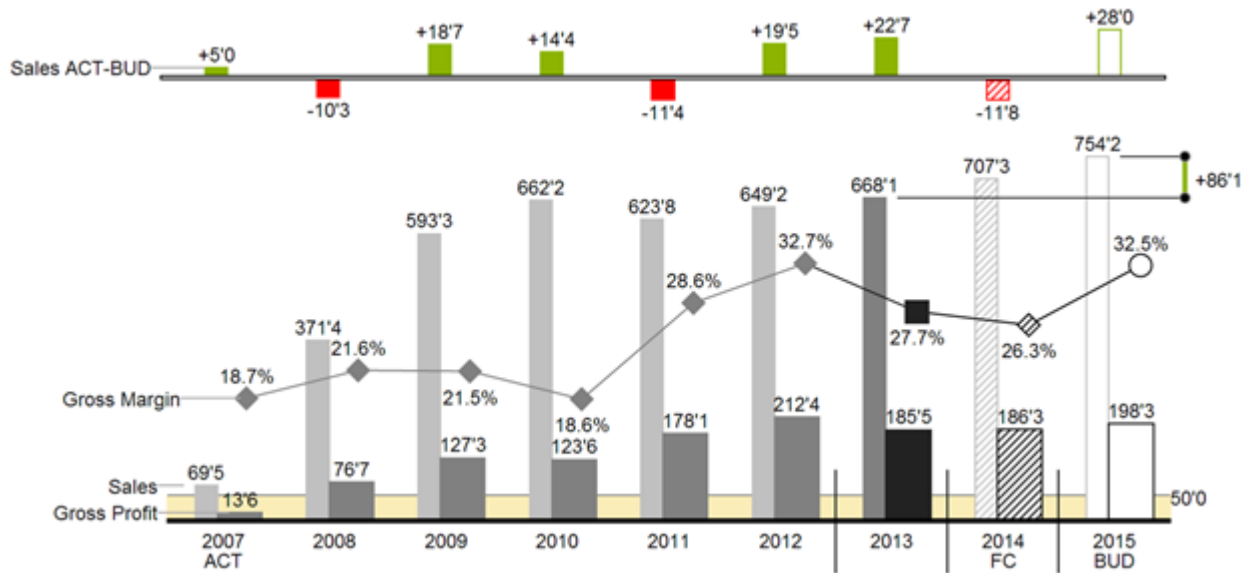


User manual for the graphomate charts for SAP Lumira Designer



Version 2021.4 – as of December 2021

<https://www.graphomate.com>



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Introduction

The topic of visualization is becoming more and more important for a fast and secure communication of information. Simple but meaningful representations of information support the decision maker better in capturing correlations, patterns or outliers than tables or decorative elements could - such as pie charts or speedometers. Good information design allows a quick and effective overview on their business.

Hichert@SUCCESS is a set of rules by Rolf Hichert which build a guideline for the correct use of meaningful visualizations in reporting.

With our *graphomate charts* extension, we cast Hichert@SUCCESS into a piece of software which is easy to use and fully integrated in SAP Lumira Designer. At the moment, you can use *graphomate charts* with SAP Lumira Designer and SAP BusinessObjects Design Studio. With our *graphomate charts* it is easy to represent the rules of Information Design according to Edward Tufte and Stephen Few.

SAP Lumira Designer – referred to as Designer in the following – is the successor of the Web Application Designer (WAD) from the SAP BEx-Suite. Designer is tightly linked with SAP BW, allowing a complete display of the SAP BEx-Query Designer functions. Designer uses the web technology HTML5 to issue BI-applications in the webbrowser. HTML5 is device independent and therefore mobile applications are possible.

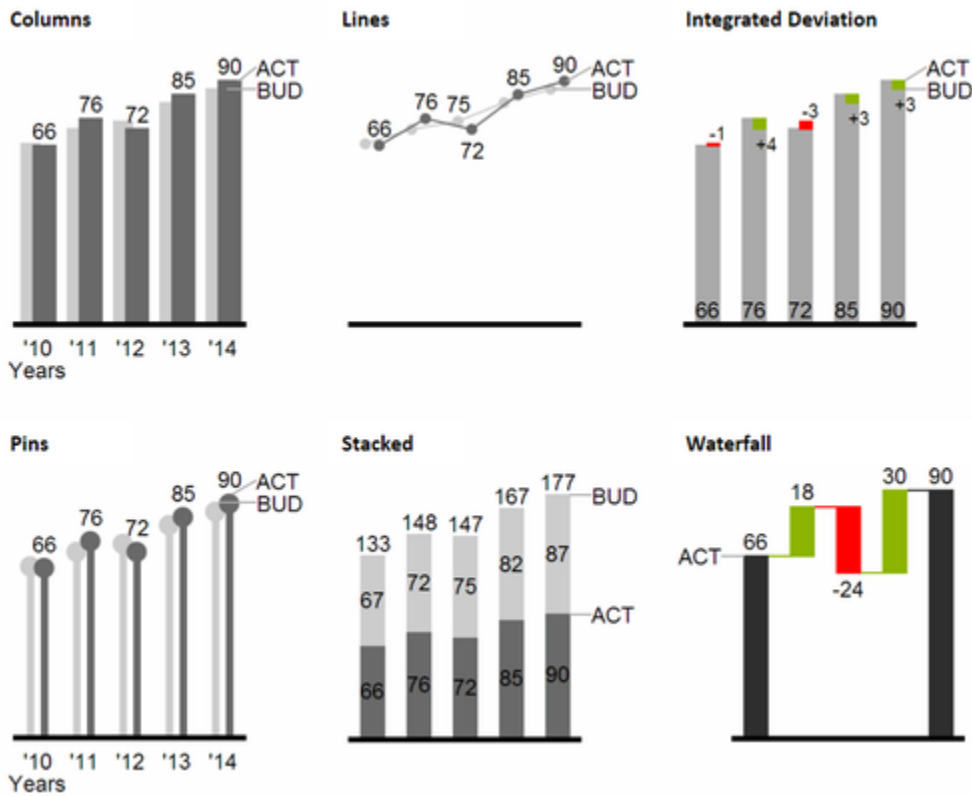
i In the sense of a uniform language regulation we speak in the further manual of Lumira Designer or briefly Designer.

For our *graphomate charts* extension Lumira Designer \geq 2.0 SP03 and IE 11+ are required. For further information, for example about the deployment on the Business Intelligence Platform (BIP) or SAP Netweaver, please consult the Product Availability Matrix ([PAM](#)).

Introductory examples

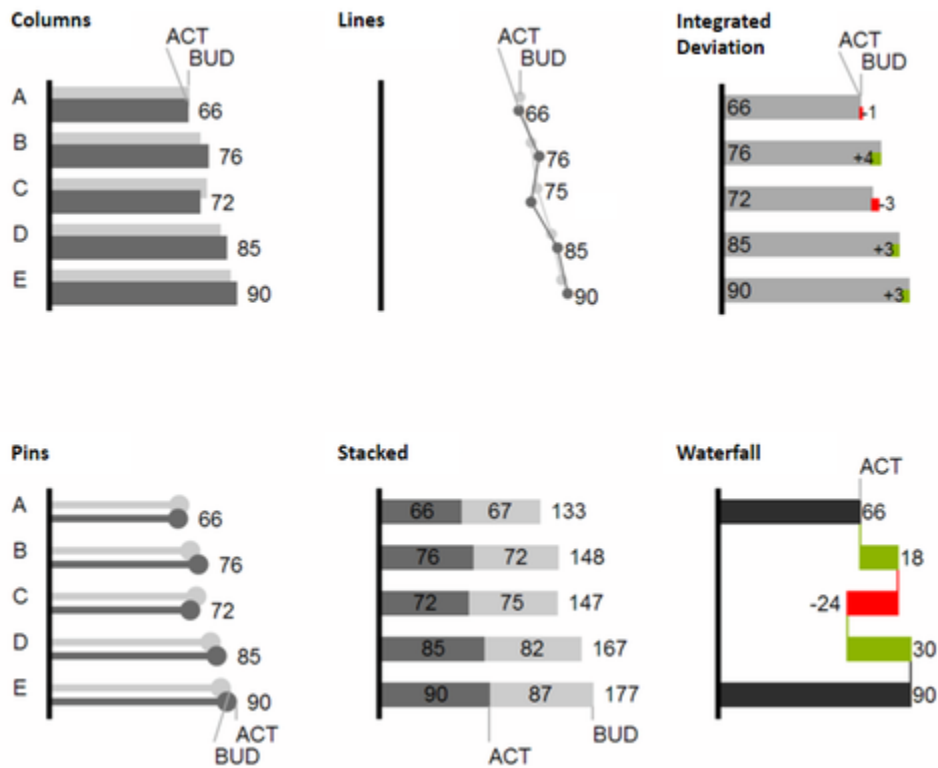
Chart Types

graphomate charts offer a whole range of new chart types which can be extensively customized according to your reporting requirements. We distinguish between the following chart types:



We recommend these chart types for visualization of developments over time.

For the comparison of structures or hierarchies we recommend the use of charts with a vertical category axis:

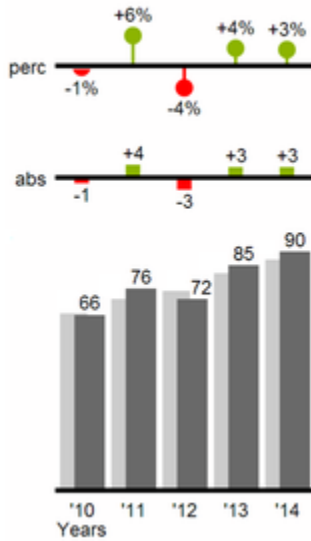


All charts can always be used in vertical or horizontal orientation. The Comparison Group enables you to use the same scales. Each chart must be assigned to the same Comparison Group. It is possible to use up to 10 data series – either consecutively or – in a stacked chart - on top of each other. The name of a data series can be displayed at the data series itself or alternatively on the axis of the base chart.

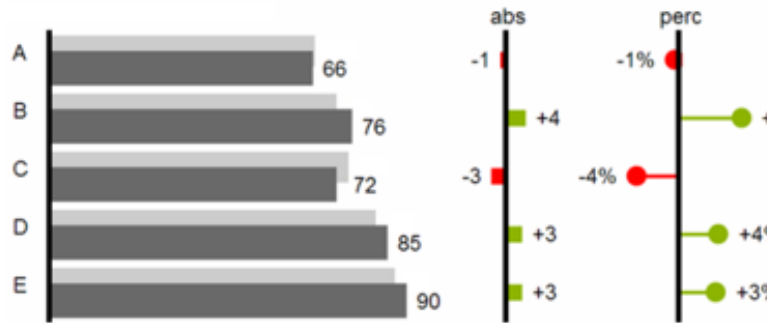
Deviation Axes

With a simple mouse click, *graphomate charts* enables you to set additional axes above all chart types, which display the percentage or absolute deviations between two data series. Of course you can name the deviation series and display the names in the chart.

coloumns with deviation axes



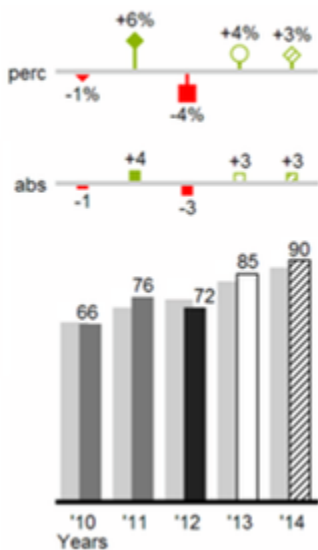
coloumns with deviation axes



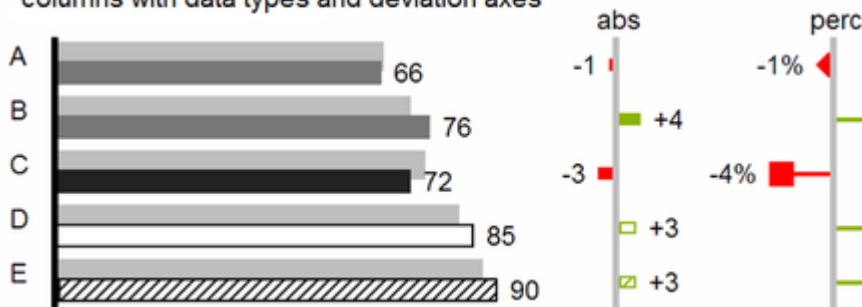
Data Types

Furthermore, each element of a chart can be formatted independently. This is achieved by using the *Data Types*. These *Data Types* enable you to use a customized visual language for your company. *Data Types* are defined in the *Data Types Editor* and then they are attributed to each element of a *Data Series* on the tab *Data*. The color, filling, shape and width of the chart elements can be defined by using *Data Types*. Please note that the use of *Data Types* affects the deviation axes: The *Data Type* of the *Measures* can be seen in the elements, the *Data Type* of the *Base values* is used in the axis – as long as the axis has a thickness of at least 3 px.

