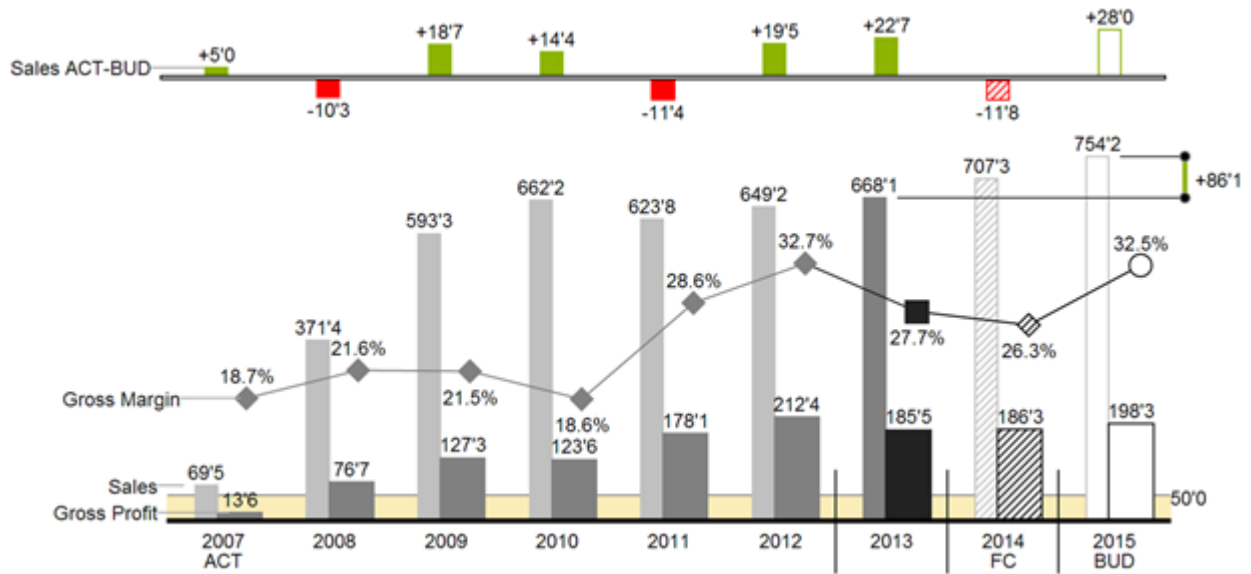


User manual for the graphomate charts for SAP Lumira Designer



Version 2020.4 – as of October 2020

<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.

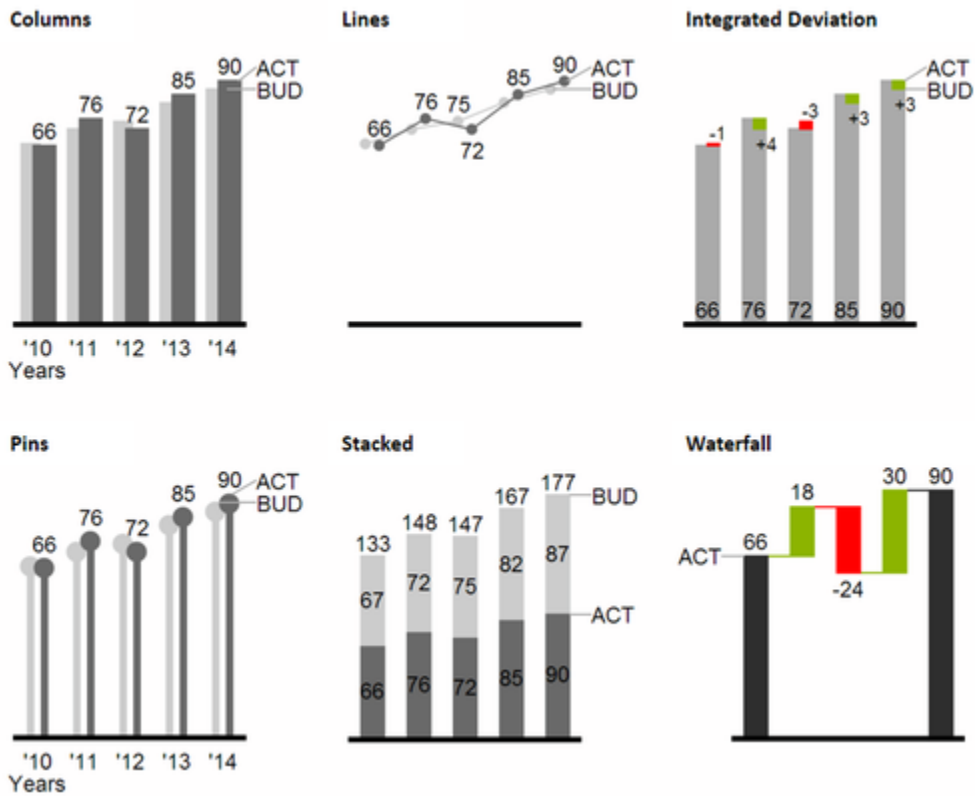
In the sense of a uniform language regulation we speak in the further manual of Lumira Designer or briefly Designer.

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). Please note that we no longer support Internet Explorer 9 and 10 from 2017.

Introductory examples

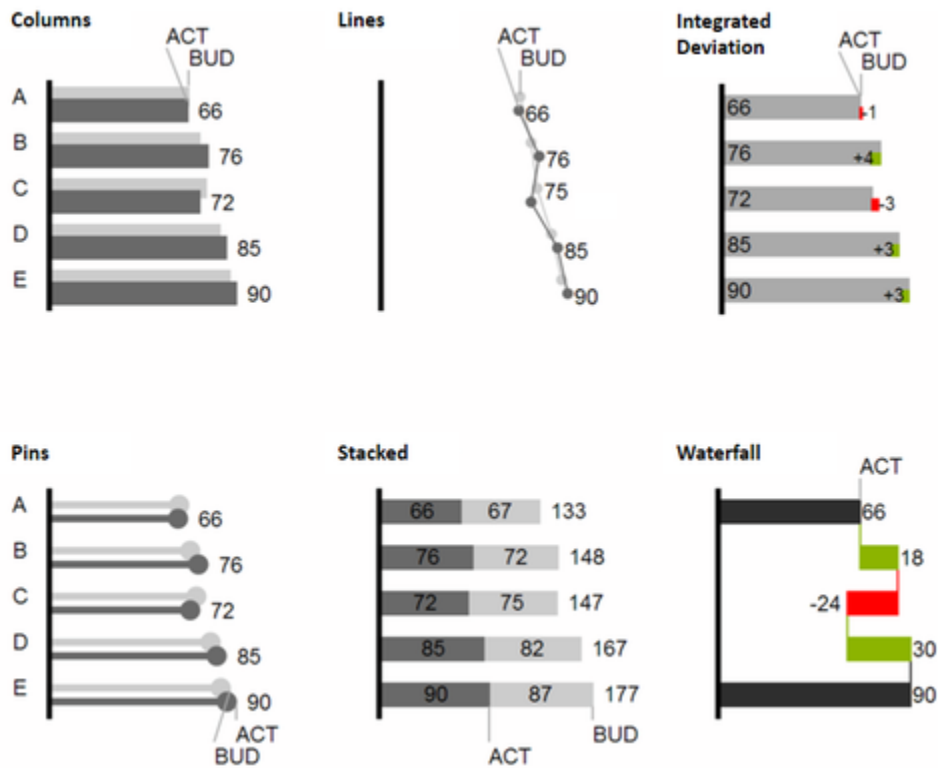
Chart Types

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:

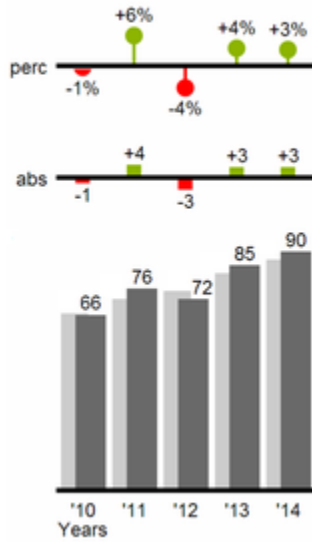


All charts can always be used in vertical or horizontal orientation. The Comparison Group enables you to use the same scales. Each chart must be assigned to the same Comparison Group. It is possible to use up to 10 data series – either consecutively or – in a stacked chart - on top of each other. The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

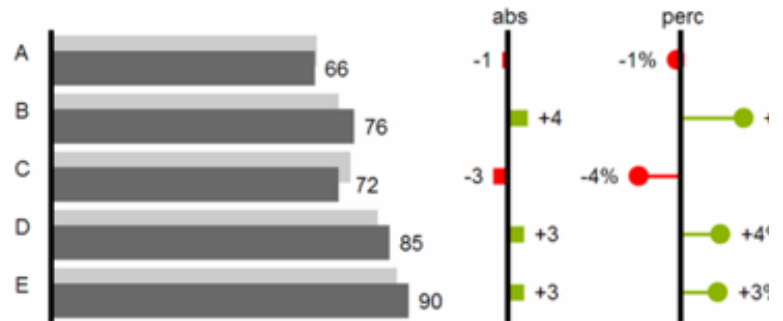
Deviation Axes

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



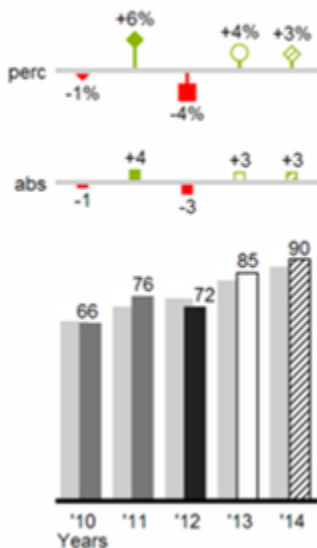
coloumns with deviation axes



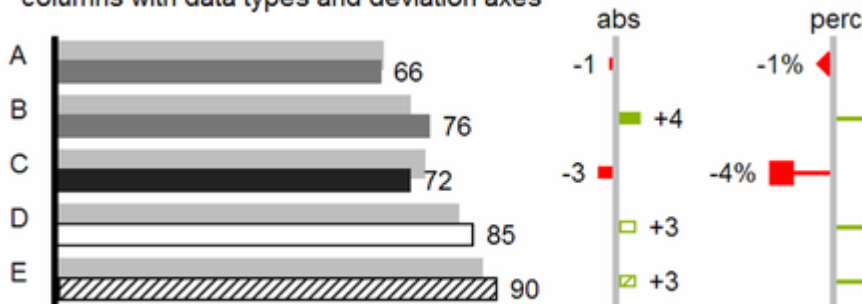
Data Types

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

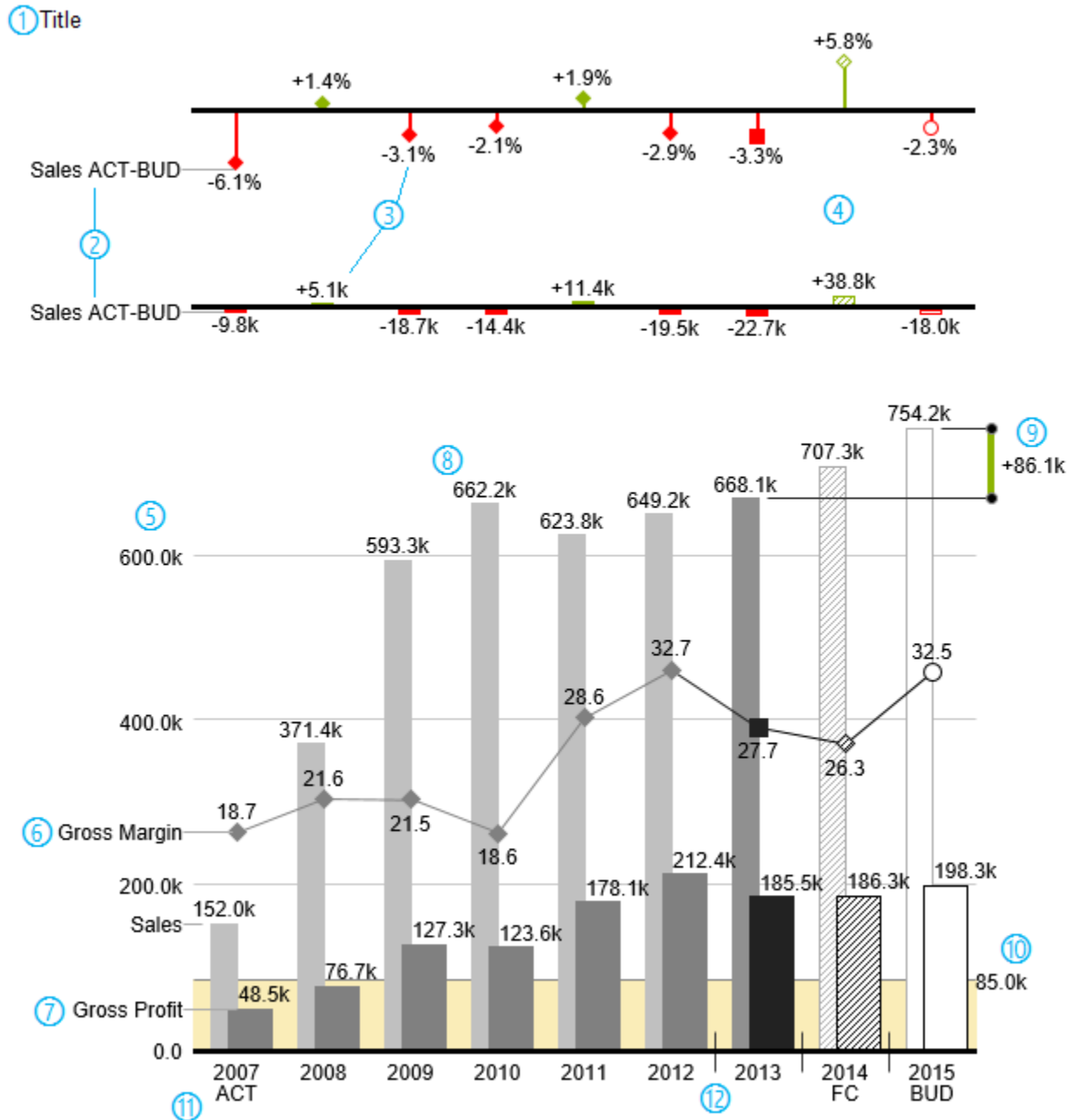


columns with data types and deviation axes



Visual Elements of the graphomate charts

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

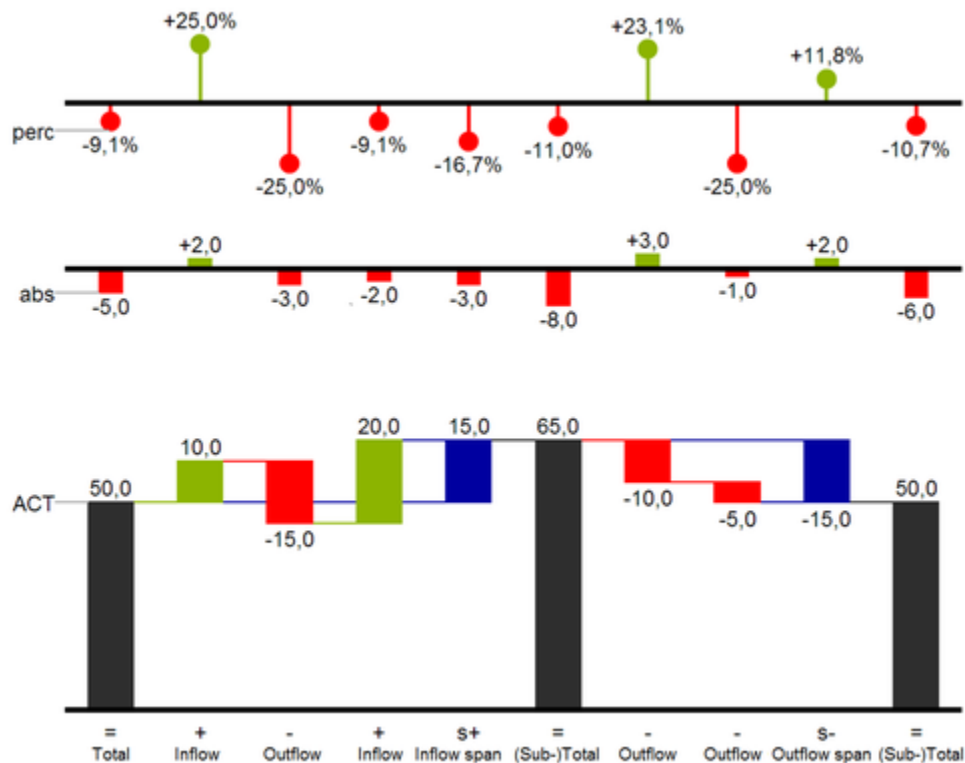


1. Chart title.
2. Percentage and absolute deviation between data series with data series labels.
3. Percentage and absolute data labels can be formatted independently.
4. By using Data Types, the chart elements and axis carry information: deviation of forecast (hatched) to budget data is shown. Therefore 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.

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_2020.4.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 2020.4.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.


The screenshot shows the configuration interface for graphomate charts. It is divided into two main panels: 'Start' and 'Deviations'.

