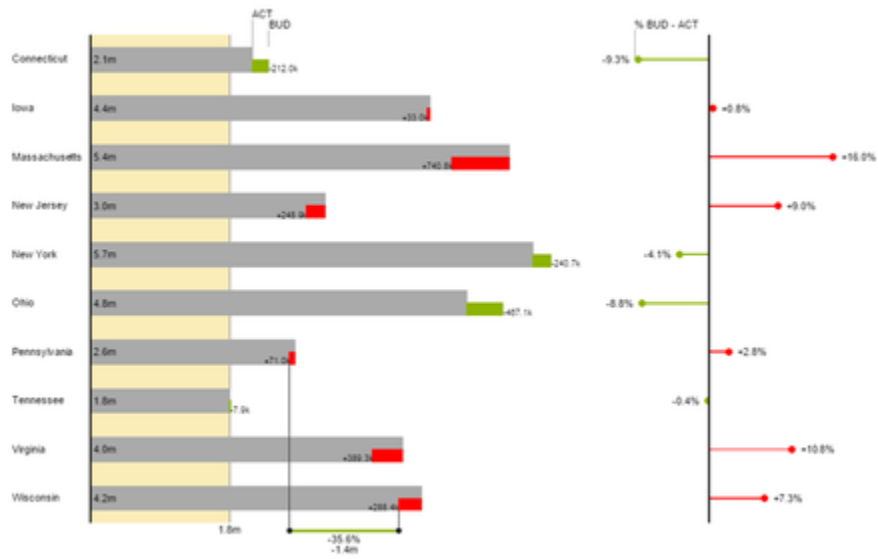


User Manual for the graphomate charts for SAP Lumira



Version 1.4 - as of January 2017

<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.

The *graphomate charts for Lumira* for SAP Lumira Desktop und BI Platform follow the rules for a meaningful information design. It is a ported version of our *graphomate charts* extension for SAP Business Objects Design Studio.

The *graphomate charts for Lumira* extension needs **SAP Lumira 1.30**.

Introductory Examples

Chart Types

graphomate charts for Lumira 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:

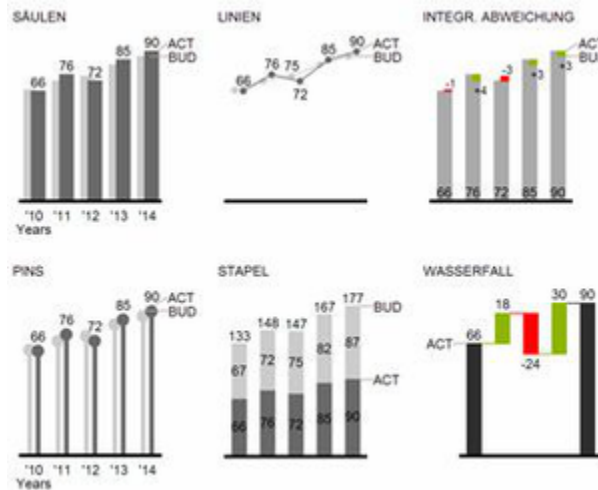


Fig. 1 Visualization of development over time

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:

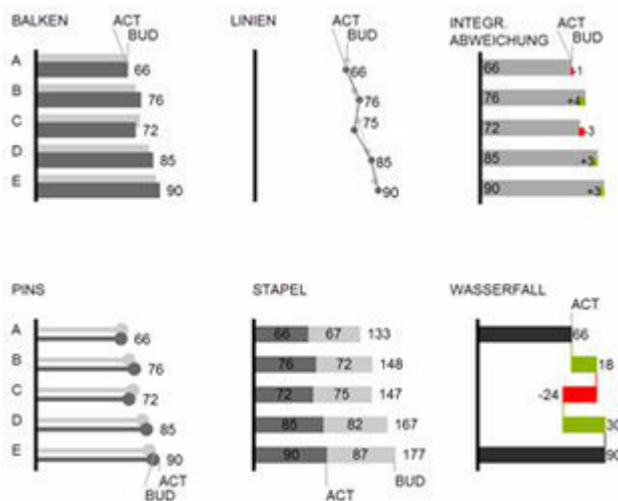


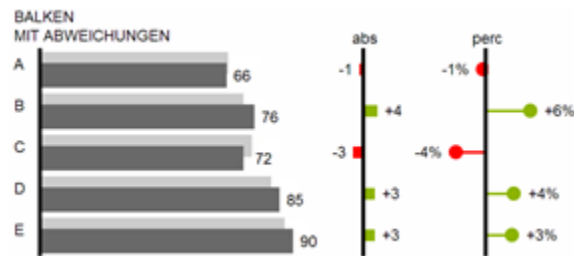
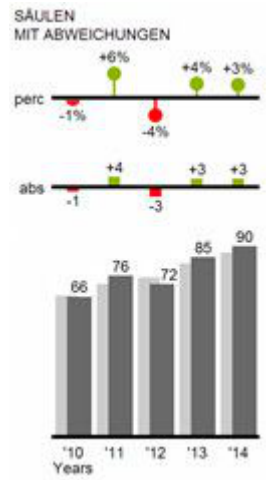
Fig. 2: Visualization of hierarchies

All charts can 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 6 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.

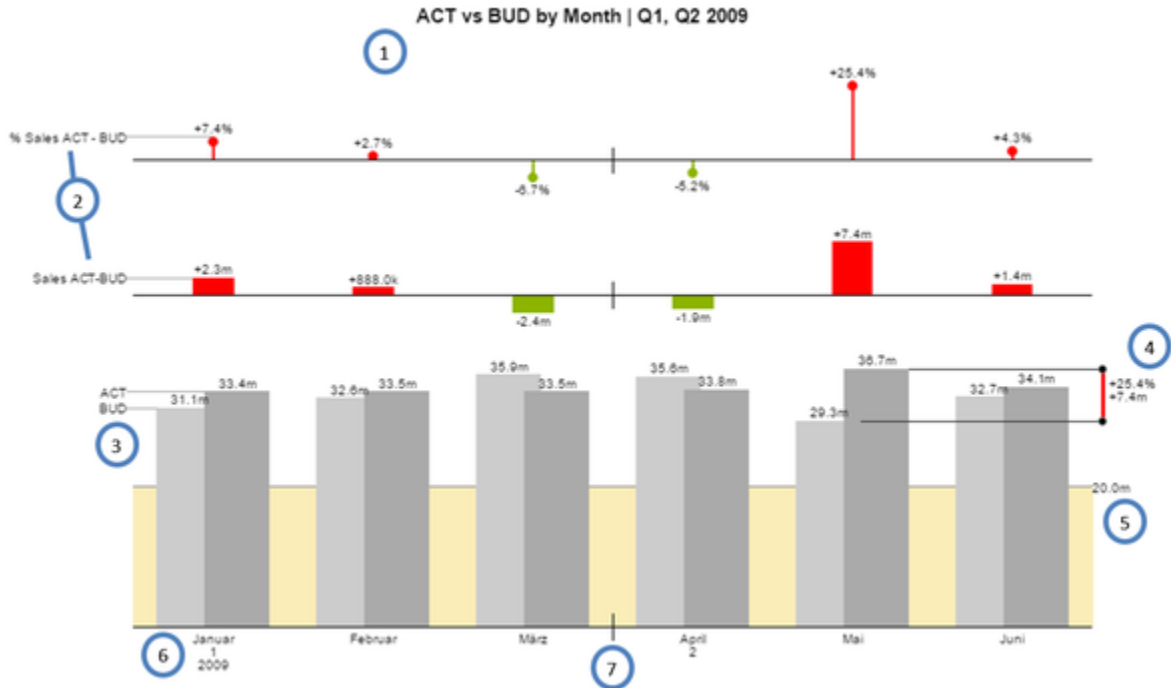
Deviation Axes

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.