columns with data types and deviation axes

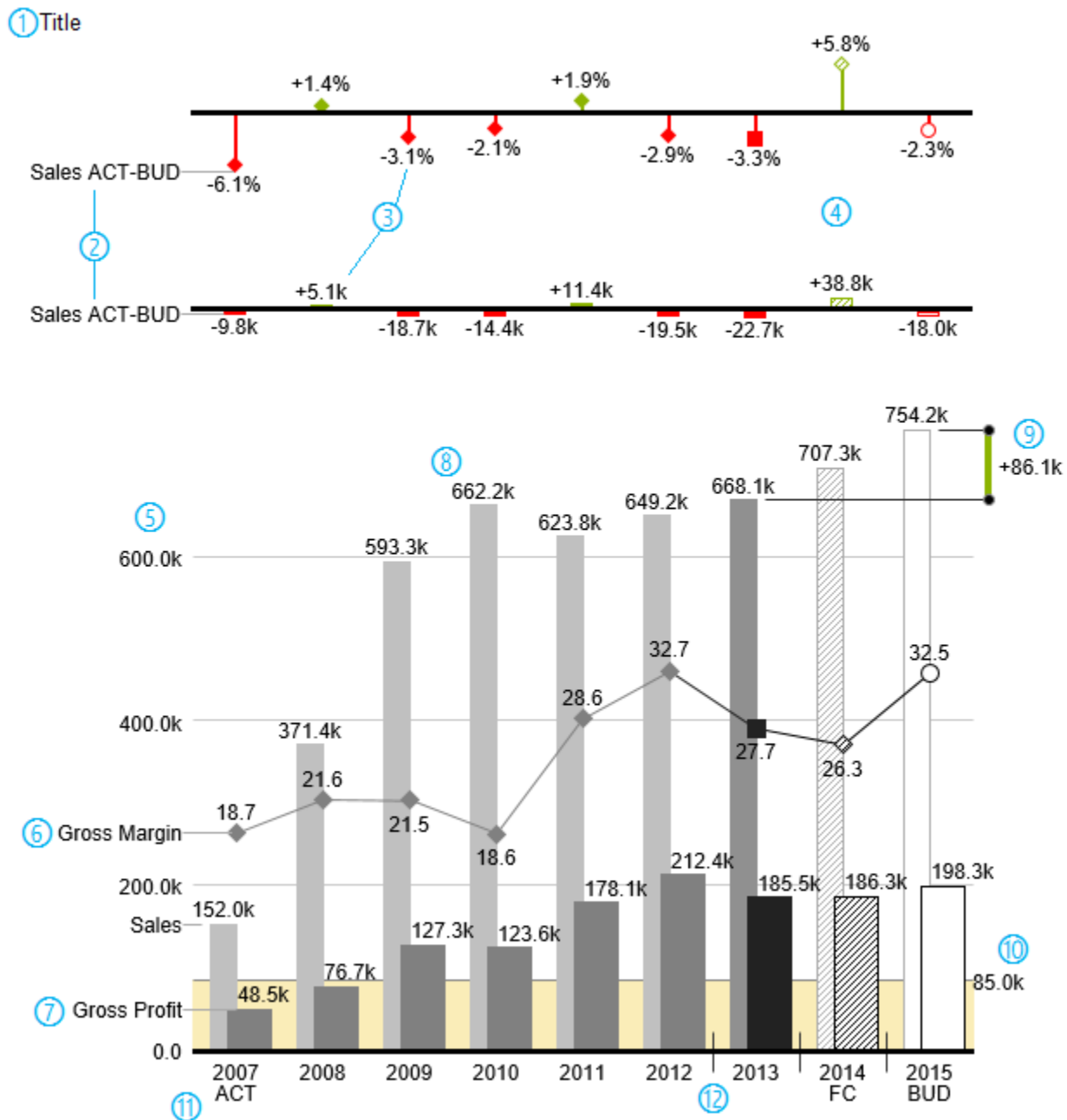


columns with data types and deviation axes



Visual Elements of the graphomate charts

These examples are valid for all chart types – in structure and time depictions.

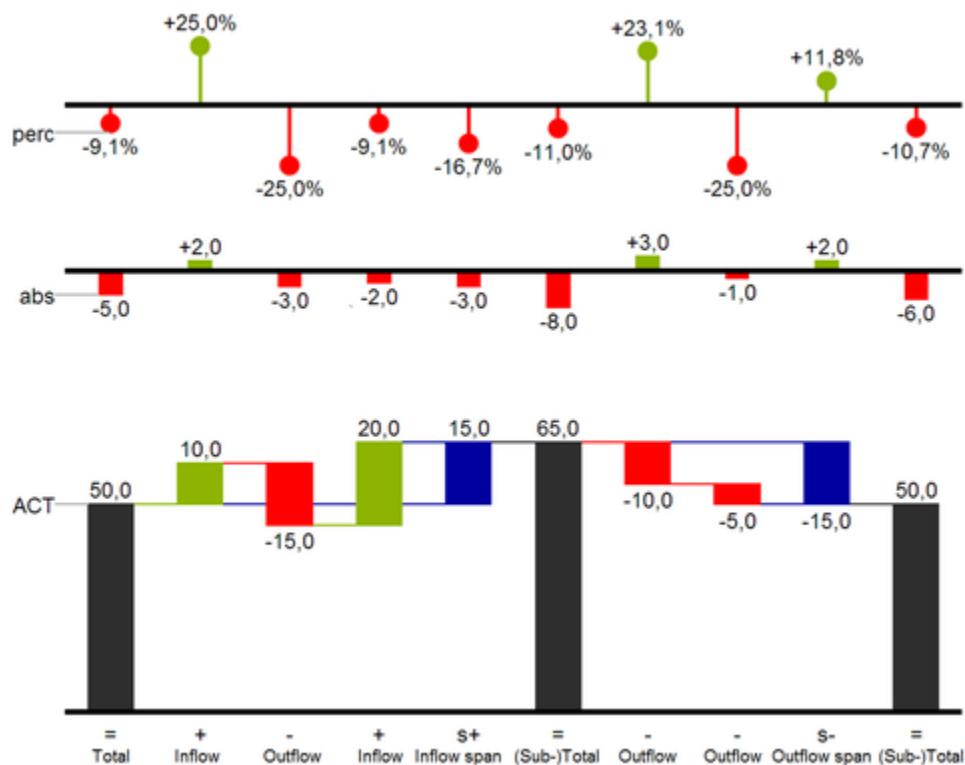


1. Chart title.
2. Percentage and absolute deviation between data series with data series labels.
3. Percentage and absolute data labels can be formatted independently.
4. By using Data Types, the chart elements and axis carry information: deviation of forecast (hatched) to budget data is shown. Therefore the deviation axis is hollow.
5. A value axis with help lines can be displayed optionally for all charts.

6. Charts can be superimposed, thus enabling you to depict combination charts - in this case a line chart with data series labeling and data types for previous periods (grey rhombus), actual (black square), forecast (hatched rhombus) and planned data (hollow).
7. Column chart with two data series (-labels) and use of data types. Sales are shown with lighter and narrower columns, which can be controlled centrally by the use of *Data Types*.
8. Data labels are free to define. For example, use the apostrophe for the representation of millions.
9. Emphasize the difference between two elements with the function *Highlight*.
10. Scaling helper show different scales of charts.
11. Multi-line axes labels are automatically copied from the source data.
12. So-called *Separators* help to structure the category axis.

Waterfall Charts

A waterfall chart – often also called a flying bricks chart or, in finance, a bridge shows how an initial value is increased (inflow) or decreased (outflow) by a series of values, which lead to a final value – if necessary with subtotals and spans. For a flexible use of the waterfall in *graphomate charts for Excel* an additional *Data Series* has to be defined: the *Waterfall Calculation Path*. This *Data Series* determines, whether the value to be shown is an in- or an outflow value. For further information to the *Waterfall Calculation Path* see [appendix](#). It is, of course, possible to use the waterfall horizontally or vertically, just like all other charts. Additional deviation axes are also possible. Furthermore, *Data Types* can be used for formatting. Please note that *Data Types* will overwrite the colors of in- and outflows as well as the colors of sums and spans which have been defined on the tab *Appearance*.



Above you can see a visualization of the operators for the calculation path and their effects on the elements of the waterfall chart. The following table gives some more explanations:

Function	Sign	Display
(Sub-)Total	=	Value is shown beginning at the axis.
Inflow	+	Increase of previous value and data label on the element.
Outflow	-	Decrease of previous value and data label on the element.
Inflow Span	s+	Positive overall change based on a totals item.
Outflow Span	s-	Negative overall change based on a totals item.
Neutral	0	Neutral position with own color scheme
Standard	„"	Difference to previous value according to data value sign (+/-).

Installation

- ✘ Before opening your old dashboards/BI apps with Designer 2.0, you need to migrate them to m mode with Design Studio 1.6.
- Our extensions for Design Studio 1.6 will also run in Designer 2.0. When starting Lumira 2.0 Designer, please do not import our graphomate extension from SAP Design Studio 1.6. Instead we suggest using the versions specifically built for Designer 2.0.

i Chartpicker-Component

Along with the charts, you get a chartpicker which can be installed as a separate component. The installation steps of the charts described below are therefore analogous to the chartpicker.

Local installation of the extension to Designer

You have installed Designer 2.0 SP03+ on your computer.

1. Save the zipfile *graphomate_charts_2021.x.x_LumiraDesigner.zip* to a folder of your choice.
2. In Designer, choose *Tools Install Extension to Lumira Designer*, click on *Archive* and select the zipfile which has been saved before.
3. Choose *Finish* to start the installation.
4. Choose *Next* and again *Next* to confirm the installation.
5. Accept the terms of the license agreement and choose *Finish*.
6. Choose *Yes* to allow a restart of Designer.
7. After the restart, the graphomate extension appears in the Component View of Designer.

Removing the extension from Designer

In Designer choose *Help > About...*

1. Click the *Installation Details* button.
2. Select the component *graphomate charts 2021.x.x*
3. Choose *Uninstall...*
4. In the *UninstallWizard* choose *Finish*.
5. Choose *Yes* to allow Designer to restart.

Server installation of the extension

Users need to deploy the locally installed extension to the BI platform before launching the *graphomate charts* from the BI platform.

1. Choose in the BI Platform Mode *Tools > Platform Extensions*.
2. Select the extension *graphomate charts* that is installed on your local computer.
3. Choose *Install on Platform*.
4. Manually restart the BI Platform Adaptive Processing Servers that host the Analysis Application Service and accept the warnings in Designer.
5. The graphomate extension appears under *Extensions Installed on Platform*.
6. Choose *Close*.
7. Again restart the BI Platform Adaptive Processing Servers that host the Analysis Application manually.


Uninstalling the extension from the Server

1. Choose in the BI Platform Mode *Tools > Platform Extensions*.
2. Choose the *graphomate charts*.
3. Choose *Uninstall from Platform*.
4. Confirm the uninstalling by choosing *Yes*.
5. In order to complete the uninstalling process, manually restart the BI Platform Adaptive Processing Servers that host the Analysis Application Service and accept the warnings in Designer.
6. The *graphomate charts* is then removed from the *Extensions Installed on Platform*.
7. Choose *Close*.
8. Manually restart the BI Platform Adaptive Processing Servers that host the Analysis Application Service.

Quick Start

You have defined a *Data Source* on basis of a SAP BW Query and now want to depict *Data Series* from this query with *graphomate charts*.

1. Drag the component *graphomate charts* to the canvas and bind the *Data Source* to this component via drag&drop.
2. Select the *Chart Type* and the deviations that you need on the tab *Start*.
3. The *Checkboxes* next to the chart types and in front of the chosen deviations representations and other UI-elements give you the opportunity to control the visibility of these elements in the chart.



4. On the *Data tab* select the *Series* from the Query in the *Initial view* – in rows or columns – which you want to show by clicking the corresponding  *button*. Just click on the row or column header or select a range with the *Ctrl* key pressed. The selected *Series* is highlighted in blue and after clicking OK, it will be shown in the chart.



graphomate .ll charts

Data

Series ^

Data Binding

Series 1  

Series 2  

▼

Styles

Series1

Series2

Series3

Import / Export


W3sic2hvcnQIOiJkZWZh

Element Offset

30

i We recommend hiding the totals of the dimension in the Initial View of the *Data Source* with a right mouse click > *Total Display* > *Hide Totals*.

5. The category labels are captured automatically from the meta data of the selected *Series*.






6. Please refer to the steps above for selecting another *Series* ()

This [video](#) on YouTube gives you a step-by-step description.

graphomate property sheet (GPS)

- [Start Tab](#)
- [Data Tab](#)
- [Labels Tab](#)
- [Axes Tab](#)
- [Chart Specific Tab](#)
- [Emphasis Tab](#)
- [Scaling Tab](#)
- [Input Output Tab](#)
- [Default values](#)

The following usage structure can be found in all graphomate extensions with the graphomate property sheet (GPS):

<p>Search field</p> <p>Use the search field to quickly find a setting (example "Title") and change it.</p> <p>Connection to the graphomate server</p> <p> active connection to graphomate server</p> <p> no active connection to the graphomate server</p> <p>Info Tab</p> <p>In the header of the GPS there is an info symbol (). Click on the  icon to open a tab with relevant information:</p> <ul style="list-style-type: none"> • the version number of the installed extension (important information for the support) • link to the graphomate Support Desk • to the general terms and conditions • to the graphomate website and • a list of the software libraries used (Credits) 	 <p>The screenshot shows the 'graphomate bubbles' interface. At the top right, there is a Wi-Fi icon and an info icon. Below the search bar, there is a toolbar with icons for database, text, chart, axes, scaling, and input/output. The 'Input Output' tab is active, showing a 'Server' section with a 'URL' field containing 'https://'. A red exclamation mark icon is next to the URL field. Below the URL field are 'Save' and 'edit' buttons. At the bottom right of the screenshot, there is a 'CLOSE' button.</p>
<p>Checkboxes</p> <p>An active property is indicated by a white check mark in the checkbox. To deactivate it, click on the checkbox again.</p>	



Additional Information ^

Legend

Tooltip

Color Picker

You can enter the color value as HEX code or click on the colored circle.

Use the Color Picker or enter color values as HEX, RGB, or HSL code. You switch between these color models using the small arrows on the right side of the color picker.

Deviations ^

Good Color
● #8CB400

Bad Color
● #FF0000

Invert

Good Color

#8CB400

HEX


OK


Adding new elements to lists


Click on the + icon to create new elements in a list.

