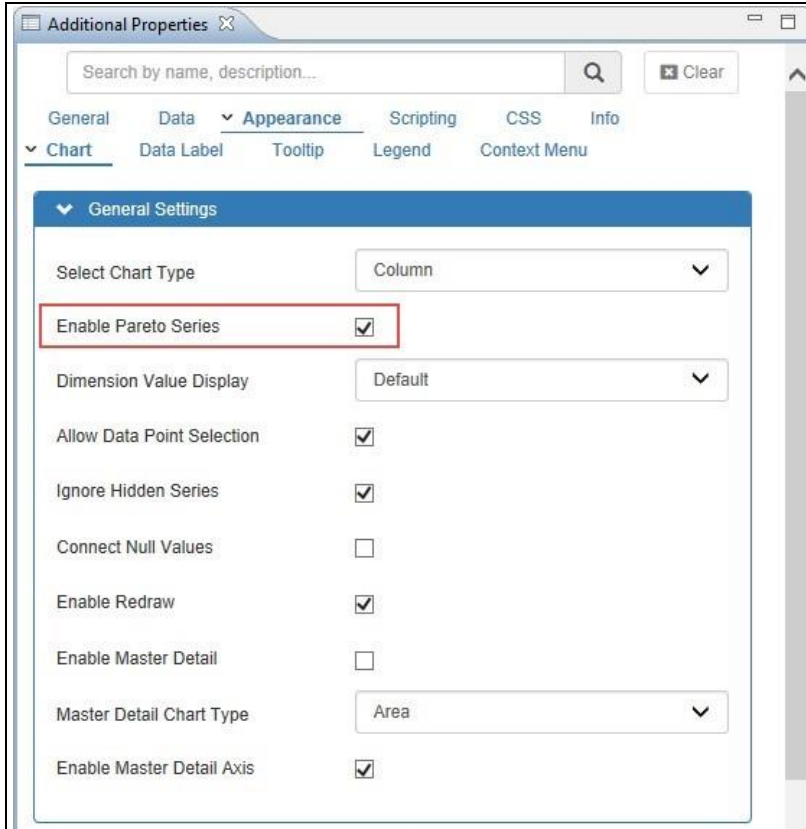


Figure 4.134: Enable Pareto Series

Based on the above configured settings, you will be able to visualize the Column Bar Chart enabled with Pareto Series (see Figure 4.135). In our example, you can observe the following:

- The Pareto line starts at the center of the Defect category and intersects the right vertical axis at 40 percent, meaning Defects account for 40 percent of all Mobile Phone returns.
- Moving along the Pareto line, the next stop is the center of Incorrect Pricing. The Pareto line at Incorrect Pricing intersects the contributing percentage axis at 70 percent, which means that the combination of Defects and Incorrect Pricing account for 70 percent of all Mobile Phone returns.
- One more category over, Wrong Product intersects the Pareto axis a little bit above 80 percent, which means 80 percent of all Mobile Phone returns are a result of Defects, Incorrect Pricing and Wrong Product.

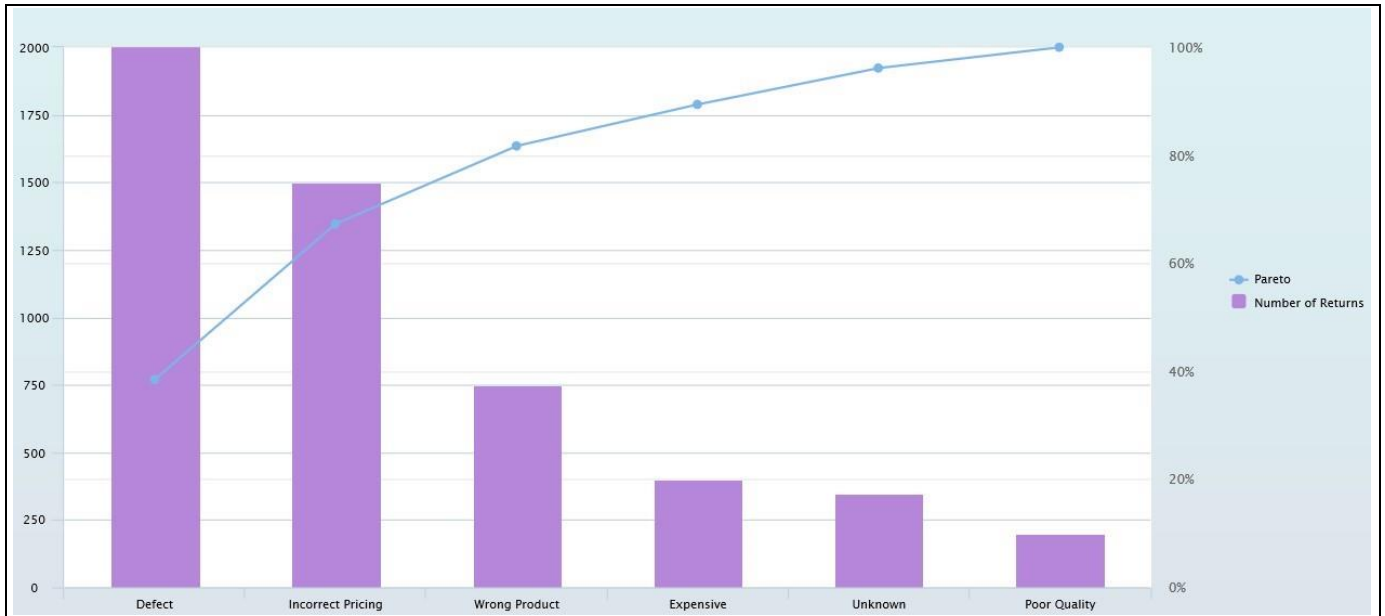


Figure 4.135: Column Bar Chart with Pareto Series

Now you can discover the areas for improvement where the Mobile Phone Store should allocate its efforts. Targeting improvements to Defects and Incorrect Pricing are more worthwhile than adjusting the prices (Expensive) or Quality of Mobile Phones (Poor Quality).

4.9.3.3 Data Source Requirements for a Column / Bar Chart

The minimum data source requirement for a Column / Bar Chart are at least one dimension and one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Column / Bar Chart or you can decide to plot the complete data set onto the chart.

4.9.3.4 How to use the Column / Bar Chart?

In the following steps we will outline how you can setup a new Bar Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Column / Bar Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measures Revenue and Cost along a set of members of dimension Product.
3. Add a Column / Bar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Column / Bar Chart.
5. Navigate to the Additional Properties of the Column / Bar Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Appearance and to the sub category Chart (see Figure 4.136).

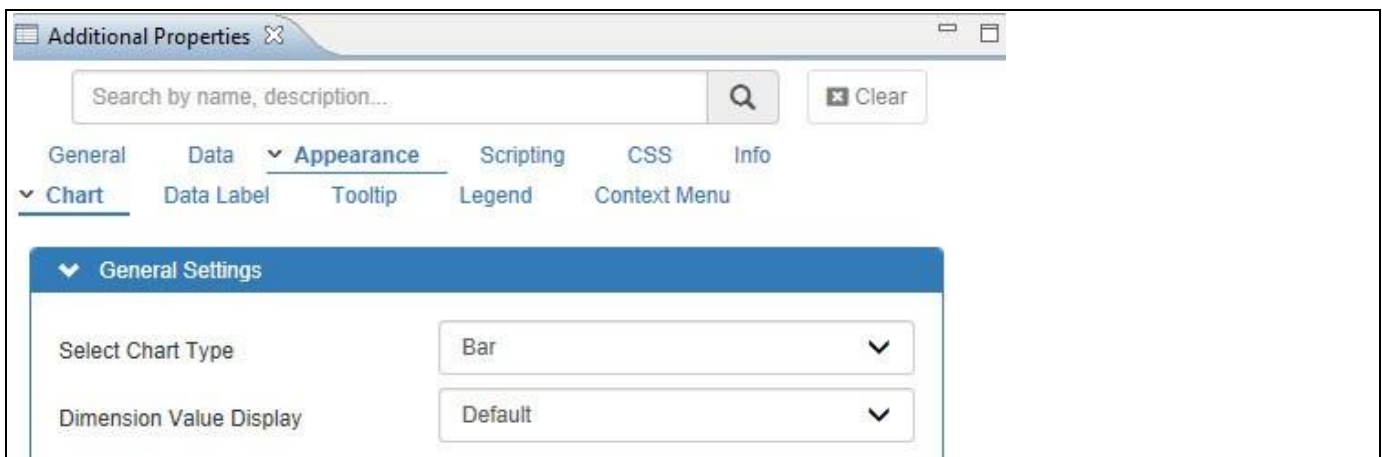


Figure 4.136: Additional Properties

8. In the area General Settings set the property Select Chart Type to the option Bar.
9. The Column / Bar Chart will plot the information from the assigned data source (see Figure 4.137).

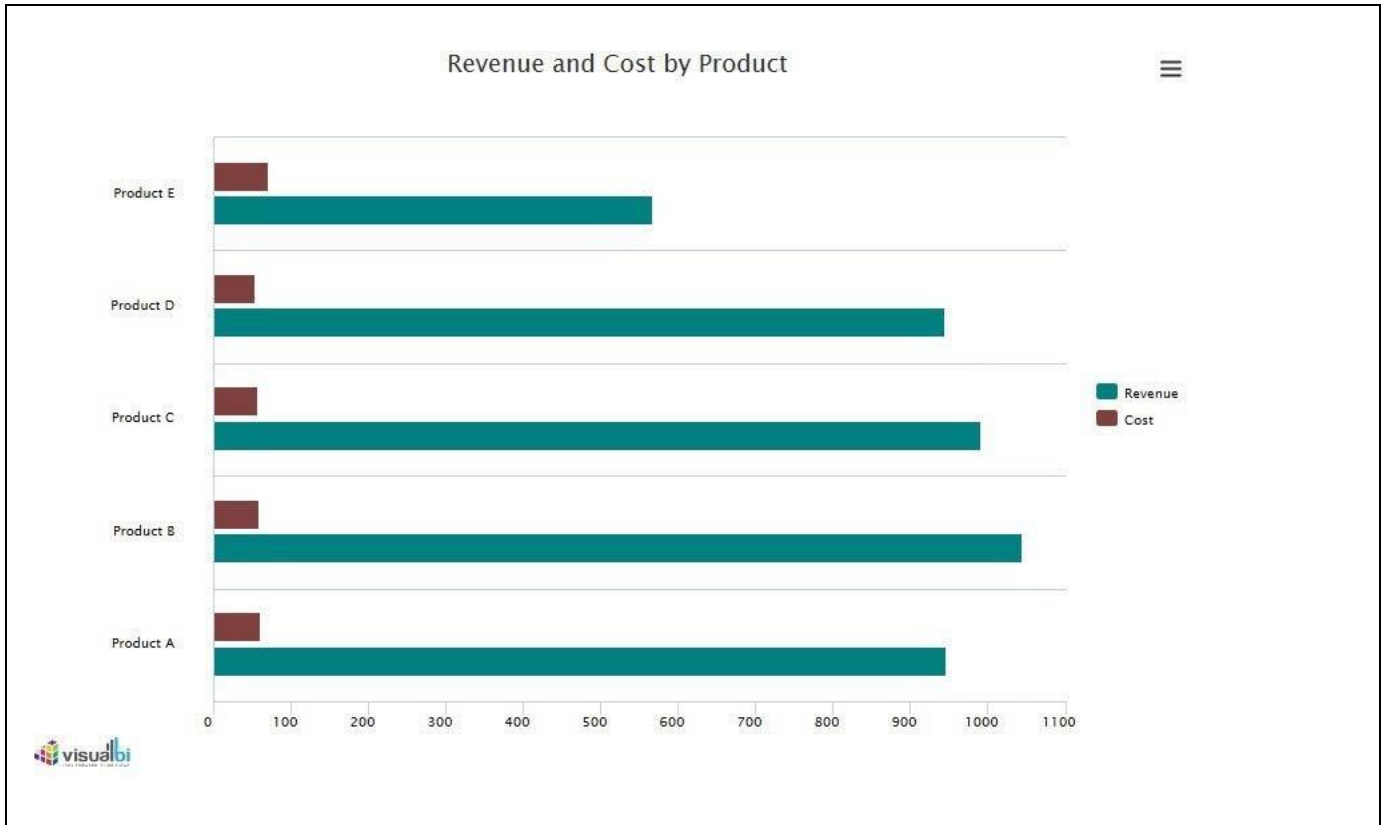


Figure 4.137: Sample Bar Chart

You can now customize the display of the chart using the available settings in the Additional Properties.

4.9.4 Combination Chart

The combination chart allows you to combine a line chart and a column chart into a single chart with a single axis. A sample combination chart is shown in Figure 4.138.

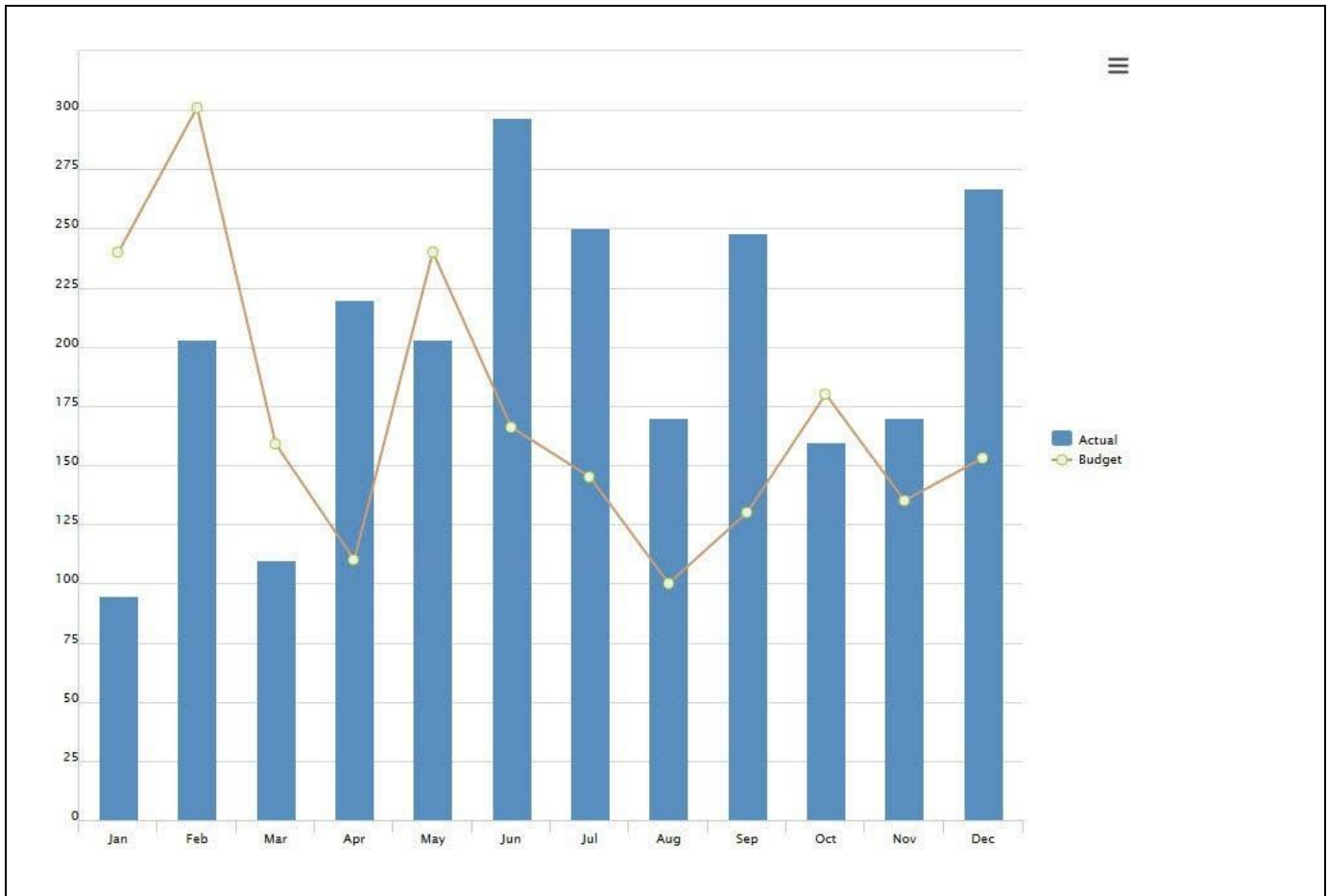


Figure 4.138: Combination Chart

4.9.5 Order of Displaying Different Chart Types

In the Additional Properties of the Combination Chart in the category Data and the sub category Data Series, you have the option to define the “Series Order” for displaying the different chart types. By changing the Series Order of the measure items, the respective legend for the measure items will be changed based on the changed Series Order.

For our example, in the additional properties of the Combination Chart the default Series Order for the measure items is shown in Figure 4.139.

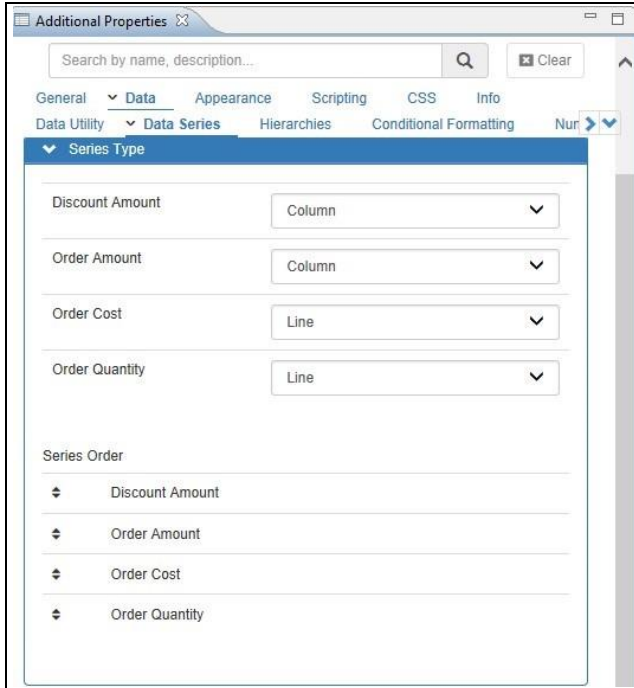


Figure 4.139: Default Series Order

Based on the above configuration, the Combination Chart will be displayed with the default order of legend items (see Figure 4.140).



Figure 4.140: Default Series Order

For our example, in the additional properties of the Combination Chart change the Series Order for the measure items (see Figure 4.141).

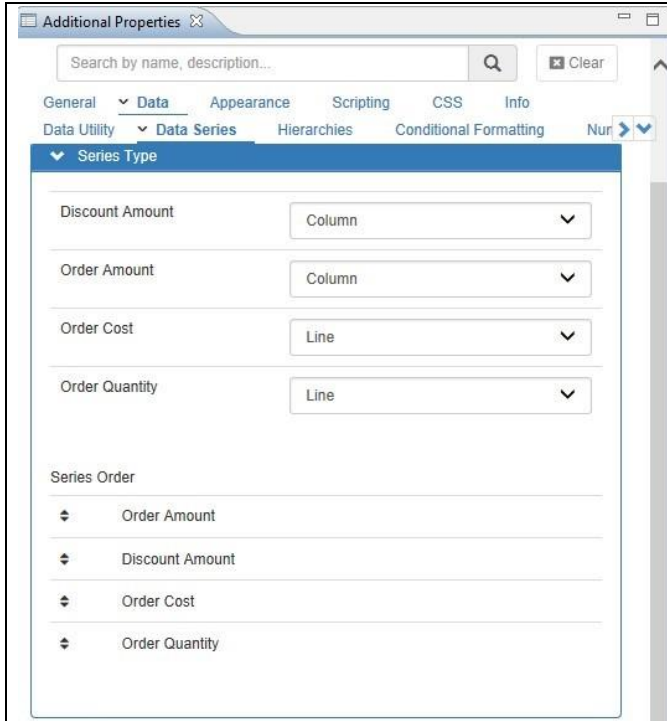


Figure 4.141: Changed Series Order

Based on the above configuration, the Combination Chart will be displayed with the changed order of legend items (see Figure 4.142).



Figure 4.142: Changed Series Order

4.9.5.1 Data Source Requirements for a Combination Chart

The minimum data source requirement for a Combination Chart are at least one dimension and two measures. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Combination Chart or you can decide to plot the complete data set onto the chart.

4.9.5.2 How to use the Combination Chart?

In the following steps we will outline how you can setup a new Combination Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Combination Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows three measures: Revenue, Cost, and Profit along a set of members of dimension Product.
3. Add a Combination Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Combination Chart.
5. Navigate to the Additional Properties of the Column / Bar Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Data and to the sub category Data Series (see Figure 4.143).

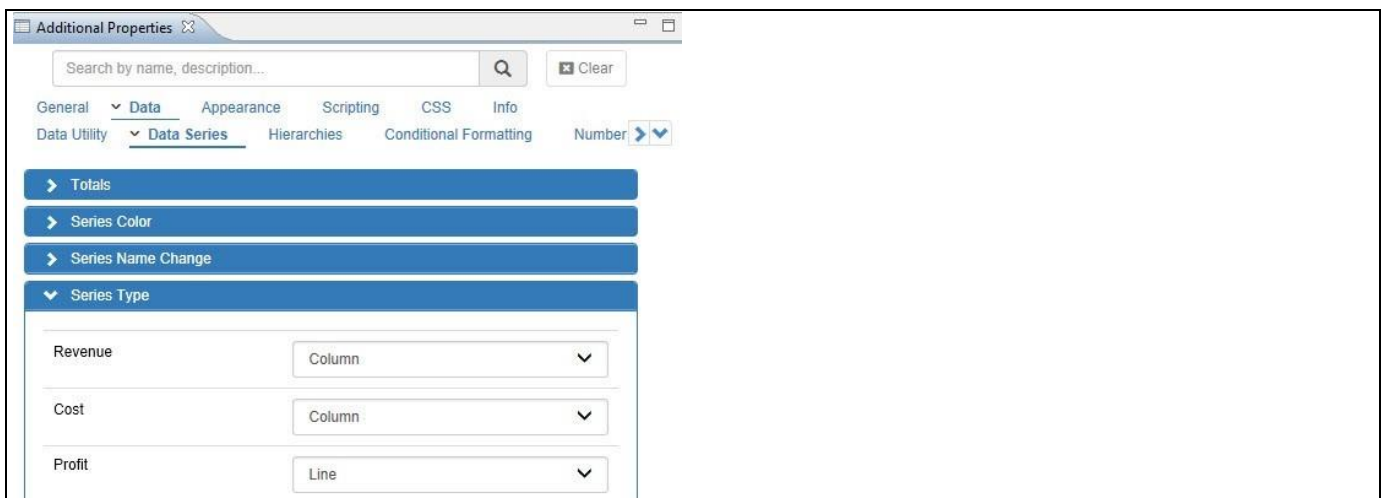


Figure 4.143: Category Data

8. In the area Series Type you are presented with the option to choose the Series Type for each of the data series from the assigned data source. You can choose between the following options:
 - Column
 - Column Stacked
 - Line
 - Spline

- Area
- Area Stacked
- Area Spline
- Area Spline Stacked

9. For our example we will configure measure Revenue as Column, measure Cost as Column, and measure Profit as a Line (see Figure 4.144).

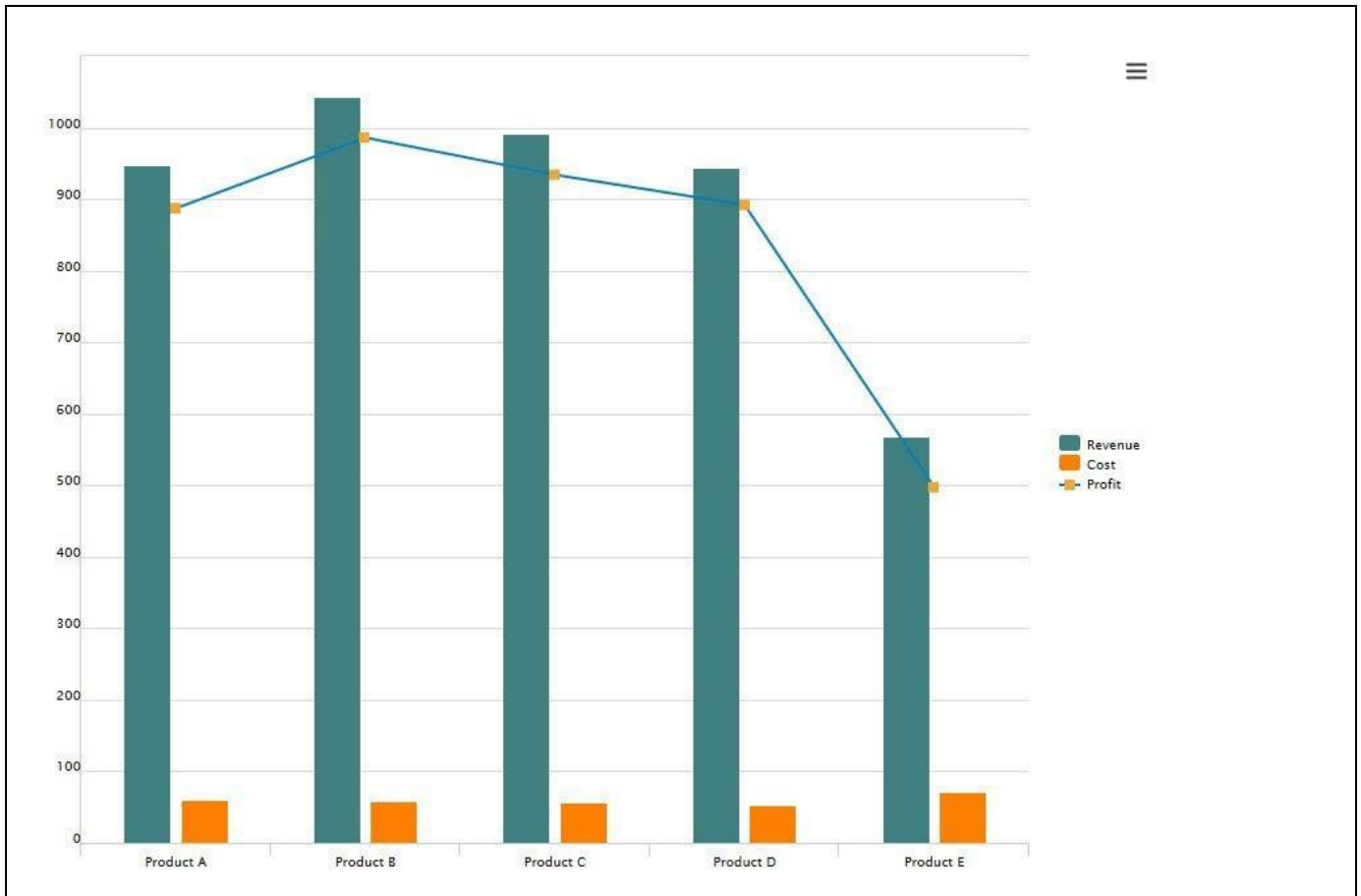


Figure 4.144: Combination Chart

Number of Axis

Please note, that the Combination Chart is using a single Axis to plot the different data series values. In case you prefer to use two or more Axis we recommend to use the Dual Axis or the Multiple Axis chart.

4.9.6 Area Chart

An Area Chart is a line chart that displays quantitative data and where the area below the line is being filled with one color (see Figure 4.145). Area charts depict a time-series relationship, but unlike Line Charts, Area Charts can also visually represent volume.

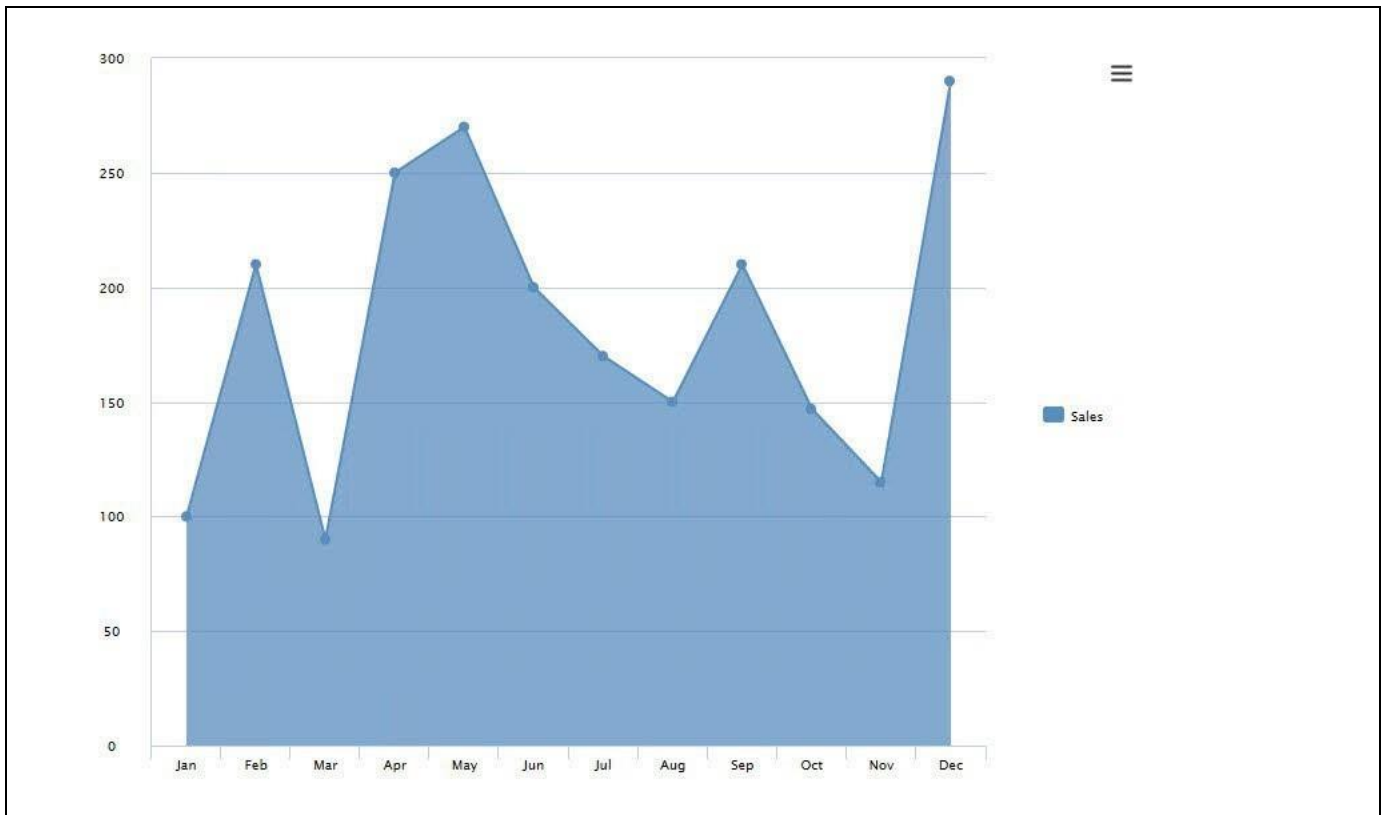


Figure 4.145: Area Chart

Figure 4.145 shows a sample Area Chart with measure Sales along the 12 months of dimension Calendar Month.

4.9.6.1 Data Source Requirements for an Area Chart

The minimum data source requirement for an Area Chart are at least one dimension and one measure. In case the data source does contain more information, you can leverage the Data Utility tool to specify which information is to be used by the Area chart or you can decide to plot the complete data set onto the chart. In case the data source contains more than a single measure, the order of the measures in the initial view of the data source then decides the order of plotting the measure onto the chart.

4.9.6.2 How to use the Area Chart?

In the following steps we will outline how you can setup a new Area Chart in your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Area Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measures Revenue and Cost along 12 months of dimension Calendar Month.

3. Add an Area Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the chart.
5. After the data source has been assigned, the chart plots the members of the dimension for the X-Axis and the measure values are plotted as area (see Figure 4.146).



Figure 4.146: Sample Area Chart

6. The area between the axis and the line is filled with the selected color based on the configuration in the category Data for each of the Data Series.
7. Navigate to the category Appearance and to the sub category Chart in the Additional Properties of the chart.
8. Using the property Select Chart Type you can choose between:
 - Area: This is a classic vertical Area chart with the value axis (Y-Axis) being on the vertical axis.
 - Area Horizontal: This is a horizontal Area chart with the value axis (X-Axis) being on the horizontal axis.
 - Area Spline: The Area Spline chart uses a smoothed line (spline) with the values axis (Y-Axis) on the vertical axis.
 - Area Spline Horizontal: The Area Spline Horizontal chart uses a smoothed line (spline) with the values axis (X-Axis) on the horizontal axis.
9. You can enable Markers and customize the display of the Markers in the area Marker of the category Data. You can customize the Marker Symbol, Size, and Color.

Order of Display

In case you are planning to visualize multiple measures in an Area Chart, please note that the first measure in the data source will be the measure being displayed first and any additional measure will be displayed in front of the first measure. The display order of the measures is (assuming measures are organized in columns) from left to right.

4.9.7 Column / Bar Drill Down Chart

The Column / Bar Drilldown Chart is an enhanced version of the Column / Bar Chart. The additional feature is the ability to drill down from the initial view into a more detailed chart. The drill down can be based on a set of dimensions or it can be based on an available hierarchy provided by the data source.

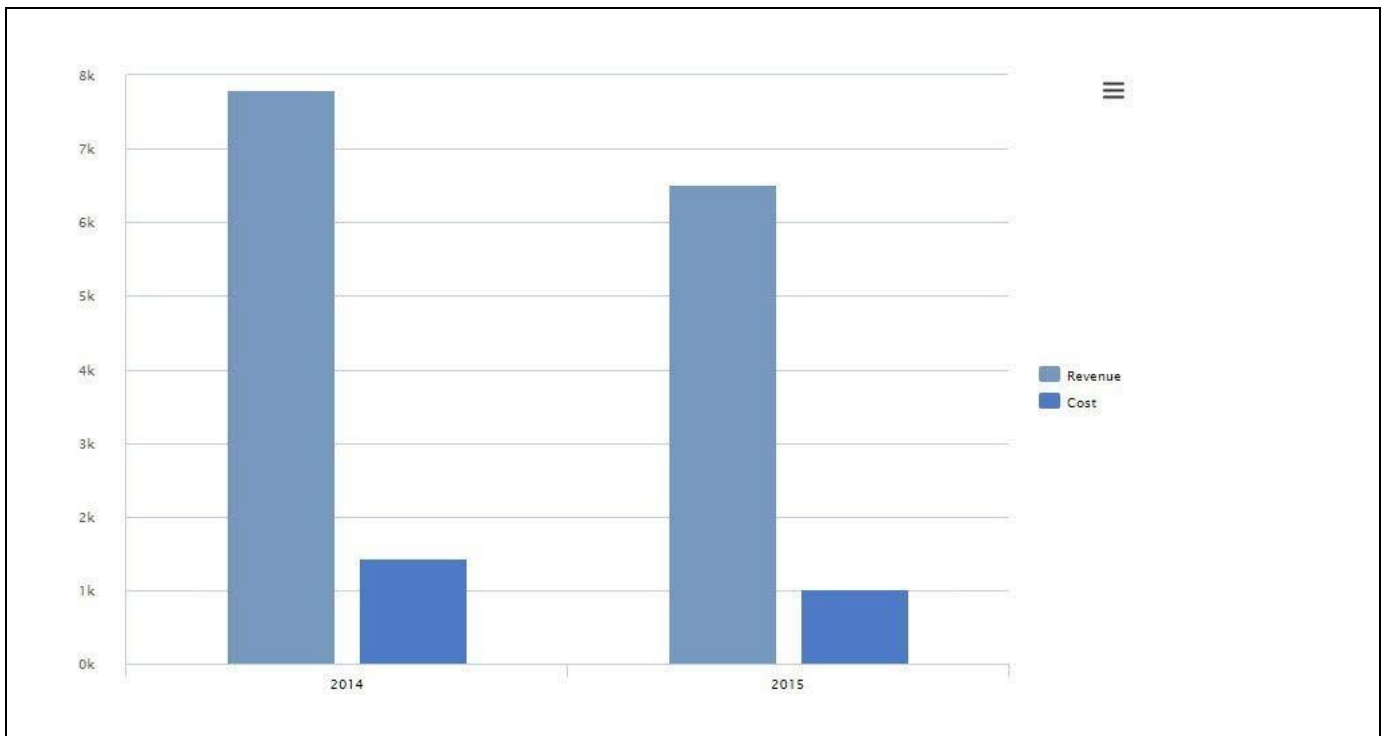


Figure 4.147: Column Drilldown Chart

Figure 4.147 shows the initial view of a Column Drilldown chart with the measures Revenue and Cost for the years 2014 and 2015. You can now use a double-click on the elements of the chart and drill down to the next level, which would show the 12 months for the selected measure (see Figure 4.148).

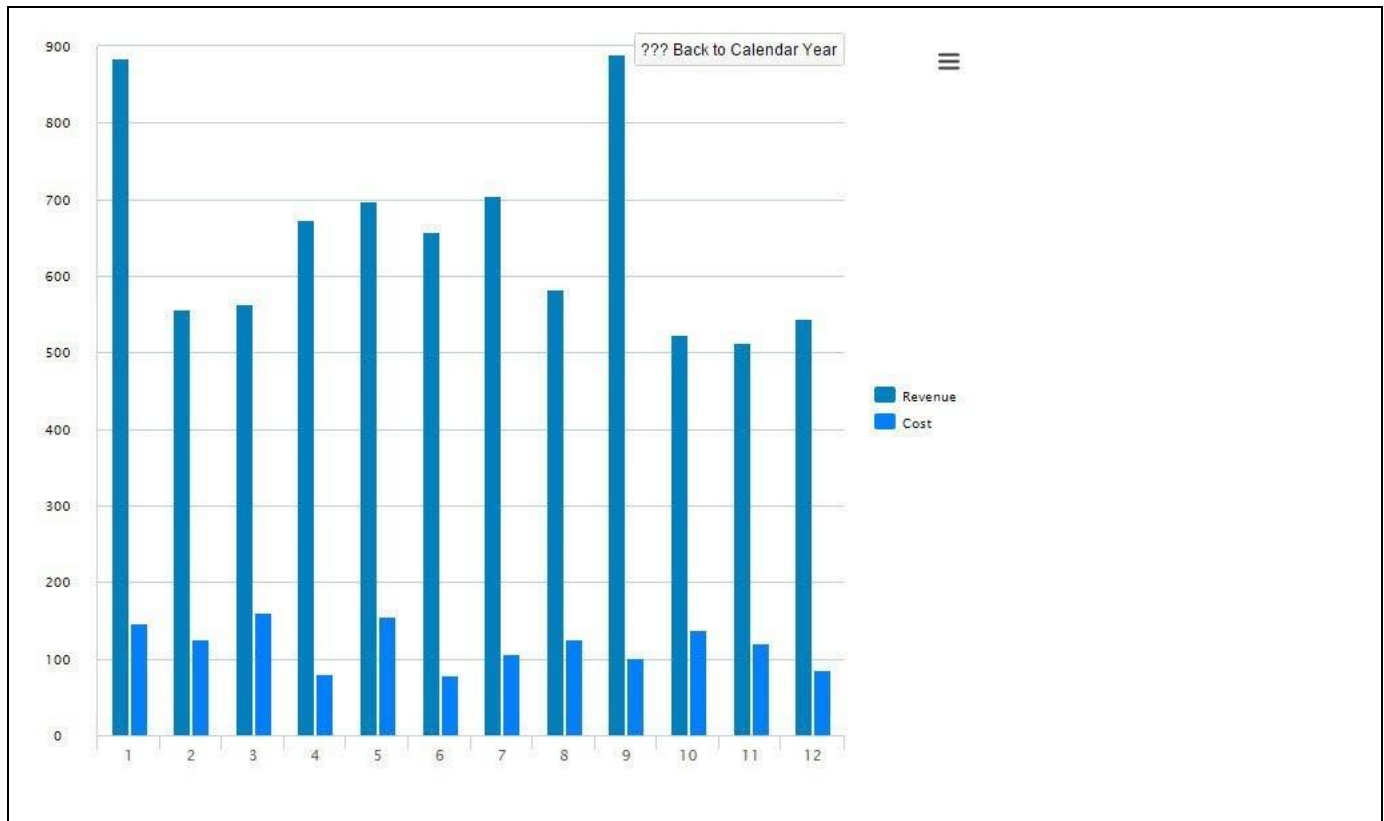


Figure 4.148: Drilldown Chart

You always have the option to use the Back navigation in the top right corner to navigate back to the initial view.

4.9.7.1 Data Source Requirements for an Column / Bar Drilldown Chart

The minimum data source requirement for a Column / Bar Drilldown Chart are at least two dimensions and one measure or an active hierarchy and one measure. In case the data source does contain more information, you can leverage the Data Utility tool to specify which information is to be used by the Column / Bar Drilldown chart or you can decide to plot the complete data set onto the chart.

4.9.7.2 How to use the Column / Bar Drilldown Chart?

In the following steps we will outline how you can setup a new Column / Bar Drilldown Chart in your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Area Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source has a dimension Year and a dimension Month as well as a set of measures.
3. Add a Column / Bar Drilldown Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the chart.
5. After the data source has been assigned, the chart will use the first dimension for the initial view and second dimension for the first drill down.

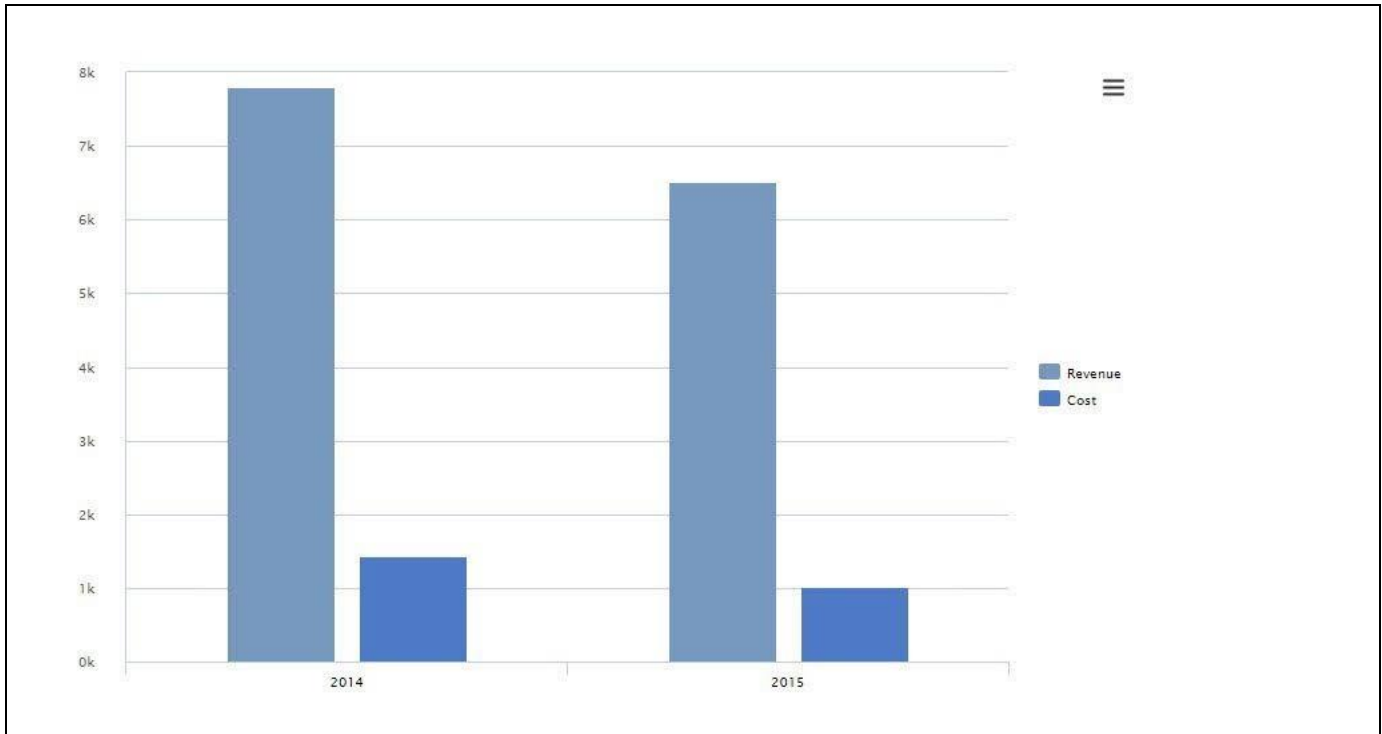


Figure 4.149: Sample Drill Down Chart

6. Navigate to the Additional Properties of the chart.
7. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
8. Navigate to the category Data and to the sub category Drill Down.
9. In the area General Settings and in the area Hierarchy Drill Down you have several options to configure the Drill Down behavior. You can find the details in Table 4.5.
10. For our example we will activate the following options
 - Show Parent Nodes on Drill Down
 - Show all Measures
 - Activate Hierarchical Labeling
11. For all other options we will use the default values, which means that you will be able to use a drill down with a double-click and the inplace Expand / Collapse option with a single-click.
12. Now use the menu Application • Execute Locally to see the chart and use the Drilldown.
13. Your initial view of the chart should look similar to Figure 4.149 and you should be able to use a double-click for a Drilldown and a single click for an inplace Expand / Collapse.

Hierarchical Drill Down

Please note, that there is no need to expand the hierarchy in the initial view of the data source and that there is no limit in number of levels that can be used as part of a hierarchical drill down.

4.9.8 Radar Chart

A Radar chart allows you visualize the values of one or more measures along several members of a dimension and instead of arranging those value as columns or bars, those values are arranged radially around a point. For example, Radar Charts can be effectively used in comparison between two or more products over a range of characteristics to determine its features.

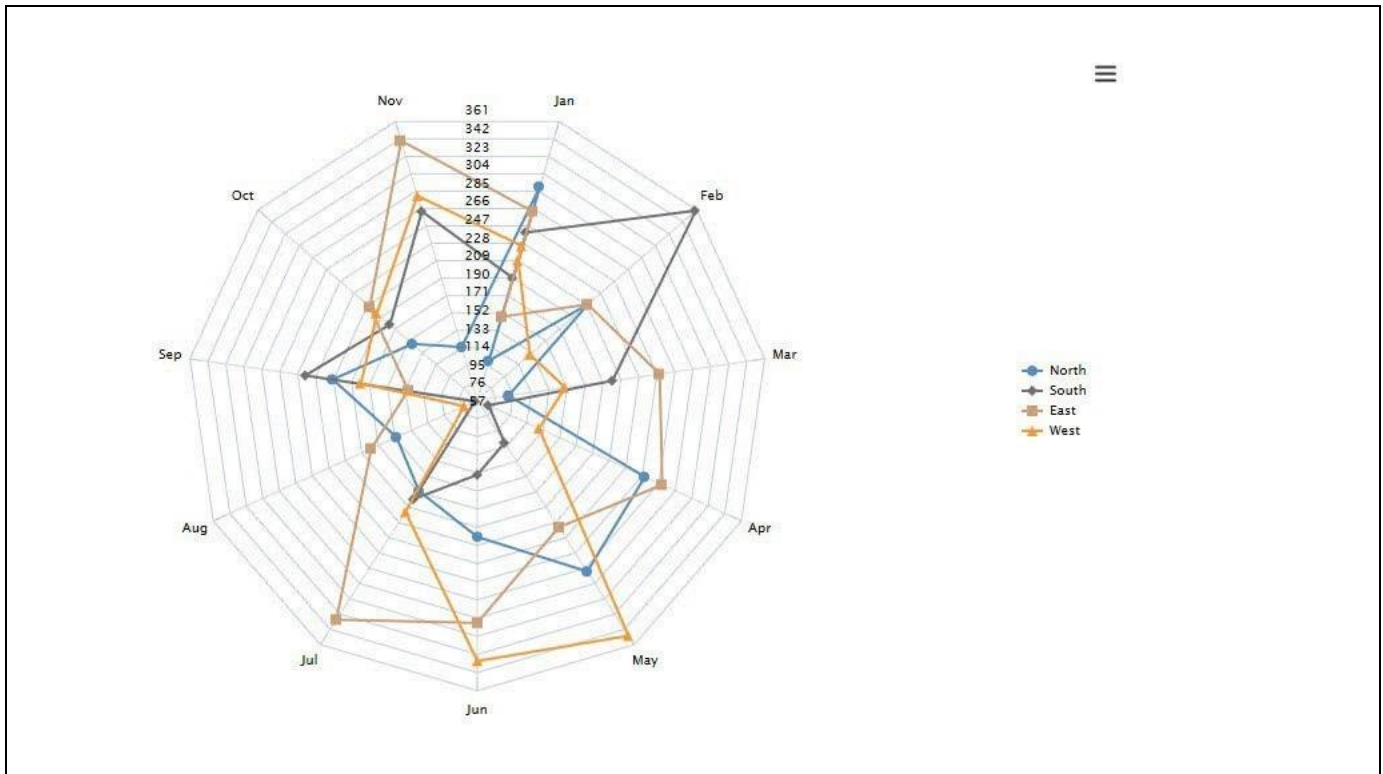


Figure 4.150: Sample Radar Chart

Figure 4.150 shows a sample Radar Chart outlining the measure values long 12 months and comparing multiple regions.

The Radar Chart provides four different versions of the Radar Chart:

- Radar Chart
- Radar Filled Chart
- Radar Column Chart
- Radar Column Stacked Chart

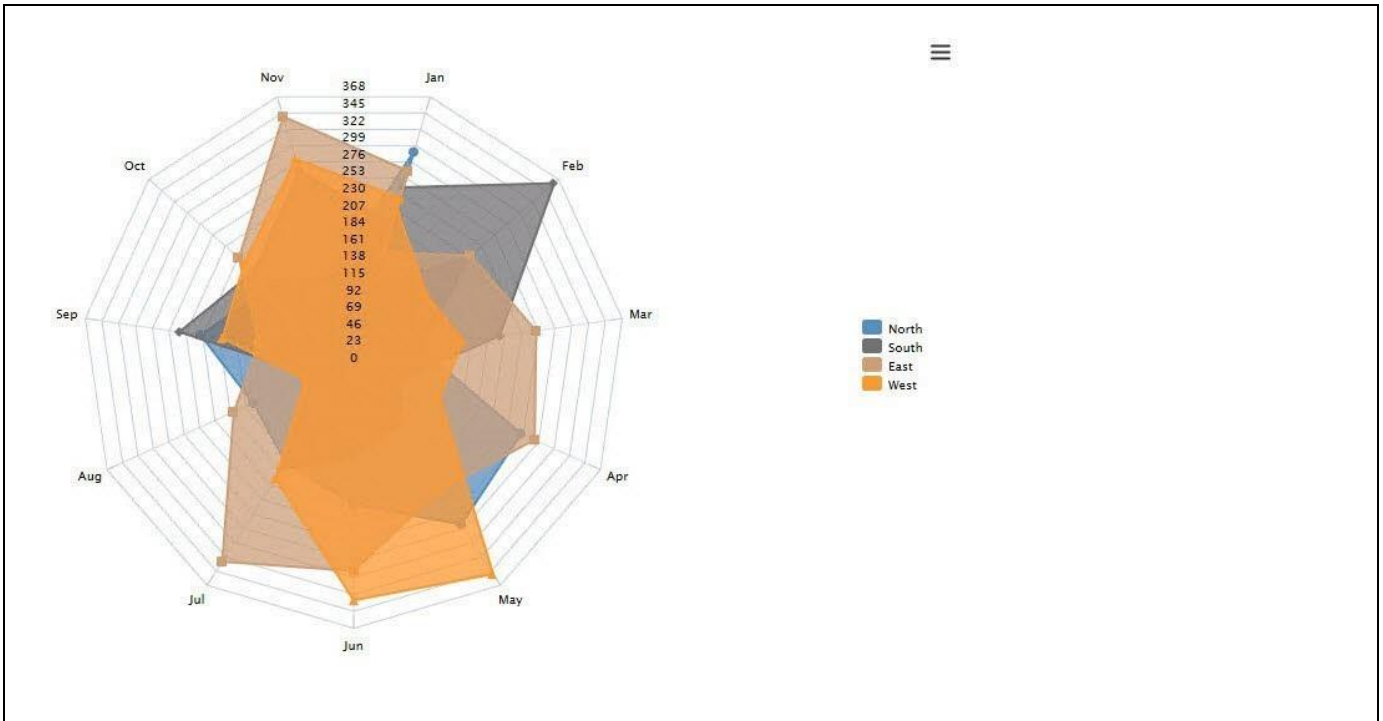


Figure 4.151: Radar Filled Chart

Figure 4.151 shows a Radar Filled Chart, where instead of just visualizing the measure values in form of lines, the values are being visualized in form of overlapping areas.

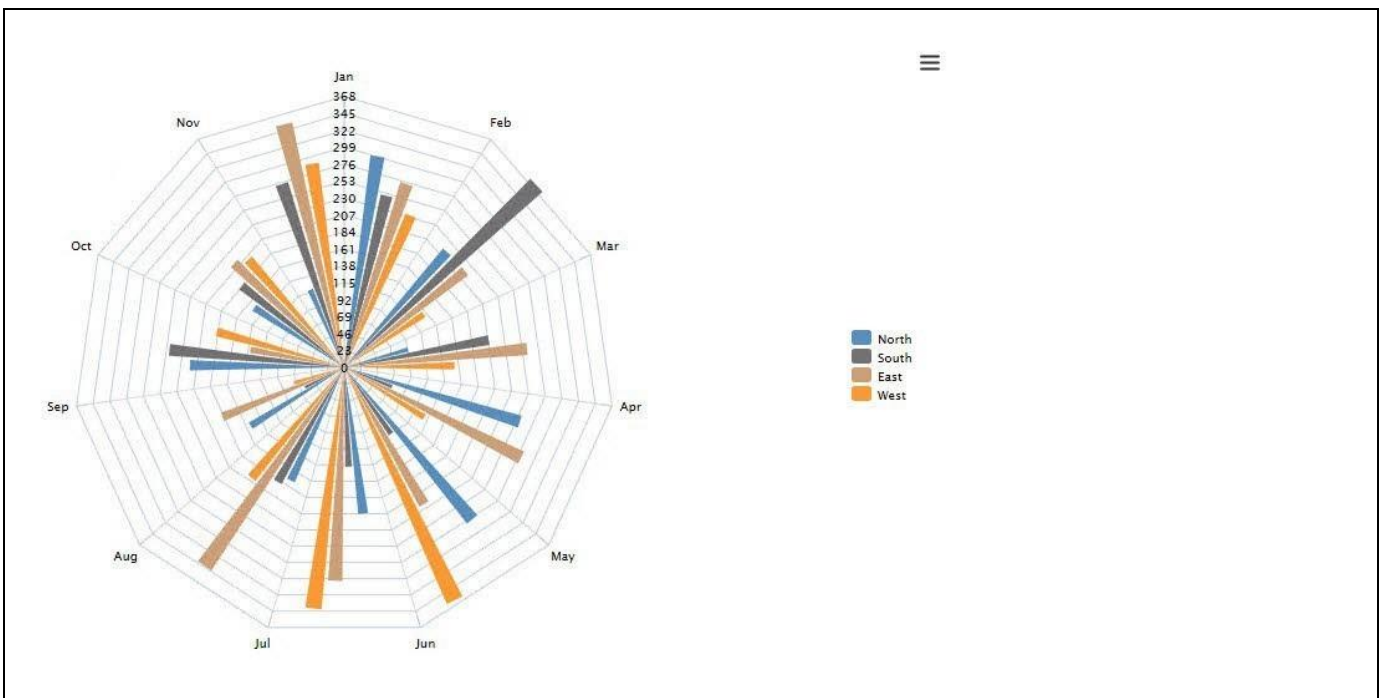


Figure 4.152: Radar Column Chart

Figure 4.152 showing a Radar Column Chart, comparing the values of each data series in form of a column against each other.

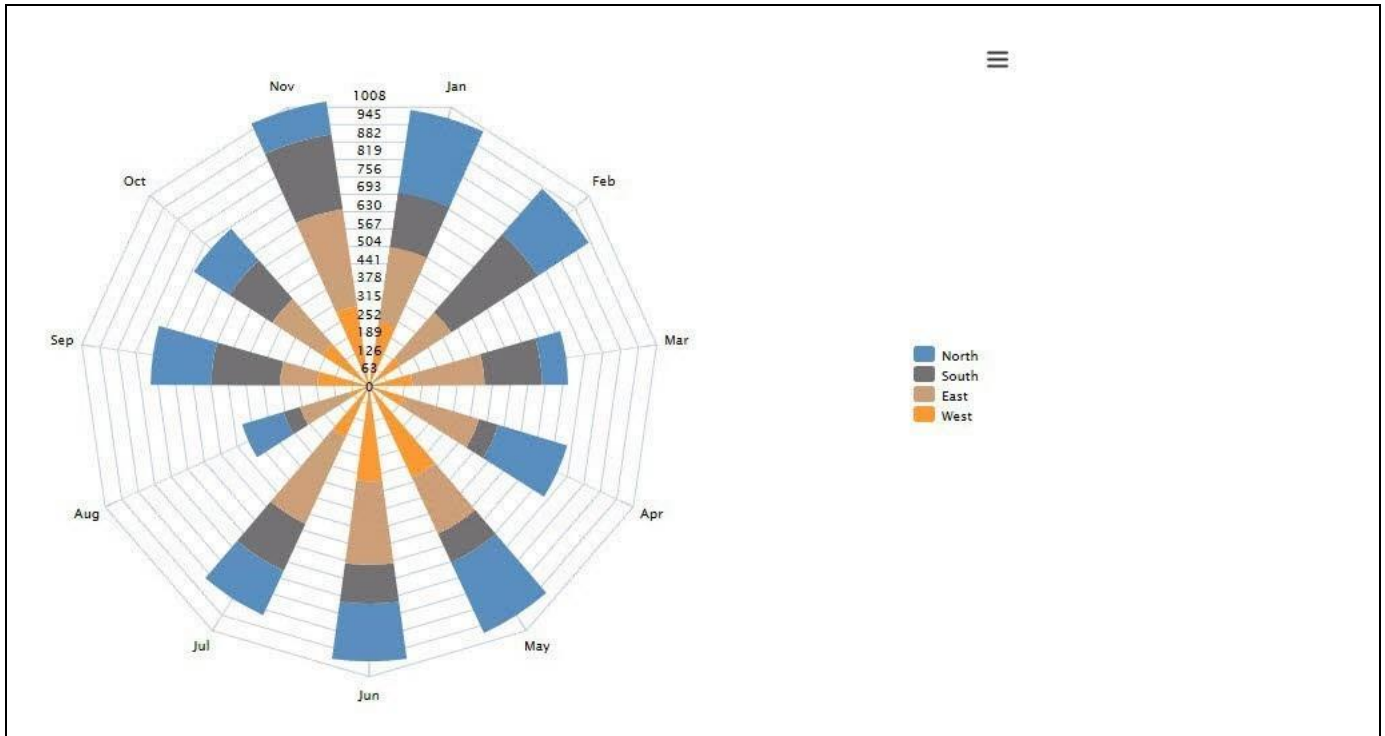


Figure 4.153: Radar Column Stacked Chart

Figure 4.153 showing a Radar Column Stacked Chart comparing the values in form of a stacked column along the axis.

4.9.8.1 Data Source Requirements for a Radar Chart

The minimum data source requirement for a Radar Chart are at least one dimension and one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Radar Chart.

You can use the following set of rules for the data structure for a Radar Chart:

- Each Dimension or Measure placed into the Rows of the Initial View of the Data Source will be used for the outer Axis of the Radar chart.
- Each Dimension or Measure placed into the Columns of the Initial View of the Data source will be used as a data series represented in form of a line in the Radar Chart.

4.9.8.2 How to use the Radar Chart?

In the following steps we will outline how you can setup a new Radar Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Radar Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measures Net Value, Cost, and Profit in the Rows of the Initial View and dimension Product in the Columns of the Initial View.
3. Add a Radar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Radar Chart.
5. Navigate to the Additional Properties of the Radar Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Appearance and to the sub category Chart (see Figure 4.154).

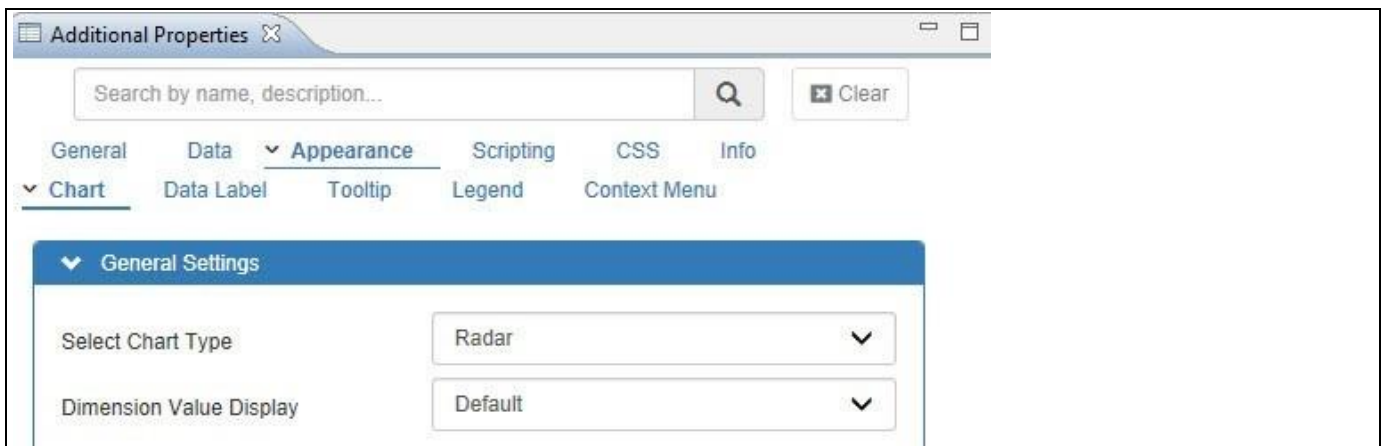


Figure 4.154: Category Appearance

8. In the area General Settings set the property Select Chart Type to the value Radar.

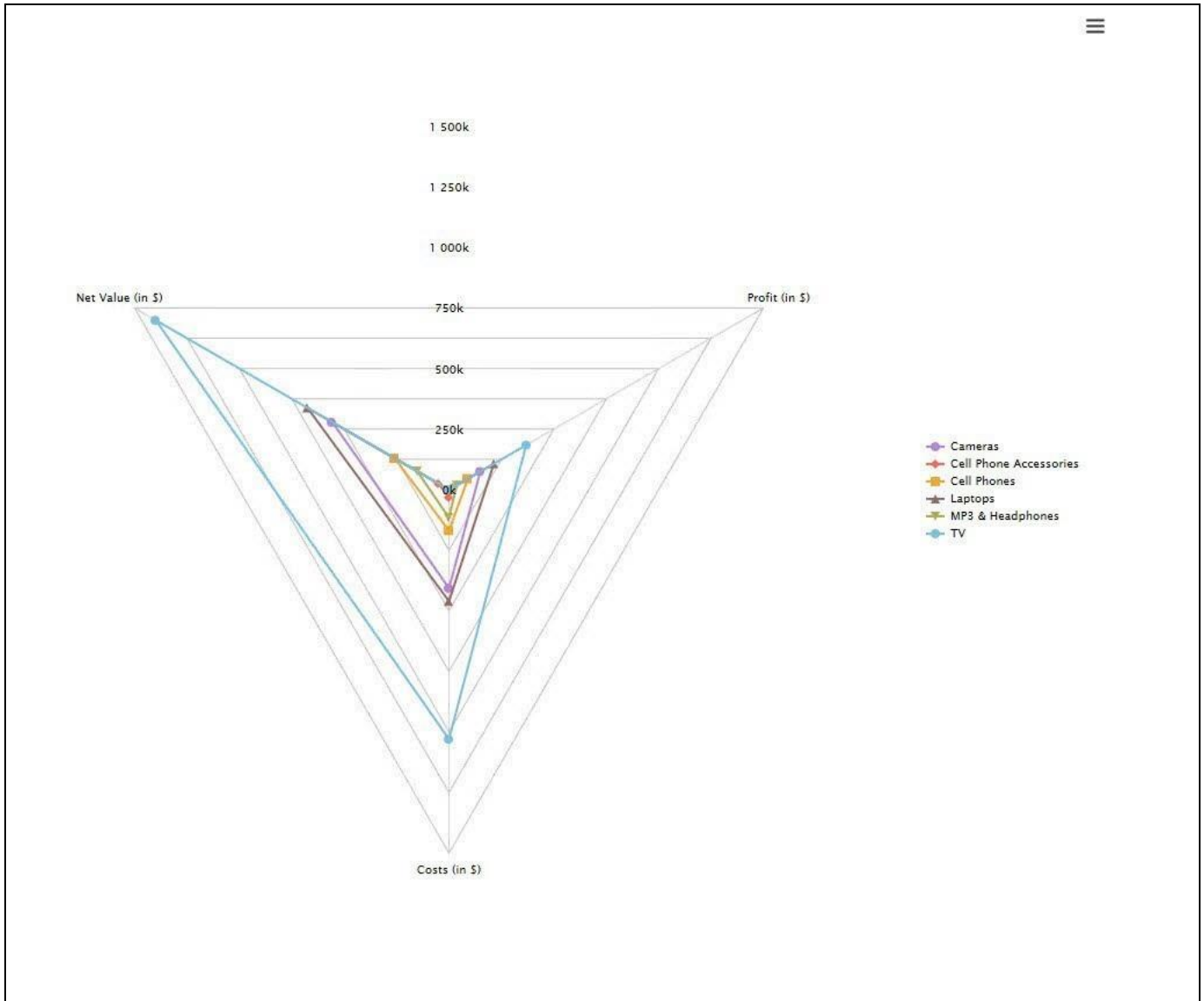


Figure 4.155: Radar Chart

9. Your Radar Chart should now look similar to Figure 4.155.

4.9.9 Polar Chart

Polar Charts are very similar to the previously mentioned Radar Chart, with the difference being that the data is shown in a circular shape instead of a typical radar style shape (see Figure 4.156).

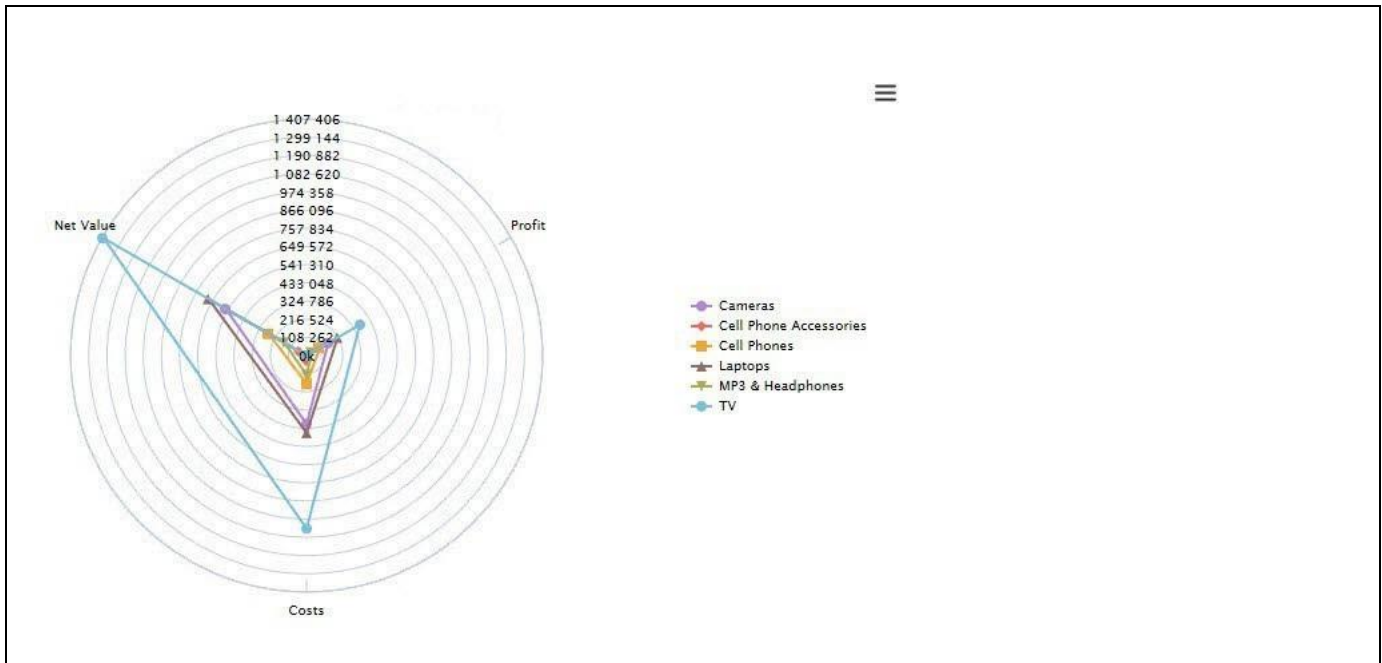


Figure 4.156: Polar Chart

4.9.9.1 Data Source Requirements for a Polar Chart

The minimum data source requirement for a Polar Chart are at least one dimension and one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Radar Chart.

You can use the following set of rules for the data structure for a Polar Chart:

- Each Dimension or Measure placed into the Rows of the Initial View of the Data Source will be used for the outer Axis of the Polar chart.
- Each Dimension or Measure placed into the Columns of the Initial View of the Data source will be used as a data series represented in form of a line in the Polar Chart.

4.9.9.2 How to use the Polar Chart?

In the following steps we will outline how you can setup a new Polar Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Radar Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measures Net Value, Cost, and Profit in the Rows of the Initial View and dimension Product in the Columns of the Initial View.
3. Add a Polar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Polar Chart.
5. Navigate to the Additional Properties of the Polar Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Appearance and to the sub category Chart.
8. In the area General Settings set the property Select Chart Type to the value Polar and you can visualize the Polar Chart in circular shape instead of a typical radar style shape (see Figure 4.156).

4.9.10 Slope Chart

Slope Charts are perfect for highlighting the story of how just one category decreased when other categories increased, or to show that one category increased at a rate much faster than the other categories. Slope Chart looks similar to Line Chart, but with certain visual changes, as slope chart serves the different purpose.

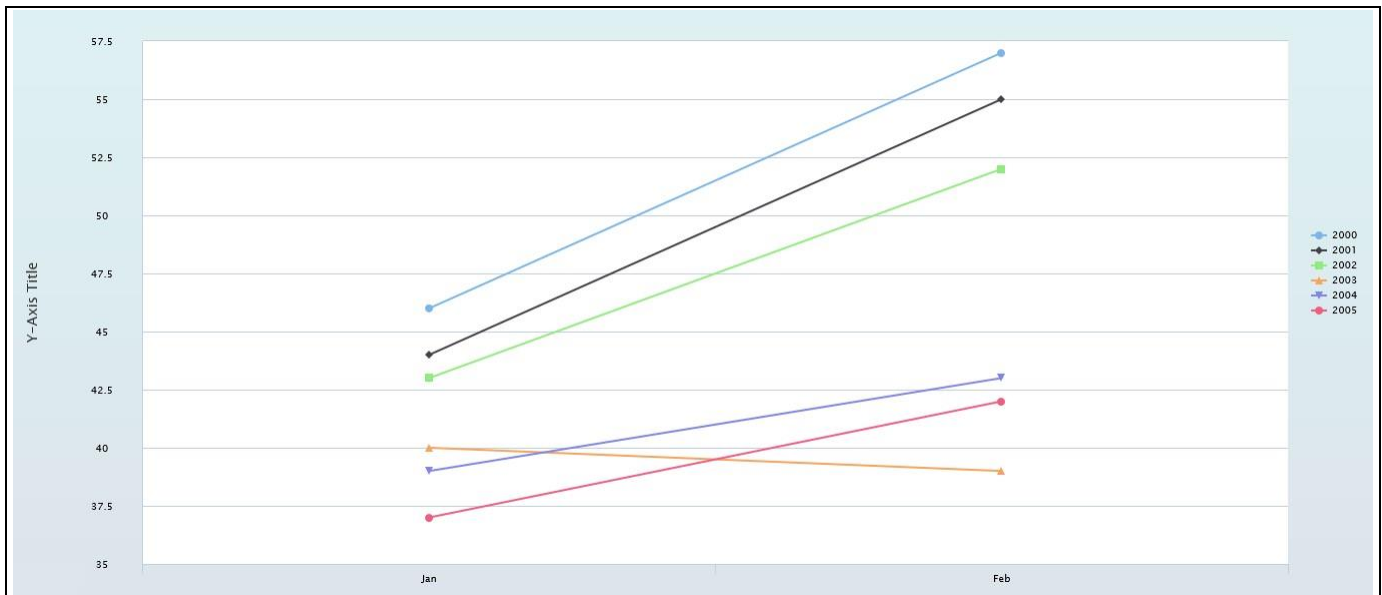


Figure 4.157: Sample Slope Chart

4.9.10.1 Data Source Requirements for a Slope Chart

The mandatory data source requirement for a Slope Chart are two dimensions and one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Slope Chart.

4.9.10.2 How to use the Slope Chart?

In the following steps we will outline how you can setup a new Slope Chart in your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows one measure – Order Quantity and two Dimensions – Calendar Year and Item Category.
3. Add a Slope Chart from the VBX Charts to your SAP BusinessObjects Design Studio /SAP Lumira Designer project.
4. Assign the data source to the Slope Chart.
5. The Slope Chart will plot the information from the assigned data source (see Figure 4.158).

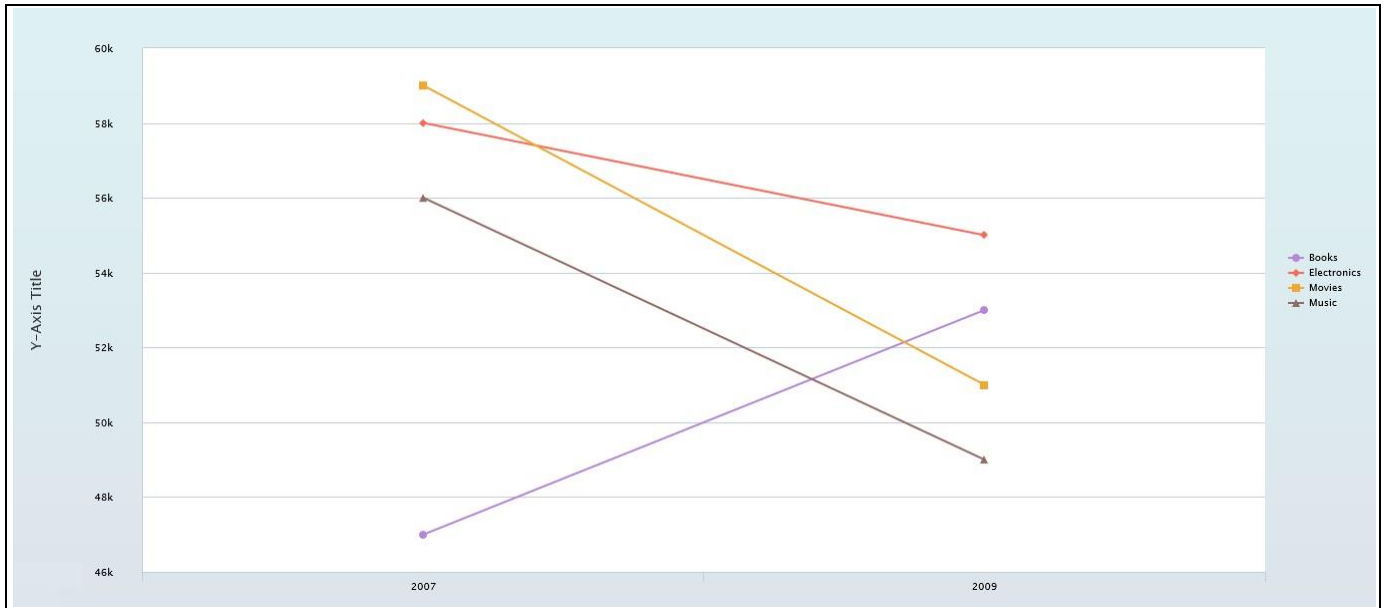


Figure 4.158: Slope Chart

Figure 4.158 shows the basic Slope Chart for one measure and two dimensions. Here you can observe that the measure Order Quantity for the dimension members Electronics, Music and Movies gets decreased from the calendar year 2007 to 2009 and at the same time, the measure Order Quantity for the dimension member Books gets increased from the calendar year 2007 to 2009.

4.9.11 Advanced Column Bar Chart

Advanced Column Bar Chart offers an intuitive way to compare any two measures. In addition to comparing two measures, it also adds a spotlight to the variance between these measures in terms of absolute and percentage values. Negative or Positive variance is automatically categorized as two series. This removes the need to add conditional formatting to highlight the quality of variance.

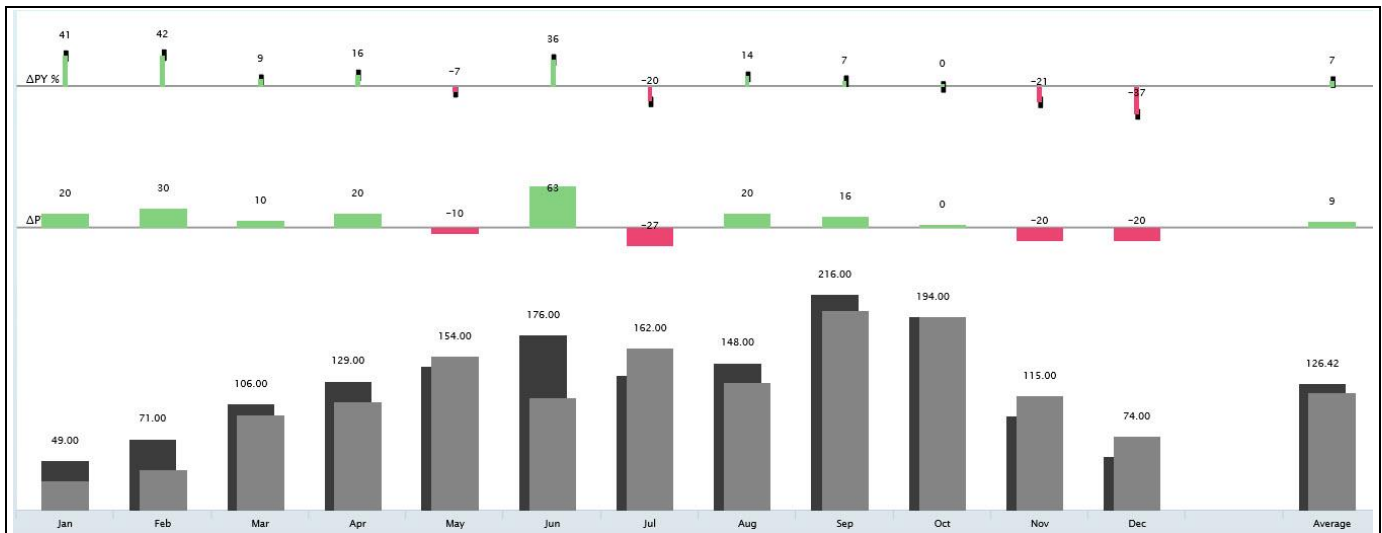


Figure 4.159: Sample Advanced Column Bar Chart

4.9.11.1 Data Source Requirements for a Advanced Column / Bar Chart

The minimum data source requirement for a Advanced Column / Bar Chart are at least one dimension and two measures to form a minimum of two Data Series where the Chart can be configured only for two series. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Advanced Column / Bar Chart.

4.9.11.2 How to use the Advanced Column / Bar Chart?

In the following steps we will outline how you can setup a new Advanced Column Bar Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Advanced Column / Bar Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measures Order Cost, Order Amount and Order Quantity along a set of members of dimension Item Category.
3. Add a Advanced Column / Bar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Advanced Column / Bar Chart.
5. Navigate to the Additional Properties of the Advanced Column / Bar Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Data and to the sub category Data Series (see Figure 4.160).

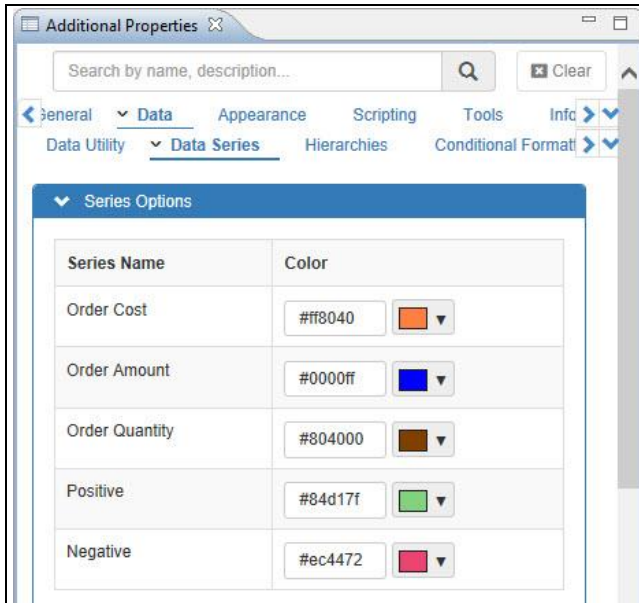


Figure 4.160: Category Data – Series Options

8. In the area Series Options, you can change the color for the series. For our example, set the Series Order Cost to the color Orange.
9. Set the Series Order Amount to the color Blue.
10. Since the Chart considers only the first two data series in the Columns of the Initial View you will be able to set the colors for the first two data series Order Cost and Order Amount.
11. By default, the Series Positive and Negative will have Green and Red colors. You can also change their colors based on your choice.
12. Now navigate to the area Series Name Change (see Figure 4.161)

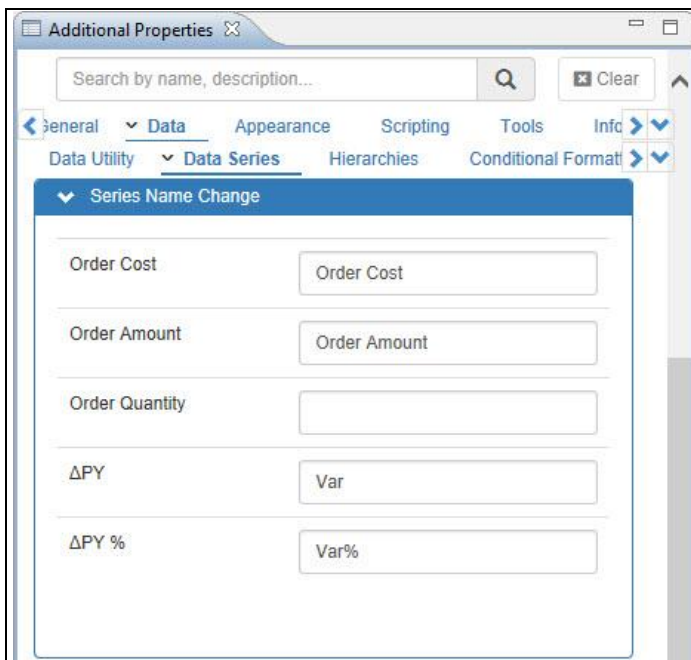


Figure 4.161: Category Data – Series Name Change

13. Set the Series Order Cost to the name Order Cost.
14. Set the Series Order Amount to the name Order Amount.

15. Set the property ΔPY to the name Var (restricted to 5 characters).
16. Set the property $\Delta PY\%$ to the name Var% (restricted to 5 characters).
17. Now navigate to the area Shape Options (see Figure 4.162).

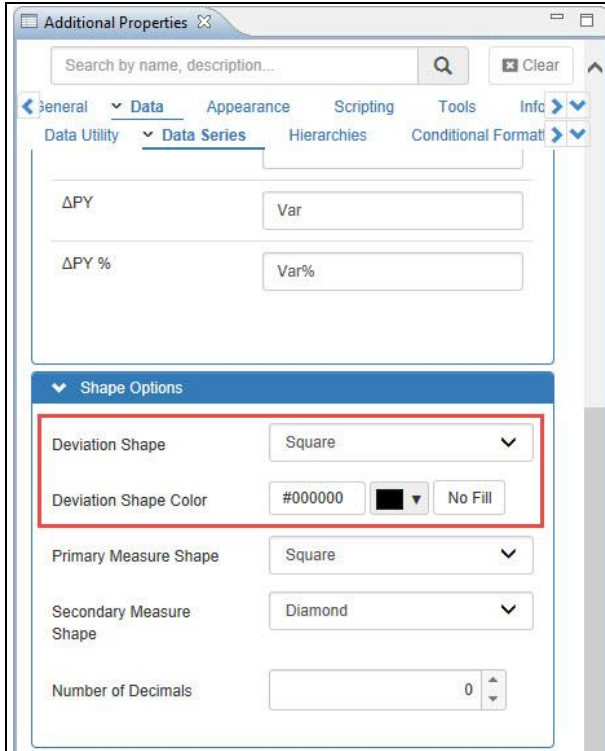


Figure 4.162: Category Data – Shape Options

18. Set the property Deviation Shape to the option Square. The other options are Diamond and Circle.
19. Set the property Deviation Shape Color to the color Black.
20. Navigate to the category Appearance and to the subcategory Chart (see Figure 4.163).

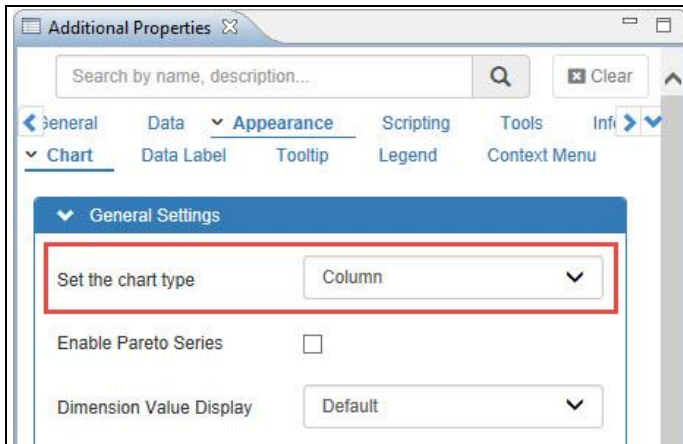


Figure 4.163: Category Appearance

21. Set the property Set the Chart Type to the option Column.

22. Based on the above configuration, you will be able to view the Advanced Column Bar Chart (see Figure 4.164). Here you can observe that there are three layers where the bottom layer 1 represents the Column Bar Chart for the first two data series Order Cost and Order Amount against the dimension Item Category. In this case, you can observe that the column bar chart gets displayed based on the comparison of the two data series taken as measures. Also, the data label gets displayed for the data series having higher value. The middle layer 2 shows the vertical column bars representing the Variance value for the first two data series Order Cost and Order Amount calculated as Series 2 value (Order Amount) – Series 1 value (Order Cost). The positive variance value will be denoted in green color vertical bars and the negative variance value will be denoted in red color vertical bars (see Figure 4.164). The top layer 3 shows the thin vertical column bars with deviation shapes at its top. Here the Variance % value for the first two data series Order Cost and Order Amount is calculated as Series 2 value (Order Amount) – Series 1 value (Order Cost) / Series 1 value (Order Cost) X 100. The positive variance percentage value will be denoted in green color vertical bars and the negative variance percentage value will be denoted in red color vertical bars (see Figure 4.164).

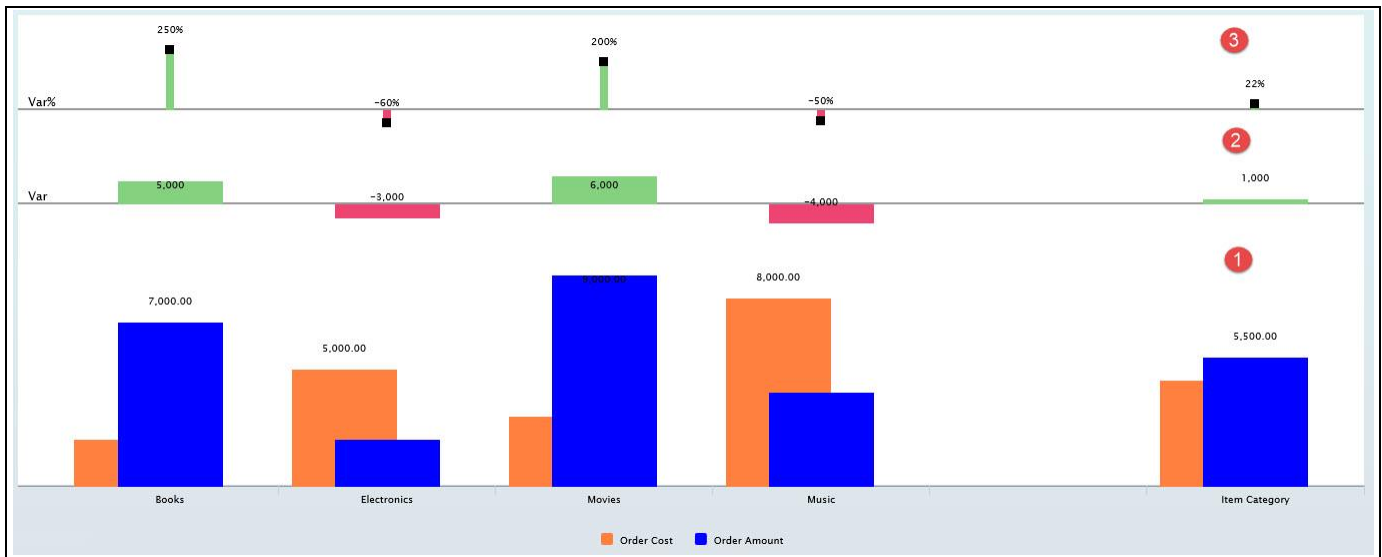


Figure 4.164: Advanced Column Bar Chart

4.9.11.3 Chart Type Selections for Advanced Column Bar Chart

In the additional properties of the Advanced Column Bar Chart in the category Appearance and the subcategory Chart, you have different Chart Type options that can be configured for the Advanced Column Bar Chart. The options are Column, Column-Pin, Column-Stacked, Column-Deviation, Bar, Bar-Pin, Bar-Stacked, Bar-Deviation and Line.

For our first example, set the property Set the Chart Type to the option Column-Pin (see Figure 4.165).

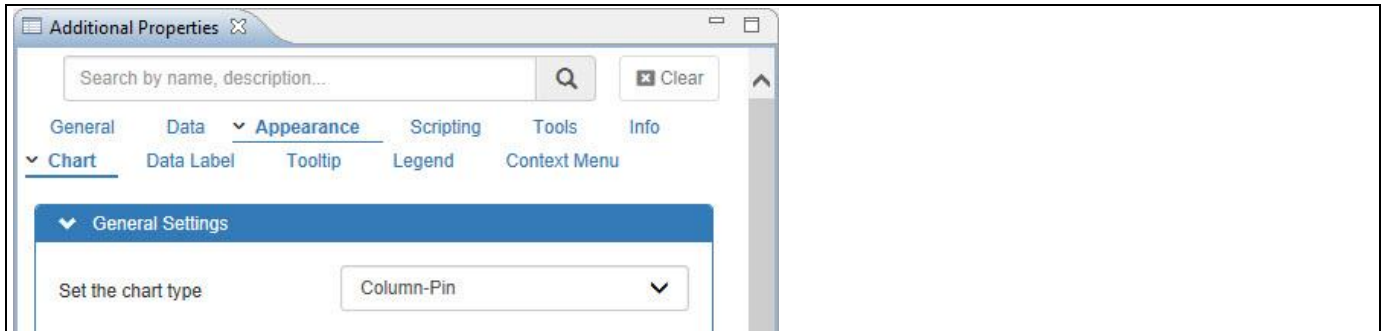


Figure 4.165: Category Appearance

Based on the above configuration, you will be able to view the Advanced Column Bar Chart configured as Column-Pin chart type (see Figure 4.166). You can observe that bottom layer is configured with Column-Pin chart type having the Primary Measure as Order Cost and Secondary Measure as Order Amount.

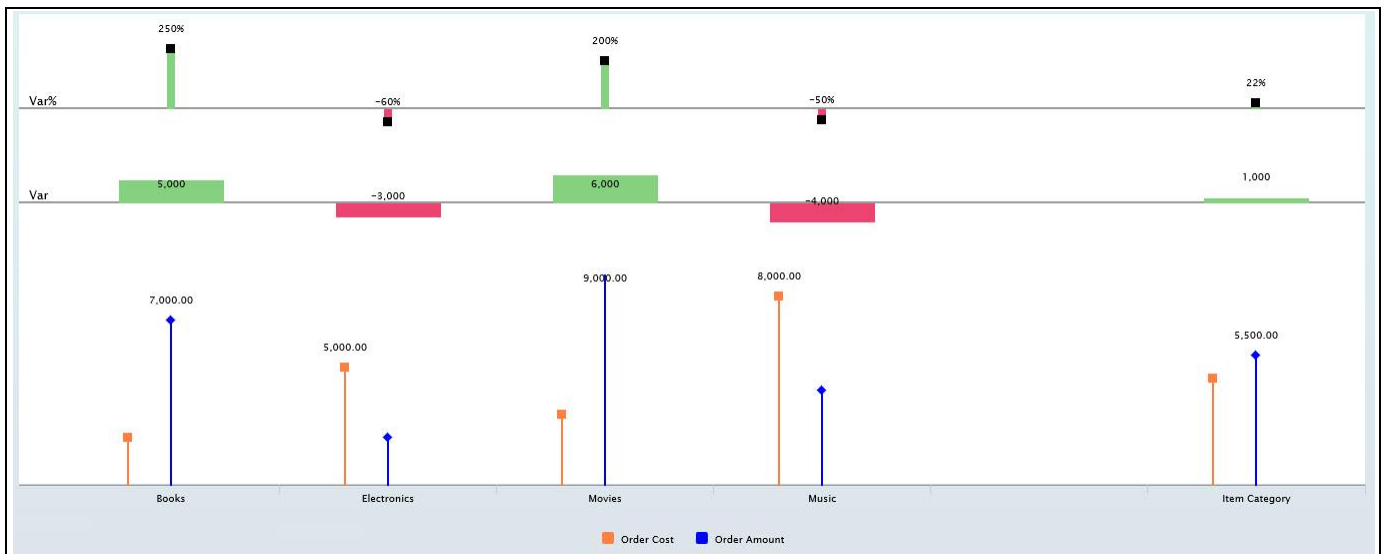


Figure 4.166: Column-Pin Chart Type

Here you can also change the Primary and Secondary Measure shapes for the Column Pin chart type by navigating to the category Data and to the subcategory Data Series (see Figure 4.167).

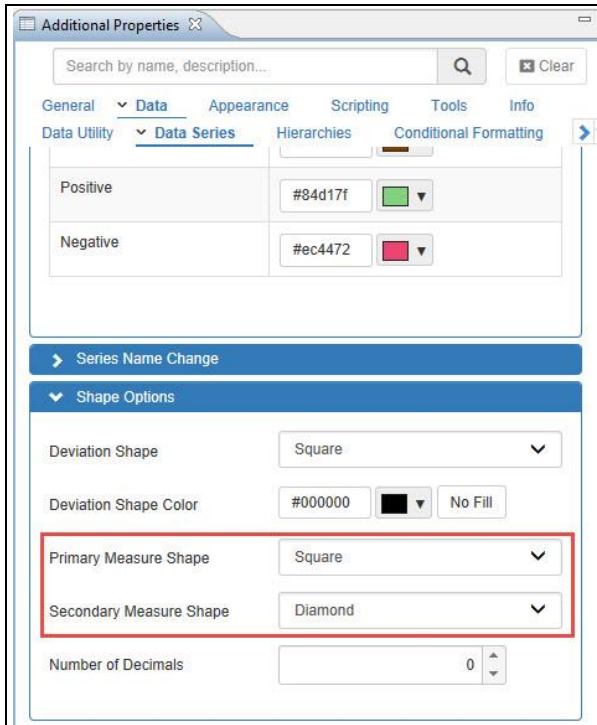


Figure 4.167: Category Data – Shape Options

For our second example, navigate to the category Appearance and to the subcategory Chart and set the property Set the Chart Type to the option Column-Deviation (see Figure 4.168).

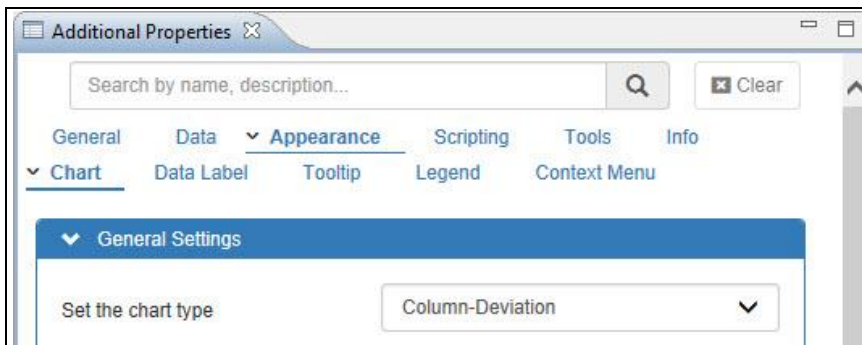


Figure 4.168: Category Appearance

Based on the above configuration, you will be able to view the Advanced Column Bar Chart configured as Column-Deviation chart type (see Figure 4.169). You can observe that bottom layer is configured with Column-Deviation chart type. Here the secondary measure Order Amount is viewed as Column Bar Charts and the primary measure Order Cost will be represented as the positive deviation bar in green color that occurs inside the Column Bar Chart and the negative deviation bar in red color that occurs on the top of the Column Bar Chart. You can also configure with different chart types to view the Advanced Column Bar Chart.

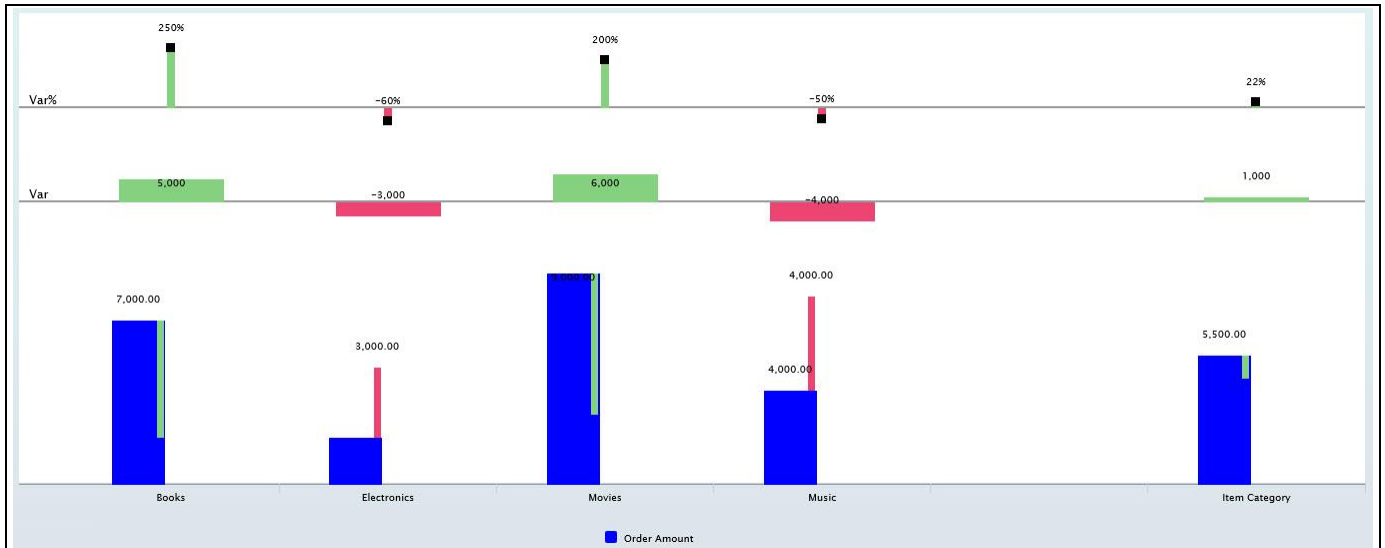


Figure 4.169: Column-Deviation Chart Type

4.9.12 Rainfall Chart

The Rainfall Chart typically denotes the Area Chart but is represented by another series of Y axis frame. The Rainfall Chart displays the quantitative data and where the area below the line is being filled with the respective color based on the Y Axis frames (Figure 4.170).

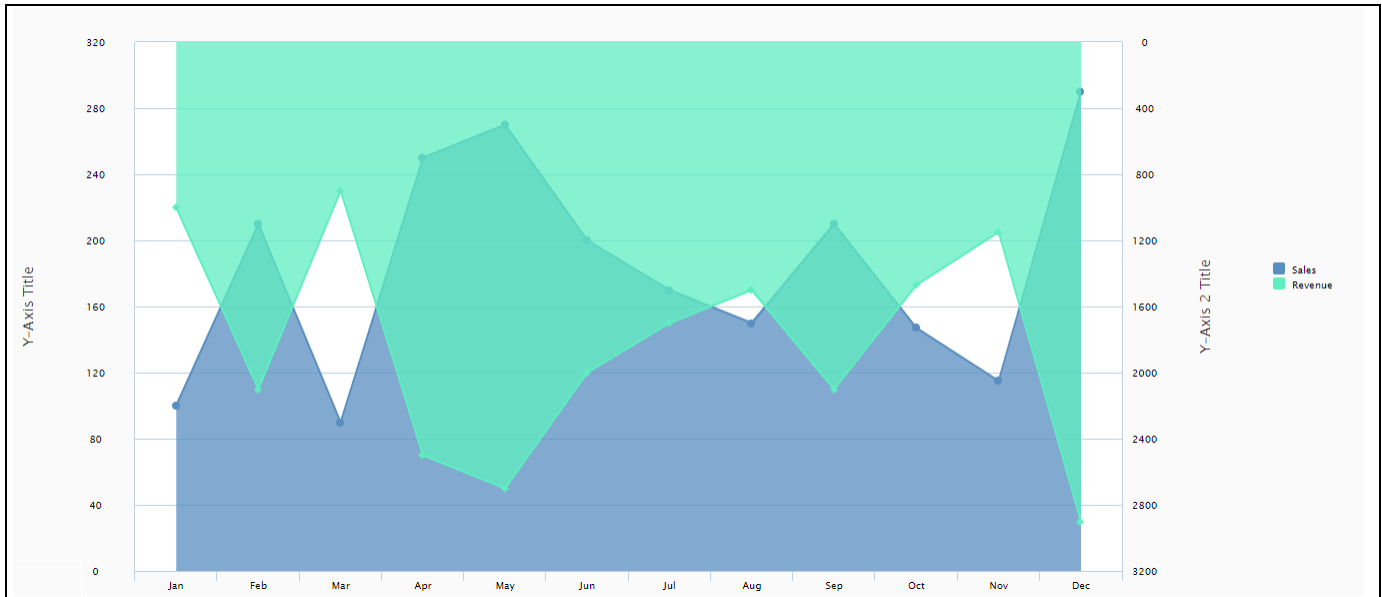


Figure 4.170: Rainfall Chart

4.9.12.1 Data Source Requirements for a Rainfall Chart

The minimum data source requirement for a Rainfall Chart are at least one dimension and two measures. In case the data source does contain more information, you can leverage the Data Utility tool to specify which information is to be used by the Rainfall chart. In case the data source contains more than a single measure, the order of the measures in the initial view of the data source then decides the order of plotting the measure onto the chart.

4.9.12.2 How to use the Rainfall Chart?

In the following steps we will outline how you can setup a new Rainfall Chart in your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Rainfall Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measures Order Amount and Discount Amount and the dimension as Item Subcategory.
3. Add a Rainfall Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Rainfall Chart.
5. Navigate to the Category Data and to the sub category Data Series (see Figure 4.171)

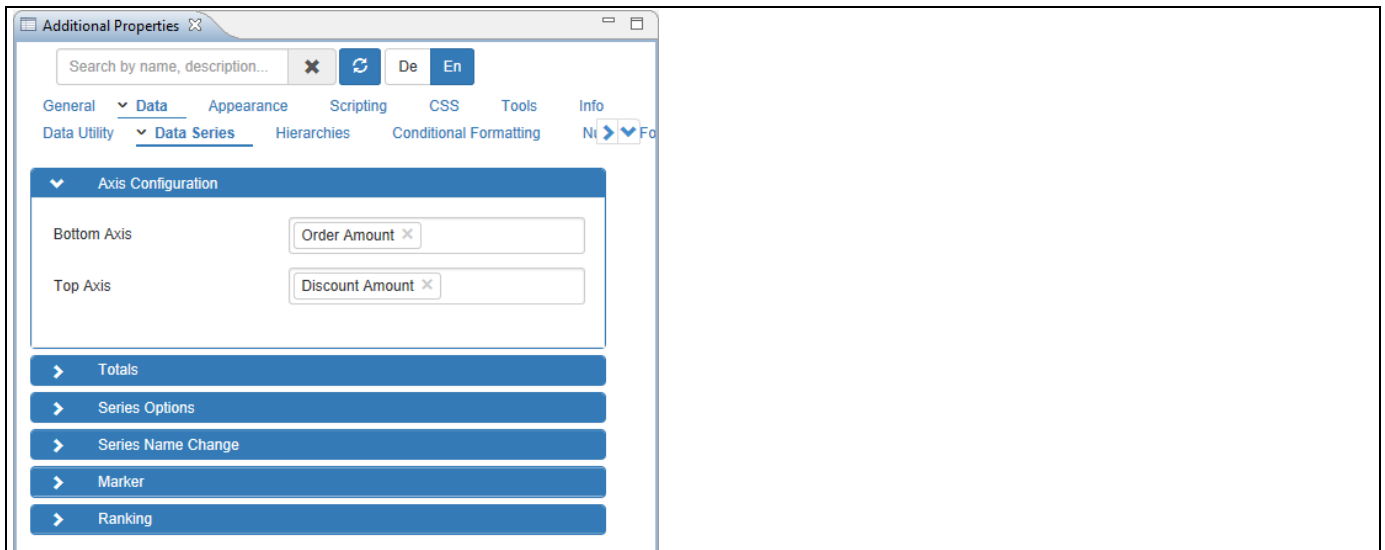


Figure 4.171: Category Data

6. Set the property Select Measures for Bottom Axis (Y Axis 1) to the option Order Amount and set the property Select Measures for Top Axis (Y Axis 2) to the option Discount Amount.
7. The Rainfall Chart will plot the information from the assigned data source (see Figure 4.172).

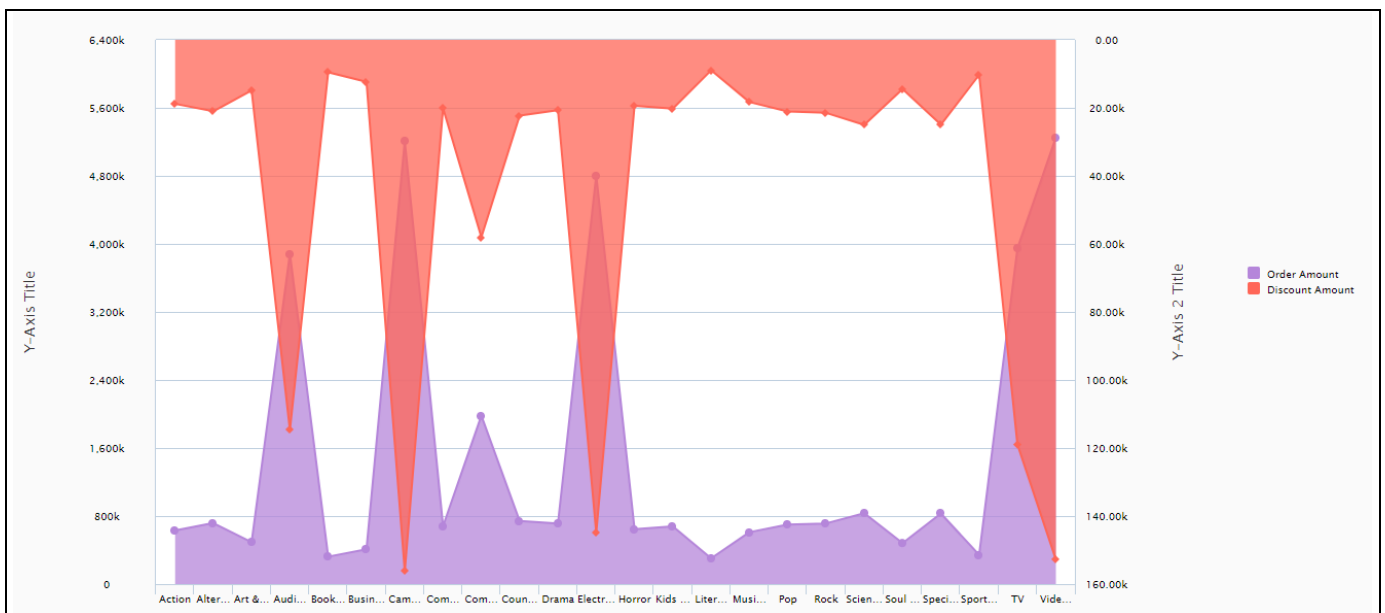


Figure 4.172: Rainfall Chart

Figure 4.172 shows the basic Rainfall Chart for two measures. You can use now the Additional Properties to customize the layout and look and feel. The Y Axis 1 here represents the Measure Order Amount and the Y Axis 2 represents the Measure Discount Amount.

4.9.13 Additional Properties of the Trend Charts

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Trend and Comparison charts.

4.9.13.1 Category Data

The category Data in the Additional Properties allows you to customize settings in regard to topics such as Data Labels, Error Bar, Markers, and other data relevant configurations.

Sub category	Area	Property	Description
Data Series	Marker	Apply Marker Customization	This property allows you to enable / disable the Marker Customization for the Chart.
		Marker Color identical to Data Series	This property sets the same color to the Markers as the Data Series
		Marker Symbol	Enables you to choose a Marker Symbol. The available types of symbols are Circle, Diamond, Square, Triangle, Triangle Down and Custom Marker.
		Marker Size	Allows you to set a size for the marker.
		Marker Color	Allows you to choose a color for the marker.
		Show On Hover	Allows you to enable the hover option on the marker.
	Series Options	Positive	This property allows you to select the color for the data series which represents the positive variance value. By default the color will be green. This property is applicable for Advanced Column Bar Chart.
		Negative	This property allows you to select the color for the data series which represents the neagative variance value. By default the color will be red. This property is applicable for Advanced Column Bar Chart.
	Series Name Change	ΔPY	This property allows you to change the Series Name for the Variance value and it is restricted to five letters. This property is applicable for Advanced Column Bar Chart.
		$\Delta PY\%$	This property allows you to change the Series Name for the Variance Percentage value and it is restricted to five letters. This property is applicable for Advanced Column Bar Chart.
	Shape Options	Deviation Shape	This property allows you to set the Deviation shape on the top of the thin

Sub category	Area	Property	Description
			vertical bars in the top most layer representing the Variance Percentage value. The options are Square, Circle and Diamond. This property is applicable for Advanced Column Bar Chart.
		Deviation Shape Color	This property allows you to set the color for the Deviation Shape. This property is applicable for Advanced Column Bar Chart.
		Primary Measure Shape	This property allows you to set the shape for the Primary Measure when the chart type is selected as Column-Pin or Bar-Pin. The options are Square, Circle and Diamond. This property is applicable for Advanced Column Bar Chart.
		Secondary Measure Shape	This property allows you to set the shape for the Secondary Measure when the chart type is selected as Column-Pin or Bar-Pin. The options are Square, Circle and Diamond. This property is applicable for Advanced Column Bar Chart.
		Number of Decimals	This property allows you to set the number of decimals for the Variance Series. This property is applicable for Advanced Column Bar Chart.
Drill Down	General Settings	Show all Measures	You can use this property to enable / disable the showing of all measures in a Drilldown. In case this option is disabled, then the drill down will only show the measure that was clicked.
		Show Totals	This property allows you to show / hide totals for the chart itself. The totals will only be shown on the first view of the charts, but will not be shown on the next drill down levels.
		Total Node Placement	This property allows you to decide if the Total node should be placed before or after the members of the drill down.
		Show Parent Nodes on Drilldown	In case this property is activated, then the parent node will be included in the Drill Down chart in addition to the members from the next level.
		Parent Node Placement	This property allows you to decide if the parent node totals should be placed before or after the members of the drill down.
		Enable Scroll Bar	This option allows you to enable / disable

Sub category	Area	Property	Description
			the scroll bar.
		Scrollable Chart Width/Height	Sets the Width/Height of the Chart greater than the Container Width/Height.
		On Click	Using the On Click property you can specify which functionality should be used when you click on an element of the data series in the chart. The available options are: Drilldown, Expand / Collapse, Select, None.
		On Double Click	Using the On Double-Click property you can specify which functionality should be used when you double-click on an element of the data series in the chart. The available options are: Drilldown, Expand / Collapse, Select, None.
		On CTRL	Using the On CTRL-Click property you can specify which functionality should be used when you press the CTRL Key and clicks on an element of the data series in the chart. The available options are: Drilldown, Expand / Collapse, Select, None.
	Hierarchy Drill Down	Enable Hierarchy Drill Down	This option allows you to enable / disable a Drill Down based on an active hierarchy in the data source.
		Include Root Level Nodes	Using this property you can include or exclude the root level nodes of an active hierarchy into the Drill Down chart. This option only impacts Drill Down charts using a hierarchy.
		Max. no. of Hierarchy Levels	Using this option you can define a maximum for a Drilldown chart using hierarchies. By specifying the maximum number of hierarchy levels you can limit the data volume, which you will be able to retrieve using the drilldown chart.
		Activate Hierarchical Labeling	Using this property you can activate a specific labeling which will visualize the hierarchical nature of the data and keep the labels on the X-Axis (for example with a column chart) grouped together based on the drill down.

Table 4.14: Data

4.9.13.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Set the Chart Type	This property allows you to set the Chart Type for the Advanced Column Bar Chart. The options are Column, Column-Pin, Column-Stacked, Column-Deviation, Bar, Bar-Pin, Bar-Stacked, Bar-Deviation Line and Dot Plot. This property is applicable for Advanced Column Bar Chart.
		Enable Pareto Series	This property sets the Pareto Series in the Column Bar Chart to display both Column bars and a Line where individual values are represented in descending order by column bars, and the cumulative total is represented by the line.
	Drill Down	Drill Down Data Label Cursor	This property sets the type of the cursor. The options are Default, Pointer, Crosshair and Cell.
		Drill Down Button Horizontal Alignment	This property allows to configure the horizontal alignment of the Drilldown button.
		Drill Down Button Vertical Alignment	This property allows to configure the vertical alignment of the Drilldown button.
		Drilldown button Horizontal Offset	This property allows to specify the Horizontal Offset of the Drilldown button relative to its default alignment.
		Drilldown button Vertical Offset	This property allows to specify the Vertical Offset of the Drilldown button relative to its default alignment.

Table 4.15: Appearance

4.9.14 Scripting in Trend and Comparison Charts

In addition to the common scripting functions listed in section 4.6, the Trend charts support the following scripting functions.

Function / Method	Description
DSXGetchartWidth()	The function allows you to retrieve the value for the width of the Column Bar Drill Down Chart.
DSXSetchartWidth()	The function allows you to set the value for the width of the Column Bar Drill Down Chart.

Table 4.16: Scripting Functions

4.10 Pie Charts

4.10.1 Pie Chart Variants Overview

As part of the charts in the overall VBX suite, you also receive several variants of a pie chart. Pie charts are best used when making a part-to-whole comparison with a limited set of members. As part of this group of Pie Charts you can use the following charts (see Figure 4.173):

- Pie Chart
- Donut Chart
- Semicircle Donut Chart
- Pie Drilldown Chart

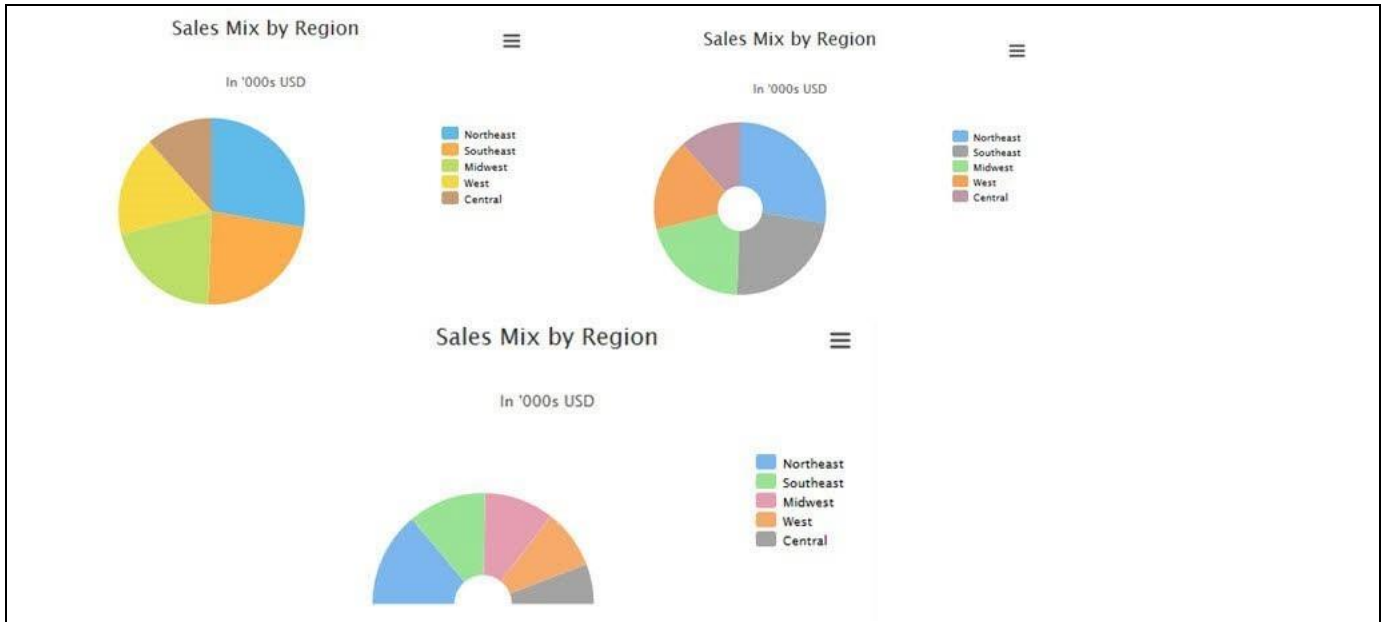


Figure 4.173: Pie Chart Variants

In the following sections we will outline the basic functionality and the steps to create each of the variants of the Pie Chart.

4.10.2 Pie Chart

Pie Charts are used to compare a part to the total for the selected measure.

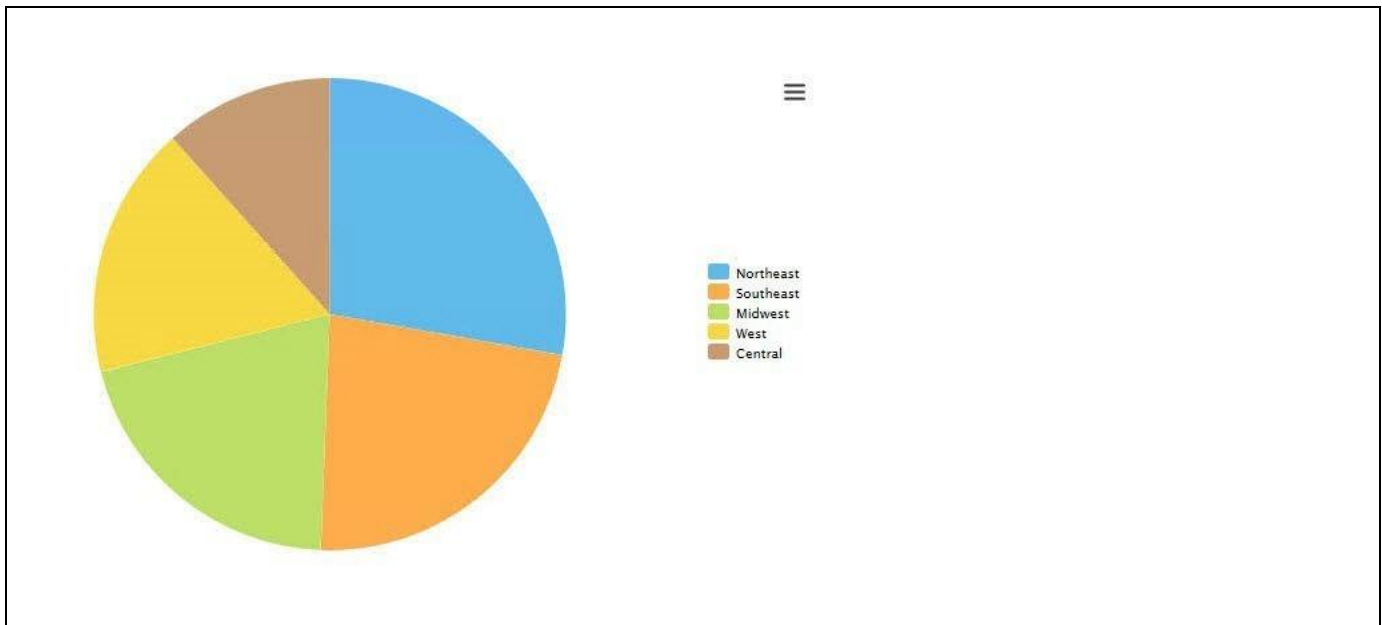


Figure 4.174: Pie Chart

Figure 4.174 shows a classic Pie Chart, outlining the measure value along five members of a dimension.

4.10.2.1 Data Source Requirements for a Pie Chart

The minimum data source requirement for a Pie Chart are at least one dimension and one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Pie Chart.

4.10.2.2 How to use the Pie Chart?

In the following steps we will outline how you can setup a new Pie Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Pie Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows measure Revenue along a set of members of dimension Product.
3. Add a Pie Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Pie Chart.

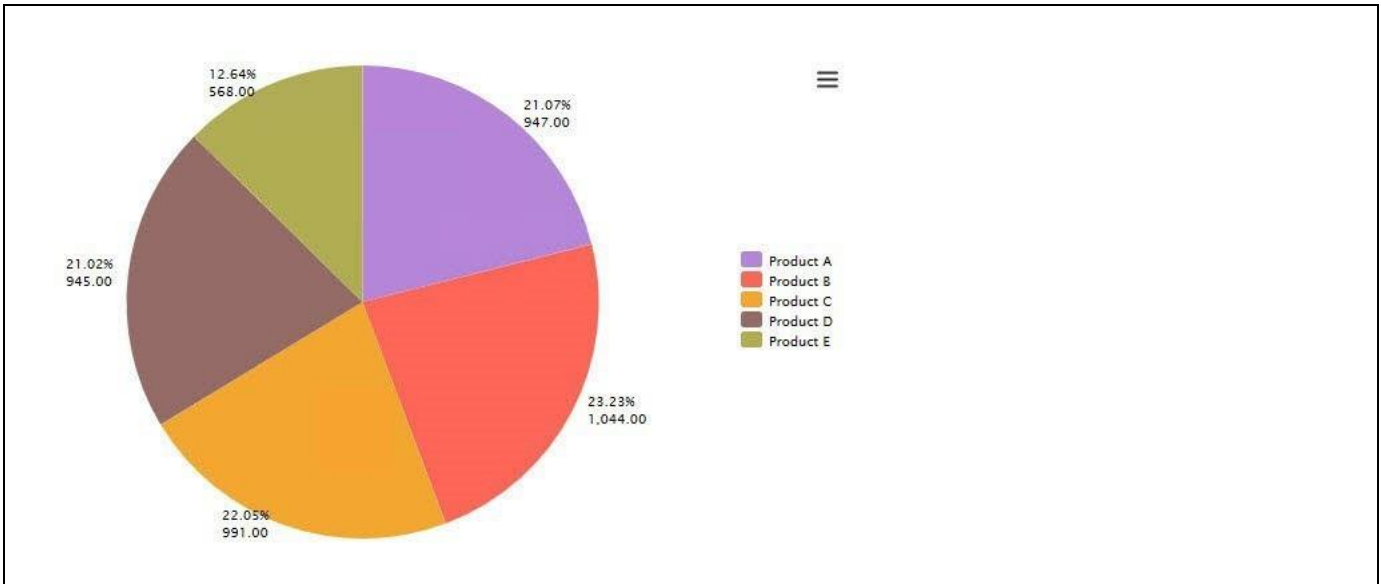


Figure 4.175: Pie Chart with Data Labels

5. Navigate to the Additional Properties of the chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Data Label.
8. Activate the option Enable Data Labels.
9. In the sub category Data Label set the property Display Format to the option Percentage and Value.

4.10.3 Donut Chart

A Donut Chart is very similar to a Pie Chart, with the difference that the middle is not filled.

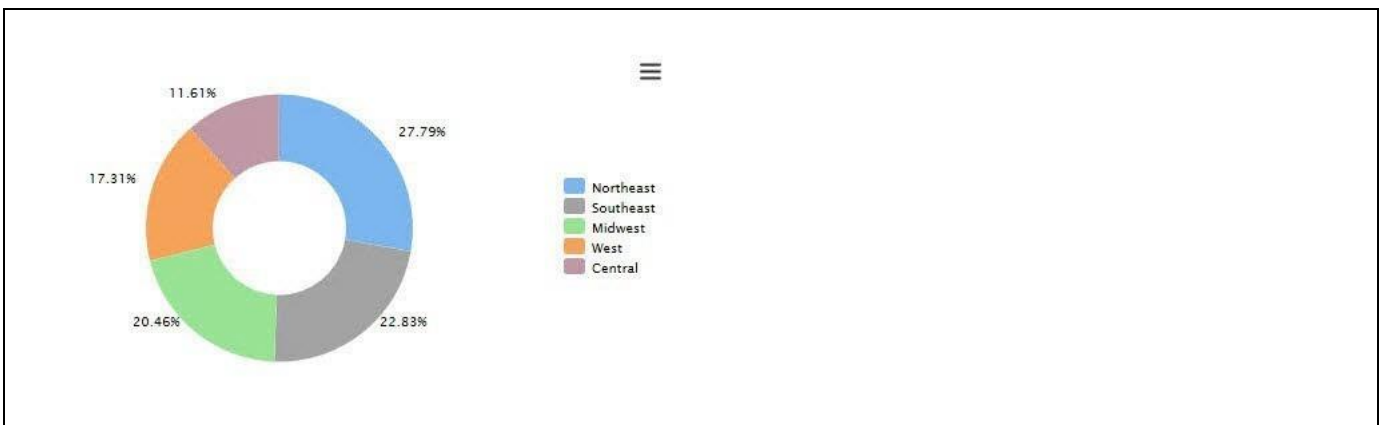


Figure 4.176: Donut Chart

Figure 4.176 shows a Donut Chart showing a measure value along several Region with percentage value data labels.

4.10.3.1 Data Source Requirements for a Donut Chart

The minimum data source requirement for a Donut Chart are at least one dimension and one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Donut Chart.

4.10.3.2 How to use the Donut Chart?

In the following steps we will outline how you can setup a new Donut Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Donut Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows measure Revenue along a set of members of dimension Product.
3. Add a Donut Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Donut Chart.
5. Navigate to the Additional Properties of the chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Data Label.
8. Activate the option Enable Data Labels.
9. In the sub category Data Label set the property Display Format to the option Percentage.
10. In the Additional Properties navigate to the category Appearance and to the sub category Chart.
11. In the area General Settings set the option Chart Inner Size to the value 100.

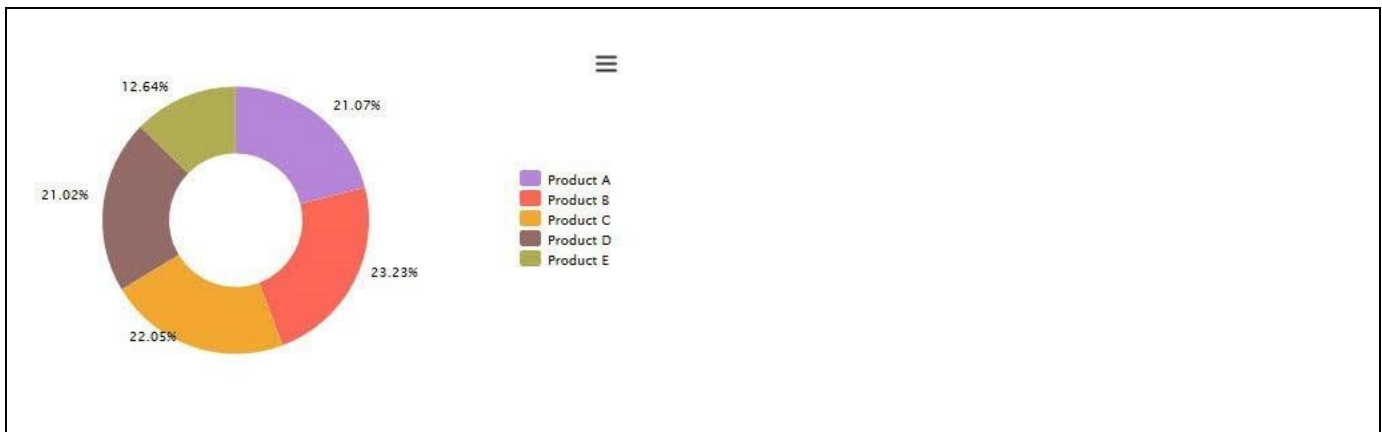


Figure 4.177: Donut Chart

4.10.4 Semicircle Donut Chart

Similar to the Pie Chart and the Donut Chart, the Semicircle Donut Chart is used to represent a slice as part of a total. The difference between the Semicircle Donut and Pie / Donut Chart is the fact, that the Semicircle Donut Chart is representing the information either in a horizontal or vertical half sliced circle (see Figure 4.178).

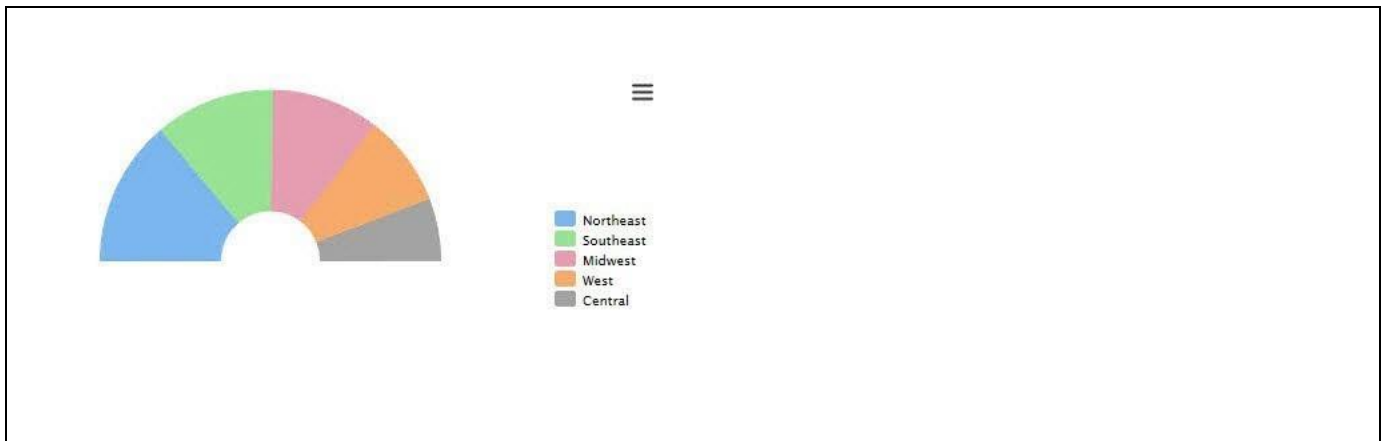


Figure 4.178: Semicircle Donut Chart

4.10.4.1 Data Source Requirements for a Semicircle Donut Chart

The minimum data source requirement for a Semicircle Donut Chart are at least one dimension and one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Semicircle Donut Chart.

4.10.4.2 How to use the Semicircle Donut Chart?

In the following steps we will outline how you can setup a new Semicircle Donut Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Semicircle Donut Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows measure Revenue along a set of members of dimension Product.
3. Add a Semicircle Donut Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Semicircle Donut Chart.
5. Navigate to the Additional Properties of the chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Data Label.
8. Activate the option Enable Data Labels.
9. In the sub category Data Label set the property Display Format to the option Percentage and you will be able to visualize the Semicircle Donut Chart (see Figure 4.179).

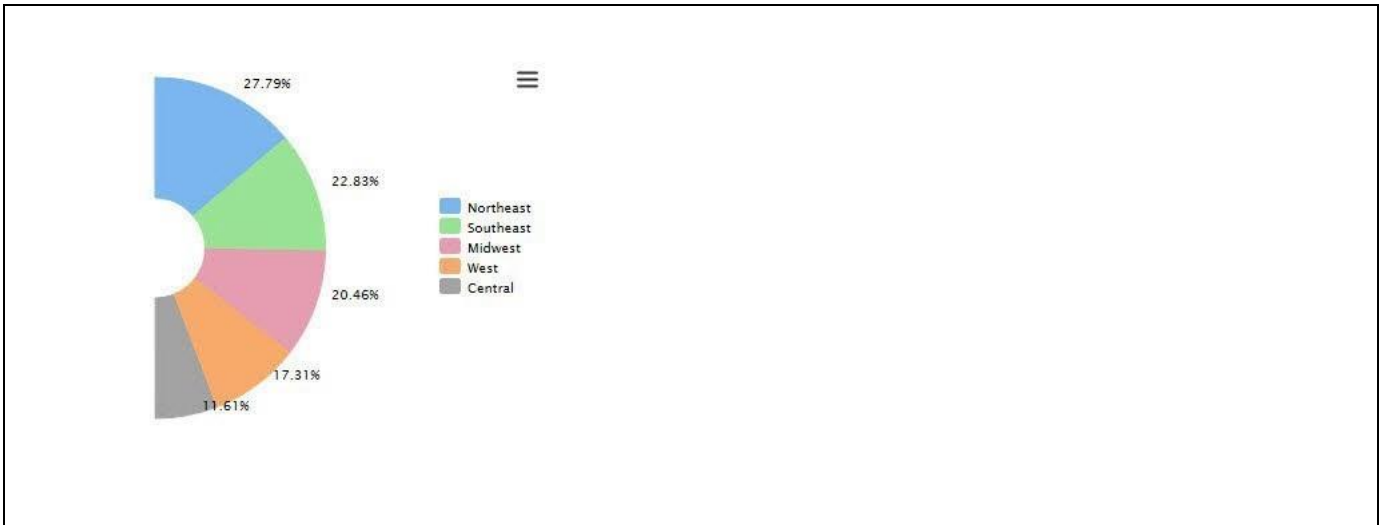


Figure 4.179: Semicircle Donut Chart

4.10.5 Pie Drilldown Chart

The Pie Drilldown Chart is an extension of the standard pie chart, offering the drill down capability as additional feature. The chart requires at least two dimensions as part of the assigned data source and displays the first dimension as the initial display and the second (or more) dimension(s) will be used for the drilldown.

4.10.5.1 Data Source Requirements for a Pie Drilldown Chart

The minimum data source requirement for a Pie Drilldown Chart are at least two dimensions and one measure. In case the data source does contain additional dimensions or additional measures, you can leverage the Data Utility tool to specify which information is to be used or leverage the complete data set. The Pie Drilldown Chart can only visualize a single measure at a time.

4.10.5.2 How to use the Pie Drilldown Chart?

In the following steps we will outline how you can setup a new Pie Drilldown Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project. We will assume that our data set consists of dimension Product Category, dimension Product, and measure Revenue.

You can follow the steps below to configure the Semicircle Donut Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project.
3. Add a Semicircle Donut Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Semicircle Donut Chart.
5. Navigate to the Additional Properties of the chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Data Label.
8. Activate the option Enable Data Labels.

9. In the sub category Data Label set the property Display Format to the option Percentage and you will be able to visualize the Pie Drilldown Chart (see Figure 4.180).

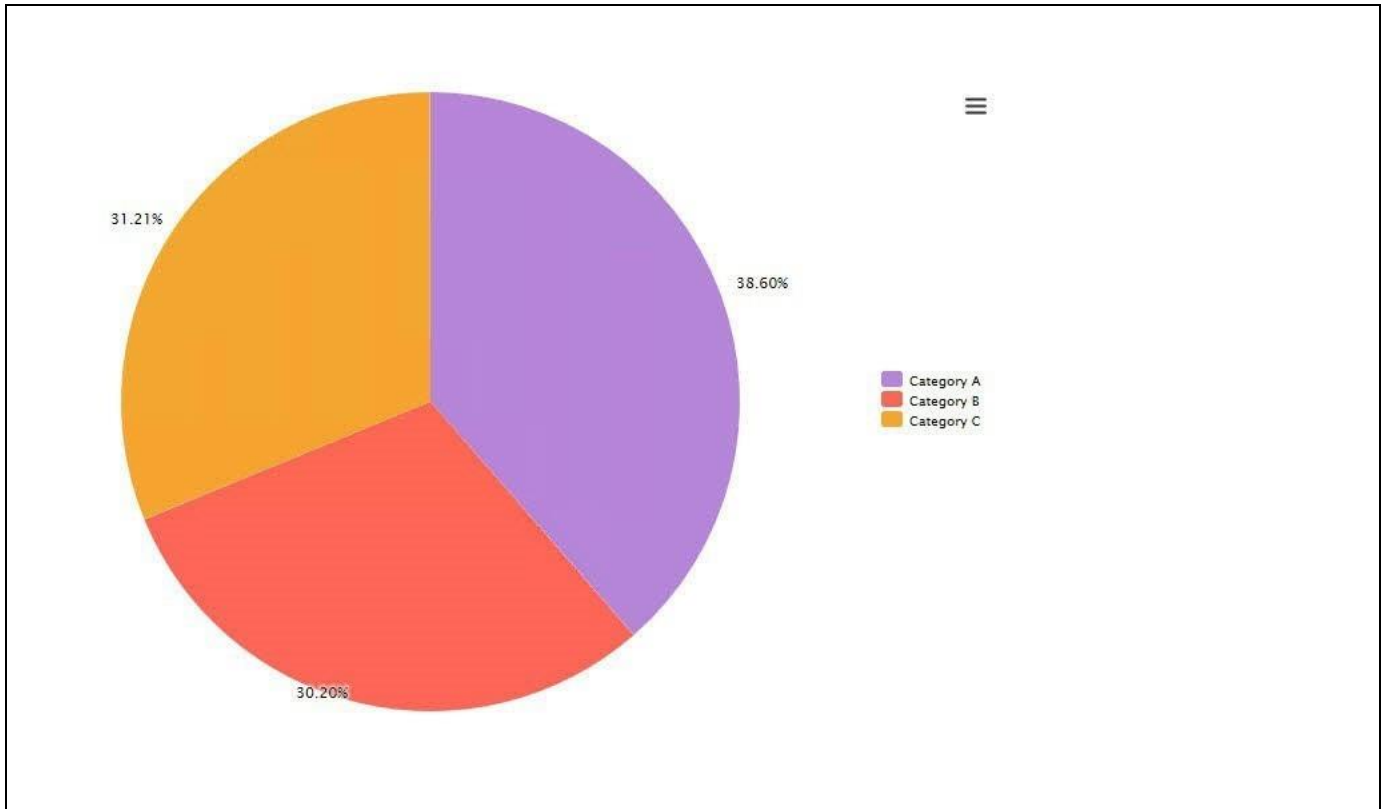


Figure 4.180: Pie Drilldown Chart

10. Now use a double-click on any of the slides, and the Pie Chart will get updated with the next level (see Figure 4.181).

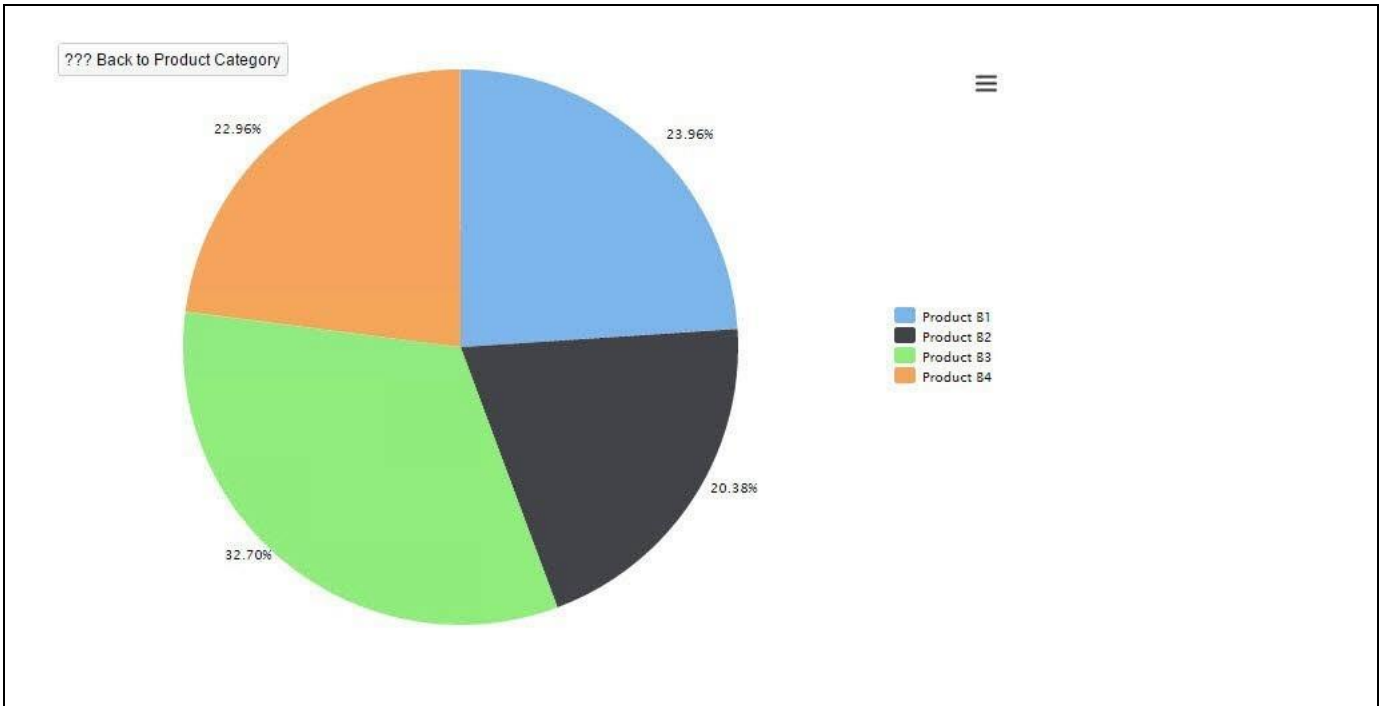


Figure 4.181: Pie Drilldown Chart

Figure 4.181 shows the Pie Chart with the next level Drill Down after you have clicked on a slice in the initial view. In regards to the number of Drill Down levels, there is no actual limit on the number of drill downs.

4.10.6 Spie Chart

A Spie Chart is an overloaded version of a Pie chart, where you can vary the height of each segment along with its width. Unlike Pie, Spie will take two measures, where one measure represents the slice's volume and other represents the slice's radius.

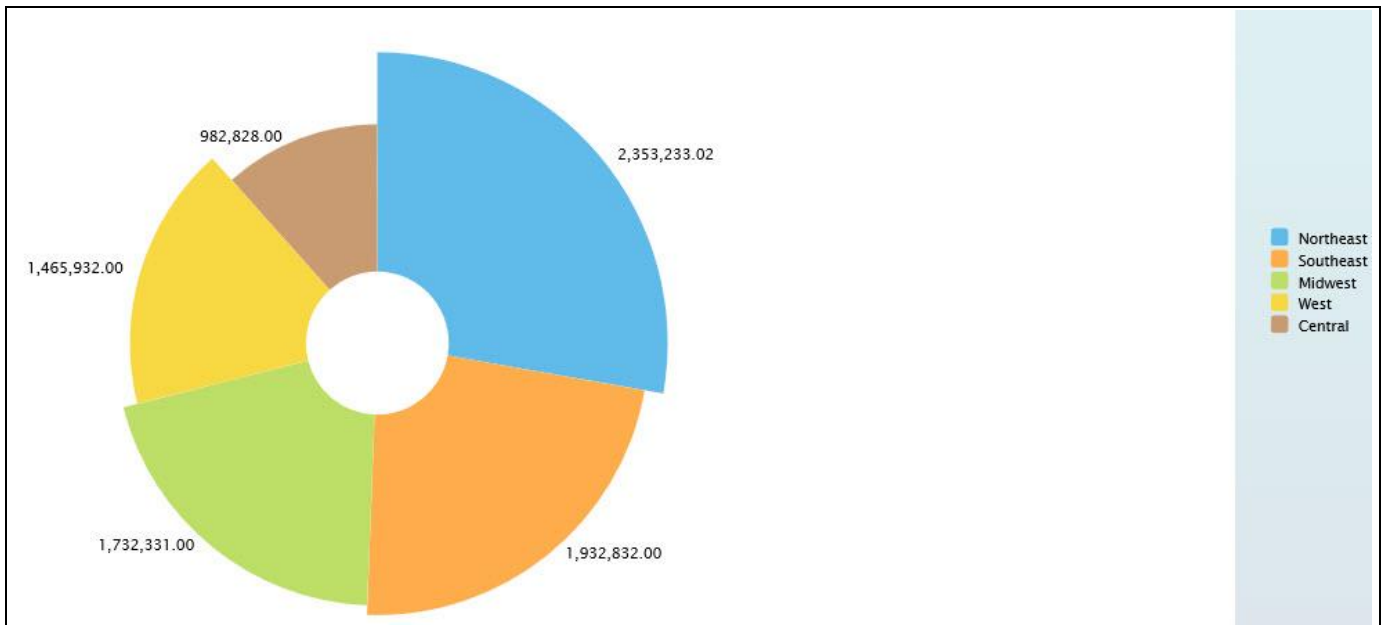


Figure 4.182: Spie Chart

4.10.6.1 Data Source Requirements for a Spie Chart

The minimum data source requirement for a Spie Chart is at least one dimension and one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Spie Chart.

4.10.6.2 How to use the Spie Chart?

In the following steps we will outline how you can setup a new Spie Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Spie Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows two measures - Order Quantity and Order Cost and two dimensions - Item Category and Item Subcategory.
3. Add a Spie Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Spie Chart.
5. Navigate to the Additional Properties of the chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.

7. Navigate to the category Data and to the sub category Data Series (see Figure 4.183).

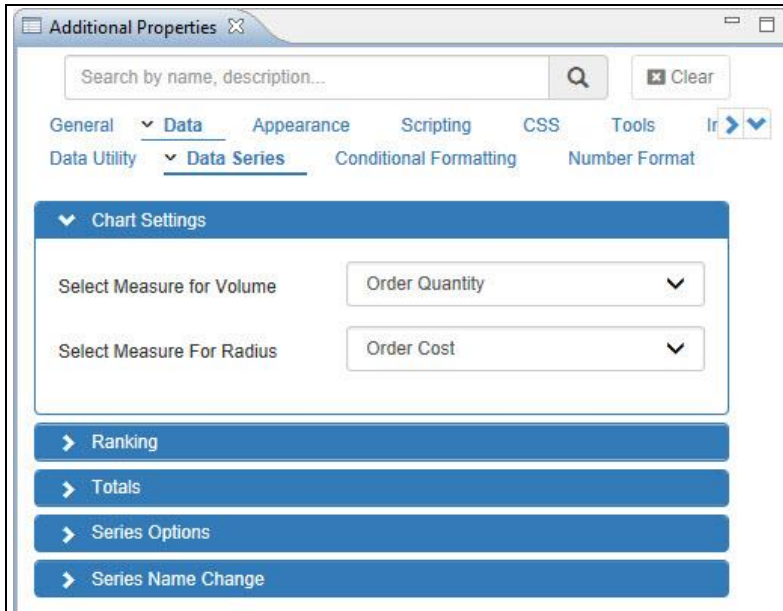


Figure 4.183: Category Data

8. In the area Chart Settings, set the property Select Measure for Volume to the option Order Quantity.
9. Set the property Select Measure for Radius to the option Order Cost.
10. Navigate to the category Appearance and to the sub category Chart (see Figure 4.184).

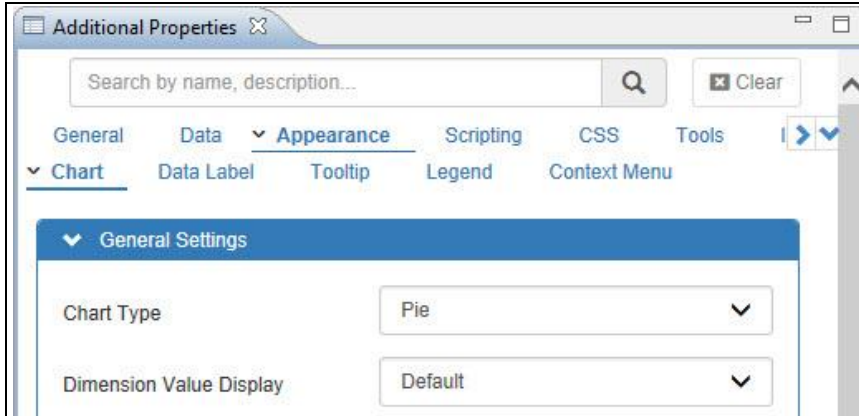


Figure 4.184: Category Appearance

11. In the area General Settings, select Chart Type to the option Pie. The other option is Donut.
12. Based on the above configuration you will be able to view the Spie Chart with the Measure Order Quantity representing the volume of the slice and the Measure Order Cost representing the radius of the slice (see Figure 4.185). You can use now the Additional Properties of the Spie Chart to customize the layout and look and feel.

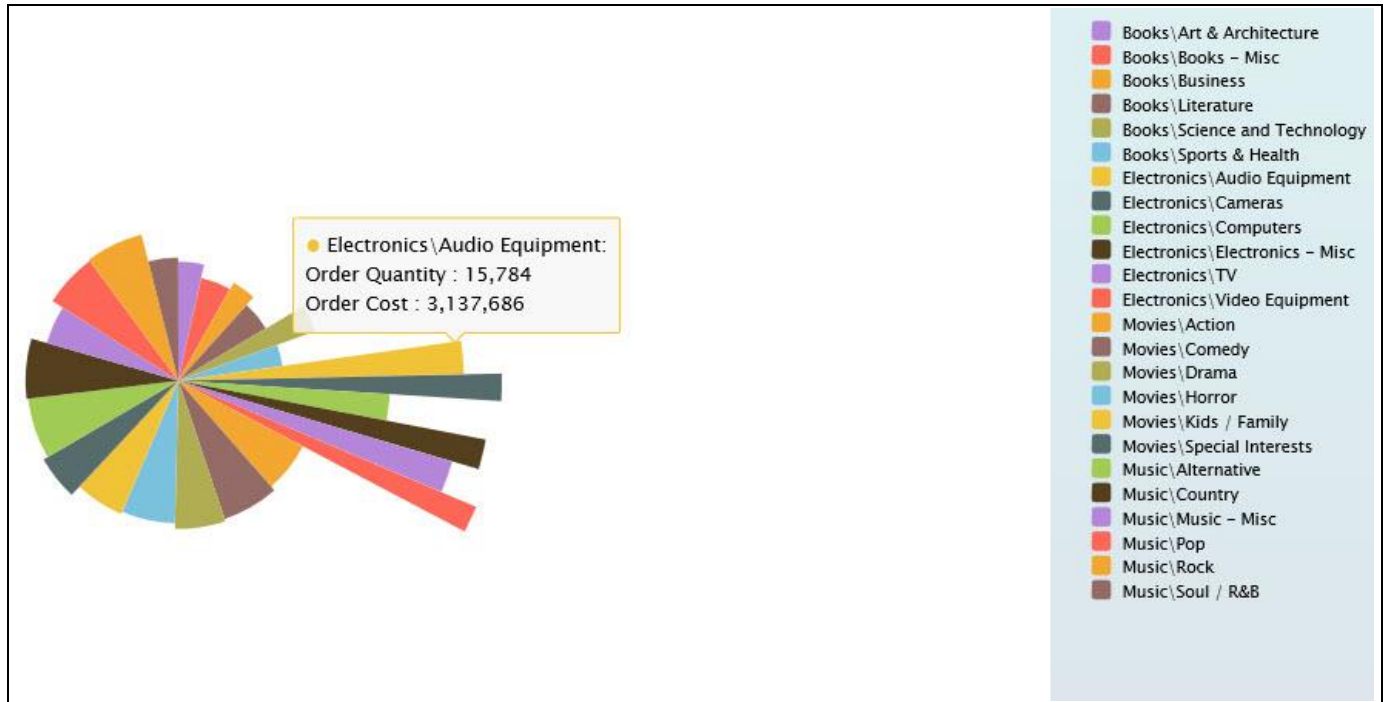


Figure 4.185: Spie Chart with two dimensions and two measures

4.10.7 Additional Properties of Pie Chart

In addition to the common properties of the charts, which are outlined in section 4.5, the pie charts also offer a set of additional properties which are outlined in the sections below.

4.10.7.1 Category Data

The category Data provides additional properties for the Pie Drilldown Charts as outlined below.

Sub category	Area	Property	Description
Drill Down	General Settings	Show Totals	This property allows you to show / hide totals for the chart itself. The totals will only be shown on the first view of the charts, but will not be shown on the next drill down levels.
		Total Node Placement	This property allows you to decide if the Total node should be placed before or after the members of the drill down.
		Show Parent Nodes on Drilldown	In case this property is activated, then the parent node will be included in the Drill Down chart in addition to the members from the next level.
		Parent Node Placement	This property allows you to decide if the parent node totals should be placed before or after the members of the drill down.
		On Click	Using the On Click property you can

Sub category	Area	Property	Description
			specify which functionality should be used when you click on an element of the data series in the chart. The available options are: Drilldown, Expand / Collapse, Select, None.
		On Double Click	Using the On Double-Click property you can specify which functionality should be used when you double-click on an element of the data series in the chart. The available options are: Drilldown, Expand / Collapse, Select, None.
		On CTRL	Using the On CTRL-Click property you can specify which functionality should be used when you press the CTRL Key and clicks on an element of the data series in the chart. The available options are: Drilldown, Expand / Collapse, Select, None.
	Hierarchy Drill Down	Enable Hierarchy Drill Down	This option allows you to enable / disable a Drill Down based on an active hierarchy in the data source.
		Include Root Level Nodes	Using this property you can include or exclude the root level nodes of an active hierarchy into the Drill Down chart. This option only impacts Drill Down charts using a hierarchy.
		Max. no. of Hierarchy Levels	Using this option you can define a maximum for a Drilldown chart using hierarchies. By specifying the maximum number of hierarchy levels you can limit the data volume, which you will be able to retrieve using the drilldown chart.

Table 4.17: Data

4.10.7.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Chart Outer Size	This property allows you to set the outer diameter of the chart.
		Slice Offset	This property allows you to configure the Offset by which a selected slice moves out from the center of the chart.
		Start Angle	This property allows you to define the angle in the pie chart for the first value.
	Drill Down	Drill Down Data Label Cursor	This property sets the type of the cursor. The options are Default, Pointer, Crosshair and Cell.

Sub category	Area	Property	Description
		Drill Down Button Horizontal Alignment	This property allows to configure the horizontal alignment of the Drilldown button.
		Drill Down Button Vertical Alignment	This property allows to configure the vertical alignment of the Drilldown button.
		Drilldown button Horizontal Offset	This property allows to specify the Horizontal Offset of the Drilldown button relative to its default alignment.
		Drilldown button Vertical Offset	This property allows to specify the Vertical Offset of the Drilldown button relative to its default alignment.
	3D	Depth	This property allows you the set the Depth for the chart.
		Y-Rotation	Set the angle of rotation of the chart with reference to the Y-Axis.
		X-Rotation	Set the angle of rotation of the chart with reference to the X-Axis.
Data Label		Distance	This property allows you to configure the Distance between the Data Label and the chart.
		Display Format	Here you can configure the Display Format for the value as part of the Data Label. The available options are: Percentage, Value, Value and Percentage.

Table 4.18: Appearance

4.10.8 Scripting in Pie Chart variants

All supported scripting functions for the Pie Charts are listed as part of the common scripting functions for charts listed in section 4.6.

4.11 Stacked Charts

This section discusses the features and properties of stacked visualizations which can display more than one data series.

4.11.1 Stacked Charts Overview

Stacked charts are used for visualizations where the individual members are to be compared against each other along with the column / area as a whole (as shown in Figure 4.186). The following stacked charts are included in the VBX suite:

- Stacked Area Chart
- Stacked Column Chart
- Stacked Bar Chart
- Stacked Percentage Column Chart
- Stacked Percentage Bar Chart
- Stacked and Grouped Column Chart

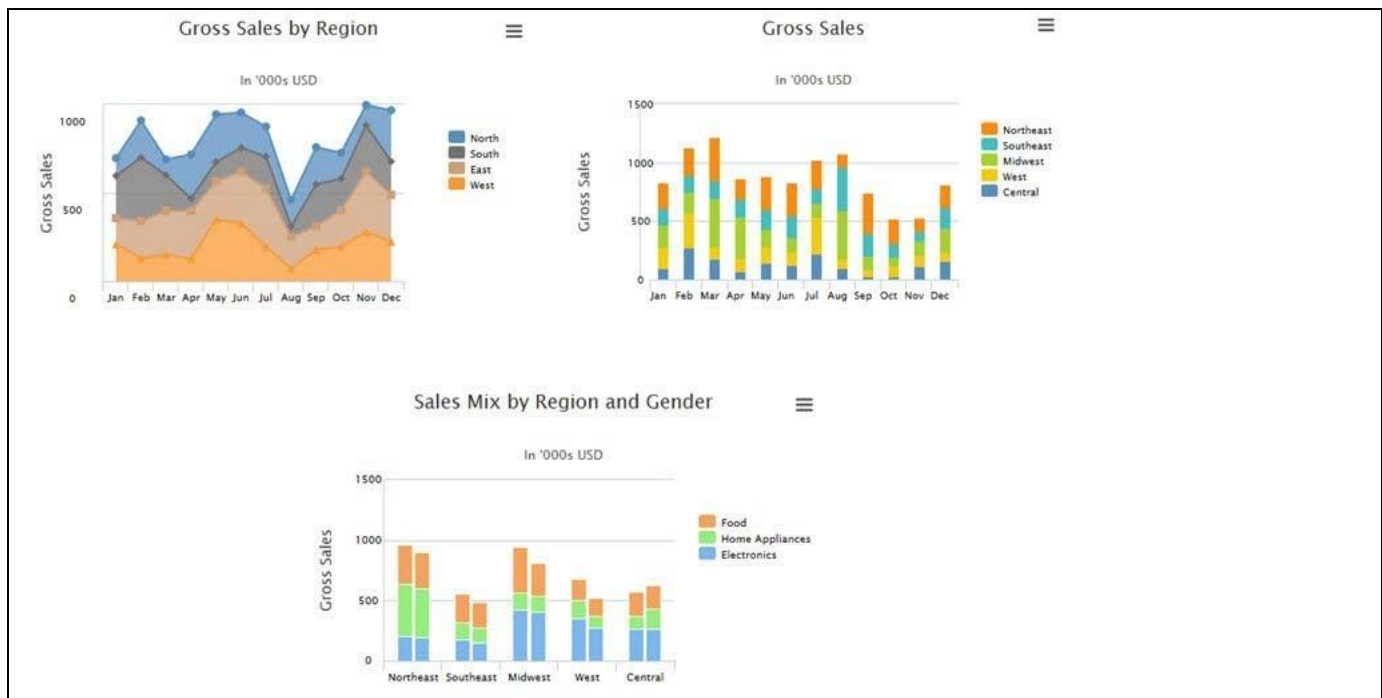


Figure 4.186: Stacked Charts

In the next sections we will provide details for a subset of all available stacked charts to outline the steps to use these chart types. We will outline the Stacked Column, Stacked Percentage Column, and the Stacked and Grouped Column Chart in more details. The Stacked Area and Stacked Bar charts are very similar to the Stacked Column chart type and you should be able to follow the steps even when using the Stacked Area or Stacked Bar chart type.

4.11.2 Stacked Column Chart

The Stacked Column Chart provides you with the option to visualize a measure along two dimensions, with one dimension being displayed on the X-Axis and the other dimension being used to stack the values (see Figure 4.187).

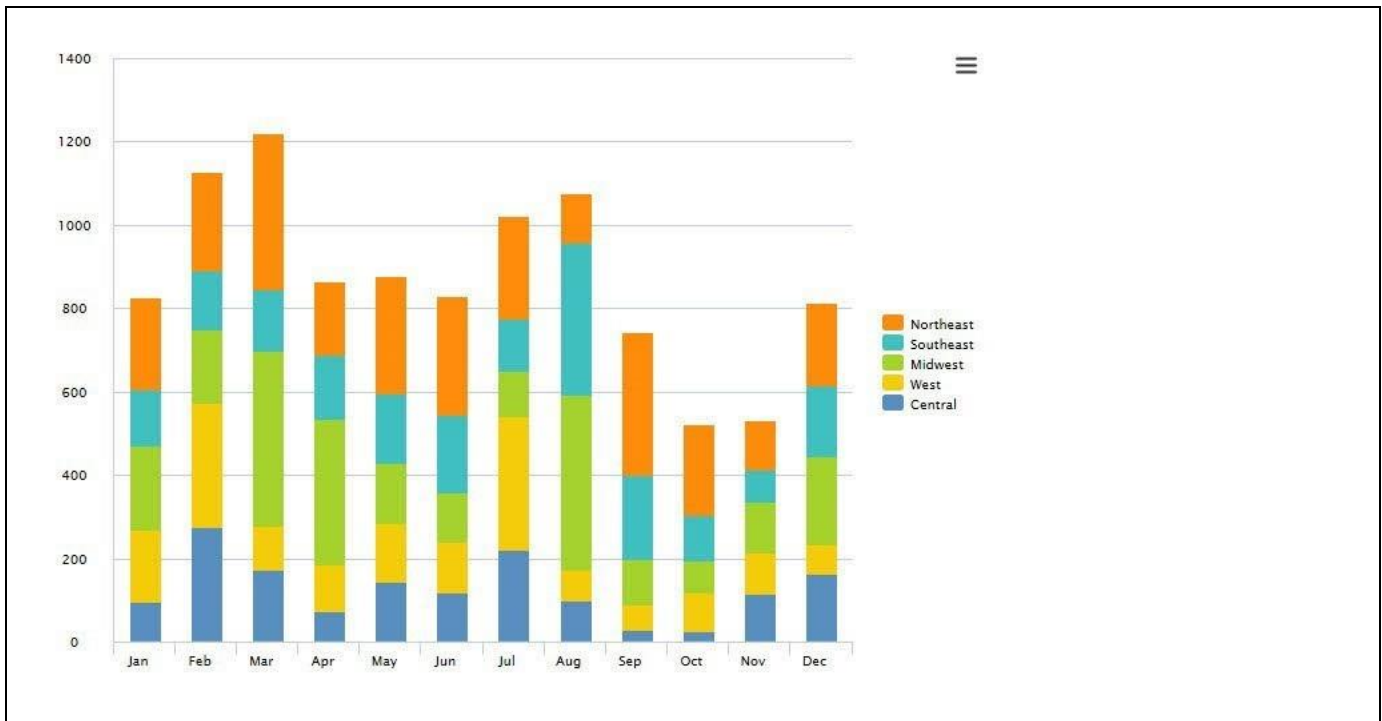


Figure 4.187: Stacked Column Chart

Figure 4.187 shows a Stacked Column Chart displaying the measure value along a dimension for the Calendar Month as well as using dimension Region to stack the values for each column.

4.11.2.1 Data Source Requirements for a Stacked Column Chart

The minimum data source requirement for a Stacked Column Chart are at least one dimensions and one measure. In case the data source does contain additional dimensions or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the chart or use the complete data set as part of the visualization. A Stacked Column Chart can stack either the values by a dimension or stack measure values, which depends on the data source assigned to the chart.

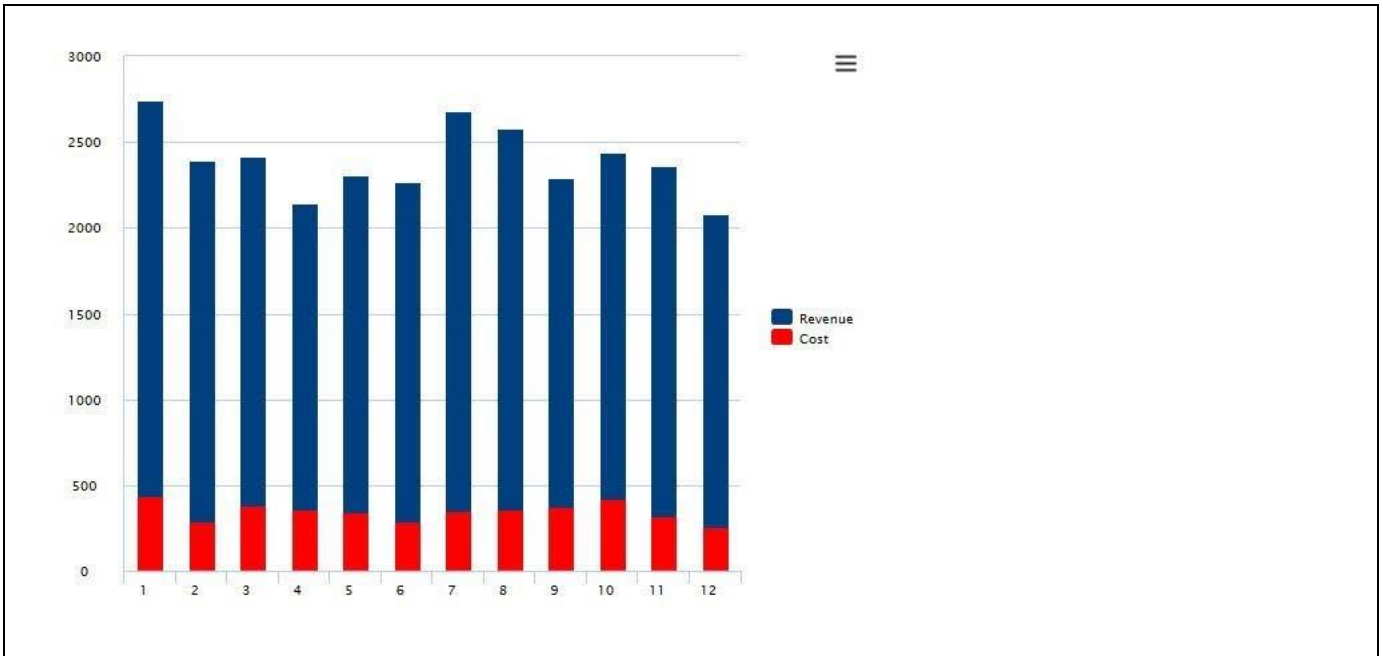


Figure 4.188: Simple Stacked Chart

Figure 4.188 shows a Stacked Column Chart with one dimension and two measures. In this scenario the dimension is being used for the X-Axis of the chart and the two measures are being stacked.

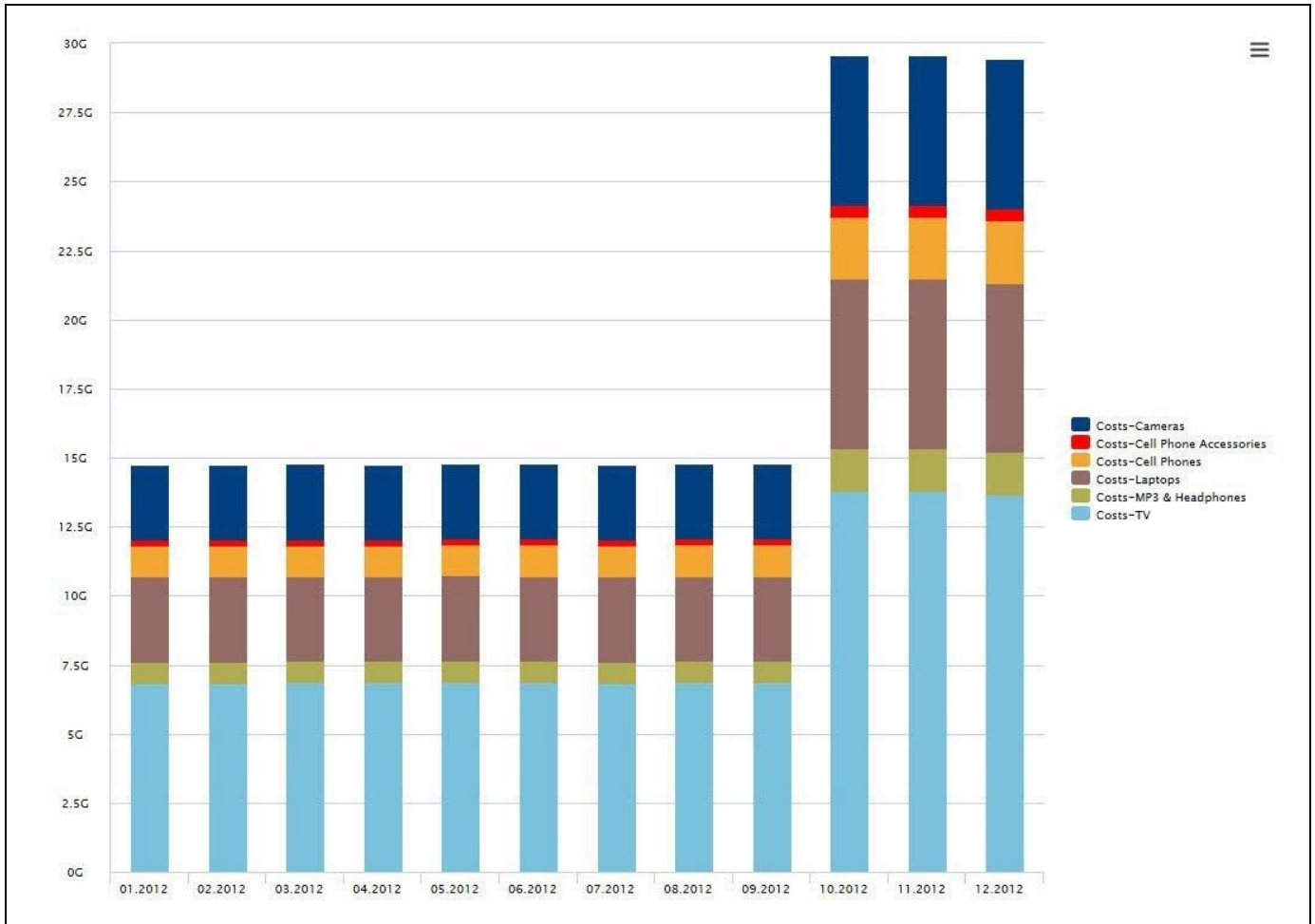


Figure 4.189: Stacked Chart

Figure 4.189 shows another Stacked Column Chart, in this example we have one dimension Month in the Rows, one Dimension Product in the Columns, and a measure Costs in the Columns.

You can use the following set of rules for the data structure for a Stacked Column Chart:

- Each Dimension placed into the Rows of the Initial View of the Data Source will be used for the X-Axis of the chart.
- Each Dimension placed into the Columns of the Initial View of the Data source will be used for the stacking of the chart.

4.11.2.2 How to use the Stacked Column Chart?

In the following steps we will outline how you can setup a new Stacked Column Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project. For our example we will assume that we have a data source with two dimensions – dimension Month and dimension Product – as well as one measures – Revenue. In the initial View of the data source we placed the dimension Month into the Rows, dimension Product is placed into the columns, and measure Revenue is placed into the Columns.

You can follow the steps below to configure the Stacked Column Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows measures Revenue and along dimension Month and Product.
3. Add a Stacked Column Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the chart.
5. Navigate to the Additional Properties of the chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Chart.
8. In the area General Settings set the Select Chart Type to the value Stacked Column (see Figure 4.190).

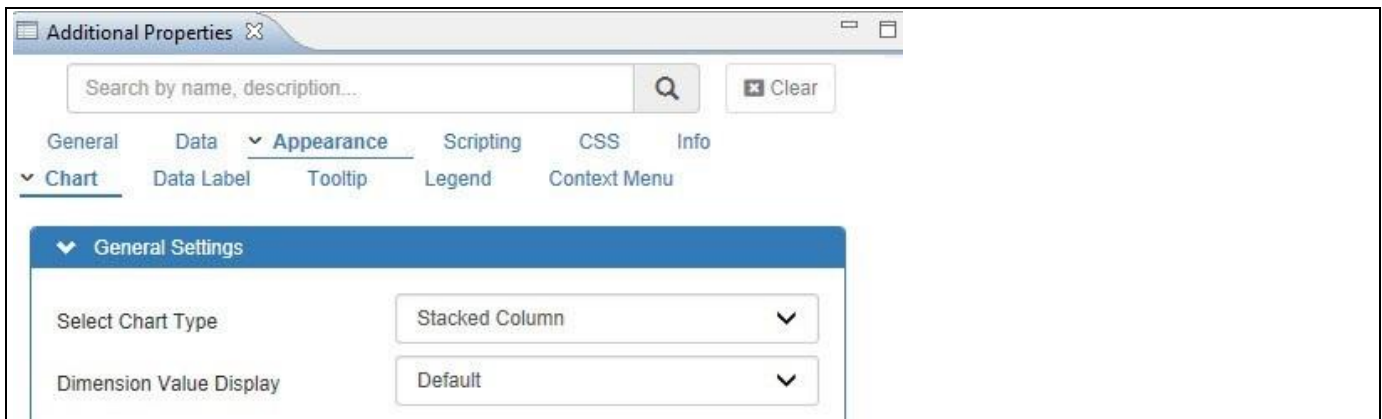


Figure 4.190: Category Appearance

9. Navigate to the category Appearance and to the sub category Data Label.
10. Activate the option Enable Data Labels.
11. In the sub category Data Label activate the property Data Labels in Percent and you will be able to visualize the Stacked Column Chart (see Figure 4.191).

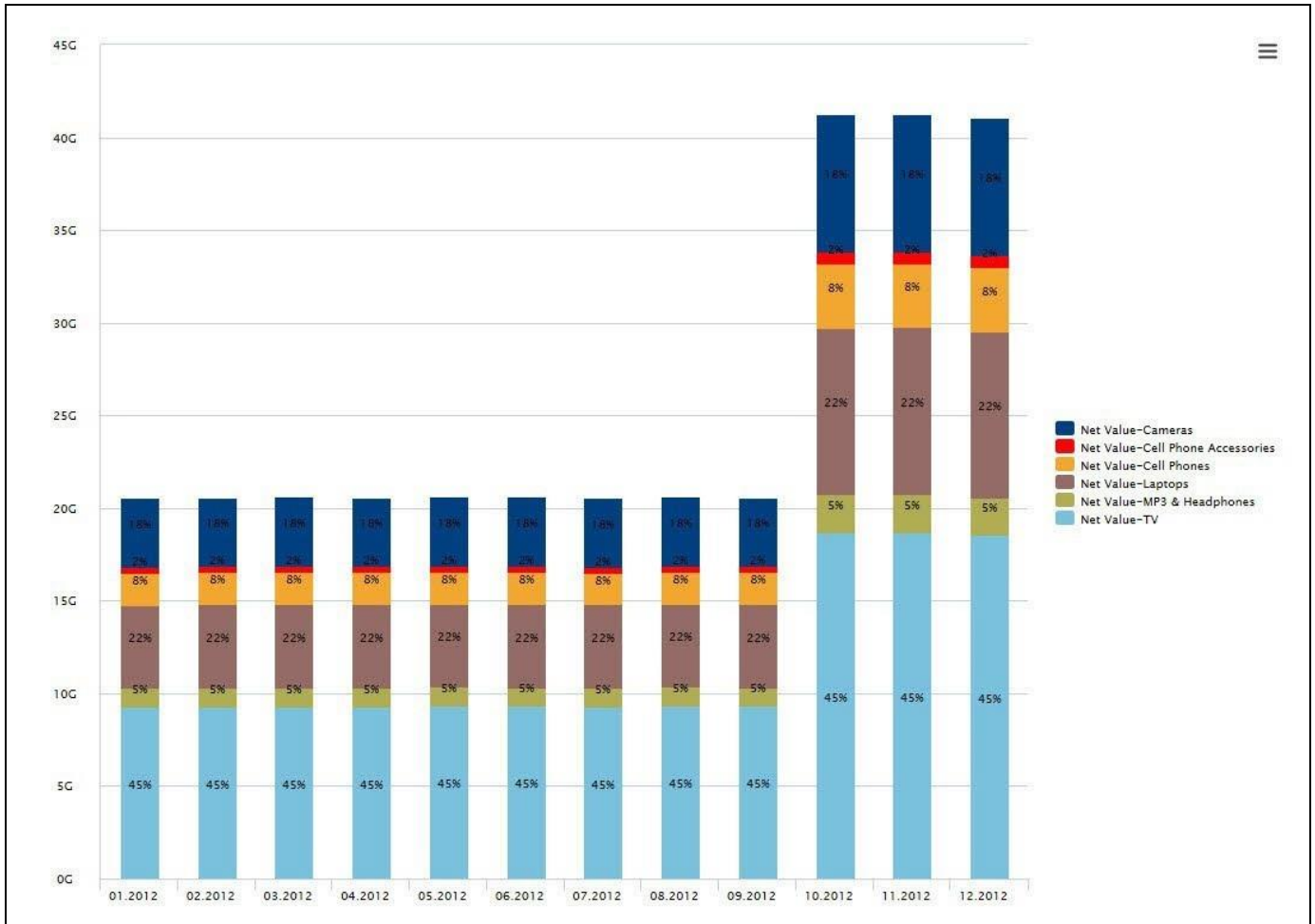


Figure 4.191: Stacked Column Chart

Figure 4.191 shows the result of our example with the values of dimension Month showing on the X-Axis and the members of dimension Product are used to stack up the values of the measure.

4.11.3 Stacked Percentage Column Chart

The Stacked Percentage Column Chart is very similar to the previously outlined Stacked Column Chart, with the difference being that the values are shown on a percentage scale (see Figure 4.192).

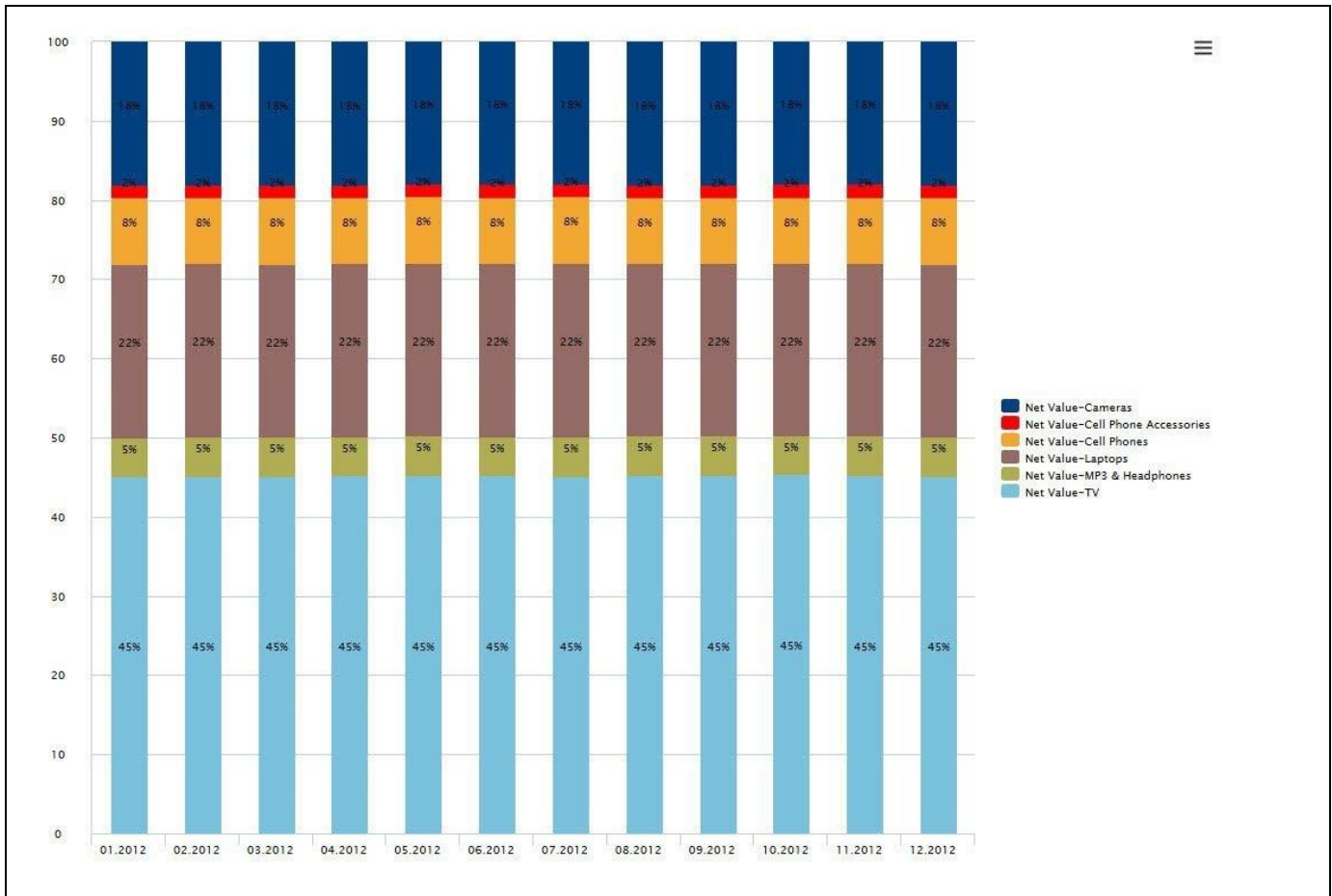


Figure 4.192: Stacked Percentage Column Chart

Figure 4.192 shows a Stacked Percentage Column Chart displaying the measure value along a dimension for the Calendar Month on the X-Axis and dimension Product as the dimension to stack the measure value.

4.11.3.1 Data Source Requirements for a Stacked Percentage Column Chart

The minimum data source requirement for a Stacked Percentage Column Chart are at least one dimension and one measure. In case the data source does contain additional dimensions or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the chart or use the complete data set as part of the visualization. A Stacked Percentage Column Chart can stack either the values by a dimension or stack measure values, which depends on the data source assigned to the chart.

You can use the following set of rules for the data structure for a Stacked Percentage Column Chart:

- Each Dimension placed into the Rows of the Initial View of the Data Source will be used for the X-Axis of the chart.
- Each Dimension placed into the Columns of the Initial View of the Data source will be used for the stacking of the chart.

4.11.3.2 How to use the Stacked Percentage Column Chart?

In the following steps we will outline how you can setup a new Stacked Column Percentage Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project. For our example we will assume that we have a data source with two dimensions – dimension Month and dimension Product – as well as one measure – Revenue. In the initial View of the data source we placed the dimension Month into the Rows, dimension Product is placed into the columns, and measure Revenue is placed into the Columns.

You can follow the steps below to configure the Stacked Percentage Column Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows measures Revenue along dimension Month and Product.
3. Add a Stacked Column Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the chart.
5. Navigate to the Additional Properties of the chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Chart.
8. In the area General Settings set the Select Chart Type to the value Stacked Percentage Column and you will be able to visualize the Stacked Percentage Column Chart (see Figure 4.192).

4.11.4 Stacked and Grouped Column Chart

The Stacked and Grouped Column Chart allows you to not only stack values for a specific dimension but to also group values along a second dimension, so in total the chart allows you to visualize the information of three dimensions.

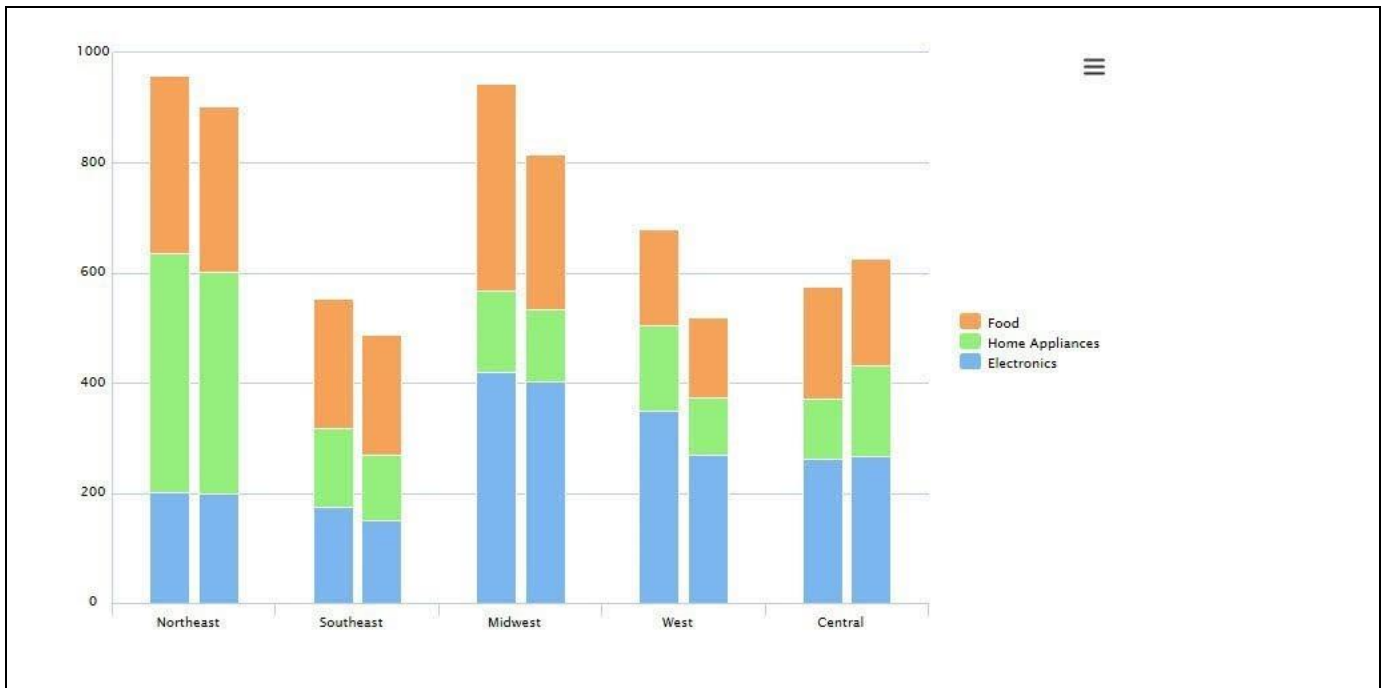


Figure 4.193: Stacked and Grouped Column Chart

Figure 4.193 shows a Stacked and Grouped Column Chart visualizing dimension Region on the X-Axis and stacking up the values for the different products – Food, Home Appliances, and Electronics – for two groups.

4.11.4.1 Data Source Requirements for a Stacked and Grouped Column Chart

The minimum data source requirement for a Stacked and Grouped Column Chart are at least one dimension in the Rows, one dimension in the Columns, and one measure in the initial view of the data source. In case the data source does contain additional dimensions or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the chart or use the complete data set as part of the visualization.

You can use the following set of rules for the data structure for a Stacked and Grouped Column Chart:

- Each Dimension placed into the Rows of the Initial View of the Data Source will be used for the X-Axis of the chart.
- Each dimension placed into the Columns of the Initial View of the Data Source will be used to stack items inside each group.
- Measures will be used to group items together.

4.11.4.2 How to use the Stacked and Grouped Column Chart?

In the following steps we will outline how you can setup a new Stacked and Grouped Column Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project. For our example we will assume that we have a data source with dimension Month in the Rows, dimension Product Category in the Columns, and dimension Product Group as second dimension in the Columns as well as measure Net Value in the Columns.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project.
3. Add a Stacked and Grouped Column Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the chart.
5. Navigate to the Additional Properties of the chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Chart.
8. In the area General Settings set the Select Chart Type to the value Stacked Grouped Column and you will be able to visualize the Stacked and Grouped Column Chart (see Figure 4.194).

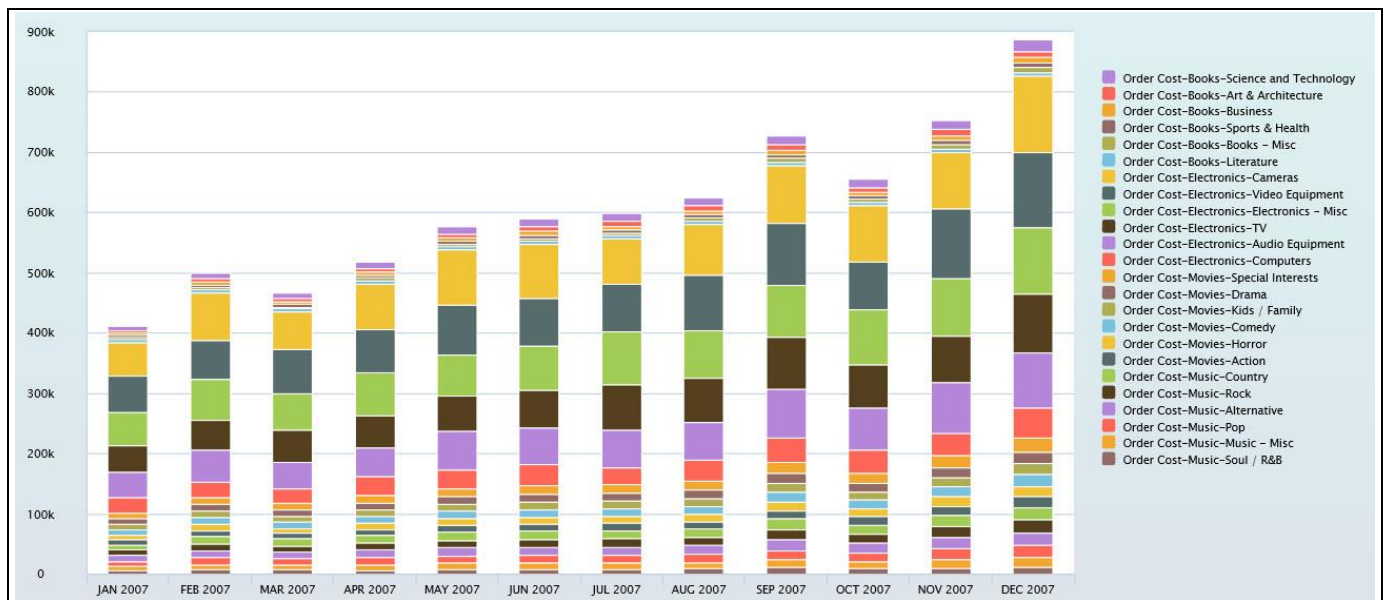


Figure 4.194: Stacked and Grouped Column Chart

Figure 4.194 shows dimension Month along the X-Axis, dimensions Item Category and Item Sub category are being used to stack items inside each group and measure Order Cost is being used to group items together.

4.11.5 Stream Graph

Stream Graph is a variation of a Stacked Area Chart, but instead of plotting values against a fixed, straight axis, a Stream Graph has values displaced around a varying central baseline. Stream Graph displays the changes in data over time of different categories with the help of flowing, organic shapes that somewhat resemble a river-like stream.

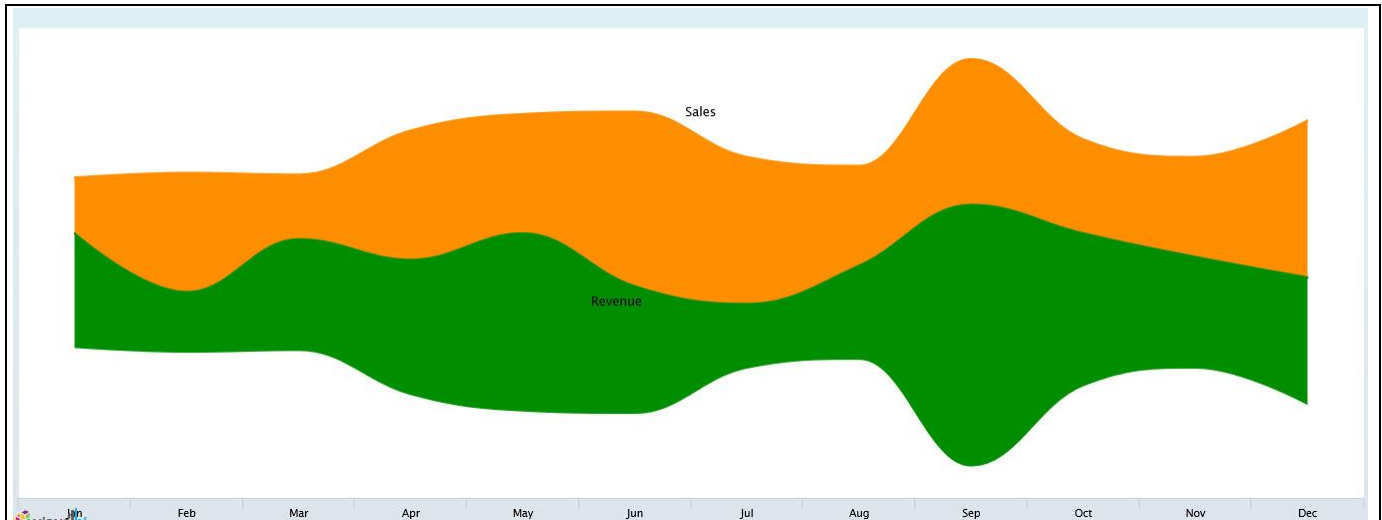


Figure 4.195: Sample Stream Graph

4.11.5.1 Data Source Requirements for a Stream Graph

The minimum data source requirement for a Stream Graph is one dimension and one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Stream Graph.

4.11.5.2 How to use the Stream Graph?

In the following steps we will outline how you can setup a new Stream Graph in your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Stream Graph:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows four measures – Order Cost, Discount Amount, Order Quantity and Order Amount and two Dimensions – Item Category and Item Subcategory.
3. Add a Stream Graph from the VBX Charts to your SAP BusinessObjects Design Studio /SAP Lumira Designer project.
4. Assign the data source to the Stream Graph.
5. The Stream Graph will plot the information from the assigned data source (see Figure 4.196).

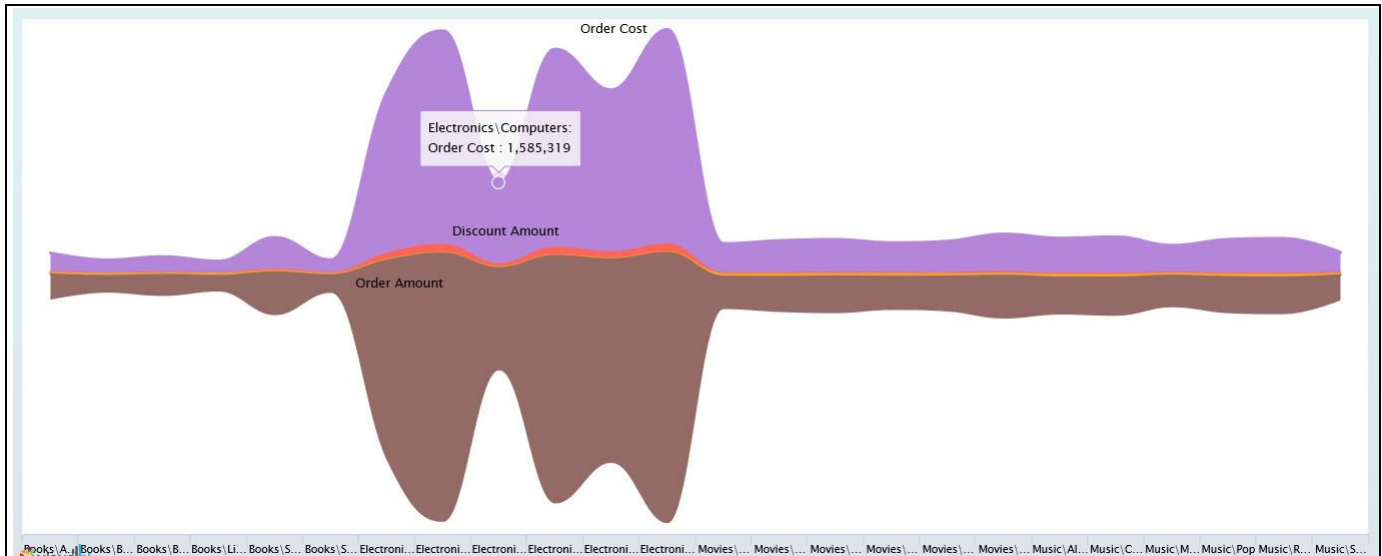


Figure 4.196: Stream Graph

Figure 4.196 shows the basic Stream Graph for four measures and two dimensions. Here you can observe that the Measure Order Cost for the Dimension Item Subcategory Computers is 1,585,319 where the value is shown through the central baseline instead of plotting values against the axes. You can use now the Additional Properties to customize the layout and look and feel.

4.11.6 Additional Properties of Stacked Charts

In addition to supporting the standard set of Additional Properties outlined in section 4.5, the stacked charts also provide the Additional Properties for the X-Axis and Y-Axis outlined in section 4.5.6.1.

4.11.7 Scripting in Stacked Charts

All supported scripting functions for the Stacked Charts are listed as part of the common scripting functions for charts listed in section 4.6.

4.12 Gauges

As part of the VBX Suite of charts, you also have the option to leverage the gauges as part of your next dashboarding project using SAP BusinessObjects Design Studio/SAP Lumira Designer.

4.12.1 Gauges Overview

A Gauge is a simple visualization used to display a single or two measure values (see Figure 4.197). The following are the gauges that are available in the VBX suite:

- Solid Gauge
- Angular Gauge
- Advanced Gauge
- Linear Gauge

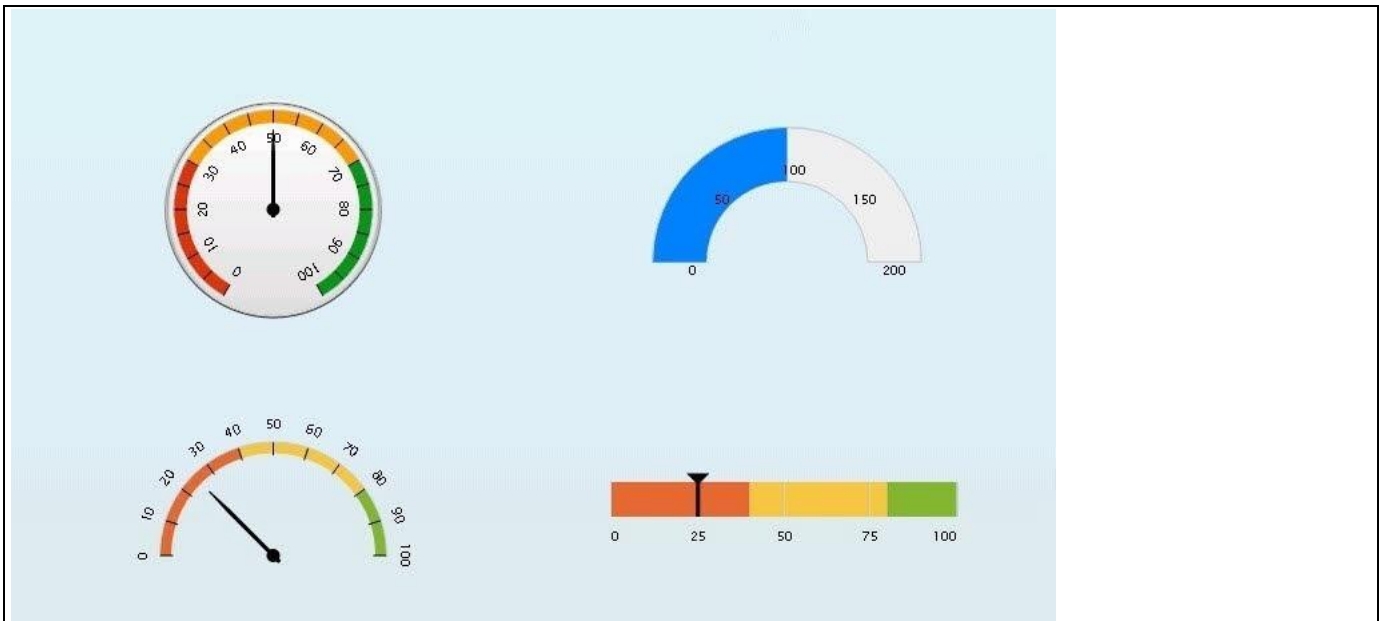


Figure 4.197: Gauges

4.12.2 Solid Gauge

The Solid Gauge allows you to visualize a single measure value in form of a semi-circle gauge, as shown in Figure 4.198.

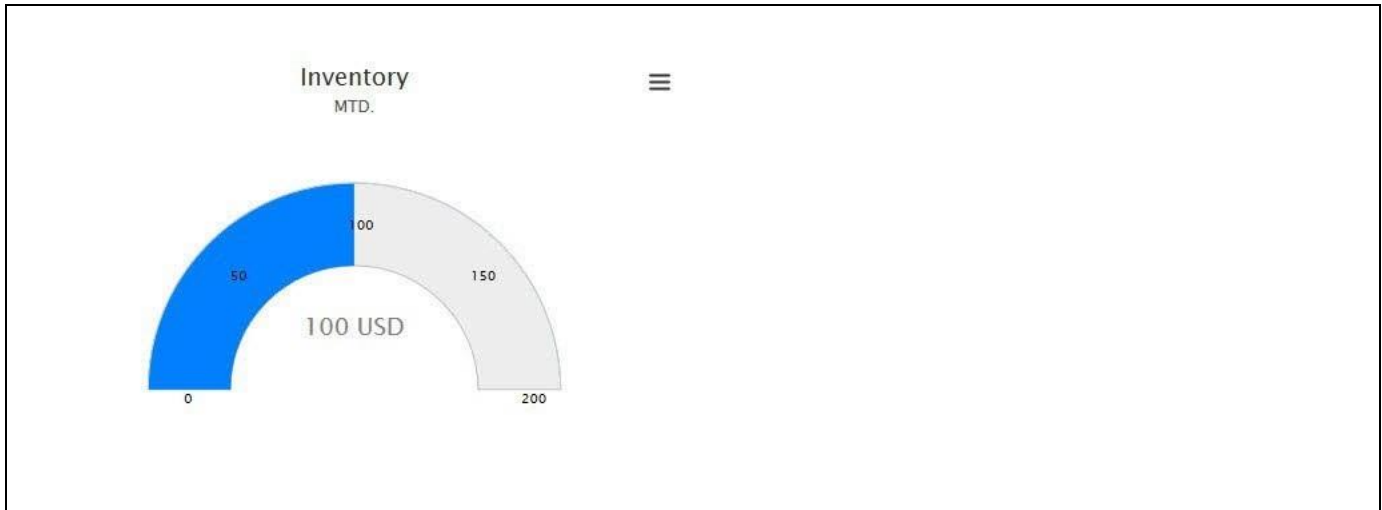


Figure 4.198: Solid Gauge

4.12.2.1 Data Source Requirements for a Solid Gauge

The minimum data source requirement for a Solid Gauge is to define a Data Cell Selection, meaning to assign a single cell value to the Solid Gauge.

4.12.2.2 How to use the Solid Gauge?

In the following steps we will outline how you can setup a new Solid Gauge as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Solid Gauge:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows measure Revenue along dimension Product.
3. Add a Solid Gauge from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Solid Gauge.
5. Navigate to the Standard Properties of the Solid Gauge.
6. In case the Standard Properties are not shown, use the menu View • Standard Properties to activate the display of the Standard Properties (see Figure 4.199).

Property	Value
General	
Name	SOLIDGAUGE_1
Type	com.visualbi.charts.SolidGauge
Vendor	VisualBI Solutions
Visible	true
Data Binding	
Data Source	DS_1
Data Selection	
Display	
CSS Class	
Layout	
Top Margin	564
Left Margin	281
Bottom Margin	auto
Right Margin	auto
Width	500
Height	300

Figure 4.199: Standard Properties

7. Select the property Data Selection.
8. Use the button on the right hand side to open the Data Selection dialog.
9. In the next dialog you have the option to select a single cell from the overall data set (see Figure 4.200).

Select Data						
Select a single data cell from the table below or enter a selection expression into the input field. You can either select a data cell or toggle members to change the effective selection.						
Data Source:	DS_5			Show	Clear	
	Profit	Costs	Net Value	Open order quantity	Open order stat curr	Pr
AUDIO MP3 & Headphones	\$ 3,629,472,988.09	\$ 11,575,468,218.91	\$ 15,204,941,207.00	7,541,387 PC	\$ 1,024,994,693.00	
CAMERA Cameras	\$ 14,919,610,226.08	\$ 40,689,079,659.92	\$ 55,608,689,886.00	6,792,357 PC	\$ 3,754,295,593.00	
COMPUTER Laptops	\$ 21,409,509,582.38	\$ 46,077,416,281.62	\$ 67,486,925,864.00	6,785,091 PC	\$ 4,552,773,459.00	
PHONE01 Cell Phones	\$ 9,029,020,802.52	\$ 16,883,132,311.48	\$ 25,912,153,114.00	9,075,856 PC	\$ 1,752,710,764.00	
PHONE02 Cell Phone Accessories	\$ 1,667,399,715.63	\$ 3,235,026,247.37	\$ 4,902,425,963.00	6,033,761 PC	\$ 330,207,681.00	
TV TV	\$ 36,794,685,256.13	\$ 103,007,931,334.87	\$ 139,802,616,591.00	9,065,588 PC	\$ 9,432,499,112.00	

Figure 4.200: Data Selection

10. Select a single cell.
11. Click OK to close the dialog.

Your Gauge should now show the assigned value as part of the value axis.

4.12.3 Angular Gauge

The Angular Gauge also you to visualize a single measure value, but provides a different look and feel – as shown in Figure 4.201.

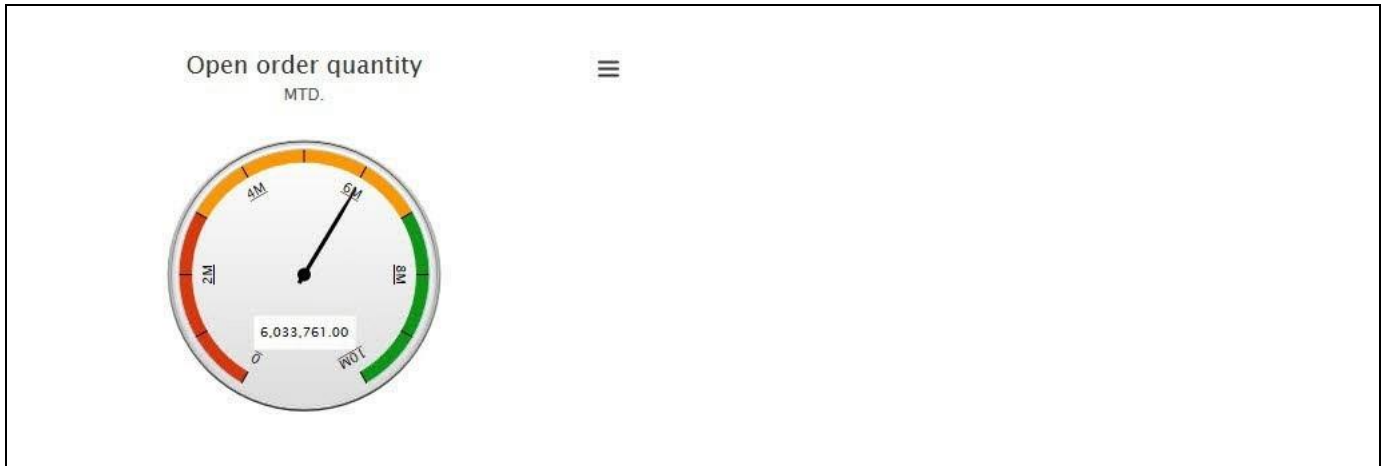


Figure 4.201: Angular Gauge

4.12.3.1 Data Source Requirements for a Angular Gauge

The minimum data source requirement for an Angular Gauge is to define a Data Cell Selection, meaning to assign a single cell value to the Angular Gauge.

4.12.3.2 How to use the Angular Gauge?

In the following steps we will outline how you can setup a new Angular Gauge as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Solid Gauge:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows measure Revenue along dimension Product.
3. Add an Angular Gauge from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Angular Gauge.
5. Navigate to the Standard Properties of the Angular Gauge.
6. In case the Standard Properties are not shown, use the menu View • Standard Properties to activate the display of the Standard Properties (see Figure 4.199).
7. Select the property Data Selection.
8. Use the button on the right hand side to open the Data Selection dialog.
9. In the next dialog you have the option to select a single cell from the overall data set (see Figure 4.200).
10. Select a single cell.
11. Click OK to close the dialog.
12. After assigning the single cell to the Gauge you should now be able to see the assigned value on the value axis.

4.12.4 Advanced Gauge

The Advanced Gauge allows you to visualize up to two measure values. The Advanced Gauge will be displayed in the form of a single gauge with two scales based on the configuration of the additional properties for two measure values.

4.12.4.1 Data Source Requirements for an Advanced Gauge

The minimum data source requirement for an Advanced Gauge is to define a Data Cell Selection, meaning to assign a single cell value to the Advanced Gauge for each value you would like to display as part of the gauge.

4.12.4.2 How to use the Advanced Gauge?

In the following steps we will outline how you can setup a new Advanced Gauge as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Advanced Gauge:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows one measure - Sales Amount - and one dimension Product.
3. Add an Advanced Gauge from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Advanced Gauge.
5. Navigate to the Additional Properties of the Advanced Gauge.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Data Series and to the area Data Value in the Additional Properties of the Advanced Gauge. For our example, set the property Number of Data Values to the option Double, so that we can assign two values to the gauge (see Figure 4.202).
8. Now for Data Value 1, enter the name for the property Data Series Name (see Figure 4.202) which would be displayed along with the selected data value in the form of a tool tip for the dial.
9. The property Data Value Type has two types Static and Dynamic. For our example, set the property Data Value type to the option Dynamic.
10. When the property Data Value Type is selected as “dynamic”, you have the option to select a single cell for each data value from the overall data set. Click the button to set the value for Data Value 1.

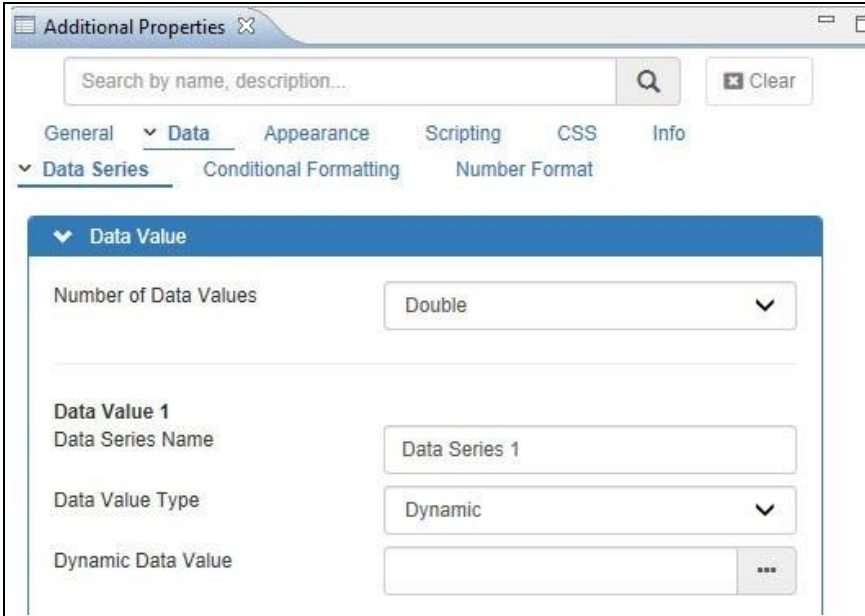


Figure 4.202: Category Data – Data Value 1

11. Once clicked, the Select Data dialog opens and you can select the measure for Data Value 1 (see Figure 4.203)

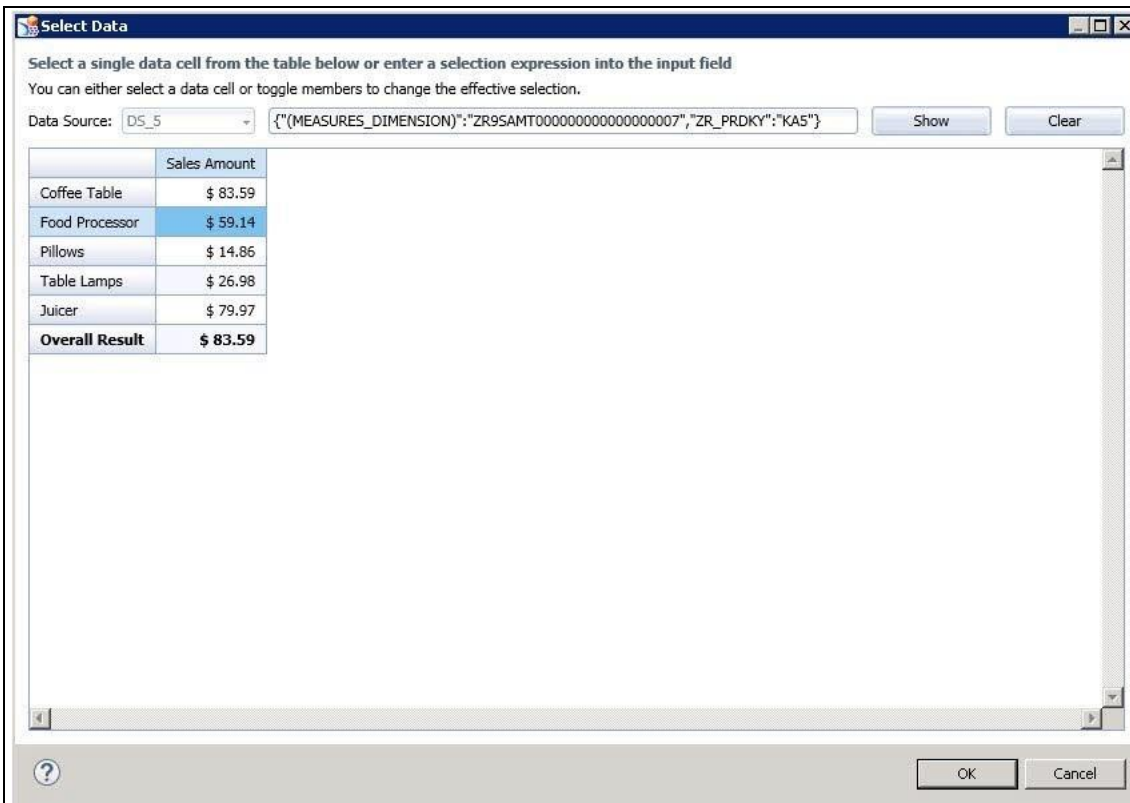


Figure 4.203: Data Selection for Data Value 1

12. Click OK to close the Select Data dialog.
13. Now the dynamic data value is selected for Data Value 1 (see Figure 4.204).

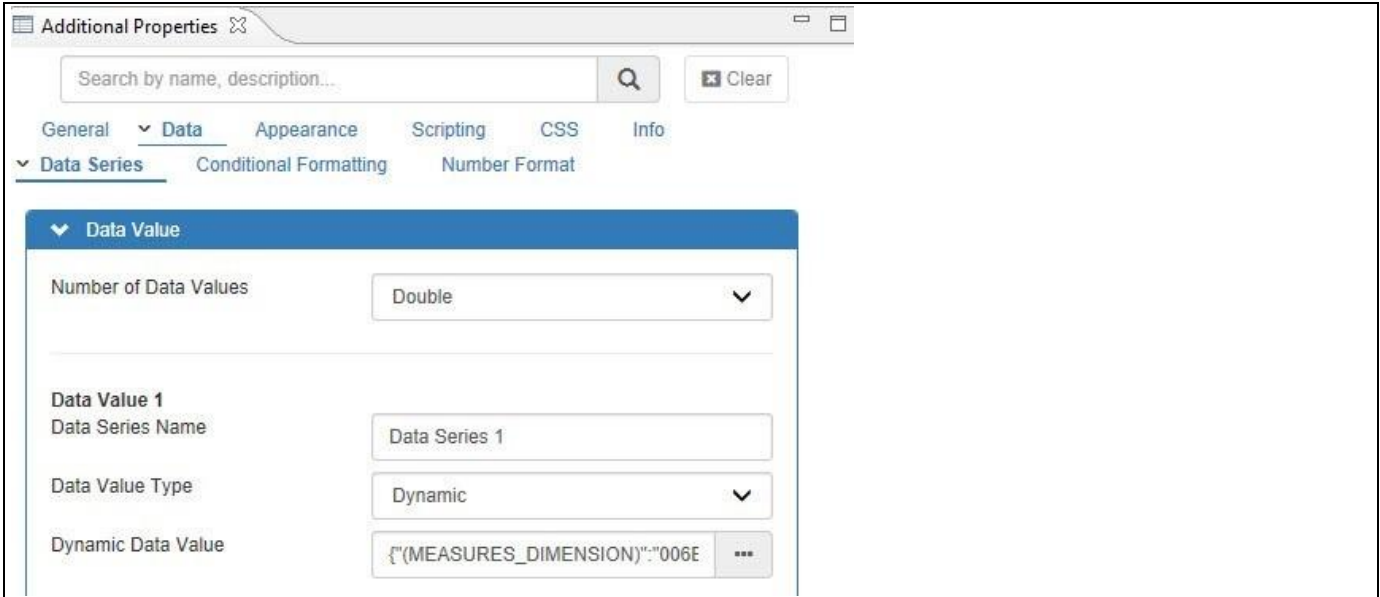


Figure 4.204: Category Data – Data Value 1

14. Now for Data Value 2, enter the name for the property Data Series Name (see Figure 4.205).
15. The property Data Value Type has two types Static and Dynamic. For our example, set the property Data Value type to the option Dynamic.
16. When the property Data Value Type is selected as “dynamic”, you have the option to select a single cell for each data value from the overall data set. Click the button to set the value for Data Value 2.

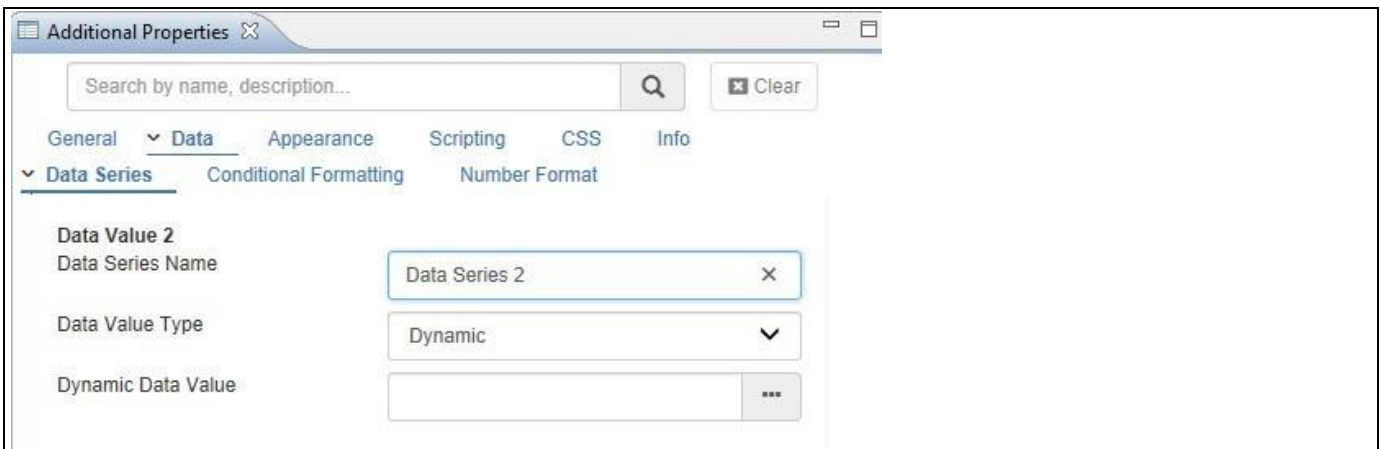


Figure 4.205: Category Data – Data Value 2

17. Once clicked, the Select Data dialog opens and you can select the measure for Data Value 2 (see Figure 4.206)

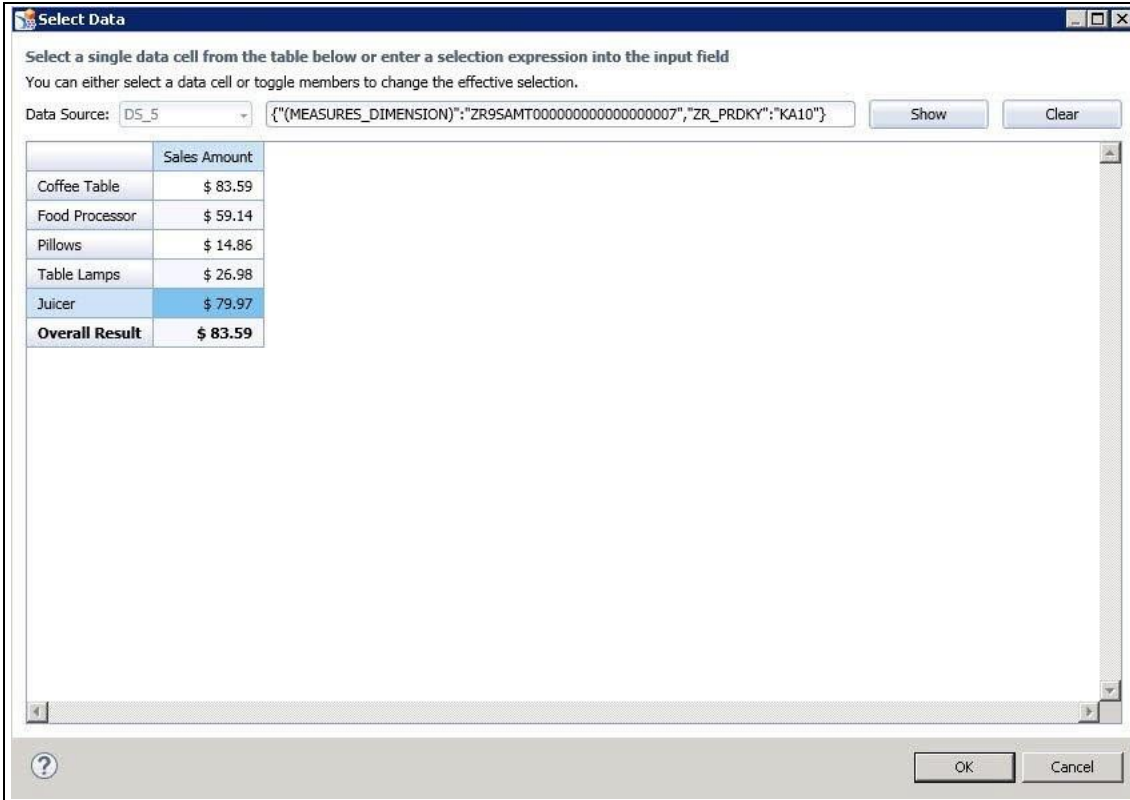


Figure 4.206: Data Selection for Data Value 2

18. Click OK to close the Select Data dialog.
19. Now the dynamic data value is selected for Data Value 2 (see Figure 4.207).

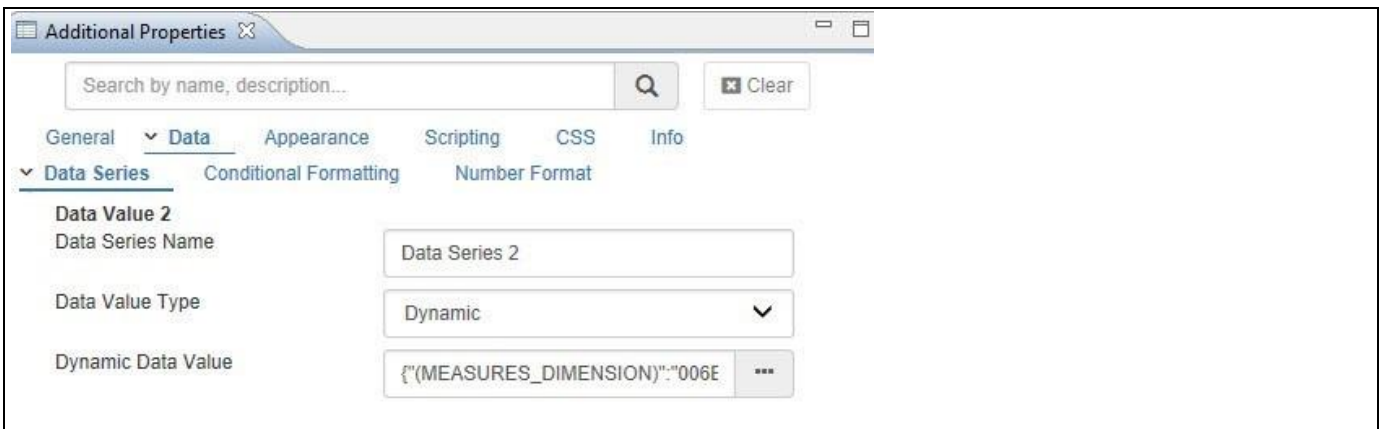


Figure 4.207: Category Data – Data Value 2

20. Navigate to the category Data and to the sub category Data Series in the Additional Properties of the Advanced Gauge. In the area Maximum and Minimum you can configure the Maximum and Minimum values for the scale displaying Data Value 1 (see Figure 4.208)

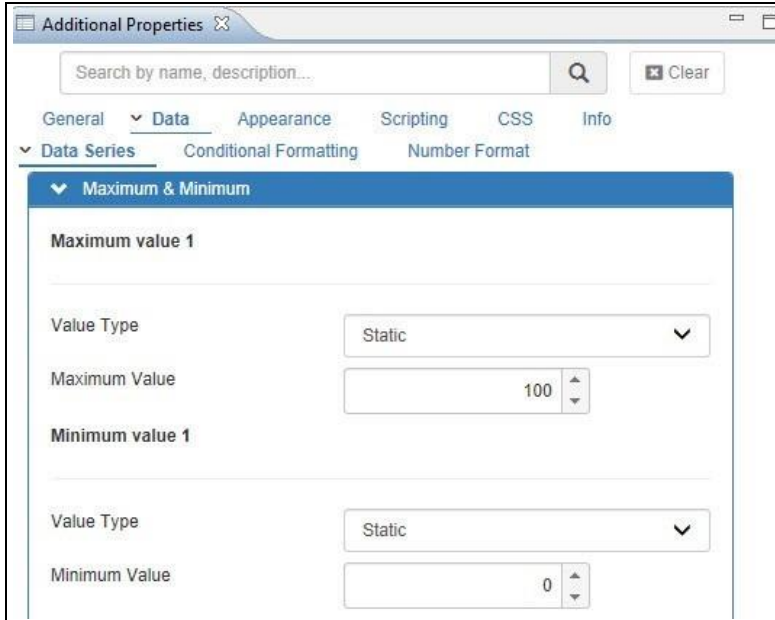


Figure 4.208: Category Data – Min and Max Values for Data Value 1

21. For Maximum Value 1, set the property Value Type to the option Static (see Figure 4.209).
22. Set the property Maximum Value to 100.
23. For Minimum Value 1, set the property Value Type to the option Static.
24. Set the property Minimum Value to 0.
25. Similarly, you can configure the Maximum and Minimum values for Data Value 2.

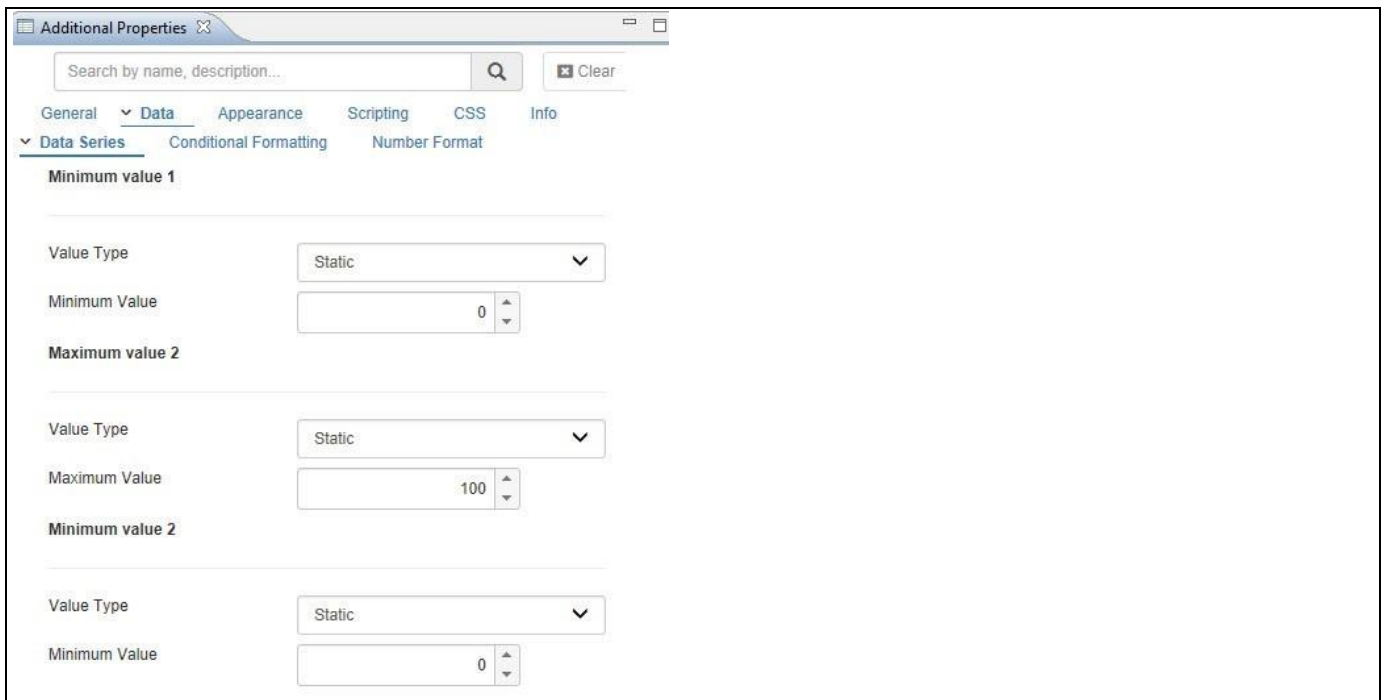
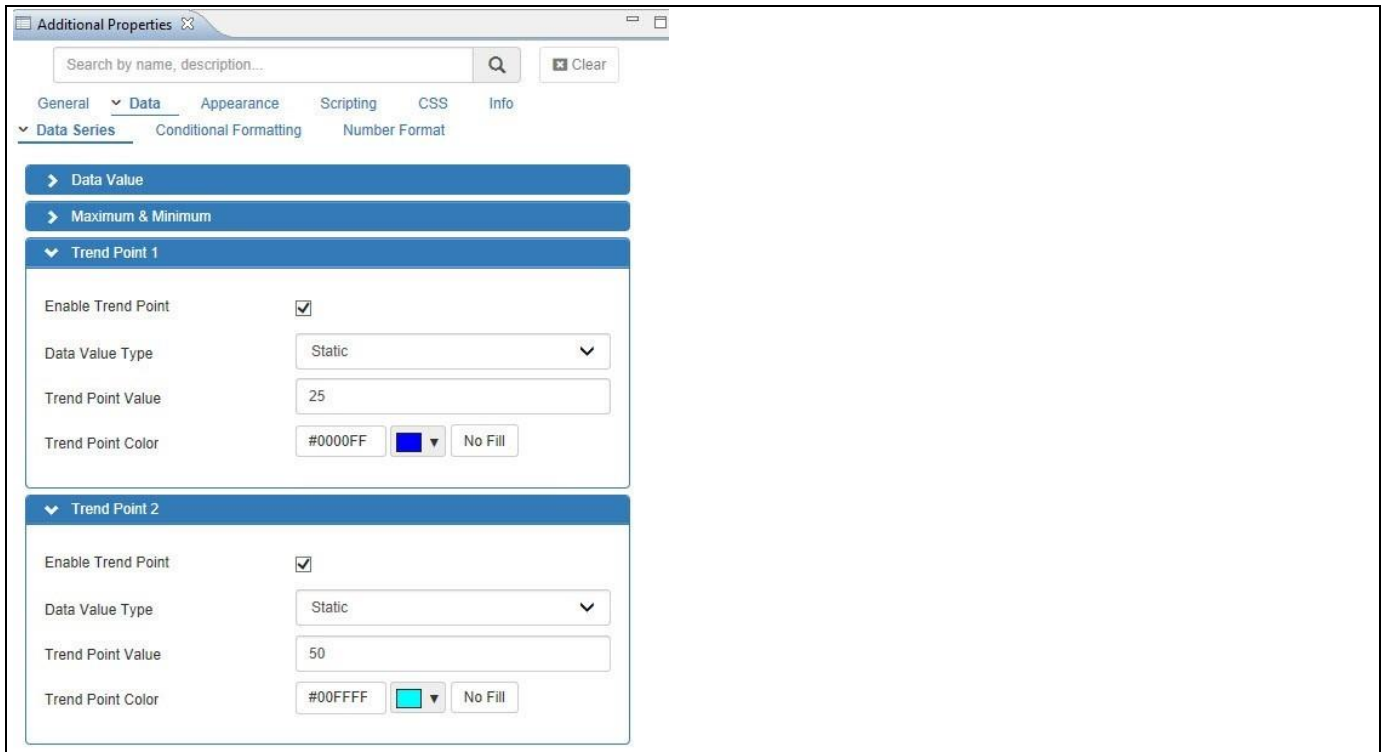


Figure 4.209: Category Data – Min and Max Values for Data Value 2

26. For Maximum Value 2, set the property Value Type to the option Static.
27. Set the property Maximum Value to 100.

28. For Minimum Value 2, set the property Value Type to the option Static.
29. Set the property Minimum Value to 0.
30. Navigate to the category Data and to the sub category Data Series in the Additional Properties of the Advanced Gauge. In the area Trend Point, you can also configure the Trend Point option. In addition to visualizing the value for Data Value 1 and Data Value 2 you have the option to show a third value as an indication of a Trend. Trend point is an element that is used to show a target value on the gauge (see Figure 4.210).



The screenshot shows the 'Additional Properties' dialog box with the 'Data Series' tab selected. The 'Trend Point 1' and 'Trend Point 2' sections are expanded. For 'Trend Point 1', 'Enable Trend Point' is checked, 'Data Value Type' is set to 'Static', 'Trend Point Value' is 25, and 'Trend Point Color' is blue (#0000FF). For 'Trend Point 2', 'Enable Trend Point' is checked, 'Data Value Type' is set to 'Static', 'Trend Point Value' is 50, and 'Trend Point Color' is cyan (#00FFFF).

Figure 4.210: Category Data – Trend Point

31. Ensure the option Enable Trend Point is activated.
32. Set the property Data Value Type to the option Static.
33. Set the property Trend Point Value to 25.
34. Set the property Trend Point Color.
35. Navigate to the category General and to the sub category Value Axis 1 in the Additional Properties of the Advanced Gauge. In the area Ticks you can configure the values for the Tick (see Figure 4.211).

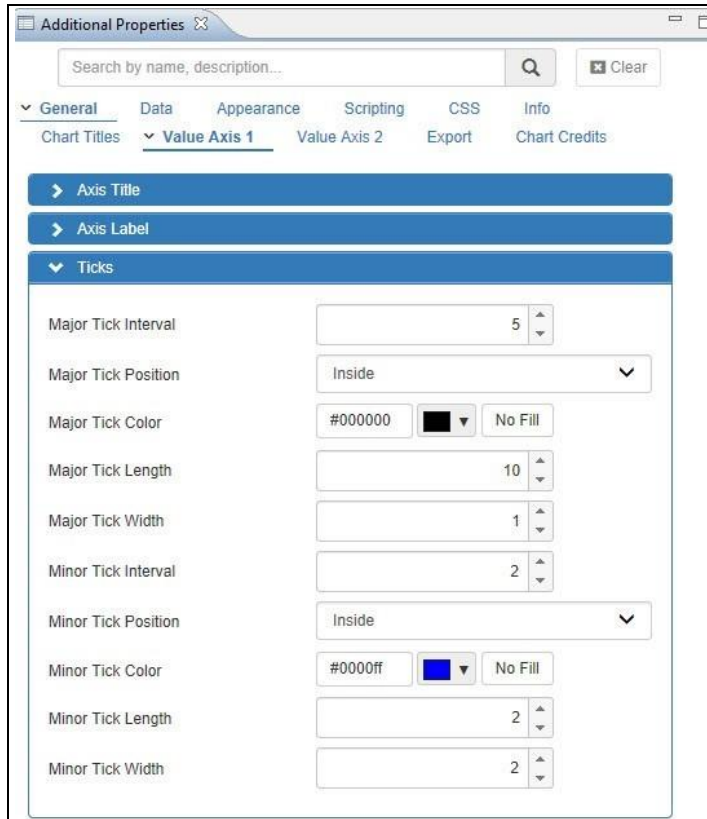


Figure 4.211: Category General – Ticks

36. Set the property Major Tick Interval to the value 5.
37. Set the property Major Tick Position to the option Inside.
38. Set the property Major Tick Color to black.
39. Set the property Major Tick Length to the value 10.
40. Set the property Major Tick Width to the value 1.
41. Set the property Minor Tick Interval to the value 2.
42. Set the property Minor Tick Position to the option Inside.
43. Set the property Minor Tick Color to blue.
44. Set the property Minor Tick Length to the value 2.
45. Set the property Minor Tick Width to the value 2.
46. Navigate to the category Appearance and to the sub category Chart in the Additional Properties of the Advanced Gauge (see Figure 4.212).

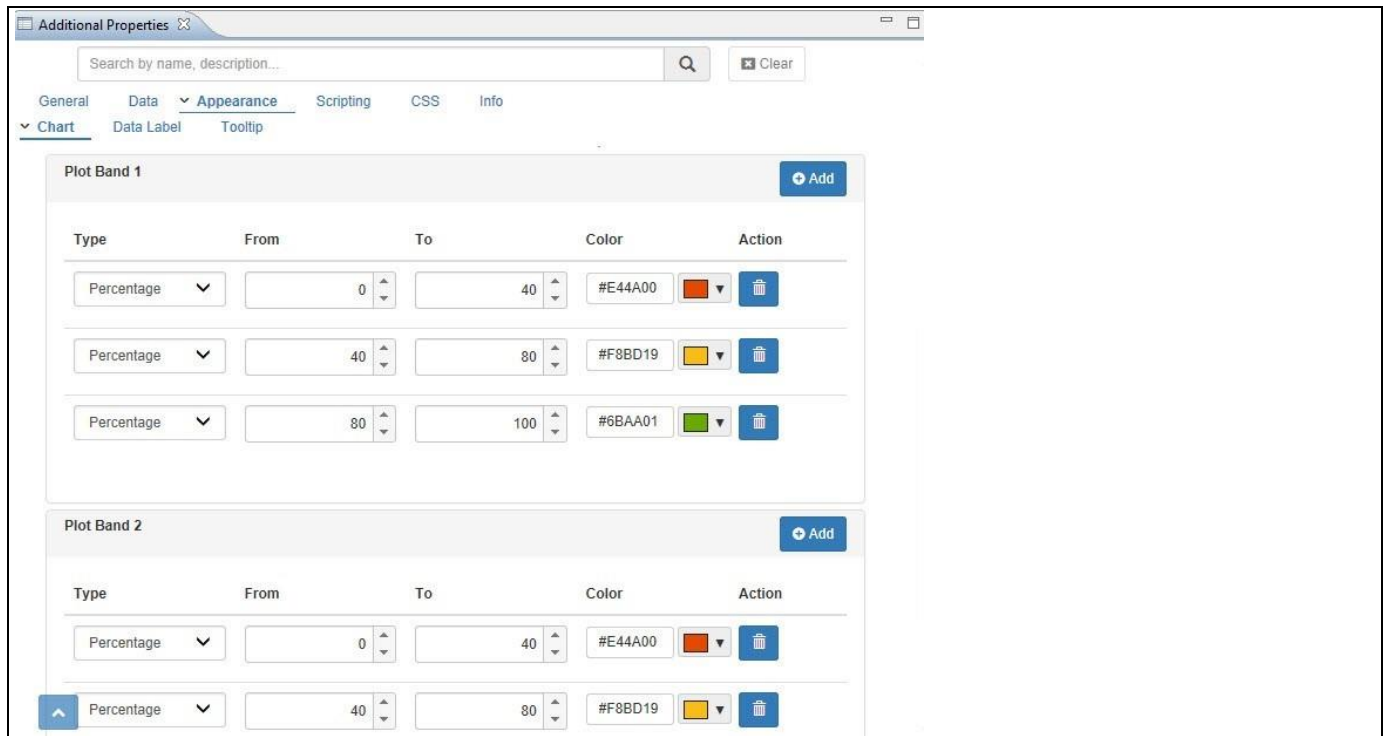


Figure 4.212: Category Appearance – Ranges and Colors

47. In the area Plot Area, the property plot bands provide the option to define the value type, range and color for the Plot Bands. The options for the value types are Static, Dynamic and Percentage. For our example, for Plot Band 1, set the property Type to the option Percentage for Range 1.
48. Set the property From to the value 0 for Range 1.
49. Set the property To to the value 40 for Range 1.
50. Set the property Color to Red for Range 1.
51. Set the property Type to the option Percentage for Range 2.
52. Set the property From to the value 40 for Range 2.
53. Set the property To to the value 80 for Range 2.
54. Set the property Color to Yellow for Range 2.
55. Set the property Type to the option Percentage for Range 3.
56. Set the property From to the value 80 for Range 3.
57. Set the property To to the value 100 for Range 3.
58. Set the property Color to Green for Range 3.
59. For the Plot Band 2, set the property Type to the option Percentage for Range 1.
60. Set the property From to the value 0 for Range 1.
61. Set the property “To” to the value 40 for Range 1.
62. Set the property Color to Red for Range 1.
63. Set the property Type to the option Percentage for Range 2.
64. Set the property From to the value 40 for Range 2.
65. Set the property “To” to the value 80 for Range 2.
66. Set the property Color to Yellow for Range 2.
67. Set the property Type to the option Percentage for Range 3.
68. Set the property From to the value 80 for Range 3.
69. Set the property “To” to the value 100 for Range 3.
70. Set the property Color to Green for Range 3.
71. Click the save button to save the properties for the two Plot Bands.

72. Navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties of the Advanced Gauge. You can configure the conditional formatting for the advanced gauge (see Figure 4.213). Now click on Create Rule.

Additional Properties

Search by name, description...

General Data Appearance Scripting CSS Info

Data Series Conditional Formatting Number Format

Create Rule

Rule Name: Rule 1

Rule Type: Target Value

Target Selection: Data Value

Target Data Value: Primary

Comparison Value Type: Static

Comparison Value: 100

Create

From	To	Color	Action
10	20	#ff0000	

Figure 4.213: Category Data – Conditional Formatting

73. Enter a Name for your rule into the field Rule Name.
74. Set the property Rule Type to the option Target Value.
75. Set the property Target Selection to the option Data Value.
76. Set the property Target Data Value to the option Primary.
77. Set the property Comparison Value Type to the option Static.
78. Set the property Comparison Value to 100.
79. Based on the Comparison Value 100, set the color to Red for the range having percentage value from 10 to 20.
80. Based on the Comparison Value 100, set the color to Orange for the range having percentage value from 20 to 40.
81. Based on the Comparison Value 100, set the color to Green for the range having percentage value from 40 to 60.
82. Save the Rule 1 settings for the Conditional Formatting.
83. In our example, since the measure for Data Value 1 points to 59.14, the range with Green color having percentage value from 40 to 60 will be applicable and the dial pointing the value 59.14 will be represented in a Green color.
84. Similarly, you can configure the different properties from the different categories in the Additional Properties of Advanced Gauge.
85. You will be able to view the Advanced Gauge based on the configured properties (see Figure 4.214).

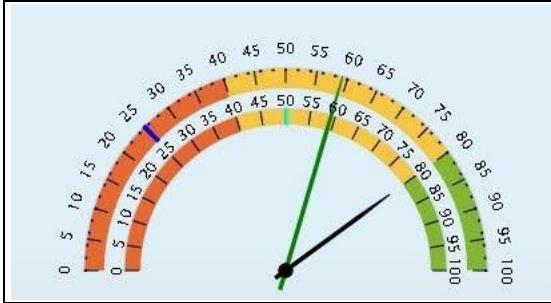


Figure 4.214: Advanced Gauge

4.12.5 Activity Gauge

The Activity Gauge allows you to compare multiple measures or single measure split by dimensions.

4.12.5.1 Data Source Requirements for an Activity Gauge

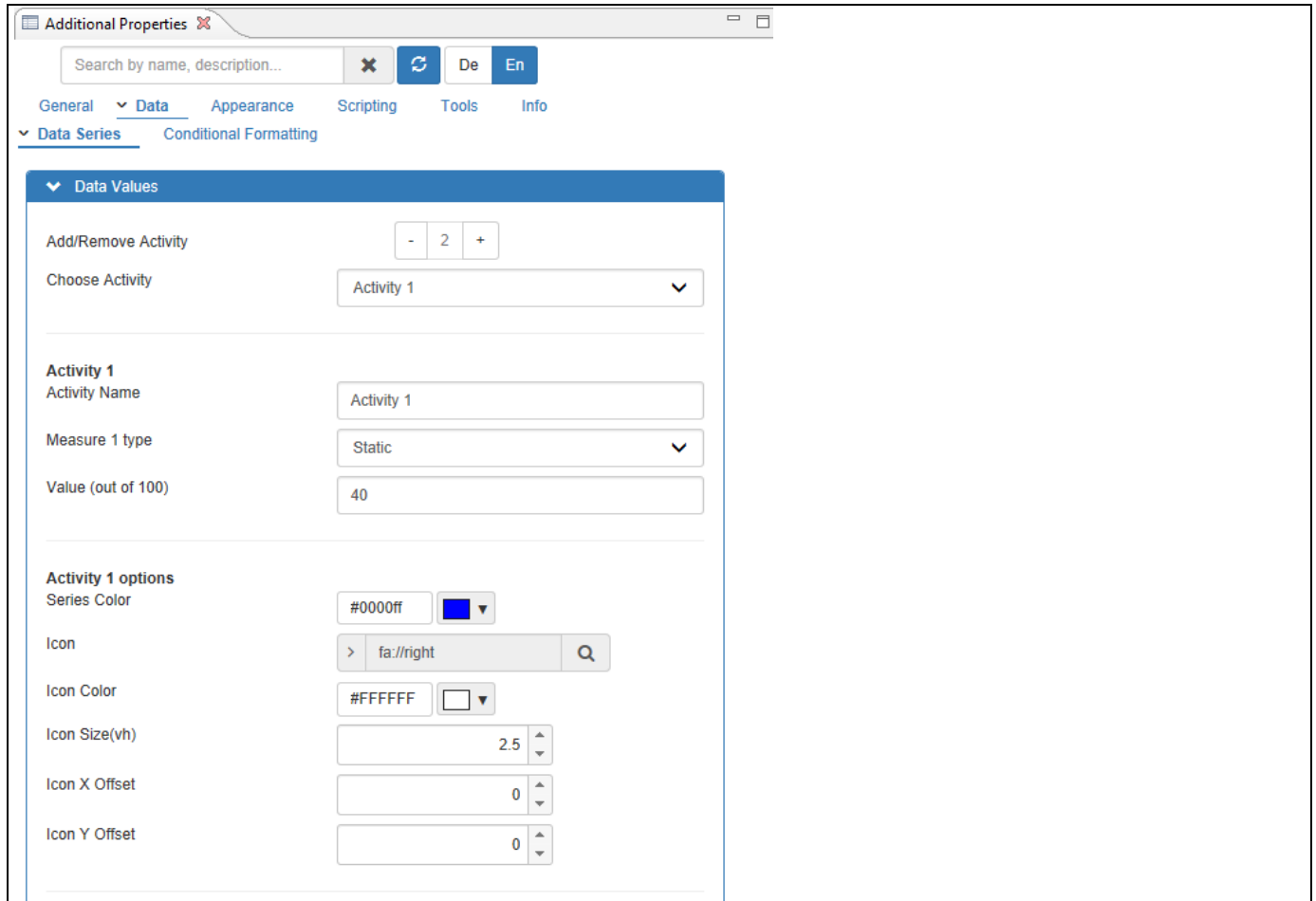
The minimum data source requirement for an Activity Gauge is a minimum of one dimension and multiple measures.

4.12.5.2 How to use the Activity Gauge?

In the following steps we will outline how you can setup a new Activity Gauge as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Activity Gauge:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows one measure - Sales Amount - and one dimension Product.
3. Add an Activity Gauge from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Activity Gauge.
5. Navigate to the Additional Properties of the Activity Gauge.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Data Series In the Additional Properties of the Activity Gauge (see Figure 4.215).



Additional Properties ✕

Search by name, description... ✕ ↺ De En

General **Data** Appearance Scripting Tools Info

Data Series Conditional Formatting

Data Values

Add/Remove Activity - 2 +

Choose Activity Activity 1 ▼

Activity 1

Activity Name Activity 1

Measure 1 type Static ▼

Value (out of 100) 40

Activity 1 options

Series Color #0000ff ■ ▼

Icon > fa://right Q

Icon Color #FFFFFF □ ▼

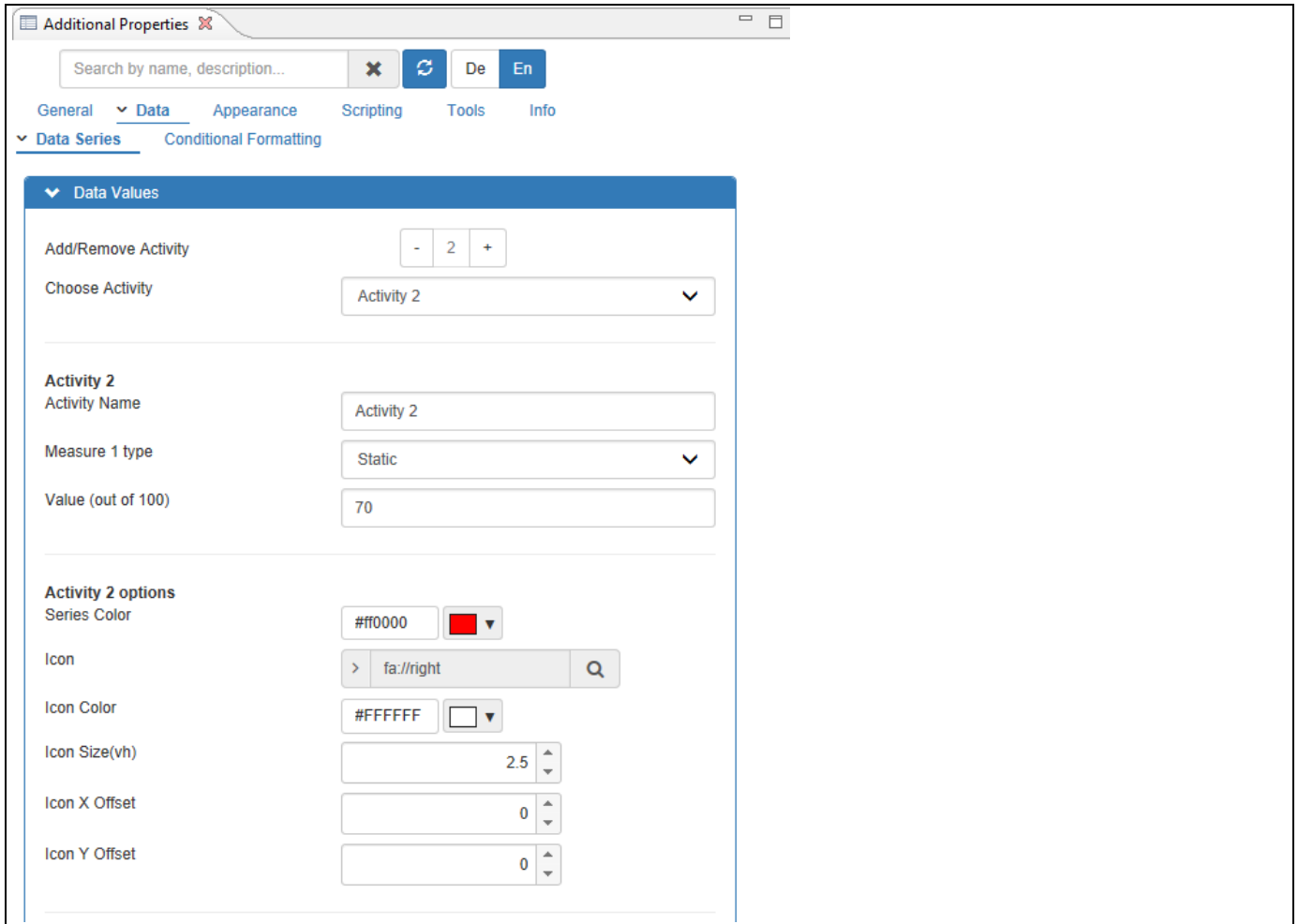
Icon Size(vh) 2.5 ▲ ▼

Icon X Offset 0 ▲ ▼

Icon Y Offset 0 ▲ ▼

Figure 4.215: Category Data – Activity 1

8. For our example, set the property Add/Remove Activity to the value 2.
9. Set the property Choose Activity to the option Activity 1.
10. In the area Activity 1, set the Activity Name to Activity 1.
11. Set the property Measure 1 type to the option Static.
12. Set the Value (out of 100) to 40.
13. Select the Activity 1 options as shown in the Figure above.
14. Now set the property Choose Activity to the option Activity 2 (see Figure 4.216).



The screenshot shows the 'Additional Properties' window for 'Activity 2'. The 'Data Values' section is expanded, showing the following configuration:

- Add/Remove Activity:** - 2 +
- Choose Activity:** Activity 2
- Activity 2:**
 - Activity Name:** Activity 2
 - Measure 1 type:** Static
 - Value (out of 100):** 70
- Activity 2 options:**
 - Series Color:** #ff0000 (Red)
 - Icon:** > fa://right
 - Icon Color:** #FFFFFF (White)
 - Icon Size(vh):** 2.5
 - Icon X Offset:** 0
 - Icon Y Offset:** 0

Figure 4.216: Category Data – Activity 2

15. In the area Activity 2, set the Activity Name to Activity 2.
16. Set the property Measure 1 type to the option Static.
17. Set the Value (out of 100) to 70.
18. Select the Activity 2 options as shown in the Figure above.
19. Based on the above configuration, you will be able to view the Activity Gauge configured for two different Activity Data Values (see below Figures).

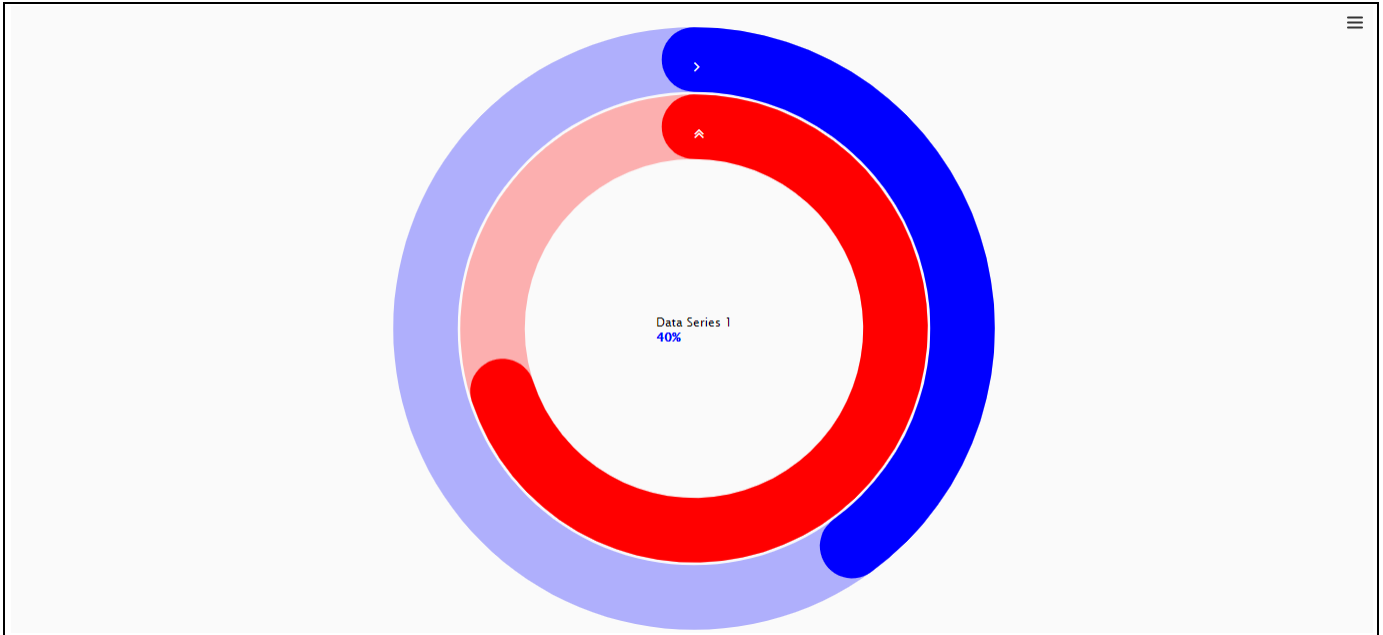


Figure 4.217: Activity Gauge – Activity 1

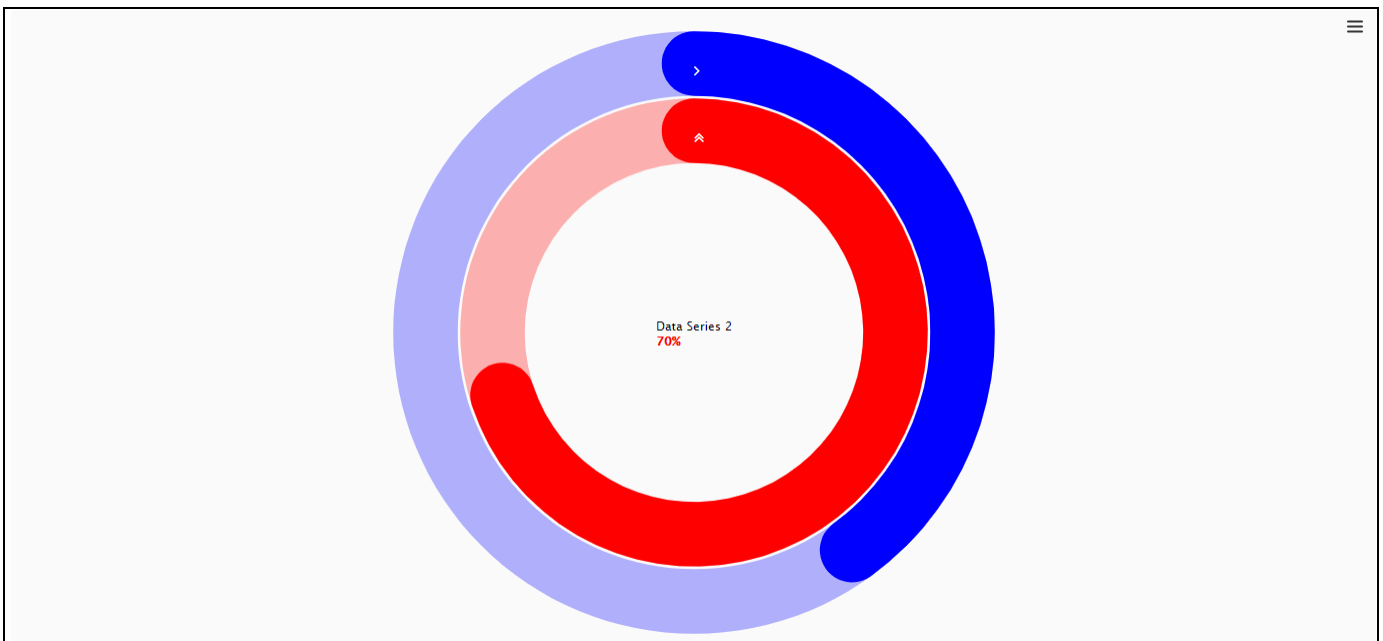


Figure 4.218: Activity Gauge – Activity 2

In the last section, we have outlined on how you can setup a new Activity Gauge as part of your SAP BusinessObjects Design Studio/SAP Lumira Designer project. In the next section, we will outline on how you can setup a new Linear Gauge as part of your SAP BusinessObjects Design Studio/SAP Lumira Designer project.

4.12.5.3 Legends for Activity Gauge

As part of VBX Release 2.4, you will be able to configure the Legends for the Activity Gauge by navigating to the category Appearance and to the sub category Legend (see Figure 4.219).

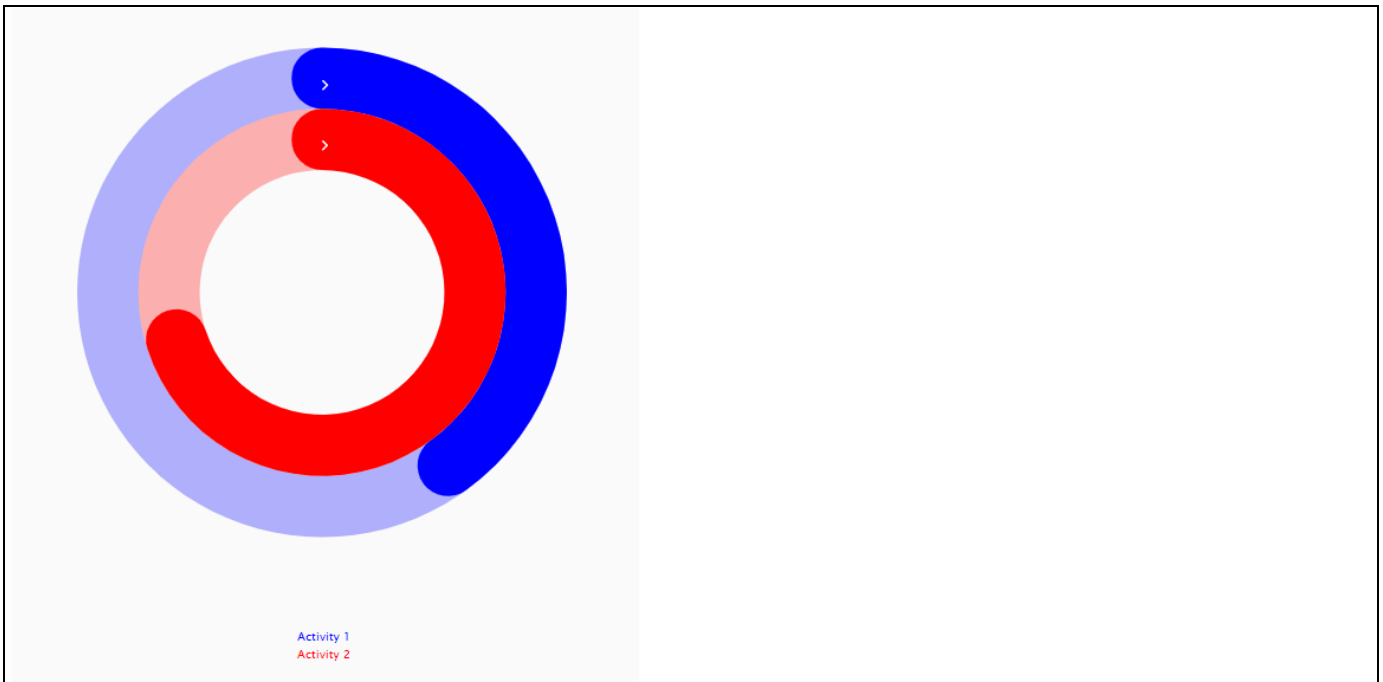


Figure 4.219: Activity Gauge with Legends

When you click the Legend Activity 1, then you will be able to view the Activity Gauge with Activity 2 appearing and Activity 1 being hidden (see Figure 4.220).

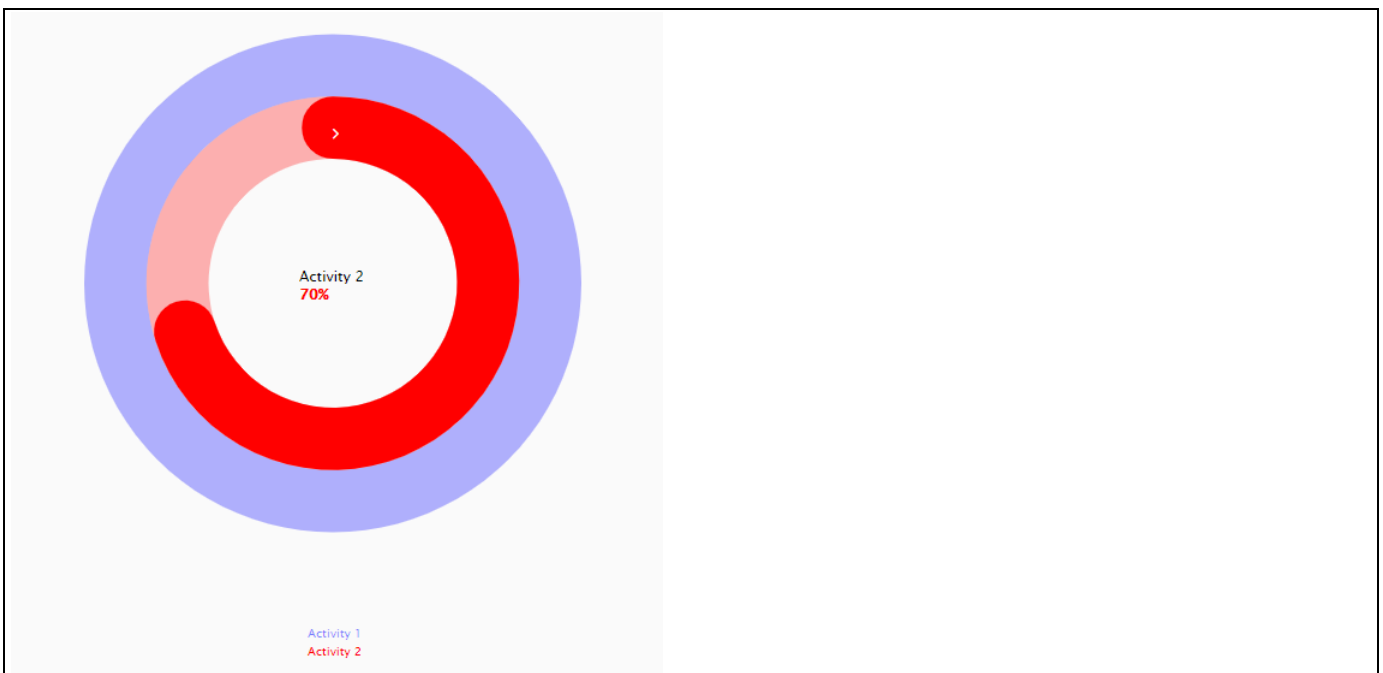


Figure 4.220: Activity Gauge – Activity 2 appearing with Activity 1 being hidden

When you click the Legend Activity 2, then you will be able to view the Activity Gauge with Activity 1 appearing and Activity 2 being hidden (see Figure 4.221).

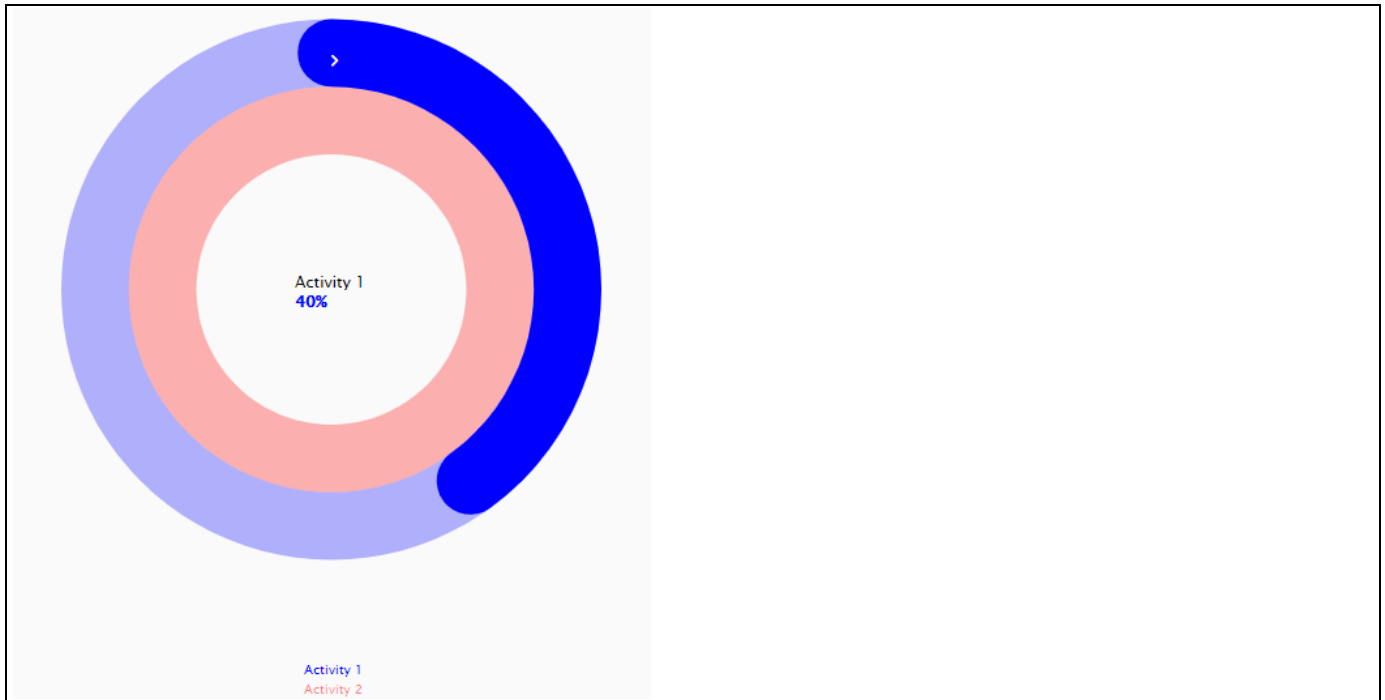


Figure 4.221: Activity Gauge – Activity 1 appearing with Activity 2 being hidden

When you click both the Legend Activities 1 and 2, then you will be able to view the Activity Gauge with the both the Activities being hidden (see Figure 4.222).



Figure 4.222: Activity Gauge – Activities 1 and 2 being hidden

4.12.6 Linear Gauge

The Linear Gauge also allows you to visualize two measure values with a different look and feel when compared to Advanced Gauge. The Linear Gauge will be displayed in the form of a single gauge with two pointers based on the configuration of the additional properties for two measure values.

4.12.6.1 Data Source Requirements for a Linear Gauge

The minimum data source requirement for an Linear Gauge is to define a Data Cell Selection, meaning to assign a single cell value to the Linear Gauge for each value you would like to display as part of the gauge.

4.12.6.2 How to use the Linear Gauge?

In the following steps we will outline how you can setup a new Linear Gauge as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Linear Gauge:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows one measure - Sales Amount - and one dimension Product.
3. Add a Linear Gauge from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Linear Gauge.
5. Navigate to the Additional Properties of the Linear Gauge.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Data Series and to the area Data Value in the Additional Properties of the Linear Gauge. For our example, set the property Number of Data Values to the option Double, so that we can assign two values to the gauge (see Figure 4.223).
8. Now for Data Value 1, enter the name for the property Data Series Name which would be displayed along with the selected data value in the form of a tool tip for the dial.
9. The property Data Value Type has two types Static and Dynamic. For our example, set the property Data Value type to the option Dynamic.
10. When the property Data Value Type is selected as “dynamic”, you have the option to select a single cell for each data value from the overall data set. Click the button for the property Dynamic Data Value to select the value for Data Value 1.

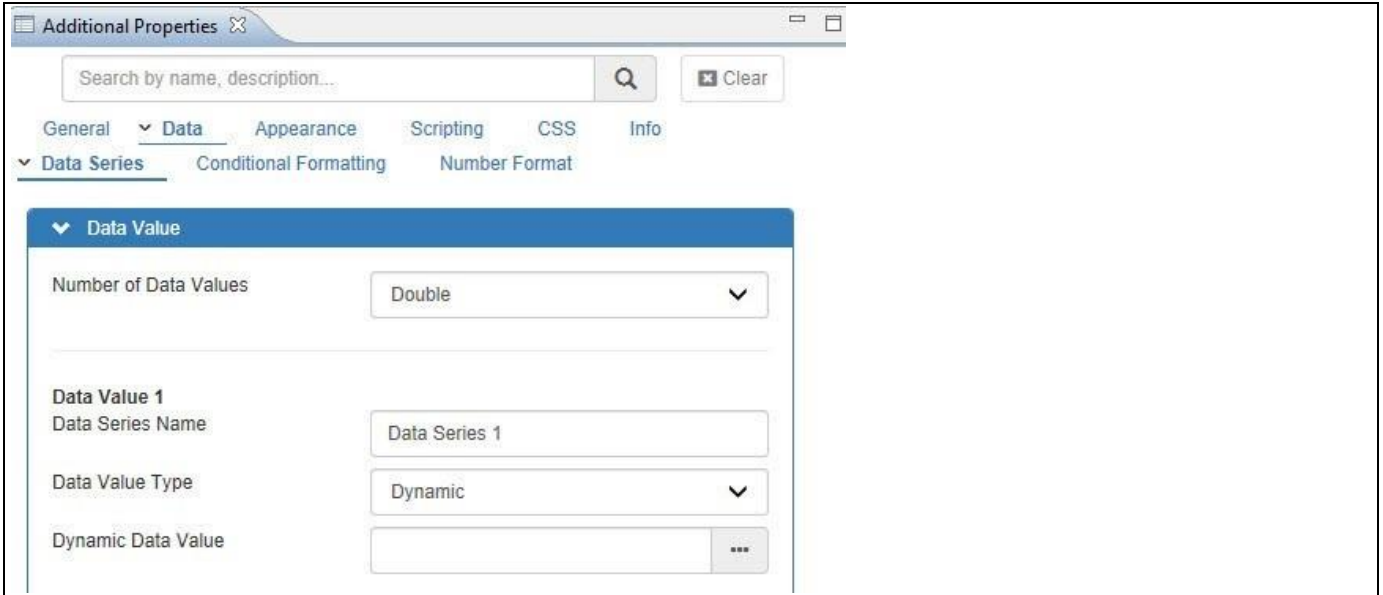


Figure 4.223: Category Data – Data Value 1

11. Once clicked, the Select Data dialog opens and you can select the measure for Data Value 1 (see Figure 4.224)

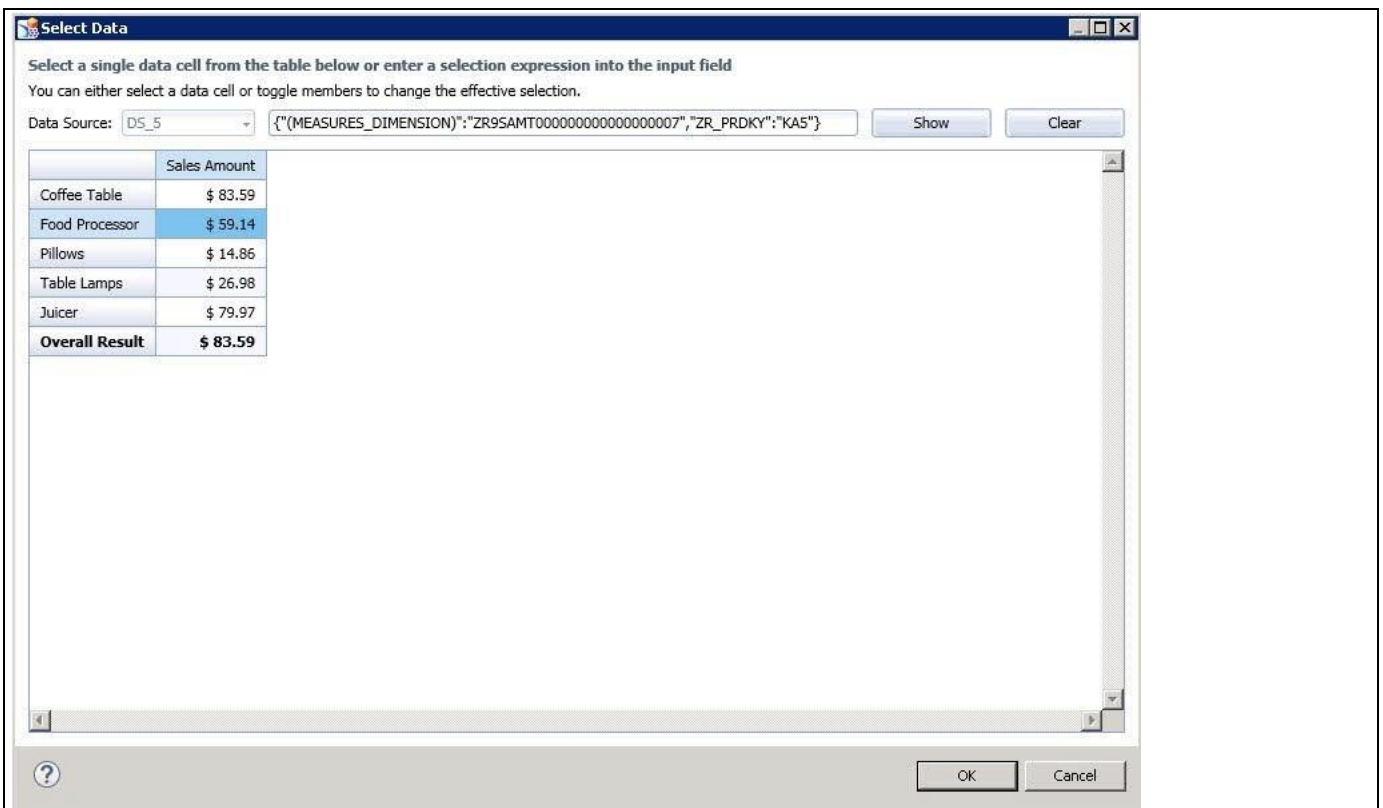


Figure 4.224: Data Selection for Data Value 1

12. Click OK to close the Select Data dialog.
13. Now the dynamic data value is selected for Data Value 1 (see Figure 4.225).

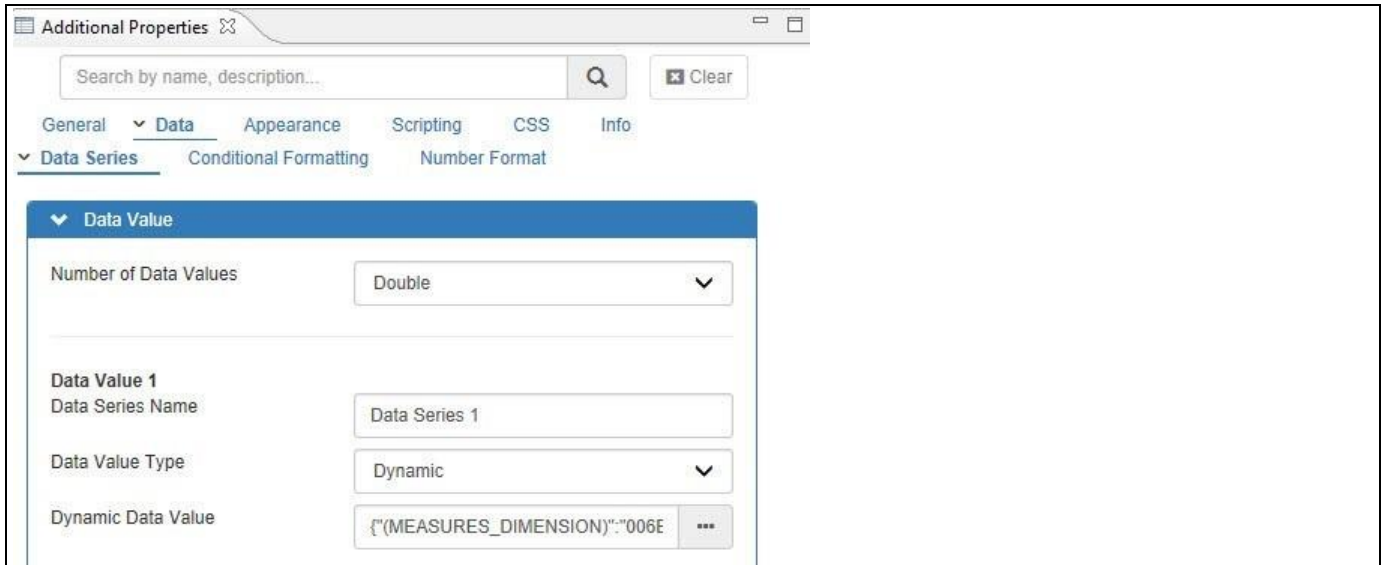


Figure 4.225: Category Data – Data Value 1

14. Now for Data Value 2, enter the name for the property Data Series Name (see Figure 4.226)
15. The property Data Value Type has two types Static and Dynamic. For our example, set the property Data Value type to the option Dynamic.
16. When the property Data Value Type is selected as “dynamic”, you have the option to select a single cell for each data value from the overall data set. Click the button for the property Dynamic Data Value to select the Data Value 2.

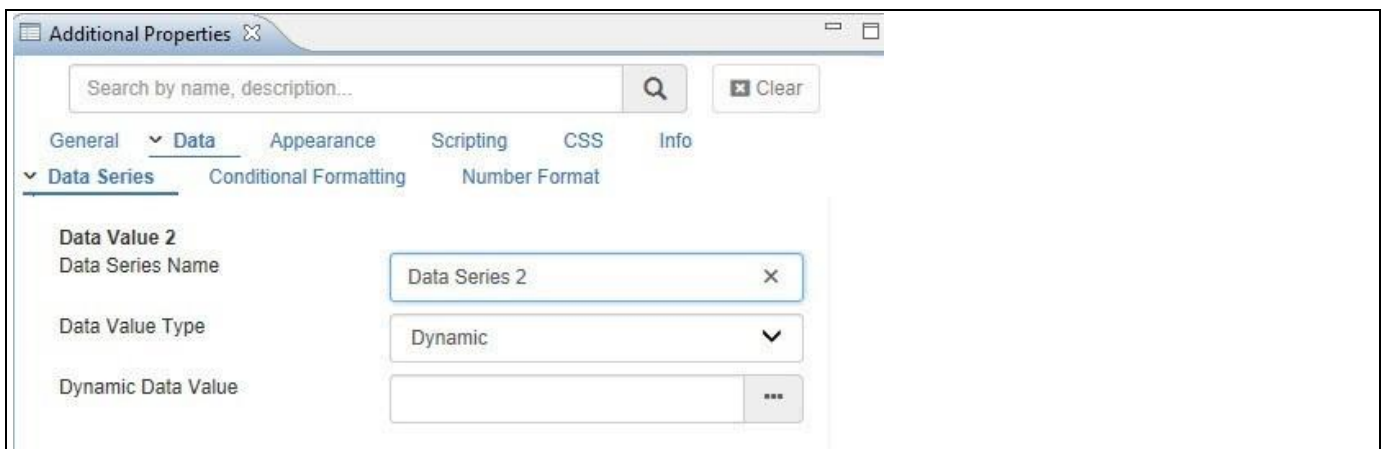


Figure 4.226: Category Data – Data Value 2

17. Once clicked, the Select Data dialog opens and you can select the measure for Data Value 2 (see Figure 4.227)

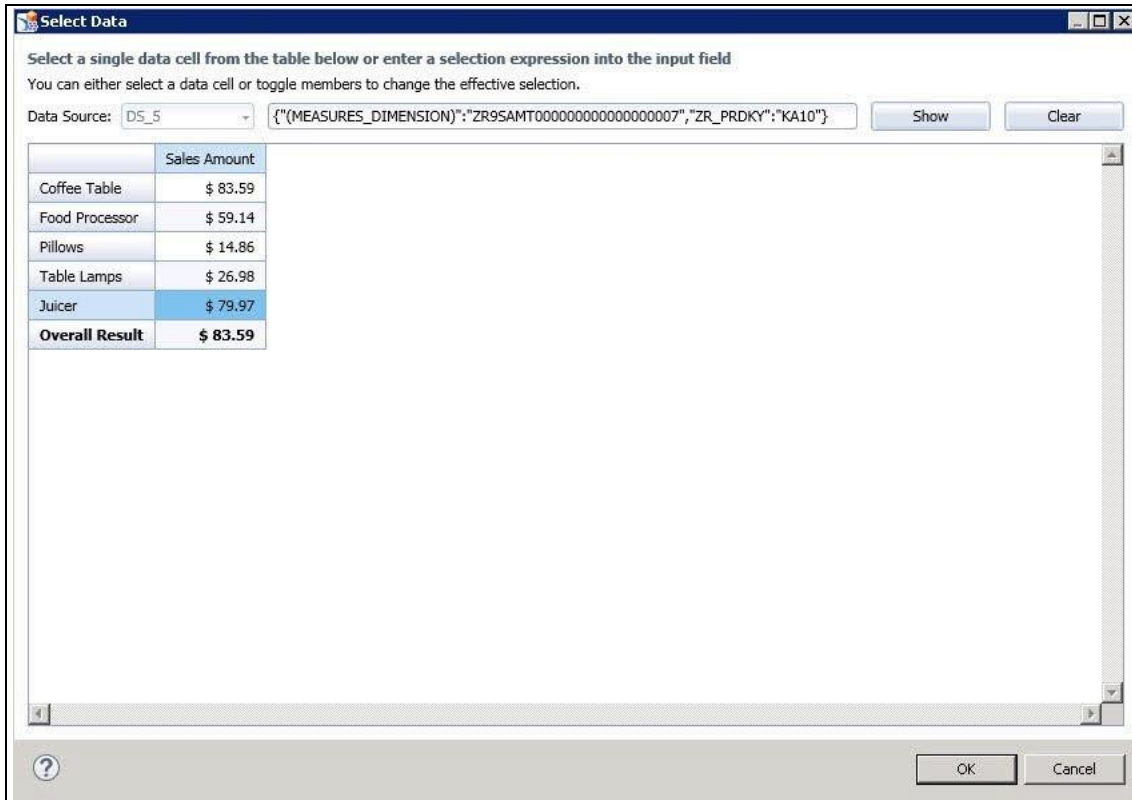


Figure 4.227: Data Selection for Data Value 2

18. Click OK to close the Select Data dialog.
19. Now the dynamic data value is selected for Data Value 2 (see Figure 4.228).

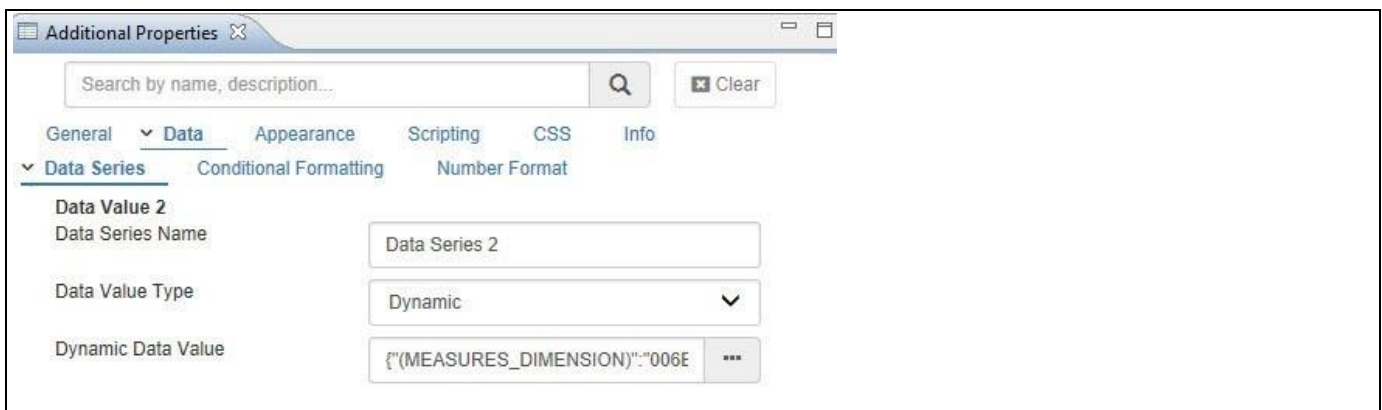


Figure 4.228: Category Data – Data Value 2

20. Navigate to the category Data and to the sub category Data Series in the Additional Properties of the Linear Gauge. In the area Maximum and Minimum you can configure the Maximum and Minimum values for the scale displaying Data Value 1 (see Figure 4.229).

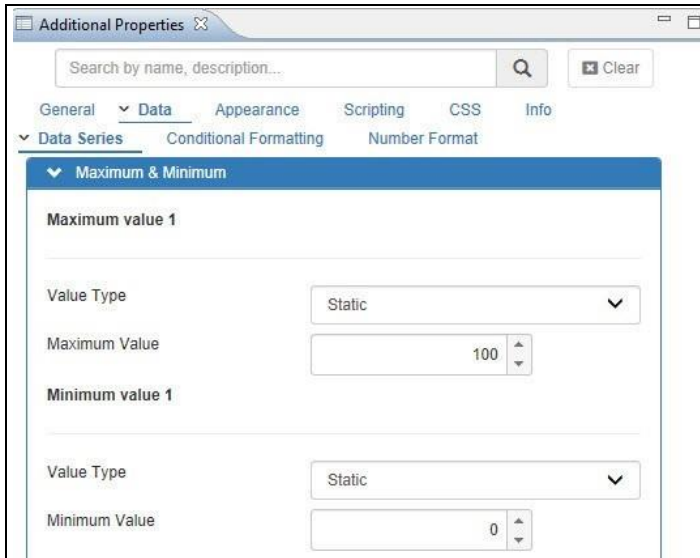


Figure 4.229: Category Data – Min and Max Values for Data Value 1

21. For Maximum Value 1, set the property Value Type to the option Static.
22. Set the property Maximum Value to 100.
23. For Minimum Value 1, set the property Value Type to the option Static.
24. Set the property Minimum Value to 0.
25. Navigate to the category Data and to the sub category Data Series in the Additional Properties of the Linear Gauge. In the area Trend Point, you can also configure the Trend Point option. In addition to visualizing the value for Data Value 1 and Data Value 2 you have the option to show a third value as an indication of a Trend. Trend point is an element that is used to show a target value on the gauge (see Figure 4.230).

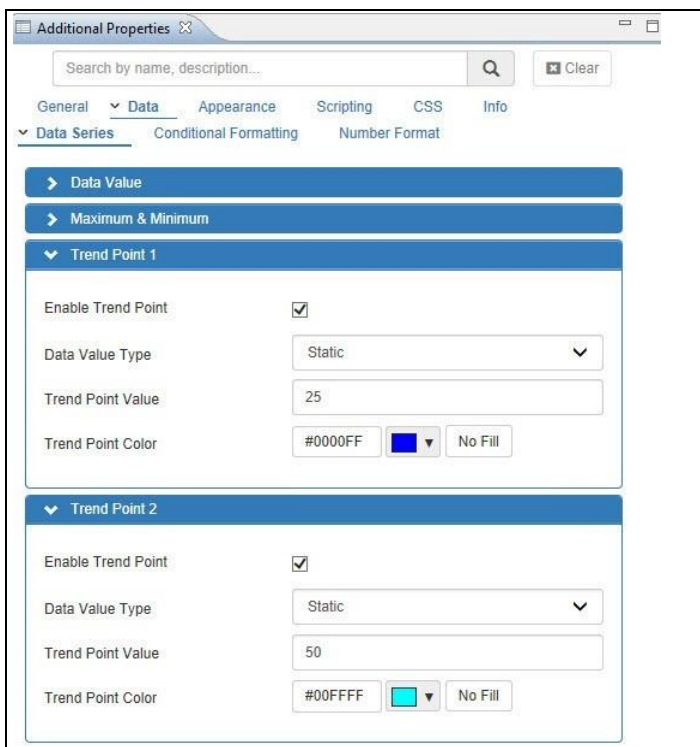


Figure 4.230: Category Data – Trend Point

26. Ensure the option Enable Trend Point is activated.
27. Set the property Data Value Type to the option Static.
28. Set the property Trend Point Value to 25.
29. Set the property Trend Point Color.
30. Navigate to the category General and to the sub category Value Axis 1 in the Additional Properties of the Linear Gauge. In the area Ticks you can configure the values for the Tick (see Figure 4.231).

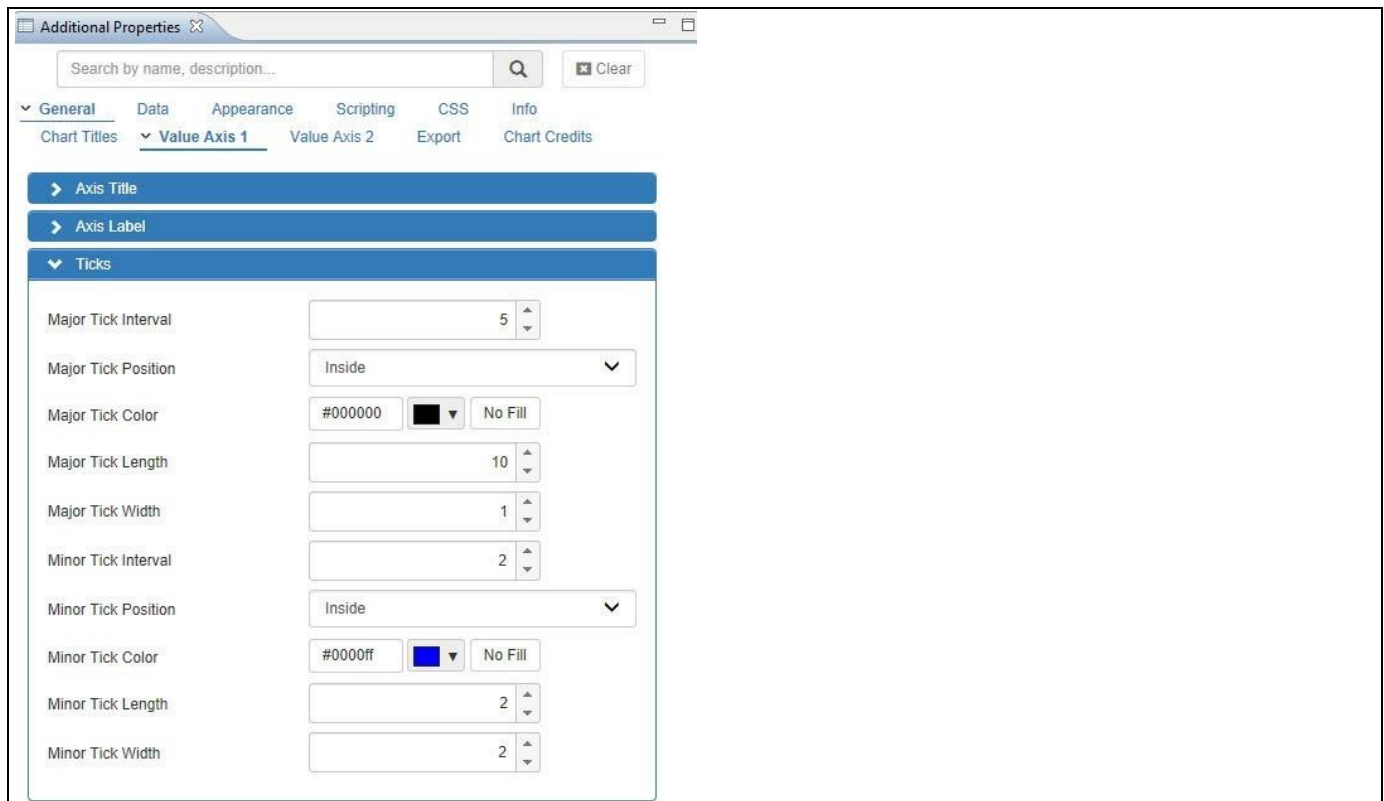


Figure 4.231: Category General – Ticks

31. Set the property Major Tick Interval to the value 5.
32. Set the property Major Tick Position to the option Inside.
33. Set the property Major Tick Color to black.
34. Set the property Major Tick Length to the value 10.
35. Set the property Major Tick Width to the value 1.
36. Set the property Minor Tick Interval to the value 2.
37. Set the property Minor Tick Position to the option Inside
38. Set the property Minor Tick Color to blue.
39. Set the property Minor Tick Length to the value 2.
40. Set the property Minor Tick Width to the value 2.
41. Navigate to the category Appearance and to the sub category Chart in the Additional Properties of the Linear Gauge (see Figure 4.232).

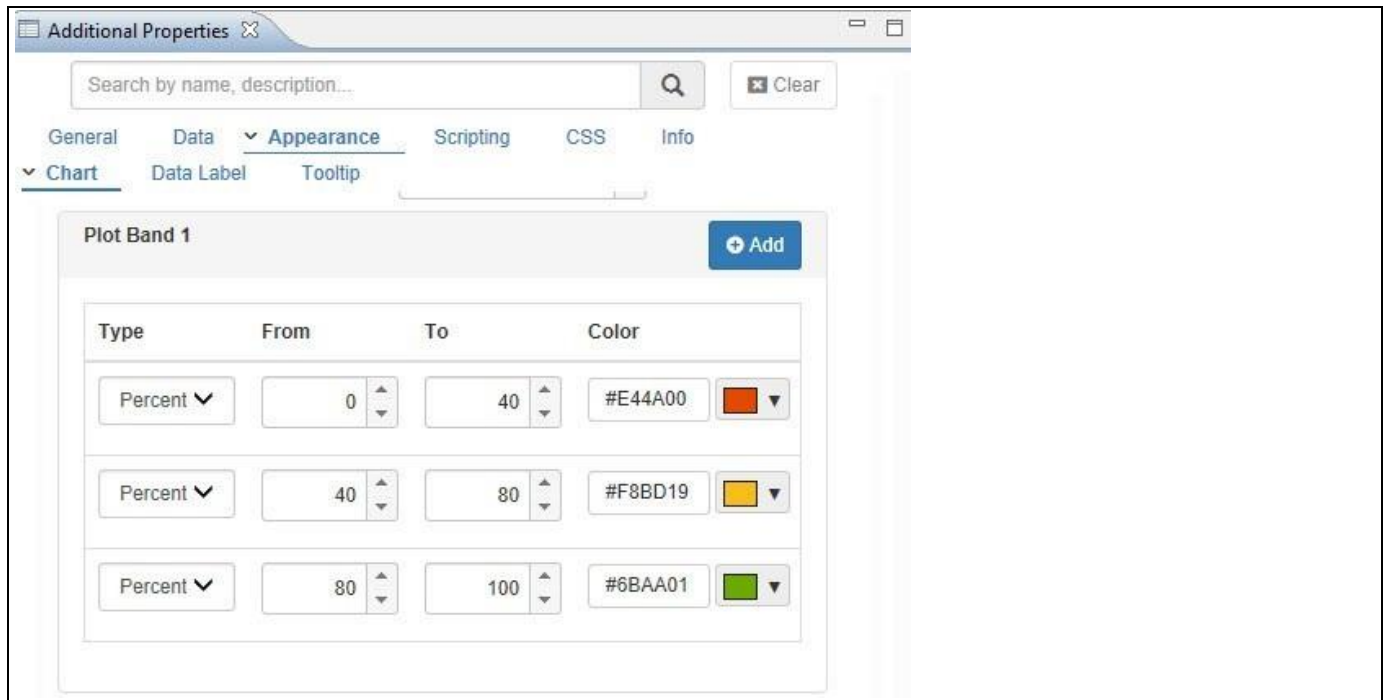


Figure 4.232: Category Appearance – Ranges and Colors

42. The property Plot Band provide the option to define the value type, range and color for the Plot Band. The options for the value types are Static, Dynamic and Percentage. For our example, for Plot Band 1, set the property Type to the option Percentage for Range 1.
43. Set the property From to the value 0 for Range 1.
44. Set the property "To" to the value 40 for Range 1.
45. Set the property Color to Red for Range 1.
46. Set the property Type to the option Percentage for Range 2.
47. Set the property From to the value 40 for Range 2.
48. Set the property "To" to the value 80 for Range 2.
49. Set the property Color to Yellow for Range 2.
50. Set the property Type to the option Percentage for Range 3.
51. Set the property From to the value 80 for Range 3.
52. Set the property "To" to the value 100 for Range 3.
53. Set the property Color to Green for Range 3.
54. Click the save button to save the properties for the Plot Band.
55. Navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties for the Linear Gauge. You can configure the conditional formatting for the Linear gauge (see Figure 4.233). Now click on Create Rule.

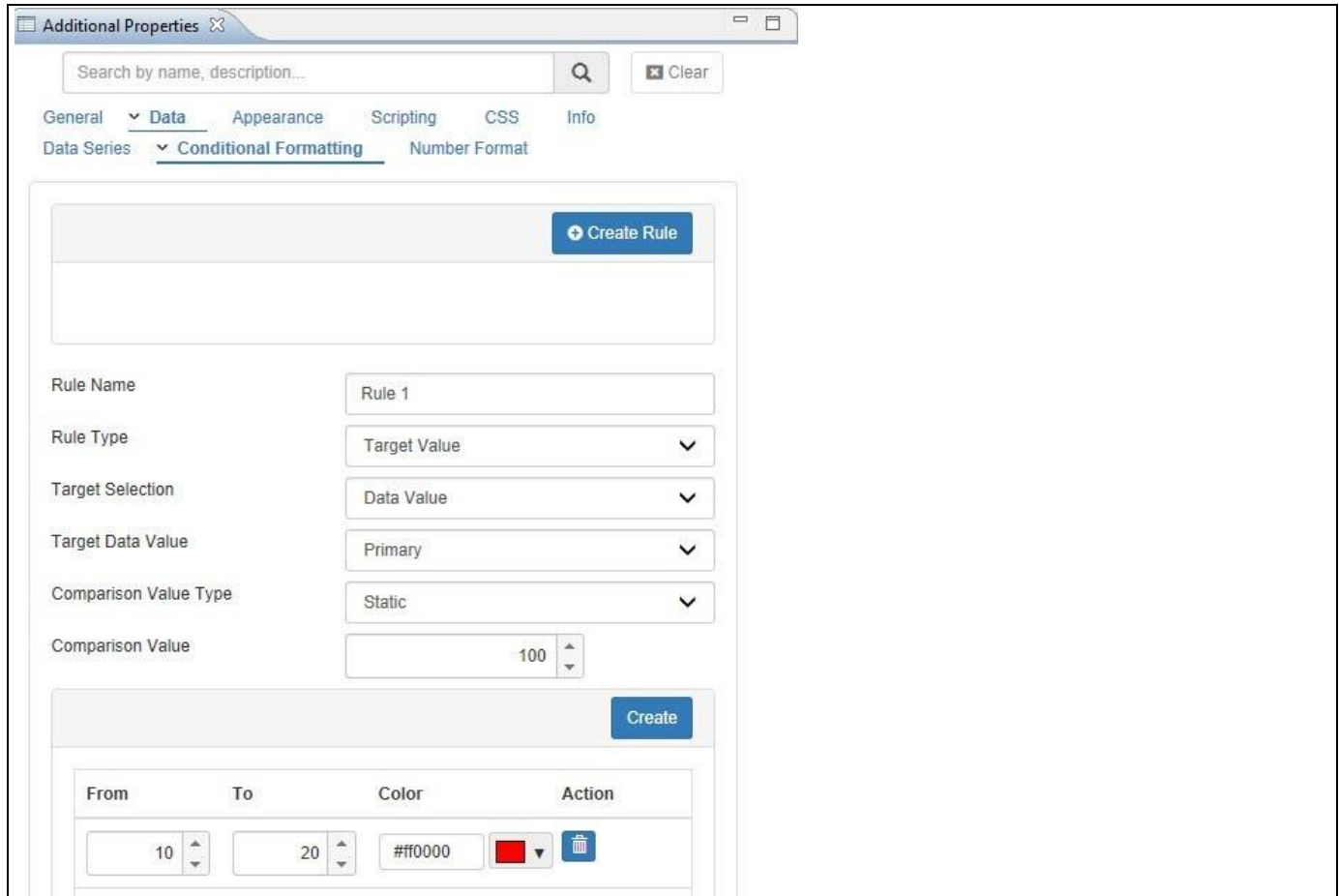


Figure 4.233: Category Data – Conditional Formatting

56. Enter a Name for your rule into the field Rule Name.
57. Set the property Rule Type to the option Target Value.
58. Set the property Target Selection to the option Data Value.
59. Set the property Target Data Value to the option Primary.
60. Set the property Comparison Value Type to the option Static.
61. Set the property Comparison Value to 100.
62. Based on the Comparison Value 100, set the color to Red for the range having percentage value from 10 to 20.
63. Based on the Comparison Value 100, set the color to Orange for the range having percentage value from 20 to 40.
64. Based on the Comparison Value 100, set the color to Green for the range having percentage value from 40 to 60.
65. Save the Rule 1 settings for the Conditional Formatting.
66. In our example, since the measure for Data Value 1 points to 59.14, the range with Green color having percentage value from 40 to 60 will be applicable and the dial pointing the value 59.14 will be represented in Green color.
67. Similarly, you can configure the different properties from the different categories in the additional properties of Linear Gauge.
68. You will be able to view the Linear Gauge based on the configured properties (see Figure 4.234).

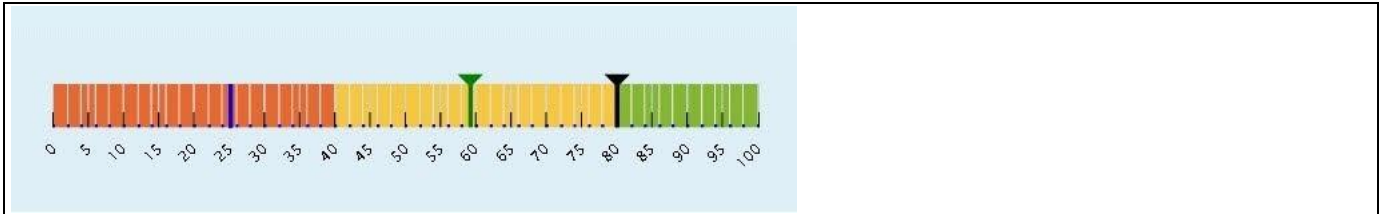


Figure 4.234: Linear Gauge

4.12.7 Runtime Dial Selection in Linear Gauge

By navigating to the category Appearance and to the subcategory Chart, you will be able to change the dial by clicking the Ticker value axis for the for both the Primary and Secondary Data values and this can be done only when the data values are configured at the Ticker levels (see Figure 4.235).



Figure 4.235: Category Appearance

The Figure below shows the Linear Gauge without the configuration of the property Value Selection. Here in this case, you can observe that the Primary dial value set at “25”.

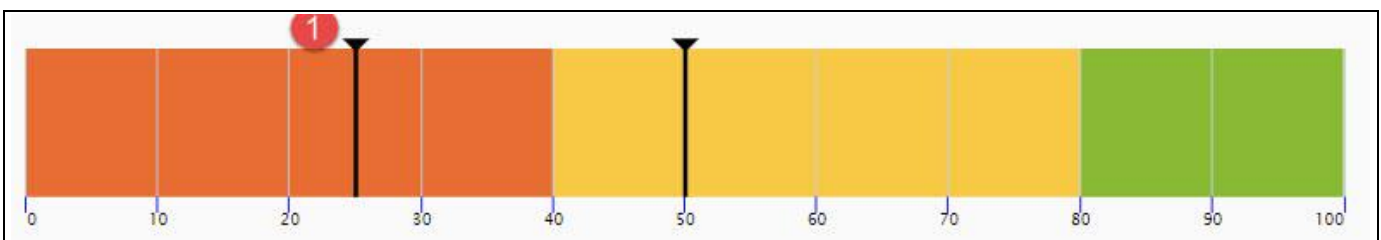


Figure 4.236: Linear Gauge showing Primary Value set at 25

Based on the above configuration, when you activate the property Enable Run-Time Selection and set the property Value Selection to the option “Primary” and you can observe that the Primary value being changed by clicking the Ticker Value at “40” in Runtime.



Figure 4.237: Linear Gauge changed Primary value set at 40

The Figure below shows the Linear Gauge without the configuration of the property Value Selection. Here in this case, you can observe that the secondary dial value set at “50”.

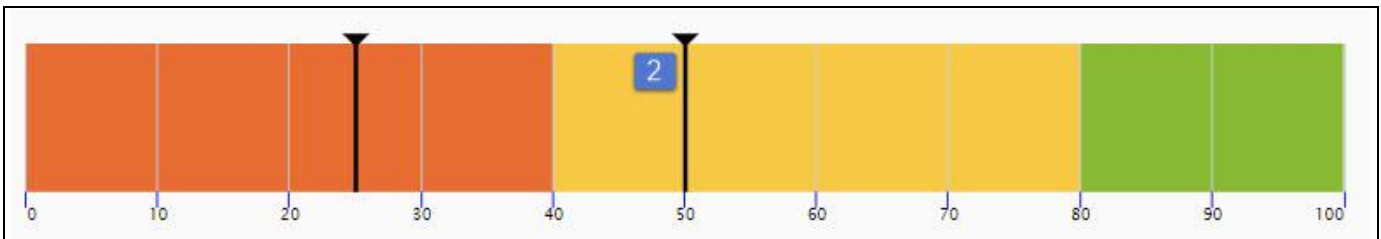


Figure 4.238: Linear Gauge showing Secondary Value set at 50

Now set the property Value Selection to the option “Secondary” and you can observe that the Secondary values being changed by clicking the Ticker Value at “60” in Runtime.

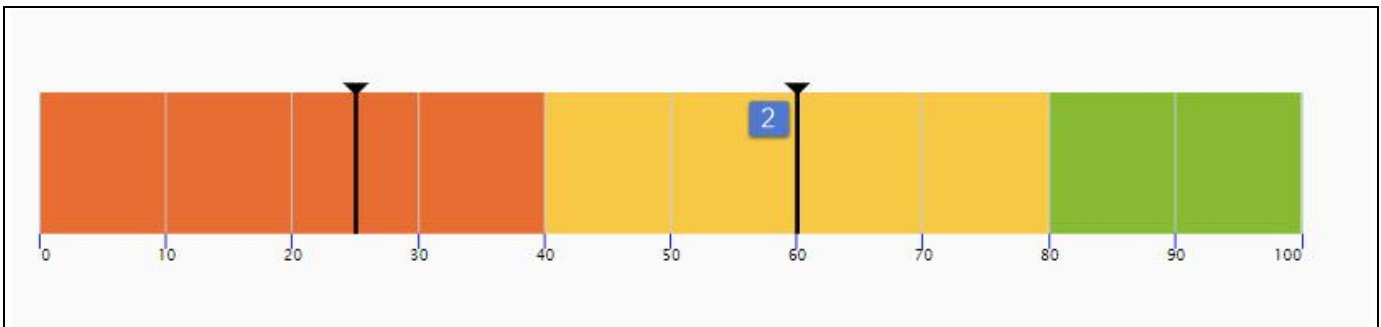


Figure 4.239: Linear Gauge showing Secondary Value set at 60

4.12.8 Additional Properties of Gauges

In addition to supporting the standard set of Additional Properties outlined in section 4.5.6, the Gauges to offer a set of Additional Properties outlined below.

4.12.8.1 Category General

Sub category	Area	Property	Description
Value Axis 1	Axis Title	Enable Value Axis Title	This property enables / disables the display of the value Axis Title.
		Title Text	Sets the Title Text for the axis.

Sub category	Area	Property	Description
		Font Family	Sets the Font Family for the axis title.
		Font Size	Sets the Font Size for the axis title.
		Font Style	Sets the Font Style for the axis title.
		Font Color	Sets the Font Color for the axis title.
		Horizontal Alignment	This property allows you to configure the horizontal alignment for the axis title.
		Vertical Alignment	This property allows you to configure the vertical alignment for the axis title.
		Horizontal Offset	This property allows you to set the horizontal offset of the axis title relative to its default alignment.
		Vertical Offset	This property allows you to set the vertical offset of the axis title relative to its default alignment.
		Label Distance	Sets the Label Distance for the Y-Axis.
		Rotation	Here you can specify a degree value by which the Label will be rotated.
	Axis Label	Enable Axis Label	This property enables / disables the display of the Axis Labels.
		Label Prefix	This property allows to specify a Prefix for the Axis Labels.
		Label Suffix	This property allows to specify a Suffix for the Axis Labels.
		Font Family	Sets the Font Family for the Label.
		Font Size	Sets the Font Size for the Label.
		Font Color	Sets the Font Color for the Label.
		Font Style	Sets the Font Style for the Label.
	Ticks	Major Tick Interval	Sets the Interval for the Major Ticks.
		Major Tick Position	Defines the Major Ticks Position. The available options are Inside and Outside.
		Major Tick Color	Defines the Major Ticks Color.
		Major Tick Length	Defines the Major Ticks Length.
		Major Tick Width	Defines the Major Ticks Width.
		Minor Tick Interval	Sets the Interval for the Minor Ticks.
		Minor Tick Position	Defines the Minor Ticks Position. The available options are Inside and Outside.
		Minor Tick Color	Defines the Minor Ticks Color.
		Minor Tick Length	Defines the Minor Ticks Length.
		Minor Tick Width	Defines the Minor Ticks Width.

Table 4.19: General

4.12.8.2 Category Data

Sub category	Area	Property	Description
Data Series	Data Values	Number of Data Values	Here you can set the number of data values. The options are Single and Double.
		Data Series Name	Here you can set the name for the data series.
		Data Value Type	Here you can set the data value type. The options are Static and Dynamic.
		Static Value	Here you can set the static data value.
		Dynamic Data Value	Here you can set the dynamic data value.
		Add/Remove Activity	For Activity Gauge, you can add/remove the number of Activities and it is restricted to 4.
		Choose Activity	For Activity Gauge, you can select the Activity.
		Activity Name	For Activity Gauge, you can set the Activity Name.
		Measure 1 Type	For Activity Gauge, you can set the Measure Type. The options are Static and Dynamic.
		Value	For Activity Gauge, you can set the value for the Activity and it can be set within the value 100.
		Series Color	For Activity Gauge, you can set Series Color for the Activity.
		Icon	For Activity Gauge, you can set the Icon for the Activity.
		Icon Color	For Activity Gauge, you can set the Icon Color for the Activity.
		Icon Size	For Activity Gauge, you can set the Icon Size for the Activity.
		Icon X Offset	For Activity Gauge, you can set the Icon X Offset for the Activity.
		Icon Y Offset	For Activity Gauge, you can set the Icon Y Offset for the Activity.
	Maximum and Minimum	Value Type	Here you can set the maximum value type. The types are Static, Dynamic and Measure Aggregation.
		Maximum Value	Here you can enter the Maximum Value for the gauge.
		Minimum Value	Here you can enter the Minimum Value for the gauge.
	Trend Point	Enable Trend Point	Here you can Enable/Disable the Trend Point.
		Data Value Type	Here you can set the data value type. The types are Static and Dynamic.

Sub category	Area	Property	Description
Conditional Formatting		Trend Point Value	Here you can set the Trend Point value.
		Trend Point Color	Here you can set the Trend Point color.
		Rule Name	Here you can enter a Name for the Alert.
		Rule Type	You can choose between: Single Measure, Measure Calculation, Target Value.
		Target Data Value	Here you can select the Target Data Value. The types are Primary and Secondary measures.
		Comparison Operator	Here you can select the measure which will be compared against the Comparison Value.
		Comparison Value Type	Here you can choose between a Static and a Dynamic comparison value.
Number Format		Comparison Value	Depending on the configured options, the property Comparison Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
		Color	Here you can define the color for the Rule.
		Number Format Definition	Sets the Number Format Definition. The options are Initial View and Custom Number Format
		Show Scaling Unit	Here you can set the scaling unit.
		Scaling Unit Placement	This property allows you to set the Scaling Unit Placement for the Data Label/Tooltip.
		Scaling Unit	This property allows you to set the Scaling Unit for the Data Label/Tooltip.
		Currency/Unit Placement	This property allows you to set the Currency/Unit Placement for the Data Label/Tooltip.
		Scaling Factor	The property allows you to specify a Scaling Factor, which then can be displayed together with the data value for the Data Label/Tooltip.
		Enable Semantic Formatting	This property activates the option for Semantic Formatting for the Data Label/Tooltip.
		Format for Negative Values	This property sets the Format for Negative Values for the Data Label/Tooltip.
		Color for Negative Values	This property sets the Color for Negative Values for the Data Label/Tooltip.
		Format for Positive Values	This property sets the Format for Positive Values for the Data Label/Tooltip.
		Color for Positive Values	This property sets the Color for Positive Values for the Data Label/Tooltip.

Table 4.20: Data

4.12.8.3

4.12.8.4 Appearance

Sub category	Area	Property	Description
Chart	General Settings Gauge	Start Angle	Here you can set the start angle of the gauge.
		End Angle	Here you can set the end angle of the gauge.
		Fill Gauge	Here you can set the fill color for the gauge.
		Gauge Scale Width	Here you can set the width of the Gauge scale.
		Gauge Size (%)	Here you can set the size of the pane based on percentage level.
		X Position	Here you can set the X position of the pane.
		Y Position	Here you can set the Y position of the pane.
	Plot Band	Type	Here you can set the value type. The types are Static, Dynamic and Percentage.
		From	Here you can set the From value.
		To	Here you can set the To value.
		Color	Here you can set the color for the plot.
	Run Time Selection	Enable Run-Time Selection	Here you can Enable/Disable the Run-Time selection.
		Value Selection	Here you can set the Dial value selection at run time.
Data Label		Enable Data Labels	This property enables / disables the property Data Labels.
		Enable Data Label Outside Gauge	This property enables / disables the property Data Labels outside the Gauge.

Table 4.21: Appearance

4.12.9 Scripting Functions for Gauges

In addition to the common scripting functions listed in section 4.6, the Gauge components support the following scripting functions.

Function / Method	Description
DSXAddMeasureCalculationConditionalRule()	This function sets the Add Measure Calculation Conditional Rule.
DSXAddSingleMeasureConditionalRule()	This function sets the Single Measure Conditional Rule.
DSXAddTargetValueCalculationConditionalRule()	This function sets the Add Target Value Conditional Rule.
DSXDeleteConditionalRule()	This function sets the Delete Conditional Rule.
DSXEditMeasureCalculationConditionalRule()	This function sets the Edit Measure Calculation Conditional Rule.
DSXEditSingleMeasureConditionalRule()	This function sets the Edit Single Measure Conditional Rule.
DSXEditTargetValueCalculationConditionalRule()	This function sets the Edit Target Value Conditional Rule.
DSXGetEndRange()	The function allows you to retrieve the values from the End Range.
DSXGetGaugeMaxValue()	The function allows you to retrieve the maximum Gauge value.
DSXGetGaugeMinValue()	The function allows you to retrieve the minimum Gauge value.
DSXGetGaugeType()	The function allows you to retrieve the Linear Gauge type.
DSXGetIntermediateRange()	The function allows you to retrieve the values from the Intermediate Range.
DSXGetMinimumValue()	The function allows you to retrieve the Minimum value.
DSXGetPrimaryGaugeDataValue()	The function allows you to retrieve the Primary Gauge Data value.
DSXGetSecondaryGaugeDataValue()	The function allows you to retrieve the Secondary Gauge Data value.
DSXGetStartRange()	The function allows you to retrieve the values from the Start Range.
DSXGetValueAxisMajorTickInterval()	The function allows you to return the Value Axis Major Tick Interval.
DSXGetValueAxisMinorTickInterval()	The function allows you to return the Value Axis Minor Tick Interval.
DSXGetValueAxisTitleText()	The function allows you to return the Value Axis Title Text.
DSXPlotBandReset()	This function sets the Plot Band reset.
DSXSetEndRange()	The function allows you to set the values

Function / Method	Description
	for the End Range.
DSXSetGaugeMaxValue()	This function sets the maximum Gauge value.
DSXSetGaugeMinValue()	This function sets the minimum Gauge value.
DSXSetGaugeType()	This function sets the Linear Gauge type.
DSXSetIntermediateRange()	The function allows you to set the values for the Intermediate Range.
DSXSetMinimumValue()	The function allows you to set the Minimum Value.
DSXSetPlotbandValue()	This function sets the Plot Band value.
DSXSetPlotbandValueJSON()	This function sets the Plot Band value as JSON.
DSXSetPrimaryGaugeDataValue()	This function sets the Primary Gauge Data value.
DSXSetPrimaryGaugeDynamicDataValue()	This function sets the Primary Gauge Dynamic Data value.
DSXSetSecondaryGaugeDataValue()	This function sets the Secondary Gauge Data value.
DSXSetSecondaryGaugeDynamicDataValue()	This function sets the Secondary Gauge Dynamic Data value.
DSXSetStartRange()	The function allows you to set the values for the Start Range.
DSXSetValueAxisMajorTickInterval()	The function allows you to set the Value Axis Major Tick Interval.
DSXSetValueAxisMinorTickInterval()	The function allows you to set the Value Axis Minor Tick Interval.
DSXSetValueAxisTitleText()	The function allows you to set the Value Axis Title Text.
DSXGetDataSeriesName()	The function allows you to retrieve the Data Series Name for the Solid Gauge.
DSXSetDataSeriesName()	The function allows you to set the Data Series Name for the Solid Gauge.
DSXSetvalueaxislabelprefix()	The function allows you to set the Value Axis Label Prefix.
DSXSetvalueaxislabelsuffix()	The function allows you to set the Value Axis Label Suffix.
DSXGetvalueaxis1labelenabled()	The function allows you to retrieve the Value Axis 1 Label Enabled.
DSXGetvalueaxis1labelprefix()	The function allows you to retrieve the Value Axis 1 Label Prefix.
DSXGetvalueaxis1labelsuffix()	The function allows you to retrieve the Value Axis 1 Label Suffix.

Function / Method	Description
DSXGetvalueaxis2labelprefix()	The function allows you to retrieve the Value Axis 2 Label Prefix.
DSXGetvalueaxis2labelsuffix()	The function allows you to retrieve the Value Axis 2 Label Suffix.
DSXGetvalueaxis1titleenabled()	The function allows you to retrieve the Value Axis 1 Title Enabled.
DSXGetvalueaxis1titletext()	The function allows you to retrieve the Value Axis 1 text.
DSXGetvalueaxis2labelenabled()	The function allows you to retrieve the Value Axis 2 Label Enabled.
DSXGetvalueaxis2titleenabled()	The function allows you to retrieve the Value Axis 2 Title Enabled.
DSXGetvalueaxis2titletext()	The function allows you to retrieve the Value Axis 2 Title Text.
DSXGetGaugePrimaryMaxValue()	The function allows you to retrieve the Primary Gauge Maximum Value.
DSXGetGaugePrimaryMinValue()	The function allows you to retrieve the Primary Gauge Minimum Value.
DSXGetGaugeSecondaryMaxValue()	The function allows you to retrieve the Secondary Gauge Maximum Value.
DSXGetGaugeSecondaryMinValue()	The function allows you to retrieve the Secondary Gauge Minimum Value.
DSXSetvalueaxis1labelenabled()	The function allows you to set the Value Axis 1 Label Enabled.
DSXSetvalueaxis1labelprefix()	The function allows you to set the Value Axis 1 Label Prefix.
DSXSetvalueaxis1labelsuffix()	The function allows you to set the Value Axis 1 Label Suffix.
DSXSetvalueaxis2labelprefix()	The function allows you to set the Value Axis 2 Label Prefix.
DSXSetvalueaxis2labelsuffix()	The function allows you to set the Value Axis 2 Label Suffix.
DSXSetvalueaxis1titleenabled()	The function allows you to set the Value Axis 1 Title Enabled.
DSXSetvalueaxis1titletext()	The function allows you to set the Value Axis 1 text.
DSXSetvalueaxis2labelenabled()	The function allows you to set the Value Axis 2 Label Enabled.
DSXSetvalueaxis2titleenabled()	The function allows you to set the Value Axis 2 Title Enabled.
DSXSetvalueaxis2titletext()	The function allows you to set the Value Axis 2 Title Text.
DSXSetGaugePrimaryMaxValue()	The function allows you to set the Primary

Function / Method	Description
	Gauge Maximum Value.
DSXSetGaugePrimaryMinValue()	The function allows you to set the Primary Gauge Minimum Value.
DSXSetGaugeSecondaryMaxValue()	The function allows you to set the Secondary Gauge Maximum Value.
DSXSetGaugeSecondaryMinValue()	The function allows you to set the Secondary Gauge Minimum Value.

Table 4.22: Scripting Functions

4.13 Funnel Charts

Funnel charts are used to visualize the progressive reduction of data as it passes from one phase to another, for example the data of a sales process with data starting with the sales leads on the top and going down to the qualified leads and finally to the closed deals.

4.13.1 Funnel Charts Overview

As part of the VBX suite there are two different funnel charts available to you:

- Funnel / Pyramid Chart
- Funnel / Pyramid Drilldown Chart

While the Funnel / Pyramid chart is the basic chart to represent progressive stages of data, the Funnel / Pyramid Drilldown chart offers an extension of the basic functionality by adding the Drill Down functionality to the chart. Figure 4.240 shows a Funnel and Pyramid chart example.

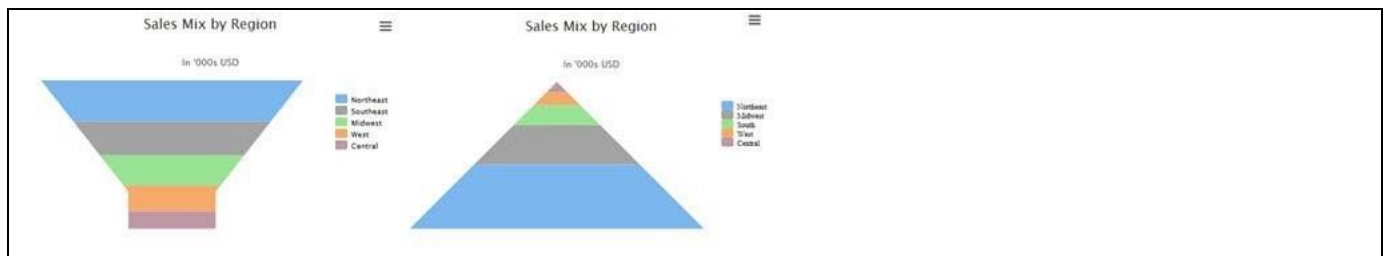


Figure 4.240: Funnel / Pyramid Chart

4.13.1.1 Data Source Requirements for a Funnel / Pyramid Chart

The minimum data source requirement for a Funnel / Pyramid Chart is a data source with a minimum of one dimension and one measure. In case of the Funnel / Pyramid Drilldown Chart the minimum requirements are to have at least two dimensions and one measure.

4.13.1.2 How to use the Funnel / Pyramid Chart?

In the following steps we will outline how you can setup a new Funnel Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Solid Gauge:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows a measure Revenue along dimension Sales Stage.
3. Add a Funnel Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Funnel Chart.
5. Navigate to the Additional Properties of the Funnel Chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Appearance and to the sub category Chart.

8. In the area General Settings ensure that the property Select Chart Type is set to the value Funnel.

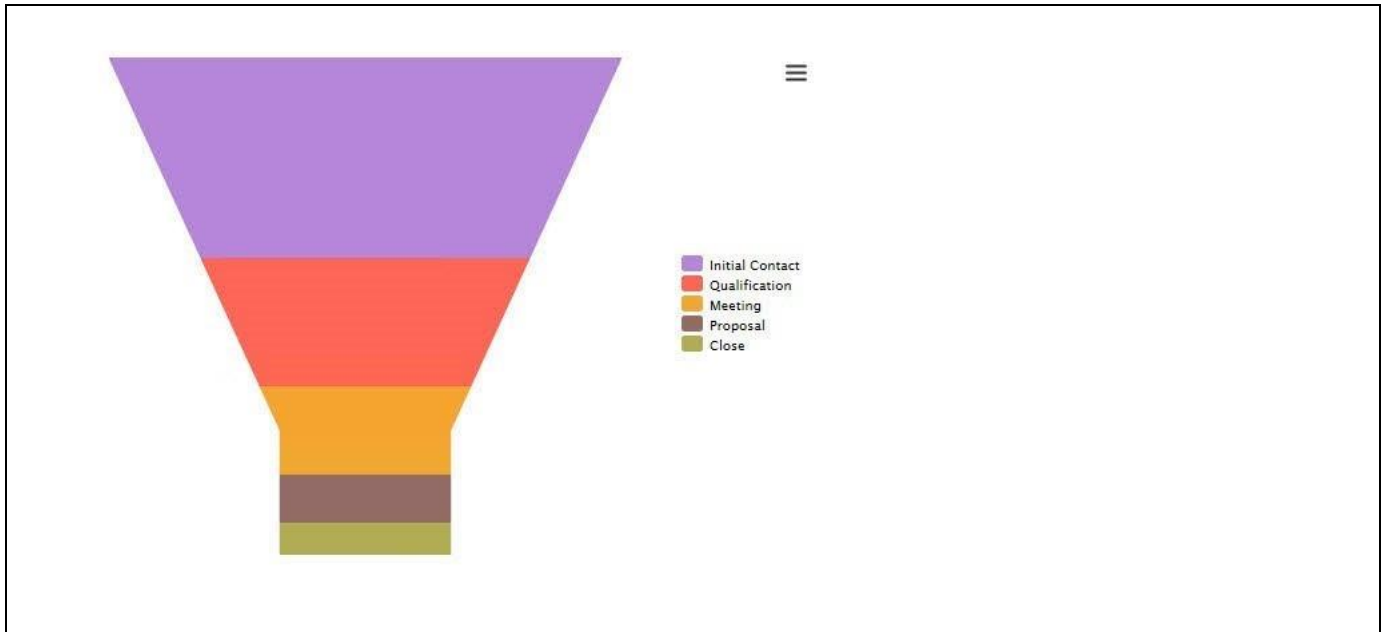


Figure 4.241: Funnel Chart

9. Your Funnel Chart should look similar to Figure 4.241 now.

4.13.2 Additional Properties of Funnel Components

The Additional Properties of the Funnel charts are shown as part of the common set of Additional Properties in section 4.5.

4.13.3 Scripting Functions for Funnel Charts

All supported scripting functions for the Funnel Charts are listed as part of the common scripting functions for charts listed in section 4.6.

4.14 Progression Components

Part of the VBX Chart are also a set of components that can be used to show the progress of a single value against a given target values.

4.14.1 Progression Components Overview

The following is a list of progression components that are included as part of the VBX suite (see Figure 4.242):

- Progress bar
- Number counter
- Circular counter

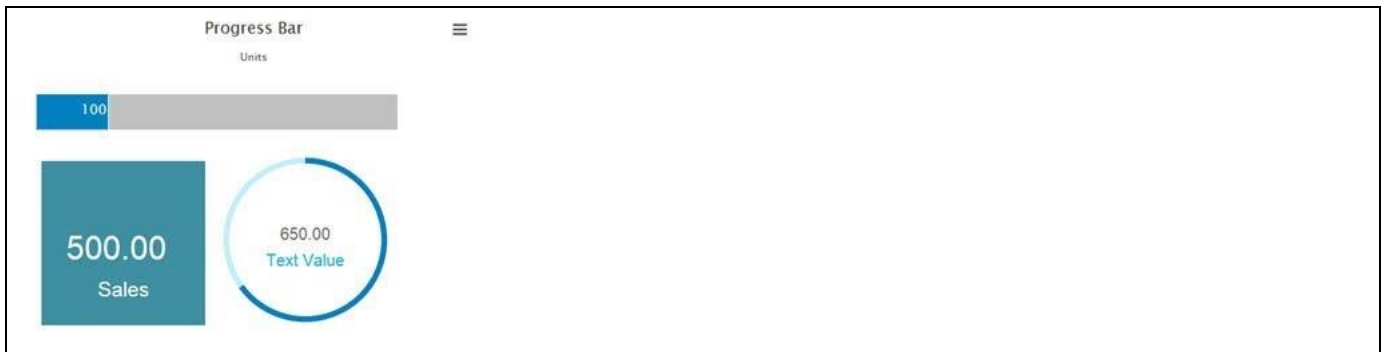


Figure 4.242: Progression Components

4.14.1.1 Data Source Requirements for a Progress Component

The minimum data source requirement for any of the Progress Components is a data source with a minimum of one data cell. The progress components will visualize the value of a single cell and therefore you will have to configure a Data Selection in addition to assigning the data source to the component.

4.14.1.2 How to use the Progress Bar?

In the following steps we will outline how you can setup a new Progress Bar, which is one of the Progress Components. The Number Counter and Circular Counter are working very similar and you should be able to follow the steps below with those components as well.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows measure Revenue along dimension Product.
3. Add a Progress Bar from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Progress Bar.
5. Navigate to the Standard Properties of the Progress Bar.
6. In case the Standard Properties are not shown, use the menu View • Standard Properties to activate the display of the Standard Properties (see Figure 4.199).
7. Select the property Data Selection.

8. Use the button on the right hand side to open the Data Selection dialog.
9. In the next dialog you have the option to select a single cell from the overall data set.
10. Select a single cell.
11. Click OK to close the dialog.
12. Your Progress Bar should look similar to Figure 4.243.



Figure 4.243: Progress Bar

4.14.2 Additional Properties of Progress Components

In addition to supporting the standard set of Additional Properties outlined in section 4.5, the Progress Components support the following Additional Properties in the following categories.

4.14.2.1 Category General

Sub category	Area	Property	Description
Chart Titles	Title	Chart Title Text	This property allows to set the Text shown as part of the Circular Counter and Number Counter.

Table 4.23: General

4.14.2.2 Data

Sub category	Area	Property	Description
Data Series	Chart Settings	Maximum Value	Here you can define the Maximum Value for the Progress Bar.
Number Format		No of Decimal places	Here you can define the number of decimal places.
		Thousand Separator	Here you can define the Thousand Separator.
		Decimal Separator	Here you can define the Decimal Separator.
		Prefix	Here you can define the Prefix for the value of the Circular Counter.
		Suffix	Here you can define the Suffix for the value of the Circular Counter.

Table 4.24: Data

4.14.2.3 Appearance

Sub category	Area	Property	Description
Chart	General Settings	Counter Type	This property allows to configure the counter type. The available options are Number Counter and Percentage Counter. This property is available only for the Circular Counter and Number Counter.
		Circle Fill Color	This property allows you to define the color for the filled part of the Circular Counter.
		Circle Track Color	Allows you to define the color for the progress bar.
		Circle Thickness	This property allows you to define the Thickness of the Circular Counter.
	Chart Area	Background Color	This property allows you to define the Background Color for the Circular Counter.
		Plot Background Color	This property allows you to define the Background Color for the inner part of the circle.
	Chart Font	Number Font Family	This property allows you to set the Font Family for the Number Value.
		Number Font Size	This property allows you to set the Font Size for the Number Value.
		Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.

Table 4.25: Appearance

4.14.3 Scripting Function for Progress Components

In addition to the common scripting functions listed in section 4.6, the Progress Components support the following scripting functions.

Function / Method	Description
DSXSetDataFloatValue()	This function allows you to set the data value using floating point values. The function is applicable to the Circular Counter.
DSXSetDataIntValue()	This function allows you to set the data value using integer values. The function is applicable to the Circular Counter.
DSXSetDataValueColor()	This function allows you to define the color for the non-filled part of the Circular Counter.
DSXSetDataValueFillColor()	This function allows you to define the color for the filled part of the Circular Counter.
DSXSetMaxFloatValue()	This function allows you to set the maximum value using floating point values. The function is applicable to the Circular Counter.
DSXSetMaxIntValue()	This function allows you to set the maximum value using integer values. The function is applicable to the Circular Counter.
DSXSetType()	This function allows you to set the type of the component in terms of percentage (or) number for both the number and circular counters.
DSXSetMaximumValueFloat()	This function allows you to set the maximum value for the Progress Bar as Float value.
DSXGetDataValueColor()	This function allows you to retrieve the value of Number Color for the Number Counter.
DSXGetTextColor()	This function allows you to retrieve the value of Text Color for the Number Counter.
DSXSetTotalValueFillColor()	This function allows you to set the value of Total Value Color for the Circular Counter.
DSXSetPlotBackgroundColor()	This function allows you to set the value of Plot Background Color for the Circular Counter.

Table 4.26: Scripting Functions

4.15 Composition & Relationship Charts

In this section of the VBX Charts we will take a closer look at charts that represent a composition of a measure or a relationship between several measures.

In this category we will discuss the following chart types:

- Waterfall Chart
- Heat Map
- Scatter Plot Chart
- Bubble Chart
- Marimekko Chart

4.15.1 Waterfall chart

A Waterfall chart is used to visualize how an initial value is changing by showing the value increase and value decrease and the final balance (see Figure 4.244). The VBX Waterfall chart has the ability to add an intermediate result, which can show the balance at a defined data point.

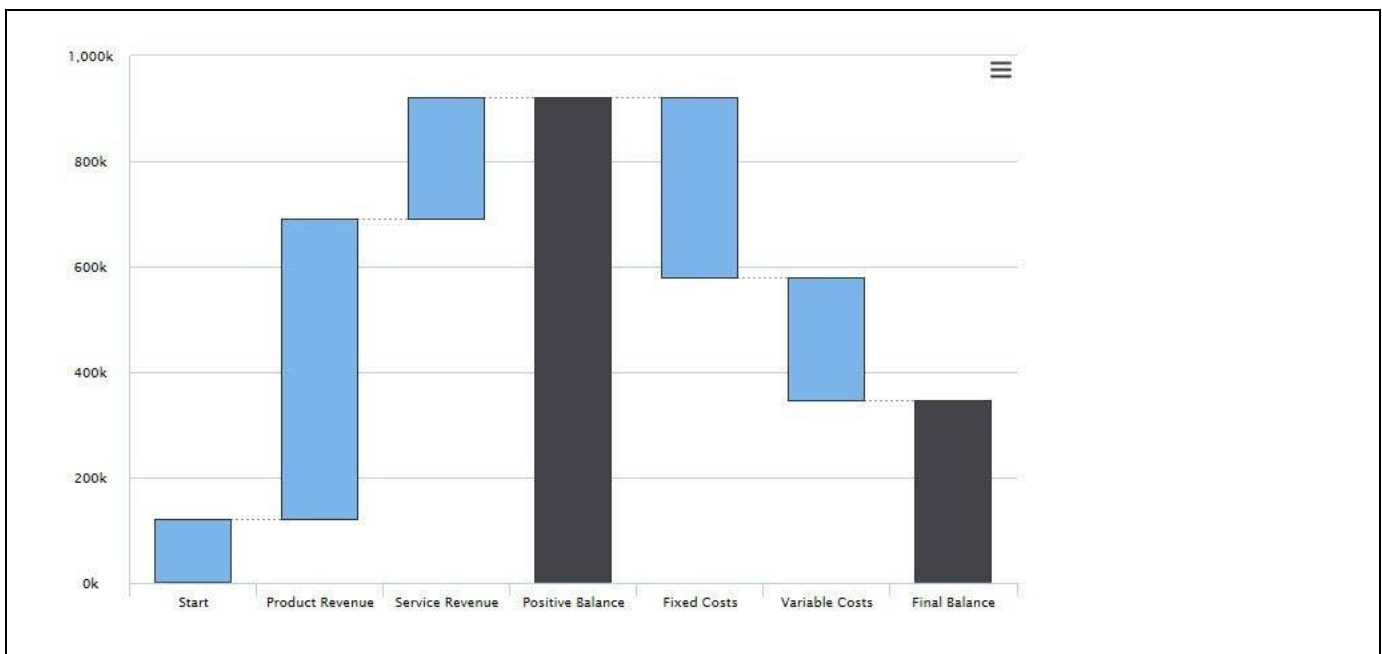


Figure 4.244: Waterfall Chart

4.15.1.1 Data Source Requirements for a Waterfall Chart

The minimum data source requirement for a Waterfall Chart are a data source with at least one dimension and one measure. The data source should indicate the positive and negative values. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Line Chart or you can decide to plot the complete data set onto the chart.

4.15.1.2 How to use the Waterfall Chart?

In the following steps we will outline how you can setup a new Waterfall Chart. For our example we will assume that we are going to use a data source with a dimension showing the value type and a measure with the actual value.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows a single measure along a dimension Value Type.
3. Add a Waterfall Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Waterfall Chart.
5. Your initial chart should look similar to Figure 4.245.

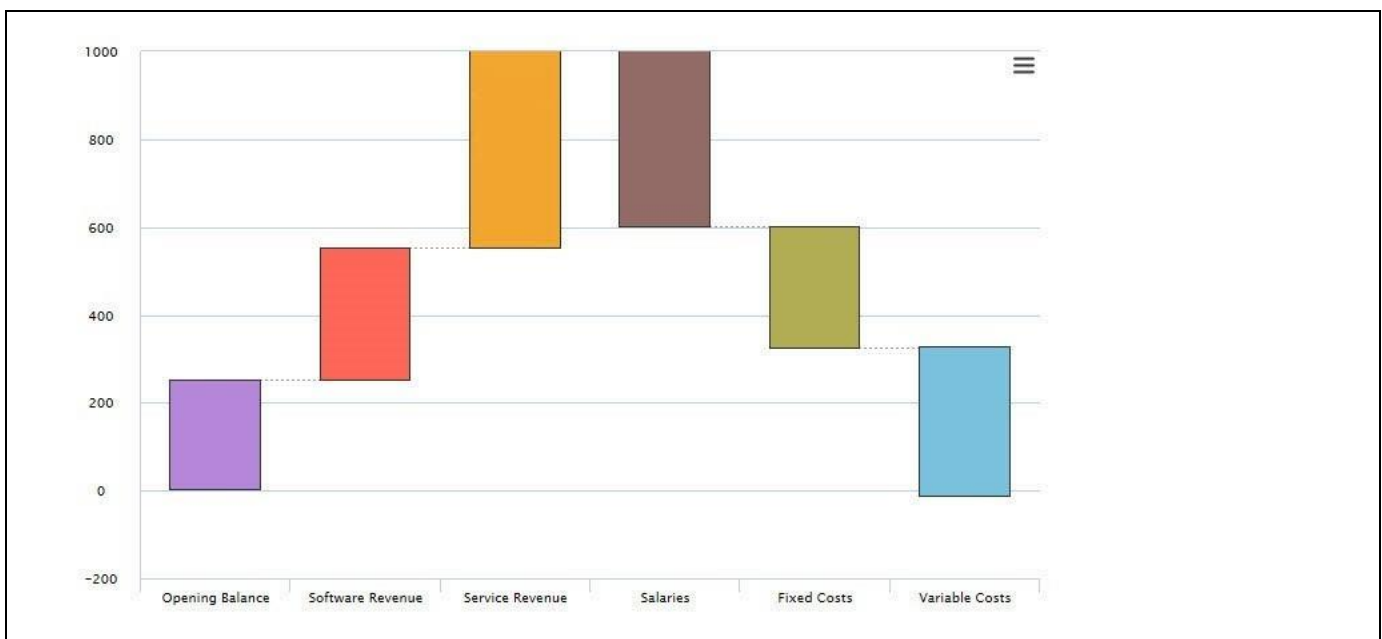


Figure 4.245: Waterfall Chart

6. Navigate to the Additional Properties of the Waterfall Chart.
7. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
8. Navigate to the category Data and to the sub category Data Series (see Figure 4.246).

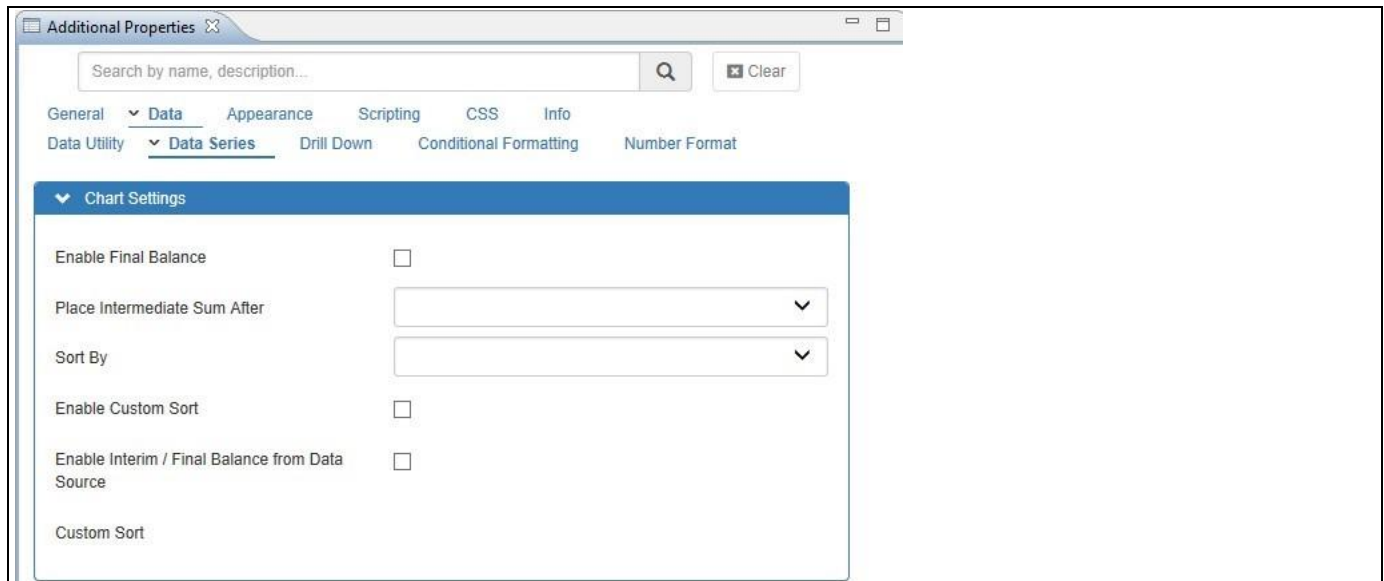


Figure 4.246: Additional Properties

9. In the area Chart Settings you can activate the option of an Intermediate Summary and you can choose after which value the Intermediate Summary will be placed using the property Place Intermediate Sum After.
10. You also have the ability to enable a custom sort option and you can configure elements from the assigned data source as an Interim or Final Balance.
11. For our example we place an Intermediate Summary after the value for the Service Revenue.
12. Our Waterfall Chart looks now like shown in Figure 4.247.

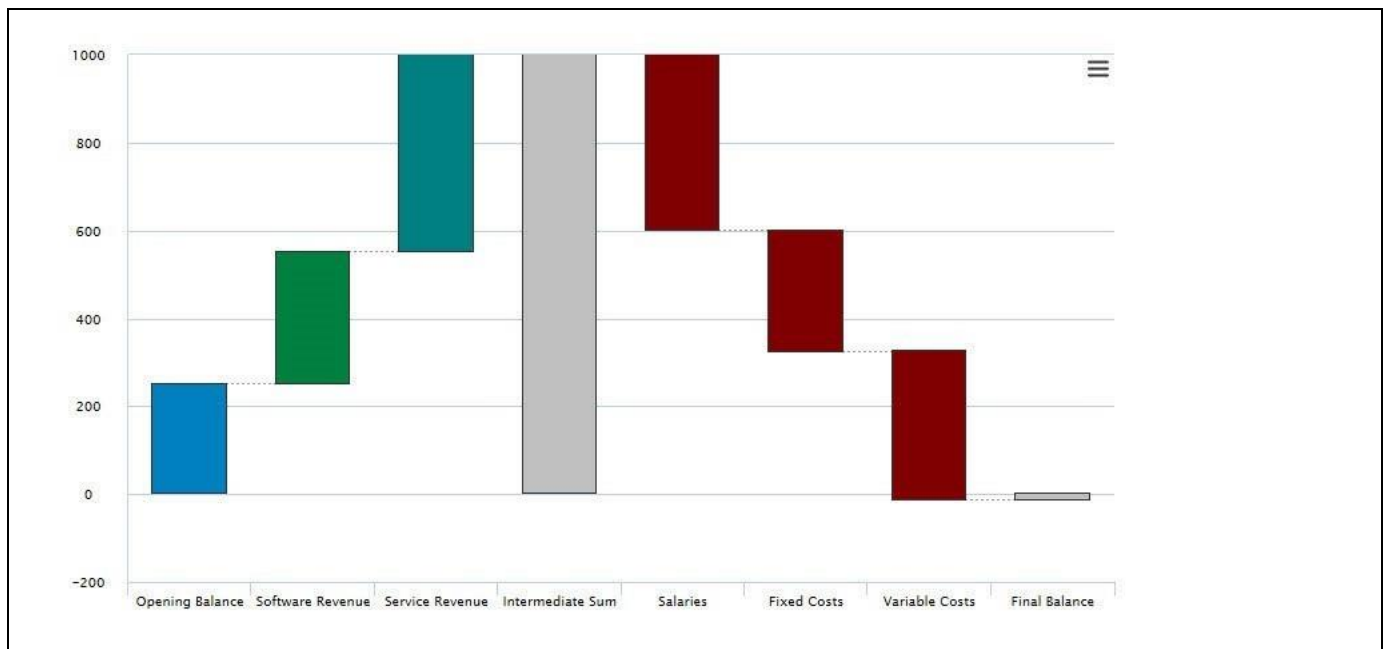


Figure 4.247: Waterfall Chart

4.15.1.3 Sorting Options for Waterfall Chart

By navigating to the category Data and to the sub category Data Series, you can activate the properties Sort By and Enable Custom Sort to enable the sorting options for the Waterfall chart.

Sort By: Using this property in the area Chart Settings, you can sort the dimension members on the X-Axis based on a set of options. The options are Initial View, Dimension Text in Ascending order, Dimension Text in Descending order, Dimension Key in Ascending order, and Dimension Key in Descending order. For our example, we have selected the option Dimension Text in Descending order (see Figure 4.248).



Figure 4.248: Sort By option

Enable Custom Sort: Using this property in the area Chart Settings, you can sort the dimension members on the X-Axis by defining a custom sort order. For our example, we created a custom sort order by swapping the dimension member Audio Equipment in the place of Cameras (see Figure 4.249).

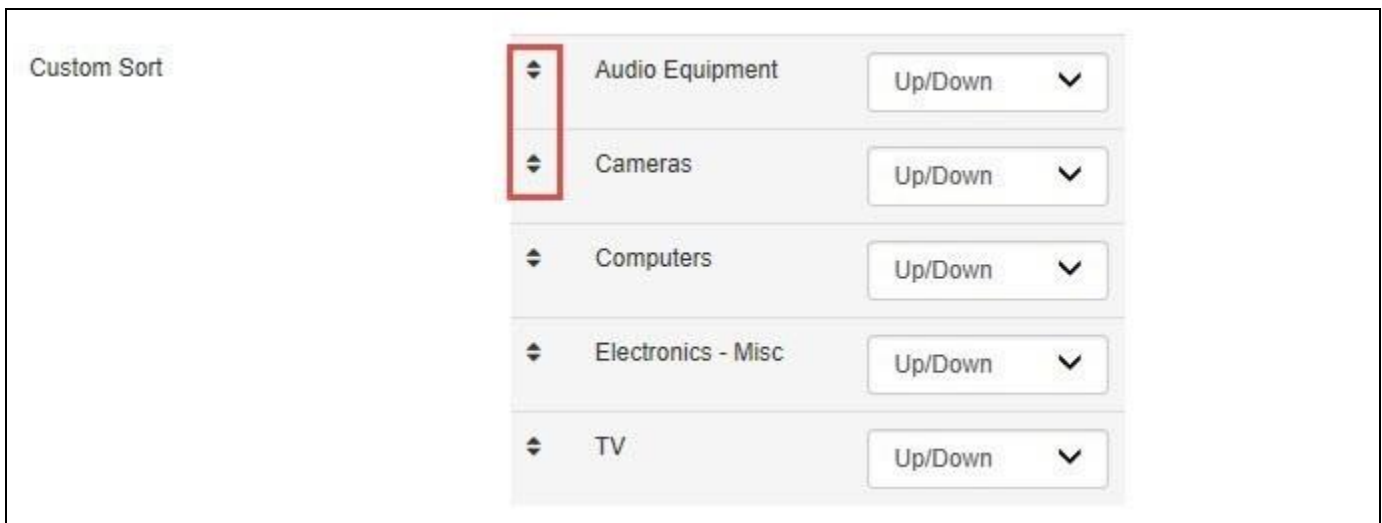


Figure 4.249: Custom Sort

Based on the Custom Sort configuration, the Waterfall Chart will be shown as in Figure 4.250.

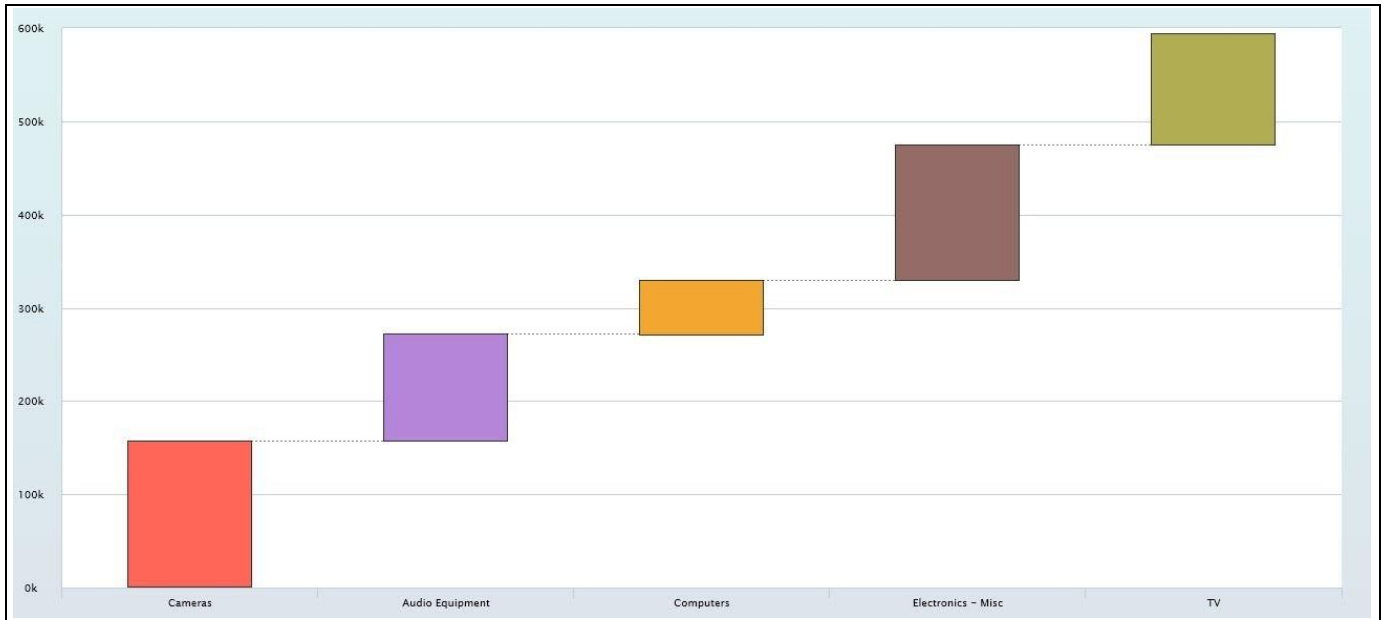


Figure 4.250: Custom Sort

4.15.1.4 Enable Interim / Final Balance from Data Source

If you wish to have an existing entry from the data source as an Intermediate Balance/Final Balance, then you can enable the property Enable Interim/Final Balance from the Data Source in the area Chart Settings. For our example, we have selected the existing entry as dimension member “Audio Equipment” and assigned the option as Intermediate Balance for that dimension member (see Figure 4.251).

Enable Custom Sort	<input checked="" type="checkbox"/>										
Enable Interim / Final Balance from Data Source	<input checked="" type="checkbox"/>										
Custom Sort	<table border="1"> <tr> <td>Cameras</td> <td>Up/Down</td> </tr> <tr> <td>Audio Equipment</td> <td>Intermediate Balance</td> </tr> <tr> <td>Computers</td> <td>Up/Down</td> </tr> <tr> <td>Electronics - Misc</td> <td>Up/Down</td> </tr> <tr> <td>TV</td> <td>Up/Down</td> </tr> </table>	Cameras	Up/Down	Audio Equipment	Intermediate Balance	Computers	Up/Down	Electronics - Misc	Up/Down	TV	Up/Down
Cameras	Up/Down										
Audio Equipment	Intermediate Balance										
Computers	Up/Down										
Electronics - Misc	Up/Down										
TV	Up/Down										

Figure 4.251: Intermediate Balance Selection

Based on the above configuration, you will be able to visualize the Waterfall Chart as shown in (see Figure 4.252).

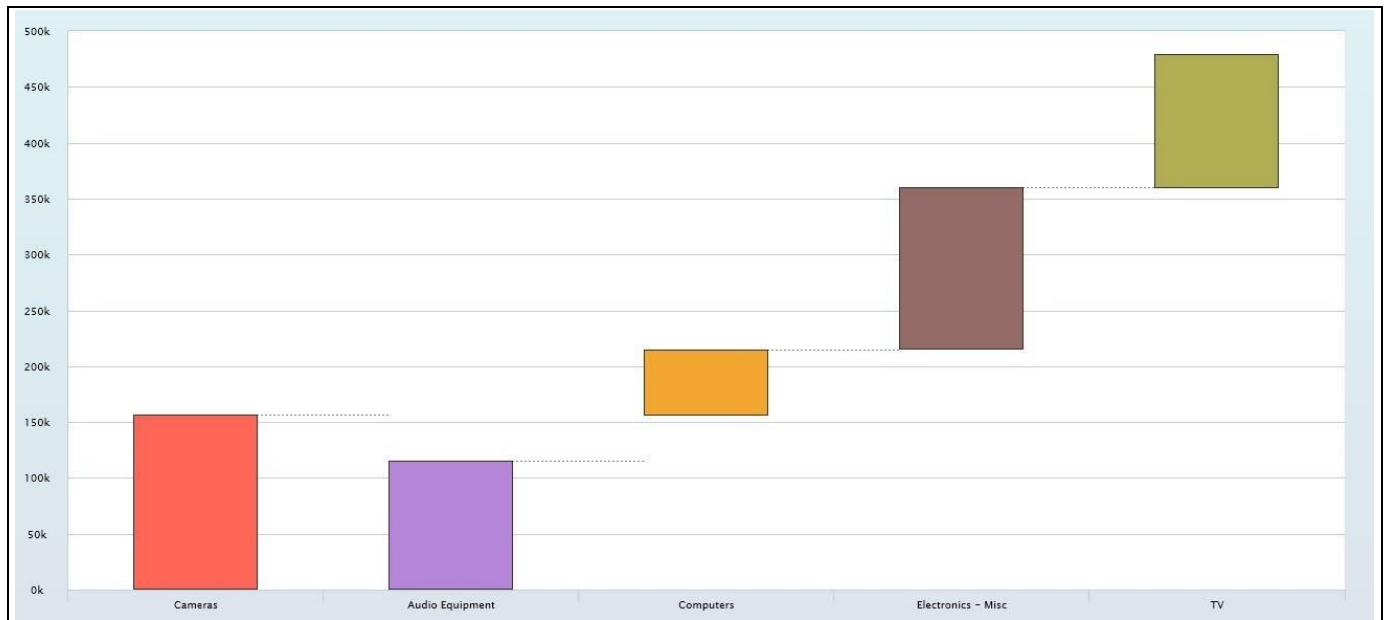


Figure 4.252: Intermediate Balance on Dimension Member

Sorting and Hierarchy Drill Down options

The Custom Sorting and Interim/Final Balance options will not function when the Drill Down options for the Waterfall Chart is enabled.

4.15.1.5 Hierarchy Drill Down options for Waterfall Chart

Starting with the release 2.0 of the Visual BI Extensions, you are provided with the following Hierarchy Drill Down options. You can configure the details by navigating to the category Data and to the sub category Drill Down (see Figure 4.253).

Additional Properties

Search by name, description...

General Data Appearance Scripting CSS Info

Data Utility Data Series Drill Down Conditional Formatting Number Format

Hierarchy Drill Down

- Enable Hierarchy Drill Down ☐
- Include Root Level Nodes ☒
- Max no. of Hierarchy Levels Auto ☒
- Activate Hierarchical Labeling ☒
- Enable Drilldown ☐

Figure 4.253: Hierarchy Drill Down

Enable Hierarchy Drill Down: Using this property, you can enable the Hierarchy Drill Down for the Waterfall chart based on the active Hierarchy based on the Initial View of the data source.

Include Root Level Nodes: Using this property you can include or exclude the Root Level Nodes of the active hierarchy.

Max no. of Hierarchy Levels: Using this property, you can specify the maximum number of levels from the hierarchy, which will be available for the Drill Down navigation. By specifying the maximum number of hierarchy levels you can limit the data volume, which you will be able to retrieve using the drilldown option.

Activate Hierarchical Labeling: Using this property you can activate a specific labeling which will visualize the hierarchical nature of the data and keep the labels on the X-Axis grouped together based on the hierarchical structure. For our example the labels of the both Category and Sub category items appear on the X-Axis (see Figure 4.254)

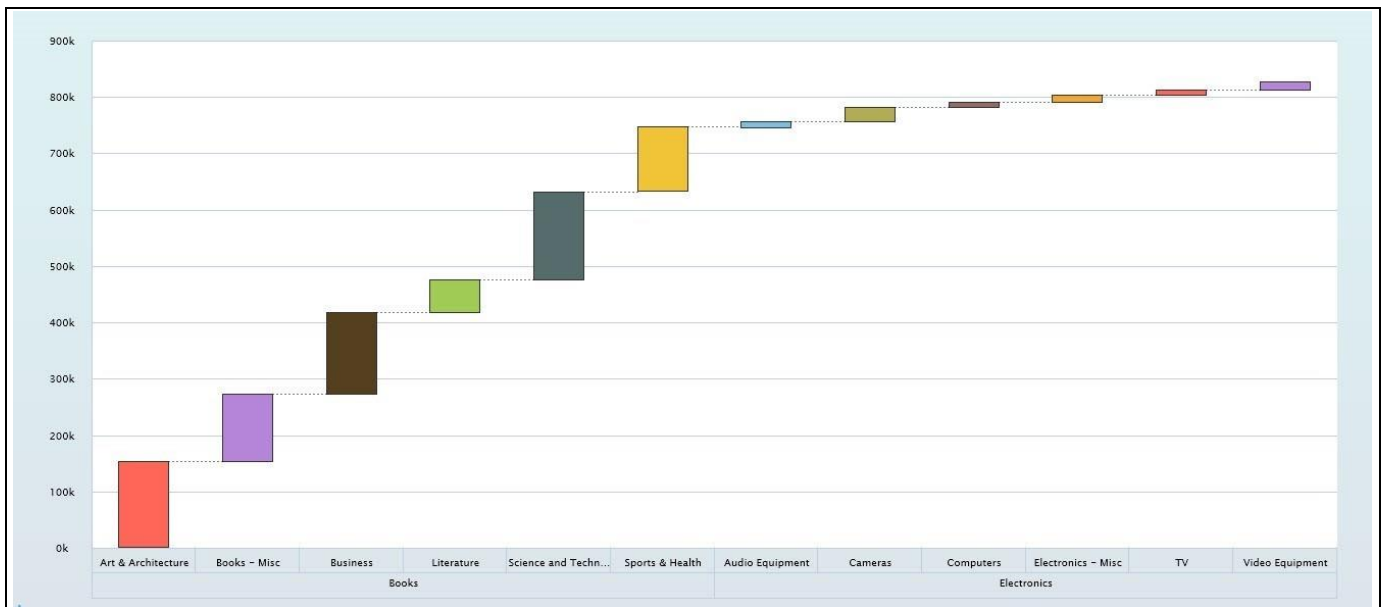


Figure 4.254: Hierarchical Labeling

Enable Drill Down: Using the property Enable Drill Down, you will be able to enable the Drill Down option for the Waterfall Chart. For our example, we have assigned the data set having the dimensions Item Category and Item Subcategory and measure Order Cost. Based on this configuration you will be able to visualize the Waterfall Chart with dimension Item Category with its dimension members for the measure Order Cost (see Figure 4.255). When you double click on any one of the dimension member of the dimension Item Category - for our example "Books" - it gets drilled down to the next level showing the Waterfall Chart with dimension members for the dimension Item Subcategory (see Figure 4.256).

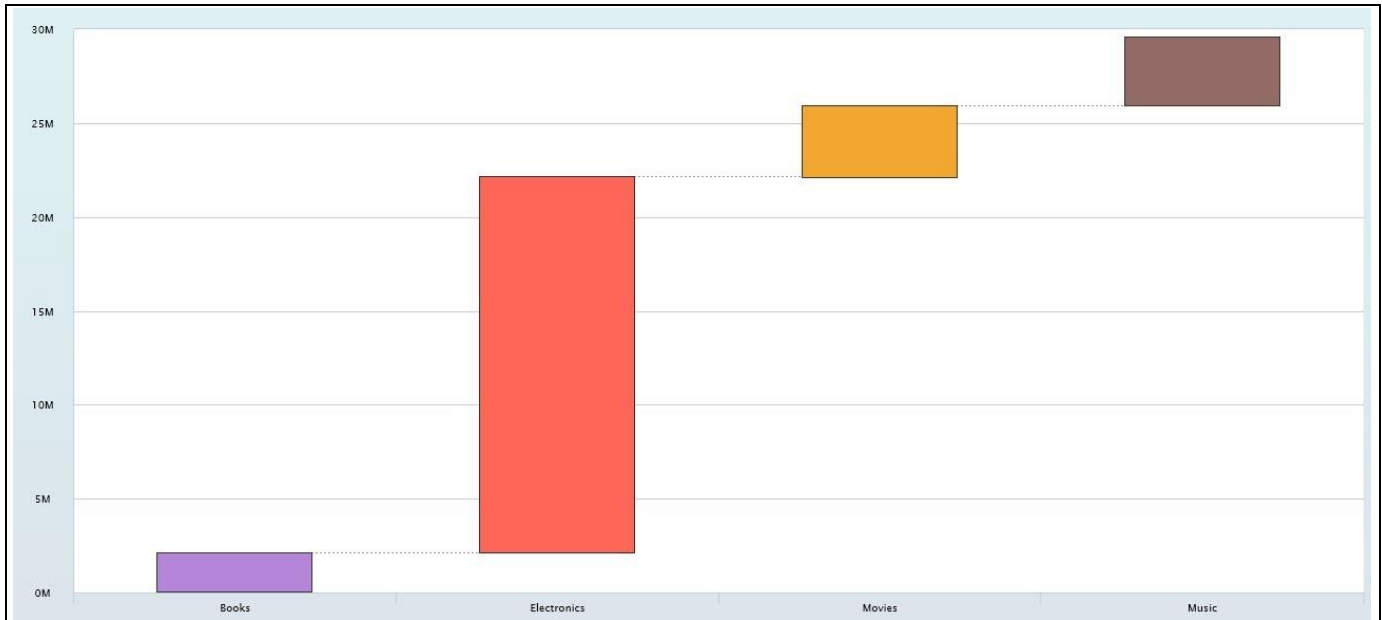


Figure 4.255: Waterfall Chart with Dimension Item Category



Figure 4.256: Waterfall Chart – Drilled Down to Dimension Item Subcategory

Enable Hierarchy Drill Down: When the property Hierarchical Drill Down is enabled, then you need to assign a data source having Hierarchy data set and visualize the Waterfall Chart based on the Hierarchy Drill Down configuration. In this scenario you will be able to visualize the Waterfall Chart representing the parent nodes and when you double click on any one element of the parent node, it gets drilled down to the next level showing the Waterfall Chart with the elements of the child node.

Hierarchy Drill Down option

The Hierarchy Drill Down option will only function when the Drill Down option for the Waterfall Chart is enabled.

4.15.1.6 Stacked Waterfall Chart

As part of VBX Release 2.32, you have the option to set the property Select Chart Type as Stack Waterfall by navigating to the category Appearance and to the sub category Chart in the Additional Properties of the Waterfall Chart (see Figure 4.257).

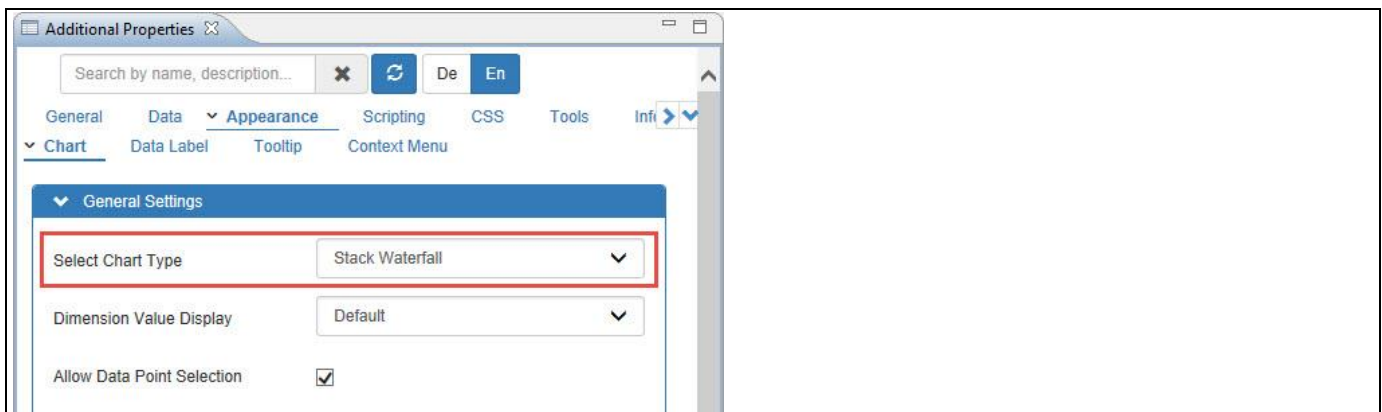


Figure 4.257: Select Chart Type

For our example, we have one dimension-Item Category with four Dimension members as Books, Electronics, Movies and Music and four Measures – Order Cost, Order Quantity, Order Amount and Discount Amount being assigned to the Waterfall Chart. Now by selecting the Chart Type as “Stack Waterfall”, you will be able to view the Waterfall Chart with each Measure being visually represented as a Stack for the respective Dimension member (see Figure 4.258).



Figure 4.258: Stacked Waterfall Chart

4.15.2 Additional Properties of the Waterfall chart

In addition to supporting the standard set of Additional Properties outlined in section 4.5 and the Additional Properties for the X-Axis and Y-Axis outlined in section 4.5.6.1, the Waterfall supports the following Additional Properties.

4.15.2.1 Category Data

Sub category	Area	Property	Description
Data Series	Chart Settings	Enable Final Balance	This property enables the option to show a final balance as part of the chart.
		Place Intermediate Sum After	This property allows you to place an intermediate summary after a selected value of the data series.
		Sort By	This property allows you to set the sorting options. The options are Initial View, Dimension Text in Ascending order, Dimension Text in Descending order, Dimension Key in Ascending order and Dimension Key in Descending order.
		Enable Custom Sort	This property allows you to enable/disable the Custom Sort.
		Enable Interim / Final Balance from Data Source	By enabling this property, you can select the Intermediate Balance or Final Balance options.
Drill Down	Hierarchy Drill Down	Enable Drilldown	Using this property, you can enable/disable the Drill Down option for the Waterfall Chart.

Table 4.27: Data

4.15.2.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Select Chart Type	This property allows you to select the Chart Type for the Waterfall Chart. The options are Horizontal Waterfall, Vertical Waterfall and Stack Waterfall.

4.15.3 Scripting Functions for the Waterfall Chart

All supported scripting functions for the Waterfall Chart are listed in section 4.6.

4.15.4 Heat Map Chart

The Heat Map Chart gives you the option to visualize the information based on two dimensions and one measure (see Figure 4.259). The two dimensions are being used to set the X-Axis as well as the Y-Axis, and the measure is being used to indicate – in form of a colored matrix – the value for the combination of these two dimensions.

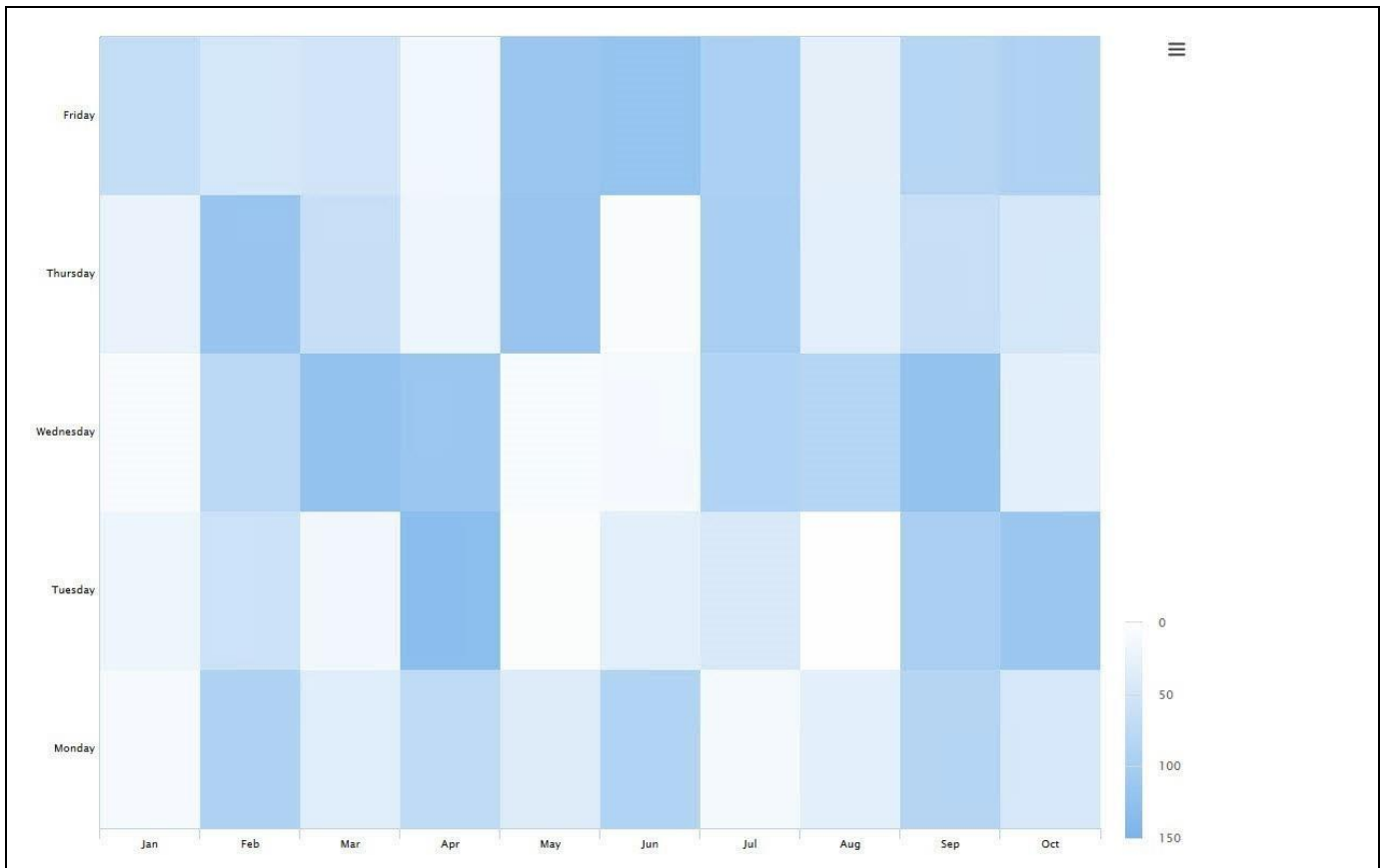


Figure 4.259: Heat Map Chart

4.15.4.1 Data Source Requirements for a Heat Map Chart

The minimum data source requirement for a Heat Map Chart are a data source with at least one dimension in the Rows, and one dimension in the Columns of the Initial View of the data source. In addition the data source should contain at least one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Heat Map Chart or you can decide to plot the complete data set onto the chart.