Overview of all visual elements

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



Overview of visual objects of the graphomate charts

1. *Chart title* provided by Lumira
2. Percentage and absolute deviation between data series with data series labels.
3. Column chart with two data series (-labels). The color of each series can be configured separately.
4. Emphasize the difference between two elements with the function *Highlight*.
5. Scaling helper shows different scales of charts or marks specific thresholds.
6. Multi-line axes labels are automatically copied from the source data.
7. 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* 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 add deviation axes and to use the waterfall horizontally or vertically, just like all other charts.

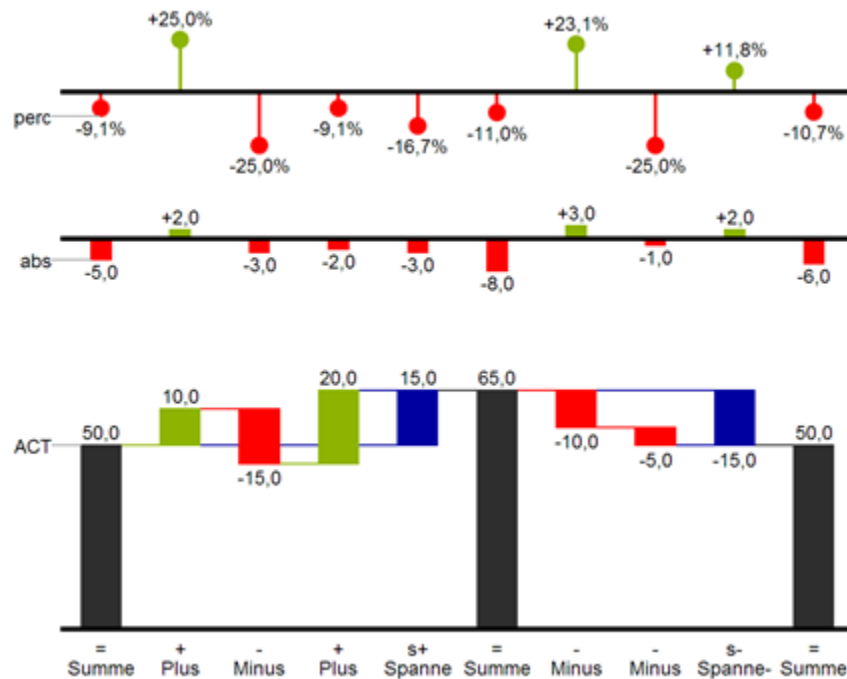


Fig.8: Waterfall chart showing the option for the calculation path

In Fig. 8 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:

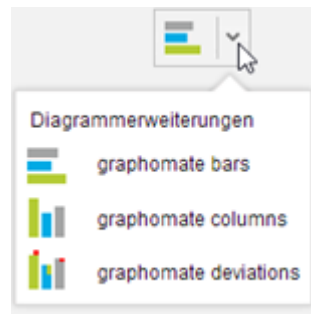
Function	Sign	Display
(Sub-)Total	=	Value is shown beginning at the axis.
Inflow	+	Increase of previous value and data label on the element.
Outflow	-	Decrease of previous value and data label on the element.
Inflow Span	s+	Positive overall change based on a totals item.
Outflow Span	s-	Negative overall 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

Lumira Desktop

SAP Lumira 1.30 offers an Extension Manager to simplify the installation process of extensions.

1. This Extension Manager can be found under the menu item *File extensions*.
2. In the Extension Manager click on *Manual Installation* and select the downloaded file *graphomate_charts_free_1.4.xx-LM1.30.zip*.
The installation files are installed in the directory: C:\Users\<>username>\.sapvi\extensions.
3. After restarting SAP Lumira you find the installed components under Chart Extensions the chart picker.