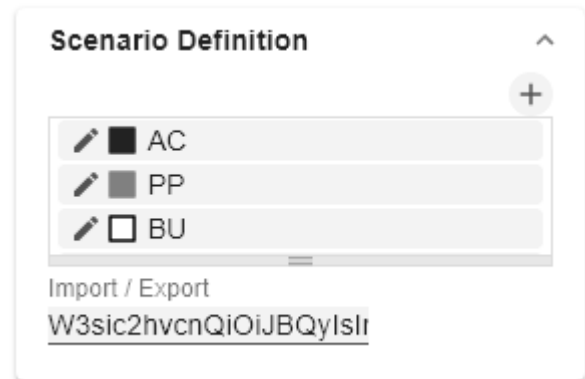
Actions with elements of a list

When hovering over an entry, different icons may appear and cause the following action:

 Moves the entry up or down in the list

 Creates a copy of the entry

 . Click on the icon to delete the selected entry.



Filter Option

In some cases, it is necessary that several settings are only applied to certain key figures, dimensions or dimensional characteristics. You can use the filter option to define the combination to which the setting is to be applied.



In the example on the left, the desired setting is only applied to the key figure "budget". This can be, for example, a certain number formatting, a scenario or a certain icon for displaying the key figure.

Filter states can be defined in the following settings of graphomate extensions:

- graphomate matrix
 - Value Format
 - Calculations/Deviations
 - Scenario Assignment
 - Bar Chart Assignment
 - Pin Chart Assignment
 - Background Bar Assignment
- graphomate bubbles
 - Value Format
- graphomate pictograms
 - Pictograms/Icon Assignment



Copy Filter

Filter settings on dimensions can be saved to the clipboard and reused in other graphomate extensions settings. Use the   symbols for this purpose.

aggregation

Enable

New Member Key

Overall

New Member Name

Overall

Target Dimension

Aggregation Type

Sum

Filter





no items

Description (optional)

OK

Input mode: Field / comma separated list (csv)

Properties with the  symbol allow the definition of settings on the graphomate property sheet in two

variants. The mode can be changed by clicking on the  symbol. The following modes are available:

1. per field: The value is entered per field. After one field has been filled, another field is created automatically. For the Scenario Assignment (see picture) a list with all configured scenarios appears. By clicking on the scenario, the property for the element of the series is applied.
2. As a list: The entry is made as a comma-separated list.

Example: Application of the scenarios to elements of a series (see picture)

The first series contains two actual values (AC) and a forecast value (FC). The second series contains only

values from the previous period (PP). You can enter the assignment of the scenarios as follows:

Variant per field for series 1: AC (field 1), AC (field 2), FC (field 3), AC (field 4, highlighted in the list)

Variant as list for series 2: PP,PP,PP,PP,

The screenshot shows the 'Scenario Assignment' configuration panel. It is titled 'Scenario Assignment' with an expand/collapse arrow in the top right. Below the title, there are three series configurations:

- Series1** (with a 'CSV' icon): It has three dropdown menus labeled 'A...', 'A...', and 'F...'. The fourth dropdown menu is open, showing a list of options: 'None', 'AC', 'PP', 'BU', and 'FC'. The 'AC' option is currently selected.
- Series2** (with a 'CSV' icon): It has a text input field containing 'PP,PP,PP'.
- Series3**: It has a dropdown menu currently set to 'v'.

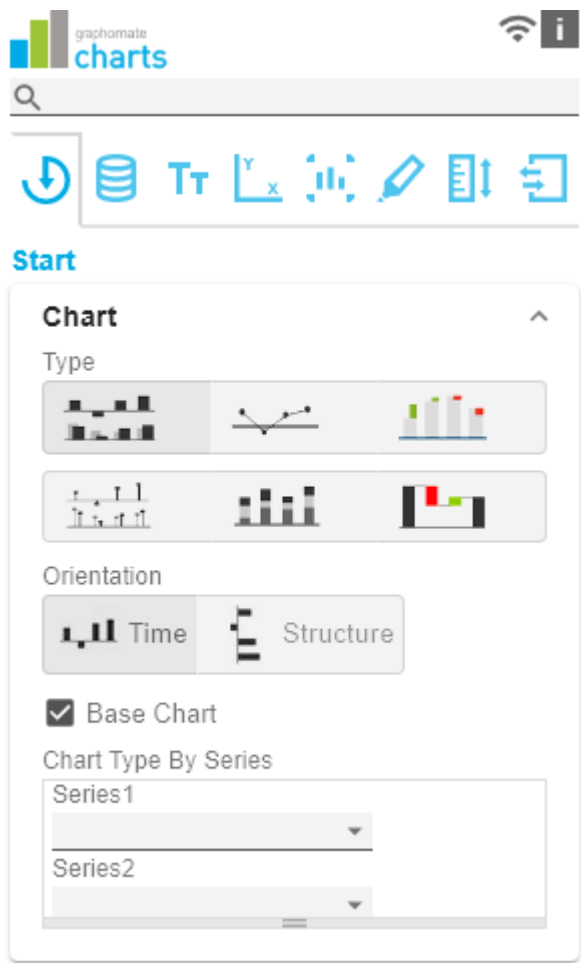
Below the series configurations, there are two sections for scenario management:

- Scenarios by Series**: A section with a '+' icon and a list box containing 'no items'.
- Scenarios by Dataselection**: A section with a '+' icon and a list box containing 'no items'.

At the bottom of the panel, there are three checkboxes:

- Scenarios In Axis
- Scenario Legend
- Scenarios In Deviations

Start Tab

<p>Chart</p> <p><i>Type</i></p> <p>You can select the desired diagram type by clicking on the corresponding icon.</p> <p><i>Orientation</i></p> <p>All diagrams can be used horizontally and vertically aligned:</p> <ul style="list-style-type: none"> horizontal for developments over time (<i>Time</i>), vertical for structural comparisons (<i>Structure</i>). <p><i>Base Chart</i></p> <p>The Base Chart checkbox shows and hides the basic chart. This allows deviation charts to be used without basic charts.</p> <p><i>Chart Type By Series</i></p> <p>To display combination charts, select the desired chart type from the dropdown (<i>None, Bar, Line, Offsetbar, Pin, Stackedbar, Waterfall</i>).</p>	
<p>Deviations</p> <p><i>Configuration</i></p> <p>Use the + sign to create <i>deviations</i>, which are shown above the basic diagram. To remove a deviation, click the red trash can. By default, an absolute and a percentage deviation are shown. The checkbox (de)activates the visibility of a deviation.</p> <p><i>Configuration Pop-Up</i></p> <p>The checkbox <i>Enabled</i> sets the visibility of the selected deviation.</p> <ul style="list-style-type: none"> <i>Label</i>: Name the deviation. <i>Type</i>: Choose between <i>absolute</i> or <i>percentage</i> deviation. <i>Minuend</i>: The value to be used as a reference value. <i>Subtrahend</i>: The value that is checked to see how far it deviates from the reference value. 	

i Calculation:

Absolute: minuend- subtrahend

Percentage: (minuend - subtrahend) / | subtrahend|

The order in which these deviation axes are displayed corresponds to the order in the *Deviations Configuration*.

Calculate Deviations from NULL

Specifies whether deviations should also be calculated from NULL values.

Good Color

Here you can set the color for positive connoted values by clicking on the corresponding colored circle to open the color picker.

Bad

Here you can set the colors for negatively connoted values by clicking on the corresponding colored circle to open the color picker.

Neutral Color

Here you can set the colors for neutral connoted values by clicking on the corresponding colored circle to open the color picker.

Negative Deviation Is Good

This option inverts the color scheme for the colors of the deviation. For example, negative values can be displayed with green color when using the original colors.

Deviation Bar Width for Scenarios

The Bar Width applies to the bar width (*percent* or *absolute*) of the absolute deviations. (Applies if the option '*Scenarios in Deviation*' on the *Data Tab* is activated).

Deviation Pin Width

Use this option to define the width of the needle in the percentage deviation chart. The option takes effect when the '*Scenarios in Deviations*' option is enabled on the *Data Tab*.

Pin Line Black

This option colors the needle line in the deviation graph black.

Use Pin Head Color

Deviations ^

Configuration +

perc: series1 - series2 (percent)
 abs: series1 - series2 (absolute)

Calculate Deviations from NULL

Good Color
●

Bad Color
●

Neutral Color
●

Negative Deviation Is Good

Deviations Bar Width
 % px

Deviation Pin Width
 % px

Pin Line Black

Use Pin Head Color

Pin Head Color
●

Pin Head Shape

(De)activates the selected *Pin Head Color*. If deactivated, the stored color values of the deviations are applied (default: green/red)

Pin Head Color

The head color of the needle in the percentage deviation diagram. The color is not applied to the needle heads in the base chart.

Pin Head Shape

Select which shape in the line chart is used for a data point. The following options are available:

- *circle*
- *rect*
- *rhomb*
- *triangle*
- *wedge*
- *none*

perc: series1 - series2 (perce

Enable

Label

Type

Minuend

Subtrahend

OK

Layout

Padding

Padding in [px] sets a border around the diagram.

Spacing

Spacing also in [px] defines the distance between the basic and deviation diagram.

Space Proportion For Base Chart

Place that the Base Chart takes up. Formula for determining the space: $\text{Factor} / (\text{sum of all factors})$

Space Proportion For Deviation Charts

Space that a deviation diagram takes up. Formula for determining the space:
 $\text{Factor} / (\text{sum of all factors})$

Layout ^

Padding [px]

Spacing [px]

Space Proportion For Base Charts

Space Proportion For Deviation Charts

License

License Key

Enter the license key here.


License ^

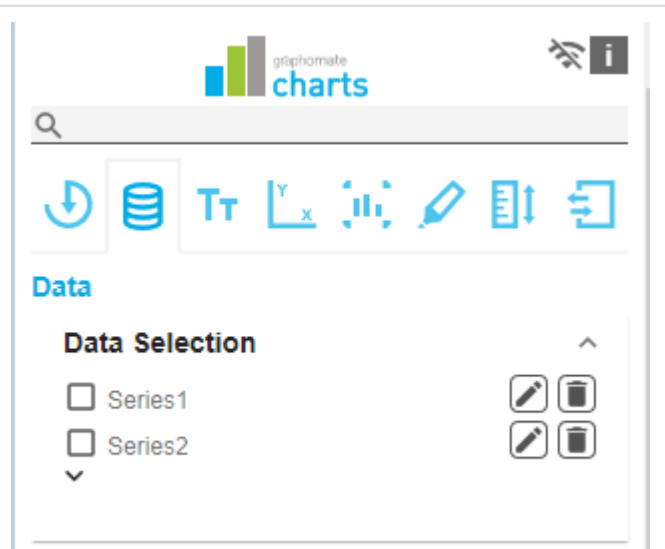
License Key

Data Tab

Data Selection

Use the checkbox to specify which of the series should be visible in the chart.

Select the relevant measures to be displayed in the graphomate charts by clicking on the  symbol.

**Small Multiples**

To display so-called "small multiples" use the following options.:

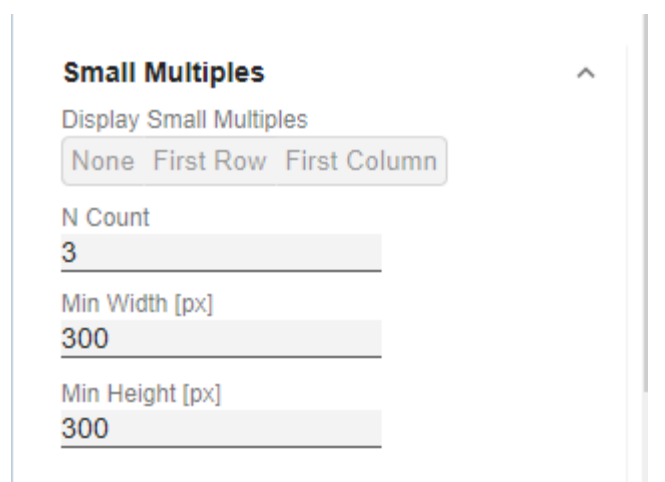
Split Dimension

Determine which dimension should be used as the split dimension for the calculation of the small multiples.

- None: no small multiples are calculated.
- First Row: the first row dimension is used as the split dimension for the calculation of the small multiples.
- First Column: the first column dimension is used as split dimension.

N Count

Defines the number of charts to be displayed before the 'Rest' position.



- The N Small Multiples before the 'Rest' position are sorted in descending order according to their respective totals starting with the largest Small Multiple.
- If the number N exceeds the number of existing members of the split dimension, no 'Rest' position can be formed. However, the descending sorting remains.
- If the N Count is set to "0" or "none", the order of the small multiples corresponds to the order of the split dimension members from the data source.

Min Width [px]

Defines the minimum width of a small multiples chart.

Min Height [px]

Defines the minimum height of a small multiples chart.

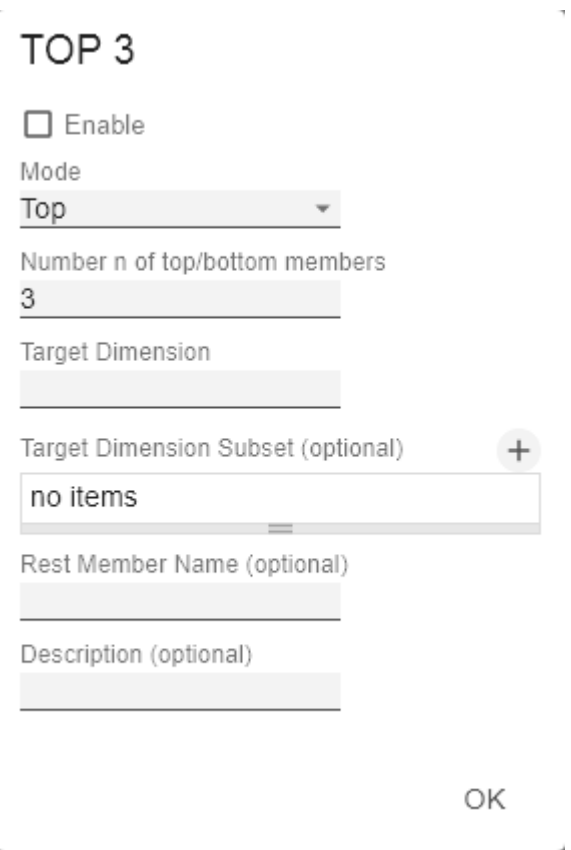
N + Rest

Use this option to define the number of members (*N + Rest*) of a user-defined dimension. In the simplest case, this then corresponds to the number of category elements of a chart.

