NIAGARA 4 DASHBOARD TEMPLATE

INSTALLATION GUIDE

Authority	Name	Signature	Date
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Reviewed -			
Approved -			

Contents

Latest Version of this Manual can be found here:

https://www.wse-ltd.com/product-services/dashboards/NIAGARA 4 DASHBOARD TEMPLATE INSTALLATION GUIDE-Draft.pdf

Web Version:

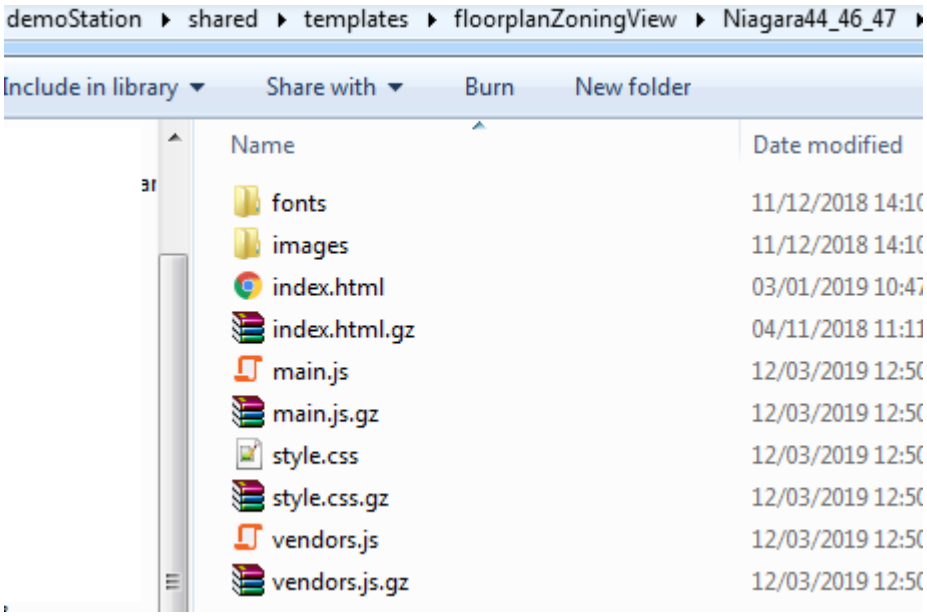
https://www.wse-ltd.com/help/view-builder/help.html

1. Package Contents

You will receive a set of files which need to be copied into the appropriate areas.

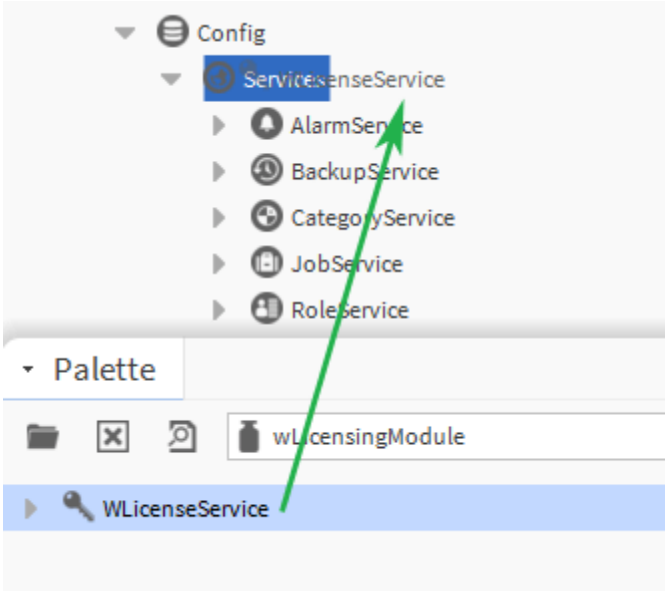
1. WLicenseService Module – copy the wLicensingModule-rt.jar file into the PC's modules directory. Usually found at C:\niagara\Niagara-4.x.xx\modules. Restart station and Workbench.

2. Template Dashboard HTML Files – these are the html and dashboard runtime files. They need to be saved in an accessible station directory. E.g. C:\Users\user\Niagara4.*x*\vykon\stations*stations*\demoStation\shared\templates\floorplanZoningView\Niagara44_46_47.



2. Licensing

1. Add our licensing module to your station services. See image below. This module retrieves the license from our servers and saves it to your stations shared folder directory.



2. Log onto the Software Manager Portal (link provided separately) and add your host id's.
3. Finally, make sure the station user has access to WLicenseService in the user management and category service section. NOT required if you're a super user.

   NOTE: Although the license says it expires in 2 years, the license renews automatically or when you create a new host ID license on our portal. It only has a 2-year expiration date in case our API changes. Licenses are lifetime unless otherwise specified.

3. Licensing Help

Additional Licensing Help:

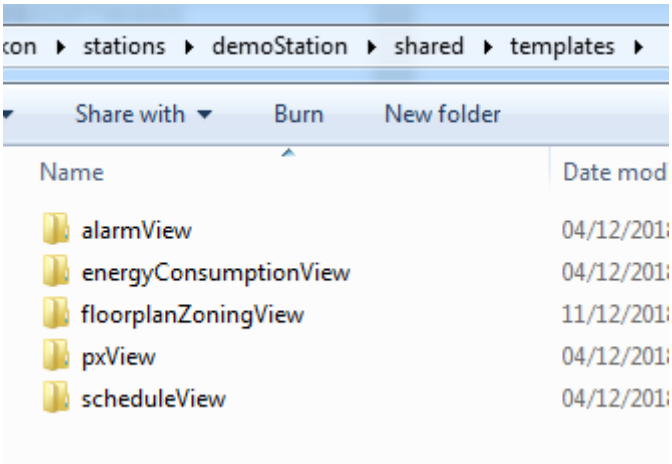
https://www.wse-ltd.com/product-services/niagara/licensing/licensing.html

4. Views

Views are the name of the view you would like to show for a given station component. Currently we have the following Views:

View	Features	Description
PX View	Px View	Allows you to show a px page within the dashboard. Also included is a free hyperlink widget.
Alarm View	Px View, Alarm View	Allows px view and alarm view in the dashboard. Also included is a free hyperlink widget.
Energy Consumption View	Px View, Alarm View, Energy Consumption View, Weather Service	Allows px view, alarm view, and energy consumption view in the dashboard. Also shows weather information in top nav bar on and energy consumption view. Also included is a free hyperlink widget.
Scheduling View	Px View, Alarm View, Energy Consumption View, Weather Service, Scheduling View	Allows px view, alarm view, energy consumption view, and scheduling view in the dashboard. Also shows weather information in top nav bar on and energy consumption view. Also included is a free hyperlink widget.
Floor plan Occupancy Zone View	Px View, Alarm View, Energy Consumption View, Weather Service, Scheduling View, Floor plan Occupancy Zone View	Allows px view, alarm view, energy consumption view, scheduling view in the dashboard, and Floor plan Occupancy Zone View in the dashboard. Also shows weather information in top nav bar on and energy consumption view. Also included is a free hyperlink widget.
N4 View Builder™	Px View, Alarm View, Energy Consumption View, Weather Service, Scheduling View, Floor plan Occupancy Zone View, N4 View Builder™	Allows px view, alarm view, energy consumption view, scheduling view in the dashboard, and Floor plan Occupancy Zone View in the dashboard. Also shows weather information in top nav bar on and energy consumption view. Also included is a free hyperlink widget. View Builder allows you to create your own views and assign them to station objects.

You may have noticed several folders in your download:

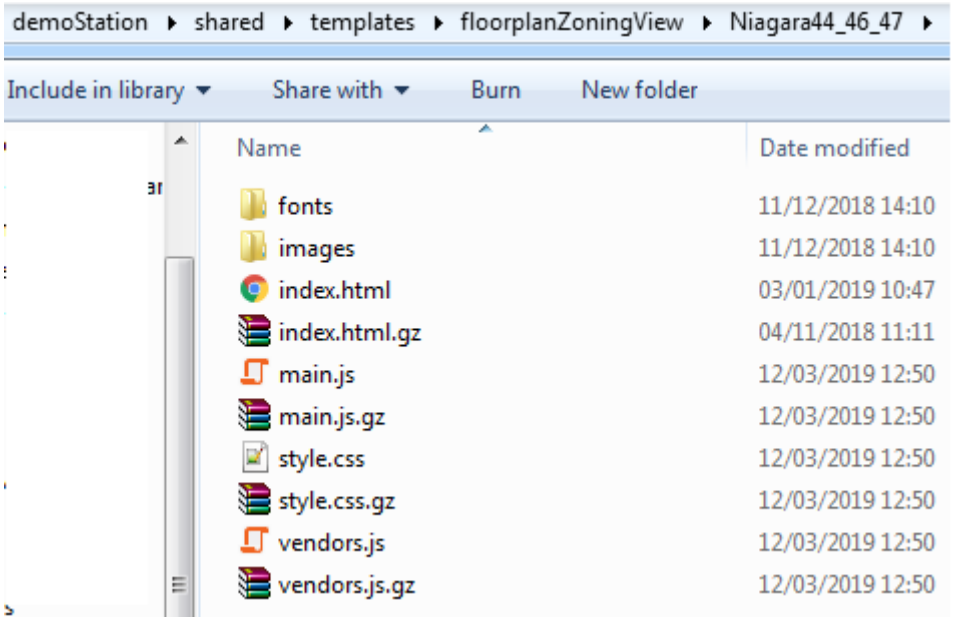


Let's say for example you purchased the Energy Consumption View, you will only need to copy the files from energyConsumptionView folder to allow you to show Px View, Alarm View, and Energy Consumption view. But it will not show Floor Plan Zone view or Schedule View.

If you purchased the Floor plan Occupancy Zone View, you only need the floorplanZoningView folder files to show all views. The other folders can be discarded if needed. Or you could use them on projects where you wish to only show a limited number of views.

5. Quick Setup

1. Copy the appropriate template files to an accessible station shared directory.

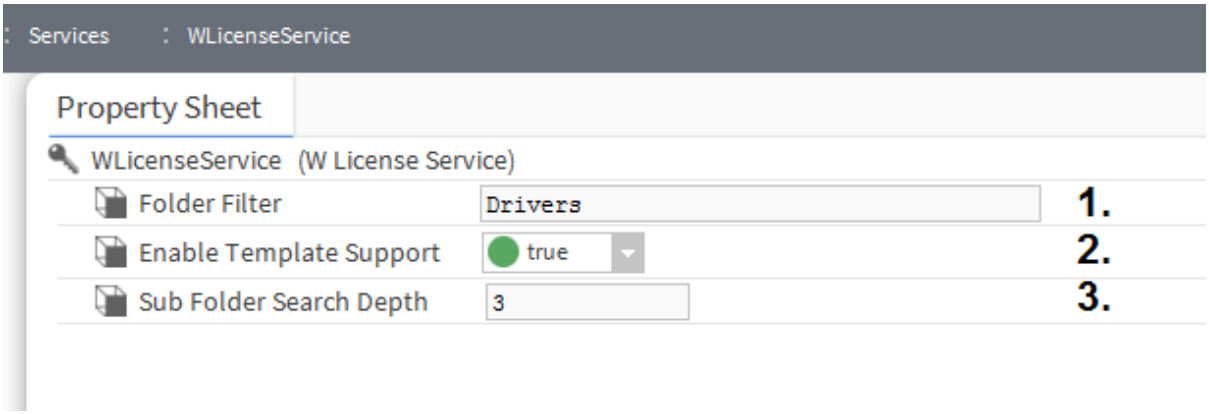


2. Add licensing service to station config. IMPORTANT-> on the service properties set ENABLE TEMPLATE SUPPORT -> true

3. Optionally add the Open weather service. https://www.wse-ltd.com/product-services/niagara/niagara-open-weather-service.html
4. Open your station and log in via web browser. Navigate to files and go to the file **index.html** above.
5. Go to settings and start setting up your navigation and dashboard.

6. WLicenseService Properties and Actions

Let's take a look at the property sheet for the licensing service:



1. Folder Filter – when the service loads up it looks at the station config tree. E.g. Drivers -> Niagara Network -> etc. This list is maintained in the service so the dashboards can use this information, which is explained later on.

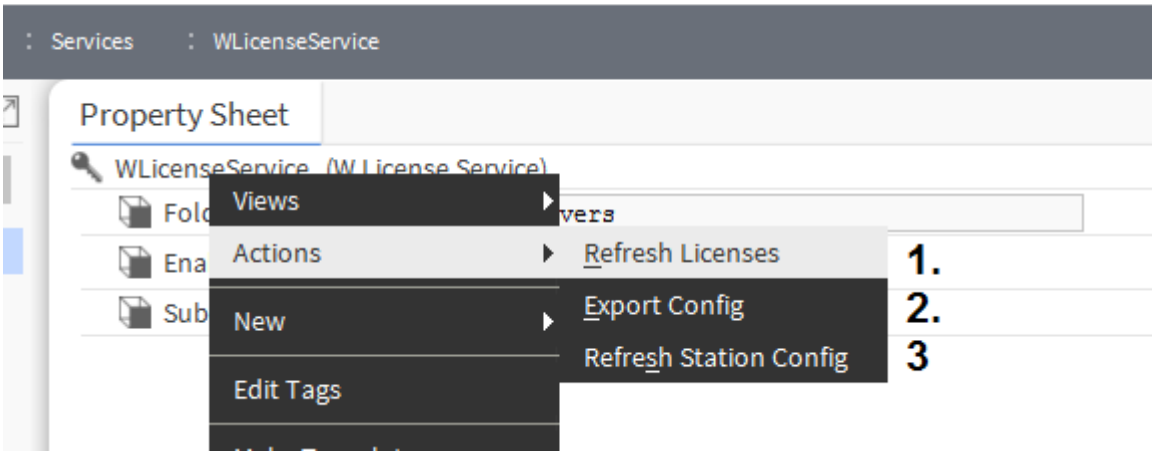
   The default is Drivers, however, you can set this to **"all"** and it will search the entire station hierarchy tree.

2. Enable Template Support – set this to true if you plan to use our dashboard templates.

3. Sub Folder Search Depth – the default is 3. This is how deep you want the folder filter search mechanism to go. The higher the number, the more time to process.

We'll use these settings later on when setting up the menu.

Actions:



1. Refresh Licenses – will pick up you license from our servers and save them in the appropriate station directory. Use the manual steps if you don't have an internet connection:

   https://www.wse-ltd.com/product-services/niagara/licensing/licensing.html

2. Export Config – this will make a back up of your Dashboard Template config. It's a json file which contains dashboard settings like colours, or menu items. The file is saved in a folder called backups, the same directory as the licence file. E.g. C:\Users\user\Niagara4.7\vykon\shared\WS Licenses\backup

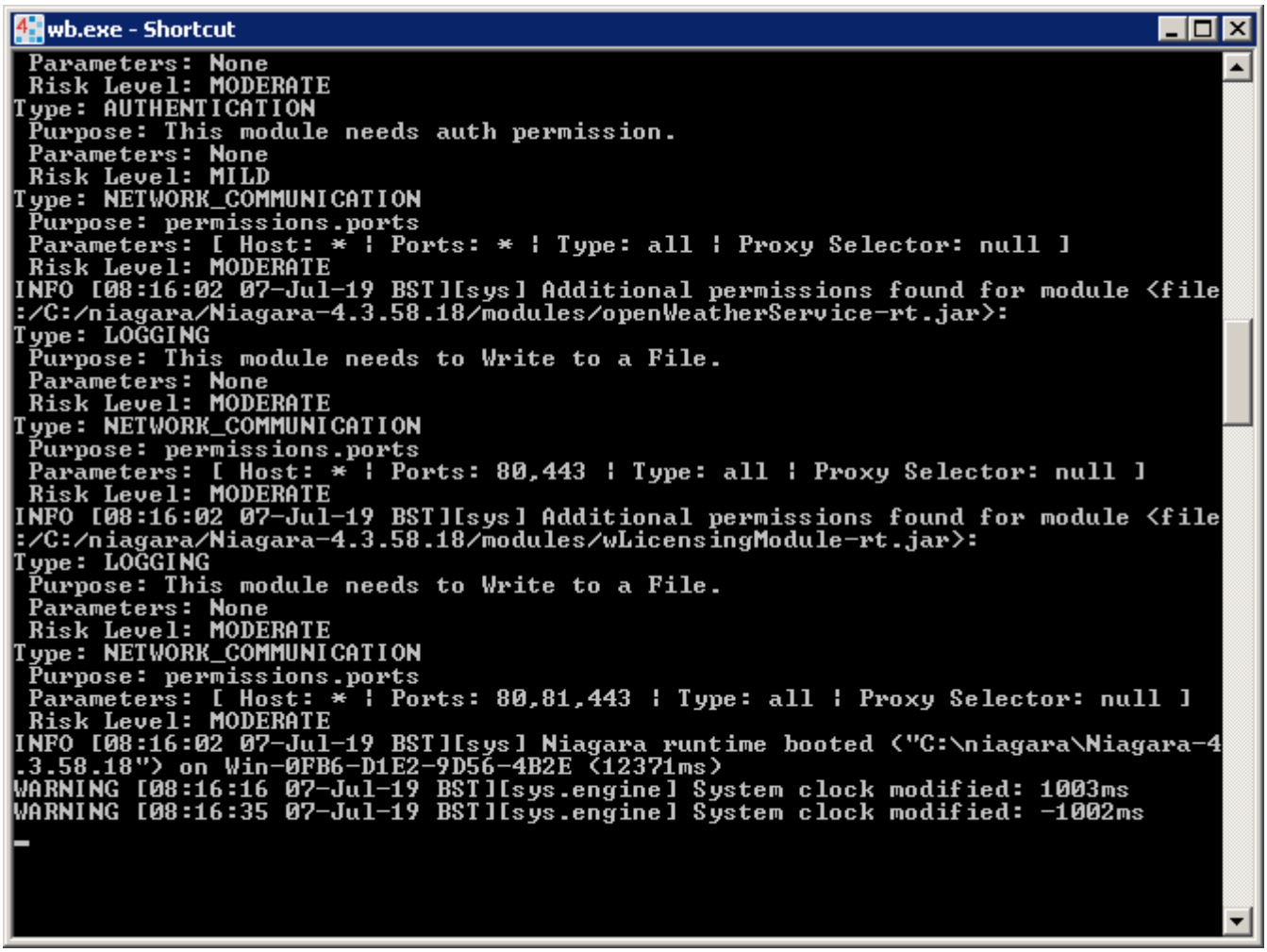
   The file is automatically read at station startup. When the station is stopped or the licensing service is removed, the file is updated. You won't lose any of your current dashboard settings. Its recommended you run this action from time to time.

3. Refresh Station Config – after you have set the folder filter on the service properties, you can invoke this action to get a new config tree; which will appear in the dashboard; more on this later.

Troubleshooting:

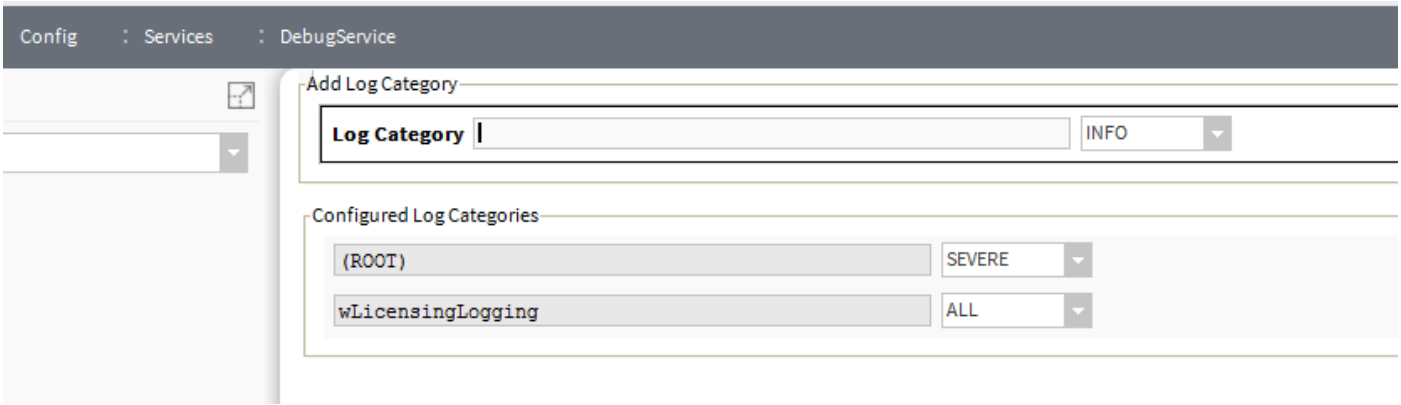
The licensing service is quite lightweight and has minimal functionality. It only requires 3 module dependencies: baja, net-rt, and platform-rt. This way it can be used with different Niagara implementations, e.g. Trend IQ, Distech, etc. Verify these modules do indeed exist in the Niagara installation modules directory.

Here are some of the extra permissions the licensing and weather service require.



Enable trace logging:

In the debug service enable logging for the licensing service:

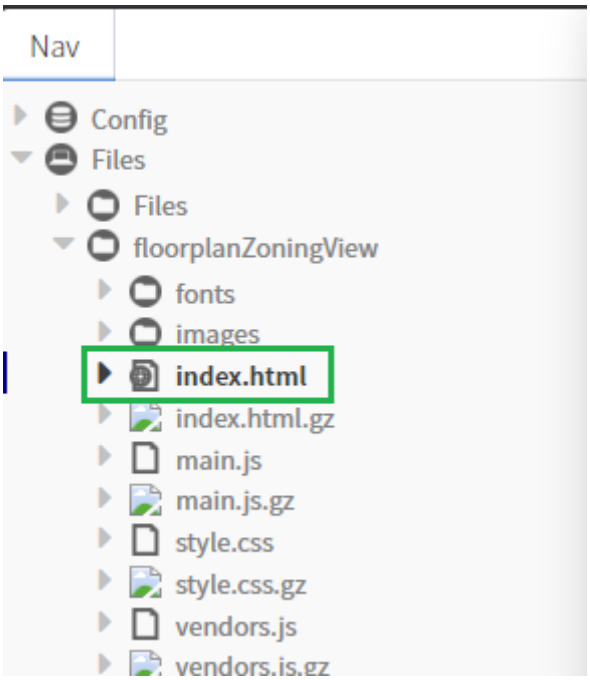


This will provide extra logging in the stations application director.

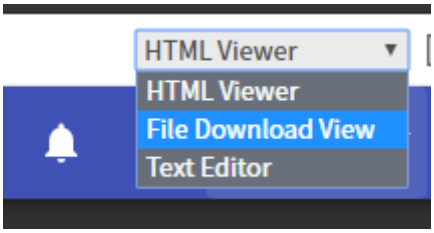
7. First Time Login

After you have coped the appropriate dashboard template files, you need to login to the station via your web browser as an admin user.

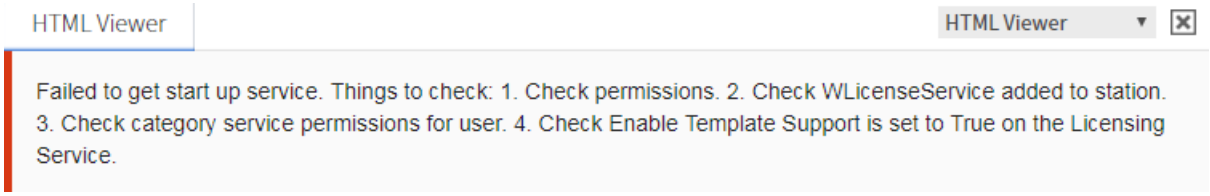
1. Go to the index.html file first:



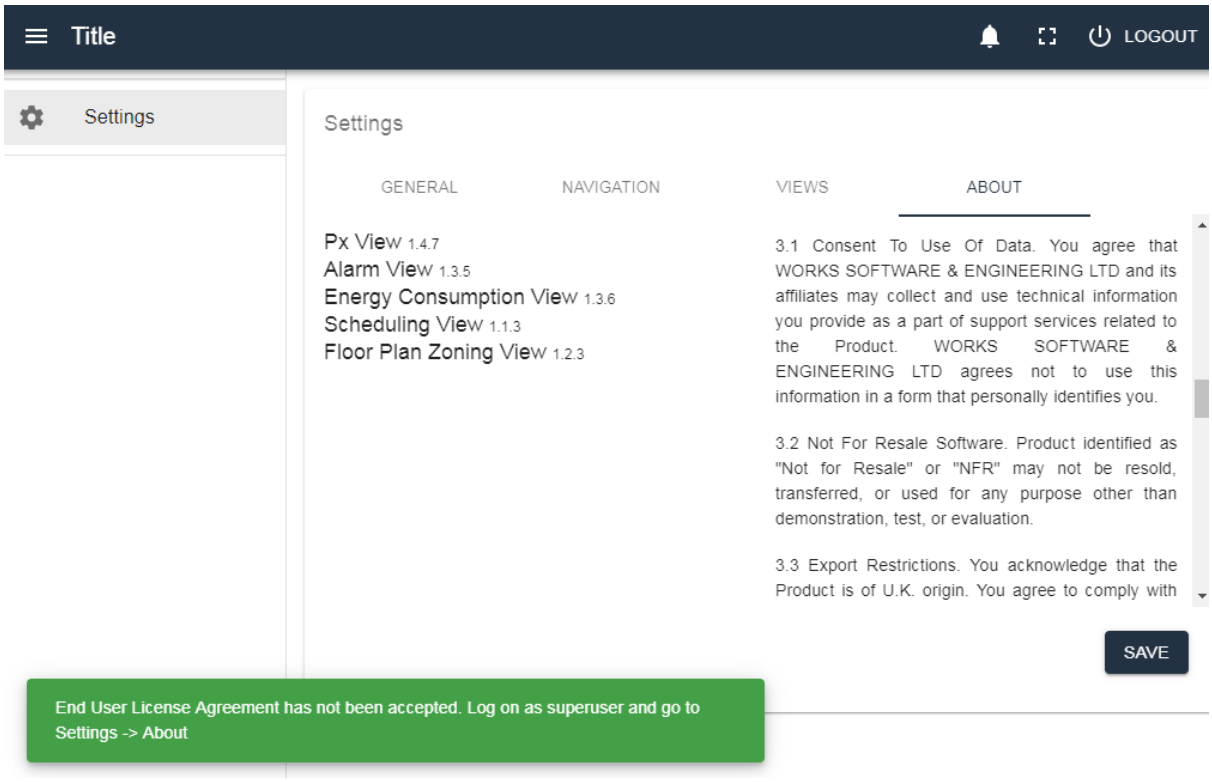
2. Click on file download view to view full width of the browser window:



If you see the following, then you need to follow the steps on screen to make sure the licensing service properties are all setup correctly:

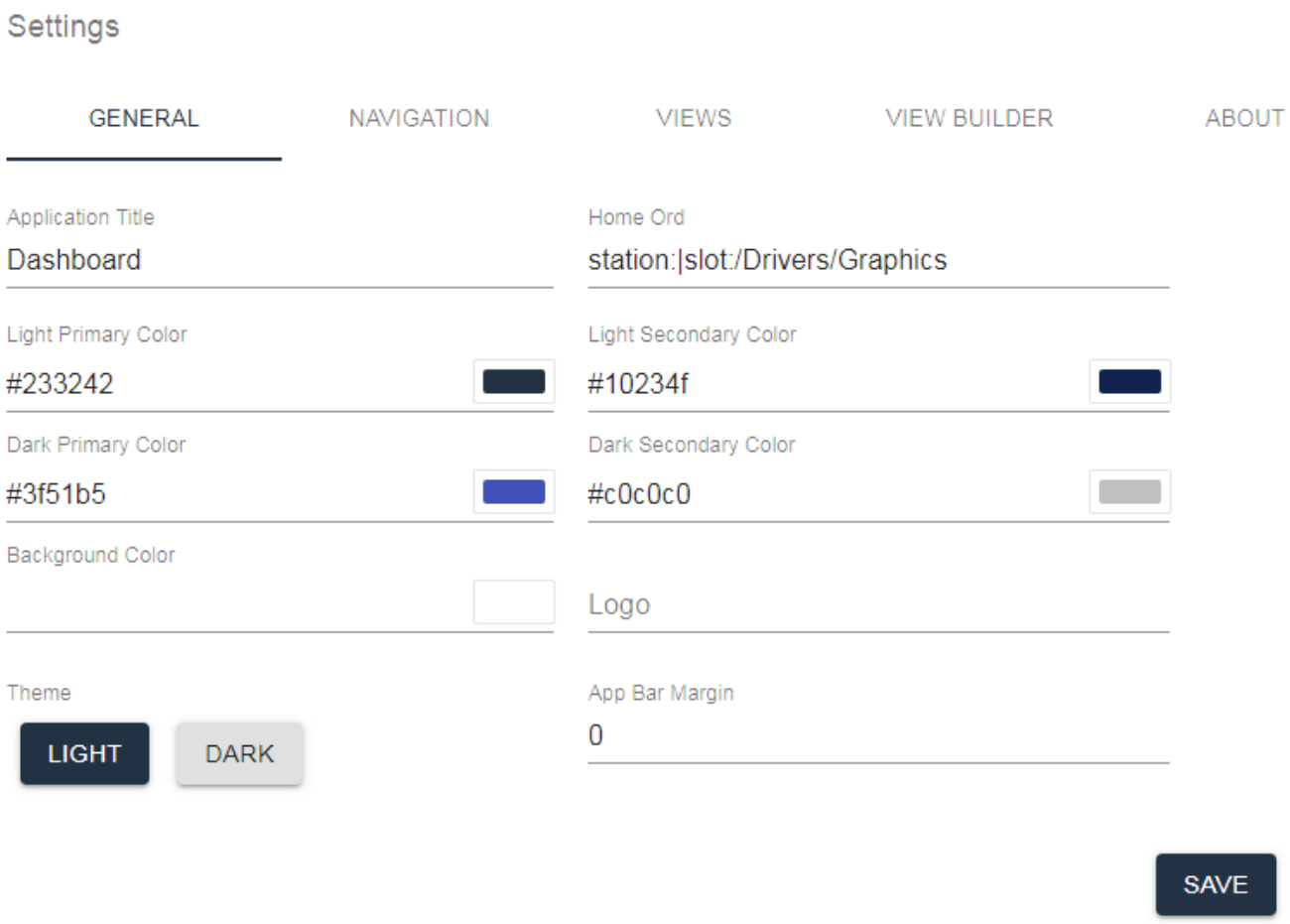


3. Accept the license agreement under settings and click save.



8. General Settings

Right now, everything is pretty much a clean slate and we can start setting up our dashboard. Here are the general settings. We'll come back to this later.



You can change colours for the theme by clicking on the coloured section. The background colour is the colour behind the main area of the screen. By default this is set to null/empty. While the other colours are read-only, to clear the background colour clear the text box by deleting the hex colour. You still need to use the colour picker to make a selection. Pasting in a hex colour code will not save the changes.

The logo image file should be placed in your stations shared directory.

The app bar margin is the distance from the main area of the screen to the Top app bar area.

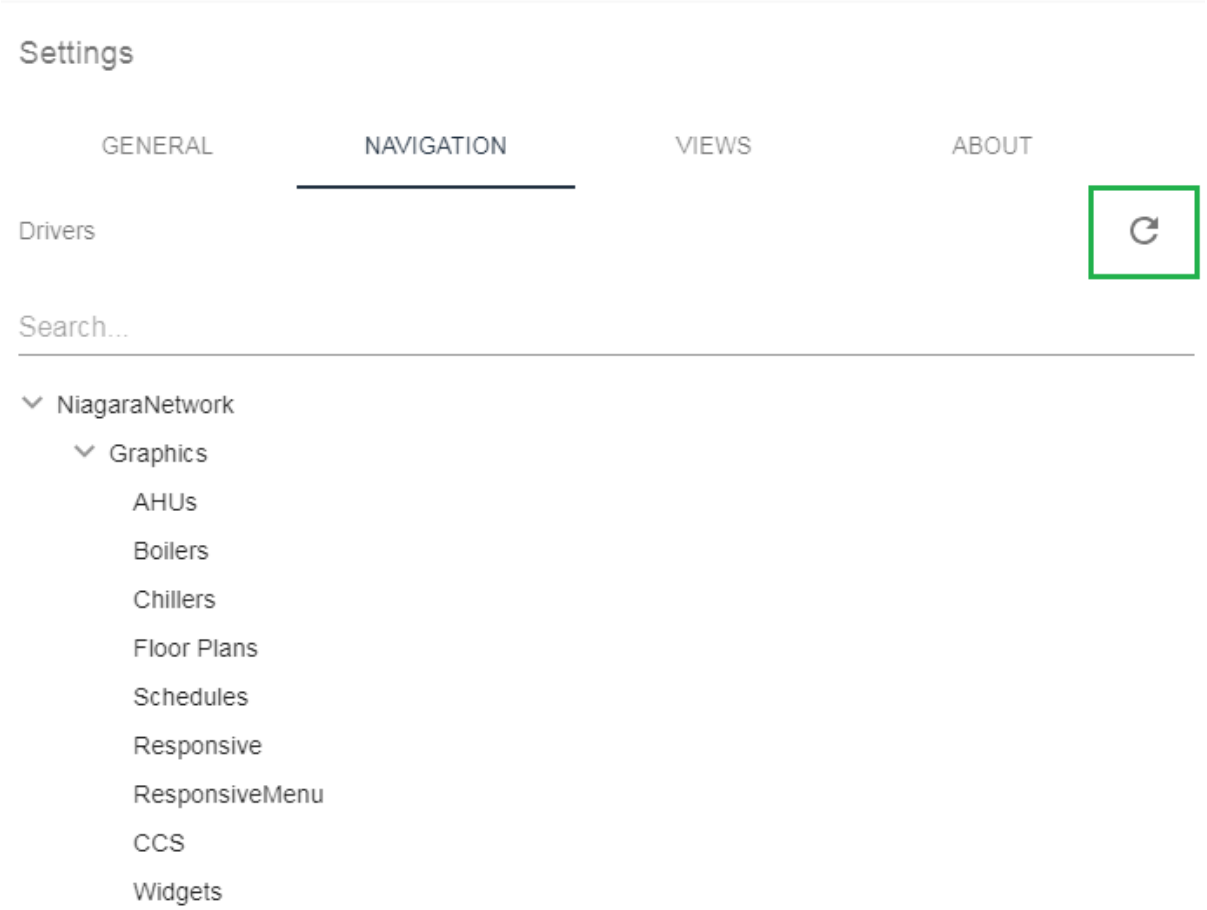
All settings are saved in JSON format to the WLicensingService. So if you're making changes and you shut down the station without saving the station, then you will lose you current changes. Save often, and save the station often.

9. Navigation Menu

The navigation menu is the first thing you probably want to set up. Go to navigation and you will see your station tree structure. We have put everything under Drivers, but this is not required. This ties in with the folder filter set up earlier WLicenseService Properties and Actions section.

If you're using virtuals, these objects will not be brought into the station config. Its is recommended to bring in the proxy points for remote stations and make graphics on the supervisor. You should have all your remote stations under the Niagara Network and bring in the proxy points to your supervisor. And if you have px graphics you can easily drag the proxy point onto your graphic.

Click on the refresh button to pull in the latest station tree config:

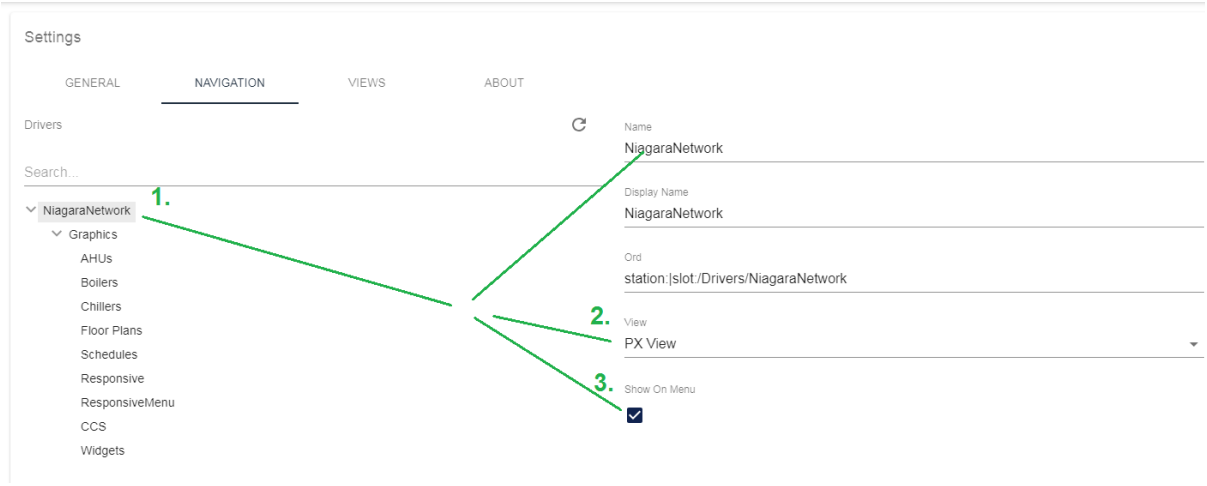


You need to go through each station object and set its appropriate view. Use the search mechanism to find assets quickly.