Start Panel:

- Chart Type:** A grid of icons representing different chart types: bar chart, line chart, area chart, stacked bar chart, grouped bar chart, and horizontal bar chart.
- Orientation:** Two buttons: 'Time' (selected) and 'Structure'.
- Base Chart:** A checked checkbox.
- Chart Type By Series:** Two dropdown menus for 'Series1' and 'Series2'.

Deviations Panel:

- Configuration:** A plus sign icon.
- Selected Deviations:**
 - perc: Series1 - Series2 (percent)
 - abs: Series1 - Series2 (absolute)
- Calculate Deviations from NULL:**
- Good Color:** #8cb400
- Bad Color:** #ff0000
- Neutral Color:** #0080ff
- Negative Deviation Is Good:**
- Deviations Bar Width for Scenarios:** 50
- Color Selection:** 'percent' (selected) and 'absolute' buttons.
- Pin Line Black:**
- Use Pin Head Color:**
- Pin Head Color:** #000000
- Pin Head Shape:** circle

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

percent absolute

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):

SEARCH FIELD



Use the search field to quickly find a setting (example "Title") and change it.

CONNECTION TO THE GRAPHOMATE SERVER

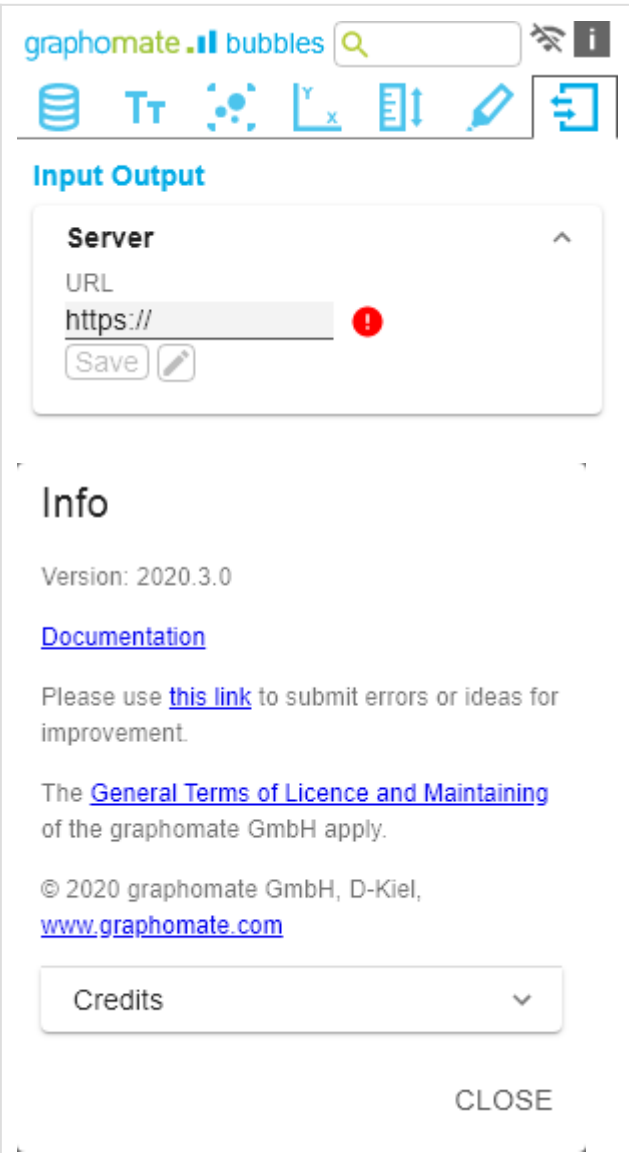
 active connection to graphomate server

 no active connection to the graphomate server

INFO TAB

In the header of the GPS there is an info symbol (). Click on the  icon to open a tab with relevant information:

- 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)



CHECKBOXES

An active property is indicated by a white check mark in the checkbox. To deactivate it, click on the checkbox again.