BI Platform

You have installed Lumira Server for BI Platform 1.30 or higher on your server.

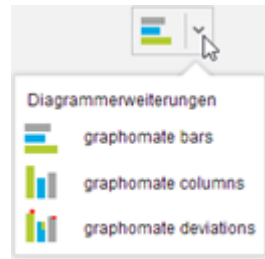
1. Save the zip-file *graphomate_charts_1.4.X.X-LM1.30* to a folder of your choice.
2. Navigate to *CMC Applications SAPLumira* and select *Extensions* from the context menu.
3. Follow the instructions to load the zip file.
4. After restarting your Application Processing Servers and the Lumira Server the extension should be listed under *CMC Applications SAPLumira Extensions*.

Now all uploaded Lumira documents should display the graphomate charts correctly.

Quickstart

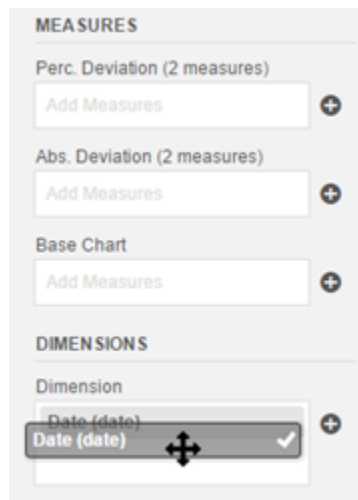
You have acquired a data source and now want to depict *Data Series* with *graphomate charts for Lumira*.

1. Choose the preferred extension component from chart picker.



2. Once you have selected one of our chart components four so-called feeds appear, which can be filled by drag-and-drop with measures and dimensions. These feeds are arranged in the same order as they are presented on the canvas.

The final feed *dimension* is used to select a dimension that applies to both the *Base Chart* as well as the *Deviation* charts. Drag-and-drop one or more dimensions in this feed



There are three feeds in *Measures* category:

- The feed *base chart* is used to show measures. Simply add measures to the feed via drag-and-drop. Once you have assigned one or more measures, the *base chart* is drawn. The number of data series, which can be represented in the base chart, is limited to six.
- The feed *Abs. Deviation* is the basis for the absolute deviation chart, which is drawn above or to the right of the *base chart*. At this point two key figures must be entered to allow a meaningful deviation to be calculated. The order of the measures in the feed determines the difference calculation using the following formula: 1st measure - 2nd measure

$$\left(\left(\frac{(1. Kennzahl - 2. Kennzahl)}{abs(2. Kennzahl)} \right) * 100 \right)$$

-


The Feed *Perc. Deviation* is the basis for the percentage deviation chart. The percent deviation are calculated as follows:



In this way you will get, for example, the following diagram:



The names of the measures and dimensions in the feeds are taken as keys for the axes. We recommend to use the shortest possible names for reasons of space here. Absolute deviations are of course identically scaled to the base chart. Outlier triangles are used to represent very large deviations, if there is not enough space available.

Properties

The features of a *graphomate charts for Lumira* entity can be maintained by the storyboards property sheet. Once you have selected a chart in story board a property sheet appears. It enables you to browse the editable properties, grouped in five tabs. The *Checkboxes* next to the features in the property sheet are used to control the visibility of chart elements or to turn a feature on and off. Colored buttons  depict the currently selected color for the belonging feature. A click on this button will open a color picker to determine a new appearance.