You can use the following set of rules for the data structure for a Heat Map Chart:

- Each Dimension placed into the Rows of the Initial View of the Data Source will be used for the X-Axis of the chart.
- Each Dimension placed into the Columns of the Initial View of the Data source will be used for the Y-Axis of the chart.

4.15.4.2 How to use the Heat Map Chart?

In the following steps we will outline how you can setup a new Heat Map Chart. For our example we will assume that we are going to use a data source with a dimension Month in the Rows, a dimension Product in the Columns, and a measure Profit in the Columns of the Initial View of the data source.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Heat Map Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Heat Map Chart (see Figure 4.260).



Figure 4.260: Heat Map Chart

5. Navigate to the Additional Properties of the Heat Map Chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Data Series (see Figure 4.261).



Figure 4.261: Category Data

- In the area Chart Settings you can use the Minimum Value Color and Maximum Value Color options as well as the Minimum and Maximum Value options to customize the coloring and scaling of the chart.

4.15.5 Additional Properties of the Heat Map Chart

In addition to supporting the standard set of Additional Properties outlined in section 4.5 and the Additional Properties for the X-Axis and Y-Axis outlined in section 4.5.6.1, the Heat Map Chart supports the following Additional Properties.

4.15.5.1 Category Data

Sub category	Area	Property	Description
Data Series	Chart Settings	Minimum Value	Here you can configure the minimum value for the scale of the chart.
		Minimum Color	Here you can configure the color for the minimum value of the chart.
		Maximum Value	Here you can configure the maximum value for the scale of the chart.
		Maximum Color	Here you can configure the color for the maximum value of the chart.

Table 4.28: Data

4.15.6 Scripting Functions for the Heat Map Chart

All supported scripting functions for the Heat Map Chart are listed in section 4.6.

4.15.7 Scatter Chart

Scatter Charts are used to visualize the correlation of two measures for a given set of dimension members. A Scatter Chart is visualizing the two measures on the X-Axis and Y-Axis and the dimension members are just as a plotted point against those two measures. Scatter charts have the ability to show trends, clusters, or pattern in a large set of data.

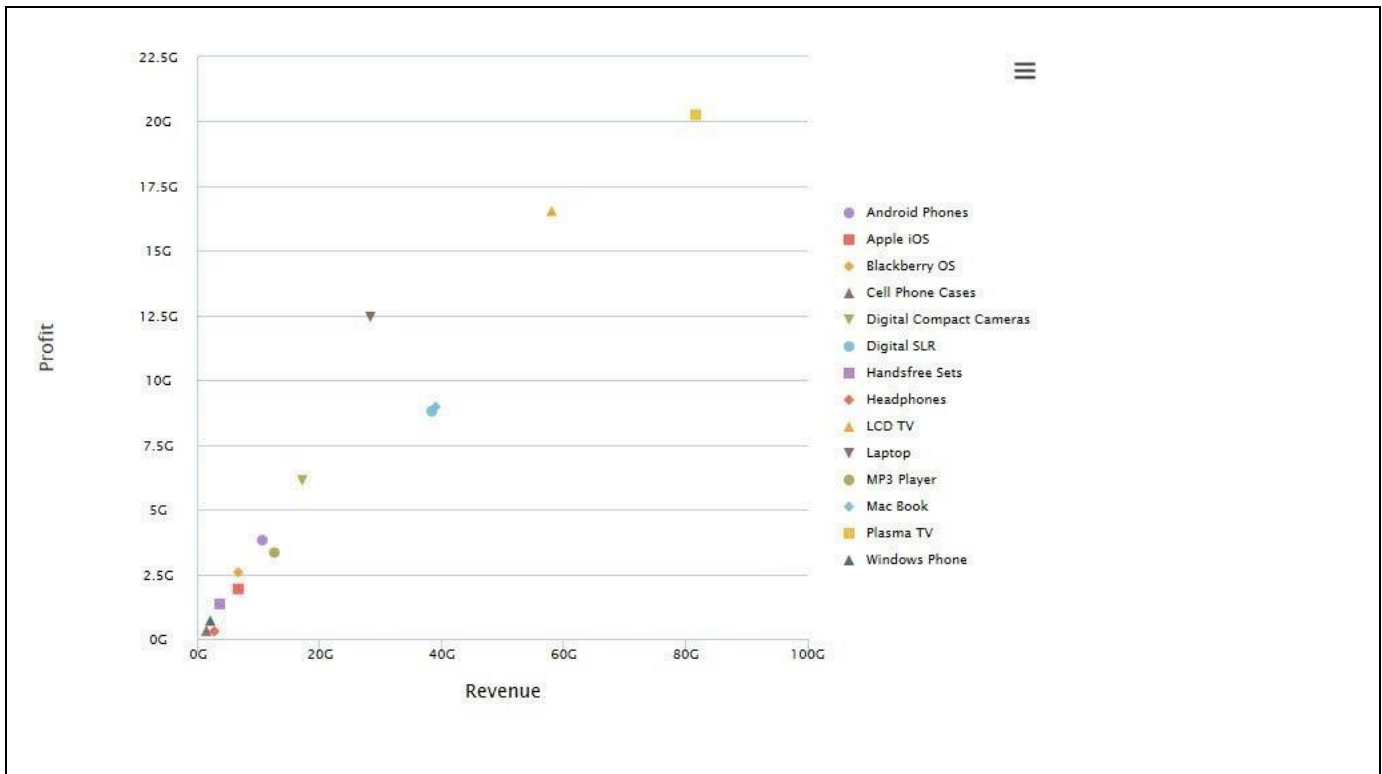


Figure 4.262: Scatter Chart

Figure 4.262 shows a Scatter Chart visualizing the relationship of measure Revenue and Profit for a list of products.

4.15.7.1 Data Source Requirements for a Scatter Chart

The minimum data source requirement for a Scatter Chart are a data source with at least one dimension in the Rows, and two measures in the Columns. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Scatter Chart or you can decide to plot the complete data set onto the chart.

You can use the following set of rules for the data structure for a Scatter Chart:

- Each Dimension placed into the Rows of the Initial View of the Data Source will be used for the plotted points of the chart.
- The first measure placed in the Columns of the Initial View of the Data Source will be used for the X-Axis.
- The second measure placed in the Columns of the Initial View of the Data Source will be used for the Y-Axis.

4.15.7.2 How to use the Scatter Chart?

In the following steps we will outline how you can setup a new Scatter Chart. For our example we will assume that we are going to use a data source with a dimension Product in the Rows and measure Profit and measure Revenue in the Columns of the Initial View of the data source.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Scatter Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Scatter Chart (see Figure 4.262).
5. Navigate to the Additional Properties of the Scatter Chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Data Series (see Figure 4.263).

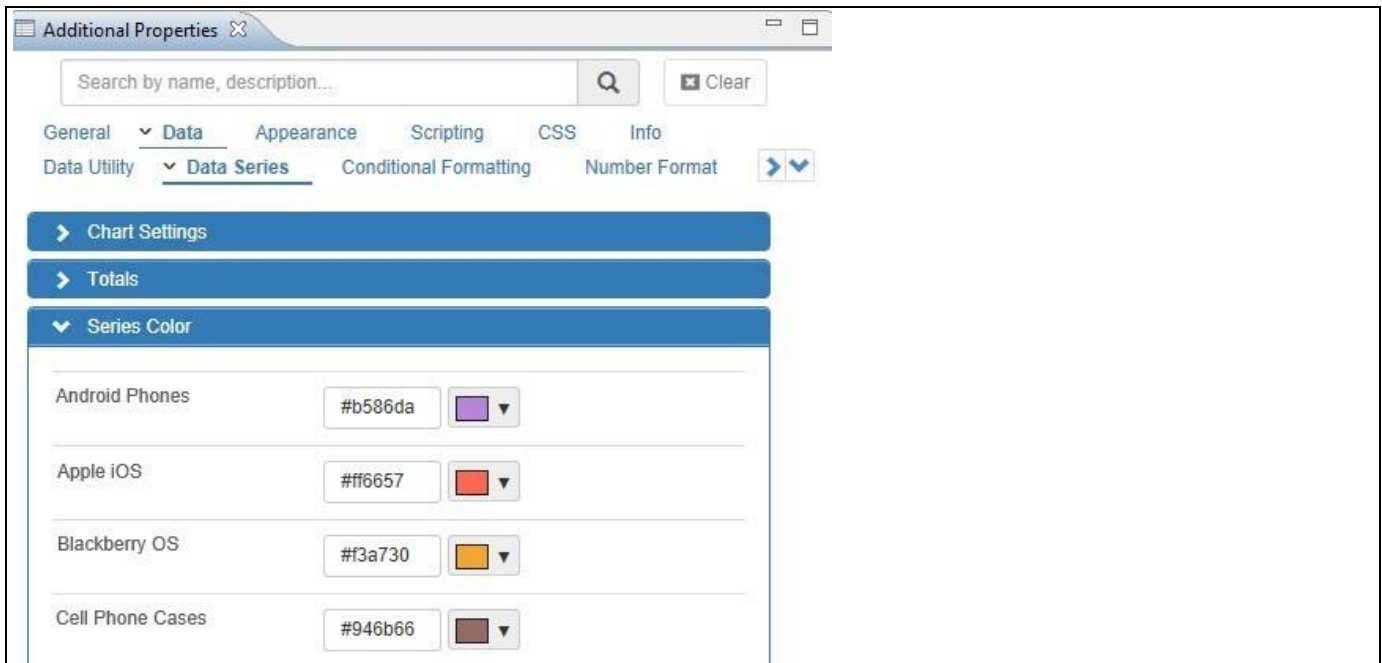


Figure 4.263: Scatter Chart

8. In the area Series Color you can setup the color as well as the symbol for each of the data series members.

4.15.8 Additional Properties of the Scatter Chart

In addition to supporting the standard set of Additional Properties outlined in section 4.5 and the Additional Properties for the X-Axis and Y-Axis outlined in section 4.5.6.1, the Scatter Chart supports the following Additional Properties.

4.15.8.1 Category General

Sub category	Area	Property	Description
X-Axis	General Settings	Cross Value	Here you can specify at which value the X-Axis will cross the X-Axis.
Y-Axis	General Settings	Cross Value	Here you can specify at which value the Y-Axis will cross the Y-Axis.

Table 4.29: General

4.15.8.2 Data

Sub category	Area	Property	Description
Data Series	Chart Settings	Swap Axes	Using this property you can swap the X-Axis and Y-Axis from the chart.
	Series Color	Series Color	In the Series color area you can define the color as well as the symbol for each data series element.

Table 4.30: Data

4.15.9 Scripting Functions for the Scatter Chart

All supported scripting functions for the Scatter Chart are listed in section 4.6.

4.15.10 Bubble Chart

Bubble Charts – very similar to a Scatter Chart – allow you to visualize several dimensions in a single chart. A Bubble Chart uses two measures – one on the X-Axis and one on the Y-Axis as well as a third measure, which is visualized in form of the bubble size.

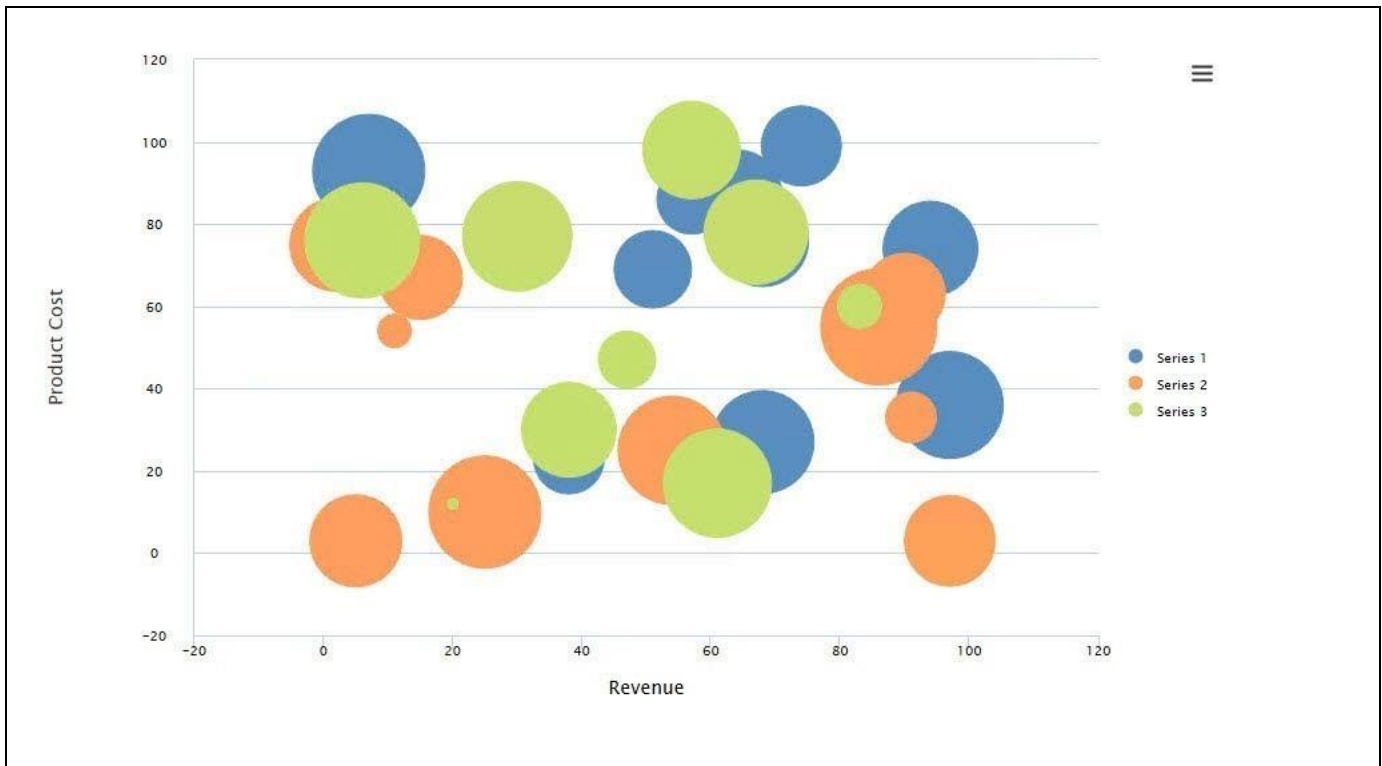


Figure 4.264: Bubble Chart

Figure 4.264 shows a Bubble Chart using measure Revenue on the X-Axis, measure Product Cost on the Y-Axis, and measure Margin is being used to define the Bubble size.

4.15.10.1 Data Source Requirements for a Bubble Chart

The minimum data source requirement for a Bubble Chart are a data source with at least one dimension in the Rows, and three measures in the Columns. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Bubble Chart or you can decide to plot the complete data set onto the chart.

You can use the following set of rules for the data structure for a Bubble Chart:

- Each Dimension placed into the Rows of the Initial View of the Data Source will be used as a Data Series element and you can assign the different colors in the Additional Properties.
- The first measure placed in the Columns of the Initial View of the Data Source will be used for the X-Axis.
- The second measure placed in the Columns of the Initial View of the Data Source will be used for the Y-Axis.
- The third measure placed in the Columns of the Initial View of the Data Source will be used for the Bubble size.

4.15.10.2 How to use the Bubble Chart?

In the following steps we will outline how you can setup a new Bubble Chart. For our example we will assume that we are going to use a data source with a dimension Product in the Rows and measures Revenue, Cost, and Profit in the Columns of the Initial View of the data source.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Bubble Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Bubble Chart.
5. Navigate to the Additional Properties of the Bubble Chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Data Series (see Figure 4.265).

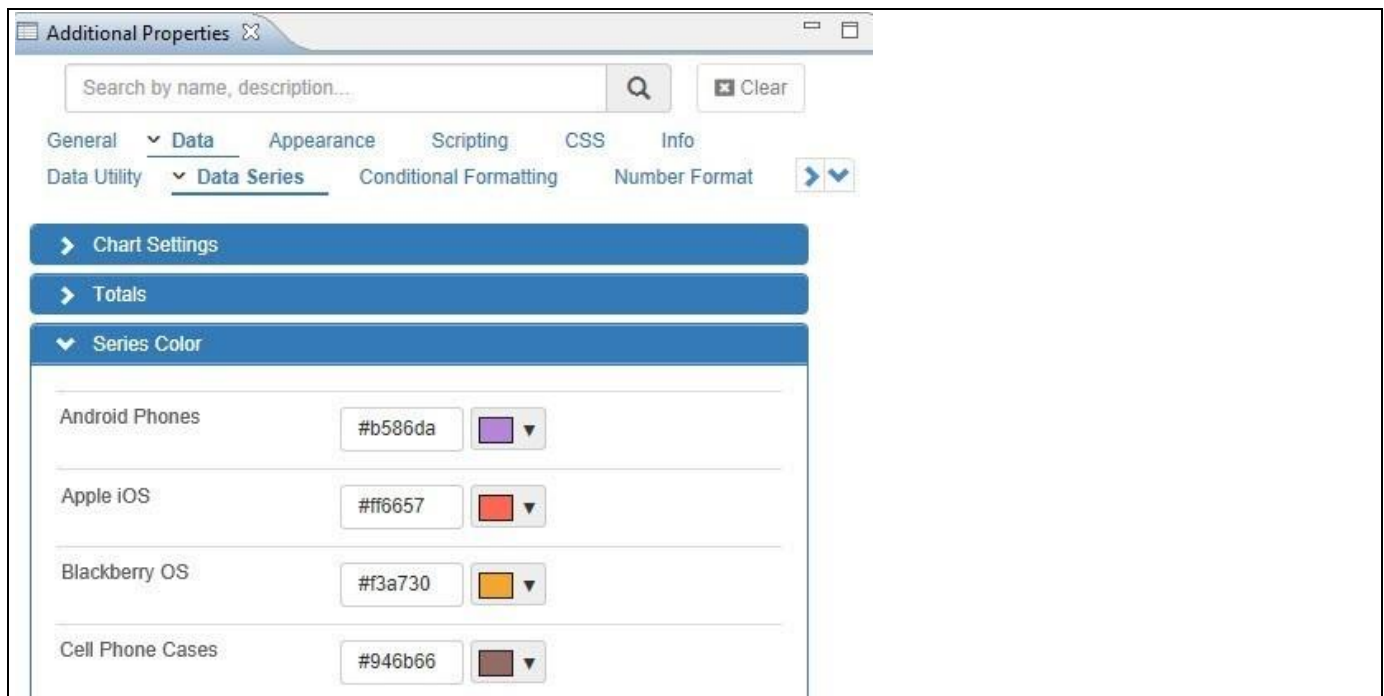


Figure 4.265: Bubble Chart

8. In the area Series Color you can define the color for each data series of the chart.

4.15.10.3 Legend for size of the Bubbles

You will be also able to observe that Bubble Legends will appearing in the Run time along with the Data Series Legends. The Bubble Legend will represent the three sets of Bubble size values namely Lower Bubble Size, Middle Bubble Size and Higher Bubble Size (see Figure 4.266).

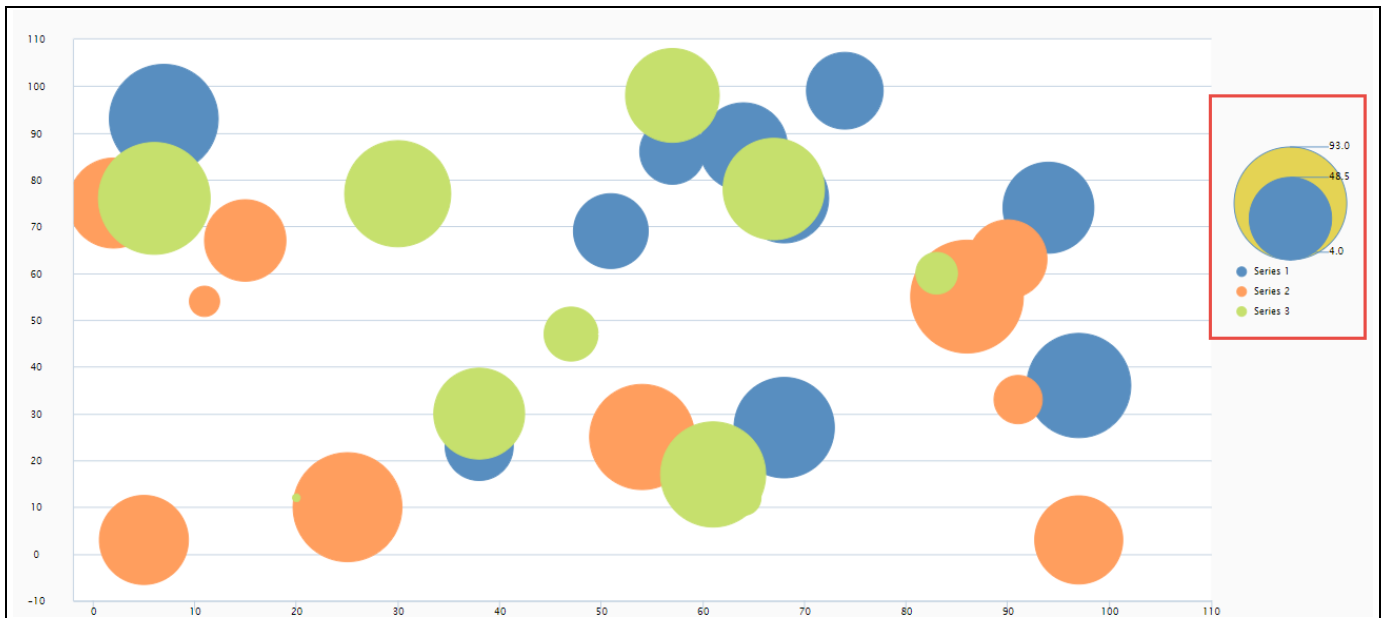


Figure 4.266: Legends representing the size of the Bubbles

4.15.11 Additional Properties of the Bubble Chart

In addition to supporting the standard set of Additional Properties outlined in section 4.5 and the Additional Properties for the X-Axis and Y-Axis outlined in section 4.5.6.1, the Bubble Chart supports the following Additional Properties.

4.15.11.1 Category General

Sub category	Area	Property	Description
X-Axis	General Settings	Cross Value	Here you can specify at which value the X-Axis will cross the X-Axis.
Y-Axis	General Settings	Cross Value	Here you can specify at which value the Y-Axis will cross the Y-Axis.

Table 4.31: General

4.15.11.2 Data

Sub category	Area	Property	Description
Data Series	Chart Settings	Swap Axes	Using this property you can swap the X-Axis and Y-Axis from the chart.
	Series Color	Series Color	In the Series color area you can define the color as well as the symbol for each data series element.

Table 4.32: Data

4.15.12 Scripting Functions for the Bubble Chart

All supported scripting functions for the Bubble Chart are listed in section 4.6.

4.15.13 Marimekko Chart

A Marimekko chart is essentially a stacked column chart with a variable column width. In addition to the varying segment heights of a regular stacked column chart, a Marimekko chart is indicating an additional dimension using varying column widths. The variable column width on the X-Axis is based on the share of each member in relation to the total.

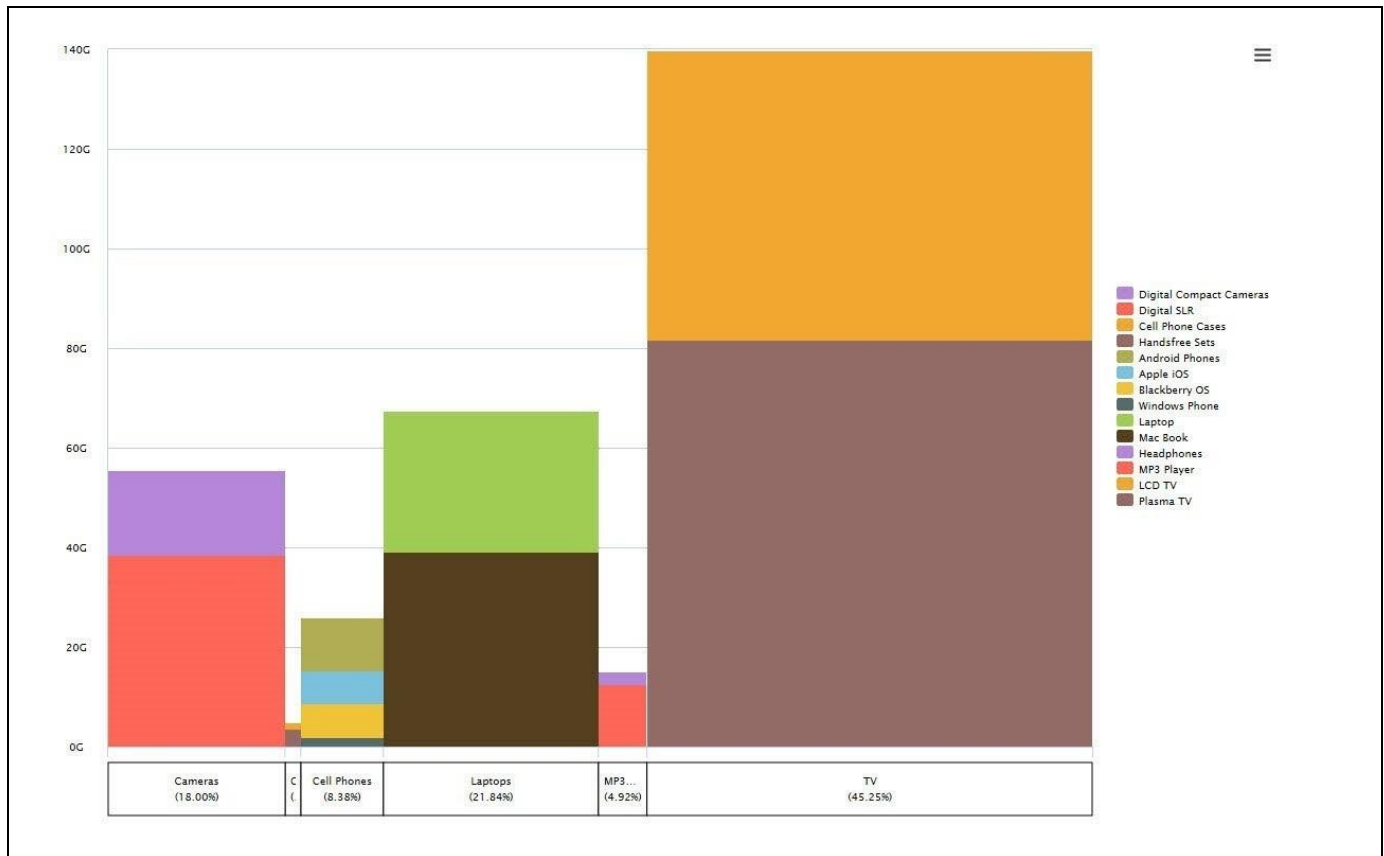


Figure 4.267: Marimekko Chart

Figure 4.267 shows a Marimekko Chart with the Product Group on the X-Axis showing the percentage values in relation to the total value and the individual Product is plotted in form of a stacked column chart for each individual Product Group.

4.15.13.1 Data Source Requirements for a Marimekko Chart

The minimum data source requirement for a Marimekko Chart are a data source with at least two dimensions in the Rows, and one measure in the Columns. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Marimekko Chart or you can decide to plot the complete data set onto the chart.

You can use the following set of rules for the data structure for a Marimekko Chart:

- The first Dimension placed into the Rows of the Initial View of the Data Source will be used as Dimension for the X-Axis.
- The second Dimension placed into the Rows of the Initial View of the Data Source will be used as Dimension for the stacking of the values.

4.15.13.2 How to use the Marimekko Chart?

In the following steps we will outline how you can setup a new Marimekko Chart. For our example we will assume that we are going to use a data source with a dimension Month and a dimension Product in the Rows and measures Revenue in the Columns of the Initial View of the data source.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Marimekko Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Marimekko Chart.

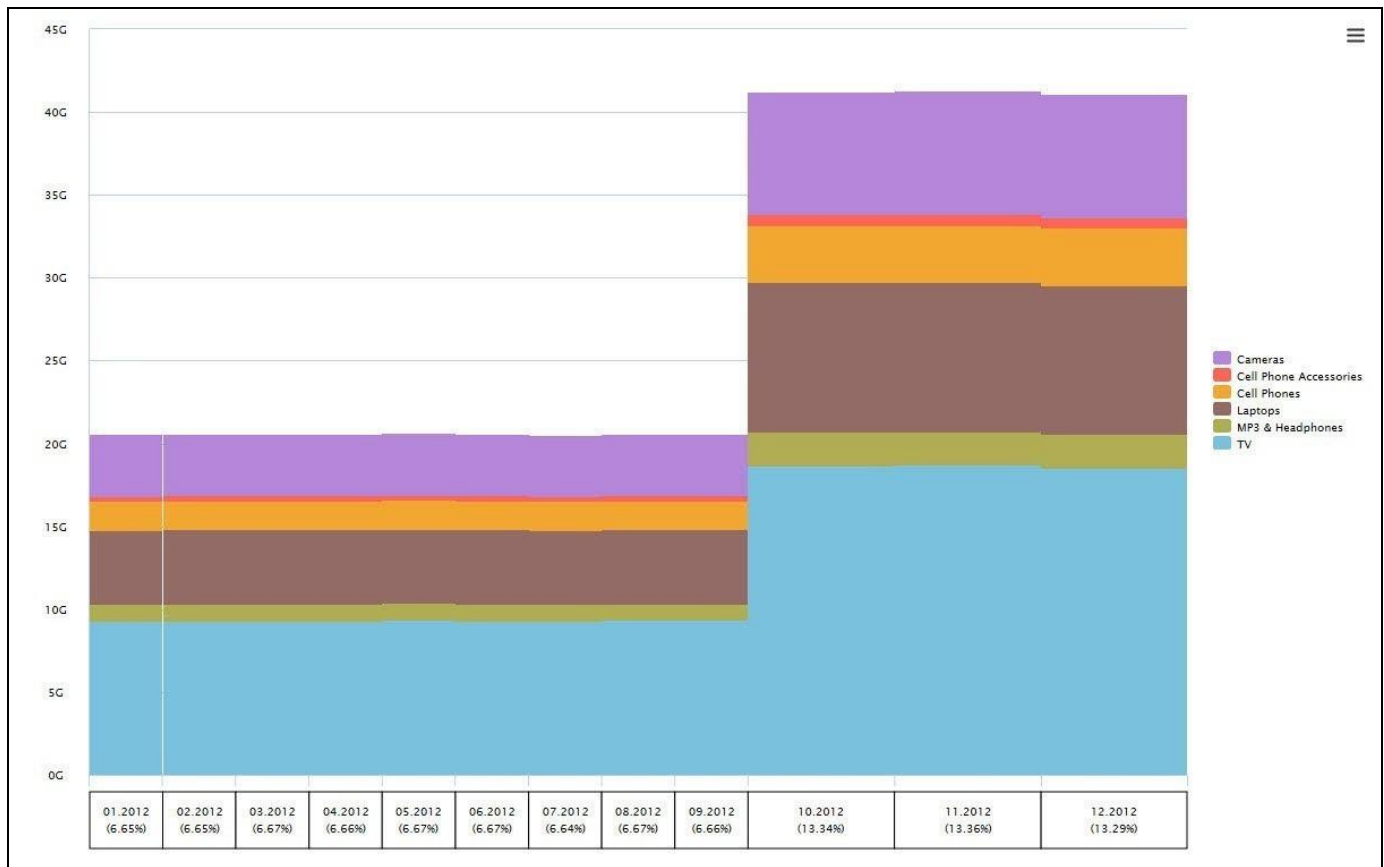


Figure 4.268: Marimekko Chart

5. Navigate to the Additional Properties of the Marimekko Chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the Additional Properties.
7. Navigate to the category Appearance and to the sub category Chart (see Figure 4.269).

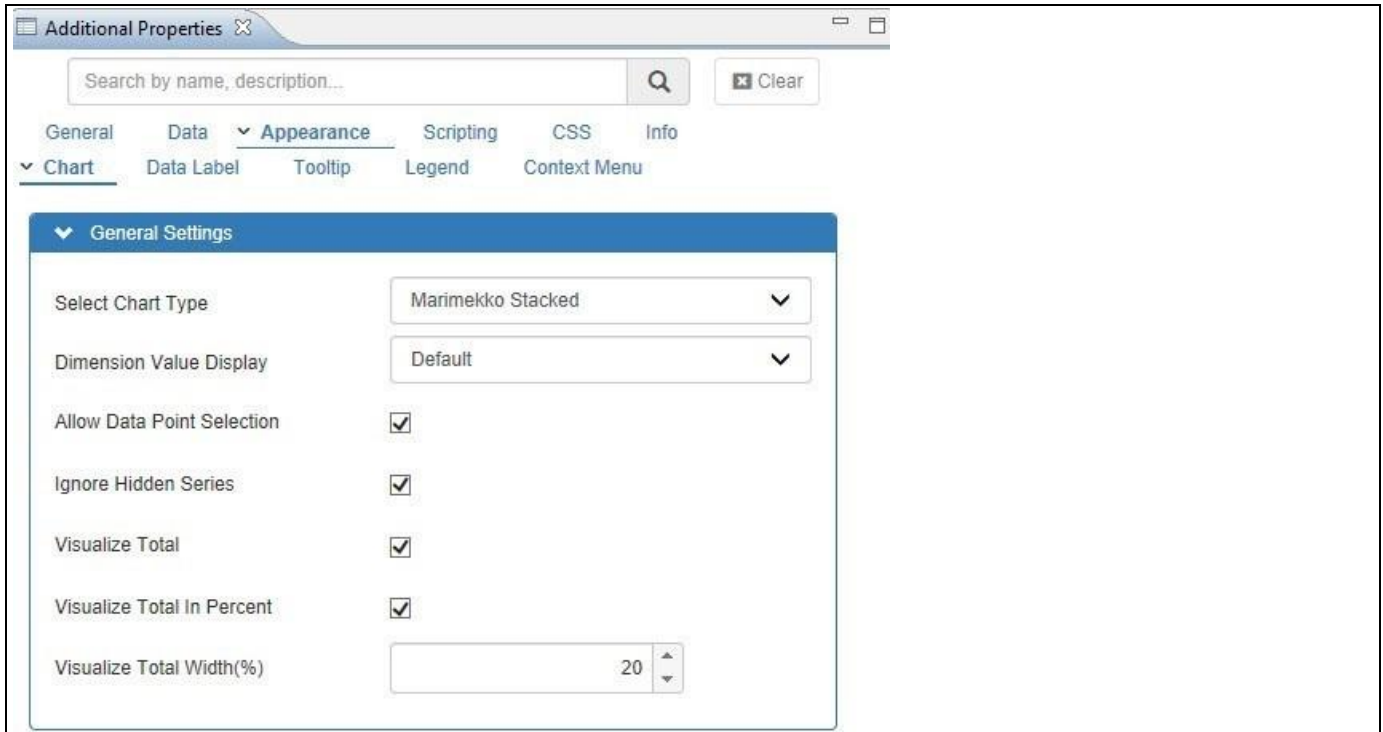


Figure 4.269: Additional Properties

8. In the area General Settings you can use the Select Chart Type property to setup a Marimekko Standard Chart or a Marimekko Percentage Chart.
9. Now navigate to the category General and to the sub category X-Axis.
10. Scroll down to the area Axis Label (see Figure 4.270).

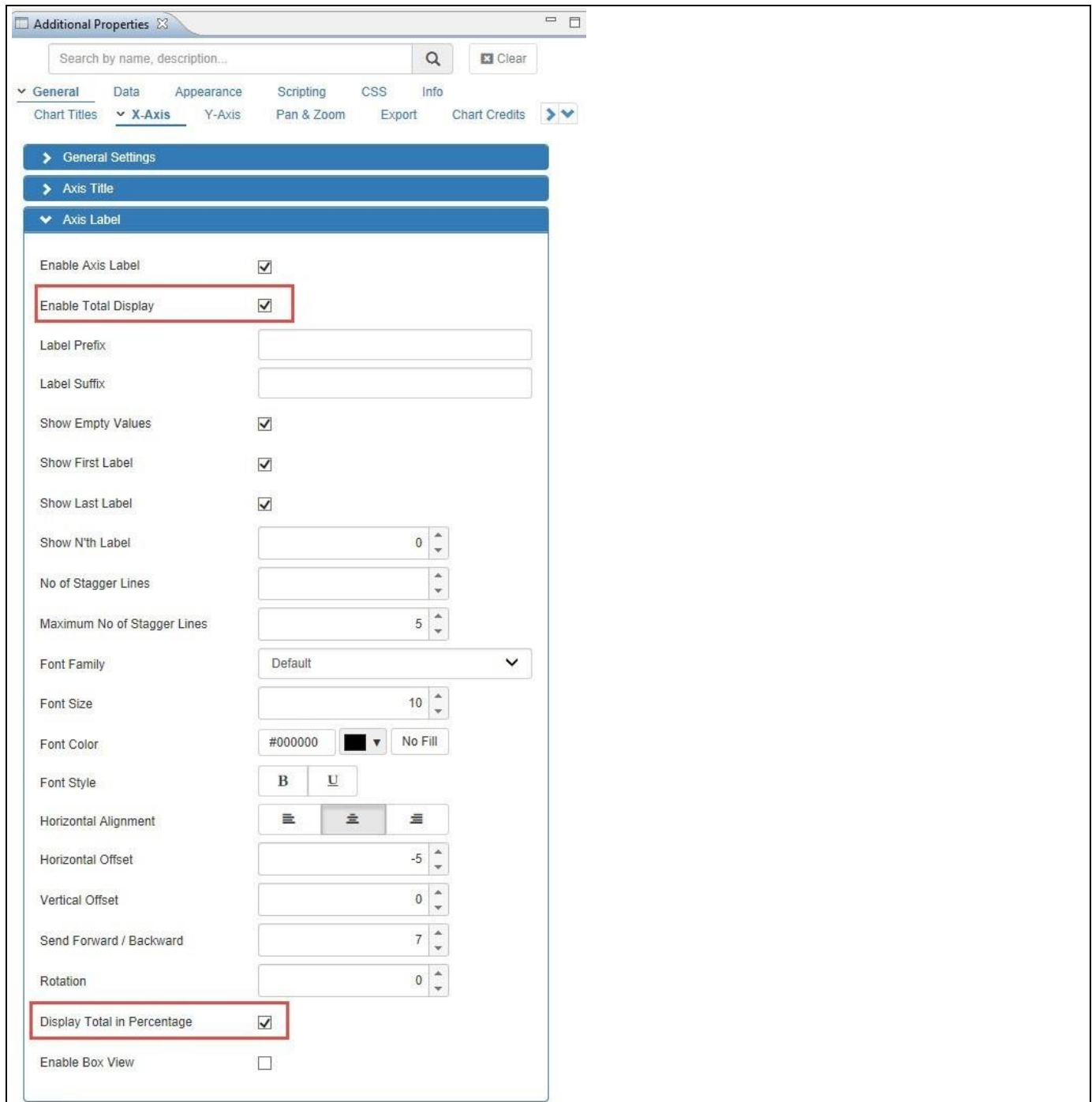


Figure 4.270: Category General - X-Axis

11. The property Enable Total Display allows you to display the Total for each data series on the X-Axis as numerical value.
12. The property Display Total in Percentage allows you to display the Total for each data series on the X-Axis as percentage value share of the total value.
13. Navigate to the category Appearance and to the sub category Chart.
14. Scroll down to the area General Settings (see Figure 4.271).

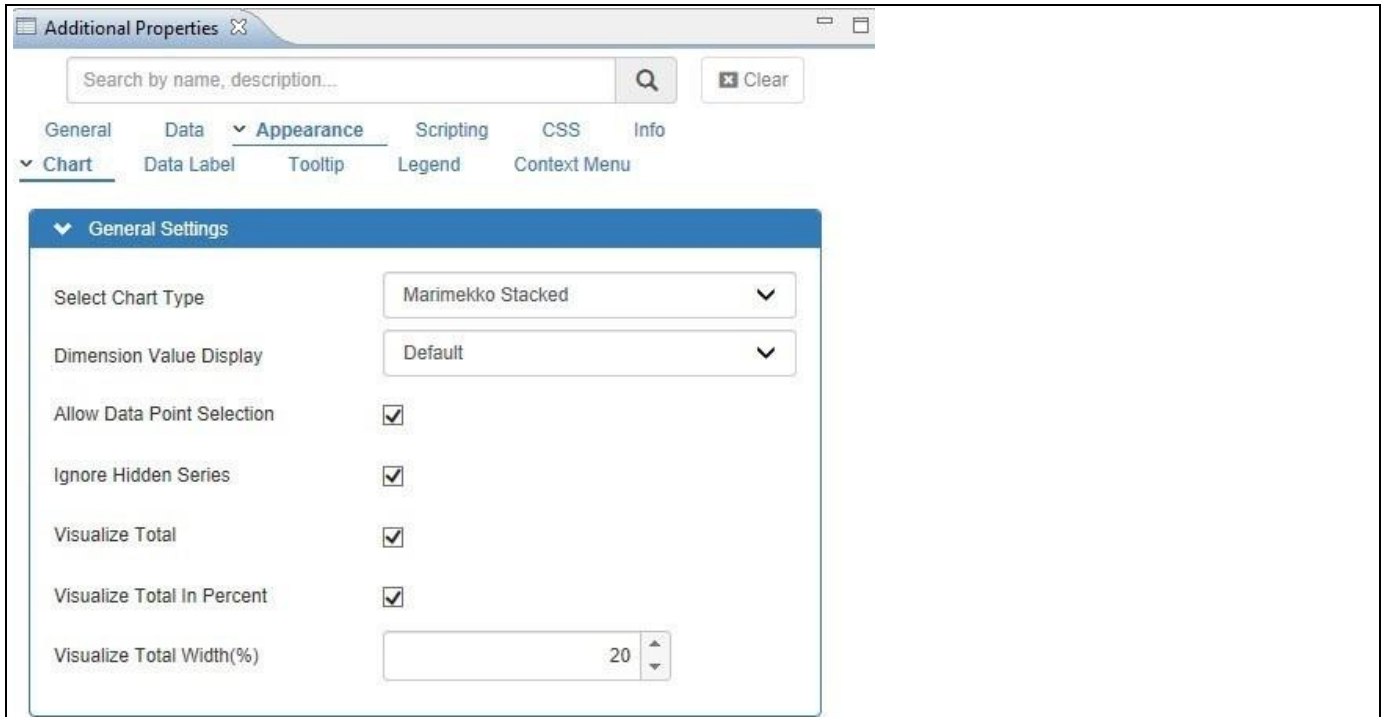


Figure 4.271: Category Appearance

15. The property Visualize Total allows you to activate an extra area next to the Marimekko Chart, which visualizes the Total values for each of the stacked dimension members (see Figure 4.272).

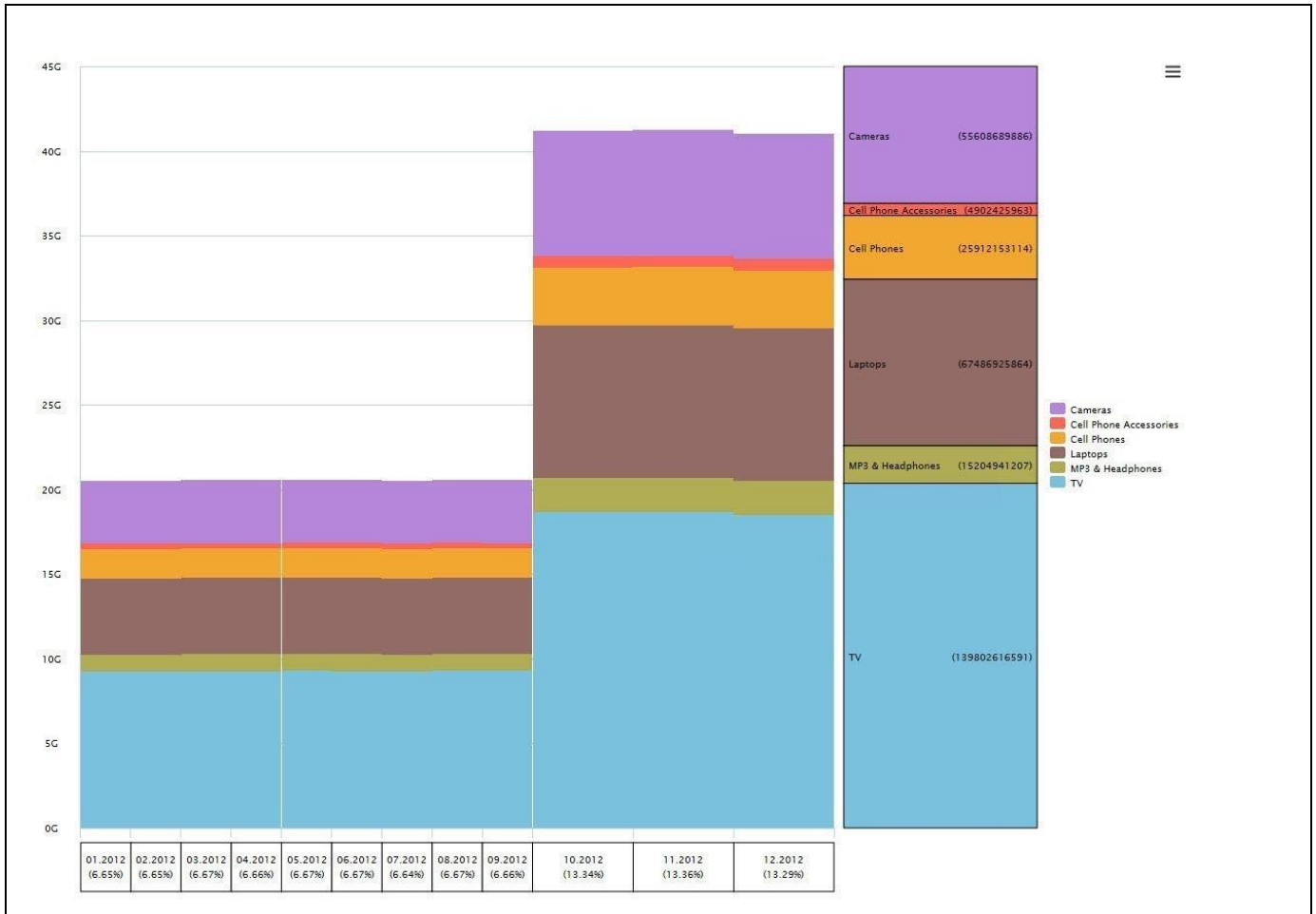


Figure 4.272: Marimekko Chart with Total Values

- The property Visualize Total in Percent allows you to show the Totals in percentage values based on share.
- Navigate to the category Data and to the sub category Data Utility (see Figure 4.273).

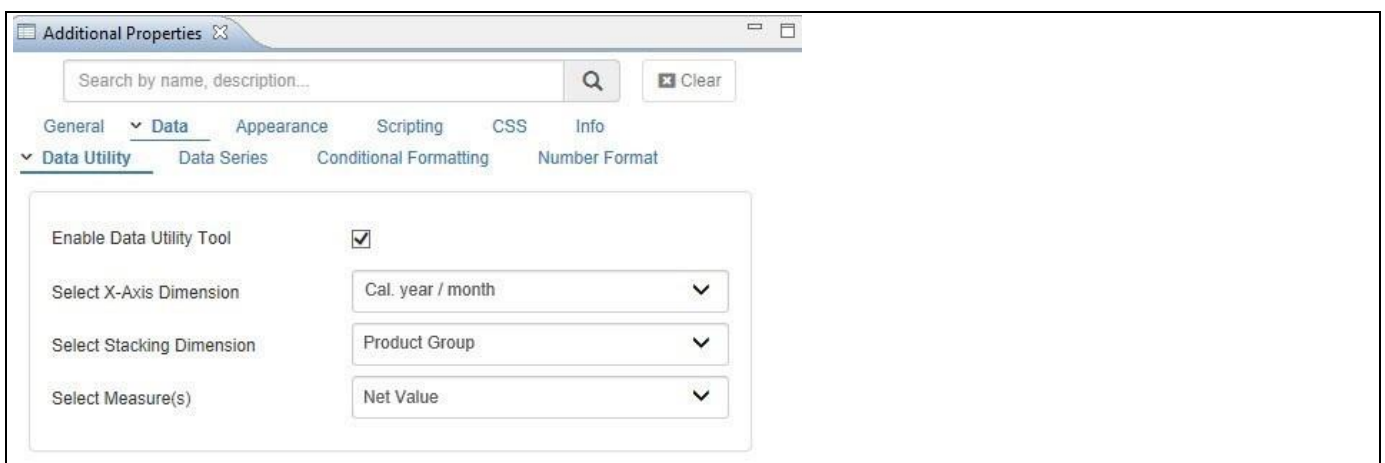


Figure 4.273: Data Utility

- In the sub category Data Utility you can choose which dimension will be used for the Width on the X-Axis and which dimension will be used for stacking up the values. In addition you can choose the measure from the underlying data source.

4.15.14 Additional Properties of the Marimekko Chart

In addition to supporting the standard set of Additional Properties outlined in section 4.5.6 and the Additional Properties for the X-Axis and Y-Axis outlined in section 4.5.6.1, the Marimekko Chart supports the following Additional Properties.

4.15.14.1 Category Data

Sub category	Area	Property	Description
Data Utility		Enable Data Utility Tool	This property enables/disables the Data Utility Tool option.
		Select X-Axis	Here you can choose which dimension will be used for the Width of the chart on the X-Axis.
		Select Stacking Dimension	Here you can choose which dimension will be used for the stacking the measures of the chart.
		Select Measure(s)	Here you can choose which measure will be used for the chart.

Table 4.33: Data

4.15.14.2 Appearance

Sub category	Area	Property	Description
Chart	General Settings	Visualize Total	This property allows you to enable / disable the display of the total values of the chart in a separate area.
		Visualize Total in Percent	This property allows you to enable / disable the display of the total values of the chart in a separate area using percentage values.

Table 4.34: Appearance

4.15.15 Scripting Functions for the Marimekko Chart

In addition to the common scripting functions listed in section 4.6, the Marimekko Chart support the following scripting function.

Function / Method	Description
DSXSetxaxisboxlabeledenabled()	The function allows you to set the value of XAxis Box Label Enabled. It is modified with the parameter of boolean type having value "true".

Table 4.35: Scripting Functions

4.15.16 Tree Map Chart

The Tree Map Chart will be displayed in the form of containers where each container represents a dimension member with two measure values. Among the two measure values, one measure will be representing the container's size and the other measure value will be representing the container's color.

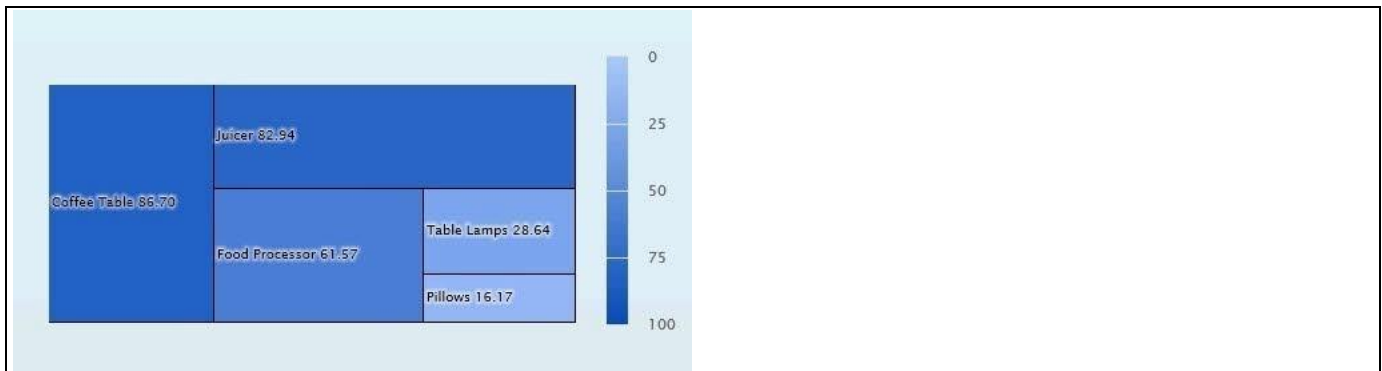


Figure 4.274: Tree Map Chart

4.15.16.1 Data Source Requirements for a Tree Map Chart

The minimum data source requirement for a Tree Map Chart is a data source with single dimension in the Rows, and two measures in the Columns.

4.15.16.2 How to use the Tree Map Chart?

In the following steps we will outline how you can setup a new Tree Map Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project. You can follow the steps below to configure the Tree Map Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows two measures - Sales Amount and Forecast Amount - and one dimension Product.
3. Add a Tree Map Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Tree Map Chart.
5. Navigate to the Additional Properties of the Tree Map Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Chart in the Additional Properties of the Tree Map Chart. In the area General Settings you can configure the type of Tree Map Chart using the property Select Chart Type. There are five different types and each type represents a different option to position and size the data:
 - Slice and Dice
 - Stripes
 - Squarified
 - Strip
 - Horizontal stripes

- For our example, you can set the property Select Chart Type to the option Slice and Dice (see Figure 4.275)

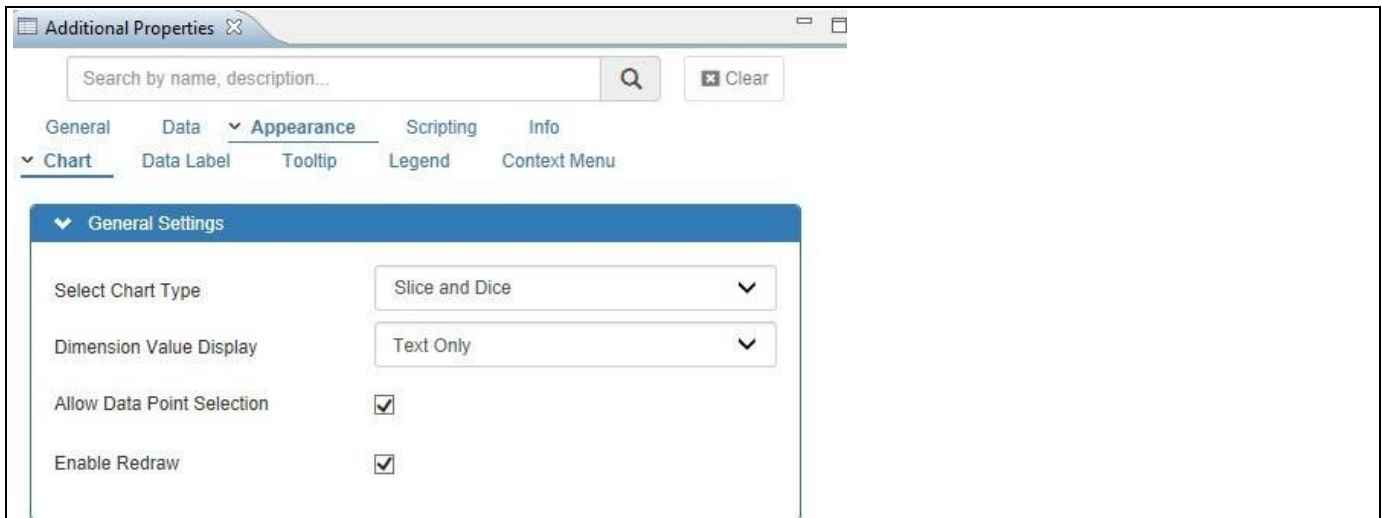


Figure 4.275: Tree Map Chart – Category Appearance

- Ensure that the property Enable Redraw is activated, so that the chart will be redrawn when the browser window is being resized at run time.
- Set the property Dimension Value Display to the option Text Only. This property allows you to choose if the dimension should be displayed with the Key, Text, or both values.
- Navigate to the category Data and to the sub category Data Series of the Additional Properties for the Tree Map Chart. In the area Chart Settings you can assign the measures from your data source to the Size and Color options for the chart. (see Figure 4.276).

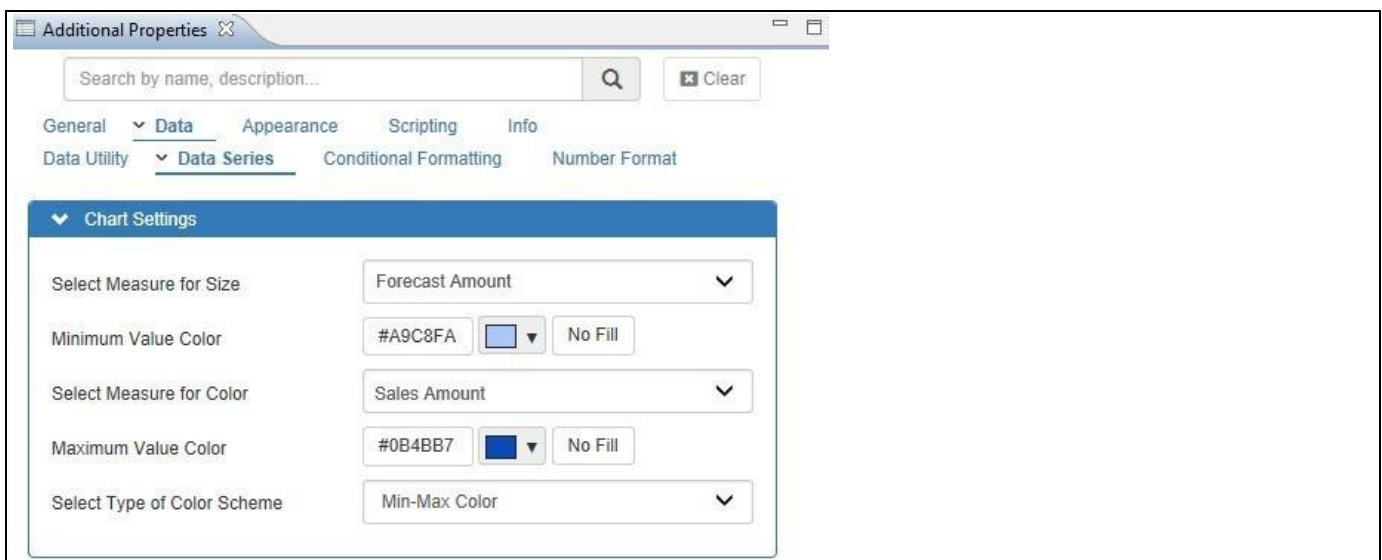


Figure 4.276: Tree Map Chart – Category Data

- Set the property Select Measure for Size to the measure Forecast Amount.
- Set the property Minimum Value Color to light blue.
- Set the property Select Measure for Color to the measure Sales Amount.
- Set the property Minimum Value Color to dark blue.

16. Set the property Select Type of Color Scheme to the option Min-Max Color which configures the type of color scheme that will be used. The options for the color schemes are listed below
 - Min-Max Color
 - Series Color
 - Custom Color Pallet
17. Navigate to the category Appearance and to the sub category Data Label in the Additional Properties. The Tree Map Chart can use 2 dimensions for which the data labels inside the containers will be shown. As shown in Figure 4.277, you can configure the appearance of the data label for each level individually

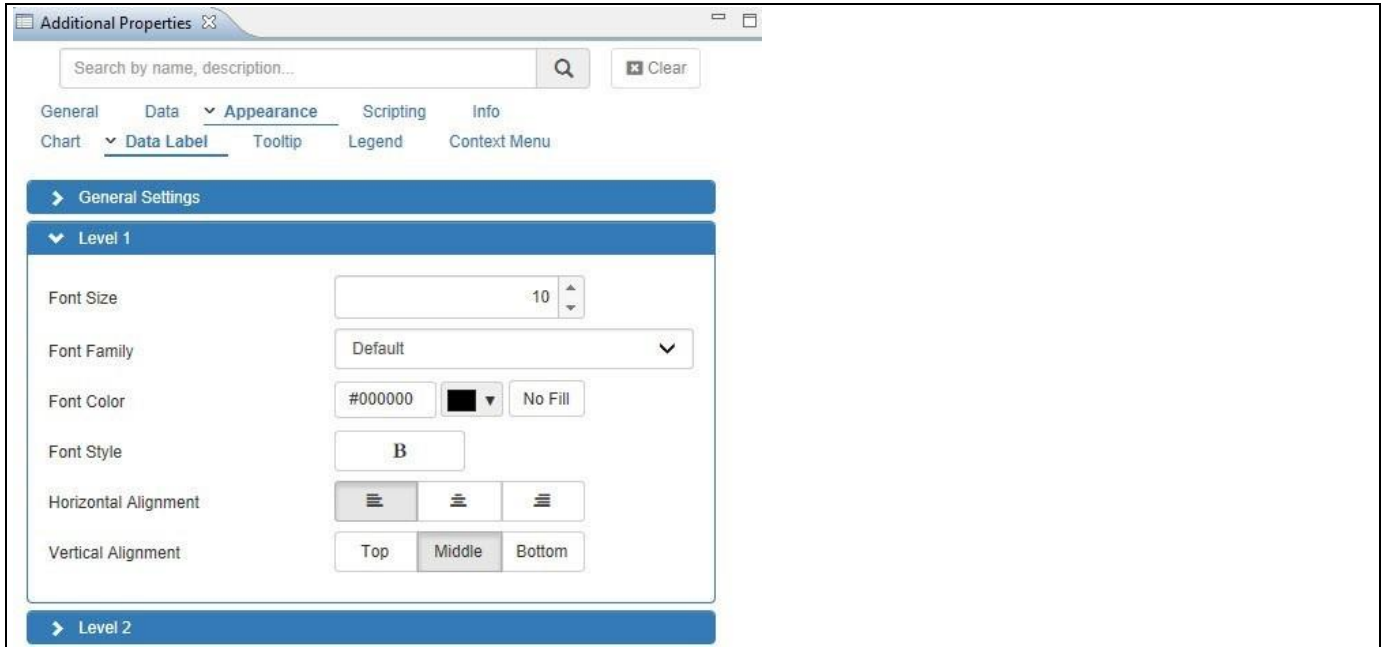


Figure 4.277: Tree Map Chart – Category Appearance

18. Set the property Font Size to the value 10.
19. Set the property Font Family to the option Default.
20. Set the property Font Color to black.
21. Set the property Font Style to the option Bold.
22. Set the property Horizontal Alignment to the option Left.
23. Set the property Vertical Alignment to the option Middle.
24. Navigate to the category Appearance and to the sub category Chart (see Figure 4.278).

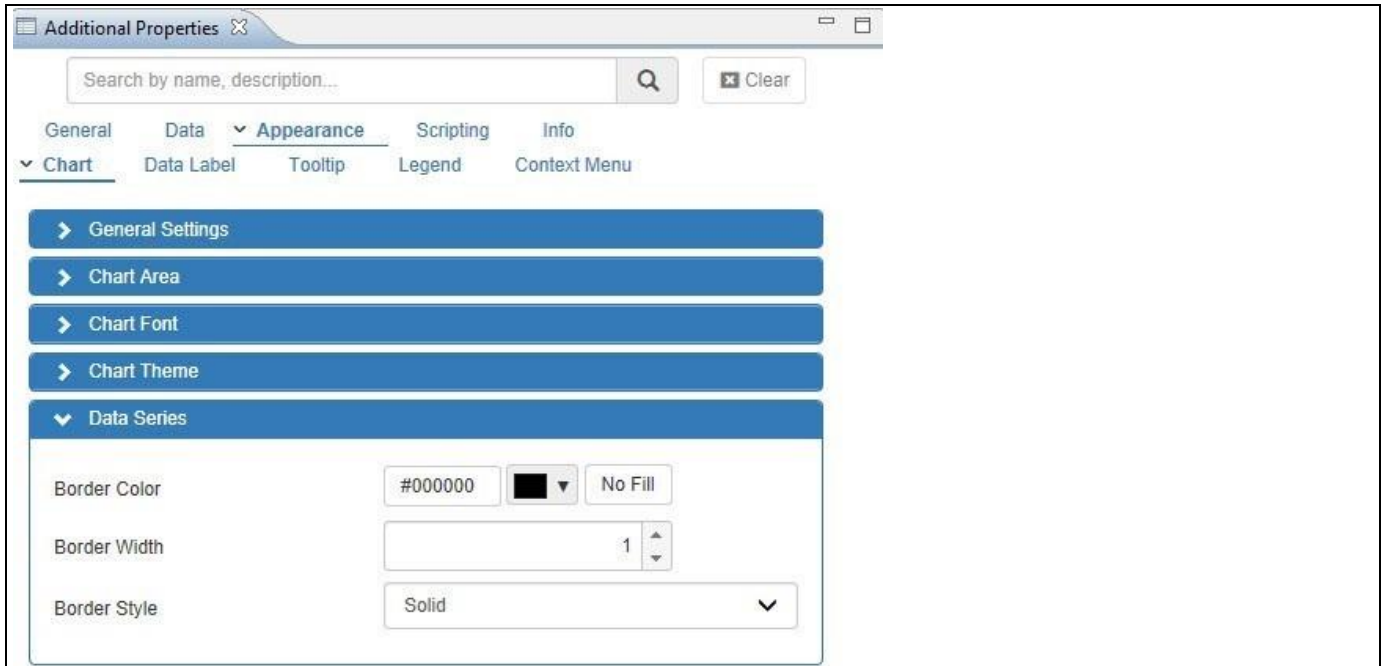


Figure 4.278: Tree Map Chart – Category Appearance

25. In the area Data Series set the property Border Color to black.
26. Set the property Border Width to the value 1.
27. Set the property Border Style to the option Solid.
28. Similarly, you can configure the different properties from the different categories in the Additional Properties for the Tree Map Chart.
29. Navigate to the menu Application • Save.
30. Select the menu Application • Execute Locally.
31. You will be able to view the Tree Map Chart based on the configured properties (see Figure 4.279).

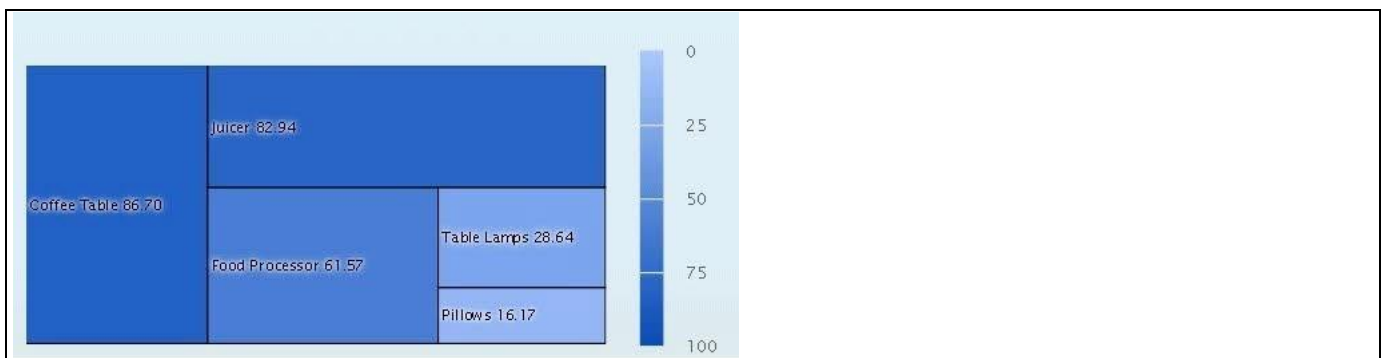


Figure 4.279: Tree Map Chart

32. The Tree Map Chart can use a maximum of 2 dimensions and we can configure the Labels in regards to the Style for the two different levels (see Figure 4.280).

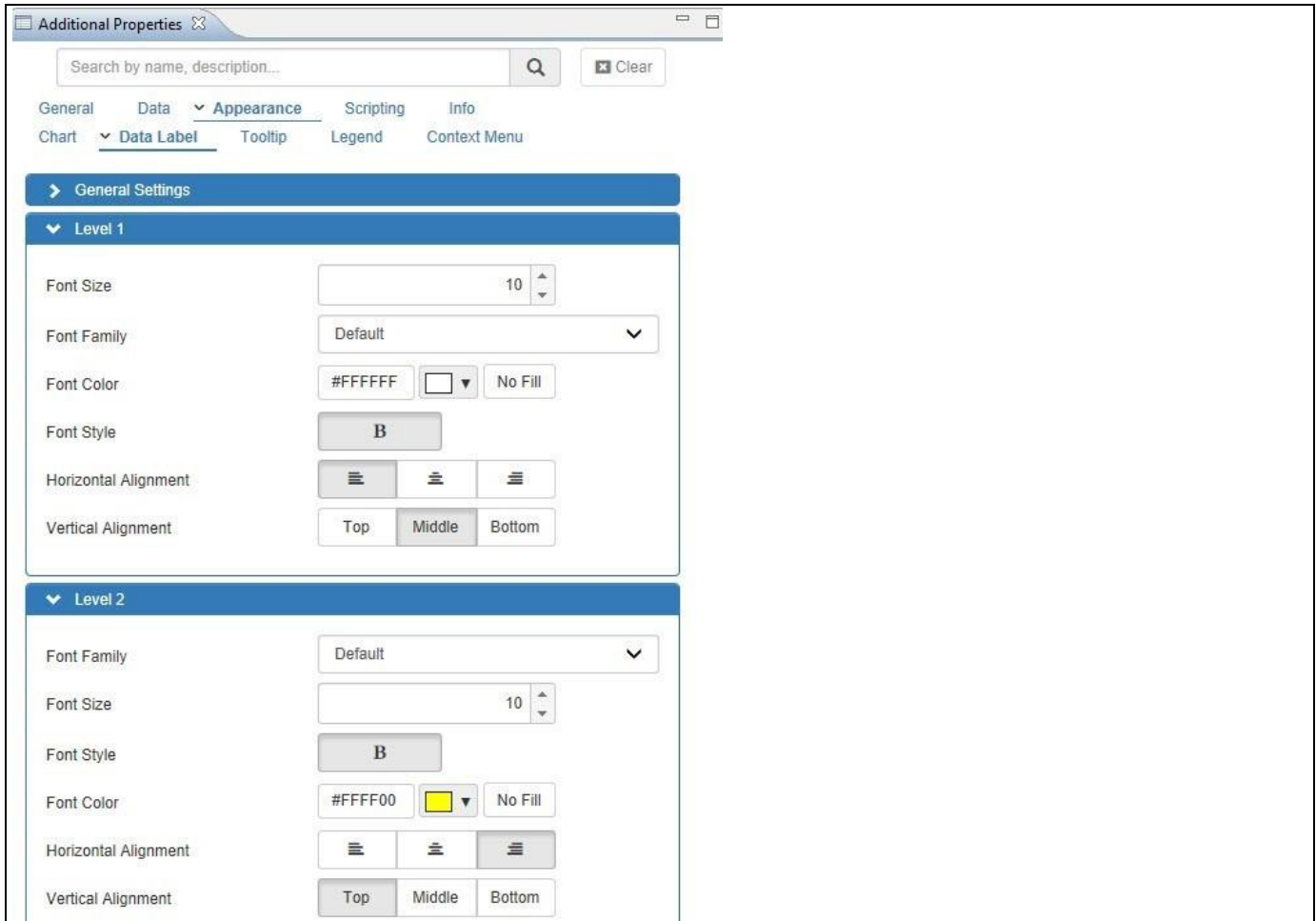


Figure 4.280: Category Appearance – Data Label

33. Figure 4.281 shows the Tree Map chart configured with 2 levels of labels.

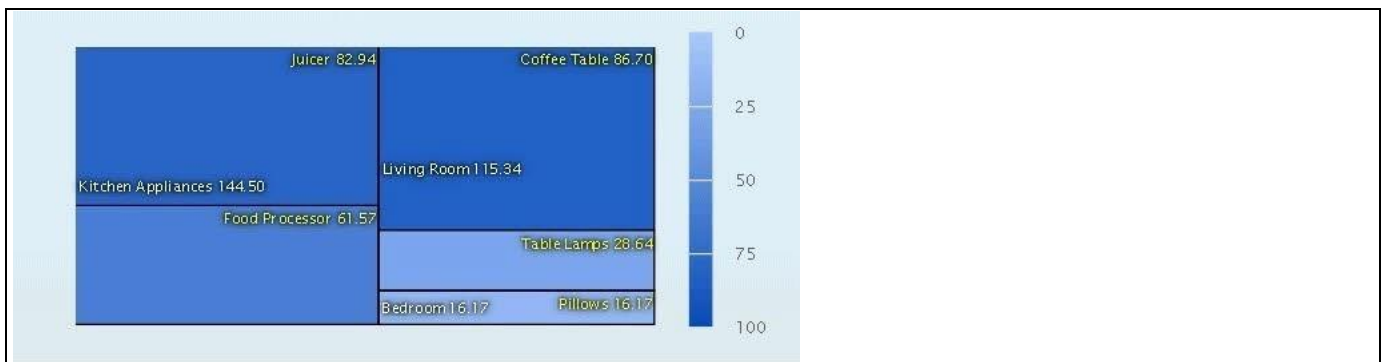


Figure 4.281: Tree Map Chart with two dimensions

Tree Map Capabilities

Please note that in case if you require more than two dimensions being part of the Tree Map Chart we would recommend to take a look at the Tree Map Drill Down Chart (see section 4.15.19).

4.15.17 Additional Properties of the Tree Map Chart

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Tree Map Chart.

4.15.17.1 Category Data

Sub category	Area	Property	Description
Data Series	Chart Settings	Select Measure for Size	Here you can set the measure for the Size.
		Minimum Value Color	Sets the Color for the Minimum value.
		Select Measure for Color	Here you can set the measure for the Color.
		Maximum Value Color	Sets the Color for the Maximum value.
		Select Type of Color Scheme	Sets the type of color. The options are Min-Max Color, Series Color and Custom Color Pallet.

Table 4.36: Data

4.15.17.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Select Chart Type	Here you can set the Chart Type. The options are Slice & Dice, Stripes, Squarified, Strip and Horizontal stripes.
		Dimension Value Display	Sets the Display Dimension Value. The options are Default, Key, Text or both values.
		Allow Data Point Selection	This property allows the series points to be selected.
		Enable Redraw	When activated, the chart will be redrawn when the browser window is being resized.
	Data Series	Border Color	Sets the Border Color for the series.
		Border Width	Sets the Border Width for the series.
		Border Style	Sets the Border Style for the series.
Data Label	Level 1	Font Size	Sets the Font Size of the data label for Level 1.
		Font Family	Sets the Font Family of the data label for Level 1.
		Font Color	Sets the Font Color of the data label for Level 1.
		Font Style	Sets the Font Style of the data label for Level 1.
		Horizontal Alignment	Sets the Horizontal Alignment for Level 1.

Sub category	Area	Property	Description
		Vertical Alignment	Sets the Vertical Alignment for Level 1.
	Level 2	Font Family	Sets the Font Family of the data label for Level 2.
		Font Size	Sets the Font Size of the data label for Level 2.
		Font Style	Sets the Font Style of the data label for Level 2.
		Font Color	Sets the Font Color of the data label for Level 2.
		Horizontal Alignment	Sets the Horizontal Alignment for Level 2.
		Vertical Alignment	Sets the Vertical Alignment for Level 2.

Table 4.37: Appearance

4.15.18 Scripting Functions for the Tree Map Chart

All supported scripting functions for the Tree Map Chart are listed as part of the common scripting functions for charts listed in section 4.6.

In the last section, we have outlined on how you can setup a new Tree Map Chart as part of your SAP BusinessObjects Design Studio/SAP Lumira Designer project. In the next section, we will outline on how you can setup a new Tree Map Drill Down Chart as part of your SAP BusinessObjects Design Studio/SAP Lumira Designer project.

4.15.19 Tree Map Drill Down Chart

Tree Map Drill Down Chart is a version of the Tree Map Chart that is able to provide the Drill Down functionality for the Tree Map Chart. The Tree Map Drill Down Chart provides your users the option to Drill Down from a member in a higher level dimension or a higher level of a hierarchy to more detailed information.

4.15.19.1 Data Source Requirements for a Tree Map Chart

The minimum data source requirement for a Tree Map Chart is a data source with two dimensions in the Rows, and two measures in the Columns.

4.15.19.2 How to use the Tree Map Drill Down Chart?

We have two different scenarios for the Tree Map Drill Down Chart and they are outlined in the sections below.

Scenario 1:

In Scenario 1, we will outline how you can setup a new Tree Map Drill Down Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Tree Map Drill Down Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows two measures - Sales Amount and Forecast Amount - and two dimensions Product Category and Product.
3. Add a Tree Map Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Tree Map Drill Down Chart.
5. Navigate to the Additional Properties of the Tree Map Drill Down Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Chart in the Additional Properties of the Tree Map Drill Down Chart. In the area General Settings you can configure the type of Tree Map Chart using the property Select Chart Type. There are five different types and each type represents a different option to position and size the data:
 - Slice and Dice
 - Stripes
 - Squarified
 - Strip
 - Horizontal stripes

For our example, you can set the property Select Chart Type to the option Slice and Dice (see Figure 4.282)

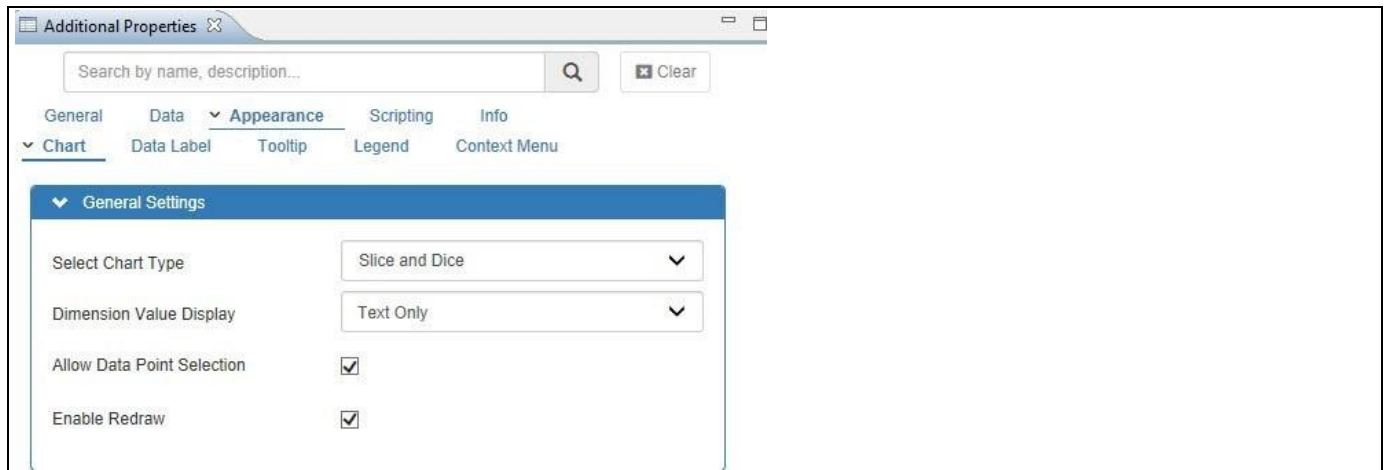


Figure 4.282: Tree Map Drill Down Chart – Category Appearance

8. Ensure that the property Enable Redraw is enabled where the chart can be resized to fit the container when the window is resized at run time.
9. Set the property Dimension Value Display to the option Text Only. This property allows you to choose if the dimension should be displayed with the Key, Text, or both values.
10. Navigate to the category Data and to the sub category Data Series of the Additional Properties for the Tree Map Drill Down Chart. In the area Chart Settings you can assign the measures from your data source to the Size and Color options for the chart. (see Figure 4.283).

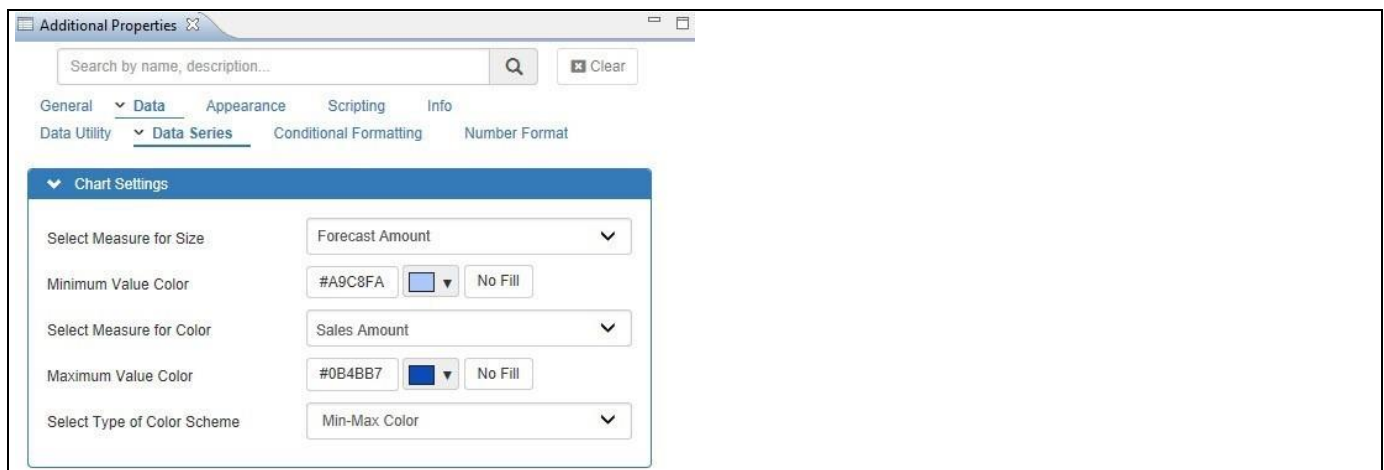


Figure 4.283: Tree Map Drill Down Chart – Category Data

11. Set the property Select Measure for Size to the measure Forecast Amount.
12. Set the property Minimum Value Color to light blue.
13. Set the property Select Measure for Color to the measure Sales Amount.
14. Set the property Minimum Value Color to dark blue.
15. Set the property Select Type of Color Scheme to the option Min-Max Color which configures the type of color scheme that will be used. The options for the color schemes are listed below
 - Min-Max Color
 - Series Color
 - Custom Color Pallet

16. Navigate to the category Appearance and to the sub category Data Label in the Additional Properties for the Tree Map Drill Down Chart. In the area Level 1 you can configure the Label styles inside the container (see Figure 4.284)

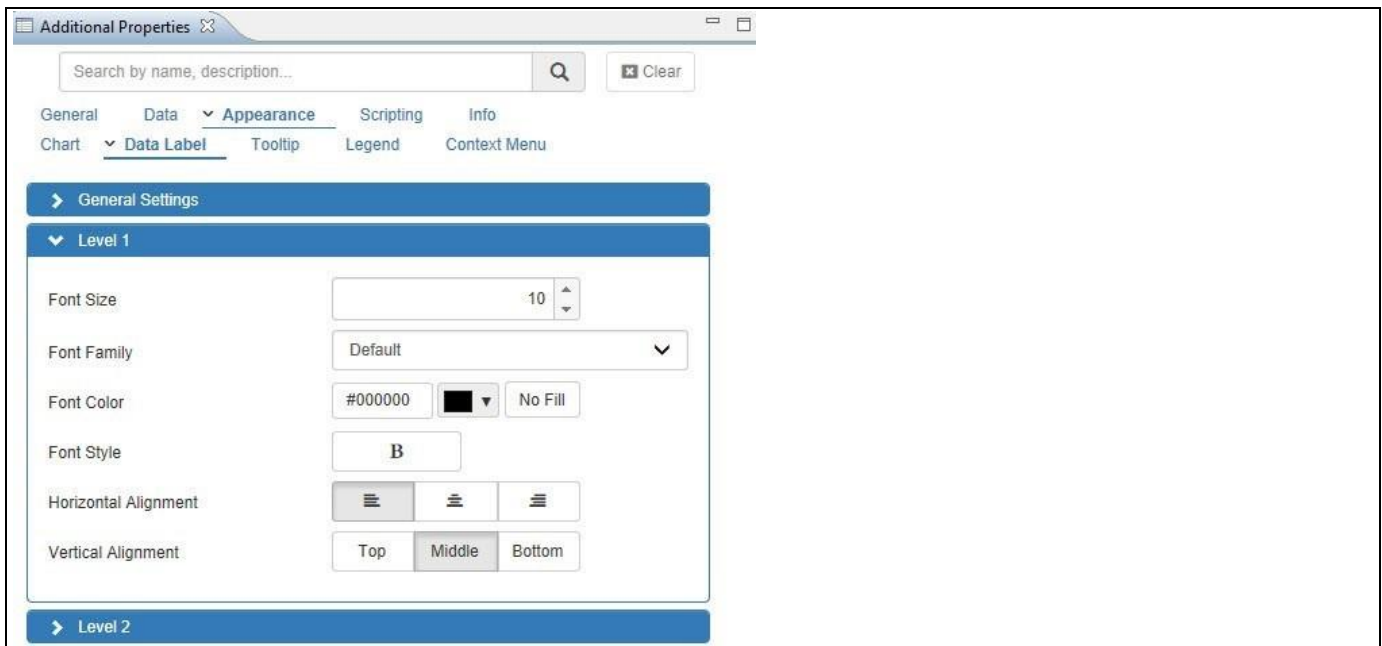


Figure 4.284: Tree Map Drill Down Chart – Category Appearance

17. Set the property Font Size to the value 10.
18. Set the property Font Family to the option Default.
19. Set the property Font Color to black.
20. Set the property Font Style to the option Bold.
21. Set the property Horizontal Alignment to the option Left.
22. Set the property Vertical Alignment to the option Middle.
23. Navigate to the category Appearance and to the sub category Chart (see Figure 4.285).

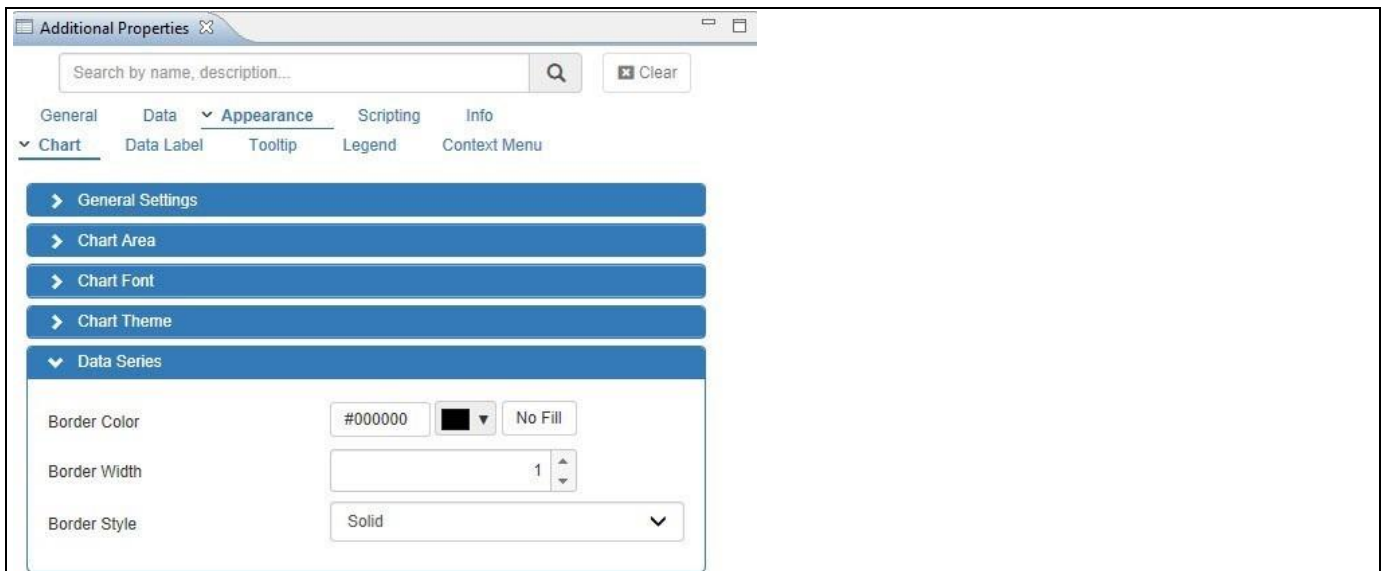


Figure 4.285: Tree Map Drill Down Chart – Category Appearance

24. In the area Data Series set the property Border Color to black.

25. Set the property Border Width to the value 1.
26. Set the property Border Style to the option Solid.
27. Navigate to the menu Application • Save.
28. Select the menu Application • Execute Locally.
29. You will be able to view the Tree Map Drill Down Chart based on the configured properties. The Figure 4.286 shows the first dimension being displayed in the chart.

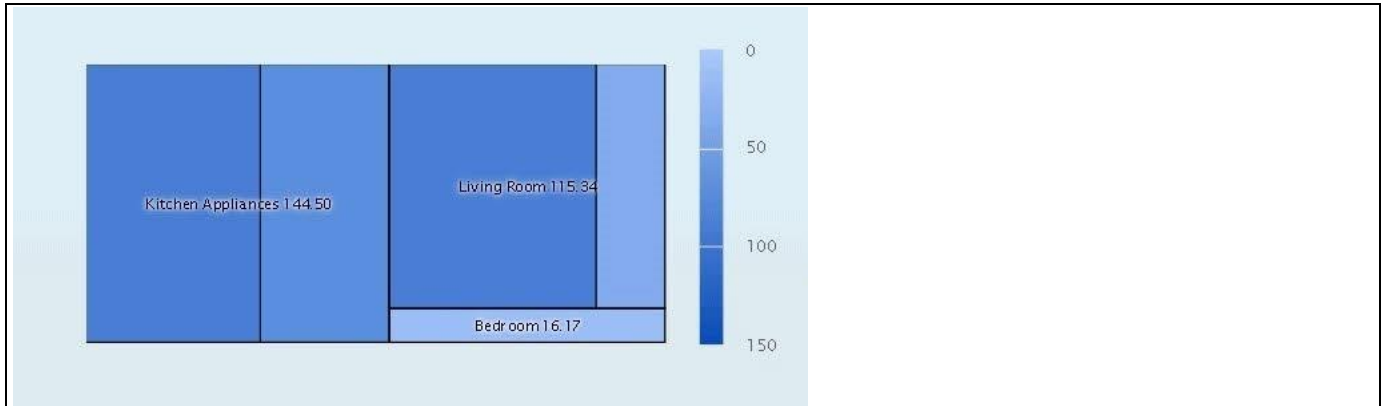


Figure 4.286: Tree Map Chart

30. In Figure 4.287, by clicking the member of the first dimension, in our example Kitchen Appliances, you can view the Tree Map Drill Down Chart with the second dimension.

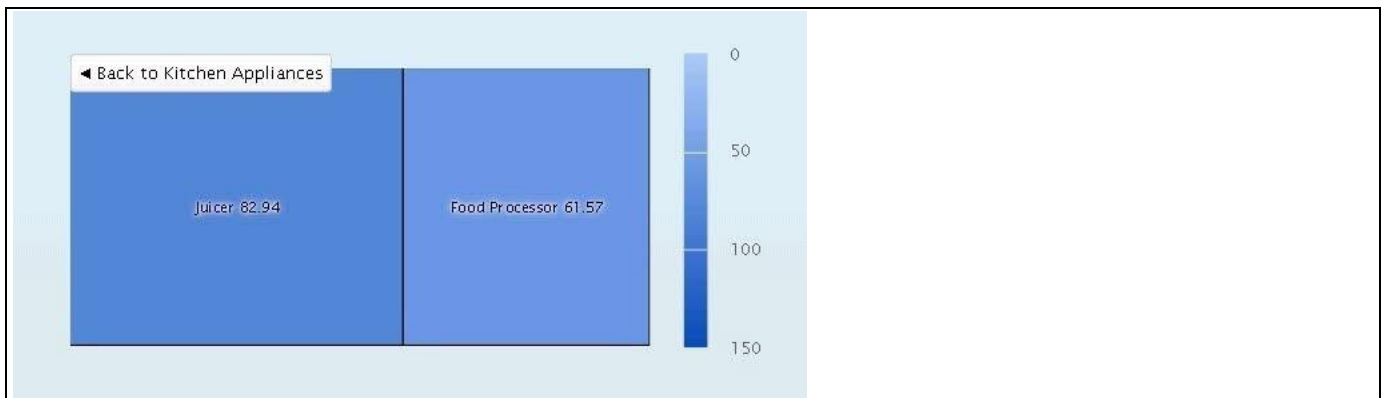


Figure 4.287: Tree Map Drill Down Chart

Scenario 2:

For the second scenario, we will outline how you can setup a Tree Map Drill Down Chart with a hierarchy and allowing your users to drill down along the hierarchical levels.

You can follow the steps below to configure the Tree Map Drill Down Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows two measures - Sales Amount and Forecast Amount - and one dimension Store with an activated hierarchy (see Figure 4.288).

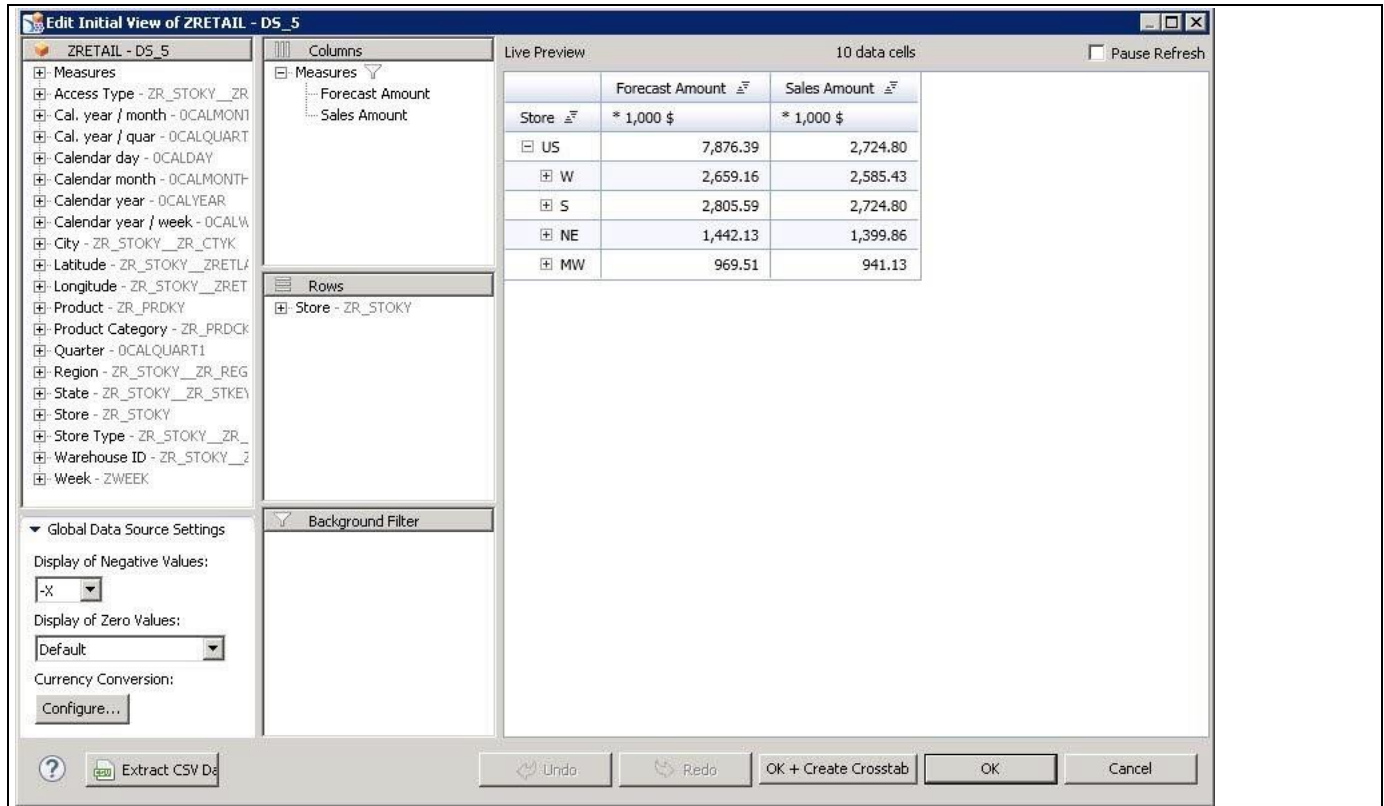


Figure 4.288: Initial View – One Dimension and Two Measures

3. Add a Tree Map Drill Down Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Tree Map Drill Down Chart.
5. Navigate to the Additional Properties of the Tree Map Drill Down Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Chart in the Additional Properties of the Tree Map Drill Down Chart where you can configure the types of Tree Map Drill Down Chart. There are five different types and each type represents a different option to position and size the data:
 - Slice and Dice
 - Stripes
 - Squarified
 - Strip
 - Horizontal stripes

For our example, you can set the property Select Chart Type to the option Slice and Dice (see Figure 4.289)

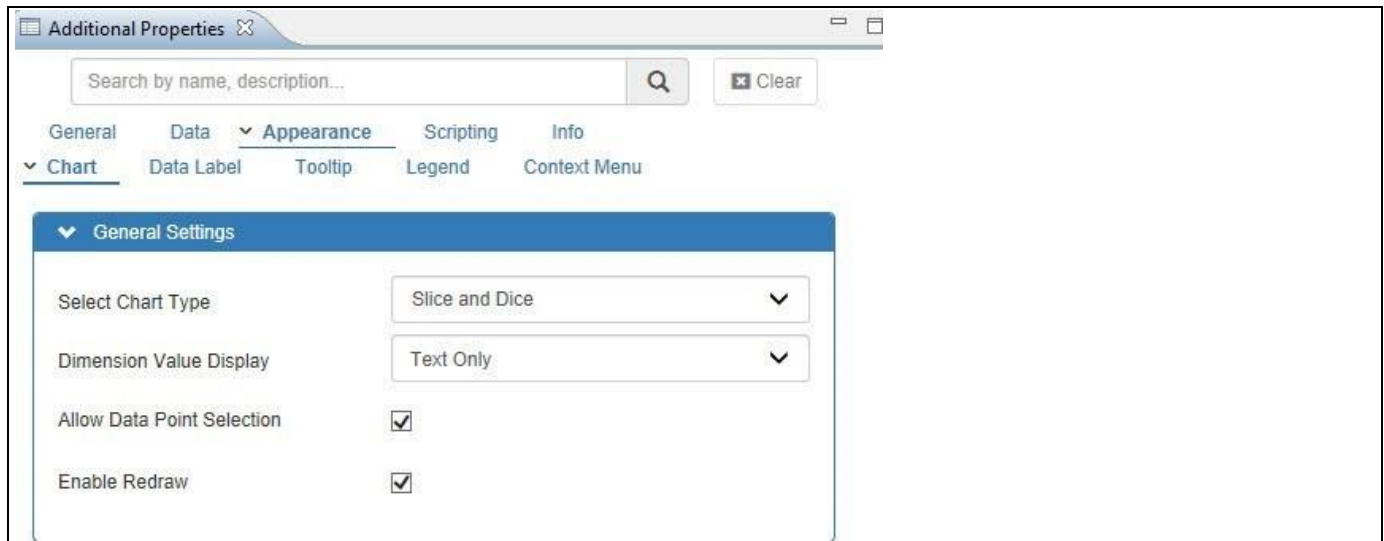


Figure 4.289: Tree Map Drill Down Chart – Category Appearance

8. Ensure that the property Enable Redraw is activated where the chart can be resized to fit the container when the window is resized at run time.
9. Set the property Dimension Value Display to the option Text Only.
10. Navigate to the category Data and to the sub category Data Series of the Additional Properties for the Tree Map Drill Down Chart. In the area Chart Settings you can assign the measures from your data source to the Size and Color options for the Chart (see Figure 4.290).

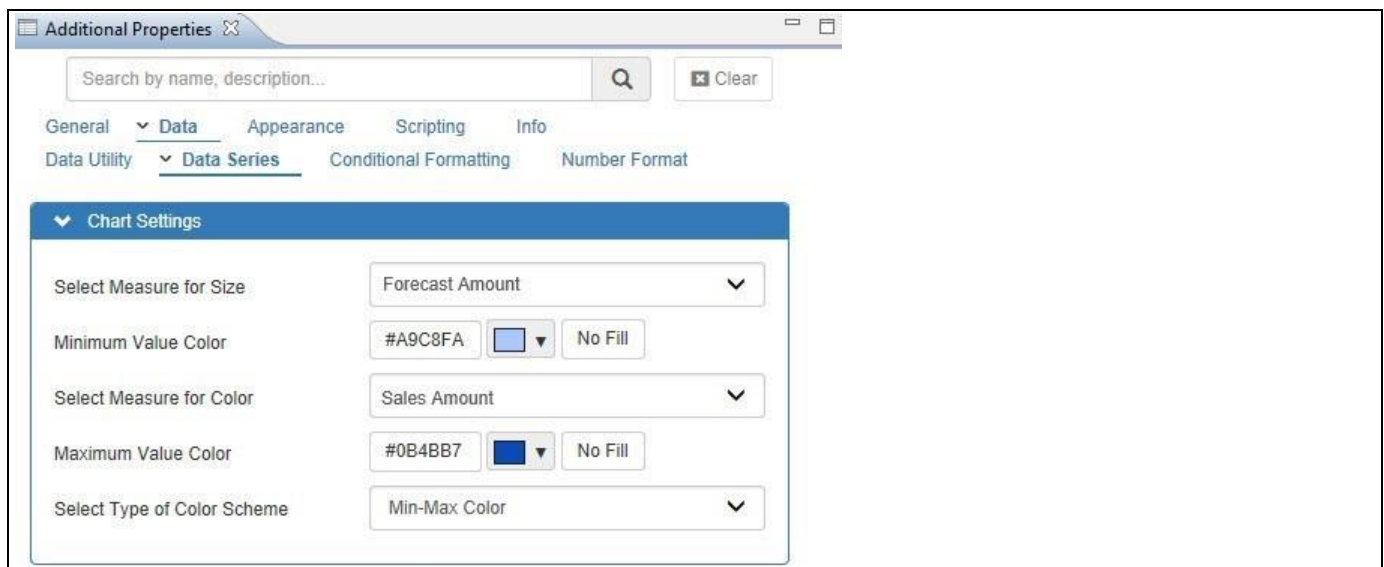


Figure 4.290: Tree Map Drill Down Chart – Category Data

11. Navigate to the category Data and to the sub category Drill Down. In the area Hierarchy Drill Down ensure that the property Enable Hierarchy Drill Down is activated which allows the drilldown to happen based on the hierarchy of the dimension.
12. Set the property Select Measure for Size to the measure Forecast Amount.
13. Set the property Minimum Value Color to light blue.
14. Set the property Select Measure for Color to the measure Sales Amount.
15. Set the property Minimum Value Color to dark blue.
16. Set the property Select Type of Color Scheme to the option Min-Max Color which configures the type of color scheme that will be used. The options for the color schemes are listed below

- Min-Max Color
- Series Color
- Custom Color Palette

17. Navigate to the category Appearance and to the sub category Data Label in the Additional Properties of the Tree Map Drill Down Chart. In the Area Level 1 you can configure the Label styles inside the container (see Figure 4.291)

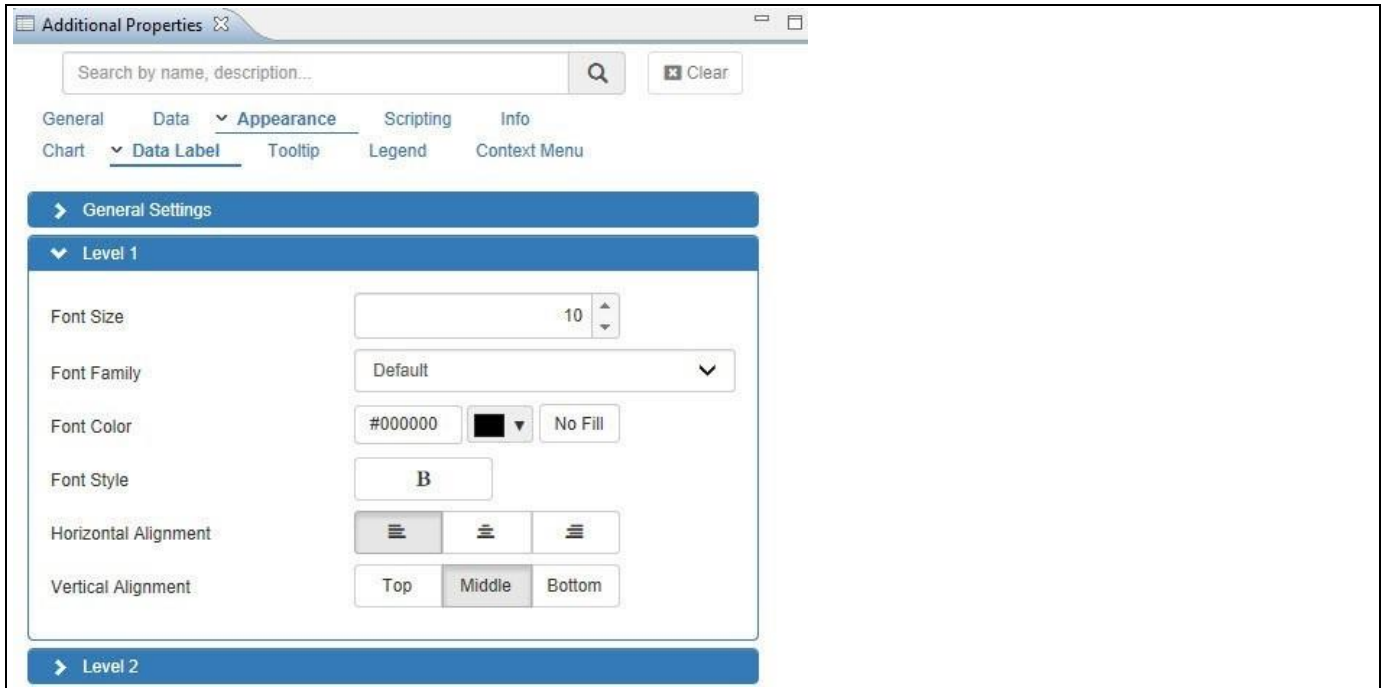


Figure 4.291: Tree Map Drill Down Chart – Category Appearance

18. Set the property Font Size to the value 10.
19. Set the property Font Family to the option Default.
20. Set the property Font Color to black.
21. Set the property Font Style to the option Bold.
22. Set the property Horizontal Alignment to the option Left.
23. Set the property Vertical Alignment to the option Middle.
24. Navigate to the category Appearance and to the sub category Chart (see Figure 4.292).

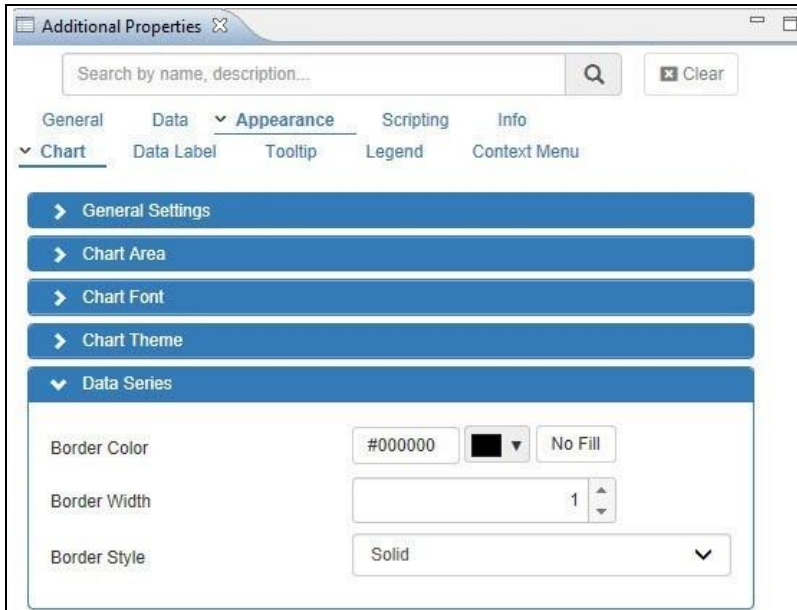


Figure 4.292: Tree Map Drill Down Chart – Category Appearance

25. In the area Data Series set the property Border Color to black.
26. Set the property Border Width to the value 1.
27. Set the property Border Style to the option Solid.
28. Navigate to the menu Application • Save.
29. Select the menu Application • Execute Locally.
30. You will be able to view the Tree Map Drill Down Chart with our activated hierarchy. In our example the top level node is shown – US. (see Figure 4.293).

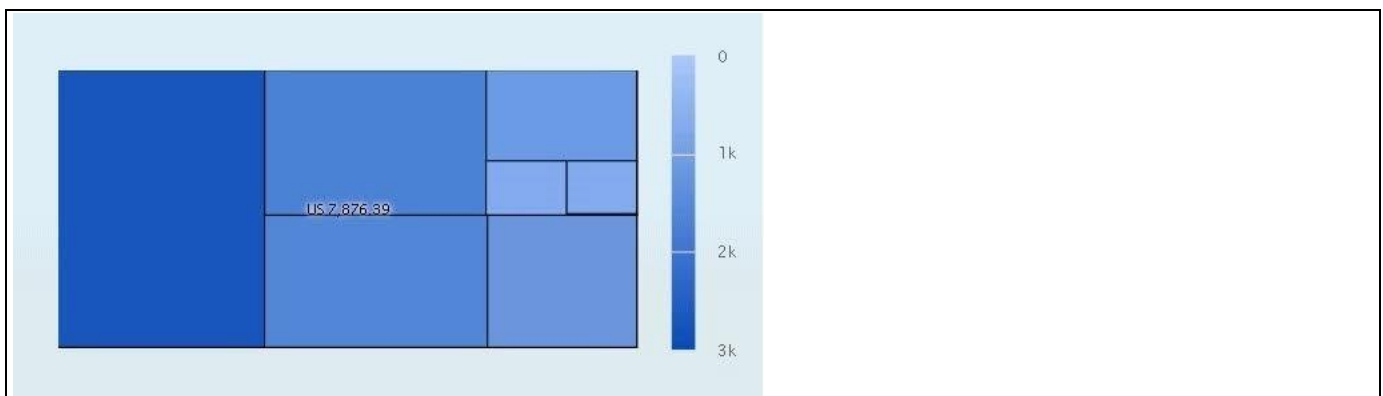


Figure 4.293: Tree Map Chart

31. Using a double-click allows you to drill down and the next level of the hierarchy is shown (see Figure 4.294).

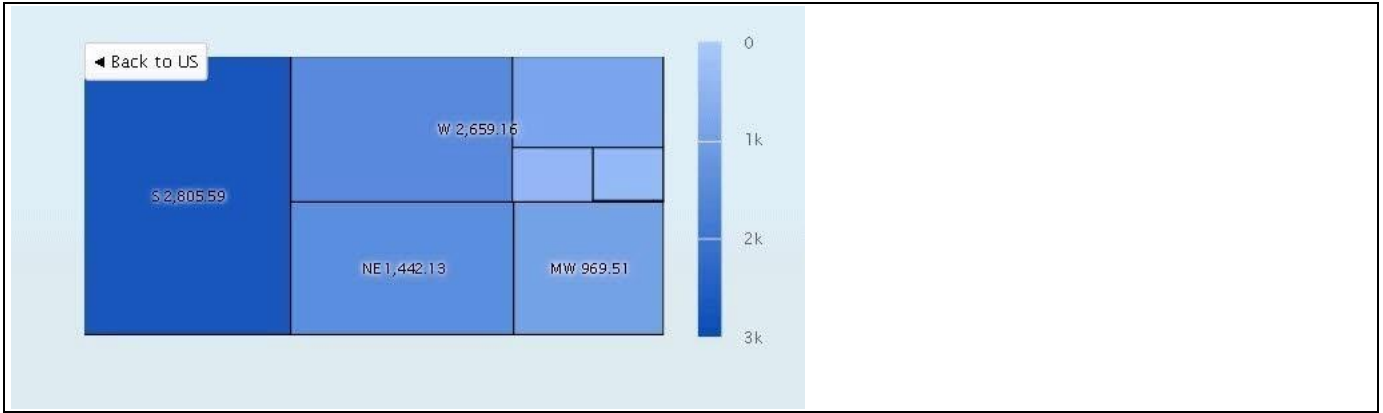


Figure 4.294: Tree Map Drill Down Chart with Dimension Hierarchy levels

The Tree Map Drill Down chart is able to leverage any number of dimensions for the drill down, as well as any number of hierarchical levels.

4.15.20 Additional Properties of the Tree Map Drill Down Chart

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Tree Map Drill Down Chart.

4.15.20.1 Category Data

Sub category	Area	Property	Description
Data Series	Chart Settings	Select Measure for Size	Here you can set the measure for the Size.
		Minimum Value Color	Sets the Color for the Minimum value.
		Select Measure for Color	Here you can set the measure for the Color.
		Maximum Value Color	Sets the Color for the Maximum value.
		Select Type of Color Scheme	Sets the type of color. The options are Min-Max Color, Series Color and Custom Color Pallet.
Drill Down	Hierarchy Drill Down	Enable Hierarchy Drill Down	This property allows the drilldown to happen based on the hierarchy of the dimension.

Table 4.38: Data

4.15.20.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Select Chart Type	Here you can set the Chart Type. The options are Slice & Dice, Stripes, Squarified, Strip and Horizontal stripes.
		Dimension Value Display	Sets the Display Dimension Value. The options are Default, Key, Text or both values.
		Allow Data Point Selection	This property allows the series points to be selected.
		Enable Redraw	When activated, the chart will be redrawn when the browser window is being resized.
	Data Series	Border Color	Sets the Border Color for the series.
		Border Width	Sets the Border Width for the series.
		Border Style	Sets the Border Style for the series.
Data Label	Level 1	Font Size	Sets the Font Size of the data label for Level 1.
		Font Family	Sets the Font Family of the data label for Level 1.
		Font Color	Sets the Font Color of the data label for Level 1.

Sub category	Area	Property	Description
		Font Style	Sets the Font Style of the data label for Level 1.
		Horizontal Alignment	Sets the Horizontal Alignment for Level 1.
		Vertical Alignment	Sets the Vertical Alignment for Level 1.
	Level 2	Font Family	Sets the Font Family of the data label for Level 2.
		Font Size	Sets the Font Size of the data label for Level 2.
		Font Style	Sets the Font Style of the data label for Level 2.
		Font Color	Sets the Font Color of the data label for Level 2.
		Horizontal Alignment	Sets the Horizontal Alignment for Level 2.
		Vertical Alignment	Sets the Vertical Alignment for Level 2.

Table 4.39: Appearance

4.15.21 Scripting Functions for the Tree Map Drill Down Chart

All supported scripting functions for the Tree Map Drill Down Chart are listed as part of the common scripting functions for charts listed in section 4.6.

4.16 Special Charts

In this category we will take a look at charts that do not fit into any of the other categories. In this section we will discuss the following chart types:

- Dual Axis Chart
- Multiple Axis Chart
- Super Combination Chart
- Sparkline Charts
- Sparkline Table Chart (legacy)
- Tag Cloud Chart
- Waffle Chart
- Risk Matrix Chart
- Calendar Heat Map Chart
- Sunburst Chart

4.16.1 Dual Axis Chart

The Dual Axis Chart provides an additional Y-Axis and allows you to plot multiple sets of data as part of a single chart. For Example, when measures like Actual Sales, Budgeted Sales, and Profit in % need to be plotted on a chart, Actual Sales and Budgeted Sales can be plotted on the primary axes and the Profit values shown as a percentage can be plotted on the secondary axes.

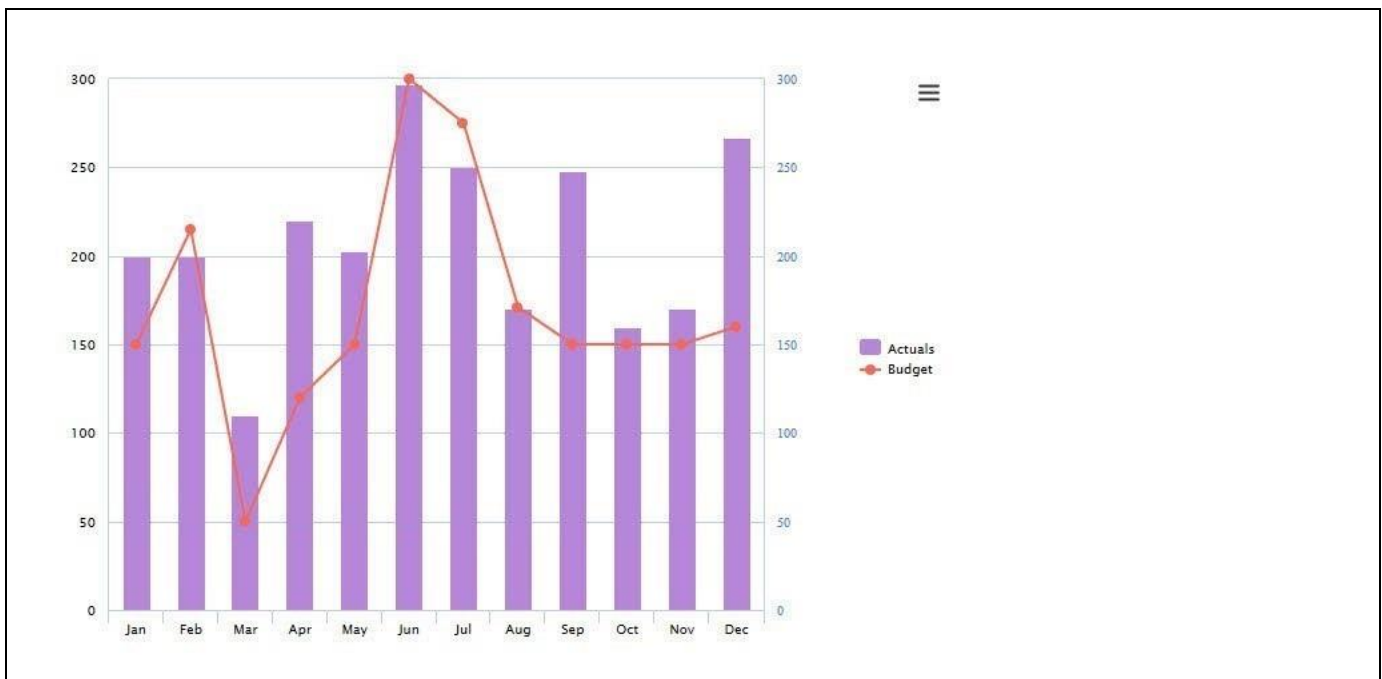


Figure 4.295: Dual Axis Chart

Figure 4.295 shows the Actuals in form of a Column and the Budget in form of a Line chart, both combined in a Dual Axis Chart.

4.16.2 Order of Displaying Different Chart Types

In the Additional Properties of the Dual Axis Chart in the category Data and the sub category Data Series, you have the option to define the “Series Order” for displaying the different chart types. By changing the Series Order of the measure items, the order of display for the charts and the order of legend for the measure items will be changed based on the changed Series Order.

For our example, in the additional properties of the Dual Axis Chart the default Series Order for the measure items is shown in Figure 4.296.

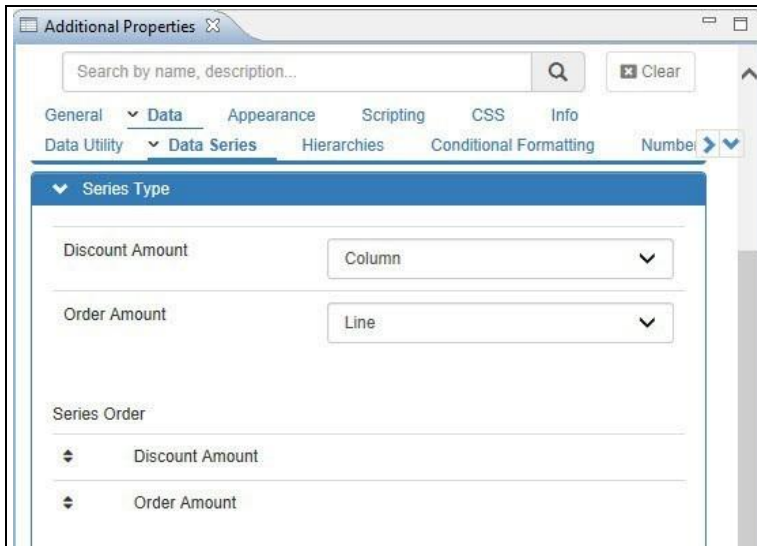


Figure 4.296: Default Series Order

Based on the above configuration, you will be able to visualize the Dual Axis Chart being displayed with the default order of legend items and the default order of display of the charts for the measure items Discount Amount and Order Amount (see Figure 4.297).

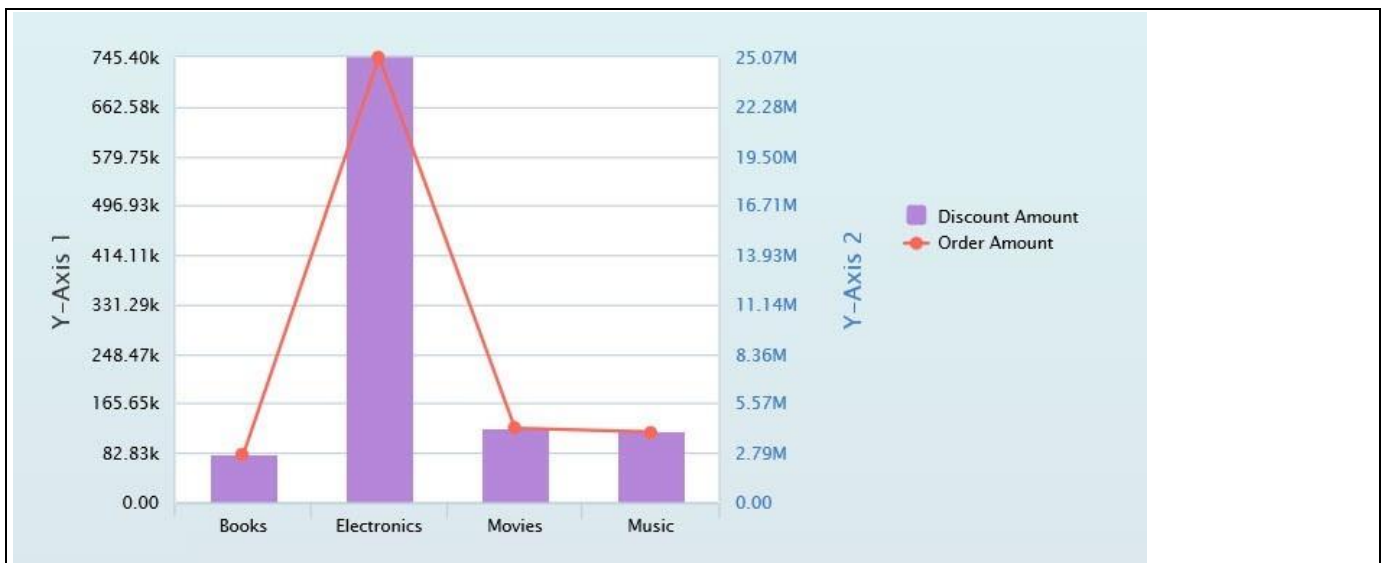


Figure 4.297: Default Series Order

For our example, in the additional properties of the Dual Axis Chart change the Series Order for the measure items Discount Amount and Order Amount so that the order of legend items and the order of display of the charts for those measure items will be changed (see Figure 4.298).

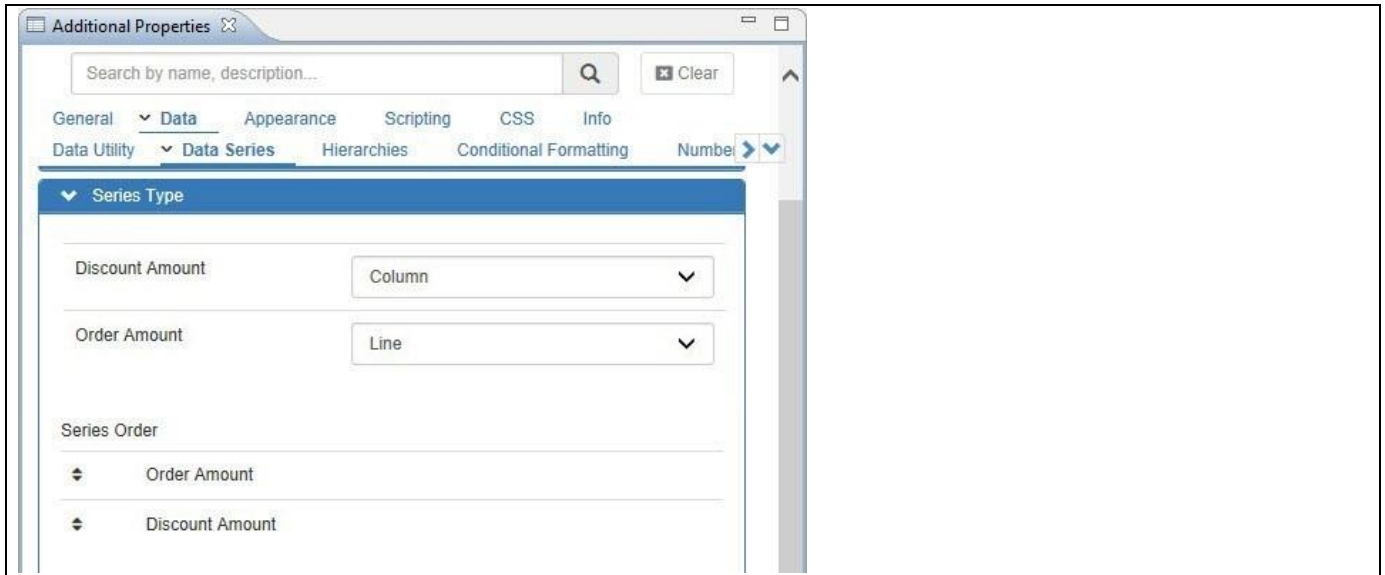


Figure 4.298: Changed Series Order

Based on the above configuration, the Dual Axis Chart will be displayed with the changed order of legend items and the changed order of display of the charts for the measure items Discount Amount and Order Amount (see Figure 4.299).

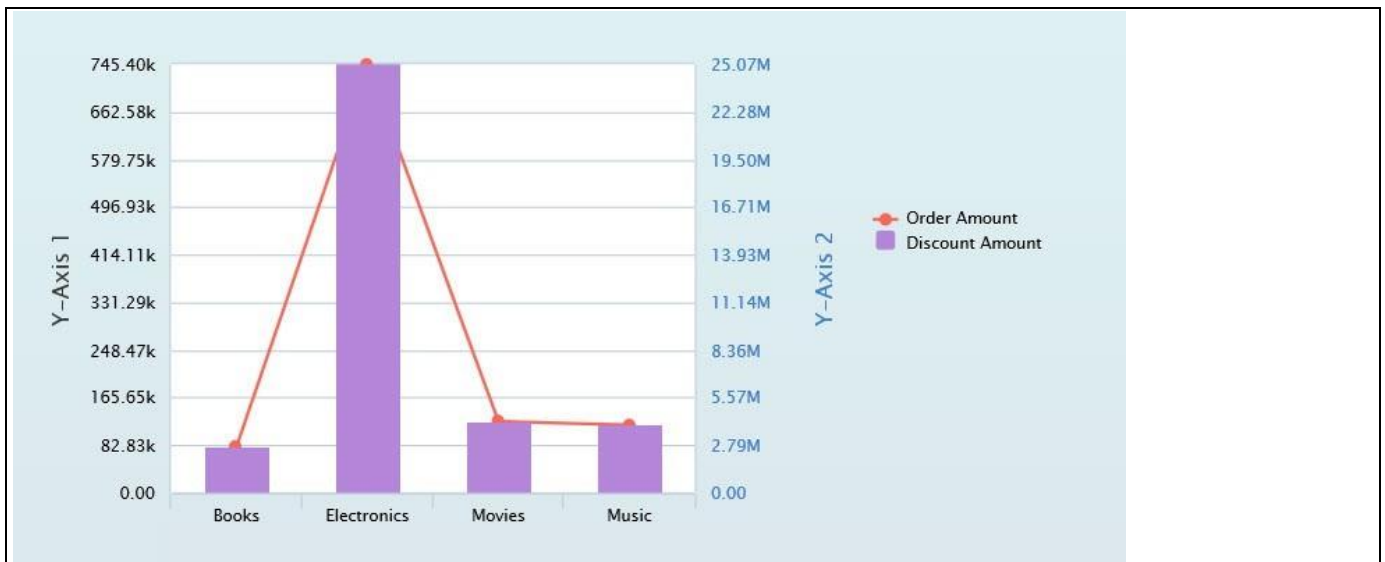


Figure 4.299: Changed Series Order

4.16.3 Option to have one Stacked Chart per Available Axis

In the Additional Properties of the Dual Axis Chart in the category Data and the sub category Data Series, the Stacked Chart types which are assigned to the measure items can be now mapped to more than one Y-Axis.

For our example in the area Series Type, the measure Order Cost is assigned to the Column Stacked Chart type, measure Discount Amount is assigned to the Column Stacked Chart type, measure Order Quantity is assigned to the Column Stacked Chart type and measure Order Amount is assigned to the Column Stacked Chart type (see Figure 4.300).

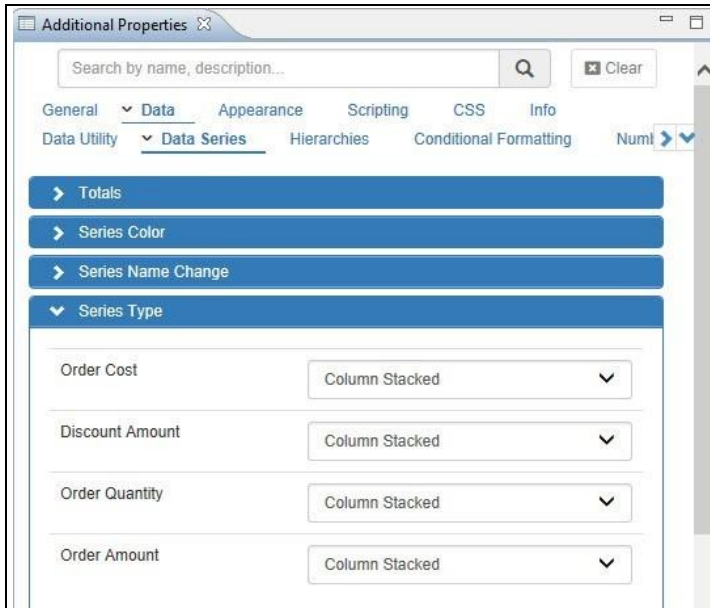


Figure 4.300: Series Type

In the area Series Y-Axis, the measure Order Cost is assigned to the Y Axis 2, measure Discount Amount is assigned to the Y Axis 1, measure Order Quantity is assigned to the Y Axis 2 and measure Order Amount is assigned to the Y Axis 1 (see Figure 4.301).

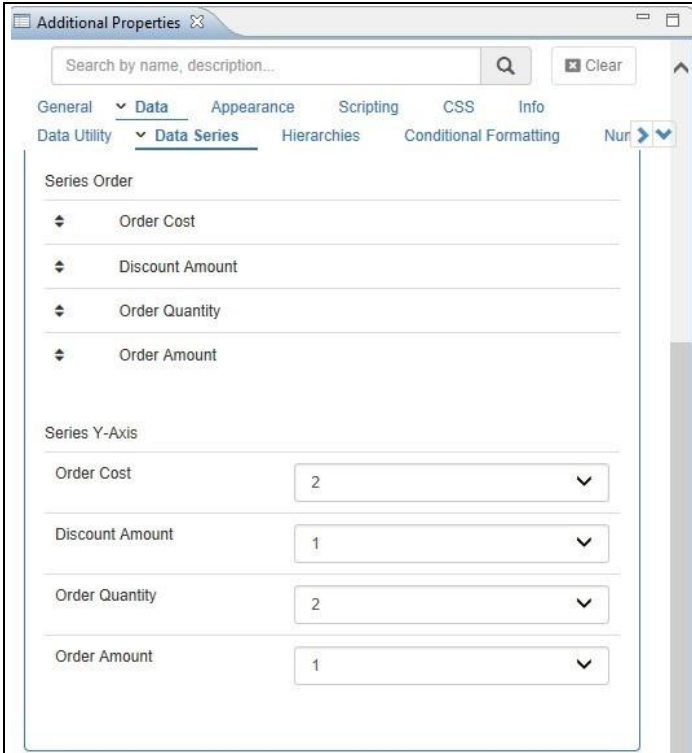


Figure 4.301: Series Order and Series Y-Axis

Based on the above configured settings on Series Type and Series Y-Axis, you can visualize the Dual Axis Chart (see Figure 4.302). You can observe that the measures Discount Amount and Order Amount takes the plot values of Y-Axis 1 and the measures Order Cost and Order Quantity takes the plot values of Y-Axis 2.

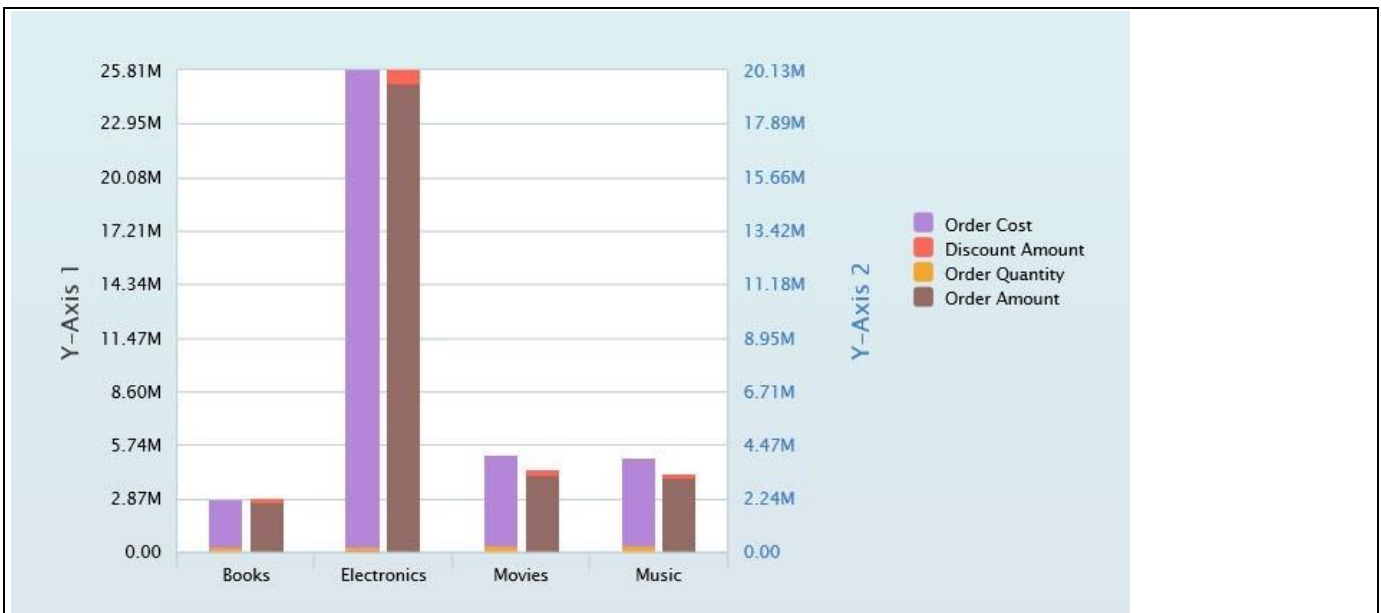


Figure 4.302: Series Y-Axis

4.16.4 Adding Trendlines

In the Additional Properties of the Dual Axis Chart in the category Data and the sub category Trendline, you have the ability to add the trendlines to the Dual Axis Chart similar to other Charts.

For our example, activate the option Enable Trendline and assign the Trend Type as “Linear” and the desired Color for the Measure items Order Amount and Order Cost (see Figure 4.303).

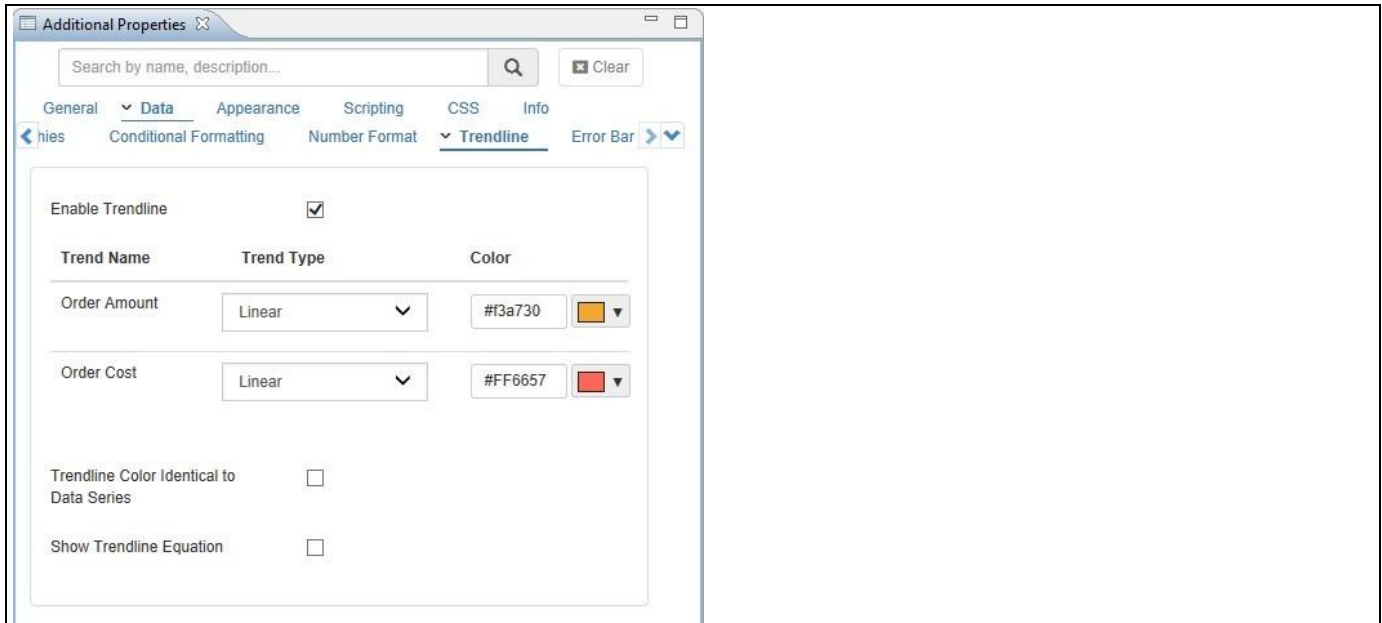


Figure 4.303: Enable Trendline

Based on the above configuration, you can visualize the Dual Axis Chart with the Trendlines assigned to the Measure items Order Amount and Order Cost (see Figure 4.304).



Figure 4.304: Dual Axis Chart with Trendlines

4.16.4.1 Data Source Requirements for a Dual Axis Chart

The minimum data source requirement for a Dual Axis Chart is a data source with at least one dimension in the Rows, and one or more measures in the Columns. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Dual Axis Chart or you can decide to plot the complete data set onto the chart.

4.16.4.2 How to use the Dual Axis Chart?

In the following steps we will outline how you can setup a new Dual Axis Chart. For our example we will assume that we are going to use a data source with a dimension Product in the Rows and measures Revenue, Cost, and Profit in the Columns of the Initial View of the data source.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Dual Axis Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Dual Axis Chart.
5. Navigate to the Additional Properties of the Dual Axis Chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Data Series (see Figure 4.305).

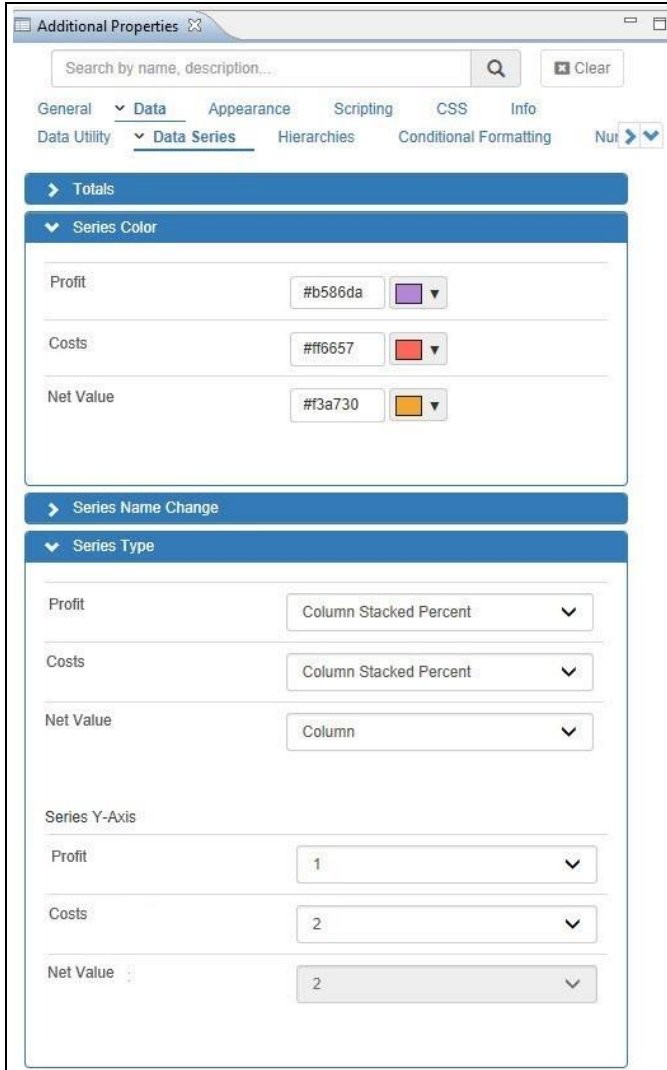


Figure 4.305: Category Data

8. In the area Series Type you can configure the type of visualization for each of the Data Series in your chart. The available options are: (see Figure 4.305)

- Column
- Column Stacked
- Column Stacked Percent
- Line
- Spline
- Area
- Area Stacked
- Area Stacked Percent
- Area Spline
- Area Spline Stacked
- Area Spline Stacked Percent

9. In our example we are setting the following Series Type:

- Measure Profit: Column Stacked Percent
- Measure Costs: Column Stacked Percent
- Measure Net Value: Column

10. In the Series Y-Axis area of the Additional Properties you can decide which measure is being plotted onto which axis in the chart (see Figure 4.305).

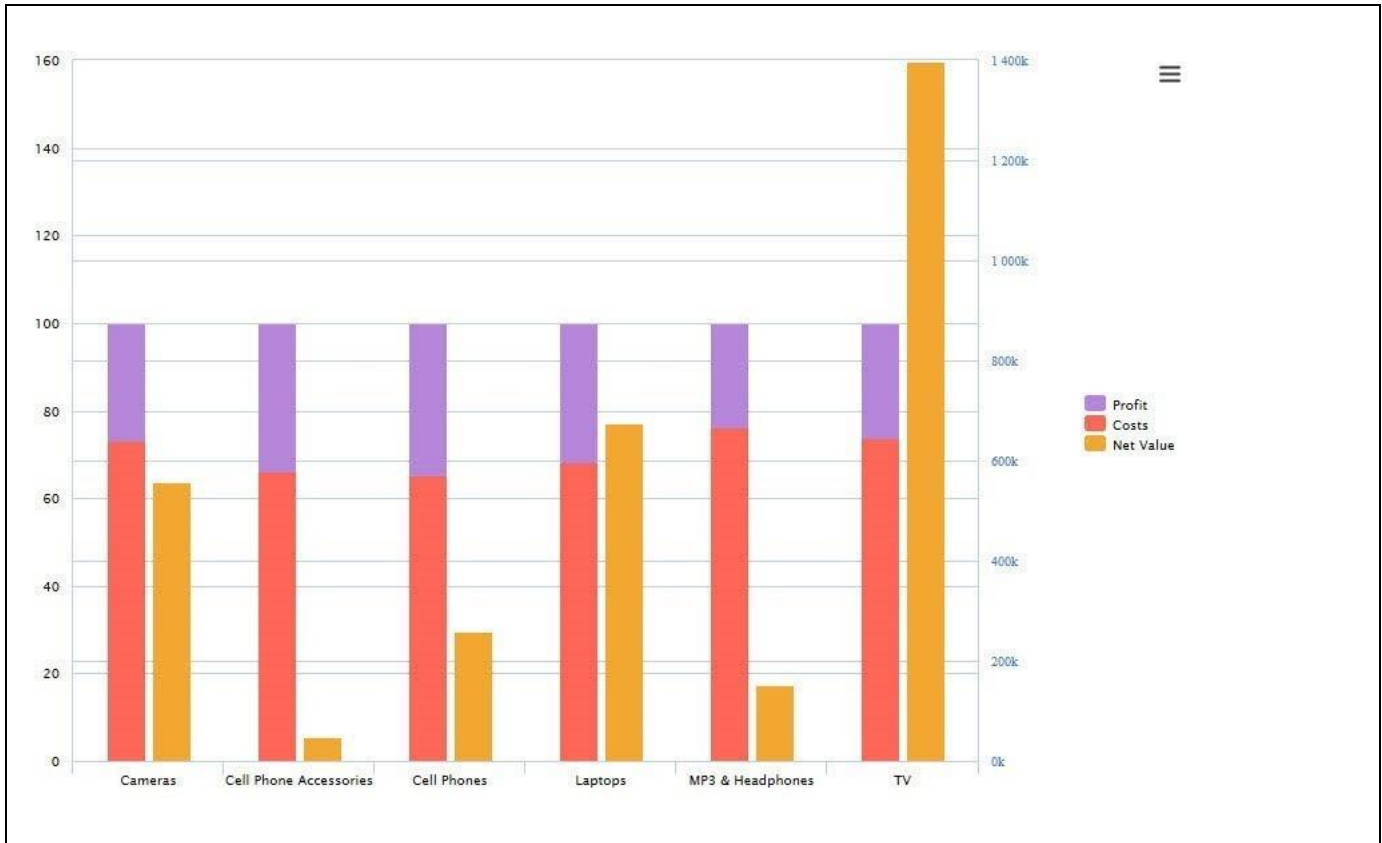


Figure 4.306: Dual Axis Chart

4.16.5 Additional Properties of the Dual Axis Chart

In addition to supporting the standard set of Additional Properties outlined in section 4.5 and the Additional Properties for the X-Axis, Y-Axis outlined in section 4.5.6.1, the Dual Axis Chart supports the following Additional Properties.

4.16.5.1 Category Data

The category Data in the Additional Properties allows you to customize settings in regards to topics such as Data Labels, Error Bar, Markers, and other data relevant configurations.

Sub category	Area	Property	Description
Data Series	Series Type	Series Type	Using the Series Type property, you can configure the type of visualization for each of the data series in the Dual Axis Chart.
		Series Order	Using the Series Order property, you have the option to change the “Series Order” for the measure items where the Legends for the measure items in the Chart will be changed based on the changed Series Order.
		Series Y-Axis	Using this property, you can configure onto which axis each of the available data series will be plotted.

Table 4.40: Data

4.16.5.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Chart Orientation	Here you can configure the chart to be either Vertical or Horizontal.

Table 4.41: Appearance

4.16.6 Scripting Functions for the Dual Axis Chart

In addition to the common scripting functions listed in section 4.6, the Dual Axis Chart supports the following scripting functions.

Function / Method	Description
DSXGetYAxisLabelPrefix() DSXGetYAxis2LabelPrefix()	The function allows you to retrieve the Y-Axis / Y-Axis 2 Label Prefix.
DSXGetYAxisLabelSuffix() DSXGetYAxis2LabelSuffix()	The function allows you to retrieve the Y-Axis / Y-Axis 2 Label Suffix.
DSXGetYAxisPlotBandColor() DSXGetYAxis2PlotBandColor()	The function allows you to retrieve the color for the Y-Axis / Y-Axis 2 Plot Band.
DSXGetYAxisPlotBandEnabled() DSXGetYAxis2PlotBandEnabled()	The function allows you to retrieve the status (enabled / disabled) of the Y-Axis / Y-Axis 2 Plot Band.
DSXGetYAxisPlotBandFrom() DSXGetYAxis2PlotBandFrom()	The function allows you to retrieve the Y-Axis / Y-Axis 2 Plot Band From value.
DSXGetYAxisPlotBandTo() DSXGetYAxis2PlotBandTo()	The function allows you to retrieve the Y-Axis / Y-Axis 2 Plot Band To value.
DSXGetYAxisPlotLineColor() DSXGetYAxis2PlotLineColor()	The function allows you to retrieve the Y-Axis / Y-Axis 2 Plot Line color.
DSXGetYAxisPlotLineEnabled() DSXGetYAxis2PlotLineEnabled()	The function allows you to retrieve the status (enabled / disabled) of the Y-Axis / Y-Axis 2 Plot Line.
DSXGetYAxisPlotLineValue() DSXGetYAxis2PlotLineValue()	The function allows you to retrieve the Y-Axis / Y-Axis 2 Plot Line Value.
DSXGetYAxisTitleText() DSXGetYAxis2TitleText()	The function allows you to retrieve the Y-Axis / Y-Axis 2 Title Text.
DSXSetAxisType()	The function allows you to change the Series Type using the Chart Type and measure key parameters.
DSXSetMeasureAxisIndex()	The function allows you to change the Series Axis Index using the Axis Index and measure key parameters.
DSXSetYAxisLabelEnabled() DSXSetYAxis2LabelEnabled()	The function allows you to enable the Y-Axis / Y-Axis 2 Label.
DSXSetYAxisLabelPrefix() DSXSetYAxis2LabelPrefix()	The function allows you to set the Y-Axis / Y-Axis 2 Label Prefix.
DSXSetYAxisLabelSuffix() DSXSetYAxis2LabelSuffix()	The function allows you to set the Y-Axis / Y-Axis 2 Label Suffix.
DSXSetYAxisPlotBandColor() DSXSetYAxis2PlotBandColor()	The function allows you to set the Y-Axis / Y-Axis 2 Plot Band Color.
DSXSetYAxisPlotBandEnabled() DSXSetYAxis2PlotBandEnabled()	The function allows you to enable the Y-Axis / Y-Axis 2 Plot Band.
DSXSetYAxisPlotBandFrom() DSXSetYAxis2PlotBandFrom()	The function allows you to set the Y-Axis / Y-Axis 2 Plot Band From Value.
DSXSetYAxisPlotBandTo() DSXSetYAxis2PlotBandTo()	The function allows you to set the Y-Axis / Y-Axis 2 Plot Band To Value.

Function / Method	Description
DSXSetYAxisPlotLineColor() DSXSetYAxis2PlotLineColor()	The function allows you to set the Y-Axis / Y-Axis 2 Plot Line Color.
DSXSetYAxisPlotLineEnabled() DSXSetYAxis2PlotLineEnabled()	The function allows you to enable the Y-Axis / Y-Axis 2 Plot Line.
DSXSetYAxisPlotLineValue() DSXSetYAxis2PlotLineValue()	The function allows you to set the Y-Axis / Y-Axis 2 Plot Line Value.
DSXSetYAxisTitleEnabled() DSXSetYAxis2TitleEnabled()	The function allows you to enable the Y-Axis / Y-Axis 2 Title.
DSXSetYAxisTitleText() DSXSetYAxis2TitleText()	The function allows you to set the Y-Axis / Y-Axis 2 Title Text.
DSXGetYaxis2Maximum()	The function allows you to retrieve the value of yaxismax.
DSXGetYaxis2Minimum()	The function allows you to retrieve the value of yaxismin.
DSXSetYaxis2Maximum()	The function allows you to set the value of yaxismax.
DSXSetYaxis2Minimum()	The function allows you to set the value of yaxismin.

Table 4.42: Scripting Functions

4.16.7 Multiple Axis Chart

The Multiple Axis Chart provides the option to setup a chart with as many axis as you have measures in the assigned data source, meaning you could create a chart with an axis for each measure.

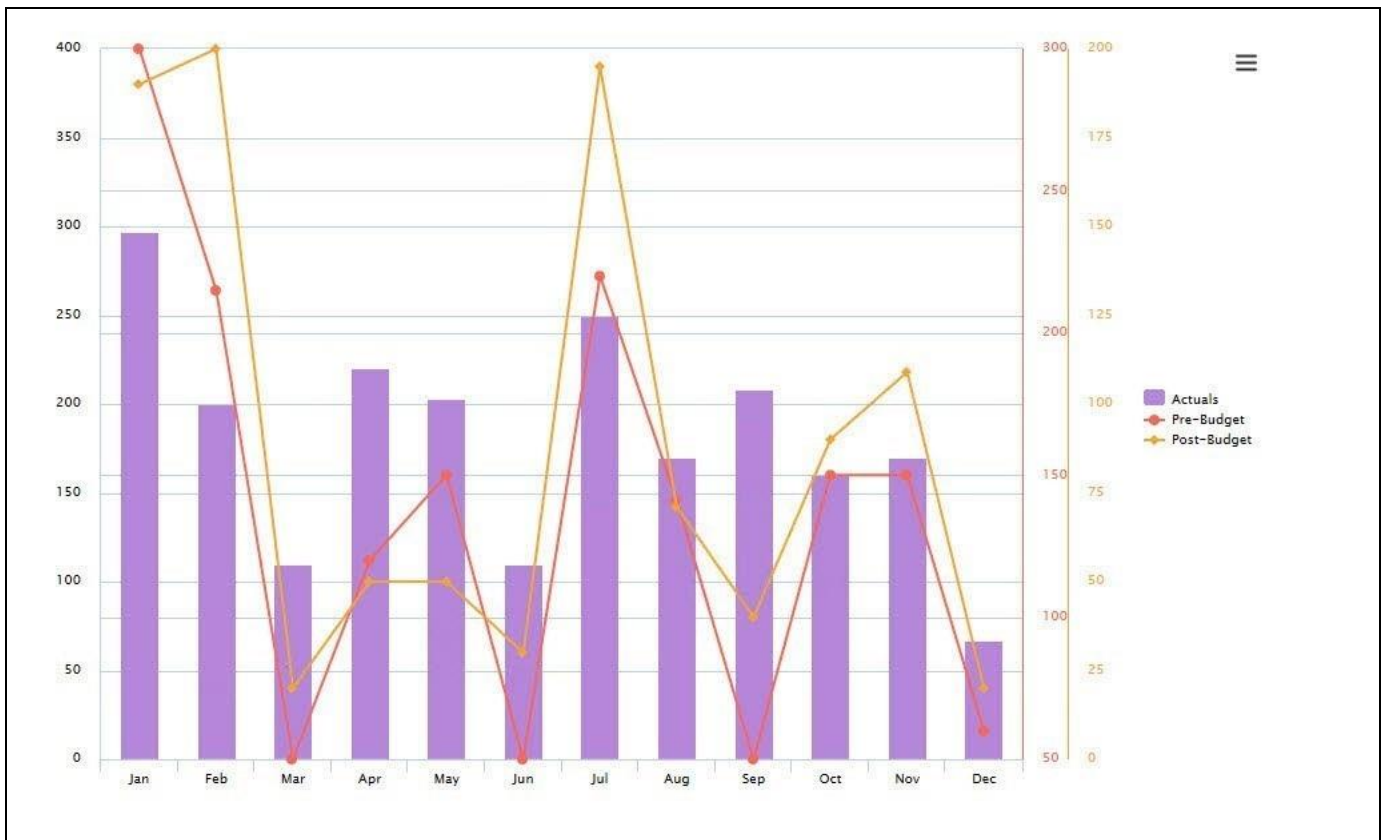


Figure 4.307: Multiple Axis Chart

Figure 4.307 shows the Actuals in form of a Column, the Pre Budget and Post Budget measure in form of a Line chart and each measure has been plotted against their own axis.

4.16.8 Order of Displaying Different Chart Types

In the Additional Properties of the Multiple Axis Chart in the category Data and the sub category Data Series, you have the option to define the “Series Order” for displaying the different chart types. By changing the Series Order of the measure items, the order of display for the charts and the order of legend for the measure items will be changed based on the changed Series Order.

For our example, in the additional properties of the Multiple Axis Chart the default Series Order for the measure items is shown in Figure 4.308.

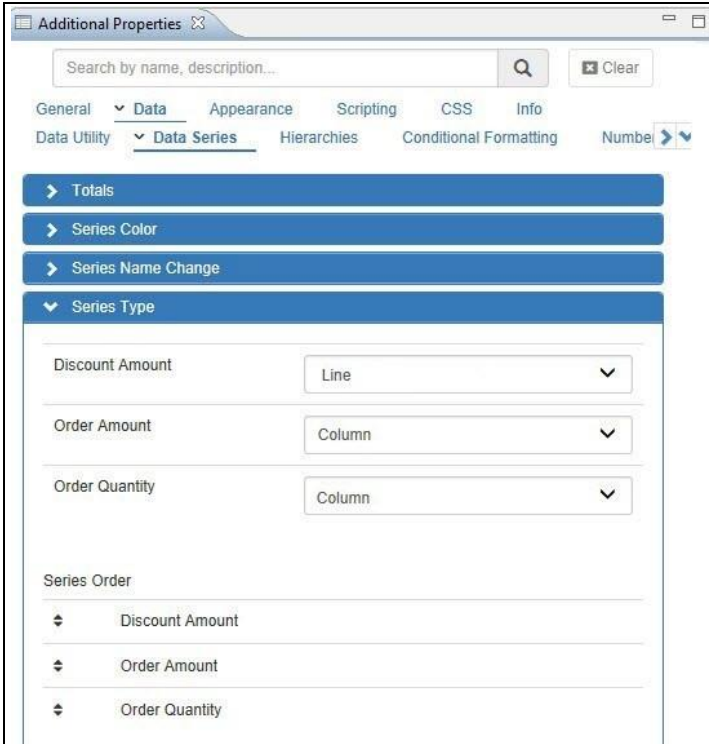


Figure 4.308: Default Series Order

Based on the above configuration, the Multiple Axis Chart will be displayed with the default order of the legend items and the default order of display of the charts for the measure items Discount Amount, Order Amount and Order Quantity (see Figure 4.309).

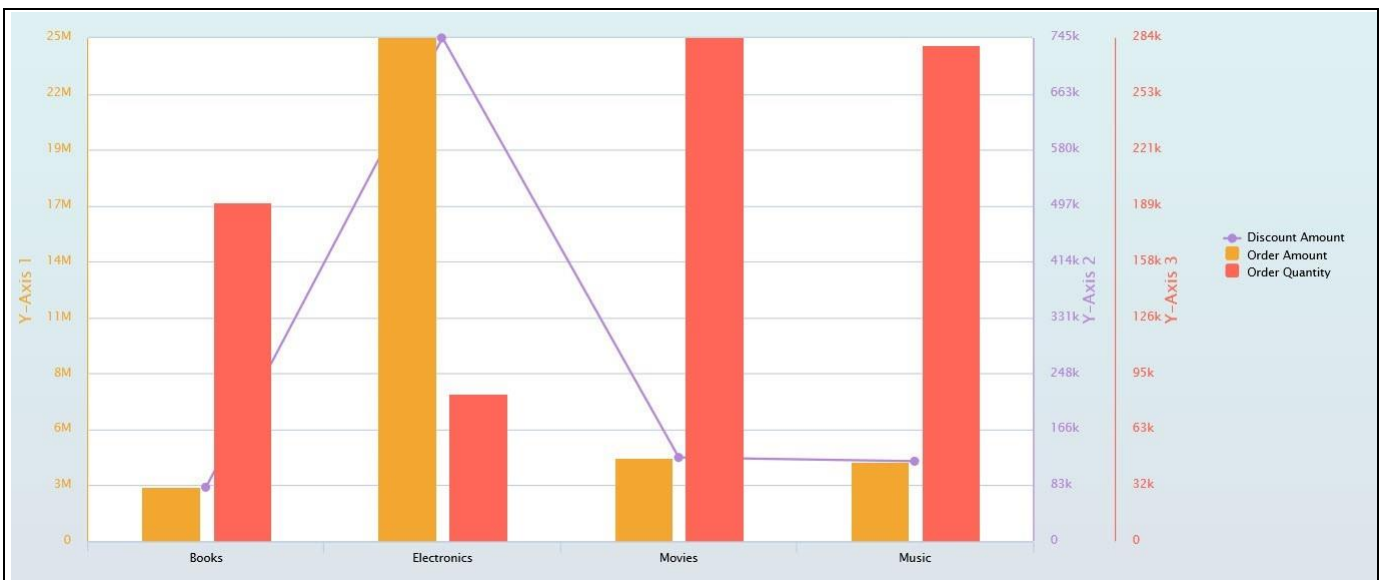


Figure 4.309: Default Series Order

For our example, in the additional properties of the Multiple Axis Chart change the Series Order for the measure items Discount Amount and Order Amount so that the order of legend items and the order of display of the charts for those measure items will be changed (see Figure 4.310).

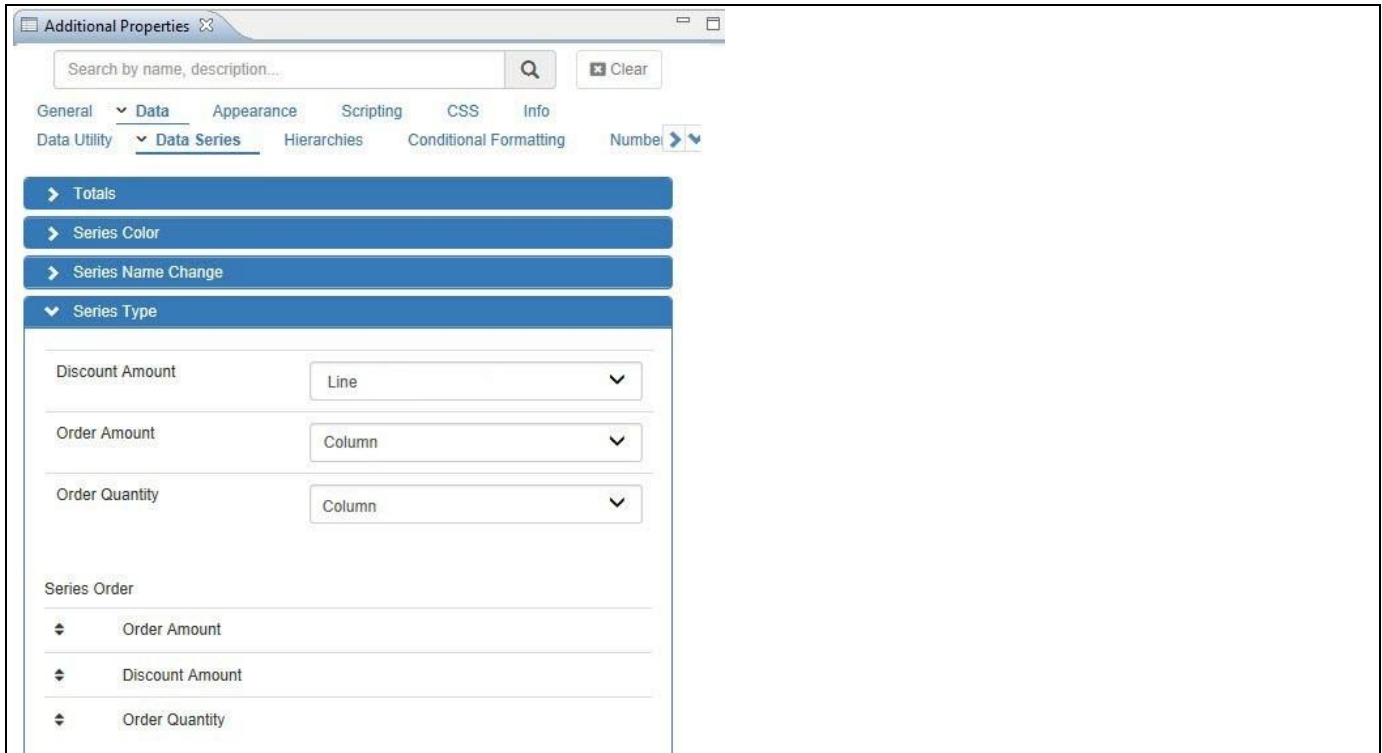


Figure 4.310: Changed Series Order

Based on the above configuration, the Multiple Axis Chart will be displayed with the changed order of legend items and the order of display of the charts for the measure items Discount Amount and Order Amount will be changed (see Figure 4.311).

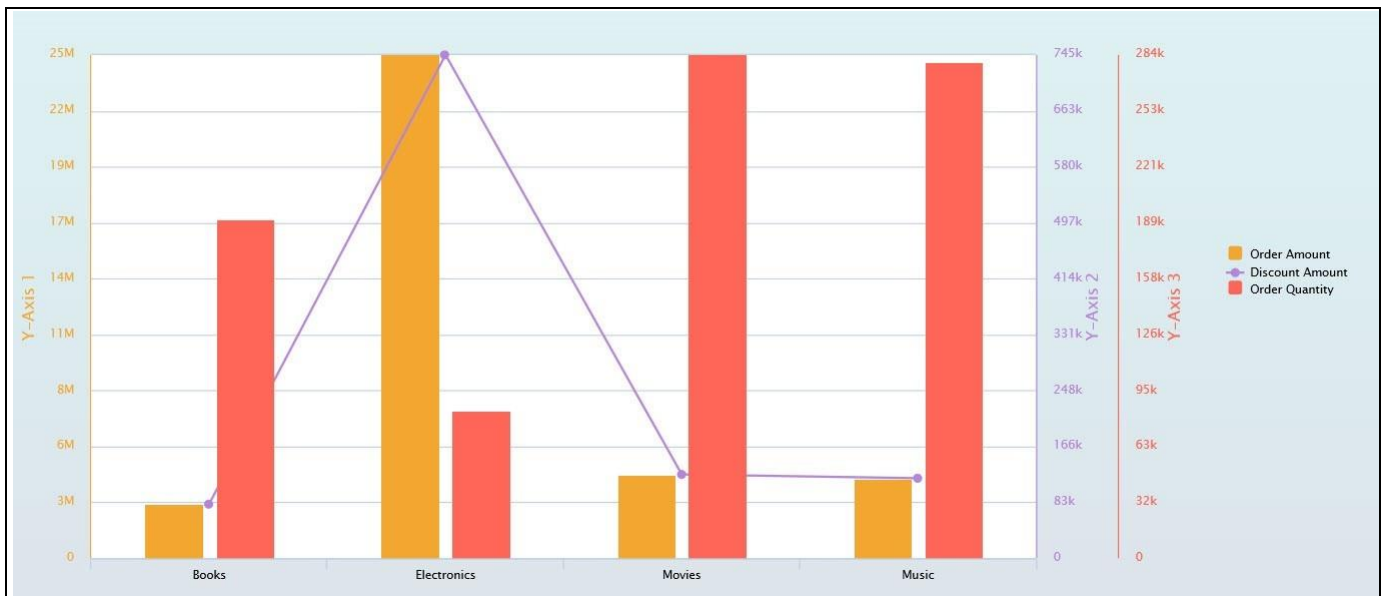


Figure 4.311: Changed Series Order

4.16.9 Option to have one Stacked Chart Type per Available Axis

In the Additional Properties of the Multiple Axis Chart in the category Data and the sub category Data Series, Stacked Chart types which are assigned to the measure items can be now mapped to more than one Y-Axis.

For our example in the area Series Type, measure Discount Amount is assigned to the Column Stacked Chart type, measure Order Amount is assigned to the Column Stacked Chart type, measure Order Cost is assigned to the Column Stacked Chart type and measure Order Quantity is assigned to the Column Stacked Chart type (see Figure 4.312).

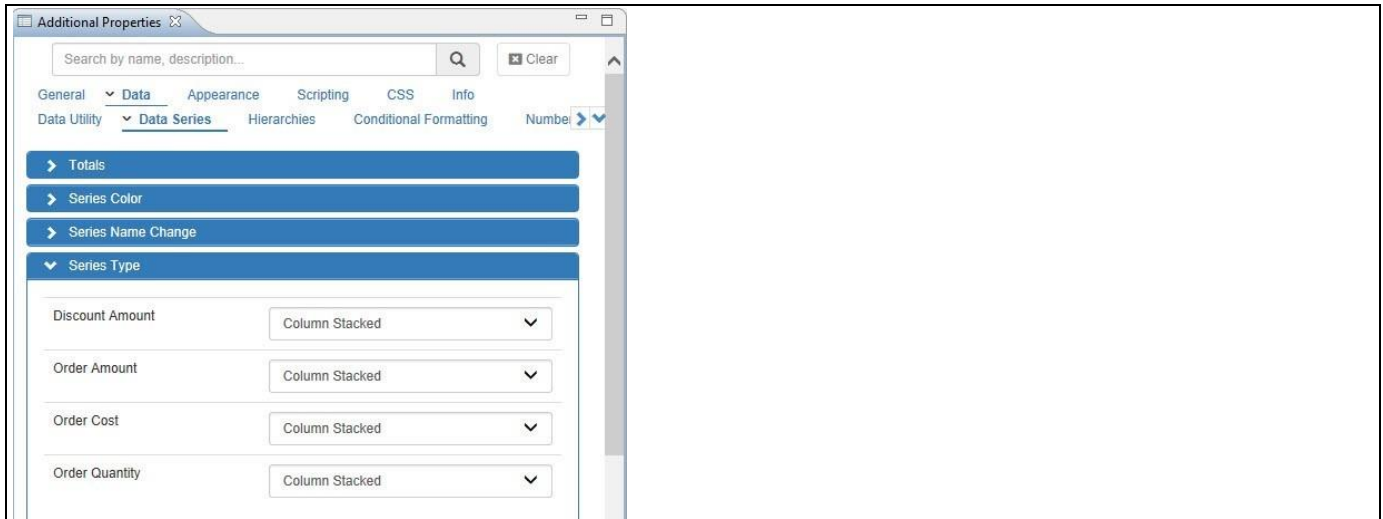


Figure 4.312: Series Type

In the area Series Y-Axis, measure Discount Amount is assigned to the Y Axis 4, measure Order Amount is assigned to the Y Axis 2, measure Order Cost is assigned to the Y Axis 3 and measure Order Quantity is assigned to the Y Axis 1 (see Figure 4.313).

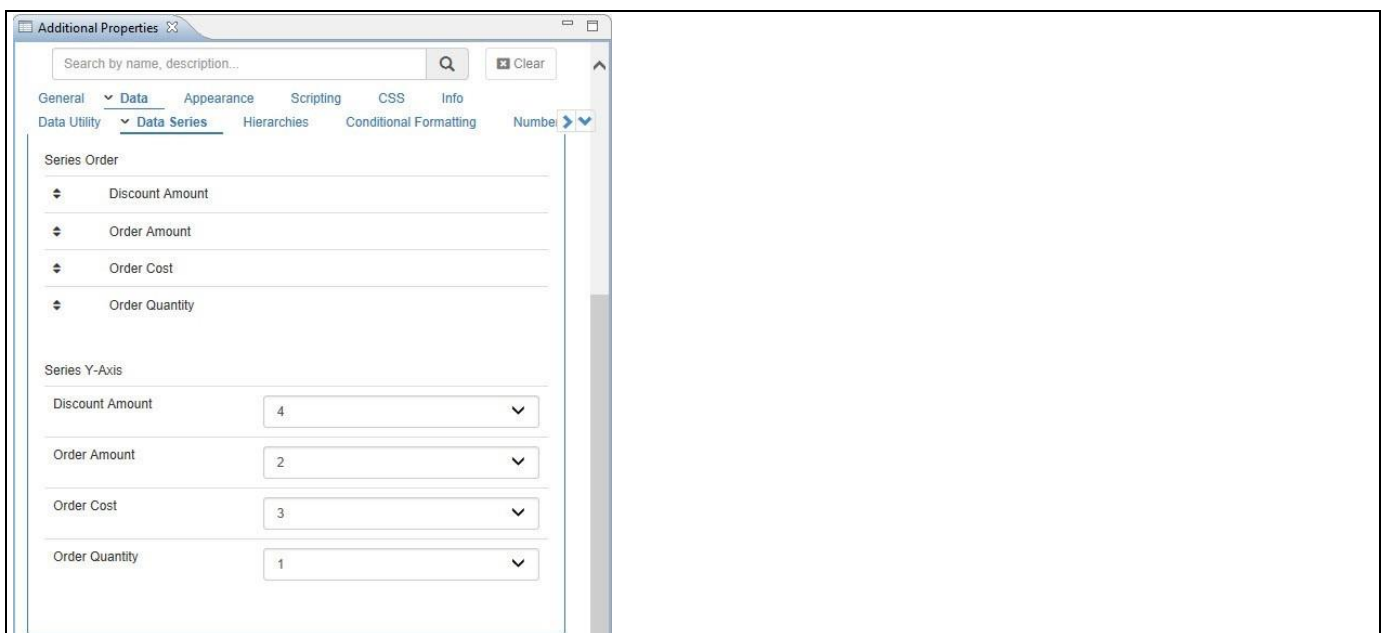


Figure 4.313: Series Y-Axis

Based on the above configured settings on Series Type and Series Y-Axis, you can visualize the Multiple Axis Chart (see Figure 4.314). You can observe that the measure Discount Amount takes the plot values of Y-Axis 4, the measure Order Amount takes the plot values of Y-Axis 2, the measure Order Cost takes the plot values of Y-Axis 3 and the measure Order Quantity takes the plot values of Y-Axis 1.

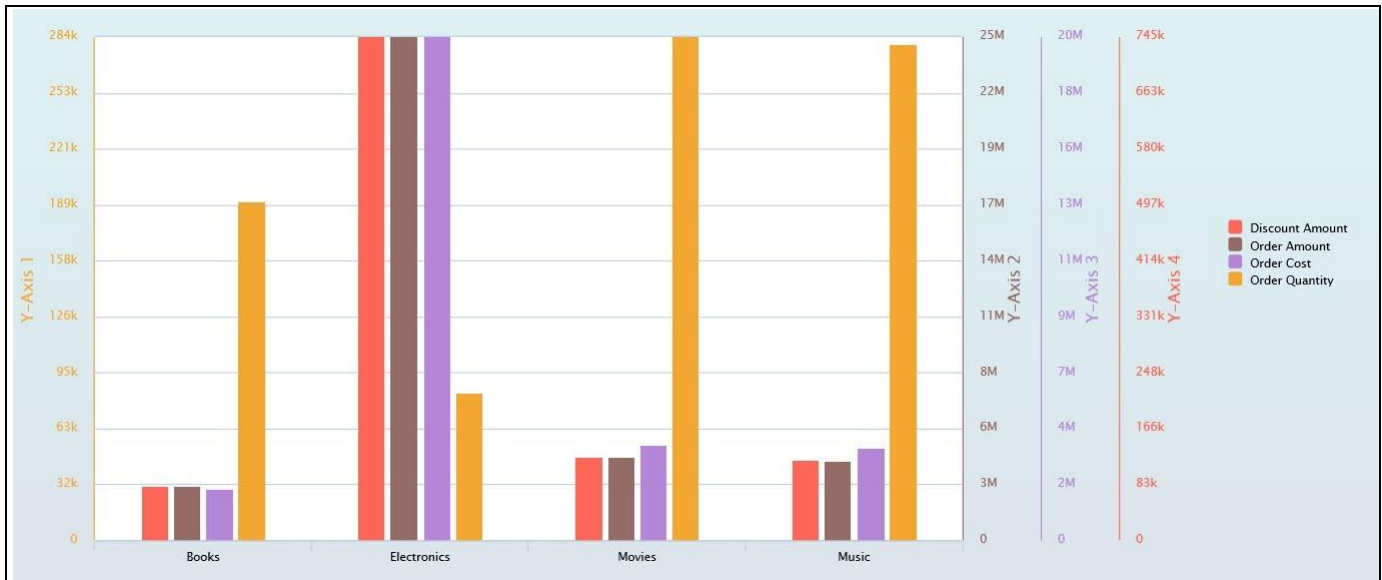


Figure 4.314: Series Y-Axis

4.16.10 Adding Trendlines

In the Additional Properties of the Multiple Axis Chart in the category Data and the sub category Trendline, you have the ability to add the trendlines to the Multiple Axis Chart similar to other Charts.

For our example, activate the option Enable Trendline and assign the Trend Type as “Linear” and the desired Color for the Measure items Order Amount, Order Cost and Order Quantity (see Figure 4.315).

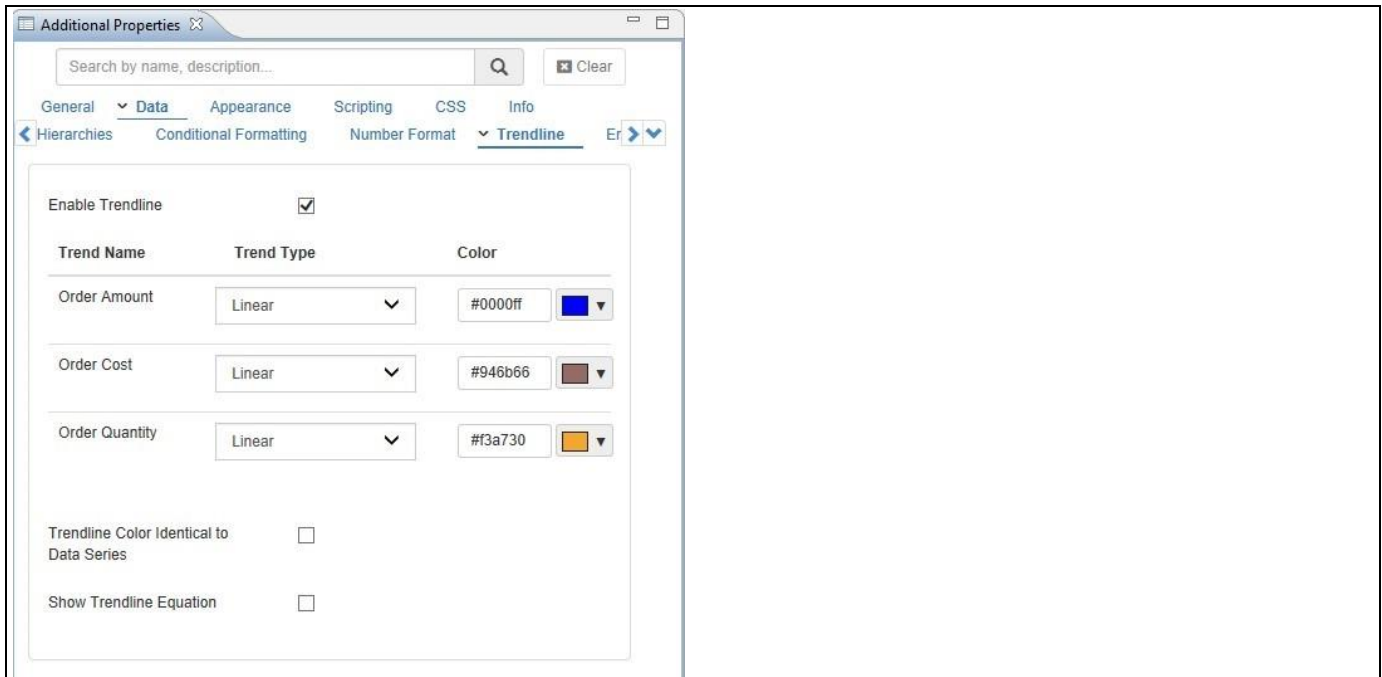


Figure 4.315: Enable Trendline

Based on the above configuration, you can visualize the Multiple Axis Chart with the Trendlines assigned to the Measure Items Order Amount, Order Cost and Order Quantity (see Figure 4.316).

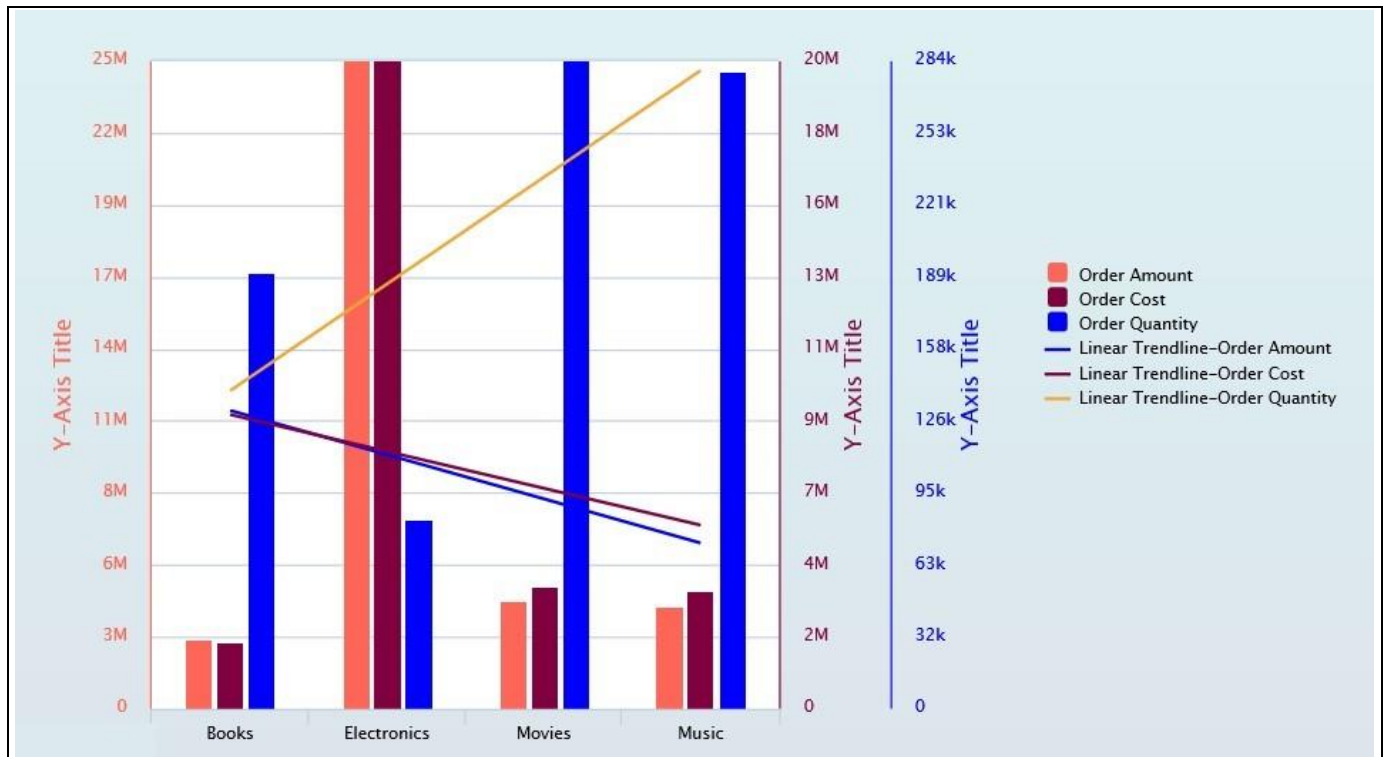


Figure 4.316: Multiple Axis Chart with Trendlines

4.16.10.1 Data Source Requirements for a Multiple Axis Chart

The minimum data source requirement for a Multiple Axis Chart is a data source with at least one dimension in the Rows, and one or more measures in the Columns. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Multiple Axis Chart or you can decide to plot the complete data set onto the chart.

4.16.10.2 How to use the Multiple Axis Chart?

In the following steps we will outline how you can setup a new Multiple Axis Chart. For our example we will assume that we are going to use a data source with a dimension Calendar Month in the Rows and measures Revenue, Cost, and Profit in the Columns of the Initial View of the data source.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Multiple Axis Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Multiple Axis Chart.
5. Navigate to the Additional Properties of the Multiple Axis Chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Data Series (see Figure 4.317).

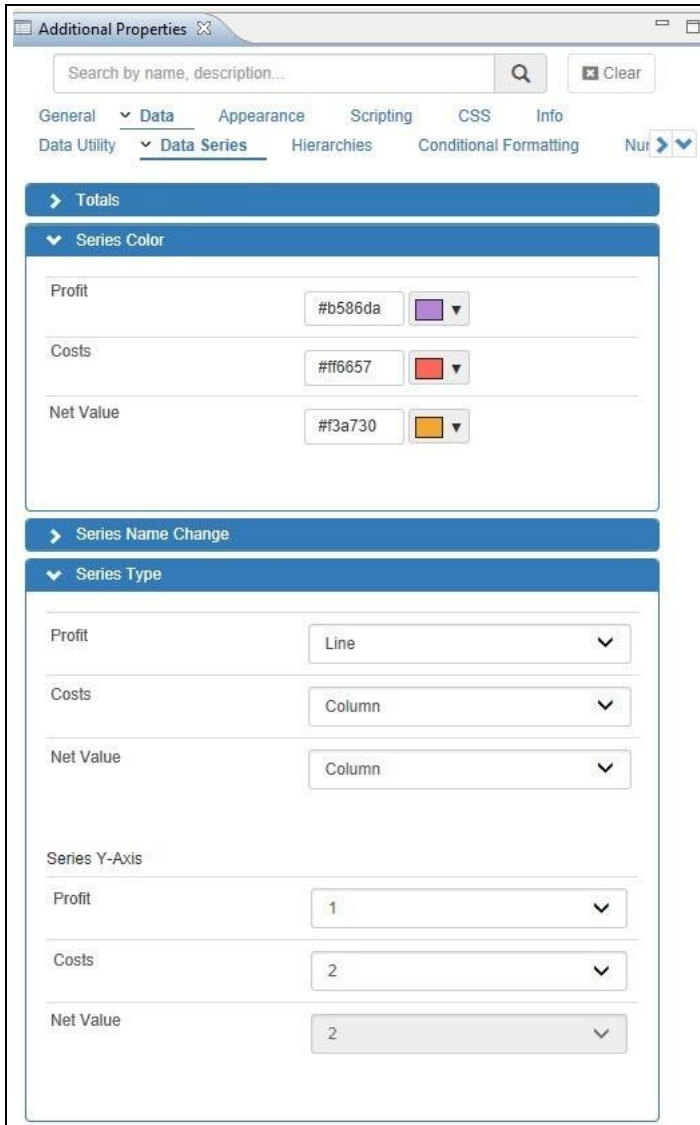


Figure 4.317: Category Data

8. In the area Series Type you can configure the type of visualization for each of the Data Series in your chart. The available options are:

- Column
- Column Stacked
- Column Stacked Percent
- Line
- Spline
- Area
- Area Stacked
- Area Stacked Percent
- Area Spline
- Area Spline Stacked
- Area Spline Stacked Percent

9. In our example we are setting the following Series Type:

- Measure Profit: Line
- Measure Costs: Column
- Measure Net Value: Column

10. In the Series Y-Axis area of the Additional Properties you can decide which measure is being plotted onto which axis in the chart (see Figure 4.317). For our example we will plot each measure on its own Axis (see Figure 4.318).

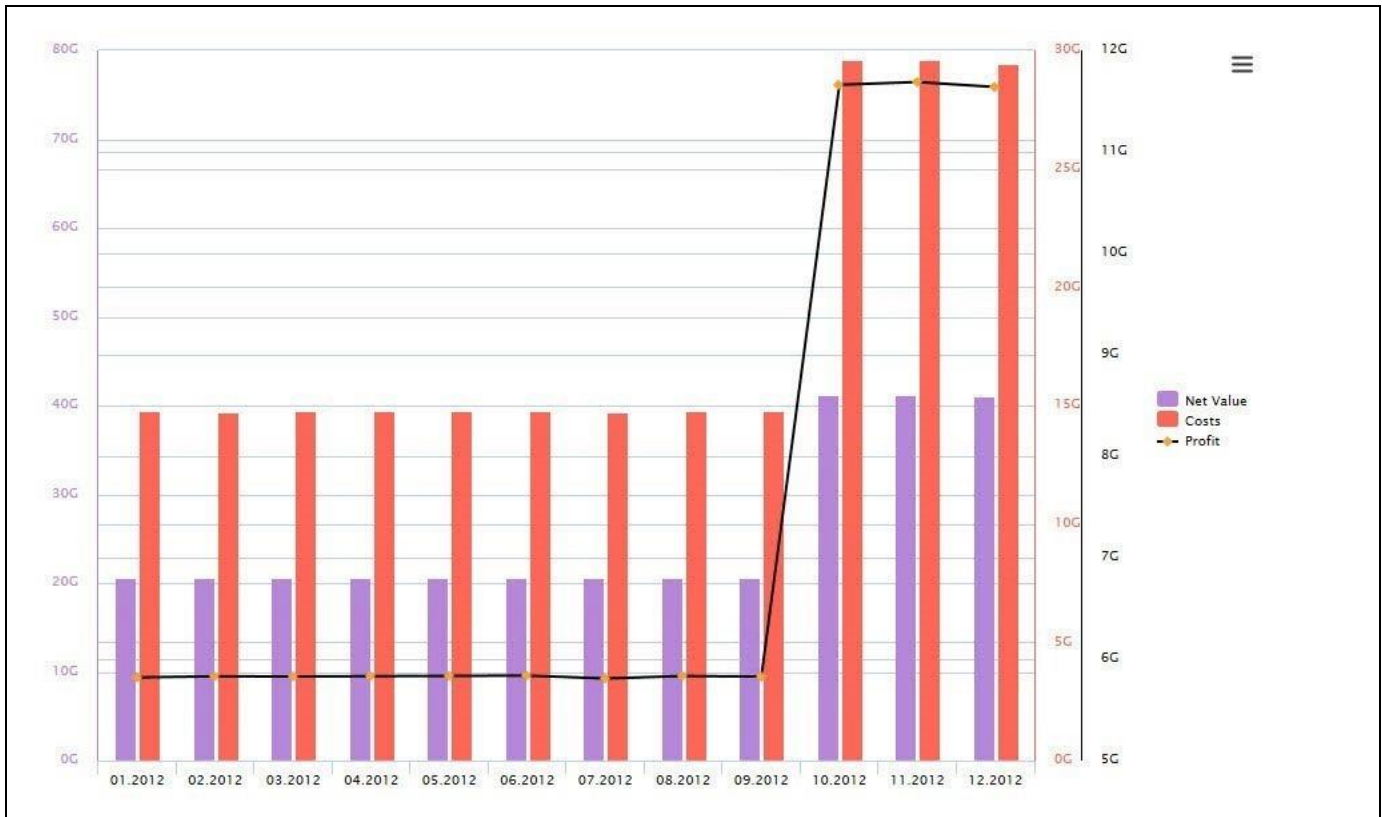


Figure 4.318: Multiple Axis Chart

4.16.11 Additional Properties of the Multiple Axis Chart

In addition to supporting the standard set of Additional Properties outlined in section 4.5 and the Additional Properties for the X-Axis, Y-Axis outlined in section 4.5.6.1, the Multiple Axis Chart supports the following Additional Properties.

4.16.11.1 Category Data

The category Data in the Additional Properties allows you to customize settings in regards to topics such as Data Labels, Error Bar, Markers, and other data relevant configurations.

Sub category	Area	Property	Description
Data Series	Series Type	Series Type	Using the Series Type property, you can configure the type of visualization for each of the data series in the Multiple Axis Chart.
		Series Order	Using the Series Order property, you have the option to change the “Series Order” for the measure items where the Legends for the measure items in the Chart will be changed based on the changed Series Order.
		Series Y-Axis	Using this property, you can configure onto which axis each of the available data series will be plotted.

Table 4.43: Data

4.16.11.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Chart Orientation	Here you can configure the chart to be either Vertical or Horizontal.

Table 4.44: Appearance

4.16.12 Scripting Functions for the Multiple Axis Chart

In addition to the common scripting functions listed in section 4.6, the Multiple Axis Chart supports the following scripting functions.

Function / Method	Description
DSXGetYAxisCeiling()	The function allows you to retrieve the Y-Axis Ceiling Value. The Y-Axis ID is passed as an input parameter.
DSXGetYAxisFloor()	The function allows you to retrieve the Y-Axis Floor Value. The Y-Axis ID is passed as an input parameter.
DSXGetYAxisLabelPrefix()	The function allows you to retrieve the Y-Axis Label Prefix. The Y-Axis ID is passed as an input parameter.
DSXGetYAxisLabelSuffix()	The function allows you to retrieve the Y-Axis Label Suffix. The Y-Axis ID is passed as an input parameter.
DSXGetYAxisTitleText()	The function allows you to retrieve the Y-Axis Title Text. The Y-Axis ID is passed as input parameter.
DSXSetAxisType()	The function allows you to change the Series Type using the Chart Type and measure key parameters.
DSXSetMeasureAxisIndex()	The function allows you to change the Series Axis Index using the Axis Index and measure key parameters.
DSXSetYAxisLabelPrefix()	The function allows you to set the Y-Axis Label Prefix. The Y-Axis ID is passed as input parameter.
DSXSetYAxisLabelSuffix()	The function allows you to set the Y-Axis Label Suffix. The Y-Axis ID is passed as input parameter.
DSXSetYAxisTitleText()	The function allows you to set the Y-Axis Title Text. The Y-Axis ID is passed as input parameter.
DSXGetYAxisMax()	The function allows you to retrieve the value of Y-Axis Max.
DSXGetYAxisMin()	The function allows you to retrieve the value of Y-Axis Min.
DSXGetYAxisTickInterval()	The function allows you to retrieve the value of Y-Axis Tick Interval.
DSXGetYAxisMinorTickInterval()	The function allows you to retrieve the value of Y-Axis Minor Tick Interval.
DSXGetYAxisToolTipValuePrefix()	The function allows you to retrieve the value of Y-Axis ToolTip Prefix.
DSXGetYAxisToolTipValueSuffix()	The function allows you to retrieve the value of Y-Axis ToolTip Suffix.
DSXSetYAxisFloor()	The function allows you to set the value for Y-Axis Floor.
DSXSetYAxisTickInterval()	The function allows you to set the value of Y-Axis Tick Interval.
DSXSetYAxisMinorTickInterval	The function allows you to set the value of Y-Axis Minor Tick Interval.
DSXSetYAxisToolTipValuePrefix()	The function allows you to set the value of Y-Axis ToolTip Prefix.
DSXSetYAxisToolTipValueSuffix()	The function allows you to set the value of Y-Axis ToolTip Suffix.

Table 4.45: Scripting Functions

4.16.13 Super Combination chart

The Super Combination chart (see Figure 4.319) is similar to the Combination chart with an additional feature of displaying the total composition of the data as a pie chart. Please note, that the Super Combination chart provides one axis for the different measures.

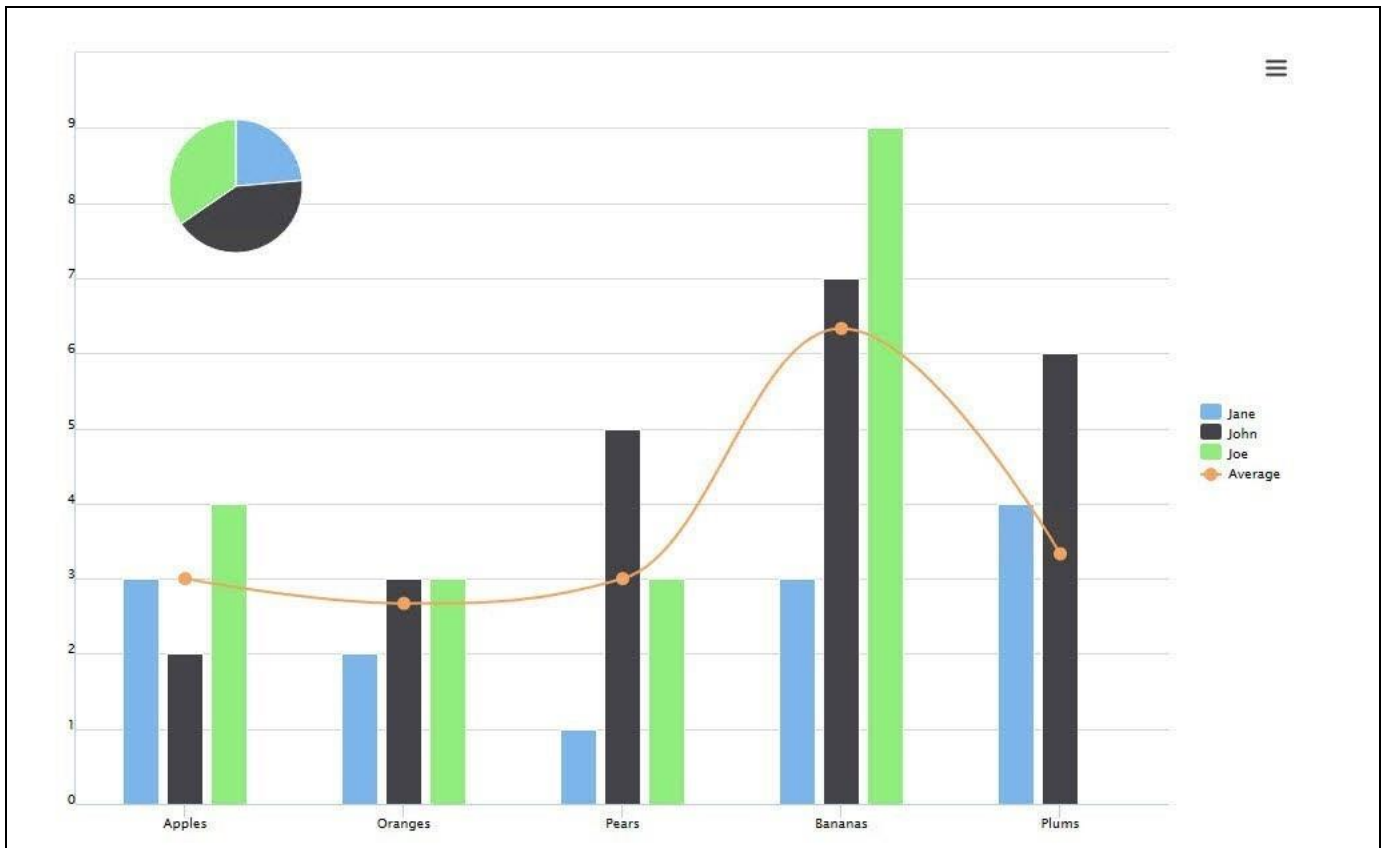


Figure 4.319: Super Combination Chart

4.16.13.1 Data Source Requirements for a Super Combination Chart

The minimum data source requirement for a Super Combination Chart is a data source with at least one dimension in the Rows, and one or more measures in the Columns. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Super Combination Chart or you can decide to plot the complete data set onto the chart.

4.16.13.2 How to use the Super Combination Chart?

In the following steps we will outline how you can setup a new Super Combination Chart. For our example we will assume that we are going to use a data source with a dimension Product in the Rows and measures Revenue, Cost, and Profit in the Columns of the Initial View of the data source.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Super Combination Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.

4. Assign the data source to the Super Combination Chart.
5. Navigate to the Additional Properties of the Super Combination Chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Data Series (see Figure 4.320).

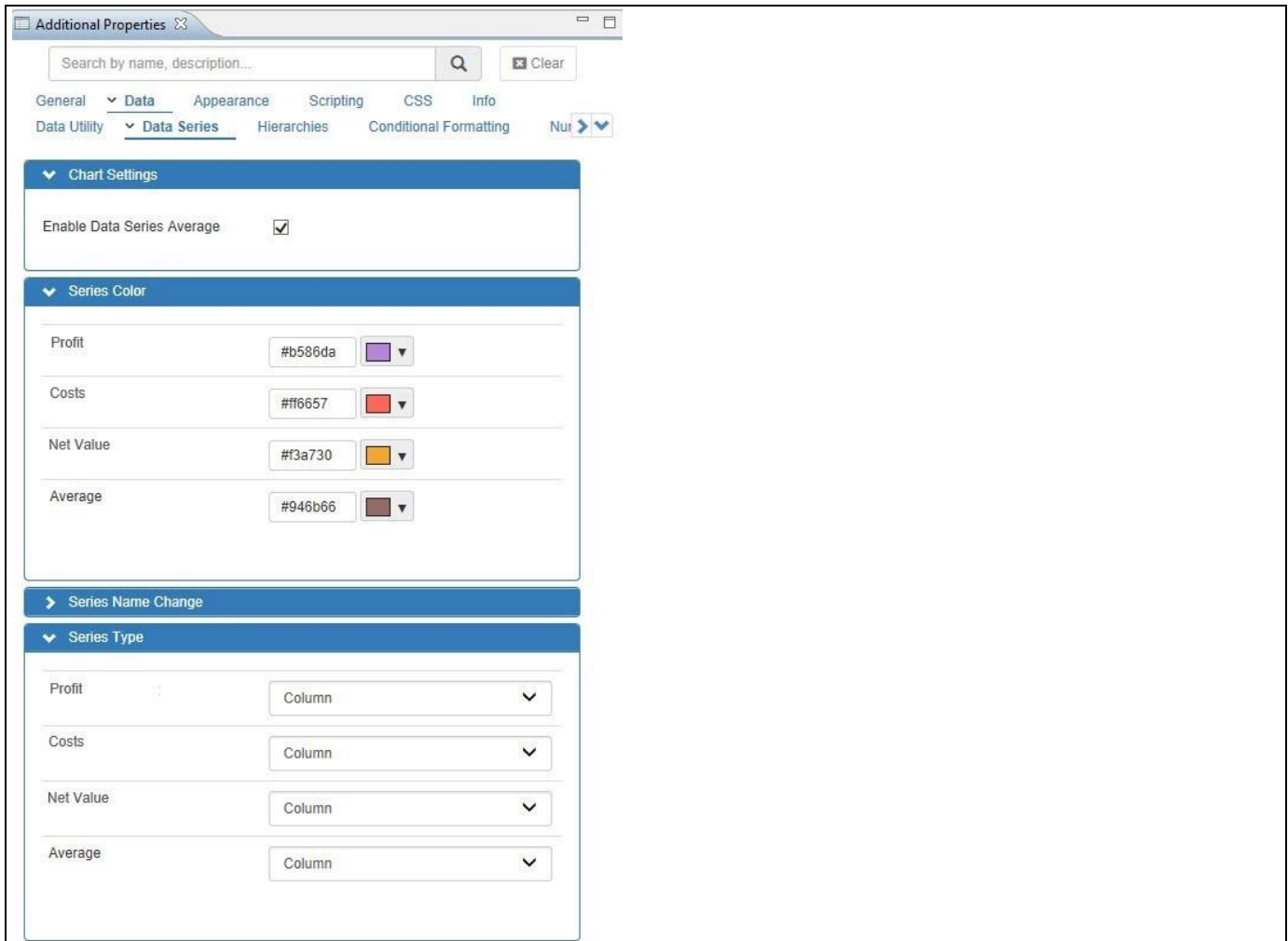


Figure 4.320: Category Data

8. In the area Series Type you can configure the Series Type for each of the measure values visualized in the chart.
9. In addition you have the option to include an Average value by enabling the property Enable Data Series Average.
10. Navigate to the category Appearance and to the sub category Chart (see Figure 4.321).

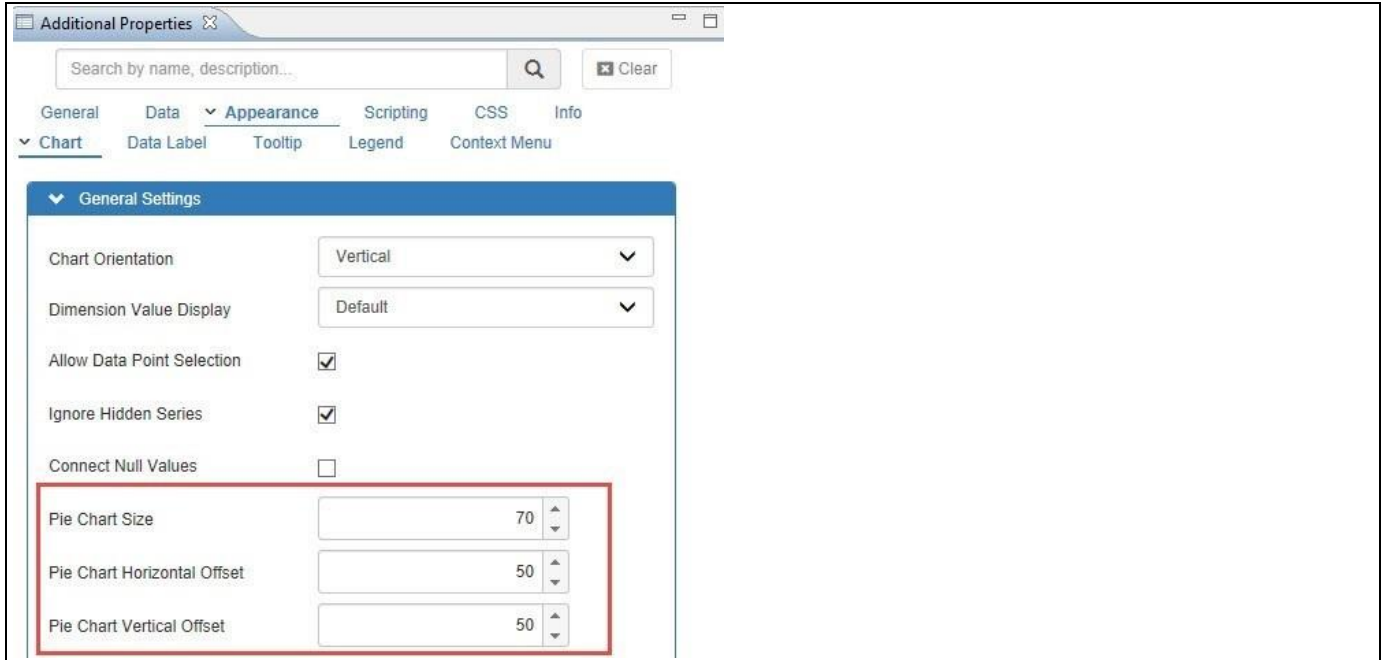


Figure 4.321: Category Appearance

11. In the area General Settings scroll down to the area Pie. Here you can configure the placement and the size of the Pie Chart.

4.16.14 Additional Properties of the Super Combination Chart

In section 4.5.6 we discussed the common set of Additional Properties for all charts and in section 4.5.6.1 we outlined the Additional Properties for the X-Axis and the Y-Axis. In this section we will outline the Additional Properties that are specific to the Super Combination Chart.

4.16.14.1 Category Data

The category Data in the Additional Properties allows you to customize settings in regards to topics such as Data Labels, Error Bar, Markers, and other data relevant configurations.

Sub category	Area	Property	Description
Data Series	Chart Settings	Enable Data Series Average	This property enables / disables the display of an Average value. The Average is being calculated for each data series.
	Series Type	Series Type	Using the Series Type property, you can configure the type of visualization for each of the data series in the Super Combination Chart.

Table 4.46: Data

4.16.14.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Chart Orientation	Here you can configure the chart to be either Vertical or Horizontal.
		Pie Chart Size	This property allows to configure the size of the Pie Chart.
		Pie Chart Horizontal Offset	This property allows to specify the Horizontal Offset of the Pie Chart relative to its default alignment.
		Pie Chart Vertical Offset	This property allows to specify the Vertical Offset of the Pie Chart relative to its default alignment.

Table 4.47: Appearance

4.16.15 Scripting Functions for the Super Combination Chart

All supported scripting functions for the Super Combination Chart are listed as part of the common scripting functions for charts listed in section 4.6.

4.16.16 Sparkline Charts

The Sparkline charts (see Figure 4.322) are a condensed form of a line chart (or bar chart, or area chart), where the focus is on the variation of the overall trend. The chart plot area has no axes, data labels, legends or title/sub-title.

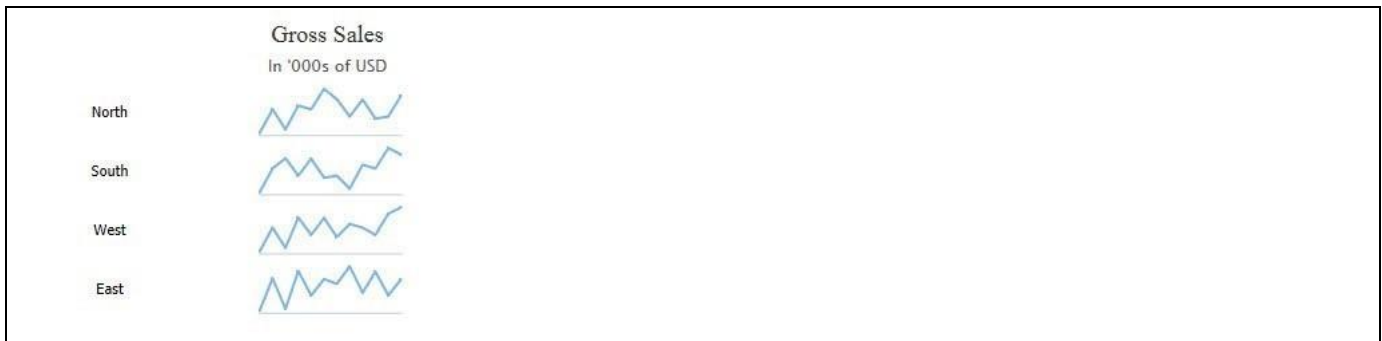


Figure 4.322: Sparkline Chart

The Sparkline Chart component supports the following chart types:

- Area Chart
- Line Chart
- Column Chart
- Bar Chart
- Win Loss Chart
- Bullet Chart

4.16.16.1 Data Source Requirements for Sparkline Charts

Sparkline charts do allow you to leverage dimensions and measures as part of the rows and columns in the underlying data source but it is important to understand how sparkline charts will use the dimensions and measures in the rows and in the columns.

Dimensions that are being placed into the Rows area of the initial view of your data source will also be used as part of the rows of your sparkline chart. In a situation where multiple dimensions are being stacked in the Rows area, then those dimensions will be shown in the rows of the sparkline chart and you will see a chart for each element of the rows.

For dimensions or measures placed into the columns, the logic is slightly different. The first element – also being referred to as the outer element – being placed into the columns will be used to split the columns of the sparkline charts and the next element will be plotted in the chart itself.

To illustrate the logic, let us take a look at a quick example. For our example we assume that we have a data set containing dimension Country and dimension Region in the rows and measure Revenue in the column.



Figure 4.323: Sparkline Chart-Scenario 1

Figure 4.323 shows how such a data set could be used to visualize the single measure for those two dimensions in form of a sparkline bar chart. Expanding on the previous example, we will now add dimension Calendar Month to the columns, so that we have measure Revenue first and dimensions Calendar Month as the inner dimension in the columns.

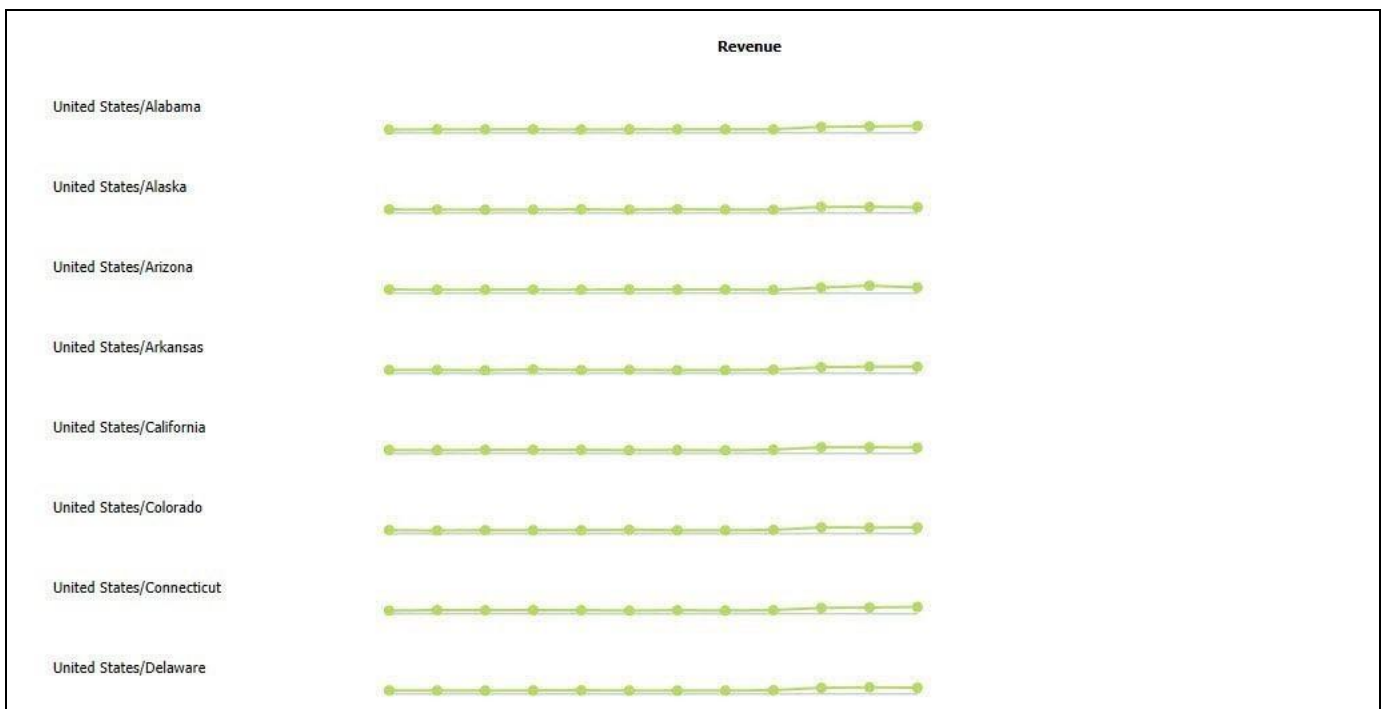


Figure 4.324: Sparkline Chart-Scenario 2

Figure 4.324 shows how a Sparkline chart would show the Revenue broken down by Calendar Month for the two dimensions in the rows.

4.16.16.2 How to use the Sparkline Charts?

In the following steps we will outline how you can setup a new set of Sparkline Chart. For our example we will assume that we are going to use a data source with a dimension Product in the Rows, dimension Calendar Month in the Columns, and measures Revenue and Cost in the Columns of the Initial View of the data source. In the Columns we have the Measures as outer dimension and dimension Calendar Month as inner dimension.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Sparkline Chart component from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Sparkline Chart component.
5. Based on the data source structure, your Sparkline Chart component should look similar to Figure 4.325.

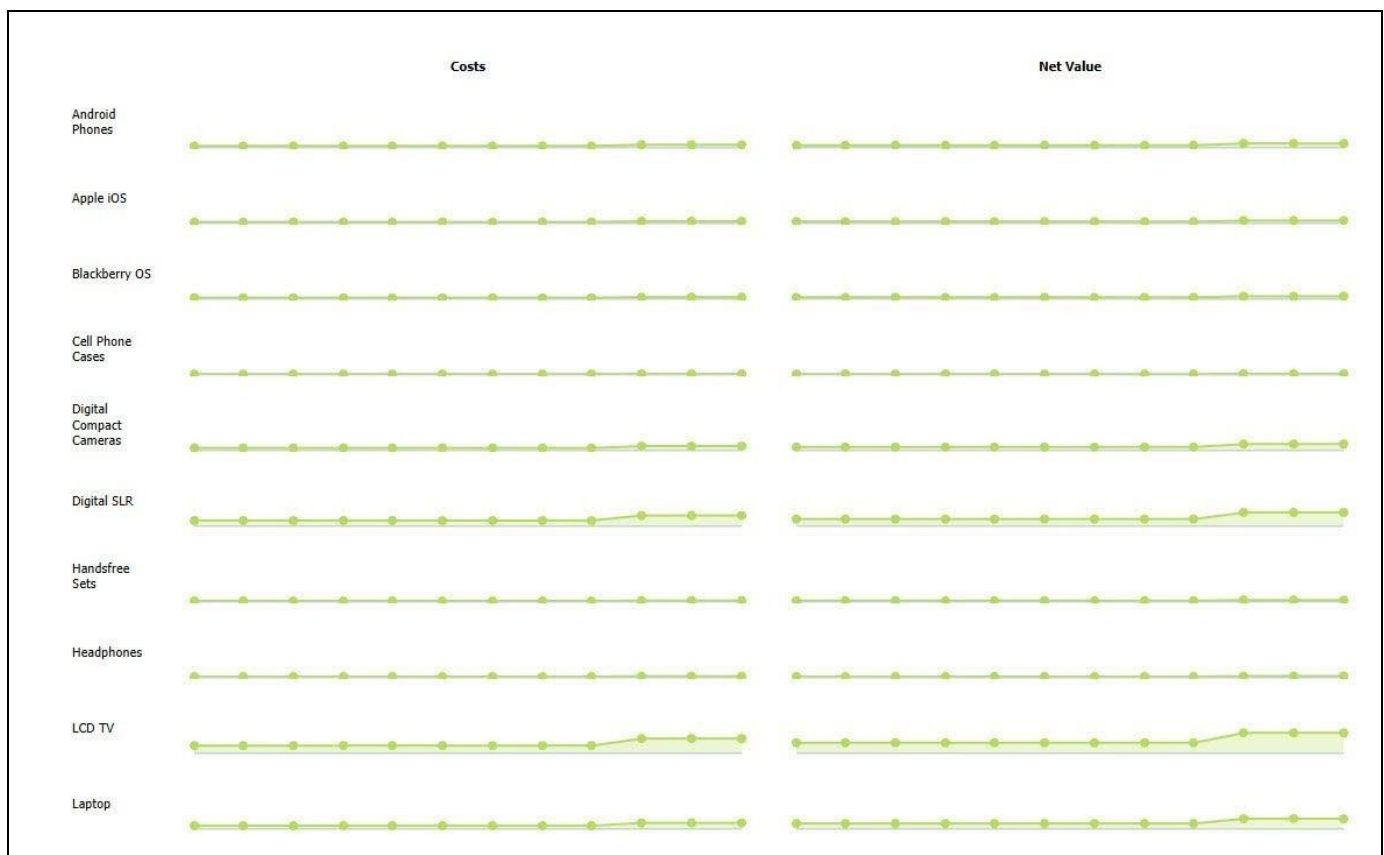


Figure 4.325: Sparkline Chart

6. Navigate to the Additional Properties of the Sparkline Chart Component.
7. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
8. Navigate to the category Appearance and to the sub category Chart (see Figure 4.326).

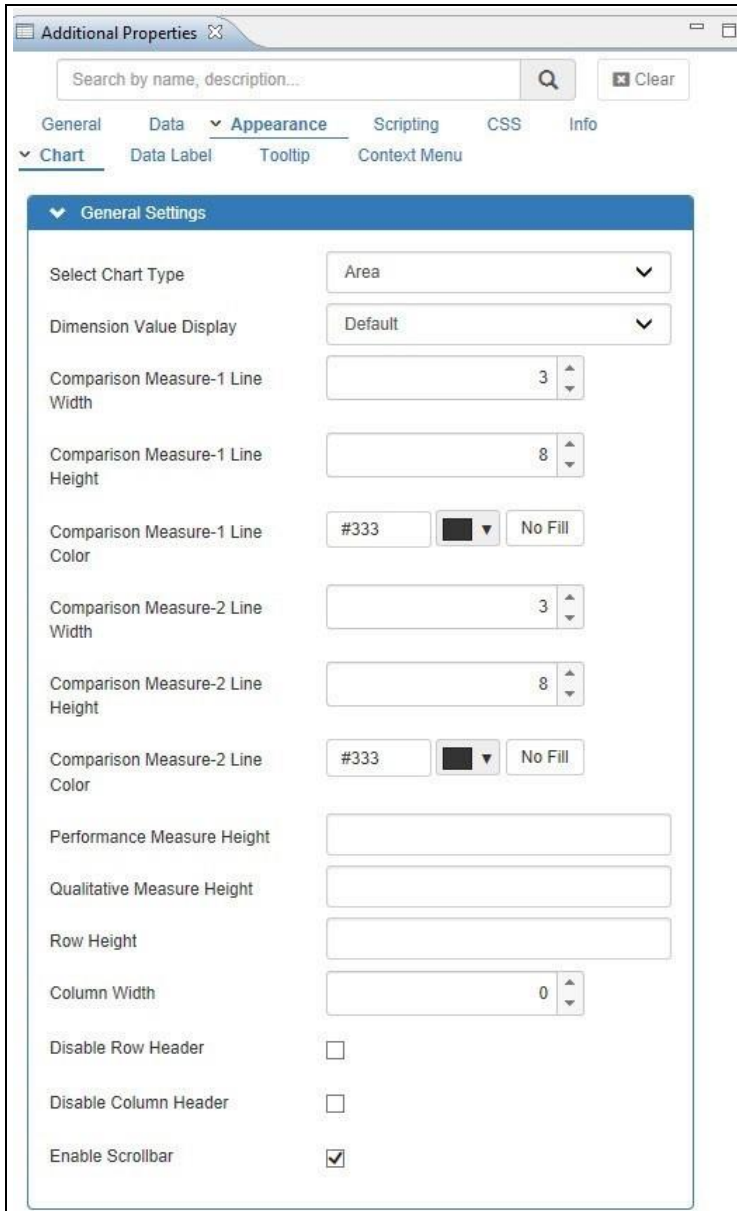


Figure 4.326: Category Appearance

- In the area General Settings you can configure the Chart Type for the Sparkline Chart as well as additional settings regarding the Column Width, Row Header, and Column Header of the Sparkline Chart component.

Bullet Charts as Sparkline Chart

Please note, that when choosing the option to use Bullet Charts as Sparkline Charts, several additional properties will become available in the category Data Series so that you can configure the details for the Bullet Chart.

4.16.17 Additional Properties of the Sparkline Chart Component

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Sparkline Chart Component.

4.16.17.1 Category Data

In the category Data you can configure the details for the chart elements, such as assigning specific measures to the details of a Bullet Chart.

Sub category	Area	Property	Description
Data Series	Chart Settings	Apply Identical Color to All Series	This property allows you to enable / disable the option to apply a single color to all data series in the chart.

Table 4.48: Data

4.16.17.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Select Chart Type	Here you can choose which chart type will be used for the Sparkline Chart component. The available options are : Area, Line, Column, Bar, Win Loss, and Bullet.
		Comparison Measure-1 Line Width	Set the Width for the Comparison Measure-1 Line.
		Comparison Measure-1 Line Height	Set the Height for the Comparison Measure-1 Line.
		Comparison Measure-1 Line Color	Set the Color for the Comparison Measure-1 Line.
		Comparison Measure-2 Line Width	Set the Width for the Comparison Measure-2 Line.
		Comparison Measure-2 Line Height	Set the Height for the Comparison Measure-2 Line.
		Comparison Measure-2 Line Color	Set the Color for the Comparison Measure-2 Line.
		Performance Measure Height	Here you can set the height of the Performance Measure.
		Qualitative Measure Height	Here you can set the height of the Qualitative Measure.
		Row Height	Here you can enter a Row Height that will be used as part of the Sparkline Chart configuration.
		Column Width	Here you can enter a Column Width that will be used as part of the Sparkline Chart configuration.
		Disable Row Header	This property allows you to enable /

Sub category	Area	Property	Description
			disable the Row Header for the Sparkline Chart.
		Disable Column Header	This property allows you to enable / disable the Column Header for the Sparkline Chart.

Table 4.49: Appearance

4.16.18 Scripting Functions for the Sparkline Chart Component

All supported scripting functions for the Sparkline Chart are listed as part of the common scripting functions for charts listed in section 4.6.

4.16.19 Sparkline Table Chart (legacy)

The Sparkline Table enables you to build a Table whose columns can be dimension members, measure values, or embedded Sparkline charts. All parts of the Table like Header, Data cells, etc can be customized by a wide range of properties.

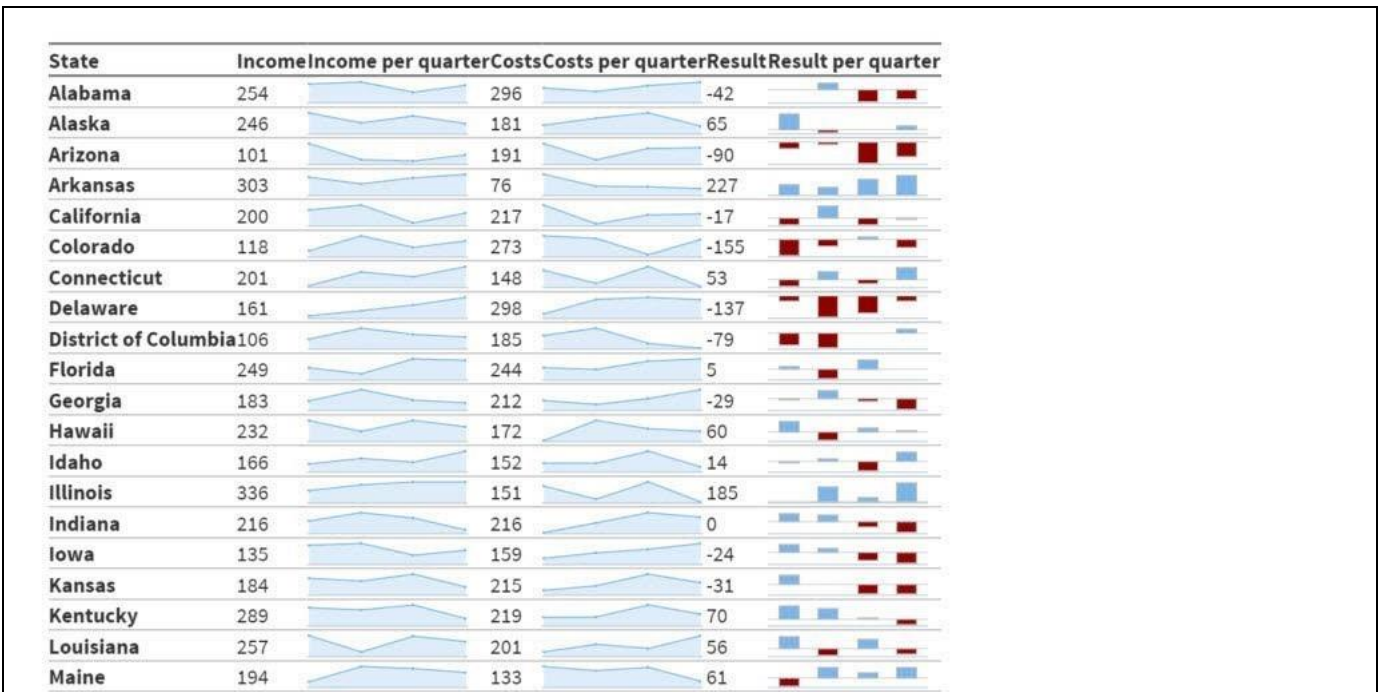


Figure 4.327: Sparkline Table Chart

Figure 4.327 shows an example of a Sparkline Table Chart combining information in form of simple measure columns – such as the column Income – as well as charts inside the Table, such as the Income per Quarter.

4.16.19.1 Data Source Requirements for the Sparkline Table Chart

The minimum requirements for the data source for a Sparkline Table Chart is a data source with at least one dimension and one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Sparkline Table Chart or you can decide to plot the complete data set onto the chart.

4.16.19.2 How to use the Sparkline Table Chart?

In the following steps we will outline how you can setup a new Sparkline Table Chart. The Sparkline Table Chart allows you to add columns based on Dimensions, columns based on Measures, and you can add columns which will display Sparkline Charts. In the next set of steps we will show the detailed steps for each of those options. For our example we will assume that we have a data source with the following elements:

- Dimension Product Group in the Rows
- Dimension Product in the Rows
- Dimension Calendar Month in the Columns
- Measure Revenue in the Columns
- Measure Profit in the Columns
- Measure Cost in the Columns

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Sparkline Table Chart component from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Sparkline Table Chart component.
5. Navigate to the Additional Properties of the Sparkline Table Chart Component.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Table Definition (see Figure 4.328).

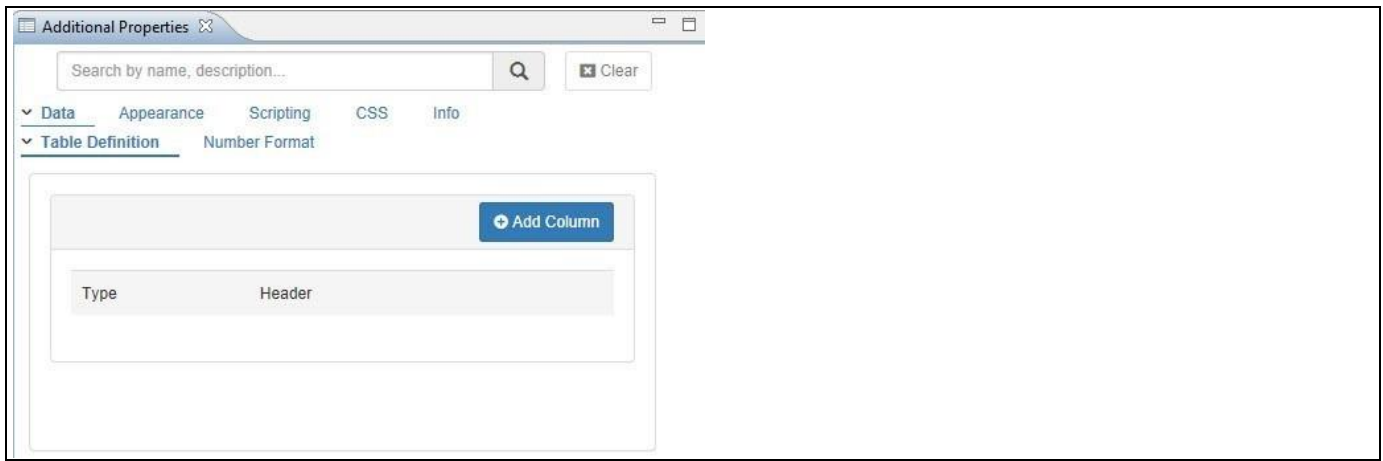


Figure 4.328: Category Data

8. The Sparkline Table Chart starts with an empty definition. Click on Add Column.

The following steps will outline on how to add Dimension based column:

1. Set the Column Type to the option Dimension (see Figure 4.329).

Additional Properties

Search by name, description...

Clear

Data Appearance Scripting CSS Info

Table Definition Number Format

Add Column

Type Header

Column Type: Dimension

Column Header: Product Group

Column Width: 25

Select Dimension: Product Group

Dimension Display: Text

Save Cancel

Figure 4.329: Dimension Column

2. You can now enter a Column Header, define the Column Width, and select which Dimension you would like to add as column to the Sparkline Table.
3. For our example we are using the following values:
 - Column Header: Product Group
 - Column Width: 25%
 - Select Dimension: Product Group
 - Dimension Display: Text
4. After entering those details click Save to add the new column to the Table (see Figure 4.330).

Product Group
Cameras

Figure 4.330: New Dimension Column

5. Click on Add Column.

The following steps will outline on how to add Measure based column:

1. Set the Column Type to the option Measure (see Figure 4.331).

Additional Properties

Search by name, description...

▼ Data Appearance Scripting CSS Info

▼ Table Definition Number Format

Type	Header
Measure	Revenue

Column Type: Measure

Column Header: Revenue

Column Width: 25

Select Measure: Revenue

Aggregation: Sum

Number of Decimals: 0

Decimal Separator: .

Thousand Separator: ,

Show Scaling Factor: ☒

Scaling Factor: 1000

Show Scaling Unit: ☐

Show Unit / Currency: ☒

Scaling Unit:

Prefix:

Suffix:

Figure 4.331: Measure Column

2. You can now configure the Measure Column following the details shown in Table 4.50:

Property	Description
Column Header	Here you can enter the text that will be displayed as Column Header.
Column Width	Here you can define the Column Width in percentages.
Select Measure	Here you can select the measure from the assigned data source.
Aggregation	Here you can select the Aggregation Type for the measure.
Number of Decimals	Here you can configure the number of decimals for the measure column.

Property	Description
Decimal Separator	Here you can define a Decimal Separator.
Thousand Separator	Here you can define a Thousand Separator.
Enable Scaling Factor	This property allows you to enable / disable the display of the assigned Scaling Factor. In case the measure has an assigned Scaling Factor already based on the data source, then the value from the data source will be used. In case a Scaling Factor is being configured in the Additional Properties, then the Scaling Factor of the Additional Properties will be shown.
Scaling Factor	Here you can configure a Scaling Factor for the measure column. A Scaling Factor defined here in the Additional Properties will overwrite a scaling factor defined in the data source.
Show Scaling Unit	This property allows you to enable / disable the display of the assigned Scaling Unit.
Show Unit / Currency	This property allows you to enable / disable the display of the assigned Unit / Currency value. In case the measure has an assigned Unit / Currency already based on the data source, then the value from the data source will be used.
Scaling Unit	Here you can define a Scaling Unit.
Prefix	Here you can configure a Prefix value for the Measure.
Suffix	Here you can configure a Suffix value for the Measure.

Table 4.50: Measure Column Properties

2. For our example we will use the following settings:

- Column Type: Measure
- Column Header: Revenue
- Column Width: 25%
- Select Measure: Revenue
- Aggregation: Sum
- No of Decimals: 0
- Decimal Separator: dot
- Thousand Separator: comma
- Enable Scaling Factor: Enabled
- Scaling Factor: 1000
- Show Scaling Unit: Disabled
- Show Unit / Currency: Enabled

3. After entering those details click Save to add the new column to the Table (see Figure 4.332).

Product Group	Revenue
	(* 1) \$
Cameras	0
Cell Phone Accessories	0
Cell Phones	0
Laptops	0
MP3 & Headphones	0

Figure 4.332: Sparkline Table

4. Click on Add Column.

The follow steps will outline on how to add a chart based column:

1. Set the Column Type to the option Chart (see Figure 4.333).

Additional Properties

Search by name, description...

Clear

Data Appearance Scripting CSS Info

Table Definition Number Format

+ Add Column

Type	Header
Column Type	Chart
Column Header	Profit & Cost by Month
Column Width	50
Chart Type	Line Chart
Column Dimension	Calendar Month
Chart Aggregation	Sum
Filter Measure	Profit & Cost

Save Cancel

Figure 4.333: Column Type Chart

2. You can now configure the Chart Column following the details shown in Table 4.51:


Property	Description
Column Header	Here you can enter the text that will be displayed as Column Header.
Column Width	Here you can define the Column Width in percentages.
Chart Type	Here you can set the Chart Type. The available options are: Line Chart, Column Chart, Area Chart, Bullet Chart.
Column Dimension	Here you can select the dimension that will be used to represent the X-Axis of the selected chart.
Chart Aggregation	Here you can choose the Aggregation type for the chart.
Filter Measure	Here you can add those measures that will be displayed as part of the chart.

Table 4.51: Chart Column Properties

3. For our example we will use the following settings:

- Column Type: Chart
- Column Header: Profit & Cost by Month
- Column Width: 50%
- Chart Type: Line Chart
- Column Dimension: Calendar Month
- Chart Aggregation: Sum
- Filter Measure: Profit and Cost

4. After entering those details click Save to add the new column to the Table (see Figure 4.334).



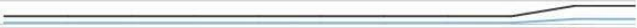


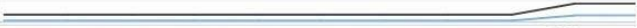

Product Group	Revenue	Profit and Cost by Month
	(* 1) \$	
Cameras	0	
Cell Phone Accessories	0	
Cell Phones	0	
Laptops	0	
MP3 & Headphones	0	

Figure 4.334: Sparkline Table

4.16.20 Additional Properties of the Sparkline Table Chart Component

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Sparkline Table Chart Component.

4.16.20.1 Category Appearance

Sub category	Area	Property	Description
Table Formatting	Table Body	Minimum Column Width	Here you can set the minimum column width.
		Text Alignment	Set the alignment for the dimension text.
		Measure Alignment	Set the alignment for the measures.
		Font Family	Set the font family for the rows in the Table.
		Font Size	Set the font size for the rows in the Table.
		Font Color	Set the font color for the rows in the Table.
		Font Style	Set the font weight for the rows in the Table.
		Row Background Color	Here you can set the Background color for the rows.
		Banded Row Background Color	Here you can set the Background color for the alternate rows.
		Vertical Alignment	Set the vertical alignment for the text.
		Horizontal Line Color	Here you can set the color for all horizontal lines.
		Horizontal Line Width	Here you can set the width for all horizontal lines.
		Vertical Line Color	Here you can set the color for all vertical lines.
		Vertical Line Width	Here you can set the width for all vertical lines.
		Outer Line Color	Here you can set the color that will be used for the outer line of the complete Table.
		Outer Line Width	Here you can set the width for the outer line of the complete Table.
	Table Header	Row Height	Here you can define the Row Height for the Header Row.
		Font Family	Set the Font Family for the Header Row.
		Font Size	Here you can set the Font Size for the Header Row.
		Font Color	Set the Font Color for the Header Row.
		Font Style	Set the Font Style for the Header Row.
		Horizontal Alignment	Set the horizontal alignment for the

Sub category	Area	Property	Description
			elements placed in the rows.
		Vertical Alignment	Set the vertical alignment for the elements placed in the rows.
		Header Background Color	Set the background color for the Header Row.
Sparkline Charts	Bullet Chart	Performance Measure Color	Set the color for the Performance Measure.
		Comparison Measure-1 Color	Set the color for Comparison Measure-1.
		Comparison Measure-2 Color	Set the color for Comparison Measure-2.
		Qualitative Range -1 Color	Sets the color for the Qualitative Scale Range 1.
		Qualitative Range -2 Color	Sets the color for the Qualitative Scale Range 2.
		Qualitative Range -3 Color	Sets the color for the Qualitative Scale Range 3.

Table 4.52: Appearance

Initial View – Number Formats and Formatting of Negative Values

In case if you do not define the formatting for the Table from the above listed properties, then the Table will use the configuration from the initial view settings (see Figure 4.118).

4.16.21 Scripting Functions for the Sparkline Table Chart Component

In addition to the common scripting functions listed in section 4.6, the Sparkline Table Chart supports the following scripting functions.

Function / Method	Description
DSXGetEvenRowColor()	The function allows you to retrieve the configured color value for the even rows.
DSXGetFontColor()	The function allows you to retrieve the Font Color for the Table rows.
DSXGetFontSize()	The function allows you to retrieve the Font Size for the Table rows.
DSXGetHeaderColor()	The function allows you to retrieve the Background Color for the Header row.
DSXGetMinimumWidth()	The function allows you to retrieve the minimum column width.
DSXGetOddRowColor()	The function allows you to retrieve the configured color value for the odd rows.
DSXGetRowHeight()	The function allows you to retrieve the configured row height.
DSXGetSelecteChartDimension()	The function allows you to retrieve the dimension configured as part of the chart.
DSXSetEvenRowColor()	The function allows you to set the color value for the even rows.
DSXSetFontColor()	The function allows you to set the Font Color for the Table rows.
DSXSetFontSize()	The function allows you to set the Font Size for the Table rows.
DSXSetHeaderColor()	The function allows you to set the Background Color for the Header row.
DSXSetMinimumWidth()	The function allows you to set the minimum column width.
DSXSetOddRowColor()	The function allows you to set the color value for the odd rows.
DSXSetRowHeight()	The function allows you to set the row height.
DSXGetSelectedMeasureInChart()	The function allows you to retrieve the Selected Measure in the Chart.
DSXGetSelectedChartDimension()	The function allows you to retrieve the Selected Dimension in the Chart.
DSXGetSelectedMemberTextInChart()	The function allows you to retrieve the value of selected text in the Chart.

Table 4.53: Scripting Functions

4.16.22 Tag Cloud Chart

A Tag Cloud Chart is a visual representation of text data. Tags in the chart are usually single words and the importance of each tag is represented by the size and color.

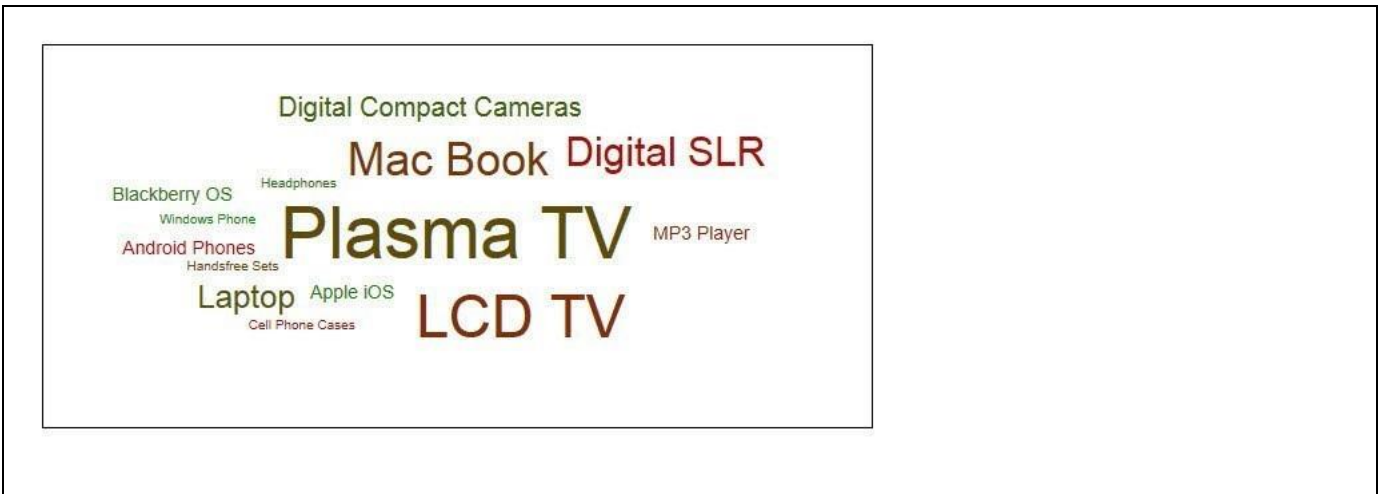


Figure 4.335: Tag Cloud Chart

Figure 4.335 shows a sample Tag Cloud Chart for a list of products and two measures assigned to the size of the text and the color of the text.

4.16.22.1 Data Source Requirements for a Tag Cloud Chart

The minimum requirements for the data source for a Tag Cloud Chart is a data source with at least one dimension and two measures. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Tag Cloud Chart.

You can follow these rules in regards to the data structure for a Tag Cloud Chart:

- The first dimension in the Rows will be used for the Text value.
- The first measure in the Columns will be used for the Font Size.
- The second measure in the Columns will be used for the Font Color.

4.16.22.2 How to use the Tag Cloud Chart?

In the following steps we will outline how you can setup a new Tag Cloud Chart. For our example we will assume that we have a data source with the following elements:

- Dimension Product in the Rows
- Measure Net Value in the Columns
- Measure Profit in the Columns
- Measure Cost in the Columns

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Tag Cloud Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.

4. Assign the data source to the Tag Cloud Chart.
5. Navigate to the Additional Properties of the Tag Cloud Chart Component.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Chart (see Figure 4.336).



Figure 4.336: Category Appearance

8. In the area General Settings you can configure the following properties:
 - Dimension Value Display: Here you can choose between the Key, Text, Key and Text, or Text and Key as display option for the dimension members.
 - Tag Cloud Shape: Here you can choose between an Elliptic or a Rectangular layout of the Tag Cloud Chart.
 - Minimum Color: Here you can select the color for the Minimum value
 - Maximum Color: Here you can select the color for the Maximum value.
9. Navigate to the category Data and to the sub category Data Utility (see Figure 4.337).

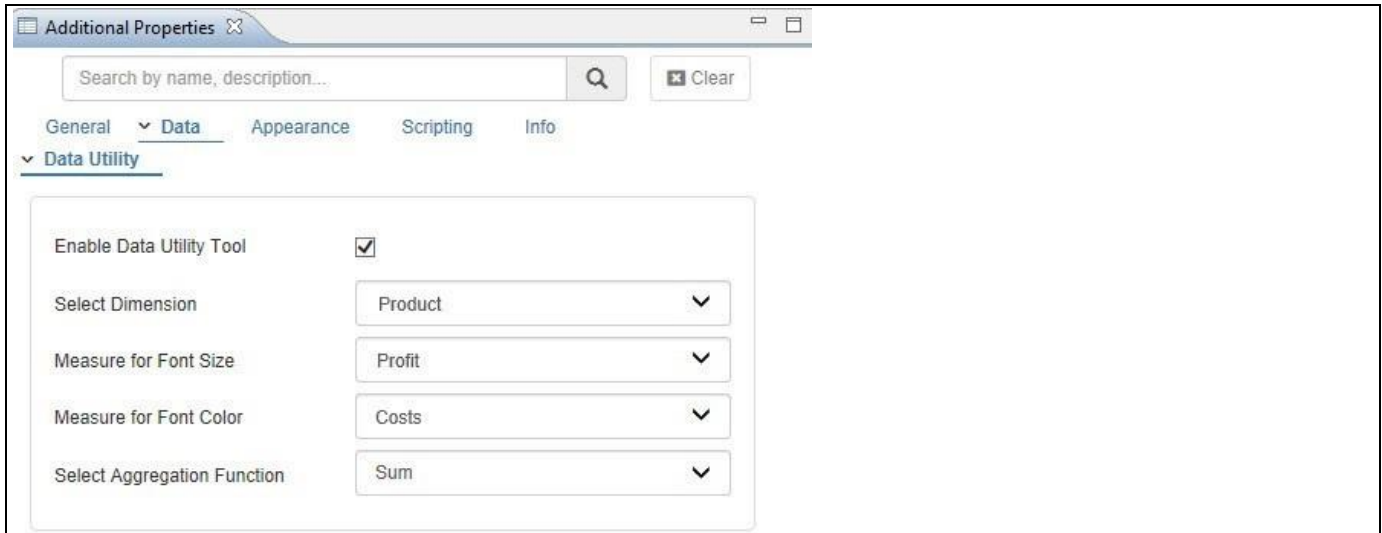


Figure 4.337: Category Data

10. In the Category Data you can configure the following properties:

- Enable Data Utility Tool: In case you would like to specify other Dimensions or Measures for the chart, you can enable the Data Utility and then specify the elements for the chart.
- Select Dimension: Here you can select the dimension that will be used for the text value of the chart.
- Measure for Font Size: Here you can specify the Measure that will be used for the Font Size.
- Measure for Font Color: Here you can specify the Measure that will be used for the Font Color.
- Select Aggregate Function: Here you can set the Aggregate Function for the measure values.

11. For our example we will use the following settings:

- Enable Data Utility Tool: Activated
- Select Dimension: Product
- Measure for Font Size: Profit
- Measure for Font Color: Costs
- Select Aggregate Function: Sum

12. Your Tag Cloud Chart should now look similar to Figure 4.338:

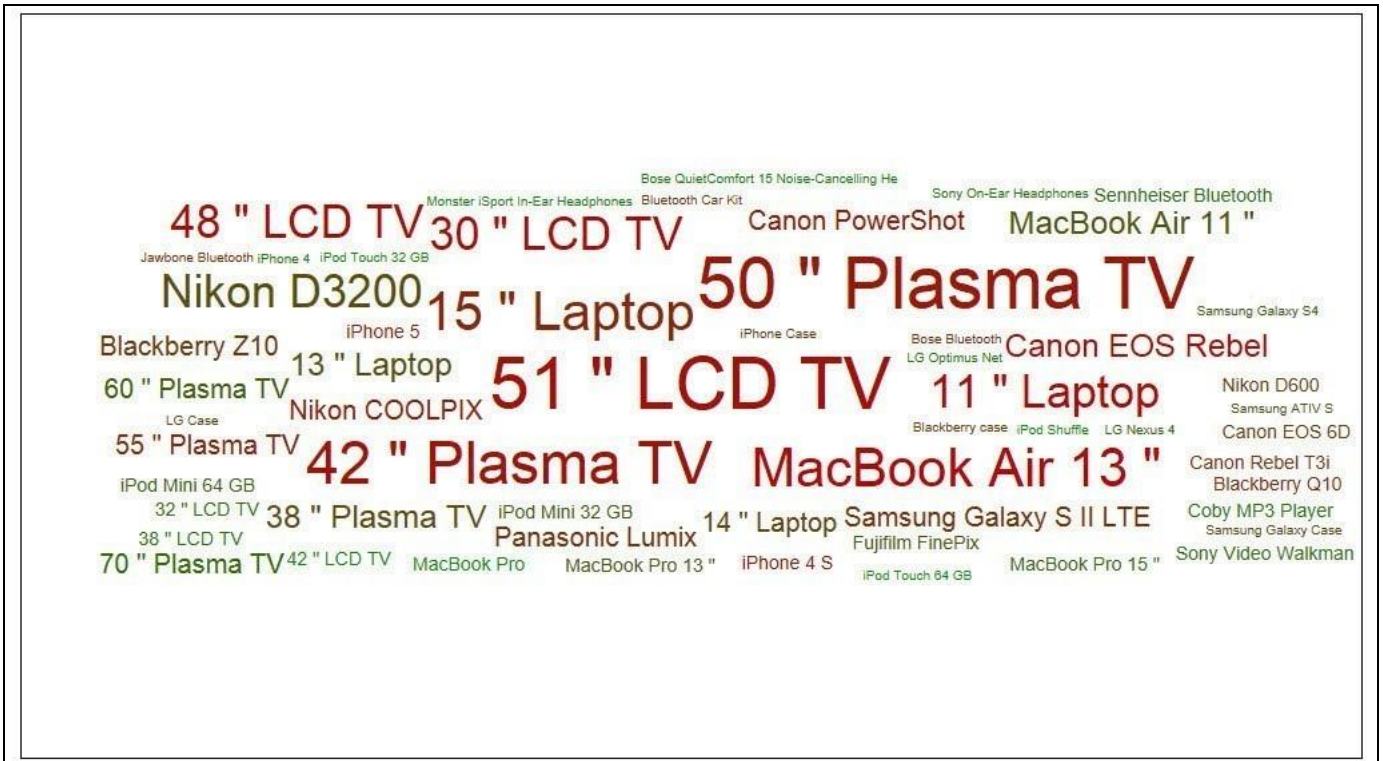


Figure 4.338: Tag Cloud Chart

4.16.23 Additional Properties of the Tag Cloud Chart

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Tag Cloud Chart.

4.16.23.1 Category Data

Sub category	Area	Property	Description
Data Utility		Enable Data Utility Tool	Here you can enable / disable the Data Utility tool.
		Select Dimension	Here you can choose the Dimension that will be used for the Text value.
		Measure for Font Size	Here you can choose the Measure that will be used to represent the Font Size.
		Measure for Font Color	Here you can choose the Measure that will be used to represent the Font Color.
		Select Aggregation Function	This property allows you to configure the aggregation function for the measure value.

Table 4.54: Data

4.16.23.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Dimension Value Display	Sets the Display Dimension Value. The options are Default, Key, Text or both values.
		Tag Cloud Shape	Here you choose the shape of the Tag Cloud Chart. The available options are Rectangular or Elliptic.
		Minimum Color	Here you can set the color for the Minimum Value.
		Maximum Color	Here you can set the color for the Maximum Value.
		Maximum Font Size	Here you can set the Maximum Font Size.
	Chart Area	Background Color	Here you can configure the Background Color for the chart.
		Border Color	Here you can configure the Border Color for the chart.
		Border Width	Here you can configure the Border Width for the chart.

Table 4.55: Appearance

4.16.24 Scripting Functions for the Tag Cloud Chart

In addition to the common scripting functions listed in section 4.6, the Tag Cloud Chart supports the following scripting functions.

Function / Method	Description
DSXGetSelectedText()	This function allows you to retrieve the selected text.

Table 4.56: Scripting Functions

4.16.25 Waffle Chart

The Waffle Chart will be displayed in the form of boxes in a 10 x 10 Matrix where the measure value will be represented in form of a static number or percentage value. A Waffle chart is often used to visualize the percentage share or achievement of a specific target value.

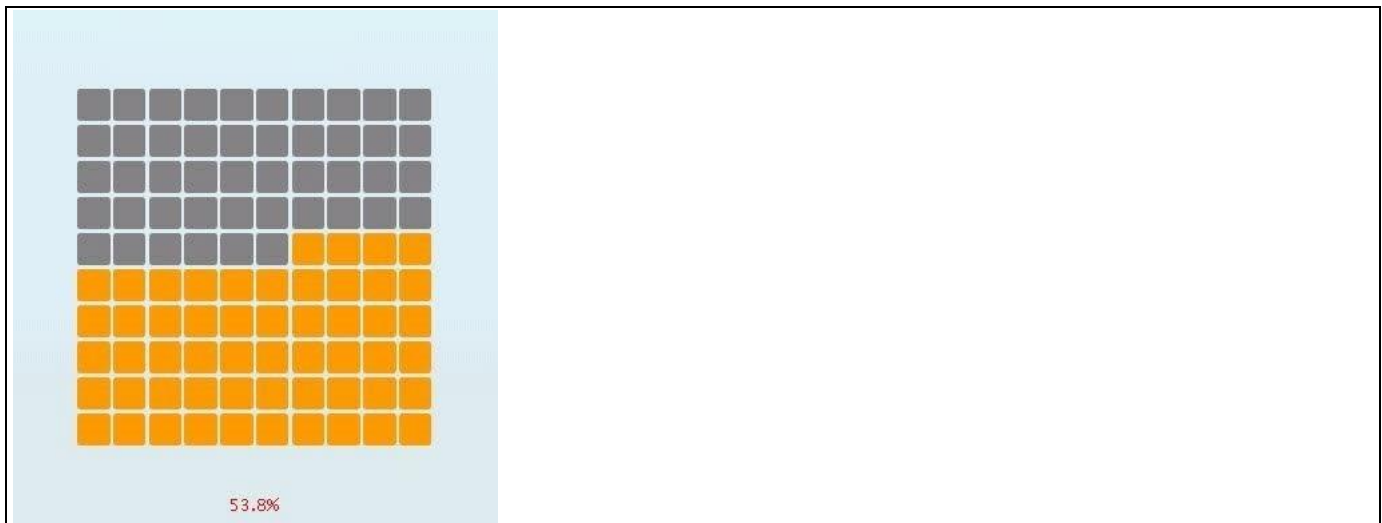


Figure 4.339: Waffle Chart

4.16.25.1 Data Source Requirements for a Waffle Chart

The minimum data source requirement for a Waffle Chart is a data source at least two cell values, so that one cell selection would represent the value and the second value would represent the maximum value. In addition, the Waffle Chart can also leverage dimensions in the rows for the Dimension Stacking feature.

4.16.25.2 How to use a Waffle Chart

In the following steps we will outline how you can setup a new Waffle Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Waffle Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows two measure - Sales Amount and Forecast Amount- and one dimension Product.
3. Add a Waffle Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Waffle Chart.
5. Navigate to the Additional Properties of the Waffle Chart (see Figure 4.340).
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Chart in the Additional Properties of the Waffle Chart (see Figure 4.340). In the area General Settings you can configure the type of Waffle Data using the property Select Chart Type. You have the option to choose between Percentage or Number. Percentage will

represent the values as actual percentages, even when the assigned values are of numeric nature. Number will represent the assigned values as numeric values.

For our example, you can set the property Select Chart Type to the option Percentage (see Figure 4.340).

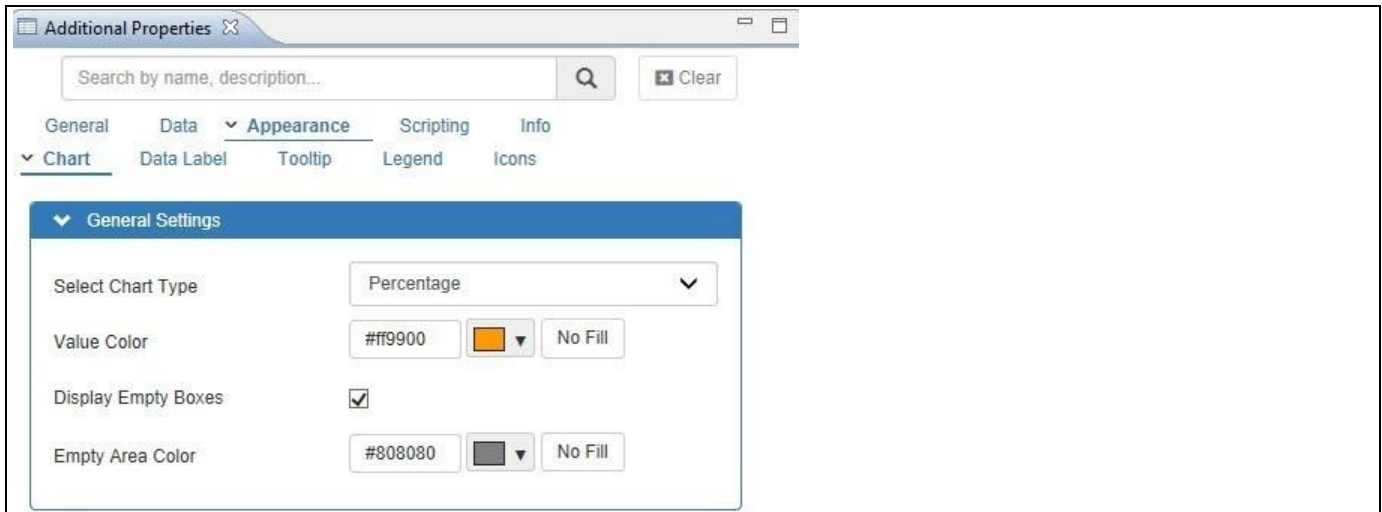


Figure 4.340: Waffle Chart – Category Appearance

8. Set the property Value Color to Orange for those boxes representing the value.
9. Ensure that the property Display Empty Boxes is enabled, so that the empty boxes will be displayed
10. Set the property Empty Area Color to Grey for those boxes representing the empty values.
11. Navigate to the category Data and to the sub category Data Series of the Additional Properties for the Waffle Chart (see Figure 4.341). In the area Calculation you can configure the Waffle Chart using Static Data, Dynamic Data and the option to setup a Calculation for two measures. For our example, we will proceed with the option to setup a calculation using two different dynamic data values.
12. Ensure that the property Enable Calculation is activated (see Figure 4.341).

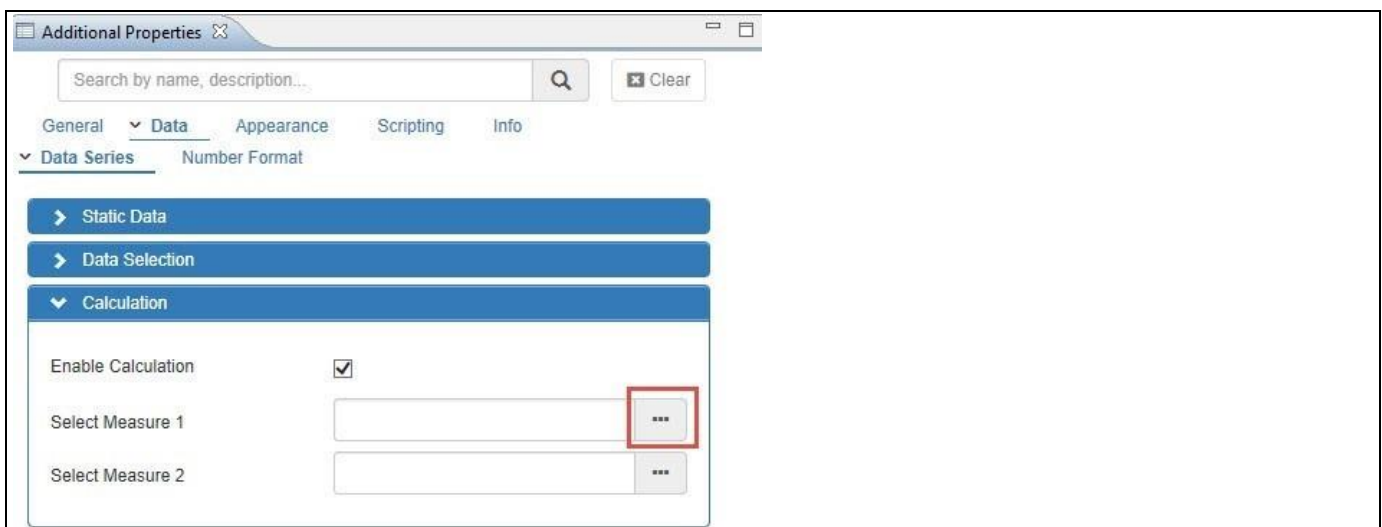


Figure 4.341: Waffle Chart – Category Data

13. Click the button to set the property Select Measure 1 to a single cell value selection from the data set.
14. Once clicked, the Select Data dialog opens and you can select the value for Measure 1 (see Figure 4.342).

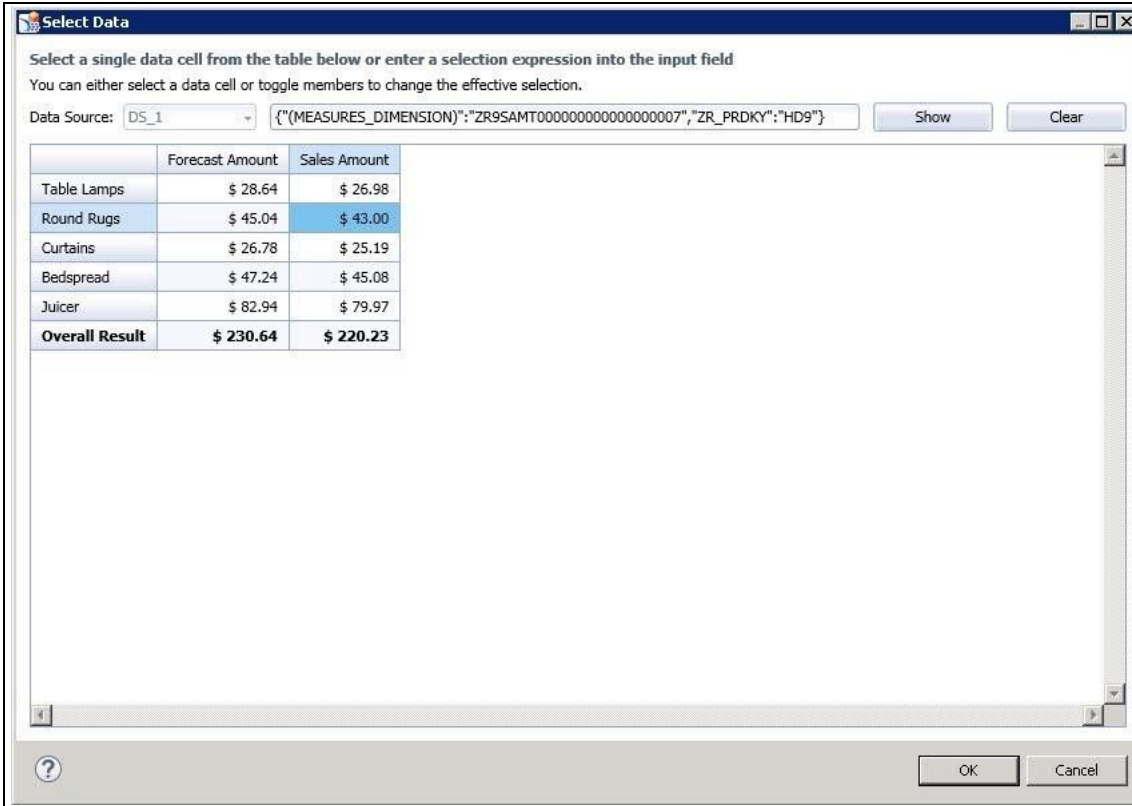


Figure 4.342: Data Select Dialog

- Click OK to close the Select Data dialog.

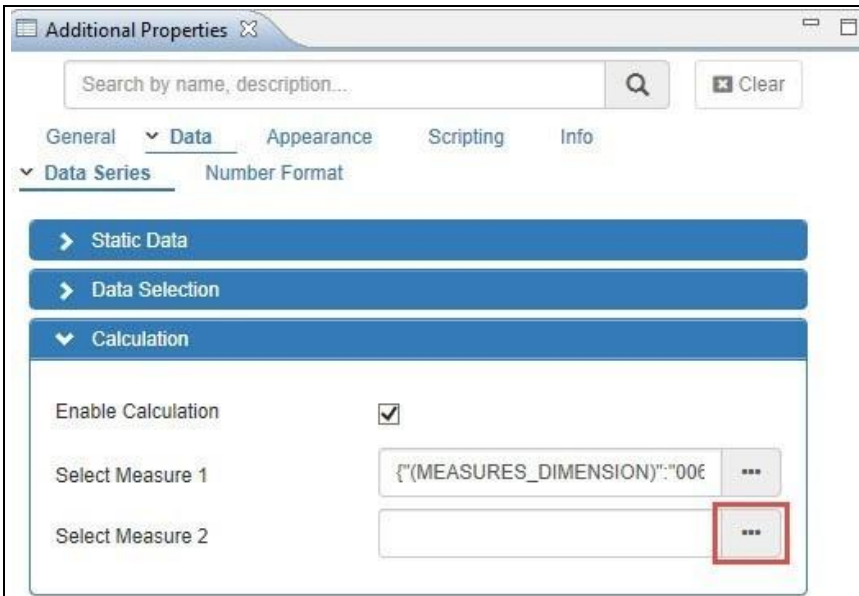


Figure 4.343: Waffle Chart – Category Data

- Click the button to set the property Select Measure 2 to a single cell value selection from the data set (see Figure 4.343).
- Once clicked, the Select Data dialog opens and you can select the value for the property Measure 2 (see Figure 4.344).

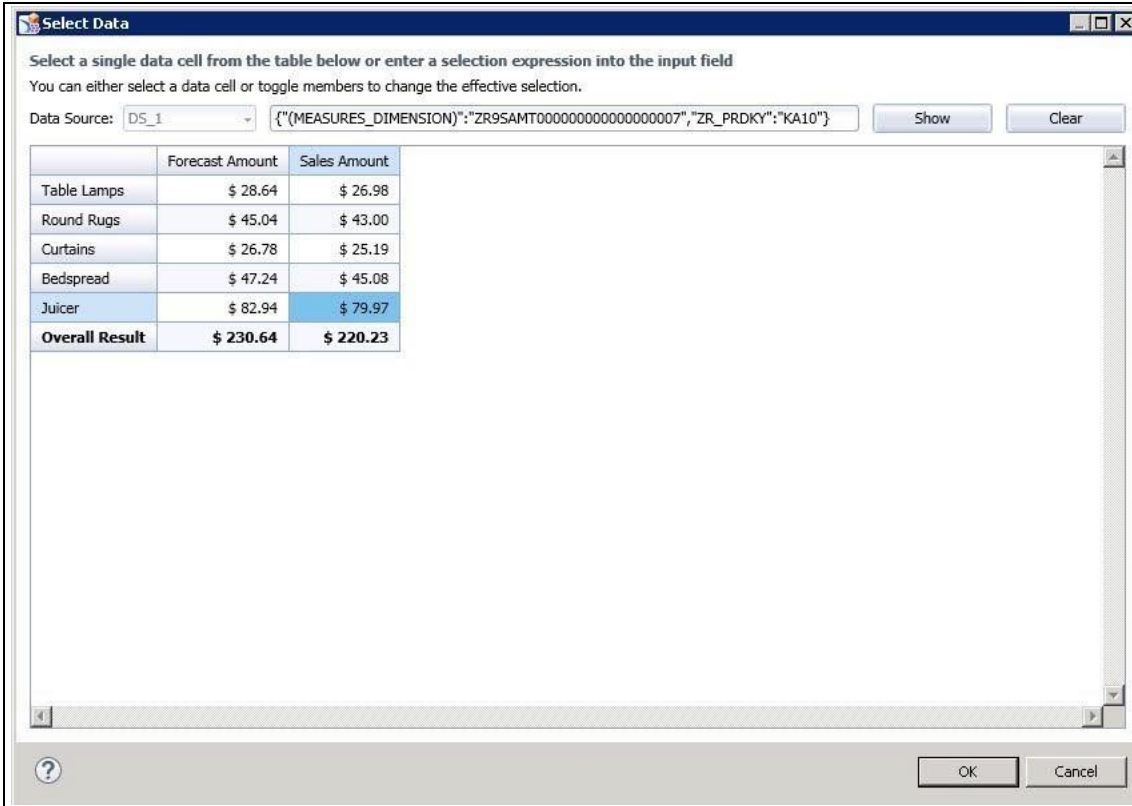


Figure 4.344: Data Select Dialog

18. Click OK to close the Select Data dialog.

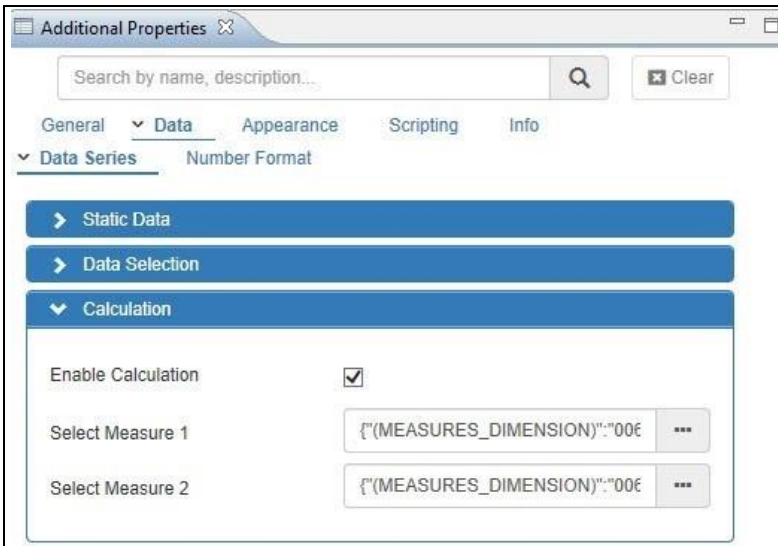


Figure 4.345: Waffle Chart – Category Data

19. Navigate to the menu Application • Save.
20. Select the menu Application • Execute Locally.
21. Now you are able to view the Waffle Chart based on the percentage calculated for the dynamic data values for the given two measure values (see Figure 4.346).

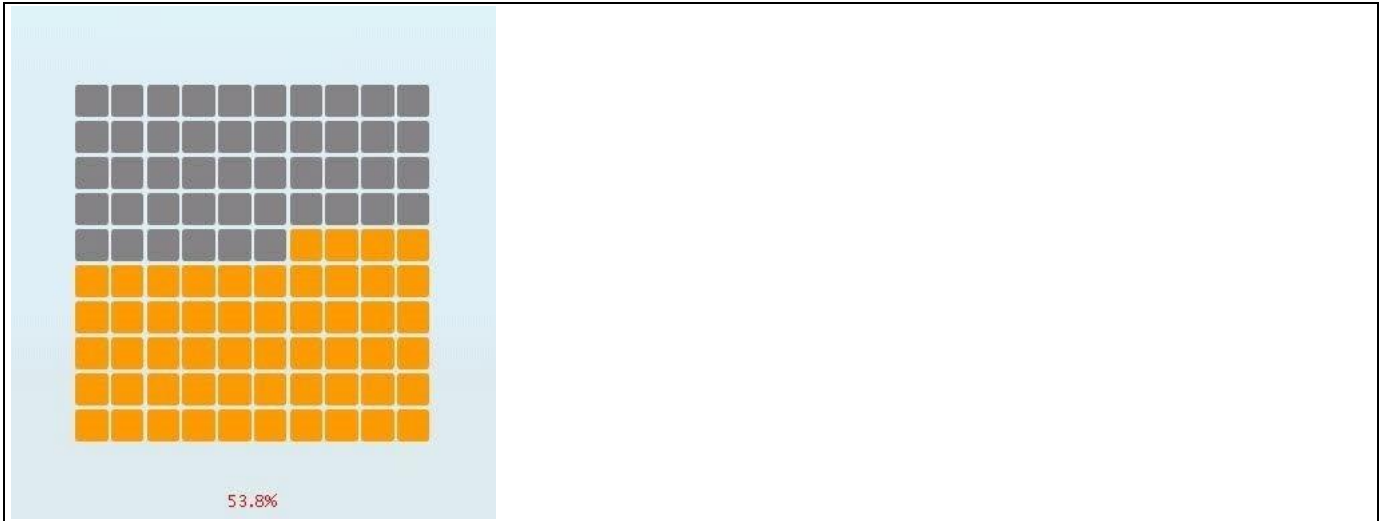


Figure 4.346: Waffle Chart with dynamic data for two measure values

22. You can also configure the Waffle Chart with a feature called Dimension Stacking. Dimension Stacking is used to represent the percentage share of each member from a selected dimension as part of the Waffle Chart.
23. Navigate to the category Data and to the sub category Data Series of the Additional Properties for the Waffle Chart.
24. In the area Dimension Stacking activate the property Enable Dimension Stacking (see Figure 4.347). To use Dimension Stacking, you need to add a Data Source with at least one dimension in the Rows.

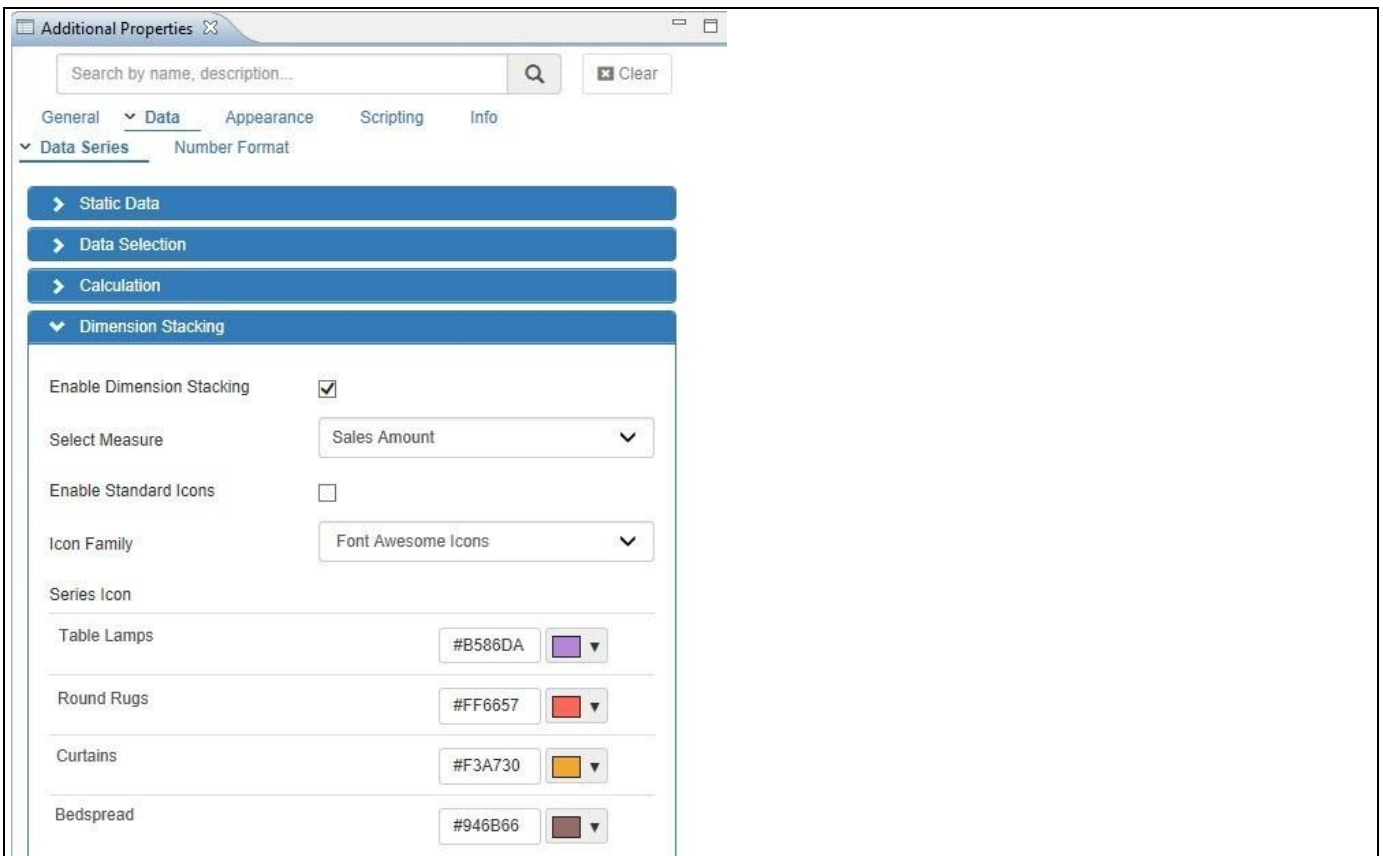


Figure 4.347: Waffle Chart – Category Data

25. Set the property Select Measure to the option Sales Amount.
26. With Dimension Stacking enabled you will then receive each dimension member listed and you can assign a color per dimension member (see Figure 4.347).
27. Navigate to the menu Application • Save.
28. Select the menu Application • Execute Locally.
29. Based on the property configured, you will be able to view the Waffle Chart with different colored boxes in a 10 x 10 Matrix form representing the percentage level of the measure Sales Amount for each Product (see Figure 4.348).

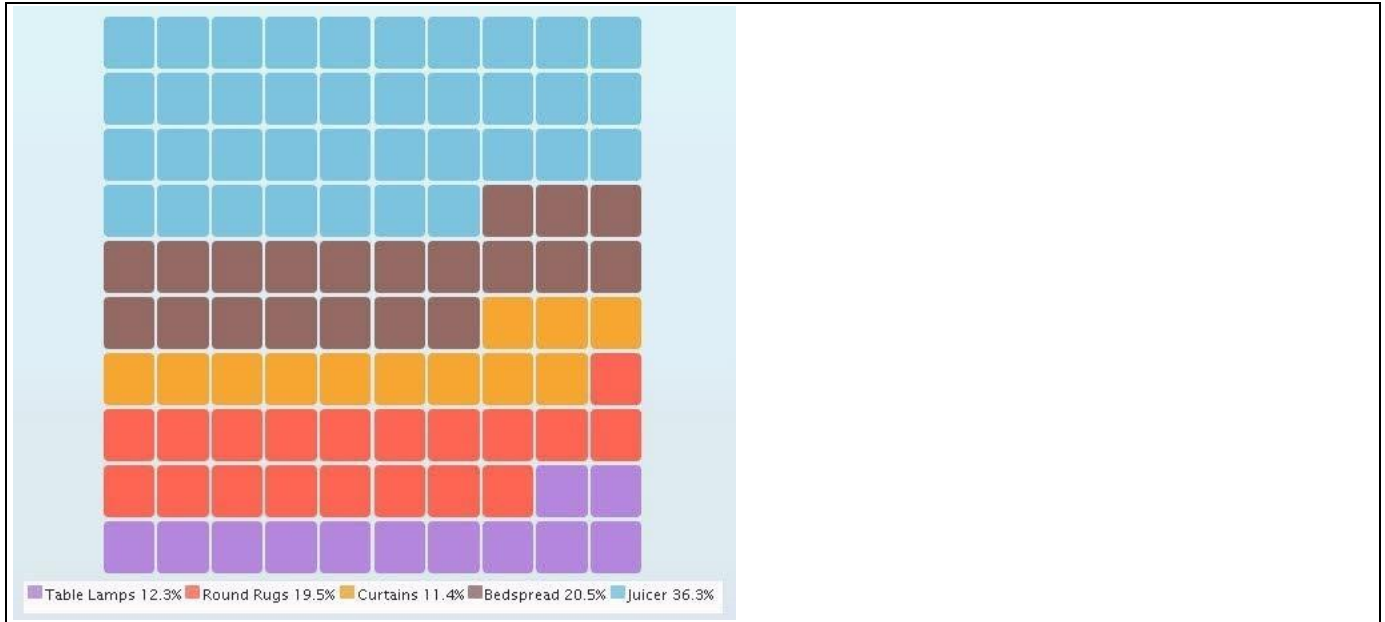


Figure 4.348: Waffle Chart with Color - Dynamic Stacking

You can also configure the Waffle Chart with an icon for each dimension member when using Dimension Stacking. In the area Dimension Stacking you can activate the option Enable Standard Icons to enable custom icons for each Dimension Member.(see Figure 4.349).

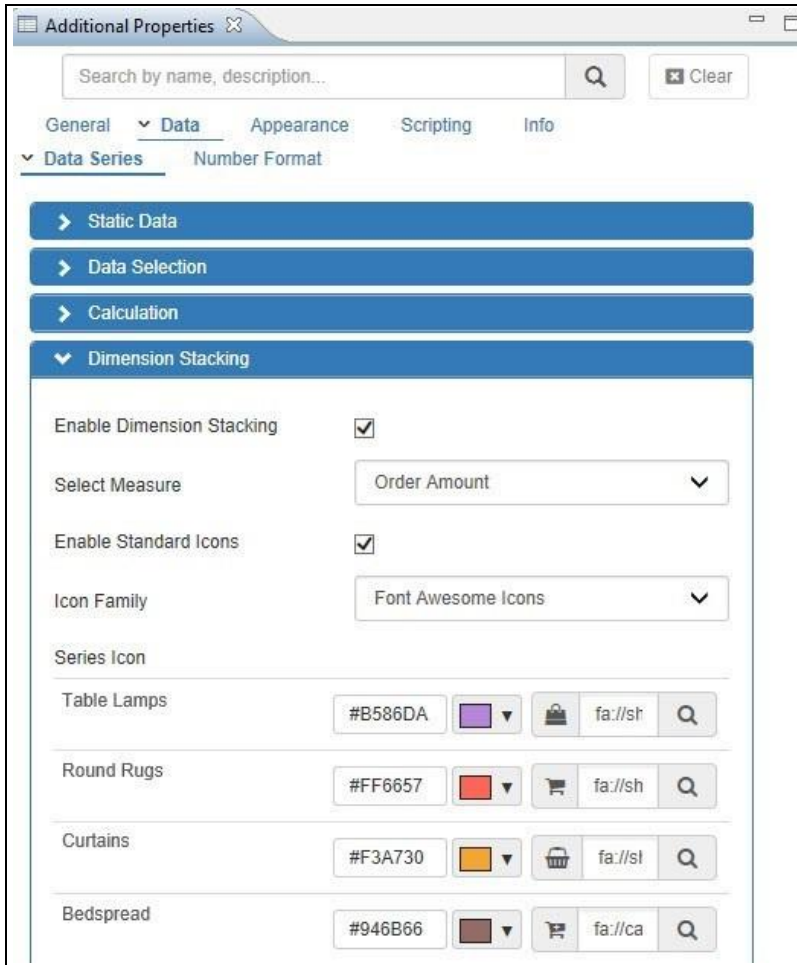


Figure 4.349: Standard Icon for Dynamic Stacking

30. Navigate to the menu Application • Save.
31. Select the menu Application • Execute Locally.
32. Based on the configuration, you will be able to view the Waffle Chart with different icons representing the percentage share of the measure Sales Amount for each Product (see Figure 4.350).



Figure 4.350: Waffle Chart with Icon - Dynamic Stacking

33. Navigate to the category Appearance and to the sub category Icons of the Additional Properties for the Waffle Chart. In the area General Settings you can configure the icon related properties. For our example, ensure that the property Enable Responsive Size is activated (see Figure 4.351). When activated, the icons will resize according to the overall size assigned to the Waffle Chart as part of the dashboard.

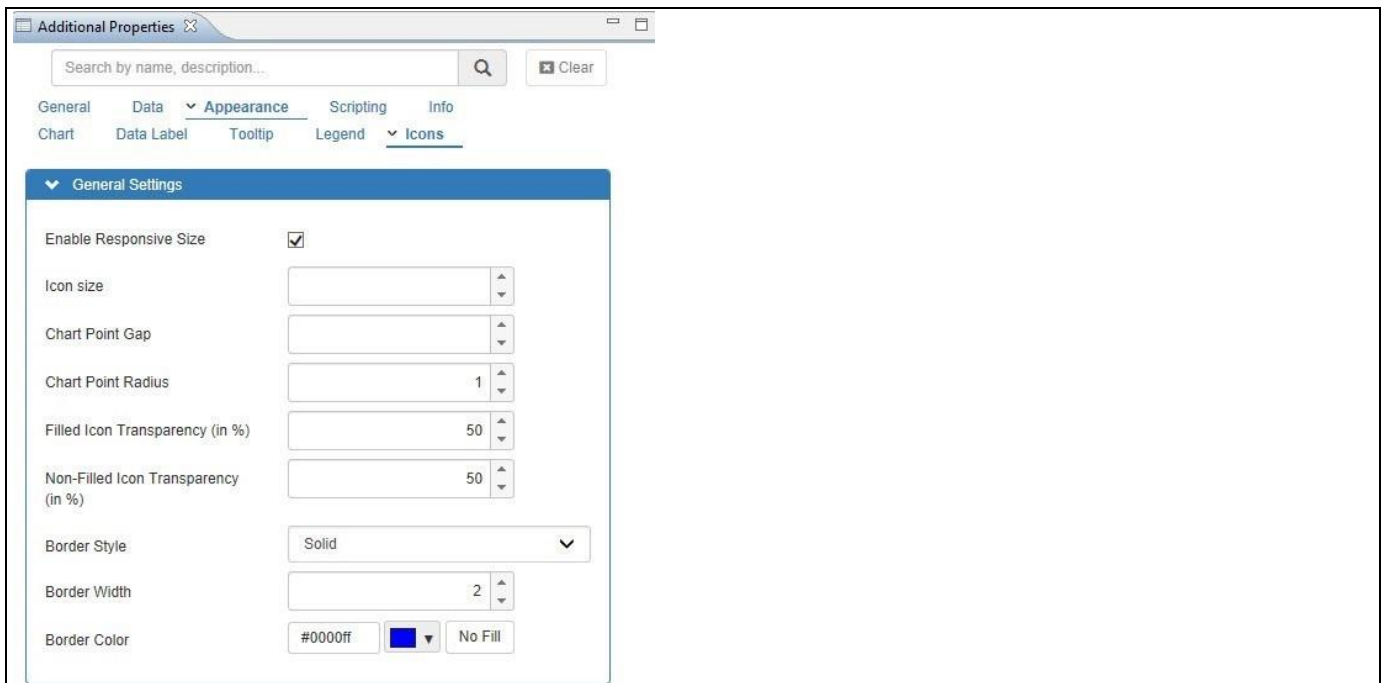


Figure 4.351: Waffle Chart – Category Appearance

34. In case you prefer to set the Icon size manually, you can use the property Icon Size.
35. You can use the property Chart Point Gap to configure the gaps between the icons.
36. Set the property Chart Point Radius to the value 1.



Figure 4.352: Waffle Chart – Category Appearance

37. Activate the property Enable Standard Icons (see Figure 4.353).

38. Navigate to the property Filled Icon Group. Here you can search from a large set of prebuilt icons. For our example we will enter the search term Phone.
39. Icons matching the search term are shown. You can search from a large set of prebuilt icons. For our example we will enter the search for Phone.
40. Set the property Filled Icon Color to the color Blue.
41. Set the property Non-Filled Icon Color to the color Red
42. Set the property Icon Alignment to the option Center.

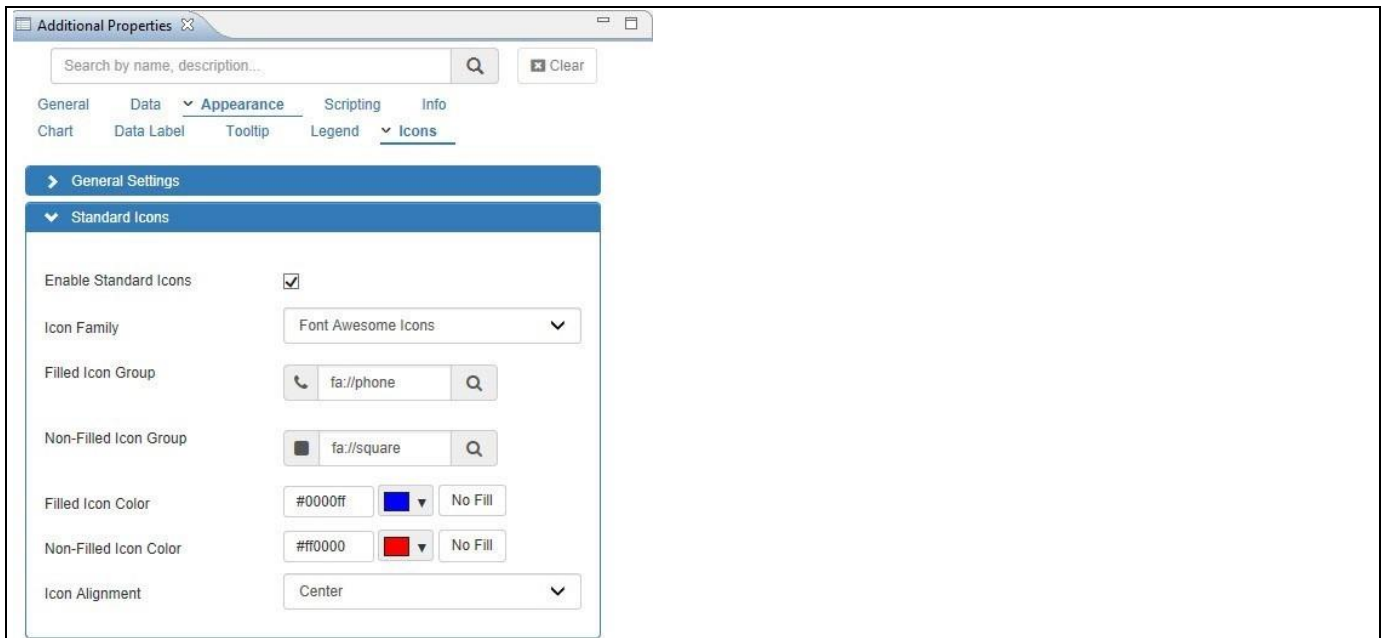


Figure 4.353: Waffle Chart – Category Appearance

43. Set the property Non-Filled Icon Group (see Figure 4.354). Here you can search from a large set of prebuilt icons. For our example we will enter the search term Mobile.

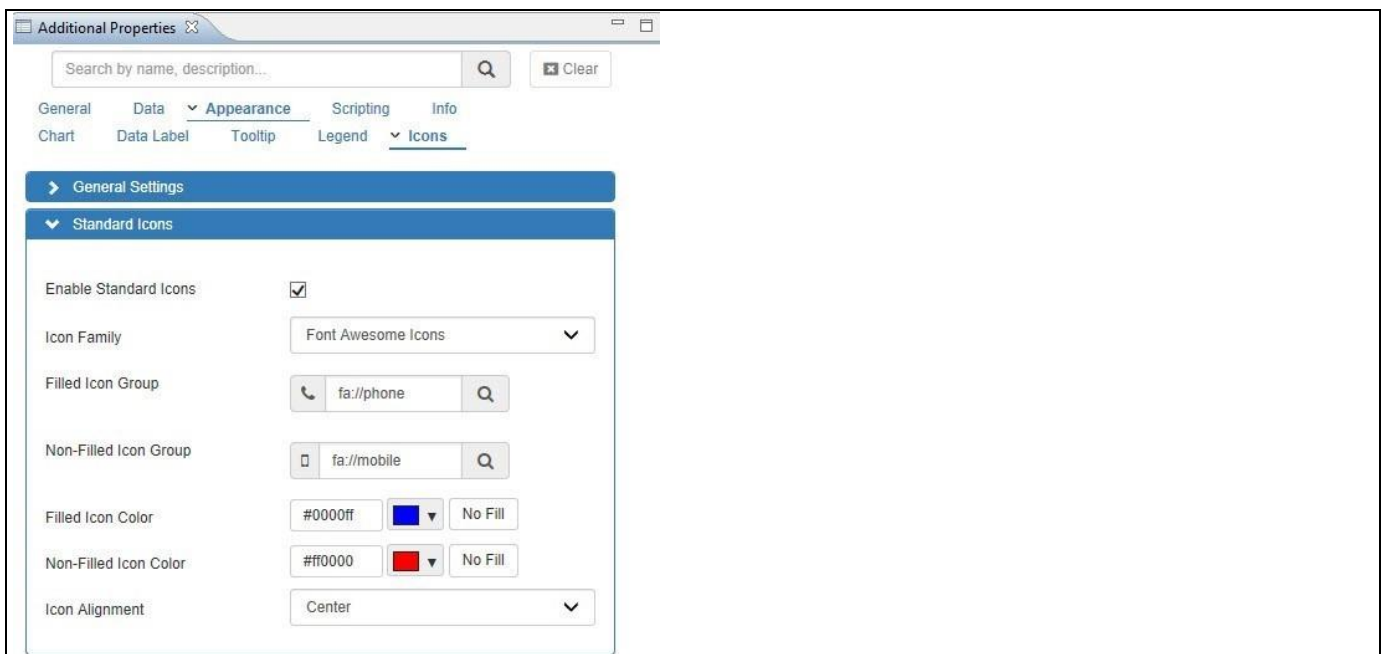


Figure 4.354: Waffle Chart – Category Appearance

44. Similarly, you can configure the different properties from the different categories in the Additional Properties for the Waffle Chart.
45. Navigate to the menu Application • Save.
46. Select the menu Application • Execute Locally.
47. Based on the configured icon properties, you will be able to view the Waffle Chart with Filled and Non-Filled Icons for the selected two measures (see Figure 4.355).

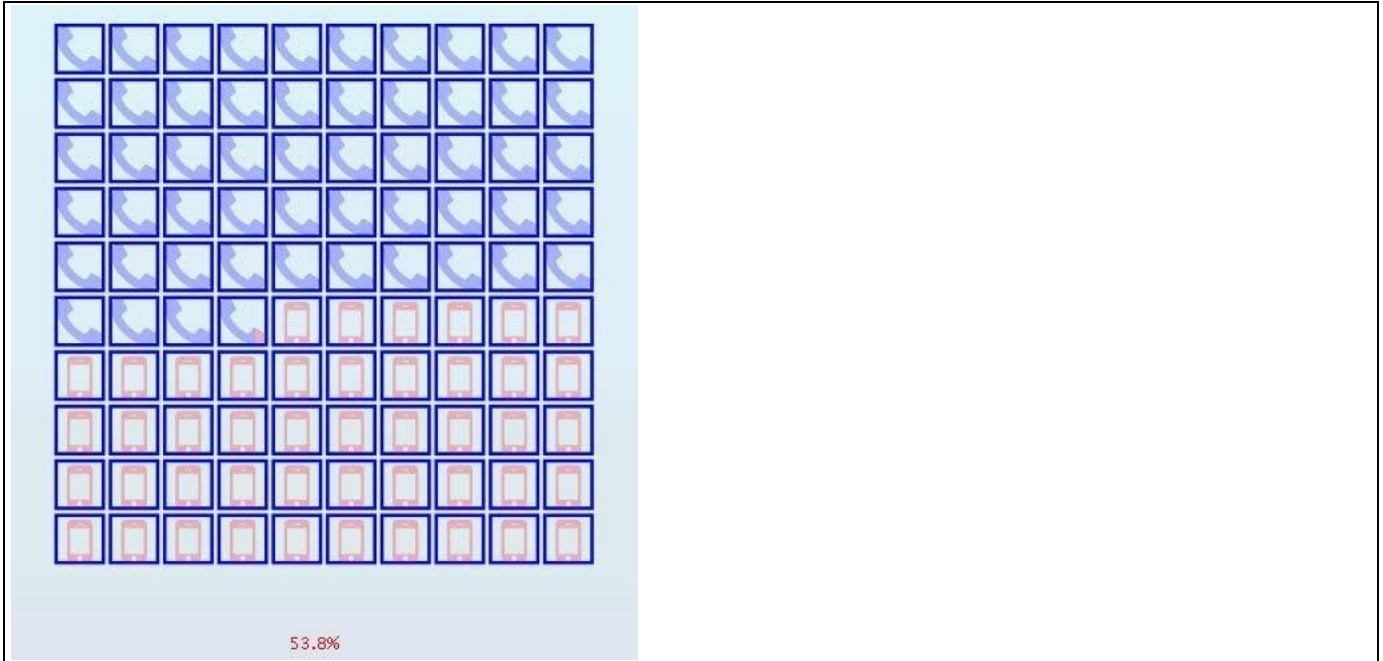


Figure 4.355: Waffle Chart with Filled and Non-Filled Icons

4.16.26 Additional Properties of the Waffle Chart

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Waffle Chart.

4.16.26.1 Category Data

Sub category	Area	Property	Description
Data Series	Static Data	Enable Static Data	This property allows you to enable the usage of Static Data.
		Data Value	This property sets the static value of the chart.
		Maximum Value	This property sets the maximum value of the chart.
	Data Selection	Data Value	This property sets the data value for the Waffle chart.
		Maximum Value Type	Using this property, you can select the maximum value type. The options are Static and Data Selection.
	Calculation	Enable Calculation	This property enables the option for calculation.
		Select Measure 1	This property allows you to select the Measure 1 value for the Calculation.
		Select Measure 2	This property allows you to select the Measure 2 value for the Calculation.
	Dimension Stacking	Enable Dimension Stacking	This property enables the option for Dimension Stacking.
		Select Measure	Using this property, you can select the measure.
		Enable Standard Icons	This property enables/disables the standard set of icons.

Table 4.57: Data

4.16.26.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Select Chart Type	This property sets the Waffle Data Type. The options are Percentage and Number.
		Value Color	This property sets the Value Color.
		Display Empty Boxes	This property allows you to enable / disable the option to show the empty boxes as part of the Waffle Chart.
		Empty Area Color	This property sets the Empty Area Color.
Data Label		Display Data Value on Chart	This property displays the Data Value on Chart.

Sub category	Area	Property	Description
Icons	General Settings	Enable Responsive Size	This property enables the option for Responsive icon size. When activated, the icons will resize according to the overall size assigned to the Waffle Chart as part of the dashboard.
		Icon Size	This property allows you to configure the Icon Size.
		Chart Point Gap	This property sets the icon gap. Applicable only when the property Enable Responsive Size is false.
		Chart Point Radius	This property sets the Chart Point Radius.
		Filled Icon Transparency (in %)	This property sets the Filled Icon Transparency.
		Non-Filled Icon Transparency (in %)	This property sets the Non-Filled Icon Transparency.
		Border Style	This property sets the border style of the plot area.
		Border Width	This property sets the Border Width of the plot area.
		Border Color	This property sets the border color of the plot area.
	Standard Icons	Enable Standard Icons	This property enables/disables the standard set of icons.
		Icon Family	Sets the Icon Family for the Standard Icons. The options are Font Awesome Icons and SAP UI Icons.
		Filled Icon Group	Using this property, you can select the Filled Icon from the Filled Icon Group.
		Non-Filled Icon Group	Using this property, you can select the Non- Filled Icon from the Non-Filled Icon Group.
		Filled Icon Color	This property sets the Filled Icon Color.
		Non-Filled Icon Color	This property sets the Non-Filled Icon Color.
		Icon Alignment	This property sets the alignment for custom icons.
	Custom Icons	Enable Custom Image	This property enables/disables the images.
		Image Type	Sets the Image Icon Type. The options are URL based Image and Local/Platform Image.
		Filled Icon Image URL	Using this property, you can select the Filled icon image from the URL.
		Non-Filled Icon Image	Using this property, you can select the

Sub category	Area	Property	Description
		URL	Non-Filled icon image from the URL.
	Fill Direction	Fill Direction	Sets the Fill Direction of the value axis.

Table 4.58: Appearance

4.16.27 Scripting Functions for the Waffle Chart

In section 4.6 we discussed the common set of Scripting Functions for all charts. In this section we will outline the Scripting Functions that are specific to the Waffle Chart.

Function / Method	Description
DSXSetChartColor()	This function allows to set the Chart Color.
DSXSetEmptyColor()	This function allows to set the Empty Area Color for the Chart.

Table 4.59: Scripting Functions

4.16.28 Risk Matrix Chart

A Risk Matrix chart gives you the option to visualize your project risks along two dimension – Probability and Business Impact. In addition, you can add the visualization of a third measure to visualize the significance of the risk in form of a bubble. The Risk Matrix can be configured with different matrix sizes and you will be able to define the color coding for the different areas of the chart using the colors green, yellow and red.

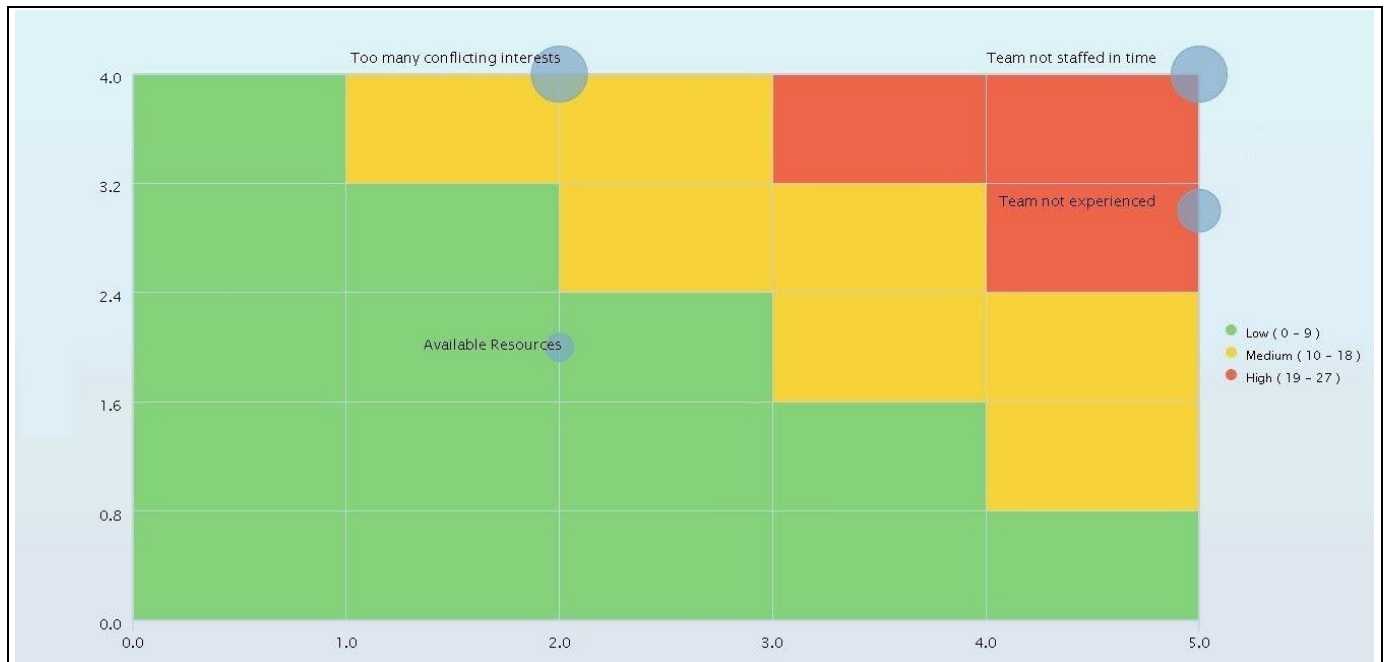


Figure 4.356: Risk Matrix Chart

4.16.28.1 Data Source Requirements for a Risk Matrix Chart

The minimum data source requirement for a Risk Matrix is a data source with at least one dimension in the Rows, and two measures in the Columns. Table 4.60 shows the sample data set for the Risk Matrix.

Risk Description	Impact	Probability	Significance
Team not staffed in time	4	5	20
Language misunderstandings	3	5	15
Team not experienced	3	5	15
Too many conflicting interests	4	2	8
Project Manager overwhelmed	4	2	8
Available Resources	2	2	4
Testers not available	2	2	4

Table 4.60: Sample Data Set

4.16.28.2 How to use a Risk Matrix Chart

In the following steps we will outline, how you can setup a new Risk Matrix Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Risk Matrix Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows two measures – Probability and Impact - and one dimension Risk.
3. Add a Risk Matrix Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Risk Matrix Chart.
5. Navigate to the Additional Properties of the Risk Matrix Chart (see Figure 4.357).
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Data Series in the Additional Properties of the Risk Matrix Chart (see Figure 4.357).
8. In the area Chart Settings you can configure the Risk Matrix Chart with X and Y Axis Measures. For our example, set the property Select X-Axis Measure to the measure Probability.
9. Set the property Select Y-Axis Measure to the measure Impact.
10. Activate the property Enable Bubble Size in case you would like to represent the Significance of the risk by assigning a measure from the data source.
11. When the property Enable Bubble Size is activated, you need to assign a measure to the property Size. For our example, the option is activated (see Figure 4.357) and the measure Impact is assigned.
12. When the property Display Occurrences is activated, the number of risks in each of the matrix categories will be shown as a numeric value displayed in each of the squares.

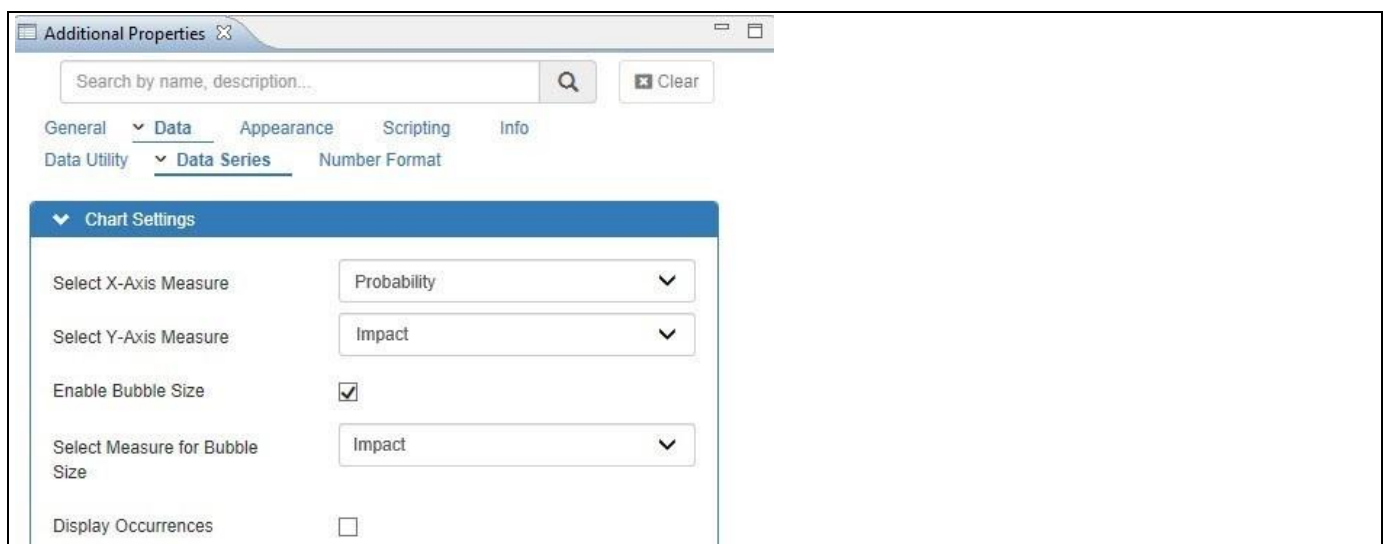


Figure 4.357: Category Data

13. You can configure the axis scale for the X-Axis and Y-Axis to be based on a Percentage assignment or an Absolute value assignment. When selecting the option “Percentage”, you can assign percentage values for the start and end values of each range of the axis. The assigned percentages will then calculate the actual start and end values for the ranges based on the assigned percentage values and the assigned measures.

14. When selecting the option “Absolute”, you have the option to assign absolute start and end values for each range on the axis.
15. For our example, set the property X-Axis and Y-Axis Range Type to the option “Absolute” (see Figure 4.358 and see Figure 4.359)
16. Based on the absolute values of the measure Probability and the measure Impact, the Risk Matrix is configured.
17. You can change the text for the labels based on your choice. For our example, set the property Range 1 to the value from 0 to 1 (see Figure 4.358 and see Figure 4.359).
18. Set the property Range 2 to the value from 1 to 2.
19. Set the property Range 3 to the value from 2 to 3.
20. Set the property Range 4 to the value from 3 to 4.
21. Set the property Range 5 to the value from 4 to 5.

The screenshot shows the 'Additional Properties' dialog box with the 'Data Series' tab selected. Under 'X-Axis Range', there are five 'Range' labels, each with a corresponding input field. The values are set as follows:

Range	Start	End
Range	0	1
Range	1	2
Range	2	3
Range	3	4
Range	4	5

Below the ranges is a 'Save' button. At the bottom, the 'X-Axis Range Type' is set to 'Absolute' (indicated by a dropdown arrow). There is also a checkbox for 'Use Maximum for X-Axis Range End' which is currently unchecked.

Figure 4.358: Category Data

The screenshot shows the 'Additional Properties' dialog box with the 'Data Series' tab selected. Under 'Y-Axis Range', there are five 'Range' labels, each with a corresponding input field. The values are set as follows:

Range	Start	End
Range	0	1
Range	1	2
Range	2	3
Range	3	4
Range	4	5

Below the ranges is a 'Save' button. At the bottom, the 'Y-Axis Range Type' is set to 'Absolute' (indicated by a dropdown arrow). There is also a checkbox for 'Use Maximum for Y-Axis Range End' which is currently unchecked.

Figure 4.359: Category Data

22. Navigate to the category Appearance and to the sub category Data Label. Ensure that the property Enable Data Labels is activated (see Figure 4.360).
23. For our example, set the property Data Label Type to the option Dimension.
24. You can also set the property Data Label Measure and the three different options for the Measure are
 - X-Axis
 - Y-Axis
 - Z-Axis (Size)

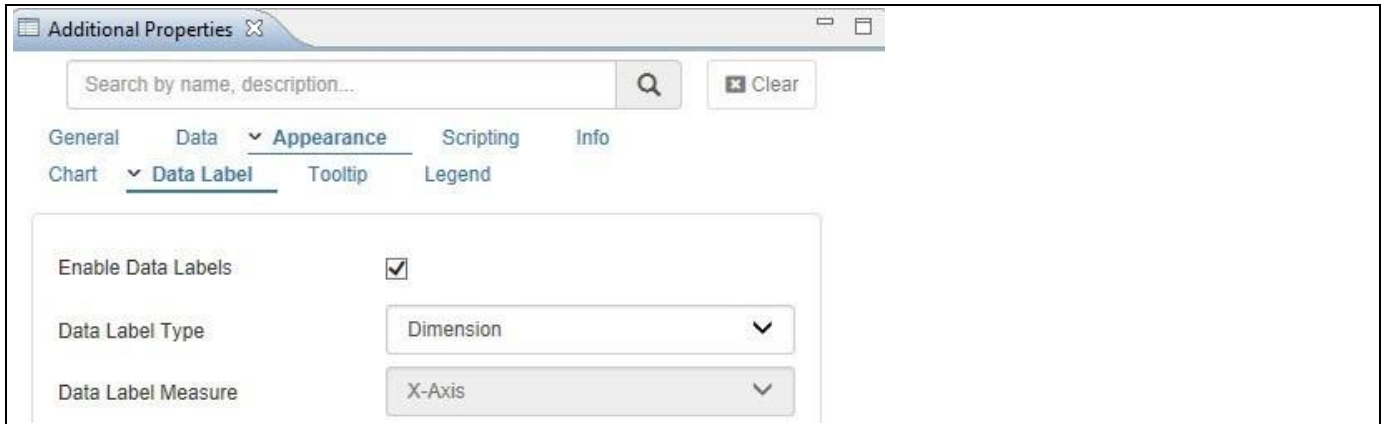


Figure 4.360: Category Appearance

25. Navigate to the category Appearance and to the sub category Chart (see Figure 4.361). In the area Matrix Color you can configure the size of the Risk Matrix chart. For our example, you can set the property Select Matrix Size to the option 5x5.
26. After you configured the size of the Risk Matrix, you need to configure the Color Range. Based on the configured size of the Risk Matrix – in our example 5x5 – you will have to configure color codes for values from 1 to 25.
27. For our example, Table 4.61 shows the Color code and Range value for 5x5 Matrix (see Figure 4.361)

Color	Range Value
Green	0 - 10
Yellow	11 - 20
Red	21 - 30

Table 4.61: Color Code and Range Values

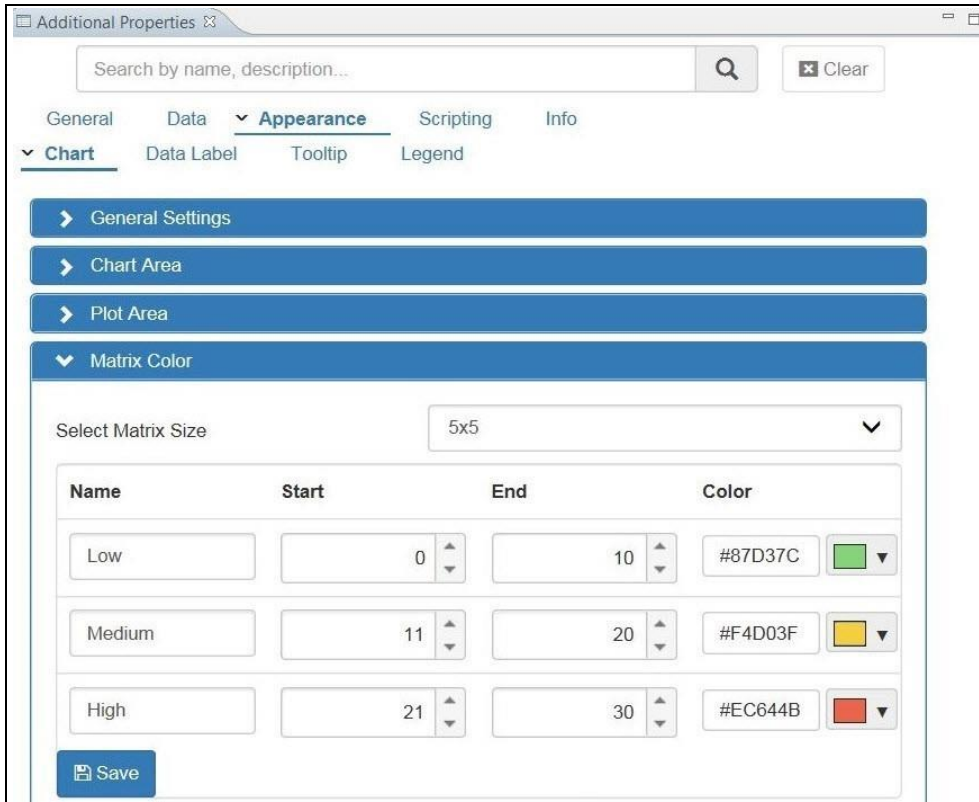


Figure 4.361: Category Appearance

28. Figure 4.362 shows the 5x5 matrix with color code assigned based on the defined ranges.



Figure 4.362: 5x5 Matrix with user defined color codes

29. You can change the color of the bubble. For our example, set the property Bubble Color to dark blue (see Figure 4.363).

Additional Properties

Search by name, description...

General Data **Appearance** Scripting Info

Chart Data Label Tooltip Legend

> General Settings

> Chart Area

> Plot Area

> Matrix Color

Select Matrix Size: 5x5

Name	Start	End	Color
Low	0	10	#87D37C
Medium	11	20	#F4D03F
High	21	30	#EC644B

Save

Bubble Color: #0000ff

Figure 4.363: Category Appearance with Bubble Color

30. Navigate to the menu Application • Save.
31. Select the menu Application • Execute Locally.
32. Based on the configured properties, you will be able to view the Risk Matrix Chart (see Figure 4.364).

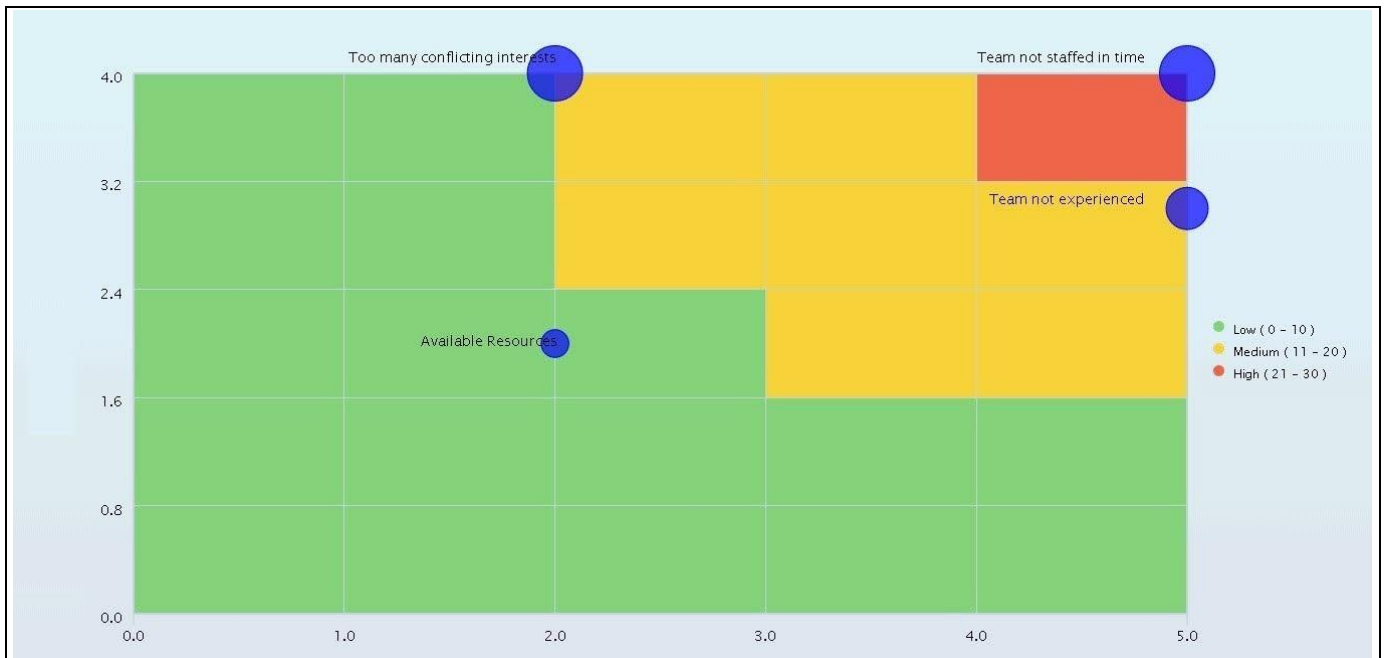


Figure 4.364: Risk Matrix Chart

4.16.29 Additional Properties of the Risk Matrix Chart

In addition to supporting the standard set of Additional Properties outlined in section 4.5.6 and the Additional Properties for the X-Axis and Y-Axis outlined in sections 4.5.6.1, the Risk Matrix Chart supports the following Additional Properties.

4.16.29.1 Category General

Sub category	Area	Property	Description
Y-Axis	General Settings	Cross Value	Here you can specify at which value the Y-Axis will cross the X-Axis.
	Axis Label	Value Type	This property sets the Labels for the Y-Axis. The options are Text and Number.

Table 4.62: General

4.16.29.2 Category Data

Sub category	Area	Property	Description
Data Series	Chart Settings	Select X-Axis Measure	Option to select a measure for the X-axis.
		Select Y-Axis Measure	Option to select a measure for the Y-axis.
		Enable Bubble Size	This property enables/disables the size of the bubble representing an optional third measure.
		Select Measure for Bubble Size	Option to select a measure for the size of the bubble.
		Display Occurrences	When Display Occurrences is activated, the number of risks in each of the matrix categories will be shown as a numeric value.
		X-Axis Range Type	This property sets the type of the X-Axis range for the chart. The options are Absolute and Percentage.
		Use Maximum for X-Axis Range End	This option sets the maximum X-Axis range end value for the chart.
		Y-Axis Range Type	This property sets the type of the Y-Axis range for the chart. The options are Absolute and Percentage.
		Use Maximum for X-Axis Range End	This option sets the maximum Y-Axis range end value for the chart.

Table 4.63: Data

4.16.29.3 Category Appearance

Sub category	Area	Property	Description
Chart	Matrix Color	Select Matrix Size	Sets the predefined and customized size of the matrix. The predefined options are 2x2, 3x3, 4x4, 5x5, 6x6 and 7x7.
		Color Range	Here you can define the ranges for color of the Risk Matrix. The start and end value of each range represents the multiplication of the X- and Y-axis values.
		Color	Sets the color for the bubble representing the third measure.
Data Label		Enable Data Labels	This property enables/disables the Data Labels.
		Data Label Type	Sets the visibility of the measure or dimension data labels. The options are Measure and Dimension.
		Data Label Measure	Sets the type of Measure. The options are X-Axis, Y-Axis and Z-Axis Size).
		Horizontal Offset	This property allows to specify the Horizontal Offset of the Data Label box relative to its default alignment.
		Vertical Offset	This property allows to specify the Vertical Offset of the Data Label box relative to its default alignment.
Tooltip		Select Measures to be included	Sets the visibility of the Measure type. The options are X-Axis, Y-Axis and Z-Axis (Size).

Table 4.64: Appearance

4.16.29.4 Category Scripting

Property	Description
On Matrix Click	This event will be triggered when each matrix is clicked.

Table 4.65: Scripting

4.16.30 Scripting Functions for the Risk Matrix Chart

In section 4.6 we discussed the common set of Scripting Functions for all charts. In this section we will outline the Scripting Functions that are specific to the Risk Matrix Chart.

Function/Method	Description
DSXGetVisible()	The function allows you to retrieve the value for the visibility of the component.

Table 4.66: Scripting Functions

4.16.31 Calendar Heat Map Chart

The Calendar Heat Map Chart allows you to display the distribution of a measure across a date / time based calendar heat map. The Calendar Heat map can display up to two time dimensions.



Figure 4.365: Calendar Heat Map

4.16.31.1 Data Source Requirements for a Calendar Heat Map Chart

The minimum data source requirement for a Calendar Heat Map Chart is a data source with at least one dimension in the Rows, and one measure in the Columns. The dimension will have to be a date / time representation, such as a calendar day, calendar month, week, year, etc.

4.16.31.2 How to use a Calendar Heat Map Chart

In the following steps we will outline how you can setup a new Calendar Heat Map as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Calendar Heat Map Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows three measures – Number of Records, Key Figure 1 and Key Figure 2 - and three dimensions Calendar Year, Calendar Month, and Timeseries Time.
3. Add a Calendar Heat Map Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Calendar Heat Map Chart.
5. Navigate to the Additional Properties of the Calendar Heat Map Chart (see Figure 4.366).
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Data and to the sub category Data Series in the Additional Properties of the Calendar Heat Map Chart (see Figure 4.366).

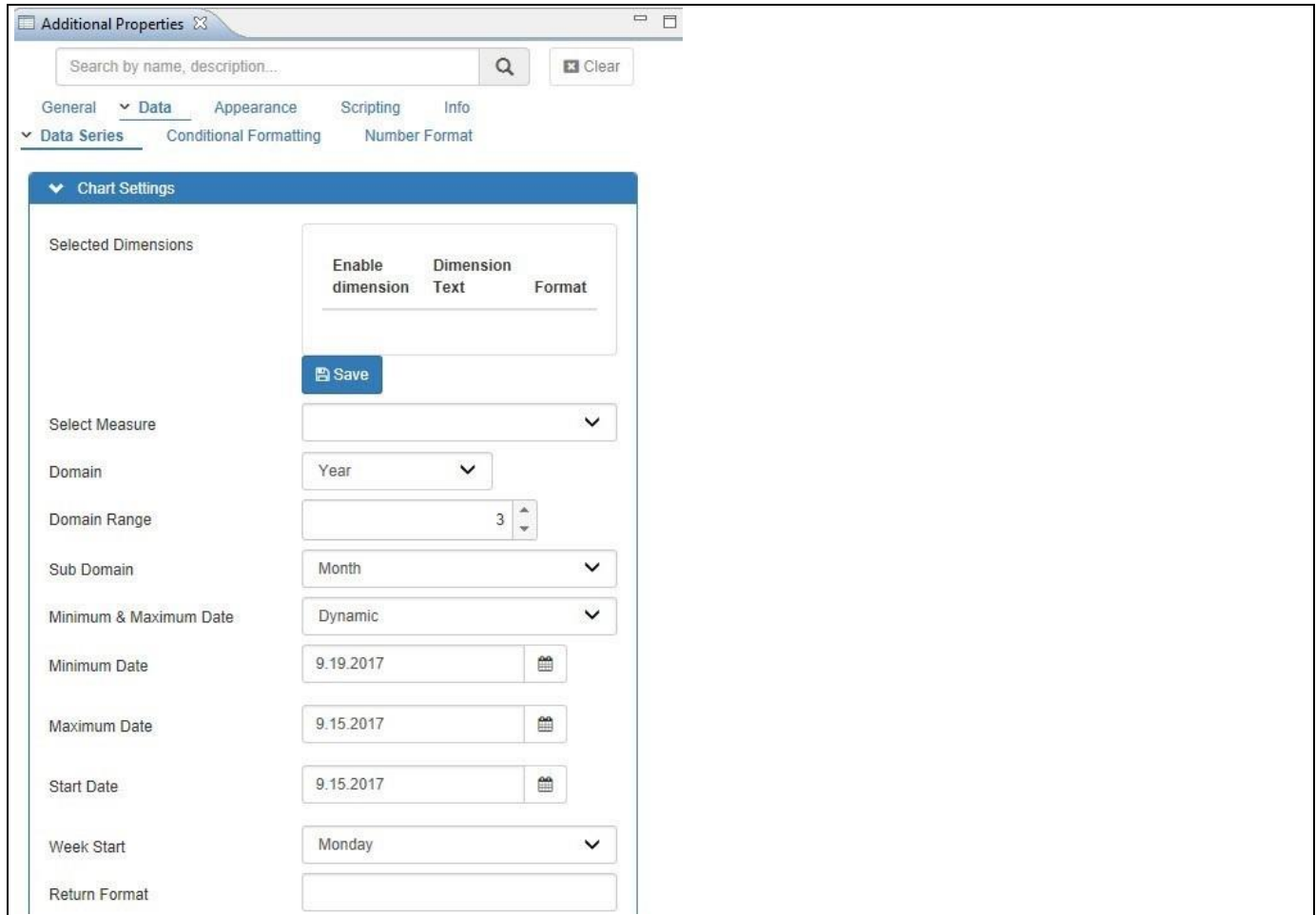


Figure 4.366: Category Data

8. For our example, in the area Chart Settings set the property Domain to the option Year. The other options are listed below
 - Month
 - Week
 - Day
 - Hour

The Domain of the Calendar Heat Map is the most outer time dimension and the Sub Domain is the inner dimension of the Calendar Heat Map.

9. Set the property Domain Range to the value 3 to display three domain values – in our example three years.
10. Set the property Sub Domain to the option Month.
11. Set the property Minimum and Maximum Date to the option Dynamic. By setting it to Dynamic, the maximum and minimum dates will be derived from the assigned data source.
12. Set the property Week Start to the option Monday.
13. Using the property Return Format you can specify the format for the return format as part of the scripting functions.
14. Navigate to the category Appearance and to the sub category Chart and to the area General Settings (see Figure 4.367).
15. Set the property Chart Orientation to the option Horizontal.
16. Ensure that the property Enable Previous/Next Navigation is activated so that you will be able to navigate to the Calendar Heat Map.

17. Set the property Number of Previous/Next Steps to the value 1, so that each navigation step will move the Calendar Heat Map by one year.

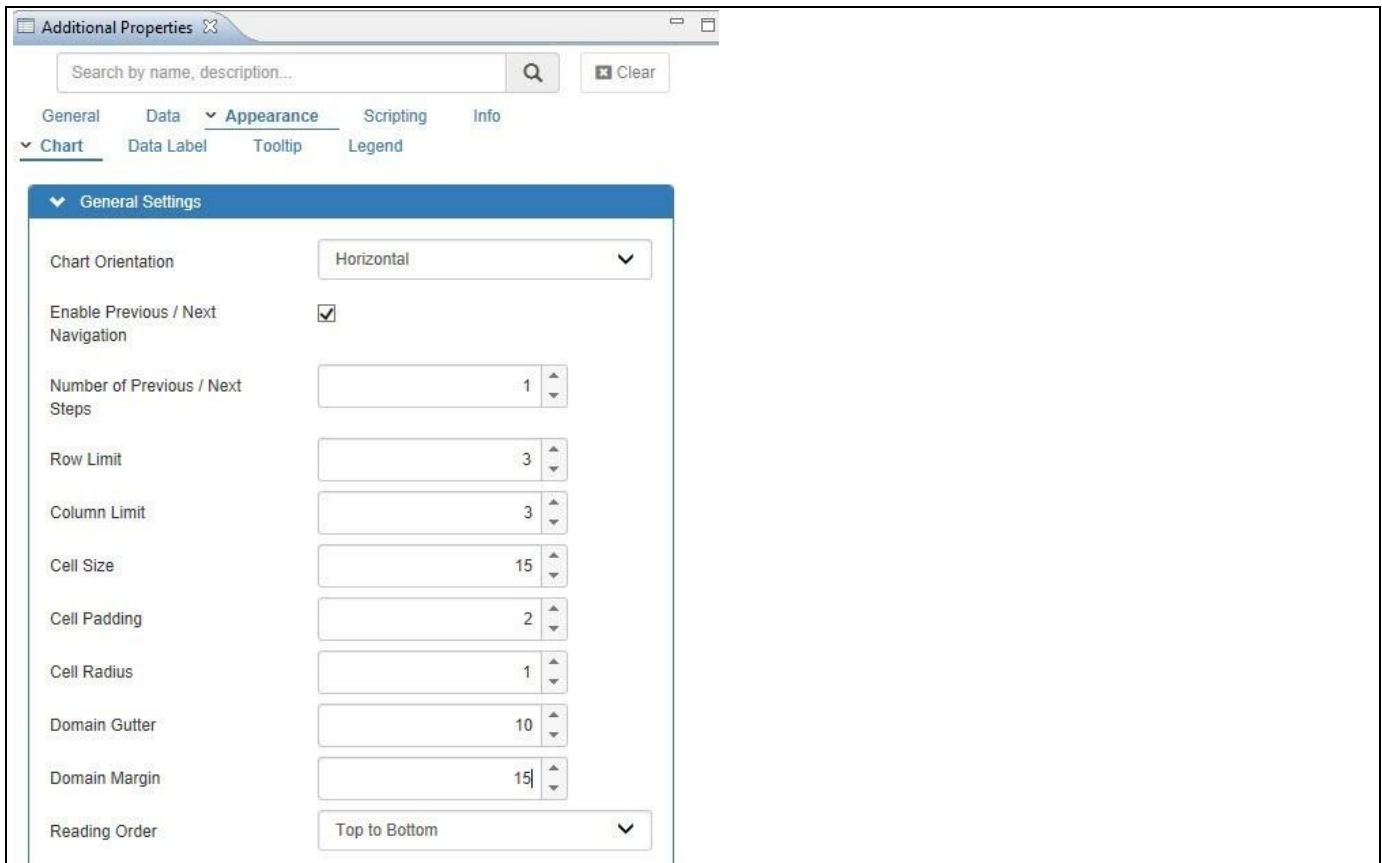


Figure 4.367: Category Appearance

18. Set the property Row Limit to the value 3, so that three rows of the Domain value – in our case year – will be shown (see Figure 4.367).
19. Set the property Column Limit to the value 3 which shows three columns in a domain.
20. Set the property Cell Size to the value 15.
21. Set the property Cell Padding to the value 2 which adjusts the space between each cell in the domain.
22. Set the property Cell Radius to the value 1.
23. Set the property Domain Gutter to the value 10 which adjusts the space between each domain.
24. Set the property Domain Margin to the value 15.
25. Set the property Reading Order to the option Top to Bottom. The Reading Order is defining how the data is going to be displayed. For example, a Reading Order Top to Bottom will display the days of a month first from top to bottom and then the next set of days in the next column for the month.
26. Navigate to the category Data and to the sub category Data Series in the Additional Properties of the Calendar Heat Map Chart (see Figure 4.368).

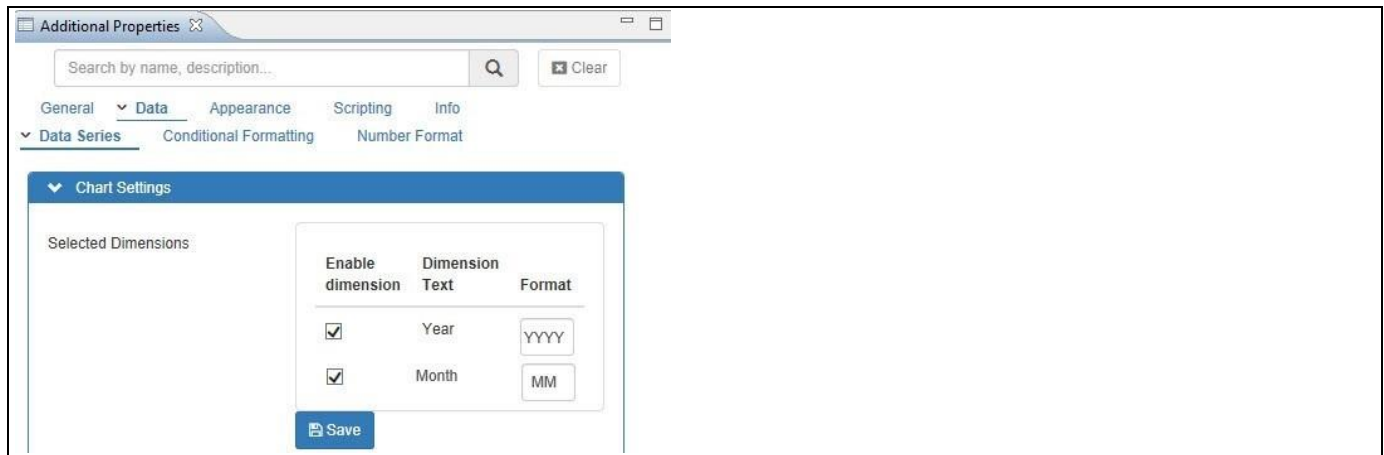


Figure 4.368: Category Data Series

27. In the area Chart Settings, you can then select the dimensions that are available for the Calendar Heat Map and you can assign the format for each of the dimensions using the placeholders.
28. You can choose the measure from the property Select Measure that will be used to visualize the information. In our example, measure Number of Records.
29. Set the property Year to the format YYYY.
30. Set the property Month to the format MM.
31. Click Save to save the properties.
32. Navigate to the category Appearance and to the sub category Chart in the Additional Properties (see Figure 4.369). In the area Color Scheme you can configure the Color Scheme for the Calendar Heat Map Chart.

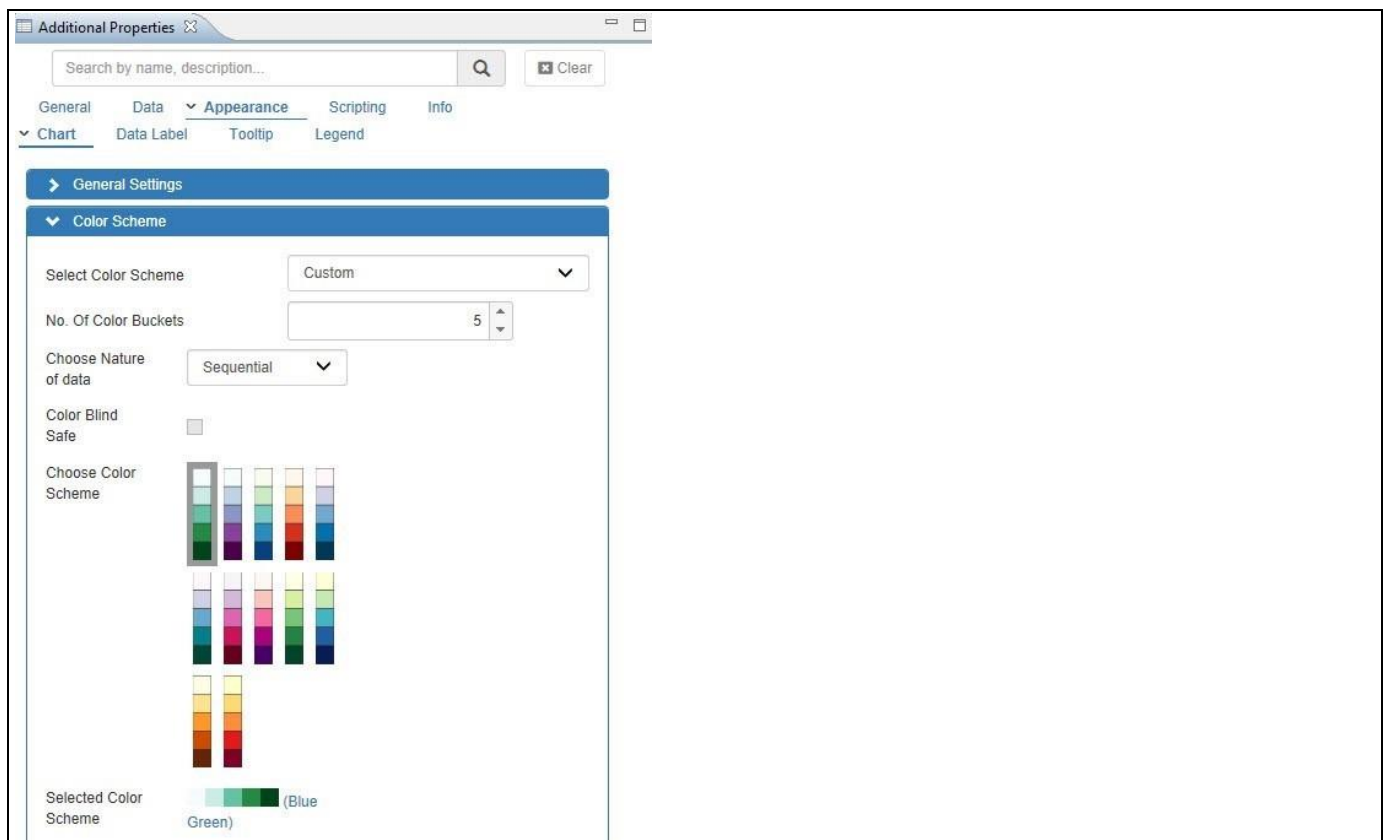


Figure 4.369: Category Appearance

33. For our example, set the property Select Color Scheme to the option Custom.

34. Set the property No. of Color Buckets to the value 5 which shows 5 buckets below the domains.
35. Set the property Choose Nature of data to the option Sequential.
36. Set the property Choose Color Scheme for the cell color based on your choice.
37. You will be able to view the Calendar Heat Map Chart based on the configured properties (see Figure 4.370).

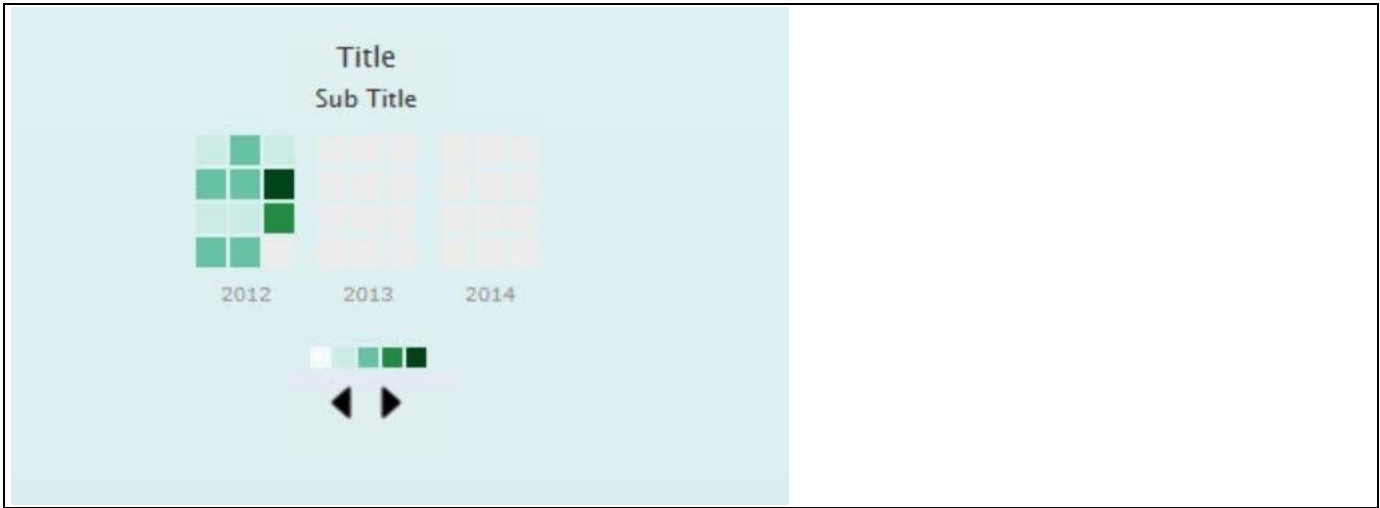


Figure 4.370: Calendar Heat Map Chart

As part of the definition of the Calendar Heat Map chart you can use placeholders for defining the date format for the dimensions as well as define the Return Format. Table 4.67 shows the available placeholders for the Return Format option on the General tab of the Additional Properties:

Placeholder	Returned Values
D	Displays the day value as 1 – 31.
dd/DD	Displays the day value as 01 – 31.
ddd/DDD	Displays the day of the week in a short format, for example Sun - Sat
dddd/DDDD	Displays the day of the week in a short format, for example Sunday – Saturday
M	Displays the month values as 1-12
mm/MM	Displays the month values as 01-12
mmm/MMM	Displays the short month name - Jan - Dec
mmmm/MMMM	Displays the long month name - January – December
y/Y	Displays the year values as 16 (for 2016)
yy/YY	Displays the year values as 16 (for 2016)
yyy/YYYY	Displays the year values as 2016 (for 2016)
yyyy/YYYYY	Displays the year values as 2016 (for 2016)
W	Displays the week number as 1 – 52
W	Displays the week number as W1 – W52

Table 4.67: Value Placeholder

Table 4.68 shows the available placeholders for the Date Format definition in the Data Series tab of the Additional Properties:

Placeholder	Returned Values
Y	Represents the Year
M	Represents the Month
D	Represents the Day
H	Represents the Hour
M	Represents the minutes
S	Represent the Seconds

Table 4.68: Value Placeholder

In case of defining the Data Format in the Data Series sub category of the Additional Properties you can then combine the placeholders listed in Table 4.68. For example a Data Format MM/YYYY would be 08/2016 for August 2016.

4.16.32 Additional Properties of the Calendar Heat Map Chart

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Calendar Heat Map Chart.

4.16.32.1 Category Data

Sub category	Area	Property	Description
Data Series	Chart Settings	Selected Dimension	Here you can select which of the available dimensions will be incorporated into the Calendar Heat Map and you can specify the value format for each of the dimensions.
		Select Measure	Here you can specify the measure based on the assigned Data Source.
		Domain	Here you can set the Domain. The Domain will be used as most outer dimension for the Calendar Heat Map.
		Domain Range	Here you can specify the number of Domains that will be displayed.
		Sub Domain	Here you can set the Sub Domain. The Domain will be used as most inner dimension for the Calendar Heat Map.
		Minimum & Maximum Date	Set the type of Minimum and Maximum date. You can choose between Dynamic or Static.
		Minimum Date	Sets the static Minimum Date.
		Maximum Date	Sets the static Maximum Date.
		Start Date	Set the Start Date.
		Week Start	Sets the day of week that the week will be started.
		Return Format	Here you can define the Return Format for the scripting functions.

Table 4.69: Data

4.16.32.2 Appearance

Sub category	Area	Property	Description
Chart	General Settings	Chart Orientation	Set the Orientation for the Calendar Heat Map.
		Enable Previous/Next Navigation	This property allows to enable / disable the Previous / Next navigation.
		No of Previous/Next Steps	This property allows to specify the number of steps the previous and next navigation will perform and one time.
		Row Limit	Defines the number of Rows the

Sub category	Area	Property	Description
			Domain will be split into. If Column Limit is set to any value other than 0 then Row Limit will be ignored.
		Column Limit	Defines the number of Columns the Domain will be split into.
		Cell Size	Sets the Cell Size for each “square” being displayed in the Calendar Heat Map.
		Cell Padding	Set the Cell Padding for each “square” being displayed in the Calendar Heat Map.
		Cell Radius	Set the Cell Radius for each “square” being displayed in the Calendar Heat Map.
		Domain Gutter	The Domain Gutter defines the space between each Domain.
		Domain Margin	The Domain Margin defines the margin around each Domain.
		Reading Order	Sets the Reading Order for the Domain.
		Enable SubDomain Value	Sets the cell value for the Calendar Heat Map.
	Color Scheme	Select Color Scheme	Sets the Color Scheme for the chart.
		No. of Color Buckets	The selected colors will be splitted dynamically into the number of buckets.
		Choose Nature of data	Sets the Brewer Color Scheme Type for the chart. The options are Sequential, Diverging and Qualitative.
		Color Blind Safe	You can activate this option to ensure color blind safe colors are chosen.
		Choose Color Scheme	Sets the Color Scheme from the group of color schemes.
		Selected Color Scheme	Selected Color Scheme will be displayed.
		Minimum Color	Set the minimum color for the cell.
		Maximum Color	Set the minimum color for the cell.
Data Label		Position	Sets the position of the label relative to the domain.
		Rotate	Sets the rotation for the label.
Legend	Appearance	Cell Size	Defines the Cell Size for the Legend.

Table 4.70: Appearance

4.16.32.3 Category Scripting

Property	Description
Enable Multi-Select	Here you can activate the Multi-Select options.

Table 4.71: Category Scripting

4.16.33 Scripting Functions for the Calendar Heat Map Chart

In section 4.6 we discussed the common set of Scripting Functions for all charts. In this section we will outline the Scripting Functions that are specific to the Calendar Heat Map Chart.

Function / Method	Description
DSXGetSelectedValue()	The function returns the selected value.
DSXGetSelectedValuearr()	The function returns the selected value array.
DSXGetSelectedValues()	The function returns the selected values.
DSXSetColumnLimit()	The function allows you to set the Column Limit.
DSXSetDateFormat()	The function allows you to set the Return Date Format.
DSXSetDomain()	The function allows you to set the domain.
DSXSetDomainRange()	The function allows you to set the domain range.
DSXSetMaxDate()	The function allows you to set the Maximum Date.
DSXSetMinDate()	The function allows you to set the Minimum Date.
DSXSetPrevNextStep()	The function allows you to set the Previous and Next steps.
DSXSetRowLimit()	The function allows you to set the Row Limit.
DSXSetStartDate()	The function allows you to set the Start Date.
DSXSetSubDomain()	The function allows you to set the subdomain.
DSXSetWeekStart()	The function allows you to set the Week Start.

Table 4.72: Scripting Functions

4.16.34 Sunburst Chart

A Sunburst chart is a multilevel pie chart used to represent the proportion of different values found at each level.

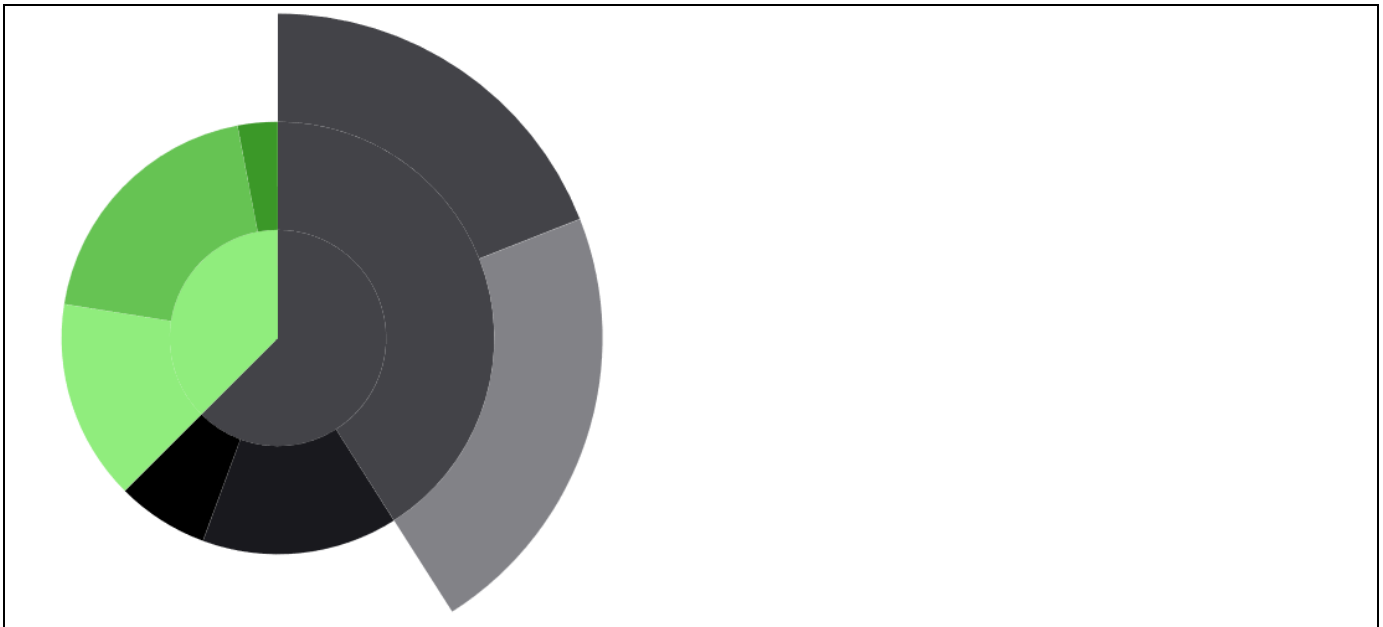


Figure 4.371: Sample Sunburst Chart

4.16.34.1 Data Source Requirements for a Sunburst Chart

The mandatory data source requirement for a Sunburst Chart is one or more dimensions with at least one measure. The dimension can have different levels of Hierarchies.

4.16.34.2 How to use the Sunburst Chart?

In the following steps we will outline how you can setup a new Sunburst Chart in your next SAP BusinessObjects Design Studio/SAP Lumira Designer project. For these steps we assume we have a data source with one Dimension having two hierarchy levels and one Measure, similar to the Table shown below.

First Level of Hierarchy for Dimension Cost Element	Second Level of Hierarchy for Dimension Cost Element	Dimension Members	Total Expenses
Main Expenses			312835.00
	Apparel		85393.00
		Formal Wear	41336.00
		Casual Wear	44057.00

First Level of Hierarchy for Dimension Cost Element	Second Level of Hierarchy for Dimension Cost Element	Dimension Members	Total Expenses
	Electronics		84010.00
		Mobile Device	39833.00
		Laptop	44177.00
	Stationery		89030.00
		Books	45070.00
		Papers	43960.00
	Miscellaneous	Electricity	54402.00

Table 4.73: Sample Data

You can follow the steps below to configure the Sunburst Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows one measure – Total Expenses and one Dimension – Cost Element with two levels of Hierarchy as shown in the above table.
3. Add a Sunburst Chart from the VBX Charts to your SAP BusinessObjects Design Studio /SAP Lumira Designer project.
4. Assign the data source to the Sunburst Chart.
5. The Sunburst Chart will plot the information from the assigned data source (see Figure 4.372).

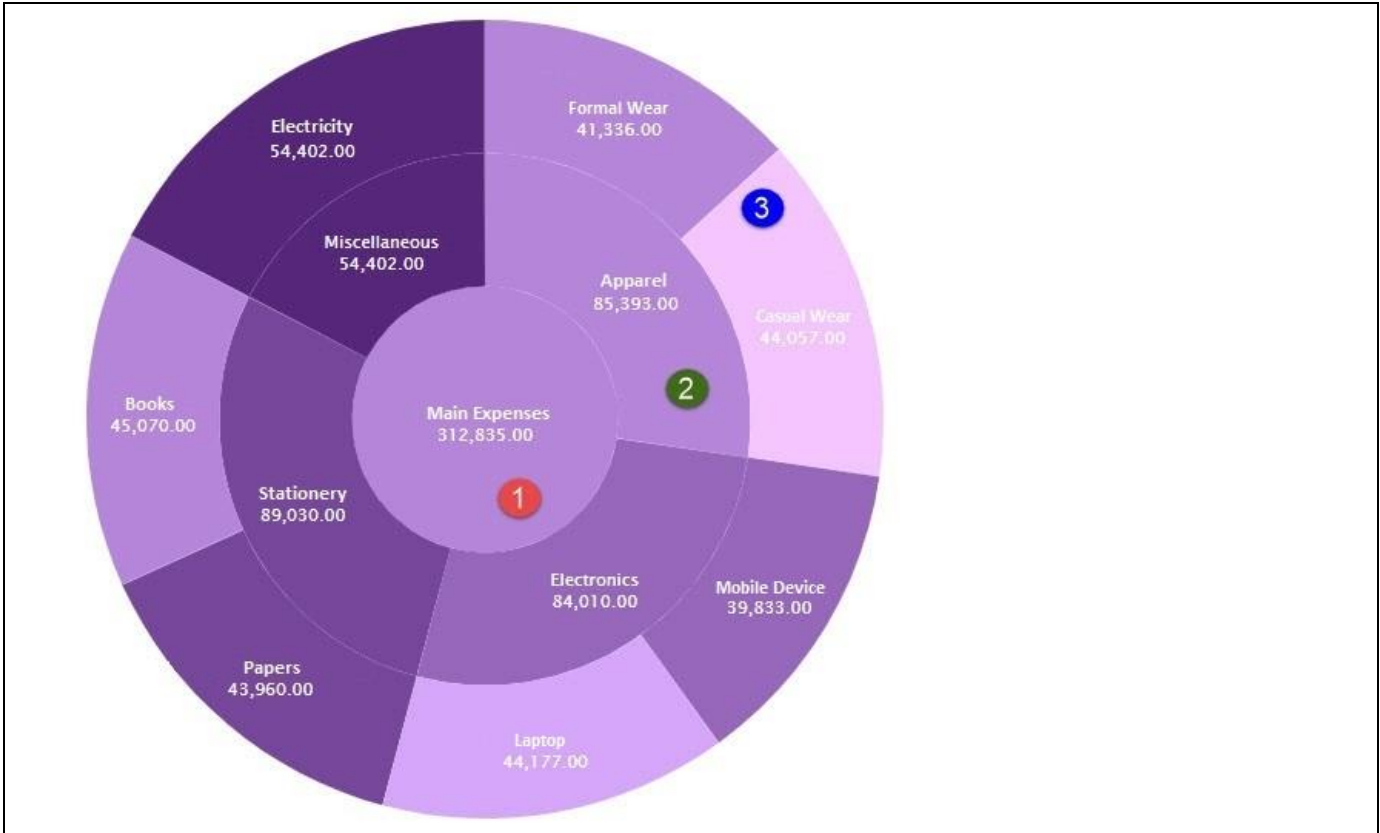


Figure 4.372: Sunburst Chart

Figure 4.372 shows the basic Sunburst Chart for one measure – Total Expenses and one dimension - Cost Element with two levels of Hierarchy as shown in Table 4.73. Here you can observe that the first level of Hierarchy for the Dimension Cost Element shows the Measure value for Main Expenses in the inner circle layer “1” (see Figure 4.372). The second level of Hierarchy for the Dimension Cost Element shows the Measure values for Apparel, Electronics, Stationery and Miscellaneous in the next circle layer “2” and the Measure values for all the Dimension members under the second level Hierarchy (Apparel, Electronics, Stationery and Miscellaneous) are shown in the circle layer “3”. You can use now the Additional Properties to customize the layout and look and feel.

4.16.35 Additional Properties of Sunburst Chart

The Additional Properties of the Sunburst Chart are shown as part of the common set of Additional Properties in Section 4.5.

4.16.36 Scripting Functions for Sunburst Chart

All supported scripting functions for the Sunburst Chart are listed as part of the common scripting functions for charts listed in Section 4.6.

4.16.37 Timeline Series Chart

A Timeline Series Chart is a type of chart which visually shows a series of events over a linear timescale. In this case, the events will be represented by the Measures and the Timescale will be represented by the Dimensions.

4.16.37.1 Data Source Requirements for a Timeline Series Chart

The minimum data source requirement for a Timeline Series Chart is one dimension with at least one measure.

4.16.37.2 How to use the Timeline Series Chart?

In the following steps we will outline how you can setup a new Timeline Series Chart. For our example we will assume that we are going to use a data source with a dimension Calendar Year/Month in the Rows and measures Order Amount, Order Cost and Order Quantity in the Columns of the Initial View of the data source.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a Timeline Series Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
3. Assign the data source to the Timeline Series Chart.
4. Navigate to the Additional Properties of the Timeline Series Chart (see Figure 4.373).
5. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
6. Navigate to the category Data and to the sub category Data Configuration in the Additional Properties of the Timeline Series Chart (see Figure 4.373).

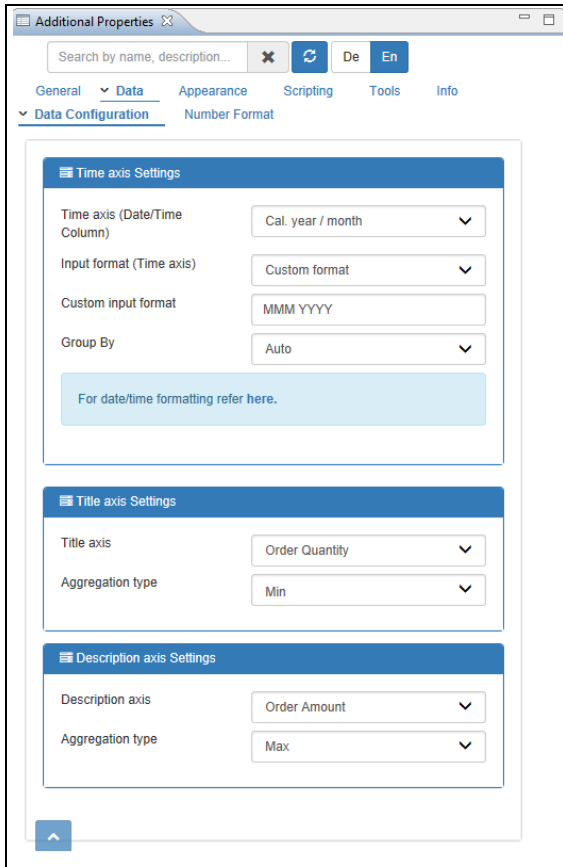


Figure 4.373: Category Data

7. Navigate to the Area Time Axis Settings.
8. Set the property Time Axis (Date/Time Column) to the option Cal.year/month.
9. Set the property Input Format (Time Axis) to the option Custom Format.
10. Set the property Custom Input Format as “MMM YYYY” as the Month-Year Format in the Data Set appears the same.
11. Set the property Group By to the option Auto.
12. Now navigate to the Area Title Axis Settings. Set the property Title Axis to the option Order Quantity.
13. Set the Aggregation Type to the option Min. The other options are Min, Max, Count and Average.
14. Now navigate to the Area Description Axis Settings. Set the property Description Axis to the option Order Quantity.
15. Set the Aggregation Type to the option Max. The other options are Min, Add, Count and Average.
16. Now based on the above configuration, you will be able to view the Timeline Series Chart as shown below.

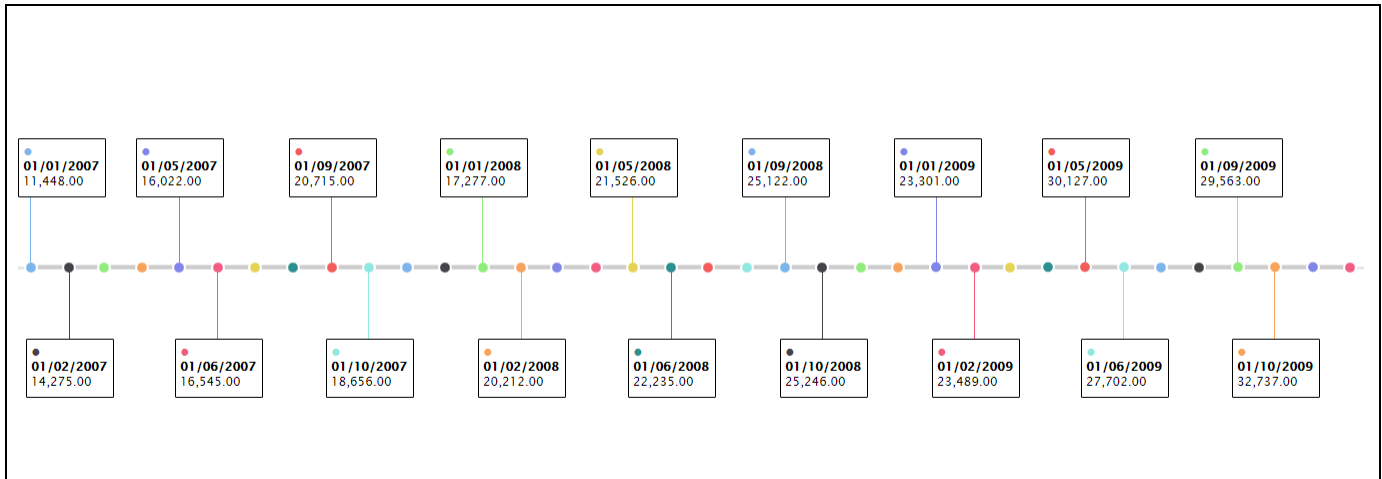


Figure 4.374: Timeline Series Chart

From the above Figure, you can observe that the Timeline Series Chart is generated based on the Measure being selected as Order Quantity and the Aggregation Type is selected as Minimum of Order Quantity for the Title Axis. For the Description Axis, the Measure is being selected as Order Amount and the Aggregation Type is selected as Maximum of Order Amount. The below Figure represents the value for both the Title Axis and Description Axis (which appears in the Tooltip).

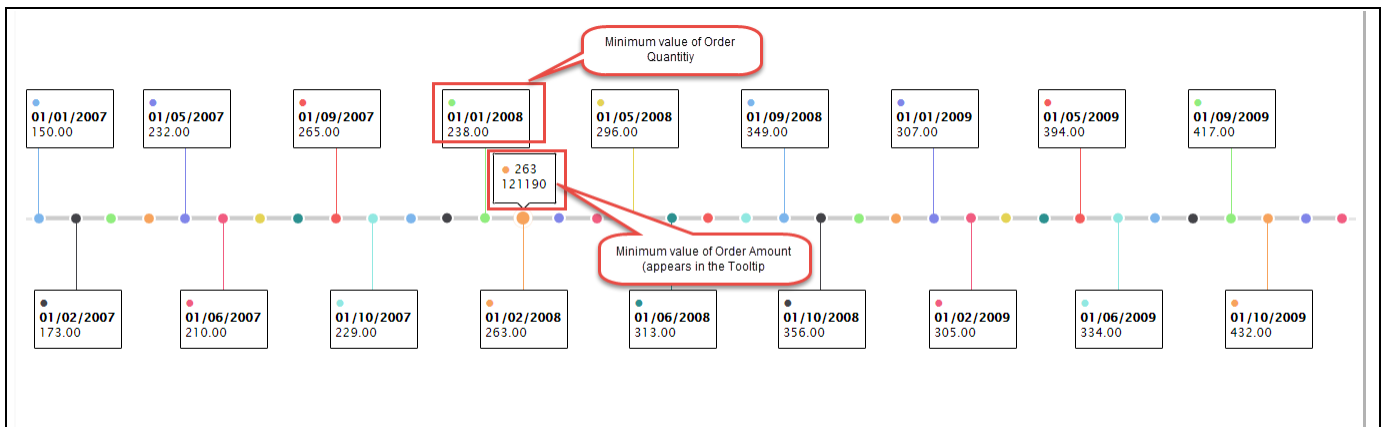


Figure 4.375: Timeline Series Chart with Title and Description Axis

In case, if the Dimensions are selected for the Title and Description Axis, then the property Display Selection can be selected as “First” or “Last” options which denotes that the First or Last Row item in the Initial View of the Data Source will get displayed for the Title and Description Axis based on the selection.

4.16.38 Additional Properties of the Timeline Series Chart

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Timeline Series Chart.

4.16.38.1 Category Data

Sub category	Area	Property	Description
Data	Time Axis	Time axis (Date/Time	This property sets the Timeline Axis

Sub category	Area	Property	Description
Configuration	Settings	Column)	(Date/Time Column)
		Input format (Time axis)	This property sets the Time Axis Input Format. The predefined options are listed here.
		Group By	This property sets the Time Axis Group By option. The options are Auto, Responsive, Date, Month and Year. When the option “Auto” is selected, Timeline Series chart will appear based on the Time Frame scale according to the assigned Data Source. When the option “Responsive” is selected, then the Timeline Series chart will get displayed based on the screen resolution.
	Title Axis Settings	Title axis	This property sets the Title for the Axis Column.
		Aggregation type	This property sets the Aggregation Type for the Measure Column. The options are Add, Min, Max, Count and Average.
	Description Axis Settings	Description axis	This property sets the Description for the Axis Column and it is only visible as a Tool tip option.
		Aggregation type	This property sets the Aggregation Type for the Measure Column. The options are Add, Min, Max, Count and Average.

Table 4.74: Category Data

4.16.39 Scripting Functions for the Timeline Series Chart

In section 4.6 we discussed the common set of Scripting Functions for all charts. In this section we will outline the Scripting Functions that are specific to the Timeline Series Chart.

Function / Method	Description
DSXLoadDataSource	This property loads the DataSource in Script.
DSXUnloadDataSource	This property unloads the DataSource in Script.
DSXGetSubTitleEnable	This property returns the Sub Title being enabled.
DSXGetToolTipNoOfDecimals	This property returns the Tooltip Value Decimals.
DSXGetToolTipValuePrefix	This property returns the Tooltip Value Prefix.
DSXGetToolTipValueSuffix	This property returns the Tooltip Value Suffix.

Tabl

e 4.75: Scripting Functions

4.17 Performance Charts

Other useful charts that do not fall under the categories mentioned previously, are grouped into the Performance Charts category. The performance charts allow several different measures to be compared against the benchmark in the same chart. In this category you will find the details of the following chart types:

- Bullet Chart
- Fixed Column Chart
- Box Plot Chart

4.17.1 Bullet Chart

The Bullet chart (see Figure 4.376) is an enhanced bar/column chart where the performance measure is plotted against a comparison measure, which is highlighted as a marker over the performance measure. The background of the chart is also filled with a color code, which shows the qualitative range for the performance measure.

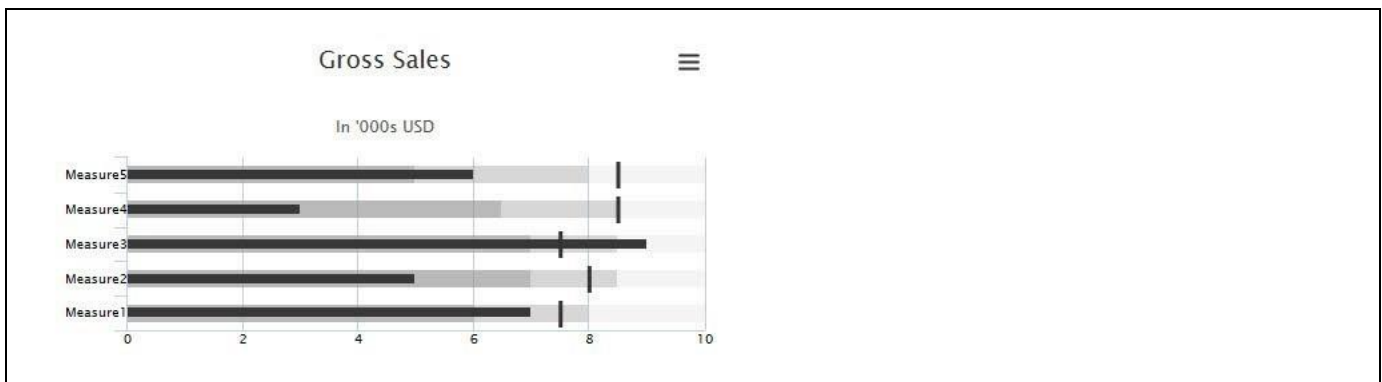


Figure 4.376: Bullet Chart

4.17.2 Legends in Bullet Chart

As part of VBX Release 2.4, you will be able to configure the Legends for the Bullet Chart by navigating to the category Appearance and to the sub category Legend (see Figure 4.377)

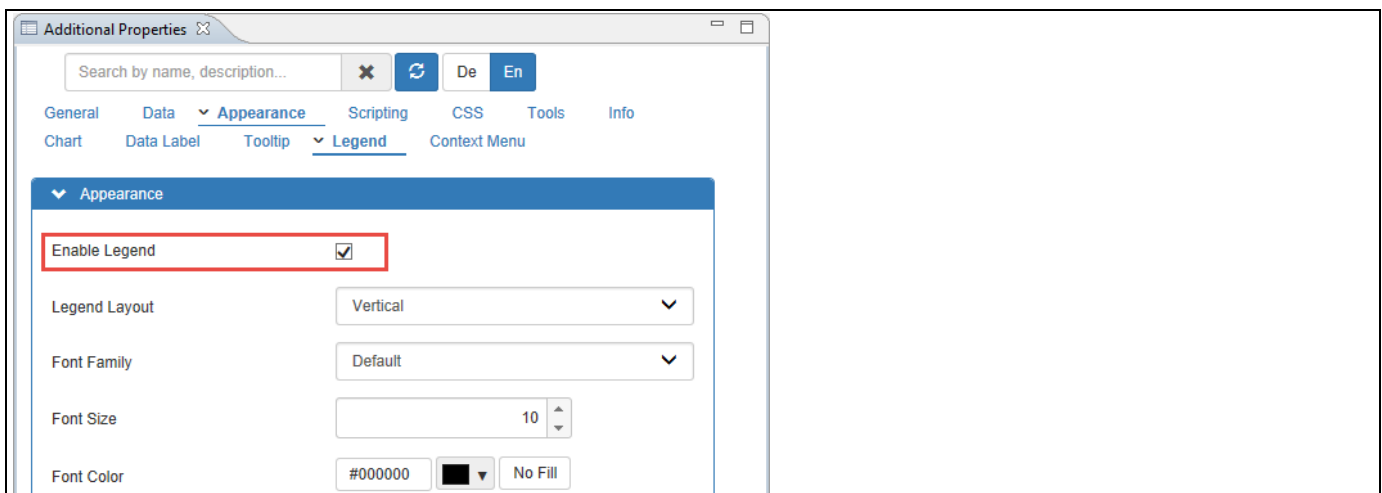


Figure 4.377: Category Appearance

By enabling the property Enable Legend, you will be able to view the Bullet Chart with the Legends configured for the Measure (see Figure 4.378).

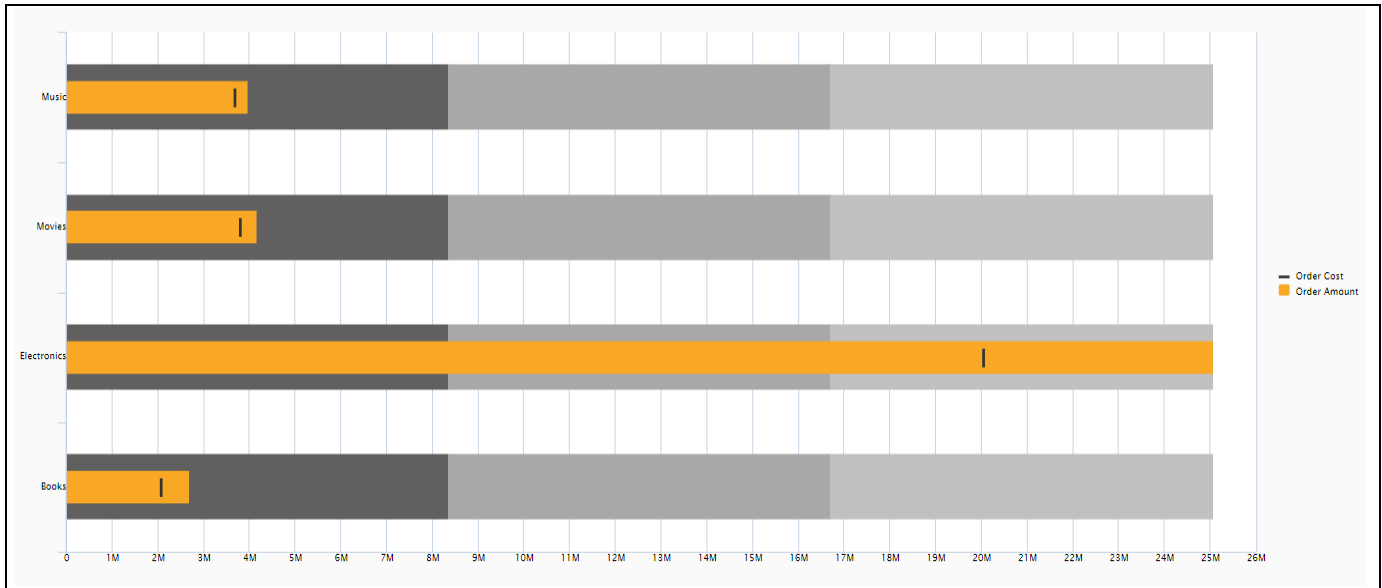


Figure 4.378: Bullet Chart with Legends

4.17.3 Deviation Display in Bullet Chart

In the Additional Properties of the Bullet Chart in the category Data and the sub category Data Series, you have the option to define the Deviation Display Bar for the Bullet Chart to view the difference value between the Performance Measure and the Comparison Measure.

For our example, you can follow the steps below to configure the Deviation Display Bar in the Bullet Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source has a dimension Item Category and three measures – Order Quantity, Order Cost and Order Amount.
3. Add a Bullet Chart from the VBX Charts to your SAP BusinessObjects Design Studio / SAP Lumira Designer project.
4. Assign the data source to the Bullet Chart.
5. Navigate to the Additional Properties of the Bullet Chart.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Data and to the sub category Data Series (see Figure 4.379).

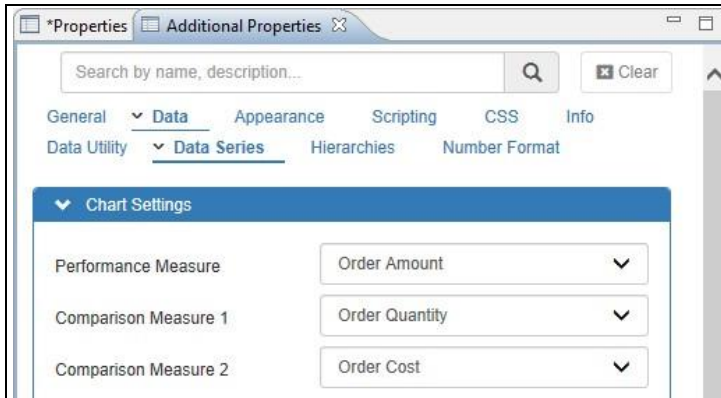


Figure 4.379: Category Data – Chart Settings

8. In the area Chart Settings, set the property Performance Measure to the option Order Amount.
9. Set the property Comparison Measure 1 to the option Order Quantity.
10. Set the property Comparison Measure 2 to the option Order Cost.
11. Navigate to the area Deviation Display (see Figure 4.380).

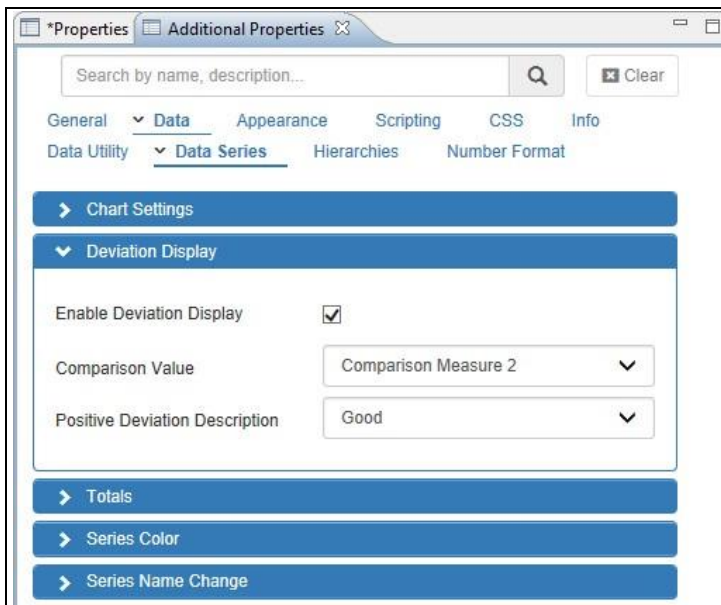


Figure 4.380: Category Data – Dimension Display

12. Activate the property Enable Deviation Display.
13. Set the property Comparison Value to the option Comparison Measure 2.
14. Set the property Positive Deviation Description to the option Good.
15. Now navigate to the category Appearance and to the sub category Chart (see Figure 4.381).