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

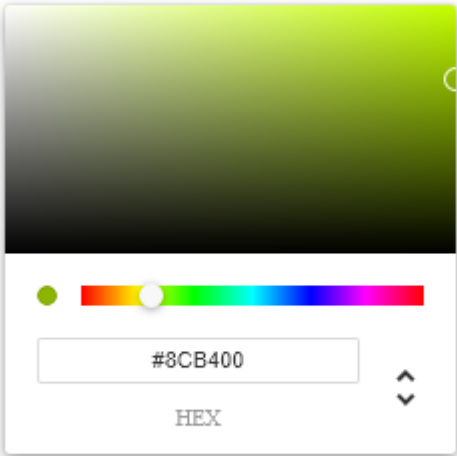
#8CB400

Bad Color

#FF0000

Invert

Good Color




OK

ADDING NEW ELEMENTS TO LISTS

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

REMOVING ELEMENTS FROM A LIST

Hover over the element to delete an object. The following symbol appears . Click on the icon to delete the selected entry.

Scenario Definition ^

+

- AC
- PP
- BU

Import / Export

W3sic2hvcnQioiJBQyIsIr

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

Measures

Dimension
 Measures +

Members +

budget OK

Input mode: Field / comma separated list (csv)

Properties with the CSV symbol allow the definition of settings on the graphomate property sheet in two variants. The mode can be changed by clicking on the CSV 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.
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 forecast values (FC) and two budget values (BU). 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: FC (field 1), FC (field 2), BU (field 3), BU (field 4)

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

Scenario Assignment

Scenarios 1 CSV

FC FC BU BU

Scenarios 2 CSV

PP,PP,PP,PP,

Scenarios 3 +

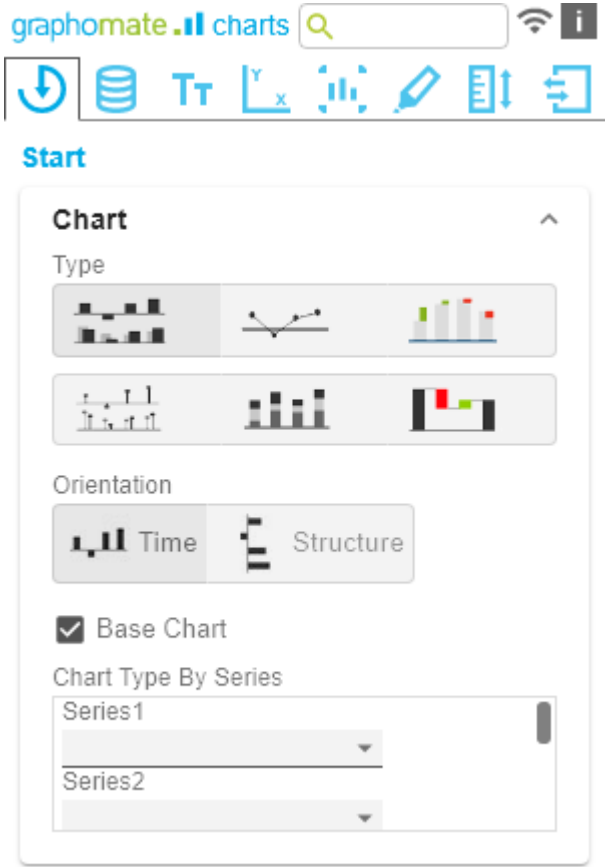
no items

Scenarios In Axis

Scenario Legend Enabled

Scenarios In Deviations

Start Tab

| | |
|---|---|
| <p>CHART</p> <p>Type</p> <p>You can select the desired diagram type by clicking on the corresponding icon.</p> <p>Orientation</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>Base Chart</p> <p>The Base Chart checkbox shows and hides the basic chart. This allows deviation charts to be used without basic charts.</p> <p>Chart Type By Series</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>The screenshot shows the 'Start' tab of the graphomate charts application. At the top, there is a search bar and a toolbar with icons for various chart types. Below the toolbar, the 'Start' configuration panel is visible. It includes a 'Chart' section with a 'Type' dropdown showing icons for Bar, Line, and Stacked charts. The 'Orientation' section has 'Time' and 'Structure' options. The 'Base Chart' checkbox is checked. The 'Chart Type By Series' section has dropdown menus for 'Series1' and 'Series2'.</p> |
| <p>DEVIATIONS</p> <p>Configuration</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>Configuration Pop-Up</p> <p>The checkbox <i>Enabled</i> sets the visibility of the selected deviation.</p> <ul style="list-style-type: none"> Label: Name the deviation. Type: Choose between <i>absolute</i> or <i>percentage</i> deviation. Minuend: The value to be used as a reference value. Subtrahend: The value that is checked to see how far it deviates from the reference value. | |

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).

Pin Line Black

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

Use Pin Head Color

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

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 for Scenarios

50

Pin Line Black

Use Pin Head Color

Pin Head Color

Pin Head Shape

circle

perc: Series1 - Series2 (perc)

Enable

Label

perc

Type

percent

Minuend

1

Subtrahend

2

OK

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*

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]

10

Spacing [px]

0

Space Proportion For Base Charts

2


Space Proportion For Deviation Charts

1









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.



graphomate.nl charts

  **Tt**      

Data

Data Selection ^

Series1  

Series2  

v

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.

Width can only be applied to column and bar charts.

Series

Styles

Series1
Series2
Series3

Import / Export

W3sic2hvcnQiOiJkZWZh

Element Offset

30

percent absolute

defaultSeries1

Color

#aaaaaa

Fill Type

Filled

Shape

circle

Width

40

percent absolute

Font Weight

normal

OK

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

- **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.

Scenario Definition

■ AC
■ PP
□ BU

Scenarios CSS Export

.graphomate-datatype: ^

■ AC

Identifier

AC

Color

● #222222

Fill Type

■ Filled

Shape

■ rect

Width

40

percent absolute

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.

Scenarios in Axis

If the checkbox is activated, the *scenarios* of the first data series are displayed in the axes if *Axis Thickness* is greater than or equal to 3 [px].

Scenario Legend Enabled

If the checkbox is activated, a legend with the respective scenarios is displayed in the diagram. These can be changed later directly in the diagram by the user via a dropdown menu.

Scenarios in Deviations

If the checkbox is activated, the scenarios are shown in the *deviations*.

Scenario Assignment ^

Scenarios 1 CSV

AC

Scenarios 2 CSV

Scenarios 3

▼

Scenarios by Series +

Scenarios In Axis

Scenario Legend Enabled

Scenarios In Deviations

SELECTION**Multi Selection**

This option allows multiple selection of chart elements. Use the left click to select an element. For the selection of several elements use the CTRL key additionally. As soon as one or more elements are selected, the remaining elements are displayed with reduced opacity. You determine the opacity with the option Fade Out Opacity.