<p>General Tab</p>	
<p>Labels</p> <p>The General Tab enables you to edit three types of labels. Their visibility can be adjusted in <i>helper tab</i>. The <i>percentage deviation label</i> addresses the percentage deviation chart and the <i>absolute deviation label</i> inscribes the absolute deviation chart. In the third text field you can enter a label for the base chart.</p>	<p>Labels</p> <p>Perc. Deviation Label <input type="text" value="% Sales ACT - BUD"/></p> <p>Abs. Deviation Label <input type="text" value="Sales ACT-BUD"/></p> <p>Base Chart Axis Label <input type="text" value="Sales ACT & BUD"/></p>
<p>Appearance Tab</p>	
<p>Labels</p> <p>Set the font size, the font family and the font color for labels in the chart</p> <p>Element Labels</p> <p>If the <i>Checkbox</i> is activated, all elements of the chart will be labeled. The toggle buttons <i>Fix/Auto</i> determines the visibility of the labels:</p> <ul style="list-style-type: none"> • <i>Fix</i> - Data labels are always visible. • <i>Auto</i> - Labels are hidden or moved in case of overlaps. <p>Moreover the <i>Appearance Tab</i> enables you to set the format of absolute and percentage values according to guidelines of numeral.js.</p> <p><i>Locale</i> sets the label country format. <i>De, fr, en</i> and <i>auto</i> are available options. By choosing <i>auto</i> the <i>Locale</i> will be retrieved from the Lumira preferences.</p>	<p>Labels</p> <p>Font Size <input type="text" value="10"/></p> <p>Font Family <input type="text" value="Arial"/></p> <p>Font Color <input type="color" value="black"/></p> <hr/> <p><input checked="" type="checkbox"/> Element Labels</p> <p><input checked="" type="button" value="Auto"/> <input type="button" value="Fix"/></p> <p>Value Format</p> <p>Percentage <input type="text" value="0.00%"/></p> <p>Absolute <input type="text" value="0.0a"/></p> <p><small>Format according to numeral.js</small></p> <p>Locale <input type="text" value="auto"/></p>

Deviations

Set the colors for deviations. If positive deviations between measures and base values are not regarded as positive, for example for comparisons of actual vs. budget costs, activate the *Checkbox Invert*.

Outlier Mode

Choose the appearance of the outliers here. In the mode *Short* the outliers are shown as small triangles on the axis. In the mode *Long* they are drawn over the entire available area – according to the rules by IBCS.

Series Styles

In this editor the appearance of the data series is determined. You can set a color for each series.

Waterfall Styles

If using a waterfall chart, the colors of the elements of a waterfall can be set here - corresponding to the calculation path.

Deviations

Good ■

Bad ■

Invert

Outlier Mode

Short Long

Series Styles

Series 1

Series 2

Series 3

Series 4

Series 5

Series 6

[▲ less](#)

Waterfall Styles

+

-

0

=

S+

S-

[▲ less](#)

Behaviour Tab



Scaling

Several charts can be scaled identically by using the same *Comparison Group*, which is activated by the checkbox and selected by the toggle buttons.

Padding and Spacing

Padding in [px] gives a margin to the chart. *Spacing* also in [px] denotes the space between base and deviation chart.

Category Axis

Activate the *Checkbox* to show the category axis. *Size* defines the thickness of the axis in [px].

With *Category Width/Height* the width of a category section can be defined as *Fix* in [px] or automatically set with *Auto*.

The parameter *Element Offset* determines the shift of elements on the *Category Axis*. Using the toggle button *%/abs* allows you to set the value in percent or absolute in [px]. Use negative values for a shift in the opposite direction.

Waterfall Calculation Path

To use a waterfall flexibly, it must be first determined whether the value to be displayed is either a total or an in- or outflow using an additional *Data Series*. This is carried out by using our so-called *Waterfall Calculation Path* (see input options on the right).

Suppress Zero Labels

If the *Checkbox* is activated, the labels of zero values are hidden – both in the *Base Chart* and in the deviation charts.

Helper Tab

Series and Axislabels

Scaling

Comparison Group

A

B

C

D

Padding

Spacing

Show Category Axis

Size

Category Height

auto

fix

Element Offset

%

abs

Waterfall Calculation Path

- „=“ (Zwischen-)Summe
- „^“ Standard
- „+“ Zufluss
- „-“ Abfluss
- „S+“ positive Spanne
- „S-“ negative Spanne
- „()“ neutrale Position

Vgl. Erläuterungen im Anhang

Suppress Zero Labels



Activate the Checkboxes to show the data label on the data series or the axis. The chart will use the labels defined in the general tab

Highlight

This function enables you to highlight the absolute and percentage difference between two elements. Activate the *Checkbox* and set an index for elements and series where the highlighting should start and end.