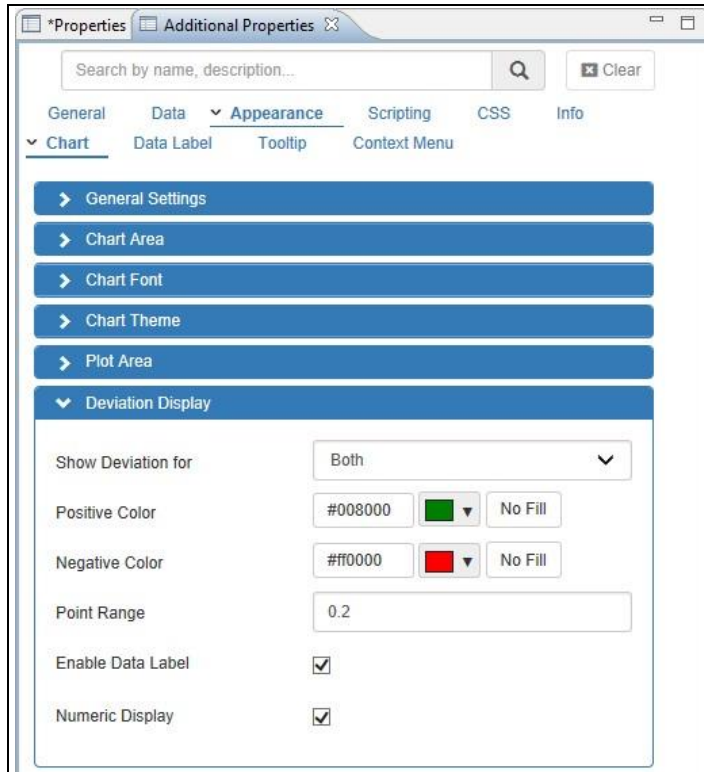


Figure 4.381: Category Appearance – Deviation Display

16. Set the property Show Deviation For to the option Both. The other options are Positive and Negative.
17. Set the property Positive Color to the color Green.
18. Set the property Negative Color to the color Red.
19. Set the Point Range to the value 0.2 which defines the width of the Deviation Bar.
20. Activate the property Enable Data Label.
21. Activate the property Numeric Display which displays the difference value between the Performance Measure and the Comparison Measure.
22. Based on the above configured settings, the Bullet Chart will be displayed with the Deviation Bar representing the difference value between the Performance Measure and the Comparison Measure for the assigned data set (see Figure 4.382) and the Green color represents the Positive Deviation value based on the configuration.

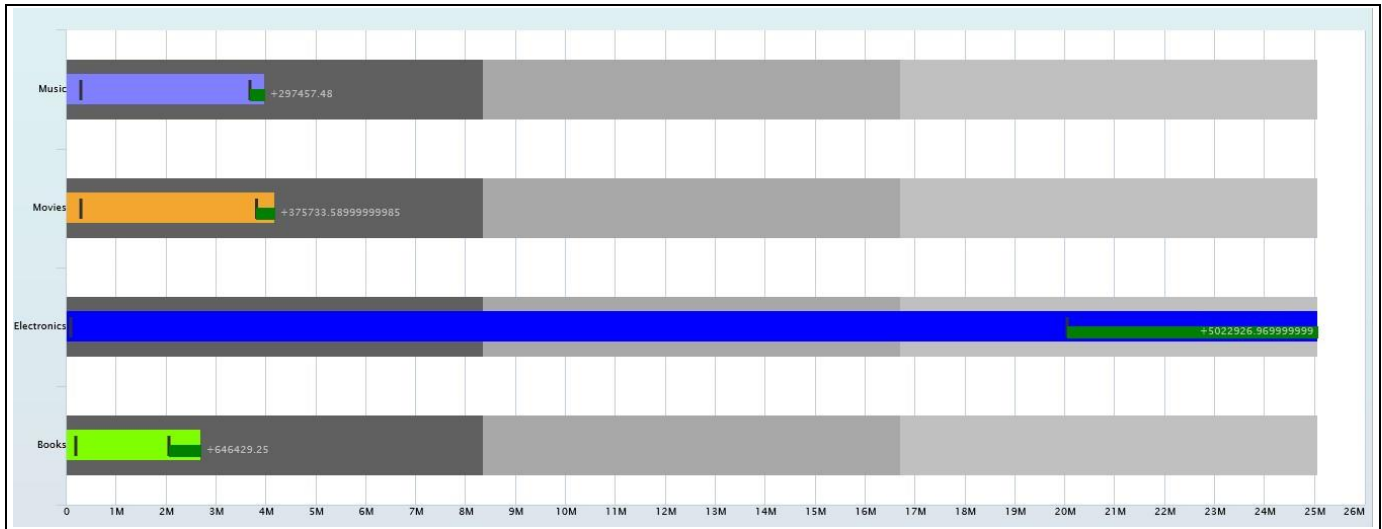


Figure 4.382: Bullet Chart with Deviation Bar

4.17.3.1 Data Source Requirements for a Bullet Chart

The minimum requirements for the data source for a Bullet Chart is a data source with at least one dimension and two measures. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Bullet Chart.

You can follow these rules in regards to the data structure for a Bullet Chart:

- Dimensions in the Rows will be used to generate a Bullet Chart per element in the Rows.
- You will need at least two measures for the Performance Measure as well as for at least one Qualitative Range measure.
- All three Qualitative Ranges can be based on measure values or you can base them on a percentage value calculation based on a single measure value.

4.17.3.2 How to use the Bullet Chart?

In the following steps we will outline how you can setup a new Bullet Chart. For our example we will assume that we have a data source with the following elements:

- Dimension Product in the Rows
- Measure Net Value in the Columns
- Measure Profit in the Columns
- Measure Cost in the Columns

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Bullet Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Bullet Chart.

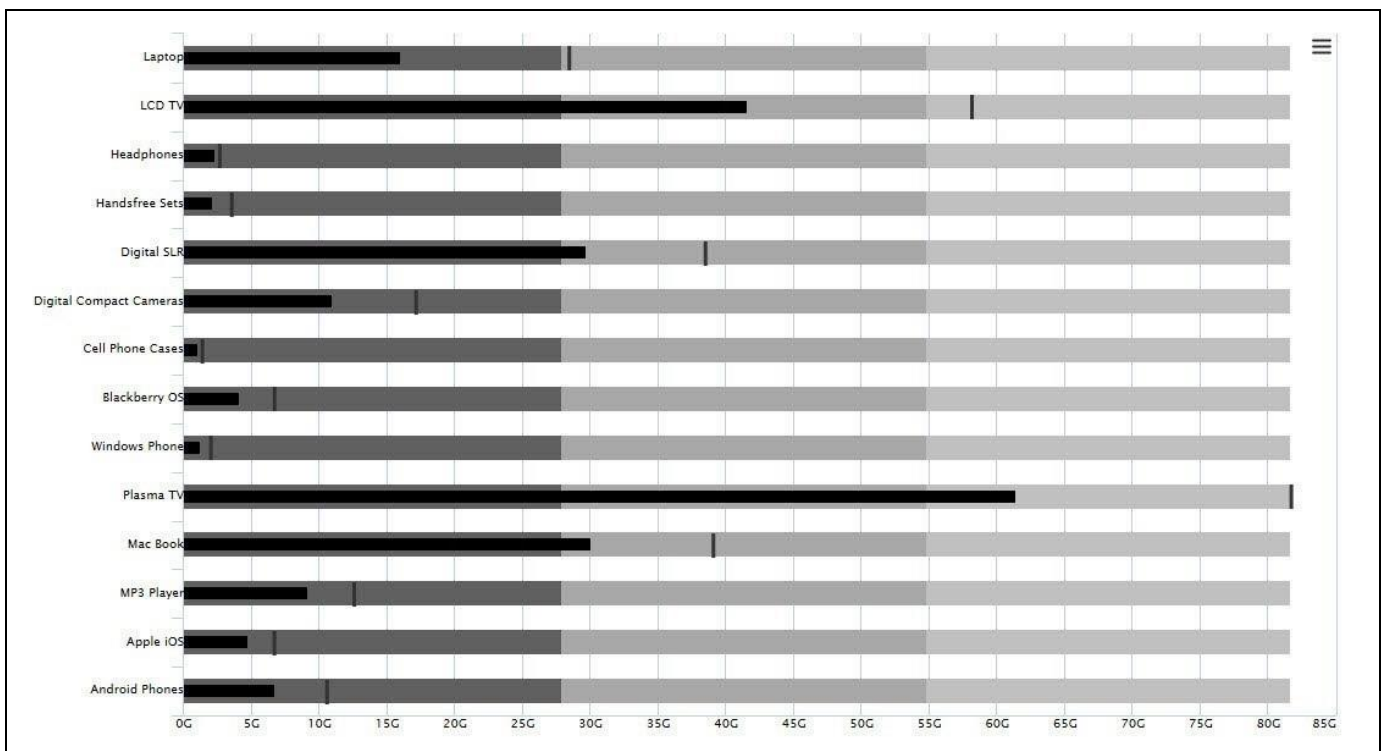


Figure 4.383: Bullet Chart

5. Navigate to the Additional Properties of the Bullet Chart.
6. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the Additional Properties.
7. In the Additional Properties navigate to the category Appearance and to the sub category Chart (see Figure 4.384).

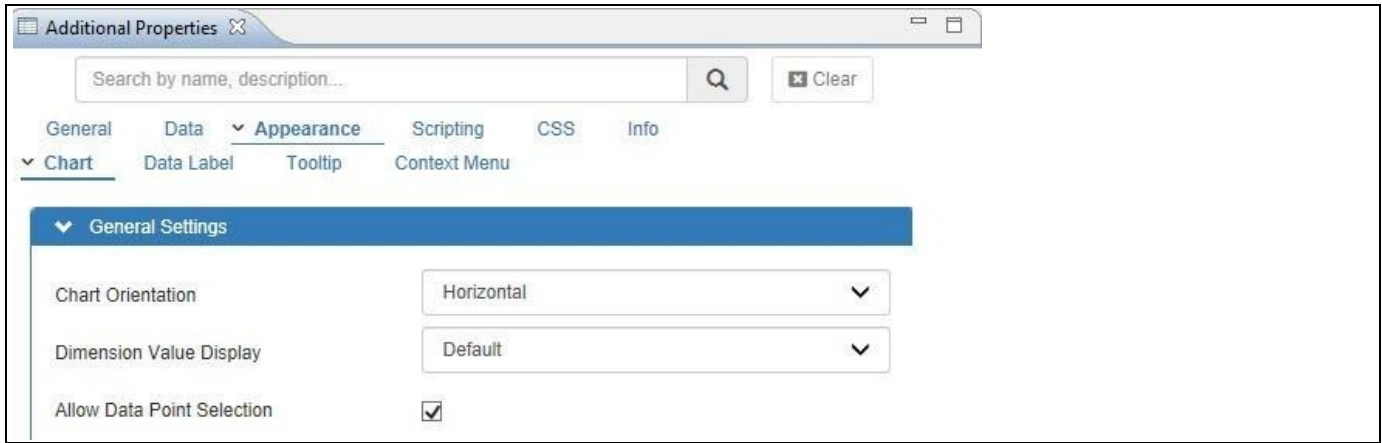


Figure 4.384: Category Appearance

8. In the area General Settings you can configure if you would like to see a Horizontal or a Vertical oriented Bullet Chart.
9. Now navigate to the category Data and to the sub category Data Series (see Figure 4.385).

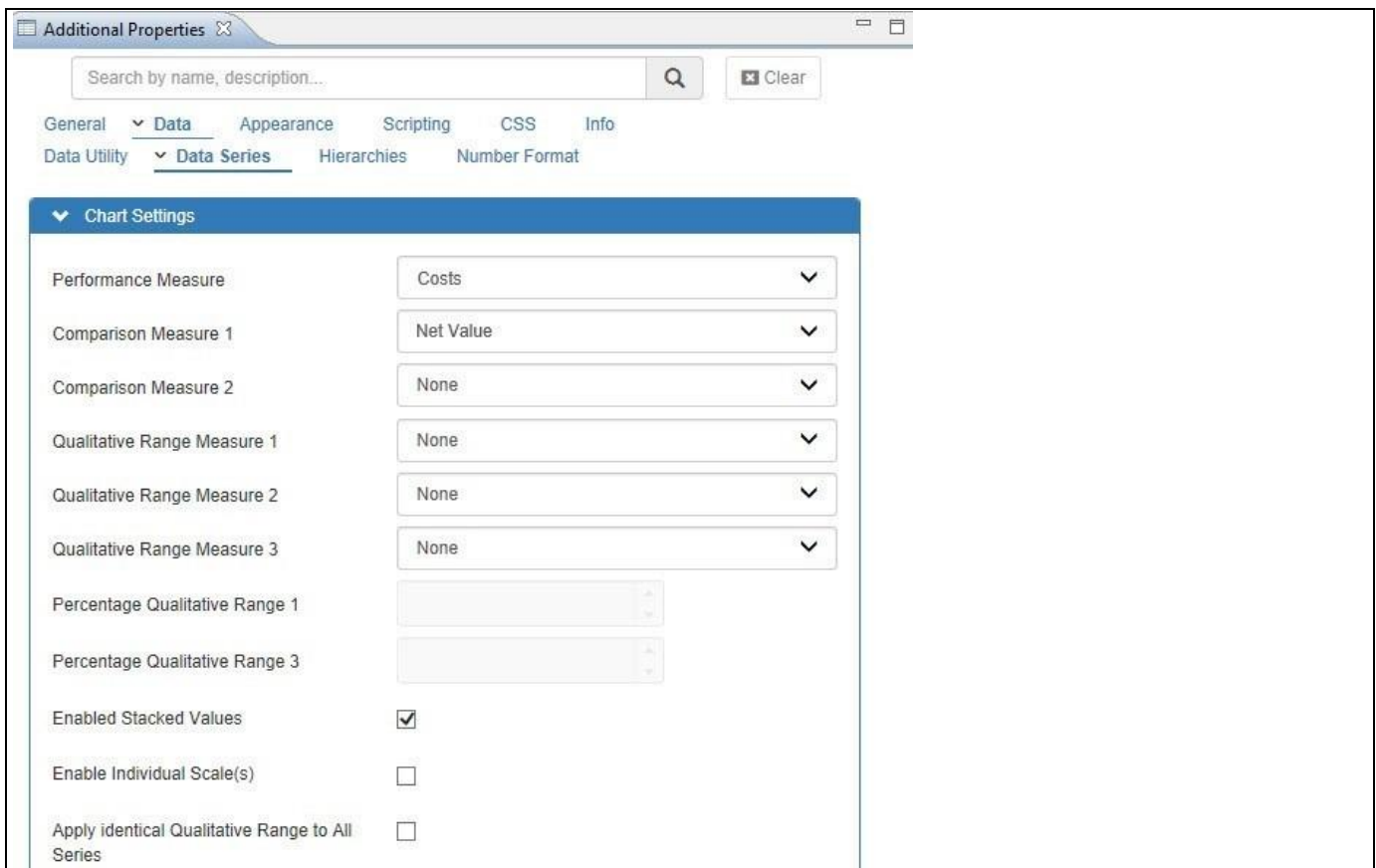


Figure 4.385: Category Data

10. In the area General Settings you can configure the following properties:
 - Performance Measure: Here you can assign the measure that will be used as Performance Measure.
 - Comparison Measure 1: Here you can assign the measure that will be used as first comparison value.
 - Comparison Measure 2: Here you can assign the measure that will be used as second comparison value.

- Qualitative Range Measure 1: Here you can assign the measure that will be used end value for the first Qualitative Range.
- Qualitative Range Measure 2: Here you can assign the measure that will be used end value for the second Qualitative Range.
- Qualitative Range Measure 3: Here you can assign the measure that will be used end value for the third Qualitative Range.
- Percentage Qualitative Range 1: This option allows to enter a percentage value for the calculation of the Qualitative Range 1 based on a single measure.
- Percentage Qualitative Range 3: This option allows to enter a percentage value for the calculation of the Qualitative Range 3 based on a single measure.

11. You have three options to define the Qualitative Ranges for the Bullet Chart:

- Option 1: You use the three settings and assign three individual measures to each of the Qualitative Ranges. This option allows to leverage measures from the data source and therefore the ranges stay dynamic.
- Option 2: You use the individual sliders in the Qualitative Ranges area of the category Data (see Figure 4.386). This option allows you to define Qualitative Ranges for each dimension member.
- Option 3: You assign one measure to the Qualitative Ranges and use percentage values for the other two Qualitative Ranges.

Example for Option 3:

If "Measure 1" is specified for the Qualitative Range 2, and 40 % is being entered as value for the Percentage Qualitative Range 1 and 70 % is being entered as value for the for Percentage Qualitative Range 3, then the Qualitative Ranges 1 and 3 will be calculated based on the value of "Measure 1" and the assigned percentage values.



Figure 4.386: Qualitative Ranges

4.17.4 Additional Properties of the Bullet Chart

In section 4.5.6 we discussed the common set of Additional Properties for all charts and in section 4.5.6.1 we outlined the Additional Properties for the X-Axis and the Y-Axis. In this section we will outline the Additional Properties that are specific to the Bullet Chart.

4.17.4.1 Category Data

Sub category	Area	Property	Description
Data Series	Chart Settings	Performance Measure	Here you can assign the measure that will be used as Performance value in the Bullet Chart.
		Comparison Measure 1	Here you can assign the measure that will be used as first Comparison Measure.
		Comparison Measure 2	Here you can assign the measure that will be used as second Comparison Measure.
		Qualitative Range Measure 1	Here you can set the measure that will be used as end value for the Qualitative Range 1.
		Qualitative Range Measure 2	Here you can set the measure that will be used as end value for the Qualitative Range 2.
		Qualitative Range Measure 3	Here you can set the measure that will be used as end value for the Qualitative Range 3.
		Percentage Qualitative Range 1	Here you can set the percentage value that will be used to calculate the end value for the Qualitative Range 1.
		Percentage Qualitative Range 3	Here you can set the percentage value that will be used to calculate the end value for the Qualitative Range 3.
		Enabled Stacked Values	Here you can set the property if Qualitative Measures should be stacked.
		Enable Individual Scale(s)	Here you can set the property if individual Scale is needed for each Bullet.
		Apply identical Qualitative Range to All Series	This property allows you to enable / disable a single color for all data series member.
		Set Y-Axis minimum to Qualitative Measure-1 start	This property should be disabled if value less than Qualitative Measure-1 Start should be plotted.
		Qualitative Range	Here you can define the Qualitative Range for each individual dimension member.
	Deviation Display	Enable Deviation Display	This property allows you to enable / disable the Deviation Display for the Bullet Chart.
		Comparison Value	Here you can set the Comparison

Sub category	Area	Property	Description
Number Format			Measure.
		Positive Deviation Description	Here you can set the description for the Positive Deviation based on Business Requirements. The options are Good and Bad.
		Thousand Separator	Here you can set the Thousand Separator.
		Decimal Separator	Here you can set the Decimal Separator.
		Show Unit / Currency	This property allows to enable / disable the display of the configured Unit / Currency.
		Enable Scaling Factor	This property allows to enable / disable the display of the configured Scaling Factor.
		Scaling Factor for Performance Measure	This property allows to define the scaling factor for the Performance Measure.
		Scaling Factor for Comparison Measure - 1	This property allows to define the scaling factor for the Comparison Measure 1.
		Scaling Factor for Comparison Measure - 2	This property allows to define the scaling factor for the Comparison Measure 2.
		Scaling Factor for Qualitative Ranges	This property allows to define the scaling factor for the Comparison Measure 3.

Table 4.76: Data

4.17.4.2 Appearance

Sub category	Area	Property	Description
Chart	General Settings	Performance Measure Height	Here you can set the Height for the Performance Measure bar.
		Qualitative Range Height	Here you can set the Height for the Qualitative Ranges.
		Comparison Measure-1 Line Width	Set the Line Width for Comparison Measure 1.
		Comparison Measure-1 Line Height	Set the Line Height for Comparison Measure 1.
		Comparison Measure-1 Line Color	Set the Line Color for Comparison Measure 1.
		Comparison Measure-2 Line Width	Set the Line Width for Comparison Measure 2.
		Comparison Measure-2 Line Height	Set the Line Height for Comparison Measure 2.
		Comparison Measure-	Set the Line Color for Comparison

Sub category	Area	Property	Description
		2 Line Color	Measure 2.
		Qualitative Range 1 Color	Here you can set the color for Qualitative Range 1.
		Qualitative Range 2 Color	Here you can set the color for Qualitative Range 2.
		Qualitative Range 3 Color	Here you can set the color for Qualitative Range 3.
	Deviation Display	Show Deviation for	Here you can set the Deviation Bar for the Bullet Chart. The options are Positive, Negative and Both.
		Positive Color	Here you can set the color for the Positive Deviation.
		Negative Color	Here you can set the color for the Negative Deviation.
		Point Range	Here you can set the width of the Deviation Bar.
		Enable Data Label	This property allows you to enable / disable the display of Data Labels for the Deviation Bar showing the difference values.
		Numeric Display	Here you can set the positive and negative symbol for the Deviation Bar
Legend	Appearance	Enable Legend	This property allows you to enable / disable the Legend.

Table 4.77: Appearance

4.17.5 Scripting Functions for the Bullet Chart

In addition to the scripting functions listed in in section 4.6, the Bullet Chart supports the following scripting functions.

Function / Method	Description
DSXsetQualitativeRange()	This function allows to set the Qualitative Range for specific dimension members.
DSXGetStackedValues()	The function allows you to retrieve the Stacked values.
DSXGetIndividualScale()	The function allows you to retrieve the value of Individual Scale.
DSXSetStackedValues()	The function allows you to set the Stacked values.
DSXSetIndividualScale()	The function allows you to set the value of Individual Scale.
DSXsetQualitativeRangeConfiguration()	The function allows you to set the Qualitative Range Configuration for a Member.

Table 4.78: Scripting Functions

4.17.6 Fixed Column Chart

The Fixed Column Chart (see Figure 4.387) allows you to place measure values on top of each other – similar to a Bullet Chart shows a Performance Measure and the Qualitative Ranges in the background.

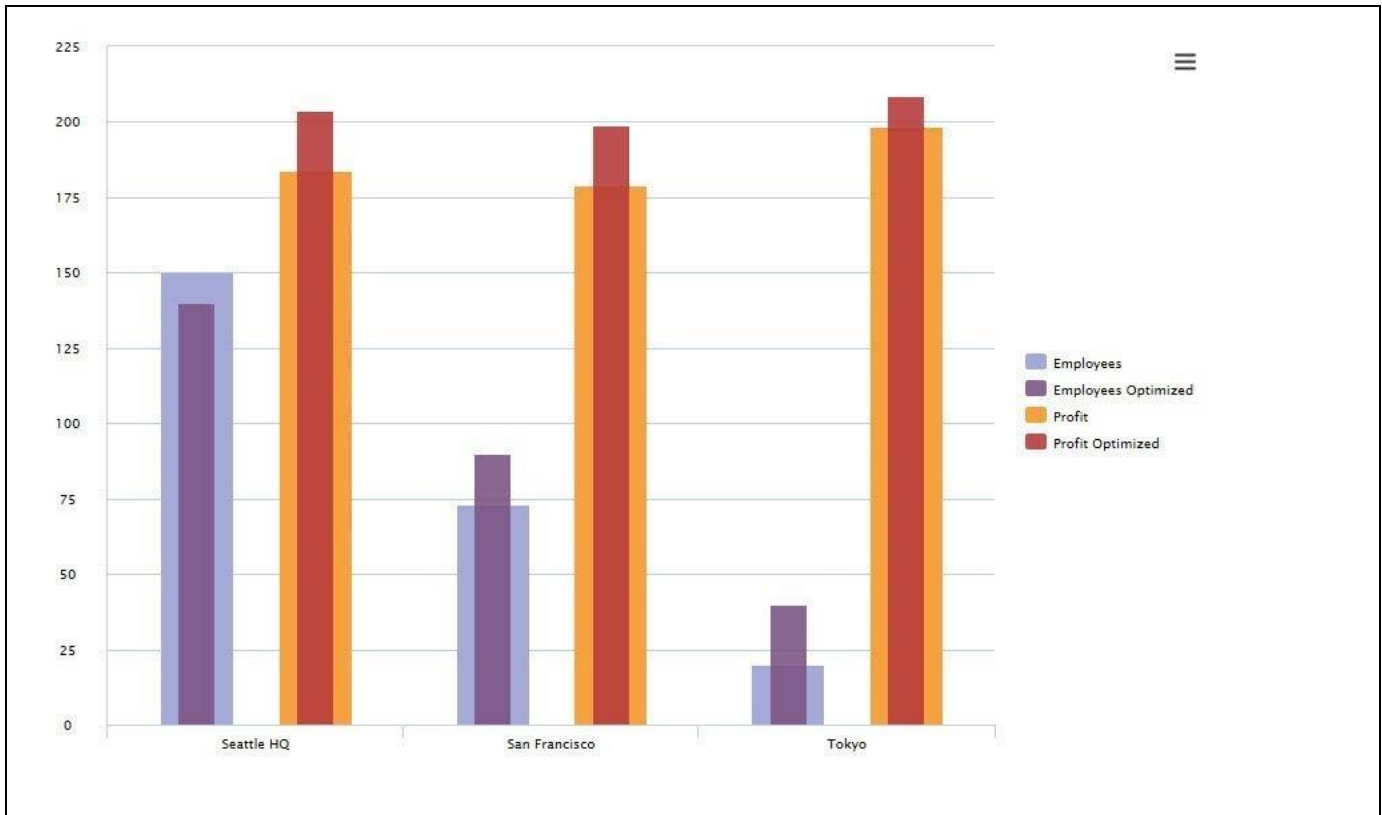


Figure 4.387: Fixed Column Placement Chart

Figure 4.387 shows a Fixed Column Chart visualizing four measures for three categories and two measures are always placed together.

4.17.6.1 Data Source Requirements for a Fixed Column Chart

The minimum requirements for the data source for a Fixed Column Chart is a data source with at least one dimension in the Rows and two measures in the Columns. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Fixed Column Chart.

You can follow these rules in regards to the data structure for a Fixed Column Chart:

- The first measure in the Columns will be placed into the background and will be visualized by the wider bar / column.
- The second measure in the Columns will be placed into the front of the first measure and will be visualized by the thinner bar / column inside of the bar / column of the first measure.

4.17.6.2 How to use the Fixed Column Chart?

In the following steps we will outline how you can setup a new Fixed Column Chart. For our example we will assume that we have a data source with the following elements:

- Dimension Product in the Rows
- Measure Net Value in the Columns
- Measure Profit in the Columns
- Measure Cost in the Columns

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Fixed Column Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the chart.

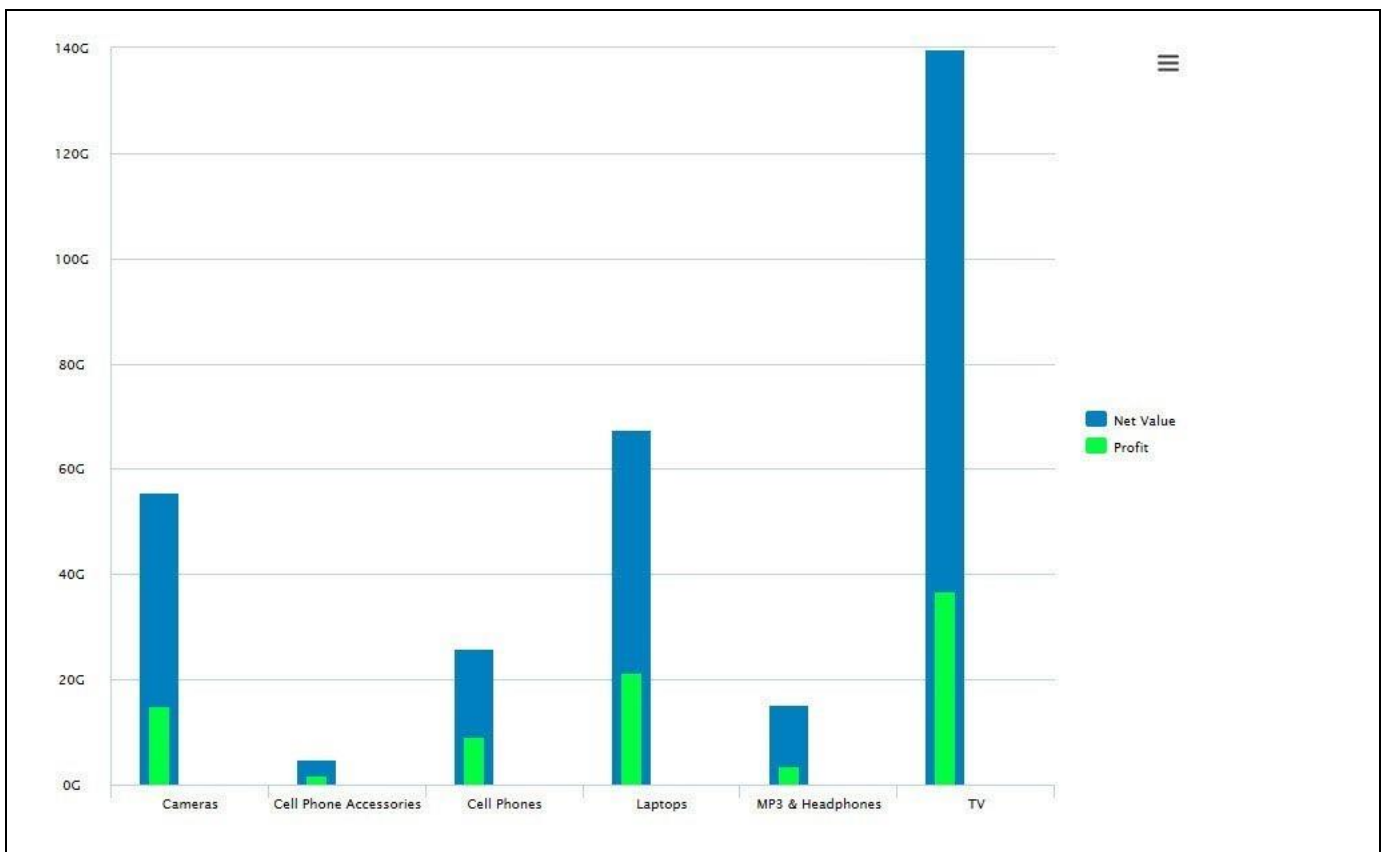


Figure 4.388: Fixed Column Chart

5. The chart will use the first measure in the column and display it as the column in the back – in our example Net Value – and the second measure will be placed inside – in our example Profit (see Figure 4.388).

4.17.7 Additional Properties of the Fixed Column Chart

In section 4.5.6 we discussed the common set of Additional Properties for all charts and in section 4.5.6.1 we outlined the Additional Properties for the X-Axis and the Y-Axis. In this section we will outline the Additional Properties that are specific to the Fixed Column Chart.

4.17.7.1 Category Appearance

Sub category	Area	Property	Description
Chart	Fixed Columns	Inner Point Padding	This property allows to configure the padding between the Inner columns.
		Outer Point Padding	This property allows to configure the padding between the Outer columns.
		Inner Point Width	This property allows to configure the placement of the Inner Column. The value 0 means it will be placed on the axis and negative values will place the column between the axis value and the previous column and positive values will place the column between the axis value and the next column.
		Outer Point Width	This property allows to configure the placement of the Outer Column. The value 0 means it will be placed on the axis and negative values will place the column between the axis value and the previous column and positive values will place the column between the axis value and the next column.

Table 4.79: Appearance

4.17.8 Scripting Functions for the Fixed Column Chart

All supported scripting functions for the Fixed Column Chart are listed as part of the common scripting functions for charts listed in section 4.6.

4.17.9 Box Plot Chart

A box plot chart is a standardized and convenient way of displaying the distribution of data based on their quartiles: minimum, first quartile, median, third quartile, and maximum (see Figure 4.389).

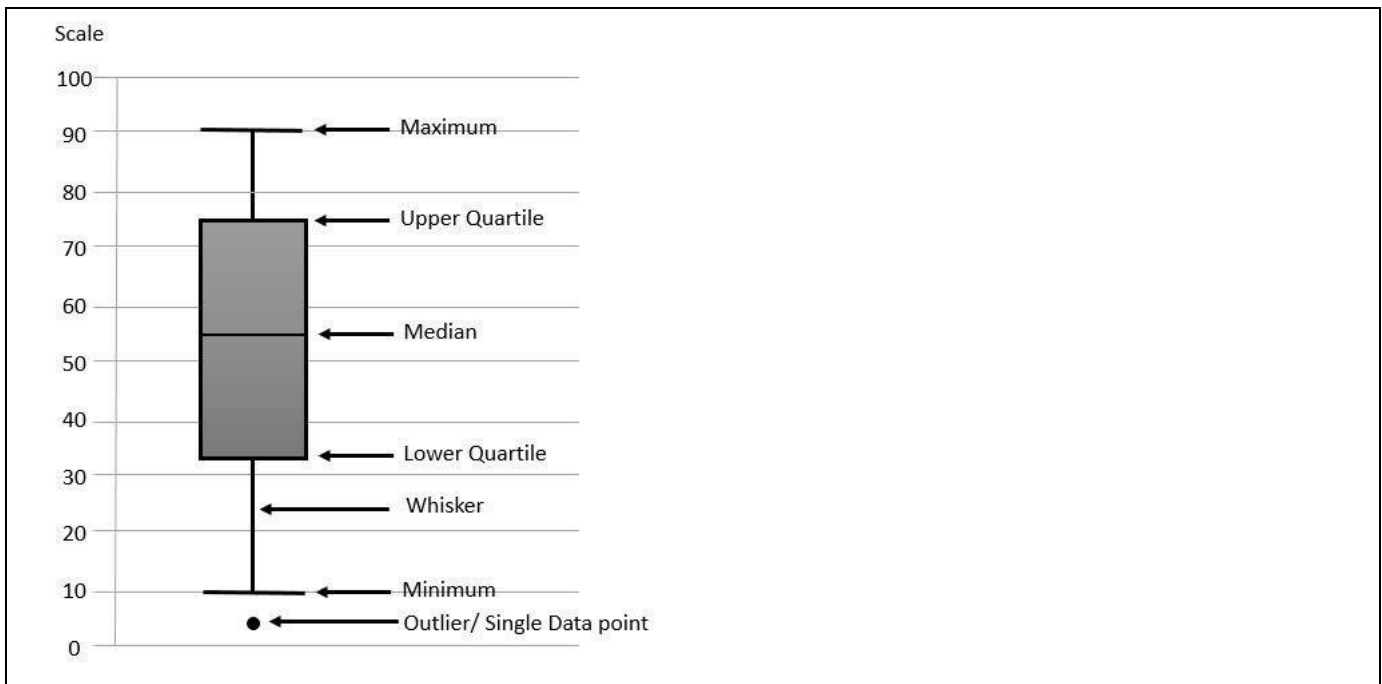


Figure 4.389: Box Plot Chart Metrics

4.17.9.1 Data Source Requirements for a Box Plot Chart

The Box Plot Chart has two main options to leverage the information from the assigned data source.

- You can decide to assign the data source and let the chart calculate the different values - such as the lower quartile, median, and upper quartile – based on all measures in the assigned data source.
- You can assign individual measures from the data source to each of the needed values for a Box Plot chart.
-

Navigate to the category Data and to the sub category Data Series of the Additional Properties for the Box Plot Chart. In the area Chart Settings you can find the area Assign Measures manually (see Figure 4.390).

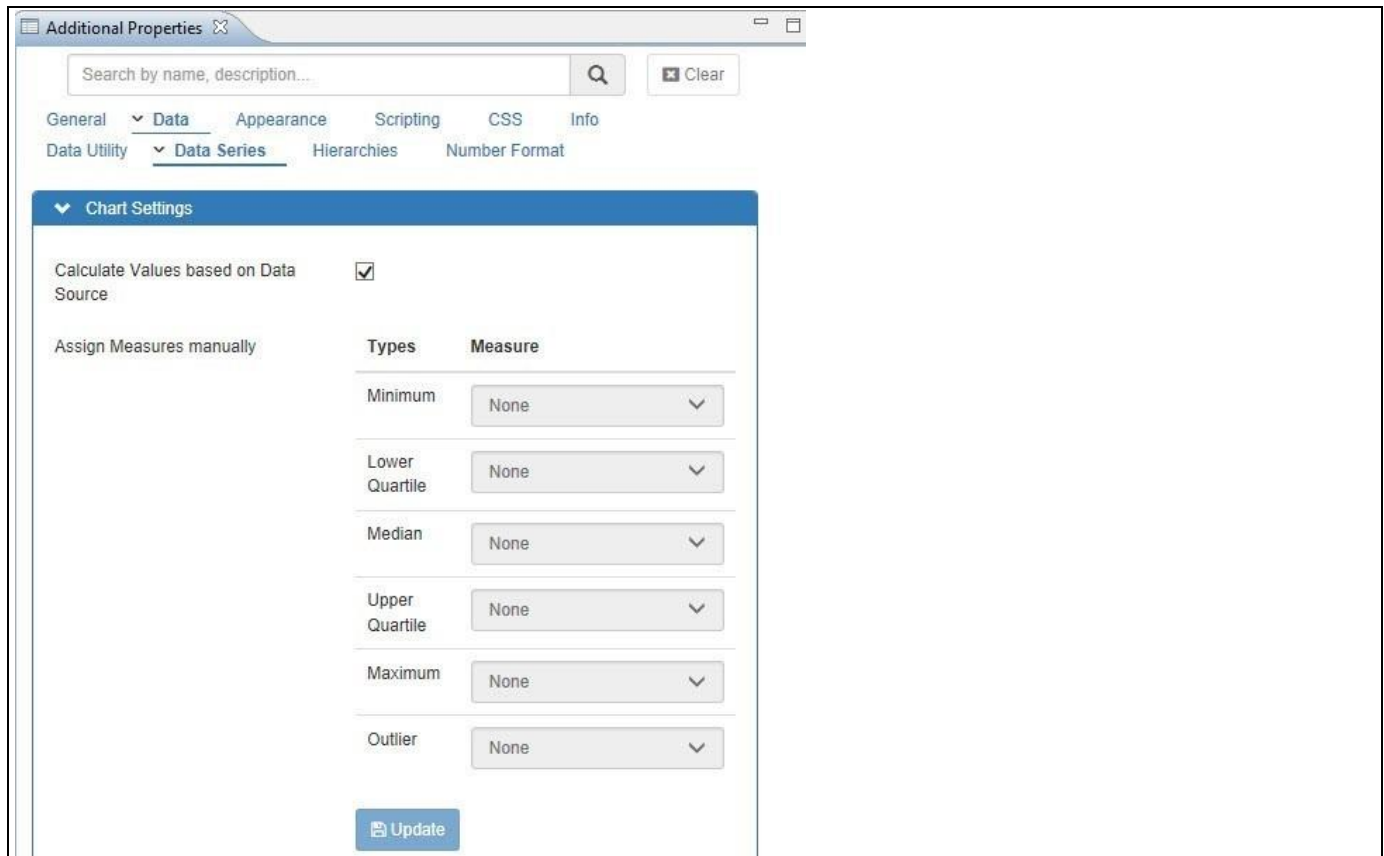


Figure 4.390: Category Data

Figure 4.390 shows the option to calculate the values as part of the chart by activating the option Calculate Values based on Data Source, or to assign measures from the data source to each of the necessary values for the Box Plot Chart.

4.17.9.2 How to use the Box Plot Chart?

In the following steps we will outline how you can setup a new Box Plot Chart. For our example we will assume that we have a data source with the following elements:

- Dimension with six members in the Rows
- 24 Measures representing measurement values per dimension member

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project similar to the description outlined previously.
3. Add a Box Plot Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the chart (see Figure 4.391).

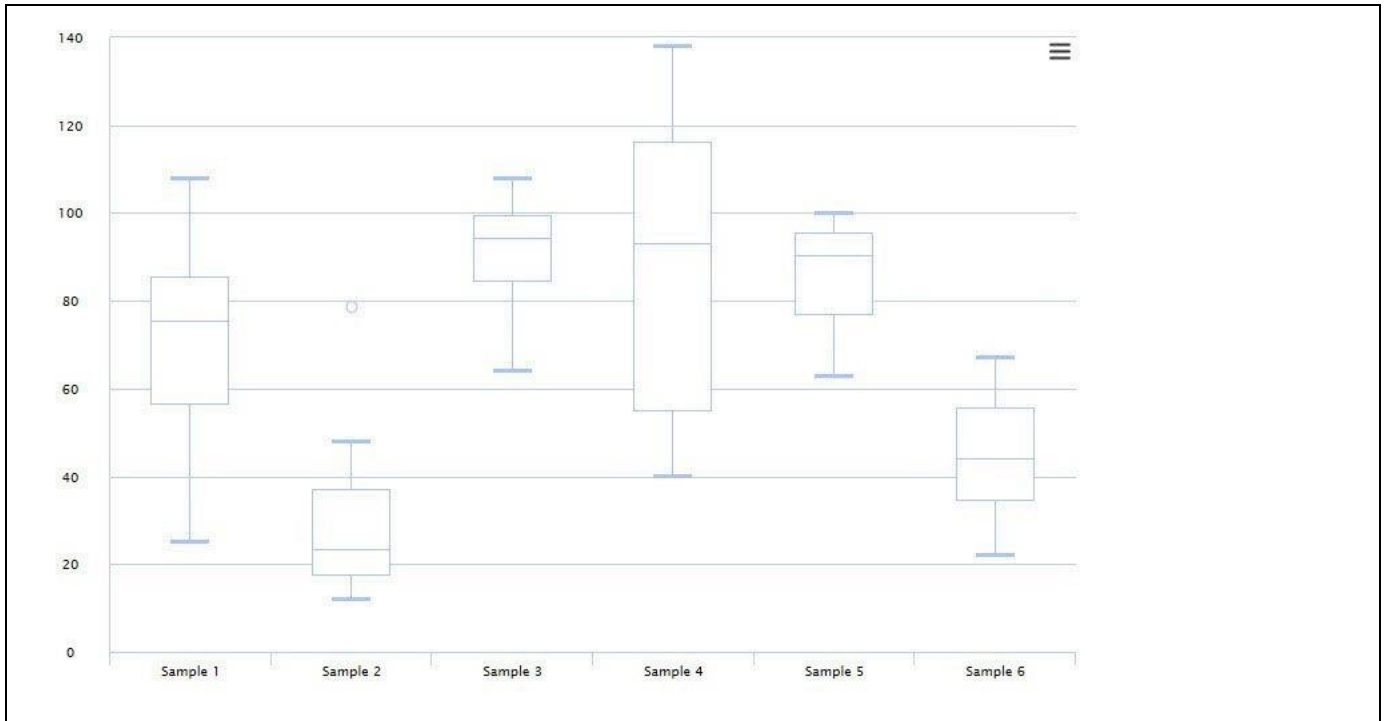


Figure 4.391: Box Plot Chart

5. By default, the Box Plot Chart will leverage all the data and calculate the values for the chart – as shown in Figure 4.391.
6. Navigate to the Additional Properties of the Box Plot Chart.
7. In case the Additional Properties are not shown, use the menu View • Additional Properties to activate the Additional Properties.
8. In the Additional Properties navigate to the category Appearance and to the sub category Chart (see Figure 4.392).

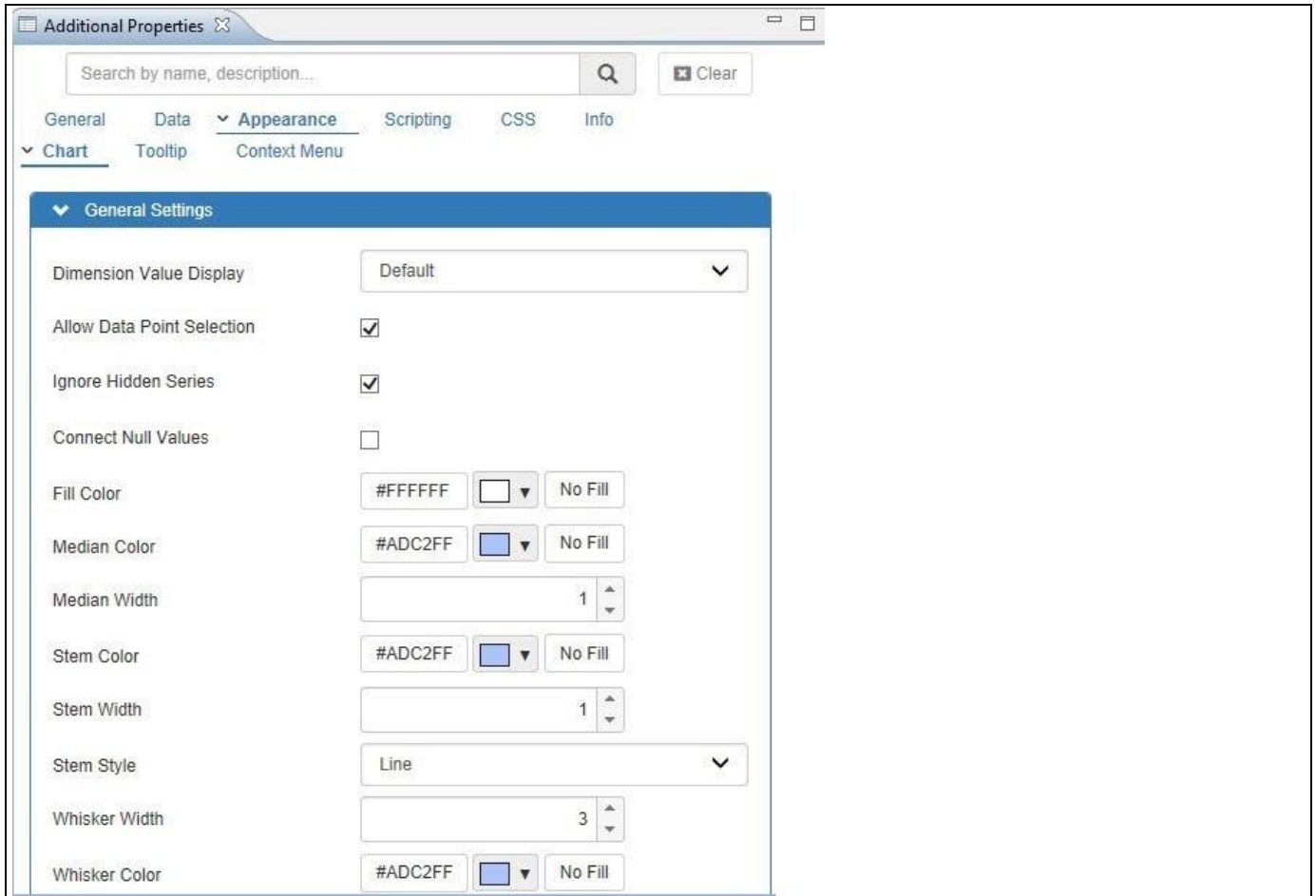


Figure 4.392: Category Data

9. In the area General Settings you can configure the color assignment for the different parts of the Box Plot chart.
10. Now navigate to the category Data and to the sub category Data Series of the Additional Properties for the Box Plot Chart (Figure 4.393). In the area Chart Settings you can find the area Assign Measures manually.

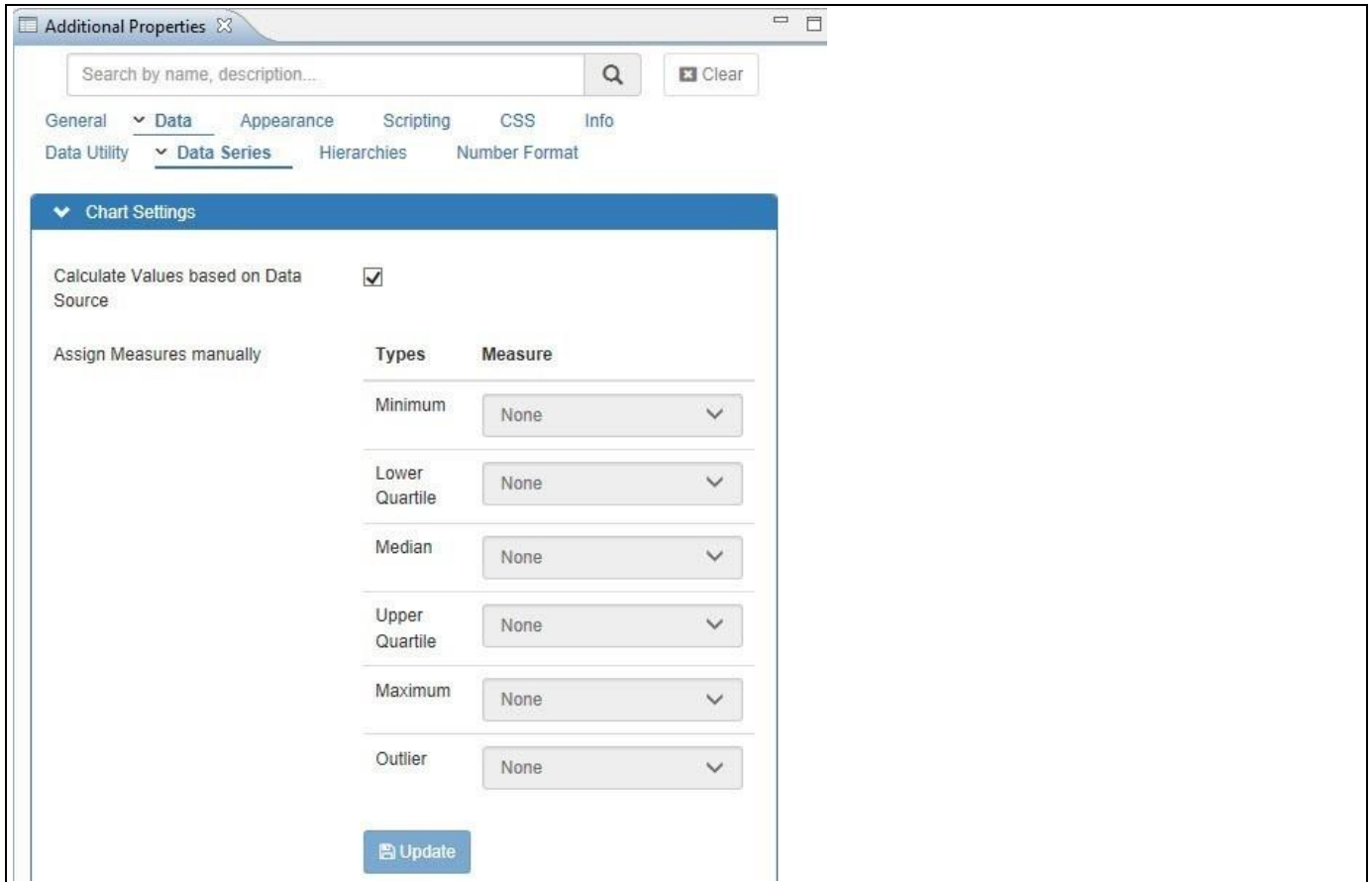


Figure 4.393: Box Plot Measure Assignment

- Here you can decide if the Box Plot Chart should calculate the values based on the data source by enabling the option Calculate Values based on Data Source, or you can assign individual measures to the different parts of a Box Plot Chart.

4.17.10 Additional Properties of the Box Plot Chart

In addition to the properties outlined in section 4.5.6 and in section 4.5.6.1 the Box Plot Chart supports the properties in the sections below.

4.17.10.1 Category Data

Sub category	Area	Property	Description
Data Series	Chart Settings	Calculate Values based on Data Source	When enabled, then the chart will use all the available measure values from the data source and calculate the values for the Box Plot Chart.
	Assign Measures manually	Minimum	Allows you to assign an individual measure to the Minimum value of the Box Plot Chart.
		Lower Quartile	Allows you to assign an individual measure to the Lower Quartile value of the Box Plot Chart.
		Median	Allows you to assign an individual measure to the Median value of the Box Plot Chart.
		Upper Quartile	Allows you to assign an individual measure to the Upper Quartile value of the Box Plot Chart.
		Maximum	Allows you to assign an individual measure to the Maximum value of the Box Plot Chart.
		Outlier	Allows you to assign an individual measure to the Outlier value of the Box Plot Chart.

Table 4.80: Data

4.17.10.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Fill Color	Allows to set the Box Plot Fill Color.
		Median Color	Allows to set the color for Box Plot Median Line.
		Median Width	This property allows you to specify the Line Width for the Median Value.
		Stem Color	Allows to set the Box Plot Stem Color.
		Stem Width	This property allows you to specify the Stem Line Width.
		Stem Style	This property allows to specify the style for the Stem Line.
		Whisker Width	This property allows you to specify the

Sub category	Area	Property	Description
			Whisker Line Width.
		Whisker Color	Allows to set the Box Plot Whisker Color.
		Outlier Color	Allows to set the Color for the Box Plot Outlier.

Table 4.81: Appearance

4.17.11 Scripting Functions for the Box Plot Chart

In addition to the scripting functions listed in in section 4.6, the Box Plot Chart supports the following scripting functions.

Function / Method	Description
DSXGetDashStyle()	This function allows you to retrieve the Dash Style.
DSXSetDashStyle()	This function allows you to set the Dash Style.

Table 4.82: Scripting Functions

4.18 Sankey Chart

4.18.1 Sankey Chart – Overview

Sankey Chart is a visualization used to depict a flow from one set of values to another. The things being connected are called nodes otherwise named as “dimensions” and the connections are called links otherwise named as “measures”. Sankey charts are typically used to visualize energy or material or cost transfers between processes.

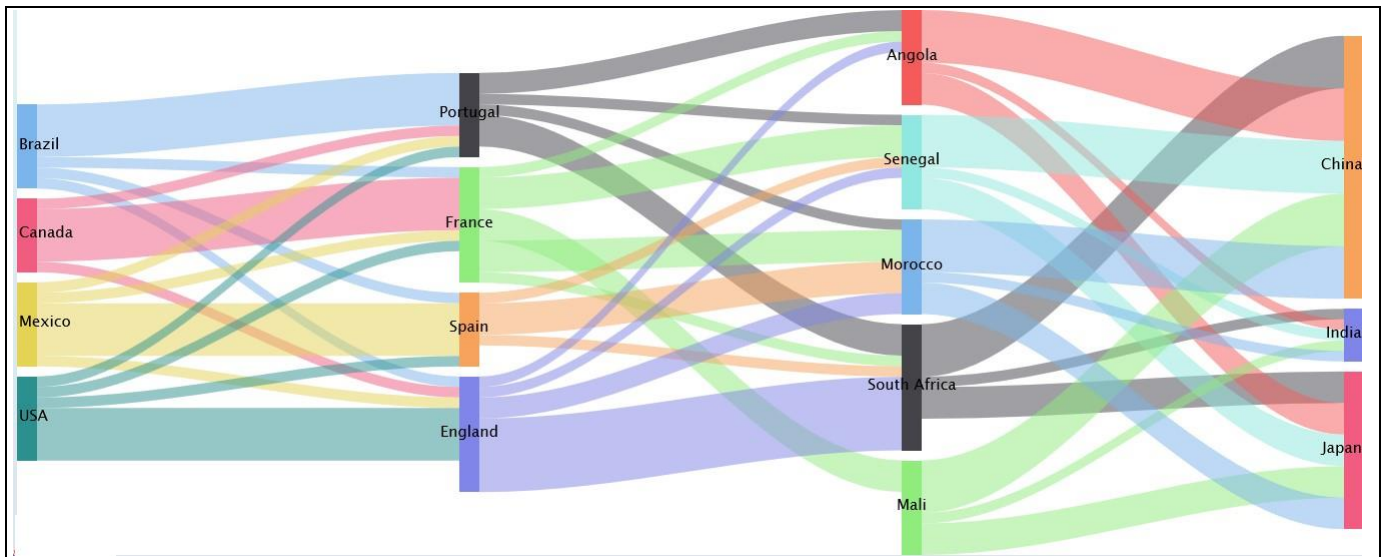


Figure 4.394: Sample Sankey Chart

4.18.1.1 Data Source Requirements for a Sankey Chart

The mandatory data source requirement for a Sankey Chart are two dimensions and one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Sankey Chart.

4.18.1.2 How to use the Sankey Chart?

In the following steps we will outline how you can setup a new Sankey Chart in your next SAP BusinessObjects Design Studio/SAP Lumira Designer project. For these steps we assume we have a data source, similar to the Table shown below.

From Warehouse	To Warehouse	Materials Count
Warehouse A	Warehouse B	500
Warehouse A	Warehouse C	250
Warehouse B	Warehouse C	700
Warehouse B	Warehouse D	350
Warehouse C	Warehouse E	315
Warehouse C	Warehouse F	320

Table 4.83: Sample Data

You can follow the steps below to configure the Sankey Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows one measure – Materials Count and two Dimensions – From Warehouse and To Warehouse.
3. Add a Sankey Chart from the VBX Charts to your SAP BusinessObjects Design Studio /SAP Lumira Designer project.
4. Assign the data source to the Sankey Chart.
5. The Sankey Chart will plot the information from the assigned data source (see Figure 4.395).

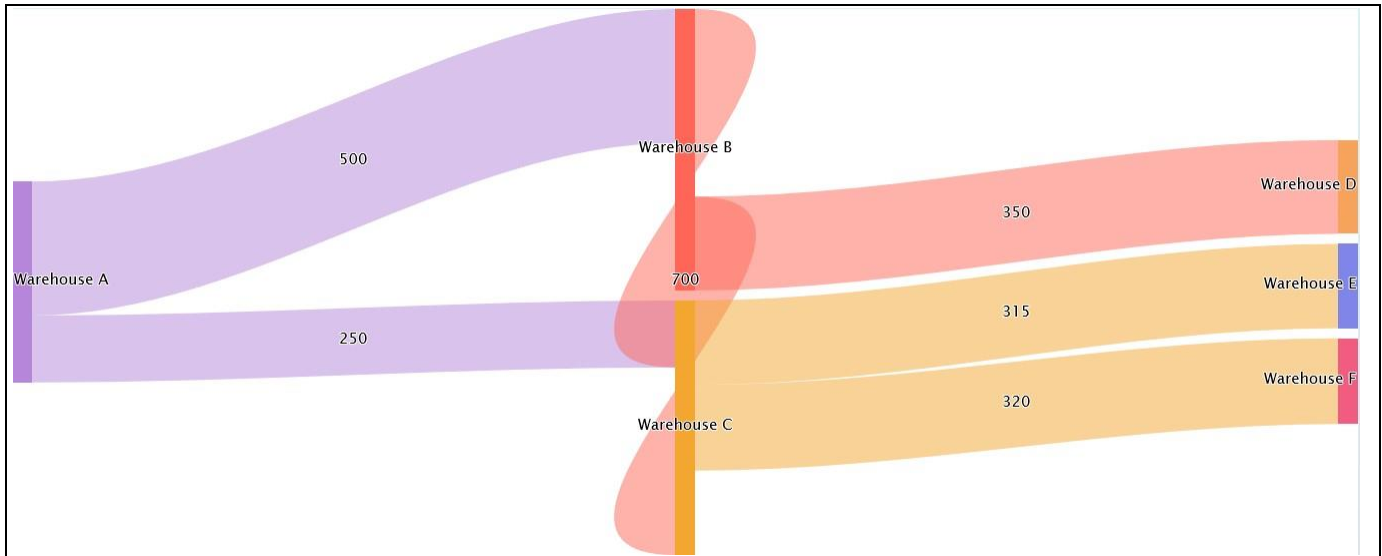


Figure 4.395: Sankey Chart

Figure 4.395 shows the basic Sankey Chart for one measure and two dimensions. Here you can observe that the nodes represent the dimensions - From Warehouse and To Warehouse and the links represent the measure - Materials Count. You can use now the Additional Properties to customize the layout and look and feel.

4.18.2 Additional Properties of Sankey Chart

The Additional Properties of the Sankey Chart are shown as part of the common set of Additional Properties in section 4.5.

4.18.3 Scripting Functions for Sankey Chart

All supported scripting functions for the Sankey Chart are listed as part of the common scripting functions for charts listed in section 4.6.

4.19 Parallel Coordinates Chart

4.19.1 Parallel Coordinates Chart – Overview

Parallel Coordinates Chart is used to visualize and compare a set of data points that are defined in multiple dimensions and measures where each dimension and measure has its own axis.

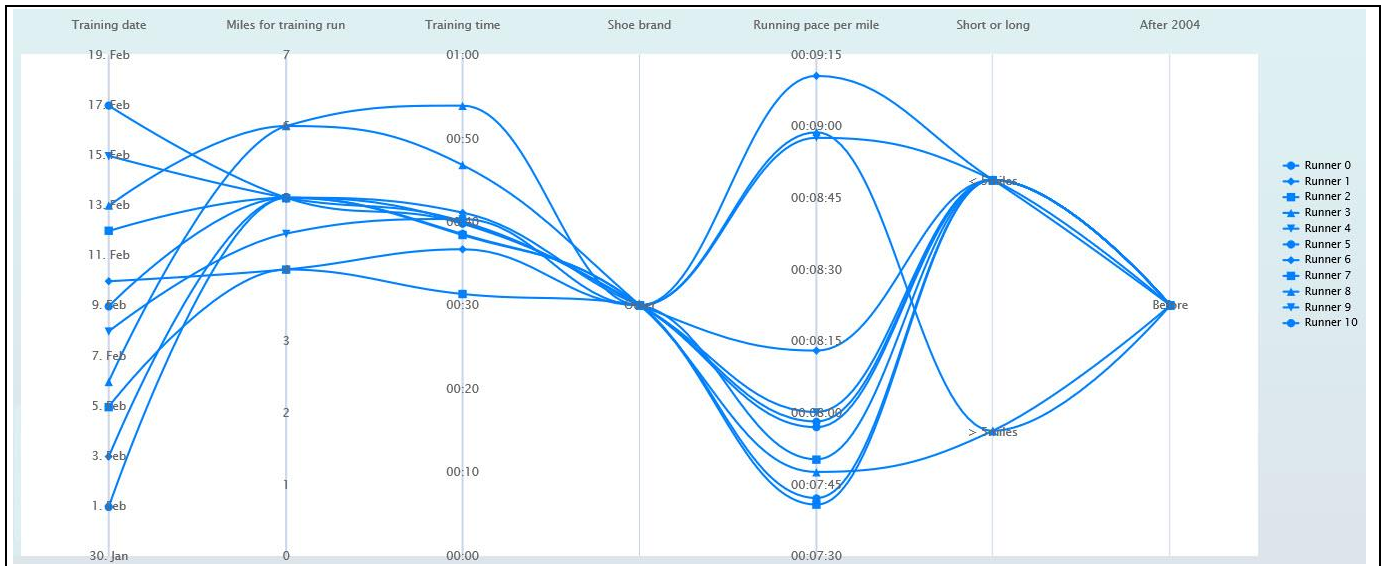


Figure 4.396: Sample Parallel Coordinates Chart

4.19.1.1 Data Source Requirements for a Parallel Coordinates Chart

The possible combination of measures and dimensions as part of data source requirement for a Parallel Coordinates Chart is listed below:

Measures	Dimensions
Single	Single
Multiple	--
--	Multiple
Multiple	Multiple

Table 4.84: Combination of Measures and Dimensions

In case the data source does contain multiple dimension or additional measures, you can leverage them by navigating to the category Data and to the sub category Data Series in the Additional Properties to specify which information is to be used by the Parallel Coordinates Chart.

4.19.1.2 How to use the Parallel Coordinates Chart?

In the following steps we will outline how you can setup a new Parallel Coordinates Chart in your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

You can follow the steps below to configure the Parallel Coordinates Chart:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows three measures – Order Quantity, Order Amount and Discount Amount, and two Dimensions – Item Category and Item Subcategory.
3. Add a Parallel Coordinates Chart from the VBX Charts to your SAP BusinessObjects Design Studio /SAP Lumira Designer project.
4. Assign the data source to the Parallel Coordinates Chart.
5. The Parallel Coordinates Chart will plot the information from the assigned data source (see Figure 4.397).

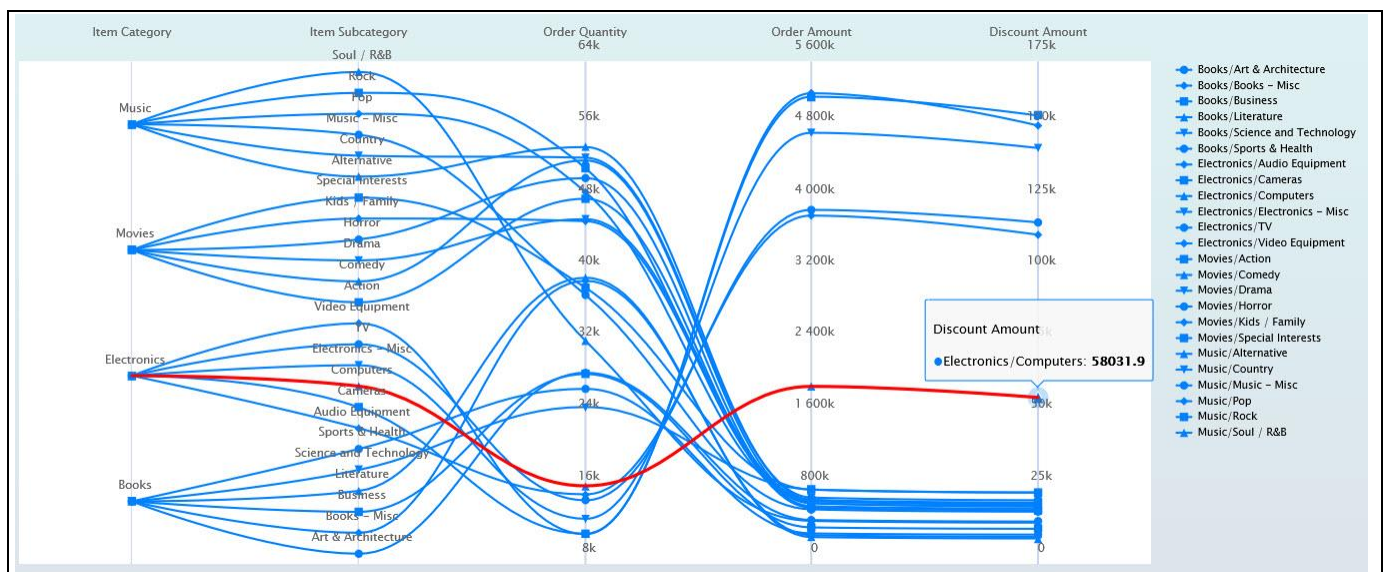


Figure 4.397: Parallel Coordinates Chart

Figure 4.397 shows the basic Parallel Coordinates Chart for three measures and two dimensions. Here you can observe that all the assigned Measures and Dimensions are visualized as separate axis where you can identify each measure value for the respective dimension by simply hovering over the series line (see Figure 4.397). You can use now the Additional Properties to customize the layout and look and feel.

4.19.2 Additional Properties of Parallel Coordinates Chart

In section 4.5.6 we discussed the common set of Additional Properties for all charts and in section 4.5.6.1 we outlined the Additional Properties for the X-Axis and the Y-Axis. In this section we will outline the Additional Properties that are specific to the Parallel Coordinates Chart.

4.19.2.1 Category Data

Below you can see the Additional Properties for the category Data and their descriptions.

Sub category	Area	Property	Description
Data Series	Axis Configuration	Axis Order	This property allows you to configure the Dimensions and Measures and their Axis Order

4.19.2.2 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Series Color	This property allows you to set the color for all the series.
		Series Hover Color	This property allows you to set the color for all the series on hover.

4.19.3 Scripting Functions for Parallel Coordinates Chart

All supported scripting functions for the Parallel Coordinates Chart are listed as part of the common scripting functions for charts listed in section 4.6.

4.20 Chart Selector and Chart Container

The Chart Selector is a run time component where you will be able to select a chart from a defined list of available VBX Charts (see Figure 4.398) and update a Chart Container based on the selection. The Chart Selector is working in combination with the Chart Container component. By using the Chart Selector and Chart Container component, you can switch between different chart types without having to write any scripting code.

The available chart families are:

- Bar / Column Charts
- Line Charts
- Pie Charts
- Combination Charts
- Scatter Charts
- Other Charts



Figure 4.398: Chart Selector

The following steps outline, how you can use the Chart Selector and Chart Container together:

1. Create a new application in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a Chart Selector component from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
3. Add a Chart Container component from the VBX Charts to the dashboard.
4. Now navigate to the category General and to the sub category Chart Selector in the Additional Properties of the Chart Selector (see Figure 4.399).

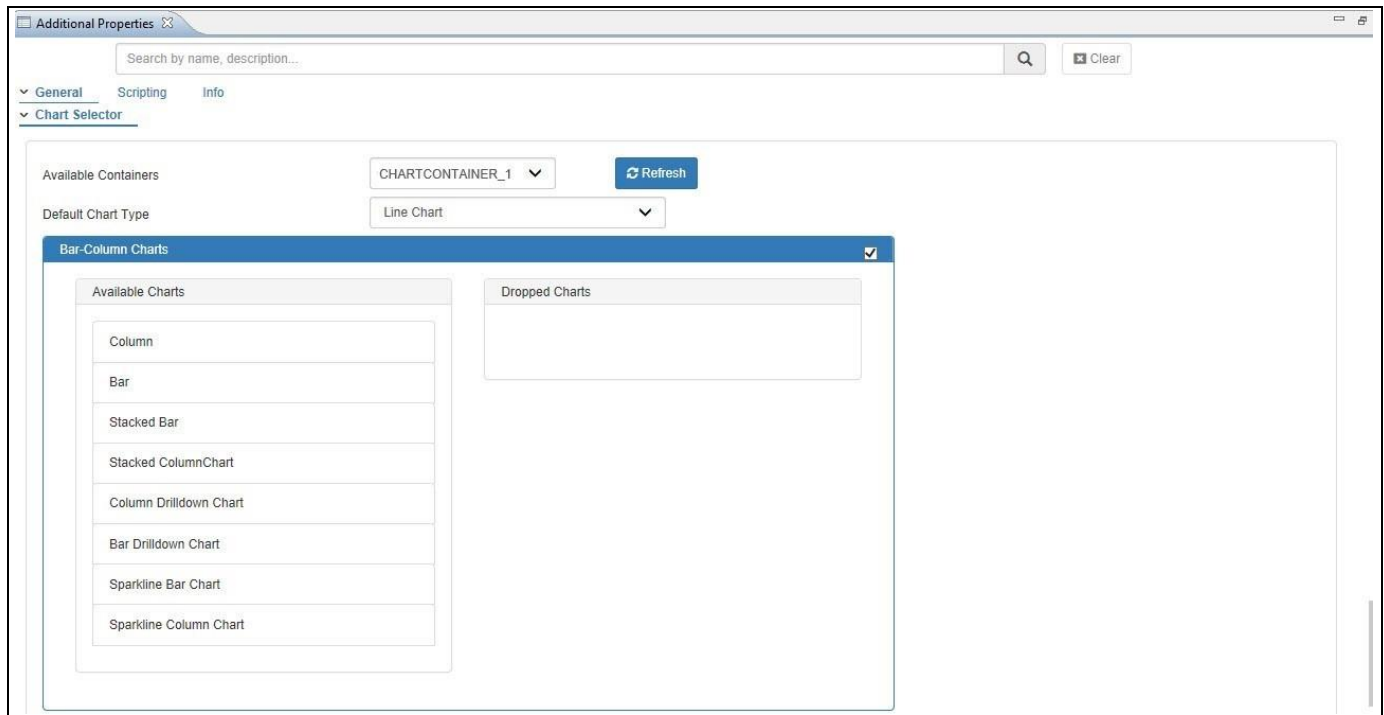


Figure 4.399: Additional Properties

5. In the Additional Properties of the Chart Selector you can configure the following options:
 - **Available Containers:** Here you can select a Chart Container from all the available Chart Container components used in your dashboard. In case the list is shown empty, you can use the Refresh option to update the list
 - **Default Chart Type:** Here you can set the default chart that will be selected when the dashboard is executed.
 - **On Select:** By navigating to the category Scripting you can enable the interaction with the component by writing script. The On Select event is triggered when you select a value in the component.
 - **Chart Configuration:** Here you can select which charts should be available as part of the Chart Selector. You can remove charts with a simple drag and drop navigation by adding charts to the Dropped Charts list on the right hand side. You also have the option to either select or unselect a complete chart family by enabling or disabling the check-box in the header for each chart family.
6. Now navigate to the category Appearance and to the sub category Chart in the Additional Properties of the Chart Container (see Figure 4.400).

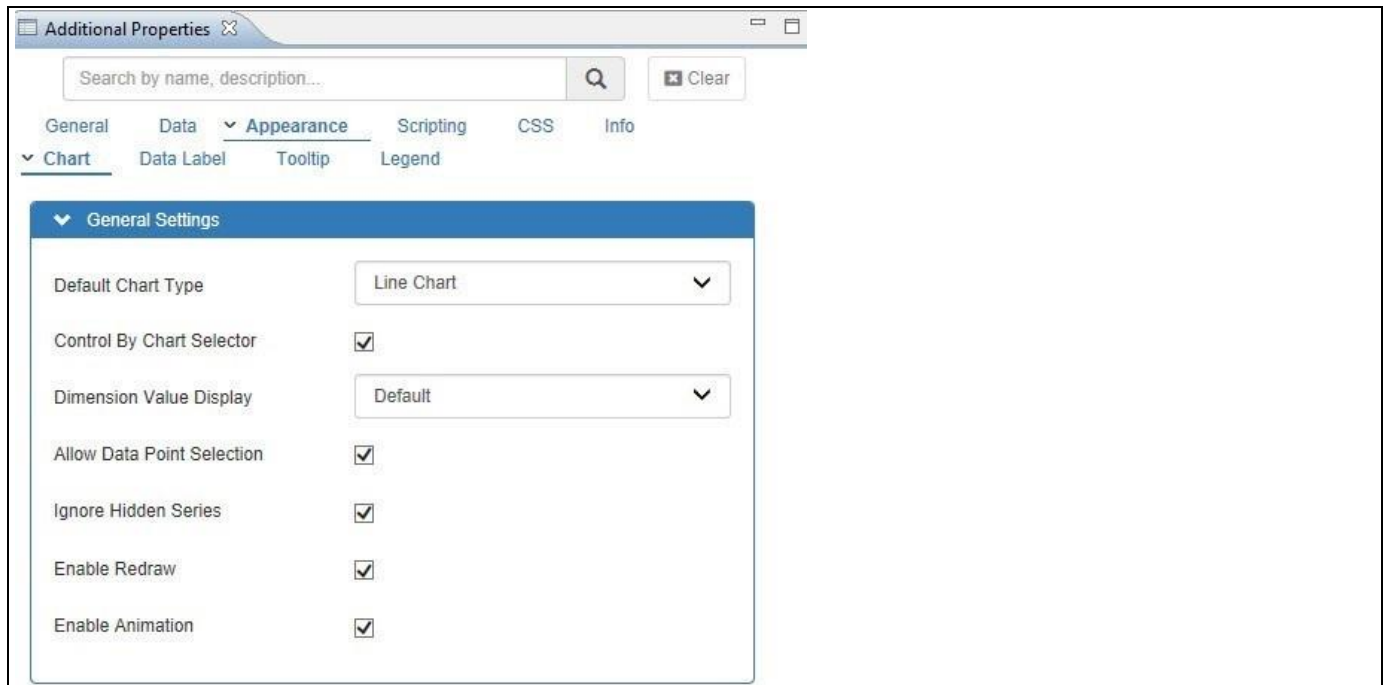


Figure 4.400: Category – Appearance

7. In the area General Settings you can activate the option Control by Chart Selector. When this property is activated, the Chart type will change based on the Chart Selector component, otherwise the Chart type can be changed using scripting code (see Figure 4.400).
8. When executing your dashboard you will receive a Chart Selector and a Chart Container allowing you to quickly switch between the different chart types, without the need to setup any scripting code (see Figure 4.401).



Figure 4.401: Chart Selector and Chart Container

4.20.1 Additional Properties of the Chart Container

The following sections outline the available Additional Properties of the Chart Container. The properties are in addition to the common set of properties outlined in section 4.5.6.

4.20.1.1 Category Appearance

Sub category	Area	Property	Description
Chart	General Settings	Default Chart Type	Allows you to set the default chart type for the chart container.
		Control by Chart Selector	Activating this property will update the chart type based on the selection of the Chart Selector. In case this property is disabled, the chart type can be changed using scripting code.
		Enable Redraw	When activated the chart will be redrawn in situations where the window is being resized, so that the chart fits the container it is being placed in.
		Enable Animation	Allows you to enable or disable the animation for the chart when it loads the data.

4.20.2 Scripting Functions for the Chart Container

In addition to the scripting functions listed in section 4.6, the Chart Container supports the following scripting functions.

Function / Method	Description
DSXGetSelectedChart()	This function allows you to retrieve the configured Chart Type.
DSXIsControlChartTypeBySelector()	This function returns a boolean value to indicate if the Chart Container is controlled by a Chart Selector.
DSXSetChartContainerType()	This function allows you to set the Chart Type that is being used.
DSXSetControlChartTypeBySelector()	This function allows to set if the Chart Container is controlled by a Chart Selector.
DSXGetSelectedContainer()	This function allows you to retrieve the value of Selected Container of String type.
DSXSetSelectedContainer()	This function allows you to set the value of Selected Container of String type.

Table 4.85: Scripting Functions

5 Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer (VBX) – Selectors

5.1 Selectors Overview

As part of the overall Visual BI Extensions (VBX) suite, you also receive a set of selector components, which provide you with abilities such as being able to select a time period or being able to select a hierarchy node for filtering.

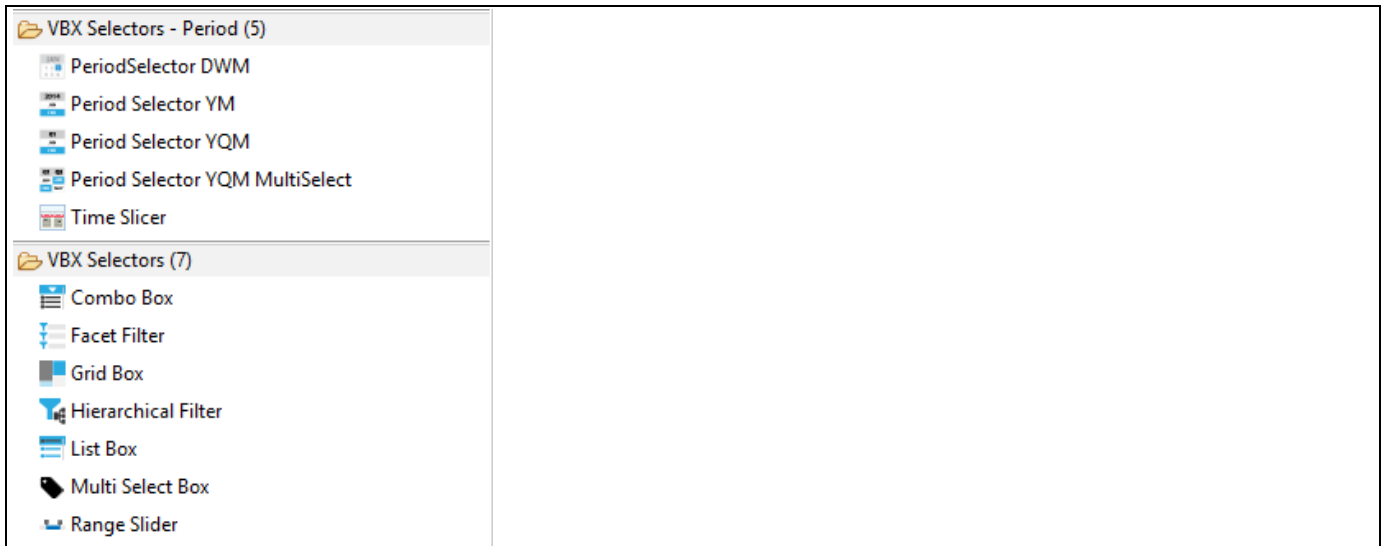


Figure 5.1: VBX Selectors

The VBX Selectors (see Figure 5.1) include:

- **Grid Box**
The Grid Box provides you with the option to create a set of rows and columns acting as a filter for a specified dimension. In addition, you are able to configure dynamic alerts allowing you to focus on the critical information.
- **Period Selector YM**
The Period Selector YM provides you the ability to select a calendar year and a calendar month.
- **Period Selector YQM**
The Period Selector YQM provides you the ability to select a calendar year, a calendar quarter, and a calendar month.
- **Period Selector YQM MultiSelect**
The Period Selector YQM MultiSelect, like the Period Selector YQM, provides you the ability to select a calendar year, a calendar quarter, and a calendar month, but in addition you can select multiple values for filtering.
- **Hierarchical Filter**
The Hierarchical Filter is a selector component that allows you to display a hierarchy based on the assigned data source and to use the component for filtering purposes. The component does come also with extensive scripting options.

- **Combo Box**
The Combo Box allows you to setup a list of dimension members as a filter. The list will be displayed in single line drop down box and does provide features such as a search functionality as well as the option to switch between the different display options, such as the key, text, or key and text for the dimension members. In addition the Combo Box provides alerting capabilities that allow you to setup highlighting for the list of members.
- **List Box**
The List Box allows you to setup a list of dimension members as a filter. The list will be displayed in form of a box whereas the size depends on the configured size at design time. The List Box does provide features such as a search functionality as well as the option to switch between the different display options, such as the key, text, or key and text for the dimension members. In addition the List Box provides alerting capabilities that allow you to setup highlighting for the list of members.
- **Facet Filter**
The Facet Filter component allows you to setup multiple facets for a single data source. For each facet you can choose from different visualization options, such as checkboxes, radio buttons, or a list style. All defined facets of the Facet Filter automatically work in a cascading filter fashion and you have the option to assign target data sources for filtering.
- **Range Slider**
The Range Slider provides you with the option to add a typical slider component to your dashboard. The Range Slider can be configured to present static data, time based information such as weeks, months, quarters, or years, and the Range Slider can be bound directly to data from the data source. In addition the Range Slider provides the ability to setup a conditional formatting to highlight specific parts of the Range Slider– for example the scale background – based on specific threshold values.
- **Period Selector DWM**
The Period Selector DWM provides you with the ability to add a selector to your dashboard which will allow you to select a value for the day, a week, a month and a value for the year with one simple control.
- **Time Slicer**
VBX Time Slicer component has the ability to select an "operator" type based on time in a Calendar View as part of the configuration. It includes the below listed operator functions:
 - Between
 - After
 - Before
 - Last
 - Next
 - This
 - Period
- **Multiselect Box**
By using the MultiSelect Box, you can set the default Dimension member, configure the dependent data sources and set the maximum members for display.

5.2 Common Properties for the Selector Components

In the following sections we will outline the common properties across the Selector Components.

5.2.1 General Properties of the Selector Components

The following Table outlines the general properties available in the Standard Properties for the Selector components.

Property	Description
Name	Here you can define the unique name of a component. By default the system will generate a name for the component, for example GRIDBOX_1.
Type	The property Type displays the component type, for example Grid Box.
Visible	Here you can specify if the component will be visible or not.

Table 5.1: Properties

5.2.2 Display Properties of the Selector Components

The following Table outlines the Display properties of the Selector components.

Property	Description
CSS Class	Here you can define the name of a custom CSS Class.

Table 5.2: Display Properties

5.2.3 Layout Properties of the Selector Components

The following Table outlines the Layout properties of the Selector components.

Property	Description
Top Margin	Here you can specify the Top Margin for the component.
Left Margin	Here you can specify the Left Margin for the component.
Bottom Margin	Here you can specify the Bottom Margin for the component.
Right Margin	Here you can specify the Right Margin for the component.
Height	Here you can specify the Height for the component.
Width	Here you can specify the Width for the component.

Table 5.3: Layout Properties

5.3 Grid Box

The Grid Box allows you to provide the dashboard user a simple way to select values for filtering by combining the simple display of a Grid Box with the ability to highlight specific values using predefined alerts as shown in Figure 5.2.

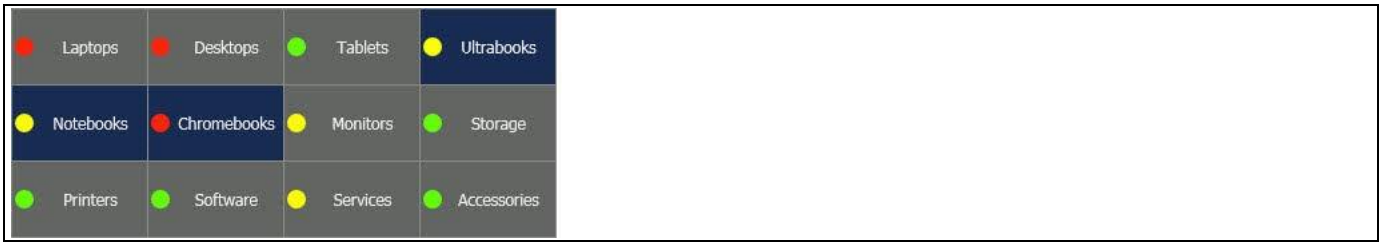


Figure 5.2: Grid Box

5.3.1 Data Source Requirements for the Grid Box

The Grid Box is capable of using static data that is entered manually or using data from an assigned data source. In the following sections we will outline the requirements for these two options.

5.3.1.1 Static Data Entry

In the Additional Properties of the Grid Box the dashboard designer can activate the property Enable Static Data and enter static data by navigating to the category General and to the sub category Filter Settings (see Figure 5.3). The dashboard designer can enter manually the items that should be displayed as part of the Grid Box. The manually entered measure values can also be used for setting up static alerts.

Properties

Additional Properties

Search by name, description...

Clear

General

Data

Appearance

Scripting

Info

Filter Settings

Enable Static Data

☒

+

Add

Items	Measures
Laptops	10
Desktops	20
Tablets	75
Ultrabooks	40
Notebooks	50
Chromebooks	25
Monitors	70
Storage	80
Printers	85
Software	100
Services	45
Accessories	95

Save

No. of Columns

4

Left To Right

☒

Figure 5.3: Static Data Entry

5.3.1.2 Data Source Details for the Grid Box

In case you are planning to use an actual data source for the Grid Box, you need to understand how the Grid Box is using the data. In this example we will assume that our data set looks like shown below.

Dimension Key	Dimension Description	Measure 1	Measure 2
100	AAA	10	100
200	BBB	20	200
300	CCC	30	300
400	DDD	40	400
500	EEE	50	500

Table 5.4: Sample Data

In case you would assign such a data source to the Grid Box, the Grid Box will use the Dimension Key as the key value, the Dimension Description as Text Value, and Measure 1 as value.

In case you are using a data source with several dimensions in the rows, as shown below, then the Grid Box will repeat the key and description of the most outer dimension for each row.

Dimension 1 Key	Dimension 1 Description	Dimension 2 Key	Dimension 2 Description	Measure 1	Measure 2
100	AAA	2000	K2000	10	100
100	AAA	2001	K2001	20	200
100	AAA	2002	K2002	30	300
100	AAA	2003	K2003	40	400
100	AAA	2004	K2004	50	500
100	AAA	2005	K2005	60	600
100	AAA	2006	K2006	70	700

Table 5.5: Sample Data

In the given example as shown in Table 5.5 above, the Grid Box would repeat the key and description of the most outer dimensions, in this example Dimension 1.

5.3.2 Alerting

The dashboard designer has the option to setup two types of alerting for the Grid Box – Static Alerts and Dynamic Alerts. The dashboard designer can define a set of static rules (see Figure 5.4) or a set of dynamic rules based on measure values or calculations.

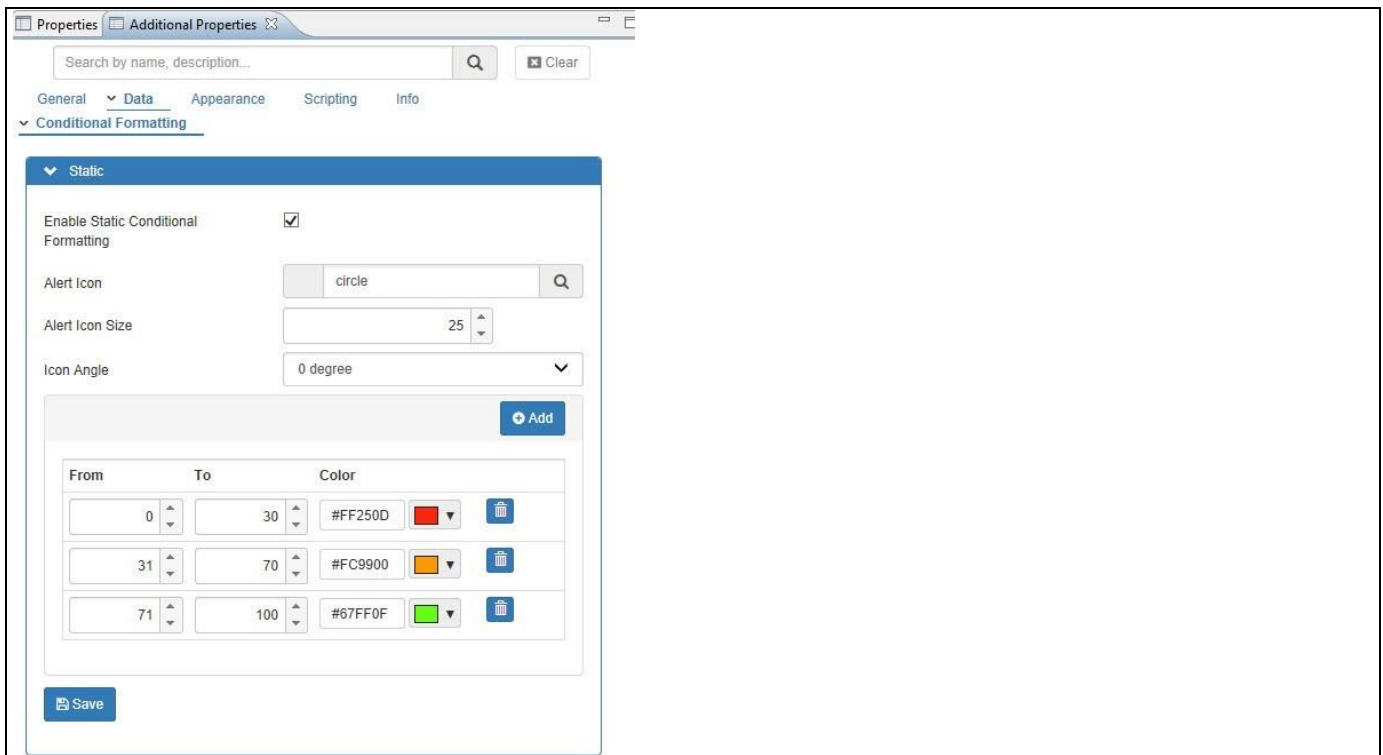


Figure 5.4: Alert Ranges

As part of the dynamic alerting there are three types of rules available – Single Measure, Measure Calculation, and Target Value. When the Rule Type is set to the option ‘Single Measure’, you can define a rule based on a selected measure from the underlying data source with operators such as “Greater Than”, or “Equal To” (see Figure 5.5). When the Rule Type is set to the option “Measure Calculation”, you can define a calculation based on two measures and base the rule on the calculation. When the Rule Type is set to the option “Target Value”, you can define a rule based on the selection of Highlighted Measure and Comparison Measure using the Target Value Type as “Static” or “Dynamic” values.

Properties | Additional Properties

Search by name, description... [Clear]

General | **Data** | Appearance | Scripting | Info

Conditional Formatting

Static

Dynamic

Enable Conditional Formatting ☒

[+ Create Rule]

Rule Name	Type
Rule 1	Single Measure

Name: Rule 1

Type: Single Measure

Measure: Actual Revenue

Comparison Operator: Greater than

Value: 1000

Color: #fc9900

Icon: fa://circle-arrow-up

Icon Angle: 0 degree

Icon Size: 25

[Save] [Cancel]

Figure 5.5: Dynamic Alerts

Based on the rules defined in Figure 5.5, the Grid Box shown in Figure 5.6 displays the configured alerts with the selected icon.

↓ Bed & Bath	↓ Gifts&Toys	↑ Apparel	↑ Books
↑ Electronics & Electrical	↑ Food	↑ Hardware	↑ Stationary

Figure 5.6: Sample Grid Box

5.3.3 Standard Properties of the Grid Box

In addition to the standard properties outlined in the previous sections, the Grid Box component supports the following properties.

Category	Property	Description
Data Binding	Data Source	Here you can assign the Data Source to the component.
	Data Selection	By using the Data Selection you can select multiple rows and columns from the assigned data source. By clicking the Add Selection button the selected rows and columns will be assigned to the component.
Display	Default Selection	Here you can define the Default Selection for the Grid Box. You can enter the record number from the assigned data source to assign it as a default selection. For example: 4, 5, 6 as Default Selection will set the records 4, 5, and 6 as default selections.
	Multi-Select	Here you can specify if you will be able to select multiple values. The property accepts true and false as values.

Table 5.6: Standard Properties

5.3.4 Additional Properties of the Grid Box

As a custom component the Grid Box also comes with a set of Additional Properties. The Grid Box provides Additional Properties in the categories: General, Data, and Appearance. In the following sections you will find a list of the available properties and a Table with a more detailed description of each of those properties.

5.3.4.1 Category General

Below (see Figure 5.7) you can see the Additional Properties for the category General and their descriptions.

Properties | Additional Properties

Search by name, description...

General | Data | Appearance | Scripting | Info

Filter Settings

Enable Static Data ☒

Items	Measures
Laptops	10
Desktops	20
Tablets	75
Ultrabooks	40
Notebooks	50
Chromebooks	25
Monitors	70
Storage	80
Printers	85
Software	100
Services	45
Accessories	95

No. of Columns

Left To Right ☒

Figure 5.7: Category General

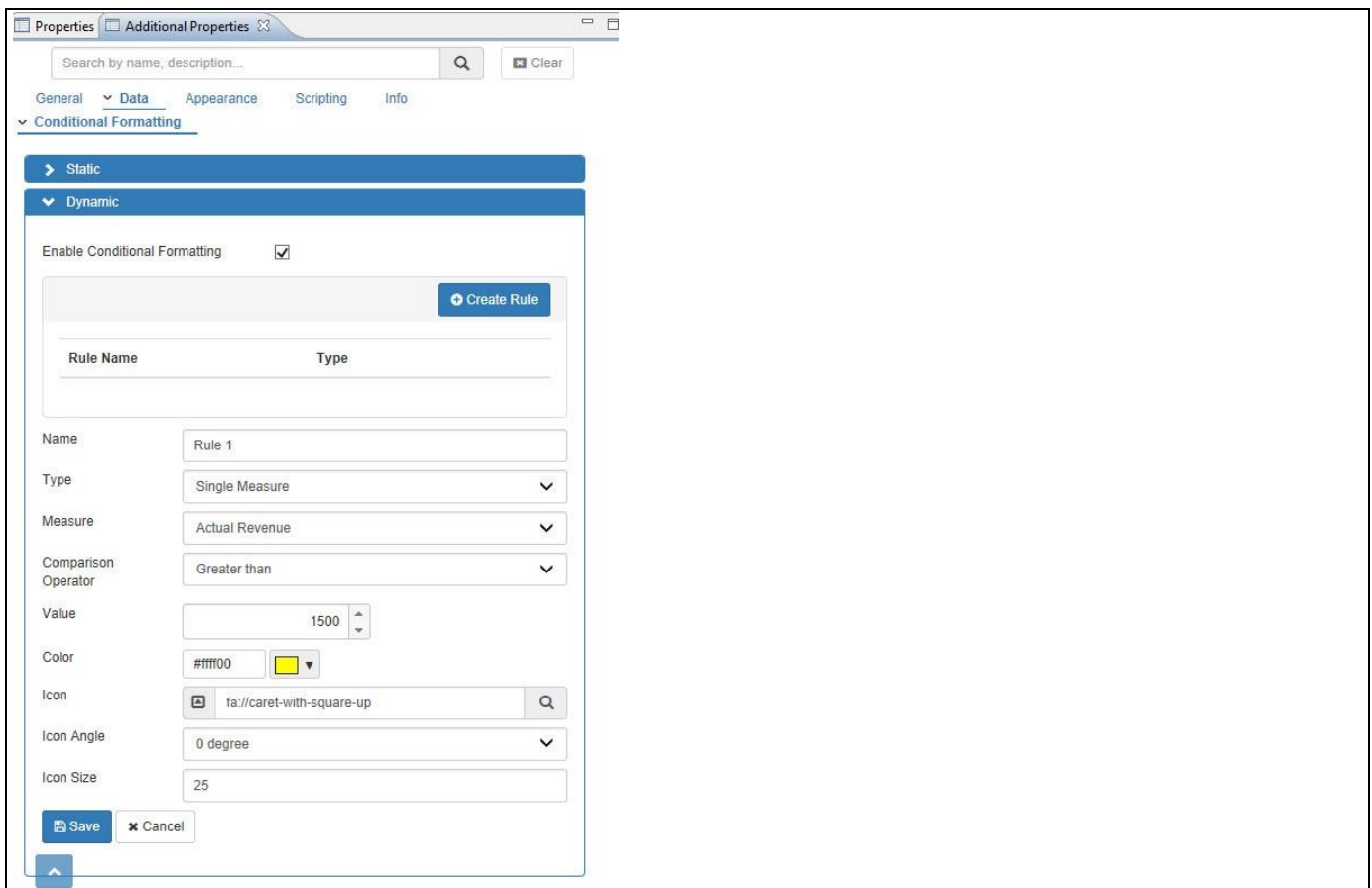
Sub category	Property	Description
Filter Settings	Enable Static Data	By activating the option Enable Static Data you can manually enter the Item Names and their Measure values.
	Items	This property allows you to manually enter the Item Names.

Sub category	Property	Description
	Measures	This property allows you to manually enter the Measure values for the respective Item.
	Add	You can use the Add button to create new rows for the Items and their Measure values.
	No of Columns	Here you can specify the number of columns for the Grid Box.
	Left to Right	By activating the option Left to Right, the data for the Grid Box will be filled from left to right according to the number of columns specified.

Table 5.7: Category General

5.3.4.2 Category Data

Below (see Figure 5.8) you can find the Additional Properties for the category Data and their descriptions.



Properties Additional Properties

Search by name, description...

General **Data** Appearance Scripting Info

Conditional Formatting

Static

Dynamic

Enable Conditional Formatting ☒

Rule Name Type

Name Rule 1

Type Single Measure

Measure Actual Revenue

Comparison Operator Greater than

Value 1500

Color #ffff00

Icon fa://caret-with-square-up

Icon Angle 0 degree

Icon Size 25

Figure 5.8: Category Data

Sub category	Area	Property	Description
Conditional Formatting	Static	Enable Static Conditional Formatting	Enables / Disables the Static Conditional Formatting functionality.
		Alert Icon	Select the alert icons to be displayed for the alert ranges.
		Alert Icon Size	This property sets the Icon Size for the Alert.
		Icon Angle	This property sets the Icon Angle for the Alert.
		From-to-Color	In the area of the alert ranges you can define value ranges and assign a color to such a value range for alerting purposes. The value ranges will be assigned to the selected measures from the data source.
	Dynamic	Enable Conditional Formatting	Enables / Disables the Dynamic Conditional Formatting functionality.
		Name	Enter a name for the rule.
		Type	Specify the type of rule: Single Measure, Measure Calculation, or Target Value.
		Measure	Select the Measure for the Alert.
		Comparison Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
		Measure 1	This property allows you to select the Measure 1 value for the Calculation.
		Measure 2	This property allows you to select the Measure 2 value for the Calculation.
		Calculation Operator	Here you can choose the calculation operator. The options are Add, Subtract, Multiply and Divide.
		Highlighted Measure	Here you select the measure which will be highlighted.
		Comparison Measure	Here you can select the measure which will be compared against the Comparison Value.
		Target Value Type	Here you can choose between a Static and a Dynamic Target Value.
		Value	Specify the value that will be used as comparison value.
		Alert Measure	Select the Measure for the Alert.
		Color	This property sets the color for the Icon.

Sub category	Area	Property	Description
		Icon	This property sets the type of the Icon.
		Icon Angle	This property sets the Icon Angle for the Alert.
		Icon Size	This property sets the size for the Icon.
		Save	Click the Save button after specifying the rule parameters.

Table 5.8: Category Data

5.3.4.3 Category Appearance

Below (see Figure 5.9) you can find the Additional Properties for the category Appearance and their descriptions.

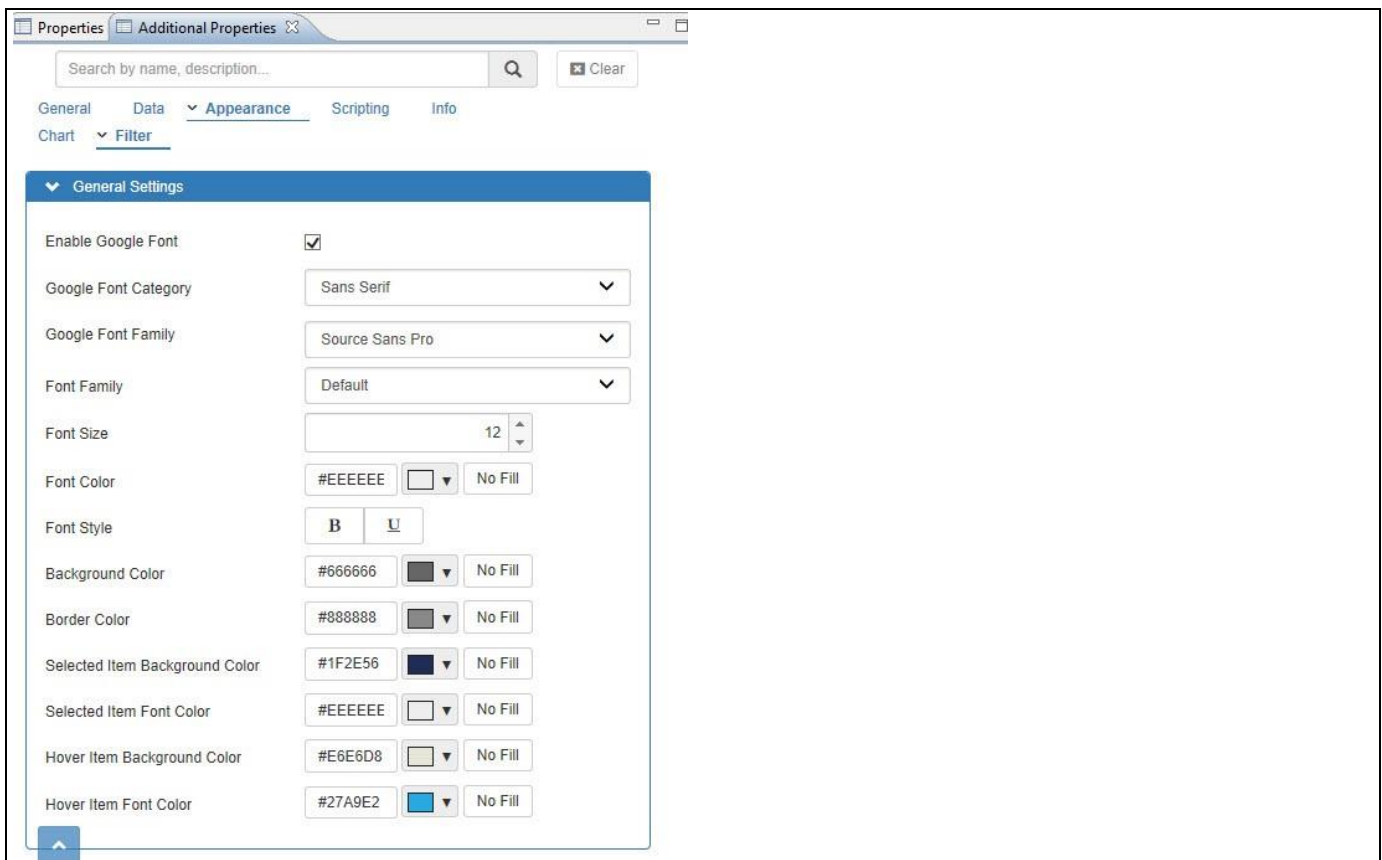


Figure 5.9: Category Appearance

Sub category	Category	Property	Description
Chart	General Settings	Display Dimension Value	Select whether the dimension members should be displayed using the key, text, or key and text values. The options are Default, Key Only, Text Only, Text and Key or Key and Text.
Filter	General Settings	Enable Google Font	Here you can enable / disable the option

Sub category	Category	Property	Description
Chart	General Settings	Display Dimension Value	Select whether the dimension members should be displayed using the key, text, or key and text values. The options are Default, Key Only, Text Only, Text and Key or Key and Text.
			for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
		Font Family	This property sets the default Font Type for the Text inside the Grid Box.
		Font Size	This property sets the default Font Size for the Text inside the Grid Box.
		Font Color	This property sets the default Font Color for the Text inside the Grid Box.
		Font Style	This property sets the default Font Style for the Text inside the Grid Box.
		Background Color	This property sets the default Background Color for the Grid Box.
		Border Color	This property sets the default Border Color for the Grid Box.
		Selected Item Background Color	This property sets the Background Color for the selected item inside the Grid Box.
		Selected Item Font Color	This property sets the Font Color for the selected item inside the Grid Box.
		Hover Item Background Color	This property sets the Background Color for the hovered item inside the Grid Box.
		Hover Item Font Color	This property sets the Font Color for the hovered item inside the Grid Box.

Table 5.9: Category Appearance

5.3.5 Scripting with the Grid Box

The following Table outlines the available scripting functions for the Grid Box.

Function / Method	Description
DSXClearSelection()	This function allows you to clear the current selection.
DSXGetGridData()	The function will retrieve the complete data set from the Grid Box.
DSXGetSelectedKey()	The function will retrieve the key value from the selected element in the Grid Box.
DSXGetSelectedKeys()	The function will retrieve the key values from the selected elements in the Grid Box.
DSXGetSelectedKeysArray()	The function will retrieve the array of key values from the selected element in the Grid Box.
DSXGetSelectedText()	The function will retrieve the text value from the selected element in the Grid Box.
DSXGetSelectedValue()	The function will retrieve the numerical value corresponding to the selected element in the Grid Box.
DSXGetVisible()	This function will return the visibility status of the Grid Box.
DSXOnClick()	This function sets the OnClick event for the component.
DSXSetGridData(value)	The function allows to define the data set for the Grid Box.
DSXSetSelectedKey(value)	The function allows to set the selected value by using the key value.
DSXSetSelectedText(value)	The function allows to set the selected value by using the text value.
DSXSetVisible()	This function allows to set the visibility of Grid Box.

Table 5.10: Scripting Functions

5.3.6 Events for the Grid Box

The following Table outlines the available events for the Grid Box component.

Event	Description
OnClick	Using this property, you can enable interaction with the component by writing scripts. The on Click event is triggered when you click on the component.

Table 5.11: Events

5.4 Period Selector YM

The Period Selector YM (see Figure 5.10) provides you with the ability to add a selector to your dashboard, which will allow you to choose a value for the year and a value for the month with one simple control.

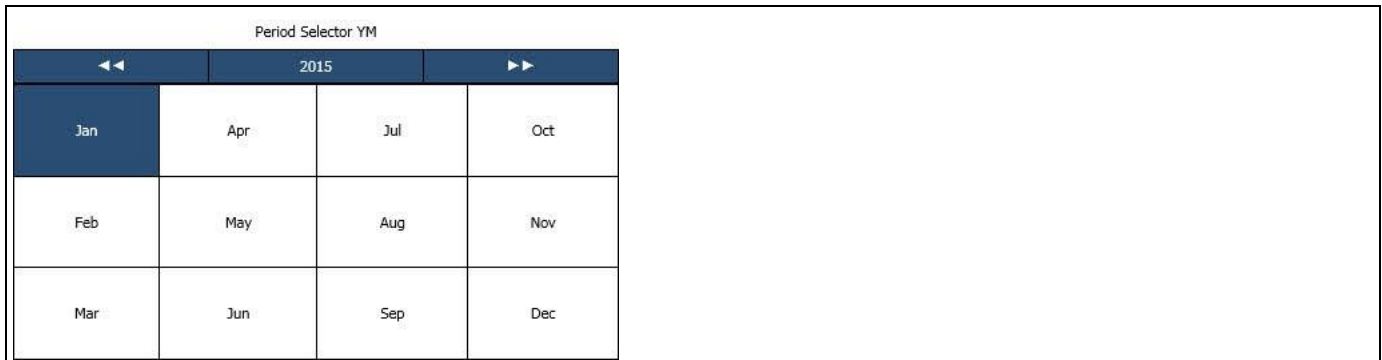


Figure 5.10: Period Selector YM

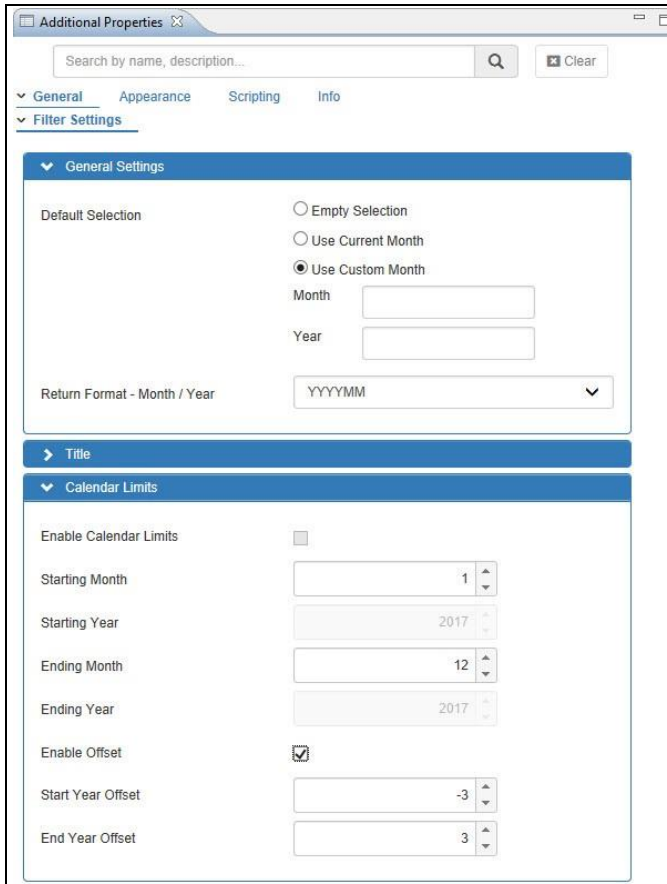
5.4.1 Features of the Period Selector YM

In the following sections we will describe the most important features of the Period Selector YM.

5.4.1.1 Calendar Limits

In the Additional Properties of the Period Selector YM in the category General and the sub category Filter Settings, you have the option to define the Calendar Limits based on the Current Year and a defined offset for the start and end year.

For our example, enable the option Enable Offset and set the property “Start Year Offset” to the value -3 and set the property “End Year Offset” to the value 3 based on the Current Year 2017 (see Figure 5.11).



Additional Properties

Search by name, description...

General Appearance Scripting Info

Filter Settings

General Settings

Default Selection

☐ Empty Selection
☐ Use Current Month
☒ Use Custom Month

Month

Year

Return Format - Month / Year

YYYYMM

Title

Calendar Limits

Enable Calendar Limits

Starting Month

Starting Year

Ending Month

Ending Year

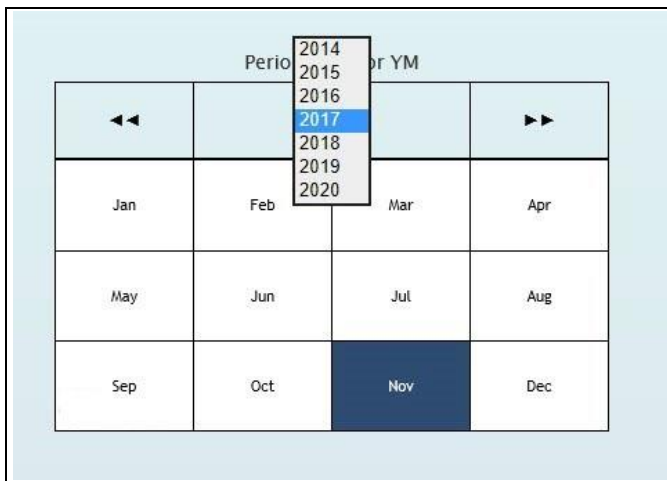
Enable Offset

Start Year Offset

End Year Offset

Figure 5.11: Enable Offset

Based on the above configuration you will be able to view the Period Selector YM as shown in the Figure 5.12. Our example shows the years from 2014 to 2020, based on the current year being 2017.



Period Selector YM

Jan	Feb	Mar	Apr
May	Jun	Jul	Aug
Sep	Oct	Nov	Dec

2014
2015
2016
2017
2018
2019
2020

Figure 5.12: Start and End Year Offset

5.4.1.2 Layout Properties for Month Display

In the Additional Properties of the Period Selector YM in the category Appearance and the sub category Filter, you will be able to set the layout to the option “Left to Right” as shown in Figure 5.13. By default, the months in the Period Selector will be displayed from Top to Bottom order. When the layout is changed to the option “Left to Right”, then the months in the Period Selector will be displayed from Left to Right order.

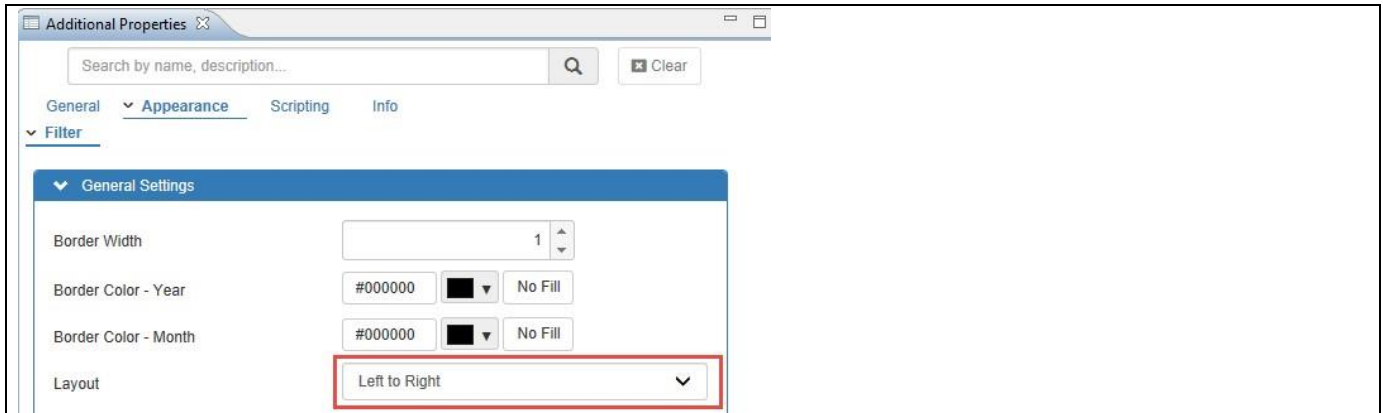


Figure 5.13: Layout for Month Display

Based on the above configuration you will be able to view the Period Selector YM as shown in the Figure 5.14.

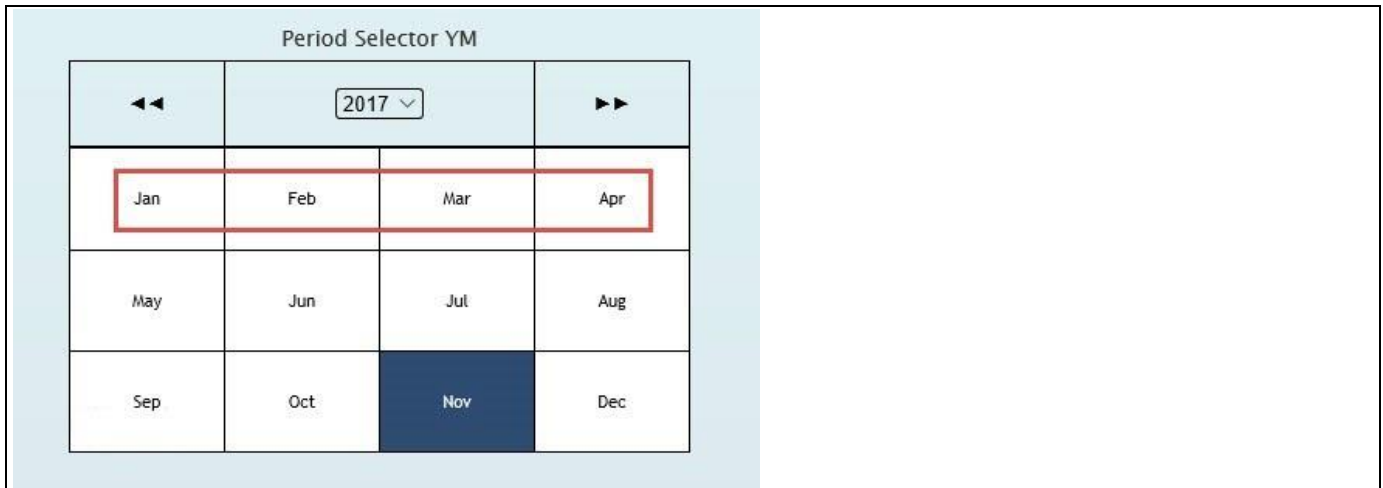


Figure 5.14: Left to Right Month Display

5.4.1.3 Maximize and Minimize options

In the Additional Properties of the Period Selector YM in the category Appearance and the sub category Filter, you have the ability to enable the option Enable Minimize Maximize. This option will allow the user to minimize and restore the Period Selector, like a standard window as part of the Windows operating system (see Figure 5.15).



Figure 5.15: Enable Minimize and Maximize

Figure 5.16 shows an example of a maximized Period Selector.

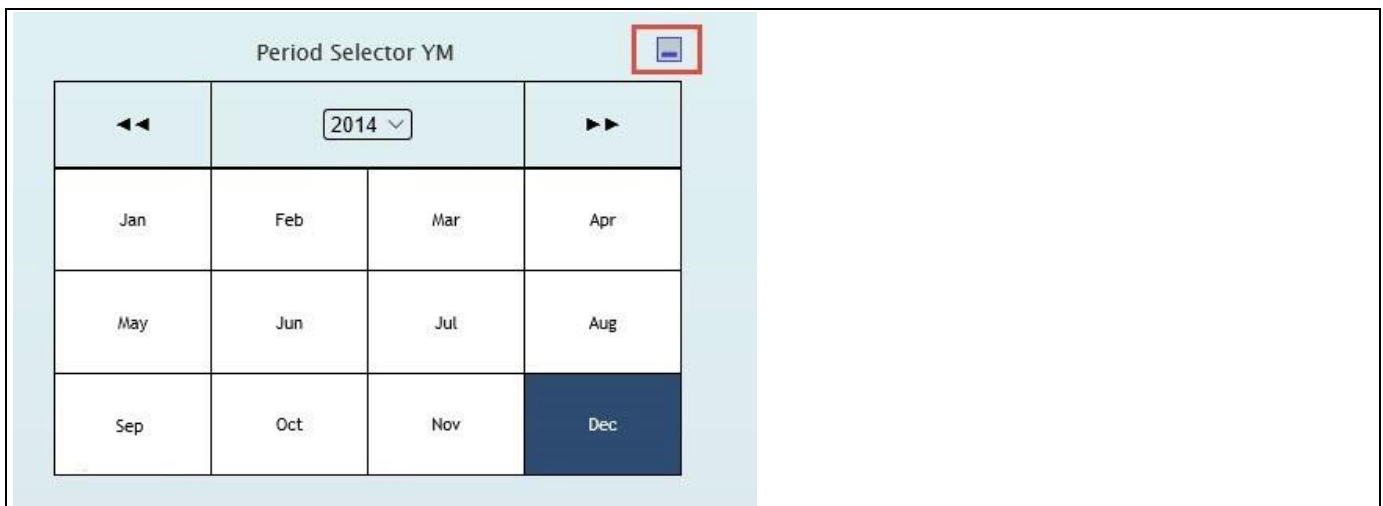


Figure 5.16: Maximized Period Selector

Figure 5.17 shows an example of a minimized Period Selector with the header text for the Period Selector.

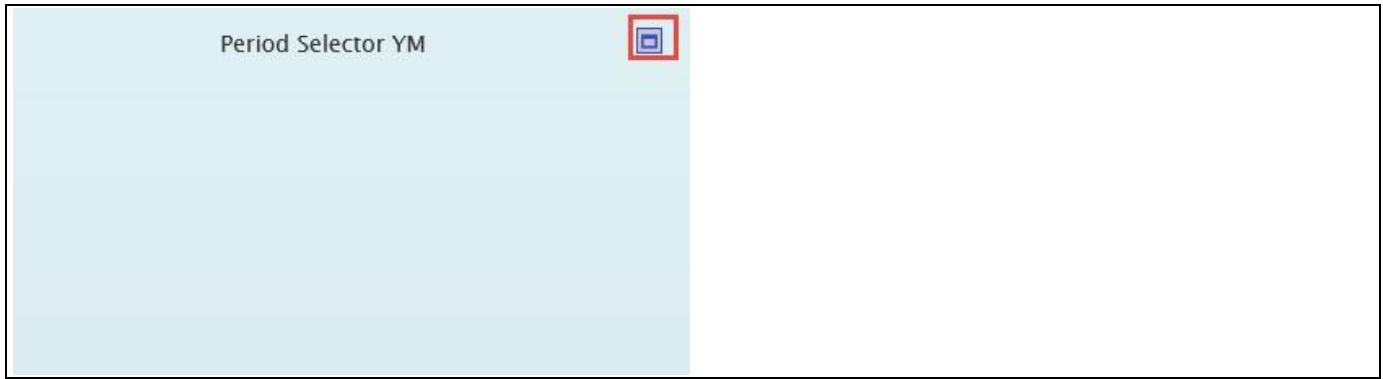


Figure 5.17: Minimized Period Selector

5.4.1.4 Return Formats

In the Additional Properties of the Period Selector YM the dashboard designer has the option to specify the Return Format of the selected value. The specified Return Format can then be used as part of the scripting for the Period Selector and the dashboard designer can use the returned value in the specified format and use the value as a filter value for a data source.

The Period Selector YM allows the dashboard designer to specify a date format from the list of 6 standard return formats such as YYYYMM, MM.YYYY, YYYYMMM (see Figure 5.18). The dashboard designer can also define a custom format using the option “Custom Format”.

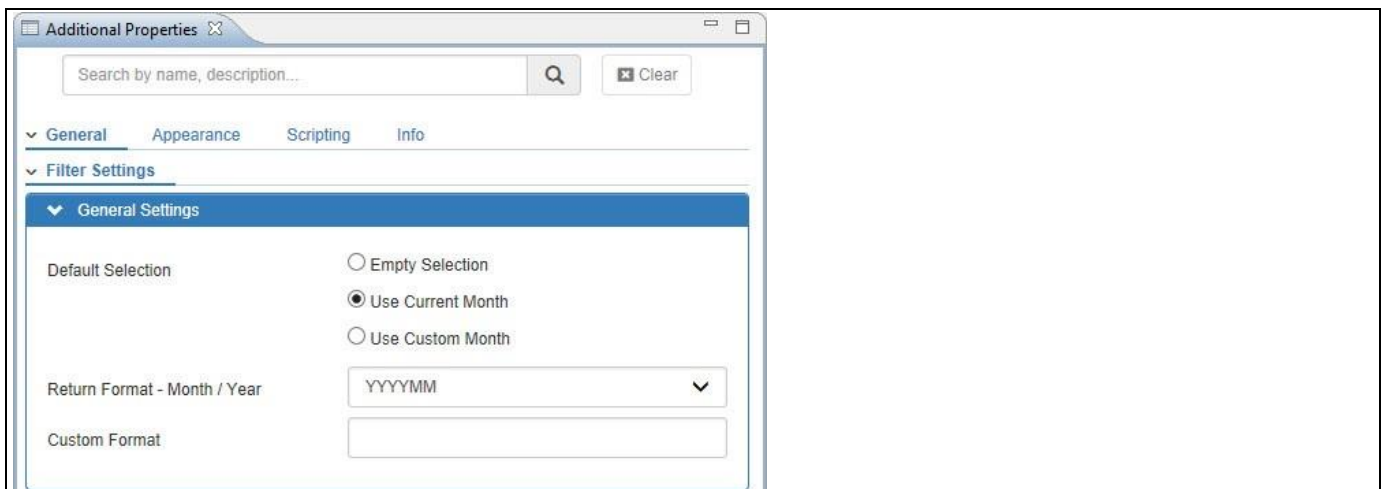


Figure 5.18: Return Formats – Period Selector YM

The option “Custom Format” allows you to use the following format options to specify a custom format for the return value:

Format	Description
m	Displays the month values as 1 – 12.
mm	Displays the month values as 01 – 12.
mmm	Displays the month values as Jan – Dec.
mmmm	Displays the month values as January – December.
yy	Displays the year value as 00 – 99.
yyyy	Displays the year value as ‘1900 – 9999’

Table 5.12: Custom Formats – Period Selector YM

For Example, a combination of month and year separated by symbols (like ‘-’, ‘/’, etc.) could be specified as ‘mmm/yyyy’ and such a custom format would display the value as May/2015.

The Custom Format will be used as the format for the scripting function .DSXGetSelectedValueInDateFormat().

5.4.1.5 Fiscal Year definition

By default, the Period Selector component displays the standard calendar month values from January to December and follows the calendar year. In case you would like to offset the calendar year to a fiscal year, you can activate the Fiscal Year option in the Additional Properties (see Figure 5.19). With the Fiscal Year option you can configure the Starting Month and the Fiscal Year Label. For example, if April 2015 is the start of your Fiscal Year 2016, you would configure April as the first month and enter 2016 as the Fiscal Year Label.

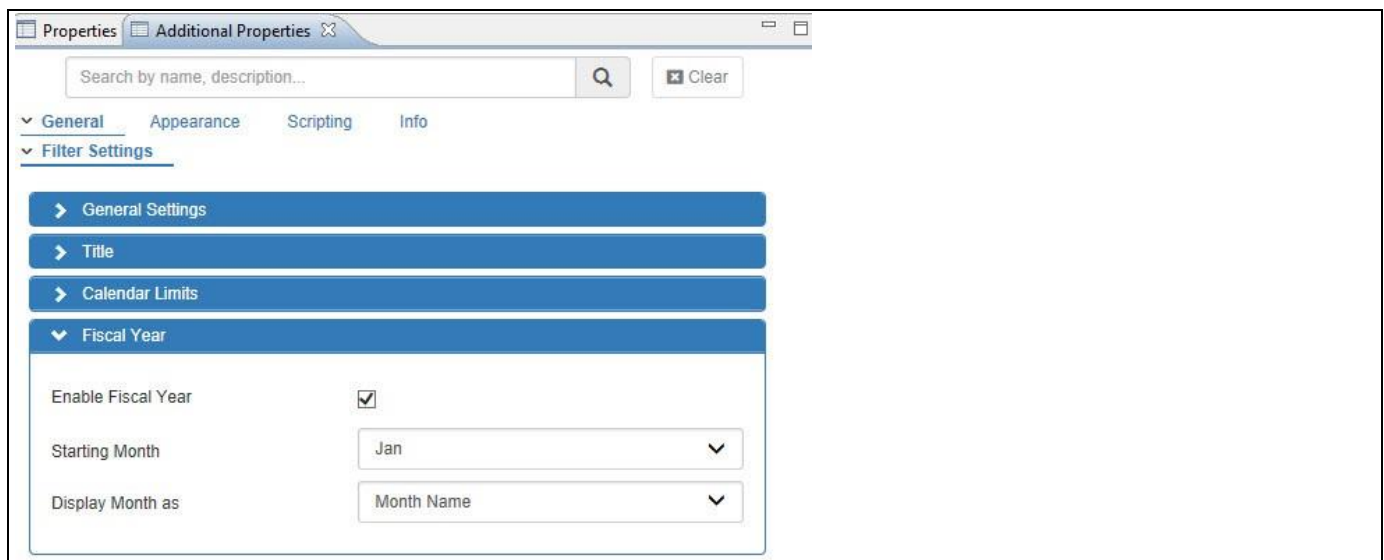


Figure 5.19: Fiscal Year – Period Selector YM

In addition you can configure if the Month should be displayed with the Month Name or as Month Number.

5.4.2 Additional Properties of Period Selector YM

As a custom component the Period Selector YM also comes with a set of Additional Properties. The Period Selector YM provides Additional Properties in the categories: General and Appearance. In the following sections you will find a list of these Additional Properties and a Table with a more detailed description of each of those.

5.4.2.1 Category General

Sub category	Area	Property	Description
Filter Settings	General Settings	Default Selection	Here you can specify the default values for the Period Selector. You can choose between the current month or you can specify a custom value for the month and year.
		Return Format – Month/Year	Here you can specify the format for the return value for the Period Selector. The format will not influence the actual display of the Period Selector, but will set the format that is being returned by the scripting functions.
		Custom Format	Here you can specify the Custom Format for the month and the year.
	Title	Enable Filter Title	Here you can enable/disable the Title for the Period Selector YM.
		Title Text	Here you can specify the Text for the Title of the Period Selector YM
		Font Family	Here you can specify the Font Type for the Title of the Period Selector YM
		Font Size	Here you can specify the Font Size for the Title of the Period Selector YM
		Font Color	Here you can specify the Font Color for the Title of the Period Selector YM
		Font Style	Here you can specify the Font Style for the Title of the Period Selector YM
	Calendar Limit	Enable Calendar Limits	Here you can enable/disable the Calendar Limits for the Period Selector YM.
		Start Month	Here you can specify the starting month for the Calendar Limits.
		Starting Year	Here you can specify the starting year for the Calendar Limits.
		Ending Month	Here you can specify the end Month for the Calendar Limits.
		Ending Year	Here you can specify the end Year for the Calendar Limits.
		Enable Offset	Here you can enable/disable the option Offset for the Period Selector YM.

Sub category	Area	Property	Description
		Start Year Offset	Here you can define the Offset value for the Start Year.
		End Year Offset	Here you can define the Offset value for the End Year.
	Fiscal Year	Enable Fiscal Year	Here you can enable/disable the Fiscal Year for the Period Selector YM.
		Starting Month	Specify the year value for the starting month of the Fiscal Year.
		Display Month as	Sets the display format for the month value. You can choose a month number or the month name.

Table 5.13: General

5.4.2.2 Category Appearance

Sub category	Area	Property	Description
Filter	General Settings	Border Width	Sets the Border Width for the Period Selector.
		Border Color - Year	Sets the border color for the box around the Year Text.
		Border Color - Month	Sets the Border Color for the box around the month text.
		Layout	Sets the Layout for the Month display. The options are Left to Right and Top to Bottom.
		Enable Minimize Maximize	This option allows the user to minimize and restore the Period Selector, like a standard window as part of the Windows operating system.
	Month Text	Font Family	Sets the Font Family for the Month Text.
		Font Size	Sets the Font Size for the Month Text.
		Font Color	Sets the Font color for the Month Text.
		Font Style	Sets the Font Weight for the Month Text.
		Selected Color	Sets the color for the Selected values for the Month Text.
		Hover Color	Sets the Hover Color for the Month text.
	Month Background	Background Color	Sets the default Background Color for the calendar month.
		Selected Color	Sets the Background Color for the selected value for the calendar month.
		Hover Color	Sets the Background Hover Color for the calendar month.

Sub category	Area	Property	Description
	Year Text	Font Color	Sets the Font color for the Year Text.
	Year Background	Background Color	Sets the Background Color for the year value.

Table 5.14: Category Appearance

5.4.3 Scripting Functions for the Period Selector YM

The following Table outlines the available scripting functions for the Period Selector YM.

Function / Method	Description
DSXAddTimeFrame(intervalType, interval)	The function allows to add a specific time interval to the current value of the period selector. The available Interval Types are 'm' for Month and 'y' for Year.
DSXClearSelection()	This function allows you to clear any selection from the Period Selector YM.
DSXEnableFiscalYear()	The function allows you to enable/disable the Fiscal Year option for the Period Selector.
DSXGetFiscalMonthDisplay()	The function retrieves the display option for the Fiscal Month where '0' indicates month name and '1' indicates month number.
DSXGetFiscalStartingMonth()	The function retrieves the starting month of the Fiscal Year.
DSXGetFiscalStartingYear()	The function retrieves the starting year of the Fiscal Year.
DSXGetFiscalYearDisplay()	The function retrieves the display option for the Fiscal Year where '0' indicates calendar year and '1' indicates Fiscal year.
DSXGetFiscalYearLabel()	The function retrieves the Fiscal Year label of the Fiscal Year.
DSXGetSelectedMonth()	The function allows you to retrieve the selected month value.
DSXGetSelectedValueInDateFormat()	The function allows you to retrieve the selected value (year and month) based on the specified format from the Additional Properties.
DSXGetSelectedYear()	The function allows you to retrieve the selected year value.
DSXGetVisible()	This function allows to retrieve the visibility of Period Selector YM.
DSXIsFiscalYearEnabled()	The function returns TRUE if Fiscal Year is enabled and FALSE if not.
DSXOnClick()	This function executes the OnClick event for the component.
DSXSetDateFormat(value)	The function allows you to set the custom date format.
DSXSetEndYear()	This function allows to set the End Year for the component.
DSXSetFiscalMonthDisplay()	The function sets the display option for the Fiscal Month where '0' indicates Month name and '1' indicates Month number.
DSXSetFiscalStartingMonth()	The function sets the starting month of the Fiscal period.

Function / Method	Description
DSXSetFiscalStartingYear()	The function sets the starting year of the Fiscal period.
DSXSetFiscalYearDisplay()	The function sets the display option for the Fiscal Year where '0' indicates Calendar Year and '1' indicates Fiscal year.
DSXSetFiscalYearLabel()	The function sets the Fiscal Year label of the Fiscal Year.
DSXSetMonth()	The function allows to set the Month for the Period Selector.
DSXSetStartYear()	This function allows to set the Start Year for the component.
DSXSetTimePeriod(value)	The function sets the default Time Period.
DSXSetVisible()	This function allows to set the visibility of Period Selector YM.
DSXSetYear()	The function allows to set the Year for the Period Selector.

Table 5.15: Scripting Functions

5.4.4 Events for the Period Selector YM

The following Table outlines the available events for the Period Selector YM.

Event	Description
OnSelect	Using this property, you can enable interaction with the component by writing scripts. The on Select event is triggered when the selects a value in the component.

Table 5.16: Events

5.5 Period Selector YQM

The Period Selector YQM (see Figure 5.20) provides you with the ability to add a selector to your dashboard, which will allow you to select a value for the year, a quarter, and a value for the month with one simple control.

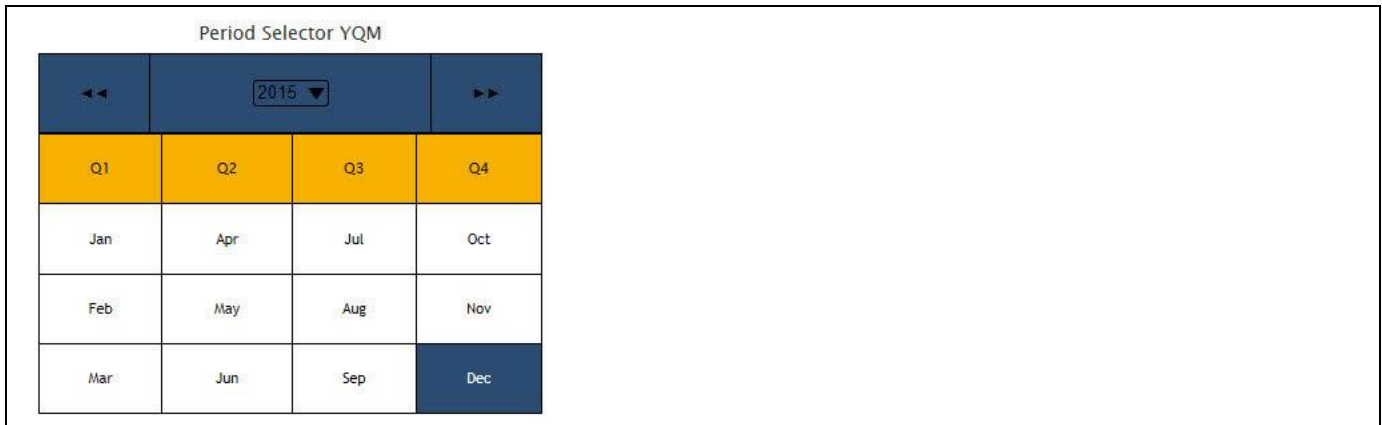


Figure 5.20: Period Selector YQM

You can select a month and a year or a quarter and a year. In case you select a quarter, the corresponding three months will automatically be highlighted in the control.

5.5.1 Features of the Period Selector YQM

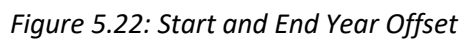
In the following sections we will review the features for the Period Selector YQM.

5.5.1.1 Calendar Limits

In the Additional Properties of the Period Selector YQM in the category General and the sub category Filter Settings, you have the option to define the Calendar Limits based on the Current Year and a defined offset for the start and end year.

For our example, enable the option Enable Offset and set the property “Start Year Offset” to the value -3 and set the property “End Year Offset” to the value 3 based on the Current Year 2017 (see Figure 5.21).

Based on the above configuration you will be able to view the Period Selector YQM as shown in the Figure 5.22. Our example shows the years from 2014 to 2020, based on the current year being 2017.



5.5.1.2 Layout Properties for Month Display

In the Additional Properties of the Period Selector YQM in the category Appearance and the sub category Filter, you will be able to set the layout to the option “Left to Right” as shown in Figure 5.23. By default, the months in the Period Selector will be displayed from Top to Bottom order. When the layout is changed to the option “Left to Right”, then the months in the Period Selector will be displayed from Left to Right order along with the Quarters being displayed on the left side as first column.

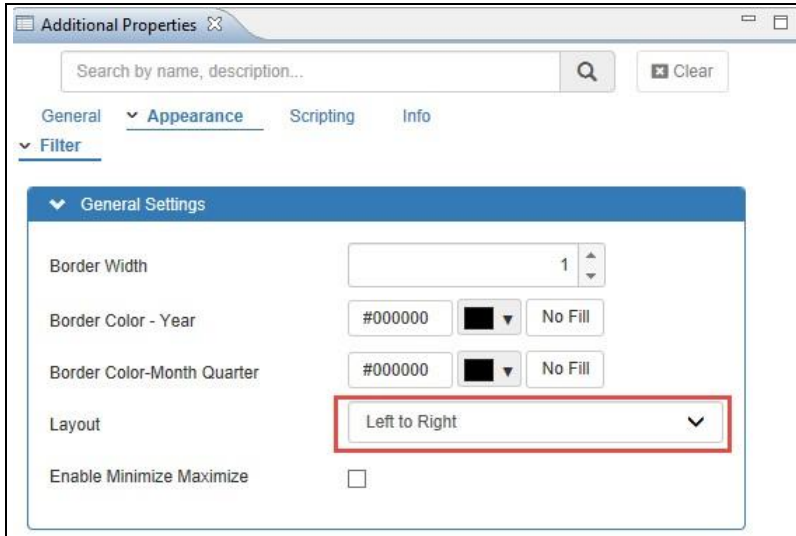


Figure 5.23: Layout for Month Display

Based on the above configuration you will be able to view the Period Selector YQM as shown in the Figure 5.24.

Period Selector YQM			
<div> <div>◀◀</div> <div>2017 ▼</div> <div>▶▶</div> </div>			
Q1	Jan	Feb	Mar
Q2	Apr	May	Jun
Q3	Jul	Aug	Sep
Q4	Oct	Nov	Dec

Figure 5.24: Left to Right Month Display

5.5.1.3 Maximize and Minimize options

In the Additional Properties of the Period Selector YQM in the category Appearance and the sub category Filter, you have the ability to enable the option Enable Minimize Maximize. This option will allow the user to minimize and restore the Period Selector, like a standard window as part of the Windows operating system (see Figure 5.25).

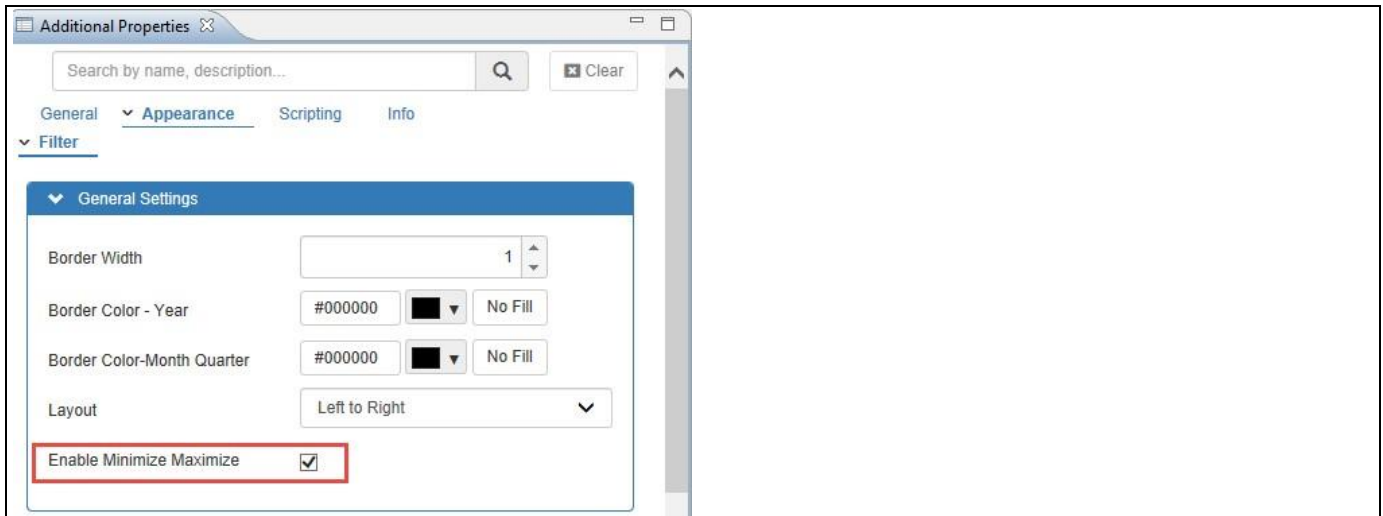


Figure 5.25: Enable Minimize and Maximize

Figure 5.26 shows an example of a maximized Period Selector.

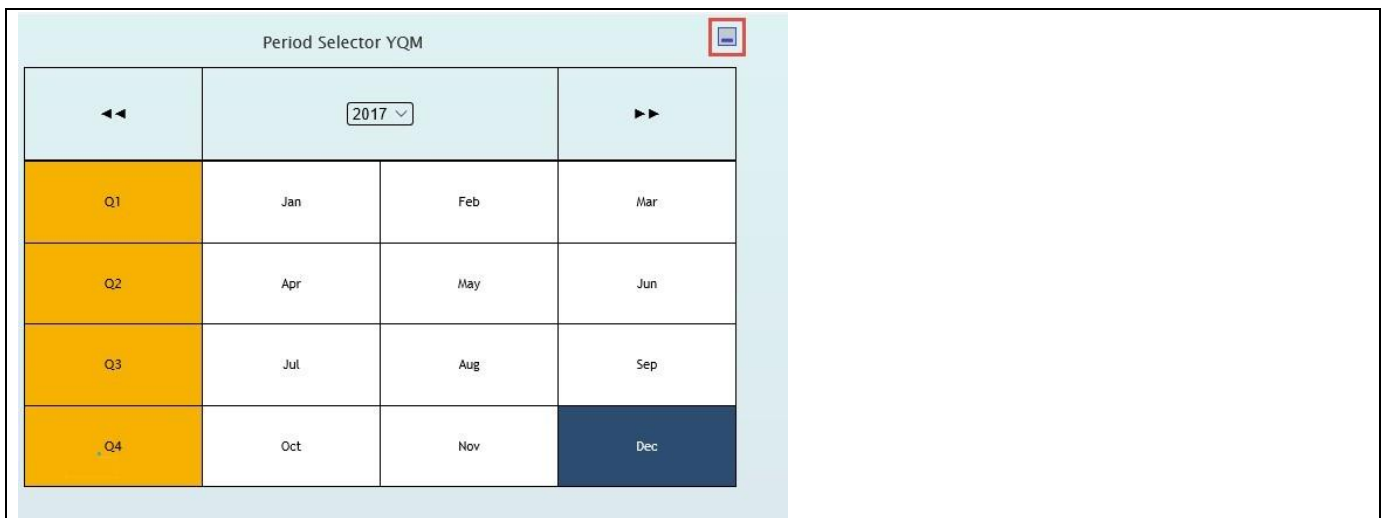


Figure 5.26: Maximized Period Selector

Figure 5.27 shows an example of a minimized Period Selector with the header text for the Period Selector shown.



Figure 5.27: Minimized Period Selector

5.5.1.4 Return Formats

In the Additional Properties of the Period Selector YQM the dashboard designer has the option to specify the Return Format of the selected value. The specified Return Format can then be used as part of the scripting for the Period Selector and the dashboard designer can use the returned value in the specified format and use the value as a filter value for a data source. The Period Selector YQM allows the dashboard designer to specify a date format from the list of 6 standard return formats such as YYYYMM, MM.YYYY, YYYYMMM (see Figure 5.18). The dashboard designer can also define a custom format using the option “Custom Format”.

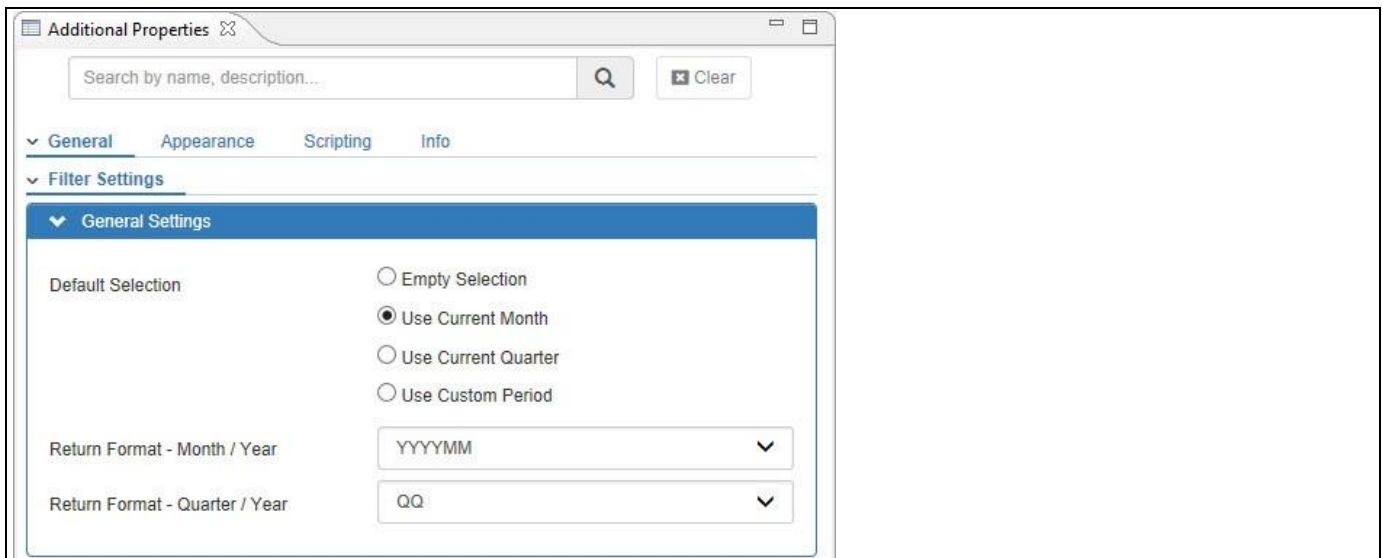


Figure 5.28: Return Formats – Period Selector YQM

The option “Custom Format” allows you to use the following format options to specify a custom format for the return value:

Format	Description
m	Displays the month values as 1 – 12.
mm	Displays the month values as 01 – 12.
mmm	Displays the month values as Jan – Dec.
mmmm	Displays the month values as January – December.
yy	Displays the year value as 00 – 99.

Format	Description
yyyy	Displays the year value as '1900 – 9999'
q	Displays the quarter values as 1 – 4.
qq	Displays the quarter values as 01 – 04.
qqq	Displays the quarter values as Q1 – Q4.
qqqq	Displays the quarter values as Quarter 1 – Quarter 4.

Table 5.17: Custom Formats – Period Selector YQM

For Example, a combination of month and year separated by symbols (like '-', '/', etc.) could be specified as 'mmm/yyyy' and such a custom format would display the value as May/2015.

The Custom Format will be used as the format for the scripting function .DSXGetSelectedValueInDateFormat().

5.5.1.5 Fiscal Year definition

By default, the Period Selector component displays the standard calendar month values from January to December and follows the calendar year. In case you would like to offset the calendar year to a fiscal year, you can activate the Fiscal Year option in the Additional Properties (see Figure 5.19). With the Fiscal Year option you can configure the Starting Month and the Fiscal Year Label. For example, if April 2015 is the start of your Fiscal Year 2016, you would configure April as the first month and enter 2016 as the Fiscal Year Label.

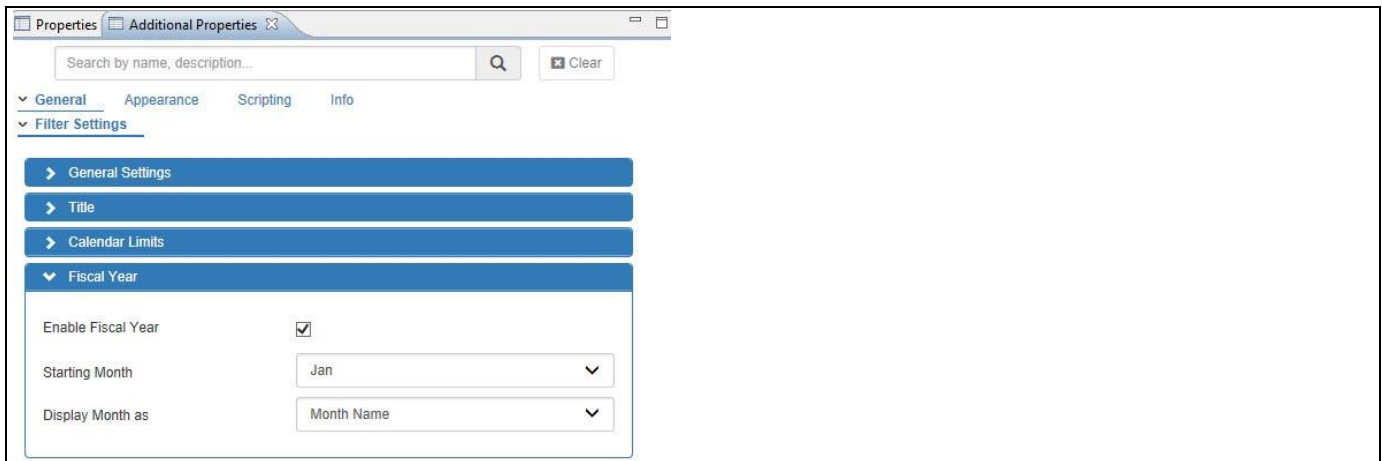


Figure 5.29: Fiscal Year – Period Selector YQM

In addition you can configure if the Month should be displayed with the Month Name or as Month Number.

5.5.2 Additional Properties for the Period Selector YQM

As a custom component the Period Selector YQM also comes with a set of Additional Properties. The Period Selector YQM provides Additional Properties in the categories: General and Appearance. In the following sections you will find a list of available properties and a Table with a more detailed description of each of those.

5.5.2.1 Category General

Sub category	Area	Property	Description
Filter Settings	General Settings	Default Selection	Here you can specify the default values for the Period Selector. The available options are Empty Selection, Use Current Month, Use Current Quarter and Use Custom Period.
		Return Format – Month/Year	Here you can specify the format for the return value of the Month/Year for the Period Selector. The format will not influence the actual display of the Period Selector, but will set the format that is being returned by the scripting functions.
		Return Format Quarter / Year	Here you can specify the format for the return value of the Quarter/Year for the Period Selector. The format will not influence the actual display of the Period Selector, but will set the format that is being returned by the scripting functions.
		Custom Format	Here you can specify the Custom Format for the Month/Quarter, Month Value and the Year.
	Title	Enable Filter Title	Here you can enable/disable the Title for the Period Selector YQM.
		Title Text	Here you can specify the Text for the Title of the Period Selector YQM.
		Font Family	Here you can specify the Font Type for the Title of the Period Selector YQM.
		Font Size	Here you can specify the Font Size for the Title of the Period Selector YQM.
		Font Color	Here you can specify the Font Color for the Title of the Period Selector YQM.
		Font Style	Here you can specify the Font Style for the Title of the Period Selector YQM.
	Calendar Limits	Enable Calendar Limits	This property enables / disables the Calendar Limits.
		Starting Month	Here you can specify the starting month for the Calendar Limits.
		Starting Year	Here you can specify the starting year for the Calendar Limits.

Sub category	Area	Property	Description
		Ending Month	Here you can specify the end Month for the Calendar Limits.
		Ending Year	Here you can specify the end year for the Calendar Limits.
		Enable Offset	Here you can enable/disable the option Offset for the Period Selector YQM.
		Start Year Offset	Here you can define the Offset value for the Start Year.
		End Year Offset	Here you can define the Offset value for the End Year.
	Fiscal Year	Enable Fiscal Year	Enables / Disables the Fiscal Year option.
		Starting Month	Specify the year value for the starting month of the Fiscal Year.
		Display Month as	Sets the display format for the month value. You can choose a month number or the month name.

Table 5.18: Category General

5.5.2.2 Category: Appearance

Sub category	Area	Property	Description
Filter	General Settings	Border Width	Sets the Border Width for the Period Selector.
		Border Color Year	Sets the Border Color for the box around the Year Text.
		Border Color - Month Quarter	Sets the Border Color for the box around the Quarter and Month Text.
		Layout	Sets the Layout for the Month display. The options are Left to Right and Top to Bottom.
		Enable Minimize Maximize	This option allows the user to minimize and restore the Period Selector, like a standard window as part of the Windows operating system.
	Month Text	Font Family	Sets the Font Family for the Month Text.
		Font Size	Sets the Font Size for the Month Text.
		Font Color	Sets the Font Color for the Month Text.
		Font Style	Sets the Font Weight for the Month Text.

Sub category	Area	Property	Description
		Selected Color	Sets the color for the selected values for the Month Text.
		Hover Color	Sets the Hover Color for the Month Text.
	Month Background	Background Color	Sets the default Background Color for the calendar month.
		Selected Color	Sets the Background Color for the selected value for calendar month.
		Hover Color	Sets the Background Hover Color for the calendar month.
	Quarter Text	Font Family	Sets the Font Family for the Quarter Text.
		Font Size	Sets the Font Size for the Quarter Text.
		Font Color	Sets the Default Font Color for the Quarter Text.
		Font Style	Sets the Font Weight for the Quarter Text.
		Selected Color	Sets the color for the selected values for the Quarter Text.
		Hover Color	Sets the Hover Color for the Quarter Text.
	Quarter Background	Background Color	Sets the default Background Color for the calendar quarter.
		Selected Color	Sets the Background Color for the selected value for the calendar quarter.
		Hover Color	Sets the Background Hover Color for the calendar quarter.
	Year Text	Font Color	Sets the Font color for the Year Text.
	Year Background	Background Color	Sets the Background Color for the year value.

Table 5.19: Category Appearance

5.5.3 Scripting Functions for the Period Selector YQM

The following Table outlines the available scripting functions for the Period Selector YQM.

Function / Method	Description
DSXAddTimeFrame(intervalType, interval)	The function allows to add a specific time interval to the current value of the period selector. The available Interval Types are 'm' for Month and 'y' for Year.
DSXClearSelection()	This function allows you to clear any selection from the Period Selector YQM.
DSXEnableFiscalYear()	The function allows you to enable/disable the Fiscal Year option for the Period Selector.
DSXGetFiscalMonthDisplay()	The function retrieves the display option for the Fiscal Month where '0' indicates Month name and '1' indicates Month number.
DSXGetFiscalStartingMonth()	The function retrieves the starting month of the Fiscal Year.
DSXGetFiscalStartingYear()	The function retrieves the starting year of the Fiscal Year.
DSXGetFiscalYearDisplay()	The function retrieves the display option for the Fiscal Year where '0' indicates Calendar Year and '1' indicates Fiscal Year.
DSXGetFiscalYearLabel()	The function retrieves the Fiscal Year label of the Fiscal Year.
DSXGetSelectedMonth()	The function allows you to retrieve the selected month value.
DSXGetSelectedQuarter()	The function allows you to retrieve the selected quarter value.
DSXGetSelectedValueInDateFormat()	The function allows you to retrieve the selected value (year and month) based on the specified format from the Additional Properties.
DSXGetSelectedYear()	The function allows you to retrieve the selected year value.
DSXGetVisible()	This function allows to retrieve the visibility of Period Selector YQM.
DSXIsFiscalYearEnabled()	The function returns TRUE if Fiscal Year is enabled and FALSE if not.
DSXOnClick()	This function executes the OnClick event for the component.
DSXSetEndYear()	This function allows to set the End Year for the component.
DSXSetFiscalMonthDisplay()	The function sets the display option for the Fiscal Month where '0' indicates Month name and '1' indicates Month number.
DSXSetFiscalStartingMonth()	The function sets the starting month of the Fiscal period.
DSXSetFiscalStartingYear()	The function sets the starting year of the Fiscal period.
DSXSetFiscalYearDisplay()	The function sets the display option for the Fiscal Year where '0' indicates Calendar Year and '1' indicates Fiscal Year.
DSXSetFiscalYearLabel()	The function sets the Fiscal Year label of the Fiscal Year.
DSXSetMonth()	The function allows to set the selected Month for the Period

Function / Method	Description
	Selector.
DSXSetMonthYearDateFormat()	This function allows to set the date format for the Month / Year return value.
DSXSetQuarter()	The function allows to set the selected Quarter for the Period Selector.
DSXSetQuarterYearDateFormat()	This function allows to set the date format for the Quarter / Year return value.
DSXSetStartYear()	This function allows to set the Start Year for the component.
DSXSetTimePeriod(value)	The function sets the default Time Period.
DSXSetVisible()	This function allows to set the visibility of Period Selector YQM.

Table 5.20: Scripting Functions

Returned Values – Month or Quarter

Please note, that the scripts DSXGetSelectedMonth() and DSXGetSelectedQuarter() will only return values, if a month / quarter has been selected. For example, if you are selecting a quarter, then the function DSXGetSelectedMonth() will return null and if you have selected a month then the function DSXGetSelectedQuarter() will return null.

Returned Values – Custom Format

Similar to the returned values for the month and quarter selection, the component will return the values in the custom Month / Year format in case a month was selected and in the custom Quarter / Year format in cases where a quarter was selected.

5.5.4 Events for the Period Selector YQM

The following Table outlines the available events for the Period Selector YQM.

Event	Description
OnSelect	Using this property, you can enable interaction with the component by writing scripts. The on Select event is triggered when the selects a value in the component.

Table 5.21: Events

5.6 Period Selector YQM MultiSelect

The Period Selector YQM MultiSelect (see Figure 5.30) provides you with the ability to add a selector to your dashboard which will allow you to select a value for the year, a quarter, and a value for the month with one simple control.

Period Selector YQM MultiSelect			
2013	2014	2015	2016
Q1	Q2	Q3	Q4
Jan	Apr	Jul	Oct
Feb	May	Aug	Nov
Mar	Jun	Sep	Dec

Figure 5.30: Period Selector YQM MultiSelect

In addition to being able to select a year, quarter, and month, this component allows you to select multiple values across multiple years.

5.6.1 Features of Period Selector YQM MultiSelect

In the following sections we will review the features of the Period Selector YQM MultiSelect.

5.6.1.1 Calendar Limits

In the Additional Properties of the Period Selector YQM MultiSelect in the category General and the sub category Filter Settings, you have the option to define the Calendar Limits based on the Current Year and a defined offset for the start and end year.

For our example, enable the option Enable Offset and set the property “Start Year Offset” to the value -3 and set the property “End Year Offset” to the value 3 based on the Current Year 2017 (see Figure 5.31).

Additional Properties

Search by name, description...
Clear

General
Appearance
Scripting
Info

Filter Settings

General Settings

Default Selection

☐ Empty Selection
☒ Use Current Month
☐ Use Current Quarter
☐ Use Current Year
☐ Use Custom Period

Return Format - Date Format
YYYYMM

Return Format Delimiter
Semicolon(;)

No of Year Display
4

Title

Calendar Limits

Enable Calendar Limits
☐

Starting Year
2015

Ending Year
2018

Enable Offset
☒

Start Year Offset
-3

End Year Offset
3

Figure 5.31: Enable Offset

Based on the above configuration you will be able to view the Period Selector YQM MultiSelect as shown in the Figure 5.32 and Figure 5.33.

Our example shows the years from 2014 to 2020, based on the current year being 2017.

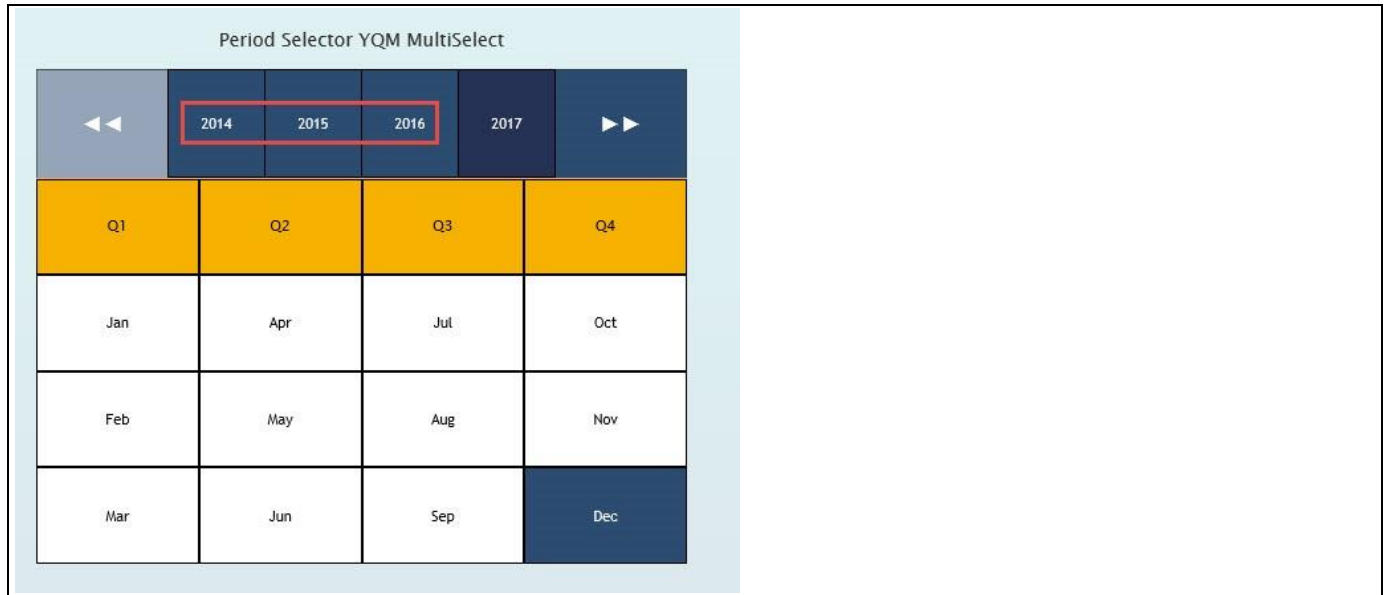


Figure 5.32: Start Year Offset

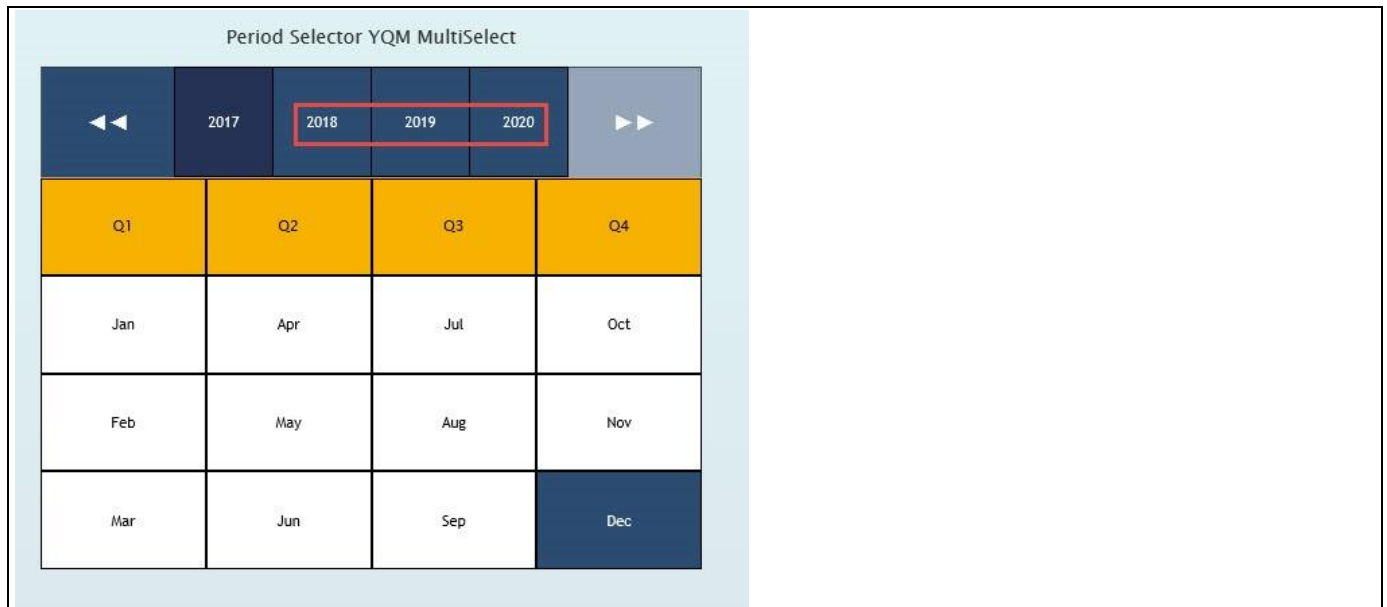


Figure 5.33: End Year Offset

5.6.1.2 Number of Year Display

In the Additional Properties of the Period Selector YQM MultiSelect in the category Filter and the sub category Filter Settings, you have the option to define the number of Calendar Years in a flexible way beyond a fixed set of 4 years. For our example the Number of Year Display has been set to the value 5 (see Figure 5.34).

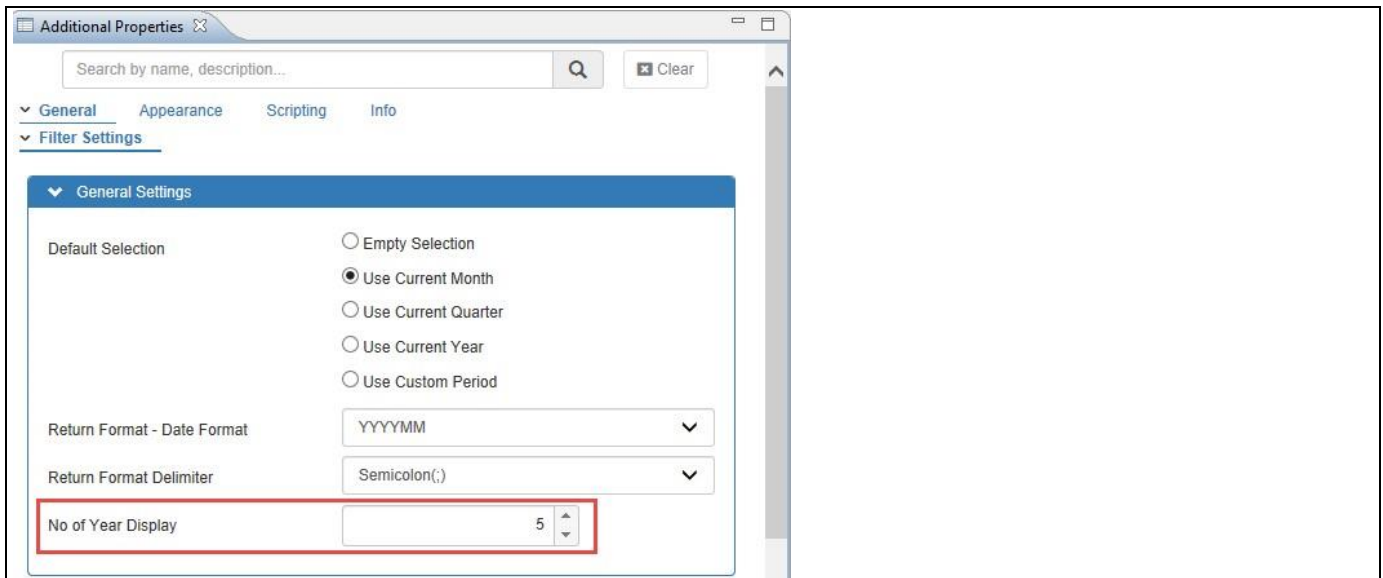


Figure 5.34: Number of Year Display

Based on the above configuration you will be able to view the Period Selector YQM MultiSelect as shown in the Figure 5.35.

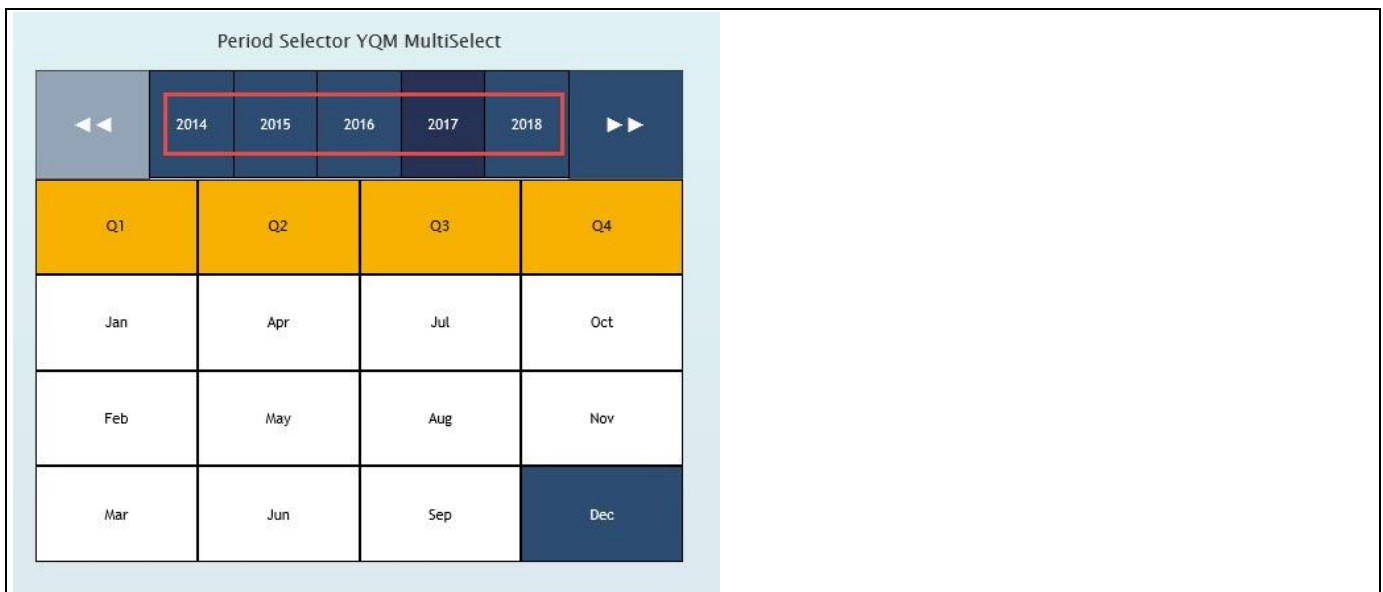


Figure 5.35: Number of Year Display

5.6.1.3 Layout Properties for Month Display

In the Additional Properties of the Period Selector YQM MultiSelect in the category Appearance and the sub category Filter, you will be able to set the layout to the option “Left to Right” as shown in Figure 5.36. By default, the months in the Period Selector will be displayed from Top to Bottom order. When the layout is changed to the option “Left to Right”, then the months in the Period Selector will be displayed from Left to Right order along with the Quarters being displayed on the left side as first column.

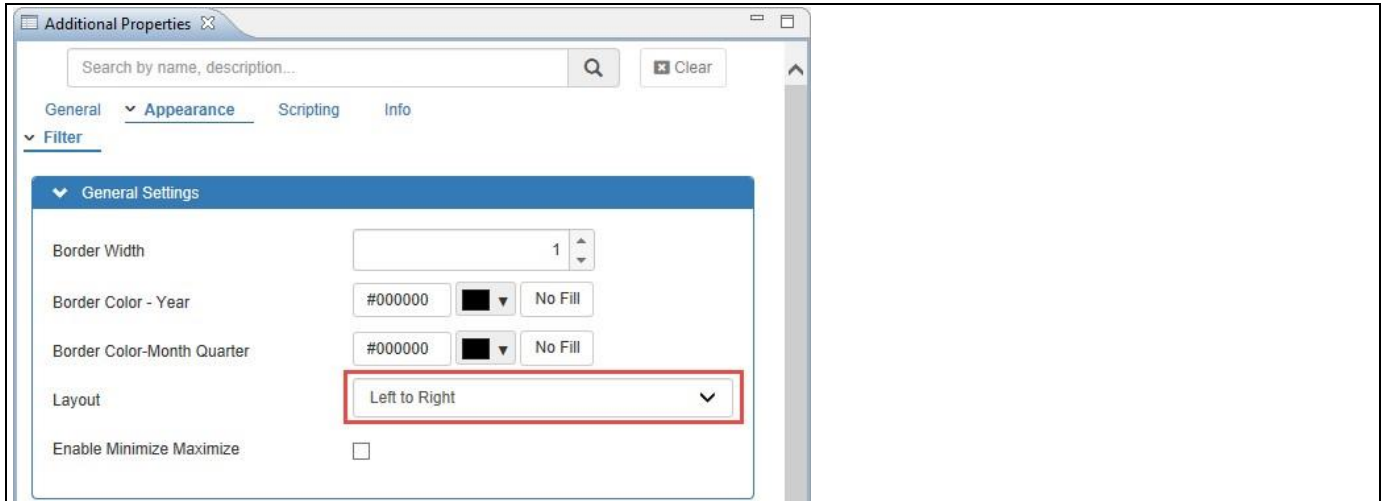


Figure 5.36: Layout for Month Display

Based on the above configuration you will be able to view the Period Selector YQM MultiSelect as shown in the Figure 5.37.

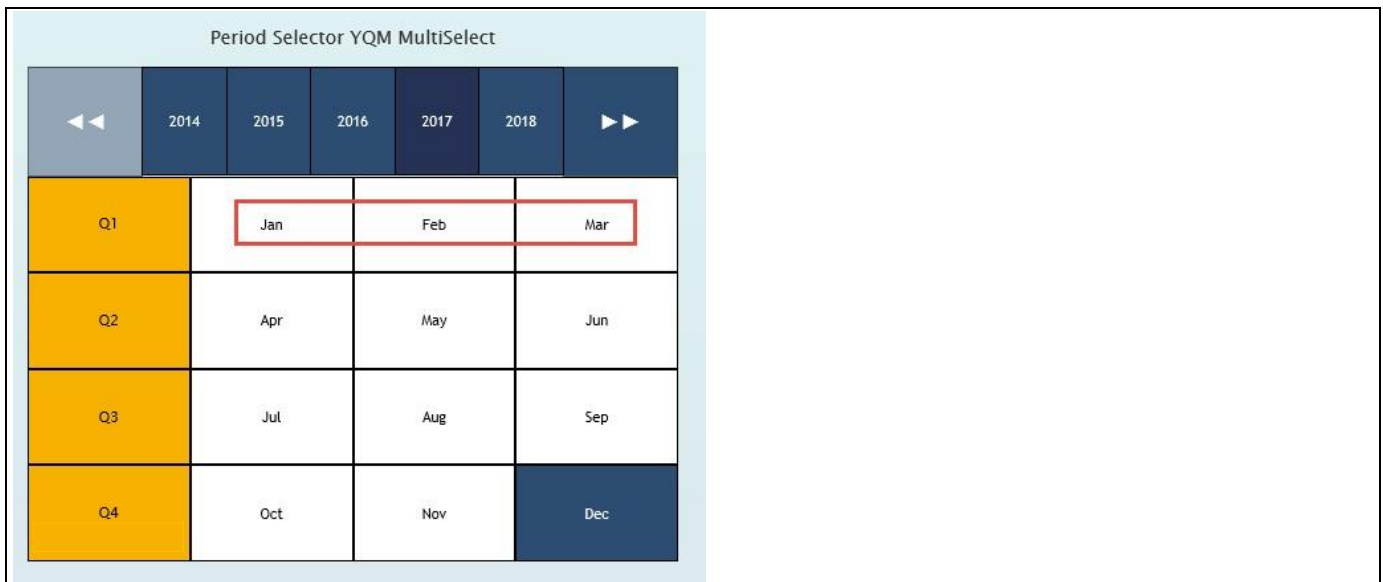


Figure 5.37: Left to Right Month Display

5.6.1.4 Maximize and Minimize options

In the Additional Properties of the Period Selector YQM MultiSelect in the category Appearance and the sub category Filter, you have the ability to enable the option Enable Minimize Maximize. This option will allow the user to minimize and restore the Period Selector, like a standard window as part of the Windows operating system (see Figure 5.38).

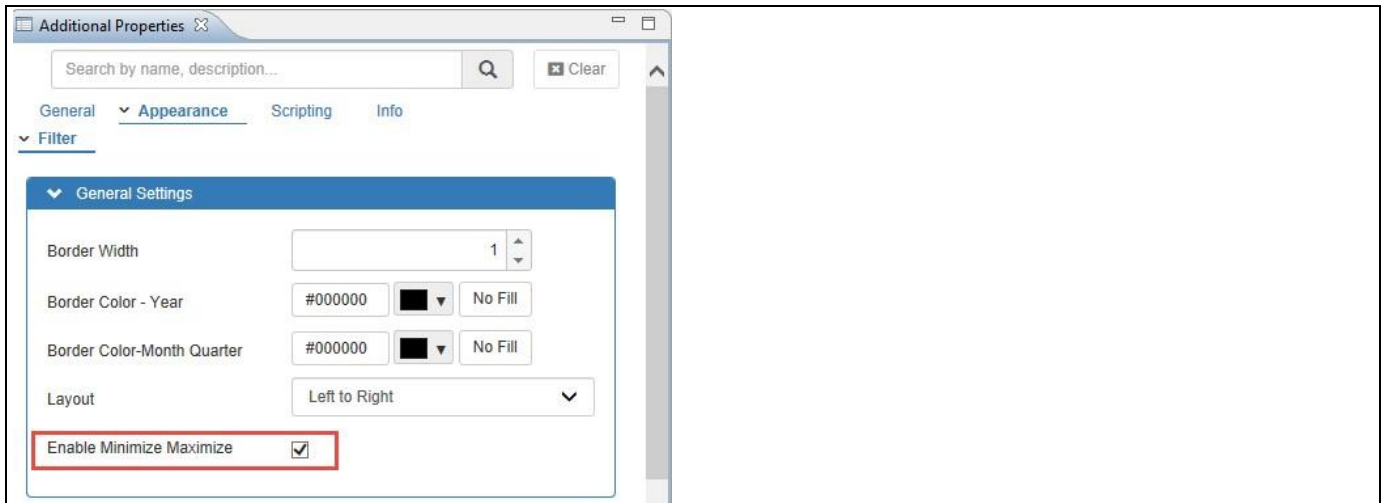


Figure 5.38: Enable Minimize and Maximize

Figure 5.39 shows an example of a maximized Period Selector.

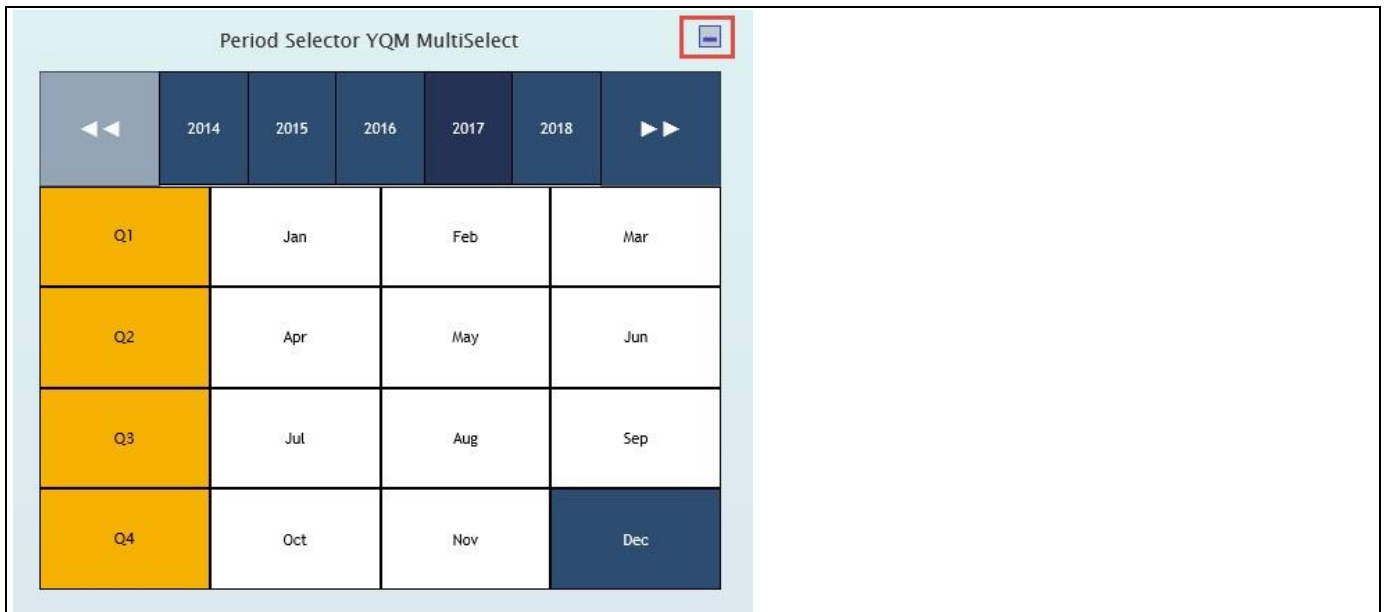


Figure 5.39: Maximized Period Selector

Figure 5.40 shows an example of a minimized Period Selector with the header text for the Period Selector shown.

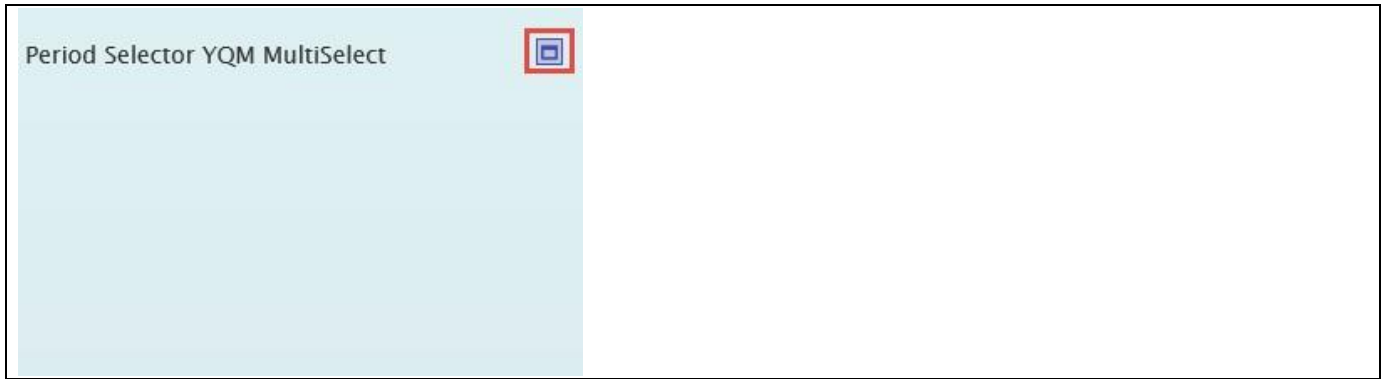


Figure 5.40: Minimized Period Selector

5.6.1.5 Return Formats

In the Additional Properties of the Period Selector YQM MultiSelect the dashboard designer has the option to specify the Return Format of the selected value. The specified Return Format can then be used as part of the scripting for the Period Selector and the dashboard designer can use the returned value in the specified format and use the value as a filter value for a data source. The Period Selector YQM MultiSelect allows the dashboard designer to specify a date format from the list of 6 standard return formats such as YYYYMM, MM.YYYY, YYYYMMM (see Figure 5.41). The dashboard designer can also define a custom format using the option “Custom Format”.

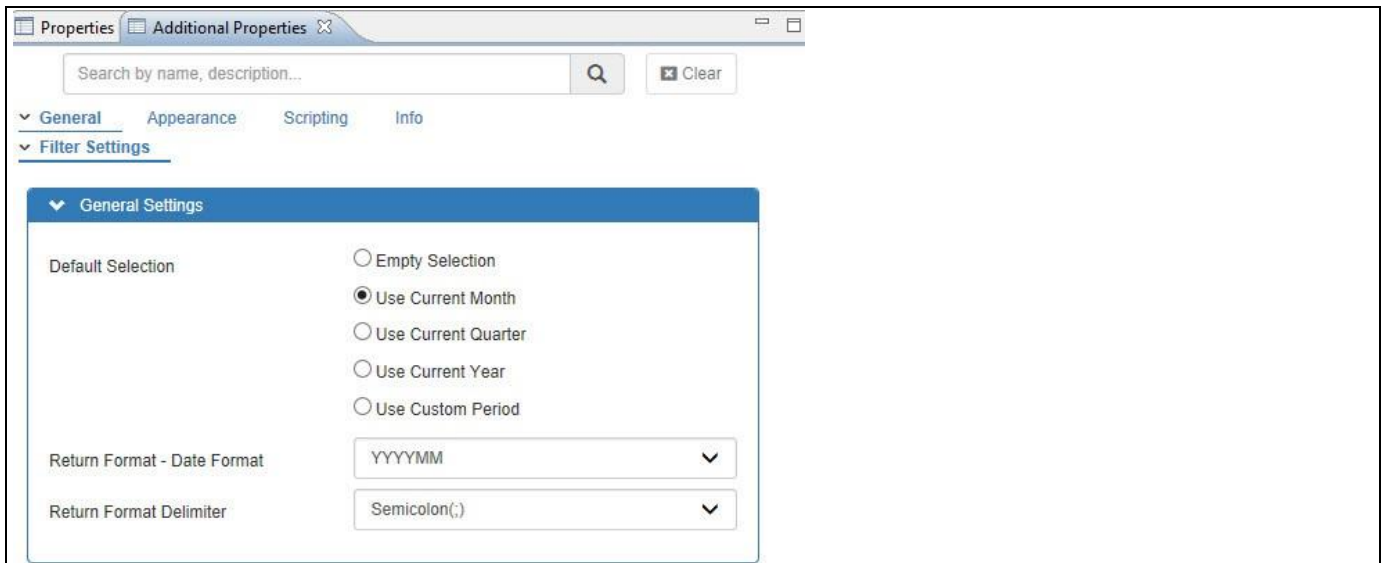


Figure 5.41: Return Formats – Period Selector YM

The option “Custom Format” allows you to use the following format options to specify a custom format for the return value:

Format	Description
m	Displays the month values as 1 – 12.
mm	Displays the month values as 01 – 12.
mmm	Displays the month values as Jan – Dec.

Format	Description
mmmm	Displays the month values as January – December.
yy	Displays the year value as 00 – 99.
yyyy	Displays the year value as '1900 – 9999'
q	Displays the quarter values as 1 – 4.
qq	Displays the quarter values as 01 – 04.
qqq	Displays the quarter values as Q1 – Q4.
qqqq	Displays the quarter values as Quarter 1 – Quarter 4.

Table 5.22: Custom Formats – Period Selector YQM

For Example, a combination of month and year separated by symbols (like '-', '/', etc.) could be specified as 'mmm/yyyy' and such a custom format would display the value as May/2015. The Custom Format will be used as the format for the scripting function .DSXGetSelectedValueInDateFormat().

5.6.1.6 Fiscal Year definition

By default, the Period Selector component displays the standard calendar month values from January to December and follows the calendar year. In case you would like to offset the calendar year to a fiscal year, you can activate the Fiscal Year option in the Additional Properties (see Figure 5.42). With the Fiscal Year option you can configure the Starting Month and the Fiscal Year Label. For example, if April 2015 is the start of your Fiscal Year 2016, you would configure April as the first month and enter 2016 as the Fiscal Year Label.

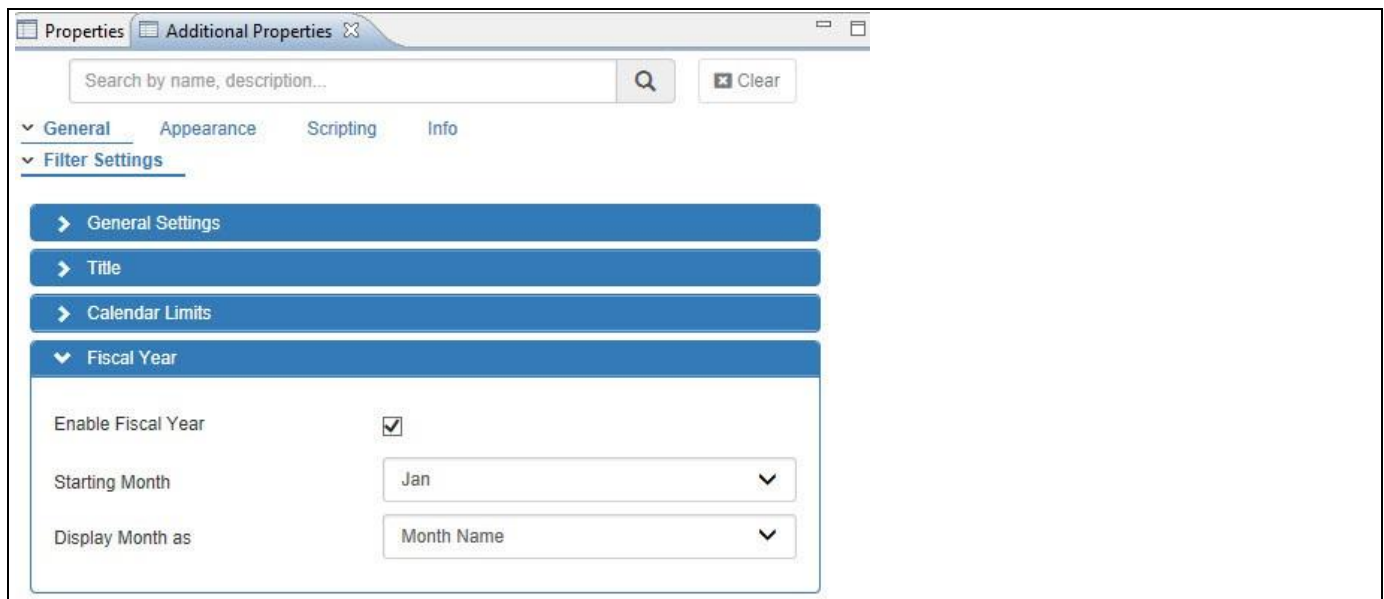


Figure 5.42: Fiscal Year – Period Selector YM

In addition you can configure if the Month should be displayed with the Month Name or as Month Number.

5.6.2 Additional Properties of the Period Selector YQM MultiSelect

As a custom component the Period Selector YQM MultiSelect component also comes with a set of Additional Properties. In the following sections you will find a list of available properties and a Table with a more detailed description of each of those properties.

5.6.2.1 Category General

Sub category	Area	Property	Description
Filter Settings	General Settings	Default Selection	Here you can specify the default values for the Period Selector. The available options are Empty Selection, Use Current Month, Use Current Quarter, Use Current Year and Use Custom Period.
		Return Format - Date Format	Here you can specify the format for the return value for the Period Selector. The format will not influence the actual display of the Period Selector, but will set the format that is being returned by the scripting functions.
		Return Format Delimiter	Here you can specify the delimiter that will be used to separate the values in case you select multiple values. The options are semicolon, comma and Forward Slash.
		Custom Format	Here you can specify the Custom Format for the Period, Month and the Year.
	Title	Enable Filter Title	Here you can enable/disable the Title for the Period Selector YQM MultiSelect.
		Title Text	Here you can specify the Text for the Title of the Period Selector YQM MultiSelect.
		Font Family	Here you can specify the Font Type for the Title of the Period Selector YQM MultiSelect.
		Font Size	Here you can specify the Font Size for the Title of the Period Selector YQM MultiSelect.
		Font Color	Here you can specify the Font Color for the Title of the Period Selector YQM MultiSelect.
		Font Style	Here you can specify the Font Style for the Title of the Period Selector YQM MultiSelect.
	Calendar Limits	Enable Calendar Limits	This property enables / disables the Calendar Limits.
		Starting Year	Here you can specify the starting year for the Calendar Limits.
		Ending Year	Here you can specify the end year for the Calendar Limits.
		Enable Offset	Here you can enable/disable the option Offset for the Period Selector YQM

Sub category	Area	Property	Description
			MultiSelect.
		Start Year Offset	Here you can define the Offset value for the Start Year.
		End Year Offset	Here you can define the Offset value for the End Year.
	Fiscal Year	Enable Fiscal Year	Enables / Disables the Fiscal Year option.
		Starting Month	Specify the year value for the starting month of the Fiscal Year.
		Display Month as	Sets the display format for the month value. You can choose a numeric value or the month name.

Table 5.23: Category General

Period Selector YQM - MultiSelect

Please note, that the Period Selector YQM MultiSelect component will always display 4 years right now. The functionality to have a flexible number of years is planned for a future release.

5.6.2.2 Category Appearance

Sub category	Area	Property	Description
Filter	General Settings	Border Width	Sets the Border Width for the Period Selector.
		Border Color - Year	Sets the Border Color for the box around the Year Text.
		Border Color - Month Quarter	Sets the Border Color for the box around the Quarter and Month Text.
		Layout	Sets the Layout for the Month display. The options are Left to Right and Top to Bottom.
		Enable Minimize Maximize	This option allows the user to minimize and restore the Period Selector, like a standard window as part of the Windows operating system.
	Month Text	Font Family	Sets the Font Family for the Month Text.
		Font Size	Sets the Font Size for the Month Text.
		Font Color	Sets the Font Color for the Month Text.
		Font Style	Sets the Font Weight for the Month Text.

Sub category	Area	Property	Description
		Selected Color	Sets the color for the selected values for the Month Text.
		Hover Color	Sets the Hover Color for the Month Text.
	Month Background	Background Color	Sets the default Background Color for the calendar month.
		Selected Color	Sets the Background Color for the selected value for calendar month.
		Hover Color	Sets the Background Hover Color for the calendar month.
	Quarter Text	Font Family	Sets the Font Family for the Quarter Text.
		Font Size	Sets the Font Size for the Quarter Text.
		Font Color	Sets the Default Color for the Quarter Text.
		Font Style	Sets the Font Weight for the Quarter Text.
		Selected Color	Sets the color for the selected values for the Quarter Text.
		Hover Color	Sets the Hover Color for the Quarter Text.
	Quarter Background	Background Color	Sets the default Background Color for the calendar quarter.
		Selected Color	Sets the Background Color for the selected value for the calendar quarter.
		Hover Color	Sets the Background Hover Color for the calendar quarter.
	Year Text	Font Family	Sets the Font Family for the Year Text.
		Font Size	Sets the Font Size for the Year Text.
		Font Color	Sets the Default color for the Year Text.
		Font Style	Sets the Font Weight for the Year Text.
		Selected Color	Sets the color for the selected values for the Year Text.
		Hover Color	Sets the Hover Color for the Year Text.
	Year Background	Background Color	Sets the Background Color for the year value.
		Selected Color	Sets the color for the selected year value.
		Hover Color	Sets the Hover Color for the Year value.

Table 5.24: Category Appearance

5.6.3 Scripting Functions for the Period Selector YQM MultiSelect

The following Table outlines the available scripting functions for the Period Selector YQM MultiSelect.

Function / Method	Description
DSXClearSelection()	This function allows you to clear any selection from the Period Selector YQMM.
DSXEnableFiscalYear()	The function allows you to enable/disable the Fiscal Year option for the Period Selector.
DSXGetEndYear()	This function allows to retrieve the End Year of the component.
DSXGetFiscalMonthDisplay()	The function retrieves the display option for the Fiscal Month.
DSXGetFiscalStartingMonth()	The function retrieves the starting month of the Fiscal Year.
DSXGetFiscalStartingYear()	The function retrieves the starting year of the Fiscal Year.
DSXGetFiscalYearDisplay()	The function retrieves the display option for the Fiscal Year.
DSXGetFiscalYearLabel()	The function retrieves the Fiscal Year label of the Fiscal Year.
DSXGetSelectedMonth()	The function allows you to retrieve the selected month value.
DSXGetSelectedMonthArray()	The function allows you to retrieve the selected month value. The returned value is an array with all selected months values.
DSXGetSelectedQuarter()	The function allows you to retrieve the selected quarter value.
DSXGetSelectedQuarterArray()	The function allows you to retrieve the selected quarter value. The returned value is an array with all selected quarter values.
DSXGetSelectedValueInDateFormat()	The function allows you to retrieve the selected value (year and month) based on the specified format from the Additional Properties.
DSXGetSelectedValueInDateFormatArray()	The function allows you to retrieve the selected values (year and month) based on the specified format from the Additional Properties. The returned value is an array with all selected values.
DSXGetSelectedYear()	The function allows you to retrieve the selected year value.
DSXGetSelectedYearArray()	The function allows you to retrieve the selected year value. The returned value is an array with all selected year values.
DSXGetStartYear()	This function allows to retrieve the Start Year of the component.
DSXGetVisible()	This function allows to retrieve the visibility of Period Selector YQM Mutiselect.
DSXIsFiscalYearEnabled()	The function returns TRUE if Fiscal Year is enabled and FALSE if not.
DSXOnClick()	This function executes the OnClick event for the component.
DSXSetDateFormat()	This function allows to set the Date Format for the

Function / Method	Description
	component.
DSXSetDelimiter()	This function allows to set the Delimiter for the component.
DSXSetEndYear()	This function allows to set the End Year for the component.
DSXSetFiscalMonthDisplay()	The function sets the display option for the Fiscal Month.
DSXSetFiscalStartingMonth()	The function sets the starting month of the Fiscal period.
DSXSetFiscalStartingYear()	The function sets the starting year of the Fiscal period.
DSXSetFiscalYearDisplay()	The function sets the display option for the Fiscal Year.
DSXSetFiscalYearLabel()	The function sets the Fiscal Year label of the Fiscal Year.
DSXSetMonth()	The function allows to set the Month for the Period Selector.
DSXSetQuarter()	The function allows to set the Quarter for the Period Selector.
DSXSetStartYear()	This function allows to set the Start Year for the component.
DSXSetVisible()	This function allows to set the visibility of Period Selector YQM Mutiselect.
DSXSetYear()	The function allows to set the Year for the Period Selector.

Table 5.25: Scripting Functions

5.6.4 Events for the Period Selector YQM MultiSelect

The following Table outlines the available events for the Period Selector YQM MultiSelect component.

Event	Description
OnSelect	Using this property, you can enable interaction with the component by writing scripts. The on Select event is triggered when the selects a value in the component.

Table 5.26: Events

5.7 Period Selector DWM

The Period Selector DWM (see Figure 5.43) provides you with the ability to add a selector to your dashboard which will allow you to select a value for the day, a week, a month and a value for the year with one simple control.



Figure 5.43: Period Selector DWM

5.7.1 Features of Period Selector DWM

In the following sections we will review the features of the Period Selector DWM.

5.7.1.1 Default Selection and Return Formats

In the Additional Properties of the Period Selector DWM the dashboard designer has the option to specify the Return Format of the selected value. The specified Return Format can then be used as part of the scripting for the Period Selector and the dashboard designer can use the returned value in the specified format and use the value as a filter value for a data source. The Period Selector DWM allows the dashboard designer to specify a date format from the list of 8 standard return formats such as mm/d/yy, mm-dd-yy, m.dd.yy, mmm-yyyy, mmmm-yy-w, DD-yy, D-yy and w-mmmm-yyyy (see Figure 5.44). The dashboard designer can also define a custom format using the option "Custom Format".

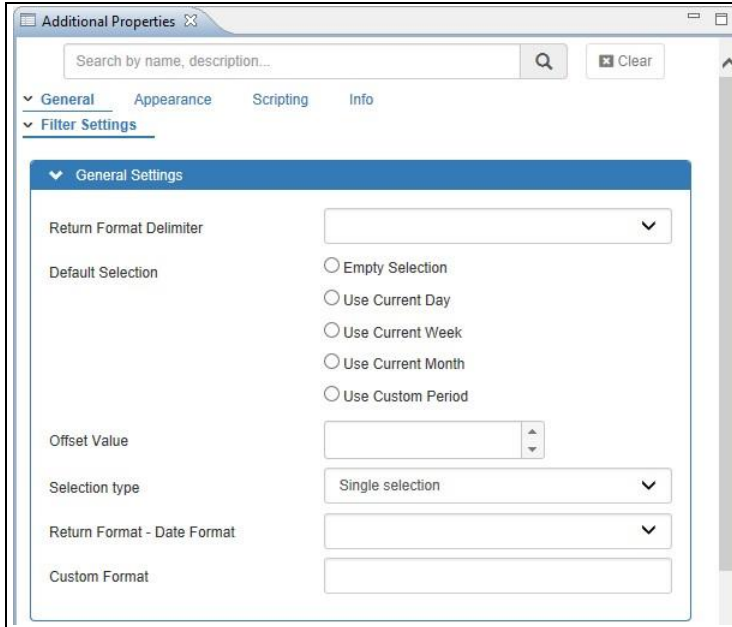


Figure 5.44: Return Formats – Period Selector DWM

The option “Custom Format” allows you to use the following format options to specify a custom format for the return value:

Format	Description
m	Displays the month values as 1 – 12.
mm	Displays the month values as 01 – 12.
mmm	Displays the month values as Jan – Dec.
mmmm	Displays the month values as January – December.
d	Displays the month values as 1 – 30.
dd	Displays the month values as 01 – 30.
D	Displays the date values as Mon – Sun.
DD	Displays the date values as Monday – Sunday.
yy	Displays the year value as 00 – 99.
yyyy	Displays the year value as ‘1900 – 9999’
w	Displays the week values as 1 – 52.
ww	Displays the week values as week1 - week52.

Table 5.27: Custom Formats – Period Selector DWM

5.7.1.2 Calendar Limits and Offset Values

In the Additional Properties of the Period Selector DWM in the category General and the sub category Filter Settings, you have the option to define the Calendar Limits for the Starting Month/Year and Ending Month/Year and define the offset values based on the defined Calendar Limits. The offset value will react based on the default selection on day, week and month.

For our example, enable the option Enable Calendar Limits. Set the property “Starting Month” to the value 2, Starting Year to the value “2018”, Ending Month to the value 2 and set the property “Ending Year” to the value “2019”. Now set the property “Offset value” to the value 2 (see Figure 5.45).

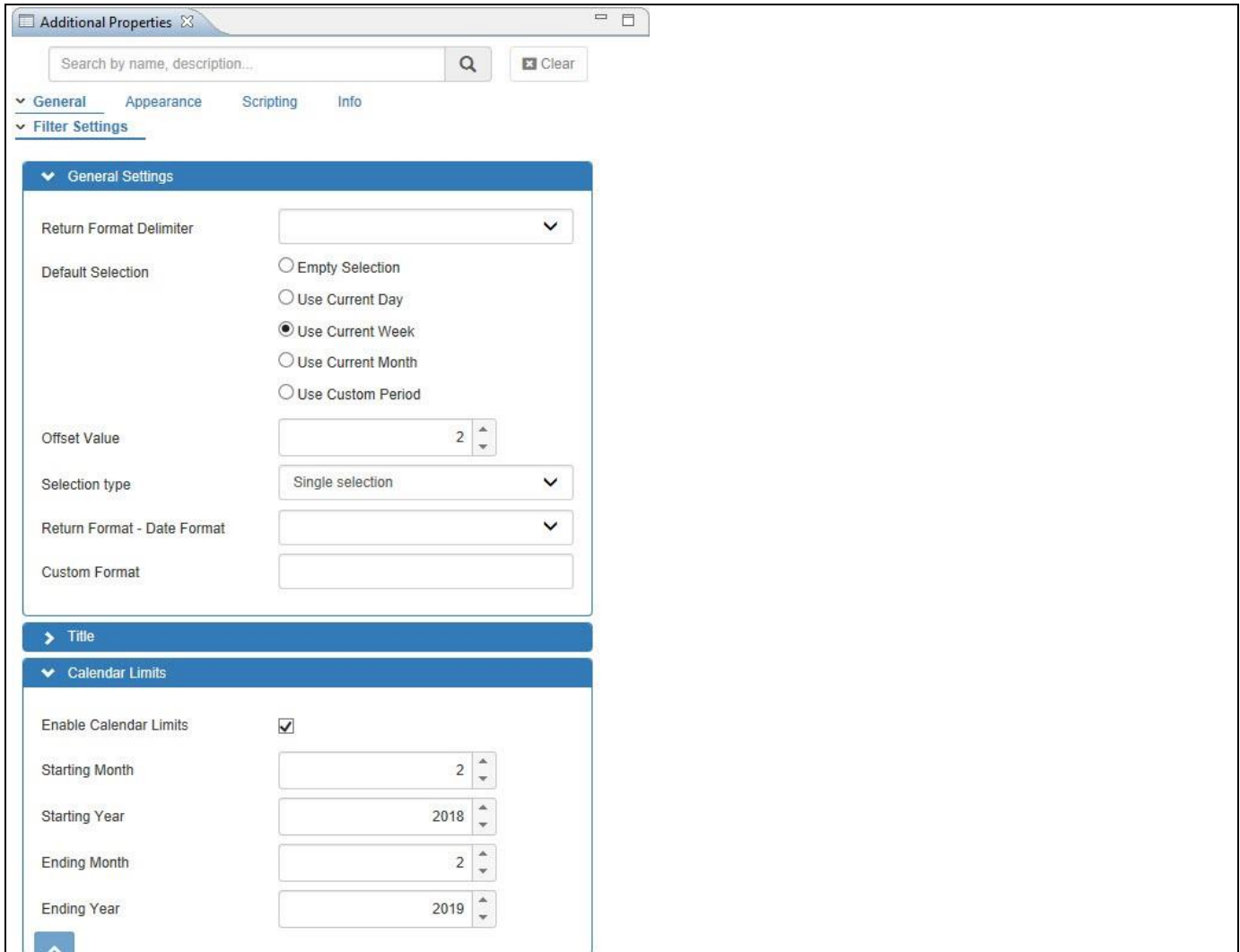


Figure 5.45: Enable Calendar Limit and Offset

Based on the above configuration you will be able to view the Period Selector DWM as shown in the Figure 5.46. In our example, the Period Selector DWM shows the 8th week since the Offset Value is set to the value 2 from the current week which falls on 6th week and the calendar limits are defined from Feb 2 2018 to Feb 2 2019 which is within the range (see Figure 5.46).

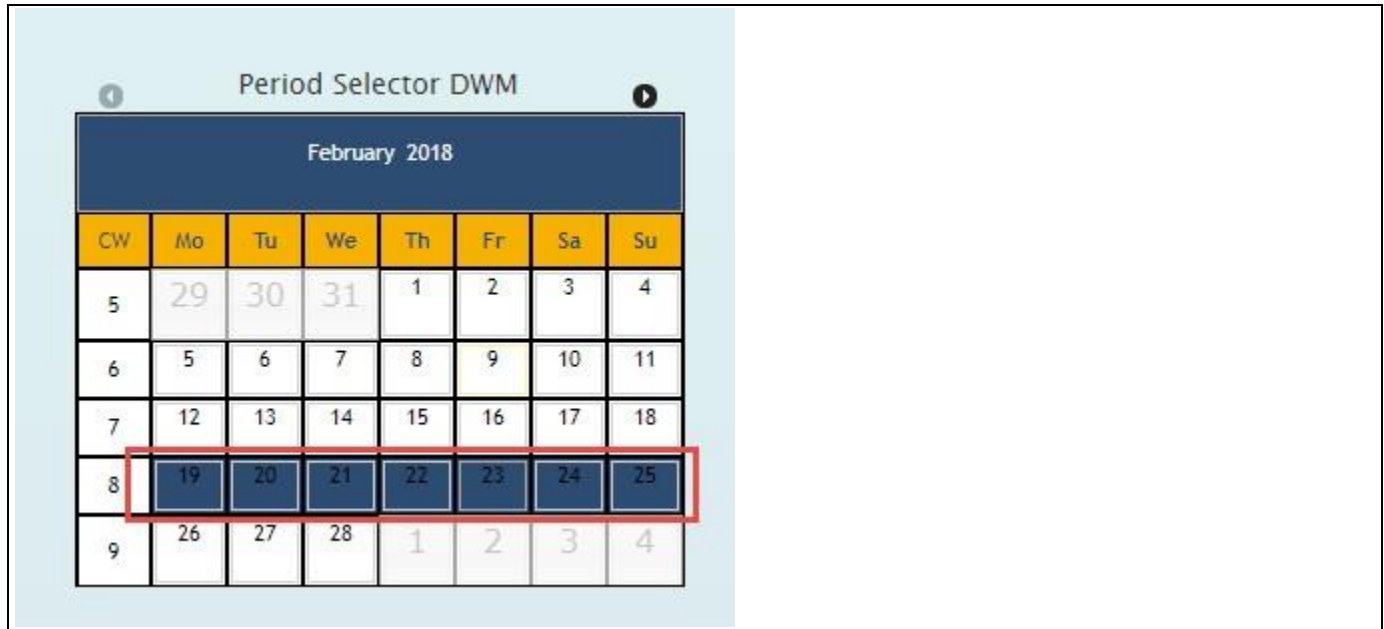


Figure 5.46: Period Selector DWM with defined Offset Value

5.7.2 Additional Properties of the Period Selector DWM

As a custom component the Period Selector DWM component also comes with a set of Additional Properties. In the following sections you will find a list of available properties and a Table with a more detailed description of each of those properties.

5.7.2.1 Category General

Sub category	Area	Property	Description
Filter Settings	General Settings	Return Format Delimiter	Here you can specify the delimiter that will be used to separate the values in case you select multiple values. The options are semicolon, comma and Forward Slash.
		Default Selection	Here you can specify the default values for the Period Selector DWM. The available options are Empty Selection, Use Current Day, Use Current Week, Use Current Month, and Use Custom Period.
		Offset Value	Here you can define the Offset value for the Period Selector DWM.
		Selection Type	Here you can set the Selection Type for the Period Selector DWM. The options are Single selection and Multi selection.
		Return Format - Date Format	Here you can specify the format for the return value for the Period Selector DWM. The format will not influence the actual display of the Period Selector, but will set the format that is being returned by the scripting

Sub category	Area	Property	Description
			functions.
		Custom Format	Here you can specify the Custom Format for the Day, Week, Month and the Year.
	Title	Enable Filter Title	Here you can enable/disable the Title for the Period Selector DWM.
		Title Text	Here you can specify the Text for the Title of the Period Selector DWM.
		Font Family	Here you can specify the Font Type for the Title of the Period Selector DWM.
		Font Size	Here you can specify the Font Size for the Title of the Period Selector DWM.
		Font Color	Here you can specify the Font Color for the Title of the Period Selector DWM.
		Font Style	Here you can specify the Font Style for the Title of the Period Selector DWM.
	Calendar Limits	Enable Calendar Limits	This property enables / disables the Calendar Limits.
		Starting Month	Here you can specify the starting month for the Calendar Limits.
		Starting Year	Here you can specify the starting year for the Calendar Limits.
		Ending Month	Here you can specify the ending month for the Calendar Limits.
		Ending Year	Here you can specify the ending year for the Calendar Limits.

Table 5.28: Category General

5.7.2.2 Category Appearance

Sub category	Area	Property	Description
Filter	General Settings	Border Color	Sets the Border Color for the Period Selector DWM.
	Date Text	Font Family	Sets the Font Family for the Date Text.
		Font Size	Sets the Font Size for the Date Text.
		Date Text Default Color	Sets the default Font Color for the Date Text.
		Font Weight	Sets the Font Weight for the Date Text.
		Date Text Hover Color	Sets the Hover Color for the Date Text.

Sub category	Area	Property	Description
	Date Background	Date Text Selected Color	Sets the color for the selected values for the Date Text.
		Date Background Color	Sets the default Background Color for the Date.
		Date Background Selected Color	Sets the Background Color for the selected value for Date.
		Date Background Hover Color	Sets the Background Hover Color for the Date.
	Days Text	Font Family	Sets the Font Family for the Days Text.
		Font Size	Sets the Font Size for the Days Text.
		Days Text Default Color	Sets the Default Color for the Days Text.
		Font Weight	Sets the Font Weight for the Days Text.
		Date Text Hover Color	Sets the Hover Color for the Days Text.
	Days Background	Days Background Color	Sets the default Background Color for the Days.
		Days Background Hover Color	Sets the Background Hover Color for the Days.
	Week Text	Font Family	Sets the Font Family for the Week Text.
		Font Size	Sets the Font Size for the Week Text.
		Week Text Default Color	Sets the Default color for the Week Text.
		Font Weight	Sets the Font Weight for the Week Text.
		Week Text Hover Color	Sets the Hover Color for the Week Text.
		Week Text Selected Color	Sets the color for the selected values for the Week Text.
	Week Background	Week Background Color	Sets the Background Color for the week value.
		Week Background Selected Color	Sets the color for the selected week value.
		Week Background Hover Color	Sets the Hover Color for the week value.
	Calendar Week Text	Font Family	Sets the Font Family for the Calendar Week Text.
		Font Size	Sets the Font Size for the Calendar Week Text.
		Font Weight	Sets the Font Weight for the Calendar Week Text.
		Calendar Week Text Hover Color	Sets the Hover Color for the Calendar Week Text.

Sub category	Area	Property	Description
	Calendar Week Background	Calendar Week Background Color	Sets the default Background Color for the Calendar Week.
		Calendar Week Background Hover Color	Sets the Background Hover Color for the Calendar Week.
	Month and Year Text	Font Family	Sets the Font Family for the Month and Year Text.
		Font Size	Sets the Font Size for the Month and Year Text.
		Month and Year Text Default Color	Sets the Default Color for the Month and Year Text.
		Font Weight	Sets the Font Weight for the Month and Year Text.
		Month and Year Text Hover Color	Sets the Hover Color for the Month and Year Text.
	Month and Year Background	Calendar Week Background Color	Sets the default Background Color for the Month and Year.
		Calendar Week Background Hover Color	Sets the Background Hover Color for the Month and Year.

Table 5.29: Category Appearance

5.7.3 Scripting Functions for the Period Selector DWM

The following Table outlines the available scripting functions for the Period Selector DWM.

Function / Method	Description
DSXGetDateFormat()	This function retrieves the Date Format for the component.
DSXGetDefaultValue()	This function retrieves the value for the Default selection.
DSXGetenablecl()	This function retrieves the value of the Calendar Limits.
DSXGetendm()	This function retrieves the value of the Ending Month.
DSXGetendy()	This function retrieves the value of the Ending Year.
DSXGetSelectedValue()	This function retrieves the array value for the selected month.
DSXGetstartm()	This function retrieves the value of the Starting Month.
DSXGetstarty()	This function retrieves the value of the Starting Year.
DSXGetVisible()	This function retrieves the visibility of the component.
DSXSetDateFormat()	This function allows to set the Date Format for the component.
DSXSetDay()	This function allows to set the Day value.
DSXSetDefaultValue()	This function allows to set the value for the Default selection.
DSXSetDelimiter()	This function allows to set the Delimiter for the component.
DSXSetenablecl()	This function allows to set the value of the Calendar Limits.
DSXSetendm()	This function allows to set the value of the Ending Month.
DSXSetendy()	This function allows to set the value of the Ending Year.
DSXSetMonth()	This function allows to set the Month value.
DSXSetstartm()	This function allows to set the value of the Starting Month.
DSXSetstarty()	This function allows to set the value of the Starting Year.
DSXSetVisible()	This function allows to set the visibility of Period Selector DWM.
DSXSetWeek()	This function allows to set the Week value.

Table 5.30: Scripting Functions

5.7.4 Events for the Period Selector DWM

The following Table outlines the available events for the Period Selector DWM component.

Event	Description
OnSelect	Using this property, you can enable interaction with the component by writing scripts. The on Select event is triggered when the user selects a value in the component.

Table 5.31: Events

5.8 Hierarchical Filter

The Hierarchical Filter is a selector component that allows you to display hierarchical data in an expandable tree view and to use the displayed hierarchical nodes and leafs for filtering. The component allows you to make a selection based on hierarchy nodes, hierarchy leafs, or hierarchy levels.



Figure 5.47: Hierarchical Filter

5.8.1 Search Functionality

The Hierarchical Filter provides you with a search functionality, which allows you to search for a particular value across the complete hierarchy. You can enable / disable the search functionality by navigating to the category General and to the sub category Filter Settings in the Additional Properties of the Hierarchical Filter.

Below are some examples for the search functionality:

For our first example, you provide the input as “ch*” and retrieves all the members that start with letters “ch” across the hierarchy and the search results are shown by still keeping the hierarchical structure intact (see Figure 5.48). As you can see the member Asia is shown, even though it is not matching the search criteria, because the child member China is matching the search criteria.



Figure 5.48: Hierarchical Filter – Search Functionality

For our second example, when you provide the input as “*ca”, the search functionality retrieves the members that ends with letters “ca” along with its hierarchical structure (see Figure 5.49).

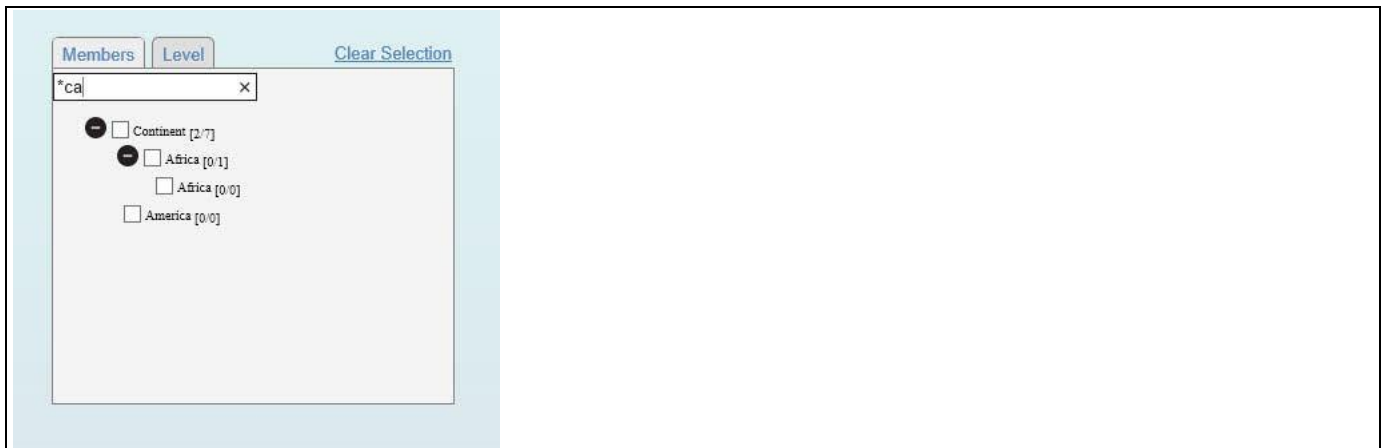


Figure 5.49: Hierarchical Filter – Search Functionality

5.8.2 Expand Level to Functionality

The Hierarchical Filter also provides a Expand Hierarchy to Level feature, that allows you to configure, how many hierarchical levels should be leveraged from the assigned hierarchy. This settings is not configuring the number of levels that will be displayed, but instead you can configure the number of levels that are being retrieved from the hierarchical data source. In the following example, we will navigate to the category General and to the sub category Filter Settings to configure the property Expand Hierarchy to Level (see Figure 5.50) to retrieve 2 levels of the hierarchy.

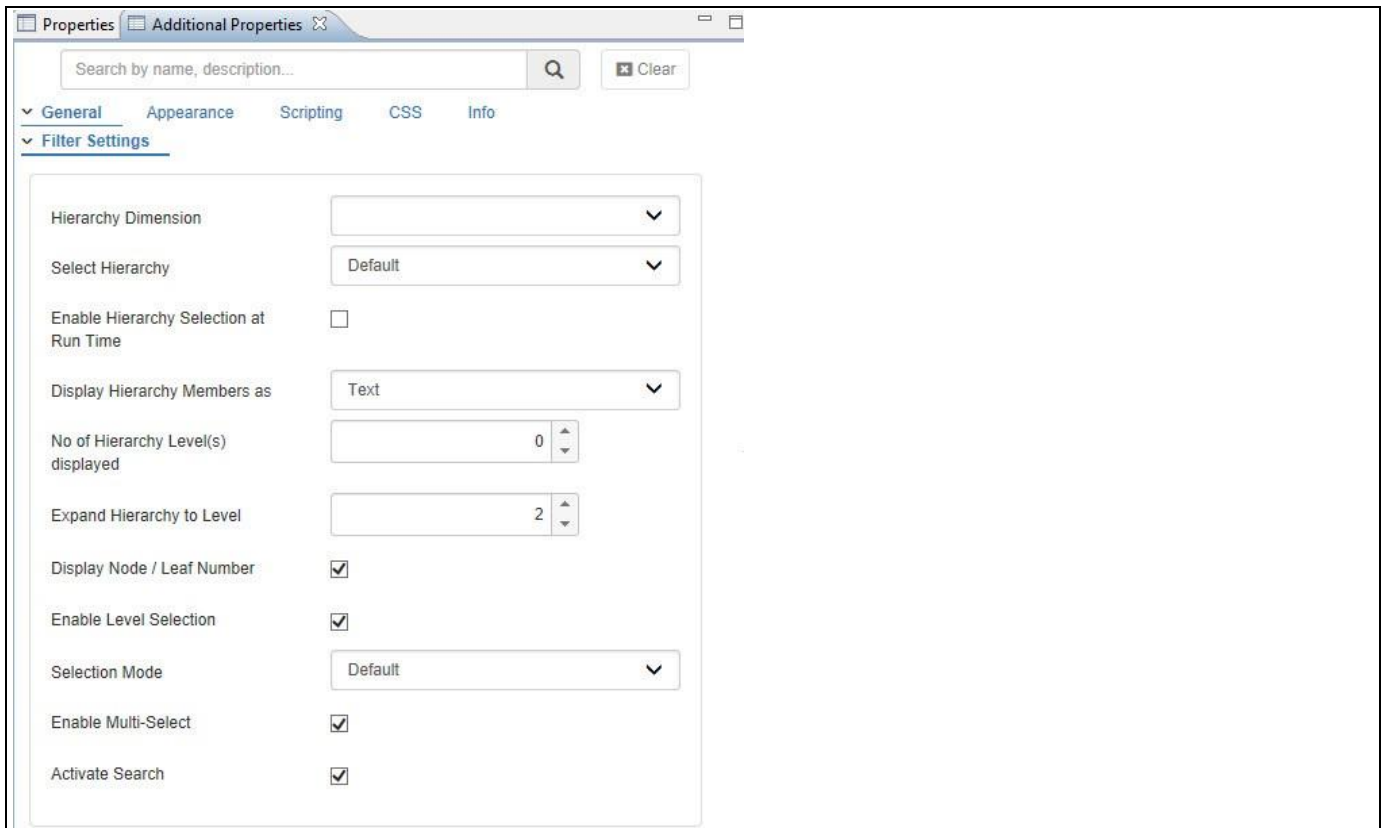


Figure 5.50: Hierarchical Filter – Category General

In addition, the Hierarchical Filter provides the property No of Hierarchy Level(s) displayed (see Figure 5.50). Using this property you can decide how many of the available hierarchy levels will be displayed in the initial view of your dashboard. This does not mean that this is the number of hierarchy level that is available, but instead it is the number of hierarchy level that is initially shown (see Figure 5.51).

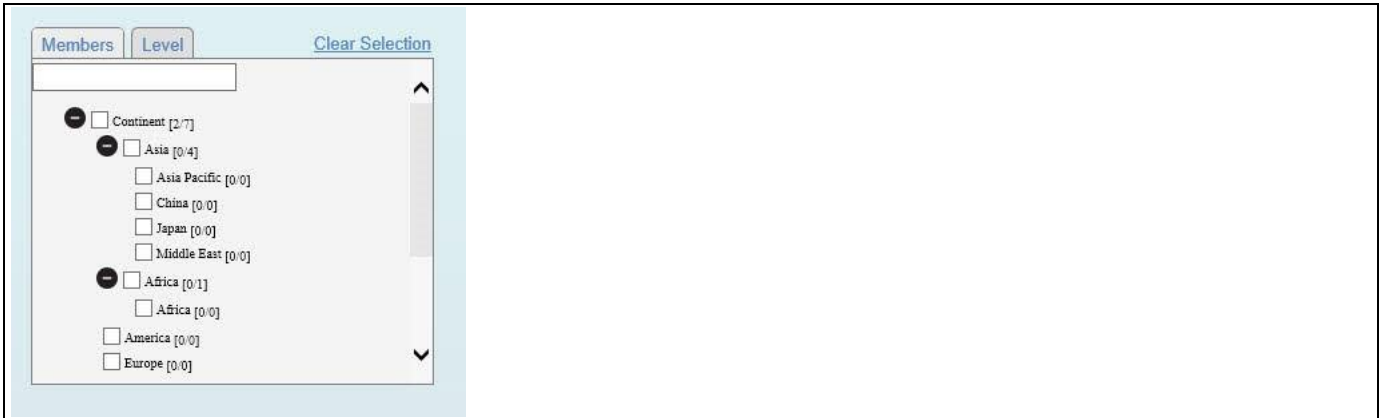


Figure 5.51: Hierarchical Filter - Expand to Level

5.8.3 Allow Multi-Select

By navigating to the category General and to the sub category Filter Settings, you can activate the property Enable Multi-Select to allow you to select multiple entries of the hierarchy. In case you are disabling the property Enable Multi-Select, you will only be able to select a single node or leaf from the hierarchy filter (see Figure 5.52).

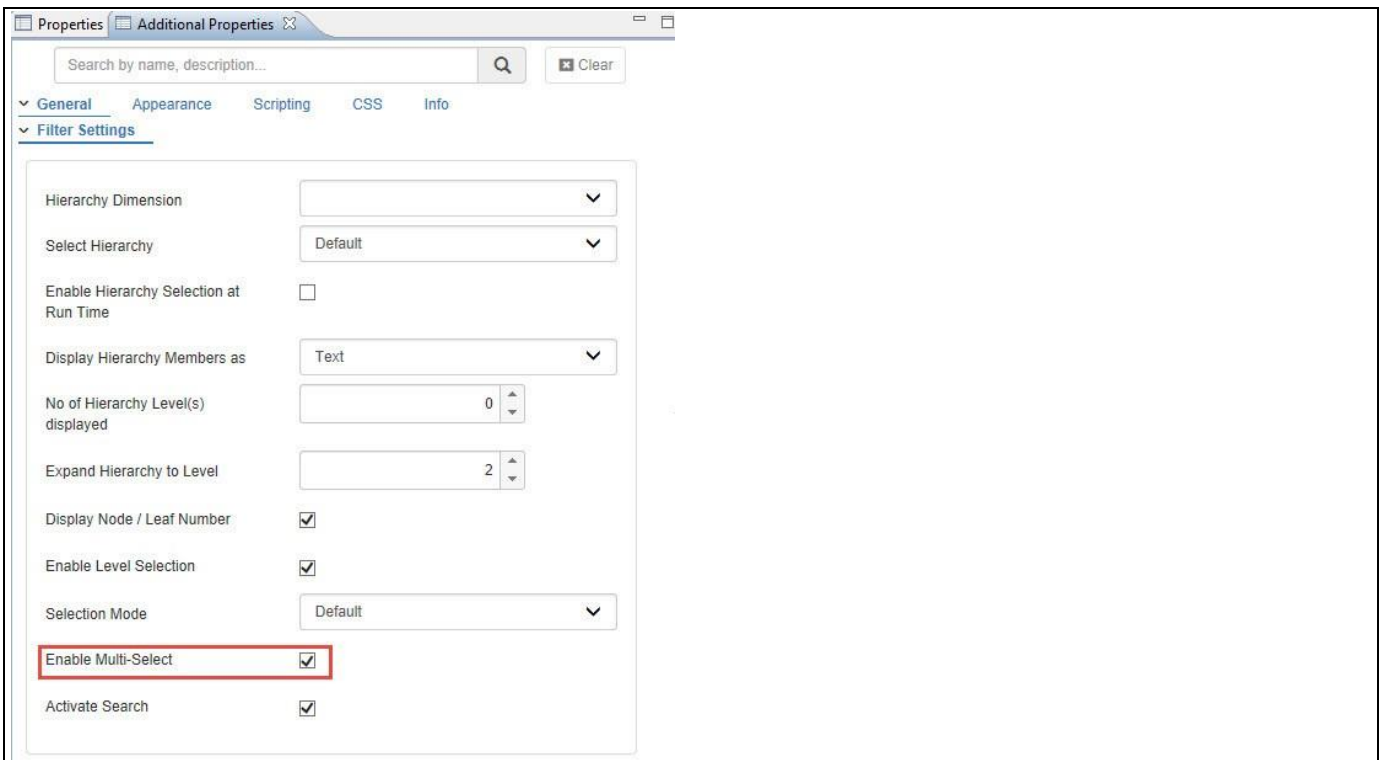


Figure 5.52: Category General

5.8.4 Selection Mode

By navigating to the category General and to the sub category Filter Settings, you can activate the property Selection Mode to different options. The available options are:

- Self: This option will select only the selected element of the hierarchy.
- Self + Children: This option will select the selected item and any applicable children (but not descendants).
- Self + Children + Descendants: This option will select the item plus children and descendants.

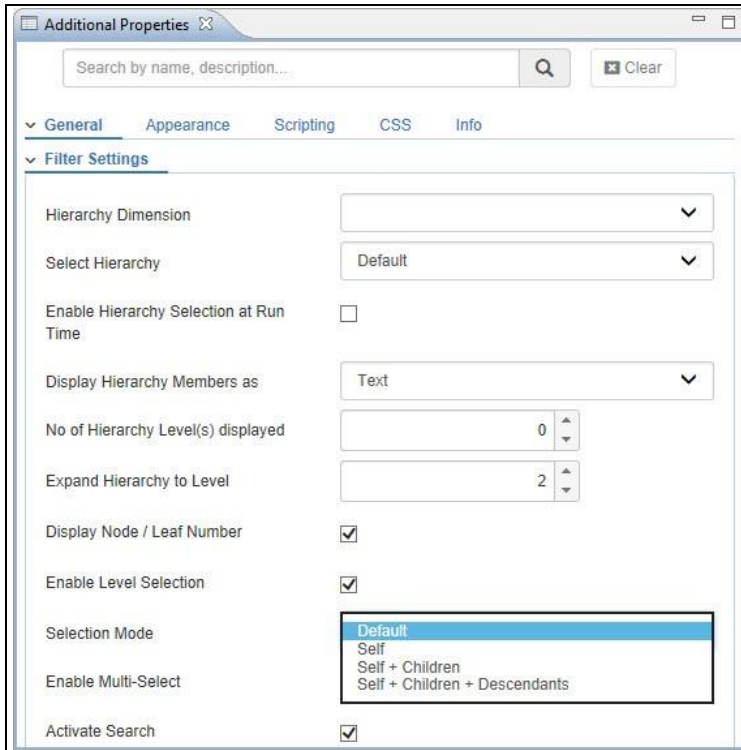


Figure 5.53: Category General

5.8.5 Level based Selection

By navigating to the category General and to the sub category Filter Settings, you can activate the property Enable Level Selection to enable/disable the option, and to select the hierarchy elements based on the hierarchy levels (see Figure 5.54).

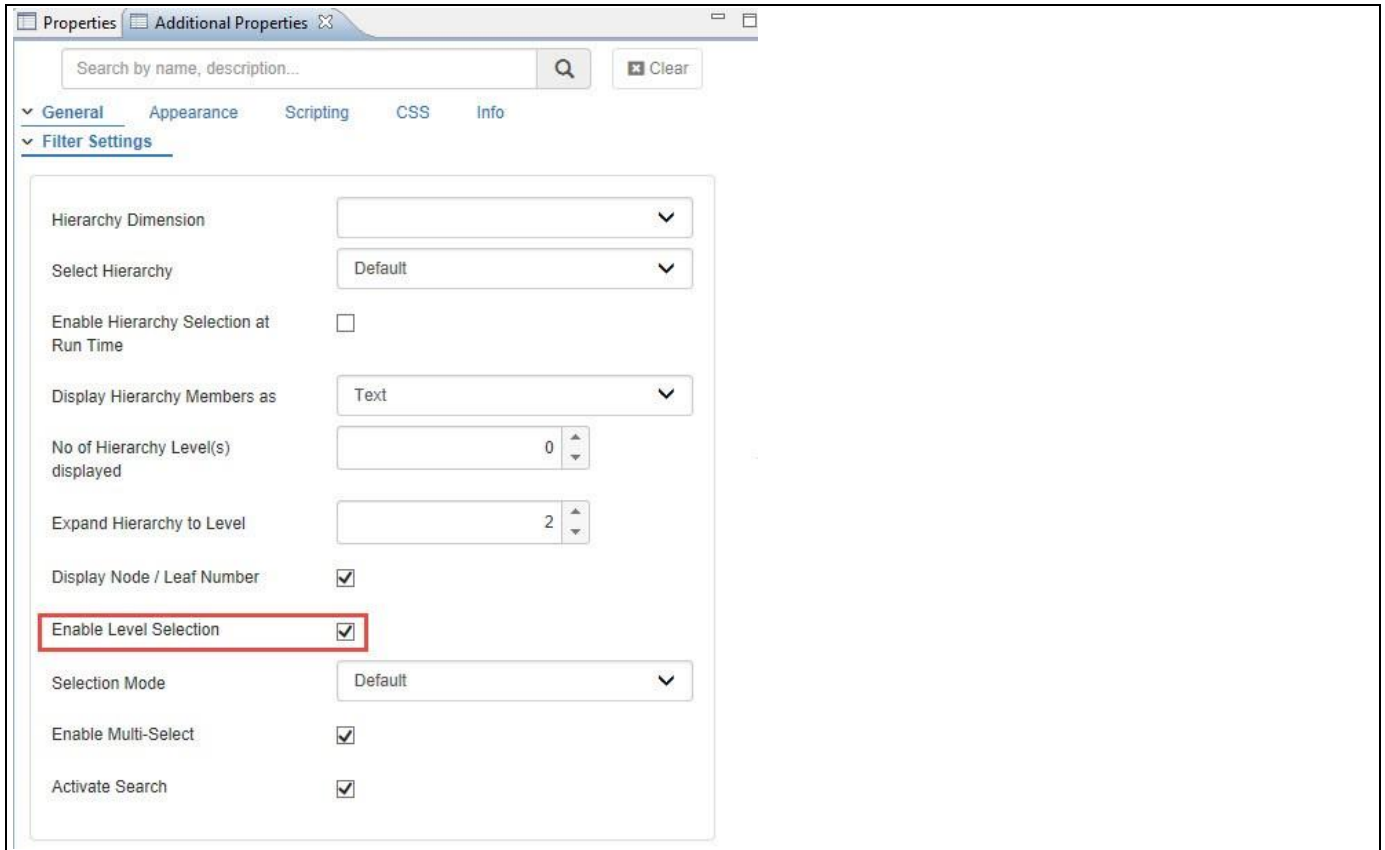


Figure 5.54: Category General

For our example, when the property Enable Level Selection is enabled, the hierarchical tree appears with the Level tab, and you have now the option to also select the members of the hierarchy using the level information (see Figure 5.55)



Figure 5.55: Enable Level Selection

5.8.6 Available Hierarchies

In addition to using the hierarchy, which is configured as part of the Initial View, you can navigate to the category General and to the sub category Filter Settings in the Additional Properties to configure the hierarchy by using the property Select Hierarchy. Here you can select any of the available hierarchies of the configured dimension, irrespective of the Initial View settings.

For our example, we have configured the dimension Region with the hierarchy Continent to be used for the Hierarchical Filter (see Figure 5.56).

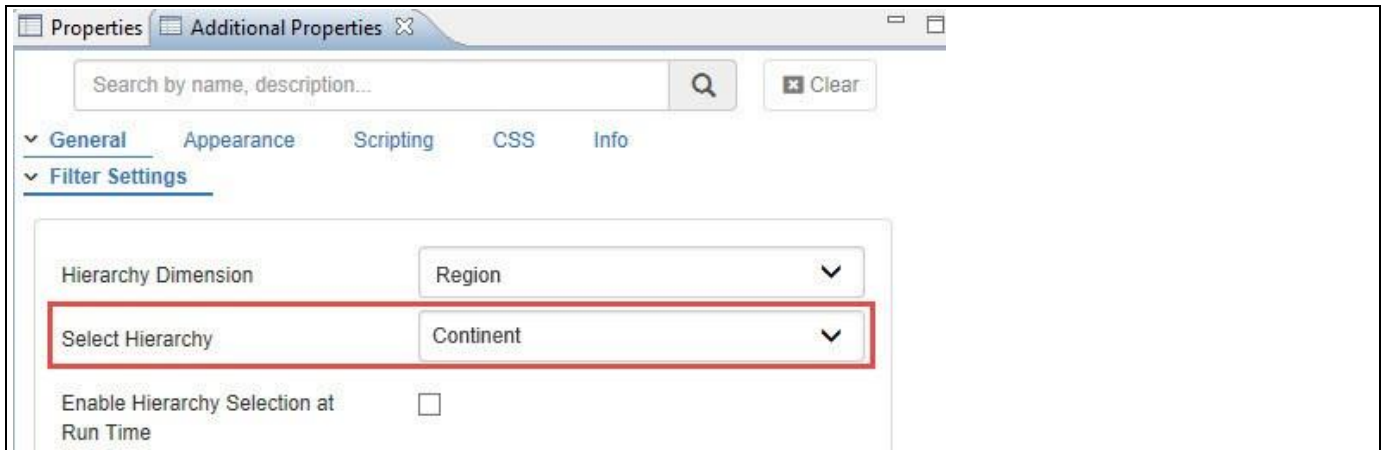


Figure 5.56: Category General

Based on the configuration, you can view the hierarchy Continent when the hierarchy filter is being loaded (see Figure 5.57).



Figure 5.57: Available Hierarchies

5.8.7 Interactive Hierarchy Selection

By navigating to the category General and to the sub category Filter Settings, you can activate the property Enable Hierarchy Selection at Run Time (see Figure 5.58) to allows you at runtime to switch between any of the available hierarchies from the configured dimension. For example, in case dimension Region has a total of five hierarchies available, then you would be able to switch between those five hierarchies at runtime.

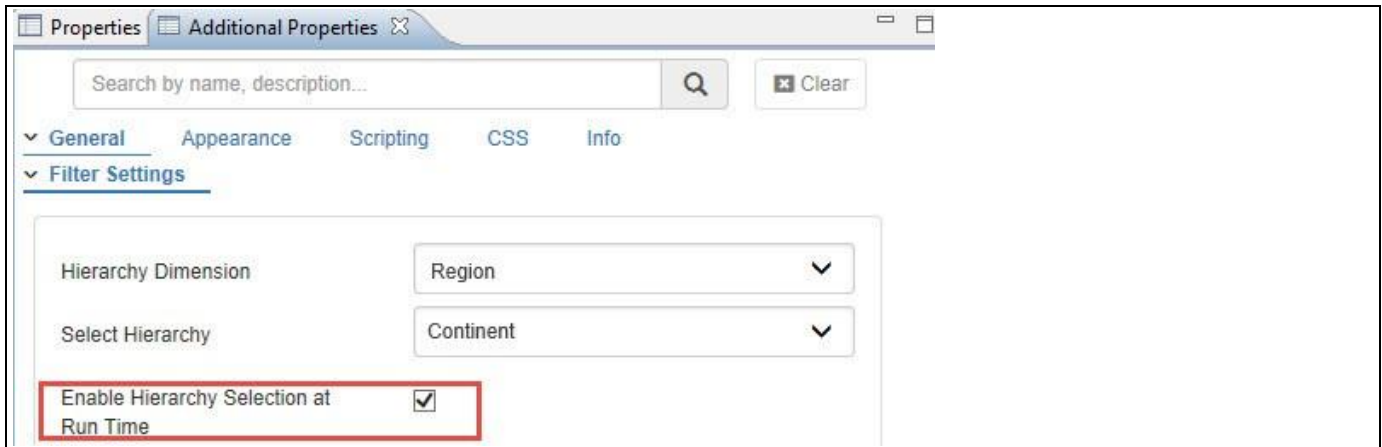


Figure 5.58: Category General

For our example, when you enable the property Enable Hierarchy Selection at Run Time , a drop down with all the available hierarchies will be displayed at runtime, and you can choose the hierarchy they would like to see for filtering (see Figure 5.59).



Figure 5.59: Interactive Hierarchy Selection

5.8.8 Expand and Collapse Style

By navigating to the category Appearance and to the sub category Filter and to the area Expand & Collapse, you can expand and collapse the hierarchy with the help of an icon and you have the option to configure the Icon specifics. (see Figure 5.60).



Figure 5.60: Category Appearance

For our example, we set the properties Icon Style to the value Plus Circle, the property Background Color to the value black, and the property Icon Size to the value 15 (see Figure 5.60).



Figure 5.61: Expand/Collapse

5.8.9 Data Source Requirements for the Hierarchical Filter

The Hierarchical Filter component requires a dimension with an activated hierarchy in the initial view of the data source. In case the data source contains multiple dimensions with active hierarchies, you will be able to select the dimension for the Hierarchical Filter in the Additional Properties.

	Oil consumption (Tho ���)
Region ���	BBL
<input type="checkbox"/> Continent	429,482
<input type="checkbox"/> Asia	165,126
Asia Pac	65,126
China	40,449
Japan	23,910
Middle E	35,640
<input type="checkbox"/> Africa	15,380
Africa	15,380
<input type="checkbox"/> America	148,892
North Ar	21,448
South &	28,659
United S	98,785
<input type="checkbox"/> Europe	100,084

Figure 5.62: Data Source – Hierarchical Filter

5.8.10 How to use the Hierarchical Filter

In this section we will outline how you can use the Hierarchical Filter component as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project and provide your users with the ability to filter the data by leveraging a true Hierarchical Filter.

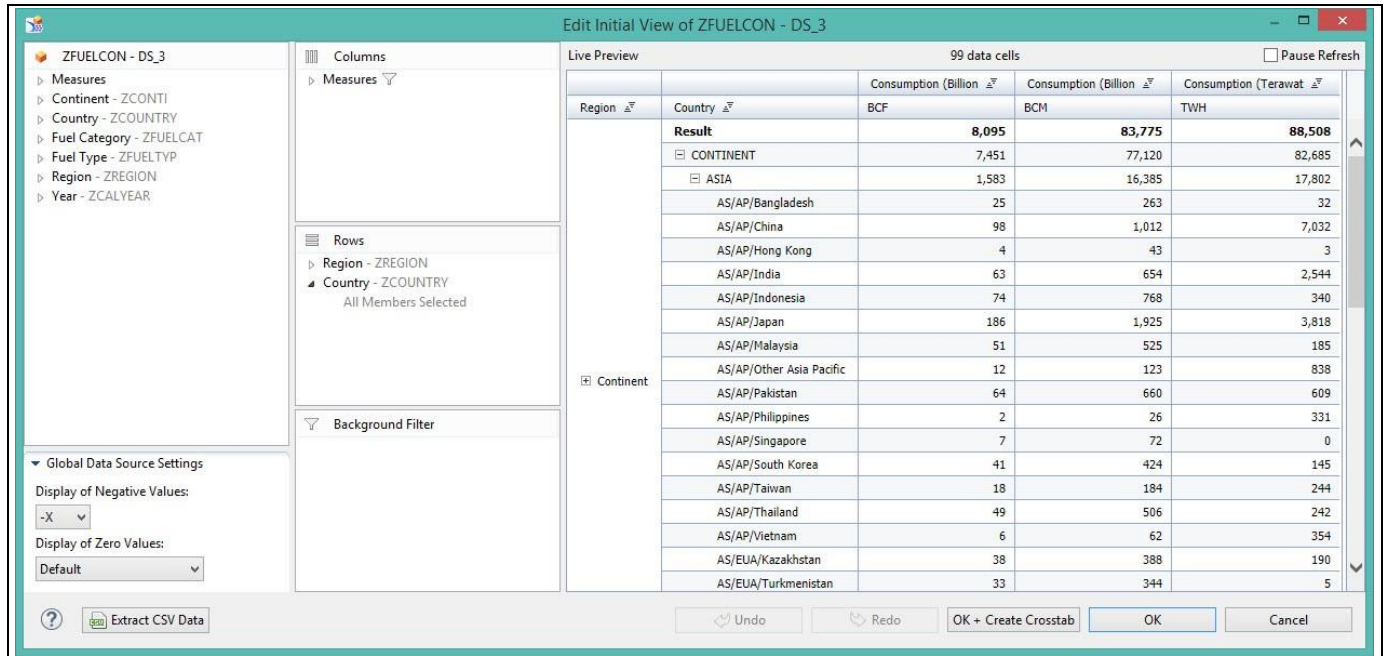


Figure 5.64: Validation of Data Source

12. Ensure that the dimension with the active hierarchy is part of the Rows or Columns in the initial view.
13. Click **OK**.
14. Add a **Hierarchical Filter** component from the VBX Selectors onto the canvas.
15. Configure the Additional Properties of the Hierarchical Filter as follows:

Property	Value
Name	HIERARCHICALFILTER1
Top Margin	10
Left Margin	10
Bottom Margin	Auto
Right Margin	Auto
Width	300
Height	500
Data Source	QUERY1

Table 5.32: Hierarchical Filter Component Properties

16. Now navigate to the Additional Properties of the Hierarchical Filter.
17. Navigate to the category General and to the sub category Filter Settings.
18. Set the property **Expand Hierarchy to Level** to a number of levels that fits your hierarchy. In our example we use the value 10.
19. Select the dimension from the list of available dimensions for the property Hierarchy Dimensions.

At this point the Hierarchical Filter component should display the hierarchy and you should be able to navigate along the hierarchy when you execute the application.

20. Navigate to the **Outline** of your new application.
21. Select the folder **Data Sources**.

22. Select the data source QUERY1 and use a right-click and select the menu Copy.
23. Select the folder Data Sources and use a right-click and select the menu Paste.
24. Rename the data source to QUERY2 by using the right-click and selecting the menu Rename.

Data Source for Hierarchical Filter

In the above steps you will notice that we use one data source for the Hierarchical Filter component and one data source for the crosstab. Reason for doing so, is the situation that the data source for the crosstab will be filtered based on the values from the Hierarchical Filter component and in a situation where both components would be based on a single data source, the values in the Hierarchical Filter would get filtered as well.

25. Add a **Crosstab** component from the Analytic Components onto the canvas.
26. Configure the **Properties** of the **Crosstab** as follows:

Property	Value
Name	CROSSTAB1
Top Margin	600
Left Margin	10
Bottom Margin	Auto
Right Margin	Auto
Width	300
Height	500
Data Source	QUERY2

Table 5.33: Crosstab Component Properties

27. Now navigate to the Additional Properties of the Hierarchical Filter.
28. Navigate to the category **Scripting** in the Additional Properties.
29. Open the editor for the scripting event **On Select**.
30. Enter the following script:

```
QUERY2.setFilter("OD_NW_CNTRY",
HIERARCHIALFILTER_1.DSXGetSelectedMembersInternalKey());
```

Sample Data

In this example the dimension name OD_NW_CNTRY is an example and you might have to change it to match your data source.

31. Click **OK**.
32. Now save and execute your application.

By following these steps you should now have a Hierarchical Filter that can be used to filter the data in the crosstab based on the selected hierarchy nodes and leafs.

5.8.11 Additional Properties of the Hierarchical Filter

As a custom component the Hierarchical Filter also comes with a set of Additional Properties. The Hierarchical Filter provides Additional Properties in the categories: General and Appearance. In the following sections you will find a list of available properties and a Table with a more detailed description of each of those properties.

5.8.11.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Area	Property	Description
Filter Settings		Hierarchy Dimension	This option allows you to select the dimension, which then will be used to provide the hierarchy for the Hierarchical Filter.
		Select Hierarchy	Here you can select a Hierarchy from the list of available hierarchies based on the configured dimension.
		Enable Hierarchy Selection at Run Time	This property allows you to enable / disable the option to select a specific hierarchy from the list of all available hierarchies at runtime.
		Display Hierarchy Members as	Here you can specify the display format for the dimension member of the hierarchy. You can choose to show the hierarchical members with their key or text value.
		No. of Hierarchy Level(s) displayed	Here you can specify the number of hierarchy levels, which will be displayed at the initial launch of the hierarchy filter.
		Expand Hierarchy To Level	Here you can specify the maximum depth of the hierarchy that will be displayed with the Hierarchical Filter.
		Display Node / Leaf Number	This property allows you to enable / disable the display of the amount of Hierarchical Node / Leaf Member in brackets behind each node.
		Enable Level Selection	This property allows you to enable / disable the ability to select hierarchy members based on a level selection.
		Selection Mode	This property allows you to configure the selection mode for the hierarchy filter. The options are : Default, Self, Self + Children, and Self + Children + Descendants.
		Enable Multi-Select	This property allows you to enable / disable the option to select multiple members of the hierarchy.
		Activate Search	This property allows you to enable / disable the Search option.

Table 5.34: Category General

5.8.11.2 Category Appearance

Below you can find the Additional Properties for the category Appearance and their descriptions.

Sub category	Area	Property	Description
Filter	General Settings	Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
	Menu Tab	Font Family	Here you can set the Font Type for the Tabs.
		Font Size	Here you can set the Font Size for the Tabs.
		Font Color	Here you can set the Font Color for the Tabs.
		Background Color	Here you can set the Background Color for the Tabs.
		Border Color	Here you can set the Border Color for the Tabs.
		Border Thickness	Here you can set the Border Thickness for the Tabs.
		Selected Menu - Background Color	Here you can set the selected Tab Background color.
		Clear Selection - Font Color	Here you can set the Font Color for the text Clear Selection.
		Member Text	Here you can customize the Member Text.
		Level Text	Here you can customize the Level Text.
		Clear Text	Here you can customize the Clear Text.
	Member Content	Font Family	Here you can set the Font Type for the Tab content.
		Font Size	Here you can set the Font Size for the Tab content.
		Font Color	Here you can set the Font Color for the Tab content
		Font Style	Here you can set the Font Style for the Tab content.

Sub category	Area	Property	Description
		Background Color	Here you can set the Background Color for the Tab content.
		Border Color	Here you can set the Border Color for the Tab content.
		Border Thickness	Here you can set the Border Thickness for the Tab content.
		Selected Member Font Color	Here you can set the Font Color for the selected item.
		Selected Member Background Color	Here you can set the Background Color for the selected item.
	Expand & Collapse	Icon Style	Here you can set the Icon Style for the Expand & Collapse icon.
		Icon Size	Here you can set the Icon Size for the Expand & Collapse icon.
		Background Color	Here you can set the Background Color for the Expand & Collapse icon.

Table 5.35: Category Appearance

5.8.12 Scripting Functions for the Hierarchical Filter

The following Table outlines the available scripting functions for the Hierarchical Filter component.

Function / Method	Description
DSXClearSelection()	This function allows you to set the On Clear Selection.
DSXGetSelectedChildrenExternalKey()	The function will return the External Key value(s) for the children based on the selected entry. The value(s) are returned in an array.
DSXGetSelectedChildrenInternalKey()	The function will return the Internal Key value(s) for the children based on the selected entry. The value(s) are returned in an array.
DSXGetSelectedChildrenText()	The function will return the Text value(s) for the children based on the selected entry. The value(s) are returned in an array.
DSXGetSelectedDescendantsExternalKey()	The function will return the External Key value(s) for the descendants based on the selected entry. The value(s) are returned in an array.
DSXGetSelectedDescendantsInternalKey()	The function will return the Internal Key value(s) for the descendants based on the selected entry. The value(s) are returned in an array.

Function / Method	Description
DSXGetSelectedDescendantsText()	The function will return the Text value(s) for the descendants based on the selected entry. The value(s) are returned in an array.
DSXGetSelectedMembersExternalKey()	The function will return the External Key value(s) for the selected entries. The value(s) are returned in an array.
DSXGetSelectedMembersInternalKey()	The function will return the Internal Key value(s) for the selected entries. The value(s) are returned in an array.
DSXGetSelectedMembersText()	The function will return the Text value(s) for the selected entries. The value(s) are returned in an array.
DSXGetSelectedParentExternalKey()	The function will return the External Key value(s) for the parent(s) of the selected entries. The value(s) are returned in an array.
DSXGetSelectedParentInternalKey()	The function will return the Internal Key value(s) for the parent(s) of the selected entries. The value(s) are returned in an array.
DSXGetSelectedParentText()	The function will return the Text value(s) for the parent(s) of the selected entries. The value(s) are returned in an array.
DSXGetSetNodeChildrenInternalKey()	This function uses a Hierarchy Node value as input and will return the Internal Key values of the children of the passed Hierarchy Node value.
DSXGetSetNodeChildrenKey()	This function uses a Hierarchy Node value as input and will return the Key values of the children of the passed Hierarchy Node value.
DSXGetSetNodeChildrenText()	This function uses a Hierarchy Node value as input and will return the Text values of the children of the passed Hierarchy Node value.
DSXGetVisible()	This function will return the visibility status of the Hierarchical Filter.
DSXOnSelect()	This function allows you to set the On Select event.
DSXSetElement()	This function allows to set the selected element for the Hierarchical Filter. The function requires a member key value to be used as value.
DSXSetEnableSearch()	This function allows to enable the search functionality for the Hierarchical Filter.
DSXSetExpandLevel()	This function allows you to set the Level that the Hierarchical Filter will be expanded to.
DSXSetHierarchyDimensionKey()	This function allows to set the Hierarchy Dimension by using the technical name of the dimension.
DSXSetHierarchyDimensionText()	This function allows to set the Hierarchy Dimension by using the text value for the dimension.

Function / Method	Description
DSXSetRunTimeDimensionHierarchy()	This function allows to set the Hierarchy for the Dimensions at runtime.
DSXSetVisible()	This function allows to set the visibility status of the Hierarchical Filter.

Table 5.36: Scripting Functions

5.8.13 Events for Hierarchical Filter

The following Table outlines the available events for the Hierarchy Filter component.

Event	Description
On Select	The on Select event is triggered when you select an element in the hierarchical tree or the levels.
On Clear Selection	This script will be triggered when a clear selection triggered either using a script or using the Clear Selection option in the filter.

Table 5.37: Events

5.9 Combo Box

5.9.1 Combo Box - Overview

The Combo Box is a filtering component which allows you to setup a list of members of a dimension, which then will be shown as a drop down box. The Combo Box provides standard features such as a search option and the ability to choose – at run time – between the key, text, or key and text as display option for the dimension members.

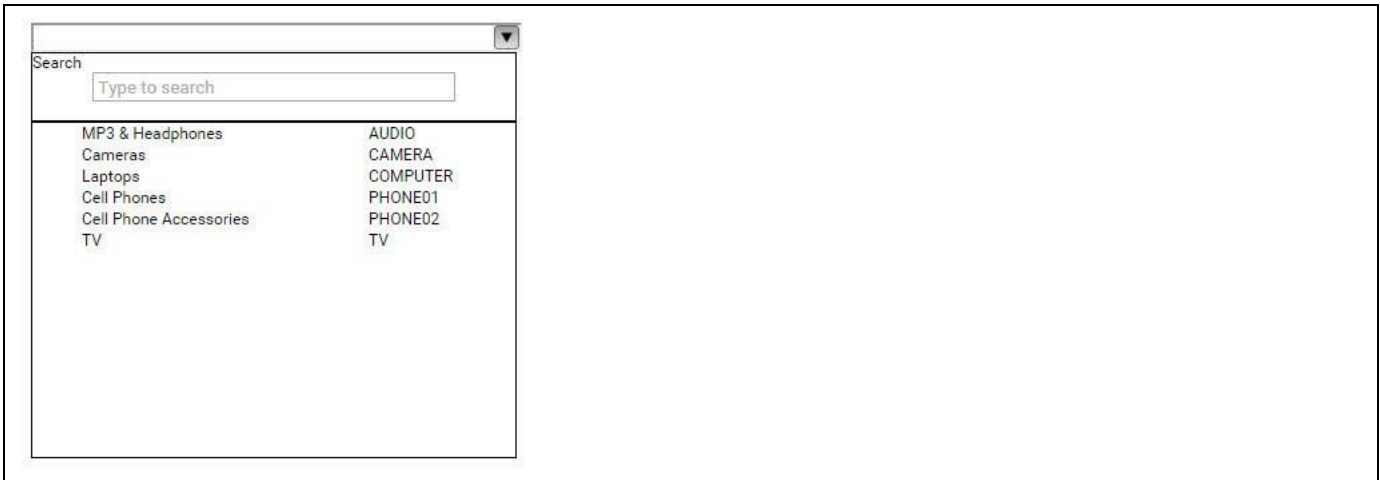


Figure 5.65: Combo Box

Figure 5.65 shows an opened Combo Box displaying a list of product categories from a dimension and showing a Search Box as part of the overall display of the Combo Box.

5.9.2 Sorting in Combo Box

In the Additional Properties of the Combo Box in the category Data and the sub category Data Series, you have the option to sort the list in the Combo Box.

For our example, you can follow the steps below to configure the Sorting in Combo Box:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Discount Amount and Order Cost along the dimension Item Category.
3. Add a Combo Box from the VBX Selectors to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Combo Box.
5. Navigate to the Additional Properties of the Combo Box.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Data and to the sub category Data Series (see Figure 5.66).

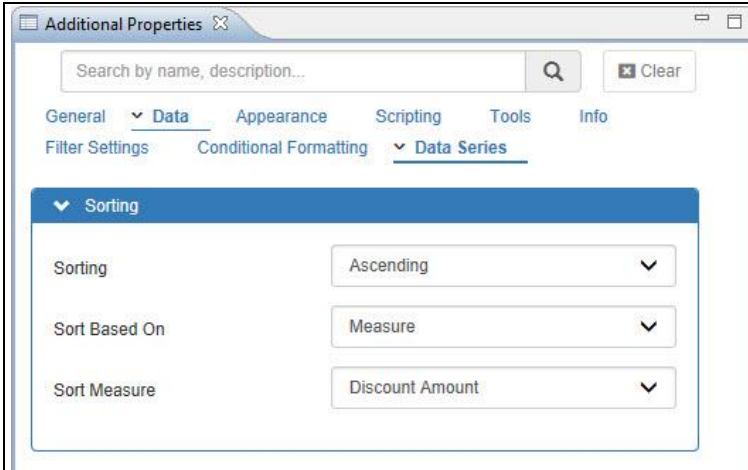


Figure 5.66: Category Data

8. For our example, set the property Sorting to the option Ascending.
9. Set the property Sorting Based On to the option Measure.
10. Set the property Sort Measure to the option Discount Amount.
11. Based on the above configuration, you will be able to visualize the Combo Box with the list being displayed based on the ascending order of the Measure Discount Amount for the Dimension Item Category (see Figure 5.67). Similarly, you can configure the Combo Box List based on the sorting order of the Dimension.

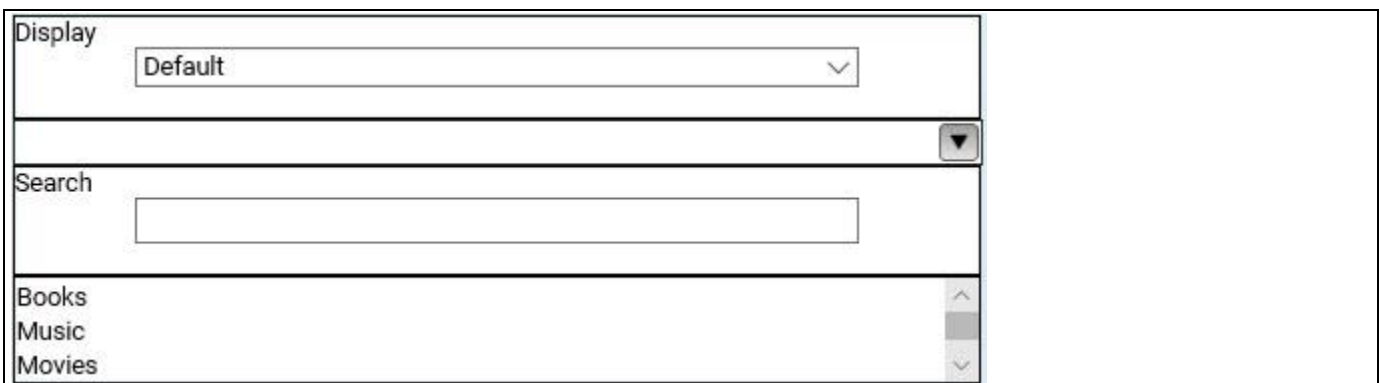


Figure 5.67: Combo Box List with ascending order of Measure

The ascending order of the Measure Discount Amount for the Dimension Item Category can be viewed from the Initial View settings as part of our understanding (see Figure 5.68).

Global Data Source Settings

Display of Negative Values:

Display of Zero Values:

Currency Conversion:

Columns

Measures

Rows

Item Category - ZR_ITEM_ZR_CATEG

Background Filter

Live Preview 10 data cells ☐ Pause Refresh

Item Category	Discount Amount	Order Cost
Books	80,980.40	2,056,212.75
Electronics	745,391.40	20,046,257.03
Movies	124,157.00	3,801,759.41
Music	118,610.35	3,670,037.52
Overall Result	1,069,139.15	29,574,266.71

Figure 5.68: Initial View settings

Sorting Conditions

Combo box will not support Sorting option based on Measures when you use custom data sources.

5.9.3 Checkbox for Multi-select display

In the Additional Properties of the Combo Box in the category General and the sub category Filter Settings, you have the option to add a check box for a multi select display of the dimension members.

For our example, activate the option Activate Multi-Select and then activate the option Activate Inline Checkbox (see Figure 5.69).

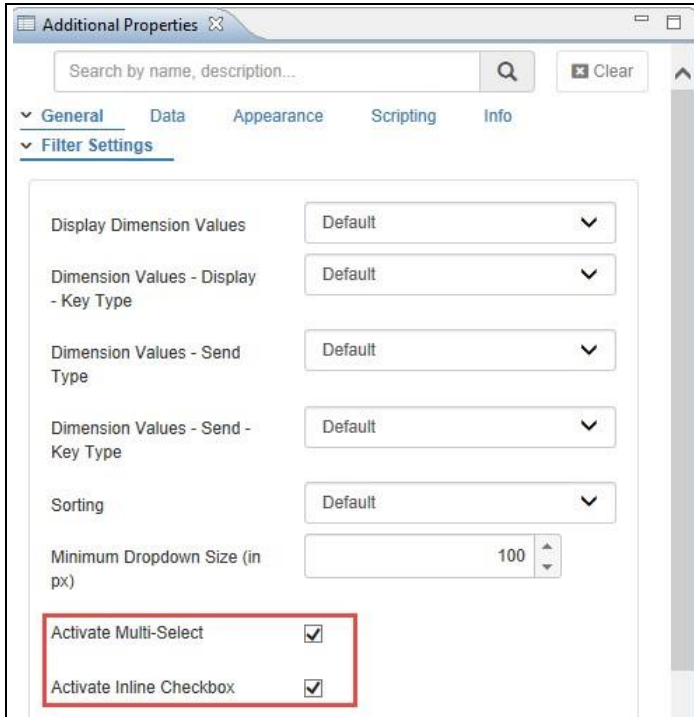


Figure 5.69: Activate Multi-Select and Inline Checkbox

Based on the above configuration you will be able to visualize the Combo Box as shown in Figure 5.70. Here you can select the multiple dimension members using the checkbox option.

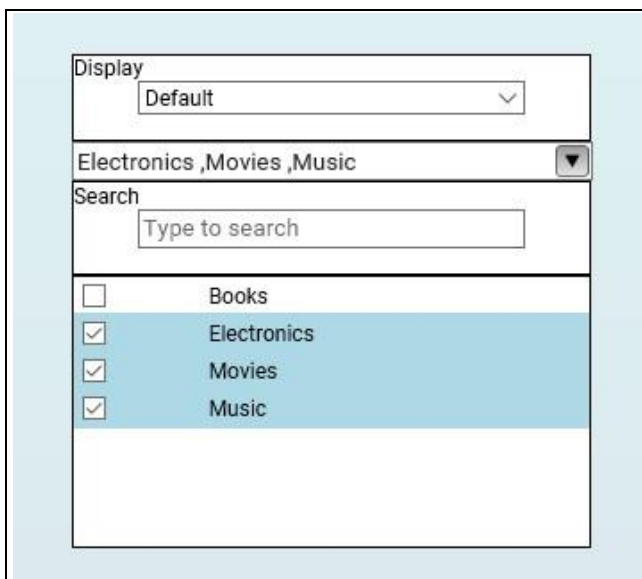


Figure 5.70: Activate Multi-Select and Inline Checkbox

5.9.4 New Conditional Formatting Rules for Alerts

In the Additional Properties of the Combo Box in the category Data and the sub category Conditional Formatting, you have the option to filter the list based on the conditional formatting rules. Here you can assign the icons for the Alert items based on the conditional formatting and also can select only the alert items alone to be displayed in the Combo Box.

For our example, you can follow the steps below to configure the Conditional Formatting for Alerts based on a Single Measure:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Order Cost along the dimension Item Category.
3. Add a Combo Box from the VBX Selectors to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Combo Box.
5. Navigate to the Additional Properties of the Combo Box.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Data and to the sub category Conditional Formatting (see Figure 5.71).

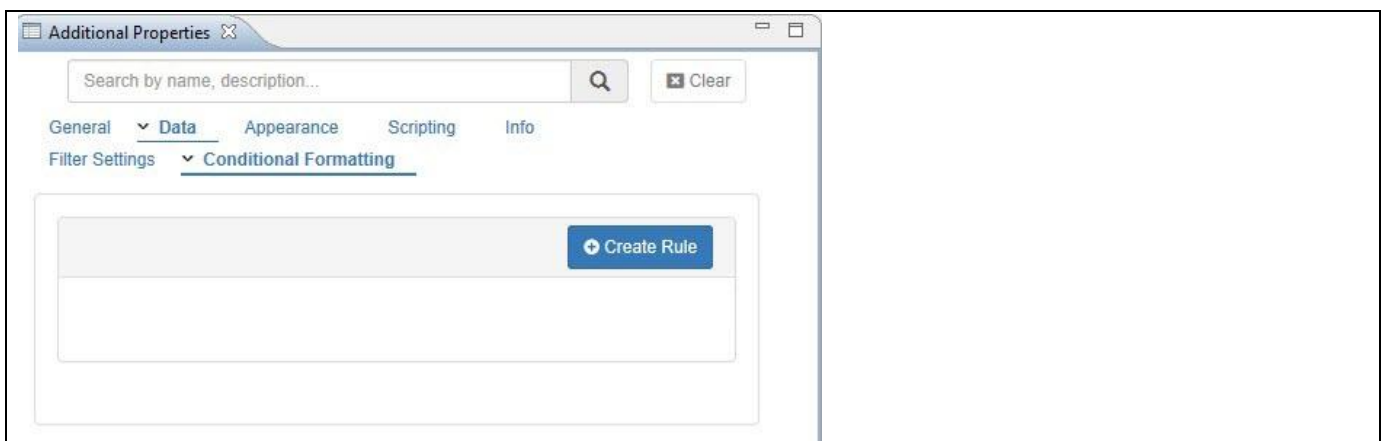
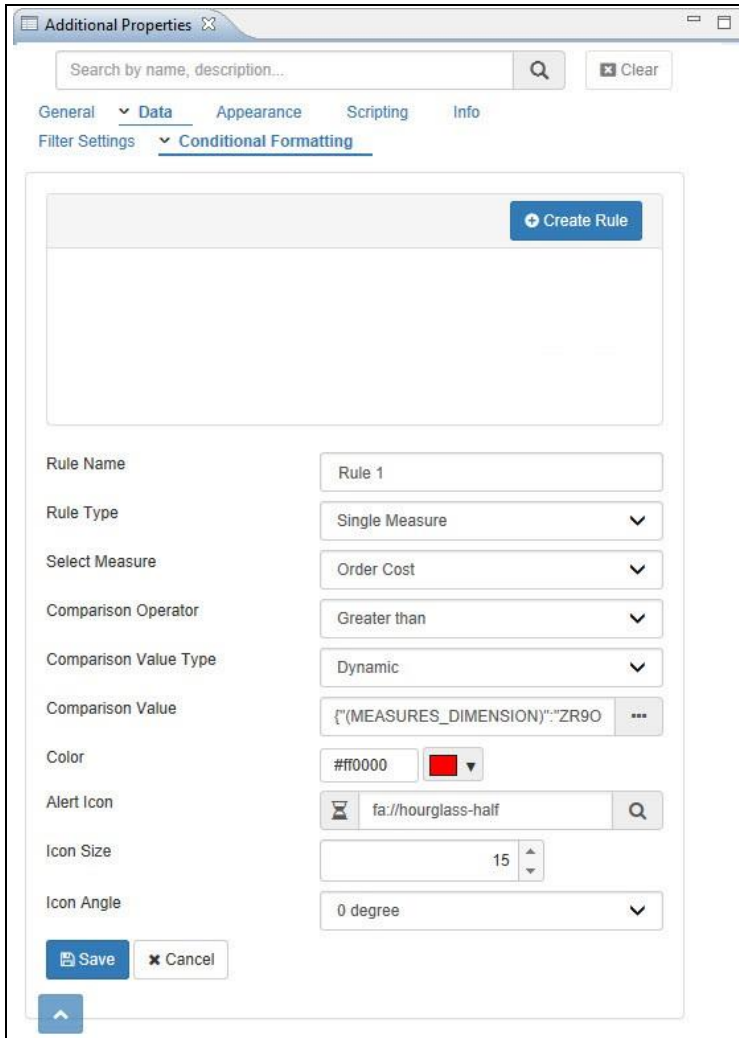


Figure 5.71: Conditional Formatting

8. Now click on Create Rule (see Figure 5.72)
9. Enter a Rule Name for your Rule.
10. In our example we are setting up an alert based on the Rule Type Single Measure: (see Figure 5.72)
 - Rule Type Single Measure
 - Select Measure Order Cost
 - Comparison Operator Greater Than
 - Comparison Value Type Dynamic
 - Comparison Value Order Cost
 - Color Red
 - Alert Icon hourglass-half
 - Icon size 15
 - Icon Angle 0 degree



Additional Properties

Search by name, description...

General Data Appearance Scripting Info

Filter Settings Conditional Formatting

Create Rule

Rule Name: Rule 1

Rule Type: Single Measure

Select Measure: Order Cost

Comparison Operator: Greater than

Comparison Value Type: Dynamic

Comparison Value: {'(MEASURES_DIMENSION)': 'ZR9O'}

Color: #ff0000

Alert Icon: fa://hourglass-half

Icon Size: 15

Icon Angle: 0 degree

Save Cancel

Figure 5.72: Conditional Formatting

- Based on the above configured settings, you will be able to visualize the Combo Box with Alert Icons based on the conditional formatting (see Figure 5.73).

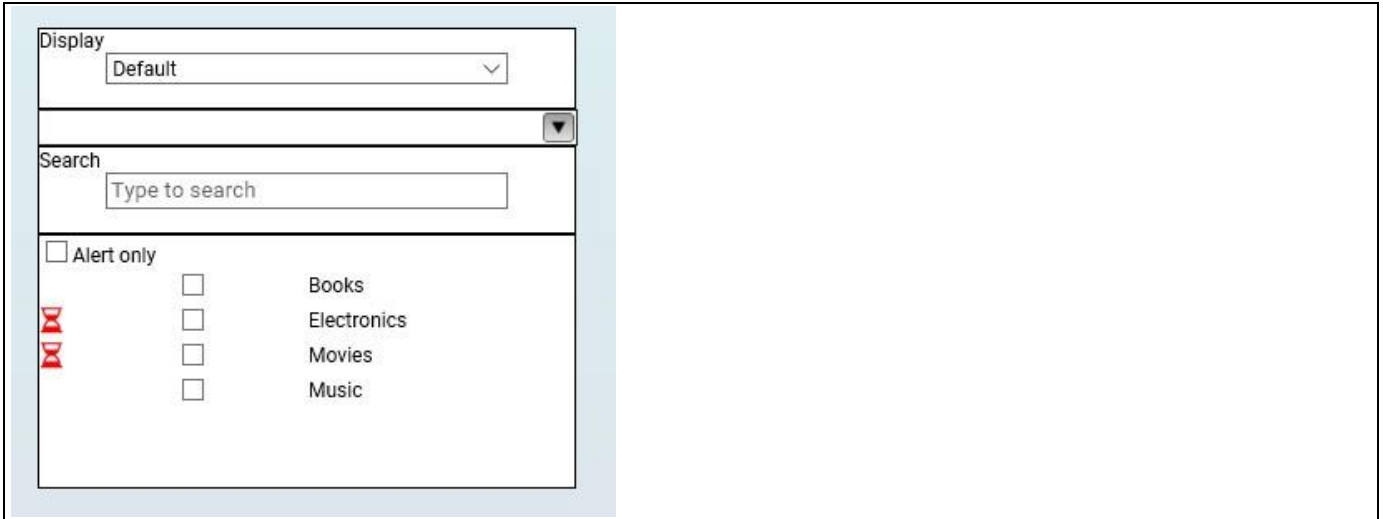


Figure 5.73: Combo Box with Alert Icons

12. You can also view only the Alert items alone in the Combo Box by activating the option Alert only (see Figure 5.74).

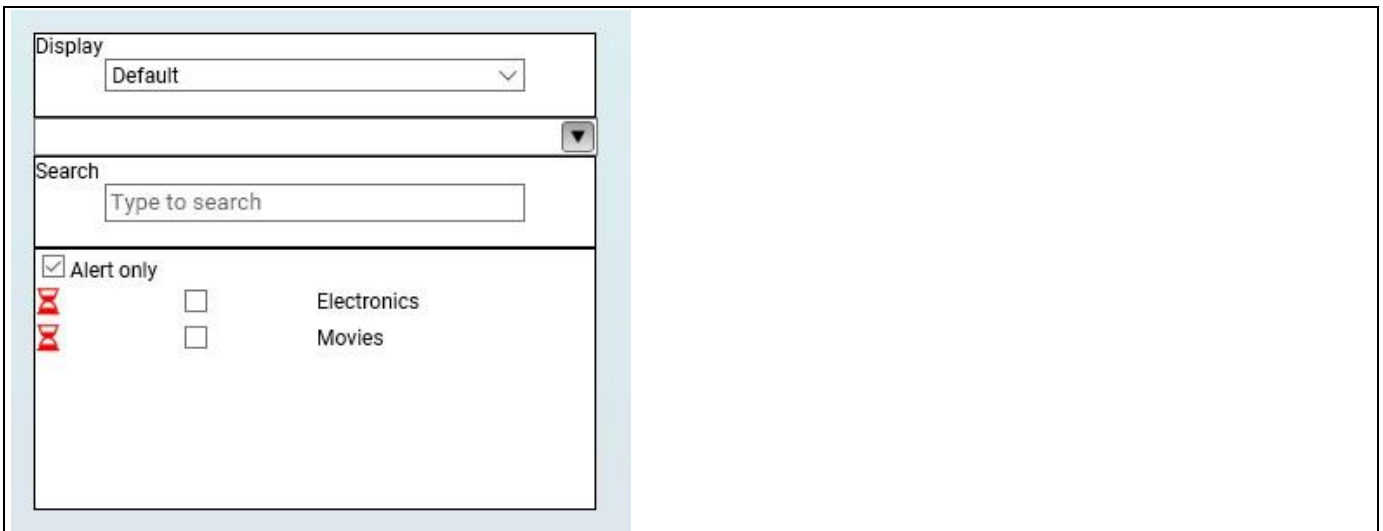


Figure 5.74: Combo Box with only Alert Icons

5.9.5 Option to filter the Target Data Source using Additional Properties

In the Additional Properties of the Combo Box in the category General and the sub category Filter Settings, you have the option to filter the Target Data Source(s) directly using the Additional Properties.

For our example, you can follow the steps below to filter the Target Data Source(s):

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measures Discount Amount, Order Amount, Order Cost and Order Quantity along the dimension Item Category.
3. Add a Combo Box from the VBX Selectors to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source (DS_1) to the Combo Box.
5. Now add a Column Bar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
6. Assign the same data source (DS_2) to the Column Bar Chart. You can also assign different data source having same dimensions but different measures.
7. Navigate to the Additional Properties of the Combo Box.
8. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
9. In the Additional Properties navigate to the category Data and to the sub category Filter Settings. Now set the property Target Data Source(s) to the value DS_2 (see Figure 5.75).

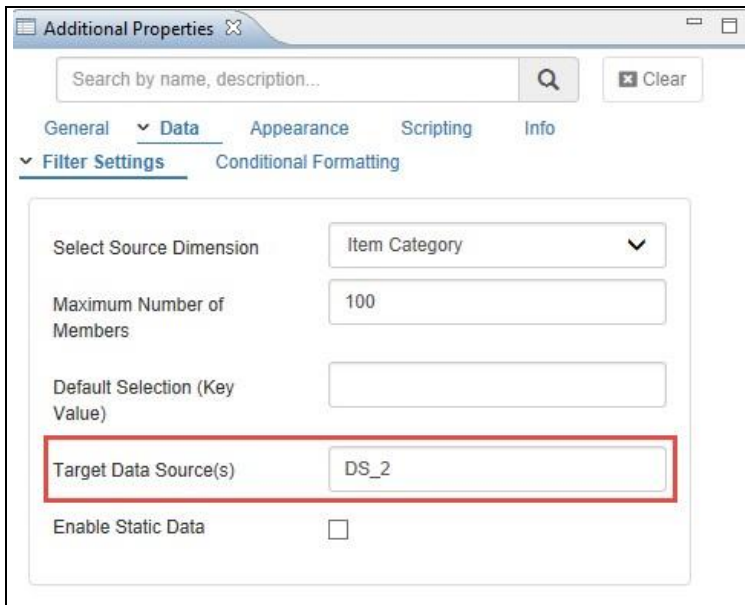


Figure 5.75: Target Data Source

10. Based on the above configured settings, you will be able to visualize the Combo Box along with the Column Bar Chart. For our example, you can filter the dimension member “Books” from the Combo Box where you can observe the filtering done for the dimension member “Books” shown through the Column Bar Chart (see Figure 5.76).

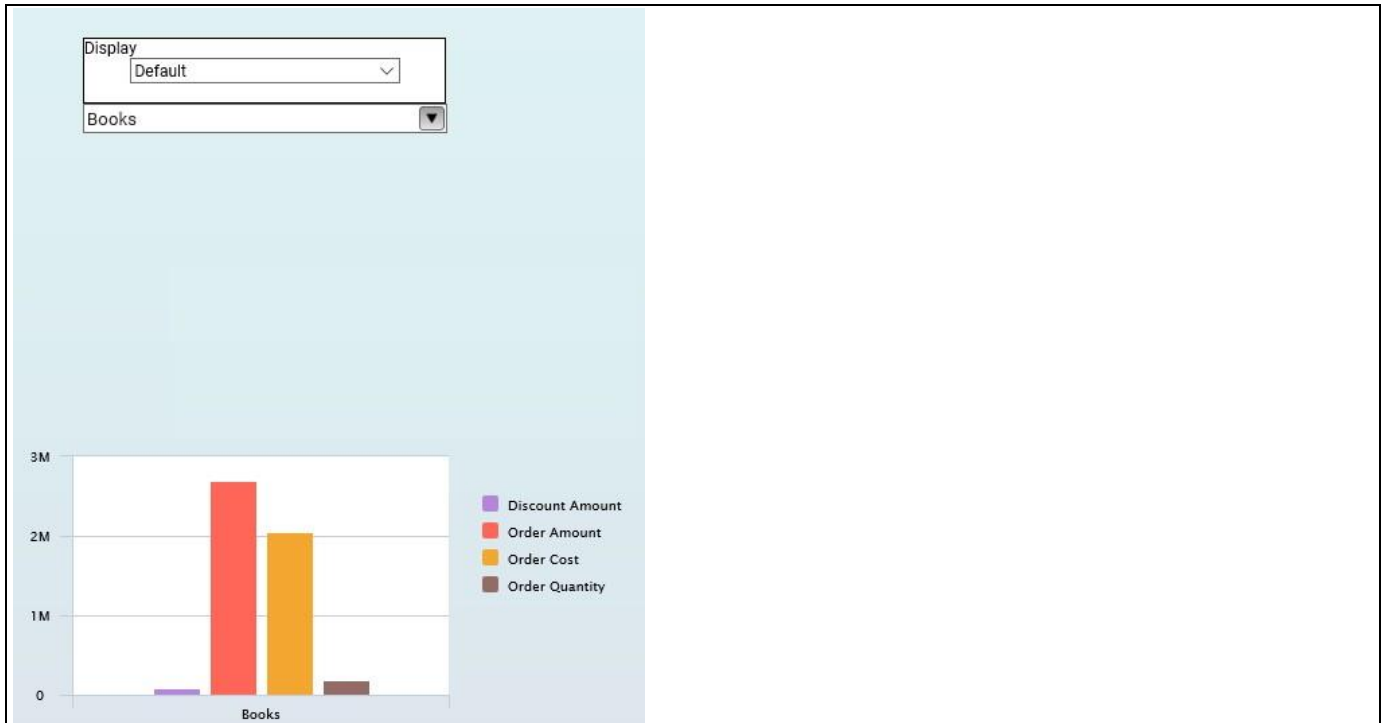


Figure 5.76: Combo Box with Column Bar Chart

5.9.6 Keyboard Navigations

The Combo Box Component will be able to support the keyboard navigations and they will be active only when the property Activate Multiselect is enabled in the Additional Properties of the Combo Box. All the below listed keyboard options will be active only when you select at least one dimension member from the Combo Box through a mouse click.

- Using Up / Down arrow key navigation to scroll up and scroll down the dimension members of the Combo Box.
- Using SPACE key to de-select the dimension members of the Combo Box.
- Using CTRL key and a single click on each dimension member for a multi-select of dimension members.
- Using SHIFT and a single click on the other dimension member in case of selecting a range of dimension members.

5.9.7 Data Source Requirements

The Combo Box is using members of a dimension for the display, therefore the data source requirements are very simple in that way that the assigned data source requires at least one dimension in the rows or in the columns.

5.9.8 How to use the Combo Box

In the following section we will outline the steps that are needed to setup a Combo Box as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project. You will need a data source available to SAP BusinessObjects Design Studio/SAP Lumira Designer with at least one dimension. For our example we assume that we have a data source in form of a SAP BEx Query with a dimension Product Group.

To setup your first Combo Box follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. In SAP BusinessObjects Design Studio/SAP Lumira Designer select the menu Application • New.
3. Enter a Name for your new dashboard.
4. Enter a Description for your new dashboard.
5. Click Finish.
6. Navigate to the Outline of your application.
7. Select the folder Data Sources and use a right click (see Figure 5.77).

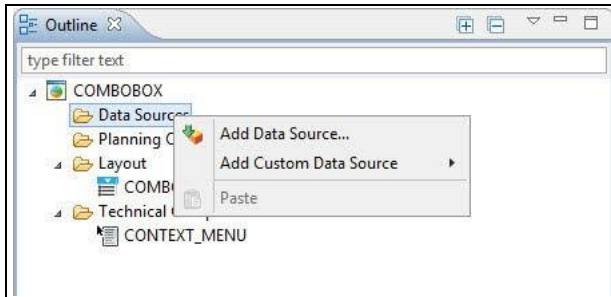


Figure 5.77: Add Data Source

8. Select the menu Add Data Source.

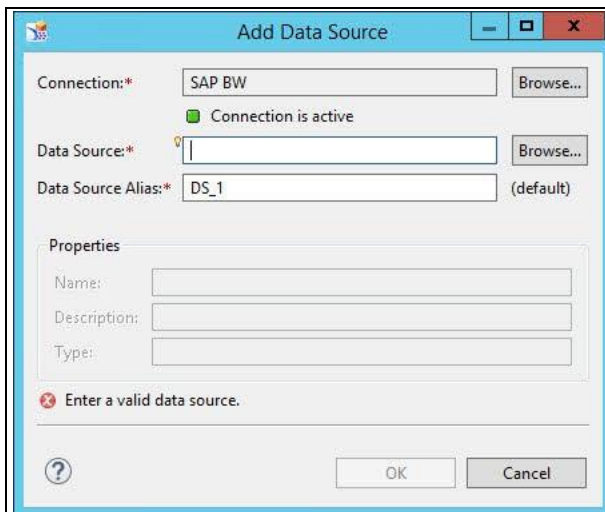
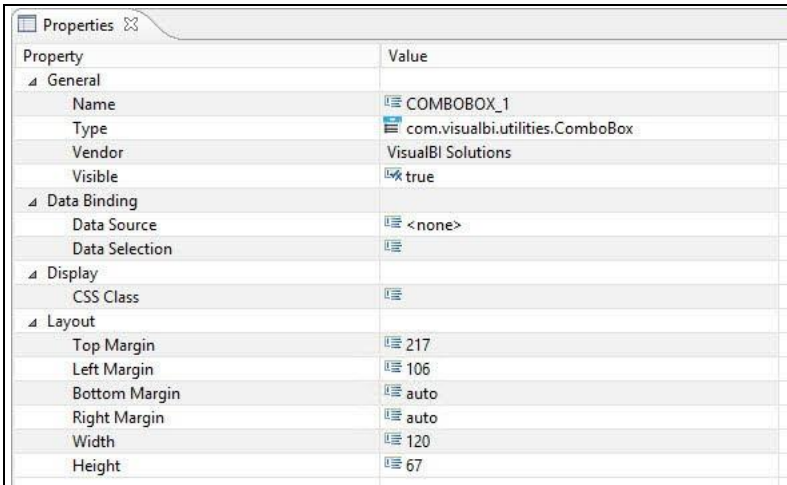


Figure 5.78: Data Source Connection

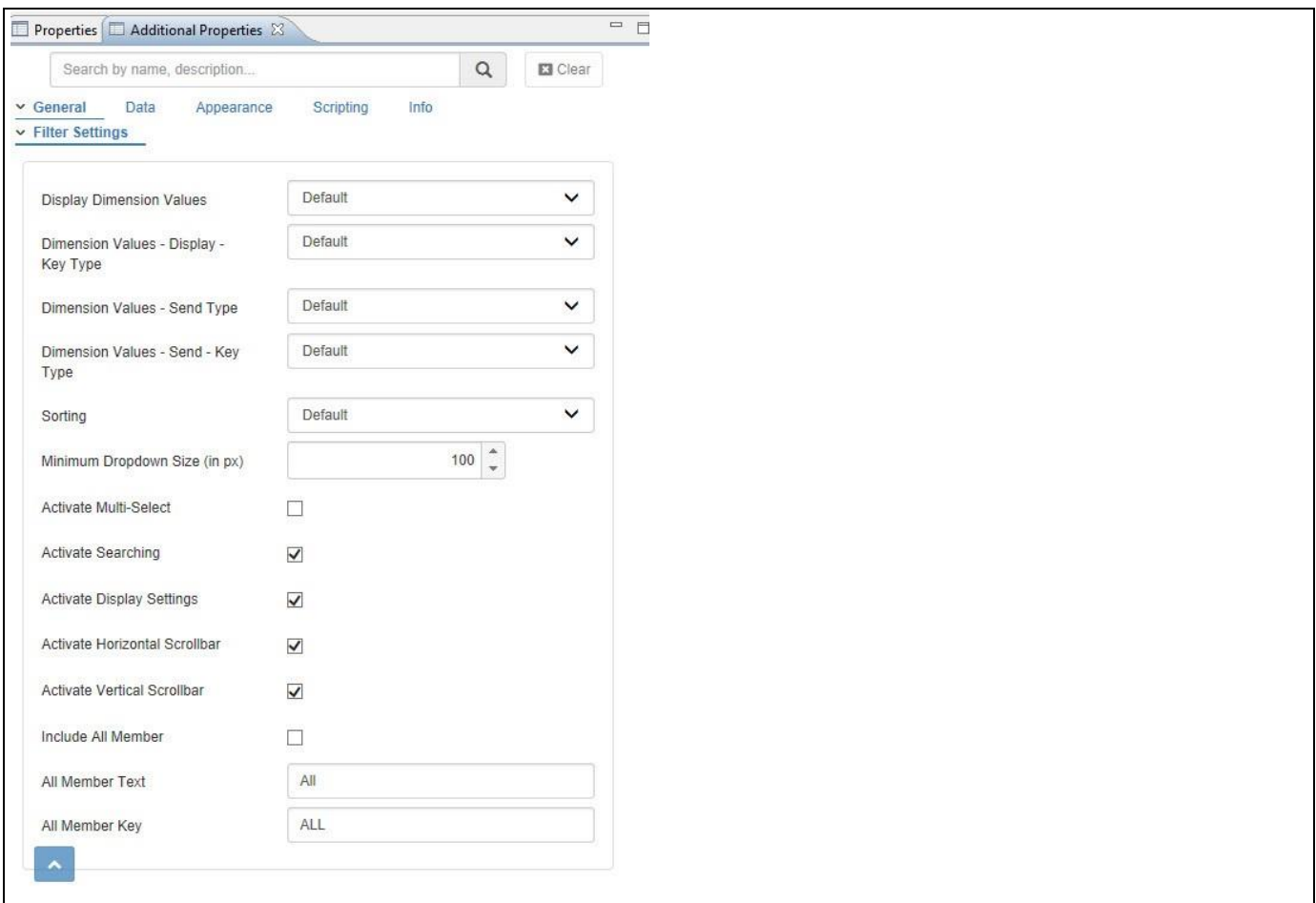
9. Click on Browse for the Connection (see Figure 5.78).
10. Select a connection from your system.
11. Click on Browse for the Data Source.
12. Select a data source from your system with at least one dimension as part of the data source.
13. Click OK.
14. Now add a Combo Box from the VBX Selectors to your new dashboard.
15. Select the Combo Box.
16. Navigate to the Standard Properties of the Combo Box (see Figure 5.79).



Property	Value
General	
Name	COMBOBOX_1
Type	com.visualbi.utilities.ComboBox
Vendor	VisualBI Solutions
Visible	<input checked="" type="checkbox"/> true
Data Binding	
Data Source	<none>
Data Selection	
Display	
CSS Class	
Layout	
Top Margin	217
Left Margin	106
Bottom Margin	auto
Right Margin	auto
Width	120
Height	67

Figure 5.79: Standard Properties

17. Assign your previously created Data Source to the property Data Source of the Combo Box.
18. After you assigned the Data Source to the Combo Box, navigate to the Additional Properties (see Figure 5.80).



Properties | **Additional Properties**

Search by name, description...

General | **Data** | Appearance | Scripting | Info

Filter Settings

Display Dimension Values	Default
Dimension Values - Display - Key Type	Default
Dimension Values - Send Type	Default
Dimension Values - Send - Key Type	Default
Sorting	Default
Minimum Dropdown Size (in px)	100
Activate Multi-Select	<input type="checkbox"/>
Activate Searching	<input checked="" type="checkbox"/>
Activate Display Settings	<input checked="" type="checkbox"/>
Activate Horizontal Scrollbar	<input checked="" type="checkbox"/>
Activate Vertical Scrollbar	<input checked="" type="checkbox"/>
Include All Member	<input type="checkbox"/>
All Member Text	All
All Member Key	ALL

Figure 5.80: Additional Properties

19. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
20. Navigate to the category General and to the sub category Filter Settings in the Additional Properties (see Figure 5.80).

21. In the sub category Filter Settings you can configure the following items:

- Display Dimension Values: You can choose how the dimension members are going to be displayed. You can choose between Key Only, Text Only, Text and Key or Key and Text. The option Default refers to the setting in the Initial View of the Data Source.
- Dimension Values - Display - Key Type: You can choose between the options Default, External Key, External Non-Compounded Key, Internal Key and Internal Non-Compounded Key.
- Dimension Values – Send Type: Here you can configure which value will be send as filter value to the target data source. You can choose between Key Only, Text Only, Text and Key or Key and Text, or Default. The option Default refers to the setting in the Initial View of the Data Source.
- Dimension Values - Send - Key Type: You can choose between the options Default, External Key, External Non-Compounded Key, Internal Key and Internal Non-Compounded Key.
- Sorting: Here you can configure an ascending or descending sort for the dimension members. The basis for the sort depends on which values are being displayed.
- Minimum Dropdown Size (in px) : Here you can specify a value (in px) that is defining the minimum height of the drop down box at run-time.
- Activate Multi-Select: By activating this option you are allowed to select multiple values.
- Activate Searching: Here you can activate the search option for the Combo Box.
- Activate Display Settings: By activating this option you are allowed – at run time – to choose between the different display options - such as Key, Text, Key and Text – for the dimension members at run-time.
- Activate Horizontal Scrollbar: Here you can activate the Horizontal Scrollbar for the Combo Box.
- Activate Vertical Scrollbar: Here you can activate the Vertical Scrollbar for the Combo Box.
- Include All Member: You can activate this option to include an “All” member as part of the Combo Box.
- All Member Text: Here you can specify the text that you would like to be displayed for the All Member.
- All Member Key: Here you can specify the key that you would like to be displayed for the All Member.

22. For our example we are using the following configuration:

- Display Dimension Values: Text and Key
- Dimension Values - Display - Key Type: Default
- Dimension Values – Send Type: Key Only
- Dimension Values - Send - Key Type: Default
- Sorting: Ascending
- Minimum Dropdown Size (in px): 300
- Activate Multi-Select
- Activate Searching
- Activate Display Settings
- Activate Horizontal Scrollbar
- Activate Vertical Scrollbar
- Include All Member
- All Member Text : All Product Groups
- All Member Key: ALL

23. Navigate to the category Data and to the sub category Filter Settings in the Additional Properties (see Figure 5.81).

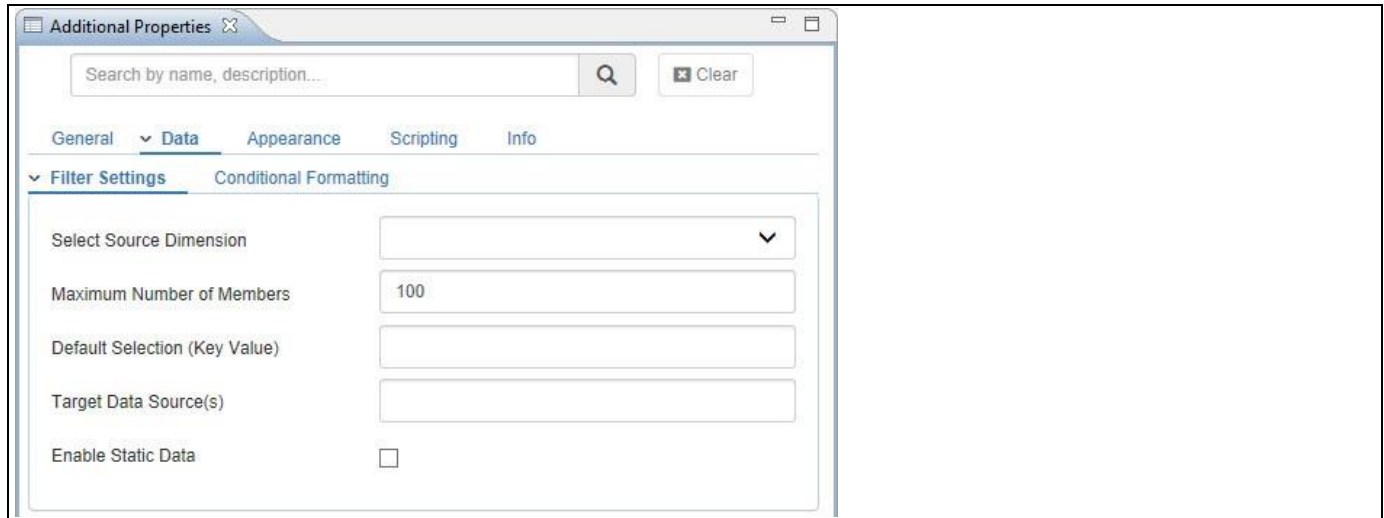


Figure 5.81: Category Data

24. In the sub category Filter Settings you can configure the following items:

- Select Source Dimension: Here you can select the dimension which will be used for the list of members in the Combo Box.
- Maximum Number of Members: The default Number of Members will be 100. If needed, you can enter a maximum value of dimension members here.
- Default Selection (Key Value): Here you can set the default selected item for the Combo Box.
- Target Data Source(s): Here you can enter the technical name of all the data sources which should be filtered based on the selected values in the Combo Box. You can enter multiple data sources with a “,” as separator. The Combo Box will send the selected values as filter values to the target data source based on the assigned dimension.
- Enable Static Data: By activating the option Enable Static Data you can manually enter values using the Text and Key options and use the manually entered values for the Combo Box.

25. For our example we are configuring these properties as follows:

- Select Source Dimension: Product Group
- Maximum Number of Members: We will leave this empty as we do not want to specify a limit.
- Default Selection (Key Value): For our example this stays empty.
- Target Data Source(s): For our example this stays empty as we only have one data source so far.

26. Navigate to the category Appearance and to the sub category Filter (see Figure 5.82).

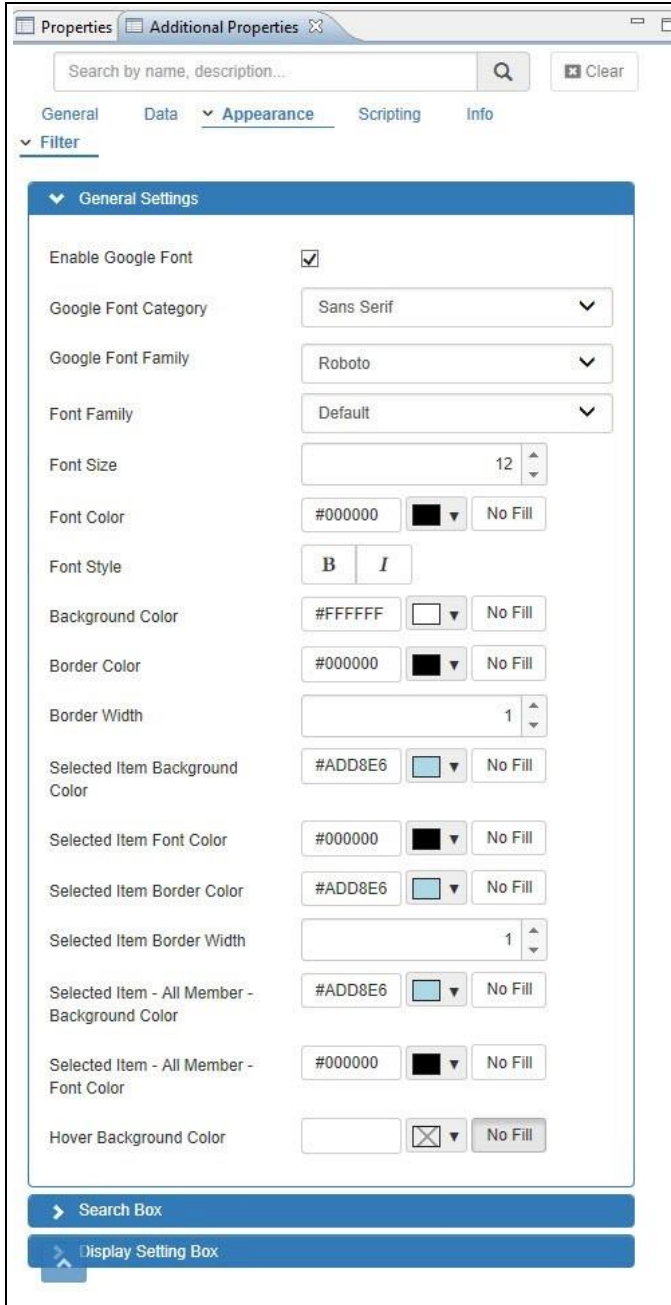


Figure 5.82: Category Appearance

27. In the sub category Filter you can configure the look and feel of the Combo Box.
28. Now navigate to the category Scripting (see Figure 5.83).

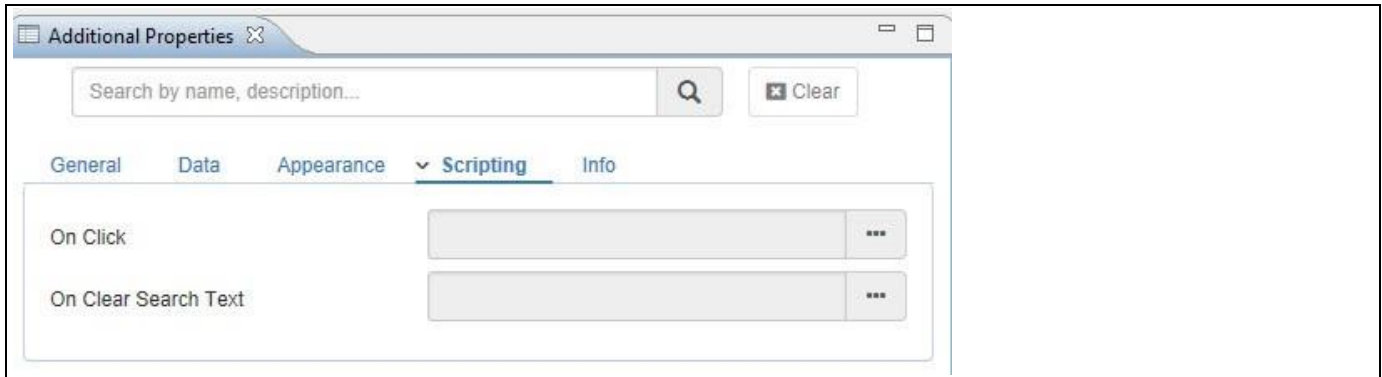


Figure 5.83: Category Scripting

29. In the category Scripting you have access to the different scripting events support by the component and you can use the button on the right hand side to open the script editor.
30. Navigate to the category Data and to the sub category Conditional Formatting (see Figure 5.84).

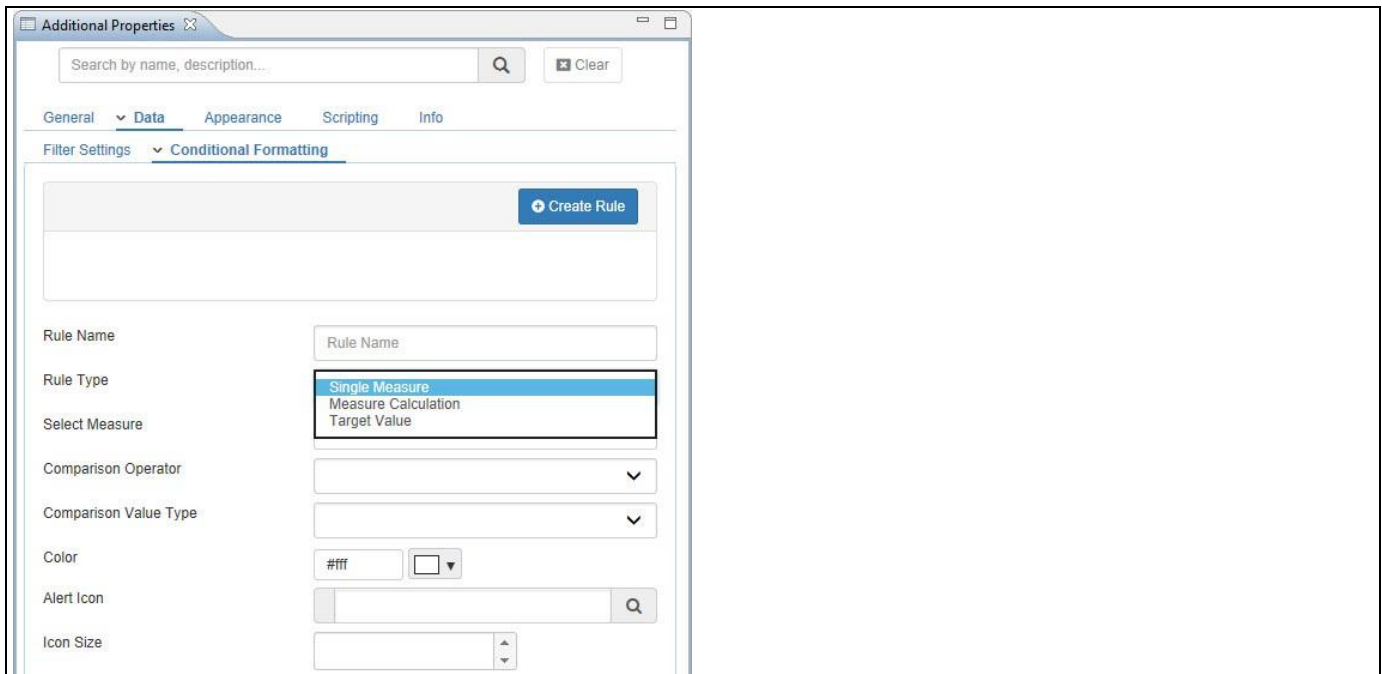


Figure 5.84: Category Data

31. In the sub category Conditional Formatting you have the option to add rules which allow you to define highlighting for the dimension members displayed in the Combo Box. For example, you could display a red arrow in front of those Product Groups that are not achieving the revenue forecast, so that you receive an additional visual clue and does not have to scroll down the complete list of Product Groups.
32. In our example we assigned the data source and we selected the dimension for the Combo Box, so our Combo Box looks like this so far.

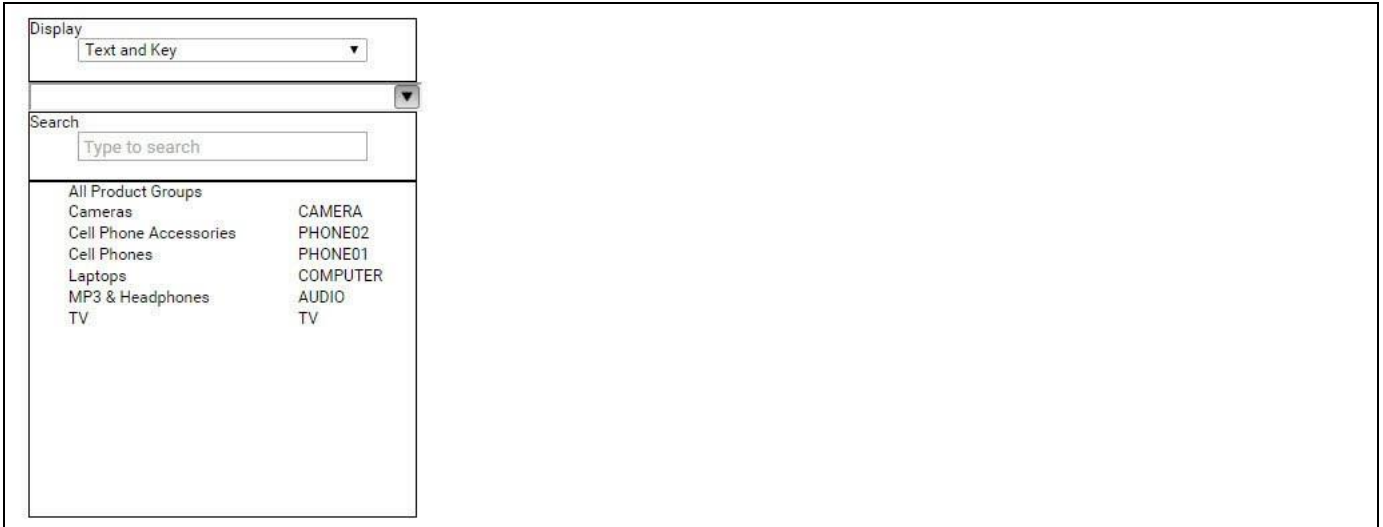


Figure 5.85: Combo Box

As you can see we have a Combo Box displaying the members of dimension Product Group as well as showing the All member with the text we specified. In addition we have the search option as well as the option to choose between the different display options.

In the next section we will outline the steps to setup an Alert based on the Rule Type Single Measure for the Combo Box. We will assume that our data source has a dimension Product Group and the measures Revenue, Profit, and Cost.

1. With the previously configured Combo Box in SAP BusinessObjects Design Studio/SAP Lumira Designer, navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties of the Combo Box (see Figure 5.86).
2. Click on Create Rule.
3. Enter a Rule Name.
4. Select the Rule Type as Single Measure.

Properties | Additional Properties

Search by name, description...

General | **Data** | Appearance | Scripting | Info

Filter Settings | **Conditional Formatting**

Rule Name:

Rule Type: ▼

Select Measure: ▼

Comparison Operator: ▼

Comparison Value Type: ▼

Comparison Value:

Color:

Alert Icon:

Icon Size:

Icon Angle: ▼

Figure 5.86: Rule Type Single Measure

5. You can now configure the Alert as outline in Table 5.38:

Label	Details
Rule Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value
Select Measure	Here you will select the measure that will be used to compare against a static or dynamic value.
Comparison Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
Comparison Value Type	Here you can choose between a Static comparison value, a Dynamic comparison value, or a Measure Comparison.
Comparison Value	Depending on the configured options, the property Value will allow to enter a static value, or setup a dynamic cell selection, or select a measure.
Color	Here you can configure the color for the Alert icon.
Alert Icon	Here you can choose an Alert Icon from a list of predefined icons.
Icon Size	Here you can configure the size for the Alert icon.
Icon Angle	Here you can configure the angle for the Alert icon.

Table 5.38: Combo Box Alert – Single Measure

6. After configuring the details, you can click on Save and the configured Alert will be applied to the Combo Box.

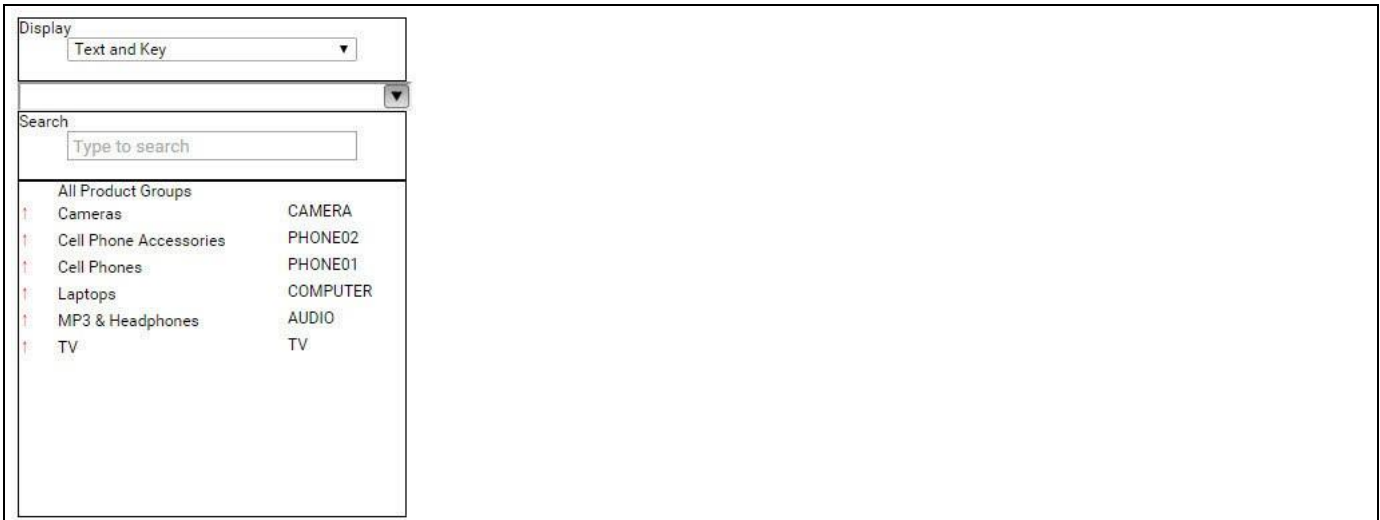


Figure 5.87: Combo Box with Alert

In the next section we will outline the steps to setup an Alert based on the Rule Type Measure Calculation for the Combo Box. We will assume that our data source has a dimension Product Group and the measures Revenue, Profit, and Cost.

1. With the previously configured Combo Box in SAP BusinessObjects Design Studio/SAP Lumira Designer, navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties of the Combo Box (see Figure 5.88).
2. Click on Create Rule.
3. Enter a Rule Name.
4. Select the Rule Type as Measure Calculation.

Properties Additional Properties

Search by name, description...

General **Data** Appearance Scripting Info

Filter Settings **Conditional Formatting**

Rule Name

Rule Type

Select Measure

Comparison Operator

Comparison Measure 1

Operator

Comparison Measure 2

Color

Alert Icon

Icon Size

Icon Angle

Figure 5.88: Rule Type Measure Calculation

5. You can now enter the details for the different options as shown in Table 5.39:

Label	Details
Rule Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value
Select Measure	Here you will select the measure that will be used to compare against a static or dynamic value.
Comparison Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
Comparison Measure 1	Here you can select the first measure as part of the calculation you would like to configure.
Operator	Here you can choose the calculation operator. The options are Add, Subtract, Multiply and Divide.
Comparison Measure 2	Here you can select the second measure as part of the calculation you would like to configure.
Color	Here you can configure the color for the Alert icon.
Alert Icon	<ul style="list-style-type: none"> Here you can choose an Alert Icon from a list of predefined icons.
Icon Size	<ul style="list-style-type: none"> Here you can configure the size for the Alert icon.

Label	Details
Icon Angle	<ul style="list-style-type: none"> Here you can configure the angle for the Alert icon.

Table 5.39: Combo Box Alert –Measure Calculation

- In our example we are setting up an alert based on the Rule Type Measure Calculation (see Figure 5.89):
 - Select Measure will be Profit.
 - Comparison Operator will be Greater Than.
 - Comparison Measure 1 will be Revenue.
 - Calculation Operator will be Subtract.
 - Comparison Measure 2 will be Cost.
 - Color is Red.
 - Alert Icon will be a circle.

Figure 5.89: Rule Type Measure Calculation

- Click Save to add the Alert to the Combo Box.

In the next section we will outline the steps to setup an Alert based on the Rule Type Target Value for the Combo Box. We will assume that our data source has a dimension Product Group and the measures Revenue, Profit, and Cost.

1. With the previously configured Combo Box in SAP BusinessObjects Design Studio/SAP Lumira Designer, navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties of the Combo Box (see Figure 5.90).
2. Click on Create Rule.
3. Enter a Rule Name.
4. Select the Rule Type as Target Value.

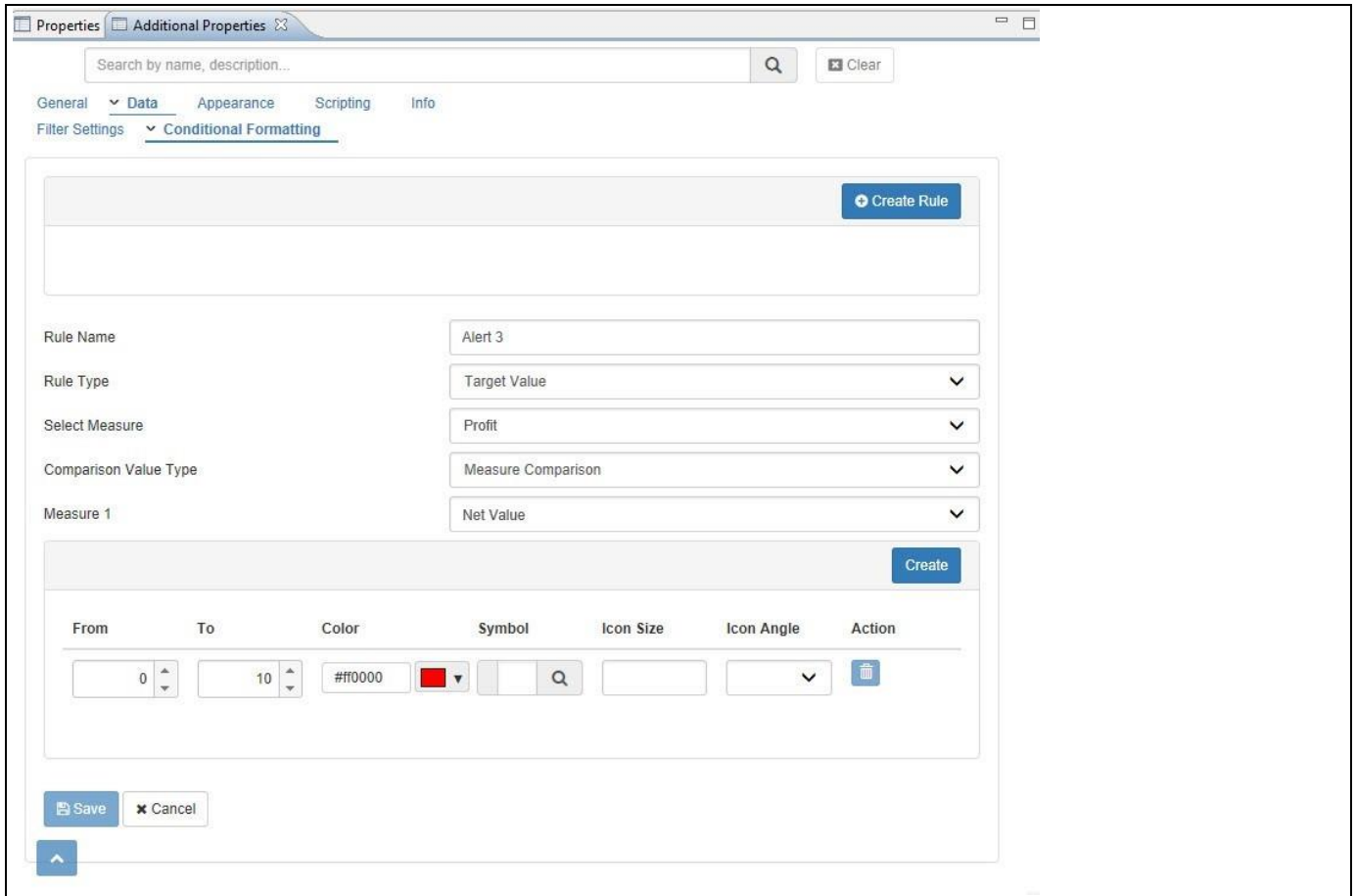
Figure 5.90: Rule Type Target Value

5. You can now enter the details for the different options as shown in Table 5.40:

Label	Details
Rule Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value
Select Measure	Here you will select the measure that will be used to compare against a static or dynamic value.
Comparison Value Type	Here you can choose between a Static comparison value, a Dynamic comparison value, or a Measure Comparison.
Comparison Value	Depending on the configured options, the property Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.

Table 5.40: Combo Box Alert - Target Value

6. After configuring the basic items, you can click on Create Rule icon to add a new rule to the alert.
7. You can now specify the From and To values as well as select the color and the symbol that will be used for this particular rule.



Properties Additional Properties

Search by name, description...

General Data Appearance Scripting Info

Filter Settings Conditional Formatting

Create Rule

Rule Name Alert 3



Rule Type Target Value

Select Measure Profit

Comparison Value Type Measure Comparison

Measure 1 Net Value

Create

From	To	Color	Symbol	Icon Size	Icon Angle	Action
0	10	#ff0000				

Save Cancel

^

Figure 5.91: Additional Rules

- Click on Save to add the Rule to the Combo Box.

5.9.9 Additional Properties of the Combo Box

In the following sections we will outline the Additional Properties of the Combo Box and provide further details on those properties. The section is broken down by the categories of the additional properties and will provide details on each of the properties.

5.9.9.1 Category General

Below are the details of the category General of the Additional Properties:

Sub category	Property	Details
Filter Settings	Display Dimension Values	Here you can choose how the dimension members will be displayed in the Combo Box. You can choose between Text, Key, Key and Text, Text and Key, and Default. The option Default will display the dimension members based on the configuration in the Initial View.
	Dimension Values - Display - Key Type	Here you can select the type of key to be displayed. The options are External Key, External Non-Compounded Key, Internal Key and Internal Non-Compounded Key.
	Dimension Values - Send Type	Here you can specify which dimension value will be send as filter value to the target data source. You can choose between Text, Key, Key and Text, Text and Key, and Default. The option Default will display the dimension members based on the configuration in the Initial View.
	Dimension Values - Send - Key Type	Here you can select the type of key to be sent. The options are External Key, External Non-Compounded Key, Internal Key and Internal Non-Compounded Key,
	Sorting	Here you can configure either an ascending or a descending sort.
	Minimum Dropdown Size (in px)	Here you can specify a value (in px) that is being used to configure the minimum height of the dropdown menu at runtime.
	Activate Multi-Select	Using this option you can allow you to select multiple values.
	Activate Inline Checkbox	Using this option you can activate individual check box for the multiple values.
	Activate Searching	Using this option you can activate the Search option for the Combo Box.
	Activate Display Settings	Using this option you can specify if you would like to enable or disable the option for you to decide – at runtime – to see the key, text, key and text, or text and key from the dimension members.
	Activate Horizontal Scrollbar	Using this option you can activate the horizontal scrollbar for the Combo Box.

Sub category	Property	Details
	Activate Vertical Scrollbar	Using this option you can activate the vertical scrollbar for the Combo Box.
	Include All Member	Using this option you can activate the All member, which then will be displayed on top of the dimension members in the Combo Box.
	All Member Text	Here you can specify a Text that will be displayed for the All member value.
	All Member Key	Here you can specify a Key that will be displayed for the All member value.

Table 5.41: Category General

5.9.9.2 Category Data

Below you can see the details of the category Data of the Additional Properties:

Sub category	Property	Details
Filter Settings	Select Source Dimension	Here you can choose a dimension from the assigned data source and the member of the dimension will be shown as part of the Combo Box.
	Maximum Number of Members	Here you can specify a maximum number of members for the Combo Box.
	Default Selection (Key Value)	Here you can set the default value to get highlighted in the Combo Box.
	Target Datasource(s)	Here you can specify the technical name of the data source that will be filtered based on the selected values. In case you would like to enter multiple target data source, you can separate them with “,”.
	Enable Static Data	By activating the option Enable Static Data you can manually enter values using the Text and Key options and use the manually entered values for the Combo Box.
	Static Data	Here you can manually enter the data for the Text and Key options.
Conditional Formatting	Rule Name	Here you can enter a Name for the Alert.
	Rule Type	You can choose between: Single Measure, Measure Calculation, Target Value.
	Select Measure	Here you will select the measure that will be used to compare against a static or dynamic value.
	Comparison Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
	Comparison Value Type	Here you can choose between a Static comparison value, a Dynamic comparison value,

Sub category	Property	Details
		or a Measure Comparison.
	Comparison Value	Depending on the configured options, the property Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
	Comparison Measure 1	Here you can select the first measure as part of the calculation you would like to configure.
	Operator	Here you can choose the calculation operator. The options are Add, Subtract, Multiply and Divide.
	Comparison Measure 2	Here you can select the first measure as part of the calculation you would like to configure.
	Color	Here you can configure the color for the Alert icon.
	Alert Icon	Here you can choose an Alert Icon from a list of predefined icons.
	Icon Size	This property sets the Icon Size for the Alert.
	Icon Angle	This property sets the Icon Angle for the Alert.
Data Series	Sorting	Using this property, you can select whether the sorting should be done in ascending order or descending order.
	Sort Based on	Here you can select the sorting to be done based on the following options Measure, Dimension and Default.
	Sort Measure	Here you can select the Measure for Sorting.
	Sort Dimension	Here you can select the Dimension for Sorting.
	Key Based	This property enables/disables the Key based sorting.

Table 5.42: Category Data

5.9.9.3 Category Appearance

Below shows the details of the category Appearance of the Additional Properties:

Sub category	Area	Property	Details
Filter	General Settings	Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.

Sub category	Area	Property	Details
		Font Family	This property allows to specify the font for the items shown in the Combo Box.
		Font Size	This property allows to specify the font size for the items shown in the Combo Box.
		Font Color	This property allows to specify the font color for the items shown in the Combo Box.
		Font Style	This property allows to specify the font style for the items shown in the Combo Box.
		Background Color	This property allows to specify the background color for the Combo Box.
		Border Color	This property allows to specify the border color for the Combo Box.
		Border Width	This property allows to specify the border width for the Combo Box.
		Selected Item Background Color	Here you can configure the Background Color for the selected items.
		Selected Item Font Color	Here you can configure the Font Color for the selected items.
		Selected Item Border Color	Here you can configure the Border Color for the selected items.
		Selected Item Border Width	Here you can configure the Border Width for the selected items.
		Selected Item - All Member - Background Color	Here you can configure the Background Color for the Combo Box items for all members.
		Selected Item - All Member - Font Color	Here you can configure the Font Color for the Combo Box items for all members.
		Hover Background Color	Here you can configure the Background Color of the Combo Box item on hover.
	Search Box	Font Family	This property allows to specify the font specifically for the Search Box as part of the Combo Box.
		Font Size	This property allows to specify the font size specifically for the Search Box as part of the Combo Box.
		Font Color	This property allows to specify the font color specifically for the Search Box as part of the Combo Box.
		Font Style	This property allows to specify the font style specifically for the Search Box as part of the Combo Box.

Sub category	Area	Property	Details
		Background Color	This property allows to specify the background color specifically for the Search Box as part of the Combo Box.
		Border Color	This property allows to specify the border color specifically for the Search Box as part of the Combo Box.
		Border Width	This property allows to specify the border width specifically for the Search Box as part of the Combo Box.
	Display Setting Box	Font Family	This property allows to specify the font specifically for the Display settings box as part of the Combo Box.
		Font Size	This property allows to specify the font size specifically for the Display settings box as part of the Combo Box.
		Font Color	This property allows to specify the font color specifically for the Display settings box as part of the Combo Box.
		Font Style	This property allows to specify the font style specifically for the Display settings box as part of the Combo Box.
		Background Color	This property allows to specify the background color specifically for the Display settings box as part of the Combo Box.
		Border Color	This property allows to specify the border color specifically for the Display settings box as part of the Combo Box.
		Border Width	This property allows to specify the border width specifically for the Display settings box as part of the Combo Box.

Table 5.43: Category Appearance

5.9.9.4 Category Scripting

Table 5.44 shows the details of the category Scripting of the Additional Properties:

Property	Details
On Click	This event allows you to add scripting code using the Script Editor. Each time you click on an item in the list, the event On Click will be triggered.
On Clear Search Text	This script will be triggered when the Search item is clicked.

Table 5.44: Category Scripting

5.9.10 Scripting Functions for the Combo Box

In the following sections we will outline scripting functions for the Combo Box.

Scripting Function	Details
DSXAddListItem()	This function allows you to add multiple items to the Combo Box.
DSXclearSelection()	This function allows you to clear any selected items from the Combo Box.
DSXGetDimension()	This function returns the configured dimension.
DSXGetDisplayType()	This function returns the configured Display Type as String value.
DSXGetSelectedMemberObjectArray()	The function allows you to retrieve the selected Member Object value. The returned value is an array with all selected Member Object values.
DSXGetSelectedMemberObject()	The function returns the selected value in Member Object format. The returned value is a Member Object value.
DSXGetSelectedValue()	This function returns the selected value (single value) from the Combo Box as String value.
DSXgetSelectedValues()	This function returns an array of selected values in case you have selected multiple values.
DSXGetValueType()	This function returns the value type from the property "Send Dimension Values".
DSXonClick()	This function triggers the On Click event for the Combo Box.
DSXSetDataSelection()	This function allows you to specify the result set of the Combo Box using a Data Selection.
DSXSetDimension()	This function allows you to set the Dimension that is used to display the members in the Combo Box.
DSXSetDisplayType()	This function allows you to set the Display Type for the dimension members.
DSXSetEnableSearch()	This function allows you to enable / disable the search functionality.
DSXSetHorizontalScrollBarEnable()	This function allows you to enable / disable the horizontal scroll bar.
DSXsetItemMembers()	This function allows you to set the Item Members.
DSXSetSelectedValues()	This function allows you to set the selected values of the Combo Box. The function can set multiple values and the values have to be passed with "," separated.
DSXSetValueType()	This function allows you to set the value type that is being send.
DSXSetVerticalScrollBarEnable()	This function allows you to enable / disable the vertical scroll bar.

Table 5.45: Scripting Functions

5.9.11 Events for the Combo Box

In the following sections we will outline the events for the Combo Box.

Event	Details
On Click	Each time you are select a member from the Combo Box the On Click event is being triggered and can be used to execute scripting code.

Table 5.46: Events

5.10 List Box

5.10.1 List Box - Overview

The List Box is a filtering component which allows you to setup a list of members of a dimension, which then will be shown as a static box. The List Box – slightly different to the Combo Box – will consume a static space based on how the List Box has been configured in SAP BusinessObjects Design Studio/SAP Lumira Designer. The List Box provides standard features such as a search option and the ability to choose – at run time – between the key, text, or key and text as display option for the dimension members.

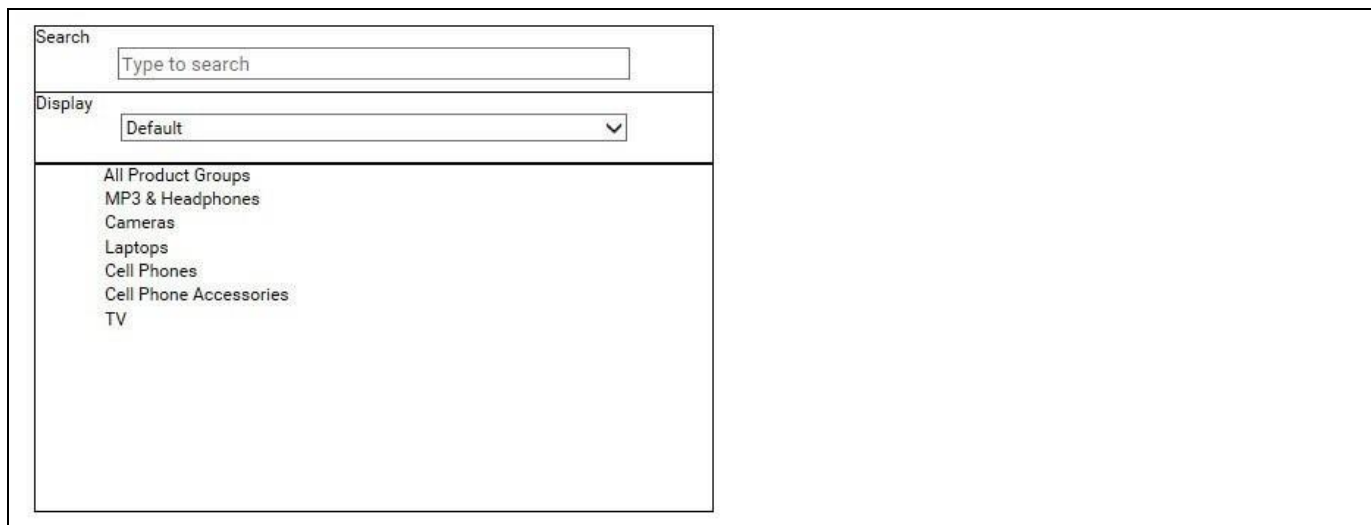


Figure 5.92: List Box

Figure 5.92 shows a List Box displaying a list of product categories from a dimension and showing a Search Box and the option to change the display of the dimension members as part of the overall display of the List Box.

5.10.2 Sorting in List Box

In the Additional Properties of the List Box in the category Data and the sub category Data Series, you have the option to sort the list in the List Box.

For our example, you can follow the steps below to configure the Sorting in List Box:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Discount Amount and Order Cost along the dimension Item Category.
3. Add a List Box from the VBX Selectors to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the List Box.
5. Navigate to the Additional Properties of the List Box.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Data and to the sub category Data Series (see Figure 5.93).

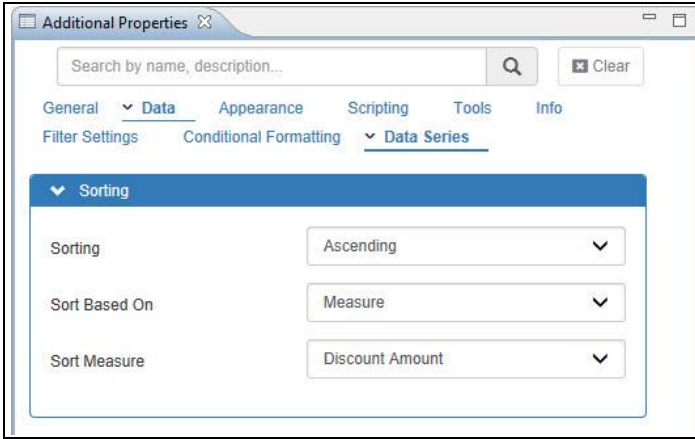


Figure 5.93: Category Data

8. For our example, set the property Sorting to the option Ascending.
9. Set the property Sorting Based On to the option Measure.
10. Set the property Sort Measure to the option Discount Amount.
11. Based on the above configuration, you will be able to visualize the List Box with the list being displayed based on the ascending order of the Measure Discount Amount for the Dimension Item Category (see Figure 5.94). Similarly, you can configure the List Box List based on the sorting order of the Dimension.

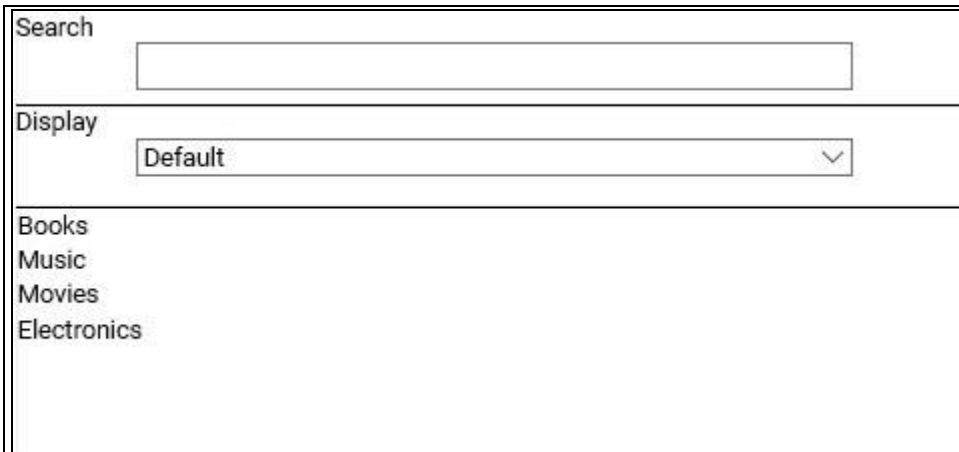


Figure 5.94: List Box List with ascending order of Measure

The ascending order of the Measure Discount Amount for the Dimension Item Category can be viewed from the Initial View settings as part of our understanding (see Figure 5.95).

Global Data Source Settings

Display of Negative Values:

Display of Zero Values:

Currency Conversion:

Columns

> Measures

Rows

> Item Category - ZR_ITEM_ZR_CATEG

Background Filter

Live Preview 10 data cells ☐ Pause Refresh

Item Category	Discount Amount	Order Cost
Books	80,980.40	2,056,212.75
Electronics	745,391.40	20,046,257.03
Movies	124,157.00	3,801,759.41
Music	118,610.35	3,670,037.52
Overall Result	1,069,139.15	29,574,266.71

Figure 5.95: Initial view settings

Sorting Conditions

List box will not support Sorting option based on measures when you use custom data sources.

5.10.3 Checkbox for Multi-select display

In the Additional Properties of the List Box in the category General and the sub category Filter Settings, you have the option to add a check box for a multi select display of the dimension members.

For our example, activate the option Activate Multi-Select and then activate the option Activate Inline Checkbox (see Figure 5.96).

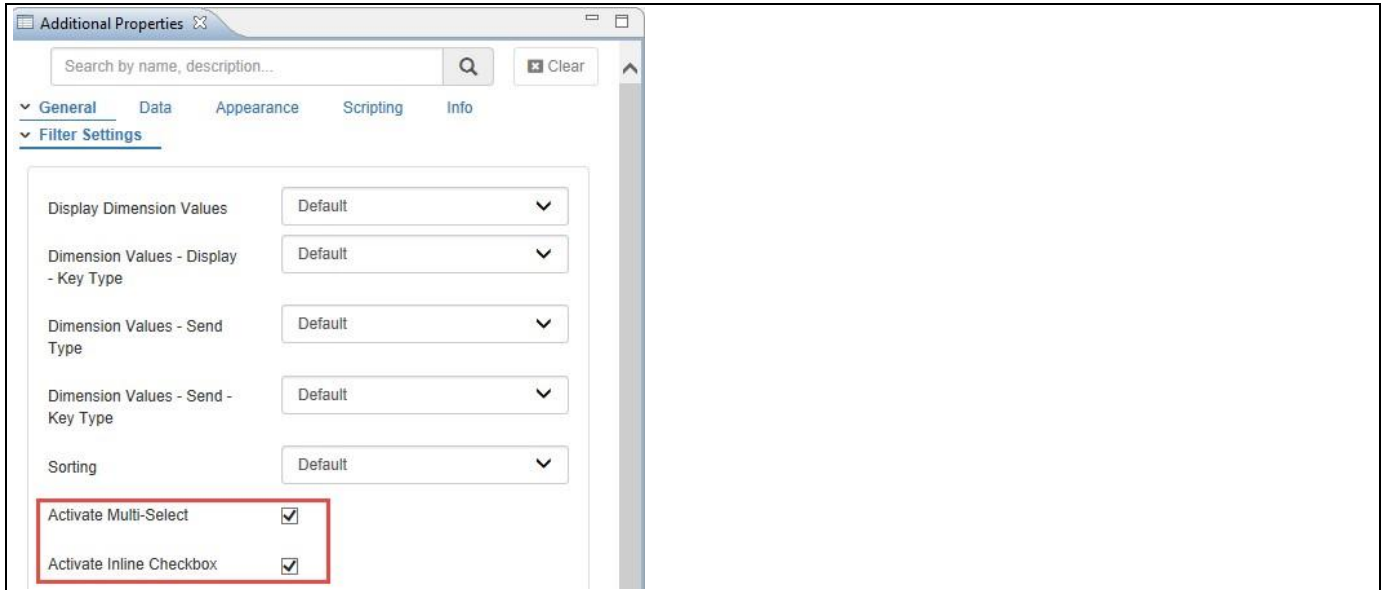


Figure 5.96: Activate Multi-Select and Inline Checkbox

Based on the above configuration you will be able to visualize the List Box as shown in Figure 5.97. Here you can select the multiple dimension members using the checkbox option.

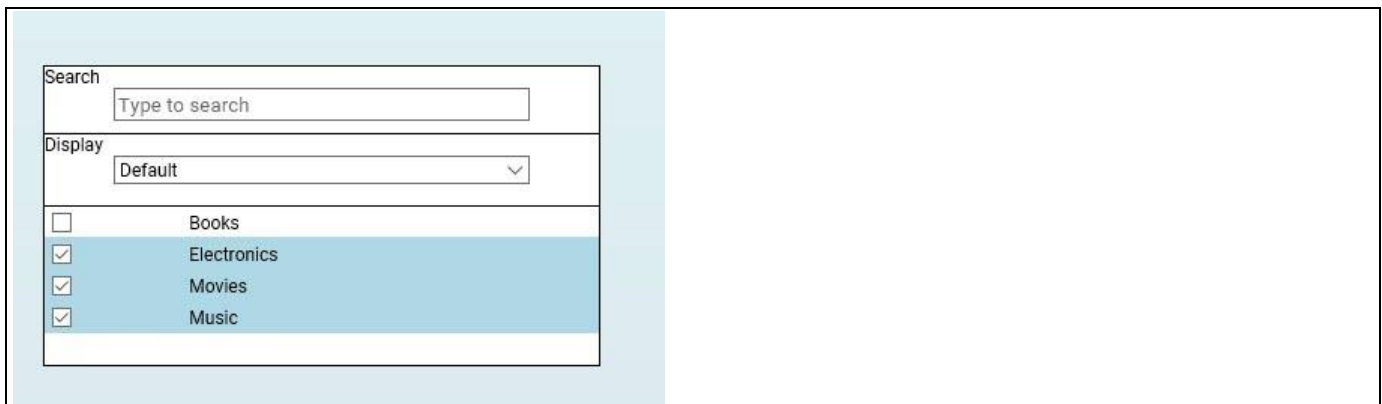


Figure 5.97: Activate Multi-Select and Inline Checkbox

5.10.4 New Conditional Formatting Rules for Alerts

In the Additional Properties of the List Box in the category Data and the sub category Conditional Formatting, you have the option to filter the list based on the conditional formatting rules. Here you can assign the icons for the Alert items based on the conditional formatting and also can select only the alert items alone to be displayed in the List Box.

For our example, you can follow the steps below to configure the Conditional Formatting for Alerts based on a Single Measure:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Order Cost along the dimension Item Category.
3. Add a List Box from the VBX Selectors to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the List Box.
5. Navigate to the Additional Properties of the List Box.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Data and to the sub category Conditional Formatting (see Figure 5.98).

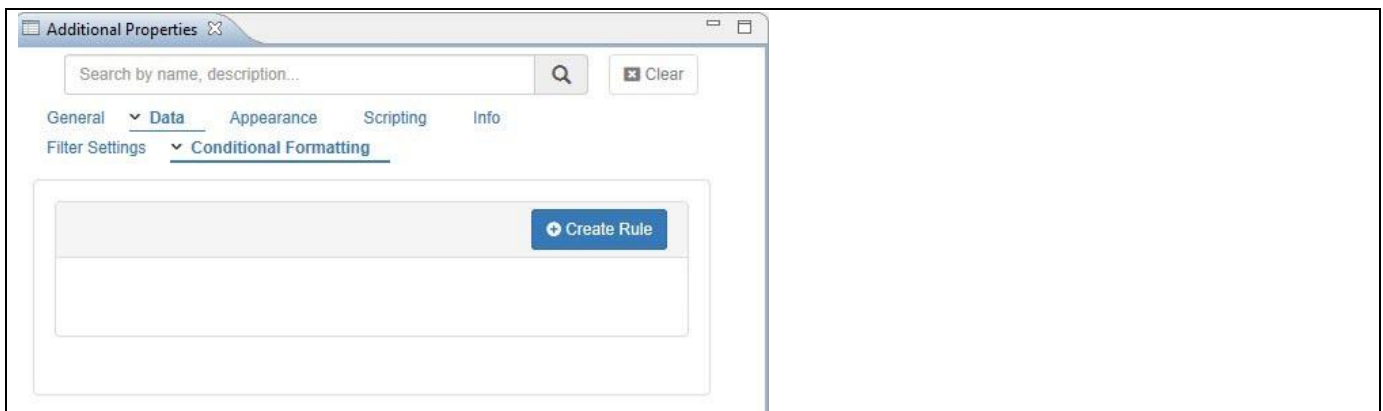


Figure 5.98: Conditional Formatting

8. Now click on Create Rule (see Figure 5.99)
9. Enter a Rule Name for your Rule.
10. In our example we are setting up an alert based on the Rule Type Single Measure: (see Figure 5.99)
 - Rule Type Single Measure
 - Select Measure Order Cost
 - Comparison Operator Greater Than
 - Comparison Value Type Dynamic
 - Comparison Value Order Cost
 - Color Red
 - Alert Icon hourglass-half
 - Icon size 15
 - Icon Angle 0 degree

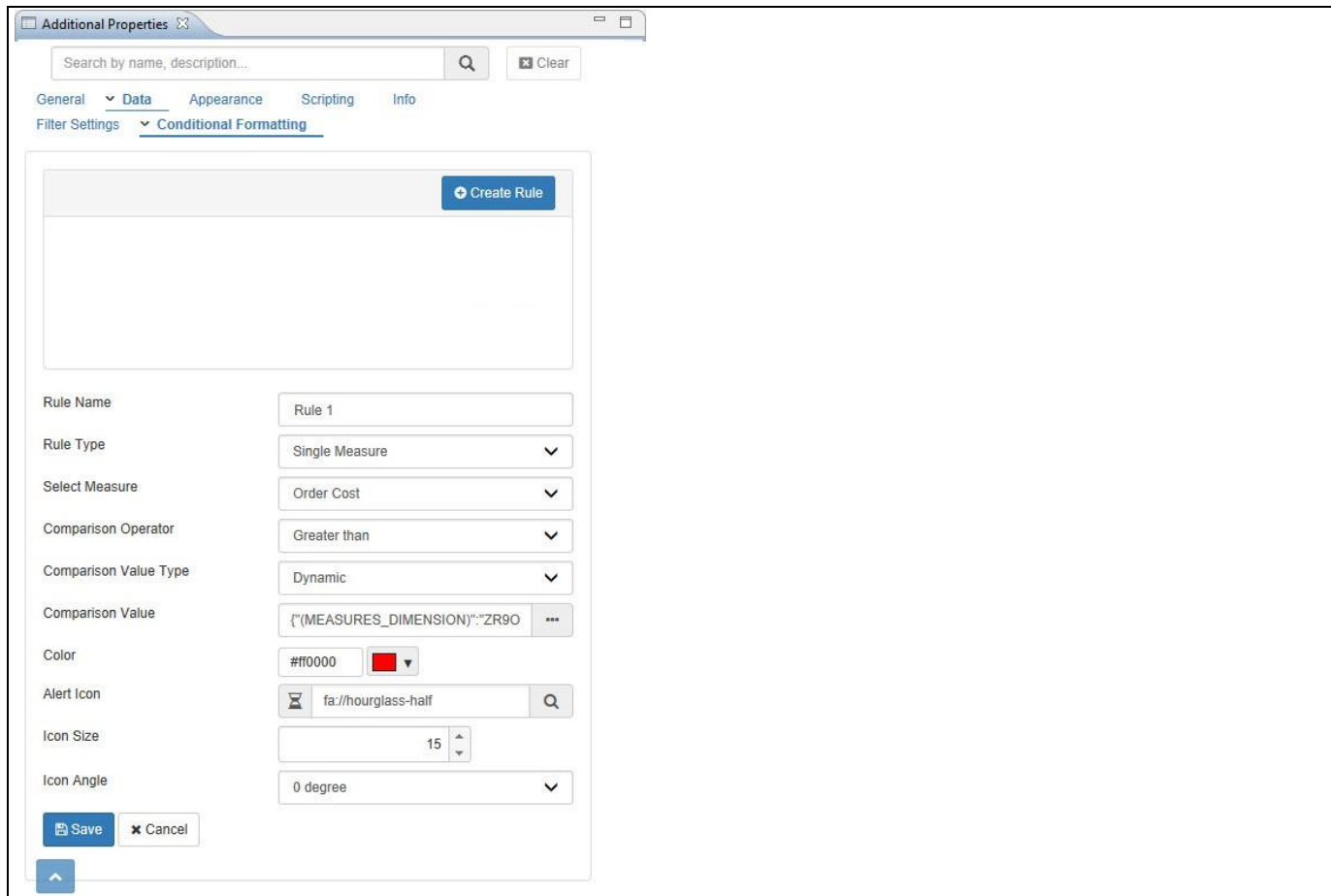


Figure 5.99: Conditional Formatting

11. Based on the above configured settings, you will be able to visualize the List Box with Alert Icons based on the conditional formatting (see Figure 5.100).

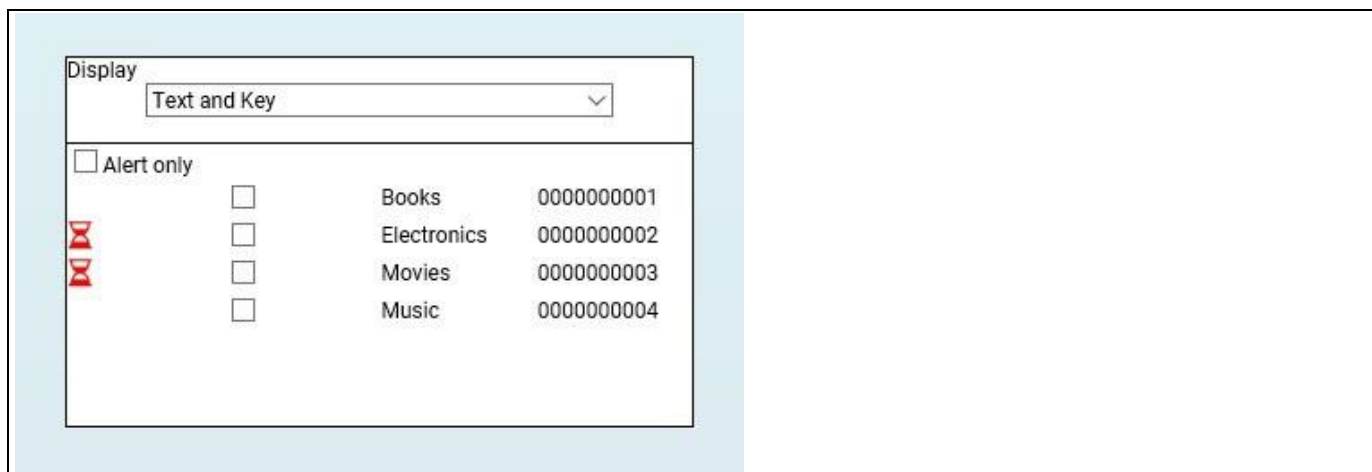


Figure 5.100: List Box with Alert Icons

12. You can also view only the Alert items alone in the List Box by activating the option Alert only (see Figure 5.101).

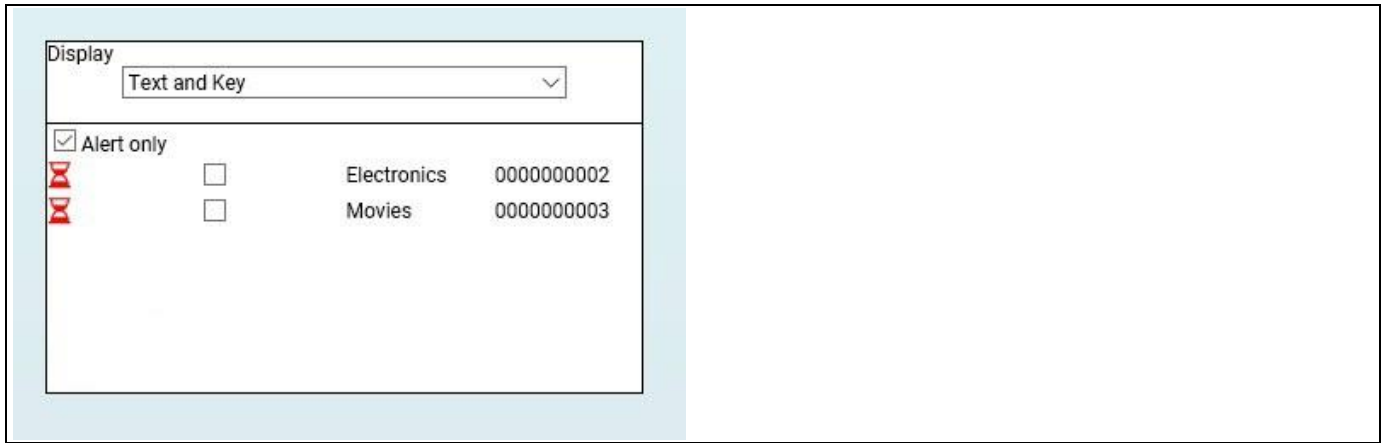


Figure 5.101: List Box with only Alert Icons

5.10.5 Option to filter the Target Data Source using Additional Properties

In the Additional Properties of the List Box in the category General and the sub category Filter Settings, you have the option to filter the Target Data Source(s) directly using the Additional Properties.

For our example, you can follow the steps below to filter the Target Data Source(s):

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measures Discount Amount, Order Amount, Order Cost and Order Quantity along the dimension Item Category.
3. Add a List Box from the VBX Selectors to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source (DS_1) to the List Box.
5. Now add a Column Bar Chart from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
6. Assign the same data source (DS_2) to the Column Bar Chart. You can also assign different data source having same dimensions but different measures.
7. Navigate to the Additional Properties of the List Box.
8. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
9. In the Additional Properties navigate to the category Data and to the sub category Filter Settings. Now set the property Target Data Source(s) to the value DS_2 (see Figure 5.102).

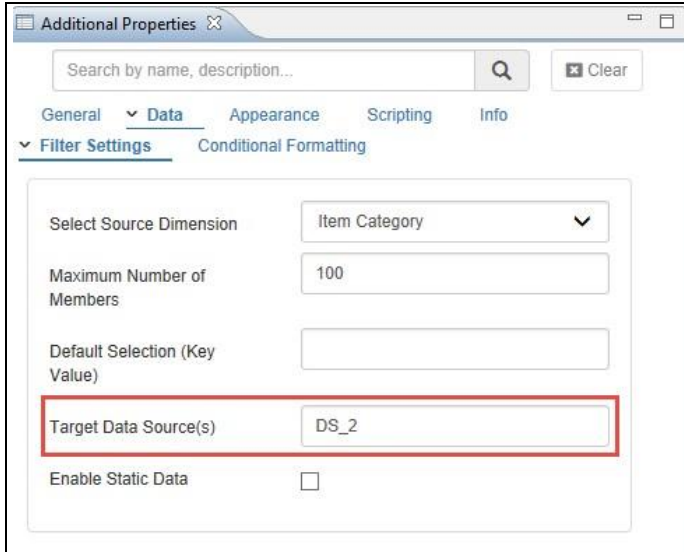


Figure 5.102: Target Data Source

- Based on the above configured settings, you will be able to visualize the List Box along with the Column Bar Chart. For our example, you can filter the dimension member “Books” from the List Box where you can observe the filtering done for the dimension member “Books” shown through the Column Bar Chart (see Figure 5.103).



Figure 5.103: List Box with Column Bar Chart

5.10.6 Keyboard Navigations

The List Box Component will be able to support the keyboard navigations and they will be active only when the property Activate Multiselect is enabled in the Additional Properties of the List Box. All the below listed keyboard options will be active only when you select at least one dimension member from the List Box through a mouse click.

- Using Up / Down arrow key navigation to scroll up and scroll down the dimension members of the List Box.
- Using SPACE key to de-select the dimension members of the List Box.
- Using CTRL key and a single click on each dimension member for a multi-select of dimension members.
- Using SHIFT and a single click on in the other dimension member in case of selecting a range of dimension members.

5.10.7 Data Source Requirements

The List Box is using members of a dimension for the display, therefore the data source requirements are very simple in that way that the assigned data source requires at least one dimension in the rows or in the columns.

5.10.8 How to use the List Box

In the following steps we will outline the steps that are needed to setup a List Box as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project. You will need a data source available to SAP BusinessObjects Design Studio/SAP Lumira Designer with at least one dimension. For our example we assume that we have a data source in form of a SAP BEx Query with a dimension Product Group.

To setup your first List Box follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. In SAP BusinessObjects Design Studio/SAP Lumira Designer select the menu Application • New.
3. Enter a Name for your new dashboard.
4. Enter a Description for your new dashboard.
5. Click Finish.
6. Navigate to the Outline of your application.
7. Select the folder Data Sources and use a right click (see Figure 5.104).

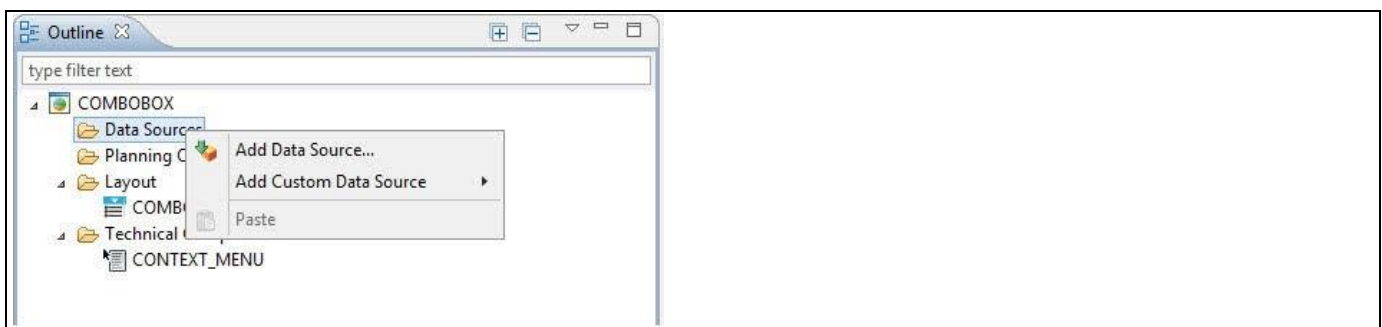


Figure 5.104: Add Data Source

8. Select the menu Add Data Source.

Add Data Source

Connection:* SAP BW Browse...

☒ Connection is active

Data Source:* Browse...

Data Source Alias:* DS_1 (default)

Properties

Name:

Description:

Type:

✖ Enter a valid data source.

? OK Cancel

Figure 5.105: Data Source Connection

9. Click on Browse for the Connection (see Figure 5.105).
10. Select a connection from your system.
11. Click on Browse for the Data Source.
12. Select a data source from your system with at least one dimension as part of the data source.
13. Click OK.
14. Now add a List Box from the VBX Selectors to your new dashboard.
15. Select the List Box.
16. Navigate to the Standard Properties of the List Box (see Figure 5.106).

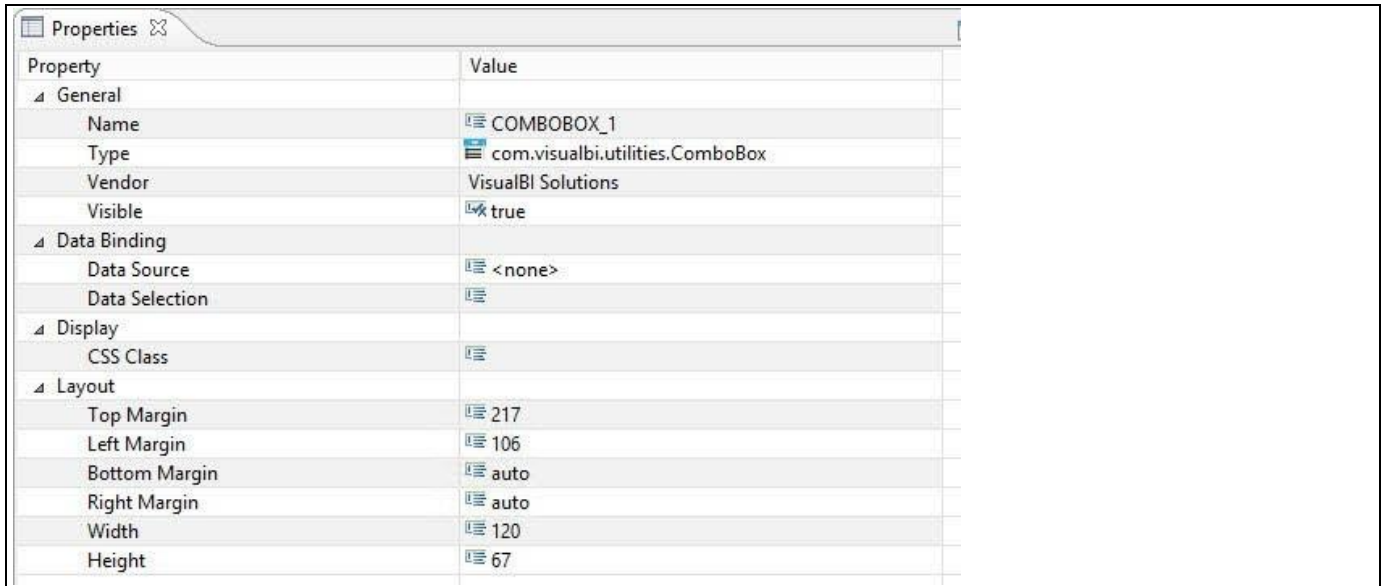


Figure 5.106: Standard Properties

17. Assign your previously created Data Source to the property Data Source of the List Box.
18. After you assigned the Data Source to the List Box, navigate to the Additional Properties (see Figure 5.107).

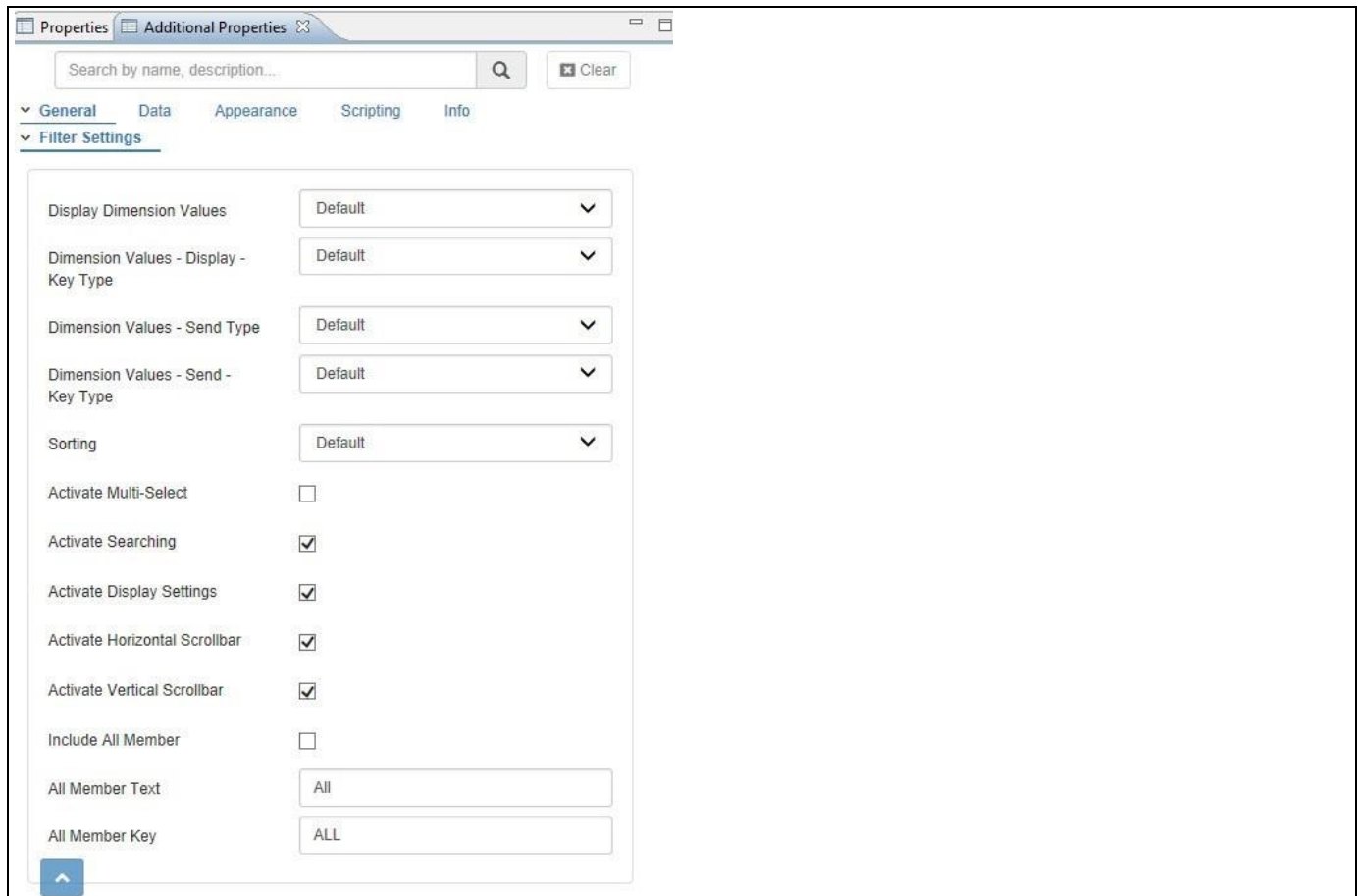


Figure 5.107: Additional Properties

19. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
20. Navigate to the category General and to the sub category Filter Settings in the Additional Properties (see Figure 5.107).
21. In the sub category Filter Settings you can configure the following items:
 - Display Dimension Values: You can choose how the dimension members are going to be displayed. You can choose between Key Only, Text Only, Text and Key or Key and Text. The option Default refers to the setting in the Initial View of the Data Source.
 - Dimension Values - Display - Key Type: You can choose between the options Default, External Key, External Non-Compounded Key, Internal Key and Internal Non-Compounded Key.
 - Dimension Values – Send Type: Here you can configure which value will be send as filter value to the target data source. You can choose between Key Only, Text Only, Text and Key or Key and Text, or Default. The option Default refers to the setting in the Initial View of the Data Source.
 - Dimension Values - Send - Key Type: You can choose between the options Default, External Key, External Non-Compounded Key, Internal Key and Internal Non-Compounded Key.
 - Sorting: Here you can configure an ascending or descending sort for the dimension members. The basis for the sort depends on which values are being displayed.
 - Activate Multi-Select: By activating this option you will be allowed to select multiple values.
 - Activate Searching: Here you can activate the search option for the List Box.
 - Activate Display Settings: By activating this option you will be allowed – at run time – to choose between the different display options - such as Key, Text, Key and Text – for the dimension members at run-time.
 - Activate Horizontal Scrollbar: Here you can activate the Horizontal Scrollbar for the List Box.

- **Activate Vertical Scrollbar:** Here you can activate the Vertical Scrollbar for the List Box.
- **Include All Member:** You can activate this option to include an “All” member as part of the Combo Box.
- **All Member Text:** Here you can specify the text that you would like to be displayed for the All Member.
- **All Member Key:** Here you can specify the key that you would like to be displayed for the All Member.

22. For our example we are using the following configuration:

- **Display Dimension Values:** Text and Key
- **Dimension Values - Display - Key Type:** Default
- **Dimension Values – Send Type:** Key Only
- **Dimension Values - Send - Key Type:** Default
- **Sorting:** Ascending
- **Activate Multi-Select**
- **Activate Searching**
- **Activate Display Settings**
- **Activate Horizontal Scrollbar**
- **Activate Vertical Scrollbar**
- **Include All Member**
- **All Member Text :** All Product Groups
- **All Member Key:** ALL

23. Navigate to the category Data and to the sub category Filter Settings in the Additional Properties (see Figure 5.108).

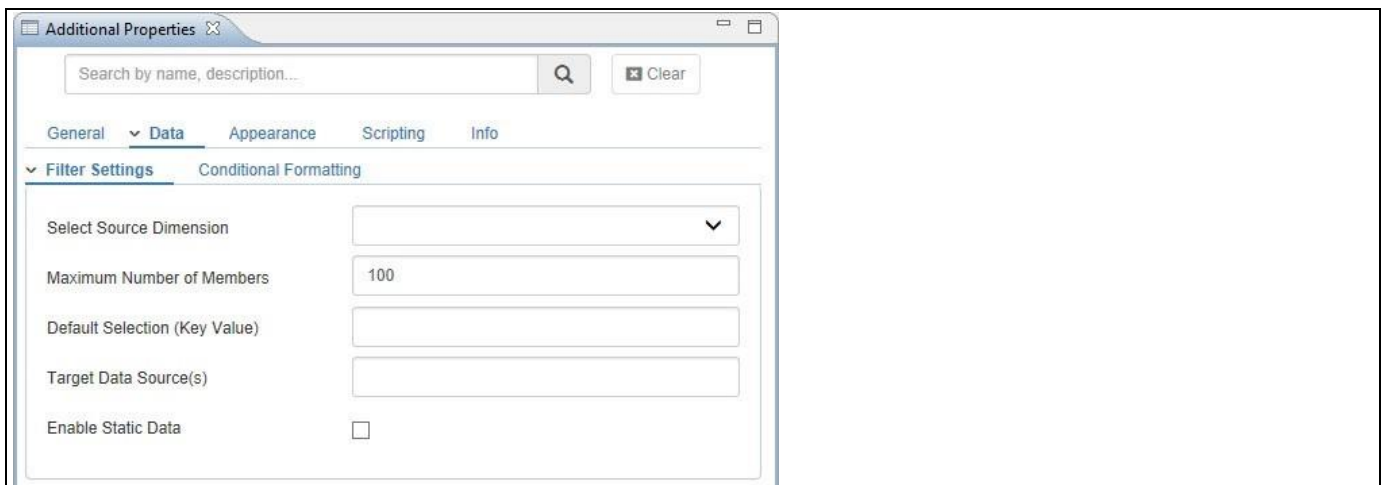


Figure 5.108: Category Data

24. In the sub category Filter Settings you can configure the following items:

- **Select Source Dimension:** Here you can select the dimension which will be used for the list of members in the List Box.
- **Maximum Number of Members:** The default Number of Members will be 100. If needed, you can enter a maximum value of dimension members here.
- **Default Selection (Key Value):** Here you can set the default selected item for the List Box.
- **Target Data Source(s):** Here you can enter the technical name of all the data sources which should be filtered based on the selected values in the List Box. You can enter multiple data sources with a “,” as separator. The List Box will send the selected values as filter values to the target data source based on the assigned dimension.
- **Enable Static Data:** By activating the option Enable Static Data you can manually enter values using the Text and Key options and use the manually entered values for the List Box.

25. For our example we are configuring these properties as follows:

- Select Source Dimension: Product Group
- Maximum Number of Members: We will leave this empty as we do not want to specify a limit.
- Default Selection (Key Value): For our example this stays empty.
- Target Data Source(s): For our example this stays empty as we only have one data source so far. .

26. Navigate to the category Appearance and to the sub category Filter (see Figure 5.109).

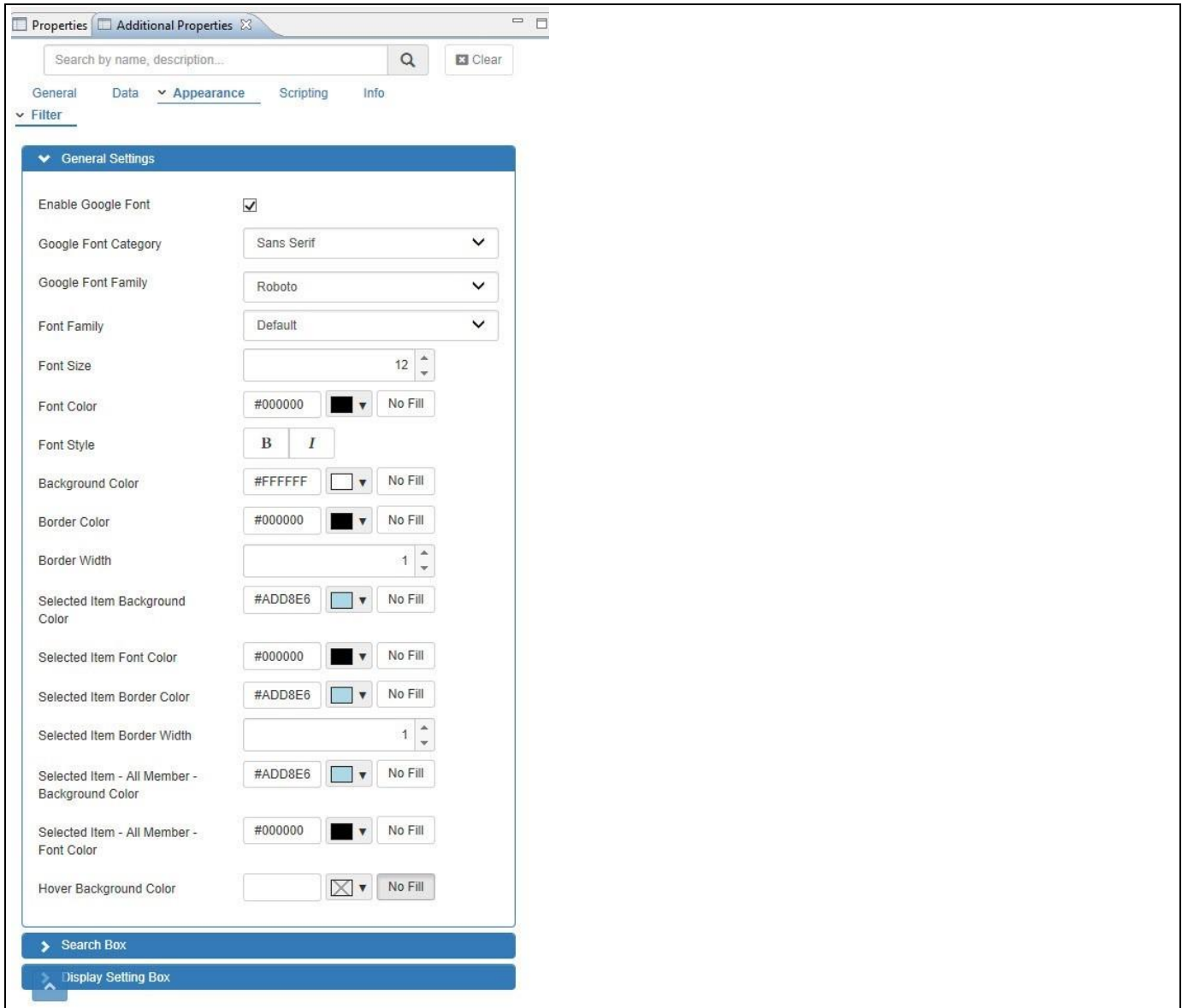


Figure 5.109: Category Appearance

27. In the sub category Filter you can configure the look and feel of the List Box.

28. Now navigate to the category Scripting (see Figure 5.110).

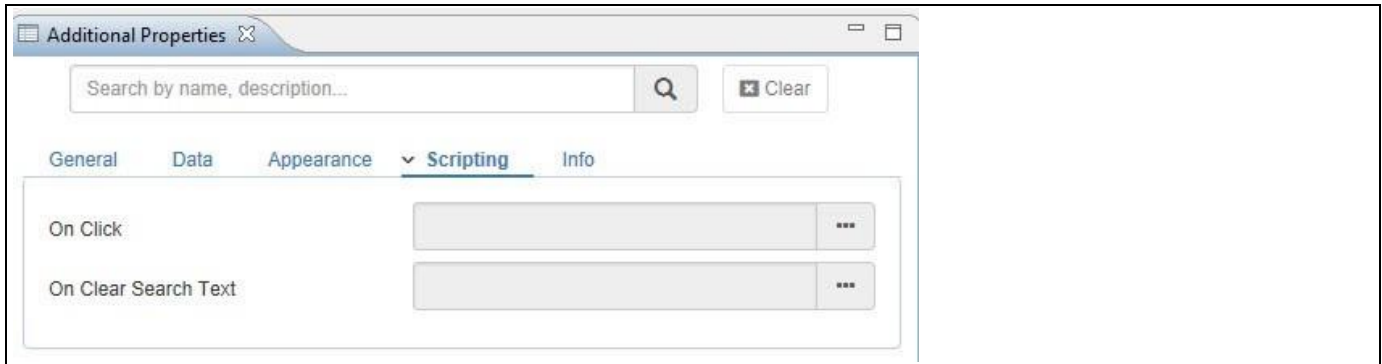


Figure 5.110: Category Scripting

29. In the category Scripting you have access to the different scripting events supported by the component and you can use the button on the right hand side to open the script editor.
30. Navigate to the category Data and to the sub category Conditional Formatting (see Figure 5.111).