Furthermore, the selection can be deselected by clicking on already selected elements.

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).

Selection
 Multi Selection

Fade Out Opacity

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**Context Menu**

- Context Menu Available
- Sorting
- Filters
- Context Sensitive Filters
- Filter and Hide
- Clear Filters
- Drilldown
- Drillup
- Zero Display
- Member Display
- Position for Totals
- Total Display
- Custom Event 1: Custom
- Custom Event 2: Custom

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.

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:



Labels

Value Format

Use Pre-Formatted Data

basic extended universal

Absolute Percent

Format String

0.0a 0.0%

Locale

en

Signed Labels

NULL Value Replacement

Infinity Replacement

∞

Zero Replacement

Suppress Zero Labels

- **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.

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

Absolute

Locale
en-US

Format Type
number

Abbreviations
auto

Negative Sign
minus

Prefix

Suffix

Thousand Separator

Decimal Separator

Total Digits (approx.)

Decimal Digits
1

Scaling Factor
1

Zero Format

Null Format

Infinity Format
∞

Rounding Method
commercial

Explicit Positive Sign

Description (optional)
Absolute

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

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.

Value Labels

Label Positioning

none fix auto

Collision Adjustment [px]

2

Background

Background Color

#ffffff

Visible Element Labels

- Series1
- Series2
- Series3

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 %

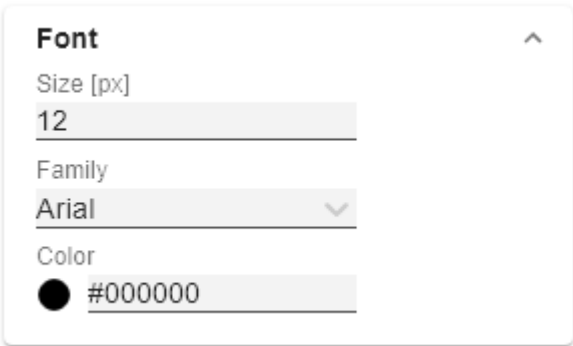
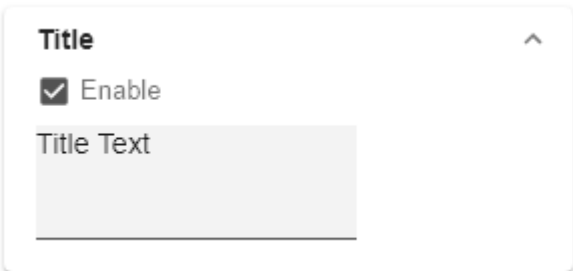

Determines how much values must deviate from their neighbors to be considered a local minimum/maximum.

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 Peak...

| | |
|--|--|
| <p>FONT</p> <p>Size [px]</p> <p>This property determines the font size in pixel.</p> <p>Family</p> <p>Define the global font. You can choose between <i>Arial</i>, <i>Tahoma</i>, <i>Lucida Console</i>, <i>Verdana</i> and <i>Calibri</i> or type in the name of a font which is installed on your system.</p> <p>Color</p> <p>This property determines the font color as HEX code. Alternatively, the Color Picker can be used.</p> |  |
| <p>TITLE</p> <p>Title Text</p> <p>You can enter a <i>title</i> for the diagram here. If the checkbox is activated, the title is displayed. Multiple-line texts are reproduced accordingly, i.e. the line break is adopted.</p> |  |
| <p>SERIES LABELS</p> <p>Left/Top</p> <p>Activate the checkboxes to display the data label on the left /top of the data series.</p> <p>Right/Bottom</p> <p>Activate the checkboxes to display the data label on the right/bottom of the data series.</p> <p>Series Label</p> <p>Enter the desired labeling of a series manually.</p> <p>Max Series Labels Width [px]</p> <p>Maximum width of the data series labels, up to where the <i>p adding</i> is scaled. If this value is exceeded, the labels are cut off.</p> |  |

| | |
|--|--|
| <p>CATEGORY LABELS</p> <p>Enable</p> <p>Max Width [px]</p> <p>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. <i>Max Category Label Width</i> can only be set in <i>Structure Mode</i> and with deactivated hierarchical labels (<i>Hierarchical Label Display</i> set to <i>false</i>).</p> <p>Suppress Repetition</p> <p>Controls line by line (level x) whether repetitive category labels should be suppressed or displayed.</p> <p>Hierarchical Label Display</p> <p>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 <i>Structure Mode</i>.</p> <p>Line Break Category Labels</p> <p>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.</p> <p>Category Label Rotation [degree]</p> <p>Specifies the angle by which the category labels are rotated. The rotation is counterclockwise.</p> <p>Selected Members in Categories</p> <p>Specifies whether the members of selected measures should be displayed as a supplement in the category labels.</p> <p>Selected Measures in Categories</p> <p>Specifies whether the selected measures should be displayed as a supplement in the category labels.</p> | <div style="border: 1px solid #ccc; padding: 10px;"> <p>Category Labels ^</p> <p><input checked="" type="checkbox"/> Enable</p> <p>Max Width [px]</p> <p>0</p> <p>Suppress Repetition +</p> <div style="border: 1px solid #ccc; padding: 5px;"> <p><input type="checkbox"/> Level 1</p> <p><input checked="" type="checkbox"/> Level 2</p> <p><input type="checkbox"/> Level 3</p> </div> <p><input type="checkbox"/> Hierarchical Label Display</p> <p>Line Break Category Labels</p> <p>Category Label Rotation [degree]</p> <p>0</p> <p><input type="checkbox"/> Selected Members In Categories</p> <p><input type="checkbox"/> Selected Measures In Categories</p> </div> |
|--|--|

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

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.

Define the number format using the following options:

Tooltips
 Enable

- **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

Negative Sign
minus

Prefix

Suffix

Thousand Separator

Decimal Separator

Total Digits (approx.)

Decimal Digits
1

Scaling Factor
1

Zero Format

Null Format

Infinity Format
∞

Rounding Method
commercial

Explicit Positive Sign

Description (optional)
Absolute

OK

Axes Tab

CATEGORIES

Category Axis

Use this box to control the visibility of the Category Axis.

Axis Thickness [px]

Define the thickness of the category axis in pixels.

Category Width is Fixed

When the property is activated, a fixed width of a category is reserved.

Category Width [px]

Defines the *category width* for the property *Category Width is Fixed* in [px].

Category Count

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.

graphomate .ll charts

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🔄
🗄️
Tt
y
x
📊
✎
📄
📏

Axes

Categories ^

Category Axis

Axis Thickness [px]

3

Category Width Is Fixed

Category Width [px]

50

Category Count

0

VALUE AXIS**Enable**

(De)Activate the visibility of the value axis using the *Enable* option.

Flip Value Axis

Switches the value axis to the other side. (right/left or up/down)

Value Axis Tick Distance

The distance between the ticks of the value axis. This is a guide value. The ticks are always positioned on "even" values.

