User Manual for the graphomate tiles 2.0

for SAP BusinessObjects Design Studio

Rev 2.0 as of August 2017

https://www.graphomate.com

graphomate .1l
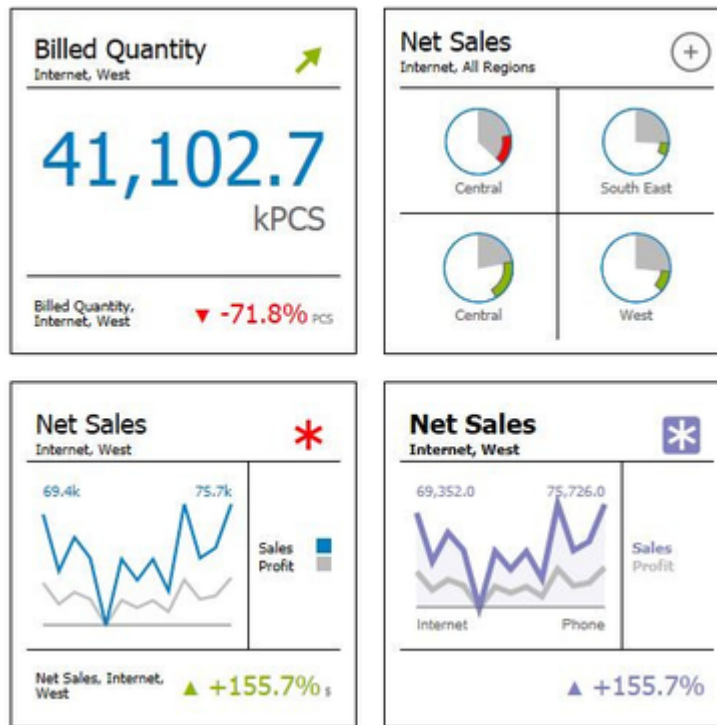
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Introduction

With the introduction of Windows 8 Microsoft relies on the tiles concept for structured visualization of programs, apps and information on the home screen. Even SAP has taken up this idea, and with SAP Fiori, they have created a simple user interface that is build on this tile concept - adapted to the needs of operational business applications.

It was therefore obvious for us to develop a tile solution for Business Intelligence (BI) – the more so as our customers have signalled a demand. They wanted a start screen for dashboards that clearly represents the key performance indicators (KPIs).

From this highly aggregated view the user should jump – in terms of a pre-defined navigation path – on graphical overviews or detailed table views created with our *graphomate charts* and *graphomate tables* – see Figure below – from starting point to detail

After a first gathering of the customer requirements pertaining to a tile solution it was obvious that there is no single tile that can be used for all purposes: too different were the demands on the visual requirements. The solution had to be a modular construction kit, which allows users to combine different tile modules on a pre-defined layout.

The question remained how to create a uniform design of these modules and the whole tile. Here we were able to draw on the great work of John Armitage: his design proposals for analytical tiles were our aesthetic standard for a consistent style. His book "Bringing Numbers to Life: Lava and Design-Led Innovation in Visual Analytics" should be published in Q1 2016.

> In the sense of a uniform language regulation we speak in the further manual of Lumira Designer or briefly designer. Our products are still compatible with SAP Design Studio 1.6.

For our *graphomate tiles* extension Design Studio 1.6 SP00 or higher or Lumira Designer >= 2.0 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 from 2017, we will no longer support Internet Explorer 9 and 10.

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.

Local installation of the extension to Designer

You have installed Designer 2.0 SP00+ on your computer.

1. Save the zipfile *graphomate_tiles2.0.x.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 tiles 2.0.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 tiles* from the BI platform.

1. Choose in the BI Platform Mode *Tools > Platform Extensions.*
2. Select the extension *graphomate tiles* 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 tiles.*
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* tiles 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 and now want to depict Data Series from this query with modules of the *graphomat e tiles*.

1. Drag the component *graphomate tiles* to the canvas and bind the Data Source to this component via drag&drop. Unfortunately, it is only possible to assign one Data Source per tile (as for all Designer components).

2. Now you can configure your tile on the *General/Layout* tab: To do this, first select a layout and afterwards choose the desired modules and drag and drop them to the Builder. The properties for each module are then generated in the background. You can adjust the properties on the next tab *Modules.*

3. There you can select via Display Dimensions which dimensions and measures from the data source should be displayed in the modules. This option is strongly related to the chosen module (some modules do not require the visual display of dimensions).

4. Via the *Appearance* tab you determine the comprehensive number format for the tile.

Properties

Basically, you have two ways in which to change the properties of *graphomate tiles*:
Using the *Standard Properties Sheet*, that shows all the parameters in a structured list or via the *Additional Properties Sheet*. The latter offers a more user-friendly Interface.
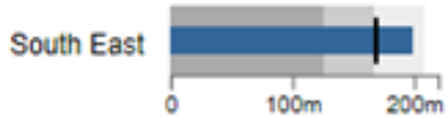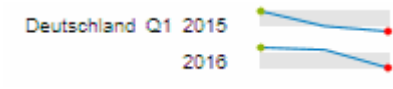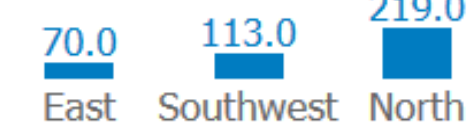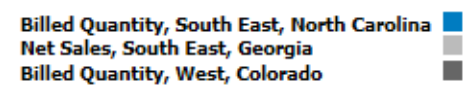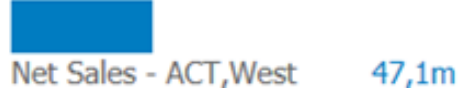
The check boxes ☑ in front of properties in the *Additional Properties Sheet* are used to control the visibility of elements and activation of functions. The data source to be used can only be assigned via Drag&Drop to the component or to the *Standard Properties Sheet* under *Data Binding*.

> By pressing the *F5* key, both the range of characters as well as the *Additional Properties Sheet* can be reinitialized. This is sometimes necessary when changes in the properties are not adopted directly in the character range.