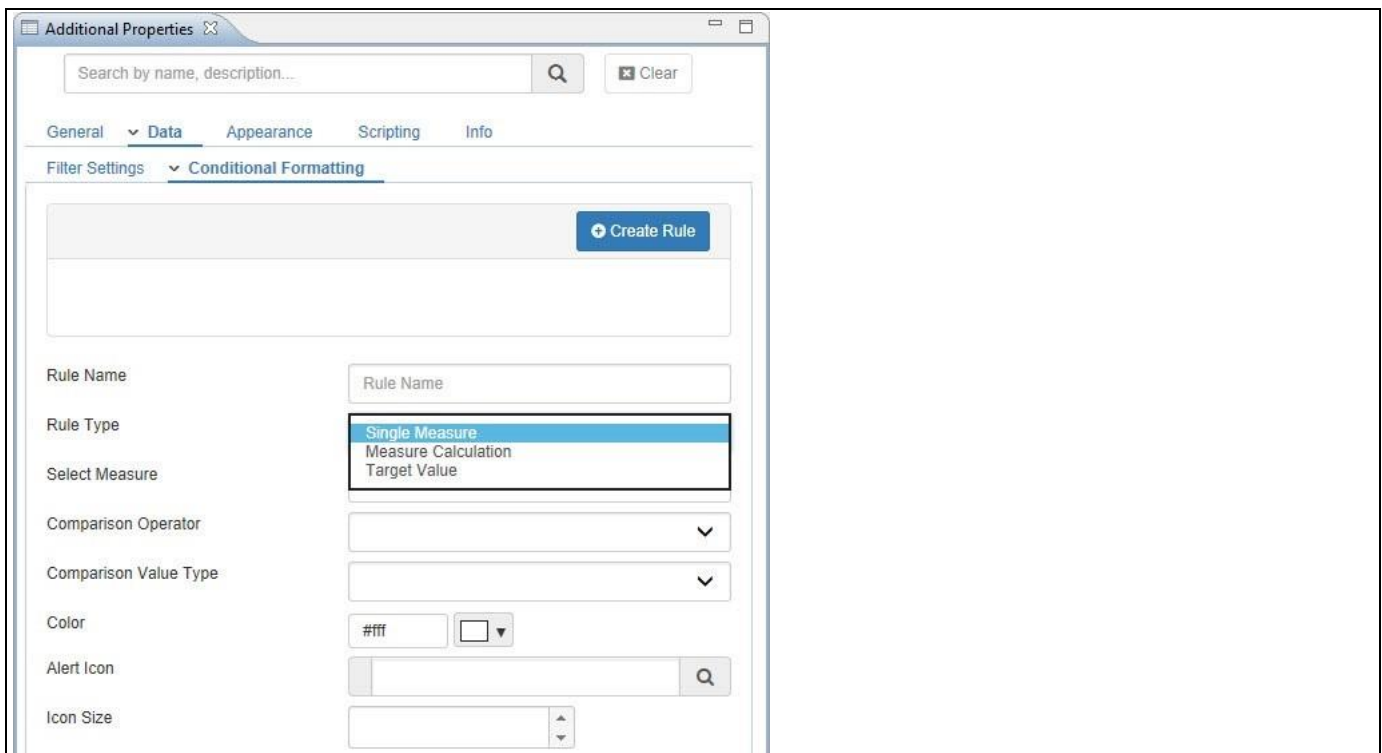


Figure 5.111: Category Data

31. In the sub category Conditional Formatting you have the option to add rules, which allow you to define highlighting for the dimension members displayed in the List Box. For example, you could display a red arrow in front of those Product Groups that are not achieving the revenue forecast, so that you receive an additional visual clue and does not have to scroll down the complete list of Product Groups.
32. In our example we assigned the data source and we selected the dimension for the List Box, so our List Box looks like this so far.

Search

Display

Text and Key

All Product Groups	
Cameras	CAMERA
Cell Phone Accessories	PHONE02
Cell Phones	PHONE01
Laptops	COMPUTER
MP3 & Headphones	AUDIO
TV	TV

Figure 5.112: List Box

As you can see we have a List Box displaying the members of dimension Product Group as well as showing the All member with the text we specified (see Figure 5.112). In addition we have the search option as well as the option to choose between the different display options.

In the next section we will outline the steps to setup an Alert based on the Rule Type Single Measure for the List Box. We will assume that our data source has a dimension Product Group and the measures Revenue, Profit, and Cost.

1. With the previously configured List Box in SAP BusinessObjects Design Studio/SAP Lumira Designer, navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties of the List Box (see Figure 5.113).
2. Click on Create Rule.
3. Enter a Rule Name.
4. Select the Rule Type as Single Measure.

Properties

Additional Properties

Search by name, description...

Q

Clear

General

Data

Appearance

Scripting

Info

Filter Settings

Conditional Formatting

Create Rule

Rule Name

Alert 1

Rule Type

Single Measure

▼

Select Measure

▼

Comparison Operator

▼

Comparison Value Type

▼

Comparison Value

▲

▼

Color

#fff

▼

Alert Icon

Q

Icon Size

▲

▼

Icon Angle

▼

Save

Cancel

▲

Figure 5.113: Rule Type Single Measure

5. You can now configure the Alert as outline in Table 5.47:

Label	Details
Rule Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value
Select Measure	Here you will select the measure that will be used to compare against a static or dynamic value.
Comparison Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
Comparison Value Type	Here you can choose between a Static comparison value, a Dynamic comparison value, or a Measure Comparison.
Comparison Value	Depending on the configured options, the property Value will allow to enter a static value, or setup a dynamic cell selection, or select a measure.
Color	Here you can configure the color for the Alert icon.
Alert Icon	Here you can choose an Alert Icon from a list of predefined icons.
Icon Size	Here you can configure the size for the Alert icon.
Icon Angle	Here you can configure the angle for the Alert icon.

Table 5.47: List Box Alert – Single Measure

6. After configuring the details, you can click on Save and the configured Alert will be applied to the List Box.

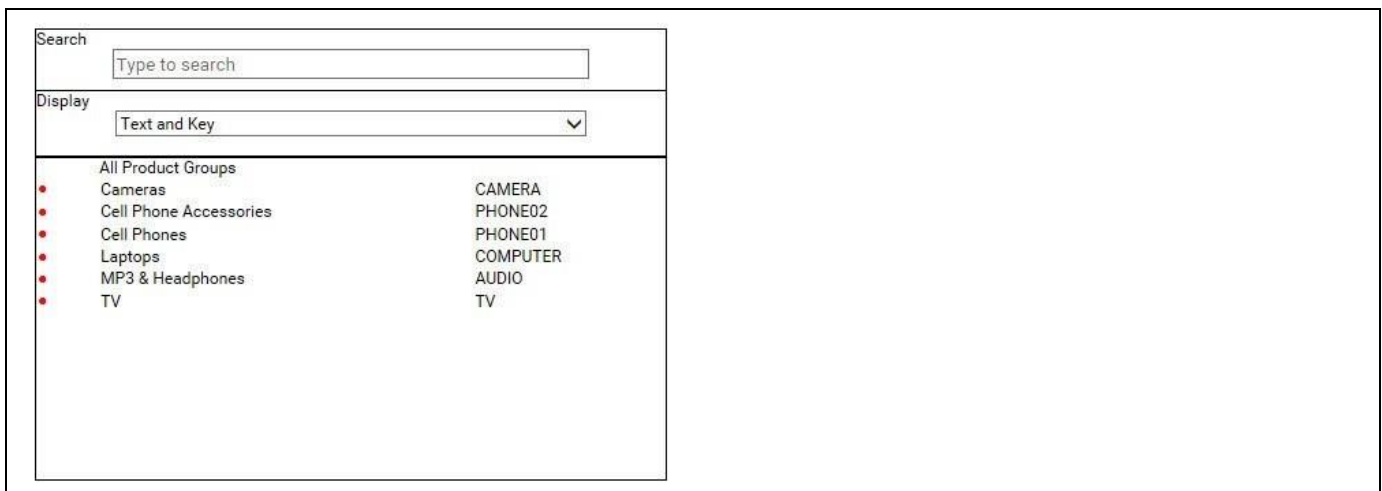


Figure 5.114: List Box with Alert

In the next section we will outline the steps to setup an Alert based on the Rule Type Measure Calculation for the List Box. We will assume that our data source has a dimension Product Group and the measures Revenue, Profit, and Cost.

1. With the previously configured List Box in SAP BusinessObjects Design Studio/SAP Lumira Designer, navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties of the List Box (see Figure 5.115).
2. Click on Create Rule.
3. Enter a Rule Name.
4. Select the Rule Type as Measure Calculation.

The screenshot shows the 'Additional Properties' window for a 'Measure Calculation' rule. The 'Rule Name' is 'Alert 2'. The 'Rule Type' is 'Measure Calculation'. The 'Select Measure' field is empty. The 'Comparison Operator' is empty. The 'Comparison Measure 1' is empty. The 'Operator' is empty. The 'Comparison Measure 2' is empty. The 'Color' is '#fff'. The 'Alert Icon' is empty. The 'Icon Size' is empty. The 'Icon Angle' is empty. There are 'Save' and 'Cancel' buttons at the bottom.

Figure 5.115: Rule Type Measure Calculation

5. You can now enter the details for the different options as shown in Table 5.48:

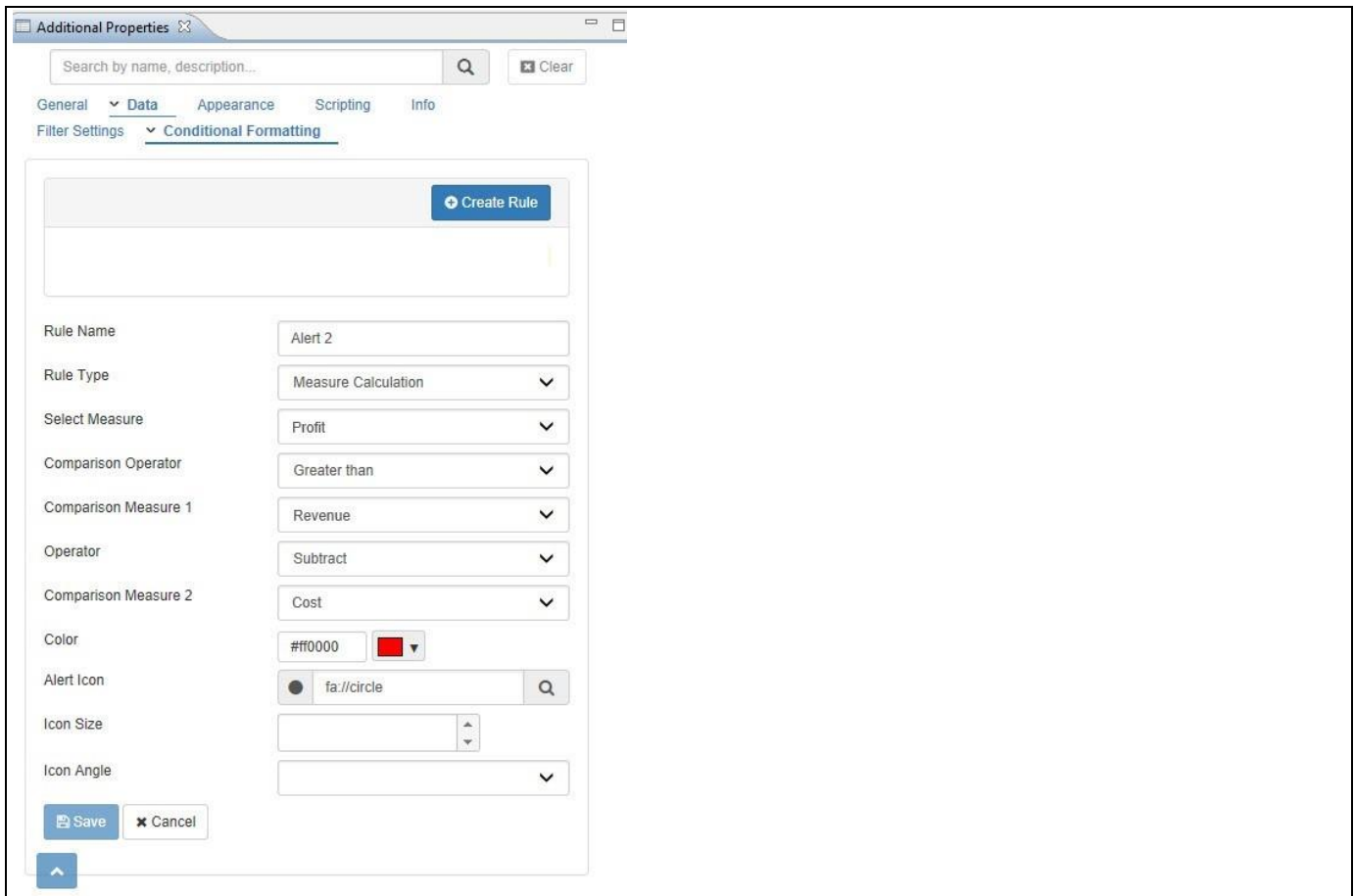
Label	Details
Rule Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value
Select Measure	Here you will select the measure that will be used to compare against a static or dynamic value.
Comparison Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
Comparison Measure 1	Here you can select the first measure as part of the calculation you would like to configure.
Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
Comparison Measure 2	Here you can select the first measure as part of the calculation you would like to configure.
Color	Here you can configure the color for the Alert icon.
Alert Icon	<ul style="list-style-type: none"> Here you can choose an Alert Icon from a list of predefined icons.
Icon Size	<ul style="list-style-type: none"> Here you can configure the size for the Alert icon.

Label	Details
Icon Angle	<ul style="list-style-type: none"> Here you can configure the angle for the Alert icon.

Table 5.48: List Box Alert –Measure Calculation

6. In our example we are setting up an alert based on the Rule Type Measure Calculation:

- Select Measure will be Profit
- Comparison Operator will be Greater Than
- Comparison Measure 1 will be Revenue
- Calculation Operator will be Subtract
- Comparison Measure 2 will be Cost
- Color is Red
- Alert Icon will be a circle



Additional Properties

Search by name, description...

General **Data** Appearance Scripting Info

Filter Settings **Conditional Formatting**

Rule Name: Alert 2

Rule Type: Measure Calculation

Select Measure: Profit

Comparison Operator: Greater than

Comparison Measure 1: Revenue

Operator: Subtract

Comparison Measure 2: Cost

Color: #ff0000

Alert Icon: ☐ ☒ fa://circle

Icon Size:

Icon Angle:

Figure 5.116: Rule Type Measure Calculation

7. Click Save to add the Alert to the List Box.

In the next section we will outline the steps to setup an Alert based on the Rule Type Target Value for the List Box. We will assume that our data source has a dimension Product Group and the measures Revenue, Profit, and Cost.

1. With the previously configured List Box in SAP BusinessObjects Design Studio/SAP Lumira Designer, navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties of the List Box (see Figure 5.117).
2. Click on Create Rule.
3. Enter a Rule Name.
4. Select the Type Target Value.

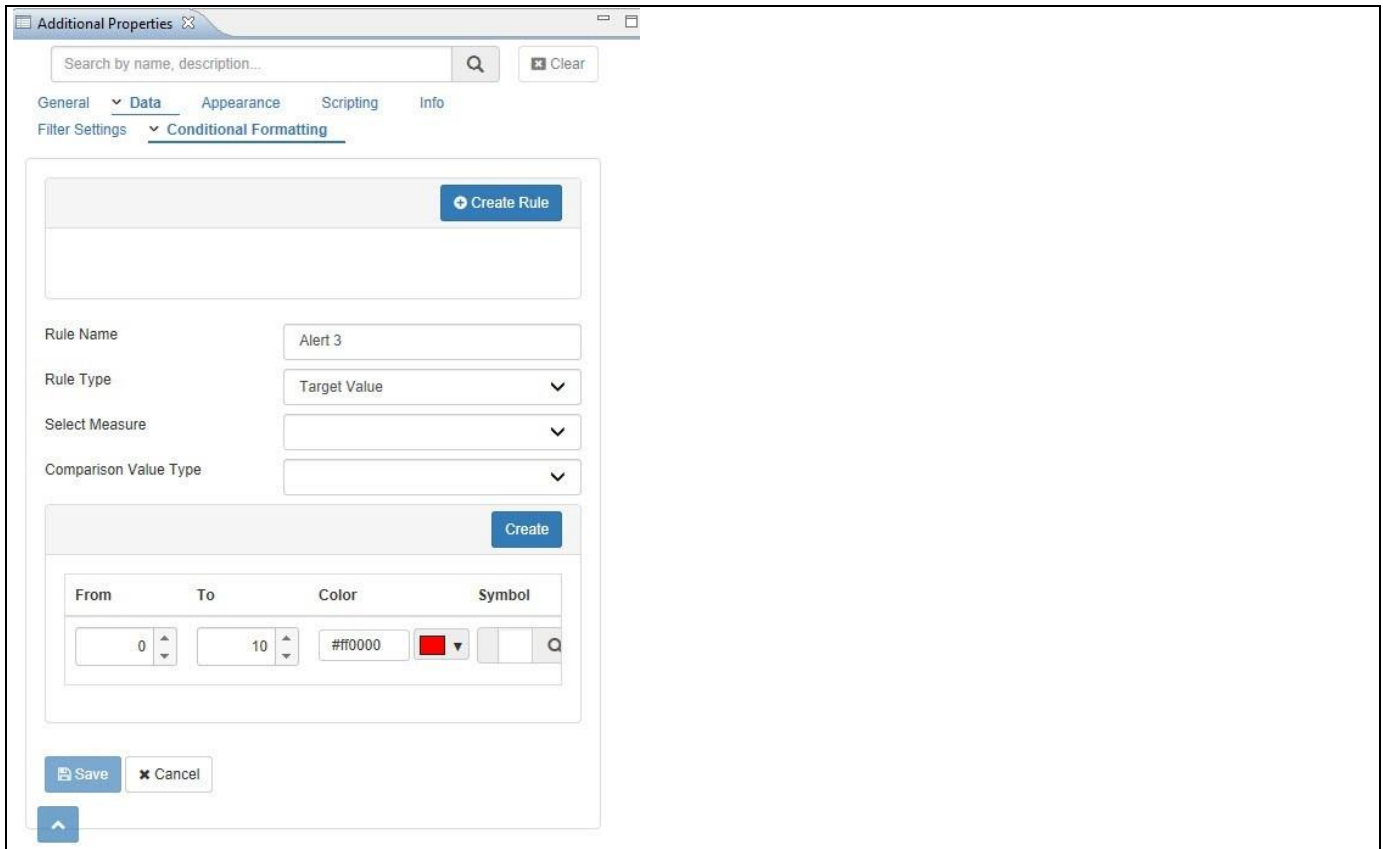


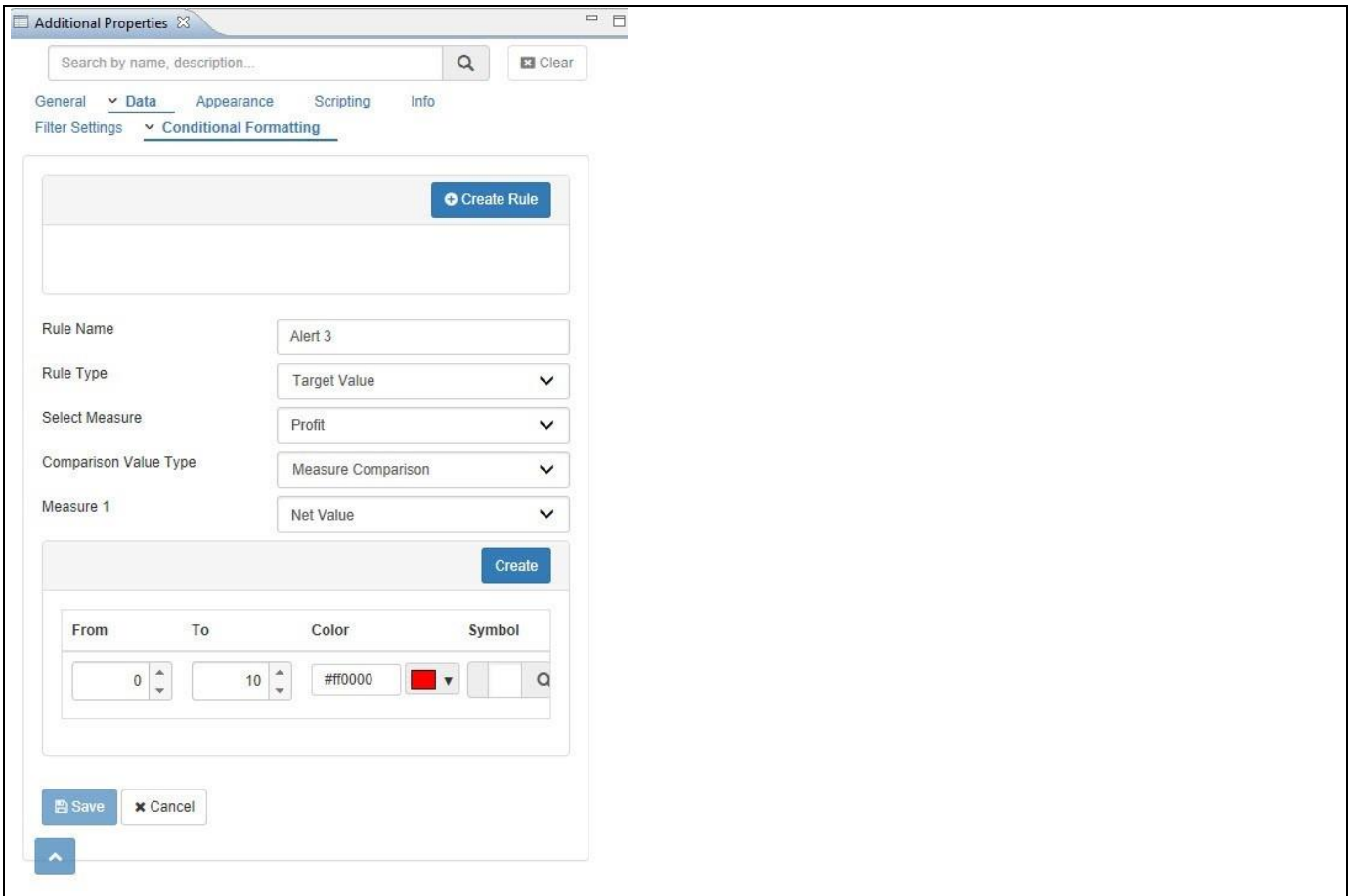
Figure 5.117: Rule Type Target Value

5. You can now enter the details for the different options as shown in Table 5.49:

Label	Details
Rule Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value
Select Measure	Here you will select the measure that will be used to compare against a static or dynamic value.
Comparison Value Type	Here you can choose between a Static comparison value, a Dynamic comparison value, or a Measure Comparison.
Comparison Value	Depending on the configured options, the property Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.

Table 5.49: List Box Alert - Target Value

6. After configuring the basic items, you can click on the Create Rule icon to add a new rule to the alert.
7. You can now specify the From and To values as well as select the color and the symbol that will be used for this particular rule.



Additional Properties

Search by name, description...

General Data Appearance Scripting Info

Filter Settings Conditional Formatting

Create Rule

Rule Name: Alert 3


Rule Type: Target Value

Select Measure: Profit

Comparison Value Type: Measure Comparison

Measure 1: Net Value

Create

From	To	Color	Symbol
0	10	#ff0000	

Save Cancel

Figure 5.118: Additional Rules

8. Click on Save to add the Rule to the List Box.

5.10.9 Additional Properties of the List Box

In the following sections we will outline the Additional Properties of the List Box and provide further details on those properties. The section is broken down by the categories of the additional properties and will provide details on each of the properties.

5.10.9.1 Category General

Below are the details of the category General of the Additional Properties:

Sub category	Property	Details
Filter Settings	Display Dimension Values	Here you can choose how the dimension members will be displayed in the List Box. You can choose between Text, Key, Key and Text, Text and Key, and Default. The option Default will display the dimension members based on the configuration in the Initial View.
	Dimension Values - Display - Key Type	Here you can select the type of key to be displayed. The options are External Key, External Non-Compounded Key, Internal Key and Internal Non-Compounded Key,
	Dimension Values - Send Type	Here you can specify which dimension value will be send as filter value to the target data source. You can choose between Text, Key, Key and Text, Text and Key, and Default. The option Default will display the dimension members based on the configuration in the Initial View.
	Dimension Values - Send - Key Type	Here you can select the type of key to be sent. The options are External Key, External Non-Compounded Key, Internal Key and Internal Non-Compounded Key,
	Sorting	Here you can configure either an ascending or a descending sort.
	Activate MultiSelect	Using this option you are allowed to select multiple values.
	Activate Inline Checkbox	Using this option you can activate individual check box for the multiple values.
	Activate Searching	Using this option you can activate the Search option for the List Box.
	Activate Display Settings	Using this option you can specify if you would like to enable or disable the option for you to decide – at runtime – to see the key, text, key and text, or text and key from the dimension members.
	Activate Horizontal Scrollbar	Using this option you can activate the

Sub category	Property	Details
		horizontal scrollbar for the List Box.
	Activate Vertical Scrollbar	Using this option you can activate the vertical scrollbar for the List Box.
	Include All Member	Using this option you can activate the All member, which then will be displayed on top of the dimension members in the List Box.
	All Member Text	Here you can specify a Text that will be displayed for the All member value.
	All Member Key	Here you can specify a Key that will be displayed for the All member value.

Table 5.50: Category General

5.10.9.2 Category Data

Below you can see the details of the category Data of the Additional Properties:

Sub category	Property	Details
Filter Settings	Select Source Dimension	Here you can choose a dimension from the assigned data source and the member of the dimension will be shown as part of the List Box.
	Maximum Number of Members	Here you can specify a maximum number of members for the List Box.
	Default Selection (Key Value)	Here you can set the default value to get highlighted in the List Box.
	Target Datasource(s)	Here you can specify the technical name of the data source that will be filtered based on the selected values. In case you would like to enter multiple target data source, you can separate them with “,”.
	Enable Static Data	By activating the option Enable Static Data you can manually enter values using the Text and Key options and use the manually entered values for the List Box.
	Static Data	Here you can manually enter the data for the Text and Key options.
Conditional Formatting	Rule Name	Here you can enter a Name for the Alert.
	Rule Type	You can choose between: Single Measure, Measure Calculation, Target Value.
	Select Measure	Here you will select the measure that will be used to compare against a static or dynamic value.
	Comparison Operator	Here you can choose the operator that is used to compare the measure with the comparison value.

Sub category	Property	Details
	Comparison Value Type	Here you can choose between a Static comparison value, a Dynamic comparison value, or a Measure Comparison.
	Comparison Value	Depending on the configured options, the property Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
	Comparison Measure 1	Here you can select the first measure as part of the calculation you would like to configure.
	Operator	Here you can choose the calculation operator. The options are Add, Subtract, Multiply and Divide.
	Comparison Measure 2	Here you can select the first measure as part of the calculation you would like to configure.
	Color	Here you can configure the color for the Alert icon.
	Alert Icon	Here you can choose an Alert Icon from a list of predefined icons.
	Icon Size	This property sets the Icon Size for the Alert.
	Icon Angle	This property sets the Icon Angle for the Alert.
Data Series	Sorting	Using this property, you can select whether the sorting should be done in ascending order or descending order.
	Sort Based on	Here you can select the sorting to be done based on the following options Measure, Dimension and Default.
	Sort Measure	Here you can select the Measure for Sorting.
	Sort Dimension	Here you can select the Dimension for Sorting.
	Key Based	This property enables/disables the Key based sorting.

Table 5.51: Category Data

5.10.9.3 Category Appearance

Below shows the details of the category Appearance of the Additional Properties:

Sub category	Area	Property	Details
Filter	General Settings	Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
		Google Font Family	Here you can select the Global Google

Sub category	Area	Property	Details
			Font Type. This option will be enabled only when Enable Google Font is activated.
		Font Family	This property allows to specify the font for the items shown in the List Box.
		Font Size	This property allows to specify the font size for the items shown in the List Box.
		Font Color	This property allows to specify the font color for the items shown in the List Box.
		Font Style	This property allows to specify the font style for the items shown in the List Box.
		Background Color	This property allows to specify the background color for the List Box.
		Border Color	This property allows to specify the border color for the List Box.
		Border Width	This property allows to specify the border width for the List Box.
		Selected Item Background Color	Here you can configure the Background Color for the selected items.
		Selected Item Font Color	Here you can configure the Font Color for the selected items.
		Selected Item Border Color	Here you can configure the Border Color for the selected items.
		Selected Item Border Width	Here you can configure the Border Width for the selected items.
		Selected Item - All Member - Background Color	Here you can configure the Background Color for the List Box items for all members.
		Selected Item - All Member - Font Color	Here you can configure the Font Color for the List Box items for all members.
		Hover Background Color	Here you can configure the Background Color of the List Box item on hover.
	Search Box	Font Family	This property allows to specify the font specifically for the Search Box as part of the List Box.
		Font Size	This property allows to specify the font size specifically for the Search Box as part of the List Box.
		Font Color	This property allows to specify the font color specifically for the Search Box as part of the List Box.
		Font Style	This property allows to specify the font style specifically for the Search Box as part of the List Box.

Sub category	Area	Property	Details
		Background Color	This property allows to specify the background color specifically for the Search Box as part of the List Box.
		Border Color	This property allows to specify the border color specifically for the Search Box as part of the List Box.
		Border Width	This property allows to specify the border width specifically for the Search Box as part of the List Box.
	Display Setting Box	Font Family	This property allows to specify the font specifically for the Display settings box as part of the List Box.
		Font Size	This property allows to specify the font size specifically for the Display settings box as part of the List Box.
		Font Color	This property allows to specify the font color specifically for the Display settings box as part of the List Box.
		Font Style	This property allows to specify the font style specifically for the Display settings box as part of the List Box.
		Background Color	This property allows to specify the background color specifically for the Display settings box as part of the List Box.
		Border Color	This property allows to specify the border color specifically for the Display settings box as part of the List Box.
		Border Width	This property allows to specify the border width specifically for the Display settings box as part of the List Box.

Table 5.52: Category Appearance

5.10.9.4 Category Scripting

Table 5.44 shows the details of the category Scripting of the Additional Properties:

Property	Details
On Click	This event allows you to add scripting code using the Script Editor. Each time you click on an item in the list, the event On Click will be triggered.
On Clear Search Text	This script will be triggered when the Search item is clicked.

Table 5.53: Category Scripting

5.10.10 Scripting Functions for the List Box

In the following sections we will outline scripting functions for the List Box.

Scripting Function	Details
DSXAddListItem()	This function allows you to add multiple items to the List Box.
DSXclearSelection()	This function allows you to clear any selected items from the List Box.
DSXGetDimension()	This function returns the configured dimension.
DSXGetDisplayType()	This function returns the configured Display Type as String value.
DSXGetSelectedMemberObjectArray()	The function allows you to retrieve the selected Member Object value. The returned value is an array with all selected Member Object values.
DSXGetSelectedMemberObject()	The function returns the selected value in Member Object format. The returned value is a Member Object value.
DSXGetSelectedValue()	This function returns the selected value (single value) from the List Box as String value.
DSXgetSelectedValues()	This function returns an array of selected values in case you select multiple values.
DSXGetSortType()	This function allows you to sort the data items shown in the List Box.
DSXGetValueType()	This function returns the value type from the property "Send Dimension Values".
DSXonClick()	This function triggers the On Click event for the List Box.
DSXsetDataSelection()	This function allows you to specify the result set of the List Box using a Data Selection.
DSXsetDimension()	This function allows you to set the Dimension that is used to display the members in the List Box.
DSXsetDisplayType()	This function allows you to set the Display Type for the dimension members.
DSXsetEnabledSearch()	<ul style="list-style-type: none"> This function allows you to enable / disable the search functionality.
DSXsetHorizontalScrollBarEnable()	<ul style="list-style-type: none"> This function allows you to enable / disable the horizontal scroll bar.
DSXsetItemMembers()	<ul style="list-style-type: none"> This function allows you to set the Item Members.
DSXsetSelectedValues()	This function allows you to set the selected values of the List Box. The function can set multiple values and the values have to be passed with "," separated.
DSXsetValueType()	This function allows you to set the value type that is being send.
DSXsetVerticalScrollBarEnable()	This function allows you to enable / disable the vertical scroll bar.

Table 5.54: Scripting Functions

5.10.11 Events for the List Box

In the following sections we will outline the events for the List Box.

Event	Details
On Click	Each time you are selecting a member from the List Box the On Click event is being triggered and can be used to execute scripting code.

Table 5.55: Events

5.11 Facet Filter

5.11.1 Facet Filter - Overview

The Facet Filter is a selector component with advanced filtering capabilities. The Facet Filter allows you to display a set of dimension members in form of facets, together with a list of available measures. One of the key features of the Facet Filter is the fact, that all facets are working in a cascading style, meaning that when selecting the Product Group member Cameras (see Figure 5.119), all other facets will automatically filter the list of members to the Product Group member Cameras, without the need for any additional scripting. In addition the Facet Filter provides the ability to quickly select values and filter a target data source based on the selection.

Key Figures	Product Group	Product Category	Product
<input type="radio"/> Costs <input type="radio"/> Net Value <input checked="" type="radio"/> Profit(\$) 	All Cameras 14,919,610,226.08 Cell Phone Accessories 1,667,399,715.63 Cell Phones 9,029,020,802.52 Laptops 21,409,509,582.38 MP3 & Headphones 3,629,472,988.09 TV 36,794,685,256.13	All Android Phones 3,815,751,172.61 Apple iOS 1,929,710,786.40 Blackberry OS 2,574,498,534.01 Cell Phone Cases 317,813,675.06 Digital Compact Cameras 6,124,232,226.32 Digital SLR 8,795,377,999.76 Handsfree Sets 1,349,586,040.57 Headphones 293,379,507.99 Laptop 12,437,360,203.21 LCD TV 16,537,394,830.70 Mac Book 8,972,149,379.17 MP3 Player 3,336,093,480.10 Plasma TV 20,257,290,425.43 Windows Phone 709,060,309.50	All 11 " Laptop 3,465,046,099.84 13 " Laptop 2,672,971,610.00 14 " Laptop 1,950,274,832.25 15 " Laptop 4,349,067,661.12 30 " LCD TV 3,470,076,618.64 32 " LCD TV 1,003,343,269.50 38 " LCD TV 859,272,430.83 38 " Plasma TV 2,236,255,582.00 42 " LCD TV 805,019,002.83 42 " Plasma TV 5,234,480,145.44 48 " LCD TV 3,692,293,485.30 50 " Plasma TV 6,946,904,142.00 51 " LCD TV 6,707,390,023.60 55 " Plasma TV 2,180,073,964.05

Figure 5.119: Facet Filter

In Figure 5.119 we see a Facet Filter component with a total of four facets, one facet showing the list of available measures and three additional facets showing the members for dimension Product Group, Product Category, and Product.

Facet Filter Data Volume

The Facet Filter is configured to be able to leverage 500.000 cells from the assigned data source. For SAP BusinessObjects Design Studio/SAP Lumira Designer to leverage more than the default of 10.000 cells for SDK components an additional parameter needs to be configured in case of SAP BW as data source. The parameter AAD_SDK_MAX_CELLS needs to be maintained with the value. You can see the details on how to maintain the value in SAP Note 1127156 and you can follow the steps for configuring the SAP BW safety belt.

5.11.2 Integrated Search Option

Using the Integrated Search option, you can perform a search across all configured facets with all their members. For our example, we search for items having the letters “a”, then all the items with the letters “a” will be highlighted (see Figure 5.120). By navigating to the category General and to the sub category Filter Settings in the Additional Properties of the Facet Filter, you have the option to enable / disable the search option using the property Enable Global Search Box.

al					
Key Figures	Item Category	Item Subcategory	Item Brand		
<input checked="" type="radio"/> Discount Amount(\$) <input type="radio"/> Order Amount <input type="radio"/> Order Cost <input type="radio"/> Order Quantity	All	All	All	1,069,139.15	1,069,139.15
	Books	Action	3Com	80,980.40	34,932.00
	Electronics	Alternative	98 Degrees	745,391.40	1,222.65
	Movies	Art & Architecture	AAA	124,157.00	1,632.85
	Music	Audio Equipment	Aaron Tippin	118,610.35	1,822.80
		Books - Misc	AC/DC		1,119.00
		Business	Ace Of Base		1,654.50
		Cameras	Adam Sandler		1,448.20
		Comedy	Al Green		1,213.55
		Computers	Al Hirschfeld		1,562.75
		Country	Aldous Huxley		570.00
		Drama	Alice In Chains		1,062.50
		Electronics - Misc	Alison Krauss		1,991.50
		Horror	Andy Rooney		658.50
		Kids / Family	Anita Shreve		779.40
		Literature	Ann S. O'Leary		1,150.20
		Music - Misc	Anthony Andrews		1,486.55
		Pop	Anthony Perkins		1,080.60
		Rock	Antonio Banderas		1,513.85
		Science and Technology	Antonio Vivaldi		1,029.00

Figure 5.120: Integrated Search

5.11.3 Hierarchy Support

Starting with release VBX 1.68, the Facet Filter also supports hierarchies from SAP BW and SAP HANA.

The Hierarchy Support for Facet Filters also involves the following functionalities.

- You will have the ability to specify the maximum level of depth for the hierarchy. In Figure 5.121, you can observe that 2 levels of the hierarchy have been configured for the dimension Region.
- Inside the Facet Filter you have the ability to open / close the different levels of the hierarchy at runtime. In Figure 5.121, you can observe, that when you click the circle icon next to hierarchy node element, you can drill down to the next level of elements.

Key Figures	Region
<input type="radio"/> Consumption (Billion) <input type="radio"/> Consumption (Billion) <input type="radio"/> Consumption (Million) <input type="radio"/> Consumption (Million) <input type="radio"/> Consumption (Terawat) <input type="radio"/> Consumption (Thousan) <input checked="" type="radio"/> Number of Records	<input checked="" type="checkbox"/> World 7,790 <input checked="" type="checkbox"/> Middle East 1,435 <input checked="" type="checkbox"/> Middle East 1,435 <input checked="" type="checkbox"/> S and C America 1,845 <input type="checkbox"/> South & Cen America 1,845 <input checked="" type="checkbox"/> Asia Pacific 3,075 <input type="checkbox"/> Asia Pacific 3,075 <input checked="" type="checkbox"/> Africa 410 <input type="checkbox"/> East & southmAfrica 205 <input checked="" type="checkbox"/> Africa 205 <input checked="" type="checkbox"/> North America 1,025 <input type="checkbox"/> North America 1,025 <input checked="" type="checkbox"/> Not Assigned Region (s) 6,970 <input type="checkbox"/> Australia 410 <input type="checkbox"/> Europe 5,740 <input checked="" type="checkbox"/> Eurasia 820

Figure 5.121: Hierarchy Support

5.11.4 Facet Filter Configuration Dialog

Starting with release VBX 1.68, you have the option to enable the option to select the dimensions for the Facet Filter at Runtime (when the overall dashboard is executed). You can then simply decide, which of the available dimensions will be part of the Facet Filter (see Figure 5.122). By navigating to the category General and to the sub category Filter Settings in the Additional Properties, this new functionality can be enabled / disabled using the property Enable Dimension Configuration.

☒ Key Figures
☐ Cust Gender
☒ Item Category
☐ Customer
☒ Item Subcategory
☐ Customer City
☒ Item Brand
☐ Customer Status
☐ Employee Call Center
☐ Employee Country
☐ Employee ID
☐ Employee Manager

Item Category	Item Subcategory	Item Brand
All	All	All
Books	Action	3Com
Electronics	Alternative	98 Degrees
Movies	Art & Architecture	AAA
Music	Audio Equipment	Aaron Tippin
	Books - Misc	AC/DC
	Business	Ace Of Base
	Cameras	Adam Sandler
	Comedy	Al Green
	Computers	Al Hirschfeld
	Country	Aldous Huxley
	Drama	Alice In Chains
	Electronics - Misc	Alison Krauss
	Horror	Andy Rooney
	Kids / Family	Anita Shreve
	Literature	Ann S. O'Leary
	Music - Misc	Anthony Andrews
	Pop	Anthony Perkins
	Rock	Antonio Banderas
	Science and Technology	Antonio Vivaldi

Figure 5.122: Facet Filter Configuration Dialog

5.11.5 Intuitive Coloring for Focused Facet Navigation

In addition to the option of coloring the selected elements in a facet, the Facet Filter now also provides additional options to color elements, such as the selected elements, or elements for an alternative selection.

You have the following options:

- Configuring a Background Color and Font Color for the SELECTED members of the facet. For our example, the Font Color for the SELECTED items is Pink and the Background Color is Purple (see Figure 5.123).
- Configuring a Background Color and Font Color for the POSSIBLE members that you can still select based on the overall combined filter values in the Facet Filter. For our example, the Font Color for the POSSIBLE items is Orange and the Background Color is Green.
- Configuring a Background Color and Font Color for the ALTERNATIVE members that you can still add to the selection. For our example, the Font Color for the SELECTED items is Pink and the Background Color is Maroon.
- Configuring a background color and Font Color for the EXCLUDED members that cannot be selected by you anymore based on the overall context. For our example, Font Color for the EXCLUDED items is Blue and the background color is Grey.

By navigating to the category General and to the sub category Filter Settings in the Additional Properties, you can enable / disable this option using the property Enable Focused Selection. The individual settings can be found by navigating to the category Appearance and to the sub category Focused Selection.



Figure 5.123: Facet Filter Style

5.11.6 Facet Filter Template

As part of VBX Release 2.4, you have the option to configure the Template for the Facet Filter by navigating to the category General and to the sub category Facet Config. You will be able to select the different predefined configurations as listed below:

1. Chosen Control
2. Checkbox Control
3. Radio Button Control
4. List Control
5. Enable All
6. Disable All
7. Enable Activate Search/Sorting
8. Disable Activate Search/Sorting
9. With Measure
10. Without Measure
11. Sort Ascending
12. Sort Descending
13. Header Top
14. Header Bottom

After selecting the required options from the above list, you can save the Template for the Facet Filter and those options have been explained in detail in the following sections.

5.11.6.1 Chosen Control

You can select the Chosen Control option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option Chosen Control (see Figure 5.124).

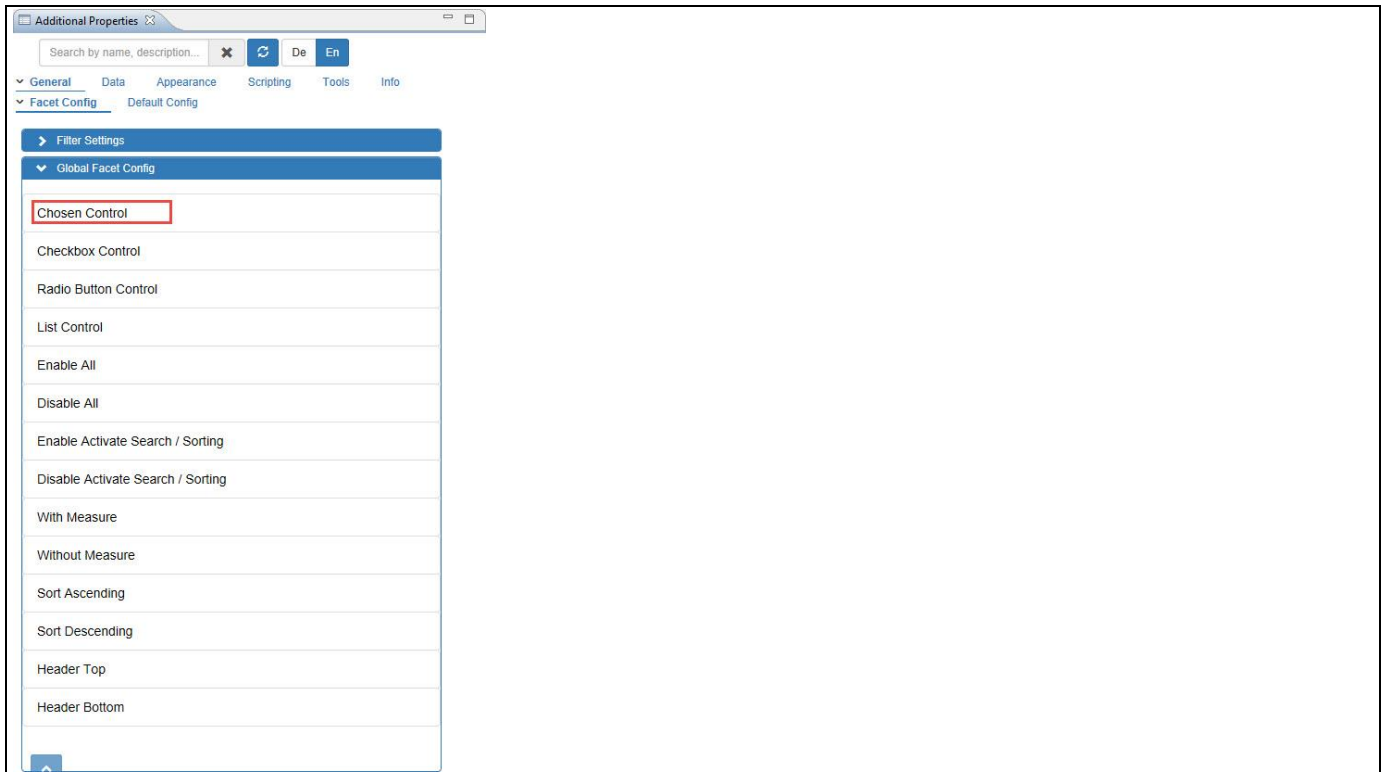


Figure 5.124: Chosen Control

For our example, you can see the Select Members Box option below each Column Header in the first row and you will be able to select the respective members based on your choice (see Figure 5.125).

Key Figures	Item Category	Item Subcategory	Item Brand
<input checked="" type="radio"/> Discount Amount(\$) <input type="radio"/> Order Amount <input type="radio"/> Order Cost <input type="radio"/> Order Quantity	<input checked="" type="checkbox"/> Books 704.50	<input checked="" type="checkbox"/> Business 704.50	<input type="checkbox"/> Barbara Moses 964.60 <input type="checkbox"/> Blaine L. Pardoe 893.10 <input type="checkbox"/> Bradford D. Smart 914.85 <input type="checkbox"/> Clinton T. Greenleaf III 753.50 <input type="checkbox"/> Daniel Goleman 779.00 <input type="checkbox"/> Doug Hall 540.60 <input type="checkbox"/> John S. Hammond 773.60 <input type="checkbox"/> Jon R. Katzenbach 559.00 <input type="checkbox"/> Jonathan Baird 734.40 <input type="checkbox"/> Joost Eijffers 809.10 <input type="checkbox"/> Michael A. Boylan 840.60 <input checked="" type="checkbox"/> Richard Carlson 704.50 <input type="checkbox"/> Scott Adams 1,276.00 <input type="checkbox"/> Stephen Sacks 1,017.50 <input type="checkbox"/> William Bridges 772.80

Figure 5.127: Activate Members

5.11.6.3 Radio Button Control

You can select Radio Button Control option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option Radio Button Control (see Figure 5.128).

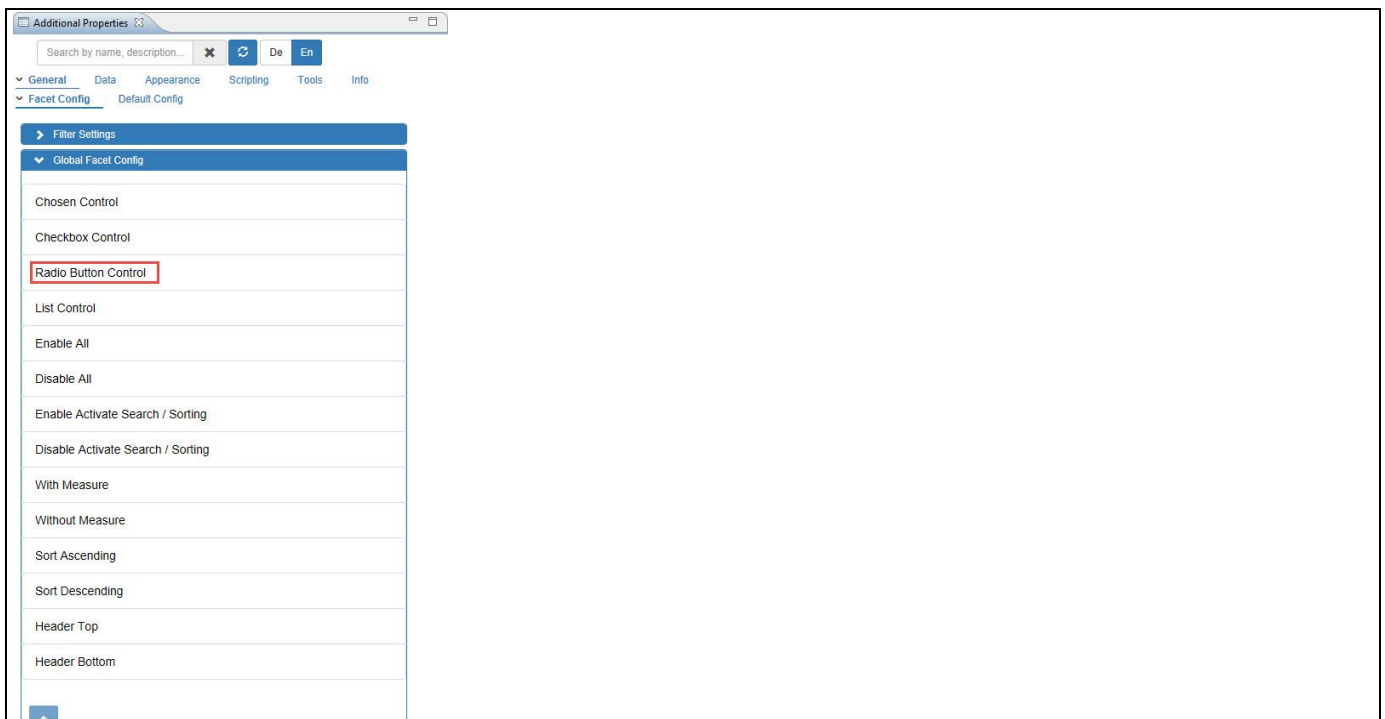


Figure 5.128: Radio Button

For our example, you can observe that the Members in all the Columns are activated with Radio Buttons for selection (see Figure 5.129).

Key Figures	Item Category	Item Subcategory	Item Brand
<input checked="" type="radio"/> Discount Amount(\$) <input type="radio"/> Order Amount <input type="radio"/> Order Cost <input type="radio"/> Order Quantity	<input checked="" type="radio"/> Books 704.50	<input checked="" type="radio"/> Business 704.50	<input type="radio"/> Barbara Moses 964.60 <input type="radio"/> Blaine L. Pardoe 893.10 <input type="radio"/> Bradford D. Smart 914.85 <input type="radio"/> Clinton T. Greenleaf III 753.50 <input type="radio"/> Daniel Goleman 779.00 <input type="radio"/> Doug Hall 540.60 <input type="radio"/> John S. Hammond 773.60 <input type="radio"/> Jon R. Katzenbach 559.00 <input type="radio"/> Jonathan Baird 734.40 <input type="radio"/> Joost Elffers 809.10 <input type="radio"/> Michael A. Boylan 840.60 <input checked="" type="radio"/> Richard Carlson 704.50 <input type="radio"/> Scott Adams 1,276.00 <input type="radio"/> Stephen Sacks 1,017.50 <input type="radio"/> William Bridges 772.80

Figure 5.129: Members with Radio Button Selection

5.11.6.4 List Control

You can select the List Control option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option List Control (see Figure 5.130).

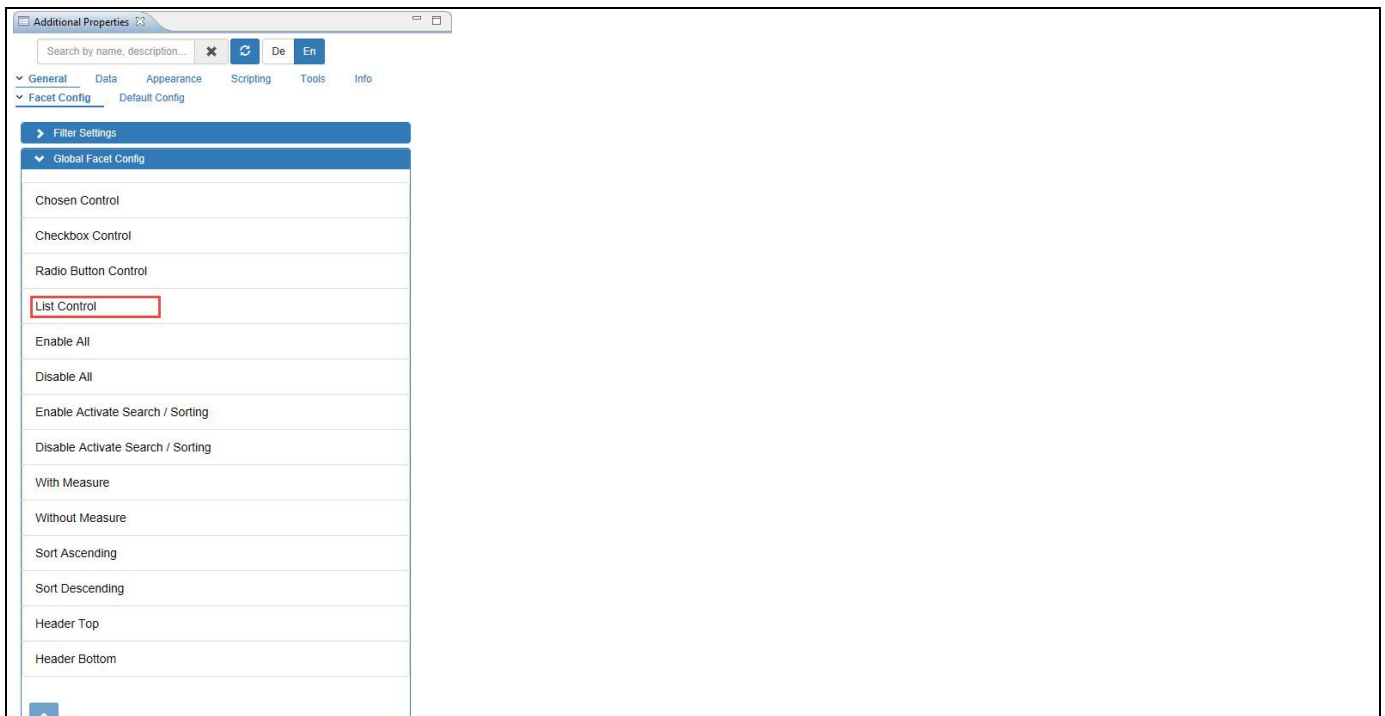


Figure 5.130: List Control

For our example, you can see that all the Member gets listed and you can select the respective members based on your choice (see Figure 5.131).

Key Figures	Item Category	Item Subcategory	Item Brand
<input checked="" type="radio"/> Discount Amount(\$) <input type="radio"/> Order Amount <input type="radio"/> Order Cost <input type="radio"/> Order Quantity	Books 7,489.50	Art & Architecture 2,283.90	Al Hirschfeld 1,562.75
		Books - Misc 1,373.30	Andy Rooney 658.50
		Cameras	Ann S. O'Leary 1,150.20
		Science and Technology 3,279.50	BC Crandall 677.25
		Sports & Health 552.80	Bill Phillips 696.15
			Bowles 3,673.35
			Brater 3,279.50
			Carole Maggio 744.70
			Charles McRaven 675.00
			Chet Cunningham 803.40
			Covert Bailey 552.80
			Dave Barry 822.50
			Dave Chatten 550.80
			David Miles Huber 1,369.50
			Dean Mathewson 351.75
			Deepak Chopra 579.60
			Edward R. Tufte 1,541.90
			Elise MacLay 2,283.90
			Eric Drexler 524.40

Figure 5.131: List Members

5.11.6.5 Enable All

You can select Enable All option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option Enable All (see Figure 5.132).

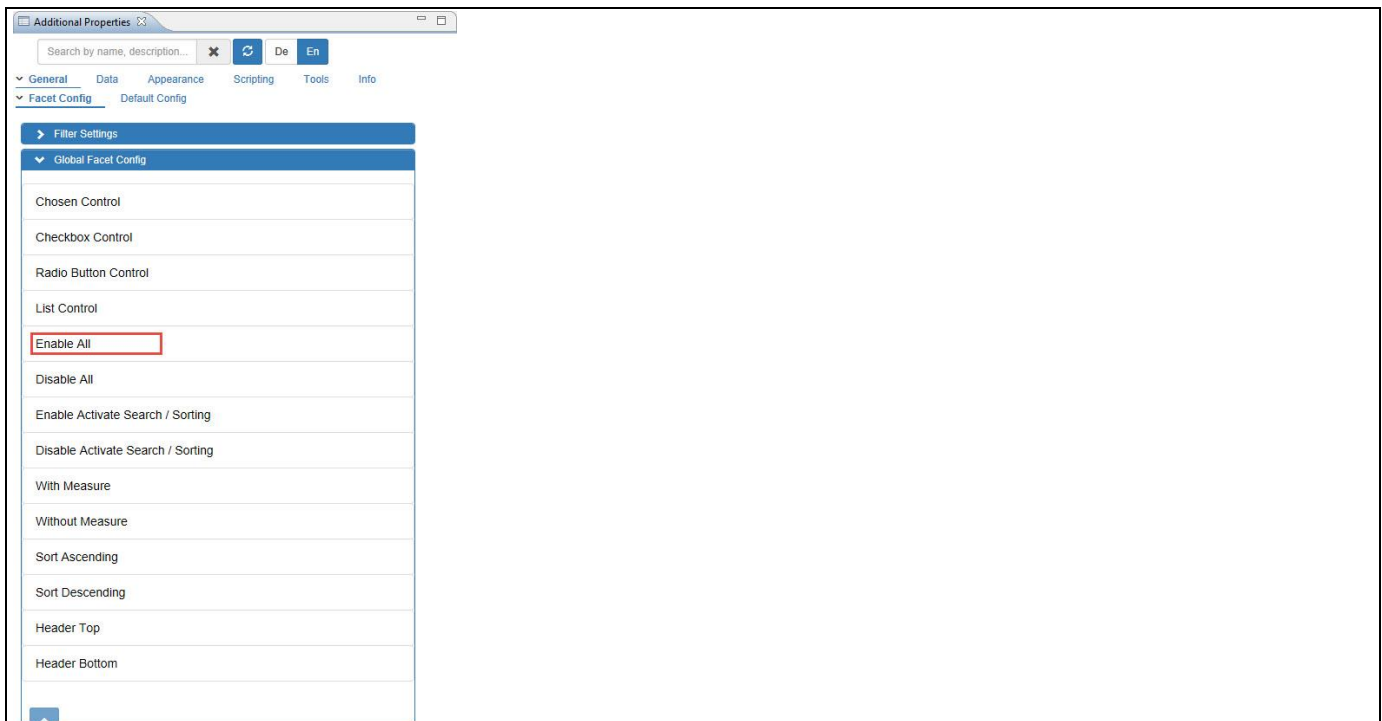


Figure 5.132: Enable All

For our example, you can observe that the Total Member Count in all the Columns will get displayed (see Figure 5.133).

Key Figures	Item Category	Item Subcategory	Item Brand
Discount Amount(\$)	All	All	All
Order Amount	Books	Action	3Com
Order Cost	Electronics	Alternative	98 Degrees
Order Quantity	Movies	Art & Architecture	AAA
	Music	Audio Equipment	Aaron Tippin
		Books - Misc	AC/DC
		Business	Ace Of Base
		Cameras	Adam Sandler
		Comedy	Al Green
		Computers	Al Hirschfeld
		Country	Aldous Huxley
		Drama	Alice In Chains
		Electronics - Misc	Allison Krauss
		Horror	Andy Rooney
		Kids / Family	Anita Shreve
		Literature	Ann S. O'Leary
		Music - Misc	Anthony Andrews
		Pop	Anthony Perkins
		Rock	Antonio Banderas

Figure 5.133: Total Members Count - Enabled

5.11.6.6 Disable All

You can select Disable All option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option Disable All (see Figure 5.134).

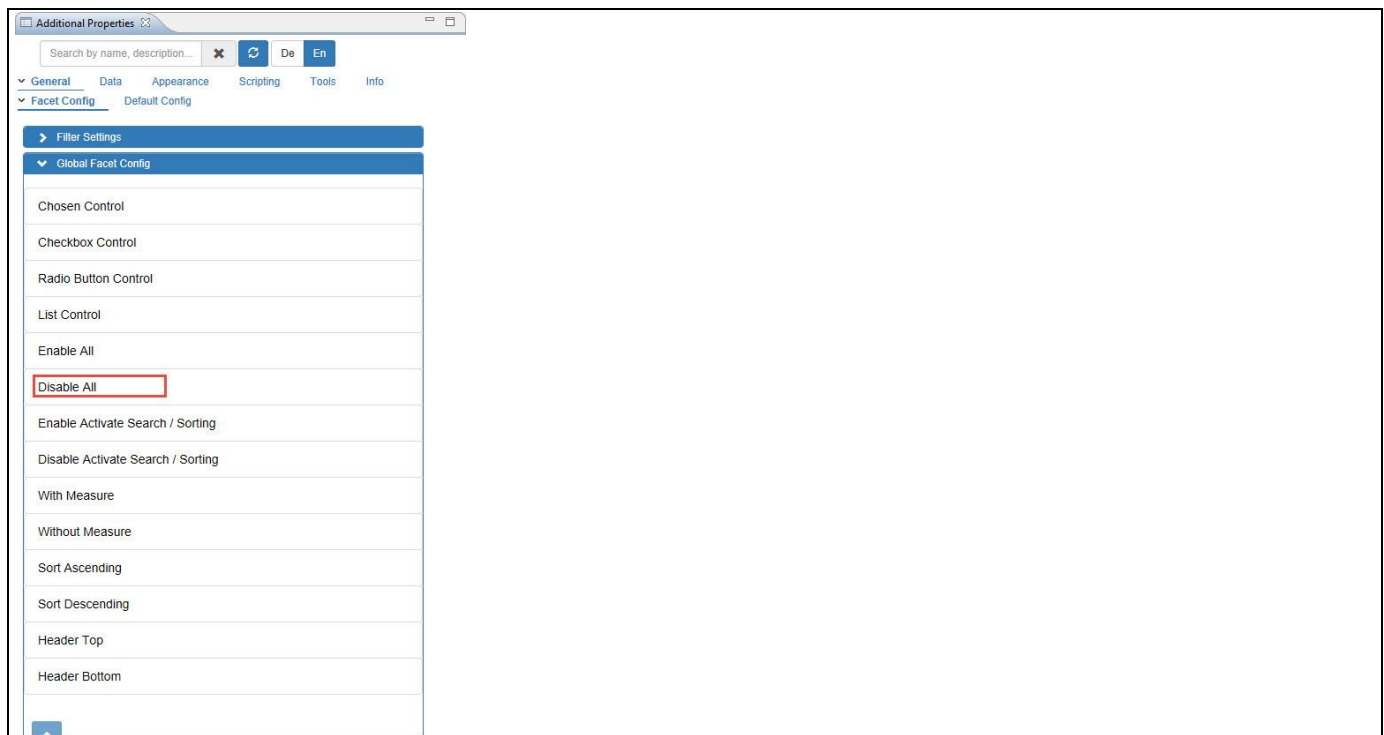


Figure 5.134: Disable All

For our example, you can observe that the Total Member Count in all the Columns will not be displayed in the Facet Filter (see Figure 5.135).

Key Figures		Item Category		Item Subcategory		Item Brand	
<div><div></div>Discount Amount(\$)</div>	Books	80,980.40	Action	18,828.05	3Com	17,466.00	
<div><div></div>Order Amount</div>	Electronics	745,391.40	Alternative	21,007.65	98 Degrees	1,222.65	
<div><div></div>Order Cost</div>	Movies	124,157.00	Art & Architecture	14,864.00	AAA	1,632.85	
<div><div></div>Order Quantity</div>	Music	118,610.35	Audio Equipment	114,678.00	Aaron Tippin	1,822.80	
			Books - Misc	9,529.75	AC/DC	1,119.00	
			Business	12,333.15	Ace Of Base	1,654.50	
			Cameras	156,159.50	Adam Sandler	1,448.20	
			Comedy	20,104.05	Al Green	1,213.55	
			Computers	58,031.90	Al Hirschfeld	1,562.75	
			Country	22,284.50	Aldous Huxley	570.00	
			Drama	20,701.70	Alice In Chains	1,062.50	
			Electronics - Misc	144,865.60	Allison Krauss	1,991.50	
			Horror	19,365.60	Andy Rooney	658.50	
			Kids / Family	20,208.70	Anita Shreve	779.40	
			Literature	8,969.30	Ann S. O'Leary	1,150.20	
			Music - Misc	18,295.75	Anthony Andrews	1,486.55	
			Pop	21,077.20	Anthony Perkins	1,080.60	
			Rock	21,472.75	Antonio Banderas	1,513.85	
			Science and Technology	24,978.60	Antonio Vivaldi	1,029.00	

Figure 5.135: Total Members Count - Disabled

5.11.6.7 Enable Activate Search/Sorting

You can select Enable Activate Search/Sorting option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option Enable Activate Search/Sorting (see Figure 5.136).

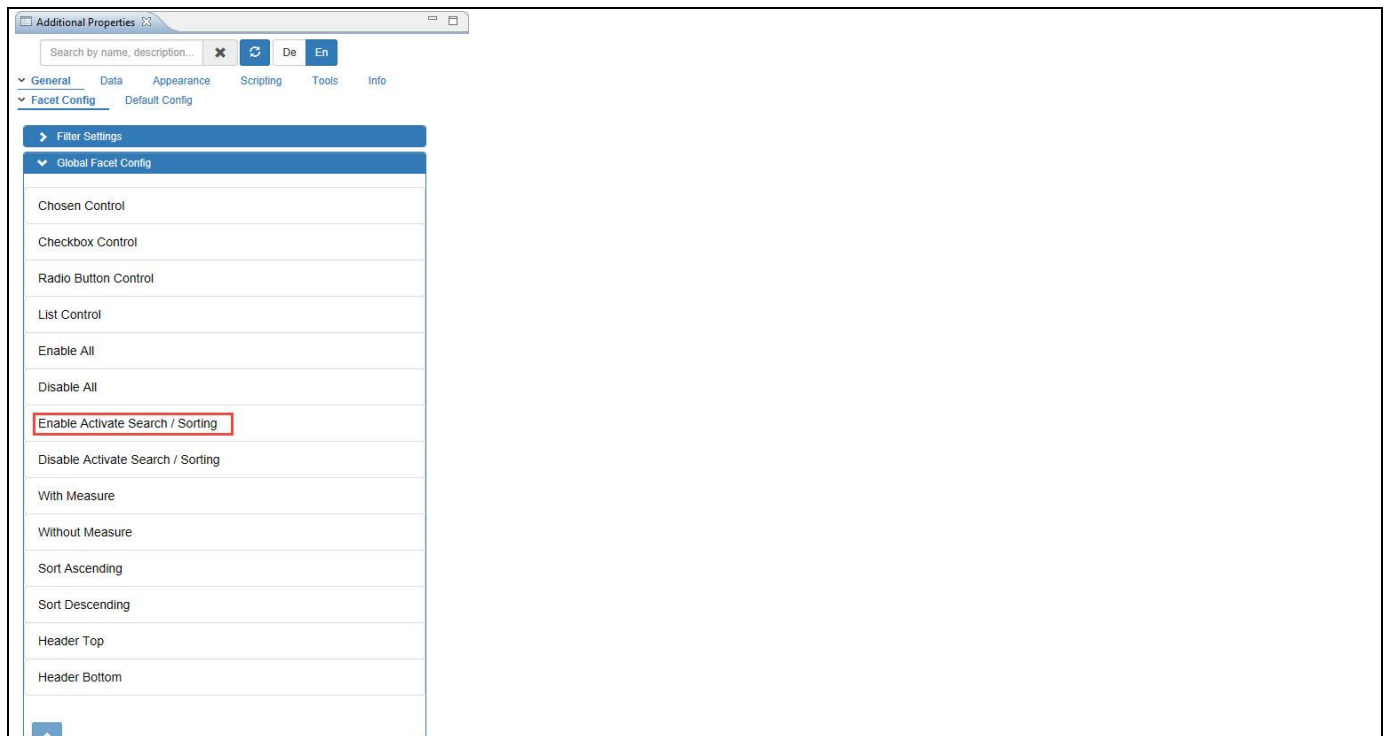


Figure 5.136: Enable Activate Search/Sorting

For our example, you can observe that the Members in all the Columns can be sorted in ascending or descending order and they can be also searched (see Figure 5.137).

Key Figures	Item Category	Item Subcategory	Item Brand
<ul style="list-style-type: none"> Discount Amount(\$) Order Amount Order Cost Order Quantity 	<ul style="list-style-type: none"> Books Electronics Movies Music 	<ul style="list-style-type: none"> Action Alternative Art & Architecture Audio Equipment Books - Misc Business Cameras Comedy Computers Country Drama Electronics - Misc Horror Kids / Family Literature Music - Misc Pop Rock Science and Technology 	<ul style="list-style-type: none"> 3Com 98 Degrees AAA Aaron Tippin AC/DC Ace Of Base Adam Sandler Al Green Al Hirschfeld Aldous Huxley Alice In Chains Allison Krauss Andy Rooney Anita Shreve Ann S. O'Leary Anthony Andrews Anthony Perkins Antonio Banderas Antonio Vivaldi

Figure 5.137: Search/Sorting

5.11.6.8 Disable Activate Search/Sorting

You can select Disable Activate Search/Sorting option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option Disable Activate Search/Sorting (see Figure 5.138).

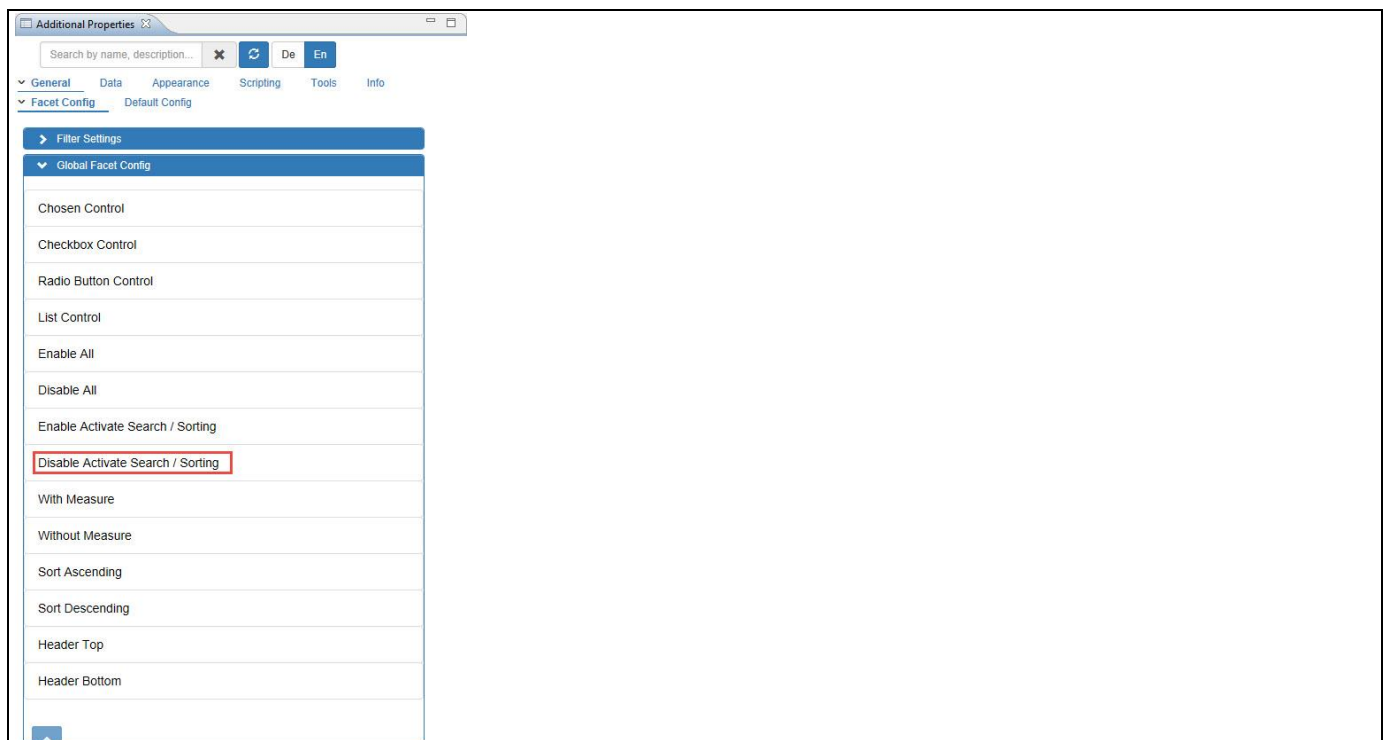


Figure 5.138: Disable Activate Search/Sorting

For our example, you can observe that the option for the Sorting/Search will not be displayed in the Facet Filter (see Figure 5.139).

Key Figures	Item Category	Item Subcategory	Item Brand
Discount Amount(\$)	Books	Action	3Com
Order Amount	Electronics	Alternative	98 Degrees
Order Cost	Movies	Art & Architecture	AAA
Order Quantity	Music	Audio Equipment	Aaron Tippin
		Books - Misc	AC/DC
		Business	Ace Of Base
		Cameras	Adam Sandler
		Comedy	Al Green
		Computers	Al Hirschfeld
		Country	Aldous Huxley
		Drama	Alice In Chains
		Electronics - Misc	Allison Krauss
		Horror	Andy Rooney
		Kids / Family	Anita Shreve
		Literature	Ann S. O'Leary
		Music - Misc	Anthony Andrews
		Pop	Anthony Perkins
		Rock	Antonio Banderas
		Science and Technology	Antonio Vivaldi

Figure 5.139: Sorting/Search - Disabled

5.11.6.9 With Measure

You can select With Measure option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option With Measure (see Figure 5.140).

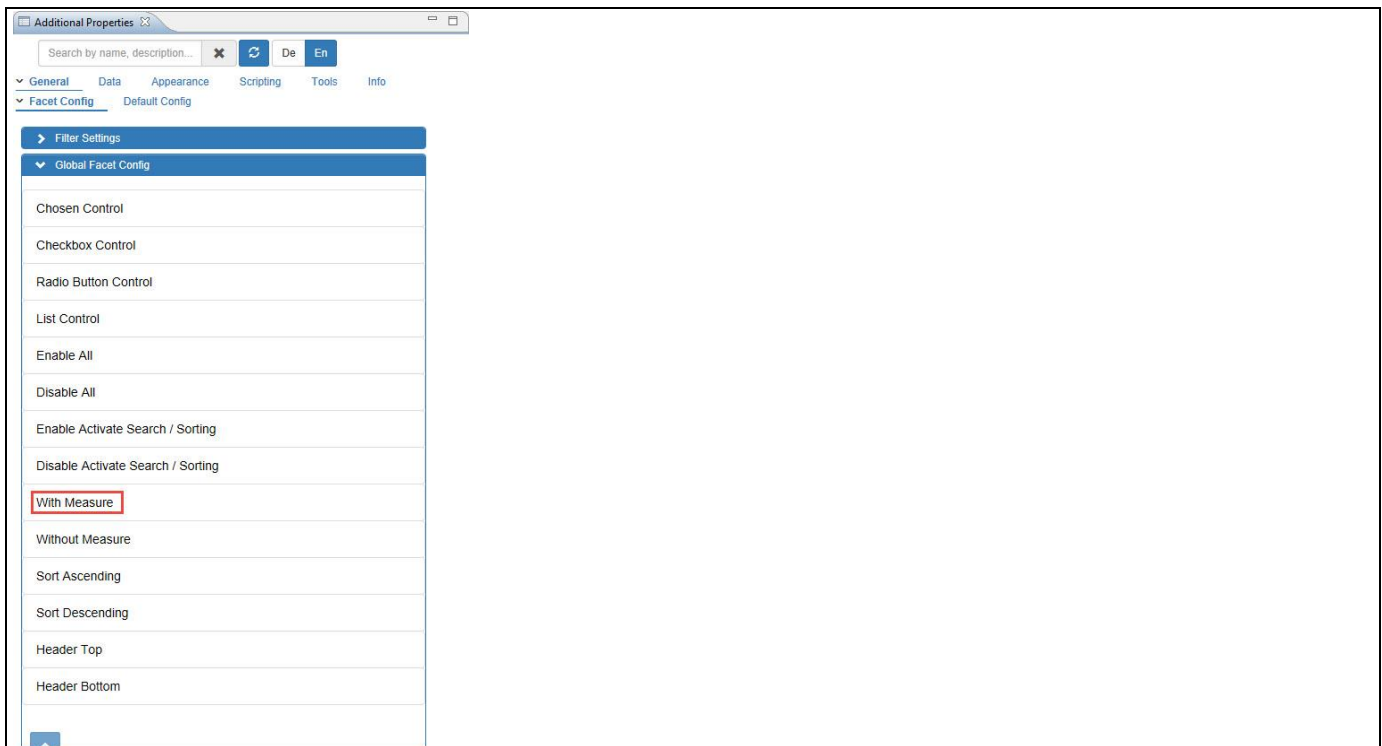


Figure 5.140: With Measure

For our example, you can observe that the Facet Filter will be displayed with the Measures (Key Figures) as shown in the Figure 5.141.

Key Figures	Item Category	Item Subcategory	Item Brand
Discount Amount(\$)	Books	Action	3Com
Order Amount	Electronics	Alternative	98 Degrees
Order Cost	Movies	Art & Architecture	AAA
Order Quantity	Music	Audio Equipment	Aaron Tippin
		Books - Misc	AC/DC
		Business	Ace Of Base
		Cameras	Adam Sandler
		Comedy	Al Green
		Computers	Al Hirschfeld
		Country	Aldous Huxley
		Drama	Alice In Chains
		Electronics - Misc	Allison Krauss
		Horror	Andy Rooney
		Kids / Family	Anita Shreve
		Literature	Ann S. O'Leary
		Music - Misc	Anthony Andrews
		Pop	Anthony Perkins
		Rock	Antonio Banderas
		Science and Technology	Antonio Vivaldi

Figure 5.141: Facet Filter with Measures

5.11.6.10 Without Measure

You can select Without Measure option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option Without Measure (see Figure 5.142).

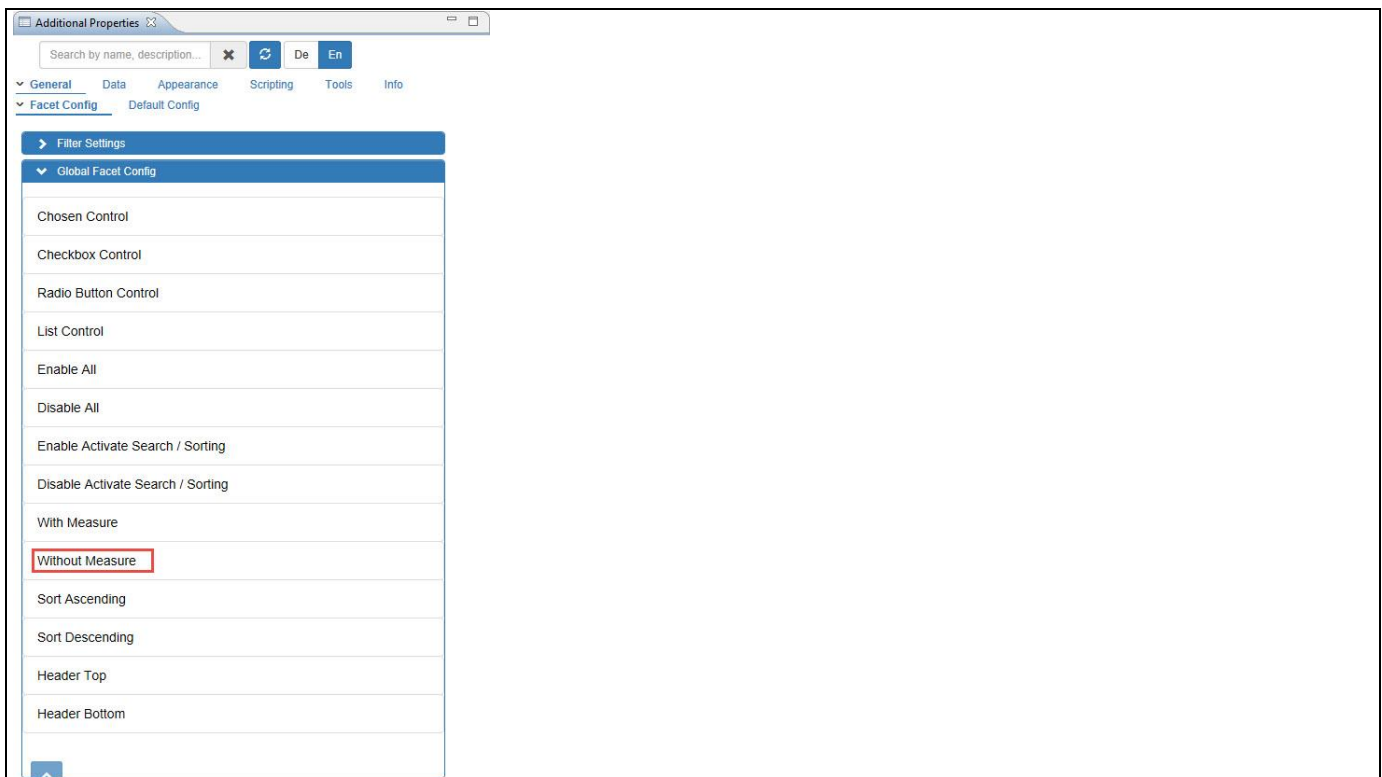


Figure 5.142: Without Measure

For our example, you can observe that the Facet Filter will not be displayed with the Measures (see Figure 5.143).

Item Category	Item Subcategory	Item Brand
Books	Action	3Com
Electronics	Alternative	98 Degrees
Movies	Art & Architecture	AAA
Music	Audio Equipment	Aaron Tippin
	Books - Misc	AC/DC
	Business	Ace Of Base
	Cameras	Adam Sandler
	Comedy	Al Green
	Computers	Al Hirschfeld
	Country	Aldous Huxley
	Drama	Alice In Chains
	Electronics - Misc	Allison Krauss
	Horror	Andy Rooney
	Kids / Family	Anita Shreve
	Literature	Ann S. O'Leary
	Music - Misc	Anthony Andrews
	Pop	Anthony Perkins
	Rock	Antonio Banderas
	Science and Technology	Antonio Vivaldi

Figure 5.143: Facet Filter without Measures

5.11.6.11 Sort Ascending

You can select Sort Ascending option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option Sort Ascending (see Figure 5.144).

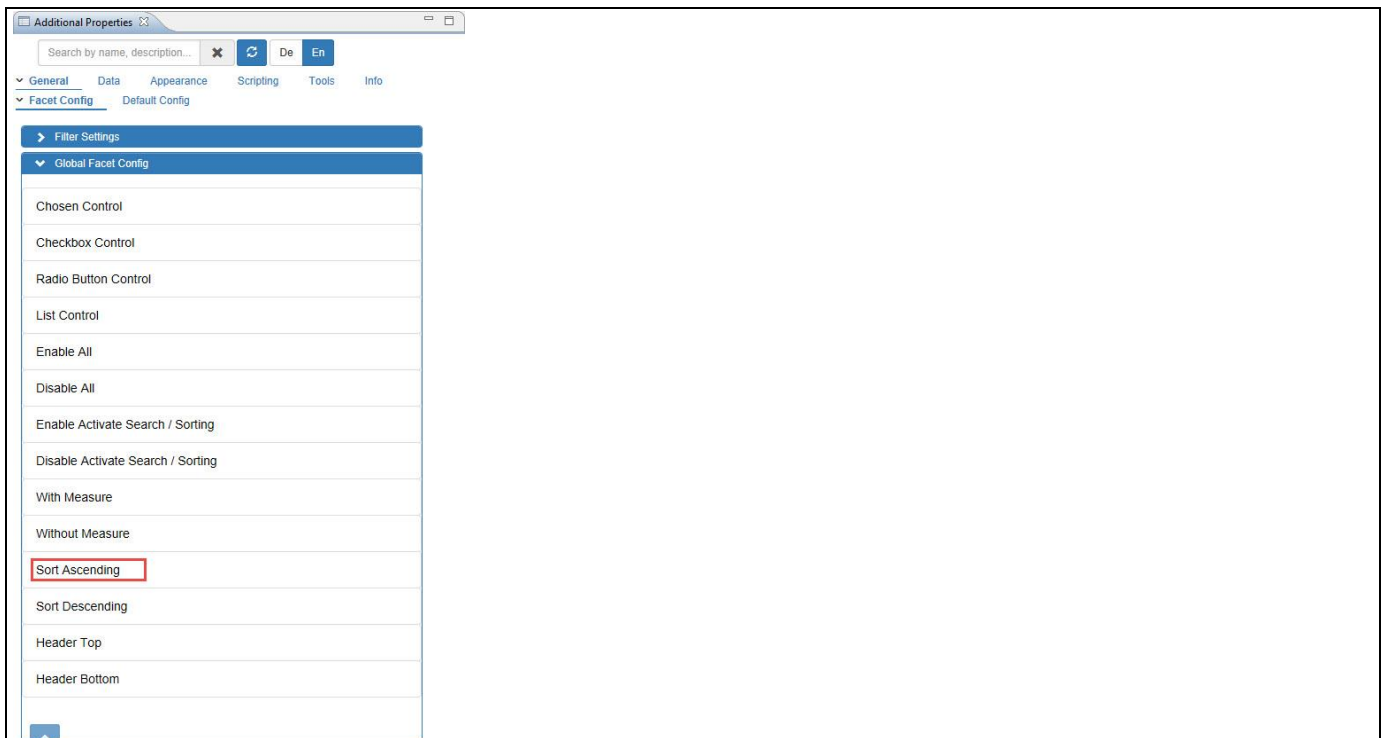


Figure 5.144: Sort Ascending

For our example, you can observe that the Members in all the Columns are sorted in ascending order (see Figure 5.145)

Key Figures		Item Category		Item Subcategory		Item Brand	
<div><div></div>Discount Amount(\$)</div>	Books	80,980.40	Action	18,828.05	3Com	34,932.00	
<div><div></div>Order Amount</div>	Electronics	745,391.40	Alternative	21,007.65	98 Degrees	1,222.65	
<div><div></div>Order Cost</div>	Movies	124,157.00	Art & Architecture	14,864.00	AAA	1,632.85	
<div><div></div>Order Quantity</div>	Music	118,610.35	Audio Equipment	114,678.00	Aaron Tippin	1,822.80	
			Books - Misc	9,529.75	AC/DC	1,119.00	
			Business	12,333.15	Ace Of Base	1,654.50	
			Cameras	156,159.50	Adam Sandler	1,448.20	
			Comedy	20,104.05	Al Green	1,213.55	
			Computers	58,031.90	Al Hirschfeld	1,562.75	
			Country	22,284.50	Aldous Huxley	570.00	
			Drama	20,701.70	Alice In Chains	1,062.50	
			Electronics - Misc	144,865.60	Allison Krauss	1,991.50	
			Horror	19,365.60	Andy Rooney	658.50	
			Kids / Family	20,208.70	Anita Shreve	779.40	
			Literature	8,969.30	Ann S. O'Leary	1,150.20	
			Music - Misc	18,295.75	Anthony Andrews	1,486.55	
			Pop	21,077.20	Anthony Perkins	1,080.60	
			Rock	21,472.75	Antonio Banderas	1,513.85	
			Science and Technology	24,978.60	Antonio Vivaldi	1,029.00	

Figure 5.145: Members in Ascending Order

5.11.6.12 Sort Descending

You can select Sort Descending option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option Sort Descending (see Figure 5.146).

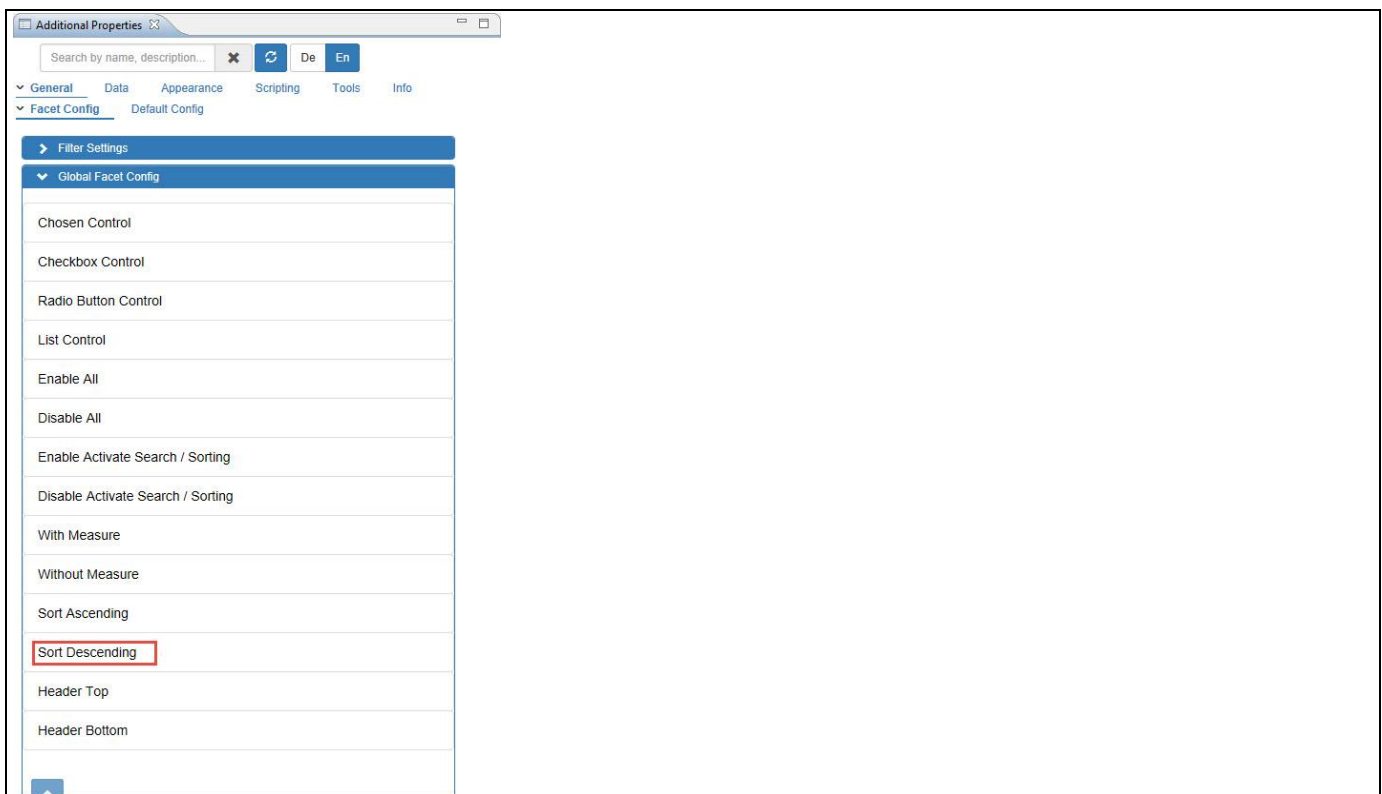


Figure 5.146: Sort Descending

For our example, you can observe that the Members in all the Columns are sorted in descending order (see Figure 5.147).

Key Figures	Item Category	Item Subcategory	Item Brand
Order Quantity	Music	Video Equipment	Young
Order Cost	Movies	TV	Xerox
Order Amount	Electronics	Sports & Health	Woody Allen
Discount Amount(\$)	Books	Special Interests	Winnie The Pooh
		Soul / R&B	William L. Petersen
		Science and Technology	William Gerald Golding
		Rock	William Bridges
		Pop	Will Smith
		Music - Misc	Whitney Houston
		Literature	White, Bryan
		Kids / Family	White Zombie
		Horror	Wesley Snipes
		Electronics - Misc	Weird Al Yankovic
		Drama	Wayne Sleep
		Country	Waiting To Exhale
		Computers	Vladimir Vladimirovich
		Comedy	Vince Vaughn
		Cameras	Vince
		Business	Various Artists

Figure 5.147: Members in Descending Order

5.11.6.13 Header Top

You can select Header Top option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option Header Top (see Figure 5.148).

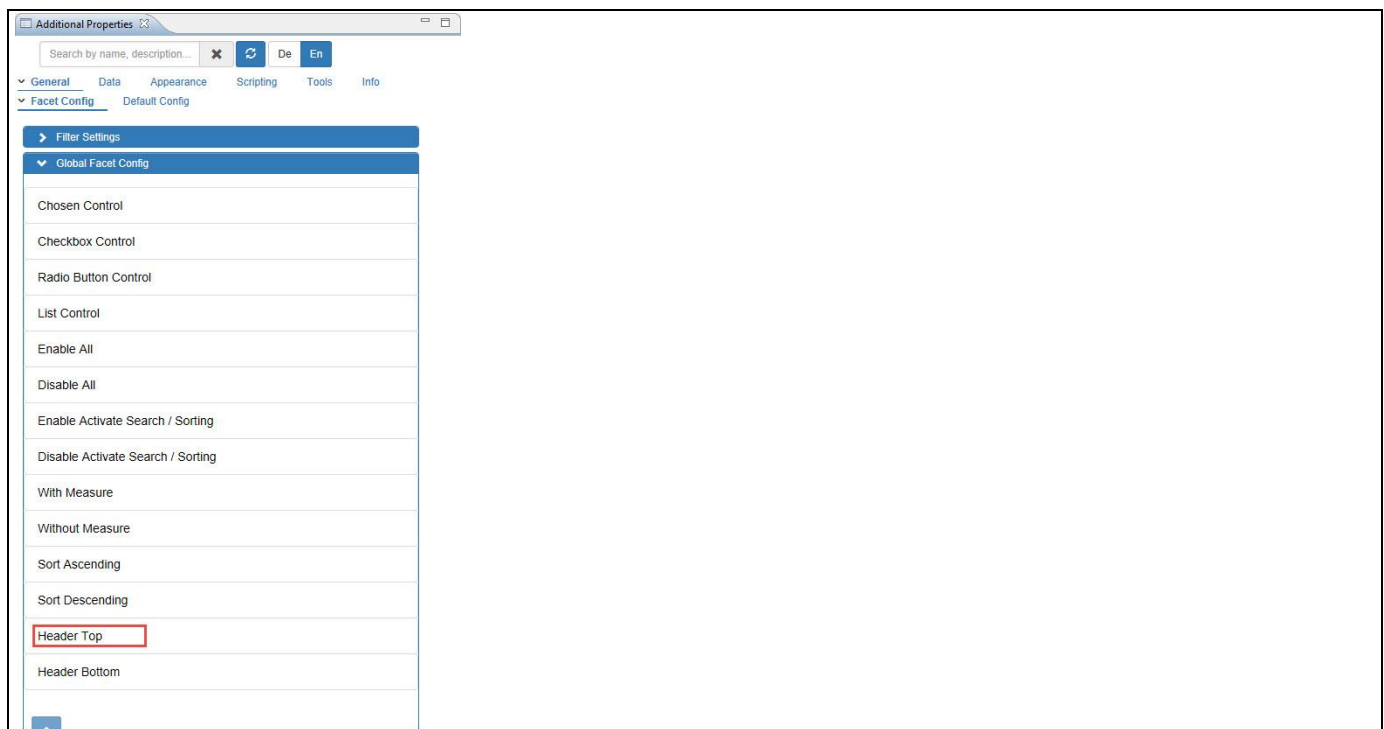


Figure 5.148: Header Top

For our example, you can observe that all the Column Headers will be displayed on the top first row (see Figure 5.149).

Key Figures	Item Category	Item Subcategory	Item Brand
Order Quantity	Music	Video Equipment	Young
Order Cost	Movies	TV	Xerox
Order Amount	Electronics	Sports & Health	Woody Allen
Discount Amount(\$)	Books	Special Interests	Winnie The Pooh
		Soul / R&B	William L. Petersen
		Science and Technology	William Gerald Golding
		Rock	William Bridges
		Pop	Will Smith
		Music - Misc	Whitney Houston
		Literature	White, Bryan
		Kids / Family	White Zombie
		Horror	Wesley Snipes
		Electronics - Misc	Weird Al Yankovic
		Drama	Wayne Sleep
		Country	Waiting To Exhale
		Computers	Vladimir Vladimirovich
		Comedy	Vince Vaughn
		Cameras	Vince
		Business	Various Artists

Figure 5.149: Column Headers at the Top First Row

5.11.6.14 Header Bottom

You can select Header Bottom option for the Facet Filter by following these steps:

1. Navigate to the category General and to sub category Facet Config in the Additional Properties sheet.
2. In the area Global Facet Config, select the option Header Top (see Figure 5.150).

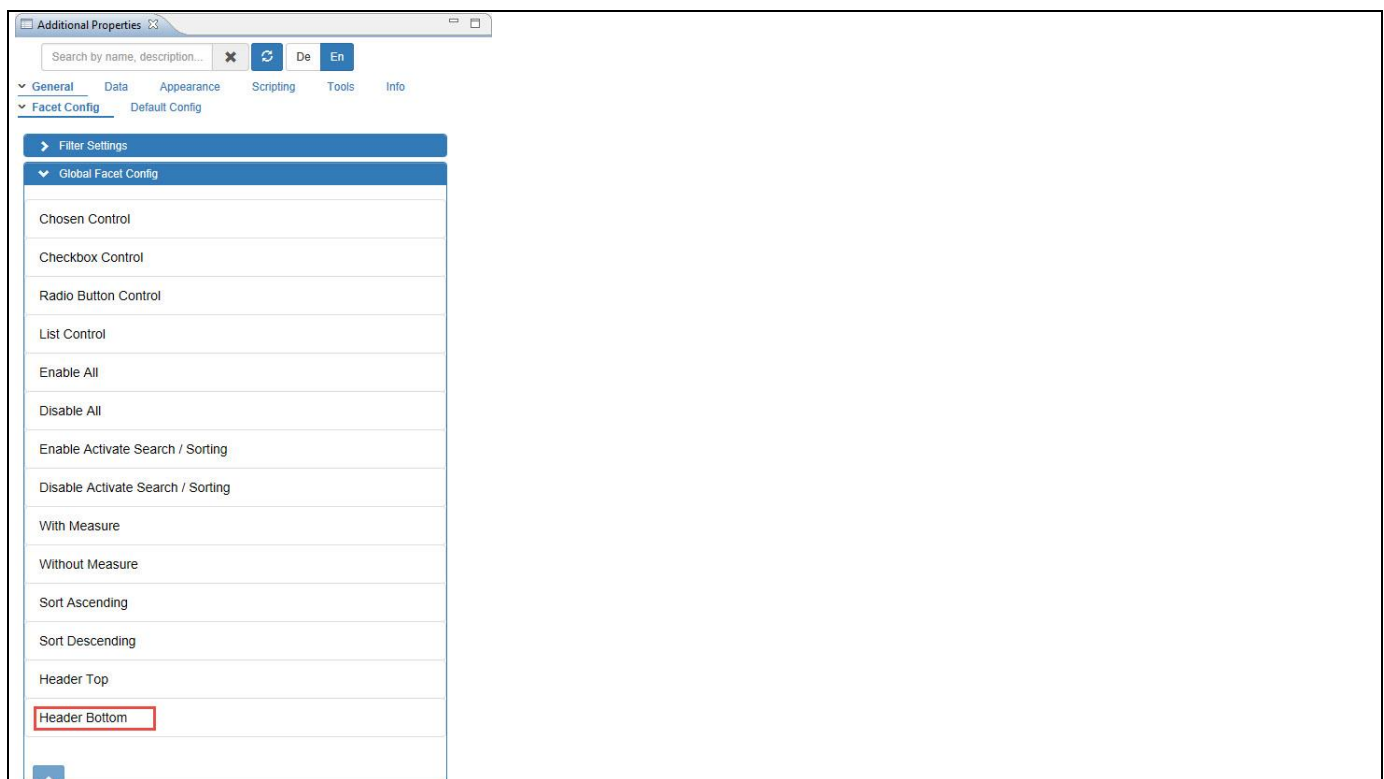


Figure 5.150: Header Bottom

For our example, you can observe that all the Column Headers will be displayed on the bottom last row (see Figure 5.151).

Order Quantity	Music	118,610.35	Video Equipment	152,690.00	Young	3,432.00
Order Cost	Movies	124,157.00	TV	118,966.40	Xerox	18,820.00
Order Amount	Electronics	745,391.40	Sports & Health	10,305.60	Woody Allen	869.50
Discount Amount(\$)	Books	80,980.40	Special Interests	24,948.90	Winnie The Pooh	1,016.10
			Soul / R&B	14,472.50	William L. Petersen	979.20
			Science and Technology	24,978.60	William Gerald Golding	396.90
			Rock	21,472.75	William Bridges	772.80
			Pop	21,077.20	Will Smith	1,027.50
			Music - Misc	18,295.75	Whitney Houston	819.00
			Literature	8,969.30	White, Bryan	1,520.40
			Kids / Family	20,208.70	White Zombie	1,701.75
			Horror	19,365.60	Wesley Snipes	1,509.95
			Electronics - Misc	144,865.60	Weird Al Yankovic	913.90
			Drama	20,701.70	Wayne Sleep	1,509.60
			Country	22,284.50	Waiting To Exhale	1,224.75
			Computers	58,031.90	Vladimir Vladimirovich	744.70
			Comedy	20,104.05	Vince Vaughn	1,500.20
			Cameras	156,159.50	Vince	1,374.75
			Business	12,333.15	Various Artists	1,587.25
			Books - Misc	9,529.75	Twain, Shania	1,137.50
Key Figures	Item Category	Item Subcategory	Item Brand			

Figure 5.151: Column Headers at the Bottom Last Row

5.11.7 Data Source Details for the Facet Filter

The Facet Filter component requires a data source with a minimum of one dimension and one measure. There is no limit on the number of dimensions or measures that you could display as part of the Facet Filter. In the configuration of the Facet Filter you can then choose which of the dimensions of the assigned data source you would like to display as part of the Facet Filter.

5.11.8 How to use the Facet Filter

In this section we will outline how you can use the Facet Filter component as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project and provide you with the ability to filter the data of a target data source. For the following steps we assume that we have a data source with three dimensions Product Category, Product Group, and Product as well as a set of three measures – Net Value, Profit, and Cost.

You can follow the steps below to create your first Facet Filter:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a Facet Filter from the VBX Selectors to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
3. Add a data source to your project.
4. The data source can have multiple dimensions and measures.
5. Assign the data source to the filter.
6. After the data source is assigned to the Facet Filter component, the component will display the dimensions and list of measures as individual facets (see Figure 5.152).

Key Figures	Product Group	Product Category	Product
<input type="radio"/> Costs <input type="radio"/> Net Value <input checked="" type="radio"/> Profit(\$) 	All Cameras 14,919,610,226.08 Cell Phone Accessories 1,667,399,715.63 Cell Phones 9,029,020,802.52 Laptops 21,409,509,582.38 MP3 & Headphones 3,629,472,988.09 TV 36,794,685,256.13	All Android Phones 3,815,751,172.61 Apple iOS 1,929,710,786.40 Blackberry OS 2,574,498,534.01 Cell Phone Cases 317,813,675.06 Digital Compact Cameras 6,124,232,226.32 Digital SLR 8,795,377,999.76 Handsfree Sets 1,349,586,040.57 Headphones 293,379,507.99 Laptop 12,437,360,203.21 LCD TV 16,537,394,830.70 Mac Book 8,972,149,379.17 MP3 Player 3,336,093,480.10 Plasma TV 20,257,290,425.43 Windows Phone 709,060,309.50	All 11 " Laptop 3,465,046,099.84 13 " Laptop 2,672,971,610.00 14 " Laptop 1,950,274,832.25 15 " Laptop 4,349,067,661.12 30 " LCD TV 3,470,076,618.64 32 " LCD TV 1,003,343,269.50 38 " LCD TV 859,272,430.83 38 " Plasma TV 2,236,255,582.00 42 " LCD TV 805,019,002.83 42 " Plasma TV 5,234,480,145.44 48 " LCD TV 3,692,293,485.30 50 " Plasma TV 6,946,904,142.00 51 " LCD TV 6,707,390,023.60 55 " Plasma TV 2,180,073,964.05

Figure 5.152: Facets

Figure 5.152 shows a Facet Filter component with one facet for the Key Figures and three additional facet for the dimensions Product Group, Product Category, and Product. Each of the dimension facets include the option to choose an All member and the dimension members are displayed in form of a list.

7. Navigate to the category Data and to the sub category Data Utility (see Figure 5.153) in the Additional Properties of the Facet Filter. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.

Properties

Additional Properties

General

Data

Appearance

Scripting

Info

Filter Settings

Data Utility

Select Aggregation Function

Sum

Figure 5.153: Category Data

8. The Select Aggregate Function property allows you to choose the aggregation for the Facets. For our example we will use the option Sum.
9. By navigating to the category Data and to the sub category Filter Settings, the Target Data Source property allows you to specify those data source that will be filtered based on the selected values in the Facet Filter. You can enter a single or multiple single data sources. In case of multiple data sources, please separate the technical names by a "comma".
10. For our example we will leave the Target Data source value empty for now.
11. Navigate to the category Appearance and to the sub category Filter in the Additional Properties (see Figure 5.154).

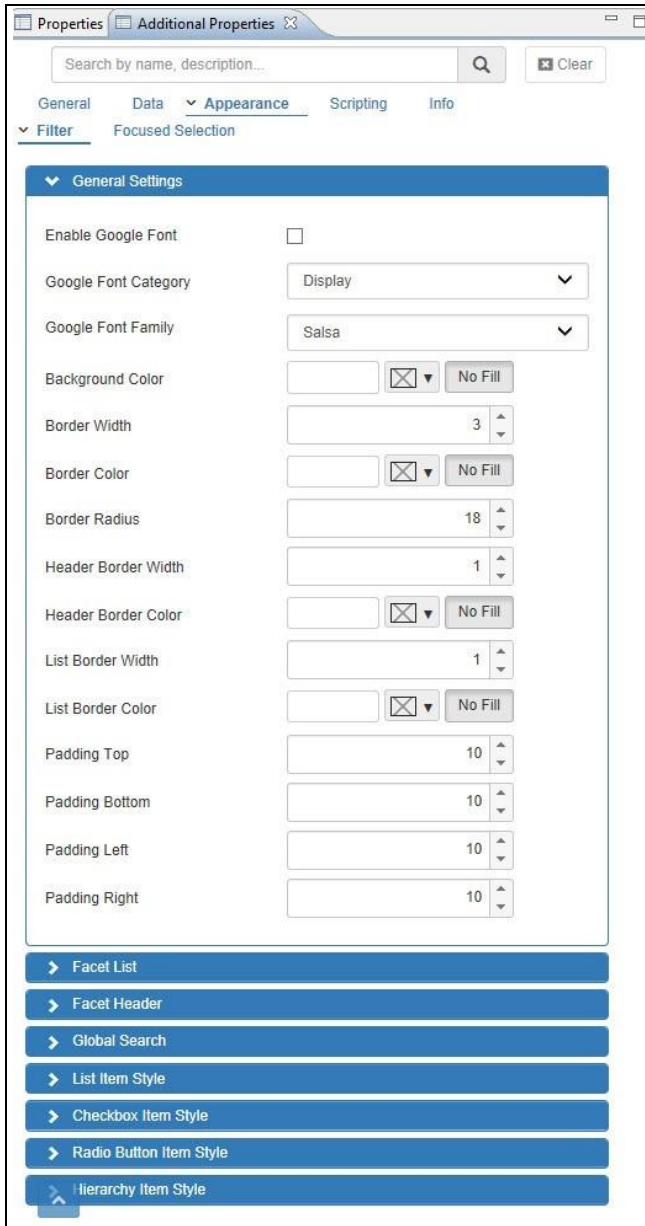


Figure 5.154: Category Appearance

12. In the area General Settings you have the option to configure items such as the Font, Font Style, Font size, Background color, etc. for the different parts of the Facet Filter component.
13. Now navigate to the category General and to the sub category Filter Settings (see Figure 5.155).

Properties Additional Properties

Search by name, description...

General Data Appearance Scripting Info

Filter Settings

Facet Layout: Horizontal

Title	Height (%)	Width (%)
Key Figures	25	100
Region	25	100
Country	25	100

Region

Height (%): 25

Width (%): 100

Display Value Type: Default

Key Type: Internal Key

Send Value Type: Default

Send Key Type: Internal Key

Control Type: List

Sort Order: Ascending

Sort based on: Text

Facet Header: Region

Header Position: Top

Enable All Member: ☒

Visible: ☒

Activate Search / Sorting: ☒

Figure 5.155: Category General

14. The sub category Filter Settings allows you to define which facet will be displayed as part of the overall Facet Filter and gives you the option to configure the details for each of the facets.
15. You can configure the following properties:
 - **Height(%)**: Here you can configure the Height of the facet as percentage value of the total height of the overall Facet Filter component. When the Layout Type is set to Horizontal, the Height of the facet automatically sets to 100%.
 - **Width(%)**: Here you can configure the Width of the facet as percentage value of the total width of the overall Facet Filter component. When the Layout Type is set to Vertical, the Width of the facet automatically sets to 100%.
 - **Display Value Type**: Here you can configure if the dimension members should be displayed as Key Only, Text Only, Key & Text, or Text & Key.

- **Key Type:** Here you can set the option for Display Key Type. The options are Default, External Key, External Non-Compounded Key, Internal Key and Internal Non-Compounded Key.
- **Send Value Type:** Here you can set the option for Send Value Type. The options are Key Only, Text Only, Key & Text, or Text & Key.
- **Send Key Type:** Here you can set the option for Send Key Type. The options are Default, External Key, External Non-Compounded Key, Internal Key and Internal Non-Compounded Key.
- **Control Type:** The Control property allows you to choose the type of visual control for the dimension members. You can choose between List, Radio Button, Check Box, Chosen.
- **Sort Order:** Here you can configure an ascending or descending sort for the dimension members.
- **Sort Based On:** Here you can figure if the sort will be based on the Key, Text, or the Measure value.
- **Facet Header:** The Title property allows you to reword the header text for the facet. The default value will be the name of the dimension.
- **Header Position:** This property allows you to configure a Top or Bottom alignment of the facet header.
- **Enable All Member:** This property allows you to enable / disable the display of an All Member for the facet. The All Member will be presented with the text “All” and allows you to select all members of the dimension with a single click.
- **Visible:** Here you can enable/disable the property Visible.
- **Activate Search / Sorting:** Here you can activate the search option for the facet.

So far we reviewed the different options and properties, so now let’s create a concrete example. For our example we will assume that we have a data source with three measures – Cost, Net Value, and Profit – as well as three dimensions – Product Group, Product Category, and Product.

1. Add the Facet Filter to the project in SAP BusinessObjects Design Studio/SAP Lumira Designer and assign the data source.
2. Navigate to the category General and to the sub category Filter Settings.
3. Ensure that the property Visible is activated for the Key Figures facet (see Figure 5.156).



Key Figures	
Height (%)	50
Width (%)	100
Control Type	Radio Button
Sort Order	Ascending
Sort based on	Text
Facet Header	Key Figures
Header Position	Top
Visible	<input checked="" type="checkbox"/>
Activate Search / Sorting	<input checked="" type="checkbox"/>

Figure 5.156: Key Figures Facet

4. Set the property Control Type to the option Radio Button.
5. Ensure the search is activated by enabling the property Activate Search / Sorting.
6. Scroll down to the settings for dimension Product Group (see Figure 5.157).

Product Group	
Height (%)	<input type="text" value="50"/>
Width (%)	<input type="text" value="100"/>
Display Value Type	<input type="text" value="Text"/>
Key Type	<input type="text" value="Internal Key"/>
Send Value Type	<input type="text" value="Default"/>
Send Key Type	<input type="text" value="Internal Key"/>
Control Type	<input type="text" value="Check Box"/>
Sort Order	<input type="text" value="Ascending"/>
Sort based on	<input type="text" value="Text"/>
Facet Header	<input type="text" value="Product Group"/>
Header Position	<input type="text" value="Top"/>
Enable All Member	<input checked="" type="checkbox"/>
Visible	<input checked="" type="checkbox"/>
Activate Search / Sorting	<input checked="" type="checkbox"/>

Figure 5.157: Facet Details – Product Group

- Set the property Display Value Type to the value Text, so that all dimension members will be shown with the Text value only.
- Set the Control Type property to the option Check Box.
- Configure the Sort Order to be Ascending.
- Ensure the property Enable All Member is enabled.
- Ensure the property Activate Search/Sorting is activated.

Key Figures	Product Group	Product Category	Product
<input type="radio"/> Costs <input type="radio"/> Net Value <input checked="" type="radio"/> Profit(\$) 	<input checked="" type="checkbox"/> All <input type="checkbox"/> Cameras <input type="checkbox"/> Cell Phone Accessories <input type="checkbox"/> Cell Phones <input type="checkbox"/> Laptops <input type="checkbox"/> MP3 & Headphones <input type="checkbox"/> TV	All Android Phones Apple iOS Blackberry OS Cell Phone Cases Digital Compact Cameras Digital SLR Handsfree Sets Headphones Laptop LCD TV Mac Book MP3 Player Plasma TV Windows Phone	All 11" Laptop 13" Laptop 14" Laptop 15" Laptop 30" LCD TV 32" LCD TV 38" LCD TV 38" Plasma TV 42" LCD TV 42" Plasma TV 48" LCD TV 50" Plasma TV 51" LCD TV 55" Plasma TV
	14,919,610,226.08 1,667,399,715.63 9,029,020,802.52 21,409,509,582.38 3,629,472,988.09 36,794,685,256.13	3,815,751,172.61 1,929,710,786.40 2,574,498,534.01 317,813,675.06 6,124,232,226.32 8,795,377,999.76 1,349,586,040.57 293,379,507.99 12,437,360,203.21 16,537,394,830.70 8,972,149,379.17 3,336,093,480.10 20,257,290,425.43 709,060,309.50	3,465,046,099.84 2,672,971,610.00 1,950,274,832.25 4,349,067,661.12 3,470,076,618.64 1,003,343,269.50 859,272,430.83 2,236,255,582.00 805,019,002.83 5,234,480,145.44 3,692,293,485.30 6,946,904,142.00 6,707,390,023.60 2,180,073,964.05

Figure 5.158: Facet Filter

- Your Facet Filter should look similar to Figure 5.158 at this point.

We can see the list of measures being displayed in form of Radio Buttons and we can see the members of dimension Product Group shown as Check Boxes. In addition all our dimension facets provide you with an All member option and the option to search for members (see Figure 5.159).

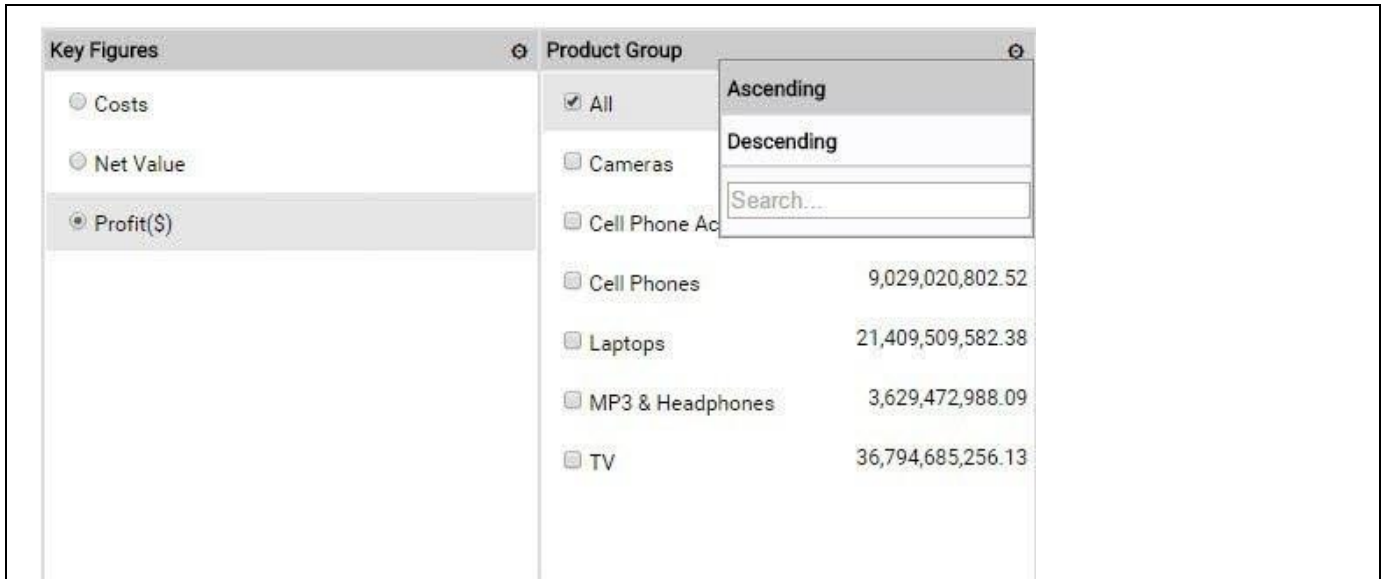


Figure 5.159: Activated Search

13. Navigate to the category General and to the sub category Filter Settings in the Additional Properties (see Figure 5.160).

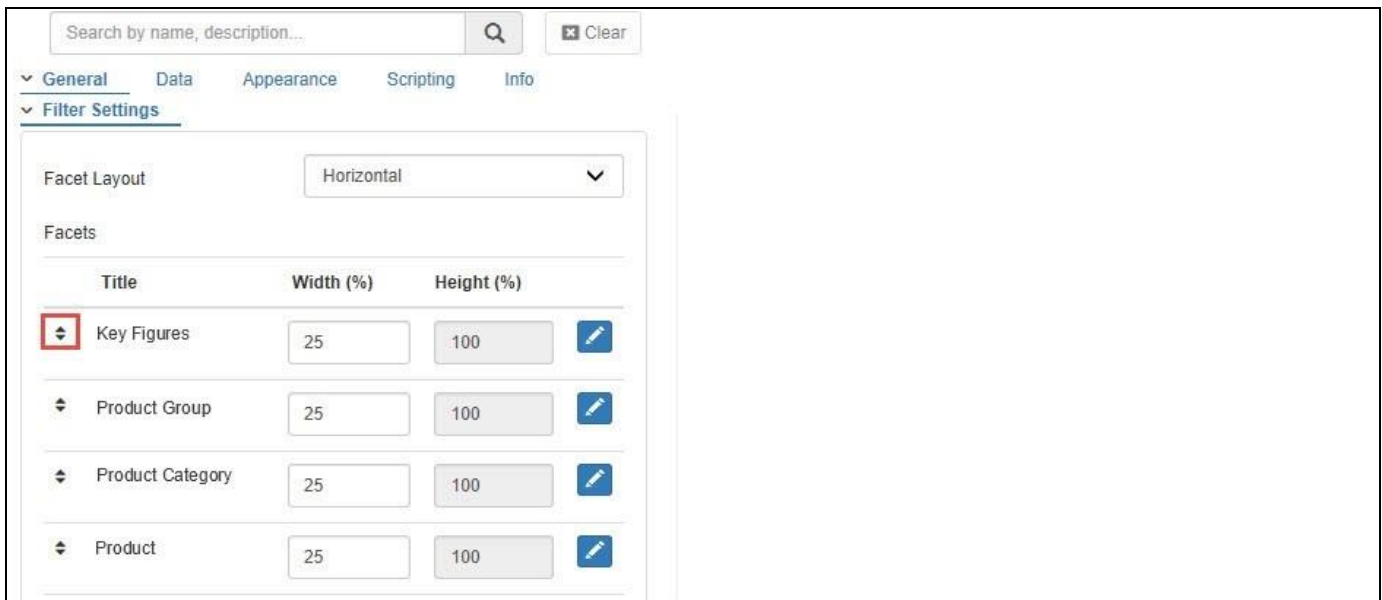


Figure 5.160: Facet Reorder

14. You can re-arrange the order of the individual facets with a simple drag and drop navigation using the option "Drag to Reorder".
15. You can use the icons on the right hand side of the header of each facet row to edit the details (see Figure 5.161).

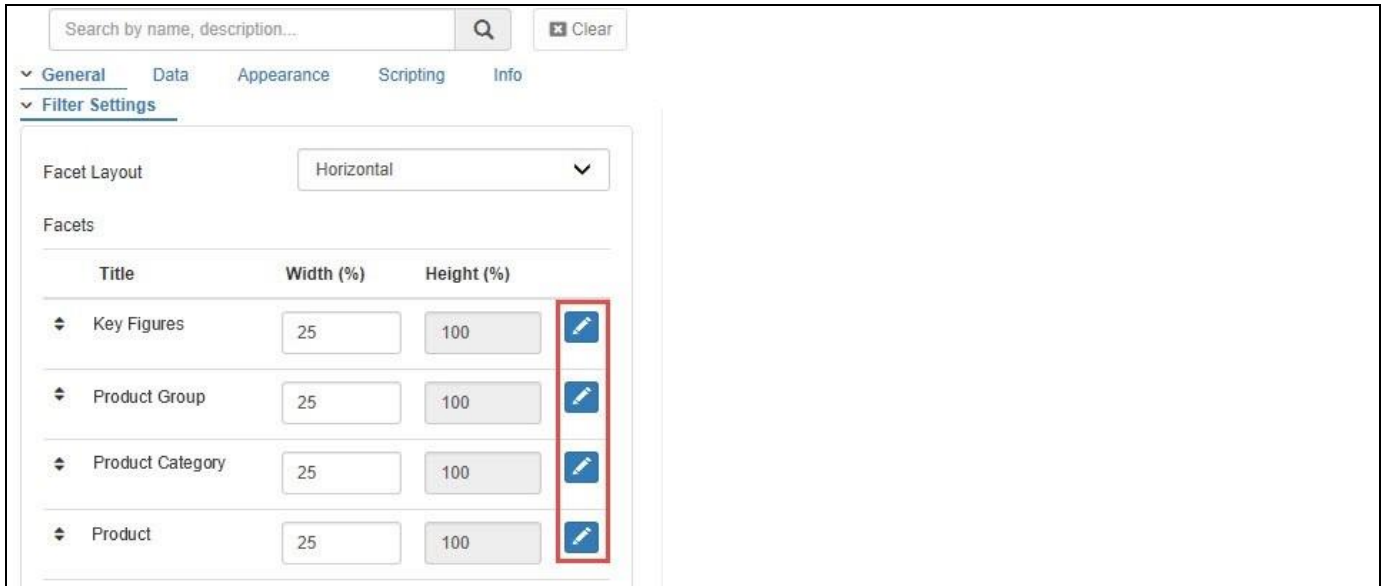


Figure 5.161: Facet Properties

You should now have a Facet Filter displaying a set of dimensions as facets and in addition the Facet Filter should display a list of measures. Each selection in the Facet Filter will act as a cascading filter as well.

5.11.9 Additional Properties of the Facet Filter

In the following sections we will outline the Additional Properties of the Facet Filter.

5.11.9.1 Category General

Below (see Figure 5.162) you can find the Additional Properties for the category General and their descriptions. From this tab, the dashboard designer can configure the layout of the Facet Filter to be either Horizontally or Vertically. In addition the dashboard designer can also configure the order of the dimension by using the Drag to Reorder option.

The screenshot shows the 'Facet Config' tab in the dashboard designer. The 'Filter Settings' section is expanded, showing the following configuration:

- Facet Layout:** Horizontal (dropdown)
- Enable Measure(s):** ☒
- Facets:**

Title	Width (%)	Height (%)	
Key Figures	25	100	
Product Group	25	100	
Product Category	25	100	
Product	25	100	
- Key Figures:**
 - Width (%):** 25 (with up/down arrows)
 - Height (%):** 100 (with up/down arrows)
 - Control Type:** Radio Button (dropdown)
 - Sort Order:** Ascending (dropdown)
 - Sort based on:** Text (dropdown)
 - Facet Header:** Key Figures (text input)
 - Header Position:** Top (dropdown)
 - Visible:** ☒
 - Activate Search / Sorting:** ☒

Figure 5.162: Category General

Figure 5.163 shows a Facet Filter with three measures and four dimensions in a horizontal layout and Figure 5.164 shows the vertical layout option.

Key Figures	Product Group	Product Category	Product	Country
<input type="radio"/> Costs <input type="radio"/> Net Value <input checked="" type="radio"/> Profit(\$) 	All	All	All	All
	Cameras	Android Phones	11 " Laptop	Algeria
	Cell Phone Accessories	Apple iOS	13 " Laptop	Angola
	Cell Phones	Blackberry OS	14 " Laptop	Argentina
	Laptops	Cell Phone Cases	15 " Laptop	Australia
	MP3 & Headphones	Digital Compact Cameras	30 " LCD TV	Austria
	TV	Digital SLR	32 " LCD TV	Azerbaijan
		Handsfree Sets	38 " LCD TV	Bahamas
		Headphones	38 " Plasma TV	Bahrain
		Laptop	42 " LCD TV	Bangladesh
		LCD TV	42 " Plasma TV	Barbados
		Mac Book	48 " LCD TV	Belarus
		MP3 Player	50 " Plasma TV	Belgium
		Plasma TV	51 " LCD TV	Belize
		Windows Phone	55 " Plasma TV	Benin

Figure 5.163: Horizontal Layout

Key Figures
<input type="radio"/> Costs <input type="radio"/> Net Value <input checked="" type="radio"/> Profit(\$)
Product Group
All
Cameras 14,919,610,226.08
Cell Phone Accessories 1,667,399,715.63
Cell Phones 9,029,020,802.52
Product Category
All
Android Phones 3,815,751,172.61
Apple iOS 1,929,710,786.40
Blackberry OS 2,574,498,534.01
Product
All
11 " Laptop 3,465,046,099.84
13 " Laptop 2,672,971,610.00
14 " Laptop 1,950,274,832.25
Country
All
Algeria 610,607,002.66
Angola 614,997,352.17
Argentina 608,631,338.60

Figure 5.164: Vertical Layout

Sub category	Area	Property	Description
Facet Config	Filter Settings	Facet Layout	Here you can choose between a Horizontal and a Vertical Layout of the Facet Filter.
		Enable Measure(s)	This property enables/disables the Measure Selection in the Facet.
		Enable Global Search Box	This property enables/disables the Global Search Box.
		Enable Focused Selection	This property enables/disables the Focused Selection Coloring as part of the Facet Filter.
		Enable Dimension Configuration	This property enables/disables the option to add / remove dimensions from the Facet Filter at runtime when the dashboard is being executed.
		Enable Lazy Loading	This property enables/disables the Lazy Loading option for the Facet Filter. It shows the delayed loading of records when enabled.
		Enable Tile Layout	This property enables/disables the Tile Layout.
		Tile Layout Height	This property sets the height for the Tile Layout.
		Configure Measure in	This property sets the Measure in ROWS or COLUMNS while doing Add Facet.
		Configure Dimensions in	This property sets the Dimension in ROWS or COLUMNS while doing Add Facet.
	Global Facet Config	Chosen Control	This property displays the Select Members Box option below each Column Header in the first row of the Facet Filter.
		Checkbox Control	This property displays the Check Box options for all the Members.
		Radio Button Control	This property displays the Members in all the Columns with Radio Buttons.
		List Control	This property displays the list of all the Members.
		Enable All	This property when enabled displays the Total Member Count in all the Columns.
		Disable All	This property when disabled will not display the Total Member Count in all the Columns.
		Enable Activate Search/Sorting	This property when enabled the Members in all the Columns can be sorted in ascending or descending order and they can be also searched.
		Disable Activate Search/Sorting	This property when disabled the Sorting/Search option will not be displayed in the Facet Filter.
		With Measure	This property displays the Facet Filter with the

Sub category	Area	Property	Description
			Measures (Key Figures)
		Without Measure	This property will display the Facet Filter without the Measures.
		Sort Ascending	This property displays the Members in all the Columns being sorted in ascending order.
		Sort Descending	This property displays the Members in all the Columns being sorted in descending order.
		Header Top	This property displays all the Column Headers on the top first row.
		Header Bottom	This property displays all the Column Headers on the bottom last row.
Default Config		Width (%)	This property allows to configure the Width of the Facet in percentages. The percentage value is in relation to the total width of the Facet Filter. When the Layout Type is Horizontal, by default the Height of the Facet is set to 100%.
		Height (%)	This property allows to configure the Height of the Facet in percentages. The percentage value is in relation to the total height of the Facet Filter. When the Layout Type is Horizontal, by default the Height of the Facet is set to 100%.
		Display Value Type	Here you can configure if the Dimension Members should be displayed with the Key, Text, or Key and Text values.
		Display Key Type	Here you can configure which key value should be displayed: Internal Key, External Key, Compounded Key, non-compounded Key.
		Send Value Type	Here you can configure which value is being send to the target data source for filtering. The options are Key, Text, or a combination of Key and Text.
		Send Key Type	Here you can configure which key value should be used for filtering of the target data source: Internal Key, External Key, Compounded Key, non-compounded Key.
		Control Type	Each Facet can be configured with a Control Type for the visualization. The available options are: Radio Button, Check Box, List and Chosen.
		Sort Order	The Facet List items can either be sorted in an Ascending or Descending order.
		Sort based on	The Facet List items can be sorted based on the Key value, Text value, or the Measure value.
		Facet Header	This property allows you to reword the text for the Facet Header.

Sub category	Area	Property	Description
		Header Position	This property allows you to align the Facet Header either to the top or the bottom.
		Enable All Member	This property allows you to enable / disable the All Member for the Facet.
		Visible	This property allows you to enable /disable the display of the Facet.
		Activate Search/Sorting	Here you can enable/disable the Search/Sort option for the Facet.
		No. of Hierarchy Level Displayed	Here you can specify the number of Hierarchy Levels to be displayed during the Start up.
		Expand Level to	Here you can specify the maximum depth of the Hierarchy that will be displayed with the Hierarchical Filter.
		Hierarchy Icon	This property is an icon that allows you to expand/collapse the Hierarchy Levels and there are different types of icon for selection.

Table 5.56: Category General

5.11.9.2 Category Data

Below you can see the Additional Properties for the category Data and their descriptions.

Sub category	Property	Description
Filter Settings	Target Data Source(s)	Here you can enter the alias of the Target Data Source. The property supports either single or multiple values. In case you enter multiple Target Data Sources you need to separate them with a comma.
Data Utility	Select Aggregate Function	Here you can select which Aggregation Function will be used to aggregate the values of the data set. Available options are Sum, Average, Min, Max, Standard Deviation and Variation.

Table 5.57: Category Data

5.11.9.3 Category Appearance

Below you can find the Additional Properties for the category Appearance and their descriptions.

Sub category	Area	Property	Description
Filter	General Settings	Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is

Sub category	Area	Property	Description
			activated.
		Background Color	This property allows you to set the Background Color for the Facet Filter.
		Border Width	Here you can set the Border Width for the Facet Filter.
		Border Color	Here you can set the Border Color for the Facet Filter.
		Border Radius	Here you can set the Border Radius for the Facet Filter.
		Header Border Width	Here you can set the Border Width for the Facet Headers.
		Header Border Color	Here you can set the Border Color for the Facet Headers.
		List Border Width	Here you can set the Border Width for the Facet List area.
		List Border Color	Here you can set the Border Color for the Facet List area.
		Padding Top	Here you can configure the space between the top edge of the filter and the content.
		Padding Bottom	Here you can configure the space between the bottom edge of the filter and the content.
		Padding Left	Here you can configure the space between the left edge of the Facet Filter and the content.
		Padding Right	Here you can configure the space between the right edge of the Facet Filter and the content.
	Facet List	Background Color	Here you can set the Background Color of the Facet List.
	Facet Header	Font Family	Here you can set the Font Family for the Facet Headers.
		Font Size	Here you can set the Font Size for the Facet Headers.
		Font Color	Here you can set the Font Color for the Facet Headers.
		Font Style	Here you can set the Font Style for the Facet Headers.
		Horizontal Alignment	Here you can set the Font Alignment for the Facet Headers.
		Background Color	Here you can set the Background Color for the Facet Headers.

Sub category	Area	Property	Description
	Global Search	Font Family	Here you can set the Font Family for the Global Search.
		Font Color	Here you can set the Font Color for the global search.
		Background Color	Here you can set the Background Color for the global search.
	List Item Style	Font Family	Here you can set the Font Family for the configuration option List.
		Font Size	Here you can set the Font Size for the configuration option List.
		Font Color	Here you can set the Font Color for the configuration option List.
		Font Style	Here you can set the Font Style for the configuration option List.
		Border Color	Here you can set the Border Color for the configuration option List.
		Border Width	Here you can set the Border Width for the configuration option List.
		Background Color	Here you can set the Background Color for the configuration option List.
		Banded Background Color	Here you can set the Banded Background Color for the configuration option List.
		Selected Item Background Color	Here you can configure the Background Color for the selected items.
		Selected Item Font Color	Here you can configure the Font Color for the selected items.
		Selected Item Border Color	Here you can configure the Border Color for the selected items.
		Selected Item Border Width	Here you can configure the Border Width for the selected items.
		Hover Over Background Color	Here you can configure the Background Color of the Facet List item on hover over.
		All Member Font Family	Here you can configure the Font Family for the All Member.
		All Member Font Size	Here you can configure the Font Size for the All Member.
		All Member Font Color	Here you can configure the Font Color for the All Member.
		All Member Font Style	Here you can configure the Font Style for the All Member.
		All Member Selected Item Background Color	Here you can configure the Background Color for the Facet List items for all

Sub category	Area	Property	Description
			members.
		All Member Selected Item Font Color	Here you can configure the Font Color for the Facet List items for all members.
	Checkbox Item Style	Font Family	Here you can set the Font Family for the configuration option Checkbox.
		Font Size	Here you can set the Font Size for the configuration option Checkbox.
		Font Color	Here you can set the Font Color for the configuration option Checkbox.
		Font Style	Here you can set the Font Style for the configuration option Checkbox.
		Border Color	Here you can set the Border Color for the configuration option Checkbox.
		Border Width	Here you can set the Border Width for the configuration option Checkbox.
		Background Color	Here you can set the Background Color for configuration option Checkbox.
		Banded Background Color	Here you can set the Banded Background Color for the configuration option Checkbox.
		Selected Item Background Color	Here you can configure the Background Color for the Facet Check Box item for All Members.
		Selected Item Font Color	Here you can configure the Font Color for the Facet Check Box item for All Members.
		Selected Item Border Color	Here you can configure the Border Color for the Facet Check Box item for All Members.
		Selected Item Border Width	Here you can configure the Border Width for the Facet Check Box item for All Members.
		Hover Over Background Color	Here you can configure the Background Color for the Facet Check Box item on hover.
		All Member Font Family	Here you can set the Font Family for the Facet Check Box item for All Members.
		All Member Font Size	Here you can set the Font Size for the Facet Check Box item for All Members.
		All Member Font Color	Here you can set the Font Color for the Facet Check Box item for All Members.
		All Member Font Style	Here you can set the Font Style for the Facet Check Box item for All Members.
		All Member Selected	Here you can configure the Background

Sub category	Area	Property	Description
		Item Background Color	Color for the Facet Check Box item for all members.
		All Member Selected Item Font Color	Here you can configure the Font Color for the Facet Check Box item for all members.
	Radio Button Item Style	Font Family	Here you can set the Font Family for the configuration option Radio Button.
		Font Size	Here you can set the Font Size for the configuration option Radio Button.
		Font Color	Here you can set the Font Color for the configuration option Radio Button.
		Font Style	Here you can set the Font Style the configuration option Radio Button.
		Border Color	Here you can set the Border Color for the configuration option Radio Button.
		Border Width	Here you can set the Border Width for the configuration option Radio Button.
		Background Color	Here you can set the Background Color for the configuration option Radio Button.
		Banded Background Color	Here you can set the Banded Background Color the configuration option Radio Button.
		Selected Item Background Color	Here you can configure the Background Color for the Facet Radio Button item.
		Selected Item Font Color	Here you can configure the Font Color for the Facet Radio Button item.
		Selected Item Border Color	Here you can configure the Border Color for the Facet Radio Button item.
		Selected Item Border Width	Here you can configure the Border Width for the Facet Radio Button item.
		Hover Over Background Color	Here you can configure the Background Color for the Facet Radio Button item on hover.
		All Member Font Size	Here you can set the Font Size for the Facet Radio Button item for All Members.
		All Member Font Color	Here you can set the Font Color for the Facet Radio Button item for All Members.
		All Member Font Style	Here you can set the Font Style for the Facet Radio Button item for All Members.
		All Member Selected Item Background Color	Here you can configure the Background Color for the Facet Radio Button item for all members.
		All Member Selected	Here you can configure the Font Color for

Sub category	Area	Property	Description
	Hierarchy Item Style	Item Font Color	the Facet Radio Button item for all members.
		Font Family	Here you can set the Font Family for the Facet Hierarchy item.
		Font Size	Here you can set the Font Size for the Facet Hierarchy item.
		Font Color	Here you can set the Font Color for the Facet Hierarchy item.
		Font Style	Here you can set the font weight for the Facet Hierarchy item.
		Selected Background Color	Here you can set the selected Background Color for the Facet Hierarchy item.
		Selected Font Color	Here you can set the selected Font Color for the Facet Hierarchy item.
		Hover Background Color	Here you can configure the Background Color for the Facet Hierarchy item on hover.
Focused Selection	Possible Selection	Font Family	Here you can configure the Font Family for the possible items in the Facet Filter as part of the intuitive coloring.
		Font Color	Here you can configure the Font Color for the possible items in the Facet Filter as part of the intuitive coloring.
		Font Style	Here you can configure the Font Style for the possible items in the Facet Filter as part of the intuitive coloring.
		Background Color	Here you can configure the Background Color for the possible items in the Facet Filter as part of the intuitive coloring.
	Alternative Selection	Font Family	Here you can configure the Font Family for the alternative items in the Facet Filter as part of the intuitive coloring.
		Font Color	Here you can configure the Font Color for the alternative items in the Facet Filter as part of the intuitive coloring.
		Font Style	Here you can configure the Font Style for the alternative items in the Facet Filter as part of the intuitive coloring.
		Background Color	Here you can configure the Background Color for the alternative items in the Facet Filter as part of the intuitive coloring.
	Excluded Selection	Font Family	Here you can configure the Font Family for the excluded items in the Facet Filter as part of the intuitive coloring.

Sub category	Area	Property	Description
		Font Color	Here you can configure the Font Color for the excluded items in the Facet Filter as part of the intuitive coloring.
		Font Style	Here you can configure the Font Style for the excluded items in the Facet Filter as part of the intuitive coloring.
		Background Color	Here you can configure the Background Color for the excluded items in the Facet Filter as part of the intuitive coloring.

Table 5.58: Category Appearance

5.11.10 Scripting with the Facet Filter

The following Table outlines the available scripting functions for the Facet Filter component.

Function / Method	Description
DSXAddFacet()	The function will add a facet into the existing Facet List.
DSXClearSelection()	The function clears the selected points for the components.
DSXGetBackgroundColor()	This function allows you to return the facet Background Color.
DSXGetDataSelection()	This function returns the Data Selection specifying the result set of a data source
DSXgetSelectedChildrenInternalKey()	The function returns the Selected Children Member Internal Key of a Dimension.
DSXgetSelectedChildrenKey()	The function returns the Selected Children Member Key of a Dimension.
DSXgetSelectedChildrenText()	The function returns the Selected Children Member Text of a Dimension.
DSXgetSelectedDimension()	The function returns the Selected Key of a Dimension.
DSXGetSelectedHeaderValue()	This function returns the selected header value.
DSXgetSelectedMeasure()	This function returns the selected measure from the Facet Filter. The returned value is of type Dimension.
DSXgetSelectedMeasureKey()	This function returns the selected measure from the Facet Filter. The function returns the key value as a string.
DSXgetSelectedMeasures()	This function returns the Array of Selected Member of Measures
DSXgetSelectedMeasuresKey()	This function returns the Array of Selected Key of Measures
DSXgetSelectedMeasuresText()	This function returns the Array of Selected Text of Measures
DSXgetSelectedMeasureText()	This function returns the selected measure from the Facet Filter. The function returns the text value as a string.
DSXgetSelectedMember()	The function returns the selected member for a specified dimension. The returned value is of type Dimension.

Function / Method	Description
DSXgetSelectedMemberKey()	The function returns the key value of the selected member for a specified dimension. The returned value is of type String.
DSXgetSelectedMembers()	The function returns the selected members for a specified dimension. The return value is an array with values of type Dimension.
DSXgetSelectedMembersKey()	The function returns the key values of the selected members for a specified dimension. The return value is an array with values of type String.
DSXgetSelectedMembersText()	The function returns the text values of the selected members for a specified dimension. The return value is an array with values of type String.
DSXgetSelectedMemberText()	The function returns the text value of the selected member for a specified dimension. The returned value is of type String.
DSXgetSelectedParentInternalKey()	The function returns the Internal Key value of the parent based on the selected member.
DSXgetSelectedParentKey()	The function returns the Key value of the parent based on the selected member.
DSXgetSelectedParentText()	The function returns the Text value of the parent based on the selected member.
DSXGetSelectedValue()	This function returns the Selected Member value of a Dimension.
DSXGetSelectedValues()	This function returns the Array of Selected Member values of a Dimension.
DSXGetVisible()	The function allows you to retrieve the value for the visibility of the component.
DSXOnClick()	This function trigger the OnClick event for the component.
DSXRemoveFacet ()	The function will remove a facet from the existing Facet List.
DSXSetBackgroundColor()	This function allows you to set the facet Background Color.
DSXSetDataSelection ()	This function modifies the result set using the data selection.
DSXSetFacetControlType()	The function sets the Control Type for each Facet.
DSXSetFacetDisplay()	The function sets the Display type for each Facet.
DSXSetFacetWidth()	The function sets the Width for each Facet.

Function / Method	Description
DSXSetFacetWidthInPixel()	This function sets the width for each Facet in pixel
DSXSetSelectedValue()	The function sets the Facet Selected Member.
DSXSetVisible()	The function allows you to set the visibility of the component.

Table 5.59: Scripting Functions

5.11.11 Events for the Facet Filter

The following Table outlines the available events for the Facet Filter component.

Event	Description
On Select	Using this property, you can enable interaction with the component by writing scripts. The on Select event is triggered when you click on the Component selecting a member in the facet.
On Header Select	Using this property, the script will be triggered when a facet header is clicked.
After Component Load	The script will be triggered immediately after the component completes loading.

Table 5.60: Events

5.12 Range Slider

5.12.1 Range Slider - Overview

The Range Slider component provides you with the capability to create either a single or a dual slider which can be based on static information, date values, or data from the assigned data source. In addition to the option of defining a single or dual slider based on the different data options, the Range Slider provides the ability to setup a conditional formatting for different areas of the slider component, such as the scale background, the range background, or the slider handle.

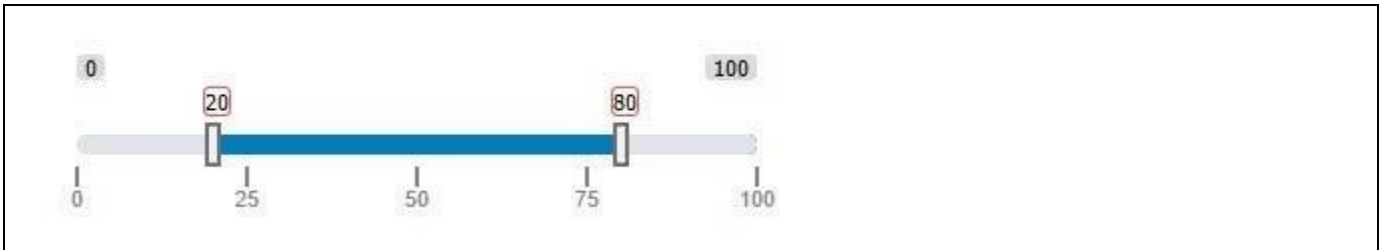


Figure 5.165: Range Slider

Figure 5.165 shows a Range Slider based on static data, showing a dual slider with a value range from 0 to 100 and a selected value range from 20 to 80.

5.12.2 Data Source requirements for the Range Slider

The Range Slider is able to work with static information and therefore the Range Slider is able to work without any data source assignment. The Range Slider is offering three options: Number, Date, and Data Points and the options Number and Date do not require a data source. In case of the Data Points option the Range Slider requires a data source with at least a single dimension as part of the assigned data source.

5.12.3 How to use the Range Slider – Number Type

In the following section we will outline the steps that are required to setup a new Range Slider as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project based on static numeric data.

To create a new Range Slider follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a new Range Slider from the VBX Selectors to your project.
3. For our example we do not need a data source because the Range Slider will be based on static information.
4. Select the Range Slider and navigate to the Additional Properties. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
5. Navigate to the category General and to the sub category Filter Settings (see Figure 5.166).

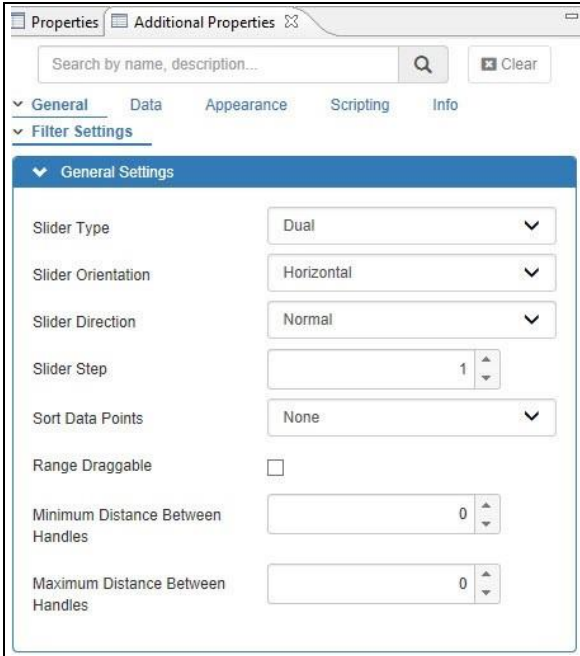


Figure 5.166: Category General

6. In the area General Settings you can decide if you would like to create a Single slider or a Dual Slider. For our example we will configure the option Dual.
7. In addition you can decide if you would like to setup a Horizontal or a Vertical slider and if you would like to use a normal direction – meaning going from left to right – or if you would like to reverse the direction. In our example we will setup a Horizontal slider with a Normal direction.
8. Navigate to the category Data and to the sub category Slider configuration.
9. In the area Live Data, set the Data Type property to the option Number. This option allows you to base the Range Slider on static information (see Figure 5.167).

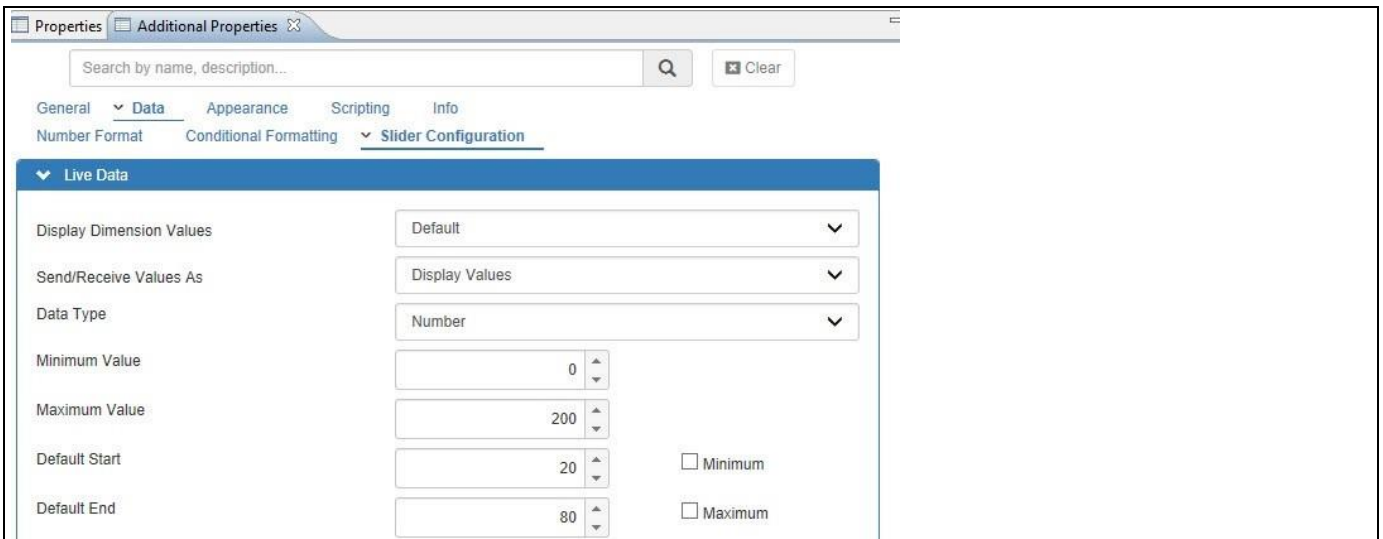


Figure 5.167: Category Data

10. You can now enter a minimum and a maximum value for the Range Slider using the Minimum Value and Maximum Value properties. For our example we will enter 0 for the Minimum Value and 200 for the Maximum Value.
11. The properties Default Start and Default End allow you to configure a set of default values that will be used when the Range Slider is shown initially. You do have the option to activate the Min and Max options, which would then use the minimum and maximum values as the default values for the initial start (see Figure 5.167).
12. You can also configure the number of decimals for any numeric values and you can configure the size of the slider step. The Slider Step property defines how many values the slider will move forward or backward with a single click (see Figure 5.166).
13. Navigate to the category General and to the sub category Filter Settings. In the area General Settings, the properties Minimum Distance and Maximum Distance between Handles allow you to define a minimum size or a maximum size of the range in case you are using a Dual slider. These properties allow you to configure boundary conditions for the range that you will be able to select. For our example we leave both of these properties to the value 0, which means that these properties will not impact our Range Slider (see Figure 5.166).
14. Navigate to the category Data (see Figure 5.168).

The screenshot shows the 'Additional Properties' window for a 'Range Slider' widget. The 'Slider Configuration' sub-tab is selected. Under the 'Live Data' section, the following properties are visible:

- Display Dimension Values:** Default
- Send/Receive Values As:** Display Values
- Data Type:** Number
- Minimum Value:** 0
- Maximum Value:** 200
- Default Start:** 20 (with checkboxes for Minimum and Maximum)
- Default End:** 80 (with checkboxes for Minimum and Maximum)
- Select Dimension / Measure:** Type: Key Figure, Sub Filter: Sub Filter..
- Fetch Minimum Value:** (checkbox)
- Minimum Value Data Selection:** (dropdown menu)
- Fetch Maximum Value:** (checkbox)
- Maximum Value Data Selection:** (dropdown menu)

Figure 5.168: Category Data

In our example we did not assign a data source to the Range Slider and therefore the options listed in the category Data are not relevant for now, but we will discuss them in a later section.

15. Navigate to the category Appearance in the Additional Properties (see Figure 5.169).

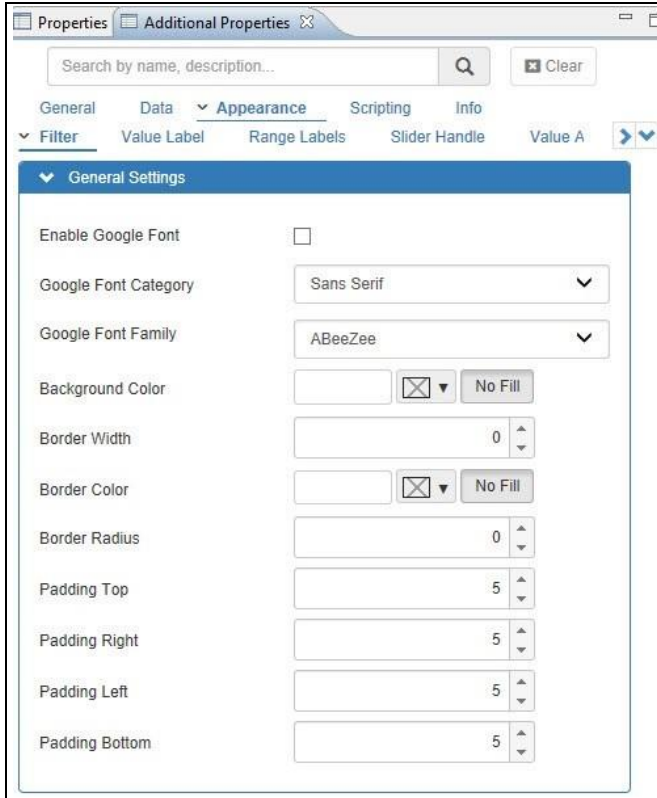


Figure 5.169: Category Appearance

In the category Appearance you can configure the look and feel for each element of the slider, such as the Border, the Slider, and the Slider Handle. For our example we will use the default values for now.

16. Navigate to the category General and to the sub category Filter Settings. (see Figure 5.170).

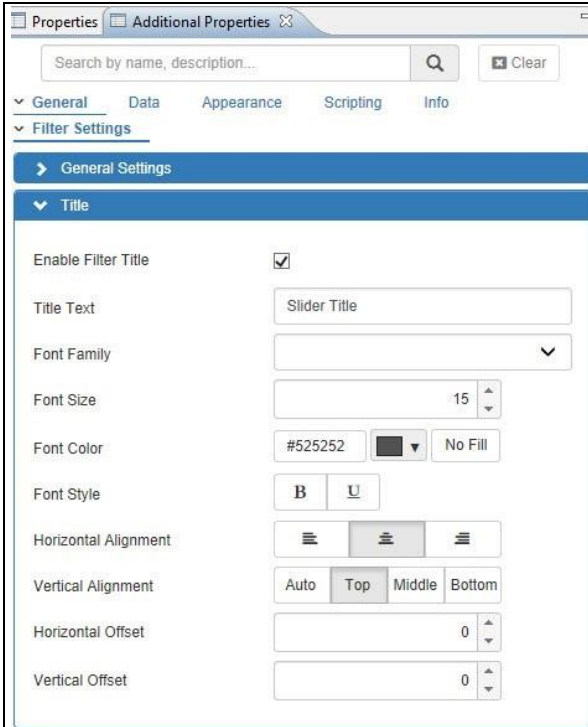


Figure 5.170: Category General

In the area Title you can enter a text for the Slider Title, as well as configure properties such as the Font Color, and Font Size for the title text.

17. Navigate to the category Appearance and to the sub category Value Label (see Figure 5.171).

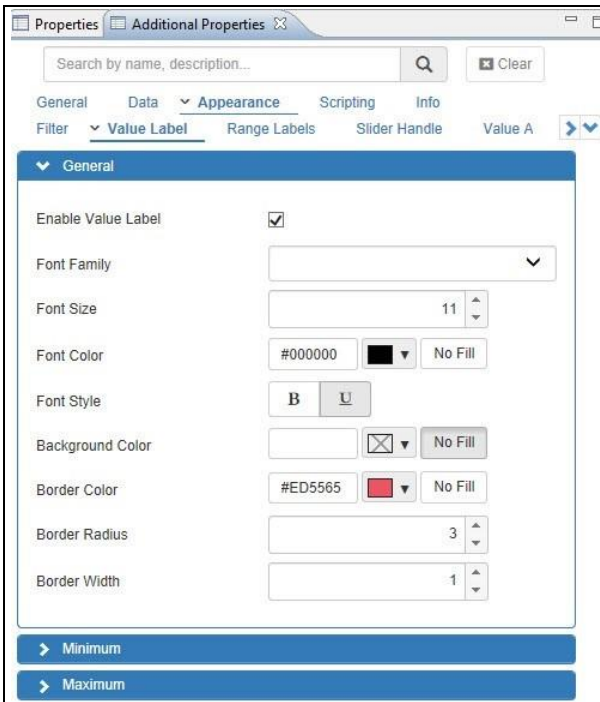


Figure 5.171: Category Appearance

In the area General you can define the look and feel of the Tooltip of the Range Slider with properties such as the font size, font color, alignment, and offset options.

18. Navigate to the category Appearance and to the sub category Value Axis (see Figure 5.172).

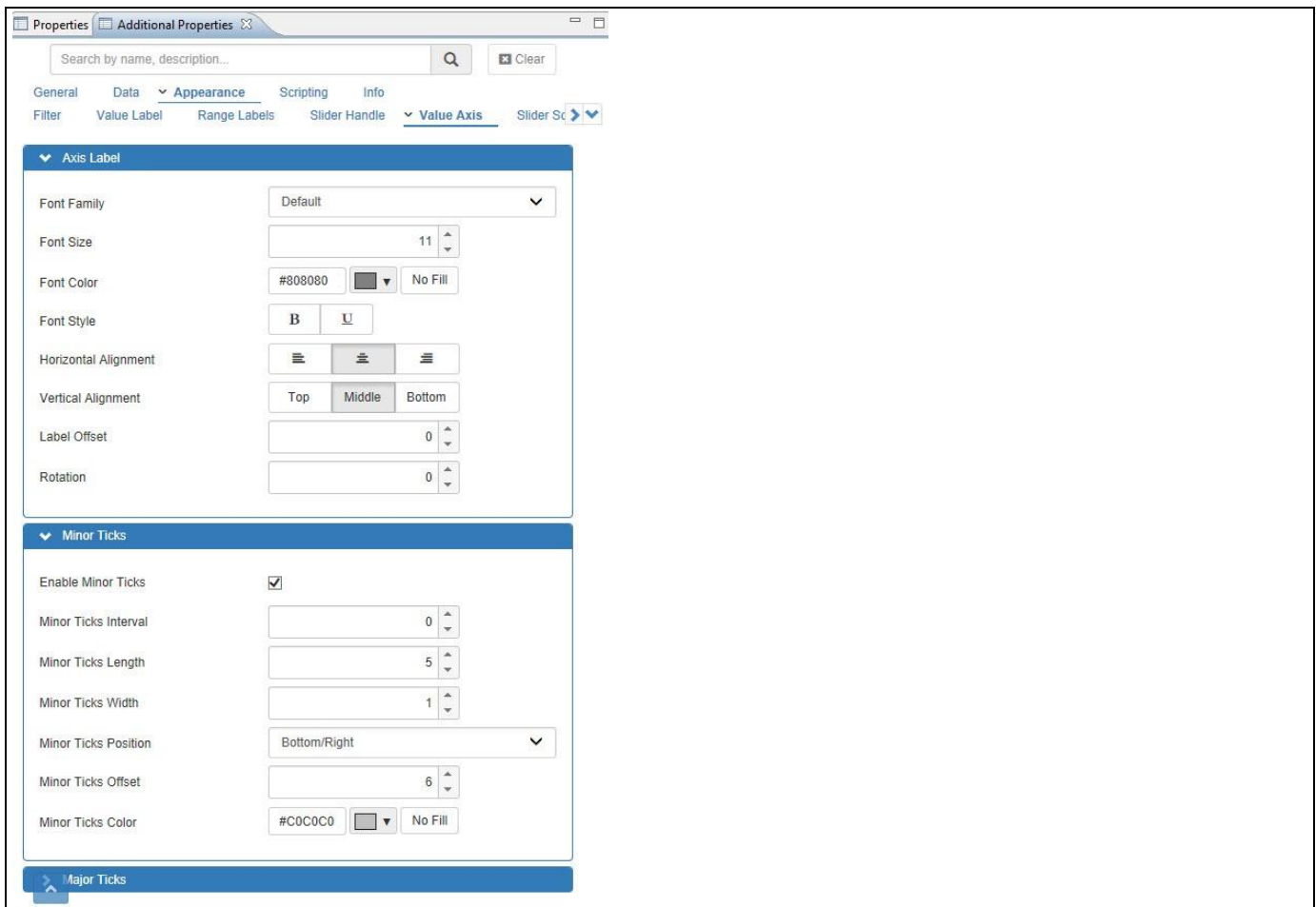


Figure 5.172: Category Appearance

In the sub category Value Axis you can define the details of the slider axis with elements such as major and minor ticks, and tick labels.

19. For our example we are activating the Major and Minor Ticks and we are setting the Major Ticks Interval to the value 5 and the Minor Ticks Interval to the value 1.

20. At this point we have a Range Slider that looks similar to Figure 5.173.

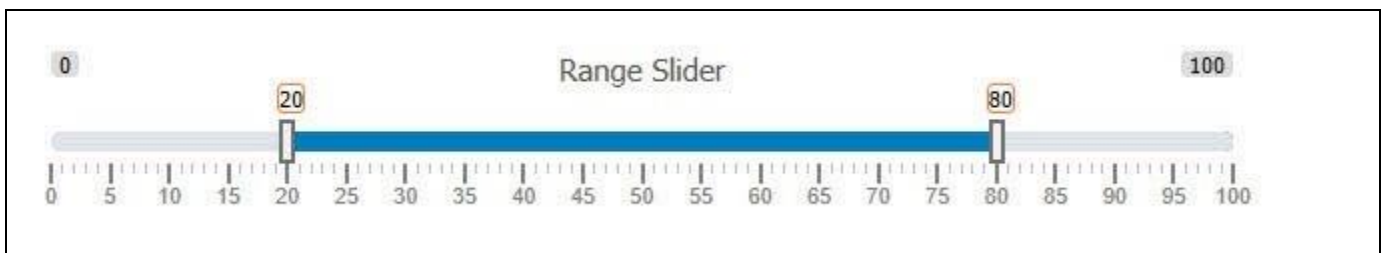


Figure 5.173: Range Slider

21. Navigate to the category Scripting (see Figure 5.174).



Figure 5.174: Category Scripting

22. In the Scripting category you can now add scripting code to – for example – retrieve the set values of your new Range Slider.
23. Click next to the property On Change and use the button on the right hand side to open the script editor.
24. Now enter the following scripting code:

```
APPLICATION.alert(
    RANGESLIDER_1.DSXGetSelectedValues(0)
    + " to " +
    RANGESLIDER_1.DSXGetSelectedValues(1)
);
```

Script Details

The script show above will receive the selected values from the Range Slider handles and then display the two values in form of an alert message.

25. Click OK to close the scripting editor.
26. Navigate to the menu Application • Save.
27. Select the menu Application • Execute Locally.

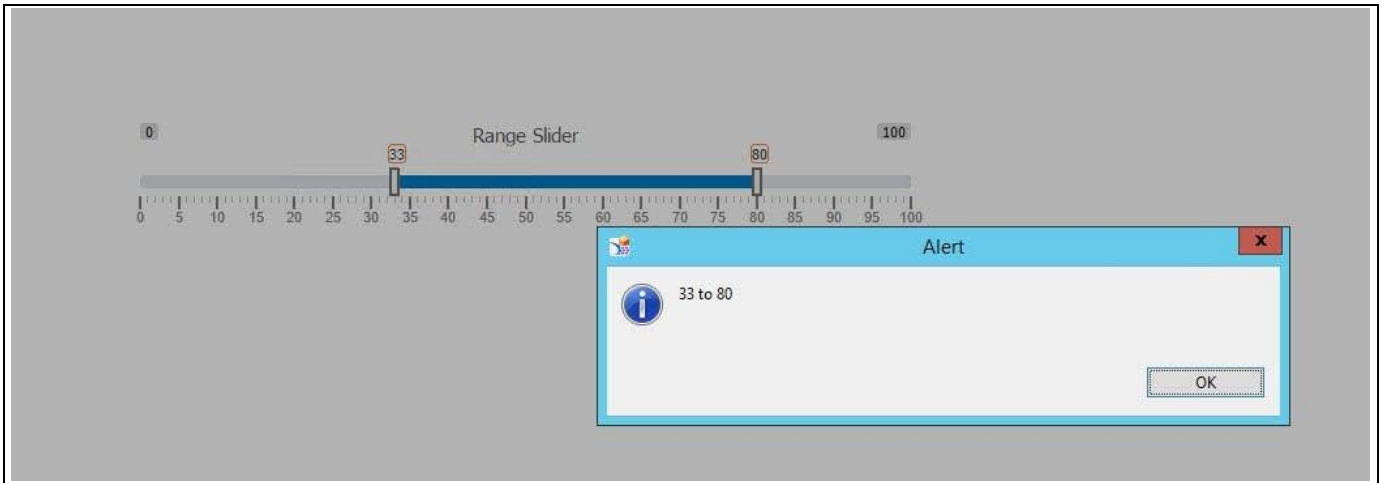


Figure 5.175: Range Slider

Your Range Slider should be shown in a browser windows and each time you navigate one of the slider handles you will receive an alert message with the current range values as message text (see Figure 5.175).

5.12.4 How to use the Range Slider – Number Type

In addition to using the Range Slider with type Number based on static information, you can also configure the type Number to be based on an assigned data source.

To create a new Range Slider with type Number based on a data source, please follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a new Range Slider from the VBX Selectors to your project.
3. Add a data source to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Range Slider.
5. Select the Range Slider and navigate to the Additional Properties. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
6. Navigate to the category General and to the sub category Filter Settings.
7. In the area General Settings set the Slider Type property to the value Dual.
8. Navigate to the category Data and to the sub category Slider Configuration (see Figure 5.176).
9. In the area Live Data set the Data Type property to the option Number.

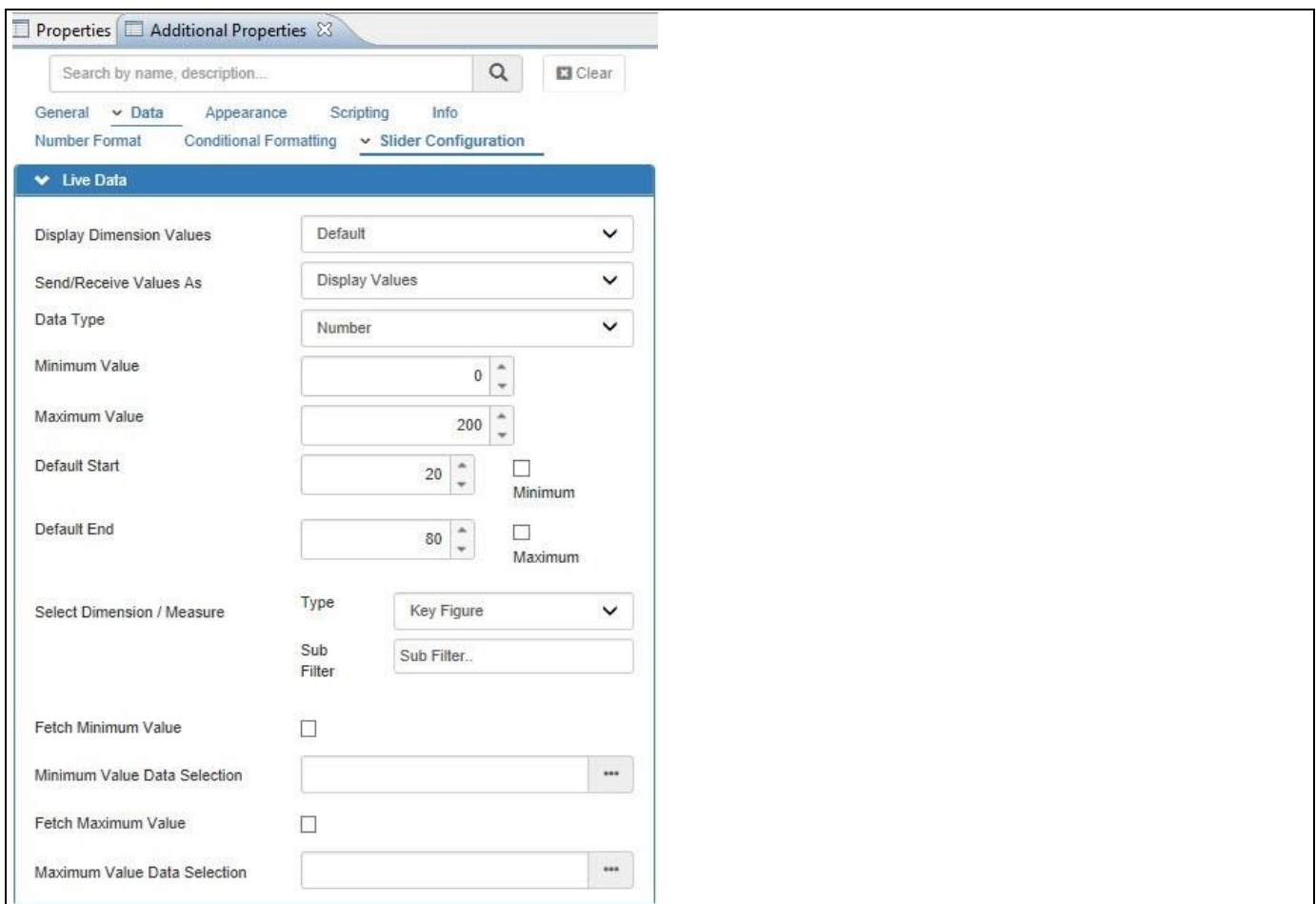


Figure 5.176: Category Data

10. You can now use the Select Dimension / Measure property to select a key figure from the underlying data source as source for the Range Slider.
11. Select the option Key Figure for the property Select Dimension / Measure.
12. Click on the option Sub Filter and select a Key Figure from the assigned data source.

13. You can now use the options in the Live Data area to define the details:

- Fetch Minimum Value: By activating this option the Range Slider will use the minimum value based on the assigned key figure as minimum value for the slider.
- Minimum Value Data Selection: This option allows you to select a data cell from the assigned data source as minimum value for the Range Slider.
- Fetch Maximum Value: By activating this option the Range Slider will use the maximum value based on the assigned key figure as maximum value for the slider.
- Maximum Value Data Selection: This option allows you to select a data cell from the assigned data source as maximum value for the Range Slider.

14. Activate the option to fetch the minimum and maximum value based on the assigned data source.

You should now have a Range Slider of type Number based on key figure values from an assigned data source.

5.12.5 How to use the Range Slider – Date Type

In the following section we will outline the steps that are required to setup a new Range Slider as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project based on a defined date range.

To create a new Range Slider follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a new Range Slider from the VBX Selectors to your project.
3. For our example we do not need a data source because the Range Slider will be based on static information.
4. Select the Range Slider and navigate to the Additional Properties. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
5. Navigate to the category General and to the sub category Filter Settings.
6. In the area General Settings set the Slider Type to the option Single.
7. Navigate to the category Data and to the sub category Slider Configuration.
8. In the area Live Data set the Data Type property to the option Date. This option allows you to base the Range Slider on a date based timeframe (see Figure 5.177).

The screenshot shows the 'Additional Properties' window for a 'Range Slider - Date'. The window has tabs for 'General', 'Data', 'Appearance', 'Scripting', and 'Info'. The 'Data' tab is selected, and the 'Slider Configuration' sub-tab is active. The 'Live Data' section contains fields for 'Data Type' (set to 'Date'), 'Minimum Value' (10.1.2017), 'Maximum Value' (10.10.2017), 'Default Start' (10.3.2017), and 'Default End' (10.7.2017). The 'Date Values' section contains fields for 'Date Value Granularity' (set to 'Date'), 'Input Value Format' (m.d.yyyy), 'Display Value Format' (m.d.yyyy), and 'Return Value Format' (m.d.yyyy). There are also checkboxes for 'Minimum' and 'Maximum' values.

Figure 5.177: Range Slider – Date

9. You can now configure the detailed behavior of the Range Slider using the following properties:
- **Minimum Value:** Here you can define the minimum value of the Range Slider. The value needs to be entered following the Slider Date Input Format.
 - **Maximum Value:** Here you can define the maximum value of the Range Slider. The value needs to be entered following the Slider Date Input Format.
 - **Default Start:** Here you can define Default Start value for a Dual Range Slider. The value needs to be entered following the Slider Date Input Format.
 - **Default End:** Here you can define Default End value for a Dual Range Slider and the Default Value for a Single Slider. The value needs to be entered following the Slider Date Input Format.
 - **Display Value Format:** This property allows you to specify the Display Format for the date value. Possible values are shown in Table 5.61.
 - **Input Value Format:** This property allows you to specify the Input Format for the date value. Possible values are shown in Table 5.61.
 - **Return Value Format:** This property allows you to specify the Return Format for the date value. Possible values are shown in Table 5.61.
 - **Date Value Granularity:** This property allows to set the granularity of the slider. The options are Date, Month, Quarter, and Year.
 - **Slider Step:** Navigate to the category General and to the sub category Filter Settings. In the area General Settings you can define the increment value for the property Slider Step that is being used when the slider value is changed.

Value Option	Description
d	Single digit day value.
dd	Double digit day value.
D	Short day name. For example Mon, Tue, Wed
DD	Full day name.
m	Numeric single digit month value.
mm	Numeric double digit month value.
M	Short month name, for example Jan, Feb.
MM	Full month name.
q	Numeric single digit quarter number.
Q	Numeric single digit quarter number with the prefix 'Q'.
yy	Double digit year value.
yyyy	Four digit year value.

Table 5.61: Date Value Placeholders

10. For our example we will set the property Input Value Format to the value “dd.mm.yyyy”.
11. Set the property Display Value Format to the value “D M dd”.
12. Set the property Return Value Format to the value “yyyymmdd”.
13. Set the property Min Value to the value 01.12.2017 for December 1st 2017.
14. Set the property Max Value to the value 31.12.2017 for December 1st 2017.
15. Set the property Default End to the value 15.12.2017 for December 15th 2017.
16. In the category General set the Slider Step option to the value 1.
17. Your Range Slider should look similar to Figure 5.178.

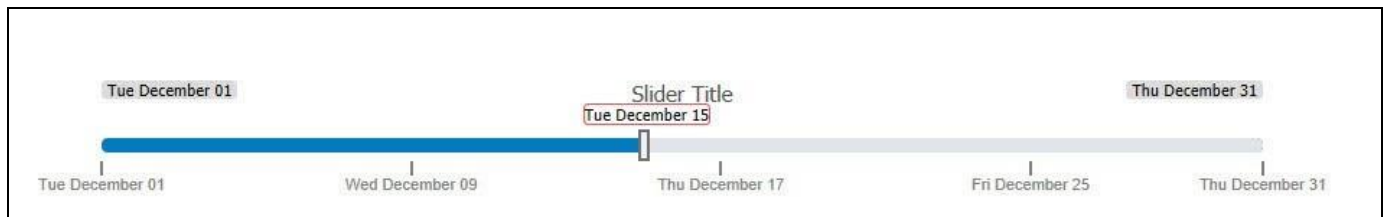


Figure 5.178: Range Slider

18. Navigate to the category Appearance and to the sub category Slider Scale of the Additional Properties (see Figure 5.179)

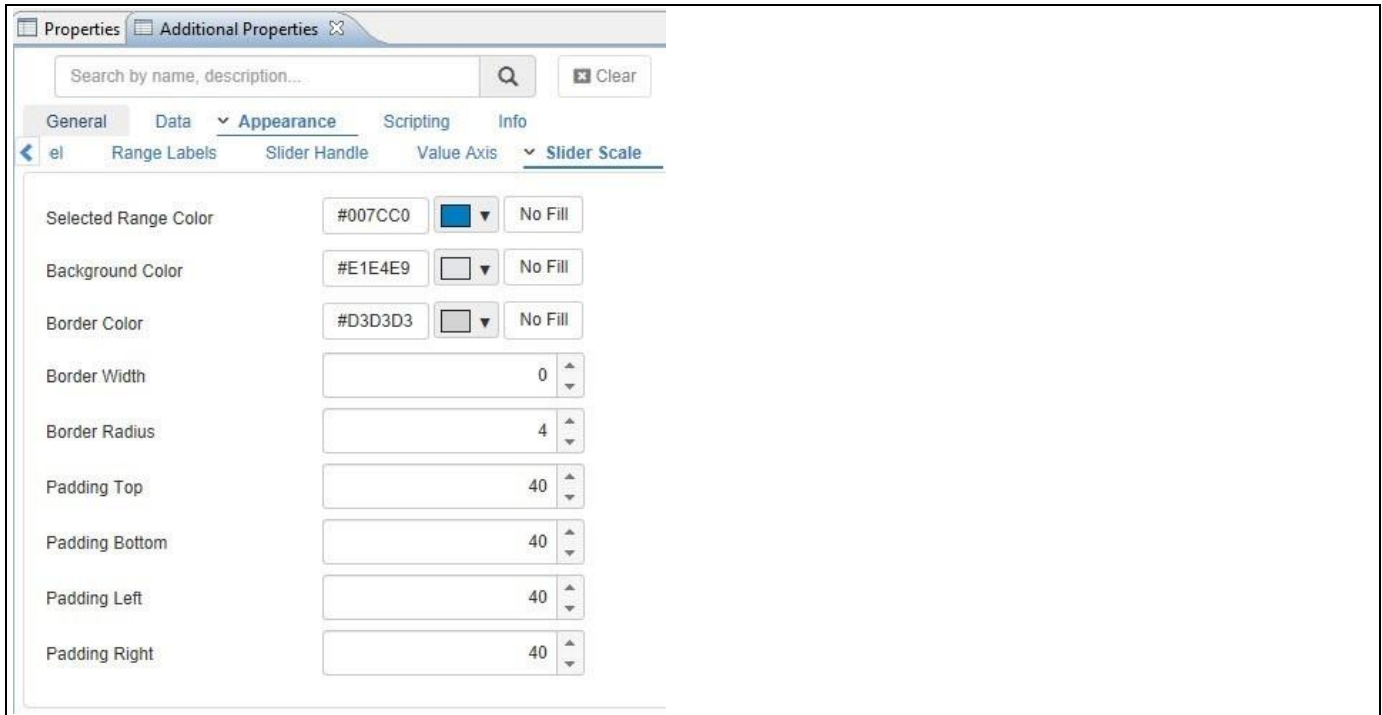


Figure 5.179: Slider Properties

19. Set the property Selected Range Color to the same color value as the Background Color.
20. Navigate to the category General and to the sub category Filter Settings in the Additional Properties.
21. In the area Title, set the Title Text to the value Date Value.
22. Navigate to the category Appearance and to the sub category Value Axis in the Additional Properties.
23. Ensure the Major and Minor Ticks are enabled.
24. In the area Major Ticks, set the Major Ticks Interval to the value 5.
25. In the area Minor Ticks, set the Minor Ticks Interval to the value 1.
26. Your Range Slider should look similar to Figure 5.180.

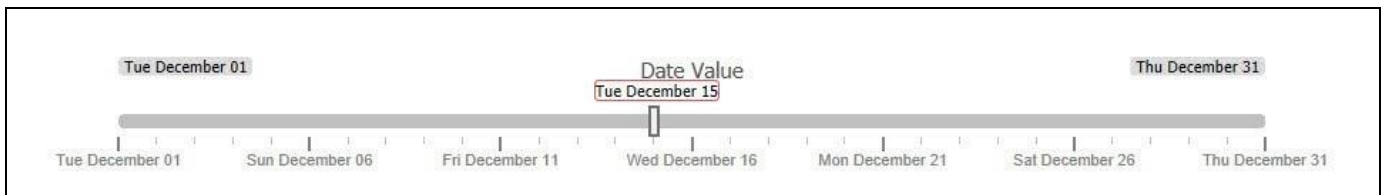


Figure 5.180: Range Slider

27. Navigate to the category Scripting.
28. Click next to the property On Change and use the button on the right hand side to open the script editor.

29. Now enter the following scripting code:

```
APPLICATION.alert(  
    RANGESLIDER_1.DSXGetSelectedValue()  
);
```

Script Details

The script shown above will receive the selected value from the Range Slider and display the value in form of an alert message displaying the value in the specified format based on the property Slider Date Return Format.

30. Click OK to close the scripting editor.
31. Navigate to the menu Application • Save.
32. Select the menu Application • Execute Locally.

5.12.6 How to use the Range Slider – Data Points Type

In the following section we will outline the steps that are required to setup a new Range Slider as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project based on an assigned data source. For our example we will configure the Range Slider to leverage a dimension from an assigned data source. We will use a data source which contains one dimension and two measures. Our data set looks similar to the Table shown below.

Product	Revenue	Cost
Product A	947	60
Product B	1044	58
Product C	991	57
Product D	945	53
Product C	568	71

Table 5.62: Sample Dataset

To create a new Range Slider follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a new Range Slider from the VBX Selectors to your project.
3. Assign the data source to the Range Slider.
4. Select the Range Slider and navigate to the Additional Properties. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
5. Navigate to the category General and to the sub category Filter Settings.
6. In the area General Settings set the Slider Type to the option Single.
7. Navigate to the category Data and to the sub category Slider Configuration.
8. In the area Live Data set the Data Type property to the option Data Points. This option allows you to base the Range Slider either on manually entered data or use a data source in combination with the Range Slider (see Figure 5.181).

Properties | Additional Properties

Search by name, description... [Clear]

General | **Data** | Appearance | Scripting | Info

Number Format | **Slider Configuration**

Live Data

Display Dimension Values: Default

Send/Receive Values As: Display Values

Data Type: Data Points

Default Start: 1 ☐ Minimum

Default End: 3 ☐ Maximum

Data Points: Add a Data point [Add]

Point 1 [X]

Point 2 [X]

Point 3 [X]

Point 4 [X]

Point 5 [X]

Figure 5.181: Slider Type – Data Points

9. In case you would like to use static information, you can use the Add Data Points option now to manually enter data.
10. Navigate to the category Data and to the sub category Slider Configuration(see Figure 5.182).

Properties | Additional Properties

Search by name, description... [Clear]

General | **Data** | Appearance | Scripting | Info

Number Format | **Slider Configuration**

Live Data

Display Dimension Values: Default

Send/Receive Values As: Display Values

Data Type: Data Points

Default Start: 1 ☐ Minimum

Default End: 3 ☐ Maximum

Data Points: Add a Data point [Add]

Point 1 [X]

Point 2 [X]

Point 3 [X]

Point 4 [X]

Point 5 [X]

Select Dimension / Measure: Type: Dimensions [X] Sub Filter: Sub Filter..

Figure 5.182: Category Data

11. In the area Live Data you can now configure the property Select Dimension / Measure.
12. You have the following options available to you:
 - Dimensions: Using this option you can select one of the available dimension from the assigned data source and the member of the dimension will be used to define the Range Slider.
 - Dimension List: Using this option the Range Slider will be configured with the list of dimensions as the scale.
13. Set the option Select Dimension / Measure to the value Dimensions.
14. Click on the Sub Filter (see Figure 5.183).



Figure 5.183: Select Dimension

15. You can now select a dimension from the list of available dimensions based on the data source. In our example we will select dimension Product.

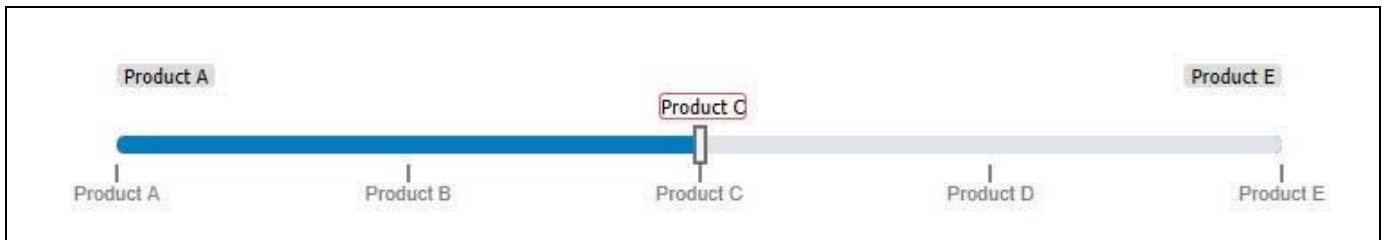


Figure 5.184: Range Slider

16. The Range Slider will display all the dimension members and you are now able to navigate between those members and use the selected dimension member for filtering.

5.12.7 How to use the Range Slider – Conditional Formatting

In the following section we will outline the steps that are required to setup a Conditional Formatting for a Range Slider based on static numeric data. The steps for the Conditional Formatting are similar for the other types of Range Slider – Data Points and Date – and can be applied to the slider in a similar way.

To create a new Range Slider follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a new Range Slider from the VBX Selectors to your project.
3. For our example we do not need a data source because the Range Slider will be based on static information.
4. Select the Range Slider and navigate to the Additional Properties. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
5. Navigate to the category General and to the sub category Filter Settings.
6. In the area General Settings set the Slider Type to a Dual slider.
7. Navigate to the category Data and to the sub category Slider Configuration.
8. In the area Live Data set the Data Type property to the option Number. This option allows you to base the Range Slider on static information.
9. Enter 0 for the Minimum Value and 200 for the Maximum Value.
10. Set the Default Start property to the value 50.
11. Set the Default End property to the value 100.
12. Navigate to the category Data.
13. Scroll down to the sub category Conditional Formatting (see Figure 5.185).

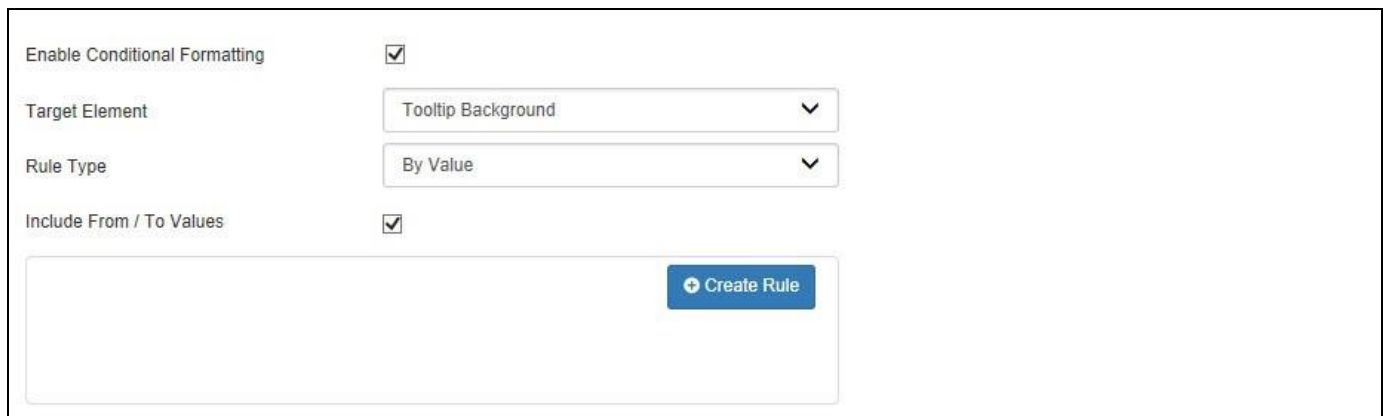


Figure 5.185: Conditional Formatting

14. Activate the option Enable Conditional Formatting.
15. You can configure different Target Elements as part of the conditional formatting:
 - Handle Background
 - Tooltip Background
 - Scale Background
 - Range Background
16. For our example we will use the option Scale Background for the property Target Element
17. The property Type provides you with three options to define the Conditional Formatting:
 - By Value: Here you can define numeric ranges.
 - By Percent: Here you can define ranges based on percentage values in relation to the maximum.
 - By Target Percent: Here you can enter a Target Value and then define ranges based on percentage values in relation to the defined Target Value.
18. For our example we will use the option By Percent (see Figure 5.186).

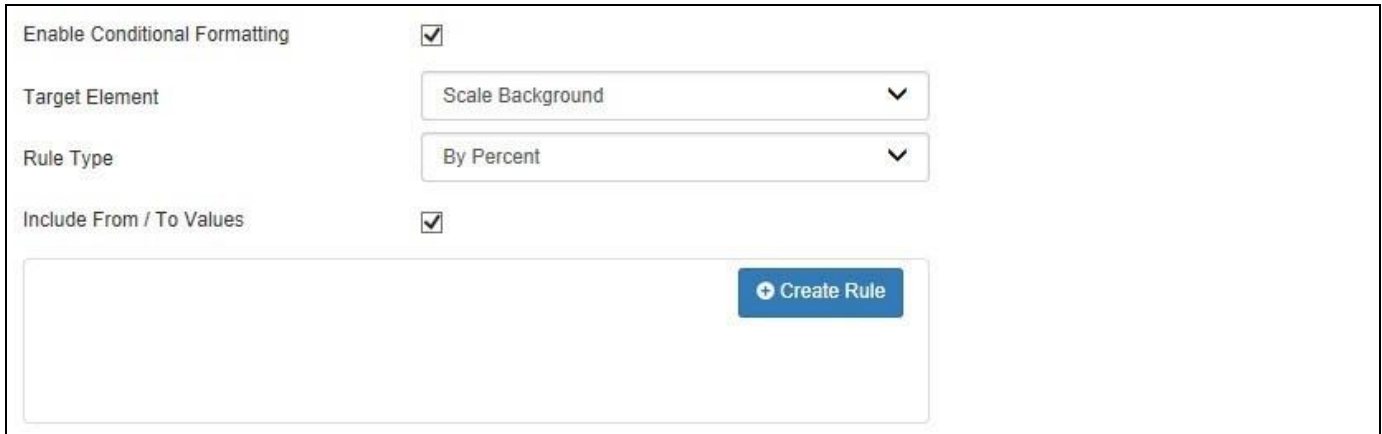


Figure 5.186: Conditional Formatting By Percent

19. Click Create Rule (see Figure 5.187).

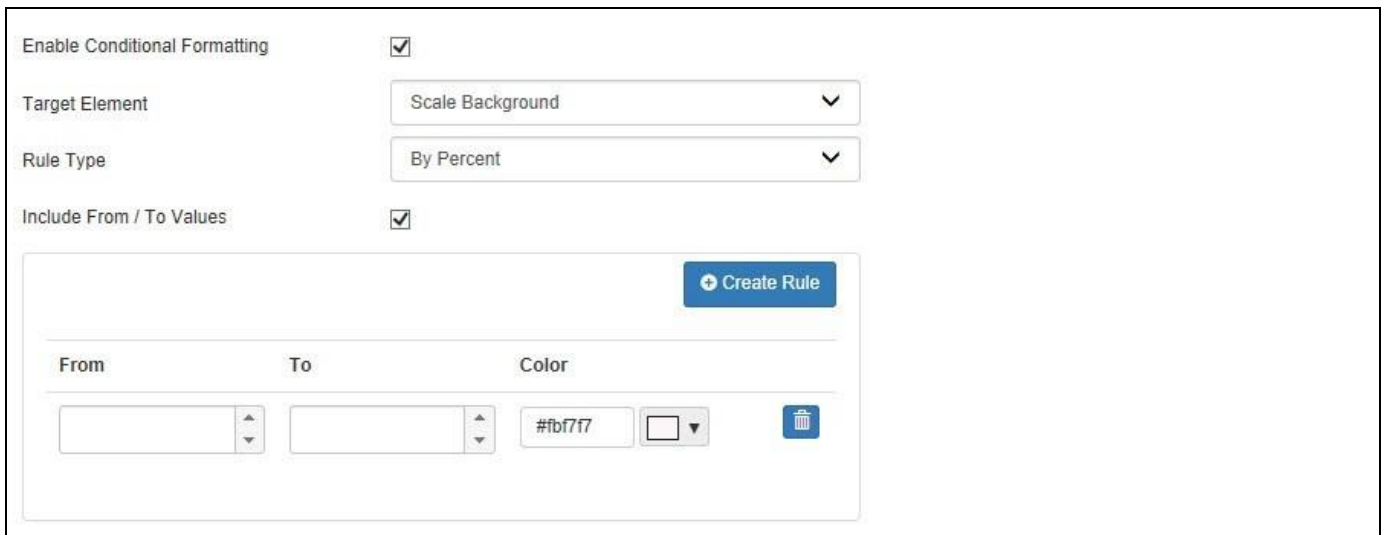


Figure 5.187: Conditional Formatting Rule

20. You can now setup multiple rules and define a color for the scale background for each of the rules.

21. For our example we will setup the following rules: (see Figure 5.188)

- From value 0 to value 25 we will show color red.
- From value 26 to value 50 we will show color orange.
- From value 51 to value 75 we will show color yellow.
- From value 76 to value 100 we will show color green.

Enable Conditional Formatting
☒

Target Element
Scale Background

Rule Type
By Percent

Include From / To Values
☒

Create Rule

From	To	Color
0	25	#ff0000
26	50	#ff8040
51	75	#ffff00
76	100	#008080

Figure 5.188: Conditional Formatting Rules

22. After this configuration our Range Slider should look similar to Figure 5.189.

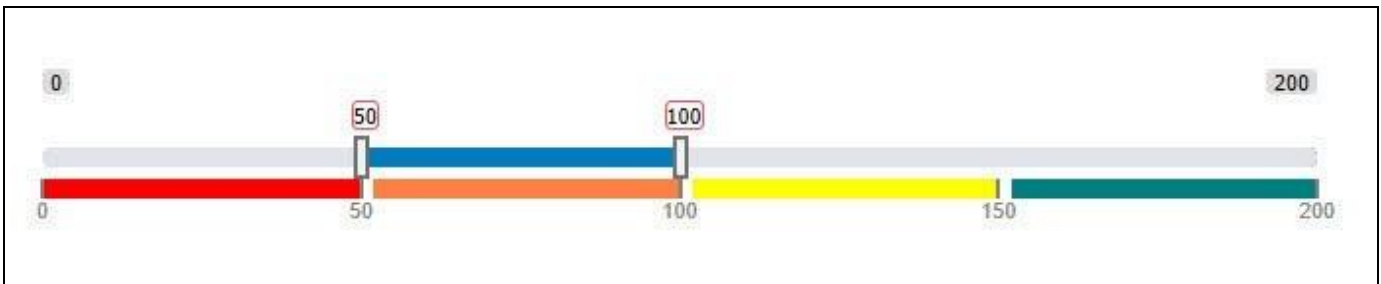


Figure 5.189: Range Slider

5.12.8 Additional Properties of the Range Slider

In the following sections we will outline the Additional Properties of the Range Slider.

5.12.8.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Area	Property	Description
Filter Settings	General Settings	Slider Type	Here you can choose between a Single and a Dual Range Slider.
		Slider Orientation	Here you can set a horizontal or a vertical orientation for the Range Slider.
		Slider Direction	This property allows you to configure either a Normal direction or a Reversed direction for the Range Slider.
		Slider Step	Here you can define the value increment with each step.
		Sort Data Points	This property allows you to set the option for Sort Data Points. The options are Ascending and Descending.
		Range Draggable	This property allows you to enable / disable the option, that the selected range can be dragged along the slider scale.
		Minimum Distance between Handles	Here you can configure a minimum range width for a Dual Range Slider.
		Maximum Distance between Handles	Here you can configure a maximum range width for a Dual Range Slider.
	Title	Enable Filter Title	This property allows you to enable / disable the Title.
		Title Text	Here you can set the title text.
		Font Family	Here you can set the font family for the title text.
		Font Size	Here you can set the font size for the title text.
		Font Color	Here you can set the font color for the title text.
		Font Style	Here you can set the font style for the title text.
		Horizontal Alignment	This property allows you to configure the Horizontal Alignment.
		Vertical Alignment	This property allows you to configure the Vertical Alignment.
		Horizontal Offset	Here you can set the horizontal offset of the title relative to its default alignment.

Sub category	Area	Property	Description
		Vertical Offset	Here you can set the vertical offset of the title relative to its default alignment.

Table 5.63: Category General

5.12.8.2 Category Data

Below you can find the details for the Additional Properties in the category Data.

Sub category	Area	Property	Description
Number Format	Tooltip	No of Decimals	Here you can define the number of decimals for numeric values.
		Decimal Separator	Sets the decimal separator for the values. Available options are 'dot' and 'comma'.
		Thousand Separator	Sets the thousand separator for the values. Available options are 'dot' and 'comma'.
		Enable Scaling Factor	Enables you to display the scaling factor for the data.
		Scaling Factor	Set the specified Scaling Factor (valid only if the Enable Scaling Factor option is Enabled).
		Show Unit/Currency	Enables the display of Unit or Currency for the data.
		Prefix	Here you can add a prefix to the tooltip value.
		Suffix	Here you can add a suffix to the tooltip value.
Conditional Formatting		Enable Conditional Formatting	This property allows you to enable / disable the Conditional Formatting options for the Range Slider.
		Target Element	This property allows you to define the target element for the Conditional Formatting rules. Available options are Handle Background, Tooltip Background, Scale Background, and Range Background.
		Rule Type	This property allows you to set the Conditional Formatting type. You can choose between By Value, By Percent, or By Target Percent.
		Include From/To Values	This property allows you to enable / disable the option to include From and To value in conditional formatting calculation.
Slider	Live Data	Display Dimension	This property allows you to choose the

Sub category	Area	Property	Description
Configuration		Values	display values for the dimension members. The options are Key, Text, Key and Text, Text and Key. The option Default will display the members based on the setting in the initial view.
		Send/Receive Values As	This property allows you to select whether the dimensions value should be passed as key or text as same as display type.
		Data Type	This options allows you to configure the type of Range Slider. The options are Number, Date, or Data Points. Number : with this option the Range Slider will be based on static numeric data. Date: with this option the Range Slider can be configured with a date range. Data Points: with this option the Range Slider can be bound to a data source.
		Minimum Value	Here you can configure the minimum value of the Range Slider.
		Maximum Value	Here you can configure the maximum value of the Range Slider.
		Default Start	Here you can configure the default value of the start of the selected range, in case of a Dual Range Slider.
		Default End	Here you can configure the default value of the end of the selected range, in case of a Dual Range Slider. In addition here you can define the default value for a Single Range Slider.
		Select Dimension/Measure	Using this property you can select the following options: Key Figure: This setting will allow you to select a key figure as source for the Range Slider. Dimensions: This setting allows you to display the dimension member for a configured dimension as values for the Range Slider. Dimension List: This setting allows you to display all dimensions (not dimension members) as values for the Range Slider.
		Fetch Minimum Value	With this property you can enable / disable the option to retrieve the minimum value based on the assigned data source. This property can only be

Sub category	Area	Property	Description
			configured for the slider type Number.
		Minimum Value Data Selection	This property allows you to configure a data selection for the minimum value. This property can only be configured for the slider type Number.
		Fetch Maximum Value	With this property you can enable / disable the option to retrieve the maximum value based on the assigned data source. This property can only be configured for the slider type Number.
		Maximum Value Data Selection	This property allows you to configure a data selection for the maximum value. This property can only be configured for the slider type Number.
	Date Values	Date Value Granularity	Here you can configure the granularity of the Range Slider with type Date. The options are: Year, Quarter, Month, or Date.
		Input Value Format	With this property you can configure the Input Format for the date values of the Range Slider. For possible values, please see Table 5.61.
		Display Value Format	With this property you can configure the Display Format for the date values of the Range Slider. For possible values, please see Table 5.61.
		Return Value Format	With this property you can configure the Return Format for the date values of the Range Slider. For possible values, please see Table 5.61.
	Static Data	Enable Static Data	This property allows you to enable / disable the usage of static data for the Range Slider. You can define the static data in the category General of the Additional Properties.

Table 5.64: Category Data

5.12.8.3 Category Appearance

Below you can see the Additional Properties for the category Appearance and their descriptions.

Sub category	Area	Property	Description
Filter	General Settings	Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
		Background Color	Here you can set the background color for the Range Slider.
		Border Width	Here you can set the border width for the Range Slider.
		Border Color	Here you can set the border color for the Range Slider.
		Border Radius	Here you can set the border radius for the Range Slider.
		Padding Top	Here you can configure the space between the top of the slider and the content.
		Padding Right	Here you can configure the space between the right of the slider and the content.
		Padding Left	Here you can configure the space between the left of the slider and the content.
		Padding Bottom	Here you can configure the space between the bottom of the slider and the content.
Value Label	General	Enable Value Label	This property allows you to enable / disable the Tooltips.
		Font Family	Here you can set the font family for the Tooltips.
		Font Size	Here you can set the font size for the Tooltips.
		Font Color	Here you can set the font color for the Tooltips.
		Font Style	Here you can set the font style for the Tooltips.
		Background Color	Here you can set the background color for the Tooltips.

Sub category	Area	Property	Description
		Border Color	Here you can set the border color for the Tooltips.
		Border Radius	Here you can set the border radius for the Tooltips.
		Border Width	Here you can set the border width for the Tooltips.
	Minimum	Horizontal Alignment	Here you can configure the horizontal alignment of the minimum Tooltip value.
		Vertical Alignment	Here you can configure the vertical alignment of the minimum Tooltip value.
		Horizontal Offset	Here you can configure the offset along the X-axis for the minimum Tooltip value.
		Vertical Offset	Here you can configure the offset along the Y-axis for the minimum Tooltip value.
	Maximum	Horizontal Alignment	Here you can configure the horizontal alignment of the maximum Tooltip value.
		Vertical Alignment	Here you can configure the vertical alignment of the maximum Tooltip value.
		Horizontal Offset	Here you can configure the offset along the X-axis for the maximum Tooltip value.
		Vertical Offset	Here you can configure the offset along the Y-axis for the maximum Tooltip value.
Range Labels	General	Enable Range Labels	Here you can enable the range labels showing the minimum and the maximum value on the far left and far right of the Range Slider.
		Font Family	Here you can set the font family for the range labels.
		Font Size	Here you can set the font size for the range labels.
		Font Color	Here you can set the font color for the range labels.
		Font Style	Here you can set the font style for the range labels.
		Border Color	Here you can set the border color for the range labels.
		Border Width	Here you can set the border width for the range labels.
		Border Radius	Here you can set the border radius for the range labels.
	Minimum	Background Color	This property allows you to configure the background color for the minimum range label.

Sub category	Area	Property	Description
		Horizontal Offset	Here you can set the offset X for minimum range label.
		Vertical Offset	Here you can set the offset Y for minimum range label.
		Prefix	Here you can add a prefix to the minimum range label value.
		Suffix	Here you can add a suffix to the minimum range label value.
	Maximum	Background Color	This property allows you to configure the background color for the maximum range label.
		Horizontal Offset	Here you can set the offset X for maximum range label.
		Vertical Offset	Here you can set the offset Y for maximum range label.
		Prefix	Here you can add a prefix to the maximum range label value.
		Suffix	Here you can add a suffix to the maximum range label value.
Slider Handle		Length	Here you can set the Slider Handle Length.
		Thickness	Here you can configure the Slider Handle Thickness.
		Background Color	Here you can set the background color for the Slider Handle.
		Border Color	Here you can set the border color for the Slider Handle.
		Border Width	Here you can set the border width for the Slider Handle.
		Border Radius	Here you can set the border radius for the Slider Handle.
Value Axis	Axis Label	Font Family	Here you can set the font family for the tick labels.
		Font Size	Here you can set the font size for the tick labels.
		Font Color	Here you can set the font color for the tick labels.
		Font Style	Here you can set the font style for the tick labels.
		Horizontal Alignment	Here you can set the horizontal alignment for the tick labels.
		Vertical Alignment	Here you can set the vertical alignment for the tick labels.

Sub category	Area	Property	Description
		Label Offset	Here you can configure the offset value to the ticks for the tick labels.
		Rotation	Here you can set the rotation for the tick labels.
	Minor Ticks	Enable Minor Ticks	Here you can enable the minor ticks.
		Minor Ticks Interval	Here you can set the minor tick interval.
		Minor Ticks Length	Here you can set the length for the minor ticks.
		Minor Ticks Width	Here you can set the width for the minor ticks.
		Minor Ticks Position	This property allows to configure the position of the configured ticks. The options are Top / Bottom for a horizontal slider and Left / Right for a vertical slider.
		Minor Ticks Offset	This property allows you to configure the offset to the slider for the configured ticks.
		Minor Ticks Color	Here you can set the color for the minor ticks.
	Major Ticks	Enable Major Ticks	Here you can enable the major ticks.
		Major Ticks Interval	Here you can set the major tick interval.
		Major Ticks Length	Here you can set the length for the major ticks.
		Major Ticks Width	Here you can set the width for the major ticks.
		Major Ticks Color	Here you can set the color for the major ticks.
Slider Scale		Selected Range Color	Here you can set the color for the Selected Range.
		Background Color	Here you can set the background color for the Slider.
		Border Color	Here you can set the border color for the Slider.
		Border Width	Here you can set the border width for the Slider.
		Border Radius	Here you can set the border radius for the Slider.
		Padding Top	Here you can configure the space between the top of the slider bar and the content.
		Padding Bottom	Here you can configure the space between the bottom of the slider bar and the content.

Sub category	Area	Property	Description
		Padding Left	Here you can configure the space between the left of the slider bar and the content.
		Padding Right	Here you can configure the space between the right of the slider bar and the content.

Table 5.65: Category Appearance

5.12.9 Scripting Functions for the Range Slider

The following Table outlines the available scripting functions for the Range Slider component.

Function / Method	Description
DSXGetBackgroundColor()	This function allows you to return the Background color of the slider.
DSXGetDataPoints()	This function allows you to return the manually entered data points of the slider.
DSXGetDataTypeValue()	This function allows you to return the data type value of the slider.
DSXGetEndValue()	This function allows you to return the end value of the slider.
DSXGetMaximumValue()	This function allows you to return the maximum value of the slider.
DSXGetMinimumValue()	This function allows you to return the minimum value of the slider.
DSXGetSelectedRangeColor()	This function allows you to return the color for the selected range.
DSXGetSelectedValue()	This function allows you to return the selected value for a Single slider.
DSXGetSelectedValues()	This function allows you to return the selected values for a Dual slider. The function is using a zero based index as input parameter.
DSXGetStartValue()	This function allows you to return the Start Value of the slider.
DSXGetTitleText()	This function allows you to return the Title Text.
DSXSetBackgroundColor()	This function allows you to set the Background Color for the slider.
DSXSetDataPoints()	This function allows you to set a list of static data points for the slider.
DSXSetDataSelection()	This function allows you to define a data selection for the slider.
DSXSetDataTypeValue()	This function allows you to set the Data Type value for the slider.
DSXSetEndValue()	This function allows you to set the End Value for the slider.
DSXSetMaximumValue()	This function allows you to set the Maximum Value for the slider.
DSXSetMinimumValue()	This function allows you to set the Minimum Value for the slider.
DSXSetSelectedRangeColor()	This function allows you to set the color for the Selected Range.
DSXSetSelectedValue()	This function allows you to configure the Selected Value for the Slider. This function is for a Single slider.
DSXSetSelectedValues()	This function allows you to configure the Selected Value for the Slider. This function is for a Dual slider and is using a zero based index.
DSXSetSliderDateDisplayFormat()	This function allows you to set the format for the Date Display Format.
DSXSetSliderDateInputFormat()	This function allows you to set the format for the Date Input Format.
DSXSetSliderDateReturnFormat()	This function allows you to set the format for the Date Return Format.
DSXSetStartValue()	This function allows you to set the Start Value for the slider.
DSXSetTitleEnable()	This function allows you to enable / disable the Title for the slider.
DSXSetTitleText()	This function allows you to set the Title Text.

Function / Method	Description
DSXGetSelectedValuesFloat()	This function allows you to return the Selected value of the given handle index.
DSXGetSelectedValueInt()	This function allows you to return the Selected value of the Selection as an Integer.
DSXGetSelectedValueFloat()	This function allows you to return the Selected value of the Selection as Float.
DSXOnChange()	This function allows you to set the On Change event.

Table 5.66: Scripting Functions

5.12.10 Events for the Range Slider

The following Table outlines the available events for the Range Slider component.

Event	Description
On Change	Using this event, you can enable interaction with the component by writing scripts. The On Change event is triggered each time the value of the Range Slider is changed.

Table 5.67: Events

5.13 Time Slicer

5.13.1 Time Slicer – Overview

Currently the Range Slider allows the user to choose between Number, Date, and Live data and the user can then set either a single value or a range for the slider. As part of VBX 2.3, a new VBX Component Time Slicer has been included which has the ability to select an "operator" type in a Calendar View as part of the configuration. It includes the below listed operator functions:

- Between
- After
- Before
- Last
- Next
- This
- Period

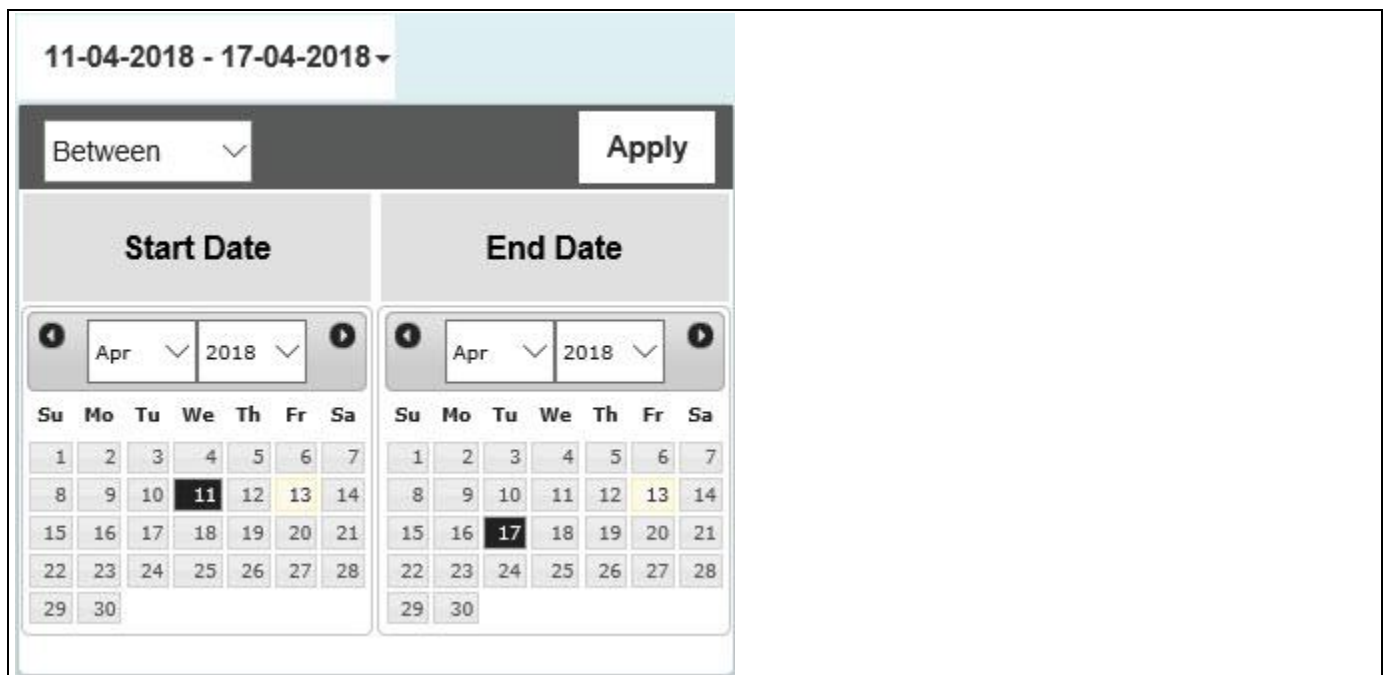


Figure 5.190: Time Slicer

5.13.2 How to use the Time Slicer

In the following section we will outline the steps that are required to setup a new Time Slicer as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

To create a new Time Slicer, follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a new Time Slicer from the VBX Selectors to your project.
3. For our example we do not need a data source because the Time Slicer will be based on static information.
4. Select the Time Slicer and navigate to the Additional Properties. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
5. Navigate to the category General and to the sub category Filter Settings (see Figure 5.191).

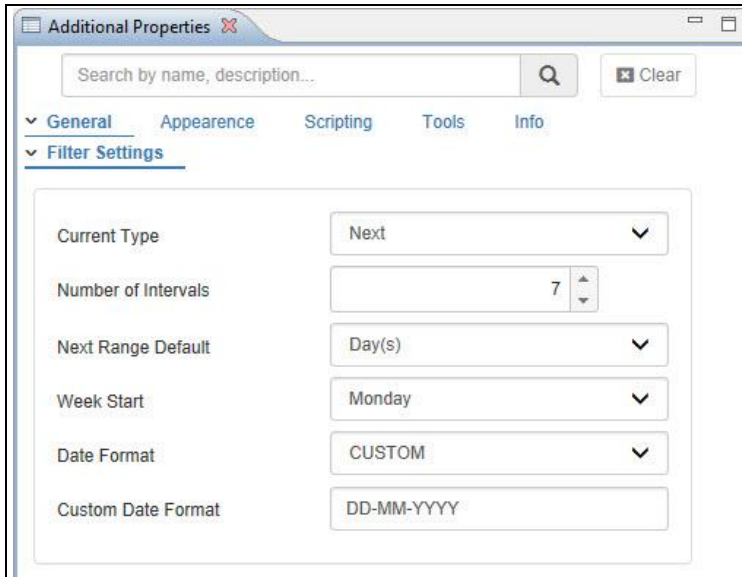


Figure 5.191: Category General

6. In the sub category Filter Settings you can configure the settings for the Time Slicer (see Figure 5.191).
7. Now set the property Current Type to the value “Next”. The other options are Between, After, Before, Last, This and Period.
8. Set the property Number of Intervals to the value 7.
9. Set the property Next Range Default to the value Day(s). The other options are Week(s), Month(s), Quarter(s) and Year(s).
10. Set the property Week Start to the value Monday. The other options are Tuesday, Wednesday, Thursday and Friday.
11. Set the property Date Format to the value DD-MM-YYYY. The other options are MM-DD-YYYY, YYYY-MM-DD, MM, MMMM, YY, YYYY, DD, DDDD and Custom. You can also set the Custom Date Format.
12. Navigate to the category Appearance in the Additional Properties (see Figure 5.192).
13. Set the property Time Slicer Font Size to the value 15.

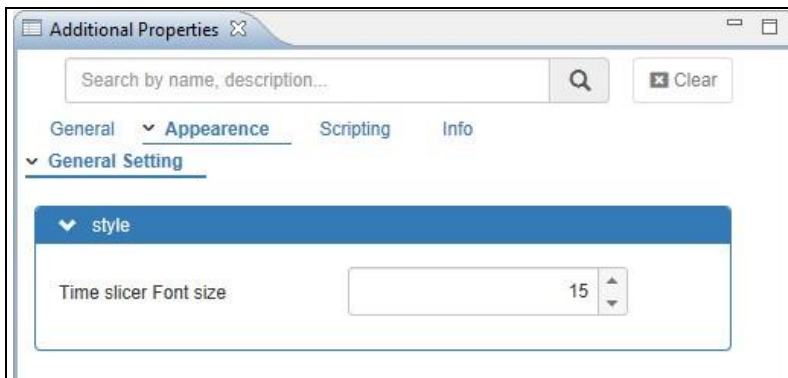
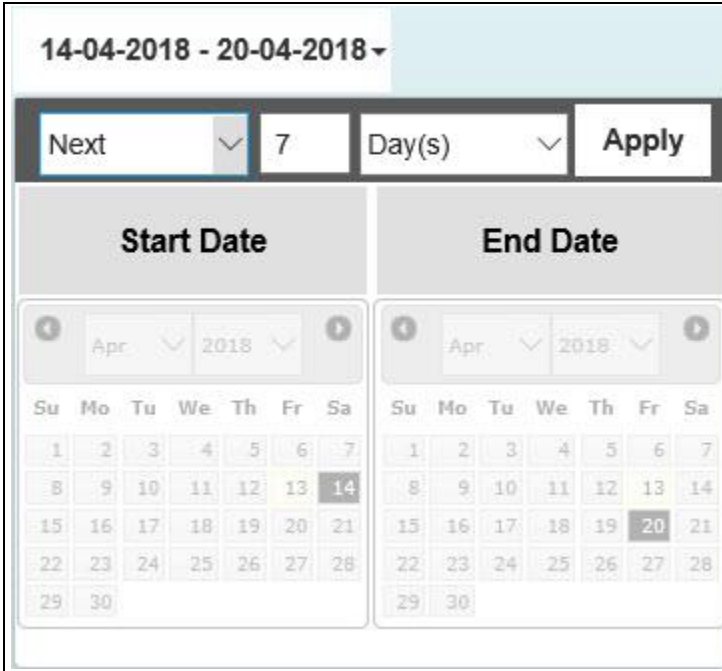


Figure 5.192: Category Appearance

14. Now you can visualize the Time Slicer based on the above configured settings (see Figure 5.193).



14-04-2018 - 20-04-2018

Next 7 Day(s) Apply

Start Date

Apr 2018

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

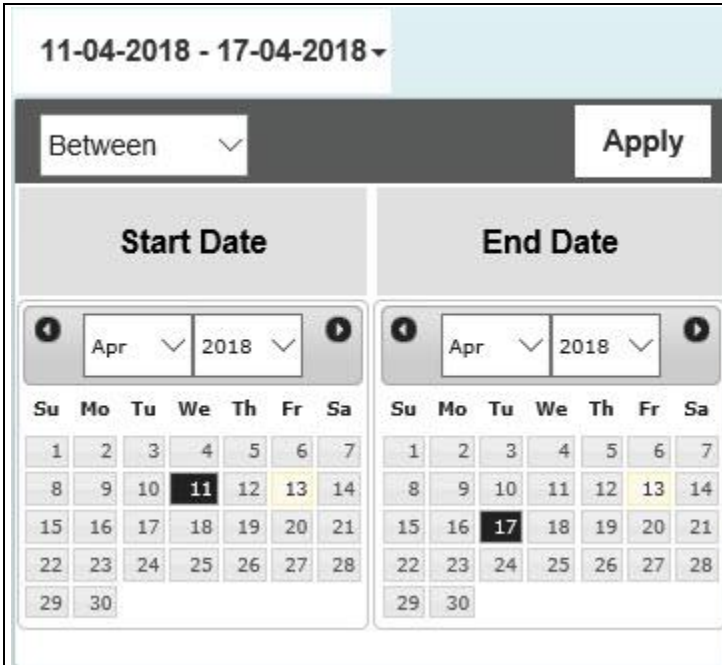
End Date

Apr 2018

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Figure 5.193: Time Slicer - Next operator

- Figure 5.193 shows the Time Slicer with the operator type being selected as “Next”. It configures the calendar view for the next 7 days from the current date 14-04-2018 to 20-04-2018.
- You can also configure the Time Slicer with different operators during runtime as they are shown in the below given figures.



11-04-2018 - 17-04-2018

Between Apply

Start Date

Apr 2018

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

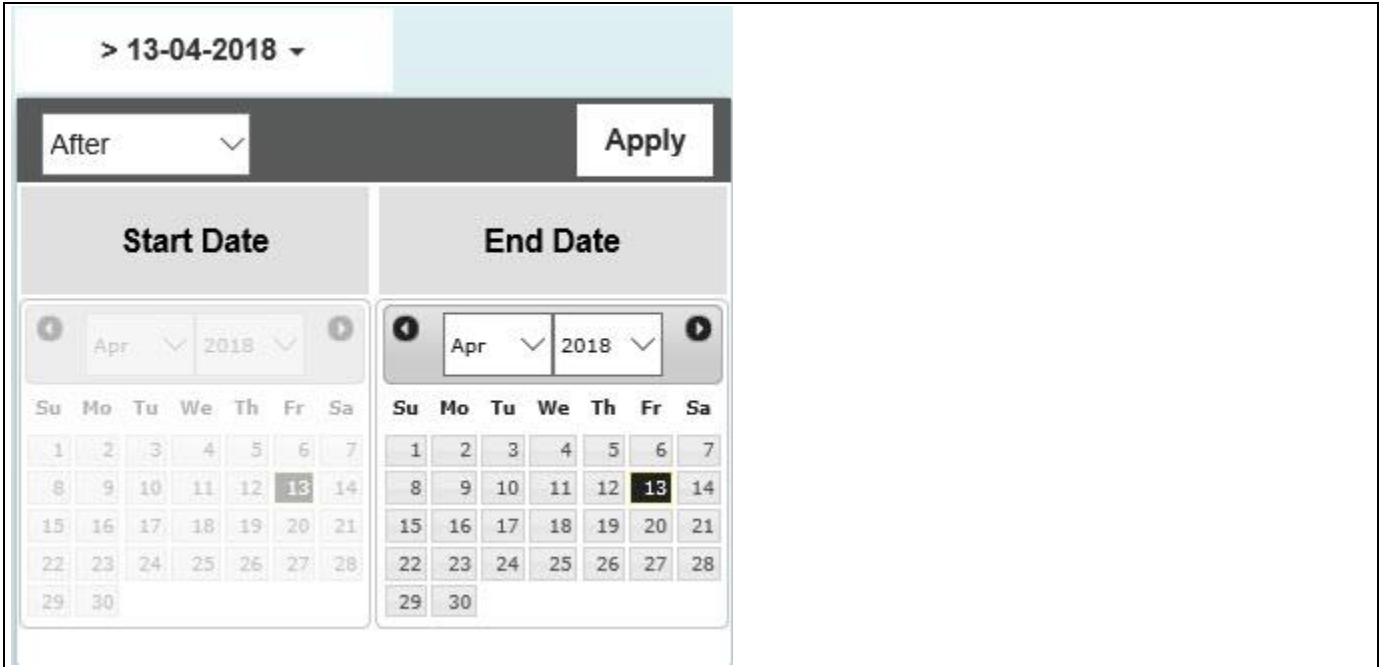
End Date

Apr 2018

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Figure 5.194: Time Slicer - Between operator

- Figure 5.194 shows the Time Slicer with the operator type being selected as “Between”. It configures the calendar view with Start Date value selected as 11-04-2018 and End Date value selected as 17-04-2018.



> 13-04-2018 ▾

After ▾ **Apply**

Start Date

Apr ▾ 2018 ▾

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

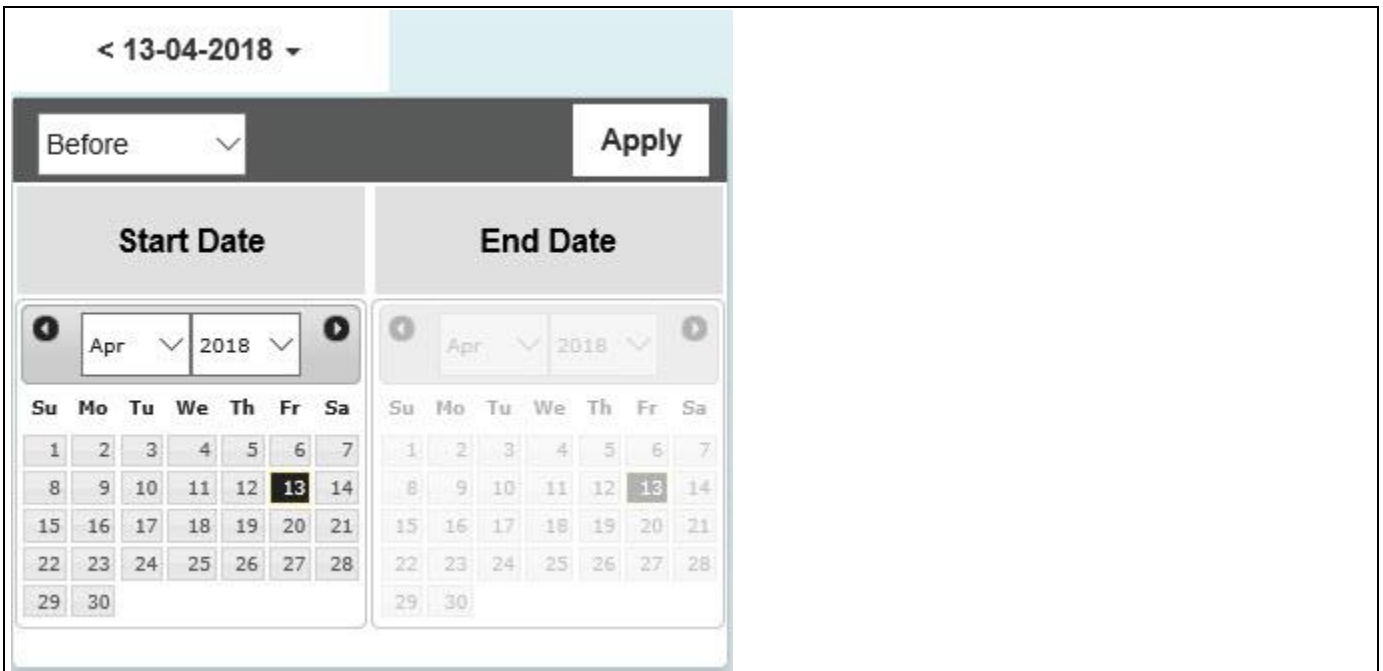
End Date

Apr ▾ 2018 ▾

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Figure 5.195: Time Slicer - After operator

18. Figure 5.195 shows the Time Slicer with the operator type being selected as “After”. It configures the calendar view with current Date value selected as 13-04-2018 and shows all the dates after the current date.



< 13-04-2018 ▾

Before ▾ **Apply**

Start Date

Apr ▾ 2018 ▾

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

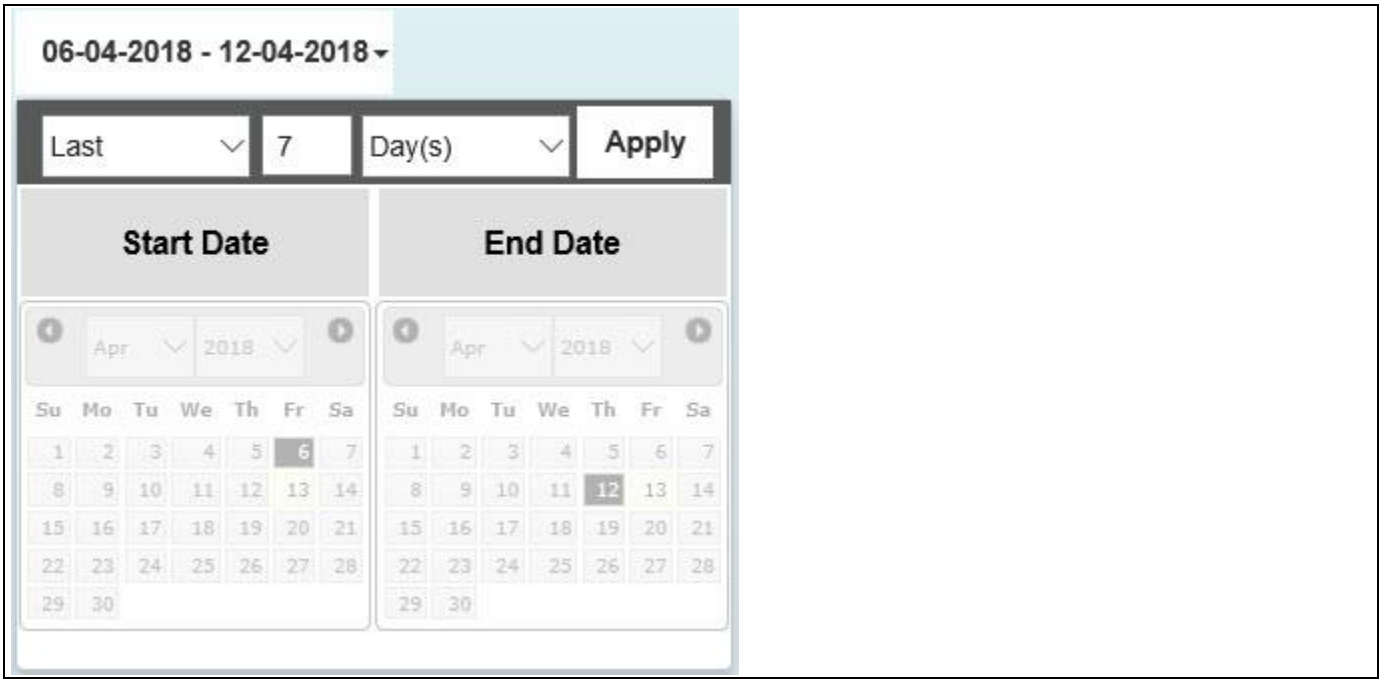
End Date

Apr ▾ 2018 ▾

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Figure 5.196: Time Slicer - Before operator

19. Figure 5.196 shows the Time Slicer with the operator type being selected as “After”. It configures the calendar view with current Date value selected as 13-04-2018 and shows all the dates before the current date.



06-04-2018 - 12-04-2018 ▾

Last ▾ 7 Day(s) ▾ Apply

Start Date

Apr ▾ 2018 ▾

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

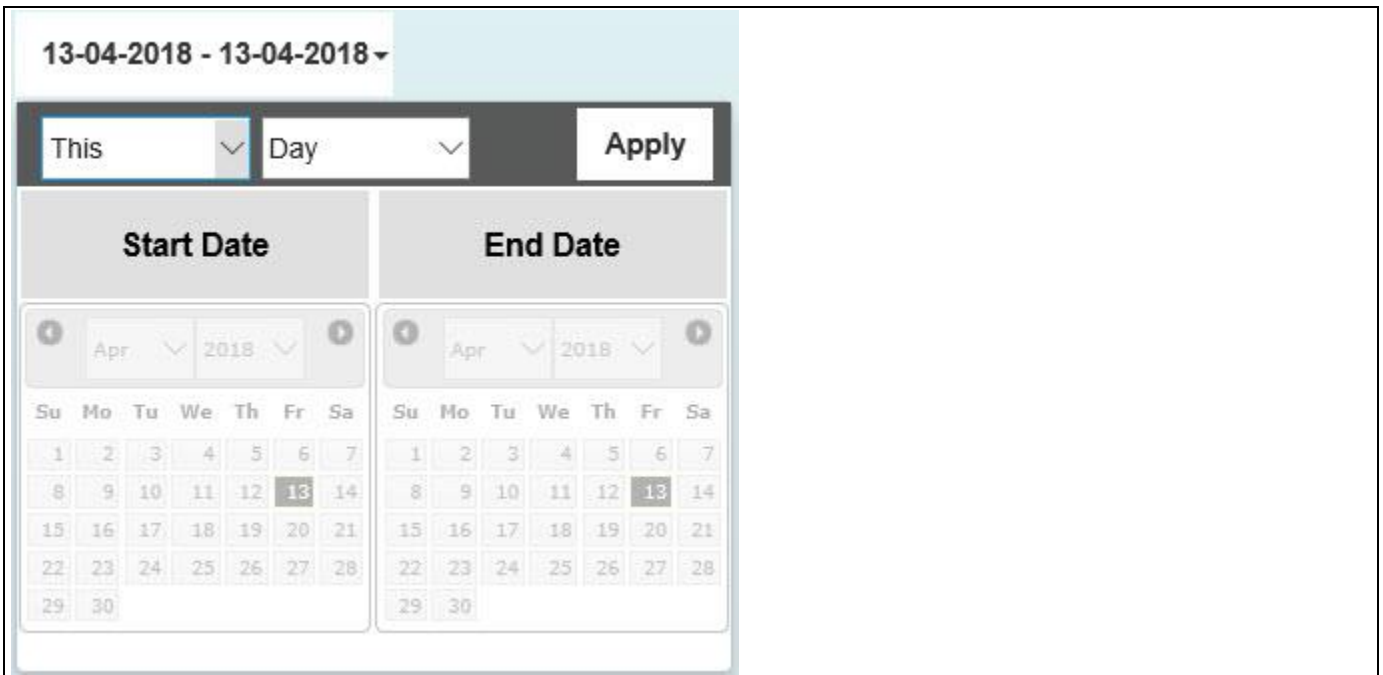
End Date

Apr ▾ 2018 ▾

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Figure 5.197: Time Slicer - Last operator

20. Figure 5.197 shows the Time Slicer with the operator type being selected as “Last”. It configures the calendar view for the last 7 days from 06-04-2018 to the current date 12-04-2018.



13-04-2018 - 13-04-2018 ▾

This ▾ Day ▾ Apply

Start Date

Apr ▾ 2018 ▾

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

End Date

Apr ▾ 2018 ▾

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Figure 5.198: Time Slicer - This operator

21. Figure 5.198 shows the Time Slicer with the operator type being selected as “This”. It configures the calendar view for the current date 13-04-2018.

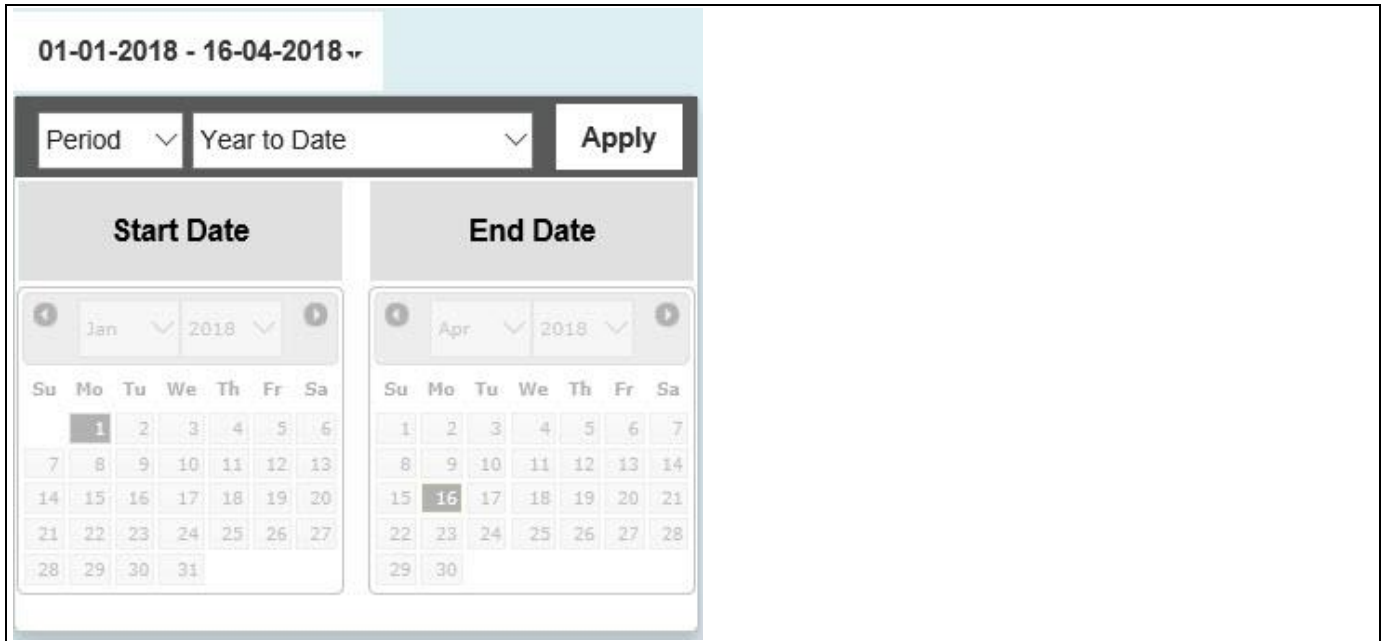


Figure 5.199: Time Slicer – Year to Date Period operator

22. Figure 5.199 shows the Time Slicer with the period operator type being selected as “Year To Date”. It configures the calendar view showing the date range from current year first month beginning date (01-01-2018) to current date (16-04-2018).
23. Similarly, you have different operator options (as listed below) for the Period selection and based on the selected operator, the Time Slicer can be visualized.
 - Month to Date
 - Quarter to Date
 - Last Year Year to Date
 - Last Year Month to Date
 - Last Year Quarter to Date

The Time Slicer selected with different Period operator options during runtime are shown in the below figures.

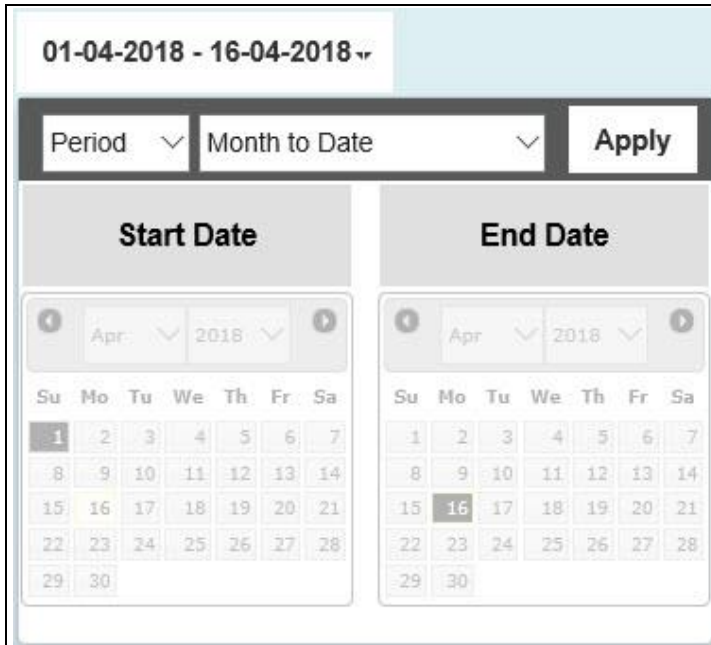


Figure 5.200: Time Slicer – Month to Date Period operator

24. Figure 5.200 shows the Time Slicer with the period operator type being selected as “Month To Date”. It configures the calendar view showing the date range from current month beginning date (01-04-2018) to current date (16-04-2018).

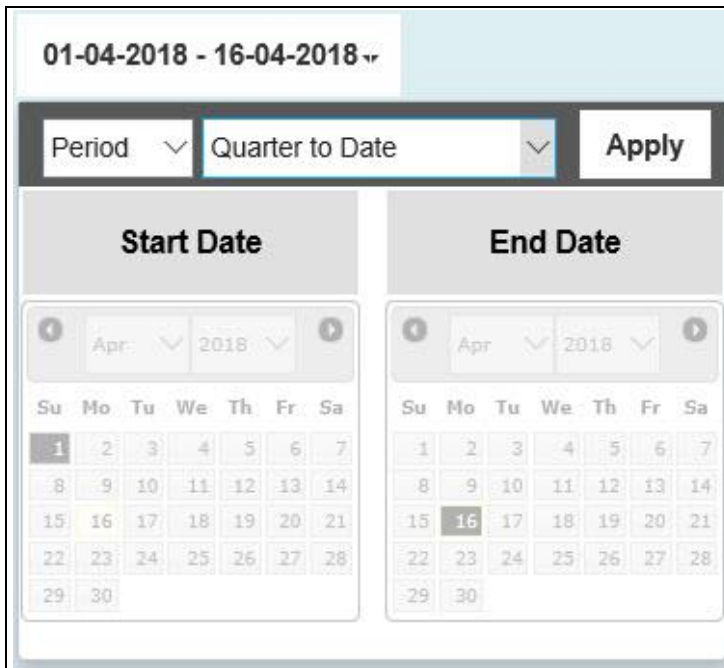
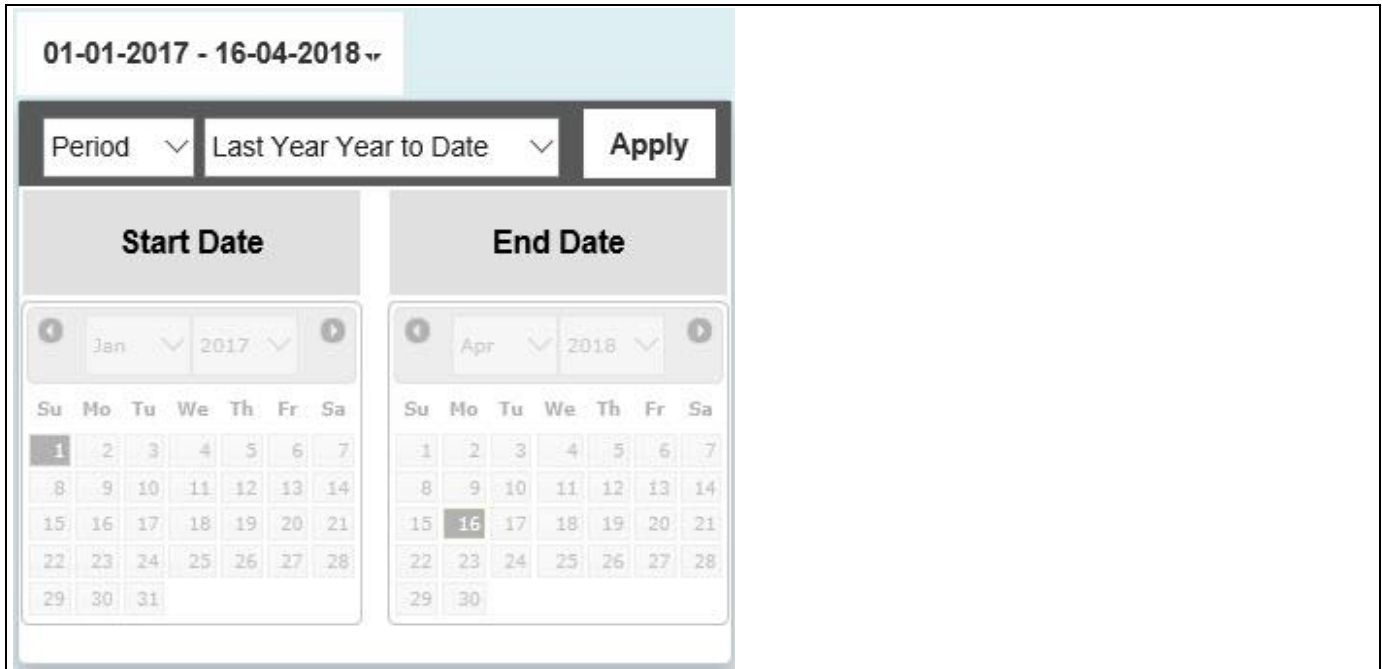


Figure 5.201: Time Slicer – Quarter to Date Period operator

25. Figure 5.201 shows the Time Slicer with the period operator type being selected as “Quarter To Date”. It configures the calendar view showing the date range from current quarter month beginning date (01-04-2018) to current date (16-04-2018).



01-01-2017 - 16-04-2018 ▾

Period ▾ Last Year Year to Date ▾ Apply

Start Date

Jan ▾ 2017 ▾

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

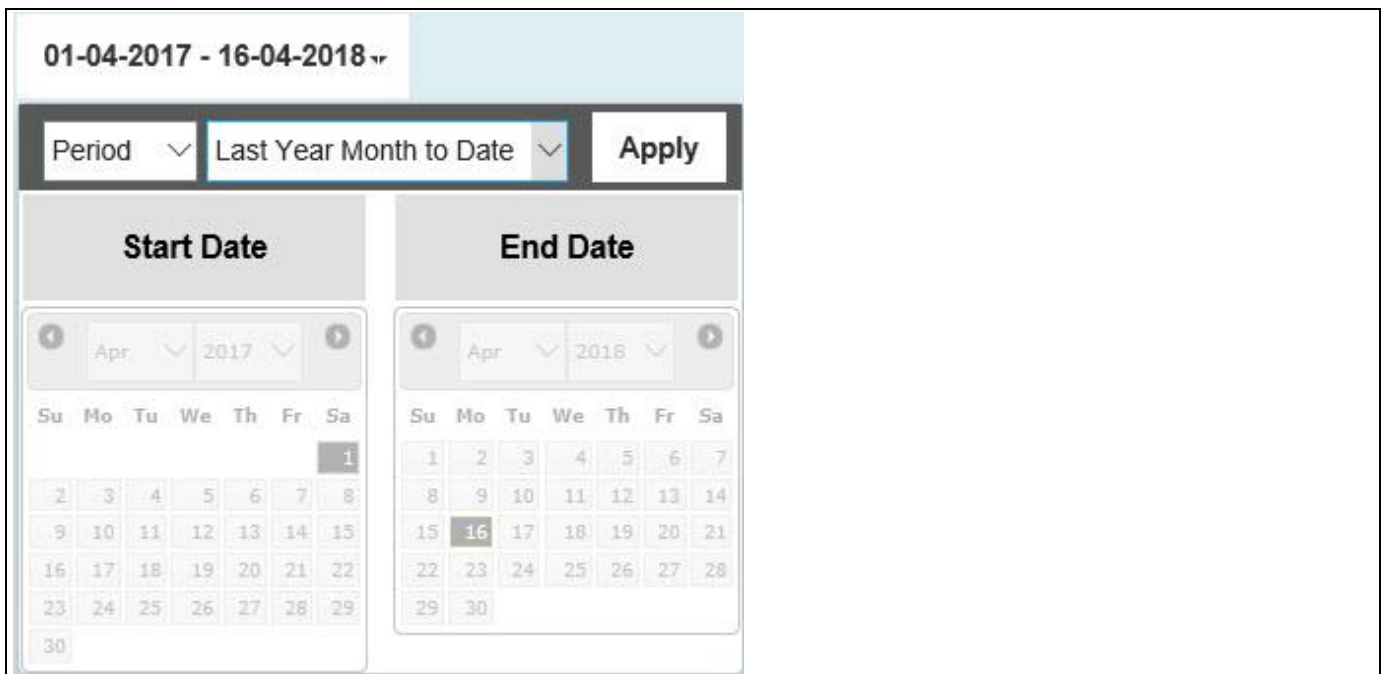
End Date

Apr ▾ 2018 ▾

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Figure 5.202: Time Slicer – Last Year Year to Date Period operator

26. Figure 5.202 shows the Time Slicer with the period operator type being selected as “Last Year Year To Date”. It configures the calendar view showing the date range from the previous year first month beginning date (01-01-2017) to current date (16-04-2018).



01-04-2017 - 16-04-2018 ▾

Period ▾ Last Year Month to Date ▾ Apply

Start Date

Apr ▾ 2017 ▾

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

End Date

Apr ▾ 2018 ▾

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Figure 5.203: Time Slicer – Last Year Month to Date Period operator

27. Figure 5.203 shows the Time Slicer with the period operator type being selected as “Last Year Month To Date”. It configures the calendar view showing the date range from the previous year current month beginning date (01-04-2017) to current date (16-04-2018).

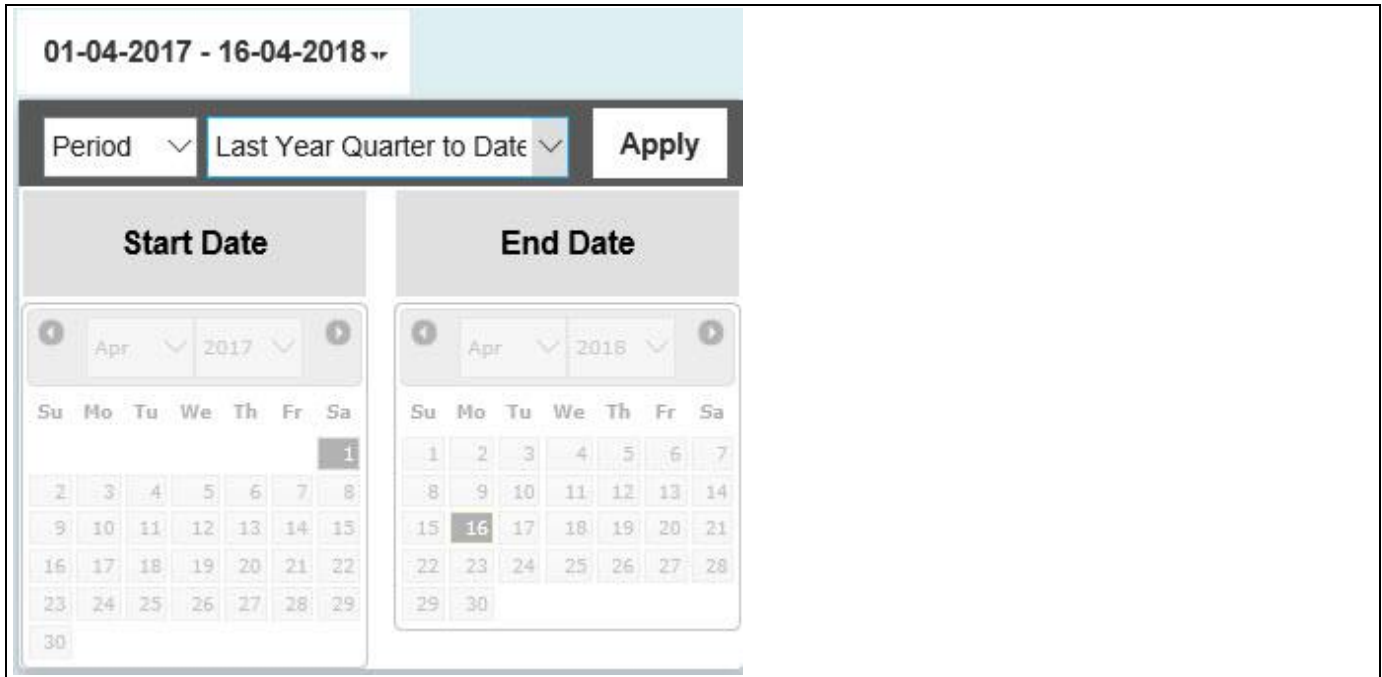


Figure 5.204: Time Slicer – Last Year Quarter to Date Period operator

28. Figure 5.204 shows the Time Slicer with the period operator type being selected as “Last Year Quarter To Date”. It configures the calendar view showing the date range from the previous year current quarter month beginning date (01-04-2017) to current date (16-04-2018).

5.13.3 Configuration of Time Slicer using Scripting Event

1. For our next example to illustrate the Time Slicer component using scripting part, create a new layout in SAP BusinessObjects Design Studio/SAP Lumira Designer project and assign the VBX Components - Time Slicer and a Line Chart to the project. Assign a data source to the Line Chart where the data source has Calendar Days as Dimensions and Progress Values as Measures.
2. Now navigate to the category Scripting in the Additional Properties of the Time Slicer.
3. Use the below script for the event On Change:

```
var a = TIMESLICER_1.DSXGetResultArray();
var value = "";
a.forEach(function(element, index) {
    if (value=="")
    {
        value=element;
    }
});

APPLICATION.alert(value);
DS_1.setFilterExt("0CALDAY",value);
```

4. Based on the above scripting part, you will be able to view the Time Slicer function for the operator type “After” (see Figure 5.205). Here you can observe that the Line Chart will be configured for the dates from 04/01/2017 to 05/23/2017 since the data source has the year values for the calendar year 2017 and months upto May 2017. Similarly you can configure the Time Slicer for different operators using the scripting event.



Figure 5.205: Time Slicer - Scripting

5.13.4 Additional Properties of the Time Slicer

In the following sections we will outline the Additional Properties of the Time Slicer.

5.13.4.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Area	Property	Description
Filter Settings	Filter Settings	Current Type	Here you can set the Current Type. The options are Between, After, Before, Last, Next, This and Period
		Number of Intervals	Here you can set the number of intervals for the Last and Next ranges.
		Last Range Default	This property allows you to configure the Last range value. The options are Day(s), Week(s), Month(s), Quarter(s) and Year(s).
		Next Range Default	This property allows you to configure the Next range value. The options are Day(s), Week(s), Month(s), Quarter(s) and Year(s).
		Current Range Default	This property allows you to configure the Current range value. The options are Day(s), Week(s), Month(s), Quarter(s) and Year(s).
		Period Range Default	This property allows you to configure the Period range value. The options are Year to Date, Month to Date, Quarter to Date, Last Year Year to Date, Last Year Month to Date and Last Year Quarter to Date.
		Week Start	Here you can configure the Week Start Day for the Time Slicer. The options are Monday, Tuesday, Wednesday, Thursday and Friday.
		Date Format	Here you can configure the Date Format for the Time Slicer. The options are DD-MM-YYYY, MM-DD-YYYY, YYYY-MM-DD, MM, MMMM, YY, YYYY, DD, DDDD and Custom.
		Custom Date Format	Here you can configure the customized Date Format for the Time Slicer.

Table 5.68: Category General

5.13.4.2 Category Appearance

Below you can see the Additional Properties for the category Appearance and their descriptions.

Sub category	Area	Property	Description
Filter	General Settings	Time Slicer Font Size	Here you can set the Font Size for the Time Slicer.

Table 5.69: Category Appearance

5.13.5 Scripting Functions for the Time Slicer

The following Table outlines the available scripting functions for the Time Slicer component.

Function / Method	Description
DSXGetOperatorType()	This function allows you to return the Operator Type for the Time Slicer.
DXSGetResultArray()	This function allows you to return the Result Array for the Time Slicer.
DSXGetVisible()	This function allows you to retrieve the visibility of the Time Slicer.
DSXSetPeriodRange()	This function allows you to set the Period Range for the Time Slicer.
DSXSetVisible()	This function allows you to set the visibility of the Time Slicer.

Table 5.70: Scripting Functions

5.13.6 Events for the Time Slicer

The following Table outlines the available events for the Time Slicer component.

Event	Description
On Change	Using this event, you can enable interaction with the component by writing scripts. The On Change event is triggered each time the value of the Time Slicer is changed.

Table 5.71: Events

5.14 MultiSelect Box

As part of VBX Release 2.5, you will be now able to use the MultiSelect Box as a new Selector component (see Figure 5.206). By using the MultiSelect Box, you can set the default Dimension member, configure the dependent data sources, set the maximum members for display and can enable the property static members in the Data Settings Category.

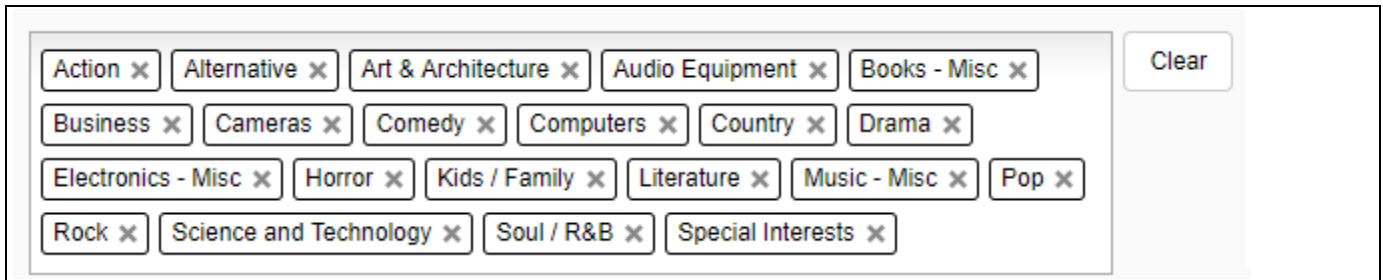


Figure 5.206: MultiSelect Box

5.14.1 Data Source requirements for the MultiSelect Box

The data source requirements for the MultiSelect Box will be a minimum of one dimension and many measures.

5.14.2 How to use the MultiSelect Box

In the following section we will outline the steps that are required to setup a new MultiSelect Box as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

To create a new MultiSelect Box, follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a new MultiSelect Box from the VBX Selectors to your project.
3. Assign the data source to the project where the data source used here have 4 Measures – Discount Amount, Order Amount, Order Cost and Order Quantity and the 2 Dimensions – Item Category and Item Subcategory.
4. Navigate to the category General and to the sub category Filter Settings in the Additional Properties of the MultiSelect Box (see Figure 5.207).

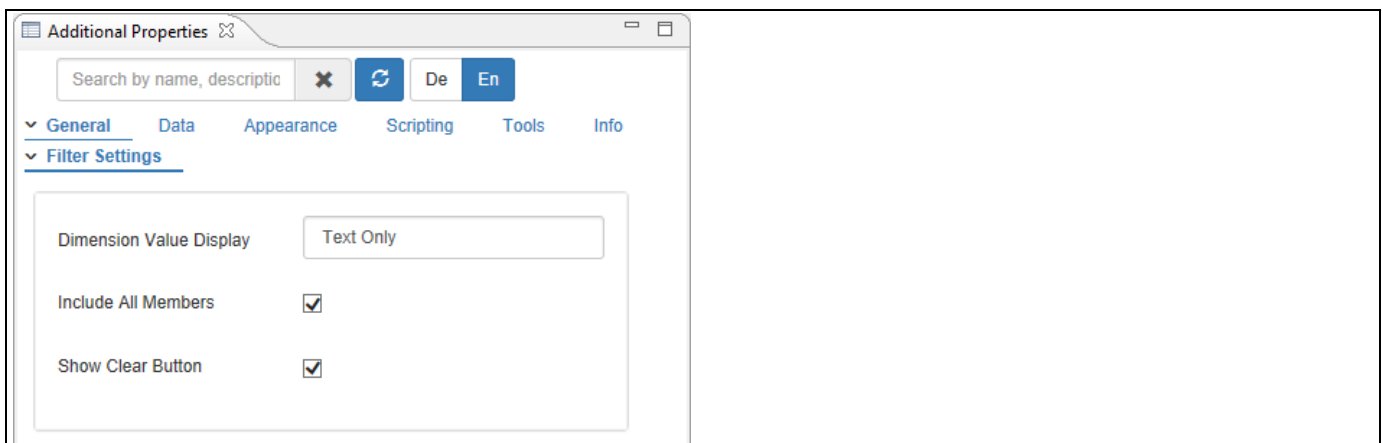


Figure 5.207: Category General

5. For our example, set the property Dimension Value Display to the option Text Only.
6. Activate the property Include All Members.

7. Activate the property Show Clear Button
8. Now navigate to the Category Data and to the Subcategory Data Settings (see Figure 5.208).

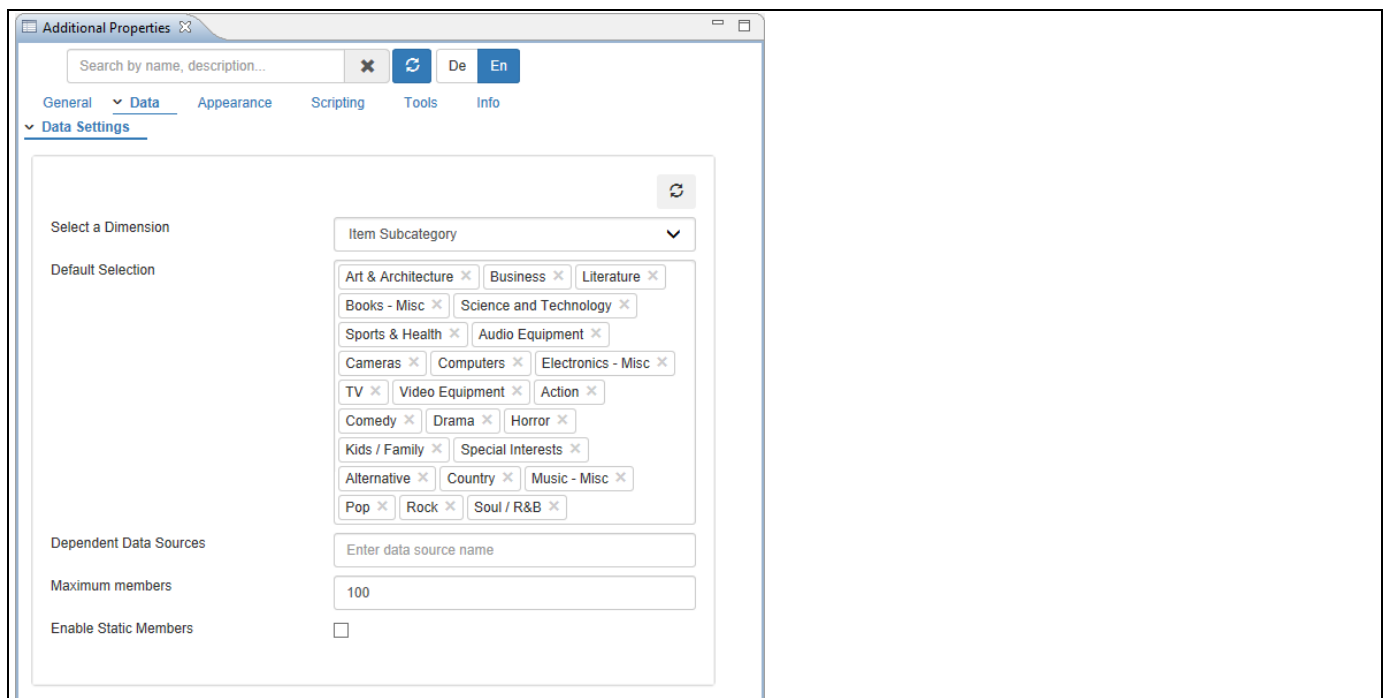


Figure 5.208: Category Data

9. Set the property Select a Dimension to the option Item Subcategory.
10. The property Default selection will be loaded with all the members based on the property **Include All Members** being activated in the Category General.
11. Based on the above set of configuration, you will be able to view the MultiSelect Box being displayed with all the Dimension Members for selection.

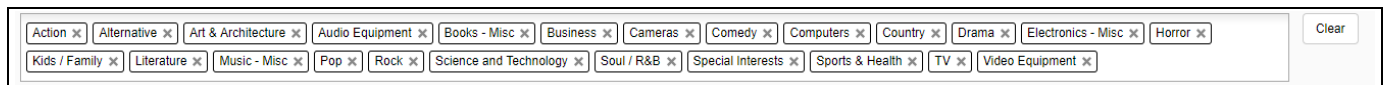


Figure 5.209: MultiSelect Box

You can also configure the property Dependent Data Source in the category Data Settings and use the data from the other data source provided there should be identical Dimension existing in both the data sources. You will be also able to activate the static members to get displayed in the MultiSelect Box by activating the property Enable Static Members in the category Data Settings.

5.14.3 Additional Properties of the MultiSelect Box

In the following sections we will outline the Additional Properties of the MultiSelect Box.

5.14.3.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Property	Details
Filter Settings	Display Dimension Values	Here you can choose how the dimension members will be displayed in the MultiSelect Box. You can choose between Text, Key, Key and Text, Text and Key, and Default. The option Default will display the dimension members based on the configuration in the Initial View.
	Include All Members	This property when activated, the MultiSelect Box will display all the Dimension members for the selected Dimension.
	Show Clear Button	This property when activated, it will show the Clear button near the MultiSelect Box. Once clicked, it will clear all the data being loaded in the MultiSelect box.

Table 5.72: Category General

5.14.3.2

5.14.3.3 Category Data

Below you can see the Additional Properties for the category Data and their descriptions

Sub category	Property	Details
Data Settings	Select a Dimension	Here you can choose a dimension from the assigned data source.
	Default Selection	Here you can choose the default dimension member(s) for the selected dimension to get displayed in the MultiSelect Box in the runtime.
	Dependent Data Source	Here you can use the data from the other data source provided there should be identical Dimension existing in both the data sources.
	Maximum Members	Here you can set the maximum member count from 1 to 100.
	Enable Static Members	When this property is activated, then you can assign the static members to get displayed in the MultiSelect Box.

Table 5.73: Category Data

5.14.3.4 Category Appearance

Below you can see the Additional Properties for the category Appearance and their descriptions.

Sub category	Area	Property	Details
Filter		Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
		Font Family	This property allows to specify the font for the items shown in the MultiSelect Box.
		Font Size	This property allows to specify the font size for the items shown in the MultiSelect Box.
		Font Color	This property allows to specify the font color for the items shown in the MultiSelect Box.
		Font Style	This property allows to specify the font style for the items shown in the MultiSelect Box.
		Background Color	This property allows to specify the background color for the MultiSelect Box.
		Border Color	This property allows to specify the border color for the MultiSelect Box.
		Border Width	This property allows to specify the border width for the MultiSelect Box.
		Filter Box Background Color	This property sets the Background Color for the Filter Box.
Clear Button		Font Family	This property allows to specify the font for the Clear Button.
		Font Size	This property allows to specify the font size for the Clear Button.
		Font Color	This property allows to specify the font color for the Clear Button.
		Font Style	This property allows to specify the font style for the Clear Button.
		Background Color	This property allows to specify the background color for the Clear Button.
		Border Color	This property allows to specify the border color for the Clear Button.

Sub category	Area	Property	Details
		Border Width	This property allows to specify the border width for the Clear Button.

Table 5.74: Category Appearance

5.14.4 Scripting Functions of the MultiSelect Box

The following Table outlines the available scripting functions for the MultiSelect Box component.

Function / Method	Description
DSXIncludeAllMembers()	This function includes all the Dimension Members in the MultiSelect Box.
DSXSetDimension()	This function allows you to set the Dimension that is used to display the members in the MultiSelect Box.
DSXSetSelectedValues()	This function allows you to set the selected values of the MultiSelect Box. The function can set multiple values and the values have to be passed with “,” separated.
DSXClearSelection()	This function allows you to clear any selected items from the MultiSelect Box.
DSXSetTargetDataSource()	This function allows you to set the Target Data Source for the MultiSelect Box.
DSXSetDisplayKeyValueTypes()	This function allows you to set the Key Value Type for the dimension members to get displayed in the MultiSelect Box.
DSXMaximumMember()	This function allows you to set the maximum member count to get displayed in the MultiSelect Box.
DSXEnableStaticMembers()	This function allows you to enable the property for adding the static members in the MultiSelect Box.
DSXAddStaticMembers()	This function allows you to add the static members to get displayed in the MultiSelect Box.
DSXSetDimensionValueDisplay()	This function allows you to set the Value Type for the display of the dimension members in the MultiSelect Box.

Table 5.75: Scripting Functions

5.14.5 Events for the MultiSelect Box

The following Table outlines the available events for the MultiSelect Box component.

Event	Description
On Change	Using this event, you can enable interaction with the component by writing scripts. The On Change event is triggered each time the value of the MultiSelect Box is changed.
On Clear Selection	This script will be triggered when a clear selection triggered either using a script or using the Clear Selection option in the filter.

Table 5.76: Events

6 Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer (VBX) – Utilities

6.1 Utilities Overview

Another part of the Visual BI Extensions (VBX) suite, are the Utilities (listed in Figure 6.1).

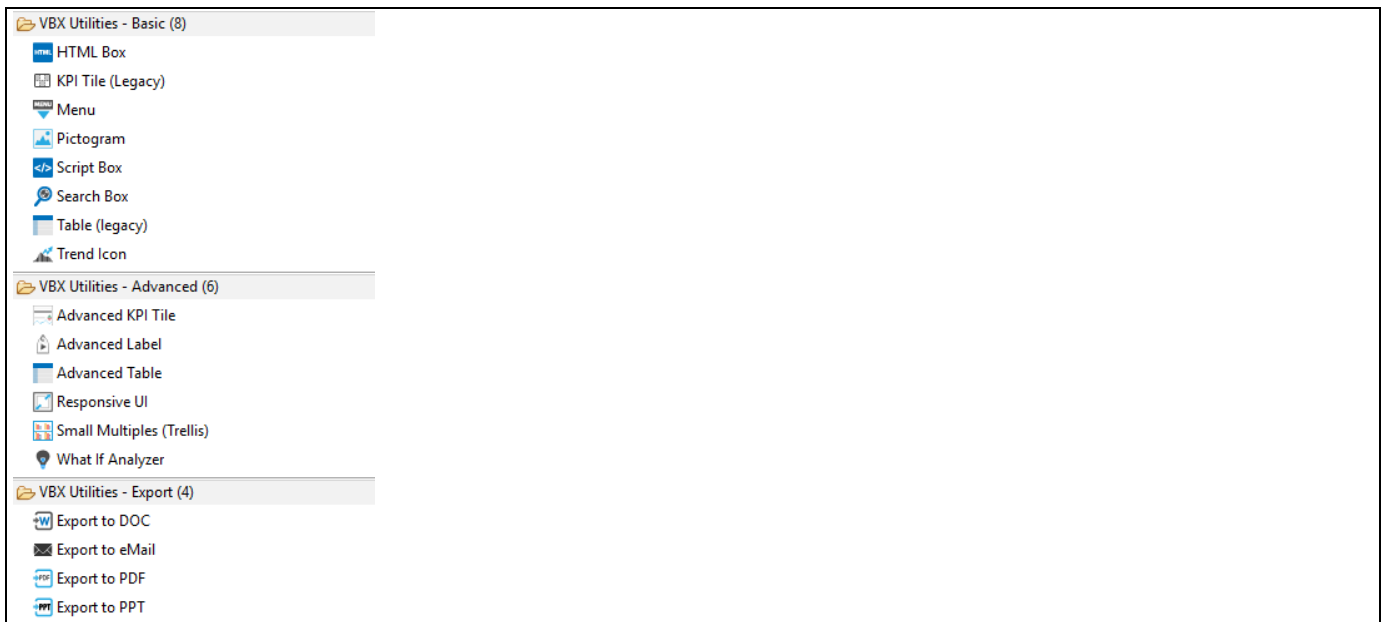


Figure 6.1: VBX Utilities

The VBX Utilities include the following components:

- **Advanced KPI Tile**
The Advanced KPI Tile allows you to create an enhanced KPI Tile with the option to freely define the tile structure and the option to leverage template structures for the content.
- **Advanced Label**
The Advanced Label component provides you with the functionality to display text and use Google Fonts for formatting.
- **Export to DOC**
This component provides you with the option to export your dashboard into the Microsoft Word format.
- **Export to PDF**
This component provides you with the option to export your dashboard into the Adobe PDF format.
- **Export to PPT**
This component provides you with the option to export your dashboard into the Microsoft PowerPoint format.
- **Export to eMail**
This component provides you with the option to export your dashboard and generate an eMail with one step.
- **HTML Box**
The HTML Box components allow the developer to use standard HTML code inside a SAP BusinessObjects Design Studio/SAP Lumira Designer application.
- **KPI Tile**
The KPI Tile allows the dashboard designer to create a tile to display critical measures. In addition to the standard elements, such as a title, header, footer, and value, the KPI Tile also offers the option to integrate a Sparkline chart.

- **Menu**
The Menu Component gives you the ability to add a menu and submenu structure to your dashboard.
- **Pictogram**
The Pictogram component allows you to use icons or images as a visualization and assign data values to those images.
- **Responsive UI**
The Responsive UI component allows you to configure how your dashboard should behave based on screen resolution and screen orientation.
- **Script Box**
With the Script Box the dashboard developer can quickly add Java Script to the dashboard project.
- **Search Box**
The Search Box component provides you the functionality to search an assigned data source and to display the search result as part of your dashboard.
- **Table**
The Table provides the dashboard designer with a Table component with an advanced set of features, such as sorting, integrated search, alerting, calculations, and easy formatting capabilities.
- **Trend Icon**
The Trend Icon component allows the dashboard designer to configure an icon in the dashboard.
- **What-If Analyzer**
The What-if Analyzer allows you to integrate what-if scenarios as part of the overall dashboard and offer such scenarios of the dashboard.
- **XLS Data Source**
The XLS Data Source is a custom data source component offered as a part of the VBX suite which allows the dashboard designer to use Microsoft Excel spreadsheets, Google spreadsheets, and CSV files as data source.
- **Web Service as Data Source**
The new option to use a Web Service as a data source provides you with the option to use SOAP based web services as a data source or to use a BI Web Services based on a Web Intelligence report as a data source.
- **OData as Data Source**
The new option to use OData as a data source provides you with a generic ODATA connectivity, so that a dashboard designer will be able to provide the ODATA URL and can then consume the information as part of any component in Lumira Designer.
- **Constant Data Source**
Using the Constant Data Source option, you can build your own data source structure as the constant data source and assign it for the VBX components.
- **Small Multiples (Trellis) Chart**
The Small Multiples (Trellis) Chart component provides you with the ability to configure a start page with a variety of charts and in addition to define a drill path based on the available dimensions in the assigned data source. Based on the drill path, you will then be able to drill to the next dimension and based on the dimension members the component will then generate one visualization per dimension member.
- **VBX Theme**
Using the VBX Theme component, you will be able to visualize all the VBX Components applying different types of Themes from the Standard Properties. The Themes are Fiori, Metro Dark, Metro Light and Material.
- **Data Merge Component**
The Data Merge Component as a Custom Data Source Component performs the Merge and Join operations.

6.2 Advanced Label

The Advanced Label allows you to leverage Google Fonts as part of your dashboard. In addition, the Advanced Label does provide the option to edit the text at run-time.

6.2.1 Advanced Label support for Self-service component creation

As part of VBX Release 2.32, you have the option to enable the property Enable Advanced Mode by navigating to the category General and to the subcategory Advanced Mode in the Additional Properties of the Advanced Label. Using this property, you will be able to create the self-service components in runtime.

In the following steps we will outline how you can use the Advanced Label component to create self-service component.

1. Create a new project in SAP Lumira Designer (This feature will support only SAP Lumira Versions 2.1 and above).
2. For our example, create a Layout as shown in Figure 6.2.

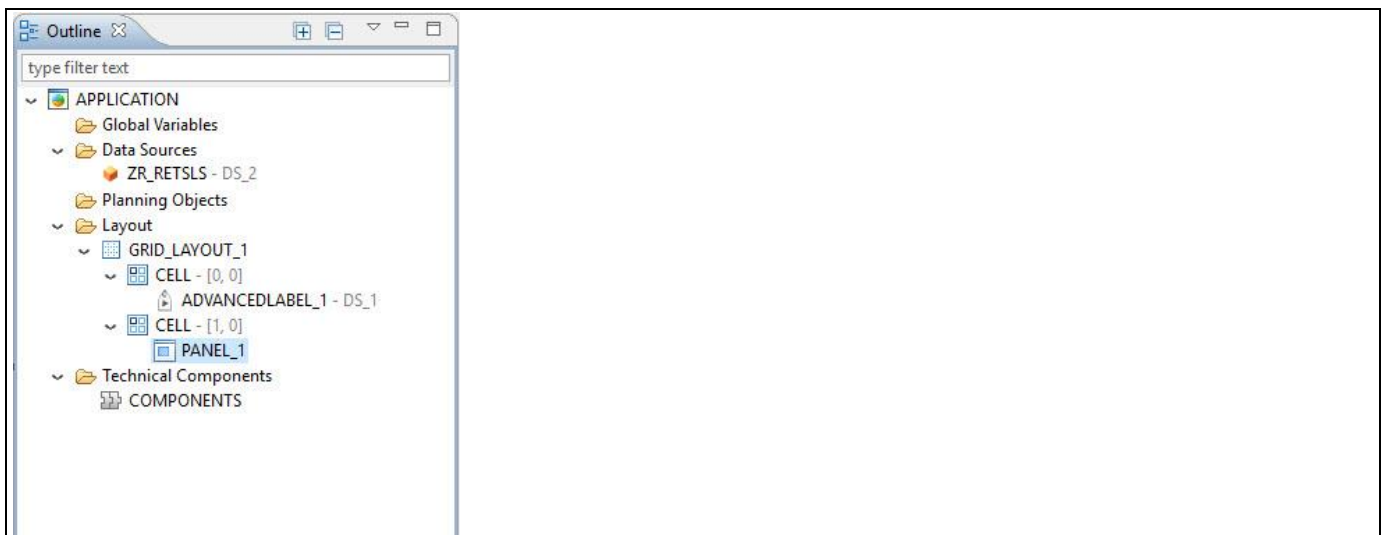


Figure 6.2: Layout

3. For our example, a Grid Layout has been created in which one cell has the component Advanced Label and the other cell has the Panel.
4. Now assign a Data Source to the Advanced Label with Dimensions - Category and Subcategory and Measures – Discount Amount, Order Cost, Order Amount and Order Quantity.
5. Now assign “COMPONENTS” as a Technical Component in the Layout which is mandatory to create the self-service components in runtime.
6. Navigate to the category General and to the subcategory Advanced Mode in the Additional Properties of the Advanced Label (see Figure 6.3). In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.

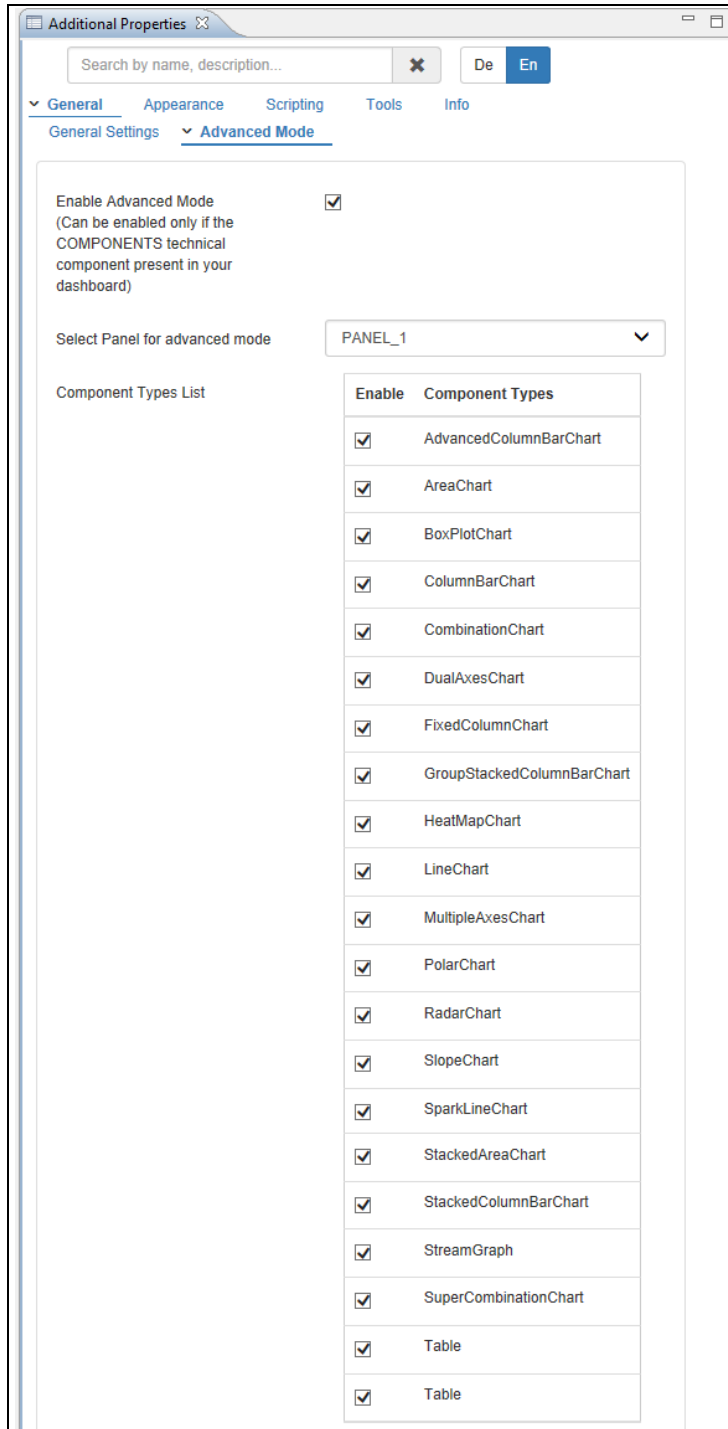


Figure 6.3: Enable Advanced Mode

7. Activate the property Enable Advanced Mode. It is to be noted that this property can be enabled only if the Technical Component “COMPONENTS” is assigned to your dashboard. Also when this property Enable Advanced Mode is activated, then the OnEnter event will not be triggered.
8. For our example, set the property Select Panel for Advanced Mode as “PANEL 1” where the self-service components will be displayed in this panel during runtime.
9. Activate the required components from the property Components Type List. The default components list is shown in Figure 6.3.
10. Based on the above configuration now you will be able to view the self-service components by providing the inputs in the Advanced Label as shown in Figure 6.4.

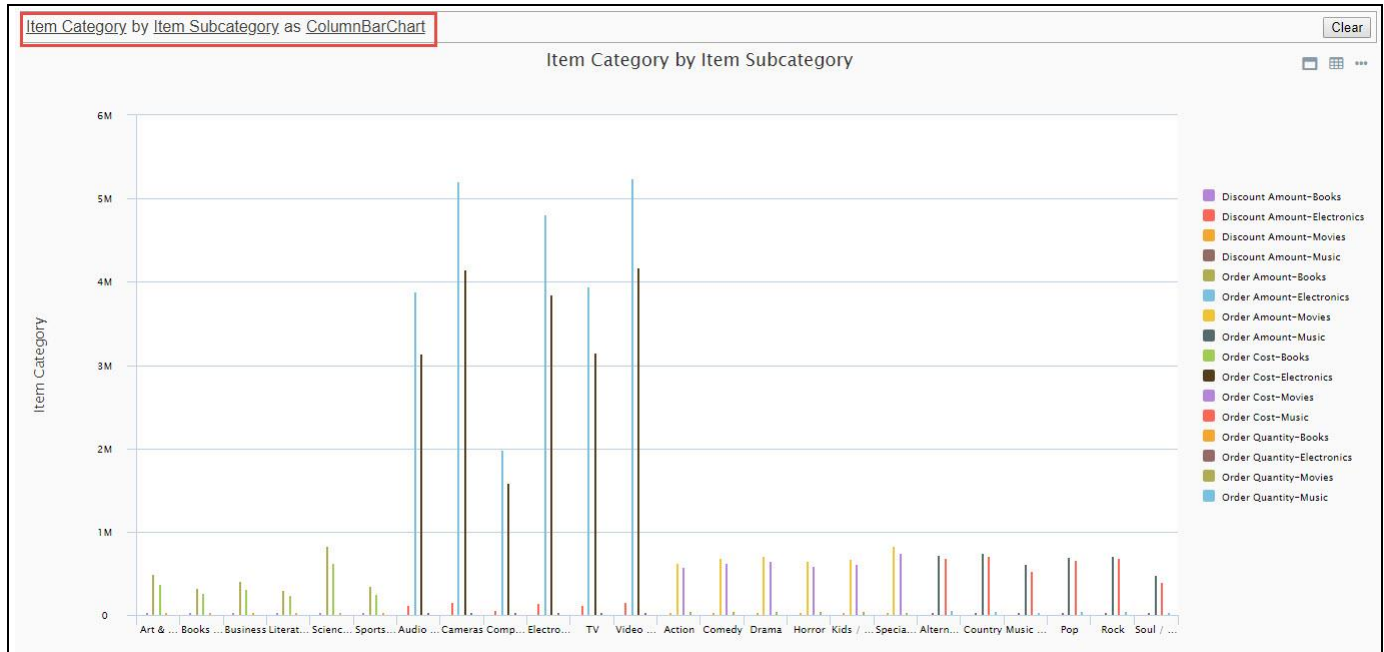


Figure 6.4: Self Service Component

You can also assign the component which has been already configured with Additional Properties and use the properties of that component to create the self-service component in runtime.

For our example, Area Chart has been configured with Additional Properties in Panel 1 where you can view the same appearing as AREA CHART_1 in the Components Type List (see Figure 6.5).

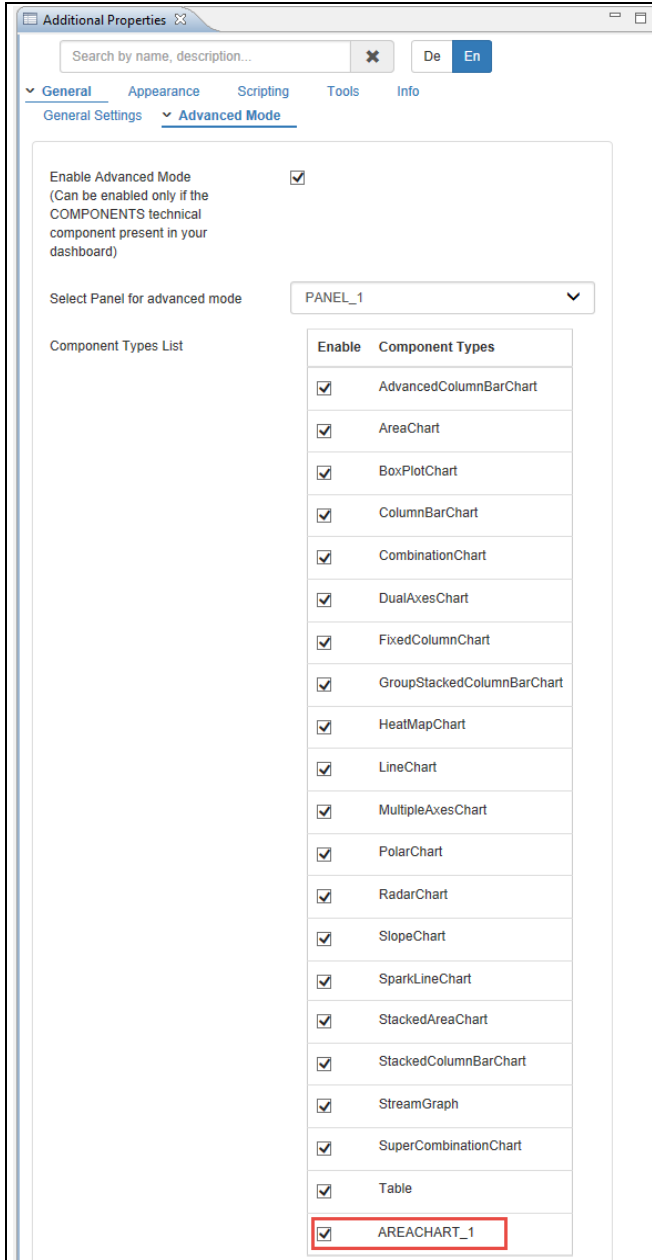


Figure 6.5: Configured Area Chart as Component Type

Further you can select the AREA CHART_1 from the Components Type List (see Figure 6.5) and use the properties of that Area Chart component to create the self-service component in runtime (see Figure 6.6).

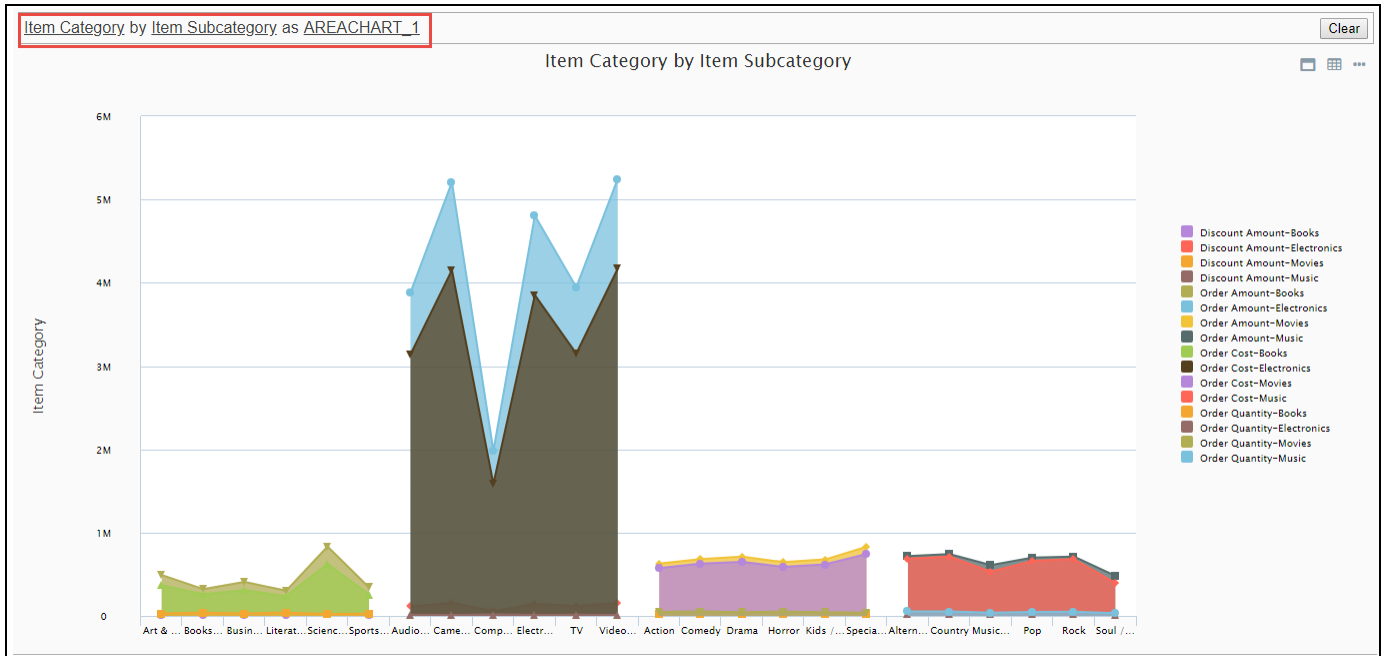


Figure 6.6: Self-service component

Advanced Label Support

It is to be noted that the Advanced Label Support for self-service component creation will be applicable only in SAP Lumira Designer Version 2.1 and above.

6.2.2 How to use the Advanced Label

In the following steps we will outline how you can use the Advanced Label component.

To create a new Advanced Label component follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a new Advanced Label component from the category VBX Utilities to your project.
3. Select the Advanced Label component and navigate to the Standard Properties. In case the Standard Properties are not shown, please use the menu View • Standard Properties to activate the display.

Properties	
Property	Value
General	
Name	ADVANCEDLABEL_1
Type	com.visualbi.utilities.AdvancedLabel
Vendor	VisualBI Solutions
Visible	true
Data Binding	
Data Source	<none>
Data Selection	
Display	
CSS Class	
Text	Custom Label
Layout	
Top Margin	179
Left Margin	244
Bottom Margin	auto
Right Margin	auto
Width	100

Figure 6.7: Advanced Label

4. Navigate to the property Text (see Figure 6.7).
5. Here you can enter the text that will be displayed as part of the Advanced Label component. For our example we will enter Sample Text.
6. Navigate to the Additional Properties of the Advanced Label. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
7. Navigate to the category General and to the sub category General Settings (see Figure 6.8). You have the option to activate the option Enable Editing, which then will allow you to edit the text at run-time of the dashboard.

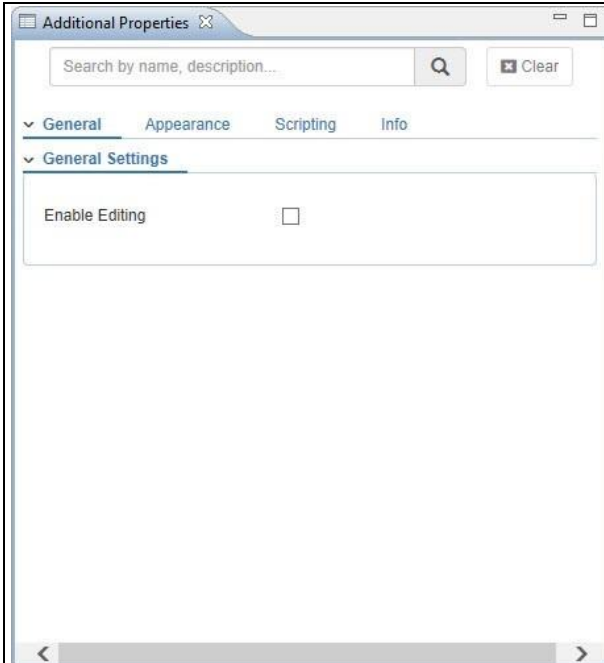


Figure 6.8: Category General

8. Navigate to the category Appearance and to the sub category General Settings in the Additional Properties of the Advanced Label. You can activate the property Enable Google Font and set the Global Google Font (see Figure 6.9).

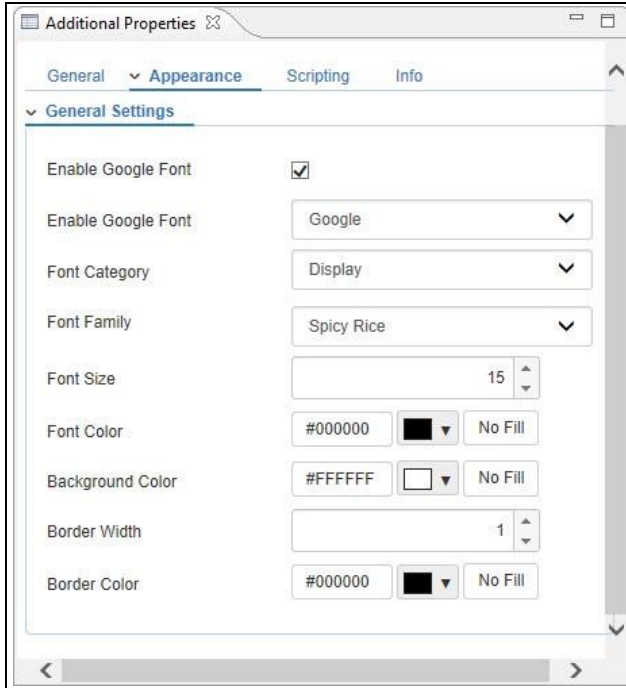


Figure 6.9: Category Appearance

9. Navigate to the category Appearance and to the sub category General Settings. You can also configure the Look and Feel of the Advanced Label component.

6.2.3 Additional Properties for the Advanced Label

As a custom component the Advanced Label also comes with a set of Additional Properties. The Advanced Label provides Additional Properties in the categories: General and Appearance. In the following sections you will find a list of available properties and a Table with a more detailed description of each of those.

6.2.3.1 Category General

The following section outlines the available Additional Properties for the category General.

Sub category	Property	Description
General Settings	Enable Editing	Here you can enable / disable the option to edit the text at runtime.
	Enable Multiline	Here you can enable / disable the option to edit the multiline text at runtime.
Advanced Mode	Enable Advanced Mode	Here you can enable / disable the option for Advanced Mode. This property can be enabled only if the Technical Component "COMPONENTS" is assigned to your dashboard.
	Select Panel for Advanced Mode	Here you can select the Panel for Advanced Mode, where the dynamic component will be placed on runtime.
	Component Types List	Here you have the List of components when selected will be listed in runtime.

Table 6.1: Category General

6.2.3.2 Category Appearance

Below you can find the Additional Properties for the category Appearance and their descriptions.

Sub category	Property	Description
General Settings	Enable Google Font	Here you can enable / disable the option for Google Font.
	Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
	Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
	Font Size	This property allows you to set the Font Size.
	Font Color	This property allows you to set the Font Color.
	Background Color	This property allows you to set the Background Color.
	Border Width	This property allows you to set the Border Width.
	Border Color	This property allows you to set the Border Color.

Table 6.2: Appearance Properties

6.2.4 Scripting Functions for the Advanced Label

The following Table outlines the available scripting functions for the Advanced Label.

Function / Method	Description
DSXGetAdvancedText()	This function allows you to retrieve the Text in the Advanced Label in runtime.
DSXGetEditable()	This function allows you to retrieve that status if the Advanced Label component is editable. The returned value is a Boolean.
DSXGetText()	This function allows you to retrieve the Text from the Advanced Label.
DSXOnClick()	This function executes the OnClick event for the component.
DSXSetAdvancedText()	This function allows you to set the Text in the Advanced Label in runtime.
DSXSetEditable()	This function allows you to set the status for the property if the Advanced Label component is editable. The function uses a boolean value.
DSXSetText()	This function allows you to set the Text for the Advanced Label.

Table 6.3: Scripting Properties

6.2.5 Events for Advanced Label

The following Table outlines the available events for the Advanced Label.

Event	Description
OnClick	Using this property, you can enable interaction with the component by writing scripts. The on Click event is triggered when you click on the component.
OnEnter	The OnEnter event is triggered when you press the Enter key. Note: When the property Enable Advanced Mode is activated, then the OnEnter event will not be triggered.

Table 6.4: Events

6.3 HTML Box

The HTML Box gives you the option to use HTML code as part of your dashboard design. The added HTML code will simply be executed as part of your dashboard and the resulting page will be shown as part of the dashboard.

6.3.1 How to use the HTML Box

In the following steps we will outline some basic steps using the HTML Box component.

To create a new HTML Box component follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a new HTML Box component from the category VBX Utilities to your project.
3. Navigate to the Additional Properties of the HTML Box. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
4. Navigate to the category General and to the sub category General Settings (see Figure 6.10).

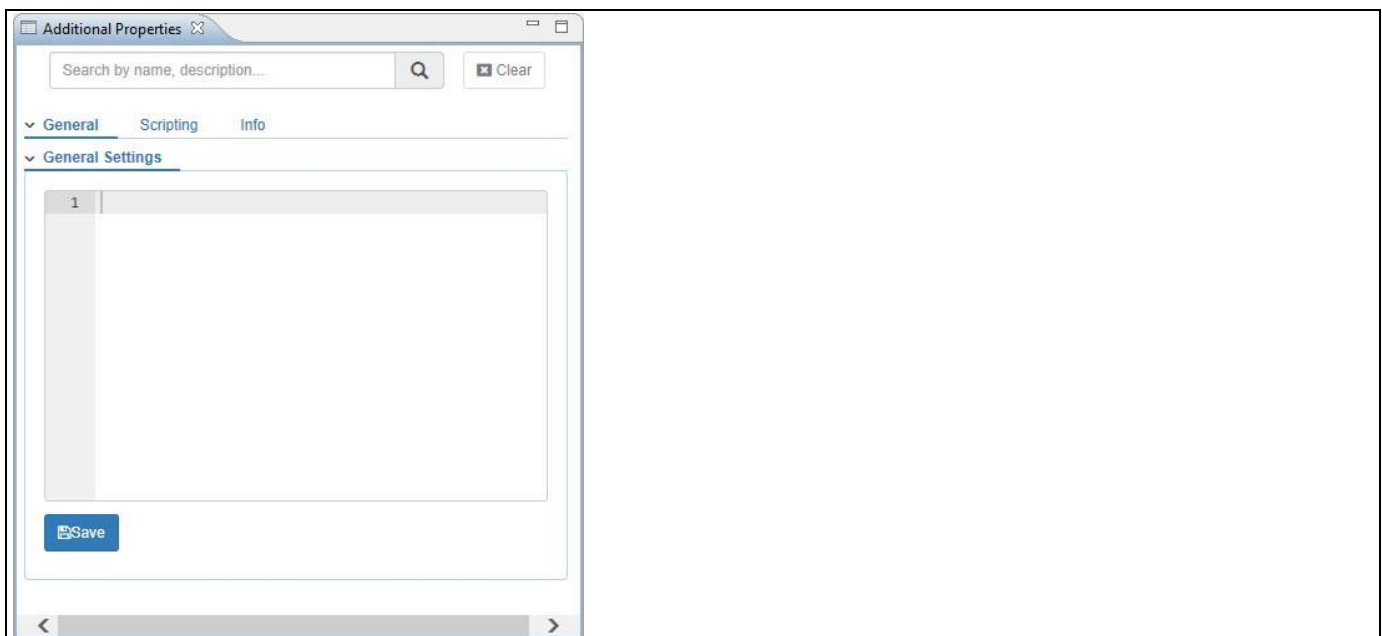


Figure 6.10: Category General

5. You can enter the HTML code into the box.
6. For our example we will enter the following HTML code:


```
<html>
<body>
<p>This is displayed in a HTML Box.</p>
</body>
</html>
```
7. Click Save.
8. After you entered the code, the HTML Box will display the result of the HTML Code.

6.3.2 Additional Properties for the HTML Box

In the following sections you will find a list of available properties and a Table with a more detailed description of each of those.

6.3.2.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Property	Description
General Settings	HTML Editor	Here you can insert your native HTML code.

Table 6.5: Category General

6.3.3 Scripting Functions for the HTML Box

The following Table outlines the available scripting functions for the HTML Box.

Function / Method	Description
DSXonClick()	This function executes the OnClick event for the component.
DSXsethtmlcode()	This function allows you to set the HTML code for the HTML Box using script.

Table 6.6: Scripting Functions

6.3.4 Events for HTML Box

The following Table outlines the available events for the HTML Box.

Event	Description
OnClick	Using this property, you can enable interaction with the component by writing scripts. The on Click event is triggered when you click on the component.

Table 6.7: Events

6.4 Menu Component

The Menu Component allows you to setup a menu structure with up to two levels - main menu and submenus - as part of your overall dashboard. These menus then can trigger events for further interactivity using scripting.

6.4.1 How to use the Menu Component

In the following steps we will outline some basic steps using the Menu Component.

To create a new Menu Component follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a new Menu Component from the category VBX Utilities to your project.
3. Navigate to the Additional Properties of the Menu Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
4. Navigate to the category General and to the sub category General Settings (see Figure 6.11).

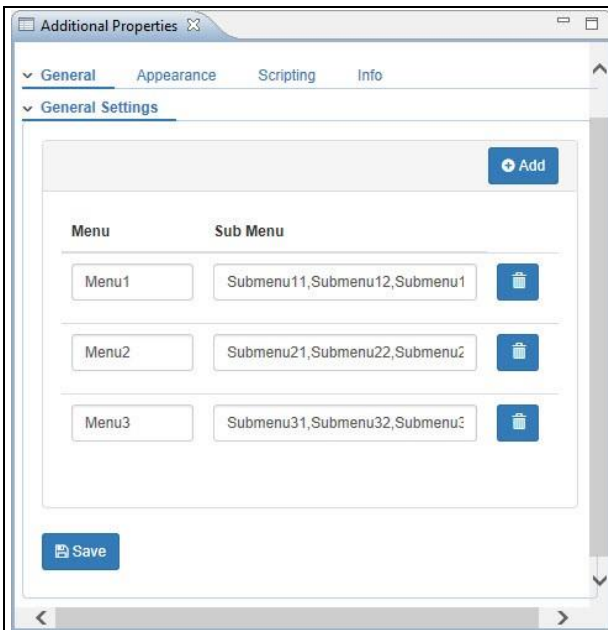


Figure 6.11: Category General

5. You can define your own menu structure in the sub category General Settings. Each item contains two parts: The main menu text and the text that will be shown for the sub menus.
6. For our example we will create the following entries:
 - Sales with Sales Submenu 1, Sales Submenu 2, Sales Submenu 3 for the submenus.
 - Finance with Finance Submenu 1, Finance Submenu 2, Finance Submenu 3 for the submenus.
 - HR with HR Submenu 1, HR Submenu 2, HR Submenu 3 for the submenus.
7. You can change the sample menus and replace them with the text above.
8. Click Save.
9. Your menu structure should look similar to Figure 6.12 when you execute your application.



Figure 6.12: Menu Component

The Menu Component provides scripting functions to retrieve the selected menu entry via a key value or via the text. Key values are automatically generated for the menu entries. The Table below shows the default key values that will be generated for the menu structure. These values are also available for scripting.

Menu Item	Key Value
Menu 1	1.0
Menu 1 – Sub Menu 1	1.1
Menu 2	2.0
Menu 2 – Sub Menu 1	2.1
Menu 2 – Sub Menu 2	2.2

Table 6.8: Sample Data

Please note that currently the Menu Component has a limitation of 2 menu levels.

6.4.2 Additional Properties of the Menu Component

In the following sections you will find a list of available properties and a Table with a more detailed description of each of those.

6.4.2.1 Category General

In the sub category General Settings of the category General you can define your menu and submenu structure.

Using the Add Field button, you can add new Menu items to the component. You can add main Menu items by simply changing the default text value. Submenu items are entered with a “,” (comma) as separator between the submenu entries. The Table below shows the default key values that will be generated for the menu structure. These values are also available for scripting.

Menu Item	Key Value
Menu 1	1.0
Menu 1 – Sub Menu 1	1.1
Menu 2	2.0
Menu 2 – Sub Menu 1	2.1
Menu 2 – Sub Menu 2	2.2

Table 6.9: Sample Data

Please note that currently the Menu Component has a limitation of 2 menu levels.

6.4.2.2 Category Appearance

Below you can find the Additional Properties for the category Appearance and their descriptions.

Sub category	Area	Property	Description
Main Menu	Menu Text	Font Family	Sets the Font Family for the Menu Text.
		Font Size	Sets the Font Size for the Menu Text.
		Font Color	Sets the Default Font Color for the Menu Text.
		Font Style	Sets the Font Weight for the Menu Text.
		Selected Color	Sets the Font Color for the selected Menu Text.
		Hover Color	Sets the Font Color for hovering over the Menu Text.
	Menu Background	Default Color	Here you can set the Default Background Color.
		Selected Color	Here you can set the Background Color for the Selected Menu.
		Hover Color	Here you can set the Background Color for hovering over the Menu.
	Menu Border	Border Color	Sets the Border Color for the Menu.
		Border Width	Sets the Border Width for the Menu.
Sub menu	General Settings	Visualize Total in Percent	When enabled the configured formatting options for the Menu items will also be

Sub category	Area	Property	Description
	Menu Text		applied to the Submenu items.
		Font Family	Sets the Font Family for the Sub Menu Text.
		Font Size	Sets the Font Size for the Sub Menu Text.
		Font Color	Sets the Default Font Color for the Sub Menu Text.
		Font Style	Sets the Font Weight for the Sub Menu Text.
		Selected Color	Sets the Font Color for the selected Sub Menu Text.
		Hover Color	Sets the Font Color for hovering over the Sub Menu Text.
	Menu Background	Default Color	Here you can set the Default Background Color for the Sub Menu items.
		Selected Color	Here you can set the Background Color for the Selected Sub Menu items.
		Hover Color	Here you can set the Background Color for hovering over for the Sub Menu items.
	Menu Border	Border Color	Sets the Border Color for the Sub Menu.
		Border Width	Sets the Border Width for the Sub Menu.

Table 6.10: Category Appearance

6.4.3 Scripting Functions for the Menu Component

The following Table outlines the available scripting functions for the Menu Component.

Function / Method	Description
DSXclearSelection()	The function allows you to clear the current selected items.
DSXGetSelectedKey()	The function allows to retrieve the selected key value of the menu.
DSXGetSelectedText()	The function allows to retrieve the selected text value of the menu.
DSXSetSelectedKey()	The function allows to set the selected key value for the menu.

Table 6.11: Scripting Functions

6.4.4 Events for Menu

The following Table outlines the available events for the Menu Component.

Event	Description
OnClick	Using this property, you can enable interaction with the component by writing scripts. The on Click event is triggered when you click on the Component.

Table 6.12: Events

6.5 Script Box

The Script Box component allows you to use JavaScript as part of your dashboard.

6.5.1 How to use the Script Box Component

In the following steps we will outline some basic steps using the Script Box component.

To create a new Script Box component follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a new Script Box component from the category VBX Utilities to your project.
3. Navigate to the Additional Properties of the Menu Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
4. Navigate to the category General and to the sub category General Settings (see Figure 6.13).

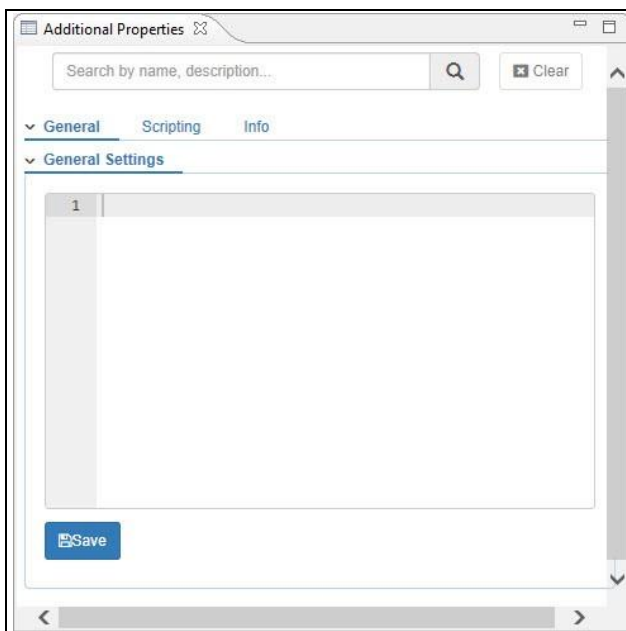


Figure 6.13: Category General

9. You can enter the JavaScript code into the box.
10. For our example we will enter the following JavaScript code:

```
document.getElementById("TEXT_1_tf1").innerHTML="Text set via Script Box!!";
```
11. Click Save.
12. After you entered the code, the Script Box will display the result of the JavaScript Code.

6.5.2 Additional Properties of Script Box

In the following sections you will find a list of available properties and a Table with a more detailed description of each of those properties.

6.5.2.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Property	Description
General Settings	Script Editor	Place your native JavaScript Code here.

Table 6.13: Category General

6.5.3 Scripting with the Script Box

The following Table outlines the available scripting functions for the Script Box component.

Function / Method	Description
DSXonClick()	The function sets the OnClick event for the component.
DSXSetCode()	The function allows to set the code.

Table 6.14: Scripting Functions

6.5.4 Events for Script Box

The Script Box component does not support any events.

6.6 Search Box

The Search Box component allows you to configure a search dialog for an assigned data source and retrieve from up to 6 columns the result based on the entered search criteria.

6.6.1 How to use the Search Box Component

In the following steps we will outline some basic steps using the Search Box component.

To create a new Search Box component follow these steps:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a new Search Box component from the category VBX Utilities to your project.
3. Add a data source to your project. For our example we will assume, that our data source contains a dimension Country in the Rows, and a dimension Region in the Rows.
4. Ensure the data source alias is named DS_1.
5. Assign the data source to the Search Box component.
6. Now place a Text component from the Basic Components onto the dashboard. We will use the Text component to display those elements that match the search criteria.
7. Ensure the Text component is named TEXT_1.
8. Navigate to the Additional Properties of the Search Box component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
9. Select the category Scripting.
10. Open the Script Editor for the event On Enter.
11. Enter the following Script:


```
TEXT_1.setText (
SEARCHBOX_1.DSXgetFirstDimension()
);
```
12. Close the script editor.
13. Use the menu Application • Execute Locally to run the simple example application.
14. Each time you enter now a search text, you will receive the matching entries from dimension Country (first dimension) in form of a string with a “;” (semicolon) as separator.

6.6.2 Additional Properties of the Search Box

In the following sections you will find a list of available properties and a Table with a more detailed description of each of those properties.

6.6.2.1 Category Appearance

Below you can find the Additional Properties for the category Appearance and their descriptions.

Sub category	Area	Property	Description
General Settings	Font	Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
	Search Label	Label Text	Sets the Text for the Label.
		Font Family	Sets the Font type for the Search Box Label.
		Font Size	Sets the Font Size for the Search Box Label.
		Font Color	Sets the Font Color for the Search Box Label.
		Font Style	Sets the Font Style for the Search Box Label.
		Horizontal Offset	Sets the Horizontal Offset for the Search Box Label.
		Vertical Offset	Sets the Vertical Offset for the Search Box Label.
	Search Box	Font Family	Sets the Font type for the Text.
		Font Size	Sets the Font Size for the Search Text.
		Font Color	Sets the Font Color for the Search Text.
		Font Style	Sets the Font Style for the Text.

Table 6.15: Category Appearance

6.6.3 Scripting Functions for the Search Box

The following Table outlines the available scripting functions for the Search Box component.

Function / Method	Description
DSXClearText()	This function allows you to clear the Text in the Search Box.
DSXGetFirstDimension() DSXGetSecondDimension() DSXGetThirdDimension() DSXGetFourthDimension() DSXGetFifthDimension() DSXGetsixthDimension()	These functions return all values matching the search criteria in form of a list of values separated by “;” (semicolon) as delimiter. Each function will return the values for a specific dimension, matching the name of the function. The component also allows searching of texts with wildcards such as ‘Ex*ample’, ‘*xample’ and ‘Examp*’.
DSXGetFirstDimensionArray() DSXGetSecondDimensionArray () DSXGetThirdDimensionArray () DSXGetFourthDimensionArray () DSXGetFifthDimensionArray () DSXGetsixthDimensionArray ()	These functions return all values matching the search criteria in form of an Array. Each function will return the values for a specific dimension, matching the name of the function.
DSXGetSearchedText()	The function allows to retrieve the entered text from the Search Box.
DSXGetSearchResultArray()	This function allows to retrieve the Search result from the Search Box.
DSXGetVisible()	This function allows to retrieve the visibility of the Search Box.
DSXOnClick()	The function triggers the OnClick event for the component.
DSXOnEnter()	This function allows to set the On Enter function.
DSXSetVisible()	This function allows to set the visibility of the Search Box.

Table 6.16: Scripting Functions

6.6.4 Events for Search Box

The following Table outlines the available events for the Search Box component.

Event	Description
OnEnter	The OnEnter event is triggered when you enter values into the search dialog.
On Clear Search Box	The On Clear Search Box event is trigger each time the search text is being cleared.

Table 6.17: Events

6.7 KPI Tile

The KPI Tile allows the dashboard designer to create a tile to display critical measures in combination with elements such as a sparkline chart to visualize a trend and other elements such as an alert, icon, header, and footer text. (see Figure 6.14). Figure 6.14 shows the layout of the KPI Tile with all the different elements that can be inserted into the different areas of the KPI Tile.

Advanced KPI Tile

Please note, that with release 1.5 and higher of the Visual BI Extensions you also have the option to use the Advanced KPI Tile, which provides superior functionality.



Figure 6.14: KPI Tile Sample

6.7.1 How to use the KPI Tile Component

You can follow these steps to setup your first KPI Tile (see Figure 6.14):

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project.
3. Add a KPI Tile from the VBX Utilities category to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the KPI Tile.
5. Navigate to the Additional Properties of the KPI Tile component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display.
6. Navigate to the category Data and to the sub category Data Selection (see Figure 6.15).

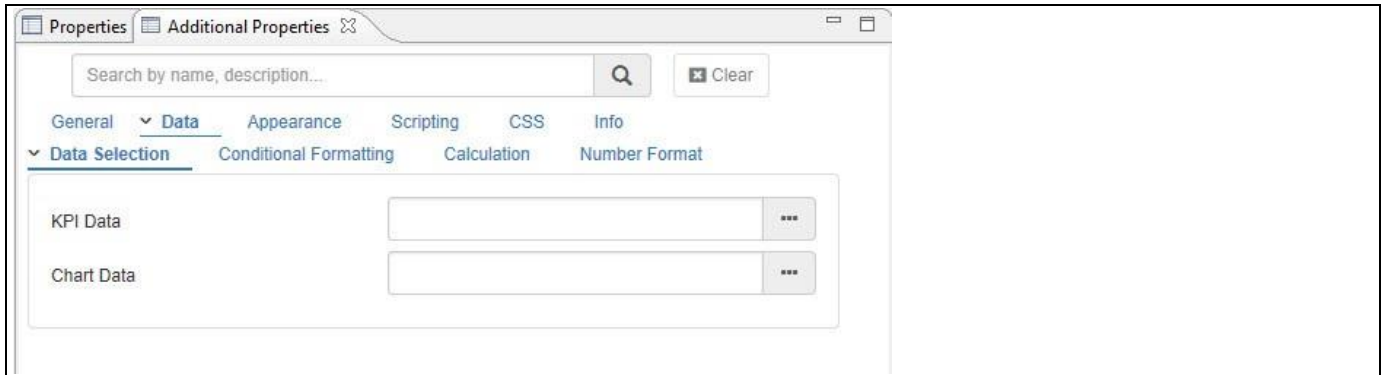


Figure 6.15: Category Data

7. You can use the property KPI Data to specify the value that will be displayed as part of the KPI Tile.
8. You can use the property Chart Data and create a Data Selection to select those values from the data source that will be used for the chart as part of the KPI Tile.
9. Navigate to the category Appearance and to the sub category KPI Tile and to the area Sparkline Chart. Using the property Chart Type, you can set the chart type for the display as part of the KPI Tile.
10. Now navigate to the category General and to the sub category Titles and to the area Tile (see Figure 6.16).

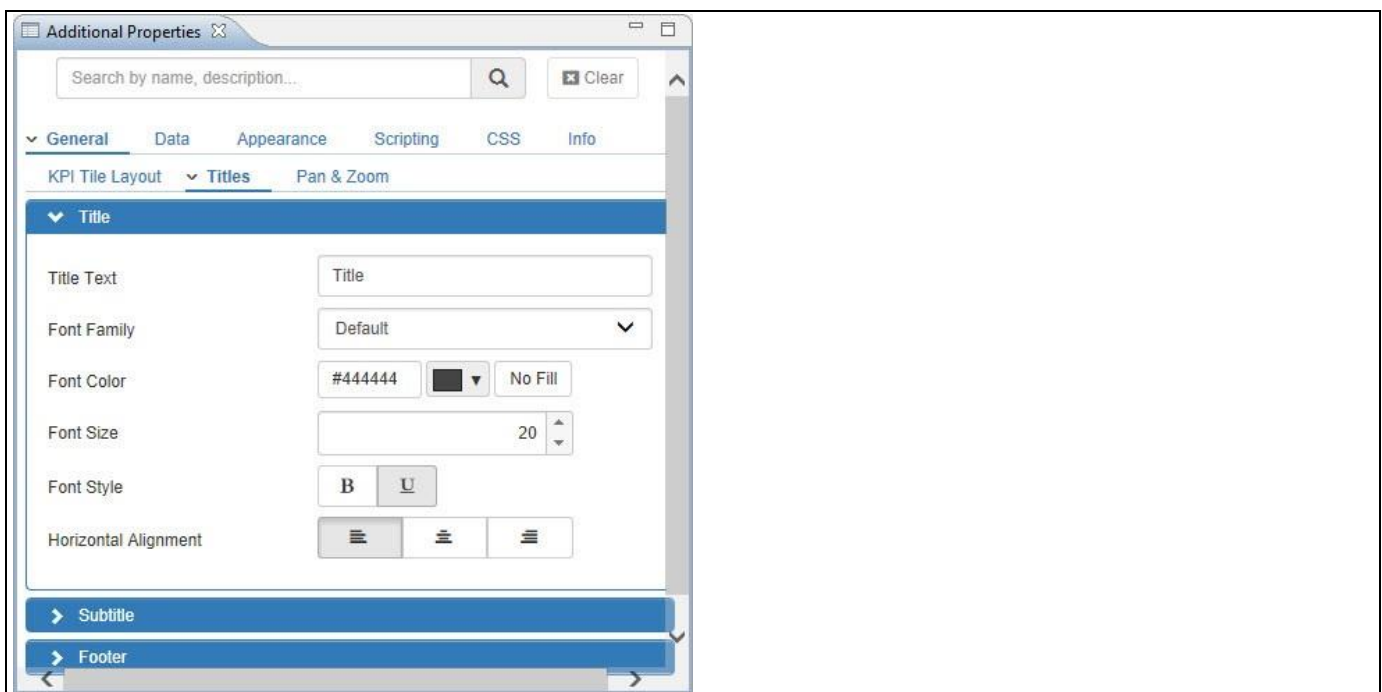


Figure 6.16: Title

11. In addition you can use the property Icon URL by navigating to the category Appearance and to the sub category KPI Tile and to the area Display Icon to specify an Icon that will be displayed as part of the overall layout of the KPI Tile.
12. Now navigate to the category General and to the sub category KPI Tile Layout in the Additional Properties (see Figure 6.17). You can select the Containers and the Type of elements to be placed in the container.

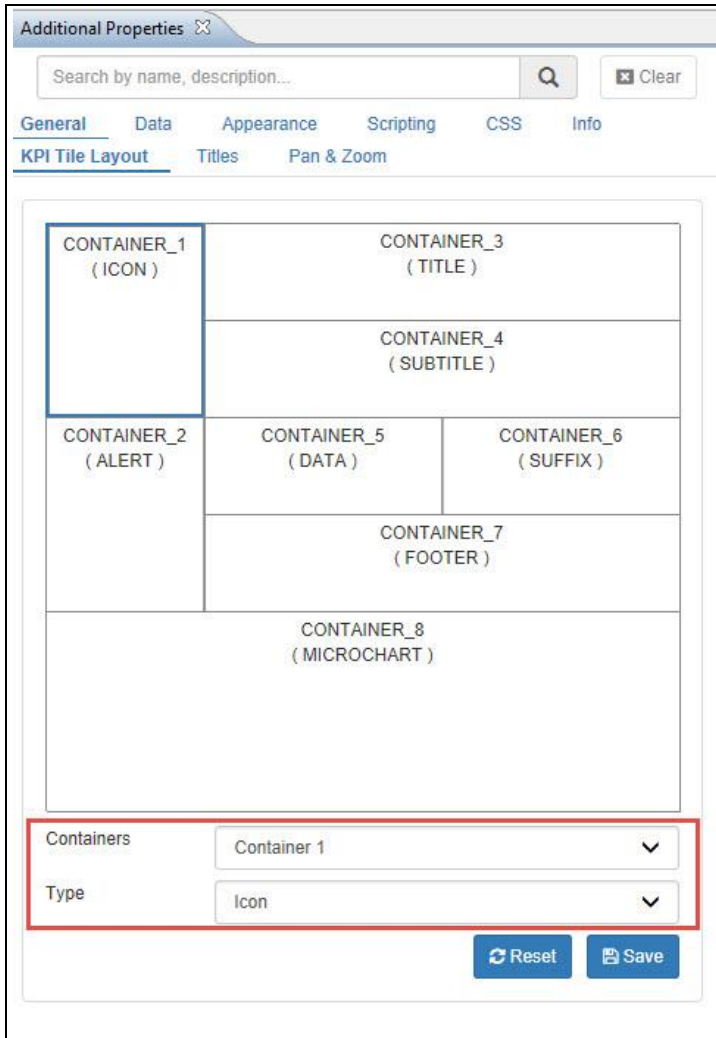


Figure 6.17: Category General

13. In the sub category KPI Tile Layout you can change the overall layout of the KPI Tile. In case you would like to change the layout or remove elements, click on Reset (see Figure 6.18).

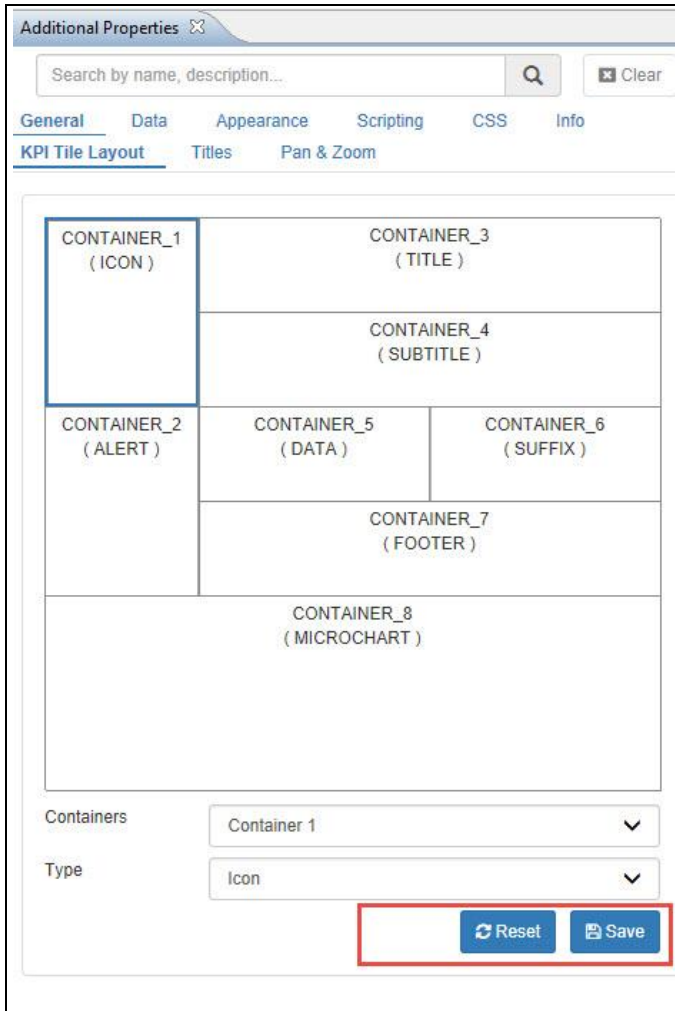


Figure 6.18: Category General

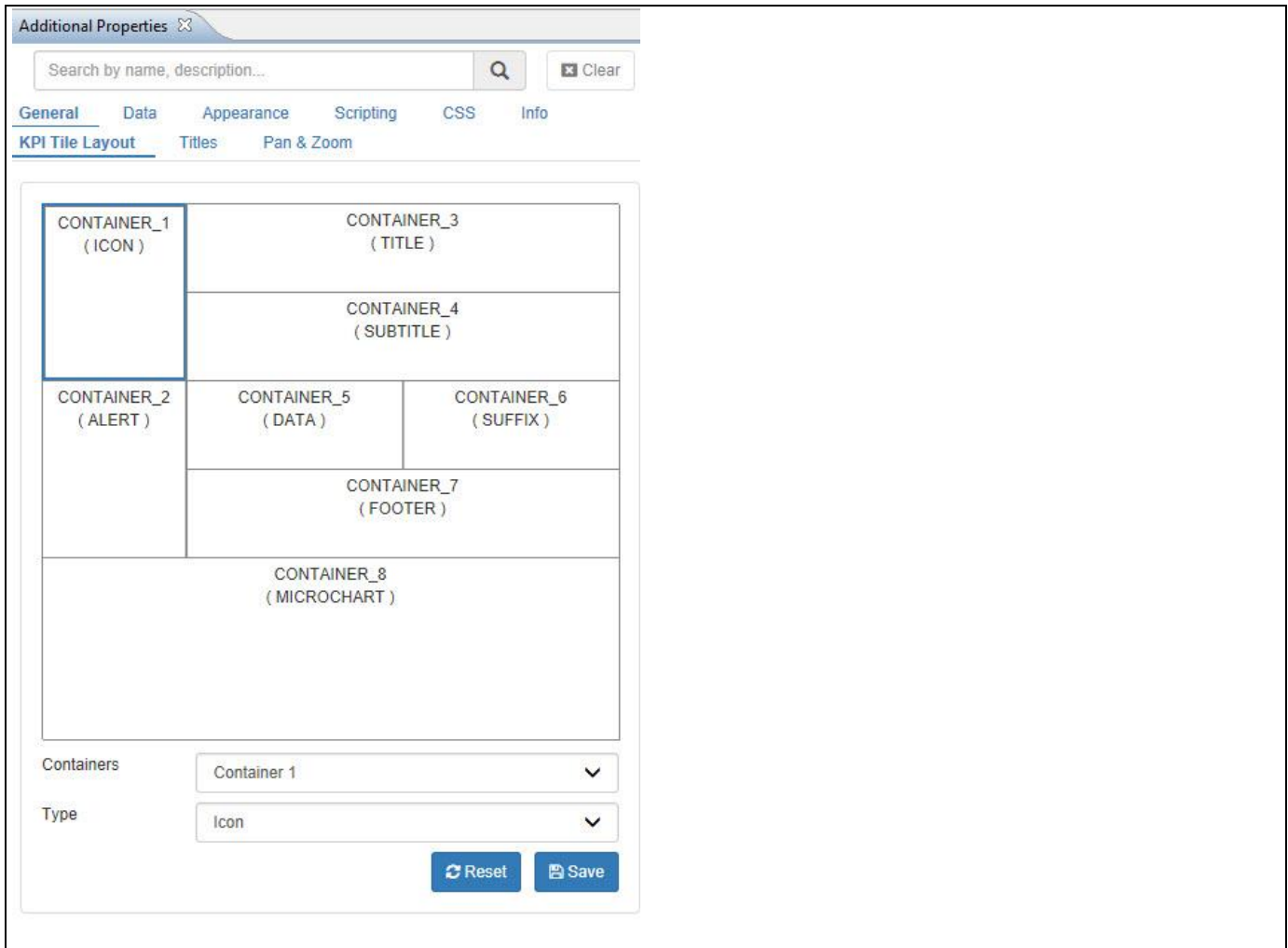
14. After clicking Reset, all elements are moved out of the layout and you can now arrange any of those elements based on your requirements. When finished, click Save and the KPI Tile will update accordingly.


6.7.2 Additional Properties of KPI Tile



As a custom component the KPI Tile also comes with a set of Additional Properties. The KPI Tile provides Additional Properties in the categories: General, Data and Appearance. In the following sections you will find a list of available properties and a Table with a more detailed description of each of those properties.

6.7.2.1 Category General

Below (see Figure 6.19) you can see the Additional Properties for the category General and their descriptions. From this tab, the dashboard designer can reset the existing layout of the KPI Tile by clicking the Save button. A new layout can then be created by selecting the containers and their types. Once the Save button is clicked, the new layout will be displayed on the canvas.



Additional Properties 

Search by name, description...  

General Data Appearance Scripting CSS Info

KPI Tile Layout Titles Pan & Zoom

CONTAINER_1
(ICON)

CONTAINER_3
(TITLE)

CONTAINER_4
(SUBTITLE)


CONTAINER_2
(ALERT)


CONTAINER_5
(DATA)

CONTAINER_6
(SUFFIX)

CONTAINER_7
(FOOTER)

CONTAINER_8
(MICROCHART)

Containers 

Type 



 Reset  Save

Figure 6.19: Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Area	Property	Description
KPI Tile Layout		Layout	Customize the layout of the KPI Tile.
Titles	Title	Title Text	Sets the Title text for the KPI Tile
		Font Family	Sets the Font Family of the Title Text.
		Font Color	Sets the Font Color for the Title Text.
		Font Size	Sets the Font Size of the Title Text.
		Font Style	Sets the Font Style of the Title Text.
		Horizontal Alignment	Sets the Horizontal Alignment for the Title Text.
	Subtitle	Subtitle Text	Sets the Sub title text for the KPI Tile
		Font Family	Sets the Font Family of the Subtitle Text.
		Font Size	Sets the Font Size of the Subtitle Text.
		Font Color	Sets the Font Color for the Subtitle Text.
		Font Style	Sets the Font Style of the Subtitle Text.
		Horizontal Alignment	Sets the Horizontal Alignment for the Subtitle Text.
	Footer	Footer Text	Sets the Footer text for the KPI Tile
		Font Family	Sets the Font Family of the Footer Text.
		Font Size	Sets the Font Size of the Footer Text.
		Font Color	Sets the Font Color for the Footer Text.
		Font Style	Sets the Font Style of the Footer Text.
		Horizontal Alignment	Sets the Horizontal Alignment for the Footer Text.
Pan & Zoom	Panning	Enable Panning	The property enables / disables the Panning functionality.
		Panning Key	Select the key to hold down to pan the chart when zoomed in. The options are Shift and Ctrl.
	Zoom	Chart Zoom Type	Decide along which dimension a user can zoom by dragging the mouse – along x, y or both.
		Pinch Type	Decide along which dimension a user can zoom by using multi-touch gestures – along x, y or both.
	Reset Button	Horizontal Alignment	Horizontal alignment for the Reset Zoom button.
		Vertical Alignment	Vertical alignment for the Reset Zoom button.
		Background Color	Set the Background Color for the zoom button.
		Hover Background	Background color for the zoom button on

Sub category	Area	Property	Description
		Color	mouse over.
		Zoomed Area Fill	Fill color of the zoom area being dragged by the cursor.
		Font Color	Set the Font Color for the display text on the reset button.
		Hover Font Color	Set the Text color for the zoom button on mouse hover.
		Button Radius	Set the Radius for the zoom button.

Table 6.18: Category General

6.7.2.2 Category Data

Below you can see the Additional Properties for the category Data and their descriptions.

Sub category	Area	Property	Description
Data Selection		KPI Data	Here you can specify the value for the KPI value.
		Chart Data	Here you can specify the values that will be used for the chart display in the KPI Tile.
Conditional Formatting		Rule Name	Here you can enter a name for the Conditional Formatting Rule.
		Rule Type	Here you can choose the type of conditional formatting. The options are Single Measure, Measure Calculation, Target Value, Dimension.
		Comparison Operator	Here you can select the measure which will be compared against the Comparison Value.
		Alert Value	Here you can set the Alert Value.
		Value 1	In case of a rule based on a measure calculation you will be able to specify the first measure for the calculation.
		Calculation Operator	Here you can choose the type of calculation. Available options are: Add, Subtract, Divide, Multiply.
		Value 2	In case of a rule based on a measure calculation you will be able to specify the second measure for the calculation.
		Color	Here you can define the color for the Rule.
		Icon	Here you can set the icon.
		Icon Size	Here you can set the icon size.
Calculation		Enable Calculation	The property enables / disables the option to create a calculation for the KPI

Sub category	Area	Property	Description
			Value.
		Measure 1	Here you specify the first value for the calculation.
		Measure 2	Here you specify the second value for the calculation.
		Operator	Here you specify the operator for the calculation. Available options are: Add, Subtract, Divide, Multiply.
		Result Type	Here you specify if the result of the calculation should be displayed as an Absolute or Percentage value.
		Use Scaling Factor	Here you can setup a scaling factor for the result of the calculation.
Number Format	Data Label	Number of Decimals	The property allows you to set the number of decimals for the KPI value.
		Decimal Separator	The property allows you to specify the Decimal Separator for the KPI Value.
		Thousand Separator	The property allows you to specify the Thousand Separator for the KPI Value.
		Scaling Factor	This property allows you to configure a Scaling Factor for the KPI Value. When set to Default it will leverage any Scaling Factor configured in the data source.
		Show Scaling Unit	The property enables / disables the display of the configured Scaling Unit for the KPI value.
		Scaling Unit	The property allows you to specify a Scaling Unit, which then can be displayed together with the KPI Value.
		Show Unit/Currency	The property enables / disables the display of the Unit / Currency value for the KPI value.
		Suffix	Here you can enter a Suffix for the KPI Value.
		Enable Scaling Factor	The property enables / disables the display of the configured Scaling Factor for the KPI value.

Table 6.19: Category Data

6.7.2.3 Category Appearance

Below you can see the Additional Properties for the category Appearance and their descriptions.

Sub category	Area	Property	Description
General Settings		Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
KPI Tile	Tile Area	Background Color	Sets the Background Color for the KPI Tile.
		Border Color	Sets the Border Color for the KPI Tile.
		Border Width	Sets the Border Width for the KPI Tile.
		Padding Top	Allows you to set the space between the top edge of the chart and the content. Default value is 10.
		Padding Bottom	Allows you to set the space between the bottom edge of the chart and the content. Default value is 10.
		Padding Left	Allows you to set the space between the left edge of the chart and the content. Default value is 10.
		Padding Right	Allows you to set the space between the right edge of the chart and the content. Default value is 10.
		Margin Top	Allows you to set the space between the top edge of the chart and the plot area. Default value is 70.
		Margin Bottom	Allows you to set the space between the bottom edge of the chart and the plot area. Default value is 40.
		Margin Left	Allows you to set the space between the left edge of the chart and the plot area. Default value is 70.
		Margin Right	Allows you to set the space between the right edge of the chart and the plot area. Default value is 100.
		Enable Plot Area Shadow	Enables you to apply a plot shadow on the outer chart area.
	KPI Measure	Font Family	Sets the Font Family of the KPI Value.
		Font Size	Sets the Font Size of the KPI Value.

Sub category	Area	Property	Description
		Font Color	Sets the Font Color for the KPI Value.
		Font Style	Sets the Font Style of the KPI Value.
		Text Alignment	Sets the Horizontal Alignment for the KPI Value.
	Spark Line Chart	Background Color	Sets the background color for the plot area of the chart.
		Chart Type	Sets the type of the Chart.
		Chart Color	Sets the Color for the Chart.
	Display Icon	Icon URL	Here you can specify the Icon URL for the Icon to be displayed as part of the KPI Tile.
	Suffix	Font Family	Sets the Font Family of the Suffix Text.
		Font Size	Sets the Font Size of the Suffix Text.
		Font Color	Sets the Font Color for the Suffix Text.
		Font Style	Sets the Font Style of the Suffix Text.
		Text Alignment	Sets the Horizontal Alignment for the Suffix Text.
	Border	Border Style	Sets the border style for the KPI Tile.
		Border Width	Sets the border width for the KPI Tile.
		Border Color	Sets the border color for the KPI Tile.
		Border Radius	Sets the border radius for the KPI Tile.
Data Label		Enable Data Labels	This property enables/disables the visibility of Data Labels.
		Font Color	Sets the Font Color for the Data Label.
		Font Style	Sets the Font Style of the Data Label.
		Font Size	Sets the Font Size of the Data Label.
		Font Family	Sets the Font Family of the Data Label.

Table 6.20: Category Appearance

6.7.3 Scripting Functions for the KPI Tile

The following Table outlines the available scripting functions for the KPI Tile component.

Function / Method	Description
DSXGetChartBackgroundColor()	This function allows you to retrieve the Chart Background Color.
DSXGetChartBorderColor()	This function allows you to retrieve the Chart Border Color.
DSXGetChartBorderWidth()	This function allows you to retrieve the Chart Border Width.
DSXGetChartBottomMargin()	This function allows you to retrieve the Bottom Margin for the Chart.
DSXGetChartBottomPadding()	This function allows you to retrieve the Bottom Padding for the Chart.
DSXGetChartLeftMargin()	This function allows you to retrieve the Left Margin for the Chart.
DSXGetChartLeftPadding()	This function allows you to retrieve the Left Padding for the Chart.
DSXGetChartPanKey()	This function allows you to retrieve the configured Panning Key.
DSXGetChartPinchType()	This function allows you to retrieve the Chart Pinch Type.
DSXGetChartRightMargin()	This function allows you to retrieve the Right Margin for the Chart.
DSXGetChartRightPadding()	This function allows you to retrieve the Right Padding for the Chart.
DSXGetChartTopMargin()	This function allows you to retrieve the Top Margin for the Chart.
DSXGetChartTopPadding()	This function allows you to retrieve the Top Padding for the Chart.
DSXGetChartType()	This function allows you to retrieve the Chart Type.
DSXGetChartZoomType()	This function allows you to retrieve the Chart Zoom Type.
DSXGetDataAlign()	This function allows you to retrieve the Horizontal alignment for the KPI value.
DSXGetDataColor()	This function allows you to retrieve the Color for the KPI value.
DSXGetDataFontFamily()	This function allows you to retrieve the Font Family for the KPI value.
DSXGetDataFontSize()	This function allows you to retrieve the Font Size for the KPI value.
DSXGetDataFontWeight()	This function allows you to retrieve the Font Weight for the KPI value.
DSXGetDataLabelEnabled()	This function allows you to retrieve a Boolean value to indicate if Data Labels are enabled.
DSXGetDataLabelFontFamily()	This function allows you to retrieve the Font Family for the Data Label.
DSXGetDataLabelFontSize()	This function allows you to retrieve the Font Size for the Data Label.
DSXGetDataLabelFontWeight()	This function allows you to retrieve the Font Weight for the Data Label.
DSXGetDataLabelTextColor()	This function allows you to retrieve the Font Color for the Data

Function / Method	Description
	Label.
DSXGetDataValue()	This function retrieves the value for the KPI value.
DSXGetDecimalSeperator()	This function allows you to retrieve the configured Decimal Separator.
DSXGetFooterAlign()	This function allows you to return the Horizontal Footer Alignment.
DSXGetFooterColor()	This function allows you to retrieve the Font Color for the Footer Text.
DSXGetFooterFontFamily()	This function allows you to retrieve the Font Family for the Footer Text.
DSXGetFooterFontSize()	This function allows you to retrieve the Font Size for the Footer Text.
DSXGetFooterFontWeight()	This function allows you to retrieve the Font Weight for the Footer Text.
DSXGetFooterText()	This function allows you to retrieve the Footer Text.
DSXGetIconURL()	This function allows you to retrieve the Icon URL.
DSXGetKPIBackgroundColor()	This function allows you to retrieve the KPI Background Color.
DSXGetKPIBorderColor()	This function allows you to retrieve the KPI Border Color.
DSXGetKPIBorderRadius()	This function allows you to retrieve the KPI Border Radius.
DSXGetKPIBorderStyle()	This function allows you to retrieve the KPI Border Style.
DSXGetKPIBorderWidth()	This function allows you to retrieve the KPI Border Width.
DSXGetNoOfDecimals()	This function allows you to retrieve the configured Number of Decimals.
DSXGetNumericDataValue()	This function allows you to retrieve the Data value.
DSXGetPlotShadow()	This function allows you to retrieve a Boolean value to indicate if a Plot Shadow has been enabled.
DSXGetSelectedMeasure()	This function allows you to retrieve the Selected Measure for the KPI value.
DSXGetSubTitleAlign()	This function allows you to retrieve the Horizontal Alignment of the Sub Title.
DSXGetSubTitleColor()	This function allows you to retrieve the Font Color for the Sub Title.
DSXGetSubTitleFontFamily()	This function allows you to retrieve the Font Family for the Sub Title.
DSXGetSubTitleFontSize()	This function allows you to retrieve the Font Size for the Sub Title.
DSXGetSubTitleFontWeight()	This function allows you to retrieve the Font Weight for the Sub Title.
DSXGetSubTitleText()	This function allows you to retrieve the Sub Title Text.
DSXGetSuffixAlign()	This function allows you to retrieve the Horizontal Alignment of the Suffix Text.
DSXGetSuffixColor()	This function allows you to retrieve the Font Color for the Suffix Text.

Function / Method	Description
DSXGetSuffixFontFamily()	This function allows you to retrieve the Font Family for the Suffix Text.
DSXGetSuffixFontSize()	This function allows you to retrieve the Font Size for the Suffix Text.
DSXGetSuffixFontWeight()	This function allows you to retrieve the Font Weight for the Suffix Text.
DSXGetThousandSeperator()	This function allows you to return the KPI Thousand Separator.
DSXGetTitleAlign()	This function allows you to retrieve the Horizontal Alignment of the Title Text.
DSXGetTitleColor()	This function allows you to retrieve the Font Color for the Title Text.
DSXGetTitleFontFamily()	This function allows you to retrieve the Font Family for the Title Text.
DSXGetTitleFontSize()	This function allows you to retrieve the Font Size for the Title Text.
DSXGetTitleFontWeight()	This function allows you to retrieve the Font Weight for the Title Text.
DSXGetTitleText()	This function allows you to retrieve the Title Text.
DSXSetChartBackgroundColor ()	This function allows you to set the Chart Background Color.
DSXSetChartBorderColor()	This function allows you to set the Chart Border Color.
DSXSetChartBorderWidth()	This function allows you to set the Chart Border Width.
DSXSetChartBottomMargin()	This function allows you to set the Bottom Margin for the Chart.
DSXSetChartBottomPadding()	This function allows you to set the Bottom Padding for the Chart.
DSXSetChartLeftMargin()	This function allows you to set the Left Margin for the Chart.
DSXSetChartLeftPadding()	This function allows you to set the Left Padding for the Chart.
DSXSetChartRightMargin()	This function allows you to set the Right Margin for the Chart.
DSXSetChartRightPadding()	This function allows you to set the Right Padding for the Chart.
DSXSetChartTopMargin()	This function allows you to set the Top Margin for the Chart.
DSXSetChartTopPadding()	This function allows you to set the Top Padding for the Chart.
DSXSetChartType()	This function allows you to set Chart Type.
DSXSetChartZoomType()	This function allows you to set Chart Zoom Type.
DSXSetDataAlign()	This function allows you to set Horizontal alignment for the KPI Value.
DSXSetDataColor()	This function allows you to set color for the KPI Value.
DSXSetDataFontFamily()	This function allows you to set the Font Family for the KPI Value.
DSXSetDataFontSize()	This function allows you to set the Font Size for the KPI Value.
DSXSetDataFontWeight()	This function allows you to set the Font Weight for the KPI Value.
DSXSetDataLabelEnabled()	This function allows you to enable the Data Label.
DSXSetDataLabelFontFamily()	This function allows you to set the Font Family for the Data Label.
DSXSetDataLabelFontSize()	This function allows you to set the Font Size for the Data Label.

Function / Method	Description
DSXSetDataLabelFontWeight()	This function allows you to set the Font Weight for the Data Label.
DSXSetDataLabelTextColor()	This function allows you to set the Font Color for the Data Label.
DSXSetDataValue()	This function allows you to set the Data Value.
DSXSetDecimalSeperator()	This function allows you to set the Decimal Separator.
DSXSetFooterAlign()	This function allows you to set the horizontal alignment for the Footer Text.
DSXSetFooterColor()	This function allows you to set the footer color.
DSXSetFooterFontFamily()	This function allows you to set the Font Family for the Footer Text.
DSXSetFooterFontSize()	This function allows you to set the Font Size for the Footer Text.
DSXSetFooterFontWeight()	This function allows you to set the Font Weight for the Footer Text.
DSXSetFooterText()	This function allows you to set the Footer Text.
DSXSetIconURL()	This function allows you to set the Icon URL.
DSXSetKPIBackgroundColor()	This function allows you to set the KPI Background Color.
DSXSetKPIBorderColor()	This function allows you to set the KPI Border Color.
DSXSetKPIBorderRadius()	This function allows you to set the KPI Border Radius.
DSXSetKPIBorderStyle()	This function allows you to set the KPI Border Style.
DSXSetKPIBorderWidth()	This function allows you to set the KPI Border Width.
DSXSetNoOfDecimals()	This function allows you to set the number of decimals.
DSXSetNumericDataValue()	This function allows you to set the Data Value.
DSXSetPlotShadow()	This function allows you to enable the Plot Shadow.
DSXSetSelectedMeasure()	This function allows you to set the Selected Measure for the KPI Value.
DSXSetSubTitleAlign()	This function allows you to set the horizontal alignment for the Subtitle Text.
DSXSetSubTitleColor()	This function allows you to set the Font Color for the Subtitle Text.
DSXSetSubTitleFontFamily()	This function allows you to set the Font Family for the Subtitle Text.
DSXSetSubTitleFontSize()	This function allows you to set the Font Size for the Subtitle Text.
DSXSetSubTitleFontWeight()	This function allows you to set the Font Weight for the Subtitle Text.
DSXSetSubTitleText()	This function allows you to set the Subtitle Text.
DSXSetSuffixAlign()	This function allows you to set the horizontal alignment for the Suffix Text.
DSXSetSuffixColor()	This function allows you to set the Font Color for the Suffix Text.
DSXSetSuffixFontFamily()	This function allows you to set the Font Family for the Suffix Text.
DSXSetSuffixFontSize()	This function allows you to set the Font Size for the Suffix Text.
DSXSetSuffixFontWeight()	This function allows you to set the Font Weight for the Suffix Text.
DSXSetTitleAlign()	This function allows you to set the horizontal alignment for the Title Text.

Function / Method	Description
DSXSetTitleColor()	This function allows you to set the Font Color for the Title Text.
DSXSetTitleFontFamily()	This function allows you to set the Font Family for the Title Text.
DSXSetTitleFontSize()	This function allows you to set the Font Size for the Title Text.
DSXSetTitleFontWeight()	This function allows you to set the Font Weight for the Title Text.
DSXSetTitleText()	This function allows you to set the Title Text.

Table 6.21: Scripting Functions

6.8 Table

The Table provides the dashboard designer with a Table component with an advanced set of features, such as sorting, integrated search, alerting, calculations, and easy formatting (see Figure 6.20).

Search and press ENTER			
Product Group		Profit	Costs
AUDIO	MP3 & Headphones	3,629,472,988.09	11,575,468,218.91
CAMERA	Cameras	14,919,610,226.08	40,689,079,659.92
COMPUTER	Laptops	21,409,509,582.38	46,077,416,281.62
PHONE01	Cell Phones	9,029,020,802.52	16,883,132,311.48
PHONE02	Cell Phone Accessories	1,667,399,715.63	3,235,026,247.37
TV	TV	36,794,685,256.13	103,007,931,334.87

Figure 6.20: Table

6.8.1 Features of the Table

The Table component is offering several features, which are explained in the sections below.

6.8.1.1 Search

The search feature in the Table allows the end users to search and filter rows of data in the Table based on the entered search text.

Search and press ENTER		
Product Group		Profit
AUDIO	MP3 & Headphones	3,629,472,988.09
CAMERA	Cameras	14,919,610,226.08
COMPUTER	Laptops	21,409,509,582.38
PHONE01	Cell Phones	9,029,020,802.52
PHONE02	Cell Phone Accessories	1,667,399,715.63
TV	TV	36,794,685,256.13

Figure 6.21: Search

The search feature can be enabled and configured by following the guidelines given below:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to your project.
3. Add a Table from the VBX Utilities category to your project.
4. Assign the data source to the Table component.
5. Navigate to the category **General** and to sub category **General Settings** in the Additional Properties sheet (see Figure 6.22)

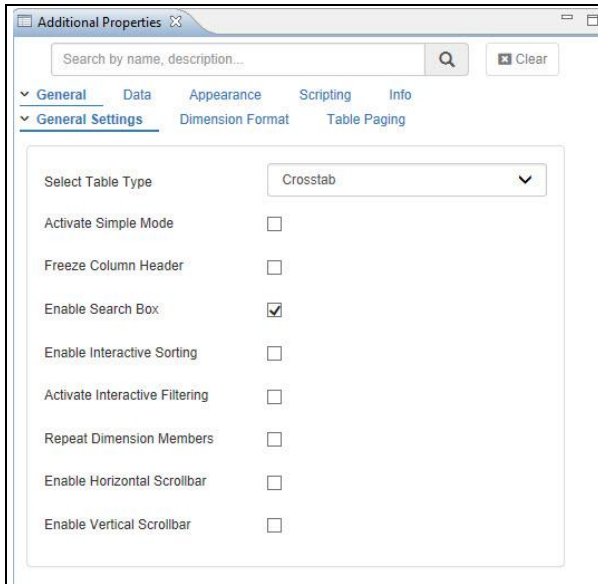


Figure 6.22: General Properties

6. Activate the option **Enable Search Box**.
7. As soon as the search option is activated, a search text box appears above the Table (see Figure 6.21).
8. At run-time whenever the user types a search text, the component performs an incremental search based on the letters typed and lists only those rows that contain a match.
9. The search is not specific to a particular column. For Example, if the search text is 'Administration', then no matter where the word appears in the Table, the row will be filtered for display.

6.8.1.2 Sorting

The Sort feature in the Table allows the end users to sort all the columns of the Table independent of each other. Sorting can either be ascending or descending. Also, sorting can be applied either on dimension alphabetically or key figures numerically. The feature also contains an option to clear all sorting applied previously on the Table.

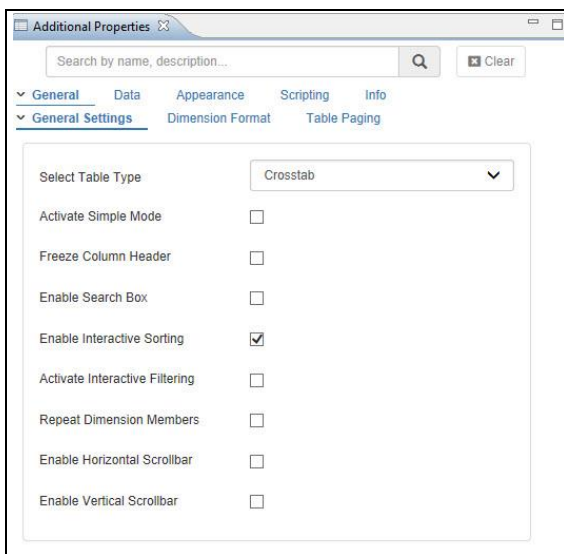


Figure 6.23: Sorting

To enable and configure the sort feature for the Table you can follow the steps below:

1. Navigate to the category **General** and to sub category **General Settings** in the Additional Properties sheet.
2. Activate the option Enable Interactive Sorting.



Figure 6.24: Sorting Options

3. As soon as the sort option is activated, three buttons appear on the header area of each column of the Table (see Figure 6.24).
 - a. The **up-arrow** button is to sort the rows ascending.
 - b. The **down-arrow** button sorts the rows descending.
 - c. The **X** button clears any sorting that was applied to the column.

6.8.1.3 Paging

Pagination in the Table allows the users to navigate easily between pages of data without scrolling up or down. The feature can be activated and configured by enabling the set of options as given below:

1. Navigate to the category **General** and to the sub category **Table Paging** category in the Additional Properties sheet.

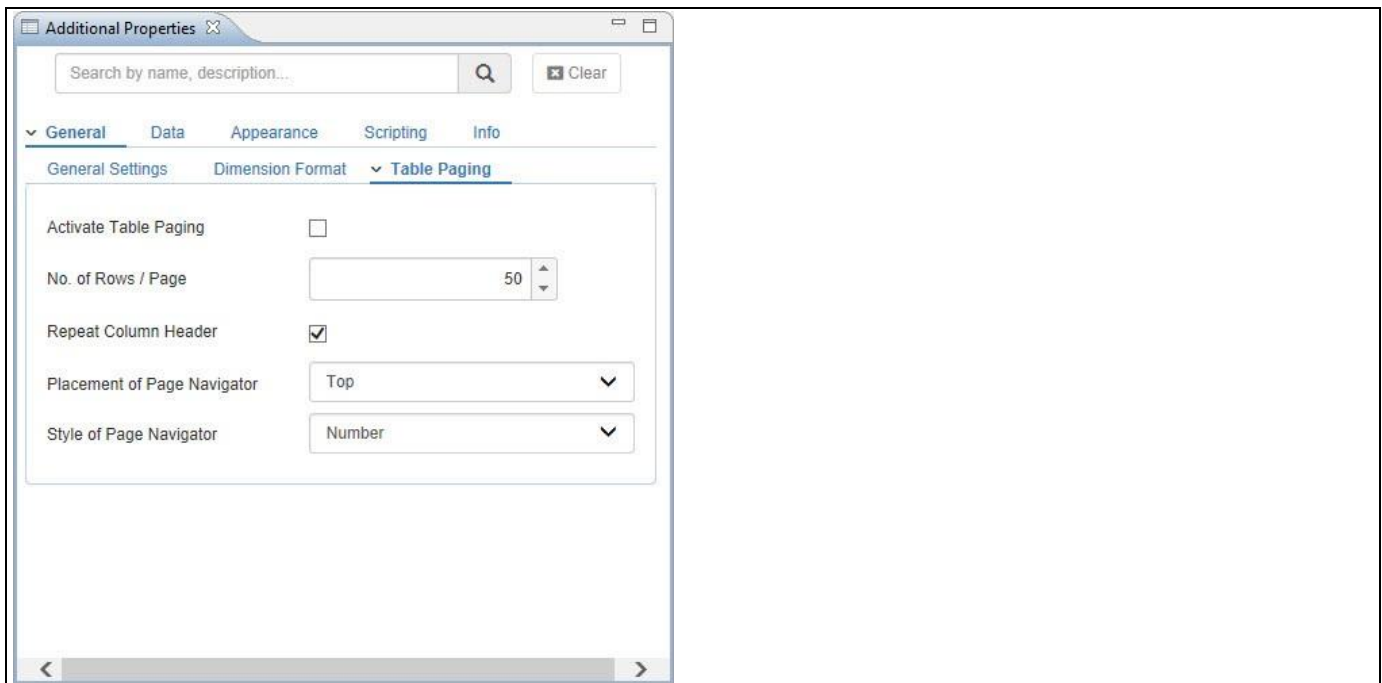


Figure 6.25: Paging Properties

2. Activate the option **Activate Table Paging**.
3. You can enter the number of rows shown per page with the property **No. of Rows / page** (see Figure 6.25).
4. The property **Placement of Page Navigator** allows you to choose to provide a page navigation for the user on top of the Table or below the Table.
5. The property **Style of Page Navigator** allows you to choose between a Button display and a Number display for the set of pages.

- The property **Repeat Column Header** allows you to enable the option to repeat the Table header on each page.

Figure 6.26 shows a Table with an activate Paging option where the Page Navigation is shown in form of buttons above the Table.

Product		Profit	Costs	Net Value
BLUETOOTH001	Bluetooth Car Kit	198,052,468.50	462,122,426.50	660,174,895.00
BLUETOOTH002	Bose Bluetooth	353,739,564.00	530,609,346.00	884,348,910.00
BLUETOOTH003	Jawbone Bluetooth	220,409,308.75	661,227,926.25	881,637,235.00
BLUETOOTH004	Sennheiser Bluetooth	577,384,699.32	532,970,491.68	1,110,355,191.00
CASE001	iPhone Case	200,722,427.00	123,023,423.00	323,745,850.00
CASE002	Blackberry case	42,014,955.00	238,084,745.00	280,099,700.00
CASE003	Samsung Galaxy Case	35,697,841.74	288,827,992.26	324,525,834.00
CASE004	LG Case	39,378,451.32	398,159,896.68	437,538,348.00

Figure 6.26: Paging

6.8.1.4 Freeze Column Header

The Table component provides the ability to Freeze the Table header row, so that in case you provide the ability for the user to use a vertical scrollbar, the user will always see the header row of the Table.

You can activate the option to Freeze the Table header by following these steps:

- Navigate to the category **General** and to sub category **General Settings** in the Additional Properties sheet.
- Activate the option **Freeze Column Header** (see Figure 6.27).

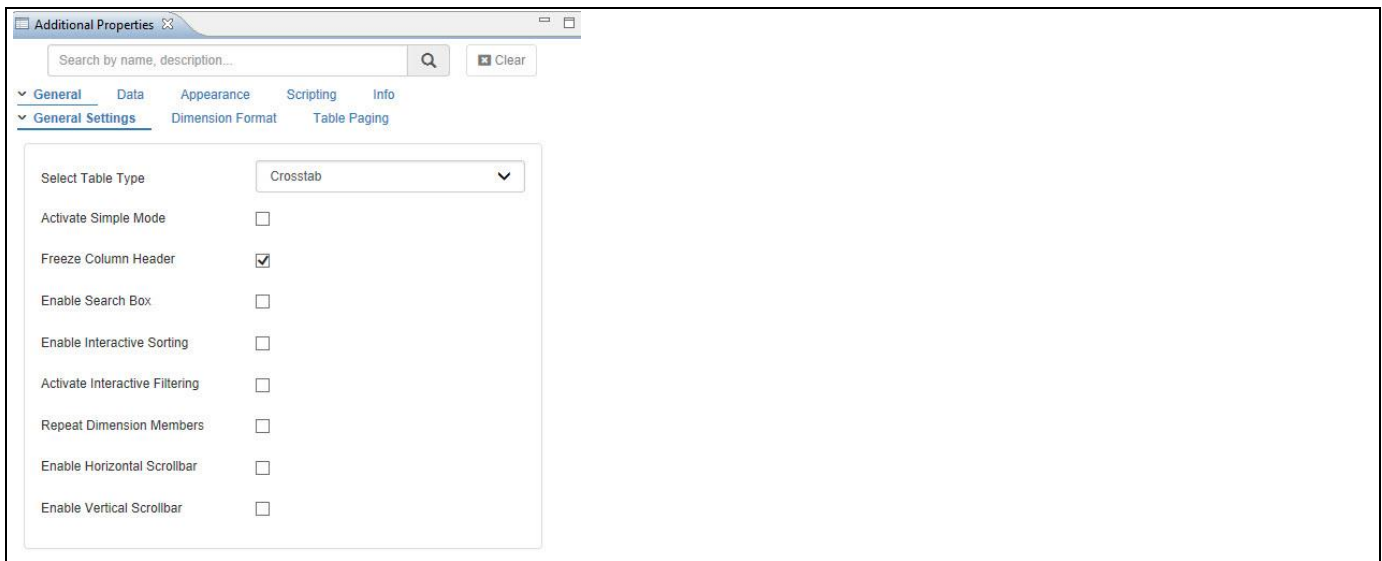


Figure 6.27: Property Freeze Column Header

As soon as the Freeze Column Header option is activated the user will have the option to scroll in the Table with an activated vertical scrollbar and keep the Table header staying at the top of the Table display.

6.8.1.5 Interactive Filtering

The option to activate the interactive filtering for the Table component provides the user with a quick and simple way to filter the data shown in Table at run-time – meaning when the Table is shown as part of your overall dashboard.

You can activate the interactive filtering for the Table by following these steps:

1. Navigate to the category **General** and to sub category **General Settings** in the Additional Properties sheet.
2. Activate the option Activate Interactive Filtering.
3. As soon as the Filtering has been activated, you will receive an additional icon in the column header of the Table (see Figure 6.28).

Search and press ENTER	
Product	
BLUETOOTH001	Bluetooth Car Kit
BLUETOOTH002	Bose Bluetooth
BLUETOOTH003	Jawbone Bluetooth
BLUETOOTH004	Sennheiser Bluetooth
CASE001	iPhone Case

Figure 6.28: Filtering

4. When you execute your dashboard, the Table will provide an interactive filter option where the user can click on the Filter icon in the column header and either choose a set of members or search for particular members and then filter the Table based on the criteria. The filtering dialog is closed with a simple click on the Filter icon (see Figure 6.29).

Search and press ENTER				
Product		Profit	Costs	Net Value
Bluetooth Car Kit	198,052,468.50	462,122,426.50	660,174,895.00	
Bose Bluetooth	353,739,564.00	530,609,346.00	884,348,910.00	
Jawbone Bluetooth	220,409,308.75	661,227,926.25	881,637,235.00	
Sennheiser Bluetooth	577,384,699.32	532,970,491.68	1,110,355,191.00	
iPhone Case	200,722,427.00	123,023,423.00	323,745,850.00	
Blackberry case	42,014,955.00	238,084,745.00	280,099,700.00	
Samsung Galaxy Case	35,697,841.74	288,827,992.26	324,525,834.00	
LG Case	39,378,451.32	398,159,896.68	437,538,348.00	
Fujifilm FinePix	1,126,834,542.60	2,629,280,599.40	3,756,115,142.00	
Nikon COOLPIX	1,715,823,690.00	2,573,735,535.00	4,289,559,225.00	
Canon PowerShot	1,336,999,642.00	4,010,998,926.00	5,347,998,568.00	
Panasonic Lumix	1,944,574,351.72	1,794,991,709.28	3,739,566,061.00	
Sony On-Ear Headphones	82,235,717.55	466,002,399.45	548,238,117.00	
Bose QuietComfort 15 Noise-Cancelling He	121,715,929.17	984,792,517.83	1,106,508,447.00	
Monster iSport In-Ear Headphones	89,427,861.27	904,215,041.73	993,642,903.00	
iPod Touch 32 GB	244,331,626.88	1,976,864,981.12	2,221,196,608.00	
iPod Touch 64 GB	300,760,449.21	3,041,022,319.79	3,341,782,769.00	

Figure 6.29: Interactive Filtering Dialog

6.8.1.6 Column Sizing

The Table component provides you with several options to define the column size for a particular column of your Table. By navigating to the category Appearance and to the sub category Table Body in the Additional Properties of Table, you can define a Minimum Row Height and a Minimum Column Width for your Table and those configured values will be applied to all the columns (see Figure 6.30).

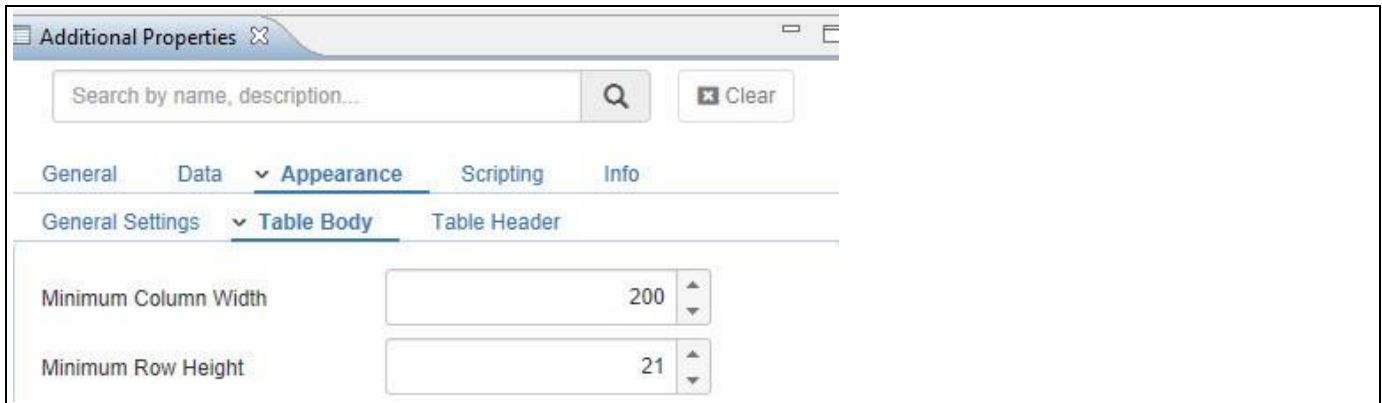


Figure 6.30: Table Formatting

In addition the Table provides the option to resize the columns interactively by placing the cursor between the two columns and simply resizing the column to your left with a mouse movement (see Figure 6.31).

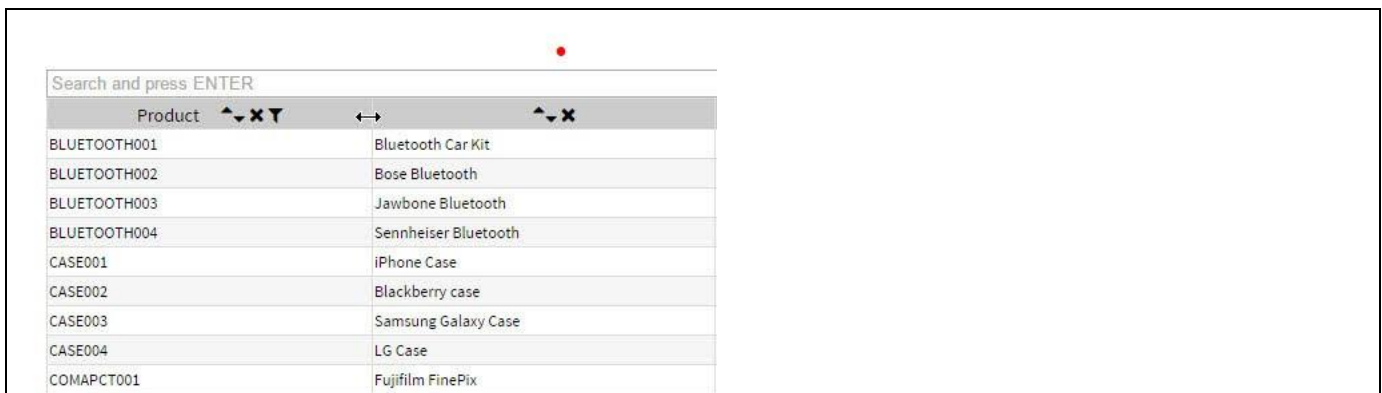


Figure 6.31: Column Resizing

6.8.1.7 Table Alerts

The Table provides you with the option to setup Alerts which allow you to highlight specific cells in the Table based on conditions you can define. For example, you could highlight all Revenue values in the Table based on the achievement compared to the Revenue Forecast.

The Table Alerts provide you with the ability to setup an alert based on three different options:

- An Alert can be based on a Single Measure, for example comparing the measure Profit against a target value.
- An Alert can be based on a Calculation, where you can setup a calculation between two measures and compare the result of the calculation against a target value.
- An Alert can be a set of rules where a measure is being compared against a target value.

For the following steps we will use an example with a very simple data source, showing dimension Product in the Rows and showing three measures: Profit, Costs, and Net Value (see Figure 6.32).

Product		Profit	Costs	Net Value
BLUETOOTH001	Bluetooth Car Kit	198,052,468.50	462,122,426.50	660,174,895.00
BLUETOOTH002	Bose Bluetooth	353,739,564.00	530,609,346.00	884,348,910.00
BLUETOOTH003	Jawbone Bluetooth	220,409,308.75	661,227,926.25	881,637,235.00
BLUETOOTH004	Sennheiser Bluetooth	577,384,699.32	532,970,491.68	1,110,355,191.00
CASE001	iPhone Case	200,722,427.00	123,023,423.00	323,745,850.00
CASE002	Blackberry case	42,014,955.00	238,084,745.00	280,099,700.00
CASE003	Samsung Galaxy Case	35,697,841.74	288,827,992.26	324,525,834.00
CASE004	LG Case	39,378,451.32	398,159,896.68	437,538,348.00
COMAPCT001	Fujifilm FinePix	1,126,834,542.60	2,629,280,599.40	3,756,115,142.00
COMAPCT002	Nikon COOLPIX	1,715,823,690.00	2,573,735,535.00	4,289,559,225.00
COMAPCT003	Canon PowerShot	1,336,999,642.00	4,010,998,926.00	5,347,998,568.00
COMAPCT004	Panasonic Lumix	1,944,574,351.72	1,794,991,709.28	3,739,566,061.00
HEADPHONE01	Sony On-Ear Headphones	82,235,717.55	466,002,399.45	548,238,117.00
HEADPHONE02	Bose QuietComfort 15 Noise-Cancelling He	121,715,929.17	984,792,517.83	1,106,508,447.00
HEADPHONE03	Monster iSport In-Ear Headphones	89,427,861.27	904,215,041.73	993,642,903.00
IPOD001	iPod Touch 32 GB	244,331,626.88	1,976,864,981.12	2,221,196,608.00
IPOD002	iPod Touch 64 GB	300,760,449.21	3,041,022,319.79	3,341,782,769.00
IPOD003	iPod Mini 32 GB	500,914,815.60	1,168,801,236.40	1,669,716,052.00
IPOD004	iPod Mini 64 GB	889,106,130.00	1,333,659,195.00	2,222,765,325.00
IPOD005	iPod Shuffle	277,637,505.75	832,912,517.25	1,110,550,023.00
	13" Laptop	2,672,971,610.00	4,009,457,415.00	6,682,429,025.00

Figure 6.32: Table Example

You can follow these steps to setup an Alert based on a Single Measure:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Place a Table from the VBX Utilities into your new project.
3. Add a data source to your new project. For our example we will assume that the data source is similar to what is shown in Figure 6.32.
4. Assign the data source to the Table component.
5. Navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties (see Figure 6.33).

Figure 6.33: Table Alerts

6. You can now enter the details for the different options as shown in Table 6.22.

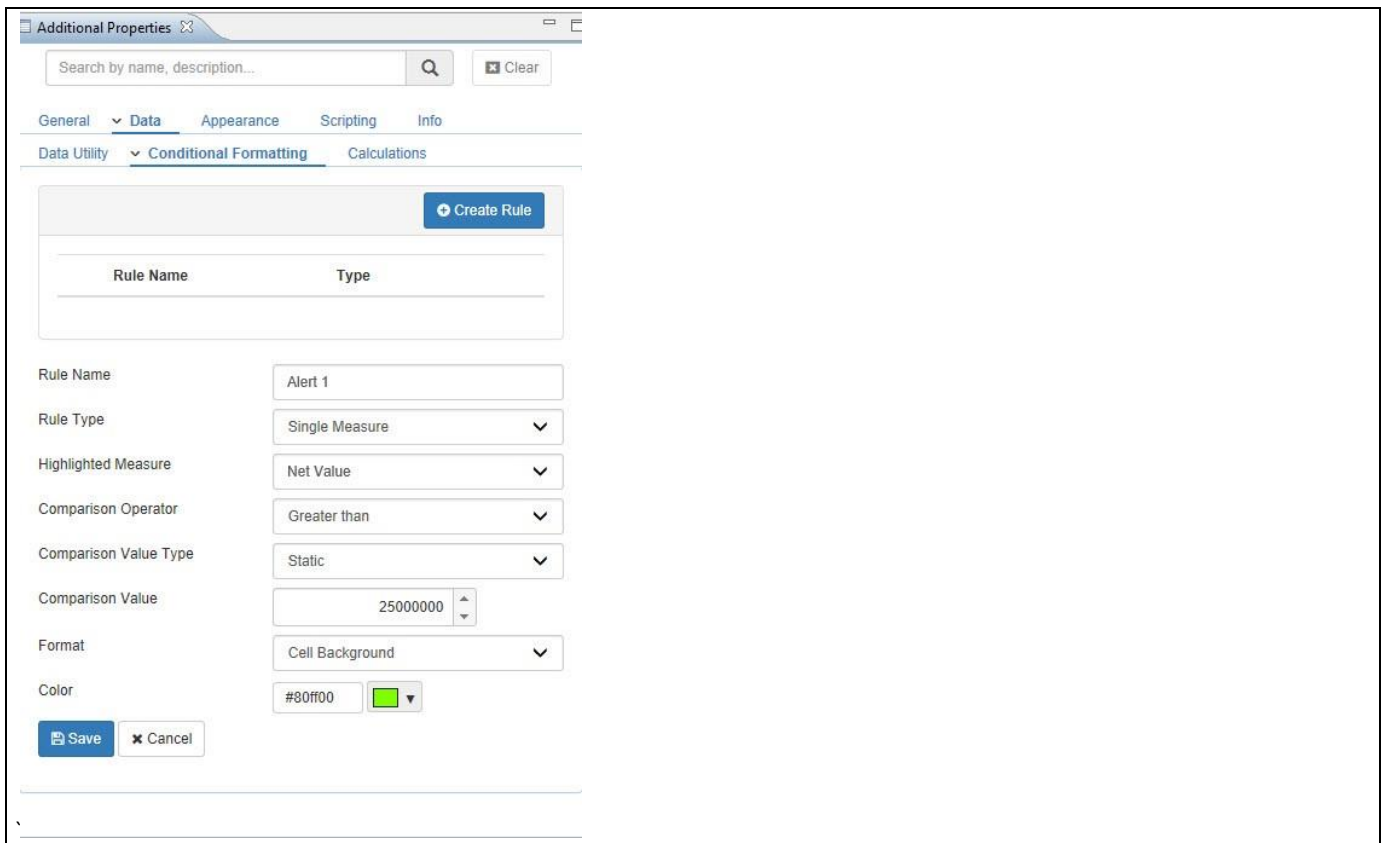
Label	Details
Rule Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value
Highlighted Measure	Here you select the measure will be highlighted.
Comparison Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
Comparison Value Type	Here you can choose between a Static and a Dynamic comparison value.
Dynamic Selection Type	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
Value	Depending on the configured options, the property Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
Format	The Format option allows you to choose between: <ul style="list-style-type: none"> Value : which will highlight the actual displayed value of the measure

Label	Details
	<ul style="list-style-type: none"> Cell Background: which will highlight the cell background Symbol: which allows to choose a symbol which will be added to the measure column. <p>In addition the option Symbol also allows to hide the measure and only display the chosen alert icon either in a new column or as replacement for the measure value.</p>
Color	Here you can choose the color for the Alert.

Table 6.22: Table Alert – Single Measure

7. In our example we are setting up an alert based on the Rule Type Single Measure (see Table 6.22):

- Highlighted Measure will be Net Value
- Comparison Operator will be Greater Than
- Comparison Value Type is Static
- Value is 250000000
- Format is Cell Background
- Color is green



Additional Properties

Search by name, description...

General **Data** Appearance Scripting Info

Data Utility **Conditional Formatting** Calculations

Rule Name	Type
Alert 1	Single Measure

Rule Name: Alert 1

Rule Type: Single Measure

Highlighted Measure: Net Value

Comparison Operator: Greater than

Comparison Value Type: Static

Comparison Value: 250000000

Format: Cell Background

Color: #80ff00

Figure 6.34: Table Alert – Single Measure

8. After configuring the details, click Submit.
9. The Alert will be added to the list and the chosen measure will be highlighted (see Figure 6.35).

Search and press ENTER				
Product		Profit	Costs	Net Value
BLUETOOTH001	Bluetooth Car Kit	198,052,468.50	462,122,426.50	660,174,895.00
BLUETOOTH002	Bose Bluetooth	353,739,564.00	530,609,346.00	884,348,910.00
BLUETOOTH003	Jawbone Bluetooth	220,409,308.75	661,227,926.25	881,637,235.00
BLUETOOTH004	Sennheiser Bluetooth	577,384,699.32	532,970,491.68	1,110,355,191.00
CASE001	iPhone Case	200,722,427.00	123,023,423.00	323,745,850.00
CASE002	Blackberry case	42,014,955.00	236,084,745.00	280,099,700.00
CASE003	Samsung Galaxy Case	35,697,841.74	288,827,992.26	324,525,834.00
CASE004	LG Case	39,378,451.32	398,159,896.68	437,538,348.00
COMAPCT001	Fujifilm FinePix	1,126,834,542.60	2,629,280,599.40	3,756,115,142.00
COMAPCT002	Nikon COOLPIX	1,715,823,690.00	2,573,735,535.00	4,289,559,225.00
COMAPCT003	Canon PowerShot	1,336,999,642.00	4,010,998,926.00	5,347,998,568.00
COMAPCT004	Panasonic Lumix	1,944,574,351.72	1,794,991,709.28	3,739,566,061.00
HEADPHONE01	Sony On-Ear Headphones	82,235,717.55	466,002,399.45	548,238,117.00
HEADPHONE02	Bose QuietComfort 15 Noise-Cancelling He	121,715,929.17	984,792,517.83	1,106,508,447.00
HEADPHONE03	Monster iSport In-Ear Headphones	89,427,861.27	904,215,041.73	993,642,903.00
IPOD001	iPod Touch 32 GB	244,331,626.88	1,976,864,981.12	2,221,196,608.00
IPOD002	iPod Touch 64 GB	300,760,449.21	3,041,022,319.79	3,341,782,769.00
IPOD003	iPod Mini 32 GB	500,914,815.60	1,168,801,236.40	1,669,716,052.00
IPOD004	iPod Mini 64 GB	889,106,130.00	1,333,659,195.00	2,222,765,325.00
IPOD005	iPod Shuffle	277,637,505.75	832,912,517.25	1,110,550,023.00
TABLET001	13 " Laptop	2,672,971,610.00	4,009,457,415.00	6,682,429,025.00

Figure 6.35: Table with Alert

You can follow these steps to setup an Alert based on a Measure Calculation:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Place a Table from the VBX Utilities into your new project.
3. Add a data source to your new project. For our example we will assume that the data source is similar to what is shown in Figure 6.32.
4. Assign the data source to the Table component.
5. Navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties.
6. Set the property Rule Type to the option Measure Calculation (see Figure 6.36).