Force Tick Interval

If *Force Tick Interval* is active, the axis ticks are displayed exactly in the entered interval.

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).

Value Axis Enable Flip Values Axis

Value Axis Tick Distance

50

 Force Tick Interval Value Axis Show Helplines

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.

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 Separators 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

None

Length [px]
10

Thickness [px]
1

Separators in Front









Color
● #333333

Source For Separator Derivation
1

Manual Separator Positions +

Position 1
0

Chart Specific Tab

| | |
|---|---|
| <p>BAR CHART</p> <p>Ending Line Visible</p> <p>The checkbox (de)activates the ending lines in the bar or column chart.</p> <p>Ending Line Overlap [px]</p> <p>The value overlap of the KPI ending lines in [px] right and left above the bar.</p> <p>Ending Line Thickness</p> <p>Define the thickness of the ending lines in [px].</p> <p>Ending Line Color</p> <p>Specify the color value of the KPI ending lines.</p> | <div data-bbox="873 365 1474 478"><p>graphomate .ll charts <input type="text"/></p><p>       </p></div> <h3>Chart Specific</h3> <div data-bbox="889 548 1458 940"><p>Bar Chart ^</p><p><input type="checkbox"/> Ending Line Visible</p><p>Ending Line Overlap [px] 6</p><p>Ending Line Thickness [px] 1</p><p>Ending Line Color ● #000000</p></div> |
|---|---|

WATERFALL CHART

Determine the colors of the waterfall elements - corresponding to the *calculation path*.

Calculation Path

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.

possible calculation options:

- " " does not apply special formatting (*space*)
- + Inflow (*Plus*)
- - Outflow (*Minus*)
- = Subtotals (*Sum*)
- "0" neutral position (*Neutral*)
- s+ positive margin (*Span Plus*)
- s- negative margin (*Span Minus*)

Waterfall Colors

Set color values for the different calculation options using the Color Picker or a HEX code.

Please note that the use of scenarios overrides this formatting.

Waterfall Chart

Calculation Path csv

Plus Color

#d8d8d8

Minus Color

#6e6e6e

Sum Color

#2e2e2e

Neutral Color

#2e2e2e

Span Plus Color

#2e2e2e

Span Minus Color

#2e2e2e

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.

Line Chart

Line Dot Radius X

10

Line Dot Radius Y

10

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

percent absolute

Pin Head Radius X

4

percent absolute

Pin Head Radius Y

4

percent absolute

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.
- *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*.

Stacked Bar Chart

regular

Bar Width

50

percent absolute

 Stacked Bar Sums Visible

Stacked bar label position

middle 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.

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



Emphasis

Reference Lines

Configuration

no items

: 100 (Threshold)

Enable

Line Label

Line Type

Threshold

Line Base

100

Line Size [px]

1

Line Color

#333333

Line Style

solid

OK

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.

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).

Highlight ^

none single multi

Percent Label

Absolute Label

Highlight ^

none single multi

Start Series
1

End Series
1

Start Element
1

End Element
2

Percent Label

Absolute Label

Highlight ^

none single multi

Multi Highlights +

Series: 1 - 1 Element: 2 - 1

Percent Label

Absolute Label

| | |
|---|--|
| | <p>Series: 1 - 1 Element: 2 - 1</p> <p>Start Series 1</p> <p>End Series 1</p> <p>Start Element 1</p> <p>End Element 2</p> <p>OK</p> |
| <p>HIGHLIGHT GROUP</p> <p>Enable</p> <p>To assign elements to each other, activate the Highlight Group.</p> <p>Match Measures</p> <p>If this option is activated, the measures of the dimension are considered in addition to the member combination.</p> <p>Color</p> <p>Determines in which colour the Highlight Group should be displayed.</p> | <p>Highlight Group</p> <p><input type="checkbox"/> Enable</p> <p><input type="checkbox"/> Match Measures</p> <p>Color</p> <p><input checked="" type="radio"/> #24bbe9</p> |

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

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

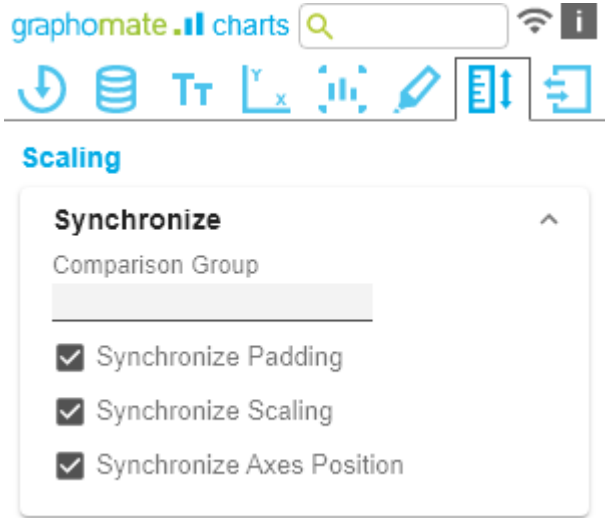
User Highlight 1

User Highlight 1

| | |
|---------------|---|
| Series Index | 1 |
| Element Index | 1 |

OK

Scaling Tab

| | |
|--|--|
| <p>SYNCHRONIZE</p> <p>Comparison Group</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. 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="border: 1px solid red; padding: 10px; margin: 10px 0;"> <p>Dies Funktion wird nur von folgenden Umgebungen unterstützt:</p> <ul style="list-style-type: none"> ▪ Microsoft Excel ▪ SAP Analytics Cloud ▪ SAP Lumira Designer </div> <p>Synchronize Padding</p> <p>Specifies whether the padding should be taken from the Comparison Group or whether it should be determined independently for the diagram.</p> <p>Synchronize Scaling</p> <p>Specifies whether the scaling should be taken from the Comparison Group or whether it should be determined independently for the diagram.</p> <p>Synchronize Axes Position</p> <p>Specifies whether the axis positions should be taken from the Comparison Group or whether they should be determined independently for the chart.</p> |  <p>graphomate .ll charts</p> <p>Scaling</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> |
|--|--|

SCALING

The default setting automatic scales the diagram according to the Min and Max values from all data to be displayed.

Alternatively, you can manually set min/max scaling values for absolute and percentage values under manual. Chart min values > "0" intersect the value axis.

Scaling

automatic manual

Manual Scale Max

150

Manual Scale Min

-150

Manual Scale Percent Max

20

Manual Scale Percent Min

-20

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

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.

