User Manual for the graphomate trees 2.0

for SAP Lumira 2.0 Designer
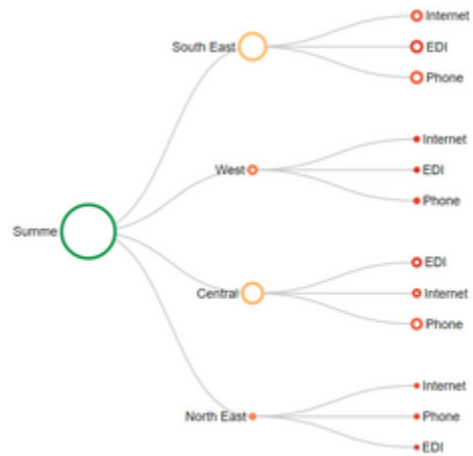
Version 2.0 – as of August 2017

https://www.graphomate.com

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Introduction

Trees or even tree diagrams are a way of representation of hierarchies with size-based visualization in which rankings are recorded quickly. Each tree begins with the root as the starting point and branches to other branches via nodes, where the size of a node represents the sum of its subnodes. Further information can be represented through color shades and particularly kept in view.
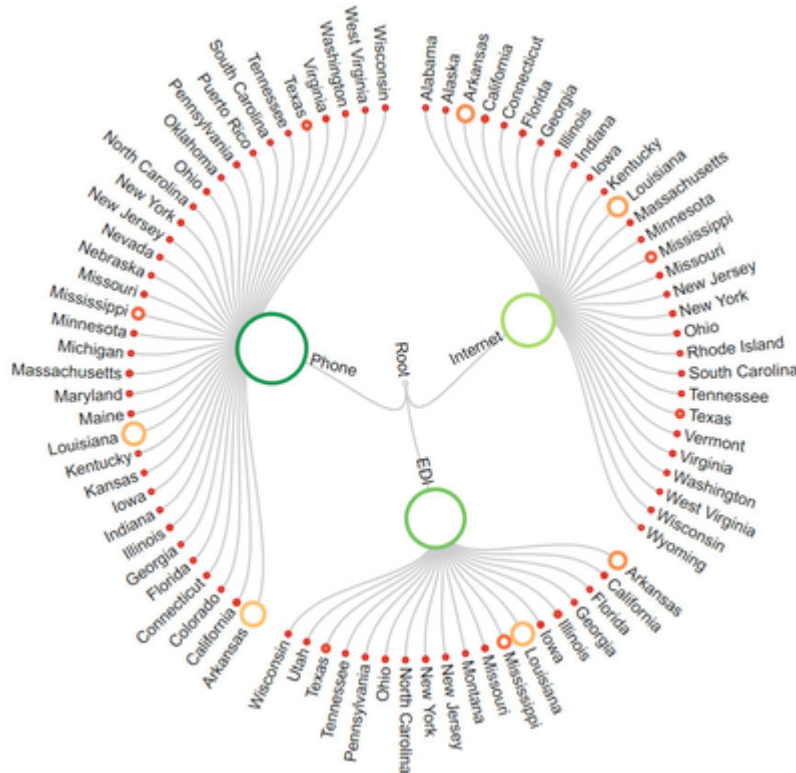
Note:

> *Please note that for reasons of performance as well as of perception, it makes no sense to represent more than **1,000** nodes in visualization at the same time. Should you have this request, then we recommend working with a second detail visualization that represents additional information upon user request, with the help of the script language.*
>
> *For the representation capable hierarchies, the same restrictions apply, as is the case of graphomate tables.*

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 trees 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.

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

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_trees2.0.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 trees 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 trees* from the BI platform.

1. Choose in the BI Platform Mode *Tools > Platform Extensions.*
2. Select the extension *graphomate trees* 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 trees.*
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* trees 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 form data rows in this query with a *graphomate trees* visualizat
ion image.

1. To do this, drag a *graphomate trees* component -on the mark area and- link the *Data Source* via
   Drag&Drop to this component.
2. In the *Data* tab of the additional properties, you define the data sets from the query to be displayed by
   clicking on the appropriate button (…). Select the data from *Initial View* column-wise. The selected data
   set is displayed with a blue background and adopted after clicking on for the tree.
3. Subsequently, further configuration of the *trees* is possible via the Properties.