The screenshot shows the 'Additional Properties' dialog box with the 'Conditional Formatting' tab selected. The 'Create Rule' button is at the top right. Below it is a table with columns 'Rule Name' and 'Type'. The form fields are as follows:

- Rule Name: Text input field
- Rule Type: Dropdown menu (selected: Measure Calculation)
- Highlighted Measure: Dropdown menu
- Comparison Operator: Dropdown menu
- Measure 1: Dropdown menu
- Calculation Operator: Dropdown menu
- Measure 2: Dropdown menu
- Format: Dropdown menu
- Color: Color picker

Buttons: Save, Cancel

Figure 6.36: Alert – Measure Calculation

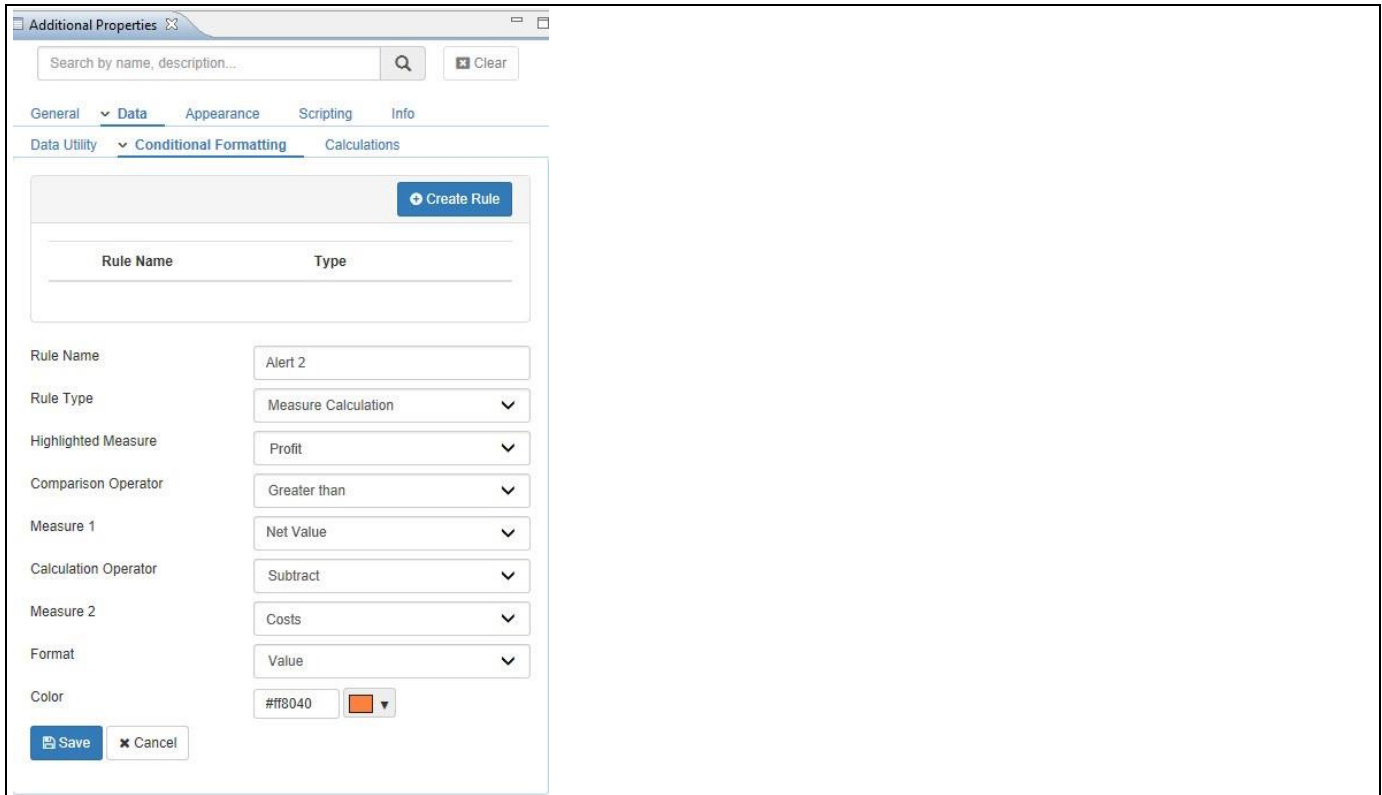
7. You can now enter the details for the different options as shown in Table 6.23:

Label	Details
Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value
Highlighted Measure	Here you select the measure will be highlighted.
Comparison Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
Measure 1	Here you can select the first measure as part of the calculation you would like to configure.
Calculation Operator	Here you can choose the type of calculation. Available options are: Add, Subtract, Divide, Multiply.
Measure 2	Here you can select the second measure as part of the calculation you would like to configure.
Format	<p>The Format option allows you to choose between:</p> <ul style="list-style-type: none"> Value : which will highlight the actual displayed value of the measure Cell Background: which will highlight the cell background Symbol: which allows to choose a symbol which will be added to the measure column. <p>In addition the option Symbol also allows to hide the measure and only display the chosen alert icon either in a new column or as replacement for the measure value.</p>
Color	Here you can define the color for the Alert.

Table 6.23: Table Alert – Measure Calculation

8. In our example we are setting up an alert based on the Rule Type Measure Calculation (see Table 6.23):

- Highlighted Measure will be Profit
- Operator will be Greater Than
- Measure 1 will be Net Value
- Calculation Operator will be Subtract
- Measure 2 will be Cost
- Format will be Value
- Color is orange



The screenshot shows the 'Additional Properties' dialog box with the 'Conditional Formatting' tab selected. The 'Data Utility' section is active, and the 'Conditional Formatting' sub-tab is chosen. A 'Create Rule' button is visible at the top right. Below it, a table lists the rule details:

Rule Name	Type
Alert 2	Measure Calculation

Below the table, the following fields are configured:

- Rule Name: Alert 2
- Rule Type: Measure Calculation
- Highlighted Measure: Profit
- Comparison Operator: Greater than
- Measure 1: Net Value
- Calculation Operator: Subtract
- Measure 2: Costs
- Format: Value
- Color: #ff8040 (Orange)

At the bottom, there are 'Save' and 'Cancel' buttons.

Figure 6.37: Alert – Measure Calculation

9. After configuring the details, click Submit.

10. The Alert will be added to the list and the chosen measure will be highlighted (see Figure 6.38).

Search and press ENTER					
Product		Profit	Costs	Net Value	
BLUETOOTH001	Bluetooth Car Kit	198,052,468.50	462,122,426.50	660,174,895.00	
BLUETOOTH002	Bose Bluetooth	353,739,564.00	530,609,346.00	884,348,910.00	
BLUETOOTH003	Jawbone Bluetooth	220,409,308.75	661,227,926.25	881,637,235.00	
BLUETOOTH004	Sennheiser Bluetooth	577,384,699.32	532,970,491.68	1,110,355,191.00	
CASE001	iPhone Case	200,722,427.00	123,023,423.00	323,745,850.00	
CASE002	Blackberry case	42,014,955.00	238,084,745.00	280,099,700.00	
CASE003	Samsung Galaxy Case	35,697,841.74	288,827,992.26	324,525,834.00	
CASE004	LG Case	39,378,451.32	398,159,896.68	437,538,348.00	
COMAPCT001	Fujifilm FinePix	1,126,834,542.60	2,629,280,599.40	3,756,115,142.00	
COMAPCT002	Nikon COOLPIX	1,715,823,690.00	2,573,735,535.00	4,289,559,225.00	
COMAPCT003	Canon PowerShot	1,336,999,642.00	4,010,996,926.00	5,347,998,568.00	
COMAPCT004	Panasonic Lumix	1,944,574,351.72	1,794,991,709.28	3,739,566,061.00	
HEADPHONE01	Sony On-Ear Headphones	82,235,717.55	466,002,399.45	548,238,117.00	
HEADPHONE02	Bose QuietComfort 15 Noise-Cancelling He	121,715,929.17	984,792,517.83	1,106,508,447.00	
HEADPHONE03	Monster iSport In-Ear Headphones	89,427,861.27	904,215,041.73	993,642,903.00	
IPOD001	iPod Touch 32 GB	244,331,626.88	1,976,864,981.12	2,221,196,608.00	
IPOD002	iPod Touch 64 GB	300,760,449.21	3,041,022,319.79	3,341,782,769.00	
IPOD003	iPod Mini 32 GB	500,914,815.60	1,168,801,236.40	1,669,716,052.00	
IPOD004	iPod Mini 64 GB	889,106,130.00	1,333,659,195.00	2,222,765,325.00	
IPOD005	iPod Shuffle	277,637,505.75	832,912,517.25	1,110,550,023.00	
13" Laptop		2,672,971,610.00	4,009,457,415.00	6,682,429,025.00	

Figure 6.38: Table with Alert

You can follow these steps to setup an Alert based on a Target Value:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Place a Table from the VBX Utilities into your new project.
3. Add a data source to your new project. For our example we will assume that the data source is similar to what is shown in Figure 6.32.
4. Assign the data source to the Table component.
5. Navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties.
6. Set the property Rule Type to the option Target Value (see Figure 6.39).

Figure 6.39: Table Alert – Target Value

7. You can now enter the details for the different options as shown in Table 6.24:

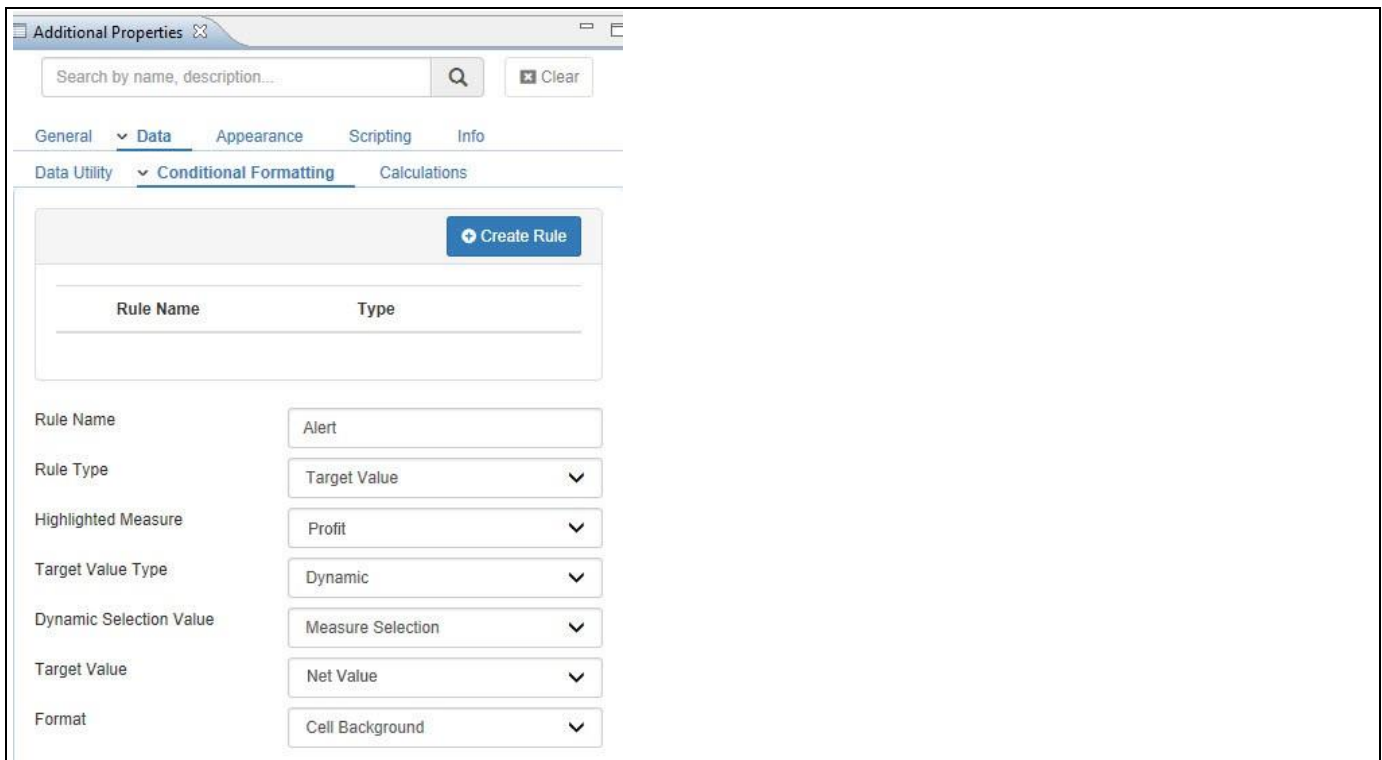
Label	Details
Rule Name	Here you can enter a Name for the Alert.
Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value
Highlighted Measure	Here you select the measure will be highlighted.
Target Value Type	Here you can choose between a Static and a Dynamic comparison value.
Dynamic Selection Type	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
Target Value	Depending on the configured options, the property Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
Format	The Format option allows you to choose between: <ul style="list-style-type: none"> Value : which will highlight the actual displayed value of the measure Cell Background: which will highlight the cell background Symbol: which allows to choose a symbol which will be added

Label	Details
	<p>to the measure column.</p> <p>In addition the option Symbol also allows to hide the measure and only display the chosen alert icon either in a new column or as replacement for the measure value.</p>

Table 6.24: Table Alert – Target Value

8. In our example we are setting up an alert based on the Rule Type Target Value (see Table 6.24):

- Highlighted Measure will be Profit
- Target Value Type will be Dynamic
- Dynamic Selection Type will be Measure Selection
- Target Value will be Net Value.
- Format will be Cell Background



Additional Properties

Search by name, description...

General **Data** Appearance Scripting Info

Data Utility **Conditional Formatting** Calculations

Rule Name	Type
Alert	Target Value
Profit	Dynamic
Measure Selection	Net Value
Cell Background	

Figure 6.40: Target Value – Rule

- After configuring the basic items, you can click on Add Rule to add a new rule to the alert.
- You can now specify the From and To values as well as select the color that will be used for this particular rule
- In our example we defined two rules highlighting the measure Profit based on the percentage achievement compared to the measure Net Value (see Figure 6.41).

Additional Properties

Search by name, description...

General Data Appearance Scripting Info

Data Utility Conditional Formatting Calculations

+ Create Rule

Rule Name	Type
Alert	Target Value

Rule Name: Alert

Rule Type: Target Value

Highlighted Measure: Profit

Target Value Type: Dynamic

Dynamic Selection Value: Measure Selection

Target Value: Net Value

Format: Cell Background

Rules

From	To	Color
0	20	#ff8000
21	35	#008080

+ Create

Save Cancel

Figure 6.41: Target Value – Defined Rules

11. After configuring the details, click Save.
12. The Alert will be added to the list and the chosen measure will be highlighted (see Figure 6.42).

Search and press ENTER

Product Group	Product	Profit
AUDIO	MP3 & Headphones	3,629,472,988.09
CAMERA	Cameras	14,919,610,226.88
COMPUTER	Laptops	21,409,509,582.38
PHONE01	Cell Phones	9,029,020,802.52
PHONE02	Cell Phone Accessories	1,667,399,715.63
TV	TV	36,794,685,256.13

visualbi

Figure 6.42: Table with Alerts

6.8.1.8 Calculations

The Table is also offering the ability to add a custom calculation to the Table. Calculations can be defined either on a single measure or as a calculation involving up to two measures.

You can follow these steps to setup a new Calculation for a Table:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Place a Table from the VBX Utilities into your new project.
3. Add a data source to your new project. For our example we will assume that the data source is similar to what is shown in Figure 6.120.
4. Assign the data source to the Table component.
5. Navigate to the category Data and to the sub category Calculation in the Additional Properties (see Figure 6.43).

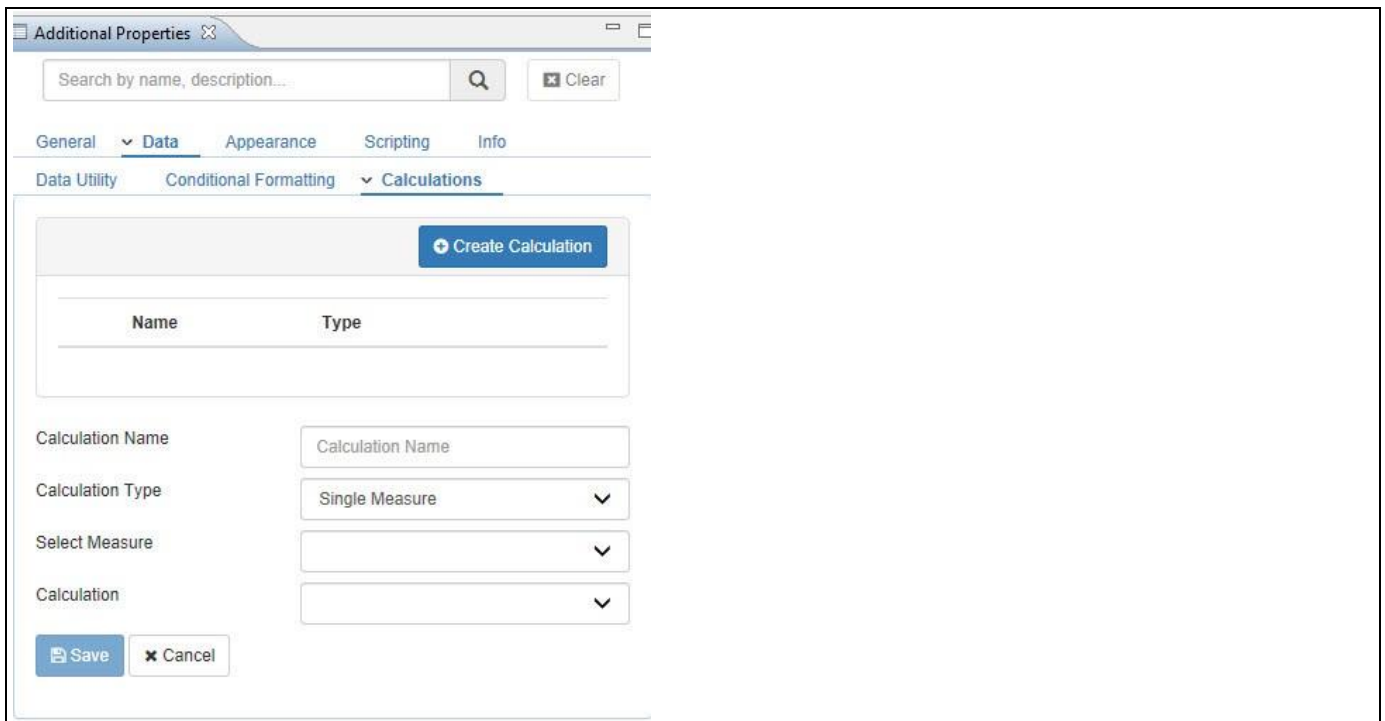


Figure 6.43: Table Calculations

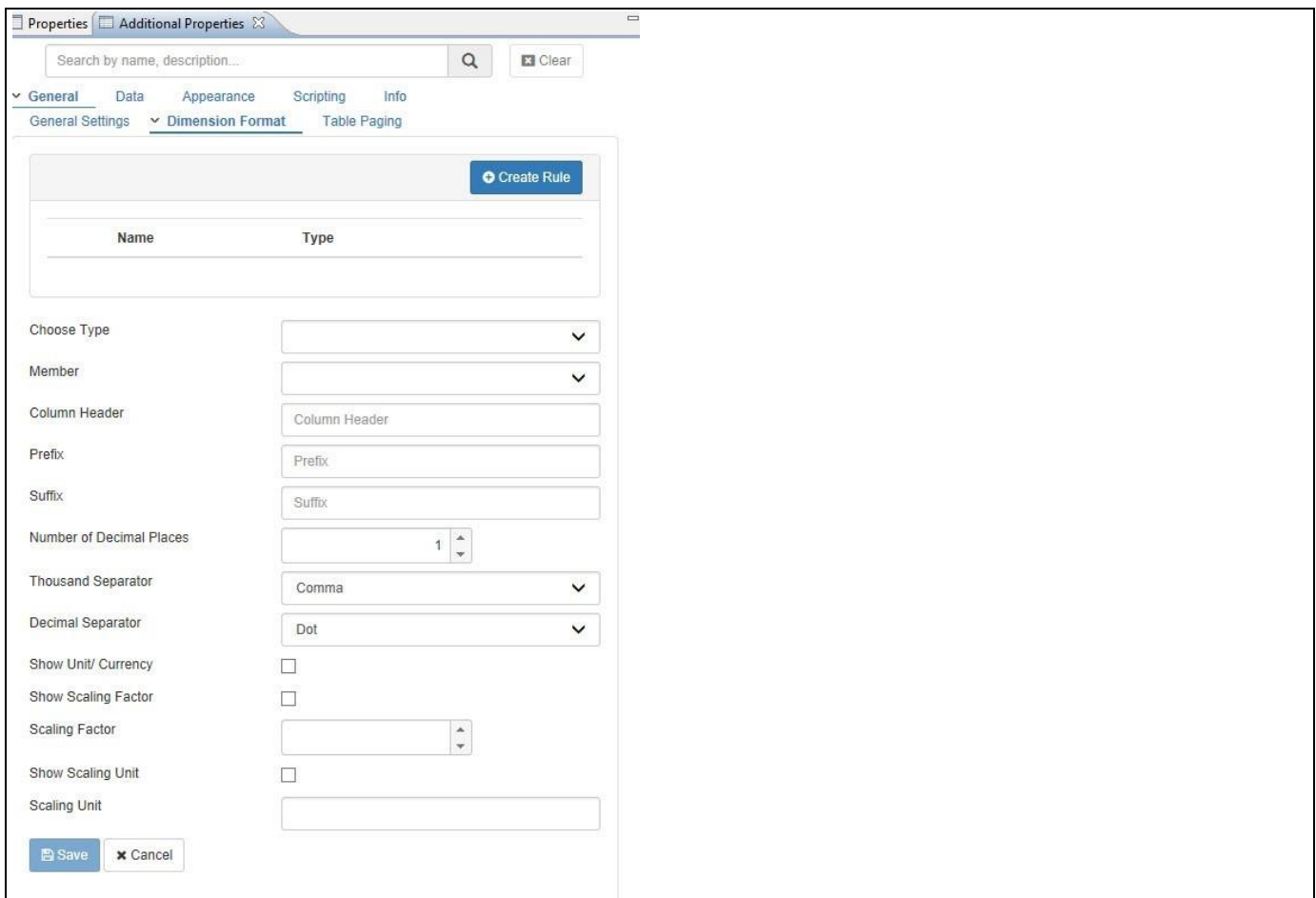
6. Enter a Name for your new Calculation.
7. Select the Formula Type. You can choose between Single Measure and Two Measures:
 - In case of a Single Measure you can use the following calculations: Rank, Olympic Rank, and Percentage Share of Parent.
 - In case of Two Measures you can use Add, Subtract, Multiply, Divide.
8. In case you select the option Single Measure, you will have to select a measure and a calculation option.
9. In case you selected the option Two Measures, you will have to specify the two measures and the type of calculation.
10. Click Save and the new calculation will be added to the Table.

6.8.1.9 Formatting Columns

In the General category of the Additional Properties the Table provides you with very detailed options to configure the formatting for each of the available columns.

You can follow these steps to setup a new Calculation for a Table:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Place a Table from the VBX Utilities into your new project.
3. Add a new data source to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. For our example we will assume that the data source contains a dimension Product Group and a measure Revenue.
5. Assign the data source to the Table component
6. Navigate to the category General and to the sub category Dimension Format in the Additional Properties of the Table (see Figure 6.44).



The screenshot shows the 'Additional Properties' dialog for a Table component, with the 'Dimension Format' sub-category selected. The dialog includes a search bar at the top and a 'Create Rule' button. Below this is a table with columns 'Name' and 'Type'. The main area contains various formatting options:

- Choose Type:** A dropdown menu.
- Member:** A dropdown menu.
- Column Header:** A text input field with the value 'Column Header'.
- Prefix:** A text input field with the value 'Prefix'.
- Suffix:** A text input field with the value 'Suffix'.
- Number of Decimal Places:** A numeric input field with the value '1'.
- Thousand Separator:** A dropdown menu with the value 'Comma'.
- Decimal Separator:** A dropdown menu with the value 'Dot'.
- Show Unit/ Currency:** A checkbox.
- Show Scaling Factor:** A checkbox.
- Scaling Factor:** A numeric input field.
- Show Scaling Unit:** A checkbox.
- Scaling Unit:** A text input field.

At the bottom, there are 'Save' and 'Cancel' buttons.

Figure 6.44: Dimension Format

7. Here you can now specify the details for a Dimension or a Measure.
8. Set the Type to Dimension.

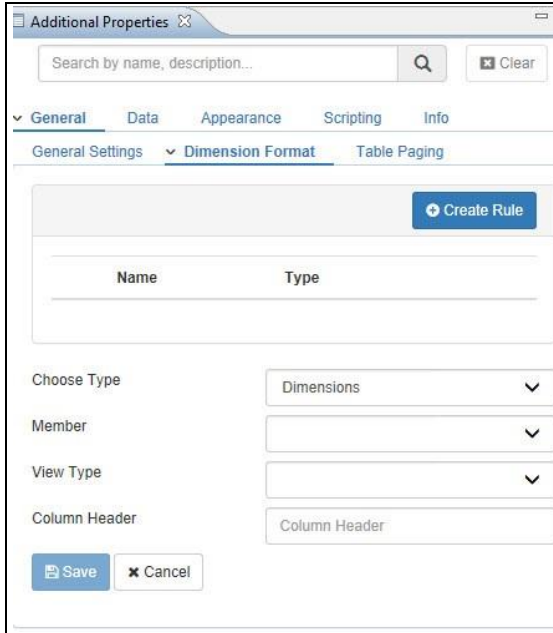


Figure 6.45: Dimension Options

9. Here you can now configure the details for the dimension, as shown in Table 6.25:

Label	Details
Member	Here you can choose any of the available dimension from the assigned data source.
View Type	Here you can specific if the dimension should be shown with Text, Key, Text and Key, Key and Text, or based on the definition in the Initial View of the data source.

Table 6.25:Dimension options

- After you configured the details you can click on Submit to apply your configurations to the dimension shown in the Table.
- Set the Type to Measures.

Figure 6.46: Measures Formatting

12. Here you can now configure the details for the measure, as shown in Table 6.26:

Label	Details
Prefix / Suffix	Here you can enter a text that will be used either as a Prefix or as a Suffix for the measure value.
No of decimal places	Here you can specify the number of decimals for the display of the measure in the Table.
Thousand Separator	Here you can choose the thousand separator symbol.
Decimal Separator	Here you can choose the decimal separator symbol.
Show Unit / Currency	You can choose to activate the display of the Unit / Currency. The assigned Unit / Currency is retrieved from the underlying data source and the Unit / Currency will be displayed in the column header.
Enable Scaling Factor	You can choose to activate the display of the Scaling Factor. In case you specify a Scaling Factor in the Additional Properties for the measure, then the specified Scaling Factor will be used. In case no Scaling Factor is assigned in the Additional Properties, then the Scaling Factor is being retrieved from the underlying source. The scaling factor will be displayed as part of the column header.
Scaling Factor	Here you can specify a scaling factor for the measure. Any scaling factor specified here in the Additional Properties will overwrite a scaling factor specified in the data source.

Label	Details
Show Scaling Unit	Here you can activate the display of the Scaling Unit. The Scaling Unit will be displayed in the column header.
Scaling Unit	Here you can specify the Scaling Unit.

Table 6.26: Measure Formatting

13. After you configured the details you can click on Save to apply your configurations to the dimension shown in the Table.

6.8.1.10 Using the Data Utility Tool

Similar to the charts, the Table component is also offering a Data Utility tool which allows you to choose from a subset of dimensions that will be displayed in the Table. Instead of changing the assigned data source you can choose as part of the Additional Properties of the Table, which dimensions from the data source you would like to show as part of the Table.

You can follow these steps to use the Data Utility Tool for a Table:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Place a Table from the VBX Utilities into your new project.
3. Add a new data source to the project. In our example we assume that our data source has two dimensions: Product Category and Region.
4. Assign the Data Source to the Table.
5. Navigate to the category Data and to the sub category Data Utility in the Additional Properties.
6. Activate the option Enable Data Utility Tool (see Figure 6.47).




Figure 6.47: Table – Data Utility

7. Here you can now drag and drop from the list of available dimensions, those dimensions that you would like to show as part of the Table into the Rows / Column area.
8. After you added the dimensions, click Submit.

The Data Utility tool helps you to reduce the need for changing the initial view and increase the reusability of a single data source because you can decide which parts of the data source the Table will use without having to change the data source.

6.8.1.11 Simple Mode

The Table component now supports a Simple Mode which can be used to increase the performance of the Table. In the Simple Mode the following features cannot be activated: Sorting, Searching, Filtering, and Data Utility.

You can follow activate the Simple Mode using the following steps:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Place a Table from the VBX Utilities into your new project.
3. Add a new data source to the project.
4. Assign the Data Source to the Table.
5. Navigate to the category **General** and to sub category **General Settings** in the Additional Properties.
6. Activate the option Activate Simple Mode (see Figure 6.48).

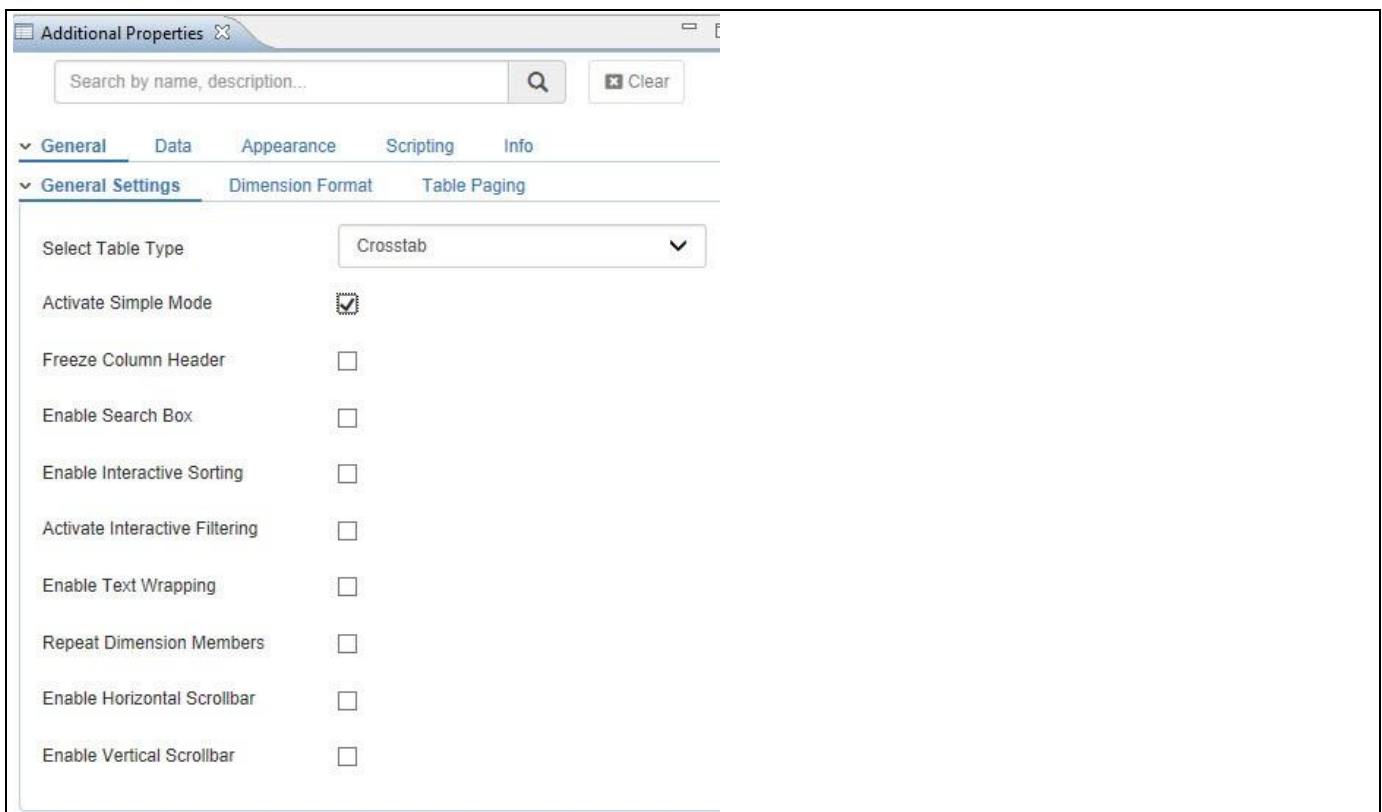


Figure 6.48: Simple Mode

The Simple Mode especially helps to improve the performance for larger data volumes.

6.8.2 Additional Properties of the Table

In the following sections you will find a list of available properties and a Table with a more detailed description of each of those properties.

6.8.2.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Property	Description
General Settings	Select Table Type	Here you can choose the type of Table. You can choose between a Crosstab and a Horizontal Table. In a crosstab, the dimensions can be displayed either in rows or columns, whereas in a Horizontal Table, dimensions are displayed only in the rows.
	Activate Simple Mode	The Simple Mode is helpful to improve the performance for larger data sets. When Simple Mode is activated, the following features cannot be enabled: Searching, Sorting, Filtering, and Data Utility.
	Freeze Column Header	Here you can activate the option to Freeze the header, so that the column headers stay when scrolling vertically.
	Enable Search Box	Here you can activate the integrated search feature.
	Enable Interactive Sorting	Here you can activate the integrated sorting feature.
	Activate Interactive Filtering	Here you can enable an interactive filter option for the columns in the Table.
	Enable Text Wrapping	Here you can activate Text wrapping for the Table.
	Repeat Dimension Members	This option allows you to enable / disable the feature to repeat dimension members for situations where several dimensions are stacked up.
	Enable Horizontal Scrollbar	Here you can activate a Horizontal scrollbar.
	Enable Vertical Scrollbar	Here you can activate a Vertical scrollbar.
Dimension Format	Choose Type	Here you can choose the value type, either Dimension or Measures.
	Member	Here you can choose the member from the Dimension or Measures for formatting.
	View Type	In case of formatting a dimension you can set the view type. Available options are Text, Key, Text and Key, Key and Text, Initial View.
	Column Header	Here you can specify the Text for Column Header to be displayed in the Table.
	Prefix	Here you can define a Prefix for the Measure.
	Suffix	Here you can define a Suffix for the Measure.
	No. of Decimal places	Sets the number of decimal places for the measure

Sub category	Property	Description
		values.
	Thousand Separator	Sets the thousand separator for the measure values. Available options are 'dot' and 'comma'.
	Decimal Separator	Sets the decimal separator for the measure values. Available options are 'dot' and 'comma'.
	Show Unit/Currency	Enables the display of the Unit or the Currency information for the measure values. The Unit and Currency information is retrieved from the underlying data source.
	Enable Scaling Factor	Enables the display of the scaling factor for the measure values.
	Scaling Factor	Enables you to configure a scaling factor for the selected measure.
	Show Scaling Unit	Enables the display of the Scaling Unit for the selected measure.
	Scaling Unit	Here you can specify a scaling Unit for the selected measure.
	Save	Click the Save button after configuring the different properties to apply those settings to the Table.
Table Paging	Activate Table Paging	This option allows you to enable / disable the paging option for the Table.
	No. of Rows / page	Here you can specify the number of rows per page.
	Repeat Column Header	This option allows you to enable / disable the feature to repeat the Table header on each page.
	Placement of Page Navigator	Here you can select the position of the page navigation. You can choose Top or Bottom.
	Style of Page Navigator	Here you can select the style for the page navigator. You can choose between Button and Number. Button will display a small circle for each page. Number will display the page number.

Table 6.27: Category General

6.8.2.2 Category Data

Below you can see the Additional Properties for the category Data and their descriptions.

Sub category	Property	Description
Data Utility	Enable Data Utility Tool	This option allows you to activate the Data Utility tool for the Table, so that you can select which dimensions from the data source will be displayed in the Table.
Conditional Formatting	Rule Name	Here you can enter a Name for the Alert.
	Rule Type	You can choose between : Single Measure, Measure Calculation, Target Value.

Sub category	Property	Description
	Highlighted Measure	Here you will select the measure that will be used to compare against a static or dynamic value.
	Comparison Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
	Comparison Value Type	Here you can choose between a Static comparison value, a Dynamic comparison value, or a Measure Comparison.
	Target Value Type	Here you can choose between a Static and a Dynamic comparison value.
	Dynamic Selection Value	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
	Comparison Value	Depending on the configured options, the property Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
	Measure 1	Here you can select the first measure as part of the calculation you would like to configure.
	Calculation Operator	Here you can choose the type of calculation. Available options are: Add, Subtract, Divide, Multiply.
	Measure 2	Here you can select the first measure as part of the calculation you would like to configure.
	Format	The Format option allows you to choose between: <ul style="list-style-type: none"> Value : which will highlight the actual displayed value of the measure. Cell Background: which will highlight the cell background. Symbol: which allows to choose a symbol which will be added to the measure column. In addition the option Symbol also allows to hide the measure and only display the chosen alert icon either in a new column or as replacement for the measure value.
	Color	Here you can set the color for the Alert.
Calculations	Calculation Name	Specify a name for the calculation.
	Calculation Type	You can choose between Single Measure and Two Measures. In case of a Single Measure you can use the following calculations: Rank, Olympic Rank, and Percentage Share of Parent. In case of Two Measures you can use Add, Subtract,

Sub category	Property	Description
		Multiply, Divide.
	Select Measure	Here you select the measure which will be used for a calculation (Single Measure).
	Calculation	Here you choose the calculation type (Single Measure).
	Select Measure	Select the first measure for the measure calculation (Two Measures).
	Select the Second Measure	Select the second measure for the measure calculation (Two Measures).
	Calculation	Select the calculation to be applied on the two selected measures – Addition, Subtraction, Multiplication and Percentage Share of Total (Two Measures).

Table 6.28: Category Data

6.8.2.3 Category Appearance

Below you can find the Additional Properties for the category Appearance and their descriptions.

Sub category	Property	Description
General Settings	Enable Google Font	Here you can enable / disable the option for Google Font.
	Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
	Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
Table Body	Minimum Column Width	Set the minimum column width for each column used in the Table.
	Minimum Row Height	Set the minimum row height for each row used in the Table.
	Font Family	Set the font family for the rows in the Table.
	Font Size	Set the font size for the rows in the Table.
	Font Color	Set the font color for the rows in the Table.
	Font Style	Set the font weight for the rows in the Table.
	Horizontal Alignment - Text	Set the horizontal alignment for the dimension text.
	Horizontal Alignment - Measure(s)	Set the horizontal alignment for the measures.
	Vertical Alignment	Set the vertical alignment for the dimension text.
	Row Background Color	Set the background color for the rows.
	Banded Row Background Color	Set the Background Color for the alternate rows. This color setting is applied to all alternate rows starting

Sub category	Property	Description
		from the second row immediately after the header row.
	Horizontal Line Color	Set the Horizontal Line Color for each row of the Table.
	Horizontal Line Width	Set the Horizontal Line Width for each row of the Table.
	Vertical Line Color	Set the Vertical Line Color for the columns of the Table.
	Vertical Line Width	Set the Vertical Line Width for the columns of the Table.
	Outer Line Color	Set the Outer Line Color for the Table. This corresponds to the rectangular outline the whole Table.
	Outer Line Width	Set the Outer Line Width for the Table. This corresponds to the rectangular outline the whole Table.
	Background Color	Set the Background Color for the Table.
Table Header	Font Size	Set the font size for the column header.
	Font Color	Set the header font color for the column header.
	Font Style	Set the font weight for the column header.
	Horizontal Alignment	Set the horizontal text alignment for the column header.
	Vertical Alignment	Set the horizontal text alignment for the column header.
	Background Color	Set the background color for the column header.

Table 6.29: Category Appearance

6.8.3 Scripting Function for the Table

The following Table outlines the available scripting functions for the Table component.

Function / Method	Description
DSXgetSelectedMembers()	This function returns the value of the selected members in form of an array.
DSXSetDataSelection ()	This function allows you to define a data selection, which then will be used as data source for the Table.
DSXGetDataSelection()	This function retrieves the assigned Data Selection from the Table.
DSXGetSelectedMember()	This function returns the values of selected members in form of a string value.
DSXgetSelectedMember()	This function allows to retrieve the selected member in form of a Member object.
DSXSetDataSelection()	This function allows to set the Data Selection for the Table.

Table 6.30: Scripting Functions

6.8.4 Events for the Table

The following Table outlines the available events for the Table component.

Event	Description
On Click	This event is being triggered each time the user selects a row in the Table. The user can perform a single selection or a multi-row selection.
Enable Multi-Select	This event allows the option to toggle between single and multi-select options in the Table.

Table 6.31: Events

6.9 Advanced Table

The Advanced Table provides the dashboard designer with a Table component with an advanced set of features, such as sorting, integrated search, alerting, calculations, and easy formatting (see Figure 6.49).

Type your text...					
↑	Item Category	Item Subcategory	Discount Amount	Order Amount	Order Cost
☰	Music (6)	Alternative	21,007.65	717,696.00	687,609.54
		Country	22,284.50	742,355.00	713,256.47
		Music - Misc	18,295.75	610,714.00	531,517.96
		Pop	21,077.20	700,777.00	660,111.42
		Rock	21,472.75	713,335.00	681,071.89
		Soul / R&B	14,472.50	482,618.00	396,470.24

Figure 6.49: Advanced Table

6.9.1 Features of the Advanced Table

The Advanced Table component is offering several features, which are explained in the sections below.

6.9.1.1 Table Themes

As part of Release 2.32, you have the option for configuring the predefined Table Themes for the Advanced Table by navigating to the category Appearance and to the subcategory Table Theme of the Additional Properties for the Advanced Table (see Figure 6.50). The predefined Table Themes are Simple, Context Menu, Status Bar and Tool Panel.

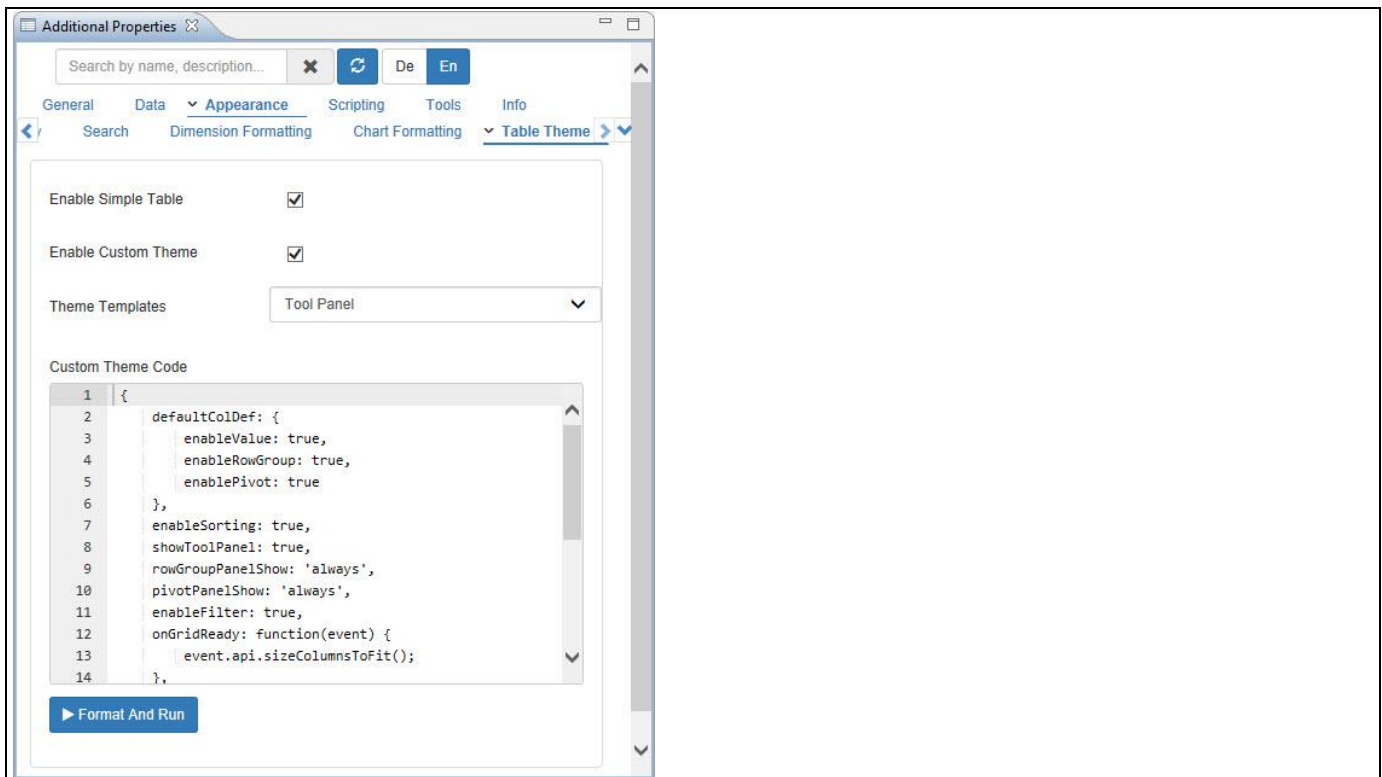
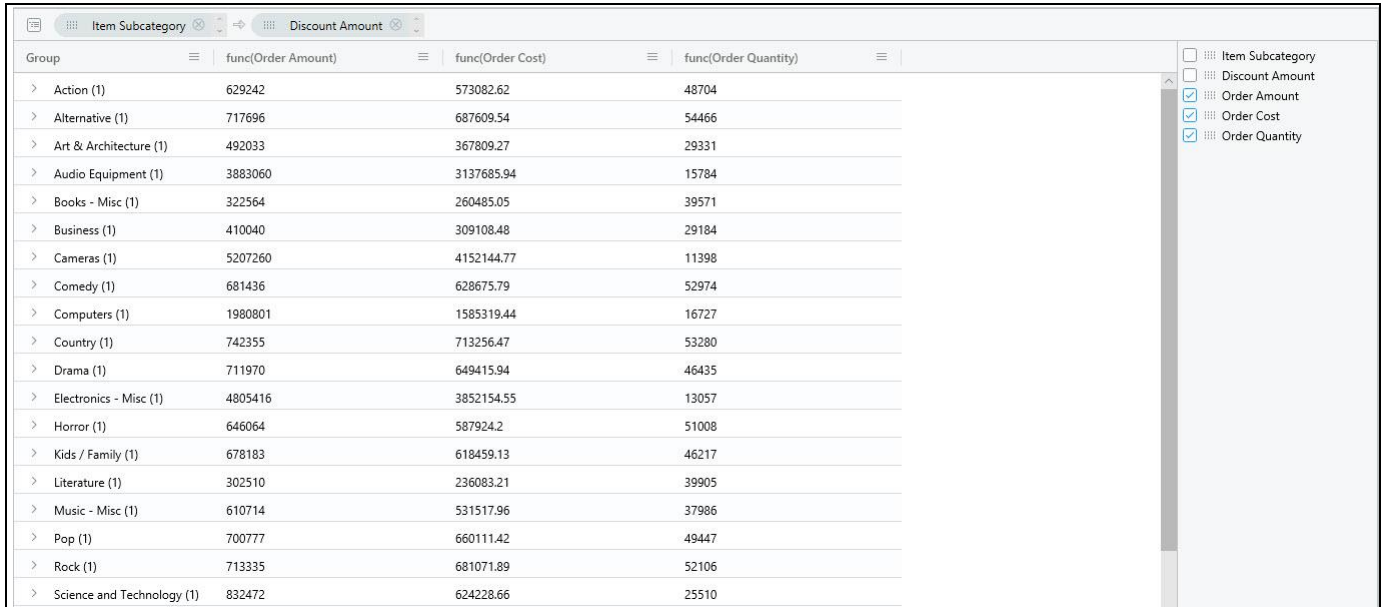


Figure 6.50: Category Appearance

For our example, the properties “Enable Sample Theme” and “ Enable Custom Theme” have been activated. The property Theme Templates is set to the option “Tool Panel” (see Figure 6.50).

Based on the above configuration, you will be able to visualize the Advanced Table with the selected Theme as “Tool Panel” based on the Custom Theme Code (see Figure 6.51). The Custom Theme Code is written in JSON File and you can also customize the code to visualize the Advanced Table based on your custom settings.



Group	func(Order Amount)	func(Order Cost)	func(Order Quantity)
> Action (1)	629242	573082.62	48704
> Alternative (1)	717696	687609.54	54466
> Art & Architecture (1)	492033	367809.27	29331
> Audio Equipment (1)	3883060	3137685.94	15784
> Books - Misc (1)	322564	260485.05	39571
> Business (1)	410040	309108.48	29184
> Cameras (1)	5207260	4152144.77	11398
> Comedy (1)	681436	628675.79	52974
> Computers (1)	1980801	1585319.44	16727
> Country (1)	742355	713256.47	53280
> Drama (1)	711970	649415.94	46435
> Electronics - Misc (1)	4805416	3852154.55	13057
> Horror (1)	646064	587924.2	51008
> Kids / Family (1)	678183	618459.13	46217
> Literature (1)	302510	236083.21	39905
> Music - Misc (1)	610714	531517.96	37986
> Pop (1)	700777	660111.42	49447
> Rock (1)	713335	681071.89	52106
> Science and Technology (1)	832472	624228.66	25510

Figure 6.51: Advanced Table with Table Theme

Enable Simple Table

The properties “Enable Custom Theme” and “Theme Templates” will only function when the property “Enable Simple Table” is activated.

6.9.1.2 Positive and Negative value Colors for Boolean Format option in Conditional Formatting

As part of Release 2.32, you have the option for configuring the positive and negative value colors for the Boolean Format option in Conditional Formatting by navigating to the category Data and to the subcategory Conditional Formatting of the Additional Properties for the Advanced Table (see Figure 6.52).

Figure 6.52: Category Data - Boolean Format

For our example we are setting up an alert with the following properties to visualize the Positive and Negative value Colors for the Boolean Format option:

- Name: Enter the Rule Name
- Type: Single Measure
- Highlighted Measure: Discount Amount
- Operator: Greater than
- Comparison Value Type: Static
- Comparison Value: 15000
- Format: Boolean
- Color: Green
- Color (Negative): Red

- Add Alert as New Column: Enabled
- Place Alert Column After: Discount Amount
- Header: Alert

Based on the above configuration you will be able to visualize the Advanced Table showing the Positive and Negative value Colors for the Boolean Format option.

Type your text...	Item Category	Item Subcategory	Discount Amount	Alert	Order Amount	Order Cost	Order Quantity
Books	Art & Architecture		14864	✖	492033	367809.27	
	Books - Misc		9529.75	✖	322564	260485.05	
	Business		12333.15	✖	410040	309108.48	
	Literature		8969.3	✖	302510	236083.21	
	Science and Technology		24978.6	✔	832472	624228.66	
	Sports & Health		10305.6	✖	343023	258498.08	
Electronics	Audio Equipment		114678	✔	3883060	3137685.94	
	Cameras		156159.5	✔	5207260	4152144.77	
	Computers		58031.9	✔	1980801	1585319.44	
	Electronics - Misc		144865.6	✔	4805416	3852154.55	
	TV		118966.4	✔	3946567	3150105.37	
	Video Equipment		152690	✔	5246080	4168846.96	
Movies	Action		18828.05	✔	629242	573082.62	
	Comedy		20104.05	✔	681436	628675.79	
	Drama		20701.7	✔	711970	649415.94	
	Horror		19365.6	✔	646064	587924.2	
	Kids / Family		20208.7	✔	678183	618459.13	
	Special Interests		24948.9	✔	830598	744201.73	

Figure 6.53: Boolean Format

6.9.1.3 Theme for Advanced Table

In the Additional Properties of the Advanced Table in the category General and the sub category General Settings, you have the ability to select the theme for the Advanced Table by using the property Choose Theme for table (see Figure 6.54) so that the column headers in the Advanced Table will change according to the selected theme. The options are Fresh Theme, Blue Theme and Dark Theme.

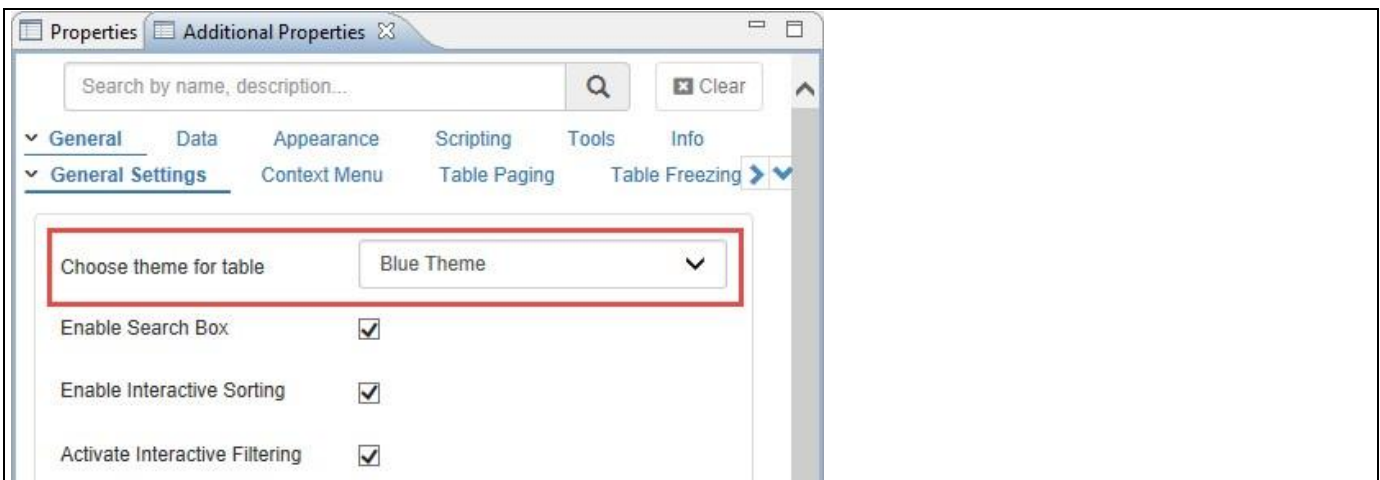


Figure 6.54: Choose Theme for Table

For our example, the property Choose Theme for table has been selected with the option as Blue theme and based on the configuration, you will be able to view the Advanced Table with the column header appearing with blue theme (see Figure 6.55).

Type your text...						
Item Category	Item Subcategory	Order Cost	Discount Amount	Order Quantity	Order Amount	
Books	Art & Architecture	367,809.27	14,864.00	29,331	492,033.00	
	Books - Misc	260,485.05	9,529.75	39,571	322,564.00	
	Business	309,108.48	12,333.15	29,184	410,040.00	
	Literature	236,083.21	8,969.30	39,905	302,510.00	
	Science and Technology	624,228.66	24,978.60	25,510	832,472.00	
	Sports & Health	258,498.08	10,305.60	27,535	343,023.00	
Electronics	Audio Equipment	3,137,685.94	114,678.00	15,784	3,883,060.00	
	Cameras	4,152,144.77	156,159.50	11,398	5,207,260.00	
	Computers	1,585,319.44	58,031.90	16,727	1,980,801.00	
	Electronics - Misc	3,852,154.55	144,865.60	13,057	4,805,416.00	
	TV	3,150,105.37	118,966.40	15,120	3,946,567.00	
	Video Equipment	4,168,846.96	152,690.00	11,350	5,246,080.00	
Movies	Action	573,082.62	18,828.05	48,704	629,242.00	
	Comedy	628,675.79	20,104.05	52,974	681,436.00	
	Drama	649,415.94	20,701.70	46,435	711,970.00	
	Horror	587,924.20	19,365.60	51,008	646,064.00	
	Kids / Family	618,459.13	20,208.70	46,217	678,183.00	
	Special Interests	744,201.73	24,948.90	38,802	830,598.00	

Figure 6.55: Advanced Table with Blue Theme

6.9.1.4 Enable Formatted Data

In the Additional Properties of the Advanced Table in the category General and the sub category General Settings, you have the ability to enable the property Enable Formatted Data (see Figure 6.56) so that the unit of measures will be displayed as prefix/suffix for all the measure values.

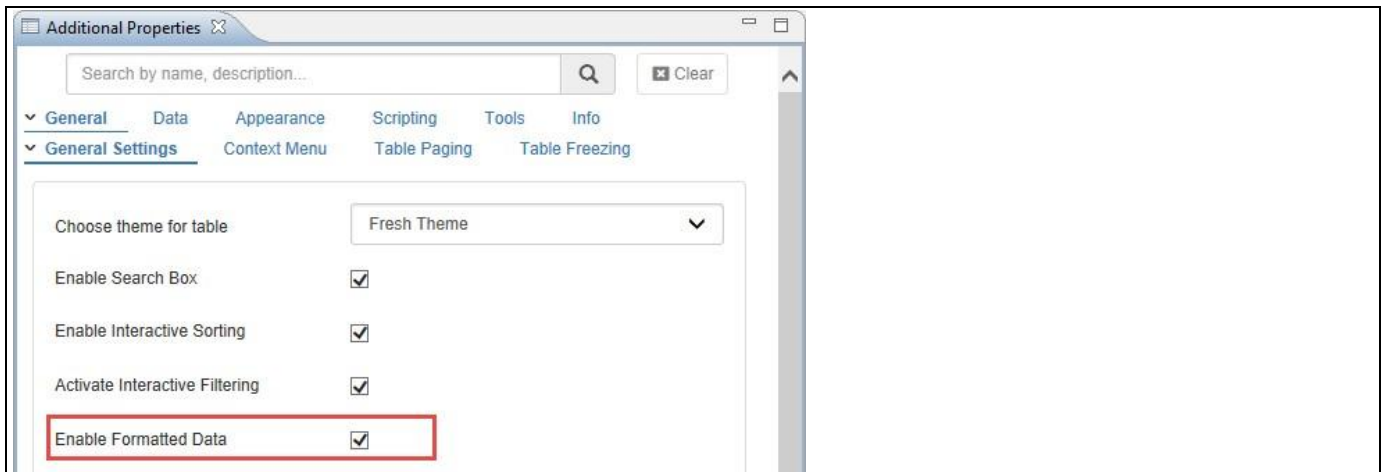


Figure 6.56: Choose Theme for Table

Based on the above configuration you will be able to view the Advanced Table being displayed with the unit of measures as prefix/suffix for all the measure values based on the assigned data set (see Figure 6.57).

Type your text...						
Item Category	Item Subcategory	Order Cost	Discount Amount	Order Quantity	Order Amount	
Books	Art & Architecture	\$ 367,809.27	\$ 14,864.00	29,331 EA	\$ 492,033.00	
	Books - Misc	\$ 260,485.05	\$ 9,529.75	39,571 EA	\$ 322,564.00	
	Business	\$ 309,108.48	\$ 12,333.15	29,184 EA	\$ 410,040.00	
	Literature	\$ 236,083.21	\$ 8,969.30	39,905 EA	\$ 302,510.00	
	Science and Technology	\$ 324,228.66	\$ 24,978.60	25,510 EA	\$ 832,472.00	
	Sports & Health	\$ 258,498.08	\$ 10,305.60	27,535 EA	\$ 343,023.00	
Electronics	Audio Equipment	\$ 3,137,685.94	\$ 114,678.00	15,784 EA	\$ 3,883,060.00	
	Cameras	\$ 4,152,144.77	\$ 156,159.50	11,398 EA	\$ 5,207,260.00	
	Computers	\$ 1,585,319.44	\$ 58,031.90	16,727 EA	\$ 1,980,801.00	
	Electronics - Misc	\$ 3,852,154.55	\$ 144,865.60	13,057 EA	\$ 4,805,416.00	
	TV	\$ 3,150,105.37	\$ 118,966.40	15,120 EA	\$ 3,946,567.00	
	Video Equipment	\$ 4,168,846.96	\$ 152,690.00	11,350 EA	\$ 5,246,080.00	
Movies	Action	\$ 573,082.62	\$ 18,828.05	48,704 EA	\$ 629,242.00	
	Comedy	\$ 628,675.79	\$ 20,104.05	52,974 EA	\$ 681,436.00	
	Drama	\$ 649,415.94	\$ 20,701.70	46,435 EA	\$ 711,970.00	
	Horror	\$ 587,924.20	\$ 19,365.60	51,008 EA	\$ 646,064.00	
	Kids / Family	\$ 618,459.13	\$ 20,208.70	46,217 EA	\$ 678,183.00	
	Special Interests	\$ 744,201.73	\$ 24,948.90	38,802 EA	\$ 830,598.00	

Figure 6.57: Advanced Table with Formatted Data

6.9.1.5 Activate Context Menu

In the Additional Properties of the Advanced Table in the category General and the sub category Context Menu, you have the ability to enable the property Activate Context Menu (see Figure 6.58) so that the context menu options will be listed through a right click in the Advanced Table.

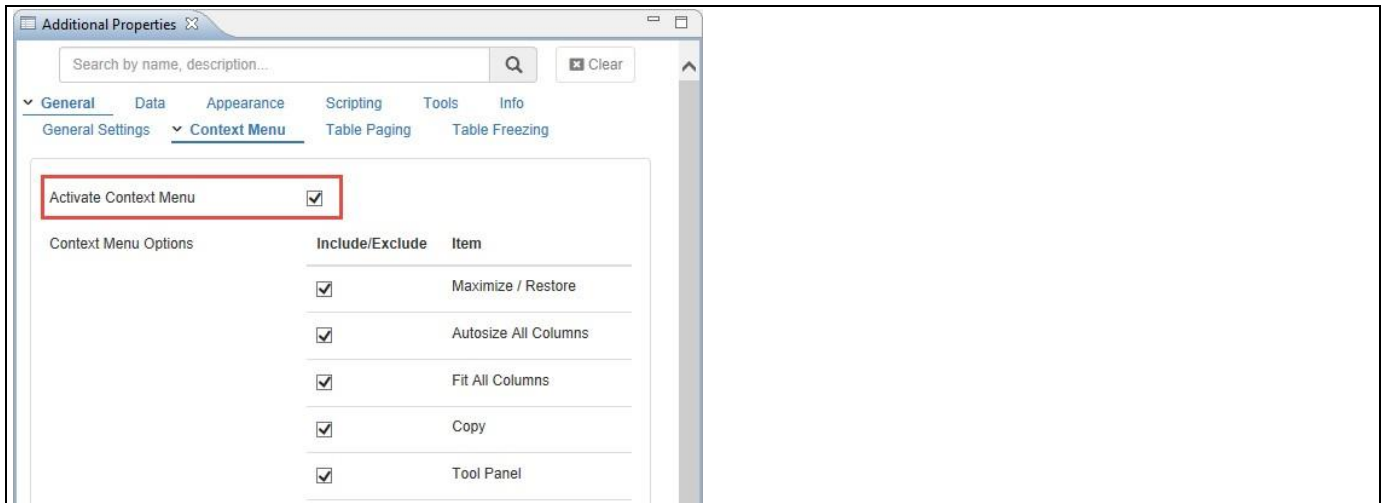


Figure 6.58: Activate Context Menu

Based on the above configuration you will be able to view the Advanced Table with the context menu options being listed through a right click (see Figure 6.59).

Type your text...						
Item Category	Item Subcategory	Order Cost	Discount Amount	Order Quantity	Order Amount	
Books	Art & Architecture	367,809.27	14,864.00	29,331	492,033.00	
	Books - Misc	260,485.05	9,529.75	39,571	322,564.00	
	Business	309,108.48	12,333.15	29,184	410,040.00	
	Literature	236,083.21	8,969.30	39,905	302,510.00	
	Science and Technology		24,978.60	25,510	832,472.00	
Electronics	Sports & Health		10,305.60	27,535	343,023.00	
	Audio Equipment		114,678.00	15,784	3,883,060.00	
	Cameras		156,159.50	11,398	5,207,260.00	
	Computers		58,031.90	16,727	1,980,801.00	
	Electronics - Misc		144,865.60	13,057	4,805,416.00	
Movies	TV		118,966.40	15,120	3,946,567.00	
	Video Equipment		152,690.00	11,350	5,246,080.00	
	Action		18,828.05	48,704	629,242.00	
	Comedy		20,104.05	52,974	681,436.00	
	Drama		20,701.70	46,435	711,970.00	
	Horror	587,924.20	19,365.60	51,008	646,064.00	
	Kids / Family	618,459.13	20,208.70	46,217	678,183.00	
	Special Interests	744,201.73	24,948.90	38,802	830,598.00	

Maximize / Restore

Autosize All Columns

Fit All Columns

Copy Ctrl+C

Tool Panel

Export

Total

Dimension Display

Filter

Ranking

Conditional Formatting

Figure 6.59: Context Menu options list

6.9.1.6 Custom Context Menu

As part of Release 2.32, now you will be able to create the Custom Context Menu items in the Advanced Table based on your choice. You can configure the Custom Context Menu items as part of the Additional Properties. For our example, navigate to the category General and to the subcategory Context Menu of the Advanced Table (see Figure 6.60).

Properties

Additional Properties

Search by name, description...

De

En

General

Data

Appearance

Scripting

Tools

Info

General Settings

Context Menu

Table Paging

Table Freezing

Activate Context Menu

☒

Context Menu Options

Include/Exclude	Item
<input checked="" type="checkbox"/>	Maximize / Restore
<input checked="" type="checkbox"/>	Autosize All Columns
<input checked="" type="checkbox"/>	Fit All Columns
<input checked="" type="checkbox"/>	Copy
<input checked="" type="checkbox"/>	Tool Panel
<input checked="" type="checkbox"/>	Export
<input checked="" type="checkbox"/>	Total
<input checked="" type="checkbox"/>	Dimension Display
<input checked="" type="checkbox"/>	Filter
<input checked="" type="checkbox"/>	Ranking
<input checked="" type="checkbox"/>	Conditional Formatting

Add

Menu	Sub Menu
Menu1	Submenu1.1. Submenu1.2

Save

Choose Icons for custom menu items

Item	Icon
Menu1	fa://search

Save

Figure 6.60: Custom Context Menu

You can add number of Menu Items (with Icon) and Submenu Items as shown in Figure 6.60. Based on the above configuration, you will be able to visualize the added Custom Context Menu items in the Advanced Table (see Figure 6.61).

Type your text...							
Item Category	Item Subcategory	Discount Amount	Order Amount	Order Cost	Order Quantity		
Books	Art & Architecture	14864	492033	367809.27	29331		
	Books - Misc	9529.75	322564	260485.05	39571		
	Business	12333.15	410040	309108.48	29184		
	Literature	8969.3	302510	236083.21	39905		
	Science and Technology	24978.6	832472	624228.66	25510		
	Sports & Health	10305.6	343023	258498.08	27535		
Electronics	Audio Equipment		3883060	3137685.94	15784		
	Cameras		5207260	4152144.77	11398		
	Computers		1980801	1585319.44	16727		
	Electronics - Misc		4805416	3852154.55	13057		
	TV		3946567	3150105.37	15120		
	Video Equipment		5246080	4168846.96	11350		
Movies	Action		629242	573082.62	48704		
	Comedy		681436	628675.79	52974		
	Drama		711970	649415.94	46435		
	Horror			587924.2	51008		
	Kids / Family	20208.7	678183	618459.13	46217		
	Special Interests	24948.9	830598	744201.73	38802		
Music	Alternative	21007.65	717696	687609.54	54466		
	Country	22284.5	742355	713256.47	53280		
	Music - Misc	18295.75	610714	531517.96	37986		
	Pop	21077.2	700777	660111.42	49447		
	Rock	21472.75	713335	681071.89	52106		

Figure 6.61: Custom Context Menu

6.9.1.7 Page Navigator Style - Text Option

In the Additional Properties of the Advanced Table in the category General and the sub category Table Paging, you have the ability to set the property Style of Page Navigator to the option Text (see Figure 6.62) so that the page navigation will be displayed through text as “Page 1 of 3” in the Advanced Table.

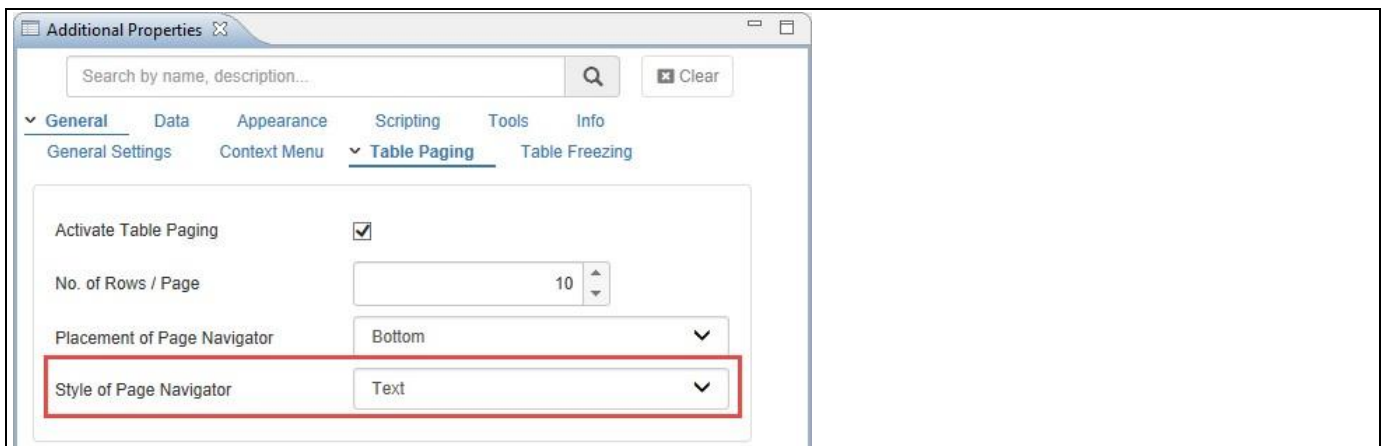


Figure 6.62: Page Navigator Style - Text option

Based on the above configuration you will be able to view the Advanced Table with the page navigation being displayed as text (see Figure 6.63).

Type your text...						
Item Category	Item Subcategory	Order Cost	Discount Amount	Order Quantity	Order Amount	
Books	Art & Architecture	367,809.27	14,864.00	29,331	492,033.00	
	Books - Misc	260,485.05	9,529.75	39,571	322,564.00	
	Business	309,108.48	12,333.15	29,184	410,040.00	
	Literature	236,083.21	8,969.30	39,905	302,510.00	
	Science and Technology	624,228.66	24,978.60	25,510	832,472.00	
	Sports & Health	258,498.08	10,305.60	27,535	343,023.00	
Electronics	Audio Equipment	3,137,685.94	114,678.00	15,784	3,883,060.00	
	Cameras	4,152,144.77	156,159.50	11,398	5,207,260.00	
	Computers	1,585,319.44	58,031.90	16,727	1,980,801.00	
	Electronics - Misc	3,852,154.55	144,865.60	13,057	4,805,416.00	

Page 1 of 3

Figure 6.63: Page Navigator Style - Text option

6.9.1.8 Page Navigator Style – Go-To Option

In the Additional Properties of the Advanced Table in the category General and the sub category Table Paging, you have the ability to set the property Style of Page Navigator to the option Go-To (see Figure 6.64) so that you will be able to search for the particular page when there are more number of pages in the Advanced Table.

Additional Properties

Search by name, description...

General Data Appearance Scripting Tools Info

General Settings Context Menu Table Paging Table Freezing

Activate Table Paging ☒

No. of Rows / Page 50

Placement of Page Navigator Bottom

Style of Page Navigator Go-To

Figure 6.64: Page Navigator Style – Go-To option

Based on the above configuration you will be able to view the Advanced Table with the search option to view the specific page in the Advanced Table (see Figure 6.65). For our example, the search is done for the 10th page in the Advanced Table.

Type your text...

Calendar year	Item Category	Item Subcategory	Discount Amount	Order Amount	Order Cost	Order Quantity
2007	Books	Art & Architecture	3,583.70	116,996.00	87,488.09	7,023
		Books - Misc	2,359.00	81,111.00	65,502.56	9,962
		Business	3,042.50	100,254.00	75,638.71	7,139
		Literature	2,174.80	74,217.00	57,931.79	9,809
		Science and Technology	6,290.40	206,219.00	154,587.51	6,317
		Sports & Health	2,571.00	86,518.00	65,210.04	6,909
	Electronics	Audio Equipment	27,832.50	947,310.00	764,939.59	3,929
		Cameras	40,786.00	1,277,070.00	1,017,665.03	2,798
		Computers	14,654.50	501,345.00	401,220.26	4,216
		Electronics - Misc	35,924.90	1,184,200.00	948,683.79	3,195
		TV	31,162.35	1,004,383.00	801,885.93	3,829
		Video Equipment	39,220.50	1,290,170.00	1,025,602.11	2,773
	Movies	Action	4,613.05	155,989.00	142,087.50	12,072
		Comedy	5,043.90	170,162.00	156,967.09	13,202
		Drama	5,156.65	175,008.00	159,554.30	11,394
		Horror	4,857.50	160,126.00	145,706.01	12,659
		Kids / Family	5,111.75	167,216.00	152,483.36	11,401
		Special Interests	6,337.95	203,799.00	182,543.50	9,528
	Music	Alternative	5,178.95	177,540.00	170,024.75	13,506
		Country	5,488.50	181,363.00	174,197.32	13,029
		Music - Misc	4,420.85	149,211.00	129,908.35	9,328
		Pop	5,155.15	174,463.00	164,348.42	12,309
		Rock	5,408.50	175,214.00	167,246.93	12,775
		Soul / R&B	3,412.25	117,290.00	96,355.08	7,988
		Art & Architecture	3,583.70	116,996.00	87,488.09	7,023

Figure 6.65: Page Navigator Style – Go-To option

6.9.1.9 Chart Formatting

In the Additional Properties of the Advanced Table in the category Formatting and the sub category Chart Formatting, you have the ability to configure the chart formatting so that you will be able to view the Advanced Table with the formatted charts in a separate column for the assigned Dimensions and Measures.

You can follow the steps below to configure the Chart Formatting for the Advanced Table:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source has two dimensions – Calendar Year and Item Category and two measures – Order Quantity and Order Amount.
3. For Chart Formatting, we need to add the dimensions in the column of the Edit Initial View (see Figure 6.66).
4. For our example in the Edit Initial View, we have assigned the dimension - Calendar Year in the rows and the dimension - Item Category and the measures - Order Quantity and Order Amount in the columns.

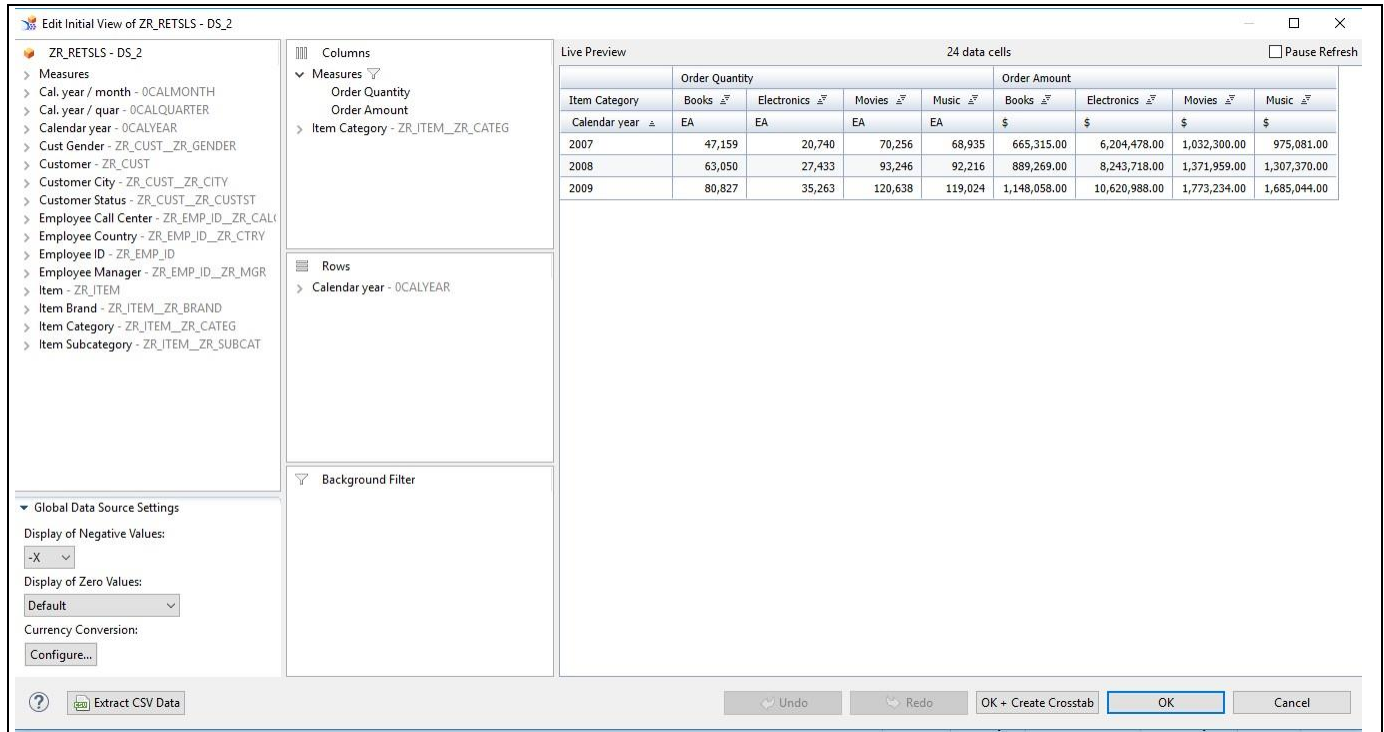


Figure 6.66: Edit Initial View

5. Add a Advanced Table from VBX Utilities to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
6. Assign the data source to the Advanced Table.
7. Navigate to the Additional Properties of the Advanced Table.
8. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
9. Navigate to the category Formatting and to the sub category Chart Formatting (see Figure 6.67).

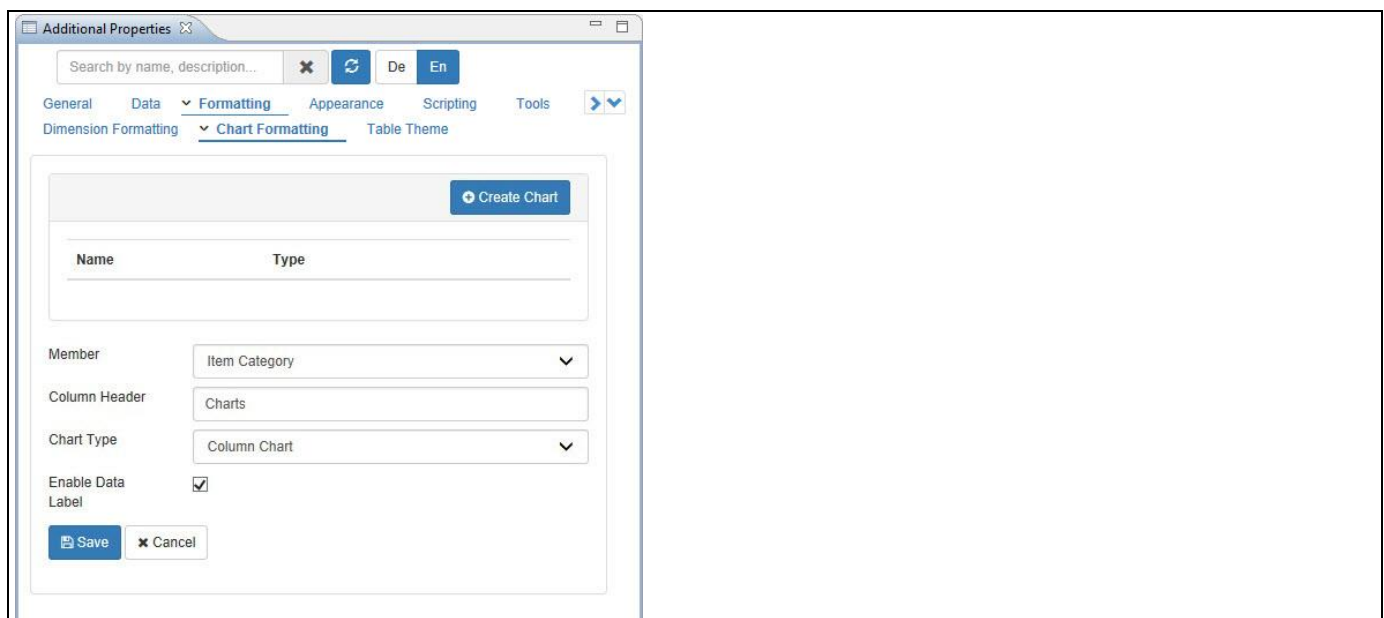


Figure 6.67: Category Appearance

10. Click Create Chart.
11. For our example, set the property Member to the Dimension Item Category.
12. Enter the name as Charts for the Column Header.
13. Set the property Chart Type to the option Column Chart. The other options are Line Chart, Pie Chart, Area Chart, Win/Loss Chart and Bullet Chart.
14. Activate the option Enable Data Label.
15. Based on the above configuration you will be able to view the Advanced Table with the formatted charts in a separate column for the assigned Dimensions and Measures (see Figure 6.68).

Type your text...	Order Quantity					Order Amount				
Calendar year Item Category	Books	Electronics	Movies	Music	Charts	Books	Electronics	Movies	Music	Charts
2007	47,159 EA	20,740 EA	70,256 EA	68,935 EA	171155 20740 70256 68935	\$ 665,315.00	\$ 6,204,478.00	\$ 1,032,300.00	\$ 975,081.00	865315 6204478 1032300 975081
2008	63,050 EA	27,433 EA	93,246 EA	92,216 EA	83560 27433 93246 92216	\$ 889,269.00	\$ 8,243,718.00	\$ 1,371,959.00	\$ 1,307,370.00	889269 8243718 1371959 1307370
2009	80,827 EA	35,263 EA	120,638 EA	119,024 EA	80827 35263 120638 119024	\$ 1,148,058.00	\$ 10,620,988.00	\$ 1,773,234.00	\$ 1,685,044.00	1148058 10620988 1773234 1685044

Figure 6.68: Advanced Table – Chart Formatting

6.9.1.10 Win/Loss Chart

In the Additional Properties of the Advanced Table in the category Formatting and the sub category Chart Formatting, you have the ability to configure the Chart Type as Win/Loss Chart so that you will able to view the Advanced Table with the Win/Loss Chart in a separate column showing the positive values in green color and the negative values in red color.

You can follow the steps below to configure the Win/Loss Chart in the Advanced Table:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source has two dimensions – Calendar Year and Item Category and one measure – Order Amount.
3. For Chart Formatting, we need to add the dimensions in the column of the Edit Initial View (see Figure 6.69).
4. For our example in the Edit Initial View, we have assigned the dimension - Calendar Year in the rows and the dimension - Item Category and the measure - Order Amount in the columns.

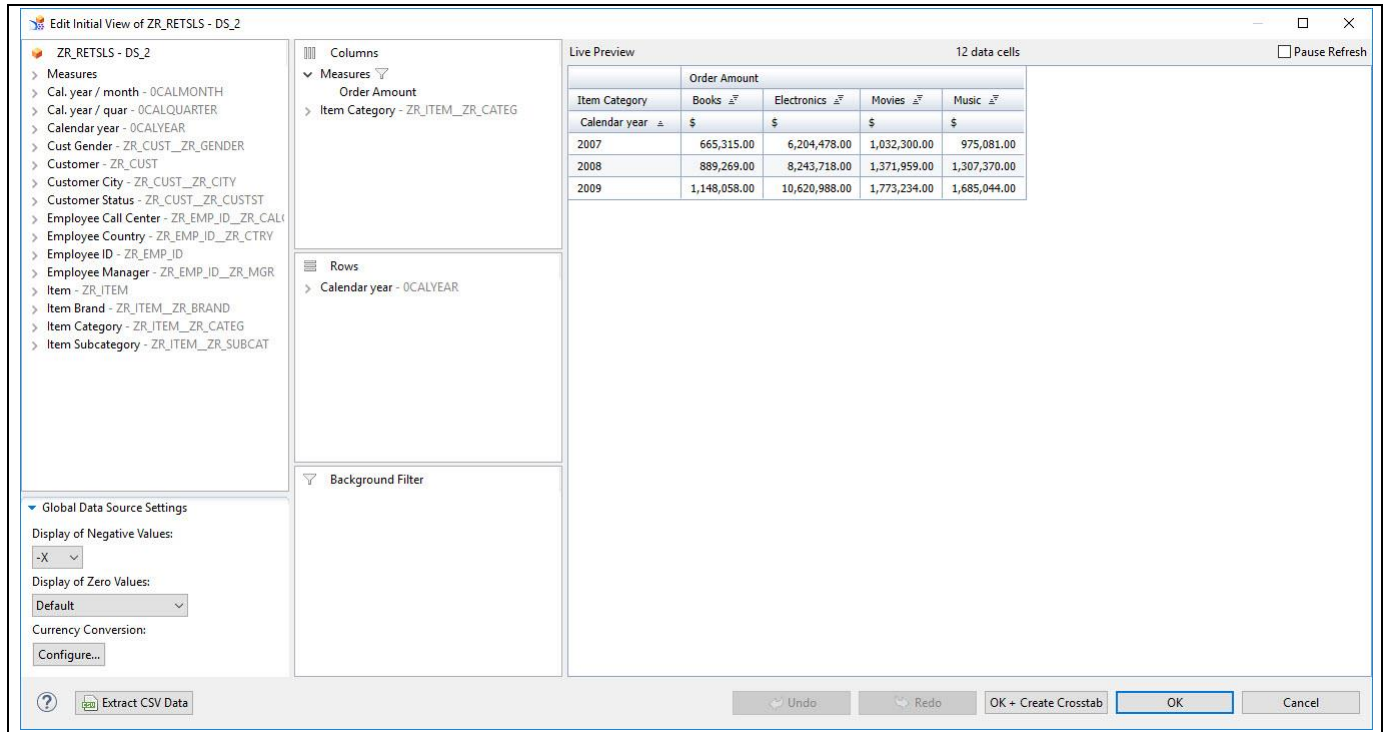


Figure 6.69: Edit initial View

5. Add a Advanced Table from VBX Utilities to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
6. Assign the data source to the Advanced Table.
7. Navigate to the Additional Properties of the Advanced Table.
8. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
9. Navigate to the category Formatting and to the sub category Chart Formatting (see Figure 6.70).

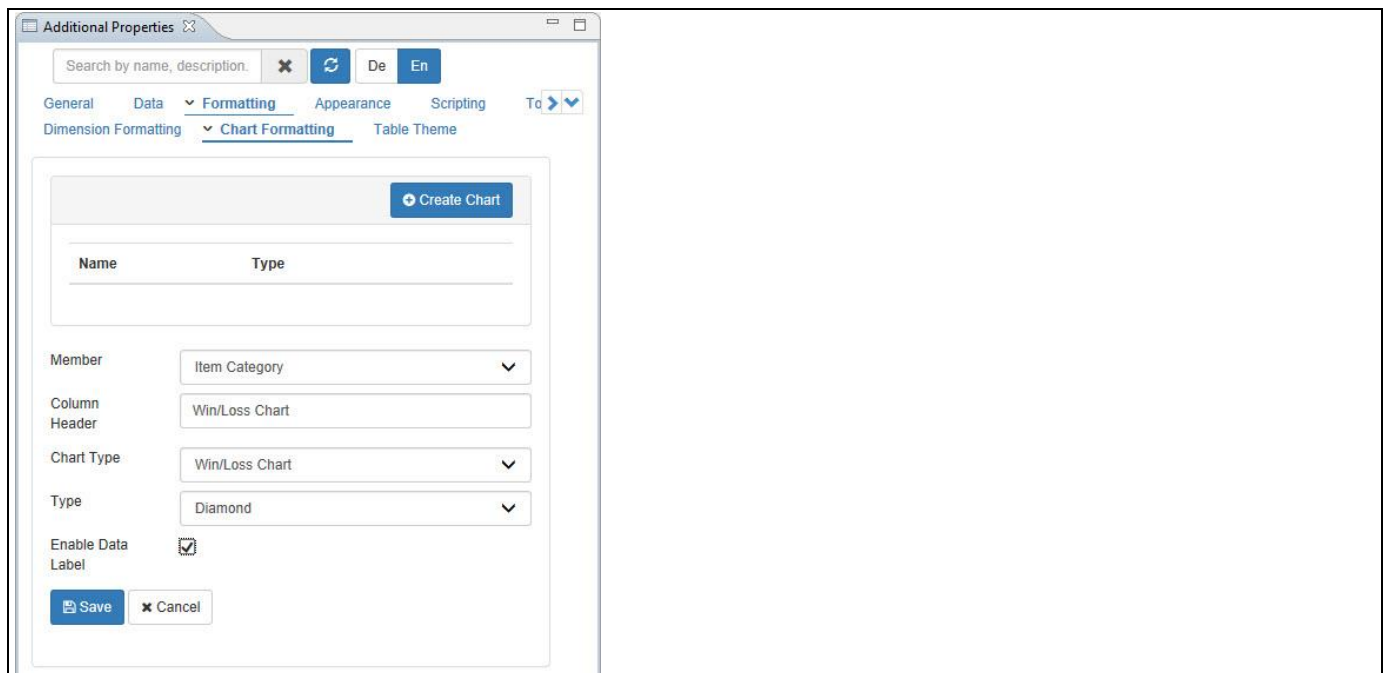


Figure 6.70: Category Appearance

10. Click Create Chart.
11. For our example, set the property Member to the option Item Category.
12. Enter the name as Charts for the Column Header.
13. Set the property Chart Type to the option Win/Loss Chart.
14. Set the property Type to the option Diamond. The other options are Square and Circle.
15. Activate the option Enable Data Label.
16. Based on the above configuration you will be able to visualize the Win/Loss Chart in a separate column for the measure Order Amount (see Figure 6.71). In our example, it is observed that all the values for the measure Order Amount are positive and hence the color is shown as Green in the Win/Loss Chart.

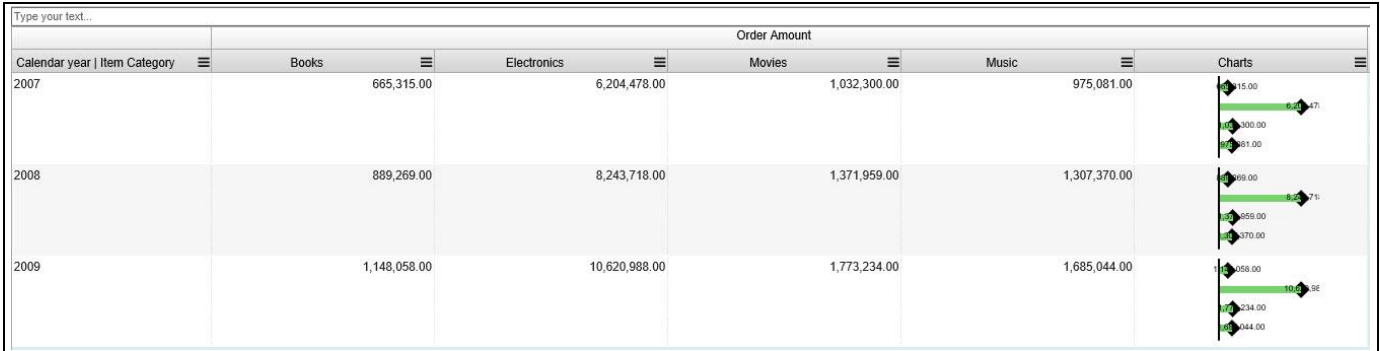


Figure 6.71: Advanced Table – Win/Loss Chart

6.9.1.11 Image Support for Advanced Table

In the Additional Properties of the Advanced Table in the category Formatting and the sub category Dimension Formatting, you have the ability to configure the Image Support for the Advanced Table by assigning the Image's source URLs as one of the Dimension.

You can follow the steps below to configure the Image support for the Advanced Table:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source has three dimensions among which one dimension will be having the list of Image URLs as Dimension members and we have two measures.
3. Navigate to the category Formatting and to the subcategory Dimension Formatting in the Additional Properties of the Advanced Table and configure the settings by creating a Rule as highlighted in Figure 6.72.

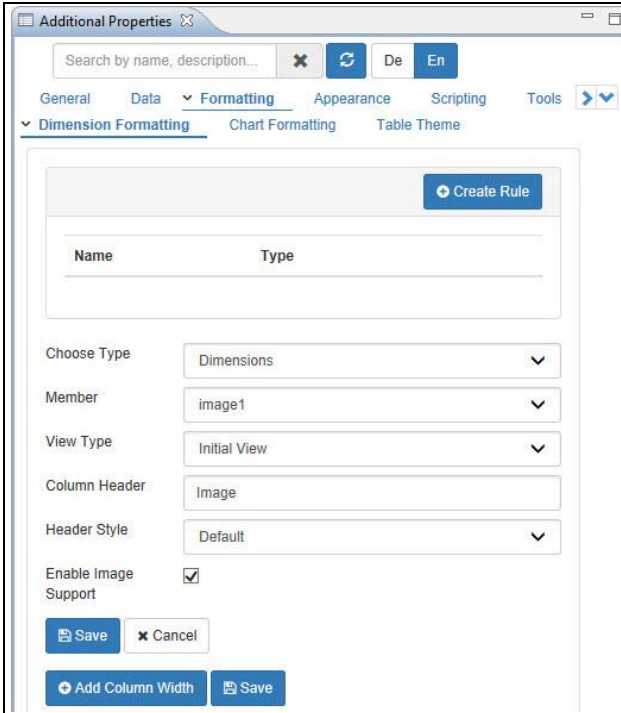


Figure 6.72: Category Appearance – Image Support Settings

- Based on the above configuration you will be able to view the Advanced Table configured with Images being assigned as Dimension members (see Figure 6.73).

Reg		FT	Image	M1	M2
AF	AD			500.00	156.00
	DF			175.00	332.00
SUMME	DF			417.00	292.00
	TCS			358.00	370.00
AP	AD			348.00	236.00
INDN	OIL			282.00	426.00
SUMMER	NUC			179.00	347.00
AUS	DLF			365.00	280.00
EUR	TVS			341.00	483.00

Figure 6.73: Advanced Table – Image Support

6.9.1.12 Fit to Window option

In the Additional Properties of the Advanced Table in the category General and the sub category General Settings, you have the ability to enable the option Fit to Window (see Figure 6.74) so that the columns in the Advanced Table will resize according to the overall table width without the horizontal scroll bar view for the Table.

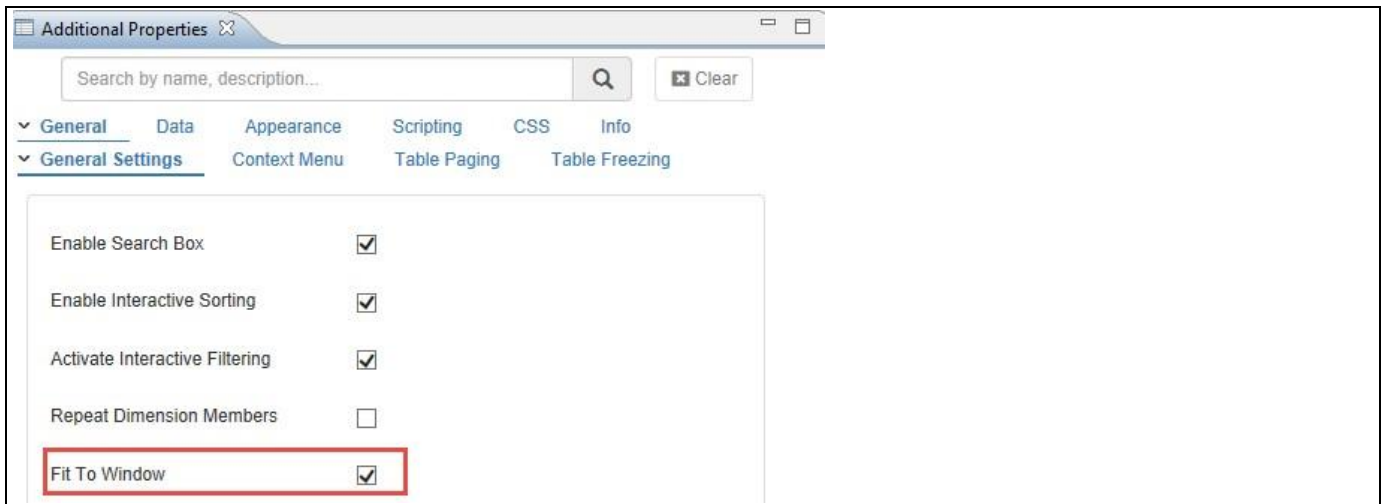


Figure 6.74: Fit to Window option

For our example, the Advanced Table without the selection of the Fit to Window option is shown in Figure 6.75.

Type your text...					
Item Category	Item Subcategory	Discount Amount	Order Amount	Order Cost	Order Quantity
Books	Art & Architecture	14,864.00	492,033.00	367,809.27	25
	Books - Misc	9,529.75	322,564.00	260,485.05	35
	Business	12,333.15	410,040.00	309,108.48	25
	Literature	8,969.30	302,510.00	236,083.21	35
	Science and Technology	24,978.60	832,472.00	624,228.66	25
	Sports & Health	10,305.60	343,023.00	258,498.08	27
	Result	80,980.40	2,702,642.00	2,056,212.75	191
Electronics	Audio Equipment	114,678.00	3,883,060.00	3,137,685.94	15
	Cameras	156,159.50	5,207,260.00	4,152,144.77	11
	Computers	58,031.90	1,980,801.00	1,585,319.44	16
	Electronics - Misc	144,865.60	4,805,416.00	3,852,154.55	13
	TV	118,966.40	3,946,567.00	3,150,105.37	15
	Video Equipment	152,690.00	5,246,080.00	4,168,846.96	11
	Result	745,391.40	25,069,184.00	20,046,257.03	83
Movies	Action	18,828.05	629,242.00	573,082.62	48
	Comedy	20,104.05	681,436.00	628,675.79	52
	Drama	20,701.70	711,970.00	649,415.94	46
	Horror	19,365.60	646,064.00	587,924.20	51
	Kids / Family	20,208.70	678,183.00	618,459.13	46
	Special Interests	24,948.90	830,598.00	744,201.73	38

Figure 6.75: Advanced Table with Fit to Window option disabled

When you enable the option Fit to Window, then the Advanced Table will resize based on the overall table width without the horizontal scroll bar (see Figure 6.76).

Type your text...	Item Category	Item Subcategory	Discount Amount	Order Amount	Order Cost	Order Quantity
Books	Art & Architecture		14,864.00	492,033.00	367,809.27	29,331
	Books - Misc		9,529.75	322,564.00	260,485.05	39,571
	Business		12,333.15	410,040.00	309,108.48	29,184
	Literature		8,969.30	302,510.00	236,083.21	39,905
	Science and Technology		24,978.60	832,472.00	624,228.66	25,510
	Sports & Health		10,305.60	343,023.00	258,498.08	27,535
	Result		80,980.40	2,702,642.00	2,056,212.75	191,036
Electronics	Audio Equipment		114,678.00	3,883,060.00	3,137,685.94	15,784
	Cameras		156,159.50	5,207,260.00	4,152,144.77	11,398
	Computers		58,031.90	1,980,801.00	1,585,319.44	16,727
	Electronics - Misc		144,865.60	4,805,416.00	3,852,154.55	13,057
	TV		118,966.40	3,946,567.00	3,150,105.37	15,120
	Video Equipment		152,690.00	5,246,080.00	4,168,846.96	11,350
	Result		745,391.40	25,069,184.00	20,046,257.03	83,436
Movies	Action		18,828.05	629,242.00	573,082.62	48,704
	Comedy		20,104.05	681,436.00	628,675.79	52,974
	Drama		20,701.70	711,970.00	649,415.94	46,435
	Horror		19,365.60	646,064.00	587,924.20	51,008
	Kids / Family		20,208.70	678,183.00	618,459.13	46,217
	Special Interests		24,948.90	830,598.00	744,201.73	38,802
	Result		124,157.00	4,177,493.00	3,801,759.41	284,140
Music	Alternative		21,007.65	717,696.00	687,609.54	54,466
	Country		22,284.50	742,355.00	713,256.47	53,280

Figure 6.76: Advanced Table with Fit to Window option enabled

6.9.1.13 Column Width based on Key and Index values

In the Additional Properties of the Advanced Table in the category Appearance and the sub category Dimension Formatting, you have the ability to define the column width based on the Key or the Index values for the assigned Measures and Dimensions so that the columns in the Advanced Table will resize according to defined column width.

For our example, to define the column width based on the Key values, set the values for the column width as shown in Figure 6.77.

Figure 6.77: Dimension Formatting by Key – Column Width

Based on the above configuration you will be able to view the Advanced Table with the defined column width based on the Key values (see Figure 6.78).

Type your text...

Item Category	Item Subcategory	Discount Amount	Order Amount
Books	Art & Architecture	14,864.00	492,033.00
	Books - Misc	9,529.75	322,564.00
	Business	12,333.15	410,040.00
	Literature	8,969.30	302,510.00
	Science and Technology	24,978.60	832,472.00
	Sports & Health	10,305.60	343,023.00
	Result	80,980.40	2,702,642.00
Electronics	Audio Equipment	114,678.00	3,883,060.00
	Cameras	156,159.50	5,207,260.00
	Computers	58,031.90	1,980,801.00
	Electronics - Misc	144,865.60	4,805,416.00
	TV	118,966.40	3,946,567.00
	Video Equipment	152,690.00	5,246,080.00
	Result	745,391.40	25,069,184.00
Movies	Action	18,828.05	629,242.00
	Comedy	20,104.05	681,436.00
	Drama	20,701.70	711,970.00
	Horror	19,365.60	646,064.00
	Kids / Family	20,208.70	678,183.00
	Special Interests	24,948.90	830,598.00
	Result	124,157.00	4,177,493.00

Figure 6.78: Dimension Formatting by Key – Column Width

For our example, to define the column width based on the Index values, set the values for the column width as shown in Figure 6.79.

Additional Properties

Search by name, description...

General Data Appearance Scripting Info

General Settings Table Body Table Header Dimension Formatting

Create Rule

Name	Type
By Index	1
By Index	2
By Index	3
By Index	4

Add Column Width Save

Figure 6.79: Dimension Formatting by Index – Column Width

Based on the above configuration you will be able to view the Advanced Table with the defined column width based on the Index values (see Figure 6.80).

Type your text...

Item Category	Item Subcategory	Discount Amount	Order Amount
Books	Art & Architecture	14,864.00	492,033.00
	Books - Misc	9,529.75	322,564.00
	Business	12,333.15	410,040.00
	Literature	8,969.30	302,510.00
	Science and Technology	24,978.60	832,472.00
	Sports & Health	10,305.60	343,023.00
	Result	80,980.40	2,702,642.00
Electronics	Audio Equipment	114,678.00	3,883,060.00
	Cameras	156,159.50	5,207,260.00
	Computers	58,031.90	1,980,801.00
	Electronics - Misc	144,865.60	4,805,416.00
	TV	118,966.40	3,946,567.00
	Video Equipment	152,690.00	5,246,080.00
	Result	745,391.40	25,069,184.00
Movies	Action	18,828.05	629,242.00
	Comedy	20,104.05	681,436.00
	Drama	20,701.70	711,970.00
	Horror	19,365.60	646,064.00
	Kids / Family	20,208.70	678,183.00
	Special Interests	24,948.90	830,598.00
	Result	124,157.00	4,177,493.00

Figure 6.80: Dimension Formatting by Index – Column Width

6.9.1.14 New Context Menu

The Context Menu for the Advanced Table now allows you to perform specific actions as part of a context menu directly in the Advanced Table. You will have the ability to leverage functions, such as maximize/restore, autosize all columns, filtering, ranking, or selecting the dimensions for display in the Advanced Table.

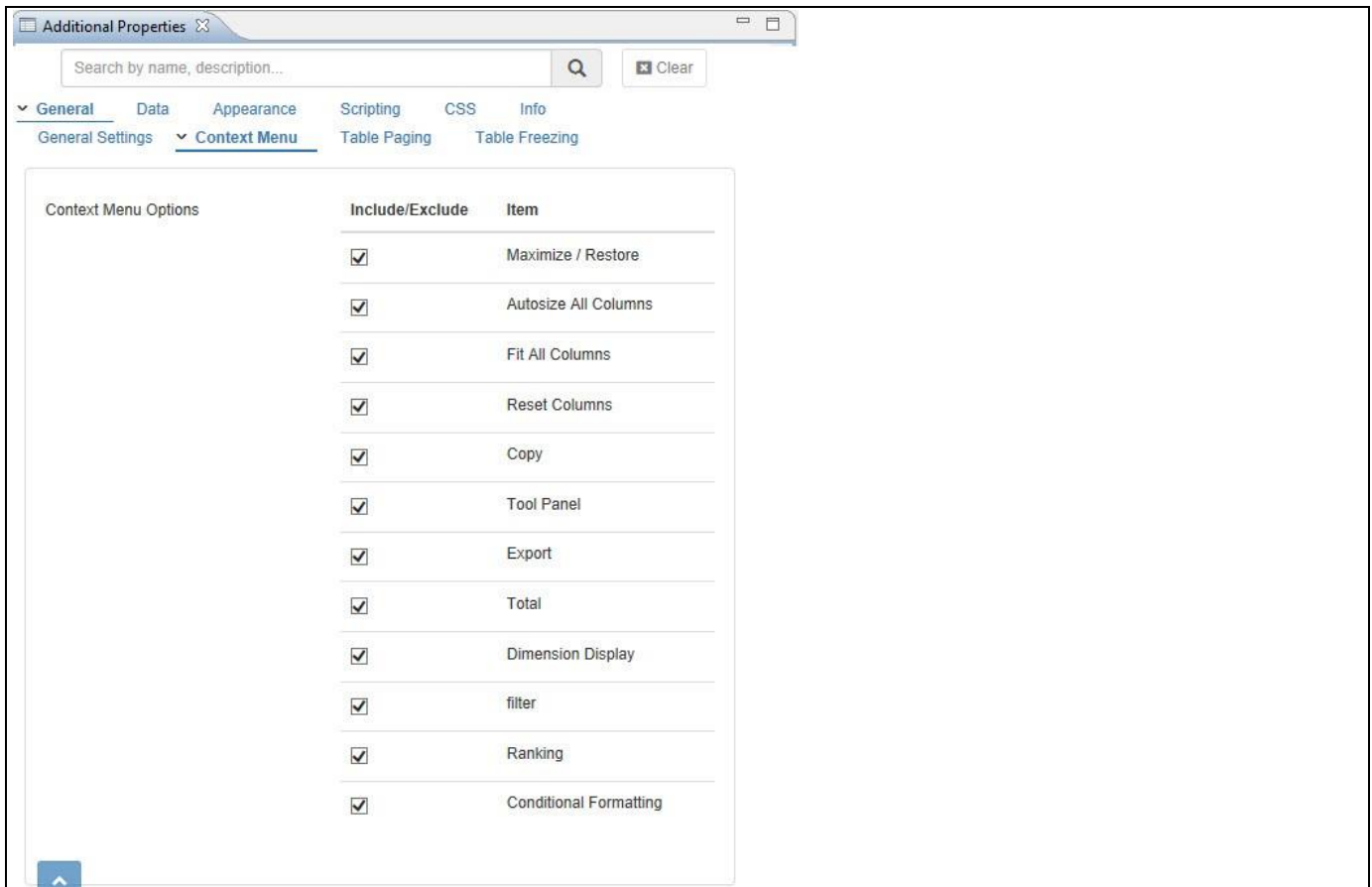


Figure 6.81: New Context Menu

Figure 6.81 shows the sub category Context Menu as part of the Additional Properties for the Advanced Table. You can choose, which functionality will be available as part of the Context Menu, and which functionality will be disabled.

6.9.1.15 Context and Actions Menu

As part of the category Context Menu you can enable / disable all the Action Menu items and those items will appear at runtime using a right-click and you can open the Actions Menu (see Figure 6.82). When none of the Actions Menu items are selected in the Additional Properties, then the Actions Menu will not appear at run time when right clicked.

Type your text...				
Item Category	Item Subcategory		Discount Amount	Order Amount
Books	Art & Architecture		14,864.00	492,033.00
Books	Books - Misc	Maximize / Restore	9,529.75	322,564.00
Books	Business	Autosize All Columns	12,333.15	410,040.00
Books	Literature	Fit All Columns	8,969.30	302,510.00
Books	Science and Technology	Reset Columns	24,978.60	832,472.00
Books	Sports & Health	Copy Ctrl+C	10,305.60	343,023.00
Books	Result	Tool Panel	80,980.40	2,702,642.00
Electronics	Audio Equipment	Export	114,678.00	3,883,060.00
Electronics	Cameras	Total	156,159.50	5,207,260.00
Electronics	Computers	Dimension Display	58,031.90	1,980,801.00
Electronics	Electronics - Misc	Filter	144,865.60	4,805,416.00
Electronics	TV	Ranking	118,966.40	3,946,567.00
Electronics	Video Equipment	Conditional Formatting	152,690.00	5,246,080.00
Electronics	Result		745,391.40	25,069,184.00
Movies	Action		18,828.05	629,242.00
Movies	Comedy		20,104.05	681,436.00
Movies	Drama		20,701.70	711,970.00
Movies	Horror		19,365.60	646,064.00
Movies	Kids / Family		20,208.70	678,183.00
Movies	Special Interests		24,948.90	830,598.00
Movies	Result		124,157.00	4,177,493.00

Figure 6.82: Context and Actions Menu

6.9.1.16 Enable Maximize/Restore

The Context Menu Maximize/Restore allows you to maximize the Advanced Table. When you maximize the Advanced Table, the Advanced Table will leverage the full screen space that is available, and when restored again, the Advanced Table will leverage the configured space as part of the overall dashboard. Figure 6.83 shows the full screen space for the Advanced Table when maximize option is enabled.

Type your text...				
Item Category	Item Subcategory	Discount Amount	Order Amount	
Books	Sports & Health	10,305.60	343,023.00	
Books	Result	80,980.40	2,702,642.00	
Electronics	Audio Equipment	114,678.00	3,883,060.00	
Electronics	Cameras	156,159.50	5,207,260.00	
Electronics	Computers	58,031.90	1,980,801.00	
Electronics	Electronics - Misc	144,865.60	4,805,416.00	
Electronics	TV	118,966.40	3,946,567.00	
Electronics	Video Equipment	152,690.00	5,246,080.00	
Electronics	Result	745,391.40	25,069,184.00	
Movies	Action	18,828.05	629,242.00	
Movies	Comedy	20,104.05	681,436.00	
Movies	Drama	20,701.70	711,970.00	
Movies	Horror	19,365.60	646,064.00	
Movies	Kids / Family	20,208.70	678,183.00	
Movies	Special Interests	24,948.90	830,598.00	
Movies	Result	124,157.00	4,177,493.00	
Music	Alternative	21,007.65	717,696.00	
Music	Country	22,284.50	742,355.00	
Music	Music - Misc	18,295.75	610,714.00	
Music	Pop	21,077.20	700,777.00	
Music	Rock	21,472.75	713,335.00	
Music	Soul / R&B	14,472.50	482,618.00	
Music	Result	118,610.35	3,967,495.00	

Figure 6.83: Maximize option

Figure 6.84 shows the configured space for the chart as part of the overall dashboard when minimize option is enabled.

Type your text...				
Item Category	Item Subcategory	Discount Amount	Order Amount	
Books	Sports & Health	10,305.60	343,023.00	
Books	Result	80,980.40	2,702,642.00	
Electronics	Audio Equipment	114,678.00	3,883,060.00	
Electronics	Cameras	156,159.50	5,207,260.00	
Electronics	Computers	58,031.90	1,980,801.00	
Electronics	Electronics - Misc	144,865.60	4,805,416.00	
Electronics	TV	118,966.40	3,946,567.00	
Electronics	Video Equipment	152,690.00	5,246,080.00	
Electronics	Result	745,391.40	25,069,184.00	
Movies	Action	18,828.05	629,242.00	
Movies	Comedy	20,104.05	681,436.00	
Movies	Drama	20,701.70	711,970.00	
Movies	Horror	19,365.60	646,064.00	
Movies	Kids / Family	20,208.70	678,183.00	
Movies	Special Interests	24,948.90	830,598.00	
Movies	Result	124,157.00	4,177,493.00	
Music	Alternative	21,007.65	717,696.00	
Music	Country	22,284.50	742,355.00	
Music	Music - Misc	18,295.75	610,714.00	
Music	Pop	21,077.20	700,777.00	
Music	Rock	21,472.75	713,335.00	
Music	Soul / R&B	14,472.50	482,618.00	
Music	Result	118,610.35	3,967,495.00	

Figure 6.84: Minimize option

6.9.1.17 Autosize All Columns

The Context Menu Autosize All Columns allows you to size the columns based on the width of Column Header Text (see Figure 6.85).

Type your text...			
Item Category	Item Subcategory	Discount Amount	Order Amount
Books	Art & Architecture	14,864.00	492,033.00
Books	Books - Misc	9,529.75	322,564.00
Books	Business	12,333.15	410,040.00
Books	Literature	8,969.30	302,510.00
Books	Science and Technology	24,978.60	832,472.00
Books	Sports & Health	10,305.60	343,023.00
Books	Result	80,980.40	2,702,642.00
Electronics	Audio Equipment	114,678.00	3,883,060.00
Electronics	Cameras	156,159.50	5,207,260.00
Electronics	Computers	58,031.90	1,980,801.00
Electronics	Electronics - Misc	144,865.60	4,805,416.00
Electronics	TV	118,966.40	3,946,567.00
Electronics	Video Equipment	152,690.00	5,246,080.00
Electronics	Result	745,391.40	25,069,184.00
Movies	Action	18,828.05	629,242.00
Movies	Comedy	20,104.05	681,436.00
Movies	Drama	20,701.70	711,970.00
Movies	Horror	19,365.60	646,064.00
Movies	Kids / Family	20,208.70	678,183.00
Movies	Special Interests	24,948.90	830,598.00
Movies	Result	124,157.00	4,177,493.00

Figure 6.85: Autosize All Columns

6.9.1.18 Fit All Columns

The Context Menu Fit All Columns allows you to resize all the columns based on the overall table width (see Figure 6.86).

Type your text...	Item Category	Item Subcategory	Discount Amount	Order Amount
	Books	Art & Architecture	14,864.00	492,033.00
	Books	Books - Misc	9,529.75	322,564.00
	Books	Business	12,333.15	410,040.00
	Books	Literature	8,969.30	302,510.00
	Books	Science and Technology	24,978.60	832,472.00
	Books	Sports & Health	10,305.60	343,023.00
	Books	Result	80,980.40	2,702,642.00
	Electronics	Audio Equipment	114,678.00	3,883,060.00
	Electronics	Cameras	156,159.50	5,207,260.00
	Electronics	Computers	58,031.90	1,980,801.00
	Electronics	Electronics - Misc	144,865.60	4,805,416.00
	Electronics	TV	118,966.40	3,946,567.00
	Electronics	Video Equipment	152,690.00	5,246,080.00
	Electronics	Result	745,391.40	25,069,184.00
	Movies	Action	18,828.05	629,242.00
	Movies	Comedy	20,104.05	681,436.00
	Movies	Drama	20,701.70	711,970.00
	Movies	Horror	19,365.60	646,064.00
	Movies	Kids / Family	20,208.70	678,183.00
	Movies	Special Interests	24,948.90	830,598.00
	Movies	Result	124,157.00	4,177,493.00

Figure 6.86: Fit All Columns

6.9.1.19 Reset Columns

The Context Menu Reset Columns allows you to restore the configured space as part of the overall dashboard (see Figure 6.87).

Type your text...	Item Category	Item Subcategory	Discount Amount	Order Amount
	Books	Art & Architecture	14,864.00	492,033.00
	Books	Books - Misc	9,529.75	322,564.00
	Books	Business	12,333.15	410,040.00
	Books	Literature	8,969.30	302,510.00
	Books	Science and Technology	24,978.60	832,472.00
	Books	Sports & Health	10,305.60	343,023.00
	Books	Result	80,980.40	2,702,642.00
	Electronics	Audio Equipment	114,678.00	3,883,060.00
	Electronics	Cameras	156,159.50	5,207,260.00
	Electronics	Computers	58,031.90	1,980,801.00
	Electronics	Electronics - Misc	144,865.60	4,805,416.00
	Electronics	TV	118,966.40	3,946,567.00
	Electronics	Video Equipment	152,690.00	5,246,080.00
	Electronics	Result	745,391.40	25,069,184.00
	Movies	Action	18,828.05	629,242.00
	Movies	Comedy	20,104.05	681,436.00
	Movies	Drama	20,701.70	711,970.00
	Movies	Horror	19,365.60	646,064.00
	Movies	Kids / Family	20,208.70	678,183.00
	Movies	Special Interests	24,948.90	830,598.00
	Movies	Result	124,157.00	4,177,493.00

Figure 6.87: Reset Columns

6.9.1.20 Copy

The Context Menu Copy allows you to copy the values based on rows that exists in the Advanced Table (see Figure 6.88).

Type your text...				
Item Category	Item Subcategory	Discount Amount	Order Amount	
Books	Art & Architecture	14,864.00	492,033.00	
Books	Books - Misc	9,529.75	322,564.00	
Books	Business	12,333.15	410,040.00	
Books	Literature	8,969.30	302,510.00	
Books	Science and Technology	24,978.60	832,472.00	
Books	Sports & Health	10,305.60	343,023.00	
Books	Result	80,980.40	2,702,642.00	
Electronics	Audio Equipment	114,678.00	3,883,060.00	
Electronics	Cameras	156,159.50	5,207,260.00	
Electronics	Computers	58,031.90	1,980,801.00	
Electronics	Electronics - Misc	144,865.60	4,805,416.00	
Electronics	TV	118,966.40	3,946,567.00	
Electronics	Video Equipment	152,690.00	5,246,080.00	
Electronics	Result	745,391.40	25,069,184.00	
Movies	Action	18,828.05	629,242.00	
Movies	Comedy	20,104.05	681,436.00	
Movies	Drama	20,701.70	711,970.00	
Movies	Horror	19,365.60	646,064.00	
Movies	Kids / Family	20,208.70	678,183.00	
Movies	Special Interests	24,948.90	830,598.00	
Movies	Result	124,157.00	4,177,493.00	

Figure 6.88: Copy

6.9.1.21 Tool Panel

The Context Menu Tool Panel leads you to the Pivot Mode option as it has been explained in section 6.9.1.35 (see Figure 6.89)

Type your text...				
Item Category	Item Subcategory	Discount Amount	Or <input type="checkbox"/> Pivot Mode	
Books	Art & Architecture	14,864.00	<input type="checkbox"/> Item Category	
Books	Books - Misc	9,529.75	<input type="checkbox"/> Item Subcategory	
Books	Business	12,333.15	<input type="checkbox"/> Discount Amount	
Books	Literature	8,969.30	<input type="checkbox"/> Order Amount	
Books		24,978.60		
Books		10,305.60		
Books	Result	80,980.40		
Electronics		114,678.00		
Electronics		156,159.50		
Electronics		58,031.90		
Electronics		144,865.60		
Electronics		118,966.40		
Electronics		152,690.00		
Electronics	Result	745,391.40		
Movies		18,828.05		
Movies	Comedy	20,104.05		
Movies	Drama	20,701.70		
Movies	Horror	19,365.60		
Movies	Kids / Family	20,208.70		
Movies	Special Interests	24,948.90		
Movies	Result	124,157.00		

Figure 6.89: Tool Panel

6.9.1.22 Export

The Context Menu Export allows you to export the content of the Advanced Table into different formats (see Figure 6.90). The available export formats are CSV and Excel.

Type your text...	Item Category	Item Subcategory	Discount Amount	Order Amount
	Books	Art & Architecture	14,864.00	492,033.00
	Books	Books - Misc	9,529.75	322,564.00
	Books	Business	12,333.15	410,040.00
	Books	Literature	8,969.30	302,510.00
	Books	Science and Technology	24,978.60	832,472.00
	Books	Sports & Health	10,305.60	343,023.00
	Books	Result	80,980.40	2,702,642.00
	Electronics	Audio Equipment	114,678.00	3,883,060.00
	Electronics	Cameras	156,159.50	5,207,260.00
	Electronics	Computers	58,031.90	1,980,801.00
	Electronics	Electronics - Misc	144,865.60	4,805,416.00
	Electronics	TV	118,966.40	3,946,567.00
	Electronics	Video Equipment	152,690.00	5,246,080.00
	Electronics	Result	745,391.40	25,069,184.00
	Movies	Action	18,828.05	629,242.00
	Movies	Comedy	20,104.05	681,436.00
	Movies	Drama	20,701.70	711,970.00
	Movies	Horror	19,365.60	646,064.00
	Movies	Kids / Family	20,208.70	678,183.00
	Movies	Special Interests	24,948.90	830,598.00
	Movies	Result	124,157.00	4,177,493.00

Figure 6.90: Export

6.9.1.23 Total

The Context Menu Total allows you to switch on / off the usage of Totals and Subtotals (see Figure 6.91).

Type your text...	Item Category	Item Subcategory	Discount Amount	Order Amount
	Books	Art & Architecture	14,864.00	492,033.00
	Books	Books - Misc	9,529.75	322,564.00
	Books	Business	12,333.15	410,040.00
	Books	Literature	8,969.30	302,510.00
	Books	Science and Technology	24,978.60	832,472.00
	Books	Sports & Health	10,305.60	343,023.00
	Books	Result	80,980.40	2,702,642.00
	Electronics	Audio Equipment	114,678.00	3,883,060.00
	Electronics	Cameras	156,159.50	5,207,260.00
	Electronics	Computers	58,031.90	1,980,801.00
	Electronics	Electronics - Misc	144,865.60	4,805,416.00
	Electronics	TV	118,966.40	3,946,567.00
	Electronics	Video Equipment	152,690.00	5,246,080.00
	Electronics	Result	745,391.40	25,069,184.00
	Movies	Action	18,828.05	629,242.00
	Movies	Comedy	20,104.05	681,436.00
	Movies	Drama	20,701.70	711,970.00
	Movies	Horror	19,365.60	646,064.00
	Movies	Kids / Family	20,208.70	678,183.00
	Movies	Special Interests	24,948.90	830,598.00
	Movies	Result	124,157.00	4,177,493.00

Figure 6.91: Total

6.9.1.24 Dimension Display

The Context Menu Dimension Display allows you to choose, which elements of a dimension and measure will be displayed. You can choose between Key, Text, or a combination of Key and Text values, as well as the option Default. The option Default will leverage the configuration from the Initial View of the data source (see Figure 6.92).

Type your text...				
Item Category	Item Subcategory	Discount Amount	Order Amount	
Books	Art & Architecture	14,864.00	492,033.00	
	Books - Misc	9,529.75	322,564.00	
	Business	12,333.15	410,040.00	
	Literature	8,969.30	302,510.00	
	Science and Technology	24,978.60	832,472.00	
	Sports & Health	10,305.60	343,023.00	
	Result	80,980.40	2,702,642.00	
Electronics	Audio Equipment	114,678.00	3,883,060.00	
	Cameras		5,207,260.00	
	Computers		1,980,801.00	
	Electronics - Misc		4,805,416.00	
	TV		3,946,567.00	
	Video Equipment	152,690.00	5,246,080.00	
	Result	745,391.40	25,069,184.00	
Movies	Action	18,828.05	629,242.00	
	Comedy	20,104.05	681,436.00	
	Drama	20,701.70	711,970.00	
	Horror	19,365.60	646,064.00	
	Kids / Family	20,208.70	678,183.00	
	Special Interests	24,948.90	830,598.00	
	Result	124,157.00	4,177,493.00	

Figure 6.92: Dimension Display

6.9.1.25 Filter

The Context Menu Filter allows you to include/exclude the selected row values in the Advanced Table (see Figure 6.93).

Type your text...				
Item Category	Item Subcategory	Discount Amount	Order Amount	
Books	Art & Architecture	14,864.00	492,033.00	
Books	Books - Misc	9,529.75	322,564.00	
Books	Business	12,333.15	410,040.00	
Books	Literature	8,969.30	302,510.00	
Books	Science and Technology	24,978.60	832,472.00	
Books	Sports & Health	10,305.60	343,023.00	
Books	Result	80,980.40	2,702,642.00	
Electronics	Audio Equipment	114,678.00	3,883,060.00	
Electronics	Cameras	156,159.50	5,207,260.00	
Electronics	Computers	58,031.90	1,980,801.00	
Electronics	Electronics - Misc	144,865.60	4,805,416.00	
Electronics	TV	118,966.40	3,946,567.00	
Electronics	Video Equipment	152,690.00	5,246,080.00	
Electronics	Result	745,391.40	25,069,184.00	
Movies	Action	18,828.05	629,242.00	
Movies	Comedy	20,104.05	681,436.00	
Movies	Drama	20,701.70	711,970.00	
Movies	Horror	19,365.60	646,064.00	
Movies	Kids / Family	20,208.70	678,183.00	
Movies	Special Interests	24,948.90	830,598.00	
Movies	Result	124,157.00	4,177,493.00	

Figure 6.93: Filter

The included row values will be filtered. For our example the included row values for the Dimension Item Subcategory namely Literature, Science and Technology and Sports and Health have been filtered (see Figure 6.94).

Type your text...				
Item Category	Item Subcategory	Discount Amount	Order Amount	
Books	Literature	8,969.30	302,510.00	
Books	Science and Technology	24,978.60	832,472.00	
Books	Sports & Health	10,305.60	343,023.00	

Figure 6.94: Filter – Included Rows

The excluded row values will be hidden. For our example the row values for the Dimension Item Subcategory namely Literature, Science and Technology and Sports and Health have been hidden (see Figure 6.95).

Type your text...				
Item Category	Item Subcategory	Discount Amount	Order Amount	
Books	Art & Architecture	14,864.00	492,033.00	
Books	Books - Misc	9,529.75	322,564.00	
Books	Business	12,333.15	410,040.00	
Books	Result	80,980.40	2,702,642.00	
Electronics	Audio Equipment	114,678.00	3,883,060.00	
Electronics	Cameras	156,159.50	5,207,260.00	
Electronics	Computers	58,031.90	1,980,801.00	
Electronics	Electronics - Misc	144,865.60	4,805,416.00	
Electronics	TV	118,966.40	3,946,567.00	
Electronics	Video Equipment	152,690.00	5,246,080.00	
Electronics	Result	745,391.40	25,069,184.00	
Movies	Action	18,828.05	629,242.00	
Movies	Comedy	20,104.05	681,436.00	
Movies	Drama	20,701.70	711,970.00	
Movies	Horror	19,365.60	646,064.00	
Movies	Kids / Family	20,208.70	678,183.00	
Movies	Special Interests	24,948.90	830,598.00	
Movies	Result	124,157.00	4,177,493.00	

Figure 6.95: Filter – Excluded Rows

You can also use the option Clear Filter to clear all the filter applied to the Advanced Table.

6.9.1.26 Ranking

The Context Menu Ranking allows you to rank the information in the Advanced Table based on predefined conditions, such as Top 5, Top 10, Bottom 5, Bottom 10, or to use the option Top N or Bottom N to define a custom ranking based on the available measures (see Figure 6.96).

Type your text...				
Item Category	Item Subcategory	Discount Amount	Order Amount	
Books	Art & Architecture	14,864.00	492,033.00	
Books	Books - Misc	9,529.75	322,564.00	
Books	Business	12,333.15	410,040.00	
Books	Literature	8,969.30	302,510.00	
Books	Science and Technology	24,978.60	832,472.00	
Books	Sports & Health	10,305.60	343,023.00	
Books	Result	80,980.40	2,702,642.00	
Electronics	Audio Equipment	114,678.00	3,883,060.00	
Electronics	Cameras	156,159.50	5,207,260.00	
Electronics	Computers	58,031.90	1,980,801.00	
Electronics	Electronics - Misc	144,865.60	4,805,416.00	
Electronics	TV	118,966.40	3,946,567.00	
Electronics	Video Equipment	152,690.00	5,246,080.00	
Electronics	Result	745,391.40	25,069,184.00	
Movies	Action	18,828.05	629,242.00	
Movies	Comedy	20,104.05	681,436.00	
Movies	Drama	20,701.70	711,970.00	
Movies	Horror	19,365.60	646,064.00	
Movies	Kids / Family	20,208.70	678,183.00	
Movies	Special Interests	24,948.90	830,598.00	
Movies	Result	124,157.00	4,177,493.00	

Figure 6.96: Ranking

6.9.1.27 Conditional Formatting

The Context Menu Conditional Formatting in the Advanced Table provides you with the ability to enable / disable the previously configured Conditional Formatting rules (see Figure 6.97).

Type your text...	Item Category	Item Subcategory	Discount Amount	Order Amount
	Books	Art & Architecture	14,864.00	492,033.00
	Books	Books - Misc	9,529.75	322,564.00
	Books	Business	12,333.15	410,040.00
	Books	Literature	8,969.30	302,510.00
	Books	Science and Technology	24,978.60	832,472.00
	Books	Sports & Health	10,305.60	343,023.00
	Books		80,980.40	2,702,642.00
	Electronics		114,678.00	3,883,060.00
	Electronics		156,159.50	5,207,260.00
	Electronics		58,031.90	1,980,801.00
	Electronics		144,865.60	4,805,416.00
	Electronics		118,966.40	3,946,567.00
	Electronics		152,690.00	5,246,080.00
	Electronics		745,391.40	25,069,184.00
	Movies		18,828.05	629,242.00
	Movies		20,104.05	681,436.00
	Movies		20,701.70	711,970.00
	Movies	Horror	19,365.60	646,064.00
	Movies	Kids / Family	20,208.70	678,183.00
	Movies	Special Interests	24,948.90	830,598.00
	Movies	Result	124,157.00	4,177,493.00

Figure 6.97: Conditional Formatting

6.9.1.28 Search

The search feature in the Advanced Table allows the end users to search and filter rows of data in the Table based on the entered search text.

Type your text...	Item Category	Item Subcategory	Discount Amount
⬆ Music (6)		Alternative	21,007.65
		Country	22,284.50
		Music - Misc	18,295.75
		Pop	21,077.20
		Rock	21,472.75
		Soul / R&B	14,472.50

Figure 6.98: Search

The search feature can be enabled and configured by following the guidelines given below:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to your project.
3. Add a Table from the VBX Utilities category to your project.
4. Assign the data source to the Table component.
5. Navigate to the category **General** and to sub category **General Settings** in the Additional Properties sheet (see Figure 6.99)

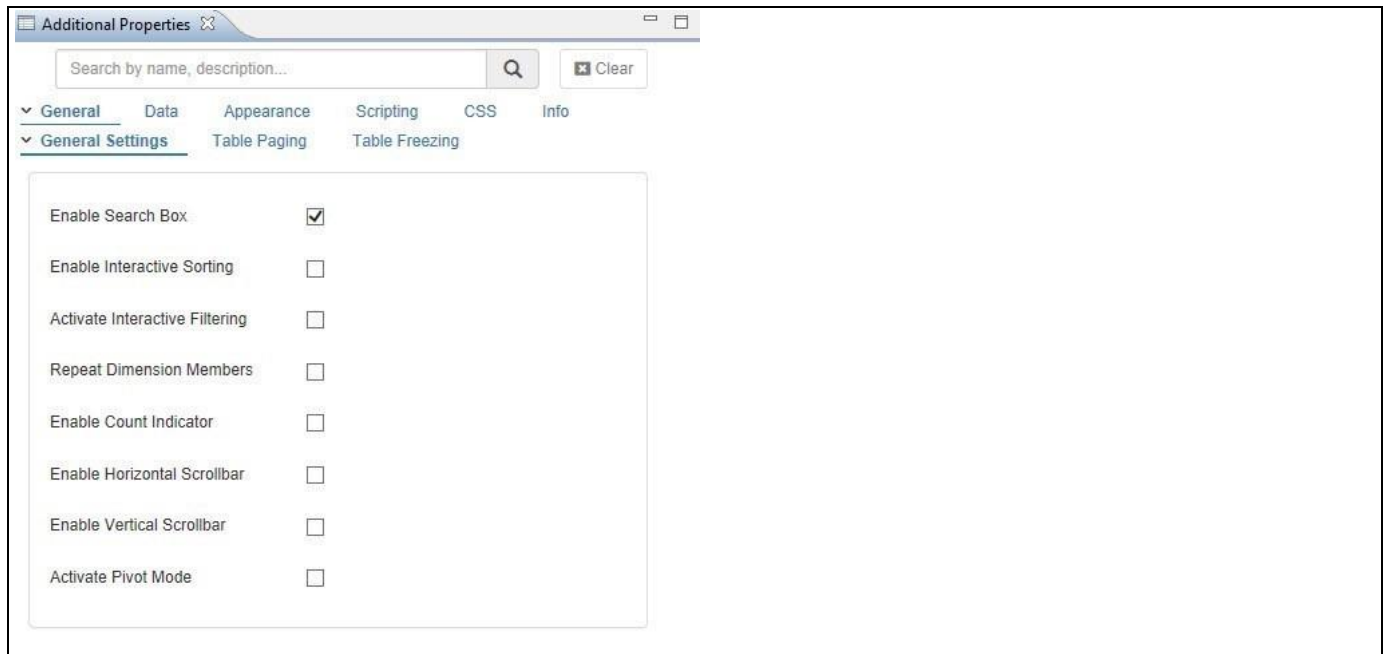


Figure 6.99: General Properties

6. Activate the option **Enable Search Box**.
7. As soon as the search option is activated, a search text box appears above the Table (see Figure 6.98).
8. At run-time whenever you type a search text, the component performs an incremental search based on the letters typed and lists only those rows that contain a match.
9. The search is not specific to a particular column. For Example, if the search text is 'Administration', then no matter where the word appears in the Table, the row will be filtered for display.

6.9.1.29 Interactive Sorting

The Sort feature in the Advanced Table allows the end users to sort all the columns of the Table independent of each other. Sorting can either be ascending or descending. Also, sorting can be applied either on dimension alphabetically or key figures numerically. The feature also contains an option to clear all sorting applied previously on the Table.

To enable and configure the sort feature for the Advanced Table you can follow the steps below:

1. Navigate to the category **General** and to sub category **General Settings** in the Additional Properties sheet.
2. Activate the option Enable Interactive Sorting (see Figure 6.100).

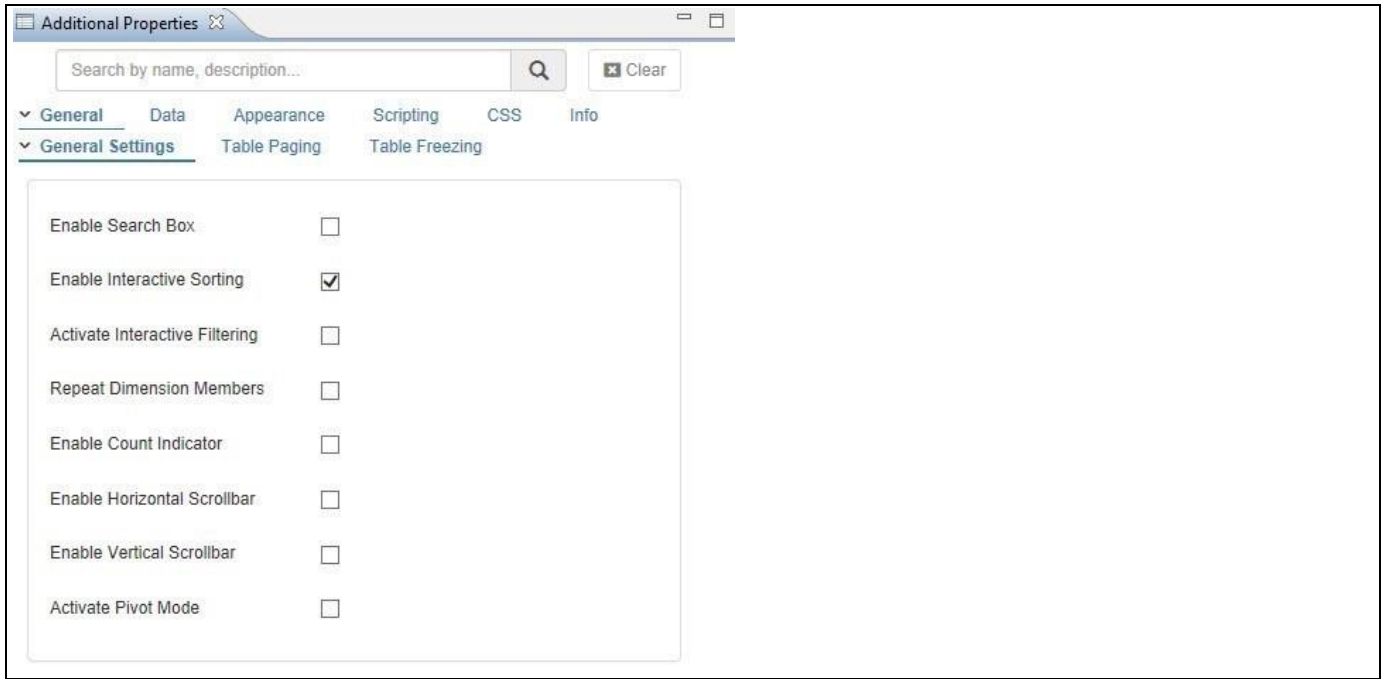


Figure 6.100: Sorting

3. As soon as the sort option is activated, three click options appear on the header area of each column of the Table (see Figure 6.101).
 - a. For the first click on any column header, the **down-arrow** icon sorts the rows ascending for the selected column and based on that all the column values will get sorted in the ascending order. For our example, we have followed the ascending order for the Calendar year column and based on that the remaining column values were sorted in the ascending order (see Figure 6.101).
 - b. For the second click on any column header, the **up-arrow** icon sorts the rows descending for the selected column and based on that all the column values will get sorted in the descending order.
 - c. For the third click, it clears any sorting that was applied to the column.

Item Category	Item Subcategory	Calendar year	Discount Amount	Order Amount	Order Cost
Books (18)	Art & Architecture (3)	2007	3,583.70	116,996.00	87,488.09
		2008	4,831.80	162,523.00	121,567.24
		2009	6,448.50	212,514.00	158,753.94
	Books - Misc (3)	2007	2,359.00	81,111.00	65,502.56
		2008	3,158.25	105,850.00	85,440.97
		2009	4,012.50	135,603.00	109,541.52

Figure 6.101: Sorting Options

6.9.1.30 Interactive Filtering

The option to activate the interactive filtering for the Advanced Table component provides you with a quick and simple way to filter the data shown in Table at run-time – meaning when the Table is shown as part of your overall dashboard.

You can activate the interactive filtering for the Table by following these steps:

1. Navigate to the category **General** and to sub category **General Settings** in the Additional Properties sheet.
2. Activate the option Activate Interactive Filtering (see Figure 6.102)

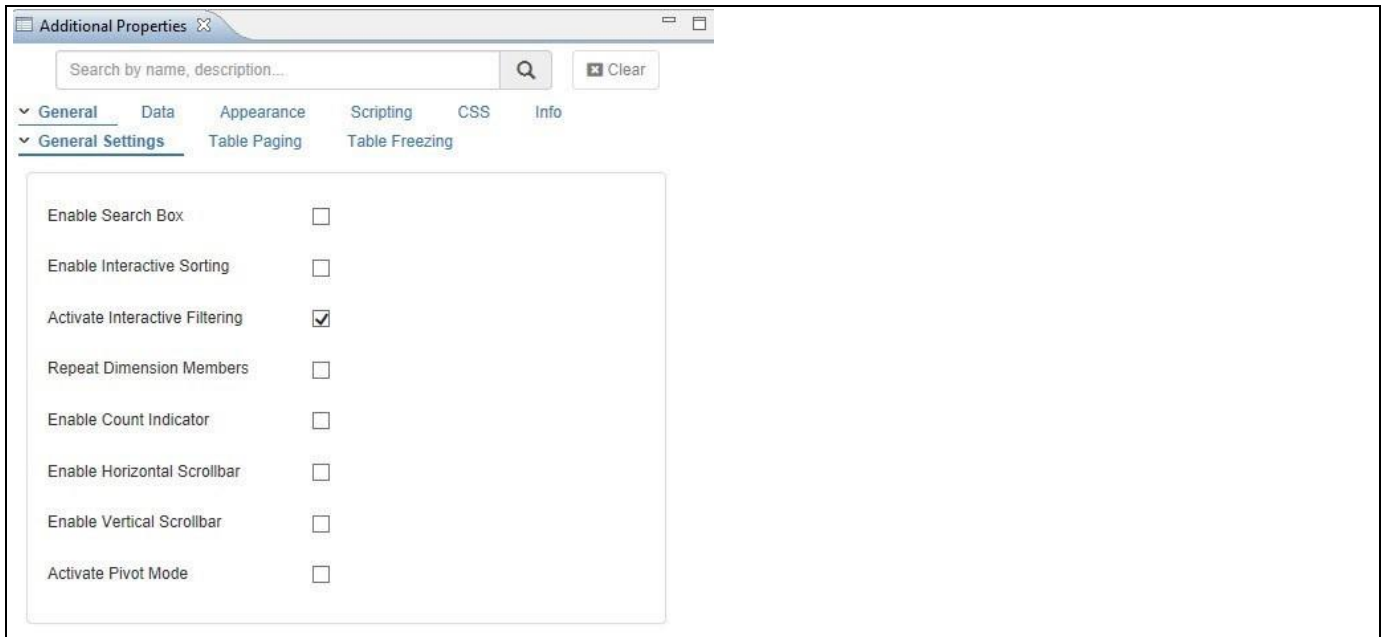


Figure 6.102: Activate Interactive Filtering

3. As soon as the Filtering has been activated, you will be able to view a context menu icon on the right side of each column header when placing the cursor on the column header of the Table. The context menu has the filter option (see Figure 6.103).

Type your text...						
Item Category	Item Subcategory		Order Amount	Order Cost		
Books	Art & Architecture	864.00	492,033.00	367,809.27		
	Books - Misc	529.75	322,564.00	260,485.05		
	Business	333.15	410,040.00	309,108.48		
	Literature	969.30	302,510.00	236,083.21		
	Science and Technology	978.60	832,472.00	624,228.66		
Electronics	Sports & Health	305.60	343,023.00	258,498.08		
	Audio Equipment	678.00	3,883,060.00	3,137,685.94		
	Cameras	159.50	5,207,260.00	4,152,144.77		
	Computers	031.90	1,980,801.00	1,585,319.44		
	Electronics - Misc	865.60	4,805,416.00	3,852,154.55		
	TV	966.40	3,946,567.00	3,150,105.37		
	Video Equipment	152,690.00	5,246,080.00	4,168,846.96		

Figure 6.103: Interactive Filtering option

4. You can click on the Filter option and either choose a set of members or search for particular members and then filter the Table based on the criteria. The filtering dialog is closed with a simple click on the Table (see Figure 6.103).

6.9.1.31 Repeat Dimension Members

This option allows you to enable / disable the feature to repeat the dimension members for situations where several dimensions are stacked up.

You can activate the Repeat Dimension Members option for the Table by following these steps:

1. Navigate to the category **General** and to sub category **General Settings** in the Additional Properties sheet.
2. Activate the option Repeat Dimension Members (see Figure 6.104).

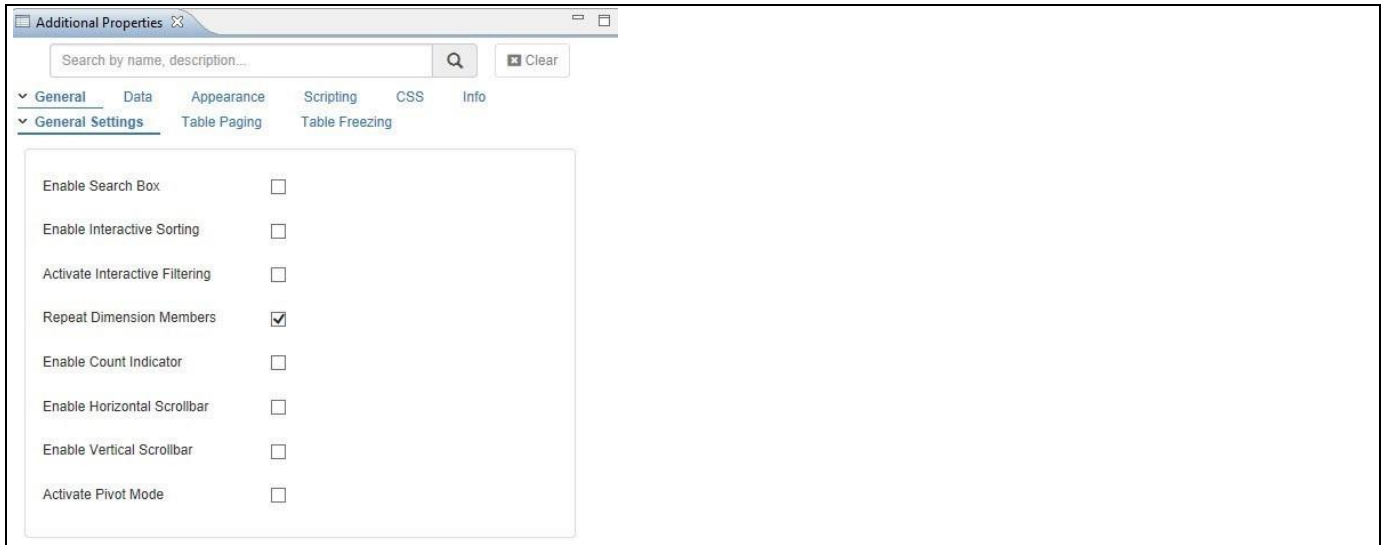


Figure 6.104: Activate Repeat Dimension Members

For our example, the dimension members of the dimension Item Category gets repeated as shown in Figure 6.105.

Item Category	Item Subcategory	Discount Amount	Order Amount	Order Cost
Books	Art & Architecture	14,864.00	492,033.00	367,809.27
Books	Books - Misc	9,529.75	322,564.00	260,485.05
Books	Business	12,333.15	410,040.00	309,108.48
Books	Literature	8,969.30	302,510.00	236,083.21
Books	Science and Technology	24,978.60	832,472.00	624,228.66
Books	Sports & Health	10,305.60	343,023.00	258,498.08
Electronics	Audio Equipment	114,678.00	3,883,060.00	3,137,685.94
Electronics	Cameras	156,159.50	5,207,260.00	4,152,144.77
Electronics	Computers	58,031.90	1,980,801.00	1,585,319.44
Electronics	Electronics - Misc	144,865.60	4,805,416.00	3,852,154.55
Electronics	TV	118,966.40	3,946,567.00	3,150,105.37
Electronics	Video Equipment	152,690.00	5,246,080.00	4,168,846.96

Figure 6.105: Repeat Dimension Members

6.9.1.32 Count Indicator

This option allows you to enable / disable the Count Indicator while grouping in the Table.

You can activate the Repeat Dimension Members option for the Table by following these steps:

1. Navigate to the category **General** and to sub category **General Settings** in the Additional Properties sheet.
2. Activate the option Enable Count Indicator (see Figure 6.106).

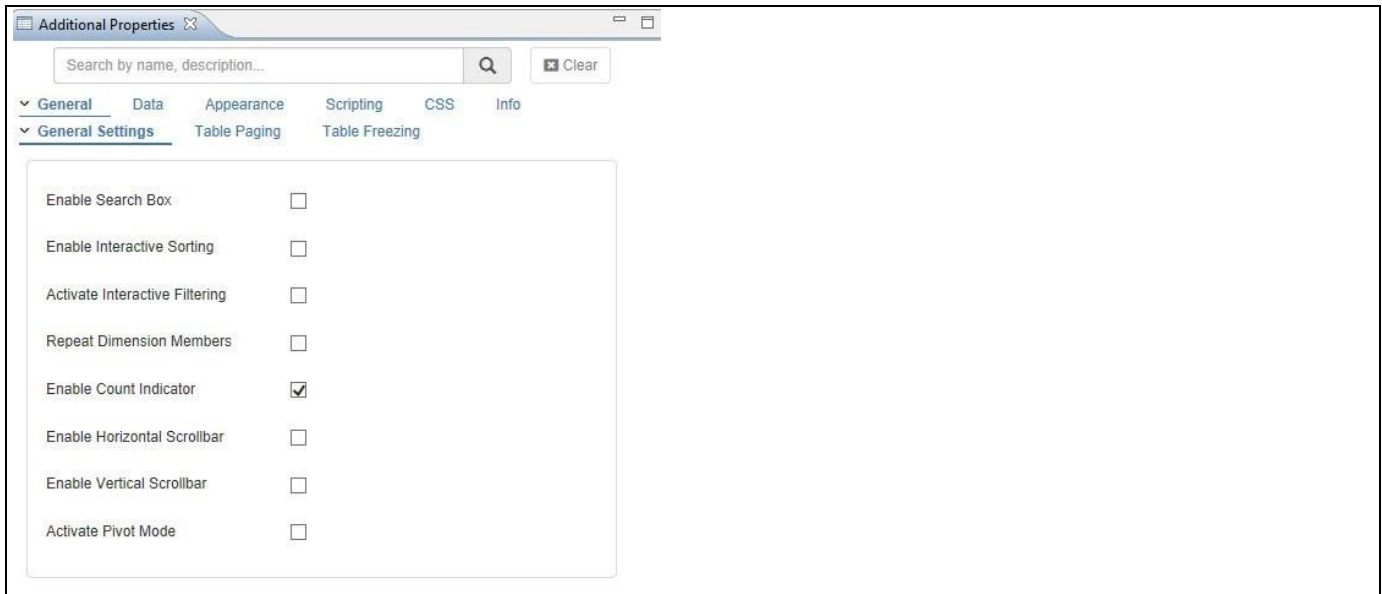


Figure 6.106: Enable Count Indicator

For our example, you can see the count indicator for all the dimension members of the dimension Item Category (see Figure 6.107).

Item Category	Item Subcategory	Discount Amount	Order Amount	Order Cost
Books (6)	Art & Architecture	14,864.00	492,033.00	367,809.27
	Books - Misc	9,529.75	322,564.00	260,485.05
	Business	12,333.15	410,040.00	309,108.48
	Literature	8,969.30	302,510.00	236,083.21
	Science and Technology	24,978.60	832,472.00	624,228.66
	Sports & Health	10,305.60	343,023.00	258,498.08
Electronics (6)	Audio Equipment	114,678.00	3,883,060.00	3,137,685.94
	Cameras	156,159.50	5,207,260.00	4,152,144.77
	Computers	58,031.90	1,980,801.00	1,585,319.44
	Electronics - Misc	144,865.60	4,805,416.00	3,852,154.55
	TV	118,966.40	3,946,567.00	3,150,105.37
	Video Equipment	152,690.00	5,246,080.00	4,168,846.96

Figure 6.107: Count Indicator

6.9.1.33 Horizontal Scrollbar

This option allows you to activate the Horizontal Scrollbar for the Table and you can scroll the Horizontal Scrollbar to see the maximum number of columns in Table.

You can activate the Horizontal Scrollbar option for the Table by following these steps:

1. Navigate to the category **General** and to sub category **General Settings** in the Additional Properties sheet.
2. Activate the option Enable Horizontal Scrollbar (see Figure 6.108).

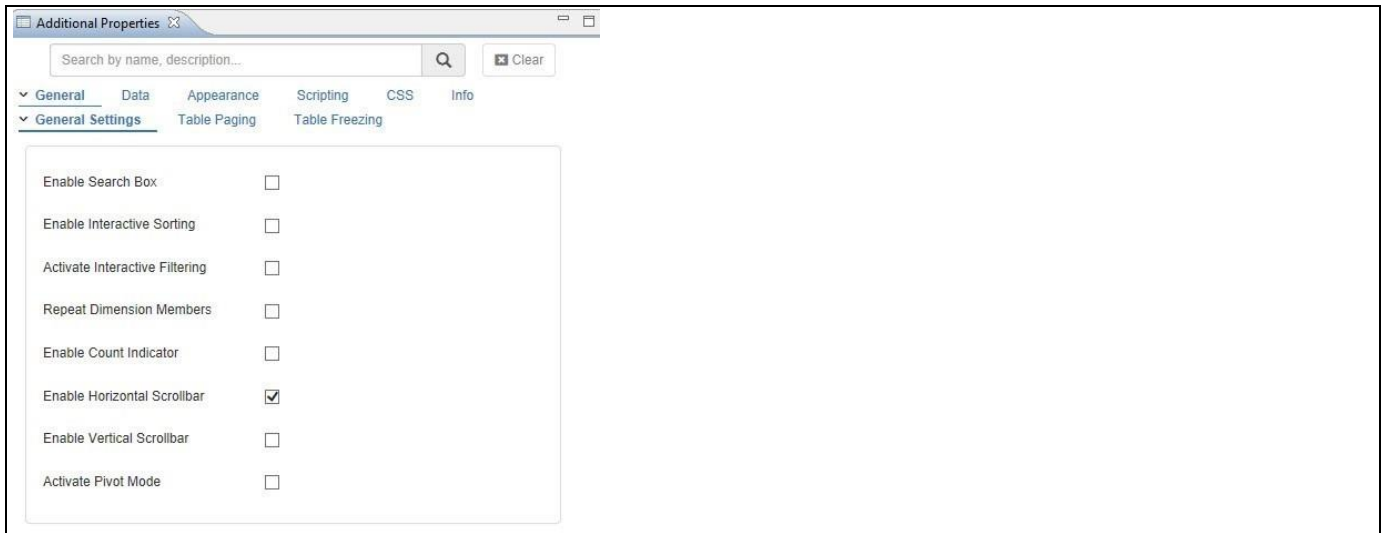


Figure 6.108: Enable Horizontal Scrollbar

For our example, you can see the Horizontal Scrollbar at the bottom of the Table as shown in Figure 6.109.

Calendar year	Item Category	Item Subcategory	Discount Amount	Order Amount
2007	Books	Art & Architecture	3,583.70	116,996.00
		Books - Misc	2,359.00	81,111.00
		Business	3,042.50	100,254.00
		Literature	2,174.80	74,217.00
		Science and Technology	6,290.40	206,219.00
		Sports & Health	2,571.00	86,518.00
	Electronics	Audio Equipment	27,832.50	947,310.00
		Cameras	40,786.00	1,277,070.00
		Computers	14,654.50	501,345.00
		Electronics - Misc	35,924.90	1,184,200.00
		TV	31,162.35	1,004,383.00
		Video Equipment	39,220.50	1,290,170.00
	Movies	Action	4,613.05	155,989.00
		Comedy	5,043.90	170,162.00
		Drama	5,156.65	175,008.00
		Horror	4,857.50	160,126.00
		Kids / Family	5,111.75	167,216.00
		Special Interests	6,337.95	203,799.00

Figure 6.109: Table with Horizontal Scrollbar

6.9.1.34 Vertical Scrollbar

This option allows you to activate the Vertical Scrollbar for the Table and you can scroll the Vertical Scrollbar to see the maximum number of rows in Table.

You can activate the Vertical Scrollbar option for the Table by following these steps:

3. Navigate to the category **General** and to sub category **General Settings** in the Additional Properties sheet.
4. Activate the option Enable Vertical Scrollbar (see Figure 6.110).

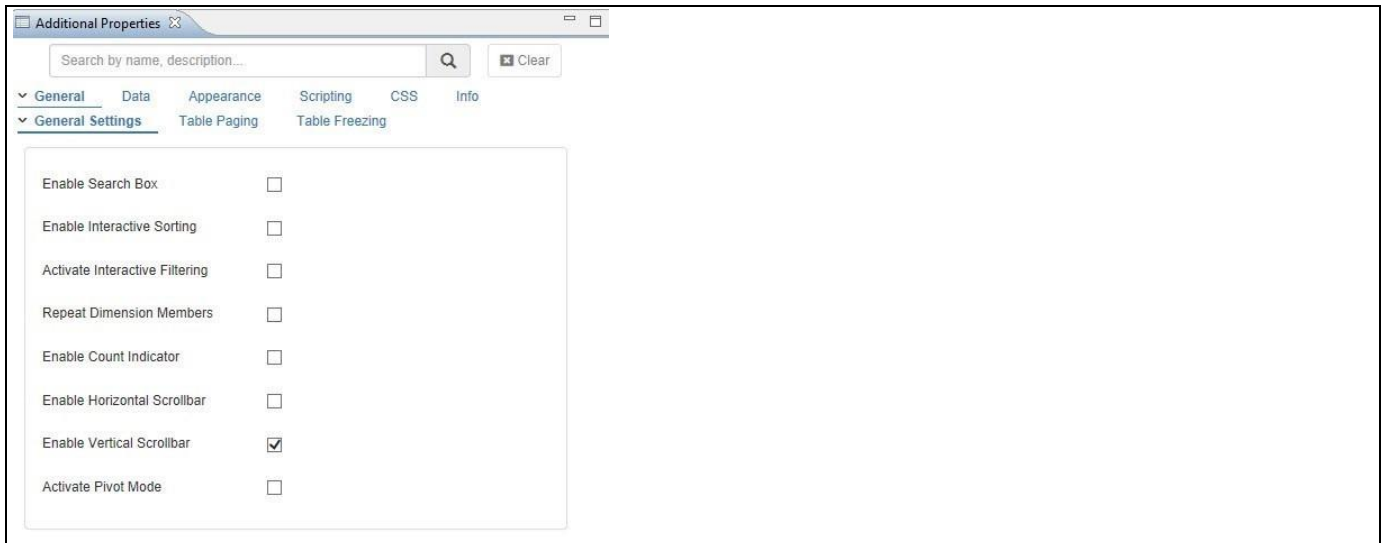


Figure 6.110: Enable Vertical Scrollbar

For our example, you can see the Vertical Scrollbar at the right side of the Table as shown in Figure 6.111.

Calendar year	Item Category	Item Subcategory	Discount Amount	Order Amount	Order Cost
2007	Books	Art & Architecture	3,583.70	116,996.00	87,488.09
		Books - Misc	2,359.00	81,111.00	65,502.56
		Business	3,042.50	100,254.00	75,638.71
		Literature	2,174.80	74,217.00	57,931.79
		Science and Technology	6,290.40	206,219.00	154,587.51
		Sports & Health	2,571.00	86,518.00	65,210.04
	Electronics	Audio Equipment	27,832.50	947,310.00	764,939.59
		Cameras	40,786.00	1,277,070.00	1,017,665.03
		Computers	14,654.50	501,345.00	401,220.26
		Electronics - Misc	35,924.90	1,184,200.00	948,683.79
		TV	31,162.35	1,004,383.00	801,885.93
		Video Equipment	39,220.50	1,290,170.00	1,025,602.11
	Movies	Action	4,613.05	155,989.00	142,087.50
		Comedy	5,043.90	170,162.00	156,967.09
		Drama	5,156.65	175,008.00	159,554.30
		Horror	4,857.50	160,126.00	145,706.01
		Kids / Family	5,111.75	167,216.00	152,483.36
		Special Interests	6,337.95	203,799.00	182,543.50

Figure 6.111: Table with Vertical Scrollbar

6.9.1.35 Pivot Mode

The Pivot Mode option in the Advanced Table allows you to enable / disable the sort options for the columns in the Table. You can swap between the selected dimensions in the columns with the Row Groups and apply the functions such as avg, count, first, last, max, min and sum for the measures selected against those dimensions in run time.

You can activate the Pivot Mode option for the Table by following these steps:

1. Navigate to the category **General** and to sub category **General Settings** in the Additional Properties sheet.
2. Activate the option Activate Pivot Mode (see Figure 6.112).

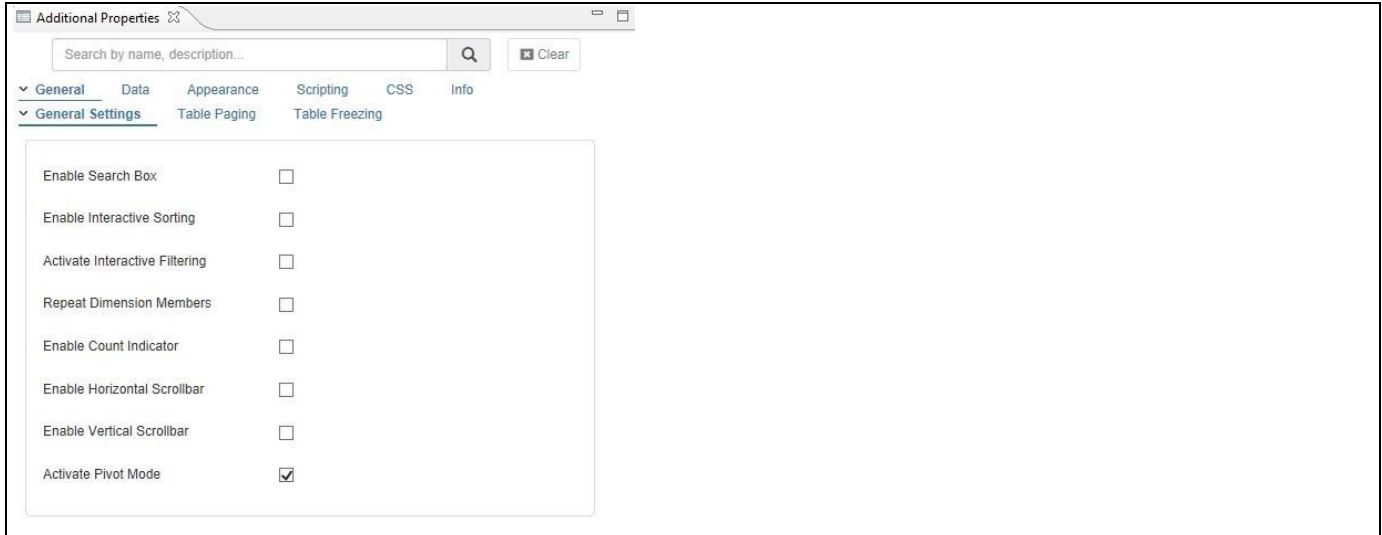


Figure 6.112: Activate Pivot Mode

3. For our example, we have assigned a Data Source for the Table component with Dimensions – Item Category, Item Sub category and Employee ID and measures - Discount Amount, Order Amount and Order Cost. We have activated the Pivot Mode and in run time we have swapped the dimensions Item Category and Item Sub category to the row groups and applied the function Average for the measure Discount Amount, function Count for the Order Amount and function Maximum value for the Order Cost. Based on the configuration, we would be able to visualize the Table as shown in Figure 6.113.

Item Category	Item Subcategory	Discount Amount	Order Amount	Order Cost		<input checked="" type="checkbox"/> Pivot Mode
Books	Art & Architecture	849.37	35.00	367,809.27		<input checked="" type="checkbox"/> Item Category
	Books - Misc	544.56	35.00	260,485.05		<input checked="" type="checkbox"/> Item Subcategory
	Business	704.75	35.00	309,108.48		<input type="checkbox"/> Employee ID
	Literature	512.53	35.00	236,083.21		<input checked="" type="checkbox"/> Discount Amount
	Science and Technology	1,427.35	35.00	624,228.66		<input checked="" type="checkbox"/> Order Amount
	Sports & Health	588.89	35.00	258,498.08		<input checked="" type="checkbox"/> Order Cost
Electronics	Audio Equipment	6,553.03	35.00	3,137,685.94		Row Groups
	Cameras	8,923.40	35.00	4,152,144.77		Item Category *
	Computers	3,316.11	35.00	1,585,319.44		Item Subcategory *
	Electronics - Misc	8,278.03	35.00	3,852,154.55		Values
	TV	6,798.08	35.00	3,150,105.37		avg(Discount Amount) *
	Video Equipment	8,725.14	35.00	4,168,846.96		count(Order Amount) *
Movies	Action	1,075.89	35.00	573,082.62		max(Order Cost) *
	Comedy	1,148.80	35.00	628,675.79		Column Labels
	Drama	1,182.95	35.00	649,415.94		Drag here to set column labels
	Horror	1,106.61	35.00	587,924.20		
	Kids / Family	1,154.78	35.00	618,459.13		
	Special Interests	1,425.65	35.00	744,201.73		
Music	Alternative	1,200.44	35.00	687,609.54		
	Country	1,273.40	35.00	713,256.47		
	Music - Misc	1,045.47	35.00	531,517.96		
	Pop	1,204.41	35.00	660,111.42		
	Rock	1,227.01	35.00	681,071.89		
	Soul / R&B	827.00	35.00	396,470.24		

Figure 6.113: Advanced Table with Pivot Mode option

If there are more than one dimension being selected in the Pivot Mode option, then the Table will be representing a Hierarchical Structure with first Dimension as Parent and the consequent Dimensions as child (see Figure 6.113).

6.9.1.36 Table Paging

Pagination in the Advanced Table allows you to navigate easily between pages of data without scrolling up or down. The feature can be activated and configured by enabling the set of options as given below:

1. Navigate to the category **General** and to the sub category **Table Paging** category in the Additional Properties sheet.

Additional Properties

Search by name, description...

Q

Clear

General

Data

Appearance

Scripting

CSS

Info

General Settings

Table Paging

Table Freezing

Activate Table Paging

☒

No. of Rows / Page

10

Placement of Page Navigator

Bottom

Style of Page Navigator

Number


Figure 6.114: Paging Properties

2. Activate the option **Activate Table Paging**.
3. You can enter the number of rows shown per page with the property **No. of Rows / page** (see Figure 6.114).
4. The property **Placement of Page Navigator** allows you to choose to provide a page navigation for you on top of the Table or below the Table.

- The property **Style of Page Navigator** allows you to choose between a Button display and a Number display for the set of pages.

Figure 6.115 shows a Table with an activate Paging option where the Page Navigation is shown in form of buttons below the Table.

Item Category	Item Subcategory	Discount Amount	Order Amount	Order Cost
Books (6)	Art & Architecture	14,864.00	492,033.00	367,809.27
	Books - Misc	9,529.75	322,564.00	260,485.05
	Business	12,333.15	410,040.00	309,108.48
	Literature	8,969.30	302,510.00	236,083.21
	Science and Technology	24,978.60	832,472.00	624,228.66
	Sports & Health	10,305.60	343,023.00	258,498.08
Electronics (6)	Audio Equipment	114,678.00	3,883,060.00	3,137,685.94
	Cameras	156,159.50	5,207,260.00	4,152,144.77
	Computers	58,031.90	1,980,801.00	1,585,319.44
	Electronics - Misc	144,865.60	4,805,416.00	3,852,154.55



1
2
3

Figure 6.115: Paging

6.9.1.37 Table Freezing

The Advanced Table component provides the ability to Freeze Top Number of Rows and Bottom Number of Rows to a desired number of rows, so that in case you provide the ability for you to use a vertical scrollbar and you will be able to view the remaining number of rows after freezing the Top Number of Rows and Bottom Number of Rows. This feature can be activated and configured by enabling the set of options as given below:

- Navigate to the category **General** and to sub category **Table Freezing** in the Additional Properties sheet.
- You can set the properties **Freeze Top Number of Rows** and **Freeze Bottom Number of Rows** to a value (see Figure 6.116)

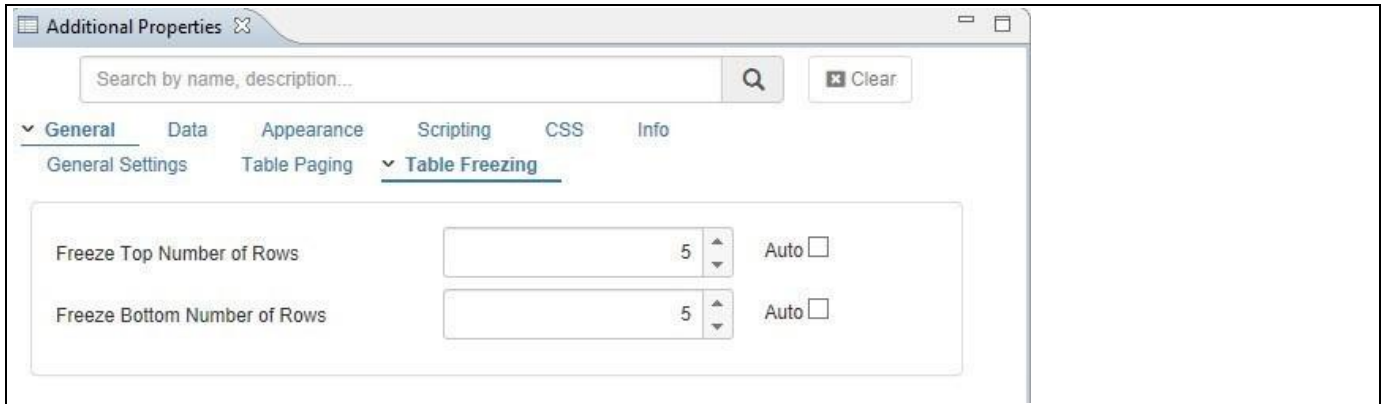


Figure 6.116: Property Table Freezing

As soon as the values for the properties **Freeze Top Number of Rows** and **Freeze Bottom Number of Rows** are provided, you will have the option to scroll vertical and view the remaining number of rows after freezing the Top Number of Rows and Bottom Number of Rows to a desired value. For our example, we have set the property **Freeze Top Number of Rows** to the value 5 (see Figure 6.117). The top 5 rows have been frozen and you will be able to scroll vertically downwards to view the remaining number of rows.

Item Category	Item Subcategory	Calendar year	Discount Amount	Order Amount	Order Cost	
		2007	3,583.70	116,996.00	87,488.09	
		2008	4,831.80	162,523.00	121,567.24	
		2009	6,448.50	212,514.00	158,753.94	
		2007	2,359.00	81,111.00	65,502.56	
		2008	3,158.25	105,850.00	85,440.97	
Books (13)	Books - Misc (1)	2009	4,012.50	135,603.00	109,541.52	
	Business (3)	2007	3,042.50	100,254.00	75,638.71	
		2008	4,077.10	135,518.00	102,169.39	
		2009	5,213.55	174,268.00	131,300.38	
	Literature (3)	2007	2,174.80	74,217.00	57,931.79	
		2008	3,002.15	101,001.00	78,827.15	
		2009	3,792.35	127,292.00	99,324.27	
	Science and Technology (3)	2007	6,290.40	206,219.00	154,587.51	
		2008	8,403.65	272,644.00	204,425.62	
		2009	10,284.55	353,609.00	265,215.53	

Figure 6.117: Freeze Top Number of Rows

6.9.1.38 Column Sizing

The Advanced Table component provides you with several options to define the column size for a particular column of your Table. By navigating to the category Appearance and to the sub category Table Body in the Additional Properties of Table, you can define a Minimum Row Height and a Minimum Column Width for your Table and those configured values will be applied to all the columns (see Figure 6.118).

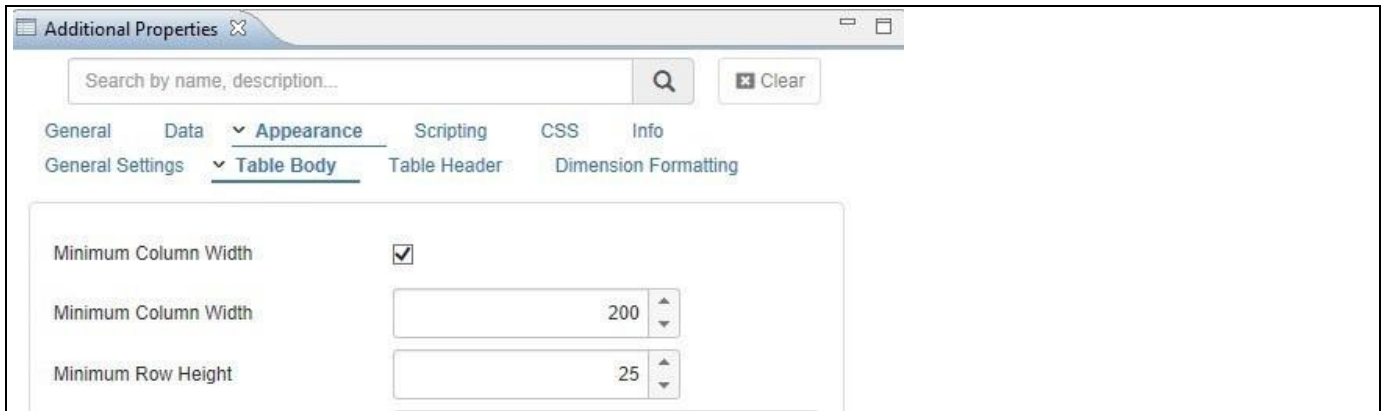


Figure 6.118: Table Formatting

In addition the Table provides the option to resize the columns interactively by placing the cursor between the two columns and simply resizing the column to your left with a mouse movement (see Figure 6.119).

Type your text...				
Item Category	Item Subcategory	Discount Amount	Order Amount	
Books	Art & Architecture	14,864.00	492,033.00	
	Books - Misc	9,529.75	322,564.00	
	Business	12,333.15	410,040.00	
	Literature	8,969.30	302,510.00	
	Science and Technology	24,978.60	832,472.00	
	Sports & Health	10,305.60	343,023.00	
Electronics	Audio Equipment	114,678.00	3,883,060.00	
	Cameras	156,159.50	5,207,260.00	
	Computers	58,031.90	1,980,801.00	
	Electronics - Misc	144,865.60	4,805,416.00	
	TV	118,966.40	3,946,567.00	
	Video Equipment	152,690.00	5,246,080.00	

Figure 6.119: Column Resizing

6.9.1.39 Table Alerts

The Table provides you with the option to setup Alerts which allow you to highlight specific cells in the Table based on conditions you can define. For example, you could highlight all Revenue values in the Table based on the achievement compared to the Revenue Forecast.

The Table Alerts provide you with the ability to setup an alert based on three different options:

- An Alert can be based on a Single Measure, for example comparing the measure Profit against a target value.
- An Alert can be based on a Calculation, where you can setup a calculation between two measures and compare the result of the calculation against a target value.
- An Alert can be a set of rules where a measure is being compared against a target value.

For the following steps we will use an example with a very simple data source, showing dimension Product in the Rows and showing three measures: Profit, Costs, and Net Value (see Figure 6.120).

Product		Profit	Costs	Net Value
BLUETOOTH001	Bluetooth Car Kit	198,052,468.50	462,122,426.50	660,174,895.00
BLUETOOTH002	Bose Bluetooth	353,739,564.00	530,609,346.00	884,348,910.00
BLUETOOTH003	Jawbone Bluetooth	220,409,308.75	661,227,926.25	881,637,235.00
BLUETOOTH004	Sennheiser Bluetooth	577,3	532,970,491.68	1,110,355,191.00
CASE001	iPhone Case	200,722,427.00	123,023,423.00	323,745,850.00
CASE002	Blackberry case	42,014,955.00	238,084,745.00	280,099,700.00
CASE003	Samsung Galaxy Case	35,697,841.74	288,827,992.26	324,525,834.00
CASE004	LG Case	39,378,451.32	398,159,896.68	437,538,348.00
COMAPCT001	Fujifilm FinePix	1,126,834,542.60	2,629,280,599.40	3,756,115,142.00
COMAPCT002	Nikon COOLPIX	1,715,823,690.00	2,573,735,535.00	4,289,559,225.00
COMAPCT003	Canon PowerShot	1,336,999,642.00	4,010,998,926.00	5,347,998,568.00
COMAPCT004	Panasonic Lumix	1,944,574,351.72	1,794,991,709.28	3,739,566,061.00
HEADPHONE01	Sony On-Ear Headphones	82,235,717.55	466,002,399.45	548,238,117.00
HEADPHONE02	Bose QuietComfort 15 Noise-Cancelling He	121,715,929.17	984,792,517.83	1,106,508,447.00
HEADPHONE03	Monster iSport In-Ear Headphones	89,427,861.27	904,215,041.73	993,642,903.00
IPOD001	iPod Touch 32 GB	244,331,626.88	1,976,864,981.12	2,221,196,608.00
IPOD002	iPod Touch 64 GB	300,760,449.21	3,041,022,319.79	3,341,782,769.00
IPOD003	iPod Mini 32 GB	500,914,815.60	1,168,801,236.40	1,669,716,052.00
IPOD004	iPod Mini 64 GB	889,106,130.00	1,333,659,195.00	2,222,765,325.00
IPOD005	iPod Shuffle	277,637,505.75	832,912,517.25	1,110,550,023.00
13" Laptop		2,672,971,610.00	4,009,457,415.00	6,682,429,025.00

Figure 6.120: Table Example

You can follow these steps to setup an Alert based on a Single Measure:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Place a Table from the VBX Utilities into your new project.
3. Add a data source to your new project. For our example we will assume that the data source is similar to what is shown in Figure 6.120.
4. Assign the data source to the Table component.
5. Navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties (see Figure 6.121).

Figure 6.121: Table Alerts

6. You can now enter the details for the different options as shown in Table 6.32:

Label	Details
Name	Here you can enter a Name for the Alert.
Type	You can choose between: Single Measure, Measure Calculation, Target Value
Select Measure	Here you select the measure will be highlighted.
Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
Comparison Value Type	Here you can choose between a Static and a Dynamic comparison value.
Dynamic Selection Value	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
Comparison Value	Depending on the configured options, the property Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
Format	The Format option allows you to choose between: <ul style="list-style-type: none"> Value: which will highlight the actual displayed value of the measure Cell Background: which will highlight the cell background

Label	Details
	<ul style="list-style-type: none"> Symbol: which allows to choose a symbol which will be added to the measure column. In addition the option Symbol also allows to hide the measure and only display the chosen alert icon either in a new column or as replacement for the measure value.
Color	Here you can choose the color for the Alert.

Table 6.32: Table Alert – Single Measure

7. In our example we are setting up an alert based on the Rule Type Single Measure (see Table 6.32):

- Select Measure will be Net Value
- Operator will be Greater Than
- Comparison Value Type is Static
- Comparison Value is 250000000
- Format is Cell Background
- Color is green

Figure 6.122: Table Alert – Single Measure

- After configuring the details, click Submit.
- The Alert will be added to the list and the chosen measure will be highlighted (see Figure 6.123).

Product		Profit	Costs	Net Value
BLUETOOTH001	Bluetooth Car Kit	198,052,468.50	462,122,426.50	660,174,895.00
BLUETOOTH002	Bose Bluetooth	353,739,564.00	530,609,346.00	884,348,910.00
BLUETOOTH003	Jawbone Bluetooth	220,409,308.75	661,227,926.25	881,637,235.00
BLUETOOTH004	Sennheiser Bluetooth	577,384,699.32	532,970,491.68	1,110,355,191.00
CASE001	iPhone Case	200,722,427.00	123,023,423.00	323,745,850.00
CASE002	Blackberry case	42,014,955.00	238,084,745.00	280,099,700.00
CASE003	Samsung Galaxy Case	35,697,841.74	288,827,992.26	324,525,834.00
CASE004	LG Case	39,378,451.32	398,159,896.68	437,538,348.00
COMAPCT001	Fujifilm FinePix	1,126,834,542.60	2,629,280,599.40	3,756,115,142.00
COMAPCT002	Nikon COOLPIX	1,715,823,690.00	2,573,735,535.00	4,289,559,225.00
COMAPCT003	Canon PowerShot	1,336,999,642.00	4,010,998,926.00	5,347,998,568.00
COMAPCT004	Panasonic Lumix	1,944,574,351.72	1,794,991,709.28	3,739,566,061.00
HEADPHONE01	Sony On-Ear Headphones	82,235,717.55	466,002,399.45	548,238,117.00
HEADPHONE02	Bose QuietComfort 15 Noise-Cancelling He	121,715,929.17	984,792,517.83	1,106,508,447.00
HEADPHONE03	Monster iSport In-Ear Headphones	89,427,861.27	904,215,041.73	993,642,903.00
IPOD001	iPod Touch 32 GB	244,331,626.88	1,976,864,981.12	2,221,196,608.00
IPOD002	iPod Touch 64 GB	300,760,449.21	3,041,022,319.79	3,341,782,769.00
IPOD003	iPod Mini 32 GB	500,914,815.60	1,168,801,236.40	1,669,716,052.00
IPOD004	iPod Mini 64 GB	889,106,130.00	1,333,659,195.00	2,222,765,325.00
IPOD005	iPod Shuffle	277,637,505.75	832,912,517.25	1,110,550,023.00
LTQ8001	13 " Laptop	2,672,971,610.00	4,009,457,415.00	6,682,429,025.00

Figure 6.123: Table with Alert

You can follow these steps to setup an Alert based on a Measure Calculation:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Place a Table from the VBX Utilities into your new project.
3. Add a data source to your new project. For our example we will assume that the data source is similar to what is shown in Figure 6.120.
4. Assign the data source to the Table component.
5. Navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties.
6. Set the property Type to the option Measure Calculation (see Figure 6.124).

The screenshot shows the 'Additional Properties' dialog box with the 'Conditional Formatting' tab selected. The 'Data' sub-tab is active, showing the 'Measure Calculation' rule configuration. The 'Rule Name' field is empty, and the 'Type' is set to 'Measure Calculation'. Below these, there are several dropdown menus for 'Select Measure', 'Operator', 'Measure 1', 'Calculation Operator', 'Measure 2', and 'Format'. The 'Color' field is also present with a color selection icon. At the bottom, there are 'Save' and 'Cancel' buttons. A 'Create Rule' button is visible at the top right of the rule configuration area.

Figure 6.124: Alert – Measure Calculation

7. You can now enter the details for the different options as shown in Table 6.33:

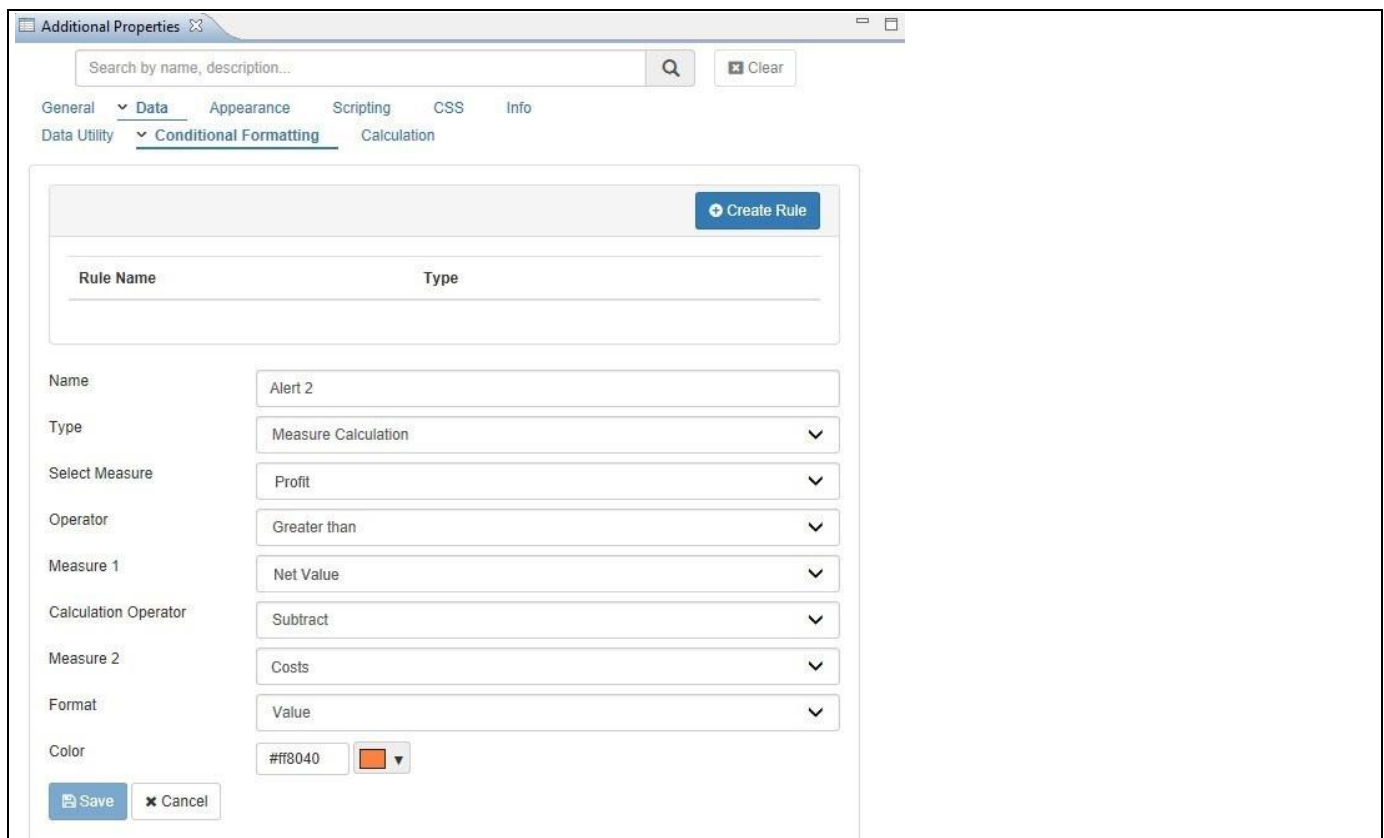
Label	Details
Name	Here you can enter a Name for the Alert.
Type	You can choose between: Single Measure, Measure Calculation, Target Value
Select Measure	Here you select the measure will be highlighted.
Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
Measure 1	Here you can select the first measure as part of the calculation you would like to configure.
Calculation Operator	Here you can choose the type of calculation. Available options are: Add, Subtract, Divide, Multiply.
Measure 2	Here you can select the second measure as part of the calculation you would like to configure.
Format	<p>The Format option allows you to choose between:</p> <ul style="list-style-type: none"> Value: which will highlight the actual displayed value of the measure Cell Background: which will highlight the cell background Symbol: which allows to choose a symbol which will be added to the measure column. <p>In addition the option Symbol also allows to hide the measure and only display the chosen alert icon either in a new column</p>

Label	Details
	or as replacement for the measure value.
Color	Here you can define the color for the Alert.

Table 6.33: Table Alert – Measure Calculation

8. In our example we are setting up an alert based on the Rule Type Measure Calculation (see Table 6.33):

- Select Measure will be Profit
- Operator will be Greater Than
- Measure 1 will be Net Value
- Calculation Operator will be Subtract
- Measure 2 will be Costs
- Format will be Value
- Color is orange



Additional Properties

Search by name, description...

General Data Appearance Scripting CSS Info

Data Utility Conditional Formatting Calculation

Create Rule

Rule Name Type

Name Alert 2

Type Measure Calculation

Select Measure Profit

Operator Greater than

Measure 1 Net Value

Calculation Operator Subtract

Measure 2 Costs

Format Value

Color #ff8040

Save Cancel

Figure 6.125: Alert – Measure Calculation

9. After configuring the details, click Submit.
10. The Alert will be added to the list and the chosen measure will be highlighted (see Figure 6.126).

Product		Profit	Costs	Net Value
BLUETOOTH001	Bluetooth Car Kit	198,052,468.50	462,122,426.50	660,174,895.00
BLUETOOTH002	Bose Bluetooth	353,739,564.00	530,609,346.00	884,348,910.00
BLUETOOTH003	Jawbone Bluetooth	220,409,308.75	661,227,926.25	881,637,235.00
BLUETOOTH004	Sennheiser Bluetooth	577,384,699.32	532,970,491.68	1,110,355,191.00
CASE001	iPhone Case	200,722,427.00	123,023,423.00	323,745,850.00
CASE002	Blackberry case	42,014,955.00	238,084,745.00	280,099,700.00
CASE003	Samsung Galaxy Case	35,697,841.74	286,827,992.26	324,525,834.00
CASE004	LG Case	39,378,451.32	398,159,896.68	437,538,348.00
COMAPCT001	Fujifilm FinePix	1,126,834,542.60	2,629,280,599.40	3,756,115,142.00
COMAPCT002	Nikon COOLPIX	1,715,823,690.00	2,573,735,535.00	4,289,559,225.00
COMAPCT003	Canon PowerShot	1,336,999,642.00	4,010,998,926.00	5,347,998,568.00
COMAPCT004	Panasonic Lumix	1,944,574,351.72	1,794,991,709.28	3,739,566,061.00
HEADPHONE01	Sony On-Ear Headphones	82,235,717.55	466,002,399.45	548,238,117.00
HEADPHONE02	Bose QuietComfort 15 Noise-Cancelling He	121,715,929.17	984,792,517.83	1,106,508,447.00
HEADPHONE03	Monster iSport In-Ear Headphones	69,427,861.27	904,215,041.73	993,642,903.00
IPOD001	iPod Touch 32 GB	244,331,626.88	1,976,864,981.12	2,221,196,608.00
IPOD002	iPod Touch 64 GB	300,760,449.21	3,041,022,319.79	3,341,782,769.00
IPOD003	iPod Mini 32 GB	500,914,815.60	1,168,801,236.40	1,669,716,052.00
IPOD004	iPod Mini 64 GB	889,106,130.00	1,333,659,195.00	2,222,765,325.00
IPOD005	iPod Shuffle	277,637,505.75	832,912,517.25	1,110,550,023.00
13" Laptop		2,672,971,610.00	4,009,457,415.00	6,682,429,025.00

Figure 6.126: Table with Alert

You can follow these steps to setup an Alert based on a Target Value:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Place a Table from the VBX Utilities into your new project.
3. Add a data source to your new project. For our example we will assume that the data source is similar to what is shown in Figure 6.120.
4. Assign the data source to the Table component.
5. Navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties.
6. Set the property Type to the option Target Value (see Figure 6.127).

Additional Properties

Search by name, description...

General Data Appearance Scripting CSS Info

Data Utility Conditional Formatting Calculation

Create Rule

Rule Name
Type

Name
Rule Name

Type
Target Value

Select Measure

Target Value Type

Format

Rules

Create

From
To
Color

0
10

Save
Cancel

Figure 6.127: Table Alert – Target Value

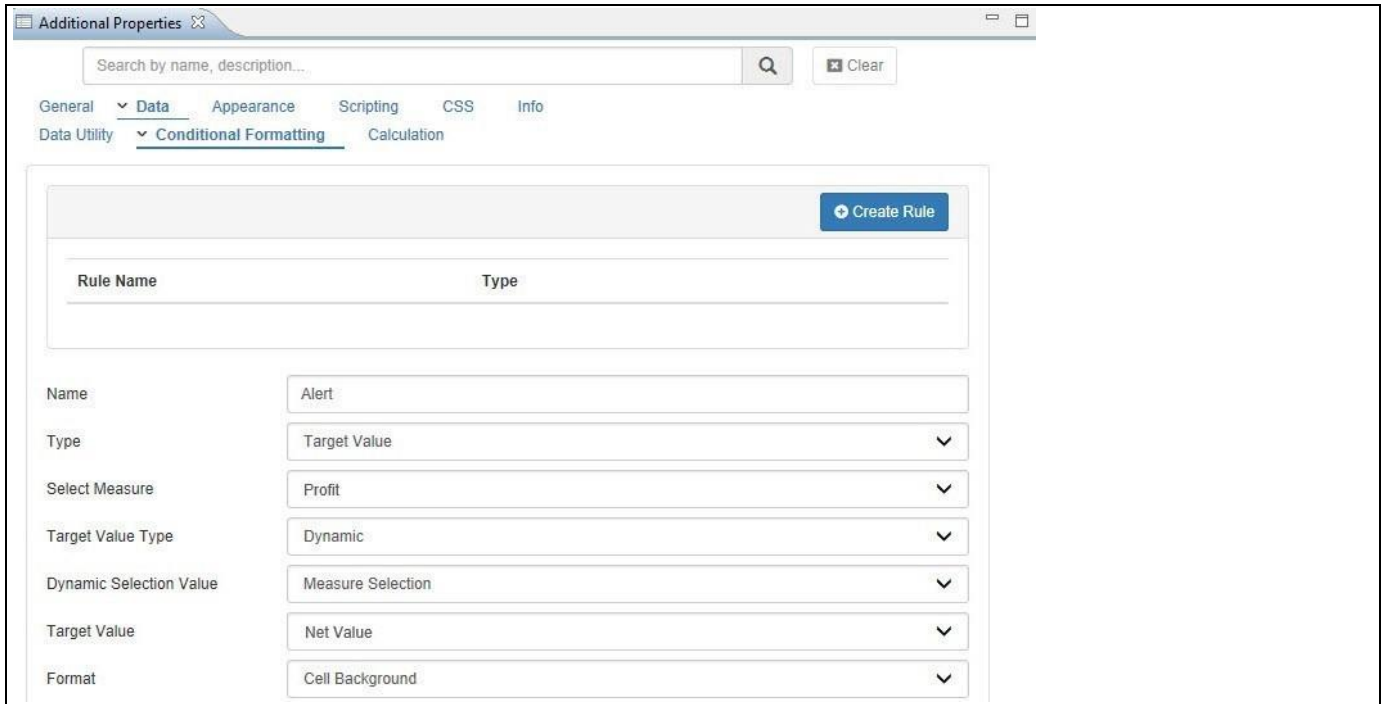
7. You can now enter the details for the different options as shown in Table 6.34:

Label	Details
Name	Here you can enter a Name for the Alert.
Type	You can choose between: Single Measure, Measure Calculation, Target Value
Select Measure	Here you select the measure will be highlighted.
Target Value Type	Here you can choose between a Static and a Dynamic comparison value.
Dynamic Selection Value	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
Cell Value	Depending on the configured options, the property Value will allow to setup a dynamic cell selection.
Target Value	Depending on the configured options, the property Value will allow to enter a static value or select a dynamic measure.
Format	The Format option allows you to choose between: <ul style="list-style-type: none"> Value: which will highlight the actual displayed value of the measure Cell Background: which will highlight the cell background Symbol: which allows to choose a symbol which will be added to the measure column. In addition the option Symbol also allows to hide the measure and only display the chosen alert icon either in a new column or as replacement for the measure value.

Table 6.34: Table Alert – Target Value

8. In our example we are setting up an alert based on the Rule Type Target Value (see Table 6.34):

- Select Measure will be Profit
- Target Value Type will be Dynamic
- Dynamic Selection Value will be Measure Selection
- Target Value will be Net Value.
- Format will be Cell Background



Rule Name	Type
Name	Alert
Type	Target Value
Select Measure	Profit
Target Value Type	Dynamic
Dynamic Selection Value	Measure Selection
Target Value	Net Value
Format	Cell Background

Figure 6.128: Target Value – Rule

9. After configuring the basic items, you can click on Create Rule to add a new rule to the alert.
10. You can now specify the From and To values as well as select the color that will be used for this particular rule.
11. In our example we defined two rules highlighting the measure Profit based on the percentage achievement compared to the measure Net Value (see Figure 6.129).

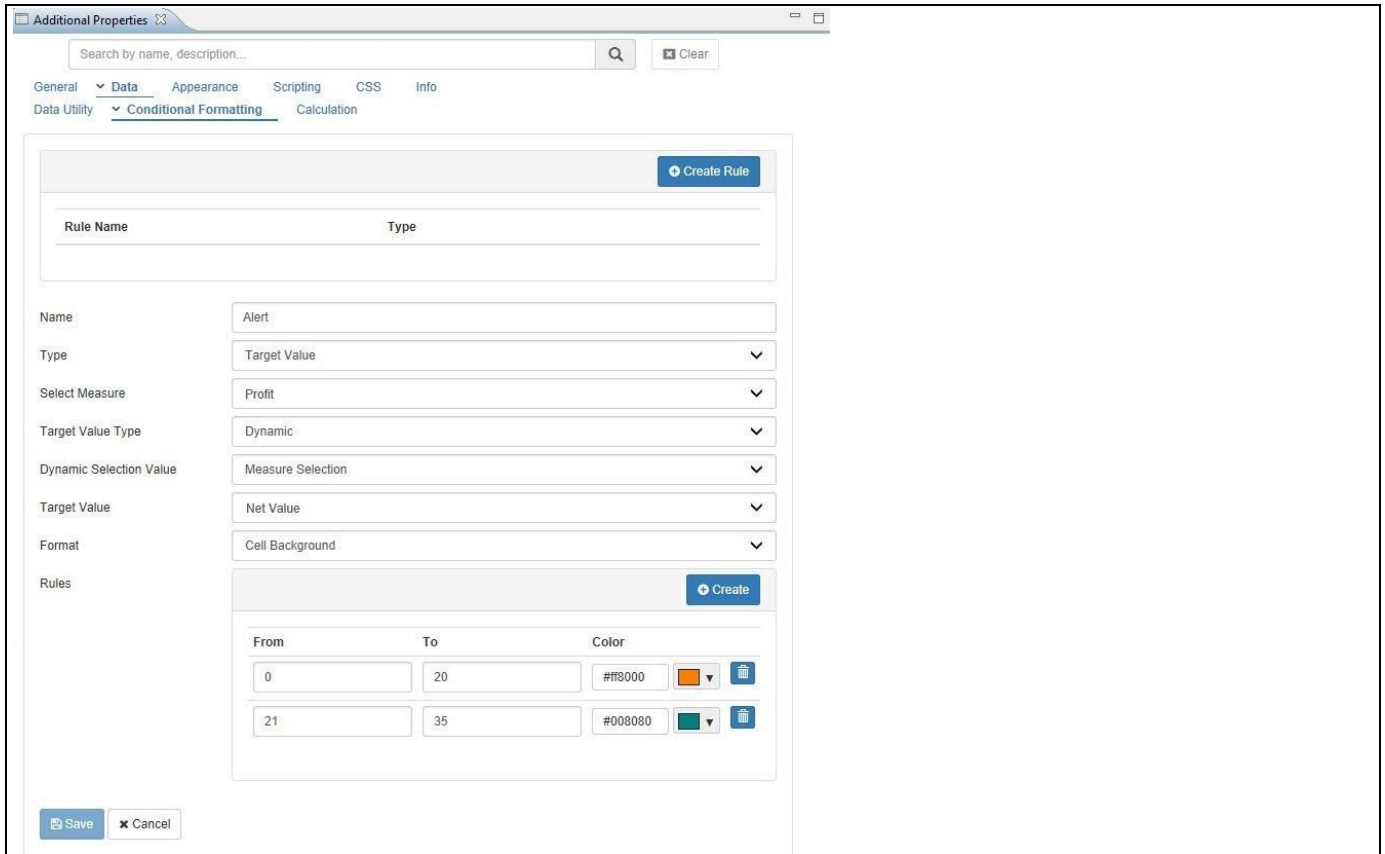
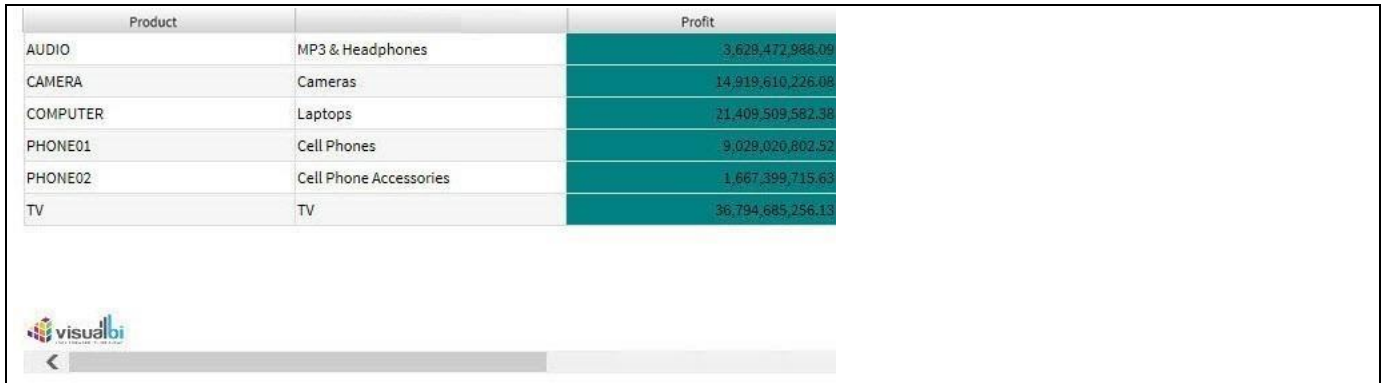


Figure 6.129: Target Value – Defined Rules

12. After configuring the details, click Save.
13. The Alert will be added to the list and the chosen measure will be highlighted (see Figure 6.130).



Product	Category	Profit
AUDIO	MP3 & Headphones	3,629,472,988.09
CAMERA	Cameras	14,919,610,226.08
COMPUTER	Laptops	21,409,509,582.38
PHONE01	Cell Phones	9,029,020,802.52
PHONE02	Cell Phone Accessories	1,667,399,715.63
TV	TV	36,794,685,256.13

Figure 6.130: Table with Alerts

6.9.1.40 Calculations

The Advanced Table is also offering the ability to add a custom calculation to the Table. Calculations can be defined either on a single measure or as a calculation involving up to two measures.

You can follow these steps to setup a new Calculation for a Table:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Place a Table from the VBX Utilities into your new project.
3. Add a data source to your new project. For our example we will assume that the data source is similar to what is shown in Figure 6.120.
4. Assign the data source to the Table component.
5. Navigate to the category Data and to the sub category Calculation in the Additional Properties (see Figure 6.131).

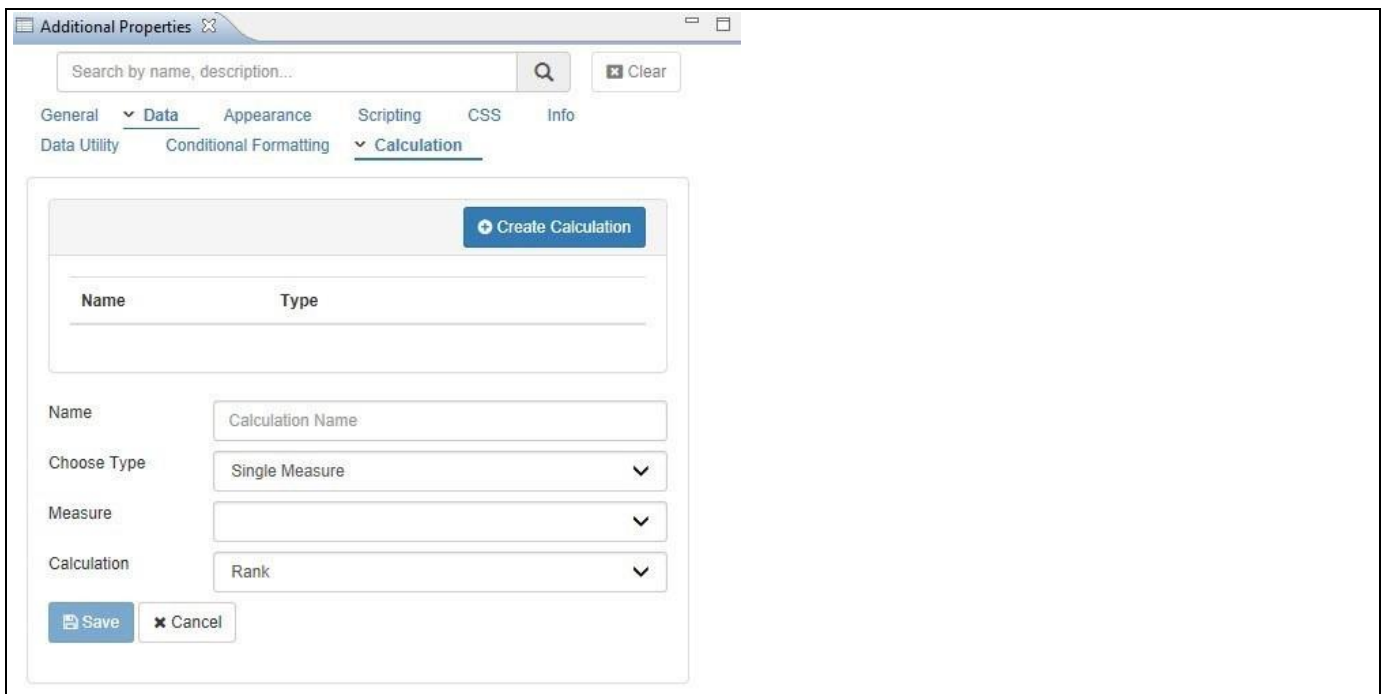


Figure 6.131: Table Calculations

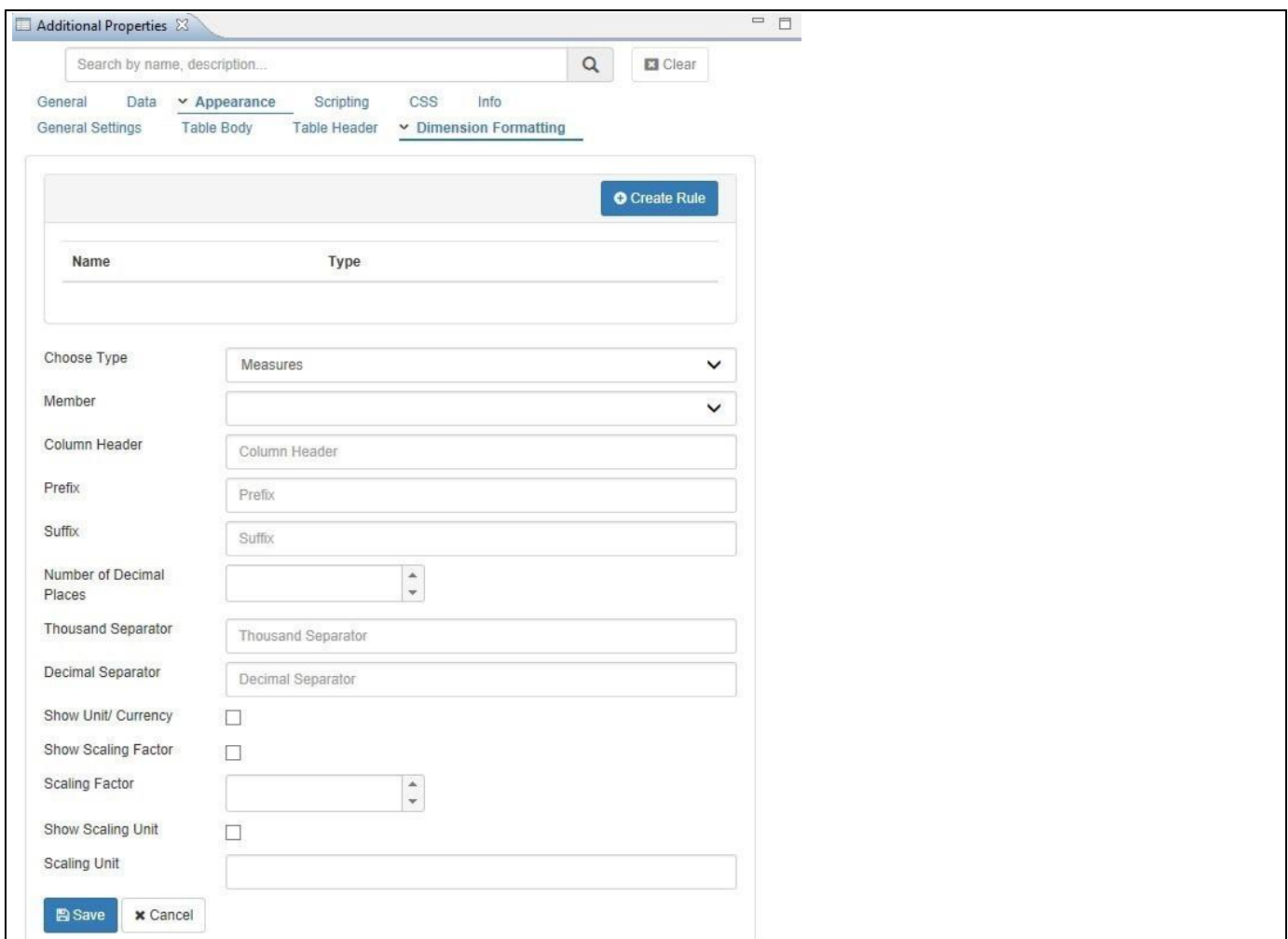
6. Enter a Name for your new Calculation.
7. Select the Formula Type. You can choose between Single Measure and Two Measures:
 - In case of a Single Measure you can use the following calculations: Rank, Olympic Rank, and Percentage Share of Parent.
 - In case of Two Measures you can use Add, Subtract, Multiply, Divide.
8. In case you select the option Single Measure, you will have to select a measure and a calculation option.
9. In case you selected the option Two Measures, you will have to specify the two measures and the type of calculation.
10. Click Save and the new calculation will be added to the Table.

6.9.1.41 Formatting Columns

In the Appearance category of the Additional Properties, the Table provides you with very detailed options to configure the formatting for each of the available columns.

You can follow these steps to setup a new Calculation for a Table:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Place a Table from the VBX Utilities into your new project.
3. Add a new data source to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. For our example we will assume that the data source contains a dimension Product Group and a measure Revenue.
5. Assign the data source to the Table component
6. Navigate to the category Appearance and to the sub category Dimension Formatting in the Additional Properties of the Table (see Figure 6.132).



The screenshot shows the 'Additional Properties' window for a table component. The 'Appearance' category is selected, and the 'Dimension Formatting' sub-category is active. A 'Create Rule' button is located at the top right. Below it is a table with columns 'Name' and 'Type'. The main configuration area includes several fields and checkboxes: 'Choose Type' (set to 'Measures'), 'Member' (empty), 'Column Header' (set to 'Column Header'), 'Prefix' (set to 'Prefix'), 'Suffix' (set to 'Suffix'), 'Number of Decimal Places' (set to 2), 'Thousand Separator' (set to 'Thousand Separator'), 'Decimal Separator' (set to 'Decimal Separator'), 'Show Unit/ Currency' (unchecked), 'Show Scaling Factor' (unchecked), 'Scaling Factor' (set to 1), 'Show Scaling Unit' (unchecked), and 'Scaling Unit' (empty). At the bottom left are 'Save' and 'Cancel' buttons.

Figure 6.132: Dimension Format

7. Here you can now specify the details for a Dimension or a Measure.
8. Set the property Choose Type to Dimensions.

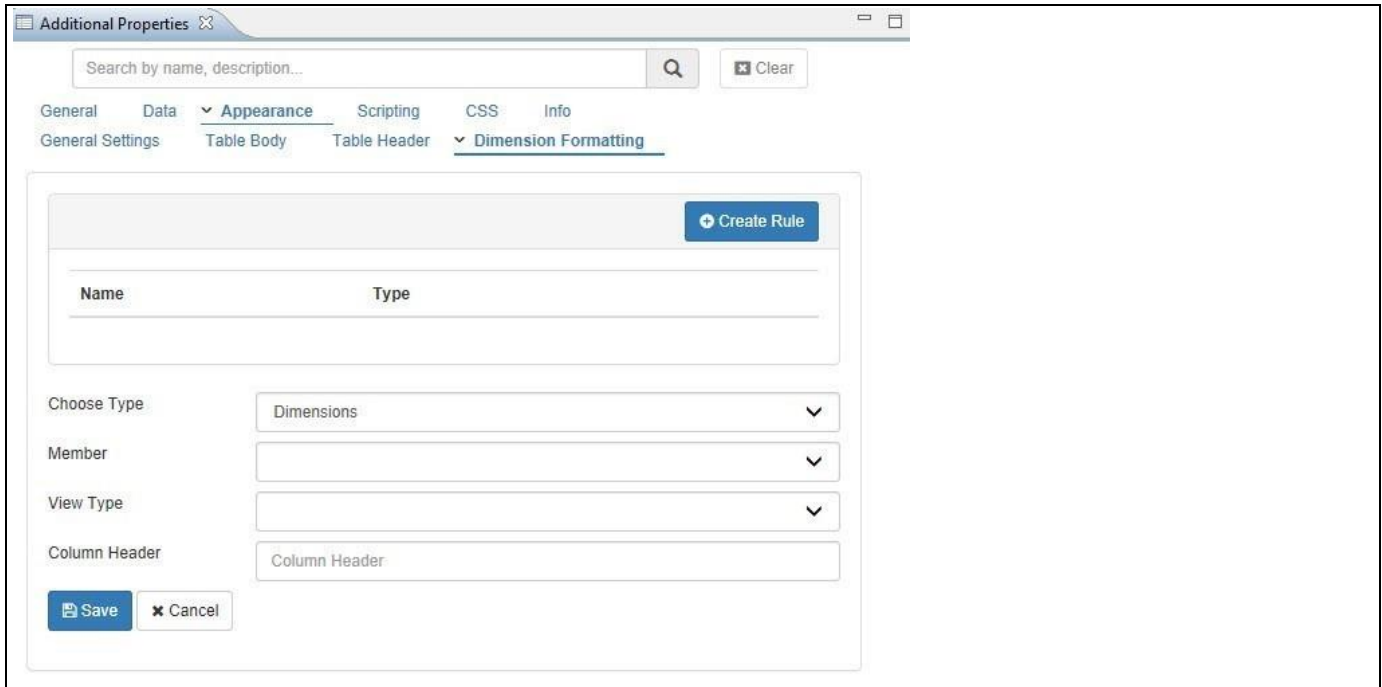


Figure 6.133: Dimension Options

9. Here you can now configure the details for the dimension, as shown in Table 6.35:

Label	Details
Member	Here you can choose any of the available dimension from the assigned data source.
View Type	Here you can specific if the dimension should be shown with Text, Key, Text and Key, Key and Text, or based on the definition in the Initial View of the data source.
Column Header	Here you can change the Name of the Dimension to be displayed in the Column Header.

Table 6.35:Dimension options

10. After you configured the details you can click on Save to apply your configurations to the dimension shown in the Table.
11. Set the property Choose Type to Measures.

Figure 6.134: Measures Formatting

12. Here you can now configure the details for the measure, as shown in Table 6.36:

Label	Details
Prefix / Suffix	Here you can enter a text that will be used either as a Prefix or as a Suffix for the measure value.
No of decimal places	Here you can specify the number of decimals for the display of the measure in the Table.
Thousand Separator	Here you can choose the thousand separator symbol.
Decimal Separator	Here you can choose the decimal separator symbol.
Show Unit / Currency	You can choose to activate the display of the Unit / Currency. The assigned Unit / Currency is retrieved from the underlying data source and the Unit / Currency will be displayed in the column header.
Enable Scaling Factor	You can choose to activate the display of the Scaling Factor. In case you specify a Scaling Factor in the Additional Properties for the measure, then the specified Scaling Factor will be used. In case no Scaling Factor is assigned in the Additional Properties, then the Scaling Factor is being retrieved from the underlying source. The scaling factor will be displayed as part of the column header.

Label	Details
Scaling Factor	Here you can specify a scaling factor for the measure. Any scaling factor specified here in the Additional Properties will overwrite a scaling factor specified in the data source.
Show Scaling Unit	Here you can activate the display of the Scaling Unit. The Scaling Unit will be displayed in the column header.
Scaling Unit	Here you can specify the Scaling Unit.

Table 6.36: Measure Formatting

- After you configured the details you can click on Save to apply your configurations to the dimension shown in the Table.

6.9.1.42 Using the Data Utility Tool

Similar to the charts, the Table component is also offering a Data Utility tool which allows you to choose from a subset of dimensions that will be displayed in the Table. Instead of changing the assigned data source you can choose as part of the Additional Properties of the Table, which dimensions from the data source you would like to show as part of the Table.

You can follow these steps to use the Data Utility Tool for a Table:

- Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
- Place a Table from the VBX Utilities into your new project.
- Add a new data source to the project. In our example we assume that our data source has two dimensions: Product Category and Region.
- Assign the Data Source to the Table.
- Navigate to the category Data and to the sub category Data Utility in the Additional Properties.
- Activate the option Enable Data Utility Tool (see Figure 6.135).




Figure 6.135: Table – Data Utility

7. Here you can now drag and drop from the list of available dimensions, those dimensions that you would like to show as part of the Table into the Rows / Column area.
8. After you added the dimensions, click Submit.

The Data Utility tool helps you to reduce the need for changing the initial view and increase the reusability of a single data source because you can decide which parts of the data source the Table will use without having to change the data source.

6.9.1.43 Context Menu options

In Run Time, the Table component also offers Context Menu options with the following features (see Figure 6.136).

- a. Pin Column: The selected column in the Table will be moved towards first column position using Pin Left option and moved towards last column position using Pin Right option.
- b. Autosize This Column: The selected column in the Table will be resized.
- c. Autosize All Columns: All the columns in the Table will be resized.
- d. Reset Columns: All the columns will be reset to the default position.
- e. Tool Panel: The Pivot Mode option will be enabled.
- f. Expand All: The Table will be viewed in hierarchical structure showing the Parent and Child Nodes.
- g. Collapse All: The Table will be viewed in in hierarchical structure showing only the Parent Nodes. By clicking the Parent node, it will display the child nodes.

Item Category	Item Subcategory			Order Amount	Order Cost
Books (6)	Art & Architecture	<div> <div>Pin Column</div> <div>Autosize This Column</div> <div>Autosize All Columns</div> <div>Group by Item Subcategory</div> <div>Reset Columns</div> <div>Tool Panel</div> <div>Expand All</div> <div>Collapse All</div> </div>	<div> <div>Pin Left</div> <div>Pin Right</div> <div>✓ No Pin</div> </div>	100,033.00	367,809.27
	Books - Misc			564.00	260,485.05
	Business			040.00	309,108.48
	Literature			302,510.00	236,083.21
	Science and Technology			832,472.00	624,228.66
	Sports & Health			343,023.00	258,498.08
Electronics (6)	Audio Equipment			3,883,060.00	3,137,685.94
	Cameras			5,207,260.00	4,152,144.77
	Computers			1,980,801.00	1,585,319.44
	Electronics - Misc			4,805,416.00	3,852,154.55
	TV			3,946,567.00	3,150,105.37
	Video Equipment			5,246,080.00	4,168,846.96

Figure 6.136: Context Menu option

6.9.2 Additional Properties of the Advanced Table

In the following sections you will find a list of available properties and a Table with a more detailed description of each of those properties.

6.9.2.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Property	Description
General Settings	Choose Theme for Table	Here you can select the theme for the Column Headers in the Advanced Table.
	Enable Search Box	Here you can activate the integrated search feature.
	Enable Interactive Sorting	Here you can activate the integrated sorting feature.
	Activate Interactive Filtering	Here you can enable an interactive filter option for the columns in the Table.
	Repeat Dimension Members	This option allows you to enable / disable the feature to repeat dimension members for situations where several dimensions are stacked up.
	Fit to Window	Here you can activate the Fit to Window option to resize all the columns based on the overall table width.
	Enable Count Indicator	This option allows you to enable / disable the Count Indicator while grouping in the Table.
	Enable Horizontal Scrollbar	Here you can activate a Horizontal scrollbar.
	Enable Vertical Scrollbar	Here you can activate a Vertical scrollbar.
	Activate Pivot Mode	This option allows you to enable / disable the sort options for the columns in the Table.
	Autosize Columns	This option allows you to enable/disable the size the columns based on the width of Column Header Text
Context Menu	Activate Context Menu	This property enables /disables the right click option for the Context Menu in the Advanced Table.
	Context Menu Options	<p>This property allows to include /exclude the following options for the Context Menu in the Advanced Table.</p> <ul style="list-style-type: none"> ▪ Maximize / Restore ▪ Autosize All Columns ▪ Fit All Columns ▪ Copy ▪ Tool Panel ▪ Export ▪ Total ▪ Dimension Display ▪ FilterShow / Hide ▪ Ranking ▪ Conditional Formatting

Sub category	Property	Description
	Menu, Sub Menu	This property allows to add Menu and Sub Menu items based on your choice.
	Menu, Icon	This property allows to select the Icon for the Menu items based on your choice.
Table Paging	Activate Table Paging	This option allows you to enable / disable the paging option for the Table.
	No. of Rows / page	Here you can specify the number of rows per page.
	Placement of Page Navigator	Here you can select the position of the page navigation. You can choose Top or Bottom.
	Style of Page Navigator	<p>Here you can select the style for the page navigator. You can choose between Button, Number, Text and Go-To.</p> <p>Button option will display a small circle for each page.</p> <p>Number option will display the page number.</p> <p>Text option will display the page navigation through text. For example, it will display as "Page 1 of 3"</p> <p>Go-To option will display the specific page number provided in the Search option.</p>
Table Freezing	Freeze Top Number of Rows	This option allows you to scroll vertical and view the remaining number of rows after freezing the Top Number of Rows in the Table.
	Freeze Bottom Number of Rows	This option allows you to scroll vertical and view the remaining number of rows after freezing the Bottom Number of Rows in the Table.

Table 6.37: Category General

6.9.2.2 Category Data

Below you can see the Additional Properties for the category Data and their descriptions.

Sub category	Property	Description
Data Utility	Enable Data Utility Tool	This option allows you to activate the Data Utility tool for the Table, so that you can select which dimensions from the data source will be displayed in the Table.
Conditional Formatting	Name	Here you can enter a Name for the Alert.
	Type	You can choose between: Single Measure, Measure Calculation, Target Value.
	Highlighted Measure	Here you can select the measure from the chart where the rule will be applied upon.
	Select Measure	Here you will select the measure that will be used to compare against a static or dynamic value.
	Operator	Here you can choose the operator that is used to compare the measure with the comparison value.
	Comparison Value Type	Here you can choose between a Static comparison value, a Dynamic comparison value, or a Measure Comparison.
	Dynamic Selection Value	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
	Comparison Value	Depending on the configured options, the property Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
	Measure 1	Here you can select the first measure as part of the calculation you would like to configure.
	Calculation Operator	Here you can choose the type of calculation. Available options are: Add, Subtract, Divide, Multiply.
	Measure 2	Here you can select the first measure as part of the calculation you would like to configure.
	Target Value Type	Here you can choose between a Static and a Dynamic comparison value.
	Target Value	Depending on the configured options, the property Value will allow to enter a static value or select a dynamic measure.
	Format	The Format option allows you to choose between: <ul style="list-style-type: none"> Value: which will highlight the actual displayed value of the measure. Cell Background: which will highlight the cell

Sub category	Property	Description
		<p>background.</p> <ul style="list-style-type: none"> Symbol: which allows to choose a symbol which will be added to the measure column. In addition the option Symbol also allows to hide the measure and only display the chosen alert icon either in a new column or as replacement for the measure value. Boolean: which allows to configure the positive and negative value colors.
	Color	Here you can set the color for the Positive value as an Alert when the property Format is selected as "Boolean".
	Color (Negative)	Here you can set the color for the Negative value as an Alert when the property Format is selected as "Boolean".
	Add Alert as New Column	This property enables us to add the Alert as a new column.
	Place Alert Column After	This property will place the Alert Column after the Column which we select.
	Header	You can change the name of the Header for the Alert Column.
	Rules	You can add rules for the Target Value achievement
Calculation	Name	Specify a name for the calculation.
	Choose Type	<p>You can choose between Single Measure and Two Measures.</p> <p>In case of a Single Measure you can use the following calculations: Rank, Olympic Rank, and Percentage Share of Parent.</p> <p>In case of Two Measures you can use Add, Subtract, Multiply, Divide.</p>
	Measure	Here you select the measure which will be used for a calculation (Single Measure).
	Calculation	Here you choose the calculation type (Single Measure).
	Measure	Select the first measure for the measure calculation (Two Measures).
	Select Second Measure	Select the second measure for the measure calculation (Two Measures).
	Calculation	Select the calculation to be applied on the two selected measures – Addition, Subtraction, Multiplication, Divide, Percentage Difference and Absolute Percentage (Two Measures).

Table 6.38: Category Data

6.9.2.3 Category Formatting

Below you can find the Additional Properties for the category Formatting and their descriptions.

Sub category	Property	Description
Dimension Formatting	Choose Type	Here you can choose the value type, either Dimension or Measures.
	Member	Here you can choose the member from the Dimension or Measures for formatting.
	View Type	In case of formatting a dimension you can set the view type. Available options are Text, Key, Text and Key, Key and Text, Initial View.
	Column Header	Here you can specify the Text for Column Header to be displayed in the Table.
	Header Style	Here you can set the style for the header. The options are Default, Extra Bold, Hollow and Bold.
	Enable Image Support	Here you can enable / disable the image support.
	Width Definitions - By Key	Here you can set the values for the column width based on the Key Values.
	Width Definitions - By Index	Here you can set the values for the column width based on the Index Values.
	Prefix	Here you can define a Prefix for the Measure.
	Suffix	Here you can define a Suffix for the Measure.
	Number of Decimal Places	Sets the number of decimal places for the measure values.
	Thousand Separator	Sets the thousand separator for the measure values. Available options are 'dot' and 'comma'.
	Decimal Separator	Sets the decimal separator for the measure values. Available options are 'dot' and 'comma'.
	Show Unit/Currency	Enables the display of the Unit or the Currency information for the measure values. The Unit and Currency information is retrieved from the underlying data source.
	Enable Scaling Factor	Enables the display of the scaling factor for the measure values.
	Scaling Factor	Enables you to configure a scaling factor for the selected measure.
	Show Scaling Unit	Enables the display of the Scaling Unit for the selected measure.
	Scaling Unit	Here you can specify a scaling Unit for the selected measure.
	Save	Click the Save button after configuring the different properties to apply those settings to the Table.
Chart Formatting	Member	Sets the dimension for the chart formatting.
	Column Header	Sets the text for the column header.

Sub category	Property	Description
	Chart Type	Sets the chart type for the chart formatting. The options are Bar Chart, Column Chart, Line Chart, Pie Chart, Area Chart, Win/Loss Chart and Bullet Chart.
	Enable Data Label	Here you can enable / disable the data label option for the chart.
Table Theme	Enable Simple Table	Here you can enable / disable the option for the Simple Table.
	Enable Custom Theme	Here you can enable / disable the option for the Custom Theme.
	Theme Template	Here you can select the Theme Template for the Advanced Table. The options are Simple, Context Menu, Status Bar and Tool Panel.
	Custom Theme Code	Here you can enter the Custom Theme Code you would like to apply to the Advanced Table.

Table 6.39: Category Formatting

6.9.2.4 Category Appearance

Below you can find the Additional Properties for the category Appearance and their descriptions.

Sub category	Property	Description
General Settings	Enable Google Font	Here you can enable / disable the option for Google Font.
	Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
	Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
Table Body	Minimum Column Width	Here you can enable / disable the option for Minimum Column Width.
	Minimum Column Width	Set the minimum column width for each column used in the Table.
	Minimum Row Height	Set the minimum row height for each row used in the Table.
	Font Family	Set the font family for the rows in the Table.
	Font Size	Set the font size for the rows in the Table.
	Font Color	Set the font color for the rows in the Table.
	Font Style	Set the font weight for the rows in the Table.
	Horizontal Alignment - Text	Set the horizontal alignment for the dimension text.
	Horizontal Alignment - Measure(s)	Set the horizontal alignment for the measures.
	Vertical Alignment	Set the vertical alignment for the dimension text.
	Row Background Color	Set the background color for the rows.
	Banded Row Background Color	Set the Background Color for the alternate rows. This color setting is applied to all alternate rows starting from the second row immediately after the header row.
	Horizontal Line Color	Set the Horizontal Line Color for each row of the Table.
	Horizontal Line Width	Set the Horizontal Line Width for each row of the Table.
	Vertical Line Color	Set the Vertical Line Color for the columns of the Table.
	Vertical Line Width	Set the Vertical Line Width for the columns of the Table.
	Outer Line Color	Set the Outer Line Color for the Table. This corresponds to the rectangular outline the whole Table.
	Outer Line Width	Set the Outer Line Width for the Table. This corresponds to the rectangular outline the whole Table.
	Background Color	Set the Background Color for the Table.
Table Header	Enable Header	Here you can enable / disable the option for the Menu in

Sub category	Property	Description
	Menu	the column header.
	Header Height	Set the height for the column header.
	Font Size	Set the font size for the column header.
	Font Family	Set the font type for the column header.
	Font Color	Set the font color for the column header.
	Font Style	Set the font weight for the column header.
	Horizontal Alignment	Set the horizontal text alignment for the column header.
	Vertical Alignment	Set the vertical text alignment for the column header.
	Background Color	Set the background color for the column header.
	Header Menu Color	Set the color for the column header menu.
Search	Enable Search Box	Here you can enable / disable the option for Search Box in the Advanced Table.
	Font Size	Set the Font Size for the Search Box.
	Search Box Height	Set the Height for the Search Box.
	Background Color	Set the Background Color for the Search Box.
	Font Color	Set the Font Color for the Search Box.
	Search Box Width	Set the Width for the Search Box

Table 6.40: Category Appearance

6.9.3 Scripting Function for the Advanced Table

The following Table outlines the available scripting functions for the Advanced Table component.

Function / Method	Description
DSXGetSelectedMembers()	This function returns the value of the selected members in form of an array.
DSXSetDataSelection()	This function allows you to define a data selection, which then will be used as data source for the Table.
DSXGetDataSelection()	This function retrieves the assigned Data Selection from the Table.
DSXGetSelectedMember()	This function returns the values of selected members in form of a string value.
DSXGetSelectedMember()	This function allows to retrieve the selected member in form of a Member object.
DSXSetDataSelection()	This function allows to set the Data Selection for the Table.
DSXGetContextMenuSelectedItem()	This function returns the value of Context Menu Selected Item.
DSXGetSelectedValue()	This function returns the selected value.
DSXGetVisible()	This function allows you to retrieve the visibility of Advanced Table.
DSXHideMeasure()	This function allows you to hide the Measure value.
DSXSetColumnVisible()	This function sets the Column Visible value.
DSXSetDataUtility()	This function sets the Data Utility value.
DSXSetDataUtilityByIndex()	This function allows you to set the Data Utility value by Index.
DSXSetHiddenColumnByIndex()	This function allows you to set the Hidden Column value by Index.
DSXSetTableApi()	<p>This function allows you to set the Table APIs. The different types of Scripts used in the Table APIs are listed below:</p> <ul style="list-style-type: none"> • SetColumnVisible() – To show/hide the column. • SetColumnPinned() – To set the column pinned. • MoveColumn() – To move the column to the specified index. • SizeColumnsToFit() – To specify the width to be applied to all the columns. • MoveColumnByIndex() – To select the column by index and move the column to the specified index. • SetQuickFilter() – To search the value. • AutoSizeColumn() – To set the column to be autosized. • AutoSizeColumns() – To set the array of columns to be autosized. • ExportDataAsCsv() – To export the Table as CSV file. • ExportDataAsExcel() – To export the Table as Excel file. • CollapseAll() – To collapse all the members in the Dimensions. • ExpandAll() – To expand all the members in the

Function / Method	Description
	<p>Dimensions.</p> <ul style="list-style-type: none"> • SetHeaderHeight() – To set the height for all the Headers. • ShowToolPanel() – To show/hide the Tool Panel. • DeselectAll() – To deselect all the elements. • SelectAll() – To select all the elements. • PivotMode() – To show/hide the pivot-mode. • SetColumnWidth() – To set the column width. • DestroyFilter() – To remove the filter.
DSXSetVisible()	This function allows you to set the visibility of Advanced Table.
DSXShowMeasure()	This function allows you to show the Measure value.
DSXClearSelection()	This function allows you to clear the current selection.

Table 6.41: Scripting Functions

6.9.4 Events for the Advanced Table

The following Table outlines the available events for the Advanced Table component.

Event	Description
On Click	This event is being triggered each time you select a row in the Table. You can perform a single selection or a multi-row selection.
Enable Multi-Select	This event allows the option to toggle between single and multi-select options in the Table.
On Double Click	This event is being triggered when a Table Cell is double clicked.
On Filter	This event is being triggered when a Table Cell is filtered.
On Context Menu Click	This event is being triggered when selecting the custom item in Context Menu.

Table 6.42: Events

6.10 XLS Data Source in SAP BusinessObjects Design Studio

The XLS Data Source is a custom data source component offered as a part of the VBX suite which allows the dashboard developers to use local Microsoft Excel file (XLS) and Google Spreadsheet as data inputs. You have several options in regards to the storage and location of the file:

- You can use a local spreadsheet, which means the file needs to be available in the local application folder of the SAP BusinessObjects Design Studio application.
- You can store the file onto your SAP BusinessObjects BI Platform and access the file there.
- You can use a hosted Google Spreadsheet.

Supported File Formats

Currently this component only supports the file format XLS for the Microsoft Excel spreadsheets. The data source should contain at least one Key Figure. If not, the dimension value is considered as a Key Figure and would return values as "00".

6.10.1 How to use the XLS Data Source

In the following sections we will outline the steps for each of the options on the storage location of the spreadsheet file and how you can leverage the data from the spreadsheet as part of your next dashboarding project.

6.10.1.1 How to use the Local Spreadsheet option

In the following steps we will outline how you can use the option to store the spreadsheet to the local application folder and how you can then use a locally stored spreadsheet as part of your next dashboarding project. For our example we will assume that we are using a spreadsheet file that contains data that is similar to the information shown in Table 6.43:

Product Dimension	Revenue	Cost
Product A	100	50
Product B	200	100
Product C	250	120
Product D	300	50
Product E	400	100

Table 6.43: Sample Data

For our example we will assume that our filename is Sample_data.xls.

You can follow these steps to setup a project using the data from the spreadsheet:

1. Start SAP BusinessObjects Design Studio.
2. Configure SAP BusinessObjects Design Studio to start in Local Mode. To do so, select the menu Tools • Preferences.
3. In the General Settings for the category Application Design, set the option Preferred Start up mode to the value Local Mode and click OK (see Figure 6.137).

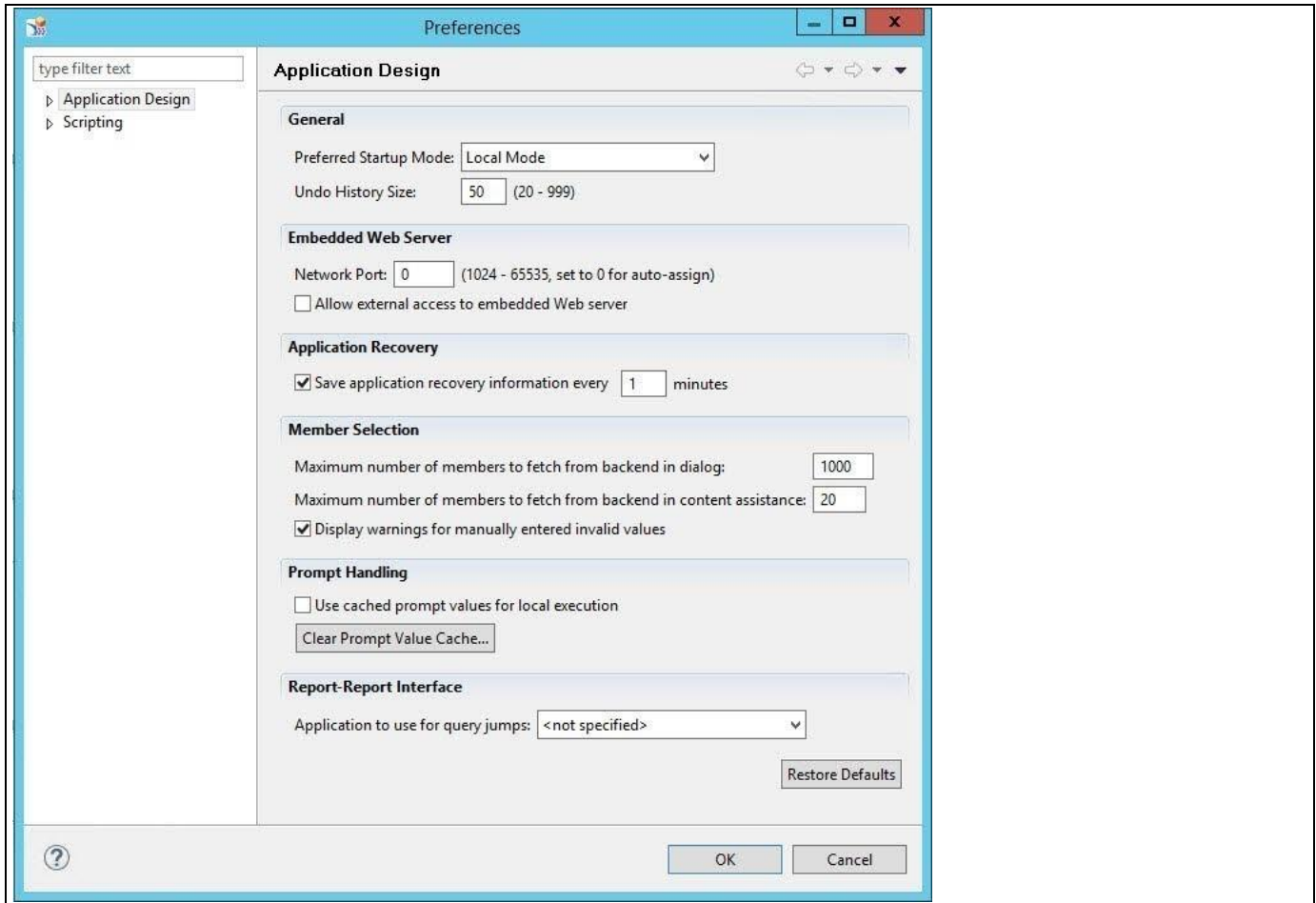


Figure 6.137: Preferences

4. On doing so, a Start-up Mode dialog box appears to confirm the change to Local Mode and to restart the SAP BusinessObjects Design Studio to apply the changes.
5. Click Restart.
6. Now in SAP BusinessObjects Design Studio, select the Menu Application • New.
7. Enter a Name for the new application.
8. Click Create.
9. Navigate to the Outline of your new application.
10. Select the folder Data Sources.
11. To add the XLS Data Source component use a right click on the Data Sources folder and select the Menu Add Custom Data Source • XLS Data Source (see Figure 6.138).

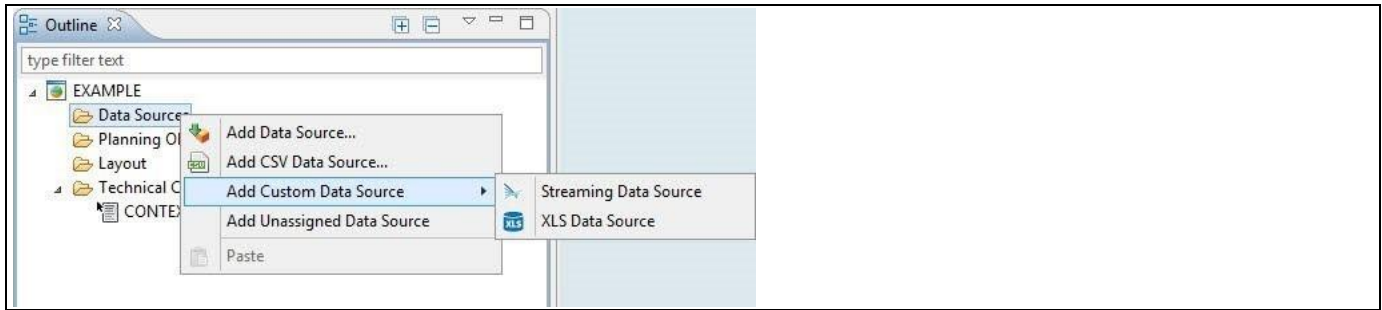


Figure 6.138: Adding XLS Data Source

12. Now, the XLS Data Source component should appear in the list of available Data sources.
13. As next step we need to add the spreadsheet file to the Application Repository Folder.
14. Select the Menu Application • Open Repository Folder.
15. The application repository folder will be opened.
16. Copy your spreadsheet file to the repository folder.
17. Placing the file into the repository folder makes the spreadsheet data accessible from the XLS Data Source component in the Local Mode of SAP BusinessObjects Design Studio.
18. Now navigate to the Additional Properties of the XLS Data Source component. In case the Additional Properties are not shown, please select the menu View • Additional Properties to show the Additional Properties.
19. Navigate to the category General and to the sub category General Settings (see Figure 6.139).

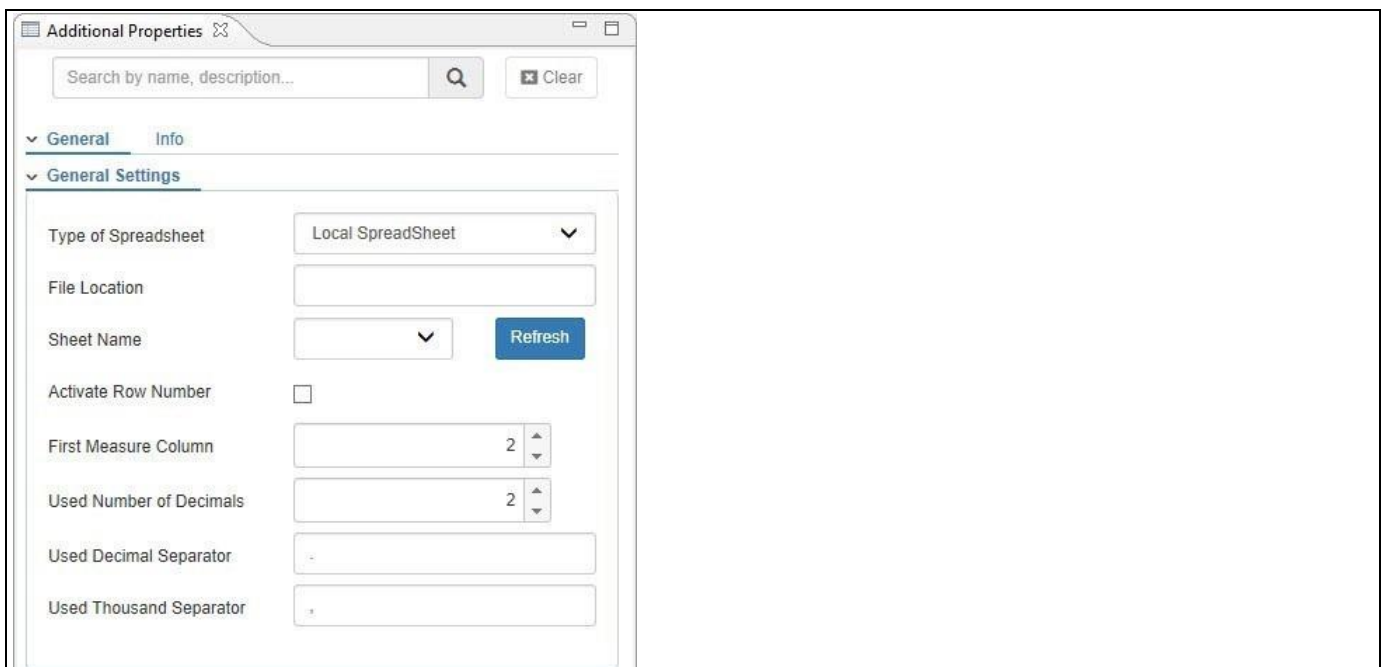


Figure 6.139: Category General

20. In the sub category General Settings you can configure the following items:
 - Type of Spreadsheet: For our file name example the type will be Local Spreadsheet.
 - File Location: Here you can browse the file. For our example that would be sample_data.xls.
 - Sheet Name: In case your spreadsheet contains multiple sheets you can select the sheet here.

- **First Measure Column:** Here you enter the number of the first column that represents a measure. For our example, that would be 2.
- **Activate Row Number:** Here you can activate the option to add an additional column displaying a row number.
- **Used Decimal Separator:** Here you can specify what the Decimal Separator is in the spreadsheet. For our example that would be "." (dot).
- **Used Thousand Separator:** Here you can specify what the Thousand Separator is in the spreadsheet. For our example that would be "," (comma).
- **Used Number of Decimals:** Here you can specify how many number of decimals have been configured in the spreadsheet.

21. After we configured all the details in the Additional Properties, we can now use the spreadsheet as a data source for other components.

22. Add a Column / Bar Chart from the VBX Charts to your dashboard.

23. Assign the data source to the newly added chart.

24. Your chart should now look similar to Figure 6.140.

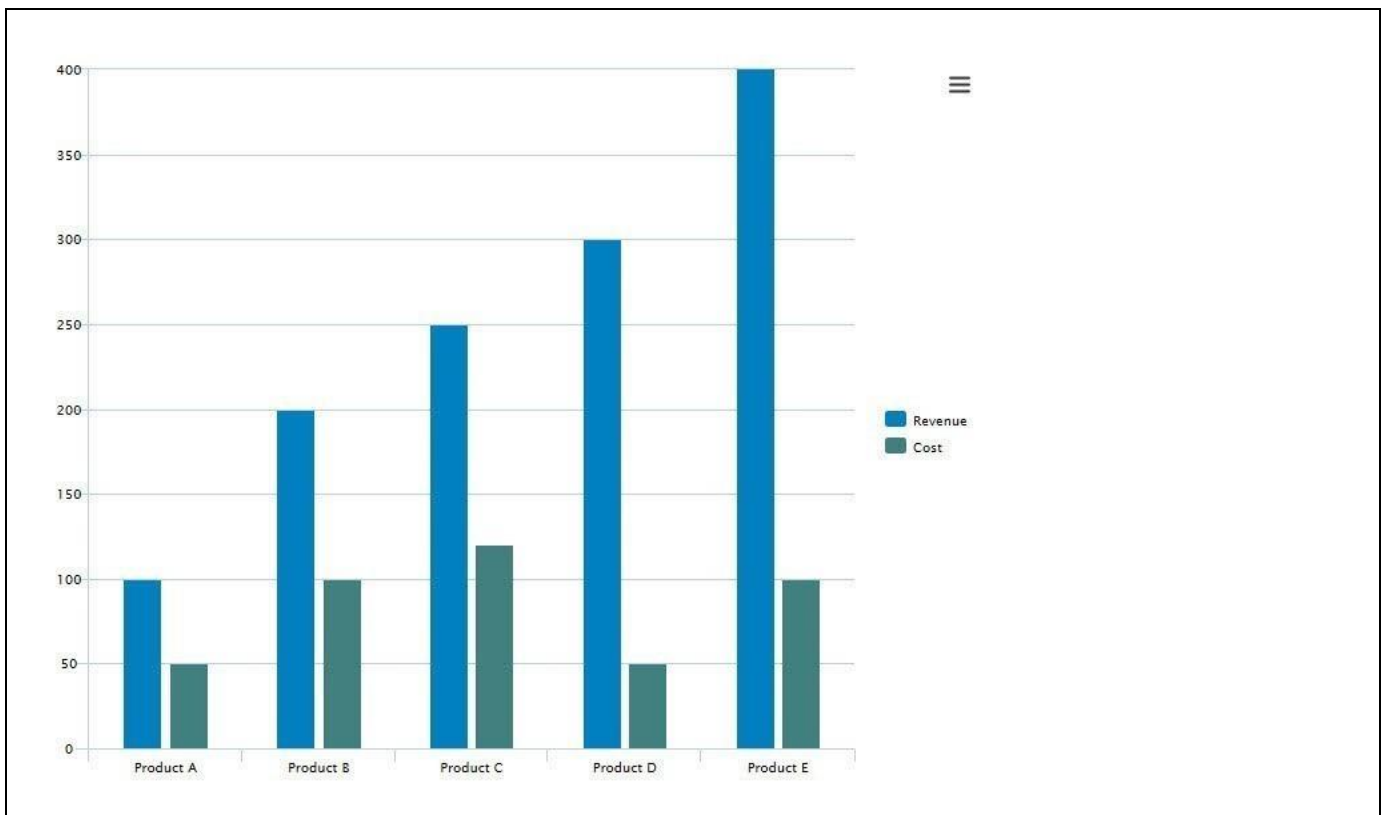


Figure 6.140: Column Chart

6.10.1.2 How to use the SAP BusinessObjects BI Platform option

In the following steps we will outline how you can use the option to retrieve the spreadsheet file from your SAP BusinessObjects BI platform. For our example we will assume that we are using a spreadsheet file that contains data that is similar to the information shown in Table 6.43

SAP BusinessObjects BI Platform as storage location

Please note, that the current integration with the SAP BusinessObjects BI Platform as storage location for the spreadsheet files is only supported with SAP BusinessObjects Design Studio release 1.6 or higher.

Spreadsheet File Type

Please note, that the current option to upload / select a spreadsheet directly from the SAP BusinessObjects BI Platform supports only the File Extension CSV. There is no need to export the spreadsheet data to an actual CSV file, all that is needed is to rename the file itself to a *.CSV file.

Before you follow the steps below, please ensure that you renamed your spreadsheet file to the CSV File extension.

1. Start SAP BusinessObjects Design Studio.
2. Configure SAP BusinessObjects Design Studio to start in SAP BusinessObjects BI Platform Mode. To do so, select the menu Tools • Preferences.
3. In the General Settings for the category Application Design, set the option Preferred Start up mode to the value SAP BusinessObjects BI Platform and click OK.
4. On doing so, a Start-up Mode dialog box appears to confirm the change and to restart the SAP BusinessObjects Design Studio to apply the changes.
5. Click Restart.
6. Logon to SAP BusinessObjects Design Studio using your credentials for the SAP BusinessObjects BI Platform.
7. Now in SAP BusinessObjects Design Studio, select the Menu Application • New.
8. Enter a Name for the new application.
9. Click Create.
10. Navigate to the Outline of your new application.
11. Select the folder Data Sources.
12. To add the XLS Data Source component use a right click on the Data Sources folder and select the Menu Add Custom Data Source • XLS Data Source.
13. Now, the XLS Data Source component should appear in the list of available Data sources.
14. Now navigate to the Additional Properties of the XLS Data Source component. In case the Additional Properties are not shown, please select the menu View • Additional Properties to show the Additional Properties.
15. Navigate to the category General and to the sub category General Settings.
16. Set the Type of Spreadsheet to the value SAP BusinessObjects BI Platform (see Figure 6.141).

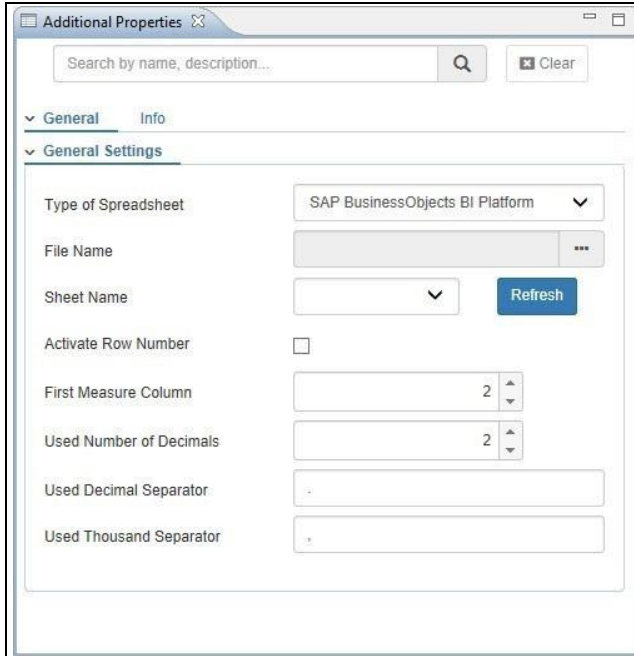


Figure 6.141: Category General

17. In the category General you can configure the following items:

- **Type of Spreadsheet:** For our example the type will be SAP BusinessObjects BI Platform.
- **First Measure Column:** Here you enter the number of the first column that represents a measure. For our example, that would be 2.
- **Activate Row No:** Here you can activate the option to add an additional column displaying a row number.
- **Used Decimal Separator:** Here you can specify what the Decimal Separator is in the spreadsheet. For our example that would be "." (dot).
- **Used Thousand Separator:** Here you can specify what the Thousand Separator is in the spreadsheet. For our example that would be "," (comma).
- **Used Number of Decimals:** Here you can specify how many number of decimals have been configured in the spreadsheet.

18. Click on the button on the right hand side for the option Choose File from BI Platform (see Figure 6.142).

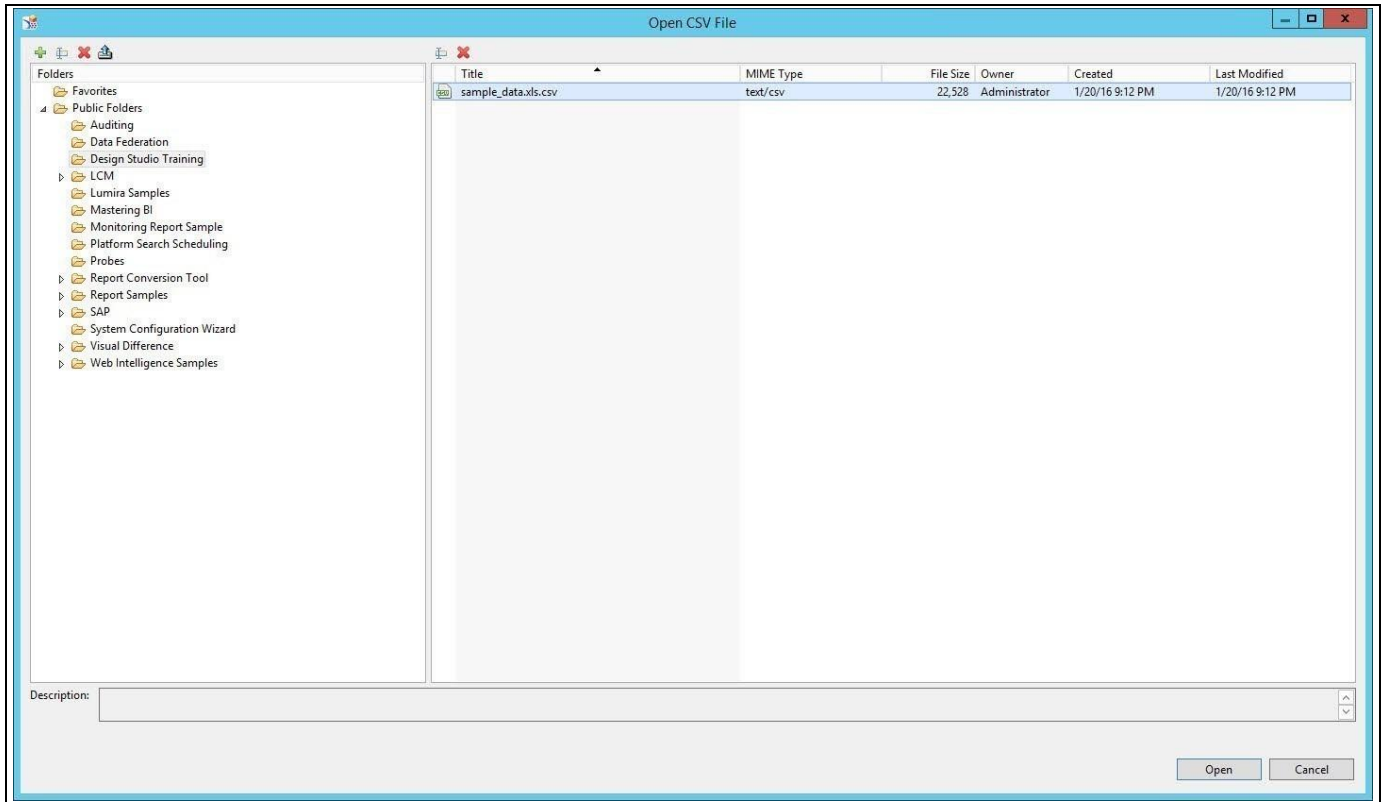


Figure 6.142: File Location

19. You can now either directly select an already uploaded file or you can upload a file from here.
20. Ensure the other properties are configured for your sample spreadsheet.
21. After we configured all the details in the Additional Properties, we can now use the spreadsheet as a data source for other components.
22. Add a Column / Bar Chart from the VBX Charts to your dashboard.
23. Assign the data source to the newly added chart.
24. Your chart should now look similar to Figure 6.140.

Single-Sign-On (SSO)

Please note, that the user credentials entered at design time for the Custom Data Source are not stored with the SAP BusinessObjects Design Studio. At Runtime of the dashboard, the spreadsheet file will be access using SSO with the SAP BusinessObjects BI Platform.

All users access the dashboard will require access to the spreadsheet file.

6.10.1.3 How to use the Google Spreadsheet option

In the following steps we will outline how you can use the option to use a Google Spreadsheet as data source in SAP BusinessObjects Design Studio/SAP Lumira Designer. We are assuming that our Google Spreadsheet contains data that is similar to the information shown in Table 6.45. The first set of steps will outline how you need to publish the Google Spreadsheet and the second set of steps will then show how you can use the Google Spreadsheet as data source in SAP BusinessObjects Design Studio/SAP Lumira Designer.

You can follow these steps to publish your Google Spreadsheet:

1. Launch Google Sheets.
2. Open the Google Sheet you would like to use as data source.
3. Navigate to the menu File • Publish to web (see Figure 6.143).

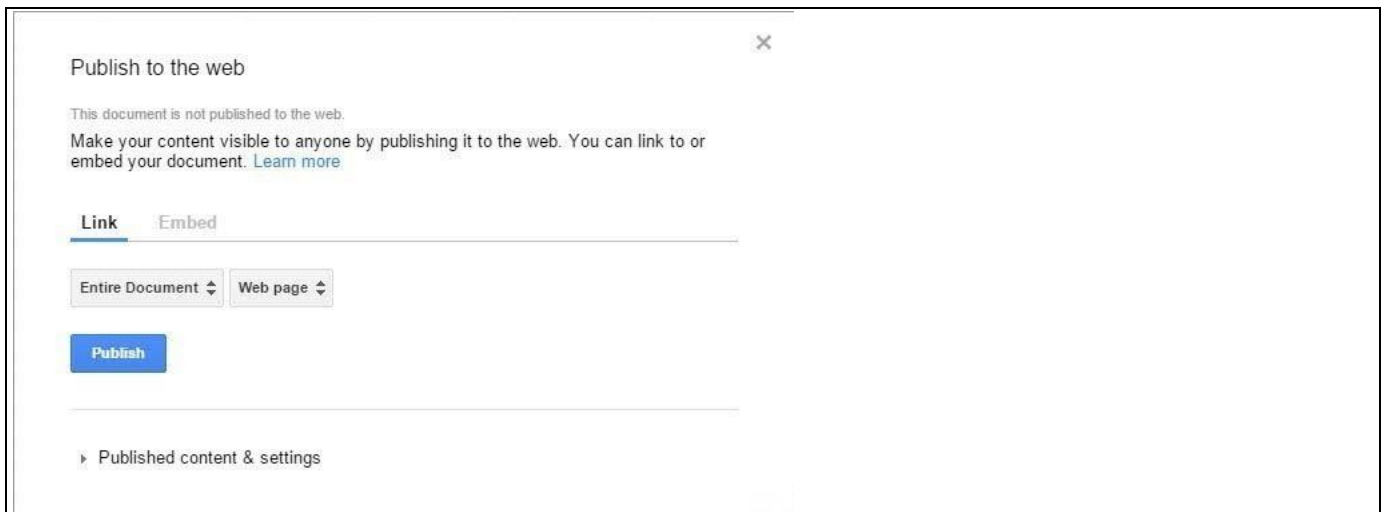


Figure 6.143: Publish to Web

4. In the Link option, select the specific Sheet that you would like to use. Do not use the option Entire Document.
5. Click Publish (see Figure 6.144).

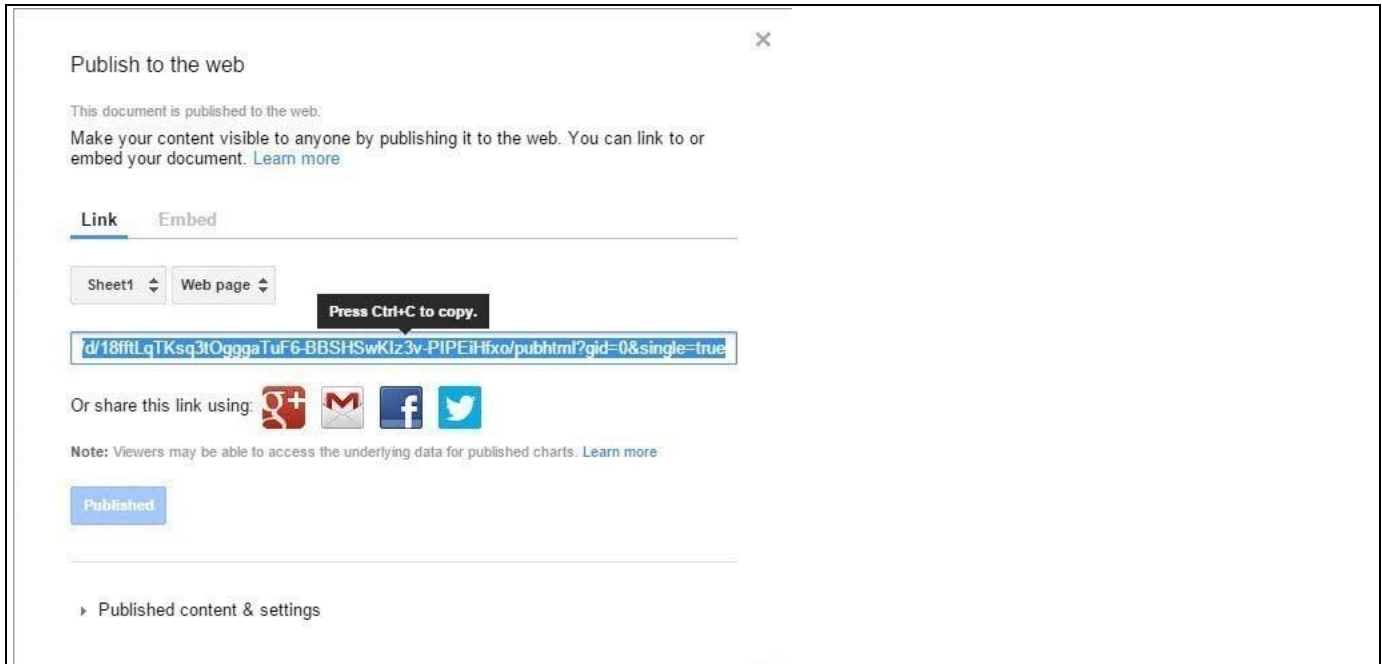


Figure 6.144: Published Link

6. You will receive a Link that points to the published Google Sheet. This link will be needed in SAP BusinessObjects Design Studio.

After we published the Google Sheet, we will now leverage the information in SAP BusinessObjects Design Studio.

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Logon to SAP BusinessObjects Design Studio/SAP Lumira Designer using your credentials for the SAP BusinessObjects BI Platform or start SAP BusinessObjects Design Studio in Local Mode.
3. Now in SAP BusinessObjects Design Studio/SAP Lumira Designer, select the Menu Application • New.
4. Enter a Name for the new application.
5. Click Create.
6. Navigate to the Outline of your new application.
7. Select the folder Data Sources.
8. To add the XLS Data Source component use a right click on the Data Sources folder and select the Menu Add Custom Data Source • XLS Data Source.
9. Now, the XLS Data Source component should appear in the list of available Data sources.
10. Now navigate to the Additional Properties of the XLS Data Source component. In case the Additional Properties are not shown, please select the menu View • Additional Properties to show the Additional Properties.
11. Navigate to the category General and to the sub category General Settings.
12. Set the Spreadsheet Type to the value Google Spreadsheet (see Figure 6.145).

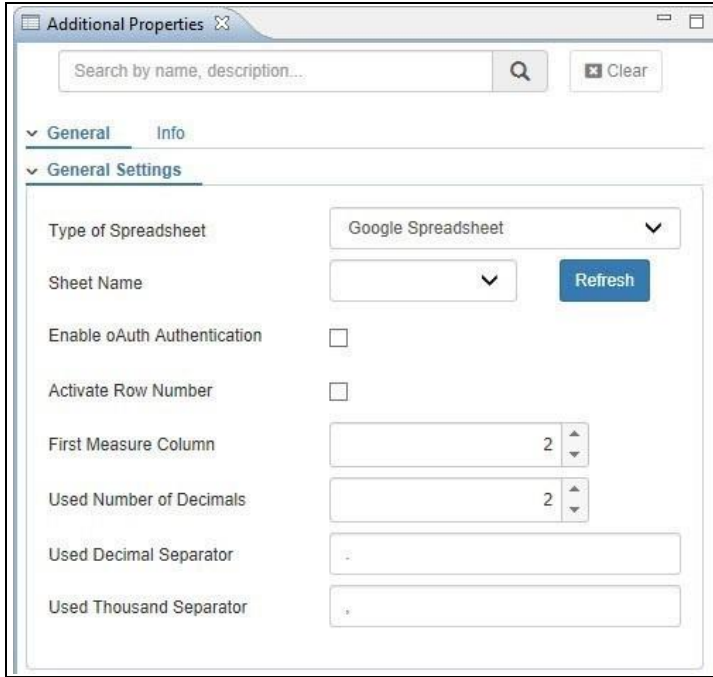


Figure 6.145: Google Spreadsheet

13. Paste the URL that you received when publishing the Google Sheet into the property URL to Google Sheet.
14. Ensure the other properties are configured for your sample spreadsheet.
15. After we configured all the details in the Additional Properties, we can now use the spreadsheet as a data source for other components.
16. Add a Column / Bar Chart from the VBX Charts to your dashboard.
17. Assign the data source to the newly added chart.
18. Your chart should now look similar to Figure 6.140.

6.10.2 Additional Properties for the XLS Data Source Component

6.10.2.1 Category General

Following are the Additional Properties of the XLS Data Source under the category General.

Property	Description
Type of Spreadsheet	Select the type of the Spreadsheet. Available options are Local Spreadsheet, Google Spreadsheet, Dropbox File, and Box File.
File Location	Provide the location of the Spreadsheet file.
Enable OAuth Authentication	This option allows to active the Google Sheet authentication option to access secured Google Sheets.
File list	It will list the files from the authenticated Google Account.
Sheet Name	Here you can select from the list of available sheets as part of the spreadsheet file.
First Measure Column	Here you indicate at which column of the spreadsheet the display of the measures will start. The index starts with value 1.
Activate Row Number	This option allows you to enable an additional column with a Row number.
Used Decimal Separator	Here you specify which Decimal Separator has been used in the spreadsheet file.
Used Thousand Separator	Here you specify which Thousand Separator has been used in the spreadsheet file.
Used Number of Decimals	Here you specify how many Decimals have been used in the spreadsheet file.

Table 6.44: Additional Properties – Category General

6.11 XLS Data Source in Lumira Designer

The XLS Data Source is a custom data source component offered as a part of the VBX suite which allows the dashboard developers to use local Microsoft Excel file (XLS) and Google Spreadsheet as data inputs. You have several options in regards to the storage and location of the file:

- You can store the file onto your SAP BusinessObjects BI Platform and access the file there.
- You can use a hosted Google Spreadsheet.

Supported File Formats

Currently this component only supports the file format XLS for the Microsoft Excel spreadsheets. The data source should contain at least one Key Figure. If not, the dimension value is considered as a Key Figure and would return values as "00".

6.11.1 How to use the XLS Data Source

In the following sections we will outline the steps for each of the options on the storage location of the spreadsheet file and how you can leverage the data from the spreadsheet as part of your next dashboarding project.

6.11.1.1 How to use the SAP BusinessObjects BI Platform option

In the following steps we will outline how you can use the option to retrieve the spreadsheet file from your SAP BusinessObjects BI platform. For our example we will assume that we are using a spreadsheet file that contains data that is similar to the information shown in Table 6.45.

Product Dimension	Revenue	Cost
Product A	100	50
Product B	200	100
Product C	250	120
Product D	300	50
Product E	400	100

Table 6.45: Sample Data

SAP BusinessObjects BI Platform as storage location

Please note, that the current integration with the SAP BusinessObjects BI Platform as storage location for the spreadsheet files is only supported with SAP Lumira Designer.

Spreadsheet File Type

Please note, that the current option to upload / select a spreadsheet directly from the SAP BusinessObjects BI Platform supports only the File Extension CSV. There is no need to export the spreadsheet data to an actual CSV file, all that is needed is to rename the file itself to a *.CSV file.

Before you follow the steps below, please ensure that you renamed your spreadsheet file to the CSV File extension.

1. Start SAP Lumira Designer.
2. Configure SAP Lumira Designer to start in SAP BusinessObjects BI Platform Mode. To do so, select the menu Tools • Preferences.
3. In the General Settings for the category Application Design, set the option Preferred Start up mode to the value SAP BusinessObjects BI Platform and click OK.
4. On doing so, a Start-up Mode dialog box appears to confirm the change and to restart the SAP Lumira Designer to apply the changes.
5. Click Restart.
6. Logon to SAP Lumira Designer using your credentials for the SAP BusinessObjects BI Platform.
7. Now in SAP Lumira Designer, select the Menu Application • New.
8. Enter a Name for the new application.
9. Click Create.
10. Navigate to the Outline of your new application.
11. Select the folder Data Sources.
12. To add the XLS Data Source component use a right click on the Data Sources folder and select the Menu Add Custom Data Source • XLS Data Source.
13. Now, the XLS Data Source component should appear in the list of available Data sources.
14. Navigate to the Standard Properties of the XLS Data Source component. Browse the File Name as shown in Figure 6.146.

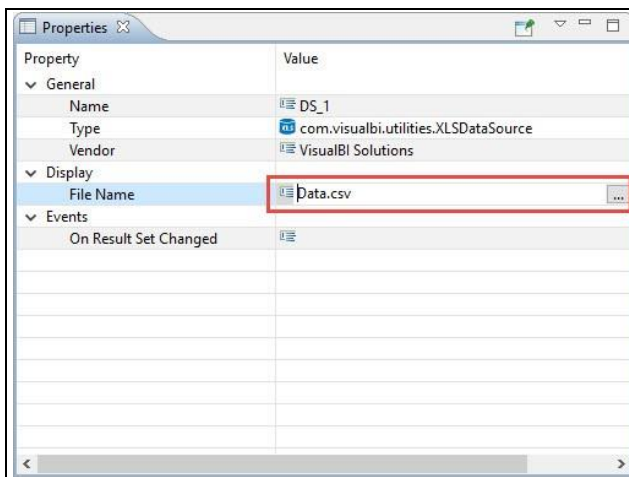


Figure 6.146: Standard Properties

15. Now navigate to the Additional Properties of the XLS Data Source component. In case the Additional Properties are not shown, please select the menu View • Additional Properties to show the Additional Properties.
16. Navigate to the category General and to the sub category General Settings.
17. Set the Type of Spreadsheet to the value SAP BusinessObjects BI Platform (see Figure 6.147).

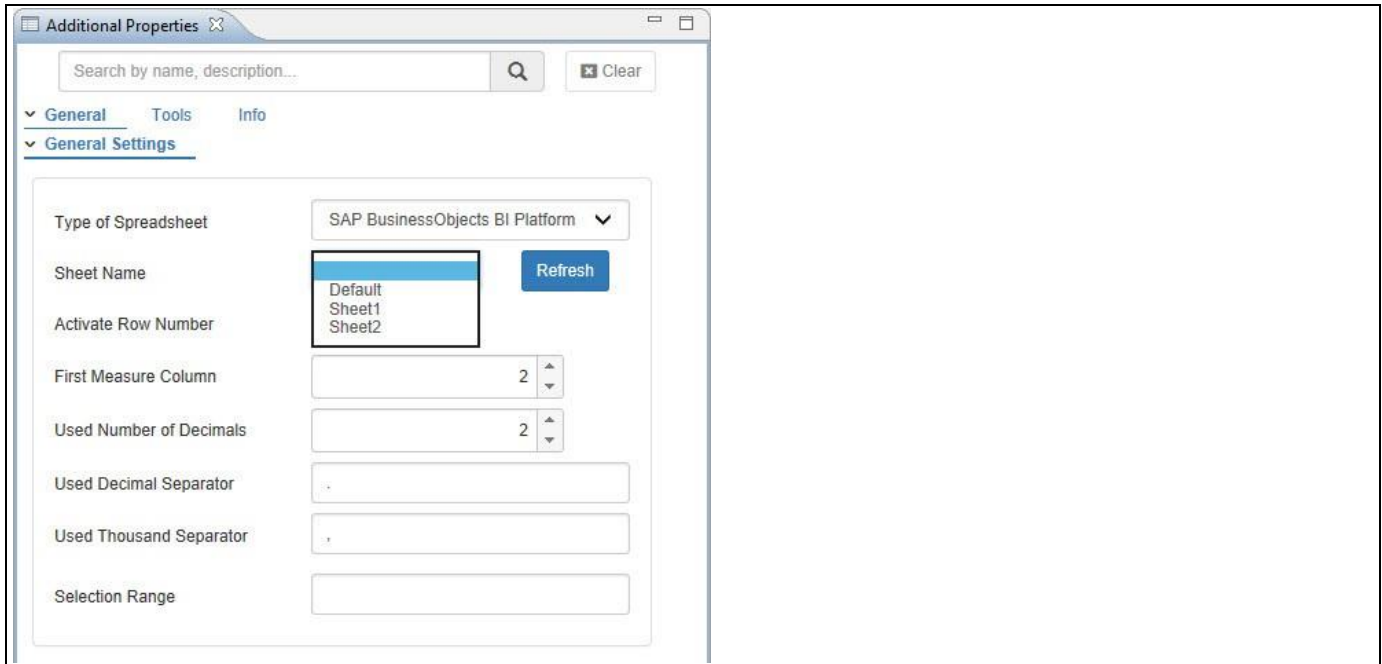


Figure 6.147: Category General

18. In the category General you can configure the following items:

- Type of Spreadsheet: For our example the type will be SAP BusinessObjects BI Platform.
- First Measure Column: Here you enter the number of the first column that represents a measure. For our example, that would be 2.
- Activate Row No: Here you can activate the option to add an additional column displaying a row number.
- Used Decimal Separator: Here you can specify what the Decimal Separator is in the spreadsheet. For our example that would be "." (dot).
- Used Thousand Separator: Here you can specify what the Thousand Separator is in the spreadsheet. For our example that would be "," (comma).
- Used Number of Decimals: Here you can specify how many number of decimals have been configured in the spreadsheet.

19. Click on the button on the right hand side for the option Choose File from BI Platform (see Figure 6.148).

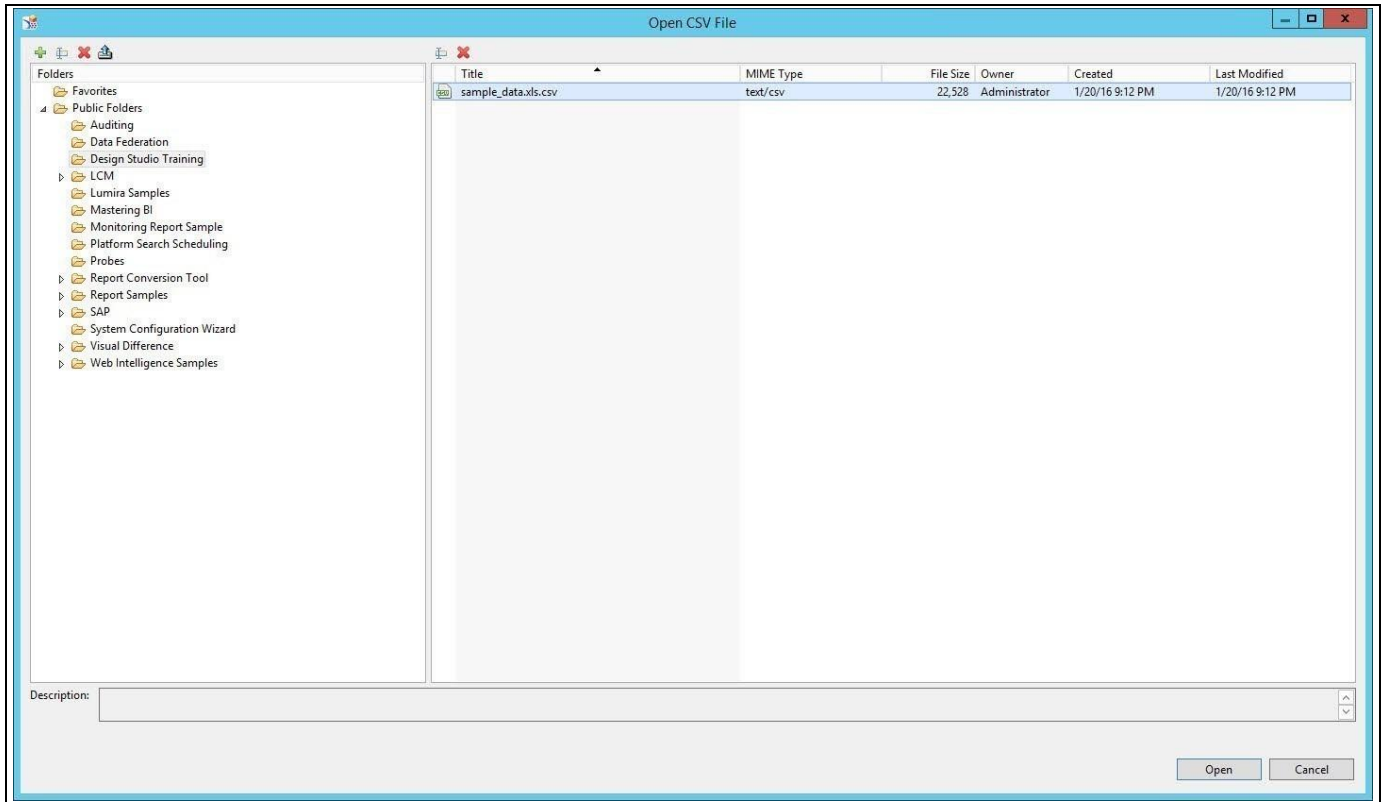


Figure 6.148: File Location

20. You can now either directly select an already uploaded file or you can upload a file from here.
21. Ensure the other properties are configured for your sample spreadsheet.
22. After we configured all the details in the Additional Properties, we can now use the spreadsheet as a data source for other components.
23. Add a Column / Bar Chart from the VBX Charts to your dashboard.
24. Assign the data source to the newly added chart.
25. Your chart should now look similar to Figure 6.149.

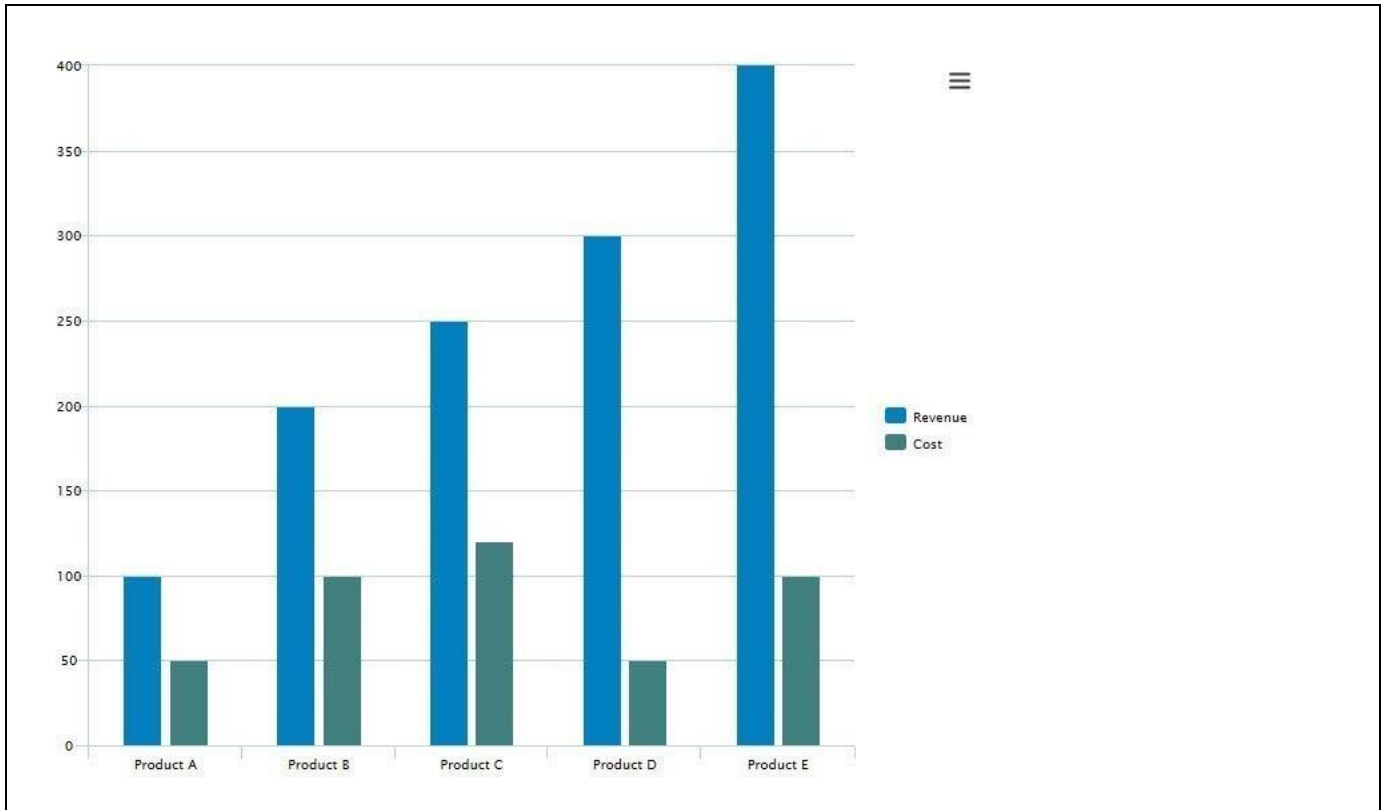


Figure 6.149: Column Chart

Single-Sign-On (SSO)

Please note, that the user credentials entered at design time for the Custom Data Source are not stored with the SAP BusinessObjects Design Studio/SAP Lumira Designer. At Runtime of the dashboard, the spreadsheet file will be access using SSO with the SAP BusinessObjects BI Platform.

All users access the dashboard will require access to the spreadsheet file.

6.11.1.2 How to use the Google Spreadsheet option

The procedures on how to use the Google Spreadsheet option in SAP Lumira Designer will be the same as the procedures followed for SAP BusinessObjects Design Studio and those details can be referred from Section 6.10.1.3.

6.12 Export to PDF Component

As the name indicates, the Export to PDF Component allows the dashboard designer to add the ability for you to export the entire dashboard to a PDF File. The component offers settings related to page orientation, page size, header, footer, and page numbering.

6.12.1 Export of Large Tables

The PDF Export component allows you to export large Tables (VBX Table component) with the ability to repeat row and column headers across the pages. You have two main properties to enable this functionality:

- By navigating to the category General and to the sub category General Settings and to the area Export Settings in the Additional Properties of PDF component, you can use the property Full Table Print which allows to export the complete Table.
- By navigating to the category General and to the sub category General Settings and to the area Export Settings in the Additional Properties of PDF component, you can use the property Enable Server Side PDF Export which allows to leverage the VBX Export Service for exporting large Tables to improve the performance of the exporting workflow.

6.12.2 How to use the Export to PDF Component option

In the following steps we will outline the steps required to add the Export to PDF Component to your dashboard and to offer the ability to export your dashboard into a PDF File to your users.

You can follow these steps to add the Export to PDF Component to your dashboard:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer and create a new project.
2. Add all the components and data sources you would like to be part of your overall dashboard.
3. For our example, the dashboard contains a single chart and a single Table.
4. Now add a Export to PDF Component from the VBX Utilities to your dashboard (see Figure 6.150).

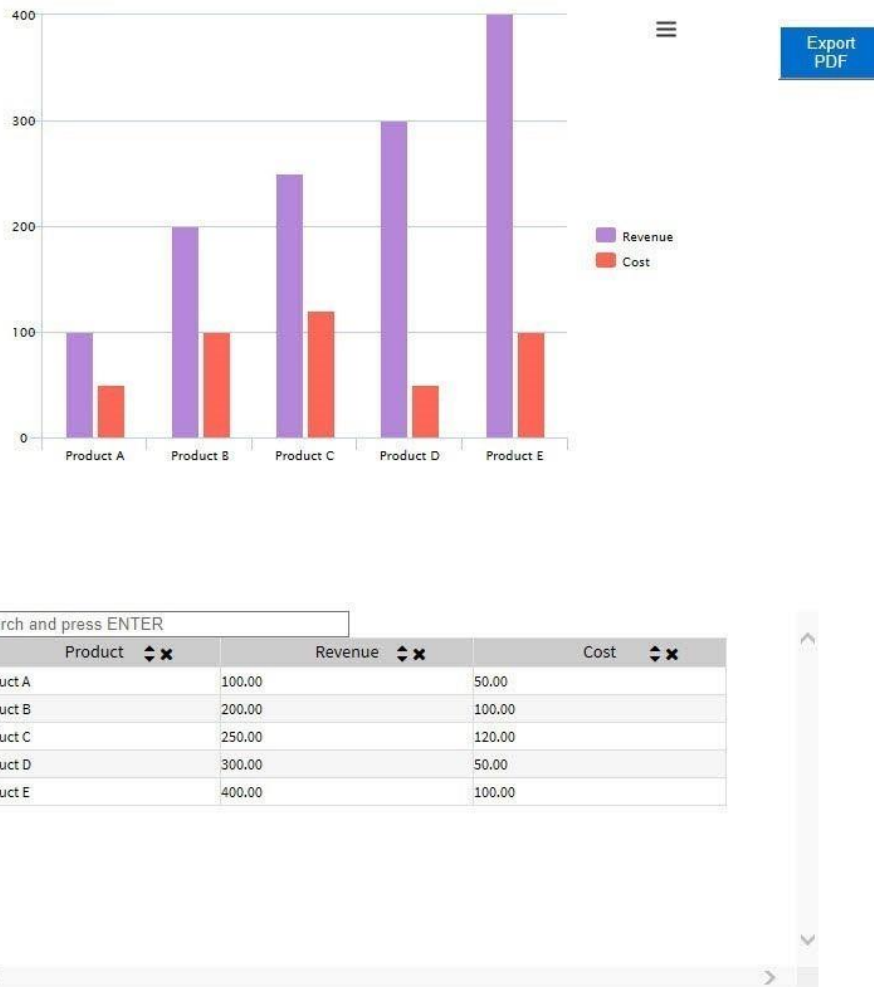
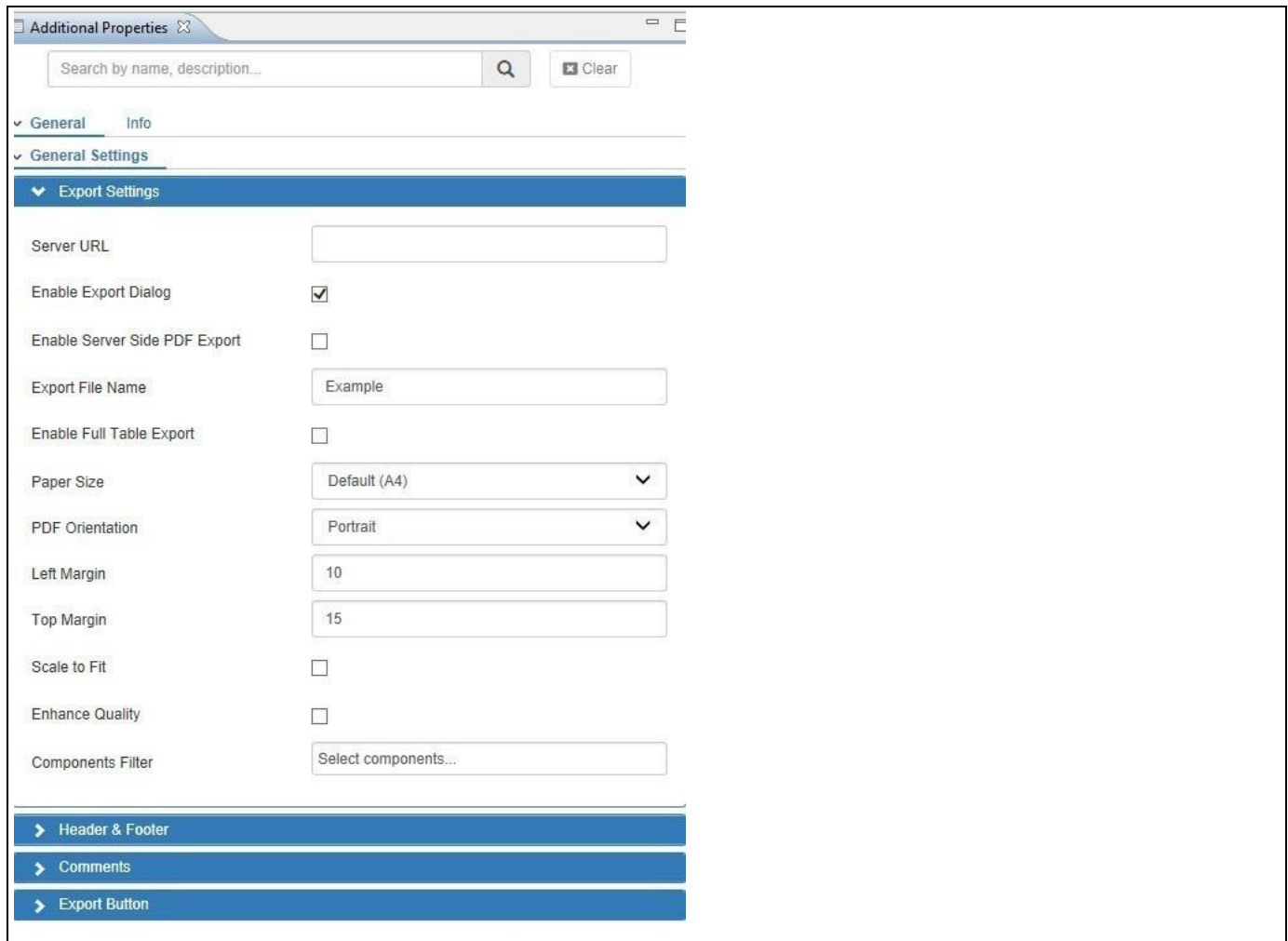


Figure 6.150: PDF Export

5. The Export to PDF Component is a simple button that you can leverage to export the dashboard.
6. Select the Export to PDF Component in the Outline of your application.
7. Now navigate to the Additional Properties of the Export to PDF Component. In case the Additional Properties are not shown, please select the menu View • Additional Properties to show the Additional Properties.
8. Navigate to the category General and to the sub category General Settings (see Figure 6.151).



Additional Properties

Search by name, description...

General Info

General Settings

Export Settings

Server URL

Enable Export Dialog ☒

Enable Server Side PDF Export ☐

Export File Name

Enable Full Table Export ☐

Paper Size

PDF Orientation

Left Margin

Top Margin

Scale to Fit ☐

Enhance Quality ☐

Components Filter

> Header & Footer

> Comments

> Export Button

Figure 6.151: Additional Properties

9. In the area Export Settings, you can configure the following items:
 - PDF Orientation
 - PDF Format
 - Document Name for the Export file
 - Page Margins
 - Header / Footer Text
 - Date and Page Numbers can be included into the Export
 - Option to export Large Tables
10. In addition you have the option to add Comment Boxes that you – at the time when exporting the dashboard – can use to provide additional comments. These comments will be added to the PDF file (see Figure 6.152).

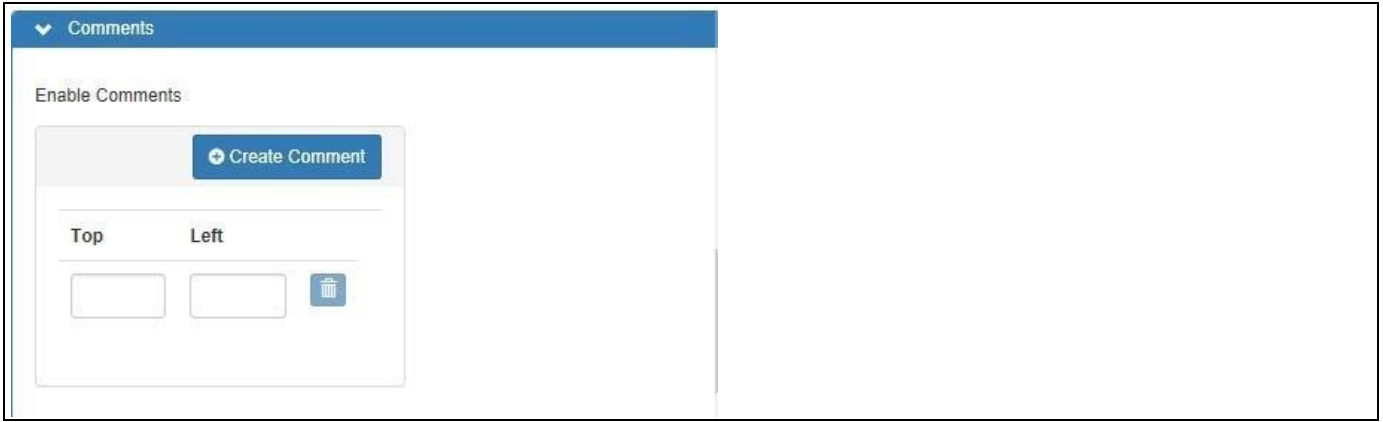


Figure 6.152: Comments

11. Scroll down to the area Comments.
12. Enter the values for two Comment boxes by entering the Top and Left values for two rows. The Top and Left values are pixels starting from the Top left corner of your dashboard.
13. In my example I did add two options to add comments for the chart and for the Table (see Figure 6.153).

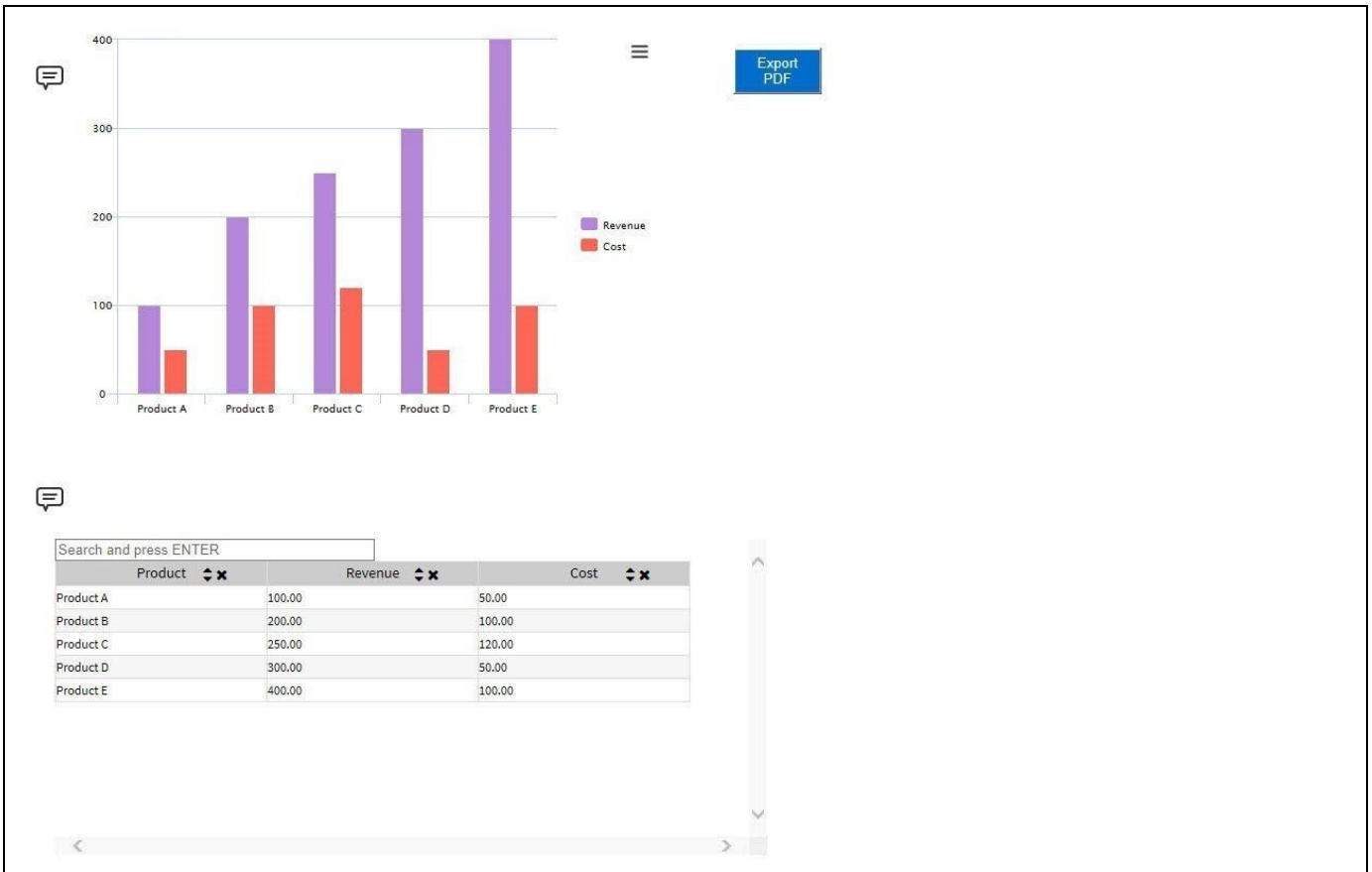


Figure 6.153: Dashboard with PDF Export

14. Now select the menu Application • Execute Locally.
15. You should see your dashboard with the PDF Export button and the Commenting options.
16. User can click on the Comment symbol and enter their comments.
17. Click on the Export Button (see Figure 6.154).

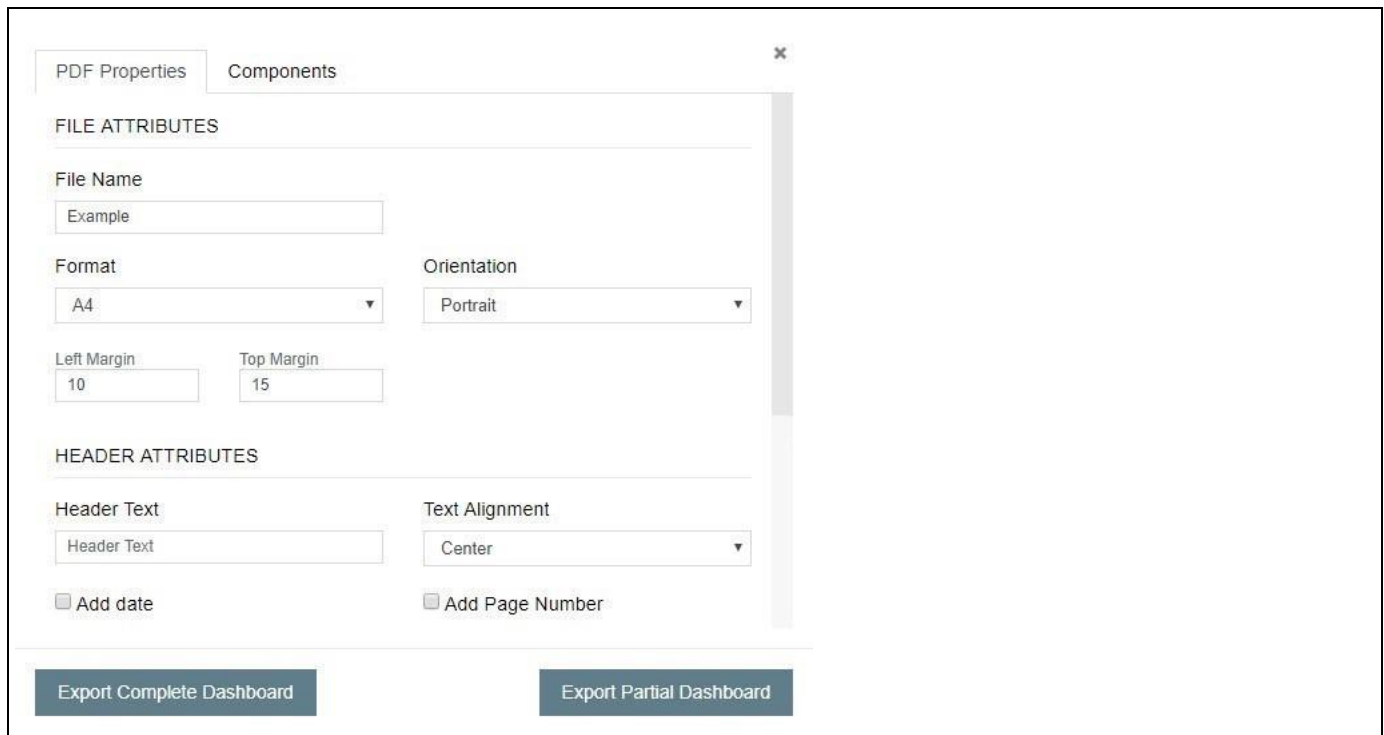


Figure 6.154: Export Dialog

18. You now has the option to either export the complete dashboard or to select specific components from the dashboard.
 - When exporting the complete dashboard, the complete dashboard will be exported onto a single page based on the settings in the Additional Properties.
 - When exporting selected components, these selected components will be exported on individual pages in the PDF file.
19. You also has the option to navigate to the Components area of the Export dialog and select individual components for the export, as well as filtering the list of components based on component type.

PDF Export for the Dashboard with Google Maps

For the PDF Export of BI Dashboard having Google Maps as a component, the Server URL needs to be mentioned in the Server URL Text Box and the Enable Server Side Export property needs to be activated.

6.12.3 How to setup Templates for the Export to PDF Component

The Export to PDF Component also allows the use of templates. A template is basically a Microsoft Word file where you specify the size and location of each component which should be exported to the Microsoft Word file. The steps explained in Section 6.15.4 will be also adopted for configuring the Templates for the Export to PDF Component.

6.12.4 Additional Properties of the Export to PDF Component

In the following sections you will find a list of available properties and a Table with a more detailed description of each of the properties for the Additional Properties of the Export to PDF Component.

6.12.4.1 Category General

Sub category	Area	Property	Description
General Settings	Export Settings	Server URL	Here you can enter the URL for the VBX Export Service.
		Enable Export Dialog	This option allows you to enable / disable the Export dialog. When disabled you can use the scripting functions to provide the export functionality.
		Enable Server Side PDF Export	This option will allow you to leverage the VBX Export Service as part of the Export workflow to increase the performance and for exporting large Tables.
		Export File Name	Enter a file name that will be used when you export the dashboard.
		Enable Full Table Export	This option allows you to enable / disable the option to export large Tables or to only export what is shown on the screen.
		Paper Size	Select the page format for the PDF file.
		PDF Orientation	Select the page orientation for the PDF file (Portrait or Landscape).
		Left Margin	Specify the Left Margin for the PDF Document.
		Top Margin	Specify the Top Margin for the PDF Document.
		Scale to Fit	This option allows you to scale the dashboard to fit the selected PDF format.
		Enhance Quality	This option will preserve the quality resolution of the image components in the PDF, even if it is zoomed to maximum level.
		Components Filter	Here you can select the components that needs to be exported in run time.
	Header & Footer	Enable Custom Header	Here you can enable/disable the Custom Header. If it is enabled, then a panel named as VBX_PDF_HEADER should be included and

Sub category	Area	Property	Description
			you can select the appropriate class name through the Standard Properties of the panel.
		Header Text	Here you can enter a Header Text that will be added to the exported file.
		Header Text Alignment	Here you can configure the horizontal alignment for the header text.
		Font Family	Here you can configure the Font Type for the Header /Footer.
		Font Size	Here you can configure the Font Size for the Header /Footer.
		Font Color	Here you can configure the Font Color for Text added to the Header /Footer.
		Font Style	Here you can configure the Font Style for the Header /Footer.
		Add Page No. to Header	This property enables / disables the option to add the Page Number to the file Header.
		Header Page No. Alignment	Here you can configure the horizontal alignment for the page number field in the file header.
		Add Date to Header	This property enables / disables the option to add the Date value to the file header.
		Header Date Alignment	Here you can configure the horizontal alignment for the date field in the file header.
		Enable Custom Footer	Here you can enable/disable the Custom Header. If it is enabled, then a panel named as VBX_PDF_FOOTER should be included and you can select the appropriate class name through the Standard Properties of the panel.
		Footer Text	Here you can enter a Footer Text that will be added to the exported file.
		Footer Text Alignment	Here you can configure the horizontal alignment for the Header /Footer.
		Add Page No. to Footer	This property enables / disables the option to add the Page Number to the file footer.
		Footer Page No. Alignment	Here you can configure the horizontal alignment for the page number field in the file footer.
		Add Date to Footer	This property enables / disables the option to add the Date value to the file Footer.
		Footer Date Alignment	Here you can configure the horizontal alignment for the date field in the file footer.

Sub category	Area	Property	Description
	Comments	Enable Comments	This property enables / disables the option to enable the Comments.
		Top/Left	Here you can add positions starting from the top left corner of the dashboard that allows you to add comments to the PDF File.
	Export Button	Button Text	Here you can set the Text for the Export Button.
		Hide Export Button	This property enables / disables the option to hide the Export Button. Instead user can script to execute the Export functionality.
		Hide Export Button from Export File	This property enables / disables the option to hide the button in pdf.
		Font Family	Here you can configure the Font Type for the Button Text.
		Font Size	Here you can configure the Font Size for the Button Text.
		Font Color	Here you can configure the color for the Button Text.
		Font Style	Here you can configure the Font Style for the Button Text.
		Background Color	Here you can configure the background color for the Button.
		Border Width	Here you can configure the Border Width for the Button.
		Border Color	Here you can configure the Border Color for the Button.
		Border Style	Here you can configure the Border Style for the Button.

Table 6.46: Category General

6.12.5 Scripting Function for the PDF Export Component

The following Table outlines the available scripting functions for the PDF Export Component.

Function / Method	Description
DSXAddPage()	This function allows to export the current view of the dashboard and add it as page to the PDF file.
DSXAddPageWithSelectedComponents()	This function allows to export the selected components and add those to a new page for the PDF File.
DSXClearAllPages()	This function allows to clear all pages of the PDF file.
DSXExportAllPageAsPDF()	This function allows to generate the PDF file based on all the pages that have been added to the PDF file using scripting functions DSXAddPage and DSXAddPageWithSelectedComponents.
DSXExportAsPDF()	This function triggers the Export of the dashboard to a PDF File.
DSXExportSelectedComponents()	This function allows to export a set of selected elements from the dashboard.
DSXGetDocumentName()	This function allows you to retrieve the configured Document Name for the file.
DSXGetFontSize()	This function allows you to retrieve the configured Font Size.
DSXGetFooterDate()	This function retrieves the configure Footer Date Value.
DSXGetFooterPageNumber()	This function retrieves a Boolean value, indicating if the Page Numbers will be part of the page footer.
DSXGetFooterText()	This function retrieves the configured Footer Text.
DSXGetHeaderDate()	This function retrieves a Boolean value, indicating if the Date value will be part of the page header.
DSXGetHeaderPageNumber()	This function retrieves a Boolean value, indicating if the Page Numbers will be part of the page header.
DSXGetHeaderText()	This function retrieves the configured Header Text.
DSXGetLeftMargin()	This function retrieves the left merging value.
DSXGetPageOrientation()	This function retrieves the configured page orientation.
DSXGetPageSize()	This function retrieves the configured page size.
DSXGetScaleToFit()	This function retrieves a Boolean value, indicating if the Scale to Fit option has been enabled.
DSXGetServerURL	This function retrieves the Server URL to export the pdf from the server.
DSXGetTopMargin()	This function retrieves the top margin value.
DSXSetDocumentName()	This function allows to set the Document Name.
DSXSetFontSize()	This function allows to set the Font Size.
DSXSetFooterDate()	This function allows to set, if the Date value will be part of the page footer.
DSXSetFooterPageNumber()	This function allows to set, if the Page Numbers will be part of the page footer.

Function / Method	Description
DSXSetFooterText()	This function allows to set the Footer Text.
DSXSetHeaderDate()	This function allows to set, if the Date value will be part of the page header.
DSXSetHeaderPageNumber()	This function allows to set, if the Page Numbers will be part of the page header.
DSXSetHeaderText()	This function allows to set the Header Text.
DSXSetLeftMargin()	This function allows to set the left margin for the file.
DSXSetPageOrientation()	This function allows to set Page Orientation for the exported file.
DSXSetPageSize()	This function allows to set Page Size for the exported file.
DSXSetScaleToFit()	This function allows to set the Scale to Fit option.
DSXSetTextColor()	This function allows to set Font Color.
DSXSetTopMargin()	This function allows to set the top margin for the file.
DSXSetServerURL	This function allows to set the Server URL to export the pdf from the server.

Table 6.47: Scripting Functions

6.12.6 Events for the Export to PDF Component

Currently the Export to PDF Component does not have Scripting Events.

6.13 What-If Analyzer

The What-If-Analyzer component provides the dashboard designer with the ability to integrate a "what-if" scenario for you to activate on individual components. The What-If Analyzer allows you to change values by either using a percentage based increase or decrease or by changing the values with an absolute increase or decrease (see Figure 6.155). Additionally, the What-If Analyzer allows the use of calculated measures. For every change in values in the component, corresponding changes can be applied either on all the charts or on specific selected charts.

The What-if Analyzer provides a simple mode and an advanced mode. In the simple mode you can select a measure from the underlying data source and you will then be able to configure either a percentage increase / decrease for the measure or an absolute increase / decrease.

In the advanced mode you can setup your own parameters and calculations and the defined parameters can become part of these calculations.

For example, a simple scenario could be to increase / decrease the measure cost based on a percentage increase / decrease. For example, an advanced scenario could be to define a parameter "Growth Rate" and to create a calculation where you multiply your existing revenue numbers with the Growth Rate and as part of the What If scenario you would then influence the Growth Rate measure.

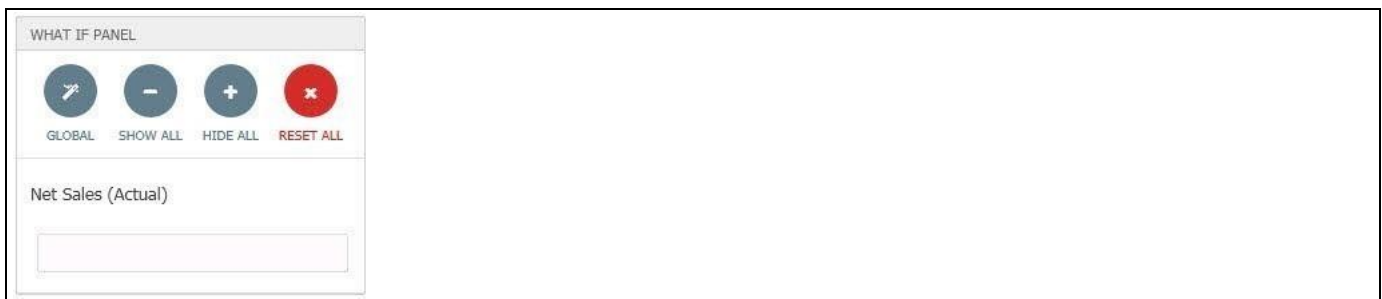


Figure 6.155: What If Analyzer

6.13.1 How to create a simple scenario

In the following steps you can see, how you can setup a simple scenario with the What-If-Analyzer.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a Data Source to your project. For this example we will assume that your data source has a measure called Revenue.
3. Add a Column / Bar chart from the VBX Charts to your project.
4. Add the What-If Analyzer component from the Utilities to your project.
5. Now assign your data source to the chart and assign your data source as well to the What-If Analyzer.
6. Now navigate to the category What-If Scenario and select the sub category Scenario in the Additional Properties of the What-If Analyzer.

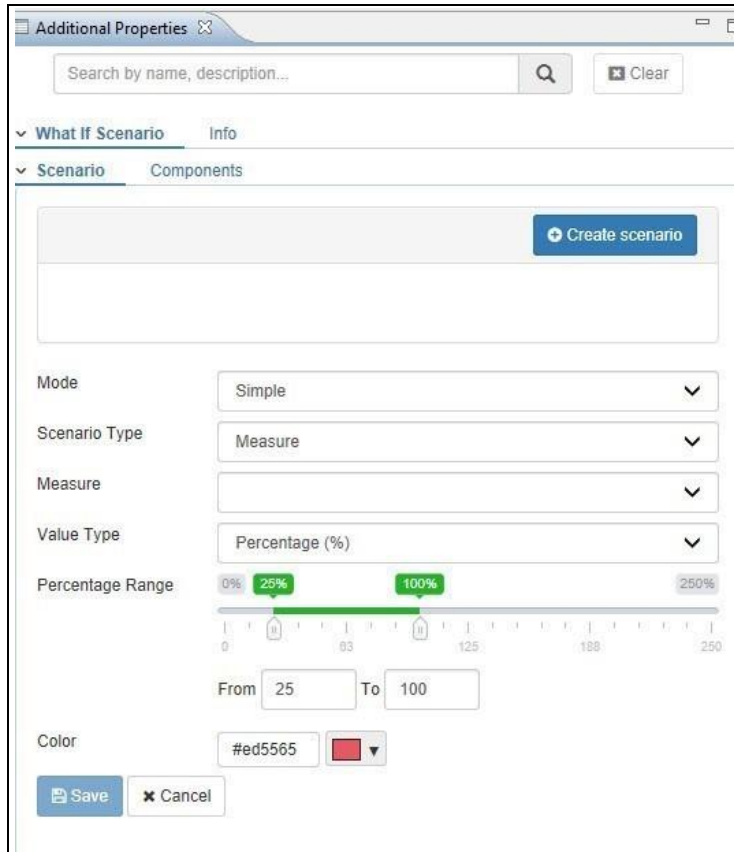


Figure 6.156: What If Analyzer

7. In the List Box Select Measure you can now select the measure Revenue from your data source.
8. You can then decide if you would like to change the value by using Percentages or Absolute values.
9. In the area Set Scenario you can specify the minimum and maximum values for the percentage option.
10. After you specified the details, click on Save to add the configuration to the list.
11. Now navigate to the Components tab.
12. The previously added Column / Bar chart will be listed and you can select the chart, so that it will be impacted by the changes in the What-if Analyzer.
13. After you selected the chart you can save the details and execute the application.

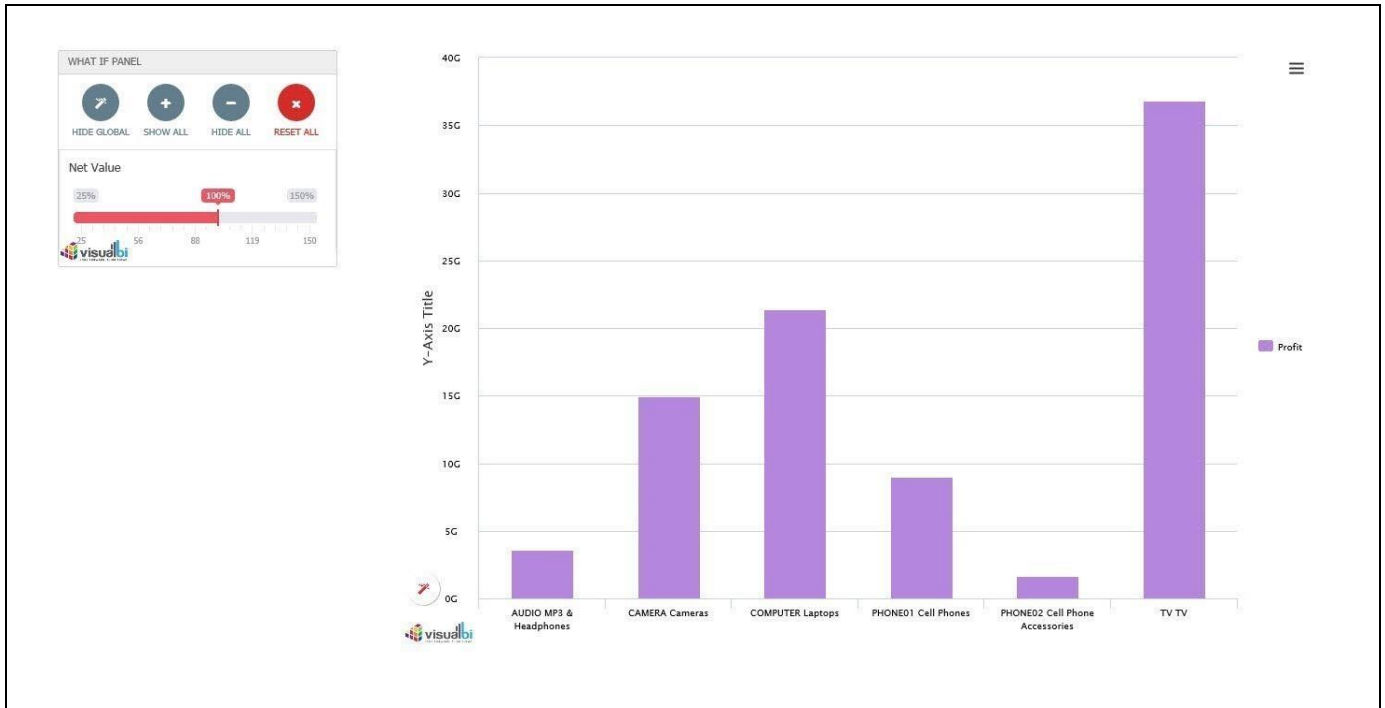


Figure 6.157: What If Analyzer - Runtime

After you executed the application you can use the global What-If panel (see Figure 6.157) or you can leverage the individual panel for each chart as shown in Figure 6.158.

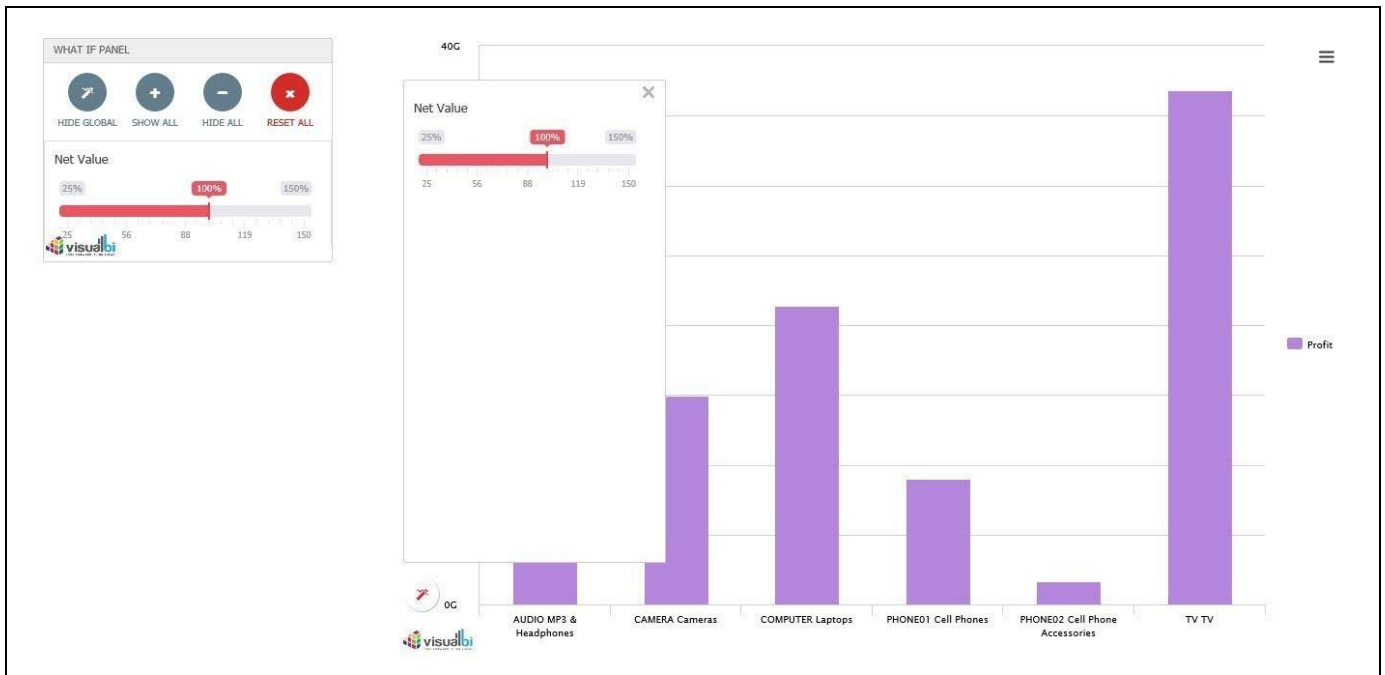


Figure 6.158: What If Analyzer – Runtime

6.13.2 How to create an Advanced Scenario

In the following steps you can see, how you can setup an advanced scenario with the What-If-Analyzer.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a Data Source to your project. For this example we will assume that your data source has a measure called Revenue.
3. Add a Column / Bar chart from the VBX Charts to your project.
4. Add the What-If Analyzer from the Utilities to your project.
5. Now assign your data source to the chart and assign your data source as well to the What-If Analyzer.
6. Now navigate to the Additional Properties of the category What-If Scenario and select the sub category Scenario.
7. Set the property to the Advanced mode of the What-If Analyzer in the Additional Properties.

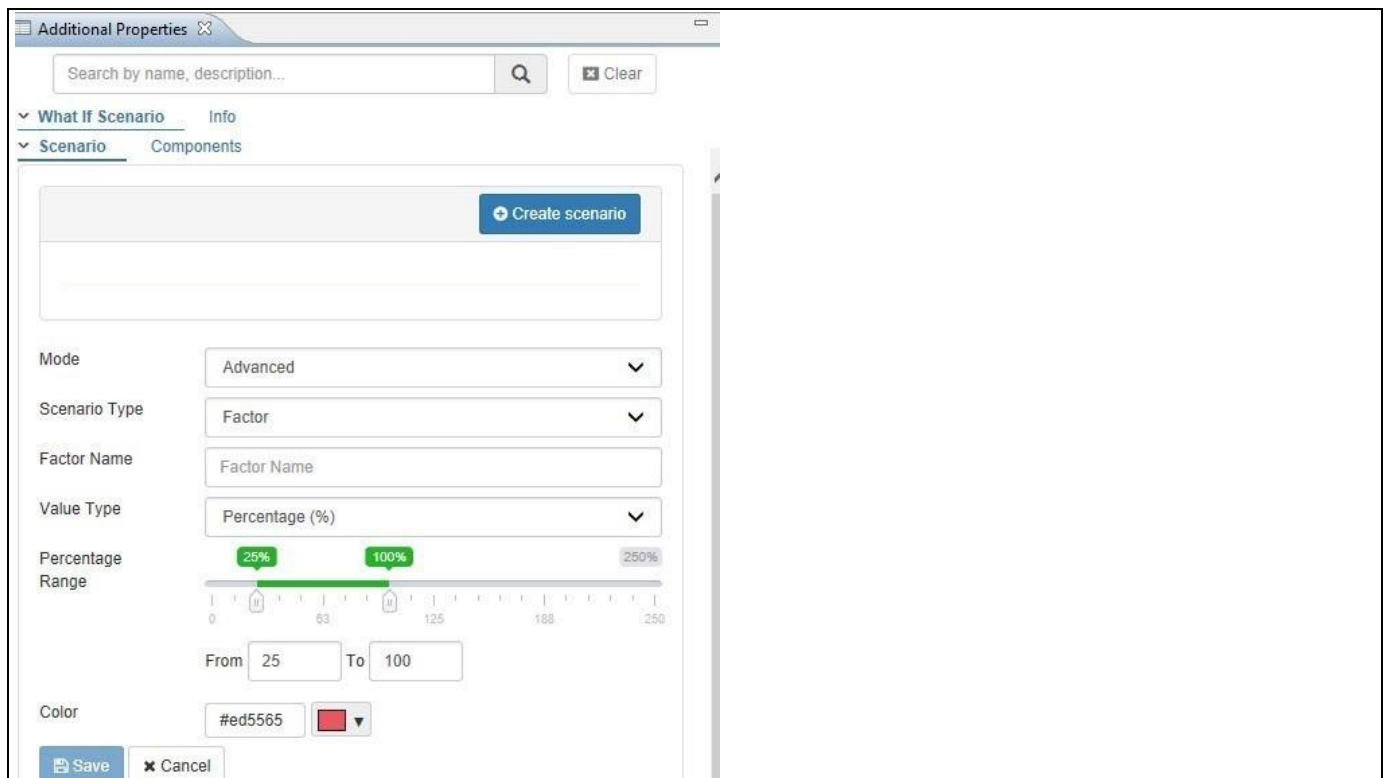
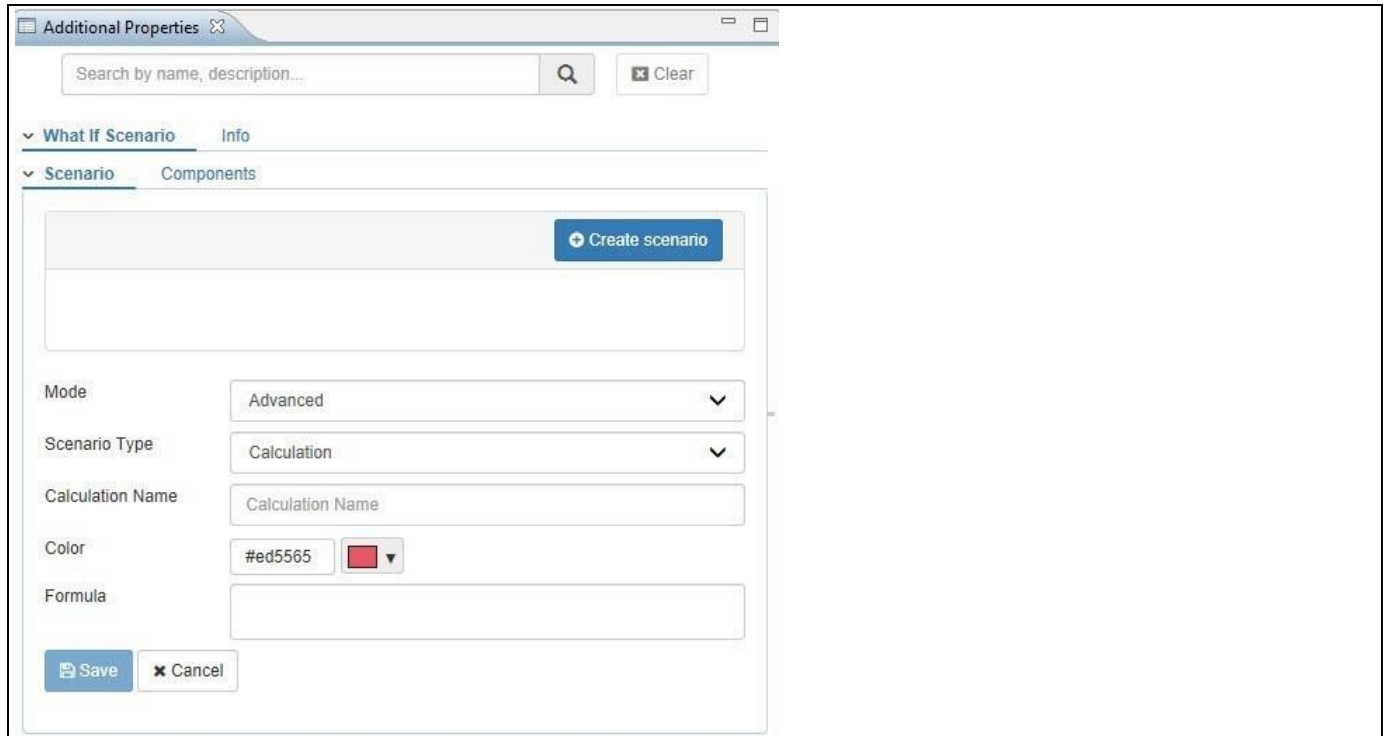


Figure 6.159: What If Analyzer

8. You can – like we did before in the simple mode – define the increase / decrease for a simple measure but with the advanced mode you also can setup a factor which then can become part of a formula.
9. Add a new factor by simply typing the factor name in to input field for Factor Name. For our example we will use the Factor Name growth.
10. Select one of the two options: Percentage or Absolute.
11. Define the minimum and maximum values.
12. Click Add to add the new Factor to the list.



Additional Properties

Search by name, description...

What If Scenario Info

Scenario Components

Create scenario

Mode: Advanced

Scenario Type: Calculation

Calculation Name: Calculation Name

Color: #ed5565

Formula:

Save Cancel

Figure 6.160: Calculation

13. In addition to defining the factor you can now also define a calculation. Enter a new Calculation Name.
14. Navigate to the Formula Field and type in "@" to start listing the possible measures or factors.
15. Select for example the measure Revenue from the data source by typing in @Revenue.
16. Add the "*" to multiply.
17. Type in "@" and you will receive a list of measures and Factors. Select the previously created factor from the list.
18. Your complete formula should look similar to @Revenue * @FACTOR.
19. Click Save.
20. Now navigate to the Components tab.
21. The previously added Column / Bar chart will be listed and you can select the chart, so that it will be impacted by the changes in the What-if Analyzer.
22. After you selected the chart you can save the details and execute the application.

In addition to the measure from the simple scenario, you can now also set a value for the factor you created and the created calculation will also be added to the chart as shown in Figure 6.161.

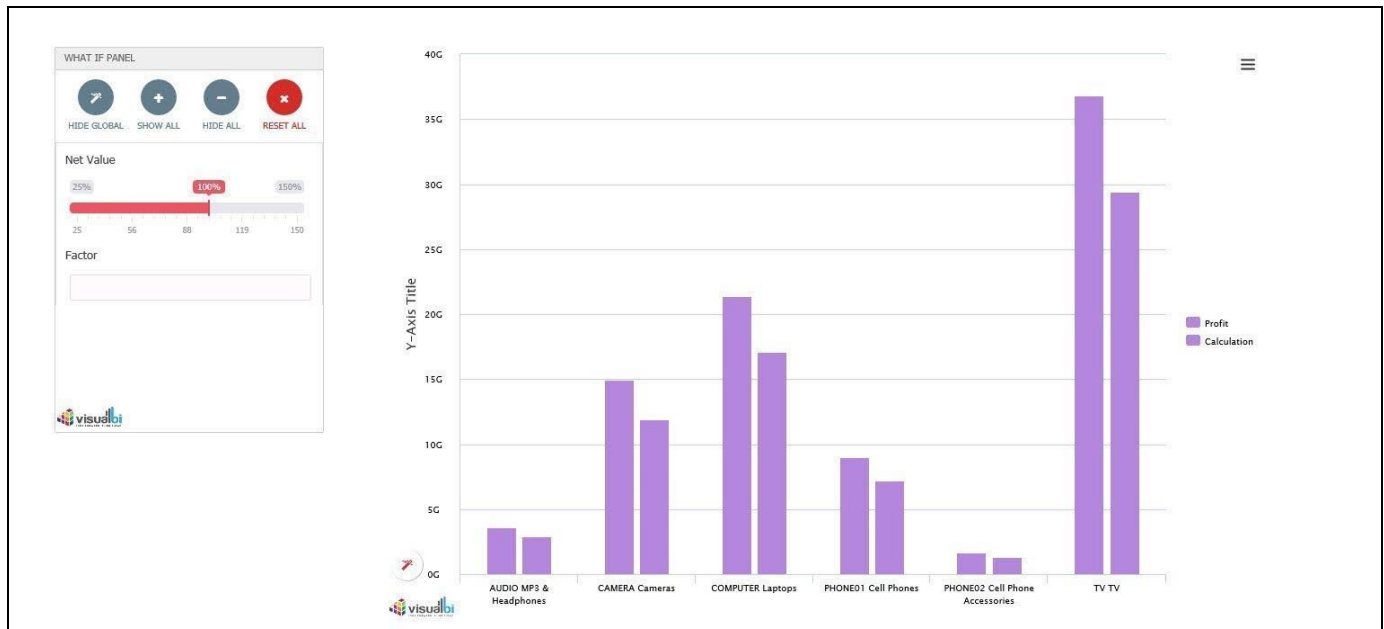


Figure 6.161: What If Analyzer

6.13.3 Additional Properties of the What-If Analyzer Component

In the following sections you will find a list of available properties and a Table with a more detailed description of each of the properties.

6.13.3.1 Category What If Scenario

Below you can see the Additional Properties for the category What If Scenario and their descriptions.

Sub category	Property	Description
Scenario	Mode	Select the mode for the What If Analyzer. The options are Simple and Advanced.
	Scenario Type	Select the Scenario type. The options are Measure, Calculation and Factor.
	Measure	Select a measure from the listed measures.
	Factor Name	Create a new measure (Factor) by defining calculations.
	Calculation Name	Specify a calculation Name and the logic for computing the calculated measure. Click 'Parse' to calculate.
	Formula	Sets the formula.
	Value Type	Select the Analysis Scenario – either Percentage or Absolute.
	Added Parameters	Lists all the measures that are selected. Right-click to remove parameters.
	Percentage Range	Select the From and To Percentage range values.
Components	Components Name	Add the components manually.
	Refresh	Click the refresh button when a new component is added on the canvas.

Table 6.48: Category What If Scenario

6.14 Trend Icon

6.14.1 Trend Icon - Overview

The Trend Icon component allows the dashboard designer to add an icon with an additional label text to the overall dashboard. In addition, the Trend Icon provides conditional formatting, so that the dashboard designer can configure a set of highlighting rules based on static measures, dynamic measures, or a target value definition (see Figure 6.162).



Figure 6.162: Trend Icon

The Trend Icon allows you to select a specific icon from a list of predefined icons as shown in Figure 6.163.



Figure 6.163: Icon List

In addition to selecting the icon and configuring the text that will be displayed next to the icon, you also have the ability to configure the Icon Size, Icon Angle, and Icon Color.

6.14.2 Trend Icon – Data Source Requirements

The Trend Icon can be used without any data source assignment to display a particular text or icon, but in case you would like to leverage the conditional formatting capabilities you will have to assign a data source to the Trend Icon. The Trend Icon is comparing a single value against the rules defined as part of the conditional formatting and therefore the assigned Data Source needs to be a single data cell defined using the Data Selection property in the Standard Properties.

To define the Data Selection you can follow these steps:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project.
3. Add a new Trend Icon from the VBX Utilities are to your new project.
4. Navigate to the Standard Properties of the Trend Icon (see Figure 6.164). In case the Standard Properties are not shown, please use the menu View • Properties to activate the display of the properties.

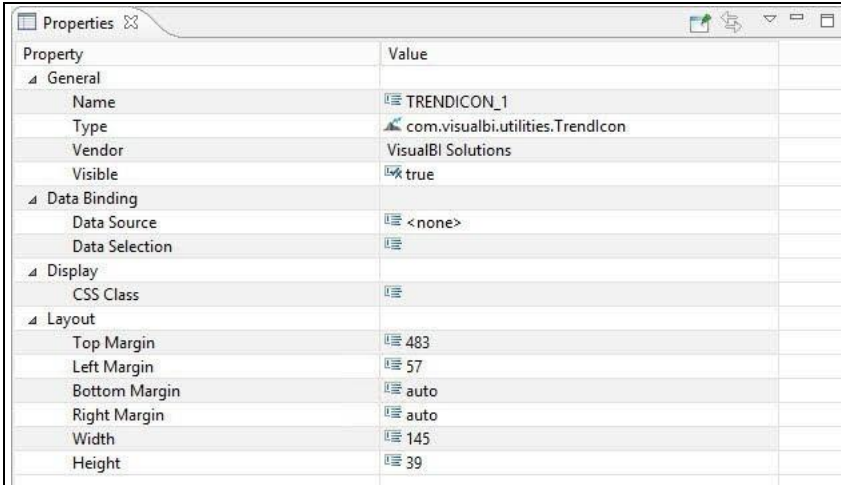


Figure 6.164: Trend Icon Standard Properties

5. Assign your Data Source to the property Data Source.
6. Navigate to the property Data Selection.
7. Open the editor with the button on the right hand side and select a single value (see Figure 6.165).

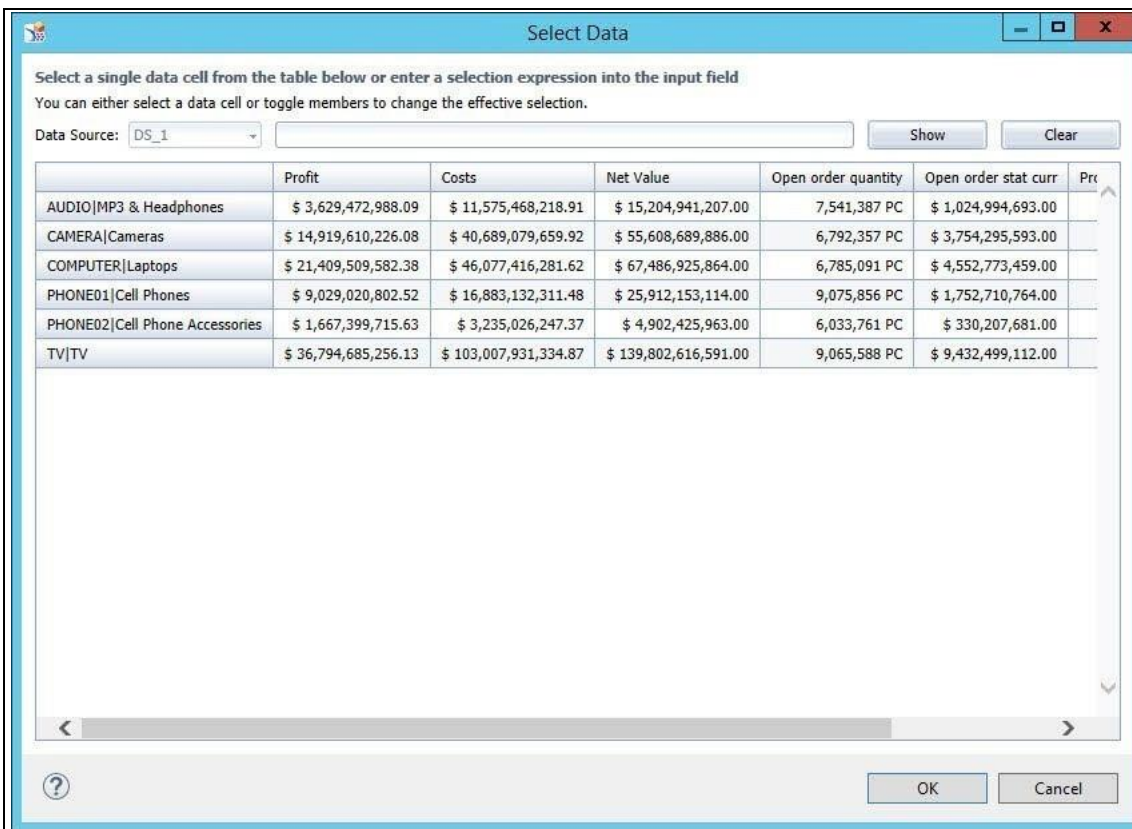


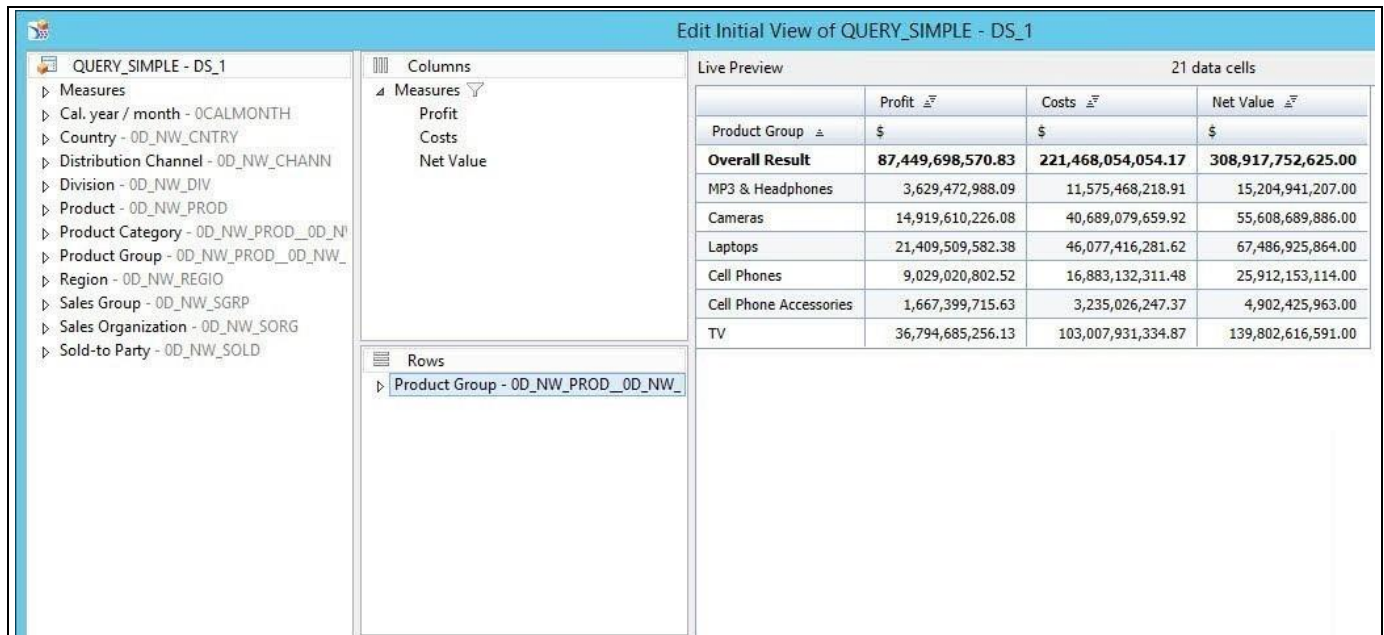
Figure 6.165: Data Selection

8. Confirm the Data Selection and click OK.

You now assigned a single data value to the Trend Icon and you can now define the conditional formatting for the Trend Icon and define rules that will be compared against the assigned single value.

6.14.3 How to use the Trend Icon

In the next section we will outline how you can setup a Trend Icon, assign the data source, and setup a set of rules for the conditional formatting. For the following steps we will assume that we have a data source with a single dimension in the Rows and a set of three measures shown in the columns (see Figure 6.166).



	Profit	Costs	Net Value
Product Group	\$	\$	\$
Overall Result	87,449,698,570.83	221,468,054,054.17	308,917,752,625.00
MP3 & Headphones	3,629,472,988.09	11,575,468,218.91	15,204,941,207.00
Cameras	14,919,610,226.08	40,689,079,659.92	55,608,689,886.00
Laptops	21,409,509,582.38	46,077,416,281.62	67,486,925,864.00
Cell Phones	9,029,020,802.52	16,883,132,311.48	25,912,153,114.00
Cell Phone Accessories	1,667,399,715.63	3,235,026,247.37	4,902,425,963.00
TV	36,794,685,256.13	103,007,931,334.87	139,802,616,591.00

Figure 6.166: Sample Dataset

You can follow the steps below to configure a Trend Icon:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project.
3. Add a new Trend Icon from the VBX Utilities are to your new project.
4. Navigate to the Standard Properties of the Trend Icon (see Figure 6.164). In case the Standard Properties are not shown, please use the menu View • Properties to activate the display of the properties.
5. Assign your Data Source to the property Data Source.
6. Navigate to the property Data Selection.
7. Use the Data Selection property to assign a single value to the Trend Icon. In our example we will assign the Total value of our measure Cost to the Trend Icon.
8. Now select the Trend Icon.
9. Navigate to the Additional Properties of the Trend Icon (see Figure 6.167). In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.

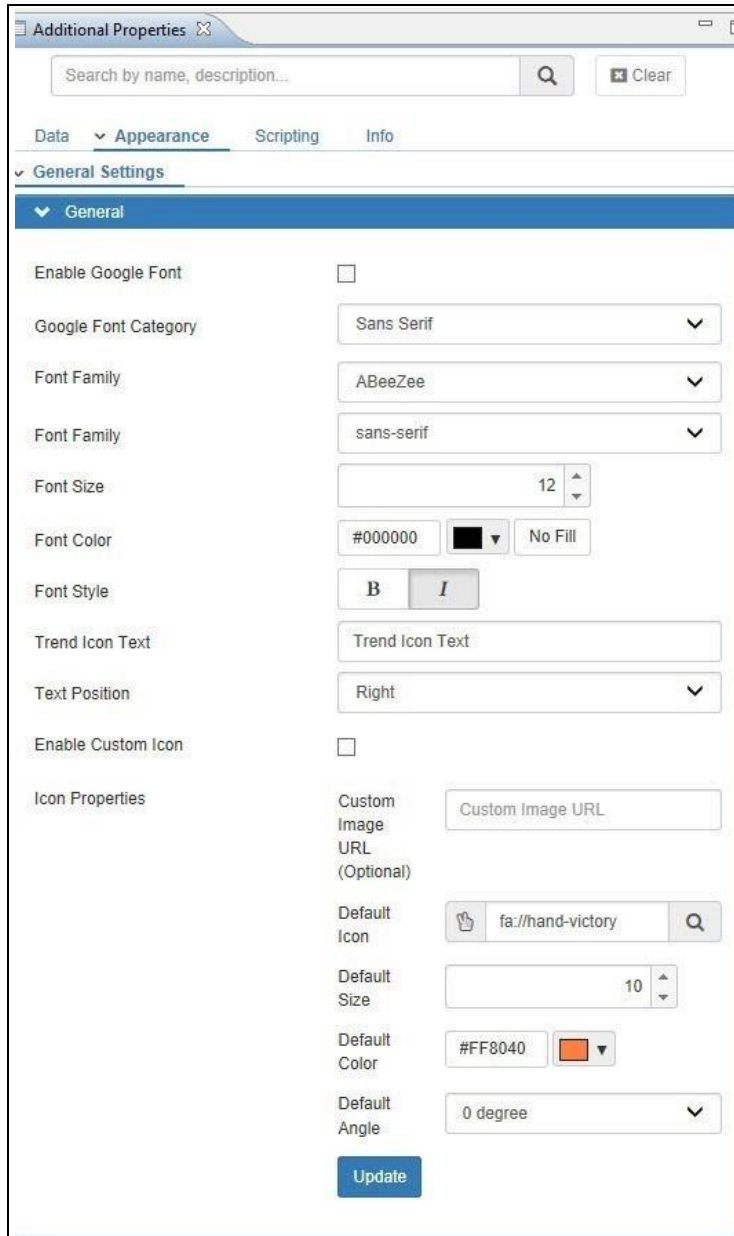


Figure 6.167: Appearance Category

10. Navigate to the category Appearance and to the sub category General Settings and to the area General in the Additional Properties. You can configure the Text that will be displayed next to the Trend Icon and you can configure the Default Icon settings, such as the Default Icon, Default Size, Default Color, and the Default Angle.
11. For our example we will configure the following values:
 - Text Position: Right
 - Trend Icon Text: Product Cost
 - Default Icon: Arrow Up
 - Default Size: 25
 - Default Color: Red
 - Default Angle: 0 degree
12. Click Update.
13. Now navigate to the Enable Google Font property (see Figure 6.168).

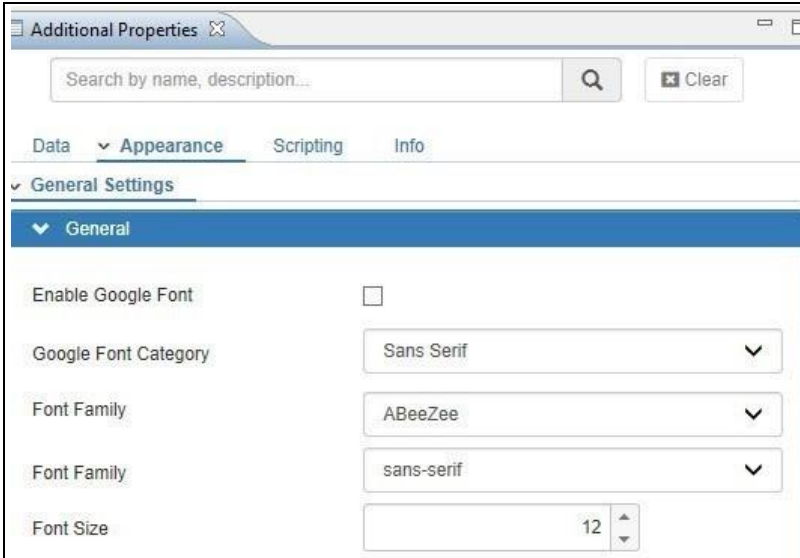


Figure 6.168: Appearance Category

14. In the category Appearance you have the ability to configure the font details for the Trend Icon Text.

15. For our example we will configure the following options:

- Enable the Google Font
- Select the Google Font Roboto
- Font Style: Bold
- Font Color: Black
- Font Size: 14

16. Your Trend Icon should look similar to Figure 6.169:

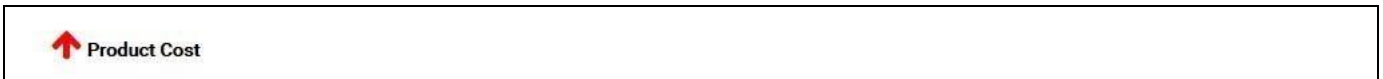


Figure 6.169: Trend Icon

17. Navigate to the category Data and to the sub category Conditional Formatting in the Additional Properties.

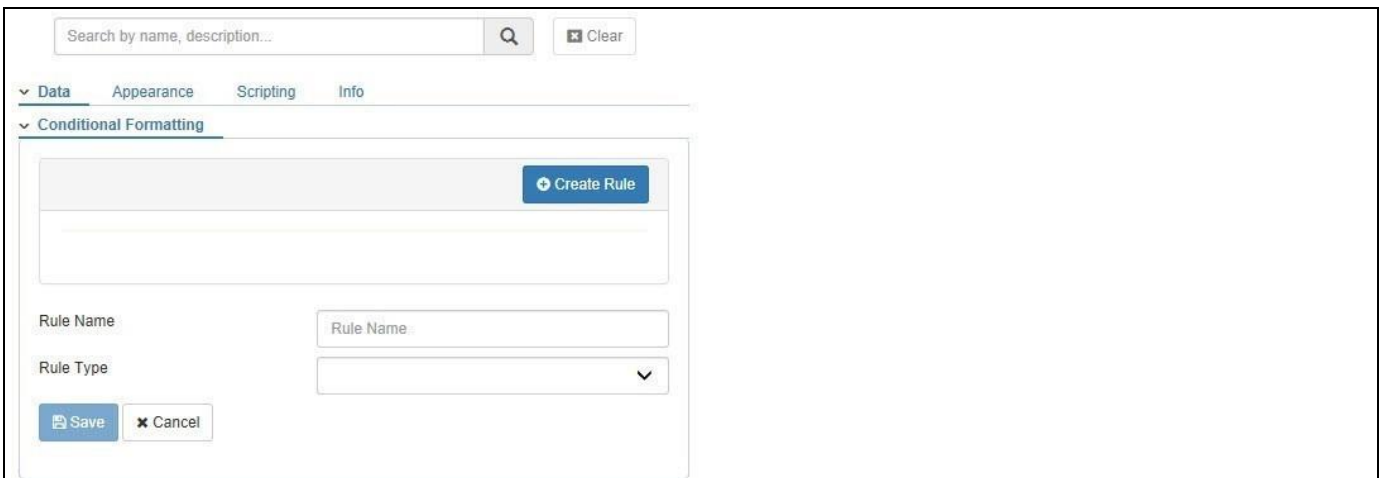


Figure 6.170: Category Data

18. In the sub category Conditional Formatting you can setup a set of rules allowing you to define conditional formatting for the Trend Icon.

In the next set of steps we will outline the different options on defining Alerts for the Trend Icon. The Trend Icon supports three types of Alerts: Single Measure, Measure Calculation, and Target Value. We will start with an example for the Single Measure Type.

To define an Alert Type Single Measure you can follow these steps:

1. In the sub category Conditional Formatting, click on Create Rule.
2. Enter a Rule Name.
3. Select the Rule Type Single Measure (see Figure 6.171).

Figure 6.171: Rule Type Single Measure

4. When choosing the rule type Single Measure, you can compare the assigned value of the Trend Icon against the value of a single cell selection.
5. Select a Comparison Operator. The available operators are:
 - Greater than
 - Greater than or Equal to
 - Lesser than
 - Lesser than or Equal to
 - Equal
 - Between
6. Choose a Comparison Value Type. You can choose between a Static and a Dynamic comparison value.
7. When selecting the option Static for the Comparison Value Type, you can manually enter a Comparison Value.

8. When selecting the option Dynamic for the Comparison Value Type, you can select a cell value from the assigned data source as Comparison Value.
9. For our example we will use the following options:
 - Comparison Operator: Less Than
 - Comparison Value Type: Dynamic
 - Comparison Value: We use the Data Selection to select the Total Value for the Revenue.
10. You can then configure the options Alert Icon, Icon angle, Icon Size, and Icon Color specifically for this rule.
11. For our example we set the following options:
 - Alert Icon: Arrow-down
 - Icon Angle: 0 degree
 - Icon Size: 25
 - Icon Color: Green
12. Click Save to add the new rule to the list of Alert rules.

In this scenario we defined an Alert Rule comparing the Total Cost with the Total Revenue and showing a green arrow up when the Cost is less than the Revenue.

To define an Alert Type Measure Calculation you can follow these steps:

1. In the sub category Conditional Formatting, click on Create Rule.
2. Enter a Rule Name.
3. Select the Rule Type Measure Calculation (see Figure 6.172).

The screenshot shows the 'Additional Properties' dialog box with the 'Conditional Formatting' tab selected. A 'Create Rule' button is visible at the top right of the tab. Below it, the configuration for a new rule is shown:

- Rule Name:** A text input field containing 'Rule Name'.
- Rule Type:** A dropdown menu set to 'Measure Calculation'.
- Comparison Operator:** A dropdown menu set to 'Greater than'.
- Comparison Value 1:** An empty text input field with a search icon on the right.
- Operator:** A dropdown menu set to 'Add'.
- Comparison Value 2:** An empty text input field with a search icon on the right.
- Color:** A color picker set to '#fff' with a small square icon next to it.
- Alert Icon:** A dropdown menu showing 'fa://arrow-circle-o-down' with a search icon on the right.
- Icon Size:** A text input field with up and down arrow buttons on the right.
- Icon Angle:** A dropdown menu set to '0 degree'.
- Custom Image URL(Optional):** A text input field containing 'Custom Image URL'.

At the bottom left, there are 'Save' and 'Cancel' buttons.

Figure 6.172: Rule Type Measure Calculation

4. On choosing the Rule Type Measure Calculation, the assigned value of the Trend Icon is compared to the result of the calculation of two measures.
5. Select a Comparison Operator. The available operators are:
 - Greater than
 - Greater than or Equal to
 - Lesser than
 - Lesser than or Equal to
 - Equal
6. You can assign cell values from the underlying data source to the Comparison Value 1 and Comparison Value 2.
7. Select an Operator for the measure calculation. The available operators are :
 - Add
 - Subtract
 - Multiply
 - Divide
8. You can configure the Alert Icon, Angle, Size, and Color as part of the Alert Rule and those settings will then overwrite the default behavior when the conditions of the rule are met.
9. For our example we will use the following settings:
 - Comparison Operator: Greater Than
 - Comparison Value 1: We use the Data Selection to select the Total Value for the Revenue.
 - Operator: Subtract
 - Comparison Value 2: We use the Data Selection to select the Total Value for the Profit.
 - Alert Icon: Arrow-down
 - Icon Angle: 0 degree
 - Icon Size: 25
 - Icon Color: Red
10. Once the Alert rule is created, click on Save.

In this scenario we defined an Alert Rule comparing the Total Cost with the result of subtracting the Total Profit from the Total Revenue.

To define an Alert Type Target Value you can follow these steps:

1. In the sub category Conditional Formatting, click on Add Rule.
2. Enter a Rule Name.
3. Select the Rule Type as Target Value (see Figure 6.173).

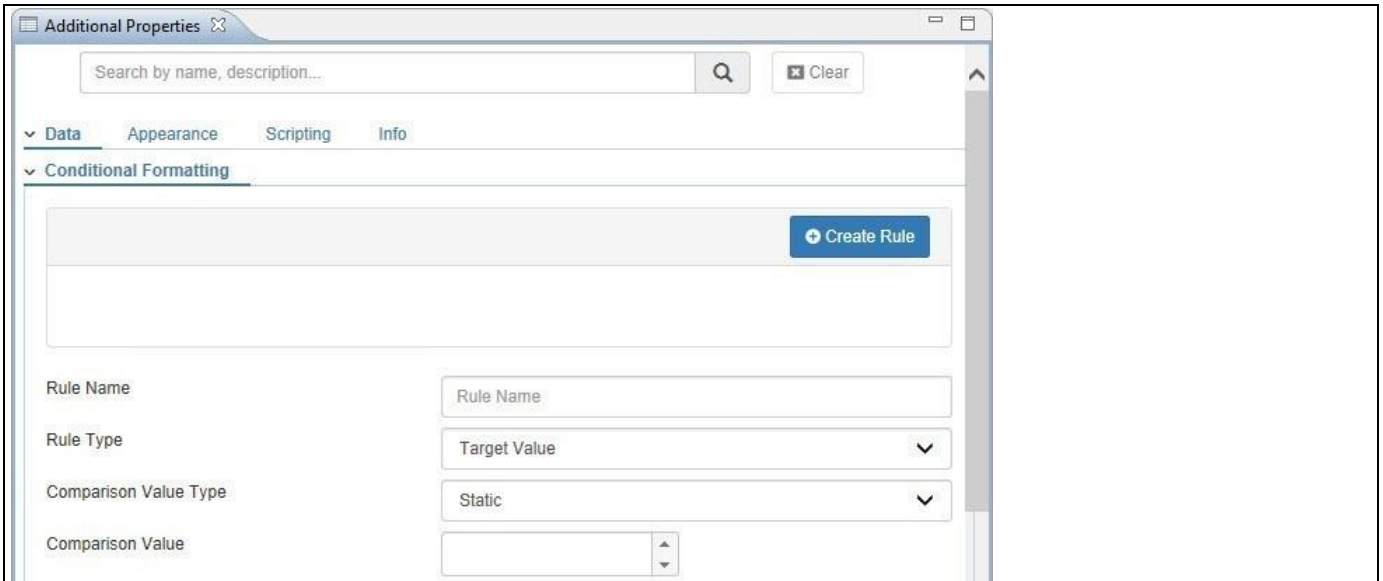


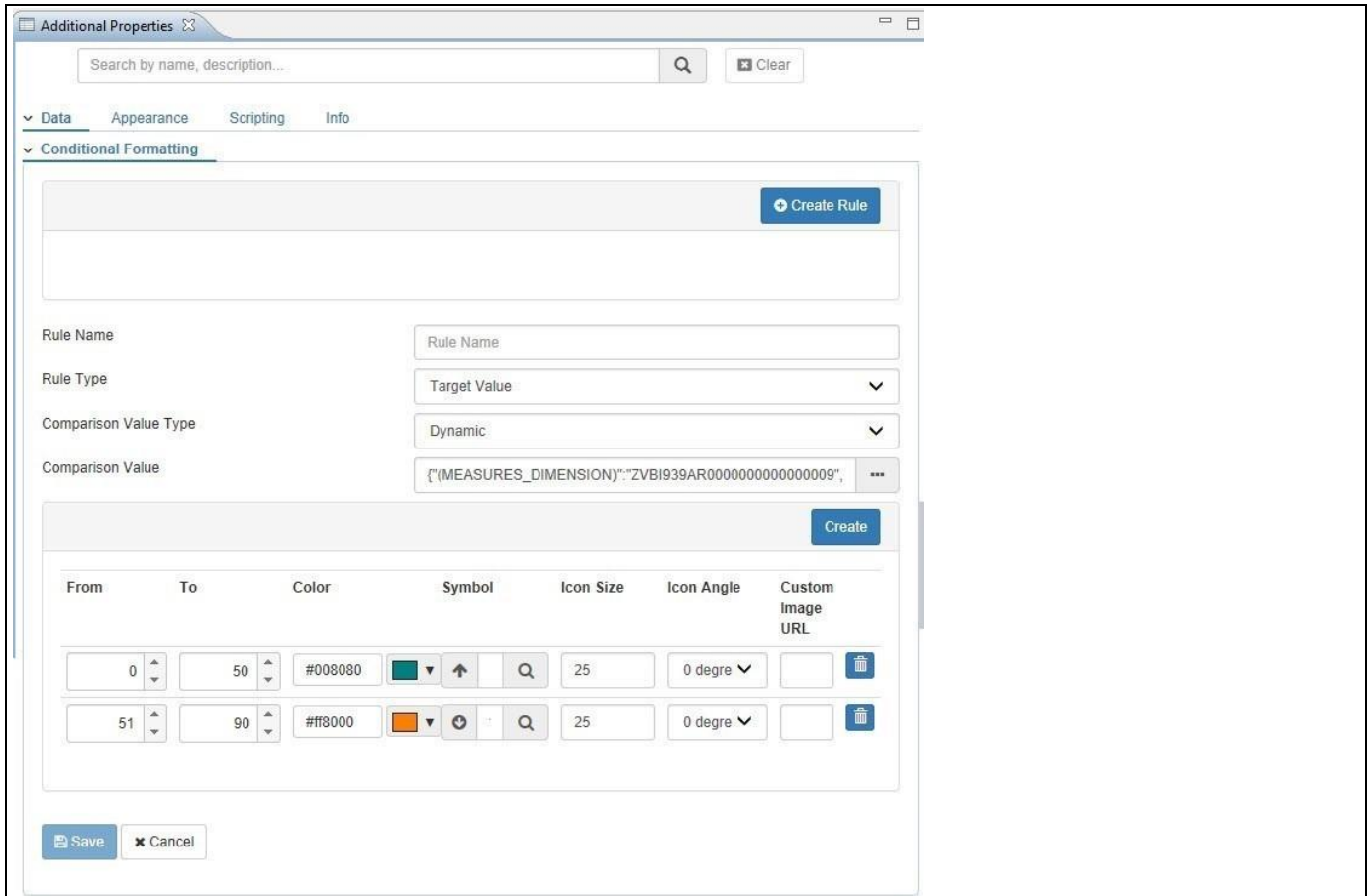
Figure 6.173: Rule Type Target Value

4. You can choose a Static or Dynamic Comparison Value Type. In case of a Static value you can enter manually a Comparison Value. In case of a Dynamic option, you can select a data cell from the assigned data source.
5. Click on the Create button to create a new rule (see Figure 6.174).



Figure 6.174: Alert Rules

6. You can now enter the From and To values, as well as configure the Icon Color, Icon type, Icon Size, and Icon Angle for each rule.
7. For our example we are defining the following details:
 - Comparison Value Type: Dynamic
 - Comparison Value: We use the Data Selection to select the Total Value for the Revenue.
8. We define two rules highlighting values from 0 to 50% with a red icon and values from 51 to 90% with an orange icon (see Figure 6.175).



Additional Properties

Search by name, description...

Clear

Data Appearance Scripting Info

Conditional Formatting

Create Rule

Rule Name

Rule Type

Comparison Value Type

Comparison Value

Create

From	To	Color	Symbol	Icon Size	Icon Angle	Custom Image URL
0	50	#008080	Up Arrow	25	0 degree	
51	90	#ff8000	Refresh	25	0 degree	

Save Cancel

Figure 6.175: Alert Rules

9. Click Save.

In this scenario we defined a set of rules which will display a green icon for a Cost value in the range of 0 to 50% when compared with the Revenue, and an orange icon when the Cost value is in the range of 51 to 90%.

6.14.4 Additional Properties for the Trend Icon

In the following sections we will outline the Additional Properties for the Trend Icon for each of the available categories.

6.14.4.1 Category Data

Below you can see the Additional Properties for the category Data and their descriptions.

Sub category	Property	Description
Conditional Formatting	Rule Name	Here you can specify a Rule Name.
	Rule Type	Here you can choose a Rule Type. You can choose from Single Measure, Measure Calculation, and Target Value.
	Comparison Operator	Here you can specify the Comparison Operator.
	Comparison Value Type	Here you can choose between a Static and a Dynamic Comparison Value. In case of a Static value, you will be able to enter the value manually. In case of a Dynamic value, you will be able to use a Data Selection based on the assigned data source.
	Color	Here you can configure the Icon Color.
	Alert Icon	Here you can choose the Alert Icon.
	Comparison Value	Here you will be able to specify either a static or a dynamic comparison value.
	Comparison Value 1	In case of a rule based on a measure calculation you will be able to specify the first measure for the calculation.
	Operator	In case of a rule based on a measure calculation you will be able to specify the operator for the calculation.
	Comparison Value 2	In case of a rule based on a measure calculation you will be able to specify the second measure for the calculation.
	Icon Size	Here you can configure the Icon Size.
	Icon Angle	Here you can choose the Icon Angle.
	Custom Image URL (Optional)	Here you can enter the URL to your custom icon.

Table 6.49: Category Data

6.14.4.2 Category Appearance

Below you can see the Additional Properties for the category Appearance and their descriptions.

Sub category	Area	Property	Description
General Settings	General	Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
		Font Family	Here you can select the Font for the Trend Icon.
		Font Size	Here you can select the Font Size for the Trend Icon.
		Font Color	Here you can select the Font Color for the Trend Icon.
		Font Style	Here you can select the Font Style for the Trend Icon.
		Trend Icon Text	Here you can enter the Text for the Trend Icon.
		Text Position	Here you can choose if the text will be displayed on the Left side or on the right side of the Trend Icon.
		Enable Custom Icon	This property allows you to enable / disable the usage of custom icons.
		Custom Image URL (Optional)	Here you can enter the URL to your custom icon.
		Default Icon	Here you can choose the Default Icon.
		Default Size	Here you can configure the Default Size of the Trend Icon.
		Default Color	Here you can configure the Default Color of the Trend Icon.
		Default Angle	Here you can configure the Default Angle of the Trend Icon.

Table 6.50: Category Appearance

6.14.5 Scripting Functions for the Trend Icon

The following Table outlines the available scripting functions for the Trend Icon component.

Function / Method	Description
DSXGetDataSelection()	This function allows you to retrieve the Data Selection specifying the result set.
DSXclearSelection()	This function allows you to clear the current selection.
DSXSetDataSelection()	This function allows you to set the Data Selection specifying the result.

Table 6.51: Scripting Functions

6.14.6 Events for the Trend Icon

In the following sections we will outline the events for the Trend Icon.

Event	Details
On Click	Each time you click on the Trend Icon, the On Click event is being triggered and can be used to execute scripting code.

Table 6.52: Events

6.15 Export to PPT Component

The PPT Export component allows you to add the option to export your complete dashboard or parts of your dashboard into a Microsoft PowerPoint file. The PPT Export component does require the Visual BI Extensions Export Service to be installed.

6.15.1 Export of Pagebook / Tab content

Starting with release 1.68, you now has the option to export content from multiple tabs or multiple pages into a file by using scripting functionalities similar to the Export PDF component.

- DSXAddPage: Using this scripting function, you can add the current page to the export file.
- DSXAddPageWithSelectedComponents – Using this scripting function, you will be able to add the page with selected components to the export file.
- DSXExportAllPageAsPPT – This scripting function allows you to export all the added pages into a single export file.

6.15.2 Exported Content

Starting with release 1.68, the PPT Export will include all content that is set to be visible in the dashboard, even when the content might not be visible in the actual browser window and might require scrollbars in the browser window to be seen.

6.15.3 How to use the Export to PPT Component

In the following steps we will outline how you can integrate the Export to PPT Component into your dashboard and provide your users the option to export the dashboard or a subset of the dashboard to a Microsoft PowerPoint file.

6.15.3.1 Technical Pre-Requisites

Please note the following technical pre-requisites. In regards to the installation of the Visual BI Extensions Export Service, please refer to our Installation Guide available online - <http://visualbi.com/sap-design-studio/dsx-extensions/dsx-downloads/>.

- Visual BI Extensions Export Service needs to be installed and configured.
- You have the server name and port for the Export Service.

You can follow the steps below to add the Export to PPT Component to your dashboard:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source is not relevant for the following steps.
3. Add a chart from the VBX Charts to your project and assign the data source.
4. Add the Export to PPT Component from the VBX Utilities to your dashboard.
5. Navigate to the Additional Properties of the Export to PPT Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category General and to the sub category General Settings and to the area Export Settings in the Additional Properties (see Figure 6.176).

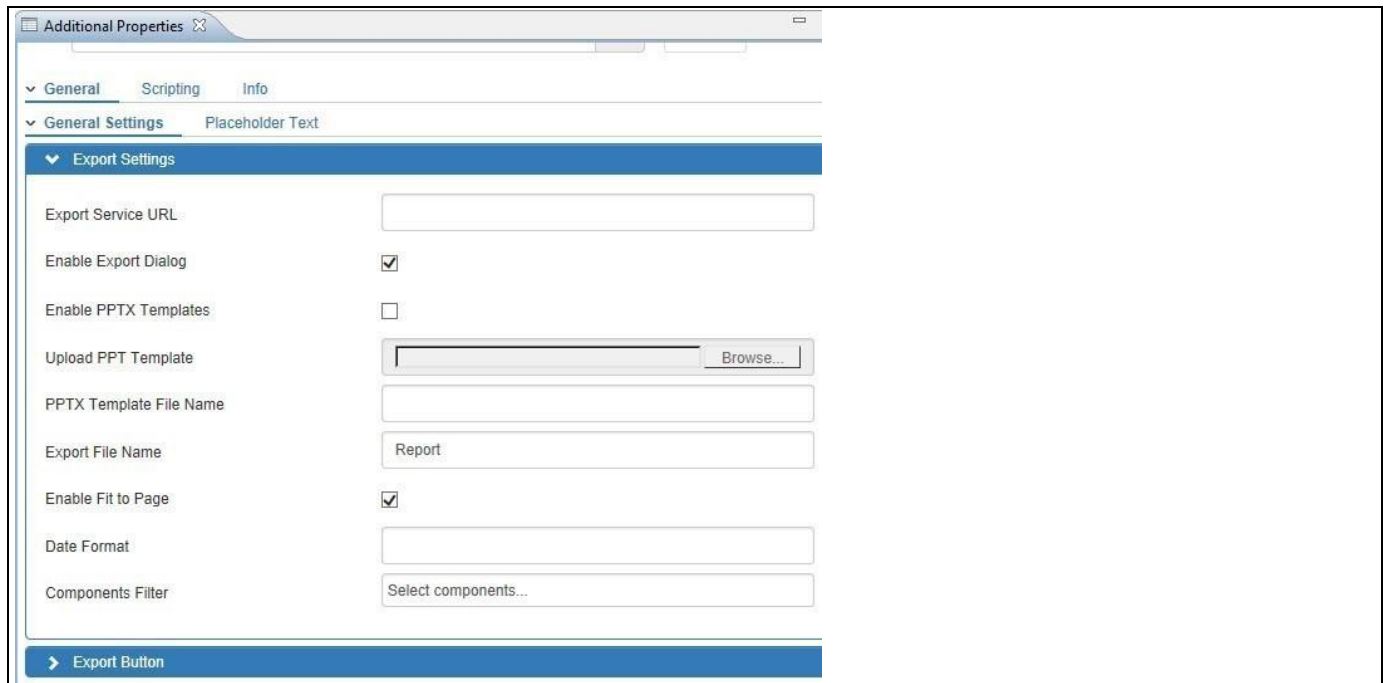


Figure 6.176: Category General

7. In the sub category General Settings you can configure the following items:

Property	Description
Upload PPT Template	Here you can upload a Template file for the Export to PPT Component.
Export Service URL	Here you can specify the Server Name and Port for the Export Service.
Export Button Text	Here you can specify the text for the Export Button.
Export File Name	Here you can specify the file name for the exported PPT file.
Enable PPTX Template	This option allows you to enable / disable the usage of templates.
Enable Fit to Page	When activated, the Export Service will try to fit the dashboard onto a single page.
Enable Export Dialog	This option allows you to enable / disable the default export dialog. When disabled, you can use the scripting functions to export your dashboard.
PPTX Template File Name	Here you can enter the File Name for the Template that the Export Service should be using.
Hide Export Button in Export File	This option allows you to enable / disable the hiding of the Export Button from the actual Export File.
Hide Export Button	This option allows you to enable / disable the Export Button from the dashboard.
Date Format	In addition to the Text Placeholder listed in the General category, you can also use the placeholder {Date} to include the actual date as part of the exported file. You can use the property Date Format in the category General to specify the format for the date value. Table 6.55 shows the available options to define the date format.

Property	Description
Components Filter	Here you can select the components that needs to be exported in run time.

Table 6.53: Category General

8. Enter the Service URL for your Export Service. The default syntax for the Export Service URL would be <http://<SERVER>:<PORT>> with 5000 being the default port. For our example we will enter <http://BI4CLIENT:5000>.
9. For this example we will not use a template as we will discuss the use of a template in a later section.
10. Leave the default values for the other properties.
11. Use the menu Application • Execute Locally.
12. Click on your Export Button (see Figure 6.177).

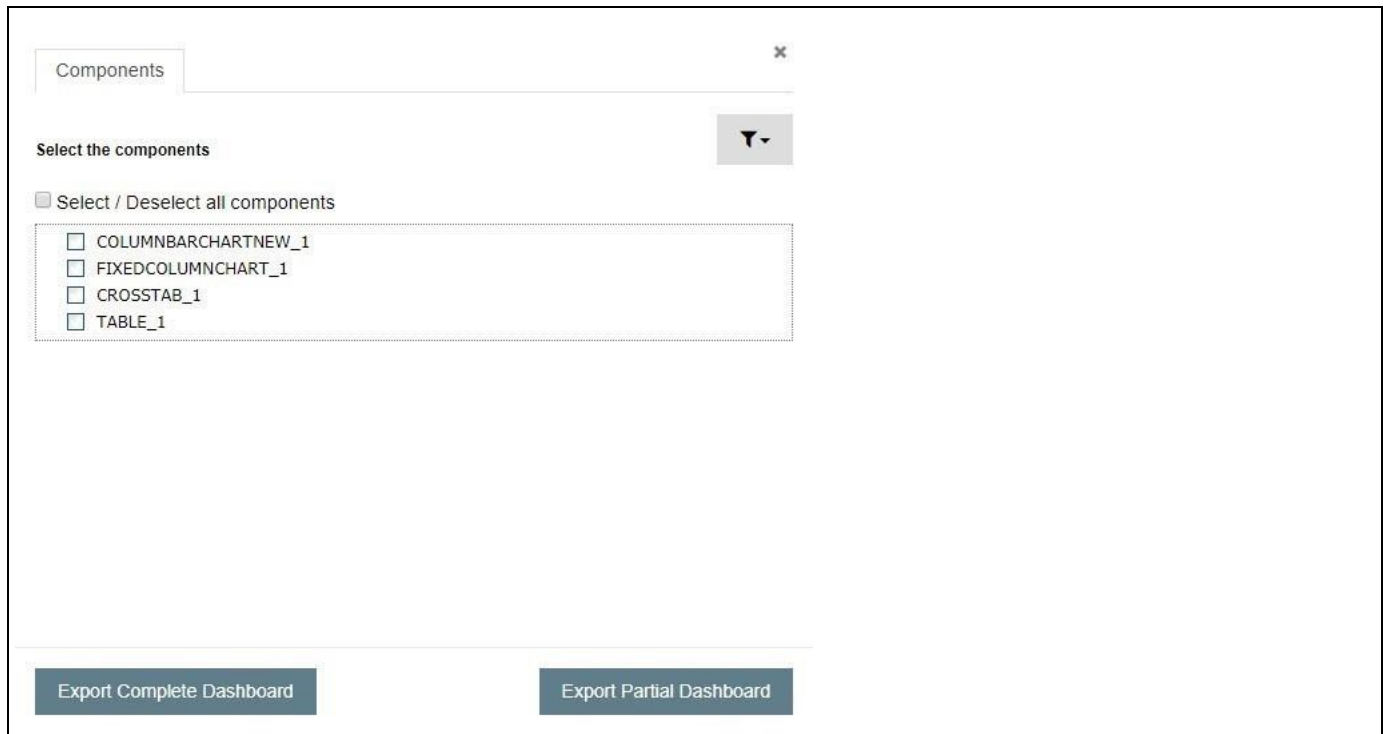


Figure 6.177: Exporting

13. You have the option to either select specific components from the dashboard or you can export the complete dashboard.
 - Export Selected Components: In this scenario each selected component will be exported to a single slide in the Microsoft PowerPoint file.
 - Export Complete Dashboard: In this scenario the complete dashboard will be exported to a single slide in the Microsoft PowerPoint file.
14. After you select the Export option, the dashboard or selected components will be exported and you will receive the exported file to your client system.

6.15.4 How to setup Templates for the Export to PPT Component

The Export to PPT Component also allows the use of templates. A template is basically a Microsoft PowerPoint file where you specify the size and location of each component which should be exported to the Microsoft PowerPoint file. In the following steps we will show how you can setup a Template for the Export Component and how you can integrate the template into the dashboard.

PowerPoint Template File Format

Please note, that the supported file format for using Microsoft PowerPoint template is PPTX only.

For our example we assume that our final dashboard will have three components

- A Column Chart with the technical name COLUMNCHART1
- A Line Chart with the technical name LINECHART1
- A Table with the technical name TABLE1

The technical name mentioned above refers to the technical name of the component in the SAP BusinessObjects Design Studio/SAP Lumira Designer project shown in the Standard Properties of each component. You can use the technical name of the individual components and place a Text Box into your Microsoft PowerPoint template file to reference the individual components and to decide where the items are placed.