Outliers

Use Outlier Threshold

short long

Size [px]

7

Positive Threshold

100

Negative Threshold

-100

Positive Threshold Percent

10

Negative Threshold Percent

-10

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

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

100

Line Color

● #333333

Bar Line Width [px]

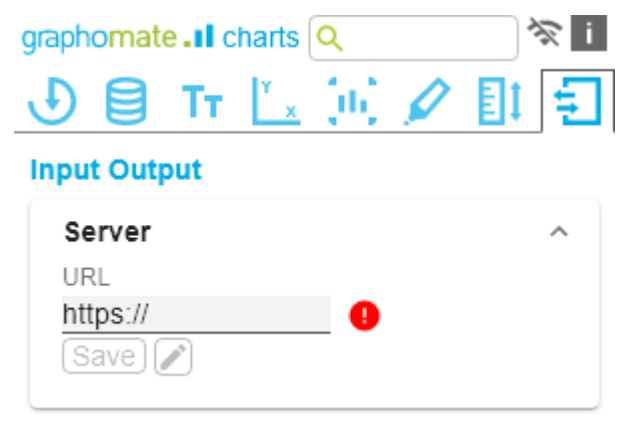












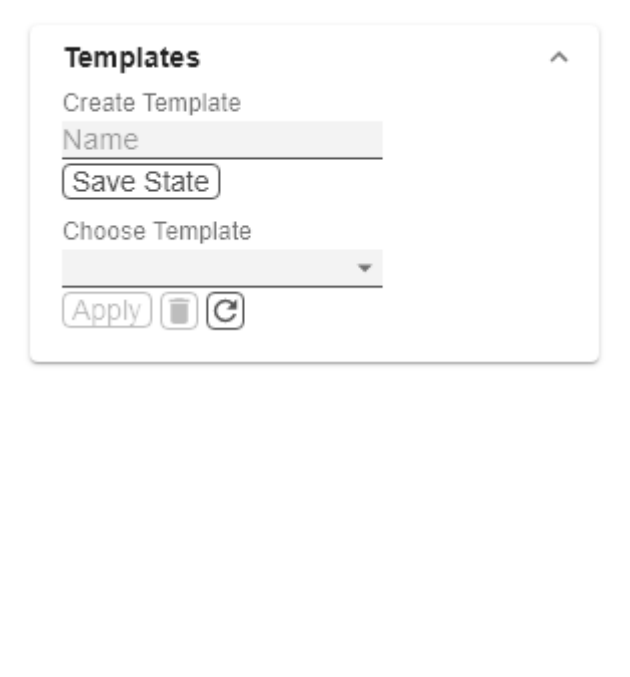


2

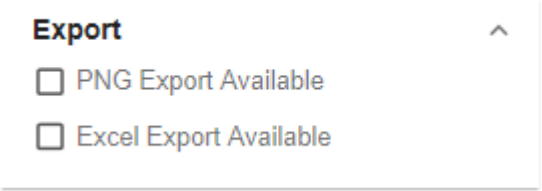
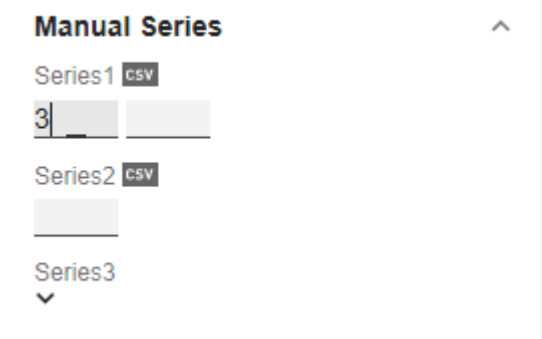
Area Color

● #faedb8

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>graphomate .ll charts <input type="text"/>  </p> <p>       </p> <p>Input Output</p> <p>Server ^</p> <p>URL</p> <p>https:// </p> <p><input type="button" value="Save"/> </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.</p> <p>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>Templates ^</p> <p>Create Template</p> <p>Name <input type="text"/></p> <p><input type="button" value="Save State"/></p> <p>Choose Template</p> <p><input type="text" value=""/></p> <p><input type="button" value="Apply"/>  </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 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.</p> <p><i>Excel Export Available</i></p> <p>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 <i>ctrl+a</i>) and then copying to the clipboard manually (by clicking <i>ctrl+c</i>). After this you will be able to import the chart in Microsoft Excel (using the <i>Import Chart</i>-button) as long as you have installed <i>the graphomate charts for Excel</i> Add-in</p> |  <p>Export ^</p> <p><input type="checkbox"/> PNG Export Available</p> <p><input type="checkbox"/> Excel Export Available</p> |
| <p>MANUAL SERIES</p> <p>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.</p> |  <p>Manual Series ^</p> <p>Series1 CSV</p> <p>3</p> <p>Series2 CSV</p> <p></p> <p>Series3</p> <p>▼</p> |

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.

Manual Categories ^

Level 1

Level 2

Level 3

Level 1

Level 1

+

Element 1

Element 2

OK

Series1.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 on select 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

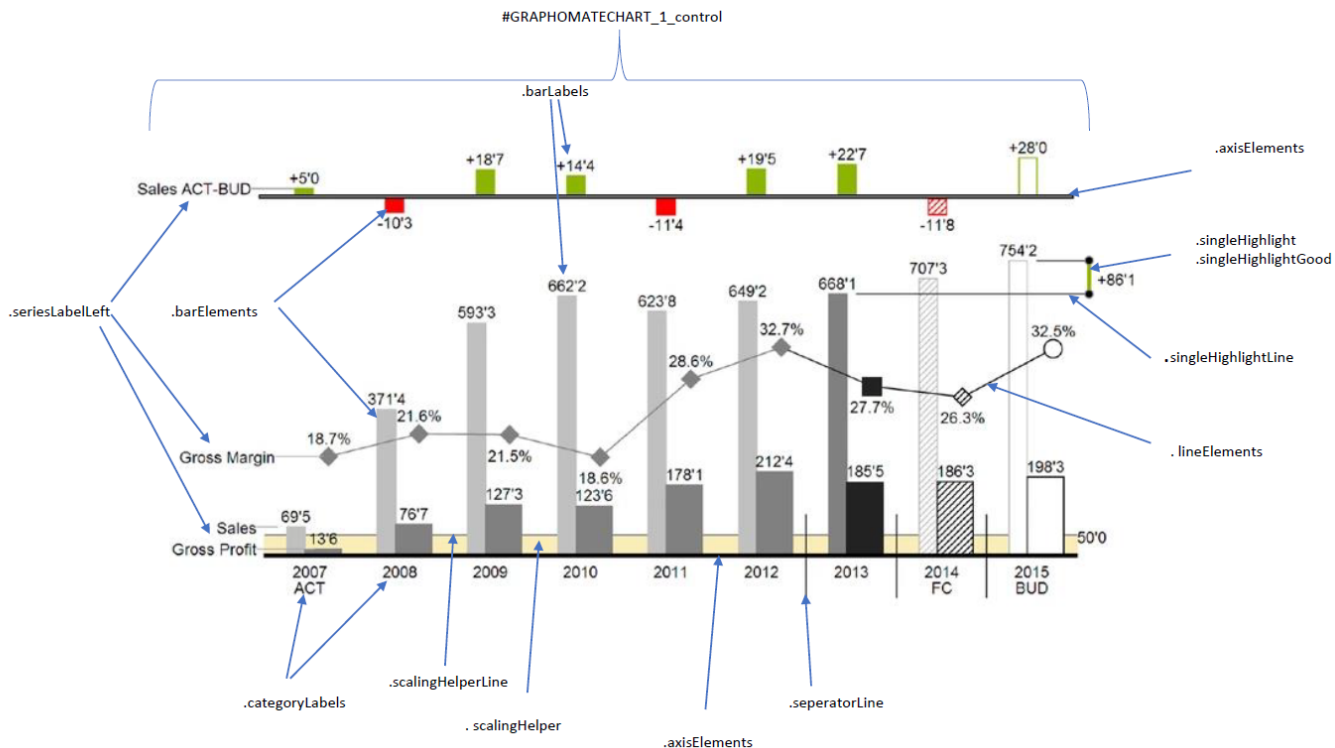
- *Data Series Width* in the *Data Series Style Editor* is, at the moment, only possible for bar/column charts. Please use the parameter *Bar Width* in the properties for waterfall, stacked and offset bar charts. Also the *Width* of the *Data Types* cannot be used for waterfall and stacked bar charts.
- *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)