N + Rest Pop Up

You can define one configuration of N + rest for the graphomate charts:

- *Enable*: Applies the N + Rest Confuration, when enabled.
- *Mode*: Choose between top (*Top*) and bottom (*Bottom*).
- *Number n of top/bottom members*: Define the number of top/bottom elements.
- *Target Dimension*: The dimension for which the top /bottom members are to be determined - e. g. "Country".
- *Target Dimension Subset*: Here you filter which measures or members of other dimensions (e. g. for implicit hierarchies) should affect the ranking .
- *Rest Member Name (optional)*: Sets a label for the rest member.
- *Description (optional)*: Defines a description for the set configuration.



Series

Styles

At this point you define the styling of a series. Use the Series Style pop-up to define the appearance of the data series, provided you do not use scenarios. Scenarios overwrite the *Series Styles*.

Import/Export

Copy this string to use Series Styles in other graphomate charts components.

Element Offset

The *Element Offset* parameter determines the displacement of the elements on the category axis relative to each other. This can be specified in *percent* or *absolute* in [px] using the switch. Negative values can also be used for displacement in the opposite direction.

Series Style Pop-Up

- **Color:** Define the color using the colorpicker or enter a HEX code here.
- **Fill Type:** The available Fill patterns are the following: filled (*Filled*), not filled (*Empty*), hatching down (*Hatched Down*), thick hatching down (*Hatched Down Bold*), hatching up (*Hatched Up*), thick hatching up (*Hatched Up Bold*), dotted (*Dotted*).
- **Shape:** Refers to the pin heads or line points. The following shapes are available: *circle*, *rectangle*, *rhomb*, *wedge*, no symbol (*none*).
- **Width:** Determines the width of the elements. This can be specified as a *percentage* of the category width or as an *absolute* value in [px].
- **Font Weight:** Choose between *normal* or *bold* font size.

i *Width* can only be applied to column and bar charts.

Series ^

Styles

✎ defaultSeries1

✎ defaultSeries2

✎ defaultSeries3

Import / Export

W3sic2hvcnQiOiJkZWZh

Visibilities

Series 1

Series 2

Series 3

Element Offset

30 % px

Offset Per Series +

Offset Series 1



defaultSeries1

Color

Fill Type

Shape

Width

% px

Font Weight

Scenario Definition (formerly Data Types)

The list element contains all definitions of scenarios in this diagram. By clicking on the + symbol a new scenario is created. When hovering over a list element, a red trash can appears, which implies that a scenario has been deleted.

Scenarios CSS Export

Copy this string to use scenarios (formerly Data Types) in other graphomate charts components or to save them in the custom.css of the application.

Scenario Definition Pop-Up

Scenario Definition

^
+

AC

PP

BU

Scenarios CSS Export

.graphomate-datatype:

^
v

- **Identifier:** Assign a unique abbreviation for the scenario.
- **Color:** Define the color using the colorpicker or enter a HEX code.
- **Fill Type:** The available Fill patterns are the following: filled (*Filled*), not filled (*Empty*), hatching down (*Hatched Down*), thick hatching down (*Hatched Down Bold*), hatching up (*Hatched Up*), thick hatching up (*Hatched Up Bold*), dotted (*Dotted*).
- **Shape:** Refers to the pin heads or line points. The following shapes are available: *circle*, *rectangle*, *rhomb*, *wedge*, no symbol (*none*).
- **Width:** Determines the width of the elements. This can be specified as a *percentage* of the category width or as an *absolute* value in [px].
- **Font Weight:** Choose between *normal* or *bold* font size.

AC

Identifier
AC

Color
● #222222

Fill Type
■ Filled

Shape
■ rect

Width
40 % px

Font Weight
normal

OK

Scenario Assignment

The scenarios can be assigned in two ways:

1. Scenario per element of a series (Scenarios 1, Scenarios 2 etc.)
 - a. A field represents one element of the selected series. As soon as the abbreviation of the scenario is entered in a field, the series is extended by one field.
 - b. Alternatively, you can click on the csv button to enter the input using a comma-separated character string (Example: AC,AC,AC,FC,FC, BU).
2. *Scenarios by Series*
 - a. A line corresponds to a series. Enter a data abbreviation that is used for the entire series.
 - b. The + symbol can be used to assign further fields (or series) with a data abbreviation.
3. Scenarios by Dataselection
 - a. Define which data is assigned to which scenario.

i The scenarios are applied in the following order of precedence:

- Scenarios per element of a series
- Scenarios by Series vor
- Scenarios by Dataselection

Scenario Assignment

Scenarios 1 **CSV**
▼ ▼ +

Scenarios 2 **CSV**
▼ +

Scenarios 3
▼

Scenarios by Series +
None ▼

Scenarios In Axis

Scenario Legend

Scenarios In Deviations

Scenarios By Dataselection +
no items

Scenarios in Axis

The selection influences the scripting function .getSelectedMember() and .getSelectedMembers().

Fade Out Opacity

This value determines to what extent elements of the chart that are not highlighted should be hidden. The value starts at 0.0 (completely hidden) and ranges up to 1.0 (completely visible).

Context Menu

In this section you will be able to choose which options are available in the context menu. An activated checkbox means this options will be shown. The first checkbox enables or disables the context menu altogether.

Once activated the context menu will be accessible during runtime by right clicking on the component. The active operations will be usable as follows.

Context Menu

With the topmost checkbox, the entire context menu can be activated initially. An active context menu can be opened at runtime by right-clicking on the component and the activated ones of the following actions can be executed.

Sorting

With *Sorting* data from the available dimensions can be sorted in ascending or descending order.

Filters

Allows you to filter the data by member for all available dimensions.

Context Sensitive Filters

Shows filters corresponding to the currently clicked dimension.

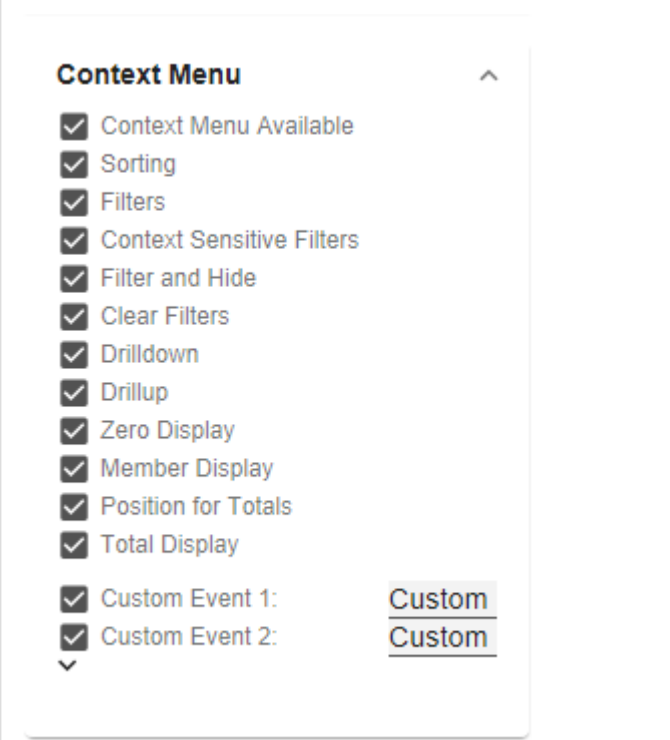
Filter and Hide

In addition to the normal filtering this operation also removes the corresponding dimension from our initial view.

Clear Filters

Resets previously set filters.

Drilldown



Adds another dimension to the component.

Drillup

Removes a dimension from the chart (this can cause an error which makes a reload necessary).

Zero Display

Sets the way zero values are displayed.

Member Display

Lets you choose the way member names are displayed (text or key).

Position For Totals

Sets the positions for each total value per dimension to be displayed before or after other values.

Total Display

Enable or disable totals for each dimension.

Custom Events

There are 10 possible events which can be linked to your own scripts. These can be defined in the *Standard Properties Sheet* and triggered using the corresponding button in the context menu.

In the *graphomate property sheet* the names for these buttons is customizable.

i All operations are executed directly on the data source, but without changing it. A reload resets all changes made with the context menu.

Labels Tab

Value Format

With the Value Format you define the way values are displayed in the diagram.

Use Pre-Formatted Data

If this option is activated, the number formatting of the data source is used.

Value Format basic

Select the format of the absolute and percentage values according to guidelines of numeral.js. *locale* sets the label country format in the Basic mode. DE, FR, EN and AUTO are available options. Choosing *AUTO* the Locale is retrieved from the Data Source.

Value Format extended

If a fixed format is preferred, put the format for absolute and percentage values here. Choosing a "(" in the box Negative Sign will show negative values in brackets: (1234). The parameter in the box Scaling is used as a divisor for scaling the data label. The resulting format string can also be set via scripting language – for further details see the Number Formatting.

NULL Value Replacement

If set, all NULL values are displayed as this string.

Infinity Replacement

If set, all Infinity values are displayed as this string.

Zero Replacement

If set, all 0 values are displayed as this string.

Suppress Zero Labels

Hiding Category Labels in case of zero values.

Value Format universal

You can access the configuration by clicking on an element in the list.

Define the number format using the following options:

- *Locale*: Defines abbreviations, decimal and thousand separators for the respective language. You can choose between *en*, *de*, *fr* and *auto*.

The screenshot shows the 'Value Format' configuration panel in the graphomate charts application. At the top, there is a search bar and a toolbar with icons for undo, redo, and other actions. The 'Value Format' panel is open, showing the following settings:

- Use Pre-Formatted Data
- Format String: **basic** (selected), extended, universal
- Format String: **Absolute** (selected), Percent
- Format String: **0.0a** (selected), 0.0%
- Locale: **en** (selected)
- Signed Labels
- NULL Value Replacement:
- Infinity Replacement: **∞**
- Zero Replacement:
- Suppress Zero Labels

- **Format Type:** Defines the type of number output. You can choose between *number* (decimal number), *percent* (percentage), *ordinal* (ordinal number) and *Time* (time unit).
- **Abbreviations:** Defines the type of abbreviations for all numbers to be formatted. You can choose between *mean* (abbreviation of the mean value), *min* (abbreviation of the minimum value), *max* (abbreviation of the maximum value), *auto* (best-suited abbreviation for the respective number), *trillion* (trillion abbreviation), *billion* (billion abbreviation), *million*, *thousand* and *none* (no abbreviation at all).
- **Negative Sign:** Defines how negative numbers are displayed. You can choose between *minus*, *parenthesis*, and *none* (no sign).
- **Prefix:** The input value is placed before the number.
- **Suffix:** The input value is placed after the number.
- **Thousands Separator:** Replaces the thousand separator set by the selected *locale*.
- **Decimal Separator:** Replaces the decimal separator set by the selected *locale*.
- **Total Digits:** Defines how many digits the number may consist of. *Total Digits* is prioritized over *Decimal Digits*.
- **Decimal Digits:** Defines how many decimal places of the formatted number are displayed.
- **Scaling Factor:** The value of each data point is multiplied by the entered number to scale values.
- **Zero Format:** When the checkbox is activated, any data value equal to 0 (the number zero) is replaced by the entered value.
- **Null Format:** Any data value that equals *NULL* (no value) is replaced by the entered value.
- **Error Format:** If a data value is undefined or the result of an arithmetic error such as dividing by 0 (zero), the data value is replaced by the entered value.
- **Rounding Method:** Defines the rounding method. You can choose between *half up* (23.5 24, -23.5 -23), *commercial* (23.5 24, -23.5 -24) and *trim* (23.5 23, -23.5 -23).
- **Explicit Positive Sign:** Defines whether a positive number should always be preceded by a + (plus sign).
- **Time Units:** If *Time* has been specified for the format type, the time units can be set here. The default setting interprets data values as seconds and displays them as hours and minutes with decimal places in the format *h:mm.m*
- **Description:** Defines a description for the set configuration.

Time Units Pop Up

For the Format Type *Time*, a system of units can be configured with the help of the Time Units Property, which in the default setting consists of hours and minutes. Each number formatted in this way is then splitted in its values for

Value Format

Use Pre-Formatted Data

basic extended universal

Absolute Percent

Decimal Separator

, ,

Thousands Separator

- -

Negative Sign

- -

Scaling

1 1

Decimal Places

1 1

Prefix

Suffix

%25

Signed Labels

NULL Value Replacement

Infinity Replacement

∞

Zero Replacement

Suppress Zero Labels

Value Format

Use Pre-Formatted Data

basic extended universal

Absolute

Percent

each unit. The order of the unit list defines their relationship from the largest unit (top) to the smallest unit (bottom). Each unit contains the following options:

- *Modulus*: defines the arithmetic relationship between the units. In terms of modular arithmetic, the number reflects how many entities of the next smaller unit fit into an entity of the current unit. If the current unit is the smallest of the unit system, the modulus establishes the reference to the raw value to be formatted. Thus, in the case of a unit system of hours and minutes with raw values that are given in minutes, the hours unit carries the modulus 60 and the minutes unit carries the modulus 1.
- *Prefix*: Defines the local prefix with which the value of this unit should begin. It can be used as a separator to values of larger units.
- *Suffix*: Defines the local suffix that should follow the value of this unit. For example, it can contain a unit abbreviation or be used as a separator to values of smaller units.
- *Omit If Zero*: Sets whether values of this unit should be omitted if they equal 0.
- *Leading Zeros*: Sets whether values of this unit should be displayed with one or more leading zeros (depending on the reference to the next larger unit).
- *Description*: Sets a description for the unit to make it easier to recognize in the list.

Absolute

Locale
en-US

Format Type
Time

Abbreviations
auto

Thousand Separator

Decimal Separator

Total Digits (approx.)