You can follow the steps below to setup the PPT Template file:

1. Start Microsoft PowerPoint.
2. Create a new PowerPoint file with two slides.
3. Navigate to the first slide.
4. Insert a Text Box onto the first slide.
5. Size the first Text Box to the size that you would like to use for the Column Chart.
6. Use a right-click on the Text Box and select the menu Format Shape.
7. Navigate to the Text Box size properties and activate the option Do not Autofit (see Figure 6.178).

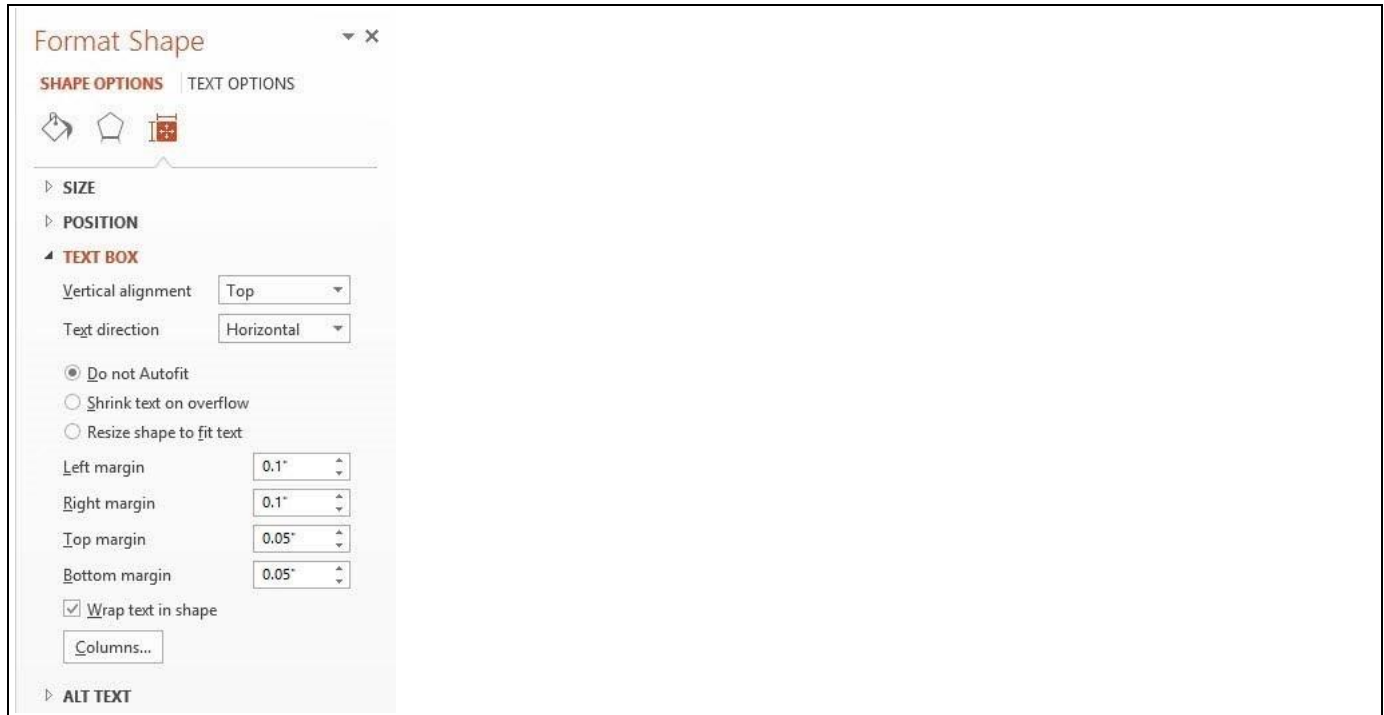


Figure 6.178: Format Shape

8. Now enter the text COLUMNCHART1 into the Text Box.
9. Repeat the steps and create a Text Box with the text LINECHART1 on the first slide of the presentation.
10. Now navigate to the second slide
11. Create a Text Box with the text TABLE1.
12. Save the presentation to your computer.
13. Close Microsoft PowerPoint.
14. Navigate back to SAP BusinessObjects Design Studio/SAP Lumira Designer project.
15. Select the Export to PPT Component
16. Navigate to the Additional Properties of the Export to PPT Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
17. Navigate to the category General and to the sub category General Settings and to the area Export Settings in the Additional Properties (see Figure 6.176).
18. Click on Select PPT Template for the property Upload PPT Template (see Figure 6.179).

The screenshot shows the 'Additional Properties' dialog box with the following settings:

- General Settings:**
 - Export Service URL: (empty text field)
 - Enable Export Dialog: ☒
 - Enable PPTX Templates: ☐
 - Upload PPT Template:** (highlighted with a red box, showing a file selection interface with a 'Browse...' button)
 - PPTX Template File Name: (empty text field)
 - Export File Name: Report
 - Enable Fit to Page: ☒
 - Date Format: (empty text field)
 - Components Filter: Select components...
- Export Button:**
 - Export Button Text: PPT Export
 - Hide Export Button: ☐
 - Hide Export Button in Export File: ☒
 - Font Family: Lucida Grande
 - Font Size: 12
 - Font Color: #FFFFFF, No Fill
 - Font Style: B, I
 - Background Color: #29aae2, No Fill
 - Border Width: 1
 - Border Color: (empty text field), No Fill
 - Border Style: None

Figure 6.179: Upload PPT Template

19. A browser window will get started and you can select the file we created previously.
20. After you selected the file click Upload in the Additional Properties.
21. You should receive a message about the successful upload (see Figure 6.180).

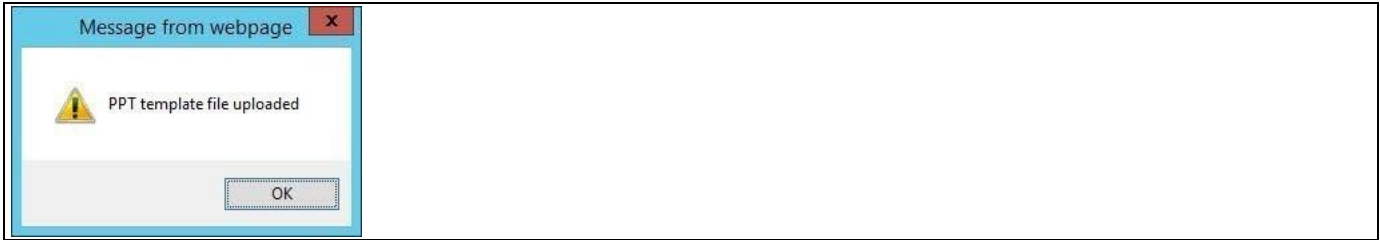


Figure 6.180: Successful Upload

22. Activate the option Enable PPTX Templates.
23. Enter the file name from your template into the property PPTX Template File Name.
24. Use the menu Application • Execute Locally.
25. Click on your Export Button.
26. The dashboard is being exported and you should receive the exported file based on the template you configured.

In addition to referencing the technical names of the individual components you can also reference the placeholders shown in the sub category Placeholder Text of the Additional Properties of the Export to PPT Component as part of your template file. In case of the placeholders the text entered in the Additional Properties will then be placed into the exported file.

Export to PPT Workflow

In case you are using a Microsoft PowerPoint Template file as part of the Export to PPT configuration, you will not be asked anymore if the complete dashboard or only selected components are supposed to be exported but instead the template file will be used and all components that match the template file will be exported.

6.15.5 How to use the placeholders

In the sub category Placeholder Text you have up to nine placeholders, which you can also include into the template file. Placeholders are referenced using the {} brackets. For example you could use {Text Placeholder 1} as part of your Template file and when the dashboard is being exported, the text entered for Text Placeholder 1 would then replace the placeholder in the exported file.

In addition to the Text Placeholder listed in the General category, you can also use the placeholder {Date} to include the actual date as part of the exported file. You can use the property Date Format in the category General to specify the format for the date value. Table 6.54 shows the available options to define the date format.

Value Option	Description
d	Single digit day value.
dd	Double digit day value.
D	Short day name. For example Mon, Tue, Wed
DD	Full day name.
m	Numeric single digit month value.
mm	Numeric double digit month value.
M	Short month name, for example Jan, Feb.
MM	Full month name.
yy	Double digit year value.
yyyy	Four digit year value.

Table 6.54: Date Value Placeholders

6.15.6 Additional Properties of the PPT Export Component

In the following sections you will find a list of available properties and a Table with a more detailed description of each of the properties for Additional Properties of the Export to PPT Component.

6.15.6.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Area	Property	Description
General Settings	Export Settings	Export Service URL	Here you can specify the Server Name and Port for the Export Service.
		Enable Export Dialog	This option allows you to enable / disable the default export dialog. When disabled, you can use the scripting functionality to export your dashboard.
		Enable PPTX Templates	This option allows you to enable / disable the usage of templates.
		Upload PPT Template	Here you can upload a Template file for the Export to PPT Component.
		PPTX Template File Name	Here you can enter the File Name for the Template that the Export Service should be using.
		Exported File Name	Here you can specify the file name for the exported PPT file.
		Enable Fit to Page	When activated, the Export Service will try to fit the dashboard onto a single page.
		Date Format	In addition to the Text Placeholder listed in the General category, you can also use the placeholder {Date} to include the actual date as part of the exported file. You can use the property Date Format in the category General to specify the format for the date value. Table 6.55 shows the available options to define the date format.
		Components Filter	Here you can select the components that needs to be exported in run time.
	Export Button	Export Button Text	Here you can specify the text for the Export Button.
		Hide Export Button	This option allows you to enable / disable the Export Button from the dashboard.
		Hide Button in Export File	This option allows you to enable / disable the hiding of the Export Button from the actual Export File.
		Font Family	Here you can configure the Font Type for

Sub category	Area	Property	Description
			the Button Text.
		Font Size	Here you can configure the Font Size for the Button Text.
		Font Color	Here you can configure the Text Color for the Export button.
		Font Style	Here you can configure the Font Style for the Button Text.
		Background Color	Here you can configure the Background Color for the Export button.
		Border Width	Here you can configure the Border Width for the Button.
		Border Color	Here you can configure the Border Color for the Button.
		Border Style	Here you can configure the Border Style for the Button.
Placeholder Text		Text Placeholder 1 Text Placeholder 2 Text Placeholder 3 Text Placeholder 4 Text Placeholder 5 Text Placeholder 6 Text Placeholder 7 Text Placeholder 8 Text Placeholder 9	Using these Text Placeholder you can enter Text for each of them and you can reference the Text Placeholder as part of a PPT template file.

Table 6.55: Category General

6.15.7 Scripting Function for the Export to PPT Component

The following Table outlines the available scripting functions for the Export to PPT Component.

Function / Method	Description
DSXAddPage()	This function allows to export the current view of the dashboard and add it as slide to the PPT file.
DSXAddPageWithSelectedComponents()	This function allows to export the selected components and add those to a new slide for the PPT File.
DSXClearAllPages()	This function allows to clear all slides of the PPT file.
DSXExportAllPageAsPPT()	This function allows to generate the PPT file based on all the slides that have been added to the PPT file using scripting functions DSXAddPage and DSXAddPageWithSelectedComponents.
DSXExportAsPPT()	This function triggers the Export of the dashboard to a PPT File.
DSXExportSelectedComponents()	This function allows you to export selected components using scripting functionality.
DSXGetDateFormat()	The function allows you to retrieve the configured date format.
DSXGetDocumentName()	This function allows you to retrieve the configured Document Name for the file.
DSXGetEnableTemplate()	This function allows you to retrieve a Boolean value indicating if a Template has been configured or not.
DSXGetFitToPage()	This function allows you to retrieve a Boolean value indicating if the Fit To Page option has been configured or not.
DSXGetServerURL()	This function allows you to retrieve the Server URL.
DSXGetTemplatePPT()	This function allows you to retrieve the file name of the configured template.
DSXGetTextPlaceholder1() to DSXGetTextPlaceholder 9()	These functions allow you to retrieve the text for Text Placeholder 1 to Text Placeholder 9.
DSXSetDateFormat()	This function allows you to set the Date Format.
DSXSetDocumentName()	This function allows you to set the Document Name for the file.
DSXSetEnableTemplate()	This function allows you to enable the use of a template file.
DSXSetFitToPage()	This function allows you to enable the Fit to Page option.
DSXSetServerURL()	This function allows you to configure the Server URL.
DSXSetTemplatePPT()	This function allows you to configure the template file name.
DSXSetTextPlaceholder1() to DSXSetTextPlaceholder 9()	These functions allow you to set the text for Text Placeholder 1 to Text Placeholder 9.

Table 6.56: Scripting Functions

6.15.8 Events for the Export to PPT Component

The following Table outlines the available events for the Export to PPT Component.

Property	Details
On Click	This event allows you to add scripting code using the Script Editor. Each time you click on the Export to PPT button, the On Click event will be triggered.

Table 6.57: Events for the Export to PPT

6.16 Export to DOC Component

The DOC Export component allows you to add the option to export your complete dashboard or parts of your dashboard into a Microsoft Word file. The Export to DOC Component does require the Visual BI Extensions Export Service to be installed.

6.16.1 How to use the Export to DOC Component

In the following steps we will outline how you can integrate the Export to DOC Component into your dashboard and provide your users the option to export the dashboard or a subset of the dashboard to a Microsoft Word file.

6.16.1.1 Technical Pre-Requisites

Please note the following technical pre-requisites. In regard to the installation of the Visual BI Extensions Export Service, please refer to our Installation Guide available online - <http://visualbi.com/sap-design-studio/dsx-extensions/dsx-downloads/>.

- Visual BI Extensions Export Service needs to be installed and configured.
- You have the server name and port for the Export Service.

You can follow the steps below to add the Export to DOC Component to your dashboard:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source is not relevant for the following steps.
3. Add a chart from the VBX Charts to your project and assign the data source.
4. Add the Export to DOC Component from the VBX Utilities to your dashboard.
5. Navigate to the Additional Properties of the Export to DOC Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category General and to the sub category General Settings and to the area Export Settings in the Additional Properties (see Figure 6.181).

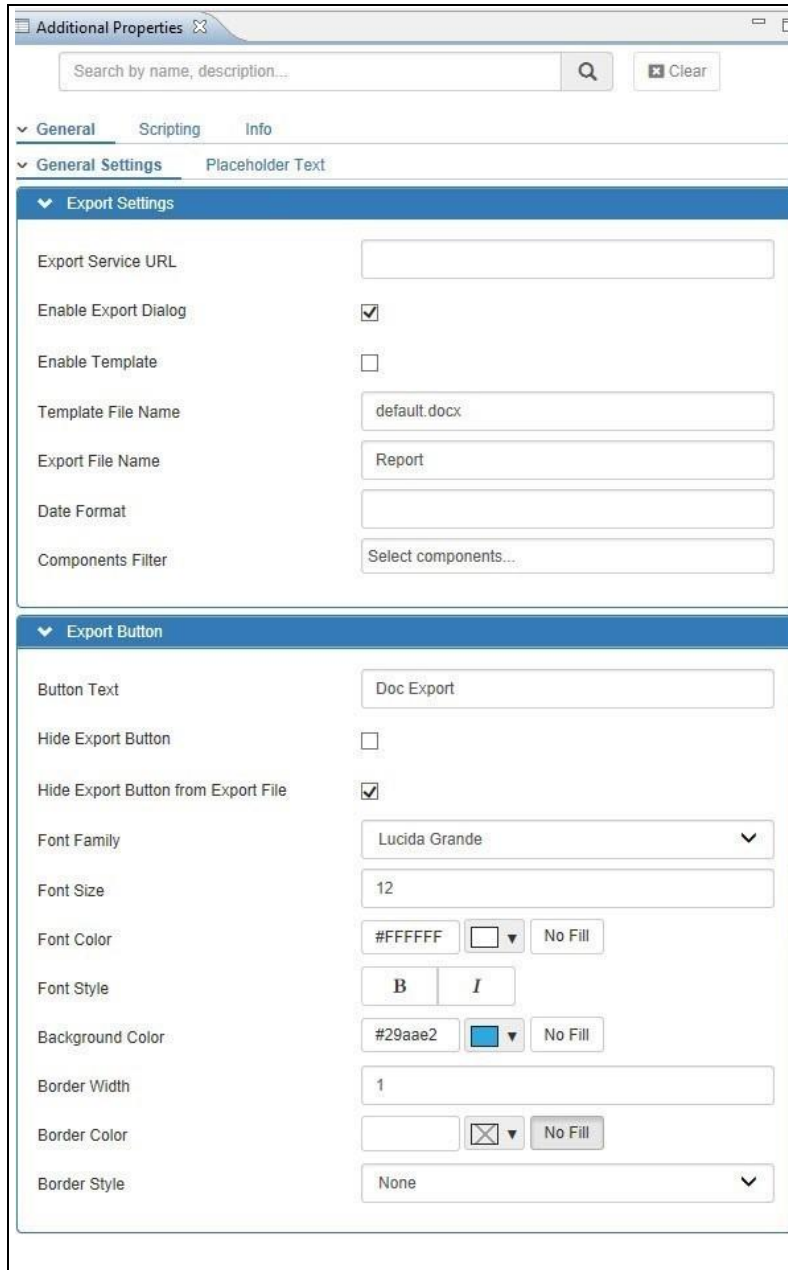


Figure 6.181: Category General

7. In the sub category General Settings you can configure the following items:

Property	Description
Export Service URL	Here you can specify the Server Name and Port for the Export Service.
Template File Name	Here you can enter the File Name for the Template that the Export Service should be using.
Enable Template	This option allows you to enable / disable the usage of templates.
Button Text	Here you can specify the text for the Export Button.
Export File Name	Here you can specify the file name for the exported Microsoft Word (DOC) file.
Hide Export Button on Export File	This option allows you to enable / disable the hiding of the Export

Property	Description
	Button from the actual Export File.
Hide Export Button	This option allows you to enable / disable the Export Button from the dashboard.
Enable Export Dialog	This option allows you to enable / disable the display of the standard export dialog.
Date Format	In addition to the Text Placeholder listed in the General category, you can also use the placeholder {Date} to include the actual date as part of the exported file. You can use the property Date Format in the category General to specify the format for the date value. Table 6.55 shows the available options to define the date format.
Components Filter	Here you can select the components that needs to be exported in run time.

Table 6.58: Category General

8. Enter the Service URL for your Export Service. The default syntax for the Export Service URL would be `http://<SERVER>:<PORT>` with 5000 being the default port. For our example we will enter <http://BI4CLIENT:5000>.
9. Leave the default values for the other properties.
10. Use the menu Application • Execute Locally.
11. Click on your Export Button (see Figure 6.182).

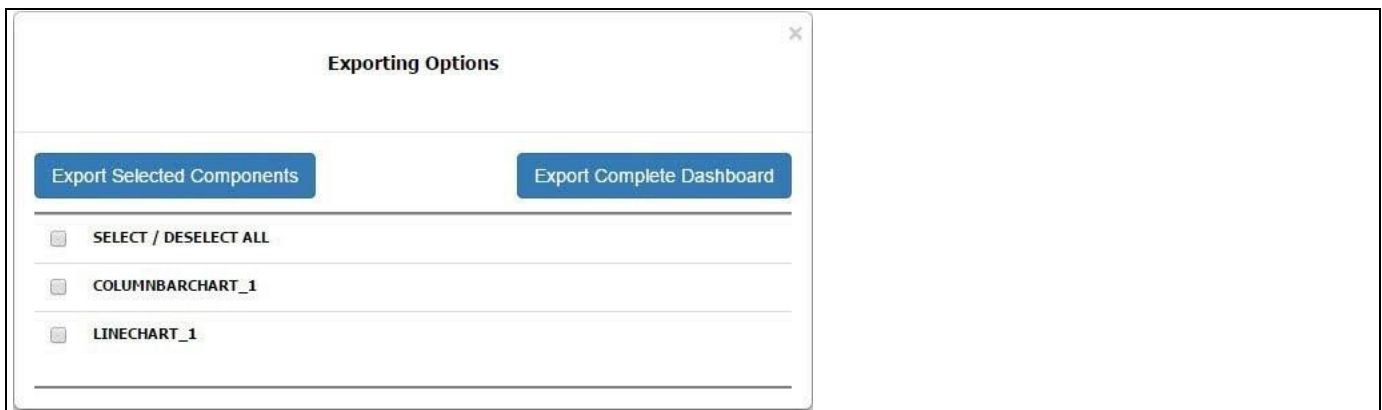


Figure 6.182: Exporting

12. You have the option to either select specific components from the dashboard or you can export the complete dashboard.
 - Export Selected Components: In this scenario each selected component will be exported to a single slide in the Microsoft Word file.
 - Export Complete Dashboard: In this scenario the complete dashboard will be exported to a single slide in the Microsoft Word file.
13. After you select the Export option, the dashboard or selected components will be exported and you will receive the exported file to your client system.

6.16.2 Additional Properties of the Export to DOC Component

In the following sections you will find a list of available properties and a Table with a more detailed description of each of the properties for Additional Properties of the Export to DOC Component.

6.16.2.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Area	Property	Description
General Settings	Export Settings	Export Service URL	Here you can specify the Server Name and Port for the Export Service.
		Enable Export Dialog	This option allows you to enable / disable the display of the standard export dialog.
		Enable Template	This option allows you to enable / disable the usage of templates.
		Template File Name	Here you can enter the File Name for the Template that the Export Service should be using.
		Export File Name	Here you can specify the file name for the exported Microsoft Word (DOC) file.
		Date Format	In addition to the Text Placeholder, you can also use the placeholder {Date} to include the actual date as part of the exported file. You can use the property Date Format to specify the format for the date value.
		Components Filter	Here you can select the components that needs to be exported in run time.
	Export Button	Button Text	Here you can specify the text for the Export Button.
		Hide Export Button	This option allows you to enable / disable the Export Button from the dashboard.
		Hide Export Button on Export File	This option allows you to enable / disable the hiding of the Export Button from the actual Export File.
		Font Family	Here you can configure the Font Type for the Button Text.
		Font Size	Here you can configure the Font Size for the Button Text.
		Font Color	Here you can configure the Text Color for the Export button.
		Font Style	Here you can configure the Font Style for the Button Text.
		Background Color	Here you can configure the Background Color for the Export button.
		Border Width	Here you can configure the Border Width

Sub category	Area	Property	Description
			for the Button.
		Border Color	Here you can configure the Border Color for the Button.
		Border Style	Here you can configure the Border Style for the Button.
Placeholder Text		Text Placeholder 1 Text Placeholder 2 Text Placeholder 3 Text Placeholder 4 Text Placeholder 5 Text Placeholder 6 Text Placeholder 7 Text Placeholder 8 Text Placeholder 9	Using these Text Placeholder you can enter Text for each of them and you can reference the Text Placeholder as part of a PPT template file.

Table 6.59: Category General

6.16.3 Scripting Function for the Export to DOC Component

The following Table outlines the available scripting functions for the Export to DOC Component.

Function / Method	Description
DSXExportAsDOC()	This function triggers the Export of the dashboard to a Microsoft Word File.
DSXGetDocumentName()	This function allows you to retrieve the configured Document Name for the file.
DSXGetFitToPage()	This function allows you to retrieve a Boolean value indicating if the Fit To Page option has been configured or not.
DSXGetServerURL()	This function allows you to retrieve the Server URL.
DSXSetDocumentName()	This function allows you to set the Document Name for the file.
DSXSetFitToPage()	This function allows you to enable the Fit to Page option.
DSXSetServerURL()	This function allows you to configure the Server URL.

Table 6.60: Scripting Functions

6.17 Export to eMail Component

The Export to eMail Component allows you to add the option to export your dashboard and send an eMail to your colleague with the attachment.

6.17.1 How to use the Export to eMail Component

In the following steps we will outline how you can integrate the Export to eMail Component into your dashboard and provide your users the option to export the dashboard and send the exported file via eMail directly from the dashboard.

6.17.1.1 Technical Pre-Requisites

Please note the following technical pre-requisites. In regards to the installation of the Visual BI Extensions Export Service, please refer to our Installation Guide available online - <http://visualbi.com/sap-design-studio/dsx-extensions/dsx-downloads/>.

- Visual BI Extensions Export Service needs to be installed and configured.
- You have the server name and port for the Export Service.
- SMTP Details of the Visual BI Extensions Export Service have been configured.

You can follow the steps below to add the Export to Mail Component to your dashboard:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source is not relevant for the following steps.
3. Add a chart from the VBX Charts to your project and assign the data source.
4. Add the Export to eMail Component from the VBX Utilities to your dashboard.
5. Navigate to the Additional Properties of the Export to Mail Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category General and to the sub category General Settings in the Additional Properties (see Figure 6.183).

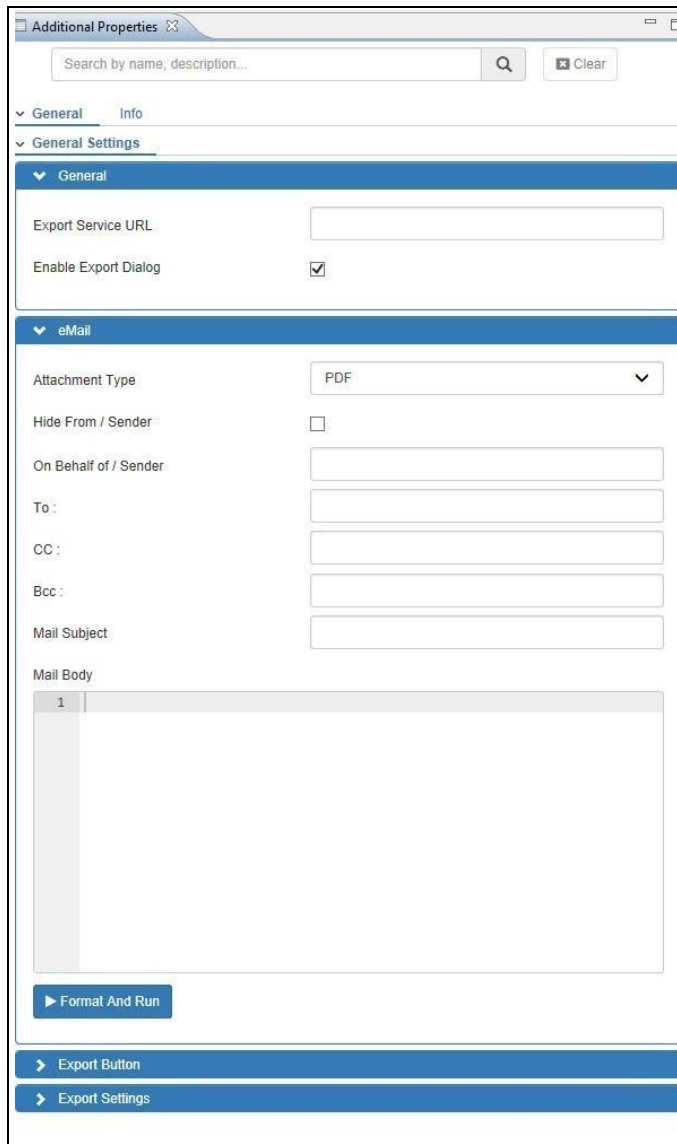


Figure 6.183: Category General

7. In the sub category General Settings you can configure the following items:

Property	Description
Export Service URL	Here you can specify the Server Name and Port for the Export Service.
Hide From/Sender	Here you can activate the option for the property Hide From/Sender.
On Behalf Of / Sender	Here you can enter a Name that will be shown to the recipient of the email as the sender of the eMail.
To	Here you can enter an eMail address for the recipient. You can separate multiple recipients using a “comma”.
CC Bcc	Here you can enter an eMail address for the recipient for the CC and Bcc fields. You can separate multiple recipients using a “comma”.
Mail Subject	Here you can enter the Mail subject line.
Mail Body	Here you can enter the Mail text.

Property	Description
Enable Export Dialog	This option allows you to enable / disable the dialog with the eMail details. When enabled, you will be able to enter all details when using the Export to Mail option.
Export Button Text	Here you can specify the Text for the Export to Mail button.
Attachment Type	Here you can specify which attachment type is being used to export the dashboard for the eMail.
Hide Export Button from eMail	This property allows you to enable / disable the option to hide the export button from the export attachment.

Table 6.61: Category General

8. Enter the Service URL for your Export Service. The default syntax for the Export Service URL would be `http://<SERVER>:<PORT>` with 5000 being the default port. For our example we will enter <http://BI4CLIENT:5000>.
9. Ensure the option Enable Export Dialog is activated.
10. Leave the default values for the other properties.
11. Use the menu Application • Execute Locally.
12. Click on your Export Button (see Figure 6.184).

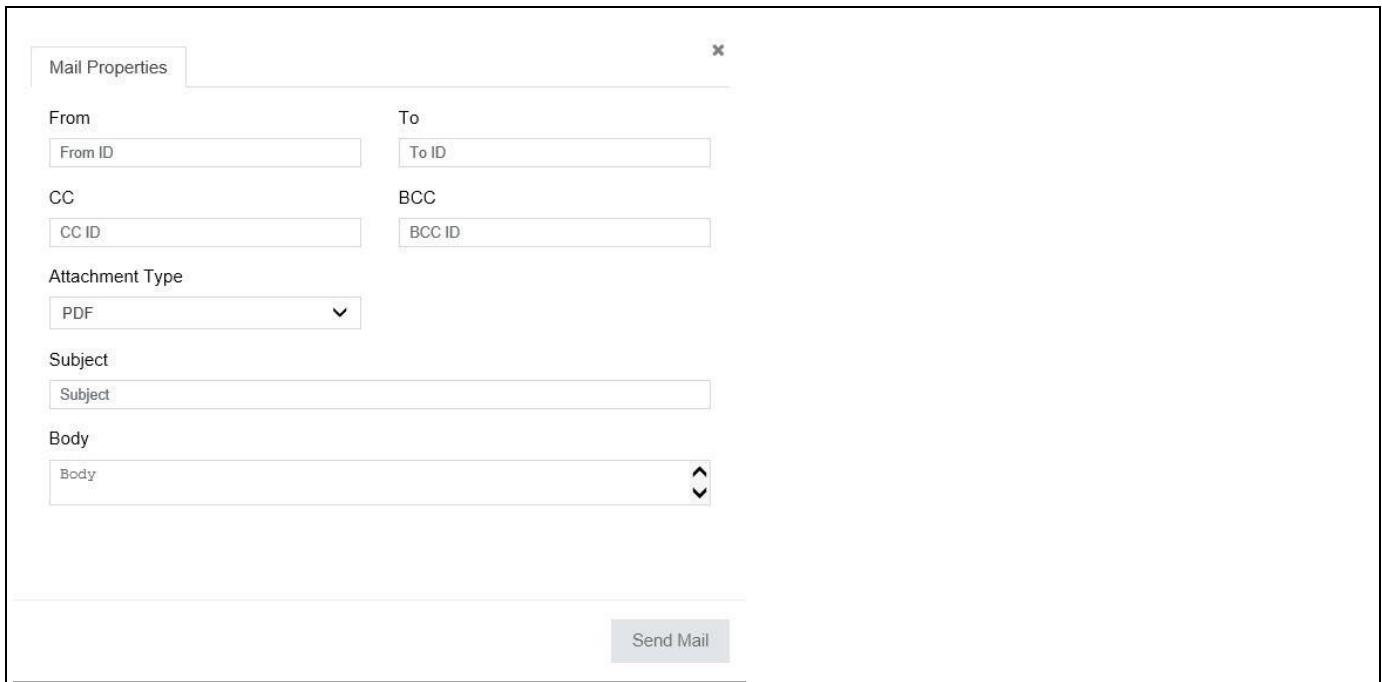


Figure 6.184: Exporting

13. You have the option to enter the Recipient eMail address, the eMail Subject, and the eMail Body text.
14. In addition you can choose which type of attachment the dashboard will be exported to as part of the eMail. You can choose between Microsoft PowerPoint, Microsoft Word, PDF, or JPEG.
15. After you select the Export option and provided the details for the eMail, the dashboard will be exported and the eMail will be sent out. The file attachment will be named according to the dashboard name.

6.17.2 Additional Properties of the Export to Mail Component

In the following sections you will find a list of available properties and a Table with a more detailed description of each of the properties for Additional Properties of the Export to Mail Component.

6.17.2.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Area	Property	Description
General Settings	General	Export Service URL	Here you can specify the Server Name and Port for the Export Service.
		Enable Export Dialog	This option allows you to enable / disable the dialog with the eMail details. When enabled, you will be able to enter all details when using the Export to Mail option.
	eMail	Attachment Type	Here you can specify which attachment type is being used to export the dashboard for the eMail.
		Hide From/ Sender	This property allows you to enable / disable the option to hide the From field in the Export Dialog box.
		On Behalf Of / Sender	Here you can enter a Name that will be shown to the recipient of the email as the sender of the eMail.
		To	Here you can enter an eMail address for the recipient. You can separate multiple recipients using a "comma".
		CC	Here you can enter an eMail address for the recipient for the CC fields. You can separate multiple recipients using a "comma".
		Bcc	Here you can enter an eMail address for the recipient for the Bcc fields. You can separate multiple recipients using a "comma".
		Mail Subject	Here you can enter the Mail subject line.
		Mail Body	Here you can enter the Mail text.
	Export Button	Export Button Text	Here you can specify the text for the Export Button.
		Hide Export Button from eMail	This option allows you to enable / disable the hiding of the Export Button from the actual Export File.
		Font Family	Here you can configure the Font Type for the Button Text.
		Font Size	Here you can configure the Font Size for the Button Text.
		Font Color	Here you can configure the Text Color for the Export button.
		Font Style	Here you can configure the Font Style for the

Sub category	Area	Property	Description
			Button Text.
		Background Color	Here you can configure the Background Color for the Export button.
		Border Width	Here you can configure the Border Width for the Button.
		Border Color	Here you can configure the Border Color for the Button.
		Border Style	Here you can configure the Border Style for the Button.
	Export Settings	Components Filter	Here you can select the components that needs to be exported in run time.

Table 6.62: Category General

6.17.3 Scripting Function for the Export to Mail Component

The following Table outlines the available scripting functions for the Export to Mail Component.

Function / Method	Description
DSXGetAttachmentType	This function allows you to retrieve the configured attachment type for the eMail.
DSXGetBccMailId DSXGetCcMailId	These function retrieve the configured recipients for the BCC and CC fields of the eMail.
DSXGetMailBody	This function allows you to retrieve the configured eMail body text.
DSXGetMailSubject	This function allows you to retrieve the configured eMail Subject text.
DSXGetOnBehalf	This function allows you to retrieve the configured onBehalf person.
DSXGetServerURL	This function allows you to retrieve the configured Server URL for the Export Service.
DSXGetToMailID	This function allows you to retrieve the configured eMail recipients.
DSXSetAttachmentType	This function allows you to set the attachment type for the eMail.
DSXSetBccMailId DSXSetCcMailId	These function allows you to set the recipients for the BCC and CC fields of the eMail.
DSXSetMailBody	This function allows you to set the eMail body text.
DSXSetMailSubject	This function allows you to set the eMail Subject text.
DSXSetOnBehalf	This function allows you to set the onBehalf person.
DSXSetServerURL	This function allows you to set the Server URL for the Export Service.
DSXSetToMailID	This function allows you to set the eMail recipients.
DSXGetMailSubject	This function allows you to retrieve the Mail Subject.
DSXSetMailSubject	This function allows you to set the Mail Subject.
DSXSendMail	This function allows you to set the Send Mail.

Table 6.63: Scripting Functions

6.18 Responsive UI Container

The Responsive UI Container allows the dashboard designer to setup a complete dashboards or individual parts of a dashboard as part of the Responsive UI Container and in that way these components will adapt its layout to screen resolution and screen orientation.

6.18.1 Responsive UI Overview

The Responsive UI component provides you with a container component that will adjust the size of the components as well as the placement of the components based on screen size and screen orientation. You have the option to decide how many child container the Responsive UI Container will use and you can assign your components to these child containers. The actual layout and look and feel depends on the order of the components inside the child container.

For example, you could use a Responsive UI Container with only one child container using the complete space showing a total of four tiles (see Figure 6.185).

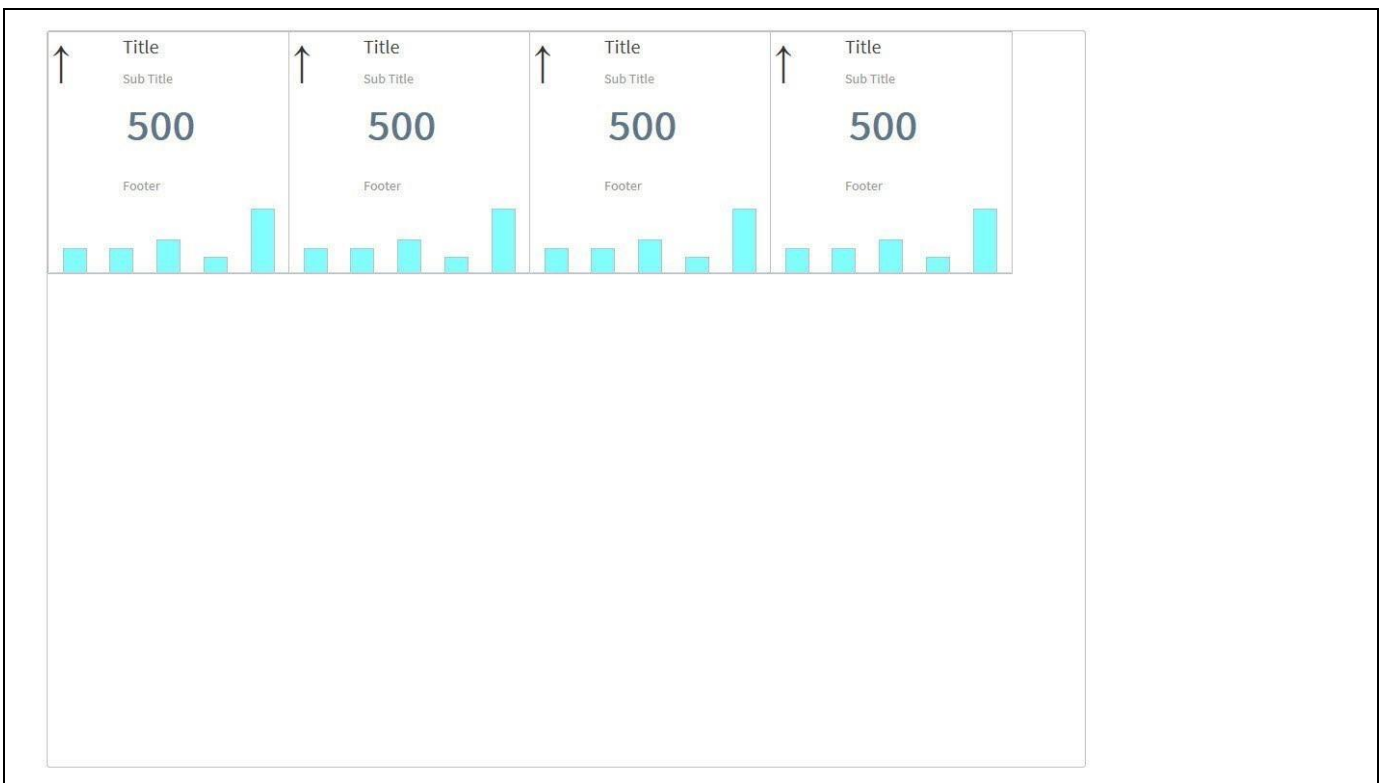


Figure 6.185: Responsive UI Sample 1

In case you would execute such a dashboard and change the size or change the orientation of the device, the layout will automatically adjust.

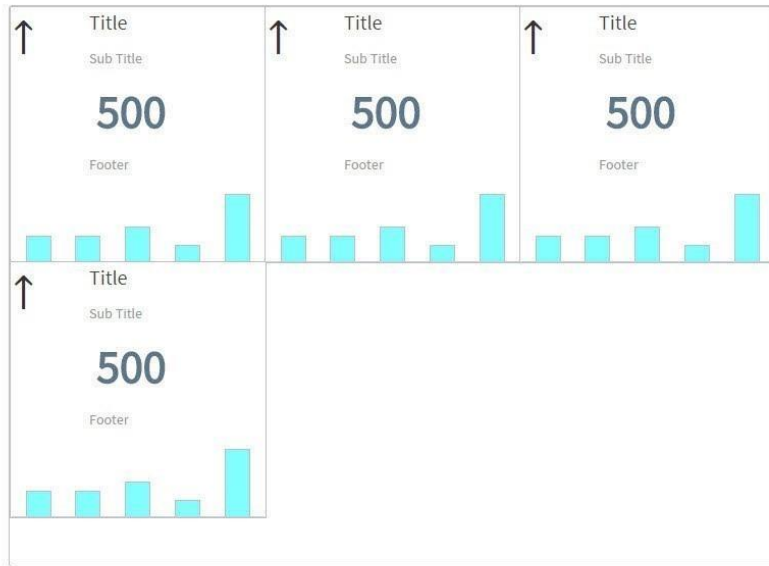


Figure 6.186: Responsive UI Sample 2

Figure 6.186 showing the adjusted layout based on a smaller screen size where then one of the tiles is automatically being moved into a second row.

In addition the Responsive UI Container is also providing you with the option to split the container into several child container, which provides you with the ability to separate components. Each child container and all elements assigned to the child container will react in a responsive way, but the child container itself will not react in a responsive manner globally.

For example, if we setup a Responsive UI Container with two child container (see Figure 6.187) and place the four tiles in a way that two tiles are in each of the child containers, then the two tiles in each container will become responsive.

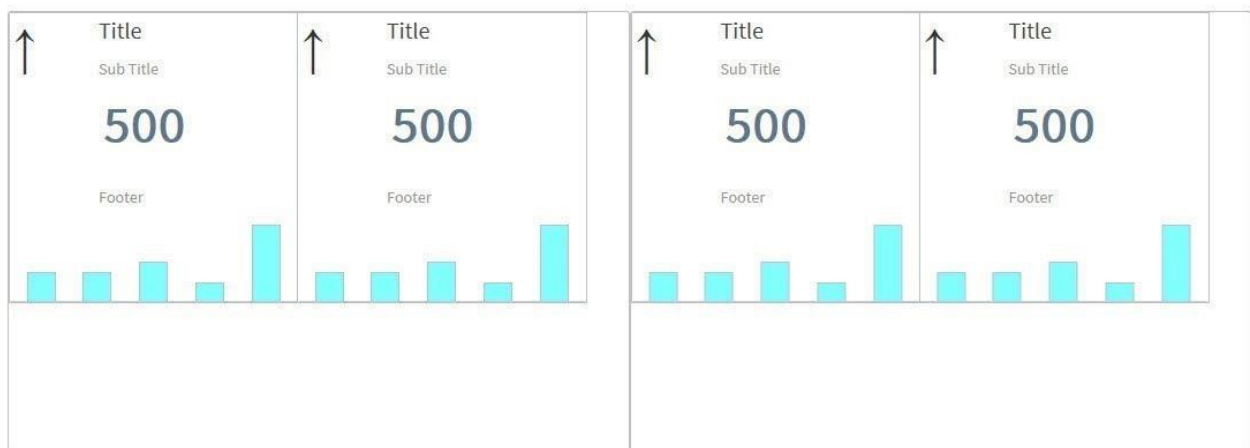


Figure 6.187: Responsive UI with Child Container

Figure 6.187 shows the Responsive UI Container with two child containers of equal size and with two tile components in each of the child containers. Now running such a dashboard with such configured child containers means, that content in each of the child containers does become responsive, but that the child containers towards each other do not become responsive.



Figure 6.188: Responsive UI with Child Container

Figure 6.188 shows the Responsive UI Container with the two child container on a narrower screen resolution. AS the figure shows, the KPI Tiles inside each of the child container are reacting in a responsive way and instead of next to each other the KPI Tiles are shown below each other, but the two child container are not reacting in a responsive way globally.

By using the concept of the Child Container you have the option to decide if you would like to have your complete dashboard acting in a responsive fashion or if you would like to separate parts of the dashboard and place specific elements separate from each other. In case you would like to have the complete dashboard acting in a responsive fashion, then you would only use one child container. In case you prefer the option to separate specific elements, then you would create multiple child container and place components into multiple child container.

In addition the Responsive UI Container allows you to setup multiple profiles, which gives you the option to setup a different configuration and a different setup of child containers per profile.

6.18.2 Multiple Screen Support for Responsive UI

As part of Release 2.3, a new option has been included in the Responsive UI component where you can now use multiple screen designs inside SAP BusinessObjects Design Studio/SAP Lumira Designer. With the help of an Export Service, it provides the option to truly design the dashboard on how you would like it to appear across multiple screens on an Executive Dashboard.

For our example, you can follow the steps below to configure the settings for the Multiple Screen option in Responsive UI.

11. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
12. Add a Responsive UI Container from the VBX Utilities to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
13. Navigate to the Additional Properties of the Responsive UI Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
14. Navigate to the category Adaptive Layout. For our example, four different panels have been created in the Desktop Layout of the Responsive UI. Four Data Sources have been assigned to the Project (see Figure 6.189).

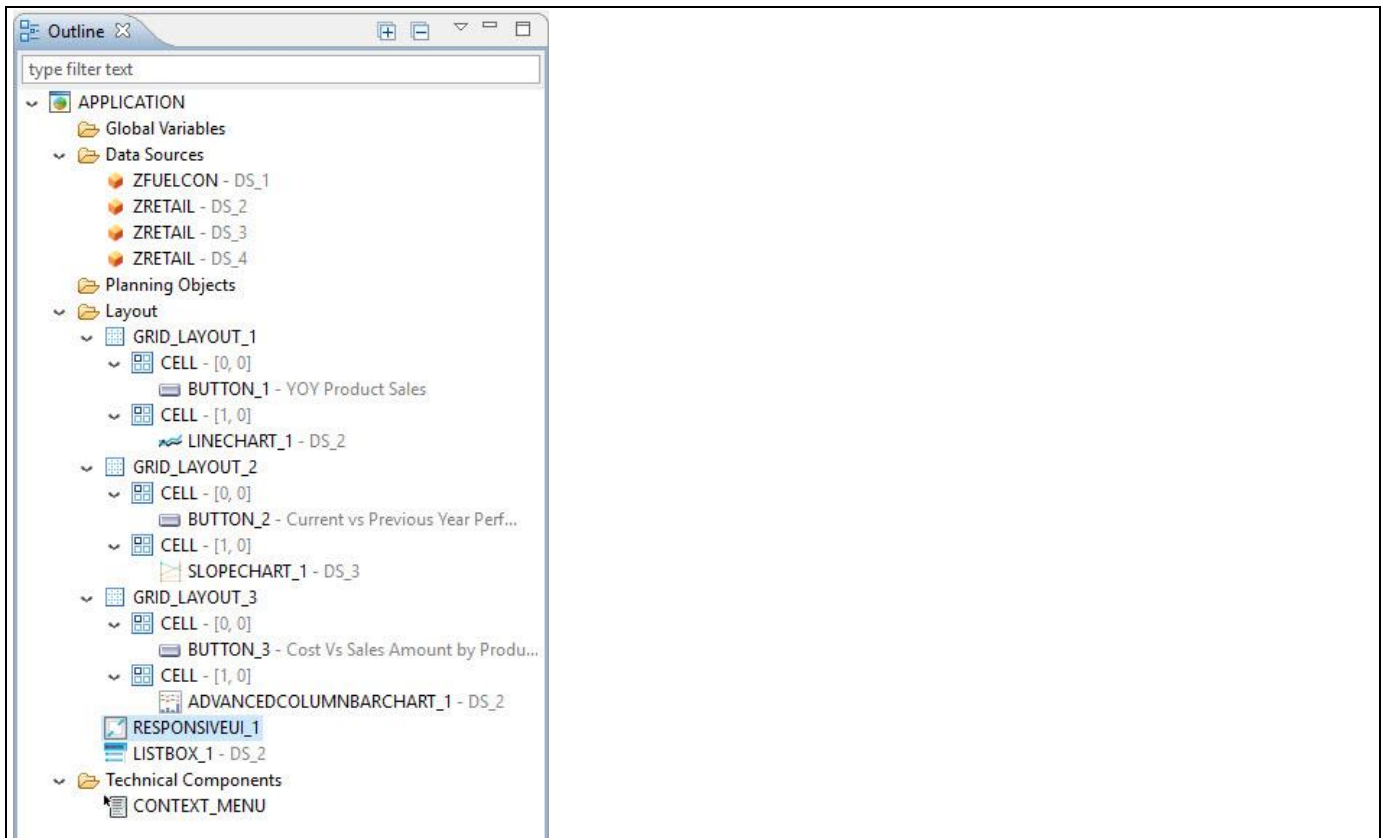


Figure 6.189: Layout

15. Based on the above layout you will be able to view the Responsive UI as shown below.



Figure 6.190: Responsive UI with four panels

16. In the category Adaptive Layout of the Additional Properties for the Responsive UI panel, enable the property Enable Multi screen and provide the Server URL details for Export Service (see Figure 6.191).

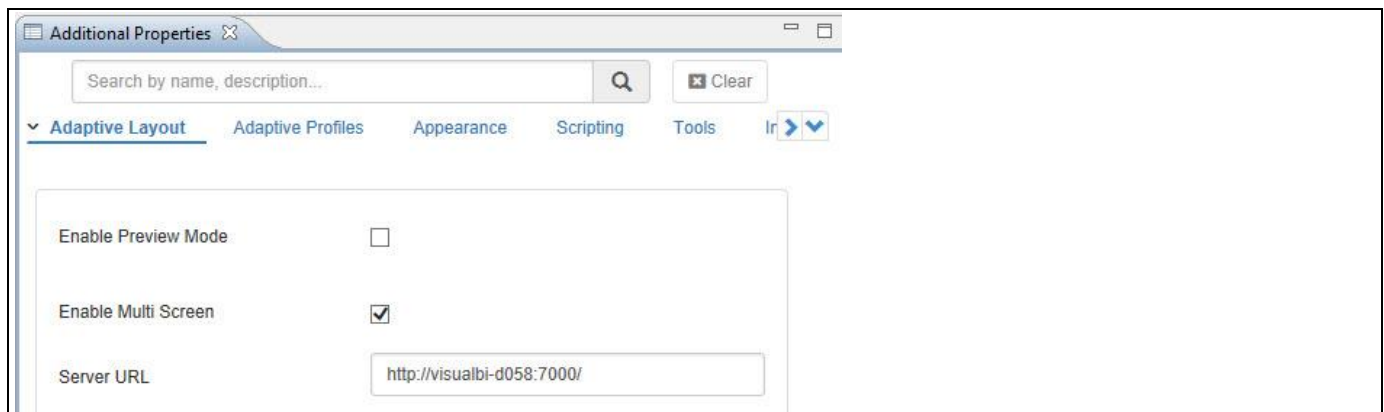


Figure 6.191: Category Adaptive Layout

17. Through the Multiscreen option and the Export Service options you will be able to visualize the four different panels having different charts (see Figure 6.190) into four different individual screens with its assigned chart in a single Browser session by providing the inputs as Screen 1 based on your choice (see Figure 6.192)

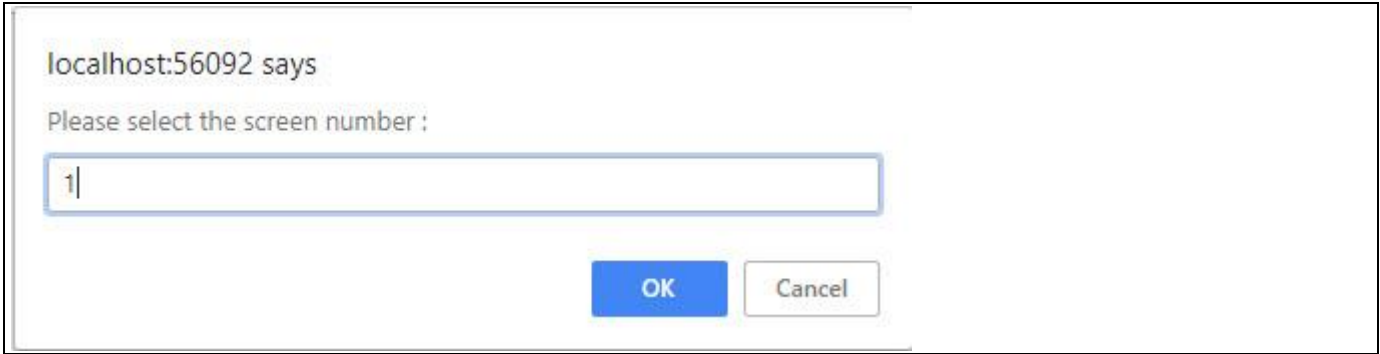


Figure 6.192: Screen Number

18. Also you can provide the parameter as “&ScreenNumber=1” at the end of the URL session based on your choice (see Figure 6.193).



Figure 6.193: URL

19. Based on your selected parameter, you will be able to view the screen 1 as shown below.



Figure 6.194: Source Screen 1

20. If you need to pass a message from Source Screen 1 to Target Screen 2 then you need to have an Interface component in the form of Button” or “HTML Box” to carry out the triggering at Target Screen 2. For our example, we are passing a message from Source Screen 1 to Target Screens 2 and 4 through Button Interfaces. The sample scripting part done for the On Select Event for Source Screen 1 is shown below.

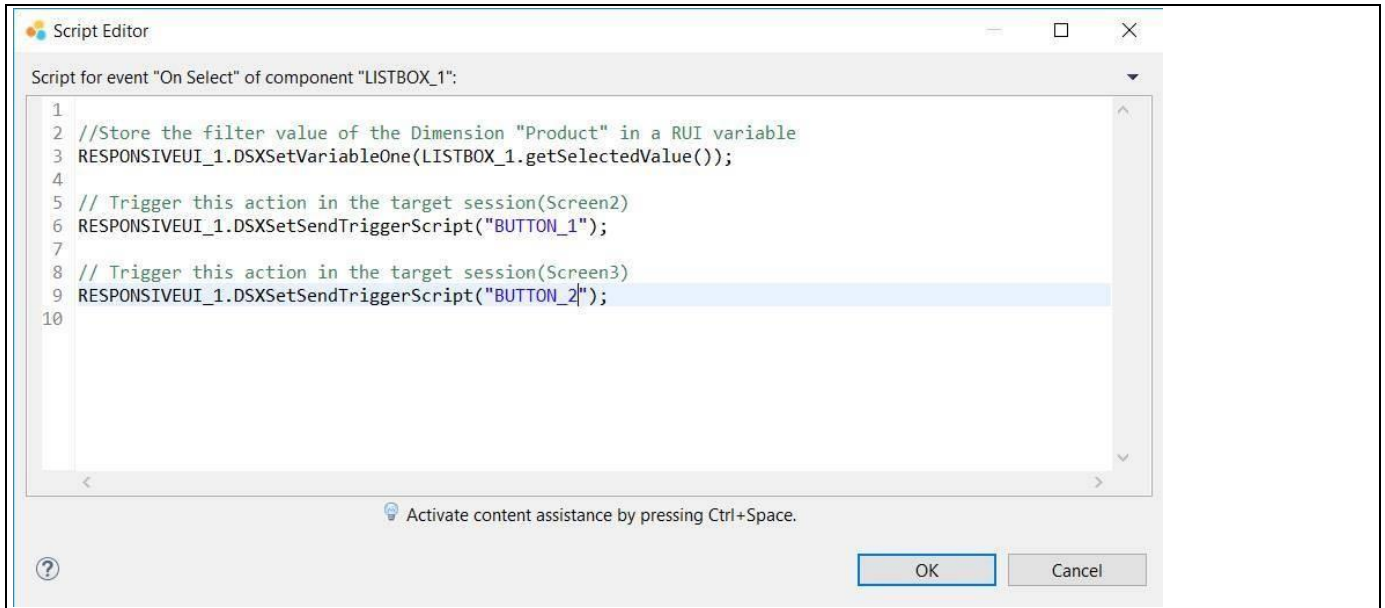


Figure 6.195: On Select Event for List Box

21. The sample scripting part done for the On Click Event for Screen 2 and 4 is shown below.

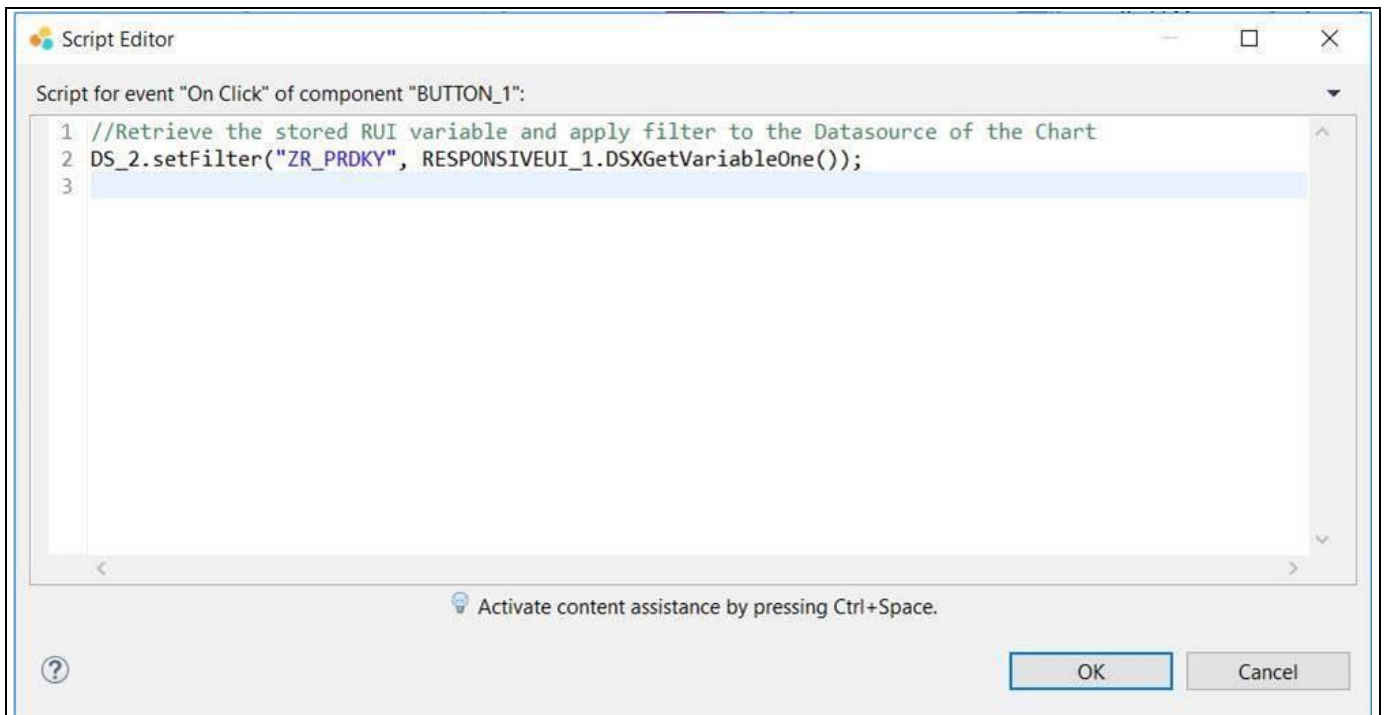


Figure 6.196: On Click Event for Screen 2

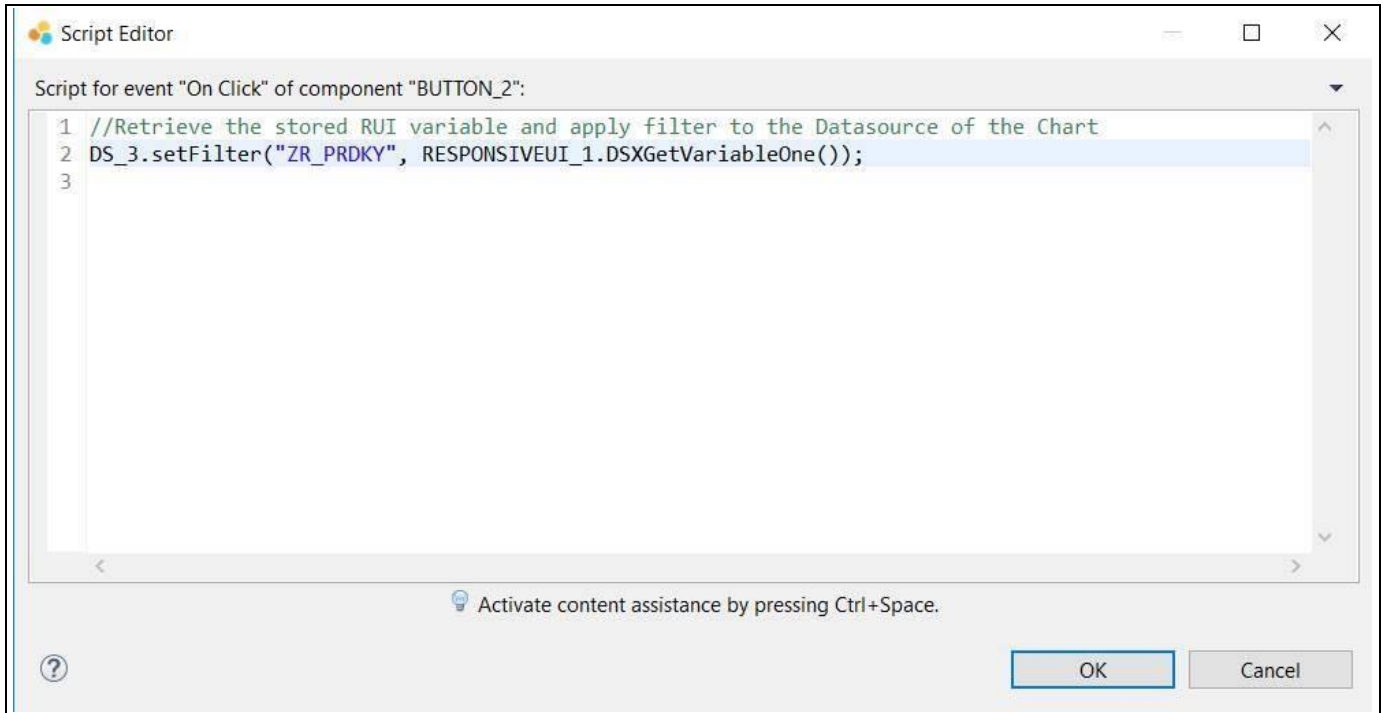


Figure 6.197: On Click Event for Screen 4

22. Based on the above scripting configurations, you will be able to view the Target screens 2 and 4 being derived from Source Screen 1 as shown below.



Figure 6.198: Target Screen 2

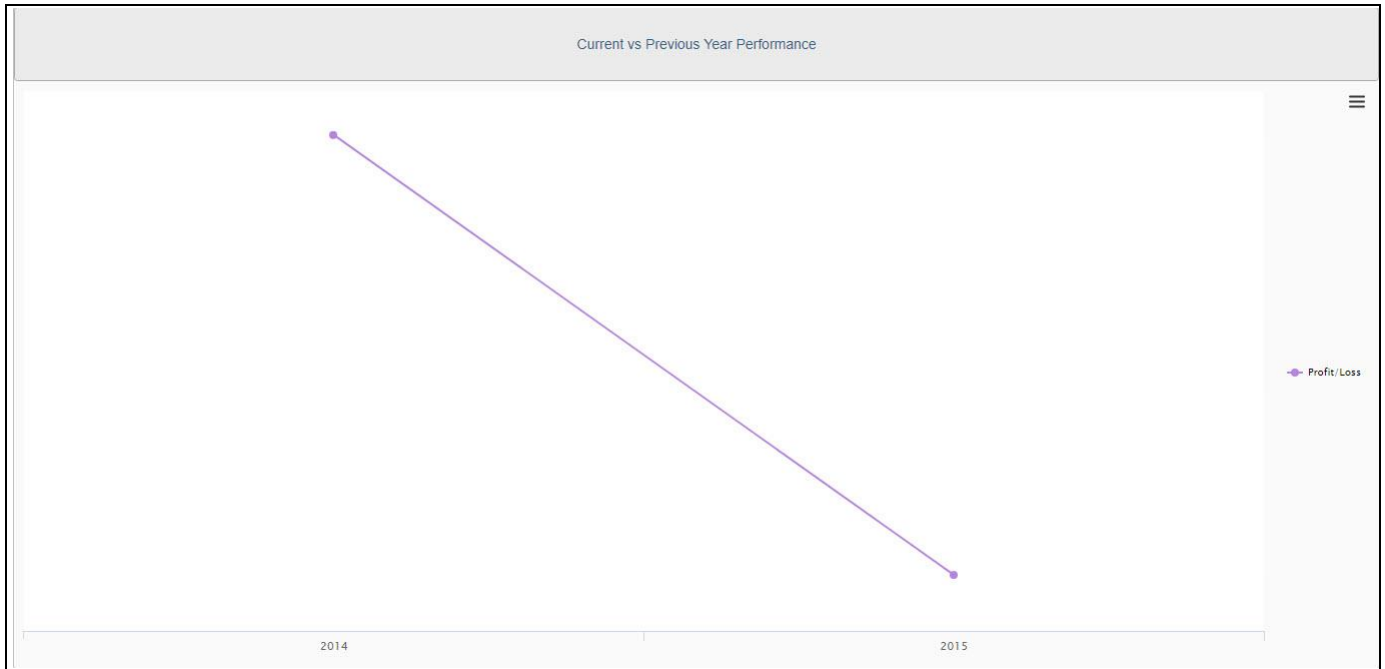


Figure 6.199: Target Screen 4

6.18.3 Hide / Show option to show specific elements of the Advanced KPI Tile in Responsive UI

Hide/Show options are available for the usage of the Advanced KPI Tile in combination with the Responsive UI container that allows you to hide / show the specific elements of the Advanced KPI Tile based on specific profiles of the Responsive UI.

For our example, you can follow the steps below to configure the settings that allows you to hide / show the specific elements of the Advanced KPI Tile based on specific profiles of the Responsive UI.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a Advanced KPI Tile from the VBX Utilities to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
3. Now add a Responsive UI Container from the VBX Utilities area. The Responsive UI Container will come with a set of 4 child container. For our example, the configuration is done for the first child container.
4. Navigate to the Additional Properties of the Responsive UI Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
5. Navigate to the category Adaptive Layout.
6. Navigate to the Desktop Layout and click Edit (see Figure 6.200).

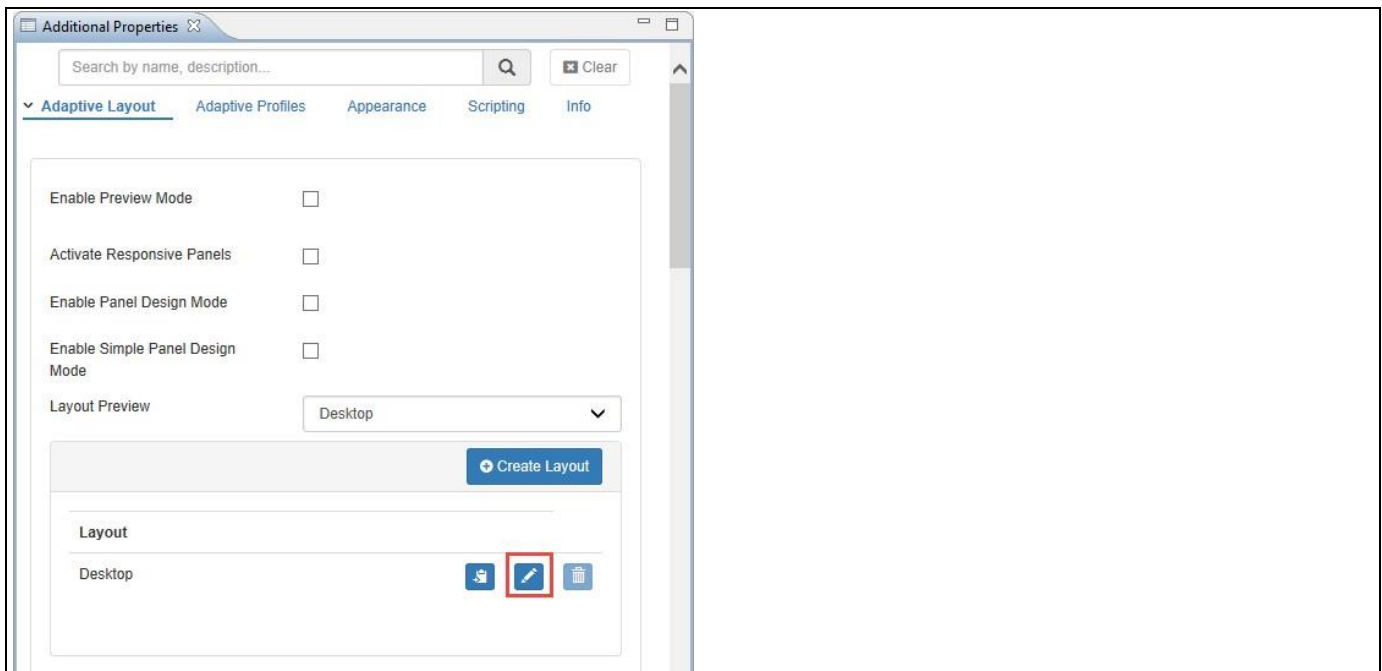


Figure 6.200: Adaptive Layout

7. In the Desktop Layout, navigate to the Panels.
8. Navigate to the Panel 1 and click Edit (see Figure 6.201).

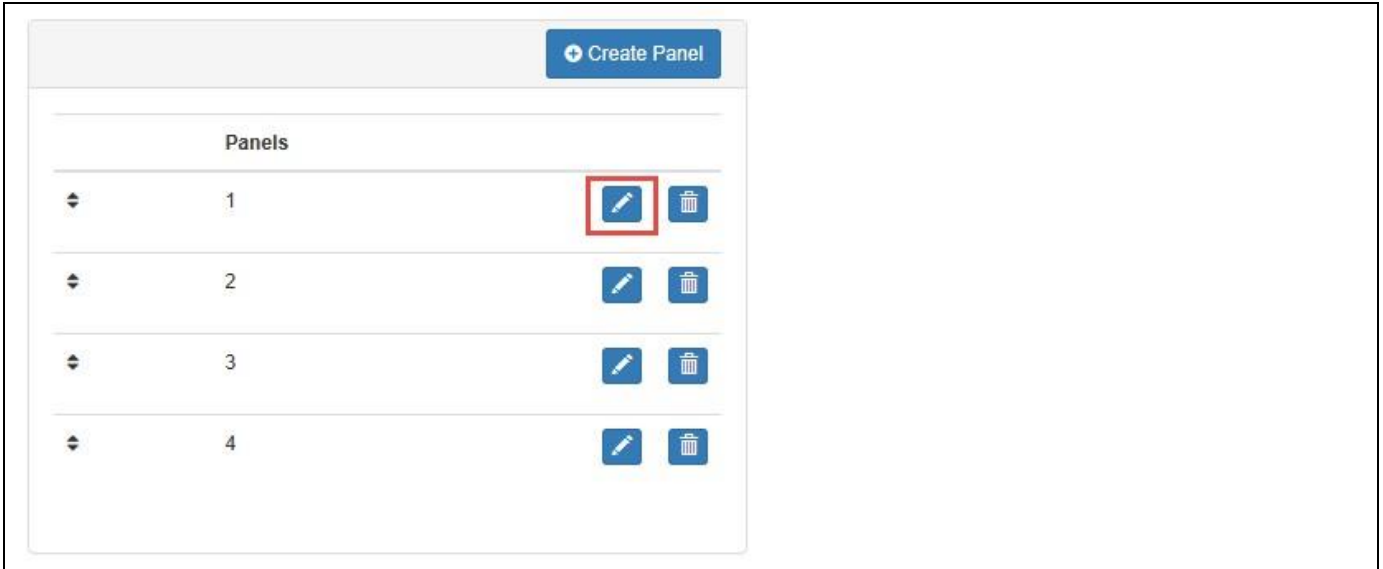


Figure 6.201: Edit Panel

9. In Panel 1, set the property Select Components to ADVANCEDKPITILE_1 (see Figure 6.202)



Figure 6.202: Panel 1

10. For our example, click Create Layout to create the Layout for Mobile. Configure the settings for Mobile and disable the option Default Chart Properties (see Figure 6.203).

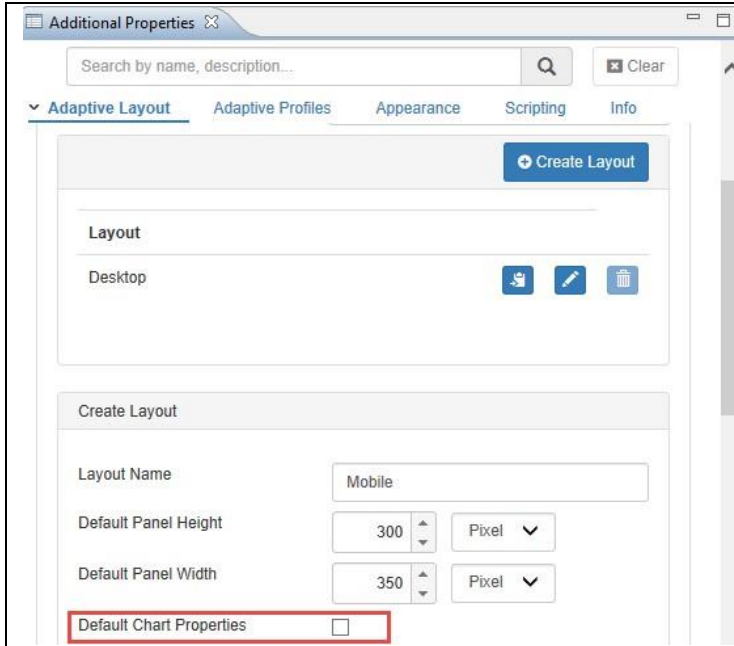


Figure 6.203: Layout - Default Chart Properties

11. Navigate to the KPI Settings and configure the KPI settings. For our example, we have disabled the KPI settings for the Header and Sparkline Containers (see Figure 6.204).

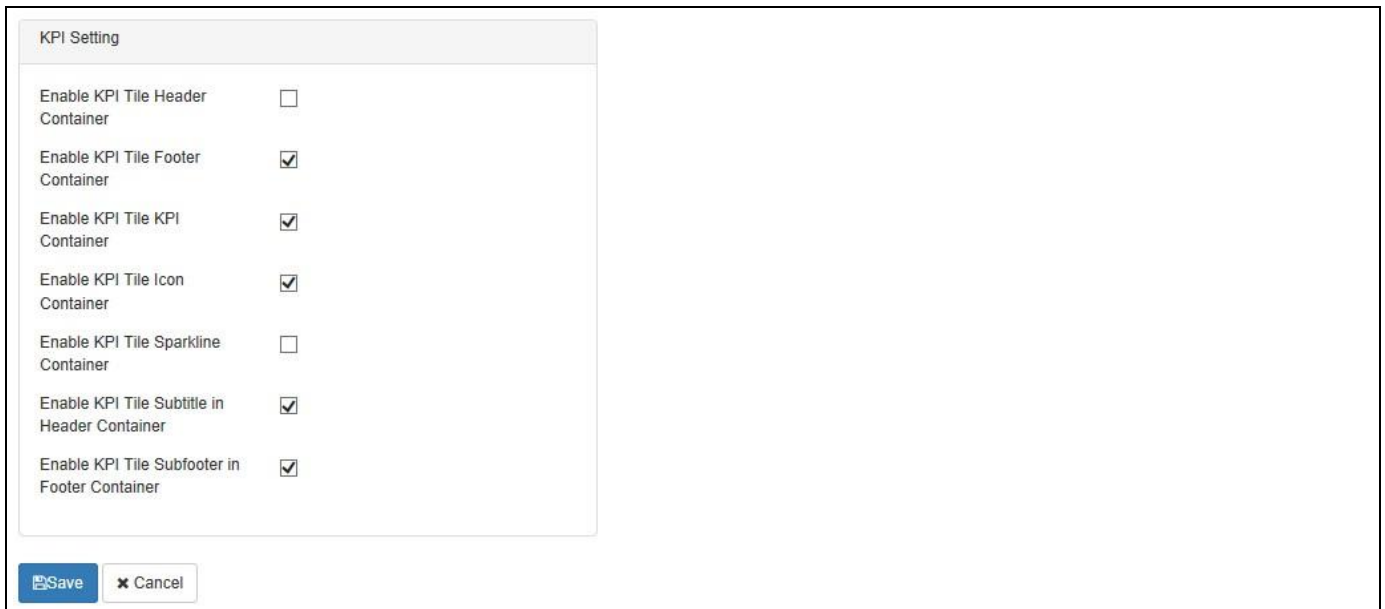


Figure 6.204: KPI Setting

12. Navigate to the Mobile Layout and click Edit (see Figure 6.205).



Figure 6.205: Mobile Layout

13. In the Mobile Layout, navigate to the Panels.
14. Navigate to the Panel 1 and click Edit (see Figure 6.206).

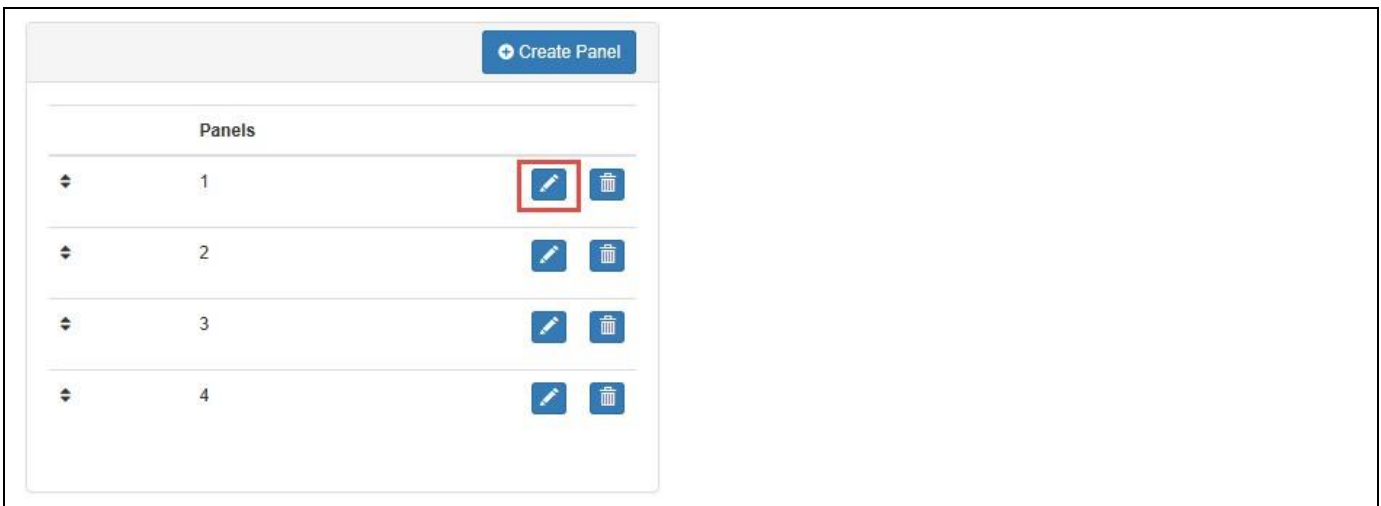


Figure 6.206: Edit Panel 1

15. In Panel 1, set the property Select Components to ADVANCEDKPITILE_1 (see Figure 6.207)



Figure 6.207: Panel 1

16. In the Additional Properties of the Responsive UI Component, navigate to the category Adaptive Profiles and then navigate to the Desktop Profile and click Edit (see Figure 6.208).

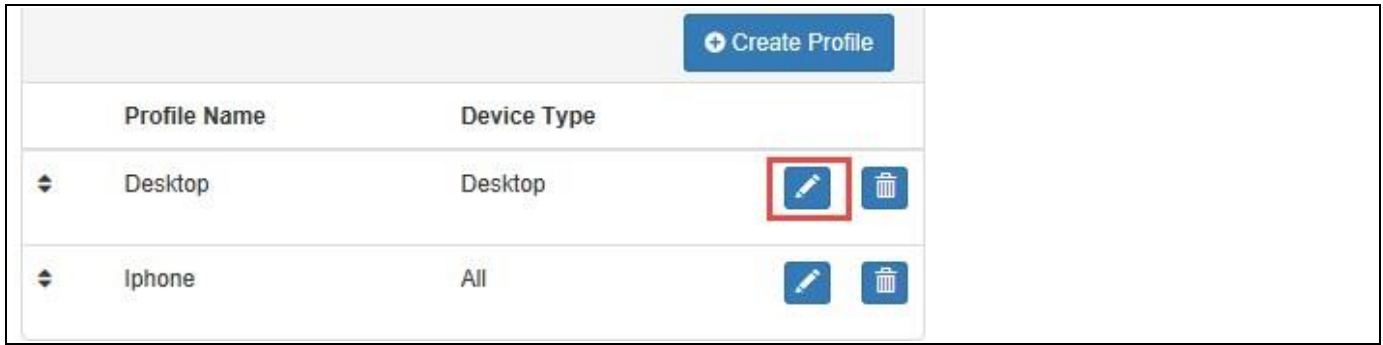


Figure 6.208: Desktop Profile

17. For our example, in the Desktop Profile set the property Selected Layout to Mobile Layout (see Figure 6.209).

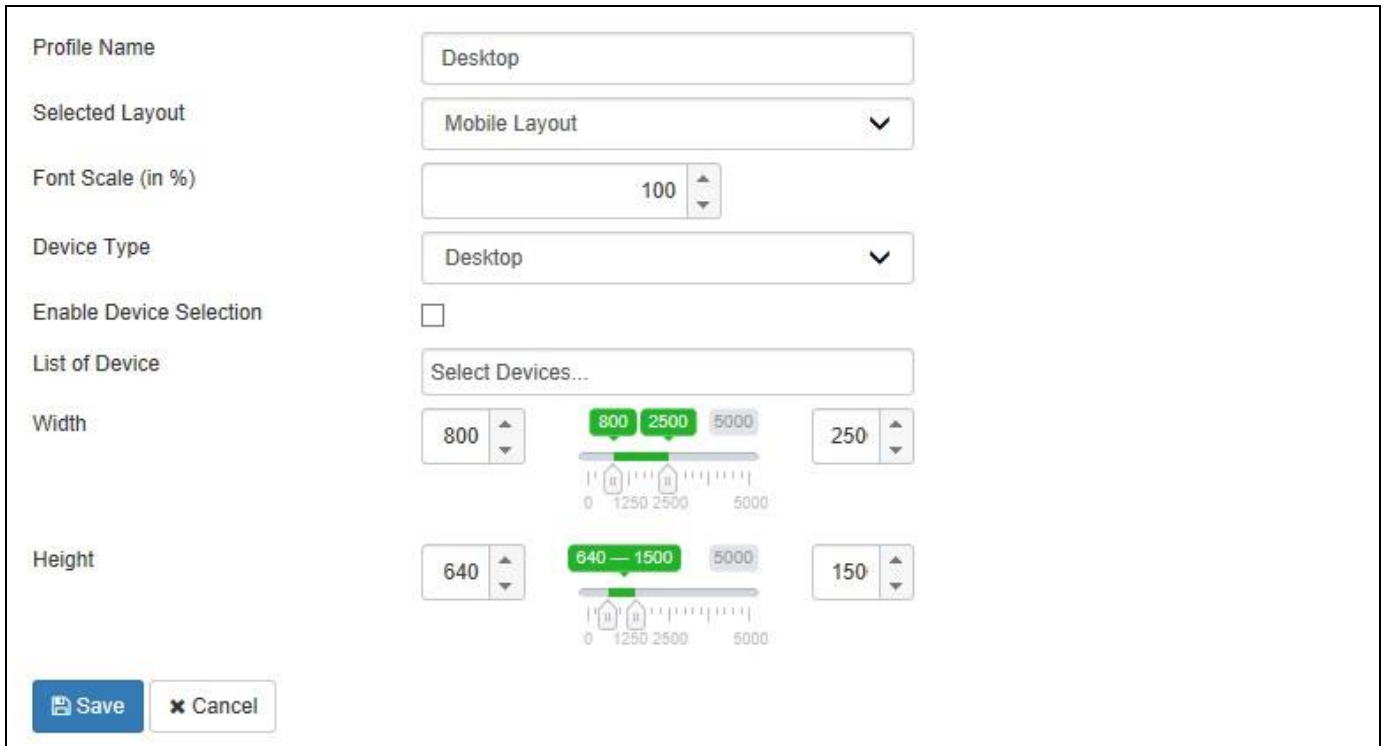


Figure 6.209: Mobile Layout as Selected Layout

18. Based on the above settings, you will be able to visualize the Advanced KPI Tile in combination with the Responsive UI container (see Figure 6.210) and the configuration is done for Desktop Profile having Mobile Layout where the Header and Sparkline Containers for the Mobile Layout have been disabled.

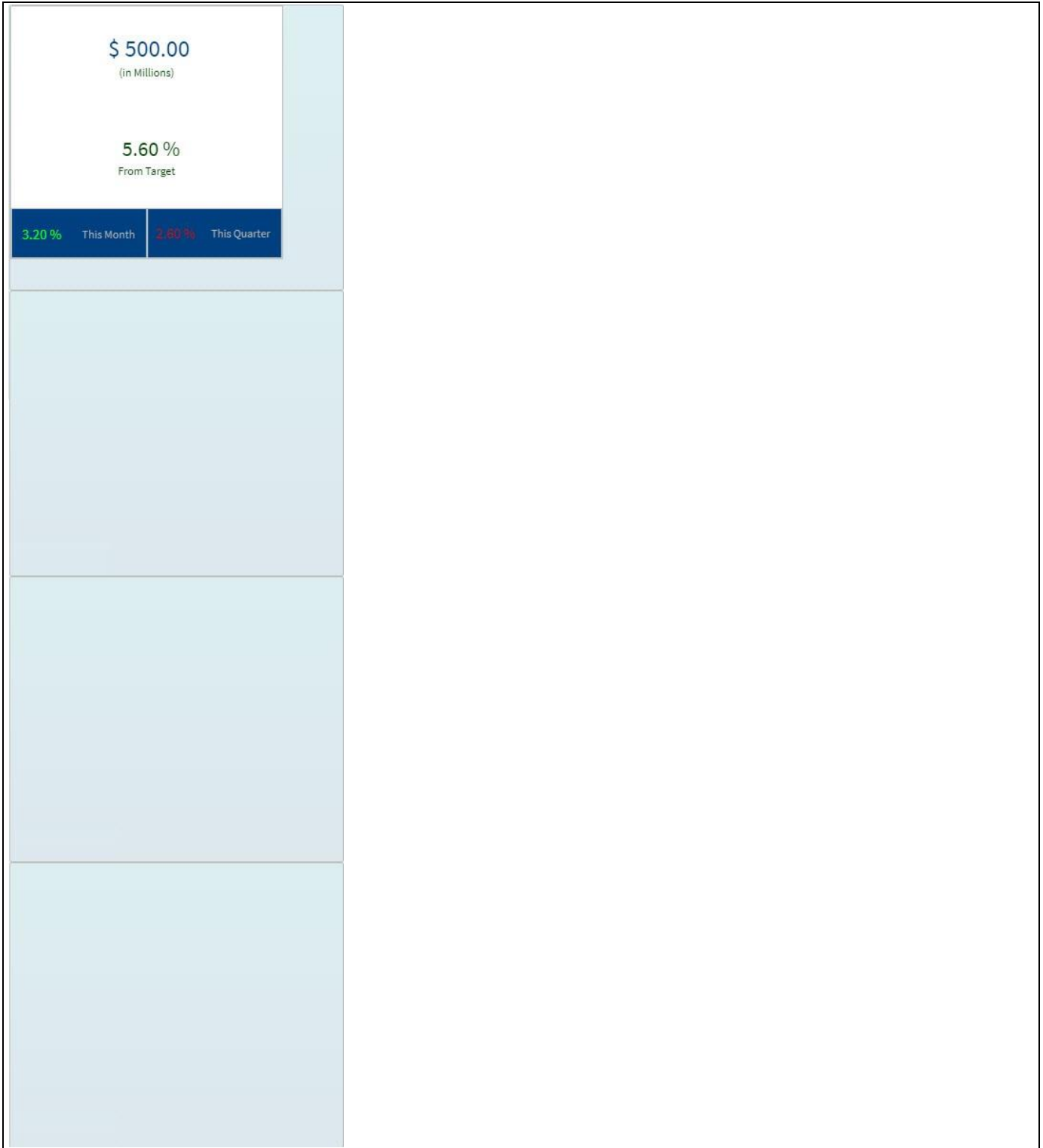


Figure 6.210: Desktop Profile with Mobile Layout

6.18.4 Mobile Preview Mode

Starting with release 1.68, the Responsive UI component now provides you with an option to view the dashboard in a live mobile preview and design the dashboard for the mobile device with a live preview directly in SAP BusinessObjects Design Studio or SAP Lumira Designer. You can activate the Mobile Preview option as part of the Additional Properties (see Figure 6.211) as part of category Adaptive Layout.

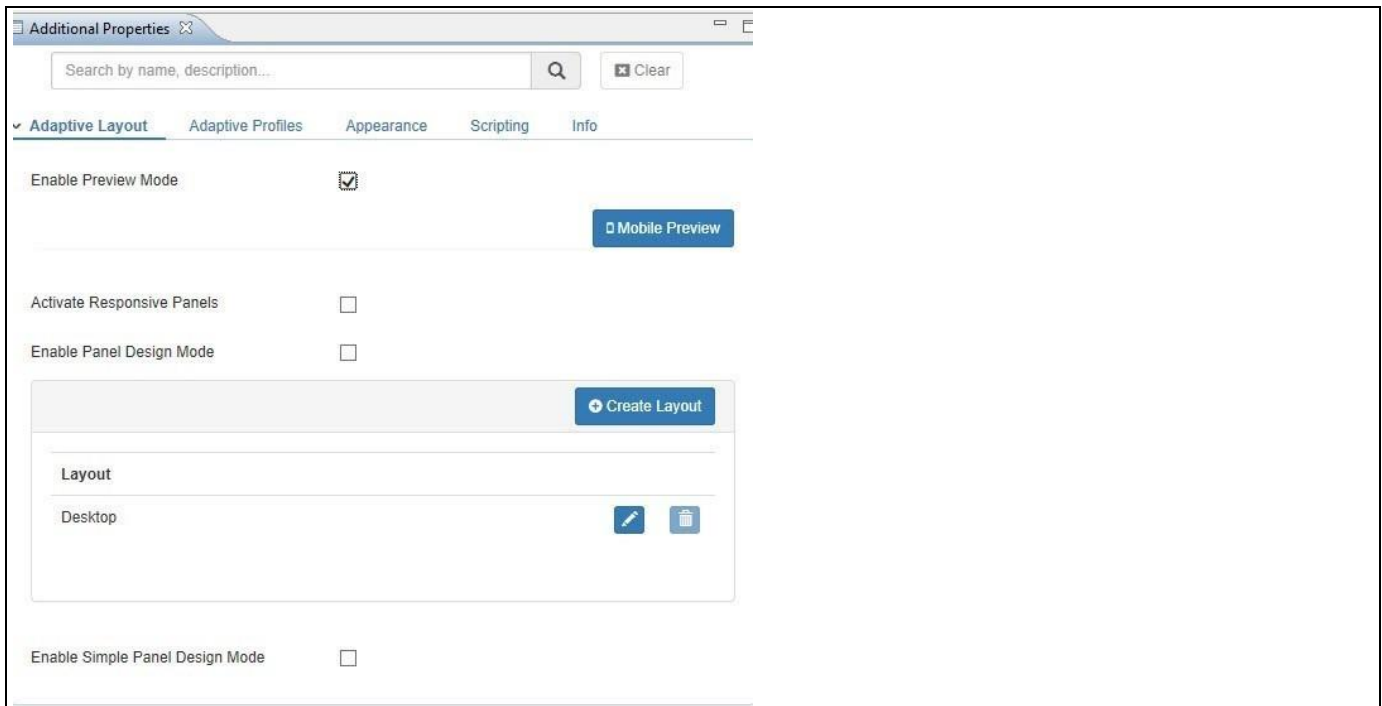


Figure 6.211: Mobile Preview

After enabling the option in the Additional Properties, you can click on Mobile Preview and is presented with the live mobile design option (see Figure 6.212).

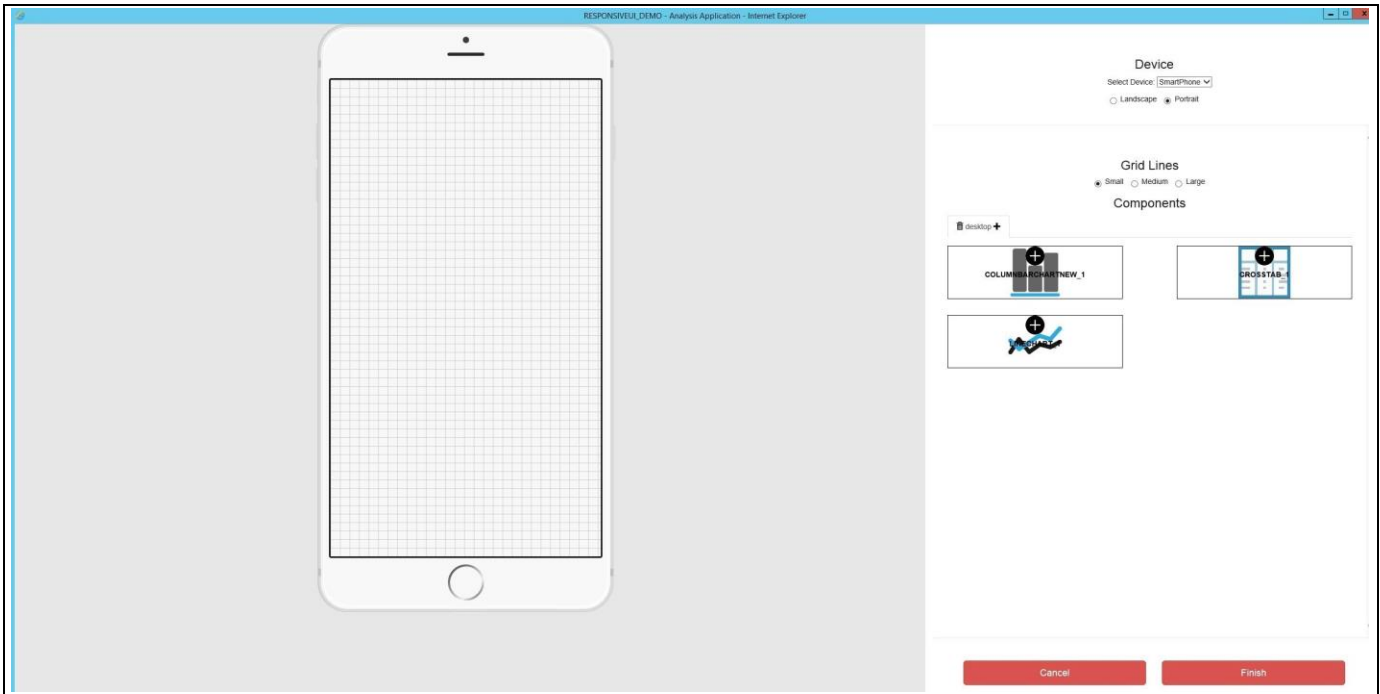


Figure 6.212: Live Mobile Design

Here you are presented with the different Layouts – in our example we have one Layout called desktop – and all the available components. You can now select between different devices and different screen orientation and simply add the components from the dashboard to the device area on the left hand side (see Figure 6.213).



Figure 6.213: Mobile Design

Each of the components placed as part of the mobile design can also be moved and resized on the mobile device screen. After placing all components, you can click Finish and the design will then be automatically created as part of the Responsive UI component.

6.18.5 Panel Design Mode

The option Enable Panel Design Mode as part of the Additional Properties can be enabled, so that you have the ability inside each of the panels of the overall layout to leverage all margin settings from each component in relative position to each of the panels (see Figure 6.214).

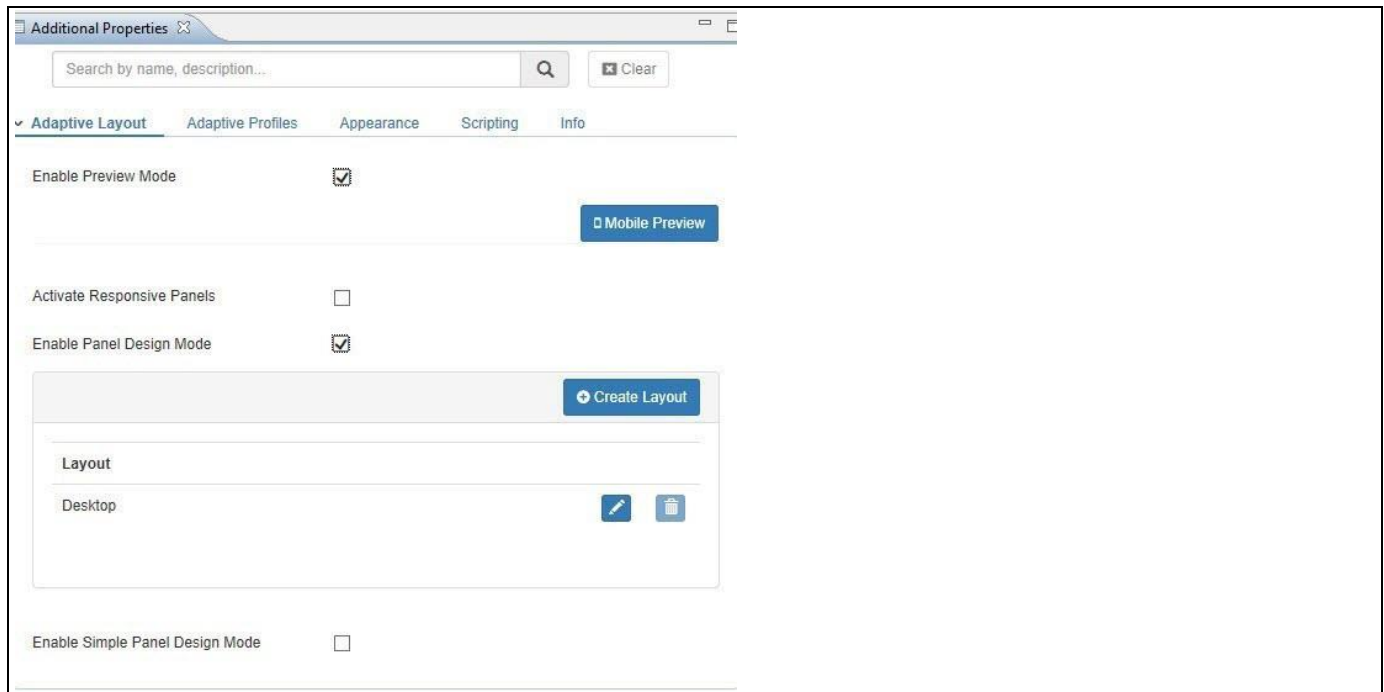


Figure 6.214: Panel Design Mode

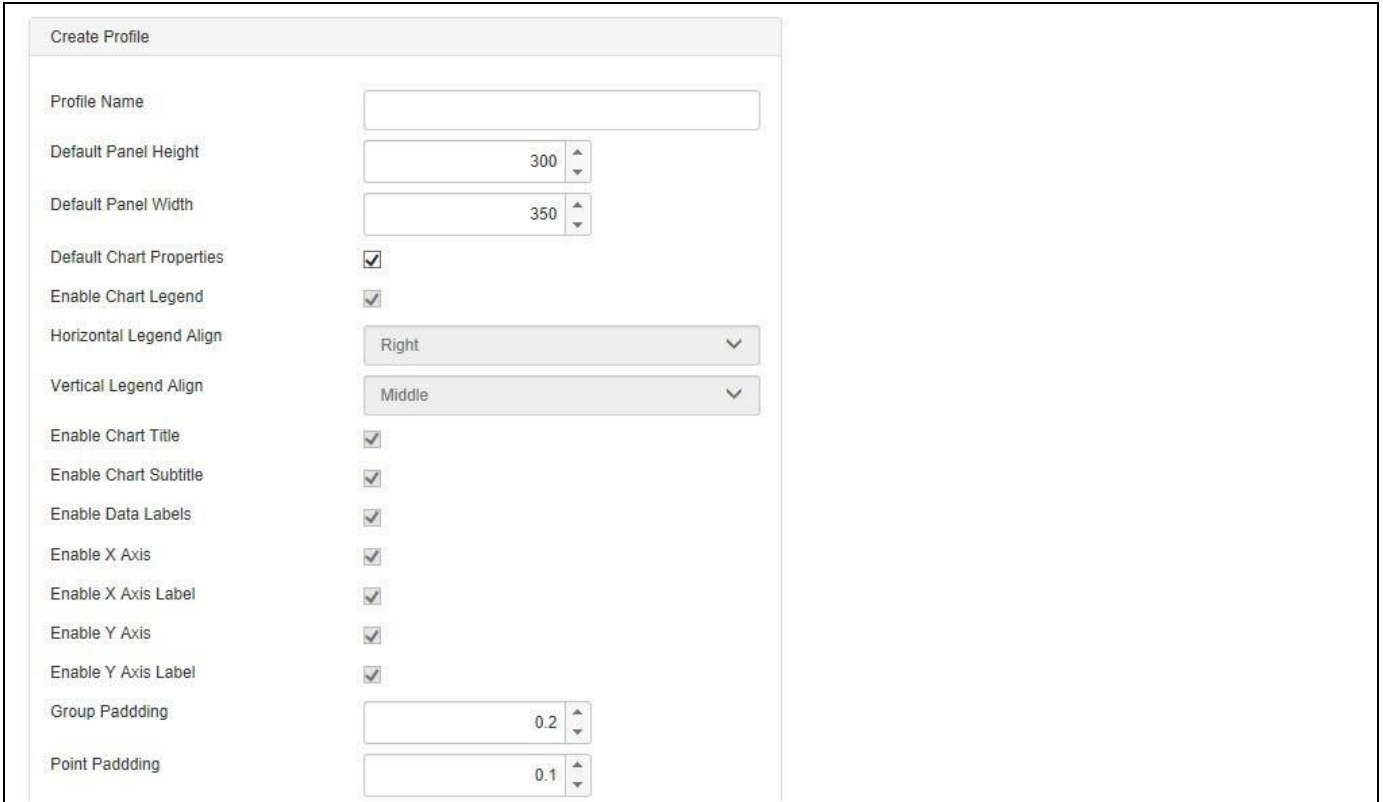
6.18.6 Responsive Panels

Starting with release 1.68, the Responsive UI component also provides the ability to enable Responsive Panels (see Figure 6.214). In case you activate the option Responsive Panels, then all panels as part of the Responsive UI layouts, will react in a responsive way and flow as part of the overall layout and not stay static in their initial positions.

6.18.7 Chart Properties per Layout

Starting with release 1.68, you has now the ability to overwrite Chart properties as part of the Layout configuration of the Responsive UI. Per layout, you can configure, if all charts should use the already configured options for the properties, or if you would like to overwrite the behavior and set different options, so that the charts will behave slightly different for a specific layout (see Figure 6.215).

For example, you could configure the legend of the charts to be displayed below the charts when viewed on a smartphone, instead of being placed on the right hand side when being viewed on a laptop.



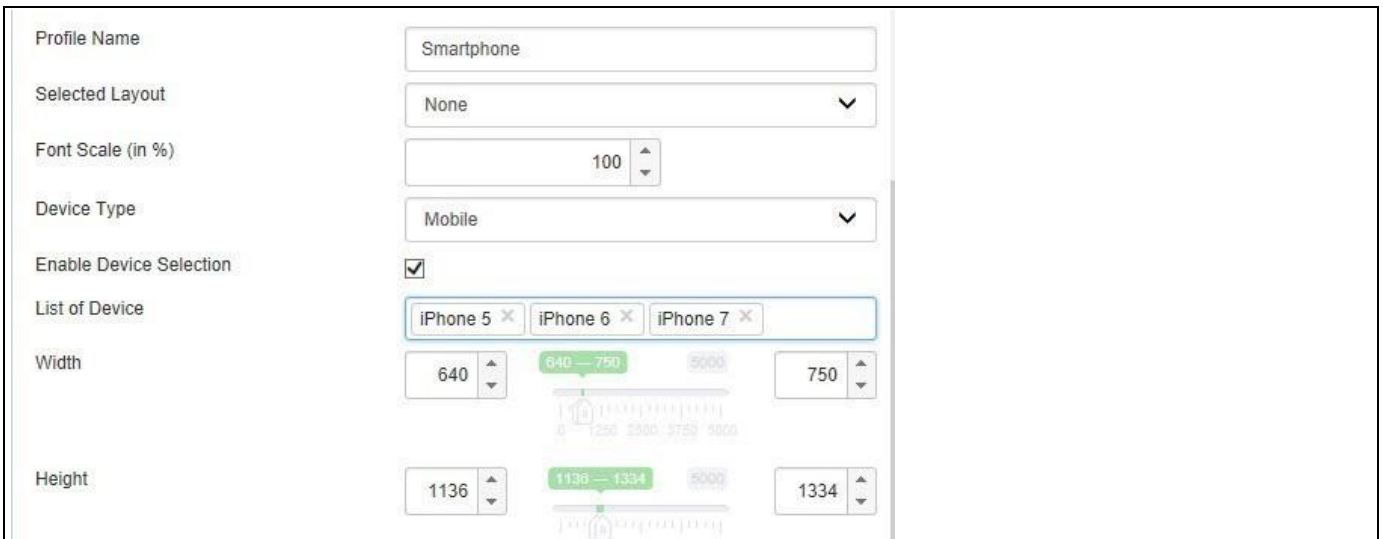
The 'Create Profile' dialog box contains the following settings:

- Profile Name: [Empty text field]
- Default Panel Height: 300
- Default Panel Width: 350
- Default Chart Properties: ☒
- Enable Chart Legend: ☒
- Horizontal Legend Align: Right
- Vertical Legend Align: Middle
- Enable Chart Title: ☒
- Enable Chart Subtitle: ☒
- Enable Data Labels: ☒
- Enable X Axis: ☒
- Enable X Axis Label: ☒
- Enable Y Axis: ☒
- Enable Y Axis Label: ☒
- Group Padding: 0.2
- Point Padding: 0.1

Figure 6.215: Chart Properties

6.18.8 Profile Mapping

Starting with release VBX 1.68, you also have now the ability to leverage a list of mobile devices as a template for configuring the Responsive UI profiles (see Figure 6.216).



The 'Profile Mapping' dialog box contains the following settings:

- Profile Name: Smartphone
- Selected Layout: None
- Font Scale (in %): 100
- Device Type: Mobile
- Enable Device Selection: ☒
- List of Device: iPhone 5 × iPhone 6 × iPhone 7 ×
- Width: 640 (range 640 — 750) to 5000
- Height: 1136 (range 1136 — 1334) to 5000

Figure 6.216: Profile Mapping

You have the option to Enable Device Selection and then configure a list of devices. The selected devices will then be used to calculate the Width and Height ranges for the profile.

6.18.9 How to use the Responsive UI – Scenario 1

In the following steps we will outline how you can use the Responsive UI. In this scenario we are going to setup a Responsive UI Container with a set of KPI Tiles and ensure that our dashboard will adapt to the screen resolution as well as the screen orientation. For this example we will just use static information for the KPI Tiles as the purpose of the following steps is to outline the main steps for the Responsive UI.

You can follow the steps below to add the setup your first Responsive UI Container:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a total of four KPI Tiles from the VBX Utilities area.
3. Now add a Responsive UI Container from the VBX Utilities area (see Figure 6.217).

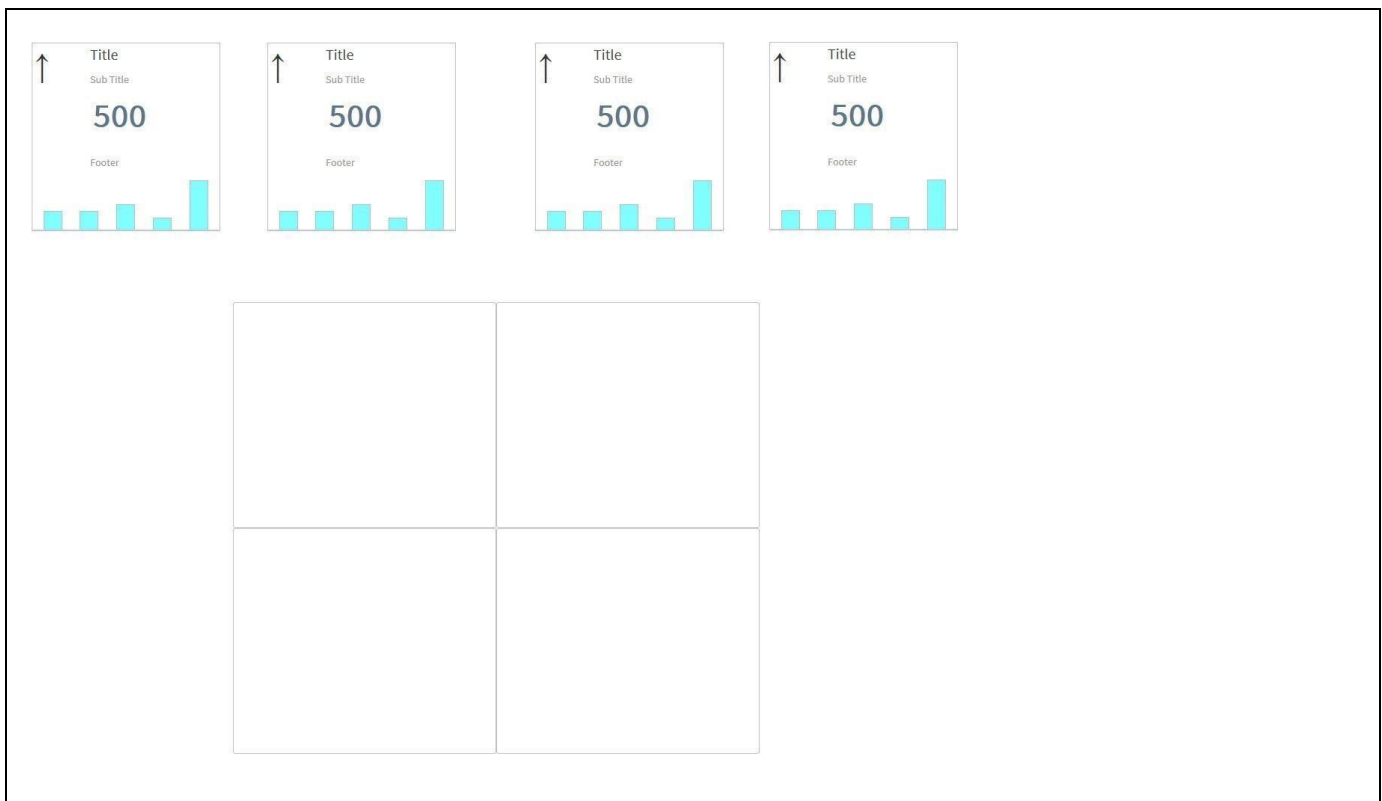


Figure 6.217: Responsive UI Container

4. By default the Responsive UI Container will come with a set of 4 child container.
5. Navigate to the Additional Properties of the Responsive UI Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category Adaptive Layout (see Figure 6.218).

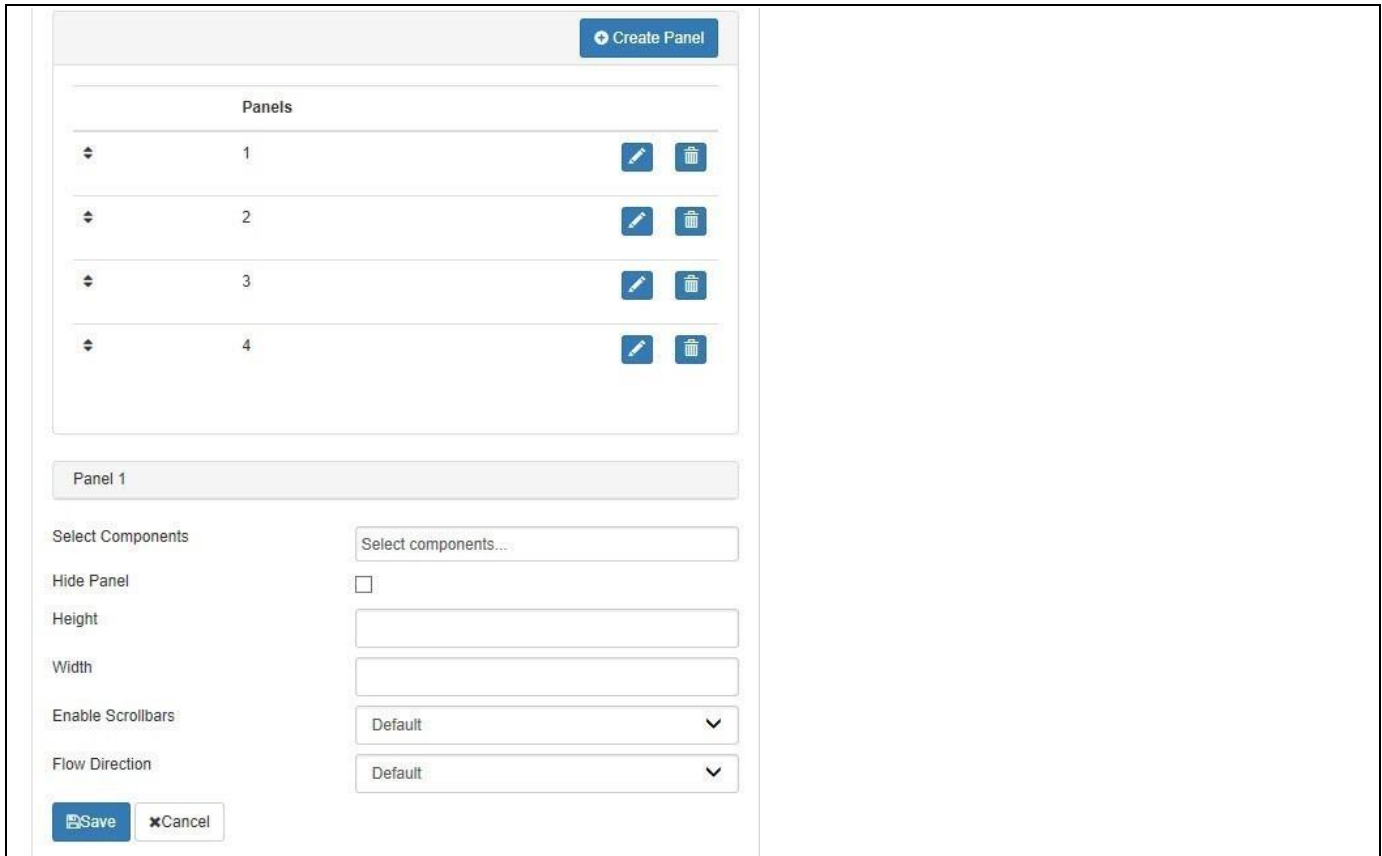


Figure 6.218: Category Adaptive Layout

7. In the category Adaptive Layout you can configure a set of different layouts and per layout you can setup a number of child containers as well as which components are assigned to which child containers.
8. For our first example remove all panels with the exception of Panel 1 by using the Delete button. Your Layout Design properties should look similar to Figure 6.219.

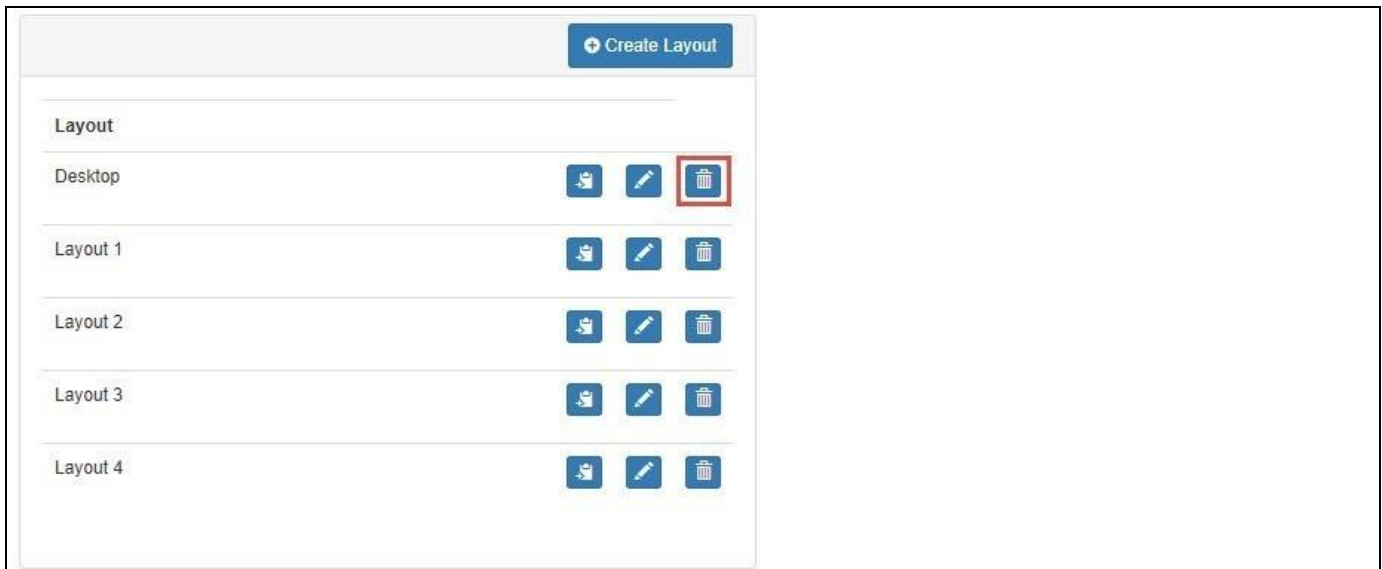


Figure 6.219: Layout Design

9. Now enter the value 100% for the property Height and for the property Width for Panel 1. By using the value 100% you are configuring Panel 1 to use 100% on Height and Width of the overall Responsive UI Container.

10. Now click on the option Select components here to open the list of available components (see Figure 6.220).



Figure 6.220: Layout Design

11. Add all four KPI Tiles from our example to Panel 1. Your Layout Design should look similar to Figure 6.221.

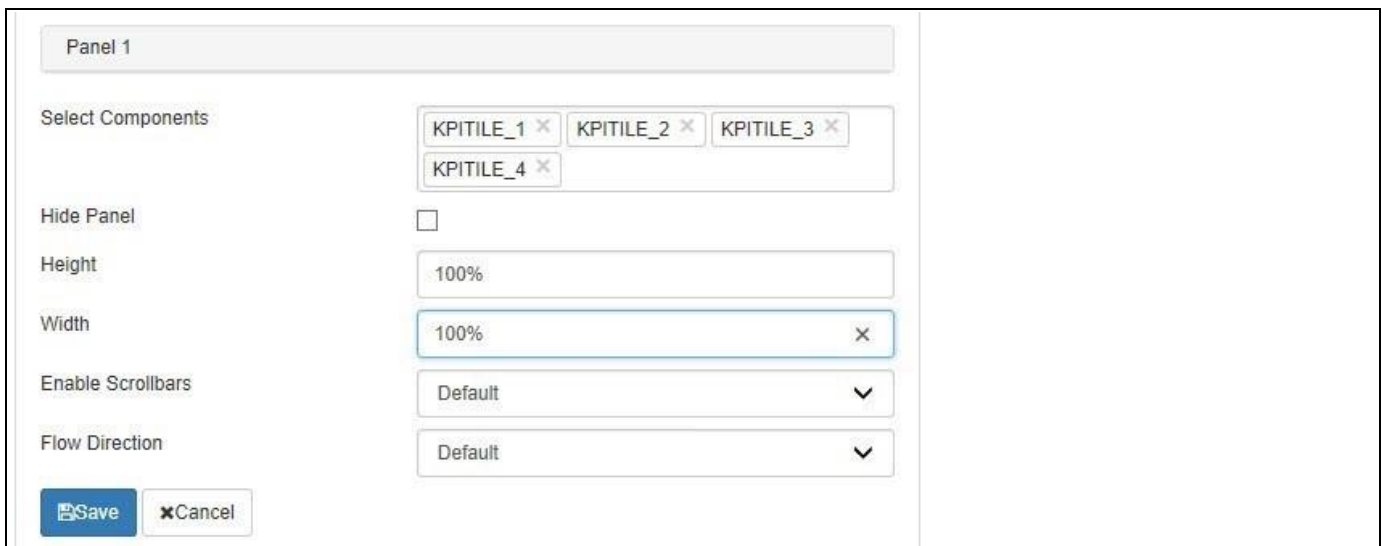


Figure 6.221: Layout Design

12. Navigate to the property Adaptive Profiles and edit the Desktop profile.

13. Now select the layout for the property Selected Layout, under which panels the KPI tiles were added.

In this example you create a simple dashboard containing of four KPI Tiles with a single Responsive UI Container and you assigned all four KPI Tiles to a single child container inside the Responsive UI Container. In this scenario all four KPI Tiles will react in a responsive manner towards each other and will adjust based on the screen size and screen orientation.

14. Select the menu Application • Execute Locally.

15. Your initial screen – depending on screen size – should look similar to Figure 6.222.

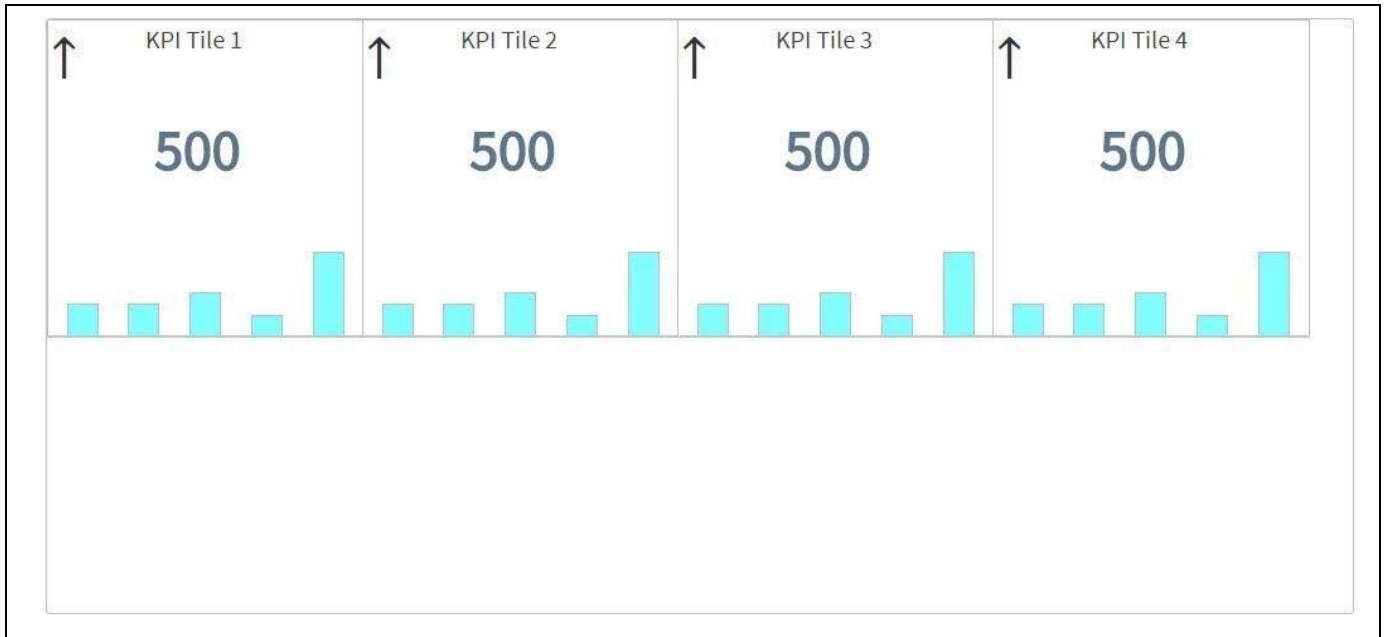


Figure 6.222: Responsive Dashboard

16. When now resizing the browser window, the KPI Tiles will adopt and your screen should look similar to Figure 6.223.

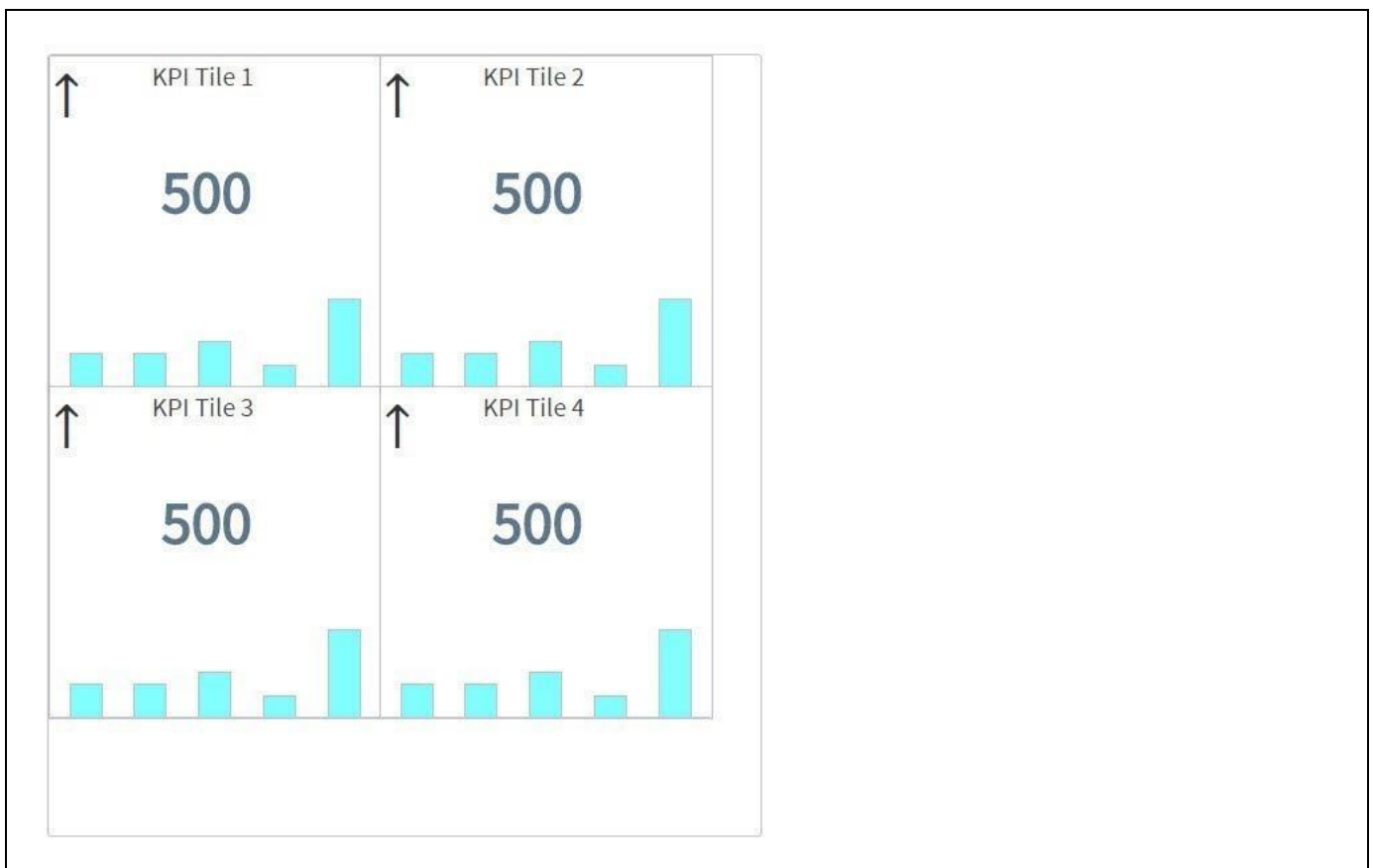


Figure 6.223: Responsive Dashboard

17. And with even further resizing the browser window, the KPI Tiles will adjust even more (see Figure 6.224).



Figure 6.224: Responsive Dashboard

18. Depending on your configuration, the container will also provide scrollbars.

In this short example we placed four KPI Tiles into a single child container of a Responsive UI Container. In our example, all four KPI Tiles will react in a responsive way towards each other.

6.18.10 How to use the Responsive UI – Scenario 2

In our second example we will use also the four KPI Tiles, but this time we will use a Responsive UI with multiple child containers so that you can see the difference in behavior.

You can follow the steps below to setup the Responsive UI Container:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a total of four KPI Tiles from the VBX Utilities area.
3. Now add a Responsive UI Container from the VBX Utilities area.
4. By default the Responsive UI Container will come with a set of 4 child container.
5. Navigate to the Additional Properties of the Responsive UI Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category Adaptive Layout.
7. For our example remove all panels with the exception of Panel 1 and Panel 2 by using the Delete button. Your Layout Design properties should look similar to Figure 6.235.



Figure 6.225: Layout Design

8. Now enter the value 50% for the property Height and 100% for the property Width for Panel 1 and for Panel 2. By using these values you are splitting the overall size of the Responsive UI in a horizontal way equally between Panel 1 and Panel 2.
9. Now click on the option Select components here to open the list of available components.
10. Add KPI Tile 1 and KPI Tile 2 to Panel 1.
11. Add KPI Tile 3 and KPI Tile 4 to Panel 2.
12. Your Layout Design should look similar to Figure 6.226.

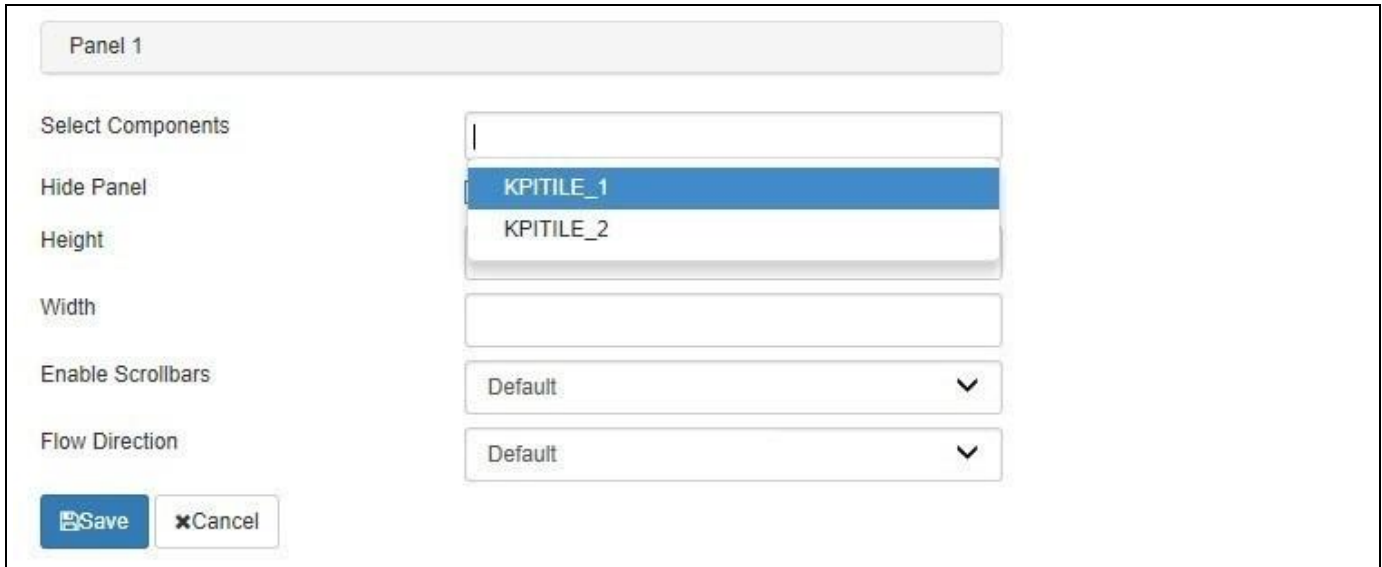


Figure 6.226: Layout Design

13. Navigate to the property Adaptive Profiles and edit the Desktop profile.
14. Now select the layout for the property Selected Layout, under which panels the KPI tiles were added.

In this example you create a simple dashboard containing of four KPI Tiles with Responsive UI Container that contains two child container, which split the Responsive UI Container horizontally.

We assigned KPI Tile 1 and KPI Tile 2 to the upper child container and we assigned KPI Tile 3 and KPI Tile 4 to the lower child container. In this scenario KPI Tile 1 and KPI Tile 2 will react responsive and KPI Tile 3 and KPI Tile 4 will react responsive, but the child container will not react responsive towards each other.

15. Select the menu Application • Execute Locally.
16. Your initial screen – depending on screen size – should look similar to Figure 6.227.



Figure 6.227: Responsive Dashboard

17. When now resizing the browser window, the KPI Tiles 1 & 2 as well as 3 &4 will adopt as part of the child container and your screen should look similar to Figure 6.228.

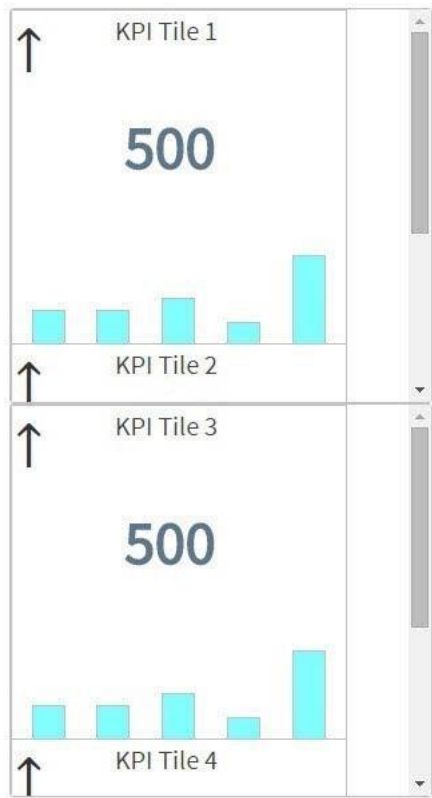


Figure 6.228: Responsive Dashboard with Child Container

As you can see the assigned tiles in each child container will adjust based on the screen size and screen orientation, but the child container itself will not adjust towards each other. In our example KPI Tile 1 & 2 will adjust and based on the more narrow screen size will be shown below each other and in the lower part of the screen the same behavior will be shown for KPI Tile 3 & 4.

6.18.11 How to use Profiles as part of the Responsive UI

As part of the Responsive UI Container it is possible to setup different profiles and assign these profiles to different screen resolutions. In that way you can define a different layout for different devices. This option is in addition to the standard behavior of the Responsive UI when it comes to adopting based on screen size and screen orientation and provides you with additional flexibility.

In our example we will setup a layout for a desktop based screen resolution and a different layout for a mobile based screen resolution. We will assume that we have a dashboard that consists of a total of four buttons as well as two charts. For the following steps we will simply use the components without data source assignment and outline the steps on how you would setup the different profiles and assign the profiles to different screen resolutions.

Our dashboard contains the following components:

- BUTTON_1
- BUTTON_2
- BUTTON_3
- BUTTON_4
- CHART_1
- CHART_2

For our example we will setup two different profiles, one profile that will be used on a mobile device and one profile that will be used for the desktops / browser based access. Figure 6.229 and Figure 6.230 show the two profiles we will setup in the next couple of steps.

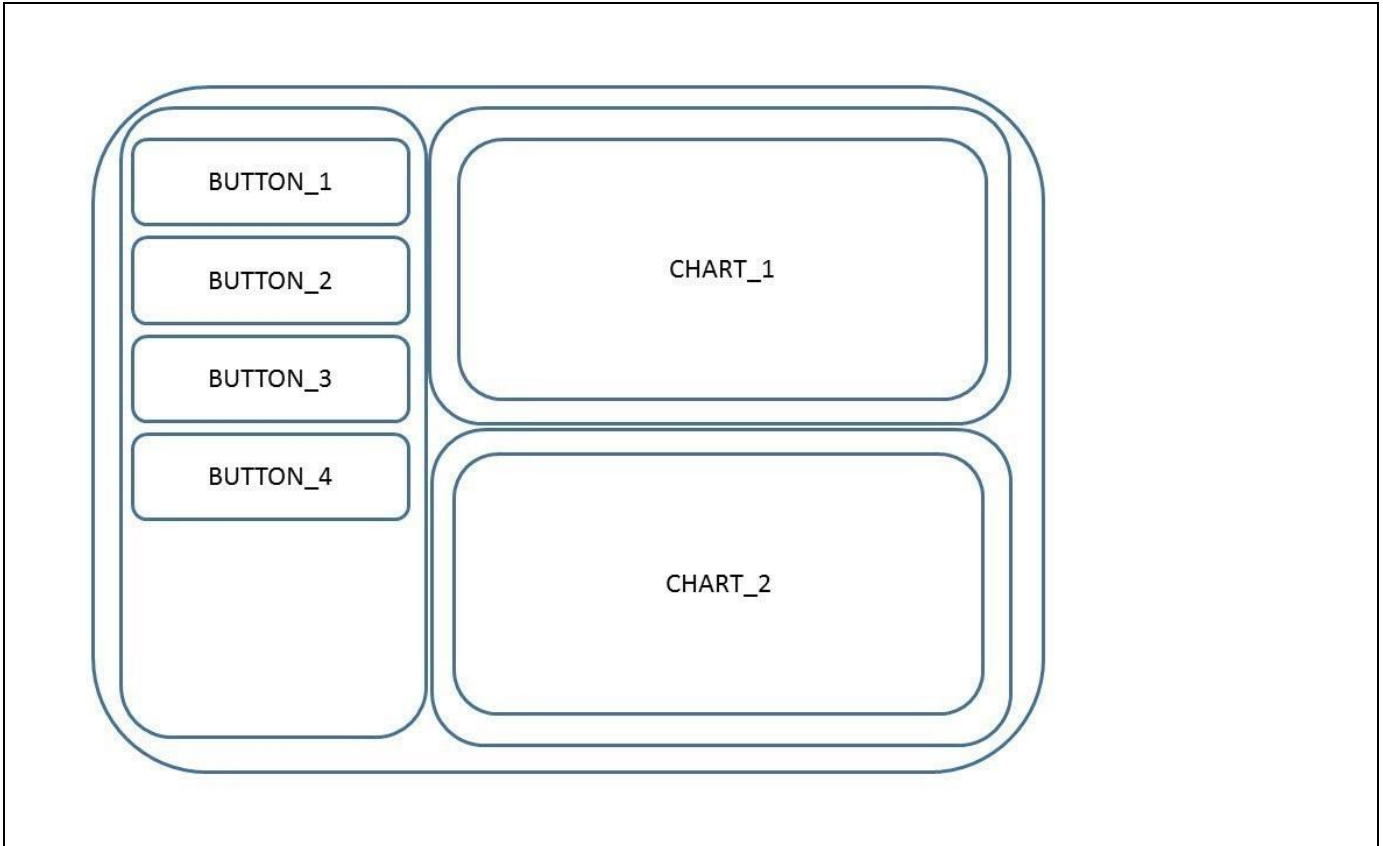


Figure 6.229: Desktop Profile

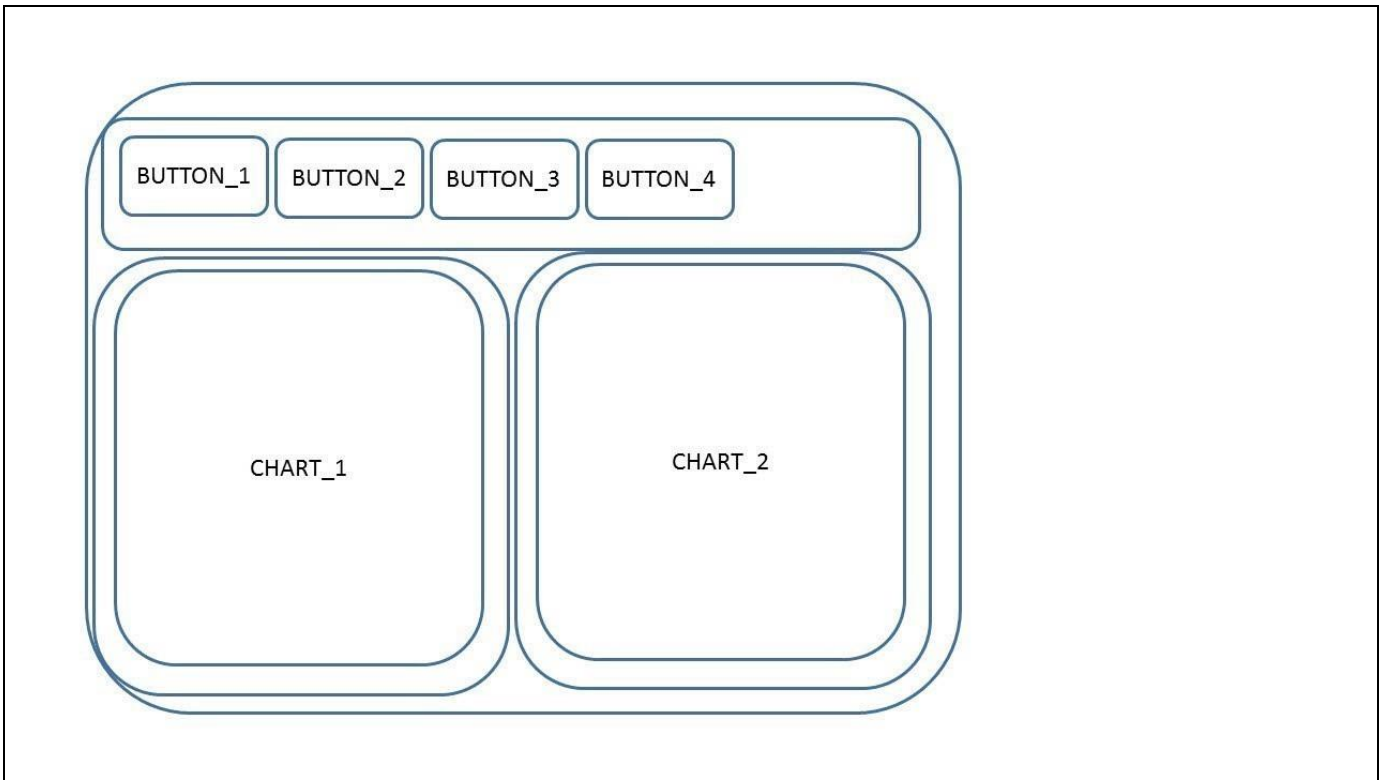


Figure 6.230: Mobile Profile

For the following steps we assume that you have a SAP BusinessObjects Design Studio/SAP Lumira Designer project which contains the four buttons and the two charts already.

You can follow the steps below to setup the Responsive UI Container:

1. Add a Responsive UI Container to your project.
2. Navigate to the Additional Properties of the Responsive UI Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
3. Navigate to the category Adaptive Layout.
4. For our example we need a total of three panels. Remove all panels with the exception of Panel 1, Panel 2, and Panel 3.
5. The Layout Design should look similar to Figure 6.231.

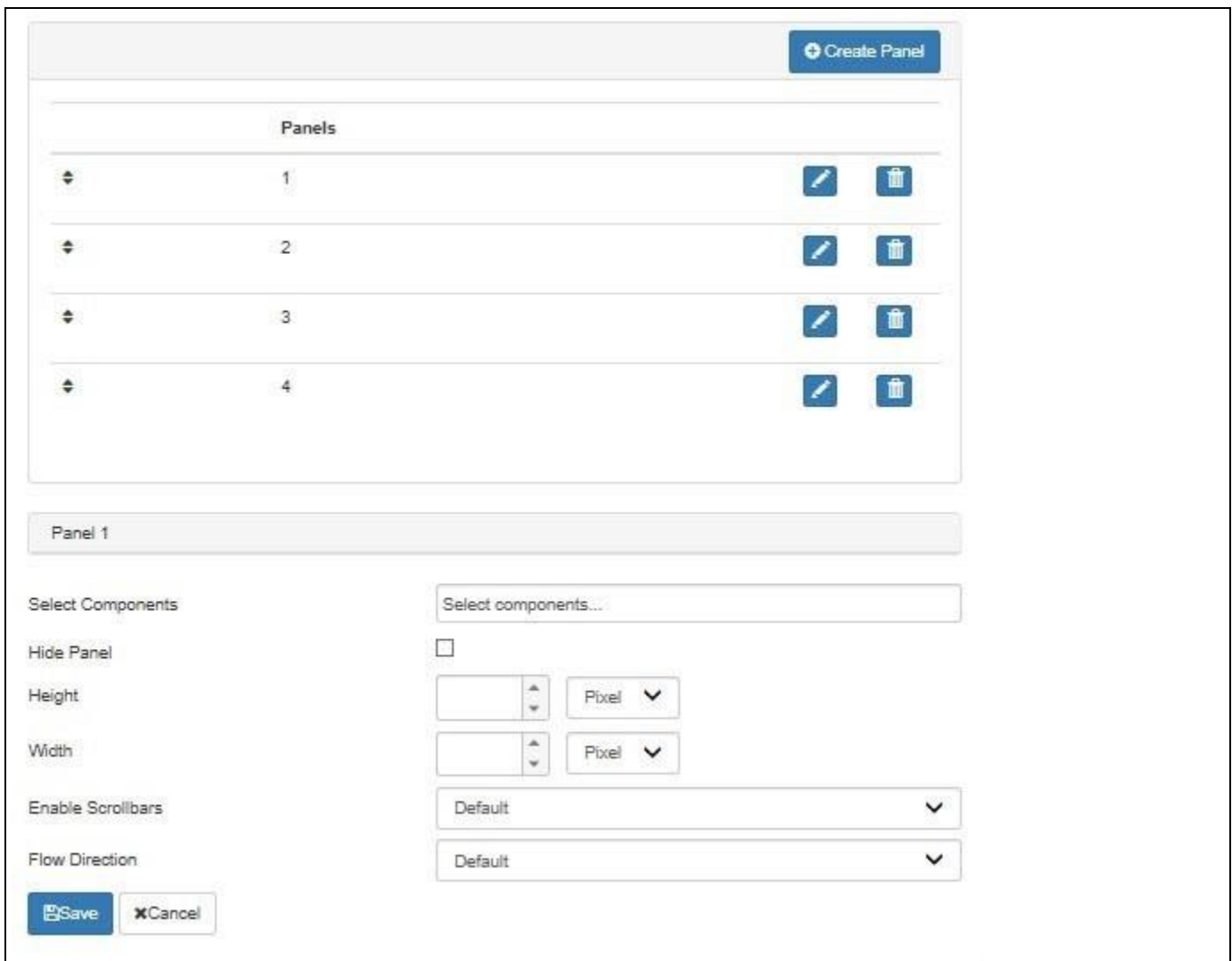


Figure 6.231: Layout Design

6. Ensure that the Layout Desktop is selected.
7. Set the following values for Panel 1:
 - Height 100%
 - Width 25%
8. Set the following values for Panel 2:

- Height 50%
- Width 75%

9. Set the following values for Panel 3:

- Height 50%
- Width 75%

10. Now click on the option Select components here for Panel 1 to open the list of available components.

11. Add all four buttons to Panel 1.

12. Now click on the option Select components here for Panel 2 to open the list of available components.

13. Add the first chart to Panel 2.

14. Now click on the option Select components here for Panel 3 to open the list of available components.

15. Add the second chart to Panel 3.

16. Your Responsive UI Container should look similar to Figure 6.232.

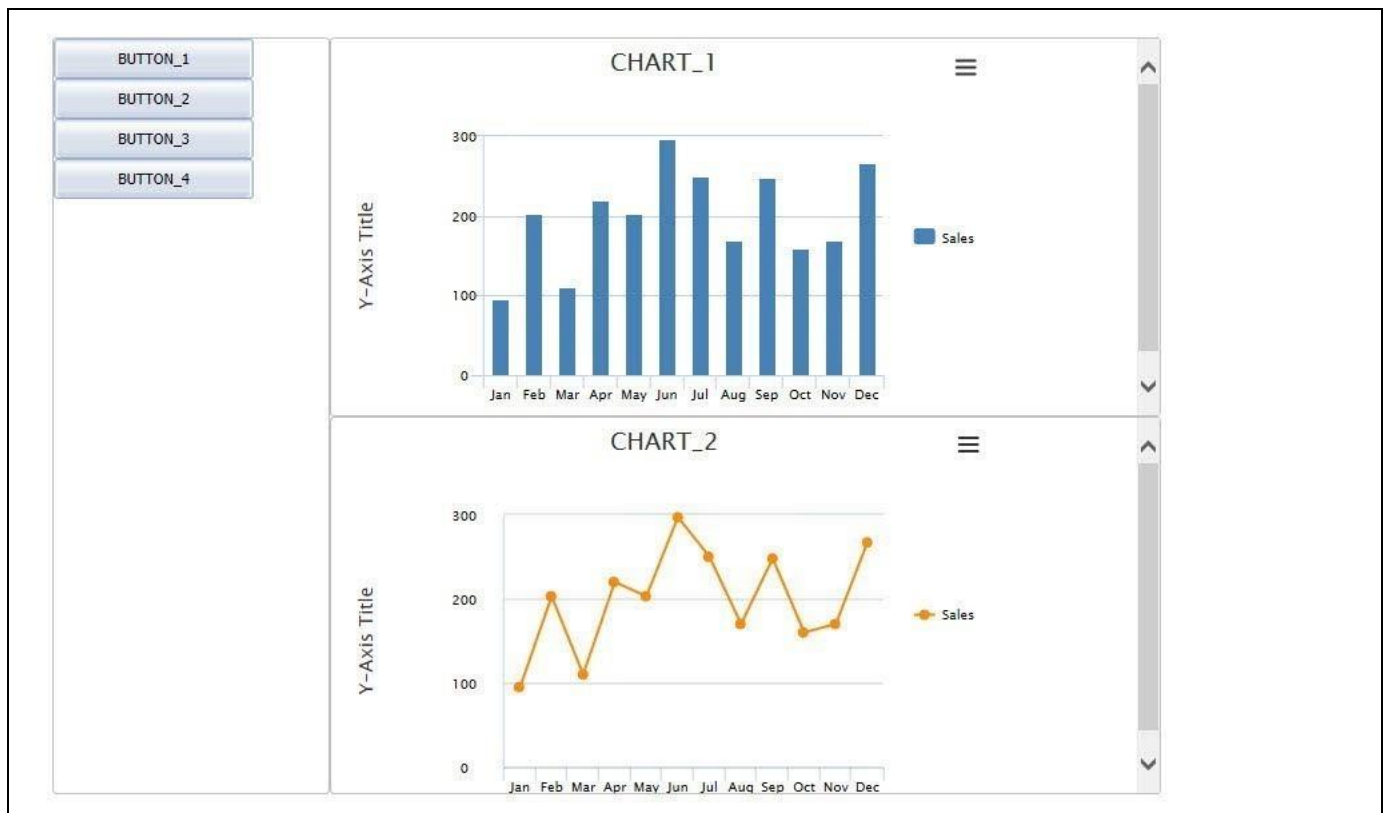


Figure 6.232: Responsive UI Container

17. In the category Adaptive Layout click now on the “+” sign next to the layout name Desktop.

18. Enter Mobile Layout as the name for the newly created layout.

19. Set the following values for Panel 1:

- Height 10%
- Width 100%

20. Set the following values for Panel 2:

- Height 90%

- Width 50%

21. Set the following values for Panel 3:

- Height 90%
- Width 50%

22. Now click on the option Add component here for Panel 1 to open the list of available components.

23. Add all four buttons to Panel 1.

24. Now click on the option Add component here for Panel 2 to open the list of available components.

25. Add the first chart to Panel 2.

26. Now click on the option Add component here for Panel 3 to open the list of available components.

27. Add the second chart to Panel 3.

28. Your Responsive UI Container should look similar to Figure 6.233.

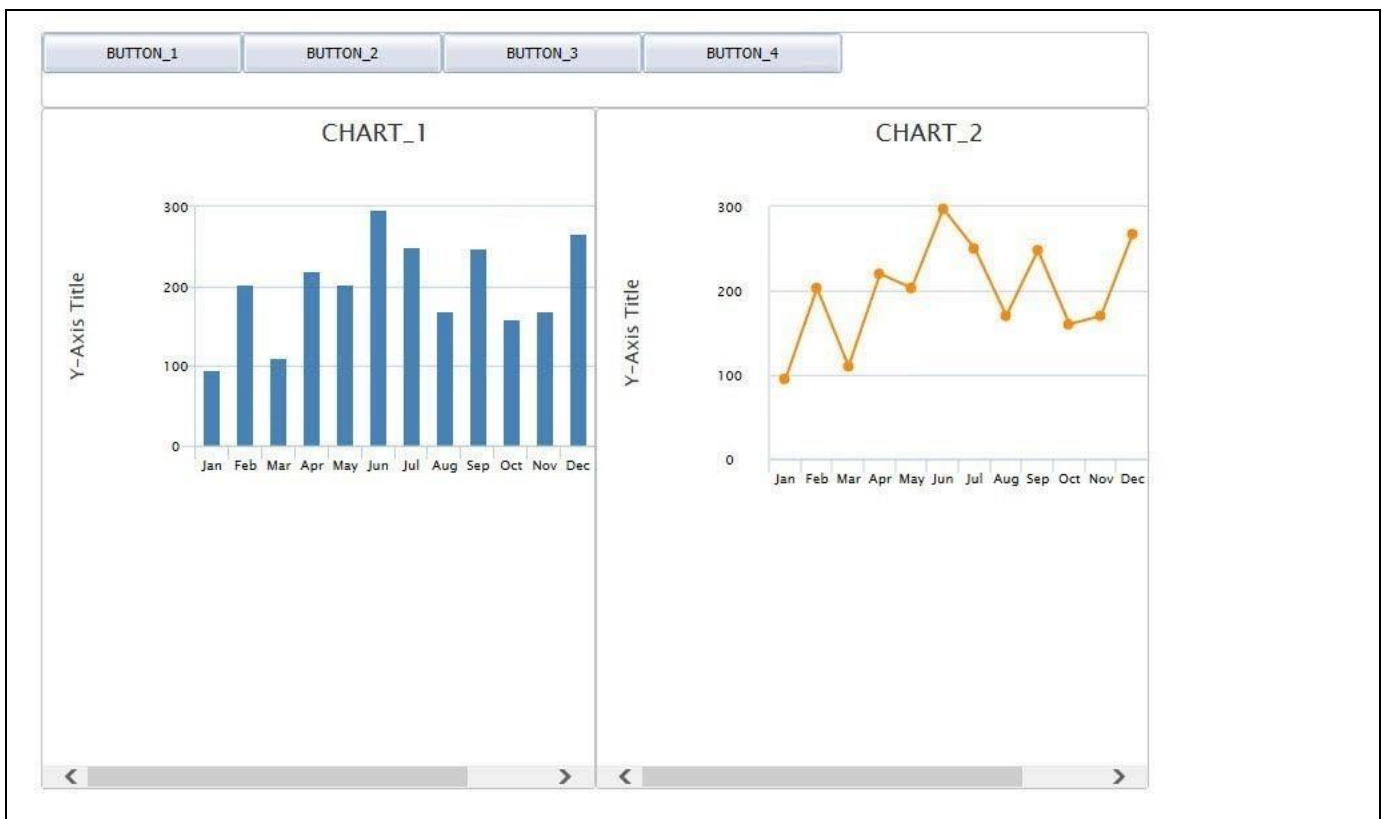


Figure 6.233: Responsive UI Container

29. Navigate to the category Adaptive Profile in the Additional Properties (see Figure 6.234).

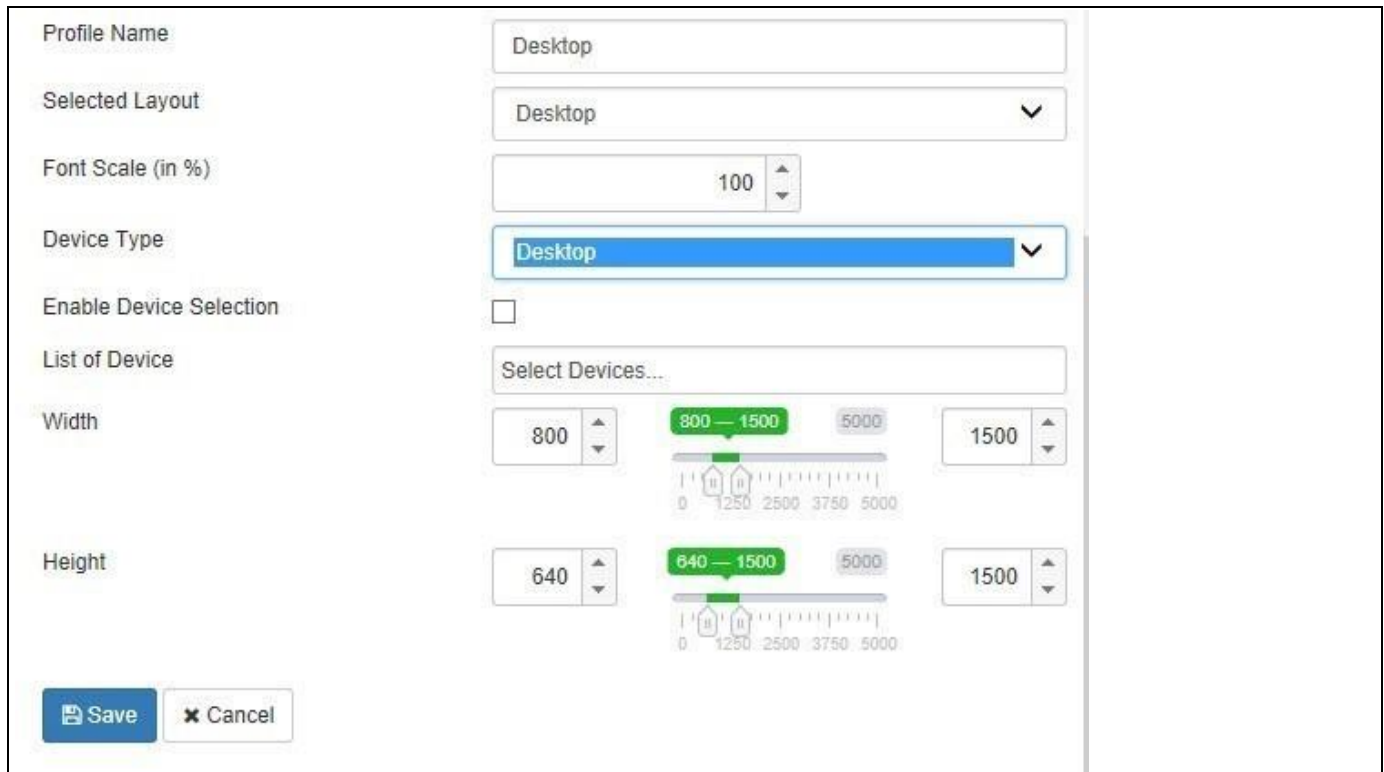


Figure 6.234: Profile Mapping

30. In the Profile Mapping you can now assign the previously created Layouts to ranges of screen resolutions as well as Desktop or Mobile devices.
31. The Profile Mapping comes with three default rules defined and you can assign your layouts to it.
32. For our example use the third Rule with the Name Desktop and make sure the values are set as shown below:

Property	Value
Profile Name	Desktop
Selected Layout	Desktop
Font Scale (in %)	100
Device Type	Desktop
Height	800 to 1500
Width	640 to 1500

Table 6.64: Profile Mapping – Rule 1

33. For our second rule use the existing rule with the Name Tablet and ensure the values are set as shown below:

Property	Value
Profile Name	Tablet
Selected Layout	Mobile Layout
Font Scale (in %)	100
Device Type	Mobile
Height	1200 to 1600
Width	1900 to 2200

Table 6.65: Profile Mapping – Rule 2

34. Remove the third rule with the Name Smartphone.
35. We did now setup two rules assigning our previously configured Profiles to specific resolution ranges as well as the fact that we assigned specific profiles either to a Desktop or Mobile based access.
36. Configure the Default Profile with the Desktop Profile.
37. Save all your changes in the dashboard.
38. Select the menu Application • Execute Locally.
39. You should now see the dashboard being displayed with the Desktop profile and when accessing it using a mobile device, the Mobile Profile should be used.

Profiles and Matching Devices

Each Rule shown in the category Adaptive Profile of the Additional Properties is also shown a light bulb icon in the top right corner (see Figure 6.234) and you can click on the icon to see a list of matching devices for the rule that you configured.

Profiles

When the screen is resized, the Profile will not get changed in the Responsive UI.

6.18.12 Additional Properties for the Responsive UI Component

In the following section you will find a list of available properties and a Table with a more detailed description of each of the categories in the Additional Properties and the list of corresponding properties.

6.18.12.1 Category Adaptive Layout

Property	Description
Enable Preview Mode	Here you can enable / disable the property Preview Mode.
Enable Multi Screen	Here you can enable / disable the property Multi Screen.
Server URL	Here you can enter the URL for the Multi Screen feature.
Activate Responsive Panels	Here you can enable / disable to make the panels responsive.
Enable Panel Design Mode	Here you can enable / disable to make the positioning inside the panel.
Enable Simple Panel Design Mode	Here you can enable / disable the Simple Panel Design Mode.
Layout Name	Sets the name of the Layout.
Default Panel Height	Sets the default height for the panel in pixels.
Default Panel Width	Sets the default width for the panel in pixels.
Default Chart/KPI Properties	Here you can enable / disable the option Default Chart/KPI Properties.
Enable Chart Legend	Here you can enable / disable the option Enable Chart Legend.
Horizontal Legend Align	Sets the horizontal alignment for the legend.
Vertical Legend Align	Sets the vertical alignment for the legend.
Enable Chart Title	Here you can enable / disable the option Enable Chart Title.
Enable Chart Subtitle	Here you can enable / disable the option Enable Chart Subtitle.
Enable Data Labels	Here you can enable / disable the option Enable Data Labels.
Enable X Axis	Here you can enable / disable the option Enable X Axis.
Enable X Axis Label	Here you can enable / disable the option Enable X Axis Label.
Enable Y Axis	Here you can enable / disable the option Enable Y Axis.
Enable Y Axis Label	Here you can enable / disable the option Enable Y Axis Label.
Group Padding	Sets the Group Padding for the Layout.
Point Padding	Sets the Point Padding for the Layout.
CSS Class Name	Sets the CSS Class Name
Enable KPI Tile Header Container	Here you can enable / disable the option KPI Tile Header Container.
Enable KPI Tile Footer Container	Here you can enable / disable the option KPI Tile Footer Container.
Enable KPI Tile KPI Container	Here you can enable / disable the option KPI Tile KPI Container.
Enable KPI Tile Icon Container	Here you can enable / disable the option KPI Tile Icon Container.
Enable KPI Tile Sparkline Container	Here you can enable / disable the option KPI Tile Sparkline Container.
Enable KPI Tile Subtitle in Header Container	Here you can enable / disable the option KPI Tile Subtitle in Header Container.

Property	Description
Enable KPI Tile Subfooter in Footer Container	Here you can enable / disable the option KPI Tile Subfooter in Footer Container.

Table 6.66: Category Adaptive Layout

6.18.12.2 Category Adaptive Profiles

Property	Description
Default Layout	Sets the default Layout for the Profile.
Profile Name	Sets the name of the Profile.
Selected Layout	Sets Selected layout for the Profile.
Font Scale (in %)	Sets the Font Scale for the Profile.
Device Type	Sets the Device Type for the Profile. The options are All, Mobile and Desktop.
Enable Device Selection	Here you can enable / disable the option Enable Device Selection.
List of Device	Here you can select the Device from the predefined Device list.
Width	Sets the width of the profile.
Height	Sets the height of the profile.

Table 6.67: Adaptive Profiles

6.18.12.3 Category Appearance

Below you can see the Additional Properties for the category Appearance and their descriptions.

Sub category	Property	Description
Adaptive Layout	Activate Scroll Bars	Here you can enable / disable scroll bars.
	Background Color	Sets the Background Color for the base container.
	Border Color	Sets the Border Color for the base container.
	Border Radius	Sets the Border Radius for the base container.
	Border Width	Sets the Border Width for the base container.
	Padding Top	The padding options define the padding between the outer area of the overall container and all child container inside. This property is for the Top area (see Figure 6.235).
	Padding Bottom	The padding options define the padding between the outer area of the overall container and all child container inside. This property is for the Bottom area (see Figure 6.235).
	Padding Left	The padding options define the padding between the outer area of the overall container and all child container inside. This property is for the Left area (see Figure 6.235).
	Padding Right	The padding options define the padding between the outer area of the overall container and all child container inside. This property is for the Right area (see Figure 6.235).
Panels	Activate Scrollbars	This property allows to set the default visibility of the scroll bars for the components inside all panels. The options are

Sub category	Property	Description
		Vertical, Horizontal, Both and None.
	Flow Direction	This property allows to set the default direction for the components inside all panels. The options are Left to Right and Right to Left.
	Align Panels in Center	This property allows to configure the Horizontal Alignment for the individual panels.
	Background Color	Sets the Background Color for the child container.
	Border Color	Sets the Border Color for the child container.
	Border Radius	Sets the Border Radius for the child container.
	Border Width	Sets the Border Width for the child container.
	Margin Top	The Margin options define the Margin between two child panels. This property is for the Top area (see Figure 6.235).
	Margin Bottom	The Margin options define the Margin between two child panels. This property is for the Bottom area (see Figure 6.235).
	Margin Left	The Margin options define the Margin between two child panels. This property is for the Left area (see Figure 6.235).
	Margin Right	The Margin options define the Margin between two child panels. This property is for the Right area (see Figure 6.235).
	Padding Top	The padding options define the padding between the outer area of the child container and all elements inside. This property is for the Top area (see Figure 6.235).
	Padding Bottom	The padding options define the padding between the outer area of the child container and all elements inside. This property is for the Bottom area (see Figure 6.235).
	Padding Left	The padding options define the padding between the outer area of the child container and all elements inside. This property is for the Left area (see Figure 6.235).
	Padding Right	The padding options define the padding between the outer area of the child container and all elements inside. This property is for the Right area (see Figure 6.235).
Components	Margin Top	The Margin options define the Margin between two components inside a child panel. This property is for the Top area (see Figure 6.235).
	Margin Bottom	The Margin options define the Margin between two components inside a child panel. This property is for the Bottom area (see Figure 6.235).
	Margin Left	The Margin options define the Margin between two components inside a child panel. This property is for the Left area (see Figure 6.235).
	Margin Right	The Margin options define the Margin between two components inside a child panel. This property is for the Right area (see Figure 6.235).

Table 6.68: Category Appearance

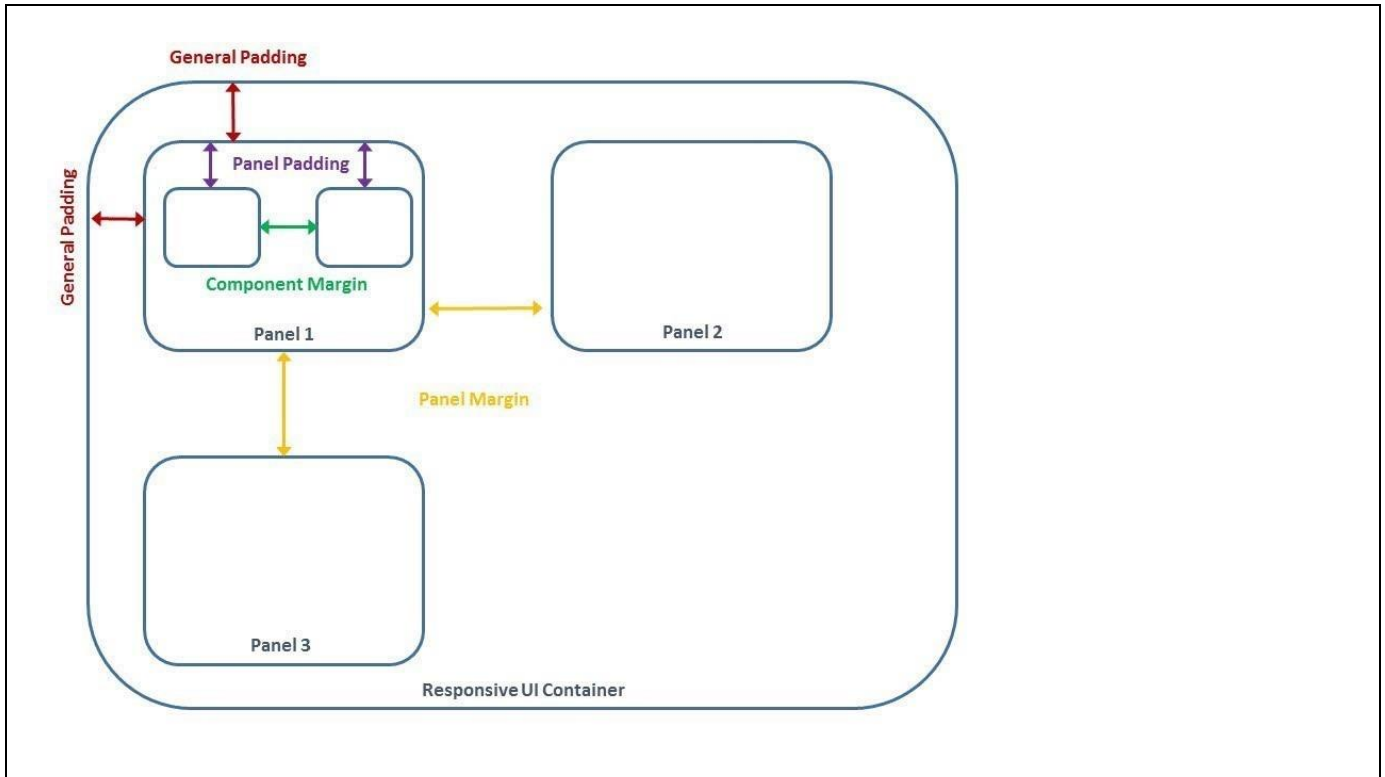


Figure 6.235: Margin and Padding

Figure 6.235 shows the different Margin and Padding options in form of a graphical display.

Context Menu

The full screen of Context Menu cannot be viewed in Responsive UI panel.

6.18.13 Scripting Functions for the Responsive UI Container

The following Table outlines the available scripting functions for the Responsive UI Container Component.

Function / Method	Description
DSXGetIsMobile()	This function allows you to retrieve a Boolean value to evaluate if the device used to view the dashboard is a mobile device.
DSXGetIsPortrait()	This function allows you to evaluate if the dashboard view is in a Portrait format.
DSXGetVisibility()	This function allows you to retrieve the visibility of the component including all its child components.
DSXGetActiveProfile()	This function allows you to retrieve the Active Profile Name.
DSXGetPanelVisibility()	This function allows you to retrieve the visibility of the panel.
DSXSetVisibility()	This function allows you to set the visibility of the component including all its child components.
DSXSetActiveProfile()	This function allows you to set the Active Profile Name.
DSXSetPanelVisibility()	This function allows you to set the visibility of the panel.
DSXSetPanelWidth()	This function allows you to set the width of the panel.
DSXSetPanelHeight()	This function allows you to set the height of the panel.

Table 6.69: Scripting Functions

6.18.14 Events for the Responsive UI

The following Table outlines the available events for the Responsive UI component.

Event	Description
On Resize	This Event will be triggered when a window is resized.
Before Rendering	This Event will be triggered before the component gets rendered.

Table 6.70: Scripting Events

6.19 Advanced KPI Tile

The Advanced KPI Tile allows you to create your own structure for an overall KPI Tile and to choose from a variety of container template to define the content of the KPI Tile.

6.19.1 Advanced KPI Tile – Container Templates

The Advanced KPI Tile is providing you with a set of container templates, which you can use to define the content of the tile structure. The following are the type of container templates available:

- **Header**
The container template Header allows you to use a Title, Subtitle, and an Icon. The container template Header does not include any measure values.
- **Footer**
The container template Footer allows you to use a Footer, Subfooter, and a KPI value.
- **KPI**
The container template KPI allows you to use a KPI value and a Footer text.
- **Sparkline Chart**
The container template Sparkline Chart allows you to choose one sparkline chart type from the list of available charts. Currently the available chart types are: Column, Area, Line, Bar, Spline, Bullet, Win/Loss.
- **Icon**
The container template Icon allows you to visualize a Icon as part of the overall KPI Tile. The Icon could be static or the Icon could have data assigned to it.

6.19.2 New Layout changes for Advanced KPI Tile

In the Additional Properties of the Advanced KPI Tile in the category General and the sub category KPI Tile Layout, you have the option to add containers to the selected container's top, bottom, left and right positions using the options as shown in Figure 6.236.

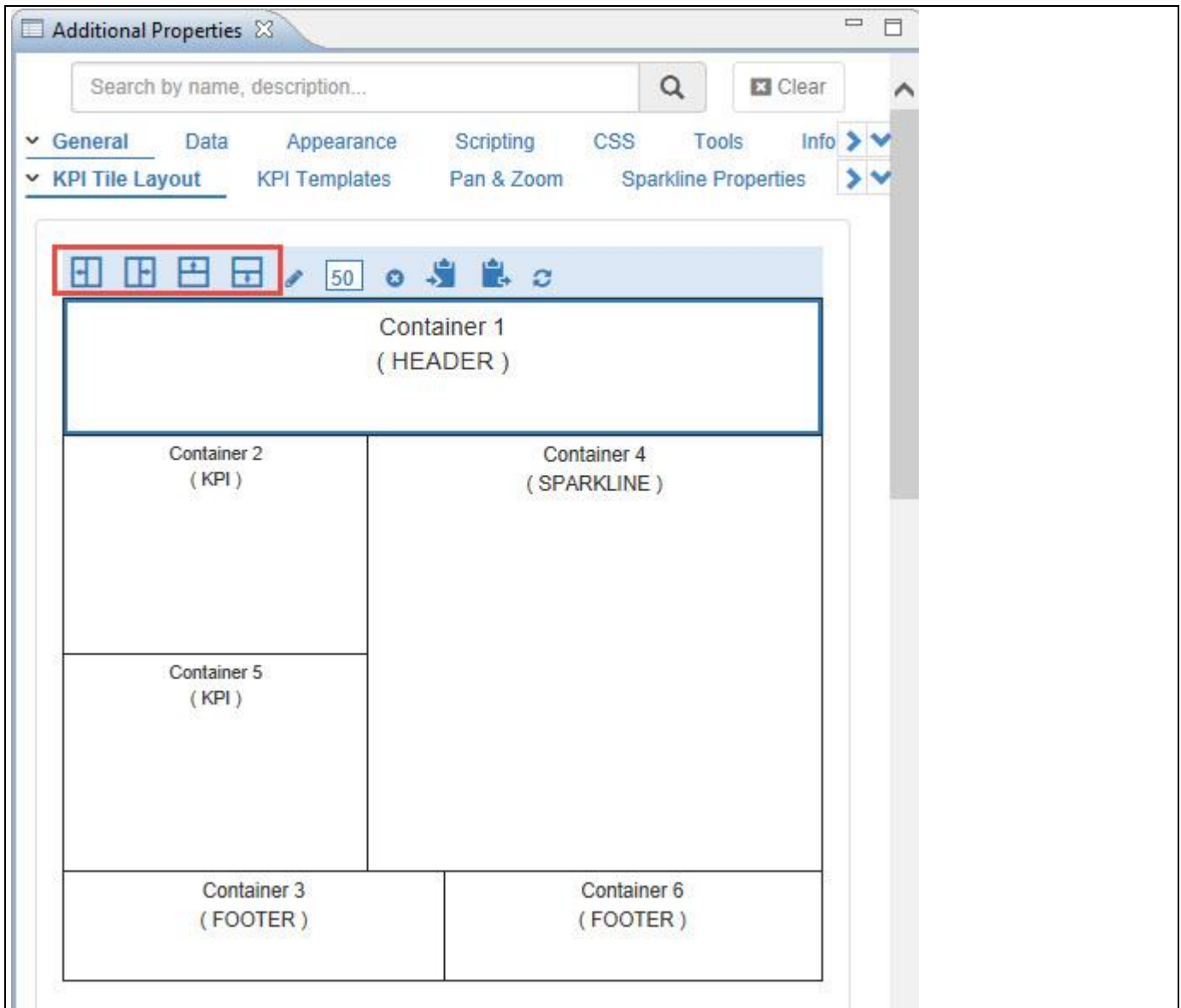


Figure 6.236: Advanced KPI Tile Layout

6.19.3 Status Indicator for Advanced KPI Tile

In the Additional Properties of the Advanced KPI Tile in the category General and the sub category Status Indicator, you have the additional option to display a Status Indicator in the form of small “bar” on the left, right, top or bottom positions of the Advanced KPI Tile.

For our example, you can follow the steps below to configure the settings for the display of status indicator for the Advanced KPI Tile.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.

2. Add a data source to the project. For our example we will assume that our data source shows the measure Discount Amount along the dimension Item Category.
3. Add a Advanced KPI Tile from the VBX Utilities to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Advanced KPI Tile.
5. Navigate to the Additional Properties of the Advanced KPI Tile.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category General and to the sub category Status Indicator (see Figure 6.237).

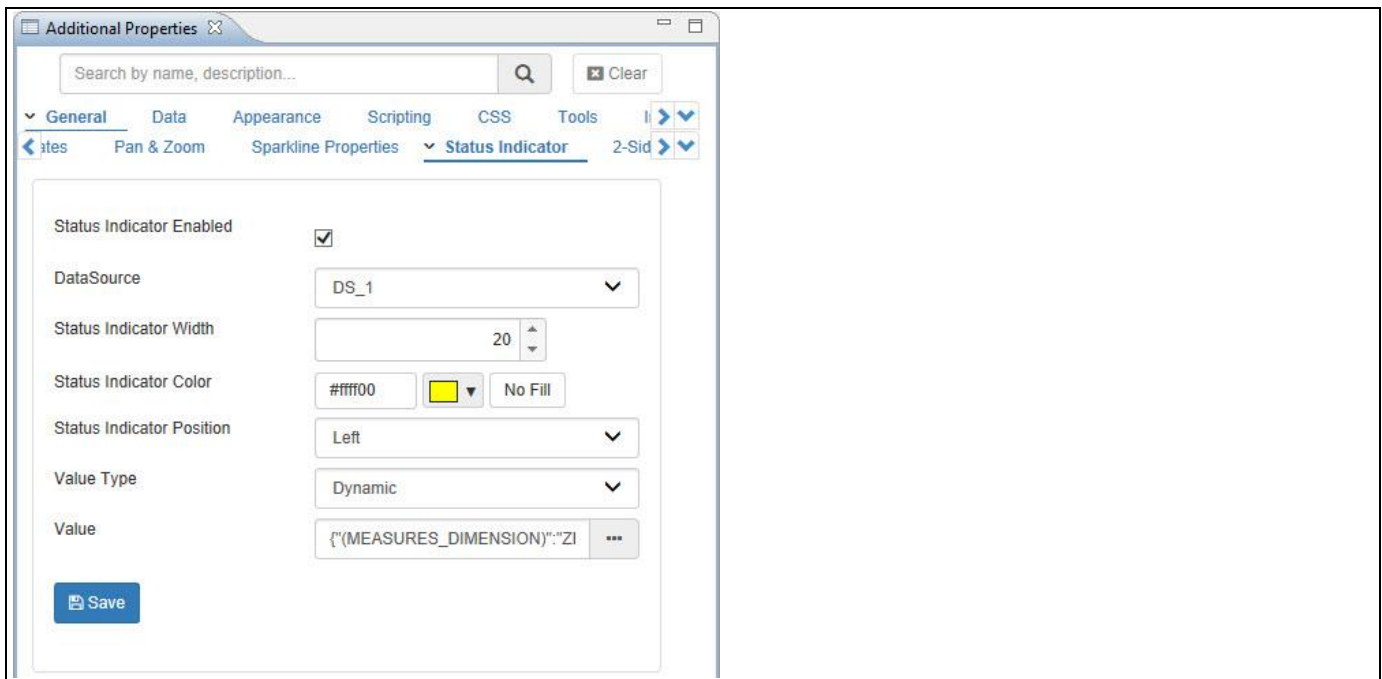


Figure 6.237: Status Indicator Settings

8. Activate the property Status Indicator Enabled.
9. For our example, the values for the properties in the sub category Status Indicator are configured as listed below:
 - Data Source DS_1
 - Status Indicator Width 20
 - Status Indicator Color Yellow
 - Status Indicator Position Left
 - Value Type Dynamic
10. Now select the single cell selection value from the Data Source. For our example the value is "124157" (see Figure 6.238).

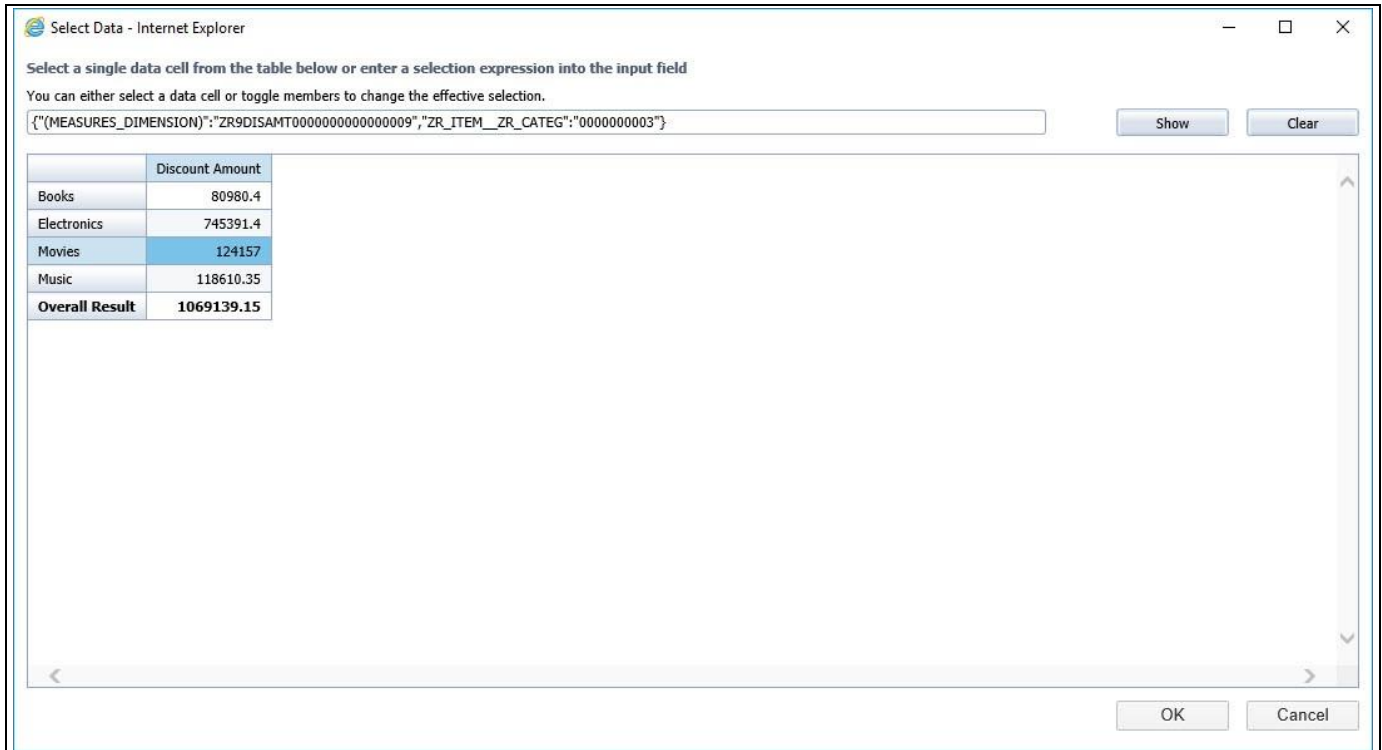


Figure 6.238: Single Cell value selection

- Based on the above configuration, you will be able to visualize the Advanced KPI Tile displaying a Status Indicator bar (see Figure 6.239).

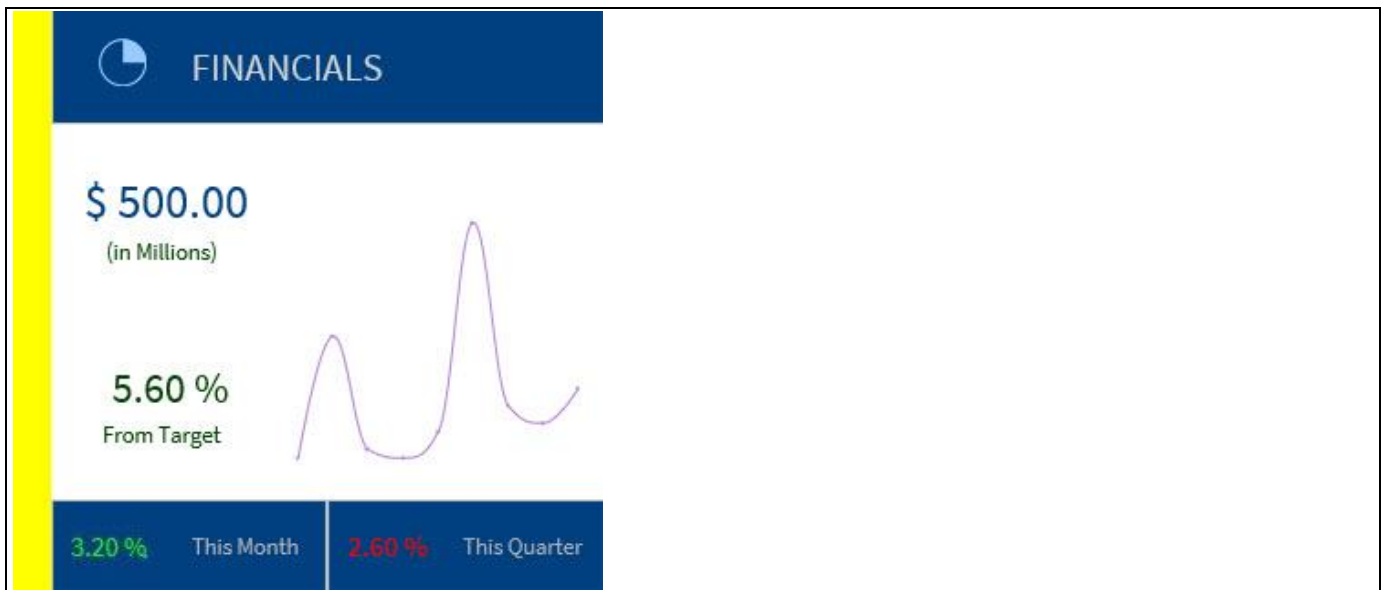


Figure 6.239: Advanced KPI Tile with Status Indicator Bar

6.19.4 Conditional Formatting for Status Indicator

In the Additional Properties of the Advanced KPI Tile in the category Data and the sub category Conditional Formatting, you have the additional option to display a Status Indicator which can be used for conditional formatting options.

For our example, you can follow the steps below to configure the conditional formatting for the status indicator in the Advanced KPI Tile.

1. As a first step, follow the similar steps as executed for the configuration of Status Indicator for Advanced KPI Tile (see section 6.19.3).
2. Now navigate to the Additional Properties of the Advanced KPI Tile.
3. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
4. In the Additional Properties navigate to the category Data and to the sub category Conditional Formatting (see Figure 6.240).

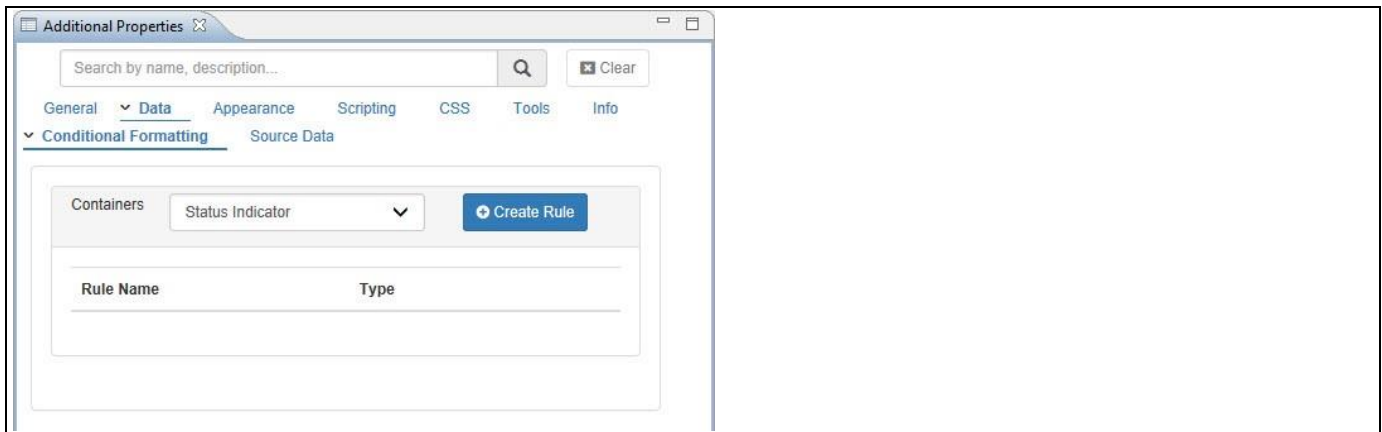


Figure 6.240: Category Data

5. Set the property Containers to the option Status Indicator.
6. Now click Create Rule (see Figure 6.241).

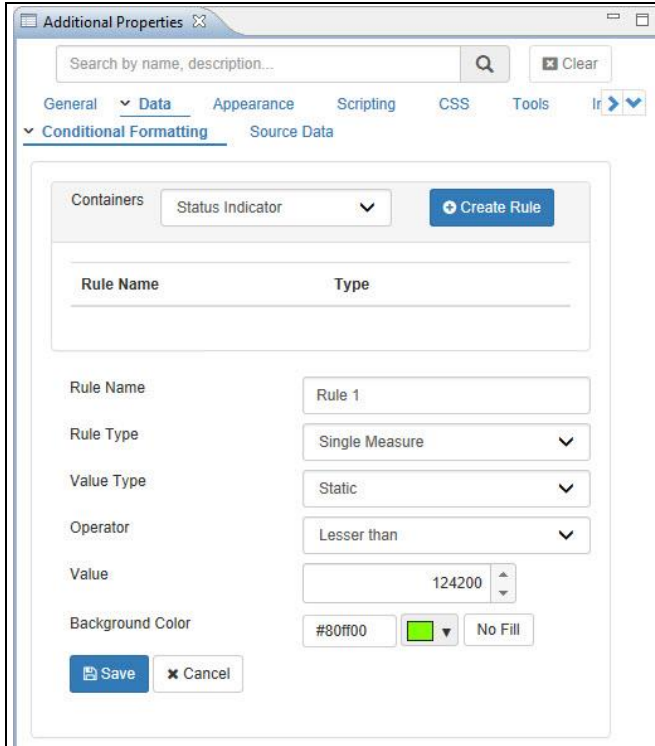


Figure 6.241: Status Indicator – Conditional Formatting

7. Enter the Rule Name.
8. For our example, set the Rule Type to the option Single Measure.
9. Set the property Value Type to the option Static.
10. Set the property Operator to the option Lesser than.
11. Set the property Value to 124200 which is less than Status Indicator value 124157.
12. Set the property Background Color to the color green.
13. Based on the above conditional formatting rules, you will be able to visualize the Advanced KPI Tile displaying a Status Indicator (see Figure 6.242).

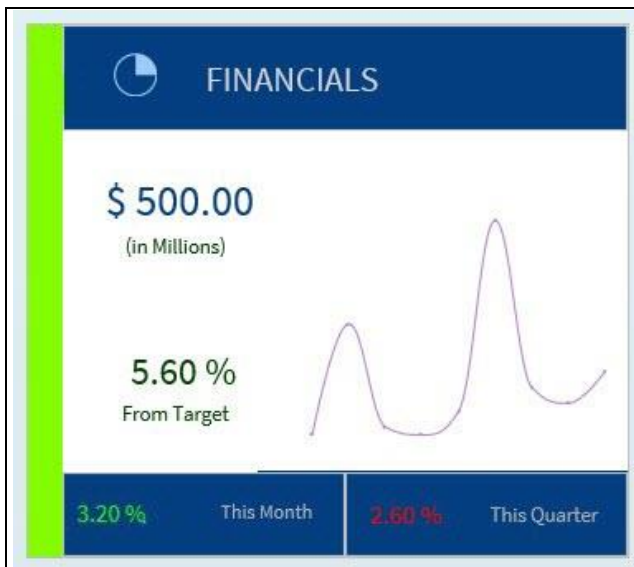


Figure 6.242: Status Indicator – Conditional Formatting

6.19.5 2-Sided KPI Tile

In the Additional Properties of the Advanced KPI Tile in the category General and the sub category 2-Sided KPI Tile, you have the additional option to display a two-sided KPI Tile based on the configured settings. The layout for those two KPI Tiles can be also configured by navigating to the category General and to the sub category KPI Tile Layout.

For our example, you can follow the steps below to configure the two-sided KPI Tile option in the Advanced KPI Tile.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Discount Amount along the dimension Item Category.
3. Add a Advanced KPI Tile from the VBX Utilities to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Advanced KPI Tile.
5. Navigate to the Additional Properties of the Advanced KPI Tile.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category General and to the sub category 2-Sided KPI Tile (see Figure 6.243).

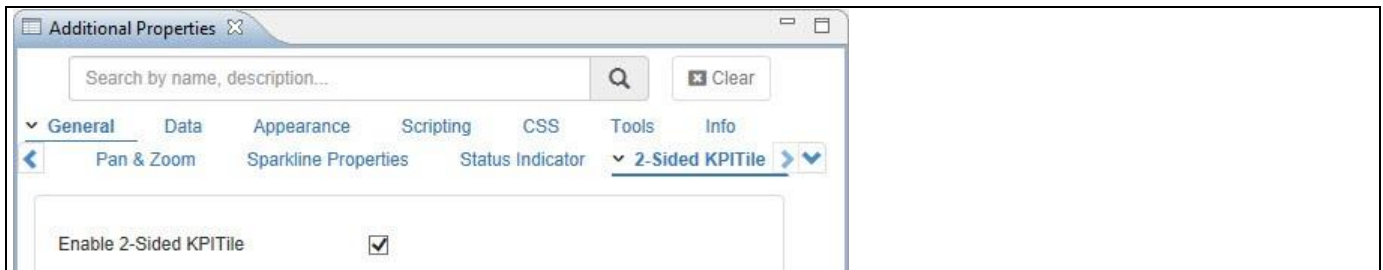


Figure 6.243: Enable 2-Sided KPI Tile

8. Activate the option Enable 2-Sided KPI Tile.
9. Now navigate to the category General and to the sub category KPI Tile Layout (see Figure 6.244).

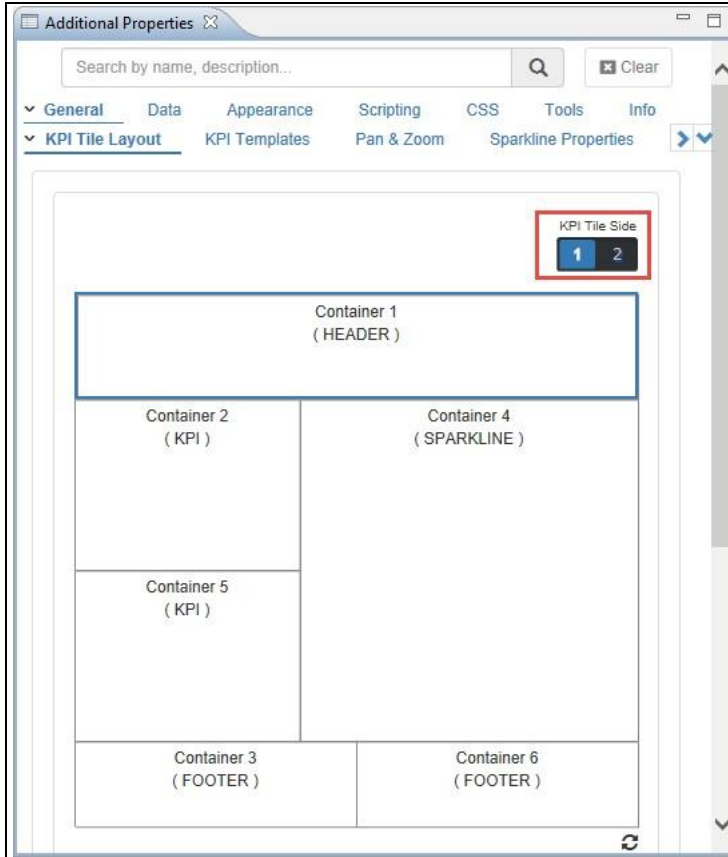


Figure 6.244: KPI Tile 1

10. Click the KPI Tile Side 1 as shown in Figure 6.244.
11. For our example, the Tile 1 has six different containers with their types being selected.
12. Now set the KPI value type for the Container 2 as dynamic value and select the dynamic value (see Figure 6.245).

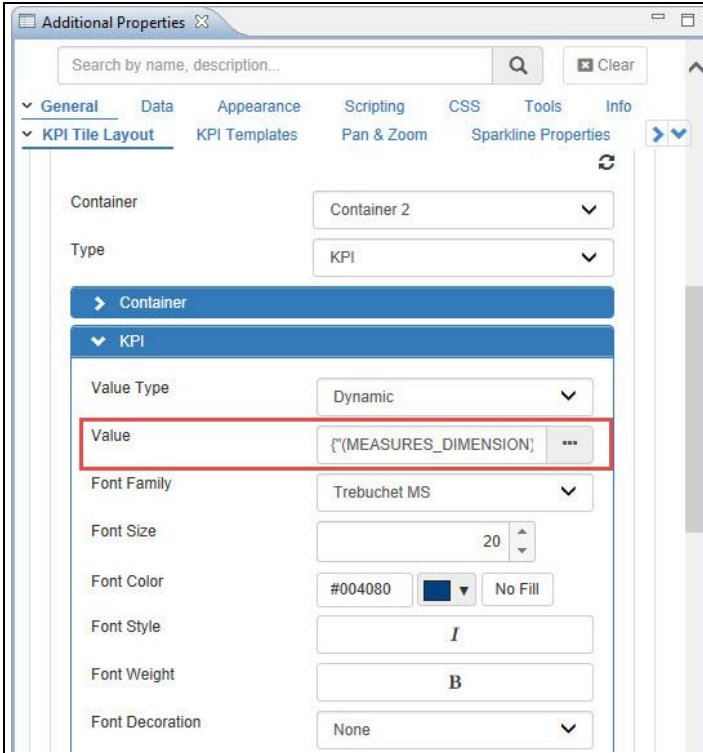


Figure 6.245: KPI Tile Layout

- Now select the single cell selection value from the Data Source. For our example the value is “124157” (see Figure 6.246).

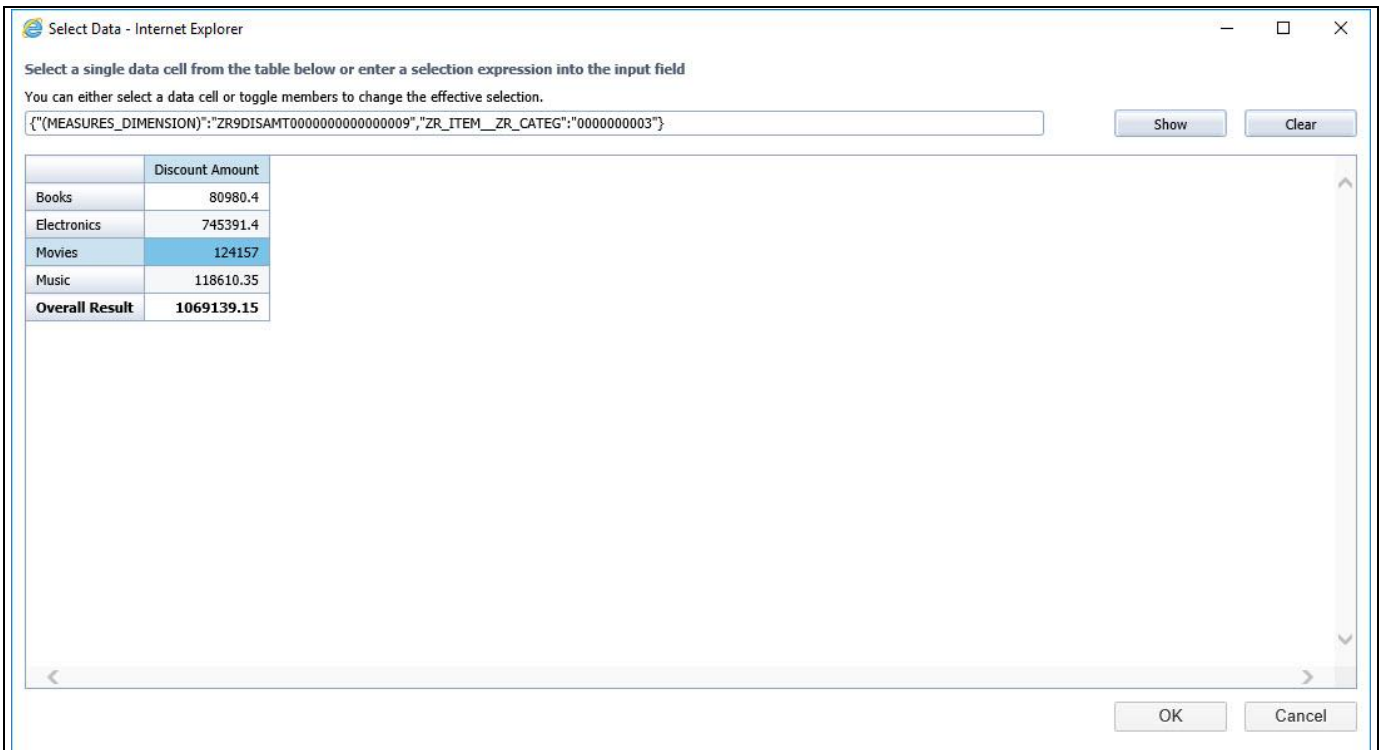


Figure 6.246: Single Cell value selection

- Now click the KPI Tile Side 2 as shown in Figure 6.247.

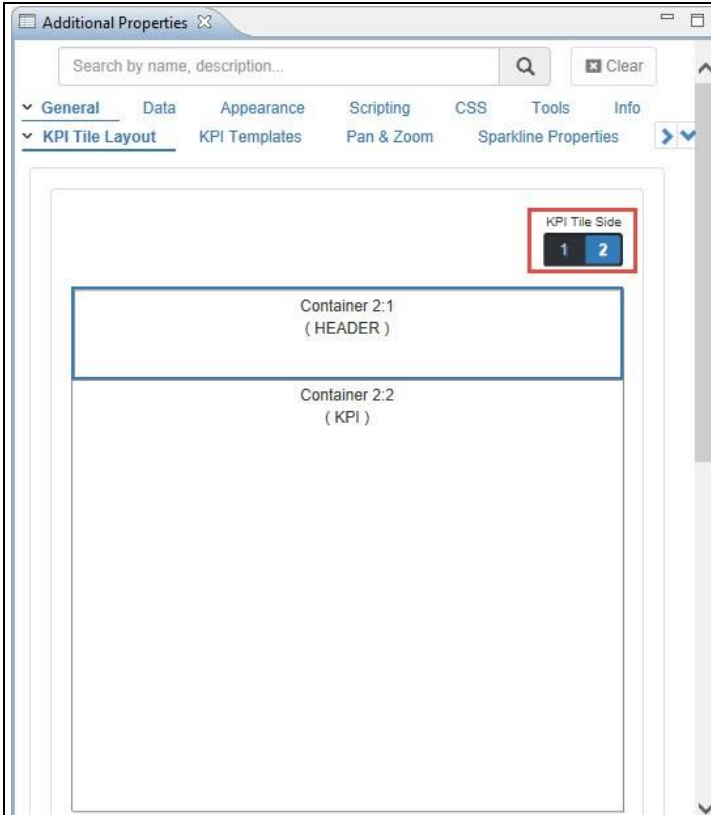


Figure 6.247: KPI Tile 2

15. For our example, the Tile 2 has two different containers (2.1 and 2.2) with their types being selected (see Figure 6.247).
16. Now set the KPI value type for the Container 2.2 as Static and set the static value as “1000” (see Figure 6.248).

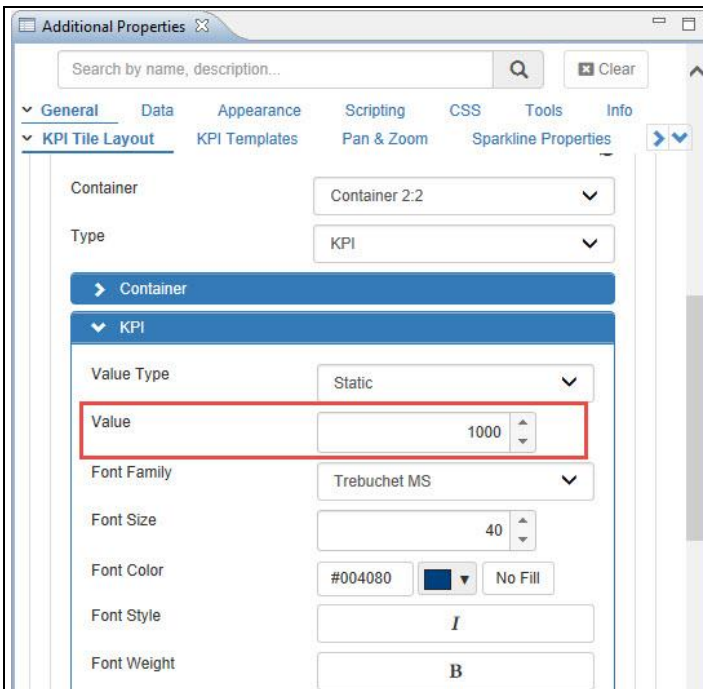


Figure 6.248: KPI Tile Layout

17. Now navigate to the category General and to the sub category 2-Sided KPI Tile (see Figure 6.249).

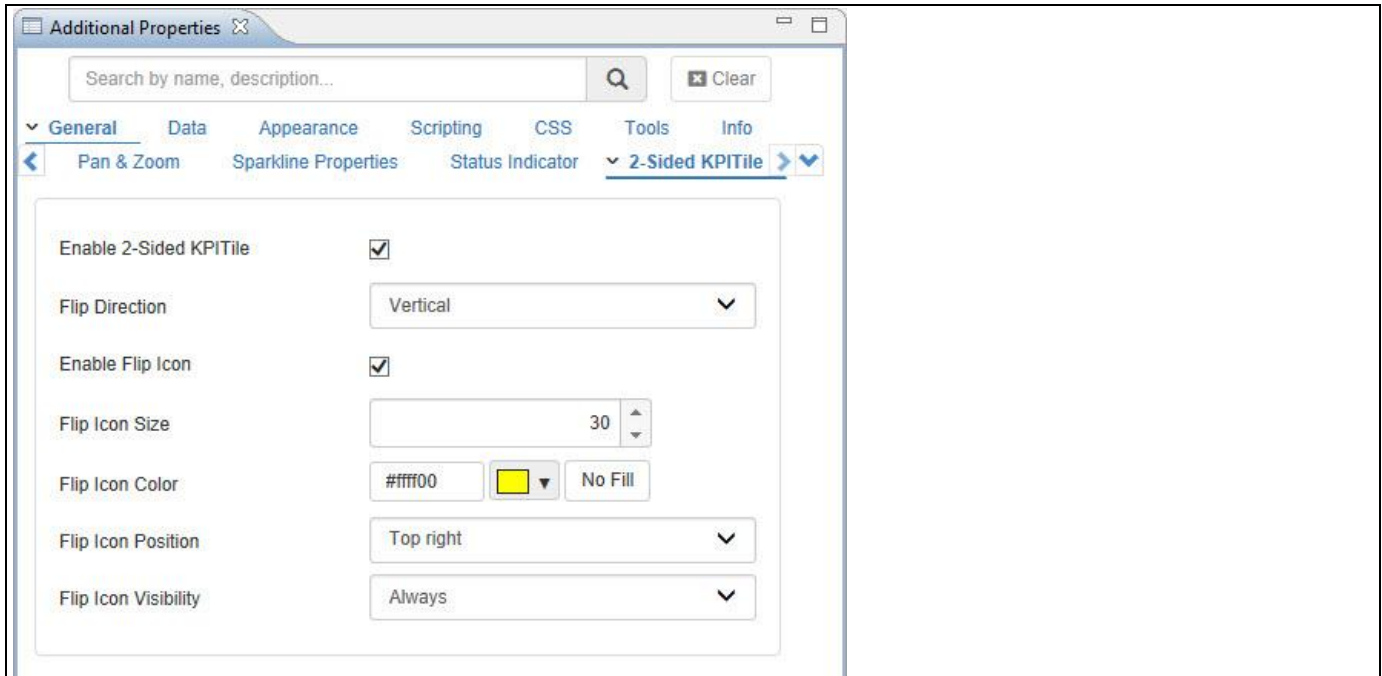


Figure 6.249: 2-Sided KPI Tile

18. Set the property Flip Direction to the option Vertical.
19. Activate the property Enable Flip Icon.
20. Set the property Flip Icon Size to the value 30.
21. Set the property Flip Icon Color to the color yellow.
22. Set the property Flip Icon Position to the option Top Right.
23. Set the property Flip Icon Visibility to the option Always.
24. Based on the above configuration, you will be able to visualize the Advanced KPI Tile displaying two different KPI Tiles by clicking the Flip Icon (see Figure 6.250 and Figure 6.251).

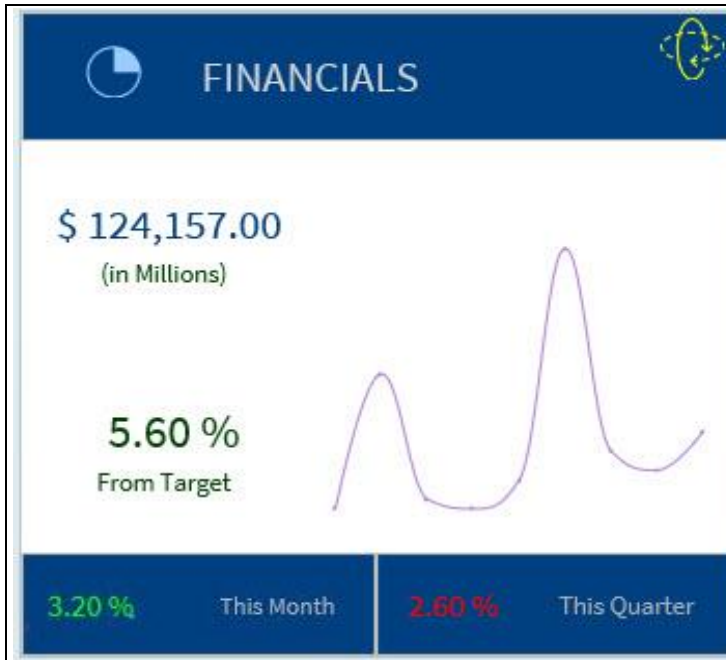


Figure 6.250: KPI Tile Side 1



Figure 6.251: KPI Tile Side 2

6.19.6 KPI Templates

In the Additional Properties of the Advanced KPI Tile in the category General and to the sub category KPI Templates, you have the option to select the predefined KPI Templates. The applied Template will overwrite the already configured KPI Layout settings and those settings can be also recovered using the option Undo Template (see Figure 6.252).

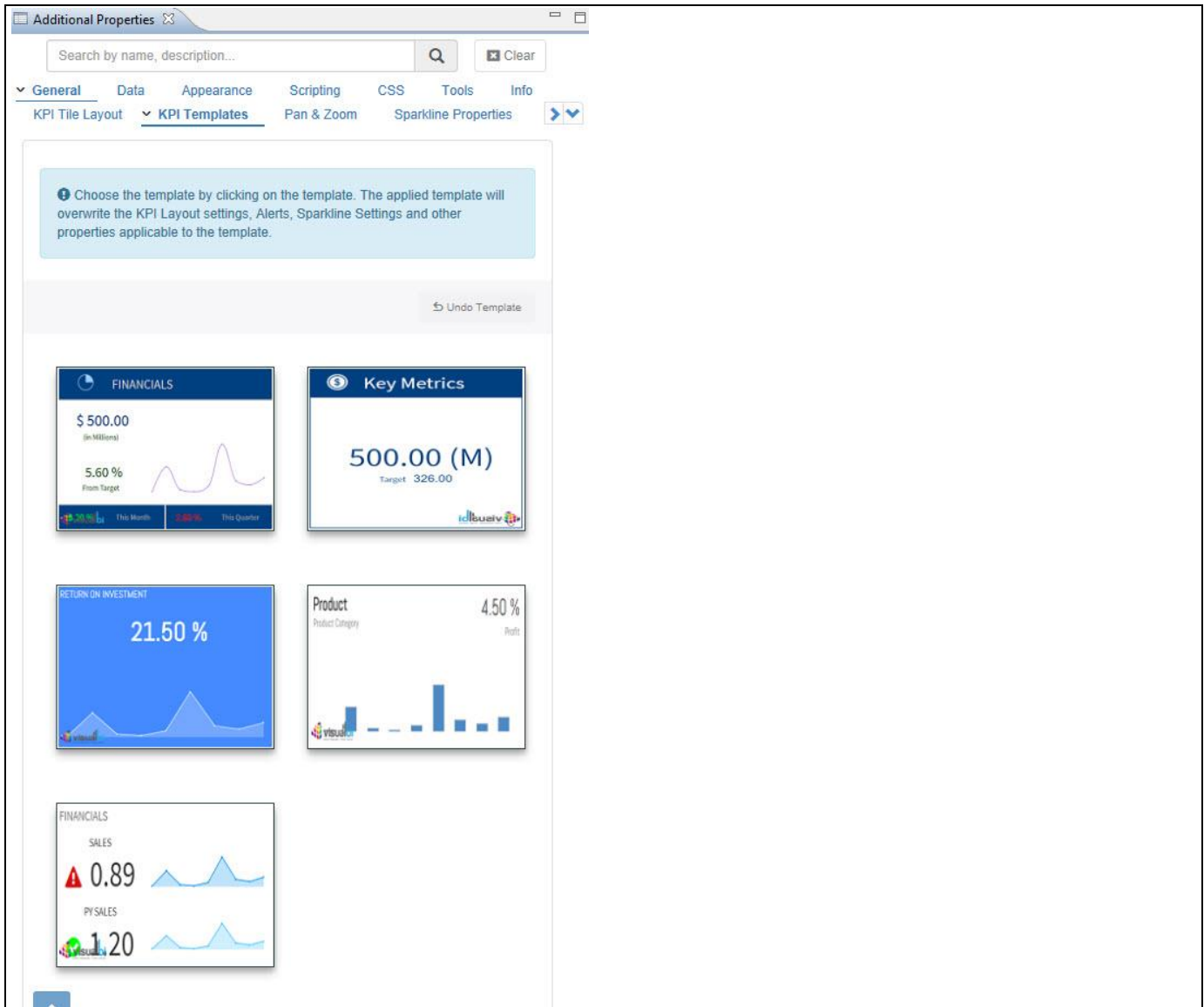


Figure 6.252: KPI Templates

6.19.7 Complex KPI Template

As part of VBX Release 2.4, you will be able to select the Complex Template by navigating to the category General and to the sub category KPI Templates in the Additional Properties of the Advanced KPI Tile (see Figure 6.253).

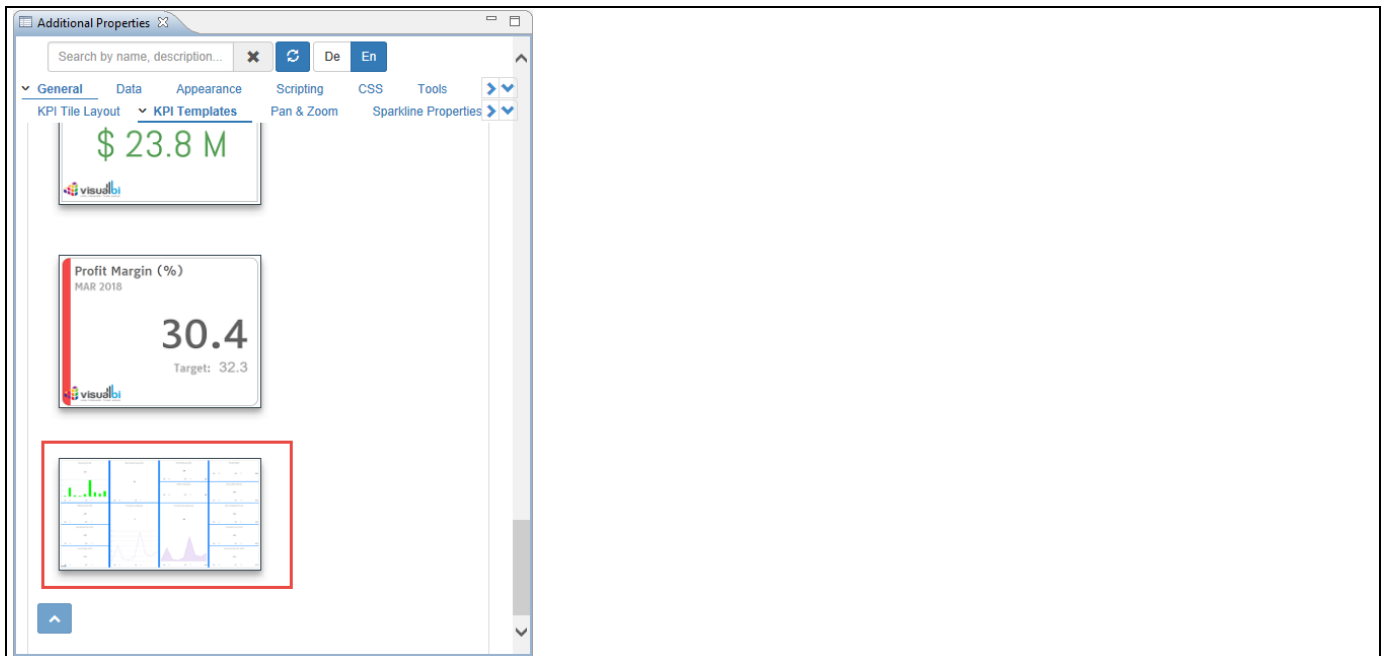


Figure 6.253: Category General – KPI Complex Template

Instead of using multiple Advanced KPI Tiles in a Dashboard you can achieve the same by using the Complex KPI Template. You can add as many containers in the complex KPI Tile. The below Figure shows the Complex KPI Template in run time.

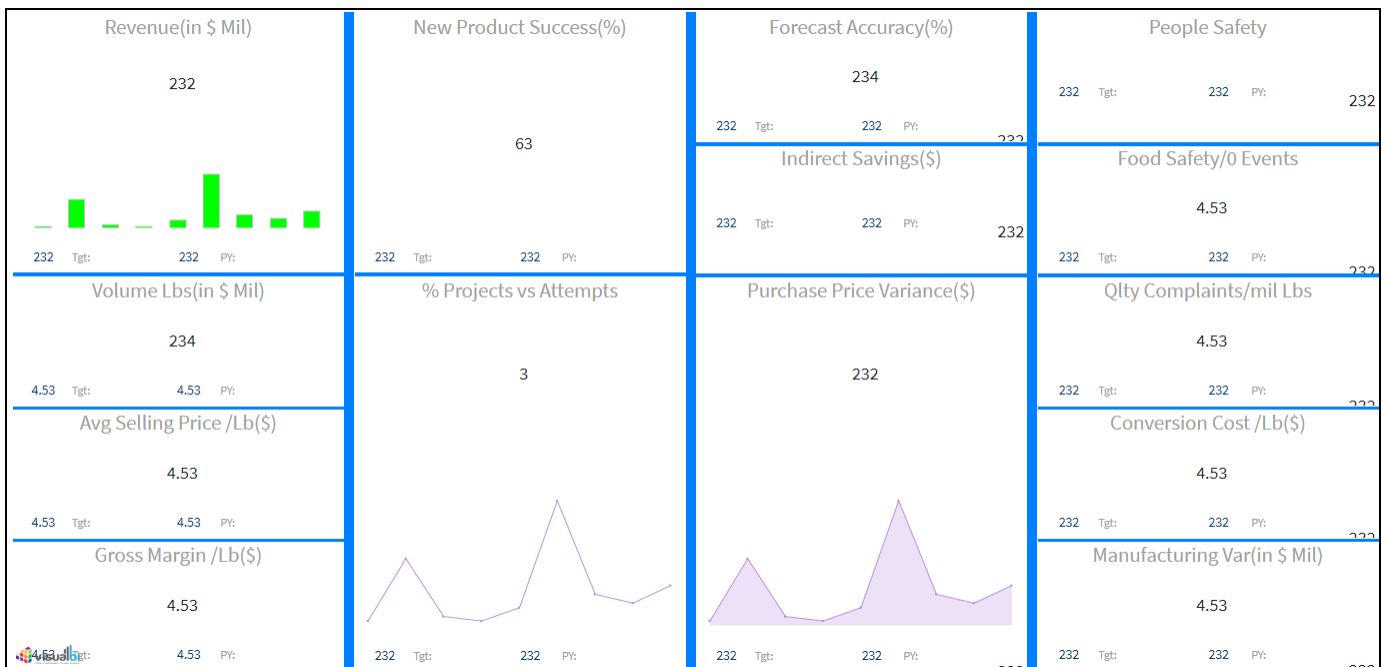


Figure 6.254: KPI Complex Template in Runtime

6.19.8 Dynamic Container

In the Additional Properties of the Advanced KPI Tile in the category General and the sub category KPI Tile Layout, you have the option to set the Container Type as “Dynamic Container” as you can configure the Dynamic Container with VBX components as well as native components of SAP BusinessObjects Design Studio /SAP Lumira Designer.

For our example, you can follow the steps below to configure Dynamic Container in the Advanced KPI Tile.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Discount Amount along the dimension Item Category.
3. Add a Advanced KPI Tile from the VBX Utilities to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Add a Pie Chart from VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
5. Assign the data source to the Pie Chart.
6. Navigate to the Additional Properties of the Advanced KPI Tile.
7. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
8. In the Additional Properties navigate to the category General and the sub category KPI Tile Layout (see Figure 6.255).

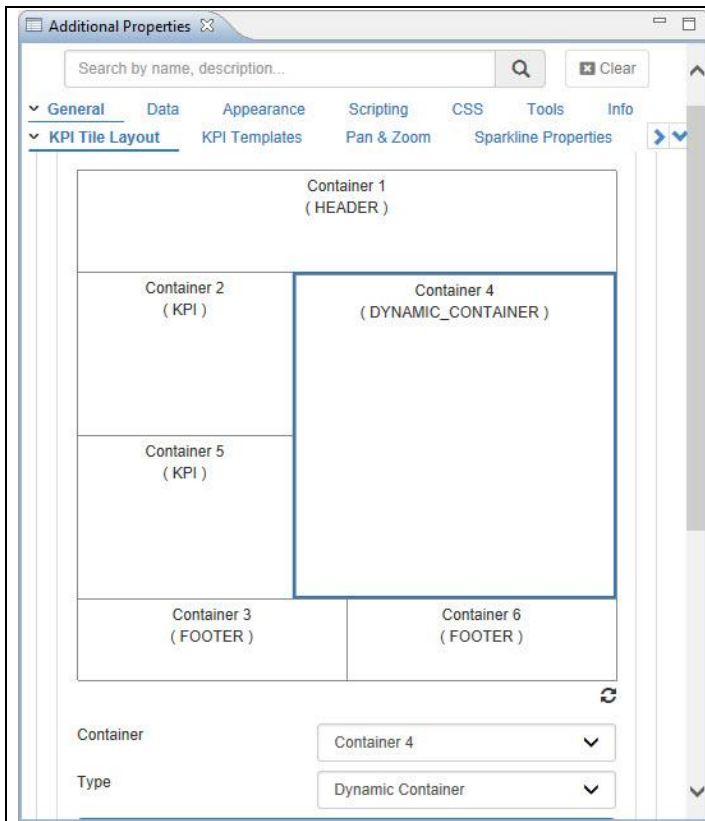


Figure 6.255: KPI Tile Layout

9. For our example, set the property Container to the option Container 4.
10. Set the property Type to the option Dynamic Container.
11. Now navigate to the area Container and set the property Select Component to the option PIECHART_1 (see Figure 6.256).

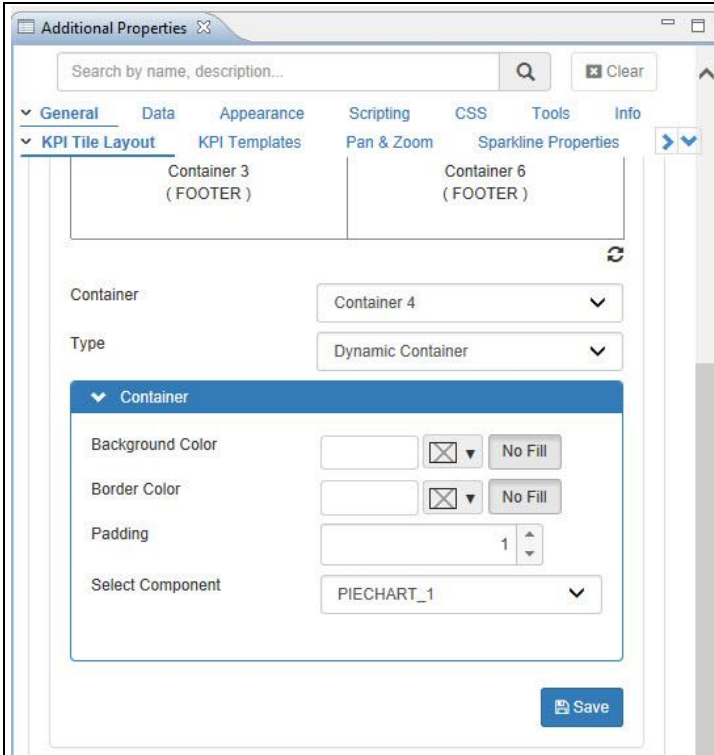


Figure 6.256: KPI Tile Layout

12. Based on the above configuration, you will be able to visualize the Advanced KPI Tile with Pie Chart being configured as VBX Chart for the Dynamic Container (see Figure 6.257).

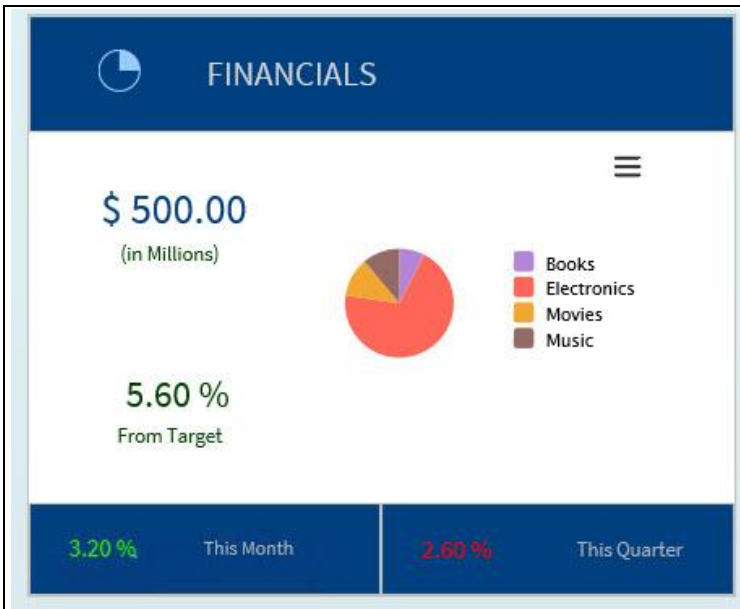


Figure 6.257: Advanced KPI Tile with Dynamic Container

6.19.9 Text Wrapping

In the Additional Properties of the Advanced KPI Tile in the category General and the sub category KPI Tile Layout, you have the option to configure the details for text wrapping for the Title and Subtitle Text in the Header Tile. For our example we set the property Maximum Number of Lines to Display to the value 3 (see Figure 6.258).

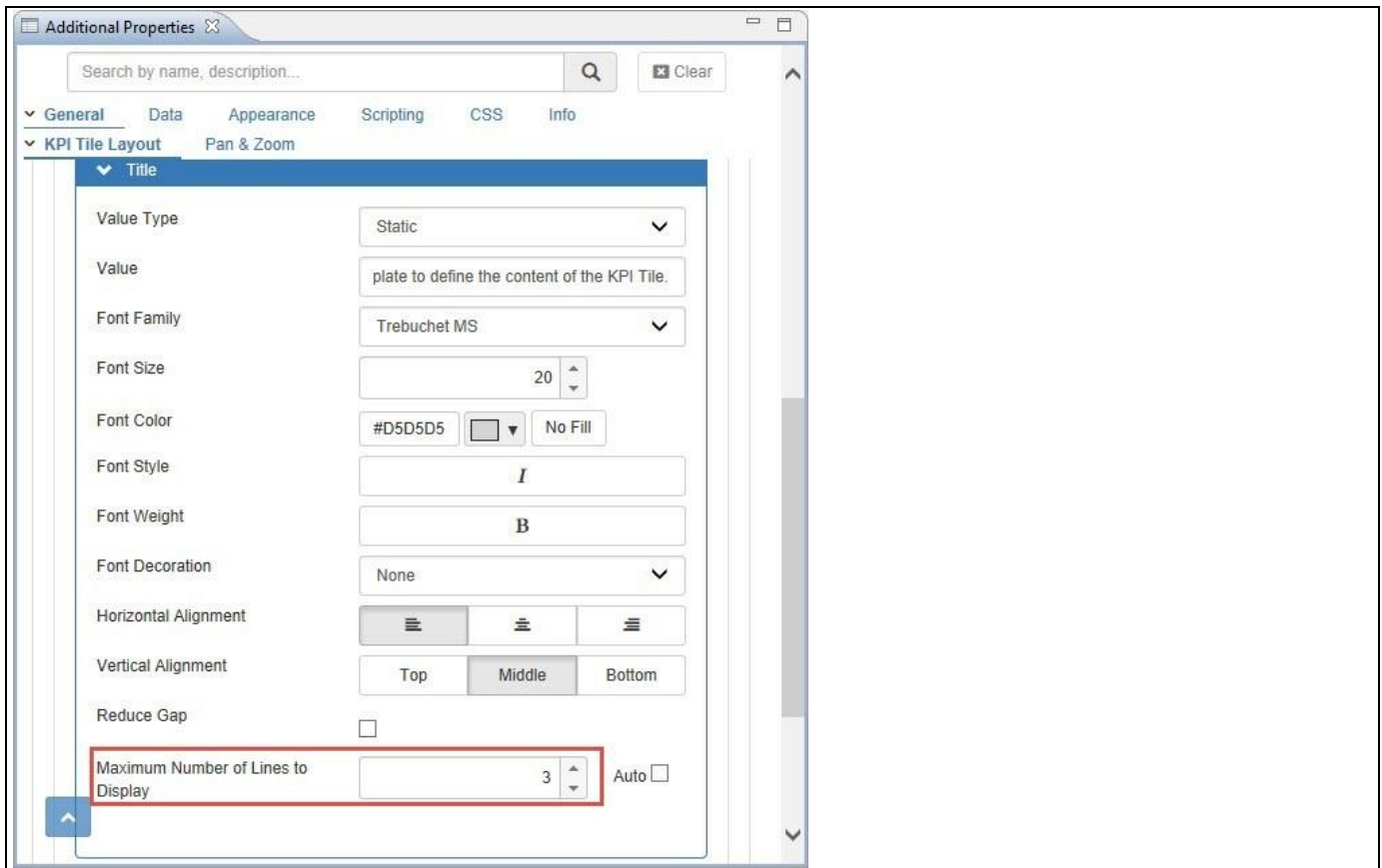


Figure 6.258: KPI Tile Layout

Based on the above configuration you will be able to view the Advanced KPI Tile with three lines of text appearing in the Header Tile (see Figure 6.259).

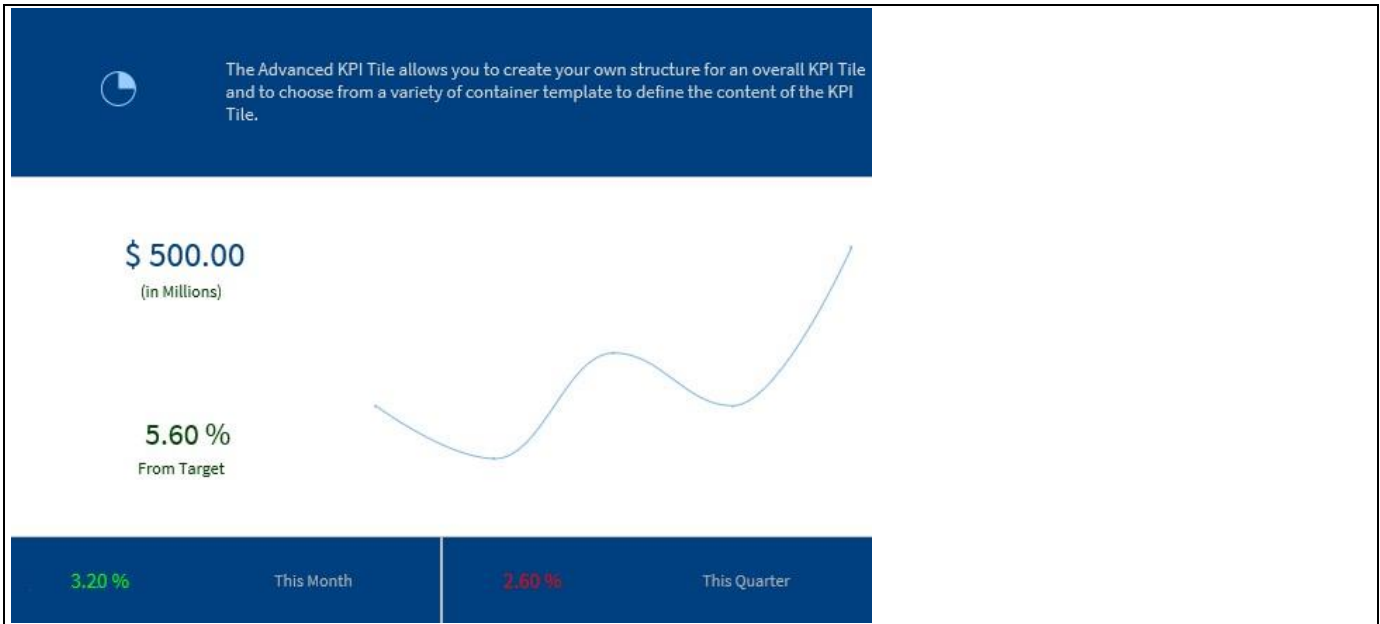


Figure 6.259: Advanced KPI Tile

6.19.10 Layout Changes

In the Additional Properties of the Advanced KPI Tile in the category General and the sub category KPI Tile Layout, you have the option to drag the lower end border line of each container to the desired length (see Figure 6.260).

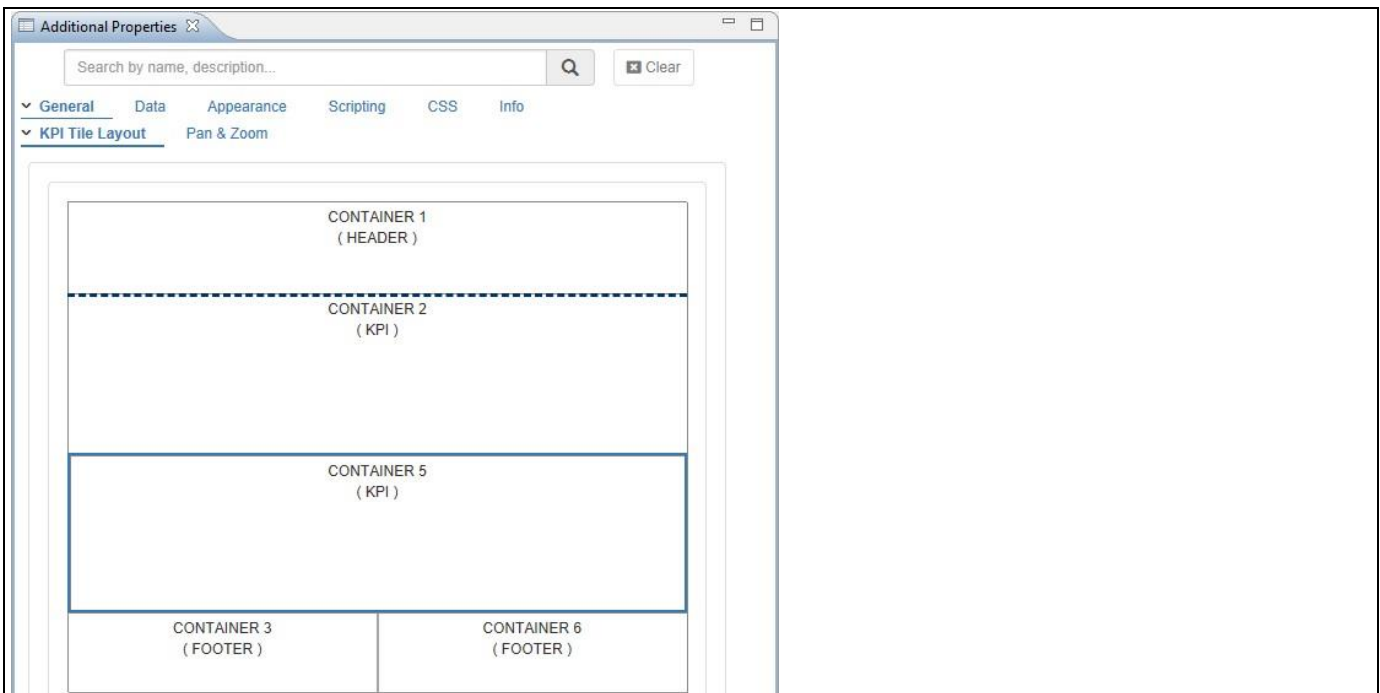


Figure 6.260: KPI Tile Layout

Also, you have the option to edit the split value for the container (see Figure 6.261). For our example, by using the Edit icon, you have entered the split value as 50 for the horizontal split.

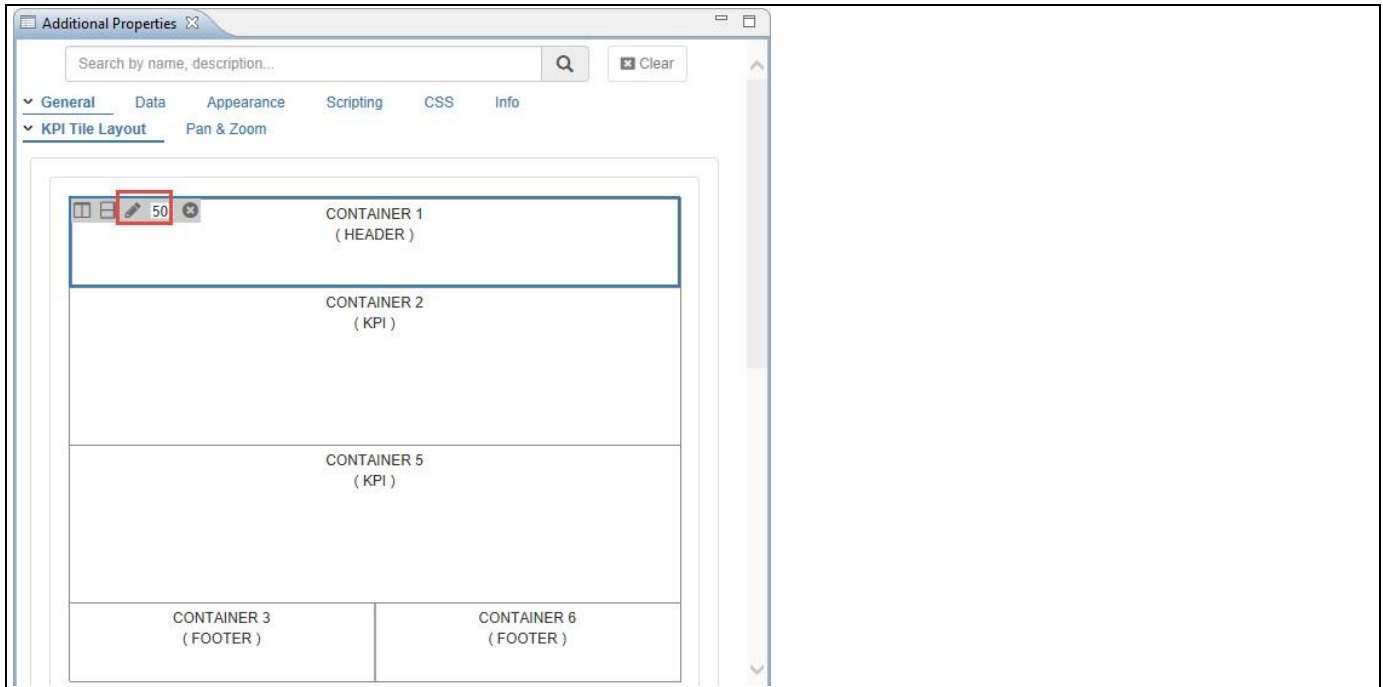


Figure 6.261: KPI Tile Layout

6.19.11 Advanced KPI Tile supporting multiple Data Sources

In the Additional Properties of the Advanced KPI Tile in the category General and the sub category KPI Tile Layout, you have the option to configure each tile container with its individual data source assignment.

For our example, you have one data source (DS_1) directly assigned to the Advanced KPI Tile. The other data source (DS_2) is configured through the Data Provider (DATAPROVIDER_1) using the Standard Properties. The following steps will outline, how you can create a Data Provider.

1. We will assume that you are in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Select the menu option Create • Data Provider (see Figure 6.262).

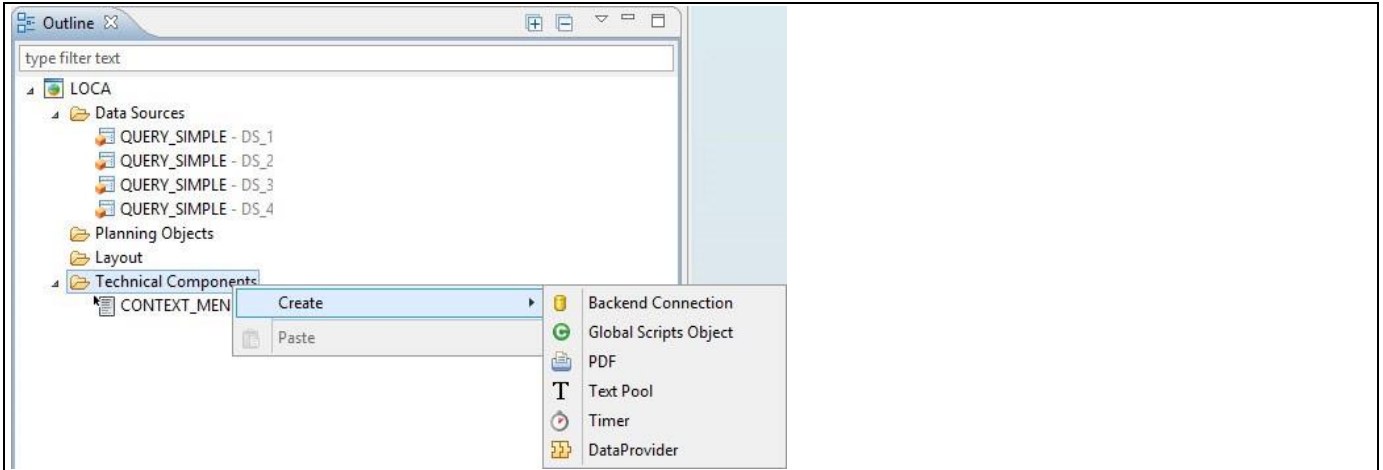


Figure 6.262: Technical Components

3. A new Data Provider is being created as part of the Technical Components (see Figure 6.263).

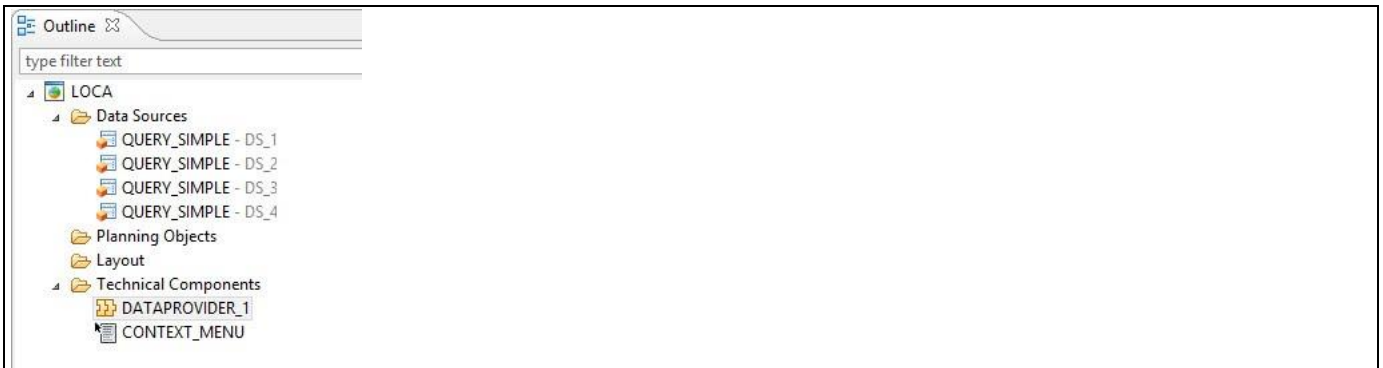


Figure 6.263: Data Provider

4. Select the newly created Data Provider.
5. Navigate to the Standard Properties of the Data Provider (see Figure 6.264).

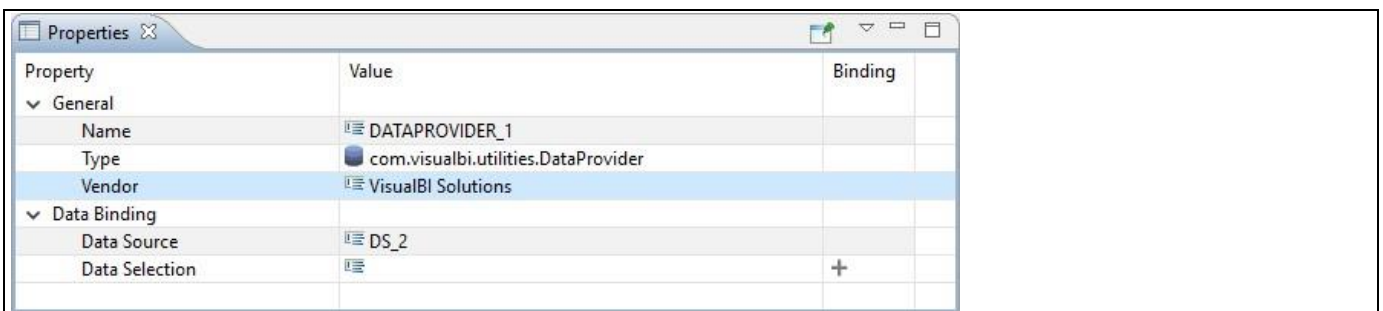


Figure 6.264: Standard Properties

6. You can now assign the Data Source from your application, which you would like to use, to the Data Provider.
7. In our example, we will assign data source DS_2 to the Data Provider 1 (see Figure 6.264).
8. In the Additional Properties of the Advanced KPI Tile, set the property Data Source to DS_1 for the Container 2 (see Figure 6.265).

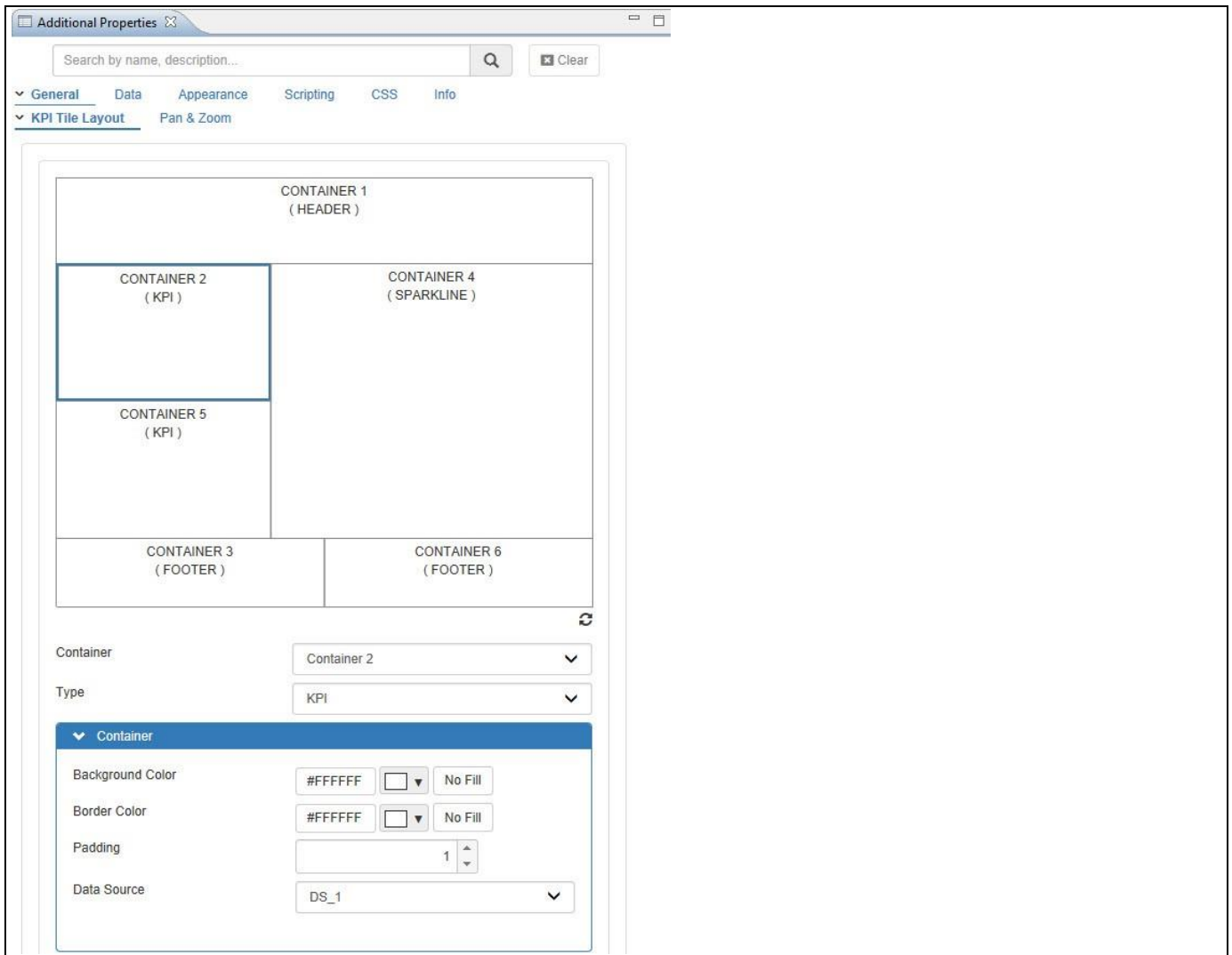


Figure 6.265: KPI Tile Layout

- Configure a dynamic value using the single cell selection from the data source DS_1 (see Figure 6.266).

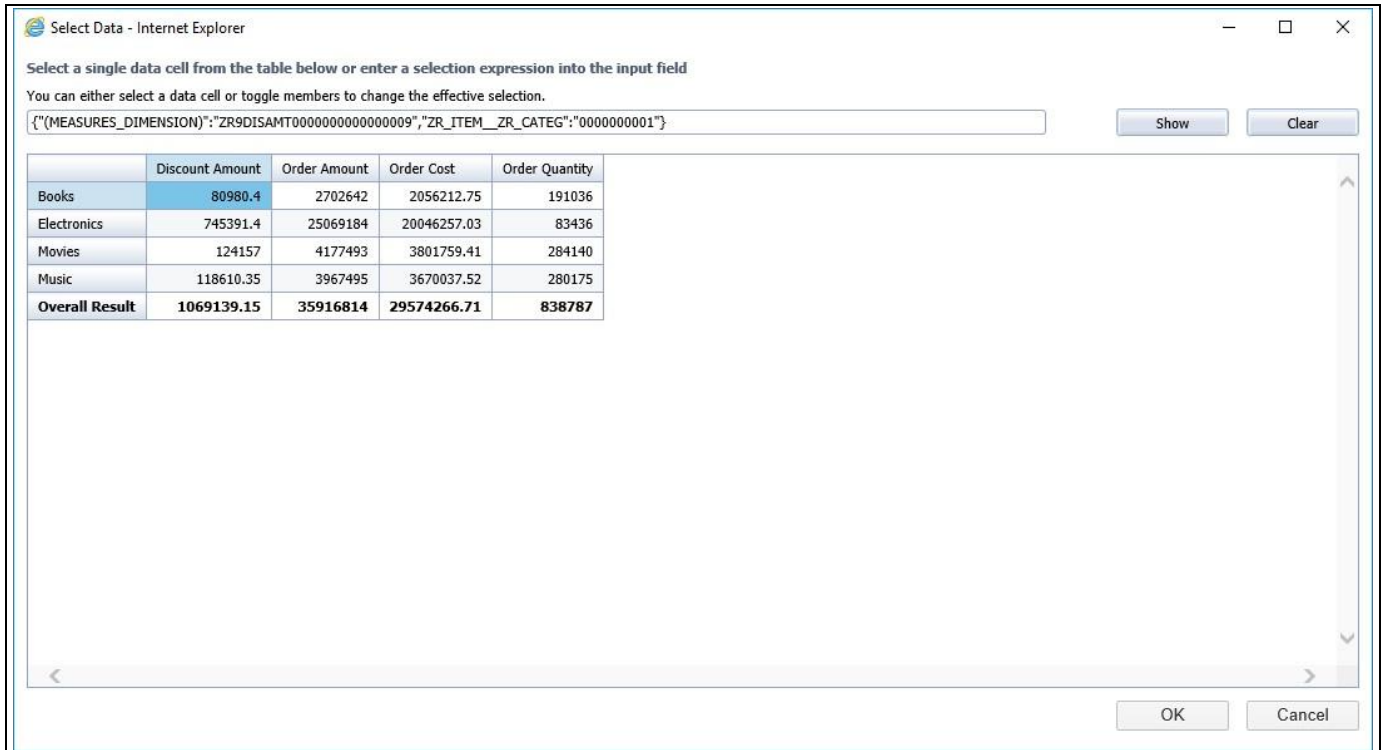


Figure 6.266: Dynamic cell value

10. Now set the property Data Source to DATAPROVIDER_1 for the Container 5 (see Figure 6.267).

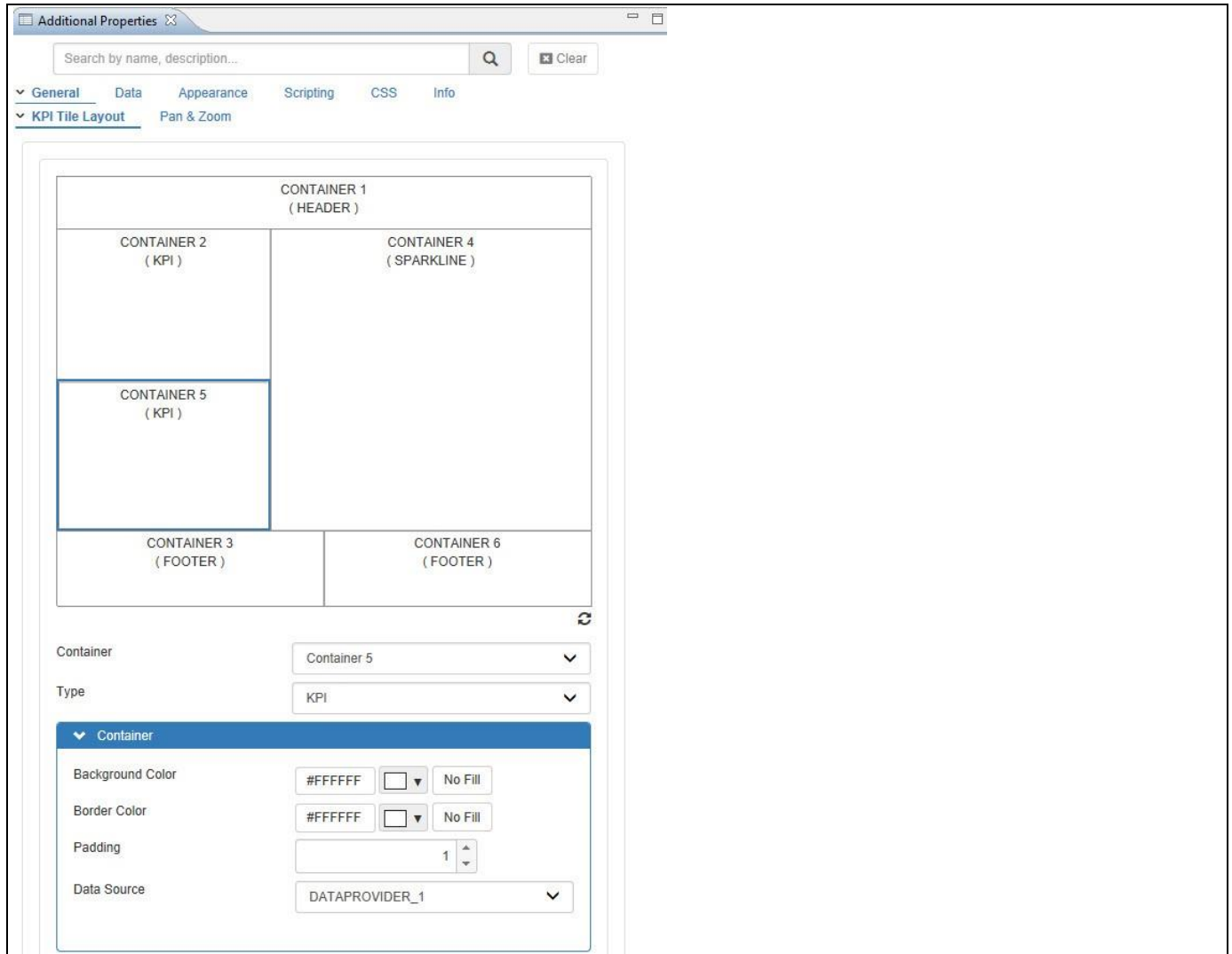


Figure 6.267: KPI Tile Layout

11. Configure a dynamic value using the single cell selection from the data source DATAPROVIDER_1 (see Figure 6.268).

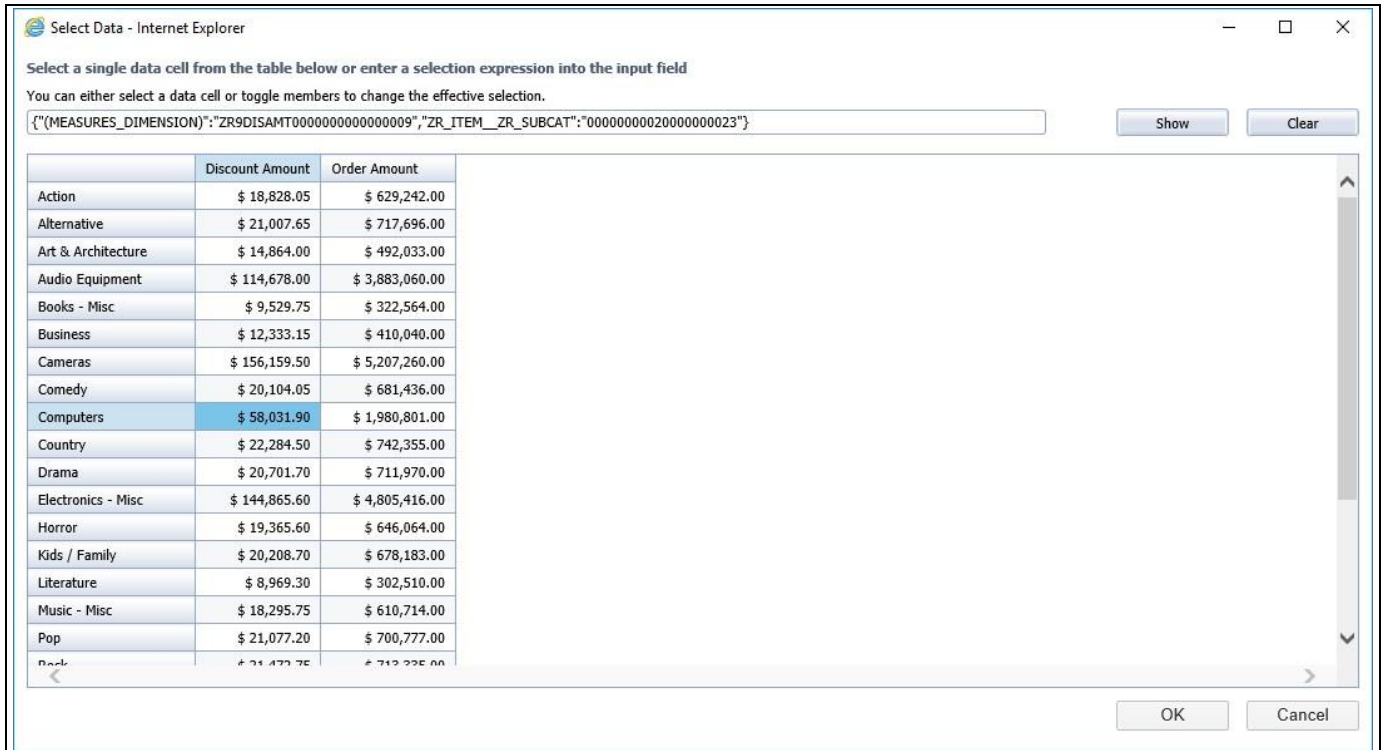


Figure 6.268: Dynamic cell value

- Based on the above configurations you will be able to visualize the Advanced KPI Tile with the dynamic values assigned to the Container 2 and Container 5 from different data sources (see Figure 6.269).

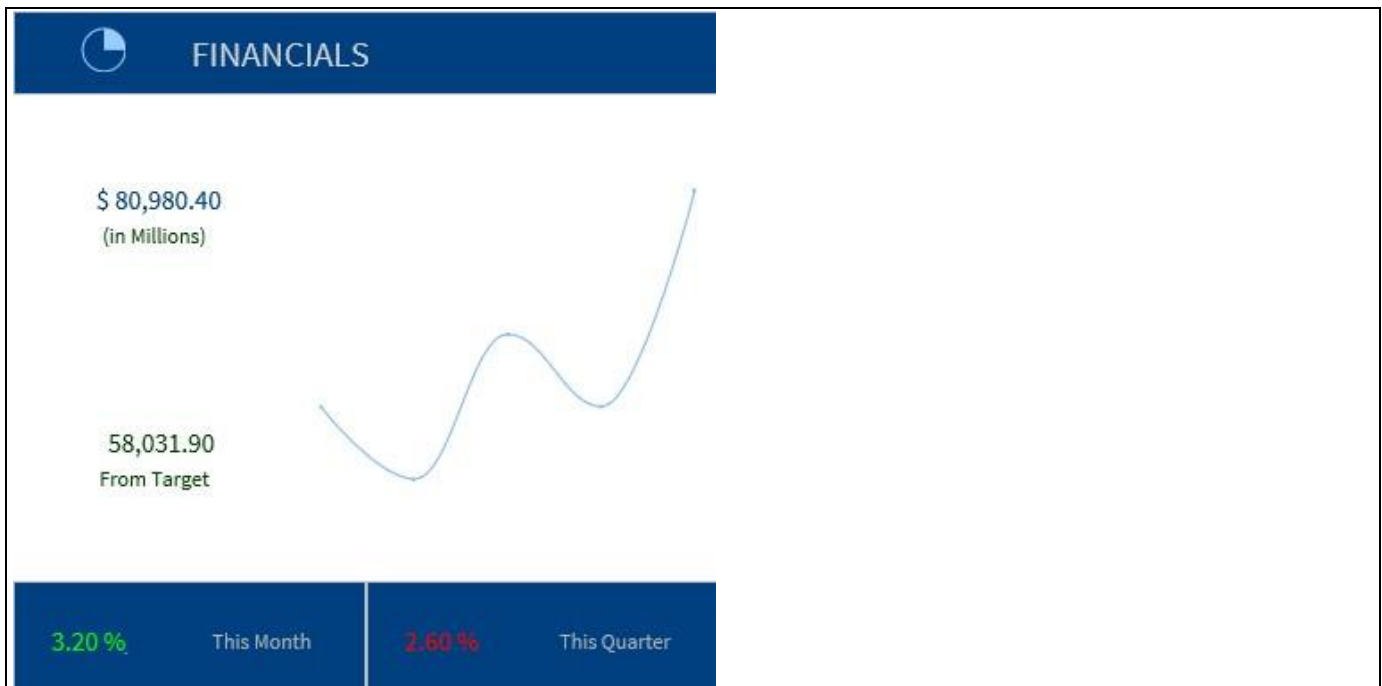


Figure 6.269: Advanced KPI Tile

6.19.12 Selection Mode

In the Additional Properties of the Advanced KPI Tile in the category Appearance and the sub category Selected Mode, you will be able to enable the option Selected Mode Enabled and configure the options Selected Mode Background Color, Selected Mode Border Color, Selected Mode Border Width and Selected Mode Shadow for the complete tile for the event when the tile has been clicked / selected.

For our example, enable the option Selected Mode and set the property Selected Mode Background Color to blue, Selected Mode Border Color to red, Selected Mode Background Width to the value 5 and Selected Mode Shadow to the value 5px 5px 5px #ff0000 (see Figure 6.270).



Figure 6.270: Selected Mode

Based on the above configuration, when you click / select inside the Advanced KPI Tile at run time, you will be able to visualize the Advanced KPI Tile with configured Selected Mode settings (see Figure 6.271). Here you can observe that when the Background Color of the container is set as No Fill in the Additional Properties of the Advanced KPI Tile (see Figure 6.270), only then the user can see the actual selected mode background color as blue for the container.

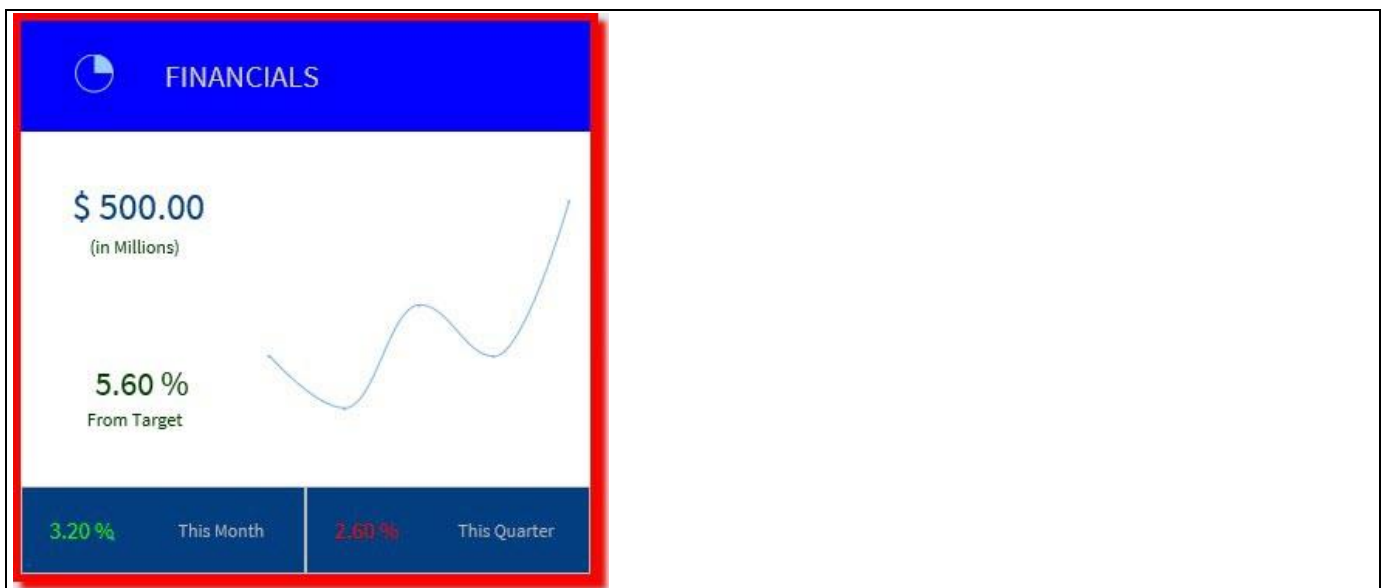


Figure 6.271: Advanced KPI Tile

6.19.13 Configuring the Background Color of the Container as part of Conditional Formatting

In the Additional Properties of the Advanced KPI Tile in the category Data and the sub category Conditional Formatting, you will be able to configure the background color of the complete tile as part of the rules for conditional formatting.

In our example we are setting up an alert based on the Rule Type Single Measure: (see Figure 6.272)

- Rule Name Rule 1
- Rule Type Single Measure
- Value Type Static
- Operator Greater Than
- Value 400
- Background Color Yellow
- Font Color Red

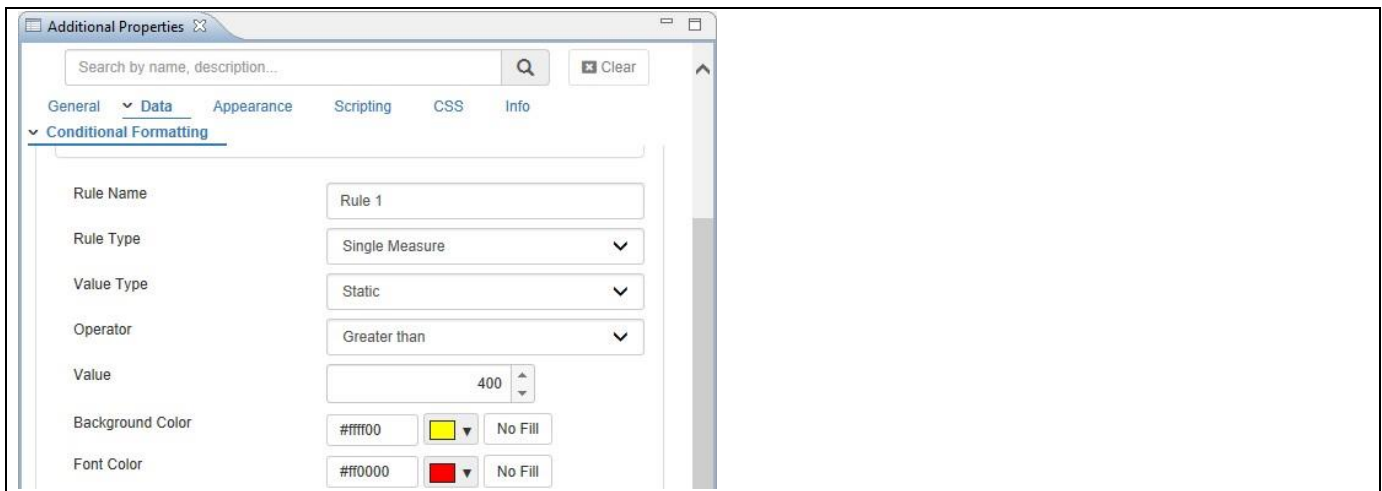


Figure 6.272: Conditional Formatting

Based on the above configuration, you will be able to visualize the Advanced KPI Tile with the background color yellow and Font Color Red for the Container 2 Tile based on the conditional formatting (see Figure 6.273).

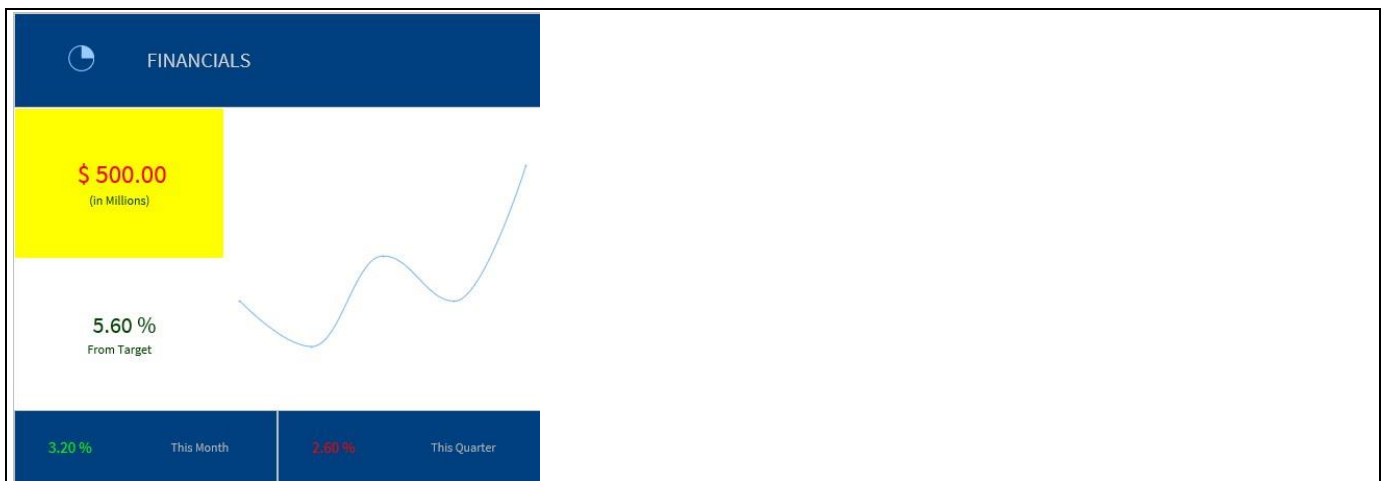


Figure 6.273: Advanced KPI Tile

6.19.14 Display of KPI Value, Target Value and Deviation Indication

In the Additional Properties of the Advanced KPI Tile in the category General and the sub category KPI Tile Layout, you have the additional option to display a KPI Value, a corresponding Target Value, and a Deviation Indication.

For our example, you can follow the steps below to configure the settings for the display of KPI Value, Target Value and Deviation Indication.

12. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
13. Add a data source to the project. For our example we will assume that our data source shows the measure Discount Amount along the dimension Item Category.
14. Add a Advanced KPI Tile from the VBX Utilities to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
15. Assign the data source to the Advanced KPI Tile.
16. Navigate to the Additional Properties of the Advanced KPI Tile.
17. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
18. In the Additional Properties navigate to the category General and to the sub category KPI Tile Layout (see Figure 6.274).

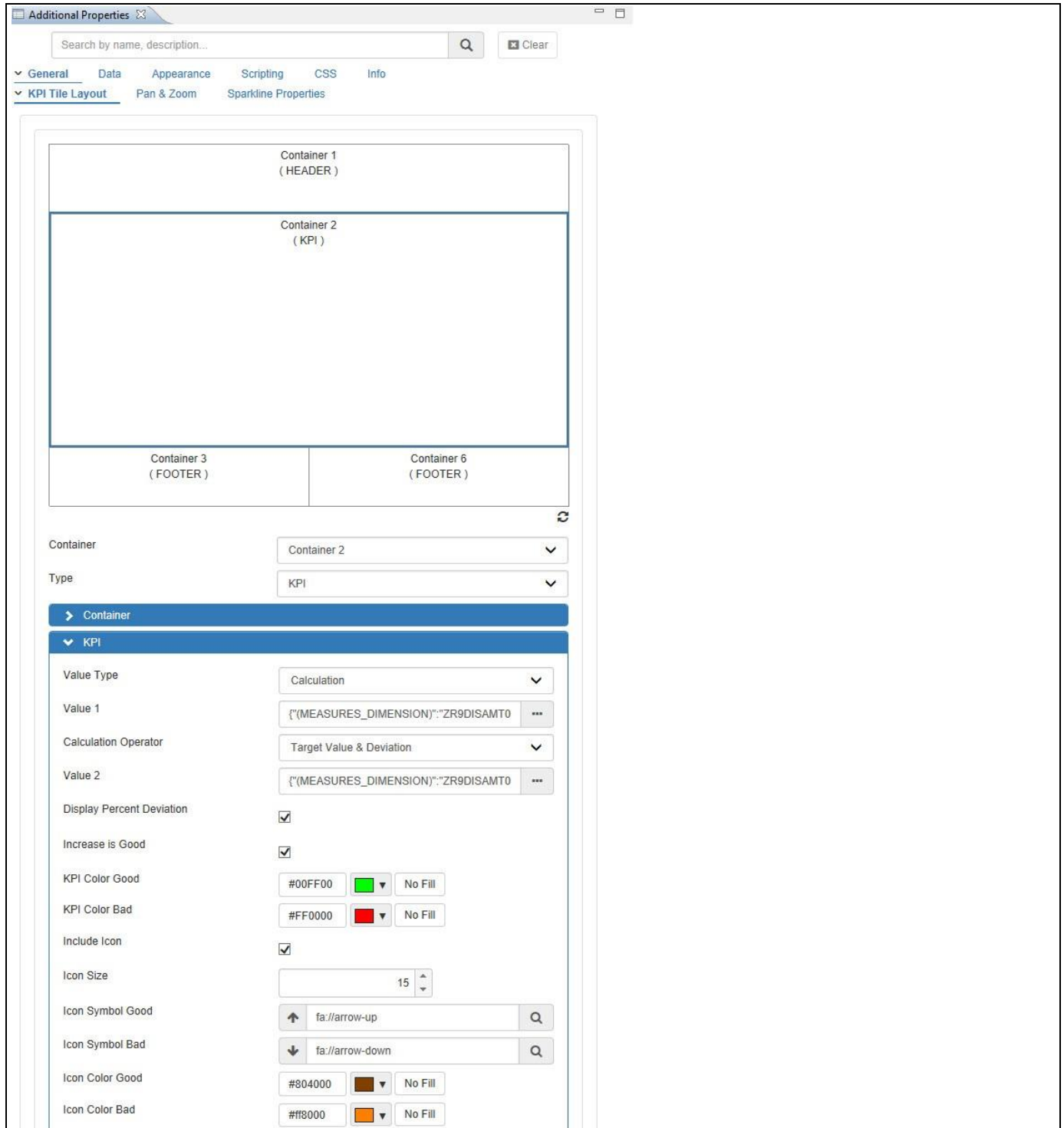


Figure 6.274: KPI Tile Layout

19. For the Container 2 in the Advanced KPI Tile, the KPI values for the properties are configured as listed below:

- | | |
|---|--------------------------------------|
| • Value Type | Calculation |
| • Value 1 | Dynamic Single Cell Selection Value1 |
| • Calculation Operator | Target Value and Deviation |
| • Value 2 | Dynamic Single Cell Selection Value2 |
| • Result Type | Percentage |
| • Percentage Value as Increase / Decrease | Enable |
| • Display Percent Deviation | Enable |

- | | |
|--------------------|-----------------|
| • Increase is Good | Enable |
| • KPI Color Good | Green |
| • KPI Color Bad | Red |
| • Include Icon | Enable |
| • Icon Size | 15 |
| • Icon Symbol Good | fa://arrow-up |
| • Icon Symbol Bad | fa://arrow-down |
| • Icon Color Good | Brown |
| • Icon Color Bad | Orange |

20. Based on the above configuration, you will be able to visualize the Advanced KPI Tile displaying a KPI Value, a corresponding Target Value, and a Deviation Indication (see Figure 6.275).



Figure 6.275: Advanced KPI Tile

6.19.15 Configuration of Charts as part of Advanced KPI Tile

In the Additional Properties of the Advanced KPI Tile in the category General and the sub category Sparkline Properties, you have the ability to configure the individual Chart areas such as Titles, X-Axis, Y-Axis, Data Label, Tooltip and Custom Theme so that you can configure those elements for each Sparkline chart used as part of the Advanced KPI Tile.

For our example, you can follow the steps below to configure the settings for the Sparkline Chart area having Column Bar Chart as part of the Advanced KPI Tile.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows the measure Discount Amount, Order Cost and Order Amount along the dimension Item Category.
3. Add a Advanced KPI Tile from the VBX Utilities to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Advanced KPI Tile.
5. Navigate to the Additional Properties of the Ad KPI Tile.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category General and to the sub category Sparkline Properties (see Figure 6.276).

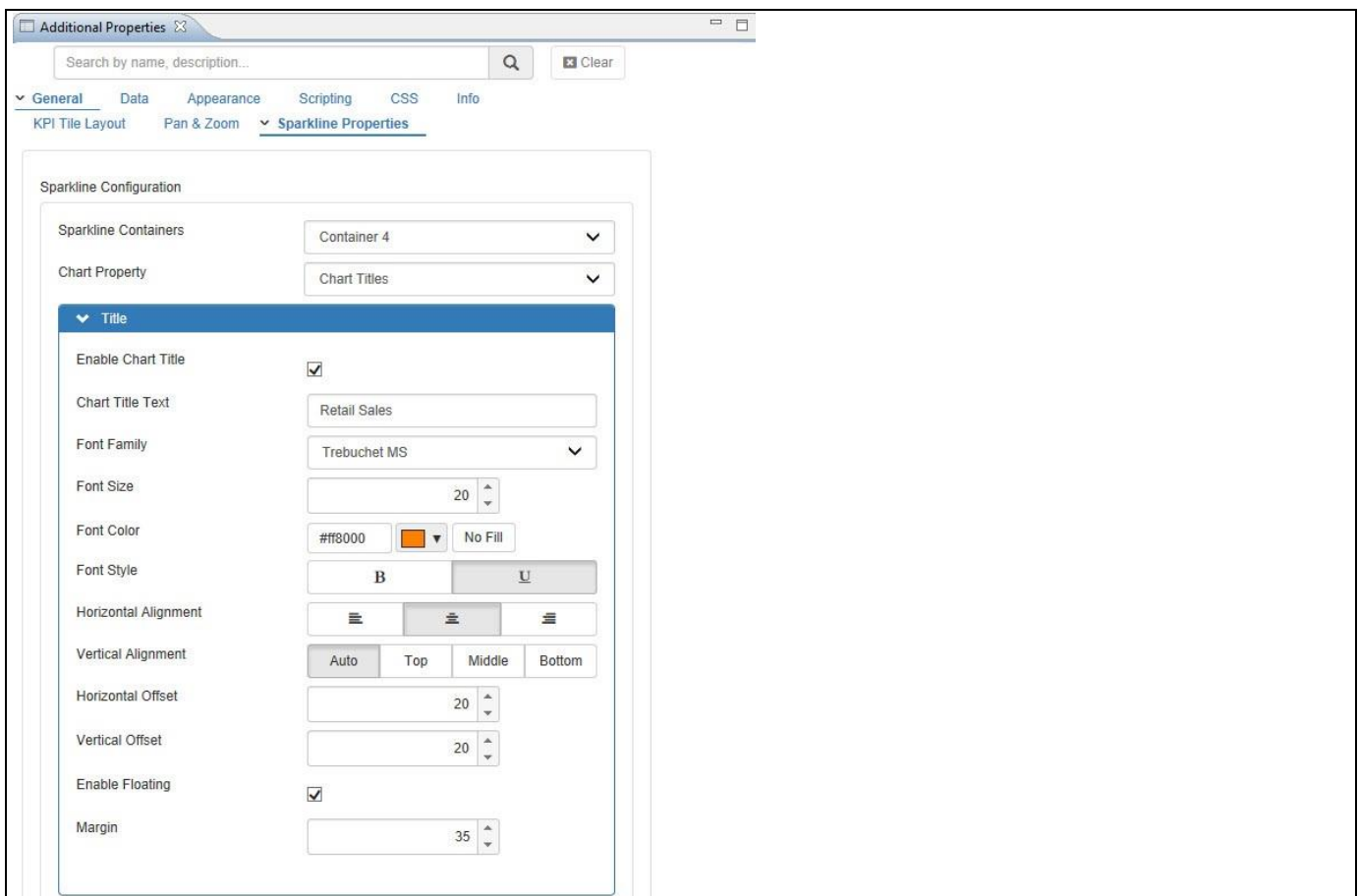


Figure 6.276: Sparkline Properties

8. For our example, the below configuration has been done for the option Chart Titles being selected as the Chart Property (see Figure 6.276) and it also holds the same for Chart Subtitle. The other Chart properties are X-Axis, Y-Axis, Data Label, Tooltip and Custom Theme.

• Chart Property	Chart Titles
• Enable Chart Title	Enabled
• Chart Title Text	Retail Sales
• Font Family	Trebuchet MS
• Font Size	20
• Font Color	Orange
• Font Style	Underlined
• Horizontal Alignment	Center
• Vertical Alignment	Auto
• Horizontal Offset	20
• Vertical Offset	20
• Enable Floating	Enabled
• Margin	35

9. Based on the above configuration, you will be able to visualize the Sparkline Chart area having Column Bar Chart as part of the Advanced KPI Tile (see Figure 6.277).



Figure 6.277: Advanced KPI Tile

10. In the Additional Properties of the Advanced KPI Tile in the category General and the sub category KPI Tile Layout, when the property Enable configurations from Sparkline Properties tab is enabled, then the configuration set in the sub category Sparkline Properties will be applied for the Sparkline Chart as part of the Advanced KPI Tile (see Figure 6.278).

Chart

Chart Type

Column

Chart Data

{"ZR_ITEM_ZR_CATEG": "00000000" ...}

Chart Title

Column Chart

Ignore Total

☐

Ignore Subtotal

☐

Series Color

Discount Amount

#B586DA

Order Cost

#FF6657

Order Amount

#F3A730

Font Family

Default

Font Size

12

Font Color

#333333

No Fill

Font Style

B

U

Enable configurations from Sparkline Properties tab

☒

Figure 6.278: Sparkline Chart Configurations Enabled

If the property Enable configurations from Sparkline Properties tab is disabled, then the default Chart properties of the KPI Tile Layout will be applied for Sparkline Chart area.

6.19.16 Data Source Requirements

In regards to the data source requirements for the Advanced KPI Tile, the requirements vary between the different container templates. Each container template can point to different parts of the data source, but a Advanced KPI Tile overall can only be assigned to a single data source at this point (Release VBX 1.50).

The following are the data source requirements for the container templates:

- **Header**
The Header container does not provide an option to visualize measure values directly, but does have the ability to point to measure names or dimension members and retrieve those dynamically.
- **Footer**
The Footer container does provide the ability to point to measure names and dimension members dynamically as well as the option to display the value of a KPI. The value of the KPI is based on a cell selection from the overall assigned data source.
- **KPI**
The KPI container provides you with the option to display the value of either a cell selection or a calculation. In case of a calculation you can choose two cells from the overall assigned data source as basis for the calculation.
- **Sparkline Chart**
The Sparkline Container allows you to define a data selection for the chart. This data selection could be a single cell or a range of cells
- **Icon**
The Icon container allows you to assign a cell selection to the icon.

6.19.17 How to use the Advanced KPI Tile

In this section we will outline the steps to setup your first Advanced KPI Tile. We will setup a KPI Tile that shows the actual revenue for this month, shows an indication of the revenue of this month compared to the month of last year, shows a trend of the last 12 months of revenue, and shows an indication of our current annual revenue compared to the revenue from last year.

In regards to our sample data set, we will use a data set that looks similar to the data shown below.

Value Type	Actual	Budget
MTD	5468	7327
QTD	23567	26866
YTD	156897	153759
LYM	4811	
LYQ	25923	
LY	141207	
M1	6229	
M2	6402	
M3	6735	

Value Type	Actual	Budget
M4	6379	
M5	5638	
M6	6501	
M7	5896	
M8	5793	
M9	6021	
M10	6137	
M11	6006	
M12	6659	

Table 6.71: Sample Data

The sample data shows the Actual and Budget values for our current month (MTD), Quarter (QTD), and year (YTD). In addition we see values for Actual for the last 12 months and the month, quarter, and year values from the previous year.

To setup your first Advanced KPI Tile, follow these steps:

1. Start a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to your project and ensure the structure of the data source is similar to the structure outlined above.
3. Add a new Advanced KPI Tile from the VBX Utilities category to your project.
4. Assign the data source to the Advanced KPI component.
5. Select the Advanced KPI Tile and navigate to the Additional Properties. In case the Additional Properties are not visible, you can use the menu View • Additional Properties to enable the display.
6. Navigate to the category General and to the sub category KPI Tile Layout (see Figure 6.279).

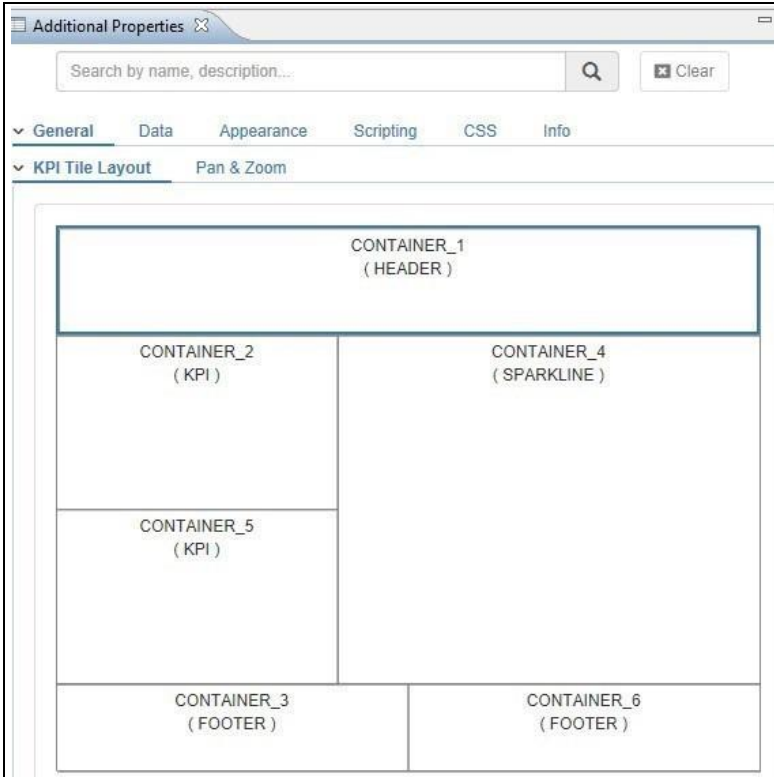


Figure 6.279: Layout Design

In the KPI Tile Layout you can create / remove the number of containers and also how the area is been split between the different container.

7. Navigate to the top left corner of CONTAINER_1 (see Figure 6.280).



Figure 6.280: Layout Design

8. Use the "X" icon to delete the container.
9. Repeat this step for all the default container so that only one container is left (see Figure 6.281).

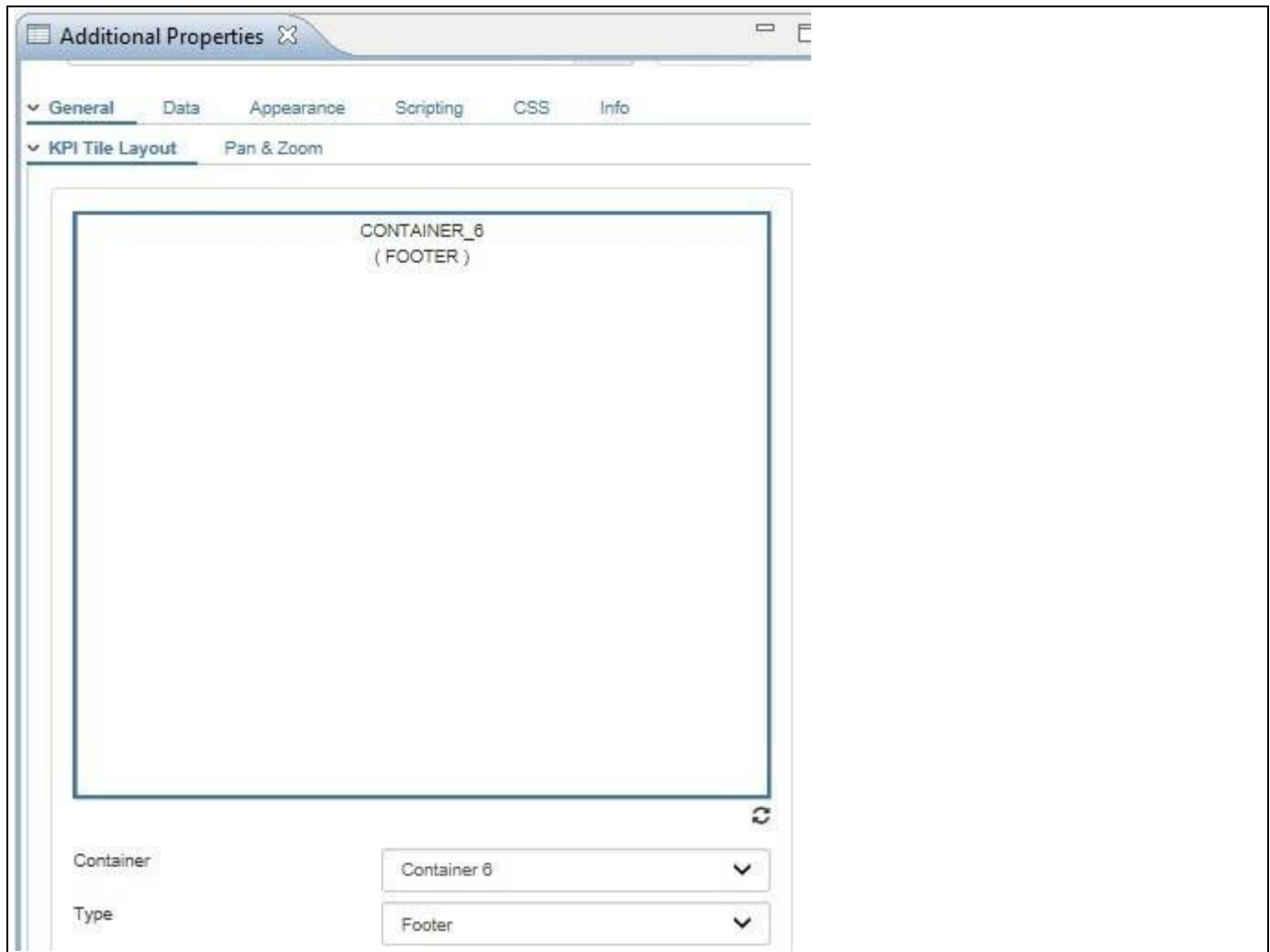


Figure 6.281: Layout Design

10. We can now start and create our own structure. You always want to start with the horizontal structure first.
11. Navigate to the property Type and set the container type to Icon.
12. Navigate to the top left and enter 15 as value for the split.
13. Click on the icon for the horizontal split.
14. Select the newly added container and set the container type to KPI.

Horizontal & Vertical Split

Please note, that new vertical container will always be added to the right side and new horizontally added cells will always be added to the bottom direction. The values you enter are percentage values.

15. Select the newly added container.
16. Navigate to the top left and enter 50 as value for the split.
17. Click on the icon for the horizontal split.
18. Select the newly added container and set the container type to Sparkline Chart.
19. Select the newly added container.
20. Navigate to the top left and enter 70 as value for the split.
21. Click on the icon for the horizontal split.
22. Select the newly added container and set the container type to Footer.
23. You should now have a structure with 4 containers (see Figure 6.282).

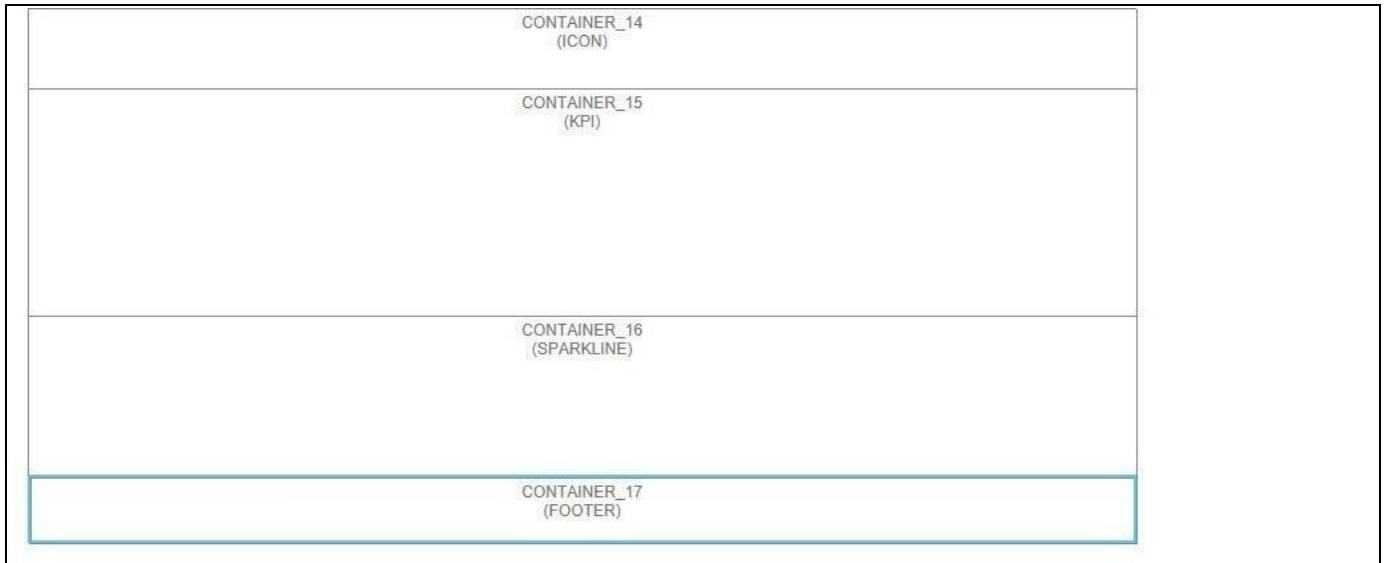


Figure 6.282: Layout Structure

24. As next step we will not split the items vertically.
25. Select the top container (Icon) and navigate to the top left.
26. Enter 20 as value for the split.
27. Click on the icon for the horizontal split.
28. Select the newly created container and set the container type to Header.
29. Select the second container (KPI).
30. Enter 50 as value for the split.
31. Click on the icon for the horizontal split.
32. Select the newly created container and set the container type to KPI.
33. Your structure should look similar to Figure 6.283.

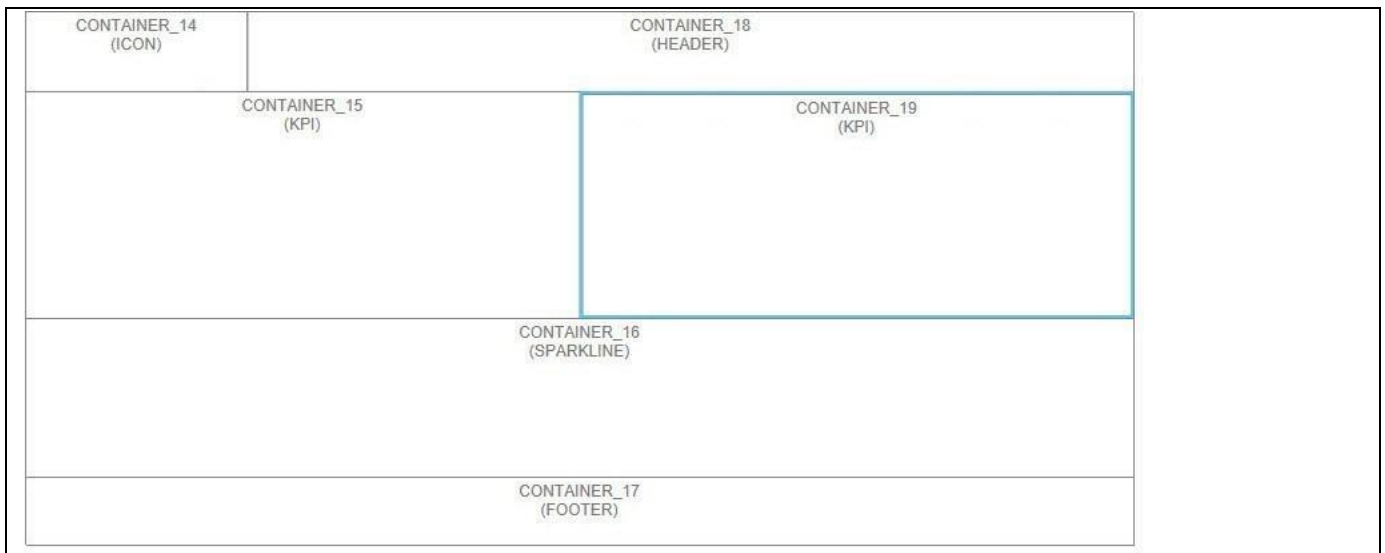


Figure 6.283: Layout Structure

34. Now assign the data source to the Advanced KPI Tile.
- In the next set of steps we will define each of the containers.
35. Navigate to the category General in the Additional Properties.
 36. Select the Icon container in the top left corner (CONTAINER_14 in our example).

37. Set the Icon Type to Standard.
38. Set the Icon Symbol to Arrow Up.
39. Set the Icon Size to the value 32.
40. Activate the property Enable Data Assignment.
41. Set the option Value Type to the value Dynamic.
42. Navigate to the property Icon Data and open the Data Selection editor (see Figure 6.284).

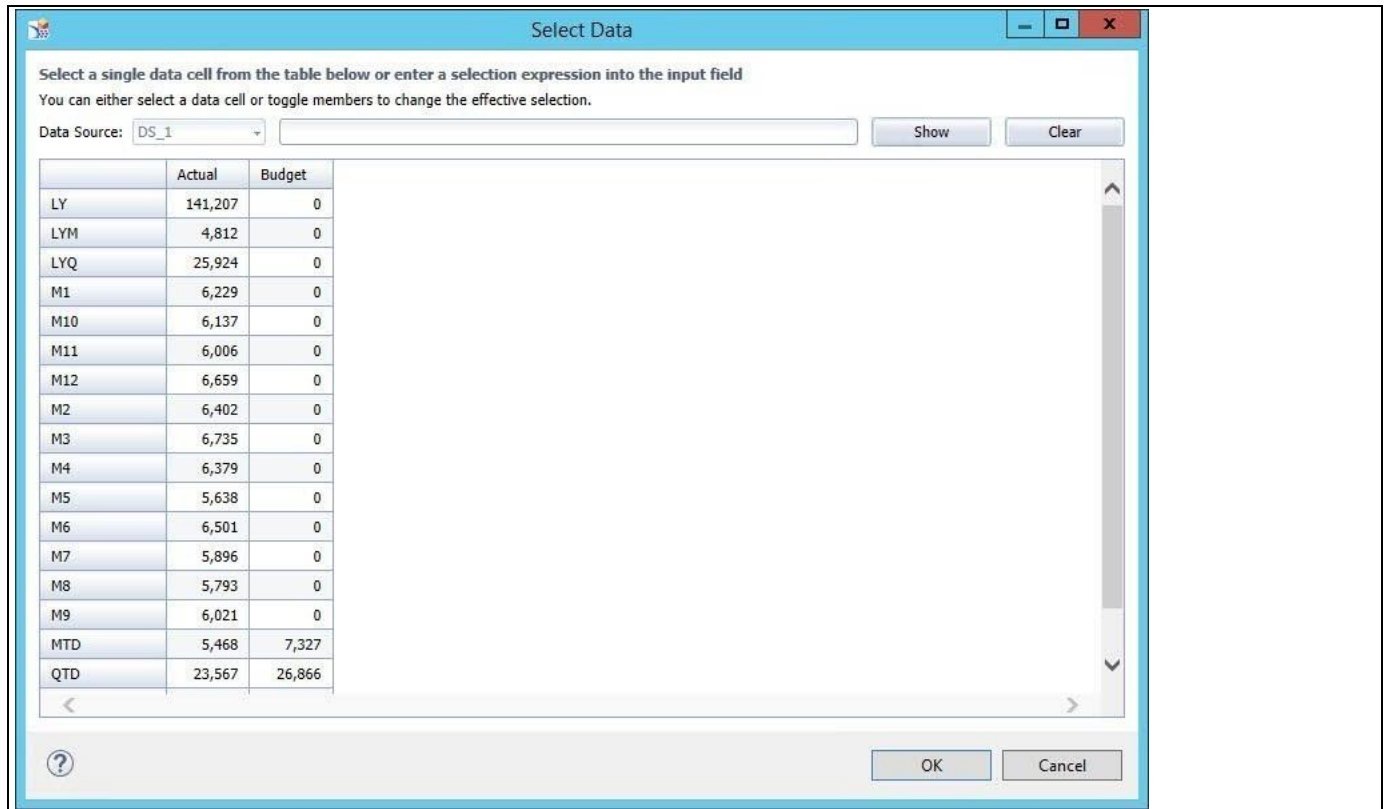


Figure 6.284: Cell Selection

43. For the Icon we will assign the Actual value for QTD. We will then later on create a conditional formatting and compare the Actual with Budget and change the Icon based on the outcome.
44. Select the cell.
45. Click OK.
46. Click Save in the Additional Properties.
47. Now select the Header container in the structure.
48. In the Additional Properties for the container navigate to the area Title.
49. Set the Value Type to the option Static.
50. Set the Value to the text "Sales Revenue".
51. Scroll down to the area Icon.
52. Set the Icon Symbol to the value None.
53. Click Save in the Additional Properties.
54. Now select the first KPI container (left hand side) in the structure. In the first container we want to show the actual revenue for the month.
55. In the Additional Properties for the container navigate to the area KPI.
56. Set the property Font Size to the value 24.
57. Set the Value Type property to the option Dynamic.
58. Navigate to the property Value and open the Data Selection editor.
59. For this KPI container select the cell from Actual for the current month (MTD).
60. Click OK.

61. Set the property Number of Decimals to the value 0.
62. Set the property Prefix to the value USD
63. Now select the second KPI container (right hand side) in the structure. In this KPI container we will show the deviation between the value from this month compared with the same month from last year.
64. In the Additional Properties for the container navigate to the area KPI.
65. Set the property Font Size to the value 24.
66. Set the Value Type property to the option Calculation.
67. Navigate to the property Value 1 and open the Data Selection editor.
68. For Value 1 we select the value for the current month for the Actual value (MTD).
69. Click OK.
70. Navigate to the property Value 2 and open the Data Selection editor.
71. For Value 2 we select the value for the Actual value from the last year month (LYM).
72. Click OK.

You can choose now the calculation operator: Add, Subtract, Multiply, Divide, or Deviation.

You can also choose the value type of the result: Absolute or Percentages.

For our example we would like to know the deviation of the value from this year compared to last year.

73. Set the Calculation Operator to the option Deviation.
74. Set the Result Type to Percentage.
75. Activate the option Percentage Value as Increase / Decrease.
76. Activate the option Increase is Good.
77. Activate the option Include Icon.
78. Set the option Icon Symbol Good to the option Chevron Up.
79. Set the option Icon Symbol Bad to the option Chevron Down.
80. Click Save in the Additional Properties.
81. Your KPI Tile should now look similar to Figure 6.285



Figure 6.285: KPI Tile (in progress)

82. Now select the Sparkline Chart container in the structure.
83. Navigate to the area Chart in the Additional Properties.
84. Set the Chart Type to Column.
85. Navigate to the property Chart Data.
86. Open the Data Selection editor.
87. Select the value Actual for the 12 months from our sample data. You basically selecting 12 cells.
88. Click Save in the Additional Properties.

89. Now select the Footer container in the structure.
90. Navigate to the Footer area in the Additional Properties.
91. Set the Value Type to Static.
92. Set the Value to the text "from Last Year".
93. Navigate to the Subfooter area in the Additional Properties.
94. Set the Value Type to Static.
95. Remove any text from the property Value.
96. Navigate to the KPI area in the Additional Properties.
97. Set the Value Type property to the option Calculation.
98. Navigate to the property Value 1 and open the Data Selection editor.
99. For Value 1 we select the value for the current year for the Actual value (YTD).
100. Click OK.
101. Navigate to the property Value 2 and open the Data Selection editor.
102. For Value 2 we select the value for the Actual value from the last year (LY).
103. Click OK.
104. Set the Calculation Operator to the option Deviation.
105. Set the Result Type to Absolute.
106. Activate the option Increase is Good.
107. Set the Suffix to the value "%".
108. Click Save in the Additional Properties.
109. Your KPI Tile should now look similar to Figure 6.286.



Figure 6.286: KPI Tile

6.19.18 Additional Properties of the Advanced KPI Tile

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Advanced KPI Tile.

6.19.18.1 Category General – Container Type Header

Sub category	Area	Property	Description
KPI Tile Layout	Container	Data Source	Sets the assigned Data Source for the Container.
		Background Color	Sets the Background Color for the Container.
		Border Color	Sets the Border Color for the Container.
		Border	Sets the Border for the Container.
		Border Radius	Sets the Border Radius for the Container.
		Padding	Sets the Padding for the Container.
		Margin	Sets the Margin for the Container.
	Title	Value Type	Sets the Value Type. You can choose between Static or Dynamic.
		Value	Defines the actual Text.
		Font Family	Sets the Font Family for the Title Text.
		Font Size	Sets the Font Size for the Title Text.
		Font Color	Sets the Font Color for the Title Text.
		Font Style	Sets the Font Style for the Title Text.
		Font Weight	Sets the Font Weight for the Title Text.
		Font Decoration	Sets the Font Decoration for the Title Text.
		Horizontal Alignment	Sets the Horizontal Alignment for the Title Text.
		Vertical Alignment	Sets the Vertical Alignment for the Title Text.
		Reduce Gap	When on activating this property, it reduces the gap between the Title and Sub title.
		Maximum Number of Lines to Display	Sets the number of lines for the Title Text.
	Icon	Icon Type	Allows you to define the Icon Type. The choices are Standard or Icon URL.
		Icon Symbol	Here you can choose from a list of standard Icons.
		Rotation	Allows to define the Icon Rotation.
		Icon Color	Sets the Icon Color.
		Icon Size	Sets the Icon Size.
		Icon Horizontal	Sets the Icon Horizontal Alignment.

Sub category	Area	Property	Description
		Alignment	
		Icon Vertical Alignment	Sets the Icon Vertical Alignment.
	Subtitle	Value Type	Sets the Value Type. You can choose between Static or Dynamic.
		Value	Defines the actual Text.
		Font Family	Sets the Font Family for the Subtitle Text.
		Font Size	Sets the Font Size for the Subtitle Text.
		Font Color	Sets the Font Color for the Subtitle Text.
		Font Style	Sets the Font Style for the Subtitle Text.
		Font Weight	Sets the Font Weight for the Subtitle Text.
		Font Decoration	Sets the Font Decoration for the Subtitle Text.
		Horizontal Alignment	Sets the Horizontal Alignment for the Subtitle Text.
		Vertical Alignment	Sets the Vertical Alignment for the Subtitle Text.
		Maximum Number of Lines to Display	Sets the number of lines for the Subtitle Text.

Table 6.72: Category General – Container Type Header

6.19.18.2 Category General – Container Type Footer

Sub category	Area	Property	Description
KPI Tile Layout	Container	Background Color	Sets the Background Color for the Container.
		Border Color	Sets the Border Color for the Container.
		Padding	Sets the Padding for the Container.
		Data Source	Sets the assigned Data Source for the Container.
	Footer	Value Type	Sets the Value Type. You can choose between Static or Dynamic.
		Value	Defines the actual Value.
		Font Family	Sets the Font Family for the Footer Text.
		Font Size	Sets the Font Size for the Footer Text.
		Font Color	Sets the Font Color for the Footer Text.
		Font Style	Sets the Font Style for the Footer Text.
		Font Weight	Sets the Font Weight for the Footer Text.
		Font Decoration	Sets the Font Decoration for the Footer Text.
		Horizontal Alignment	Sets the Horizontal Alignment for the Footer Text.
		Vertical Alignment	Sets the Vertical Alignment for the Footer Text.

Sub category	Area	Property	Description
		Reduce Gap	When on activating this property, it reduces the gap between the Footer and Sub Footer.
		Maximum Number of Lines to Display	Sets the number of lines for the Footer Text.
	SubFooter	Value Type	Sets the SubFooter Text Type. You can choose between Static or Dynamic.
		Value	Defines the actual SubFooter Text.
		Font Family	Sets the Font Family for the SubFooter Text.
		Font Size	Sets the Font Size for the SubFooter Text.
		Font Color	Sets the Font Color for the SubFooter Text.
		Font Style	Sets the Font Style for the SubFooter Text.
		Font Weight	Sets the Font Weight for the SubFooter Text.
		Font Decoration	Sets the Font Decoration for the SubFooter Text.
		Horizontal Alignment	Sets the Horizontal Alignment for the SubFooter Text.
		Vertical Alignment	Sets the Vertical Alignment for the SubFooter Text.
		Maximum Number of Lines to Display	Sets the number of lines for the SubFooter Text.
	KPI	Value Type	Sets the Footer Text Type. You can choose between Static, Dynamic, or a Calculation.
		Value	Defines the actual Data Value for the KPI.
		Font Family	Sets the Font Family for the KPI.
		Font Size	Sets the Font Size for the KPI.
		Font Color	Sets the Font Color for the KPI.
		Font Style	Sets the Font Style for the KPI.
		Font Weight	Sets the Font Weight for the KPI.
		Font Decoration	Sets the Font Decoration for the KPI.
		Horizontal Alignment	Sets the Horizontal Alignment for the KPI.
		Vertical Alignment	Sets the Vertical Alignment for the KPI.
		Number of Decimals	The property allows you to set the number of decimals for the data value.
		Decimal Separator	The property allows you to specify the Decimal Separator for the data value.
		Thousand Separator	The property allows you to specify the Thousand Separator for the data value.
		Enable Scaling Factor	The property enables / disables the display of the configured Scaling Factor for the data value.
		Scaling Factor	The property allows you to specify a Scaling Factor, which then can be displayed together

Sub category	Area	Property	Description
			with the data value.
		Show Currency/Unit	The property enables / disables the display of the Unit / Currency value.
		Scaling Unit	The property sets the Scaling Unit.
		Prefix	Here you can enter a Prefix for the data value.
		Suffix	Here you can enter a Suffix for the data value.

Table 6.73: Category General – Container Type Header

6.19.18.3 Category General – Container Type KPI

Sub category	Area	Property	Description
KPI Tile Layout	Container	Background Color	Sets the Background Color for the Container.
		Border Color	Sets the Border Color for the Container.
		Padding	Sets the Padding for the Container.
		Data Source	Sets the assigned Data Source for the Container.
	KPI	Value Type	Sets the Footer Text Type. You can choose between Static, Dynamic, or a Calculation.
		Value	Defines the actual Data Value for the KPI.
		Font Family	Sets the Font Family for the KPI.
		Font Size	Sets the Font Size for the KPI.
		Font Color	Sets the Font Color for the KPI.
		Font Style	Sets the Font Style for the KPI.
		Font Weight	Sets the Font Weight for the KPI.
		Font Decoration	Sets the Font Decoration for the KPI.
		Horizontal Alignment	Sets the Horizontal Alignment for the KPI.
		Vertical Alignment	Sets the Vertical Alignment for the KPI.
		Number of Decimals	The property allows you to set the number of decimals for the data value.
		Decimal Separator	The property allows you to specify the Decimal Separator for the data value.
		Thousand Separator	The property allows you to specify the Thousand Separator for the data value.
		Enable Scaling Factor	The property enables / disables the display of the configured Scaling Factor for the data value.
		Scaling Factor	The property allows you to specify a Scaling Factor, which then can be displayed together with the data value.
		Show Currency/Unit	The property enables / disables the display of the Unit / Currency value.

Sub category	Area	Property	Description
		Scaling Unit	The property sets the Scaling Unit.
		Prefix	Here you can enter a Prefix for the data value.
		Suffix	Here you can enter a Suffix for the data value.
	Footer	Value Type	Sets the Footer Text Type. You can choose between Static or Dynamic.
		KPI Footer Text	Here you can define the Footer Text.
		Font Family	Sets the Font Family for the Footer Text.
		Font Size	Sets the Font Size for the Footer Text.
		Font Color	Sets the Font Color for the Footer Text.
		Font Style	Sets the Font Style for the Footer Text.
		Font Weight	Sets the Font Weight for the Footer Text.
		Font Decoration	Sets the Font Decoration for the Footer Text.
		Horizontal Alignment	Sets the Horizontal Alignment for the Footer Text.
		Maximum Number of Lines to Display	Sets the number of lines for the Footer Text.
	Footer KPI	Value Type	Sets the Footer KPI Text Type. You can choose between Static, Dynamic, or a Calculation.
		Value	Defines the actual Data Value for the Footer KPI.
		Font Family	Sets the Font Family for the Footer KPI.
		Font Size	Sets the Font Size for the Footer KPI.
		Font Color	Sets the Font Color for the Footer KPI.
		Font Style	Sets the Font Style for the Footer KPI.
		Font Weight	Sets the Font Weight for the Footer KPI.
		Font Decoration	Sets the Font Decoration for the Footer KPI.
		Horizontal Alignment	Sets the Horizontal Alignment for the Footer KPI.
		Vertical Alignment	Sets the Vertical Alignment for the Footer KPI.
		Number of Decimals	The property allows you to set the number of decimals for the data value.
		Decimal Separator	The property allows you to specify the Decimal Separator for the data value.
		Thousand Separator	The property allows you to specify the Thousand Separator for the data value.
		Enable Scaling Factor	The property enables / disables the display of the configured Scaling Factor for the data value.

Sub category	Area	Property	Description
		Scaling Factor	The property allows you to specify a Scaling Factor, which then can be displayed together with the data value.
		Show Currency/Unit	The property enables / disables the display of the Unit / Currency value.
		Scaling Unit	The property sets the Scaling Unit.
		Prefix	Here you can enter a Prefix for the data value.
		Suffix	Here you can enter a Suffix for the data value.
		Distance from Footer Text	Here you can set the distance from the KPI Footer Text.
	Percent Deviation	Font Size	Sets the Font Size.
		Font Style	Sets the Font Style.
		Font Weight	Sets the Font Weight.
		Font Decoration	Sets the Font Decoration.
		Number of Decimals	The property allows you to set the number of decimals for the data value.
		Decimal Separator	The property allows you to specify the Decimal Separator for the data value.
		Thousand Separator	The property allows you to specify the Thousand Separator for the data value.

Table 6.74: Category General – Container Type KPI

6.19.18.4 Category General – Container Type Icon

Sub category	Area	Property	Description
KPI Tile Layout	Container	Background Color	Sets the Background Color for the Container.
		Border Color	Sets the Border Color for the Container.
		Padding	Sets the Padding for the Container.
		Data Source	Sets the assigned Data Source for the Container.
	Icon	Enable Data Assignment	The property enables / disables the option for Data Assignment.
		Icon Type	You can choose between Standard Icon or Icon URL.
		Icon Symbol	You can choose the Icon Symbol.
		Icon Color	Sets the Icon Color.
		Icon Size	Sets the Icon Size.
		Icon URL	Sets the Icon from the Icon URL.
		Icon Horizontal Alignment	Sets the Horizontal Alignment for the

Sub category	Area	Property	Description
			Icon.
		Icon Vertical Alignment	Sets the Vertical Alignment for the Icon.
		Rotation	Sets the Icon Rotation.

Table 6.75: Category General – Container Type Icon

6.19.18.5 Category General – Container Type Sparkline Chart

Sub category	Area	Property	Description
KPI Tile Layout	Container	Background Color	Sets the Background Color for the Container.
		Border Color	Sets the Border Color for the Container.
		Padding	Sets the Padding for the Container.
		Data Source	Sets the assigned Data Source for the Container.
	Chart	Chart Type	Here you can set the chart type.
		Chart Data	Here you can define the data selection for the chart data.
		Chart Title	You can set the Chart Title Text.
		Ignore Total	The option allows you to avoid the display of the overall result in the chart, when enabled.
		Ignore Subtotal	The option allows you to avoid the display of subtotals in the chart, when enabled.
		Series Color	Sets the property series color for the selected measure.
		Font Family	Sets the Font Type for the Chart Title.
		Font Size	Sets the Font Size for the Chart Title.
		Font Color	Sets the Font Color for the Chart Title.
		Font Style	Sets the Font Style for the KPI.
		Enable configurations from Sparkline Properties tab	This option enables configurations from Sparkline Properties tab to configure properties in detail. It will overwrite any chart properties configured elsewhere.

Table 6.76: Category General – Container Type Sparkline Chart

6.19.18.6 Category General – Container Type Dynamic Container

Sub category	Area	Property	Description
KPI Tile Layout	Container	Background Color	Sets the Background Color for the Dynamic Container.
		Border Color	Sets the Border Color for the Dynamic Container.
		Padding	Sets the Padding for the Dynamic Container.
		Select Component	Here you can select the VBX and Native components that are assigned to the project.

Table 6.77: Category General – Container Type Dynamic Container

6.19.18.7 Category General – KPI Templates

Sub category	Area	Property	Description
KPI Templates			Here you can select the Template from the predefined Templates List and the selected Template will overwrite the already configured KPI Layout settings.
		Undo Template	Using this option, the initially configured KPI Layout settings will be recovered.

Table 6.78: Category General – KPI Templates

6.19.18.8 Category General – Sparkline Properties

Sub category	Area	Property	Description
Sparkline Properties	Sparkline Configuration	Chart Property	Sets the Chart Property for the Sparkline Chart area. The options are Titles, X-Axis, Y-Axis, Data Label, Tooltip and Custom Theme.

Table 6.79: Category General – Sparkline Properties

6.19.18.9 Category General – Status Indicator

Sub category	Area	Property	Description
Status Indicator		Status Indicator Enabled	This property enables / disables the option for Status Indicator.
		DataSource	Here you can select the Data Source for the Status Indicator.
		Status Indicator Width	Sets the width for the Status Indicator.
		Status Indicator Color	Sets the color for the Status Indicator.
		Status Indicator Position	Sets the position for the Status Indicator. The options are Left, Right, Top and Bottom.
		Value Type	Sets the Value Type for the Status

Sub category	Area	Property	Description
			Indicator. The options are Static, Calculation and Dynamic.
		Value	Sets the Static value or Dynamic value by selecting the single cell selection from the assigned data source.
		Value 1	Sets the Dynamic value 1 by selecting the single cell selection from the assigned data source.
		Value Type	Sets the operator type for the Calculation. The options are Add, Subtract, Multiply, Divide and Deviation.
		Value 2	Sets the Dynamic value 2 by selecting the single cell selection from the assigned data source.
		Result Type	Sets the Result Type for the Calculation. The options are Absolute and Percentage.
		Percentage Value as Increase / Decrease	This property enables / disables the option for setting the Percentage Value as Increase / Decrease.

Table 6.80: Category General – Status Indicator

6.19.18.10 Category General – 2-Sided KPI Tile

Sub category	Area	Property	Description
2-Sided KPI Tile		Enable 2-Sided KPI Tile	This property enables / disables the option for 2-sided KPI Tile. Once enabled, you are provided with the option to configure the one side as well as the other side of the KPI Tile by navigating to the category General and to the sub category KPI Tile Layout in the Additional Properties.
		Flip Direction	Sets the direction of the flip. The options are Horizontal and Vertical.
		Enable Flip Icon	This property enables / disables the option for Flip Icon. This property when enabled, it shows the flip icon on the KPI Tile to provide user the visual indication that the Tile has been flipped.
		Flip Icon Size	Sets the size for the Flip Icon.
		Flip Icon Color	Sets the color for the Flip Icon.
		Flip Icon Position	Sets the position for the Flip Icon. The options are Top Left, Top Right, Bottom Left and Bottom Right.
		Flip Icon Visibility	Sets the visibility of the Flip Icon. The options are Always and On Hover over

Sub category	Area	Property	Description
			KPI Tile.

Table 6.81: Category General – 2-Sided KPI Tile

6.19.18.11 Category Data

Sub category	Area	Property	Description
Conditional Formatting		Rule Name	Here you can enter a Name for the Alert.
		Rule Type	You can choose between: Single Measure, Measure Calculation and Target Value.
		Value Type	Here you can choose between a Static and a Dynamic Value.
		Operator	Here you can choose the operator that is used to compare the Comparison Measure with the Comparison Value.
		Value	Here you can set the Static value.
		Background Color	Sets the Background Color for the Tile.

Table 6.82: Category Data

6.19.18.12 Category Appearance

Sub category	Area	Property	Description
General Settings		Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
Data Label		Enable Data Labels	This option allows to enable / disable the Data Labels for the Sparkline Charts.
		Font Color	This property sets the Font Color for the Data Label for the Sparkline Chart.
		Font Style	This property sets the Font Style for the Data Label for the Sparkline Chart.
		Font Size	This property sets the Font Size for the Data Label for the Sparkline Chart.
		Font Family	This property sets the Font Family for the Data Label for the Sparkline Chart.
KPI Tile	Divider Line	Enable Divider Lines	This option allows you to enable / disable the Divider Lines between the individual container in the KPI Tile.
		Line Style	Here you can configure the Divider Line Style.
		Line Color	Here you can configure the Divider Line Color.
		Line Thickness	Here you can configure the Divider Line Thickness.
	Title Area	Margin Top	This option defines the margin at the Top for the Sparkline Chart.
		Margin Bottom	This option defines the margin at the Bottom for the Sparkline Chart.
		Margin Left	This option defines the margin on the Left side for the Sparkline Chart.
		Margin Right	This option defines the margin on the Right side for the Sparkline Chart.
		Enable Plot Area Shadow	This option allows to enable / disable a plot shadow for the tile.
	Border	Border Style	This property allows to set the Border Style for the overall KPI Tile.
		Border Width	This property allows to set the Border Width for the overall KPI Tile.
		Border Color	This property allows to set the Border Color for the overall KPI Tile.
		Border Radius	This property allows to set the Border Radius for the overall KPI Tile.

Sub category	Area	Property	Description
Selected Mode		Selected Mode Enabled	This property allows you to enable / disable the Selected Mode option.
		Selected Mode Background Color	This property sets the Background Color for the Selected Mode.
		Selected Mode Border Color	This property sets the Border Color for the Selected Mode.
		Selected Mode Border Width	This property sets the Border Width for the Selected Mode.
		Selected Mode Shadow	This property sets the Shadow configuration for the Selected Mode.

Table 6.83: Category Appearance

6.19.19 Scripting Function for the Advanced KPI Tile

In addition to the scripting functions for the KPI Tile listed in section 6.7.3, the Advanced KPI Tile supports the following scripting functions.

Function / Method	Description
DSXGetChartPanning()	This function allows you to retrieve the value for Chart Panning.
DSXGetContainerBackgroundColor()	This function allows you to retrieve the Background Color for the Container.
DSXGetContainerBorderColor()	This function allows you to retrieve the Border Color for the Container.
DSXGetDataSelection()	This function allows you to retrieve the Data Selection specifying the result set.
DSXGetFooterFontColor()	This function allows you to retrieve the Footer Font Color.
DSXGetFooterFontFamily()	This function allows you to retrieve the Footer Font Family.
DSXGetFooterFontSize()	This function allows you to retrieve the Footer Font Size.
DSXGetFooterText()	This function allows you to retrieve the Footer Text.
DSXGetHorizontalZoomButtonAlign()	This function allows you to retrieve the value for the Horizontal alignment of the Zoom button.
DSXGetIconColor()	This function allows you to retrieve the Icon Color.
DSXGetIconRotation()	This function allows you to retrieve the Icon Rotation.
DSXGetIconSize()	This function allows you to retrieve the Icon Size.
DSXGetIconStaticData()	This function allows you to retrieve the value for the Static Data assigned to the Icon.
DSXGetIconSymbol()	This function allows you to retrieve the Icon Symbol details.
DSXGetKPIDecimalSeparator()	This function allows you to retrieve the value for the property Decimal Separator.

Function / Method	Description
DSXGetKPIFontColor()	This function allows you to retrieve the KPI Font Color.
DSXGetKPIFontColorGoodBad()	This function allows you to retrieve the configured value for the property for the configured Font Color for good and bad values as part of the Additional Properties for the KPI Tile.
DSXGetKPIFontFamily()	This function allows you to retrieve the KPI Font Family.
DSXGetKPIFontSize()	This function allows you to retrieve the KPI Font Size.
DSXGetKPIIconColorGoodBad()	This function allows you to retrieve the configured values for the Icon Color for good or bad values as part of the Additional Properties for the KPI Tile.
DSXGetKPIIconRotationGoodBad()	This function allows you to retrieve the configured values for Icon Rotation for good or bad values as part of the Additional Properties for the KPI Tile.
DSXGetKPIIconSize()	This function allows you to retrieve the value for KPI Icon Size.
DSXGetKPIIconSymbolGoodBad()	This function allows you to retrieve the configured value for the property for the good and bad Icon Symbol as part of the Additional Properties for the KPI Tile.
DSXGetKPIIncreasesIsGood()	This function allows you to retrieve the configured value for the property if an Increase is good or bad as part of the Additional Properties for the KPI Tile.
DSXGetKPINoOfDecimals()	This function allows you to retrieve the value for the property Number of Decimals.
DSXGetKPIPercentIncreaseDecrease()	This function allows you to retrieve the configured value for the property to display the Increase or Decrease as Percentage value.
DSXGetKPIPrefix()	This function allows you to retrieve the value for the property Prefix.
DSXGetKPIShowScalingFactor()	This function allows you to retrieve the value for the property Enable Scaling Factor.
DSXGetKPIShowUnit()	This function allows you to retrieve the value for the property Show Unit.
DSXGetKPIStaticData()	This function allows you to retrieve the value for the Static Data assigned to the KPI.
DSXGetKPISuffix()	This function allows you to retrieve the value for the property Suffix.
DSXGetKPIThousandSeparator()	This function allows you to retrieve the value for the property Thousand Separator.
DSXGetkpititlecolor()	This function allows you to retrieve the KPI Title Color.
DSXGetkpititlefontfamily()	This function allows you to retrieve the KPI Sparkline Title Font Family.
DSXGetkpititlefontsize()	This function allows you to retrieve the KPI Sparkline Title Font Size.

Function / Method	Description
DSXGetKpiTitleFontWeight()	This function allows you to retrieve the KPI Sparkline Title Font Weight.
DSXGetSparklineBulletComparisonMeasureColor()	This function allows you to retrieve the Sparkline Bullet Comparison Measure Color.
DSXGetSparklineBulletPerformanceMeasureColor()	This function allows you to retrieve the Sparkline Bullet Performance Measure Color.
DSXGetSparklineBulletQualitativeMeasureColor()	This function allows you to retrieve the Sparkline Bullet Qualitative Measure Color.
DSXGetSparklineBulletQualitativeRange()	This function allows you to retrieve the Sparkline Bullet Qualitative Range.
DSXGetSparklineChartColor()	This function allows you to retrieve the Sparkline Chart Color.
DSXGetSparklineChartType()	This function allows you to retrieve the Sparkline Chart Type.
DSXGetSparklineLossColor()	This function allows you to retrieve the Sparkline Loss Color.
DSXGetSparklineWinColor()	This function allows you to retrieve the Sparkline Win Color.
DSXGetStatusIndicatorCalculationOperator()	This function allows you to retrieve the value for Status Indicator Calculation Operator.
DSXGetStatusIndicatorCallout()	This function allows you to retrieve the value for Status Indicator Callout.
DSXGetStatusIndicatorCalloutSize()	This function allows you to retrieve the value for Status Indicator Callout size.
DSXGetStatusIndicatorCalloutTop()	This function allows you to retrieve the value for Status Indicator Callout Top Offset.
DSXGetStatusIndicatorColor()	This function allows you to retrieve the color for Status Indicator.
DSXGetStatusIndicatorDataSource()	This function allows you to retrieve the value for Status Indicator Data Source.
DSXGetStatusIndicatorEnabled()	The function allows you to retrieve the status (enabled / disabled) for the Status Indicator.
DSXGetStatusIndicatorPercentIncreaseDecrease()	This function allows you to retrieve the configured value for the property to display the Increase or Decrease as Percentage value.
DSXGetStatusIndicatorResultType()	This function allows you to retrieve the value for the Status Indicator Result Type.
DSXGetStatusIndicatorSymbol()	This function allows you to retrieve the Symbol for the Status Indicator.
DSXGetStatusIndicatorSymbolColor()	This function allows you to retrieve the Symbol Color for the Status Indicator.
DSXGetStatusIndicatorSymbolRotation()	This function allows you to retrieve the value for the

Function / Method	Description
	Status Indicator Symbol Rotation.
DSXGetStatusIndicatorSymbolSize()	This function allows you to retrieve the value for the Status Indicator Symbol Size.
DSXGetStatusIndicatorSymbolTop()	This function allows you to retrieve the value for the Status Indicator Symbol Top Offset.
DSXGetStatusIndicatorValueDynamic()	This function allows you to retrieve the dynamic value 1 from the data source for the Status Indicator.
DSXGetStatusIndicatorValueDynamic2()	This function allows you to retrieve the dynamic value 2 from the data source for the Status Indicator.
DSXGetStatusIndicatorValueStatic()	This function allows you to retrieve the static value for the Status Indicator.
DSXGetStatusIndicatorValueType()	This function allows you to retrieve the value type for the Status Indicator.
DSXGetStatusIndicatorWidth()	This function allows you to retrieve the width for the Status Indicator.
DSXGetSubFooterFontColor()	This function allows you to retrieve the Sub Footer Font Color.
DSXGetSubFooterFontFamily()	This function allows you to retrieve the Sub Footer Font Family.
DSXGetSubFooterFontSize()	This function allows you to retrieve the Sub Footer Font Size.
DSXGetSubFooterText()	This function allows you to retrieve the Sub Footer Text.
DSXGetSubTitleFontColor()	This function allows you to retrieve the subtitle Font Color.
DSXGetSubTitleFontFamily()	This function allows you to retrieve the SubTitle Font Family.
DSXGetSubTitleFontSize()	This function allows you to retrieve the subtitle Font Size.
DSXGetSubTitleText()	This function allows you to retrieve the SubTitle Text.
DSXGetTitleFontColor()	This function allows you to retrieve the Title Font Color.
DSXGetTitleFontFamily()	This function allows you to retrieve the Title Font Family.
DSXGetTitleFontSize()	This function allows you to retrieve the Title Font Size.
DSXGetTitleText()	This function allows you to retrieve the Title Text.
DSXGetVerticalZoomButtonAlign()	This function allows you to retrieve the value for the Vertical alignment of the Zoom button.
DSXGetZoomButtonBackgroundColor()	This function allows you to retrieve the value for the Zoom Button Background color.
DSXGetZoomButtonHoverBackgroundColor()	This function allows you to retrieve the value for the Zoom Button Hover Background Color.
DSXGetZoomButtonHoverTextColor()	This function allows you to retrieve the value for the Zoom Button Hover Text Color.
DSXGetZoomButtonRadius()	This function allows you to retrieve the value for the

Function / Method	Description
	Zoom Button Radius.
DSXGetZoomButtonTextColor()	This function allows you to retrieve the value for the Zoom Button Text Color.
DSXGetZoomSelectionAreaBackgroundColor()	This function allows you to retrieve the value for the Zoomed Area Fill.
DSXSetChartPanKey()	This function allows you to set the value for Chart Pan Key.
DSXSetChartPanning()	This function allows you to set the value for Chart Panning.
DSXSetChartPinchType()	This function allows you to set the value for Chart Pinch Type.
DSXSetContainerBackgroundColor()	This function allows you to set the Background Color for the Container.
DSXSetContainerBorderColor()	This function allows you to set the Border Color for the Container.
DSXSetDataSelection()	This function allows you to specify the result set of the List Box using a Data Selection.
DSXSetFooterFontColor()	This function allows you to set the Footer Font Color.
DSXSetFooterFontFamily()	This function allows you to set the Footer Font Family.
DSXSetFooterFontSize()	This function allows you to set the Footer Font Size.
DSXSetFooterStaticText()	This function allows you to set the Footer Static Text.
DSXSetHorizontalZoomButtonAlign()	This function allows you to set the value for Horizontal Zoom button alignment.
DSXSetIconColor()	This function allows you to set the Icon Color.
DSXSetIconDynamicData()	This function allows you to set the Icon Dynamic Data.
DSXSetIconRotation()	This function allows you to set the Icon Rotation.
DSXSetIconSize()	This function allows you to set the Icon Size.
DSXSetIconStaticData()	This function allows you to set the Icon Static Data.
DSXSetIconSymbol()	This function allows you to set the Icon Symbol.
DSXSetKPICalculationData()	This function allows you to set the KPI Calculation Data.
DSXSetKPIDecimalSeparator()	This function allows you to set the value for the property Decimal Separator.
DSXSetKPIDynamicData()	This function allows you to set the KPI Dynamic Data.
DSXSetKPIFontColor()	This function allows you to set the KPI Font Color.
DSXSetKPIFontColorGoodBad()	This function allows you to set the configured value for the property for the configured Font Color for good and bad values as part of the Additional Properties for the KPI Tile.
DSXSetKPIFontFamily()	This function allows you to set the KPI Font Family.
DSXSetKPIFontSize()	This function allows you to set the KPI Font Size.
DSXSetKPIIconColorGoodBad()	This function allows you to set the configured values for

Function / Method	Description
	the Icon Color for good or bad values as part of the Additional Properties for the KPI Tile.
DSXSetKPIIconRotationGoodBad()	This function allows you to set the configured values for the Icon Rotation for good or bad values as part of the Additional Properties for the KPI Tile.
DSXSetKPIIconSize()	This function allows you to set the value for KPI Icon Size.
DSXSetKPIIconSymbolGoodBad()	This function allows you to set the configured value for the property for the good and bad Icon Symbol as part of the Additional Properties for the KPI Tile.
DSXSetKPIIncreasesIsGood()	This function allows you to set the configured value for the property if an Increase is good or bad as part of the Additional Properties for the KPI Tile.
DSXSetKPINoOfDecimals()	This function allows you to set the value for the property Number of Decimals.
DSXSetKPIPercentIncreaseDecrease()	This function allows you to set the configured value for the property to display the Increase or Decrease as Percentage value.
DSXSetKPIPrefix()	This function allows you to set the value for the property Prefix.
DSXSetKPIShowScalingFactor()	This function allows you to set the value for the property Enable Scaling Factor.
DSXSetKPIShowUnit()	This function allows you to set the value for the property Show Unit.
DSXSetKPIStaticData()	This function allows you to set the KPI Static Data.
DSXSetKPISuffix()	This function allows you to set the value for the property Suffix.
DSXSetKPIThousandSeparator()	This function allows you to set the value for the property Thousand Separator.
DSXSetkpititlecolor()	This function allows you to set the KPI Title Color.
DSXSetkpititlefontfamily()	This function allows you to set the KPI Sparkline Title Font Family.
DSXSetkpititlefontsize()	This function allows you to set the KPI Sparkline Title Font Size.
DSXSetkpititlefontweight()	This function allows you to set the KPI Sparkline Title Font Weight.
DSXSetLoadingIndicator()	This function allows you to set the Loading Indicator. When the function is set to True, then the Loading Indicator will be displayed. When the function is set to False, then the Loading Indicator will be hidden.
DSXSetLoadingIndicatorText()	This function allows you to set the Text for the Loading Indicator.
DSXSetSparklineBulletComparisonMeasureColor()	This function allows you to set the Sparkline Bullet

Function / Method	Description
	Comparison Measure Color.
DSXSetSparklineBulletComparisonMeasureColor()	This function allows you to set the Sparkline Bullet Comparison Measure Color.
DSXSetSparklineBulletPerformanceMeasureColor()	This function allows you to set the Sparkline Bullet Performance Measure Color.
DSXSetSparklineBulletPerformanceMeasureColor()	This function allows you to set the Sparkline Bullet Performance Measure Color.
DSXSetSparklineBulletQualitativeMeasureColor()	This function allows you to set the Sparkline Bullet Qualitative Measure Color.
DSXSetSparklineBulletQualitativeRange()	This function allows you to set the Sparkline Bullet Qualitative Range.
DSXSetSparklineChartColor()	This function allows you to set the Sparkline Chart Color.
DSXSetSparklineChartData()	This function allows you to set the Sparkline Chart Data.
DSXSetSparklineChartType()	This function allows you to set the Sparkline Chart Type.
DSXSetSparklineLossColor()	This function allows you to set the Sparkline Loss Color.
DSXSetSparklineWinColor()	This function allows you to set the Sparkline Win Color.
DSXSetStatusIndicatorCallout()	This function allows you to set the value for Status Indicator Callout.
DSXSetStatusIndicatorCalloutSize()	This function allows you to set the value for Status Indicator Callout size.
DSXSetStatusIndicatorCalloutTop()	This function allows you to set the value for Status Indicator Callout Top Offset.
DSXSetStatusIndicatorColor()	This function allows you to set the color for Status Indicator.
DSXSetStatusIndicatorDataSource()	This function allows you to set the value for Status Indicator Data Source.
DSXSetStatusIndicatorEnabled()	The function allows you to enable/disable the Status Indicator.
DSXSetStatusIndicatorSymbol()	This function allows you to set the Symbol for the Status Indicator.
DSXSetStatusIndicatorSymbolColor()	This function allows you to set the Symbol Color for the Status Indicator.
DSXSetStatusIndicatorSymbolRotation()	This function allows you to set the value for the Status Indicator Symbol Rotation.
DSXSetStatusIndicatorSymbolSize()	This function allows you to set the value for the Status Indicator Symbol Size.
DSXSetStatusIndicatorSymbolTop()	This function allows you to set the value for the Status Indicator Symbol Top Offset.
DSXSetStatusIndicatorValueCalculation()	This function allows you to set the value for the Status Indicator Calculation.
DSXSetStatusIndicatorValueDynamic()	This function allows you to set the dynamic value from

Function / Method	Description
	the data source for the Status Indicator.
DSXSetStatusIndicatorValueStatic()	This function allows you to set the static value for the Status Indicator.
DSXSetStatusIndicatorWidth()	This function allows you to set the width for the Status Indicator.
DSXSetSubFooterFontColor()	This function allows you to set the SubFooter Font Color.
DSXSetSubFooterFontFamily()	This function allows you to set the SubFooter Font Family.
DSXSetSubFooterFontSize()	This function allows you to set the SubFooter Font Size.
DSXSetSubFooterStaticText()	This function allows you to set the SubFooter Static Text.
DSXSetSubTitleFontColor()	This function allows you to set the SubTitle Font Color.
DSXSetSubTitleFontFamily()	This function allows you to set the SubTitle Font Family.
DSXSetSubTitleFontSize()	This function allows you to set the SubTitle Font Size.
DSXSetSubTitleStaticText()	This function allows you to set the SubTitle Static Text.
DSXSetTitleFontColor()	This function allows you to set the Title Font Color.
DSXSetTitleFontFamily()	This function allows you to set the Title Font Family.
DSXSetTitleFontSize()	This function allows you to set the Title Font Size.
DSXSetTitleStaticText()	This function allows you to set the Title Static Text.
DSXSetVerticalZoomButtonAlign()	This function allows you to set the value for Vertical Zoom button alignment.
DSXSetZoomButtonBackgroundColor()	This function allows you to set the value for Zoom Button Background color.
DSXSetZoomButtonHoverBackgroundColor()	This function allows you to set the value for Zoom Button Hover Background Color.
DSXSetZoomButtonHoverTextColor()	This function allows you to set the value for Zoom Button Hover Text Color.
DSXSetZoomButtonRadius()	This function allows you to set the value for Zoom Button Radius.
DSXSetZoomButtonTextColor()	This function allows you to set the value for Zoom Button Text Color.
DSXSetZoomSelectionAreaBackgroundColor()	This function allows you to set the value for Zoomed Area Fill.
DSXToggleKPITileSide()	This function sets Toggle value for the KPI Tile Side.

Table 6.84: Scripting Functions

6.20 Pictogram

The Pictogram component provides you with similar functionality like the Waffle Chart, but the Pictogram gives you the additional functionality to configure the number of rows and columns that should be displayed whereas a Waffle Chart will always be a 10 x 10 matrix.

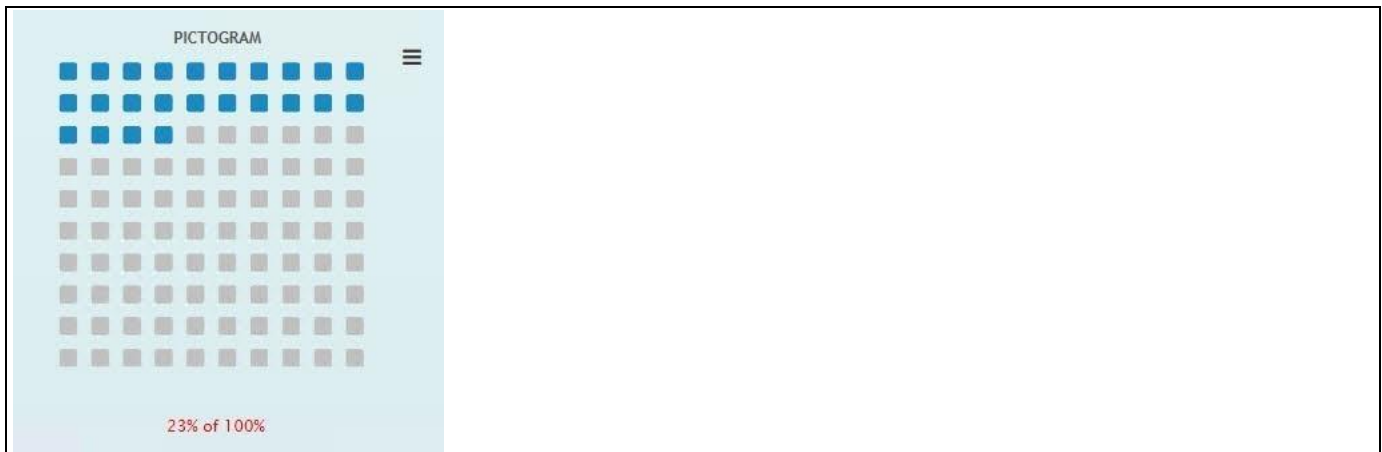


Figure 6.287: Pictogram

6.20.1 Data Source Requirements for a Pictogram

The minimum data source requirement for a Pictogram is a data source with at least two cell values, so that one cell selection would represent the value and the second value would represent the maximum value. In addition, the Pictogram can also leverage dimensions in the rows for the Dimension Stacking feature.

6.20.2 How to use a Pictogram

In the following steps we will outline how you can setup a new Pictogram as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project. You can follow the steps below to configure the Pictogram:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows one measure - Sales Amount and a second measure Forecast Amount - and one dimension Product.
3. Add a Pictogram from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Pictogram.
5. Navigate to the Additional Properties of the Pictogram.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category General and to the sub category General Settings in the Additional Properties of the Pictogram where you can configure the Pictogram type (see Figure 6.288).

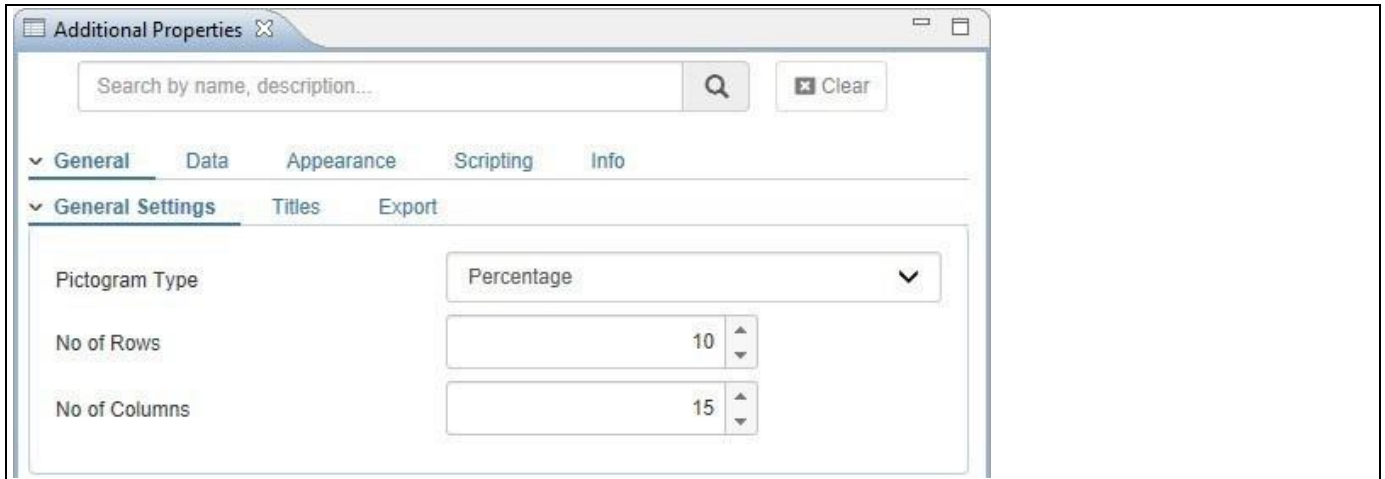
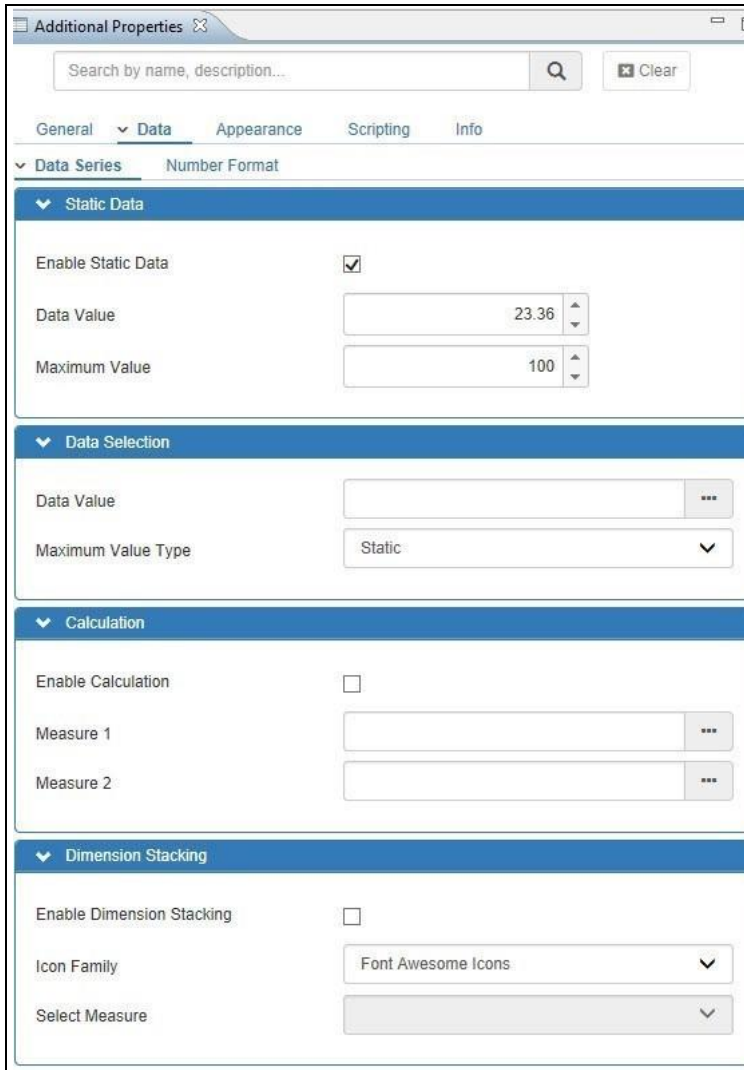


Figure 6.288: Category General

8. For our example, set the property No of Rows to the value 10.
9. Set the property No of Columns to the value 15.
10. You have the option to choose between Percentage or Number for the property Pictogram Type. Percentage will represent the values as actual percentages, even when the assigned values are of numeric nature. Number will represent the assigned values as numeric values. For our example, you can set the property Pictogram Type to the option Percentage.
11. Navigate to the category Data and to the sub category Data Series (see Figure 6.289) in the Additional Properties for the Pictogram. Here you can configure the Pictogram to use static data, dynamic data, and a calculation for two different dynamic values of the Measures. For our example, we will proceed with the calculation using two different dynamic data values.



Additional Properties

Search by name, description...

General **Data** Appearance Scripting Info

Data Series Number Format

Static Data

Enable Static Data ☒

Data Value

Maximum Value

Data Selection

Data Value

Maximum Value Type

Calculation

Enable Calculation ☐

Measure 1

Measure 2

Dimension Stacking

Enable Dimension Stacking ☐

Icon Family

Select Measure

Figure 6.289: Category Data

12. Ensure the option Enable Static Data is disabled.
13. Navigate to the area Calculation.
14. Enable the option Enable Calculation.
15. Use the button on the right hand side to open the Data Selection for Measure 1 (see Figure 6.290).

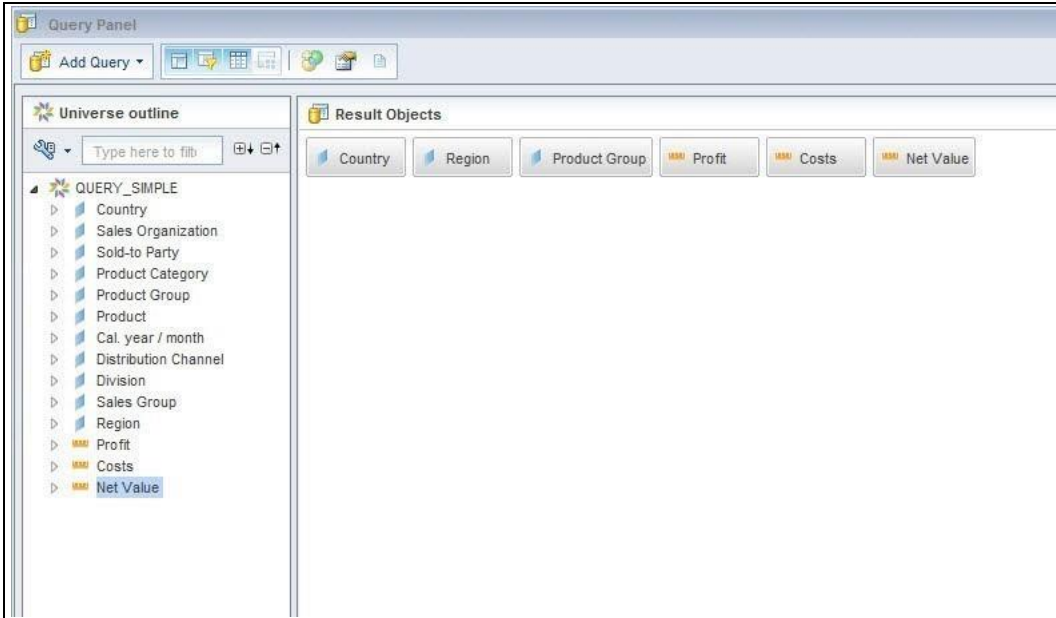


Figure 6.290: Data Selection

16. Select the cell for the first value.
17. Click OK.
18. Use the button on the right hand side to open the Data Selection for Measure 2.
19. Select the cell for the second value.
20. Click OK.
21. Navigate to the category Appearance and to the sub category Data Label in the Additional Properties (see Figure 6.291).

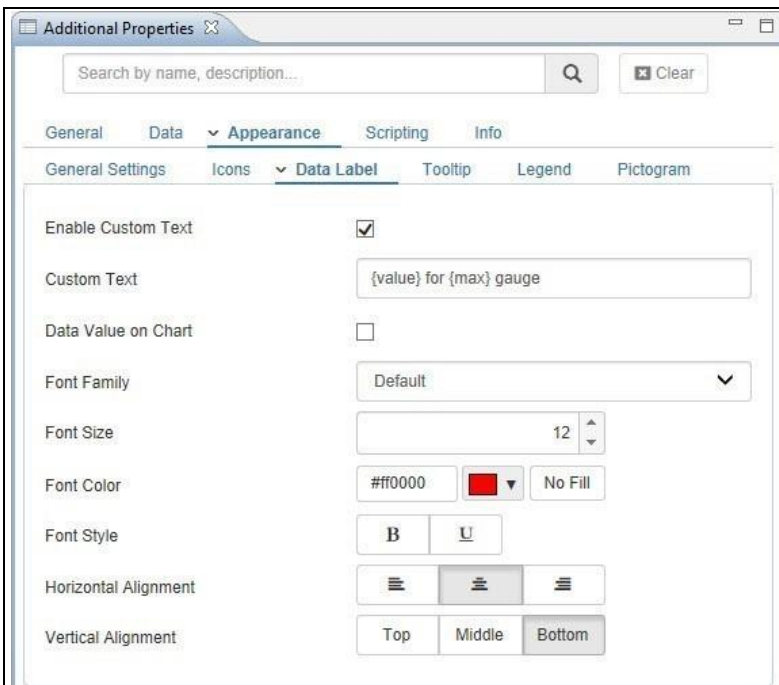


Figure 6.291: Plot Options

22. Activate the option Enable Custom Text.
23. Navigate to the Custom Text field.

24. You have two custom texts that you can include:
 - {value}: Representing the actual value.
 - {max}: representing the Maximum value
25. Enter the following Custom Text: {value} of {max}.
26. Navigate to the menu Application • Save.
27. Select the menu Application • Execute Locally.
28. Your Pictogram should now look similar to Figure 6.292

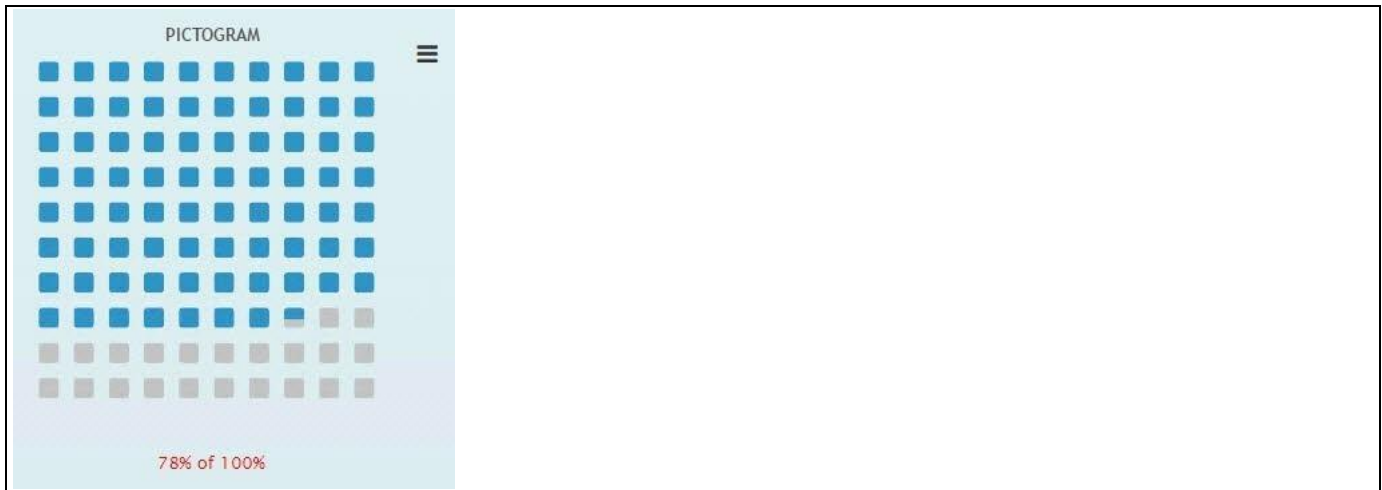


Figure 6.292: Pictogram

In addition to displaying the percentage values or the actual numbers, the Pictogram also has the option to use a feature called Dimension stacking. In the next couple of steps we will create a new Pictogram using the Dimension Stacking features.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows one measure - Profit and a second measure Cost - and one dimension Product.
3. Add a Pictogram from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Navigate to the category Data and to the sub category Data Series and to the area Dimension Stacking in the Additional Properties.
5. Ensure the option Enable Static Data is disabled.
6. Activate the property Enable Dimension Stacking (see Figure 6.293).

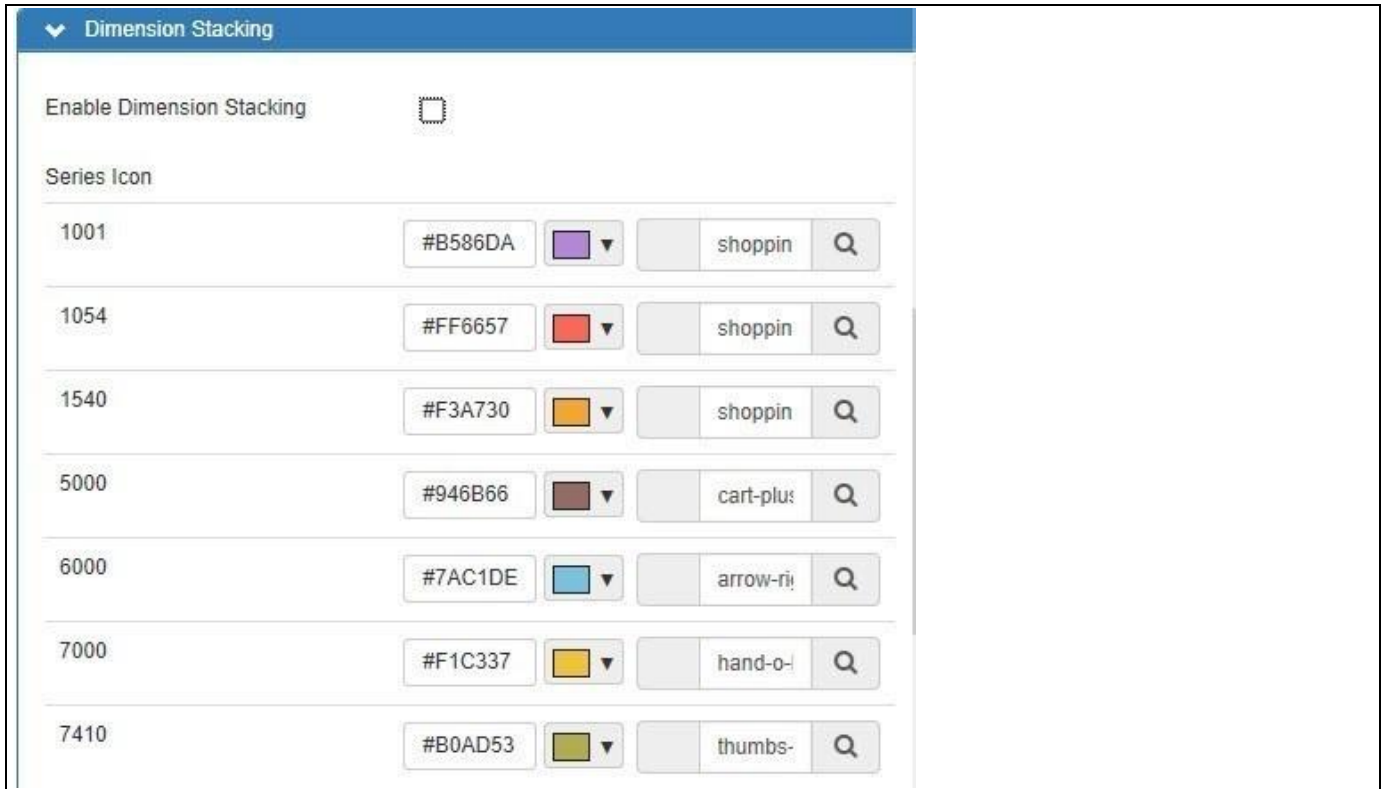


Figure 6.293: Dimension Stacking

7. Activate the property Enable Dimension Stacking (see Figure 6.293).
8. Set the property Select Measure to the option Profit.
9. You can now choose for each of the dimension members – in our example dimension Product – a color and a symbol and the Pictogram will then visualize the percentage share using the symbol and color for each member.
10. Set the color for each dimension member.
11. Click on the default selected icon and choose an icon for each dimension member.
12. Navigate to the menu Application • Save.
13. Select the menu Application • Execute Locally.
14. Your Pictogram should now look similar to Figure 6.294.

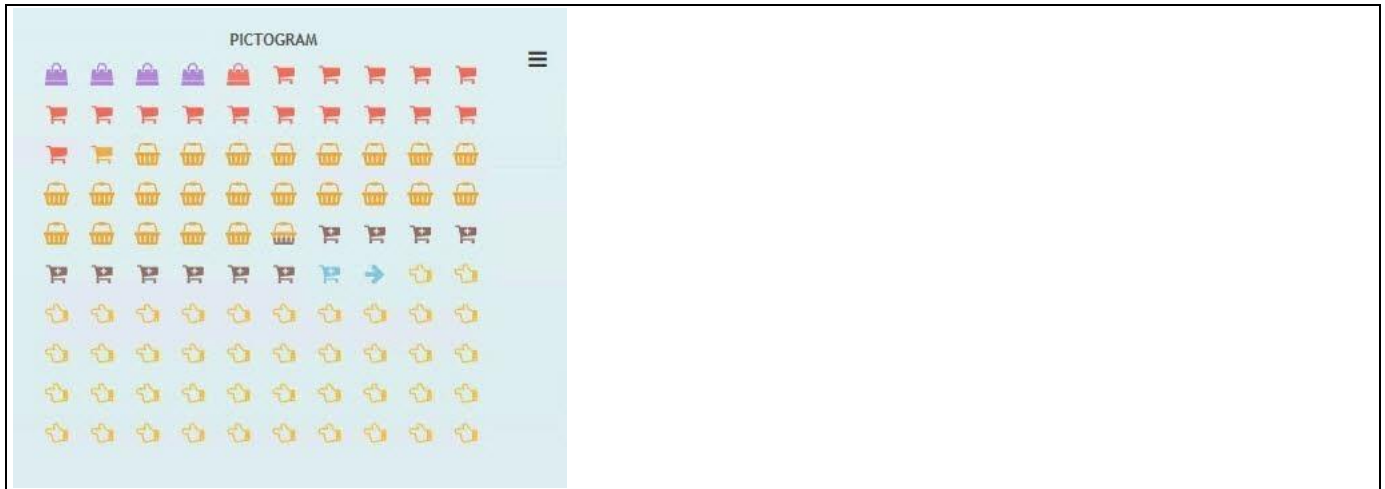


Figure 6.294: Pictogram

6.20.3 Additional Properties of the Pictogram

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Pictogram.

6.20.3.1 Category General

Sub category	Area	Property	Description
General Settings		Pictogram Type	This property sets the Pictogram type. The types are Percentage and Number.
		No. of Rows	This property sets the number of rows for the Pictogram.
		No. of Columns	This property sets number of columns for the Pictogram.
Titles	Title	Enable Title	This property enables / disables the Title.
		Title Text	Set the title text.
		Font Family	Sets the Font Family for the Title.
		Font Size	Sets the Font Size for the Title.
		Font Color	Sets the Font Color for the Title.
		Font Style	Sets the Font Style for the Title.
		Horizontal Alignment	This property allows to configure the horizontal alignment of the Title.
		Vertical Alignment	This property allows to configure the vertical alignment of the Title.
		Horizontal Offset	This property allows to specify the horizontal offset of the Title relative to its default alignment.
		Vertical Offset	This property allows to specify the vertical offset of the Title relative to its default alignment.
		Enable Floating	This property enables/disables the Floating option. When it is enabled, the plot area will not assign specific space for the Title.
		Margin	Here you can specify the space between the Title and the plot area.
	Subtitle	Enable Subtitle	This property enables / disables the Subtitle.
		Subtitle Text	Set the Subtitle text.
		Font Family	Sets the Font Family for the Subtitle.
		Font Size	Sets the Font Size for the Subtitle.
		Font Color	Sets the Font Color for the Subtitle.
		Font Style	Sets the Font Style for the Subtitle.
		Horizontal Alignment	This property allows to configure the horizontal alignment of the Subtitle.

Sub category	Area	Property	Description
		Vertical Alignment	This property allows to configure the vertical alignment of the Subtitle.
		Horizontal Offset	This property allows to specify the horizontal offset of the Subtitle relative to its default alignment.
		Vertical Offset	This property allows to specify the vertical offset of the Subtitle relative to its default alignment.
		Enable Floating	This property enables/disables the Floating option. When it is enabled, the plot area will not assign specific space for the Subtitle.
Export	General Settings	Enable Export	This property enables/disables the option to export the Chart at run time.
	Export File	Export File Name	Here you can specify the Export File Name.
		Chart Width	Here you can specify the width of the chart that will be exported in pixels. If unassigned, this will be determined automatically.
		Chart Height	Here you can specify the height of the chart that will be exported in pixels. If unassigned, this will be determined automatically.
		Chart Scale	This property allows to specify the scale / zoom factor for the exported image compared to the on-screen display.
	Export Button	Button Type	Here you can set the Icon for the Export Button. The options are Menu, Circle, Diamond and Square.
		Button Height	Here you can specify the Height of the Export Button.
		Button Width	Here you can specify the Width of the Export Button.
		Horizontal Alignment	Here you can specify the Horizontal Alignment for the Export Button.
		Vertical Alignment	Here you can specify the Vertical Alignment for the Export Button.
		Horizontal Offset	Here you can specify the Horizontal Offset for the Export Button.
		Vertical Offset	Here you can specify the Vertical Offset for the Export Button.
		Button Radius	Here you can specify the Radius for the Export Button.
		Background Fill Color	Set the Background Fill Color of the

Sub category	Area	Property	Description
			symbol for the Export Button.
		Background Hover Fill Color	Set the Background Fill Color of the symbol for the Export Button on hover over.
	Export Icon	Icon Fill Color	Set the Fill Color for the Export Icon.
		Icon Size	Set the Size for the Export Icon.
		Icon Stroke Color	Set the Stroke Color for the Export Icon.
		Icon Stroke Width	Set the Stroke Width for the Export Icon.
	Dropdown Menu	Background Fill Color	Sets the Background Fill Color.
		Background Hover Fill Color	Set the background color of the menu item on mouse over.
		Item Font Color	Sets the Item Font Color.
		Item Font Style	Sets the Item Font Style.
		Item Hover Font Color	Sets the Font Color for the Hover Over of the menu items.
		Item Hover Font Style	Sets the Font Style for the Hover Over of the menu items.

Table 6.85: Category General

6.20.3.2 Category Data

Sub category	Area	Property	Description
Data Series	Static Data	Enable Static Data	This property allows you to enable the usage of Static Data.
		Data Value	This property sets the data value for the chart.
		Maximum Value	This property sets the maximum value of the chart.
	Data Selection	Data Value	This property sets the data value for the Pictogram based on a data selection.
		Maximum Value Type	Using this property, you can select the maximum value type. The options are Static and Data Selection.
	Calculation	Enable Calculation	This property enables the option for calculation.
		Measure 1	This property allows you to select the Measure 1 value for the Calculation.
		Measure 2	This property allows you to select the Measure 2 value for the Calculation.
	Dimension Stacking	Enable Dimension Stacking	This property enables the option for Dimension Stacking.
		Select Measure	Using this property, you can select the measure from the assigned data source.

Sub category	Area	Property	Description
		Icon Family	This property allows you to select the Icon types for the Series Icons in Dimension Stacking. The options are Font Awesome Icons and SAP UI Icons.
Number Format	Number Format Definition – Data Label	Apply Identical Number Format in all areas	This property allows to enable / disable the Identical Number Format in all areas.
		Component Area	This property sets the Component Area. The options are Data Label and Tooltip.
		Number Format Definition	This property allows you to select the options for Number Format Definition. The options are Initial View and Custom Number Format.
		Number of Decimals	This property allows to the define the Number of decimals for the data label.
		Thousand Separator	This property allows to the define the Thousand Separator for the data label.
		Decimal Separator	This property allows to the define the Decimal Separator for the data label.
		Enable Scaling Factor	This property allows to enable / disable the display of the configured Scaling Factor for the data label.
		Scaling Factor	The property allows you to specify a Scaling Factor, which then can be displayed together with the data value.
		Show Scaling Unit	This property allows to enable / disable the Scaling Unit.
		Scaling Unit Placement	This property allows you to set the Scaling Unit Placement.
		Scaling Unit	This property allows you to set the Scaling Unit.
		Show Unit / Currency	This property allows to enable / disable the display of the configured Unit / Currency for the data label.
		Currency/Unit Placement	This property allows you to set the Currency/Unit Placement.
		Prefix	This property allows to configure the Prefix for the data label.
		Suffix	This property allows to configure the Suffix for the data label.
		Enable Semantic Formatting	This property activates the option for Semantic Formatting.
		Format for Negative Values	This property sets the Format for Negative Values.

Sub category	Area	Property	Description
		Color for Negative Values	This property sets the Color for Negative Values.
		Format for Positive Values	This property sets the Format for Positive Values.
		Color for Positive Values	This property sets the Color for Positive Values.
	Number Format Definition – Tooltip	Number Format Definition	This property allows you to select the options for Number Format Definition. The options are Initial View and Custom Number Format.
		Number of Decimals	This property allows to the define the Number of decimals for the tooltip.
		Thousand Separator	This property allows to the define the Thousand Separator for the tooltip.
		Decimal Separator	This property allows to the define the Decimal Separator for the tooltip.
		Enable Scaling Factor	This property allows to enable / disable the display of the configured Scaling Factor for the tooltip.
		Scaling Factor	The property allows you to specify a Scaling Factor, which then can be displayed together with the data value.
		Show Scaling Unit	This property allows to enable / disable the Scaling Unit.
		Scaling Unit Placement	This property allows you to set the Scaling Unit Placement.
		Scaling Unit	This property allows you to set the Scaling Unit.
		Show Unit / Currency	This property allows to enable / disable the display of the configured Unit / Currency for the tooltip.
		Currency/Unit Placement	This property allows you to set the Currency/Unit Placement.
		Prefix	This property allows to configure the Prefix for the tooltip.
		Suffix	This property allows to configure the Suffix for the tooltip.
		Enable Semantic Formatting	This property activates the option for Semantic Formatting.
		Format for Negative Values	This property sets the Format for Negative Values.
		Color for Negative Values	This property sets the Color for Negative Values.
		Format for Positive	This property sets the Format for Positive

Sub category	Area	Property	Description
		Values	Values.
		Color for Positive Values	This property sets the Color for Positive Values.

Table 6.86: Category Data

6.20.3.3 Category Appearance

Sub category	Area	Property	Description
General Settings	Google Font	Enable Google Font	Here you can enable / disable the option for Google Font.
		Google Font Category	This property allows you to set the Font Category. The options are Serif, Sans serif, Display, Handwriting and Monospace.
		Google Font Family	Here you can select the Global Google Font Type. This option will be enabled only when Enable Google Font is activated.
Icons	Standard Icons	Enable Standard Icon	This property enables the option for Icons.
		Icon Family	This property allows you to select the Icon types. The options are Font Awesome Icons and SAP UI Icons.
		Filled Icon Group	This property sets the Filled Icon Group.
		Non-Filled Icon Group	This property sets the Non-Filled Icon Group.
		Icon Size	This property allows you to configure the Icon Size.
		Filled Icon Color	This property sets the Filled Icon Color.
		Non-Filled Icon Color	This property sets the Non-Filled Icon Color.
		Filled Icon Transparency (in %)	This property sets the Filled Icon Transparency.
		Non-Filled Icon Transparency (in %)	This property sets the Non-Filled Icon Transparency.
		Enable Responsive Size	This property enables the option for Responsive icon size. When activated, the icons will resize according to the overall size assigned to the Pictogram as part of the dashboard.
		Icon Gap	This property sets the icon gap. Applicable only when the property Enable Responsive Size is false.
		Icon Alignment	This property sets the alignment for

Sub category	Area	Property	Description
			custom icons.
		Border Color	This property sets the Border Color of the plot area of each icon.
		Border Width	This property sets the Border Width of the plot area of each icon.
		Border Style	This property sets the Border Style of the plot area of each icon.
	Custom Icons	Enable Custom Icons	This property enables the usage of Custom Icons.
		Custom Icon Type	This property sets the type of image based on the Design Studio mode /URL based.
		Choose Filled Icon Image	Using this property, you can select the Filled icon image.
		Choose Non-Filled Icon Image	Using this property, you can select the Non-Filled icon image.
	Fill Direction	Fill Direction	This property sets the Fill Direction for the icon.
		Partial Fill Direction	This property sets the Partial Fill Direction for the icon.
Data Label		Enable Custom Text	This option allows you to define your own custom text for the display.
		Custom Text	Here you can enter the custom Text. You can also use the following placeholder: <ul style="list-style-type: none"> {value}: Representing the actual value. {max}: representing the Maximum value.
		Data Value on Chart	This property allows you to enable / disable the display of the Data value on top of the Pictogram.
		Font Family	This property sets the Font Type for the Data Value.
		Font Size	This property sets the Font Size for the Data Value.
		Font Color	This property sets the Font Color for the Data Value.
		Font Style	This property sets the Font Style for the Data Value.
		Horizontal Alignment	Sets the horizontal alignment for the Data value.
		Vertical Alignment	Sets the vertical alignment for the Data value.
Tooltip		Enable Tooltip	This property enables/disables the

Sub category	Area	Property	Description
			Tooltip.
		Tooltip Text	Sets the Text for the Tooltip.
		Font Family	Sets the Font Family for the Tooltip.
		Font Size	Sets the Font Size for the Tooltip.
		Font Color	Sets the Font Color for the Tooltip.
		Font Style	Sets the Font Style for the Tooltip.
		Background Color	Sets the Background Color for the Tooltip.
		Border Color	Sets the Border Color for the Tooltip.
		Border Radius	Sets the Border Radius for the Tooltip.
		Border Width	Sets the Border Width for the Tooltip.
Legend	Appearance	Enable Legend	This property enables / disables the Legend.
		Legend Layout	This property allows to specify the layout for the Legend. You can choose Horizontal or Vertical.
		Alignment	Sets the alignment for the Legend. The options are Top, Bottom, Left and Right.
		Font Family	Sets the Font Family for the Legend.
		Font Size	Sets the Font Size for the Legend.
		Font Color	Sets the Font Color for the Legend.
		Font Style	Sets the Font Style for the Legend.
		Background Color	This property allows to set the Background Color for the Legend.
		Border Color	This property allows to set the Border Color for the Legend.
		Border Radius	This property allows to set the Background Radius for the Legend.
		Border Width	This property allows to set the Border Width for the Legend.
		Enable Reverse Order	This property allows to enable / disable a reverse order of the Legend Items.
Pictogram		Background Color	Here you can configure the Background Color for the chart.
		Border Color	Here you can configure the Border Color for the chart.
		Border Radius	Here you can configure the Border Radius for the chart.
		Border Width	Here you can configure the Border Width for the chart.
		Margin Top	The Margin Bottom defines the margin between the chart plot area and the top chart border.