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;
}

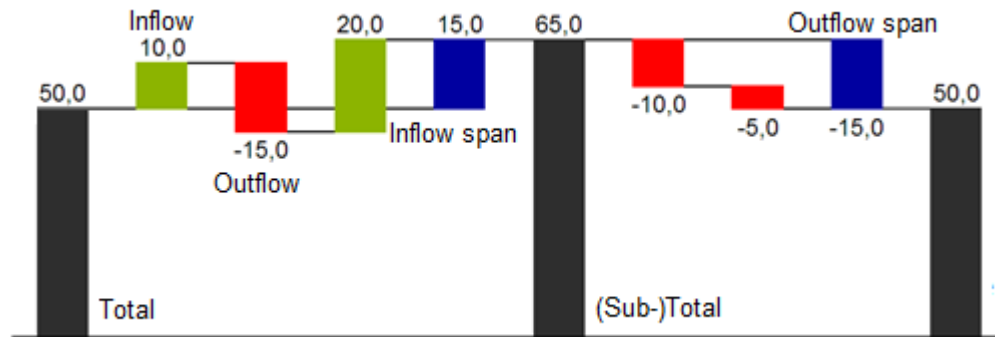
.barElements {
    stroke: red;
}
```

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

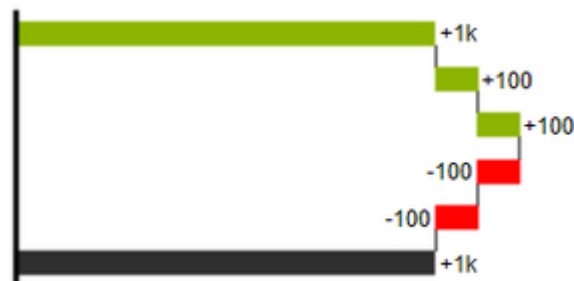
A waterfall chart – often also called a flying bricks chart – shows how an initial value is increased (inflow) or decreased (outflow) by a series of values, which lead to a final value – if necessary with subtotals and spans.



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.

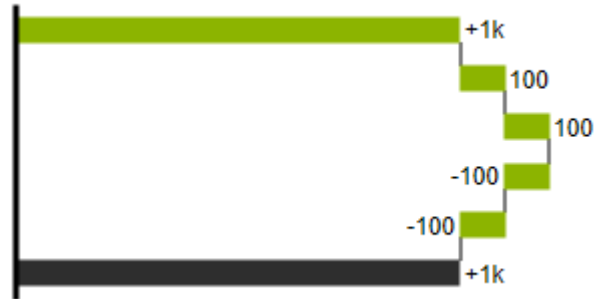
In case of using *Data Types* the colors of the *Data Types* overwrite the color scheme of the *Appearance* tab.

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:

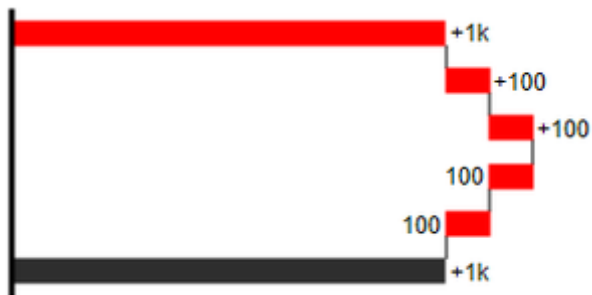


+=inflow

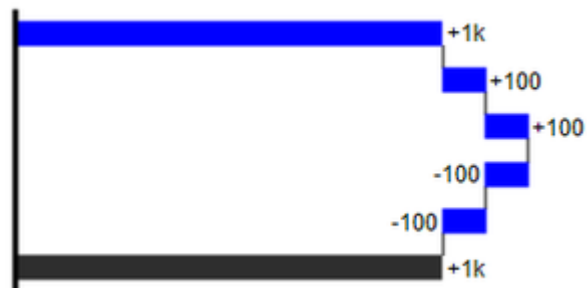
Positive signs are suppressed, the **+**-color is applied to the elements.

**-=outflow**

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

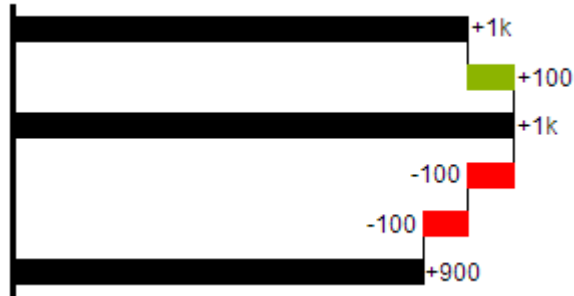
**0 =neutral position**

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.

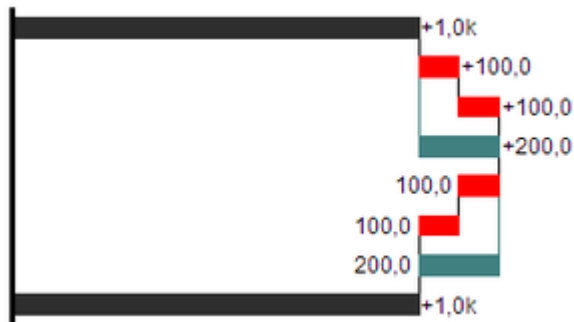


s-=outflow span

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.

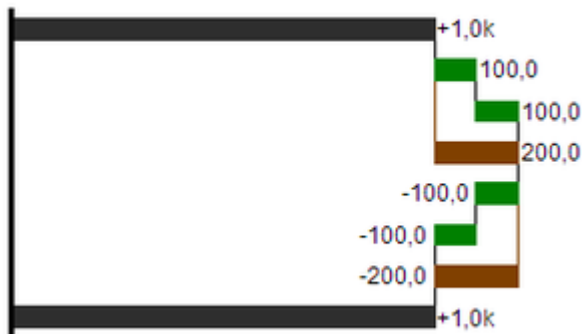
Corresponding to outflow elements (see above) negative signs are suppressed and the (s)-color is applied to the elements.



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.



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.