Value Axis

Activate the *Checkbox Value Axis* to show value axes and help lines according to the interval.

Separators

You have the option to set so-called *Separators* in the chart. These can be set automatically in case of *varying Categories*, or they can be set *Manually* – according to the selected toggle button.

- *Categories* - *Source Row* determines the category row index according to which hierarchy level the *Separators* are shown.
- *Manual* - The input field *Separator Positions* takes a list of comma separated position indexes which generates *Separators* at the corresponding position on the category axis.

Furthermore, you can define the *Length*, *Thickness* and *Color* of the *Separators* in [px].

Scaling Helper

Activate the appearance – line or area – and the position (*value*) of the *Scaling Helper* at this point. It will mark specific threshold in the chart and helps to understand the magnitude of values from charts with different scaling, if applied on both charts.

Series Labels

Left

Right

Axis Labels

Left

Right

Highlight

Start Element

End Element

Start Series

End Series

Value Axis

Interval

Separators

Source Row

Length

Thickness

Color

Separators

Separator Positions




Length

Thickness

Color

Scaling Helper

Value

Info Tab	
<p>Here you can find the version number of our <i>graphomate charts for Lumira</i> as well as a link where you may report bugs or propose wishes for new features.</p> <p>A list of all open-source libraries that we used can be found under <i>Credits</i>.</p>	 <hr/> <p>graphomate charts 0.9.2.2-LM1.29</p> <hr/> <p>Please use this link to submit errors or ideas for improvement.</p> <p>The General Terms of Licence and Maintaining of the graphomate GmbH apply.</p> <p>© 2015 graphomate GmbH, D-Kiel, www.graphomate.com</p> <hr/> <p>Credits </p> <ul style="list-style-type: none">jQueryD3.jsNumeral.jsUnderscore.js <p>▲ less</p>

Known Issues

- The *graphomate charts for Lumira* won't be displayed correctly in exported PDF files, if dynamic data refresh is activated for the corresponding Story. This option can be adjusted by switching off the toggle *show latest data* in the *Page Setting* of your Story Page.
- Changing the virtual resolution of your Story in *Page Settings* to extremely high or low values sometimes results in rendering inaccuracies. For instance this affects the automatic suppression of colliding element labels. At this point we recommend a resolution with a story width of 900px to 1300px.
- A *Comparison Group* containing charts of different orientation (structural and temporal) causes a change in their size. In this case the scaling is still correct, but the size of the chart may vary. This issue won't be fixed because the *Comparison Group* isn't meant to scale charts of different orientations.
- The BI Mobile App does currently not support Lumira extensions. This is a limitation of the extension sdk.

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:

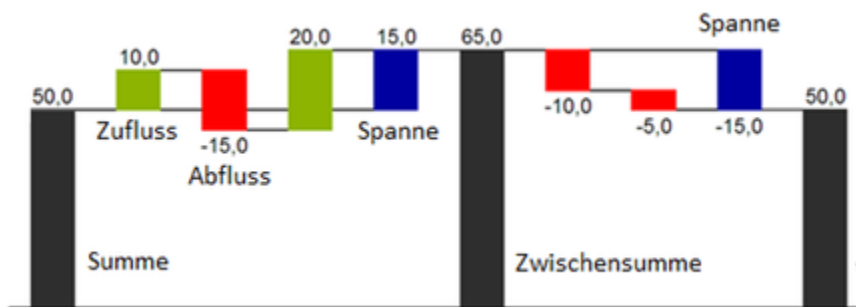
Negative|Prefix|Thousands|Decimal|Scaling|PointsAfterDecimal|Suffix

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.