Sub category	Area	Property	Description
		Margin Bottom	The Margin Bottom defines the margin between the chart plot area and the bottom chart border.
		Margin Left	The Margin Left defines the margin between the chart plot area and the left chart border.
		Margin Right	The Margin Right defines the margin between the chart plot area and the right chart border.
		Padding Top	The padding options define the padding between the outer area of the chart and all elements inside the chart area, such as data labels and a legend. This property is for the Top area.
		Padding Bottom	The padding options define the padding between the outer area of the chart and all elements inside the chart area, such as data labels and a legend. This property is for the Bottom area.
		Padding Left	The padding options define the padding between the outer area of the chart and all elements inside the chart area, such as data labels and a legend. This property is for the Left area.
		Padding Right	The padding options define the padding between the outer area of the chart and all elements inside the chart area, such as data labels and a legend. This property is for the Right area.

Table 6.87: Category Appearance

6.20.4 Scripting Functions for the Pictogram

All supported scripting functions for the Pictogram are listed as part of the common scripting functions for charts listed in section 4.6.

6.21 Web Service as Data Source

The new option to use a Web Service as a data source provides you with the option to use SOAP based web services as a data source and to use a BI Web Services based on a Web Intelligence report as a data source with SAP BusinessObjects Design Studio/SAP Lumira Designer. In case of a Web Intelligence report, the new Web Service data source option supports the ability to use a BI Web Service that is based on Tables in the Web Intelligence report.

Export Service

The Web Service as a Data Source option requires the Export Service to be installed and running prior to its usage. You will be configuring a Service URL as part of the Export Service installation. The generated URL from the Export Service will be the input for the Service URL properties in the Server Configuration in Category General of the Additional Properties.

In the following steps, we will first outline the steps on how to create a Web Intelligence report and a BI Web Service based on this report. After those steps we will then use the BI Web Service in SAP BusinessObjects Design Studio/SAP Lumira Designer.

6.21.1 Creation of Web Intelligence Report and Web Service

The following steps show how you can create a report in Web Intelligence and then create a BI Web Service based on this report, so that you can use the BI Web Service in SAP BusinessObjects Design Studio/SAP Lumira Designer. For our example we will use a BEx Query as data source with three dimensions and two measures.

1. Logon to the BI Launchpad (see Figure 6.295).

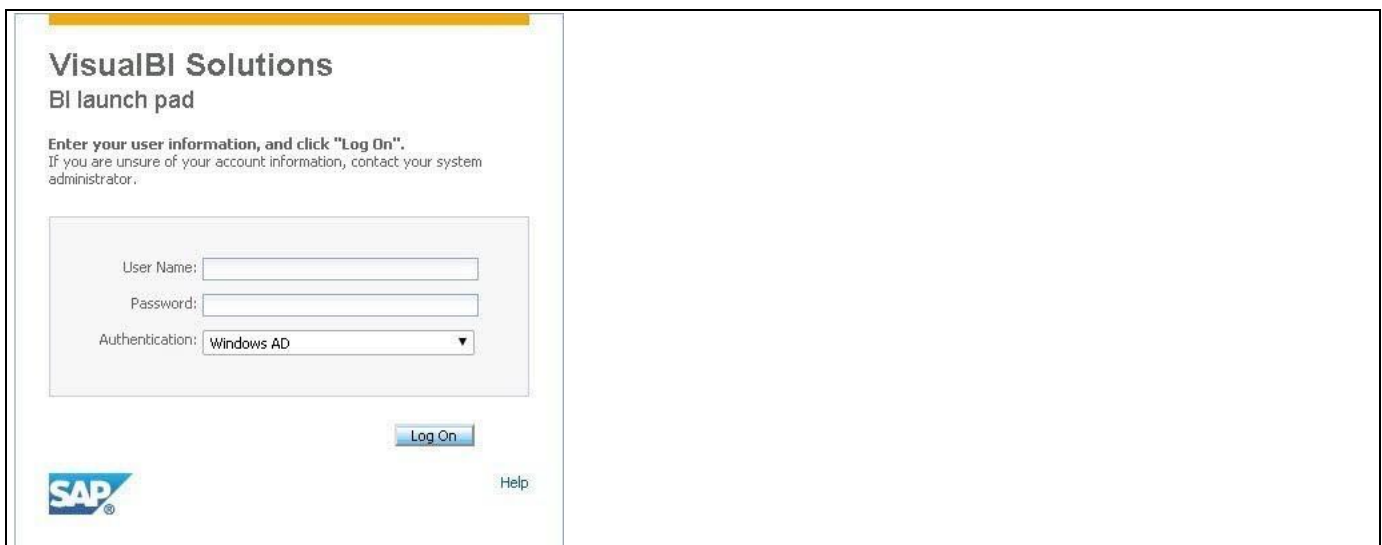


Figure 6.295: BI Launch Pad

2. Use the menu Applications • Web Intelligence to start Web Intelligence (see Figure 6.296).



Figure 6.296: New web Intelligence document

3. In Web Intelligence use the New option to start a new report.
4. Select the data source for creating a Web Intelligence report (see Figure 6.297). For our example, the data source is a BEx Query.

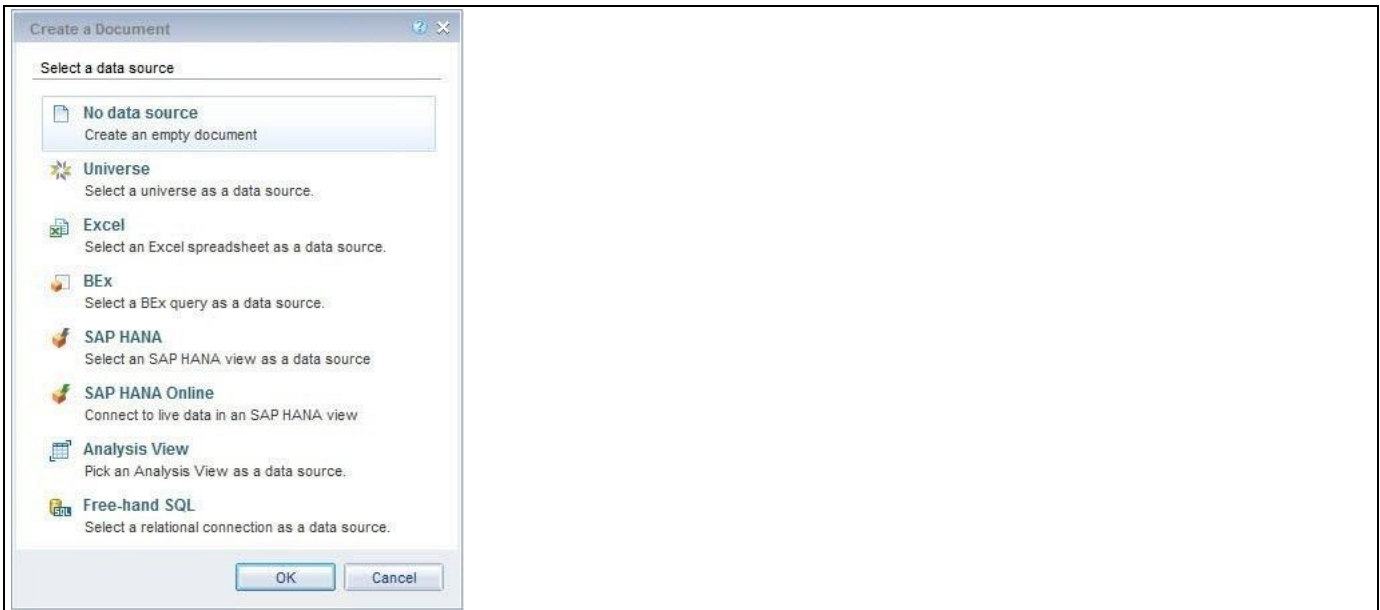


Figure 6.297: Data Source-Excel File

5. In the next step you will be asked to select the InfoProvider and BEx Query (see Figure 6.298).

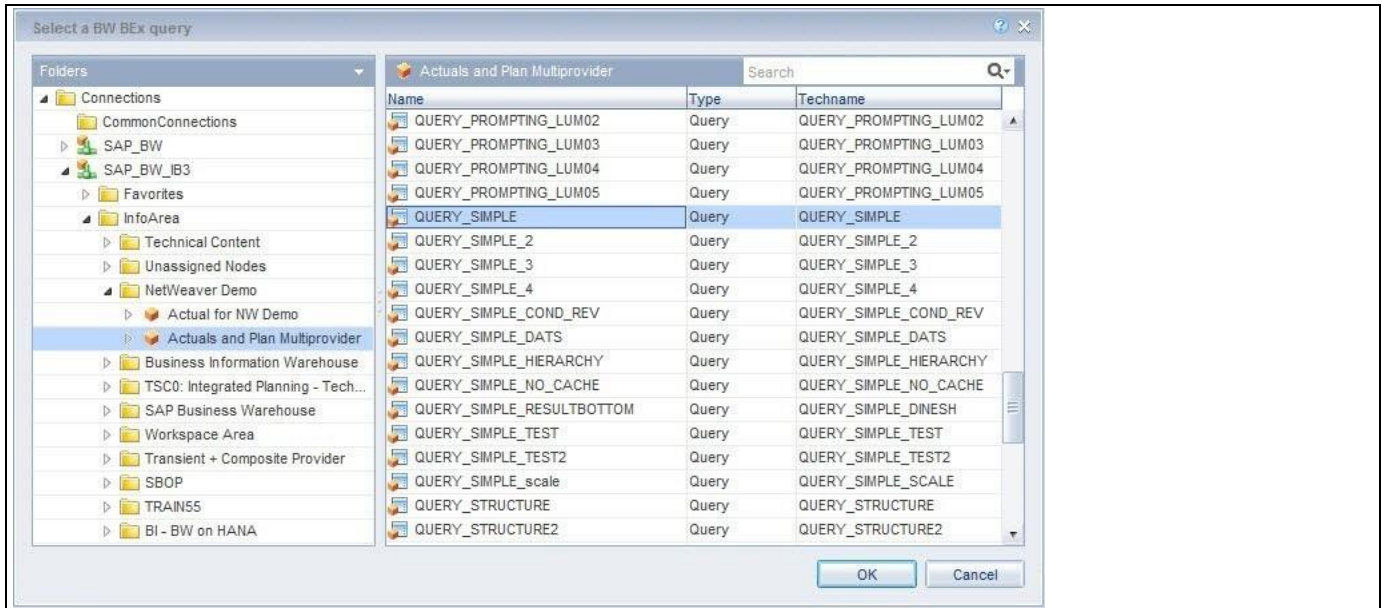


Figure 6.298: Bex Query Selection

6. For our example, we are selecting the BEx Query and click OK.

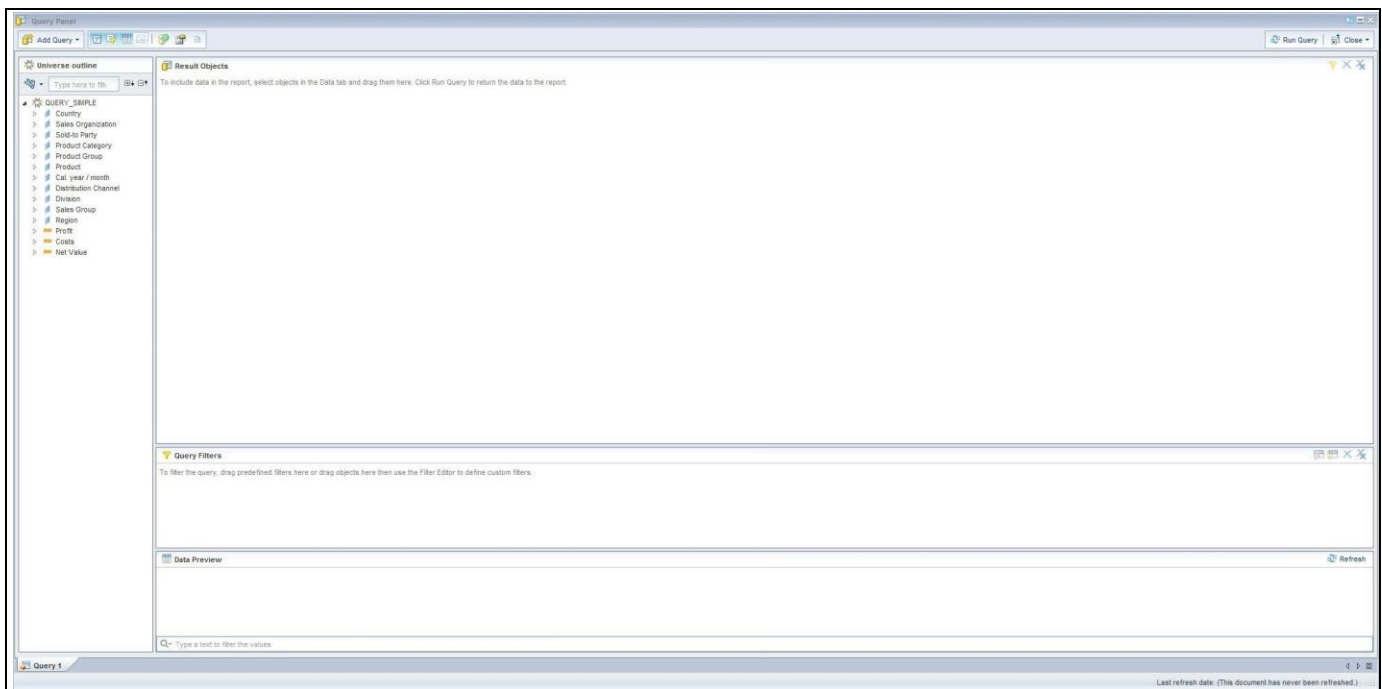


Figure 6.299: Web Intelligence Query Panel

7. The Web Intelligence Query Panel is shown (see Figure 6.299) and we can select the dimensions and measures for our report.
8. For our example, we are adding dimensions Country, Region, Product Group and measures Net Value, Profit, and Costs (see Figure 6.300).

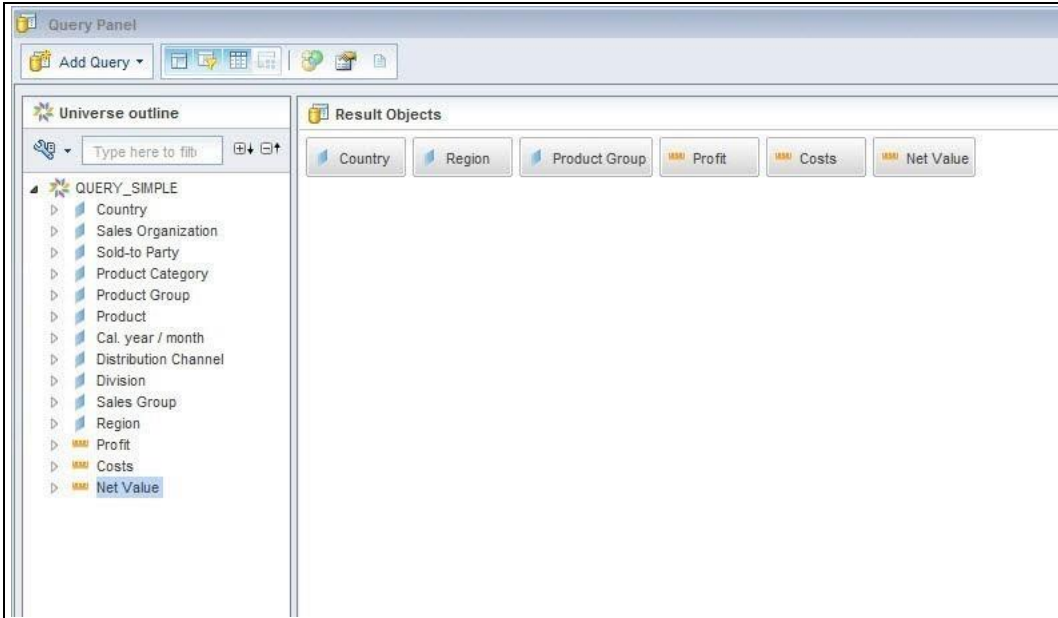


Figure 6.300: Query Panel

9. Click Run Query to retrieve the data and build the first report.
10. In Web Intelligence, select the menu File and Save your report to the SAP BusinessObjects BI platform (see Figure 6.301).



Figure 6.301: Saving Report

11. After you saved the report, select the Table in the Web Intelligence report.
12. Use a right-click on the Table (see Figure 6.302).

Report 1

Country	Region				Costs	Net Value
United Arab Emirates	Abu Dhabi	Cut	Ctrl+X		824,859.31	27,776,238.69
United Arab Emirates	Abu Dhabi	Copy	Ctrl+C		931,619.94	99,344,338.06
United Arab Emirates	Abu Dhabi	Paste	Ctrl+V		709,990.13	113,670,696.87
United Arab Emirates	Abu Dhabi	Paste Special...	Ctrl+Alt+V		788,013.52	41,325,011.48
United Arab Emirates	Abu Dhabi	Delete	Delete		143,944.98	8,022,112.02
United Arab Emirates	Abu Dhabi	Turn Into			357,939.72	242,869,039.28
United Arab Emirates	Dubai Em	Assign Data...			855,918.02	25,198,761.98
United Arab Emirates	Dubai Em	Linking			030,438.55	86,137,825.45
United Arab Emirates	Dubai Em	Publish as Web Service			347,404.94	100,750,116.06
United Arab Emirates	Dubai Em	Filter			562,052.62	36,572,567.38
United Arab Emirates	Dubai Em	Sort			636,370.26	6,970,979.74
United Arab Emirates	Dubai Em	Break			048,542.39	219,477,832.61
United Arab Emirates	Ras al-Kh	Hide			551,226.76	27,348,716.24
United Arab Emirates	Ras al-Kh	Order			830,825.82	100,044,956.18
United Arab Emirates	Ras al-Kh	Align			188,566.18	112,156,874.82
United Arab Emirates	Ras al-Kh	Format Table...			941,249.46	41,186,842.54
United Arab Emirates	Ras al-Khaimah Emi	Cell Phone Accessorie			4,093,396.06	7,962,551.94
United Arab Emirates	Ras al-Khaimah Emi	TV			88,183,196.29	244,718,842.71

Figure 6.302: Publish as Web Service

13. Click Next in the next screen (see Figure 6.303).



Figure 6.303: Publish as Web Service

14. The next steps checks for any potential duplicates of the Web Service. Click Next (see Figure 6.304).

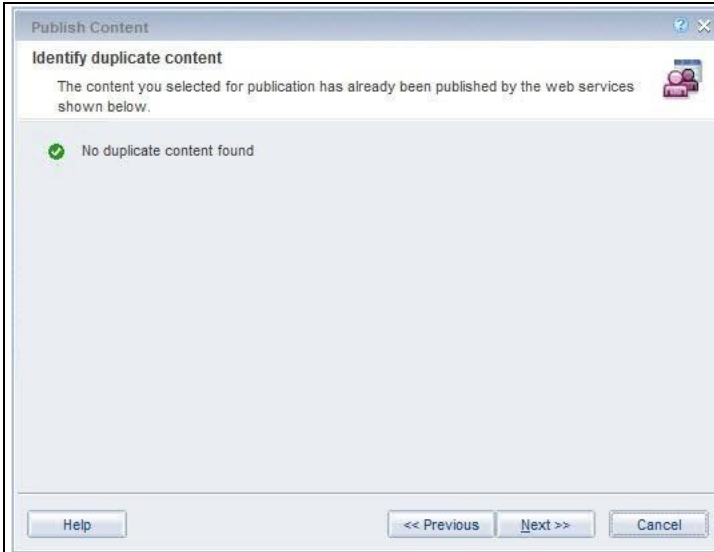


Figure 6.304: Duplicate Content

15. In the next step you enter a name for the published content of the report (see Figure 6.305). For our example, we use WEB_SERVICE_DEMO as Name.



Figure 6.305: Define Content

16. You can also use the option Set Filters at this step to define, which filter options the Web Service should provide.
17. Click Next (see Figure 6.306).



Figure 6.306: Publish Content

18. Select the server that you would like to use to host the new web service and click Create (see Figure 6.307).

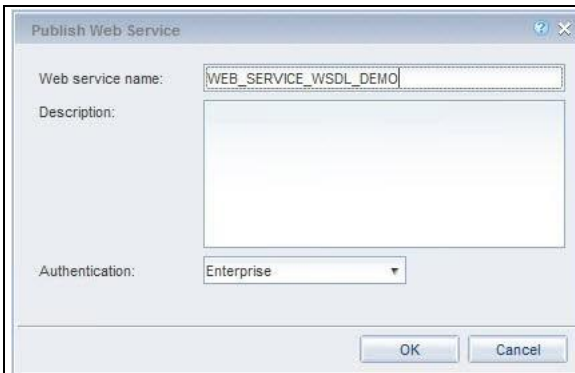


Figure 6.307: Publish Web Service

19. Enter the name of the newly Web Service. For our example, we will use the name WEB_SERVICE_WSDL_DEMO.

20. Click OK.

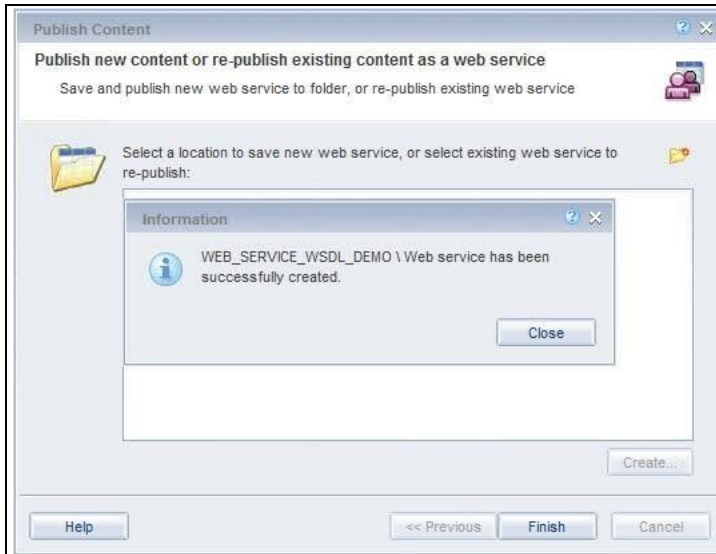


Figure 6.308: Confirmation

21. You will receive a message about the creation of the Web Service. Click Close.
22. Click Finish.

At this point you created a Web Service based on the Table in the Web Intelligence report. As next step we need to retrieve the Web Service URL, so that we can use the Web Service URL in SAP BusinessObjects Design Studio/SAP Lumira Designer.

1. In Web Intelligence with the report open, now navigate to the Web Service Publisher details on the right hand side (see Figure 6.309).

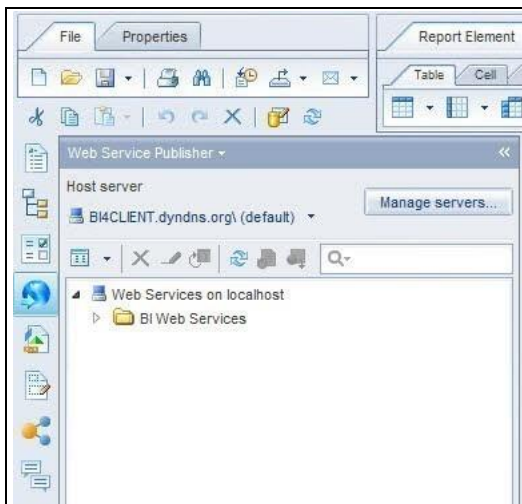


Figure 6.309: Web Service Publisher

2. Make sure you select the Web Service you created in the previous steps (see Figure 6.310).

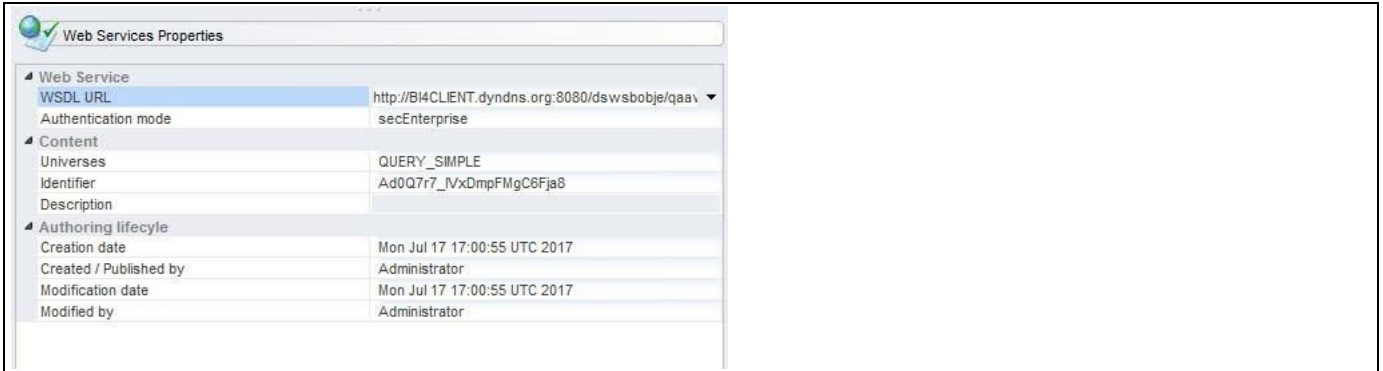


Figure 6.310: Web Service Properties

3. The Web Service Properties are shown in a separate screen and you can now copy the Web Service URL from the field WSDL URL.

Make sure you save the URL, as you will need the URL in SAP BusinessObjects Design Studio/SAP Lumira Designer.

6.21.2 Using Web Service with SAP BusinessObjects Design Studio/SAP Lumira Designer

In the following steps we will use the Web Service we created previously and make use of it in SAP BusinessObjects Design Studio/SAP Lumira Designer.

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer select the menu Application • New to create a new application.
2. Select the option SAPUI5m.
3. Enter a name for the new application.
4. Select the Blank template.
5. Click Create.
6. Navigate to the Outline.
7. Select the folder Data Sources and use a right-click (see Figure 6.311).

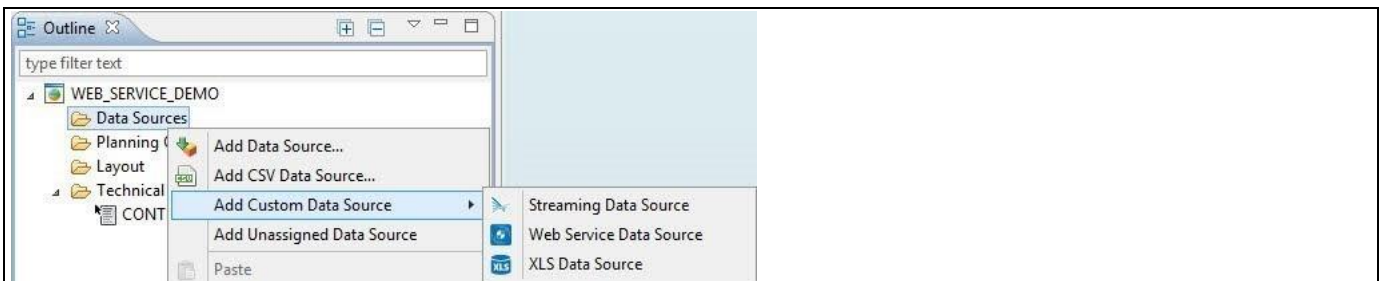


Figure 6.311: Custom Data Source

8. Select the menu Add Custom Data Source • Web Service Data Source.
9. Navigate to the Additional Properties of the Web Service Component (see Figure 6.312).

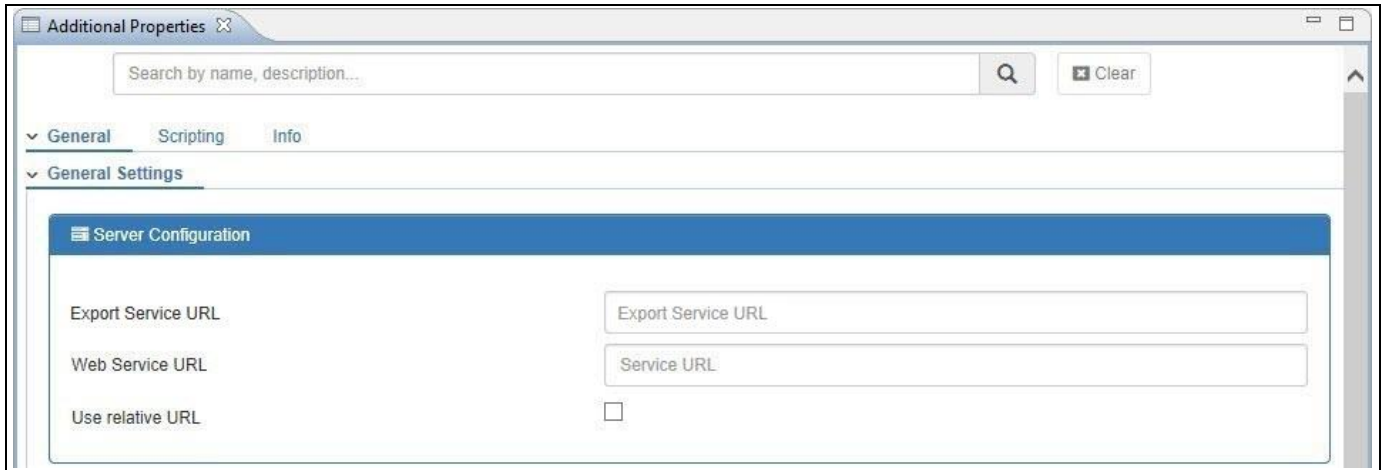


Figure 6.312: Additional Properties

10. .
11. Copy / paste the URL from your Web Service into the property Web Service URL in the General category (see Figure 6.313).



Figure 6.313: Web Service Methods

12. As soon as you enter the Web Service URL, the list of available methods is being shown.
13. For our example we use the method GetReportBlock (see Figure 6.314).

General

URL

ns.org:8080/dswsbobje/qaawsservices/biws?WSDL=1&cuid=Ad0Q7r7_IVxDmpFMgC6Fja8

☐ Use relative URL for BI Server at runtime

Methods Available

GetReportBlock_WEB_SERVICE_DEMO

Parameters

login (string)

password (string)

_Country (FilterCondition)

_Country - Operator (operator)

None

_Region (FilterCondition)

_Region - Operator (operator)

None

_Product_Group (FilterCondition)

_Product_Group - Operator (operator)

None

_Profit (FilterCondition)

_Profit - Operator (operator)

None

_Costs (FilterCondition)

_Costs - Operator (operator)

None

Figure 6.314: Web Service Properties

14. After entering the Web Service and selecting the method, the available parameters of the Web Service are shown in the Additional Properties (see Figure 6.314).
15. For our example, we enter the username and password to authenticate the user against the SAP BusinessObjects BI platform.
16. We then click Connect below the complete list of properties (see Figure 6.315).

turnOutputToVTable (boolean)

closeDocument (boolean)

startRow (int)

endRow (int)

Connect Refresh

Figure 6.315: Connect

17. When clicking Connect or Refresh, SAP BusinessObjects Design Studio/SAP Lumira Designer will receive the meta-data from the Web Service.
18. After you clicked Connect, you should receive the list of available fields from the Web Service (see Figure 6.316).

Dataset

☐ Load data in script

☐ Refresh data on each request

None	Country	United Arab Emirates
None	Region	Abu Dhabi Emirate
None	Product Group	MP3 & Headphones
None	Profit	8.82485931e6
None	Costs	27.77623869e6
None	Net Value	36.601098e6

Decimal Separator

Thousands Separator

Build Dataset Reset All

Figure 6.316: Web Service Meta-Data

19. You can now configure each available field as Dimension or Measure.
20. After we configured each element, click Build Data Set.
21. The Web Service is now retrieving the information and after a short period you can use the data from the Web Service with the components in your dashboard and you can assign the data source from the Web Service like any other data source.

Dynamic Authentication Option for User Authentication

By navigating to the category General and to the subcategory General Settings in the Additional Properties, there is also another option that the user can select the property “Use Dynamic Authentication” and provide the user authentication details designed at UI level during run time.

Web Intelligence & BI Web Service

In case you would like to use Web Intelligence reports as a data source via the BI Web Service option, you can find the details on all the available parameter options for the BI Web Service in the documentation “Sharing Web Intelligence Content with Other Application” – available at this link : <https://help.sap.com/viewer/e8a84b037d9547d3995c31445e21aa97/4.2.4/en-US>

6.21.3 Additional Properties for WSDL

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Web Service as Data Source.

6.21.3.1 Category General

Sub category	Area	Property	Description
General Settings	Server Configuration	Export Service URL	This property allows you to configure the URL for the VBX Export Service component, which is required as part of the Web Service data source component
		Web Service URL	This property allows you to configure the URL for the Web Service.
		Use Relative URL	When this property is enabled, you will be able to provide the relative server details which will reroute to the relevant platform. For example, if there are 2 platforms for production and development environments, then we need to provide the production server details in the relative url in order to avoid the design time changes after promoting to the production environment.
		URL for BI Server	This property allows you to configure the URL for the BI Server.
	Parameters	Use Dynamic Authentication	The user can select this property and provide the user authentication details designed at UI level during run time.
		Methods Available	This property will list all available methods based on the entered Web Service URL and you can then choose the method for your dashboard.
		Parameters	This property allows you to set the parameters displayed based on the

Sub category	Area	Property	Description
			Methods linked with the Web Service URL.
		Connect	This property allows you to establish the connection to the web service and retrieve the meta-data.
		Refresh	This property allows you to refresh the data set of the web service, in case you made changes to the parameters.
	Dataset	Load data in script	This property allows you to load the data using script.
		Refresh data on each request	This property allows you to configure the Web Service data source, so that on each request towards the web service, the data is being refresh. In case this option is disabled, you can trigger a refresh using scripting.
		Build Dataset	This property allows you to build the Dataset for the component and you can then configure the data type – Dimension or Measure – to each element of the data source.
		Reset All	This property allows you to reset the values of Dimensions and Measures for the component.

Table 6.88: Category General

6.21.3.2 Category Scripting

Category	Property	Description
General	After Data Load	This script will be triggered immediately after the dataset loads.
	After Data Refresh	This script will be triggered immediately after the dataset refreshes.
	On Resultset Changes	This script will be triggered immediately after the dataset changes.

Table 6.89: Category Scripting

6.22 OData Service as Data Source

6.22.1 Using OData Service as Data Source with SAP BusinessObjects Design Studio/SAP Lumira Designer

As part of VBX Release 2.3, you are provided with a generic ODATA connectivity, so that a dashboard designer will be able to provide the ODATA URL and can then consume the information as part of any component in SAP BusinessObjects Design Studio /Lumira Designer.

Export Service

The OData Source option requires the Export Service to be installed and running prior to its usage. You will be configuring a Server URL as part of the Export Service installation. The generated URL from the Export Service will be the input for the Server URL properties in the Server Configuration in Category General of the Additional Properties which resembles the same function as that of WSDL.

Steps to build OData Service

Please follow the link: <https://blogs.sap.com/2012/10/26/step-by-step-guide-to-build-an-odata-service-based-on-rfc-part-1/> which guides you on how to build a OData Service.

In the following steps we will use the OData Service as the Data Source and make use of it in SAP BusinessObjects Design Studio/SAP Lumira Designer.

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer select the menu Application • New to create a new application.
2. Select the option SAPUI5m.
3. Enter a name for the new application.
4. Select the Blank template.
5. Click Create.
6. Navigate to the Outline.
7. Select the folder Data Sources and use a right-click (see Figure 6.317).

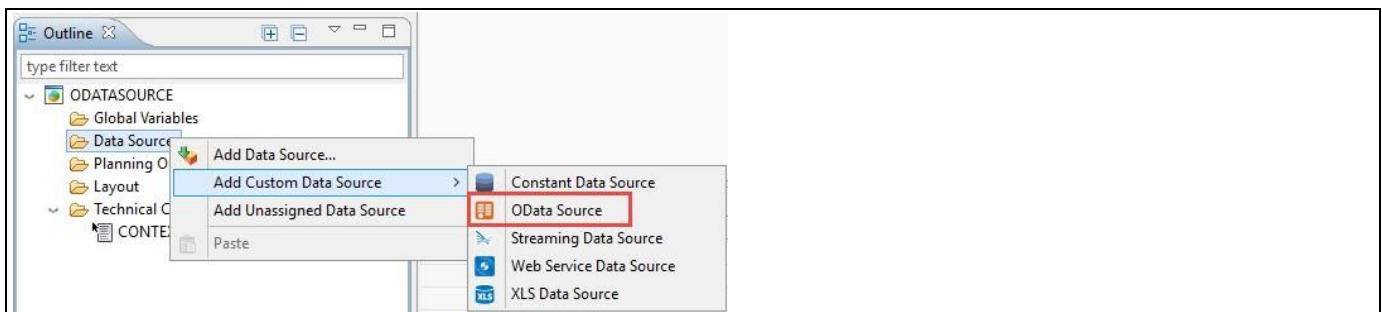


Figure 6.317: Custom Data Source selected as OData Source

8. Select the menu Add Custom Data Source • OData Source.
9. Navigate to the Additional Properties of the OData Source Component (see Figure 6.318).

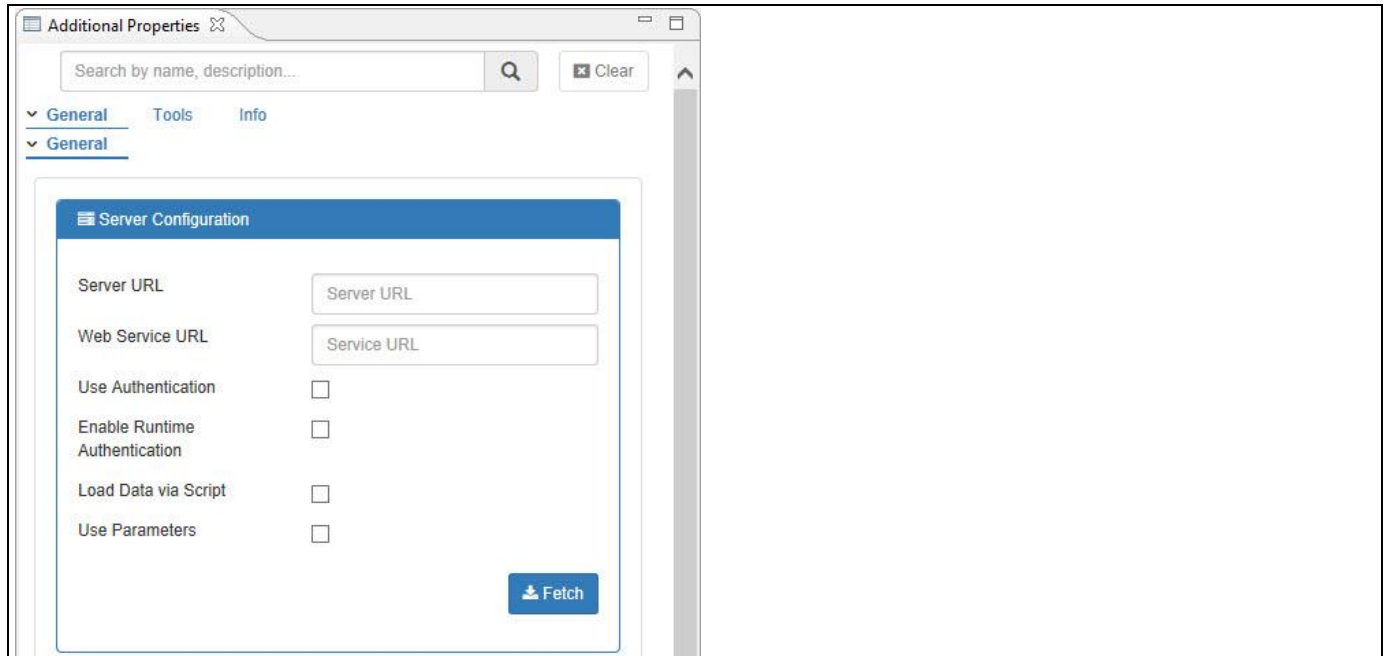


Figure 6.318: Additional Properties

10. Enter the Export Service URL into the property Server URL. This is the URL that contains the OData Source.
11. Enter the property Web Service URL that contains the OData Source in the General category (see Figure 6.319).
12. By default, the property Use Parameters will be disabled. When the Web Service URL contains the parameters/filters, then you should enable the property Use Parameters. For our example, the property Use Parameters is disabled.

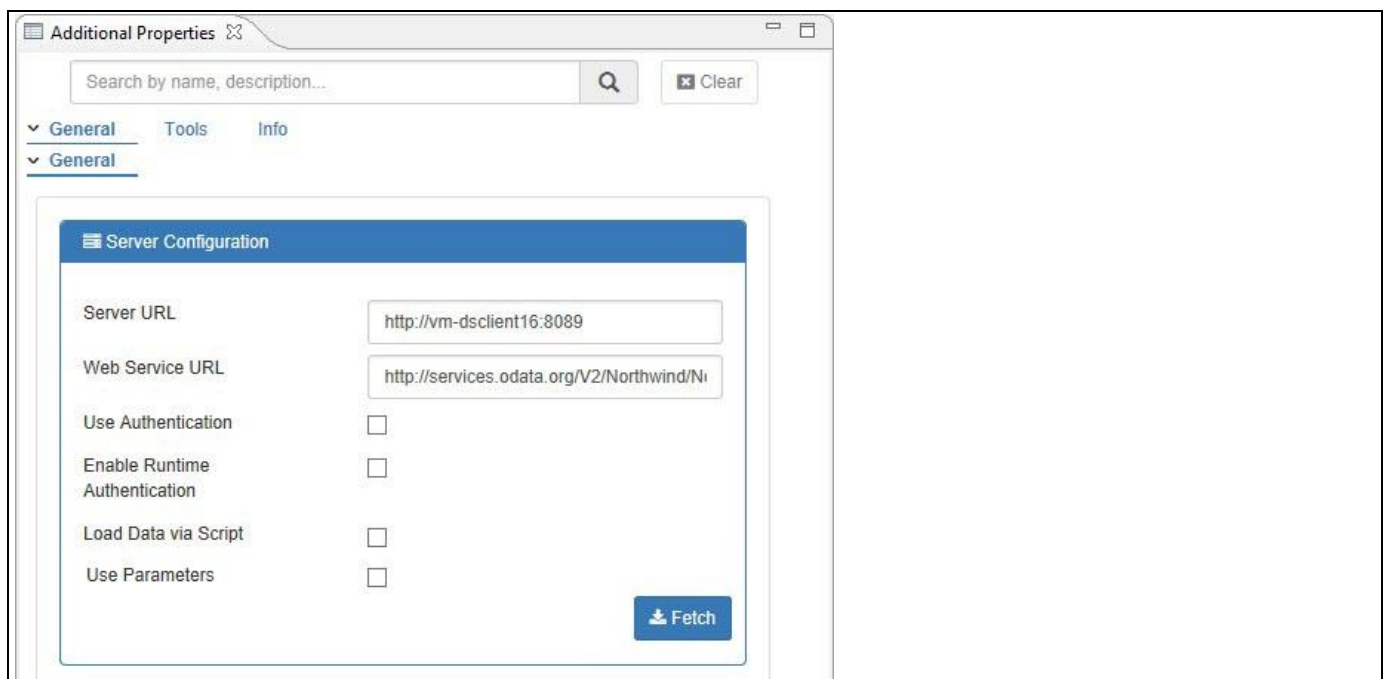


Figure 6.319: Server URL and Web Service URL

13. After entering the Web Service URL, click Fetch.
14. As soon as you click Fetch, the list of Tables will be shown.
15. For our example we use the table Products (see Figure 6.320).

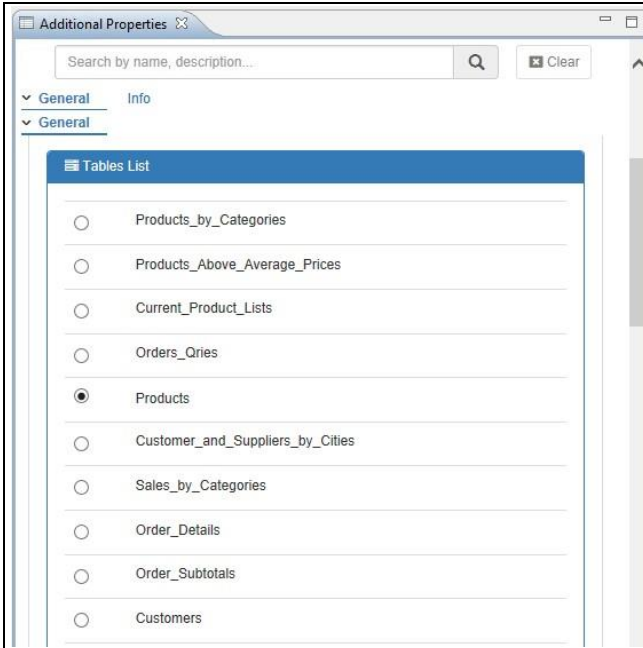


Figure 6.320: Table List

16. After entering the Web Service URL and selecting the Table Products, the available properties and attributes related to the Table will get loaded.
17. You can now add the attributes and configure each available field as Dimension or Measure (see Figure 6.321).
18. After we configured each element, click Build Table.

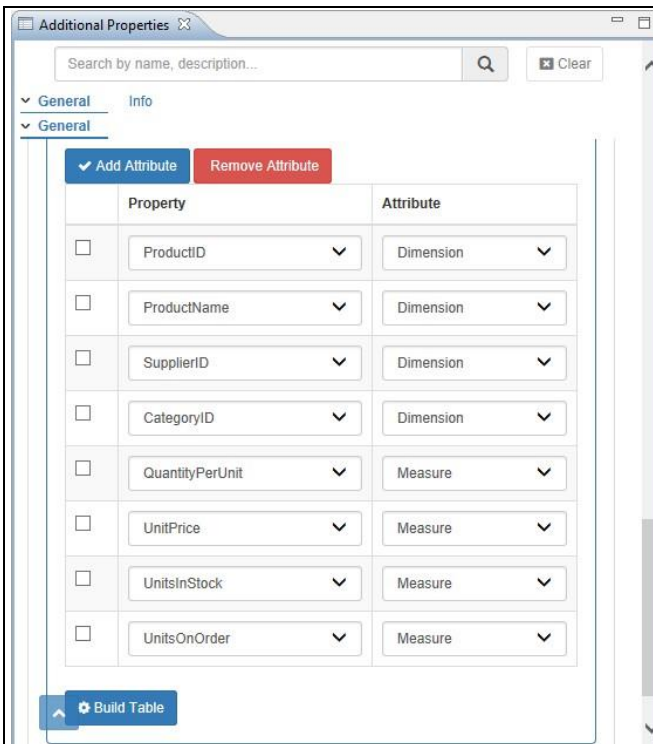


Figure 6.321: Attributes Selection

The Web Service is now retrieving the information and after a short period you can use the OData from the Web Service with the components in your dashboard and you can assign the OData source from the Web Service like any other data source.

6.22.2 Additional Properties for OData Source

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to OData Source.

6.22.2.1 Category General

Sub category	Area	Property	Description
General	Server Configuration	Service URL	This property allows you to configure the URL for the OData Source component, which is required as part of the Web Service data source component.
		Web Service URL	This property allows you to configure the URL for the Web Service.
		Use Authentication	This property activates the user authentication to access the Web Service URL.
		Username	Using this property, the user can provide the username for user authentication.
		Password	Using this property, the user can provide the password for user authentication.
		Enable Runtime Authentication	This property activates the user authentication to access the Web Service URL at runtime.
		Load Data via Script	This property allows to load the data using script.
		Use Parameters	This property activates the option for the parameters.
	Tables List	List of Tables with Radio Button options for selection	The required table can be selected, and the selected option will load the data for the table.
	Table View	Add Attribute	This property adds the attribute in the Table View.
		Remove Attribute	This property removes the attribute from the Table View.
		Property	This property configures each available field as Dimension.
		Attribute	This property configures each available field as Measure.

Table 6.90: Category General

6.23 Constant Data Source as Data Source

6.23.1 Using Constant Data Source with SAP BusinessObjects Design Studio/SAP Lumira Designer

As part of VBX Release 2.3, you are provided with Constant Data Source option. Here, you can build your own data source table as the constant data source and assign it for the VBX components.

In the following steps we will use the Constant Data Source which was generated from your own data source structure and further assign it to the VBX Components in SAP BusinessObjects Design Studio/SAP Lumira Designer.

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer select the menu Application • New to create a new application.
2. Select the option SAPUI5m.
3. Enter a name for the new application.
4. Select the Blank template.
5. Click Create.
6. Navigate to the Outline.
7. Select the folder Data Sources and use a right-click (see Figure 6.322).

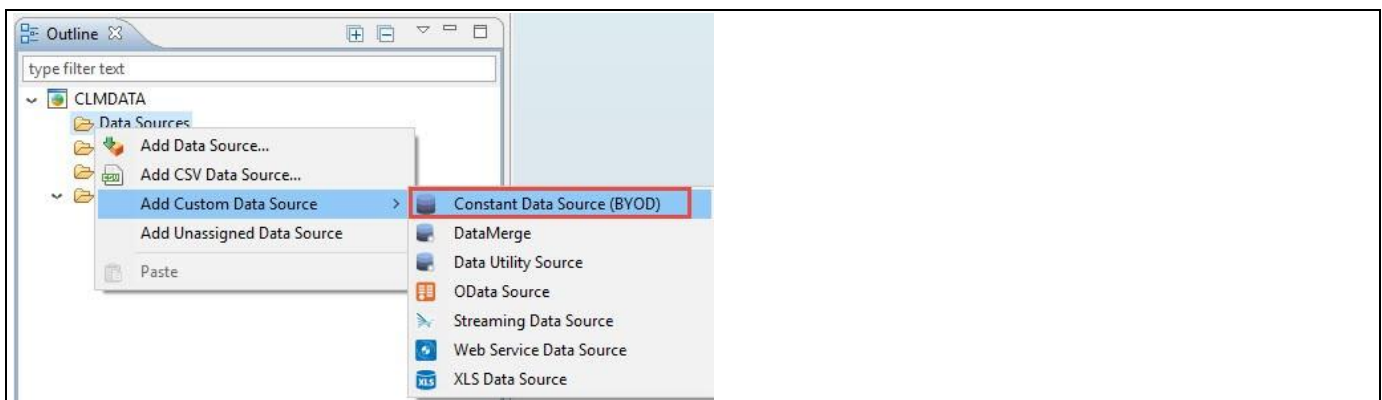


Figure 6.322: Constant Data Source being selected as Custom Data Source

8. Select the menu Add Custom Data Source • Constant Data Source (BYOD).
9. Navigate to the Additional Properties of the Constant Data Source Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
10. Navigate to the category General and to the sub category General Settings in the Additional Properties (see Figure 6.323).

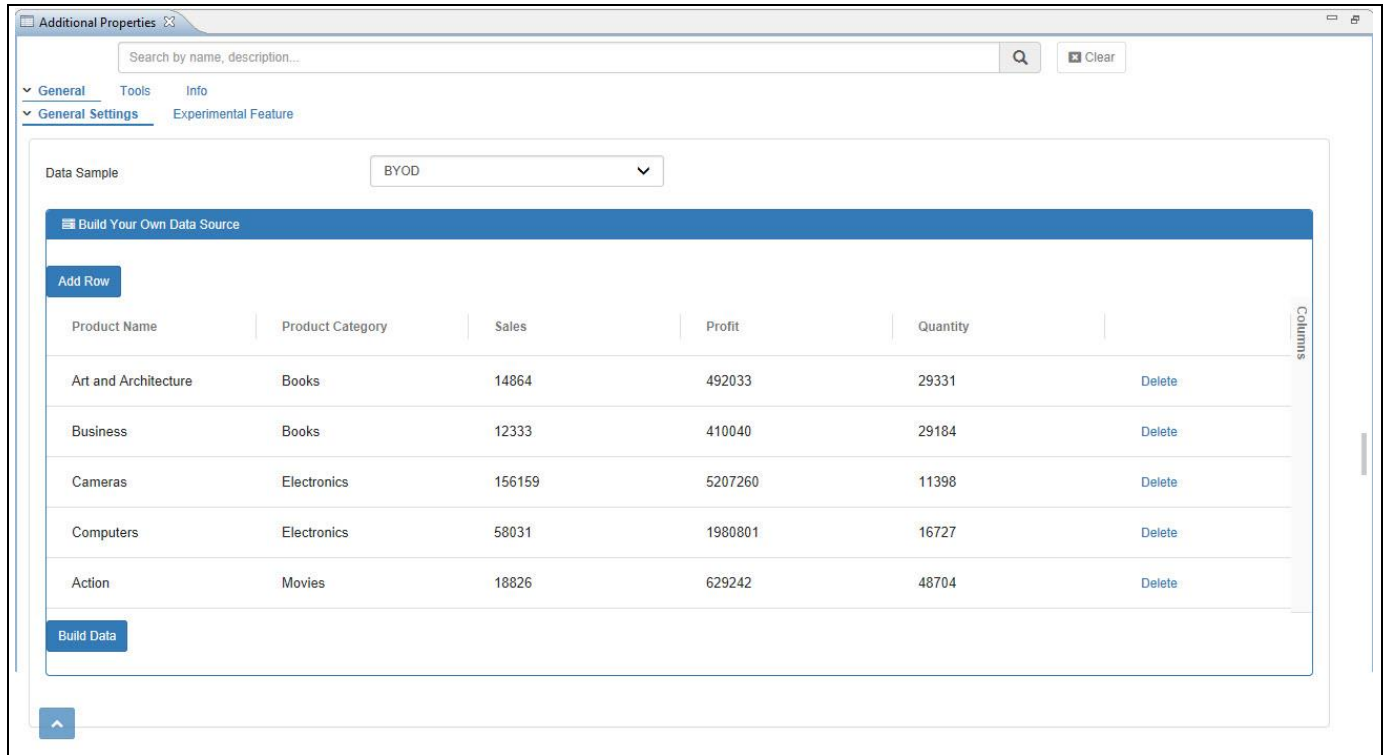


Figure 6.323: Building own data source

11. For our example, set the property Data Sample to the option Use BYOD. The other options are Experimental Sample Queries and Custom Data String.
12. Now you can generate your own data source by providing the inputs for Dimension 1 as Product Name, Dimension 2 as Product Category, Measure 1 as Sales, Measure 2 as Profit and Measure 3 as Quantity (see Figure 6.323).
13. Now click Build Data.
14. Add a Column Bar Chart from the VBX Chart into your application.
15. Now assign the Constant Data Source to the Column Bar Chart component.
16. Based on the above configuration, you will be able to visualize Column Bar Chart based on the assigned Constant Data Source which was generated from your own data source (see Figure 6.324).

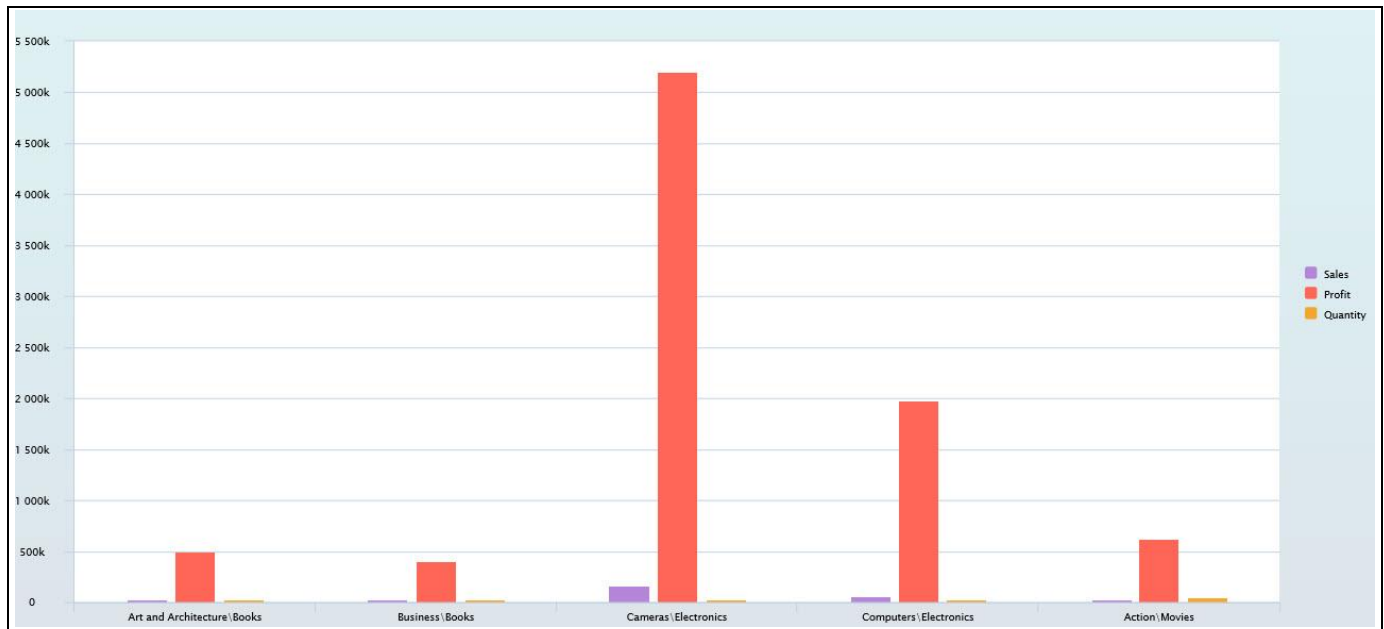


Figure 6.324: Column Bar Chart

Experimental Feature

The Experimental Feature is being added in the Additional Properties, since it was requested by the customers based on the blog posted as given below:

<http://visualbi.com/blogs/design-studio/custom-add-ons/custom-data-source-in-sap-design-studio-1-4/>

6.23.2 Additional Properties for Constant Data Source

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Constant Data Source.

6.23.2.1 Category General

Sub category	Area	Property	Description
General Settings		Data Sample	Using this property, you can select the options for the Data Sample. The options are BYOD (Bring Your Own Data), Experimental Sample Queries and Custom Data String.
	Build Your Own Data Source	Add Row	This property adds the number of rows for the predefined five columns with 2 columns assigned for Dimensions and 3 columns assigned for Measures.
		Build Data	This property builds your own data source based on the values given in the Grid.

6.24 Small Multiples (Trellis) Chart

The Small Multiples (Trellis) Chart component provides you with the ability to configure a start page with a variety of charts and in addition to define a drill path based on the available dimensions in the assigned data source. Based on the drill path, you will then be able to drill to the next dimension and based on the dimension members the component will then generate one visualization per dimension member, for example one column chart per country visualizing the revenue by month. The list of VBX components which support Small Multiples (Trellis) Chart are listed below:

- Area Chart
- Bubble Chart
- Bullet Chart
- Column Bar Chart
- Donut Chart
- Dual Axes Chart
- Fixed Column Chart
- Funnel Pyramid Chart
- Group Stacked Column Bar Chart
- HeatMap Chart
- Line Chart
- Multiple Axes Chart
- Pie Chart
- Pie Drilldown Chart
- Polar Chart
- Radar Chart
- Scatter Chart
- Semicircle Donut Chart
- Stacked Area Chart
- Stacked Column Bar Chart
- Tree Map Chart
- Waterfall Chart
- Advanced Table

6.24.1 Data Source Requirements

The assigned data source for the Small Multiples (Trellis) Chart requires a minimum of two dimensions in the rows and one measure in the columns.

6.24.2 How to use the Small Multiples (Trellis) Chart

In the following steps you can see, how you can setup a simple scenario with the Small Multiples (Trellis) Chart.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a Data Source to your project. For this example, we will assume that your data source has four dimensions – Calendar Year, Item Category, Item Sub category, and Customer Gender and one measure – Order Cost.
3. Add a Column Bar Chart and a Line Chart from the category VBX Charts to your project.
4. Add the Small Multiples (Trellis) Chart from the category VBX Utilities to your project.
5. Now assign your data source to the Column Bar Chart, Line Chart, and assign your data source as well to the Small Multiples (Trellis) Chart.
6. Now navigate to the category General and to the sub category Layout in the Additional Properties of the Small Multiples (Trellis) Chart (see Figure 6.325).

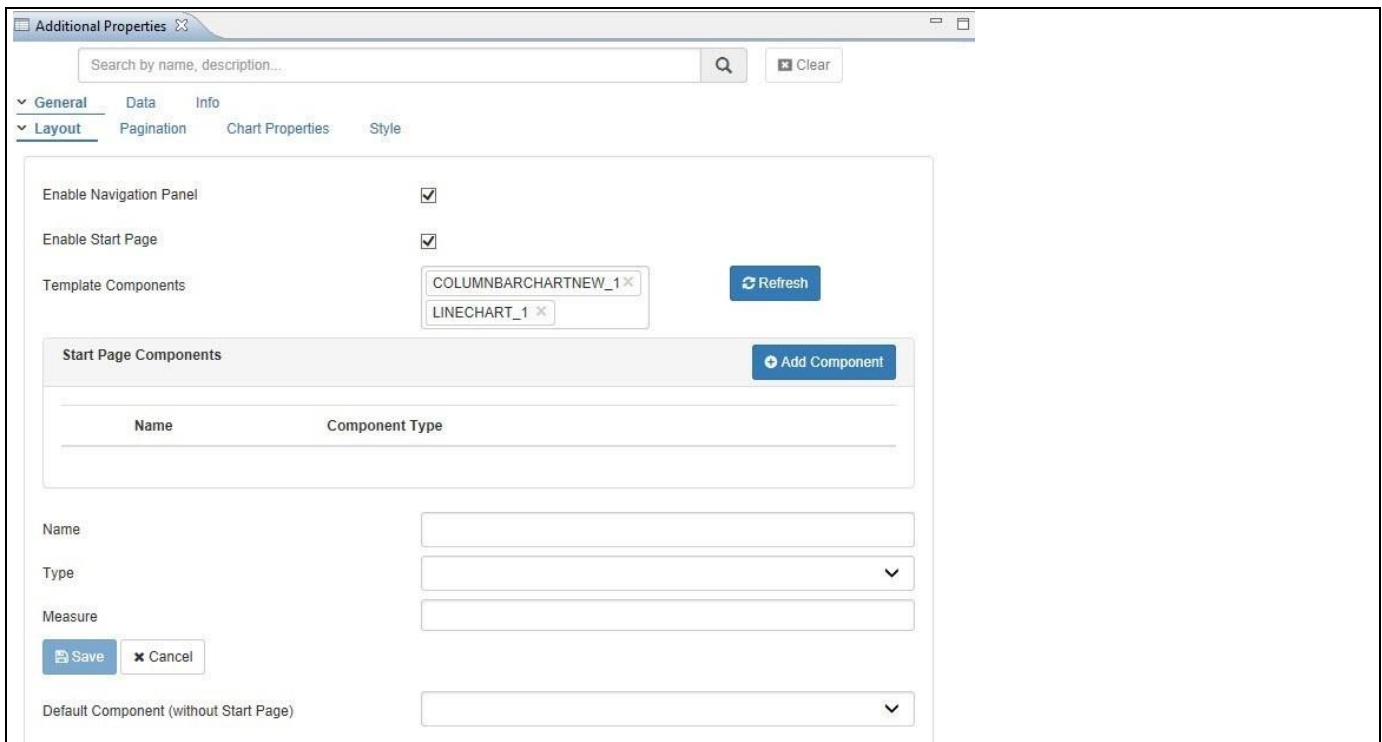
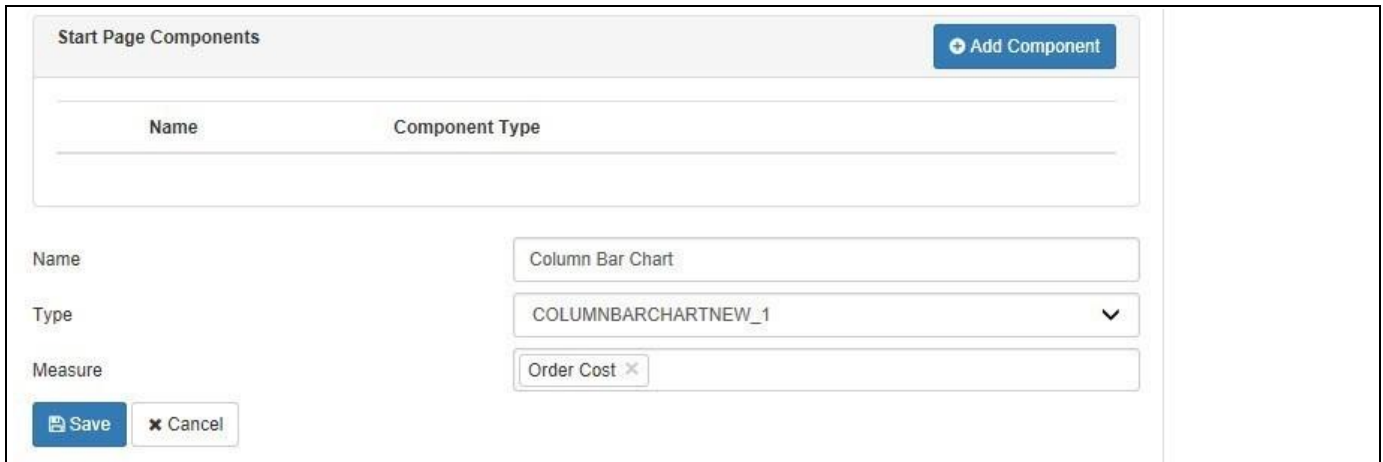


Figure 6.325: Category General – Layout

7. Activate the property Enable Navigation Panel so that during run time, the Navigation Panel will be displayed at the left side so that you can select which dimension member will be used to filter the data set and navigate along the drill path.
8. By activating the property Enable Start Page, the component provides you with the option to configure a Start Page and the elements that will be shown on the start page.
9. For our example, click the Refresh button against the property Template Components and select both the Column Bar chart and the Line Chart to the project as part of the Template Components (see Figure 6.325).
10. In addition, we can also assign any other chart that is part of our SAP BusinessObjects Design Studio/SAP Lumira Designer project to the list of Template components.

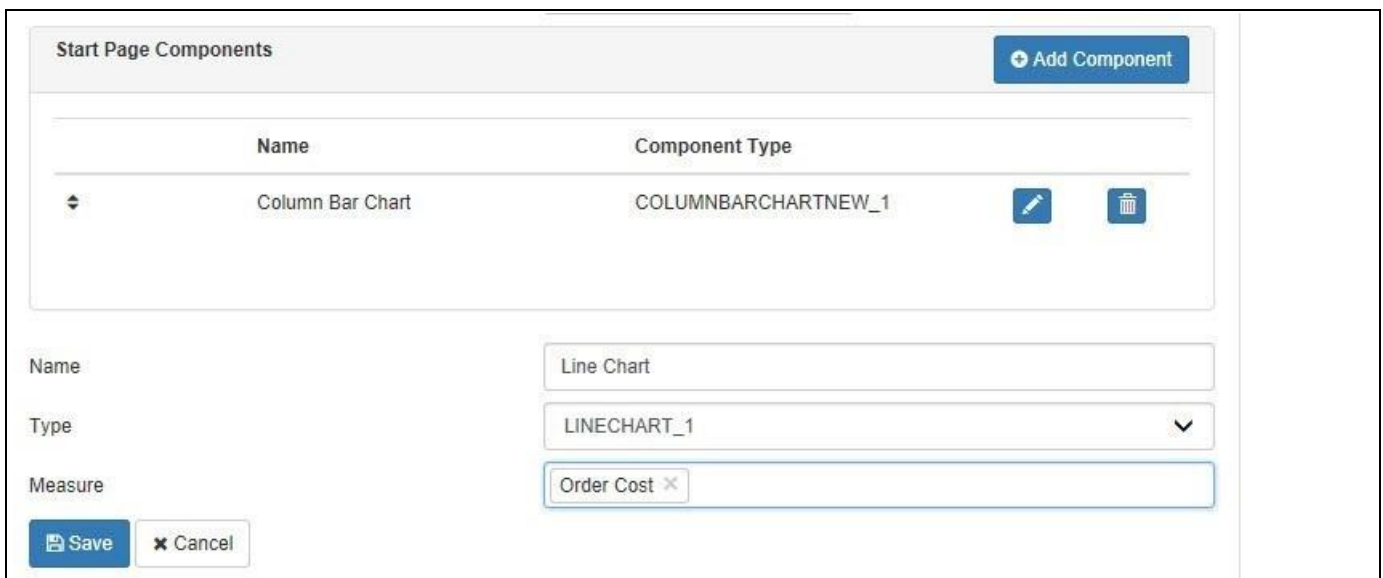
11. After we assigned both the Column Bar Chart and Line Chart for the Template Components, we can now define their entries as part of the Start Page Components.
12. For our example, we will first add the Column Bar Chart to the Start Page Components by setting the values for the properties Name, Type and Measure as shown in Figure 6.326.



The screenshot shows the 'Start Page Components' configuration window. At the top, there is a header 'Start Page Components' and a blue button with a plus icon and the text 'Add Component'. Below the header is a table with two columns: 'Name' and 'Component Type'. The table is currently empty. Below the table, there are three input fields: 'Name' with the value 'Column Bar Chart', 'Type' with a dropdown menu showing 'COLUMNBARCHARTNEW_1', and 'Measure' with a dropdown menu showing 'Order Cost'. At the bottom left, there are two buttons: 'Save' and 'Cancel'.

Figure 6.326: Start Page Components as Column Bar Chart

13. Next, we will add the Line Chart to the Start Page Components by setting the values for the properties Name, Type and Measure as shown in Figure 6.327.



The screenshot shows the 'Start Page Components' configuration window. At the top, there is a header 'Start Page Components' and a blue button with a plus icon and the text 'Add Component'. Below the header is a table with two columns: 'Name' and 'Component Type'. The table contains one row with the value 'Column Bar Chart' in the 'Name' column and 'COLUMNBARCHARTNEW_1' in the 'Component Type' column. To the right of the table, there are two icons: a pencil icon and a trash can icon. Below the table, there are three input fields: 'Name' with the value 'Line Chart', 'Type' with a dropdown menu showing 'LINECHART_1', and 'Measure' with a dropdown menu showing 'Order Cost'. At the bottom left, there are two buttons: 'Save' and 'Cancel'.

Figure 6.327: Start Page Components as Line Chart

14. Based on the above configuration, you should see the Column Bar Chart and the Line Chart as part of the start page which shows the measure Order Cost by the dimension Calendar Year (see Figure 6.328).

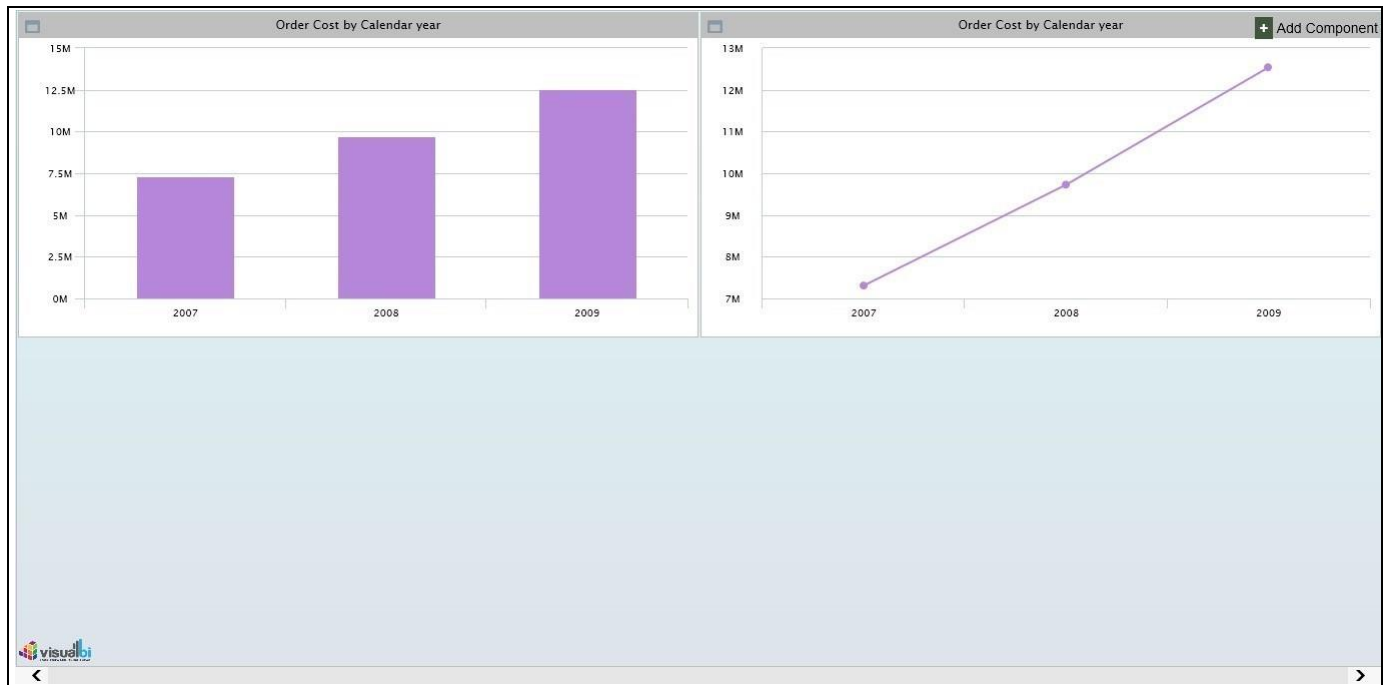


Figure 6.328: Start page component assigned as Column Bar Chart and Line Chart

15. In addition, you have the ability to add new visualizations to the start page by clicking on the “Add Component” option. All components configured as Template Components are available to be added to the Start Page (see Figure 6.328).
16. After clicking the Add Component, you will be able to assign the details for the properties Name, Type, and Measure and the selected component will be added to the Start Page (see Figure 6.329). The dimension for the component will be automatically be based on the data source and the drill path in the data source.

Component Configuration

Name :

Name..

Type :

Select Component

Measures :

Select Some Options

OK

Close

Figure 6.329: Component Configuration

17. In case you now click onto the Column Bar Chart as part of the Start page, the drill path of the data source is being followed and for our example, the Small Multiples (Trellis) Chart is then showing the dimension members for the dimension Calendar Year in the Navigation Panel, and for each Calendar Year member you will see the Column Bar Chart being displayed with the measure Order Cost broken down by the dimension Item Category. (see Figure 6.330).

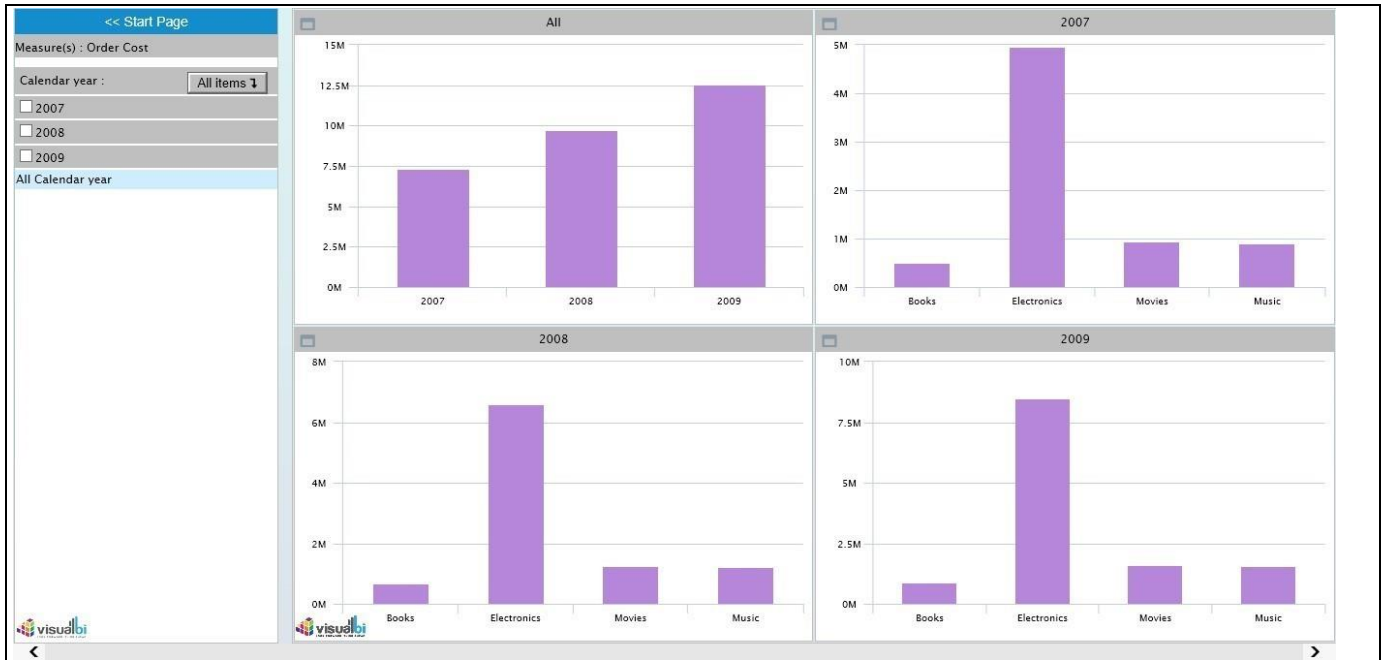


Figure 6.330: Small Multiples (Trellis) Chart with Calendar Year Dimension members

18. Now when you click the **All Items** link in the Navigation panel, the drill path of the data source is being followed and for our example, the Small Multiples (Trellis) Chart will be then showing the dimension members for the dimension Item Category in the Navigation Panel, and for each Item Category member you will see the Column Bar Chart being displayed with the measure Order Cost broken down by the dimension Item Sub category (see Figure 6.331).



Figure 6.331: Small Multiples (Trellis) Chart with Item Category Dimension members

19. At this stage, if you need to view the Trellis for the particular Dimension Member(s) you can select the Member(s) from the Navigation Panel and view the drill path for your selection. For our example, the dimension members “Books” and “Electronics” which belong to the dimension Item Category have been selected and the corresponding drill path is displayed as shown in Figure 6.332.

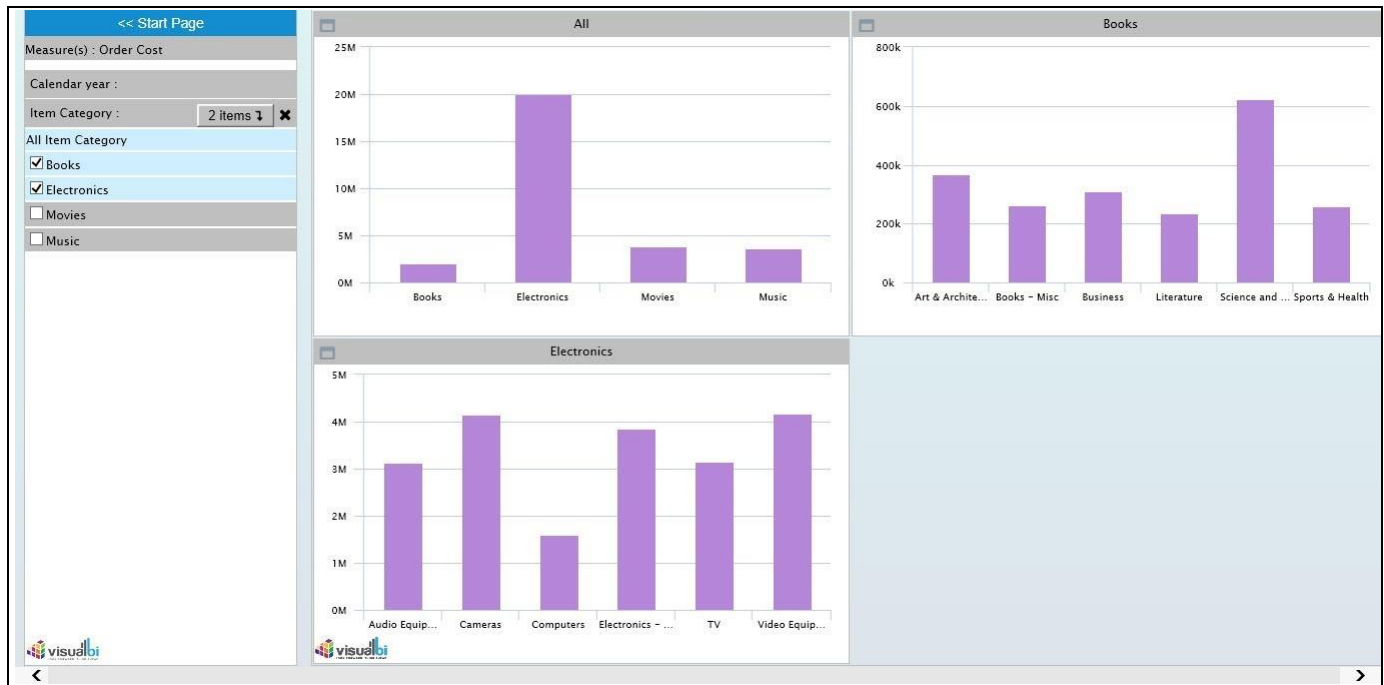


Figure 6.332: Small Multiples (Trellis) Chart – Drill path for the selected Dimension members for Item Category

20. In case if you have once again clicked the **All Items** link in the Navigation panel, the drill path of the data source is being followed and for our example, the Small Multiples (Trellis) Chart will be then showing the dimension members for the dimension Item Subcategory in the Navigation Panel, and for each Item Subcategory member you will see the Column Bar Chart being displayed with the measure Order Cost broken down by the dimension Customer Gender (see Figure 6.333).

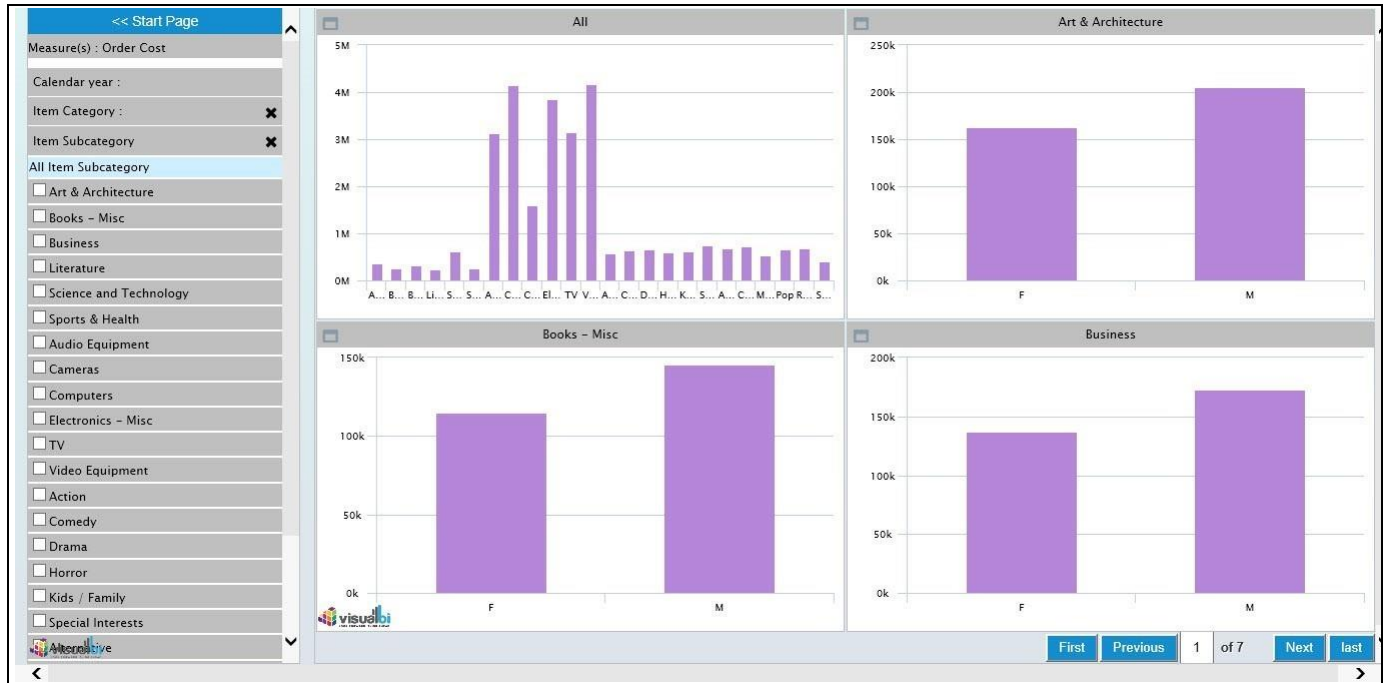


Figure 6.333: Small Multiples (Trellis) Chart with Item Subcategory Dimension members

6.24.3 Run Time Data Utility Feature for Small Multiples (Trellis) Chart

As part of VBX Release 2.4, you will be able to use the Data Utility Feature for the Trellis Chart in run time by navigating to the category General and to the sub category Layout.

You can follow the steps below to configure the Data Utility Feature for the Trellis Chart in run time:

1. Follow all the steps as detailed in section 6.24.2.
2. Navigate to the category Data and to the sub category Data Utility. Activate the property Enable Data Utility Tool (see Figure 6.334).

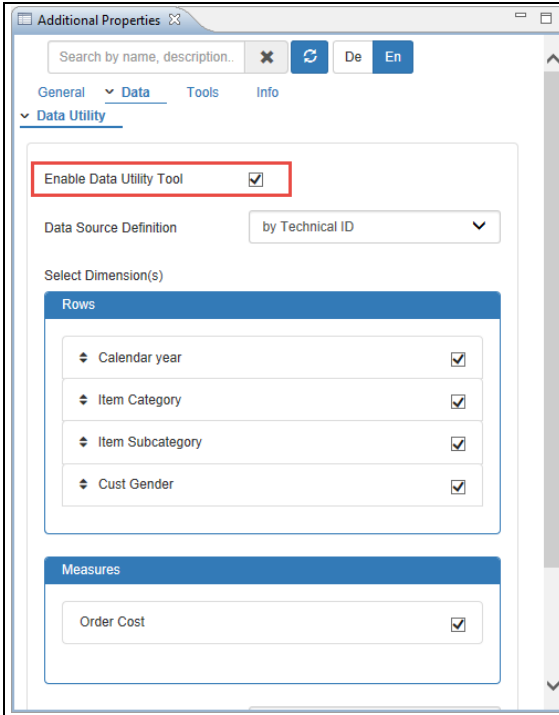


Figure 6.334: Category Data

- Now navigate to the category General and to the sub category Layout. Activate the property Enable Run-time Data Utility (see Figure 6.335).

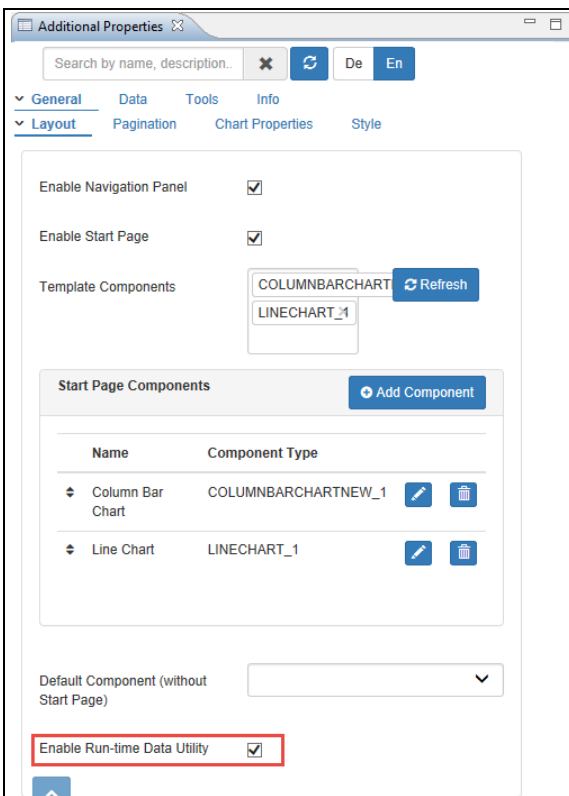


Figure 6.335: Category General

Based on the above configuration you will be able to view the Data Utility Feature for the Trellis Chart in run time (see Figure 6.336).



Figure 6.336: Trellis Chart – Data Utility

You can now drag and drop from the list of available dimensions appearing in the top row, those dimensions that you would like to show as part of the Trellis Chart. For our example, the dimension Item Category has been dragged and dropped (see Figure 6.337).

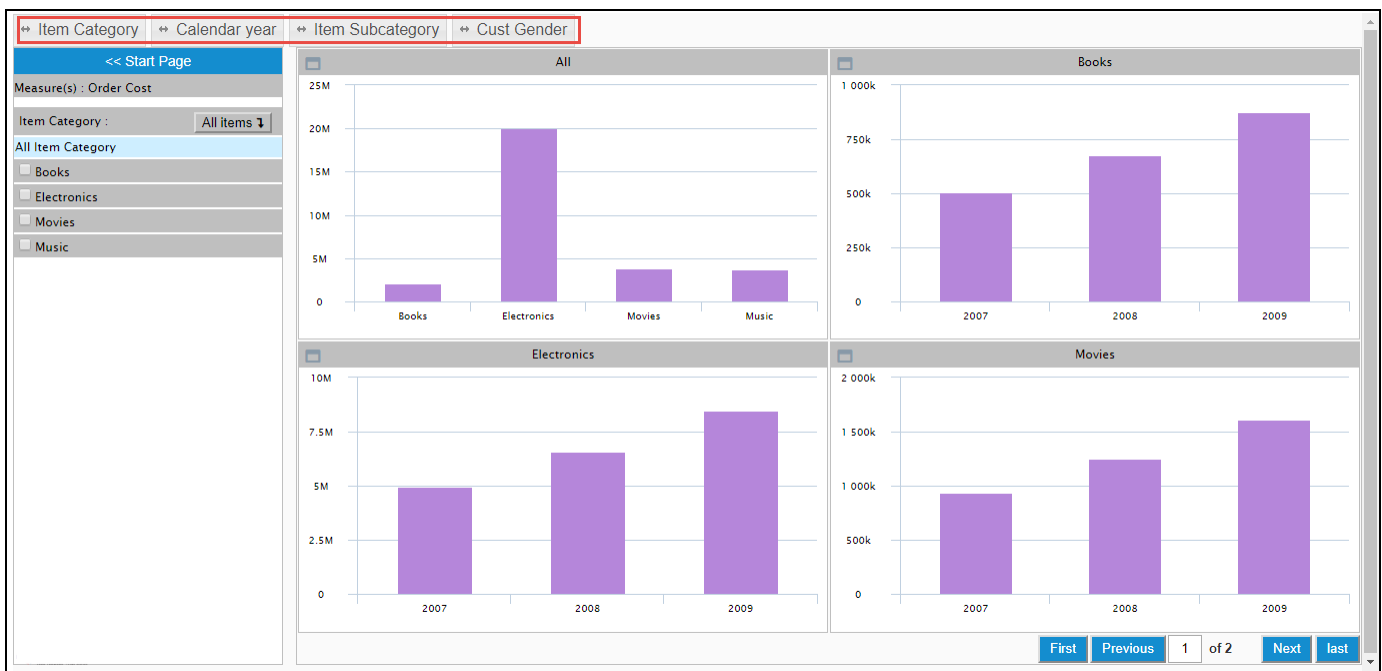


Figure 6.337: Trellis Chart – Data Utility

6.24.4 Additional Properties of the Small Multiples (Trellis) Chart

In the following section you will find a list of available properties and a table with a more detailed description of each of the properties for the Small Multiples (Trellis) Chart.

6.24.4.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Sub category	Area	Property	Description
Layout		Enable Navigation Panel	This property enables/disables the Navigation Panel, allowing you to select which dimension member will be used to follow the drill path.
		Enable Start Page	This property enables/disables the Start Page and when activated, it allows you to configure the Start Page and then configure the elements that will be shown on the start page. You can view the start page with the assigned start page component during run time.
		Template Component	Here you can configure a list of components that will be available to be used as part of the Start Page definition.
		Name	This property sets the Name for the Start page component.
		Type	This property sets the Chart Type for the Start page component to be displayed during run time.
		Measure	This property sets the Measure for the Start page component to be displayed during run time.
		Default Component (without Start Page)	In a scenario where you do not require the use of template components instead use any one of the assigned Charts as default Chart component, then you need to assign this property (Default Component) to the desired Chart component from the assigned Charts List. When this option is selected, the property Enable Start Page needs to be deactivated.
		Enable Run-time Data Utility	This property enables/disables the Data Utility Feature for the Trellis Chart in run time.
Pagination		Number of Components / Page	This Property sets the number of components to be displayed per page in the Small Multiples (Trellis) Chart.
		Style of Page Navigator	This Property sets the option to decide the style of page navigation in Small Multiples

Sub category	Area	Property	Description
			(Trellis) Chart. The options are Number and Button.
		iPad Pagination Style	This Property sets the option to decide the swipe type of the page navigation on touch devices. The options are Horizontal and Vertical.
		Component Width (px / %)	This Property sets the width of the Small Multiples (Trellis) Chart using percentage and pixels.
		Component Height (px / %)	This Property sets the height of the Small Multiples (Trellis) Chart using percentage and pixels.
Chart Properties		Overwrite Chart Properties	When this property is enabled, you will be able to overwrite the defined set of Small Multiples (Trellis) Chart Properties even though those Properties are configured based on the default Chart Properties.
		Enable Chart Title	This property enables/disables the Title of the Chart.
		Enable Chart Sub Title	This property enables/disables the Sub Title of the Chart.
		Enable X-Axis Label	This property enables/disables the X Axis Label for the Chart.
		Enable Y-Axis Label	This property enables/disables the Y Axis Label for the Chart.
		Enable Legend	This property enables/disables the Legend for the Chart.
		Enable X Axis Title	This property enables/disables the X Axis Title for the Chart.
		Enable Y Axis Title	This property enables/disables the Y Axis Title for the Chart.
		Enable Export Menu	This property enables/disables the Export function for the Chart.
Style	Start Page	Border Color	This property sets the Border Color for the Start Page.
		Border Width	This property sets the Border Width for the Start Page.
		Border Style	This property sets the Border Style for the Start Page.
		Background Color	This property sets the Background Color for the Start Page.
	Start Page Component	Border Color	This property sets the Border Color for the Start Page Component.

Sub category	Area	Property	Description
		Border Width	This property sets the Border Width for the Start Page Component.
		Border Style	This property sets the Border Style for the Start Page component.
		Background Color	This property sets the Background Color for the Start Page component.
	Start Page Component Header	Font Family	This property sets the Font Type for the Start Page Component Header.
		Font Size	This property sets the Font Size for the Start Page Component Header.
		Font Color	This property sets the Font Color for the Start Page Component Header.
		Font Style	This property sets the Font style for the Start Page Component Header.
		Horizontal Alignment	This property sets the Horizontal Alignment of the Font for the Start Page Component Header
		Background Color	This property sets the Background Color for the for the Start Page Component Header.
		Border Color	This property sets the Border Color for the Start Page Component Header.
		Border Width	This property sets the Border Width for the Start Page Component Header.
	Trellis Panel	Border Color	This property sets the Border Color for the Trellis Panel.
		Border Width	This property sets the Border Width for the Trellis Panel.
		Border Style	This property sets the Border Style for the Trellis Panel.
		Background Color	This property sets the Background Color for the Trellis Panel.
	Trellis Chart	Border Color	This property sets the Border Color for the Small Multiples (Trellis) Chart.
		Border Width	This property sets the Border Width for the Small Multiples (Trellis) Chart.
		Border Style	This property sets the Border Style for the Small Multiples (Trellis) Chart.
		Background Color	This property sets the Background Color for the Small Multiples (Trellis) Chart.
	Trellis Chart Header	Font Family	This property sets the Font Type for the Small Multiples (Trellis) Chart Header.
		Font Size	This property sets the Font Size for the

Sub category	Area	Property	Description
			Small Multiples (Trellis) Chart Header.
		Font Color	This property sets the Font Color for the Small Multiples (Trellis) Chart Header.
		Font Style	This property sets the Font style for the Small Multiples (Trellis) Chart Header.
		Horizontal Alignment	This property sets the Horizontal Alignment of the Font for the Small Multiples (Trellis) Chart Header
		Background Color	This property sets the Background Color for the for the Small Multiples (Trellis) Chart Header.
		Border Color	This property sets the Border Color for the Small Multiples (Trellis) Chart Header.
		Border Width	This property sets the Border Width for the Small Multiples (Trellis) Chart Header.
	Navigation Panel	Border Color	This property sets the Border Color for the Navigation Panel.
		Border Width	This property sets the Border Width for the Navigation Panel.
		Border Style	This property sets the Border Style for the Navigation Panel.
		Background Color	This property sets the Background Color for the Navigation Panel.
	Navigation Panel – Dimension Header	Font Family	This property sets the Font Type for the Navigation Panel – Dimension Header.
		Font Size	This property sets the Font Size for the Navigation Panel – Dimension Header.
		Font Color	This property sets the Font Color for the Navigation Panel – Dimension Header.
		Font Style	This property sets the Font style for the Navigation Panel – Dimension Header.
		Horizontal Alignment	This property sets the Horizontal Alignment of the Font for the Navigation Panel – Dimension Header
		Background Color	This property sets the Background Color for the for the Navigation Panel – Dimension Header.
		Border Color	This property sets the Border Color for the Navigation Panel – Dimension Header.
		Border Width	This property sets the Border Width for the Navigation Panel – Dimension Header.
	Navigation Panel – Dimension	Font Family	This property sets the Font Type for the Navigation Panel – Dimension Members.

Sub category	Area	Property	Description
	Members	Font Size	This property sets the Font Size for the Navigation Panel – Dimension Members.
		Font Color	This property sets the Font Color for the Navigation Panel – Dimension Members.
		Font Style	This property sets the Font style for the Navigation Panel – Dimension Members.
		Background Color	This property sets the Background Color for the for the Navigation Panel – Dimension Members.
		Border Color	This property sets the Border Color for the Navigation Panel – Dimension Members.
		Border Width	This property sets the Border Width for the Navigation Panel – Dimension Members.
		Selected Font Color	This property sets the Selected Font Color for the Navigation Panel – Dimension Members.
		Selected Background Color	This property sets the Selected Background Color for the Navigation Panel – Dimension Members.
	Navigation Panel – Key Figure Filter	Font Family	This property sets the Font Type for the Navigation Panel – Key Figure Filter (Measures).
		Font Size	This property sets the Font Size for the Navigation Panel – Key Figure Filter (Measures).
		Font Color	This property sets the Font Color for the Navigation Panel – Key Figure Filter (Measures).
		Font Style	This property sets the Font style for the Navigation Panel – Key Figure Filter (Measures).
		Horizontal Alignment	This property sets the Horizontal Alignment of the Font for the Navigation Panel – Key Figure Filter (Measures)
		Background Color	This property sets the Background Color for the for the Navigation Panel – Key Figure Filter (Measures).
		Border Color	This property sets the Border Color for the Navigation Panel – Key Figure Filter (Measures).
		Border Width	This property sets the Border Width for the Navigation Panel – Key Figure Filter (Measures).

Table 6.91: Category General

6.24.4.2 Category Data

Below you can see the Additional Properties for the category Data and their descriptions.

Sub category	Area	Property	Description
Data Utility		Enable Data Utility Tool	This property enables /disables the Data Utility Tool.
		Data Source Definition	Here you can select the option for the property Data Source Definition and the two different options are 1. Technical ID 2. Index based
		Select Dimension(s)	Here you can customize the Dimensions used in the Chart.
		Measure	Select a Measure from the Data Source for the chart.
		Include Result from Data Source	This property enables/disables the Include Result from Data Source option.
		Include Result	When this property is activated, you have the option to include totals / subtotals for the selected dimension / measures and choose the aggregation function in the next property.
		Measure Aggregation	Using this property, you can set the Aggregate Function for the data points which are configured using the options such as Min, Max, Average, Count, Distinct Count, Sum, Percentage Share, and Running Total. The property Show Total and Sub total will display the sum of all the data points based on the selected Aggregate function.
		Suppression Type	This property allows you to configure if rows or columns (or both) with null and zero values should be suppressed from the result set.

Table 6.92: Category Data

6.24.5 Scripting Function for the Small Multiples (Trellis) Chart

All supported scripting functions for the Small Multiples (Trellis) Chart are listed in section 4.6.

6.24.6 Events for Small Multiples (Trellis) Chart

The following Table outlines the available events for the Small Multiples (Trellis) Chart component.

Event	Description
OnClick	Using this property, you can enable interaction with the component by writing scripts. The on Click event is triggered when you click on the component.

Table 6.93: Events

6.25 VBX Theme

As part of the VBX Release 2.4, you will be able to apply VBX Theme for all the components by navigating to the Standard Properties and select the Theme types for the Display property.

6.25.1 How to use VBX Theme

In the following steps we will outline, how you can setup a new Smart Editor option as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows four measures – Discount Amount, Order Amount, Order Cost and Order Quantity - and one dimension - Item Category.
3. Add a Column Bar Chart from VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Column Bar Chart.
5. Use a right-click on the folder Technical Components (see Figure 6.338).

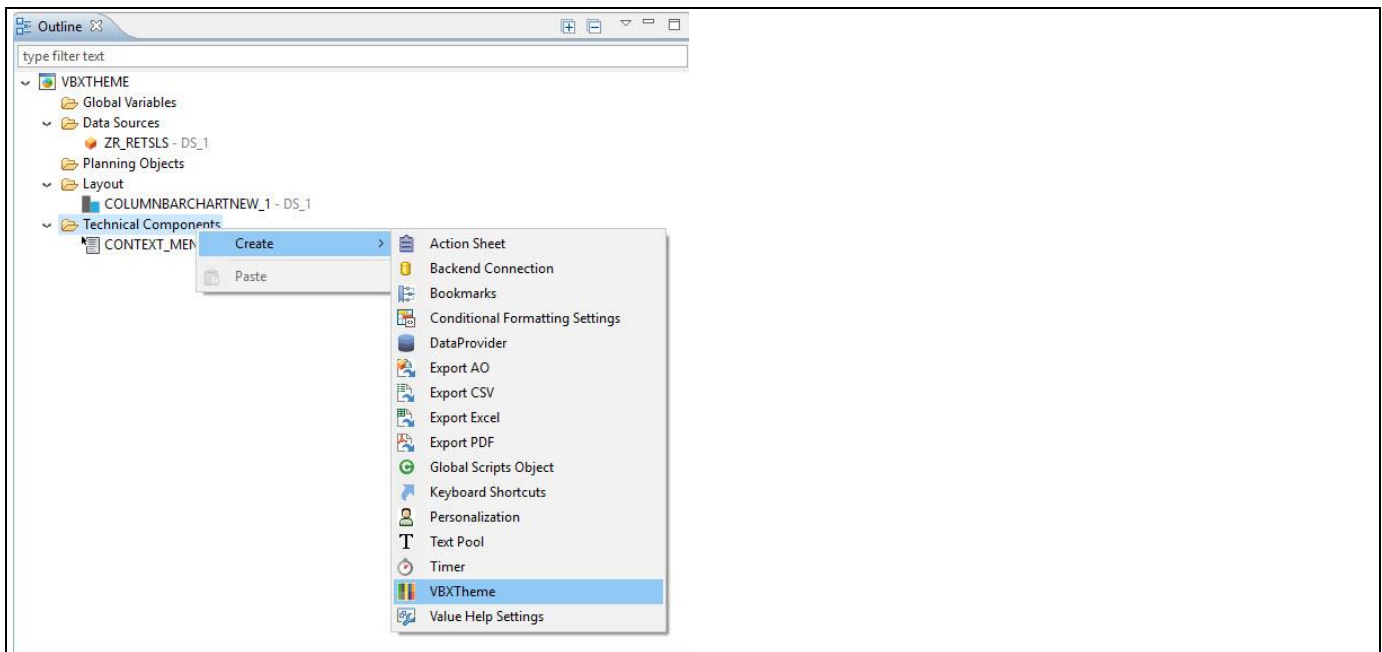


Figure 6.338: Technical Components

6. Select the menu option Create • VBX Theme.
7. A new VBX Theme component is being created as part of the Technical Components (see Figure 6.338).
8. Navigate to the Standard Properties of the Application “VBXTHEME” (see Figure 6.339).

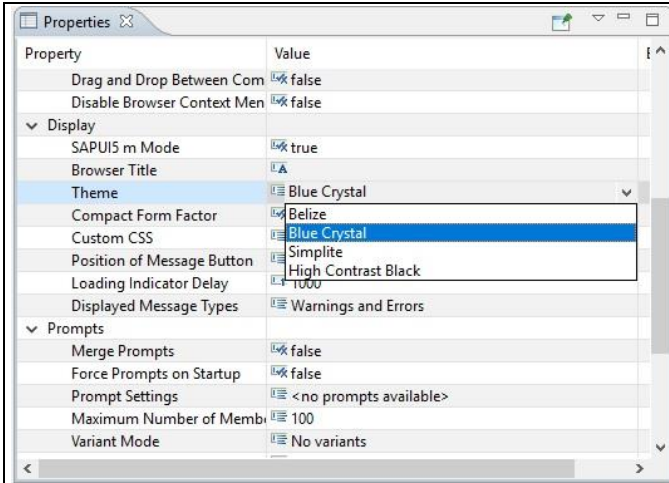


Figure 6.339: Standard Properties

9. By default, the property Theme Name will be “Belize”. The other VBX Theme types are Blue Crystal, Simplite and High Contrast Black.
10. For our example, the property Theme Name is set to the option “Blue Crystal”.
11. Based on the above configuration, you will be able to view the Column Bar Chart in Blue Crystal Theme (see Figure 6.340).

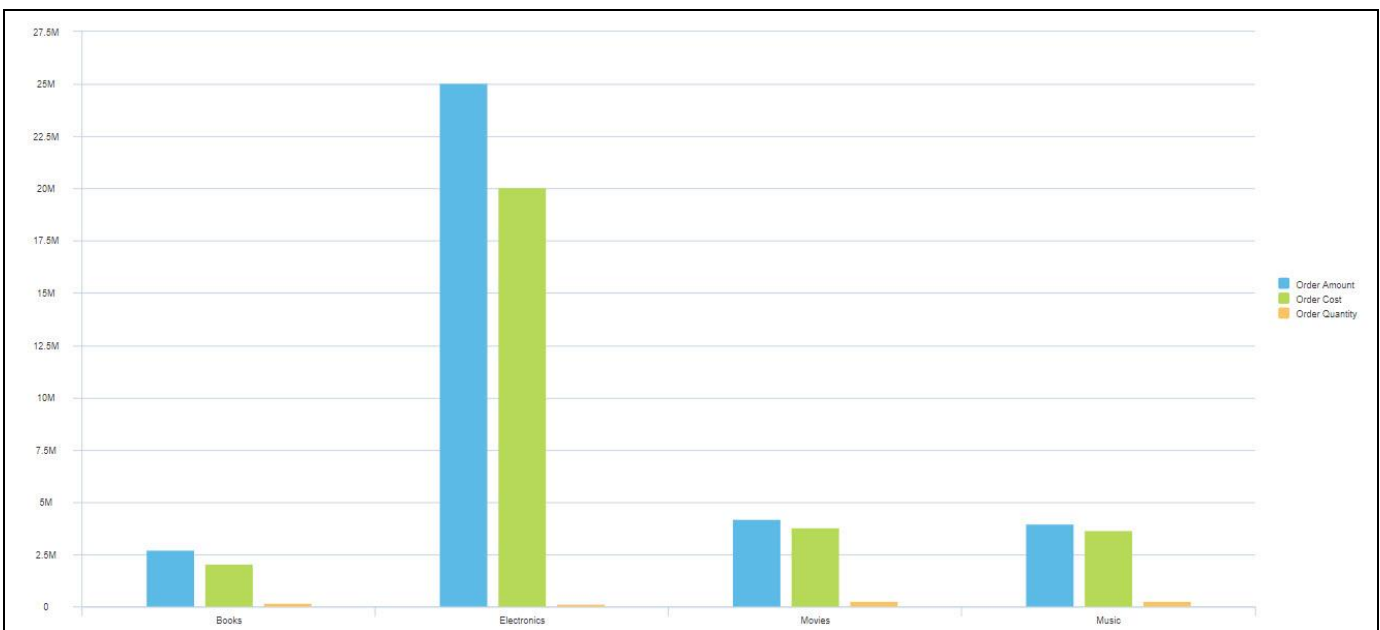


Figure 6.340: Column Bar Chart in Blue Crystal Theme

6.26 Data Merge / Joining Component

As part of VBX Release 2.5, you will be able to use the Data Merge/Joining Component as a Custom Data Source Component. Here you can assign two Data Sources having atleast one identical Dimension and further map those Data Sources with two different Data Provider components. Now through the Data Merge/Joining Component, you will be able to perform the Merge and Join operations. The Merge Type can be categorised as Join and Append. The Join types can be classified as Inner Join, Left Outer Join, Right Outer Join and Full Outer Join.

In the following steps we will use the Data Merge/Joining Component as the Custom Data Source and further perform all types of Join and Append functions.

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer select the menu Application • New to create a new application.
2. Add a Data Source (DS_1) to your project. For this example, we will assume that your Data Source DS_1 has one dimension – Item and four measures – Discount Amount, Order Amount, Order Cost and Order Quantity.
3. Now add Data Source (DS_2) to your project. For this example, we will assume that your Data Source DS_2 has five dimensions – Item, Brand, Item Category, Item Sub category, Warranty and two measures – Item Cost and Item MSRP.
4. Add a Advanced Table from the category VBX Utilities to your project. Add two Technical Data Providers and assign the Data Source DS_1 to the Data Provider 1 and the Data Source DS_2 to the Data Provider 2 using the Standard Properties of the Data Providers (see Figure 6.341 and Figure 6.342).

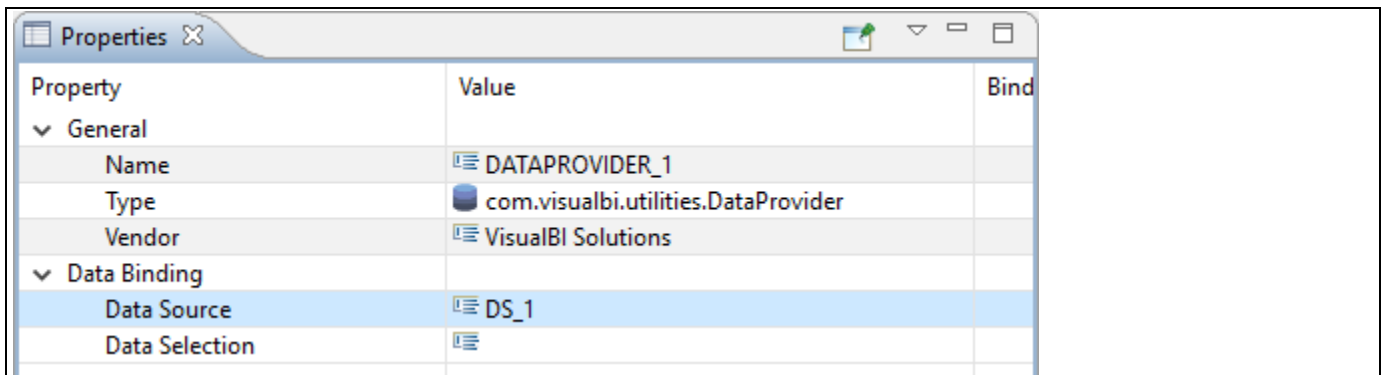


Figure 6.341: Data Provider 1 assigned with Data Source DS_1

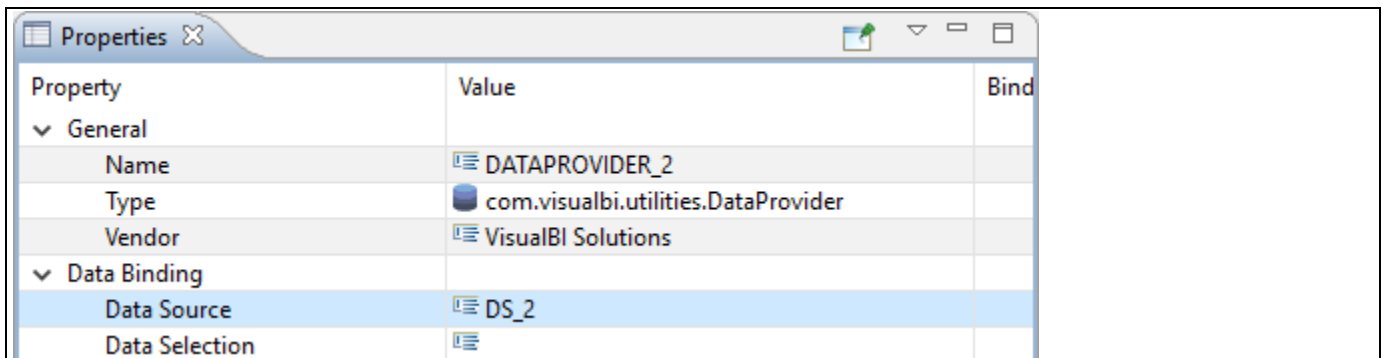


Figure 6.342: Data Provider 2 assigned with Data Source DS_2

5. Now select the folder Data Sources in the Outline and use a right-click (see Figure 6.343).

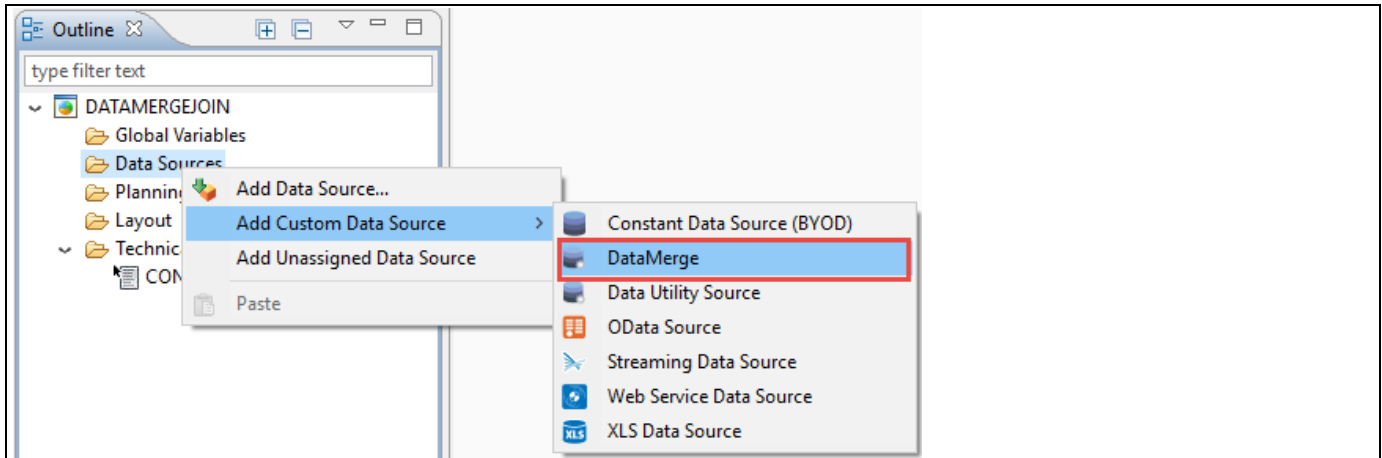


Figure 6.343: Custom Data Source being selected as DataMerge

8. Select the menu Add Custom Data Source • DataMerge (DS_3).
9. Now assign the DataMerge (DS_3) to the Advanced Table and your outline looks similar to Figure 6.344.

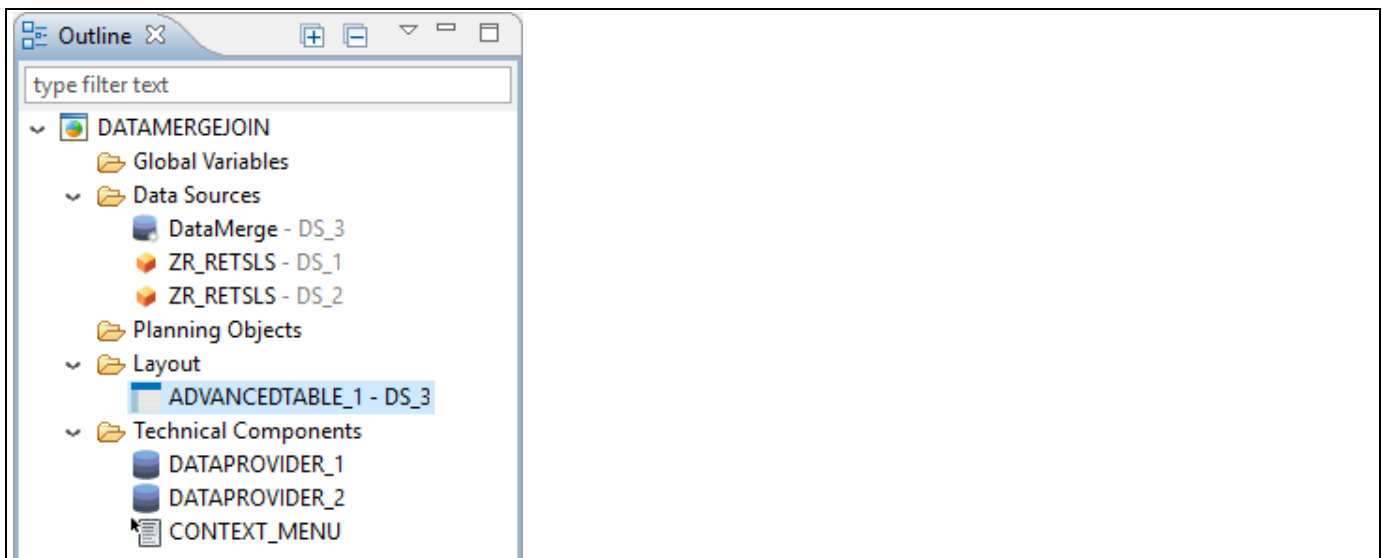


Figure 6.344: Outline

10. Navigate to the Additional Properties of the Data Merge Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.

The above steps 1 – 10 will highlight the General work flow on how to add Data Sources, assigning the Data Sources to the Data Providers and assigning the Data Merge as Custom Data Source Component to the VBX Component. In the upcoming sections, we will outline on the steps on how you can further perform all types of Join and Append functions.

6.26.1 Inner Join

1. As an Initial step, follow the steps 1 – 10 as outlined in the previous Section 6.26.
2. Now navigate to the category General and to the sub category General Settings in the Additional Properties of the Data Merge Component (see Figure 6.345Error! Reference source not found.).

General Tools Info

General Settings Data Arrange

Merge Configuration

Process On

Local

Left Provider*

DATAPROVIDER_1

Right Provider*

DATAPROVIDER_2

Merge Type

Inner Join

Left Column*

Item

Right Column*

Item

Right Column Suffix*

Join column suffix

Custom Selection

☒

Left Dimensions

Type column name

Right Dimensions

Item Category X

Item Subcategory X

Left Measures

Discount Amount X

Order Amount X

Right Measures

Item Cost X

Item MSRP X

Merge result columns will be based on the above selection

Submit

Merge Info

Inner Join

The inner join returns a resultset table based on matched data as per the equality condition.

Table A

Column 1	Column 2
1	Alpha
2	Beta
3	Gamma

Table B

Column 1	Column 3
1	100
2	200
5	300

Result

Column 1	Column 2	Column 3_RIGHT
1	Alpha	100
2	Beta	200

Figure 6.345: Category General – Inner Join

3. For our example, set the property Process On to the option Local. The other option is Server. When the option Server is selected, set the Server URL details.
4. Set the property Left Provider to the option DATAPROVIDER_1.

5. Set the property Right Provider to the option DATAPROVIDER_2.
6. For our example, set the property Merge Type to the option Inner Join.
7. In our example, the Dimension **Item** exists in both Data Sources DS_1 and DS_2 and as part of mapping the attributes, set the properties Left Column and Right Column to the option Item.
8. For our example, set the property Right Column Suffix to none. In general, you can set the property Right Column Suffix to any labels or leave as “_RIGHT” so that the it will be followed as a suffix to the column header. It is used to identify the Right Table Columns in the Runtime.
9. Activate the property Custom Selection.
10. For our example, set the property Left Dimensions to none.
11. Set the property Right Dimensions to the options Item Category and Item Subcategory
12. Set the property Left Measures to the options Discount Amount and Order Amount.
13. Set the property Right Measures to the options Item Cost and Item MSRP.
14. Now click Submit.
15. Based on the above settings you will be able to view the Advanced Table configured with Merge Type selected as Inner Join (see Figure 6.346).

Type your text...							
Item	Item Category	Item Subcategory	Discount Amount	Order Amount	Item Cost	Item MSRP	
<input type="checkbox"/> 3Com 10/100 CardBus	<input type="checkbox"/> Electronics	Computers	3,688	128,480	129	160	
<input type="checkbox"/> 3Com 56K Cellular Modem PC Card	<input type="checkbox"/> Electronics	Computers	4,400	148,600	155	200	

Figure 6.346: Inner Join

Since the Dimension Item members “3 Com 10/100 CardBus and “3Com 56K Cellular ModemPC Card” exists as a common Dimension in both the Data Source Tables DS_1 (so called Left Table) and DS_2 (so called Right Table), they will get displayed in the Advanced Table as a result of Inner Join (see Figure 6.346). Also, the Column Headers in the Advanced Table will get loaded based on the selection of the Measures and Dimensions from the Data Source Tables DS_1 and DS_2 which are assigned through the Data Providers 1 and 2 (see Figure 6.345).

Based on the additional properties settings, the Dimensions and Measures which exist in the Right Table will be represented by the suffix “_RIGHT” or the user defined label following the Column Header. For our example, this option has not been used here and it is to be noted that the Dimensions and Measures which exist in the Right Table is highlighted in Red Color for better understanding (see Figure above). This is a common feature for all the Join Functions.

6.26.2 Left Outer Join

Follow the same set of steps as outlined in section 6.26 and section 6.26.1. In this case, set the property Merge Type to the option Left Outer Join by navigating to the category General and to the sub category General Settings in the Additional Properties of the Data Merge Component (see Figure 6.347).

The screenshot shows the 'Additional Properties' window for the Data Merge Component. The 'General Settings' tab is selected. The 'Merge Configuration' section contains the following settings:

- Process On: Local
- Left Provider: DATAPROVIDER_1
- Right Provider: DATAPROVIDER_2
- Merge Type: Left Outer Join
- Left Column: Item
- Right Column: Item
- Right Column Suffix: Join column suffix
- Custom Selection: ☒
- Left Dimensions: Type column name
- Right Dimensions: Item Category, Item Subcategory
- Left Measures: Discount Amount, Order Amount
- Right Measures: Item Cost, Item MSRP

The 'Merge Info' section provides an example of an Inner Join result:

Inner Join
The inner join returns a resultset table based on matched data as per the equality condition.

Table A

Column 1	Column 2
1	Alpha
2	Beta
3	Gamma

Table B

Column 1	Column 3
1	100
2	200
5	300

Result

Column 1	Column 2	Column 3_RIGHT
1	Alpha	100
2	Beta	200

Figure 6.347: Category General – Left Outer Join

Based on the settings as shown in the above Figure, you will be able to view the Advanced Table now configured with Merge Type selected as Left Outer Join (see Figure 6.348).

Type your text...							
Item	Item Category	Item Subcategory	Discount Amount	Order Amount	Item Cost	Item MSRP	
<input type="checkbox"/> 3Com 10/100 CardBus	<input type="checkbox"/> Electronics	Computers	3,688	128,480	129	160	
<input type="checkbox"/> 3Com 56K Cellular Modem PC Card	<input type="checkbox"/> Electronics	Computers	4,400	148,600	155	200	
<input type="checkbox"/> A Bug's Life			1,661	55,296			
<input type="checkbox"/> AAA Travel Video Series			1,633	52,190			

Figure 6.348: Left Outer Join

Since the Dimension Item members “A Bugs’s Life” and “AAA Travel Video Series” in Data Source Table DS_1 (Left Table) exist as uncommon Dimensions in comparison with the Data Source Table DS_2 (Right Table), they will get displayed along with the common Dimension Item members “3 Com 10/100 CardBus and “3Com 56K Cellular ModemPC Card” in the Advanced Table as result of Left Outer Join (see Figure 6.348). Also, the Column Headers in the Advanced Table will get loaded based on the selection of the Measures and Dimensions from the Data Source Tables DS_1 and DS_2 which are assigned through the Data Providers 1 and 2 (see Figure 6.347).

It is to be noted that the Dimensions and Measures which exist in the Right Table is highlighted in Red Color for better understanding (see Figure above).

6.26.3 Right Outer Join

Follow the same set of steps as outlined in section 6.26 and section 6.26.1. In this case, set the property Merge Type to the option Right Outer Join by navigating to the category General and to the sub category General Settings in the Additional Properties of the Data Merge Component (see Figure 6.349).

The screenshot shows the 'Additional Properties' dialog for the Data Merge Component. The 'General Settings' tab is selected, and the 'Merge Configuration' section is expanded. The 'Merge Type' is set to 'Right Outer Join'. Below this, the 'Merge Info' section is expanded, showing the 'Inner Join' configuration and the resulting data tables.

Merge Configuration

- Process On: Local
- Left Provider: DATAPROVIDER_1
- Right Provider: DATAPROVIDER_2
- Merge Type: Right Outer Join
- Left Column: Item
- Right Column: Item
- Right Column Suffix: Join column suffix
- Custom Selection: ☒
- Left Dimensions: Type column name
- Right Dimensions: Item Category, Item Subcategory
- Left Measures: Discount Amount, Order Amount
- Right Measures: Item Cost, Item MSRP

Merge result columns will be based on the above selection

Merge Info

Inner Join

The inner join returns a resultset table based on matched data as per the equality condition.

Table A

Column 1	Column 2
1	Alpha
2	Beta
3	Gamma

Table B

Column 1	Column 3
1	100
2	200
5	300

Result

Column 1	Column 2	Column 3_RIGHT
1	Alpha	100
2	Beta	200

Figure 6.349: Category General – Right Outer Join

Based on the settings as shown in the above Figure, you will be able to view the Advanced Table now configured with Merge Type selected as Right Outer Join (see Figure 6.350).

Type your text...

Item	Item Category	Item Subcategory	Discount Amount	Order Amount	Item Cost	Item MSRP
3Com 10/100 CardBus	Electronics	Computers	3,688	128,480	129	160
3Com 56K Cellular Modem PC Card	Electronics	Computers	4,400	148,600	155	200
100 Places to Go While Still Young at He	Books	Art & Architecture			33	46
1984	Books	Literature			4	5
98 Degrees & Rising	Music	Soul / R&B			11	13
A Boy Named Goo	Music	Alternative			8	9

Figure 6.350: Right Outer Join

Since the Dimension Item members “100 Places to Go While Still Young at He”, “1984”, “98 Degrees & Rising” and “A Boy Named Goo” in Data Source Table DS_2 (Right Table) exist as uncommon Dimensions in comparison with the Data Source Table DS_1 (Left Table), they will get displayed along with the common Dimension Item members “3 Com 10/100 CardBus and “3Com 56K Cellular ModemPC Card” in the Advanced Table as result of Right Outer Join (see Figure 6.350). Also, the Column Headers in the Advanced Table will get loaded based on the selection of the Measures and Dimensions from the Data Source Tables DS_1 and DS_2 which are assigned through the Data Providers 1 and 2 (see Figure 6.349).

It is to be noted that the Dimensions and Measures which exist in the Right Table is highlighted in Red Color for better understanding (see Figure above).

6.26.4 Full Outer Join

Follow the same set of steps as outlined in section 6.26 and section 6.26.1. In this case, set the property Merge Type to the option Full Outer Join (see Figure 6.351).

Additional Properties

Search by name, description...

General Tools Info

General Settings Data Arrange

Merge Configuration

Process On: Local

Left Provider: DATAPROVIDER_1

Right Provider: DATAPROVIDER_2

Merge Type: Full Outer Join

Left Column*: Item

Right Column*: Item

Right Column Suffix*: Join column suffix

Custom Selection: ☒

Left Dimensions: Type column name

Right Dimensions: Item Category, Item Subcategory

Left Measures: Discount Amount, Order Amount

Right Measures: Item Cost, Item MSRP

Merge result columns will be based on the above selection

Merge Info

Inner Join

The inner join returns a resultset table based on matched data as per the equality condition.

Table A

Column 1	Column 2
1	Alpha
2	Beta
3	Gamma

Table B

Column 1	Column 3
1	100
2	200
5	300

Result

Column 1	Column 2	Column 3_RIGHT
1	Alpha	100
2	Beta	200

Figure 6.351: Category General – Full Outer Join

Based on the settings as shown in the above Figure, you will be able to view the Advanced Table now configured with Merge Type selected as Full Outer Join (see Figure 6.352).

Type your text...

Item	Item Category	Item Subcategory	Discount Amount	Order Amount	Item Cost	Item MSRP
<input type="checkbox"/> 3Com 10/100 CardBus	<input type="checkbox"/> Electronics	Computers	3,688	128,480	129	160
<input type="checkbox"/> 3Com 56K Cellular Modem PC Card	<input type="checkbox"/> Electronics	Computers	4,400	148,600	155	200
<input type="checkbox"/> A Bug's Life			1,661	55,296		
<input type="checkbox"/> AAA Travel Video Series			1,633	52,190		
<input type="checkbox"/> 100 Places to Go While Still Young at He	<input type="checkbox"/> Books	Art & Architecture			33	46
<input type="checkbox"/> 1984	<input type="checkbox"/> Books	Literature			4	5
<input type="checkbox"/> 98 Degrees & Rising	<input type="checkbox"/> Music	Soul / R&B			11	13
<input type="checkbox"/> A Boy Named Goo	<input type="checkbox"/> Music	Alternative			8	9

Figure 6.352: Full Outer Join

From the above Figure you can observe that all the common Dimension Item members and the uncommon Dimension Item members from the Data Source Tables DS_1 (Left Table) and DS_2 (Right Table) will be displayed in the Advanced Table as result of Full Outer Join (see Figure 6.352). Also, the Column Headers in the Advanced Table will get loaded based on the selection of the Measures and Dimensions from the Data Source Tables DS_1 and DS_2 which are assigned through the Data Providers 1 and 2 (see Figure 6.351).

It is to be noted that the Dimensions and Measures which exist in the Right Table is highlighted in Red Color for better understanding (see Figure above).

6.26.5 Append

For our example in order to explain the Append Type function , we will assume that your Data Sources DS_1 and DS_2 has two dimensions – Item and Item Category and four measures – Discount Amount, Order Amount, Order Cost and Order Quantity.

Now follow the same set of steps as outlined in section 6.26 and section 6.26.1. In this case, set the property Merge Type to the option Append. Also, the Dimensions and Measures after activating the Custom Selection can be configured based on our choice (see Figure 6.353).

Figure 6.353: Category General – Append

Based on the settings as shown in the above Figure, you will be able to view the Advanced Table now configured with Merge Type selected as Append (see Figure 6.354).

Type your text...						
Item	Item Category	Discount Amount	Order Amount	Order Cost	Order Quantity	
3Com 10/100 CardBus	Electronics	3,688	128,480			
3Com 56K Cellular Modem PC Card	Electronics	4,400	148,600			
A Bug's Life	Movies			51,763	3,072	
AAA Travel Video Series	Movies			48,046	3,070	

Figure 6.354: Append

From the above Figure, you can observe that all the Dimension members of both the Data Source Tables DS_1 (Left Table) and DS_2 (Right Table) will be displayed along with its Measures in the Advanced Table as result of Append (see Figure 6.354). Also, the Column Headers in the Advanced Table will get loaded based on the selection of the Measures and Dimensions from the Data Source Tables DS_1 and DS_2 which are assigned through the Data Providers 1 and 2 (see Figure 6.353).

6.26.6 Additional Properties for Data Merge/Joining Component

In this section we will outline the Additional Properties that are specific to the Data Merge/Joining Component.

6.26.6.1 Category General

Sub category	Area	Property	Description
General Settings	Merge Configuration	Process On	This property allows you to configure the Data Process. The options are Local and Server. When the option Local is selected, the data will be processed locally. When the option Server is selected, the data will be processed at the Server level.
		Left Provider	This property sets the Data for the Left Table and this property lists all the assigned Data Providers.
		Right Provider	This property sets the Data for the Right Table and this property lists all the assigned Data Providers.
		Merge Type	This property sets the Merge Type. The options are Inner Join, Left Outer Join, Right Outer Join, Full Outer Join and Append.
		Left Column	This property sets the common dimension.
		Right Column	This property sets the common dimension.
		Right Column Suffix	Using this property, the Dimensions and Measures which exist in the Right Table will be represented by the suffix “_RIGHT” or the user defined label following the Column Header label. This can be observed in the Runtime when Advanced Table component is assigned.
		Custom Selection	This property enables/disables the Custom Selection.
		Left Dimensions	This property sets the Dimensions for the Left Table through Data Provider 1.
		Right Dimensions	This property sets the Dimensions for the Right Table through Data Provider 2.
		Left Measures	This property sets the Measures for the Left Table through Data Provider 1.
		Right Measures	This property sets the Measures for the Right Table through Data Provider 2.
	Merge Info		This provides the details of the Joins selected in the property Merge Type.
Data Arrange	Rows		Using this property, you can swap the Dimensions to view the Column Header order in the Advanced Table during Runtime.
	Measures		Using this property, you can swap the Measures to view the Column Header order in the Advanced Table during Runtime.

Table 6.94: Category General

7 Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer (VBX) – Speciality Charts

7.1 Speciality Charts Overview

The next part of the Visual BI Extensions (VBX) suite, are the Speciality Charts (listed in Figure 7.1).



Figure 7.1: VBX Speciality Charts

The VBX Speciality Charts (see Figure 7.1) include:

- **Gantt Chart**
A Gantt Chart shows activities (tasks or events) displayed along a given timeline. On the left side of the chart is the Data Grid, which displays the activities or resources based on dimension members. On the right hand side the Gantt chart displays a visual representation of certain activities in the typical bar display.
- **Data Utility**
Data Utility Component provides the Data Utility features in the run time. Here the user can reconfigure and create virtual copies of the assigned data source and select the dimensions and measures that should be used for the application, instead of using the complete data set.
- **DataSource Config**
DataSource Config Component provides the Additional Properties sheet feature in run time where the user can enable/disable the toggle buttons for the respective Area Panel of each Category/Sub category in Design time and the enabled Area Panel will get displayed in the run time as Additional Properties. Also the user can use the DataSource Config component to utilize the data from the custom data sources like OData and WSDL Web Services in run time.
- **Analytics**
Analytics Component stores the complete information about the Dashboard visits made by the users through the respective URLs. Here you can view the number of views made by the users during each Dashboard visits.
- **Timeline Series Chart**
A Timeline Series Chart is a type of chart which visually shows a series of events over a linear timescale. In this case, the events will be represented by the Measures and the Timescale will be represented by the Dimensions.

7.2 Gantt Chart

A Gantt Chart shows activities (tasks or events) displayed along a given timeline. On the left side of the chart is the Data Grid, which displays the activities or resources based on dimension members. On the right hand side, the Gantt chart displays a visual representation of certain activities in the typical bar display.

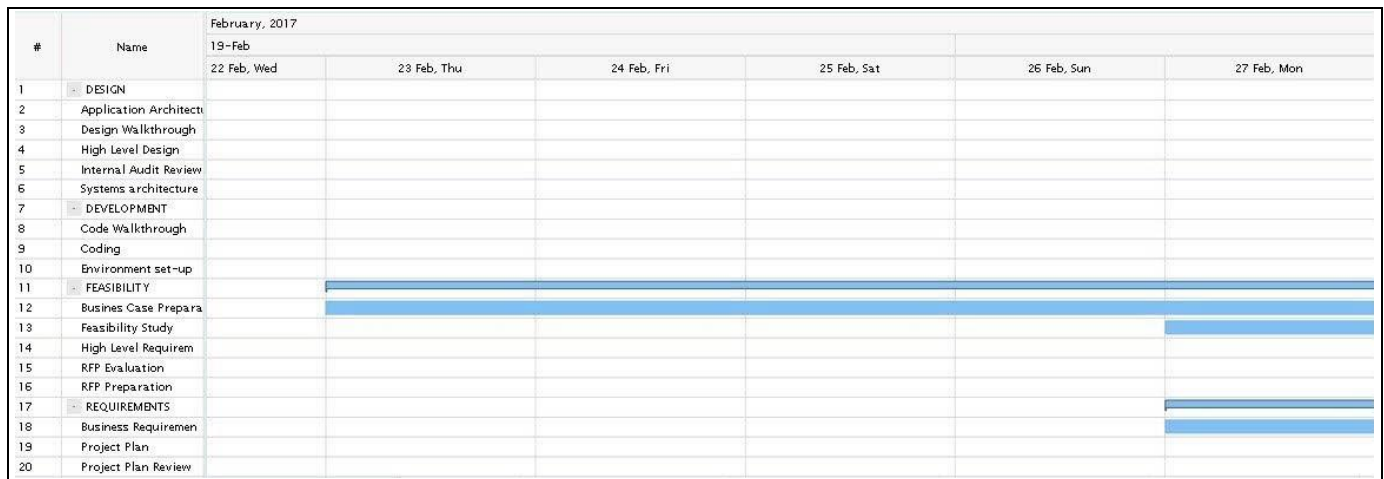


Figure 7.2: Gantt Chart

7.2.1 Data Source Requirements for a Gantt Chart

A Gantt Chart has a list of dimension / measures that can be configured as part of the data source assignment, depending on which information is available. Some of those dimensions are mandatory for the Gantt chart to work, some of them are optional. You also have the option to leverage these values in form of measure values.

Field Name	Required / Optional
Actual Start Date	Required
Actual End Date	Required
Planned Start Date	Optional
Planned End Date	Optional
Progress Value	Required
Primary Connector	Optional
Primary Connector Type	Optional
Secondary Connector	Optional
Secondary Connector Type	Optional

Table 7.1: Gantt Chart Data Requirements

In case some of these informations – for example the Actual Start Date and Actual End Date – are stored in form of measures in the assigned data source, you can use the property Date Values as Measure(s) to all the selection of measures as part of the data assignment.

As you can see in the Table above, the Gantt chart is also offering the option to define connector options between the individual tasks. In regards to the Connector Type, the following Table outlines the available options.

Connector Type Value	Description
StartStart	The second task can't start until the first task starts.
StartFinish	The second task can't finish until the first begins.
FinishStart	The second task can't start until the first is done.
FinishFinish	The second task can't finish until the first task is done.

Table 7.2: Connector Type Details

In regards to the fields Primary Connector and Secondary Connector, you can pass the key / ID values of the tasks as part of your data source. Table 7.3 shows a set of sample data rows with Actual and Planned Date values, as well as Primary Connector and Primary Connector Type information.

ID	Name	Actual Start Date	Actual End Date	Planned Start Date	Planned End Date	Primary Connector	Primary Connector Type
1	Staff Group 1						
2	Kimberly	2/27/17	3/15/17	2/24/17	3/19/17		
3	Ryan	2/23/17	3/12/17	2/18/17	3/16/17		
4	Earl King	2/28/17	3/5/17	2/23/17	3/9/17	Kimberly	FinishStart
5	Randy	3/5/17	3/19/17	3/1/17	3/24/17		
6	Jack	3/7/17	3/15/17	3/5/17	3/21/17		
7	Staff Group 2						
8	Angela	2/27/17	3/15/17	2/25/17	3/19/17	Randy	FinishFinish
9	Peter Moore	3/11/17	4/1/17	3/7/17	4/4/17		
10	Laura	3/15/17	3/18/17	3/13/17	3/24/17		
11	Larry	3/5/17	3/31/17	3/3/17	4/3/17	Jack	StartStart
12	Marin	3/1/17	3/15/17	2/24/17	3/18/17		
13	Staff Group 3						
14	Bonnie	4/1/17	4/15/17	3/27/17	4/20/17		
15	James	4/5/17	4/6/17	4/3/17	4/9/17	Bonnie	StartStart
16	Frances	4/3/17	4/17/17	3/30/17	4/21/17	Bonnie	StartStart
17	Donald	4/8/17	4/21/17	4/5/17	4/25/17		
18	Samuel	4/9/17	4/15/17	4/7/17	4/20/17		
19	Staff Group 4						
20	Mike	4/5/17	4/11/17	4/3/17	4/14/17		
21	Judy	4/7/17	4/19/17	4/3/17	4/23/17		
22	Michal	4/8/17	4/8/17	4/4/17	4/13/17		

ID	Name	Actual Start Date	Actual End Date	Planned Start Date	Planned End Date	Primary Connector	Primary Connectivity Type
23	Paul	3/31/17	4/17/17	3/27/17	4/22/17		
24	Jeremy	3/28/17	4/12/17	3/23/17	4/16/17	Jack	StartFinish
25	Staff Group 2.1						
26	Julie	4/28/17	5/12/17	4/25/17	5/18/17		
27	Charles	4/5/17	5/18/17	4/1/17	5/23/17		
28	Kevin	4/8/17	5/1/17	4/4/17	5/7/17	[Charles,Bill]	[StartStart,FinishStart]
29	Bill	4/2/17	5/14/17	3/28/17	5/19/17		
30	Justin	4/7/17	4/12/17	4/2/17	4/16/17		

Table 7.3: Sample Data Set with Connector

As you can see in the sample data, you can also pass more than one value for the Primary Connector and Primary Connector Type, which then would expect an array of values as shown in the sample data for ID 28.

7.2.2 How to use a Gantt Chart

In the following steps we will outline, how you can setup a new Gantt Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project. For these steps we assume we have a data source, similar to the Table shown below.

TASK	SUB TASK	PLANNED START DATE	PLANNED END DATE	ACTUAL START DATE	ACTUAL END DATE	Progress
DESIGN	Systems architecture	03-27-2017	04-20-2017	04-01-2017	04-15-2017	91
	Application Architecture	04-03-2017	04-09-2017	04-05-2017	04-06-2017	93
	High Level Design	03-30-2017	04-21-2017	04-03-2017	04-17-2017	34
	Internal Audit Reviews	04-05-2017	04-25-2017	04-08-2017	04-21-2017	38
	Design Walkthrough	04-07-2017	04-20-2017	04-09-2017	04-15-2017	30
DEVELOPMENT	Environment set-up	04-03-2017	04-14-2017	04-05-2017	04-11-2017	20
	Coding	04-03-2017	04-23-2017	04-07-2017	04-19-2017	20
	Code Walkthrough	04-04-2017	04-13-2017	04-08-2017	04-08-2017	20

Table 7.4: Sample Data

You can follow the steps below to configure the Gantt Chart:

4. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
5. Add a data source to the project. For our example we will assume that our data source contains one measure – Progress – and six dimensions Dimension 1, Dimension 2, Actual Start Date, Actual End Date, Primary Connector and Primary Connector Type.
6. Dimension 1 and Dimension 2 contain the information for the Task names.
7. Add a Gantt Chart from the VBX Specialty Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
8. Assign the data source to the Gantt Chart.
9. Navigate to the Additional Properties of the Gantt Chart (see Figure 7.3).
10. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
11. Navigate to the category Appearance and to the sub category Chart in the Additional Properties of the Gantt Chart.
12. For our example, in the area General Settings set the property Select Chart Type to the option Gantt.
13. Now navigate to the category Data and to the sub category Data Series (see Figure 7.3). In the area Chart Settings you can now activate, which dimension should be displayed as part of the Data Grid on the left hand side by selecting those dimension as part of the Data Grid Dimensions. For our example set the property Data Grid Members to the dimensions Dimension 1 and Dimension 2 (see Figure 7.3).
14. Activate the option ID in the Data Grid Additional Columns to display a generated ID number for each task.
15. Activate the option Dimensions in the Data Grid Additional Columns to display the selected dimensions from the Data Grid.
16. Activate the property Dates in Measures when the date values are configured as measures in the underlying data source.
17. For our example the property Dates in Measures is disabled.
18. The Date Format property needs to be selected based on the Date Format provided by the assigned data source. For our example, we set the property Date Format to the value MM/dd/yyyy.

In the next steps you can configure the dimension assignments for each of the elements of the Gantt Chart.

1. Set the property Actual Start Date to the dimension Actual Start Date.
2. Set the property Actual End Date to the dimension Actual End Date.
3. Set the property Progress to the measure Progress.
4. Now assign dimension Connector To (1) to the Primary Connector property.
5. Assign the dimension Connector Type (1) to the property Primary Connector Type.

Additional Properties

Search by name, description...

General Data Appearance Info

Data Series Number Format

Chart Settings

Select Dimensions for Data Grid

Dimension	Enabled
Dimension 1	<input checked="" type="checkbox"/>
Dimension 2	<input checked="" type="checkbox"/>
Actual Start Date	<input type="checkbox"/>
Actual End Date	<input type="checkbox"/>
Progress	<input type="checkbox"/>

Data Grid Additional columns

Members	Enabled	Title	Width
ID	<input checked="" type="checkbox"/>	ID	50
Dimensions	<input checked="" type="checkbox"/>	Dimensions	100
Actual Start	<input type="checkbox"/>	Actual Start	100
Actual End	<input type="checkbox"/>	Actual End	100
Planned Start	<input type="checkbox"/>	Planned Start	100
Planned End	<input type="checkbox"/>	Planned End	100
Progress	<input type="checkbox"/>	Progress	100

Enable Date Values from Measures ☐

Use activated Hierarchies from Dimension ☐

Date Format

Figure 7.3: Category Data

- Based on the configured properties, you will be able to view the Gantt Chart (see Figure 7.4). With respect to the selection of connector and connector type, you can observe that in our example, the Task Systems Architecture will start simultaneously when the tasks Application Architecture and High Level Design get started and it shows the Start to Start connector lines.

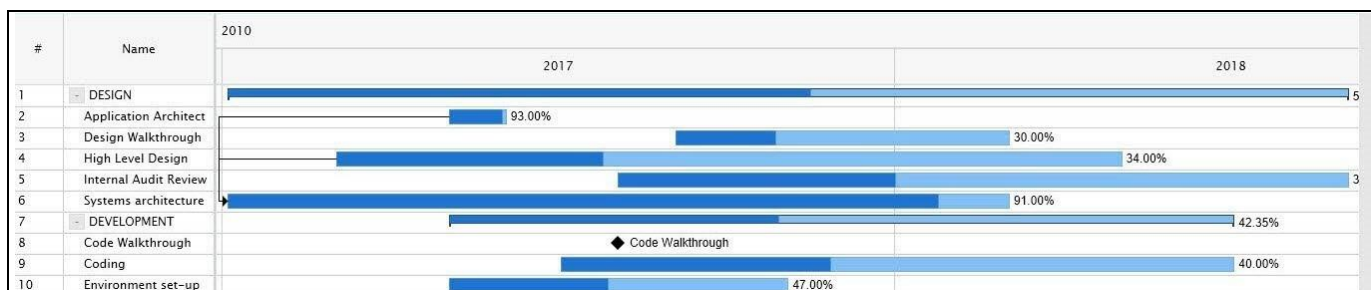


Figure 7.4: Gantt Chart

7.2.3 Gantt Chart as Resource Chart

A Resource Chart shows the timeline of the individual resource. A resource could be an actual person with an assigned task, or a resource could be an actual resource, such as a car or a machine, required for the task.

7.2.4 Data Source Requirements for Gantt Chart as Resource Chart

In general a Resource chart will require 2 dimensions, where 1 dimension represents the Resource and one dimension represents the task. In addition, the Resource chart requires information such as the Actual Start Date and the Actual End date.

Field Name	Required / Optional
Dimension for Resource	Required
Dimension for Task	Required
Actual Start Date	Required
Actual End Date	Required

Table 7.5: Gantt Chart Data Requirements

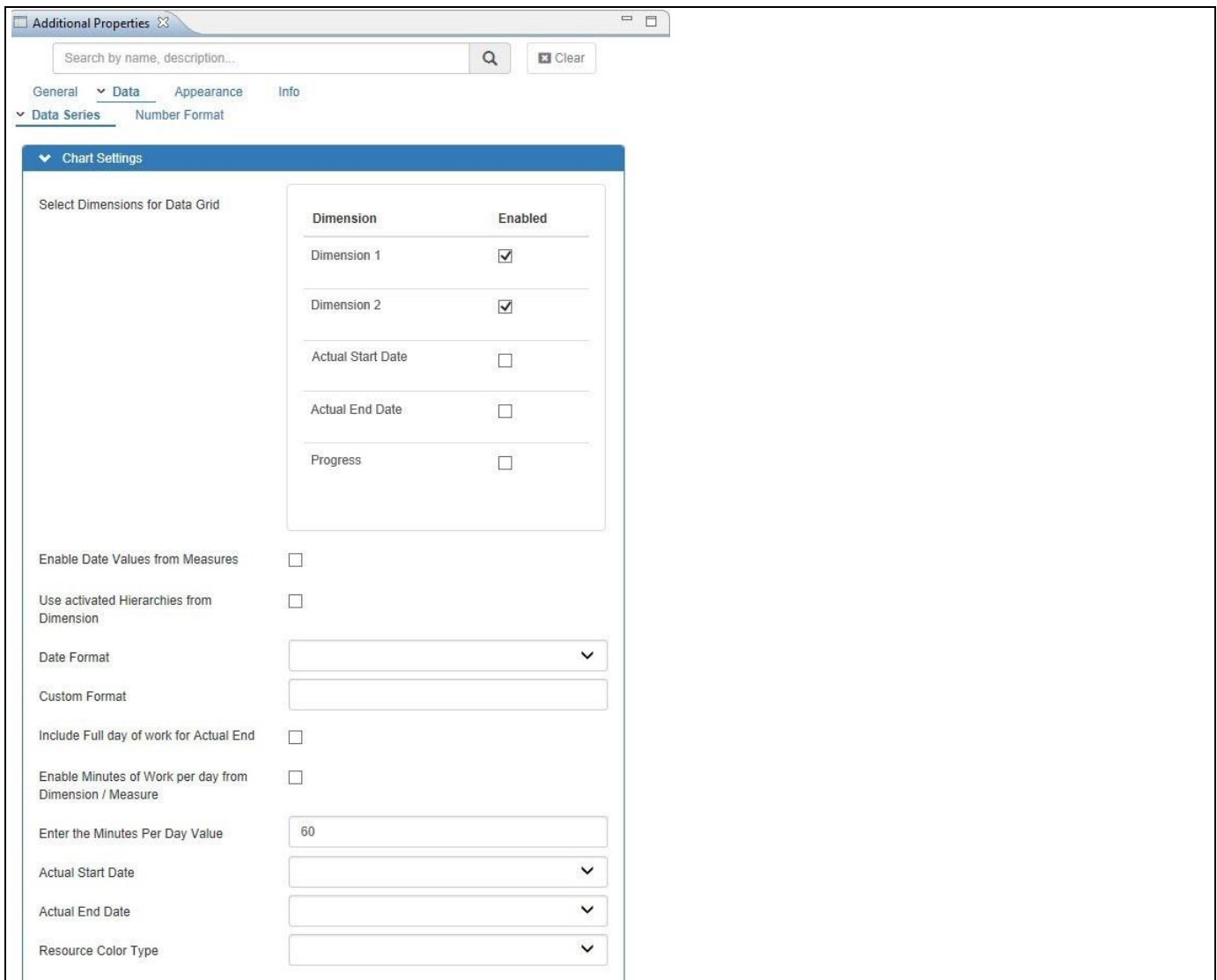
In case some of these information – for example the Actual Start Date and Actual End Date – are stored in form of measures in the assigned data source, you can use the property Date Values as Measure(s) to all the selection of measures as part of the data assignment.

7.2.5 How to use Gantt Chart as a Resource Chart

In the following steps we will outline, how you can setup a new Gantt Chart as Resource Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows two measures – Start Date and End Date - and two dimensions Sub Task and Resource.
3. Add a Gantt Chart from VBX Specialty Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
4. Assign the data source to the Gantt Chart.
5. Navigate to the Additional Properties of the Gantt Chart (see Figure 7.5).
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. Navigate to the category Appearance and to the sub category Chart in the Additional Properties of the Gantt Chart.
8. For our example, in the area General Settings set the property Select Chart Type to the option Resource.
9. Now navigate to the category Data and to the sub category Data Series (see Figure 7.5). In the area Chart Settings you can now activate, which dimension should be displayed as part of the Data Grid on the left hand side by selecting those dimension as part of the Data Grid Dimensions. For our example set the property Data Grid Members to the dimensions Dimension 1 and Dimension 2, which represent the Resource and Task information.
10. Activate the property Dates in Measures when the date values are configured as measures in the underlying data source.

11. For our example the property Dates in Measures is disabled.
12. The Date Format property needs to be selected based on the Date Format provided by the assigned data source. For our example, we set the property Date Format to the value MM/dd/yyyy.
13. Set the property Actual Start Date to the value Actual Start Date.
14. Set the property Actual End Date to the value Actual End Date.
15. The property Resource Color Type can be configured with the following options:
 - Color by Dimension – In our example, the dimension is Sub Task.
 - Color by Dimension members - In our example, the dimension member will be retrieve based on dimension Resource.
16. For our example, set the property Resource Color Type to the option Color by Dimension which is Sub Task.
17. Set the property Series Color to the desired color for each dimension Sub Task (see Figure 7.5)



Additional Properties

Search by name, description...

Clear

General Data Appearance Info

Data Series Number Format

Chart Settings

Select Dimensions for Data Grid

Dimension	Enabled
Dimension 1	<input checked="" type="checkbox"/>
Dimension 2	<input checked="" type="checkbox"/>
Actual Start Date	<input type="checkbox"/>
Actual End Date	<input type="checkbox"/>
Progress	<input type="checkbox"/>

Enable Date Values from Measures ☐

Use activated Hierarchies from Dimension ☐

Date Format

Custom Format

Include Full day of work for Actual End ☐

Enable Minutes of Work per day from Dimension / Measure ☐

Enter the Minutes Per Day Value

Actual Start Date

Actual End Date

Resource Color Type

Figure 7.5: Category Data

18. Based on the configured properties, you will be able to view the Gantt Chart as Resource Chart (see Figure 7.6)



Figure 7.6: Gantt as Resource Chart

7.2.6 Gantt Resource Chart

A Gantt Resource Chart shows the Resource's Tasks displayed along a given timeline. On the left side of the chart is the Data Grid, which displays the activities and resources based on dimension members. On the right hand side, the Gantt Resource Chart displays a visual representation of the the Timeline bar showing the Resource which get split based on their Task Start and End Time.

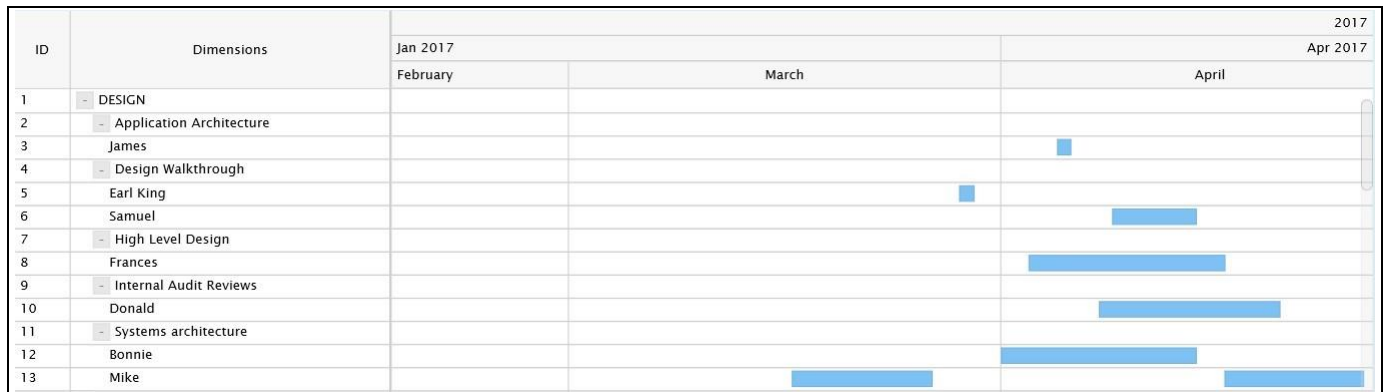


Figure 7.7: Gantt Resource Chart

7.2.7 Data Source Requirements for a Gantt Resource Chart

A Gantt Resource Chart has a list of dimension / measures that can be configured as part of the data source assignment, depending on which information is available. Some of those dimensions are mandatory for the Gantt chart to work, some of them are optional. You also have the option to leverage these values in form of measure values.

Field Name	Required / Optional
Actual Start Date	Required
Actual End Date	Required
Progress Value	Required

Table 7.6: Gantt Resource Chart Data Requirements

In case some of these informations – for example the Actual Start Date and Actual End Date – are stored in form of measures in the assigned data source, you can use the property Date Values as Measure(s) to all the selection of measures as part of the data assignment.

7.2.8 How to use a Gantt Resource Chart

In the following steps we will outline, how you can setup a new Gantt Resource Chart as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source contains one measure – Progress - and five dimensions Dimension 1, Dimension 2, Dimension 3, Actual Start Date and Actual End Date.
3. Dimension 1 and Dimension 2 contains the information for the Task names and Dimension 3 contains the information for the Resource.
4. Add a Gantt Chart from the VBX Specialty Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project.
5. Assign the data source to the Gantt Chart.
6. Navigate to the Additional Properties of the Gantt Chart (see Fig2).
7. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
8. Navigate to the category Appearance and to the sub category Chart in the Additional Properties of the Gantt Chart.
9. For our example, in the area General Settings set the property Select Chart Type to the option Gantt Resource.
10. Now navigate to the category Data and to the sub category Data Series (see Figure 7.8). In the area Chart Settings you can now activate, which dimension should be displayed as part of the Data Grid on the left hand side by selecting those dimension as part of the Data Grid Dimensions. For our example set the property Data Grid Members to the dimensions Dimension 1 and Dimension 2 that represents the Task and Sub Task Names and set the Dimension 3 that represents the Resource which is mandatory (see Figure 7.8).
11. Activate the option ID in the Data Grid Additional Columns to display a generated ID number for each task.
12. Activate the option Dimensions in the Data Grid Additional Columns to display the selected dimensions from the Data Grid.
13. Activate the property Enable Date Values from Measures when the date values are configured as measures in the underlying data source.
14. For our example the property Enable Date Values from Measures is disabled.
15. Activate the property Display Individual Task.
16. The Date Format property needs to be selected based on the Date Format provided by the assigned data source. For our example, we set the property Date Format to the value MM/dd/yyyy.

In the next steps you can configure the dimension assignments for each of the elements of the Gantt Chart.

1. Set the property Actual Start Date to the dimension Actual Start Date.
2. Set the property Actual End Date to the dimension Actual End Date.
3. Set the property Progress to the measure Progress.

Additional Properties

Search by name, description...

Q

Clear

General

Data

Appearance

Info

Data Series

Number Format

Chart Settings

Select Dimensions for Data Grid

Dimension	Enabled
Task	<input checked="" type="checkbox"/>
Sub Task	<input checked="" type="checkbox"/>
Resource	<input checked="" type="checkbox"/>
Actual Start Date	<input type="checkbox"/>
Actual End Date	<input type="checkbox"/>

Data Grid Additional columns

Members	Enabled	Title	Width
ID	<input checked="" type="checkbox"/>	ID	50
Dimensions	<input checked="" type="checkbox"/>	Dimensions	100

Enable Date Values from Measures

☐

Display Individual Task

☒

Use activated Hierarchies from Dimension

☐

Date Format

MM/dd/yyyy

Include Full day of work for Actual End

☐

Actual Start Date

Actual Start Date

Actual End Date

Actual End Date

Progress Value

Progress

Figure 7.8: Category Data

- Based on the configured properties, you will be able to view the Gantt Resource Chart (see Figure 7.9). In our example, since the option Display Individual Task in the Additional Properties is activated, you can visualize the Gantt Resource Chart with two individual resources Bonnie and Mike working in the same timeline for a specific task Systems architecture. You can observe that Mike is working in two different time slots within the same timeline.

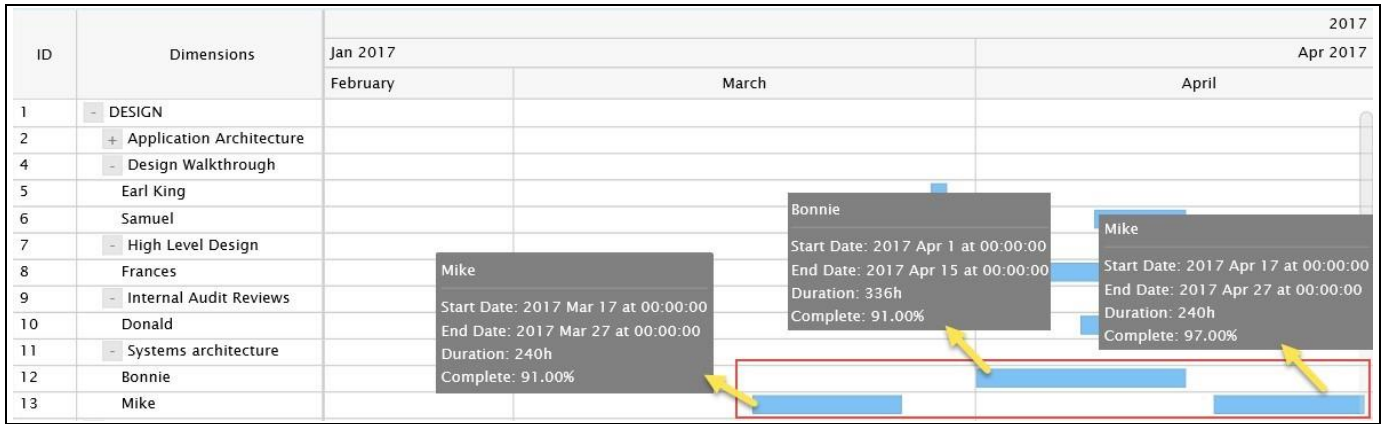


Figure 7.9: Gantt Resource Chart with same Timeline

- When the option Display Individual Task in the Additional Properties is not activated, then you can visualize the Gantt Resource Chart showing two individual resources Kimberley and Samuel working in two different timelines for a specific task Feasibility Study (see Figure 7.10).



Figure 7.10: Gantt Resource Chart with different Timeline

7.2.9 Conditional Formatting in Gantt Charts

The Conditional Formatting for Gantt Chart has been already explained in the Section 4.3.35. The next section outlines the steps for Parent Node Conditional Formatting in Gantt Charts.

7.2.10 Enable Parent Node Conditional Formatting

You will be able to configure the Parent Node Conditional Formatting by navigating to the category Data and to the sub category Data Series. There are two scenarios namely Date Values in Measures and Date Values in Dimensions for which you can configure the Parent Node Conditional Formatting. The steps for configuring both scenarios have explained in the next sections.

7.2.10.1 Date Values in Measures

1. For our example, the Data Source that we use for the Gantt Chart is shown below. Here you can observe that the Dates are in “Measures”.

Parent Group	Name	Actual End Date	Actual Start Date	Parent	Planned End Date
Staff Group 1	Earl King	3/5/17	2/28/17	1.000	3/9/17
	Jack	3/15/17	3/7/17	1.000	3/21/17
	John	2/27/17	2/27/17	1.000	2/27/17
	Kimberly	3/15/17	2/27/17	1.000	3/19/17
	Randy	3/19/17	3/5/17	1.000	3/24/17
	Ryan	3/12/17	2/23/17	1.000	3/16/17
Staff Group 2	Not assigned			0.000	
	Result	3/19/17	3/7/17	6.000	3/24/17
	Angela	3/15/17	2/27/17	7.000	3/19/17
	Larry	3/31/17	3/5/17	7.000	4/3/17
	Laura	3/18/17	3/15/17	7.000	3/24/17
	Marin	3/15/17	3/1/17	7.000	3/18/17
Staff Group 2.1	Peter Moore	4/1/17	3/11/17	7.000	4/4/17
	Not assigned			0.000	
	Result	4/1/17	3/15/17	35.000	4/4/17
	Bill	5/14/17	4/2/17	25.000	5/19/17
	Charles	5/18/17	4/5/17	25.000	5/23/17
	Julie	5/12/17	4/28/17	25.000	5/18/17
Staff Group 3	Justin	4/12/17	4/7/17	25.000	4/16/17
	Kevin	5/1/17	4/8/17	25.000	5/7/17
	Not assigned			7.000	
	Result	5/18/17	4/28/17	132.000	5/23/17
	Bonnie	4/15/17	4/1/17	13.000	4/20/17
	Donald	4/21/17	4/8/17	13.000	4/25/17
	Frances	4/17/17	4/3/17	13.000	4/21/17

Figure 7.11: Data Source having Dates as Measures

2. Now navigate to the category Data and to the sub category Data Series in the Additional Properties for the Gantt Chart. Activate the property Enable Date Values from Measures as shown in the below figure.

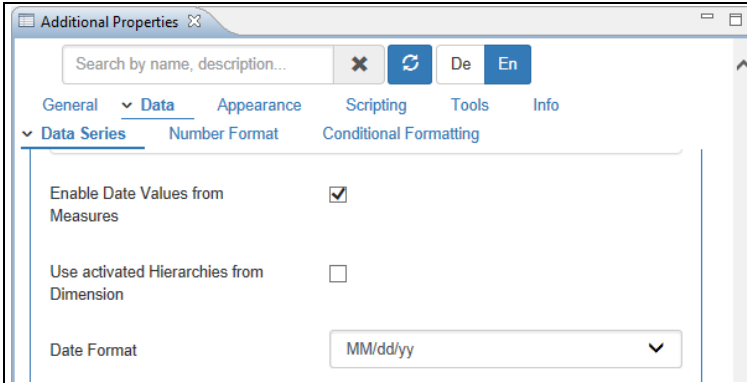


Figure 7.12: Category Data

- Set the property Actual Start Date to the option Actual Start Date, set the property Actual End Date to the option Actual End Date and set the property Progress Value to the option "Progress". Now enable the property Enable Parent Node Conditional Formatting as shown in the below Figure.

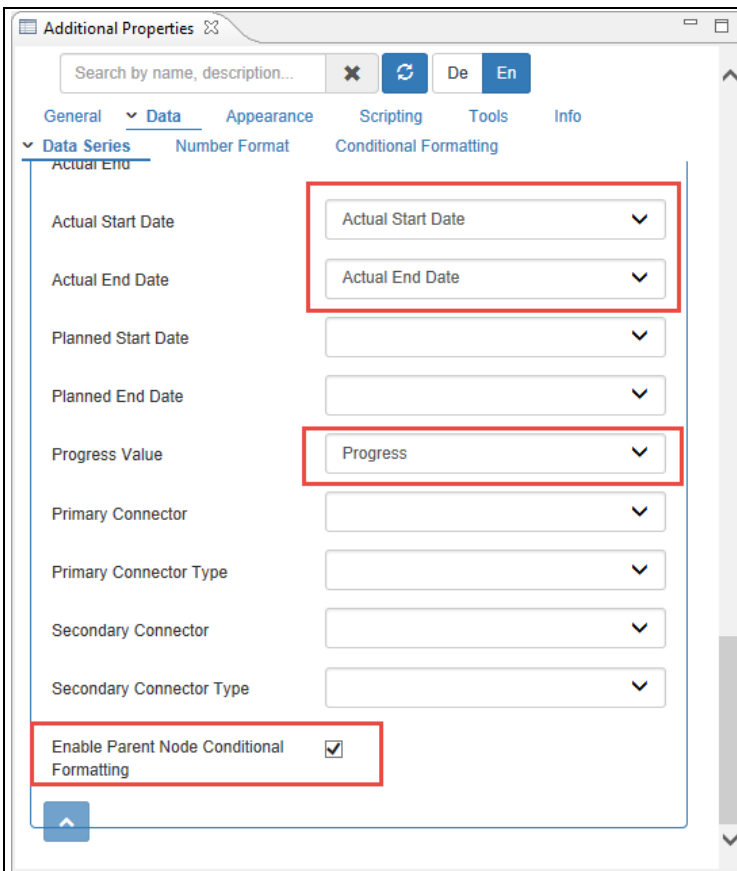


Figure 7.13: Category Data

4. Based on the above configuration you will be able to view the Gantt Chart as shown below

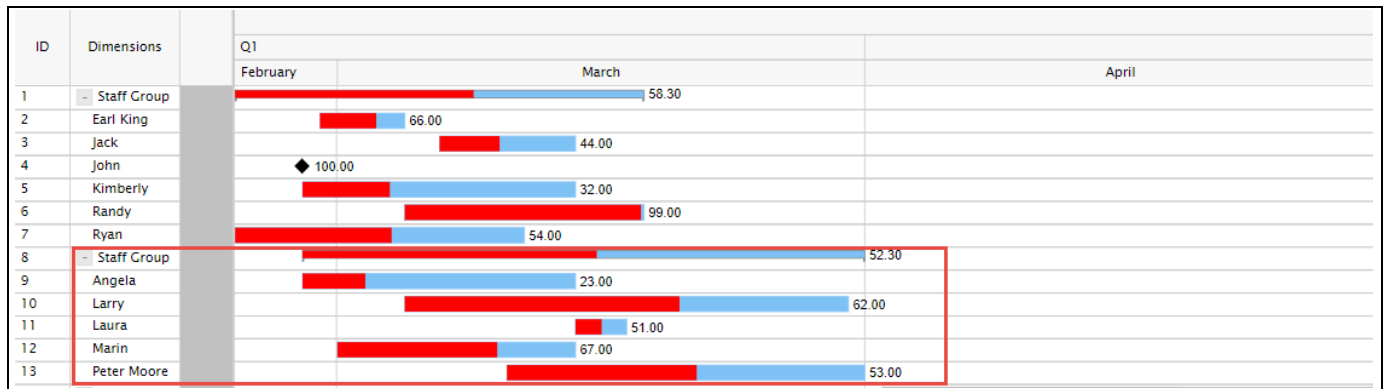


Figure 7.14: Date Values as Measures

5. In this scenario you can observe that when Date Values are configured as Measures, the Gantt Chart will be plotted based on the formula given below:

The parent task (Staff Group) progress is 52.30%

Tasks for Angela is 23%, Larry – 62%, Laura – 51%, Marin – 67% and Peter Moore – 53% respectively.

Task for Angela lasts 16 days

Task for Larry lasts for 26 days

Task for Laurin lasts for 3 days

Task for Marin lasts for 14 days

Task for Peter Moore lasts for 21 days

The sum is $(16+26+3+14+21) = 80$ days

The final calculation is:

$(16 \text{ day} * 23 + 26 \text{ days} * 62 + 3 \text{ days} * 51 + 14 \text{ days} * 67 + 21 \text{ days} * 53) / 80 \text{ days} = 44.17 \%$

$(368+1612+153+938+1113)/80$

$4184/80 = 52.30\%$ which is the Parent Task Progress %.

6. In this scenario if the property Status Flag is enabled for the Measure “Progress” in the Data Series (see Figure 7.15) and also if the Status Flag being enabled in the Conditional Formatting Rule (see Figure 7.16), then you will be able to view the Gantt with the Status Flag being enabled for the Parent Nodes too (see Figure 7.17)

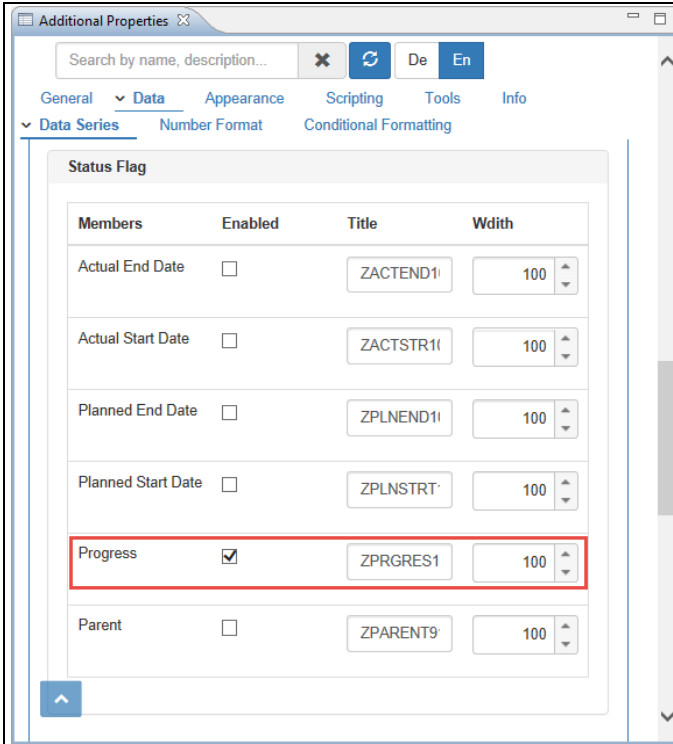


Figure 7.15: Status Flag enabled for Measure Progress

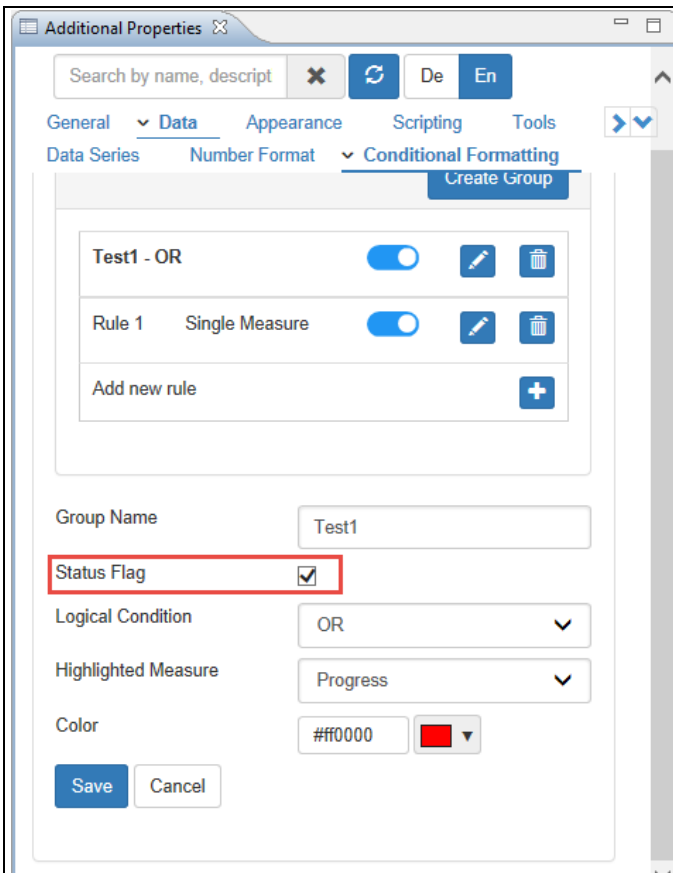


Figure 7.16: Status Flag enabled in Conditional Formatting Rule

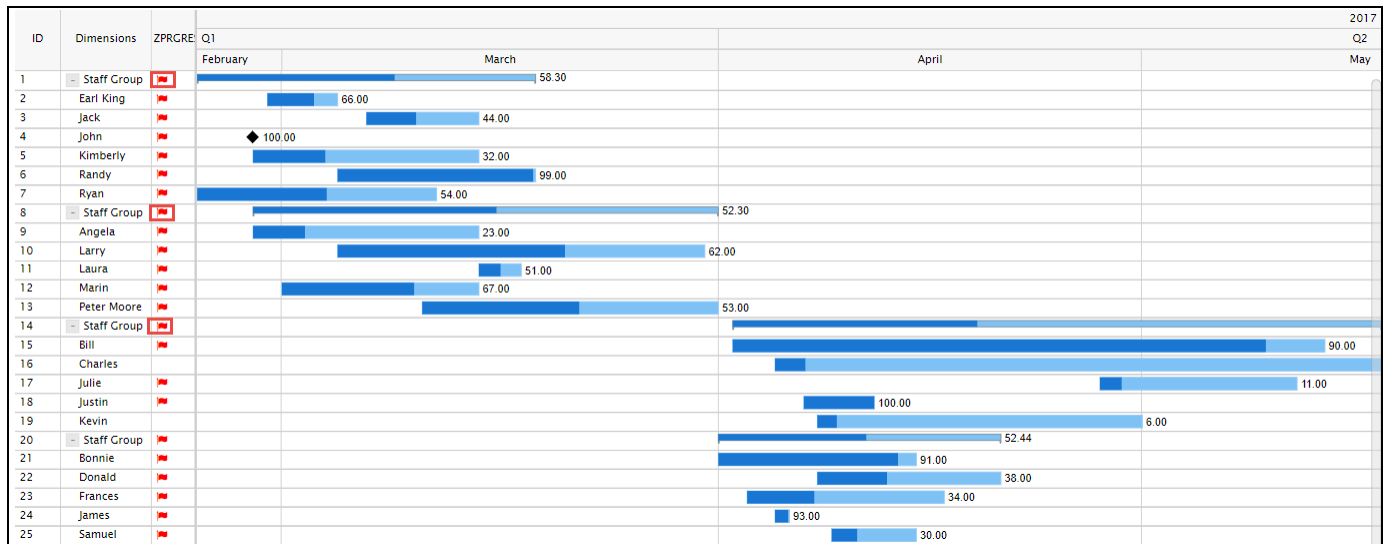


Figure 7.17: Gantt Chart with Status Flags for Parent Nodes

7.2.10.2 Date Values in Dimensions

- For our example, the Data Source that we use for the Gantt Chart is shown below. Here you can observe that the Dates are in “Dimensions”.

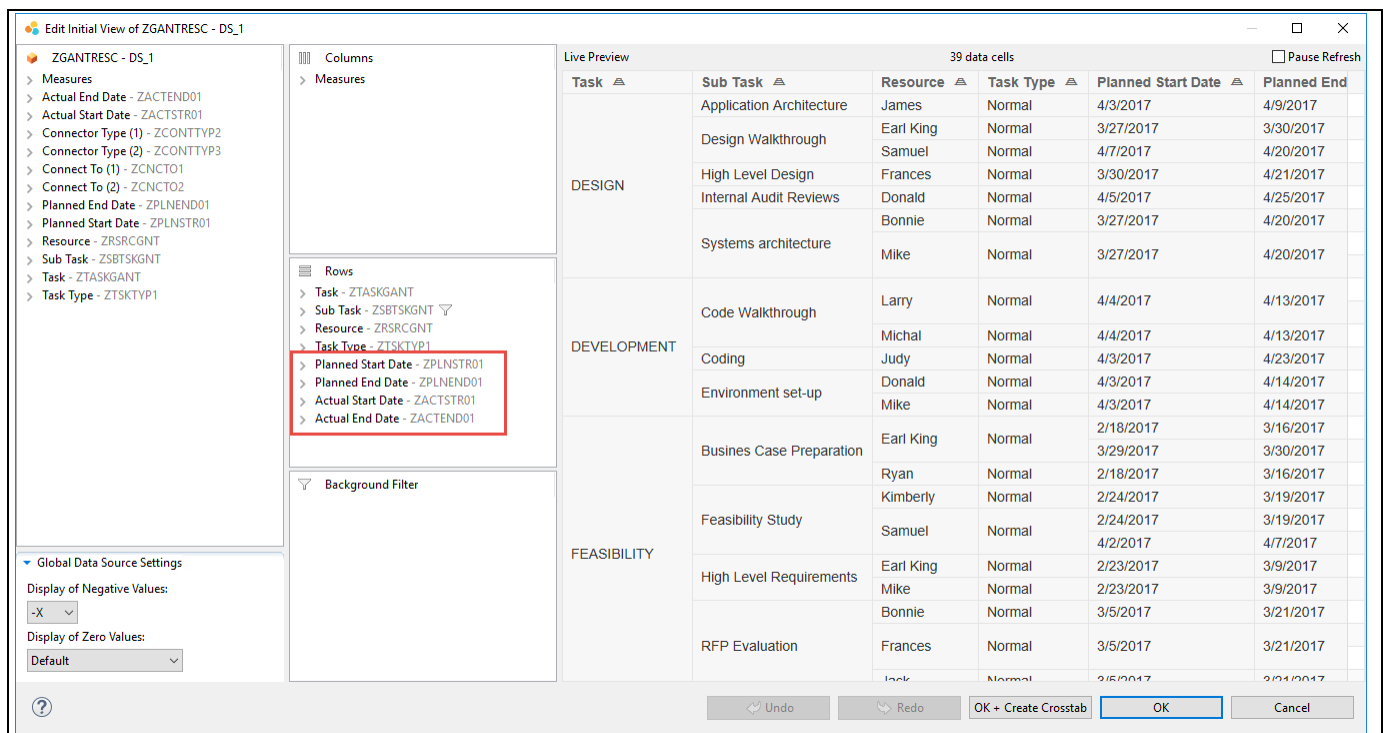


Figure 7.18: Date Values as Dimensions

- Now navigate to the category Data and to the sub category Data Series in the Additional Properties for the Gantt Chart. In our example, the property Enable Date Values from Measures has not been activated since the Date values are in “Dimensions”.

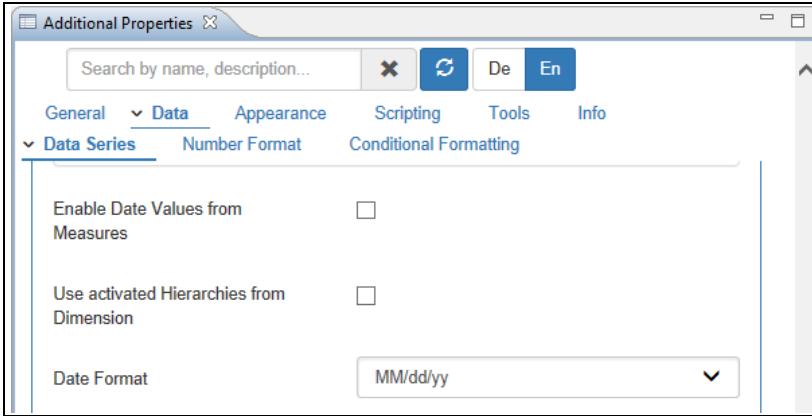


Figure 7.19: Category Data

- Set the property Actual Start Date to the option Actual Start Date, set the property Actual End Date to the option Actual End Date and set the property Progress Value to the option "Progress". Now enable the property Enable Parent Node Conditional Formatting as shown in the below Figure.

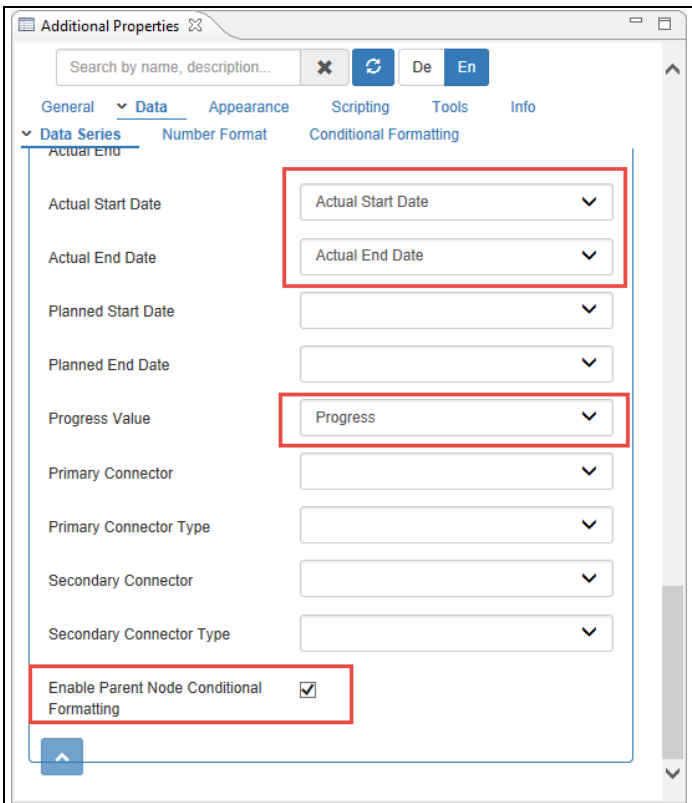


Figure 7.20: Category Data

- Based on the above configuration you will be able to view the Gantt Chart as shown below.

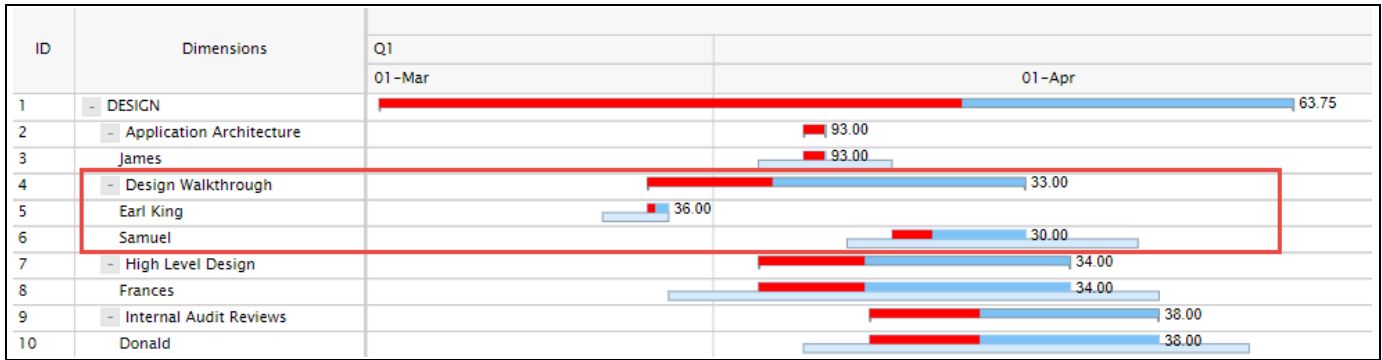


Figure 7.21: Date Values as Dimensions

- In this scenario the highlighted Measure is "Progress" and you can observe that when Date Values are configured as Dimensions, the Gantt Chart will be plotted based on the formula given below:

The Parent Task (Design Walkthrough) progress is 33%

Tasks for Earl King is 36% and Samuel is 30%.

The formula is $(36 + 30) / 2 = 66 / 2 = 33\%$ which is the Parent Task Progress %.

- In general, if the property Status Flag is enabled for the Measure "Progress" in the Data Series (see Figure 7.22) and also if the Status Flag being enabled in the Conditional Formatting Rule (see Figure 7.23), then you will be able to view the Gantt with the Status Flag being enabled for the Parent Nodes too (see Figure 7.24).

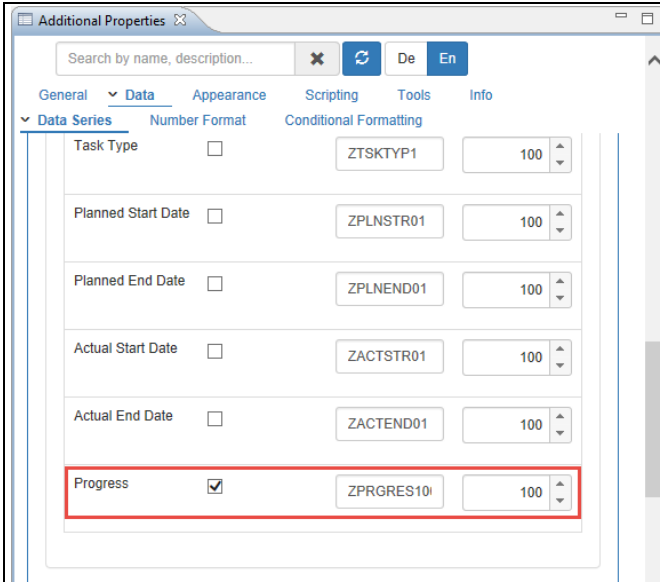


Figure 7.22: Status Flag enabled for Measure Progress

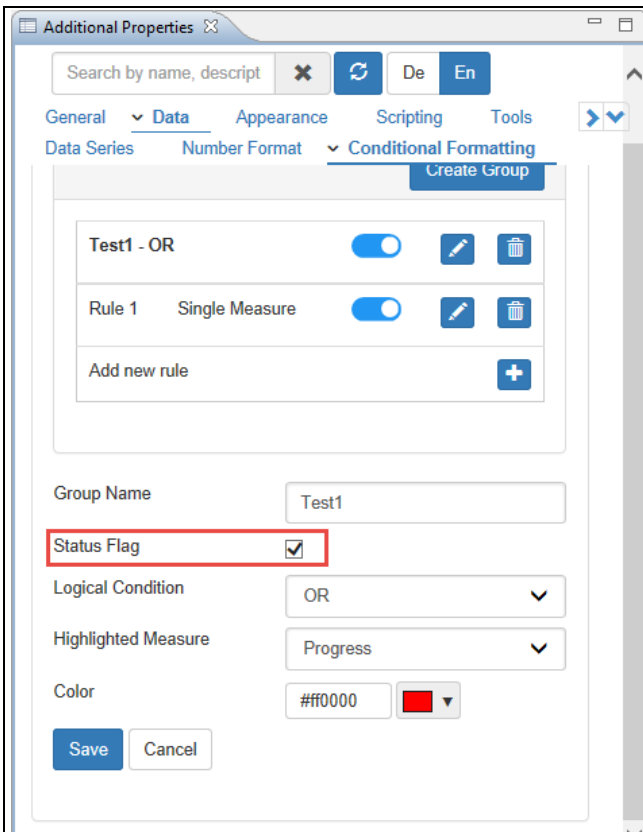


Figure 7.23: Status Flag enabled in Conditional Formatting Rule

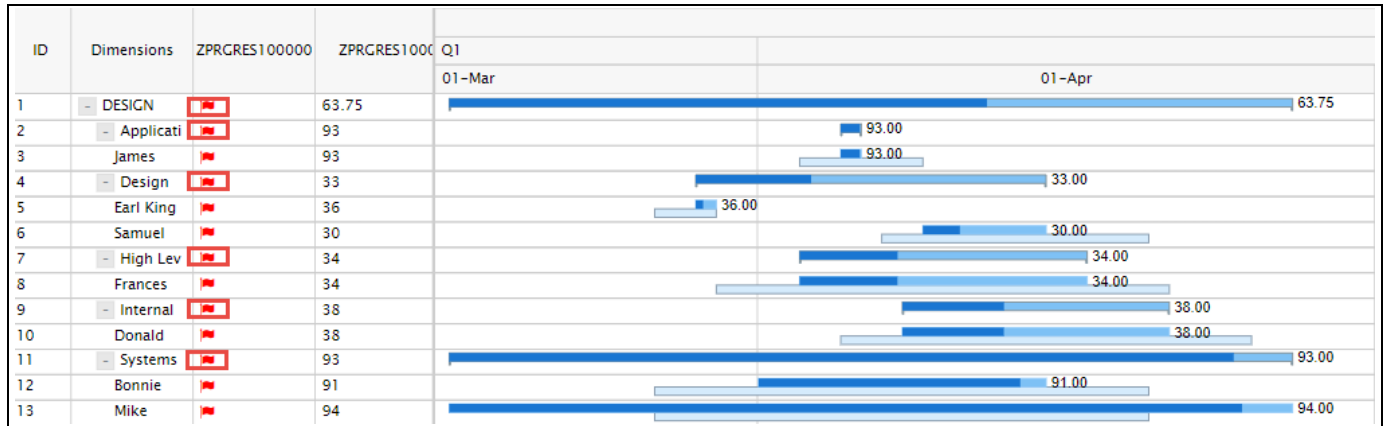


Figure 7.24: Gantt Chart with Status Flags for Parent Nodes

- When a Measure (X) other than the Measure that is mapped with “Progress” option being selected, then the calculation for that Measure (X) will be based on the Average value. In our example below, you can observe that the Parent Node for the Measure “ZPARENT910000” has the average value of 7 i.e., $(7+7+7+7+7/5) = 35/7 = 7$.

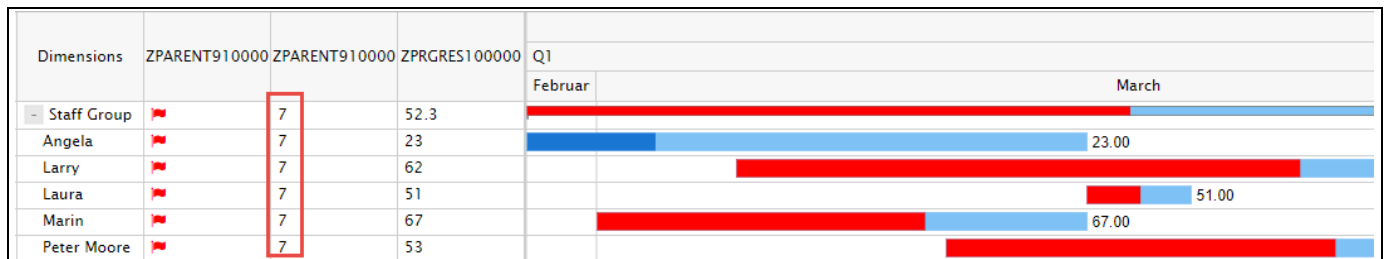


Figure 7.25: Gantt Chart with Measure other than Progress Measure

7.2.11 Custom Date Format for the Gantt Chart

As part of the Additional Properties for the Gantt Chart you also have the option to specify a custom data format. Table 7.7 shows the available placeholders for the Date Format definition in Additional Properties:

Placeholder	Returned Values
YY / YYYY	Represents the Year
MM	Represents the Month
DD	Represents the Day
Hh	Represents the Hour
Mm	Represents the minutes
Ss	Represent the Seconds

Table 7.7: Value Placeholder

7.2.12 Additional Columns on Data Grid

As part of the VBX Release 2.4, you will be able to add additional columns on data grid by navigating to the category Data and to the sub category Data Series (see Figure 7.26).

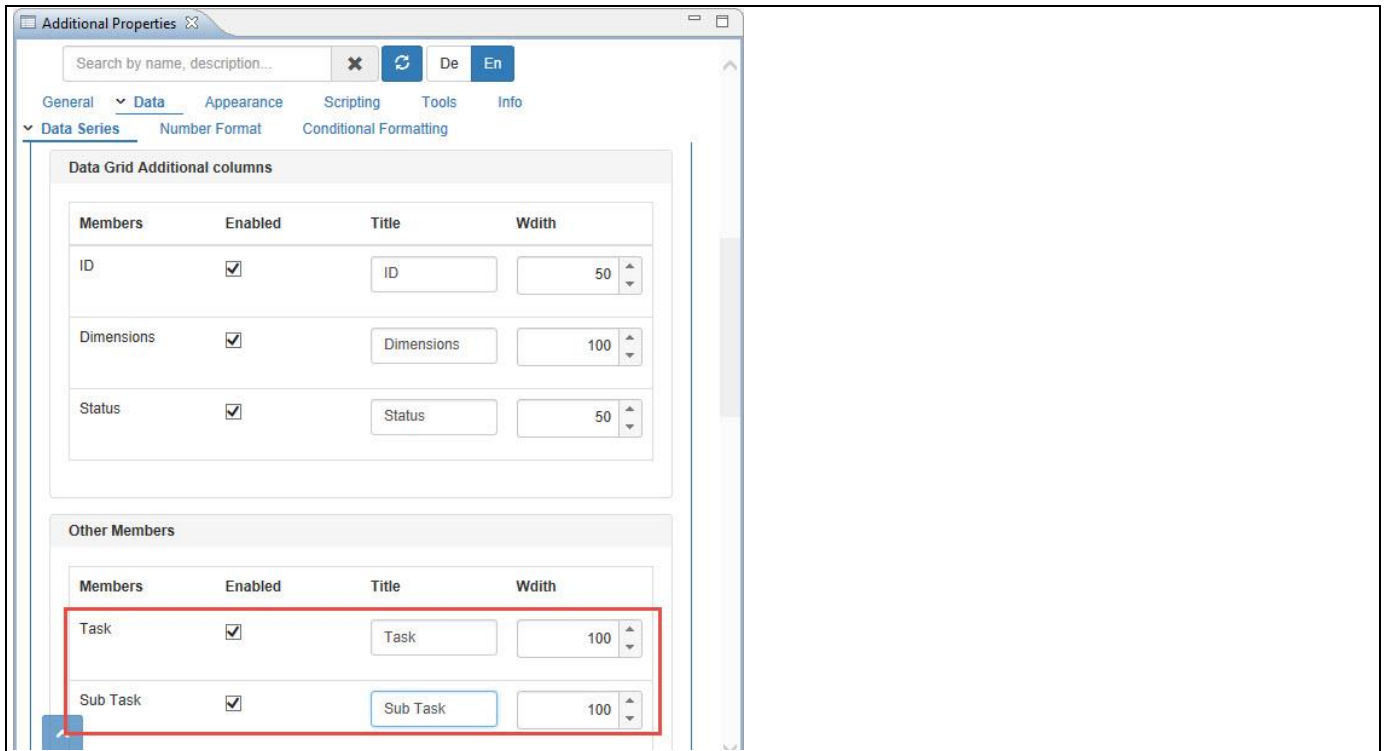


Figure 7.26: Category Data – Additional Columns

Based on the configured properties as shown in the above Figure, you will be able to view the Gantt Chart with the additional members Task and Sub Task being added (see Figure 7.27)



Figure 7.27: Gantt Chart with additional columns on Data Grid

7.2.13 Status Flags for Measure Column

As part of the VBX Release 2.4, you will be able to add Status Flags for the Measure Column (Timeline based Measure) on data grid by navigating to the category Data and to the sub category Data Series (see Figure 7.28). In our example, the Measure “Progress” has been enabled.

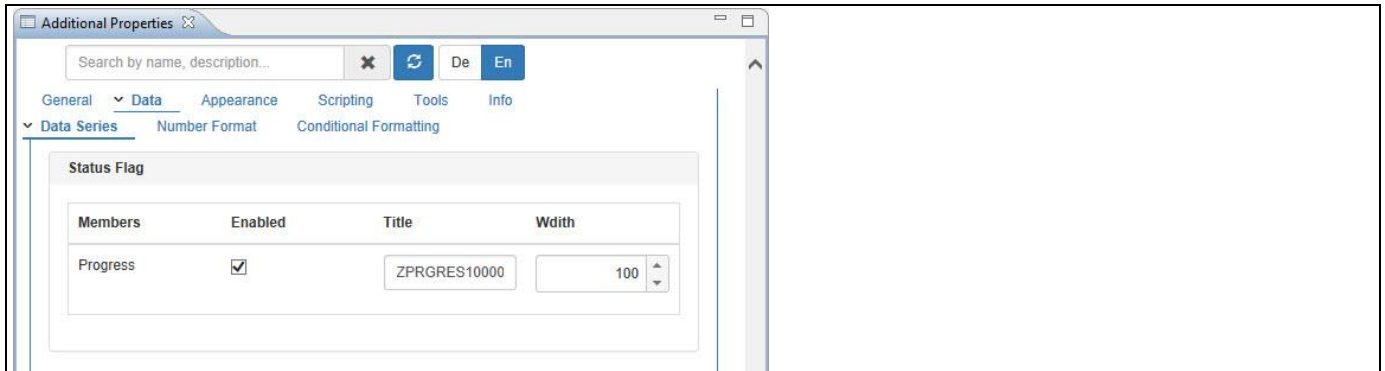


Figure 7.28: Category Data – Status Column

In our example, the property Status Flag is enabled in the Conditional Formatting Rule and the property Highlighted Measure is selected as “Progress” (see Figure 7.29).

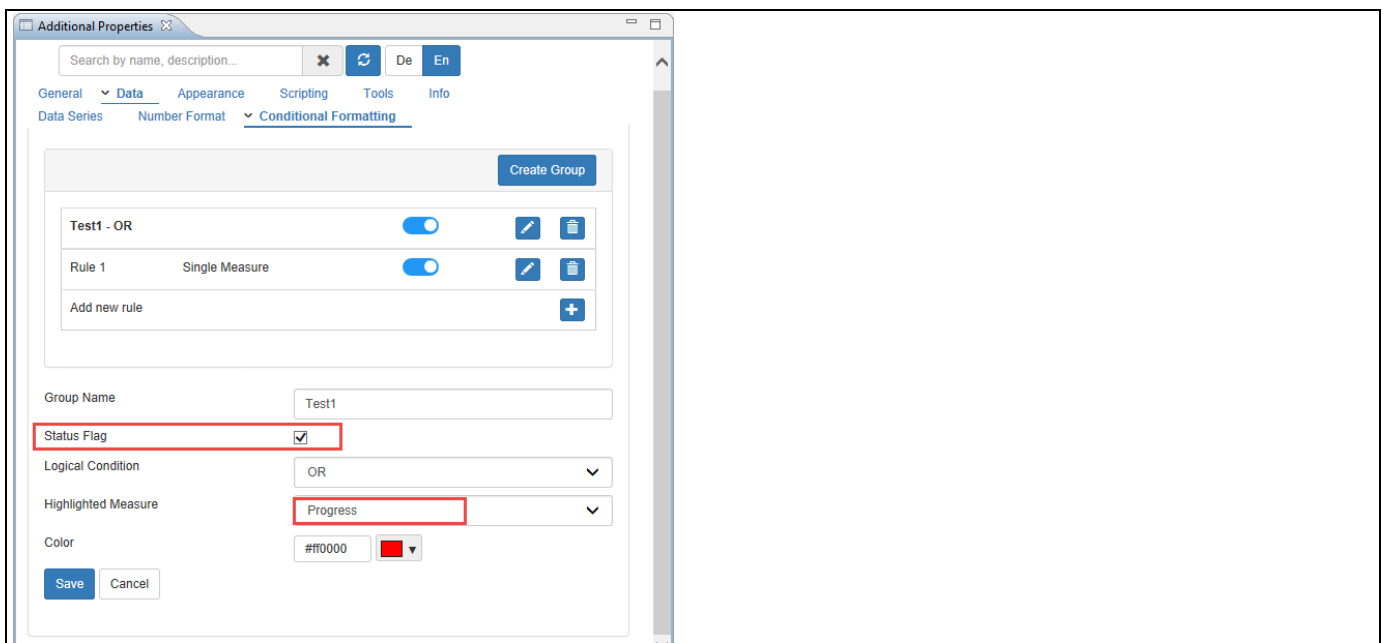


Figure 7.29: Category Data – Status Flag

Based on the above configuration, you will be able to view the Gantt Chart with Measure Column “Progress” having Status Flags (see Figure 7.30).

7.2.14 Hierarchy Collapse

As part of the VBX Release 2.4, you will be able to expand/collapse the Hierarchical Dimensions in the Data Grid of the Gantt Chart by navigating to the category Appearance and to the sub category Chart (see Figure 7.32).

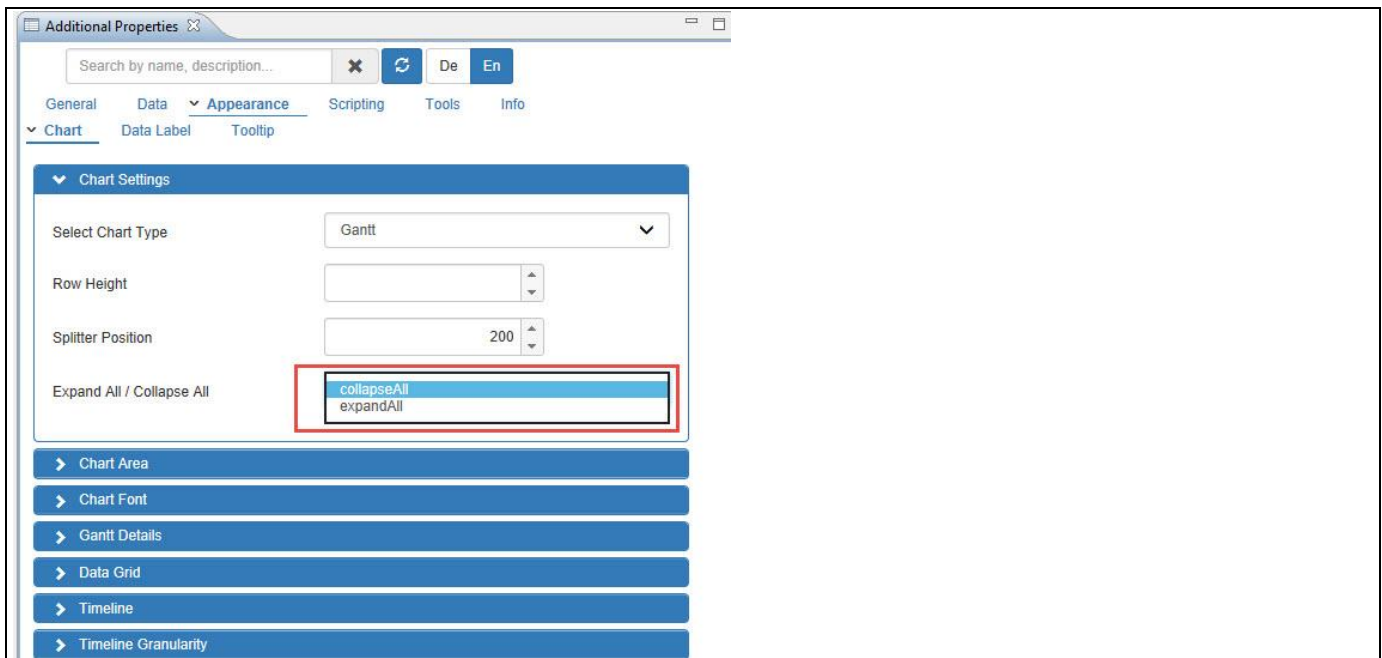


Figure 7.32: Category Appearance – Expand All/Collapse All

When the property Expand All/Collapse All is set to the property Expand All, you will be able to view the Gantt Chart with the Dimensions Column being expanded showing all the Hierarchical Dimension Members (see Figure 7.33).

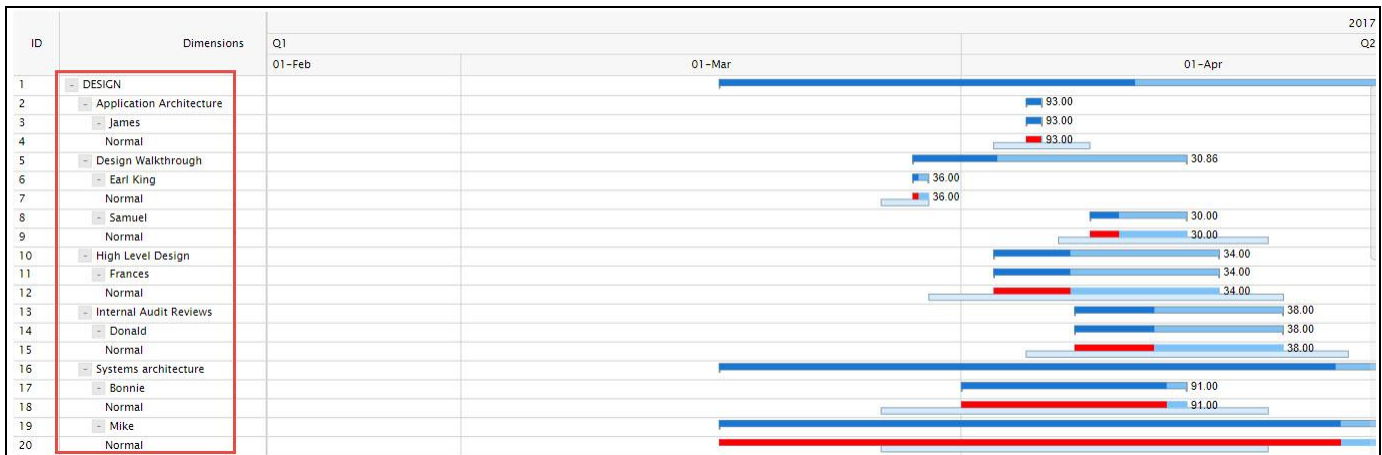


Figure 7.33: Gantt Chart – Expand All option

When the property Expand All/Collapse All is set to the property Collapse All, you will be able to view the Gantt Chart with only the Dimensions and the Hierarchical Dimension Members will be collapsed (see Figure 7.34).

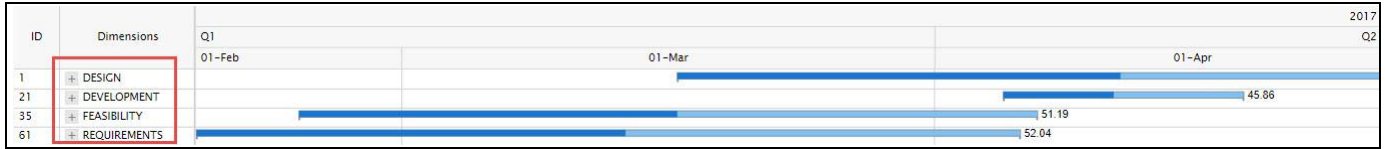


Figure 7.34: Gantt Chart – Collapse All option

7.2.15 Timeline Header Format

As part of the VBX Release 2.4, you will be able to edit the Header Format for the Timeline columns in the Data Grid of the Gantt Chart by navigating to the category Appearance and to the sub category Chart (see Figure 7.35).

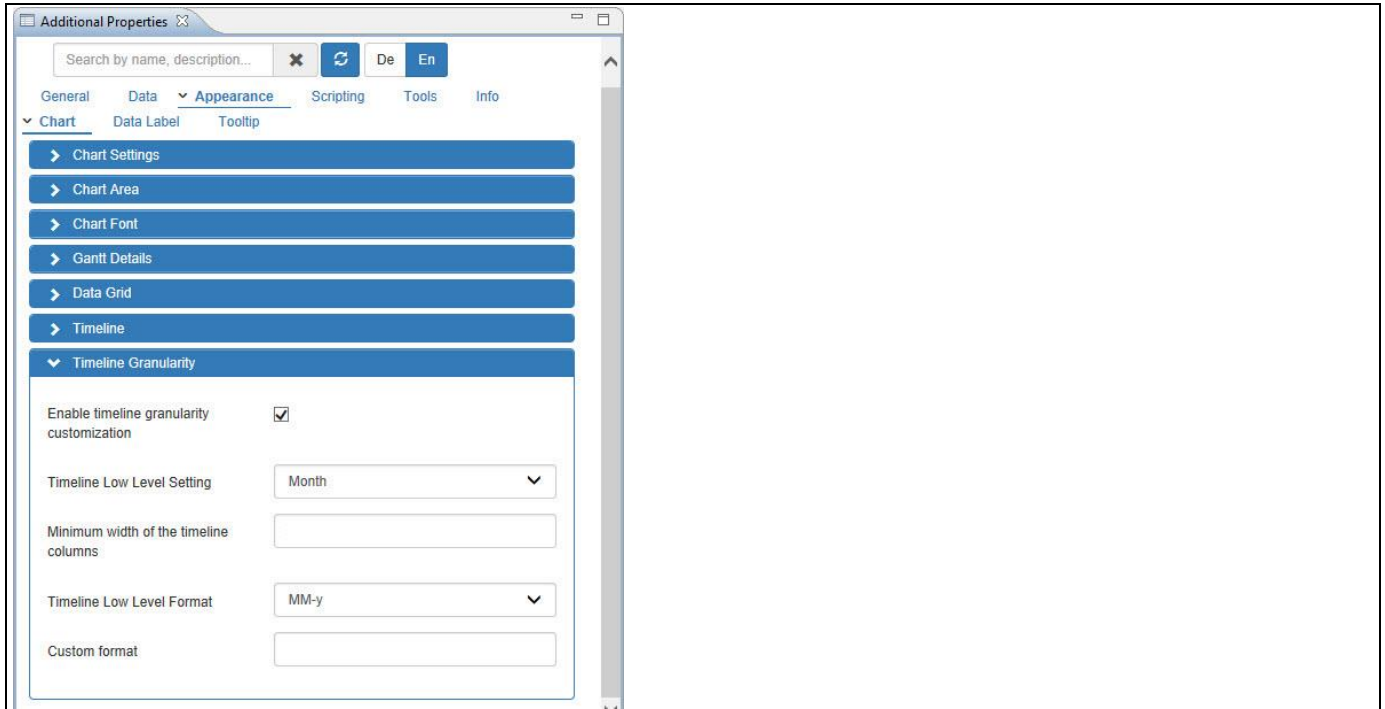


Figure 7.35: Category Appearance – Timeline Format

From the Figure above, you can observe that the property Enable Timeline Granularity Customization is activated. The property Timeline Low Level Setting is set to the option Month and the property Timeline Low Level Format is set to the option MM-y. Based on the above configuration, you can observe that the Gantt Chart is displayed with the Timeline Setting as “Month” and Timeline Format as “MM-y” (see Figure 7.36).



Figure 7.36: Gantt Chart - Timeline Settings and Formats

7.2.16 Column Width for Timeline

As part of the VBX Release 2.4, you will be able to set the Column Width for the Timeline by navigating to the category Appearance and to the sub category Chart (see Figure 7.37).

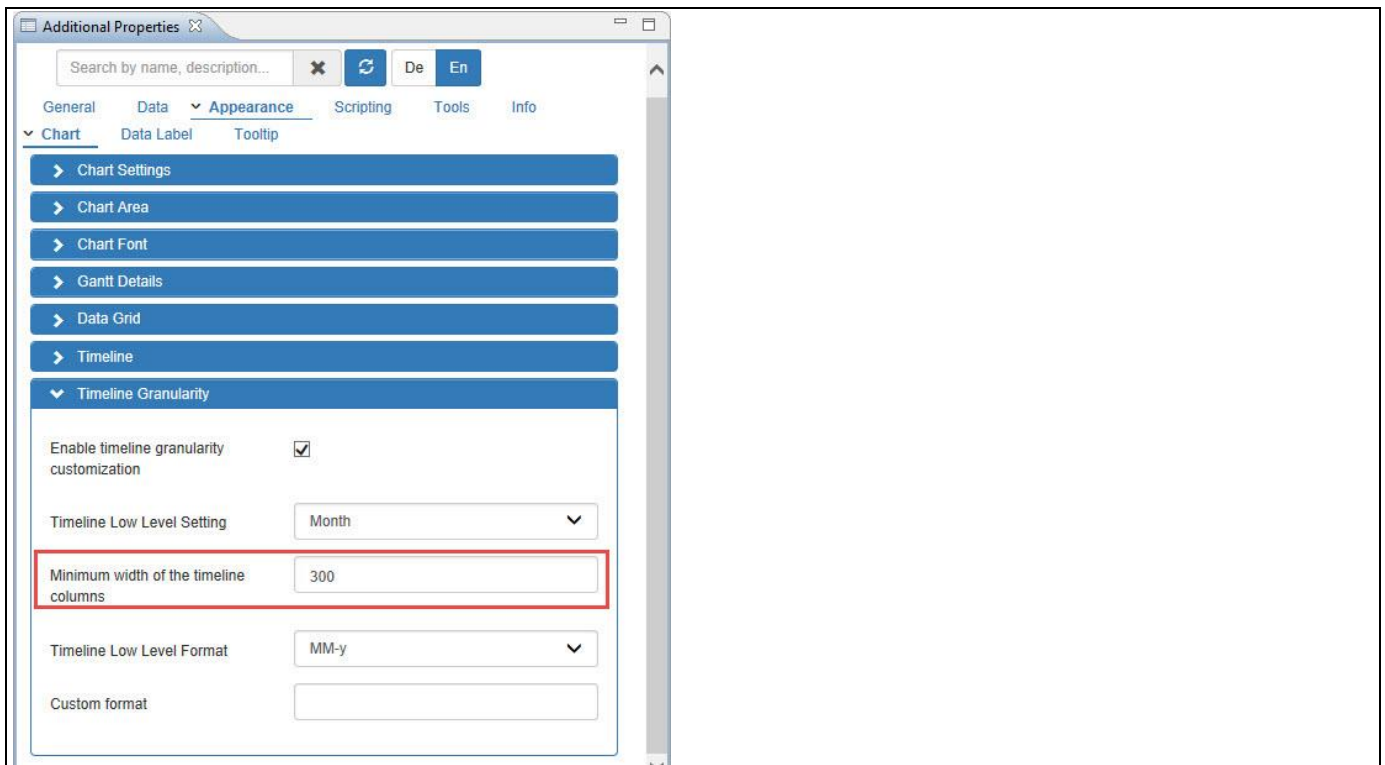


Figure 7.37: Category Appearance – Column Width for Timeline

Based on the configured properties as shown in the above Figure, you will be able to view the Gantt Chart with Timeline columns set to the width value as “300” (see Figure 7.38).

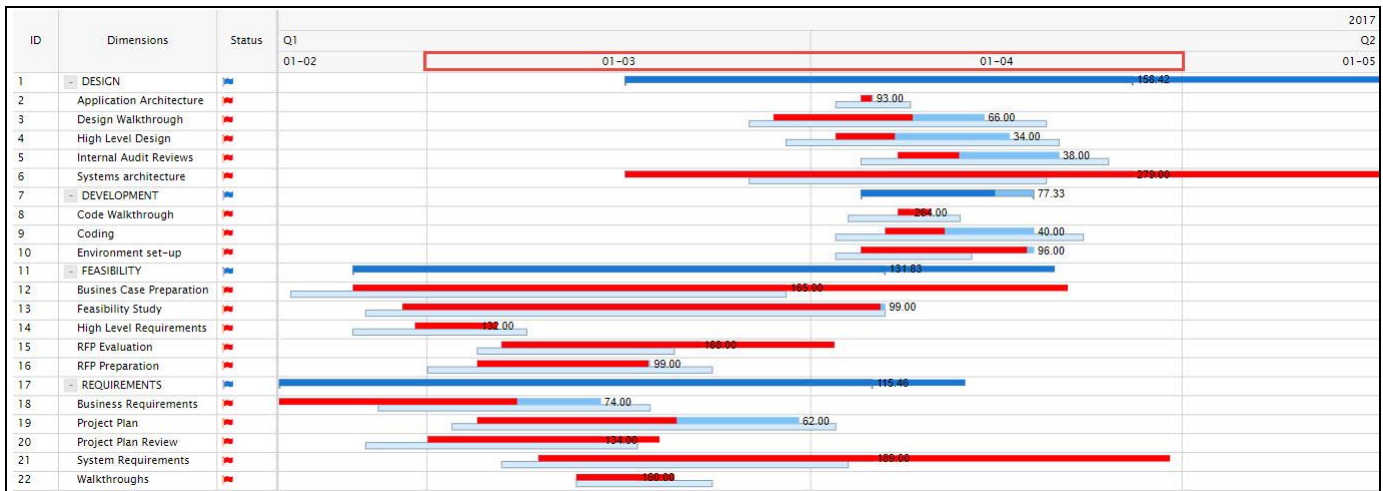


Figure 7.38: Gantt Chart – Column Width

7.2.17 Enable Live Editing

By navigating to the category Data and to the sub category Data Series in the Additional Properties of the Gantt Chart, you will be able to edit the Gantt Chart by resizing the timeline bar width in runtime (see Figure 7.39).

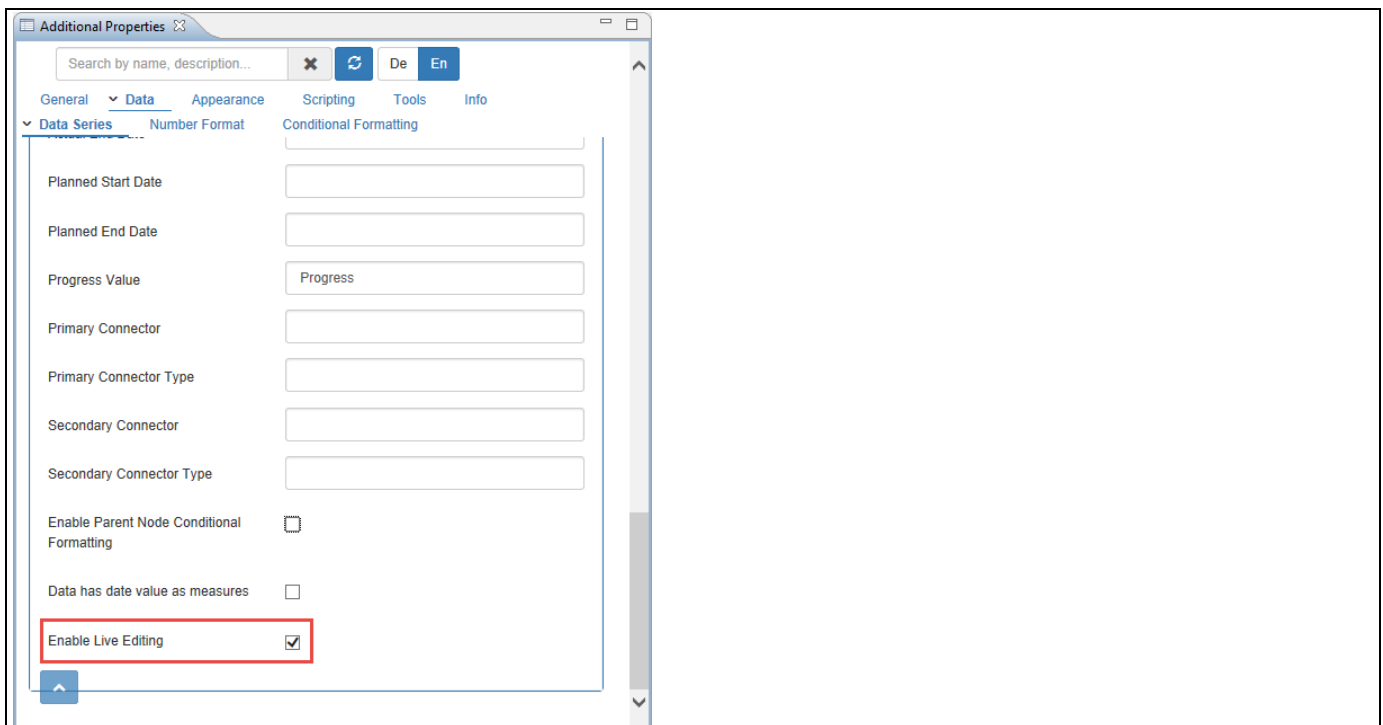


Figure 7.39: Category Data

By activating the property Enable Live Editing, you will be able to resize the timeline bar in the Gantt Chart using the slider and double arrow cursor (see Figure 7.40).



Figure 7.40: Gantt Chart with Slider and Double Arrow Cursor

7.2.18 Additional Gantt Details Settings

Navigate to the category Appearance and to the sub category Chart. In the area Gantt Details, you will be able to configure the selected Bar color (see Figure 7.41). Set the property Selected Bar Color to the color Orange.



Figure 7.41: Category Appearance

Based on the above configurations, you will be able to view the Gantt Chart as shown below.



Figure 7.42: Gantt Chart with selected Gantt Color

7.2.19 Additional Chart Area Settings

Navigate to the category Appearance and to the sub category Chart. In the area Chart Area, you will be able to activate the Datagrid button, configure the icon settings for the Datagrid button and also configure the color for the Datagrid button (see Figure below).

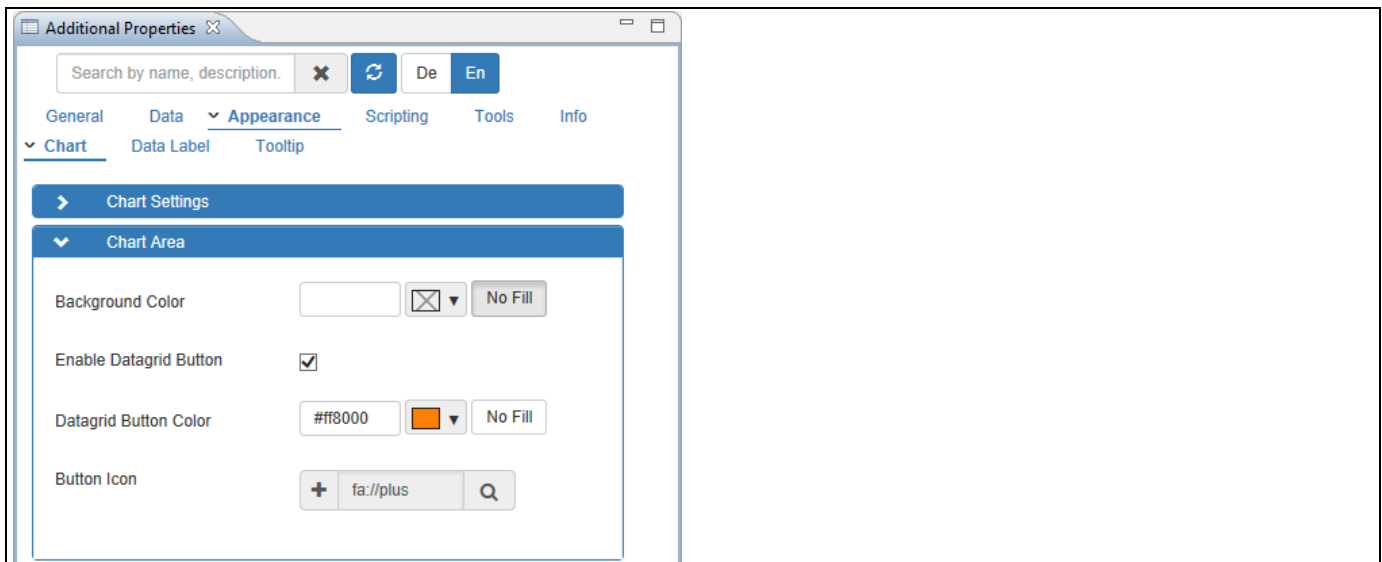


Figure 7.43: Category Appearance

Based on the above configurations, you will be able to view the Gantt Chart as shown below.



Figure 7.44: Gantt Chart with Data Grid Button configuration

7.2.20 Chart Theme Settings

You will be able to configure the Theme for the Gantt Chart by navigating to the category Appearance and to the sub category Chart (see Figure 7.45). Activate the property Enable Theme Menu and set the property Chart Theme to the option pastel.

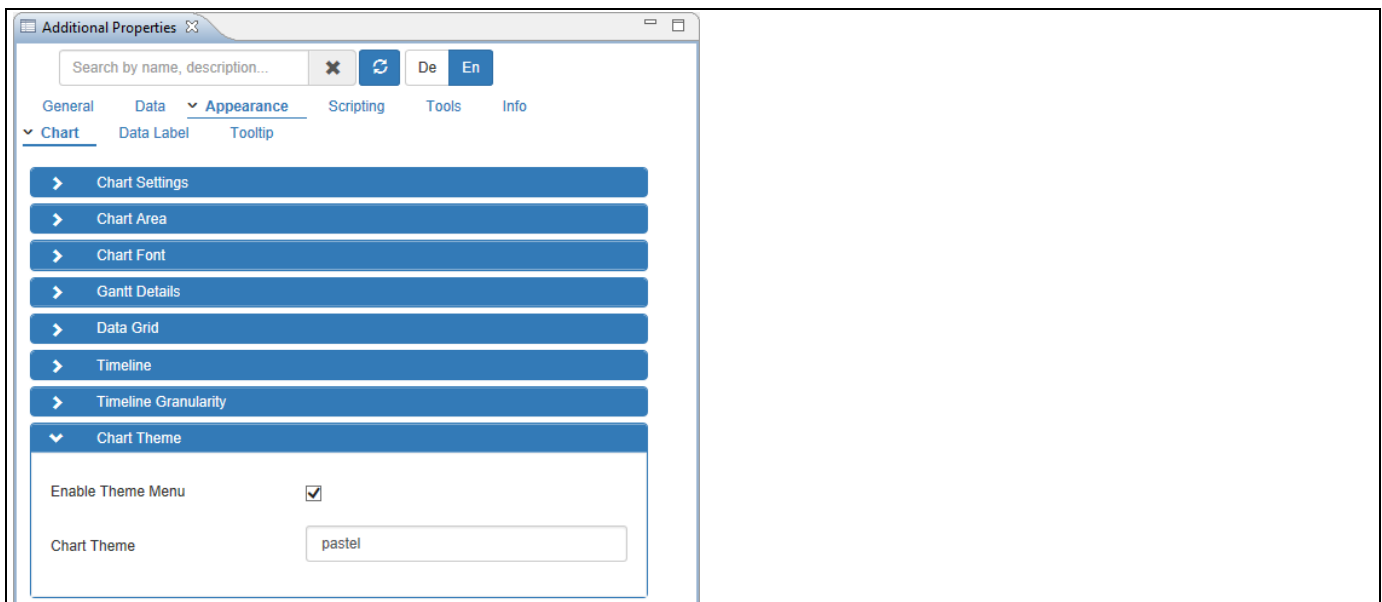


Figure 7.45: Category Appearance

Based on the above configuration, you will be able to view the Gantt Chart with the Theme selected as pastel (see Figure 7.46).

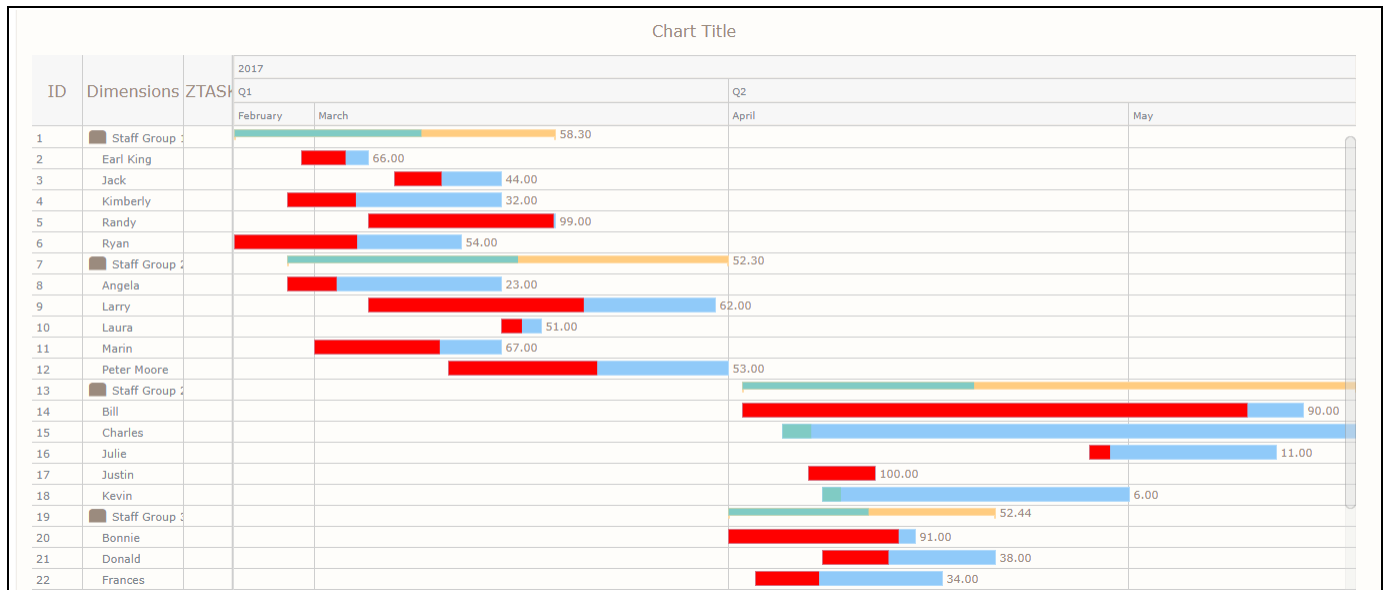


Figure 7.46: Gantt Chart with Theme Selection

7.2.21 Additional Properties of the Gantt Chart

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Gantt Chart.

7.2.21.1 Category Data

Sub category	Area	Property	Description
Data Series	Data Settings	Select Dimensions for Data Grid Hierarchy	Here you can select which dimensions from the assigned data source will be included as part of the Data Grid for the chart.
		Data Grid Columns	Here you can enable the Data Grid Members and set the Title and Width for the members.
		Other Additional Columns	Here you can enable the other additional Column Members and set the Title and Width for the members.
		Status Flag	Here you can enable the Status Flag for the members and set the Title and Width for the members.
		Enable Date Values from Measures	This property can be activated, in case date values are represented in form of measures in the assigned data source.
		Display Individual Task	This property can be activated to display the task of the individual resource where the Resource details will be displayed along with their activities in the Data Grid of the chart.
		Use Activated Hierarchies from Dimension	This property can be activated when the Dimension in the assigned data source is a hierarchy and you would like to use the hierarchical information as part of the chart.
		Date Format	Using this property, the date format can be selected.
		Custom Format	Using this property, the custom date format can be provided.
		Include Full day of work for Actual End	This property enables the option to include the Full day of work for Actual End.
		Enable Minutes of work per day from Dimension/Measure	In case the chart type is set to the Resource Chart, this property can be used to define the amount of minutes of work per day based on the data source.
		Enter the Minutes Per Day Value	In case the chart type is set to the Resource Chart, this property can be used to define the amount of minutes of work

Sub category	Area	Property	Description
			per day as a static value.
		Actual Start Date	Using this property, the dimension / measure representing the Actual Start Date can be selected.
		Actual End Date	Using this property, the dimension / measure representing the Actual End Date can be selected.
		Resource Color Type	The property Resource Color Type can be configured based on below two different options <ul style="list-style-type: none"> • Color by Dimension • Color by Dimension members.
		Planned Start Date	Using this property, the dimension / measure representing the Planned Start Date can be selected.
		Planned End Date	Using this property, the dimension / measure representing the Planned End Date can be selected.
		Progress Value	Using this property, the measure representing the Progress Value can be selected.
		Primary Connector	Using this property, the dimension representing the information for the Primary Connector can be selected. The Primary Connector should contain the information on which tasks / resources will be linked to each other.
		Primary Connector Type	Using this property, the dimension representing the information for the Primary Connector Type can be selected. See also Table 7.2 for details.
		Secondary Connector	Using this property, the dimension representing the information for the Secondary Connector can be selected. The Secondary Connector should contain the information on which tasks / resources will be linked to each other.
		Secondary Connector Type	Using this property, the dimension representing the information for the Secondary Connector Type can be selected. See also Table 7.2 for details.
		Enable Parent Node Conditional Formatting	This property applies the conditional formatting to the parent nodes. When this property is enabled, then the percentage of parent node will be calculated based on the average values of

Sub category	Area	Property	Description
			its children nodes. When this property is disabled, then the percentage of parent node will be calculated based on the default formula that Gantt chart offers.
		Data has date value as Measures	This property can be enabled when the assigned Data Source has Measures as Date values.
		Enable Live Editing	Using this property, you will be able to edit the Gantt Chart by resizing the timeline bar width in runtime.
	Series Color	Series Color	This property configures the color for the Dimension and Dimension members.

Table 7.8: Category Data

7.2.21.2 Appearance

Sub category	Area	Property	Description
Chart	Chart Settings	Select Chart Type	This property sets the Chart Type. The options are Gantt, Resource and Gantt Resource.
		Row Height	This property sets the Row height for the Gantt chart.
		Splitter Position	This property sets the Splitter Position for the columns.
		Expand All/Collapse All	By using this property the Hierarchical Dimension Members can be expanded/collapsed.
	Chart Area	Background Color	This property sets the Background Color for the Gantt chart.
		Enable Datagrid Button	This property enables/disables the Datagrid Button in the Gantt Chart.
		Datagrid Button Color	This property sets the color for the Datagrid Button in the Gantt Chart.
		Button Icon	This property sets the Icon for the Datagrid Button.
	Gantt Details	Selected Bar Color	This property sets the color for the selected Timeline Bar in the Gantt Chart.
		Baseline Fill Color	This property sets the Baseline Fill Color
		Filled Area-Parent	This property sets the filled area color for the parent node.
		Filled Area-Child	This property sets the filled area color for the child node.
		Not Filled Area-Parent	This property sets the not filled area color for the parent node.

Sub category	Area	Property	Description
		Not Filled Area-Child	This property sets the not filled area color for the child node.
		Milestone Color	This property sets the color for the milestone
		Milestone Border Color	This property sets the Border Color for the milestone.
		Milestone Border Width	This property sets the Border Width for the milestone.
		Connectorline Color	This property sets the color for the Connector line.
		Connectorline Width	This property sets the width for the Connector line.
		Connectorline Arrow Color	This property sets the color for the Connector line Arrow.
		Enable 1st Level Header	This property enables/disables the Top Level in Timeline.
		Enable 2nd Level Header	This property enables/disables the Mid Level in Timeline.
		Enable 3rd Level Header	This property enables/disables the Low Level in Timeline.
	Data Grid	Enable Data Grid	This property enables/disables the Data grid for the Gantt Chart.
		Font Family	This property sets the Font Family for all the Data grid members.
		Font Size	This property sets the Font Size for all the Data grid members.
		Font Color	This property sets the Font Color for all the Data grid members.
		Font Style	This property sets the Font Style for all the Data grid members.
		Font Weight	This property sets the Font Weight for all the Data grid members.
	Timeline	Enable Gantt Timeline	This property enables/disables the Timeline for the Gantt and Gantt Resource Chart.
		Enable Resource Timeline	This property enables/disables the Timeline for the Resource Chart.
		Enable Scroll Bar	This property enables/disables the Scroll Bar for the Gantt Chart. This property will be functional only when the property Enable Zoom Range is disabled.
		Zoom In Factor	This property sets the zoom in factor for the Gantt and Gantt Resource Chart.

Sub category	Area	Property	Description
		Zoom Out Factor	This property sets the zoom out factor for the Gantt and Gantt Resource Chart. This property will be functional only when the property Enable Scroll Bar is activated.
		Enable Zoom Range	This property enables/disables the Zoom Range for the Timeline in the Gantt and Gantt Resource Chart. This property will be functional only when the property Enable Scroll Bar is disabled.
		Min Zoom Range Value	This property sets the minimum zoom range value for the Timeline in the Gantt and Gantt Resource Chart.
		Max Zoom Range Value	This property sets the maximum zoom range value for the Timeline in the Gantt and Gantt Resource Chart.
		Enable Day	This property enables/disables a Day in the Timeline for the Resource Chart.
		Font Weight	This property sets the Font Weight for the Header.
	Timeline Granularity	Enable Timeline Granularity Customization	This property enables/disables the Timeline Granularity Customization.
		Timeline Low Level Setting	This property sets the Timeline Level Setting. The options are Day, Week, Month and Quarter.
		Minimum width of the timeline columns	This property sets the Minimum Width of the Timeline Columns.
		Timeline Low Level Format	This property sets the Timeline Low Level Format. The options are Default, Custom, y-MM, d-MM-y, dd-MM and MM-y.
		Custom format	This property sets the Custom Format for the Low Level Timeline.

Table 7.9: Category Appearance

7.2.22 Scripting Function for the Gantt Chart

In addition to the common scripting functions listed in section 4.6, the Gantt Chart supports the following scripting functions.

Function / Method	Description
DSXAddAdditionalDimensioninColumn()	The function allows you to add additional Dimension in the Columns.
DSXAddAdditionalMeasureinColumn()	The function allows you to add additional Measure in the Columns.
DSXAddDatagridMember()	The function allows you to add Datagrid Members.
DSXHideLoading()	The function allows you to set the Hide Loading.
DSXRemoveAdditionalDimensioninColumn()	The function allows you to add additional Dimension in the Columns.
DSXRemoveAdditionalMeasureinColumn()	The function allows you to remove additional Measure in the Columns.
DSXRemoveDatagridMember()	The function allows you to remove Datagrid Members.
DSXSetEnableCustomGranularity()	The function allows you to enable the Custom Granularity option.
DSXSetEnableZoomRange()	This function allows you to enable the Zoom Range for the Timeline in the Gantt and Gantt Resource Chart. This property will be functional only when the property Enable Scroll Bar is disabled.
DSXSetGanttLowLevelSetting()	The function allows you to set the Gantt Low Level Settings.
DSXSetLowerlevelTimelineFormat()	The function allows you to set the Lower Level Timeline Format Settings.
DSXSettimelineminwidth()	The function allows you to set the minimum width for the Timeline columns.
DSXSetZoomInValue()	This function allows you to set the zoom in factor for the Timeline in the Gantt and Gantt Resource Chart.
DSXSetZoomOutValue()	This function allows you to set the zoom out factor for the Timeline in the Gantt and Gantt Resource Chart. This property will be functional only when the property Enable Scroll Bar is activated.
DSXSetZoomRangeMaxValue()	This function allows you to set the minimum zoom range value for the Timeline in the Gantt and Gantt Resource Chart.
DSXSetZoomRangeMinValue()	This function allows you to set the maximum zoom range value for the Timeline in the Gantt and Gantt Resource Chart.
DSXShowLoading()	The function allows you to set the Show Loading.

Table 7.10: Scripting Functions

7.3 Data Utility Component

As part of the VBX Release 2.3, you are provided with the new Data Utility Component which provides the Data Utility features in the run time. Here the user can reconfigure and create virtual copies of the assigned data source and select the dimensions and measures that should be used for the application, instead of using the complete data set. The Data Utility Component also comes with three different component modes as listed below:

1. Simple Mode
2. Mobile Mode
3. Mobile Advanced Mode

There is another option Enable No UI Mode where the Dashboard user can configure the Data Utility component settings without using the above three component modes. When the option Enable No UI Mode is activated then you will be unable to configure the settings for the Data Utility component using the above listed three component modes.

The VBX Data Utility Component can be also applied for the native components of SAP BusinessObjects Design Studio/SAP Lumira Designer.

7.3.1 Data Source Requirements

The data source requirements for the Data Utility component involves one Source Dataset and multiple Target Data sources. The Source Dataset should be assigned to the Data Utility component and the multiple Target Data sources like the Data Utility Source (so called the Custom Data Source) can only be assigned to any number of chart components depending on the choice of the Dashboard Designer.

In the upcoming sections, you will be able to follow the steps on how to configure the Data Utility component using the three different component modes – Simple Mode, Mobile Mode and Mobile Advanced Mode.

7.3.2 How to configure a Data Utility Component using Simple Mode

In the following steps we will outline, how you can setup a new Data Utility component using Simple Mode as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer select the menu Application • New to create a new application.
2. Select the option SAPUI5m.
3. Enter a name for the new application.
4. Select the Blank template.
5. Click Create.
6. Navigate to the Outline.
7. Now select the folder Data Sources and use a right-click (see Figure 7.47).

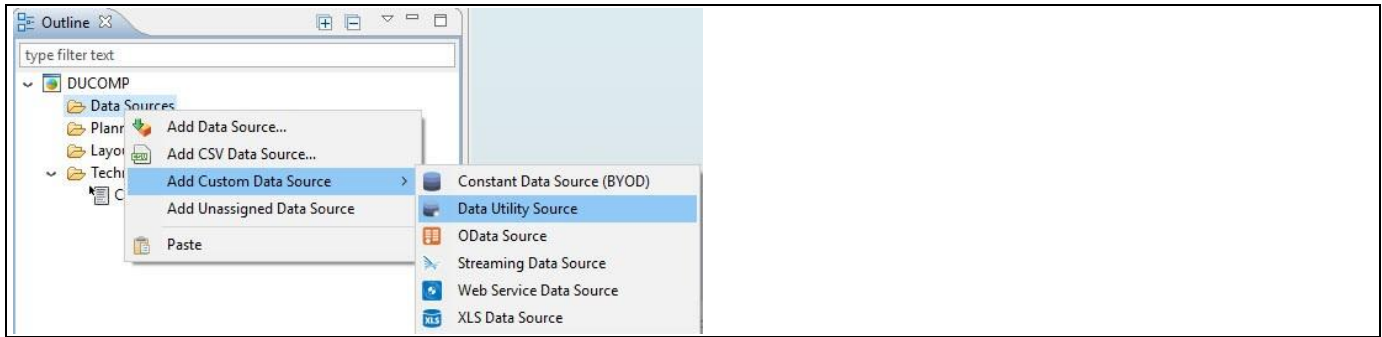


Figure 7.47: Custom Data Source

8. For our example, select the menu Add Custom Data Source • Data Utility Source.
9. Now add a Data Utility component from the VBX Speciality to your SAP BusinessObjects Design Studio/SAP Lumira Designer project (see Figure 7.48).

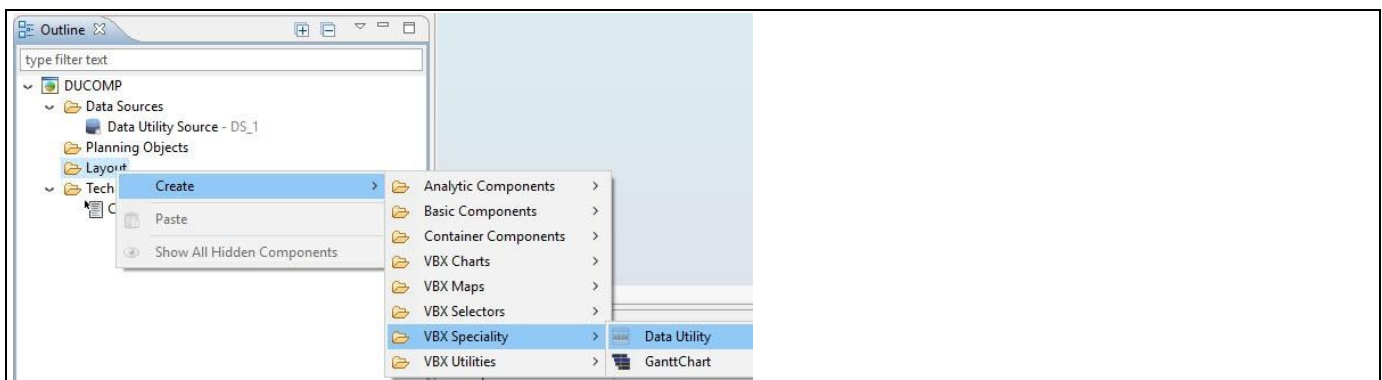


Figure 7.48: Data Utility Component

10. Assign the Source Datasource to the Data Utility Component. For our example we will assume that our Source Datasource shows the measures Order Cost, Discount Amount, Order Quantity and Order Amount and dimensions Item Category and Item Subcategory.
11. Now add a Line Chart component from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project. Your Outline looks like as shown in Figure 7.49.

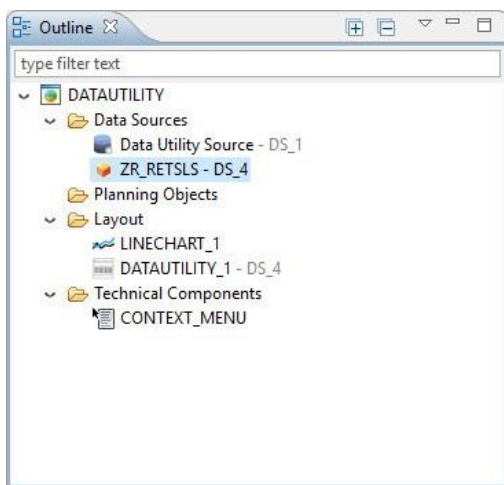


Figure 7.49: Outline

12. Navigate to the Additional Properties of the Data Utility Component.

13. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
14. Navigate to the category General and to the sub category Settings in the Additional Properties of the Data Utility component (see Figure 7.50)

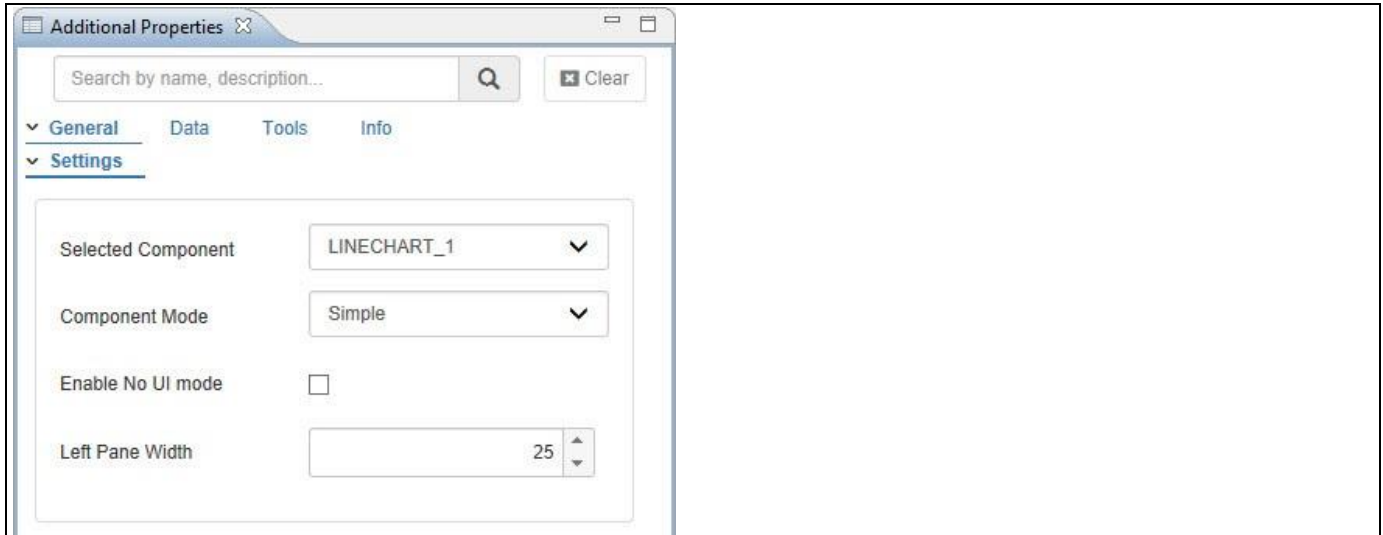


Figure 7.50: Category General – Simple Mode

15. Set the property Selected Component to the option LINECHART_1.
16. Set the property Component Mode to the option Simple.
17. Set the property Left Pane Width to the value 25 which represents the percentage value.
18. Now navigate to the category Data and to the sub category Data Utility in the Additional Properties of the Data Utility component (see Figure 7.51)

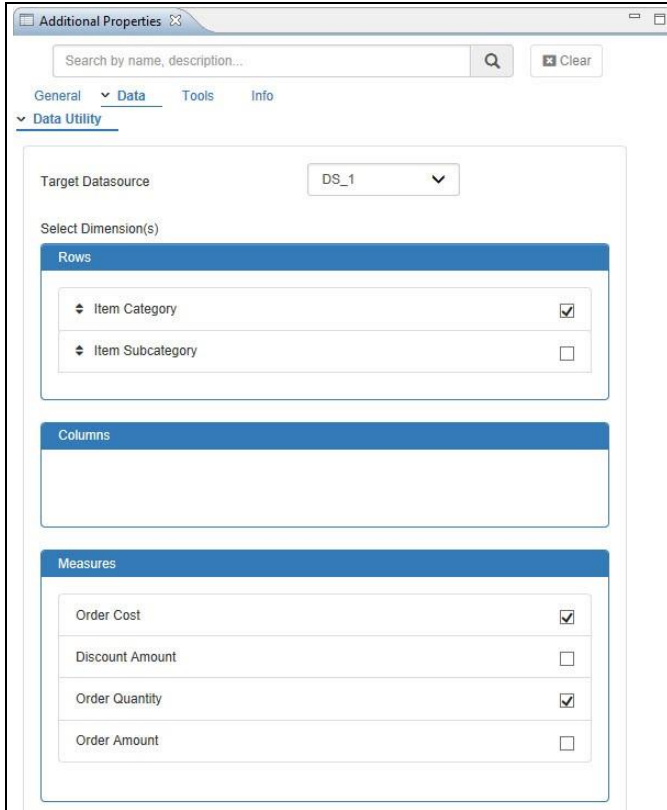


Figure 7.51: Category Data

19. Set the property Target Datasource to the option DS_1.
20. In the area Rows select the Dimension Item Category.
21. In the area Measures select the Measures Order Cost and Order Quantity.
22. Once the Target Data Source DS_1 is assigned in the category Data, you will be able to view that Target Datasource DS_1 being enabled in the Target Datasource List in the category General of the Additional Properties for the Data Utility component (see Figure 7.52).

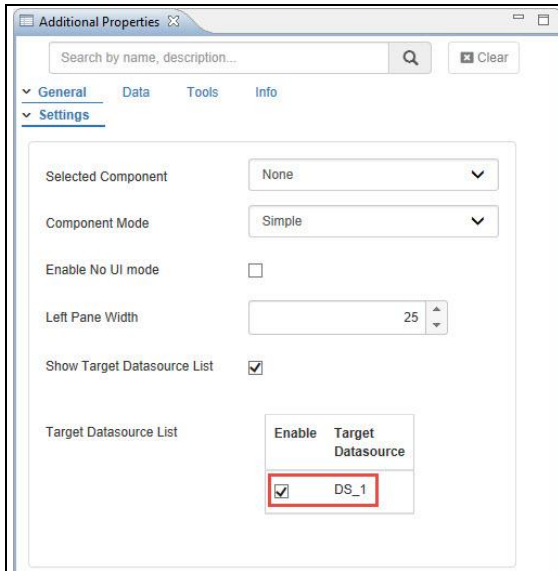


Figure 7.52: Category General

23. Based on the above configuration, you will be able to view the Line Chart configured through the Data Utility Component. It provides the Initial View appearance in the run time and the user can reconfigure the initial View settings by reassigning the dimensions to both the rows and columns and by reassigning the measures only to the column (see Figure 7.53). There is a Search option in the Initial View settings at run time and the user can search for the respective Target Datasource, Dimensions and Measures.

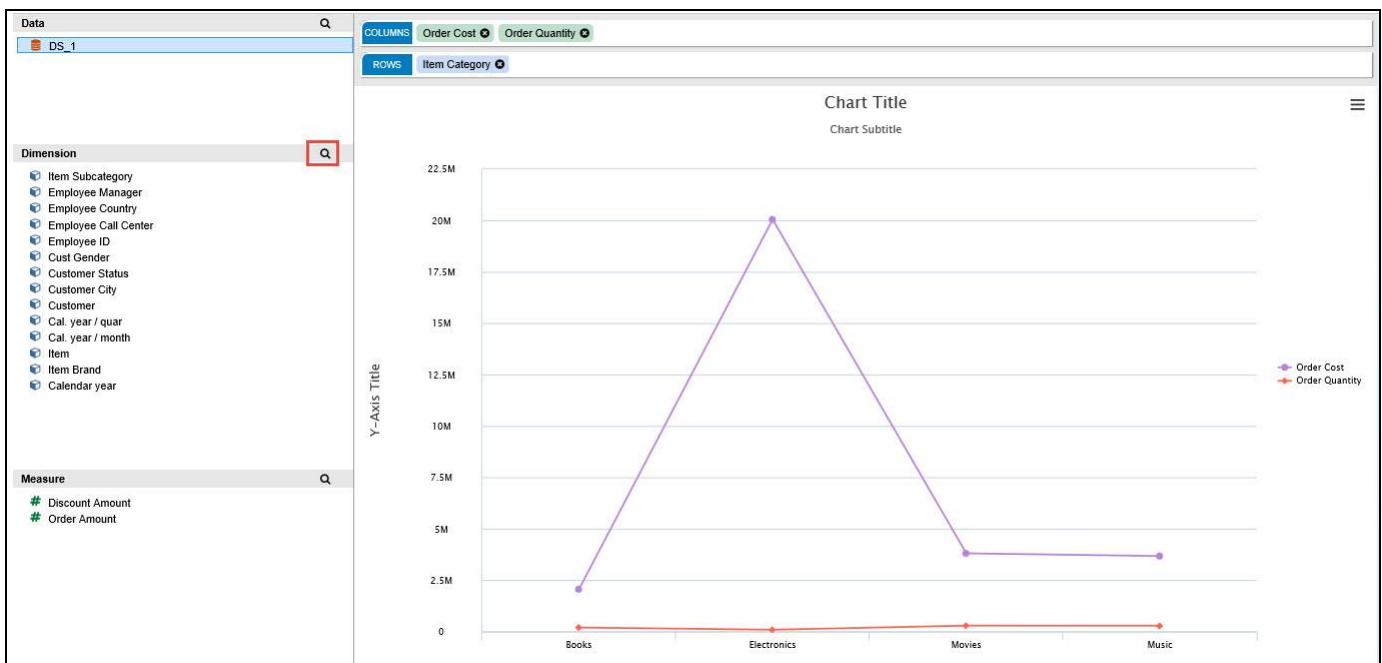


Figure 7.53: Simple Mode

Target Datasource List

In a scenario where you assign more than one Target Datasources in the application, then you will be able to view all the assigned Target Datasources in the Target Datasource List by navigating to the category General and to the subcategory Settings. Now you can select the required Target Datasources and you will be able to view the selected Target Datasources in the run time. This feature is common for all the Modes in the Data Utility component.

Dimensions List at run time

In the Initial View settings at run time you can observe that all the dimensions will get displayed based on the assigned Source Dataset and the user can reassign those dimensions to both the rows and columns. This feature is common for all the Modes in the Data Utility component.

Dimensions with Hierarchical Structure

Data Utility component will not support Dimensions with Hierarchical Structure.

7.3.3 How to configure a Data Utility Component using Mobile Mode with Multiple Target Datasources

In the following steps we will outline, how you can setup a new Data Utility component using Mobile Mode as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer select the menu Application • New to create a new application.
2. Select the option SAPUI5m.
3. Enter a name for the new application.
4. Select the Blank template.
5. Click Create.
6. Navigate to the Outline.
7. For our example, select the folder Data Sources and use a right-click to add two Data Utility Sources by following the steps executed for the Simple Mode (see Figure 7.54).

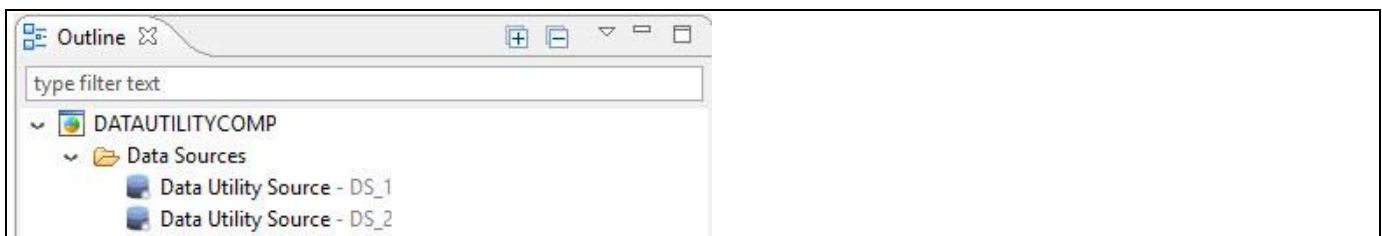


Figure 7.54: Custom Data Sources

8. Now create two Grid Layouts as shown in the Figure 7.55.

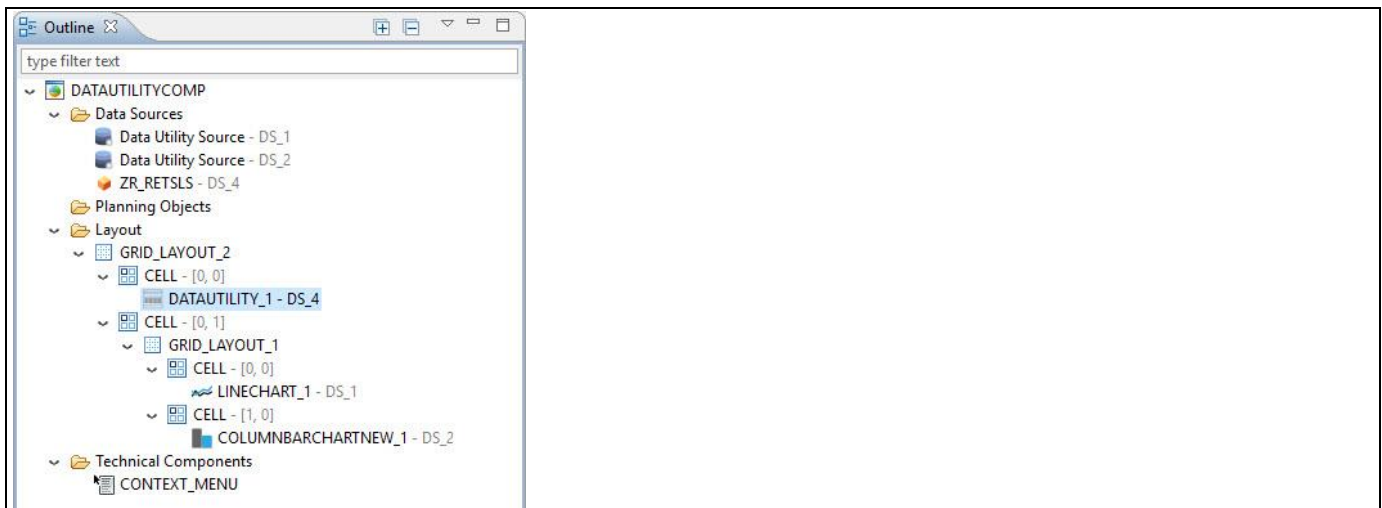


Figure 7.55: Grid Layout

9. Using the Standard Properties, the Grid Layout 1 is configured with two cells and they are assigned with the Line Chart in one cell and the Column Bar Chart in another cell. The Grid Layout 2 has two cells where one cell is assigned with the Data Utility component.
10. Assign the Data Utility Source DS_1 to the LINECHART_1 and assign DS_2 to the COLUMNBARCHARTNEW_1.
11. Assign the Source Dataset to the Data Utility component.
12. Navigate to the category General and to the sub category Settings in the Additional Properties of the Data Utility component (see Figure 7.56)

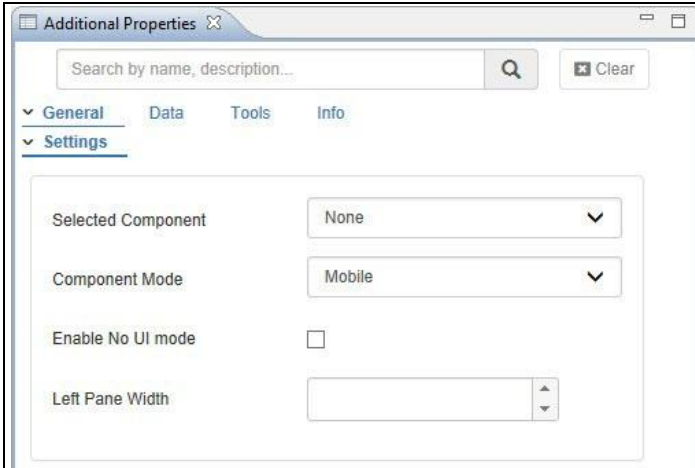


Figure 7.56: Category General – Mobile Mode

13. Set the property Component Mode to the option Mobile.
14. Now navigate to the category Data and to the sub category Data Utility in the Additional Properties of the Data Utility component (see Figure 7.57)

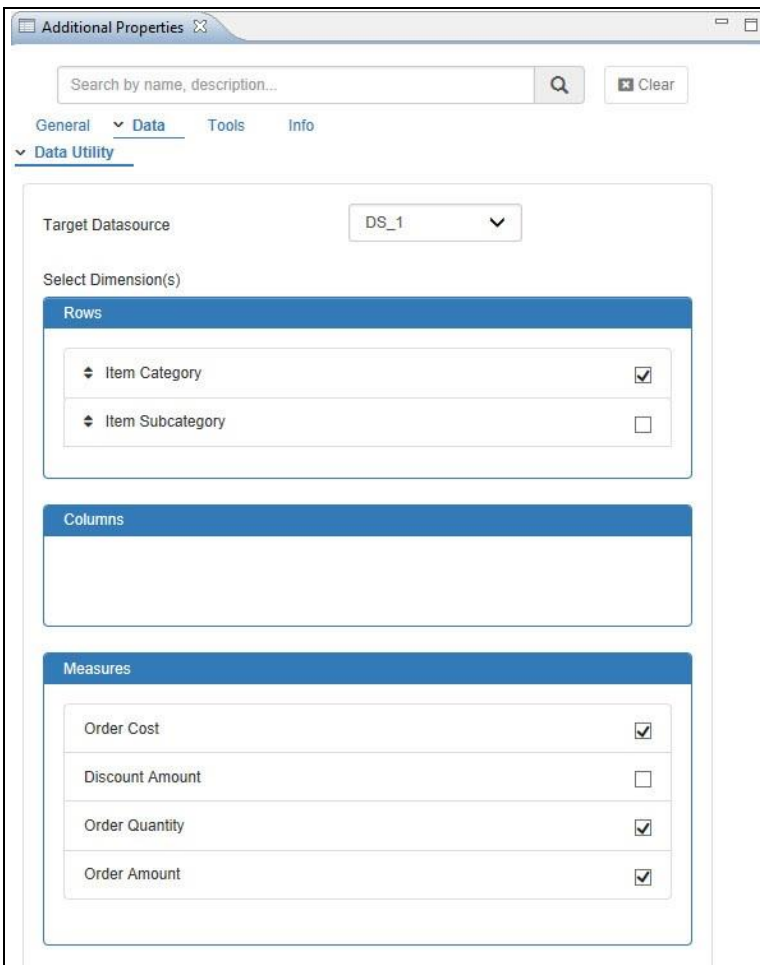


Figure 7.57: Category Data

15. Set the property Target Datasource to the option DS_1.
16. In the area Rows select the Dimension Item Category.
17. In the area Measures select the Measures Order Cost, Order Quantity and Order Amount.

18. Now set the property Target Datasource to the option DS_2 (see Figure 7.58).
19. In the area Rows select the Dimension Item Subcategory.
20. In the area Measures select the Order Quantity and Order Amount.

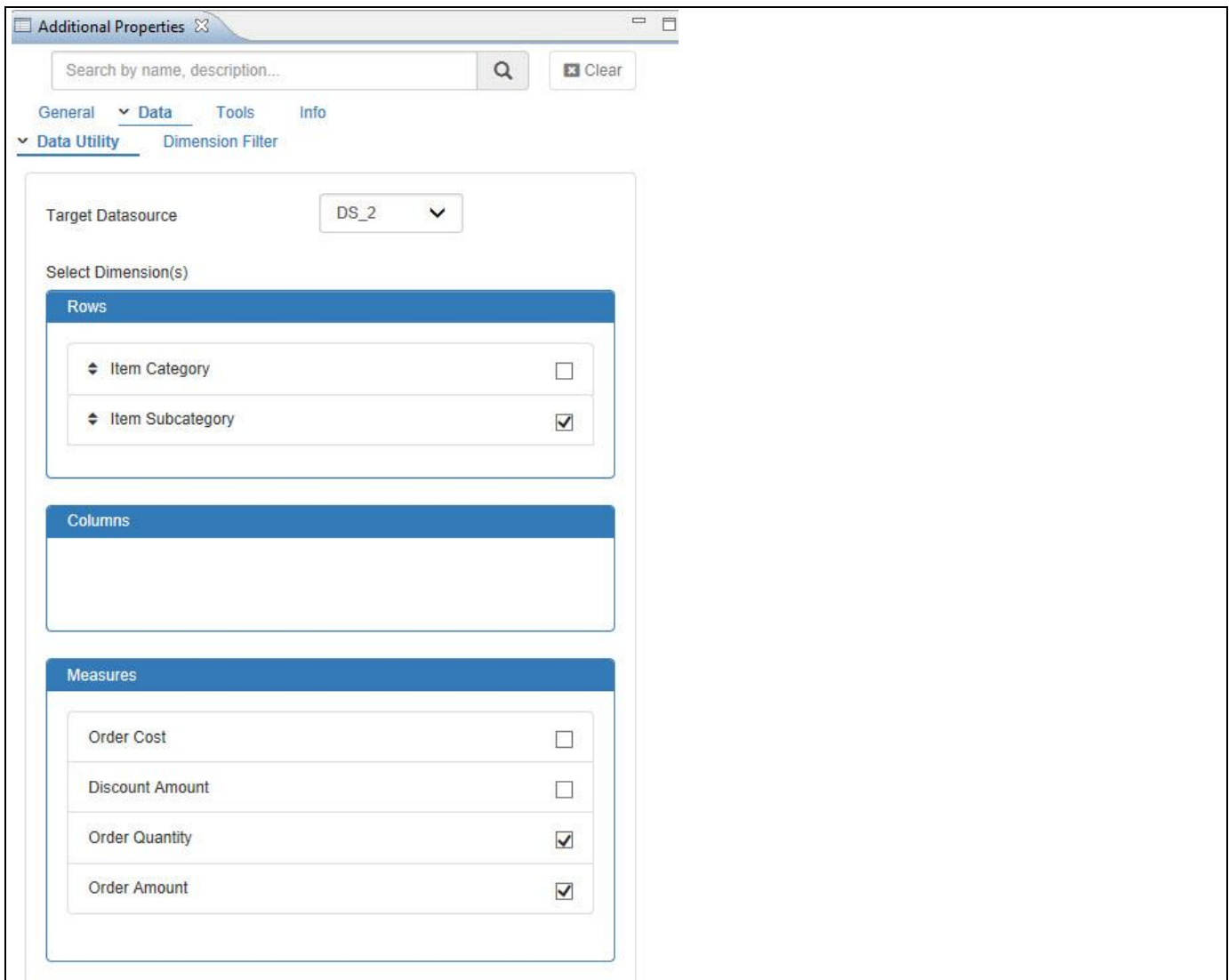


Figure 7.58: Category Data

21. Based on the above configuration, you will be able to view the Mobile Mode display with the Line Chart and the Column Bar Chart being configured through the Data Utility Component (see Figure 7.59). Here you can observe that the rendering of the component happens in the user defined layout. It provides the Initial View appearance having Dimensions and Measures in the run time with columns and rows appearing as buttons "C" and "R" where C represents the Columns and R represents the Rows. You can now only reassign the Dimensions to the Rows or Columns by single click on "R" or "C" at a time. Also, you cannot reassign the Measures to the Rows or Columns as they remain configured based on the design time. You can only remove or add the Measures and at least there should be one measure being added. There is an option that you can deselect the members of the both the Dimensions and Measures at any time.

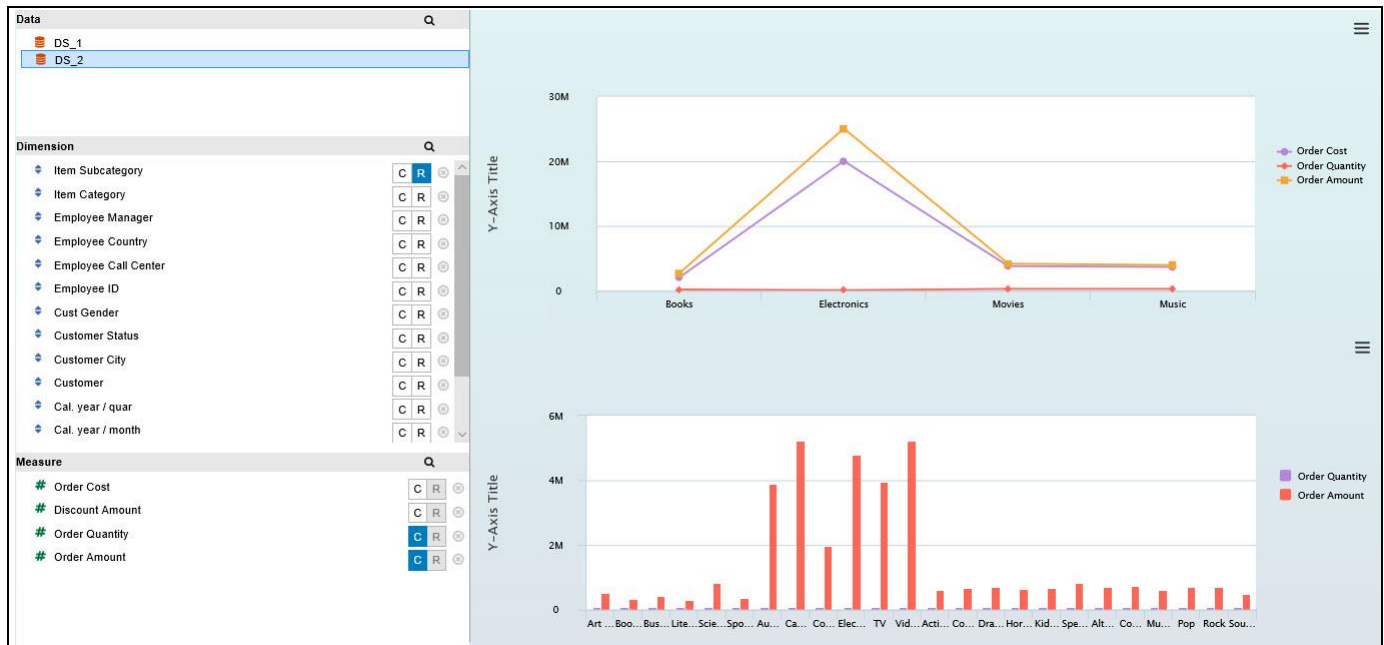


Figure 7.59: Mobile Mode

7.3.4 How to configure a Data Utility Component using Mobile Advanced Mode

In the following steps we will outline, how you can setup a new Data Utility component using Mobile Advanced Mode as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer select the menu Application • New to create a new application.
2. Select the option SAPUI5m.
3. Enter a name for the new application.
4. Select the Blank template.
5. Click Create.
6. Navigate to the Outline.
7. Now select the folder Data Sources and use a right-click (see Figure 7.60).

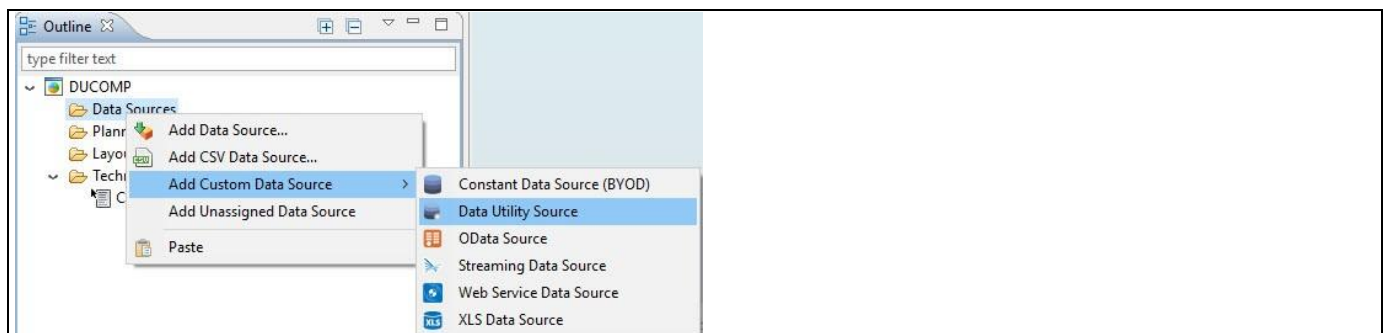


Figure 7.60: Custom Data Source

8. For our example, select the menu Add Custom Data Source • Data Utility Source.

9. Now add a Data Utility component from the VBX Speciality to your SAP BusinessObjects Design Studio/SAP Lumira Designer project (see Figure 7.61).

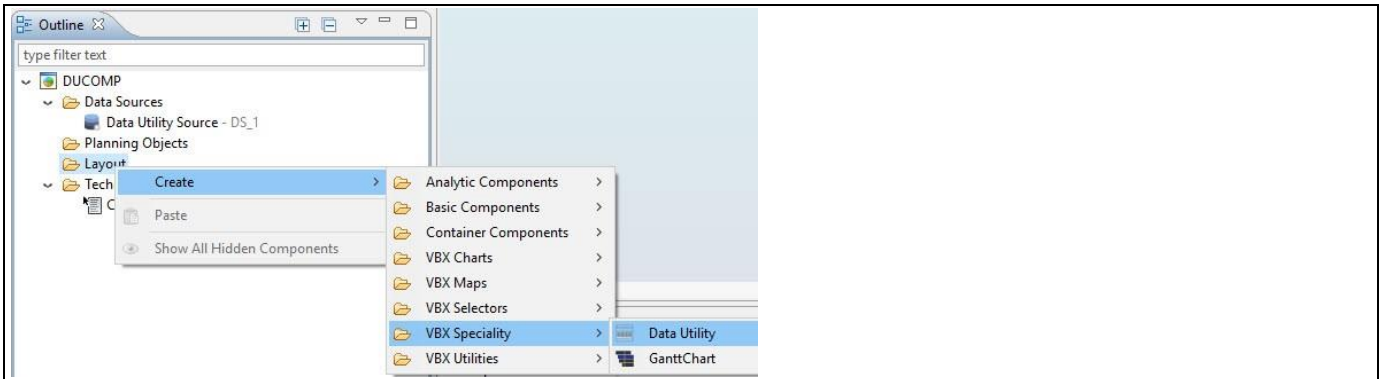


Figure 7.61: Data Utility Component

10. Assign the Source Dataset to the Data Utility Component. For our example we will assume that our Source Dataset shows the measures Order Cost, Discount Amount, Order Quantity and Order Amount and dimensions Item Category and Item Subcategory.
11. Now add a Line Chart component from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project. Your Outline looks like as shown in Figure 7.62.

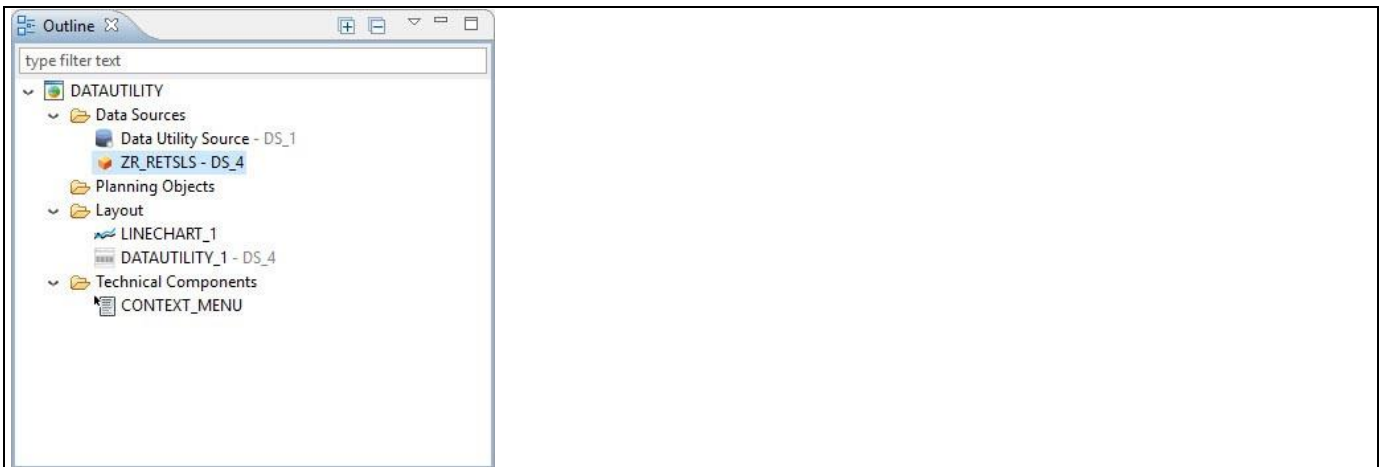


Figure 7.62: Outline

12. Navigate to the Additional Properties of the Data Utility Component.
13. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
14. Navigate to the category General and to the sub category Settings in the Additional Properties of the Data Utility component (see Figure 7.63)

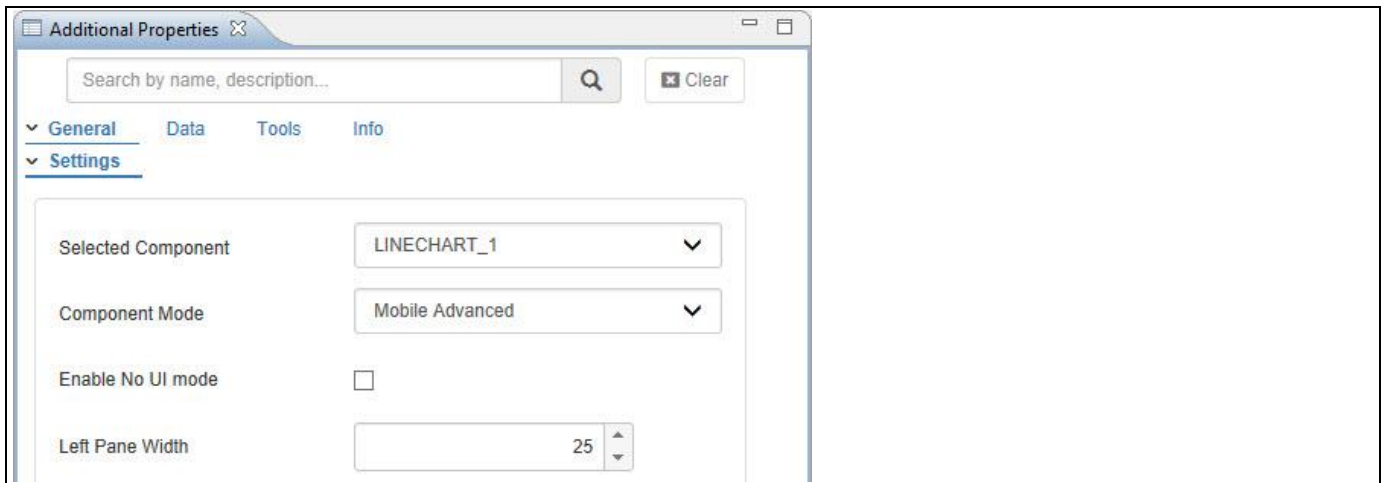


Figure 7.63: Category General – Mobile Advanced Mode

15. Set the property Selected Component to the option LINECHART_1.
16. Set the property Component Mode to the option Mobile Advanced.
17. Set the property Left Pane Width to the value 25.
18. Now navigate to the category Data and to the sub category Data Utility in the Additional Properties of the Data Utility component (see Figure 7.64)

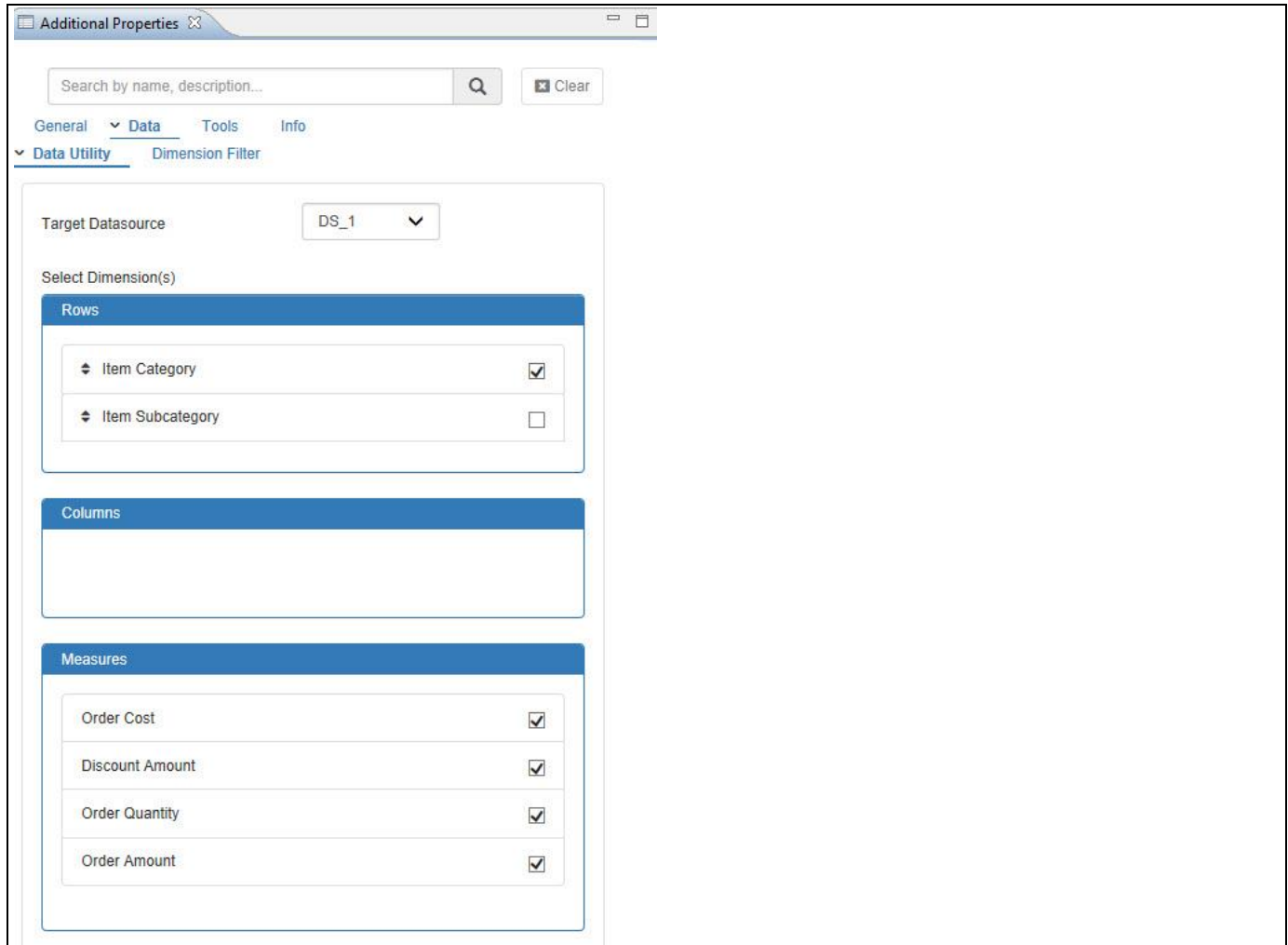


Figure 7.64: Category Data

19. Set the property Target Datasource to the option DS_1.
20. In the area Rows select the Dimension Item Category.
21. In the area Measures select the Measures Order Cost, Discount Amount, Order Quantity and Order Amount.
22. Based on the above configuration, you will be able to view the Mobile Advanced Mode display with the Line Chart being configured through the Data Utility Component (see Figure 7.65). Here you can observe that the rendering of the component happens in the pre-defined layout. It provides the Initial View appearance having Dimensions and Measures in the run time with columns and rows appearing as buttons "C" and "R" where C represents the Columns and R represents the Rows. You can now only reassign the Dimensions to the Rows or Columns by single click on "R" or "C" at a time. Also, you cannot reassign the Measures to the Rows or Columns as they remain configured based on the design time. You can only remove or add the Measures and at least there should be one measure being added. There is an option that you can deselect the members of the both the Dimensions and Measures at any time.

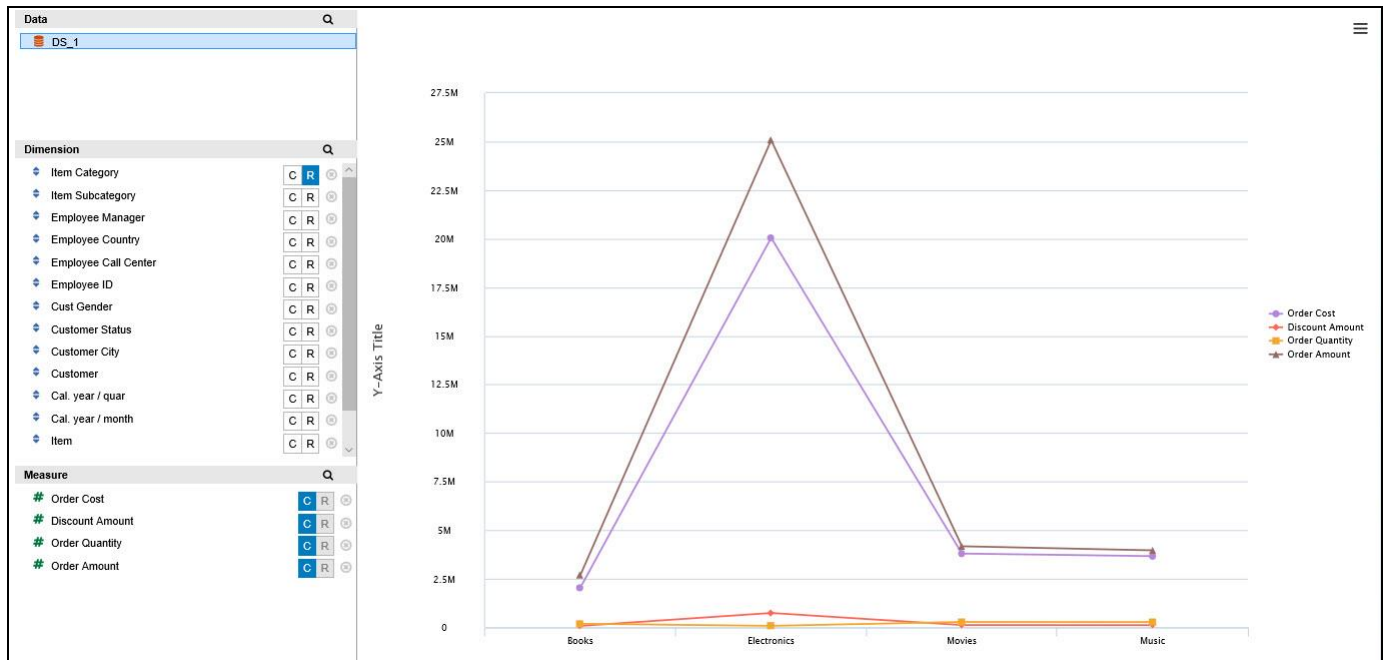


Figure 7.65: Mobile Advanced Mode

7.3.5 How to configure a Data Utility Component using Enable No UI Mode

In the following steps we will outline, how you can setup a new Data Utility component using Enable No UI Mode as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer select the menu Application • New to create a new application.
2. Select the option SAPUI5m.
3. Enter a name for the new application.
4. Select the Blank template.
5. Click Create.
6. Navigate to the Outline.
7. Now select the folder Data Sources and use a right-click (see Figure 7.66).

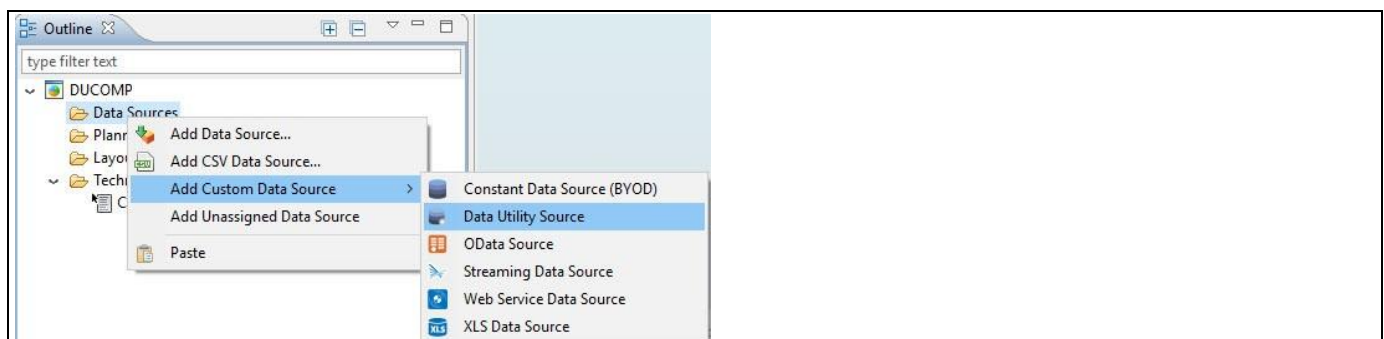


Figure 7.66: Custom Data Source

8. For our example, select the menu Add Custom Data Source • Data Utility Source.
9. Now add a Data Utility component from the VBX Speciality to your SAP BusinessObjects Design Studio/SAP Lumira Designer project (see Figure 7.67).

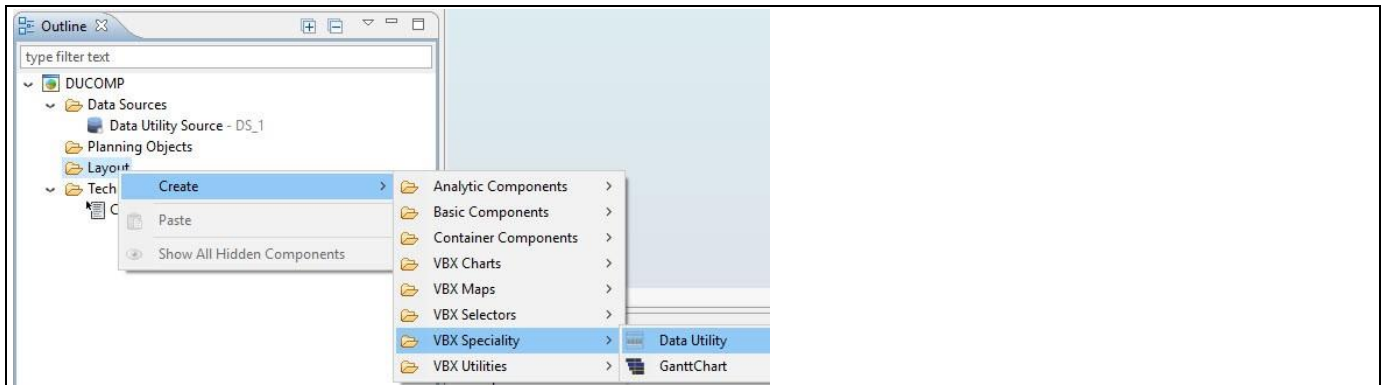


Figure 7.67: Data Utility Component

10. Assign the Source Dataset to the Data Utility Component. For our example we will assume that our Source Dataset shows the measures Order Cost, Discount Amount, Order Quantity and Order Amount and dimensions Item Category and Item Subcategory.
11. Now add a Line Chart component from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project. Your Outline looks like as shown in Figure 7.68.

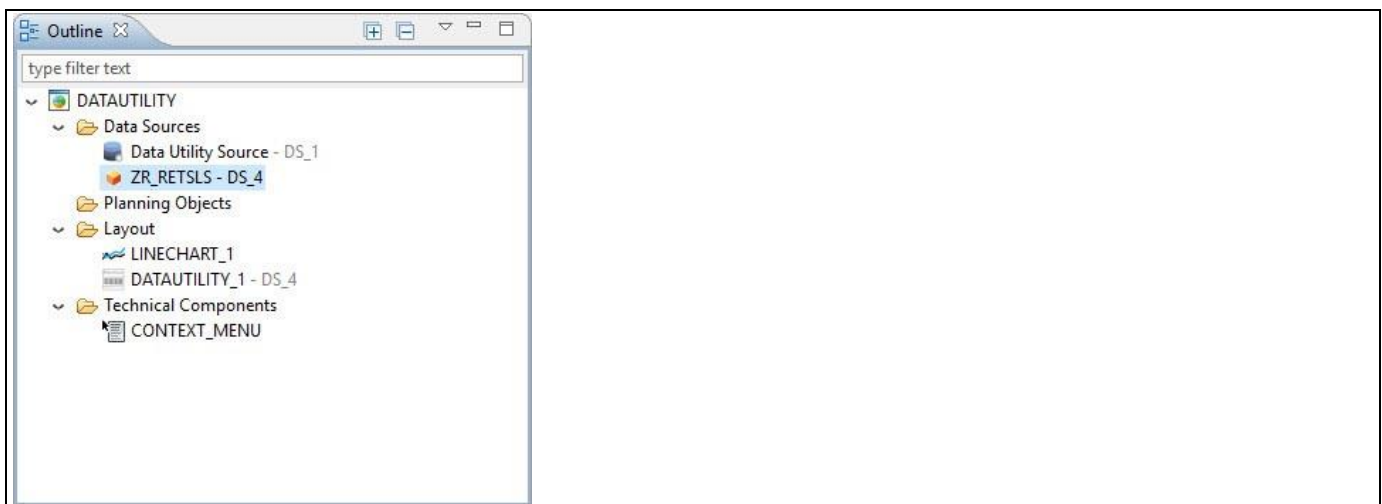


Figure 7.68: Outline

12. Navigate to the Additional Properties of the Data Utility Component.
13. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
14. Navigate to the category General and to the sub category Settings in the Additional Properties of the Data Utility component (see Figure 7.69)

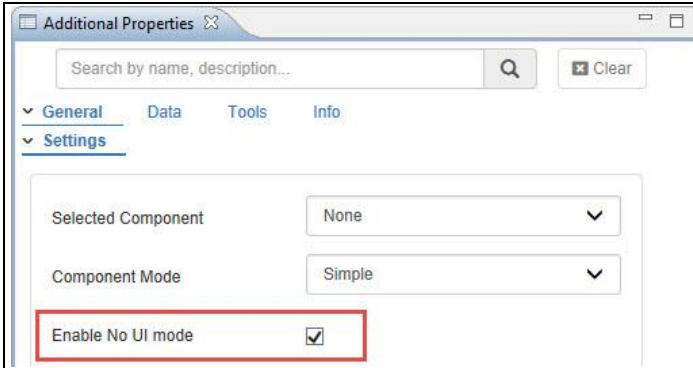


Figure 7.69: Category General – Enable No UI Mode

15. Activate the property Enable No UI Mode so that the configuration will not be allowed for the other three component modes.
16. Set the property Selected Component to the option LINECHART_1.
17. Now navigate to the category Data and to the subcategory Data Utility in the Additional Properties of the Data Utility component (see Figure 7.70)

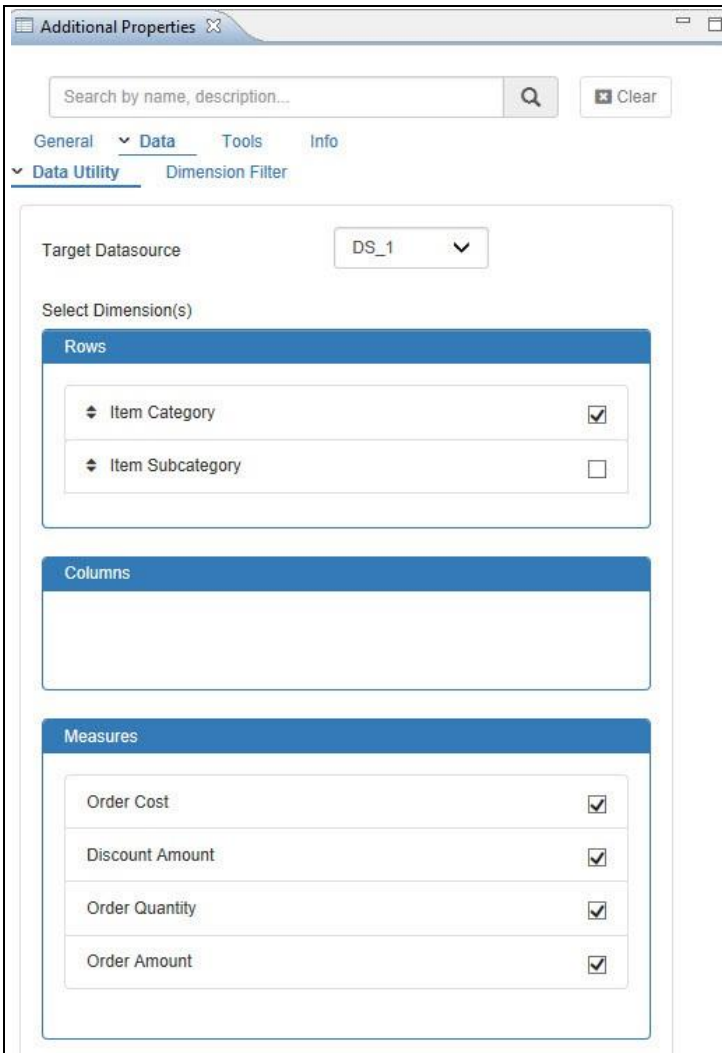


Figure 7.70: Category Data

18. Set the property Target Datasource to the option DS_1.
19. In the area Rows select the Dimension Item Category.
20. In the area Measures select the Measures Order Cost, Discount Amount, Order Quantity and Order Amount.
21. Based on the above configuration, you will be able to view the Line Chart being configured through the Data Utility Component. Here you can observe that the Line Chart appears alone without any Initial View settings since the property Enable No UI Mode is activated (see Figure 7.71).

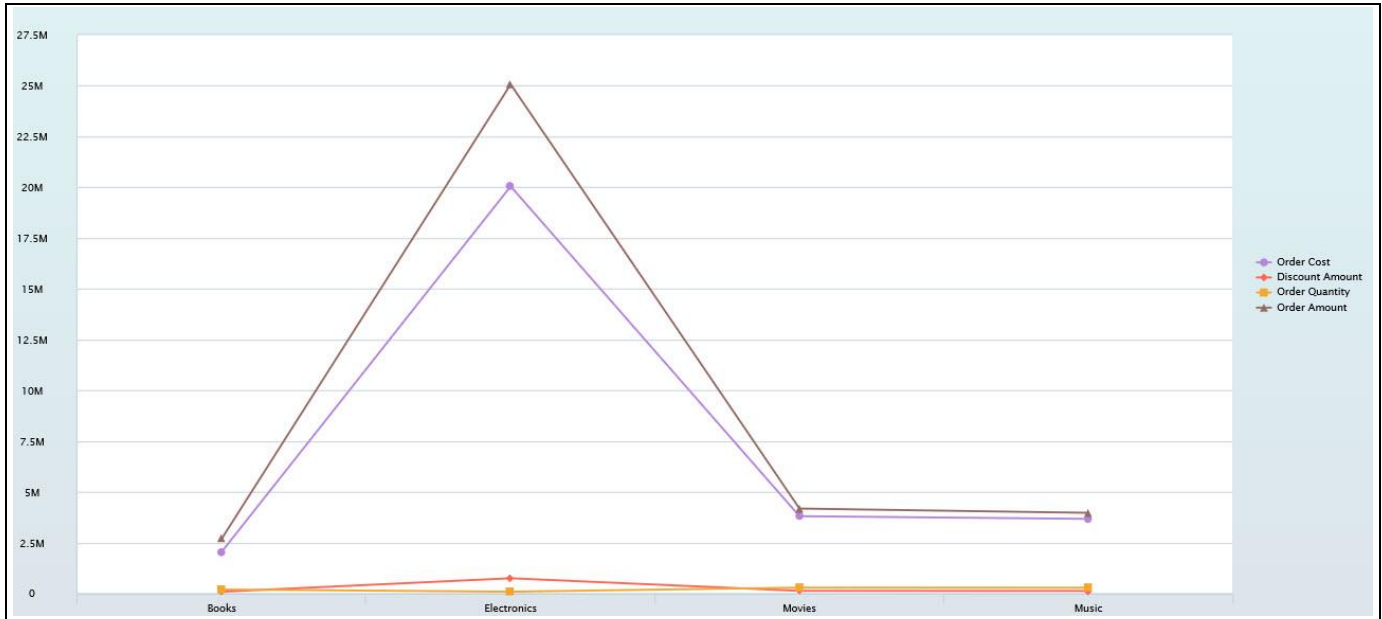


Figure 7.71: Enable No UI Mode

7.3.6 Data Filter Rules

In the Additional Properties of the Data Utility Component in the category Data and the sub category Dimension Filter, you have the additional option to filter the Dimensions with some Rule Types involving AND and OR functions.

For our example, you can follow the similar steps as already highlighted in Section 7.3.4 on how you can setup a new Data Utility component using Mobile Advanced Mode.

Now you can follow the steps below on how to configure the Filter Settings for the Data Utility component.

1. Navigate to the category Data and to the subcategory Dimension Filter (see Figure 7.72).

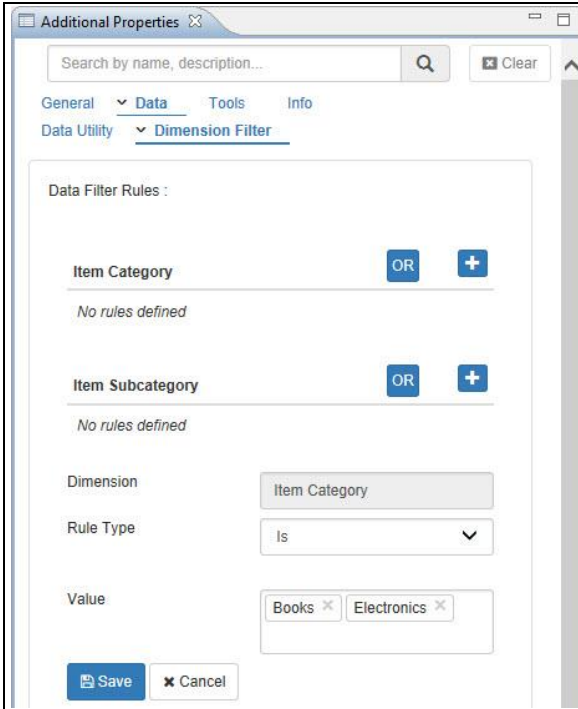


Figure 7.72: Category Data – Dimension Filter

2. Click the “+” button for the Dimension Item Category.
3. For our example, set the Rule Type to the option “Is”. The other options are Contains, Does not contain, Starts with, Does not start with and Is Not.
4. Set the property Value to the options Books and Electronics.
5. Now click the “+” button once again for the Dimension Item Category (see Figure 7.73).

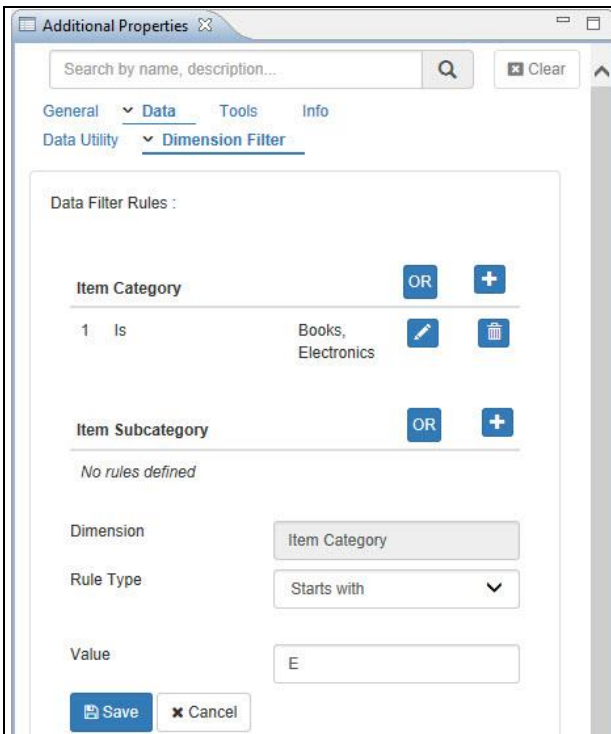


Figure 7.73: Category Data – Dimension Filter

6. For our example, set the Rule Type to the option “Starts with”. The other options are Contains, Does not contain, Does not start with and Is Not.
7. Set the property Value to the option “E” which implies that any selection on Dimension members for the Dimension Item Category should start with letter E. It should be Case Sensitive.
8. Click Save.
9. Now click the “OR” button to apply the OR function to Rule 1 and Rule 2.
10. Based on the above configuration, you will be able to view the Line Chart applied with OR function which involves both dimensions Books and Electronics (see Figure 7.74).

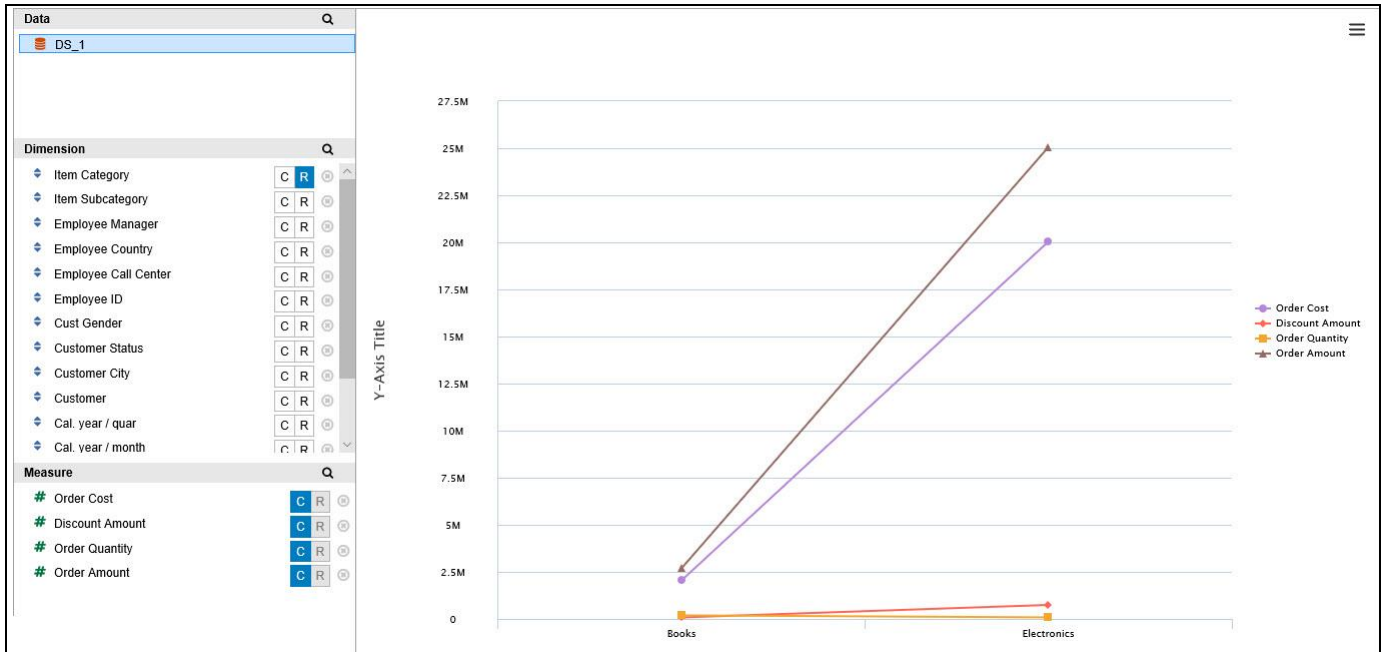


Figure 7.74: Filter Rules for OR Function

11. Now navigate to the category Data and to the subcategory Dimension Filter of the Additional Properties for the Data Utility component (see Figure 7.75).

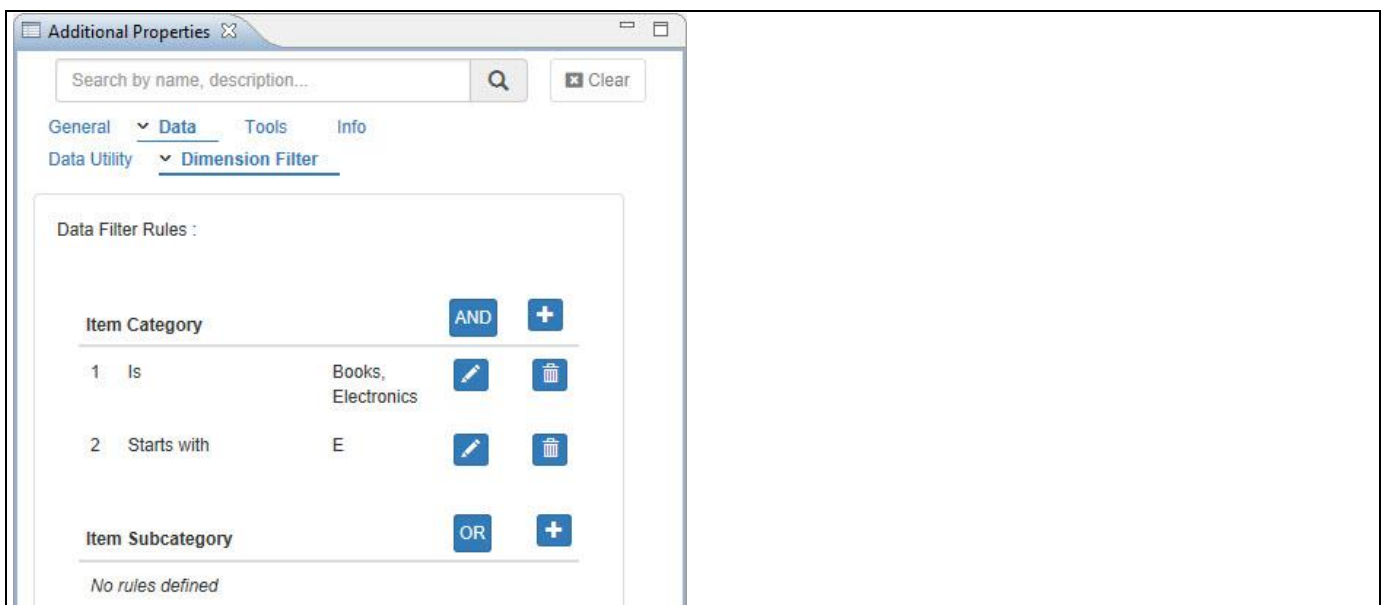


Figure 7.75: Category Data – Dimension Filter

12. Now click the “AND” button to apply the AND function to Rule 1 and Rule 2.
13. Based on the above configuration, you will be able to view the Line Chart applied with AND function which involves only the Dimension Electronics (see Figure 7.76).

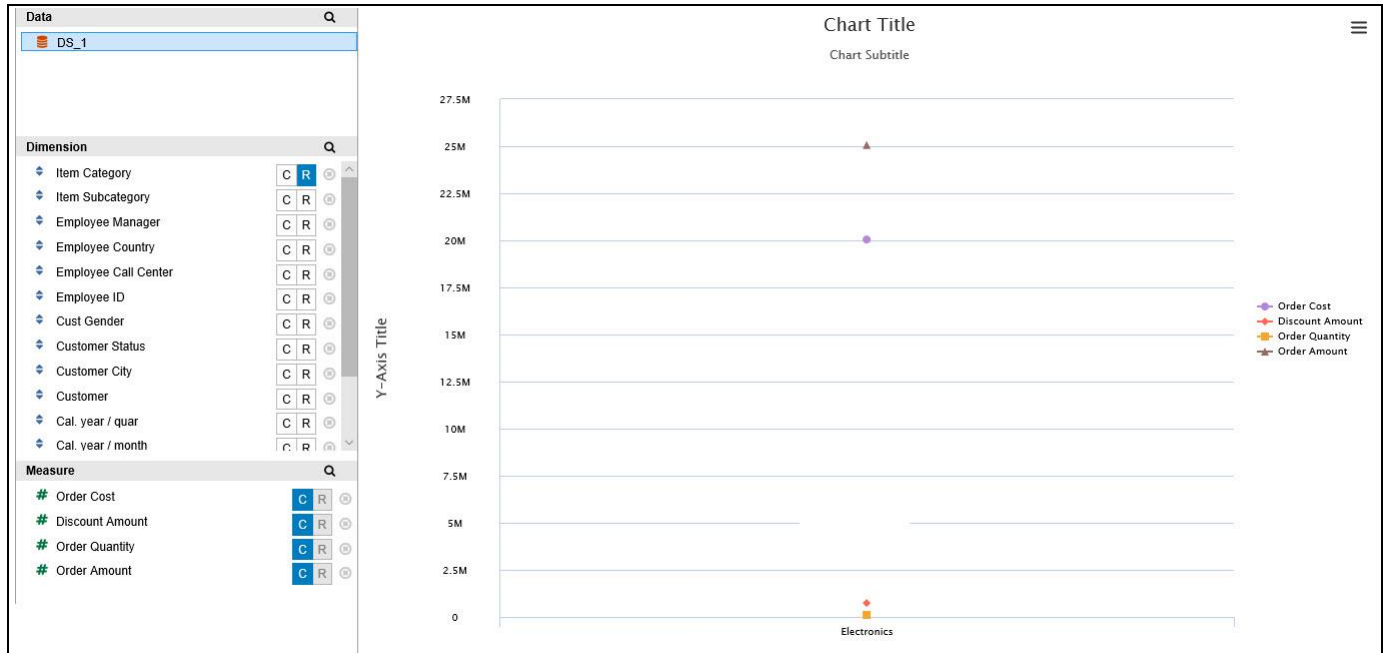


Figure 7.76: Filter Rules for AND Function

7.3.7 Additional Properties of the Data Utility Component

In section 4.5.6 we discussed the common set of Additional Properties for all charts. In this section we will outline the Additional Properties that are specific to the Data Utility Component.

7.3.7.1 Category General

Sub category	Area	Property	Description
Settings		Selected Component	This property allows you to select the assigned chart components.
		Component Mode	This property allows you to set the Component Mode for the Data Utility component. The options are Simple, Mobile and Mobile Advanced.
		Enable No UI mode	By activating this property, the configuration will not be allowed for the other three component modes.
		Left Pane Width	This property allows you to set the width of the left pane for the Simple and Mobile Advanced Component Modes. The value given here represents the percentage value.
		Target Datasource List	All the assigned Target Datasources will be displayed in this list and using this property, you can select the number of desired Target Datasources to get displayed in the run time.

Table 7.11: Category General

7.3.7.2 Category Data

Sub category	Area	Property	Description
Data Utility		Target Datasource	This property allows you to select the Target Datasource.
		Select Dimensions - Rows	This property allows you to assign the Dimension members to the Rows.
		Measures	This property allows you to assign the Measures.
Dimension Filter	Data Filter Rules - Dimensions	Dimension	This property shows the assigned Dimension.
		Rule Type	This property allows you to set the Rule Type options. The options are Contains, Does not contain, Starts with, Does not start with, Is and Is Not.
		Value	This property allows you to set the value for the Rule Type.
		OR	This property sets the OR function for the

Sub category	Area	Property	Description
			two Rules.
		AND	This property sets the AND function for the two Rules.

Table 7.12: Category Data

7.3.8 Scripting Functions for the Data Utility Component

In addition to the common scripting functions listed in section 4.6, the Data Utility component supports the following scripting functions.

Function / Method	Description
DSXGetBarDataCustomization()	This function allows you to retrieve the value for the Bar Data Customization.
DSXGetEnableNoUI	This function allows you to retrieve the component visibility.
DSXHideMeasure()	This function allows you to hide the Measure value.
DSXSetBarDataCustomization()	This function allows you to set the value for the Bar Data Customization.
DSXSetDataUtility()	This function allows you to set the Data Utility.
DSXSetDataUtilityByIndex()	This function allows you to set the Data Utility by Index.
DSXSetDimensionFilterRules()	This function allows you to set the Filter Rules for the Dimension.
DSXSetEnableNoUI()	This function allows you to set the component visibility.
DSXShowMeasure()	This function allows you to show the Measure value.

Table 7.13: Scripting Functions

7.4 Analytics

As part of the VBX Release 2.4, you are provided with the new Analytics Component which provides the complete user access information about the already created Dashboards using SAP Lumira application. It provides the details about the user access on the respective pages in the Dashboard. This is achieved through synchronization done between the external Analytics URL environment as well as the Additional Properties of this Analytics component.

7.4.1 How to configure a Analytics Component

In the following steps we will outline, how you can setup a new Analytics component as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer select the menu Application • New to create a new application.
2. Select the option SAPUI5m.
3. Enter a name for the new application.
4. Select the Blank template.
5. Click Create.
6. Navigate to the Outline.
7. For our example, create a Layout which has three tabs where each Tab have different Dashboards (see Figure 7.77).

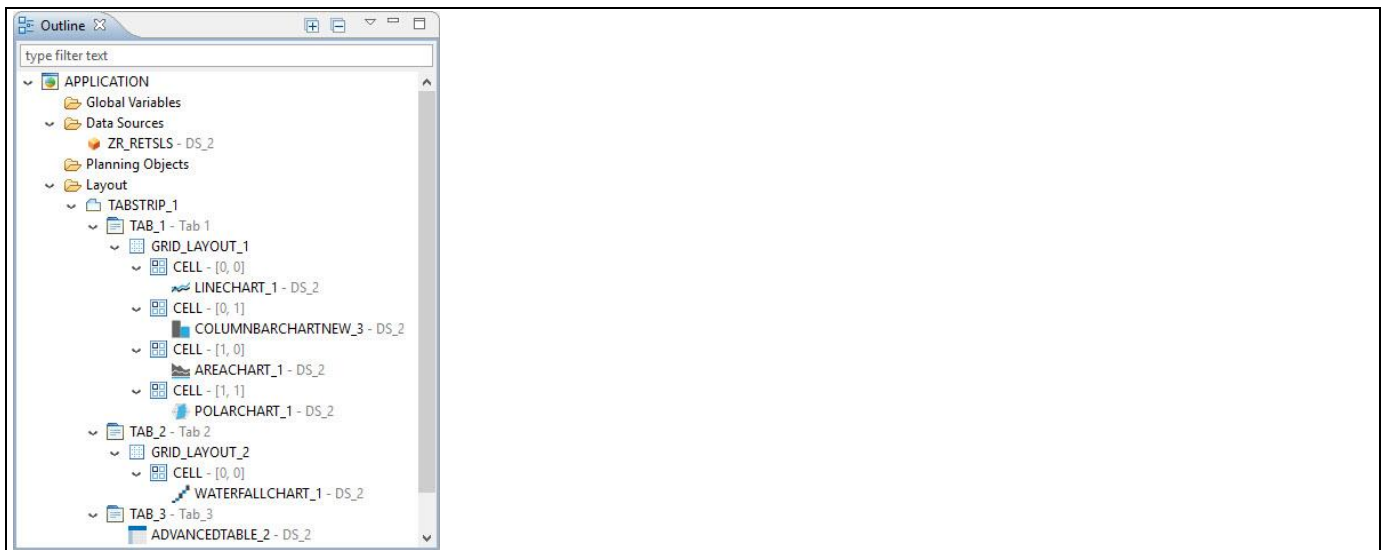


Figure 7.77: Layout

8. From the above Figure, you can observe that Tab 1 has Line Chart, Column Bar Chart, Area Chart and Polar Chart.
9. Tab 2 has Waterfall Chart.
10. Tab 3 has Advanced Table.
11. For our example, we will assume that our data source shows four measures – Order Quantity, Order Amount, Order Cost and Discount Amount, and one Dimension – Item Category.
12. All the components have been assigned with the Data Source as mentioned in the above step.
13. Now assign the Analytics component as the last part of the Layout unlike other Speciality Charts which is mandatory (see Figure 7.78).

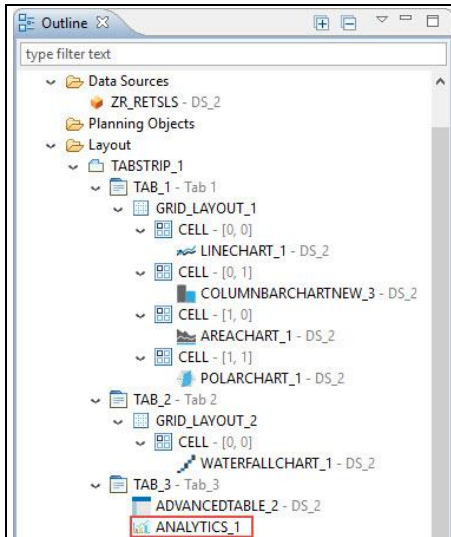


Figure 7.78: Layout with Analytics Component

14. Navigate to the category General and to the sub category General Settings.
15. In the area Server Configuration, enter the Analytics URL into the property Server URL (see Figure 7.79).

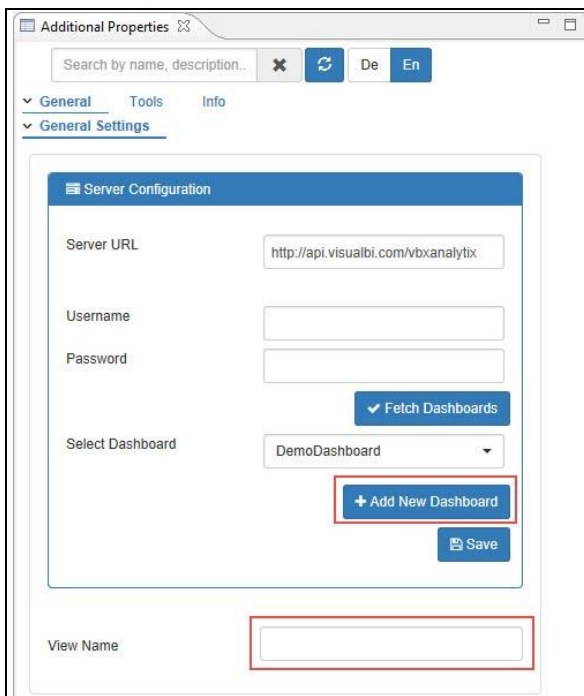


Figure 7.79: Category General

16. You can create a new Dashboard in the Additional Properties of the Analytics component using the property Add New Dashboard (see Figure 7.79).
17. You can fetch the already created Dashboards by entering the Username and Password.
18. You can set the View Name through the property View Name for the initial screen at run time which would get displayed in the Analytics URL. The other view names for the succeeding screens can be done through the script DSXSetViewName().
19. For our example, now navigate to the Standard Properties of the TABSTRIB (see Figure 7.80).

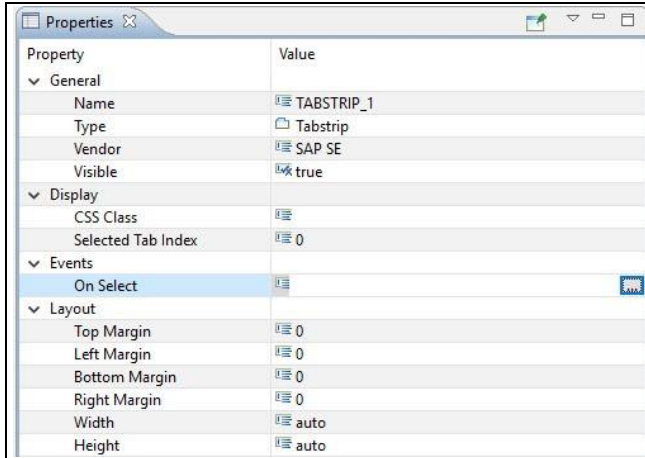


Figure 7.80: On Select Event for Tabstrip

20. In the Script Editor for Tab Strip, generate the script for the On Select Event as shown below:

```
var curTab=TABSTRIP_1.getSelectedTabIndex();

if (curTab == 0) {
    ANALYTICS_1.DSXSetViewName("Dashboard1");
} else {
    if (curTab == 1) {
        ANALYTICS_1.DSXSetViewName("Dashboard2");
    }
    else{
        ANALYTICS_1.DSXSetViewName("Dashboard3");
    }
}
```

21. For our example based on the above Script, the DemoDashboard will respond to the Set View Names Dashboard 1, Dashboard 2 and Dashboard 3 at the back end on each click for Tab 1, Tab 2 and Tab 3. By default it shows the First Tab (see Figure 7.81).

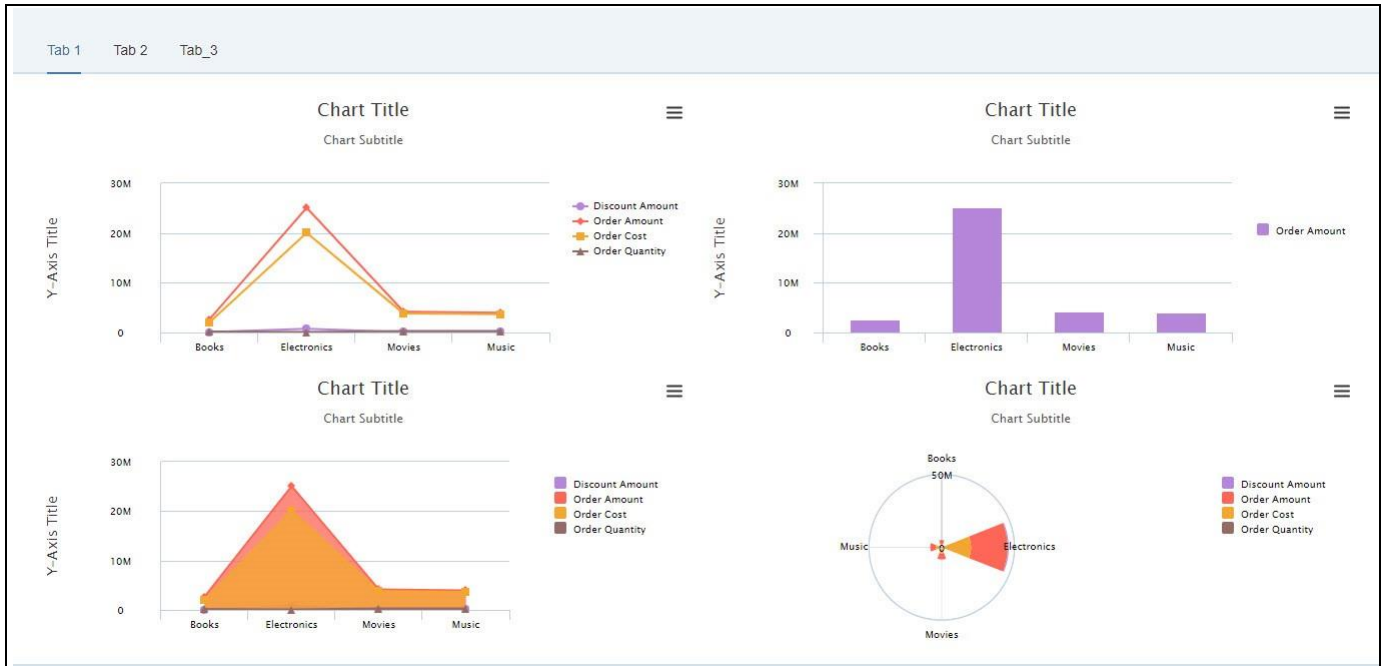


Figure 7.81: Tab 1 in Dashboard

22. The number of visits made to the View Names can be observed in the Analytics URL (see Figure 7.82). Here the details are synchronized between Additional Properties of the Analytics component and the Analytics URL.

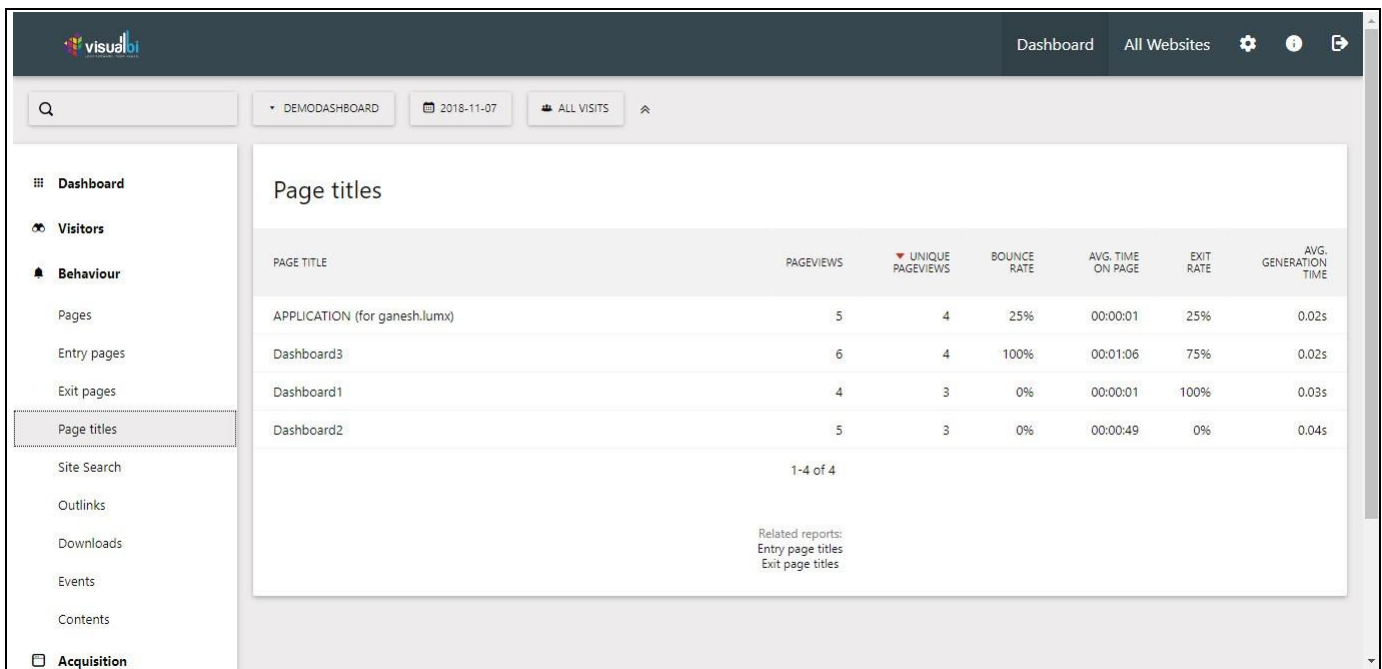


Figure 7.82: Demo Dashboard with View Names

7.4.2 Additional Properties of Analytics Component

In this section we will outline the Additional Properties that are specific to the Analytics Component.

7.4.2.1 Category General

Sub category	Area	Property	Description
General Settings	Server Configuration	Server URL	This property allows you to configure the external Analytics URL environment.
		User Name	Using this property, the user can provide the username for user authentication.
		Password	Using this property, the user can provide the password for user authentication.
		Select Dashboard	Using this property, the user can select the specific Dashboard which was created in the Analytics URL.
		View Name	This property allows you to set the View Name for the initial screen at run time which would get displayed in the Analytics URL.

Table 7.14: Category General

7.4.3 Scripting Functions for the Analytics Component

The Analytics component supports the following scripting functions.

Function / Method	Description
DSXSetViewName()	This function allows you to set the View Name for the Dashboard screens at run time which would get displayed in the Analytics URL.

Table 7.15: Scripting Functions

7.5 DataSource Config as a VBX Component

The user can use the DataSource Config as a separate VBX component to utilize the data from the custom data sources in run time.

7.5.1 How to use DataSource Config Component using Custom Data Source

In the following steps we will outline, how you can setup a DataSource Config using Custom Data Source as part of your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer select the menu Application • New to create a new application.
2. Select the option SAPUI5m.
3. Enter a name for the new application.
4. Select the Blank template.
5. Click Create.
6. Navigate to the Outline.
7. Create a Grid Layout with two rows and one column.
8. For our example, assign OData Source as a custom Data Source. Similarly you can use WSDL as a Custom Data Source.
9. Now add a Line Chart component from the VBX Charts to your SAP BusinessObjects Design Studio/SAP Lumira Designer project. Assign it to upper row of the Grid.
10. Now add a DataSource Config component from the VBX Speciality to your SAP BusinessObjects Design Studio/SAP Lumira Designer project. Assign it to the upper row of the Grid. Your Outline looks like as shown in Figure 7.83.

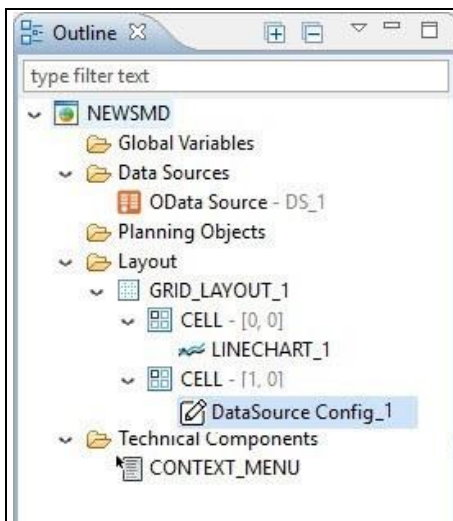


Figure 7.83: Layout

11. Navigate to the Additional Properties of the DataSource Config.
12. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
13. Now navigate to the category General and to the sub category Configuration in the Additional Properties of the DataSource Config (see Figure 7.84).

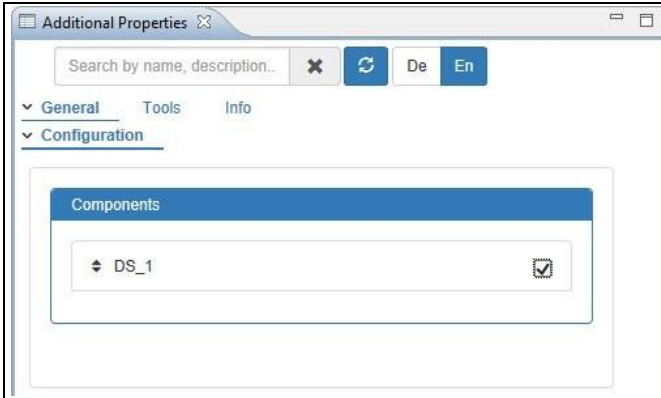


Figure 7.84: Category General

14. Enable the Data Source DS_1.
15. Now navigate to the category General and to the sub category General in the Additional Properties of the OData Source (see Figure 7.85).

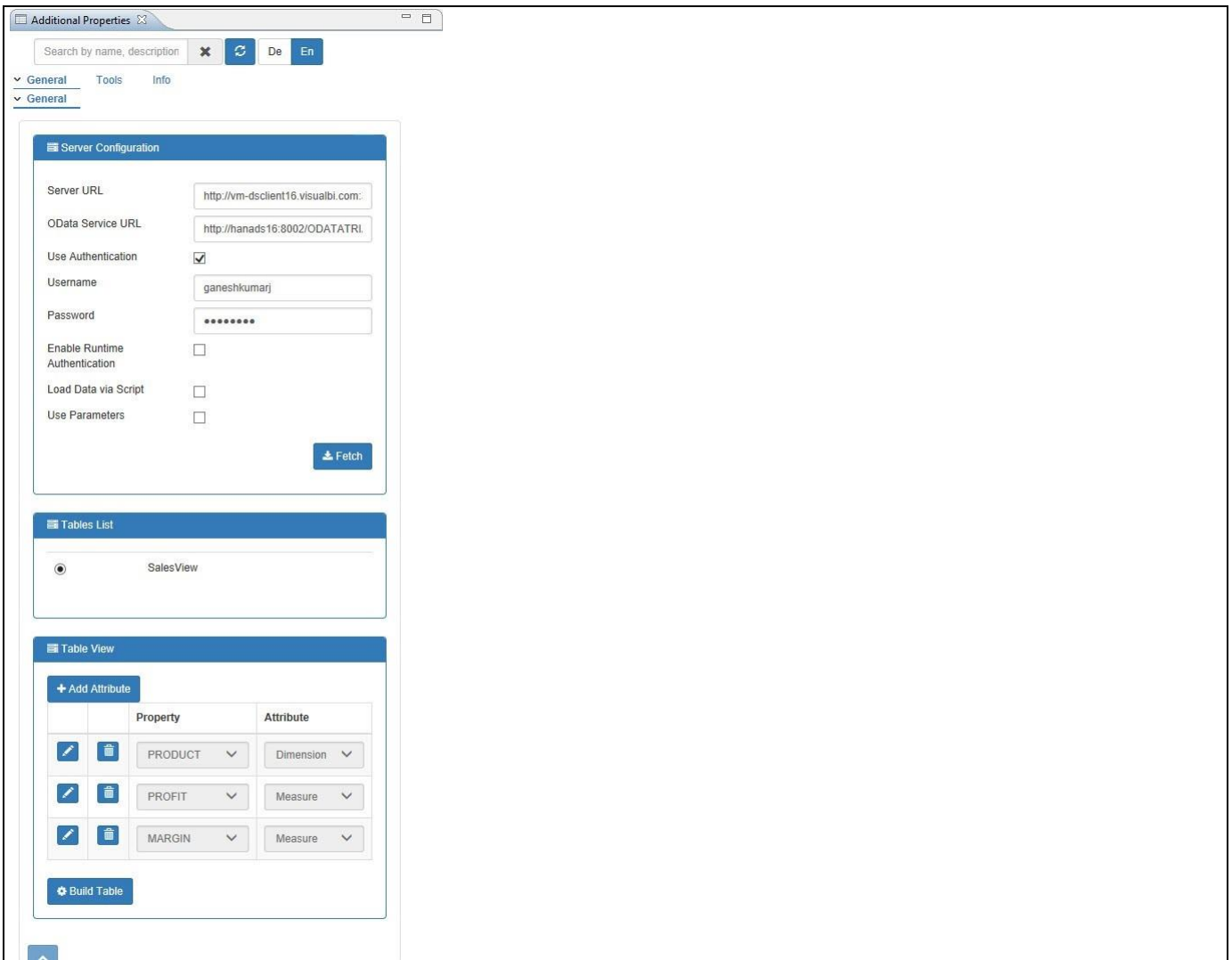


Figure 7.85: Category General

16. For our example, set the values for all the properties in the Areas - Server Configuration, Table List and Table View as shown in Figure 7.85.

17. Based on the above configuration you will be able to view the Line Chart with the Additional Properties settings for the OData Source in Run time (see Figure 7.86).

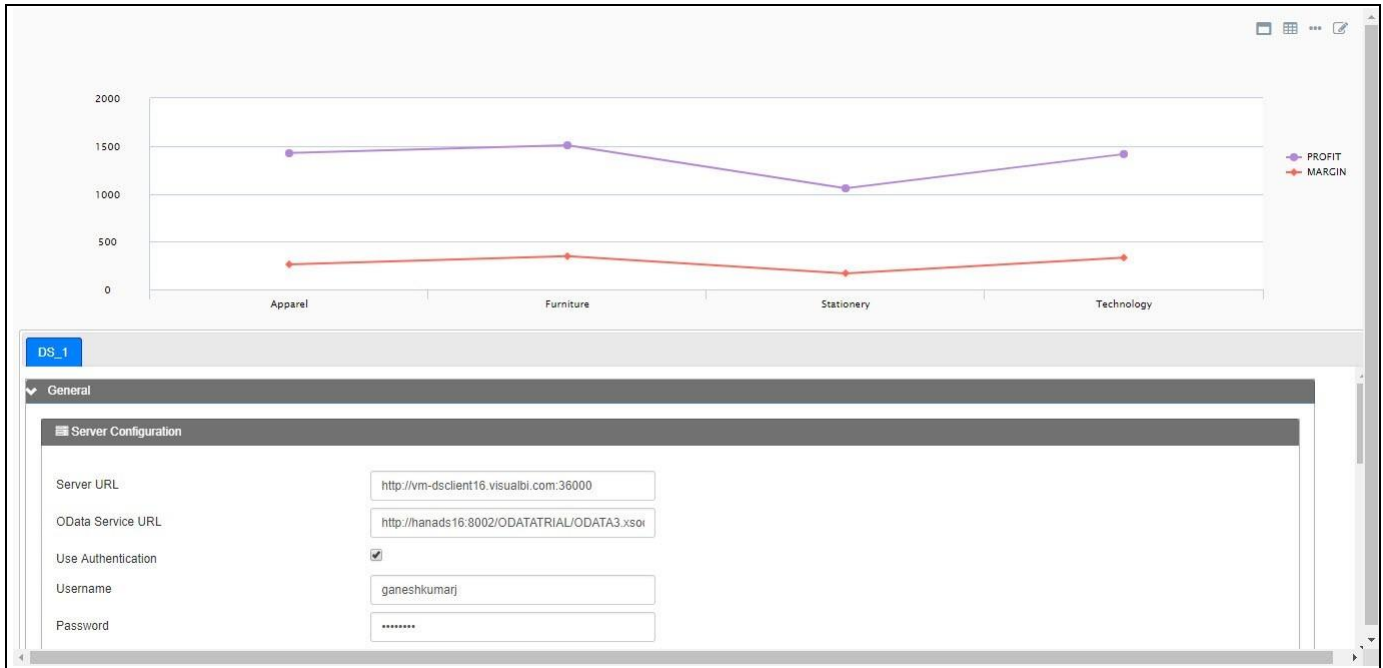


Figure 7.86: Line Chart and Additional Properties Sheet for OData Source in Run time

18. For our example, an additional attribute “BUDGET” has been added and the Line Chart is generated based on the settings (see Figure 7.87).

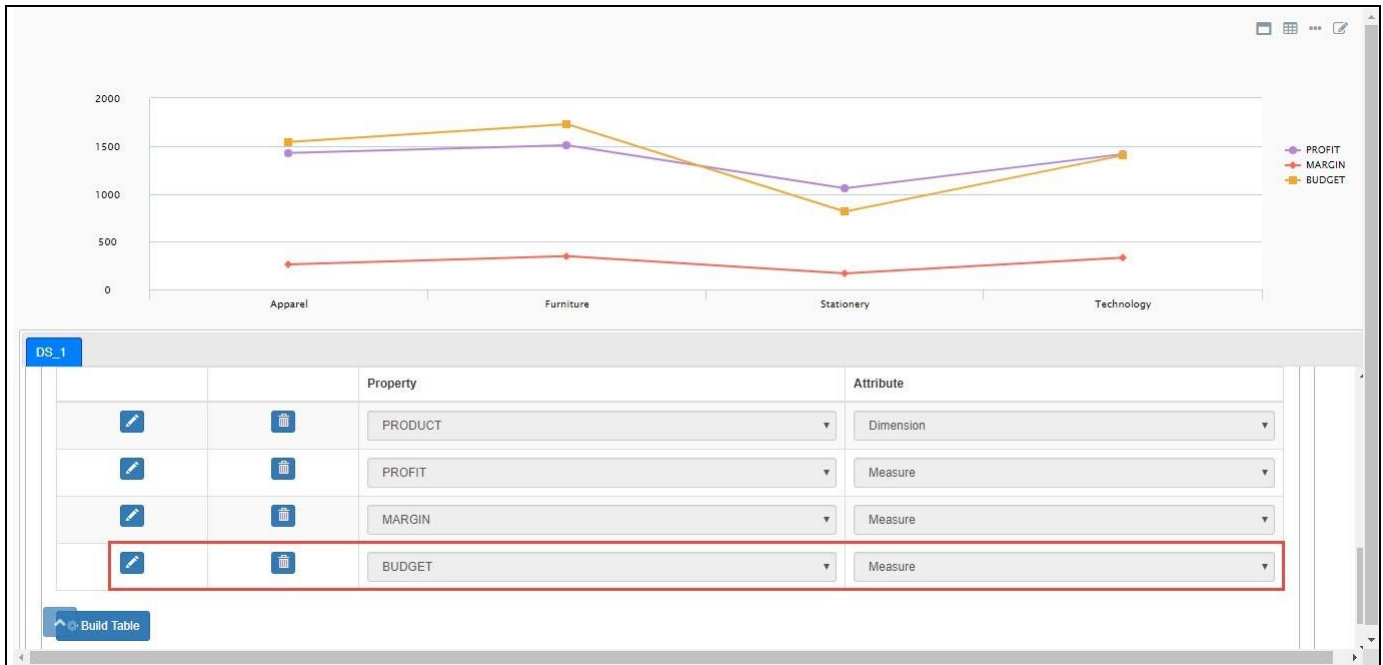


Figure 7.87: Line Chart with Attribute added from OData Source in Run time

7.5.2 Additional Properties of the DataSource Config

In the following section we will outline the Additional Properties of the DataSource Config component.

7.5.2.1 Category General

Sub category	Area	Property	Description
Configuration	Components	Custom Data Source Selection	This property allows you to select the custom data sources.

8 Visual BI Extensions for SAP BusinessObjects Design Studio/SAP Lumira Designer (VBX) – Maps

8.1 Maps Overview

As a part of the overall Visual BI Extensions (VBX) suite, you also receive a set of mapping components (see Figure 8.1).



Figure 8.1: VBX Maps

The Maps components of the Visual BI Extensions (VBX) include:

- **Bubble / Heat GeoMap**
This component allows you to represent measure values in form of choropleth maps and in form of bubble maps. In addition, the component comes with a large set of predefined maps and the ability to create custom maps based on GeoJSON definitions.
- **Location Analyzer**
This component allows you to leverage longitude and latitude based maps and visualize the information in different forms of map layers, such as Marker Layer, Heat Layer, Cluster Layer, Choropleth Layer, and Bubble Layer. In addition, you also have the ability to define custom map layer using a GeoJSON definition.
- **Indoor Analyzer**
This component provides an option to leverage an existing base map image and create areas on this image in the form of shapes that can be data bound. It also leverages the image such that it will be able to plot "data" on top by either using longitude / latitude values or X / Y coordinates.
- **ESRI Map**
ESRI Map is a mapping component that allows geographic analysis based on Latitude and Longitude information. The ESRI Map component allows you to configure a Base Map Layer and to setup a Marker Layer, Feature Layer and Choropleth Layer.

- Google Map

Google Map is a mapping component that allows geographic analysis based on Longitude and Latitude information or based on a complete address location or a GeoJSON definition. The Google Map component allows you to configure a Base Map Layer and to setup a Marker Layer, Heat Layer, Choropleth Layer, Bubble Layer and GeoJSON Layer.

Drill Down Capabilities

Please note, that the Bubble Map visualization of the Bubble / Heat GeoMap component does not provide drill down capabilities.

8.2 Bubble / Heat GeoMap

The Bubble / Heat GeoMap component allows you to visualize measure values in form of a choropleth map or a bubble map. In addition the component provides a large set of standard maps out of the box.

8.2.1 Data Visualization for Heat Maps

As part of the VBX Release 2.3, you have the ability to visualize the Heat Map using the property Enable Pie Map in the Additional Properties where the measures will be represented in the form of Pie Charts for the Dimensions selected in the Map.

For our example, you can follow the steps below to configure the property Enable Map Pie for data visualization in the Heat Map component:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source has a dimension State and three measures – Licenced Beds, Operating Beds and Revenue.
3. Add a Bubble/Heat GeoMap from the VBX Maps to your SAP BusinessObjects Design Studio / SAP Lumira Designer project.
4. Assign the data source to the Bubble/Heat GeoMap.
5. Navigate to the Additional Properties of the Bubble/Heat GeoMap.
6. In the Additional Properties of the Bubble/Heat GeoMap component in the Category General you can navigate to the subcategory General Settings (see Figure 8.2).

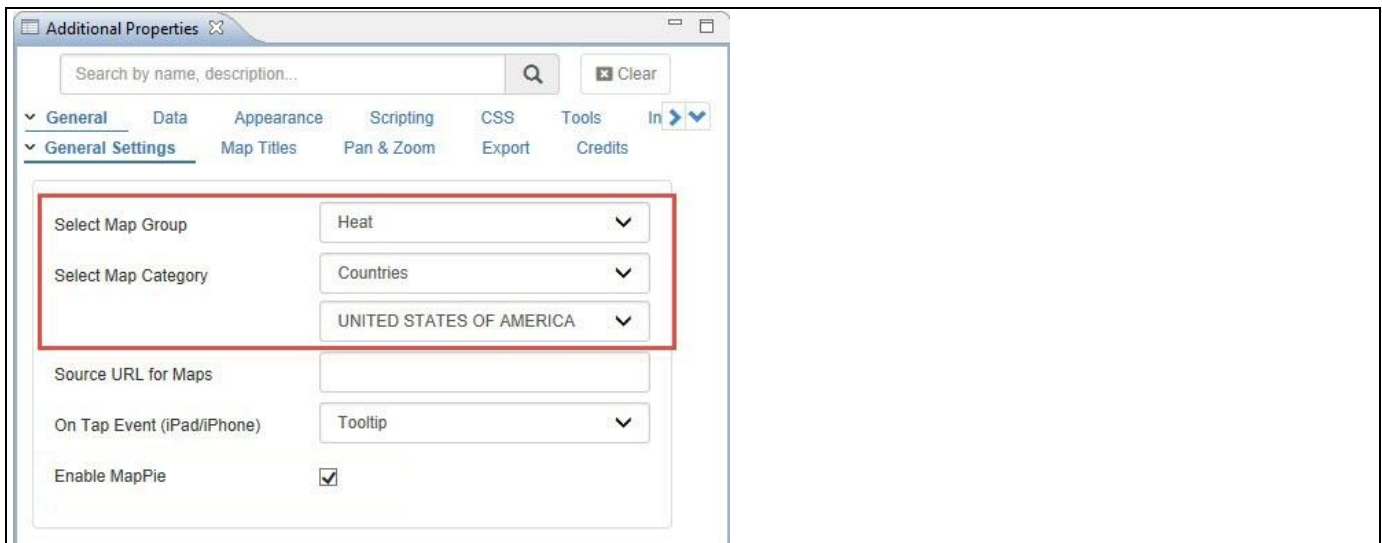


Figure 8.2: Category General

7. For our example, set the property Select Map Group to the option Heat.
8. Set the property Select Map Category to the option Countries.
9. Set the country as “UNITED STATES OF AMERICA”.
10. Navigate to the category Data and to the sub category Map Definition (see Figure 8.3).

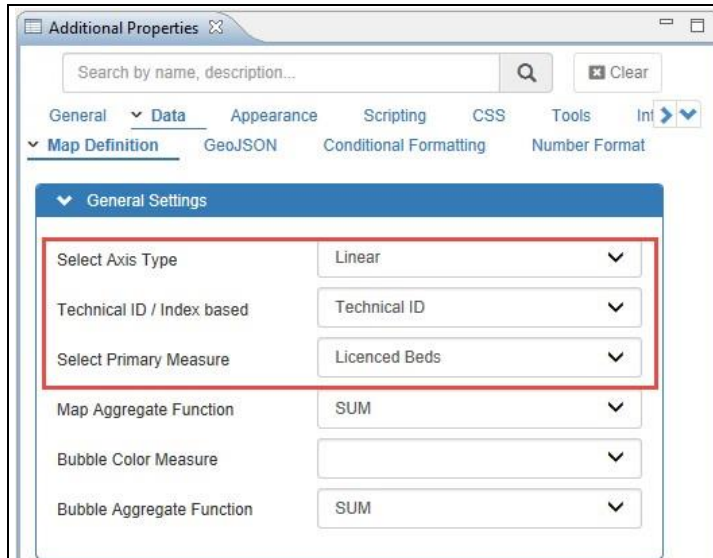


Figure 8.3: Category Data

11. For our example, set the property Select Axis Type to the option Linear.
12. Set the property Technical ID/Index Based to the option Technical ID.
13. Set the property Select Primary Measure to the option Licenced Beds.
14. Now navigate to the category General and to the sub category General Settings.
15. Activate the property Enable Map Pie (see Figure 8.4).

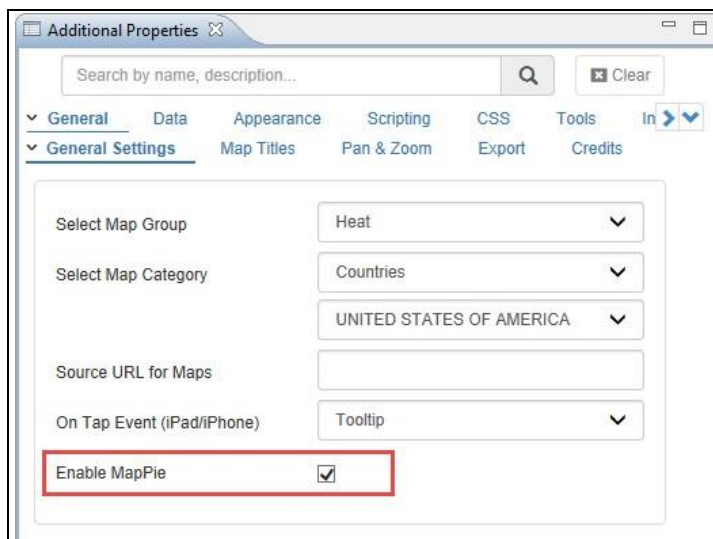


Figure 8.4: Category General

16. Based on the above configuration you will be able to view the Data Visualization for the Heat Map being displayed where the measure Licenced Beds shows more intensity in the maps (shown in purple color). You also can view that for each State being assigned as Dimension, there will be a Pie Chart generated for each State representing the distribution of measures (see Figure 8.5).

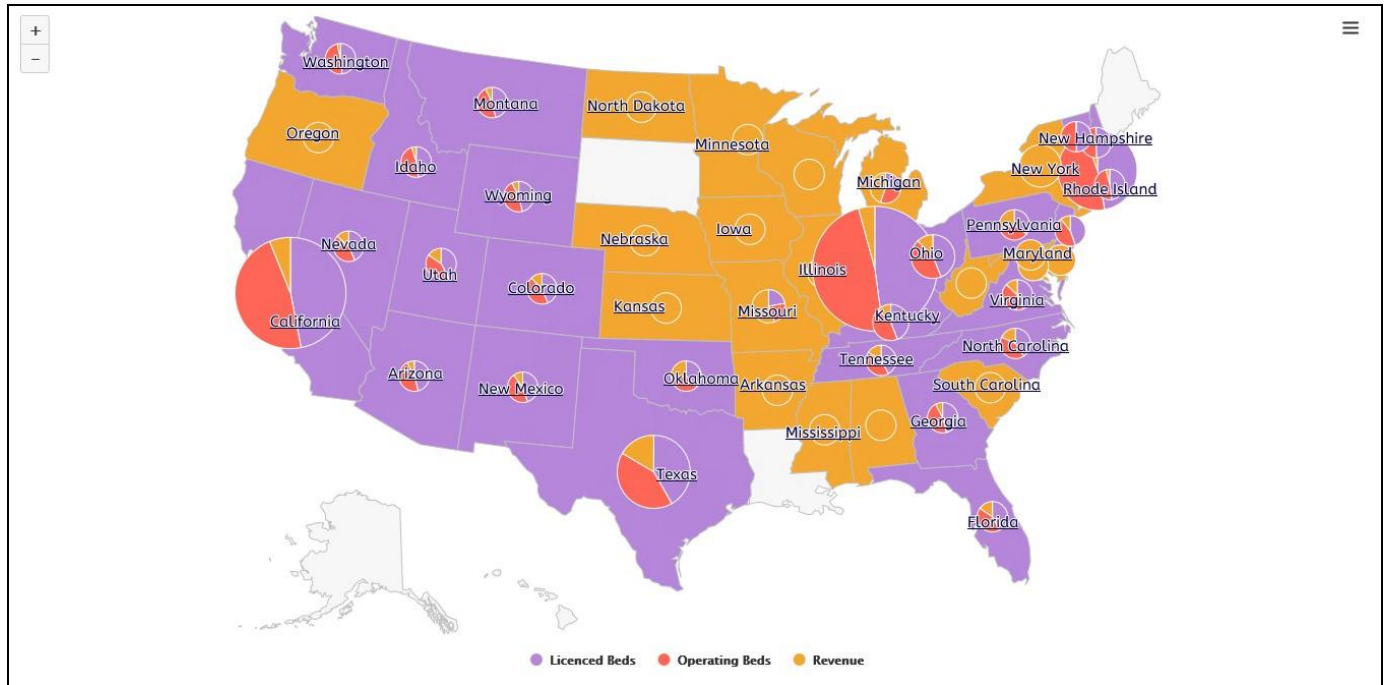
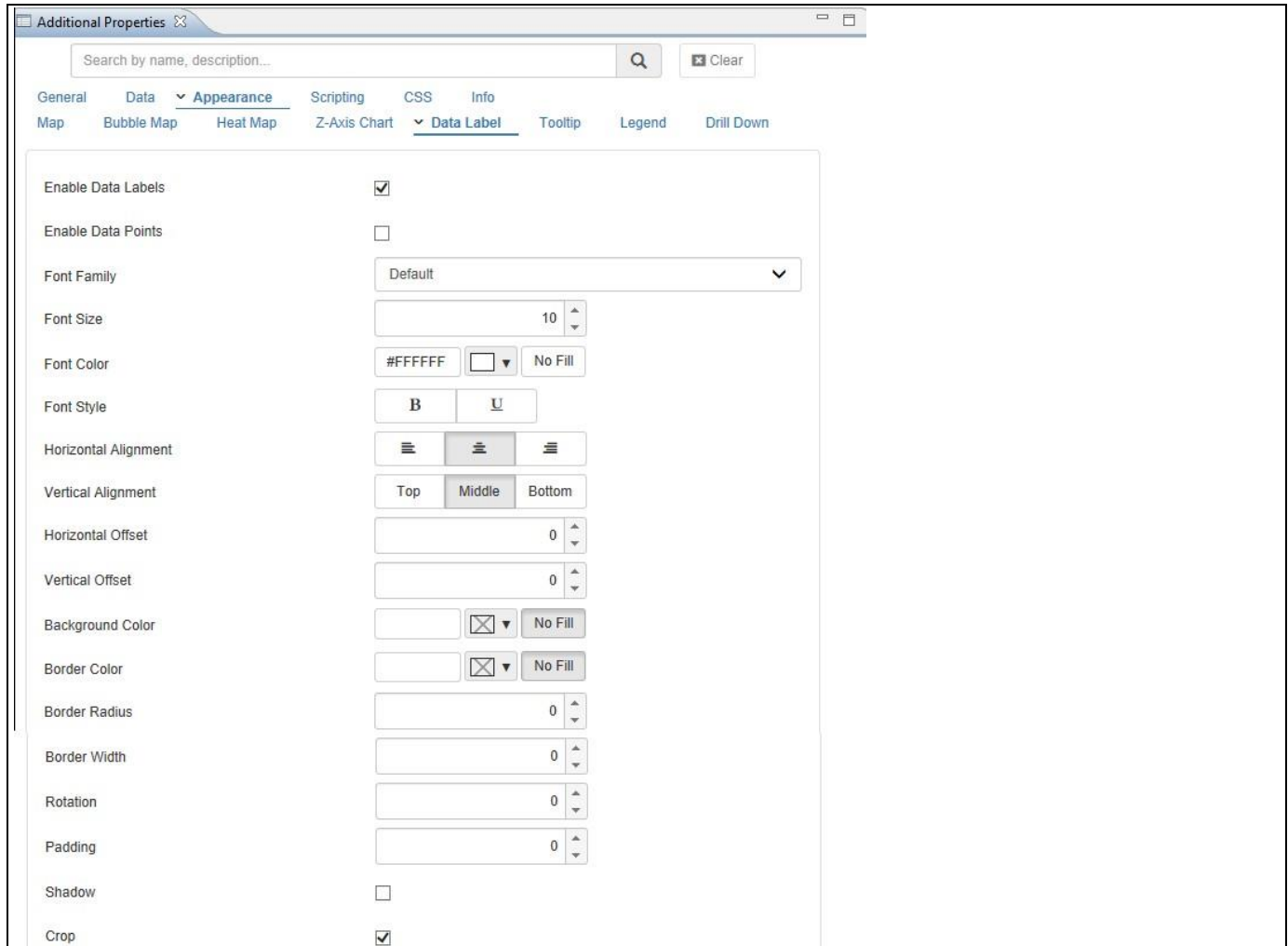


Figure 8.5: Data Visualization for Heat Map

8.2.2 Custom Data Label and Custom Tooltip Configurations

For Bubble/Heat GeoMap component, you also have the ability to create a customized Data Label and Tooltip using a small text editor as part of the Additional Properties.

In the Additional Properties of the Bubble/Heat GeoMap component in the Category Appearance you can navigate to the subcategory Data Label, which provides access to all the settings related to the Data Labels for the Bubble/Heat GeoMap (see Figure 8.6).



Additional Properties

Search by name, description...

General Data **Appearance** Scripting CSS Info

Map Bubble Map Heat Map Z-Axis Chart **Data Label** Tooltip Legend Drill Down

Enable Data Labels ☒

Enable Data Points ☐

Font Family Default

Font Size 10

Font Color #FFFFFF

Font Style B U

Horizontal Alignment Left Center Right

Vertical Alignment Top Middle Bottom

Horizontal Offset 0

Vertical Offset 0

Background Color No Fill

Border Color No Fill

Border Radius 0

Border Width 0

Rotation 0

Padding 0

Shadow ☐

Crop ☒

Figure 8.6: Data Label Properties

Part of the Data Label properties is also a small editor, which allows you to create a customized data label (see Figure 8.7).

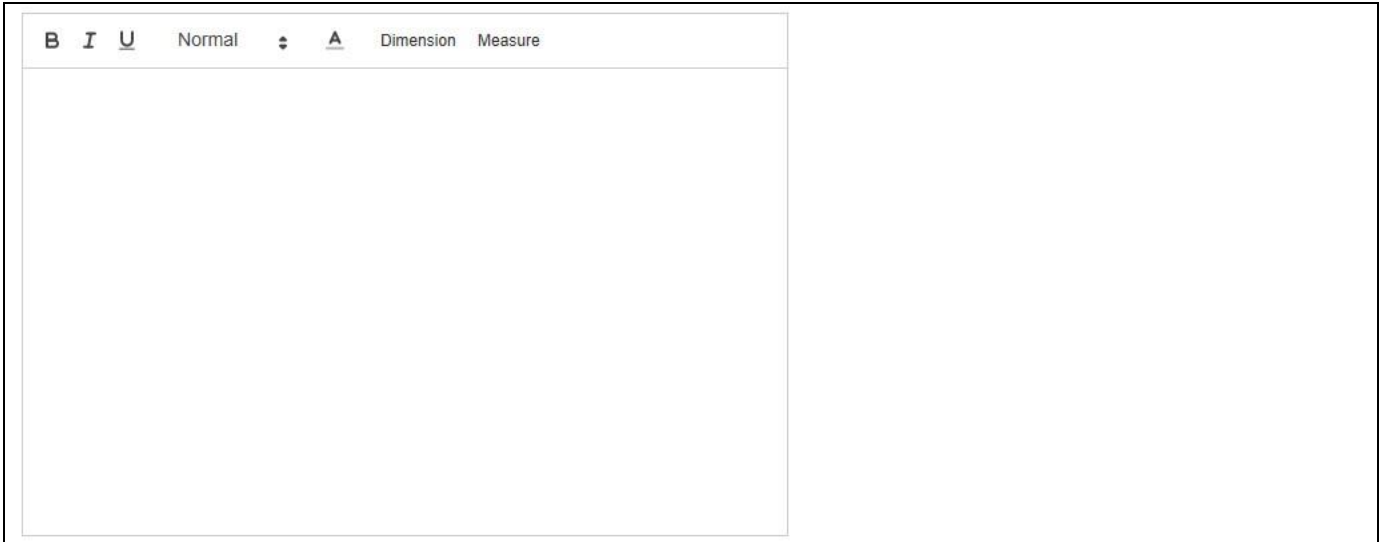


Figure 8.7: Custom Data Label

Using this small editor you have the ability to simply type and format text, as well as integrate data and meta-data from the assigned data source. Using the menu items Dimension and Measure, you can integrate the information from the assigned Dimension and Measure(s) into the Data Label.

When clicking on Dimension, you will have the option to select the dimension as part of the property Name. By using the option Metadata, you can include the name of the dimension into the data label and by using the option Member the dimension member that is shown in the Bubble/Heat GeoMap will then be mentioned in the data label.

In addition you can configure the property Display Type to either show the Key or the Text for the dimension member (see Figure 8.8).

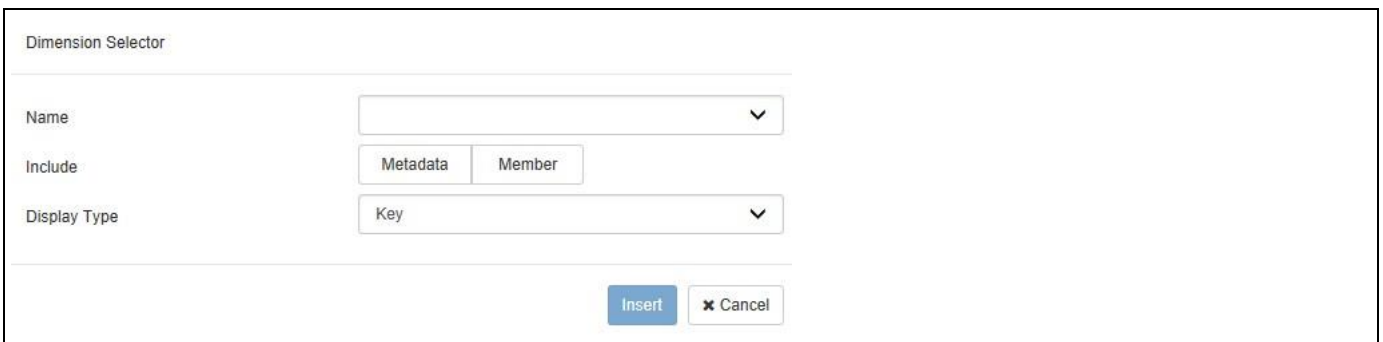
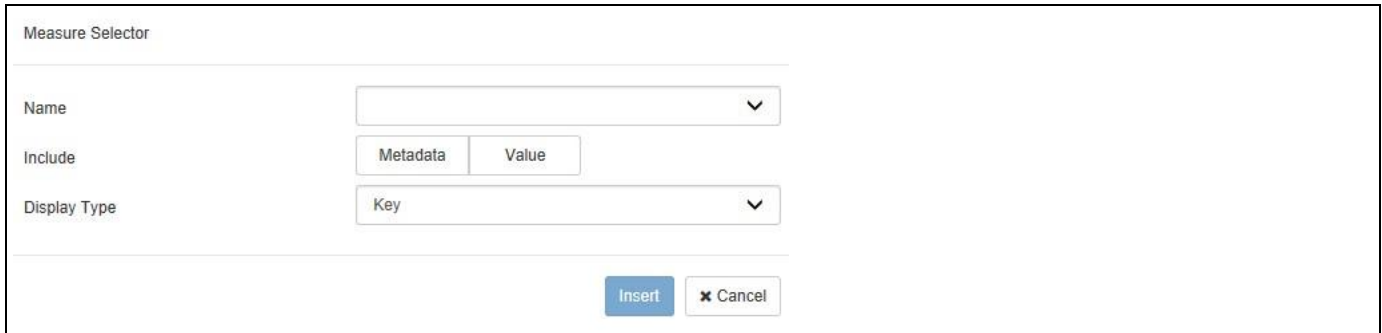


Figure 8.8: Dimension Selector

When clicking on Measure, you will receive a very similar list of options for the measures in the Bubble/Heat GeoMap (see Figure 8.9).



The Measure Selector dialog box contains the following fields:

- Name:** A dropdown menu.
- Include:** Two buttons labeled "Metadata" and "Value".
- Display Type:** A dropdown menu with "Key" selected.
- Buttons:** "Insert" and "Cancel" buttons at the bottom right.

Figure 8.9: Measure Selector

Here you also have the ability to first select the Measure and then choose between the Metadata and the Value of the Measure. In case you choose the Metadata option, you can then also choose between the Key and Text for the Display Type. After inserting the text and the selected elements from the dimension and measures, the text editor is showing the elements of the data labels (see Figure 8.10).



The Custom Data Label text editor shows the following content:

Product Group Member **Text** : Current Measure Value

The text "Product Group Member" is highlighted in blue, "Text" is in a black box, and "Current Measure Value" is highlighted in yellow. The editor includes a toolbar with "B", "I", "U", "Normal", "A", "Dimension", and "Measure" options. A "Save" button is located at the bottom left.

Figure 8.10: Custom Data Label

In the given example we selected the Text from the Member from dimension Product Group and the measure value from the measure displayed in the Bubble/Heat GeoMap. You also have this option available for the Tooltip as part of the Additional Properties in the category Appearance > Tooltip.

Number Format for Data Label and Tooltip

Any configurations as part of the Number Format settings in the Additional Properties will automatically be used by the Data Label and Tooltip display – including any custom Data Label and Tooltip.

8.2.3 Data Source Requirements for the Bubble / Heat Geo Map

The Bubble/ Heat Geo Map is able to use dimension values – such as Regions or Countries – to identify the geographical area as well as longitude and latitude values. In addition the component is able to provide drill down capabilities, for example drilling from a Country map to a Region map.

The exact data source requirement depends on the type of navigation you would like to provide to the user, for example a map that should show Country and Region information would require a data source with two dimensions and one measure.

8.2.4 How to use the Bubble / Heat Geo Map Component for a Heat Map

In the following steps we will outline how you can use the Bubble / Heat Geo Map component and visualize the information. For our example we will assume that our data source contains the following elements:

- Dimension Country in the Rows.
- Dimension Region in the Rows.
- Dimension Product in the Rows.
- Measure Revenue in the Columns.

You can follow the steps below to setup a new Bubble / Heat Geo Map Component:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the Bubble / Heat Geo Map component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the Additional Properties of the map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category General and the subcategory General Settings (see Figure 8.11).

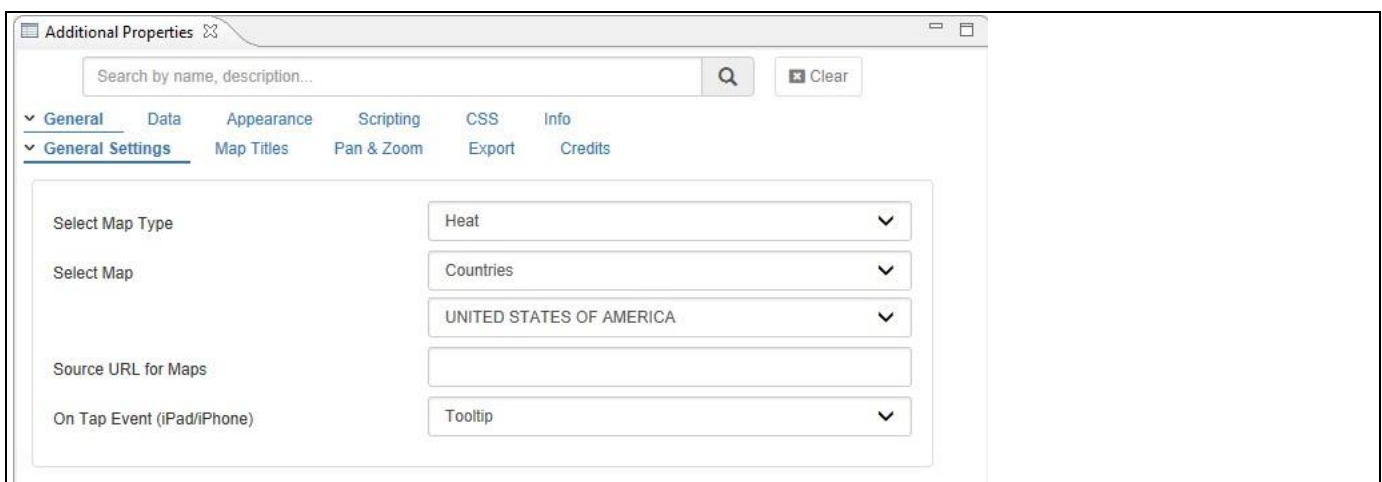


Figure 8.11: Category General

7. In the subcategory General Settings you can configure the following properties:

Property	Description
Select Map Type	Here you can choose between a Heat Map and a Bubble Map.
Select Map	Here you can choose which map will be your starting map. The list of maps is broken into several groups, such as Countries.
Source URL for Maps	Here you can enter the URL to the Map files, in case you are deploying the Map files in your own network.
On Tap Event (iPad / iPhone)	Here you can configure which type of navigation will be enabled for the Tap gesture for a mobile device.

