

Dashboard

The digital signage & kiosk software **FrontFace** can be extended by plugins that add additional functionality. This way you can e.g. display special content types, integrate external data sources or systems and add entirely new features to the software.

Description:

The **Dashboard Plugin** allows the visualization of any kind of data, figures and measures for various purposes with a table or tile-based layout on info screens or kiosk terminals using **FrontFace**:



An XML file serves as data source that either resides in the file system (locally or on a network share) or on a Web server (access via HTTP(S)). The XML data file format/schema is defined by the plugin. Since XML files can be easily generated by almost any kind of programming language or 3rd party system, it is the perfect universal data access interface. E.g. you can poll figures from a production management system or a backend database system using a small script and then store these values in the required XML format. The Dashboard Plugin can then access that XML data file and visualize the data according to your requirements on the screen.

For every figure, you can individually define the formatting (e.g. number format, unit, etc.) as well as visual aspects such as icon, title text, colors, size, etc. In addition to that you can choose from different types of visualizations for the figures like formatted text, bar, line or pie chart, a percent gauge, a binary switch or custom pictures.

Installation:

Please refer to the user manual of *FrontFace* on detailed information on how to install a plugin.

Notice: If you have previously downloaded and installed the trial version of the plugin, you have to install the full version over the existing trial version in order to get the full version running. The procedure is exactly the same as for installing a new plugin. If you already used the trial version of the plugin in your project, all settings will remain after installing the full version!

Notice: Since the Dashboard Plugin requires an XML file as data source, you should be familiar with XML in general and XML Schema (XSD). For more information about XML, please have a look here:

<https://en.wikipedia.org/wiki/XML>

Setup and Usage:

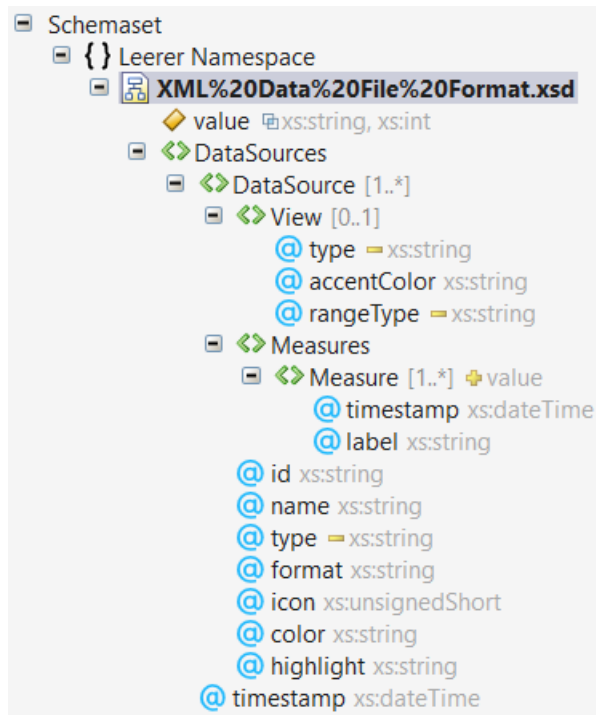
In order to be able to use the Dashboard Plugin, you first need an XML data file that serves as data source. The structure/schema has to match with the one described below. In most cases the XML data file will be created and constantly updated programmatically with data from an external system (e.g. a database management system or a BI software). If that system should not support exporting custom XML files you can use a programming or scripting language of your choice and access the programming interface that is offered by the system to get the required data and to save it in the expected format. If your system however does support XML but generates the data with a different export schema, you can also use XML style sheets (XSL) to transform your existing XML file into the required file format for the plugin.

The XML data file can either be stored in the file system (e.g. on a network share) or on a Web server. In both cases you have to make sure that the *FrontFace* application on the player PC can access this file (using a file path or a HTTP URL).

The accompanying files of the plugin also contain a sample XML data file ("**Sample Data.xml**") and a so-called XML schema (XSD) file ("**Data File Format.xsd**"). You can use that schema in combination with an XML editor to validate your generated XML data file to make sure that it is compatible with the Dashboard Plugin.