Decimal Digits
1

Scaling Factor
1

Prefix

Suffix

Zero Format

Null Format

Infinity Format
∞

Rounding Method
commercial

Negative Sign
minus

Explicit Positive Sign

Time Units +
hours

minutes

Description (optional)
Absolute

OK

hours

Modulus
60

Prefix

Suffix
:

Omit if Zero
 Leading Zeros

Description
hours

OK

Value Labels

Label Positioning

Determine the mode that controls the data labeling. Three modes are available:

- *none*: The data label is not displayed.
- *fix*: The data label is always displayed.
- *auto*: In case of overlaps, the data label is hidden or offset; adjustable by means of Collision Adjustment

Collision Adjustment [px]

Adjusts the collision algorithm of the labels of the auto mode of the value labels. The smaller the value, the more sensitive the algorithm is to collisions. Negative values are also allowed. (Note: Bold labels are not considered by the collision algorithm, so they always appear).

Background

Value Labels ^

Label Positioning
none
fix
auto

Collision Adjustment [px]
2

Background

Background Color
#ffffff

Visible Element Labels

Series1

Series2

Series3

This option draws a colored area behind the *Value Labels*. With *Background Color* you define the desired color.

Background Color

With *Background Color* you define the desired color of the area.

Visible Element Labels

Specify whether or not the element labelling should be displayed for a series.

Label Picking

If this option is enabled, you can use the subordinate settings to control which labels are displayed according to certain criteria. Consequently, only those labels that match the selected criteria are displayed. The following options are available:

Force First Value Label

The first label of a series is displayed.

Force Last Value Label

The last label of a series is displayed.

Force Min Value Label

The minimum value of each series is displayed.

Force Max Value Label

The maximum value of each series is displayed.

Force Before Separators

All values before a separator are displayed. This option depends on the settings under *Separators*.

Force Peak Labels

This option displays local minima and maxima. What a local minimum/maximum is can be controlled with the option *Minimum Peak Size in %*.

Minimum Peak Size in %

Determines how much values must deviate from their neighbors to be considered a local minimum/maximum.

Check Only Leading Values For Peak

The peak calculation only refers to the previous value; the following value is not taken into account.

Label Picking

Enable

Force First Value Label

Force Last Value Label

Force Min Value Label

Force Max Value Label

Force Before Separators

Force Peak Labels

Minimum Peak Size [%; 0-1]

0,15

Check Only Leading Values For Peaking

Font*Size [px]*

This property determines the font size in pixel.

Family

Define the global font. You can choose between *Arial*, *Tahoma*, *Lucida Console*, *Verdana* and *Calibri* or type in the name of a font which is installed on your system.

Color

This property determines the font color as HEX code. Alternatively, the Color Picker can be used.

Font ^

Size [px]
12

Family
Arial ▾

Color
● #000000

Title

If the *Enable* checkbox is activated, the title will be displayed.

Title Text

Enter a *Title* for the charts here. Multiline texts will be rendered accordingly, i.e. the line break will be applied. The following HTML tags can be used for formatting: 'b', 'i', 'p', 'span', 'div', 'br', 'h1', 'h2', 'h3', 'h4', 'h5', 'h6', 'hr', 'ol', 'ul', 'li' and 'blockquote'.

For the following result
ACME Ltd.

P&L by *Segment*
2021 AC, BU

this input is necessary:

ACME Ltd.
P&L by <i>Segment</i>
2021 AC, BU

Title ^

Enable

Title Text

Series Labels*Left/Top*

Activate the checkboxes to display the data label on the left /top of the data series.

Right/Bottom

Activate the checkboxes to display the data label on the right/bottom of the data series.

Series Label

Enter the desired labeling of a series manually.

Max Series Labels Width [px]

Series Labels ^

Left/Top

Right/Bottom

Series Label 1
Series1

Series Label 2

Max Series Labels Width [px]
0

Maximum width of the data series labels, up to where the *padding* is scaled. If this value is exceeded, the labels are cut off.

Category Labels

If the check mark is set, category labels are displayed on the diagram.

Visibility

Set line by line (level x) whether the category label should be displayed or not.

Max Width [px]

If this value is greater than 0, it indicates the reserved space for the category labels in pixels. If the length of the labels is greater than the specified width, they are shortened by omission points. For values smaller or equal to zero, the reserved space is calculated automatically. *Max Category Label Width* can only be set in *Structure Mode* and with deactivated hierarchical labels (*Hierarchical Label Display* set to *false*).

Suppress Repetition

Controls line by line (level x) whether repetitive category labels should be suppressed or displayed.

Hierarchical Label Display

Enables a hierarchical display of category labels. The category labels of each member are displayed in a separate column. The hierarchical display is only possible in *Structure Mode*.

Line Break Category Labels

The character or string in place of which category labels are split across multiple lines. For example, using a space for the label "ACT Jan 2001" would make it a three-line label.

Category Label Rotation [degree]

Specifies the angle by which the category labels are rotated. The rotation is counterclockwise.

Crop Category Labels

If this option is enabled, the category labels in Time mode will have a maximum width of the specified category width. If the labels are longer, they will be truncated by ... cut off.

Selected Members in Categories

Specifies whether the members of selected measures should be displayed as a supplement in the category labels.

Category Labels

Enable

Visibility

Level 1

Level 2

Max Width [px]

0

Suppress Repetition

Level 1

Level 2

Hierarchical Label Display

Line Break Category Labels

Category Label Rotation [degree]

0

Crop Category Labels

Selected Members In Categories

Selected Measures In Categories

Selected Measures in Categories

Specifies whether the selected measures should be displayed as a supplement in the category labels.

Axis Labels*Left/Top*

Activate the check boxes to display the axis label on the left/top of the data series.

Right/Bottom

Activate the check boxes to display the axis labeling on the right/bottom of the data series.

Axis Labels

Enter the desired labeling of the axis manually.

Line Break Axis Labels

The character or string where the axis labels are split over several lines (similar to the property *line break category labels*).

Axis Labels
 Left/Top

 Right/Bottom

Axis Labels

Left/Top 1

Right/Bottom 2

Line Break Axis Labels

Tooltips

If this check mark is set, tooltips are displayed on the diagram at runtime, showing detailed information for the corresponding element.

Value Format basic

Select the format of the absolute and percentage values according to guidelines of numeral.js. *locale* sets the label country format in the Basic mode. DE, FR, EN and AUTO are available options. Choosing *AUTO* the Locale is retrieved from the Data Source.

Value Format extended

If a fixed format is preferred, put the format for absolute and percentage values here. Choosing a "(" in the box Negative Sign will show negative values in brackets: (1234). The parameter in the box Scaling is used as a divisor for scaling the data label. The resulting format string can also be set via scripting language – for further details see the Number Formatting.

Value Format universal

You can access the configuration by clicking on an element in the list.

Tooltips
 Enable

basic extended universal

Absolute
Percent

Format String

0.0a

0.0%

Locale

en

Define the number format using the following options:

- **Locale:** Defines abbreviations, decimal and thousand separators for the respective language. You can choose between *en*, *de*, *fr* and *auto*.
- **Format Type:** Defines the type of number output. You can choose between *number* (decimal number), *percent* (percentage) and *ordinal* (ordinal number).
- **Abbreviations:** Defines the type of abbreviations for all numbers to be formatted. You can choose between *mean* (abbreviation of the mean value), *min* (abbreviation of the minimum value), *max* (abbreviation of the maximum value), *auto* (best-suited abbreviation for the respective number), *trillion* (trillion abbreviation), *billion* (billion abbreviation), *million*, *thousand* and *none* (no abbreviation at all).
- **Negative Sign:** Defines how negative numbers are displayed. You can choose between *minus*, *parenthesis*, and *none* (no sign).
- **Prefix:** The input value is placed before the number.
- **Suffix:** The input value is placed after the number.
- **Thousands Separator:** Replaces the thousand separator set by the selected *locale*.
- **Decimal Separator:** Replaces the decimal separator set by the selected *locale*.
- **Total Digits:** Defines how many digits the number may consist of. *Total Digits* is prioritized over *Decimal Digits*.
- **Decimal Digits:** Defines how many decimal places of the formatted number are displayed.
- **Scaling Factor:** The value of each data point is multiplied by the entered number to scale values.
- **Zero Format:** When the checkbox is activated, any data value equal to 0 (the number zero) is replaced by the entered value.
- **Null Format:** Any data value that equals *NULL* (no value) is replaced by the entered value.
- **Error Format:** If a data value is undefined or the result of an arithmetic error such as dividing by 0 (zero), the data value is replaced by the entered value.
- **Rounding Method:** Defines the rounding method. You can choose between *half up* (23.5 24, -23.5 -23), *commercial* (23.5 24, -23.5 -24) and *trim* (23.5 23, -23.5 -23).
- **Explicit Positive Sign:** Defines whether a positive number should always be preceded by a + (plus sign).
- **Description:** Defines a description for the set configuration.

Tooltips

Enable

basic extended universal

Absolute Percent

Decimal Separator

, ,

Thousands Separator

- -

Negative Sign

- -

Scaling

1 1

Decimal Places

1 1

Prefix

Suffix

%25

Tooltips

Enable

basic extended universal

Absolute

Percent

Absolute

Locale
en-US

Format Type
Number

Abbreviations
auto

Thousand Separator

Decimal Separator

Total Digits (approx.)

Decimal Digits
1

Scaling Factor
1

Prefix

Suffix

Zero Format

Null Format

Infinity Format
∞

Rounding Method
commercial

Negative Sign
minus

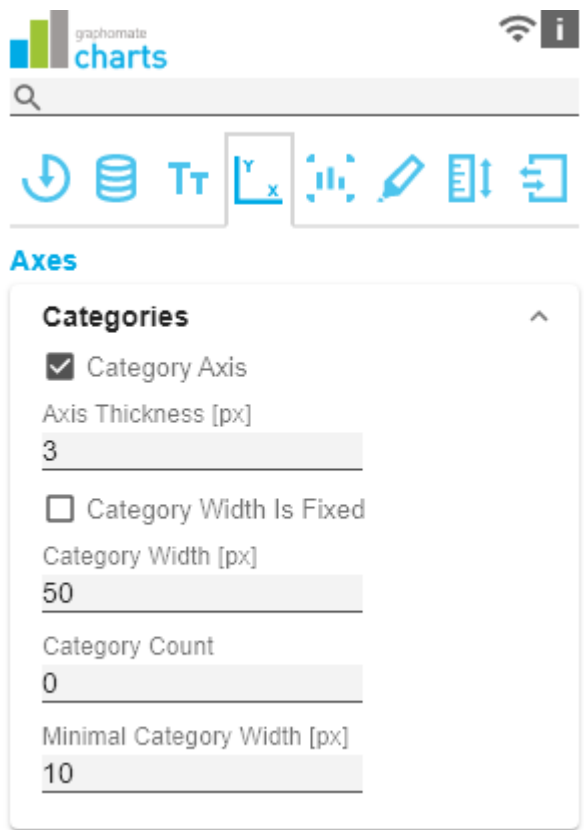
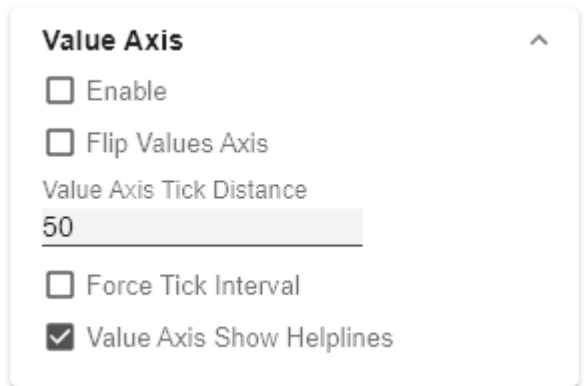
Explicit Positive Sign

Time Units +
hours
minutes

Description (optional)
Absolute

	<hr/> <p>OK</p>
--	-----------------

Axes Tab

<p>Categories</p> <p><i>Category Axis</i></p> <p>Use this box to control the visibility of the Category Axis.</p> <p><i>Axis Thickness [px]</i></p> <p>Define the thickness of the category axis in pixels.</p> <p><i>Category Width is Fixed</i></p> <p>When the property is activated, a fixed width of a category is reserved.</p> <p><i>Category Width [px]</i></p> <p>Defines the <i>category width</i> for the property <i>Category Width is Fixed</i> in [px].</p> <p><i>Category Count</i></p> <p>If this value is not equal to 0, it specifies how many categories should be displayed. Surplus elements are then cut off, missing elements are filled with empty categories.</p> <p><i>Minimal Category Width [px]</i></p> <p>If the automatically calculated category width is smaller than the value defined here, a scroll bar is displayed in the chart.</p>	 <p>Axes</p> <p>Categories ^</p> <p><input checked="" type="checkbox"/> Category Axis</p> <p>Axis Thickness [px] 3</p> <p><input type="checkbox"/> Category Width Is Fixed</p> <p>Category Width [px] 50</p> <p>Category Count 0</p> <p>Minimal Category Width [px] 10</p>
<p>Value Axis</p> <p><i>Enable</i></p> <p>(De)Activate the visibility of the value axis using the <i>Enable</i> option.</p> <p><i>Flip Value Axis</i></p> <p>Switches the value axis to the other side. (right/left or up/down)</p> <p><i>Value Axis Tick Distance</i></p> <p>The distance between the ticks of the value axis. This is a guide value. The ticks are always positioned on "even" values.</p> <p><i>Force Tick Interval</i></p> <p>If <i>Force Tick Interval</i> is active, the axis ticks are displayed exactly in the entered interval.</p>	 <p>Value Axis ^</p> <p><input type="checkbox"/> Enable</p> <p><input type="checkbox"/> Flip Values Axis</p> <p>Value Axis Tick Distance 50</p> <p><input type="checkbox"/> Force Tick Interval</p> <p><input checked="" type="checkbox"/> Value Axis Show Helplines</p>

Value Axis Show Helplines

Depending on the selected separator type (*Category Labels* or *Scenarios*) the index for the positioning of the separators is defined here. (For *Category Labels*, the index refers to the selected line, and for *Scenarios*, the index refers to the linked series).