Table 8.1: Category General

8. For our example, we are configuring the following values:

- Map Type Heat
- Select Map World
- Select Map WORLD MAP

9. For the other values we will use the default values.

10. Navigate to the category Data and the subcategory Map Definition (see Figure 8.12).

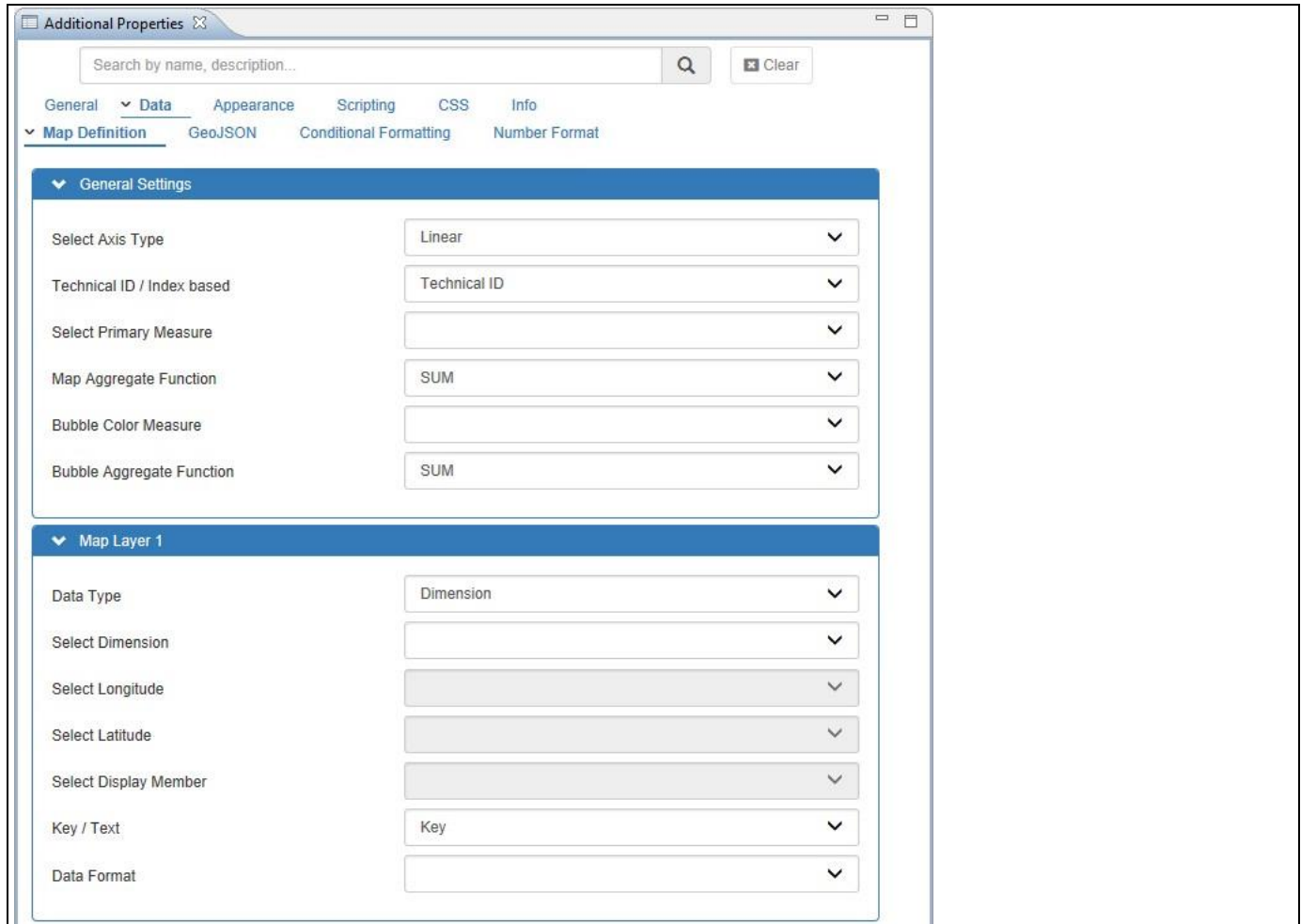


Figure 8.12: Category Data

11. In this category, you have the option to select the property “Technical ID / Index Based” that has two different types as listed below:

- Technical ID
- Index Based

The option Technical ID allows you to specify the dimensions and measures based on their technical names / technical IDs.

The option Index Based allows you to specify an index value (zero based index), and the index will specify the position of the dimension or measure in the assigned data source. For example a index of 2 for the measure will then use the third measure (0, 1, 2) of the assigned data source.

12. For our example we will select the option “Technical ID” and map the items in the following steps.

13. Set the Primary Measure to the measure from the data source – in our example Net Value.

14. Set the Data Type for the Map Level 1 area to the option Dimension.

15. Select the Country dimension for the Map Level 1.

16. For the Key / Text option for the Map Level 1 option, select the option Key.

17. Set the Address Type for the Map Level 2 area to the option Dimension.
18. Select the Region dimension for the Map Level 2.
19. For the Key / Text option for the Map Level 2 option, select the option Key.
20. Scroll Down to the area Z-Axis chart in the subcategory Map Definition (see Figure 8.13).

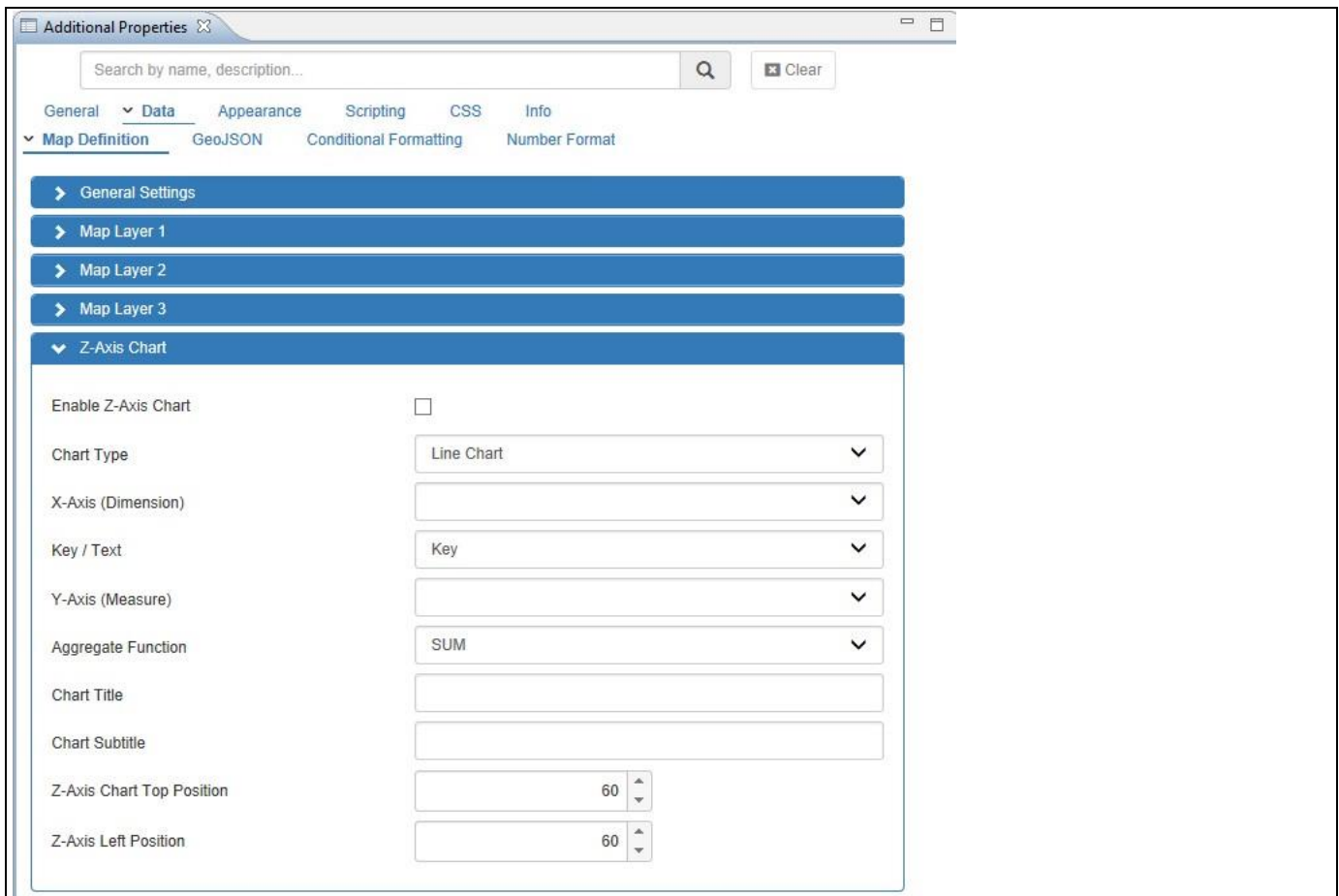


Figure 8.13: Category Data

21. The Z-Axis Chart option allows you to visualize non-geographic information in form of a chart that will be displayed on top of the map.
22. Activate the option Enable Z-Axis Chart.
23. Set the Chart Type to the option Column Chart.
24. Set the property X-Axis (Dimension) to dimension Product.
25. Set the property Y-Axis (Measure) to measure Net Value.
26. For the other values we will use the default values.
27. Now use the menu Application • Execute Locally.
28. The initial view of the map should show a World Map with the measure displayed for each Country (see Figure 8.14).

29. You can then use a double-click and drill down from a Country to the map showing the Regions (see Figure 8.15).

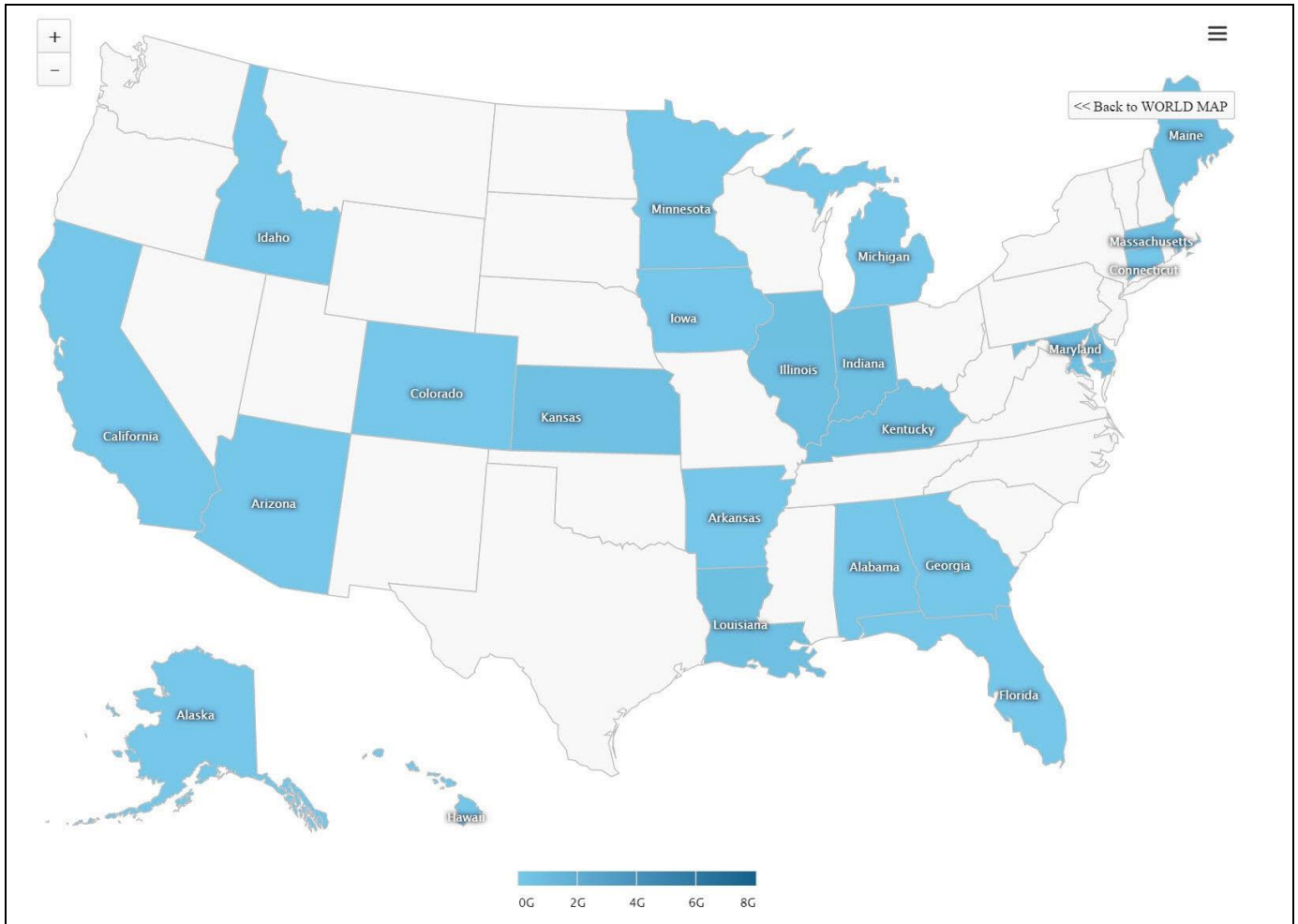


Figure 8.15: Country Map

30. You can use the Back button (top right corner) to navigate back to the World Map.
31. Using a single-click you can activate the display of the configured Z-Axis chart (see Figure 8.16). You can select multiple countries using the CTRL button together with a mouse click, so that you can compare several values.

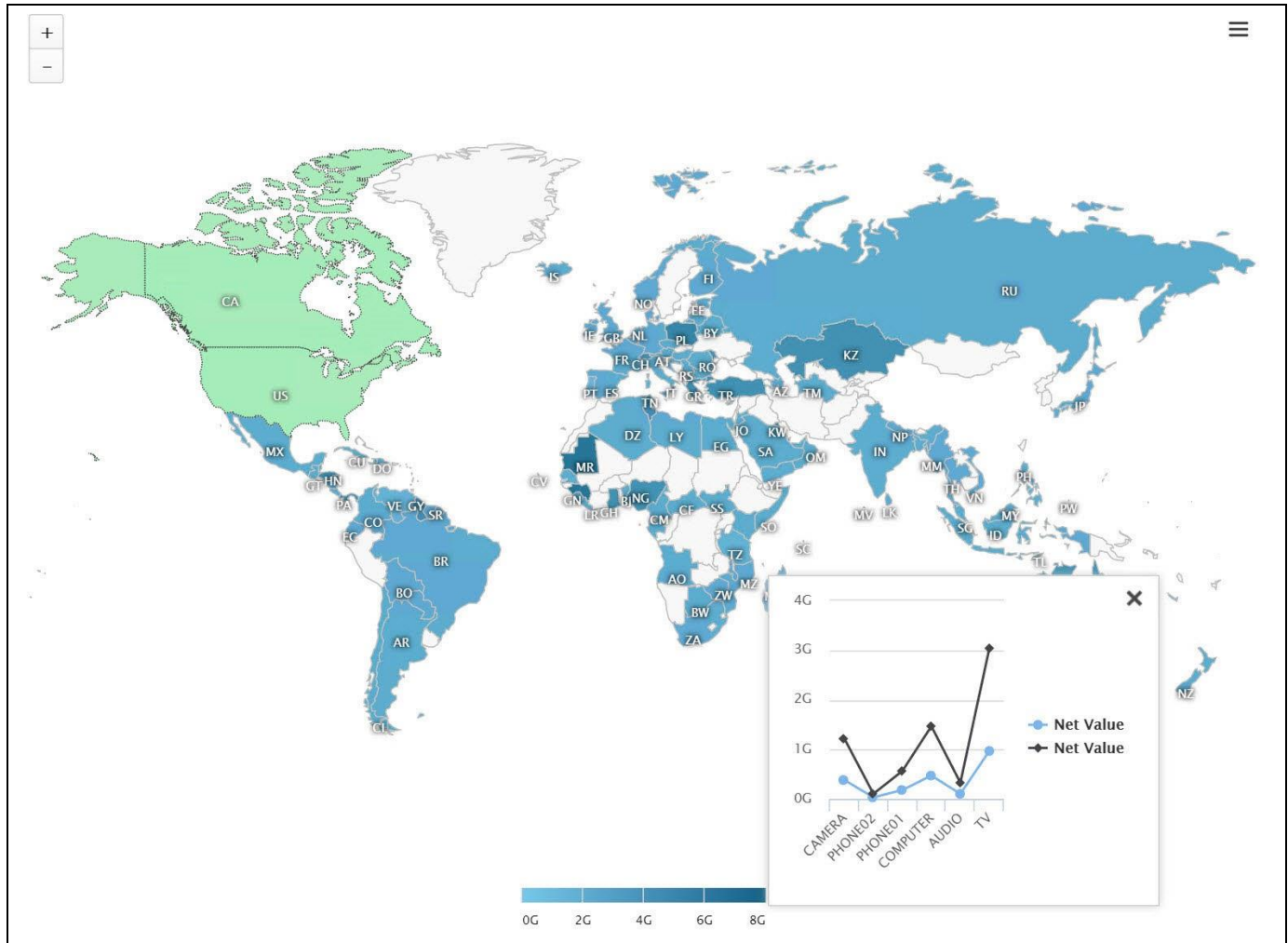


Figure 8.16: Z-Axis Chart

In the last set of steps we used a standard data set and visualized the information in form of a Heat Map. The process of setting up a Bubble map is very similar, but allows to use up to two measures.

8.2.5 How to use the Bubble / Heat Geo Map Component for a Bubble Map using Technical ID option

In the following steps we will outline how you can use the Bubble / Heat Geo Map component and visualize the information. For our example we will assume that our data source contains the following elements:

- Dimension Country in the Rows.
- Measure Cost in the Columns.
- Measure Net Value in the Columns.

In the following steps we will outline how you can setup a Bubble Map with two measures:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the Bubble / Heat Geo Map component from the VBX Maps to your project.
4. Assign the data source to the map component.

5. Navigate to the Additional Properties of the map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category General and the subcategory General Settings.
7. For our example we are configuring the following values:
 - Map Type Bubble
 - Select Map World
 - Select Map WORLD MAP
8. For the other values we will use the default values.
9. Navigate to the category Data and the subcategory Map Definition (see Figure 8.17).
10. Follow the similar steps as executed for the configuration of Bubble / Heat Geo Map Component for a Heat Map using the Dimension Selection options.

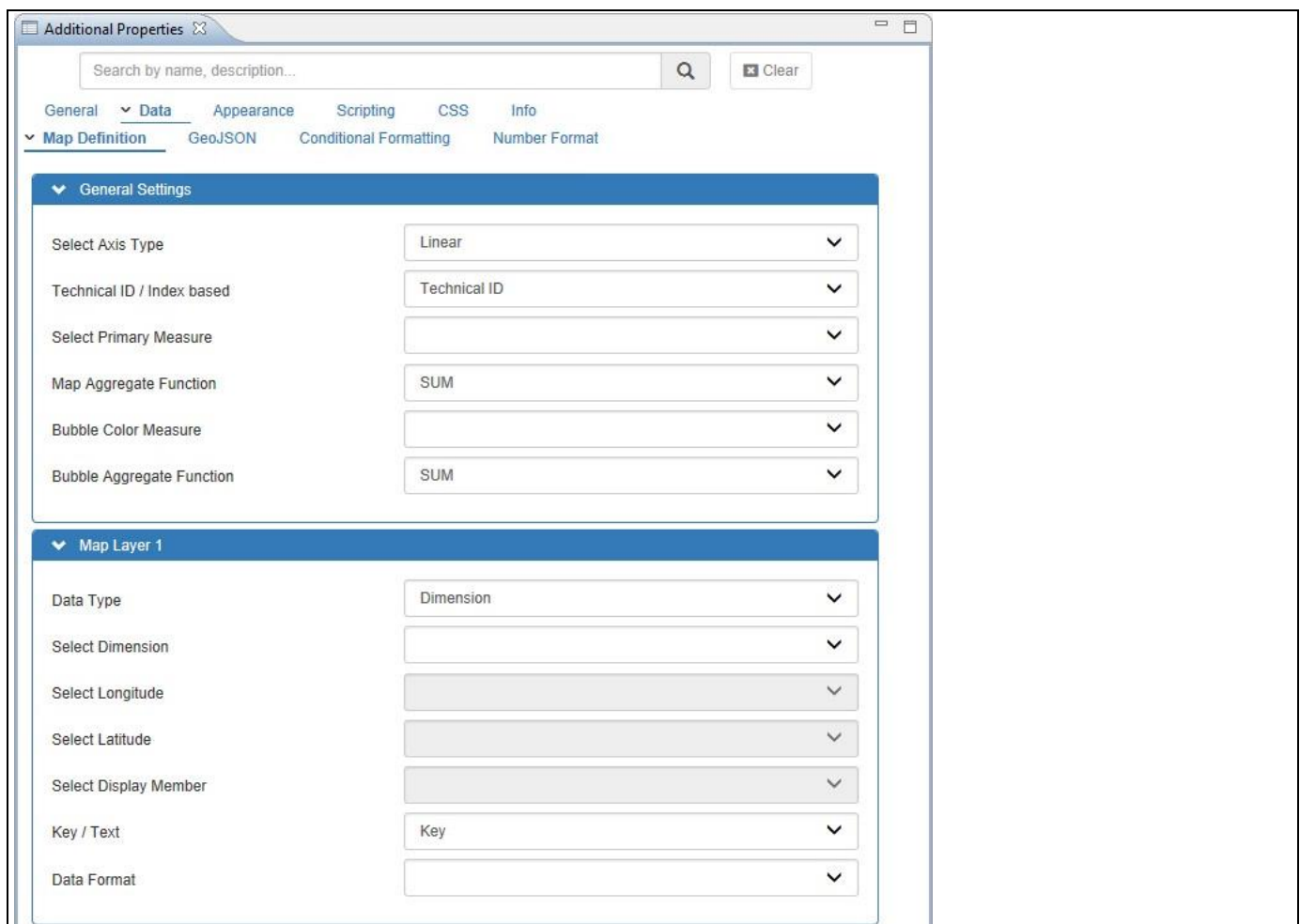


Figure 8.17: Additional Properties

11. For our example, we will select the option “Technical ID” and set the Primary Measure to the measure Net Value.
12. Set the Bubble Color Measure to the measure Cost.
13. Set the Address Type for the Map Level 1 area to the option Dimension.
14. Select the Country dimension for the Map Level 1.

15. For the Key / Text option for the Map Level 1 option, select the option Key.
16. Navigate to the category Appearance and the subcategory Bubble Map (see Figure 8.18).

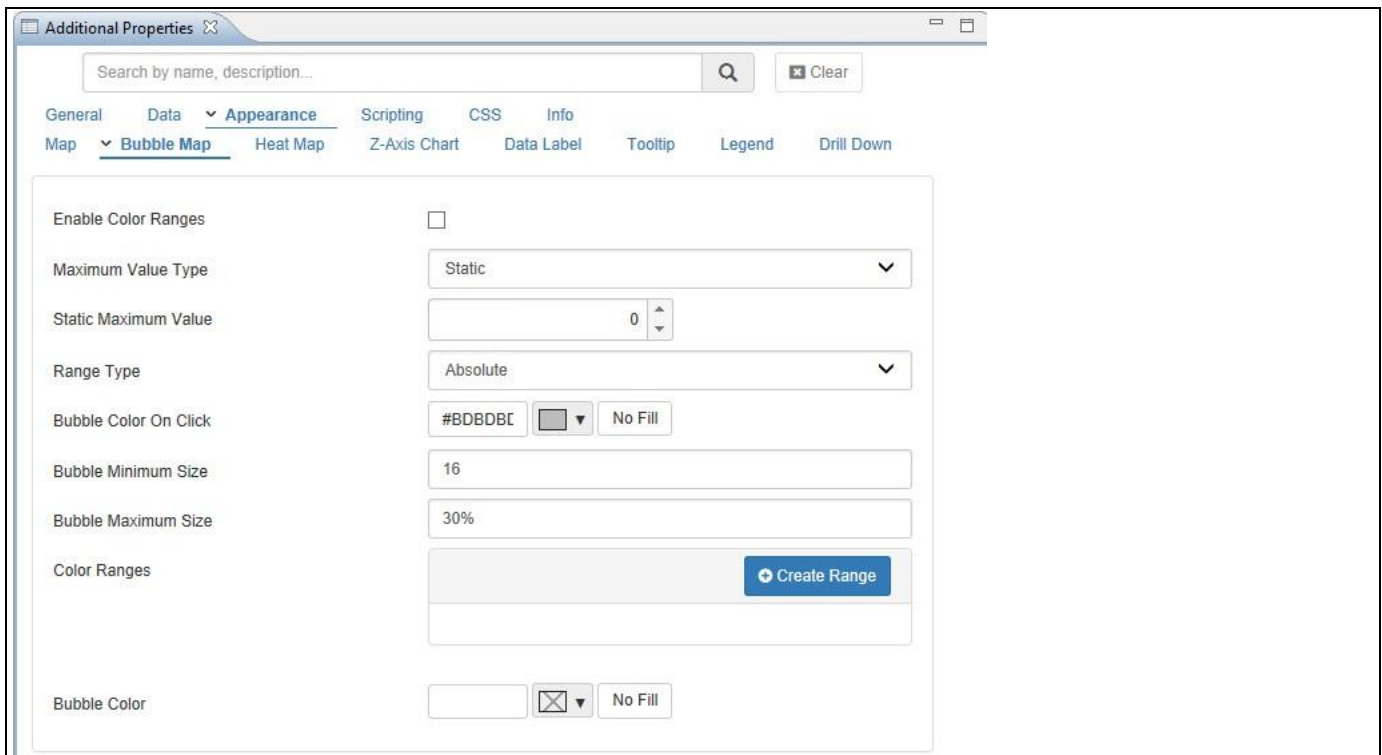


Figure 8.18: Bubble Color Ranges

17. Activate the option Enable Color Ranges.
18. Set the Maximum Value Type property to the option Result (Max). Using this option the maximum of the Color Ranges will be based on the maximum value retrieved from the data source.
19. Set the Range Type to Percentage.
20. You can now use the Create Range button to define the From and To values for the Color Ranges. As additional option you can also define the Opacity for each of the Color Ranges.
21. In addition you can specify the following details:
 - Bubble Minimum Size: Here you can enter either an absolute value in pixels or you can enter a percentage value. The percentage value is based on the overall Map Height / Width (whichever value is the larger).
 - Bubble Maximum Size: Here you can enter either an absolute value in pixels or you can enter a percentage value. The percentage value is based on the overall Map Height / Width (whichever value is the larger).
22. For our example enter 5% as Bubble Minimum Size and enter 10% as Bubble Maximum Size.
23. You should now have a map that shows two measures – one measure being represented by the Bubble Size and the second measure being represented by the bubble color (see Figure 8.19).

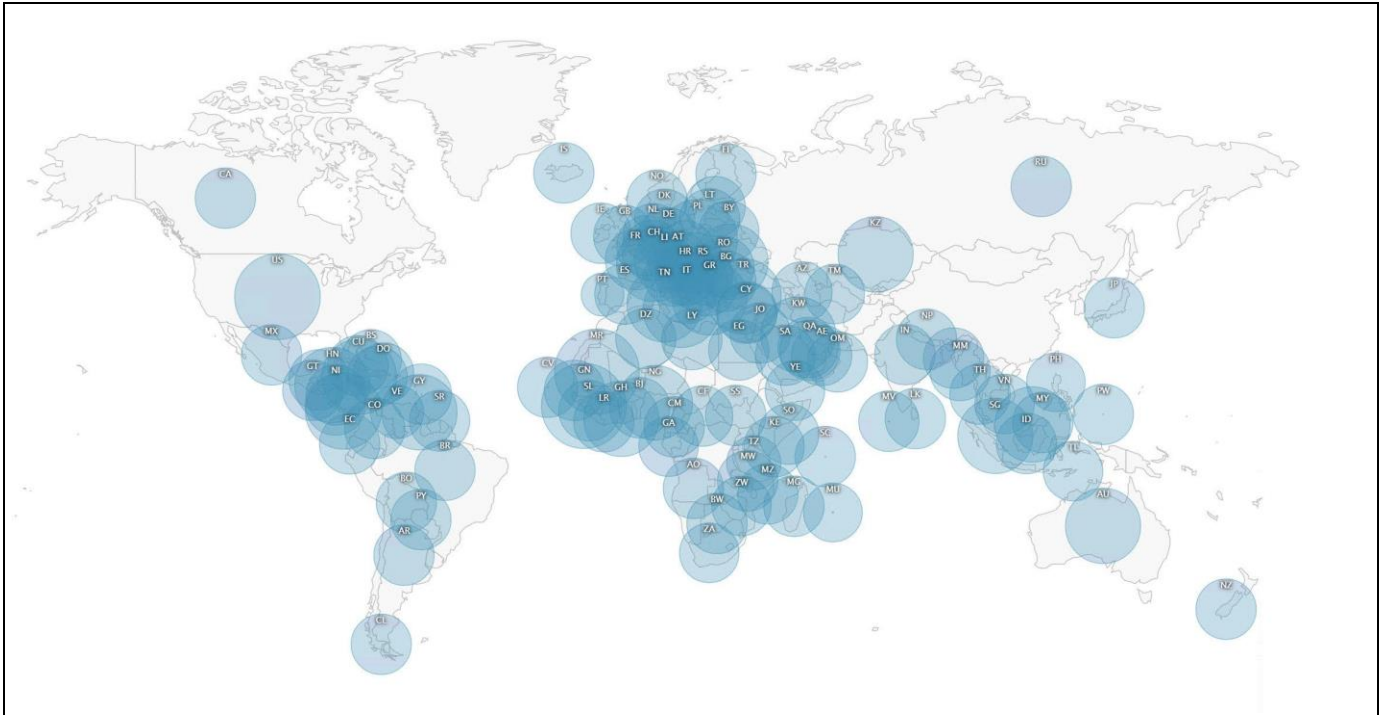


Figure 8.19: Map with two measures

8.2.6 How to use the Bubble / Heat Geo Map Component for a Bubble Map using Index Based option

In the following steps we will outline how you can use the Bubble / Heat Geo Map component and visualize the information. For our example, we will assume that our data source contains the following elements:

- Dimension State in the Rows.
- Measure Cost Amount in the Columns.
- Measure Sales Amount in the Columns.

In the following steps we will outline how you can setup a Bubble Map with two measures:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the Bubble / Heat Geo Map component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the Additional Properties of the map component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category General and the subcategory General Settings.
7. For our example we are configuring the following values:
 - Map Type Bubble
 - Select Map World
 - Select Map WORLD MAP
8. For the other values we will use the default values.

9. Navigate to the category Data and the subcategory Map Definition (see Figure 8.20).

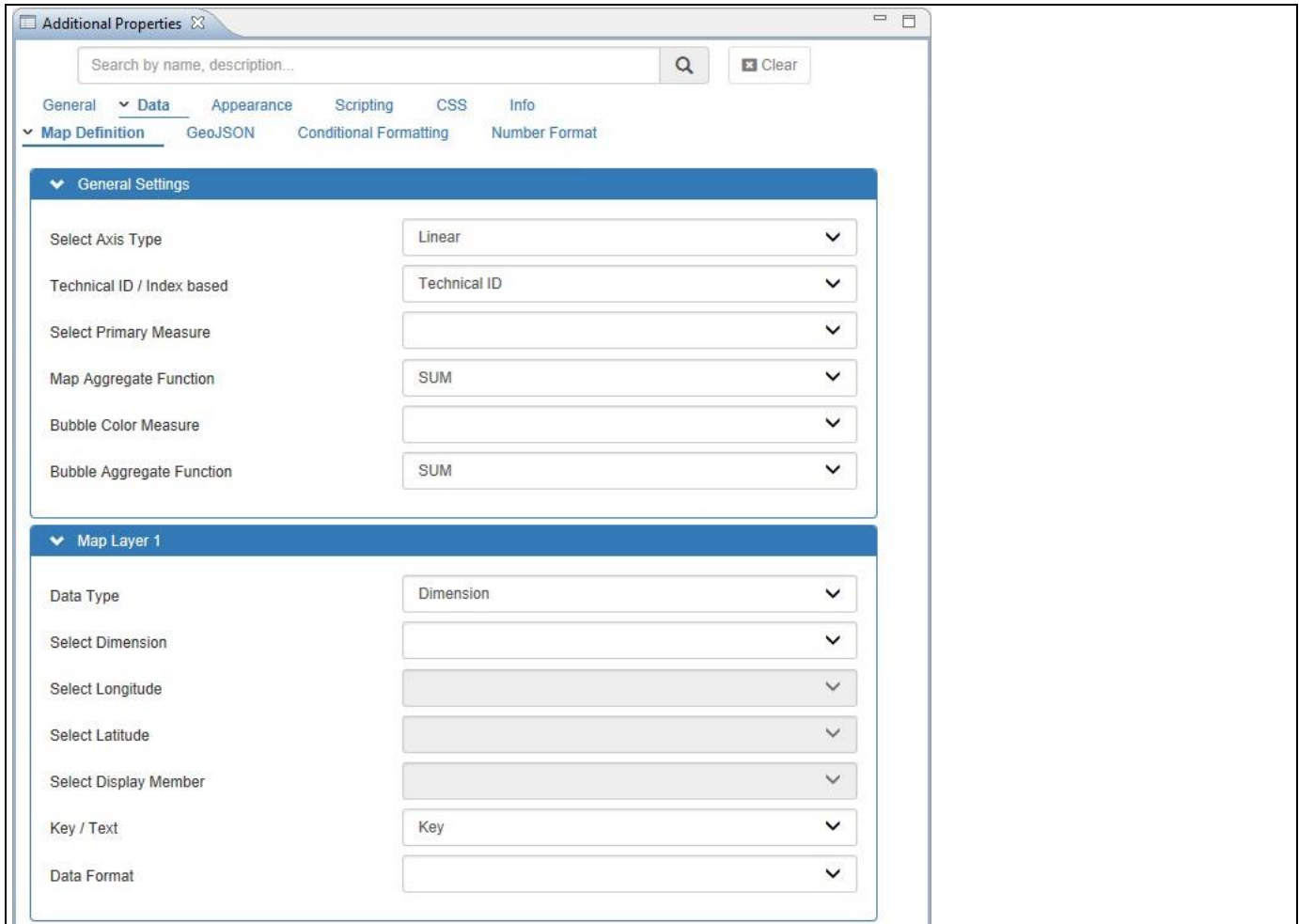


Figure 8.20: Additional Properties

10. For our example, we will select the option “Index-based” and set the Primary Measure to the Index value 0, so that the first measure from the assigned data source will be used. In our example, that denotes the measure Cost Amount.
11. Set the Bubble Color Measure to the Index value 1, so that the second measure from the assigned data source will be used. In our example, that denotes the measure Sales Amount.
12. Set the Address Type for the Map Level 1 area to the option Dimension.
13. Set the property Select Dimension to the Index value 0 that denotes the dimension State from the assigned Data Source for the Map Level 1.
14. For the Key / Text option for the Map Level 1 option, select the option Key.
15. Navigate to the category Appearance and the subcategory Bubble Map (see Figure 8.21).

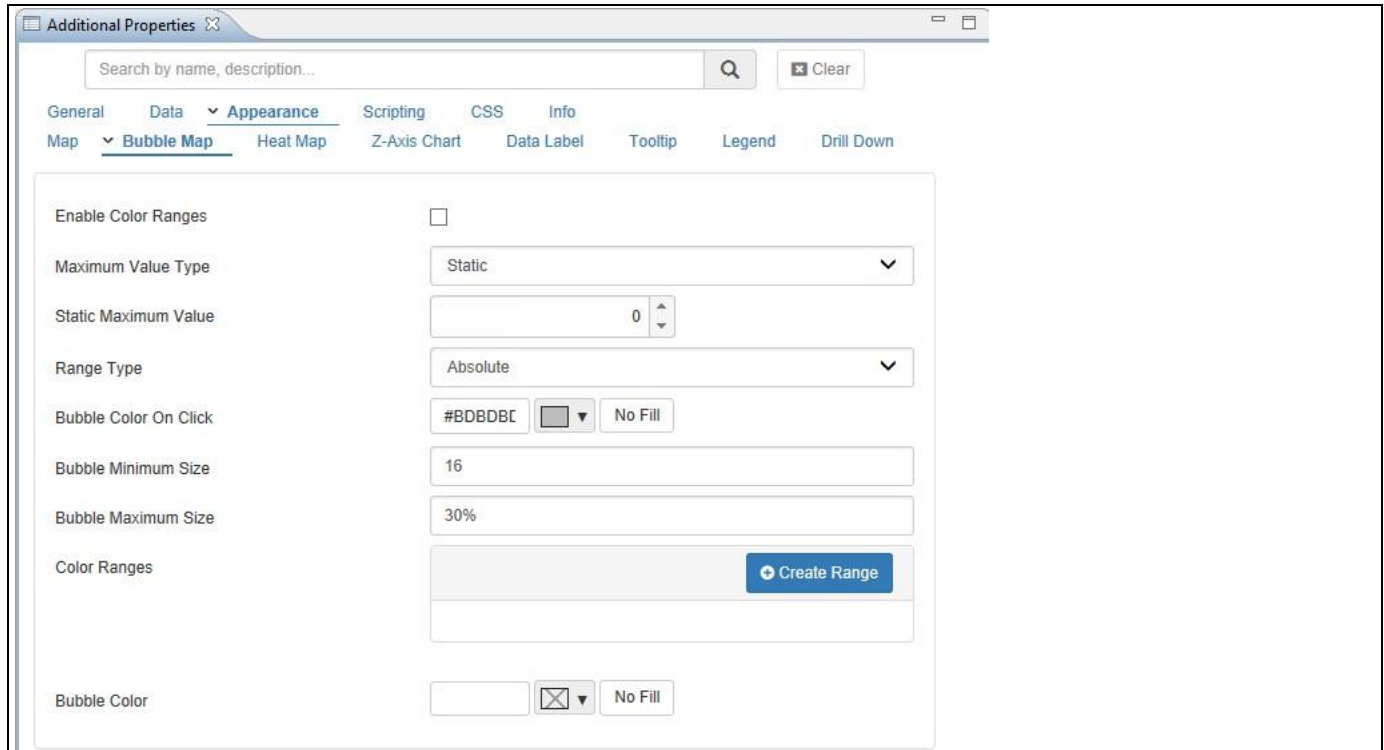


Figure 8.21: Bubble Color Ranges

16. Activate the option Enable Color Ranges.
17. Set the Maximum property to the option Result (Max). Using this option the maximum of the Color Ranges will be based on the maximum value retrieved from the data source.
18. Set the Range Type to Percentage.
19. You can now use the Create Range button to define the From and To options for the color ranges and you can define the Opacity for each of the ranges.
20. You can also specify the following options for the Bubble Map:
 - Bubble Minimum Size: Here you can enter either an absolute value in pixels or you can enter a percentage value. The percentage value is based on the overall Map Height / Width (whichever value is the larger).
 - Bubble Maximum Size: Here you can enter either an absolute value in pixels or you can enter a percentage value. The percentage value is based on the overall Map Height / Width (whichever value is the larger).
21. For our example enter 5% as Bubble Min Size and enter 10% as Bubble Max Size.
22. You should now have a map that shows the Index value 0 based on the measure Cost Amount from the assigned Data Source. (see Figure 8.22).



Figure 8.22: Map with Index value 0 based on the measure Cost Amount

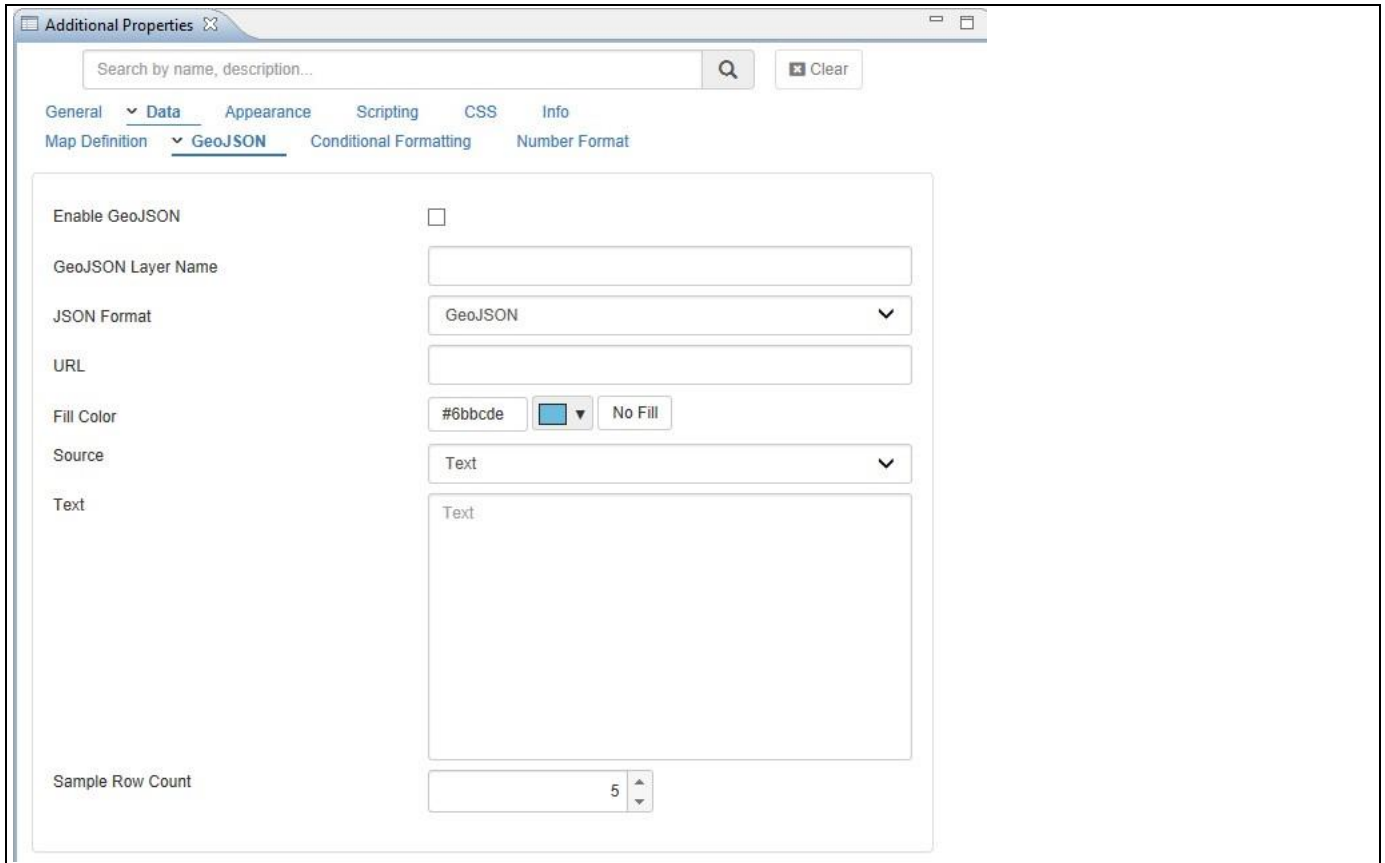
8.2.7 How to use the Bubble / Heat Geo Map Component with a GeoJSON File

In the following steps we will outline how you can use the Bubble / Heat Geo Map component and visualize the information in combination with a GeoJSON File. For our example we will assume that our data source contains the following elements:

- Dimension Region in the Rows.
- Measure Net Value in the Columns.

In addition we assume that we use a GeoJSON file representing the information of the states in the United States. Using a GeoJSON File you can define your own geographic areas based on the map that you selected as the starting map in the category General.

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the Bubble / Heat Geo Map component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the category General and the subcategory General Settings.
6. For our example we are configuring the following values:
 - Map Type Heat
 - Select Map Countries
 - Select Map United States of America
7. For the other values we will use the default values.
8. Navigate to the category Data and the subcategory GeoJSON (see Figure 8.23).



The screenshot shows the 'Additional Properties' dialog box with the 'GeoJSON' tab selected. The 'Enable GeoJSON' checkbox is unchecked. The 'GeoJSON Layer Name' field is empty. The 'JSON Format' dropdown is set to 'GeoJSON'. The 'URL' field is empty. The 'Fill Color' dropdown is set to '#6bb0de' with a color picker icon and a 'No Fill' button. The 'Source' dropdown is set to 'Text'. The 'Text' field contains the text 'Text'. The 'Sample Row Count' spinner is set to 5.

Figure 8.23: Category Data - GeoJSON

9. Activate the option Enable GeoJSON.
10. Enter a GeoJSON Layer Name.
11. Set the Format to the option GeoJSON.
12. Set the Source to the option Text.
13. Now copy and paste the GeoJSON syntax into the Text box.
14. After you entered the GeoJSON text you will see a set of sample rows (see Figure 8.24).

Additional Properties

Search by name, description...
Clear

General
Data
Appearance
Scripting
CSS
Info

Map Definition
GeoJSON
Conditional Formatting
Number Format

Enable GeoJSON
☒

GeoJSON Layer Name

JSON Format

URL

Fill Color

Source

Text

41.001978], [-106.453859, 41.002057], [-106.857773, 41.002663], [-107.000606, 41.003444], [-107.241194, 41.002804], [-107.367443, 41.003073], [-107.625624, 41.002124], [-107.918421, 41.002036], [-108.046539, 41.002064], [-108.181227, 41.000455], [-108.250649, 41.000114], [-108.500659, 41.000112], [-108.526667, 40.999608], [-108.631108, 41.000156], [-108.884138, 41.000094], [-109.050076, 41.000659]]]] }

}
}

Sample Row Count

Sample Data

GEO_ID	STATE	NAME	LSAD	CENSUSAREA
0400000US23	23	Maine		30842.923
0400000US25	25	Massachusetts		7800.058
0400000US26	26	Michigan		56538.901
0400000US30	30	Montana		145545.801
0400000US32	32	Nevada		109781.18
Total : 52				

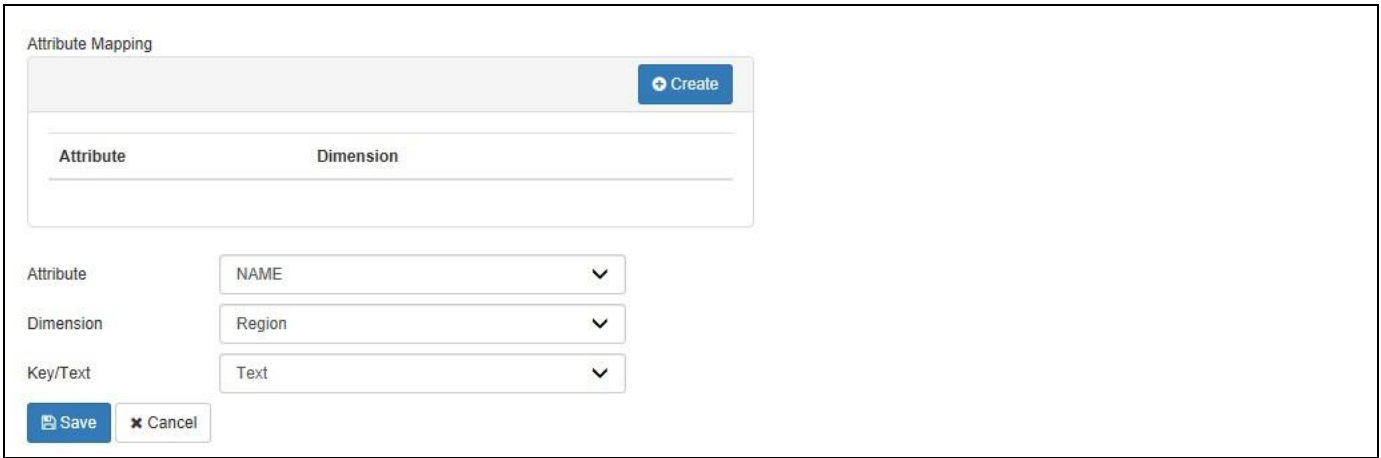
Attribute Mapping

+ Create

Attribute
Dimension

Figure 8.24: GeoJSON

- You can now use the Attributes from the GeoJSON file (see Figure 8.24) and map each of the available attributes to a dimension from the assigned data source using the Create button in the Attribute Mapping area.
- In addition you can choose, if you would like to map the Key or the Text value of the dimension to the GeoJSON Attribute using the column Key / Text.
- For our example, we will map the Attribute Name to the Dimension Region and we will map it to the Text value of the Region (see Figure 8.25).



Attribute Mapping

[+ Create](#)

Attribute	Dimension
NAME	Region

Attribute: NAME

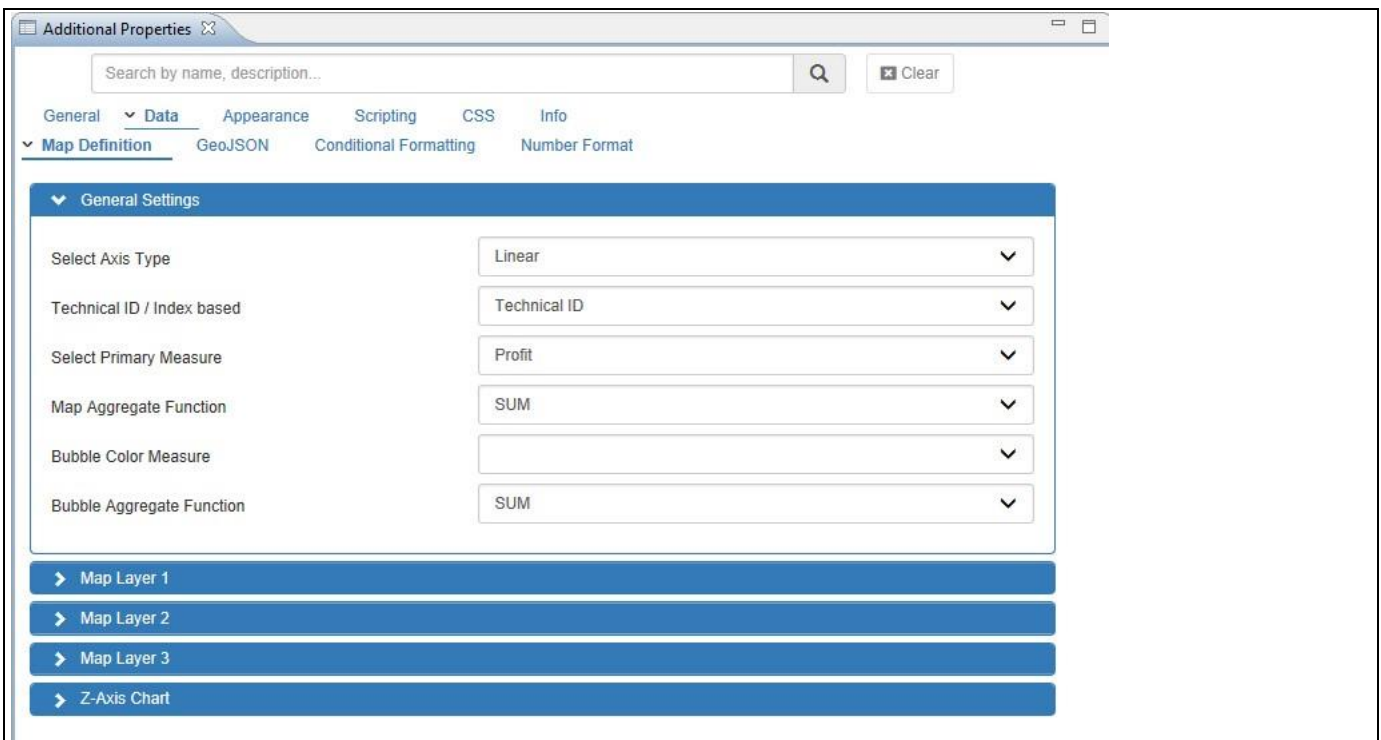
Dimension: Region

Key/Text: Text

[Save](#) [Cancel](#)

Figure 8.25: Attribute Mapping

18. Now navigate to the category Data and the subcategory Map Definition (see Figure 8.26).



Additional Properties

Search by name, description...

General **Data** Appearance Scripting CSS Info

Map Definition GeoJSON Conditional Formatting Number Format

General Settings

Select Axis Type: Linear

Technical ID / Index based: Technical ID

Select Primary Measure: Profit

Map Aggregate Function: SUM

Bubble Color Measure:

Bubble Aggregate Function: SUM

[Map Layer 1](#)

[Map Layer 2](#)

[Map Layer 3](#)

[Z-Axis Chart](#)

Figure 8.26: Category Data

19. In the subcategory Map Definition you can choose which measure you would like to visualize as part of the map. In our example we chose measure Profit.

20. Navigate to the area Appearance and the subcategory Map (see Figure 8.27).

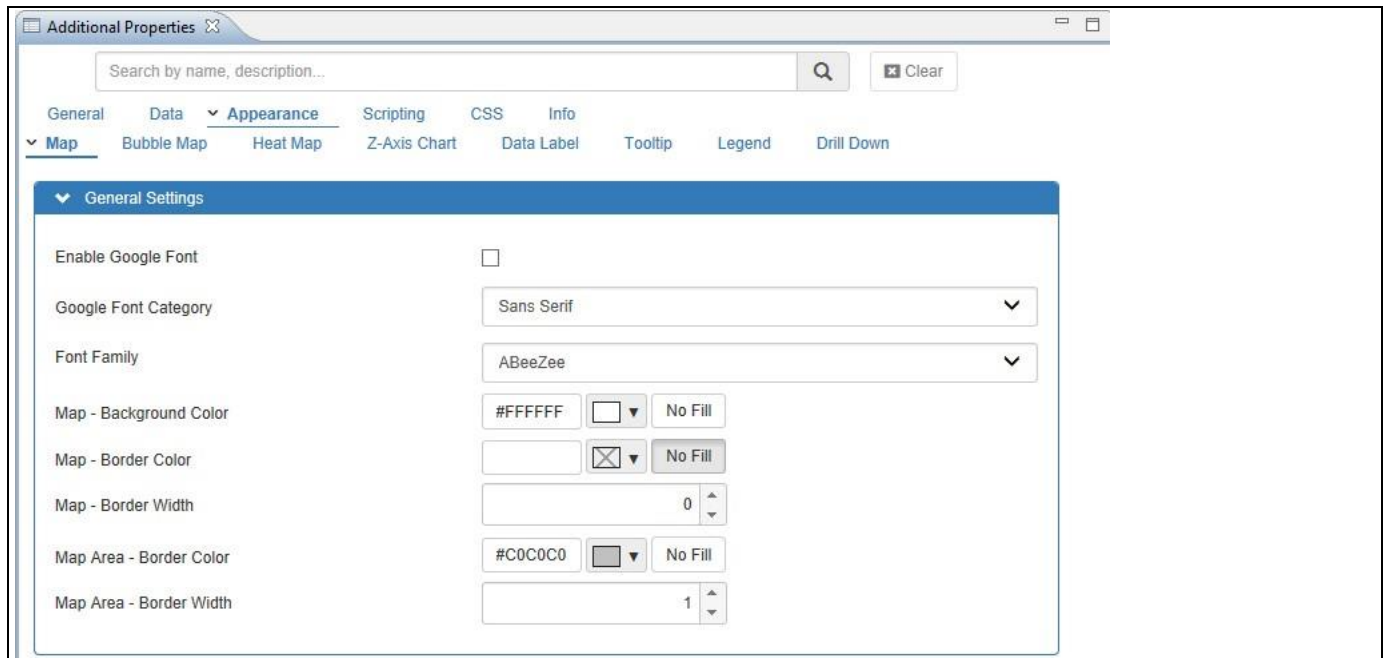


Figure 8.27: Category Appearance

21. Here you can define the Border Width and Border Color for the map, which in our case will be based on the GeoJSON definitions.

You should now have a map which maps your data source against the GeoJSON definition and shows the value of the selected measure in form of a choropleth map.

8.2.8 How to use the Bubble / Heat Geo Map Component with OpenDocument

In the following steps we will outline how you can use the Bubble / Heat Geo Map component and link your map to an existing report on your SAP BusinessObjects BI platform and hand over parameters to the report based on what was selected in the map. For our example we will assume that our data source contains the following elements:

- Dimension Region in the Rows.
- Measure Net Value in the Columns.

In addition we will assume that we have a SAP BusinessObjects Web Intelligence report based on a similar data source, sharing the dimension Region with a parameter for the dimension Region. In our example the name of the parameter for dimension Region is parRegion.

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the Bubble / Heat Geo Map component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the Additional Properties of the map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.

6. Navigate to the category General and the subcategory General Settings.
7. For our example we are configuring the following values:
 - Map Type Heat
 - Select Map Countries
 - Select Map UNITED STATES OF AMERICA
8. For the other values we will use the default values.
9. Navigate to the category Data and the subcategory Map Definition.
10. For our example we will map the items in the following steps.
11. Set the Primary Measure to the measure from the data source – in our example Net Value.
12. Set the Address Type for the Map Level 1 area to the option Dimension.
13. Select the Region dimension for the Map Level 1.
14. For the Key / Text option for the Map Level 1 option, select the option Key.
15. Navigate to the category Scripting.
16. Navigate to the subcategory Report Linking.
17. Set the Scripting Type to the value OpenDocument (see Figure 8.28).

Additional Properties

Search by name, description...

General Data Appearance **Scripting** CSS Info

Report Linking

Type:

Document Link:

Report Type:

Protocol:

Open Document Server Name:

Open Document Server Port:

Path to Open Document:

SID Type:

Open Document iDocID:

Additional Parameter:

Open in New Tab: ☒

Parameters

Parameter Name	Dimension	Type
<input type="text"/>	<input type="text"/>	<input type="text"/>

Select Dimension for Parameter:

Parameter Type:

Select Key Or Text:

Figure 8.28: Category Scripting

18. Here you can configure all the details required to call the report and pass the context from the selected value in the map. The details are shown in Table 8.2

Property	Description
Document Link	Here you can enter the link for the document. You can either enter the complete link, or you can construct the link by filling in the individual items.
Report Type	Here you can set the type of report. The available options are Crystal Reports, Web Intelligence, Analysis OLAP, and Design Studio.
Protocol	Here you can choose between http or https.
Open Document Server Name	Here you can enter the name of the Server for the OpenDocument application.
Open Document Server Port	Here you can enter the Port of the Server for the OpenDocument application.

Property	Description
Path to Open Document	Here you can specify the Path to the OpenDocument application.
SID Type	Here you can choose between CUID and InfoObject.
OpenDocument iDocID	Here you can specify the document ID.
Additional Parameters	Here you can enter any additional URL Parameter that should be passed to the report.
Open in New Tab	This property allows you to enable / disable the option to see the report in a new tab.
Parameters	Here you can define new parameters that will be included as part of the URL.
Select Dimension for Parameter	Here you can choose with Dimension will be used to pass the value to the selected parameter.
Parameter Type	Here you can choose between Single or Multiple values.
Select Key or Text	Here you can enter the technical name of the parameter in the report.

Table 8.2: Category Scripting

19. In our example we are pasting the OpenDocument Link into the field Document Link, which then will populate the details to call the report.
20. In addition we set the property Parameter Key to the value parRegion.
21. We select dimension Region for the property Choose Dimension Parameter.
22. We set the Parameter Type to the option Single.
23. Click on Add to add the Parameter to the list of defined parameters.

We can now execute the map and select a region on the map and the report will be retrieved from the SAP BusinessObjects BI Platform and the parameter will be handed over, which then will filter the data to the selected value from the map.

OpenDocument Link

You can select the report in the SAP BusinessObjects BI Launchpad and use the context menu Document Link to retrieve the complete OpenDocument URL and use the link and paste it to the property Document Link, which then will prepopulate most of the properties based on the Link.

8.2.9 How to configure Conditional Formatting for the Bubble / Heat Geo Map Component

In the following steps we will outline how you can configure Conditional Formatting for the Bubble / Heat Geo Map component and in that way use threshold values to highlight specific measures as part of your map. For our example we will assume that our data source contains the following elements:

- Dimension Country in the Rows.
- Dimension Region in the Rows.
- Measure Net Value in the Columns.
- Measure Forecast in the Columns.

You can follow the steps below to setup a new Bubble / Heat Geo Map Component:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the Bubble / Heat Geo Map component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the Additional Properties of the map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category General and the subcategory General Settings.
7. In the subcategory General Settings you can configure the following properties:

Property	Description
Select Map Type	Here you can choose between a Heat Map and a Bubble Map.
Select Map	Here you can choose which map will be your starting map.
Source URL for Maps	Here you can enter the URL to the Map files, in case you are deploying the Map files in your own network.
On Tap Event (iPad / iPhone)	Here you can configure which type of navigation will be enabled for the Tap gesture for a mobile device.

Table 8.3: Category General

8. For our example, we are configuring the following values:
 - Map Type Heat
 - Select Map World
 - Select Map Source WORLD MAP
9. For the other values we will use the default values.
10. Navigate to the category Data and the subcategory Map Definition.
11. Follow the similar steps as executed in the previous examples.
12. For our example we will select the property “Technical ID” and we will map the items in the following steps.
13. Set the Primary Measure to the measure from the data source – in our example Net Value.
14. Set the Address Type for the Map Level 1 area to the option Dimension.
15. Select the Country dimension for the Map Level 1.

16. For the Key / Text option for the Map Level 1 option, select the option Key.
17. Set the Address Type for the Map Level 2 area to the option Dimension.
18. Select the Region dimension for the Map Level 2.
19. For the Key / Text option for the Map Level 2 option, select the option Key.
20. For the other values we will use the default values.
21. In the Additional Properties navigate to the category Data and the subcategory Conditional Formatting
22. Click Create Rule to create a new Conditional Formatting Rule (see Figure 8.29).

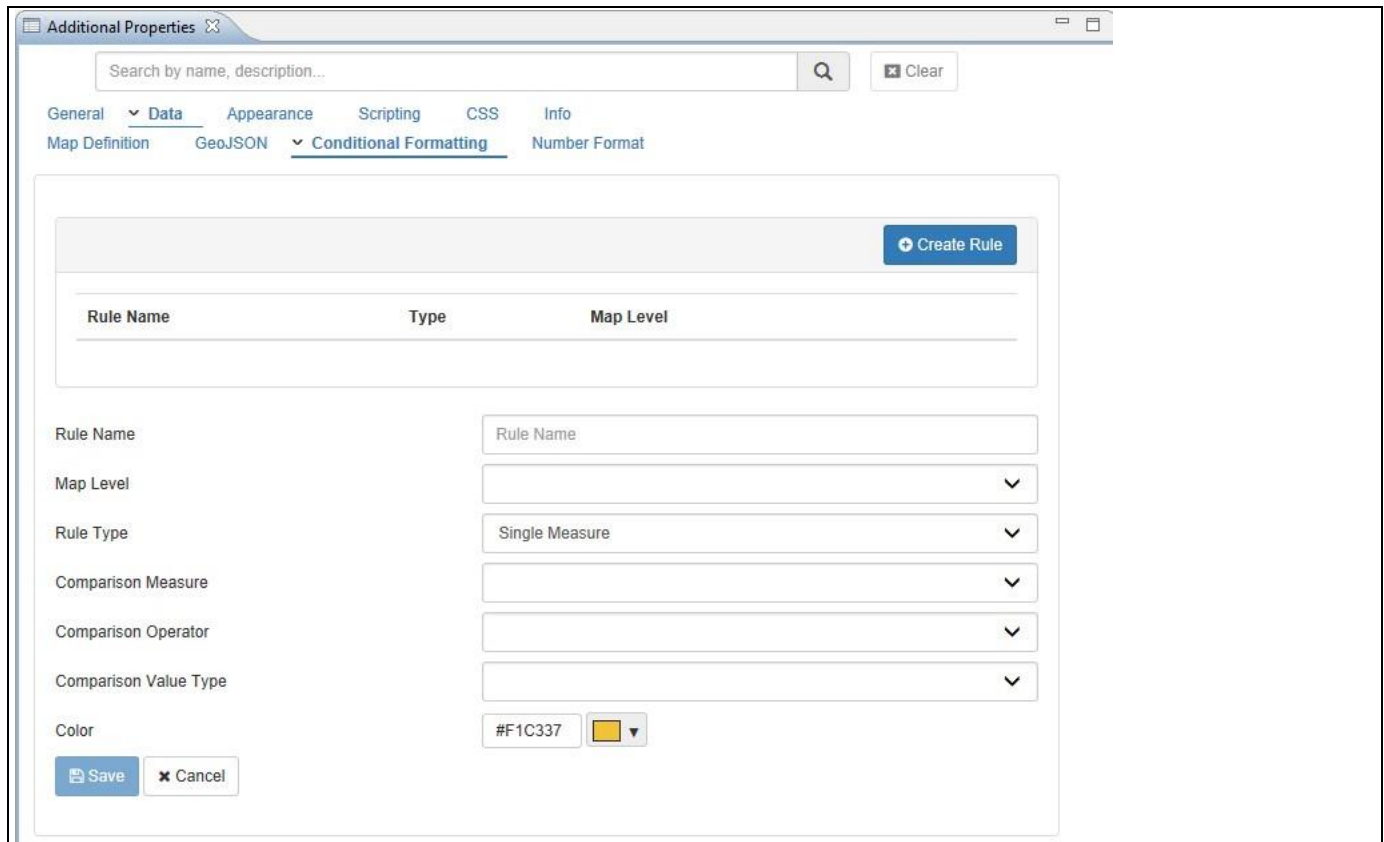


Figure 8.29: Conditional Formatting

23. In this category you can configure the conditional formatting for the different map layers.
24. Enter a Rule Name.
25. Select Level 1 for the Map Level option to configure threshold values for the Country level of our example.
26. You have three different rule types: Single Measure, Measure Calculation, and Target Value. You can find the details on these different rule types in section 4.3.10 as part of the section for Conditional Formatting for charts.
27. Select the option Single Measure.
28. You can then choose a measure that will be compared against another value.
29. In our example we will use measure Net Value for the Comparison Measure.
30. For the Comparison Operator we use Greater Than.
31. For the Comparison Value Type we will use the option Dynamic.
32. For the Dynamic Selection Value we will set the value Measure Selection.

33. We will then use the measure Forecast for the Comparison Value.
34. And we will then set a color for the rule.
35. Click on Add to add the Rule to our map.
36. Based on our definition the rule will now be applied and the matching Countries will be displayed in the selected color.

8.2.10 Additional Properties for the Bubble / Heat GeoMap Component

As a custom component the Bubble / Heat GeoMap also comes with a set of Additional Properties. In the following sections you will find a list of available properties and a Table with a more detailed description of each of those properties.

8.2.10.1 Category General

Below you can see the Additional Properties for the category General and their descriptions.

Subcategory	Area	Property	Description
General Settings		Select Map Type	Choose how you wish to visualize your data on the map. You can choose between a Heat map or a Bubble Map.
		Select Map	Here you can select the starting map.
		Source URL for Maps	Base URL for all map sources. By default this field is blank. You can use this field in situations where https is required or where you deploy the maps as part of your own network.
		On Tap Event (Touch)	Here you can configure which action will be performed on a mobile device – such as a Tablet – when you perform a tap. You can choose between a Tooltip, Z-Axis, Drill Down, or Select.
Map Titles	Title	Enable Map Title	This property enables / disables the Title text.
		Title Text	Here you can set the Title Text.
		Font Family	Here you can specify the Font Family for the Title Text.
		Font Size	Here you can specify the Font Size for the Title Text.
		Font Color	Here you can specify the Font Color for the Title Text.
		Font Style	Here you can specify the Font Style for the Title Text.
		Horizontal Alignment	Here you can set the Horizontal Alignment for the Title Text.
		Vertical Alignment	Here you can set the Vertical Alignment for the Title Text.
		Horizontal Offset	Here you can set the Horizontal Offset for the Title Text.
		Vertical Offset	Here you can set the Vertical Offset for the Title Text.
		Floating	When this is enabled, the plot area will not assign specific space for the title.
		Margin	Here you can specify the margin between

Subcategory	Area	Property	Description
			the Title text and the plot area of the map.
	Subtitle	Enable Subtitle	This property enables / disables the Subtitle text.
		Subtitle Text	Here you can set the Subtitle Text.
		Font Family	Here you can specify the Font Family for the Subtitle Text.
		Font Size	Here you can specify the Font Size for the Subtitle Text.
		Font Color	Here you can specify the Font Color for the Subtitle Text.
		Font Style	Here you can specify the Font Style for the Subtitle Text.
		Horizontal Alignment	Here you can set the Horizontal Alignment for the Subtitle Text.
		Vertical Alignment	Here you can set the Vertical Alignment for the Subtitle e Text.
		Horizontal Offset	Here you can set the Horizontal Offset for the Subtitle Text.
		Vertical Offset	Here you can set the Vertical Offset for the Subtitle Text.
		Floating	When this is enabled, the plot area will not assign specific space for the Subtitle.
Pan & Zoom		Enable Navigation	This property allows to enable / disable to navigation using the Mouse Wheel.
		Horizontal Alignment	Here you can set the Horizontal Alignment of the Navigation Buttons.
		Vertical Alignment	Here you can set the Vertical Alignment of the Navigation Buttons.
Export	General Settings	Enable Export	Enable / Disable the option to export the map.
	Export File	Export File Name	Here you can specify the Export File Name.
		Map Width	Here you can specify the Width of the map that will be exported in pixels. If unassigned, this will be determined automatically.
		Map Height	Here you can specify the Height of the map that will be exported in pixels. If unassigned, this will be determined automatically.
		Map Scale	This property allows to specify the scale / zoom factor for the exported image compared to the on-screen display.

Subcategory	Area	Property	Description
	Export Button	Button Type	Here you can specify the Type of Export Button.
		Button Height	Here you can specify the Height of the Export Button.
		Button Width	Here you can specify the Width of the Export Button.
		Horizontal Alignment	Here you can specify the Horizontal Alignment for the Export Button.
		Vertical Alignment	Here you can specify the Vertical Alignment for the Export Button.
		Horizontal Offset	Here you can specify the Horizontal Offset for the Export Button.
		Vertical Offset	Here you can specify the Vertical Offset for the Export Button.
		Button Radius	Here you can specify the Radius for the Export Button.
		Background Hover Fill Color	Here you can specify the Background Fill Color for the Hover over.
		Background Fill Color	Here you can specify the Background Fill Color.
	Export Icon	Icon Size	Set the Size for the Export Icon.
		Icon Fill Color	Set the Fill Color for the Export Icon.
		Icon Stroke Color	Set the Stroke Color for the Export Icon.
		Icon Stroke Width	Set the Stroke Width for the Export Icon.
		Horizontal Offset	Here you can specify the Horizontal Offset for the Export Icon.
		Vertical Offset	Here you can specify the Vertical Offset for the Export Icon.
	Dropdown Menu	Item Font Color	Sets the Item Font Color.
		Item Font Style	Sets the Item Font Style.
		Item Hover Font Color	Sets the Font Color for the Hover Over of the menu items.
		Item Hover Font Style	Sets the Font Style for the Hover Over of the menu items.
		Background Hover Fill Color	Set the background color of the menu item on mouse over.
		Background Fill Color	Sets the Background Fill Color.
Credits	General Settings	Enable Credits	This property enables / disables the display of the Credits.
		URL	Here you can enter the URL that will be displayed.
		Text	Here you can enter the Text that will be

Subcategory	Area	Property	Description
			displayed.
	Appearance	Font Family	Sets the Font Family for the Credits.
		Font Size	Sets the Font Size for the Credits.
		Font Color	Sets the Font Color for the Credits.
		Font Style	Sets the Font Style for the Credits.
		Horizontal Alignment	Here you can configure the Horizontal Alignment.
		Vertical Alignment	Here you can configure the Vertical Alignment.
		Horizontal Offset	Here you can specify the Horizontal Offset.
		Vertical Offset	Here you can specify the Vertical Offset.
		Credits Cursor	Sets the Cursor Type for the Credits.

Table 8.4: Category General

8.2.10.2 Category Data

Below you can see the Additional Properties for the category Data and their descriptions.

Subcategory	Area	Property	Description
Map Definition	General Settings	Select Axis Type	The type of interpolation to use for the color axis. Can be linear or logarithmic. Default is linear.
		Technical ID / Index	Here you can select the option for the property Dimension Selection. The two different options are Technical ID or Index based
		Select Primary Measure	Here you can choose the Primary measure for the map either based on the Technical ID or based on the Index in the assigned data source.
		Map Aggregate Function	Here you can choose the Aggregate Function that will be used for the primary measure.
		Bubble Color Measure	Here you can specify the second measure, in case of a Bubble map with two measures.
		Bubble Aggregate Function	Here you can choose the Aggregate Function that will be used for the measure or the Bubble color.
	Map Level 1 Map Level 2 Map Level 3	Data Type	Here you can choose the type of data that you would like to use for the map. You can select between Dimension and Longitude & Latitude.

Subcategory	Area	Property	Description
		Select Dimension	Here you can choose the dimension that will be used for the Map Level.
		Select Longitude	In case you selected Longitude and Latitude, you can choose the dimension for the Longitude values here.
		Select Latitude	In case you selected Longitude and Latitude, you can choose the dimension for the Latitude values here.
		Key / Text	Here you can choose the value type that is being used to map against the map definition. You can choose between Key and Text.
		Data Format	Here you can choose from a list of Format Types. The Data Type should match the geographic value type from your data source. In case you are unsure you can leave this with the default value and the software will evaluate the data.
	Z-Axis	Enable Z-Axis Chart	This property allows you to enable / disable the Z-Axis Chart functionality.
		Chart Type	Here you can set the Chart Type for the Z-Axis chart.
		X-Axis (Dimension)	Here you can choose the dimension that will be used for the X-Axis of the Z-Axis chart.
		Key / Text	Here you can choose the value type that is being used to map against the map definition. You can choose between Key and Text.
		Y-Axis (Measure)	Here you can choose the measure that will be used for the Y-Axis of the Z-Axis chart.
		Aggregate Function	Here you can choose the Aggregate Function that will be used for the measure.
		Chart Title	Here you can set the Chart Title for the Z-Axis chart.
		Chart Subtitle	Here you can set the Chart Subtitle for the Z-Axis chart.
		Z-Axis Left Position	Here you can set the Left Position of the Z-Axis Chart.
		Z-Axis Chart Top Position	Here you can set the Top Position of the Z-Axis Chart.
	GeoJSON	Enable GeoJSON	This option allows you to enable / disable the usage of custom maps based on

Subcategory	Area	Property	Description
			GeoJSON definitions.
		GeoJSON Layer Name	Here you can enter a Name for the GeoJSON Layer.
		JSON Format	Here you can configure the format of the GeoJSON syntax. The options are GeoJSON and TopoJSON.
		URL	Here you can specify the URL to the GeoJSON file.
		Fill Color	Here you can configure a Fill Color for the GeoJSON Layer.
		Source	Here you can choose the source for the syntax. The available options are URL or Raw Text.
		Text	Here you can enter the raw text of the GeoJSON / TopoJSON Syntax.
Conditional Formatting		Rule Name	Here you can enter a name for the Conditional Formatting Rule.
		Map Level	Here you choose for which Map Level the rule will be applied.
		Rule Type	Here you can choose the type of conditional formatting. The options are Single Measure, Measure Calculation, Target Value, Dimension.
		Comparison Measure	Here you can select the measure which will be compared against the Comparison Value.
		Comparison Operator	Here you can choose the operator that is used to compare the Comparison Measure with the Comparison Value.
		Comparison Value Type	Here you can choose between a Static and a Dynamic comparison value.
		Dynamic Selection Value	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
		Comparison Value	Depending on the configured options, the property Comparison Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic

Subcategory	Area	Property	Description
			measure.
		Color	Here you can define the color for the Rule.
		Measure 1, Measure 2	Here you can choose those measures that will be used as part of the measure calculation.
		Calculation Operator	Here you can choose the type of calculation. Available options are: Add, Subtract, Divide, Multiply.
		Target Value Type	Here you can choose between a Static and a Dynamic Target Value.
		Target Value	Depending on the configured options, the property Target Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
Number Format		Apply Identical Number Format in all areas	This property allows you to enable / disable the Identical Number Format for all relevant map areas.
		Component Area	This property sets the Component Area for the Number Format, in case you want to set individual number format options. The options are Data Label and Tooltip.
		Number Format Definition	This property allows you to select the options for Number Format Definition. The options are Initial View and Custom Number Format.
		Number of Decimals	This property allows to the define the Number of decimals.
		Decimal Separator	This property allows to the define the Decimal Separator.
		Thousand Separator	This property allows to the define the Thousand Separator.
		Enable Scaling Factor	This property allows to enable / disable the display of the Scaling Factor.
		Scaling Factor	The property allows you to specify a Scaling Factor.
		Show Unit / Currency	This property allows to enable / disable the display of the configured Unit / Currency
		Currency/Unit Placement	This property allows you to configure the Currency / Unit placement.
		Show Scaling Unit	This property allows to enable / disable the display of the Scaling Unit.
		Scaling Unit Placement	This property allows you to configure the

Subcategory	Area	Property	Description
			Scaling Unit placement for the Data Label/Tooltip.
		Scaling Unit	This property allows you to set the Scaling Unit for the Data Label/Tooltip.
		Prefix	This property allows to configure the Prefix for the Data Label/Tooltip.
		Suffix	This property allows to configure the Suffix for the Data Label/Tooltip.
		Enable Semantic Formatting	This property activates the option for Semantic Formatting.
		Format for Negative Values	This property sets the Format for Negative Values.
		Color for Negative Values	This property sets the Color for Negative Values.
		Format for Positive Values	This property sets the Format for Positive Values.
		Color for Positive Values	This property sets the Color for Positive Values.

Table 8.5: Category Data

8.2.10.3 Category Appearance

Below you can see the Additional Properties for the category Appearance and their descriptions.

Subcategory	Area	Property	Description
Map	General Settings	Enable Google Font	This property allows to enable / disable the global override functionality for the Google Font.
		Font Category	This property allows to select the Google Font Category.
		Font Family	This property allows to select the Google Font Family.
		Map - Background Color	Here you can set the background color or gradient for the map area.
		Map - Border Color	Here you can specify the Border Color for the map.
		Map - Border Width	Here you can specify the Border Width for the map.
		Map Area - Border Color	Here you can specify the Border Color for the outer map area.
		Map Area - Border Width	Here you can specify the Border Width for the outer map area.

Subcategory	Area	Property	Description
	Map Theme	Enable Custom Themes	Here you can enable the option to use custom map themes for styling.
		Custom Theme Editor	You can follow the URL to receive some examples.
		Custom Theme Code	Here you can enter the Custom Theme Code you would like to apply to the map.
Bubble Map		Enable Color Ranges	This property allows you to enable / disable the use of Color Ranges for the Bubble Map.
		Maximum Value Type	Here you can choose to either set a manual Maximum or to use the Maximum based on the assigned Data Source.
		Static Maximum Value	Here you can enter a Static Maximum Value.
		Range Type	Here you can choose between an Absolute or Percentage based Range Type.
		Bubble Color on Click	Here you can specify the color for the Bubble when selected.
		Bubble Minimum Size	Here you can specify either an absolute pixel value or a percentage value for the minimum Bubble Size. The percentage value will use the overall map Height / Width (whichever value is larger) as base.
		Bubble Maximum Size	Here you can specify either an absolute pixel value or a percentage value for the maximum Bubble Size. The percentage value will use the overall map Height / Width (whichever value is larger) as base.
		Bubble Color	Here you can specify the color for the Bubble.
Heat Map		Range Minimum Color	Here you can set the color for the Range Minimum.
		Range Maximum Color	Here you can set the color for the Range Maximum.
Z-Axis Chart		Title Font Family	Here you can set the Font Family for the Title.
		Subtitle Font Family	Here you can set the Font Family for the Subtitle.
Data Label		Enable Data Labels	This property allows you to enable the Data Labels for the map.
		Enable Data Points	This property allows you to include the Data Points for the map.

Subcategory	Area	Property	Description
		Font Family	This property allows to set the Font Family for the Data Label.
		Font Size	This property allows to set the Font Size for the Data Label.
		Font Color	This property allows to set the Font Color for the Data Label.
		Font Style	This property allows to set the Font Style for the Data Label.
		Horizontal Alignment	This property allows you to set the horizontal alignment for the Data Label.
		Vertical Alignment	This property allows you to set the vertical alignment for the Data Label.
		Horizontal Offset	This property allows to specify the Horizontal Offset of the Data Label box relative to its default alignment.
		Vertical Offset	This property allows to specify the Vertical Offset of the Data Label box relative to its default alignment.
		Background Color	Here you can set the Background Color for the Data Label.
		Border Color	Here you can set the Border Color for the Data Label.
		Border Radius	Here you can set the Border Radius for the Data Label.
		Border Width	Here you can set the Border Width for the Data Label.
		Rotation	Here you can specify the Rotation for the Data Label.
		Padding	This property defined the Padding between the Data Label text and the borders.
		Shadow	This property allows you to enable / disable a Shadow for the Data Label box.
		Crop	When activated, Data Labels outside the plot area will be cropped.
Tooltip		Enable Tooltip	This property allows to enable / disable the display of the Tooltip.
		Font Family	Sets the Font Family for the Tooltip.
		Font Size	Sets the Font Size for the Tooltip.
		Font Color	Sets the Font Color for the Tooltip.
		Font Style	Sets the Font Style for the Tooltip.
		Background Color	Sets the Background Color for the Tooltip.

Subcategory	Area	Property	Description
		Border Color	Sets the Border Color for the Tooltip.
		Border Width	Sets the Border Width for the Tooltip.
		Hide Delay	Number of milliseconds by which hiding of the tooltip is delayed after moving cursor from data point.
		Shadow	This property allows to enable / disable the display of a drop shadow for the tooltip.
		Follow Pointer	This property allows to enable / disable the tooltip's ability to follow the mouse pointer to an extent.
		Follow Touch Move	This property allows to enable / disable the tooltip's ability to follow the touch gesture on mobile devices.
		Animation	This property allows to enable / disable the Animation for the Tooltip.
Legend	Appearance	Enable Legend	This property enables / disables the Legend.
		Legend Layout	This property allows to specify the layout for the Legend. You can choose Horizontal or Vertical.
		Horizontal Alignment	This property allows to set the Horizontal Alignment for the Legend.
		Vertical Alignment	This property allows to set the Vertical Alignment for the Legend.
		Horizontal Offset	This property allows to set the Horizontal Offset for the Legend.
		Vertical Offset	This property allows to set the Vertical Offset for the Legend.
		Background Color	This property allows to set the Background Color for the Legend.
		Border Color	This property allows to set the Border Color for the Legend.
		Border Radius	This property allows to set the Background Radius for the Legend.
		Border Width	This property allows to set the Border Width for the Legend.
		Box Width	This property allows to set the Box Width for the Legend.
		Floating	When this property is enabled, the plot area will not assign specific space for the legend.
		Margin	Distance between the legend and the axis

Subcategory	Area	Property	Description
			labels/plot area; Applicable only when the legend is not floating.
		Padding	Here you can set the inner padding of the legend box.
		Shadow	Apply a drop shadow to the legend area.
	Legend Title	Title Text	Set the legend title text.
		Enable Legend Title	This property allows you to enable / disable the Legend.
		Font Family	Sets the Font Family for the Title.
		Font Size	Sets the Font Size for the Title.
		Font Color	Sets the Font Color for the Title.
		Font Style	Sets the Font Style for the Title.
	Legend Item	Font Family	Sets the Font Family for the Legend.
		Font Size	Sets the Font Size for the Legend.
		Font Color	Sets the Font Color for the Legend.
		Font Style	Sets the Font Style for the Legend.
		Hidden Item Color	Here you can set the color that will be used for hidden items in the Legend.
		Hovering Item Color	Here you can set the color that will be when hovering over items in the Legend.
		Reverse Order	This property allows to enable / disable a reverse order of the Legend Items.
		RTL Support	This property allows to enable / disable the Right To Left Support for the Legend.
	Legend Symbol	Symbol Width	Here you can set the Symbol Width for the Legend.
		Symbol Height	Here you can set the Symbol Height for the Legend.
		Symbol Padding	Distance between the Symbol and the Text.
		Symbol Radius	Here you can set the Symbol Radius.
Drill Down	Drill Down Button	Horizontal Alignment	Here you can set the Horizontal Alignment for the Drilldown button.
		Vertical Alignment	Here you can set the Vertical Alignment for the Drilldown button.
		Horizontal Offset	Here you can set the Horizontal Offset for the Drilldown Button.
		Vertical Offset	Here you can set the Vertical Offset for the Drilldown Button.

Table 8.6: Category Appearance

8.2.10.4 Category Scripting

Below you can see the Additional Properties for the category Scripting and their descriptions.

Subcategory	Area	Property	Description
Report Linking		Scripting Type	Here you can choose between Scripting or an integration with OpenDocument.
		Report Type	Here you can set the type of report. The available options are Crystal Reports, Web Intelligence, Analysis OLAP, and Design Studio.
		Open in New Tab	This property allows you to enable / disable the option to see the report in a new tab.
		Document Link	Here you can enter the link for the document. You can either enter the complete link, or you can construct the link by filling in the individual items.
		Protocol	Here you can choose between http or https.
		Open Document Server Name	Here you can enter the name of the Server for the OpenDocument application.
		Open Document Server Port	Here you can enter the Port of the Server for the OpenDocument application.
		Path to Open Document	Here you can specify the Path to the OpenDocument application.
		SID Type	Here you can choose between CUID or InfoObject.
		OpenDocument iDocID	Here you can specify the document ID.
		Parameter Key	Here you can enter the technical name of the parameter in the report.
		Choose Dimension Parameter	Here you can choose with Dimension will be used to pass the value to the selected parameter.
		Choose Key or Text	Here you can set if the Key or Text value of the dimension will be transferred.
		Parameter Type	Here you can choose between Single or Multiple values.
		Additional Parameters	Here you can enter any additional URL Parameter that should be passed to the report.

Table 8.7: Category Scripting

8.2.11 Scripting Functions for the Heat / Bubble GeoMap component

The following Table outlines the available scripting functions for the Heat / Bubble GeoMap component.

Function Name	Description
DSXGetDataLabelNoOfDecimals	This function returns the number of decimals for the Data Label.
DSXGetDataLabelPrefix	This function returns the Data Label Prefix.
DSXGetDataLabelSuffix	This function returns the Data Label Suffix.
DSXGetDataSelection	This function returns the data selection from the map.
DSXGetDecimalSeparator	This function returns the Decimal Separator.
DSXGetDrillUpMember	This function returns the member of the Drill Up navigation.
DSXGetDrillUpMemberKey	This function returns the key value of the member of the Drill Up Navigation.
DSXGetDrillUpMemberText	This function returns the text value of the member of the Drill Up Navigation.
DSXGetDrilldownLevel	This function returns the Drill down level.
DSXGetDrilldownMember	This function returns the member of the Drill down navigation.
DSXGetDrilldownMemberKey	This function returns the key value of the member of the Drill down Navigation.
DSXGetDrilldownMemberText	This function returns the text value of the member of the Drill down Navigation.
DSXGetSelectedValue	This function returns the selected value.
DSXGetSelectedValues	This function returns the selected values in form of an array.
DSXGetSubTitleText	This function returns the Sub Title Text.
DSXGetThousandSeparator	This function returns the Thousand Separator.
DSXGetTitleText	This function returns the Title Text.
DSXGetVisible	This function returns the status on the visibility.
DSXSetDataLabelEnabled	This function enables the Data Label.
DSXSetDataLabelNoOfDecimals	This function sets the number of decimals for the Data Label.
DSXSetDataLabelPrefix	This function sets the Data Label Prefix.
DSXSetDataLabelSuffix	This function sets the Data Label Suffix.
DSXSetDataSelection	This function sets the data selection for the map.
DSXSetDecimalSeparator	This function sets the Decimal Separator.
DSXSetExportedFileName	This function sets the file name for the Export.
DSXSetSubTitleEnable	This function enables / disables the Subtitle.
DSXSetSubTitleText	This function sets the Subtitle Text.
DSXSetThousandSeparator	This function sets the Thousand Separator.
DSXSetTitleEnable	This function enables / disables the Title.
DSXSetTitleText	This function sets the Title Text.
DSXSetToolTipNoOfDecimals()	This function allows to set the number of decimals for the Tooltip.
DSXSetToolTipValuePrefix()	This function allows to set the Prefix for the Tooltip.
DSXSetToolTipValueSuffix()	This function allows to set the Suffix for the Tooltip.

Function Name	Description
DSXgetSelectedMember	This function returns the selected member as dimension object.
DSXgetSelectedMemberKey	This function returns the selected member key value.
DSXgetSelectedMemberText	This function returns the selected member text value.
DSXgetSelectedMembers	This function returns the selected members as an array of dimension objects.
DSXgetSelectedMemberKey	This function returns the selected members as an array of member key values.
DSXgetSelectedMemberText	This function returns the selected members as an array of member text values.

Table 8.8: Scripting Functions

8.2.12 Events for the Bubble/Heat GeoMap

The following Table outlines the available events for the Bubble / Heat GeoMap component.

Event	Description
onClick	Using this property, you can enable interaction with the component by writing scripts. The on Click event is triggered when you click on the Component.
onDrilldown	This event is triggered as part of the Drill Down navigation.
onDrillUp	This event is triggered as part of the Drill Up navigation.

Table 8.9: Events

8.3 Location Analyzer

Location Analyzer is a mapping component that allows geographic analysis based on Longitude and Latitude information or based on a complete address location or a GeoJSON definition. The Location Analyzer component allows you to setup different set of layers, such as a Marker Layer, Cluster Layer, Choropleth, Bubble, and a Heat Map Layer.

8.3.1 Zoom Layer Selection

As part of Release 2.32, you have the option to configure four different zoom levels for viewing the Marker Layer, Heat Layer, Cluster Layer, Choropleth, Bubble Layer and Flow Layer in the Location Analyzer by navigating to the category Map Layers and to the subcategory Zoom Settings (see Figure 8.30).

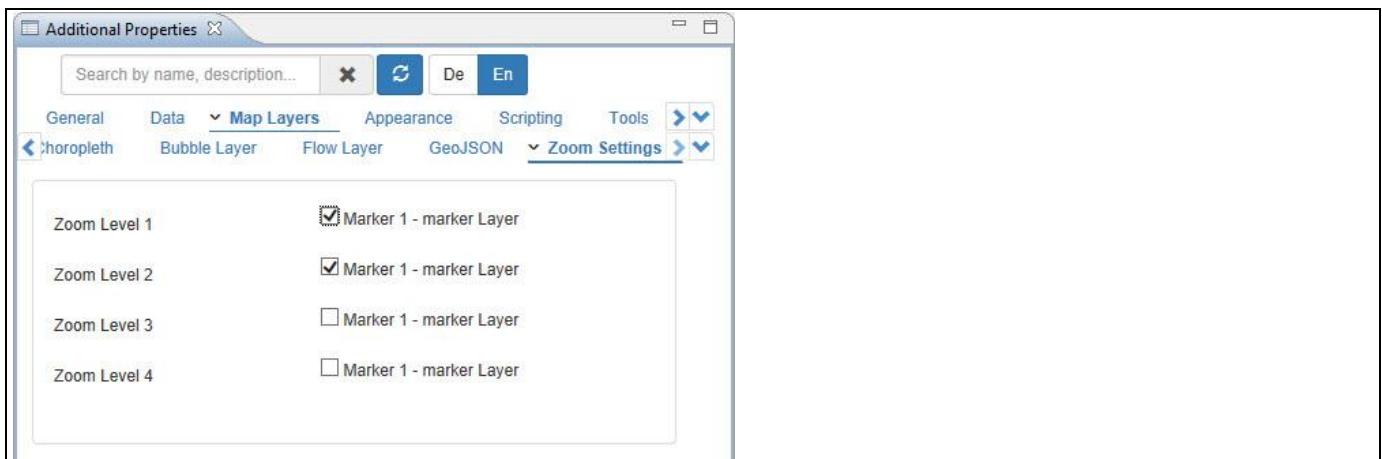


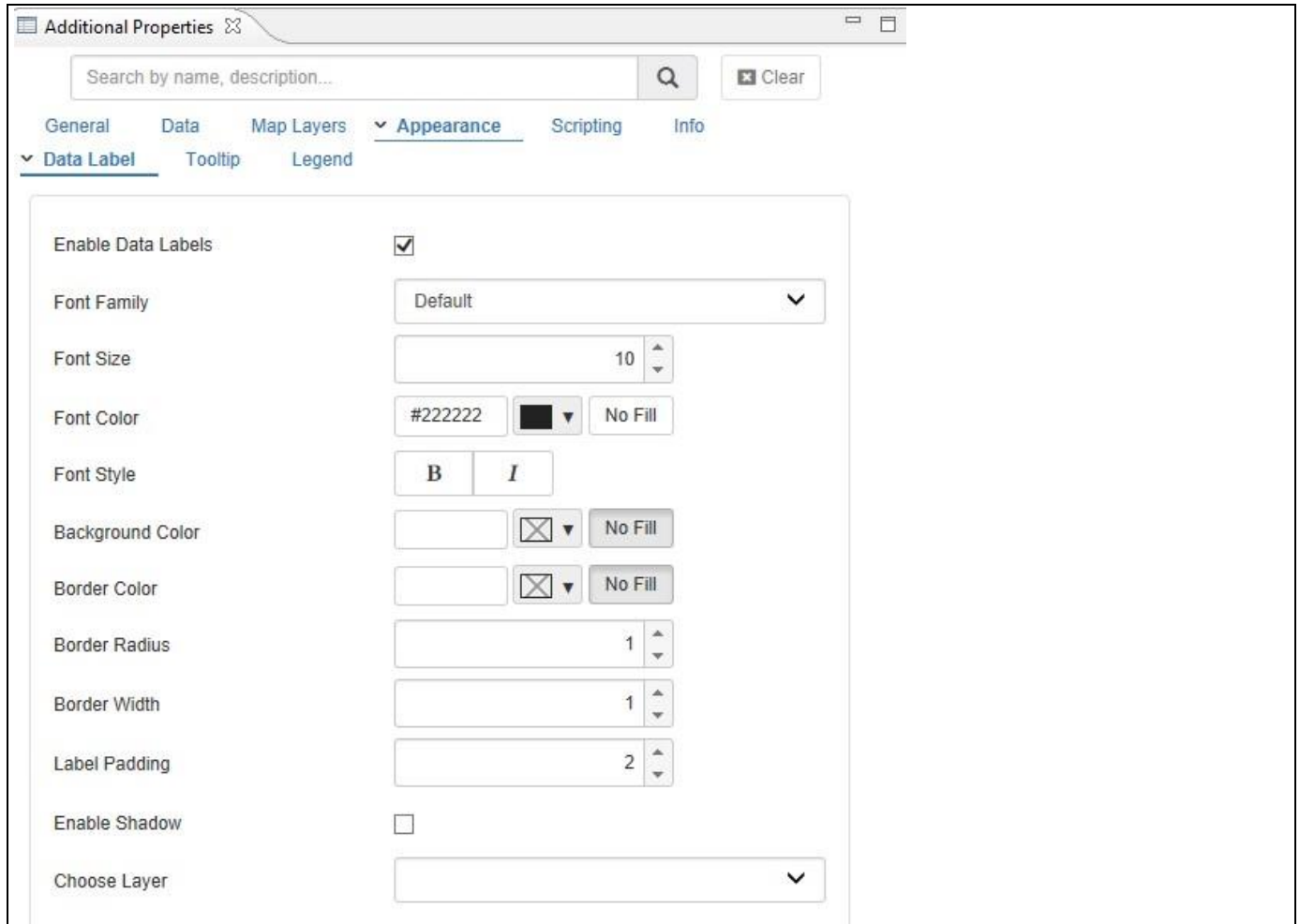
Figure 8.30: Zoom Settings

For our example, we have assigned the Marker Layer and configured the zoom settings for Zoom Level 1 and Zoom Level 2. Based on the configuration, you will be able to view the Marker Layer in the Location Analyzer only at Zoom Level 1 which has Levels from 1 to 3 and at Zoom level 2 which has Levels from 4 to 7.

8.3.2 Custom Data Label and Custom Tooltip Configurations

For Location Analyzer component, you also have the ability to create a customized Data Label and Tooltip using a small text editor as part of the Additional Properties.

In the Additional Properties of the Location Analyzer component in the Category Appearance you can navigate to the subcategory Data Label, which provides access to all the settings related to the Data Labels for the Location Analyzer (see Figure 8.31).



The screenshot shows the 'Additional Properties' dialog box with the 'Appearance' tab selected. The 'Data Label' sub-tab is also active. The 'Enable Data Labels' checkbox is checked. The 'Font Family' is set to 'Default'. The 'Font Size' is 10. The 'Font Color' is #222222. The 'Font Style' has 'B' (Bold) and 'I' (Italic) buttons. The 'Background Color' and 'Border Color' are both set to 'No Fill'. The 'Border Radius' is 1, 'Border Width' is 1, and 'Label Padding' is 2. The 'Enable Shadow' checkbox is unchecked. The 'Choose Layer' dropdown is empty.

Figure 8.31: Data Label Properties

Part of the Data Label properties is also a small editor, which allows you to create a customized data label (see Figure 8.32).

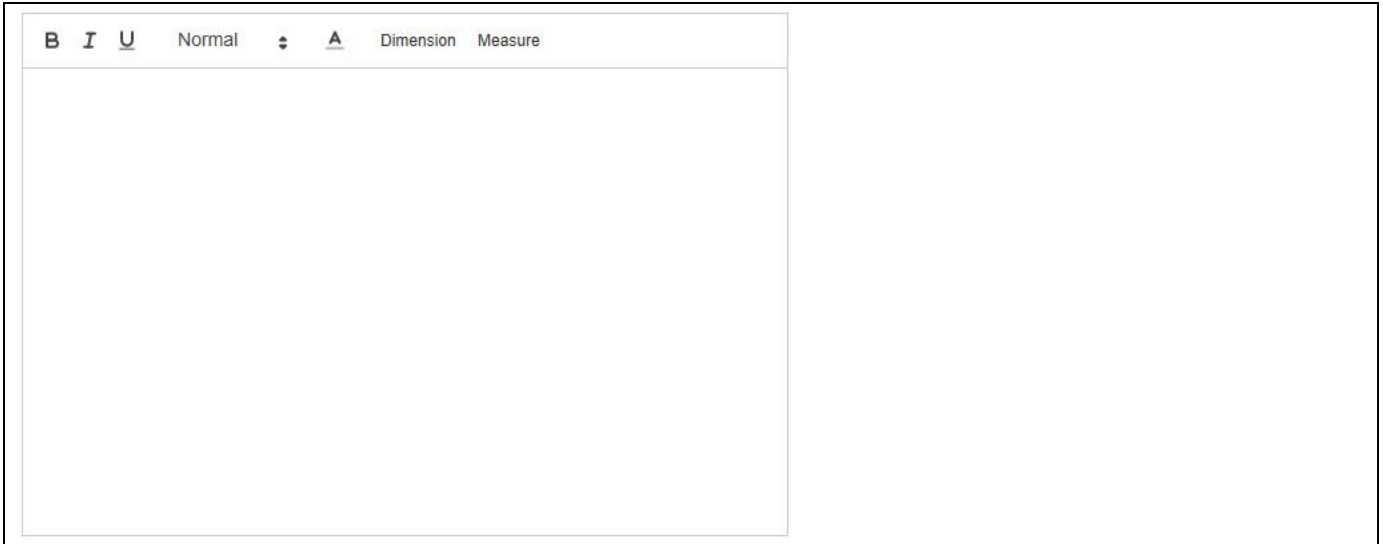


Figure 8.32: Custom Data Label

Using this small editor you have the ability to simply type and format text, as well as integrate data and meta-data from the assigned data source. Using the menu items Dimension and Measure, you can integrate the information from the assigned Dimension and Measure(s) into the Data Label.

When clicking on Dimension, you will have the option to select the dimension as part of the property Name. By using the option Metadata, you can include the name of the dimension into the data label and by using the option Member the dimension member that is shown in the Location Analyzer will then be mentioned in the data label.

In addition you can configure the property Display Type to either show the Key or the Text for the dimension member (see Figure 8.33).

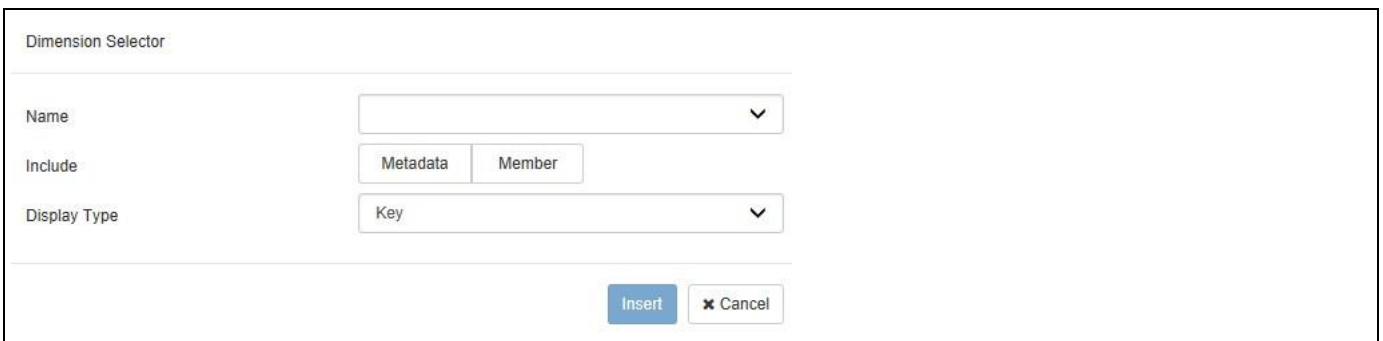
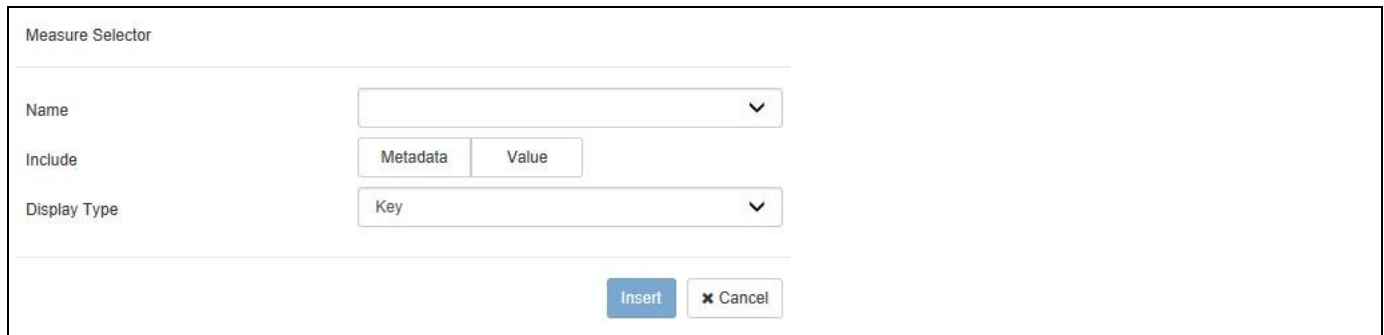


Figure 8.33: Dimension Selector

When clicking on Measure, you will receive a very similar list of options for the measures in the Location Analyzer (see Figure 8.34).



Measure Selector

Name

Include

Display Type

Figure 8.34: Measure Selector

Here you also have the ability to first select the Measure and then choose between the Metadata and the Value of the Measure. In case you choose the Metadata option, you can then also choose between the Key and Text for the Display Type. After inserting the text and the selected elements from the dimension and measures, the text editor is showing the elements of the data labels (see Figure 8.35).



B I U Normal A Dimension Measure

Product Group Member Text : Current Measure Value

Figure 8.35: Custom Data Label

In the given example we selected the Text from the Member from dimension Product Group and the measure value from the measure displayed in the Location Analyzer. You also have this option available for the Tooltip as part of the Additional Properties in the category Appearance > Tooltip.

Number Format for Data Label and Tooltip

Any configurations as part of the Number Format settings in the Additional Properties will automatically be used by the Data Label and Tooltip display – including any custom Data Label and Tooltip.

8.3.3 Data Source Requirements for the Location Analyzer

The Location Analyzer requires a data source with both Longitude and Latitude information available or with a complete address in the source data. The information such as Longitude and Latitude can be leveraged in form of a dimension, measure, or an attribute. In addition you have the option to setup a custom map using a GeoJSON syntax and map the GeoJSON attributes to your data source.

8.3.4 Support for Multiple Data Sources

Starting with VBX 1.68, the Location Analyzer provides the ability to leverage multiple data sources in a single map component as part of SAP BusinessObjects Design Studio/SAP Lumira Designer. To be able to leverage multiple data sources with the Location Analyzer, you have to create a technical component called Data Provider for each data source you would like to use in combination with the Location Analyzer.

In the following steps we will outline, how you can enable the option to leverage multiple data source and configure those as part of the Location Analyzer component.

1. We will assume that you are in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. For our example, we have a new application with several Data Sources (see Figure 8.36).

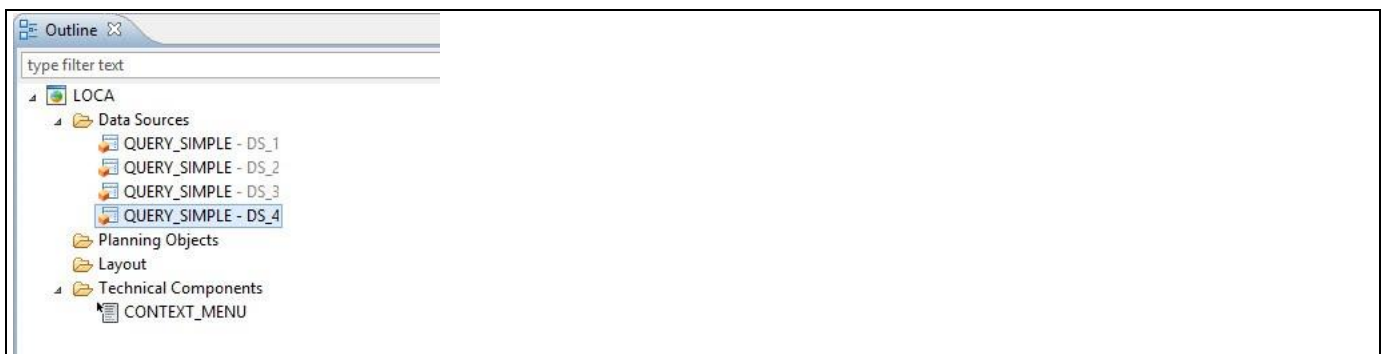


Figure 8.36: Application Outline

3. Our application has 4 data sources. As next step we navigate to the folder Technical Components.
4. Use a right-click on the folder Technical Components (see Figure 8.37).

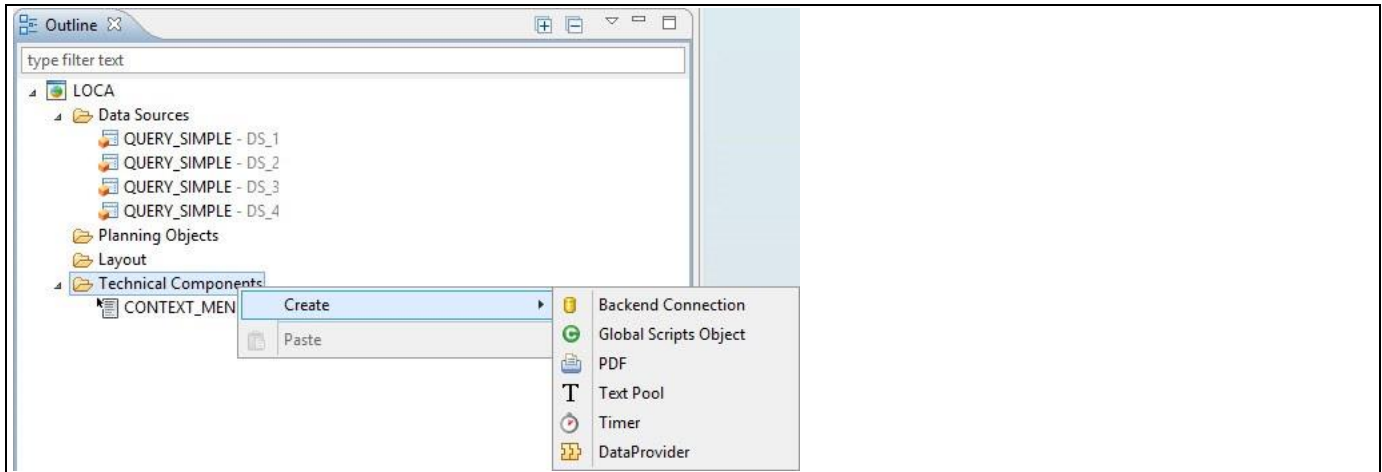


Figure 8.37: Technical Components

5. Select the menu option Create • Data Provider.
6. A new Data Provider is being created as part of the Technical Components (see Figure 8.38).

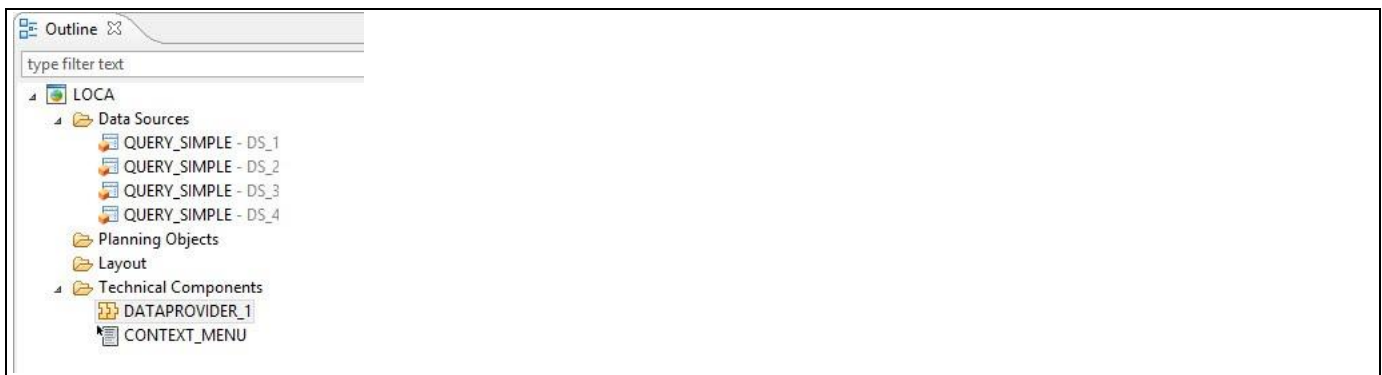


Figure 8.38: Data Provider

7. Select the newly created Data Provider.
8. Navigate to the Standard Properties of the Data Provider (see Figure 8.39).

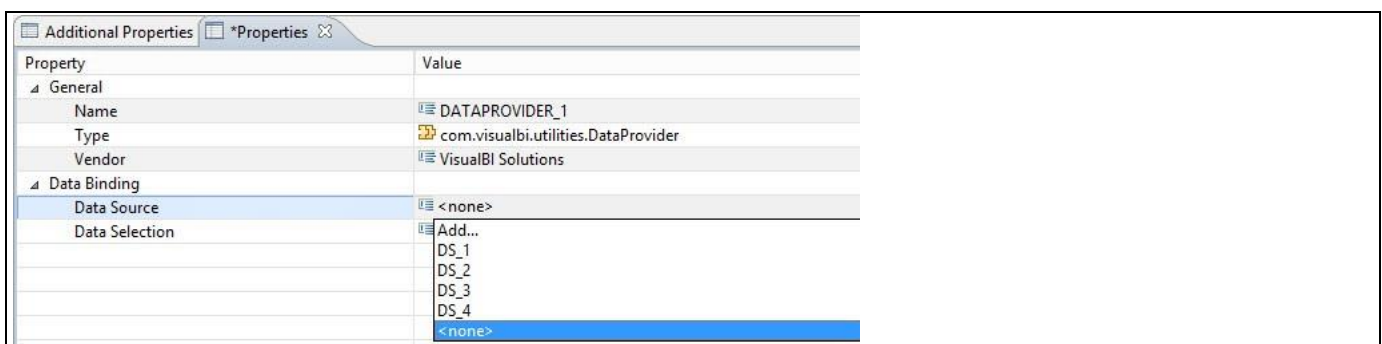
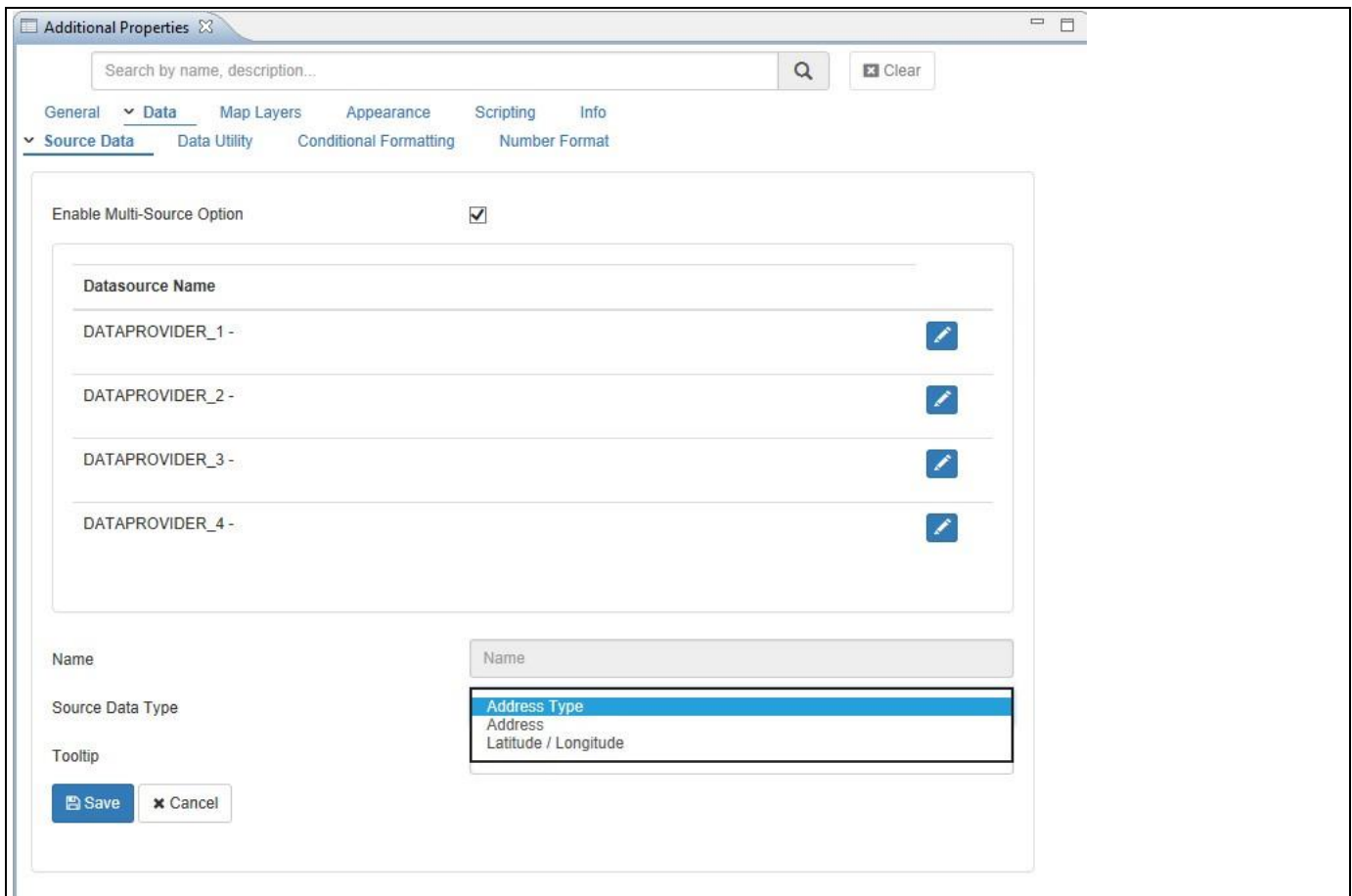


Figure 8.39: Standard Properties

9. You can now assign the Data Source from your application, which you would like to use, to the Data Provider.
10. In our example, we will assign data source DS_1 to the Data Provider 1.
11. Now add a Location Analyzer from the VBX Maps to your application.
12. Select the Location Analyzer component.

13. Navigate to the Additional Properties of the Location Analyzer.
14. Navigate to the category Data and the subcategory Source Data (see Figure 8.40).



Additional Properties


Search by name, description...


General Data Map Layers Appearance Scripting Info


Source Data Data Utility Conditional Formatting Number Format


Enable Multi-Source Option ☒

Datasource Name

DATAPROVIDER_1 - 

DATAPROVIDER_2 - 

DATAPROVIDER_3 - 

DATAPROVIDER_4 - 

Name

Source Data Type

Tooltip

Save Cancel

Name

Address Type
Address
Latitude / Longitude

Figure 8.40: Additional Properties

15. Activate the option Enable Multi Source Mode.
16. After you enabled the Multi Source Mode, you can then choose the configured Data Provider and configure it in the same way as you were configuring the standard data source previously. You can setup the configuration for each Data Provider individually.
17. After you configured the Data Source details as part of the Data category in the Additional Properties, you can then assign a data source for each individual map layer, as shown below for the Marker Layer (see Figure 8.41).

Additional Properties

Search by name, description...
Clear

General
Data
Map Layers
Appearance
Scripting
Info
General Settings
Marker Layer
Heat Layer
Cluster Layer
Choropleth
Bubble Layer
Flow Layer
GeoJ

Activate Marker Layer
☒

Create Layer

#	Layer Name

Layer Name

Choose Datasource

Choose Datasource
DATAPROVIDER_1 -
DATAPROVIDER_2 -
DATAPROVIDER_3 -
DATAPROVIDER_4 -

Choose Datalabel Measure

Enable Clustering

Icon Type

Marker - Standard

Marker - Background Color

Selected Marker - Background Color

Icon Height(in px)

Icon Width(in px)

Show on startup
☐

Choose Filter Dimension

No Filter

Save

Cancel

Figure 8.41: Marker Layer Properties

8.3.5 How to use the Location Analyzer – Marker Layer

In the following steps we will outline the steps required to setup a new map using the Location Analyzer component and to setup a new layer representing the data in form of Markers. For our example we will assume, that the data source contains the following elements:

- Dimension City Name in the Rows.
- Dimension City Longitude in the Rows.
- Dimension City Latitude in the Rows.
- Measure Revenue in the Columns.

You can follow the steps below to setup a new Location Analyzer Component:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the Location Analyzer component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the Additional Properties of the Location Analyzer Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category Data and subcategory Source Data.
7. Set the option Address Type to the value Latitude / Longitude (see Figure 8.42).

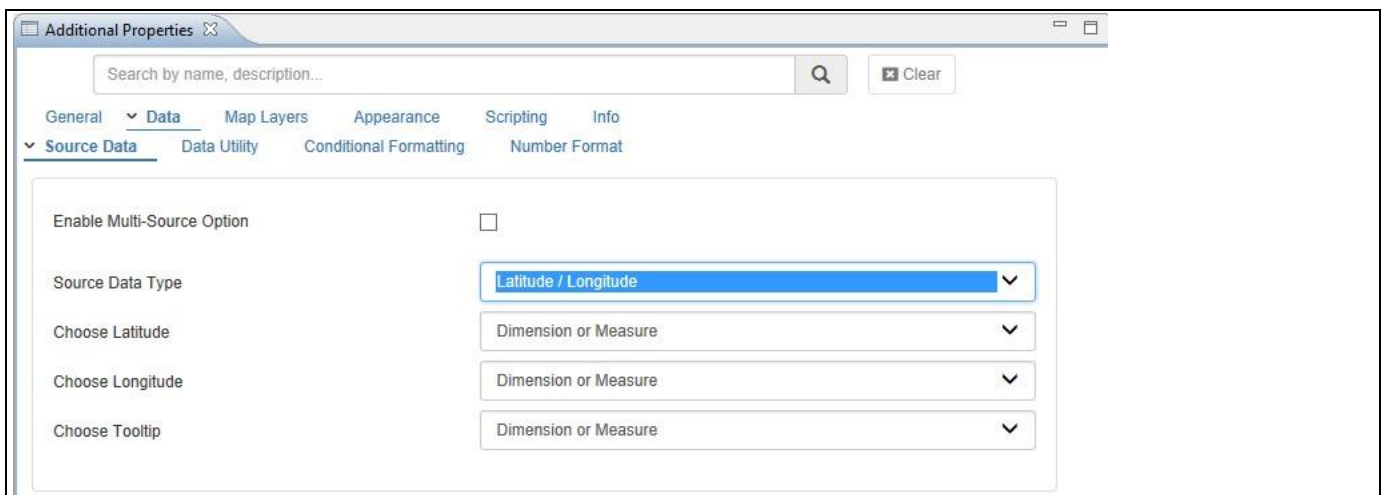


Figure 8.42: Category Data

8. Here you can configure the data source assignment to the map component.
9. Select the dimension City Latitude for the property Choose Latitude.
10. Select the dimension City Longitude for the property Choose Longitude.
11. Navigate to the category General and the subcategory General Settings (see Figure 8.43).

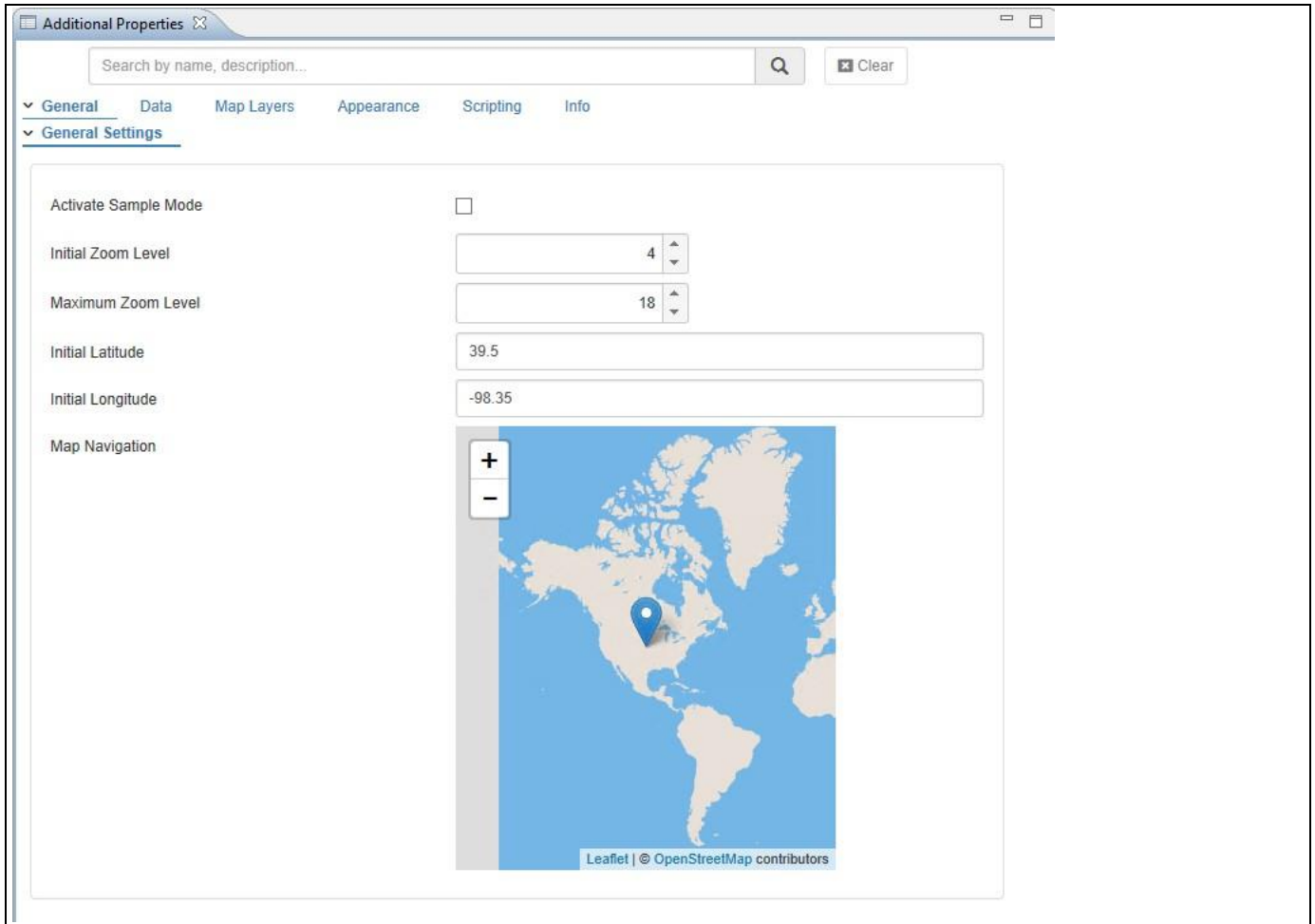


Figure 8.43: Category General

12. Here you can configure the starting point of the map for the start of the dashboard using the Initial Latitude and Initial Longitude values. You also have the option to move the marker in the map.
13. In addition you can configure the initial zoom level as well as the maximum zoom level.
14. Navigate to the category Map Layers and the subcategory General Settings (see Figure 8.44).

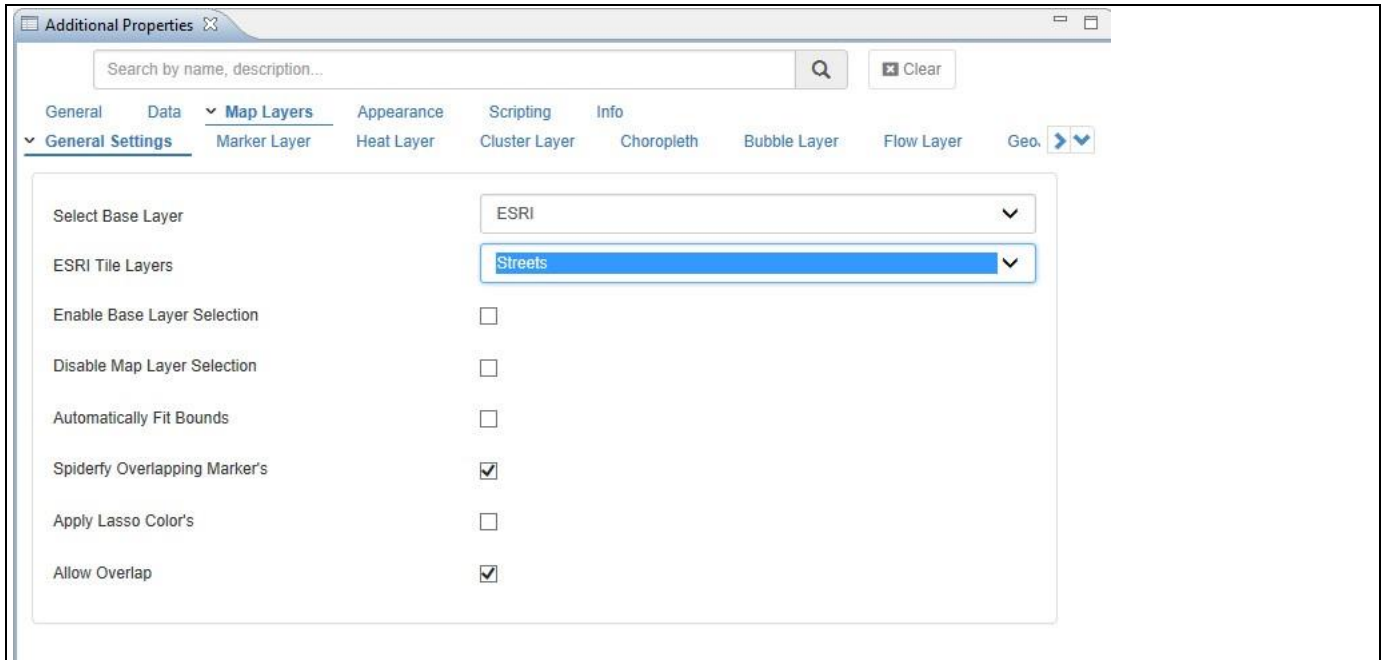


Figure 8.44: Category Map Layers

15. In this subcategory you can configure the different base layers – such as ESRI, Google, or OpenStreet.
16. Navigate to the subcategory Marker Layer.
17. Enable the option Activate Marker Layer.
18. Click Create Layer (see Figure 8.45).

Figure 8.45: Marker Layer

19. You can now configure one or several Marker Layer by providing the necessary details as shown in Table 8.10:

Property	Description
Layer Name	Here you can enter a name for the Marker Layer. This name will also be used as reference for the scripting.
Choose Datalabel Measure	Here you can select which measure will be shown as part of the Data Label.
Enable Clustering	For a larger set of Markers you can enable the clustering and you can then define the Cluster Limit.
Icon Type	Here you can choose the Icon Type. The options are Marker Standard, Marker Symbol, Marker URL, Marker Font Awesome. <ul style="list-style-type: none"> Marker Standard is the standard marker symbol. Marker Symbol allows you to choose from a list of marker symbols. Marker URL allows you to specify a custom marker symbol. Marker Fontawesome allows you to select a symbol from Fontawesome collection.

Property	Description
Marker – Background Color	Here you can set the background color for the Marker.
Selected Marker – Background Color	Here you can set the color for the selected Marker.
Icon Height (in px)	Here you can set the Height for the Marker Symbol.
Icon Width (in px)	Here you can set the Width for the Marker Symbol.
Show on Startup	This option allows to enable / disable the loading of the specific layer at startup of the map component.
Choose Filter Dimension	Here you can choose a dimension from the assigned data source and configure a filter value specifically for this marker layer.

Table 8.10: Marker Layer

20. For our example enter Marker Layer 1 as Layer Name.
21. Select the Marker Standard as Icon Type.
22. Set the Marker Background Color to be a Red color.
23. Set the Selected Marker color to a blue color
24. Set the Icon Height and Icon Width to the value 12.
25. Activate the option Show on Startup.
26. Click Add / Update.

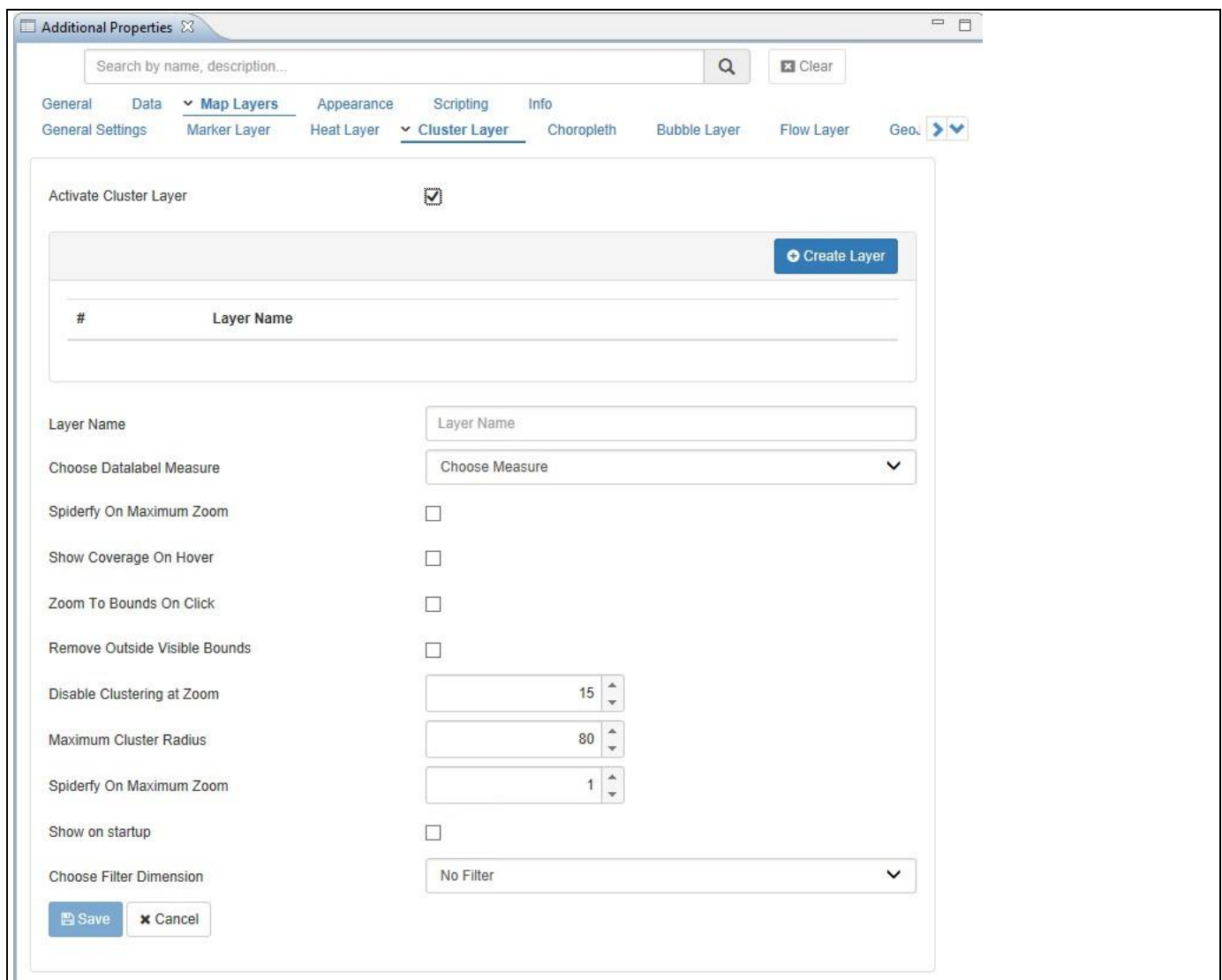
The Marker Layer will be added to the list of available layers and you should also see the data now shown on the map. In the next section we will add additional layers to the project.

8.3.6 How to use the Location Analyzer – Cluster Layer

In the following steps we will outline the steps required to setup a new layer representing the data in form of a Cluster Layer. For our example we will re-use the same data which we used in the previous steps for the Marker Layer.

You can follow the steps below to setup a new Cluster Layer Map Layer:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer open the project from the previous steps.
2. Navigate to the Additional Properties of the Location Analyzer Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
3. Navigate to the category Map Layers.
4. Navigate to the subcategory Cluster Layer.
5. Enable the option Activate Cluster Layer.
6. Click Create Layer (see Figure 8.46).



Additional Properties

Search by name, description...

General Data **Map Layers** Appearance Scripting Info

General Settings Marker Layer Heat Layer **Cluster Layer** Choropleth Bubble Layer Flow Layer Geo.

Activate Cluster Layer ☒

Create Layer

#	Layer Name

Layer Name

Choose Datalabel Measure

Spiderfy On Maximum Zoom ☐

Show Coverage On Hover ☐

Zoom To Bounds On Click ☐

Remove Outside Visible Bounds ☐

Disable Clustering at Zoom

Maximum Cluster Radius

Spiderfy On Maximum Zoom

Show on startup ☐

Choose Filter Dimension

Save Cancel

Figure 8.46: Cluster Layer

7. You can now configure one or several Cluster Layer by providing the necessary details as shown in Table 8.11:

Property	Description
Layer Name	Here you can enter a name for the Cluster Layer. This name will also be used as reference for the scripting.
Choose Datalabel Measure	Here you can select which measure will be shown as part of the Data Label.
Spiderfy on Max Zoom	When you click a Cluster at the lowest zoom level we spiderfy it so you can see all of its markers. (Note: the spiderfy occurs at the current zoom level if all items within the cluster are physically located at the same latitude and longitude.)
Show Coverage on Hover	When you mouse over a Cluster it shows the bounds of its markers.
Zoom to Bounds on Click	When you click a cluster we zoom to its bounds.
Remove Outside Visible Bounds	Clusters and Markers too far from the viewport are removed from the map for performance reason.
Disable Clustering at Zoom	If set, at this zoom level and below markers will not be clustered.
Maximum Cluster Radius	Here you can set the maximum cluster radius that a cluster will cover from the central marker (in pixels). Decreasing will make more, smaller clusters.
Spiderfy Distance Multiplier	Increase from 1 to increase the distance away from the center that spiderfied markers are placed.
Show on Startup	This option allows to enable / disable the loading of the specific layer at startup of the map component.
Choose Filter Dimension	Here you can choose a dimension from the assigned data source and configure a filter value specifically for this marker layer.

Table 8.11: Marker Layer

8. For our example enter Cluster Layer 1 as Layer Name.
9. For the other options leave the default values.
10. Activate the option Show on Startup.
11. Click Add / Update.
12. Select the menu Application • Execute Locally.
13. You should now receive a map with two layers and the menu options (top right) to switch the base maps and the different layers (see Figure 8.47).

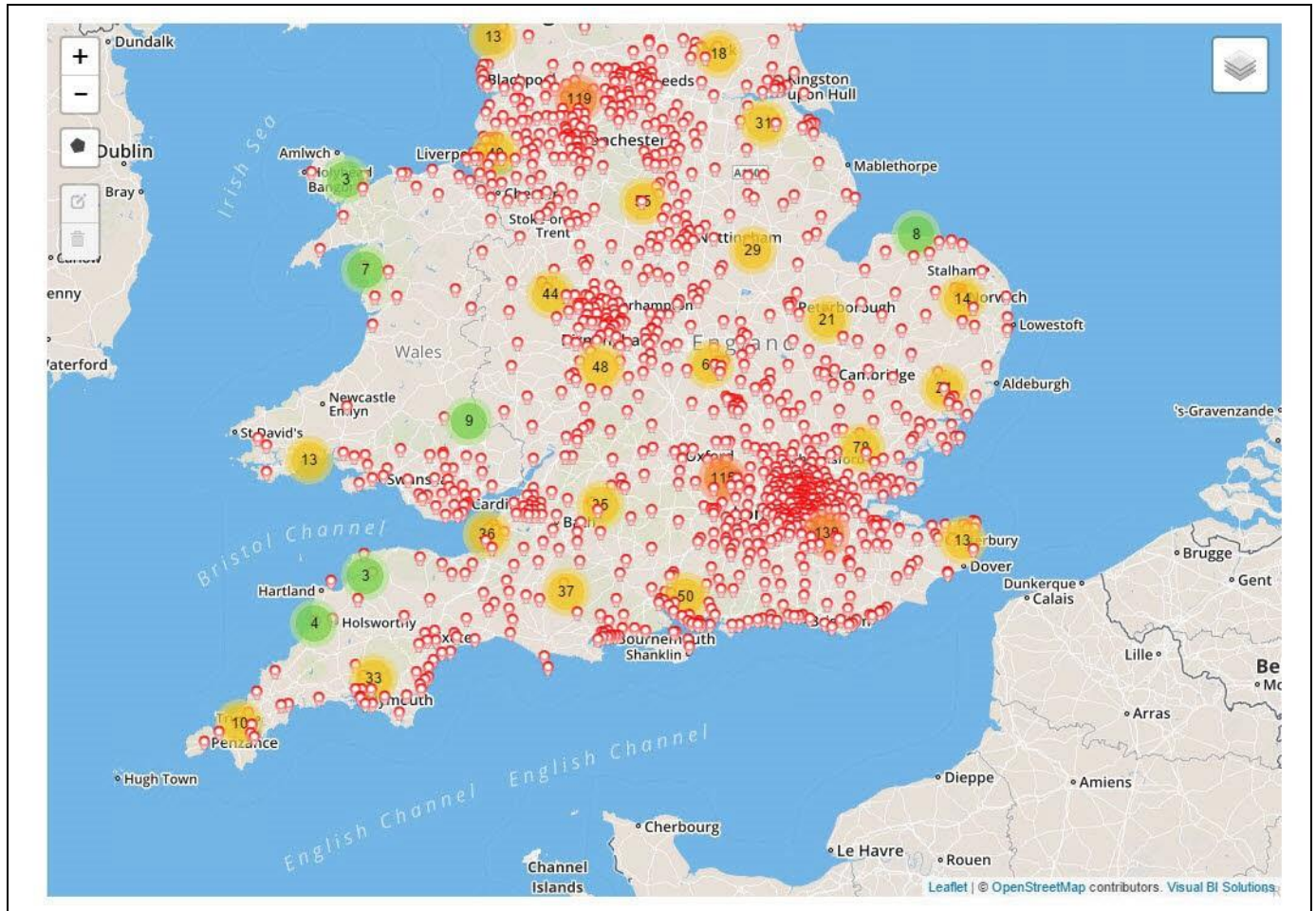


Figure 8.47: Cluster Layer

8.3.7 How to use the Location Analyzer – Heat Layer

In the following steps we will outline the steps required to setup a new layer representing the data in form of a Heat Layer. For our example we will re-use the same data which we used in the previous steps for the Marker Layer and for the Cluster Layer.

You can follow the steps below to setup a new Heat Layer Map Layer:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer open the project from the previous steps.
2. Navigate to the Additional Properties of the Location Analyzer Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
3. Navigate to the category Map Layers.
4. Navigate to the subcategory Heat Layer.
5. Enable the option Activate Heat Layer.
6. Click Create Layer (see Figure 8.48).

Additional Properties

Search by name, description...

General Data **Map Layers** Appearance Scripting Info

General Settings Marker Layer **Heat Layer** Cluster Layer Choropleth Bubble Layer Flow Layer GeoJ

Activate Heat Layer ☒

#	Layer Name

Layer Name

Minimum Opacity

Maximum Zoom

Maximum

Radius

Blur

Show on Startup ☒

Choose Filter Dimension

Enable Color Scheme ☐

Gradient

#	Stops	Color
Gradient 1	<input type="text" value=" "/>	<input type="text" value="#FFFFFF"/> <input type="button" value=" "/>

Figure 8.48: Heat Layer

7. You can now configure one or several Heat Layer by providing the necessary details as shown in Table 8.12:

Property	Description
Layer Name	Here you can enter a name for the Heat Layer. This name will also be used as reference for the scripting.
Minimum Opacity	Here you can specify the Minimum Opacity where the heat will start.
Maximum Zoom	Here you can specify the Zoom level where the points reach the maximum intensity (as intensity scales with zoom).
Maximum	Maximum point intensity, 1.0 by default.
Radius	Here you can specify Radius of each "point" of the heatmap.

Property	Description
Blur	Here you can specify the amount of blur, 15 by default.
Show on Startup	This option allows to enable / disable the loading of the specific layer at startup of the map component.
Choose Filter Dimension	Here you can choose a dimension from the assigned data source and configure a filter value specifically for this heat layer.
Enable Color Scheme	Here you can define a custom color scheme.
Gradient	Here you can specify the Gradient level for the heat map.

Table 8.12: Heat Layer

8. For our example enter Heat Layer 1 as Layer Name.
9. For the other options leave the default values.
10. Activate the option Show on Startup.
11. Click Add / Update.
12. Select the menu Application • Execute Locally.

You should now receive a map with a total of three layers and the menu options (top right) to switch the base maps and the different layers (see Figure 8.49).

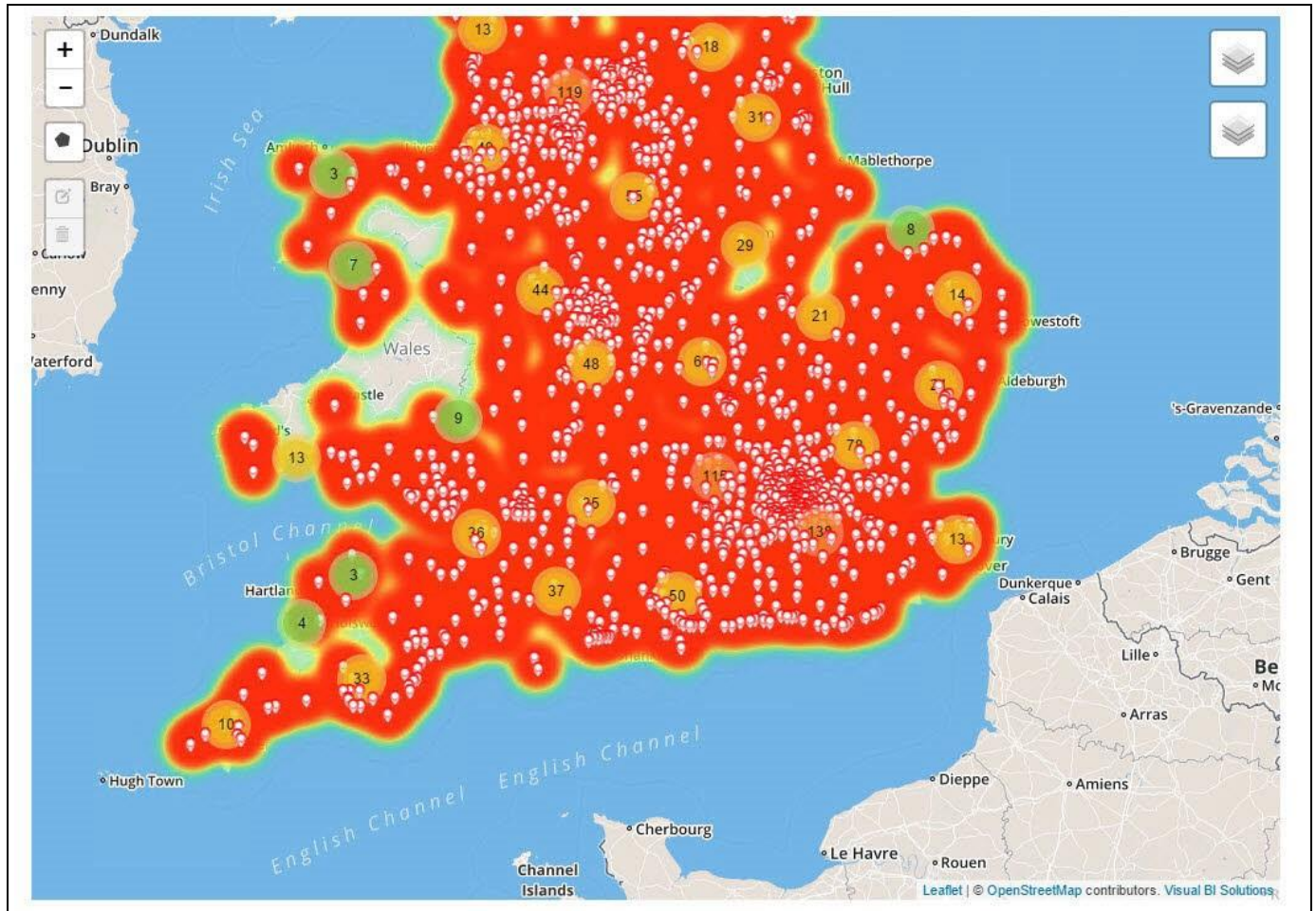


Figure 8.49: Heat Layer

8.3.8 How to use the Location Analyzer – GeoJSON Layer

In the following steps we will outline the steps required to setup a new map using the Location Analyzer and adding a new layer to the map by using a GeoJSON definition. For our example we assume that we do have a data source with a dimension Region, which lists the states of the US and we also have a GeoJSON file outlining the borders of the US.

You can follow the steps below to setup a new Location Analyzer Component:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer in the SAP BusinessObjects BI Platform Mode.
2. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
3. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
4. Add the Location Analyzer component from the VBX Maps to your project.
5. Assign the data source to the map component.
6. Navigate to the Additional Properties of the Location Analyzer Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
7. Navigate to the category Map Layers.
8. Navigate to the subcategory GeoJSON.
9. Click Create Layer (see Figure 8.50).

Figure 8.50: Category GeoJSON

10. Here you can configure the following details:

Category	Property	Description
GeoJSON	Layer Name	Here you can enter the name for the GeoJSON Layer.
	Source	<p>Here you can choose the type of GeoJSON File. The available options are</p> <ul style="list-style-type: none"> Local File: Here you can choose a local file URL: You can provide a URL to a GeoJSON file Raw Text: You can copy / paste the raw GeoJSON syntax. SAP BusinessObjects BI Platform: Here you can

Category	Property	Description
		select a file from the SAP BusinessObjects BI Platform.
	Text	Here you can paste the GeoJSON syntax.
	Sample Row Count	Here you can enter a value to limit the loading of GeoJSON attributes for sample display purposes.
	Line Color	Here you can set the color for the line drawn based on the GeoJSON syntax.
	Fill Color	Here you can set the Fill Color for areas based on the GeoJSON syntax.
	Line Weight	Here you can define the Line Weight.
	Line Opacity	Here you can define the Line Opacity.
	Show On Startup	This option allows to enable / disable the loading of the specific layer at startup of the map component.
	Attribute	Here you can choose a GeoJSON Attribute which will be mapped to the selected dimension.
	Dimension	Here you can choose a dimension which will be mapped to a GeoJSON attribute.
	Key or Text	Here you can select if either the Key or the Text value for the dimension should be used.

Table 8.13: Category GeoJSON

11. Enter GeoJSON_Layer1 as Name for the GeoJSON Layer.
12. For our example select the option SAP BusinessObjects BI Platform for the property GeoJSON Type.
13. In the next entry use the button on the right hand side to then either upload or directly select the GeoJSON file (see Figure 8.51).

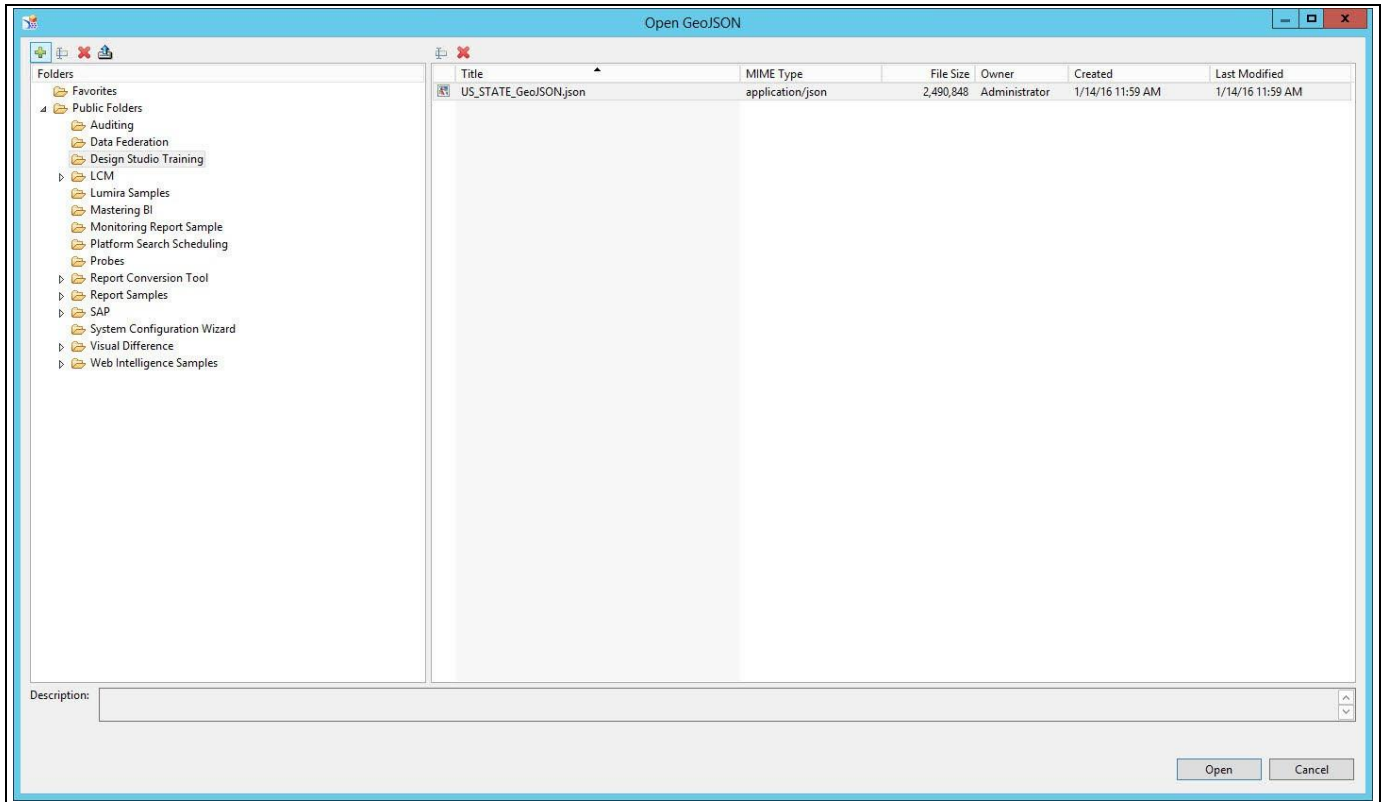


Figure 8.51: File Selection

14. Select the GeoJSON File.
15. Click Open.
16. After you selected the file from the BI Platform, click Load to see some samples data from the GeoJSON file (see Figure 8.52).

GEO_ID	STATE	NAME	LSAD	CENSUSAREA
0400000US23	23	Maine		30842.923
0400000US25	25	Massachusetts		7800.058
0400000US26	26	Michigan		56538.901
0400000US30	30	Montana		145545.801
0400000US32	32	Nevada		109781.18
Total : 52				

Figure 8.52: GeoJSON Details

17. You can now configure the details, such as the Line Color, Line Weight, Fill Color, and Line Opacity.
18. You can then also select the dimension – in our Example Region – that will be mapped to a GeoJSON Attribute.
19. You can decide if you would like to map the Key or Text value of the dimension.
20. You can then choose the GeoJSON Attribute which will be mapped to the dimension.
21. Click on Add / Update to add the Layer to your map.

SAP BusinessObjects BI Platform as storage option

Please note, that the option to upload or select the GeoJSON file to / from the SAP BusinessObjects BI Platform is only supported with SAP BusinessObjects Design Studio/SAP Lumira Designer release 1.6 or higher.

In this section we added a GeoJSON Layer to our map, but so far we have not added any display of a measure value to it. In the next set of steps we will combine the GeoJSON layer with a Choropleth layer and a Bubble Layer.

8.3.9 How to use the Location Analyzer – Choropleth Layer

In the following steps we will use the GeoJSON Layer we created previously based on the GeoJSON definition for the states (Region) in the US and we will now add a Choropleth Layer on top of the GeoJSON layer. As part of these steps we will link the GeoJSON Layer to our data source and in that way visualize the values in form of a choropleth layer.

You can follow the steps below to setup a new Choropleth Layer:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer open the application with the Location Analyzer component and the GeoJSON Layer we created previously.
2. Select the Location Analyzer Component.
3. Navigate to the Additional Properties of the Location Analyzer Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
4. Navigate to the area Map Layers in the Additional Properties.
5. Navigate to the subcategory Choropleth.
6. Enable the option Activate Choropleth Layer.
7. Click Create Layer (see Figure 8.53).

Additional Properties

Search by name, description...

General Data **Map Layers** Appearance Scripting Info

General Settings Marker Layer Heat Layer Cluster Layer **Choropleth** Bubble Layer Flow Layer GeoJSON

Activate Choropleth Layer ☒

Create Layer

#	Layer Name	

Layer Name: Layer Name

Show on startup: ☐

Selected Block - Choropleth Background Color: [Color Selection] No Fill

Choose Geojson Layer: Select Layer

Legend Position: Right

Choose Filter Dimension: No Filter

Choose Measure: Choose Measure

No. of Decimal (Tooltip): [Spin Box]

Scale Type: Choose Scale

Configure Color: [Color Selection]

Save Cancel

Figure 8.53: Choropleth Layer

8. Enter a Layer Name.
9. Select the previously created GeoJSON Layer for the option Choose GeoJSON Layer.
10. Select a measure from the data source for the choropleth layer.
11. Configure a Scale Type. You have the option between Quantile, Quantize, Linear, or Custom.
12. Select a Color Option. You can choose between a manual color scheme creation or you can choose a color scheme from Color Brewer for the property Configure Color.
13. For our example we are selecting the option Color Spectrum.
14. In the next option we are selecting a Sequential color scheme (see Figure 8.54).

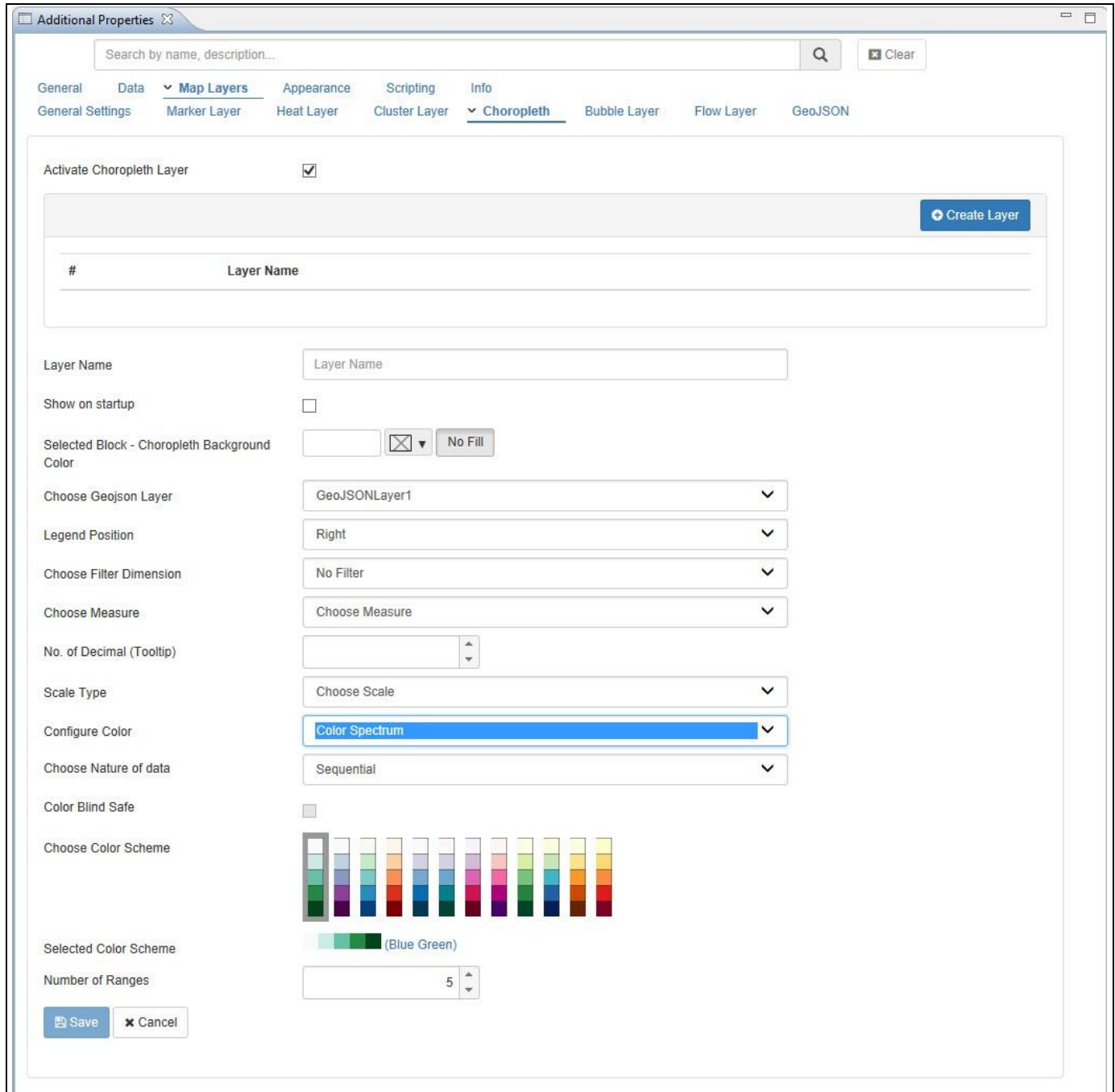


Figure 8.54: Color Scheme

15. Select one of the prebuilt color schemes.
16. Click Add / Update.

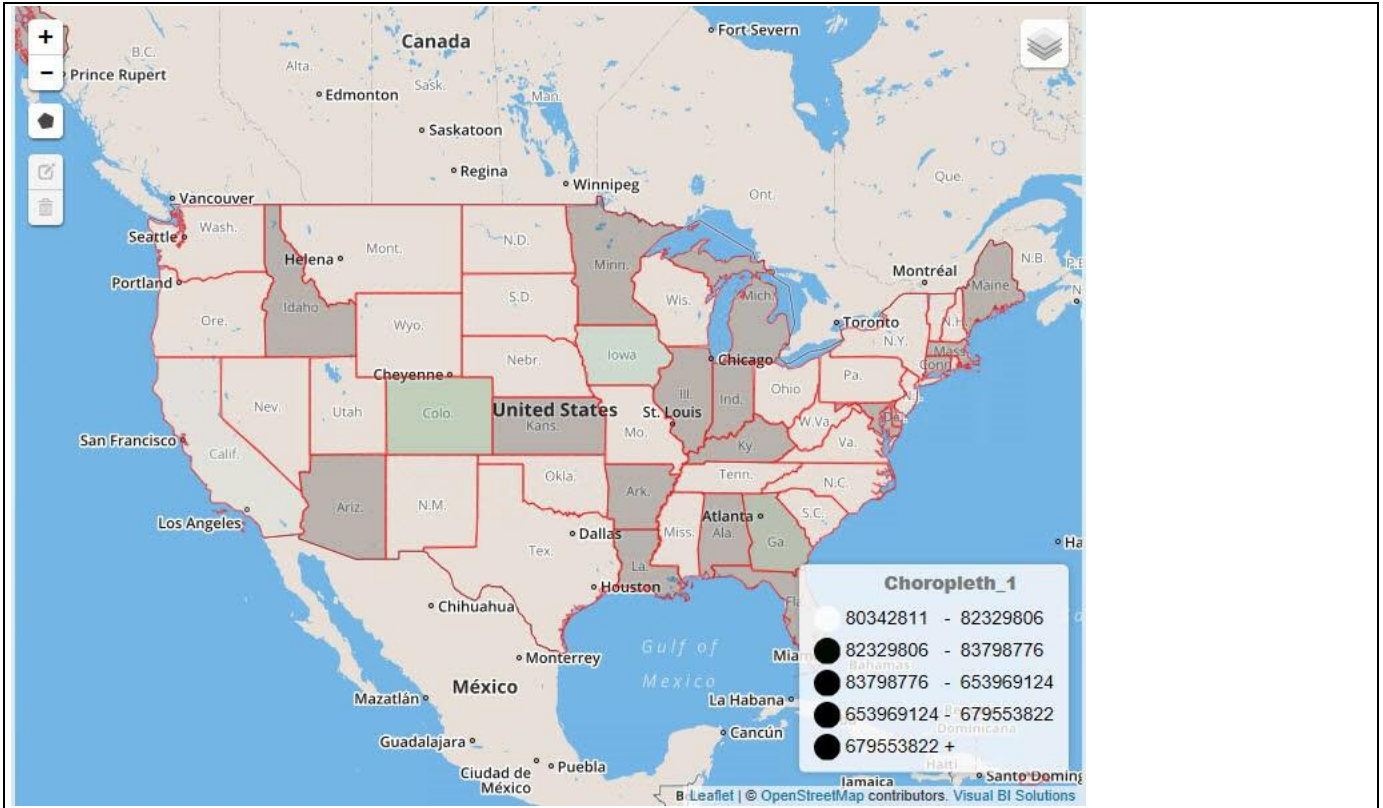


Figure 8.55: Choropleth Map

Your Choropleth map should now be visible as part of your Location Analyzer Component.

8.3.10 How to use the Location Analyzer – Bubble Layer

In the following steps we will use the Location Analyzer component and setup a Bubble Layer Map. For the Bubble Layer map we require a data source with Longitude and Latitude values.

For our example we will assume, that the data source contains the following elements:

- Dimension Longitude in the Rows.
- Dimension Latitude in the Rows.
- Measure Revenue in the Columns.
- Measure Profit in the Columns.

You can follow the steps below to setup a new Location Analyzer Component:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the Location Analyzer component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the Additional Properties of the Location Analyzer Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category Data and subcategory Source Data.
7. Set the option Source Data Type to the value Latitude / Longitude.
8. Assign the dimension to the property Latitude.
9. Assign the dimension to the property Longitude.
10. Navigate to the area Map Layers.
11. Navigate to the subcategory Bubble Layer.
12. Enable the option Activate Bubble Layer.
13. Click Create Layer (see Figure 8.56).

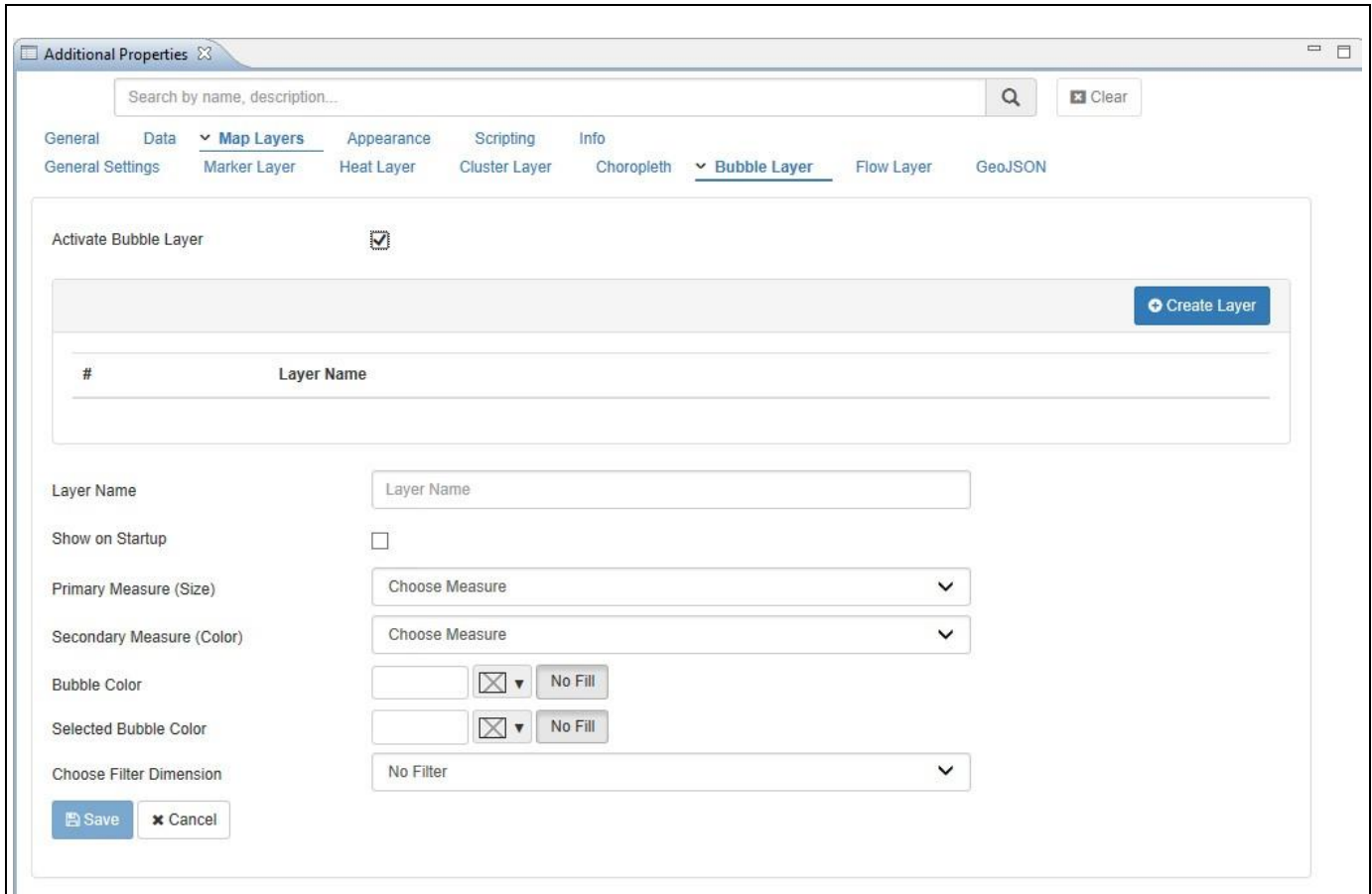


Figure 8.56: Bubble Map Layer

14. Enter a Layer Name.
15. Select a measure for the Primary Measure (Bubble Size).
16. Select a measure for the Secondary Measure (Bubble Color). The secondary measure is optional.
17. In case you configured a Secondary Measure, you will also have the option to setup a color scheme.
18. In addition you can configure define filter values based on the assigned data source that are specific for this map layer.
19. Click Add / Update and the map Layer should be shown as part of the map.

8.3.11 How to use the Location Analyzer – Flow Layer

In the following steps we will use the Location Analyzer component and setup a Flow Layer Map. For the Flow Layer map we require a data source with two sets of Longitude and Latitude values – one set for the origin and one set for the destination. For our example we will assume, that the data source contains the following elements:

- Dimension Origin City Longitude in the Rows.
- Dimension Origin City Latitude in the Rows.
- Dimension Destination City Longitude in the Rows.
- Dimension Destination City Latitude in the Rows.
- Measure Revenue in the Columns.

You can follow the steps below to setup a new Location Analyzer Component:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the Location Analyzer component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the Additional Properties of the Location Analyzer Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category Data and subcategory Source Data.
7. Set the option Source Data Type to the value Latitude / Longitude.
8. Assign the dimension to the property Origin City Latitude.
9. Assign the dimension to the property Origin City Longitude.
10. Navigate to the area Map Layers.
11. Navigate to the area Flow Layer.
12. Enable the option Activate Flow Layer.
13. Click Create Layer (see Figure 8.57).

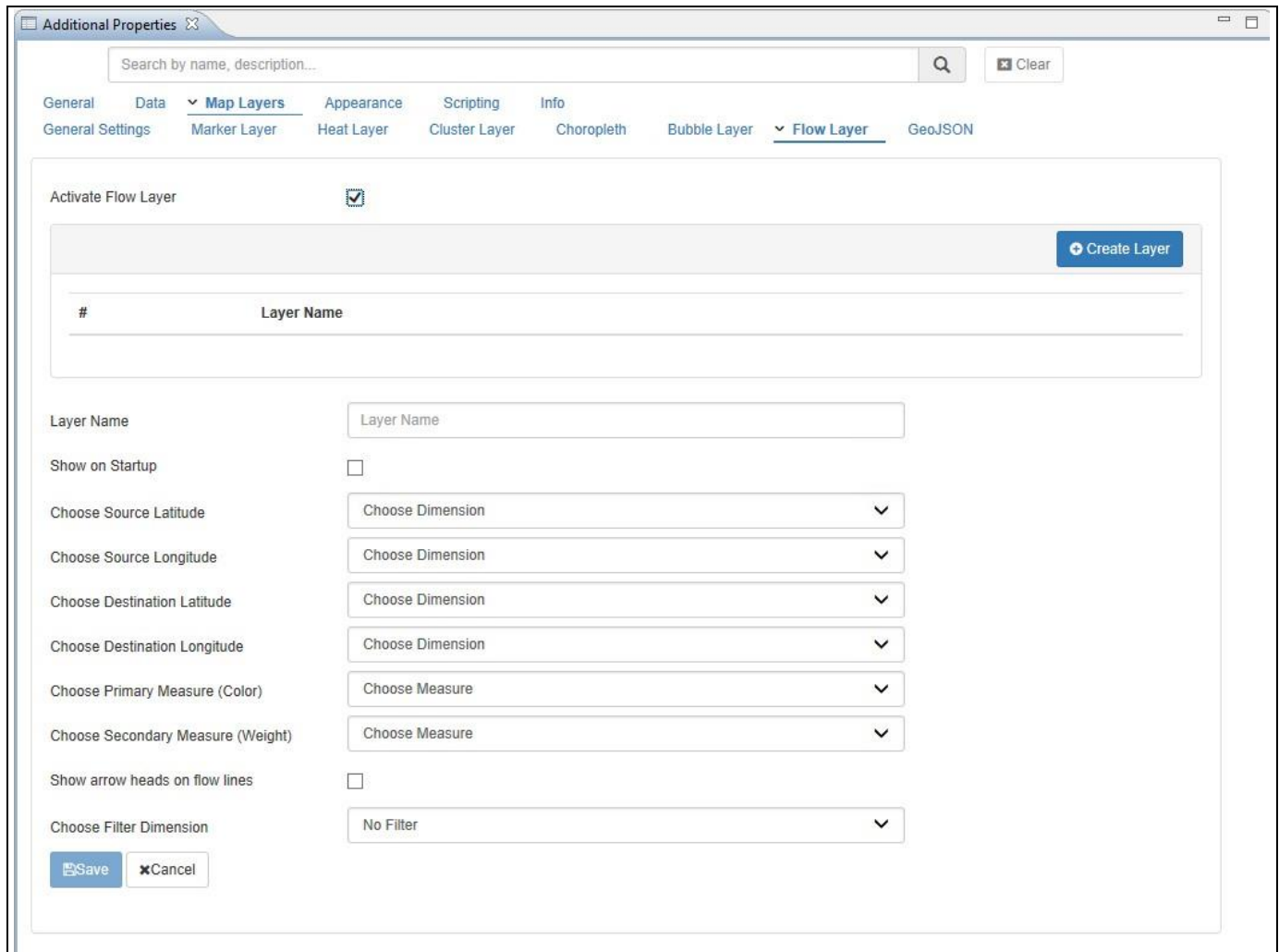


Figure 8.57: Flow Layer

14. Enter a name for the property Layer Name.
15. Active the option Show on Startup.
16. Set the dimension for the Source and Destination Longitude and Latitude properties according to the data source.
17. Assign the measure to the Primary Measure (Color).
18. Configure the color scheme to be a sequential color scheme.
19. Assign the second measure to the property for the Secondary Measure (Weight).
20. Configure the Size for the Secondary Measure to be a fixed size between 5 and 10 px.
21. Click Save.
22. Execute the application locally.
23. You should see a map layer similar to Figure 8.58.

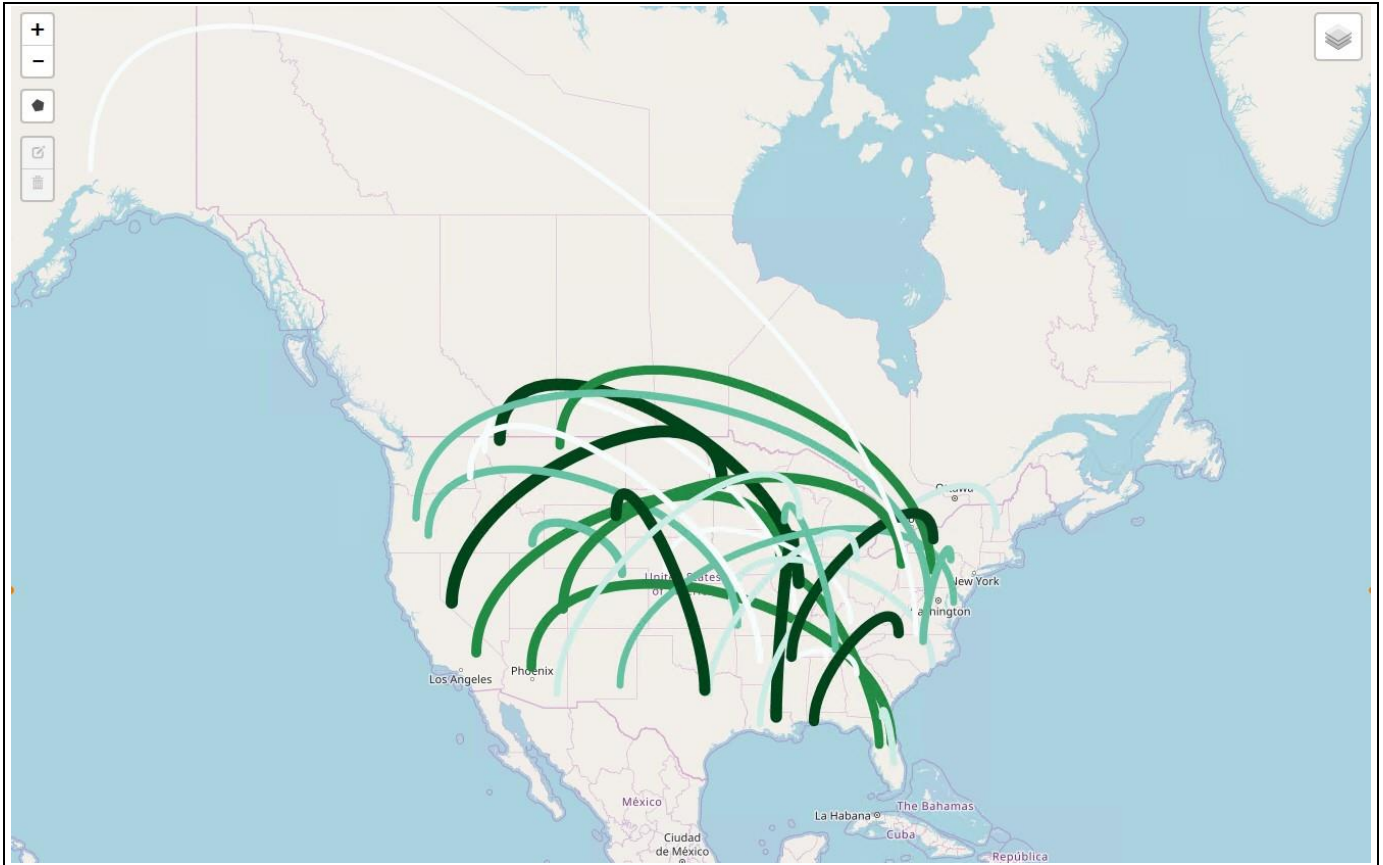


Figure 8.58: Flow Layer

8.3.12 How to use the Location Analyzer – Conditional Formatting

The Location Analyzer component also supports the Conditional Formatting for the Choropleth Map layer as well as the Marker Layer. In the next set of steps we will use the choropleth layer that we created in the previous steps to outline the steps to activate the conditional formatting.

You can follow the steps below to setup Conditional Formatting:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer open the project from our previously created choropleth layer.
2. Navigate to the Additional Properties of the Location Analyzer Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
3. Navigate to the category Data.
4. Navigate to the subcategory Conditional Formatting.
5. Click Create Rule (see Figure 8.59).

Figure 8.59: Conditional Formatting

6. Enter a Rule Name.
7. Select one of the available map layers. You can choose map layer of type Choropleth and Marker.
8. You have three different rule types: Single Measure, Measure Calculation, and Target Value. You can find the details on these different rule types in section 4.3.10 as part of the section for Conditional Formatting for charts.
9. Select the option Single Measure.

10. You can then choose a measure that will be compared against another value. For our example we will use measure Revenue as Comparison Measure.
11. For the option operator we use Greater Than.
12. For the Comparison Value Type we will use the option Dynamic.
13. For the Dynamic Selection Value we will set the value Measure Selection.
14. We will then use the measure Forecast for the Comparison Value.
15. And we will then set a color for the rule.
16. Click on Add / Update to add the Rule to our map.

Based on this rule, the measure Revenue will be compared against measure Forecast for all the entries in your data source that are part of the choropleth layer and in case the condition is met, the geographic area will then be filled with the selected color.

8.3.13 Additional Properties of Location Analyzer

As a custom component the Location Analyzer also comes with a set of Additional Properties. In the following sections you will find a list of available properties and a Table with a more detailed description of each of those properties.

8.3.13.1 Category General Settings

Below you can see the Additional Properties for the category General Settings and their descriptions:

Subcategory	Property	Description
General Settings	Activate Sample Mode	Here you can activate a sample mode for development purposes, so that only a small amount of data is being used.
	Initial Zoom Level	Here you can set the initial zoom level of the map. Zoom Level Should be greater than 0 and lesser or equal to Maximum Zoom Level.
	Maximum Zoom Level	Here you can configure the maximum zoom level that you will be able to use. The maximum value is 18.
	Initial Latitude	Here you can set the initial value for the Latitude.
	Initial Longitude	Here you can set the initial value for the Longitude.

Table 8.14: Category General Settings

8.3.13.2 Category Data

Below you can see the Additional Properties for the category Data and their descriptions:

Subcategory	Property	Description
Source Data	Enable Multi Source Option	This property will allow you to use multiple data sources and configure a specific data source for each map layer.
	Source Data Type	Here you can choose between a complete address and the option to use longitude and latitude values.
	Choose Latitude	Here you can select either a dimension or a measure to represent the Latitude values.
	Choose Longitude	Here you can select either a dimension or a measure to represent the Longitude values.
	Choose Tooltip	Here you can select a dimension / measure that is being used to be displayed as tooltip.
	Country Dimension	Here you can select the dimension that is being used for the Country values.
	Key or Text (Country)	Here you can select if either the Key or the Text value for the dimension should be used.
	State / Region Dimension	Here you can select the dimension that is being used for the State / Region values.

Subcategory	Property	Description
	Key or Text (State / Region)	Here you can select if either the Key or the Text value for the dimension should be used.
	City Dimension	Here you can select the dimension that is being used for the City values.
	Key or Text (City)	Here you can select if either the Key or the Text value for the dimension should be used.
	Postal Code Dimension	Here you can select the dimension that is being used for the Postal Code values.
	Key or Text (Postal Code)	Here you can select if either the Key or the Text value for the dimension should be used.
Data Utility	Aggregate Function	Here you can select which Aggregation Function will be used to aggregate the values.
Conditional Formatting	Rule Name	Here you can enter a name for the Conditional Formatting Rule.
	Select Layer	Here you can select one of the existing Choropleth or Marker Layers.
	Rule Type	Here you can choose the type of conditional formatting. The options are Single Measure, Measure Calculation, Target Value, Dimension.
	Highlighted Measure	Here you can select the measure where the rule will be applied upon.
	Comparison Measure	Here you can select the measure which will be compared against the Comparison Value.
	Operator	Here you can choose the operator that is used to compare the Comparison Measure with the Comparison Value.
	Comparison Value Type	Here you can choose between a Static and a Dynamic comparison value.
	Dynamic Selection Value	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
	Comparison Value	Depending on the configured options, the property Comparison Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
	Dimension	If Rule Type is set to the option Dimension, then you can set the property Dimension.
	Color	Here you can define the color for the Rule.
	Measure 1, Measure 2	Here you can choose those measures that will be used as part of the measure calculation.

Subcategory	Property	Description
	Calculation Operator	Here you can choose the type of calculation. Available options are: Add, Subtract, Divide, Multiply.
Number Format	Number of Decimals	This property allows to the define the Number of decimals.
	Decimal Separator	This property allows to the define the Decimal Separator.
	Thousand Separator	This property allows to the define the Thousand Separator.
	Display Scaling Factor	This property allows to enable / disable the display of the Scaling Factor.
	Scaling Factor	The property allows you to specify a Scaling Factor.
	Display Currency / Unit	This property allows to enable / disable the display of the configured Unit / Currency
	Currency/Unit Placement	This property allows you to configure the Currency / Unit placement.
	Prefix	This property allows to configure the Prefix for the Data Label/Tooltip.
	Suffix	This property allows to configure the Suffix for the Data Label/Tooltip.

Table 8.15: Category Data

8.3.13.3 Category Map Layers

Below you can see the Additional Properties for the category Map Layers and their descriptions:

Subcategory	Property	Description
General Settings	Select Base Layer	Here you can choose the base layer.
	Enable Base Layer Selection	This allows you to enable / disable the selection of a base layer at runtime.
	Disable Map Layer Selection	This property allows you to enable / disable the selection of the created map layers at runtime.
	Apply Lasso Color	When this property is enabled, each lasso selection will receive a unique color.
	Allow Overlap	This property allows you to enable / disable the overlapping of Markers.
Marker Layer	Activate Marker Layer	This property allows to enable / disable the Marker Layer
	Layer Name	Here you can enter the name for the Marker Layer.
	Choose Datalabel Measure	Here you can choose the measure for the Data Label.
	Enable Clustering	This property enables/disables the Clustering for the

Subcategory	Property	Description
		Marker Layer.
	Icon Type	Here you can the Icon type for the Marker. The options are Standard, Symbol, URL and Font Awesome.
	Marker Background Color	Here you can configure the Marker Background Color.
	Selected Marker Background Color	Here you can configure the Background Color for the selected marker.
	Icon Height	Here you can set the Marker Height.
	Icon Width	Here you can set the Marker Width.
	Show on startup	Here you can configure if the Map Layer should be shown on startup.
	Choose Filter Dimension	Here you can select a dimension from the underlying data source and define filter values for the map layer.
Heat Layer	Activate Heat Layer	This property allows to enable / disable the Heat Layer
	Layer Name	Here you can enter the name for the Heat Layer.
	Minimum Opacity	The Minimum Opacity where the heat will start.
	Maximum Zoom	Zoom Level where the points reach maximum intensity (as intensity scales with zoom).
	Maximum	Maximum point intensity, 1.0 by default.
	Radius	Radius of each "point" of the Heatmap, 25 by default.
	Blur	Amount of Blur, 15 by default.
	Show on Startup	Using this property you can decide if the Map Layer should be shown on initial load of the map.
	Choose Filter Dimension	Here you can select a dimension from the data source and then configure filter values specifically for this map layer.
	Enable Color Scheme	Here you can use a predefined color scheme.
	Gradient	Here you can define the different Gradient levels. Per Gradient level you can define the color and the Gradient stop.
Cluster Layer	Activate Cluster Layer	This property allows to enable / disable the Cluster Layer
	Layer Name	Here you can enter the name for the Cluster Layer.
	Choose Data Label Measure	Here you can set the data label for the Measure.
	Spiderfy On Max Zoom	When you click a cluster at the bottom zoom level we spiderfy it so you can see all of its markers (Note: the spiderfy occurs at the current zoom level if all items within the cluster are physically located at the same latitude and longitude).

Subcategory	Property	Description
	Show Coverage On Hover	When you mouse over a cluster it shows the bounds of its markers.
	Zoom To Bounds On Click	When you click a cluster we zoom to its bounds.
	Remove Outside Visible Bounds	Clusters and markers too far from the viewport are removed from the map for performance.
	Disable Clustering At Zoom	If set, at this zoom level and below markers will not be clustered. This defaults to disabled.
	Maximum Cluster Radius	The Maximum Radius that a Cluster will cover from the central marker (in pixels). Default 80. Decreasing will make more, smaller clusters. You can also use a function that accepts the current map zoom and returns the maximum cluster radius in pixels.
	Show on Startup	Using this property you can decide if the Map Layer should be shown on initial load of the map.
	Choose Filter Dimension	Here you can select a dimension from the data source and then configure filter values specifically for this map layer.
Choropleth Layer	Activate Choropleth Layer	This property allows to enable / disable the Choropleth Layer
	Layer Name	Here you can enter the name for the Choropleth Layer.
	Show on Startup	Using this property you can decide if the Map Layer should be shown on initial load of the map.
	Selected Block – Background Color	Here you can configure the Background Color for the Selected area.
	Choose GeoJSON Layer	Here you can select the base GeoJSON Layer for the Choropleth Layer.
	Legend Position	Here you can configure the position for the Legend.
	Choose Filter Dimension	Here you can select a dimension from the data source and then configure filter values specifically for this map layer.
	Choose Measure	Here you can select the measure from the assigned data source for the choropleth layer.
	Scale Type	Here you can choose between a Quantile, Quantize, Linear, or Custom scale type.
	Configure Color	Here you can configure the color scheme.
Bubble Layer	Activate Bubble Layer	This property allows to enable / disable the Bubble Layer
	Layer Name	Here you can enter the name for the Bubble Layer.
	Show on startup	Using this property you can decide if the Map Layer should be shown on initial load of the map.

Subcategory	Property	Description
	Primary Measure (Size)	Here you assign the measure for the Bubble Size.
	Secondary Measure (Color)	Here you assign the measure for the Bubble Color.
	Bubble Color	Here you can set the color for the Bubble.
	Selected Bubble Color	Here you can set the color for the selected Bubble.
	Choose Filter Dimension	Here you can select a dimension from the data source and then configure filter values specifically for this map layer.
Flow Layer	Activate Flow Layer	This property allows to enable / disable the Flow Layer
	Layer Name	Here you can enter the name for the Flow Layer.
	Show on startup	Using this property you can decide if the Map Layer should be shown on initial load of the map.
	Choose Source Latitude	Here you can configure the Latitude value for the Source location.
	Choose Source Longitude	Here you can configure the Longitude value for the Source location.
	Choose Destination Latitude	Here you can configure the Latitude value for the Destination location.
	Choose Destination Longitude	Here you can configure the Longitude value for the Destination location.
	Choose Primary Measure (Color)	Here you can configure the primary measure for the color.
	Choose Secondary Measure (Weight)	Here you can configure the secondary measure for the weight.
	Show Arrow heads on flow lines	If enabled, the flow lines will have an arrow head at the destination location.
	Choose Filter Dimension	Here you can select a dimension from the data source and then configure filter values specifically for this map layer.
GeoJSON	Layer Name	Here you can enter the name for the GeoJSON Layer.
	Source	Here you can choose the type of GeoJSON File. The available options are File, URL, Raw Text.
	Text	Here you can paste the GeoJSON syntax.
	Sample Row Count	Here you can enter a value to limit the loading of GeoJSON attributes for sample display purposes.
	Line Color	Here you can set the color for the line drawn based on the GeoJSON syntax.
	Fill Color	Here you can set the Fill Color for areas based on the GeoJSON syntax.
	Line Weight	Here you can define the Line Weight.

Subcategory	Property	Description
	Line Opacity	Here you can define the Line Opacity.
	Attribute	Here you can select the GeoJSON Attribute for the data mapping.
	Dimension	Here you can choose a dimension which will be mapped to a GeoJSON attribute.
	Key or Text	Here you can select if either the Key or the Text value for the dimension should be used.
Zoom Settings	Zoom Level 1	Here you can set the Zoom Levels from Level 1 to Level 3 for the respective Map Layers.
	Zoom Level 2	Here you can set the Zoom Levels from Level 4 to Level 7 for the respective Map Layers.
	Zoom Level 3	Here you can set the Zoom Levels from Level 7 to Level 10 for the respective Map Layers.
	Zoom Level 4	Here you can set the Zoom Levels above Level 10 for the respective Map Layers.

Table 8.16: Category Map Layers

8.3.13.4 Category Appearance

Below you can see the Additional Properties for the category General Settings and their descriptions:

Subcategory	Property	Description
Data Label	Enable Data Labels	This property enables / disables the Data Labels.
	Font Family	Here you can set the Font Family for the Data Label.
	Font Size	Here you can set the Font Size for the Data Label.
	Font Color	Here you can set the Font Color for the Data Label.
	Font Style	Here you can set the Font Style for the Data Label.
	Background Color	Here you can set the Background Color for the Data Label box.
	Border Color	Here you can set the Border Color for the Data Label box.
	Border Radius	Here you can set the Border Radius for the Data Label box.
	Border Width	Here you can set the Border Width for the Data Label box.
	Label Padding	This property defines the Padding between the Data Label text and the borders.
	Enable Shadow	This property allows you to enable / disable a Shadow for the Data Label box.
	Choose Layer	Here you can choose one of the existing Layers.
Legend	Marker Legend Position	Here you can set the position for the Legend. The options are Left and Right.

Subcategory	Property	Description
	Font Family	Here you can set the Font type for the Legend.
	Font Style	Here you can set the Font Style for the Legend.
	Font Size	Here you can set the Font Size for the Legend.
	Font Color	Here you can set the Font Color for the Legend.
	Background Color	Here you can set the Background Color for the Legend box.
	Border Color	Here you can set the Border Color for the Legend box.

Table 8.17: Category Appearance

8.3.13.5 Category Scripting

Below you can see the Additional Properties for the category Scripting and their descriptions.

Property	Description
Scripting Type	Here you can choose between Scripting and an integration with OpenDocument.
Report Type	Here you can set the type of report. The available options are Crystal Reports, Web Intelligence, Analysis OLAP, and Design Studio.
Open in New Tab	This property allows you to enable / disable the option to see the report in a new tab.
Document Link	Here you can enter the link for the document. You can either enter the complete link, or you can construct the link by filling in the individual items.
Protocol	Here you can choose between http or https.
Open Document Server Name	Here you can enter the name of the Server for the OpenDocument application.
Open Document Server Port	Here you can enter the Port of the Server for the OpenDocument application.
Path to Open Document	Here you can specify the Path to the OpenDocument application.
SID Type	Here you can choose between CUID and InfoObject.
OpenDocument iDocID	Here you can specify the document ID.
Parameter Key	Here you can enter the technical name of the parameter in the report.
Choose Dimension Parameter	Here you can choose with Dimension will be used to pass the value to the selected parameter.
Parameter Type	Here you can choose between Single or Multiple values.
Additional Parameters	Here you can enter any additional URL Parameter that should be passed to the report.

Table 8.18: Category Scripting

8.3.14 Scripting Functions for the Location Analyzer

The following Table outlines the available scripting functions for the Location Analyzer component.

Function Name	Description
DSXGetAllLayers()	This function retrieves all the available layers in form of an array.
DSXGetDataSelection()	This function allows you to retrieve the data selection from the Location Analyzer component.
DSXGetIsLayerVisible()	This function allows you to retrieve the visibility configuration of a particular map layer.
DSXGetLassoSelected()	This function returns the selected values of a Lasso Selection in form of string.
DSXGetLayer()	This function allows you to retrieve the value for the Layer.
DSXGetMarkerObject()	This function returns the value of the Marker Object.
DSXGetSelectedLassoDataSelection()	This function allows you to retrieve the selected lasso members in form of a Data Selection statement.
DSXGetSelectedLassoMembers()	This function retrieves all values from a Lasso Selection in form of a Member object.
DSXGetSelectedLassoMembersKey()	This function retrieves all Key values from a Lasso Selection in form of an array.
DSXGetSelectedLassoMembersText()	This function retrieves all Text values from a Lasso Selection in form of an array.
DSXgetSelectedMember()	This function returns the value of selected member.
DSXgetSelectedMemberKey()	This function returns the value of selected member key.
DSXgetSelectedMemberText()	This function returns the value of selected text.
DSXGetVisible()	The function allows you to retrieve the value for the visibility of the component.
DSXHideLayer(layerName)	This function hides the specific layer.
DSXHideLayers()	This function allows you to hide specific layers.
DSXRemoveLassoSelected()	This function allows you to remove the applied Lasso selection.
DSXSetBubbleMeasure()	This function is used to change the Measure values during run time. This function is used to change the size measure and color measure assigned during layer creation. (Applicable only for Bubble Layer)
DSXSetDataSelection()	This function allows you to set a Data Selection string for the component.
DSXSetInitialLatitude()	This function allows you to set the initial Latitude value for the map.
DSXSetInitialLongitude()	This function allows you to set the initial Longitude value for the map.
DSXSetMeasure()	This function is used to change the Measure values during run time. This function is used to change the Datalabel measure assigned

Function Name	Description
	during layer creation. (Applicable for Marker and Heat Layer) This function is also used to change the measure assigned during layer creation. (Applicable for Choropleth Layer).
DSXSetVisible()	The function allows you to set the value for the visibility of the component.
DSXSetZoomLevel()	This function allows you to set the Zoom Level.
DSXShowLayer()	This function allows you to show a specific layer.
DSXShowLayers()	This function allows you to show specific layers.

Table 8.19: Scripting Functions

8.3.15 Events for Location Analyzer

The following Table outlines the available events for the Location Analyzer component.

Event	Description
OnClick	Using this property, you can enable interaction with the component by writing scripts. The on Click event is triggered when you click on the Component.

Table 8.20: Events

8.4 Indoor Analyzer

As part of VBX Release 2.32, a new component Indoor Analyzer has been added which provides an option to leverage an existing base map image and create areas on this image in the form of shapes that can be data bound. It also leverages the image such that it will be able to plot "data" on top by either using longitude / latitude values or X / Y coordinates. The Indoor Analyzer will provide the following three options:

- Create Base Map layers which can be utilized as source layers for the GeoJSON, Choropleth and Heat Map Integrations.
- Leverage a custom Base map with building details and assign data towards the map using our GeoJSON and Choropleth integration.
- Leverage a custom Base map and provide the ability to create heatmaps using actual X and Y coordinates.



Figure 8.60: Sample Indoor Analyzer

8.4.1 Data Source Requirements for Indoor Analyzer

The minimum data source requirement for a Indoor Analyzer is one dimension and at least one measure. In case the data source does contain additional dimension or additional measures, you can leverage the Data Utility tool to specify which information is to be used by the Indoor Analyzer.

8.4.2 How to use the Indoor Analyzer?

In the following steps we will outline how you can setup a new Indoor Analyzer in your next SAP BusinessObjects Design Studio/SAP Lumira Designer project.

8.4.2.1 Creating Base Map Layers in Indoor Analyzer

For our example, a Base Map of a Shopping Complex has been assigned. You can follow the steps below to create the Base Map Layers in Indoor Analyzer component:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a Indoor Analyzer from the VBX Maps to your SAP BusinessObjects Design Studio /SAP Lumira Designer project.
3. Navigate to the Additional Properties of the Indoor Analyzer.
4. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
5. In the Additional Properties navigate to the category Layers and to the sub category Base Layer (see Figure 8.61).

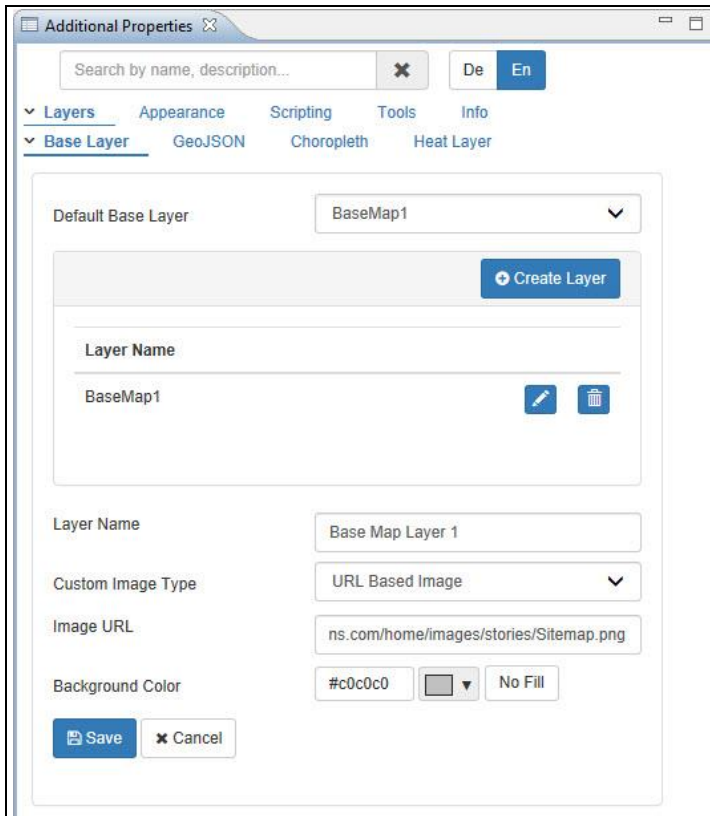


Figure 8.61: Base Layer

6. For our example, enter the Layer Name as Base Map Layer 1 (see Figure 8.61).
7. Set the property Custom Image Type as URL Based Image. The other option is Local/Platform Image.
8. Set the property Image URL based on your choice.
9. Set the property Background Color as Grey Color.

Based on the above configuration, you can create number of Base Map Layers which can be utilized as the source layers for the GeoJSON, Choropleth and Heat Map Integrations.

Default Base Map Layer

By default, there should be a minimum of one Base Map layer being created.

8.4.2.2 GeoJSON and Choropleth Integration with Base Maps

You can follow the steps below to integrate the created Base Map Layers of Indoor Analyzer component with our GeoJSON and Choropleth Layers:

1. As an initial step, you can follow the steps given for creating the Base Map Layers (see section 8.4.2.1 steps as explained above).
2. Now add a data source to the project. For our example we will assume that our data source shows four measures – Order Cost, Discount Amount, Order Quantity and Order Amount and two Dimensions – Item Category and Item Subcategory.
3. Assign the data source to the Indoor Analyzer.
4. Navigate to the Additional Properties of the Indoor Analyzer.
5. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
6. In the Additional Properties navigate to the category Layers and to the sub category GeoJSON (see Figure 8.62).
7. Click Create Layer.

Additional Properties

Search by name, description...

De En

Layers Appearance Scripting Tools Info

Base Layer **GeoJSON** Choropleth Heat Layer

+ Create Layer

Layer Name

Layer Name: GeoJSON Layer 1

Select BaseMap Layer: BaseMap1

Enable Dimension: ☒

Select Dimension: Item Category

Source: Inline Editor

Map Preview

+

-

Leaflet

Draw

Shape	Shape Name	Dimensions
1	rectangle	Movies
2	circle	Music
3	marker	Electronics
4	marker	Books

Save Cancel

Figure 8.62: GeoJSON Layer

8. For our example, enter the Layer Name as GeoJSON Layer 1.
9. Set the property Base Layer to the option BaseMap1.
10. Activate the property Enable Dimension.
11. Set the property Select Dimension to the option Item Category.
12. Set the property Source to the option Inline Editor and click Draw where you can draw the shapes in the Base Map layer with the help of an Inline Editor (see Figure 8.63). The other options are Raw Text and SAP BusinessObjects BI Platform.



Figure 8.63: Inline Editor

13. As soon as you clicked Draw, it will lead you to a separate browser window where you can configure the members of the Dimension Item Category in the form of predefined shapes (see Figure 8.64).



Figure 8.64: Inline Editor with drawn shapes

14. Now click Save and Close. You will be navigated once again to the category Layers and to the sub category GeoJSON of the Additional Properties.
15. Now assign the dimension members to the respective shapes (see Figure 8.65). You can also change the Shape Names to your choice.

Additional Properties

Search by name, description...
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Layers
Appearance
Scripting
Tools
Info

Base Layer
GeoJSON
Choropleth
Heat Layer

+ Create Layer

Layer Name

Layer Name
GeoJSON Layer 1

Select BaseMap Layer
BaseMap1

Enable Dimension
☒

Select Dimension
Item Category

Source
Inline Editor

Map Preview

+
-

Leaflet

Draw

Shape	Shape Name	Dimensions
1	rectangle	Movies
2	circle	Music
3	marker	Electronics
4	marker	Books

Save
Cancel

Figure 8.65: Dimension members assigned to Shape Names

16. Click Save and now the GeoJSON Layer 1 has been created.
17. Now navigate to the category Layers and to the sub category Choropleth (see Figure 8.66).
18. Click Create Layer.

Additional Properties

Search by name, description...

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Layers

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Base LayerGeoJSONChoroplethHeat Layer

Activate Choropleth Layer☒

Create Layer

Layer Name

Layer Name

Choropleth Layer 1

Select GeoJSON Layer

GeoJSON Layer 1

Show on Startup

☒

Select Measure

Discount Amount

Scale Type

Quantize

Configure Color Scheme

Color Spectrum

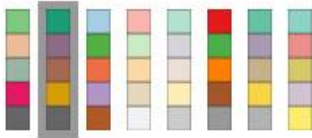
Choose Nature of data

Qualitative


Color Blind Safe

☐

Choose Color Scheme



Selected Color Scheme

 (Accent Dark 1)

Number of Ranges

5

SaveCancel

Figure 8.66: Choropleth

19. For our example, enter the Layer Name as Choropleth Layer 1.
20. Set the property Select GeoJSON Layer to the option GeoJSON Layer 1.
21. Activate the property Show on Startup.
22. Set the property Select Measure to the option Discount Amount.
23. Set the property Scale Type to the option Quantize.
24. Set the property Configure Color Scheme to the option Color Spectrum.
25. Set the property Choose Nature of data to the option Qualitative.
26. Set the property Choose Color Scheme to Accent Dark 1.
27. Set the property Number of Ranges to the value 5.

28. Click Save and now the Choropleth Layer 1 has been created.
29. Based on the above configuration you will be able to visualize the Indoor Analyzer with Base Map being integrated with GeoJSON and Choropleth Layers (see Figure 8.67).



Figure 8.67: Base Map Layer integrated with GeoJSON and Choropleth Layers

From the above Figure, you can observe that the respective Dimension members of the Dimension Item Category are represented through the assigned shapes and the measure Discount Amount adopts the Accent Dark 1 Color Scheme showing the Measure Intensity. You can use now the Additional Properties to customize the Data Label, Tooltip and Legend properties based on your choice.

You can create number of GeoJSON and Choropleth Layers which can be integrated with the selected Base Map Layer.

8.4.2.3 Conditional Formatting for Indoor Analyzer

As part of VBX Release 2.4, you will be able to apply conditional formatting for the Indoor Analyzer by navigating to the category General and to the sub category Conditional Formatting.

For our example, you can follow the steps given for creating the Base Map Layers (see section 8.4.2.1) and integrate the created Base Map Layers of Indoor Analyzer component with our GeoJSON and Choropleth Layers (see section 8.4.2.2). Now you can follow the steps below to apply the conditional formatting rules for the integrated GeoJSON and Choropleth Layers.

1. Navigate to the Additional Properties of the Indoor Analyzer.
2. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
3. In the Additional Properties navigate to the category Data and to the sub category Conditional Formatting (see Figure 8.68).
4. Click Create Rule.

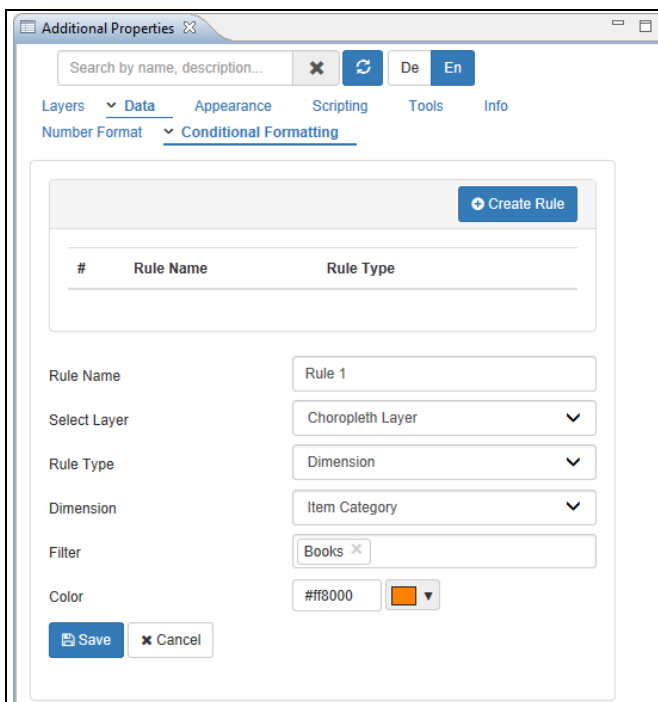


Figure 8.68: Category Data

5. For our example, enter the Rule Name as Rule 1.
6. Set the property Select Layer to the option Choropleth Layer.
7. Set the property Rule Type to the option Dimension. The other options are Single Measure, Measure Calculation and Target Value.
8. Set the property Dimension to the option Item Category.
9. Set the property Filter to the value Books.
10. Set the property Color to the color Orange.
11. Click on Save to add the Rule to the Indoor Analyzer.
12. Based on the above conditional formatting rules, you will be able to view the Indoor Analyzer as shown in the below Figure.



Figure 8.69: Indoor Analyzer applied with Conditional Formatting

Similarly different condition formatting rules can be applied for the Indoor Analyzer and their properties are detailed in section 8.4.3.2.

8.4.2.4 Integration of Base Map Layer with Heat Layer using actual X and Y coordinate

For our example, a Base Map of a Football Ground has been assigned. You can follow the steps below to integrate the created Base Map Layers of Indoor Analyzer component with our Heat Layer:

1. Create a new project in SAP BusinessObjects Design Studio/SAP Lumira Designer.
2. Add a data source to the project. For our example we will assume that our data source shows three measures – Distance, Speed and Time of Possession and two Dimensions – X_Cordinates and Y_Cordinates.
3. Add a Indoor Analyzer from the VBX Maps to your SAP BusinessObjects Design Studio /SAP Lumira Designer project.
4. Assign the data source to the Indoor Analyzer.
5. Navigate to the Additional Properties of the Indoor Analyzer.
6. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the Additional Properties.
7. In the Additional Properties navigate to the category Layers and to the sub category Heat Layer (see Figure 8.70).
8. Activate the option Activate Heat Layer.
9. Click Create Layer.

Additional Properties

Search by name, description...
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Layers
Appearance
Scripting
Tools
Info

Base Layer
GeoJSON
Choropleth
Heat Layer

Activate Heat Layer
☒

HeatMap Tooltip

Create Layer

Layer Name

Layer Name
Heat Layer 1

Select BaseMap Layer
BaseMap1

Radius
25

Minimum Opacity
0.6

Maximum Opacity
0.8

X Axis Dimension
X_Cordinates

Y Axis Dimension
Y_Cordinates

Select Measure
Distance_(m)

Show on Startup
☒

Pick Start Point
0
0

Pick End Point
100
100

Map Preview

+
-

Leaflet

Enable Color Scheme
☒

Configure Color
Color Spectrum

Choose Nature of data
Qualitative

Color Blind Safe
☐

Choose Color Scheme

Selected Color Scheme
(Accent Dark 1)

Number of Ranges
5

Save
Cancel

Figure 8.70: Heat Layer

10. For our example, enter the Layer Name as Heat Layer 1.
11. Set the property Select Base Layer to the option BaseMap 1.
12. Set the property Radius to the vale 25.
13. Set the property Minimum Opacity to the vale 0.6.
14. Set the property Maximum Opacity to the vale 0.8.

15. Set the property X Axis Dimension to the option X_Cordinates.
16. Set the property Y Axis Dimension to the option Y_Cordinates.
17. Set the property Select Measure to the option Distance_(m).
18. Activate the property Show on Startup.
19. Select the property Pick Start Point using the icon and mark the Start Point (see Figure 8.71).

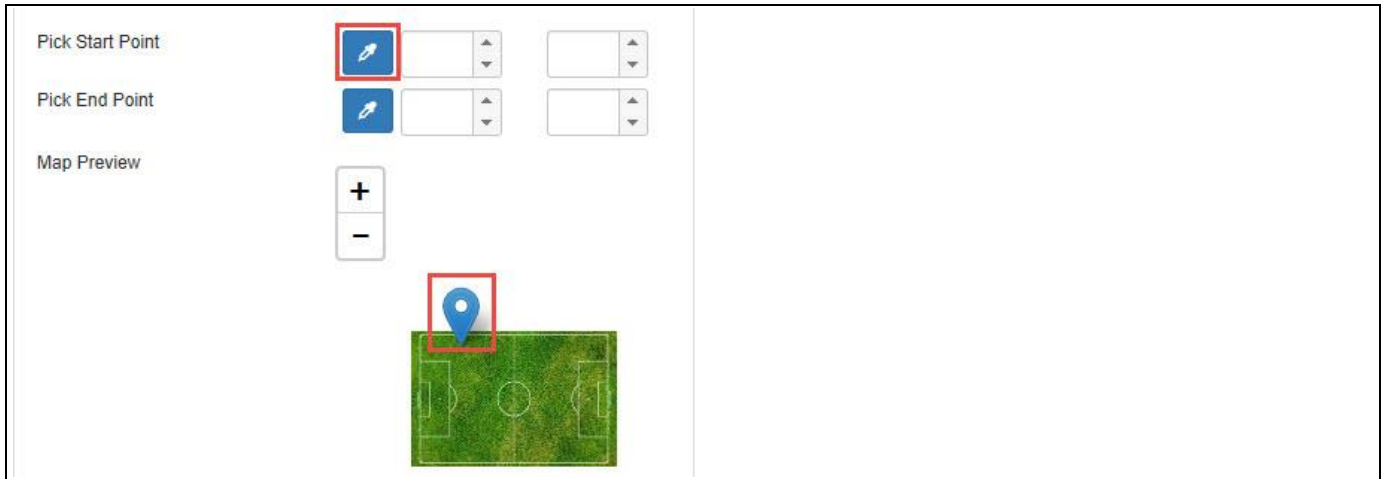


Figure 8.71: Pick Start Point

20. Now select the property Pick End Point using the icon and mark the End Point (see Figure 8.72).

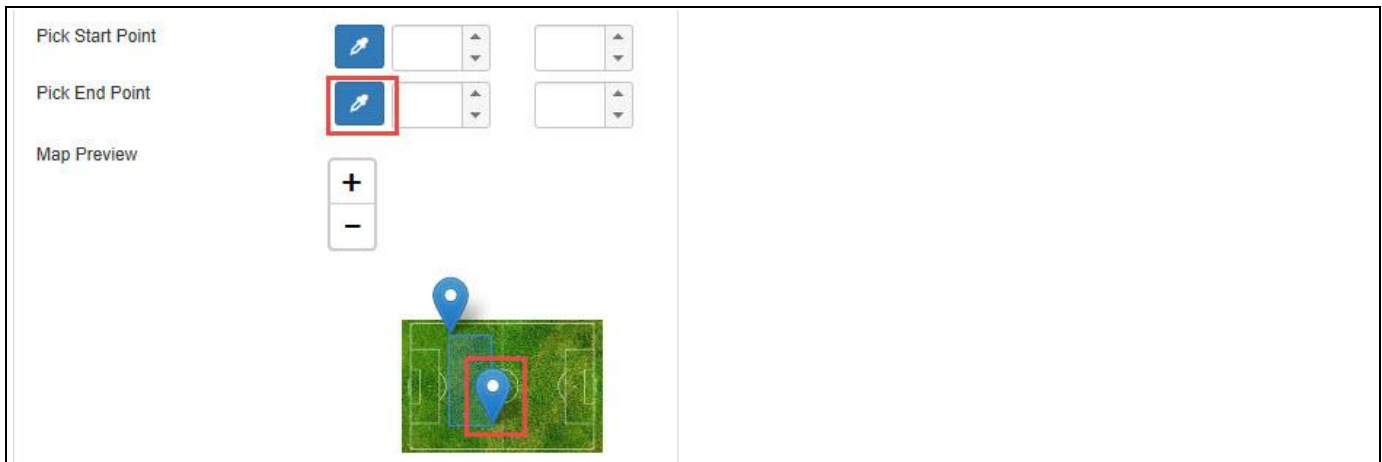


Figure 8.72: Pick End Point

21. Now set the (X,Y) Coordinate as (0,0) for the Start Point as shown in Figure 8.73.

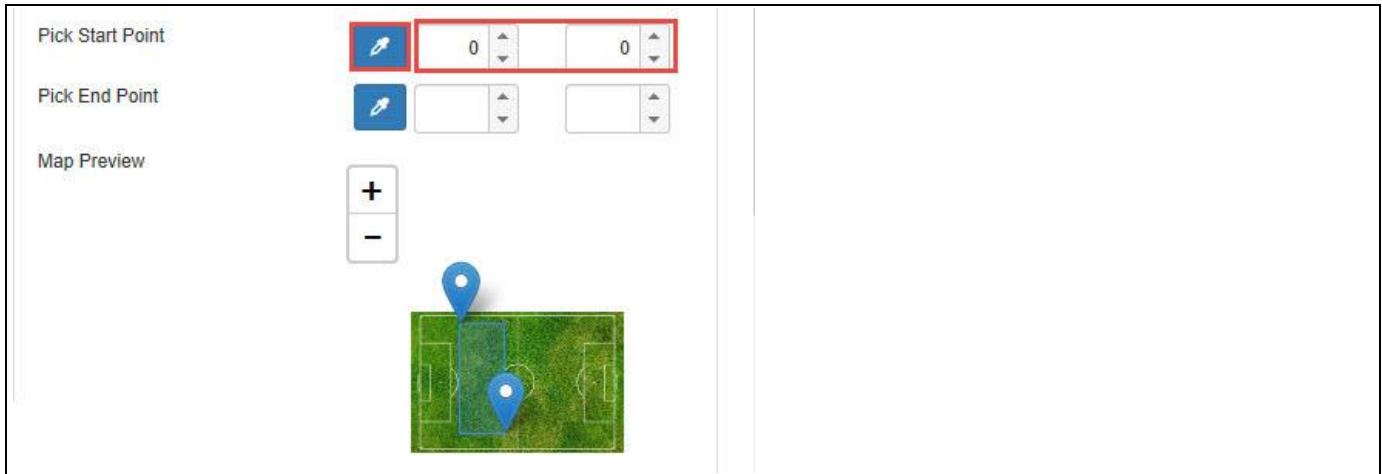


Figure 8.73: X,Y Coordinates for Start Point

22. Now set the (X,Y) Coordinate as (100,100) for the End Point as shown in Figure 8.74.

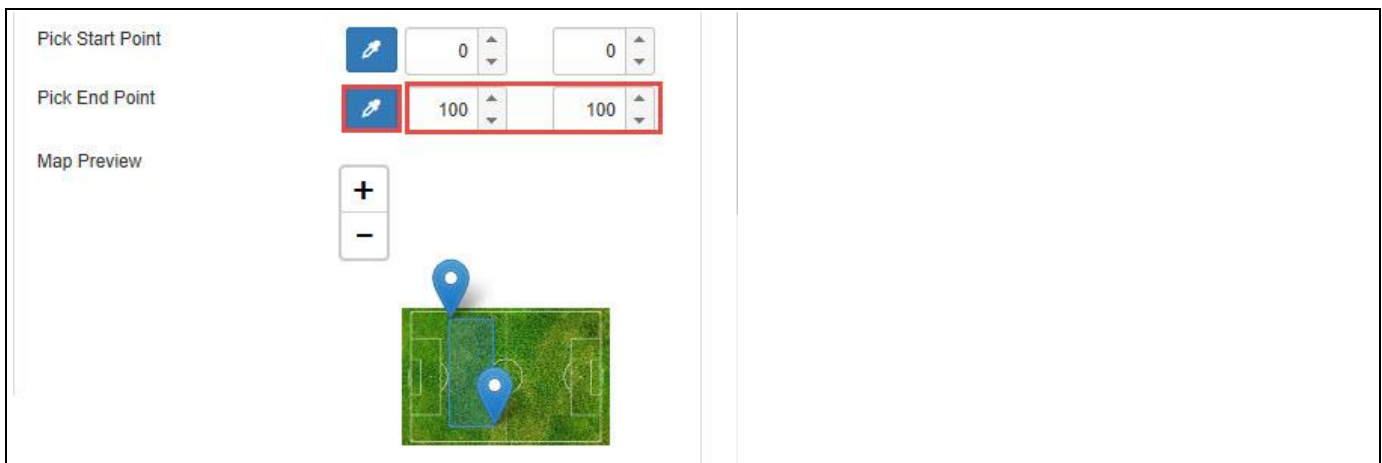


Figure 8.74: X,Y Coordinates for End Point

23. Activate the property Enable Color Scheme (see Figure 8.70).
24. Set the property Configure Color to the option Color Spectrum.
25. Set the property Choose Nature of Data to the option Qualitative.
26. Set the property Choose Color Scheme to the option Accent Dark 1.
27. Set the property Number of Ranges to the value 5.
28. Based on the above configuration you will be able to visualize the Indoor Analyzer with Heat Layer being integrated with Base Map Layer (see Figure 8.75).

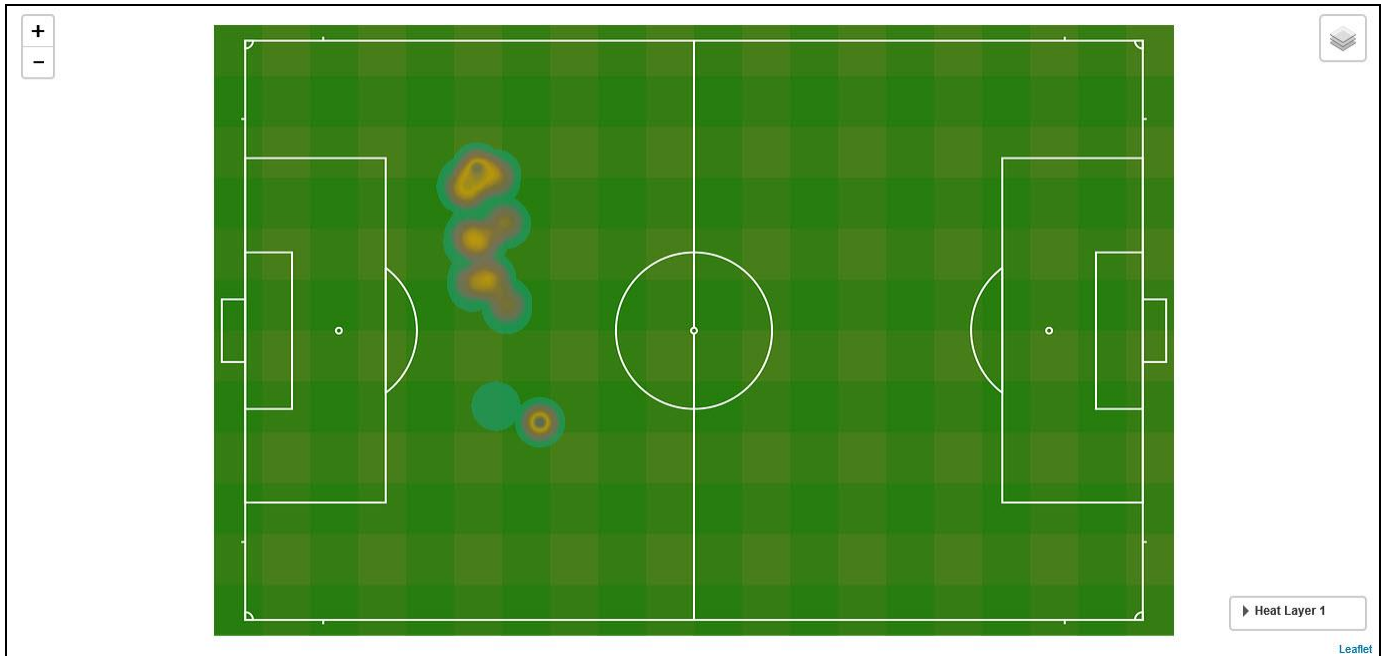


Figure 8.75: Base Map Layer integrated with Heat Layer

From the above Figure, you can observe that the Heat Layer is formed in the Base Map Layer based on the Start Point and End Point selection with their respective X,Y Coordinates for the assigned region. The intensity of the Heat Layer which is observed in that region is based on the Measure Distance.

You can also create number of Heat Layers which can be integrated with the selected Base Map Layer.

8.4.3 Additional Properties of Indoor Analyzer

In section 4.5.6 we discussed the common set of Additional Properties. In this section we will outline the Additional Properties that are specific to the Indoor Analyzer.

8.4.3.1 Category Layers

Below you can see the Additional Properties for the category Layers and their descriptions:

Subcategory	Property	Description
Base Layer	Default Base Layer	This property allows you to set the Default Base Layer from the list of Base Layers being already created.
	Layer Name	This property allows you to set the Base Layer Name.
	Custom Image Type	This property allows you to set the Custom Image Type. The options are Local/Platform Image and URL Based Image.
	Choose File from BI Platform	This property allows you to select the Image File from the BI Platform path.
	Background Color	This property allows you to set the Background color for the Base Layer.
GeoJSON	Layer Name	This property allows you to set the GeoJSON Layer Name.
	Select Base Layer	This property allows you to select the Base Layer from the list of Base Layers being already created.
	Enable Dimension	This property allows you to enable/disable the Dimension List for selection.
	Select Dimension	This property allows you to set the Dimension from the list of Dimensions.
	Source	This property allows you to set the Source for the GeoJSON Layer. The options are Inline Editor, Raw Text and SAP BusinessObjects BI Platform.
	Map Preview	This property allows you to preview the Map.
	Draw	This property allows you to Draw the shapes on the Map.
	Shape	This property allows you to view the Shapes based on Serial Numbers.
	Shape Name	This property allows you to view the Names of the Shape. You can also change the Name of the Shape based on your choice.
	Dimensions	This property allows you to set the Dimensions for the Shape.
Choropleth	Activate Choropleth Layer	This property allows you to enable/disable the Choropleth Layer.
	Layer Name	This property allows you to set the Choropleth Layer Name.

Subcategory	Property	Description
	Select GeoJSON Layer	This property allows you to select the GeoJSON Layer from the list of GeoJSON Layers being already created.
	Show on Startup	This property when enabled allows you to view the Layer during the Startup.
	Select Measure	This property allows you to select the required Measure from the list of assigned Measures.
	Scale Type	This property allows you to select the Scaling Type. The options are Quantile, Quantize, Linear and Custom.
	Configure Color Scheme	This property allows you to select the type of Color Scheme. The options are Color Spectrum and Manual.
	Choose Nature of data	This property allows you to select the Data Nature. The options are Sequential, Diverging and Qualitative.
	Color Blind Safe	This property when enabled allows you to view only the Blind Safe Color Scheme.
	Choose Color Scheme	This property allows you to select the required Color Scheme from the panel of color schemes.
	Selected Color Scheme	The property allows you to view the selected Color Scheme.
	Number of Ranges	This property allows you to set the number of ranges for the color scheme.
Heat Layer	Activate Heat Layer	This property allows you to enable/disable the Heat Layer.
	HeatMap Tooltip	This property allows you to select the required Heatmap Layer to show the Tooltip and it is being selected from the list of Heatmap Layers which are already created.
	Layer Name	This property allows you to set the Heatmap Layer Name.
	Select Base Layer	This property allows you to select the Base Layer from the list of Base Layers being already created.
	Radius	This property allows you to set the Radius of each point of the Heatmap.
	Minimum Opacity	This property allows you to set the minimum opacity where the heat intensity will start at.
	Maximum Opacity	This property allows you to set the maximum opacity where the heat intensity will end at.
	X Axis Dimension	This property allows you to set the X Axis Dimension.
	Y Axis Dimension	This property allows you to set the Y Axis Dimension.
	Select Measure	This property allows you to select the required Measure from the list of assigned Measures.
	Show on Startup	This property when enabled allows you to view the Layer during the Startup.

Subcategory	Property	Description
	Pick Start Point	This property allows you to select the X and Y Coordinates for the Start Point.
	Pick End Point	This property allows you to select the X and Y Coordinates for the End Point.
	Map Preview	The property allows you to view the preview of the Base Map.
	Enable Color Scheme	This property when enabled allows you to use the readily available Color Spectrum or to create your own set of colors.
	Configure Color	This property allows you to select the type of Color Scheme. The options are Color Spectrum and Manual.
	Choose Nature of data	This property allows you to select the Data Nature. The options are Sequential, Diverging and Qualitative.
	Color Blind Safe	This property when enabled allows you to view only the Blind Safe Color Scheme.
	Choose Color Scheme	This property allows you to select the required Color Scheme from the panel of color schemes.
	Selected Color Scheme	The property allows you to view the selected Color Scheme.
	Number of Ranges	This property allows you to set the number of ranges for the color scheme.

Table 8.21: Category Layers

8.4.3.2 Category Data

Below you can see the Additional Properties for the category Data and their descriptions:

Subcategory	Property	Description
Conditional Formatting	Rule Name	Here you can enter a name for the Conditional Formatting Rule.
	Select Layer	Here you can select one of the existing Choropleth or Marker Layers.
	Rule Type	Here you can choose the type of conditional formatting. The options are Single Measure, Measure Calculation, Target Value, Dimension.
	Highlighted Measure	Here you can select the measure where the rule will be applied upon.
	Comparison Measure	Here you can select the measure which will be compared against the Comparison Value.
	Comparison Operator	Here you can choose the operator that is used to compare the Comparison Measure with the Comparison Value.
	Comparison Value Type	Here you can choose between a Static and a Dynamic comparison value.

Subcategory	Property	Description
	Dynamic Selection Value	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
	Comparison Value	Depending on the configured options, the property Comparison Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
	Dimension	If Rule Type is set to the option Dimension, then you can set the property Dimension.
	Filter	Here you can select the Dimension member as a filter.
	Color	Here you can define the color for the Rule.
	Measure 1, Measure 2	Here you can choose those measures that will be used as part of the measure calculation.
	Calculation Operator	Here you can choose the type of calculation. Available options are: Add, Subtract, Divide, Multiply.

Table 8.22: Category Data

8.4.3.3 Category Scripting

Below you can see the Additional Properties for the category Scripting and their descriptions.

Property	Description
After Chart Load	This event will be triggered immediately after the chart completes loading.
On Select	Using this property, you can enable interaction with the component by writing scripts. The On Select event is triggered when the user selects a value in the component.

Table 8.23: Category Scripting

8.4.4 Scripting Functions for the Indoor Analyzer

In addition to the common scripting functions listed in section 4.6, the Indoor Analyzer component supports the following scripting functions.

Function Name	Description
DSXGetAspectRatio()	This function retrieves the value of Aspect Ratio.
DSXGetBaseLayer()	This function retrieves the value of default Base Layer.
DSXGetSelectedShape()	This function retrieves the value of selected shape.
DSXGetToolTipEnabled()	This function retrieves the value of ToolTip Enabled.
DSXGetZoomLevel()	This function retrieves the value of Latitude and Longitude Bounds.
DSXSetAspectRatio()	This function sets the value of Aspect Ratio.
DSXSetBaseLayer()	This function sets the value of default Base Layer.
DSXSetMapPosition()	This function sets the Latitude and Longitude Bounds.
DSXSetToolTipEnabled()	This function sets the value of ToolTip Enabled.
DSXSetZoomLevel()	This function sets the value of Latitude and Longitude Bounds.

Table 8.24: Scripting Functions

8.5 ESRI Map

ESRI Map is a mapping component that allows geographic analysis based on Latitude and Longitude information. The ESRI Map component allows you to configure a Base Map Layer and to setup a Marker Layer, Feature Layer and Choropleth Layer.

8.5.1 Custom Tooltip Configurations

As part of Release 2.32, you also have the ability to create a customized Tooltip using a small text editor as part of the Additional Properties for ESRI Map Component.

In the Additional Properties of the ESRI Map component in the Category Appearance you can navigate to the subcategory Tooltip, which provides access to all the settings related to the Tooltip for the ESRI Map (see Figure 8.76).

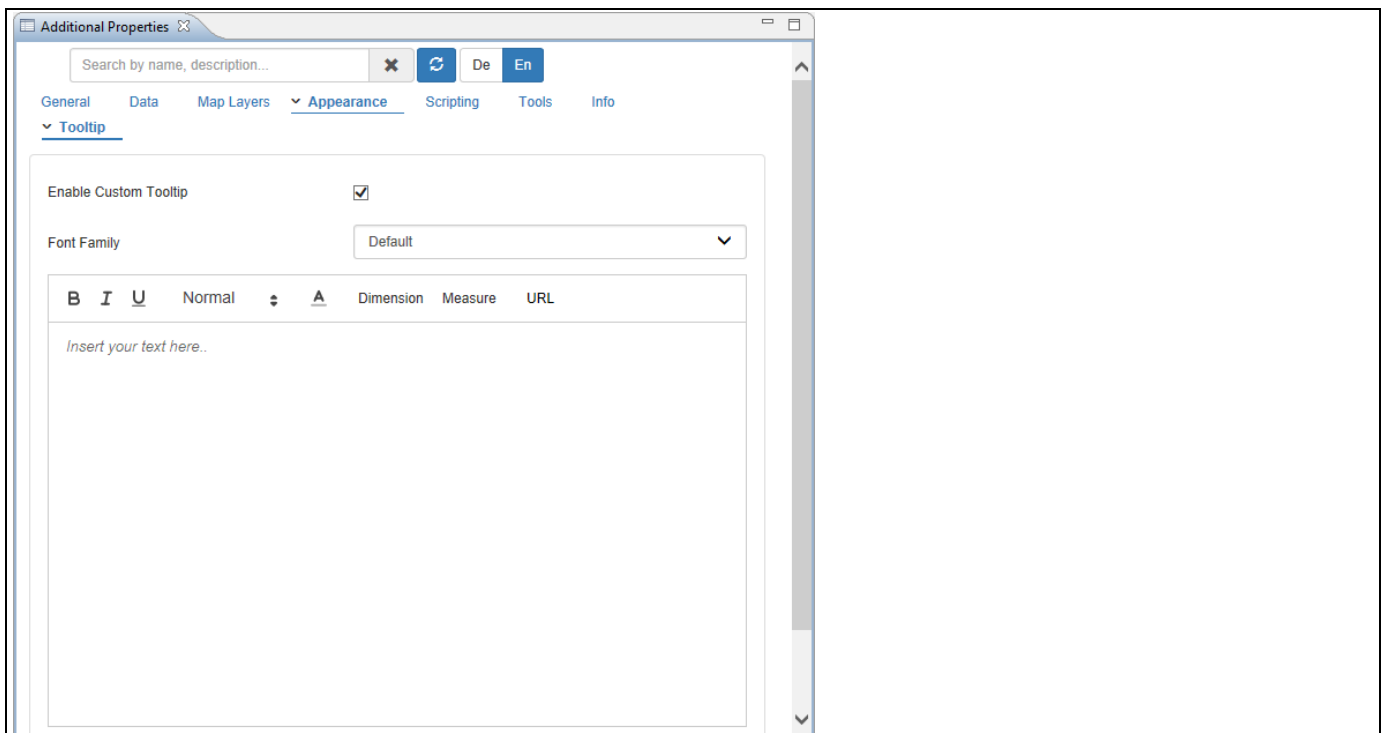


Figure 8.76: Tooltip Properties

Part of the Tooltip properties is also a small editor, which allows you to create a customized Tooltip (see Figure 8.77).

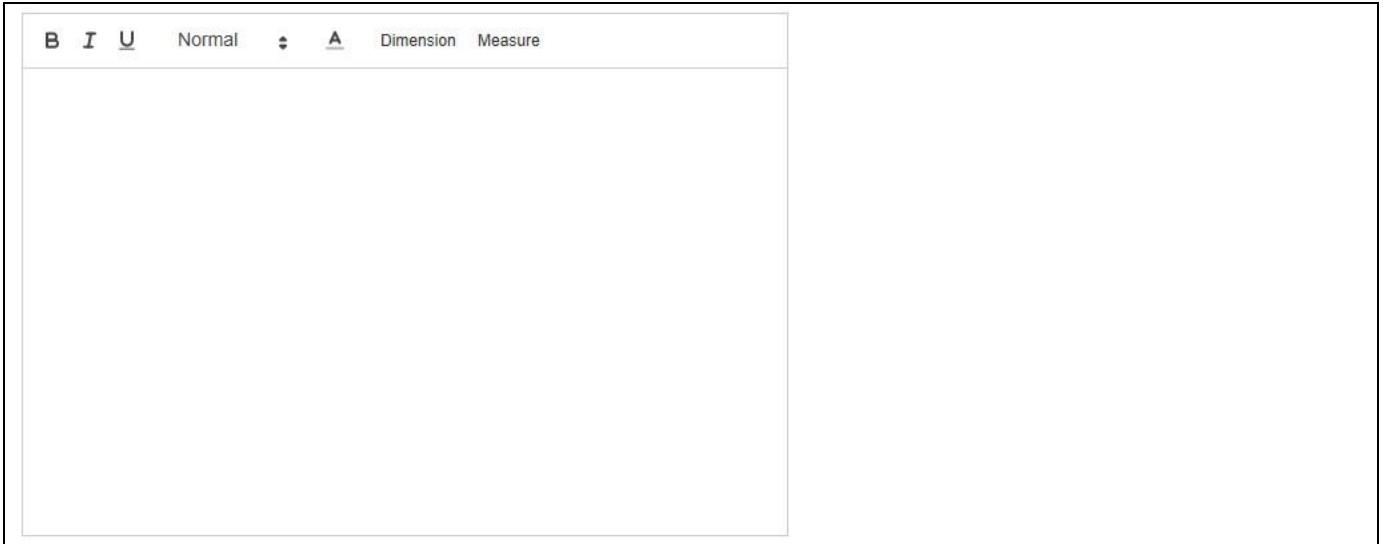


Figure 8.77: Custom Tooltip

Using this small editor you have the ability to simply type and format text, as well as integrate data and meta-data from the assigned data source. Using the menu items Dimension and Measure, you can integrate the information from the assigned Dimension and Measure(s) into the Tooltip.

When clicking on Dimension, you will have the option to select the dimension as part of the property Name. By using the option Metadata, you can include the name of the dimension into the data label and by using the option Member the dimension member that is shown in the ESRI Map will then be mentioned in the Tooltip.

In addition you can configure the property Display Type to either show the Key or the Text for the dimension member (see Figure 8.78).

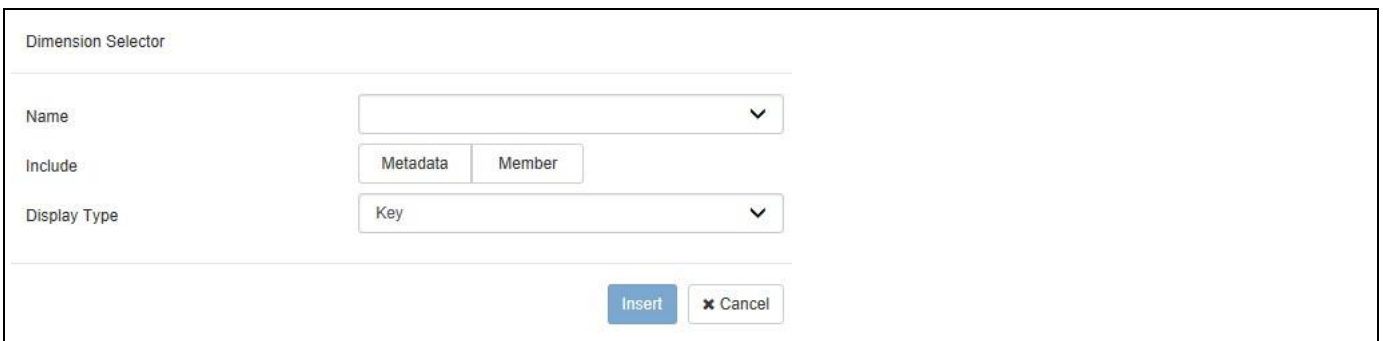
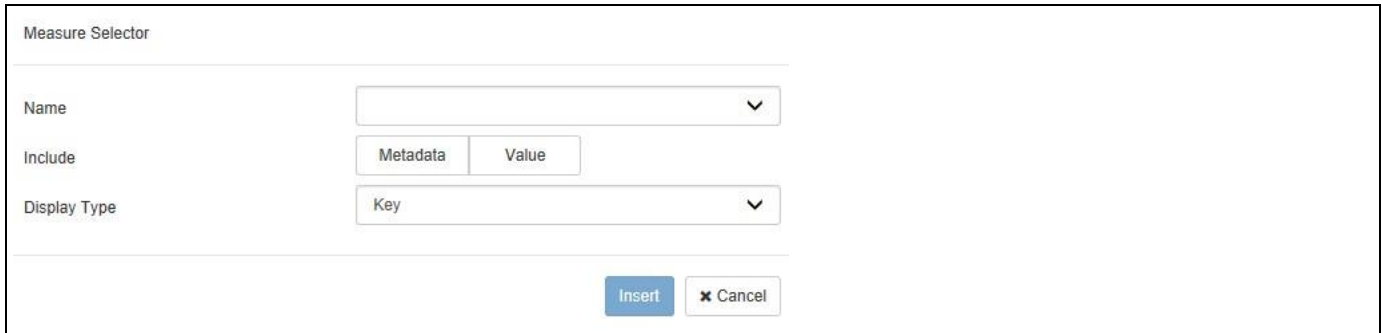


Figure 8.78: Dimension Selector

When clicking on Measure, you will receive a very similar list of options for the measures in the ESRI Map (see Figure 8.79).



The Measure Selector dialog box contains the following fields:

- Name:** A dropdown menu.
- Include:** Two buttons labeled "Metadata" and "Value".
- Display Type:** A dropdown menu with "Key" selected.
- Buttons:** "Insert" and "x Cancel" at the bottom right.

Figure 8.79: Measure Selector

Here you also have the ability to first select the Measure and then choose between the Metadata and the Value of the Measure. In case you choose the Metadata option, you can then also choose between the Key and Text for the Display Type. After inserting the text and the selected elements from the dimension and measures, the text editor is showing the elements of the Tooltip (see Figure 8.80).



The Custom Tooltip text editor shows the following:

- Toolbar:** Includes bold (B), italic (I), underline (U), normal (Normal), bullet point, text color (A), and tabs for "Dimension" and "Measure".
- Text:** "Product Group Member Text : Current Measure Value".
- Buttons:** "Save" at the bottom left.

Figure 8.80: Custom Tooltip

In the given example we selected the Text from the Member from dimension Product Group and the measure value from the measure displayed in the ESRI Map.

8.5.2 Data Source Requirements for the ESRI Map

The ESRI Map requires a data source with both Longitude and Latitude information. The information such as Longitude and Latitude can be leveraged in the form of a dimension, measure, or an attribute.

8.5.3 How to use the ESRI Map – Marker Layer

In the following steps we will outline the steps required to setup a new map using the ESRI Map component and to setup a new layer representing the data in form of Markers. For our example we will assume, that the data source contains the following elements:

- Dimension State in the Rows.
- Dimension Longitude in the Rows.
- Dimension Latitude in the Rows.
- Measure Revenue in the Columns.
- Measure Cost in the Columns

You can follow the steps below to setup a new ESRI Map Component with Marker Layer:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the ESRI Map component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the Additional Properties of the ESRI Map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category General and subcategory General Settings (see Figure 8.81).

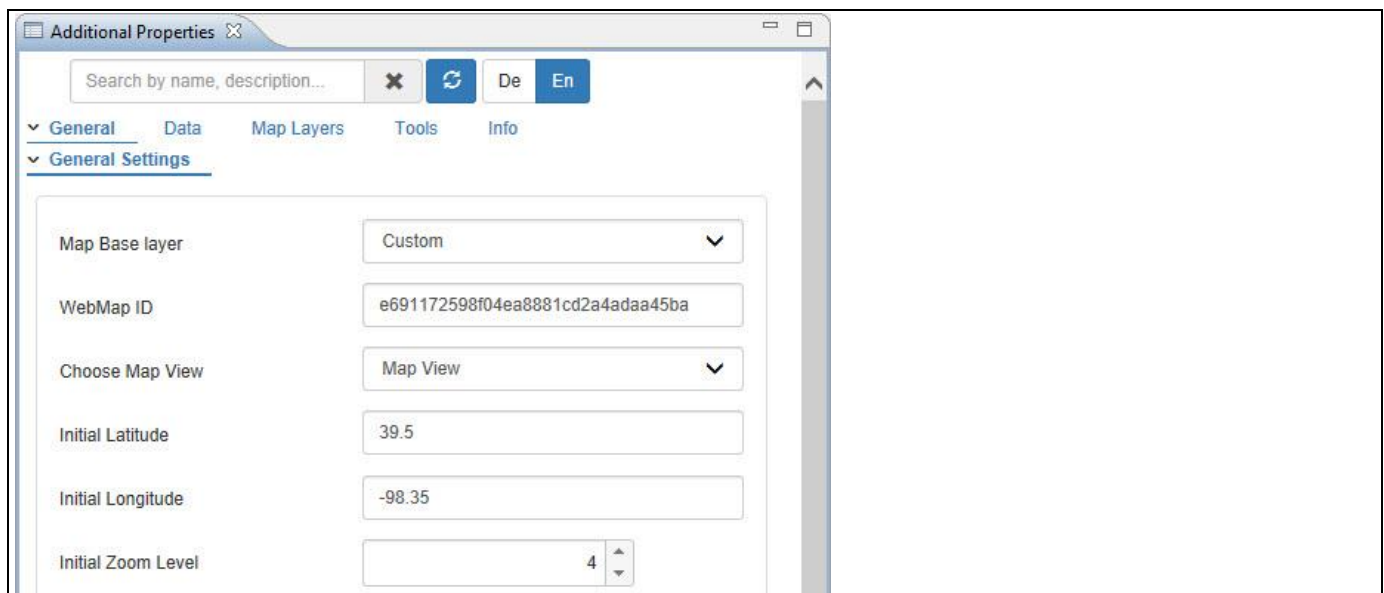


Figure 8.81: Category General

7. For our example, set the property Map Base Layer to the option Custom and set the property WebMap ID of your choice as shown in the Figure 8.81.

8. Set the property Choose Map View to the option Map View.
9. Set the property Initial Latitude to the value 39.5.
10. Set the property Initial Longitude to the value -98.35.
11. For our example, set the property Initial Zoom Level to the value 4.
12. Now navigate to the category Data and to the subcategory Source Data (see Figure 8.82).

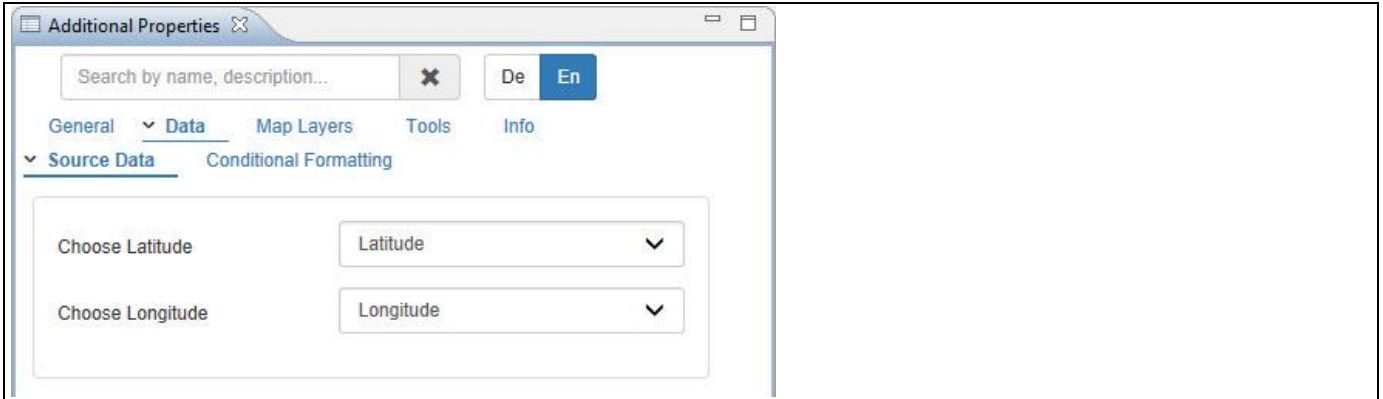


Figure 8.82: Category Data

13. Set the property Choose Latitude to the Dimension Latitude.
14. Set the property Choose Longitude to the Dimension Longitude.
15. Now navigate to the category Map Layers and to the subcategory Marker Layer (see Figure 8.83).
16. Activate the option Activate Marker Layer.

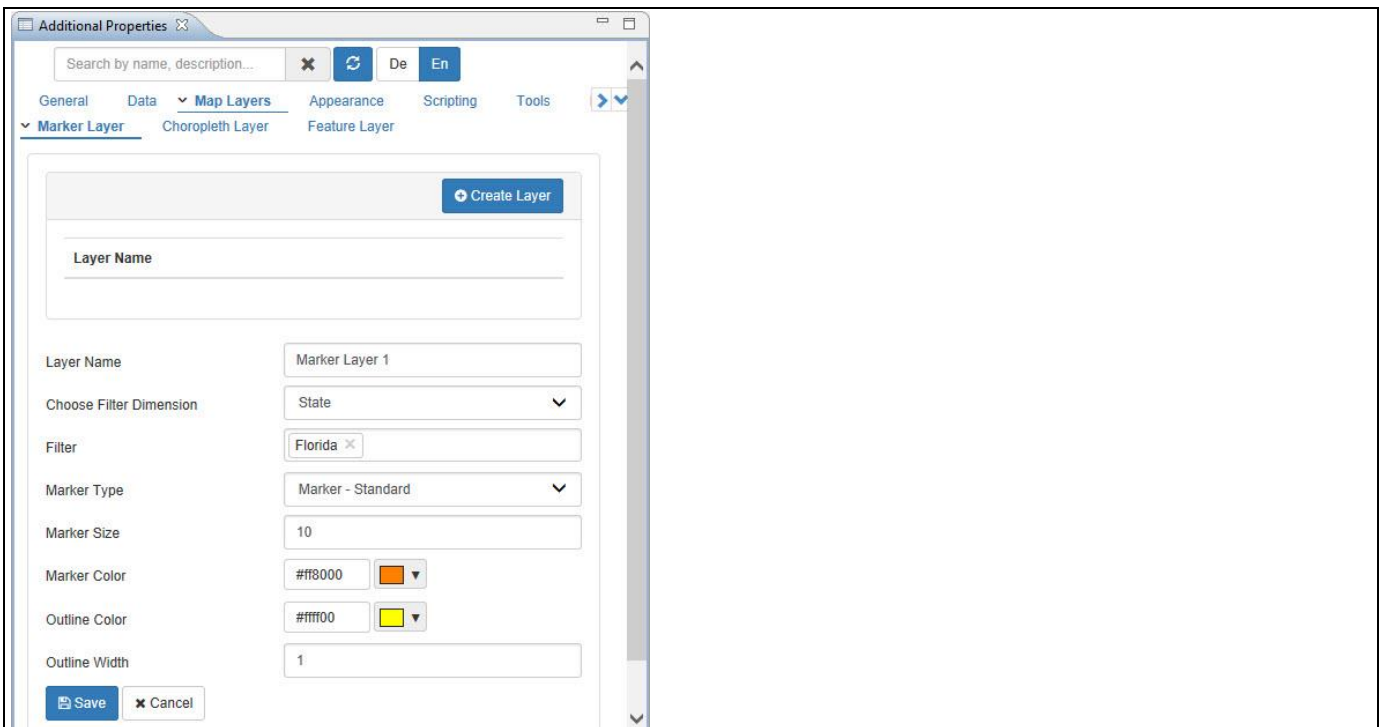


Figure 8.83: Category Map Layers - Marker Layer

17. For our example, enter the Layer Name as Marker Layer 1.

18. Set the property Choose Filter Dimension to the option State.
19. Set the property Filter to the option Florida.
20. Set the property Marker Type to the option Marker-Standard.
21. Set the property Marker Size to the value 10.
22. Set the property Marker Color to the color Orange.
23. Set the property Outline Color to the color Yellow.
24. Set the property Outline Width to the value 1.
25. Based on the above configuration, you will be able to view the ESRI Map with the formation of Marker Layers (see Figure 8.84).

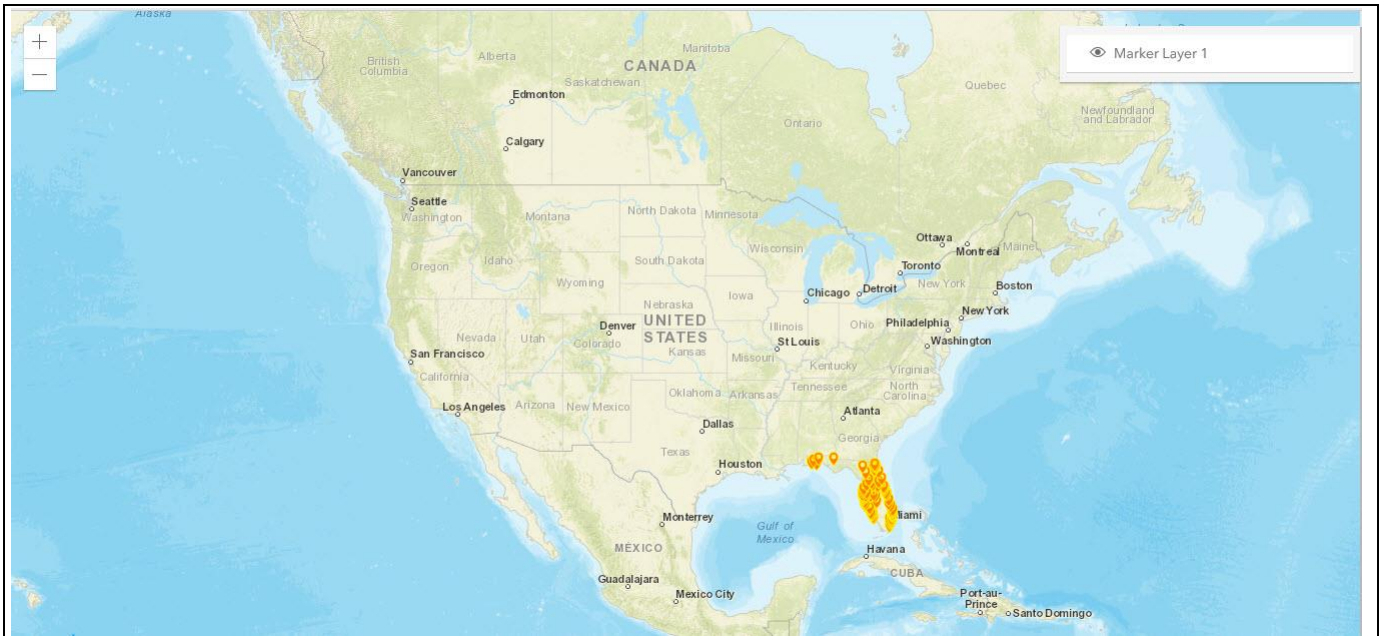


Figure 8.84: ESRI Map with Marker Layer

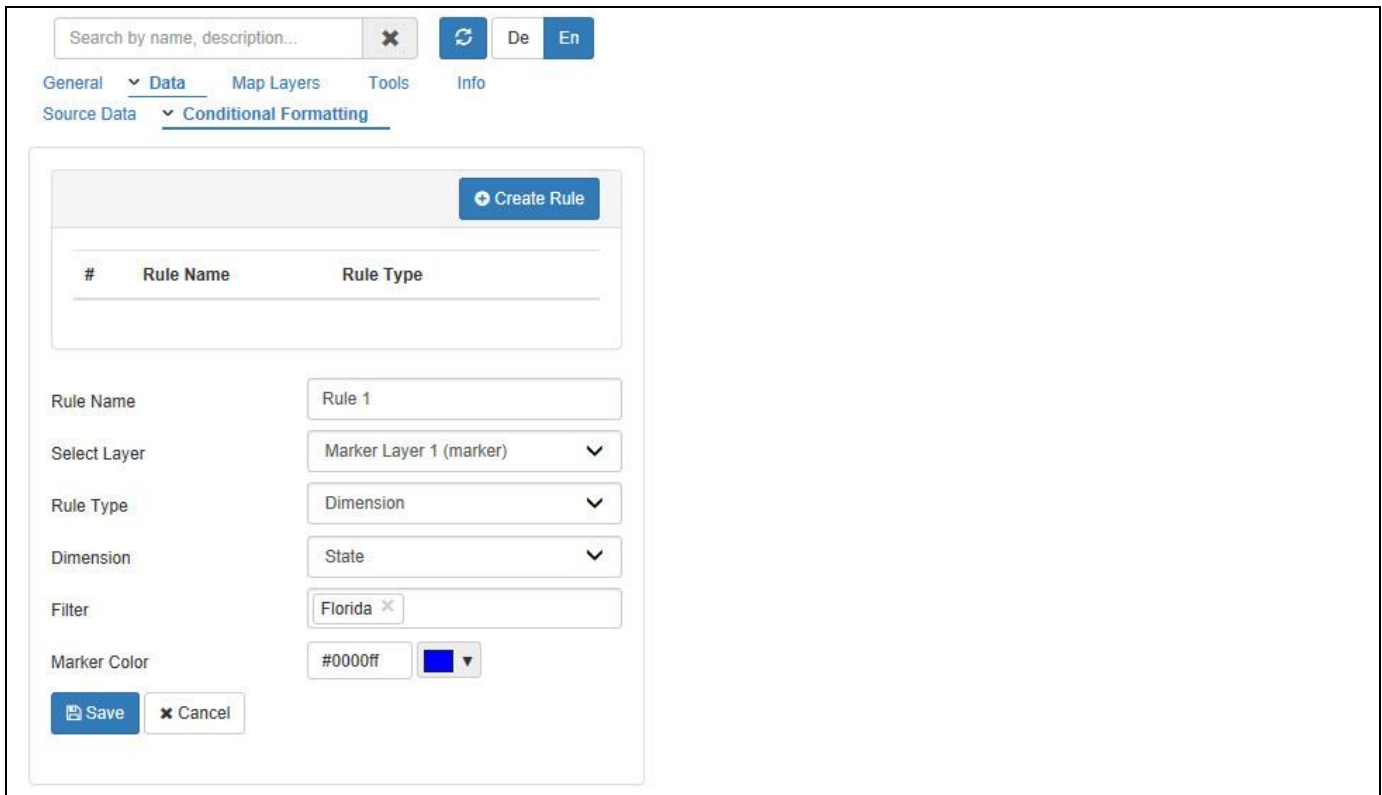
From the above figure you will be able to observe that the Marker Layers are formed in the ESRI Map based on the configuration done for the filter Dimension “State” and the filter Dimension member “Florida”.

8.5.4 Conditional Formatting for the Marker Layer

The ESRI Map component also supports the Conditional Formatting for the Marker Layer in ESRI Map. In the next set of steps, we will use the Marker Layer in Map View to activate the Conditional Formatting.

You can follow the steps below to setup Conditional Formatting:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer open the project from our previously created Marker layer.
2. Navigate to the Additional Properties of the ESRI Map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
3. Navigate to the category Data.
4. Navigate to the subcategory Conditional Formatting.
5. Click Create Rule (see Figure 8.85).



Search by name, description... [X] [Refresh] [De] [En]

General Data Map Layers Tools Info

Source Data Conditional Formatting

[+ Create Rule]

#	Rule Name	Rule Type
	Rule 1	

Rule Name: Rule 1

Select Layer: Marker Layer 1 (marker) [v]

Rule Type: Dimension [v]

Dimension: State [v]

Filter: Florida [X]

Marker Color: #0000ff [Blue] [v]

[Save] [X Cancel]

Figure 8.85: Conditional Formatting – Marker Layer

6. For our example, enter the Rule Name as Rule 1.
7. Set the property Select Layer to the option Marker Layer.
8. Set the property Rule Type to the option Dimension. The other options are Single Measure, Measure Calculation and Target Value. You can find the details on these different rule types in section 4.3.10 as part of the section for Conditional Formatting for charts.
9. Set the property Dimension to the option State.
10. Set the property Filter to the option Florida.
11. Set the property Marker Color to the color Blue.

12. Click on Save to save the Rule to our map.

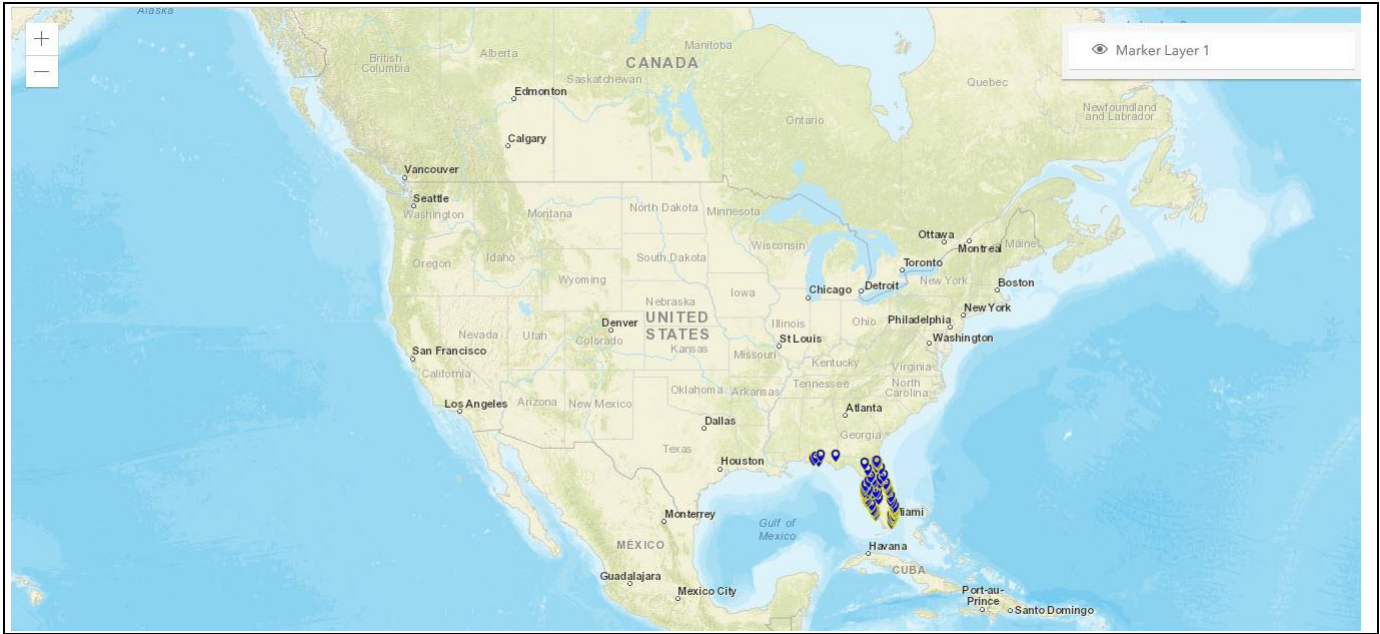


Figure 8.86: ESRI Map – Conditional Formatting for Marker Layer

From the above figure you will be able to observe that the Marker Layers follows the conditional formatting rules configured for the Dimension “State” and the filter Dimension member “Florida”. The blue color represents that the conditional formatting rule is met.

8.5.5 How to use the ESRI Map – Feature Layer

In the following steps we will outline the steps required to setup a new map using the ESRI Map component and to setup a new Feature Layer. For our example we will assume, that the data source contains the following elements:

- Dimension State in the Rows.
- Dimension Longitude in the Rows.
- Dimension Latitude in the Rows.
- Measure Revenue in the Columns.
- Measure Cost in the Columns

You can follow the steps below to setup a new ESRI Map Component with Feature Layer:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the ESRI Map component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the Additional Properties of the ESRI Map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category General and subcategory General Settings (see Figure 8.87).
7. For our example, set the property Map Base Layer to the option Grey as shown in the Figure 8.87.

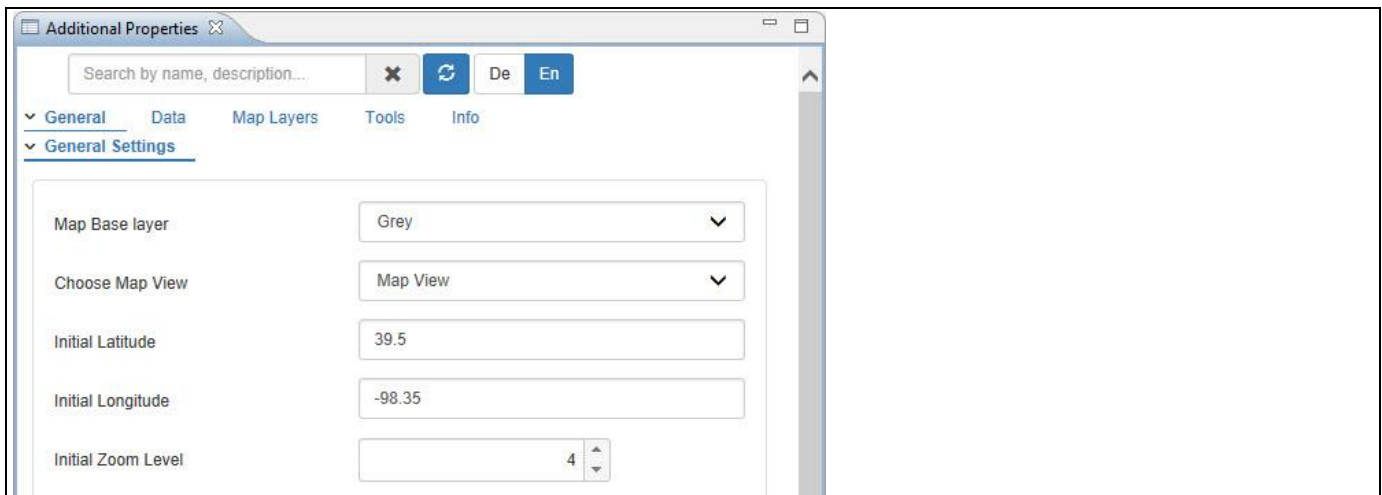


Figure 8.87: Category General

8. Set the property Choose Map View to the option Map View.
9. Set the property Initial Latitude to the value 39.5.
10. Set the property Initial Longitude to the value -98.35.
11. For our example, set the property Initial Zoom Level to the value 4.
12. Now navigate to the category Data and to the subcategory Source Data (see Figure 8.88).

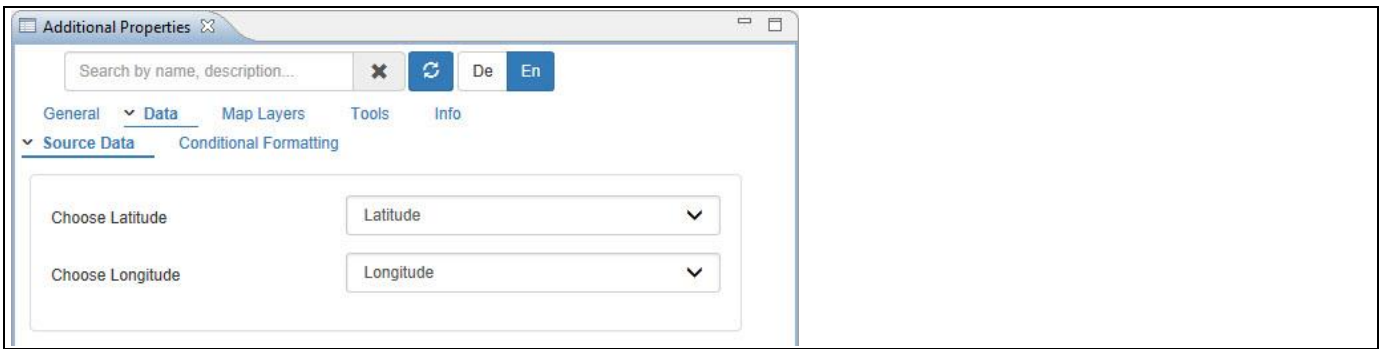


Figure 8.88: Category Data

13. Set the property Choose Latitude to the Dimension Latitude.
14. Set the property Choose Longitude to the Dimension Longitude.
15. Now navigate to the category Map Layers and to the subcategory Feature Layer (see Figure 8.89).

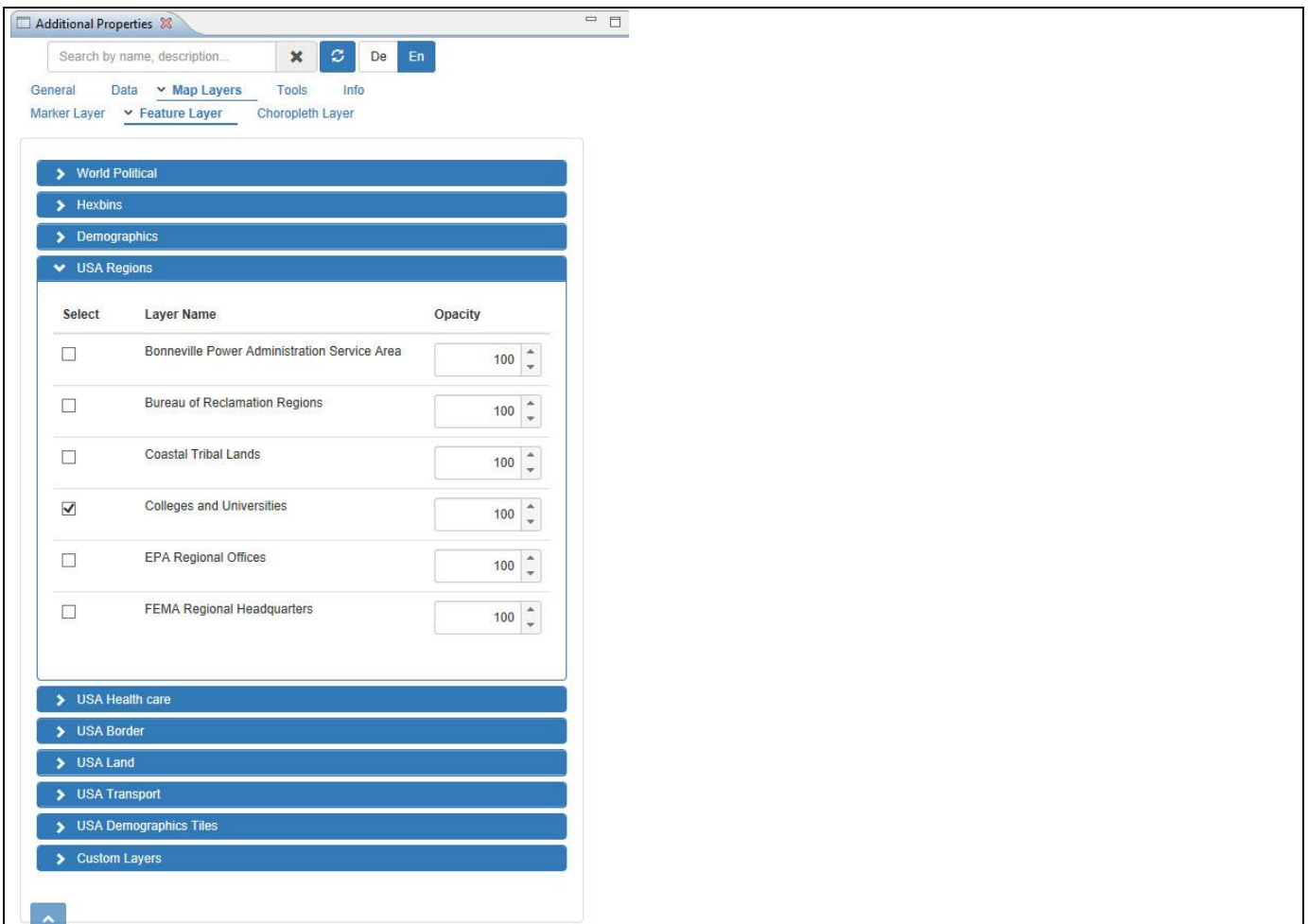


Figure 8.89: Category Map Layers – Feature Layer

16. In the area USA Regions, enable the property Colleges and Universities.
17. Based on the above configuration, you will be able to view the ESRI Map with the formation of the selected Feature Layer (see Figure 8.90).

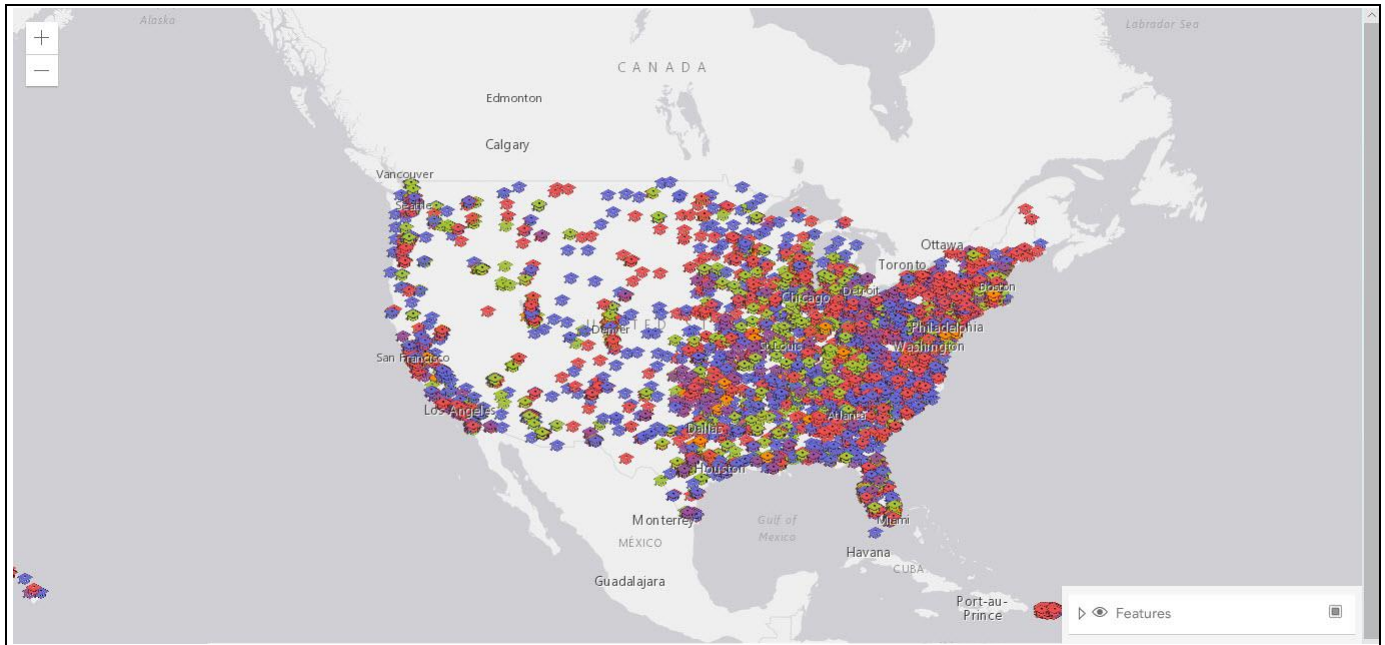


Figure 8.90: Feature Layer

8.5.6 How to use the ESRI Map – Choropleth Layer

In the following steps we will outline the steps required to setup a new map using the ESRI Map component and to setup a new Choropleth Layer. For our example we will assume, that the data source contains the following elements:

- Dimension State in the Rows.
- Dimension Longitude in the Rows.
- Dimension Latitude in the Rows.
- Measure Revenue in the Columns.
- Measure Cost in the Columns

You can follow the steps below to setup a new ESRI Map Component with Choropleth Layer:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the ESRI Map component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the Additional Properties of the ESRI Map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category General and subcategory General Settings (see Figure 8.91).
7. For our example, set the property Map Base Layer to the option Grey as shown in the Figure 8.91.

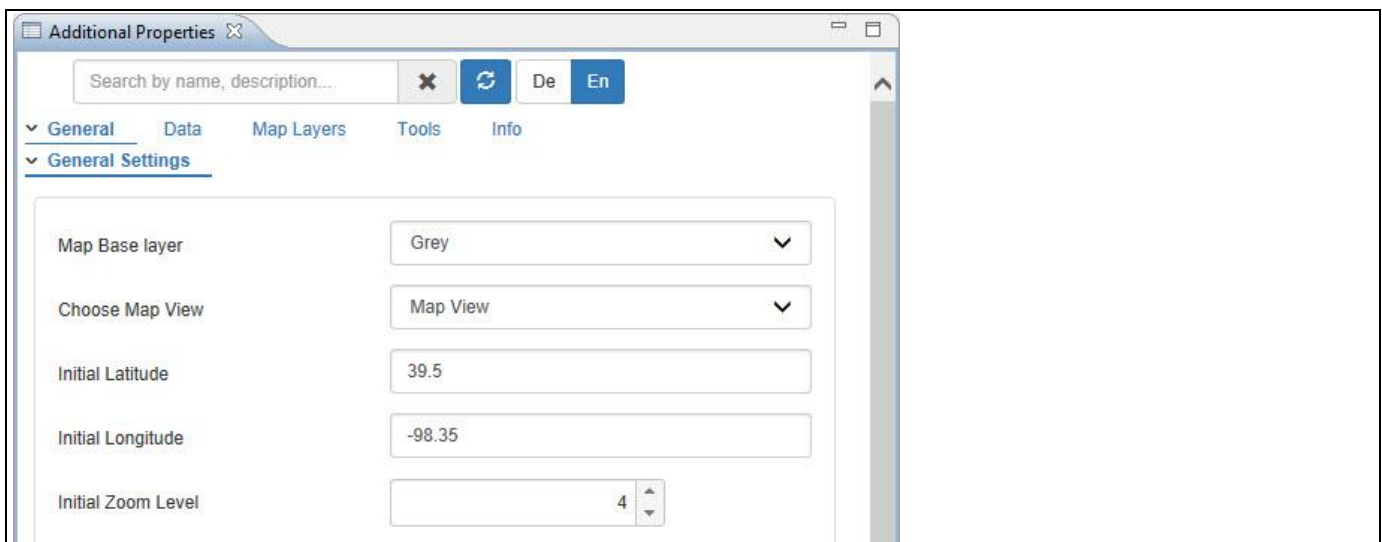


Figure 8.91: Category General

8. Set the property Choose Map View to the option Map View.
9. Set the property Initial Latitude to the value 39.5.
10. Set the property Initial Longitude to the value -98.35.
11. For our example, set the property Initial Zoom Level to the value 4.
12. Now navigate to the category Data and to the subcategory Source Data (see Figure 8.92).

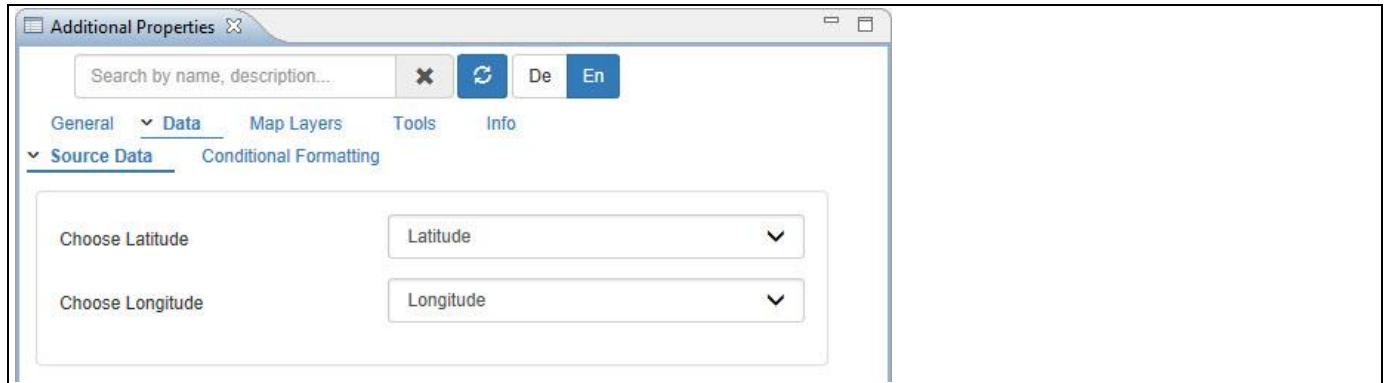


Figure 8.92: Category Data

13. Set the property Choose Latitude to the Dimension Latitude.
14. Set the property Choose Longitude to the Dimension Longitude.
15. Now navigate to the category Map Layers and to the subcategory Choropleth Layer (see Figure 8.93).
16. For our example, enter the layer name as Choropleth Layer 1.
17. Set the property Source to the option Raw Text. The other options are URL and SAP BusinessObjects BI Platform (see Figure 8.93).
18. For our example, set the property Text to the GeoJSON Text as shown in Figure 8.93.
19. Set the property Sample Row to the value 5 and the sample data will be shown (see Figure 8.93).
20. Set the property Attribute to the option NAME.
21. Set the property Choose Dimension to the option State.
22. Set the property Choose Key/Text to the option Text.
23. Set the property Choose Measure to the option Revenue.
24. Set the property Scale Type to the option Quantile.
25. Set the property Configure Color Scheme to the option Color Spectrum.
26. Set the property Choose Nature of data to the option Qualitative.
27. Set the property Choose Color Scheme to the option Accent.
28. Set the property Number of Ranges to the value 5.

Additional Properties

Search by name, description...

De En

General Data **Map Layers** Tools Info

Marker Layer Feature Layer **Choropleth Layer**

Create Layer

Layer Name

Layer Name Choropleth Layer 1

Source Raw Text

Text

```

18.489987 ], [ -66.534840, 18.481253 ], [
-66.533487, 18.481663 ], [ -66.529476,
18.482877 ], [ -66.511609, 18.476848 ], [
-66.470292, 18.469070 ], [ -66.456486,
18.468920 ], [ -66.449184, 18.470991 ], [
-66.441852, 18.479751 ], [ -66.439961,
18.485525 ], [ -66.438813,
18.485713 ] ] ] ] }
}

```

Sample Row 5

Sample Data

GEO_ID	STATE	NAME	LSAD	CENSUSAREA
0400000US01	01	Alabama		50645.326
0400000US02	02	Alaska		570640.95
0400000US04	04	Arizona		113594.084
0400000US05	05	Arkansas		52035.477
0400000US06	06	California		155779.22
Total : 52				

Attribute NAME

Choose Dimension State

Choose Key / Text Text

Choose Measure Revenue

Scale Type Quantile

Configure Color Scheme Color Spectrum

Choose Nature of data Qualitative

Color Blind Safe

Choose Color Scheme

Selected Color Scheme (Accent)

Number of Ranges 5

Save Cancel

Figure 8.93: Category Map Layers – Choropleth Layer

29. Based on the above configuration, you will be able to view the ESRI Map with the formation of the Choropleth Layer (see Figure 8.94).

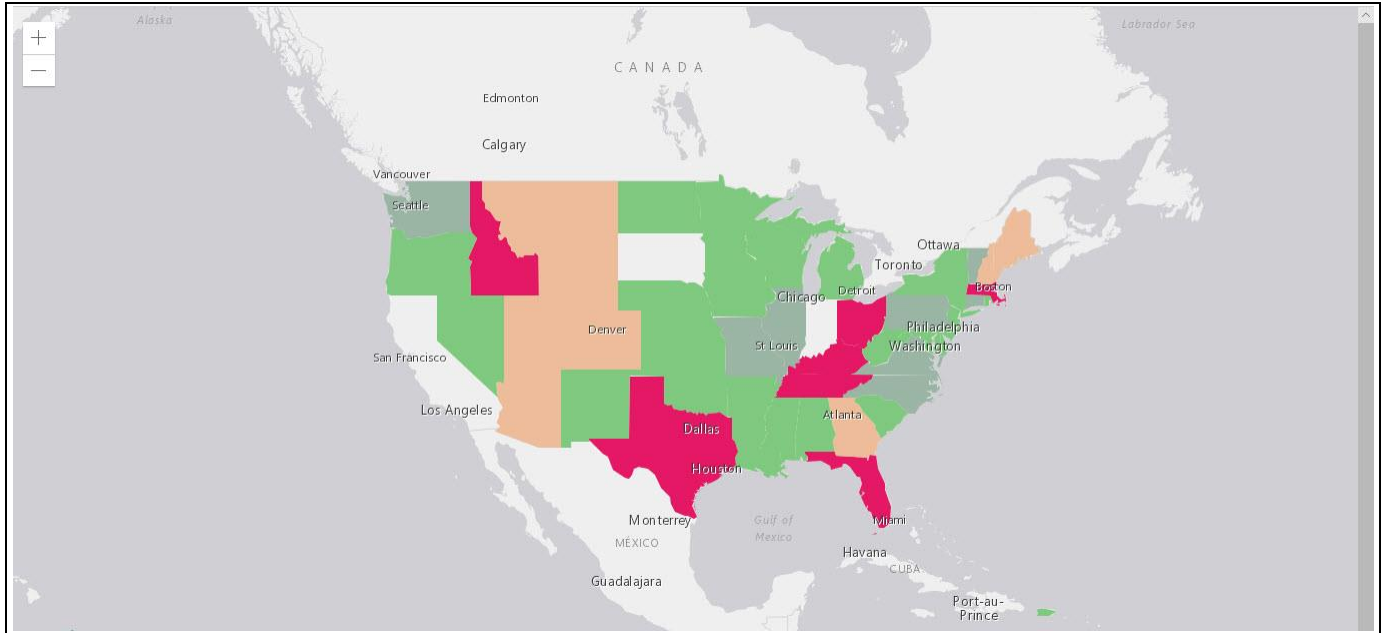


Figure 8.94: Choropleth Layer

8.5.7 Charting Capability on Tooltip for ESRI Map – Marker Layer

As part of VBX Release 2.4, you will be able to configure the Marker Layer in ESRI map with the Tooltip showing the Column Dimensions and Z-Axis Measures with a Chart display. The applicable charts that can be configured for this Tooltip settings are listed below:

1. Line Chart
2. Column Bar Chart
3. Area Chart
4. Line Chart
5. Polar Chart
6. Stacked Column Bar Chart
7. Stacked Area Chart
8. Combination Chart
9. Group Stacked Column Bar Chart
10. Super Combination Chart
11. Fixed Column Chart
12. Heat Map Chart
13. Dual Axes Chart
14. Multiple Axes Chart
15. Box Plot Chart
16. Radar Chart
17. Slope Chart
18. Stream Graph
19. Advanced Column Bar Chart

For our example we will assume, that the data source contains the following elements:

- Dimension Longitude in the Rows.
- Dimension Latitude in the Rows.
- Dimension Calendar Year/Month in the Columns.
- Measure Net Revenue in the Columns.
- Measure Target Revenue in the Columns

You can follow the steps below to setup a new ESRI Map Component with Marker Layer showing the Tooltip configuration:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the ESRI Map component from the VBX Maps to your project.
4. Assign the data source to the map component.

5. Navigate to the Additional Properties of the ESRI Map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category General and subcategory General Settings (see Figure 8.95).

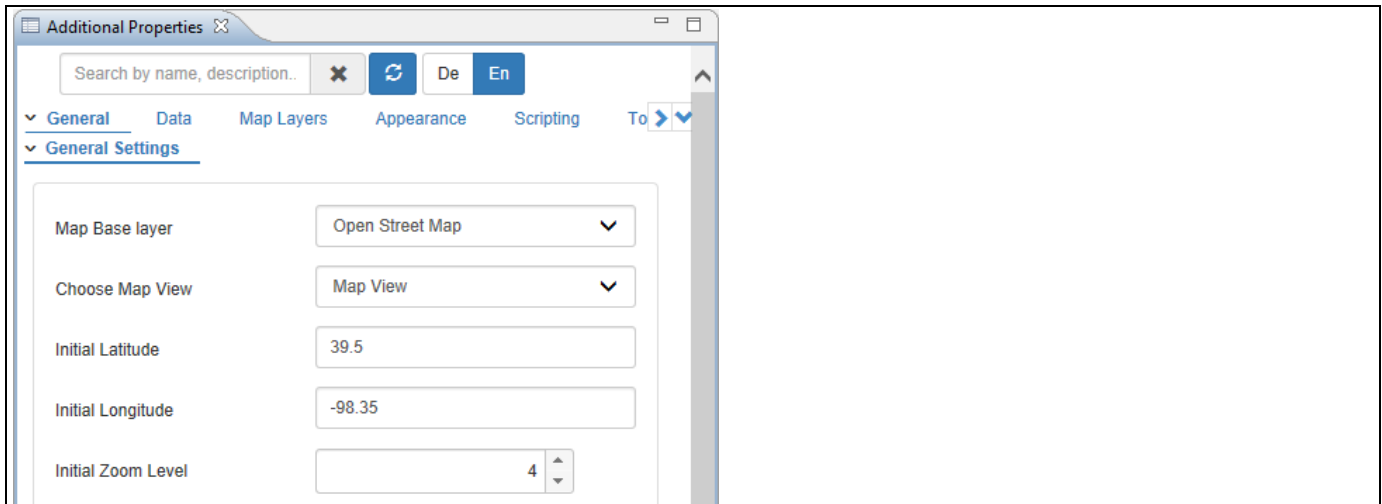


Figure 8.95: Category General

7. For our example, set the property Map Base Layer to the option Open Street Map.
8. Set the property Choose Map View to the option Map View.
9. Set the property Initial Latitude to the value 39.5.
10. Set the property Initial Longitude to the value -98.35.
11. For our example, set the property Initial Zoom Level to the value 4.
12. Now navigate to the category Data and to the subcategory Source Data (see Figure 8.96).

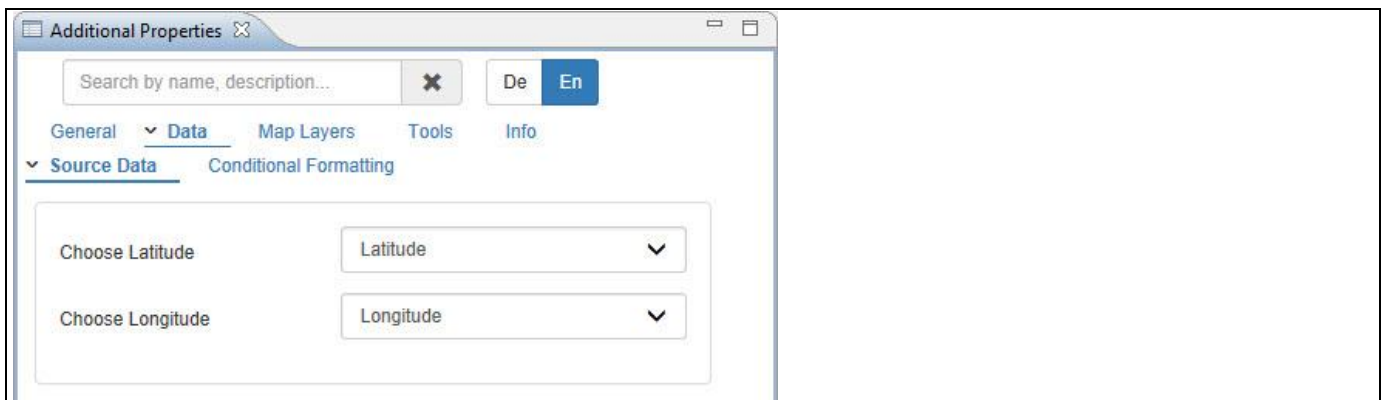


Figure 8.96: Category Data

13. Set the property Choose Latitude to the Dimension Latitude.
14. Set the property Choose Longitude to the Dimension Longitude.
15. Now navigate to the category Map Layers and to the subcategory Marker Layer (see Figure 8.97).

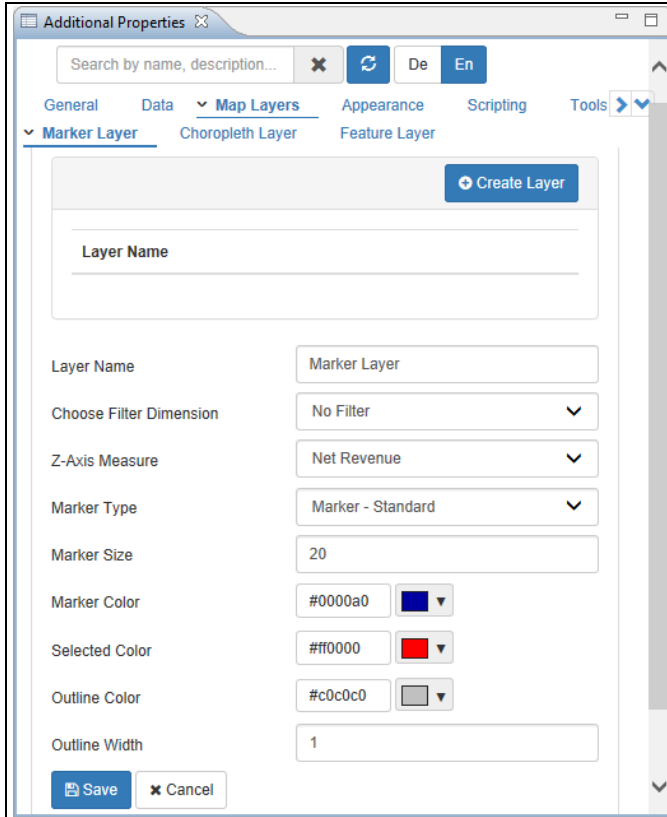


Figure 8.97: Category Map Layers - Marker Layer

16. For our example, enter the Layer Name as Marker Layer.
17. Set the property Choose Filter Dimension to the option No Filter.
18. Set the property Z-Axis Measure to the option Net Revenue.
19. Set the property Marker Type to the option Marker-Standard.
20. Set the property Marker Size to the value 20.
21. Set the property Marker Color to the color Blue.
22. Set the property Selected Color to the color Red.
23. Set the property Outline Color to the color Grey.
24. Set the property Outline Width to the value 1.
25. Now add a Line Chart component from VBX Charts to your Project.
26. Navigate to the category Appearance and to the sub category Custom Tooltip of the ESRI Map component (see Figure 8.98).

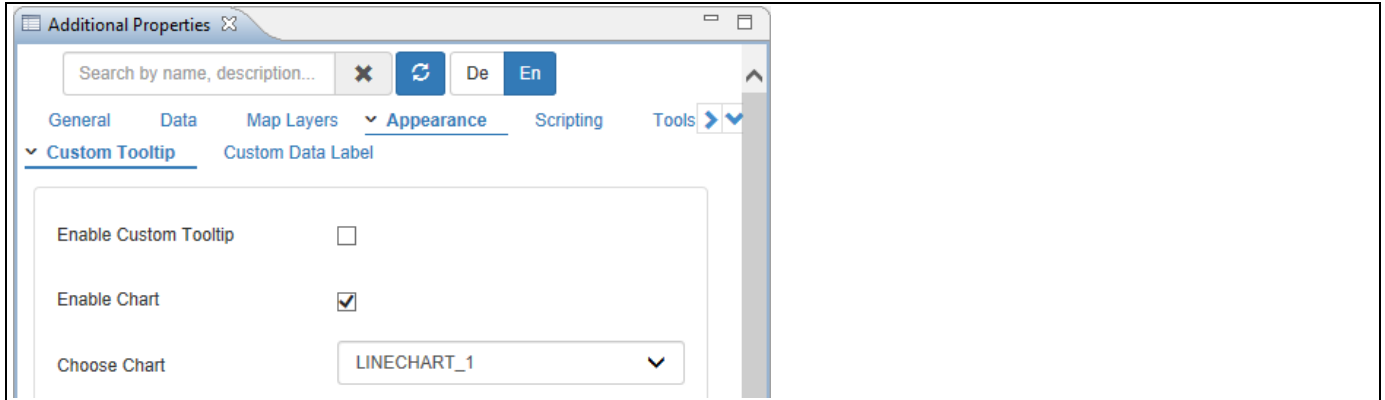


Figure 8.98: Category Appearance

27. Activate the property Enable Chart.
28. For our example, set the property Choose Chart to the option LINECHART_1.
29. Based on the above configurations, you will be able to view the ESRI Map with the formation of Marker Layers (see Figure 8.99).

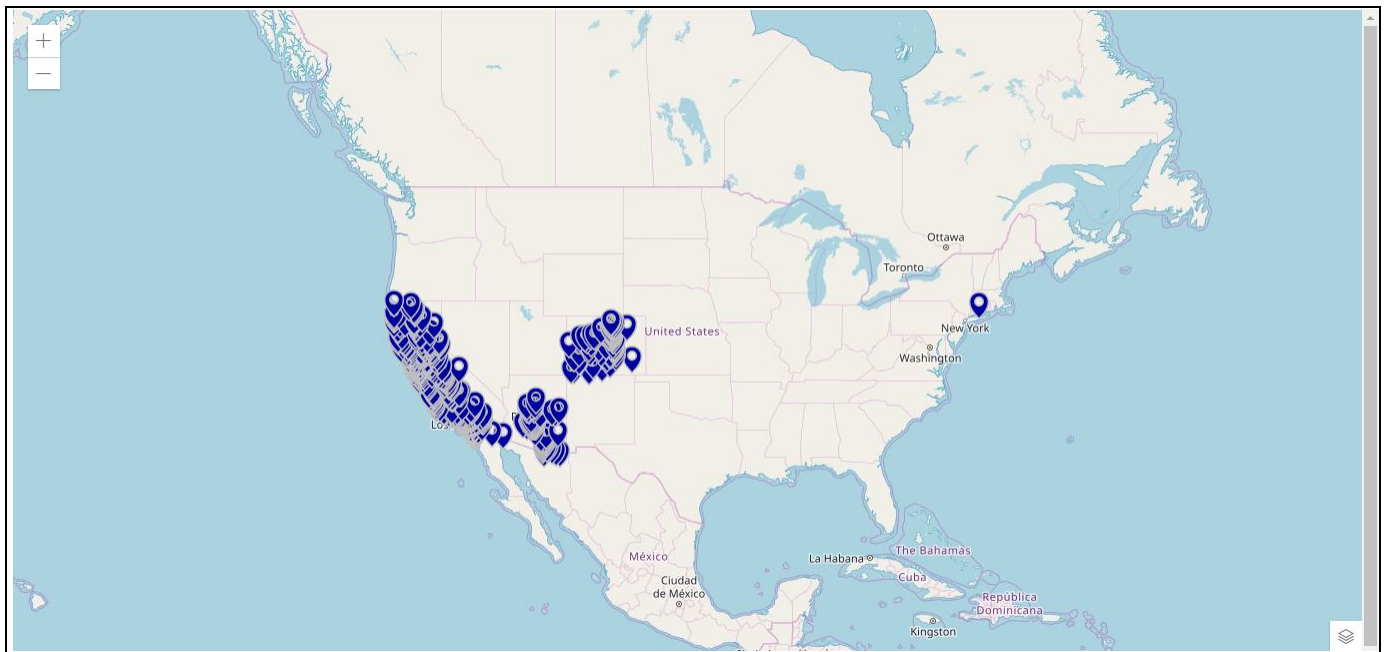


Figure 8.99: ESRI Map with Marker Layer

By clicking one of the Marker, the color of the Marker will get changed to Red Color and you will be able to view the Tooltip information for that Marker Layer which appears with a Line Chart (see Figure 8.100).

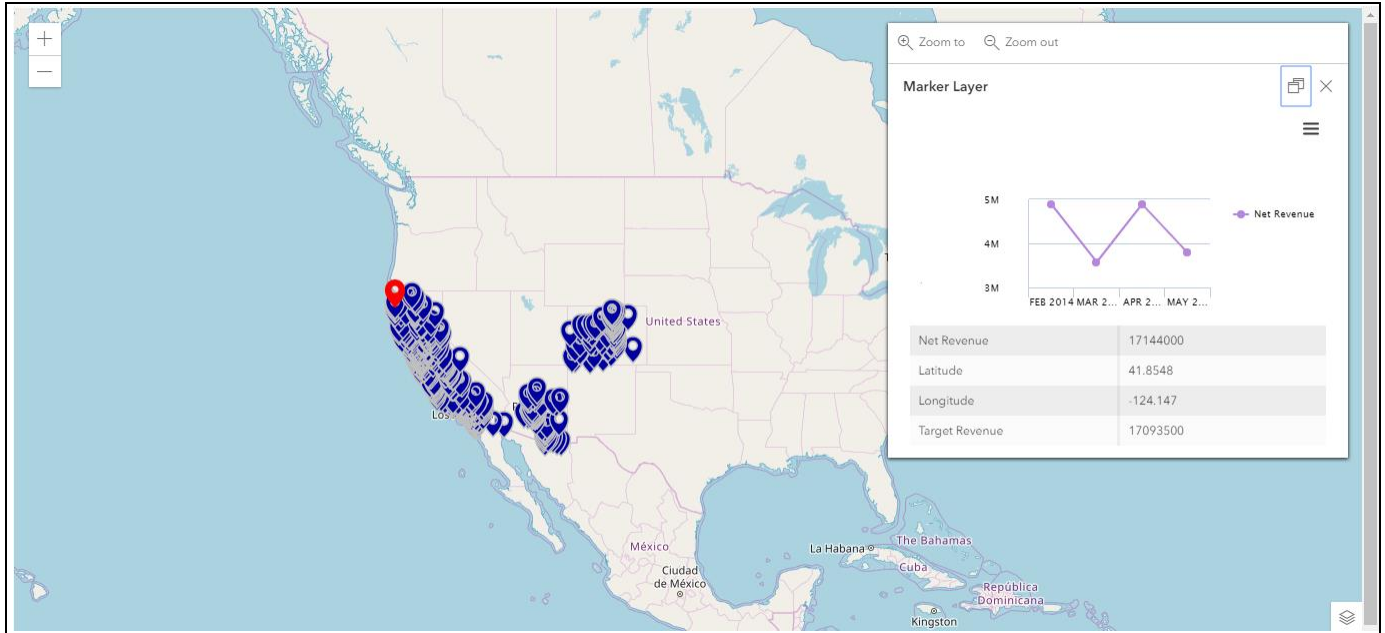


Figure 8.100: ESRI Map with Tooltip Configuration

8.5.8 Additional Properties of ESRI Map

The ESRI Map component also comes with a set of Additional Properties. In the following sections you will find a list of available properties and a Table with a more detailed description of each of those properties.

8.5.8.1 Category General

Below you can see the Additional Properties for the category General and their descriptions:

Subcategory	Property	Description
General Settings	Map Base Layer	Here you can choose the Map Base layer.
	Choose Map View	Here you can choose the Map View.
	Initial Latitude	Here you can set the initial value for the Latitude.
	Initial Longitude	Here you can set the initial value for the Longitude.
	Initial Zoom Level	Here you can set the initial zoom level of the map. Zoom Level Should be greater than 0 and lesser or equal to Maximum Zoom Level.
	Enable Auto Rotate	By enabling this property, you will be able to view the Map rotating automatically. This property works only when the property Choose Map View is selected as "Globe View".
	Enable Base Layer Widget	By enabling this property, you will be able to view a small widget being displayed at the right corner of the Map which will allow to change the Base Layer during runtime.
	Enable Locate Widget	This property will enable the Locate widget and it will appear at the Top Left Corner of the Map. This property will also help to locate the user's current location on Map.
	Enable Layers Widget	This property enables the user to toggle the layers visibility.
	Enable Legend Widget	By enabling this property, the legends will be displayed and it will be visible only as part of the Layers Widget.
	Enable Search Widget	This property enables the Location's Search Widget.

Table 8.25: Category General

8.5.8.2 Category Data

Below you can see the Additional Properties for the category Data and their descriptions:

Subcategory	Property	Description
Source Data	Choose Latitude	Here you can select either a dimension or a measure to represent the Latitude values.
	Choose Longitude	Here you can select either a dimension or a measure to represent the Longitude values.

Subcategory	Property	Description
Conditional Formatting	Rule Name	Here you can enter a name for the Conditional Formatting Rule.
	Select Layer	Here you can select one of the Marker Layers.
	Rule Type	Here you can choose the type of conditional formatting. The options are Single Measure, Measure Calculation, Target Value and Dimension.
	Highlighted Measure	Here you can select the measure where the rule will be applied upon.
	Comparison Measure	Here you can select the measure which will be compared against the Comparison Value.
	Comparison Operator	Here you can choose the operator that is used to compare the Comparison Measure with the Comparison Value.
	Comparison Value Type	Here you can choose between a Static and a Dynamic comparison value.
	Dynamic Selection Value	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
	Comparison Value	Depending on the configured options, the property Comparison Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
	Dimension	If Rule Type is set to the option Dimension, then you can set the property Dimension.
	Filter	Here you can select the Dimension member as a filter.
	Marker Color	Here you can define the Marker color for the Rule.
	Measure 1, Measure 2	Here you can choose those measures that will be used as part of the measure calculation.
	Calculation Operator	Here you can choose the type of calculation. Available options are: Add, Subtract, Divide, Multiply.
	Target Value Type	Here you can choose between a Static and a Dynamic Target Value.
	Target Value	Depending on the configured options, the property Target Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.

Table 8.26: Category Data

8.5.8.3 Category Map Layers

Below you can see the Additional Properties for the category Map Layers and their descriptions:

Subcategory	Property	Description
Marker Layer	Activate Marker Layer	This property allows to enable / disable the Marker Layer
	Layer Name	Here you can enter the name for the Marker Layer.
	Choose Filter Dimension	Here you can select a dimension from the data source and then configure filter values specifically for this map layer.
	Z-Axis Measure	Here you can select the Measure that needs to be visualized in Z-Axis Chart.
	Marker Type	Here you can select the Marker Type. The options are Marker-Standard, Marker-URL and Bubble.
	Marker Size	Here you can set the Marker Size.
	Marker Color	Here you can select the Marker Color.
	Selected Color	Here you can select the color and the selected color will be applied when the user clicks the Marker.
	Outline Color	Here you can select the Outline Color for the Marker.
	Outline Width	Here you can set the Outline Width for the Marker.
	Picture URL	Here you can specify the URL of the Picture File.
	Picture Width	Here you can set the Picture Width.
	Picture Height	Here you can set the Picture Height.
	Primary Measure (Size)	Here you assign the measure for the Bubble Size.
	Configure Size	Here you can set the Configuration Size for the Bubble. The options are Fixed value and Percentage.
	Secondary Measure (Color)	Here you assign the measure for the Bubble Color.
	Configure Color	This property allows you to select the type of Color Scheme. The options are Color Spectrum and Manual.
	Choose Nature of data	This property allows you to select the Data Nature. The options are Sequential, Diverging and Qualitative.
	Color Blind Safe	This property when enabled allows you to view only the Blind Safe Color Scheme.
	Choose Color Scheme	This property allows you to select the required Color Scheme from the panel of color schemes.
	Selected Color Scheme	The property allows you to view the selected Color Scheme.
	Number of Ranges	This property allows you to set the number of ranges for the color scheme.
Feature Layer	World Political	The World Political Feature Layer can be selected from

Subcategory	Property	Description
		the predefined list.
	Hexbins	The Hexbins Feature Layer can be selected from the predefined list.
	Demographics	The Demographics Feature Layer can be selected from the predefined list.
	USA Regions	The USA Regions Feature Layer can be selected from the predefined list.
	USA Health Care	The USA Health Care Feature Layer can be selected from the predefined list.
	USA Border	The USA Border Feature Layer can be selected from the predefined list.
	USA Land	The USA Land Feature Layer can be selected from the predefined list.
	USA Transport	The USA Transport Feature Layer can be selected from the predefined list.
	USA Demographics Tiles	The USA Demographics Tiles Feature Layer can be selected from the predefined list.
	Custom Layers	The Custom Layers can be created using the respective URLs.
Choropleth Layer	Layer Name	This property allows you to set the Choropleth Layer Name.
	Source	This property allows you to select the Data Source for the Choropleth Layer. The other options are URL and SAP BusinessObjects BI Platform.
	Text	This property allows you to enter the GeoJSON Text when the property Source is selected as Raw Text.
	Enter URL	This property allows you to enter the URL when the property Source is selected as URL.
	BI Platform	This property allows you to select the Source File from the BI Platform when the property Source is selected as BI Platform.
	Sample Row	This property allows you to set the value for displaying the sample number of rows.
	Sample Data	This property displays the sample number of rows based on the Sample Row value.
	Attribute	This property allows you to select the Attribute from the GeoJSON File.
	Choose Dimension	This property allows you to map the exact Dimension value with the Attributes. If it is matched, then it will get displayed.
	Choose Key/Text	This property allows you to select the Key/Text value.
	Choose Measure	This property allows you to select the required Measure from the list of assigned Measures.

Subcategory	Property	Description
	Scale Type	This property allows you to select the Scaling Type. The options are Quantile, Quantize, Linear and Custom.
	Configure Color Scheme	This property allows you to select the type of Color Scheme. The options are Color Spectrum and Manual.
	Choose Nature of data	This property allows you to select the Data Nature. The options are Sequential, Diverging and Qualitative.
	Color Blind Safe	This property when enabled allows you to view only the Blind Safe Color Scheme.
	Choose Color Scheme	This property allows you to select the required Color Scheme from the panel of color schemes.
	Selected Color Scheme	The property allows you to view the selected Color Scheme.
	Number of Ranges	This property allows you to set the number of ranges for the color scheme.

Table 8.27: Category Map Layers

8.5.8.4 Category Appearance

Below you can see the Additional Properties for the category Appearance and their descriptions:

Subcategory	Property	Description
Custom Tooltip	Enable Custom Tooltip	This property enables / disables the Custom Tooltip.
	Enable Chart	This property enables / disables the Chart. This property will display the Chart in a popup if the result set contains column dimension.
	Choose Chart	This property allows you to select the Chart and the selected Chart will be displayed in the Tooltip.
	Font Family	Here you can set the Font Family for the Tooltip.
	Choose Layer	Here you can select the Layer Type

Table 8.28: Category Appearance

8.5.8.5 Category Scripting

The Additional Properties of the Category Scripting for the ESRI Map component is similar to the Additional Properties of the Category Scripting for the Location Analyzer as already discussed in Section 8.3.13.5.

Map View Settings

The Map View property being selected as Globe View in Additional Properties of the ESRI Map will be rendered only in the GPU enabled systems.

8.5.9 Scripting Functions for the ESRI Map

The following Table outlines the available scripting functions for the ESRI Map component.

Function Name	Description
DSXGetDataSelection()	The function allows you to retrieve the Data Selection specifying the Result Set of a Data Source.
DSXGetVisible()	The function allows you to retrieve the value for the visibility of the component.
DSXGet SelectedMember()	This function allows you to retrieve the selected member of the Dimension.
DSXGet SelectedMemberKey()	This function allows you to retrieve the selected member key of the Dimension.
DSXGet SelectedMemberText()	This function allows you to retrieve the selected member text of the Dimension.
DSXSetDataSelection()	The function allows you to set the Data Selection specifying the Result Set of a Data Source.
DSXSetInitialLatitude()	The function allows you to set the value for Initial Latitude.
DSXSetInitialLongitude()	The function allows you to set the value for Initial Longitude.
DSXSetVisible()	The function allows you to set the value for the visibility of the component.
DSXSetZoomLevel()	The function allows you to set the Zoom Level.

Table 8.29: Scripting Functions

8.6 Google Map

Google Map is a mapping component that allows geographic analysis based on Longitude and Latitude information or based on a complete address location or a GeoJSON definition. The Google Map component allows you to configure a Base Map Layer and to setup a Marker Layer, Heat Layer, Choropleth Layer, Bubble Layer and GeoJSON Layer.

8.6.1 Custom Tooltip and Data Label Configurations

As part of Release 2.4, you also have the ability to create a customized Tooltip using a small text editor as part of the Additional Properties for Google Map Component.

In the Additional Properties of the Google Map component in the Category Appearance you can navigate to the subcategory Tooltip, which provides access to all the settings related to the Tooltip for the Google Map (see Figure 8.101).

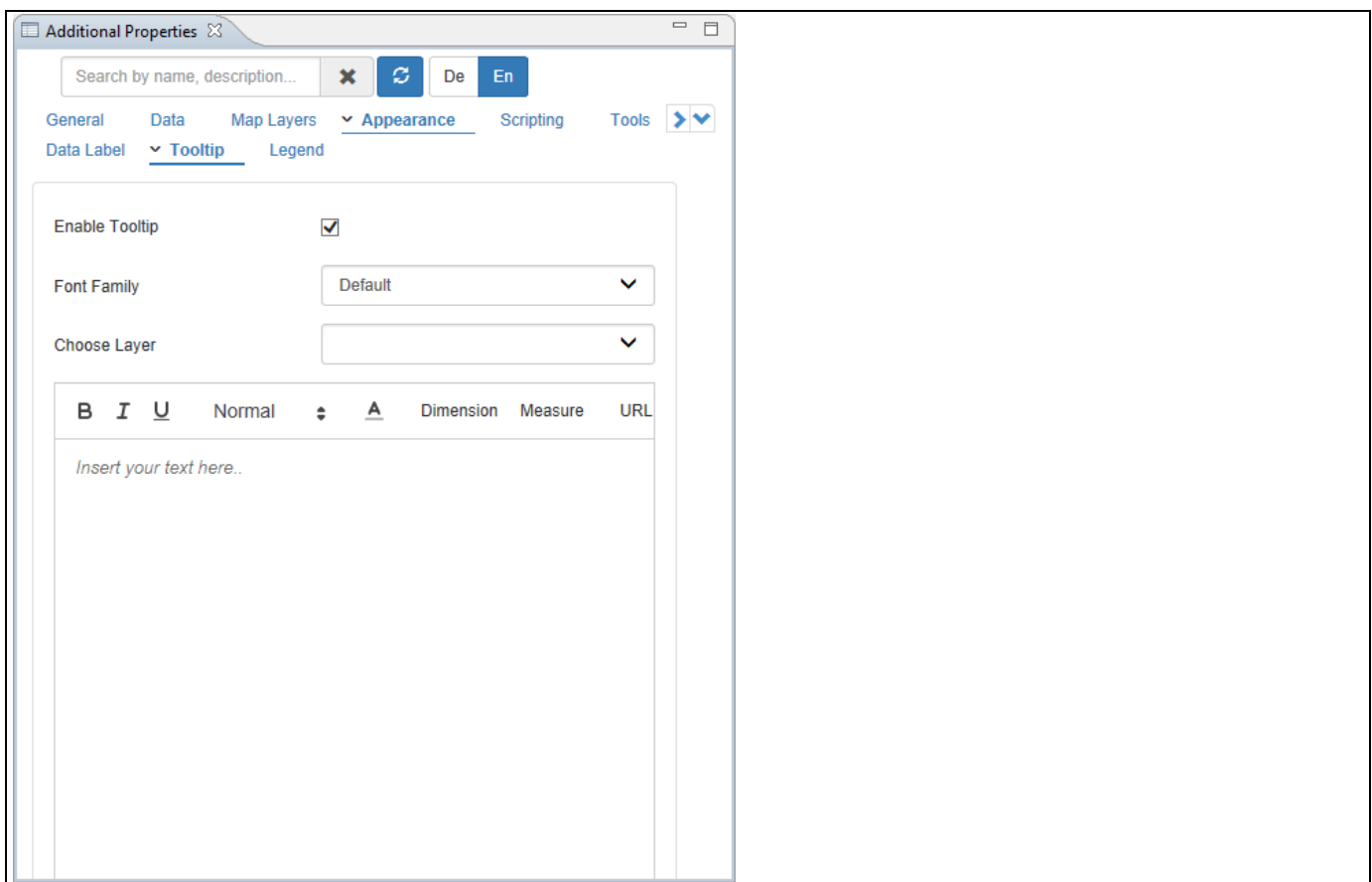


Figure 8.101: Tooltip Properties

Part of the Tooltip properties is also a small editor, which allows you to create a customized Tooltip (see Figure 8.102).

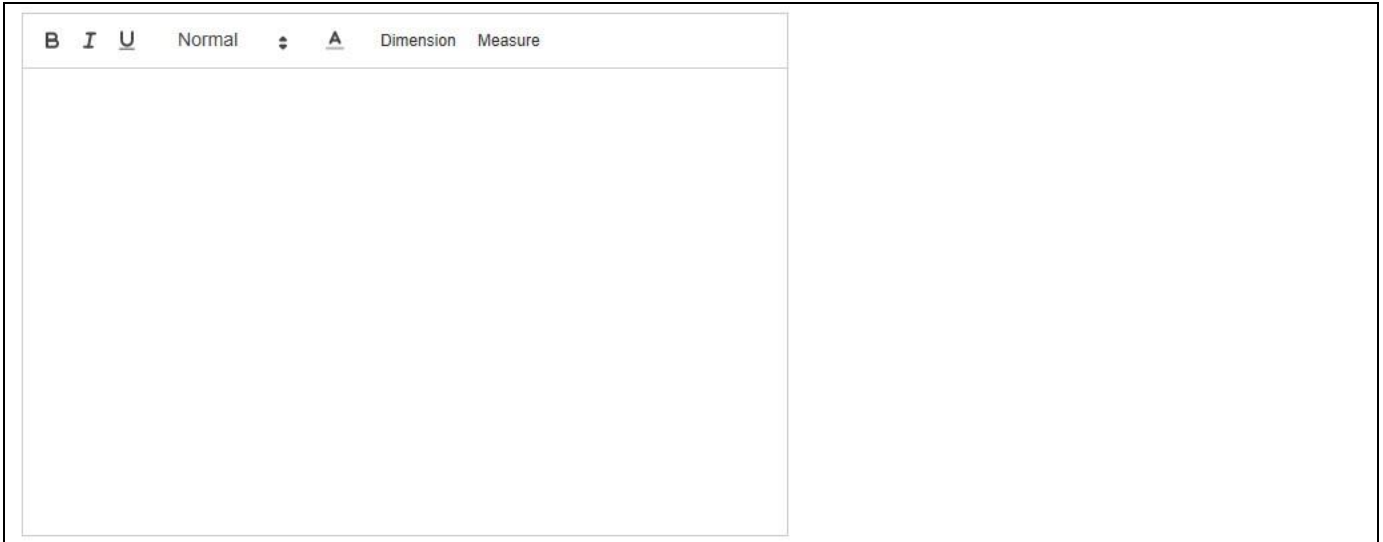


Figure 8.102: Custom Tooltip

Using this small editor you have the ability to simply type and format text, as well as integrate data and meta-data from the assigned data source. Using the menu items Dimension and Measure, you can integrate the information from the assigned Dimension and Measure(s) into the Tooltip.

When clicking on Dimension, you will have the option to select the dimension as part of the property Name. By using the option Metadata, you can include the name of the dimension into the data label and by using the option Member the dimension member that is shown in the Google Map will then be mentioned in the Tooltip.

In addition you can configure the property Display Type to either show the Key or the Text for the dimension member (see Figure 8.103).

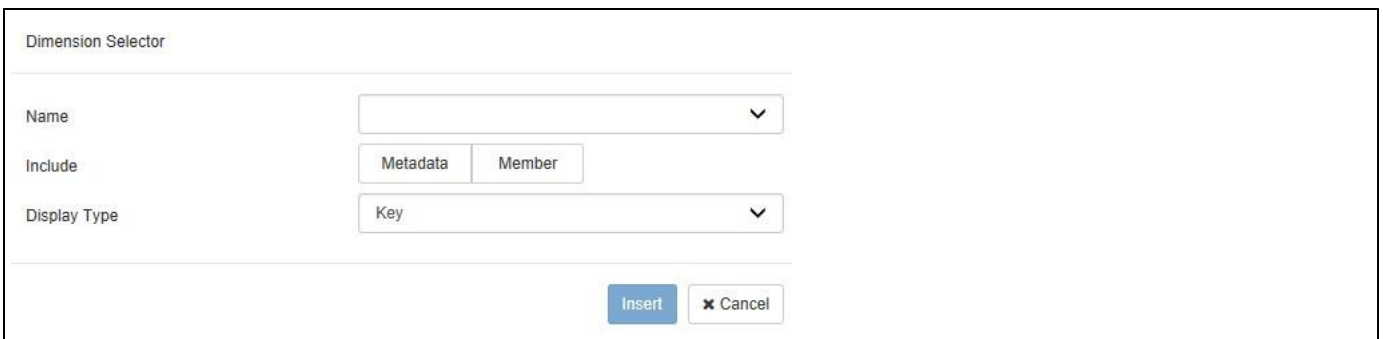


Figure 8.103: Dimension Selector

When clicking on Measure, you will receive a very similar list of options for the measures in the Google Map (see Figure 8.104).



Measure Selector

Name:

Include:

Display Type:

Figure 8.104: Measure Selector

Here you also have the ability to first select the Measure and then choose between the Metadata and the Value of the Measure. In case you choose the Metadata option, you can then also choose between the Key and Text for the Display Type. After inserting the text and the selected elements from the dimension and measures, the text editor is showing the elements of the Tooltip (see Figure 8.105).



Rich text editor interface with a toolbar containing Bold (B), Italic (I), Underline (U), Normal, Bulleted List, and Link icons. The text area contains the text: "Product Group Member Text : Current Measure Value". The text "Product Group Member" is highlighted in blue, "Text" is in a black box, and "Current Measure Value" is highlighted in yellow. The editor has tabs for "Dimension" and "Measure". A "Save" button is at the bottom left.

Figure 8.105: Custom Tooltip

In the given example we selected the Text from the Member from dimension Product Group and the measure value from the measure displayed in the Google Map. You also have this option available for the Data Label as part of the Additional Properties in the category Appearance > Data Label.

8.6.2 Data Source Requirements for the Google Map

The Google Map requires a data source with both Longitude and Latitude information available or with a complete address in the source data. The information such as Longitude and Latitude can be leveraged in form of a dimension, measure, or an attribute. In addition you have the option to setup a custom map using a GeoJSON syntax and map the GeoJSON attributes to your data source.

8.6.3 How to use the Google Map – Marker Layer

In the following steps we will outline the steps required to setup a new map using the Google Map component and to setup a new layer representing the data in form of Markers. For our example we will assume, that the data source contains the following elements:

- Dimension State in the Rows.
- Dimension City Longitude in the Rows.
- Dimension City Latitude in the Rows.
- Measure Net Revenue in the Columns.

You can follow the steps below to setup a new Google Map Component:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the Google Map component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the Additional Properties of the Google Map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category Data and subcategory Source Data.
7. Set the option Source Data Type to the value Latitude / Longitude (see Figure 8.106).

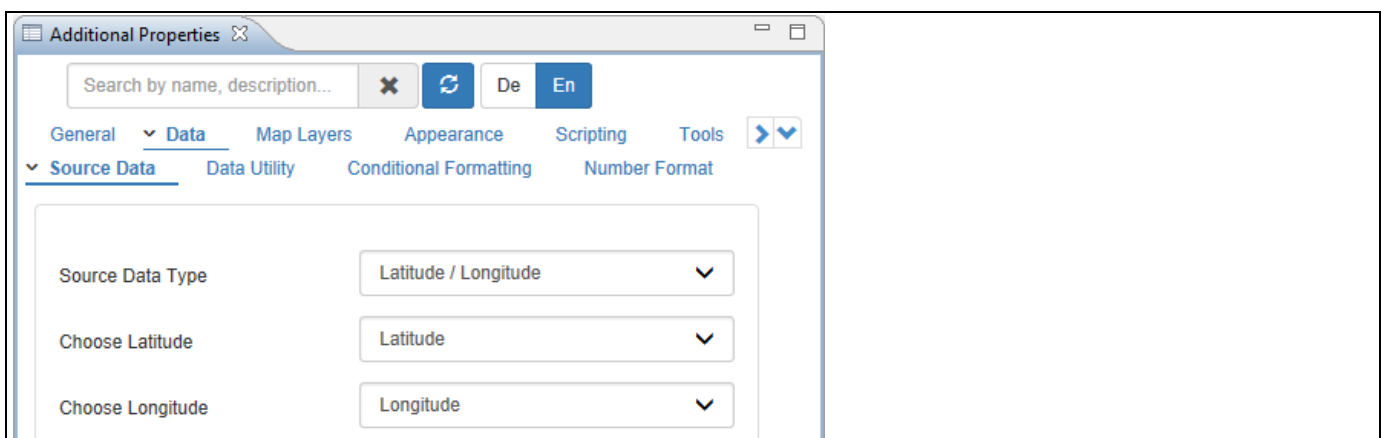


Figure 8.106: Category Data

8. Here you can configure the data source assignment to the map component.
9. Select the dimension Latitude for the property Choose Latitude.
10. Select the dimension Longitude for the property Choose Longitude.

11. Navigate to the category General and the subcategory General Settings (see Figure 8.107).

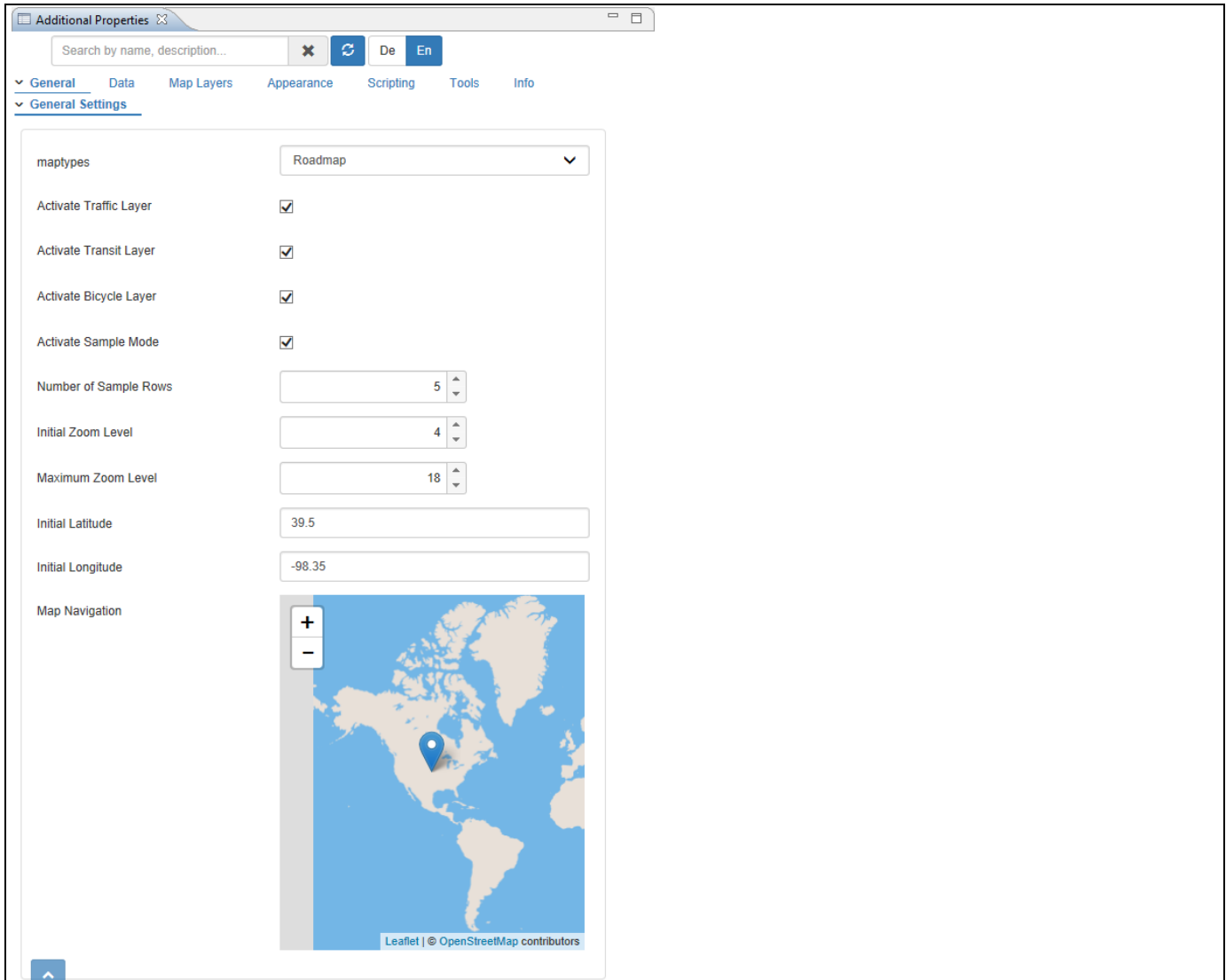


Figure 8.107: Category General

12. For our example, set the property maptypes to the option Roadmap.
13. Here you can configure the starting point of the map for the start of the dashboard using the Initial Latitude and Initial Longitude values. You also have the option to move the marker in the map.
14. In addition you can configure the initial zoom level as well as the maximum zoom level.
15. You also have the option to activate the properties namely Traffic Layer, Transit Layer, Bicycle Layer and Simple Mode.
16. Navigate to the category Map Layers and the subcategory General Settings (see Figure 8.108).

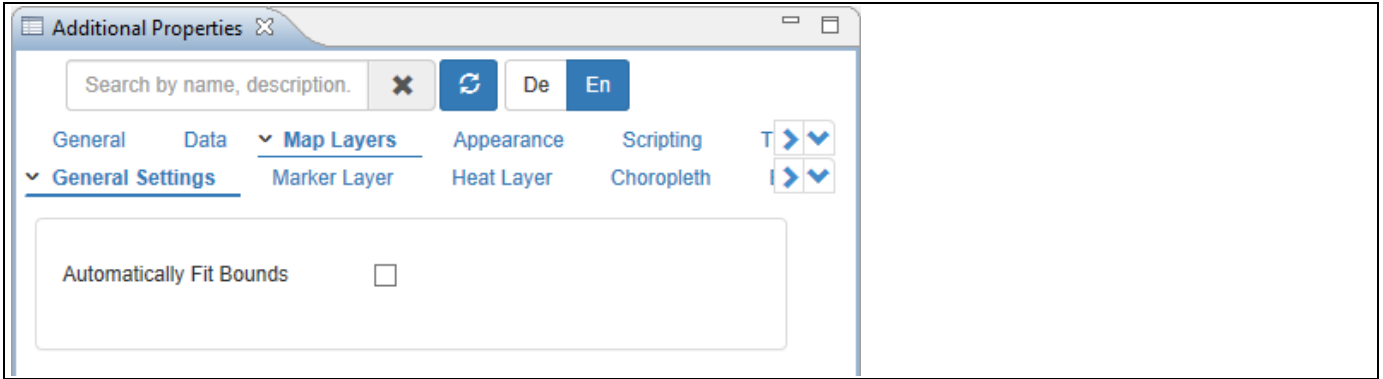


Figure 8.108: Category Map Layers

17. In this subcategory you can activate the property Automatically Fit Bounds based on your requirement.
18. Navigate to the subcategory Marker Layer.
19. Enable the option Activate Marker Layer.
20. Click Create Layer (see Figure 8.109).

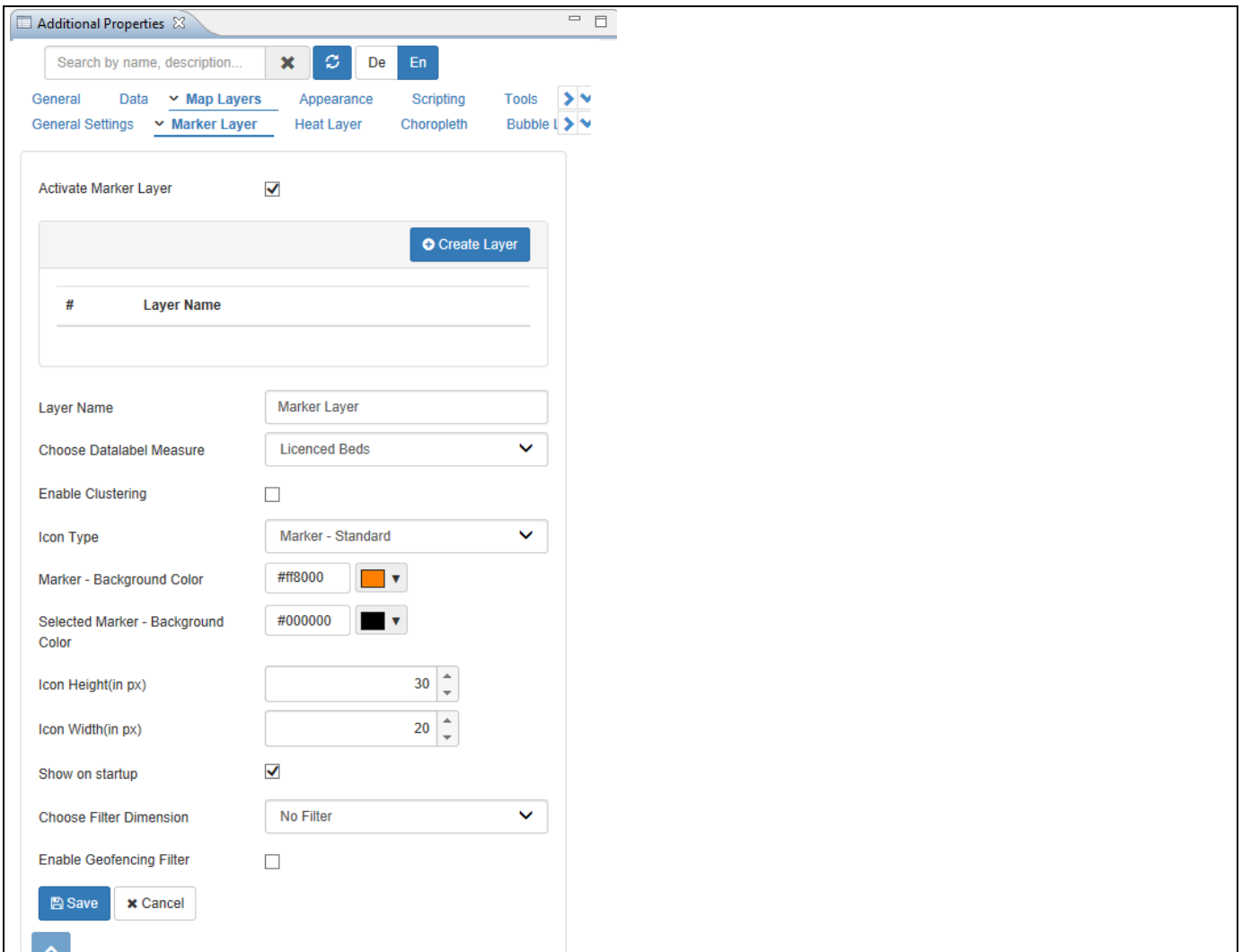


Figure 8.109: Marker Layer

21. You can now configure one or several Marker Layer by providing the necessary details as shown in Table 8.30 Table 8.10:

Property	Description
Layer Name	Here you can enter a name for the Marker Layer. This name will also be used as reference for the scripting.
Choose Datalabel Measure	Here you can select which measure will be shown as part of the Data Label.
Enable Clustering	For a larger set of Markers you can enable the clustering and you can then define the Cluster Limit.
Icon Type	Here you can choose the Icon Type. The options are Marker Standard, Marker Symbol, Marker URL, Marker Font Awesome. <ul style="list-style-type: none"> • Marker Standard is the standard marker symbol. • Marker Symbol allows you to choose from a list of marker symbols. • Marker URL allows you to specify a custom marker symbol. • Marker Fontawesome allows you to select a symbol from Fontawesome collection.
Marker – Background Color	Here you can set the background color for the Marker.
Selected Marker – Background Color	Here you can set the color for the selected Marker.
Icon Height (in px)	Here you can set the Height for the Marker Symbol.
Icon Width (in px)	Here you can set the Width for the Marker Symbol.
Show on Startup	This option allows to enable / disable the loading of the specific layer at startup of the map component.
Choose Filter Dimension	Here you can choose a dimension from the assigned data source and configure a filter value specifically for this marker layer.

Table 8.30: Marker Layer

22. For our example enter Marker Layer 1 as Marker Layer.

23. Select the Marker Standard as Icon Type.

24. Set the Marker Background Color to be a Orange color.

25. Set the Selected Marker color to a black color.

26. Set the Icon Height to the value 30 and Icon Width to the value 20.

27. Activate the option Show on Startup.

28. Click Save.

Based on the above settings you will be able to view the Google Map configured with the Marker Layer (see Figure 8.110).

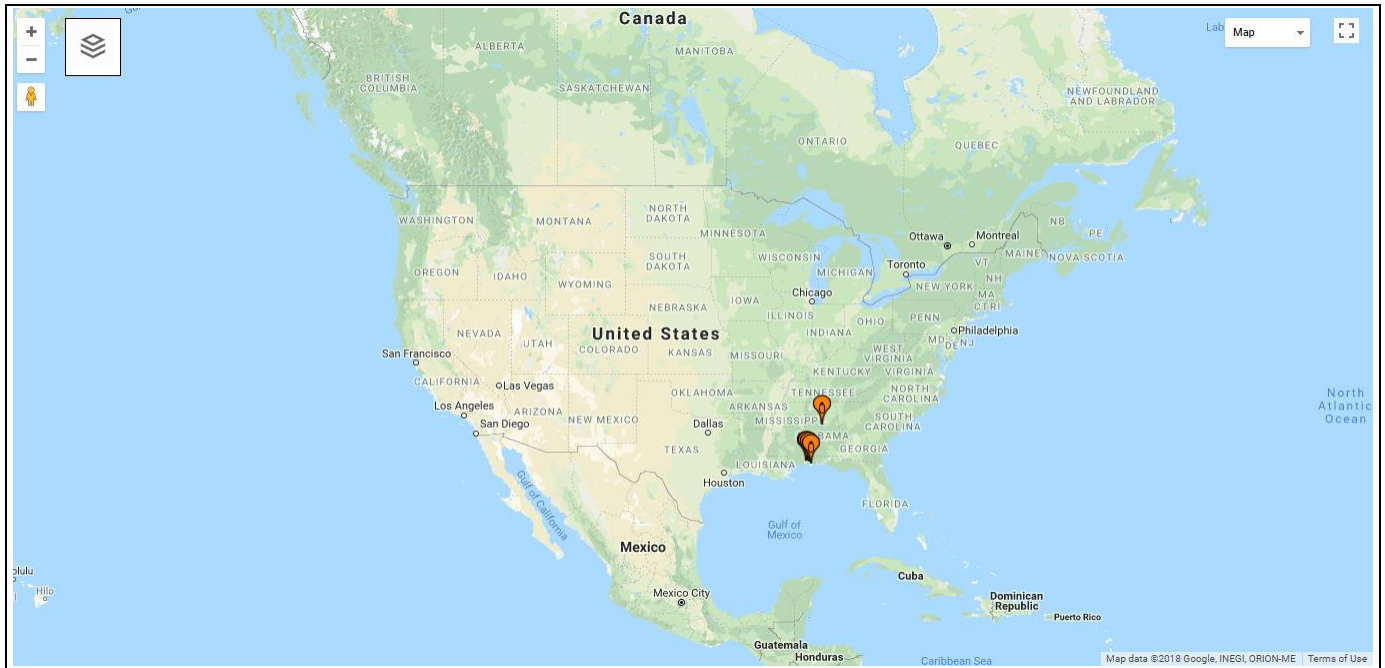


Figure 8.110: Google Map configured with Marker Layer

The Marker Layer will be added to the list of available layers and you should also see the Marker Layer now shown on the map. In the next section we will add additional layers to the project.

8.6.4 How to use the Google Map – Heat Layer

In the following steps we will outline the steps required to setup a new layer representing the data in form of a Heat Layer. For our example we will re-use the same data which we used in the previous steps for the Marker Layer.

You can follow the steps below to setup a new Heat Layer Map Layer:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer open the project from the previous steps.
2. Navigate to the Additional Properties of the Google Map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
3. Navigate to the category Map Layers.
4. Navigate to the subcategory Heat Layer.
5. Enable the option Activate Heat Layer.
6. Click Create Layer (see Figure 8.111).

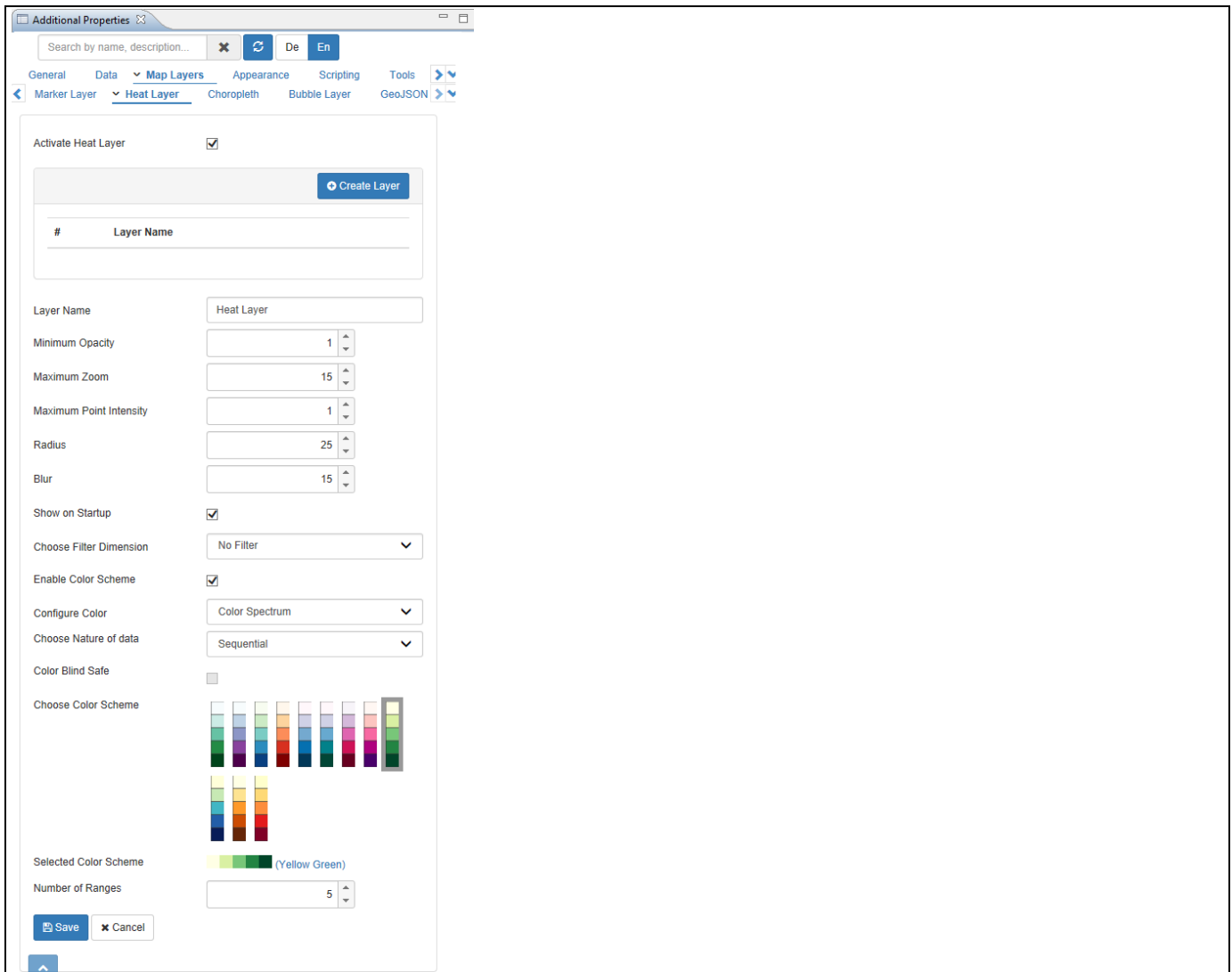


Figure 8.111: Heat Layer

7. You can now configure one or several Heat Layer by providing the necessary details as shown in Table 8.31:

Property	Description
Layer Name	Here you can enter a name for the Heat Layer. This name will also be used as reference for the scripting.
Minimum Opacity	Here you can specify the Minimum Opacity where the heat will start.
Maximum Zoom	Here you can specify the Zoom level where the points reach the maximum intensity (as intensity scales with zoom).
Maximum Point Intensity	Maximum point intensity, 1.0 by default.
Radius	Here you can specify Radius of each "point" of the heatmap.
Blur	Here you can specify the amount of blur, 15 by default.
Show on Startup	This option allows to enable / disable the loading of the specific layer at startup of the map component.
Choose Filter Dimension	Here you can choose a dimension from the assigned data source and configure a filter value specifically for this heat layer.
Enable Color Scheme	This property allows you to use readily available color spectrum or allow you to create your own set of colors.
Configure Color	This property allows you to select the type of Color Scheme. The options are Color Spectrum and Manual.
Choose Nature of data	This property allows you to select the Data Nature. The options are Sequential, Diverging and Qualitative.
Color Blind Safe	This property when enabled allows you to view only the Blind Safe Color Scheme.
Choose Color Scheme	This property allows you to select the required Color Scheme from the panel of color schemes.
Selected Color Scheme	The property allows you to view the selected Color Scheme.
Number of Ranges	This property allows you to set the number of ranges for the color scheme.
Gradient	Here you can specify the Gradient level for the heat map when the property Enable Color Scheme is disabled.

Table 8.31: Heat Layer

8. For our example enter Heat Layer as Layer Name.
9. For the other options leave the default values.
10. Activate the option Show on Startup.
11. For the Filter Dimension and Color Scheme properties set the values as shown in Figure 8.111.
12. Click Save.
13. Select the menu Application • Execute Locally.

Based on the above settings you will be able to view the Google Map configured with the Heat Layer (see Figure 8.112).

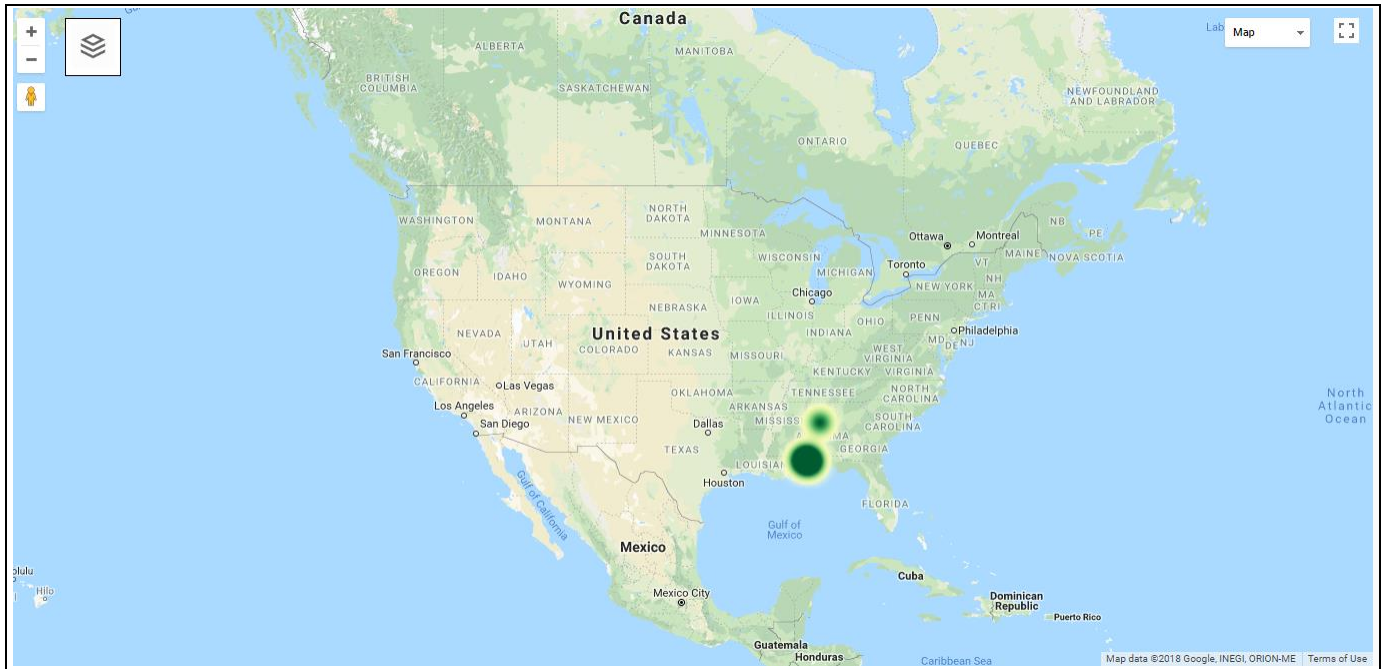


Figure 8.112: Google Map configured with Heat Layer

8.6.5 How to use the Google Map – GeoJSON Layer

In the following steps we will outline the steps required to setup a new map using the Google Map and adding a new layer to the map by using a GeoJSON definition. For our example we assume that we do have a data source with a dimension State, which lists the states of the US and we also have a GeoJSON file outlining the borders of the US.

You can follow the steps below to setup a new Google Map Component:

1. Start SAP BusinessObjects Design Studio/SAP Lumira Designer in the SAP BusinessObjects BI Platform Mode.
2. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
3. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
4. Add the Google Map component from the VBX Maps to your project.
5. Assign the data source to the map component.
6. Navigate to the Additional Properties of the Google Map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
7. Navigate to the category Map Layers.
8. Navigate to the subcategory GeoJSON.
9. Click Create Layer (see Figure 8.113).

Additional Properties

Search by name, description...

De En

General Data **Map Layers** Appearance Scripting Tools Info

Settings Marker Layer Heat Layer Choropleth Bubble Layer **GeoJSON**

Create Layer

Layer Name

Layer Name GeoJSON Layer

Source Raw Text

Text

```

-107.241194, 41.002804 ], [ -107.367443,
41.003073 ], [ -107.625624, 41.002124 ], [
-107.918421, 41.002036 ], [ -108.046539,
41.002064 ], [ -108.181227, 41.000455 ], [
-108.250649, 41.000114 ], [ -108.500659,
41.000112 ], [ -108.526667, 40.999608 ], [
-108.631108, 41.000156 ], [ -108.884138,
41.000094 ], [ -109.050076, 41.000659 ] ] ] }

```

Sample Row Count 5

Sample Data

GEO_ID	STATE	NAME	LSAD	CENSUSAREA
0400000US23	23	Maine		30842.923
0400000US25	25	Massachusetts		7800.058
0400000US26	26	Michigan		56538.901
0400000US30	30	Montana		145545.801
0400000US32	32	Nevada		109781.18

Total : 52

Show on Startup ☒

Line Color #000f42 No Fill

Fill Color #ff8000 No Fill

Fill Opacity 0.2

Line Weight 3

Line Opacity 1

Attribute STATE

Dimension State

Key/Text Key

Save Cancel

Figure 8.113: Category GeoJSON

10. Here you can configure the following details:

Category	Property	Description
GeoJSON	Layer Name	Here you can enter the name for the GeoJSON Layer.
	Source	Here you can choose the type of GeoJSON File. The available options are <ul style="list-style-type: none"> Local File: Here you can choose a local file

Category	Property	Description
		<ul style="list-style-type: none"> • URL: You can provide a URL to a GeoJSON file • Raw Text: You can copy / paste the raw GeoJSON syntax. • SAP BusinessObjects BI Platform: Here you can select a file from the SAP BusinessObjects BI Platform.
	Text	Here you can paste the GeoJSON syntax.
	Sample Row Count	Here you can enter a value to limit the loading of GeoJSON attributes for sample display purposes.
	Show On Startup	This option allows to enable / disable the loading of the specific layer at startup of the map component.
	Line Color	Here you can set the color for the line drawn based on the GeoJSON syntax.
	Fill Color	Here you can set the Fill Color for areas based on the GeoJSON syntax.
	Fill Opacity	Here you can define the Fill Opacity
	Line Weight	Here you can define the Line Weight.
	Line Opacity	Here you can define the Line Opacity.
	Attribute	Here you can choose a GeoJSON Attribute which will be mapped to the selected dimension.
	Dimension	Here you can choose a dimension which will be mapped to a GeoJSON attribute.
	Key or Text	Here you can select if either the Key or the Text value for the dimension should be used.

Table 8.32: Category GeoJSON

11. Enter GeoJSON Layer as Name for the GeoJSON Layer.
12. For our example select the option Raw Text for the property GeoJSON Type.
13. In the next entry provide the JSON information in the Text Box (see Figure 8.113).
14. You can now configure the details, such as the Line Color, Line Weight, Fill Color, and Line Opacity.
15. You can then also select the dimension – in our Example State – that will be mapped to a GeoJSON Attribute.
16. You can decide if you would like to map the Key or Text value of the dimension.
17. You can then choose the GeoJSON Attribute which will be mapped to the dimension.
18. Click on Save to add the Layer to your map.

SAP BusinessObjects BI Platform as storage option

Please note, that the option to upload or select the GeoJSON file to / from the SAP BusinessObjects BI Platform is only supported with SAP BusinessObjects Design Studio/SAP Lumira Designer release 1.6 or higher.

8.6.6 How to use the Google Map – Choropleth Layer

In the following steps we will use the GeoJSON Layer we created previously based on the GeoJSON definition and we will now add a Choropleth Layer on top of the GeoJSON layer. As part of these steps we will link the GeoJSON Layer to our data source and in that way visualize the values in form of a choropleth layer.

You can follow the steps below to setup a new Choropleth Layer:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer open the application with the Google Map component and the GeoJSON Layer we created previously.
2. Select the Google Map Component.
3. Navigate to the Additional Properties of the Google Map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
4. Navigate to the area Map Layers in the Additional Properties.
5. Navigate to the subcategory Choropleth.
6. Enable the option Activate Choropleth Layer.
7. Click Create Layer (see Figure 8.114).

Additional Properties

Search by name, description...

General Data **Map Layers** Appearance Scripting Tools Info

Settings Marker Layer Heat Layer **Choropleth** Bubble Layer GeoJSON

Activate Choropleth Layer ☒

Create Layer

Layer Name

Layer Name Choropleth Layer

Choose Geojson Layer GeoJSON Layer

Show on startup ☒

Selected Block - Choropleth Background Color #0000ff [Color Picker] No Fill

Legend Position Right

Choose Filter Dimension No Filter

Choose Measure Net Revenue

No. of Decimal (Tooltip) 2

Scale Type Linear

Configure Color Color Spectrum

Choose Nature of data Qualitative

Color Blind Safe ☐

Choose Color Scheme

Selected Color Scheme (Accent Dark 1)

Number of Ranges 5

Save Cancel

Figure 8.114: Choropleth Layer

8. Enter a Layer Name as Choropleth Layer.
9. Select the previously created GeoJSON Layer for the option Choose GeoJSON Layer.
10. Set the property Selected Block - Choropleth Background Color to a color so that the respective color will be applied when you click on a block in Choropleth.
11. Select a measure from the data source for the choropleth layer.
12. Configure a Scale Type. You have the option between Quantile, Quantize, Linear, or Custom.
13. Set the property Configure Color to a Color Option. You can choose between a Manual or Color Spectrum.
14. For our example we are selecting the option Color Spectrum.
15. In the next option we are selecting a Qualitative Color Scheme (see Figure 8.114).
16. Select one of the prebuilt color schemes.

17. Click Save.

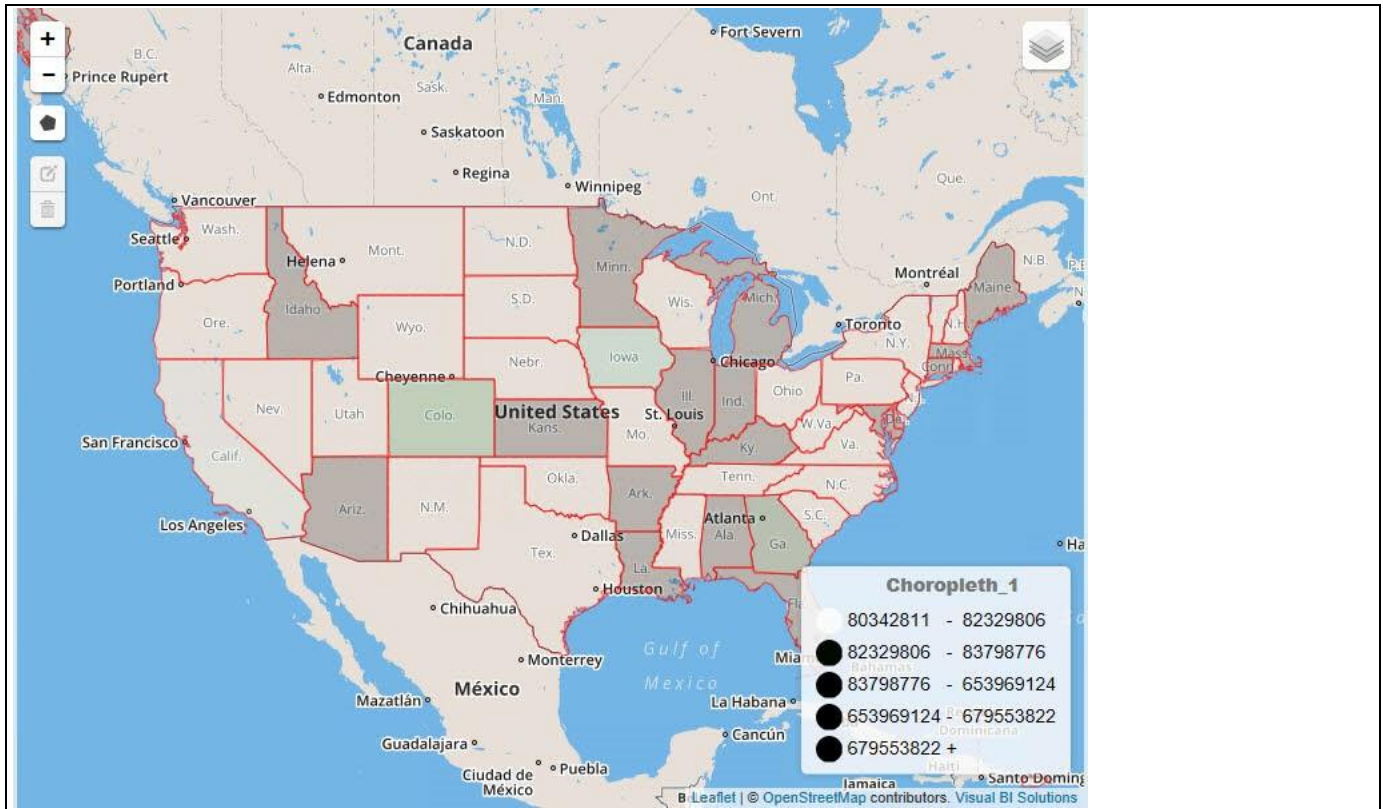


Figure 8.115: Choropleth Map

Your Choropleth map should now be visible as part of your Google Map Component (see Figure 8.115).

8.6.7 How to use the Google Map – Bubble Layer

In the following steps we will use the Google Map component and setup a Bubble Layer Map. For the Bubble Layer map we require a data source with Longitude and Latitude values.

For our example we will assume, that the data source contains the following elements:

- Dimension Longitude in the Rows.
- Dimension Latitude in the Rows.
- Measure Revenue in the Columns.
- Measure Profit in the Columns.

You can follow the steps below to setup a new Google Map Component:

1. In SAP BusinessObjects Design Studio/SAP Lumira Designer create a new project.
2. Add a new Data Source as part of your new project. The type and structure of the data source should be similar to what we outlined above.
3. Add the Google Map component from the VBX Maps to your project.
4. Assign the data source to the map component.
5. Navigate to the Additional Properties of the Google Map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
6. Navigate to the category Data and subcategory Source Data.
7. Set the option Source Data Type to the value Latitude / Longitude.
8. Assign the dimension to the property Latitude.
9. Assign the dimension to the property Longitude.
10. Navigate to the area Map Layers.
11. Navigate to the subcategory Bubble Layer.
12. Enable the option Activate Bubble Layer.
13. Click Create Layer (see Figure 8.116).

Additional Properties

Search by name, description...

General Data **Map Layers** Appearance Scripting Tools

Marker Layer Heat Layer Choropleth **Bubble Layer** GeoJSON

Activate Bubble Layer ☒

Create Layer

Layer Name

Layer Name: Bubble Layer

Show on Startup ☒

Primary Measure (Size): Revenue

Configure Size: Percentage

1 % 100 %

Secondary Measure (Color): Profit

Bubble Opacity: 0.2

Selected Bubble Color: #0000ff No Fill

Configure Color Scheme: Color Spectrum

Choose Nature of data: Qualitative

Color Blind Safe ☐

Choose Color Scheme

Selected Color Scheme: (Accent Dark 1)

Number of Ranges: 5

Choose Filter Dimension: No Filter

Save Cancel

Figure 8.116: Bubble Map Layer

14. Enter a Layer Name as Bubble Layer.
15. Select a measure for the Primary Measure (Bubble Size).
16. Select a measure for the Secondary Measure (Bubble Color). The secondary measure is optional.
17. In case you configured a Secondary Measure, you will also have the option to setup a color scheme.
18. In addition you can configure define filter values based on the assigned data source that are specific for this map layer.
19. Click Save and the map Layer should be shown as part of the map.

8.6.8 How to use the Google Map – Conditional Formatting

The Google Map component is also supporting Conditional Formatting for the Choropleth Map layer as well as the Marker Layer. In the next set of steps we will use the choropleth layer that we created in the previous steps to outline the steps to activate the conditional formatting.

You can follow the steps below to setup Conditional Formatting:

6. In SAP BusinessObjects Design Studio/SAP Lumira Designer open the project from our previously created choropleth layer.
7. Navigate to the Additional Properties of the Google Map Component. In case the Additional Properties are not shown, please use the menu View • Additional Properties to activate the display of the properties.
8. Navigate to the category Data.
9. Navigate to the subcategory Conditional Formatting.
10. Click Create Rule (see Figure 8.59).

Figure 8.117: Conditional Formatting

11. Enter a Rule Name.
12. Select one of the available map layers. You can choose map layer of type Choropleth and Marker.
13. You have three different rule types: Single Measure, Measure Calculation, and Target Value. You can find the details on these different rule types in section 4.3.10 as part of the section for Conditional Formatting for charts.
14. Select the option Single Measure.

15. You can then choose a measure that will be compared against another value. For our example we will use measure Revenue as Comparison Measure.
16. For the option operator we use Greater Than.
17. For the Comparison Value Type we will use the option Dynamic.
18. For the Dynamic Selection Value we will set the value Measure Selection.
19. We will then use the measure Forecast for the Comparison Value.
20. And we will then set a color for the rule.
21. Click on Add / Update to add the Rule to our map.

Based on this rule, the measure Revenue will be compared against measure Forecast for all the entries in your data source that are part of the choropleth layer and in case the condition is met, the geographic area will then be filled with the selected color.

8.6.9 Additional Properties of Google Map

As a custom component the Google Map also comes with a set of Additional Properties. In the following sections you will find a list of available properties and a Table with a more detailed description of each of those properties.

8.6.9.1 Category General Settings

Below you can see the Additional Properties for the category General Settings and their descriptions:

Subcategory	Property	Description
General Settings	Activate Sample Mode	Here you can activate a sample mode for development purposes, so that only a small amount of data is being used.
	Initial Zoom Level	Here you can set the initial zoom level of the map. Zoom Level Should be greater than 0 and lesser or equal to Maximum Zoom Level.
	Maximum Zoom Level	Here you can configure the maximum zoom level that you will be able to use. The maximum value is 18.
	Initial Latitude	Here you can set the initial value for the Latitude.
	Initial Longitude	Here you can set the initial value for the Longitude.

Table 8.33: Category General Settings

8.6.9.2 Category Data

Below you can see the Additional Properties for the category Data and their descriptions:

Subcategory	Property	Description
Source Data	Enable Multi Source Option	This property will allow you to use multiple data sources and configure a specific data source for each map layer.
	Source Data Type	Here you can choose between a complete address and the option to use longitude and latitude values.
	Choose Latitude	Here you can select either a dimension or a measure to represent the Latitude values.
	Choose Longitude	Here you can select either a dimension or a measure to represent the Longitude values.
	Choose Tooltip	Here you can select a dimension / measure that is being used to be displayed as tooltip.
	Country Dimension	Here you can select the dimension that is being used for the Country values.
	Key or Text (Country)	Here you can select if either the Key or the Text value for the dimension should be used.
	State / Region Dimension	Here you can select the dimension that is being used for the State / Region values.
	Key or Text (State /	Here you can select if either the Key or the Text value

Subcategory	Property	Description
	Region)	for the dimension should be used.
	City Dimension	Here you can select the dimension that is being used for the City values.
	Key or Text (City)	Here you can select if either the Key or the Text value for the dimension should be used.
	Postal Code Dimension	Here you can select the dimension that is being used for the Postal Code values.
	Key or Text (Postal Code)	Here you can select if either the Key or the Text value for the dimension should be used.
Data Utility	Aggregate Function	Here you can select which Aggregation Function will be used to aggregate the values.
Conditional Formatting	Rule Name	Here you can enter a name for the Conditional Formatting Rule.
	Choose Layer	Here you can choose one of the existing Choropleth or Marker Layers.
	Rule Type	Here you can choose the type of conditional formatting. The options are Single Measure, Measure Calculation, Target Value, Dimension.
	Highlighted Measure	Here you can select the measure where the rule will be applied upon.
	Comparison Measure	Here you can select the measure which will be compared against the Comparison Value.
	Operator	Here you can choose the operator that is used to compare the Comparison Measure with the Comparison Value.
	Comparison Value Type	Here you can choose between a Static and a Dynamic comparison value.
	Dynamic Selection Value	In case you choose to setup a Dynamic Comparison Value, then you can choose between a Cell Selection and a Measure Selection. A Cell Selection allows you to select a single cell. A Measure Selection allows you to leverage a second measure as comparison and values will then be compared row by row.
	Comparison Value	Depending on the configured options, the property Comparison Value will allow to enter a static value, or setup a dynamic cell selection, or select a dynamic measure.
	Dimension	If Rule Type is set to the option Dimension, then you can set the property Dimension.
	Color	Here you can define the color for the Rule.
	Measure 1, Measure 2	Here you can choose those measures that will be used as part of the measure calculation.

Subcategory	Property	Description
	Calculation Operator	Here you can choose the type of calculation. Available options are: Add, Subtract, Divide, Multiply.
Number Format	Number of Decimals	This property allows to the define the Number of decimals.
	Decimal Separator	This property allows to the define the Decimal Separator.
	Thousand Separator	This property allows to the define the Thousand Separator.
	Display Scaling Factor	This property allows to enable / disable the display of the Scaling Factor.
	Scaling Factor	The property allows you to specify a Scaling Factor.
	Display Currency / Unit	This property allows to enable / disable the display of the configured Unit / Currency
	Currency/Unit Placement	This property allows you to configure the Currency / Unit placement.
	Prefix	This property allows to configure the Prefix for the Data Label/Tooltip.
	Suffix	This property allows to configure the Suffix for the Data Label/Tooltip.

Table 8.34: Category Data

8.6.9.3 Category Map Layers

Below you can see the Additional Properties for the category Map Layers and their descriptions:

Subcategory	Property	Description
General Settings	Select Base Layer	Here you can choose the base layer.
	Enable Base Layer Selection	This allows you to enable / disable the selection of a base layer at runtime.
	Disable Map Layer Selection	This property allows you to enable / disable the selection of the created map layers at runtime.
	Apply Lasso Color	When this property is enabled, each lasso selection will receive a unique color.
	Allow Overlap	This property allows you to enable / disable the overlapping of Markers.
Marker Layer	Activate Marker Layer	This property allows to enable / disable the Marker Layer
	Layer Name	Here you can enter the name for the Marker Layer.
	Choose Datalabel Measure	Here you can choose the measure for the Data Label.
	Enable Clustering	This property enables/disables the Clustering for the

Subcategory	Property	Description
		Marker Layer.
	Icon Type	Here you can the Icon type for the Marker. The options are Standard, Symbol, URL and Font Awesome.
	Marker Background Color	Here you can configure the Marker Background Color.
	Selected Marker Background Color	Here you can configure the Background Color for the selected marker.
	Icon Height	Here you can set the Marker Height.
	Icon Width	Here you can set the Marker Width.
	Show on startup	Here you can configure if the Map Layer should be shown on startup.
	Choose Filter Dimension	Here you can select a dimension from the underlying data source and define filter values for the map layer.
Heat Layer	Activate Heat Layer	This property allows to enable / disable the Heat Layer
	Layer Name	Here you can enter the name for the Heat Layer.
	Minimum Opacity	The Minimum Opacity where the heat will start.
	Maximum Zoom	Zoom Level where the points reach maximum intensity (as intensity scales with zoom).
	Maximum	Maximum point intensity, 1.0 by default.
	Radius	Radius of each "point" of the Heatmap, 25 by default.
	Blur	Amount of Blur, 15 by default.
	Show on Startup	Using this property you can decide if the Map Layer should be shown on initial load of the map.
	Choose Filter Dimension	Here you can select a dimension from the data source and then configure filter values specifically for this map layer.
	Enable Color Scheme	Here you can use a predefined color scheme.
	Gradient	Here you can define the different Gradient levels. Per Gradient level you can define the color and the Gradient stop.
Cluster Layer	Activate Cluster Layer	This property allows to enable / disable the Cluster Layer
	Layer Name	Here you can enter the name for the Cluster Layer.
	Choose Data Label Measure	Here you can set the data label for the Measure.
	Spiderfy On Max Zoom	When you click a cluster at the bottom zoom level we spiderfy it so you can see all of its markers (Note: the spiderfy occurs at the current zoom level if all items within the cluster are physically located at the same latitude and longitude).

Subcategory	Property	Description
	Show Coverage On Hover	When you mouse over a cluster it shows the bounds of its markers.
	Zoom To Bounds On Click	When you click a cluster we zoom to its bounds.
	Remove Outside Visible Bounds	Clusters and markers too far from the viewport are removed from the map for performance.
	Disable Clustering At Zoom	If set, at this zoom level and below markers will not be clustered. This defaults to disabled.
	Maximum Cluster Radius	The Maximum Radius that a Cluster will cover from the central marker (in pixels). Default 80. Decreasing will make more, smaller clusters. You can also use a function that accepts the current map zoom and returns the maximum cluster radius in pixels.
	Show on Startup	Using this property you can decide if the Map Layer should be shown on initial load of the map.
	Choose Filter Dimension	Here you can select a dimension from the data source and then configure filter values specifically for this map layer.
Choropleth Layer	Activate Choropleth Layer	This property allows to enable / disable the Choropleth Layer
	Layer Name	Here you can enter the name for the Choropleth Layer.
	Show on Startup	Using this property you can decide if the Map Layer should be shown on initial load of the map.
	Selected Block – Background Color	Here you can configure the Background Color for the Selected area.
	Choose GeoJSON Layer	Here you can select the base GeoJSON Layer for the Choropleth Layer.
	Legend Position	Here you can configure the position for the Legend.
	Choose Filter Dimension	Here you can select a dimension from the data source and then configure filter values specifically for this map layer.
	Choose Measure	Here you can select the measure from the assigned data source for the choropleth layer.
	Scale Type	Here you can choose between a Quantile, Quantize, Linear, or Custom scale type.
	Configure Color	Here you can configure the color scheme.
Bubble Layer	Activate Bubble Layer	This property allows to enable / disable the Bubble Layer
	Layer Name	Here you can enter the name for the Bubble Layer.
	Show on startup	Using this property you can decide if the Map Layer should be shown on initial load of the map.

Subcategory	Property	Description
	Primary Measure (Size)	Here you assign the measure for the Bubble Size.
	Secondary Measure (Color)	Here you assign the measure for the Bubble Color.
	Bubble Color	Here you can set the color for the Bubble.
	Selected Bubble Color	Here you can set the color for the selected Bubble.
	Choose Filter Dimension	Here you can select a dimension from the data source and then configure filter values specifically for this map layer.
Flow Layer	Activate Flow Layer	This property allows to enable / disable the Flow Layer
	Layer Name	Here you can enter the name for the Flow Layer.
	Show on startup	Using this property you can decide if the Map Layer should be shown on initial load of the map.
	Choose Source Latitude	Here you can configure the Latitude value for the Source location.
	Choose Source Longitude	Here you can configure the Longitude value for the Source location.
	Choose Destination Latitude	Here you can configure the Latitude value for the Destination location.
	Choose Destination Longitude	Here you can configure the Longitude value for the Destination location.
	Choose Primary Measure (Color)	Here you can configure the primary measure for the color.
	Choose Secondary Measure (Weight)	Here you can configure the secondary measure for the weight.
	Show Arrow heads on flow lines	If enabled, the flow lines will have an arrow head at the destination location.
	Choose Filter Dimension	Here you can select a dimension from the data source and then configure filter values specifically for this map layer.
GeoJSON	Layer Name	Here you can enter the name for the GeoJSON Layer.
	Source	Here you can choose the type of GeoJSON File. The available options are File, URL, Raw Text.
	Text	Here you can paste the GeoJSON syntax.
	Sample Row Count	Here you can enter a value to limit the loading of GeoJSON attributes for sample display purposes.
	Line Color	Here you can set the color for the line drawn based on the GeoJSON syntax.
	Fill Color	Here you can set the Fill Color for areas based on the GeoJSON syntax.
	Line Weight	Here you can define the Line Weight.

Subcategory	Property	Description
	Line Opacity	Here you can define the Line Opacity.
	Attribute	Here you can select the GeoJSON Attribute for the data mapping.
	Dimension	Here you can choose a dimension which will be mapped to a GeoJSON attribute.
	Key or Text	Here you can select if either the Key or the Text value for the dimension should be used.
Zoom Settings	Zoom Level 1	Here you can set the Zoom Levels from Level 1 to Level 3 for the respective Map Layers.
	Zoom Level 2	Here you can set the Zoom Levels from Level 4 to Level 7 for the respective Map Layers.
	Zoom Level 3	Here you can set the Zoom Levels from Level 7 to Level 10 for the respective Map Layers.
	Zoom Level 4	Here you can set the Zoom Levels above Level 10 for the respective Map Layers.

Table 8.35: Category Map Layers

8.6.9.4 Category Appearance

Below you can see the Additional Properties for the category General Settings and their descriptions:

Subcategory	Property	Description
Data Label	Enable Data Labels	This property enables / disables the Data Labels.
	Font Family	Here you can set the Font Family for the Data Label.
	Font Size	Here you can set the Font Size for the Data Label.
	Font Color	Here you can set the Font Color for the Data Label.
	Font Style	Here you can set the Font Style for the Data Label.
	Background Color	Here you can set the Background Color for the Data Label box.
	Border Color	Here you can set the Border Color for the Data Label box.
	Border Radius	Here you can set the Border Radius for the Data Label box.
	Border Width	Here you can set the Border Width for the Data Label box.
	Label Padding	This property defines the Padding between the Data Label text and the borders.
	Enable Shadow	This property allows you to enable / disable a Shadow for the Data Label box.
	Choose Layer	Here you can choose one of the existing Layers.
Legend	Marker Legend Position	Here you can set the position for the Legend. The options are Left and Right.

Subcategory	Property	Description
	Font Family	Here you can set the Font type for the Legend.
	Font Style	Here you can set the Font Style for the Legend.
	Font Size	Here you can set the Font Size for the Legend.
	Font Color	Here you can set the Font Color for the Legend.
	Background Color	Here you can set the Background Color for the Legend box.
	Border Color	Here you can set the Border Color for the Legend box.

Table 8.36: Category Appearance

8.6.9.5 Category Scripting

Below you can see the Additional Properties for the category Scripting and their descriptions.

Property	Description
Scripting Type	Here you can choose between Scripting and an integration with OpenDocument.
Report Type	Here you can set the type of report. The available options are Crystal Reports, Web Intelligence, Analysis OLAP, and Design Studio.
Open in New Tab	This property allows you to enable / disable the option to see the report in a new tab.
Document Link	Here you can enter the link for the document. You can either enter the complete link, or you can construct the link by filling in the individual items.
Protocol	Here you can choose between http or https.
Open Document Server Name	Here you can enter the name of the Server for the OpenDocument application.
Open Document Server Port	Here you can enter the Port of the Server for the OpenDocument application.
Path to Open Document	Here you can specify the Path to the OpenDocument application.
SID Type	Here you can choose between CUID and InfoObject.
OpenDocument iDocID	Here you can specify the document ID.
Parameter Key	Here you can enter the technical name of the parameter in the report.
Choose Dimension Parameter	Here you can choose with Dimension will be used to pass the value to the selected parameter.
Parameter Type	Here you can choose between Single or Multiple values.
Additional Parameters	Here you can enter any additional URL Parameter that should be passed to the report.

Table 8.37: Category Scripting

8.6.10 Scripting Functions for the Google Map

The following Table outlines the available scripting functions for the Google Map component.

Function Name	Description
DSXGetAllLayers()	This function retrieves all the available layers in form of an array.
DSXGetDataSelection()	This function allows you to retrieve the data selection from the Google Map component.
DSXGetIsLayerVisible()	This function allows you to retrieve the visibility configuration of a particular map layer.
DSXGetLassoSelected()	This function returns the selected values of a Lasso Selection in form of string.
DSXGetLayer()	This function allows you to retrieve the value for the Layer.
DSXGetMarkerObject()	This function returns the value of the Marker Object.
DSXGetSelectedLassoDataSelection()	This function allows you to retrieve the selected lasso members in form of a Data Selection statement.
DSXGetSelectedLassoMembers()	This function retrieves all values from a Lasso Selection in form of a Member object.
DSXGetSelectedLassoMembersKey()	This function retrieves all Key values from a Lasso Selection in form of an array.
DSXGetSelectedLassoMembersText()	This function retrieves all Text values from a Lasso Selection in form of an array.
DSXgetSelectedMember()	This function returns the value of selected member.
DSXgetSelectedMemberKey()	This function returns the value of selected member key.
DSXgetSelectedMemberText()	This function returns the value of selected text.
DSXGetVisible()	The function allows you to retrieve the value for the visibility of the component.
DSXHideLayer(layerName)	This function hides the specific layer.
DSXHideLayers()	This function allows you to hide specific layers.
DSXRemoveLassoSelected()	This function allows you to remove the applied Lasso selection.
DSXSetBubbleMeasure()	This function is used to change the Measure values during run time. This function is used to change the size measure and color measure assigned during layer creation. (Applicable only for Bubble Layer)
DSXSetDataSelection()	This function allows you to set a Data Selection string for the component.
DSXSetInitialLatitude()	This function allows you to set the initial Latitude value for the map.
DSXSetInitialLongitude()	This function allows you to set the initial Longitude value for the map.
DSXSetMeasure()	This function is used to change the Measure values during run time. This function is used to change the Datalabel measure assigned

Function Name	Description
	during layer creation. (Applicable for Marker and Heat Layer) This function is also used to change the measure assigned during layer creation. (Applicable for Choropleth Layer).
DSXSetVisible()	The function allows you to set the value for the visibility of the component.
DSXSetZoomLevel()	This function allows you to set the Zoom Level.
DSXShowLayer()	This function allows you to show a specific layer.
DSXShowLayers()	This function allows you to show specific layers.

Table 8.38: Scripting Functions

8.6.11 Events for Google Map

The following Table outlines the available events for the Google Map component.

Event	Description
OnClick	Using this property, you can enable interaction with the component by writing scripts. The on Click event is triggered when you click on the Component.

Table 8.39: Events



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