XML Data File Format:

The XML data file must match the XML schema of the file "Data File Format.xsd":



A sample file named "Sample Data.xml" is also included as reference. In the following table the semantic structure of the elements and attributes is described:

Element/Attribute	Description	Required?	Can Overwrite? *
Element: DataSources	Root element of the XML data file	YES	-
Attribute: timestamp	Timestamp when the data file was last updated/written	YES	-
Element: DataSource	Data source (e.g. a specific figure like "room temperature"); you can provide multiple DataSource elements in an XML data file	YES	-
Attribute: id	Unique name which identifies the data source; this name should not be changed later on and it should be unique for every data source within the data file	YES	-
Attribute: name	Preconfigured name of the data source that is shown on the dashboard	YES	YES
Attribute: type	Data type of the data source: Numeric, String Or Bool	YES	YES
Attribute: format	Format string which determines how the value of this data source is formatted on the dashboard (e.g. the number of places after the comma or the unit of the value)	NO	YES
Attribute: icon	Number of the predefined icon that is shown on the dashboard for this data source (please see the file "Icon Overview.xps" for an overview of all icons available!)	NO	YES
Attribute: color	Preconfigured background color of the table row or the tile for that data source on the dashboard	NO	YES

Attribute: highlight	Defines if the data source should be highlighted on the dashboard (blink style). Use e.g. "true" or "false" as possible values.	NO	YES
Element: View	Preconfigured visualization for the data source on the dashboard	NO	YES
Attribute: type	Defines the visualization type for the data source. The following values are supported: <ul style="list-style-type: none"> • Simple • LineChart • BarChart • PieChart • PercentGauge • Switch • Picture 	NO	YES
Attribute: accentColor	Preconfigured accent color; in case of the view type "Simple" this value determines the text color of the value on the dashboard; for other visualizations, this color is used to style the main part of the view (e.g. the bars of a bar chart)	NO	YES
Attribute: rangeType	Defines the type of time aggregation range for the view types "LineChart" and "BarChart". The following values are supported: <ul style="list-style-type: none"> • Years • MonthsInYear • DaysInMonth • IntraDay • Single • Default <p>If the value "Default" or no value is set, the time aggregation range is calculated automatically using the values of the given measures.</p>	NO	NO
Element: Measures	A list of all values for this data source (visualizations like bar diagrams support multiple values)	YES	-
Element: Measure	A single value (either only one or multiple Measure elements may exist that make up a series of measurements!)	NO	-
Attribute: timestamp	The timestamp of a single value which determines when the data was observed	YES	-
Attribute: label	An additional text that can be used to extend the visualization of the actual figure (e.g. used for pie chart and switch)	NO	
Value	The actual value, e.g. a numeric value	YES	-

*) For attributes that are marked as "can overwrite" in the table you can provide new values in the settings dialog of the Dashboard Plugin. This means that you can overwrite settings from the configuration file with custom settings from the settings dialog.

Data Type Formats:

Timestamp:

Timestamps have to be formatted using ISO 8601 date/time format that is common for XML files, e.g.: **2017-11-06T10:48:23.0000000+01:00** for **06th of November 2017, 10:48:23** in GMT+1 time zone.

Format Strings:

The formatting of values makes use of the so-called user-defined format strings known from the Microsoft .NET Framework. For detailed information please see the MSDN online help:

[https://msdn.microsoft.com/de-de/library/0c899ak8\(v=vs.110\).aspx](https://msdn.microsoft.com/de-de/library/0c899ak8(v=vs.110).aspx)

Color Values:

Color values are defined as hexadecimal values using four color components: #AARRGGBB - AA represents the alpha value (transparency) and has a value of FF for opaque colors. For RR, GG and BB you can provide RGB values in the range 00..FF. Alternatively you can also provide named color values as defined in the MSDN online manual:

[https://msdn.microsoft.com/en-us/library/aa358802\(v=vs.85\).aspx](https://msdn.microsoft.com/en-us/library/aa358802(v=vs.85).aspx)

Numeric Values:

In most cases data sources have a numeric (data type: **Numeric**) value. Please note that any numbers have to be provided using "culture invariant" formatting. E.g. if you want to express a value of $\frac{1}{2}$ you have to use the following notation in the XML data file: `<Measure>0.5</Measure>` This means that the dot represents the decimal delimiter which may be different from your local number formatting schema.

Visualizations:

You can choose from different visualizations (views) to display the measures on the screen. Some views also support multi-value measures (series) as well.

Simple/Text (Simple):

The Simple view displays a textual measure with a given formatting. You can use the `format` attribute of the data source to define how the value is supposed to be displayed (e.g. as currency or as temperature, etc.).

Line Chart (LineChart):

The line chart supports multiple measures (series) and displays a plain line chart. Only "Numeric" data sources are supported.

Bar Chart (BarChart):

The bar chart is similar to the line chart but displays the measures as a series of bars. Only "Numeric" data sources are supported.

Pie Chart (PieChart):

The pie chart treats every measure as a part of a total (the sum of all measures) and displays the measures as segments of a circle. The `label` attribute of each measure can be used to add a custom text that defines what the measure actually represents. Only "Numeric" data sources are supported. The attribute `timestamp` has no semantics for this view.