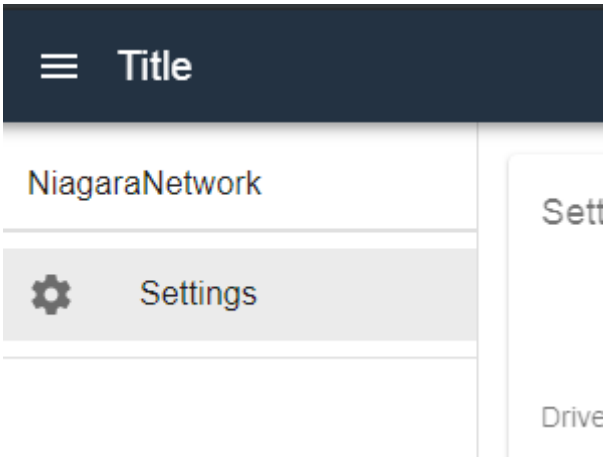
Click here for demo:

https://www.wse-ltd.com/content/images/dashboards/niagara-views.gif

This will then show the item on the menu after you click SAVE



Result:

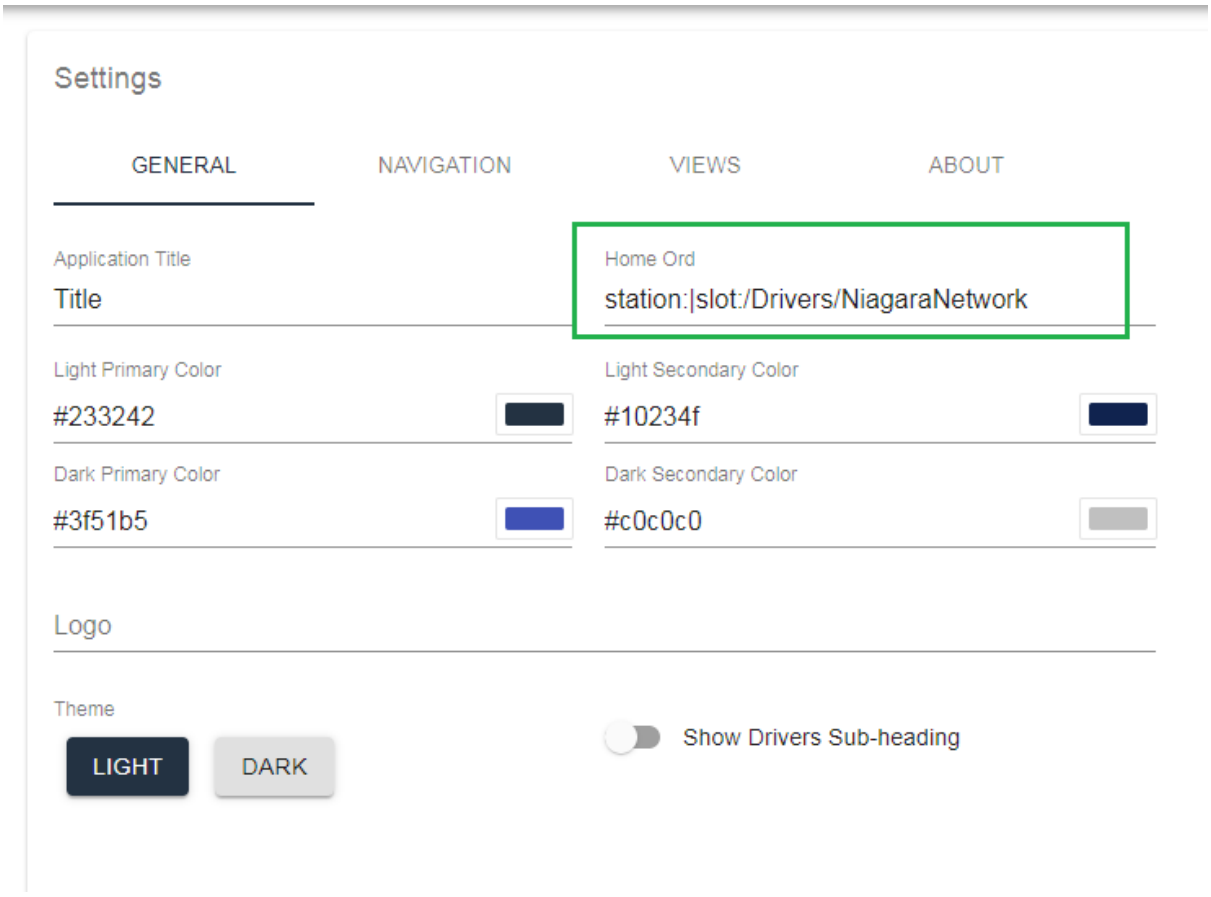


Continue to add as required.

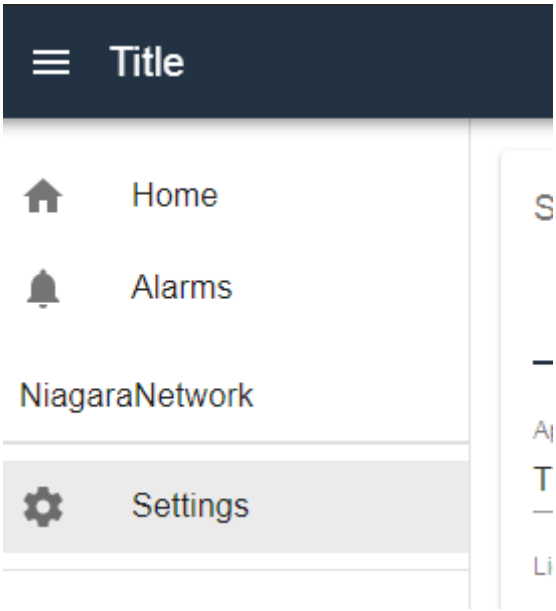
Setting up the HOME button:

Simply copy the Ord from the navigation setting to the General Settings section and make sure the item "show on menu" is checked. ANY valid ord can be used. E.g. station:|slot:/Drivers/Graphics or station:|slot:/Drivers/MyHomeOrd.

After you set a new home value, its recommended you refresh the browser page.



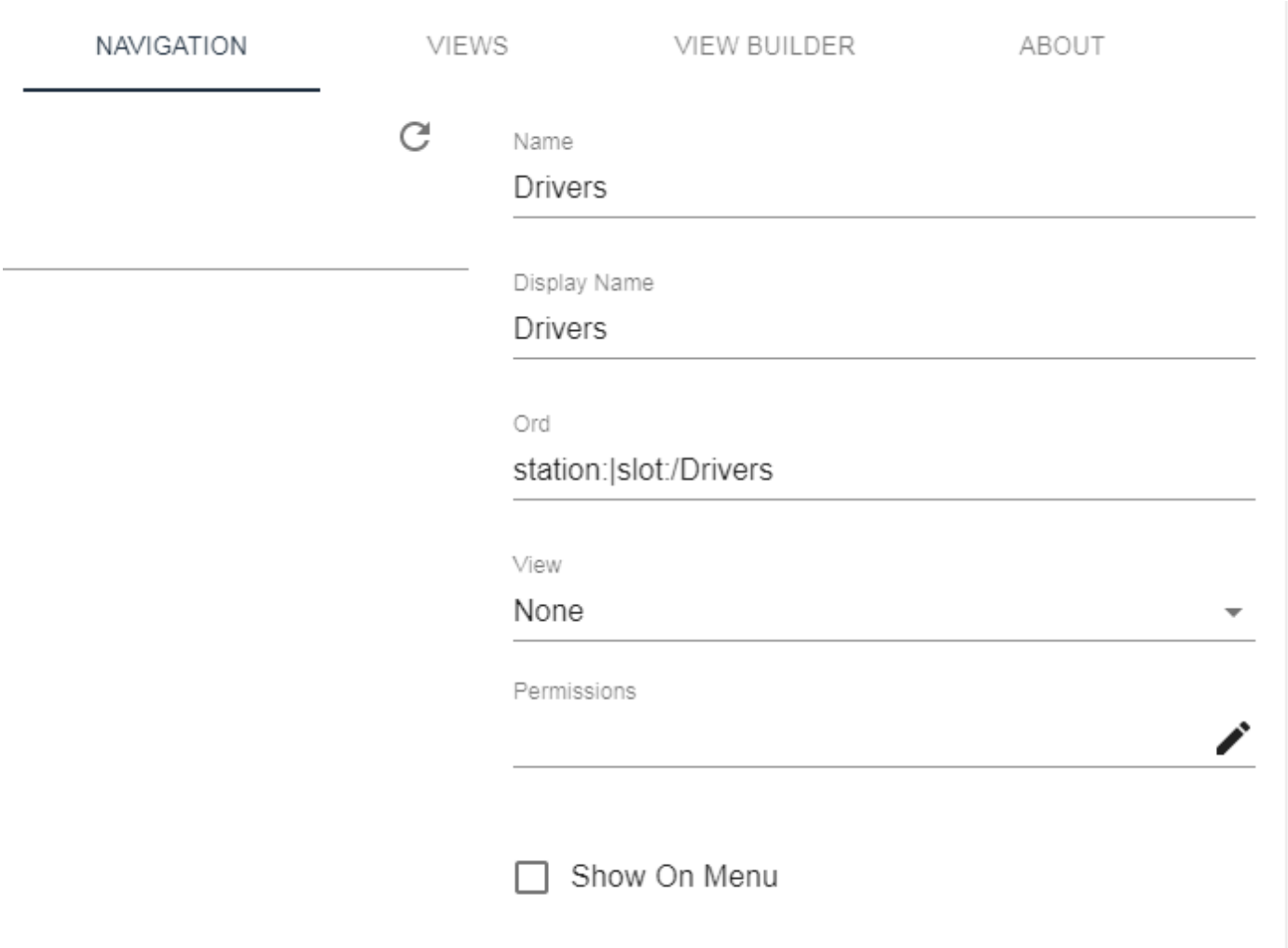
ONLY THEN THE HOME AND ALARMS MENU OPTIONS WILL APPEAR:



Renaming: if you have renamed station objects and brought them into the dashboard then you should re-add them in the nav settings section. Only station objects that have "show on menu" checked will be saved to the Dashboards JSON configuration.

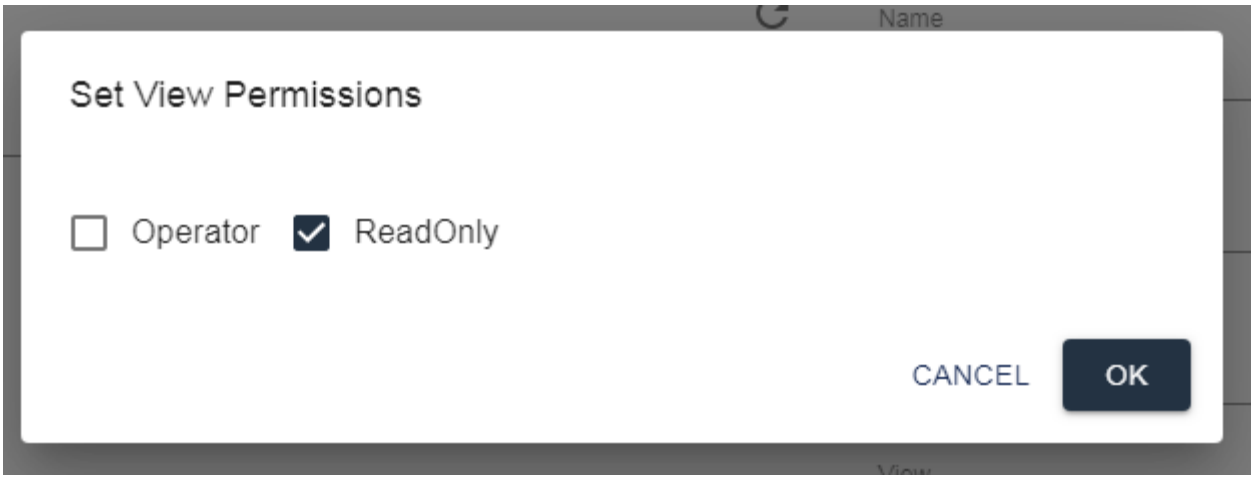
Set View Permissions

You can lock down station objects by setting the permissions value in the Navigation settings. BY DEFAULT USER CAN SEE ANY VIEW THAT HAS BE SET TO A VIEW. The following setting means the station object drivers can be seen by any role:



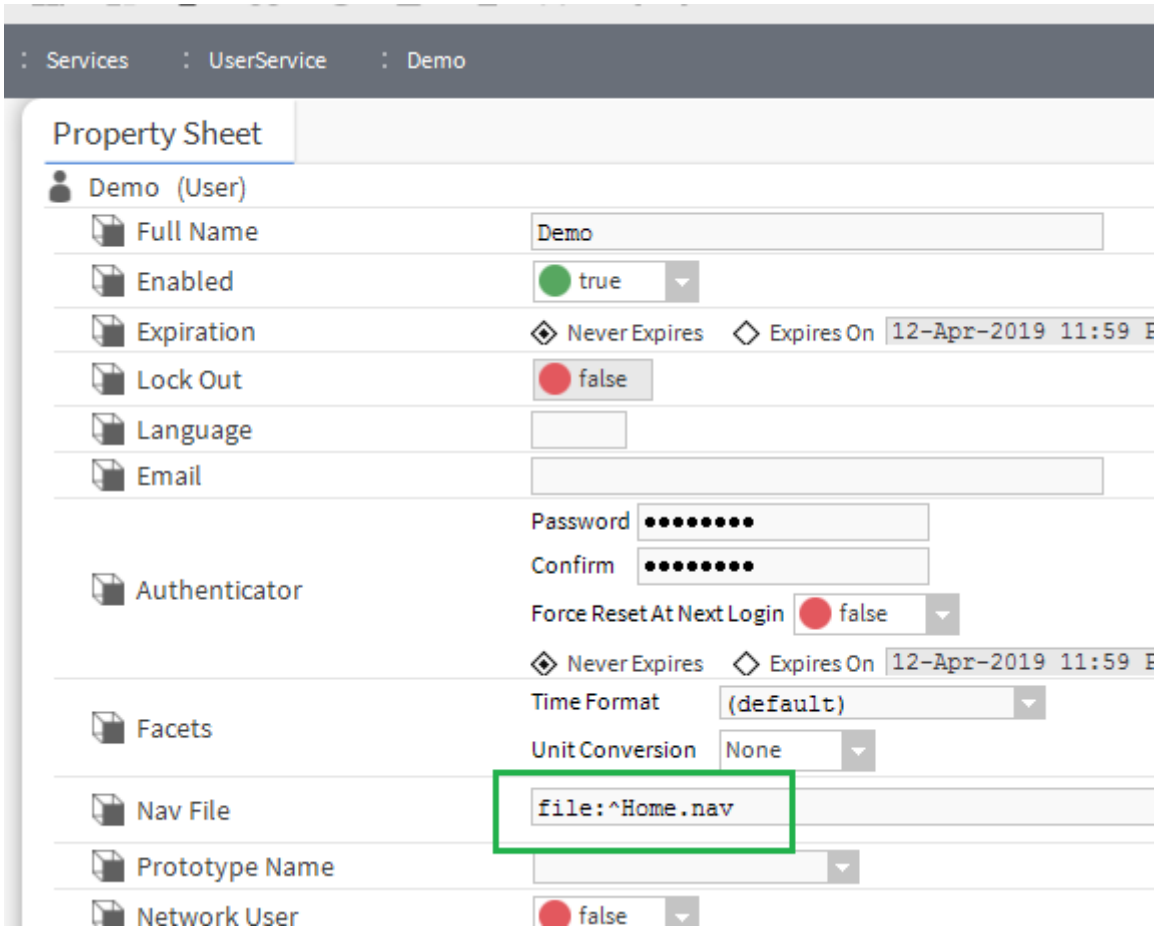
By clicking the permissions, you can set the appropriate roles. By default, Super User and Admin will always have access to the station object within the dashboard.

The following example means, that Read Only has access to the view but not Operator. One or more roles can be selected as you have defined in the Role Service Manager in your station.


Name
Set View Permissions
Operator
ReadOnly
CANCEL
OK

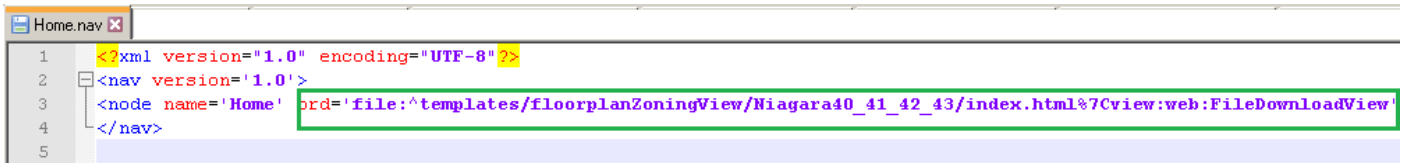
10. NAV File

The nav files is used to point a user to the correct location when they log in. This is NOT related to any of the menu navigation settings. Say you have a user named Demo, set the nav file like so:

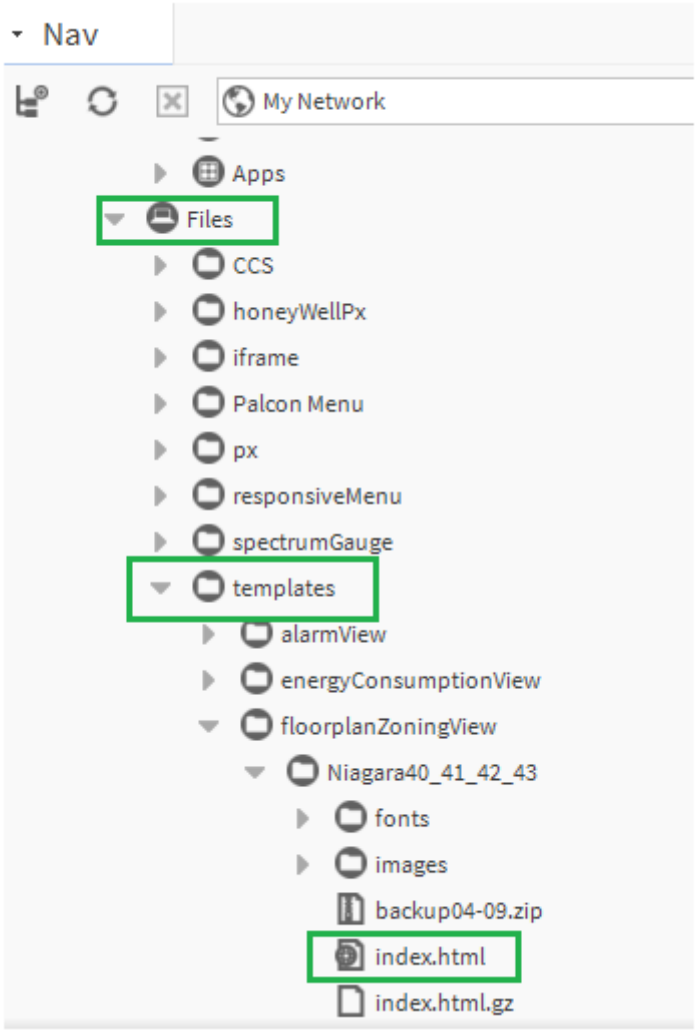


And using the Home.nav file; it will point to the dashboard file index.html:

<?xml version="1.0" encoding="UTF-8"?>
<nav version='1.0'>
<node name='Home'
ord='file:^templates/floorplanZoningView/Niagara40_41_42_43/index.html%7Cview:web:FileDownloadView' icon='module://icons/x16/home.png'/>
</nav>

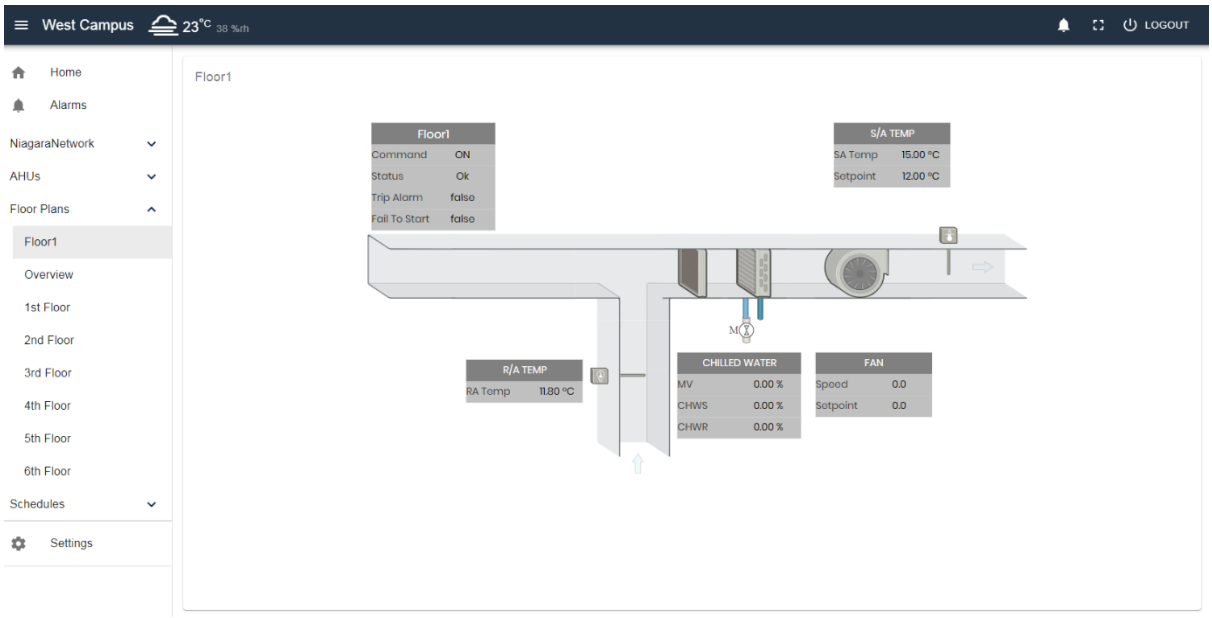


Which will point to:



11. PX View

The Niagara Px View Template shows existing px graphics in a modern template with an advanced navigation menu. You will keep your own px graphics and show them within this template. Display any standard Niagara object, e.g. point control, px graphics, schedules, etc.



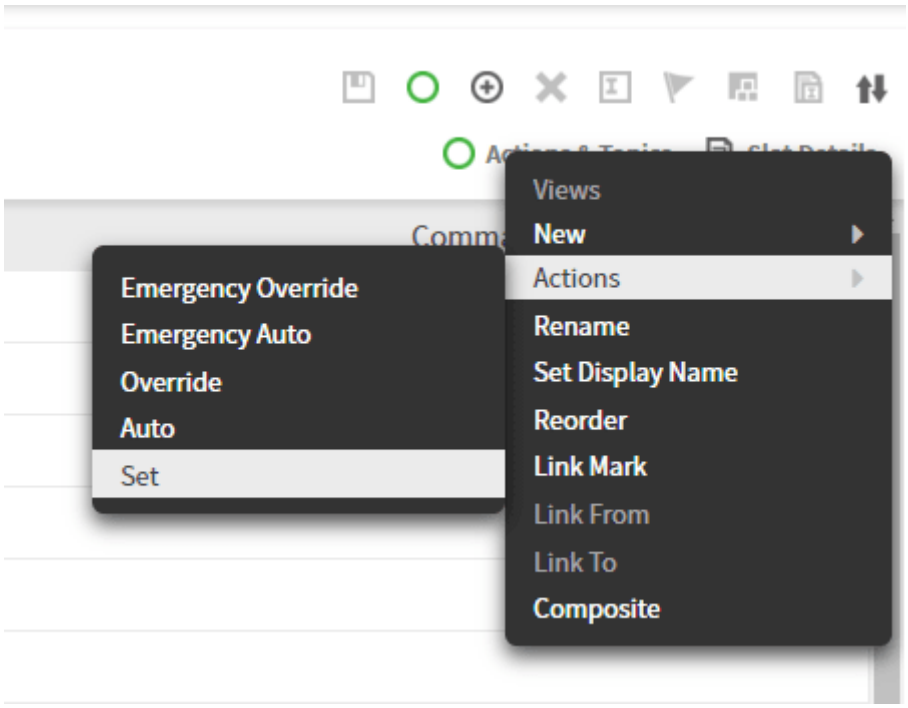
All your existing graphics can easily be brought into this template by a click of a button. Have full interaction and animation with your AHU/FCU or any other equipment graphic you have built previously.

Control and actions for numerics, booleans, strings, and enums, or any other station component can easily be done.

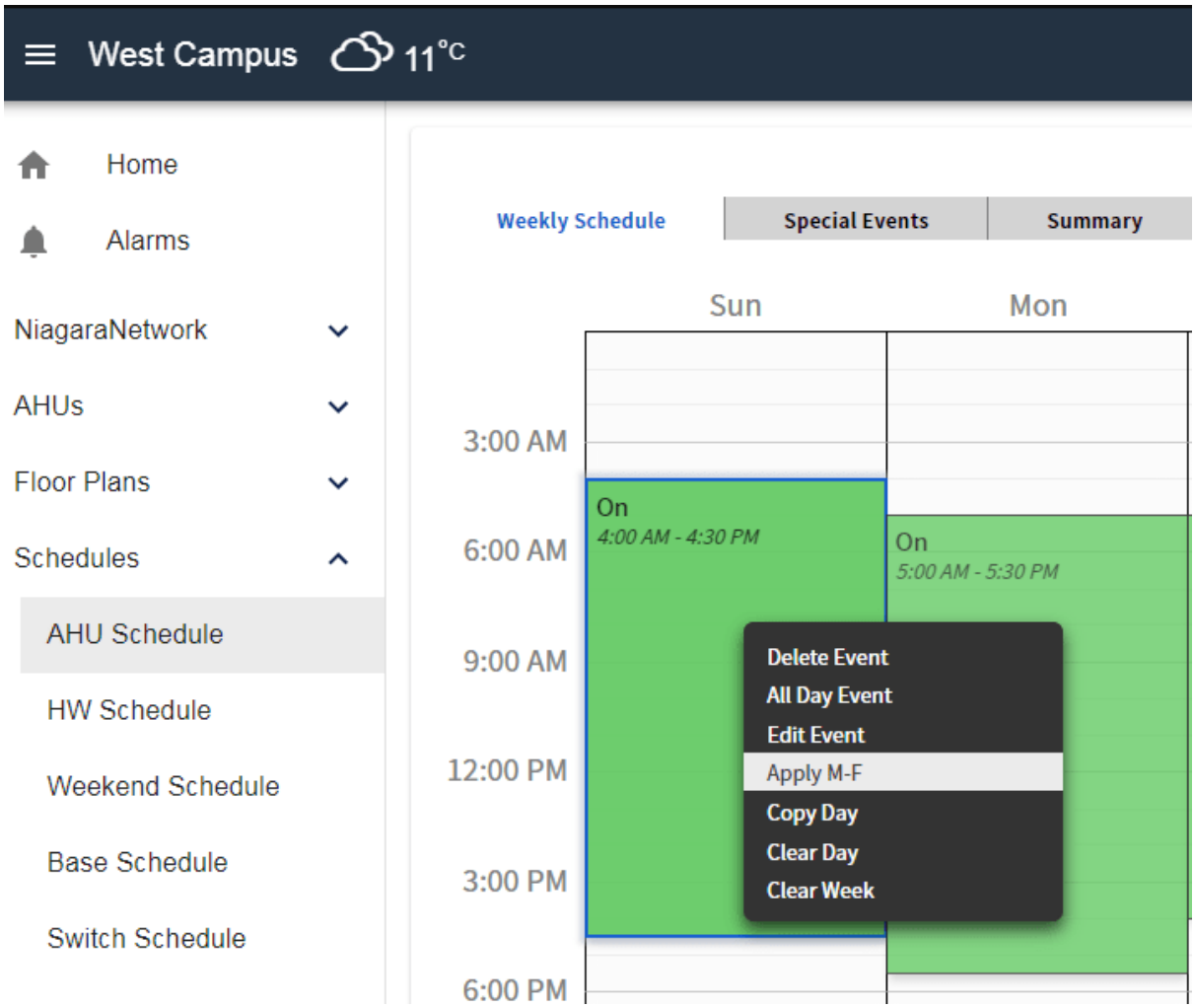
If you have links on your px page, then use the Hyperlink widget (FREE) to create "Dashboard" links. That way you can navigate to different dashboard areas.

See:

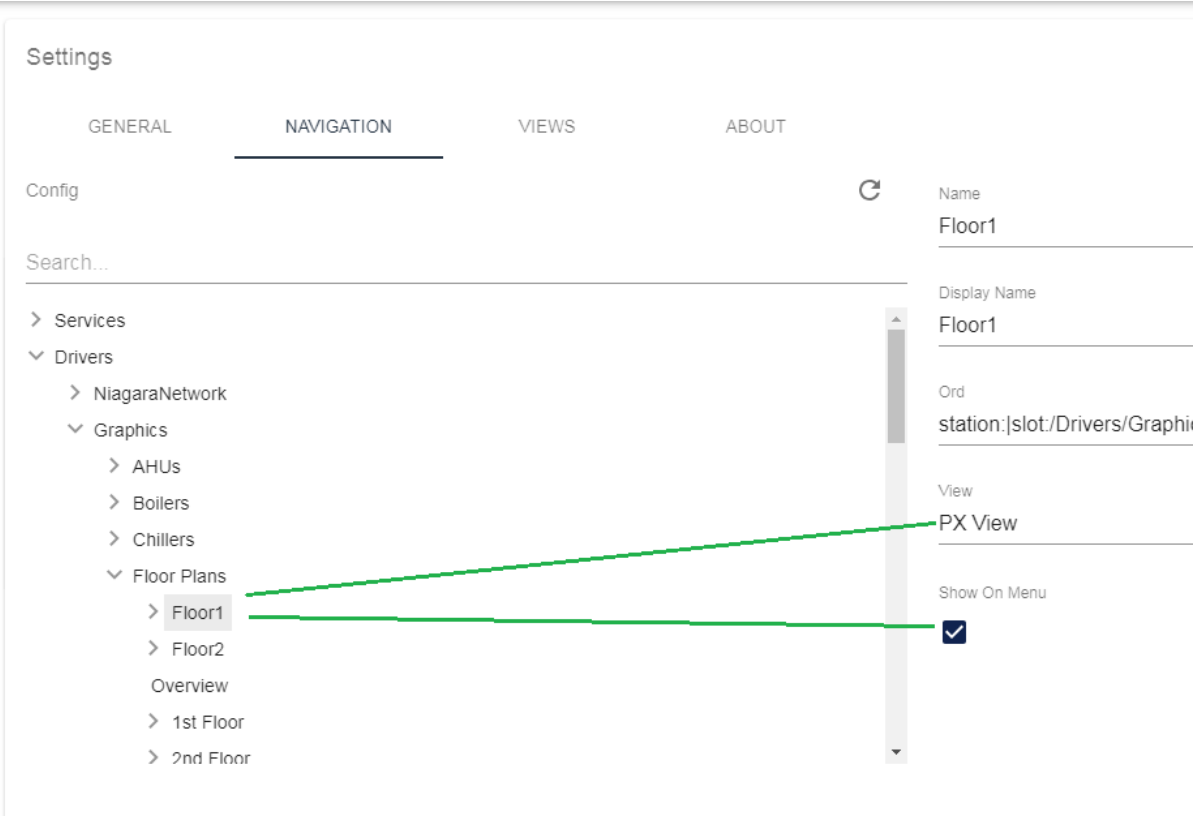
https://www.wse-ltd.com/product-services/niagara/niagara-hyperlink-widget.html



Manage equipment schedules or use our Scheduling View to adjust time, schedule events, etc.

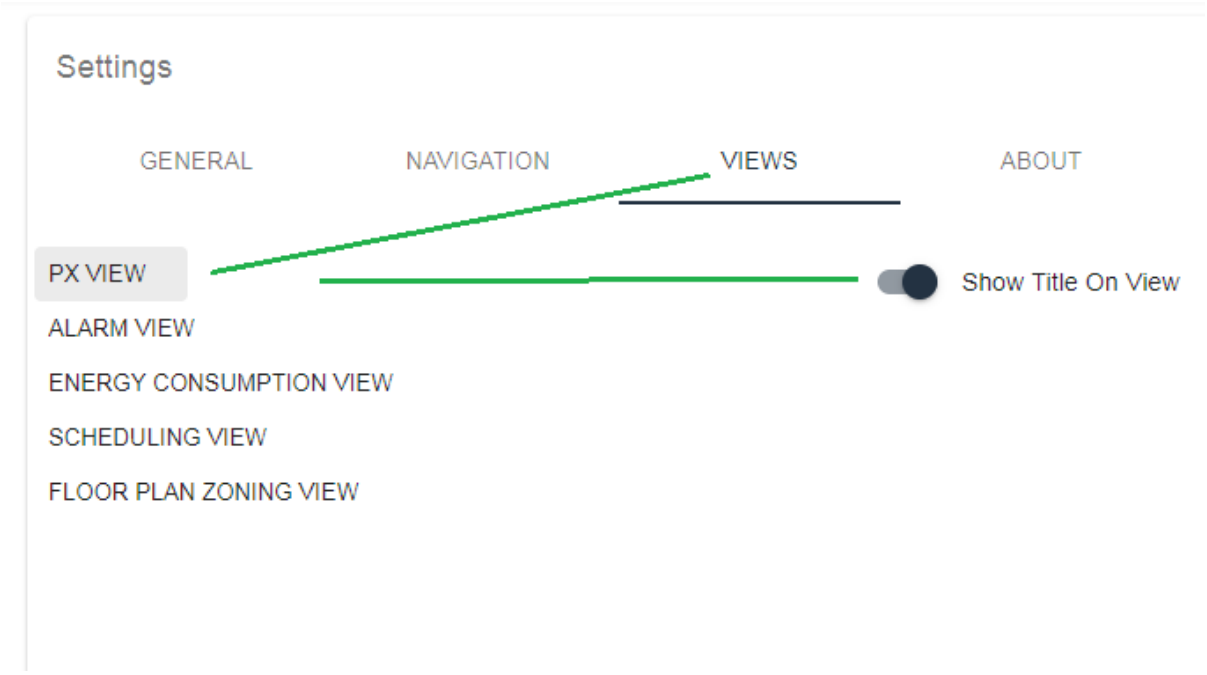


To set a station object to use the px view, go into the navigation settings and set accordingly. Save.


Settings
GENERAL
NAVIGATION
VIEWS
ABOUT
Config
Search...
Services
Drivers
NiagaraNetwork
Graphics
AHUs
Boilers
Chillers
Floor Plans
Floor1
Floor2
Overview
1st Floor
2nd Floor
Name
Floor1
Display Name
Floor1
Ord
station:|slot:/Drivers/Graphi
View
PX View
Show On Menu

Title:

To turn off the title on the PX View, go into the View settings.