Separators

You have the possibility to set so-called *separators* in the diagram.

These can be set automatically for *category labels* or changed *scenarios* or manually according to the selected switch.

Length [px]

Defines the length of the separator in pixels.

Thickness [px]

Specifies the thickness of the separator in pixels.

Separators in Front

If this option is enabled, the separator line is drawn in front of the axis.

Color

Define the color of the separator using Color Picker or HEX code.

Source For Separator Derivation (Category Labels, Scenarios)

This option determines the category row for displaying the separators in mode *xy*.

Manual Separator Positions

Use this dialog to manually enter the separator position. You can add further positions using the + symbol. Enter the position of the separator using an integer. The indexing starts at 0.

Separators

Category Labels

Source For Separator Derivation

1

Length [px]

10

Thickness [px]

1

Separators in Front

Color

#333333

Separators

Manually

Manual Separator Positions csv

0

+

Length [px]

10

Thickness [px]

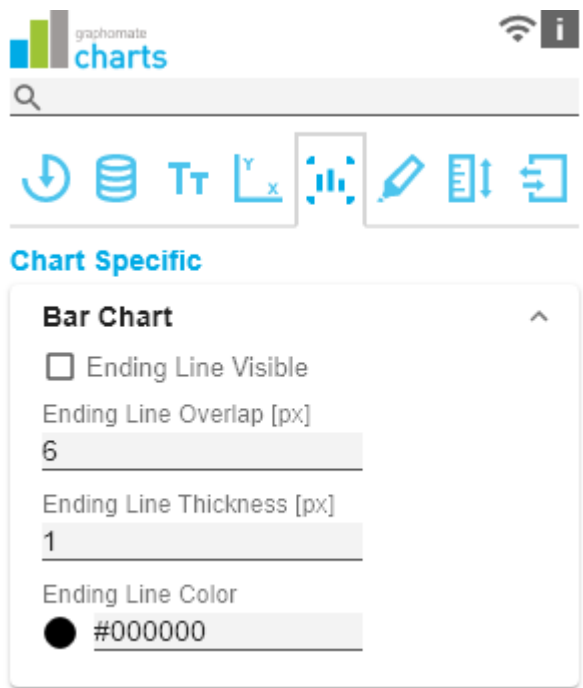
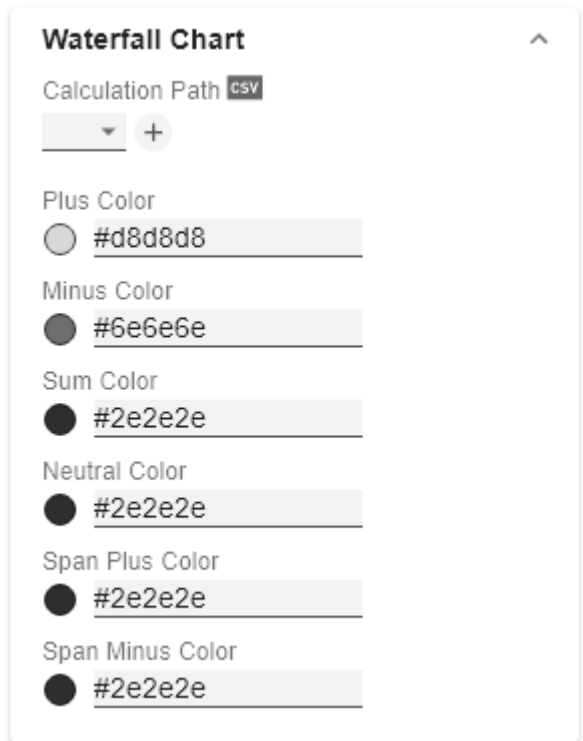
1

Separators in Front

Color

#333333

Chart Specific Tab

<p>Bar Chart</p> <p><i>Ending Line Visible</i></p> <p>The checkbox (de)activates the ending lines in the bar or column chart.</p> <p><i>Ending Line Overlap [px]</i></p> <p>The value overlap of the KPI ending lines in [px] right and left above the bar.</p> <p><i>Ending Line Thickness</i></p> <p>Define the thickness of the ending lines in [px].</p> <p><i>Ending Line Color</i></p> <p>Specify the color value of the KPI ending lines.</p>	
<p>Waterfall Chart</p> <p>Determine the colors of the waterfall elements - corresponding to the <i>calculation path</i>.</p> <p><i>Calculation Path</i></p> <p>For the flexible use of the waterfall you store the corresponding arithmetic operation here. By clicking on the csv symbol you can switch between the standard field input or the comma separated input.</p> <p>possible calculation options:</p> <ul style="list-style-type: none"> • " " does not apply special formatting (<i>space</i>) • + Inflow (<i>Plus</i>) • - Outflow (<i>Minus</i>) • = Subtotals (<i>Sum</i>) • "0" neutral position (<i>Neutral</i>) • s+ positive margin (<i>Span Plus</i>) • s- negative margin (<i>Span Minus</i>) <p><i>Waterfall Colors</i></p> <p>Set color values for the different calculation options using the Color Picker or a HEX code.</p>	

Please note that the use of scenarios overrides this formatting.

Line Chart

Line Dot Radius X

Specify the X-radius in the line chart. The input value can be interpreted as a *percentage* or *absolute value*.

Line Dot Radius Y

Specify the Y-radius in the line chart. The input value can be interpreted as a *percentage* or *absolute value*.

- By differentiating between X and Y, ellipses and the like can also be implemented.

Apply Dot Colors to Lines

With this setting activated, the color of the heads is also applied to the lines.

Line Chart

Line Dot Radius X

5 % px

Line Dot Radius Y

5 % px

Apply Dot Colors to Lines

Pin Chart

Pin Width

Define the thickness of the line of pins in pin charts. With *Pin Width* = "0" you can implement a dot chart. The input value can be interpreted as a *percentage* or *absolute value*.

Pin Head Radius X

Specify the X-radius in the needle chart. The input value can be interpreted as a *percentage* or *absolute value*.

Pin Head Radius Y

Specify the Y-radius in the needle chart. The input value can be interpreted as a *percentage* or *absolute value*.

Pin Head Mode

The setting *front* (*top aligned*) draws the needle head in front of the line and concludes above with the value of the respective element value.

The setting *back* (*center aligned*) draws the needle head behind the line and positions the head centered on the respective element value.

Pin Chart

Pin Width

1 % px

Pin Head Radius X

4 % px

Pin Head Radius Y

4 % px

Pin Head Mode

front back

Stacked Bar Chart

Controls the mode of the stacked bar charts. The following modes are available:

- *Regular*: The totals are formed from the absolute values, i.e. negative values are added up positively.
- *Negative*: Negative values are also added up as such. There are also negative stack columns.
- *Negative2*: This mode forms the total sum (similar to Realnumber only without the sum sign), but arranges the elements like negatives. If the total sum is negative, this stands left/bottom at the bar and with positive total sum accordingly right/top.
- *Realnumber*: The sums are formed from the real numbers, but only positive stacks are formed.
- *Percent*: The stack segments are displayed as percentages of the sum of each stack.

Stacked Bar Sums Visible

(De)activates the totals above the stacks. The input value can be interpreted as a *percentage* or *absolute value*.

Stacked Bar Label Position

Controls whether the labels of the stack are displayed in the *middle* or on the *right*.

Offsetbar Chart

Offset bars on left side

Displays the deviation bars of the offset bar chart on the left instead of the right.

Deviation Labels On Top

Always shows the labels of the deviations at the top of the offset bar charts. Otherwise, the negative deviation labels are displayed within the bar.

Labels on Top

Shows the labels of the offset bar above the bar and not within it.

Stacked Bar Chart

regular

Bar Width

50

% px

Stacked Bar Sums Visible

Stacked bar label position

middle right

Offsetbar Chart

Offset Bars on Left Side

Deviation Labels on Top

Labels on Top

Emphasis Tab

Reference Lines

Configuration

With this element you can define lines, for example to visualize certain limit values or statistical quantities. Use the + symbol to add new lines and the red trash can to delete existing line configurations.

Configuration Pop-Up

The following properties can be defined:

- **Enable:** (De)activates the visibility of the line
- **Line Label:** Enter the name of the reference line here. This is displayed in the diagram.
- **Line Type:**
 - **Threshold:** A line is drawn parallel to the category axis, whose position can be determined via the *Line Base*.
 - **Lin.Reg.:** A regression line is displayed for all values of a visible series. Via the *Line Base* field the index (starting with 1) of the desired series can be selected.
 - **Median:** Represents the median of a visible series as a line parallel to the category axis. The index (starting at 1) of the desired series can be selected via the *Line Base* field.
 - **Average:** Represents the average value of a visible series in the form of a line parallel to the category axis. The index (starting at 1) of the desired series can be selected via the *Line Base* field..
- **Line Base:** This property applies if you have selected 'Threshold' for Line Type. Enter the value for the line position here.
- **Line Size (px):** Define the thickness of the Reference Line in px.
- **Line Color:** Determine the color for the line using Color Picker or enter an appropriate HEX code.
- **Line Style:** Three modes are available to display the line: *solid*, *dotted* or *dashed*

Highlight

You can use this function to highlight the absolute and /or percentage difference between different chart elements. To do this, activate the checkbox and set the indexes of the categories where the highlighting should start and end.



Emphasis



single

You can choose between a single highlighting on the side (*single*) or highlighting multiple elements within the diagram (*multi*). If you choose single highlighting, the first element in the list is displayed and all other elements are ignored. You can also choose whether the absolute and/or percentage values are to be displayed.

multi

In multi mode, several highlights can be created using the + symbol. In the pop-up, you define the indexes of the categories for which the highlighting should start (Start Series and Start Element) and end (End Series and End Element).

both

In *both* mode, *single* and *multi* modes can be used at the same time. Make the settings as described above.

Highlight ^

none single multi both

Percent Label

Absolute Label

Highlight ^

none single multi both

Start Series
1

End Series
1

Start Element
1

End Element
2

Percent Label

Absolute Label

Highlight ^

none single multi both

Multi Highlights +

✎ Series: 1 - 1 Element: 2 - 1

Percent Label

Absolute Label



Series: 1 - 1 Element: 2 - 1

Start Series
1

End Series
1

Start Element
1

End Element
2

OK

Highlight Group

Enable

To assign elements to each other, activate the Highlight Group.

Match Measures

If this option is activated, the measures of the dimension are considered in addition to the member combination.

Color

Determines in which colour the Highlight Group should be displayed.

Highlight Group

Enable

Match Measures

Color
#24bbe9

User Highlight

This property can be used to adjust and read out the list of user highlights. The User Highlights can be set at runtime by ALT + mouse click on a value in the diagram. In this way, this value is highlighted with a frame.

User Highlight Pop-Up

Specify here which element should be highlighted initially. Assign the index of the series (Series Index) and the index of the element (Element Index).

Toggle Colors

User Highlights

User Highlight 1

Toggle Colors
User Highlight Color 1
#24bbe9

A list of colors through which highlights (highlighted values at run time using ALT+click) are toggled when the user repeatedly selects them.

User Highlight 1

User Highlight 1

Series Index

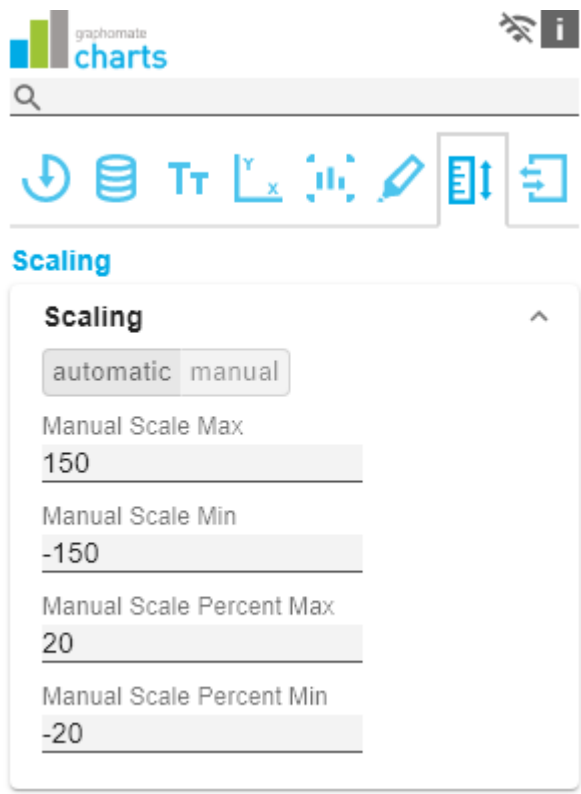
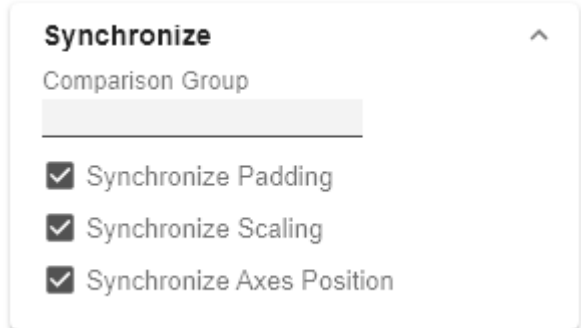
1

Element Index

1

OK

Scaling Tab

<p>Scaling</p> <p>The default setting automatic scales the diagram according to the Min and Max values from all data to be displayed.</p> <p>Alternatively, you can manually set min/max scaling values for absolute and percentage values under manual. Chart min values > "0" intersect the value axis.</p>	 <p>Scaling</p> <p>automatic manual</p> <p>Manual Scale Max 150</p> <p>Manual Scale Min -150</p> <p>Manual Scale Percent Max 20</p> <p>Manual Scale Percent Min -20</p>
<p>Synchronize</p> <p><i>Comparison Group</i></p> <p>You can use the <i>Comparison Group</i> to scale several charts identically. When you assign a Comparison Group, Overlay is displayed in the diagram.</p> <p>Assign an identical group abbreviation for all diagrams concerned. Now the minimum and maximum of the data basis of this group is used.</p> <div style="background-color: #e1f5fe; padding: 10px; border: 1px solid #ccc;"> <p>i Comparison Group in Power BI: Use unique abbreviations. For example, "ReportName_AA" instead of just a letter like "A" or "B". Otherwise, the Comparison Group may not synchronise in the reports.</p> </div> <div style="background-color: #ffe0b2; padding: 10px; border: 1px solid #ccc; margin-top: 10px;"> <p>x This function is not supported by Tableau Desktop.</p> </div> <p><i>Synchronize Padding</i></p>	 <p>Synchronize</p> <p>Comparison Group</p> <p><input checked="" type="checkbox"/> Synchronize Padding</p> <p><input checked="" type="checkbox"/> Synchronize Scaling</p> <p><input checked="" type="checkbox"/> Synchronize Axes Position</p>

Specifies whether the padding should be taken from the Comparison Group or whether it should be determined independently for the diagram.