General/Layout Tab

Modules

Here you can see a list of all currently available modules that can be used to design your tiles. The range of modules is constantly growing with new releases of the graphomate tiles. A detailed guidance on each module and its options can be found in the description of the Modules tab.

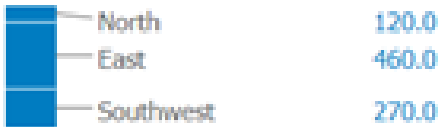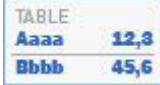|		
The Lines Module visualizes trends and thresholds with two lines.	LINES	
The Bullet Graphs Module shows up to five bullet graphs after Stephen Few's concept.	BULLET GRAPHS	South East
With the Pies Module you can visualize percentages and a deviation in a pie chart.	PIES	23,449.0 7,885.0 +1,380.0 Deutschland, Q1, 2015
The Sparklines Module displays up to ten small, individually scaled line charts.	SPARKLINES	Deutschland Q1 2015 2016
The Title Module allows a data-driven definition of two title lines and an icon.	TITLE TITLE Subtitle	New Title New Subtitle
The Column Module shows up to three columns with data labels.	COLUMNS	70.0 113.0 219.0 East Southwest North
The Footer shows a measure with labels in one line.	FOOTER DATE 12,3	Net Sales - ACT, West 47,1m $
The KPI Module visualizes a measure as large number.	KPI 12,3	147,8m $
The Legend Module shows up to three items for a color-based legend.	LEGEND Aaaa Bbbb	Billed Quantity, South East, North Carolina Net Sales, South East, Georgia Billed Quantity, West, Colorado
The Bars Module shows zeigt analogoug to the Columns Module up to three bars with data labels.	BARS	Net Sales - ACT,West 47,1m

The Stacked Column Module shows a data series as a stacked chart.	STACKED COLS Aaaa Bbbb	North 120.0 East 460.0 Southwest 270.0
The Table Module displays texts and figures in form of a list.	TABLE Aaaa 12,3 Bbbb 45,6	Net Sales/Virginia 4,005,923.0 Billed Quantity/Virginia 3,616,662.0
The Waffles Module displays up to two data series as a segmented bar chart.	WAFFLES	Absatz Kosten
The Icon Module displays a single icon.	ICON INFO *	
The Text Module displays up to three lines of fully HTML capable text.	TEXT Aaaa Bbbbbb	Net Sales, South East, Florida 4,376,319.0 $

This switch can be used to select the face of the tile to be configured. Each face has its own configuration. This extends to modules, databinding, layout as well as layout options. However, only a single data source is permitted per tile.	Data Front Back
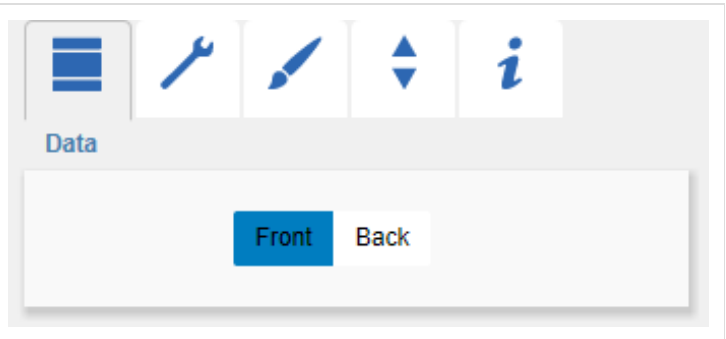
Builder

Via mouse click you can choose from currently 24 different layouts that consist of up to three lines and two columns. To set a certain layout just click on the little grey icon; it then turns blue and the available layout slots are displayed beneath.

Then simply drag one of the modules above to the desired row or column of the Builder and drop it there.

According to the selected module, data connection and available options are generated in the background and displayed on the Modules tab.

Please bear in mind that Design Studio allows only one data source per tile.

Already selected modules can be moved within the *Layout Builder* via drag and drop. Assigned data and other settings are retained.

Modules can be deleted using the button with the little x in the top right corner of the module icons.
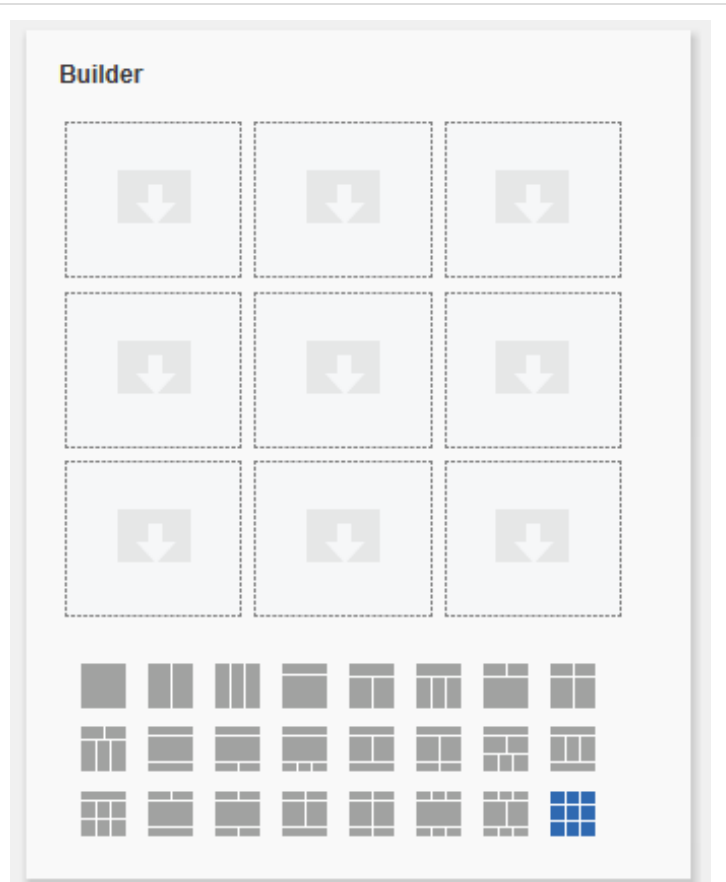
Layout Display Options

Depending on the chosen layout different options are available here.