Appendix

The 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

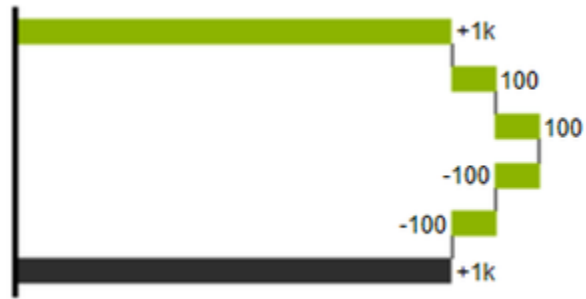
and colored according to the color scheme on the *Appearance* tab.

Currently SAP Lumira (v. 1.31) automatically applies a sorting on the data series. Unfortunately this feature can't be switched off and results in the fact that you can't display your data in the same order it had in the original data source. In case of using a structural orientated waterfall chart you could include the positional information as a prefix in the category names (eg. A_logCosts, B_admCosts, C...) to achieve the preferred order by sorting them alphabetically. As an alternative solution you could create a custom hierarchy with an additional level that holds positional information.

By defining the *Waterfall Calculation Path* the appearance and the sign of each waterfall element can be controlled independently. The following options can be used:

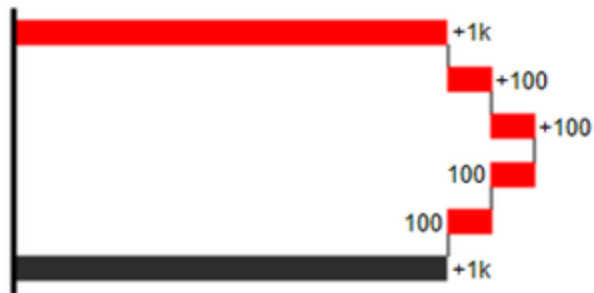
+ = inflow

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



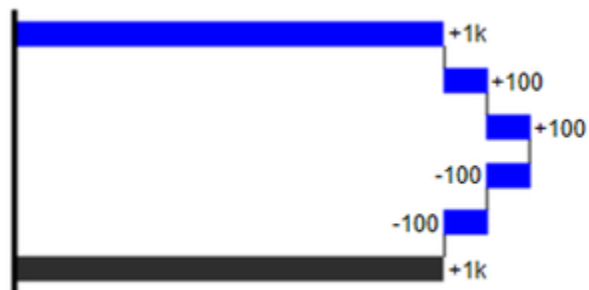
- = outflow

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



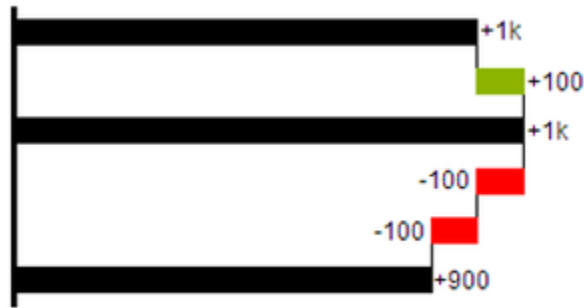
0 = neutral position

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.



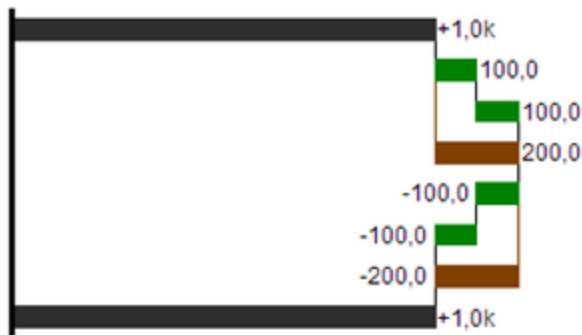
s- = outflow span

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.



Please note:

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.