Synchronize Scaling

Specifies whether the scaling should be taken from the Comparison Group or whether it should be determined independently for the diagram.

Synchronize Axes Position

Specifies whether the axis positions should be taken from the Comparison Group or whether they should be determined independently for the chart.

Outliers

Use Outlier Threshold

If the Outliers property is activated, the manually defined value from which outliers are displayed is used.

short - long

Here you select how outliers are displayed. In short mode, the outliers are displayed as small triangles on the axis. In long mode, however, the outliers are displayed over the entire available area, according to IBCS rules.

Size [px]

The size of the outlier character in pixels.

Negative/Positive Threshold

With automatic scaling, this is the value up to which everything in the diagram scales automatically. If a value in the data exceeds this limit, this value is not used for the maximum calculation. All values above this value are then displayed accordingly as outliers.

Negative/Positive Threshold Percent

Same function as Negative/Positive Threshold, but for percentage values in the deviation diagrams.

Scaling Helper

Here you can activate and define if the Scaling Helper appears as a line or area.

Value

Enter the value for the position of the Scaling Helper here.

Line Color

Outliers

Use Outlier Threshold

short long

Size [px]

7

Positive Threshold

100

Negative Threshold

-100

Positive Threshold Percent

10

Negative Threshold Percent

-10

Use the Color Picker or a HEX code to define the color of the line (Line Color).

Bar Line Width [px]

Specify the line width of the Scaling Helper in pixels.

Area Color

Use the Color Picker or a HEX code to define the color of the area (Area Color).

Scaling Helper ^

none line area

Value

Line Color

Bar Line Width [px]

Area Color

Input Output Tab

The functions of this tab are used to exchange templates for the graphomate charts. Connect to the graphomate server - a free component of graphomate GmbH - to store or load a graphomate charts template. This way you can exchange preconfigured graphomate charts designs between BI frontends that support the graphomate server. Currently these are: Power BI, Tableau, SAP Analytics Cloud, SAP Lumira Designer, SAP Web Intelligence, SAP UI5 and Microsoft Excel.

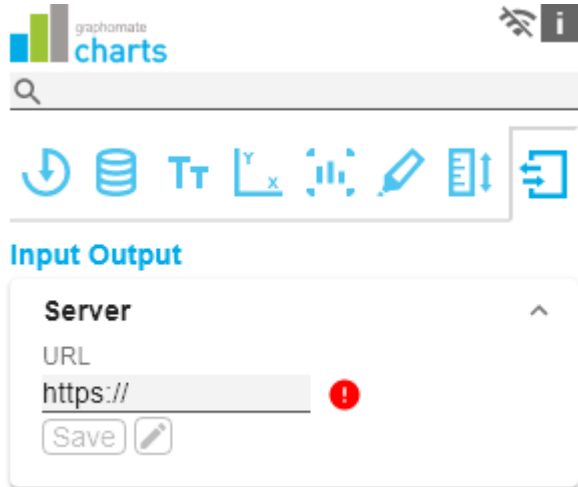
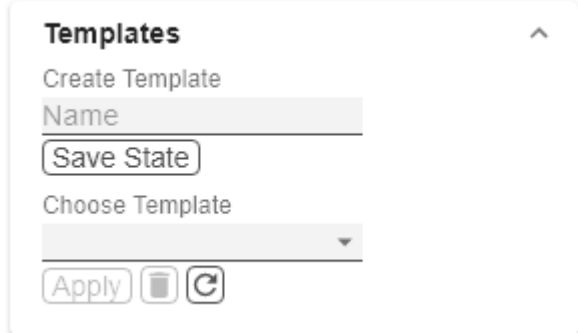
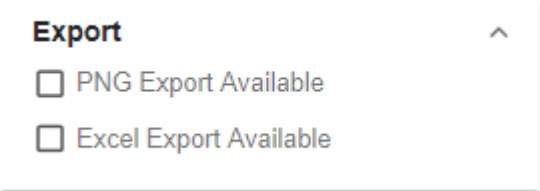
<p>Server Configuration</p> <p>Here you enter the URL of the graphomate server to which the component should connect and from which you want to save or retrieve templates.</p> <p>If you have entered the URL to the server, a green check mark indicates that a connection could be established.</p> <p>If another server is used later, the button next to the save button can be pressed and the server URL can be edited.</p> <p>The hyperlink "<i>Admin</i>" allows you to jump to the admin area of the graphomate server.</p>	
<p>Templates</p> <p>If the current settings are to be saved as a template, a new template name can be entered in the input field labeled <i>Create Template</i> and confirmed by clicking the <i>Save State</i> button. If the entered name complies with the naming convention, the template is saved on the server and a toast with the corresponding message is displayed in the lower part of the graphomate property sheet. However, if the entered name does not meet the expected naming conventions, an error message with the permitted characters is displayed accordingly.</p> <p>With <i>Choose Template</i> templates stored on the server can be retrieved and applied. To do this, the desired template must be selected and the <i>Apply</i> button must be pressed. If you want to delete a template, you have to select the template in the list and press the <i>Delete (bin)</i> button. If changes have been made to the templates on the server side, you have to click on the <i>Refresh</i> button. Changes should then be visible.</p>	
<p>Export</p> <p><i>PNG Export Available</i></p> <p>If this Checkbox is activated, at runtime on mouse-over a camera icon is displayed next to the chart, which enables you to export the chart as a PNG file. Clicking on the button opens a new win-dow in which the chart is displayed as an</p>	

image that can be copied to MS office applications. Due to the export library, the title of the charts is not available in the PNG file.

Excel Export Available

If this Checkbox is activated, at runtime on mouse-over an Excel icon is displayed next to the chart, which enables you to export the chart as a JSON file. Clicking on the button automatically copies the needed data into your clipboard and you will be notified that the export was successful. If the used browser does not support the automatic copying a new browser window will open. You can simply copy its content by marking the whole content (by clicking *ctrl+a*) and then copying to the clipboard manually (by clicking *ctrl+c*). After this you will be able to import the chart in Microsoft Excel (using the *Import Chart*-button) as long as you have installed *the graphomate charts for Excel Add-in*

Manual Series

Here you can manually enter the data for the data series, which are then shown in the diagram. Please use the dot (.) as decimal separator.

Manual Series ^

Series1 CSV
 +

Series2 CSV
 +

Series3
 v

Manual Categories

Here you can enter category labels manually, which are then displayed in the diagram. Click on the desired level to enter a label for each element of the level.

i Level 1 corresponds to the first line of the category label and so on.

Manual Categories ^

Level 1 CSV
 +

Level 2 CSV
 +

Level 3 CSV
 +

Interactivity at runtime

The *graphomate charts* extension supports some features that can be used interactively at runtime.

Excel-Export

If the option *Excel Export Available* in the *Input Output Tab* is activated, at runtime on mouse-over an Excel export icon is displayed next to the chart, which enables you to export the chart as a JSON file. So the chart can be copied also to MS Excel (as long as our add-in *graphomate charts for Excel* is installed).

Context Menu

If the option *Context Menu* in the *Data Tab* is activated, the *Context Menu* will be accessible during runtime by right clicking on the component. It allows special filtering (according to the settings made). A reload resets all changes made with the context menu.

PNG Export

If the option *PNG Export Available* in the *Input Output Tab* is activated, at runtime on mouse-over a camera icon is displayed next to the chart, which enables you to export the chart as a PNG file. So the chart can be copied as a PNG also to MS office applications.

Tooltips

If the option *Tooltips* is activated in the *Labels Tab*, *Tooltips* are displayed on the chart at runtime, showing the detailed information for that item.

User Highlights

Furthermore there is the possibility of creating so-called *User Highlights* at runtime and to store those with bookmarks (see [Scripting](#)). Simply click on the desired value in the dashboard while pressing the *Alt*-key to set the *User Highlights*.

Highlight Group

If the option *Highlight Group* is activated in the *Emphasis Tab* for a chart, all elements within this chart that have the same member combination (excluding Keyfigure Dimension) compared to the member combination of an element which is hovered by the user will be highlighted with a colored border. If, in addition to the first-mentioned chart, there are other charts with activated *Highlight Group* in the application, all elements whose member combination are each a superset of the member combination of the hovered element (exclusive Keyfigure Dimension) will be highlighted too. The highlight color can be customized for each chart using the *Highlight Group Color* option.

Example: In Chart 1, an element with the member combination A: = {"Atlantic", "New Brunswick"} is hovered by the user. Chart 2 has elements that have the member combinations B: = {"Atlantic", "New Brunswick", "Home Office"}. Since B is a superset of A (all elements of A are contained in B: this includes the equality of A and B), these elements are highlighted accordingly. Conversely, if one selects an element from Chart 2 with the member combination B, then the elements from Chart 1 with member combination A are no longer highlighted, since A is not a superset of B.

If you also want to include the Keyfigure Dimension (Measure) in the member combinations, you can activate the option *Match Measures* for each chart. As an example we extend the member combinations from the first example with a Keyfigure Dimension: A: = {"Atlantic", "New Brunswick", "**Oder Quantity**"} and B: = {"Atlantic", "New Brunswick", "Home Office", "**Profit**"}. Here, too, the behavior described above applies: when hovering an element with the member combination A, all elements whose member combinations are each a superset of A are highlighted. In this case, B is no longer a superset of A, so the members with member combination B are no longer highlighted.

Since the option *Match Measures* can be activated individually for each chart, a final example for the different behavior between the example charts mentioned above should be given. In the following case the option *Match Measures* is deactivated in Chart 1 and activated in Chart 2. If you now choose in Chart 1 an element with the member combination A: = {"Atlantic", "New Brunswick"} (with the keyfigure "Order Quantity"), all elements within

Chart 1 are highlighted, whose member combinations are a superset of A. However, Chart 2 is different because the *Match Measures* option is enabled there. Only those elements whose member combinations are a superset of $A_{Measures} := \{\text{"Atlantic"}, \text{"New Brunswick"}, \text{"Order Quantity"}\}$ are highlighted here.

Chartpicker-Component

Together with the charts you get a chart picker that has to be installed as a separate component (see [Installation](#)). The chartpicker allows interactive switching between the six possible chart types in time or structure mode during runtime. Via the event *On Chart Type Changed*, the chartpicker can be linked to a chart via the SAP internal scripting language. The following script shows this exemplarily:

```
var chartType = GRAPHOMATECHARTPICKER_1.getChartType();
GRAPHOMATECHART_1.setChartType(chartType);

var structureMode = GRAPHOMATECHARTPICKER_1.getStructureMode();
GRAPHOMATECHART_1.setStructureMode(structureMode);
```

In the first block of code, the charttype getter function of the chartpicker (GRAPHOMATECHARTPICKER_1) is called, which returns the currently selected charttype of the chartpicker. The output is then passed to the charttype setter function of the desired chart (GRAPHOMATECHART_1). The same procedure is used in the second block with StructureMode, which indicates whether the chart is in *Time* (false) or *Structure Mode* (true).

With the properties *Charttype* and *Rotated* in the *Standard Properties Sheet* of the chartpicker, its initial charttype and mode (*Time* or *Structure*) can be determined.

Number Formatting

Possible Input for The numeral.js Format String

Floating point		
Number	Format String	Output
10000	'0,0.0000'	10.000,0000
10000.23	'0,0'	10
-10000	'0,0.0'	-10.000,0
-0.23	'.00'	-,23
-0.23	'(.00)'	(,23)
0.23	'0.00000'	0,23000
0.23	'0.0[0000]'	0,23
1230974	'0.0a'	1,2m
1460	'0 a'	1 k
1	'0o'	1 st
Currency		
Number	Format String	Output
1.000.234	'\$0,0.00'	\$1.000,23
1000.2	0,0[.]00 \$'	1.000,20 \$
1001	'\$ 0,0[.]00'	\$ 1.001
Percentage		
Number	Format String	Output
1	'0%'	100%
-0.43	'0 %'	-43%

[Source](#)

Possible Input for The Extended Number Format String

Percentages and absolute numbers are formatted separately. For this two format strings are used, which follow the same rules and structure. In general the strings of characters in the format string are simply replaced in the input number. Exceptions to this rule would be scaling factors and the number of decimal places.

The elements of the format string are separated by the "|" character. Format strings with less than 7 elements (or 6 "|" characters) are considered invalid and therefore ignored. In this case the standard format without scaling and with one position after the decimal point is used.

The format string consists of the following elements, the ordering is obligatory and cannot be changed:
Negative|Prefix|Thousands|Decimal|Scaling|PointsAfterDecimal|Suffix

Negative	The prefix for negative numbers. The string "(") will result in the number placed inside parentheses, including eventual prefixes and suffixes. If <i>None</i> is used, the absolute number will be shown.
Prefix	A prefixed string of characters, for example a currency symbol or an identifier for the scaling factor.
Thousands	A separator for thousands.
Decimal	A separator for the decimal places.
Scaling	The scaling factor for the value. This can be given as a whole number or a power, formatted as n^m . A whole number will be calculated as a power to the basis 10 internally. In case of a given power the value will be divided by it directly. Even negative numbers are possible, for example "-3" or "10^-3"; in this case the value will get adequately higher. Non numeric inputs are ignored. <i>Please note:</i> given a "0" or a "1" will result in a scaling factor of 1. The only way to achieve a scaling by 10 is to set the input to "10^1".
PointsAfterDecimal	The number of places after the decimal.
Suffix	A suffix for the value, analogous to the prefix.