For example, the height ratio of the rows to each other can be adjusted. (A selection of 1:1:1 results in identical heights of the three rows).)

For layouts that contain more than one column, there is also the option to adjust the width ratio of the columns to each other. (A selcection of 1:1 results in identical widths of the two columns.)

The option *Show Divider Lines* activates thin dividing lines between the rows of the layout.

Adjust the thickness of these dividing lines via *Divider Thickness*.

Padding allows you to set a uniform distance that affects each individual module (green highlight in the figure on the right shows the default setting of 5 pixels). The Padding at this point has no effect on the dividing lines; for this use the Component Padding on the Appearance tab (blue highlight).

Internet
Deviation Act. / Bud. in $

192.521,0   232.502,0

Net Sales   119.005.872,0 $

Modules Tab

On this tab, data from the chosen data source can be assigned to the selected modules. The contents of this tab is generated from the modules chosen on the *Layout* tab.

Due to the dynamic nature of the tiles, the available script commands to control the behavior of the modules are generated only after the module selection.

The script commands can be found by clicking on the icon. A popup will appear from which the available commands can be marked and copied with the mouse. Clicking in the Additional Property Sheet outside the popup will let it vanish.

```
Scripting for this module:

  .setSelection('dataSingleCell1',
  '{"Keyfigures": "OD_NWI_IQTY",
  "OD_NWI_CHAN": "4"}ᵀ);

  .setSelection('dataSingleCell2',
  '{"Keyfigures": "OD_NWI_IQTY",
  "OD_NWI_CHAN": "4"}ᵀ);

  .setModuleProperty(1, 'measureDisplay',
  '[Measure|Measure as
  Percent|Deviation|Deviation as Percent]');

  .setModuleProperty(1, 'maxFontSize',
  '100');

  .setModuleProperty(1, 'increaseIsGood',
  'true');

  .setModuleProperty(1, 'showUnits',
  'true');

  .setModuleProperty(1, 'showScalingFactor',
  'true');

  .setModuleProperty(1, 'metadataBelow',
  'true');
```

With a click on , you can select data from the data source to be used with the module. A click on will delete the selection.

Measure	Kennzahlen: Net Sales, Region Code: South East, Area Code: Mississippi (dataSingleCell2)

To easily identify the assigned data property, its name is displayed in brackets after the dimensions of the current selection (e. g. dataSingleCell2).

By clicking on Select , you can choose the Display Dimensions from the metadata to be used in the module.

In certain modules (e. g. Title Module, Footer Module), these can be addressed via a set of wildcards. The following wildcards are available:

[DIMENSIONS] – shows all dimensions

[DIMENSIONn] – shows the n-th dimension (up to DIMENSION6)

[SCALE] – shows the scaling factor

[UNIT] – shows the unit

[VALUE] – shows the value of a single data cell

Display-Dimensions   All   Select

Title	[DIMENSIONS]
Subtitle	[DIMENSION1] in [SCALE][UNIT]

Net Sales - ACT, West
Net Sales - ACT in k$

Bar Module
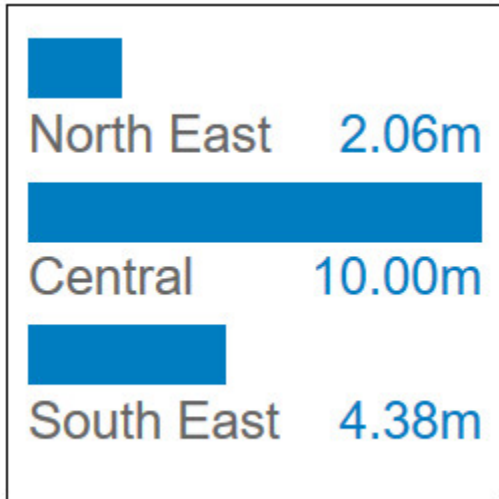
Use the *Bar Module* to display up to three different measures including category labels and values. The categories displayed correspond to the selected Display Dimensions.

Max. Bar Height and *Max. Label Height* govern the behavior of the module when the tile is resized; bars and labels will scale up to the determined heights in pixels

If the option *Absolute Label Height* is activated, the labels do not scale with the size of the tiles; instead the entry in Max. Label Height is used as the font size.

Scaling Helper will display a help line at the specifiied Scaling Helper Value.

Bullet Graph Module
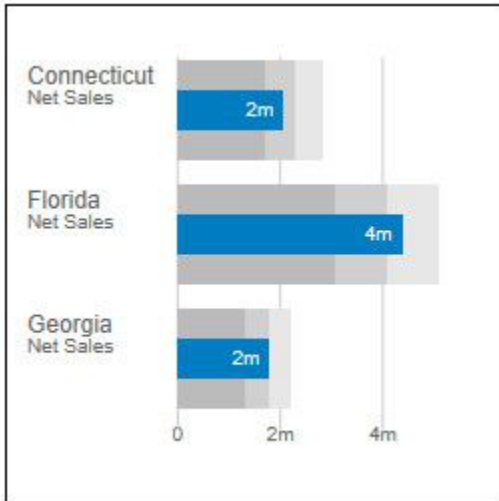
The *Bullet Graph Module* corresponds to our graphomate bullet graphs extension. It is based on Stephen Few's conceptual considerations regarding the display of KPIs.

A detailed description of all parameters would go beyond the scope of this chapter. We'd like to refer you to the full documentation of the graphomate bullet graphs here: de/en.

The following options specifically apply to the graphomate tiles:

The option *Start Element* determines the first element in the assigned data series to be displayed.

The dropdown box *Number of Elements* governs the number of bullet graphs to be displayed.

With the checkbox *Display Category Labels*, the headers can either be shown or hidden.

Suppress Sums excludes all sums from the selected data series.
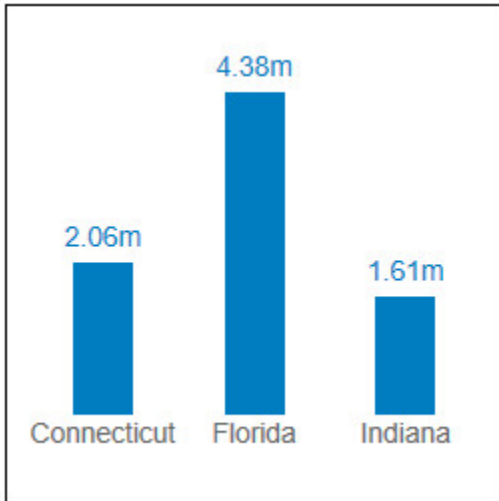
Column Module

Use the *Column Module* to display up to three different measures including category labels and values. The categories displayed correspond to the selected Display Dimensions.

Max. Column Height and *Max. Label Height* govern the behavior of the module when the tile is resized; bars and labels will scale up to the determined heights in pixels

If the option *Absolute Label Height* is activated, the labels do not scale with the size of the tiles; instead the entry in Max. Label Height is used as the font size.

Checking *Scaling Helper* will display a help line at the specifiied *Scaling Helper Value*.

Footer KPI Module

Net Sales, California   ▲ +27.8% $

This module is used to display a single KPI (Measure) together with its metadata

If an accompanying *Comparative Measure* is chosen, the deviation between these two can be displayed, either as absolute value or percentage. This can be set with the *Value Display* option.

You can also use the manual input of values (*Manual Measure* and *Manual Comparative Measure*); these fields override the values from the data assignment.

The input in *Text Input* is shown in front of the measure. The metadata from the data source can be inserted in the text fields with wildcards (see page 10); by default all dimensions are displayed in this module.

The checkbox *Increase is Good* governs whether positive deviations will be displayed in red or green.

Show Units, and *Show Scaling Factor* will display or hide unit or scaling factor from the data source.

▼ 1. Footer KPI Module

Scripting Options </>!

Display-Dimensions All   Select

Measure   (dataSingleCell3)   ... X

Comparative   (dataSingleCell2)   ... X
Meas.

Manual Measure

Manual Comp. Measure

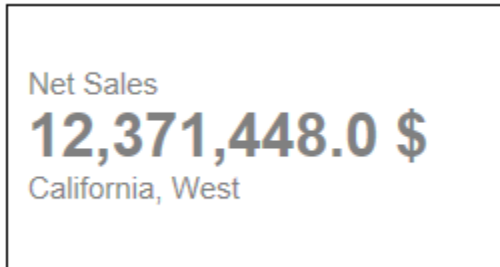Text Input   [DIMENSIONS]

Value Display   Measure ⌄

☑ Increase Is Good

☑ Units

☑ Scaling Factor

Free Text Module

Net Sales
12,371,448.0 $
California, West

The Free Text Module shows up to three lines of plain text. Wildcards can be used to extract and display metadata. All three text lines support HTML formatting.

The input boxes *Text Line x* take one line of text each.

Fontsizes per row can be adjusted with the properties *Fontsize Line x*.

For bold formatting, the checkbox *Bold Titles* needs to be activated.

If the checkbox *Wrap Texts* is activated, texts exceeding the space limit will be wrapped, resulting in several lines of texts. Otherwise, they will be abbreviated with "...".

The dropdown boxes *Vertical Position* and *Horizontal Position* influence the positioning of the text lines within the module.

▼ **1. Free Text Module**

Scripting Options </>!

Display-Dimensions All   **Select**

Metadata   (dataSingleCell2)   **...** **x**

Text Line 1	First Line
Text Line 2	Second Line
Text Line 3	Third Line
Fontsize Line 1 (px)	15
Fontsize Line 2 (px)	15
Fontsize Line 3 (px)	15

☐ Bold Texts
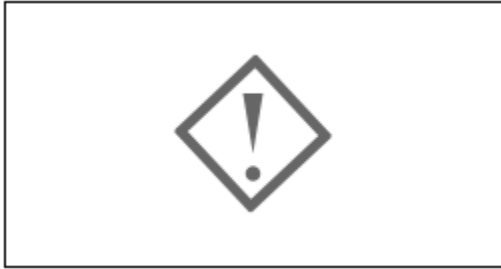☐ Wrap Texts

Vertical Position	Top ⌄
Horizontal Position	Left ⌄

Icon Module

The Icon Module can be used to depict a single icon. This can be chosen from 19 predefined SVG symbols or the full set of SAP UI5 icons.

Use the dropdown box *Icon* to choose the desired icon.

Icon Color governs whether one of the component-wide colors a an individually configurable color is used. If "Neutral Color" is chosen, the "Text Color 2" will be used.

The field *SAPUI5 Icon Id* allows to insert an icon of the *SAPUI5* library, for example, e00a for a synchronize button. To display the icon, select *SAP UI5 Icon* under *Icon* and write the Icon ID into the appropriate field.

Max. Size is the maximal size of the icon in px. If the slot is too small, the icon is reduced in size proportionally.

The dropdown boxes *Vertical Position* and *Horizont al Position* influence the positioning of the text lines within the module.

> In the icon explorer, the SAPUI5 icon ID could be shown with a prefix for hexadecimal encoding. The id needs to be entered without the prefix; please use e. g. "e00a" instead of "&#xe00a".

KPI Point Module

12.37m$

The *KPI Point Module* displays a single measure. The size of the number is scaled according to the available space.

The options correspond largely with those of the *Footer KPI Module* (see above); in addition, a *Max Font Size* can be set. The size of the displayed number will not exceed the determined font size.

The option *Metadata Below Value* allows to place the additional information below the value itself.

▾ 1. KPI Point Module

Scripting Options </>!

Display-Dimensions All		Select
Measure	(dataSingleCell2)	... X
Comparative Measure	(dataSingleCell3)	... X

Manual Measure	
Manual Comp. Measure	
Value Display	Measure ▾
Max Font Size (px)	100

☑ Increase Is Good
☑ Units
☑ Scaling Factor
☐ Metadata Below Value

Legend Module

The *Legend Module* can be used to display up to three keys together with the assigned colors.

The keys (*Entry 1 to 3*) can be either entered manually, or can be generated using the existing wildcards (see p. 10). If wildcards are used, it is necessary to assign data first, so metadata are available.

To hide a key, simply empty the input field.