Percent Gauge (PercentGauge):

The percent gauge is used to display percent values (0-100) with a circular progress bar. Please make sure that your values are within the allowed range for a correct visualization. Only "Numeric" data sources are supported.

Switch (Switch):

The switch is used to visualize binary values (type "Bool"). You can supply Boolean values using the following formats: "true/1/on" and "false/0/off". The color of the switch in the "On" state is defined by the `accentColor` attribute. In addition to that you can supply an extra text using the `label` attribute which is then displayed below the switch artwork.

Image (Picture):

The picture view can display custom images (JPEG or PNG format). Simply supply a measure of type "String" which contains either a path or a URL to an image file. Instead of providing a full path or URL you can also only supply a file name. This file name then refers to a file in the "Static" folder of your *FrontFace* project. Another alternative is to provide a number instead of a file name which can be between 1000 and 1086 or 2000 and 2099. This number then refers to the icon number of build-in icons (please see the file "Icon Overview.xps" for an overview of all icons available!).

In addition to that you can also supply a text value for the `label` attribute which is then displayed below the image.

You can use this view to even create your own, custom views, e.g. a "traffic light view". Simply prepare three pictures showing a traffic light in the states "red", "yellow" and "green" and toggle between the states by supplying the matching path/URL to the image file as value for the measure.

Setting up a Dashboard and Selecting the Displayed Data:

Once you have prepared your XML data file, simply add the Dashboard Plugin to your *FrontFace* playlist or to your touchscreen menu.

In the settings dialog of the plugin you can adjust various settings:

First of all, you have to provide the *“path or URL to the XML data file”*. Please make sure that your player PC needs to be able to access that file as well.

The setting *“Dashboard Layout”* allows you to choose between the table and the tile-based layout.

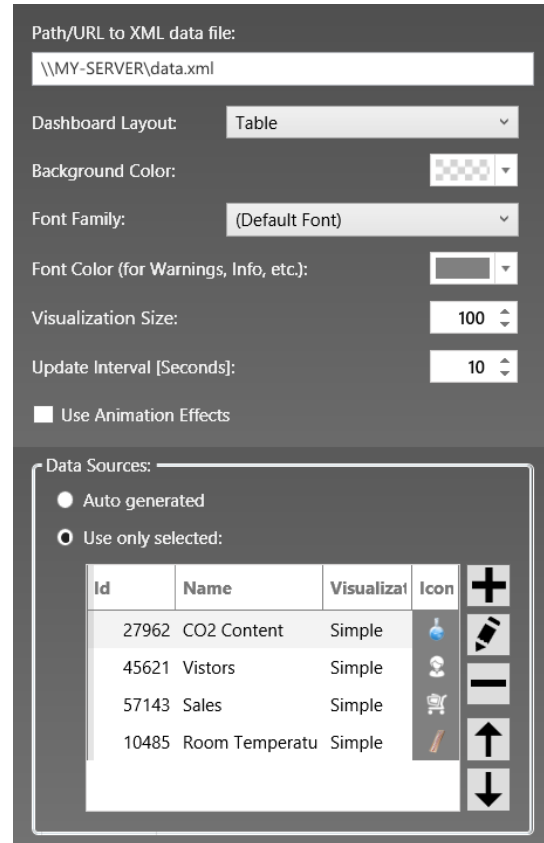
Furthermore, you can also select the *“Single Value”* layout. If you choose this layout, only a single data source (the first one in the XML data file or the first one you select (see below)) will be displayed. You can use this layout if you need more flexibility to display a data source on the screen, e.g. if you have a page layout where you want a value from the Dashboard to appear at a defined position. You can also use multiple instances of the Dashboard plugin on a single playlist page when using this layout.

Apart from the *“Font Family”* and the *“Font Color”* you can also choose the *“Visualization Size”*. In case of the table layout the size represents the height of a table row while for the tile layout the size determines the edge length of the tiles in pixel.

The *“Update Interval”* determines the duration of the polling period during which the XML data file is checked for potential changes. The option *“Use Animation Effects”* lets you activate an animation effect that is applied to a displayed value when the Dashboard detects an update in the XML data file.

In the *“Data Sources”* section you can select *“Auto generated”* to display all data sources from the XML data file with their preconfigured settings. In this case the entire configuration is controlled through the XML data file.

Alternatively, you can also select the option *“Use only selected”* to select which data sources from the XML data file you want to display. Furthermore, you can configure various settings such as title text, icon or colors and overwrite the corresponding settings from the XML data file respectively.



Help and Support:

If you need help or technical support when using this plugin or the *FrontFace* software, you can contact our support. For more information, please visit: <http://www.mirabyte.com/en/support/>