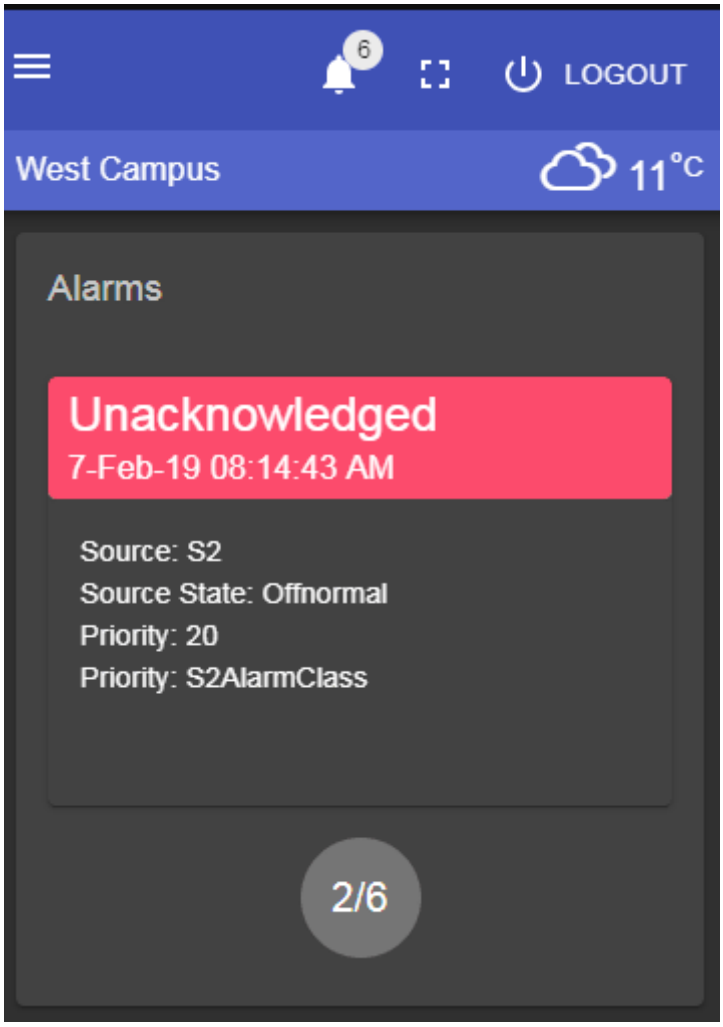


12. Alarm View

The Niagara Alarm View Template shows the current alarms in the station in a responsive table which updates in real-time. The station operator can quickly acknowledge alarms in a user-friendly interface.

FOR THE ALARM MENU ITEM TO APPEAR, YOU MUST SET THE HOME ORD (WHICH APPEARS ON THE MENU). SEE *NAVIGATION MENU* SECTION.

The alarm list adjusts to screen size. Easily view/acknowledge alarms using your mobile via swipeable card view.



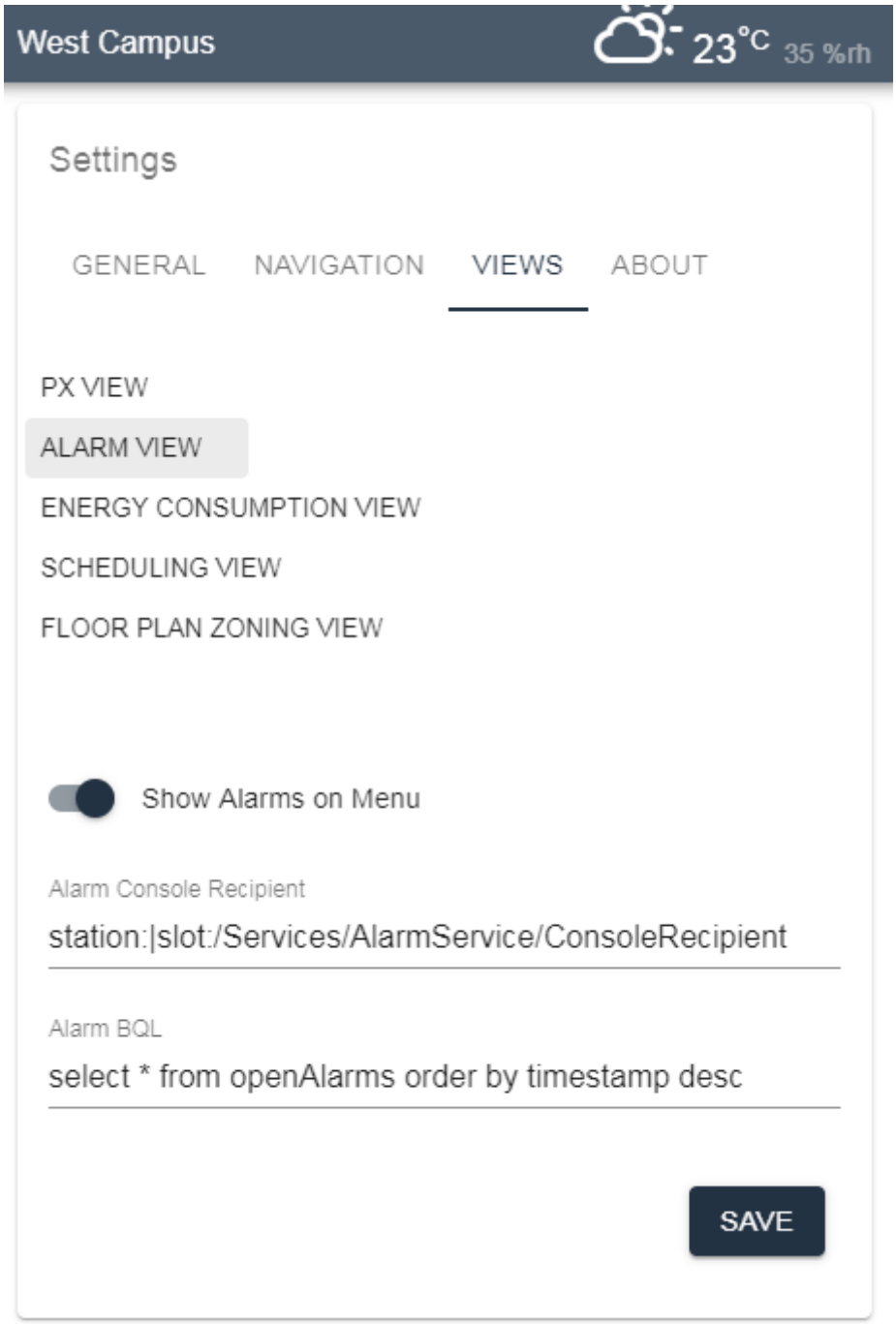
Alarm Settings:

Alarm Console Recipient: Set this to ANY console recipient within the station.

Alarm BQL: The default is:

select * from openAlarms order by timestamp desc

However, you can tailor this to select only certain alarm classes or limit the state values.

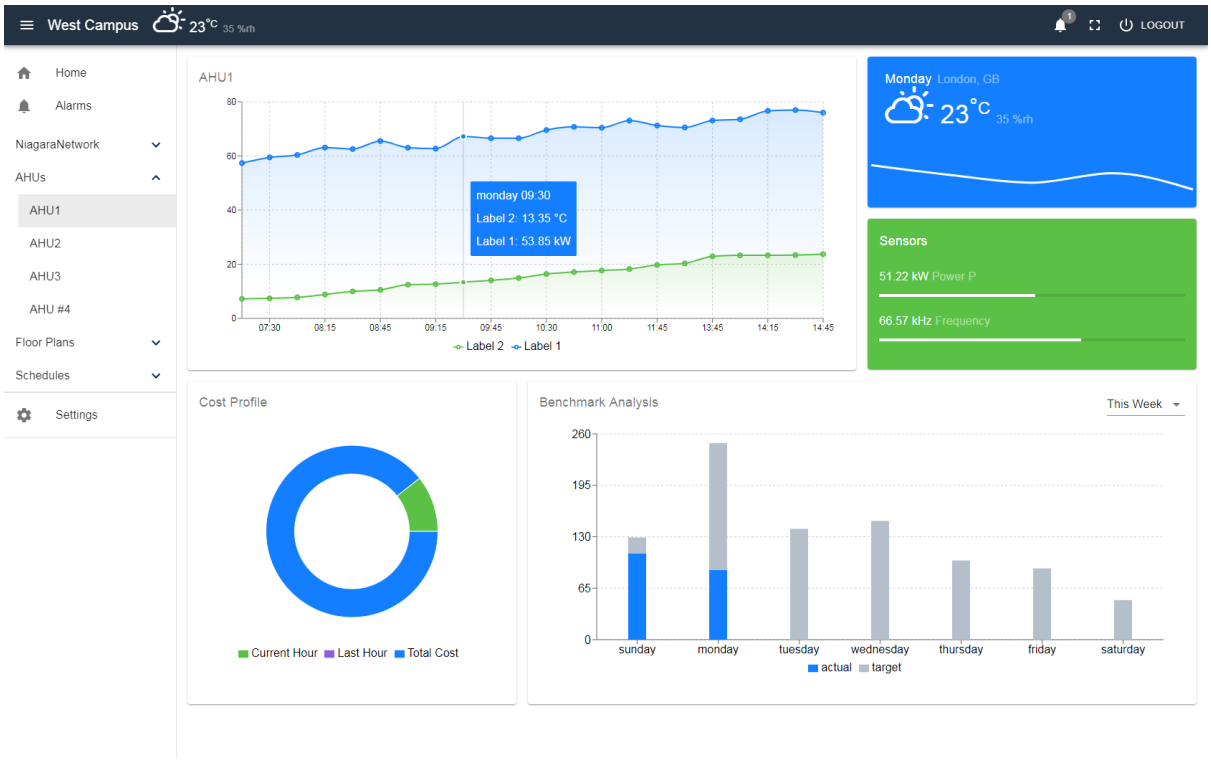


13. Energy Consumption View

The Niagara Energy Consumption View Template shows current energy consumption, power, cost, and weather with a 5-day forecast. Choose different points you want displayed on the analytic graphs, such as Power, KwH, Frequency, etc. Add a cost profile in the view settings to show how much equipment is costing the client.

DEPRECATION WARNING – this view may be deprecated in the future because you can build the exact same view with N4 View Builder™.

This view helping manage energy, analyze, and optimize the operation of facilities. It is an energy benchmarking and analysis tool, developed as integrated solution for any type of building. It enables the user to collect and manage all aspects of energy data and view on screen. In the settings you can adjust to show any time/value data. Set the energy benchmarks and detect low energy-efficiency areas by comparing consumptions against similar periods. Get an overview of the energy and associated costs for different zones, buildings, or time periods.

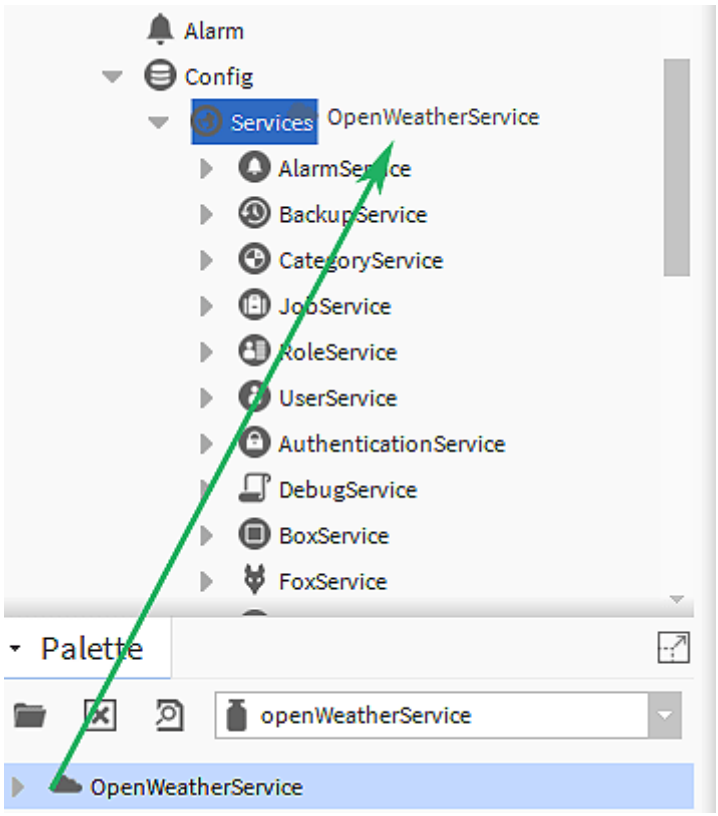


Settings

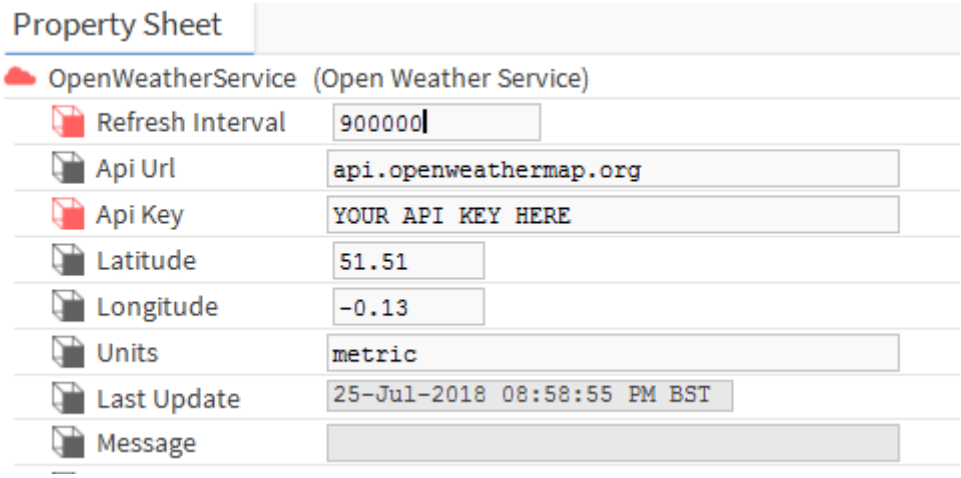
Weather:

You will receive a free weather service. The Niagara open weather service retrieves live weather data from the Open Weather Map Weather Service. The Open Weather Map Weather Service is FREE, and access is provided by an API key which must be entered on the property sheet. More information:

https://www.wse-ltd.com/product-services/niagara/niagara-open-weather-service.html



Weather Module Properties:



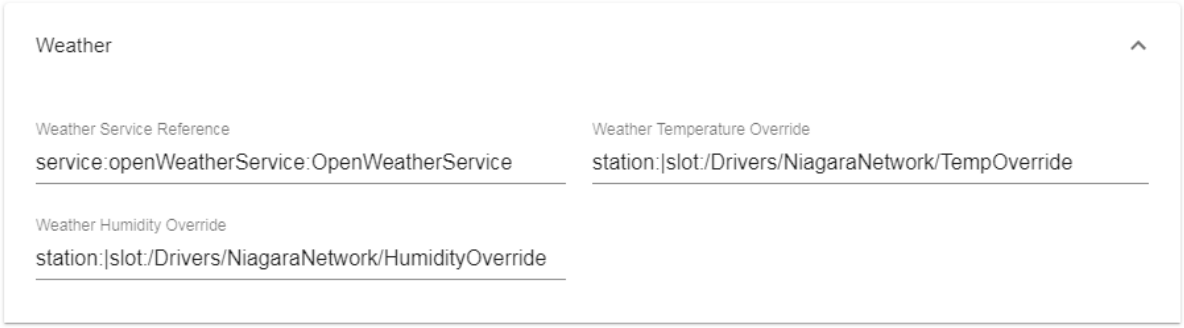
We found in testing that setting the Refresh Interval to less than 10 seconds cause the OpenWeatherMap api to send a default location.

Dashboard Weather Settings:

If the station does not have internet access you can set the override ord settings in the view settings to numeric points.

e.g.

station:|slot:/Drivers/NiagaraNetwork/TempOverride
station:|slot:/Drivers/NiagaraNetwork/HumidityOverride



Sensors:

These settings refer to relativized ords. So for the following settings, say the ord in the station is

station:|slot:/Drivers/Graphics/AHUs/AHU1

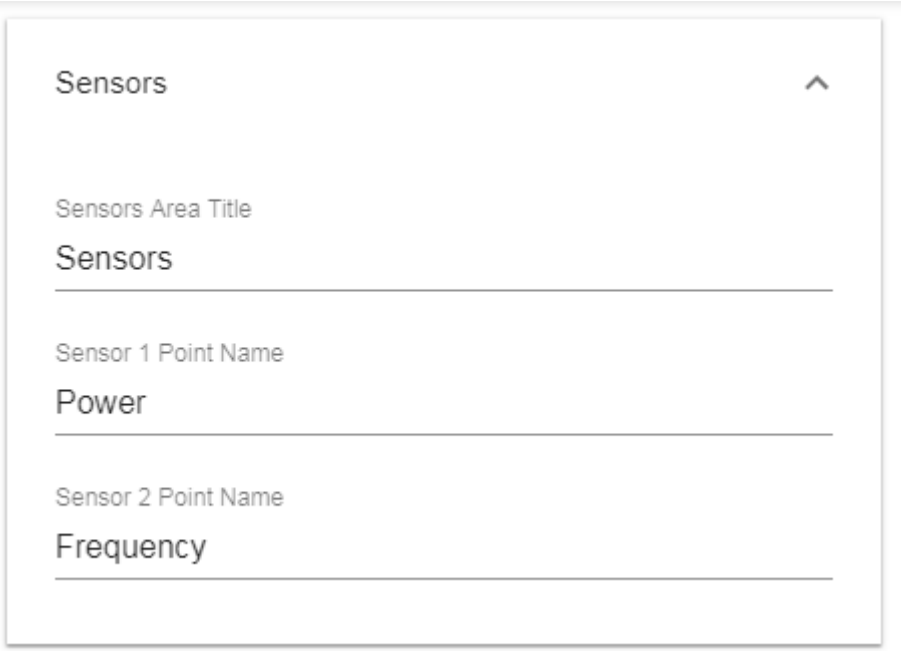
The points below would be:
station:|slot:/Drivers/Graphics/AHUs/AHU1/Power
station:|slot:/Drivers/Graphics/AHUs/AHU1/Frequency

Point Names:

So, you can use any points you require, as long as the exists under the main ord above.

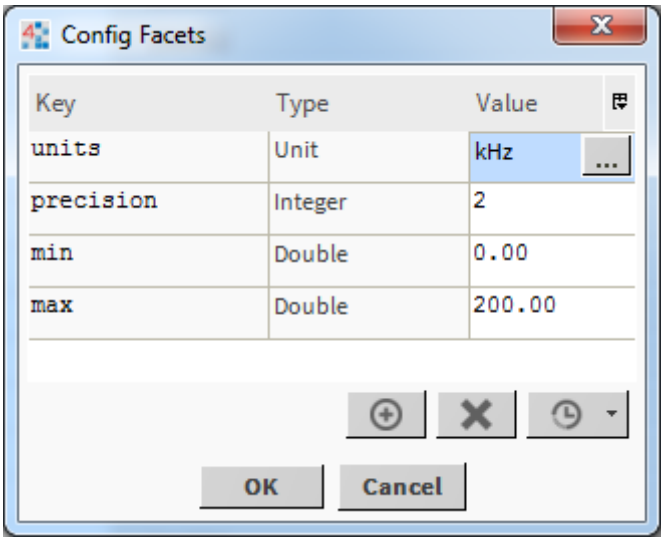
Also note on escaped point naming. E.g for a point named PM2.5 you must use the Niagara escaped name: e.g. PM2$2e5

To get this value on the point you can press CTRL+L in Workbench.

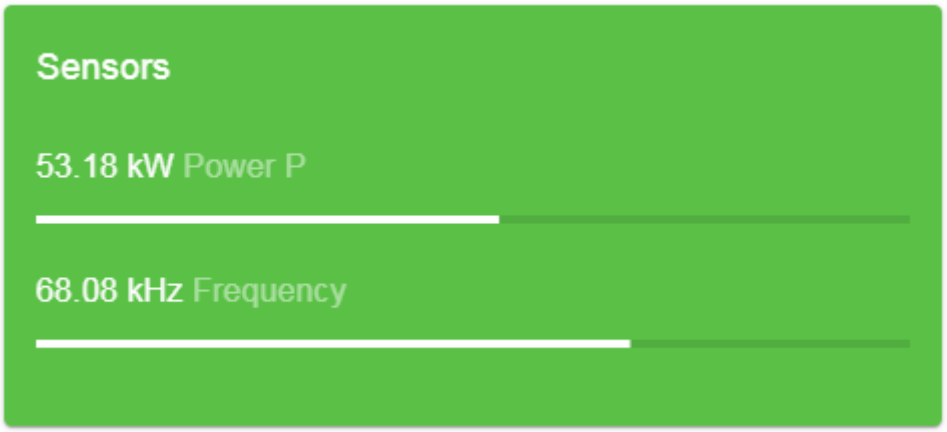


Facets:

You should set the point facets accordingly. The sensor bar will scale automatically to the min/max value you set in the facets. If you have a sensor that goes from 0 to 200, then set this in the facet settings:



Example output:



Multiline Chart:

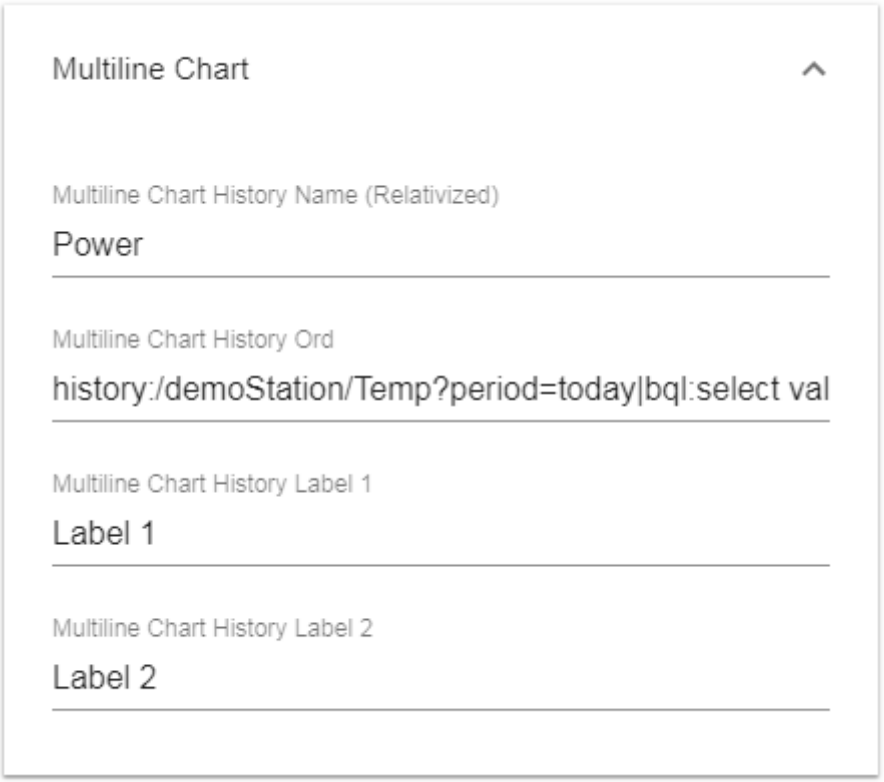
Multiline Chart History Name (Relativized):
This refers to a point. For the example above:
station:|slot:/Drivers/Graphics/AHUs/AHU1

Refers to
station:|slot:/Drivers/Graphics/AHUs/AHU1/Power

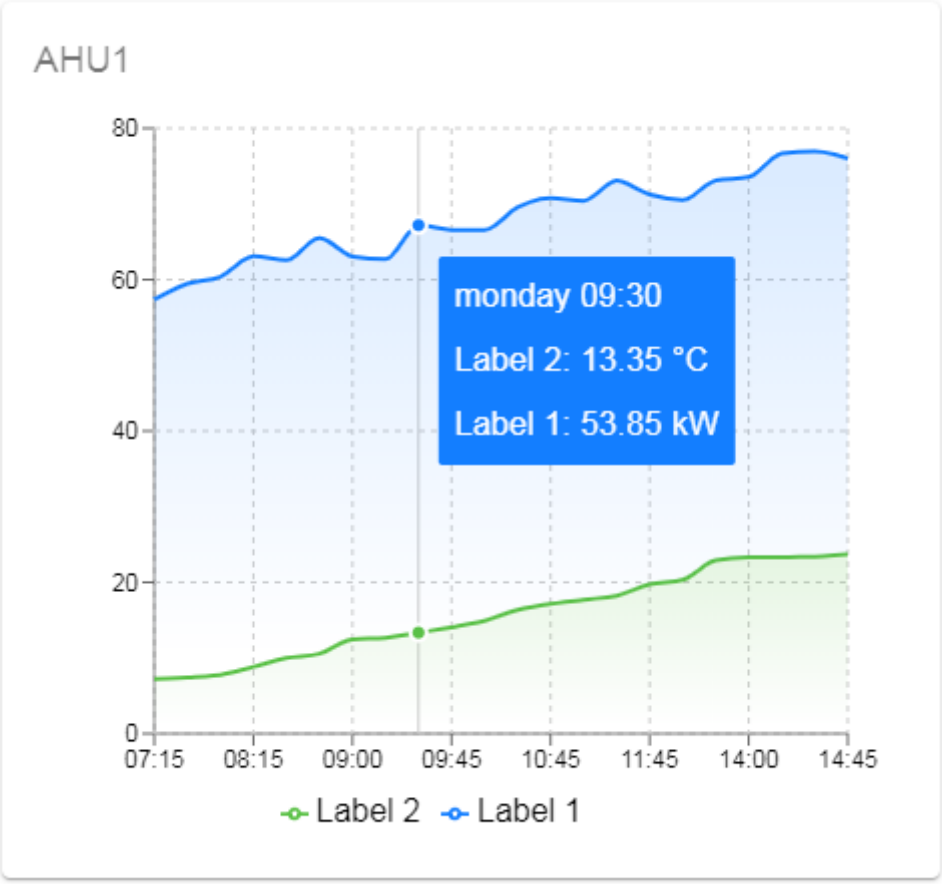
It will automatically pick up the numeric history under this point. A 15minute **numeric interval history extension** is recommended. Not a change of value etc.

Multiline Chart History Ord:
Refers to a history record NOT a point. E.g.
history:/demoStation/Temp?period=today|bql:select value, timestamp

Both of the multiline settings are required for the 2 line chart. You cannot display just 1 line at this time.


Multiline Chart
Multiline Chart History Name (Relativized)
Power
Multiline Chart History Ord
history:/demoStation/Temp?period=today|bql:select val
Multiline Chart History Label 1
Label 1
Multiline Chart History Label 2
Label 2

Result:



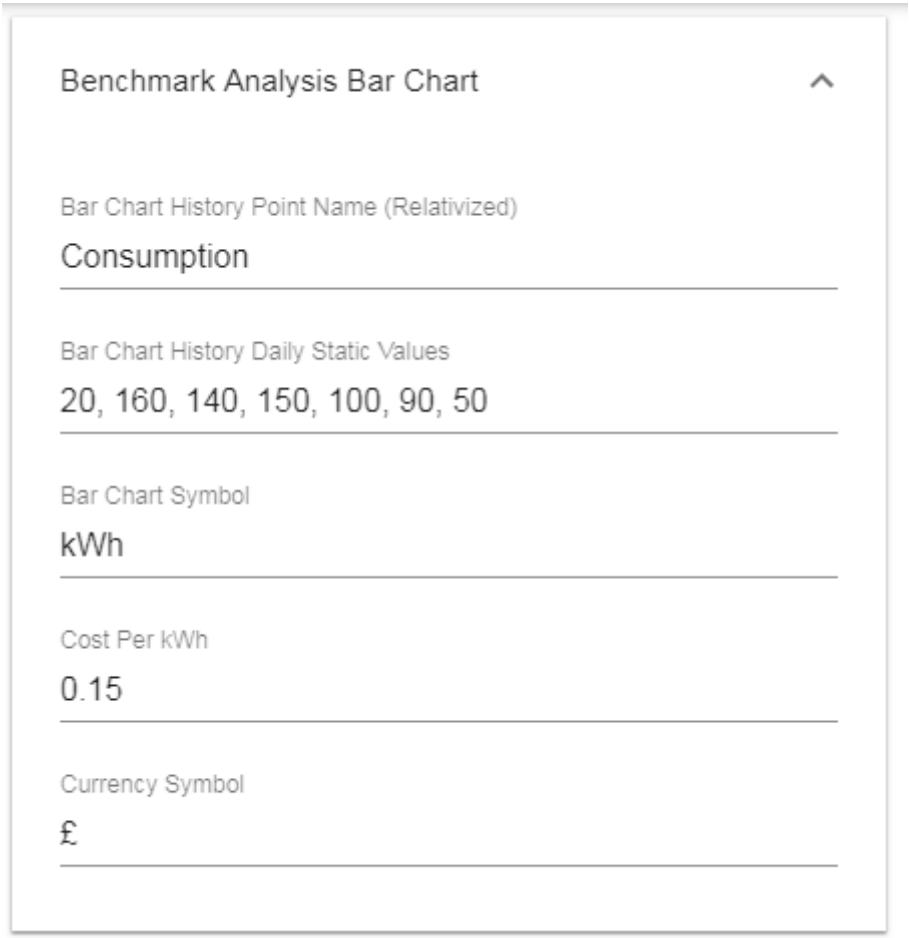
Benchmark Analysis Bar Chart

Bar Chart History Point Name (Relativized):
This refers to a point. For the example above:
station:|slot:/Drivers/Graphics/AHUs/AHU1

Refers to
station:|slot:/Drivers/Graphics/AHUs/AHU1/Consumption

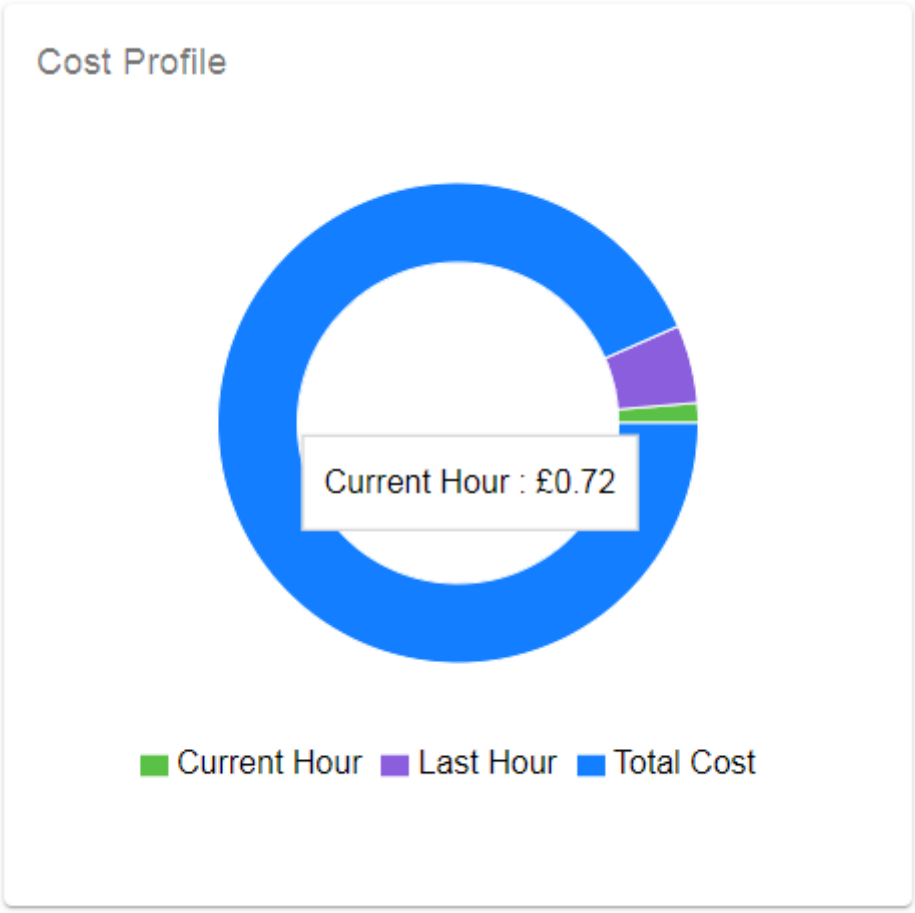
Bar Chart History Daily Static Values:
The static benchmark targets, starting from Sunday.
e.g. 20, 160, 140, 150, 100, 90, 50

Sunday = 20, Monday = 160, etc.
The dashboard will automatically calculate the values for last week, daily, etc.

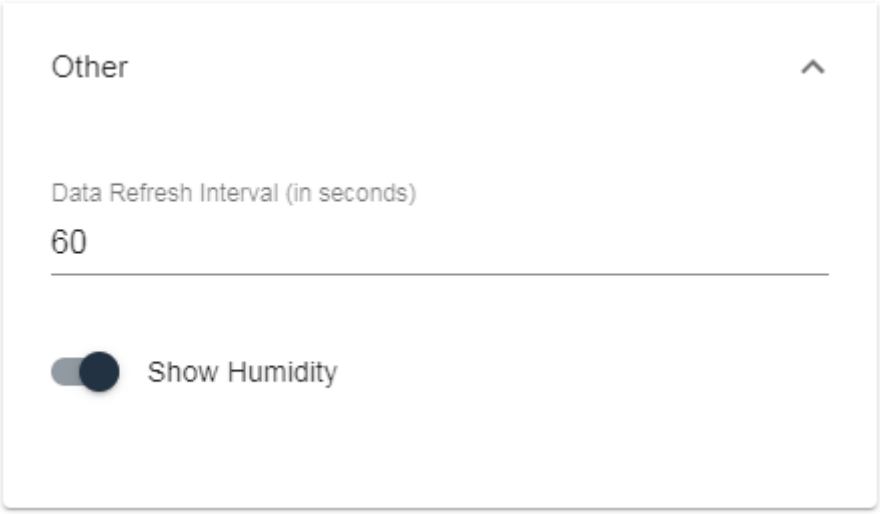


Consumption Donut Chart:

let's say you have a consumption point, Consumption. It should be a pulse meter point. So it only ever goes up. (Unless there is a rollover value, so you would have to put some logic in on the Niagara side). E.g. starts at 1kwh then 2...etc etc. Say at the beginning of the hour the point recorded 20kwh, and at the end its 60kwh. The consumption for the hour would be 40kwh. This is then multiplied by the cost you put in the Cost per kWh settings above.


Cost Profile
Current Hour : £0.72
Current Hour
Last Hour
Total Cost

Other:

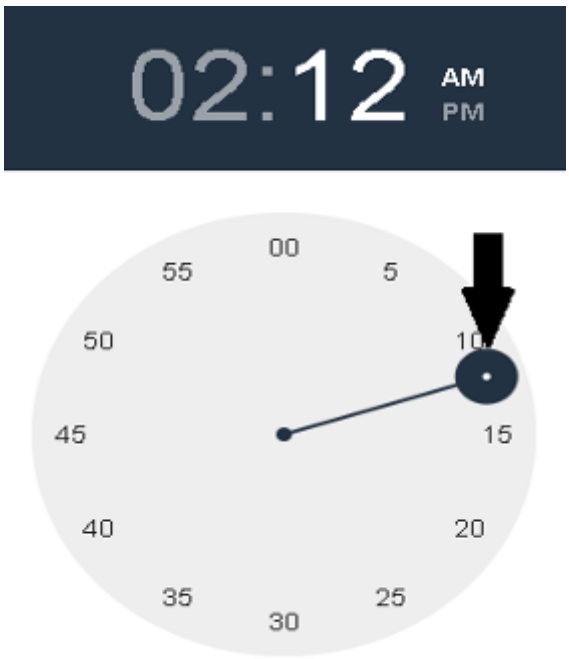

Other
Data Refresh Interval (in seconds)
60
Show Humidity

14. Scheduling View

How to add new event on to the weekly schedule?

1. Left click on to grey box below day of the week which you want to add new event.
2. Pick the start time of the event which you want to add and, on the clock, move the arrow to the hour you want.

3. Move arrow to the minutes you want.



4. Click on AM button or PM and then click on OK.

5. Pick the End time of the event and repeat process again as shown in Step2.
6. Chose event output by clicking On or Off.

7. After completing steps shown click Save and the event should be added on to the weekly schedule

<u>New added event can NOT overlap witch already existing event.</u>

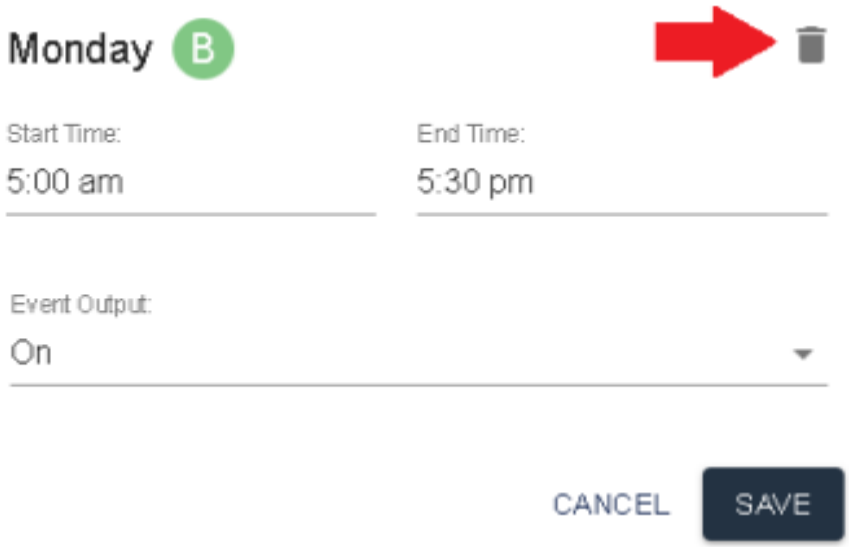
How to edit already existing event or deleted?

Editing event:

Left click on existing event click on time which you want to change or Event output if you are happy with Cheng click Save button and Cheng will be a plaid to the event which was chosen.

Deleting event:

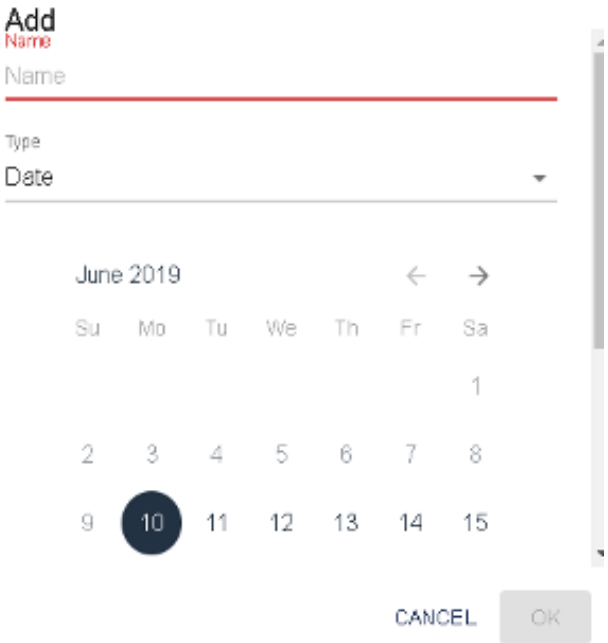
1. Click on event which you want to delete
2. Click on bin icon and the event should be deleted



How to add special event to schedule?

1. Click on special events icon scroll down and click on add.

2. Enter the name of the event, then select type of date, finally pick date you want by clicking number on calendar. If you want different month click on arrow pointing right or left. For the event to be scheduled every year, tick the Any Year box.

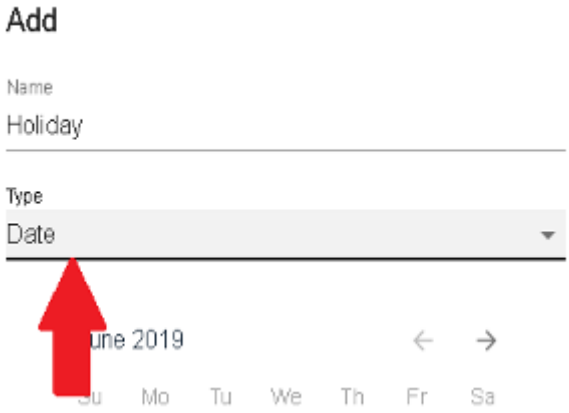


3. If you are happy with date which you put, and month, click OK and it well be added to your special events.
4. After you added your special event scroll down and click on save icon.

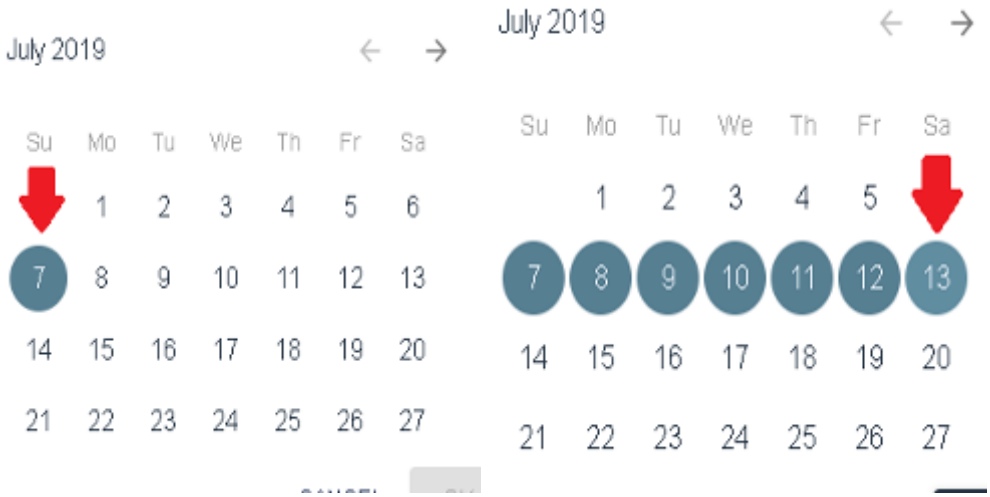
How to add Date Range of special event?

1. Click on special events icon scroll down and click on add.

2. Write Name of your special event, then in type menu select Date Range.



3. Click on your first day of your special event and last (All days between will be highlighted).

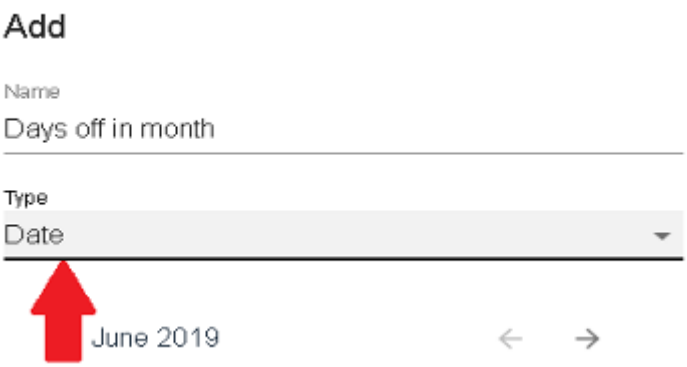


4. If you are happy with the days, click OK and Scroll down, and click save icon.

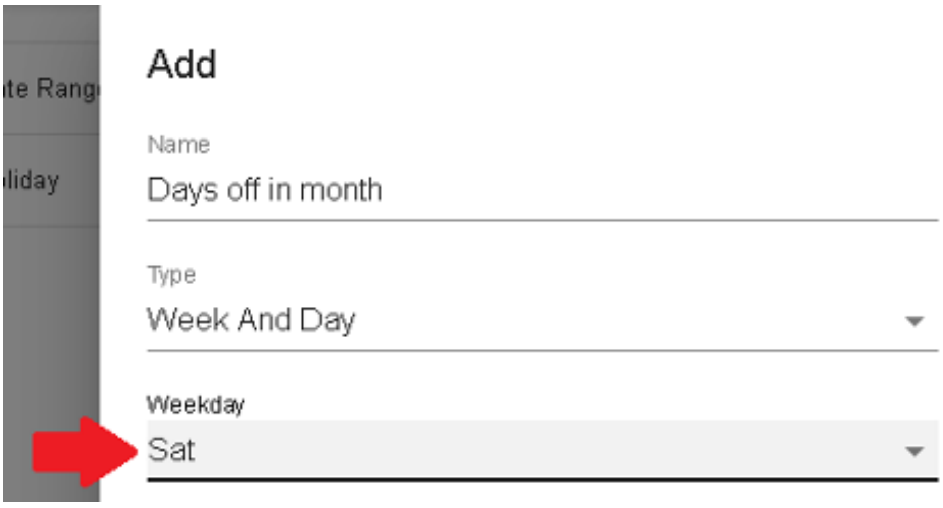
How to add Week and day of your special event?

1. Click on special events icon scroll down and click on add.

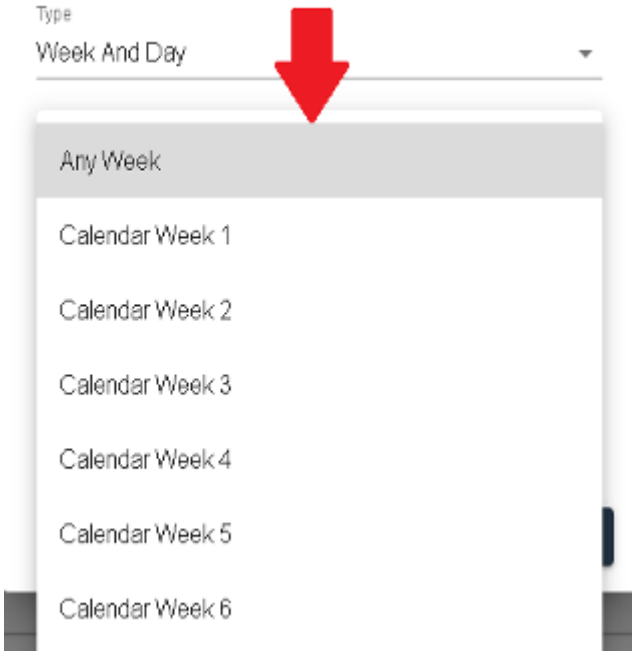
2. Write Name of your special event, then in type menu select Week and day.



3. Click on Weekday and then select one day of the week.



4. Click on week Number and then select one of weeks in month, and then select the month



5. After finishing entering all the details, click on OK and Scroll down and click save icon.

How to Edit or Delete your special event?

Editing special event:

1. Select event which you want to edit then scroll down and click on edit icon.

2. Edit anything which you don't like in your event then click OK.
3. After you made change scroll down and click save icon.

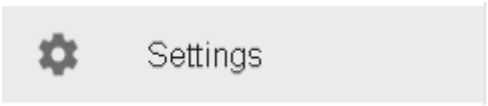
Deleting special event:

1. Select event which you want to delete
2. Click on to delete icon and the special events should be deleted.

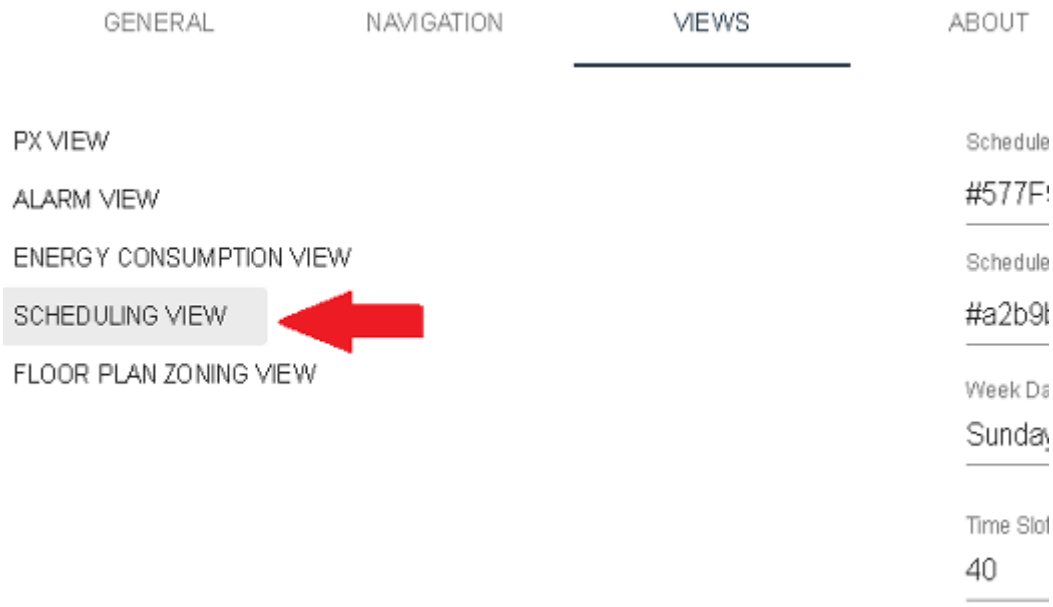
3. After you delete special event which you want to scroll down and click on save icon.

How to change the colour of schedules (applies to enum schedules)?

1. Click on settings button



2. Click on panel which would be shown Views then go on Scheduling View.



3. Pick schedule colour by clinking on one of four boxes and picking colour.

4. Click save icon and the changes should be made.

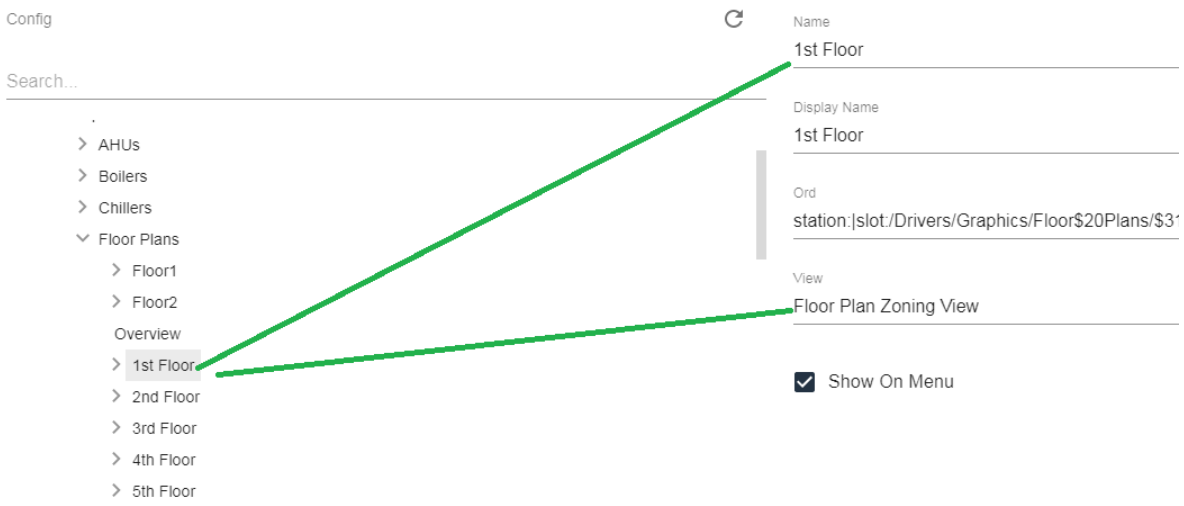
15. Floorplan Occupancy/Zone View

The Floor Plan Zoning Template allows you to add polygon shapes over your existing images and display point values. As an admin or super-user create polygons with ord references or link to other plans. When you log on as a non-admin user the image is displayed with clickable polygon areas. Set up to 3 different colors with values for min, optimal, and max. Shapes change colour in real-time. Add the occupancy icon which binds to a station boolean point to show if the area is occupied.

NOTE: this product is not to be confused with our Floor plan Zone Widget, which is a separate product, but has similar functionality.

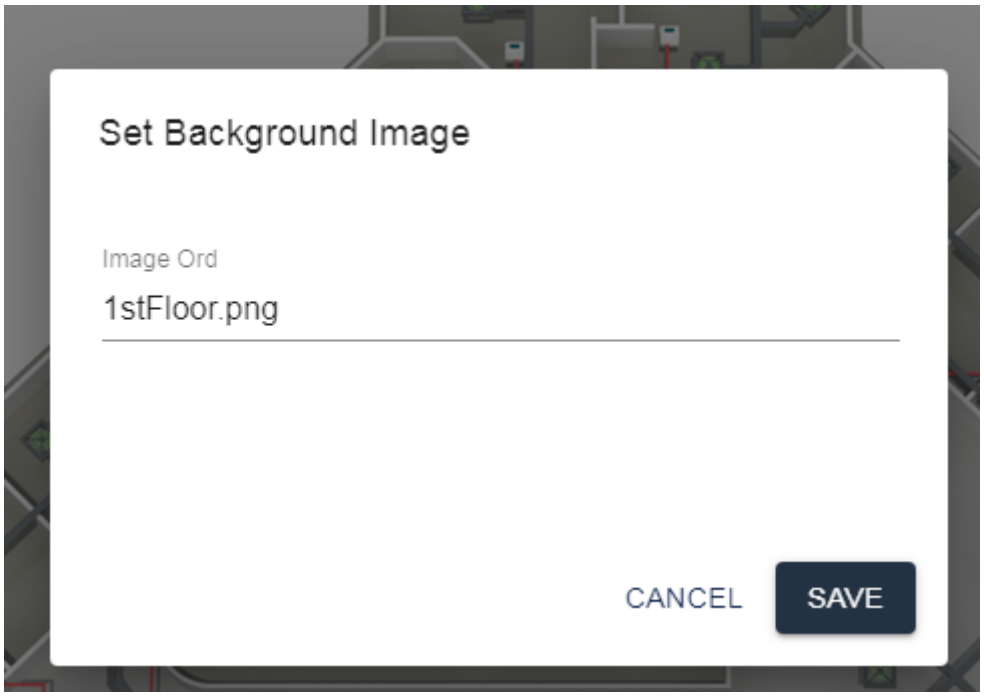
Setup:

1. Assign a station object to this view.



2. Using the dashboard menu, navigate to the station object. You should see an empty page ready to be configured:

3. Set the background image, and click save. NOTE: the file must be in the shared folder directory on the station. E.g. \vykon\stations\demoStation\shared\1stFloor.png

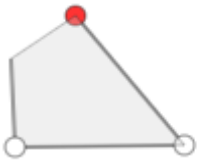


4. Next start creating shapes, lines, polygons as needed using the toolset
   a. Select Tool – selects a single shape:

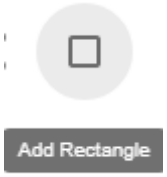
   b. Background image – sets the background image:

   c. Polygon Tool – creates a polygon and joined via dots:

   Example:

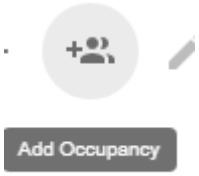


d. Rectangle – creates a rectangle:



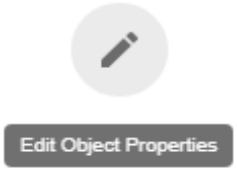
e. Line – adds a straight line:

f. Occupancy Icon – adds occupancy icon:

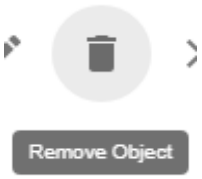


NOTE – you can also change this icon in the dashboard settings.

g. Edit Object Properties – with an object selected click this icon to edit its properties. Double-clicking on an object also has the same effect.

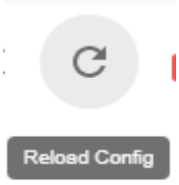


h. Remove Object – removes a selected object:



i. Clear All – clears all objects on screen. This will clear all objects on the floorplan (BUT NOT SAVE). Floorplan is not actually saved until you click the save button. So if you accidently clear all, its ok, until you click save:

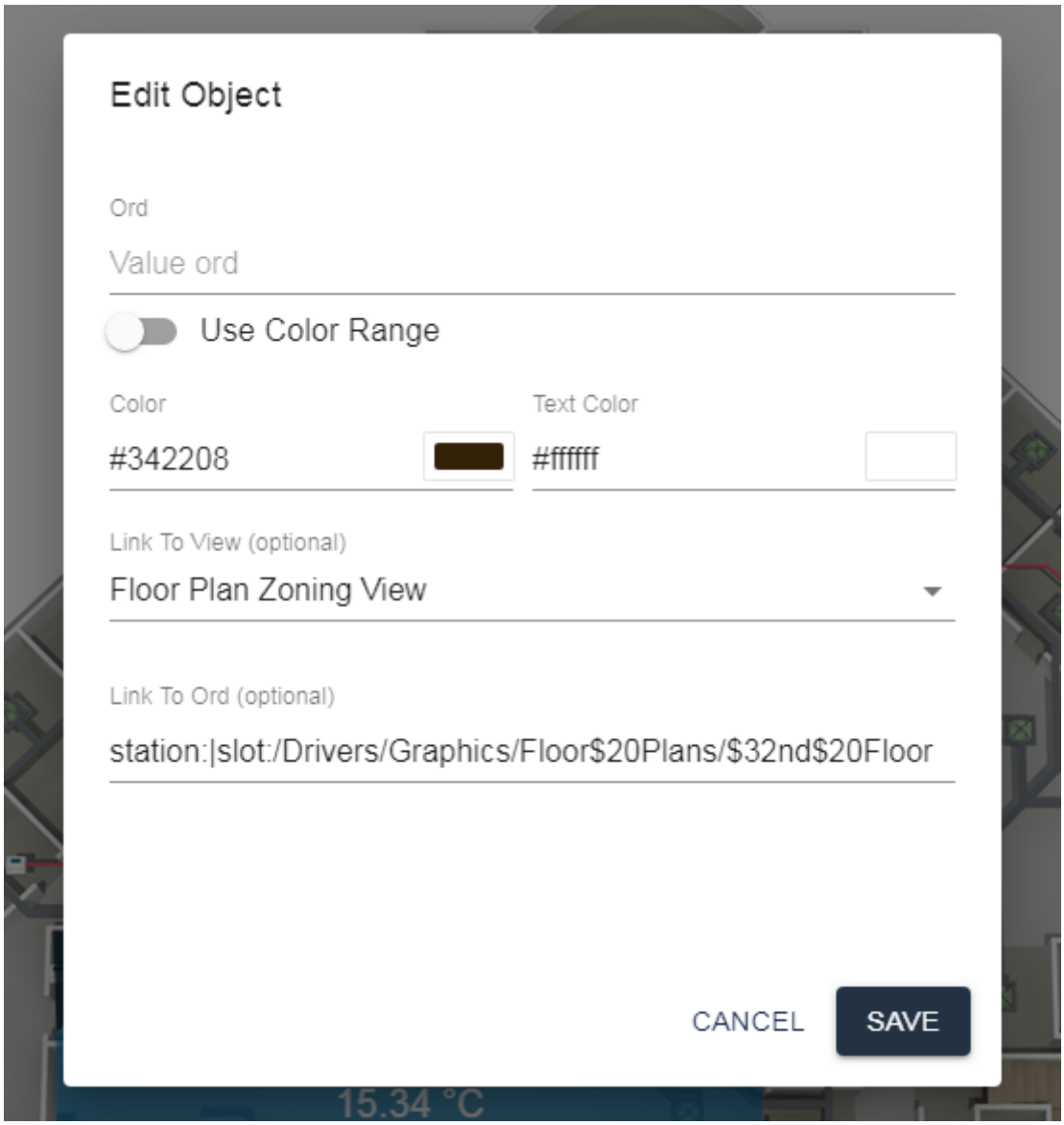
j. Reload Config – this will reload the floorplan view from the saved config. Kind of like a reset to last save:



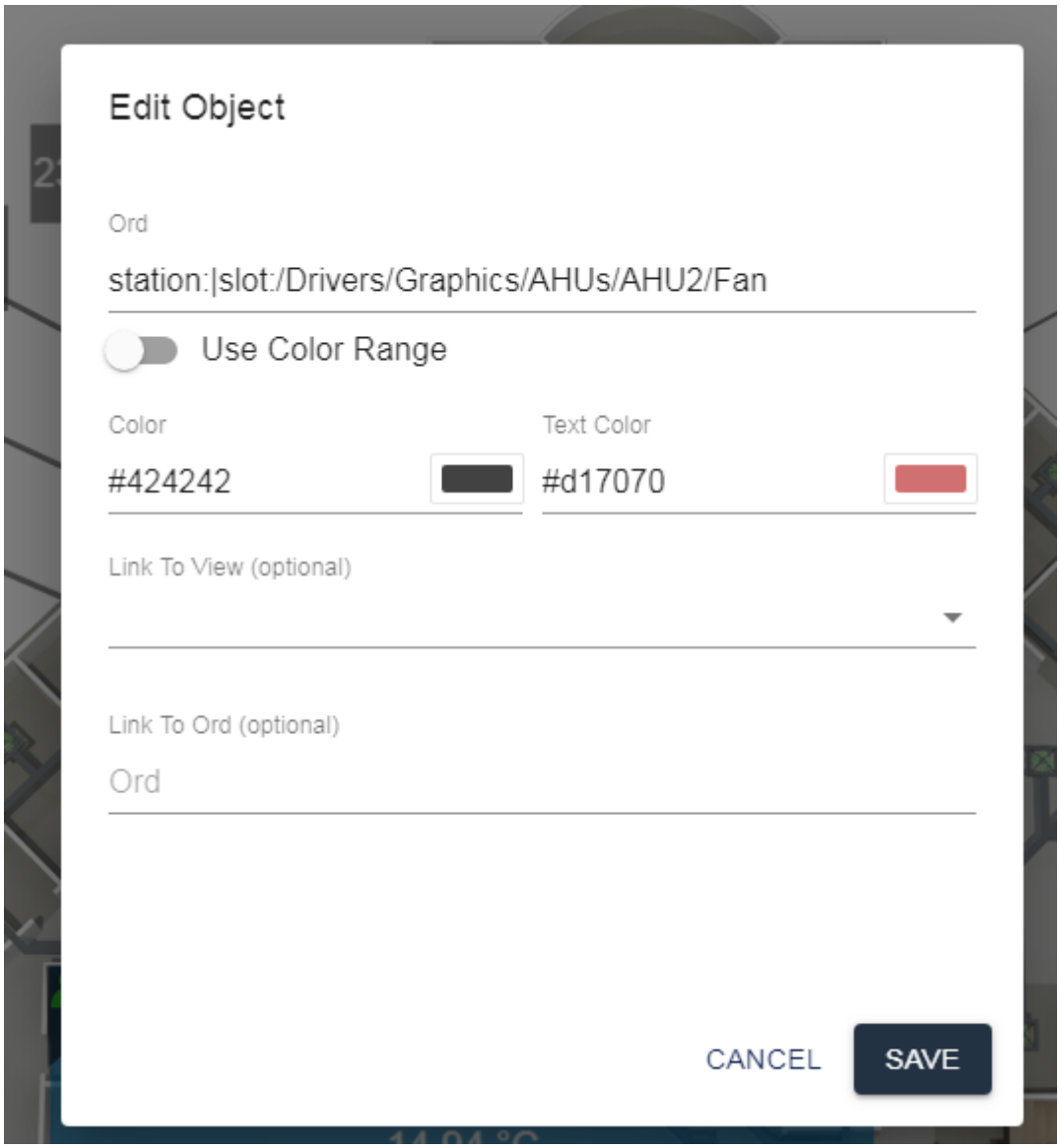
k. Lock Tool – this will lock the floorplan view, so you can click on links and navigate to other links.

l. Save – this will save the floorplan to the dashboard config. Save often:

5. To create a shape that links to other objects, simply click on the add polygon, add rectangle. Then click on the edit object properties button to make changes.

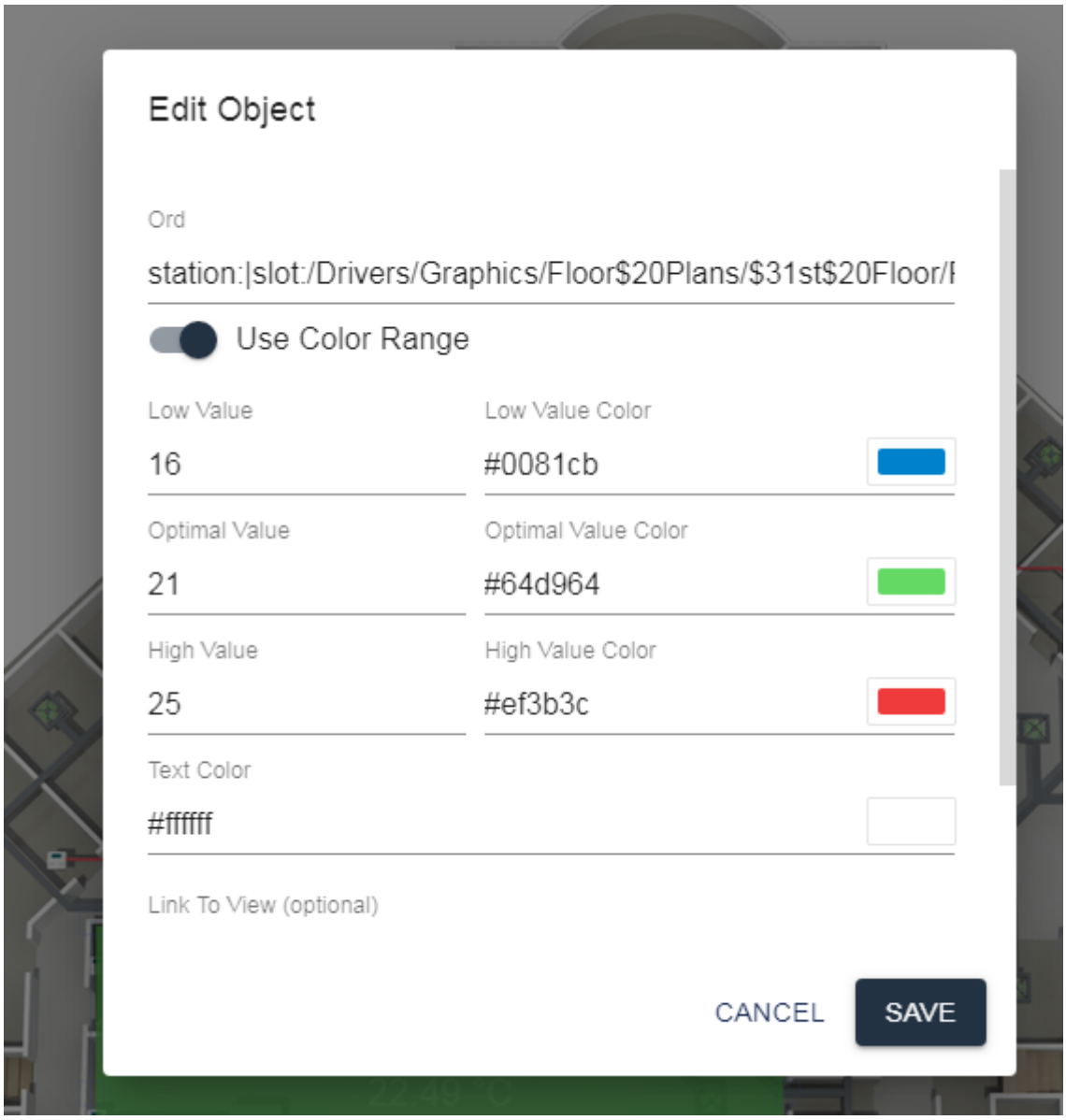


6. To create a value shape, add a polygon or rectangle and sets its ord value.



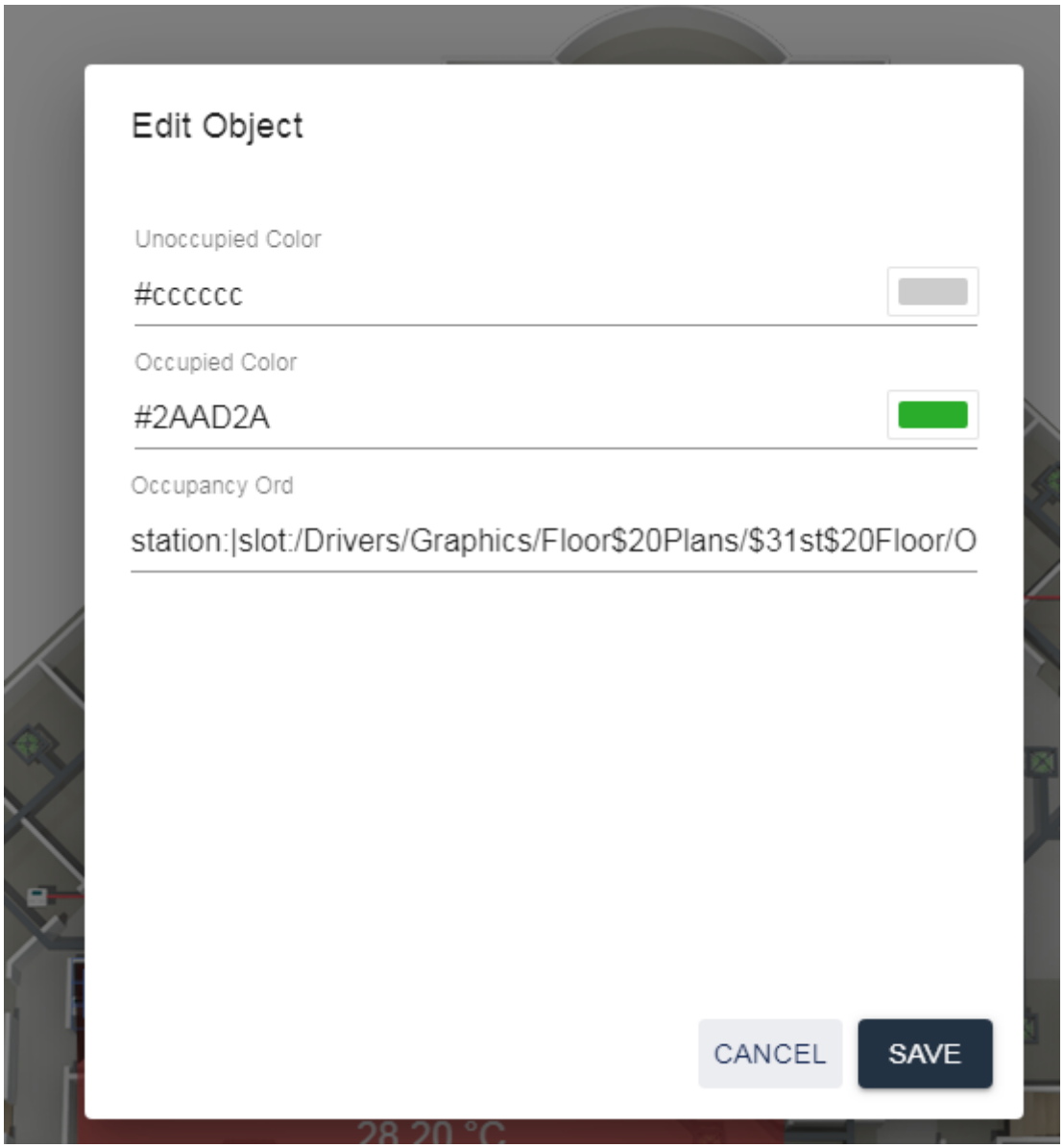
NOTE: you can bind the ord to a numeric point, boolean, or string point.

7. To create a colour range ord which changes colour based on its numeric value, add a rectangle or polygon as needed.



NOTE: you should bind to a numeric point.

8. To create an occupancy icon, click on the occupancy icon. It must be bound to a Boolean point. Click edit object or double click to edit its properties:



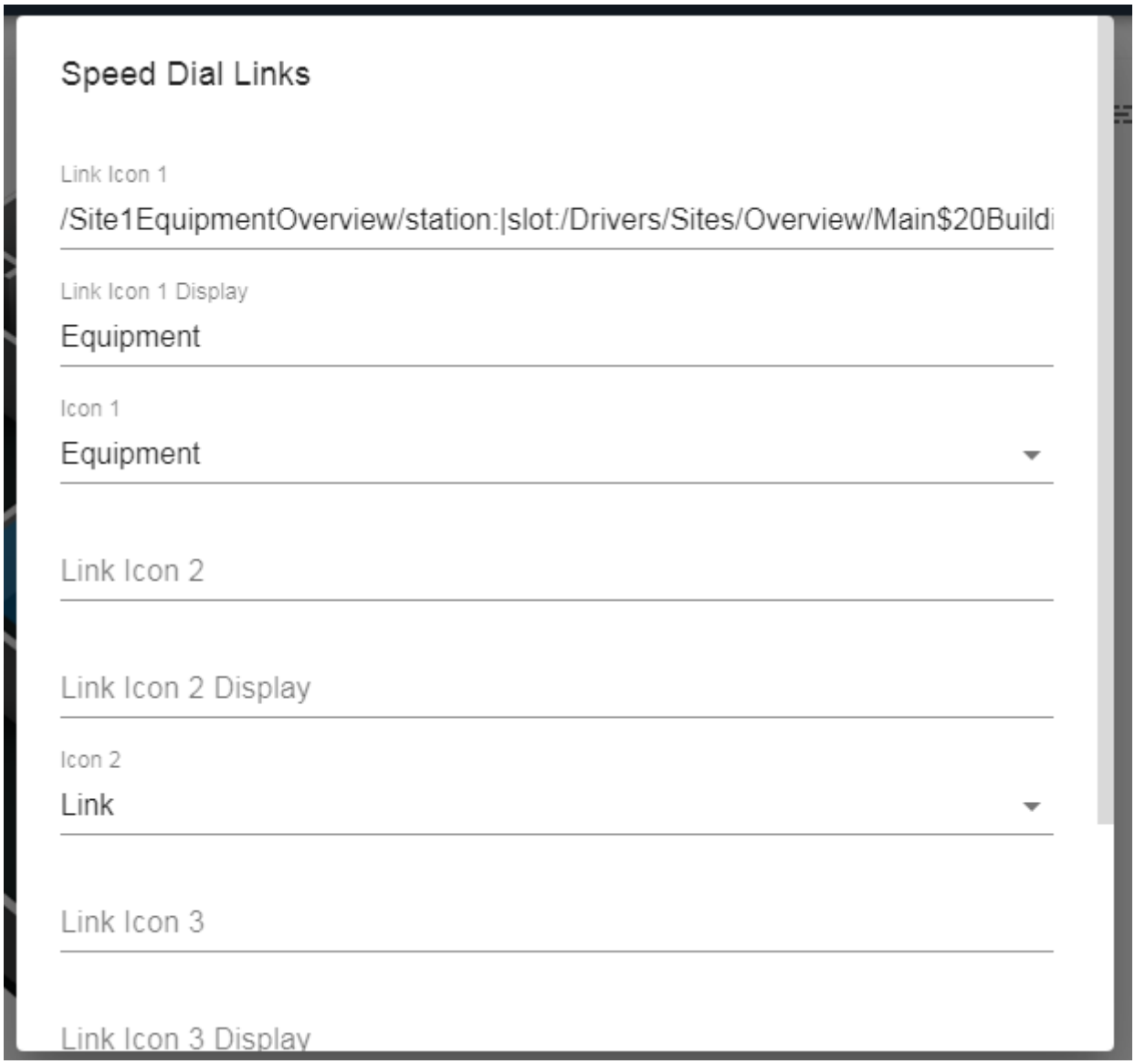
9. Save often and click Reload config to verify your changes.

Speed Dial Links (Optional):

Up to 3 speed dial links can be added to the floor plan view. The links will navigate to other dashboard links. If no links are specified, the Speed Dial link will not appear.

Speed Dial Settings:

Up to 3 links can be added.

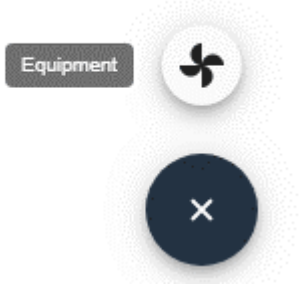


Link Icon 1 – is dashboard link value. The link should be a dashboard type link: e.g.

/Site1EquipmentOverview/station:|slot:/Drivers/Sites/Overview/Main$20Building/Equipment?displayName=Equipment

/Site1EquipmentOverview/station:|station:|slot:/Drivers/Sites/Overview/Main$20Building/Equipment/Histories?displayName=Histories

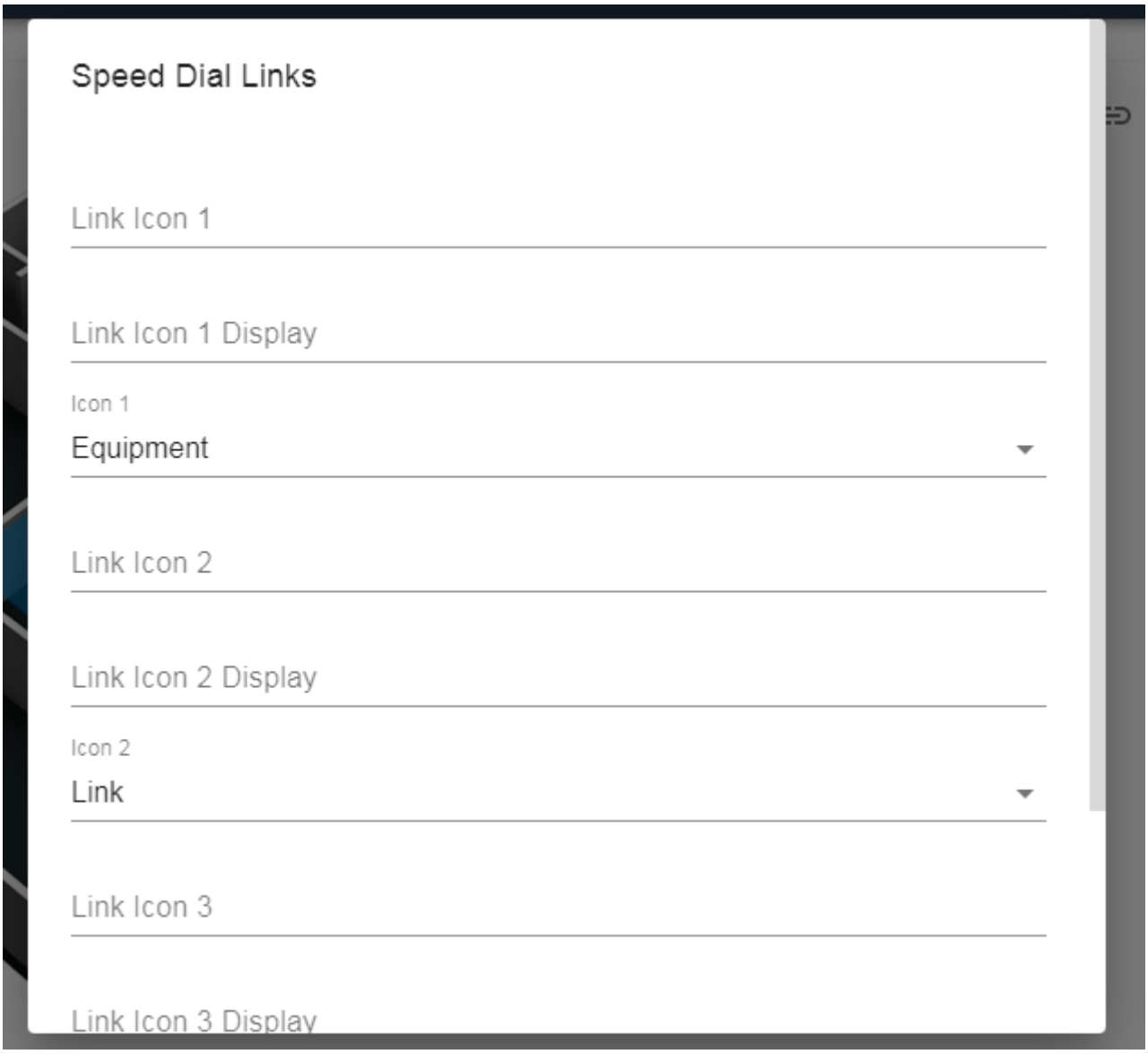
Link 1 Icon Display Name – this the name you want to appear when the mouse is hovered over the link. When the screen size is less than 600 pixels, tooltips are always visible.



Icon 1 – This is the icon you want to display for the speed dial link. NOTE: only a select number of icons have been added to keep the dashboard size light. The icons that have been used throughout the dashboard on other views are the icons that are available to choose. A request can be made for additional icons if required.

After you have set your links, you must save the config:

TO CLEAR – to remove all speed dial links and the speed dial icon, simply clear all the text values:


Speed Dial Links
Link Icon 1
Link Icon 1 Display
Icon 1
Equipment
Link Icon 2
Link Icon 2 Display
Icon 2
Link
Link Icon 3
Link Icon 3 Display

16. View Builder

N4 View builder™ allows you to build custom dashboards by dragging n' dropping widgets into tab or grid style interface.

Quick Setup:

STEP 1 - Select a Layout

Choose a tab or grid style view. Then select a grid layout. Layouts automatically adjust to screen size. Standard and advanced layouts are included.

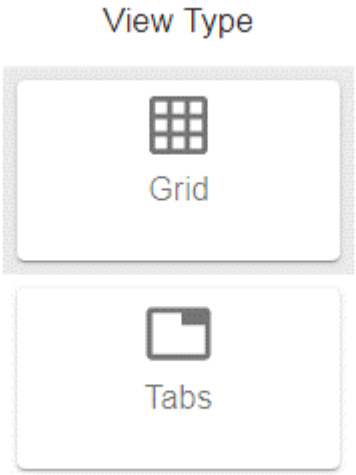
STEP 2 - Drag n' Drop Widgets

Drag n' Drop Widgets into the layout grid. Set widget properties like Ords, or colours. Widgets include graphs, charts, labels, images, points, gauges, data tables, and loads more.

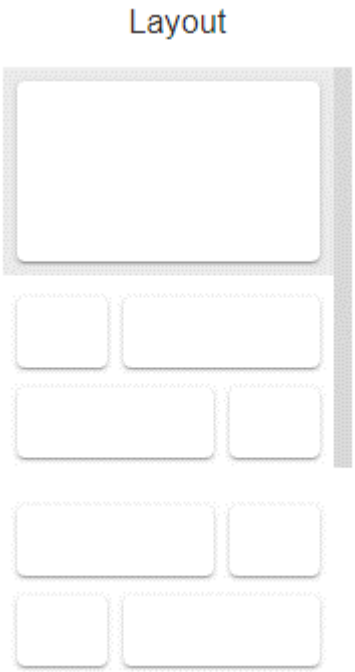
STEP 3 - Apply Your View

Apply your View to station objects or folders. Data is retrieved automatically and updates in real-time.

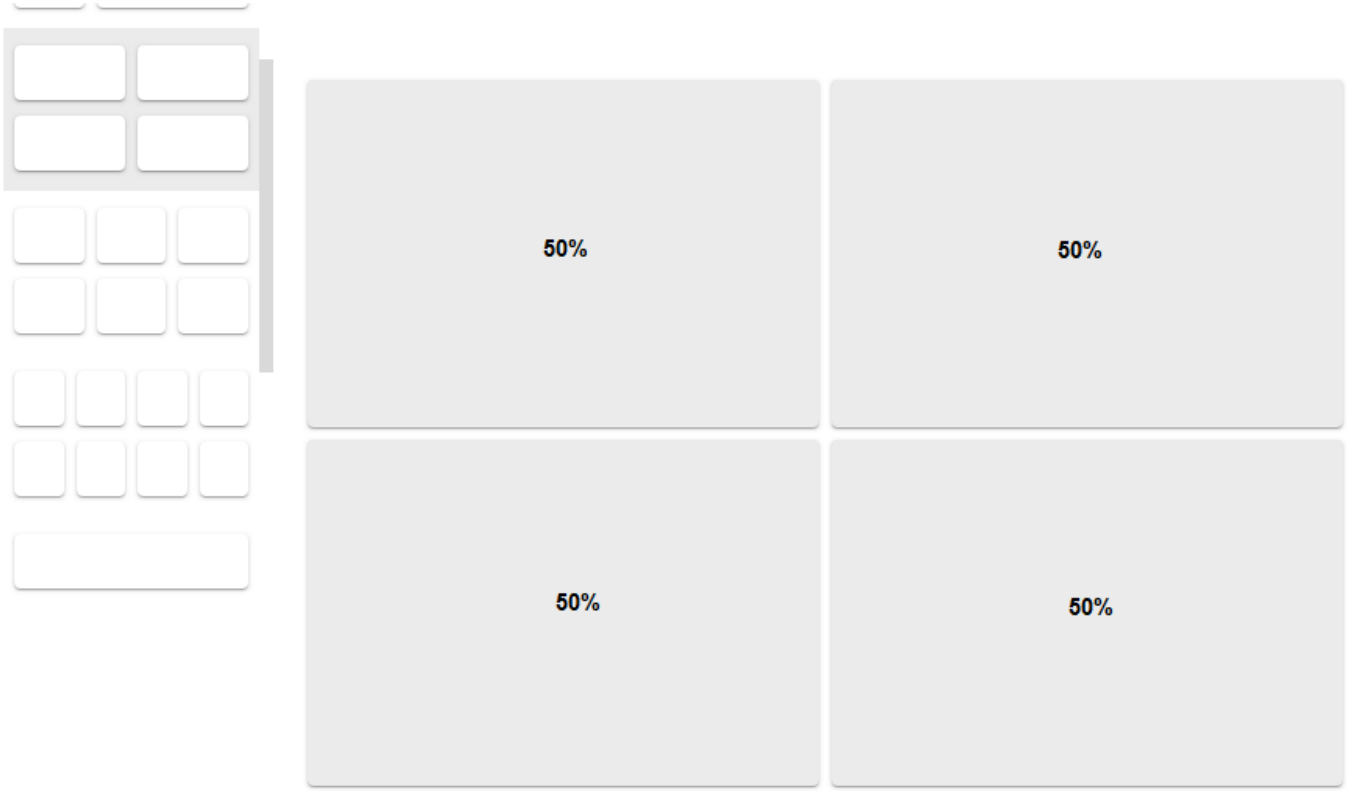
View Type: views can be arranged in a grid style or tab style. When tabs are selected, grids will also be applied to each tab. More on this later.



We'll start by doing a simple grid type view. Next select a layout:

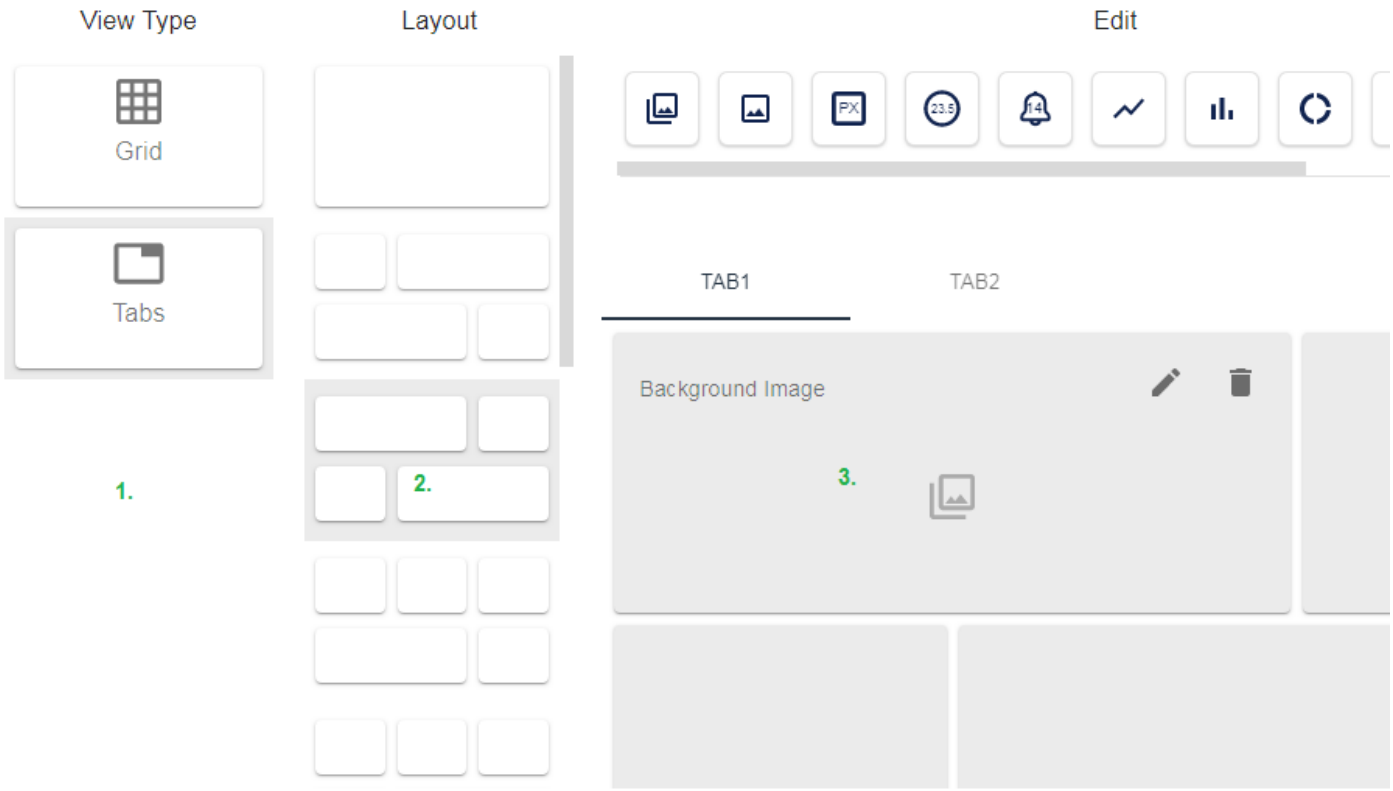


Layouts: layouts are the area of the screen usually split up into different size grids. For example, take a 2 x 2 grid. Each grid will take up 50% width of the screen:



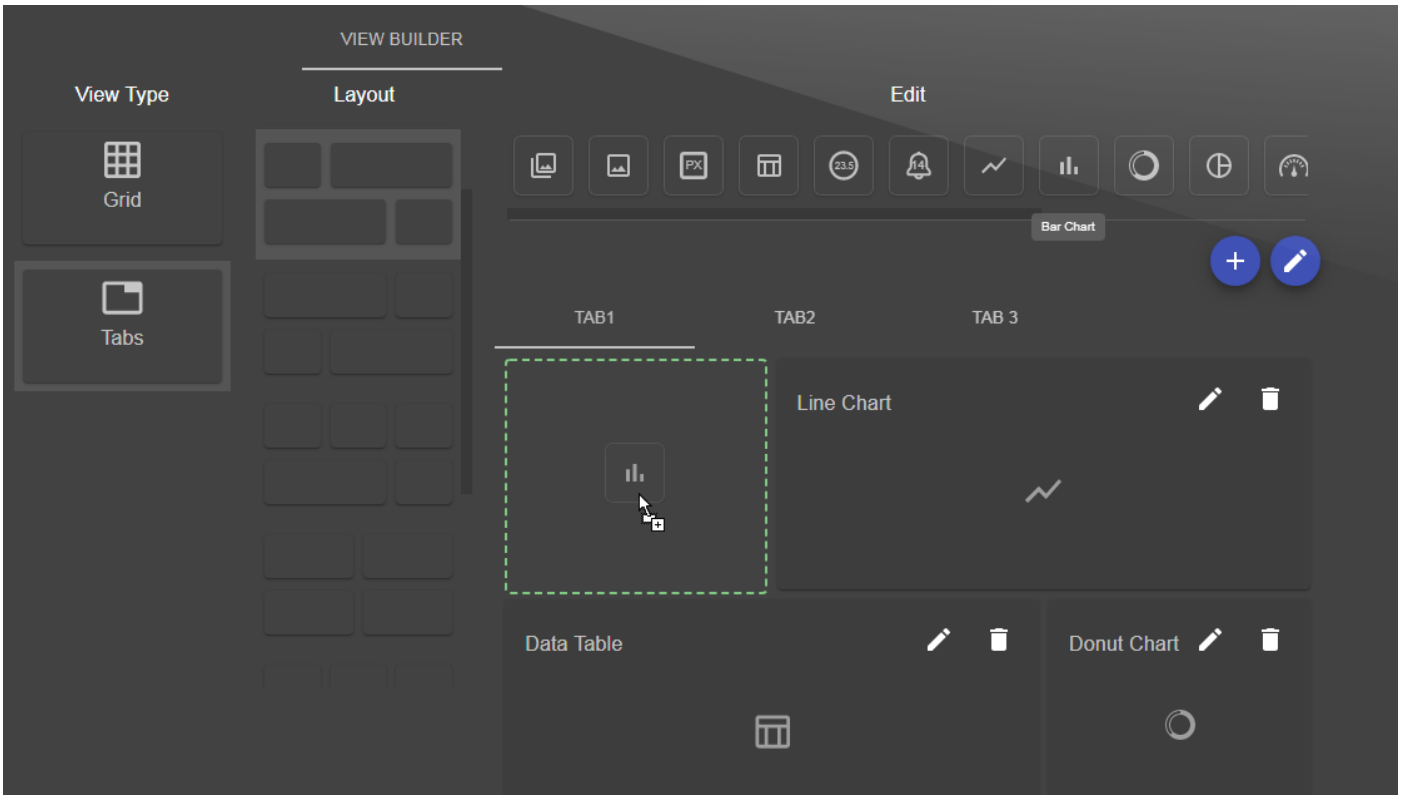
There are many different grid layouts and the most commonly used grids have been added to View Builder. More will be added a later date.

Tabs also take grids in their respective tab. It's a 1-2-3 process. 1. Select tabs, 2. Select layout, 3. Drag n' drop widgets.



With a layout selected, the next part is to drag widgets onto the grid layout.

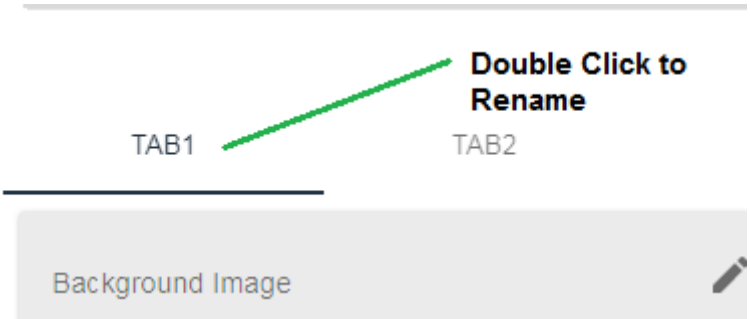
Hold the left mouse button (if you're using right hand mouse configuration), and simply drag the widget into a grid area:



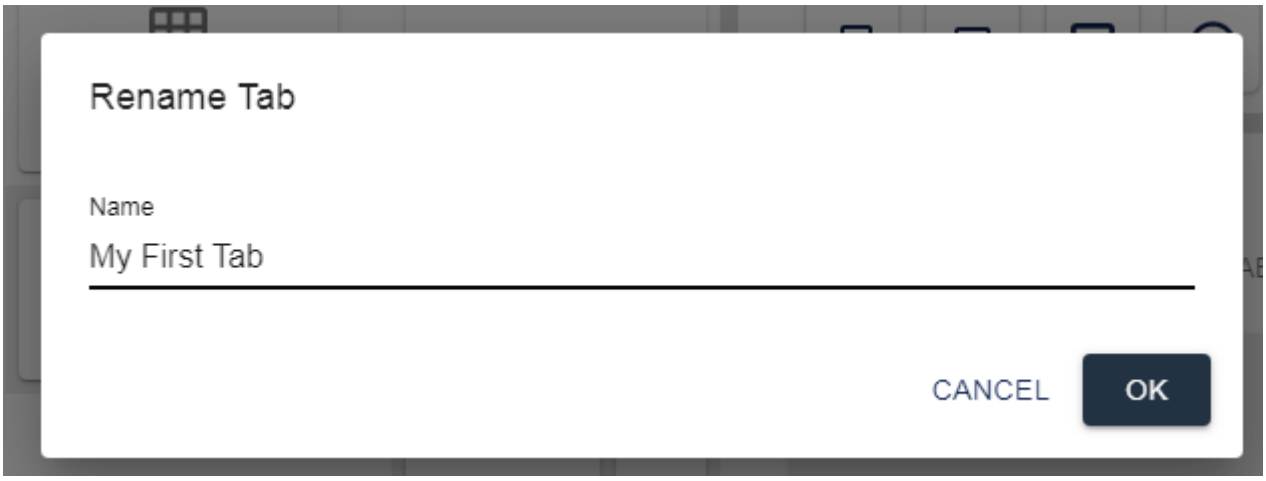
Adding/Removing/Renaming Tabs:

Click the Add button and Remove buttons to perform the desired function:

To rename a tab simply double click on the tab name:



The rename dialog box appears:



Only alphanumeric values are allowed. No special characters.

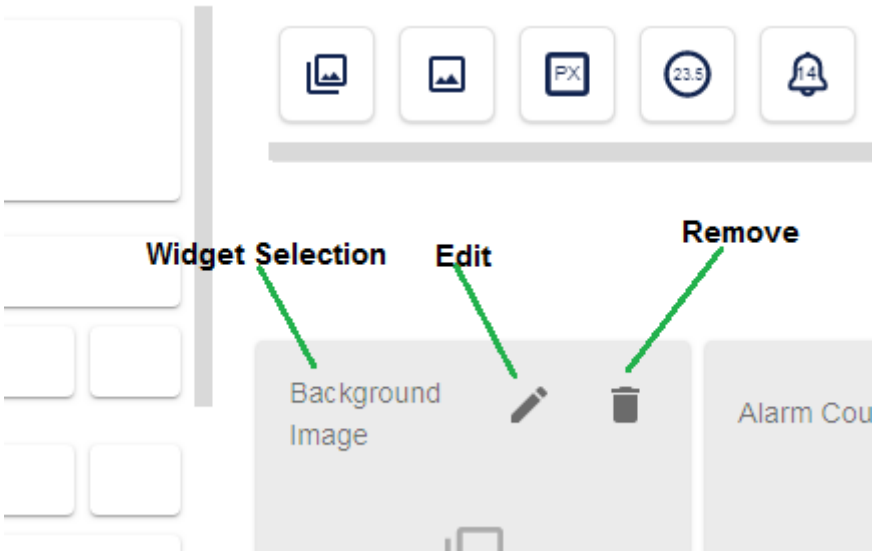
To change the grid on the 2nd tab, click on the tab and select the desired grid. By default, a 1x1 grid is selected.

Tabs cannot be reordered and at least 1 tab should exist.

Widgets

There are many widgets that can be used to populate grid areas. We'll go through each one and their respective properties.

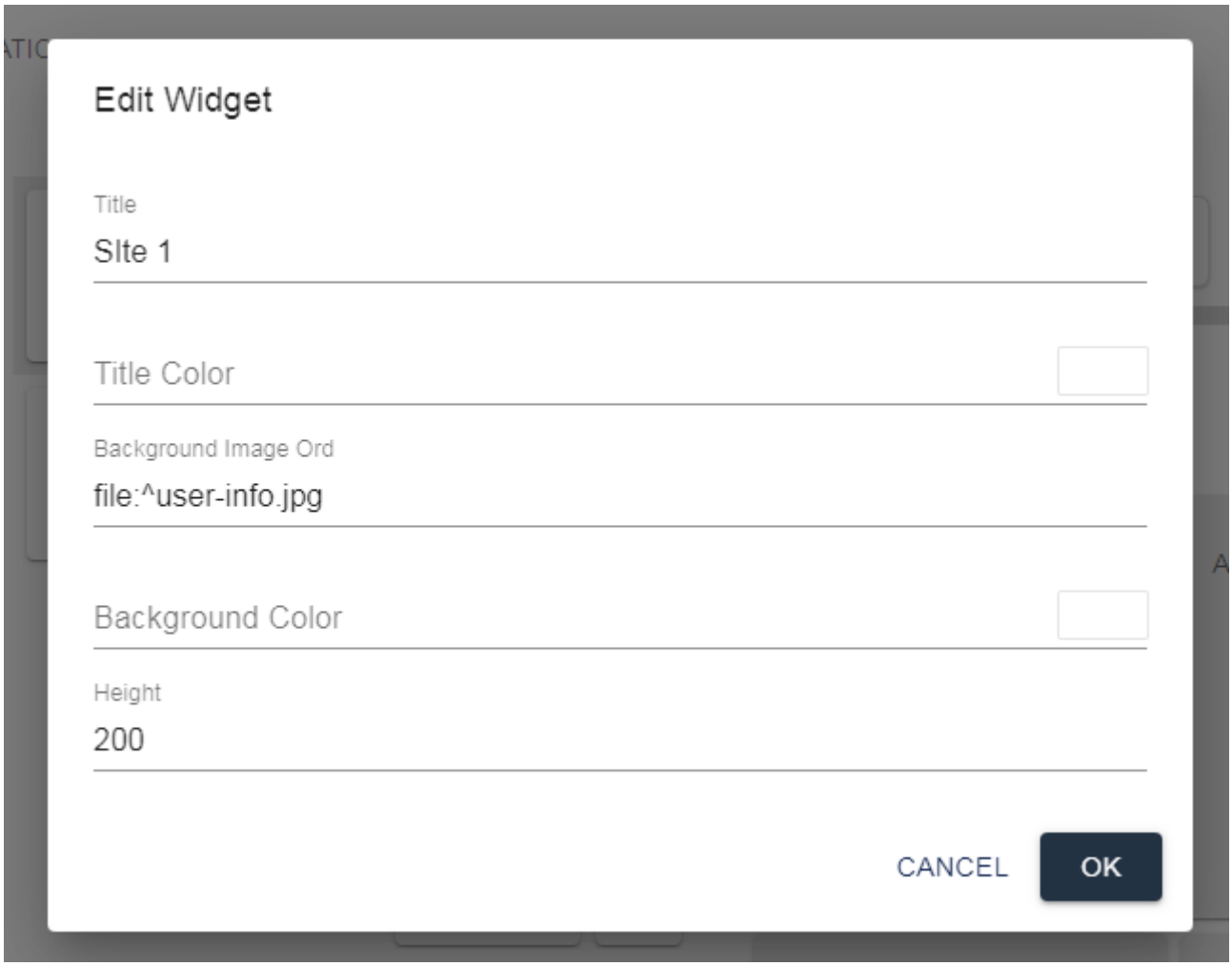
When a widget has been added to the grid, it can be removed or edited by clicking on the appropriate buttons in the top right-hand corner of each grid widget:



Background Image:

A background image will set the grid background to an image of your choice. Images should be in your stations shared folder:

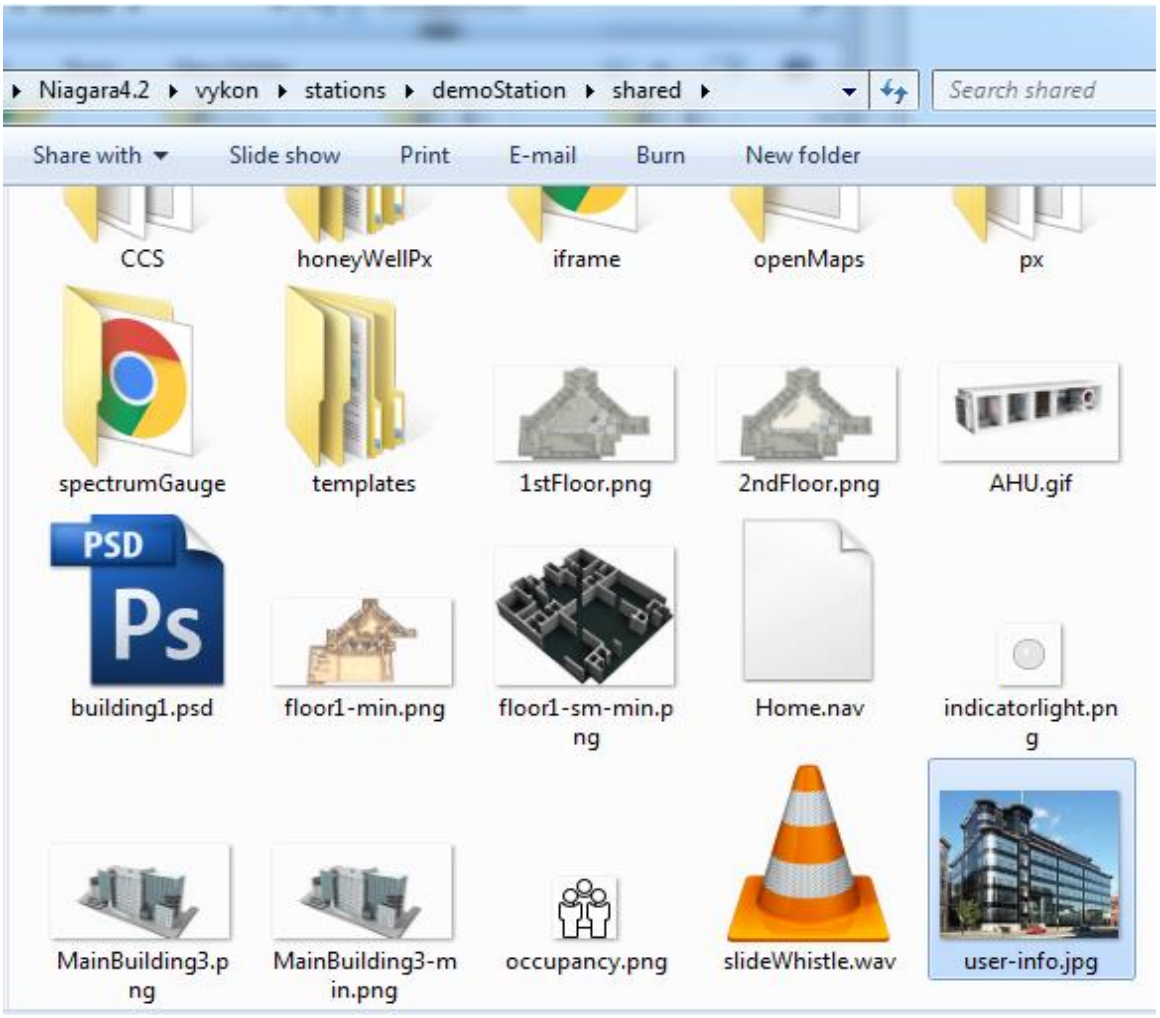
Click on the edit button to bring up the widget properties. NOTE: when no colour values are set, the default colours are taken from the dashboard theme. You can clear the colour by deleting its value in the textbox. Some colours are read-only, while others are not. To completely put the widget back to the default settings, simply remove the widget and add it again.



Title: this is the title you want to appear in the top left of the grid.

Title Colour: is title text colour. If no value is selected the default theme value is used.

Background image ord: the file to be used as the image. The example above, file:^user-info.jpg, is in the shared directory of the station:



Background Colour: is the background colour of the grid box.

Height: the height of the box. The grid in each row should set this to the same value. E.g. if have 4 grids in the first row, then they should all have the same height. Have a go first at setting it to different heights. Height is never an issue in today's modern UI layouts; but width usually is; but we have taken care of the width so its responsive and adjusts to different screen sizes.

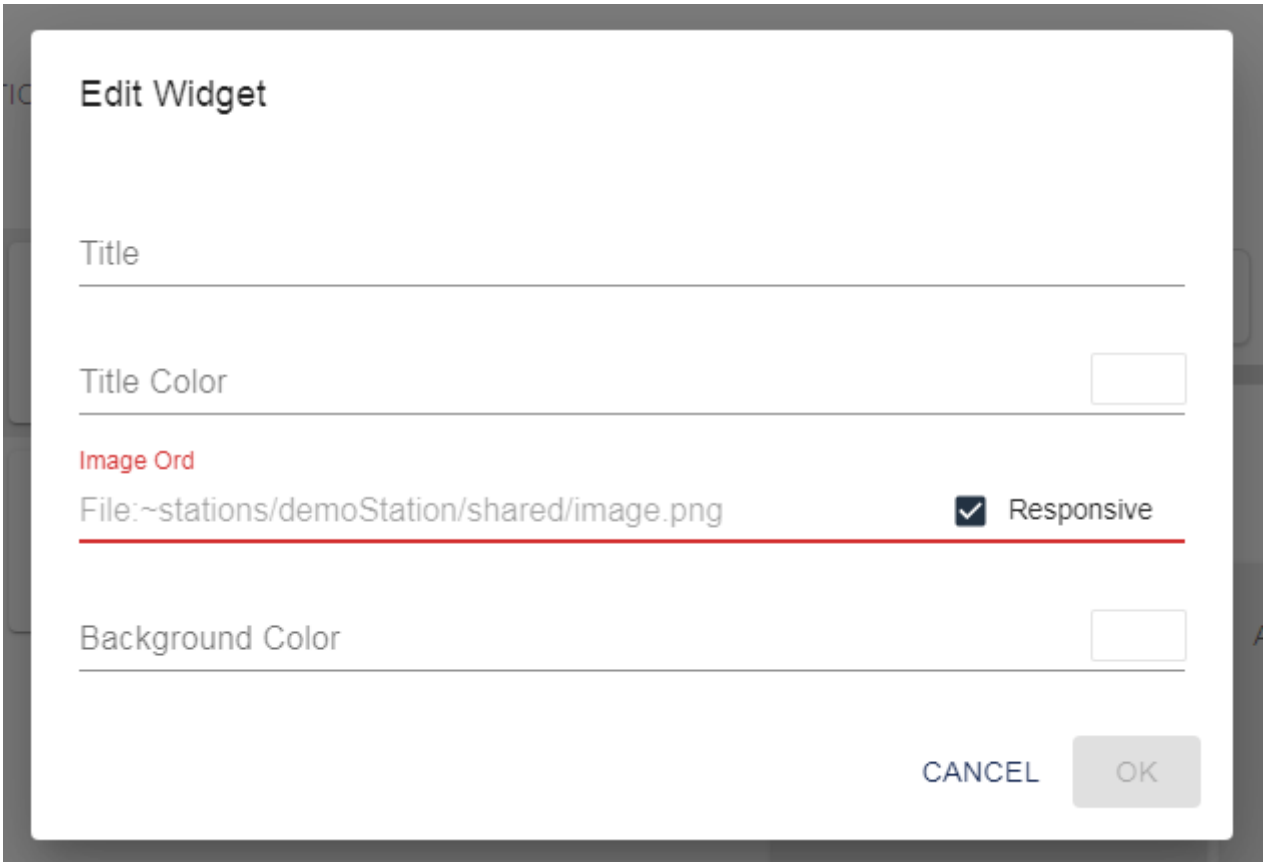
To hide a grid, you could also drag a widget onto the grid and set its height to 0.

Press OK when you have completed you changes.

NOTE: by pressing OK, doesn't mean you have saved the View yet. You must click the SAVE button at the bottom of the screen when you are happy with the changes.

Image:

An image as opposed to a background image places the image in the grid area itself in the centre.

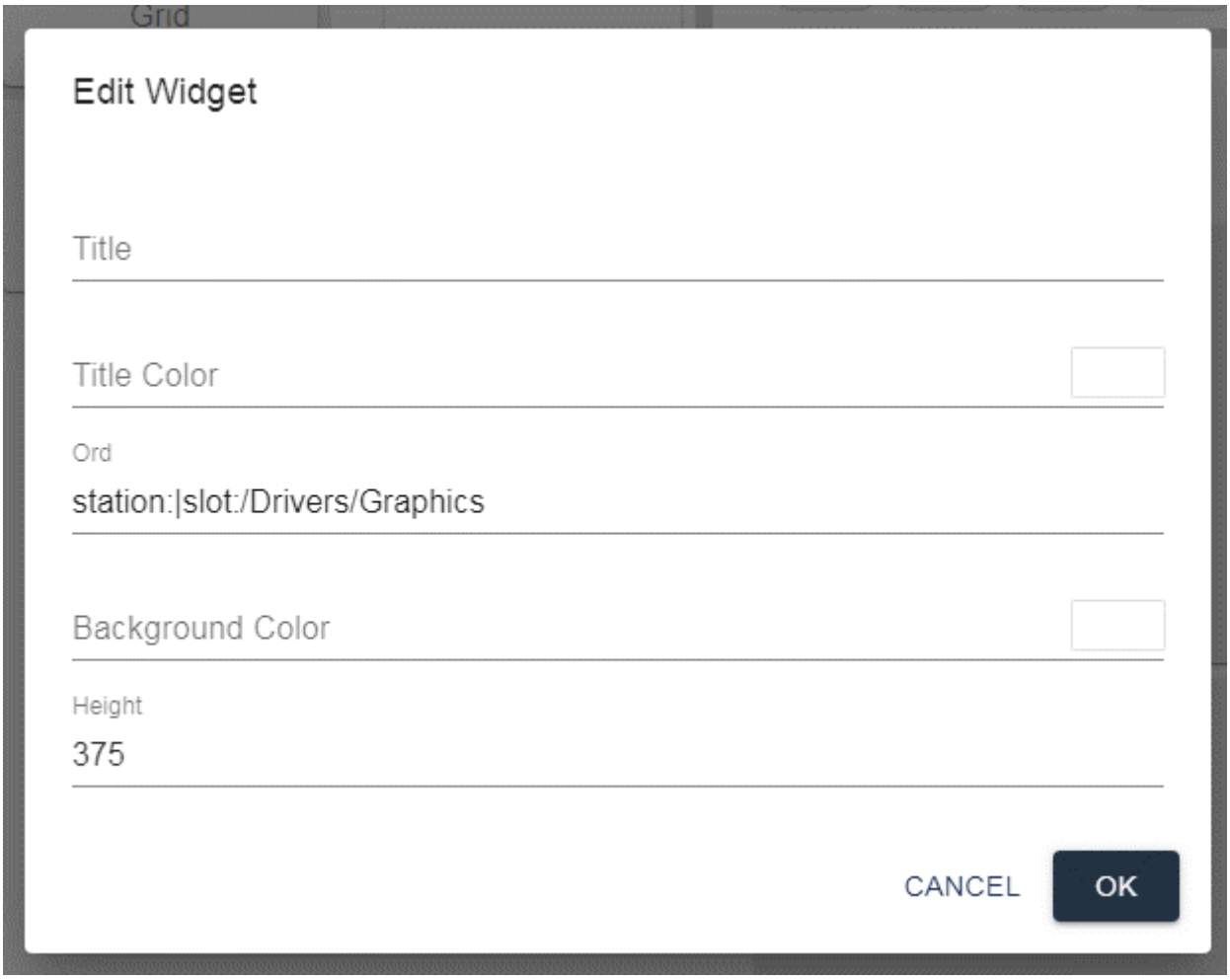


When no value is entered in a required field, the widget cannot be saved. Its not mandatory to set all non-required properties, as the defaults will be used instead.

In the image widget we have an extra option to make the image responsive. This means the image will automatically adjust to the surrounding grid area. This should be thought about with care as it might not give you the desired effect.

PX View:

The PX View is a very useful widget. If you have an existing PX graphic in your station and you would like to bring it into the dashboard, then use the PX View to add it to the appropriate grid. This is very similar to the PX View, see section 11.



Ord – this is the absolute ord value of the station object.

E.g. station:|slot:/Drivers/Graphics

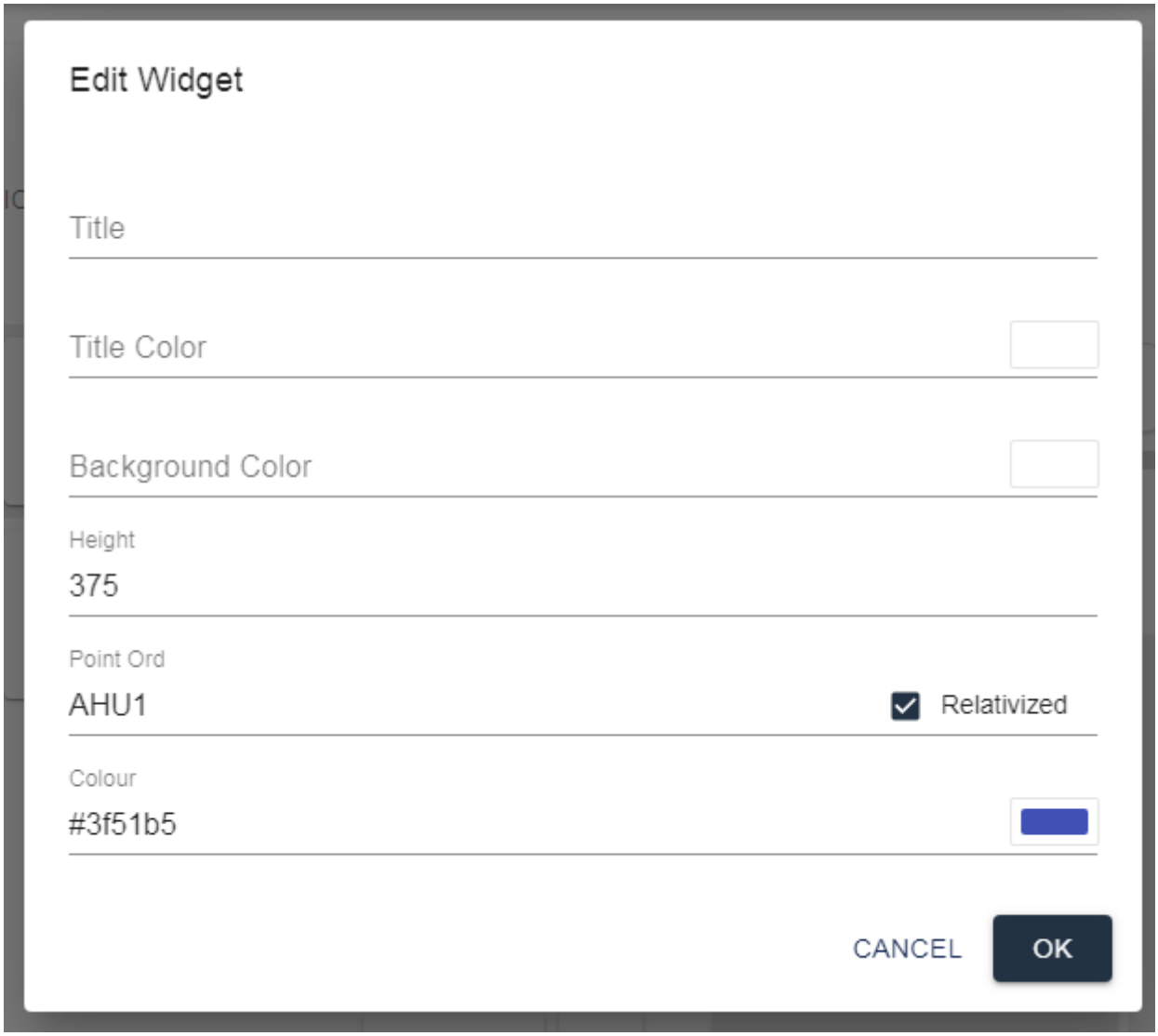
One thing to watch out for is if you have links within your px page then the links won't load as desired. Its best to use the Hyperlink widget (FREE) to create links to other PX pages:

See:

https://www.wse-ltd.com/product-services/niagara/niagara-hyperlink-widget.html

Point Label:

Point label widget shows a single numeric point value in the middle of a grid. Look at the point ord setting. This should be an absolute ord or a relativized ord.



More on relative ords here:

https://www.wse-ltd.com/knowledge-base/niagara-relativized-ords.html

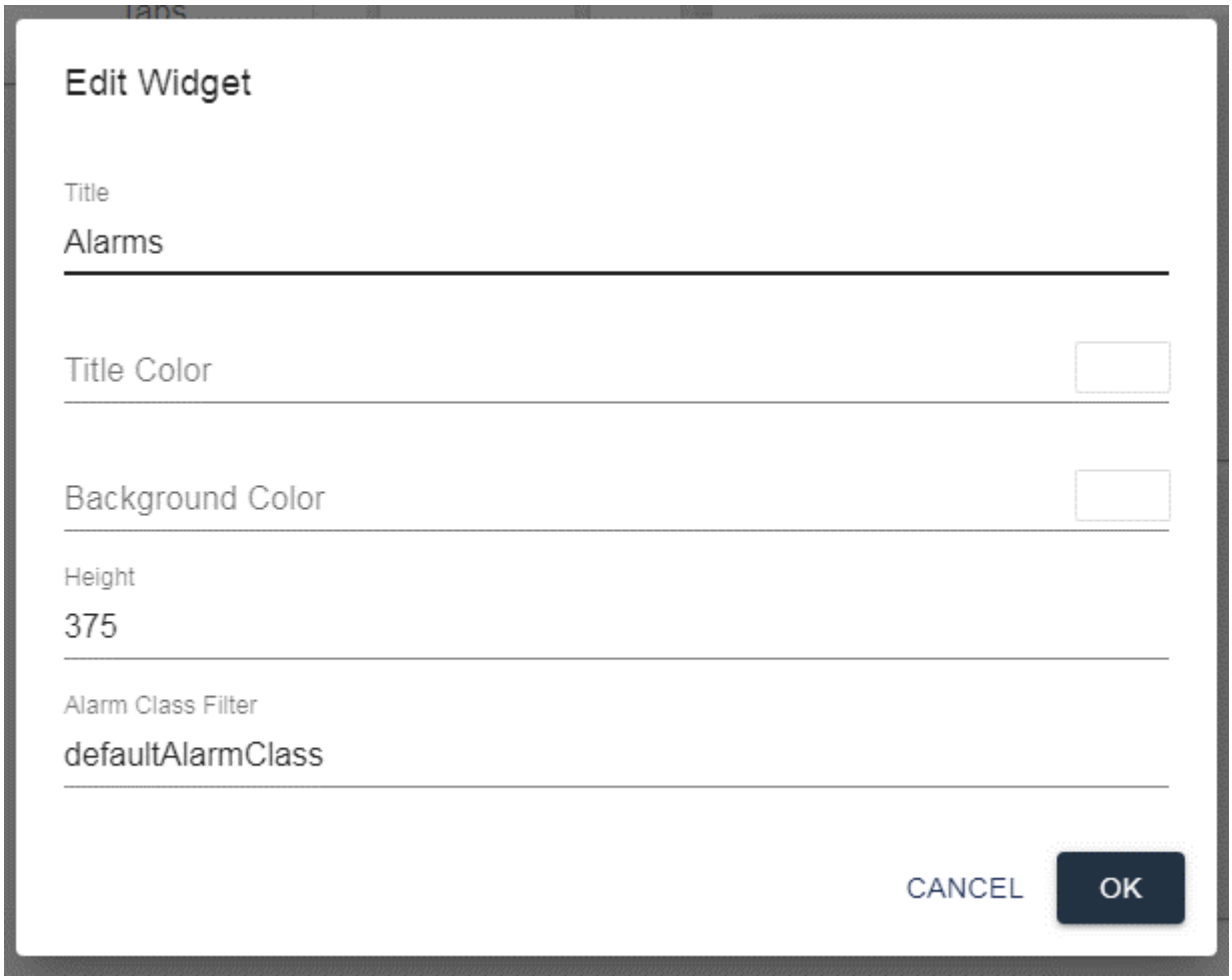
Example:

If a widget is not appearing, double check you background colours are not the same as the dashboard background. You won't be able to see the widget if it's the same colour. If your ord contains spaces or dashes, make sure you have entered the correct ord.

E.g. Space$20Utilization = Space Utilization

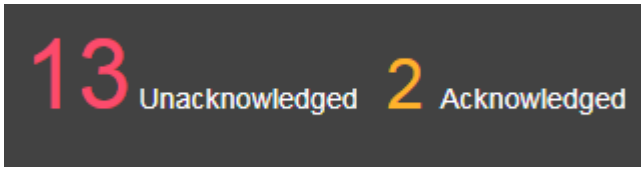
Alarm Count:

Alarm count shows the number of unacknowledged and acknowledged alarms in your station.



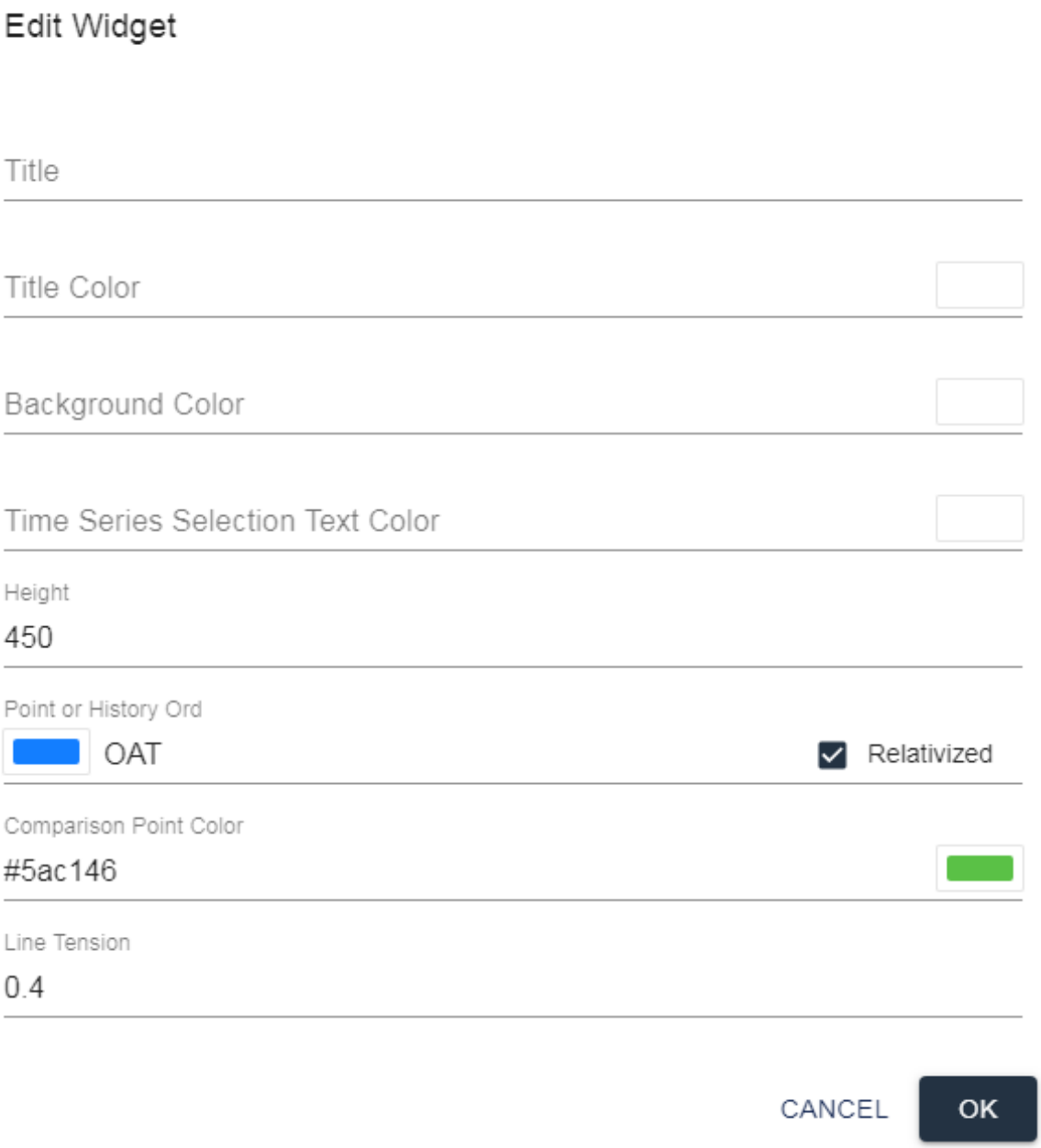
In the Alarm Class Filter setting, you can specify one or more alarm classes. For example you can enter defaultAlarmClass to bring in only those alarms. Or you could enter defaultAlarmClass,siteAlarmClass to bring in 2 alarm classes. Alarm classes should be comma separated and it is case-sensitive.

Example:



Line Chart:

Line chart is one of the most important and useful widgets. It shows time series data from histories in your station.



The Point Ord or History Ord setting is the most important. This should be a numeric point in the station that has a numeric interval history extension on it. OR a history point. Examples:

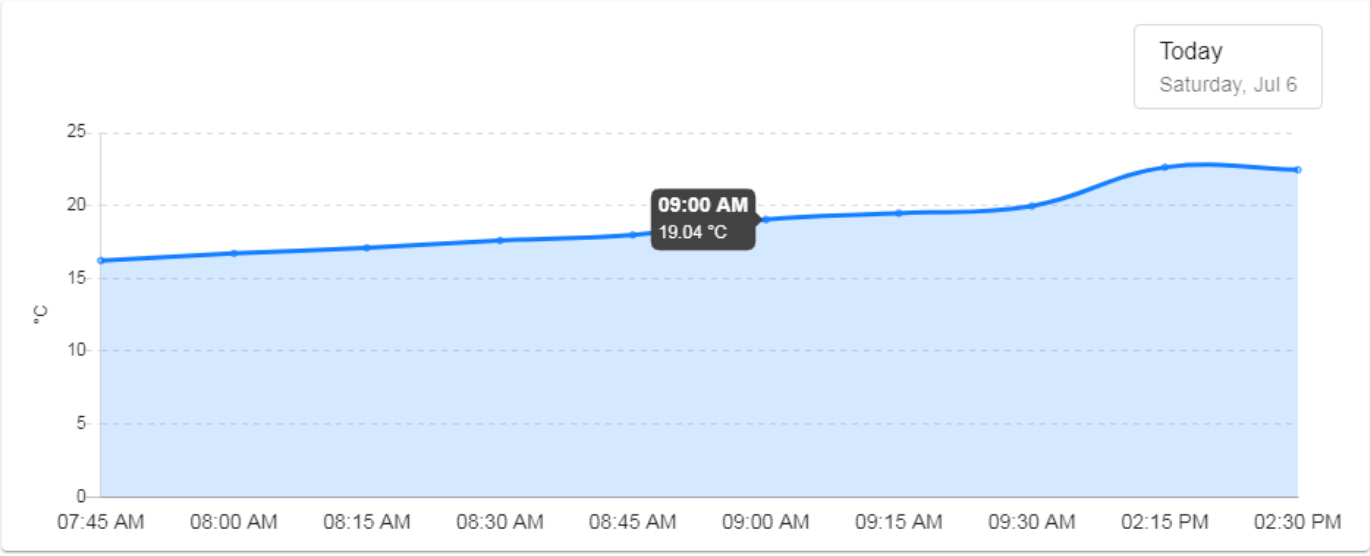
Relative Point:
OAT (tick Relativized check box)

Absolute Point:
station:|slot:/Drivers/NiagaraNetwork/OAT (untick Relativized check box)

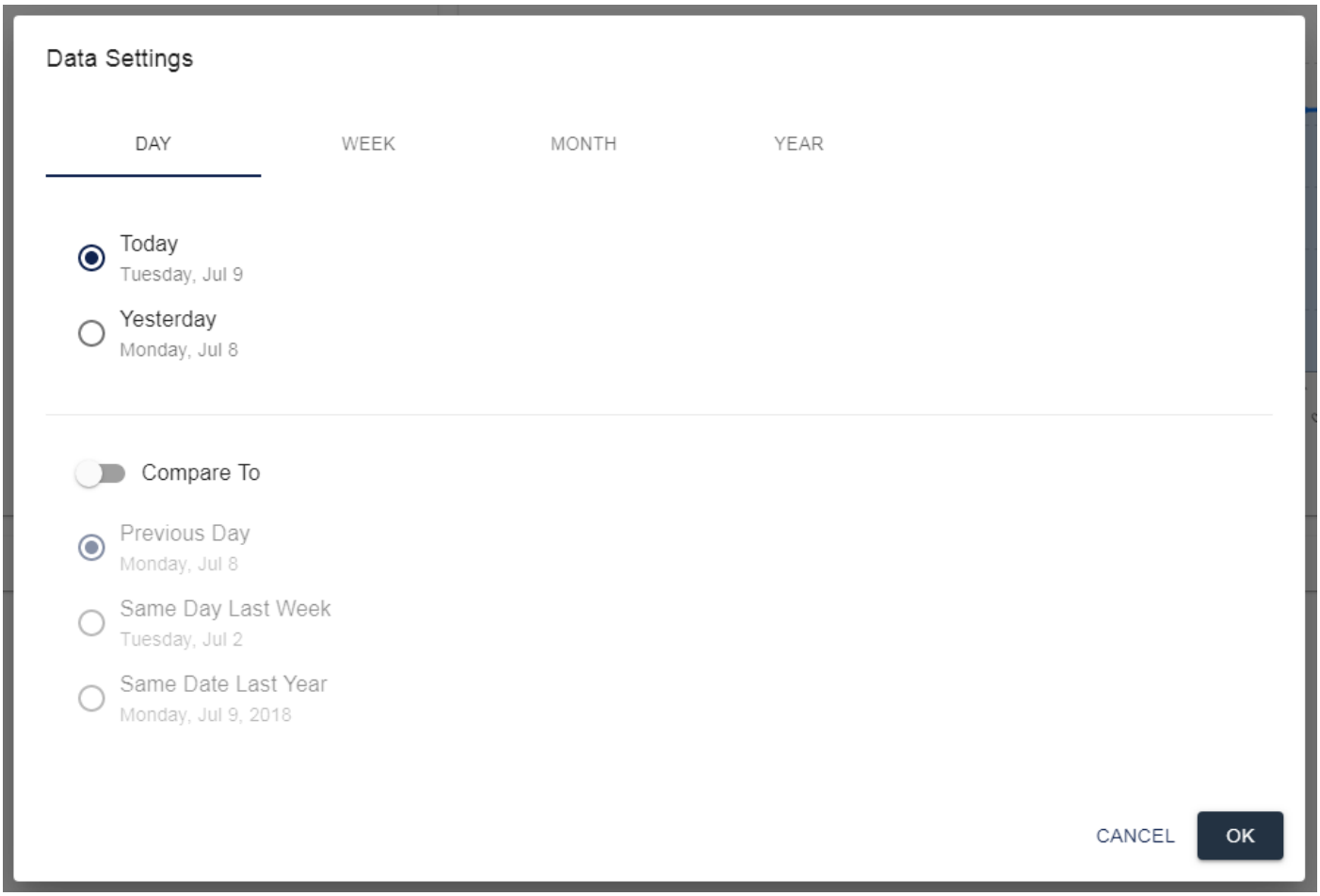
History:
history:/demoStation/OAT

The system will automatically pick up the history id, facets, max/min etc.

Example:



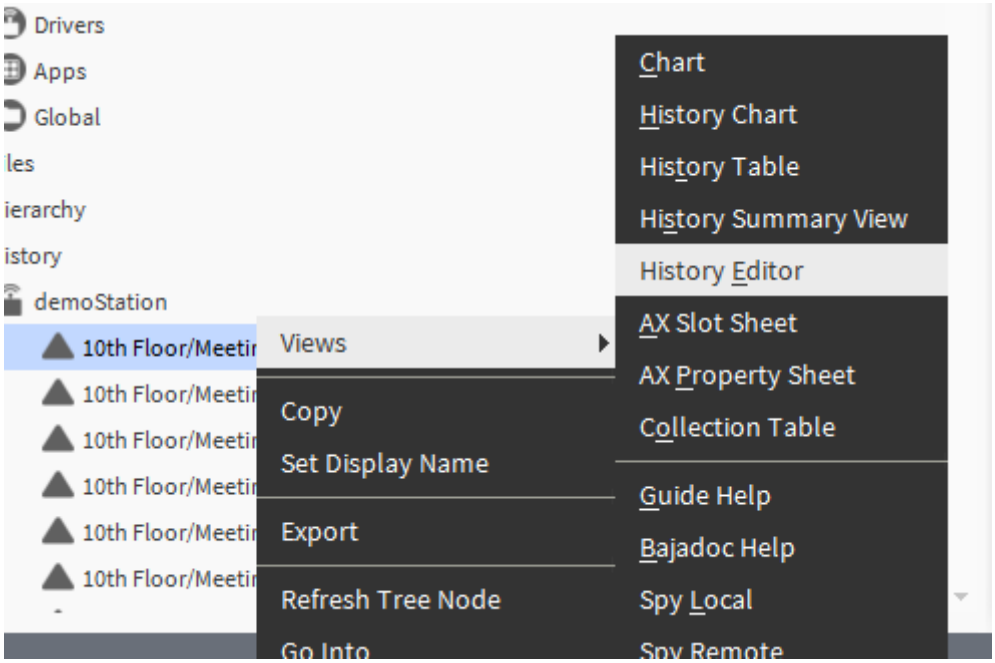
By default, when the chart loads, Today is selected as the default date. If you click on the Today area, you can change your time range value or compare it to previous time ranges.



The standard Niagara time ranges are available. Today, yesterday, last 7 days, this week, last week, last 30 days, this month, last month, Year To date, and last year. Click OK, and the chart will update with the new time range selected.

A history interval with a history recorded every 15 minutes is recommended.

NOTE: If you have gaps in your data use the history editor to enter values for missing times. This becomes especially important when adding multiple lines to the chart. As only 1 set of time stamps will be shown. If there are gaps between 2 or more data sets the data will be inconsistent.



Data Reduction:

The data granularity is reduced based on the time range selected. There is not much gain by plotting hundreds of thousands of records on a line chart. Here is the algorithm:

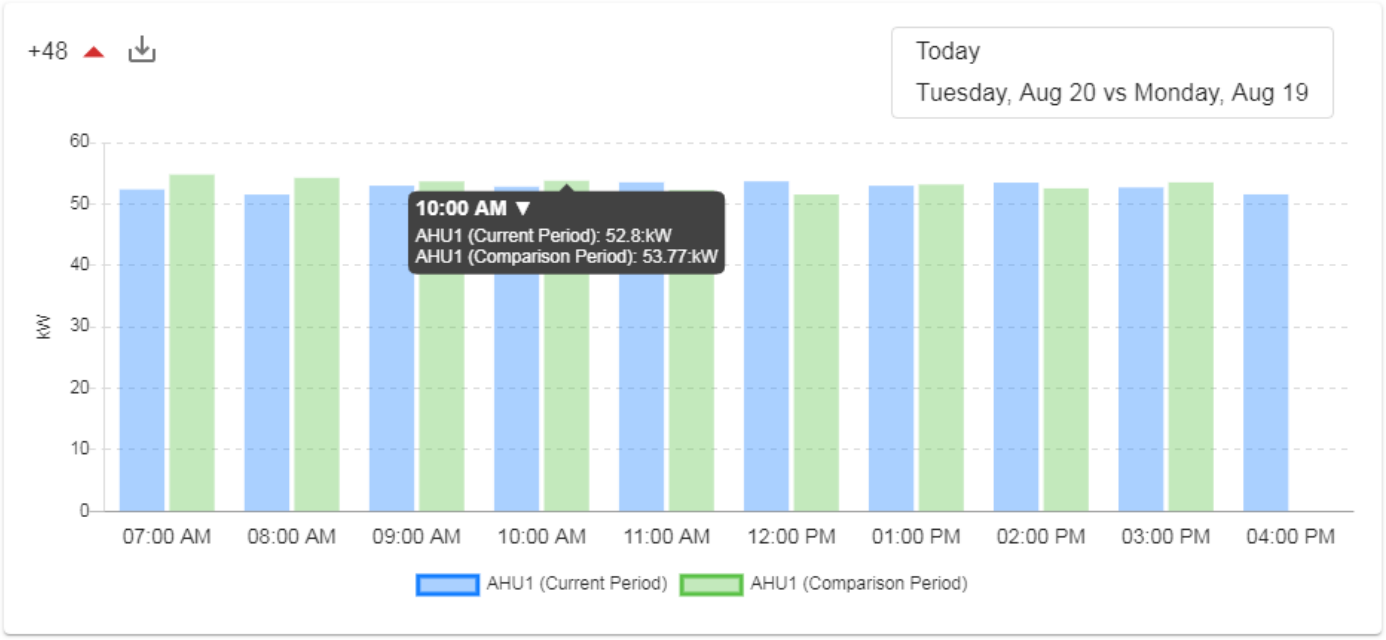
Days in Range	Granularity
<=3	Hourly
<=31	Daily
<=720	Monthly

So, if you have selected less than 3 days for the date range, the records will show hourly. If you have selected 31 days in the range, it will return daily. This is because there are so many records, and there is no point in plotting thousands of records on a graph. So, we reduce the granularity of the data based on the date range. The average is taken depending on the number records being processed for any give time range. That formula is not shown here.

Bar Chart (Time Series):

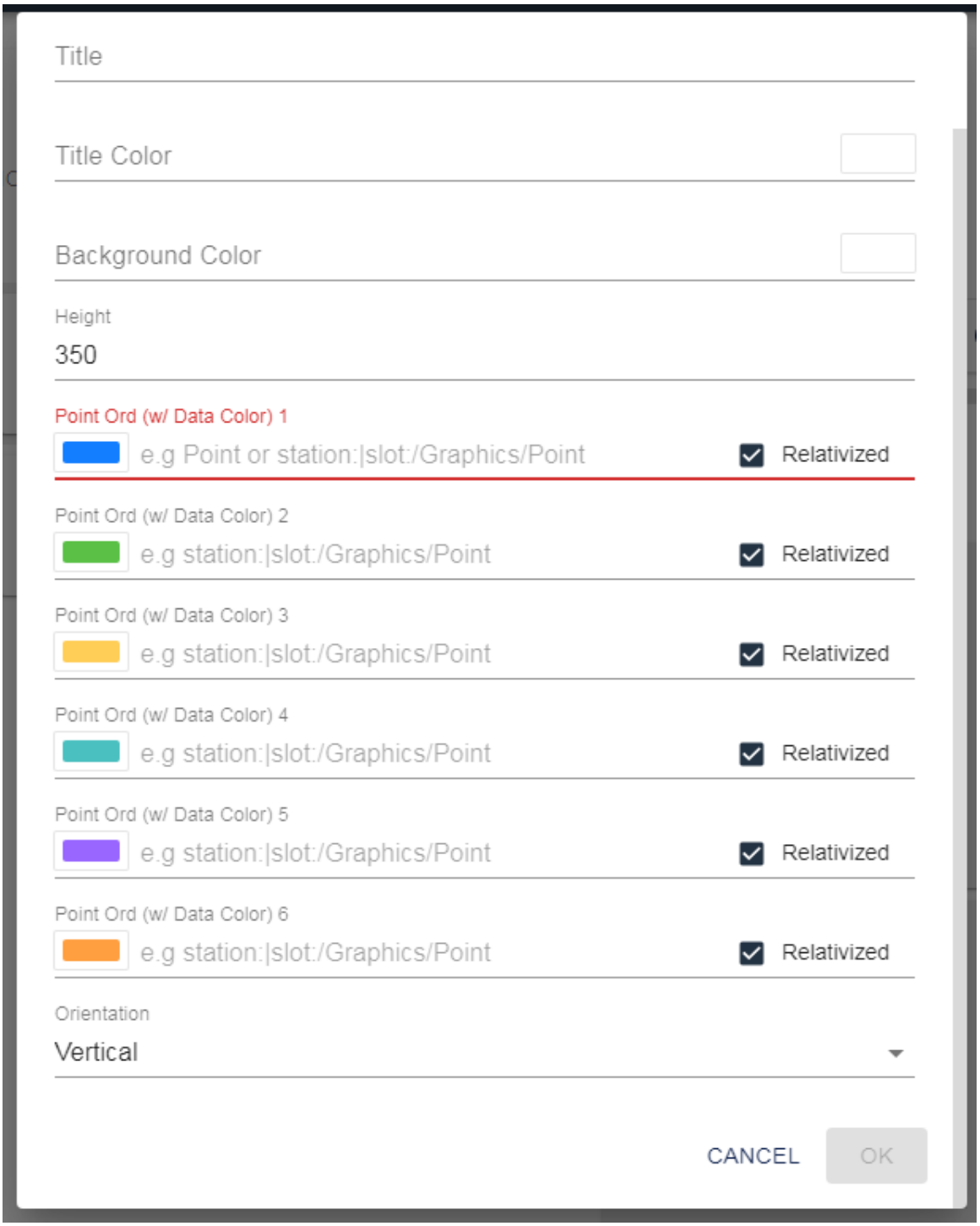
Bar Chart with Time Series is very similar to Line chart but the chart is shown with bars instead.

Example:

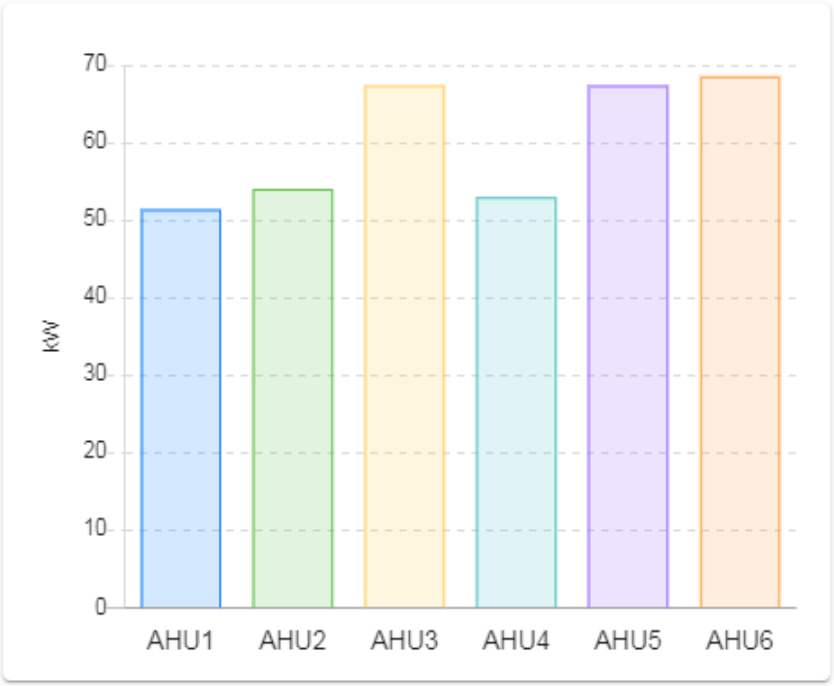


Bar Chart:

Bar chart is also useful when comping numeric values. Up to 6 datasets can be compared. Point Ord is a required value and should point to a numeric point with a history interval extension.


Title
Title Color
Background Color
Height
350
Point Ord (w/ Data Color) 1
e.g Point or station:|slot:/Graphics/Point
Relativized
Point Ord (w/ Data Color) 2
e.g station:|slot:/Graphics/Point
Relativized
Point Ord (w/ Data Color) 3
e.g station:|slot:/Graphics/Point
Relativized
Point Ord (w/ Data Color) 4
e.g station:|slot:/Graphics/Point
Relativized
Point Ord (w/ Data Color) 5
e.g station:|slot:/Graphics/Point
Relativized
Point Ord (w/ Data Color) 6
e.g station:|slot:/Graphics/Point
Relativized
Orientation
Vertical
CANCEL
OK

Example:

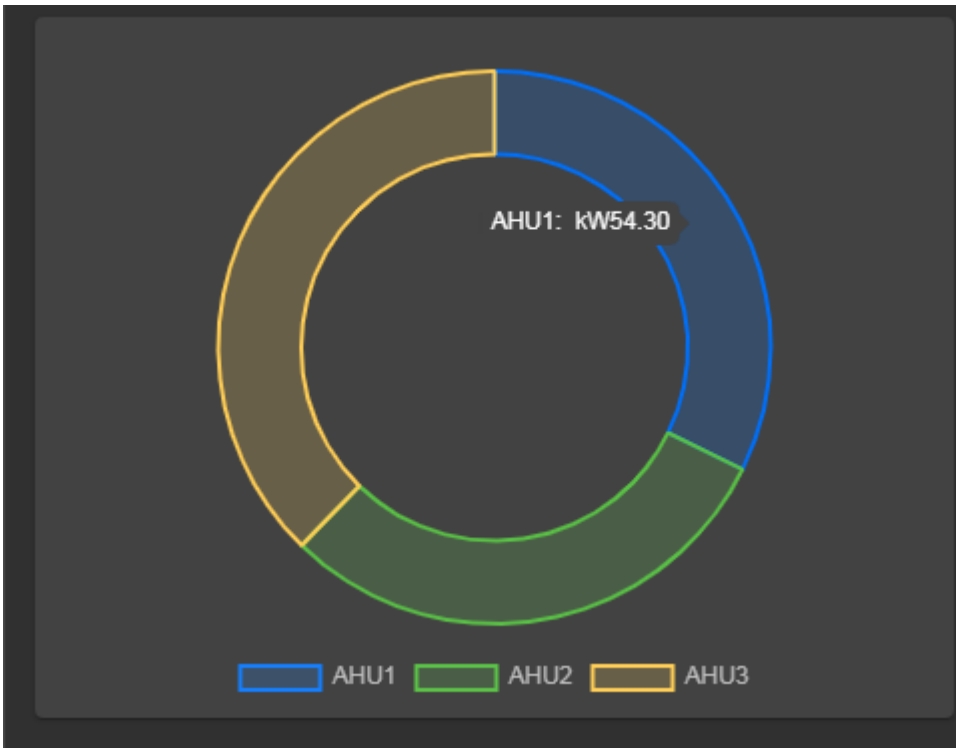


Comparisons should have the same facets, e.g. Kw.

Donut Chart:

A donut chart has a similar setup as the bar chart as you're comparing up to 6 different values:

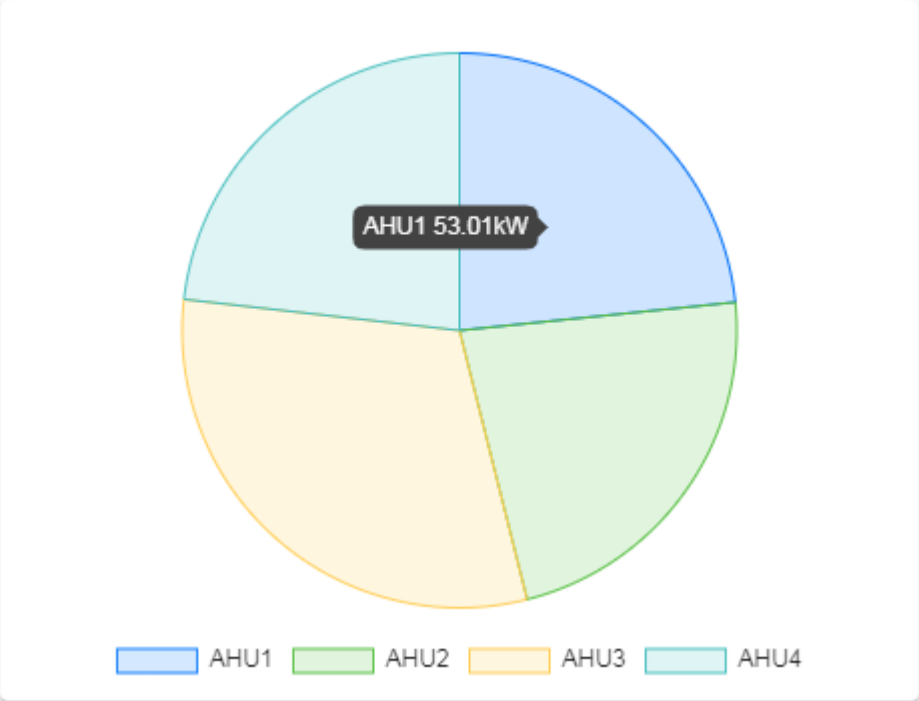
Example:



Pie Chart:

A pie chat also has a similar setup as bar and donut chart.

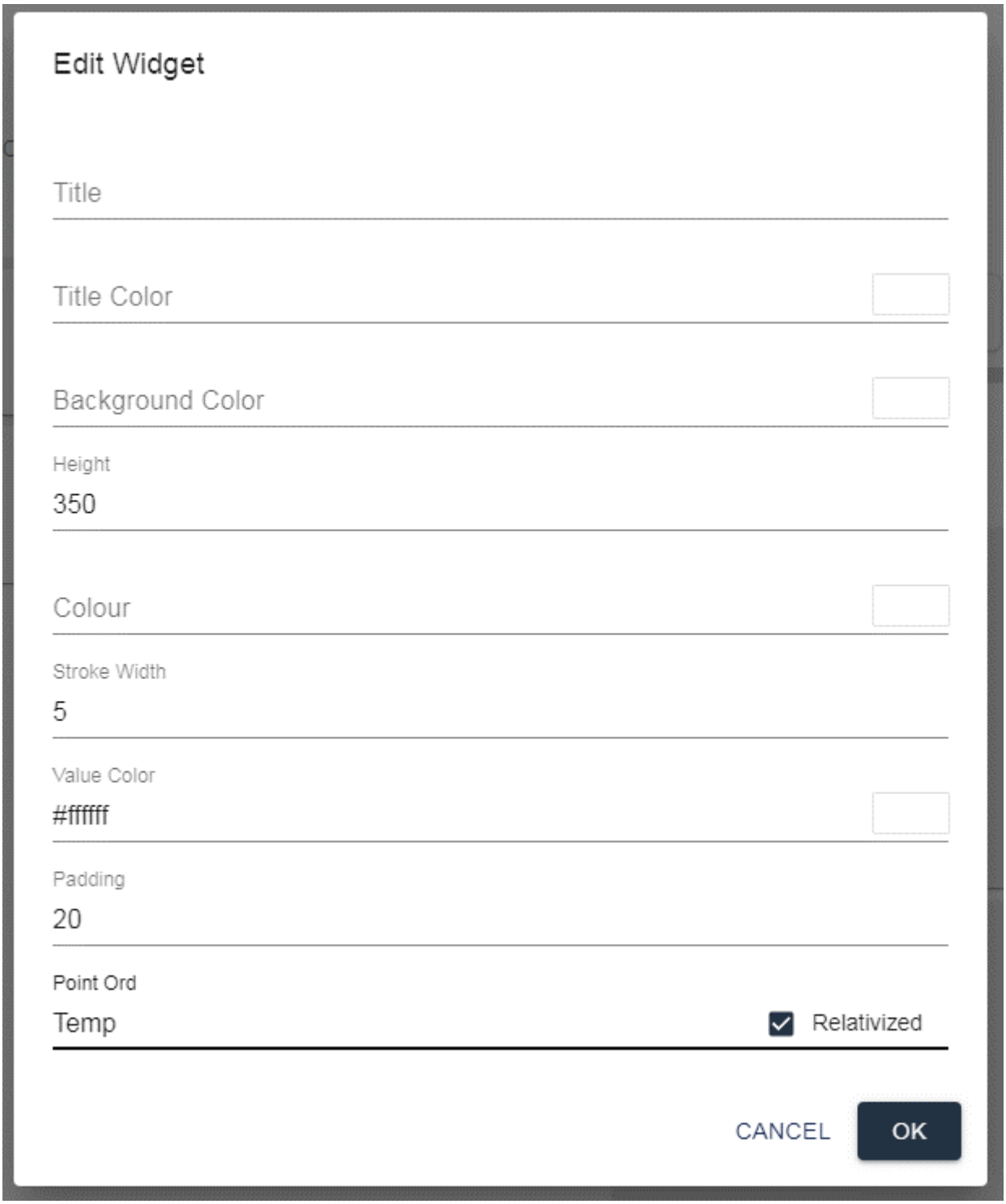
Example:



Gauge:

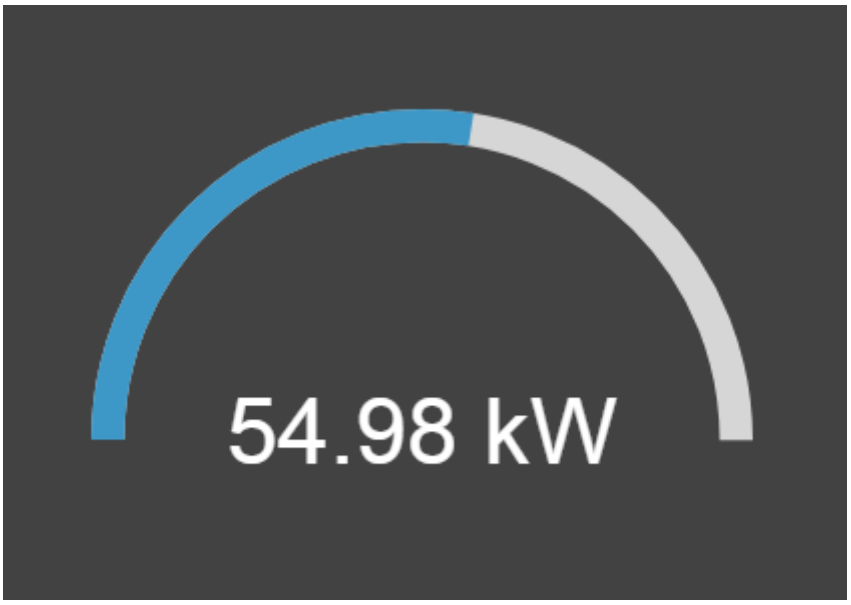
The gauge shows semi-circle style numeric value.

The point ord is a required value and it should be a numeric point in your station:



Stroke Width – is the thickness of the gauge:

Example:

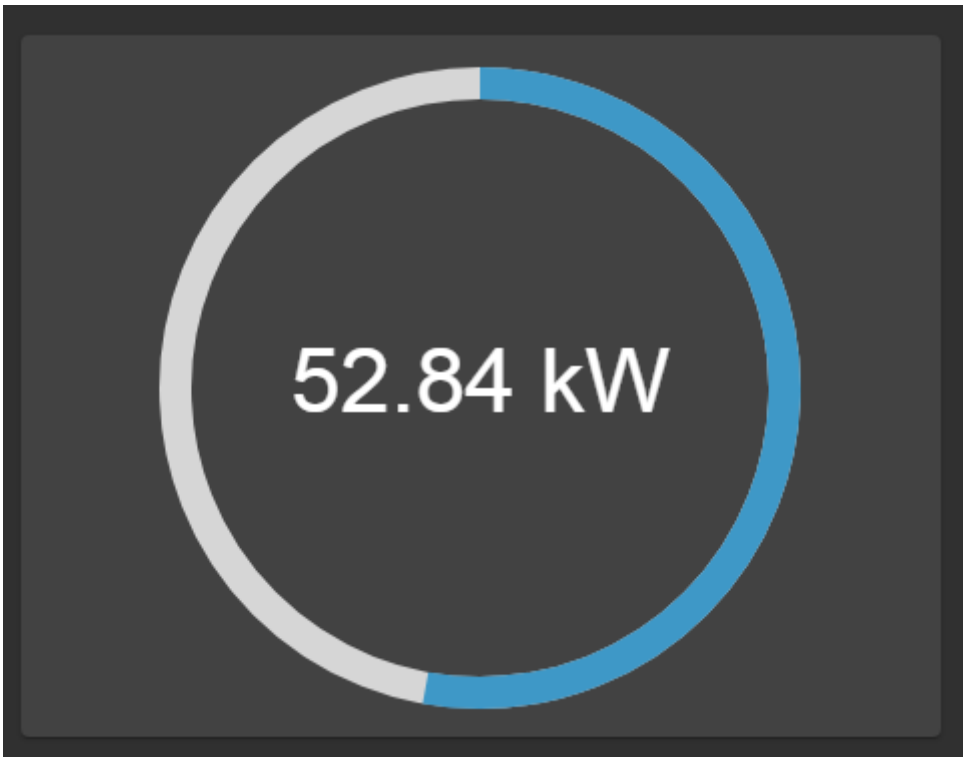


The numeric value update in real-time.

Donut Value:

donut value as opposed to a donut chart shows a numeric value using a full circle.

Example:



Weather Widget:

The weather widget is very useful to show metrological data. This is used in conjunction with the the open weather service. See Section 13 to setup the weather service.

Example:

Theme colours are used for this widget. Icon, temperature, summary, humidity and wind speed are shown. Values update in real-time. Symbols are and units are set based on the geo-location set in your weather service settings.

Map Widget:

The mapping widget uses the OpenStreetMap mapping engine which is free.

File Ord
file:^openMaps/config.txt

Background Color

Height
700

Latitude
51.5062829

Longitude
-0.1335056

Zoom
16

Pitch
0

Marker 1 Color
#3fa9f5

Marker 2 Color
#fc4b6c

Marker 3 Color
#ffb22b

CANCEL OK

The marker config file is of some importance here as it specifies the markers you would like to show on the map.

The config file is in JSON format and is very similar to our mapping widget.

https://www.wse-ltd.com/product-services/niagara/niagara-open-street-maps.html

It must be stored in the station shared directory. The JSON data within the config file must be correct. No extra commas or special characters are allowed as it will break the parsing function. Contents of config.txt:


```
{
	"markers": [{
			"lat": "51.508682",
			"long": "-0.1323335",
			"link":
			"#/floorplanZoningView/station:|slot:/Drivers/Sites/Overview/Main$20Buildin
			g?displayName=Main%20Building",

			"label": "Main Building",
			"tooltipText": "Site 01",
			"ord": "station:|slot:/Drivers/NiagaraNetwork/EnumWritable"

		},

		{

			"lat": "51.5063802",
			"long": "-0.1396422",
			"link": "",
			"label": "West Building",
			"tooltipText": "Site 02",
			"ord": "station:|slot:/Drivers/NiagaraNetwork/EnumWritable"

		},

		{

			"lat": "51.507351",
			"long": "-0.127758",
			"link": "",
			"label": "East Building",
			"tooltipText": "Site 03",
			"ord": "station:|slot:/Drivers/NiagaraNetwork/EnumWritable"

		}

	]
```

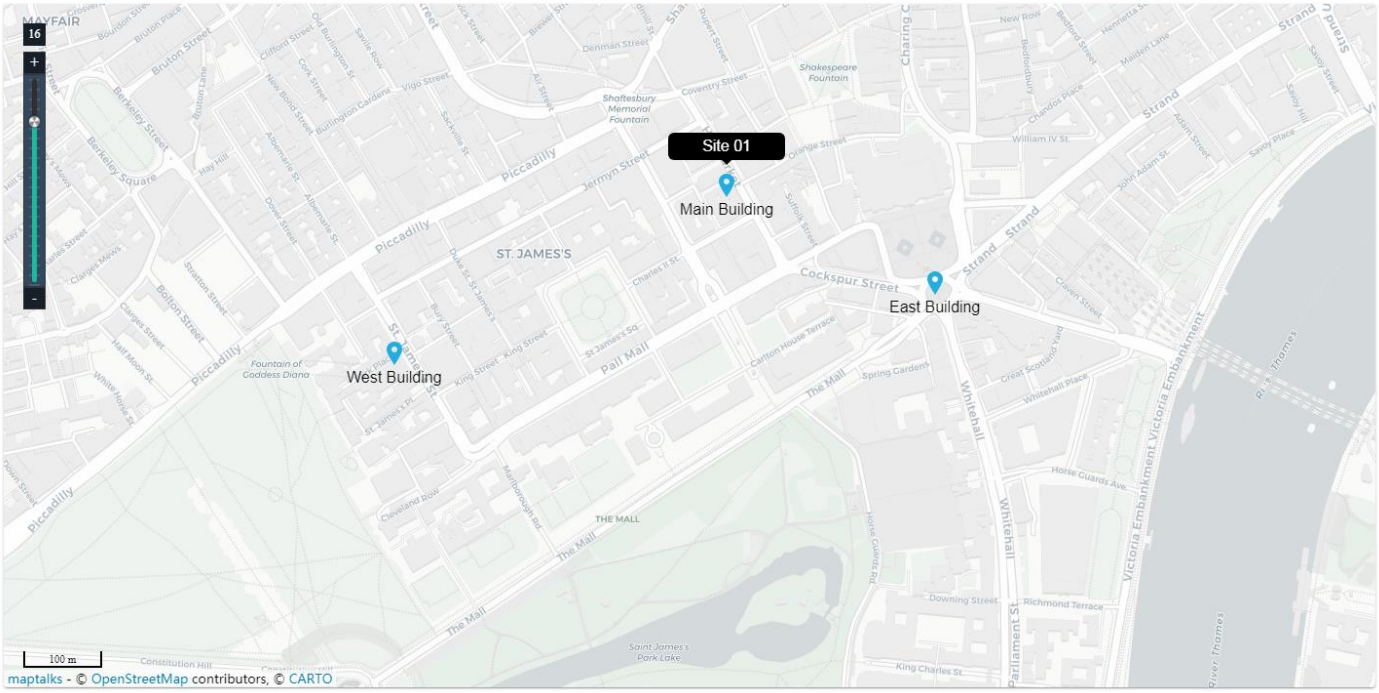
}

Optionally, each marker also allows you to bind to an Enum point/writable. You can have up to 3 colours based on the value of the Enum. The marker colour will change based on the value of the enum. If no ord is specified in the config, the default colour is used. Values and colours update in real-time.

Enum Value	Marker Colour
1	Marker 1 Color #3fa9f5
2	Marker 2 Color #fc4b6c
3	Marker 3 Color #ffb22b

You can easily find any geo location by going to a mapping service provider like Google Maps.

Example:



Using the map is like any other online map. Use your mouse scroll to zoom up/down or use the legend function. You can setup links that go to different areas of the dashboard. See the example above. Hold down the right mouse button to change the viewing pitch angle.

NOTE: an internet connection is required to retrieve map data.

RSS Feed:

RSS feed fetches news items from publishers like CNN or BBC. View Builder uses a proxy service called RSS2JSON. https://rss2json.com

This service is free if you make less than 10,000 requests per day. This number should be enough; however, you can sign up for an api key at the address above.

The proxy is used because most browsers restrict a cross-domain URL request, so you need a server-side application that can make the request.

The URL is required. Here are some example RSS feeds:

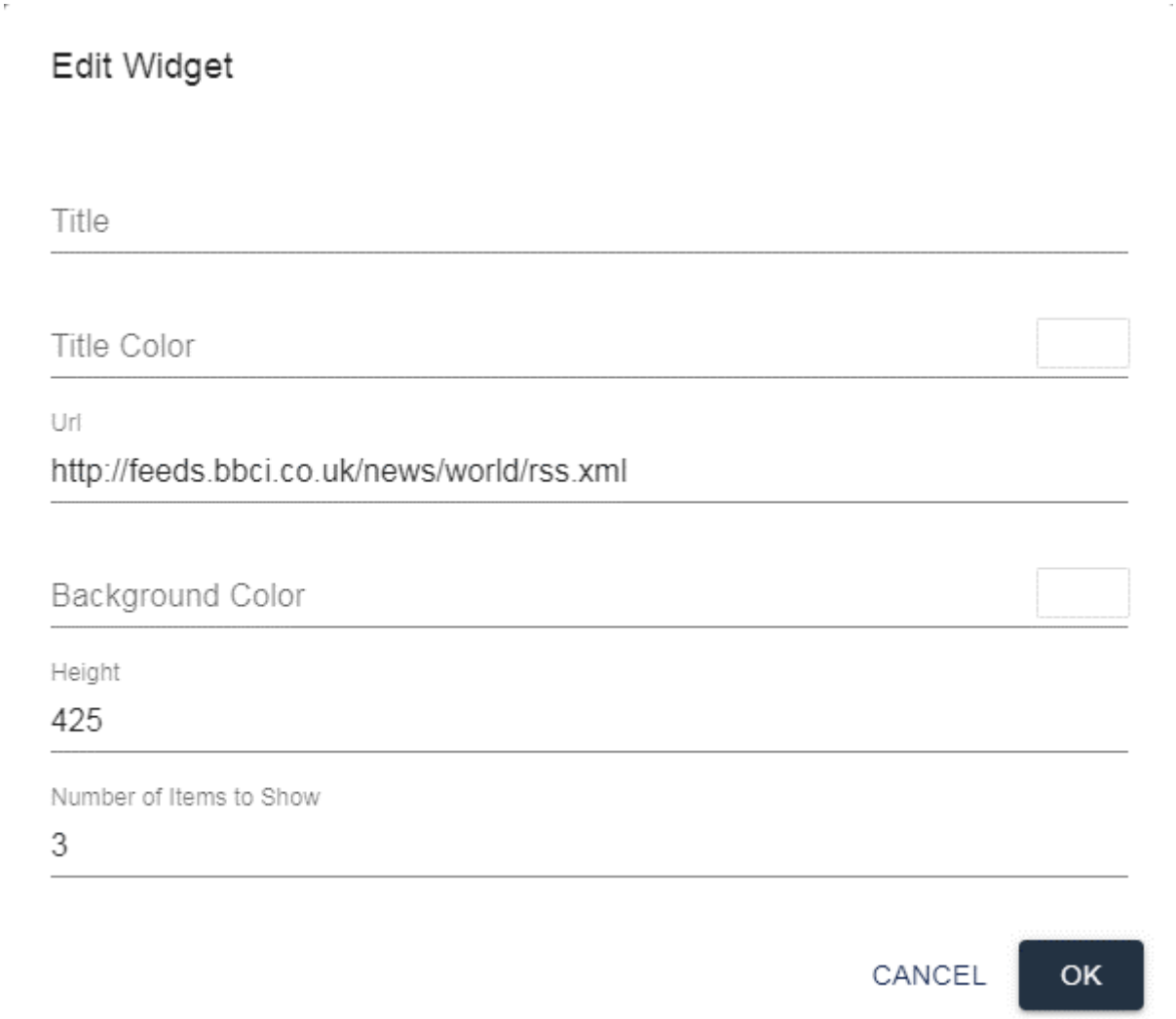
http://feeds.bbci.co.uk/news/world/rss.xml

http://rss.cnn.com/rss/edition.rss

https://www.techworld.com/news/rss

https://rss.nytimes.com/services/xml/rss/nyt/Sports.xml

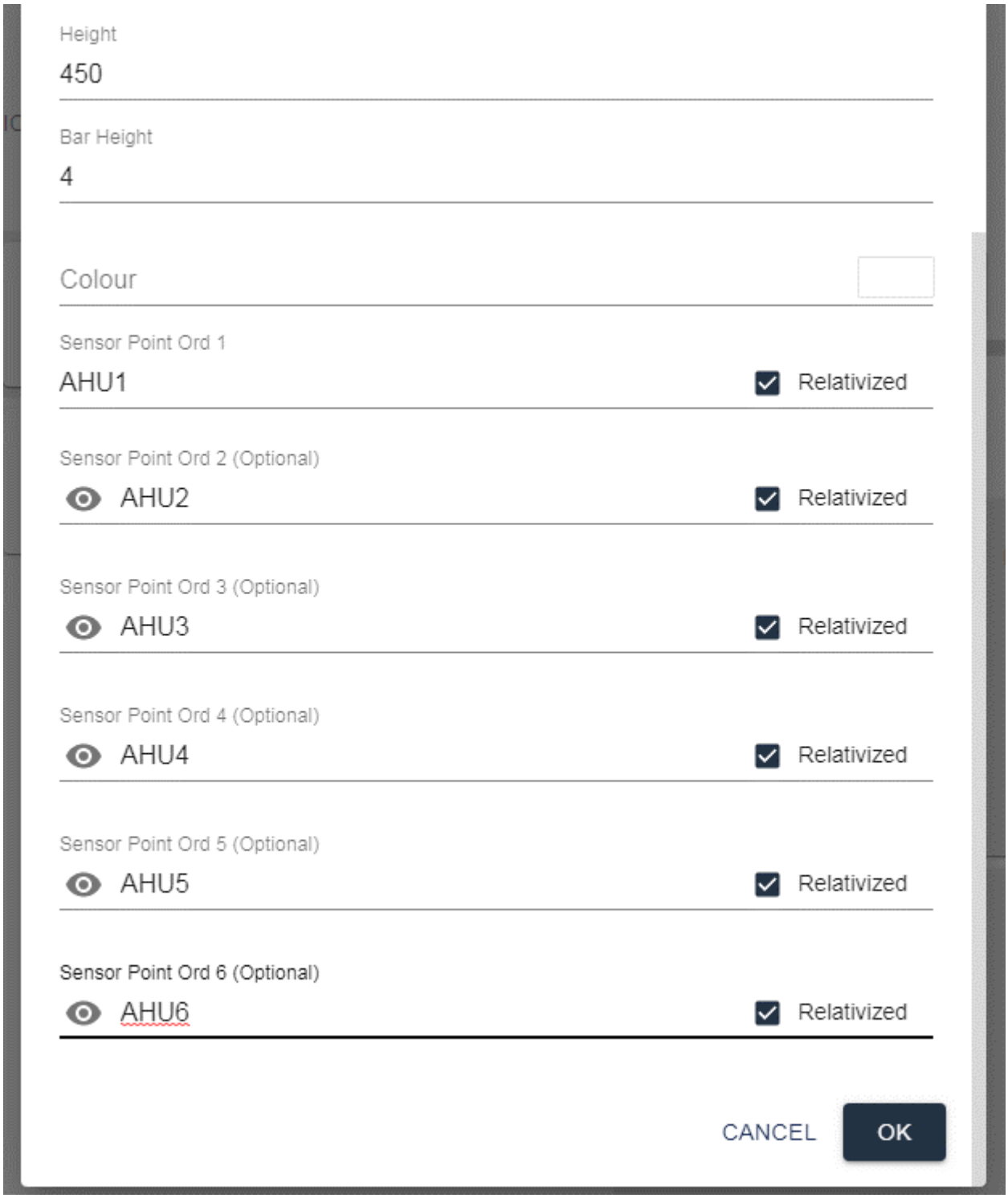
http://feeds.skynews.com/feeds/rss/uk.xml



Sensor Bar:

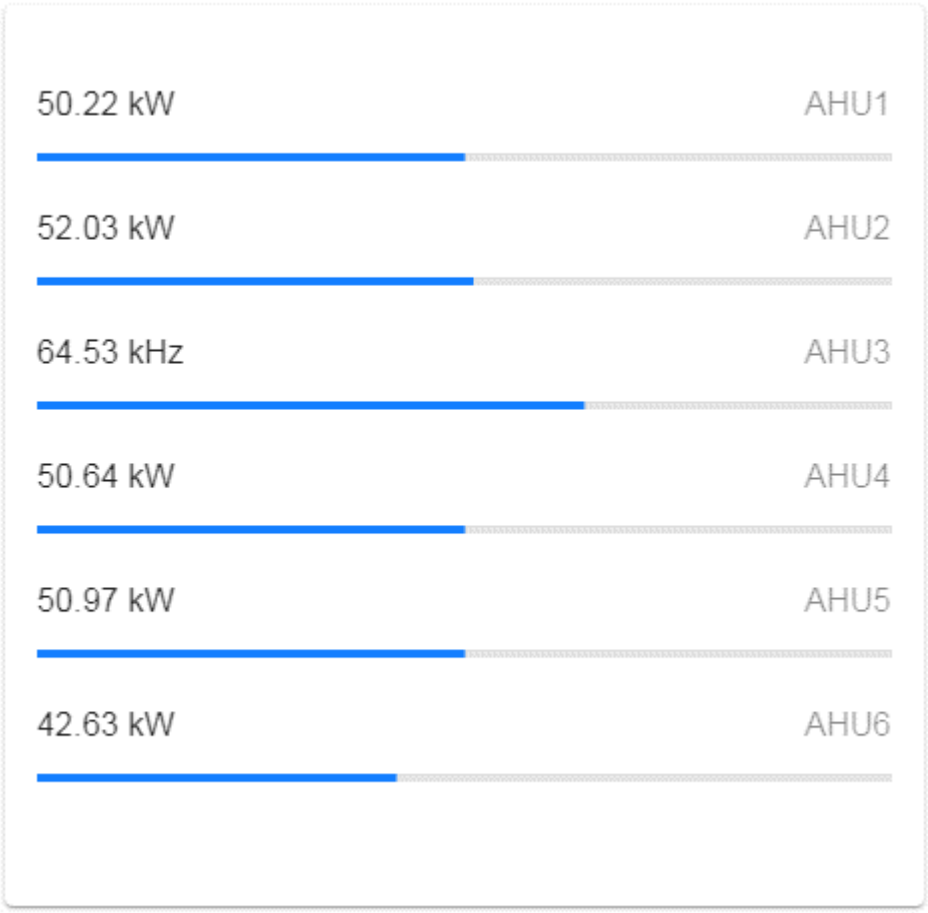
The sensor bar is a horizontal bar showing a numeric value.

Ords should be set to numeric points from your station:



You can set up to 6 ords. Notice the small show/hide eye icon; this is whether you would like to show the ord. Ords should be relative or absolute.

Example:

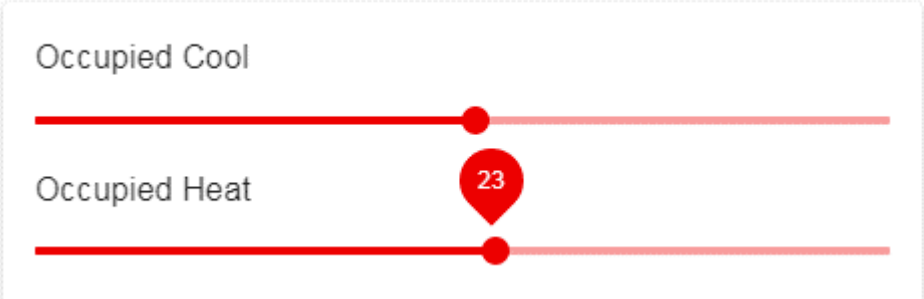


Values update in real-time. Symbols and facets are automatically retrieved from the point and should be set correctly in the station. Text colours are retrieved from the dashboard theme.

Slider Bar:

The slider bar should be bound to a numeric writable and can control station values or set points.

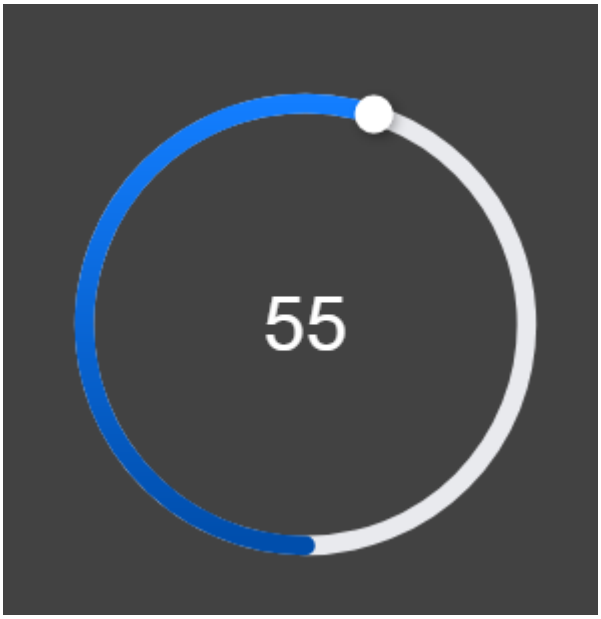
Example:



Circle Slider:

The circle slider should be bound to a numeric writable and can control station values or set points.

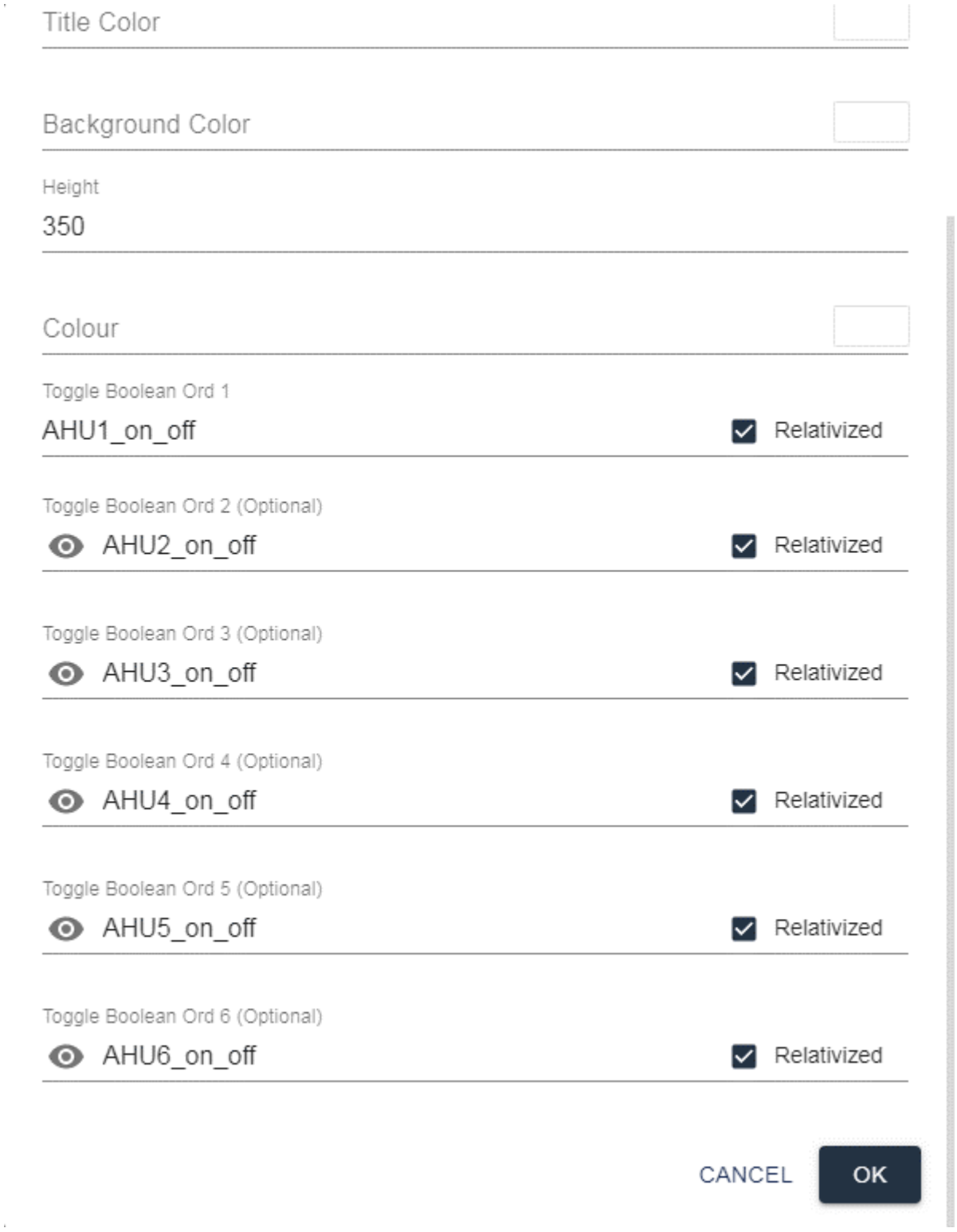
Example:



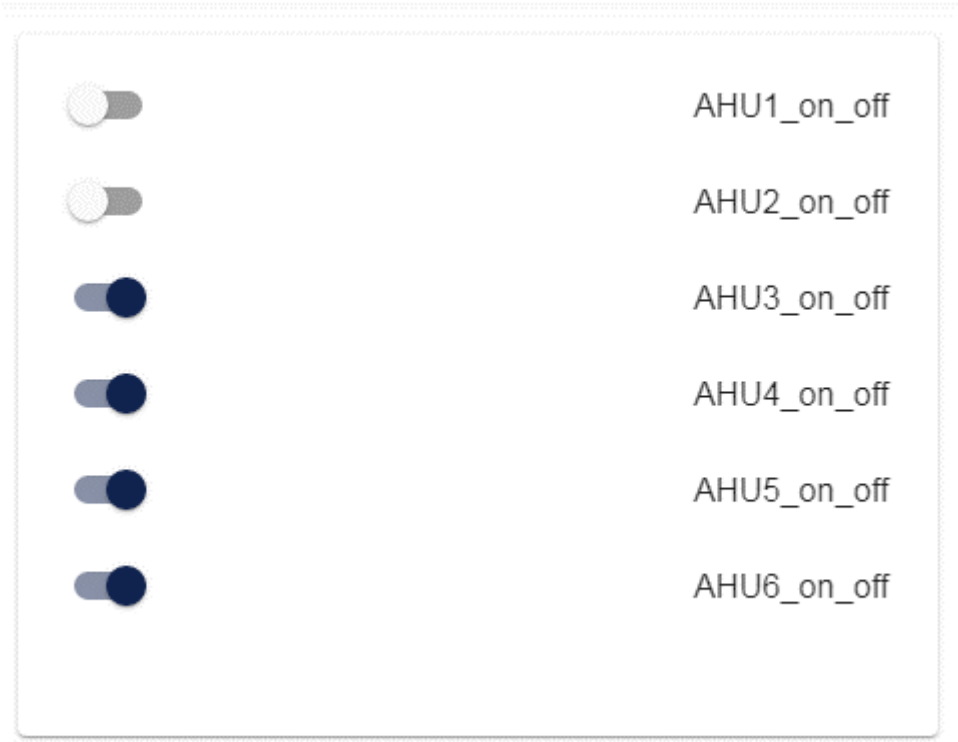
Toggle Switch:

Toggle switch can control Boolean value in your station.


Toggle Switch

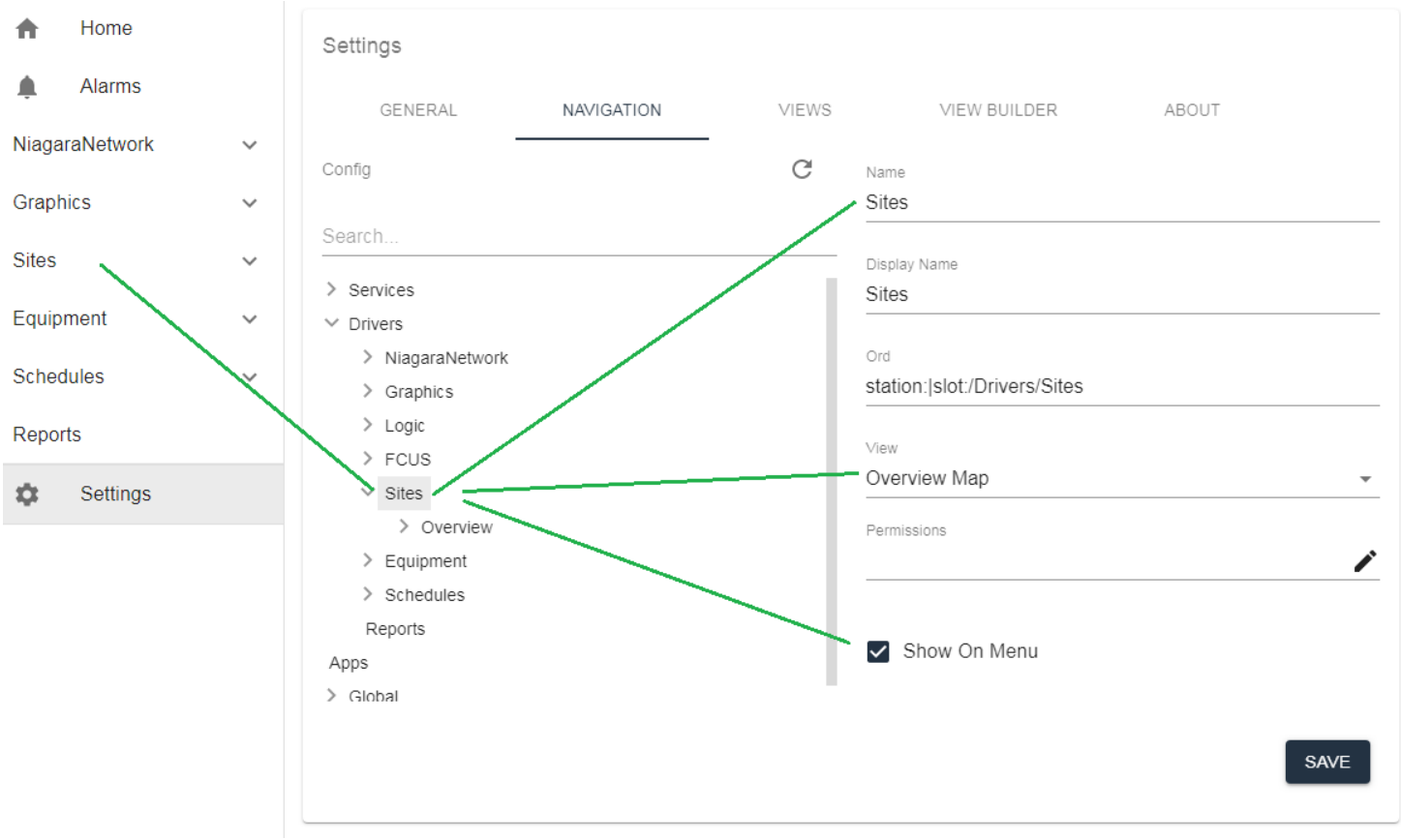

Title Color
Background Color
Height
350
Colour
Toggle Boolean Ord 1
AHU1_on_off
Relativized
Toggle Boolean Ord 2 (Optional)
AHU2_on_off
Relativized
Toggle Boolean Ord 3 (Optional)
AHU3_on_off
Relativized
Toggle Boolean Ord 4 (Optional)
AHU4_on_off
Relativized
Toggle Boolean Ord 5 (Optional)
AHU5_on_off
Relativized
Toggle Boolean Ord 6 (Optional)
AHU6_on_off
Relativized
CANCEL
OK

Example:



Applying Views:

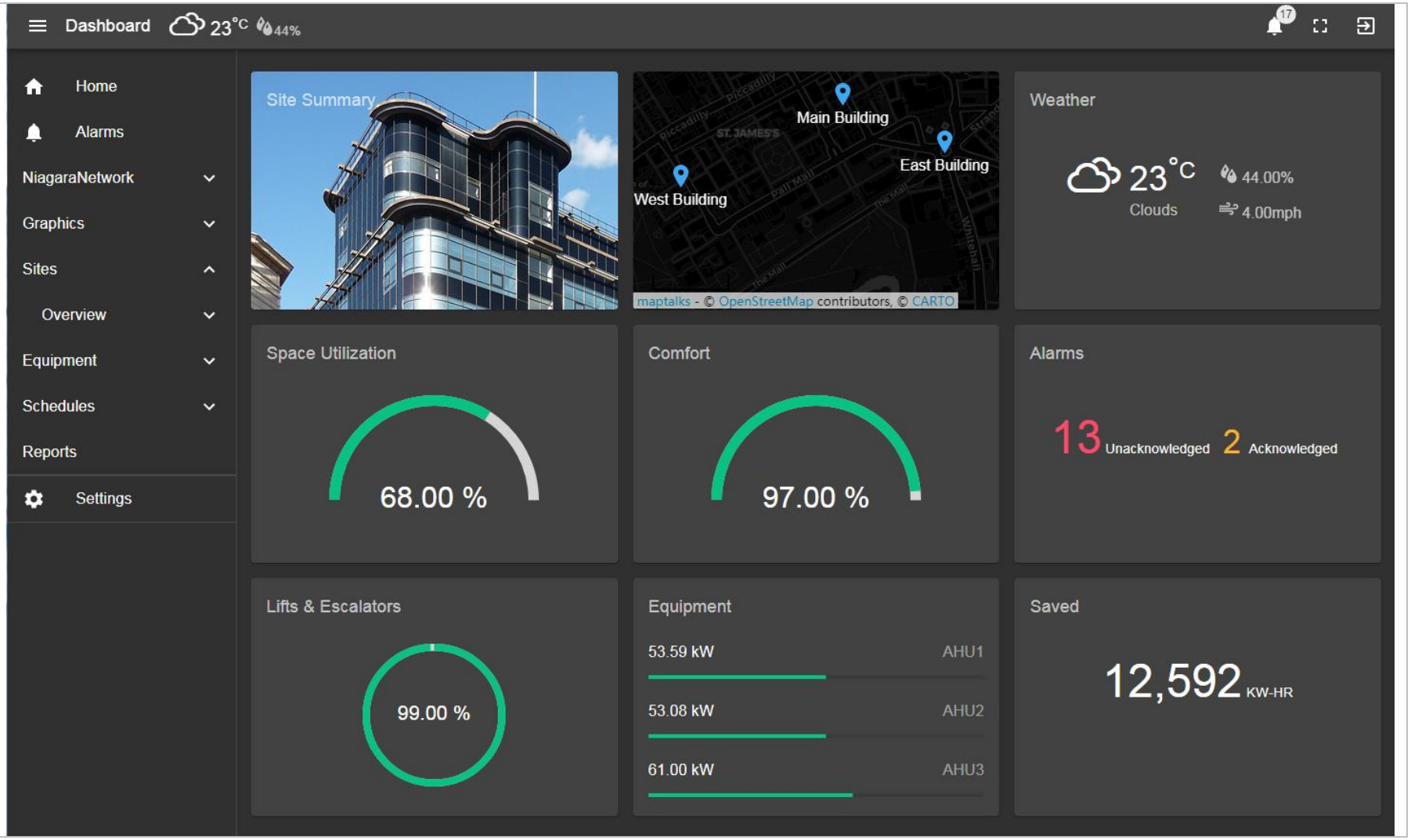
After you have created your view you must apply it to a station object. See section 9 for applying views. Here is another example of setting the "Overview Map" view to the stations "Sites" folder:

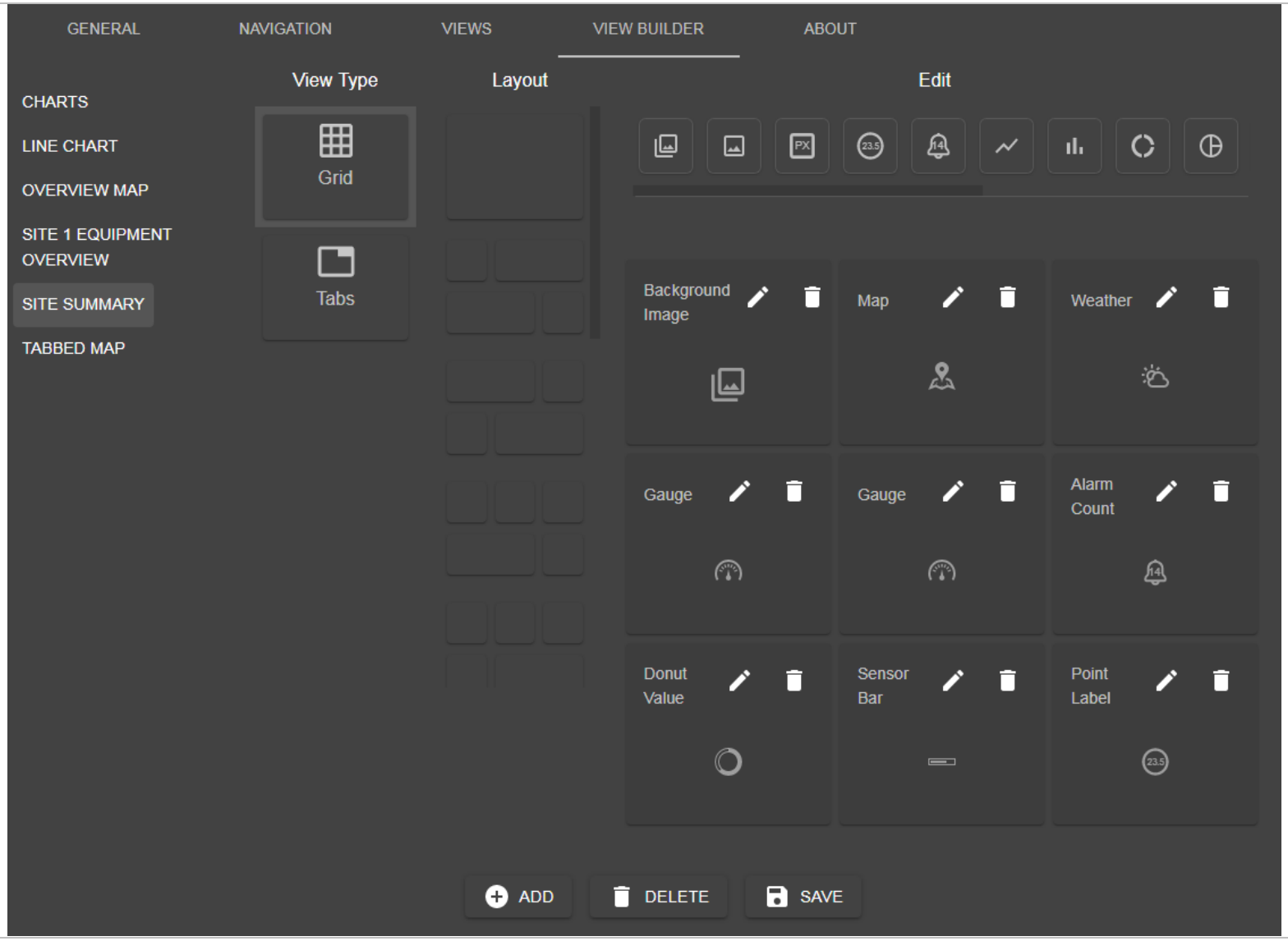

Home
Alarms
NiagaraNetwork
Graphics
Sites
Equipment
Schedules
Reports
Settings
Settings
GENERAL
NAVIGATION
VIEWS
VIEW BUILDER
ABOUT
Config
Search...
Services
Drivers
NiagaraNetwork
Graphics
Logic
FCUS
Sites
Overview
Equipment
Schedules
Reports
Apps
Global
Name
Sites
Display Name
Sites
Ord
station:|slot:/Drivers/Sites
View
Overview Map
Permissions
Show On Menu
SAVE

17. View Builder Examples

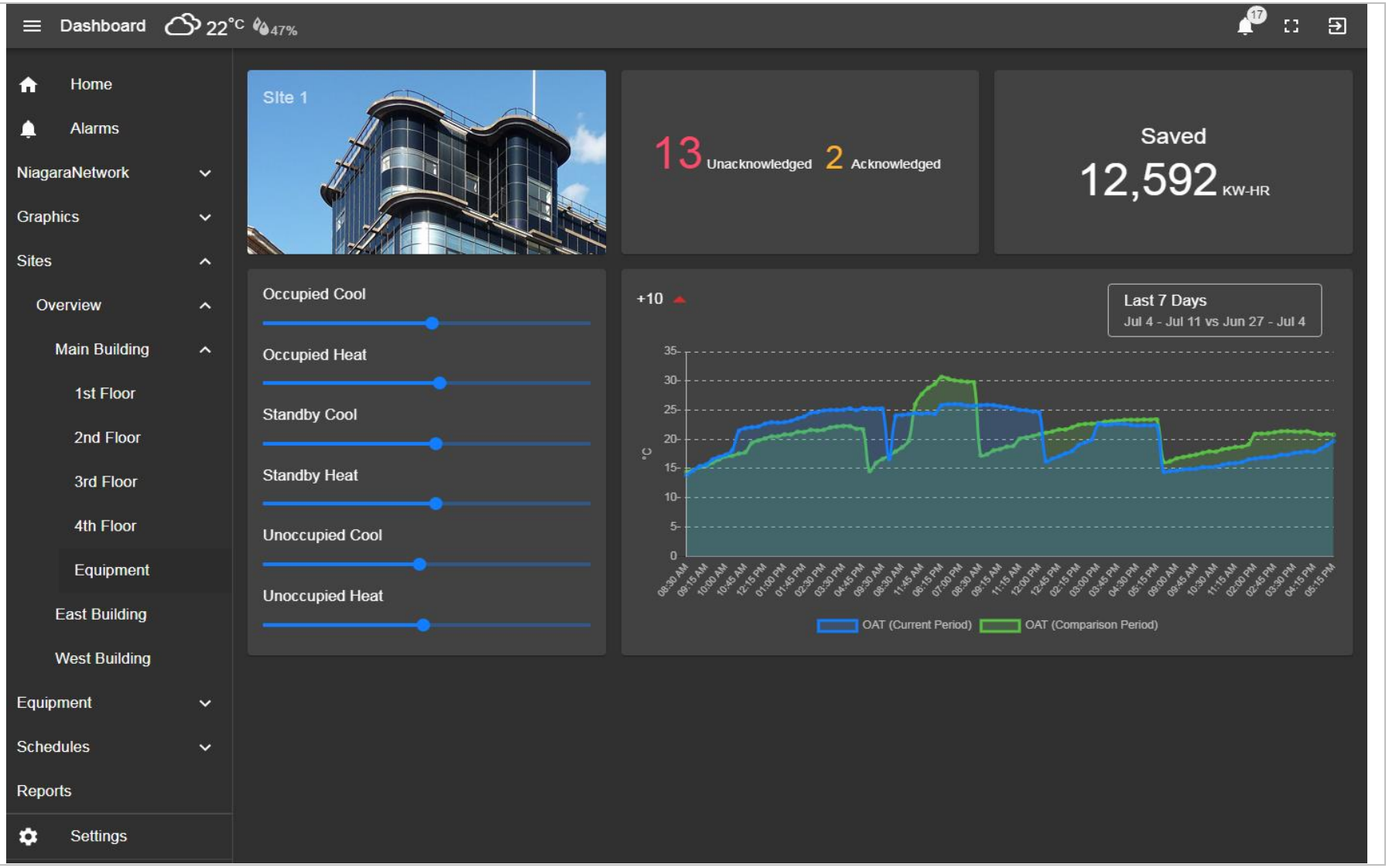
A set of examples to help you get started:

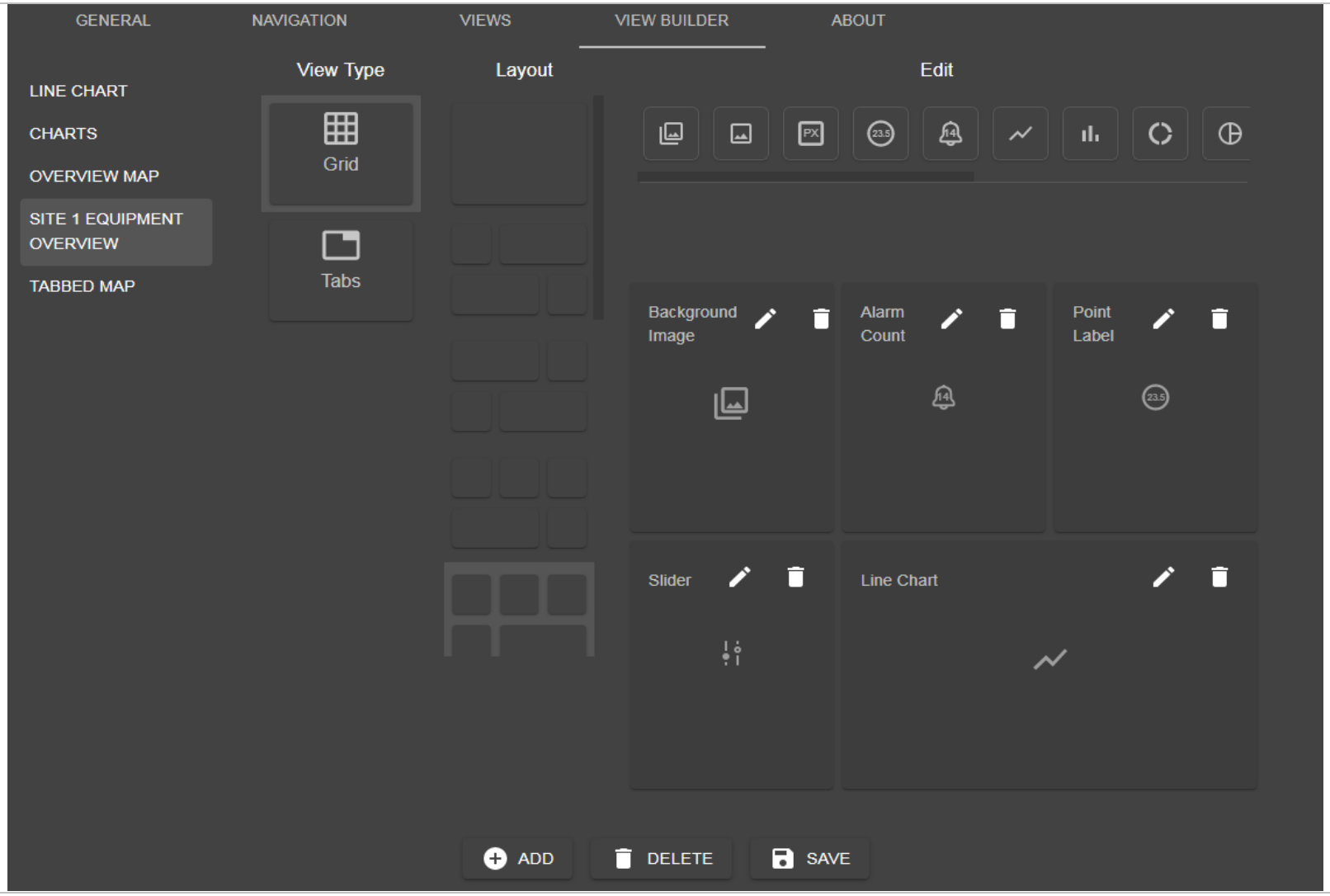
Site Overview



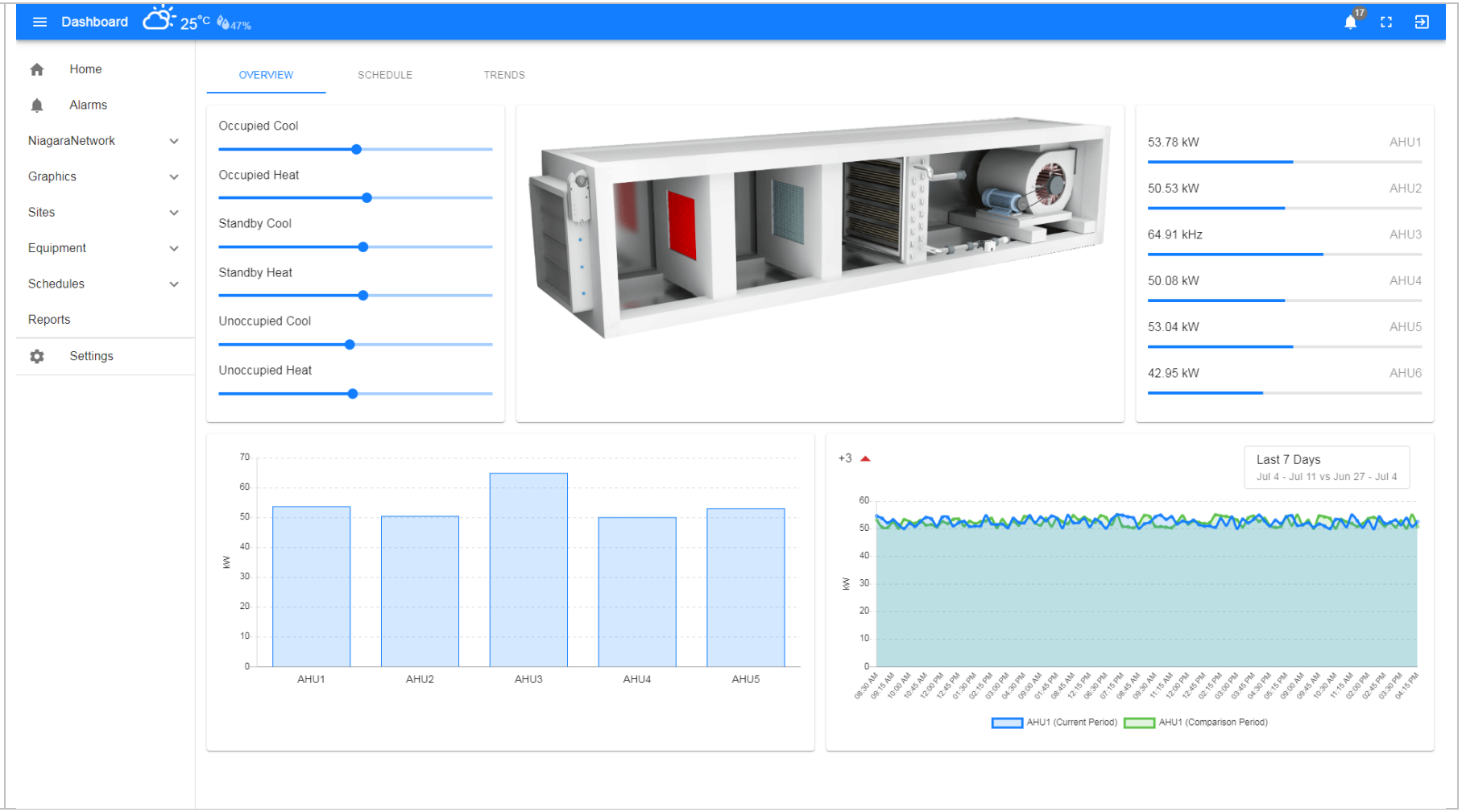
Site Overview (View Builder)	

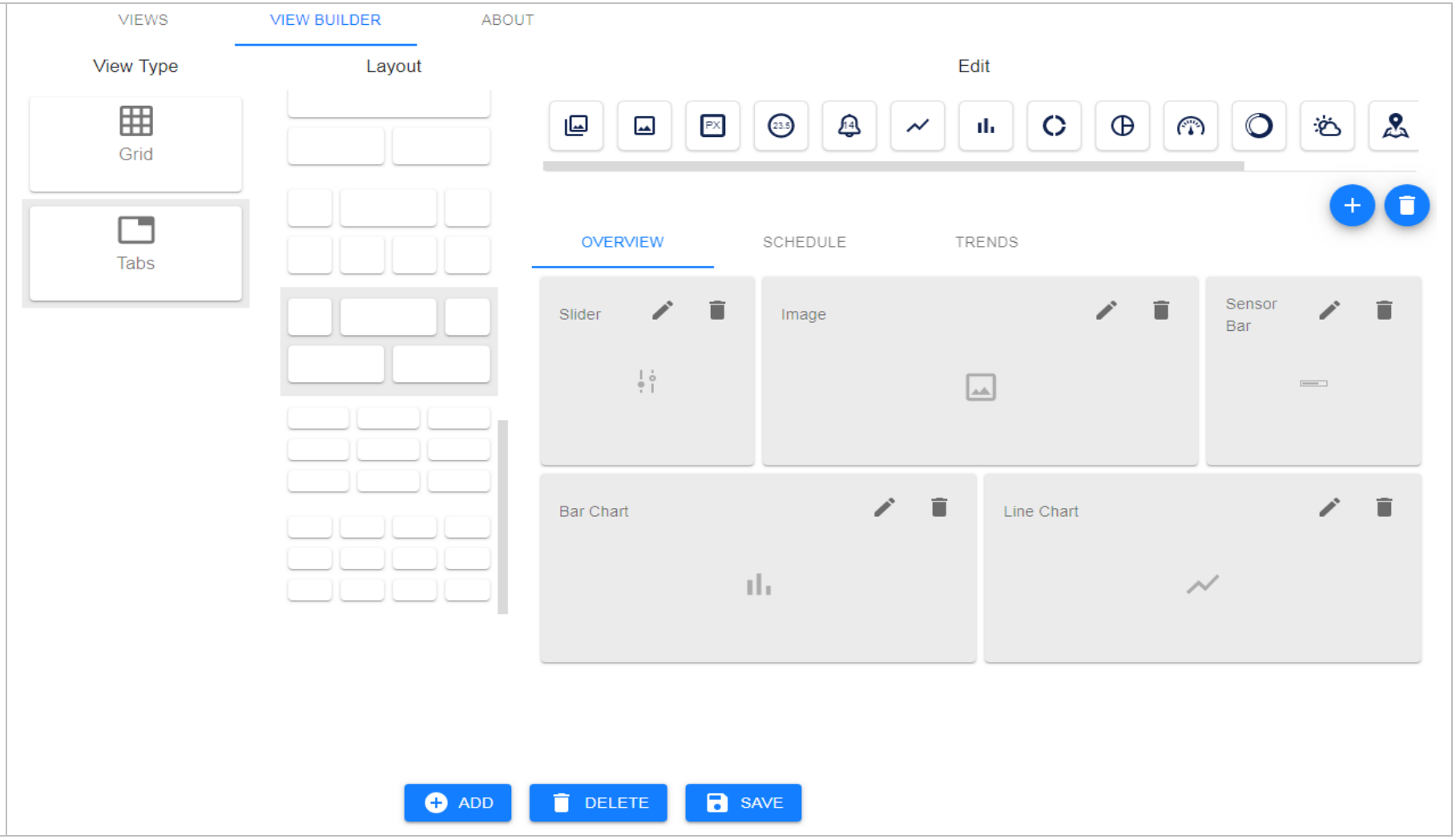
Equipment Overview

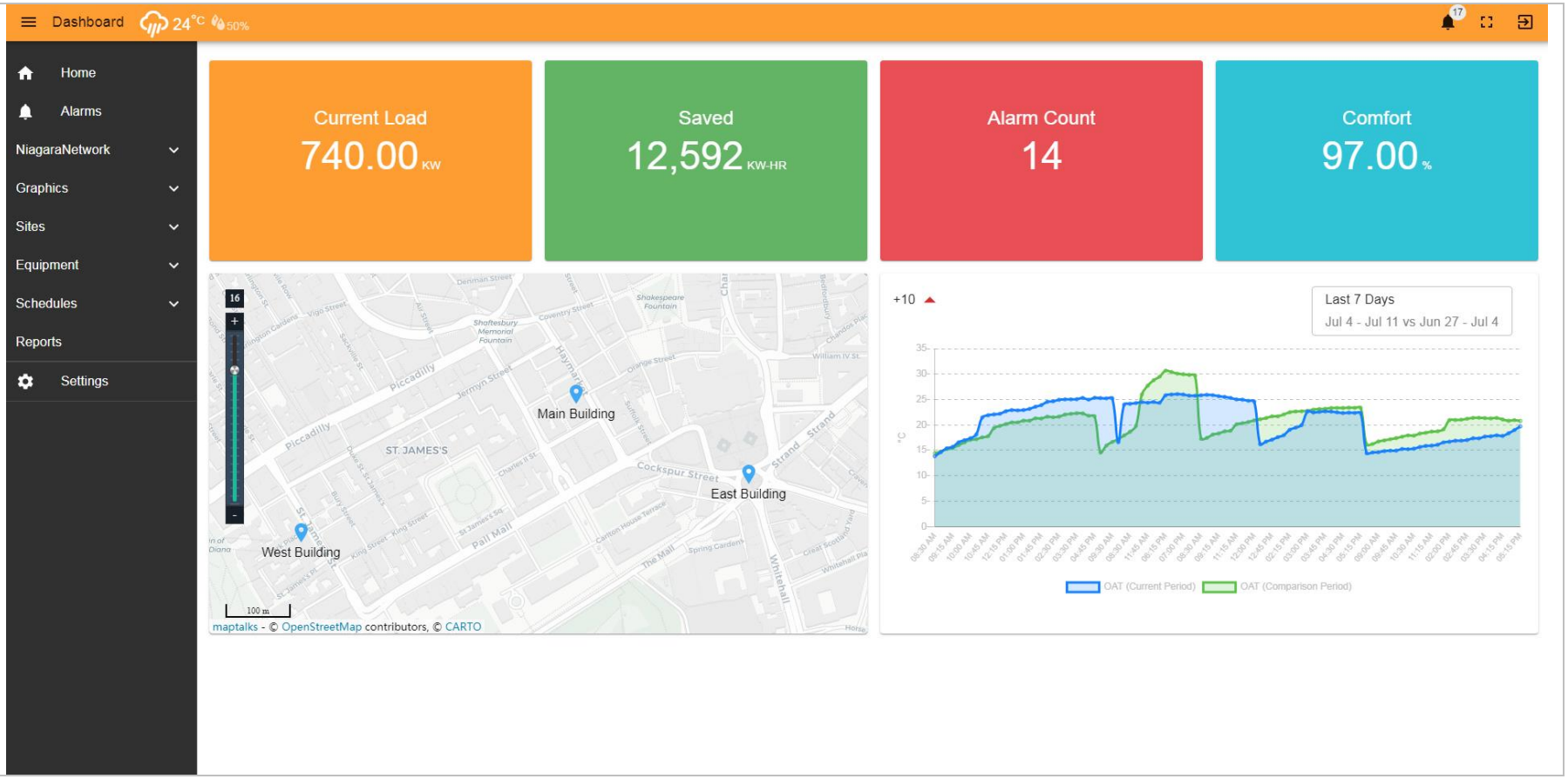


Equipment Overview (View Builder)	

Equipment


Dashboard
25°C
47%
17
Home
Alarms
NiagaraNetwork
Graphics
Sites
Equipment
Schedules
Reports
Settings
OVERVIEW
SCHEDULE
TRENDS
Occupied Cool
Occupied Heat
Standby Cool
Standby Heat
Unoccupied Cool
Unoccupied Heat
53.78 kW
AHU1
50.53 kW
AHU2
64.91 kHz
AHU3
50.08 kW
AHU4
53.04 kW
AHU5
42.95 kW
AHU6
kW
AHU1
AHU2
AHU3
AHU4
AHU5
+3
Last 7 Days
Jul 4 - Jul 11 vs Jun 27 - Jul 4
AHU1 (Current Period)
AHU1 (Comparison Period)

Equipment (View Builder)	

Colours	

Dashboard
24°C
50%
Home
Alarms
NiagaraNetwork
Graphics
Sites
Equipment
Schedules
Reports
Settings
Current Load
740.00 KW
Saved
12,592 KW-HR
Alarm Count
14
Comfort
97.00 %
Main Building
East Building
West Building
ST. JAMES'S
Piccadilly
Cockspur Street
Pall Mall
The Mall
Strand
Whitehall
maptalks - © OpenStreetMap contributors, © CARTO
+10
Last 7 Days
Jul 4 - Jul 11 vs Jun 27 - Jul 4
°C
OAT (Current Period)
OAT (Comparison Period)

Colours (View Builder)