The colors to be displayed can be defined either with the dropdown boxes *Color Key 1 to 3* (The colors themselves can be changed on the Appearance tab.). Alternatively you can choose own colors with the fields *Custom Color 1 to 3* (for these colors, choose *Custom Color* in the fields *Color Key*).

The checkbox *Bold Text* will format the keys in … well, bold.

The position of the colored squares can be determined with the option *Colored Boxes.* If *None* is selected, no squares are displayed, but the keys themselves are colored accordingly.
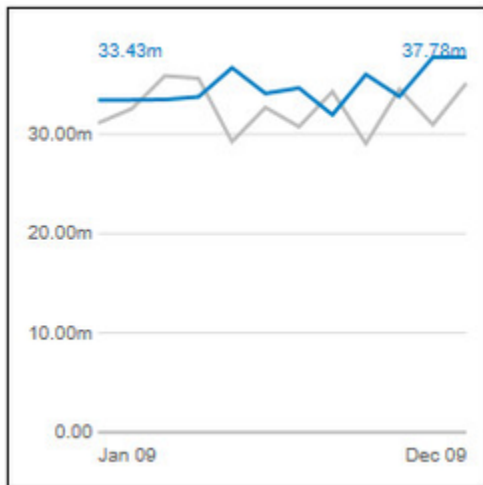
Line Chart Module

The *Line Chart Module* allows the display of two data series as lines and an additional *Fixed Value,* which can be used as threshold value.

The dropdown box *Threshold* governs which measure(s) will be used as threshold value. If a threshold is chosen, the difference area between *Primary Measure* and threshold will be displayed colored. Depending on the selection, either the differential area between *Primary Measure* and *Secondary Measure* or *Primary Measure* and *Fixed Value* is colored.

The thickness of all displayed lines can be changed with the option *Line Size.*

If the option *Threshold Excess is Good* is activated, and a *Threshold* is chosen, the positve difference area is displayed in green, otherwise in red.

The option *Display Primary Measure as Area* turns the chart into an area chart.

If activated, *Show Value Labels* displays the first and last value of the assigned *Primary Measure* at the start and end of the line chart.

Show Category Labels displays the selected dimensions below the axis; this options works analogous to Show Value Labels.

Show y-Axis displays a value axis on the left side of the line chart.

During runtime, *Show Click Handlers* displays small circles around possible jump points, when the mouse pointer hovers somewhere over the module.

Suppress Sums excludes all sums from the selected data series. As only one data source per tile is possible, this option can be useful if the sums are needed in another module, e. g. the *KPI Module.*

▼ **1. Line Chart Module**

Scripting Options </>!

Display-Dimensions All   **Select**

Primary   (dataCellList1)   ... X
Measure

Secondary   (dataCellList2)   ... X
Measure

Fixed Value   (dataSingleCell1)   ... X

    Threshold   None ▼
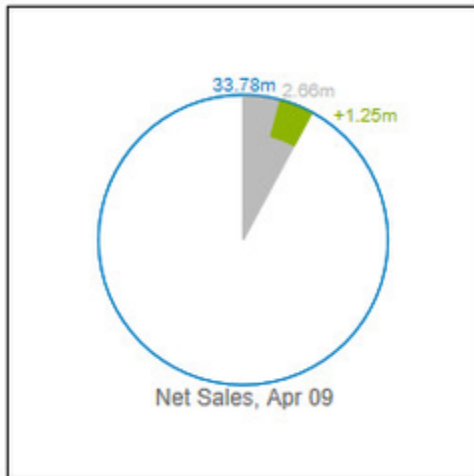
    Line Size (px)   2

☑ Threshold Excess is Good

☐ Primary Measure as Area

☑ Value Labels

☐ Category Labels

☐ Multi Line Category Labels

☐ Value Axis

☐ Visible Click Handlers

☐ Suppress Sums

Pie Module

The *Pie Module* displays a percentage including a deviation.

The value for the circle is assigned with the *Circle Data* option, *Arc Data* is used to assign the the comparative measure, which is displayed as circular segment. *Deviation Data* shows a value as deviation from the *Arc Data*.

The options *Display Category Labels* and *Display Values* can be used to enhance the graph with metadata from the data source (*Category Labels*) and exact values.

With the checkbox *Pos. Deviation is Good,* the interpretation of the deviation can be changed; this way, negative deviations can be displayed as positive.

▾ 1. Pie Module (Single)

Scripting Options </>!

Display-Dimensions All   Select

Circle Data   (dataSingleCell1)   ... X
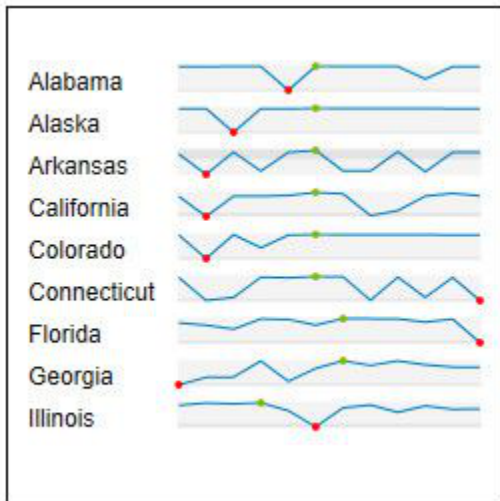
Arc Data   (dataSingleCell2)   ... X

Deviation Data (dataSingleCell3)   ... X

☑   Category Labels

☑   Value Labels

☑   Pos. Deviation is Good

Sparklines Module

The *Sparklines Module* largely corresponds to our *graphomate sparklines* component. It visualizes up to ten data series as "word-sized graphics". As per default, the *Sparklines Module* uses the full result set as data input; however, with the 🔵 button, a smaller selection can be made. Minimum and maximum in each sparkline are depicted as red/green dots. Each individual sparkline is scaled to its own minimum and maximum; the two grey bars in the background of the sparklines give orientation aid where the depicted data is located in the overall data set. In the example above, the data for Arkansas ist located in the upper third of the result set, whereas Alabama and Alaska are located near the bottom.

Number of Elements This options governs the number of lines of data that are used to generate sparklines.

The entry in *Start Element* governs the first element in the input data to be displayed. If e. g. a 5 is entered, the first sparkline is generated from the fifth line of data, lines 1 to 4 are left out.

With the option *Display Category Labels*, category labels in front of the sparklines can be toggled on or off.

Suppress sums excludes sums from the data to be displayed.

Data in Rows governs whether the input result set is interpreted in rows or columns.

Stacked Column Module
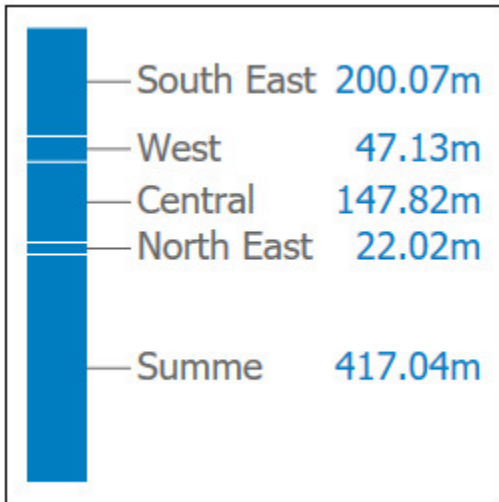
Use the *Stacked Column Module* to display a data series as a stacked chart. The categories displayed correspond to the selected *Display Dimensions.*

Column Width, Max. Label Height and *Absolute Label Height* work analogous to the *Columns* or *Bar Module.*

If the option *Graded Colors* is activated, the stack elements are no longer colored monochrome with white dividing lines, but as color gradations of *Data Color 1* (defined on the *Appearance Tab*).

If *Negative Stacks* is activated, and the connected data series contains negative values, these are sorted to be at the bottom of the stacked bar. In addition, a small indicator is displayed at the baseline.

Table Module

Alabama	$ 316.76k
Alaska	488.50k
Arkansas	113.21m
California	12.37m
Colorado	675.17k
Connecticut	2.06m
Florida	4.38m
Georgia	1.79m

The *Table Module* can be used to display several measures in a tabular form, either as absolute values or percentage.

Color Display governs the text color of the table.

The option *Start Element* can be used to determine the first element in the data series to be displayed. If e. g. a 5 is entered, the table starts with the 5th element in the data series; elements 1 to 4 are skipped.

Number of Elements narrows the displayed elements to the number entered.

With *Max. Font Size,* the maximal font size is determined; up to this value (in pixels), the text will scale with the tile.

If the options *Show Units* or *Show Scaling Factor* are active, the table will show these preceding the first value, provided they are contained in the data source.

For ease of reading, the option *Alternating Background Color* can be used to toggle light-grey bars in the background of every other line.

▼ 1. Table Module

Scripting Options 🔲❗

Display-Dimensions All   **Select**

Values   (dataCellList2)   **...** **X**

Value Display	Measure ∨
Color Display	Data Color 1 ∨
Start Element	1
Number of Elements	5
Max Font Size (px)	12

☐ Units

☐ Scaling Factor

☐ Alternating Background Color

Title Module

The *Title Module* is text component with either one or two rows, and an optional icon.

As described above, the metadata from the data source can be inserted in the text fields with wildcards; alternatively, the texts can be entered manually.

For bold formatting, the checkbox *Bold Titles* needs to be activated.

If the option *Absolute Label Height* is activated, both lines of text use the global fontsizes (Appearance Tab). If the option is deactivated, the text size is scaled down if necessary.

The Icons to be displayed in the right of the module, as well as their color, can be set either manually or via scripting. To choose manually, select the desired icon from the dropdown box. The size of the displayed icons scales with the font sizes of title and subtitle. These can be set in the *Appearance tab*.

The field *SAPUI5 Icon Id* allows to insert an icon of the *SAPUI5* library, for example, e00a for a synchronize button. To display the icon, select *SAP UI5 Icon* under *Icon* and copy the Icon ID into the appropriate field.

> If *Absolute Label Height* is deactivated, the option *Wrap Title* is ignored; also, inline HTML tags will not be interpreted.

> In the icon explorer, the SAPUI5 icon ID could be shown with a prefix for hexadecimal encoding. The id needs to be entered without the prefix; please use e. g. "e00a" instead of "&#xe00a".

Waffle Module
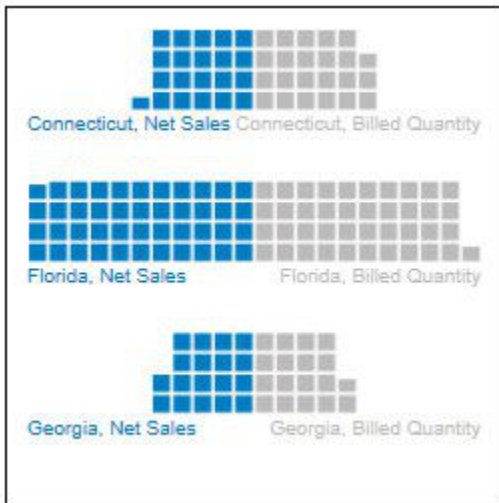
The *Waffle Module* depicts up to two data series as segmented stacked bars ("waffles").

The option *Display Values* toggles the display of the underlying values.

With *Display Category Labels*, category labels can be toggled on or off.

Number of Elements This options governs the number of lines of data that are used to generate waffle bars.

The entry in *Start Element* governs the first element in the input data to be displayed. If e. g. a 5 is entered, the first bar is generated from the fifth line of data, lines 1 to 4 are left out.

Suppress sums excludes sums from the data to be displayed.

The option *Axis Alignment* governs whether the bars are aligned with the left component border ("Leftbound"). If "Center" is chosen, the 0-axis is located in the center; in this case, the bars will be drawn from the center to the left and to the right.

With the option *Calculation Base,* the interpretation of the input data as either absolute or percentual is determined.

The value *Units per Box* is only used if "Absolute" is chosen as *Calculation Base*. It is used as calculation basis for a single box in the waffle pattern. If e. g. a value of 4500 is to be depicted, and 100 is specified as *Units per Box,* the bar will contain 45 little squares; an input of 1000 results in 4.5 squares.

The value in *Percent per Box* is applied if "Percentage" is chosen as *Calculation Base*. In this case, the sum of both data series for each pair of bars is interpreted as 100%; an input of 1 results in 100 boxes for both series, an input of 5 results in 20 boxes for both series.

▼ 1. Waffle Module

Scripting Options </>!

Display-Dimensions All — **Select**

Primary Measure (dataCellList2) — [...] [x]

Secondary Measure (dataCellList1) — [...] [x]

☐ Value Labels

☑ Category Labels

Number of Bars — 3

Start Index — 1

☐ Suppress Sums

Axis Alignment — Center

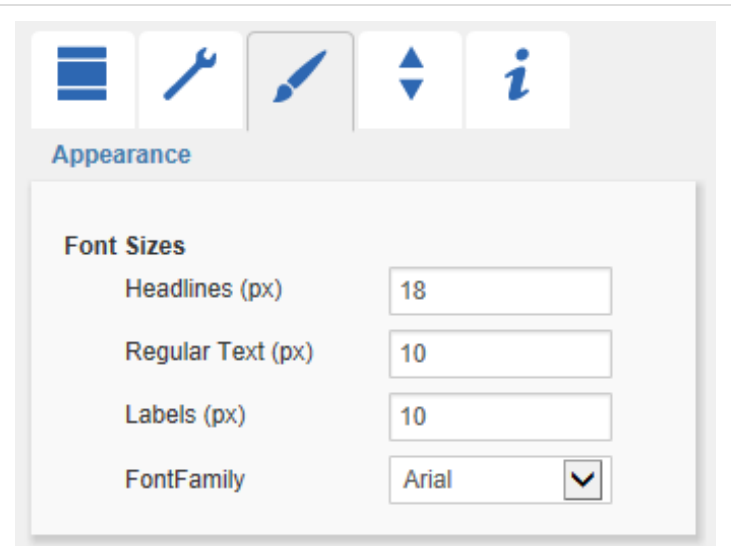Calculation Base — Absolute

Units per Box — 1

Percent per Box — 1

Appearance Tab

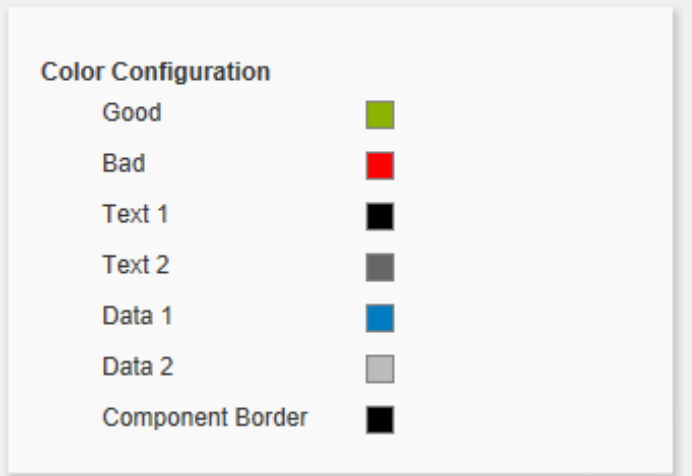|	
Font Sizes In this section, the *font sizes* used throughout the tiles component can be adjusted. All inputs are in pixels. Likewise, the *font family* can be changed here.	**Appearance** **Font Sizes** Headlines (px) — 18 Regular Text (px) — 10 Labels (px) — 10 FontFamily — Arial
Padding The padding defined here affects the space between the border of the overall component and the modules contained within (blue frame in the picture on the right). Thus, it also effects the divider lines between the modules. Individual module paddings can be adjusted on the *General/Layout* tab. **Border Size** This property governs the border size of the component. If a border size of 0 is specified, no border will be displayed.	Padding (px) — 10 Border Size (px) — 1
Grid The option *Snap to Grid* activates a grid function; if checked, the size of the drawing area can only be changed in the intervals determined in the Grid Size input field.	**Grid** ☐ Snap To Grid Grid Size (px) — 50

Color Configuration

The general color configuration is defined in this section. In this way, the consistent appearance of all modules in a given tile is ascertained. Adjustable are the colors for good and bad values, two text colors and two data colors as well as the color of the component border which also affects the slot divider lines.
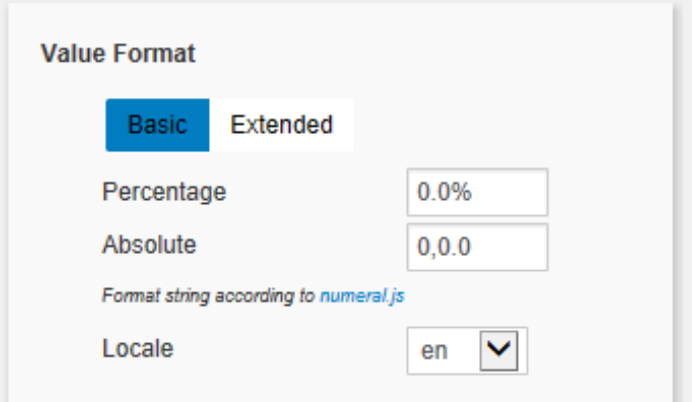
Color Configuration

Good	🟩
Bad	🟥
Text 1	⬛
Text 2	⬛
Data 1	🟦
Data 2	⬜
Component Border	⬛

Value Format

In this section, the format of all value labels is determined:

- *Basic*
  Here, you can change the presets for absolute and percentage value according to *numeral.js. Locale* changes the country setting. If set to *AUTO,* the country setting will be governed by the data source.

- *Extended*
  If a fixed format is desired for the value labels, this can be done with the extended number format. The resulting format string can be set via scripting as well. See Number Formatting

Value Format
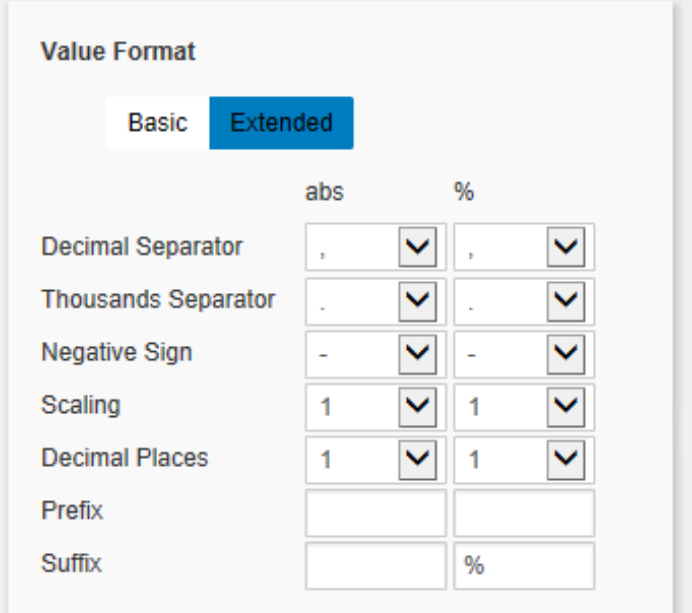
Basic	Extended

Percentage	0.0%
Absolute	0,0.0

Format string according to numeral.js

Locale	en

Value Format

Basic	Extended

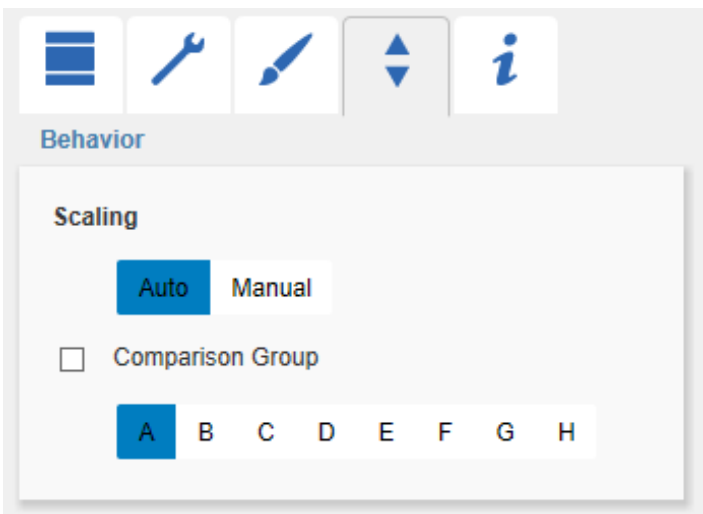|	abs	%
Decimal Separator	,	,
Thousands Separator	.	.
Negative Sign	-	-
Scaling	1	1
Decimal Places	1	1
Prefix		
Suffix		%

Behavior Tab

Scaling

In this section, the scaling mode can be changed. If set to Auto, each module will be scaled according to the minima and maxima of the selected module; scaling will usually start at 0. The setting Manual enables you to enter particular minimum and maximum values.

If the scaling is set to Auto, the tile can be registered in a Comparison Group by activating the checkbox. If active, the Comparison Group will govern scaling; all components within this comparison group will be scaled identically and an indicator of the comparison group is shown during design time.

Within the BIApp, comparison groups are used globally, i. e. graphomate tables, graphomate charts and graphomate bulletgraphs which are part of the same comparison group will be scaled identically.

Note: pie modules are scaled according to their surface and are not compatible to other modules and or components within the same Comparison Group. Therefore It is advisable to use a separate Comparison Group for tiles containing pie modules.

Behavior

Scaling

| Auto | Manual |

☐ Comparison Group

| A | B | C | D | E | F | G | H |

Flip

In this section, the flip effect of the tile can be configured.

The dropdown box *Flip Effect* governs whether the tile can be flipped or not.

The control element beneath can be used to select the desired flip action.

Flip Duration governs the animation duration in milliseconds. If e. g. a 1000 is entered, the animation will last for one second.

If the flip effect should only be triggered on a specific module, this can be realized with a small script in the *On Component Selected* event:

```
if (GRAPHOMATETILE_1.getSelectedModule
() ==
1){GRAPHOMATETILE_1.toggleFlip();}
```

☐ Flip Effect

| Click | Double Click | Hover |

Flip Duration (ms)   250
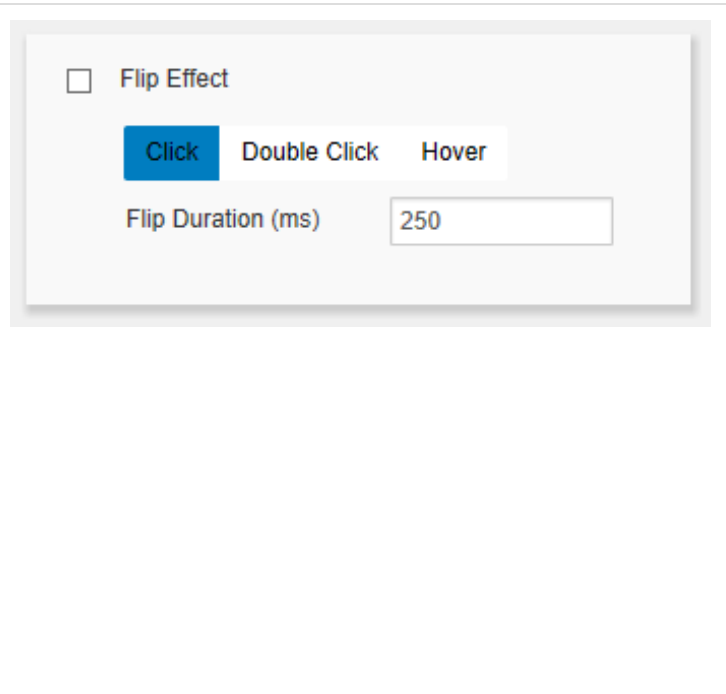
Info Tab

This section contains information about the installed version of *graphomate tiles* as well as a link to a feedback form on our website.

The Credits contains an overview of the used libraries.

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'	1st
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 *None* 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. *Please note:* 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.

CSS Selectors

Overview of css classes

The following illustrations provides some of the css selectors, which can be adressed by using the *Costum CSS* in SAP Lumira Designer.