Properties

Basically, you have two possibilities to update the properties of graphomate trees: Using the Properties tab, that shows all the parameters in a structured list or via the Additional Properties. The latter offers a more user-friendly User Interface. However, some special properties can be updated only through the Properties tab.

The check boxes ☑ in front of properties in the Additional Properties 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 Properties tab under Data Binding.

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

Data Tab

Data Selection

For the graphomate trees two data series can be configured, which respectively have different semantics:

- *Area Series*
  The displayed nodes and their size are determined by the chosen area series.
- *Color Series*
  Coloring of trees is done via the Color Series, either by directly calculating the values of the series or by first calculating the deviation from the calculated Area Series and mapping the resulting values on a color scale. The color scale can be set on the *Appearance Tab* and the method of calculation (direct mapping or deviation) set on the *Behavior Tab*.
- *Selected Source*
  displays the name of the connected Data Source

In order for series to be able to be linked, a Data Source must first be selected. The series label (*Series1*, *Series2*) can be renamed via the input box and are displayed in the legend, the descriptions and Tool Tips. The blue box with the x deletes the assignment of data series.

Tree Orientation

Using the Tree Type Option, it can be used to specify whether it is a vertical, horizontal or circular tree. The nodes, links and texts are arranged according to the setting.

Link Layout

Here, you enter the Layout of the link between the nodes of the tree. The layouts curved, straight, "elbow" and cross are at disposal for selection.

Appearance Tab

Labels

Here, you select the *Font Size*, the *Font Family* as well as the *Text Color* of rectangular labels.

Value Format

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Data

Data Selection

Area	Series1	...	×
Color	Series2	...	×
Selected Source			

Tree Orientation

Link Layout

Select the format of the Trees values:

- *Basic*
  Select the format of the absolute and percentage values according to guidelines of numeral.js
- *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.

> Set the property *Use Formatted Data* in the *Standard Properties Sheet* on *true* to use the formatting of the Data Source.

The resulting "Format strings" can also be set via the script language (for this, see input options for the extended number format string in the general Manual).

Colors

Use *Color Scheme* to set the desired color scale for a Tree. The default value is a transition from red via yellow to green. The scales hierarchy 1, 2 and 3 are particularly suitable for the representation of hierarchies. If the Invert Scheme check box is activated, the color scheme will be reversed. For example, this is useful when negative values should be represented as positive.

Use *Invert Scheme* to revert the chosen color scheme. If e. g. the color scheme is *Red to Yellow to Green* and you check Invert Scheme, it will be changed to *Green to Yellow to Red*.

The *Infinity Color* selected here is displayed when an infinite value results from the deviation calculation (e.g. due to division by 0). The *Null Color* set here will be displayed if no value can be derived from Color Series (e.g., when the depiction of the series is selected as calculation method although the series was not set).

Behavior Tab

Color Calculation Based On

The *Color Calculation Method* determines the manner in which the values of Color Series should be taken into account for the coloring of a Tree. The following values can be selected for the method:

- *Series 2*
  Once the method is selected, then the values from Color Series are depicted linearly on the color scale (i.e. the greatest value is on the right-hand edge of the scale, the smallest on the left-hand edge).
- *Absolute*
  Once the method is selected, then the absolute deviation between the Area and Color Series is calculated; the result of the calculation is depicted linearly on the color scale.
- *Percent*
  Once the method is selected, then the percentage deviation between the Area and Color Series is calculated and the result is depicted on the color scale.

Hierarchy

Limit Depth to Level defines up to which depth the tree shall be initially opened.

Area Scale Method

The Area Scale Method defines the method used for the scaling between the minimum and the maximum node size. In the case of linear scaling, the value range (minimum and maximum value from the data source) is depicted linearly on the minimum and maximum value of the node size, otherwise logarithmically. The logarithmic method allows a more pleasant, visual effect to be achieved for a very large difference within the range of values.

By changing the *Min* and *Max Node Radius* of the node radius it is possible to influence the size of the nodes as already mentioned above.

Helper Tab

Description Configuration

Area Value in Description

This setting allows you be shown the value at the node besides the identifier of the characteristic.

Padding

By using the setting for Top, Right, Bottom and Left the side margins of the trees can be configured within the space available. Through this, it can be avoided that overhangs appear, which are not drawn at runtime and they make the tree appear truncated.

Tooltips

Here, you set whether at runtime Tooltips for the user should be displayed. Tooltips are displayed when hovering directly over the node and contain the identifier and the value of the node.

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Helper

Description Configuration
☐ Area Value in Description
Description Delimiter | |

Padding
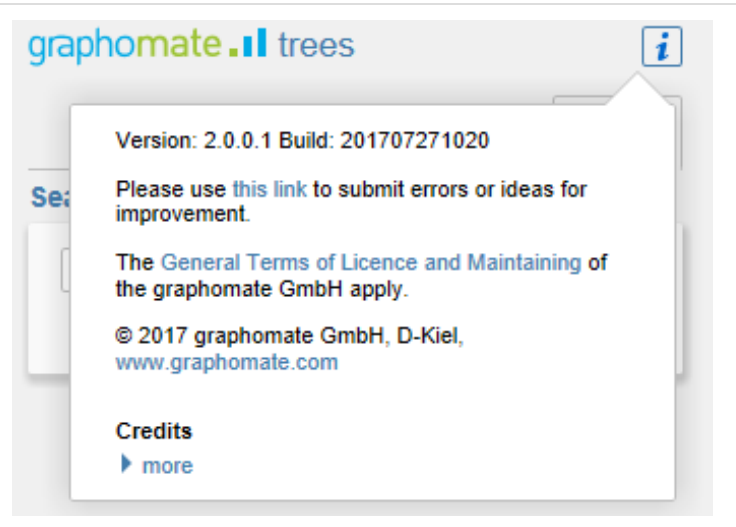| Top | 70 | px |
Right	70	px
Bottom	70	px
Left	70	px

Tooltips
☑ Tooltips

Search Tab

At this point you can search for the name, function or group of a property which are displayed at the *Additional Properties Sheet*. The appropriate settings are then displayed directly and can be changed here.

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Search

Search for Property

Info Popup

At this point, you will find information on the used version of the graphomate trees as well as a link with which you can inform us about errors and feature desires.

Under credits, you will find an overview of the free libraries that we use.

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Version: 2.0.0.1 Build: 201707271020

Please use this link to submit errors or ideas for improvement.

The General Terms of Licence and Maintaining of the graphomate GmbH apply.

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Credits
▶ more

Standard-Properties

Some (expert) properties can only be controlled via the *Standard Properties Sheet* of Designer.

Sort Order

By means of Sort Order option, sorting within the elements can be changed, so that either the smallest elements are shown first (ascending) or last (descending) or no sorting takes place (i.e. drawing takes place in the data sequence).

Link Stroke Thickness

Defines the thickness of the links between nodes in pixels.

Link Stroke Color

Defines the color of the links.

Node Stroke Thickness

Defines the thickness with which the outside line of the nodes is drawn.

Root Node Description

With Root Node Description, the text of the root node (i.e. the top element) can be changed. This can be reasonable or necessary when a data source is used, which does not provide a top node because a default node with the (little meaningful) label "Root" is then generated.

Scheme

In addition to the color scales available via Additional Property Sheet, all scales of ColorBrewers can be used. For this, the designation of the ColorBrewer scheme together with the number of the classes must be entered separated by a comma (example: Spectral, 4).

Use Formatted Data

Through this property you can set so that the cell formatting of Data Source is used for the table. Values calculated directly in the graphomate trees - thus, the deviations for Color Calculation Based On Absolute and Percent - still use either the Basic or the Extended number format.

Runtime Interactivity

The *graphomate trees* Extension supports some functions that can be used interactively at runtime. Many (but not all) of these functions are configurable on the *Additional Properties Sheet*.

Expand and collapse nodes

It is possible to expand and collapse nodes at runtime, to show or hide the child nodes of a node. You can adjust which nodes are shown at startup by changing the value of the properties *Limit Depth* and *Level*.

Tooltips

If a user hovers the mouse over a node, a tooltip is shown. The tooltip contains the nodes name as a well its value (from the *Area Series*).

Known Issues

- The Feature "scale from zero" does only work with a linear scaling.

Number Formatting

Possible Inputs 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 numbers are formatted separately. For this two format string 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 separate elements of the format string are separated by the "|" character. Format strings with less than 7 elements (i.e. 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 will be 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 input "10^1".
PointsAfterDecimal	The number of places after the decimal.
Suffix	A suffix for the value, analogous to the prefix.