Known Issues

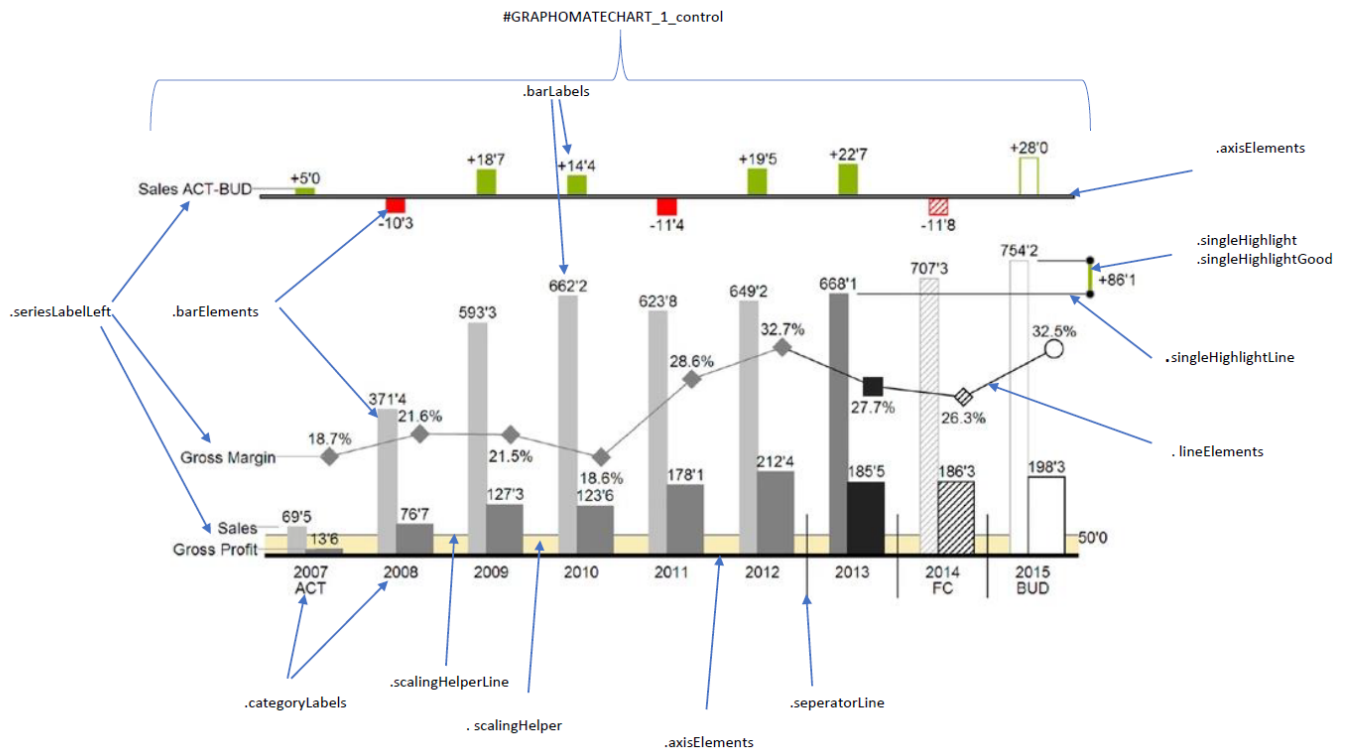
- *Data Series Width* in the *Data Series Style Editor* is, at the moment, only possible for bar/column charts. Please use the parameter *Bar Width* in the properties for waterfall, stacked and offset bar charts. Also the *Width* of the *Data Types* cannot be used for waterfall and stacked bar charts.
- *Series Labels Right/Bottom* of the waterfall and the stacked bar chart are not always drawn correctly.
- Scaling a waterfall chart manually with a positive minimum results in all elements being rendered into the bars.
- In some cases, the Design-Studio pdf export doesn't work in Internet Explorer and MS Edge if hatched or dotted datatypes are used.
- Tooltips are not shown for NULL value labels in Internet Explorer
- The Single-/Multi-Highlighting function is not supported for different chart types per series.
- If the value of the Scaling Helper is bigger than the Outlier Threshold (*Use Outlier Threshold: true*), the value of the Outlier Threshold will be replaced with the value of the Scaling Helper. (Same behavior with negative values for the Scaling Helper)
- The *Comparison Group* can also be used in conjunction with Lumira Designer *Composites*.
- In structure mode, the scenario legend is overlapped by the chart.

i From version 2.6.2 the datatype attribute selector for CSS formatting of SVG elements will be deprecated. In the future, please use the new datatype CSS class for selecting elements according to their datatype. The datatype attribute will be removed in a future version of the charts.

CSS Selectors

Overview of css classes

The following illustrations provides some of the css selectors, which can be addressed by using the *Custom CSS* in Designer.



The chart elements contain the hierarchy level as a CSS class, when provided by the query. Furthermore we recommend using a browser console to inspect the elements for their CSS classes.

A few examples:

```
.lineElements {
    stroke: red !important;
}

#GRAPHOMATECHART_1_control .lineElements.seriesIndex1 {
    stroke: red !important;
}

.scalingHelper {
    fill: aliceblue;
}

.barElements {
```

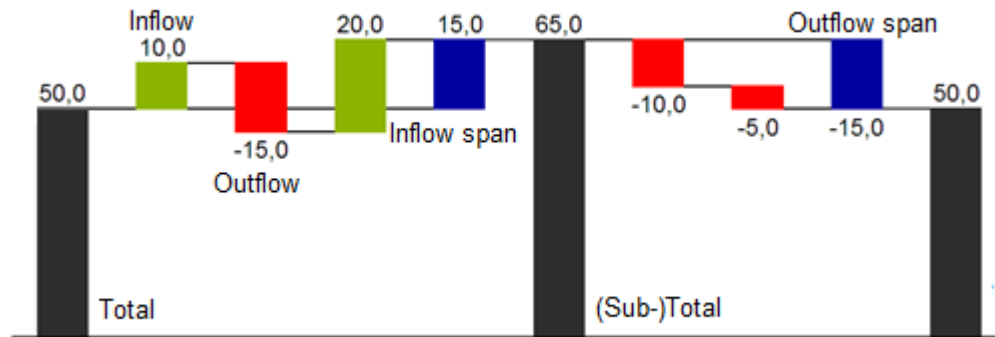
```
} stroke: red;
```

i From version 2.6.2 the datatype attribute selector for CSS formatting of SVG elements will be deprecated. In the future, please use the new datatype CSS class for selecting elements according to their datatype. The datatype attribute will be removed in a future version of the charts.

Appendix

Waterfall Calculation Path

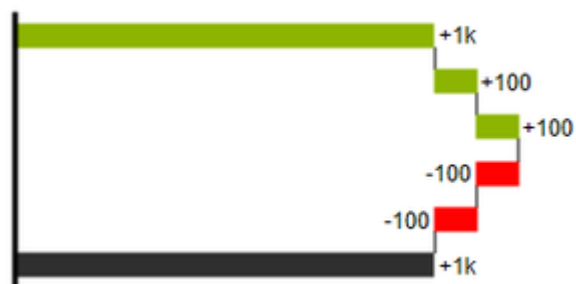
A waterfall chart – often also called a flying bricks chart – shows how an initial value is increased (inflow) or decreased (outflow) by a series of values, which lead to a final value – if necessary with subtotals and spans.



For a flexible use of the waterfall in *graphomate charts* an additional *Data Series* has to be defined: the *Waterfall Calculation Path*. This *Data Series* determines, whether the value to be shown is an in- or an outflow value, a (sub-) total or a span. In general, the sign of the data series value determines the effect on the (sub-) totals of the waterfall. Negative values are interpreted as outflow values, positive values are interpreted as inflow values and colored according to the color scheme on the *Appearance* tab.

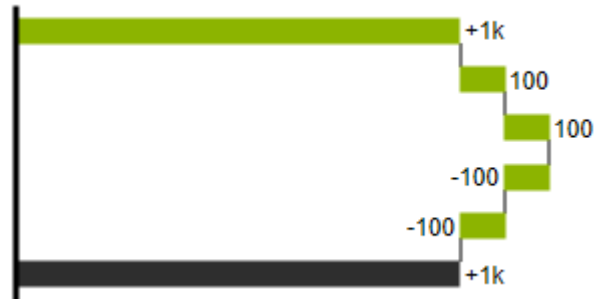
i In case of using *Data Types* the colors of the *Data Types* overwrite the color scheme of the *Appearance* tab.

By default, the last element of a waterfall is interpreted as the sum total. A waterfall without entries in the *Waterfall Calculation Path* would therefore look like this. By defining the *Waterfall Calculation Path* the appearance and the sign of each waterfall element can be controlled independently - even via scripting language. The following options can be used:

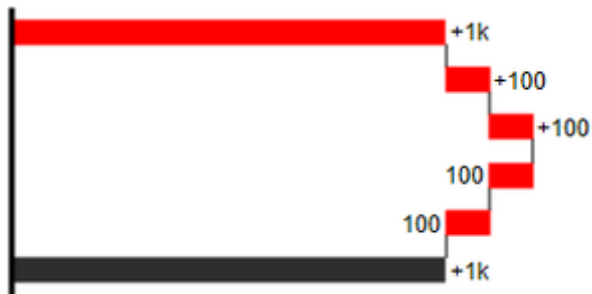


+=inflow

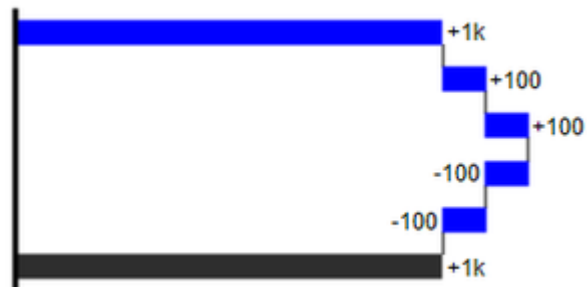
Positive signs are suppressed, the **+**-color is applied to the elements.

**-=outflow**

Negative signs are suppressed, the **-**-color is applied to the elements.

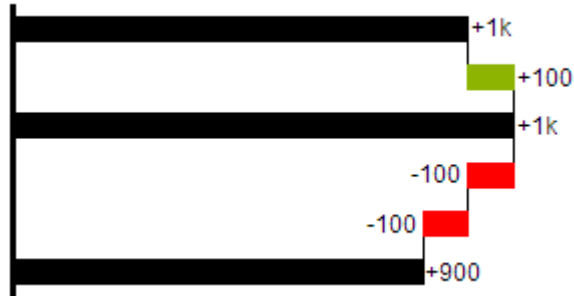
**0 =neutral position**

All signs are shown, the (0)-color is applied to the elements.



==(Sub-)total

The element starts at the value axis and the (=)-color is applied to those elements.

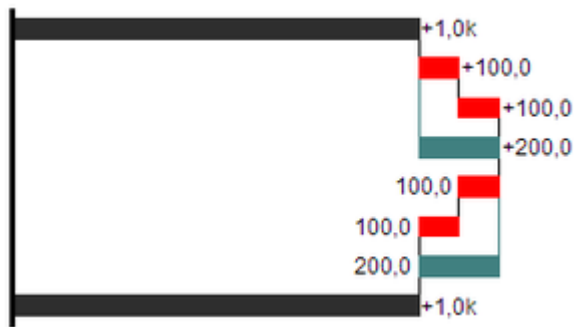


s-=outflow span

With the help of a span single changes can be summarized starting from a (sub-)total.

With an outflow span single cost items can be aggregated to a total cost.

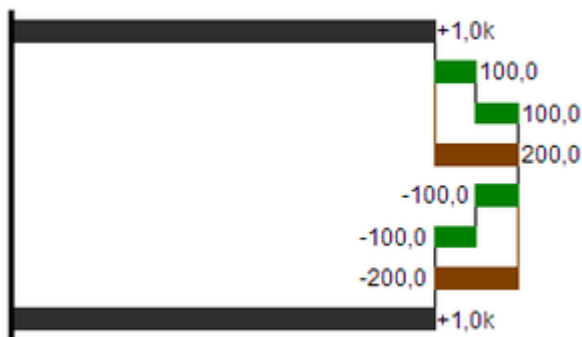
Corresponding to outflow elements (see above) negative signs are suppressed and the (s)-color is applied to the elements.



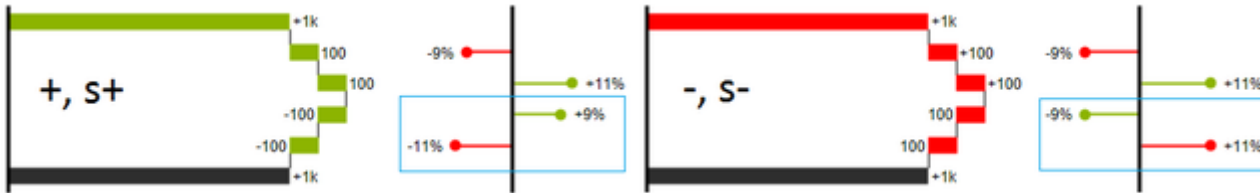
s+=inflow span

With an inflow span single inflow items can be aggregated starting from a (sub-)total.

Corresponding to inflow elements (see above) positive signs are suppressed and the (s+)-color is applied to the elements.



i The (-) and (s-)values in the Waterfall Calculation Path also have an effect on the corresponding deviation charts: For negative values, which are now shown without signs based on the (-) and (s)-entries, the sign and the orientation of the deviation is reversed by necessity. Otherwise there is a risk of misinterpretation.



Stacked Bar Modes

When displaying values in the form of stacked bar charts, 5 different modes can be used for summation. The following graphic shows the modes:

