SMITHTEK

SMITHTEK.CLOUD

USER GUIDEBOOK AND TECHNICAL SPECIFICATIONS

WWW.SMITHTEK.COM.AU
Version 1.1

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SMITHTEK.CLOUD

Smithtek.cloud is a web-based HMI Scada system. Inside the cloud, fresh data received from the Gateway can be seen in a list we call "variables". These variables are responsive in real-time, we call a sensor change, a 'data dot', also known as a data time stamp. Just like a SCADA system you can customize and design your cloud page, also known as a "Dashboard". With drag and drop capabilities you can be running in minutes.

Setup Guide

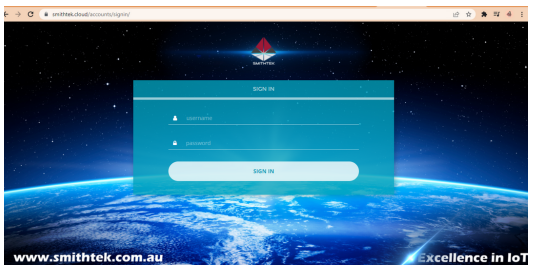
How to connect and log in to the Cloud

1.

Navigate to your web browser and type in the address bar **www.smithtek.com.au**, then press ENTER. In the website, you should see a **Cloud Login** tab; click it.

2.

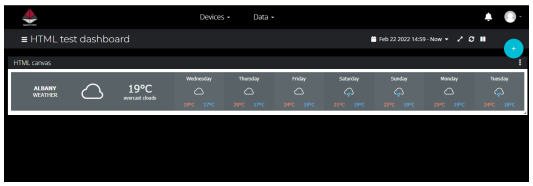
You should now be presented with the following web page, SMITHTEK Account Sign In. Type in your username and password, then click Sign In.



3.

You will now be directed to your Cloud server and Dashboard.

Note: You will find details of this in your introduction email.



Important Note: These are the browsers the Smithtek.cloud works on. Smithtek supports the latest versions of Chrome, Edge, Firefox, Opera, and Safari. We cannot guarantee proper functionality on other web browsers.

Chrome	
Edge	
Firefox	
Opera	
Safari	

The Basic Layout of the Cloud

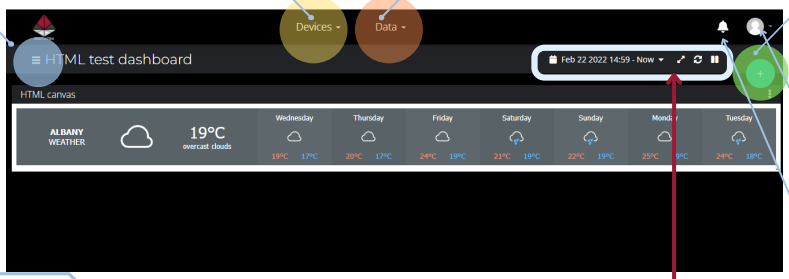
The Cloud Window major components:

Dashboards
Access your saved dashboards here.

Devices
Access and select your devices and device group.

Data
Select dashboards and events page here.

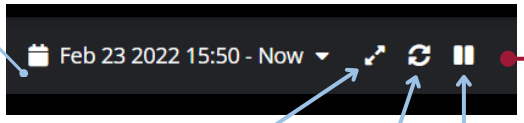
Widgets
Access a variety of widgets here to add in your dashboards.



Date Time Picker
Allows selecting a time range to populate the dashboard with data contained within the range. The widget's date & time range are set to the dashboard date time picker unless customize in the widget's properties.

User Profile
Access a collection of settings and information associated with the user.

Notification Bell
Notify you with events and updates about the changes in the dashboard.



Full-screen mode
Makes the dashboard fill the whole screen by hiding both the top Navigation bar and the Context bar.

Refresh
Clicking this option will cause the dashboard to retrieve the most up-to-date data. This is particularly useful when the real-time functionality (next option) is disabled.

Enable/Disable real-time
Dashboards have the benefit of real-time update, meaning every time a new **Dot** comes in, it will be automatically reflected in the dashboard and its respective widgets. Sometimes it is useful to disable this feature to have a fixed time range and analyze that period without disturbing it with new data. To switch between real-time or not, just click the option accordingly.

The basics components of any **Internet of Things** application powered by Smithtek.cloud are:

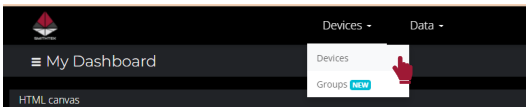
- **Devices**
- **Variables**
- **Synthetic Variables Engines**
- **Dashboards**
- **Events**

Setup Guide

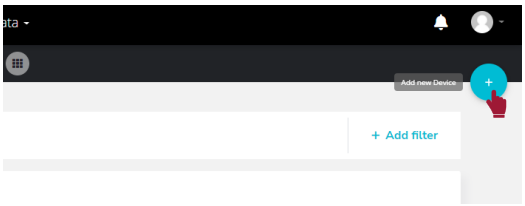
How to create and connect a Device to the Cloud

A **Device** is a virtual representation of a data source, or simply an asset taking in sensor data and transmitting said data through a connection protocol to Smithtek.cloud.

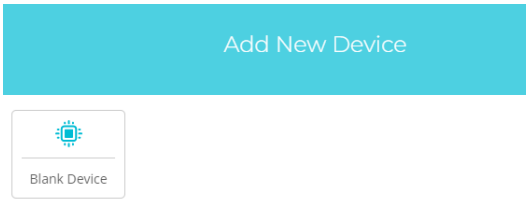
1. First, go to the **Devices** section tab under the Devices tab.



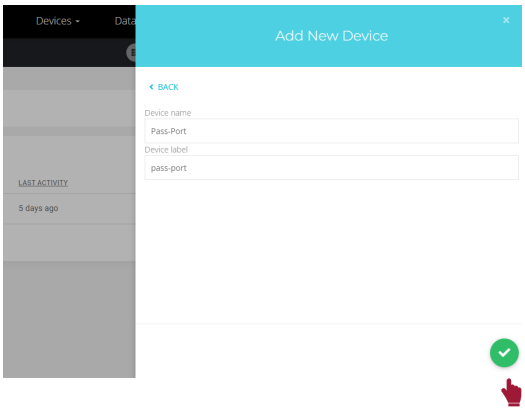
2. Click on the **Add new device** "+" icon in the top-right corner of the devices user interface.



3. Then click on the **Blank Device** icon and assign a name and label to your device.



4. Finally, click on the green icon in the lower right of your screen to save the configuration and create a new device.



Setup Guide

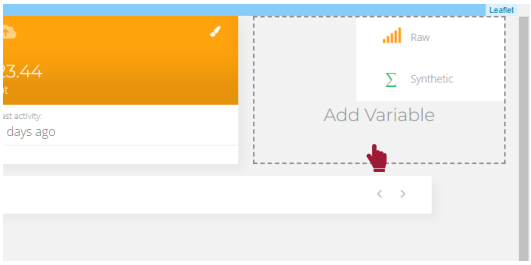
Two ways to create a Variable

Once a device is created and receiving data from your hardware or another 3rd party data-source, the data will be presented in its raw or calculated as a **Variable**.

Types of Variables:
– Default - raw data coming from devices (people counted).
– Synthetic - correspond to statistical or arithmetical operations of default variables in a determined time-frame (e.g., average daily tank levels this month).

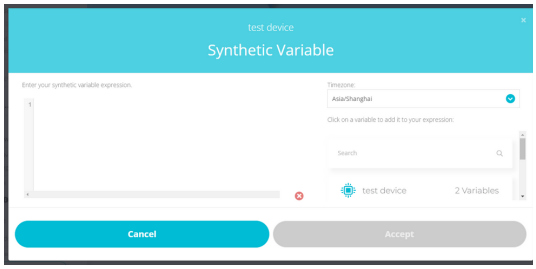
1.

– **Default**: Click the "+" icon found in any single device screen and click **Raw**, then assign a name that will also correspond to the variable's label.



2.

– **Synthetic**: Click the "+" icon found in any single device screen and click **Synthetic**, then, Enter your synthetic variable expression. You can download the synthetic variable cheat sheet by clicking **here**.



To understand how and when to use Synthetic Variables to compute complex equations, click **Synthetic Variables Analytics** or go to our website **Contact & Support** page.

Note: Default variables are yellow, and Synthetic Variables are **green**.

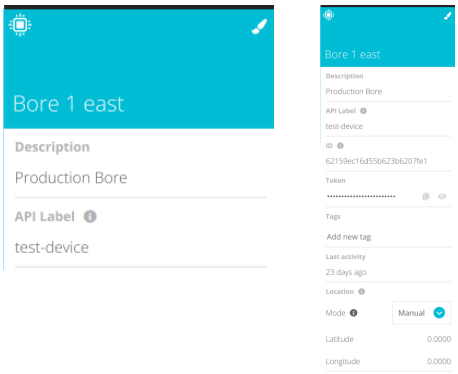
- To find both the variable's ID and variable's label, select the "**i**" icon form the variables card.

The Devices Section

How to Edit, Delete and Reset Devices

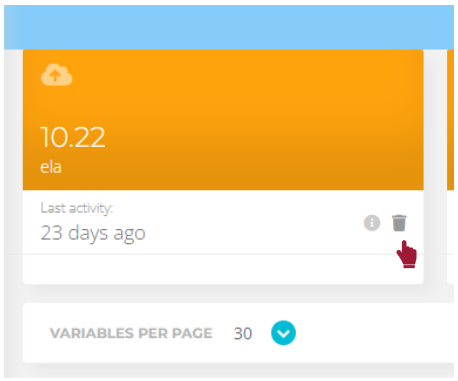
E.

Devices can easily be edited directly from the User Interface. Simply click to open the device you need to edit and then using the Device detail pane located on the left-hand side of your Smithtek.cloud display to **edit** any information as needed.



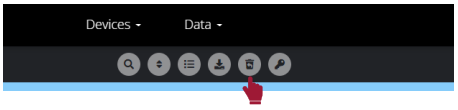
D.

Go to and hover the device you want to **delete**. You will see two icons in the bottom right: one for the variable information; the second, a "**trashcan**" icon for deleting a device. If you wish to delete the device, select the trashcan and confirm.



R.

From any Device you can easily clear all gathered data without having to recreate the device. To clear all data from a Device, simply open the device you need to reset and click the "**reset**" icon located in the main control bar to remove any recorded data and reset the device's data.



The Devices Section

Configure Variables

By clicking the "**Add variable**" button, you can add as many variables as needed as per your subscription plan; the 150 plan allows you to have 20 variables.

For each variable, you can set these basic fields:

- **Variable Name:** The friendly variable name as it will appear in the variable list of a Device. You may want to add the name with the first letter in uppercase, since, without a device type, Smithtek.cloud's default is lowercase. The Variable Name is simply a friendly name to fit your solution's nomenclature.
- **Variable API Label:** An identifier within all the device's variables. It can be different from the variable name and should match the payload. *For example*: if the payload from the device is "{"temp":10}", the variable API label in the device type should be "temp".
- **Allowed Range:** set the minimum and maximum range of your variable.
- **Unit:** The unit of your variable
- **Scale Function:** provides a way to easily add a scaling factor and an offset to incoming data, before it is saved. This avoids having to use synthetic variables for simple operations.

The Devices Section

Configure Variables

The **Scaling function** allows you to apply linear transformation to the data by following the next equation: **y = mx + b**

Where:

- **y:** resulting value
- **m:** slope
- **x:** raw data
- **b:** offset

It's worth noting that this feature is a real-time engine, which means that the scaling function is applied to the data as soon as it becomes available.

How to Apply the Scaling function to your data?

The scaling function feature is available on your raw variables. Follow the next steps to learn how to apply it to your variable's data:

Step 1: Go to Devices

Step 2: Select a device and open a raw variable from the variables list

Step 3: Go to the Scaling function section in the configurations panel.

Step 4: Enter the values for the slope and offset.

ADVANCED CONFIGURATION

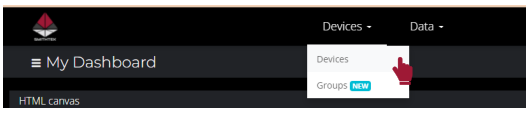
- **Allowed Range:** The min and max ranges for your variable.
- **Synthetic Expression:** The math or statistical expression used to compute new data based on one or more existing variables.
- **Description:** The description of the variable as you'd like it to appear for to end-users.
- **Color:** Optionally override the color of the variable, as set in the "Appearance" step above.
- **Visible to end-users:** By default selected, if unselected then this variable will only be seen by the Admin.
- **Location Variable:** If selected, then Smithtek.cloud will understand this variable to be containing the context of latitude and longitude coordinates.

Note: See Map Widget for more details on location features.

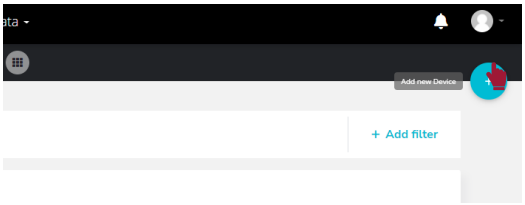
Setup Guide

How to connect your Pass-Port Device to the Cloud

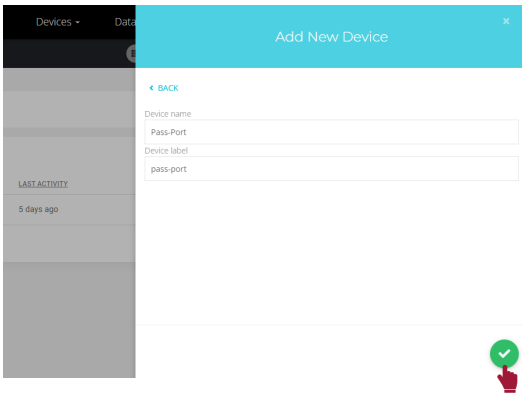
1. First, go to the **Devices** section tab under the Devices tab.



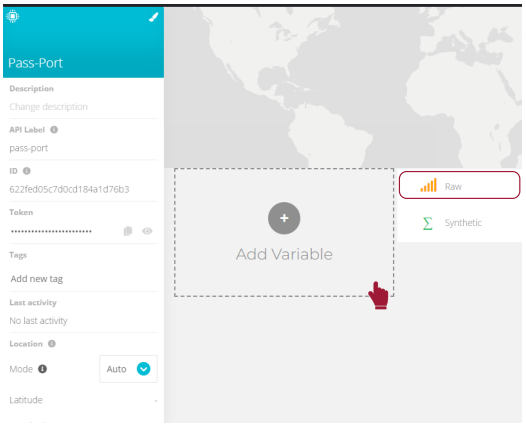
2. Click on the **Add new device** "+" icon in the top-right corner of the devices user interface and then, create your device.



3. Assign a name to your device and click on the green icon in the lower right of your screen to save the configuration.



4. Once created, click on the **Add variable** and choose the type of your variable. In this sample, we will use the default "**Raw**" variable. Immediately assign a name to your new variable once prompted.



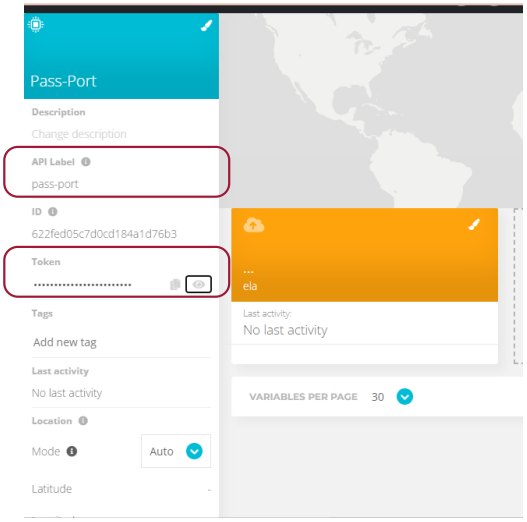
Setup Guide

How to connect your Pass-Port Device to the Cloud

5.

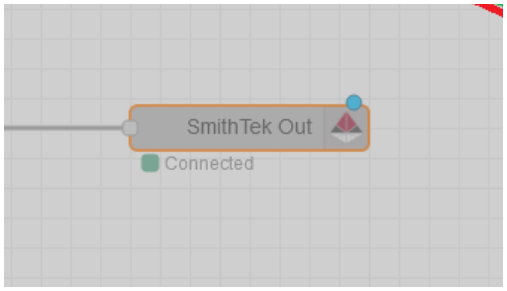
In this sample, we created a variable labeled as "ela". In the left-side, you can see the variable configurations, among them are:

- **API Label:** a unique label of your device. It is what links to the outside world and make sure the data hits this data bucket.
- **Token:** serves as a user and password to the outside world connection.



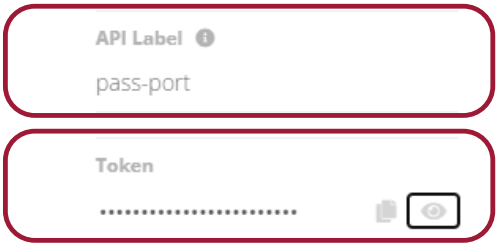
6.

In order to send a sensor data from your **Pass-Port** to the **Smithtek.cloud**, log in to your Pass-Port Flow Editor then drag-and-drop the SmithTek_Out Node to your Pass-Port workspace.



7.

Next, go back to your Device Variable in Smithtek.cloud and copy the **API Label** and **Token** Credential to your Pass-Port Node Configuration.



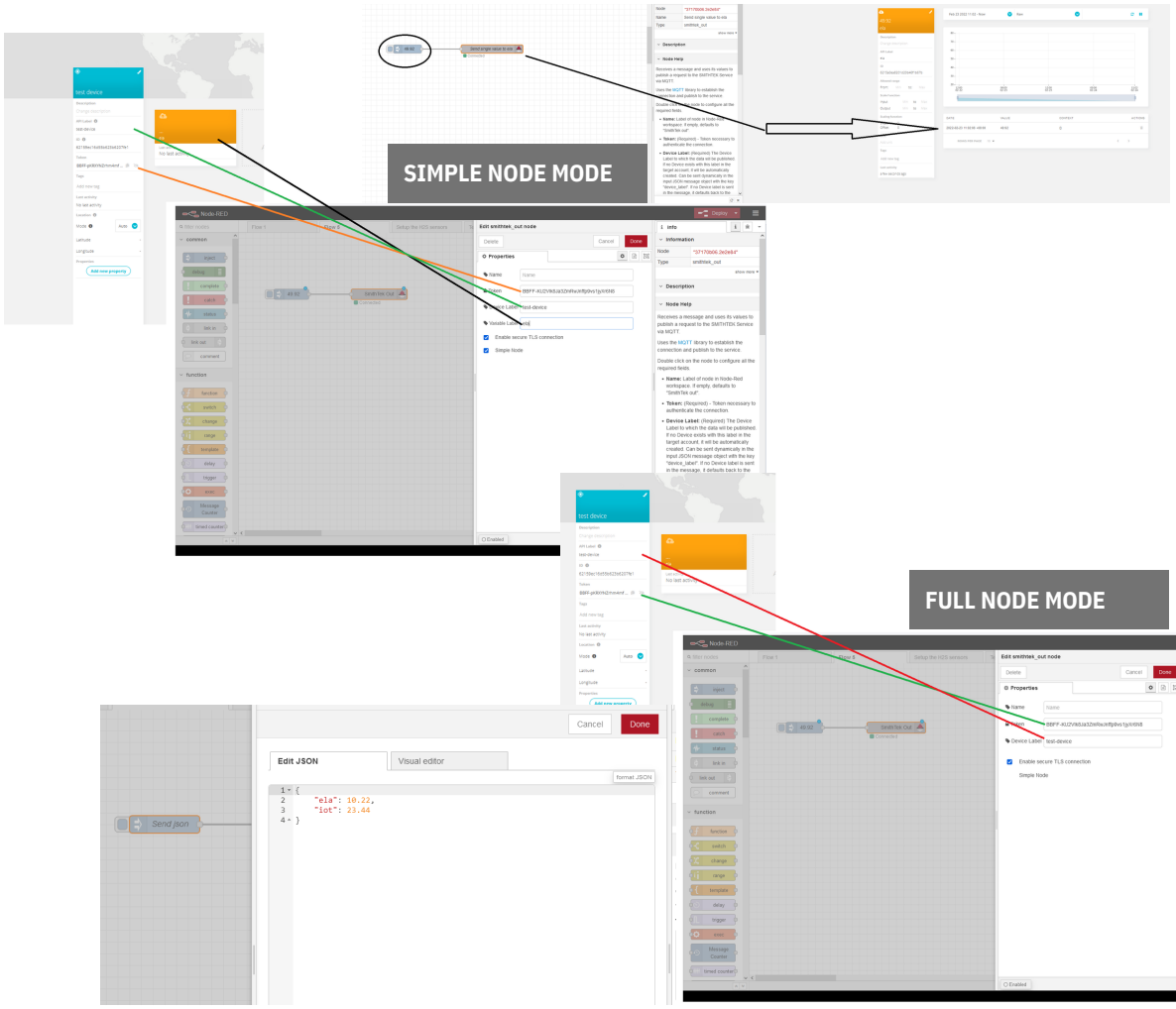
Setup Guide

How to connect your Pass-Port Device to the Cloud

8.

There are two options for you to connect the data to the variables data buckets:

- **Simple Node Mode:** you can only send a single value to the end variable.
- **Full Node Mode:** you can send hundreds of values to many variables but they have to be in JSON format.

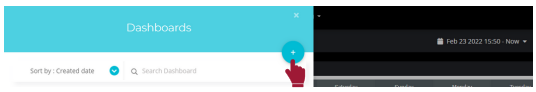


The Dashboard

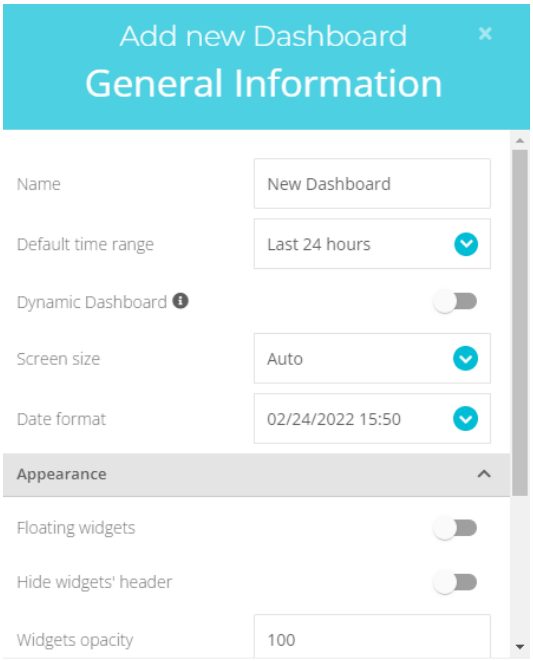
How to Create a Dashboard

1. Click on the **Dashboard** icon in the top-left of the user interface.

2. Then click on the "+" icon.



3. Assign a **Name** to your dashboard and provide some general settings:



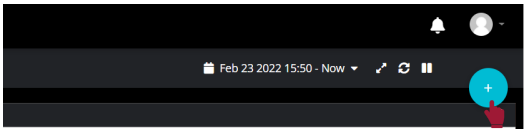
- **Default time range:** The first load corresponds to the predetermined time interval when the dashboard is loaded, otherwise it corresponds to the last selected time range.
- **Dynamic Dashboard:** Enable it if you're creating a dynamic dashboard. Disable it if creating a static dashboard.
- **Resolution:** Choose a resolution according to the screen used to display the dashboard, or leave it as Auto for it to be responsive.
- **Date format:** Select the general date-time format so the widgets inherit it. If "Custom date" is selected, refer to the IMPORTANT NOTE below.
- **Default device:** If the dynamic dashboard is enabled, then select the default device for each time the dashboard is displayed.
- **Floating Widgets:** Leave as Disabled if you want widgets to snap to each other. Enable it if you want to have widgets "floating" in the user interface.
- **Hide widgets' header**
- **Widgets Opacity:** Change the opacity of the widgets to give further clarity to a dashboard; "0" is transparent, "100" is the solid default background color.
- **Custom Style:** Customize the default colors and fonts of dashboards, widgets, and the context bar when they are loaded.
- **Widget's horizontal/vertical spacing:** Choose the space between widgets that best fits your application.

4. Finally, click on the green icon in the lower right of your screen to save the configuration and create a new dashboard.

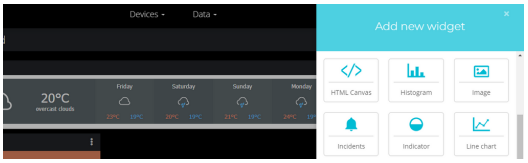
The Dashboard

How to Create Widget

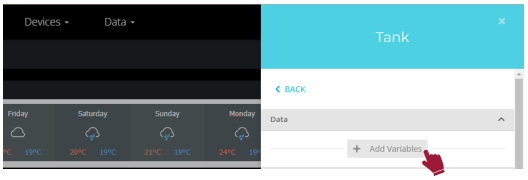
1. To create a widget, click on the "+" icon in the top-right corner of the dashboard user interface.



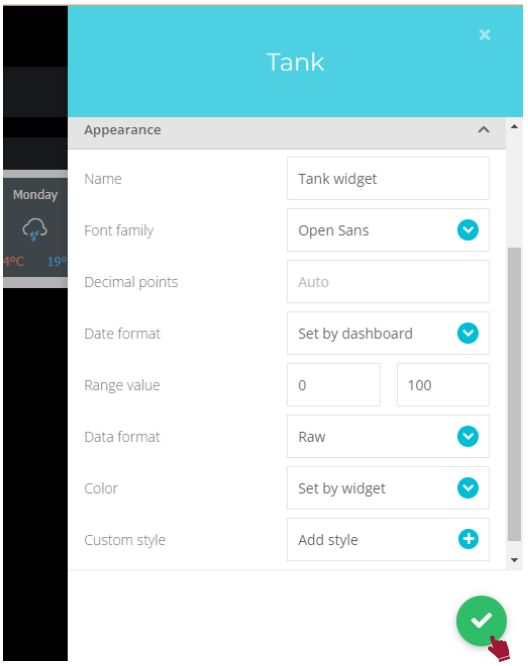
2. Select the type of **Widget** from the available options, or create your own with the HTML Canvas.



3. Assign a Variable for the widget by selecting "**+ Add Variables**"



4. Configure the Widget **Appearance** and then click on the green icon to **Save** the configuration and create a new widget.



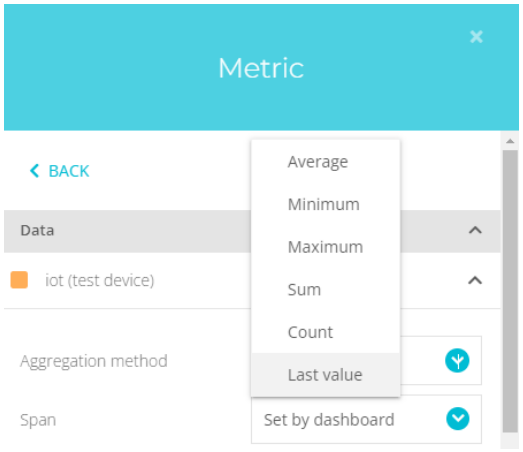
Every widget has a different set of options for appearance, the most common ones being:

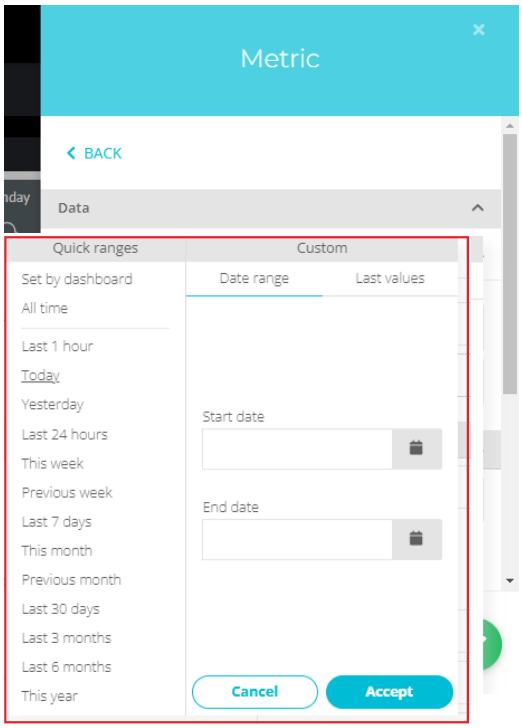
- **Name:** The text label appears in the upper left corner of your widget.
- **Font:** Option to change the font used inside the widget.
- **Decimal points:** The number of decimals for non-integer values.
- **Date Format:** Choose between different date formats. If the Custom date format is selected, the same rules apply as in Dashboard settings.
- **Color:** Every widget has a default color (Set by widget option), predetermined by the Cloud. You can override this default color by selecting the option Variable's default, which will use the variable's color.

The Dashboard

Additional Widget Configurations

Every widget has a different set of configuration options. Depending on the widget you might be able to add one or several variables. For instance, the metric widget only supports one variable, while the line chart widget supports multiple variables.





AGGREGATION METHOD

This option allows you to apply an aggregation method (average, count, last value, max, min, or sum) over the time range set in the dashboard's settings bar. The following widgets have an option to apply a method of aggregation.

- Metric Widgets
- Line Chart Widgets
- Pie Chart Widgets
- Gauge Indicator Widgets
- Battery Indicator Widgets
- Tank Indicator Widgets
- Thermometer Indicator Widgets
- Variables Tables

SPAN

Some of the widgets also give you the option to **override the dashboard's time range** (a.k.a Set by dashboard), allowing you to force the aggregation to always be computed for a predetermined time range.

The Dashboard

Widget Interaction Options

For Dashboards, widgets have the following interaction options that allow users to have a better experience and easily navigate.

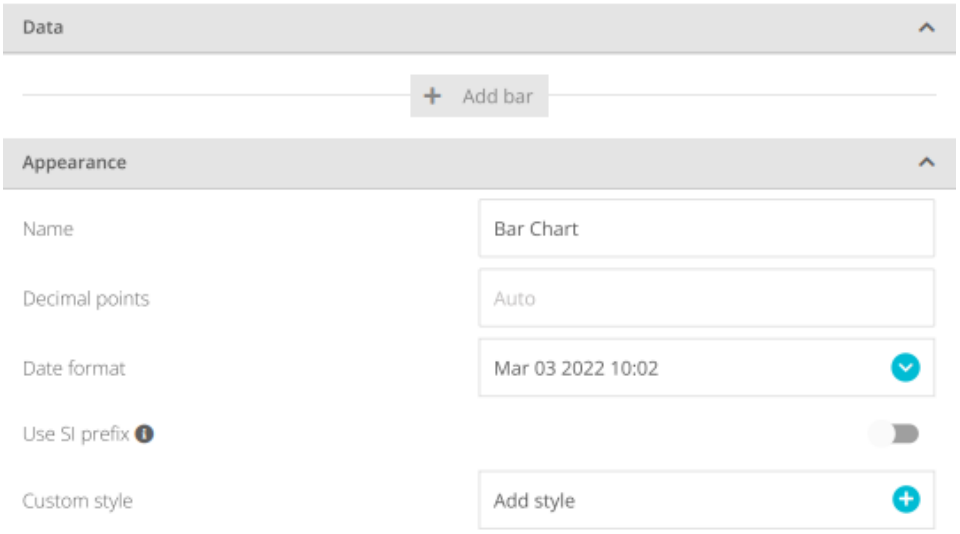
- **Download** a CSV file with the data of the variables(s) related to the widget. You have to select the date range and the columns you want to export.
- **Explore Data** of the variables or devices related to the widget, once selected, a new window will open with the device or variable view.
- **Enlarge** the widget to see it in more detail.
- **Duplicate** a widget in the dashboard, save time creating a new one with the same configuration.
- **Share** widgets through a public URL or an embeddable snippet code for a website's HTML source code.
- **Edit** widget configurations.
- **Export PNG** images of the widget in the selected date range.
- **Delete** a widget permanently.

The Dashboard

Widgets Table

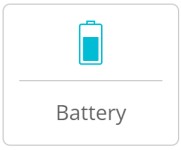
BAR CHART WIDGET	GENERAL SETTINGS
Bar chart	**Usage:** Very useful and popular for data visualization, as they are intended to compare values through a bars' height.
Name	Assign a name to your widget
Decimal Points	The number of decimals for non-integer values
Date Format	Choose between different date formats or set it to the dashboards date or customize
SI Prefix	Adds a unit prefix from the International System of Units (Metric System)
Custom Style	Customize the default colors, fonts and context bar of the widget.

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

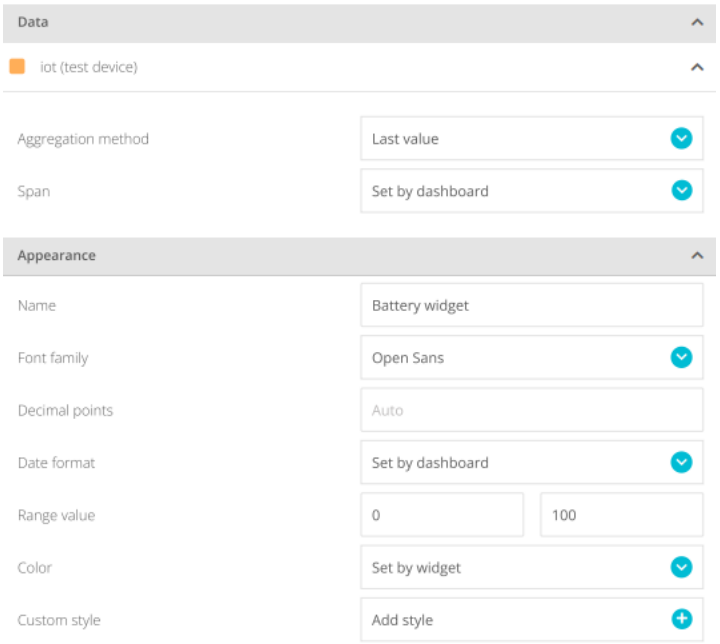


The Dashboard

Widgets Table

BATTERY WIDGET	GENERAL SETTINGS
 Battery	**Usage:** Useful for quickly assessing the battery percentage of your devices.
Aggregation Method	Apply an aggregation method (average, count, last value, max, min, or sum) over the time range set in the dashboard's settings bar
Span	Force the aggregation to always be computed for a predetermined time range
Range Value	Set the low and high visual range of the widget
Color	Choose between the default color predetermined by the Cloud or override this default color by selecting the option Variable's default, which will use the variable's color or use a color logic

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

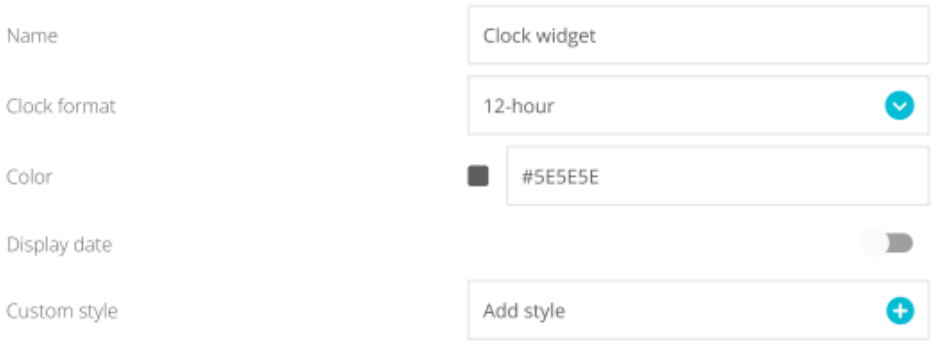


The Dashboard

Widgets Table

CLOCK WIDGET	GENERAL SETTINGS
Clock	**Usage:** Useful to measure and indicate time.
Clock Format	Choose between 12-hour or 24-hour clock format
Color	Set the color of the clock widget through RGB or Hex Code.
Display Date	An option to display a date on your widget
Custom Style	Customize the default colors, fonts and context bar of the widget

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

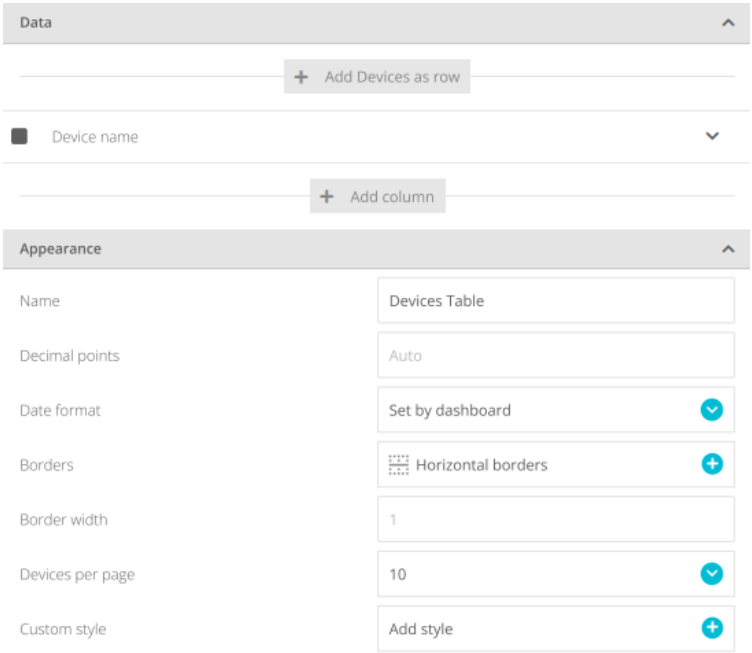


The Dashboard

Widgets Table

DEVICES TABLE WIDGET	GENERAL SETTINGS
Devices Table	**Usage:** Display all the data related to multiple devices.
Borders	Set different border styles on your devices table widget
Border's Width	Set the thickness of the borders
Devices per page	Select the number of Devices per page.
Custom Style	Customize the default colors, fonts and context bar of the widget

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

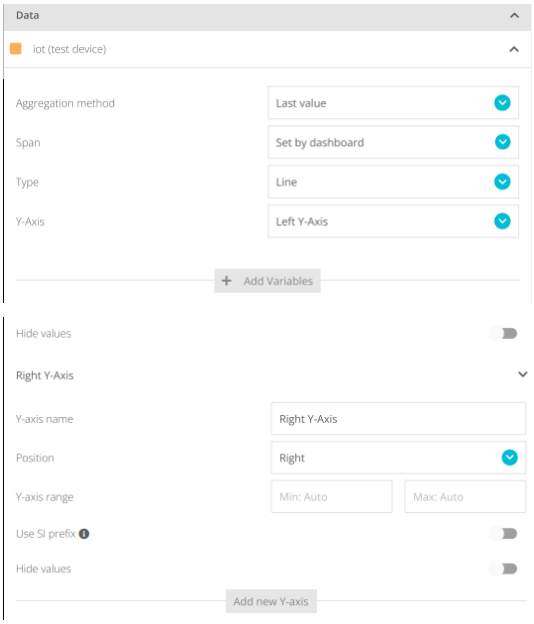


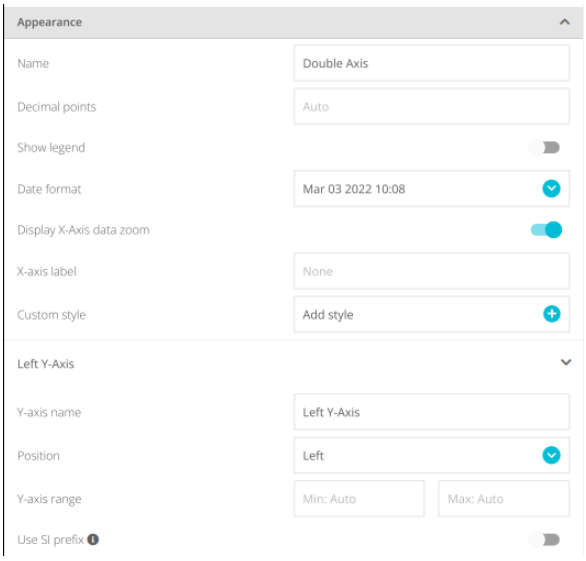
The Dashboard

Widgets Table

DOUBLE AXIS WIDGET	GENERAL SETTINGS
Double Axis	**Usage:** Visualizes time series data. It has options to display and customize data visualization as required by each individual application.
Type	Select the type of trace between Line, Area, Stacker area, Bars, Stacked bars, Dots, or step
Y-Axis	Pick the Y-Axis for each of the variables
Position	Set the Position of the Y axis
Y-Axis Range	Enter the expected Y-Axis range. Leaving empty will set the range according to the max and min values within the period displayed

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**



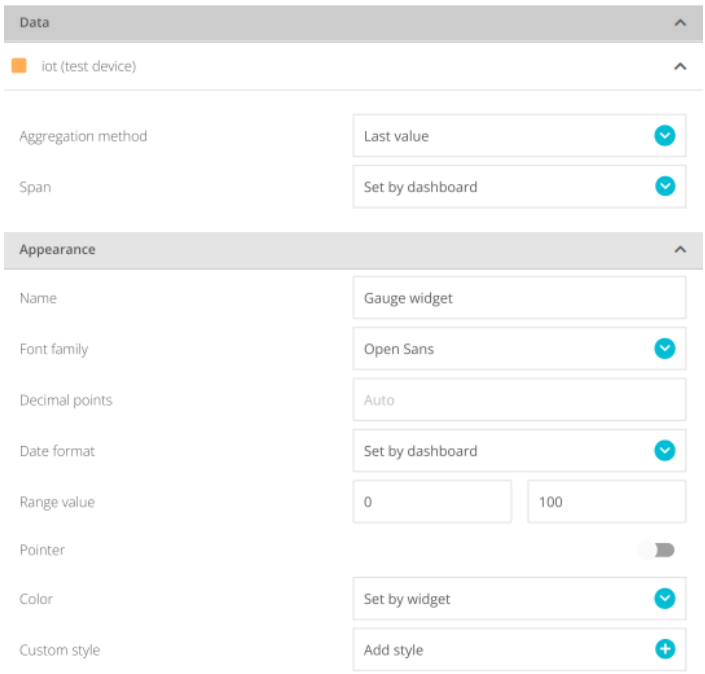


The Dashboard

Widgets Table

GAUGE WIDGET	GENERAL SETTINGS
Gauge	**Usage:** Measure pressure, dimensions, levels, etc. A visual representation of a single metric value.
Aggregation method	Apply an aggregation method (average, count, last value, max, min, or sum) over the time range set in the dashboard's settings bar
Span	Force the aggregation to always be computed for a predetermined time range
Range Value	Set the low and high visual range of the widget
Pointer	Enable/disable the toggle to configure the color and ticks of the pointer

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

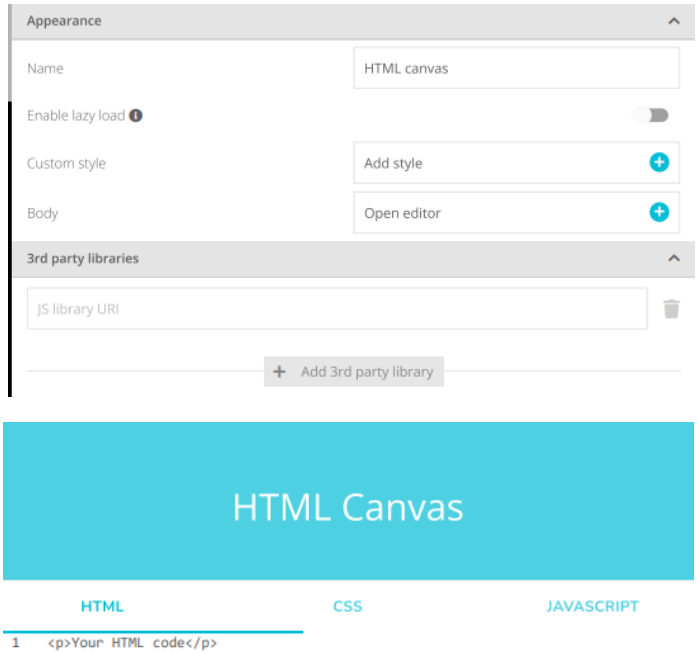


The Dashboard

Widgets Table

HTML CANVAS WIDGET	GENERAL SETTINGS
HTML Canvas	**Usage:** Used to create specialized mini-web apps using API REST. With the HTML canvas, you can create presentation user layers (UX) like customized maps or animated business apps. Scroll below the widget table to learn more.
Enable Lazy Load	Enable lazy load when in need to load the code before the browser actually renders everything
Custom Style	Customize the default colors, fonts and context bar of the widget
Body	Open the editor to insert your HTML, CSS and JS codes in each respective tab
JS Library URL	Type or paste the URL to import 3rd Party Libraries

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

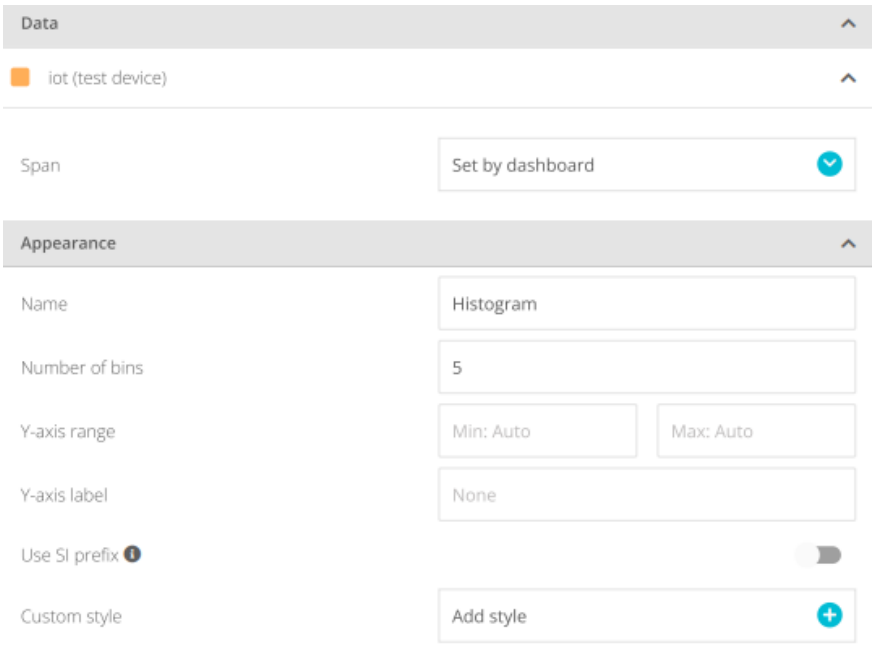


The Dashboard

Widgets Table

HISTOGRAM WIDGET	GENERAL SETTINGS
Histogram	**Usage:** Meant to show the frequency of certain data ranges, very useful for data visualizations.
Span	Choose a time span for each variable. Option "Set by dashboard" correspond to the Dashboard's general date time picker span
Number of bins	Choose the number of bins to be displayed
Y-axis Range	Enter the expected Y-Axis range. Leaving empty will set the range according to the max and min values within the period displayed
Y-axis label	Assign label to the Y-axis

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

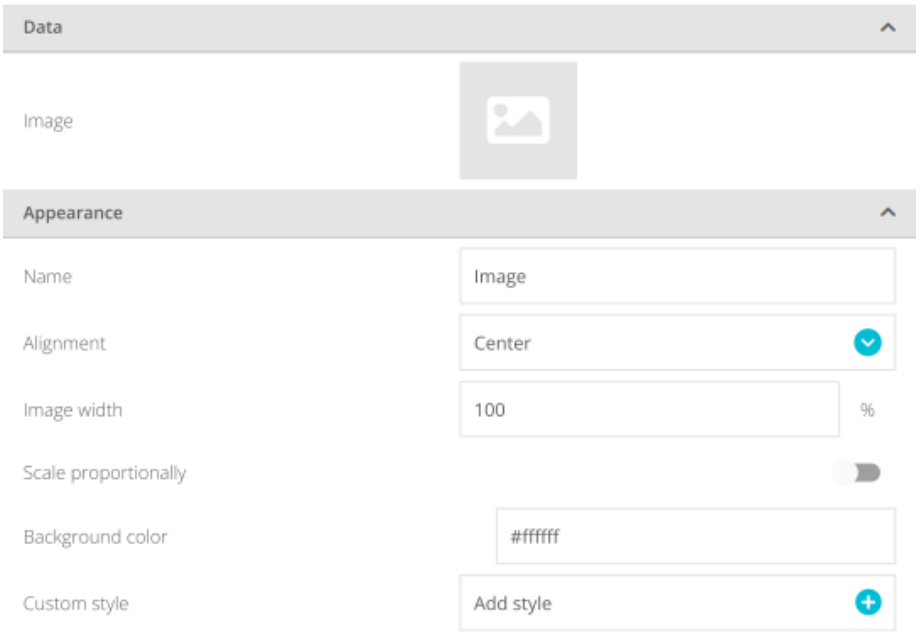


The Dashboard

Widgets Table

IMAGE WIDGET	GENERAL SETTINGS
Image	**Usage:** Shows the actual environment around your connected objects, explain a concept, or simply inspire your customers with the power of a picture. The image widget supports both image uploads or image URLs containing a publicly stored file.
Image	Option to upload your image or add the image URL
Alignment	Choose an alignment format for the image (left, center, right)
Image Width	An option to set the image width in percentage
Scale Proportionally	Enable to scale the image proportionally

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

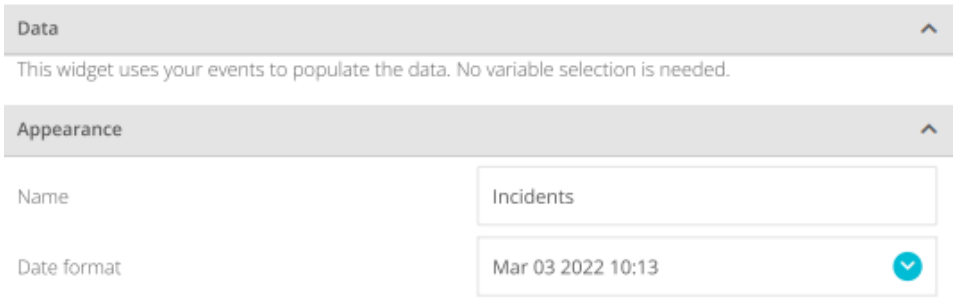


The Dashboard

Widgets Table

INCIDENTS WIDGET	GENERAL SETTINGS
Incidents	**Usage:** This widget uses your events to populate the data. No variable selection is needed.
Name	Assign a name to your widget
Date Format	Choose between different date formats or set it to the dashboards date or customize

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

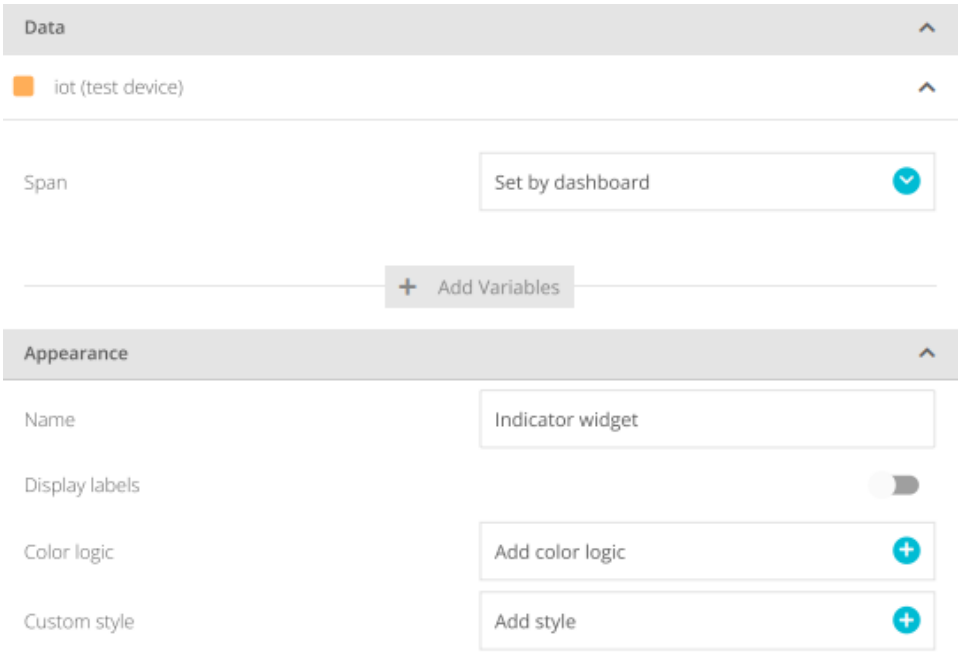


The Dashboard

Widgets Table

INDICATOR WIDGET	GENERAL SETTINGS
Indicator	**Usage:** This widget provides various options for displaying one or two numeric values as a number, gauge or ticker.
Span	Choose a time span for each variable. Option "Set by dashboard" correspond to the Dashboard's general date time picker span
Display labels	Enable to display data format, decimal points and date format labels
Color logic	Add and select color logic or customize your style
Custom Style	Customize the default colors, fonts and context bar of the widget

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

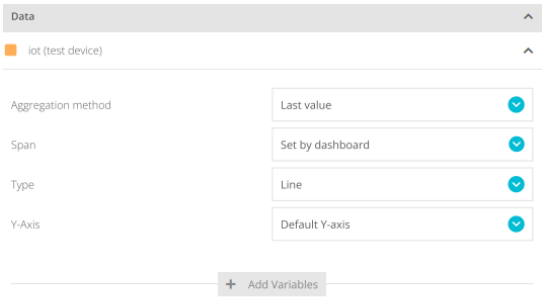


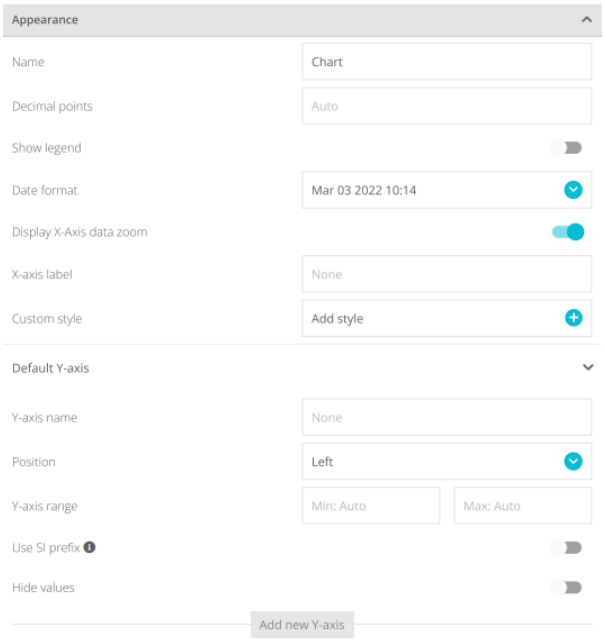
The Dashboard

Widgets Table

LINE CHART WIDGET	GENERAL SETTINGS
Line chart	**Usage:** Visualizes time series data. It has options to display and customize data visualization as required by each individual application.
Type	Select the type of trace between Line, Area, Stacker area, Bars, Stacked bars, Dots, or step
Y-Axis	Pick the Y-Axis for each of the variables
Position	Set the Position of the Y axis
Y-Axis Range	Enter the expected Y-Axis range. Leaving empty will set the range according to the max and min values within the period displayed

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**



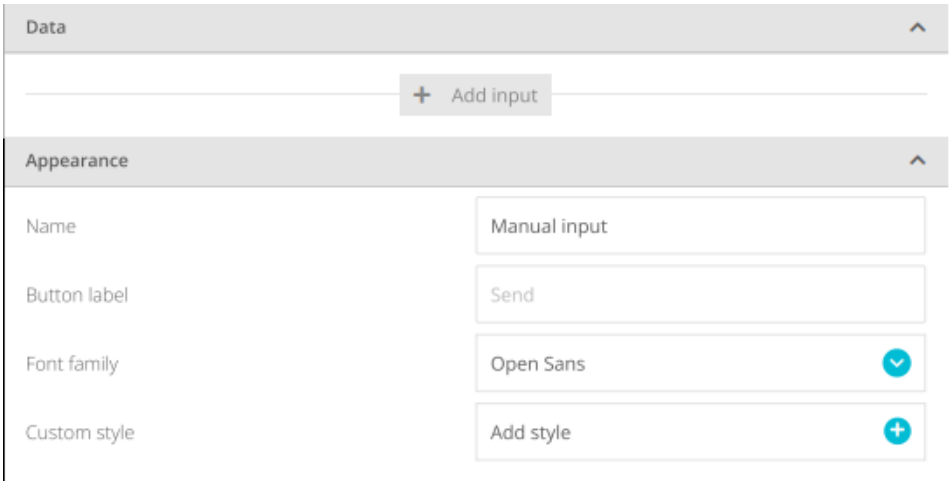


The Dashboard

Widgets Table

MANUAL INPUT WIDGET	GENERAL SETTINGS
Manual input	**Usage:** Capable of sending values with or without context to a variable, or properties to a device. This functionality is useful as a UI to enable users to insert custom data.
Name	Assign a name to your widget
Button label	Assign a name/label to your button
Font Family	Select a font family style
Custom Style	Customize the default colors, fonts and context bar of the widget

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

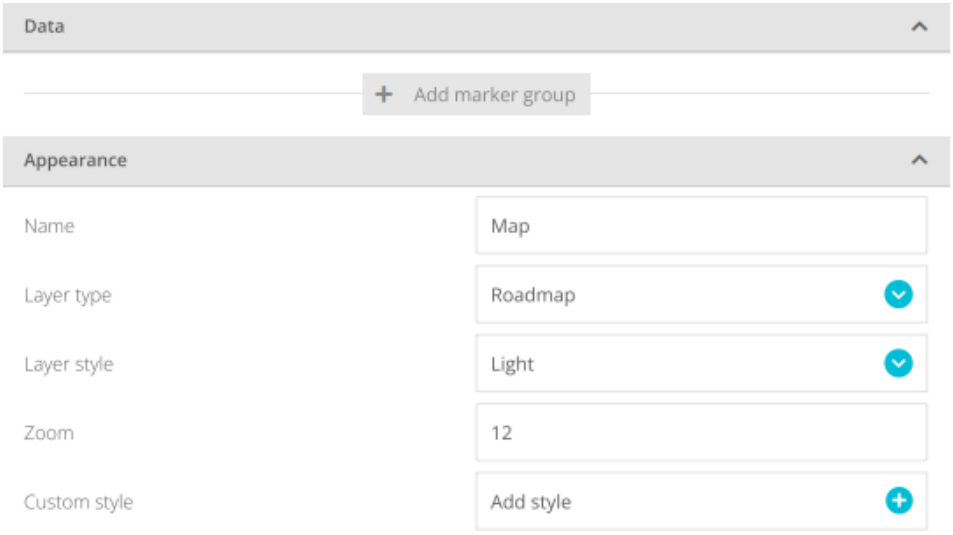


The Dashboard

Widgets Table

MAP WIDGET	GENERAL SETTINGS
Map	**Usage:** Locate, track, and trace your assets as they move around.
Layer Type	Select a Layer type: Roadmap, Satellite or Hybrid
Layer Style	Select a Style to theme the map between Light, Dark or Custom. Custom option is only available when Roadmap layer is selected
Zoom	Choose a default Zoom value for the map.
Custom Style	Customize the default colors, fonts and context bar of the widget

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

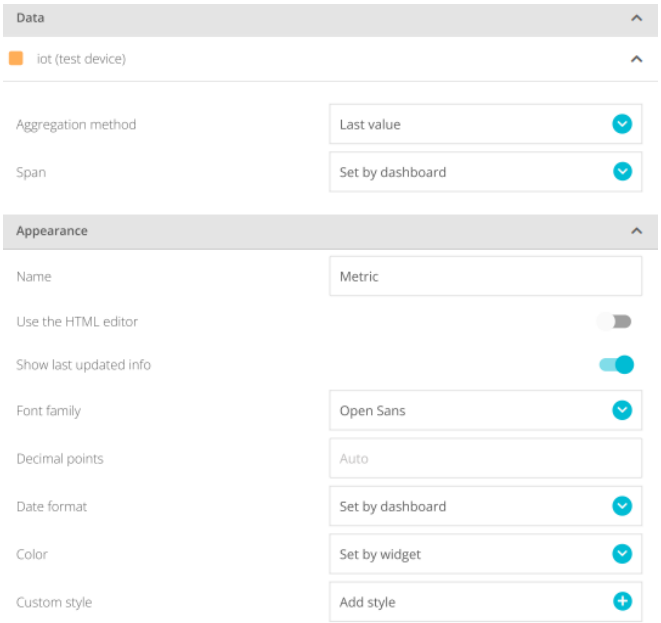


The Dashboard

Widgets Table

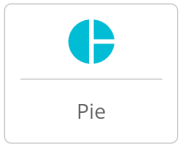
METRIC WIDGET	GENERAL SETTINGS
42 Metric	**Usage:** Enable built-in computation functions such as maximum, minimum, sum, count, average, or last value to be calculated and displayed for a specified time period.
Aggregation Method	Apply an aggregation method (average, count, last value, max, min, or sum) over the time range set in the dashboard's settings bar
Span	Force the aggregation to always be computed for a predetermined time range
Use HTML Editor	Toggle switch on to activate the HTML Editor and provide further custom visualizations
Show last updated info	Enable to show the last updated info of the variables

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

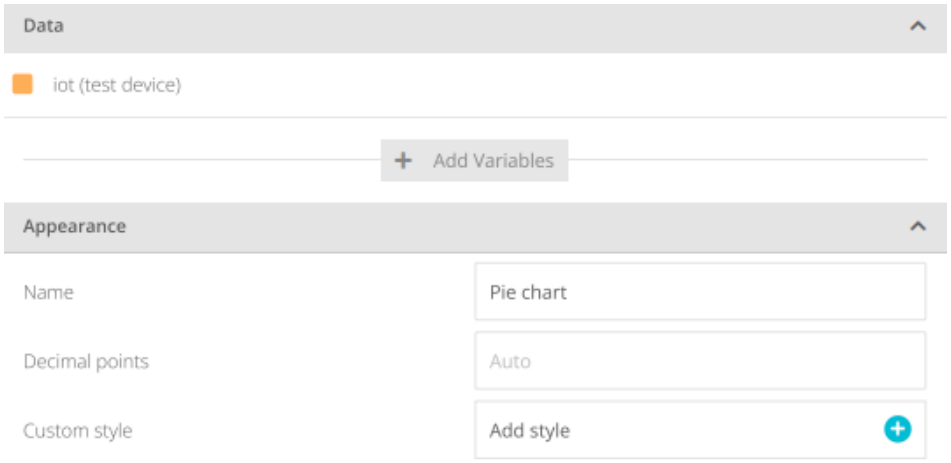


The Dashboard

Widgets Table

PIE WIDGET	GENERAL SETTINGS
 Pie	**Usage:** Used to display proportional data, and/or percentages.
Name	Assign a name to your widget
Decimal Points	The number of decimals for non-integer values
Custom Style	Customize the default colors, fonts and context bar of the widget

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

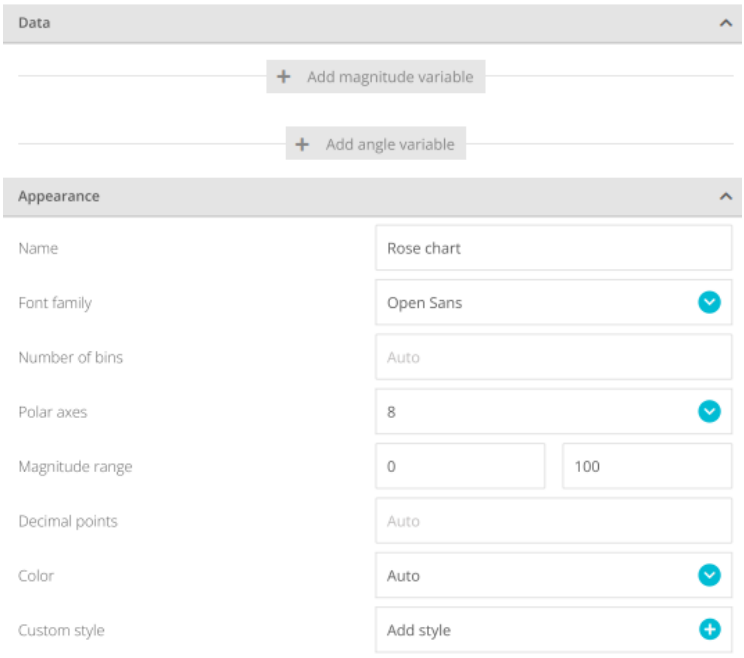


The Dashboard

Widgets Table

ROSE CHART WIDGET	GENERAL SETTINGS
Rose chart	**Usage:** Used to display polar-parameterized data in the form of histograms. It serves different purposes, they are commonly used to plot wind direction and speed simultaneously.
Number of bins	Set the Number of bins for each of the direction-based histograms
Polar axes	Select the Polar axes to 4, 8 or 16
Magnitude range	Enter the expected Magnitude range
Color	Set the color to auto or customize range

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

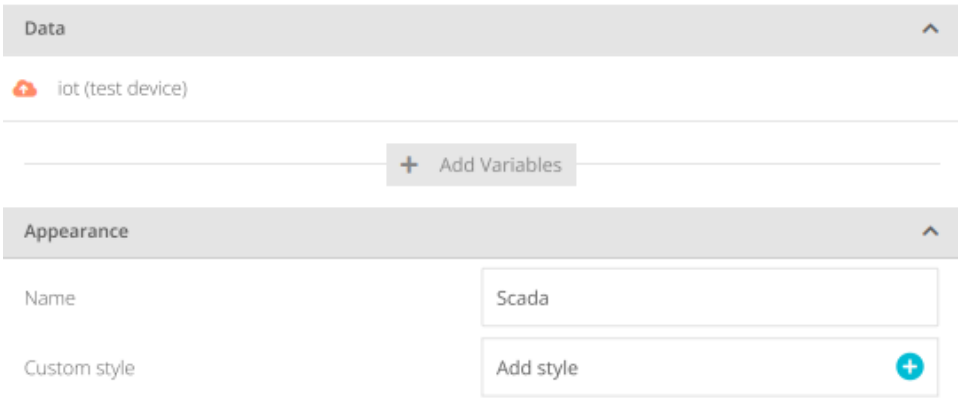


The Dashboard

Widgets Table

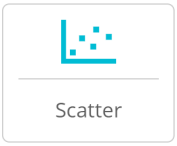
SCADA WIDGET	GENERAL SETTINGS
SCADA	**Usage:** Crucial for industrial organizations as they help maintain efficiency, process data for smarter decisions, and communicate system issues to help mitigate downtime.
Name	Assign a name to your widget
Custom Style	Customize the default colors, fonts and context bar of the widget

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

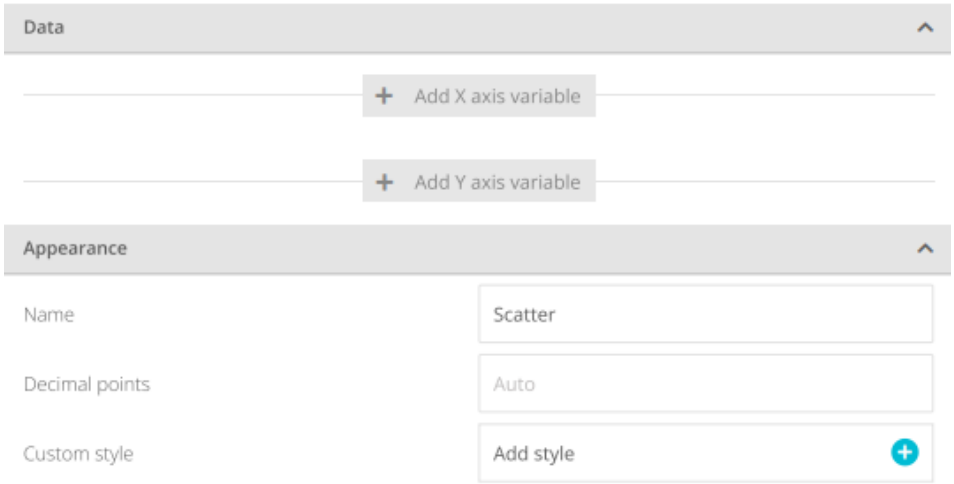


The Dashboard

Widgets Table

SCATTER WIDGET	GENERAL SETTINGS
	**Usage:** Displays the distribution of two variables on an X-Axis, Y-Axis, and two additional dimensions of data that are shown as colored circles scattered across the chart: Point and Size.
Name	Assign a name to your widget
Decimal Points	The number of decimals for non-integer values
Custom Style	Customize the default colors, fonts and context bar of the widget

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

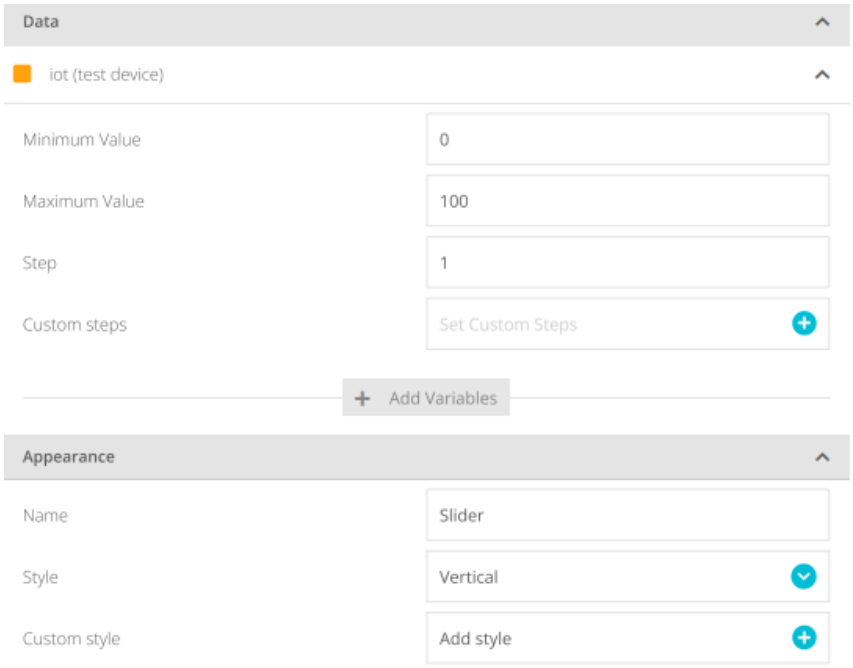


The Dashboard

Widgets Table

SLIDER WIDGET	GENERAL SETTINGS
Slider	**Usage:** Let users enter data in a given range, whether to control devices remotely or simply log values manually.
Minimum Value	Set the minimum value of the variable
Maximum Value	Set the maximum value of the variable
Step	Set the step of value increments
Custom Steps	Set Custom steps: Fixed positional values with optional text labels and color

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

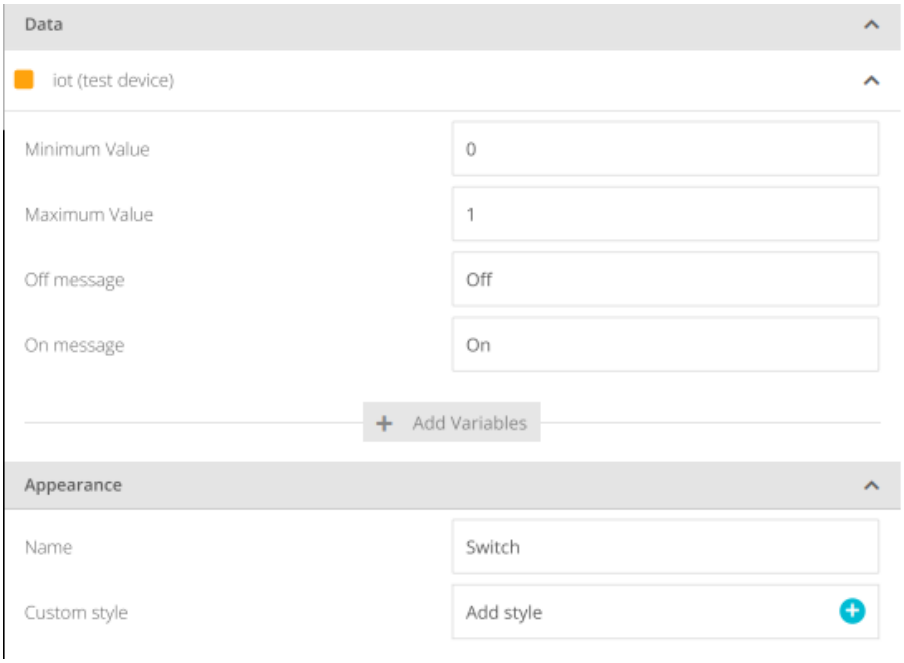


The Dashboard

Widgets Table

SWITCH WIDGET	GENERAL SETTINGS
Switch	**Usage:** A simple on/off function that remotely controls a device using variable settings of "1" or "0"
Minimum Value	Set the minimum value of the variable
Maximum Value	Set the maximum value of the variable
Off Message	Enter Off values and messages.
On Message	Enter On values and messages.

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

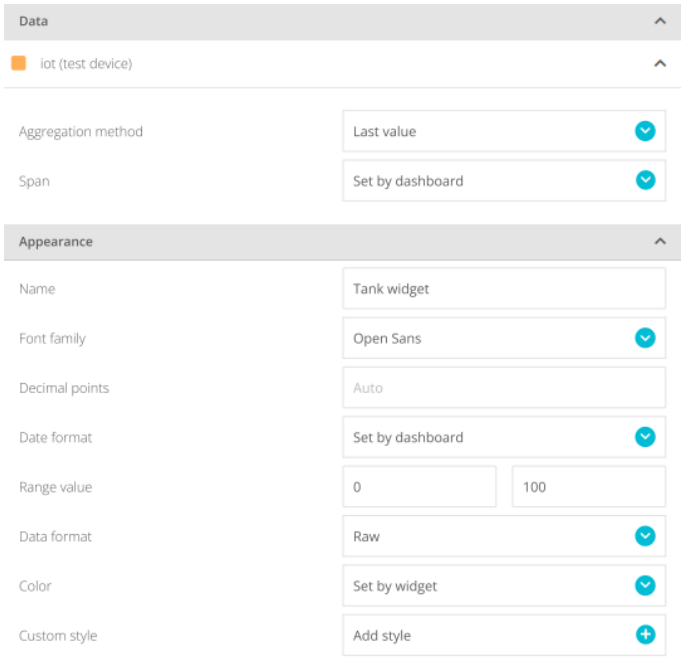


The Dashboard

Widgets Table

TANK WIDGET	GENERAL SETTINGS
Tank	**Usage:** Used to monitor tank levels or any other level sensor but not limited to.
Aggregation Method	Apply an aggregation method (average, count, last value, max, min, or sum) over the time range set in the dashboard's settings bar.
Span	Force the aggregation to always be computed for a predetermined time range
Range Value	Set the low and high visual range of the widget
Data Format	The visual level can appear in raw data with units or it can be converted to a percentage

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

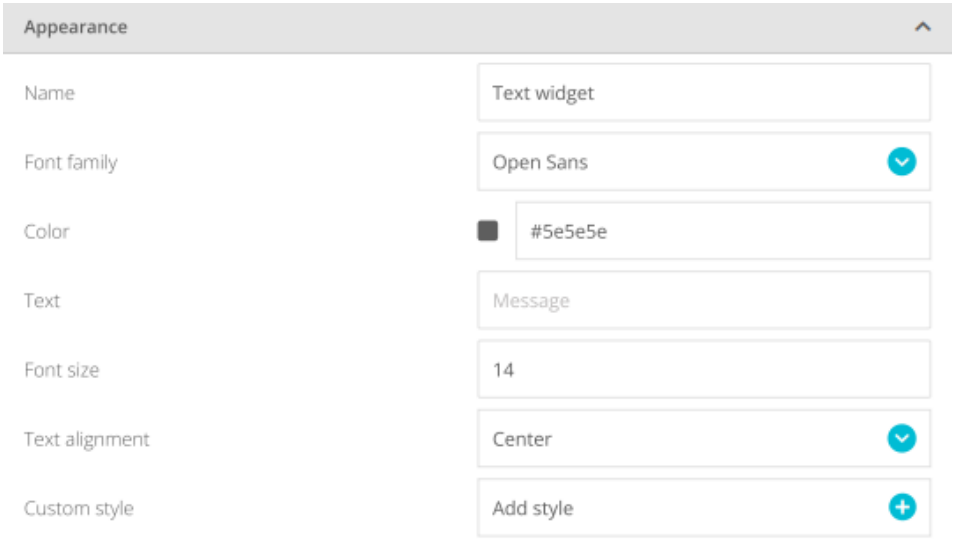


The Dashboard

Widgets Table

TEXT WIDGET	GENERAL SETTINGS
abc Text	**Usage:** Create titles and texts that stand out, or when you want to add more descriptive explanations to your dashboard and surrounding visualizations.
Color	Set the color of the clock widget through RGB or Hex Code
Text	Enter a value or message
Text Alignment	Select the alignment format of the text (left, center right)
Font Size	Set the font size of the text message

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

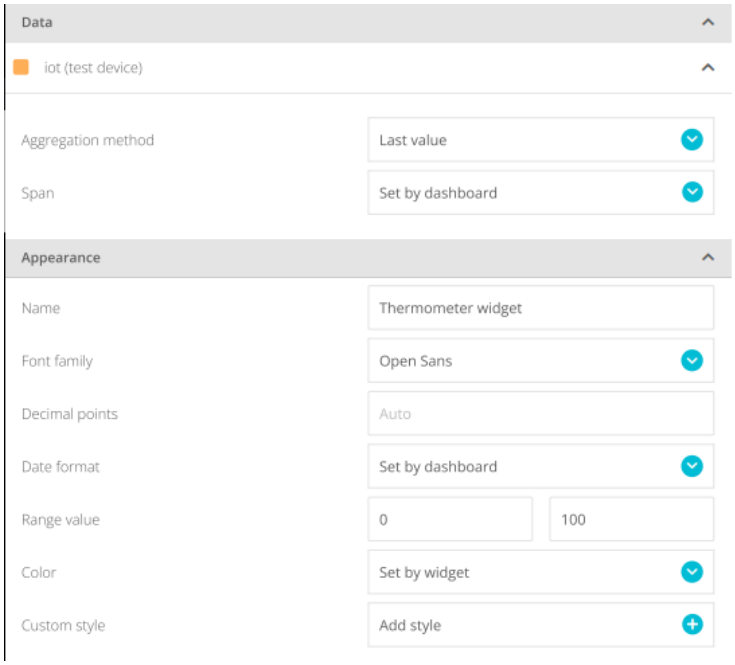


The Dashboard

Widgets Table

THERMOMETER WIDGET	GENERAL SETTINGS
Thermometer	**Usage:** Measures temperature or a temperature gradient (the degree of hotness or coldness of an object).
Aggregation Method	Apply an aggregation method (average, count, last value, max, min, or sum) over the time range set in the dashboard's settings bar
Span	Force the aggregation to always be computed for a predetermined time range
Date Format	Choose between different date formats or set it to the dashboards date or customize
Range Value	Set the low and high visual range of the widget

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

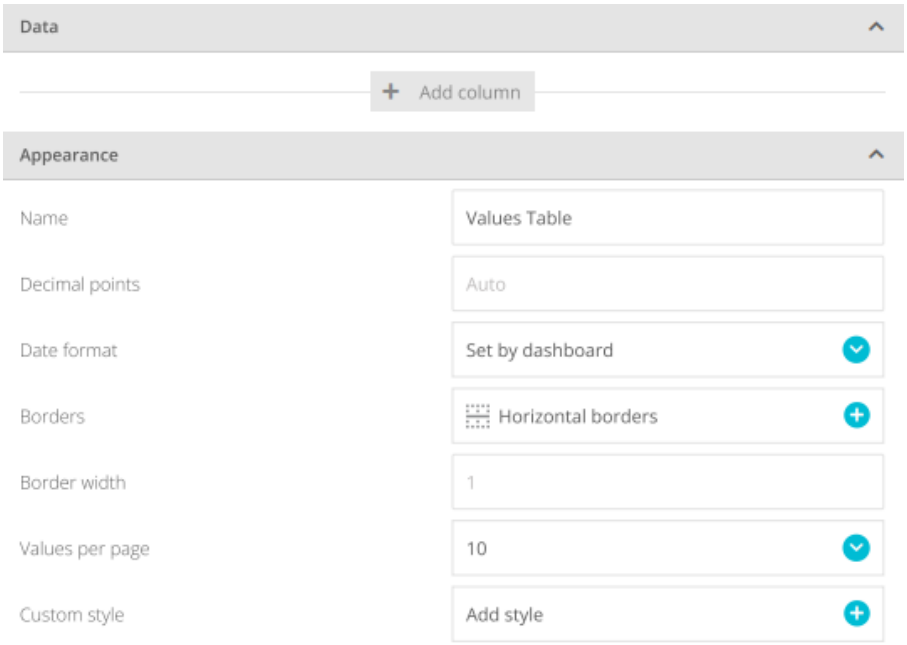


The Dashboard

Widgets Table

VALUES TABLE WIDGET	GENERAL SETTINGS
Values table	**Usage:** This allows users not only to display numerical data but also texts, dates, URLs, and images.temperature or a temperature gradient (the degree of hotness or coldness of an object).
Date Format	Choose between different date formats or set it to the dashboards date or customize
Borders	Set different border styles on your values table widget
Border width	Set the thickness of the borders
Values per Page	Select the number of Values per page

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**

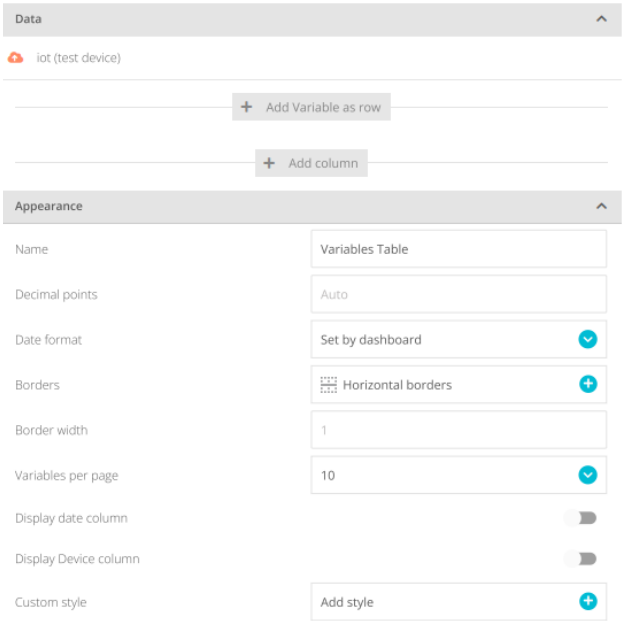


The Dashboard

Widgets Table

VARIABLES TABLE WIDGET	GENERAL SETTINGS
Variables table	**Usage:** Display the readings of a variable with the respective timestamp.
Variables per page	Select the number of Values per page
Display date column	Toggle switch on to display date column
Display device column	Toggle switch on to display devices column
Custom Style	Customize the default colors, fonts and context bar of the widget

IMPORTANT NOTE: To access all the information about the widget, click the General Settings at the upper-right of the table or click **here**



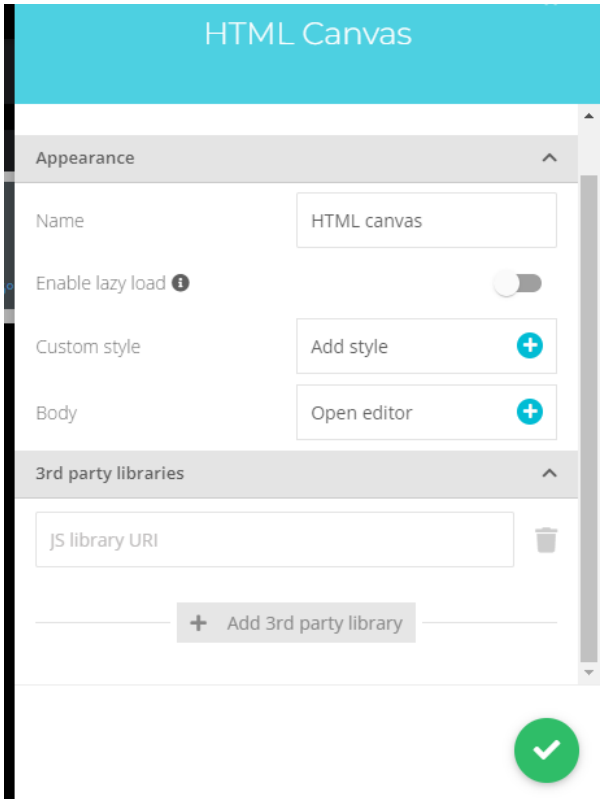
The Dashboard

Widgets Table

How to code your own HTML Widget

Smithtek.cloud offers off-the-shelf widgets to cover most visualization and control needs for your IoT projects. However, in some projects, you may want to code your own customized widget. Knowing some of our users have customization needs beyond the white-glove customer service, we open the possibility of users designing their own HTML/CSS/JS code and creating their own custom widgets and visualizations. Following the below steps, you will be able to create an HTML canvas widget with your own code.

- **Step 1:** Click on the top-right "**+**" button. The drawer menu with widgets options opens.
- **Step 2:** Click on HTML canvas. Drawer menu displays setup options.
- **Step 3:** Name your widget.
- **Step 4:** Click on the "Open Editor" button.
- **Step 5:** Enter your HTML, CSS, and JS code in the respective tab.
- **Step 6:** Add libraries by entering their URL in the "3rd party libraries section".
- **Step 7:** Save the changes.



The Dashboard

Widgets Table - General Settings

- **Aggregation Method:** Apply an aggregation method (average, count, last value, max, min, or sum) over the time range set in the dashboard's settings bar
- **Alignment:** Choose an alignment format (left, center, right)
- **Background Color:** Set a background color
- **Body:** Open the editor to insert your HTML, CSS, and JS codes in each respective tab
- **Borders Width:** Set the thickness of the borders
- **Borders:** Set different border styles on your devices table widget
- **Button Label:** Assign a name/label to your button
- **Clock Format:** Choose between 12-hour or 24-hour clock format
- **Color-Logic:** Add and select color logic or customize your style
- **Color:** Choose between the default color predetermined by the Cloud or override this default color by selecting the option Variable's default, which will use the variable's color or use a color logic
- **Custom Steps:** Set Custom steps: Fixed positional values with optional text labels and color
- **Custom Style:** Customize the default colors, fonts, and context bar of the widget
- **Data Format:** The visual level can appear in raw data with units or it can be converted to a percentage
- **Date Format:** Choose between different date formats or set it to the date of the dashboard or customize
- **Decimal points:** The number of decimals for non-integer values
- **Devices Per Page:** Select the number of Devices per page.
- **Display date column:** Toggle switch on to display date column
- **Display Date:** An option to display a date on your widget
- **Display device column:** Toggle switch on to display devices column
- **Display labels:** Enable to display data format, decimal points, and date format labels
- **Display X-axis data zoom:** Switch ON/OFF to Display the X-Axis data zoom bar
- **Enable Lazy Load:** Enable lazy load when in need to load the code before the browser actually renders everything
- **Font/Font Family:** Select a font/font-family style
- **Hide Values:** Enable to hide the display of values
- **Image Width:** An option to set the image width in percentage
- **Image:** Option to upload your image or add the image URL
- **JS Library URL:** Type or paste the URL to import 3rd Party Libraries
- **Layer Style:** Select a Style to theme the map between Light, Dark, or Custom. Custom option is only available when the Roadmap layer is selected
- **Layer Type:** Select a Layer type: Roadmap, Satellite, or Hybrid
- **Magnitude Range:** Enter the expected Magnitude range
- **Maximum Value:** Set the maximum value of the variable
- **Minimum Value:** Set the minimum value of the variable

The Dashboard

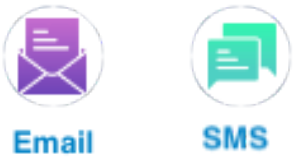
Widgets Table - General Settings

- **Name:** Assign a name to your widget
- **Number of Bins:** Choose the number of bins to be displayed
- **Off Message:** Enter Off values and messages.
- **On Message:** Enter On values and messages.
- **Pointer:** Enable/disable the toggle to configure the color and ticks of the pointer
- **Polar Axes:** Select the Polar axes to 4, 8 or 16
- **Position:** Set the Position of the Y-axis
- **Range Value:** Set the low and high visual range of the widget
- **Scale Proportionally:** Enable to scale the image proportionally
- **Show last updated info:** Enable to show the last updated info of the variables
- **Show legend:** Enable/disable the toggle to Show legends for each variable
- **SI Prefix:** Adds a unit prefix from the International System of Units (Metric System)
- **Span:** Force the aggregation to always be computed for a predetermined time range
- **Step:** Set the step of value increments
- **Style:** Select the type of slider-style between horizontal or vertical format
- **Text:** Enter a value or message
- **Text Alignment:** Select the alignment format of the text (left, center right)
- **Type:** Select the type of trace between Line, Area, Stacked area, Bars, Stacked bars, Dots, or step
- **Use HTML Editor:** Toggle switch on to activate the HTML Editor and provide further custom visualizations
- **Values Per Page:** Select the number of Values per page
- **Variables Per Page:** Select the number of Values per page
- **X-Axis Label:** Assign labels to the X-axis
- **Y-Axis Label:** Assign a label to the Y-axis
- **Y-Axis Range:** Enter the expected Y-Axis range. Leaving empty will set the range according to the max and min values within the period displayed
- **Y-Axis:** Pick the Y-Axis for each of the variables
- **Zoom:** Choose a default Zoom value for the map.

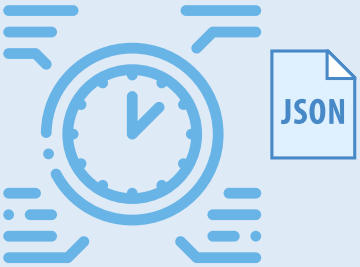
The Event Engines

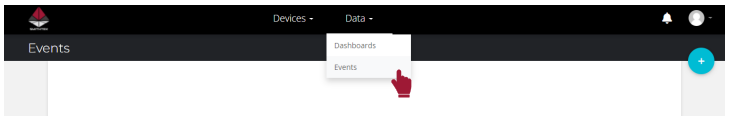
Scheduled Events

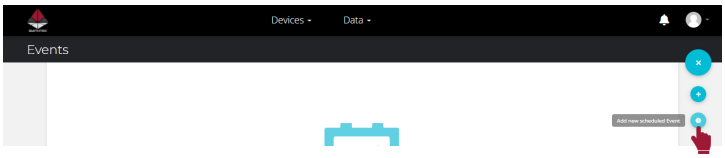
Executes weekly alerts or actions, enables your application to automate repetitive actions that should be triggered based on time. Smithtek.cloud supports integrated events to allow you to send Alerts and notifications to those who need to know when they need to know. Pre-built integrations include:

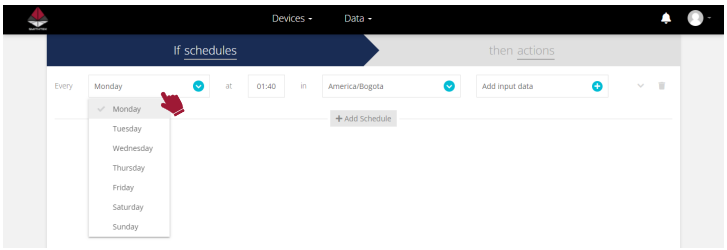


Scheduled Events can set multiple activation rows, each with its own activation schedule and input data, but sharing the same event actions. To that end, Scheduled Events use a JSON object as the input data for each activation row, hence, letting you send customized data and therefore triggering different behaviors in your application.









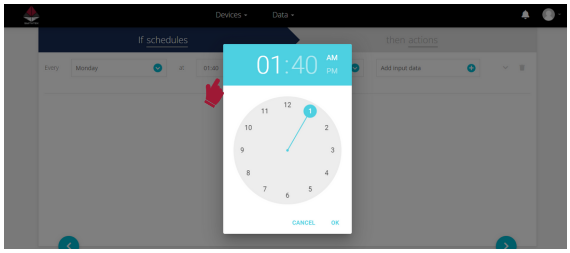
SETTING THE ACTIVATION DAYS AND TIMES

1. First, go to the Events section tab under the Data tab. Once there, place your mouse over the upper-right add button, and click on the Scheduled Event button.

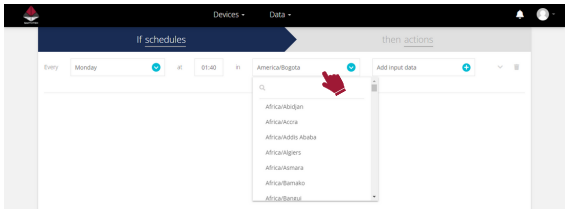
2. Then, choose the days of the week in which the activation row will be triggered. You can select multiple days.

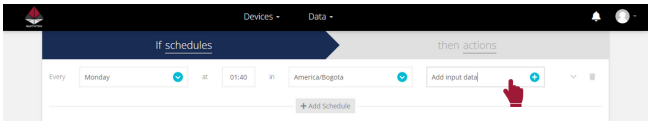
The Event Engines
Scheduled Events

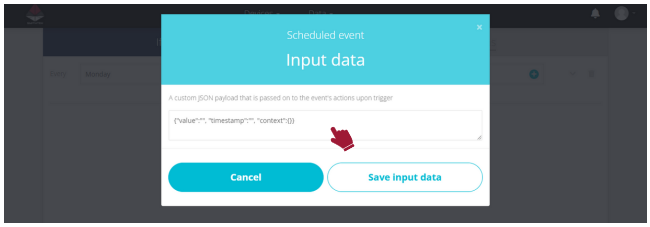
3. Next, click on the time option to open the time selector. Choose at what time the activation row should be triggered.

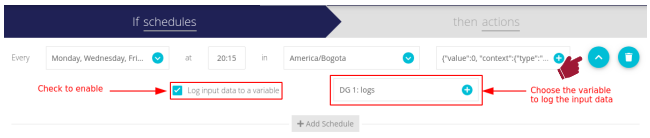


4. Select the timezone. By default, it'll be set to the account's default. If none configured, then it'll use the browser's timezone.









ENTERING THE INPUT DATA.

1. Click on Add input data. A modal window will pop-up.

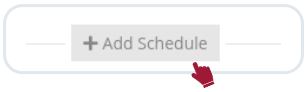
2. Enter the JSON object. In our example we will enter this compatible object. You may copy and edit it as you see fit.

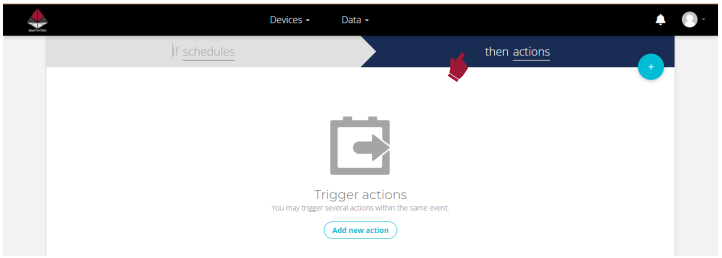
```
{"value":0, "context":{"type":"deactivation"}}
```

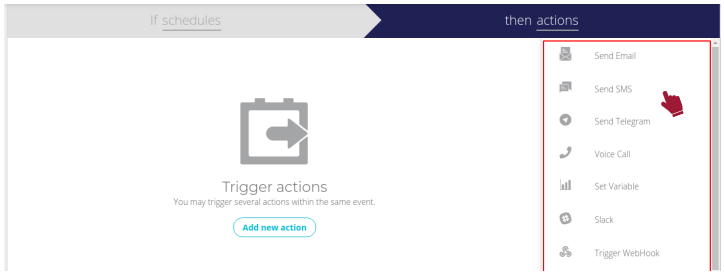
3. [Optional] In case you want to log the input data to an existing variable for control and debugging purposes, click on the down-arrow button to deploy more options. In case you want to use this option you must set a compatible JSON, otherwise, your data won't be logged:
A. Check the "Log input data to a variable" option to enable it.
B. Choose the variable to log the input data to. In our case, we chose a variable called "logs" in the "DG 1" Device.

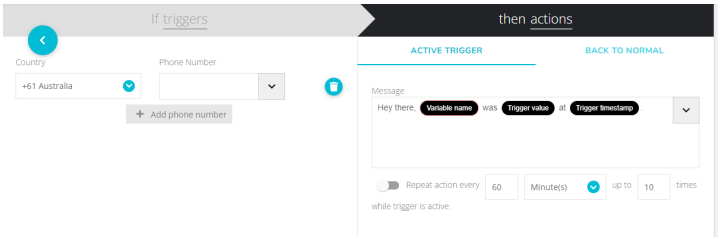
The Event Engines
Scheduled Events

PRO TIP: In case you're still wondering, you can create multiple activation rows. Just press "Add Schedule" to add more.









PRO TIP: SMS alerts support up to 140 characters. If exceeded, the message body will be trimmed to this length.

CHOOSE THE ACTIONS TO TRIGGER.

Once you have set all the activation rows with their respective input data, press the next button to jump into the **actions** section.

1. Press the upper-right button to add a new action. Choose any action as you see fit for your application. In this example, we will select "**Send SMS**" since this allows us to send the Event or Alert message.

2. In the action message, you can select from 3 bookmarks options:

- **Variable Name:** Custom name assigned to the variable.
- **Trigger Value:** Corresponds to the value which triggered the alert.
- **Trigger Timestamp:** Date and time at which the event was triggered.

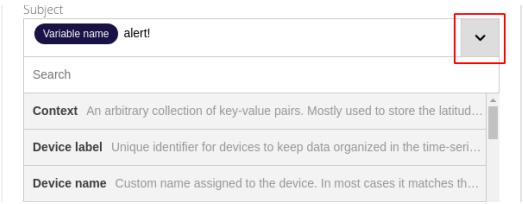
Once you have set the actions, click the next button to jump into the final section of the creation process. Give a name to your Scheduled Event.

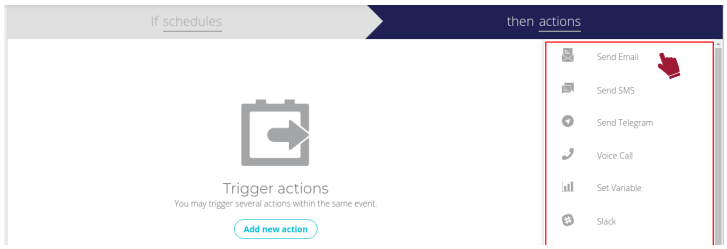
Once the Scheduled Event has been successfully saved, it'll trigger, as set in the "**If schedules**" tab to send a reminder to a technician, enhancing the experience and possibilities that you can already deploy with Smithtek.cloud.

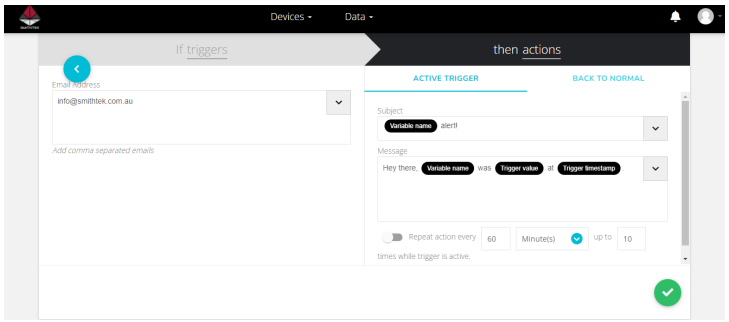
The Event Engines

Scheduled Events

PRO TIP: Add specific data inputs into the event for immediate information.







- **Context:** relative to a frame that surrounds the event and provides resources for its appropriate interpretation.
- **Device Label:** relative to the unique identifier for devices to keep data organized in the time-series back-end.
- **Device Name:** relative to the custom name assigned to the device.
- **Device Properties:** relative to the arbitrary collection of key-value pairs. Mostly used to store metadata of the device.
- **Trigger Value:** relative to the value which triggered the event
- **Trigger Timestamp:** relative to the time at which triggered the event
- **Last Value:** relative to the last value of the time series
- **Last Value's timestamp:** relative to the timestamp of the last value
- **Variable:** relative to the JSON file containing the variable name, id, and properties.
- **Variable Id:** relative to the unique identifier automatically assigned to each variable.
- **Variable Name:** relative to the custom name assigned to the variable.
- **Variable Properties:** relative to the metadata describing a variable or its setting.
- **Timestamp:** relative to the current time.

CHOOSE THE ACTIONS TO TRIGGER.

1. In this example, we will select "**Send Email**" since this allows us to execute the planned Event or Alert message.

2. Configure the event notice:
   - **Email Address:** Type in the email address to which the alert will be sent.
   - **Subject:** Like any typical email, you must set a brief description of the message in the subject section.
   - **Message:** Type in your message, or you can select from the data inputs.

3. **Repeat Events:** Enable/Disable whether you prefer to get a notification every x minutes/hours/days up to x times while the event is triggered. Be aware that 50 is the max times the action will be executed.

OUR MISSION

"Simplifying telemetry, enabling real-time data monitoring and control"

With simplicity in mind, we specialise in delivering IoT solutions tailored to your requirements. SCADA, Telemetry, PLC's, Data loggers. Along with many other services we offer, Smithtek creates customised hardware devices that challenge any industry.

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